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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL 81

NO 1 THRU 13

OCT-DEC-1897

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME LXXXI.

OCTOBER 5 TO DECEMBER 28, INCLUSIVE,

1897.

WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1898.

CONTENTS.

ERRATA FOR VOLUME LXXXI OF THE OFFICIAL GAZETTE.

ANNOUNCEMENTS—VOLUME LXXXI.

DISCLAIMERS—VOLUME LXXXI.

TEXT OF THE OFFICIAL GAZETTE, OCTOBER 5 TO DECEMBER 28, 1897, INCLUSIVE.

INDEX TO THE DECISIONS OF THE COMMISSIONER OF PATENTS AND OF THE UNITED STATES COURTS IN PATENT CASES.

DIGEST OF DECISIONS OF THE COMMISSIONER OF PATENTS AND OF THE UNITED STATES COURTS IN PATENT CASES.

INDEX OF PATENTS AND PATENTEES FOR THE QUARTER YEAR, OCTOBER TO DECEMBER, 1897.

ERRATA.

590,950, page 3, in heading, assignment, for "Assignor to Henry R. Worthington" read *Assignor to the Henry R. Worthington.*

592,776, page 814, in heading, assignment, name of assignee, for "Charles E. Webber" read *Charles C. Webber.*

592,884, page 853, in heading, name of assignee, for "Paul Henning" read *Paul Hennig.*

592,959, page 881, second claim, line 5, for the word "of" read *or.*

593,092, page 922, strike out drawing. This figure was inadvertently inserted and the drawing pertaining to the case omitted.

593,158, page 950, in heading, assignment, name of assignee, for "Charles E. Buck" read *Charles E. Buek.*

593,399, page 1047, in heading, name of assignee, for "Warren Webster and Company" read *Warren Webster & Company.*

593,445, page 1061, in heading, title of invention, for "Insect-Guards for Beds" read *Beds.*

593,810, page 1205, in heading, after residence of inventor insert *Assignor to Ludovic McGall, of same place.*

594,286, page 1379, in heading, title of invention, for "Casting Composite or Other Car-Wheels" read *Casting Composite or Other Wheels.*

594,999, page 1672, in heading, assignment, for "assignor of one-sixth to John Woodhouse" read *assignor of one-third to John Woodhouse and Harry Wilcox.*

595,140, page 1719, in heading, date of foreign patent, for "Oct. 28, 1886," read *Oct. 23, 1896.*

595,933, page 2031, first claim, lines 2 and 3, for "reversible" read *adjustable.*

30,635, (Trade-Mark,) page 156, in heading, name of registrant, for "Lūpfert, Scales & Co." read *Lüpfert, Scales & Co.*

30,758, (Trade-Mark,) page 796, in heading, name of registrant, for "F. A. Sarg's Sohn & Co., K. K. Landespriv. Milly, Kerzen, Seifen, und Glycerin Fabrik" read *F. A. Sarg's Sohn & Co., k. k. landespriv. Milly-Kerzen-, Seifen-und Glycerin-Fabrik.*

30,868, (Trade-Mark,) page 1276, in heading, title, for "Sewing Cotton, Threads, Yarns, Worsted, or Hair and Braids, Trimmings, and Passementerie" read *Sewing Cotton, Linen and Hemp Yarn and Thread, Jute Yarns, Silk, Spun, Thrown, or Sewing, and Yarns of Wool, Worsted, or Hair and Braids, Fancy Trimming (Passementerie) Composed of Materials of All Kinds.*

30,869, (Trade-Mark,) page 1276, in heading, title, for "Sewing Cotton and Silks, Yarns, and Threads of Various Kinds" read *Sewing Cotton, Linen and Hemp Yarn and Thread, Jute Yarns, Silk, Spun, Thrown, or Sewing, and Yarns of Wool, Worsted, or Hair.*

ANNOUNCEMENTS—VOL. LXXXI.

Page.

APPLICATIONS BY EMPLOYEES OF PATENT OFFICE—
Order 1144 ..... 1, 973, 1284, 1620

APPLICATIONS UNDER EXAMINATION—
Condition of 2, 182, 342, 510, 806, 974, 1118, 1284, 1426, 1620, 1790, 1938, 2092

ASSIGNEES—
Issue of patents to 509

ATTORNEYS—
Order—Denying disbarred attorneys access to papers 509
Disbarring B. F. Beers 1987
D. P. Bethurum 1
M. M. Chase 1
D. W. Curtis 1425
J. T. Lynch 1619
D. F. MacMartin 1619
Samuel B. McLean 1
Walter Middleton 1937
S. W. Thompson 1425
John S. Thurman 1283
John Wedderburn and John Wedderburn & Co 1, 181, 973
H. Roscoe Wheeler 1425
A. W. Wilkins 1425
Revoking order disbarring Wilbur C. Benton, Jr 1619
Jacob E. Leonard 1
J. W. and O. L. Martin 805
Requiring registration of, after January 1, 1898 ..... 341, 1117, 1789, 1937, 2091
Requiring power of attorney to be filed 510

CLASSIFICATION, CHANGES IN—
Order 1153 509
1157 973
1159 1283
1165 1789

COMMUNICATIONS TO THE PATENT OFFICE—
Rules 2 and 9 ..... 181, 1118, 2092

CORRESPONDENCE WITH THE PATENT OFFICE 181, 509

DRAWINGS—
Order 1135—Changes in prohibited 805
480—Change of signature on 1425, 1619, 2091

FEES, PAYMENT OF—
Before three p. m. daily (*Order* 1147) 1425
Rules 207 and 208 1
FILE-WRAPPERS, ENTRIES ON 973
INDEXES TO PATENTS ON ELECTRICITY 1117
INDEXES TO PERIODICALS—
Announcement relative to those on file in the Scientific Library 341
MAIL-MATTER, REGULATIONS IN REGARD TO—
Order 1129 181
MONEY SENT BY MAIL 2, 182, 1937
OATH, NEW FORM, (FORM 17) 1618
PRINTED COPIES OF PATENTS, PRICE OF—
Loose copies 181, 341, 805, 1283, 1938
Bound monthly volumes of 805, 1283
PUBLISHERS' CATALOGUES—
Request for 1426
RULES OF PRACTICE—
Amendment to Rules 24, 29, 31, 39, 46, 63, 75, 77, 94, 166, 168, 171, and 198 1617
SIGNATURES TO SPECIFICATIONS—
Order 600 1425
SPECIFICATIONS AND AMENDMENTS—
Extracts from Rules of Practice in relation to 805, 1619
WITHDRAWAL OF CASES FROM ISSUE 181, 509, 806

DISCLAIMERS.

	Page.
Francis M. Rites	1283
Charles J. Van Depoele	500

OFFICIAL GAZETTE

OF THE

OF THE

UNITED STATES PATENT OFFICE.

OCTOBER—DECEMBER, 1897.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 1. TUESDAY, OCTOBER 5, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
ATTORNEYS	1
APPLICATIONS BY EMPLOYEES OF THE PATENT OFFICE	1
PAYMENT OF PATENT FEES	2
LABELS	2
MONEY BY MAIL	2
ISSUE OF OCTOBER 5, 1897	2
APPLICATIONS UNDER EXAMINATION	3
PATENTS GRANTED	151
REISSUES	None.
DESIGNS	153
TRADE-MARKS	154
COMMISSIONER'S DECISION—	
In re John Weddderbarn and John Wedderburn & Co.	159

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 27, 1897.

SIR: I am directed by the Secretary of the Interior to inform you that the order of August 6, 1897, disbarring Jacob E. Leonard, of St. Peter, Minn., from practice before the Department and its Bureaus has this day been revoked.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 29, 1897.

SIR: The Secretary of the Interior has ordered that D. P. Bethurum, of Mount Vernon, Ky., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 29, 1897.

SIR: The Secretary of the Interior has ordered that M. M. Chase, of Los Angeles, Cal., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 29, 1897.

SIR: The Secretary of the Interior has ordered that Samuel B. McLean, of Pittsburg, Pa., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 1, 1897.

(ORDER No. 1158.)

With the approval of the Secretary of the Interior, John Wedderburn and John Wedderburn & Co., of Washington, D. C., are hereby disbarred from practice before the United States Patent Office, pursuant to section 487 of the Revised Statutes.

BENJ. BUTTERWORTH,
Commissioner.

Applications by Employees of the Patent Office.

(ORDER No. 1,144.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 6, 1897.

All applications for patents now pending before the Office filed by employees of the Patent Office during the period of their service, either complete or incomplete, or completed after they had separated themselves from the service, are ordered to be stricken from the files and the fees returned.

The views of the Commissioner upon section 480 of the Revised Statutes are expressed in his decision of even date herewith in the case of *ex parte John H. McElroy*, (80 O. G., 1133.)

BENJ. BUTTERWORTH,
Commissioner.

Payment of Patent Fees.

RULE 207. All payments of money required for Office fees must be made in specie, Treasury notes, national-bank notes, certificates of deposit, post-office money-orders, or certified checks. Money-orders and checks should be made payable to the "Commissioner of Patents." Payment may also be made to the Treasurer, or to any of the assistant treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor. *This receipt or certificate of deposit shall, in case of payment of final fees, be deposited in the mail for transmission to the Patent Office, within six months from the allowance of the application.* Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered. In no case should money be sent with models.

RULE 208. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

Label.

No. 6,557.—Title: "PEPTONE BEEF AND BREAD BISCUIT." *The George R. Hill Company*, Alexandria, Va. Application filed July 13, 1897.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

Issue of October 5, 1897.

Patents	424	No. 590,950 to No. 591,373, inclusive.
Designs	None.	
Trade-Marks	62	No. 30,598 to No. 30,659, inclusive.
Labels	1	No. 6,557.
Prints	None.	
Reissues	2	No. 11,631 to No. 11,632, inclusive.
Total issue	489	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	New Hampshire	2	.....
Arizona Territory	.....	.....	New Jersey	17	3
Arkansas	1	.....	New Mexico Territ'y	.....	.....
California	11	.....	New York	54	21
Colorado	4	.....	North Carolina	1	1
Connecticut	15	1	North Dakota	.....	.....
Delaware	.....	.....	Ohio	33	1
District of Columbia	4	.....	Oklahoma Territ'y	1	.....
Florida	3	.....	Oregon	3	.....
Georgia	1	.....	Pennsylvania	48	5
Idaho	1	.....	Rhode Island	7	1
Illinois	25	5	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	.....	.....
Indiana	15	.....	Tennessee	5	.....
Iowa	8	.....	Texas	7	.....
Kansas	6	1	Utah	.....	.....
Kentucky	7	.....	Vermont	.....	.....
Louisiana	1	.....	Virginia	3	1
Maine	1	.....	Washington	5	.....
Maryland	3	1	West Virginia	.....	.....
Massachusetts	44	6	Wisconsin	10	1
Michigan	10	.....	Wyoming	.....	.....
Minnesota	5	2	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	1	.....
Missouri	13	5	Total to citizens of the United States	303	55
Montana	1	.....			
Nebraska	3	.....			
Nevada	1	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentina	.....	.....	Mexico	.....	1
Australia	.....	.....	Natal	1	.....
Austria-Hungary	.....	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	1	.....
Belgium	2	.....	New Zealand	.....	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Orange Free State	.....	.....
Canada	3	.....	Portugal	.....	.....
Canary Islands	.....	.....	Queensland	.....	.....
Cape Colony	.....	.....	Russia	.....	.....
Chile, Republic of	.....	.....	Scotland	.....	.....
China	.....	.....	South African Republic	.....	.....
Cuba	.....	.....	Spain	.....	.....
Denmark	.....	.....	Sweden	1	.....
England	4	2	Switzerland	.....	.....
Finland	.....	.....	Venezuela	.....	.....
France	6	1	Victoria	1	.....
Germany	8	2	West Australia	.....	.....
Guatemala	1	.....			
Hawaii	.....	.....			
Ireland	2	2	Total to citizens of foreign countries	31	8
Italy	1	.....			

APPLICATIONS UNDER EXAMINATION.

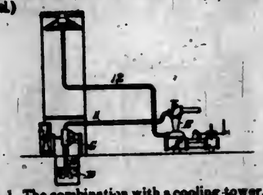
Condition at Close of Business September 30, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Casting, Annealing and Tempering, Electro-Chemistry, etc.	Sept. 1	Aug. 25	145
	Between one and two months.			
250	VIII. Furniture, Beds, Store Furniture, etc.	July 29	Sept. 14	379
200	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Aug. 14	Sept. 7	169
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Aug. 21	Sept. 4	167
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	July 30	Sept. 4	221
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	July 29	Sept. 4	213
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Aug. 6	Aug. 30	200
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Aug. 2	Aug. 26	264
215	XVII. Paper Manufactures and Printing.	July 26	Aug. 24	199
286	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	July 20	Aug. 23	258
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Aug. 2	Aug. 17	206
106	II. Farm Stock, Products, etc.	Aug. 17	Aug. 16	323
	Between two and three months.			
255	XII. Mechanical Engineering, Store-Service, etc.	July 23	Sept. 20	142
311	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 6	Sept. 16	279
98	XXI. Textiles, etc.	July 21	Sept. 10	178
108	XIX. Stoves and Furnaces	July 13	Sept. 10	354
253	X. Carriages and Wagons	July 9	Sept. 1	372
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	July 8	Sept. 1	418
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 9	Aug. 26	183
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 12	Aug. 21	323
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 13	Aug. 14	547
122	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	July 14	Aug. 4	215
246	I. Tillage and Fences	July 2	July 22	343
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	June 1	Sept. 15	683
248	XVIII. Steam-Engineering, etc.	June 25	Sept. 13	261
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 15	Sept. 9	253
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 11	Sept. 2	197
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	May 29	Aug. 28	489
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	July 15	355
240	VII. Velocipedes	June 15	July 15	1436
231	XXIII. Instruments of Precision, Acoustics, etc.	June 8	July 7	358
	Between four and five months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 24	Aug. 15	217
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 13	July 27	637
	Total number of applications awaiting action			11,186
	Between one and two months.			
	Designs	Aug. 13	Sept. 1	253
	Trade-Marks	Aug. 9	Sept. 16	85

PATENTS

GRANTED OCTOBER 5, 1897.

590,950. SELF-COOLING CONDENSER OR SIMILAR APPARATUS. LOUIS R. ALLENDER, New York, N. Y., assignor to Henry R. Worthington, Elizabeth, N. J. Filed Feb. 3, 1896. Serial No. 578,483. (No model.)



Claim.—1. The combination with a cooling-tower, fan, and motor for circulating the water to be cooled, of a fan-actuating water-motor and connections for supplying said fan-actuating water-motor with water from the supply of circulating water and whereby the water is returned from the water-motor to said supply, said connections being controlled by the water-circulating motor to increase and decrease the speed of the fan as the quantity of water circulated is increased and diminished, substantially as described.

2. The combination with the cooling-tower, fan, and motor for circulating the water to be cooled, of a fan-actuating water-motor operated by a column of water moved by said water-circulating motor, substantially as described.

3. In a self-cooling condenser, the combination with the cooling-tower, fan, and condensing-chamber, of a fan-actuating water-motor for operating said fan placed on the water-circulating connections, substantially as described.

4. In a self-cooling condenser, the combination with the cooling-tower and fan, of a jet-condensing chamber, a fan-actuating water-motor, and connections for the condensing water from the reservoir through the water-motor to the condensing-chamber, substantially as described.

5. In a self-cooling condenser, the combination with the cooling-tower and fan, of a jet-condensing chamber, a fan-actuating water-motor located on a higher plane than the reservoir of condensing water, and connections for the condensing water from the reservoir through the water-motor to the condensing-chamber, substantially as described.

6. The combination with the cooling-tower, fan, and motor for circulating the water to be cooled, of a fan-actuating water-motor located within the air-chamber at the base of the tower, and controlled by the water-circulating motor to increase and decrease the speed of the fan as the quantity of water circulated is increased and diminished, substantially as described.

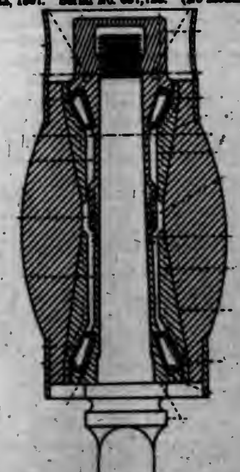
590,951. COMBINED CHURN AND BUTTER-WORKER. HANS J. ANDERSON, Lake Mills, Wis. Filed May 21, 1896. Serial No. 592,205. (No model.)



Claim.—1. In a combined churn and butter-worker, the combination, of a receptacle or body closed throughout, a reciprocative dasher-staff extending therein, and a dasher connected to the inner end of the staff, the dasher being of less height than the diameter of the body, thereby leaving a space between the upper edge of the dasher and the top of the body and said dasher having a wedge-shaped lower end, said wedge-shaped end being formed by bevelling one face of the dasher, the device, when used as a churn, adapted, when the dasher is reciprocated in either direction, to force the liquid contents on one side of the dasher over the upper edge of the dasher to the opposite side thereof, and when the device is used as a butter-worker the dasher, when reciprocated toward one end of the body, being adapted to force the mass against said end of the body.

2. The combination, of a body, a shaft having a cog-wheel thereon, bearings for said shaft, one of the bearings provided with a slot, and with a branching slot extending downwardly from the main slot, outer fast pulleys and an intermediate loose pulley mounted on the shaft, a straight belt around one of the pulleys, a crossed belt passing around another of the pulleys, a bell-crank lever having one end provided with projecting pins between which the belts are received, a dasher-staff extending into the body and provided upon its inner end with a dasher, and on its outer end with a rack, said rack fitting in the slot formed in one of the bearings of the shaft, and said rack adapted to be engaged by the cog-wheel, and also provided with projecting fingers depending from the under side thereof, said fingers adapted, respectively, to act on the bell-crank lever on the opposite reciprocations of the dasher-staff, and another bearing for the dasher-staff said bearing provided with a downwardly-extending slot, the slot of this bearing and the branching slot of the bearing of the shaft adapted to permit the depending pins to pass therethrough when the dasher-staff is reciprocated.

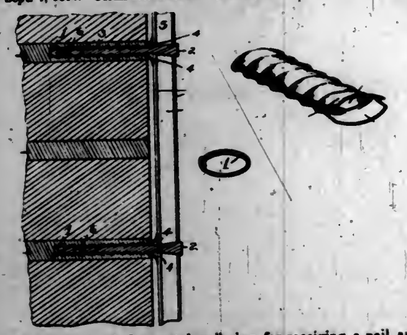
590,952. ROLLER-BEARING. JOSEPH B. BAKER, Hopkinsville, Tex. Filed May 22, 1897. Serial No. 637,723. (No model.)



Claim.—1. The combination of a hub, an equal-sectioned sleeve with threaded engaging ends on the sections, said sleeve provided with exterior seats for the reception of rollers, rollers in said seats, and boxing-sections located outside the sleeve.

2. A roller-bearing comprising the sleeve made in sections, the inner ends of said sections being provided with threads whereby said sections are screwed together, and having exterior tapered seats in said sleeve for the reception of tapering rollers, rollers in said seats, and boxing-sections located outside said sleeve and bearing against said rollers, said boxing-sections being provided with projections adapted to prevent them from turning within the hub.

590,953. DEVICE FOR ATTACHING FURRING TO WALLS. WILLIAM H. BARNUM, Rochester, N. Y. Filed Sept. 26, 1896. Renewed Sept. 7, 1897. Serial No. 650,845. (No model.)



Claim.—1. A tubular metal wall-plug for receiving a nail and having a series of internal laterally-extending corrugations or ribs, substantially as described.

2. A tubular wall plug, adapted to be built into a wall and composed of sheet metal and having circumferential corrugations, substantially as described.

3. A wall-plug, composed of a sheet of metal bent into flattened tubular form and having external and internal circumferential corrugations, substantially as described.

4. A tubular metal wall-plug, provided with circumferential corrugations and having an adjustable outer end, substantially as described.

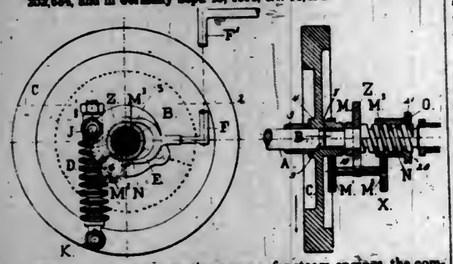
5 A tubular metal wall-plug, provided with circumferential corrugations and having the split outer end, substantially as described.

6. The combination with the sheet-metal wall-plug, having circumferential corrugations, of a corrugated securing-nail adapted to be driven into the plug, substantially as described.

7. The combination with a wall-plug, having a flexible portion projecting beyond the wall, of a metal furring-strip, having an outer flange, capable of being bent laterally, lathing, staple-shaped nails for securing the lathing to the strip, and a nail entering the plug and holding the strip, substantially as described.

8. A tubular metal wall-plug consisting of folded and corrugated sheet metal, the corrugations thereof extending at an angle to the plane of the aperture, substantially as described.

590,954. DYNAMOMETRIC GOVERNOR FOR STEAM-ENGINES. ANTOINE L. F. BAYLE, Cherbourg, France. Filed Jan. 27, 1896. Serial No. 577,007. (No model.) Patented in France Dec. 2, 1895, No. 252,684, and in Germany Sept. 15, 1896, No. 88,454.



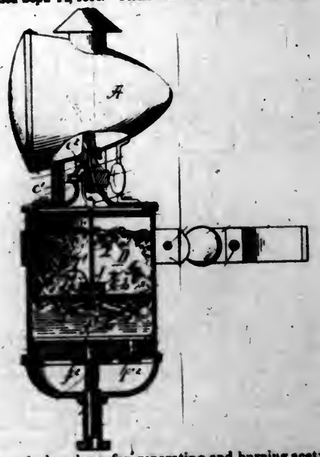
Claim.—1. In an automatic governor for steam-engines, the combination with the balance-wheel transmitting motion to the driven shaft through a yielding connection with a plate Z in said shaft, of a shaft X bearing in said plate and carrying gears meshing with teeth carried by the wheel and with those of a valve-controlling part respectively, substantially as set forth.

2. In an automatic governor for steam-engines, the combination with the balance-wheel transmitting motion to the driven shaft through a yielding connection with a plate Z in said shaft, of a shaft X, bearing in said plate and carrying gears meshing with teeth carried by the valve and with those of a valve-controlling sleeve revoluble in a threaded portion of the driven shaft, substantially as set forth.

3. In an automatic governor for steam-engines, the combination with the balance-wheel, the hub, the recess of which receives the end of the driven shaft, a yielding connection between said wheel and shaft, and gears carried by the latter and meshing with teeth carried by the wheel and with those of a valve-controlling part respectively, substantially as set forth.

4. The combination by the flexibly-connected balance-wheel and driven shaft and its gears carried by the latter and meshing as described, of a sleeve N, revoluble on a threaded part of the shaft and having an annular channel engaging a valve-operating fork, substantially as set forth.

590,955. ACETYLENE-GAS LAMP. CHARLES W. BECK, Chicago Ill. Filed Sept. 14, 1896. Serial No. 605,733. (No model.)



Claim.—1. In a lamp for generating and burning acetylene gas, the combination of a compartment for carbid, a liquid-compartment having communication with the carbid-compartment, a spring, means for tensioning the spring and means for transmitting to the liquid the mechanical pressure of the spring for effecting a feed of the liquid to the carbid.

2. In a lamp for generating and burning acetylene gas, the combination of a compartment for carbid, a liquid-compartment having communication with the carbid-compartment, a spring, an adjusting-screw for tensioning the spring, and means for transmitting to the liquid the mechanical pressure of the spring, for effecting a feed of the liquid to the carbid.

3. In a lamp for generating and burning acetylene gas, the combination of a compartment for carbid, a compartment for liquid having communication with the carbid-compartment, means for producing mechanical pressure and a spring arranged to transmit the mechanical pressure to the body of liquid whereby the latter is fed to the carbid in a continuous flow, and means for controlling the liquid-inlet to the carbid.

4. In a lamp for generating and burning acetylene gas, the combination of a compartment for carbid, a compartment for liquid having communication with the carbid-compartment, a piston arranged to act upon the body of liquid, a spring arranged to act upon the piston and a feed-screw arranged to act upon the spring.

5. In a lamp for generating and burning acetylene gas, the combination of a compartment for carbid, a compartment for liquid having communication with the carbid-compartment, a piston arranged to act upon the body of the liquid, a spring arranged to act upon the piston and a feed-screw arranged to act upon the spring and means for closing the communication between the compartments.

6. In a lamp for generating and burning acetylene gas, the combination of a lamp-body provided with upper and lower compartments adapted to contain carbid and liquid respectively, a communicating passage connecting said compartments, a spring-pressed piston arranged in the lower part of the liquid-compartment adapted to act upon the body of liquid therein, a jet-nozzle communicating with the carbid-compartment and a valve for closing the communicating passage between the two compartments.

7. In a lamp for generating and burning acetylene gas, the combination of a lamp-body provided with upper and lower compartments adapted to contain carbid and liquid respectively, a communicating passage connecting said compartments, a spring-pressed piston arranged in the lower part of the liquid-compartment and adapted to act upon the body of liquid therein, a jet-nozzle communicating with the carbid-compartment, a rotary valve-plug arranged to control the passage in said jet-nozzle and a valve adapted to close the communicating passage between the carbid and liquid compartment operatively connected with said valve-plug whereby the valve will be closed simultaneously with the closing of the jet-nozzle.

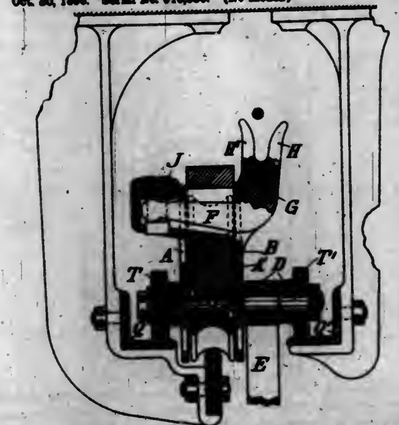
8. In a lamp for generating and burning acetylene gas, the combination of a lamp-body provided with upper and lower compartments adapted to contain carbid and liquid respectively, a communicating passage connecting said compartments, a spring-pressed piston arranged in the lower part of the liquid-compartment and adapted to act upon the body of liquid therein, a jet-nozzle communicating with the carbid-compartment, a rotary valve-plug arranged to control the passage in said jet-nozzle, a valve adapted to close the communicating passage between the carbid and liquid compartment operatively connected with said valve-plug whereby the valve will be closed simultaneously with the closing of the jet-nozzle and a filter arranged in the upper part of the carbid-receptacle through which the gas must pass in its passage to the jet-nozzle.

590,956. HOSE-COUPLING. AUGUST W. BILLMAN, Stockholm, Sweden. Filed Apr. 5, 1897. Serial No. 630,818. (No model.) Patented in Finland Feb. 11, 1897, No. 695.



Claim.—In hose-couplings composed of two symmetrical halves the combination with each half of two projecting lugs *b*, *c* diametrically opposite each other, the one *b* of said lugs having a latch *d* movable through it about tangentially to the circumference of the coupling, and a bell-crank *e*, *f* fulcrumed on a stud parallel to the axis of the coupling and acting upon the latch with one of its ends the other end protruding to the inside of the coupling and being forced outward by means of an elastic ring *f* inserted in the mouth of the coupling-half, the other lug *c* being provided with an aperture *g* in which the latch of the other section may catch when the two sections are pushed together.

590,957. GRIPPING DEVICE FOR SUSPENDED CABLE OR ROPE RAILWAYS. ADOLF BLEICHERT, Leipsic-Gohlis, Germany. Filed Oct. 30, 1896. Serial No. 610,559. (No model.)



Claim.—1. In suspended cable or rope railways, the combination with the framework of the rolling mechanism of the vehicle, of a sliding body guided by said framework and supporting the vehicle, a pivoted lever one arm of which engages with said sliding body and the other arm terminates in a gripping-jaw, a stationary gripping-jaw coacting with the gripping-jaw of the lever, and a traction-cable adapted to be locked between said jaws.

2. The combination with the framework of the rolling mechanism of the vehicle, of a sliding body guided by said framework and supporting the vehicle, a pivoted lever one arm of which engages with said sliding body and the other arm terminates in a gripping-jaw, a stationary gripping-jaw coacting with the gripping-jaw of the lever, a traction-cable adapted to be locked between said jaws, and means whereby the gripping-jaws may be adjusted according to the varying thicknesses of the cable.

3. The combination with the framework of the rolling mechanism of the vehicle, of a sliding body guided by said framework and supporting the vehicle, a pivoted lever one arm of which engages with said sliding body and the other arm terminates in a gripping-jaw, a stationary gripping-jaw coacting with the gripping-jaw of the lever, a traction-cable adapted to be locked between said jaws, and a set-screw for adjusting the gripping-jaws.

4. The combination with the framework of the rolling mechanism of the vehicle, of a sliding body guided by said framework and supporting the vehicle, a pivoted lever one arm of which engages with said sliding body and the other arm terminates in a gripping-jaw, a stationary gripping-jaw coacting with the gripping-jaw of the lever, a traction-cable adapted to be locked between said jaws, and a set-screw arranged in said sliding body and having a recess to receive the arm of said lever, whereby the point of action or operation of said lever may be varied by adjusting said screw.

5. The combination with the framework of the rolling mechanism of the vehicle, of coupling mechanism for locking the vehicle to the traction-cable, a sliding body for carrying the same, the gripping appliances of said coupling mechanism located above the rolling frame, a rail for supporting the rolling frame and rails for intermittently taking the weight of each sliding body.

6. The combination with the framework of the rolling mechanism of the vehicle, of a sliding body guided by said framework and carrying at its lower end a bolt or rod from which the vehicle is suspended, a pivoted lever one arm of which engages with said sliding body and the other arm terminates in a gripping-jaw, a stationary gripping-jaw coacting with the gripping-jaw of the lever and a traction-cable adapted to be locked between said jaws.

7. The combination with the framework of the rolling mechanism of the vehicle, of a sliding body guided by said framework and supporting the vehicle, rails Q adapted to support said sliding body, a pivoted lever one arm of which engages with said sliding body and the other arm terminates in a gripping-jaw, a stationary gripping-jaw coacting with the gripping-jaw of the lever, a traction-cable adapted to be locked between said jaws, and appliances connected to said sliding body at its lower end and serving to raise or lower said body by means of rails Q as the vehicle enters or departs from the station thus automatically throwing the gripping-jaws into or out of engagement with the traction-cable.

8. The combination with the framework of the rolling mechanism of the vehicle, of a sliding body guided by said framework and supporting the vehicle, a pivoted lever one arm of which engages with said sliding body and the other arm terminates in a gripping-jaw, a stationary gripping-jaw coacting with the gripping-jaw of the lever, a traction-cable adapted to be locked between the said jaws, and guiding-rings at the lower end of said sliding body, substantially as set forth.

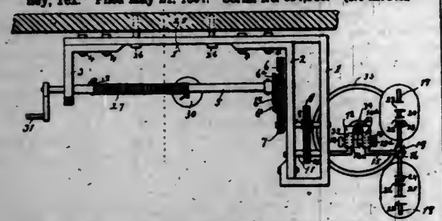
9. The combination with the framework of the rolling mechanism of the vehicle, of a sliding body guided by said framework and supporting the vehicle, a pivoted lever the short arm of which terminates in a jaw at that side of the frame opposite that at which the rolling mechanism travels, a stationary jaw secured to the framework in suitable relation to the jaw of said lever, a traction-cable adapted to be locked between said jaws, and rollers U for supporting said cable at the free portions of the line, substantially as set forth.

590,958. SAD-IRON. JAMES F. BLISS, Newark, N. J. Filed Oct. 30, 1896. Serial No. 610,531. (No model.)



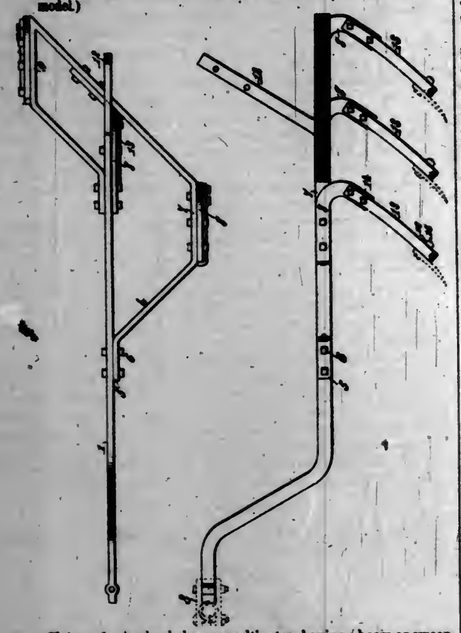
Claim.—In a sad-iron, the body A having the central vertical stud C provided with the oppositely-projecting horizontal side lugs E, E, the sides of said stud between said lugs being substantially vertical throughout and said lugs being above the body A, combined with the handle, the plate G secured to said handle and having the opening H, the inclines K, K, adapted to pass below said side lugs and the connecting edge J, and the pivoted spring-latch L having a knob or handle and provided with the downwardly-extending toe N adapted to extend into said opening at the end thereof opposite to that bounded by the edge J and to engage the substantially vertical face of said stud; substantially as shown and described.

590,959. PROPELLER FOR CHURNS. JAMES P. BOLDING, Formey, Tex. Filed May 21, 1897. Serial No. 637,563. (No model.)



Claim.—The combination with the frame having the pieces 1, 2, 3, of a cord-shaft journaled in the pieces 2, 3, a weight 30 attached to said shaft by a cord 27, a cog-wheel 6 mounted on said shaft, a ratchet-wheel 6ª secured on said shaft, a ratchet-lever 6ᵇ pivoted on the cog-wheel and engaging the ratchet-wheel, a spring 6ᶜ secured on the cog wheel and bearing on the ratchet-lever, shafts 8 and 11 journaled in the frame-pieces 1, 2, intermeshing cog-wheels 9, 10 on said shafts, a cog-wheel 7 on the shaft 8 meshing with the cog-wheel 6, crank-coupling 12 attached to the shaft 11, a governor-shaft 15 attached to said coupling, rods 17, 18 secured to the end of the governor-shaft, and fans 20, 21 carried by said rods.

590,960. WHEEL PLOW OR CULTIVATOR. WILLIAM M. BOMAR, Spartanburg, S. C. Filed Mar. 3, 1897. Serial No. 625,864. (No model.)

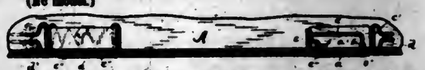


Claim.—1. A wheel plow, or cultivator, having a beam or sweep, and an angle-bar passing the rearward end of said beam at a suitable angle and extending upon both sides thereof, said angle-bar being bent to form sections parallel with the beam on opposite sides and at equal distances from it, the ends of said angle-bar being thence brought back and lapped and fastened to opposite faces of the beam substantially as described.

2. A wheel plow, or cultivator, having a beam or sweep, an angle-bar passing the rearward end of said beam at an oblique angle and extending equally on both sides thereof, said angle-bar being bent to form sections parallel with the beam on opposite sides and at equal distances from it, the ends of said angle-bar being then brought back to the beam and bolted to the opposite faces thereof, a gooseneck bolted to each parallel section of the angle-bar and an intermediate gooseneck bolted to the beam at its rear end and plows carried by loops bolted to the goosenecks, substantially as described.

3. A wheel plow, or cultivator, having a beam or sweep, an angle-bar making an oblique angle with the rearward end of said beam which is lapped on and bolted to said angle-bar, the latter having sections parallel with the beam, one on each side of said beam, one of said sections being in advance of and the other in rear of the end of said beam, the angle-bar being bent from said parallel sections to and against the opposite faces of said beam and bolted thereto at different points, a gooseneck bolted to each parallel section and one to the rear end of the beam, loops mounted on said goosenecks, and plows secured to the loops by heel-bolts, substantially as described.

590,961. FASTENER FOR RAIN-APRONS. ALBERT F. BRANDENBURG, Dayton, Ohio, assignor to John B. McLardie and Anna C. Brandenburg, same place. Filed Jan. 26, 1897. Serial No. 620,051. (No model.)

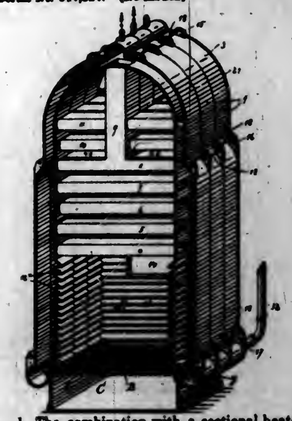


Claim.—1. In a rain-apron fastener, a metallic plate bent to loosely inclose an edge of the apron, and provided with openings through its sides, in combination with a wire-fastener having its ends turned at right angles to its body portion, and terminating in rounded hooks which inclose the bent or rounded edge of said plate, and are movable in and out of the openings in said plate to engage or disengage with the apron, substantially as described.

2. A rain-apron fastener, consisting of a metallic plate bent upon itself to form inclosing sides which are provided with openings *f*, a hook fixed to one end of said plate, and an engaging wire having rounded hook extensions *d'*, that inclose the lower longitudinal edge of said plate, the said hook extensions *d'* being movable in and out of the openings *f* to engage or disengage with the apron, substantially as described.

3. A rain-apron fastener, consisting of a metallic plate bent upon itself to form an intervening space for the insertion of the edge of the apron, and provided with openings *f*, a hook attached to said plate to engage with the vertical edge of the dash, and an engaging wire *e* having rounded hooks *d'* that loosely surround the lower longitudinal edge of said plate, the said hooks *d'* being movable in and out of the openings *f* to engage or disengage with the apron, and a hook having an elastic or resilient connection to said plate and adapted to engage with the dash, substantially as described.

590,962. HEATER. JOHN A. BRESS, Utica, N. Y. Filed Dec. 30, 1896. Serial No. 617,327. (No model.)



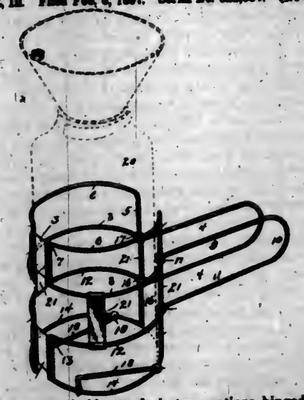
Claim.—1. The combination with a sectional heater of hollow tooth-like rib projections 12, the upper surface of which is inclined and the lower surface substantially horizontal, extending across the several sections and lining the fire-box, substantially as set forth.

2. The combination in a heater of hollow sections, the bodies of which are of inverted-U shape having horizontal transverse tubular connections between the arms of the body portion of less transverse thickness on a horizontal line than that of the body of the section and alternately disposed at opposite sides of the section, as shown and described.

3. The combination with a sectional heater having external lugs or projections, of a netting cover adapted to secure composition material, the netting being held by being engaged with lugs or projections and retained thereon by bolts which pass through the lugs or projections and secure the sections of the heater together, substantially as set forth.

4. A hollow heater-section of an inverted-U-shape form having a series of horizontal transverse connecting-tubes 4, 5, 6 and 7 between the arms immediately over the fire-box and other transverse horizontal tubes 8, 10 and 11 with a central vertical tube 9 of larger capacity than the other tubes, substantially as set forth.

590,963. ADJUSTABLE CAN OR JAR HOLDER. EMMA BROWN, Prospect, Ill. Filed Feb. 6, 1897. Serial No. 622,337. (No model.)

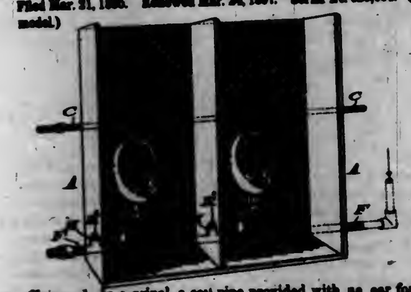


Claim.—1. A can-holder made in two sections hinged together at their front ends and provided with handle portions at their rear ends, each section consisting of an open framework of wire, and the connecting-hinges being reversible and the hinged ends of the sections adapted to overlap each other to contract the can-holder, substantially as described.

2. A can-holder made in two sections each consisting of a series of horizontal bars and a series of vertical bars and braces to tie the horizontal bars together, the space between the horizontal bars at their front ends being wider in one section than that between the similar bars of the other section, whereby said bars are adapted to overlap and cross each other, and hinges connecting the front ends of the sections, said hinges being reversed when the sections are caused to overlap at their hinged ends, substantially as described.

3. A can-holder made in two sections each consisting of a series of curved horizontal bars, and a series of vertical bars and braces to tie the horizontal bars together, the space between the horizontal bars at their front ends being wider in one section than that between similar bars of the other section, whereby said bars are adapted to overlap and cross each other, hinges connecting the front ends of the sections, said hinges being reversed when the sections are caused to overlap at their hinged ends, and horizontal tie-braces secured to the lower curved horizontal bars of each section, substantially as described and for the purpose specified.

590,964. URINAL. GEORGE W. CHAMBERLAIN, Philadelphia, Pa. Filed Mar. 21, 1895. Renewed Mar. 24, 1897. Serial No. 628,091. (No model.)



Claim.—1. In a urinal, a soil-pipe provided with an ear for attachment to a stall, a trap connected with said pipe, and a branch attached to said trap and the urinal-bowl, said branch passing through an opening in the wall of the stall, and a screw passing through the wall into said ear, the head of said screw being at the front of said wall, and said pipe being back of the same, said stall having an opening communicating with said trap, in combination with a cap which covers said opening in front of the stall and is connected with said trap, substantially as described.

2. In a urinal, a wall or plate, a bowl on one side of said plate, a trap on the opposite side, a branch pipe passing through said plate and connecting said bowl and trap, and a cap on the same side of the plate as the bowl and secured to a collar on the trap which passes through said plate, said parts being combined substantially as described.

3. A urinal having a wall or plate, a water-supply pipe and a soil-pipe with a trap on one side of said plate and a bowl on the other side, ears on said pipes connected with said plate, branch pipes passing through said plate and connecting said supply-pipe and trap respectively, with said bowl, said trap having a collar thereon passing through said plate and a cap on the bowl side of said plate secured to said collar, said parts being combined substantially as described.

590,965. GALVANIZING-MACHINE. EDWIN B. COOK, Canton, Ohio. Filed June 21, 1897. Serial No. 641,548. (No model.)



Claim.—The combination of a galvanizing-pot, guide-bars located within the pot and within the molten metal, and scraper-bars D and E formed of asbestos, the bars E located above the bars D and adjustable horizontally to or from each other, the sets of scraper-bars being spaced different distances apart, substantially as and for the purpose specified.

590,966. PROCESS OF PREPARING ALUMINIUM PLATES FOR SURFACE PRINTING. GEORGE B. CORNWALL, Port Chester, N.Y., assignor, by mesne assignments, to the Cornwall Printing Press Company, New York, N. Y. Filed July 9, 1896. Serial No. 598,600. (Specimens.)

Claim.—1. The process of preparing aluminium plates for surface printing which consists in removing the outer compressed or denser layer or surface of the plate, so as to leave the open-grained interior of the plate exposed to form the printing-surface, substantially as set forth.

2. The process of preparing aluminium plates for surface printing which consists in first removing the outer compressed skin or surface, then subjecting the plate to the action of a caustic alkaline bath and subsequently to an acid-bath, and removing all resulting salts from the surface of the plate, substantially as set forth.

3. The process of preparing aluminium surface-printing plates consisting in first abrading the surface to remove the hard compressed shell and at the same time give the plate the desired finish, then treating the plate in an alkaline and then in an acid bath to remove the impurities, substantially as set forth.

4. The process of preparing aluminium surface-printing plates consisting in first removing the hard compressed shell or skin of the plate and giving it the desired finish and then chemically dissolving out the impurities without impairing the surface finish, substantially as set forth.

5. The process of preparing aluminium surface-printing plates which consists in exposing the plate in a caustic alkaline bath, and subsequently in a bath containing nitric acid and a small proportion of hydrofluoric acid, and removing the resulting salts from the surface of the plates, so as to leave the latter exposed to form the printing-surface.

6. The process of opening up the grain and purification of aluminium surface-printing plates, consisting in exposing the same in a caustic alkaline bath and subsequently in a bath containing nitric and hydrofluoric acids, and removing the resulting salts from the surface of the plate, substantially as set forth.

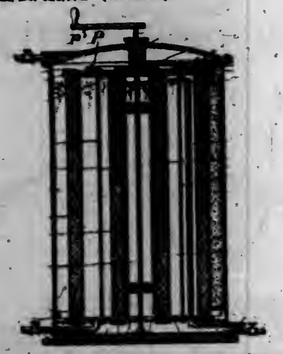
590,967. ELEVATOR-LOCK. MICHAEL J. DALY, Pittsburg, Pa. Filed Apr. 6, 1896. Serial No. 586,266. (No model.)

Claim.—In an elevator, the combination of the controlling rope or rod, the elevator-shaft, floor-doors, and a vertical rod supported in fixed bearings so as to rock or turn and extending lengthwise the elevator-shaft, said rod being provided with radial arms adapted to be struck by the floor-doors when the same are opened, and being

independent of the controller rope or rod, and provided with connections at or near its lower end for locking the valve-operating devices.



590,968. FILTER. JOHN DAVIS, Allegheny, Pa. Filed Jan. 23, 1897. Serial No. 621,006. (No model.)

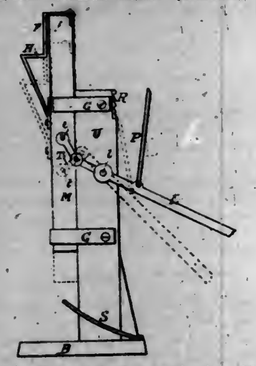


Claim.—1. A filter provided with an outer casing, annular and concentric porous filtering-bodies, a receiving and precipitating chamber between the casing and the outer filtering-body, a sediment-chamber below the filtering-bodies, an annular clean-water-storage chamber between the filtering-bodies, a discharge-pipe at the lower end of the storage-chamber, a chamber in the inner filtering-body and openings or passages connecting said chamber and the sediment-chamber, in combination with means for removing impurities from the filtering-bodies and from the bottom of the sediment-chamber.

2. A filter provided with annular concentric porous filtering-bodies, a frame having heads containing annular grooves on their inner surfaces to receive said filtering-bodies, passages around and in the center of the lower head and lugs for securing said head to the casing, in combination with revoluble brushes connected to a central shaft and operating to remove impurities from the filtering-bodies and from the sediment-chamber.

3. A filter provided with annular and concentric porous filtering-bodies, a storage-chamber between the bodies, an air-supply pipe in said chamber extending to the upper end thereof and having an automatically-operated float-valve, in combination with a receiving and precipitating chamber and a sediment-chamber in communication therewith.

590,969. LIFTING-JACK. CHARLES I. DIFFENDERFER, Lewistown, Pa., assignor of one-half to David S. Detweiler, Belleville, Pa. Filed May 26, 1897. Serial No. 638,201. (No model.)



Claim.—1. In a lifting-jack, the combination with the upright having strap-guides, the lifting member moving in said guides, and a lever for raising said member; of a foot of strap-iron secured at its lower end to the outer edge of the lifting member, leading thence outward, thence inward to form a horizontal step, thence upward but slightly remote from the outer edge of said member so as to leave a slot for the guide, and finally passing over the upper end of this member to form a top horizontal portion and secured thereto, substantially as described.

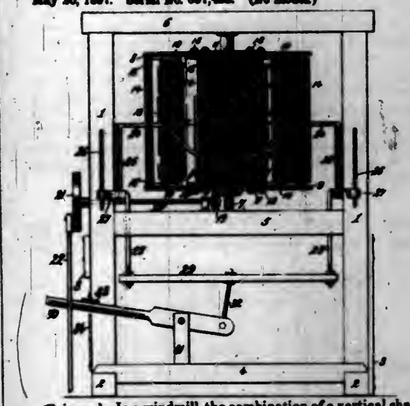
2. In a lifting-jack, the combination with an upright, a lever having a forked end pivoted astride the upright, and links pivoted to the extremities of the forks; of a lifting member moving alongside the upright and to which the other ends of the links are pivoted, and a foot carried by this member and having horizontal portions with an interposed upright portion, the latter being of a height less than the throw of the lever, as and for the purpose set forth.

3. In a lifting-jack, the combination with an upright, a lever pivoted thereto between its ends, and a link pivoted at one extremity to its inner end; of a lifting member pivoted to the other extremity of the link so that the latter forms one member of a toggle, a raising device for raising said member, and a foot secured to the latter and having horizontal portions with an interposed upright portion of a height less than the throw of the toggle-lever, as and for the purpose set forth.

4. In a lifting-jack, the combination with an upright, a ratchet carried by its rear edge, a lever pivoted between its ends to the upright, and a pawl pivoted to the lever and adapted to engage the ratchet; of a lifting member, a link pivotally connecting the inner end of the lever with this member and forming a toggle with arms of a length to pass a straight line when the lifting member is at either extreme position, means for normally raising said member, and a foot carried by the latter and having horizontal portions with an upright portion of less height than the throw of the lever, as and for the purpose set forth.

5. In a lifting-jack, the combination with an upright, a ratchet on its rear edge, a lever pivoted between its ends to the upright, a lifting member, and a link pivotally connecting the inner end of the lever with said member; of a pawl pivoted between its ends to the lever, a spring attached to its lower end and throwing the upper end normally toward said ratchet, an L-shaped thumb-lever pivoted at its angle to the main lever adjacent the latter's handle, and a rod connecting the upright arm of the thumb-lever with the pawl above its pivot, as and for the purpose set forth.

590,970. WINDMILL. JACOB F. DUCKER, Argonia, Kans. Filed May 20, 1897. Serial No. 637,422. (No model.)



Claim.—1. In a windmill, the combination of a vertical shaft having secured thereto an upper head and a lower head, a series of concaved vanes extended between said heads and hinged to vertical pivot-rods secured to the heads, stop-lugs on the said heads to limit the outward swing of the vanes, and spring-arms carried by the several vanes and extended across their inner concaved faces toward the outer edges of the vanes to prevent normal closing of the vanes one upon another, substantially as described.

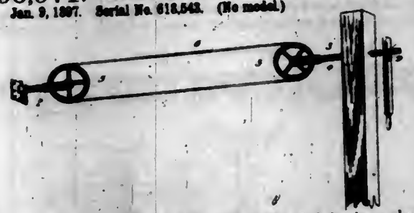
2. In a windmill, the combination with the vertical shaft having secured thereto an upper head and a lower head, and a series of curved vanes hinged between said heads, of yokes adapted and arranged to clamp the said vanes in a closed and inoperative position, and lever mechanism for operating said yokes, substantially as described.

3. In a windmill, the combination with a vertical shaft having secured thereto an upper head and a lower head and vertical pivot-rods extended between said heads, of concaved vanes hinged to said pivots and provided with spring-arms to prevent the vanes from closing one upon another, stop-lugs on the said heads to limit the outward swing of the vanes, clamping-yokes adapted to close the vanes against the action of their springs, and lever mechanism for operating said yokes, substantially as described.

4. In a windmill, the combination of a frame, a vertical shaft provided with an upper head and a lower head, concaved vanes pivotally connected with and between said heads, stops to limit the outward swing of said vanes, clamping-yokes arranged on opposite sides of the wheel to bear on and hold the vanes in a closed position, folding levers pivoted to the frame and supporting said yokes, vertically-movable slide-brackets engaged with said levers and adapted to fold them and clamp the said yokes upon the vanes, lever mechanism for operating the said sliding brackets, and a catch for locking the said lever mechanism, substantially as described.

5. In a windmill, the combination, with a frame, and a wind-wheel comprising pivotal concaved vanes, of clamping yokes supported on opposite sides of the wheel and adapted to close the vanes upon one another, levers arranged in pairs at opposite sides of the frame and supporting said yokes, slide-brackets embracing the said pairs of levers to fold the levers of each pair and clamp the yokes upon the vanes, a bar to which the said slide-brackets are connected, and lever mechanism for imparting a vertical movement to said bar, substantially as described.

590,971. CLOTHES-LINE. HOBT C. BAKER, Dallas, Oreg. Filed Jan. 9, 1897. Serial No. 618,543. (No model.)



Claim.—1. The combination with a pulley-fork having a shank provided with a series of openings therethrough, of a pulley-wheel held within said fork, a standard through which said shank is adapted to pass, a pin held in one of said openings and adapted to retain said shank in said standard, a lever having an opening therethrough held upon said shank, and a pin held in one of said openings and adapted to form the bearing-point of said lever.

2. The combination with a hinge adapted to be attached to any suitable supporting-surface, of a pulley-fork attached thereto, a pulley held within said fork, a standard having an opening therethrough, a pulley-fork having a shank provided with a series of holes said shank held normally within the opening in said standard, a pulley located within said fork, an endless rope passing around said pulleys, a lever having an opening therethrough through which extends the shank of the pulley-fork, a pin held within one of said holes adapted to form the bearing-point for said lever, and a second pin adapted to be held within one of said holes and retain the shank in the position to which it may be thrown by said lever.

590,972. DUPLICATE-PRINTING MECHANISM FOR ADDING-MACHINES, TYPE-WRITERS, &c. DORR E. FELT, Chicago, Ill. Filed Apr. 23, 1897. Serial No. 634,196. (No model.)



Claim.—1. The combination with printing devices of paper-feed rolls and paper-guides F' and F'' the latter acting to impart a longitudinal bend or twist to the paper, substantially as specified.

2. The combination with impression devices and a single ink-ribbon, of paper-feed rolls for feeding the sheets of paper, guides adapted to impart a slight longitudinal bend or twist to the paper, and means for temporarily moving the ribbon at one side away from its normal position, substantially as and for the purpose set forth.

3. The combination with the ink-ribbon, of pressure feed-rolls acting to deliver two associated strips of paper to the printing devices, and bearing upon the paper throughout its width, and guiding devices located between the ribbon and feed-rolls and acting to separate the strips so they will pass upon opposite sides of the ribbon, substantially as specified.

4. The combination with the ink-ribbon, of pressure feed-rolls acting to deliver two associated strips of paper to the printing devices, and bearing upon the paper throughout its width, and guiding devices located between the ribbon and the feed-rolls and acting to engage and separate the ends of the strips so they will pass upon opposite sides of the ribbon, substantially as specified.

5. The combination with the ink-ribbon, of pressure feed-rolls acting to deliver two associated strips of paper to the printing devices, and bearing upon the paper throughout its width, and guiding devices located between the ribbon and the feed-rolls, said devices being movable at will and acting to separate the strips and direct them to opposite sides of the ribbon, substantially as specified.

6. The combination with the ink-ribbon and feed-rolls acting to deliver two associated strips of paper to the printing devices, of means for deflecting the ribbon from its normal plane, substantially as specified.

7. The combination with the ink-ribbon and feed-rolls acting to deliver two associated strips to the printing devices, of stationary guides F and F' imparting a slight twist to the paper, and means for deflecting the ribbon, substantially as specified.

8. The combination with the ink-ribbon and feed-rolls acting to deliver two associated strips to the printing devices, of stationary guides F and F' imparting a slight twist to the paper, and a movable device for deflecting the ribbon at will, substantially as specified.

9. The combination with the ink-ribbon and feed-rolls acting to deliver two associated strips to the printing devices, of guiding devices acting to position the ends of the strips as set forth preparatory to separation, substantially as specified.

10. The combination with the ink-ribbon and pressing feed-rolls feeding two closely-associated strips of paper toward one side of the ribbon, of means for separating the ends of the strips and guiding one of them to the other side of the ribbon, substantially as specified.

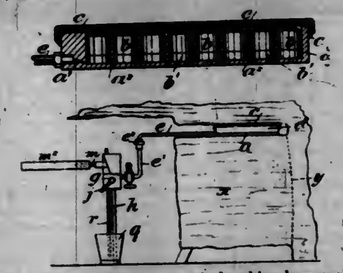
11. The combination with the ink-ribbon and pressure feed-rolls feeding the two associated strips of paper having their ends cut in angling directions, of means for deflecting one side of the paper to the rear of the ribbon, and means for correspondingly deflecting the ribbon, substantially as specified.

12. The combination with the ink-ribbon and pressure-rolls feeding two closely-associated strips of paper, of means essentially such as described for separating the ends of the strips as they approach the ribbon, substantially as specified.

13. The combination with the ink-ribbon and the paper-feed rolls, of movable shields H and H^3, substantially as specified.

14. The combination with the ink-ribbon and paper-feeding devices, of shields interposed between the ribbon and the paper at both sides of the printing center and preventing smudging of the paper, substantially as specified.

590,973. HYDRAULIC APPARATUS FOR MINING PURPOSES. WILLIAM G. GAM and JAMES TOWER, Bolton, England. Filed Apr. 12, 1897. Serial No. 631,963. (No model.) Patented in England Mar. 23, 1897, No. 7,441.

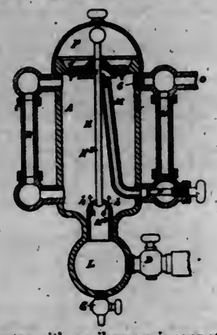


Claim.—In hydraulic apparatus for breaking down coal and minerals in mines, the combination with an expandable bar such as a of a series of rams made with rounded or dome-shaped tops and employed in conjunction with a series of separate and loose covers c and clip-protector d for the purposes and substantially as described and shown.

590,974. LUBRICATOR. RICHARD M. GILMAN, Seattle, Wash., assignor of one-half to Thomas F. Colbert, same place. Filed Dec. 16, 1896. Serial No. 573,264. (No model.)

Claim.—1. In a lubricator, the combination with an oil-reservoir having a filling-opening in its upper end, a condensation-chamber connected to its lower end by a neck and a steam-pipe connection to said condensation-chamber, of a plunger or valve within said reservoir adapted when raised to close said filling-opening, a stem connected

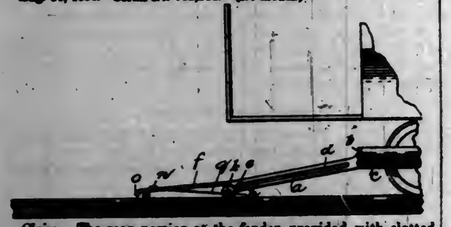
to the valve and a bell-shaped piston connected to the lower end of the stem so as to slide in the neck of the condensation-chamber and having perforations through its upper end, substantially as shown and described.



2. In a lubricator with an oil-reservoir open at its upper end and having an internally-facing valve-seat just below the upper end, a condensation-chamber connected to the lower end of the oil-reservoir by a vertical neck, and a steam-pipe connection to the condensation-reservoir, of a valve within said reservoir adapted to be raised by the steam-pressure and consisting of the valve proper, a dependent stem and a bell-shaped piston on the lower end of the stem adapted to slide in the neck of the condensation-chamber and having perforations in its upper end, substantially as shown and described.

3. In a lubricator, the combination of an oil-reservoir having a filling-opening at its upper end, a condensation-chamber at its lower end, a steam-pipe connection to said condensation-chamber, a valve within the reservoir adapted to be held closed by the steam-pressure a guide and perforated piston sliding therein located between the condensation-chamber and oil-reservoir, said piston being connected to the valve to close the same, substantially as shown and described.

590,975. CAR-FENDER. ALBERT H. GILES, Alliance, Ohio. Filed Aug. 10, 1896. Serial No. 602,281. (No model.)

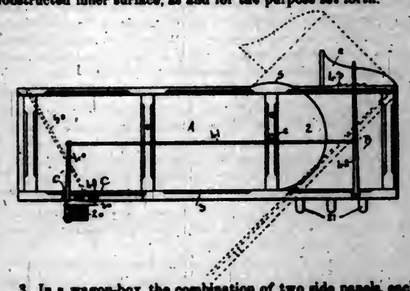


Claim.—The rear portion of the fender, provided with slotted side braces which are rigidly secured at their inner ends to the truck of the car, and connected at their ends by the cross-pieces *g k* and the front wheels *k*, which run in the groove of the rails, combined with the movable front portion of the fender, supported at its rear end by the rear portion of the fender and at its front end by the wheels *m* which ride upon the tops of the rails, and which front portion is composed of the two side pieces *f f*, connected at their rear ends by the cross-piece *e* which extends through the slots *d* and serve as a guide; and at its front end by suitable connecting-pieces; and the springs *p* which connect the two cross-pieces *k* and *e*, and return the front portion of the fender to position after having been forced backward, substantially as shown and described.

590,976. DUMPING-WAGON. JOHN GRANT, Omaha, Nebr. Filed Dec. 26, 1896. Serial No. 617,128. (No model.)

Claim.—1. In a wagon-box, the combination of two side panels, each of said side panels comprising two sections embodying a fixed section and a movable section, one of said sections being provided with a semicircular seating, the remaining section being provided with a semicircular extension working into said semicircular seating in such a manner as to form a panel offering an unbroken inner surface, and a bottom secured to said movable panel-section, as and for the purpose set forth.

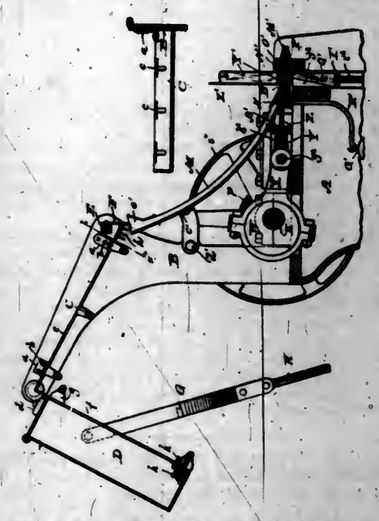
2. In a wagon-box the combination of two side panels, each of said side panels comprising two sections, each section being provided with a semicircular seating and a semicircular projection, the seating of one panel-section being adapted to receive the projection of the remaining panel-section, said panel-sections when united forming an unobstructed inner surface, as and for the purpose set forth.



3. In a wagon-box, the combination of two side panels, each of said side panels comprising two sections, said sections being pivotally united in such a manner as to offer an unobstructed inner surface, one of said panel-sections being fixed, the remaining panel-section being movable, a bottom secured to the movable panel-section, and means to lock said movable section, as and for the purpose set forth.

4. In a wagon-box, the combination of two side panels, each of said side panels comprising two sections, said sections being pivotally united in such a manner as to offer an unobstructed inner surface, one of said panel-sections being fixed, the remaining panel-section being movable, and a bottom secured to the movable panel section, as and for the purpose set forth.

590,977. NAILING-MACHINE. CHARLES M. GREEN, Highland Park, Ill. Filed Sept. 14, 1896. Serial No. 605,723. (No model.)



Claim.—1. In a nailing-machine, the combination of a rigid frame and a bed supported thereby, and having a series of nail-grooves therein, a series of chutes arranged in line with said nail-grooves, a transversely-disposed counterbalanced grooved tilting bar journaled in said rigid frame and supporting the forward ends of said chutes, and a series of reciprocating drivers arranged beneath and in line with the lower ends of said chutes.

2. In a nailing-machine, the combination of a rigid frame and a bed supported thereby and having a series of nail-grooves therein, a series of chutes arranged in line with said nail grooves, a transversely-disposed counterbalanced grooved tilting bar journaled in said rigid frame and supporting the forward ends of said chutes, a transverse bar carrying arms provided with laterally-projecting stripping-fingers arranged so that oppositely-disposed fingers shall project in front of and just at the end of said nail-grooves, reciprocating drivers arranged beneath and in line with the lower ends of said chutes, and mechanism, substantially as described, for reciprocating said transverse bar and said drivers simultaneously so that a single nail from each groove shall be stripped off and permitted to drop down and travel through each chute coincidently with the forward movement of said drivers;

3. In a nailing-machine, the combination with a rigid frame, carrying a bed provided with a series of nail-grooves therein, of a transverse driving-shaft mounted in said frame, and a transverse reciprocating bar supported by said frame, and carrying arms having stripping-fingers projecting from opposite directions toward said nail-grooves, a cam-wheel on the outer projecting end of said driving-shaft, a partly-revolvable vertical shaft mounted on said frame, a crank-arm fast on the upper end of said vertical shaft and pivotally connected to said transverse reciprocating bar, another crank-arm fast on the lower end of said vertical shaft, a depending crank-pin on the free outer end of this lower crank-arm in engagement with the cam-wheel on the driving-shaft, and means for restoring the said vertical shaft to its original position after each partial revolution thereof, whereby at each reciprocation of said bar the finger that held the lowest nail in each of said grooves will be withdrawn to allow said nail to drop just as the oppositely-disposed adjacent finger moves past the shank of the next nail in the groove, and keeps it from dropping until the said reciprocating bar makes its return movement.

4. In a nailing-machine, the combination of a rigid frame, a transversely-disposed counterbalanced grooved tilting bar journaled therein, a series of nail-chutes whose forward ends rest on said bar in line with the grooves therein, guideways supported on said frame back of said tilting bar and a reciprocating slide moving in said guideways and carrying drivers adapted to travel under said chutes in line with the grooves in said tilting bar.

5. In a nailing-machine, a series of nail-chutes each having a funnel-shaped top, and a shoe hinged directly to said chutes and covering and projecting beyond the lower or forward end, said chutes being open troughs between the said funnel and shoe.

590,978. AUTOMATIC FIRE-EXTINGUISHER. FRANK J. GENWHEB, Providence, R. I. Filed Oct. 1, 1896. Serial No. 584,391. (No model.)



Claim.—1. An automatic fire-extinguisher comprising a base provided with a centrally-located outlet adapted to serve also as a seat for the valve, a sprinkler-head provided with an opening for the admission of water, and with numerous perforations arranged and adapted to evenly and thoroughly distribute and spray the water therefrom over the entire surface within a considerable radius, supporting-arms integrally connected with said base and head, whereby said sprinkler-head is held with its inlet in axial alinement with the outlet in the base, a valve releasably held between said base and head, and means arranged for lateral action against the side of said valve and adapted to serve, as specified, to rock said valve upon its seat and to force it out of the path of the column of water when said valve is otherwise released.

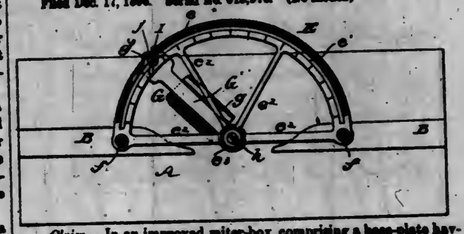
2. In an automatic fire-extinguisher, a valve consisting of two tubular members, one of smaller diameter than the other and adapted to close within the latter when released, combined with each other and with an annular horizontally-projecting ring secured to the side of said smaller member by fusible solder and adapted to serve, as a stop, to prevent the two valve members closing together until said annular ring is detached by the fusion of the solder.

3. The combination with the base, A, provided with an outlet-opening, adapted also to serve as a seat for the valve, supporting-arms, B, B, and a sprinkler-head, C, provided with an inlet-opening held in axial alinement with said outlet-opening in the base, of an annular resilient washer, 5, a valve consisting of two members of unequal diameters, an annular ring, 3, secured to the smaller valve member by solder fusible at a predetermined temperature, and an adjusting-screw 6 adapted to impinge against said resilient washer, 5, and engage with said valve to set the latter to its seat with the required amount of force.

4. In an automatic fire extinguisher, a horizontally-extending and laterally-acting spring-arm combined with the frame and valve, and adapted to serve, as specified, to force the valve from its seat and out of the path of the column of water when said valve is otherwise released.

5. The combination with a base, as A, provided with an outlet-opening adapted also to serve as a seat for the valve, a perforated sprinkler-head C, provided with an inlet-opening or mouth, supporting-arms B, B, integrally connected with said base and head, whereby said inlet-opening in the head and said outlet-opening in the base are permanently held in axial alinement with each other, of a valve consisting of two members of unequal diameters, an annular stop-ring 3 secured to the smaller valve member by solder fusible at a predetermined temperature, a resilient washer 5 removably engaging the mouth of said sprinkler-head, an adjusting-screw 6 adapted to impinge against said resilient washer and engage with said valve to set the latter to its seat with the required amount of force, a non-corrodible cap fitted to the valve-face, and a horizontally-extending and laterally-acting spring-arm 7, adapted to serve, as specified, to force the valve from its seat and out of the path of the column of water when said valve is otherwise released.

590,979. MITER-BOX. CHARLES B. HALL, Governor's Island, N. Y. Filed Dec. 17, 1896. Serial No. 615,976. (No model.)



Claim.—In an improved miter-box, comprising a base-plate having upwardly-projecting hollow standards, a segmental guide-frame having standards or posts connected with the standards of the base-plate and vertically adjustable, within said standards, in combination with a saw-guide pivotally carried at one end by and depending from said guide-frame and radially adjustable at the other end with relation thereto, said saw-guide having a flat base adapted to bear on the wood to be cut, substantially as and for the purpose set forth.

590,980. MUD-GUARD FOR BICYCLES. HERBERT L. HALL, Rochester, N. Y., assignor to the Hall-Sheare Company, same place. Filed Mar. 22, 1897. Serial No. 628,578. (No model.)



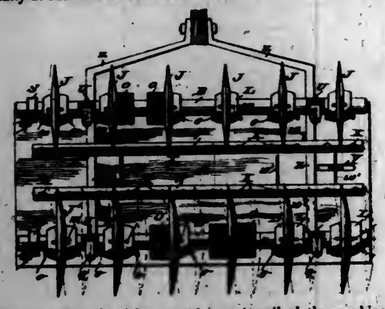
Claim.—1. The combination with the frame of a bicycle, of the spring-roller F, the extensible mud-guard strip H, the slotted swinging and lengthwise-movable frame E, provided with notches *n*, the clips *c d*, the pivots *g* inserted in the clips on one side of the upright and engaging in the slots in the swinging frame, and the hooks *f* attached to the clips on the other side of the uprights and adapted to engage in the notches in the swinging frame, whereby the frame is adapted to be disengaged from the clips to fold it up by a lengthwise movement on the pivots in the slots, substantially as described.

2. The combination with the frame of a bicycle, of the spring-roller F, the extensible mud-guard strip H, the slotted swinging frame E, provided with notches *n*, the clip *a* having hooks *f*, and the flat-headed pivots *g*, substantially as described.

590,981. DISK PULVERIZER. DAVID HARPER, Scott County, Ill. Filed Sept. 26, 1894. Renewed July 17, 1897. Serial No. 644,962. (No model.)

Claim.—1. The combination with the main frame including the non-rotatable axle, said axle having a longitudinal groove, and disk members held to rotate on the axle, and capable of being swung crosswise thereon, of cuff-like members, held on the axle to rock thereon and in engagement with the hub portions of the disks, and a bar held to slide in the groove in reverse directions, having fingers adapted to engage the cuff members and lever mechanism on the platform connected to such bar all arranged substantially as shown and described.

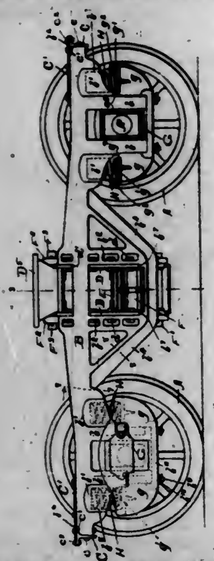
2. The combination with the main frame, the axle and the disks held to rotate thereon and having apertures larger than the axle diameter, whereby they are capable of being swung laterally at an angle to the axle, of the cuff members pivotally held on the axle, to rock horizontally and to engage the hub portions of the disks, and wedge members on the axle arranged to fit the elongated portions of the disk-apertures and form a bearing therefor when said disks are shifted laterally and means for rocking the cuff members all substantially as shown and described.



3. In a disk pulverizing machine as described, the combination with the axle and the disks held to rotate on the axle and loosely fitted thereon, whereby they can be swung diagonally on the axle, of cuff members having their apertures elongated in a horizontal direction, pivotally connected to the axle to rock in a horizontal direction thereon, wedge members secured to such cuff members, adapted to project into the elongated portions of the disk-apertures when the cuff members are rocked, and a shifting bar held to engage such cuff members and mechanism for reciprocating such bar all arranged substantially as and for the purposes described.

590,982. RAILWAY-CAR TRUCK. FRANK HEDLEY, Chicago, Ill.

Filed Apr. 16, 1897. Serial No. 632,461. (No model.)



Claim.—1. A car-truck comprising in combination the following parts: first, truck side pieces having pedestal-jaws, spring-seats, pillows for truck-bolster plates and end flanges all formed integral therewith; second, end pieces secured to the end flanges of said side pieces; third, a pair of truck-bolster plates set edgewise and secured to the pillows of the truck side pieces and having a bearing at their ends on top of said truck side pieces; fourth, a swinging bolster fitting between said truck-bolster plates; fifth, hangers supported on said truck-bolster plates; sixth, a hanger-bar, and springs interposed between said hanger-bar and said swinging bolster; seventh, axle-boxes having lateral extensions provided with integral coil-spring seats corresponding to said spring-seats in said truck side pieces; and eighth, coil-springs fitting in and compressed between said spring-seats on said axle-boxes and truck side pieces, substantially as specified.

2. In a car-truck, the combination with truck side pieces having integral spring-seats adapted to surround and embrace the upper ends of coil-springs on either side of the axle, of axle-boxes having lateral extensions provided with integral spring-seats adapted to surround and embrace the lower ends of said coil-springs, and coil-springs fitting in and compressed between said integral spring-seats on the axle-box and truck side piece, whereby by reason of the integral spring-seats on the truck side pieces, the full strength of said side pieces is preserved at their bearing-points over the springs, and the top edges of the side pieces are brought lower and the truck made more compact without cutting, notching or weakening the side pieces substantially as specified.

3. In a car-truck, the combination with truck side pieces having integral pedestal jaws, and integral coil-spring seats formed thereon, of an axle-box having lateral extensions and integral coil-spring seats, and provided with openings in said lateral extensions for said pedestal-jaws to pass through, and coil-springs fitting in said seats, whereby by reason of the integral spring-seats on the truck side pieces, the full strength of said side pieces is preserved at their bearing-points over the springs, and the top edges of the side pieces are brought lower and the truck made more compact without cutting, notching or weakening the side pieces substantially as specified.

4. In a car-truck, the combination with truck side pieces having integral pillows or vertical columns or flanges formed thereon for receiving a pair of truck-bolster plates, of a pair of truck-bolster plates set edgewise and secured at each end to said pillows of the truck side pieces and having a bearing at their ends on top of said truck side pieces, substantially as specified.

5. In a car-truck, the combination with truck side pieces having integral pillows or vertical columns or flanges formed thereon for receiving a pair of truck-bolster plates, of a pair of truck-bolster plates set edgewise and secured at each end to said pillows of the truck side pieces and having a bearing at their ends on top of said truck side pieces, said truck-bolster plates having also a bearing at each end near their lower edges on said pillows of said truck side pieces, substantially as specified.

6. In a car-truck, the combination with truck side pieces having integral pillows or vertical columns or flanges formed thereon for receiving a pair of truck-bolster plates, of a truck-bolster comprising a pair of flat plates set edgewise and secured at their ends to the truck side pieces, and a swinging bolster fitting between and bearing against the flat faces of said edgewise-set truck-bolster plates and free to move up and down and endwise between said truck-bolster plates, substantially as specified.

7. In a car-truck, the combination with truck side pieces having integral pillows or vertical columns or flanges formed thereon for receiving a pair of truck-bolster plates, of a truck-bolster comprising a pair of flat plates set edgewise and secured at their ends to the truck side pieces, and a swinging bolster fitting between and bearing against the flat faces of said edgewise-set truck-bolster plates and free to move up and down and endwise between said truck-bolster plates, hanger-pins resting on said truck-bolster plates, hangers suspended from said hanger-pins, a hanger-bar supported by said hangers, and elliptic springs interposed between said hanger-bar and said swinging bolster, substantially as specified.

8. In a car-truck, the combination with truck side pieces provided with integral end flanges, of a pair of truck end pieces secured to said flanges on the truck side pieces, said truck end pieces, each having a flange or lateral web resting on top of said truck side pieces, substantially as specified.

9. In a car-truck, the combination with truck side pieces provided with integral end flanges, of a pair of truck end pieces secured to said flanges on the truck side pieces, said truck end pieces each having a flange or lateral web resting on top of said truck side pieces, and corner-plates secured to said truck side pieces and truck end pieces at the corners of the truck-frame, substantially as specified.

10. In a car-truck, a truck-frame side piece having integral pedestal-jaws, coil-spring seats, on each side of said pedestal-jaws truck-bolster-plate pillows, and end flanges all cast integrally thereon, in combination with axle-boxes having integral spring-seats and coiled springs between said seats on said axle-boxes and said seats on said truck-frame side piece substantially as specified.

11. In a car-truck, the combination with truck side pieces having cast integrally thereon end flanges and truck-bolster pillows, of truck end pieces secured at the ends of said side pieces, and a pair of truck-bolster plates set edgewise and secured to said integral pillows on said truck side pieces, and a swing bolster between said edgewise-set truck-bolster plates substantially as specified.

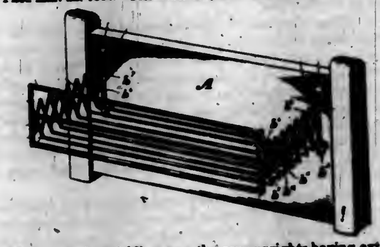
12. In a car-truck, the combination with truck side pieces having cast integrally thereon end flanges and truck-bolster pillows, of truck end pieces secured at the ends of said side pieces, and a pair of truck-bolster plates set edgewise and secured to said integral pillows on said truck side pieces, said truck-bolster plates having notched ends fitting over said truck side pieces and bearing thereon, substantially as specified.

13. In a car-truck, truck-frame side pieces made of cast-steel or other metal of channel-bar form, the lower flanges of the channel being increased in depth and swelled out on each side of the axle-box pedestals to form circular seats to receive and embrace the upper ends of coil-springs, substantially as specified.

14. In a car-truck, a truck-frame side piece made of cast metal and having integral pedestals, spring-seats on each side of said pedestals, truck-bolster pillows and brace members extending to the lower ends of said pillows, substantially as specified.

590,988. FOLDING TRAY. MORRIS I. HERMAN, Cincinnati, Ohio.

Filed Mar. 22, 1897. Serial No. 628,048. (No model.)



Claim.—1. In a folding tray the rear uprights having extended and perforated ends to be secured to a fixed object, the front uprights braced apart by the rods forming the front of the tray, both the front and rear uprights being slotted to receive and guide pins secured in the lower end bars of the folding sides, the folding sides having their upper end bars pivoted to the front uprights, and longitudinal bars secured in the lower ends of the folding side bars to form the bottom of the tray, substantially as shown and described.

2. The hereinbefore-described folding tray comprising the rear and front uprights, the rear uprights having extended perforated ends for attachment to a fixed object, the folding sides pivoted to the upper ends of the uprights and secured to the lower ends thereof by pins passing through and adapted to slide in the vertical slots in said uprights, the bars bracing the front uprights and forming the front of the tray, and bars secured to the lower ends of the folding sides to form the bottom of the tray.

590,984. STOP-MOTION MECHANISM. CHARLES H. HETWOOD, Hartford, Conn. Filed Feb. 23, 1895. Serial No. 539,340. (No model.)

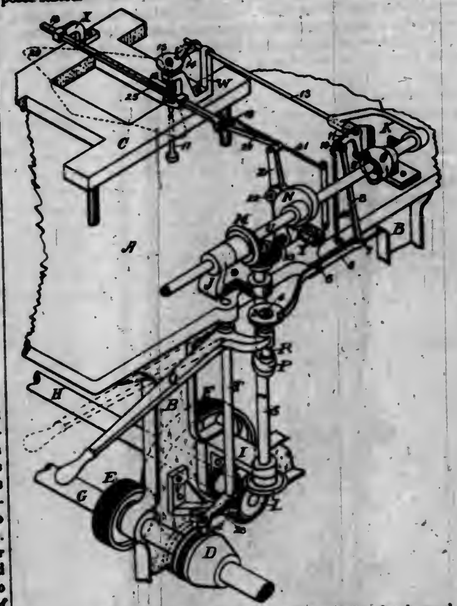
Claim.—1. In a stop-motion mechanism, the combination of a screw, an abutting surface, means for feeding sheets of paper or other material between the screw and abutting surface, means for rotating the screw, to move it toward said abutting surface, said rotary motion being adapted to be stopped by the impact of the screw upon the interposed sheet or sheets of paper, and an operative connection with said feeding mechanism to stop the same, arranged to be started by the stoppage of the screw at any other than a predetermined point, substantially as described.

2. In a stop-motion mechanism, a rod arranged with a screw-thread, an abutting surface, means for rotating the rod intermittently to move it to and from said abutting surface, said forward motion being adapted to be stopped by the impact of the screw upon the interposed sheet or sheets of paper, and an operative connection with said mechanism for rotating the rod, to stop said mechanism, said connection being adapted to be actuated by the stoppage of the rod at any other than a predetermined point, substantially as described.

3. In a stop-motion mechanism, a micrometer-screw and abutting surface combined with a slot-provided disk carried on the screw and a finger adapted to pass through the slot in disk at each revolution of the machine, provided the proper number of sheets or material are fed into the machine, and an operative connection between said finger and the machine for stopping the latter when the finger fails to pass through the slot.

4. In a stop-motion mechanism, a micrometer-screw, a disk rotating with said screw, combined with a finger adapted to pass a certain portion of said disk and all arranged in such manner that if more or less paper or material are fed into the machine at any time, the finger will fail to pass the proper portion of disk, and an operative connection between said finger and the machine for stopping the latter when said finger so fails as aforesaid.

5. The combination of a suitable supporting-frame; a driving-shaft; a clutch mechanism mounted on the latter; a suitable supporting-stand for the blanks or sheets; a threaded stem 16 mounted to move toward said stand and bear against the material thereon when rotated; a suitable slotted head mounted upon said stem; a finger arranged to move through said slot when the stem is in the desired position and mechanism connected with said finger and with said clutch whereby the clutch is thrown out of engagement when the finger fails to pass through said slot, substantially as and for the purposes stated.

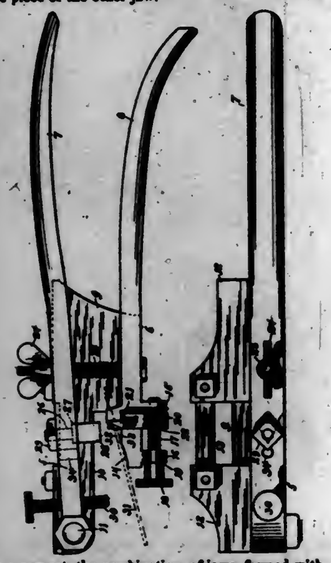


6. A suitable supporting-frame; a driving-shaft; clutch mechanism mounted thereon; a suitable supporting-stand or creasing-plate for the reception of blanks or sheets; a threaded stem arranged to move toward and from said blanks or sheets when rotated; a slotted head thereon; a spur mounted upon said stem; a reciprocating rod 18 provided with teeth arranged to engage the teeth upon said spur; a lever Z mounted upon said frame and connected with rod 18; a rock-shaft 13; a finger 14 mounted thereon and arranged to pass through said slot or to strike the head upon stem 16 dependent upon the position of the stem; a bell-crank lever 11 mounted upon said rock-shaft; a shaft U mounted in suitable bearings and provided with cams N and O, the former of which engages the lever Z and the latter the bell-crank lever 11; suitable mechanism to cause the rotation of the shaft U and intermediate mechanism connecting the bell-crank lever 11 with said clutch mechanism whereby the latter is thrown out of engagement when said finger fails to pass through the slot in the head of the stem 16 substantially as and for the purposes stated.

7. The combination of a suitable supporting-frame; a driving-shaft; a clutch mechanism mounted thereon; a frame or plate for receiving the blanks or sheets; a threaded stem 16 mounted to move toward or from said plate or frame and bear with its end against the blanks or sheets; means to cause said stem to rotate back and forth at each complete revolution of the machine, a disk or head mounted upon said stem and provided with a slot; a reciprocating rod 18 having teeth arranged to mesh with the teeth upon a spur, the latter being mounted upon said stem; a lever mounted upon said frame and connected with said reciprocating rod 18 a rock-shaft 13 mounted in suitable bearings; a finger 14 mounted thereon and arranged to pass through said slot or strike upon said head; mechanism arranged to move said rock-shaft and said lever Z once during each revolution of the machine; suitable springs arranged to take up all slack motion; a suitable driving mechanism and intermediate connections between said rock-shaft and said clutch whereby the clutch is thrown out of engagement whenever the finger fails to pass through said slot, substantially as and for the purposes stated.

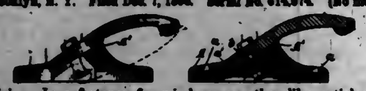
590,985. DEVICE FOR SETTING SAW-TEETH. ALBERT HOLCOMB, Reedsville, Wis. Filed Feb. 23, 1897. Serial No. 624,099. (No model.)

Claim.—1. In a saw-set, the combination, of jaws formed with suitable handles, and one of said jaws having a surface against which the saw-teeth are adapted to be bent, and also provided with a side piece projecting therefrom, said side piece having a forwardly-projecting extension, and also at its top edge provided with outwardly-extending flanges having their inner edges a desired distance apart to form a longitudinal opening into which the saw-teeth may project for the purpose of filing them by the action of a file reciprocated transversely over the upper portion of the device, another jaw provided with a projecting setting-finger, and a bolt pivotally connecting the forward end of this jaw with the forwardly-projecting extension of the side piece of the other jaw.



2. In a saw-set, the combination, of jaws, formed with suitable handles, and one of said jaws having a surface against which the saw-teeth are adapted to be bent, and also provided with a side piece projecting therefrom, said side piece having a forwardly-projecting extension, and also at its top edge provided with outwardly-extending flanges having their inner edges a desired distance apart to form a longitudinal opening into which the saw-teeth may project for the purpose of filing them by the action of a file reciprocated transversely over the upper portion of the device, another jaw provided with a projecting setting-finger, a bolt pivotally connecting the forward end of this jaw with the forwardly-projecting extension of the side piece of the other jaw, a bolt passing freely through the jaws near the rear ends thereof, a spring encircling this bolt between the jaws, and a screw-bolt engaging a threaded opening in one of the jaws, the end of said bolt adapted to act as a stop to limit the swing of the saw-blade, when the teeth of the saw are bent.

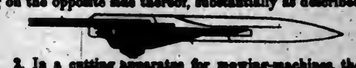
590,986. FASTENER FOR WINDOWS. LYMAN R. HOPKINS, Brooklyn, N. Y. Filed Dec. 7, 1896. Serial No. 614,674. (No model.)



Claim.—In a fastener for windows or other like articles, the combination of a base-plate having an inclined plane upon one of its surfaces, said inclined plane being bordered at one of its edges by a stop projecting above the surface thereof, and a rotatable arm provided with an eccentric disk, said disk being pivotally secured to said inclined plane and having its greatest diameter at or near right angles to the said arm and adapted to come in contact with said stop when the arm is rotated.

590,987. MOWING-MACHINE. JOHN S. HOWE, Reno, Nev. Filed Feb. 1, 1897. Serial No. 621,262. (No model.)

Claim.—1. In a cutting apparatus, the combination with a fixed finger-bar and a movable cutter-bar, of bearing-plates located on said finger-bar having lateral projections bearing upon the cutter-bar, and an antifriction device comprising a roller bearing against the rear edge of the said cutter-bar and having an internal ball-raceway and a confining-bolt passing through the said bearing-plate and having a fixed cone bearing on one side of the balls and a movable cone bearing on the opposite side thereof, substantially as described.

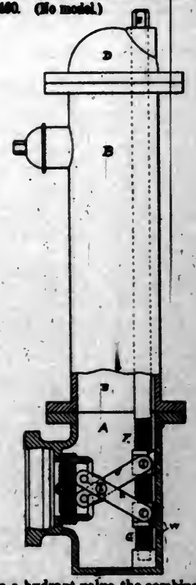


2. In a cutting apparatus for mowing-machines, the combination of a fixed finger-bar, a movable cutter-bar, a series of bearing-plates each having a central raised portion provided on the under side thereof with a socket and at opposite sides with ears provided with openings for the passage of confining-bolts, an antifriction-roller occupying said socket and provided with a ball-raceway, a bolt passing through said roller and bearing-plate and provided with a head having a cone adapted to bear against one side of the balls in the raceway, and a movable cone bearing on the opposite side thereof said bolt having screw-heads for the reception of a confining-nut, substantially as described.

3. In cutting apparatus, for mowing-machines, the combination with a fixed finger-bar and a cutter-bar movable thereon, of bearing-plates located on said finger-bar and provided with lateral projections extending over upon the cutter-bar, and a socket on the under side thereof, an antifriction-roller in said socket and bearing against the inner edge of the cutter-bar, said roller consisting of a hollow ring formed with an internal ball-raceway, and a bolt passing through the bearing-plate and provided at its lower end with a fixed cone and a movable cone, bearing on opposite sides of the rollers, substantially as described.

4. In cutting apparatus, the combination with a fixed finger-bar and a movable cutter-bar, of bearing-plates secured to the finger-bar and provided with lateral projections extending over upon the cutter-bar and a socket on the under side thereof, a roller located in said socket and adapted to bear against the rear edge of the cutter-bar, said roller consisting of a ring formed with an internal circumferential chamber for the reception of antifriction-balls, a bolt formed at its lower end with a screw-head having its inner side formed into a fixed cone and adapted to project over the opening in the under side of the roller and bear against the antifriction-rollers, and having its shank extending up through the bearing-plate and confined by a nut, and a movable cone surrounding the said bolt and operating in the opening in the top of the roller, substantially as described.

590,988. HYDRANT-VALVE. ROBERT HOGUE, Waterford, N. Y., assignor to John Knickerbocker, Troy, N. Y. Filed Jan. 6, 1896. Serial No. 574,460. (No model.)

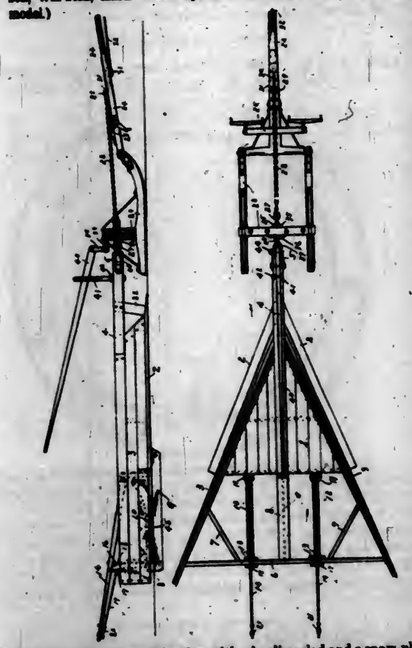


Claim.—1. In a hydrant-valve, the combination with the casing, of a right and left hand threaded stem, having on it right and left hand threaded nuts, levers attached to said nuts, a valve to close the opening in the valve-casing, said levers engaging with said valve, and being pivoted together between their ends to operate the valve, substantially as described.

2. In a hydrant-valve the combination with the casing, support and actuator for the lever end supports, lever end supports, levers attached to said lever end supports, a valve to close the opening in the valve-casing, the valve provided on its back with grooves, pins on the ends of said levers to engage said grooves in the valve, levers pinned intermediately of their ends, of a slot or guide on the gate to receive the intermediate pin of the levers, substantially as described.

3. In a hydrant-valve the combination of the casing, support and actuator for the lever end supports, lever end supports, a valve to close the opening in the casing, levers crossing each other and having mechanism for keeping the valve parallel to the desired plane, substantially as described.

590,989. SNOW-PLOW FOR WAGON-ROADS. CHRISTIAN JOHNSON, Warwick, Minn. Filed Apr. 6, 1897. Serial No. 630,991. (No model.)



Claim.—1. The combination with a leading sled and a snow-plow, of draft connections applied to connect the plow and the sled and to afford a limited travel of either independent of the other, for most advantageously distributing the pull from the several teams of draft-animals, substantially as described.

2. The combination with a snow-plow, of a leading sled having the ordinary pole and draft devices for the pole team, and draft devices for the leader teams applied to the plow-beam and mounted to work with a limited movement through the bunker and pole of the leading sled, substantially as and for the purposes set forth.

3. The combination with a snow-plow of triangular form, having moldboards extended rearward and outward beyond the body of the plow, of rear runners pivoted to the body of the plow inward of the moldboards, and hand-levers fulcrumed on said runners and applied to the plow, for adjusting the rear end of the same, in respect to said runners, substantially as described.

4. The combination with the plow of triangular form and the leading sled to which the plow is pivotally connected, of the rear runners pivoted to the body of the plow, inward of the moldboards, and provided with upturned extensions, at their rear ends, which work between guides on a cross-bar of the plow, and hand-levers fulcrumed on said vertical extensions from the runners and having their forward ends pivoted to the plow, and latching devices for locking the levers to the plow for holding the rear end of the same in any desired adjustment, in respect to said runners, substantially as described.

5. The combination with the snow-plow of triangular form having moldboards extended rearward and outward beyond the body of the plow, of the sled-runners 10 pivoted to the body of the plow at their forward ends, and having the vertical extensions 12 at the rear ends, working between guides on the plow, the hand-levers 14 pivoted to the plow at their forward ends, and fulcrumed to said extensions 12 of the runners, the ratchet-pawl 17, for cooperation with the latch-irons 18 on the plow, the rods 19 and the finger-pull 20, all arranged, for cooperation, substantially as described.

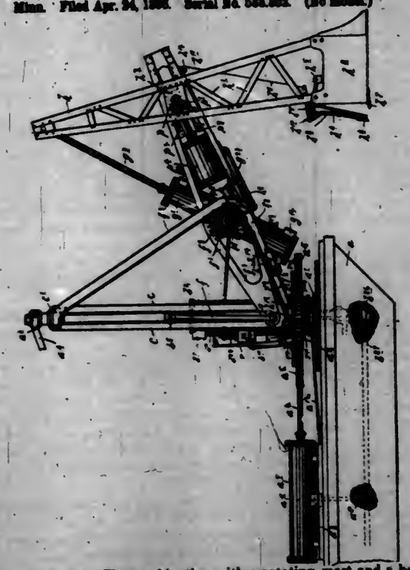
6. The combination with the leading sled, of the snow-plow pivotally connected thereto, the hand-lever 40 fulcrumed to said sled and connected to the beam of the plow, substantially as and for the purposes set forth.

7. The combination with the leading sled, of the snow-plow pivotally connected to said sled, the lever-fork 39 swiveled to said sled, the hand-lever 40 pivoted to the fork 39 and connected by the pin 42 to the fork 41, rising from and pivoted to the plow-beam 4, substantially as and for the purposes set forth.

8. The combination with the leading sled and the plow, of the clevis 5 angularly adjustable on the plow-beam 4, and the draft-iron 27 working through a slot in the sled-bunker, with freedom for a limited longitudinal motion therein, and the draft connections for the leader teams connected to the draft-iron 27 and including as part thereof the draft-iron 29 working through a slot 30 of the pole 24, with freedom for a greater longitudinal or sliding motion therein than is permitted to the draft-iron 27 in the bunker-slot, substantially as and for the purposes set forth.

9. The combination with a snow-plow of triangular form, of a downwardly-extended center board or rudder fixed longitudinally and centrally to the plow-frame, for preventing the plow from shearing, substantially as described.

590,990. EXCAVATOR. FREDERICK O. KLOCKE, Minneapolis, Minn. Filed Apr. 24, 1896. Serial No. 588,892. (No model.)



Claim.—1. The combination with a rotating mast and a boom-support projecting therefrom, at an angle thereto, of an oscillating boom pivoted to said support intermediate of the extremities of the boom, an oscillating lever carried by said boom for manipulating a dipper or other device, and an oscillating engine carried on the same support as the oscillating boom and turning on a common center with said boom, for operating said oscillating lever, substantially as described.

2. The combination with a rotating mast and an oscillating boom, of an oscillating lever carried by said boom and a cross-head or fulcrum-block for said lever carried by said boom adjustable lengthwise of said boom, substantially as described.

3. The combination with a rotating mast and an oscillating boom, of an oscillating lever carried by said boom, a cross-head or fulcrum-block for said lever movable lengthwise of said boom and an engine also carried by said boom and applied to shift said fulcrum-block, substantially as described.

4. The combination with a rotary mast, of an oscillating boom on said mast, an oscillating lever on said boom, an oscillating engine turning on the same center as said boom, for operating said lever, a cross-head or fulcrum-block for said oscillating lever movable lengthwise of said boom and an engine on said boom applied to move said fulcrum-block, substantially as described.

5. The combination with a rotary mast, of an oscillating boom on said mast, an oscillating lever on said boom, a shiftable fulcrum-block for said lever, an oscillating engine for operating said lever, turning on the same center as said boom, an engine for shifting said fulcrum-block, and valve mechanism for said two engines operative from a common controlling-lever, substantially as described.

6. The combination with the rotary mast and oscillating boom, of the dipper-arm or lever pivoted to said boom, the cross-head or fulcrum-block for said dipper-arm, movable lengthwise of the boom, and four engines, one stationary and applied to rotate the mast, a second carried on the mast and applied to oscillate the boom, a third oscillating on a common center with the boom and applied to oscillate the dipper-arm, and the fourth carried on the boom and applied to shift said fulcrum and dipper-arm lengthwise of the boom, substantially as described.

7. The combination with the rotary mast, oscillating boom, pivoted dipper-arm, and shifting fulcrum-block for the dipper-arm, of the horizontal stationary engine, for rotating the mast, the vertical engine carried with the mast for oscillating the boom, the oscillating engine on same center as the boom for oscillating the dipper-arm, the fulcrum-shifting engine on the boom, the valve mechanism for the horizontal and vertical engine, operative independently or simultaneously from a single controlling-lever, and the valve mechanism for said oscillating and fulcrum-shifting engines, operative independently or simultaneously from a single lever, with said two hand-levers both within reach of an operator riding with the mast, whereby a single operator can control all the actions, substantially as described.

8. The combination with a rotating mast and an oscillating boom carried thereby, of a horizontal engine supported independent of the mast, but applied to rotate the same, a hand-lever rotating with the mast, and connections therefrom, for controlling said horizontal engine, involving a device, controlled by said hand-lever, which is movable on the mast while rotating therewith, and devices independent of the mast but engageable by said movable device on the mast, at any point of the rotation, substantially as described.

9. The combination with a rotating mast and an oscillating boom, of a horizontal engine independent of the mast, but applied to rotate the same, a vertical engine rotating with the mast and applied to oscillate the boom, a hand-lever carried with the mast, mounted for universal movement, direct connections from said hand-lever to the valve of said vertical engine on the mast, and indirect connections from said hand-lever to the valve of said horizontal engine, comprising, as a part thereof, a ring rotating with the mast and vertically movable thereon by said hand-lever, and connections to the valve of the horizontal engine engageable with and operated by said ring, at all points of its rotation, substantially as described.

10. The combination with a rotating mast and an oscillating boom, of a horizontal engine on the mast-support, applied to rotate the mast, a vertical engine rotating with the mast and applied to oscillate the boom, a hand-lever carried with the mast, mounted for universal movement, direct connections from said lever to the valve of said vertical engine on the mast, and indirect connections from said hand-lever to the valve of said horizontal engine on the mast-support, including a ring rotating with the mast and vertically movable thereon by said hand-lever, which ring is engageable with the crank-pin of a rock-shaft connected to the valve-rod of said horizontal engine, substantially as described.

11. The combination with a rotary mast and an oscillating boom thereon, of an oscillating lever on said boom, for manipulating a dipper or other device, and an engine carried by the boom and applied to oscillate said lever, substantially as described.

590,991. BIB. HARRY P. LEBHART, Terre Haute, Ind. Filed Jan. 12, 1897. Serial No. 618,357. (No model.)



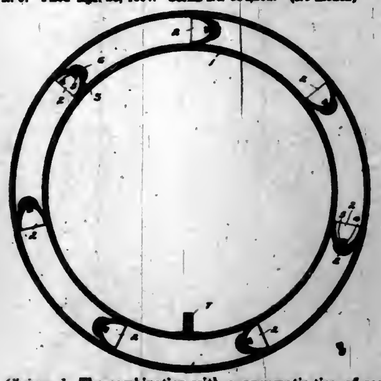
Claim.—1. A bib composed of the usual flexible body portion, spring-clamps attached directly to the fabric at the lower end whereby the bib is adapted to be secured directly to the table, and a distention-rod having a hook secured in like manner to the upper end, substantially as and for the purposes set forth.

2. A bib composed of a fabric having the edges gathered in, whereby the bib at its lower portion is given a dish-like form, spring-clamps on the lower corners of the bib whereby it may be attached to a table, and a combined hook and distention-bar at the upper end, substantially as shown and described.

3. A bib composed of a fabric impervious to liquids, the edges whereof are gathered or shortened to give the bib a dish-like form near the lower end, clamps on its lower corners whereby it may be attached to a table, a distention-bar at or near the upper end, and means whereby the bib may be attached to the person of the child at said upper end, substantially as set forth.

4. A bib composed of a fabric the edges whereof are drawn or gathered so as to give the bib a dish-like form near its lower end, clamps at the lower corners whereby it may be attached to a table, an eye or loop on the surface of the bib near the lower end, and a hook at or near the upper end, said hook being adapted to be attached to the clothing of the child while the bib is in use, and to be engaged with said eye or loop when the bib is not in use, substantially as and for the purposes set forth.

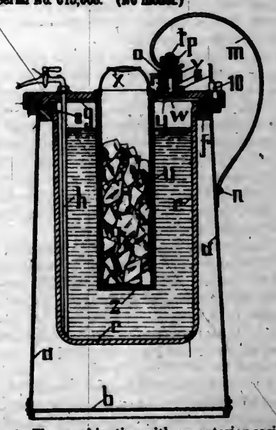
590,992. PNEUMATIC TIRE. GUSTAF A. LUNDSTROM, Jersey City, N. J. Filed Apr. 26, 1897. Serial No. 634,260. (No model.)



Claim.—1. The combination with a pneumatic tire, of resilient cones arranged at intervals therein and united to the inner surface of the tire, and check-valves located adjacent to said cones.

2. The combination with a pneumatic tire, of resilient cones united to the inner surface of the tire at intervals, each of said cones comprising thin outer edges and a thickened central portion having an opening therein, and a corresponding series of check-valves having their stems arranged in the openings in the cones, substantially as described.

590,993. VESSEL FOR TRANSPORTING AND PRESERVING LIQUIDS. PAUL LOCHMANN, Leipzig-Gohlis, Germany. Filed Dec. 14, 1896. Serial No. 615,603. (No model.)



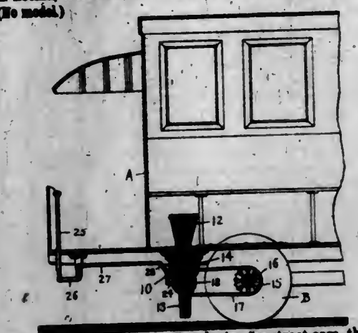
Claim.—1. The combination with an exterior casing, a supporting-ring applied to the casing, and a lid or cover applied to said supporting-ring and closing the upper end of the casing, of a liquid-containing chamber suspended within said casing from said supporting-ring and having communication with the interior of the casing, substantially as set forth.

2. The combination with an exterior casing, a ring fixed to the upper end of the casing, a lid or cover, and a liquid-containing chamber provided with a siphon, of a packing-ring interposed between the lid or cover and the first-named ring and resting against the exterior of the inner chamber, and being arranged to contact with the exterior of the inner chamber for the purpose of packing the exterior casing, the inner chamber, and the lid or cover.

3. In a vessel for transporting and preserving liquids, an exterior casing, a handle movably connected therewith, a lid or cover connected with the upper end of the handle and adapted to be supported on the vessel by the handle, and means for detachably connecting the lid or cover with the casing, substantially as set forth.

4. In a vessel for transporting and preserving liquids, an inclosing casing, a lid or cover fixed to the casing, a plug fixed to the lid and provided with an inlet opening or passage, a cap secured to said perforated plug, a handle movably connected with the exterior casing, and means for detachably connecting the upper end of the handle with the said cap, substantially as set forth.

590,994. TRACK-SANDING DEVICE FOR STREET-CARS. LOUIS A. LOCKE, Worcester, Mass. Filed Dec. 10, 1896. Serial No. 615,091. (No model.)



Claim.—1. In a track-sanding device for street-cars, the combination of a casing 10 adapted to be secured to the under side of a car, and having an inclined bottom, a spout 13 leading from the lowest point of said casing, a valve 24, connections for operating said valve from a car-platform, a shaft 14 journaled in the casing 10 and having a plurality of extending arms or disks for stirring sand in said casing, and connections comprising a driving-chain and sprocket-wheels for driving the shaft 14 from the car-axle, substantially as described.

2. In a track-sanding device for street-cars, the combination of a casing 10 having an inclined bottom, a spout 13 leading from the lowest point in said casing, a valve 24, connections for operating said valve comprising the handle 25 and bell-crank 26 carried by the car-platform, the bell-crank 28 connected to the valve, and the link 29 connecting said bell-cranks, a shaft 14 journaled in the casing 10 and having a plurality of extending arms or disks for stirring the sand in said casing, and connections comprising a driving-chain and sprocket-wheels for driving the shaft 14 from the car-axle, substantially as described.

3. In a track-sanding device for street-cars, the combination of a casing 10 having an inclined bottom, a filling-hopper 12 carried by said casing and adapted to extend up under the seats of a street-car, a spout 13 leading from the lowest point of said casing, a valve 24, operating connections for said valve comprising a handle 25, and bell-crank 26 carried by the car-platform, the bell-crank 28 connected by a link to operate the valve, and a link 27 connecting said bell-cranks, a shaft 14 journaled in the casing 10 and having a plurality of extending arms or disks for stirring sand in said casing, and driving connections for said shaft 14 comprising sprocket-wheel 15 secured to a car-axle, and connected to actuate a sprocket-wheel 18 secured on a counter-shaft 19, gears 20 and 21 for connecting the shafts 14 and 19, said gear 21 being adapted to form one member of a friction-clutch, substantially as described.

590,995. AXLE AND AXLE-BOX. MYRON D. MACK, Kneeland, Wis., assignor of one-half to Eli Bensene, Thompsonville, Wis. Filed Feb. 15, 1897. Serial No. 623,368. (No model.)

Claim.—1. In a vehicle-axle and box, the combination, of an axle provided with a groove thereabround, one of the side walls of said groove extending out beyond the grooved surface to form a projecting shoulder, an axle-box provided with an internal groove thereabround, one of the side walls of said groove extending inwardly beyond the grooved surface to form a projecting shoulder, said shoulder, when the parts are fitted together, being opposed to the shoulder of the axle, and the two grooves of the box and axle registering, and a packing adapted to be compressed into the registering grooves by the action of the opposed shoulders.



2. In a vehicle-axle and box, the combination of an axle provided near its outer end with a shoulder thereabround and with an encircling groove adjacent to the side of the shoulder, and also provided at a point farther inward with another shoulder, and with a groove adjacent to the side of said shoulder, an axle-box provided with sets of shoulders and with sets of grooves, the shoulders when the parts are fitted together being opposed to the shoulders of the axle, and the grooves registering with the grooves of said axle, and packings adapted to be compressed into the registering grooves by the action of the opposed shoulders, when the parts are fitted together.

3. In a vehicle-axle and box, the combination, of an axle provided with a shoulder thereabround and with an encircling groove adjacent to the side of the shoulder, said axle also provided with another shoulder at a point nearer the end of the axle, an axle-box provided with a shoulder and with a groove adjacent to the side of the shoulder, and also provided with another shoulder, the shoulders of the box, when the parts are fitted together, being opposed to the shoulders of the axle, and the grooves registering with the grooves of said axle, and packing adapted to be compressed into registering grooves by one set of the opposed shoulders.

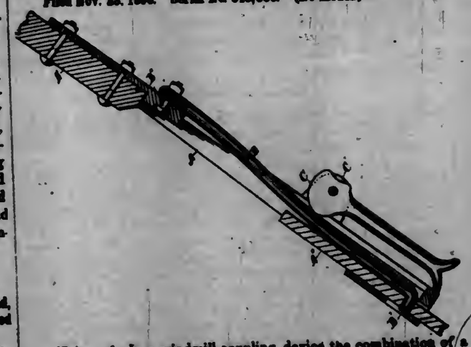
4. In a vehicle-axle and box, the combination, with an axle, an axle-box, and an end nut, one of said parts being provided with a shoulder thereabround, and with a groove adjacent to the side of the shoulder, and another of said parts with a shoulder and with a groove adjacent to the side thereof, the shoulders, when the parts are fitted together, being opposed, and the grooves registering, of a packing adapted, when the parts are fitted together to be compressed into the registering grooves by the opposed shoulders.

590,996. PUNCTURE-RESISTING SHIELD FOR PNEUMATIC TIRES. ALBERT MANVERS, Northcote, and MARC FINK, St. Kilda, Victoria. Filed Apr. 12, 1897. Serial No. 631,823. (No model.)



Claim.—The herein-described shield for protecting the bladder of a pneumatic tire from puncture, consisting of a series of overlapping longitudinally and transversely furrowed metallic plates, an elastic belt, and leather tags connecting the plates to said belt, the whole adapted to be placed between the bladder and the cover of the tire, and constructed substantially as and for the purpose described.

590,997. WINDMILL-COUPLING. ANDREW Y. MASHER, Three Rivers, Mich., assignor of one-half to Henry D. Cushman, same place. Filed Nov. 23, 1896. Serial No. 612,096. (No model.)



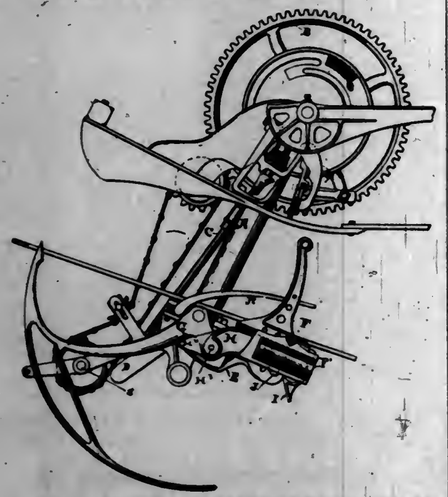
Claim.—1. In a windmill-coupling device the combination of a windmill pump-rod A', the slide A, thereon with a slot B'' through the back thereof; a spring-rod B, secured to the back of said slide,

a laterally-projecting stud B', adapted to couple with the pump-rod, and a cam C, eccentric on one side and flat on the other supported between ears C', to actuate the spring-rod B; and the pump-rod A'', with a suitable hole to be engaged by stud B', all coacting substantially as described for the purpose specified.

2. In a windmill-coupling device the combination of the slide A, the spring B, secured thereto bearing the stud B', cam C, with its side flattened to act upon the spring B, at a distance from the coupling-stud and the piston-rod of the pump, A'', containing a hole to be engaged by the stud B', as specified.

3. In a windmill-coupling the combination of the slide; the piston-rod of the pump; a spring secured to said slide with a stud to engage the piston-rod of the pump, a cam on said slide positioned to act on said spring and force the stud into engagement with the piston-rod as specified.

590,998. GRAIN-BINDER. LEWIS MILLER, Akron, Ohio. Filed Apr. 20, 1895. Serial No. 547,502. (No model.)



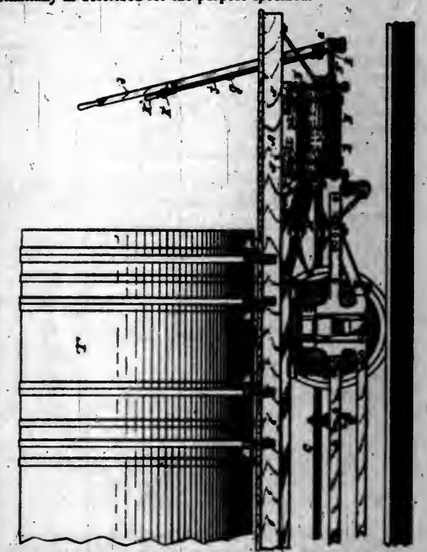
Claim.—1. The compressor-supporting arm pivoted to the binder-arm and provided with its projecting finger H^2 and its supporting-roller H' combined with the rigid arm E, its flange E^2 above said roller-way its supporting-latch I pivoted at I' and its vibratable bridge-switch J secured in the journal-bearing J' by means of its supporting-pivot J^2 and the spring O' connecting said latch and switch and operating substantially as set forth and described.

2. The compressor-supporting bar H its locking-flanges F^2 combined with the compressor-arm F secured thereto by means of its sliding adjustable projection F^3 on the lower side thereof and the spring-socket arm F' provided with guideways and the intermediate free spring O substantially as shown and described.

3. In a grain-binder the vibrating compressor-supporting bar H, its supporting-roller H', its actuating-finger H^2, its supporting-pivot H^3, the concave spring-receptacle, the end spring supporting-wall A, and the locking sliding flange F^2 combined with the yielding sliding socket F' the intermediate inclosed spring O, the adjustable secured compressor-arm F and its locking-flange F^2 and securing-bolt *f* substantially as described.

590,999. SPRINKLING-CAR. WILLIAM H. MILLER, South Bend, Ind., assignor to The Miller-Knoblock Company, same place. Filed Feb. 25, 1897. Serial No. 625,044. (No model.)

Claim.—1. In a sprinkling-car, the combination of a suitable car; a supply-tank T, having a delivery-pipe M, supported thereon; a sprinkler-head consisting of the outer shell B, with delivery-opening N, toward the middle of one side and an opening on the opposite side for said delivery-pipe M; an inner shorter cylindrical shell D, with a head D', freely movable fitted within shell B and therein either revolubly or longitudinally containing perforations *b*, to deliver spray and openings to receive water from the tank; a head B'', for the rear end of the outer shell B, with a head G', secured thereto by the arm G, and extended into the inner shell D, to the rear of the opening N; a head B' for the front of the outer shell B, with a head H', secured thereto just in front of opening N, extended into the shell D, through an opening in the head D'; a rock-shaft D'', extending through a suitable stuffing-box in the head B', and through a curved slot in head D', and secured to the head by a nut on the inside; an arm I, with slot therein secured to said shaft D'', and fitting close to the face of head D'; a pin I', on said head to be engaged by the slotted arm I; a lever J, pivoted to the platform of the car and to the outer end of the said shaft D'', by suitable pivots on a revolable collar; a cross-arm K, fixed on the shaft D'', an arm K', with handle pivoted to the lever J, and substantially parallel to arm K; connecting-rods I', joining the arms K, K', together; a rotary pump supported in the chamber between the heads G, and H, and a driving-shaft C, supported in packed bearings in the heads B', B'', to drive said pump all coacting together substantially as described for the purpose specified.



2. In a sprinkler-head the combination of an outer cylindrical shell B, with a delivery-opening N, in one side and a supply-opening in the opposite side; a shorter cylindrical shell D, fitted within the outer shell B, freely movable therein either revolubly or longitudinally, containing sprinkler-perforations *b*, in one side and inlet-openings *c*, on the opposite side, having a head D', on its forward end, a head B'', for the rear end of the outer shell B, with a head G', secured thereto by arm G, and extended into shell D, to a point just to the rear of the opening N; a head B', for the front end of shell B, with a head H', secured thereto just in front of opening N, by arm H, extended through head D'; a rock-shaft D'', extending through a stuffing-box in head B', and through a slot in head D', and secured to said head by a nut inside the head; an arm I, with a slot therein secured to said shaft; a pin I', on the head D', to be engaged by said arm; suitable means of actuating said shaft to control the shell D; a rotary pump in the chamber between the heads G', H', with suitable means of actuating the same as specified.

3. In a sprinkler the combination of an outer shell with suitable heads having broad delivery and inlet openings; an inner cylindrical shell fitting the interior of said outer shell and freely movable both revolubly and longitudinally therein, and having spray-openings *b* in one side and inlet-openings *c*, in the opposite side, corresponding to the openings in the outer shell, heads within said inner movable shell to each side of the openings of the outer shell and supported in a fixed position by suitable connections to the heads of the outer shell; a rotary pump in the chamber between the inner heads; a source of supply for said pump; and suitable means of adjusting the inner shell to control the spray as specified.

4. In a sprinkling device the combination of a suitable means for forcing the water; a sprinkler shell containing inlet-openings at one side and outlet spray-perforations on the opposite side graded in size from the upper to the under side to throw a heavy spray for the longer distance and a finer spray for the shorter; and means of adjusting said shell rotatably and longitudinally to regulate the direction and amount of the spray as specified.

5. In a sprinkler-head an external casing with openings therein for receiving water and to allow the escape of a spray; an interior cylindrical shell adjustable longitudinally and revolubly within the outer casing and containing inlet-passages and outlet-perforations for delivering spray the said outlet-openings being largest toward the top side of the cylinder; heads to the outer casing bearing heads which project within and fit the interior cylindrical shell; a rotary force-pump within the interior shell and between the heads with means of actuating the same as specified.

6. In a sprinkler a rotary pump and a cylindrical shell surrounding the same containing spray-perforations, as specified.

7. In a sprinkler a rotary pump, a cylindrical shell surrounding the same containing a series of spray-perforations those toward the top being largest; and suitable means of adjusting the shell longitudinally to cut off, and rotatably to deflect the spray as specified.

8. In a sprinkler a rotary pump; a cylindrical shell surrounding the same containing a series of inlet-ports on one side corresponding to the width of the pump and a series of outlet spray-perforations on the opposite side also of a width corresponding to the width of the pump and larger toward the top of the cylinder than at the bottom, suitable means of adjusting the cylindrical shell longitudinally to regulate the pump simultaneously regulating the inlet and outlet; and suitable means of adjusting the cylinder rotatably to deflect the spray for the purpose specified.

9. In a sprinkler a rotary pump; a cylindrical shell surrounding the same containing a series of inlet-ports to one side, corresponding to the width of the pump and a series of outlet spray-perforations on the opposite side also of a width corresponding to the width of the pump and suitable means of adjusting the cylindrical shell longitudinally to regulate the pump, simultaneously regulating the inlet and outlet; and suitable means of adjusting the cylinder rotatably to deflect the spray for the purpose specified.

10. In a sprinkler a rotary pump; a cylindrical shell surrounding the same containing a series of inlet-ports to one side corresponding to the width of the pump and a series of outlet spray-perforations on the opposite side also of a width corresponding to the width of the pump; suitable means of adjusting the cylindrical shell longitudinally to regulate the pump, simultaneously regulating the inlet and outlet for the purpose specified.

11. In a sprinkler a rotary pump; a cylindrical shell surrounding the same containing a series of inlet-ports on one side corresponding to the width of the pump and a series of outlet spray-perforations on the opposite side also of a width corresponding to the width of the pump and suitable means of adjusting the cylinder rotatably to deflect the spray for the purpose specified.

12. In a sprinkler the combination of a forcing means; a cylindrical shell to receive the water and with a series of outlet-openings on one side those toward the top being largest; and suitable means of adjusting said shell longitudinally to regulate the amount and rotatably to control the direction of the spray to sprinkle a broad or narrow strip for the purpose specified.

13. In a sprinkler-car the combination with the tank and platform of the car; of a suitable forcing means; a cylindrical shell D, to receive the water, having a series of spray-openings on one side; a shaft connected to said shell; a lever J, connected to a collar on said shaft to adjust the same longitudinally; a cross-lever K, fixed on said shaft; a cross-lever K', fixed on said lever J, and connections J', J', between levers K and K', to rock the shaft and adjust the cylinder rotatably for the purpose specified.

14. In a sprinkler the combination with a supply-tank of a suitable forcing means; a cylindrical shell to receive the water having a series of spray-openings on one side; a shaft connected to said cylindrical shell; a lever connected to said shaft to adjust the shell longitudinally to regulate the amount of flow; a cross-lever fixed on said shaft with suitable connections to adjust the shell rotatably to control the direction of the spray for the purpose specified.

15. In a sprinkler, a rotary pump, a shell surrounding the same containing suitable spray-openings and a supply-passage leading to the pump for the purpose specified.

591,000. PORTABLE FENCE. JOHN R. MORRIS, near Jewell City, Kans. Filed Feb. 12, 1897. Serial No. 623,167. (No model.)

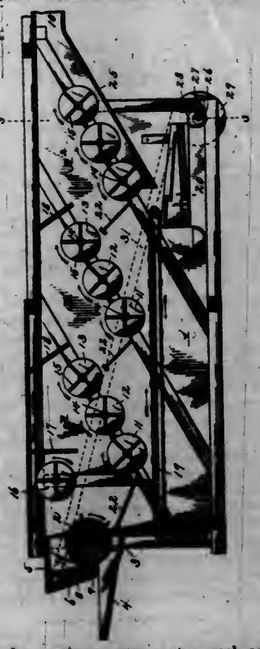


Claim.—1. In a portable fence, the combination with a series of panels comprising each two upwardly-extending posts connected by horizontal bars, of plates pivotally secured to each end of each panel and longitudinally adjustable with reference thereto, the plates of adjacent ends of contiguous panels having a hinged connection with each other, substantially as described.

2. In a fence, a panel comprising two vertical posts, two horizontal bars having their respective ends secured to the two posts, plates pivotally secured to each post and provided with eyes adapted to receive a pintle-pin, and means for longitudinally adjusting the plates with reference to the bars, substantially as described.

3. In a fence, the combination with the posts A, of the bars B, secured at their ends thereto, the wires C also secured at their ends to the posts A, the plates D provided with openings E and eyes H, bolts F secured to the posts A and having the plates D pivotally mounted thereon, and a pintle-pin for inserting in the eyes H, substantially as described.

591,001. GRAIN-SEPARATOR. JOHN M. MCCUE, Oak Cliff, Tex. Filed Jan. 17, 1896. Serial No. 575,885. (No model.)



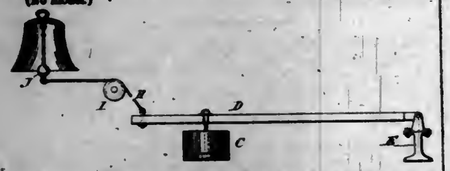
Claim.—1. In a grain-separator, a straw-rack consisting of a series of successively-arranged inclined sets of rotary winged beaters spaced at uniform distances apart, each separate inclined set having the same number of beaters, which beaters are disposed in the same oblique plane and are progressively speeded relatively, whereby each succeeding beater of each set has a faster rotation than the immediately preceding beater, the uppermost and lowermost beaters of the several sets being arranged in precisely the same horizontal plane, stationary screens 22 arranged in an inclined position and bridging the space between the directly proximate beaters of the adjacent sets to prevent the falling of the straw while at the same time permitting of the fall of loose grain, and inclined deflecting-boards 18, arranged transversely within the casing beyond and at one side of the uppermost beater of each set, said inclined deflecting-boards being disposed at such an angle as to provide means for deflecting the straw downward from the uppermost beater of one set directly onto the lowermost beater of the next succeeding set, substantially as set forth.

2. In a grain-separator, the combination with the casing, the threshing-cylinder, and the grain separating and cleaning devices; of an exteriorly-arranged tailings elevator-spout having a suitably-located blast-fan connection therewith, and a blast-deflecting device arranged at the front side of the cylinder and connected with the tailings elevator-spout to provide for deflecting the tailings under the cylinder, and also to create an inward draft of air for freeing the front feeding end of the machine from dust, substantially as set forth.

3. In a grain-separator, the combination with the casing, the threshing-cylinder, and the grain separating and cleaning devices, of a cylinder-cap provided with an outer inclined side 6 and an inner upright partition 7 terminating short of the lower edge of the inclined side 6, said side 6 and partition 7 forming a vertically-disposed blast-spout arranged in front of the cylinder and of a length equaling the same to provide for deflecting the tailings and blast of air inward under the cylinder, and an exteriorly-arranged tailings elevator-spout communicating at one end with the interior of said blast-

spout and having a blast-fan connection with its opposite end to receive the tailings from the cleaning devices of the separator and force the same through the spout, substantially as set forth.

591,002. ELECTRIC BELL-CHIMING APPARATUS. NEAL MCMENAMIN, Trenton, N. J. Filed Nov. 18, 1896. Serial No. 612,630. (No model.)



Claim.—1. Means for ringing bells and for other purposes, comprising essentially a circuit-closer, an operating lever or key for tilting the said circuit-closer to complete the circuit, and means to restore the circuit-closer to its normally inactive position when released from the influence of the lever or key, combined with a bell-actuating lever adapted to be connected with the bell, a pole-piece suspended from the bell-actuating lever, an electromagnet arranged adjacent to said pole-piece, and electric conductors wired with the electromagnet, the circuit-closer being arranged and operated to make and break the circuit between the said conductors, substantially as described.

2. A bell-chiming apparatus, comprising an actuating-lever adapted to be connected with the bell to be rung, a pole-piece suspended from the bell-actuating lever, an electromagnet arranged adjacent to said pole-piece, electric conductors wired with the electromagnet, a tilting circuit-closer arranged to complete the circuit between the aforesaid conductors and normally out of contact therewith, and a key arranged outside of the electric circuit and adapted to operate the circuit-closer to complete the circuit, the circuit-closer being operated and the circuit broken automatically upon the release of the key, substantially as described.

3. A bell-chiming apparatus, comprising a bell, an actuating-lever and suitable connections between the two, a pole-piece suspended from the bell-actuating lever, an electromagnet arranged adjacent to said pole-piece, electric conductors wired with the electromagnet, a tilting circuit-closer arranged to complete the circuit between the aforesaid conductors and normally out of contact therewith, and a key by means of which the circuit-closer may be operated to complete the circuit, substantially as and for the purpose described.

591,008. BARREL-MACHINE. ROBERT HAWRATH, Newark, N. J., assignor to The Vale Barrel-Machine Company, Limited, Hamilton, Canada. Filed Oct. 30, 1896. Serial No. 567,427. (No model.)

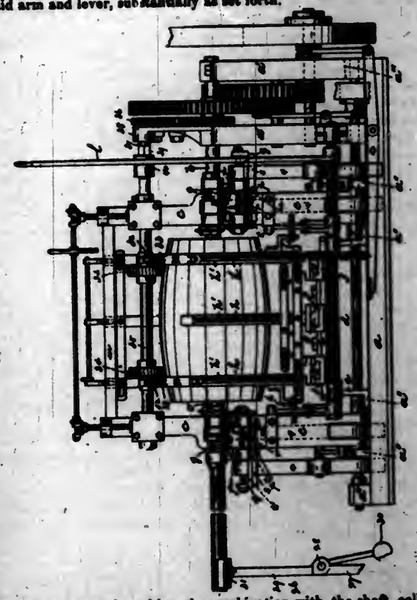
Claim.—1. In a barrel-machine, the combination with a continuous shaft, extensible entirely through the barrel, means for rotating said shaft, permanent bearings at one end of said shaft, a separable bearing toward the other end of said shaft, and a supplemental bearing arranged and constructed to admit the passage of the barrel-body therepast, and a collapsible frame arranged on said shaft, substantially as set forth, for the purposes stated.

2. In a barrel-machine, the combination with the sweeps and collapsible stave-supporting frame, and the shaft *b*, extending out from the machine proper a distance equal to or greater than the length of a barrel, of a permanent bearing at one end of said shaft, a hinged supplemental support or bearing 26, at the opposite projecting or free end of said shaft and separable bearings permitting a passage of the barrel to said projecting end of the shaft, all substantially as set forth.

3. In a barrel-machine, the combination with the shaft *b*, and means for rotating the same, of permanent bearings toward one end of the shaft, separable bearings toward the other end of said shaft, an intermediate collapsible stave-support, outside sweeps separable as described, and a hinged supplemental support, all arranged and combined, substantially as set forth.

4. In a barrel-machine, the combination with the collapsible frame and its shaft, and means for rotating the same, of sweeps, one of which is provided with a shaft-supporting arm and lever-like sweep-operating shaft-supports, separable from said shaft and cooperating with said shaft-supporting arm to form a box, substantially as set forth.

5. In a barrel-machine, the combination with the collapsible frame and its shaft, and means for rotating the same, of sweeps, one of which is provided with an arm *o*, recessed at its extremity to receive the said shaft, levers *c*, in train with said sweeps, and cooperating with said arm to form a box for said shaft, said lever being movable from said arm when operating said sweeps to open the same, and a supplemental bearing at a distance from the box, formed by said arm and lever, substantially as set forth.



6. In a barrel-machine, the combination with the shaft, collapsible frame and means for operating the same to secure a rotary movement, of separable sweeps, one of which has a shaft-arm *o*, a lever operating said sweeps, and having a bearing cooperating with said arm to form a box, and a weighted supplemental bearing distant from said box, substantially as set forth.

7. In a barrel-machine, the combination with the shaft, collapsible frame and means for rotating the same, of separable sweeps one of which has the arm *o*, a lever-like sweep-operating shaft-support separable from said arm, a supplemental shaft support or bearing, also separable from the shaft, a feed-roller shaft and means for operating the same, feed-rollers for forcing the staves between the sweeps, and collapsible frame, and cutters for trimming the ends of the barrel, before removal from the machine, substantially as set forth.

8. In a barrel-making machine, the combination with the shaft, collapsible frame, and means for operating the same, of front and rear sweeps separable from one another, and having feed-openings between, and means for operating said sweeps, of gates hinged to said sweeps, and cams for forcing said gates upon the staves, substantially as set forth.

9. In a barrel-machine, the combination with the shaft, collapsible frame, and means for rotating the same, of front and rear sweeps and means for operating the same, of hinged gates 33, and cam-levers for forcing said gates upon the barrel-staves, substantially as set forth.

10. In a barrel-machine, the combination with the shaft *b*, collapsible frame and means for rotating the same, of front and rear sweeps, and means for separating the same, a feed-roller shaft, feed-rollers and means for operating the same, gates hinged upon the sweeps for closing the feed-openings, and cam-levers fulcrumed upon said feed-roller shaft, and engaging said gates to force the same upon the staves, substantially as set forth.

11. In a barrel-machine, the combination with a bed-plate having stands *a'*, the shaft *b*, collapsible frame and means for operating the same, of sweeps and means for operating said sweeps, lever-like swinging arms, feed-rollers, a sectional feed-roller shaft one section of which is mounted in the lever-like arms and the other in one of the stands *a'*, and means for operating said shaft, the sections of said shaft being separably coupled together, and a sliding coupling 40, substantially as set forth.

12. In a barrel-machine, the combination with the bed-plate having stands; the shaft *b*, collapsible frame and means for operating the same, of sweeps and means for operating the same, lever-like swinging arms; feed-rollers, a sectional feed-roller shaft, the sections of which have bearings in said stands and swinging arms and a coupling having an end slot allowing an independent lateral play of the section of said shaft therein, substantially as and for the purposes set forth.

13. In a barrel-making machine, the combination with bed-plate having stands and lever-like swinging arms; the collapsible frame, sweeps and means for operating the same, of a feed-roller shaft and its feed-roller, said shaft being in sections having bearings in the stand and swinging arms, one of which is in constant train with means for rotating said shaft, and the other is allowed a lateral play with reference to the first, and said means for rotating said shaft, substantially as and for the purposes set forth.

14. In a barrel-making machine, the combination with the bed-plate having stands and the swinging arms, a collapsible frame, sweeps and means for operating the same, of a feed-roller shaft, and feed-roll for forcing the staves in position between said frame and sweeps, one section of the shaft having bearings in one of the stands and being transversely slotted and permanently in train with the operating means, and the other having bearings in said swinging arms and having a lateral play in the slot of said section, substantially as set forth.

15. In a barrel-making machine, the combination with the bed-plate having stands and a swinging arm, a collapsible frame, sweeps and means for operating the same, of a sectional feed-roller shaft having bearings in said stands and arms, and a coupling 40, the latter having an angular central opening and sliding on the angular head of one section, and having a slot to receive and allow play to the other section while rotating the same, and means for rotating said feed-roller shaft, substantially as set forth.

16. In a barrel-making machine, the combination with the sweeps, collapsible frame, sweep-operating lever, and means for connecting and operating the same, of brackets *p* and *p*, boxes *s* and *s*, carrying spindles *q*, *q*, in turn carrying circular cutters *v*, *v'*, the spindles *q*, *q*, being coupled or connected to occasion a simultaneous movement of the two cutters by one operation of the hand, and a hand-lever for operating said boxes to bring them into or out of engagement with the barrel-body, substantially as set forth.

17. In a barrel-machine, the combination with the sweeps, feed devices and means for operating the same, of a shaft *b*, and a collapsible frame, comprising two sets of lever-like segments, adapted to be turned pivotally to bring the segmental portions to or from a position to form a complete circle to receive the staves, the segments of one set alternating with those of the other, transmitting movement thereto, and means for turning said lever-like segments and holding them in position, substantially as set forth.

18. In a barrel-machine, the combination with the sweeps, feed devices and means for operating the same, of a shaft *b*, and a collapsible frame, comprising two sets of lever-like segments, the segments of one projecting into engagement with the others, and raising the same to positions to form a complete circle therewith, means for operating said segments, means for drawing the second set of segments, operated upon by the segments of the first set, to the collapsed positions, and means for supporting said segments in their distended positions, or positions forming the circle, substantially as set forth.

19. In a barrel-machine, the combination with the sweeps, and feed devices and means for operating the same, of a shaft *b*, disks 5, 5, series of shafts 11, 11, 11, segments fulcrumed thereon and movable oppositely on said shafts 11, the segments of one set being movable under the power of the segments of the others, and means for operating said parts, and star-wheels, the arms or rays of which underlie the segments to hold them in distended positions, substantially as set forth.

20. In a barrel-machine, the combination with the sweeps and means for operating the same, of a shaft *b*, disks 5, sleeve 6, shafts 11, lever-like segments, gear-wheels for turning said segments simultaneously, and means for holding said segments in distended position, substantially as set forth.

21. In a barrel machine, the combination with the sweeps, and means for operating the same, of a shaft *b*, disks 5, keyed to the shaft, a sleeve on said shaft between said disk, and loose on said shaft, a gear-wheel keyed to said sleeve, means for turning said gear-wheel by hand, a series of shafts 11, having bearings in said disks, and having segment-levers thereon, means for turning said segment-levers on said shafts, star-wheels supporting said segment-levers, and means for locking said segments, substantially as set forth.

22. In a barrel-machine, the combination with the sweeps, and means for operating the same, of a shaft *b*, disks 5, 5, keyed to said shaft, a sleeve arranged loosely on said shaft between said disks, a gear-wheel keyed to said sleeve, a series of cog-wheels meshing with said gear-wheel, and working on arbors with angular heads extending from the outer side of one of said disks, a gear-wheel 12, with missing teeth, two sets of lever-like segments, one set of which has segmental arms provided with teeth which engage the teeth of said gear-wheel 12, and the other set engaging the first and raised or distended thereby, springs for drawing the second set of segments to their collapsed positions, and means for supporting said segments in their said distended positions, substantially as set forth.

23. In a barrel-machine, the combination with the sweeps and means for operating the same, and a suitable feeding device, of a shaft and a collapsible frame thereon, adapted to receive the staves when distended, said frame including a series of pivotal segments having segmental portions cooperating to form a circle on which the staves are arranged, and inwardly-extending arms or portions providing pivotal bearings, the alternate members of the series having segmental arms geared to a common source of power, and having extensions engaging the other members of the series to operate the same, said common source of power, and means for operating said parts, all substantially as and for the purposes set forth.

24. In a barrel-machine, the combination with the sweeps and means for operating the same, the feed-rollers and circular cutters, and means for rotating the same, of a shaft adapted to extend through the barrel continuously, and having bearing between which the barrel may be formed, the bearings at one end of said barrel being separable from said shaft to allow the endwise passage of the barrel, and a collapsible frame arranged on said shaft, said collapsible frame comprising series of pivotal segments, the segments of one series alternating with those of the other series, and engaging the same to raise them to a position to form circles on which the staves are arranged to form the barrel-body, radial supports also arranged on said shaft and movable beneath the segments to hold them in the said circles, and locking-arms movable with said radial supports to lock said segments against pivotal action when distended, and means for connecting and operating said parts, substantially as and for the purposes set forth.

25. In a barrel-machine, the collapsible frame over which to form the barrel-body, which comprises the shaft *b*, end disks 5, 5, shafts 11, having bearing in said disks away from said shaft *b*, a sleeve 6, on said shaft *b*, between said disks 5, 5, a gear-wheel 7, fixed to said sleeve at one end thereof, pinions 8, on arbors 9, having bearings in one of said disks, and being adapted to be turned by a hand implement or tool, gear-wheels 12, 12, with missing teeth and hubs 13, locking-arms fastened to said gear-wheels 12, 12, supporting-arms 14, keyed upon said hubs 13, a series of segments 15, pivoted upon shafts 11, and provided with toothed segments engaging the teeth of the gear-wheels 12, and lock-bearings 18, a series of segments 21, pivoted on said shafts 11, and engaging by the segments 15, and springs 24, for collapsing the segments 21, all said parts being arranged and combined, substantially as set forth.

26. In a barrel-machine, the combination with a central shaft *b*, and a series of shafts 11, arranged therearound at a little distance therefrom, and carrying collapsible segments over which the barrel-body may be formed, of a series of pinions 8, 8, a common gear-wheel 7, in train with said pinions and said collapsible segments, whereby in turning one of said pinions, all of said segments will receive power and move to new positions simultaneously and together, substantially as set forth.

27. In a barrel machine, the combination with a central shaft *b*, and a series of shafts 11, assembled around the same at a little distance therefrom, and carrying pivotal segments which are angular in general outline, the inwardly-extending arms being arranged on said shafts 11, of a series of pinions also disposed around said central shaft, a common gear-wheel meshing with each of said pinions, and in train with said collapsible segments, whereby the latter move simultaneously and together, and means for supporting and locking said segments, substantially as and for the purposes set forth.

28. In a barrel-machine, the combination with a central shaft *b*, a series of shafts 11, arranged thereround, a sleeve arranged on said shaft, and two series of segments pivoted and movable oppositely on said shafts 11, the segments of one of said series having lateral projections 22, extensible under the segments of the other series, means in train with said sleeve and segments for operating the latter, and supporting-rays 14, for holding said arms in distended positions, substantially as set forth.

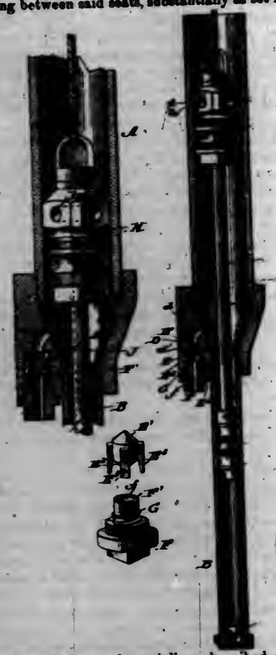
29. In a barrel-machine, the combination with a central shaft *b*, a series of shafts 11, arranged around said central shaft, a sleeve arranged loosely on said central shaft, two series of segments movable oppositely on said shafts 11, the segments of one series having lateral projections engaging and operating those of the other series, and star-wheels arranged to move with said sleeve, and having projections 25, adapted to engage the projections 22 and hold, each, a pair of oppositely-moving segments, substantially as shown and described.

591,004. PUMP. JAMES O'NEIL, Taylorstown, Pa. Filed May 31, 1895. Serial No. 551,264. (No model.)

Claim.—1. In a pump substantially as described the combination of the upper barrel, the lower barrel of less diameter than the upper barrel, the heads fitting in said barrels and connected whereby they move together, the double valve below the head operating in the upper barrel and two opposite seats for said valve substantially as set forth.

2. A pump having a draft-head a barrel in which said head fits

and operates and an outlet below said head having two opposite seats one toward the head and the other out toward the well and a double valve operating between said seats, substantially as set forth.



3. An improved pump, substantially as described, comprising the upper barrel the lower barrel of less area than the upper barrel, an outlet being provided between said barrels and a valve controlling said outlet, substantially as set forth.

4. In a pump substantially as described the combination with the valve having opposite valve portions the support for said valve having ports for said opposite portions and a spring seating said valve on one of its ports and adapted to permit its movement under excessive pressure to close the other port, substantially as set forth.

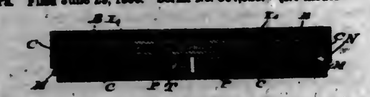
5. In a pump substantially as described, the combination of the upper and lower barrels of different areas, the connected heads fitted to and operating in said barrels an outlet being provided between said barrels and a valve controlling said outlet, substantially as set forth.

6. In a pump, substantially as described, the combination with the connection or support having a valve-seat, the plug also having a valve-seat opposite that of the connection or support, the valve having opposite portions fitting said valve-seats and the spring for actuating said valve, substantially as set forth.

7. The combination of the connection or support having a valve-chamber the plug closing one end of said chamber and having a tubular portion at its inner end, the valve having the opposite valve portions and provided with lateral depending arms fitting alongside the tubular portions of the plug and the spring embracing said portion and engaging the arms of the valve substantially as set forth.

8. The pump having the upper and lower working barrels and provided between the same with an outlet having opposite valve-seats and an intermediate valve-chamber the draft and pumping heads operating in said upper and lower barrels and the double-ended valve operating in the chamber and between the opposite seats and a spring normally closing said valve against the seat next the barrel and permitting said valve to move partly toward the opposite seat under some pressure and entirely against said seat under greater pressure, all substantially as and for the purposes set forth.

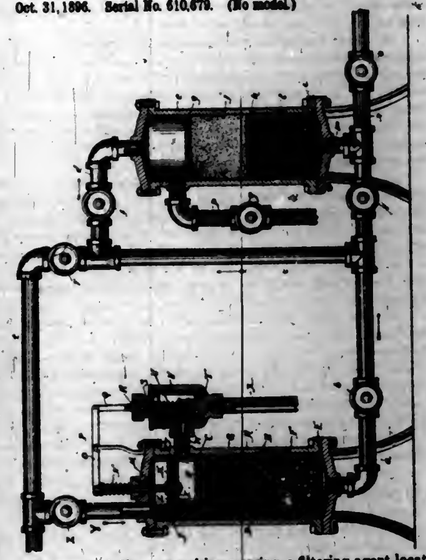
591,005. FOLDING CRATE. LAFAYETTE PALMER, Harrisburg, Pa. Filed June 29, 1896. Serial No. 597,333. (No model.)



Claim.—1. A folding crate consisting of a bottom, stationary side and end parts, folding side and end pieces hinged to said stationary parts, a lid and a removable partition, said stationary end parts being of less height than said side stationary parts, and said hinged end pieces having therein the recesses R adapted to receive the hinges of the side pieces when folded said partition having recesses for the catches of the folding side and end pieces.

2. A folding crate consisting of the bottom D, the sides B, a lid J and ends C, said sides being formed of the stationary parts E connected with said bottom and the folding parts F, hinged to said parts E, the ends C being formed of the stationary parts G connected with said bottom D and the folding parts H hinged to said parts G, the said parts E being of greater height than said parts G, and said folding parts H having recesses in their ends to receive the projecting portions of the hinges on the parts F when said parts are folded, hooks on the ends of said lid and eyes on the folding and stationary portion of said ends adapted to be engaged by said hooks as the box is in extended or folded position respectively in combination with a partition for said body, the same having recesses to receive the catches of the folding side and end parts of the body.

591,006. WATER-FILTER. SAMUEL C. PARSONS, Philadelphia, Pa., assignor of two-thirds to Thomas L. Matteson, same place. Filed Oct. 31, 1896. Serial No. 610,679. (No model.)



Claim.—1. A filter comprising a casing, a filtering agent located therein, a plunger adapted to slide within said casing, said plunger having a rod leading therefrom, means for maintaining the plunger in a normally-elevated position, an inlet-pipe entering the casing above the plunger, an outlet-pipe leading from the casing below the normal position of the plunger, and a valve so connected with the plunger as to be lifted from off its seat when the plunger is forced outward, as specified.

2. In a filter, a casing, a filtering agent located therein, a plunger fitted in the upper portion of said casing so as to slide, said plunger being perforated, a rod leading from the plunger, a spring for holding said plunger in a normal position, a valve connected with the plunger by suitable leverage, a cylinder in which said valve is located, an inlet-pipe leading to the casing above the plunger, and an outlet-pipe leading from the casing below the normal position of the plunger and communicating with the cylinder, substantially as and for the purpose set forth.

3. In combination, a casing, partitions B and C for dividing the interior of said casing into three compartments, filtering material located in the two inferior compartments, a plunger fitted to slide in the upper compartment, a rod leading from said plunger, a spring for elevating the rod and plunger, a valve-cylinder V, a pipe connecting the valve-cylinder to the casing, a pipe leading from said cylinder, a valve adapted to close the passage to the pipe X, a suitable connection between the valve and the plunger-rod, and a pipe e leading from the casing below the filtering agents, substantially as and for the purpose set forth.

4. The herein-described combination of a primary filter and a secondary filter, the primary filter consisting of a casing divided into three compartments by the partitions B and C both of which are perforated, filtering agents located in the two inferior compartments, a plunger fitted to slide within the upper compartment, a rod M connected to said plunger, a spring N coiled about said rod, a lever O pivoted at one end to the rod, a valve-stem connected to the opposite end of said lever, a valve carried by said stem, a cylinder in which said valve is located, an inlet-pipe leading to the casing above the plunger, a pipe W leading from the casing to the cylinder, and a pipe X leading from the cylinder to a suitable drain, and a pipe e arranged to connect the primary and secondary filters, substantially as and for the purpose set forth.

5. In combination with a filter of the character described, an outlet-pipe located near the top of the filter, a spring-pressed porous plunger held normally above the pipe, a valve controlling the outlet-pipe and adapted to be raised out of its seat when the plunger is depressed below the outlet-opening, substantially as described.

6. A filter having a porous plunger arranged therein, an outlet-pipe, means for holding the plunger normally above the pipe, said plunger, when clogged being adapted to be depressed below the opening by the pressure of the water, substantially as described.

7. In a device of the character described, a casing, a plunger therein said plunger consisting of a perforated receptacle, a filtering agent provided in said receptacle and a screen secured over the filter agent, a pipe leading from said receptacle and a spring for normally holding said plunger above the pipe, the plunger when clogged being adapted to be depressed below the outlet-opening by the pressure of the water overcoming the action of the spring substantially as described.

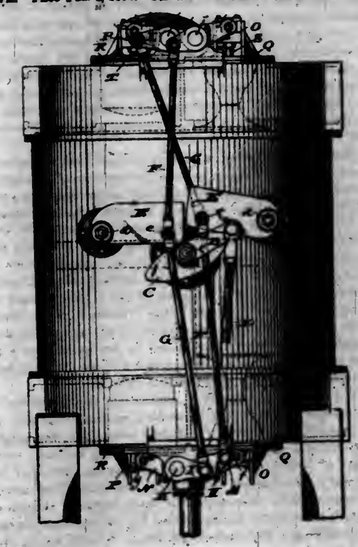
591,007. PENCIL. CHARLES H. RANDALL, Chicago, Ill. Filed June 20, 1896. Serial No. 596,258. (No model.)



Claim.—1. A lead-pencil comprising a core A, movably positioned within a holder B, the latter comprising a plurality of layers of paper wrapped about the core, the outer layers being secured together to form a firm exterior, and the inner layers being wrapped relatively loose to hold the core with elastic pressure, substantially as described.

2. A lead-pencil comprising a core A, movably positioned within a holder B, the latter comprising a plurality of layers of paper wrapped about the core, the outer layers being secured together to form a firm exterior, and the inner layers being wrapped relatively loose to hold the core with elastic pressure, in combination with a plug inserted within the holder B at one end of the core, and means for forcing the plug against the core to feed the latter endwise through the wrapper, substantially as described.

591,008. BLOWING-ENGINE. EDWIN REYNOLDS, Milwaukee, Wis. Filed Feb. 1, 1897. Serial No. 621,434. (No model.)



Claim.—1. A blowing-engine cylinder having port-controlling valves each of which comprises a flat disk having a gradually-diminished continuous wall on one side terminating at its small end in a hub, a guide for this hub, a stem extending through the hub from the disk, and valve-operating mechanism in connection with the stem.

2. A blowing-engine cylinder having head-ports provided with beveled seats, valves for these ports in the form of disks having beveled edges corresponding to said seats, a continuous gradually-diminishing wall extending from one side of each disk and terminating in a hub, a guide for the hub, a stem extending through the hub from the disk, and valve-operating mechanism connected to the stem.

3. A blowing-engine cylinder having a mechanism for simultaneous operation of intake and delivery valves, said mechanism comprising a rocker-arm intermediate of the cylinder-heads, a cam oscillative with the rocker-arm, a pair of levers arranged to be alternatively moved in one direction by the cam but having a reverse action independent of the same, rock-shafts in bearing connection with the cylinder-heads, a pair of rods in loose connection with each lever but extended therefrom in opposite directions, and a crank connecting each rod with one of the aforesaid rock-shafts.

4. A vertical blowing-engine cylinder having a mechanism for simultaneous operation of intake and delivery valves, said mechanism comprising a rocker-arm intermediate of the cylinder-heads, a cam oscillative with the rocker-arm, a pair of gravity-levers arranged to be alternately lifted by the cam, rock-shafts in bearing connection with the cylinder-heads, a pair of rods in loose connection with each lever but extended therefrom in opposite directions, and a crank connecting each rod with one of the aforesaid rock-shafts.

5. A vertical blowing-engine cylinder having a mechanism for simultaneous operation of intake and delivery valves, said mechanism comprising a rocker-arm intermediate of the cylinder-heads, a cam oscillative with the rocker arm, a pair of levers arranged to be alternately lifted by the cam but having reverse action independent of the same, rock-shafts in bearing connection with the cylinder-heads, a pair of rods in loose connection with each lever but extended therefrom in opposite directions, a crank connecting each rod with a rock-shaft, and a counterweight arranged with reference to such valve or valves that would otherwise tend to gravitate from seated position.

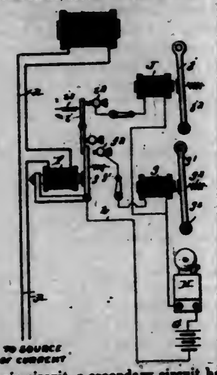
6. A vertical blowing-engine cylinder having inwardly-opening intake-valves provided with stems connected to rock-shafts in bearing connection with the cylinder-heads, pot-form delivery-valves cooperative with plungers having stems connected to other rock-shafts in bearing connection with the cylinder-heads, a rocker-arm intermediate of said cylinder-heads, a cam oscillative with the rocker-arm, levers arranged to be alternatively lifted by the cam but having reverse action independent of the same, a pair of rods in loose connection with each lever but extended therefrom in opposite directions, cranks connecting one of the rods with a valve-connected rock-shaft and the other rod with a plunger-connected rock-shaft, whereby simultaneous operation of intake and delivery valves is effected; and a weight fast on the upper valve-connected rock-shaft, this weight being arranged to counteract the tendency of the upper intake-valve and lower delivery-valve plunger to gravitate from seated position.

591,009. AUTOMATIC FIRE-ALARM. THOMAS F. ROGERS and FRANCIS SMITH, Little Falls, N. Y. Filed Feb. 1, 1897. Serial No. 621,474. (No model.)



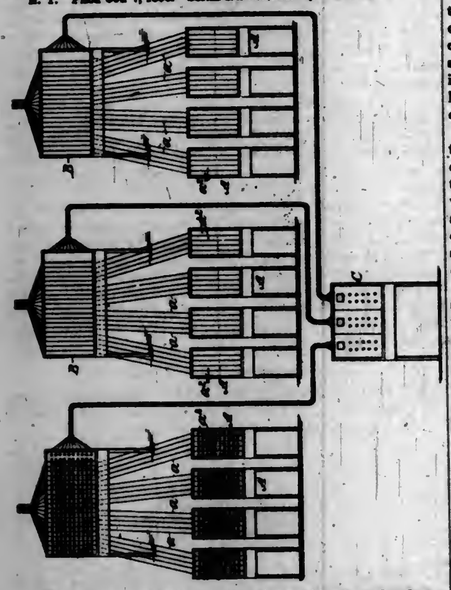
Claim.—In an automatic fire-alarm, the combination with the insulating base-plate, said base-plate being provided with a centrally-located hollow portion, the forward end of said portion being reduced so as to form a square shoulder, two conductors, forming part of an electric alarm system, extending into said hollow portion, a plunger slidably mounted in said hollow portion, said plunger being provided at its rear end with a piston having a longitudinal guiding-surface and a conical end portion, a spiral spring interposed between the piston and the said shoulder in the hollow portion of the base-plate, the forward portion of the said plunger being reduced and terminating in a knob, a hole extending through the thick portion of the plunger adjacent to the reduced portion thereof, a pin capable of being destroyed when exposed to a predetermined temperature, partly extending through said hole, said pin being provided with an enlarged portion or head, a staple or guide located on the front surface of the base-plate, engaging said head of the pin, substantially as described and for the purpose set forth.

591,010. AUTOMATIC TEST-CIRCUIT. LEWIS S. HOWARD, Camden, N. J. Filed Dec. 22, 1896. Serial No. 616,672. (No model.)



Claim.—A main circuit, a secondary circuit having a source of current-supply independent of the main circuit's supply, said secondary circuit having separate branches, indicating devices in each branch and a switch in each branch, the switch of one branch being provided with a device tending to keep it closed, and the switch of the other branch with a device tending to keep it open, an electromagnet acting when energized against both said devices.

591,011. TELEPHONE SYSTEM. ALLEN W. ROSE, New York, N. Y. Filed Oct. 7, 1896. Serial No. 608,108. (No model.)



Claim.—1. In a telephone system the combination of a frame, an indicator having a stem sliding in said frame and insulated therefrom, a magnet having an armature to control said indicator, a back contact for said stem, circuit connections to said frame and said back contact, a plug having separate contacts for said frame and said stem respectively, separate line connections to said frame and back contact respectively and separate connections to the contacts of said plug, whereby upon application of said plug to said frame the connections to the plug are brought into circuit with said line connection substantially as shown and described.

2. In a telephone system the combination of a frame, an indicator having a stem sliding in said frame and insulated therefrom, a magnet having an armature to control said indicator, a spring-contact operated by movement of said stem, a fixed contact against which said spring-contact normally rests, a connection from said fixed contact to said magnet, circuit connections from said frame and spring-contact, a plug having contacts for said frame and said stem respectively and connections to the contacts of said plug, substantially as shown and described.

3. In a telephone system the combination of a frame, an indicator having a stem sliding in said frame and insulated therefrom, a magnet having an armature to control said indicator, a spring-contact operated by movement of said stem and insulated therefrom, a fixed contact against which said spring-contact normally rests, a connection from said fixed contact to the frame through said magnet, a second fixed contact against which said spring-contact is pushed by the movement of said stem, a connection from said second contact directly to said frame, a back contact for said stem, circuit connections from said spring-contact and said back contact, a plug having contacts for said frame and said stem respectively and connections to the contacts of said plug, substantially as shown and described.

4. A telephone-exchange operator's table comprising a frame, a series of strips mounted upon said frame and independent of each other, call-off, listening and ringing keys supported by each of said strips and connections for said keys, whereby each of said strips with the keys carried by it may be removed independently of the other strips, substantially as shown and described.

5. A telephone-exchange operator's table comprising a frame, a series of strips mounted upon said frame and independent of each other, call-off, listening and ringing keys mounted upon said strips, contacts carried by each of said strips and connected to said keys, and contacts fixed upon said frame to correspond with the contacts of each of said strips, substantially as shown and described.

6. In a telephone system, the combination of normally open contacts connected respectively to the subscriber's circuit and to the operator's telephone, a key movable to close said contacts and to operate as a visible signal, and a magnet included in the subscriber's circuit to control the movement of said key as a visible signal, substantially as shown and described.

7. In a telephone system, the combination of normally open contacts connected respectively to the subscriber's circuit and to the operator's telephone, a key movable in one direction to close said contact and in the opposite direction to operate as a visible signal, a spring to move said key in the last-named direction, and a magnet included in the subscriber's circuit to control the movement of said key under the influence of said spring, substantially as shown and described.

8. In a telephone system, the combination of normally open contacts connected respectively to the subscriber's circuit and to the operator's telephone, a key movable longitudinally in one direction to close said contact and in the opposite direction to operate as a visible signal, a spring to move said key in the last-named direction, a catch fixed to said key, and a magnet included in the subscriber's circuit, the armature of said magnet engaging said catch to retain said key against the action of the spring, substantially as shown and described.

9. In a telephone system, a primary board, a distributing-board, subscribers' connection devices on each of said boards, connections from each subscriber's circuit to the connection devices of the primary board through the connection devices of the distributing-board, a normally closed contact included in said connections, a normally open circuit from each connection device of the distributing-board to each connecting device of the primary board, means to close said circuit and to open said normally closed contact by the insertion of a plug in each of the corresponding connection devices, and a signaling device included in said circuit, substantially as shown and described.

10. In a telephone system, a primary board, a distributing-board, subscribers' connection devices on said primary board, subscribers' connection devices on said distributing-board comprising each a bushing, a sliding stem insulated from said bushing, a spring-contact in the path of said stem and operated by an extreme movement thereof, a fixed contact against which said spring-contact normally rests, connections from the subscriber's circuit to said spring-contact and said bushing, connections from said fixed contact and said bushing to the corresponding connection device of the primary board, normally open contacts closed by the initial movement of the stem, a circuit from said contacts normally open at the primary board, means to close said circuit at the primary board by the insertion of a plug in the corresponding connection device, and a signal device included in said circuit, substantially as shown and described.

11. In a telephone system, the combination of subscribers' circuits, corresponding subscribers' connection devices, plugs and connections in pairs for connecting different subscribers, the plugs of each pair having a common connection and being normally wholly independent of the line or subscribers' circuits, an operator's telephone normally disconnected entirely from the subscribers' circuits, normally open contacts connected with the subscribers' circuits and the operator's telephone, a spring-pressed key to close said contacts, a catch to retain said key against full return by said spring and a magnet included in the subscriber's circuit to operate said catch and release the key, substantially as shown and described.

12. In a telephone system, the combination of a subscriber's circuit, a pair of normally open contacts, an operator's telephone having its primary coils connected in circuit with said contacts, a second pair of contacts normally open connected respectively to one side of the secondary coils to the operator's telephone and to the subscriber's circuit, and a third pair of contacts normally open connected respectively to the other side of the secondary coils of the operator's telephone and to the other side of the subscriber's circuit, and means for closing all of said normally open circuits, substantially as shown and described.

591,012. TIRE-VALVE. GEORGE H. F. SCHRADER, New York, N. Y. Filed June 4, 1896. Serial No. 594,264. (No model.)



Claim.—1. In tire-valves, a casing having a valve-chamber and an annular seat at the end thereof, in combination with a thin washer of packing material constituting a valve proper, within said chamber, engaging said seat and disconnected from the other parts of the valve, and a plunger bearing against said washer, holding it toward said seat and disconnected from said washer.

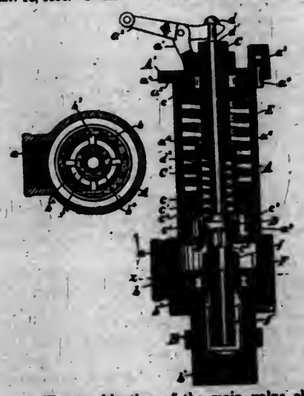
2. In tire-valves, a casing having a valve chamber and seat, in combination with a valve proper therein, and a stop between said casing and valve proper limiting the opening movement of the latter to prevent impairment of the valve, consisting of an exposed unconfined solid projection on the one and an exposed unconfined surface on the other opposite and abutting against said projection.

3. In tire-valves, a casing having a valve-seat and valve-chamber, and a valve proper opposite said seat, in combination with a spring compressed by the opening movement of the valve proper, and a stop within said chamber engaging the valve proper and limiting compression of said spring, consisting of an exposed rigid projection carried by the casing within said spring, and an exposed unconfined surface on the valve proper opposite and abutting against said projection.

4. In tire-valves, a casing having a valve-seat, and a valve-chamber, in combination with a tubular plug G closing the inner end of said chamber, a rigid exposed stop J projecting therein and carried by said plug, a valve D and plunger E within said chamber between said seat and stop, said plunger having an exposed unconfined surface opposite and abutting freely against said stop, and a spring F within said chamber surrounding said stop and reacting against said plug and plunger to seat the valve.

5. In tire-valves, a casing A, having an outer socket *a*, neck *b*, annular valve-seat C and valve-chamber *d*, in combination with a screw-plug G closing the inner end of said chamber, a loose disk D engaging said seat, a loose plunger E holding said disk toward the seat, a spring F between said plunger and plug, and a deflater I traversing said neck for unseating said valve.

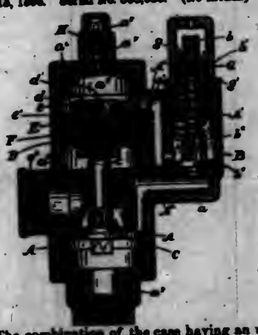
591,013. SAFETY-VALVE. FRANK SCHREIDT, Mansfield, Ohio. Filed Mar. 16, 1896. Serial No. 583,602. (No model.)



Claim.—1. The combination of the main-valve chamber, the main valve having a tubular stem extending into the inlet-passage and a tubular extension upon the back of said valve having a valve-seat within it, a tubular stem having a reduced lower end to pass through the partition of the main-valve chamber, a seat within the upper tubular extension of the main valve the enlarged upper portion of said stem above the partition having a valve in its lower end and a piston above the valve forming a pressure-chamber, a tubular follower screwed into said stem and forming an upper extension thereof, a spring compressed between said follower and said valve to hold it to its seat the tension of said spring being regulated by the follower, a spring to bear upon the piston of the tubular stem and hold the main valve to its seat, a follower above said spring in the upper end of the case, and the top cap of the case having a screw-threaded neck to engage the external thread in the upper end of the case and bear upon said follower, whereby the tension of the main-valve spring is regulated, substantially as shown and described.

2. The combination of the case having a main-valve chamber, a tubular extension screwed into the upper end of said valve-chamber having its lower end perforated, and a screw-threaded neck or extension surrounding said perforation, a tubular stem passing through said neck extending through the top of the case having a valve-seat within it, and a piston carried by it to fit the tubular extension, the main valve centrally perforated and having an upper tubular extension to receive the diminished neck of the tubular stem, a packing-nut to make a steam-joint between the tubular extension of the case and the tubular stem, a valve in said tubular stem having its stem extending outside of the tubular stem, a spring to hold said valve to its seat, a spring bearing upon the piston of the tubular stem to hold the main valve to its seat, and means such as shown for regulating the tension of the valve-springs substantially as shown and described.

591,014. SAFETY-VALVE. FRANK SCHREIDT, Mansfield, Ohio. Filed July 13, 1896. Serial No. 599,033. (No model.)



Claim.—The combination of the case having an upper chamber therein, the outwardly-closing main valve having its stem extending into said chamber, the piston secured upon said valve, the supplemental valve for admitting steam above said piston to open the main valve, a spring to hold the supplemental valve to its seat against the pressure, and a regulating-valve for the upper chamber, substantially as shown and described.

591,015. SAFETY-VALVE. FRANK SCHREIDT, Mansfield, Ohio. Filed Nov. 27, 1896. Serial No. 613,684. (No model.)



Claim.—1. The combination of the main valve-case having a steam-chamber within it to communicate with the steam under pressure from the boiler, valve-seats upon opposite sides of said chamber, two connected valves seated thereon the upper one having its exposed area greater than the lower one when seated, a spring-pressed follower bearing upon the valves in opposition to the steam-pressure, means such as shown to adjust and hold the tension of the spring-

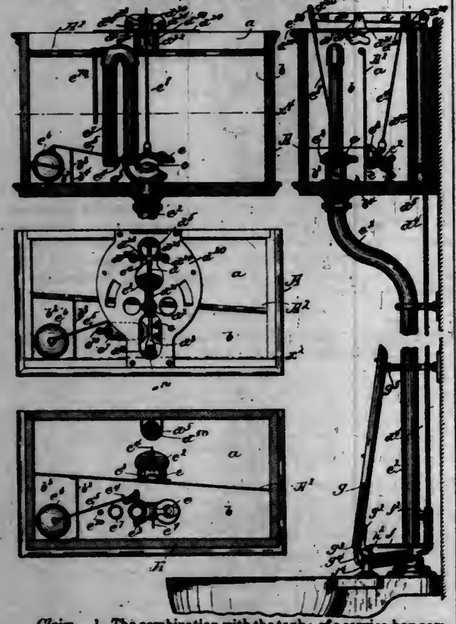
follower, an overlapping piston-flange to receive the pressure of the steam when the valve is started from its seat, and a steam-chamber in which said piston is loosely fitted, substantially as shown and described.

2. In a safety-valve the combination of the main valve-case, the steam-chamber within it having passages around it leading to the discharge provided with seats upon the opposite sides and having a perforated pocket surrounding one of said seats, two connected valves to control the steam under pressure, the stem of said valves extending through an upper closed chamber, the upper one of said valves having an extended flange or piston to slide in said upper chamber and an adjustable spring-follower to bear upon the stem of said valves and hold them to their seats until the pressure in the boiler has exceeded its predetermined limit, substantially as shown and described.

3. The combination in a safety-valve of the main case having a steam-chamber within it and valve-seats in its upper and lower walls, the space around said chamber leading to the exhaust-port, the upper closed chamber, a spring-pressed follower-case screwed into the main case, said case having a web or partition dividing the steam and spring-follower chambers, connected valves to control the pressure in the boiler having a common stem passing through the web of the upper case and a piston on said stem loosely fitting the steam or inclosed chamber in said case, a spring-pressed follower bearing upon said stem and an adjustable case for the spring, whereby its tension is regulated, substantially as shown and described.

4. The combination substantially as hereinbefore set forth of the main valve-case having a steam-chamber within it provided with discharge-ports leading to the main case and seats surrounding said ports, the upper case screwed into the main case and divided by a partition or web into a closed chamber and an open spring-follower chamber, the connected valves having a common stem extending through the web in the upper case, the upper valve having an extended flange to form a loose piston for the closed chamber, the spring-case screwed into the follower-case, the follower having a stem extending through the top of the spring-case and bearing on the stem of the main valves, a spring bearing upon said follower to regulate the pressure by which the valves are held to their seats.

591,016. FLUSHING DEVICE. WILLIAM SCOTT, Medford, Mass. Filed Oct. 12, 1896. Serial No. 608,557. (No model.)



Claim.—1. The combination with the tank; of a service-box communicating therewith and provided with a service-pipe having a normally open flushing-valve, means for closing said flushing-valve dependent upon the rise of the level of the water admitted to said service-box, a siphon discharge-pipe communicating with said service-pipe, and means for starting siphonic action to discharge the service-box, substantially as described.

2. The combination with the tank; of a service-box communicating therewith and provided with a service-pipe having a normally open flushing-valve, means for closing said flushing-valve dependent upon the rise of the level of the water admitted to said service-box, a siphon discharge-pipe communicating with said service-pipe, means for starting siphonic action to discharge the service-box, and a vent for breaking the siphon after the water has reached a predetermined level, substantially as described.

3. The combination with the tank, of a normally closed tank-valve controlling the outlet therefrom, a service-box adapted to receive water from said outlet, a self-closing flushing-valve controlling the outlet from said service-box to the service-pipe, a device connecting said valves whereby the flushing-valve is maintained open during the closure of said tank-valve, a siphon discharge-pipe communicating with said service-pipe, and means for starting siphonic action to discharge the service-box, substantially as described.

4. The combination with the tank and service-box provided with a communicating passage, of a tank-valve controlling said passage, a lever having one arm connected to said tank-valve, a flushing-valve connected with said lever whereby it is opened upon the closure of the tank-valve and adapted to be closed upon the opening thereof, and a siphon discharge-pipe communicating with the passage controlled by the flushing-valve; whereby siphonic action is started to discharge the service-box upon the opening of said flushing-valve, substantially as described.

5. The combination with the tank and service-box provided with a communicating passage, of a tank-valve controlling said passage, a normally open flushing-valve controlling the service-box outlet, a device for maintaining said valve open when the service-box is empty and closing the same after the water has risen to a predetermined level in the service-box, means for partially opening said flushing-valve in response to the closure of the tank-valve, and a siphon discharge-pipe communicating with said service-pipe, substantially as described.

6. The combination with a flushing-tank; of a service-box adjacent thereto; a passage leading from the flushing-tank to the service-box; a tank-valve for said passage; a flushing-valve adapted to control the outlet from the service-box to the service-pipe; a lever connected on opposite sides of its fulcrum with said valves respectively; means for rocking said lever upon its fulcrum; and a siphon discharge-pipe within the service-box communicating with the service-pipe, substantially as described.

7. The combination with the tank, of a service-box communicating therewith, a tank-valve controlling the communicating passage, a service-pipe and flushing-valve, a siphon discharge-pipe communicating with said service-pipe, a pocket or chamber in said service-box, a float in said pocket adapted when said pocket is empty to maintain the flushing-valve open, a valve-actuating device adapted by its movement in one direction to open the tank-valve without affecting the flushing-valve, and by its movement in the other direction to close the tank-valve and partially open the flushing-valve, whereby siphon action is started to discharge the service-box, and an outlet from said pocket to the service-box, substantially as described.

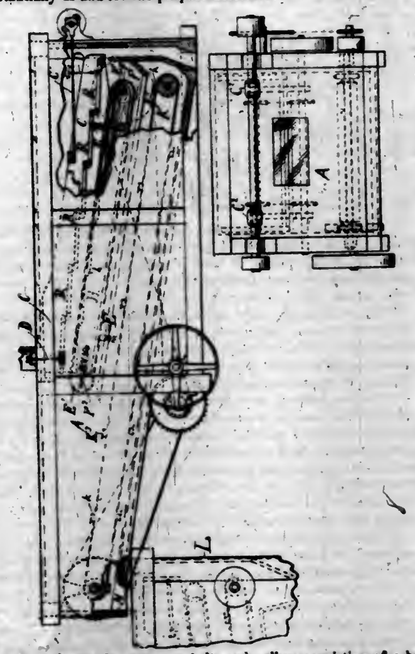
8. The combination with the tank, of a service-box; a communicating passage between said tank and service-box, a tank-valve controlling the said passage, a self-seating flushing-valve adapted to control an outlet from said service-box, and an independently-pivoted float adapted when not supported by fluid to engage and open said valve, whereby the said valve may be opened without depressing the float, substantially as described.

9. The combination with the seat *g*, of a support therefor consisting of the rod A mounted on the studs A^3 supported upon the bowl proper, a hinge secured to said seat and mounted on said rod *g*, a rocker also sleeved on said rod A and provided with a shoulder adapted to engage the rear edge of the said seat, a valve-actuating device connected to said rocker, a bore or recess in said rocker, a spring-plunger supported and guided in said recess and connected with said seat, and a retarding device for said plunger, substantially as described.

591,017. FLOUR-DRESSING MACHINE. GEORGE T. SMITH, Cleveland, Ohio, assignor to the George T. Smith Mill Building Company, same place. Filed July 29, 1896. Serial No. 600,892. (No model.)

Claim.—1. In a separator of the class described, the combination with a series of sieves located at different heights, of an endless belt or chain carrying brushes, said brushes being guided on their way across the machine and in contact with said sieves by guide-strips provided with steps or cams corresponding with the location of the sieves, said cams being in such location and juxtaposition as to keep the brushes in contact with the several sieves as said brushes travel along, substantially as shown and described.

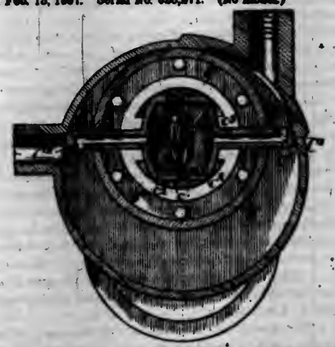
2. In a separator of the class described, the combination with the conveyer-belt, of rolls over which said belt passes and a cleaner adjustable to one of said rolls and having oppositely-inclined wings substantially as and for the purpose described.



3. A cleaner for conveyer-belts and rollers consisting of a bar provided with inclined wings, said bar with its wings being located between the conveying-belt and in such juxtaposition to the roll as to receive the material dropping from the belt and convey it to either side, substantially as shown and described.

4. In a separator having a conveyer-belt and rolls for guiding the same, the combination with said rolls, of a cleaner inclosed above and below by said conveyer-belt and having oppositely-inclined wings and an adjusting device substantially such as described whereby the cleaner and roller may be adjusted independently one of the other, substantially as shown and described.

591,018. PNEUMATIC MOTOR. GEORGE W. SMITH, Topeka, Kans. Filed Feb. 13, 1897. Serial No. 623,871. (No model.)



Claim.—1. In a portable pneumatic drilling-tool, the combination of a casing provided with a fluid-pressure chamber and inlet and outlet passages, a rotatable piston mounted therein composed of two hollow semicylindrical portions and two end portions having semicircular projections forming transverse channels on their inner faces adapted to receive and guide the blade mechanism, two reciprocating blades movably mounted in the rotating piston, and a cylinder and piston on the inner end of each of the blades having communication with the fluid-pressure chamber of the casing so that fluid-pressure may operate the blade-pistons, substantially as and for the purpose described.

2. In a portable pneumatic drilling-tool, the combination of a casing provided with a fluid-pressure chamber and inlet and outlet passages, a rotatable piston mounted therein composed of two hollow semicylindrical portions and two end portions having semicircular projections forming transverse channels on their inner faces adapted to receive and guide the blade mechanism, two reciprocating blades movably mounted in the rotating piston and provided with pressure-cylinders on their inner ends, a piston in the pressure-cylinder of each of the blades having communication with the fluid-pressure chamber of the casing so that fluid-pressure may operate the blade-pistons, and spring mechanism inserted between the blade-pistons to hold the same apart, substantially as described.

591,019. SOLE-SEWING MACHINE. JAMES W. SNELL, Lynn, Mass., assignor to Lizzie R. Snell, same place. Filed Oct. 21, 1896. Serial No. 609,537. (No model.)

Claim.—1. In a sole-sewing machine, in combination with the stitch-forming devices, a nozzle having a discharge-opening at or near its lower end and contiguous to the stitch-forming devices as specified, a source of water or fluid supply, a flexible pipe connecting it with the said nozzle, a valve in said pipe and a treadle connected with said valve and with the starting and stopping mechanism of the sewing-machine, whereby the movement of the treadle in one direction starts the machine and simultaneously opens the valve, and the continued actuation of the treadle keeps the machine in operation and the valve open, and the release of the treadle permits the stopping of the machine and closes the valve.

2. In a sole-sewing machine, in combination with a nozzle arranged to discharge water or other moistening fluid in the channel of the sole in close proximity to the stitch-forming devices, a valve and pipe connecting said valve with the nozzle, a treadle connected with the starting mechanism of the sewing-machine to operate the same, and with the valve whereby the valve is opened simultaneously with the starting of the sewing-machine and by a single movement of a treadle.

3. In a sole-sewing machine, a nozzle having the outlet in close proximity to the stitching devices and in the channel of the sole, a valve, a pipe connecting the valve with the nozzle, a lever, a treadle automatically moved upon its release to disengage the power from the stitching-machine and a connection between said treadle or a part automatically moved therewith and the said valve, as and for the purposes described.

4. The combination in a sole-sewing machine of a nozzle having an outlet in close proximity to the lower end of the presser-foot, a valve, a pipe connecting said valve with the said nozzle and a spring connected with the said valve to close the same automatically upon the release of the spring.

5. In a sole-sewing machine, the combination of a nozzle having an outlet at or near the lower end of the presser-foot, a valve, a pipe

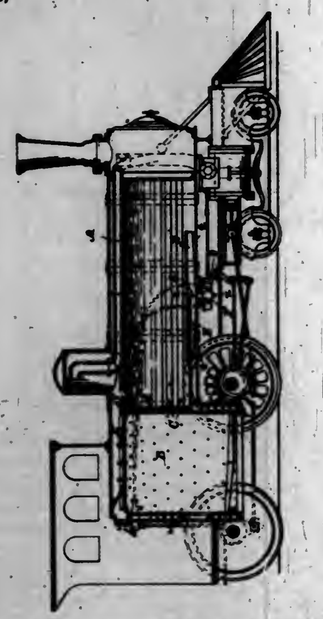
connecting said valve with the nozzle and means actuated upon the starting of the machine to open the valve upon the starting of the machine and to close the valve upon the stopping of the machine and to hold it continuously open during the operation of the machine.

6. The combination in a sole-sewing machine of a nozzle having an outlet in or near the lower end of the presser-foot, a valve and supply-pipe connecting the valve with the nozzle, the treadle C, the power-shaft c^3, the clutch-pulley c^5 upon said shaft free to turn thereon and connected with said treadle, the pulley c^4 upon the main shaft of the sewing-machine, the belt c^7, the clutch member c^6 fixed to the power-shaft c^3, the spring c^{10} and a connection between the valve C and the said treadle C.

7. A sole-sewing machine having a sole-moistening device, a valve and means for actuating the valve, whereby it is opened upon the starting of the machine, held continuously open during its operation and is automatically closed upon the stopping of the machine.

8. The combination of the valve C attached to a stationary part of the frame, a nozzle having a discharge-outlet and a flexible pipe of some length extending about the working parts of the machine from the stationary valve to the nozzle, a pipe connecting the said valve with a source of supply and means for actuating the valve in its stationary position.

591,020. LOCOMOTIVE. JOHN J. SPEER and RUDOLPH W. REDLICH, Waterbury, Conn. Filed Feb. 13, 1896. Serial No. 579,140. (No model.)



Claim.—1. The combination with the boiler of a locomotive having a water-supply inlet, of a water-distributer placed over said inlet and consisting of an angular sheet-metal covering the length of which is greater than its width, and said width being greater at its center, means for securing said distributer to the boiler.

2. The combination with a boiler provided with a water-supply cock, of an inverted-trough-like deflector arranged over said supply, a blowpipe adjacent to said cock, connections of said pipe with the surface water in the boilers, whereby said impure surface water is discharged through said blowpipe and the cock above mentioned.

3. The combination with a boiler provided with a blow-off cock, of a blow-off pipe connected with the surface water of said boiler and terminating adjacent to, but not connected with said cock, means for opening said cock and creating a suction through said blow-off pipe, substantially as described.

4. The combination with a boiler, of a blow-off pipe therein, the mouth of which is substantially in line with the surface water of the boiler, a cock adjacent to the mouth of said pipe, check-valves connected with said cock and adapted to feed the boiler therethrough, means for manipulating said cock to feed the boiler and also for blowing off the same, substantially as described.

591,021. TIME-STAMP. CHARLES STAHLBERG, New York, N. Y., assignor to the Accurate Time Stamp Company, of West Virginia. Filed Sept. 26, 1891. Serial No. 406,810. (No model.)



Claim.—1. In a time-stamp, the combination with the clock-train and the minute and hour wheels gearing on said train through intermediate equalizing-springs, of the date and month wheels having independent actuating-springs rewound by the clock-train at stated intervals, substantially as described.

2. In a time-stamp, the combination with the clock-train, hour and minute wheels gearing therewith through intermediate equalizing-springs, of the month and date wheels, the operating spring-operated segments therefor, and the mutilated gears driven from the clock-train for rewinding said segments, substantially as described.

3. In a time-stamp, the combination with the constantly-moving clock-train, the date units-wheel, its spring-operated actuating-segment, the mutilated gear for rewinding said segment in train with the clock-train, of the date tens-wheel and month-wheel, their spring-operated actuating-segments, the mutilated gears for rewinding said segments in train with the units-wheel of the locking-levers for said wheels and the pins on the said last-mentioned mutilated gears for releasing said levers, substantially as described.

4. In a time-stamp, the combination with the constantly-moving clock-train, the date units-wheel, its spring-operated actuating-segment and the mutilated gear in train with the clock-train for rewinding said segment, of the date tens-wheel and month-wheel, their spring-operated actuating-segments, the mutilated gears in train with the units-wheel for rewinding said segments, the locking-lever for the units-wheel and the stop-cam for holding said lever out of engagement at the end of the short months, moving in unison with the mutilated gear for rewinding the tens-wheel, substantially as described.

5. In a time-stamp, the combination with the date units-wheel, the spring-operated actuating-segment therefor, the clock-train and the mutilated gear-train driven by the said clock-train, and the gear in train with said units-wheel of the locking-lever for said units-wheel and the skipping projection moved by said gear-wheel for holding the locking-lever out of engagement at the ends of the short months, substantially as described.

6. In a time-stamp, the combination with the constantly-moving clock-train, the date units-wheel driven therefrom, of the date tens-wheel, the month-wheel, their actuating-segments and the mutilated gears for rewinding said segments in train with the units-wheel, of the locking-levers for the tens and month wheels and the releasing projections on the mutilated gears for releasing said levers, substantially as described.

7. In a time-stamp, the combination with the constantly-moving clock-train, the hour-wheel driven therefrom, the date units-wheel, its locking-lever and the cam on the hour-wheel for releasing said lever, of the date tens and month wheels their locking-levers and the wheels driven by the date units-wheels carrying releasing projections cooperating with said last-mentioned locking-levers to release the date tens and month wheels respectively at the proper moment with relation to the units-wheel, substantially as described.

8. In a time-stamp, the combination with the date and month wheels, the spring-operated actuating-segment for the date-wheel, the clock-train and the mutilated gear driven by the clock-train for rewinding said segment at predetermined intervals, the actuating-segment for the month-wheel, the mutilated gear for rewinding said segment at predetermined intervals, in train with the date-wheel and the shaft on which said last-mentioned mutilated gear is mounted having the extended end and knurl by which said wheels may be set, substantially as described.

9. In a time-stamp, the combination with the constantly-moving clock-train, the date units-wheel, its actuating-segment connected therewith by a ratchet connection, the mutilated gear driven by the clock-train for rewinding said segment and the locking-levers for the wheel of the date tens-wheel and month-wheel, the gearing for rewinding their actuating mechanism in train with the units-wheel, the extended shaft on which said gearing is mounted, the knurl on said shaft and the handle for releasing the locking-lever of the units-wheel, whereby said parts may be set to the proper date, substantially as described.

10. In a time-stamp, the combination with the constantly-acting clock-train the date units-wheel, its spring-operated actuating-segment, the mutilated gear for rewinding said segment driven by the clock-train and the locking-lever for said wheel, of the date tens and month wheels, their actuating-segments, the mutilated gears for rewinding said segments mounted on a shaft, the knurl on the end of said shaft, the gearing connecting said mutilated gears and date units-wheel and the handle for releasing the locking-lever of said last-mentioned wheel, substantially as described.

11. In a time-stamp, the combination with the motor-train and date-wheel actuated therefrom, the locking-lever for said date-wheel-moving cam for releasing said locking-lever and the laterally-movable arm or skipping-lever forming the connection between said cam and lever, the knurl for setting said arm at the proper position to skip days at the end of the short months, and the intermediate shaft, substantially as described.

12. In a time-stamp, the combination with the motor-train, the date-wheel, its locking-lever and the wheel carrying the cam driven by said date-wheel, the laterally-movable arm or skipping-lever, adapted to engage said cam and locking-lever, the handle and the rest for holding said arm in position to skip the proper number of days at the ends of the short-months, substantially as described.

13. In a time-stamp, the combination with the motor-train, the date units-wheel, its actuating-segment rewound from said motor-train, its locking-lever and the skipping-lever mounted on a shaft to move transversely, of the date tens-wheel and month-wheel their actuating-segments, and the mutilated gears driven from the units-wheel for rewinding said segments, the cam on one of said mutilated gears adapted to contact with the skipping-lever when moved transversely to the proper points for releasing the locking-levers to skip days at the ends of the short months, substantially as described.

14. The combination with the motor-train, the date units-wheel, its actuating-segment rewound from the motor-train, the set of indices on the said units-wheel having two figures "1," and the locking-lever for said wheel, of the skipping-lever for releasing said locking-lever, the wheel in gear with the units-wheel and the projections or pins on said wheel cooperating with the skipping-lever to hold the locking-lever out of engagement until the extra "1" is skipped at the tenth and twentieth days practically, substantially as described.

15. In a time-stamp, the combination with the date units and date tens wheels, bearing sets of indices having two figures "1" at the beginning of each set, the actuating-segments for said type-wheels, the motor-train, the mutilated gear for rewinding the segment of the units-wheel driven from the motor-train, the mutilated gear for rewinding the segment of the tens-wheel driven from the units-wheel, the locking-levers for said wheels and their releasing-levers, of the projections of said last-mentioned mutilated gear engaging the releasing-levers at the tenth and twentieth days to skip the extra figure "1" on the units-wheel and advance the second figure "1" on the tens-wheel to the printing-point, substantially as described.

16. In a time-stamp, the combination with the motor-train, date units and date tens wheels, their actuating-segments, the mutilated gear driven by the motor-train for rewinding the segment of the units-wheel, the mutilated gear for rewinding the segment of the tens-wheel driven by the units-wheel, the locking-levers for said wheels and their releasing-levers, of the single projection at the tenth and twentieth day for holding the locking-lever for the units-wheel out of engagement and the double cam for releasing the locking-lever for the tens-wheel, said cams or projections moving in unison with the units-wheel; substantially as described.

17. In a time-stamp, the combination with the date units and date tens wheels, the sets of indices on the units-wheel, having two figures "1," the sets of indices on the tens-wheel having two figures "1," two figures "2," a single figure "3," and a space between said sets, the actuating-segments for said wheels the locking-levers for holding the wheels in check, the wheels driven from the units-wheel carrying the projections for holding the units-wheel-locking lever out of engagement at the tenth and twentieth days and the stop-cam for varying the extent of its release at the end of the short months and the double-pointed cam for releasing the locking-lever for the tens-wheel to advance the said tens-wheel twice in succession at the tenth and twentieth days and at the end of the months; respectively, substantially as described.

18. In a time-stamp, the combination with the type-wheels, clock-train, locking-levers, skipping-lever for the date-wheel, stop-cam in the type-wheel train and complemental parts, substantially as described, of the movable shaft carrying the skipping-lever, the stop-cam for holding said shaft and lever in proper position to engage any one of the steps of the cam in the type-wheel train, and the handle and spring for moving said shaft to the required position, substantially as described.

19. In a time-stamp, the combination with the constantly-moving motor-train, the type-wheel driven thereby and the stop-wheel controlling said type-wheel released by the motor-train and a clutch interposed between the stop-wheel-releasing mechanism and escapement end of the motor-train, and a handle or knurl controlling said clutch whereby the stop-wheel may be released from the escapement end of the motor-train, and the type-wheel set, substantially as described.

20. In a time-stamp, the combination with the clock-train, the minute type-wheel driven therefrom through an intermediate spring, the stop-wheel controlling the minute type-wheel and the stop moved by the clock-train for releasing said stop-wheel at predetermined intervals, of a clutch interposed between the said stop and escapement mechanism of the clock-train and a handle in gear with the stop for moving the same in advance of the movement of the escapement mechanism of the clock-train, whereby the minute-wheel may be set, substantially as described.

21. In a time-stamp, the combination with the clock-train, the minute-wheel driven therefrom through an intermediate spring, the stop-wheel in gear with the minute-wheel, the stop for releasing the said stop-wheel, the gear controlling said stop and the clutch connection between said gear and escapement end of the clock-train and the handle controlling said stop, whereby the same may be moved in advance of the escapement end of the clock-train to set the minute-wheel, substantially as described.

22. In a time-stamp, the combination with the clock-train, the minute-wheel driven therefrom through an intermediate spring, the stop-wheel in gear with said minute-wheel and the stop for said wheel the gear-wheel meshing with the escapement end of the clock-train the gear-wheel moving the stop and the clutch connection between said last-mentioned gear-wheels and the handle controlling the movement of the stop-moving wheel in advance of the escapement end of the clock-train, substantially as described.

23. In a time-stamp, the combination with the clock-train, the minute-wheel driven therefrom through an intermediate spring, the stop-wheel in gear with the minute-wheel, the stop for said wheel and the gear-wheel controlling said stop having a handle for moving the same, of the gear-wheel mounted on the shaft with the stop-moving gear and meshing with the clock-train, a clutch connection between said gear-wheels and the spring for moving said wheels into engagement whereby the minute-wheel may be set in advance of the clock-train, substantially as described.

24. In a time-stamp, the combination with the motor-train type-wheels and complemental parts, of the spring-pressed actuating-segments for the type-wheels journaled on the hubs of said wheels and set by the motor-train; substantially as described.

25. In a time-stamp, the combination with the motor-train, complemental parts and type-wheels having the extended hubs, of the lock-wheels rigidly affixed on said hubs, the actuating-segments journaled on said hubs and meshing with the motor-train and the retaining-collars for said segments; substantially as described.

26. In a time-stamp, the combination with the spring-impelled type-wheel, the locking-wheel thereon and the locking-lever engaging the latter to hold the type-wheel against movement in either direction, of the spring-impelled minute type-wheel controlling said locking-lever whereby it is released and the wheel permitted to rotate under the influence of its impelling-spring, the constantly-acting motor-train and the stop for the minute-wheel released thereby at stated intervals; substantially as described.

27. In a time-stamp, the combination with the spring-impelled type-wheels carrying locking-wheels and the locking-levers engaging said wheels to prevent their rotation, of the motor-train and the intermittingly-operated wheels driven therefrom for releasing the locking-lever; substantially as described.

591,022. MATTRESS, PILLOW, &c. OTTOMAR STREHLE, Frankenberg, Germany. Filed Jan. 23, 1897. Serial No. 620,234. (No model.)



Claim.—As an improved article of manufacture, a mattress or similar article comprising a covering which is provided with zigzag lines to which are secured ribbons, whereby a plurality of cells are formed; longitudinal folding strips which are adapted to be secured together, and suitable packing material to fill said cells and means to prevent said packing material leaving the cells consisting of square pieces D and strips E, said mattress being provided with a cover which

is provided with flaps adapted to be closed by suitable fastening devices, substantially as and for the purpose described.

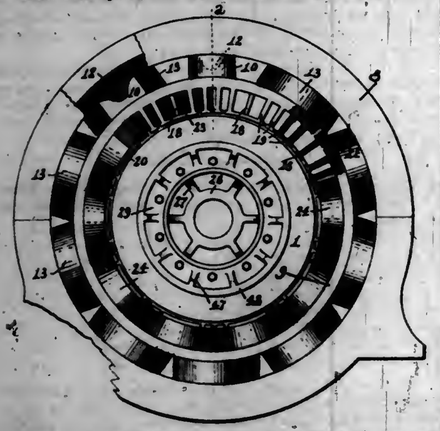
591,028. HYDRANT-VALVE. CHARLES A. SULLIVAN, Waterford, N. Y., assignor of one-half to John Knickerbacker, Troy, N. Y. Filed Mar. 4, 1896. Serial No. 581,818. (No model.)



Claim.—1. In a hydrant-valve the combination of the casing, support and actuator for the lever-end supports, lever-end support, a valve to close the opening of the casing, levers crossing each other, and having interengaging guiding mechanism on the levers for keeping the valve parallel to the desired plane, as described.

2. In a hydrant-valve the combination of the casing, support and actuator for the lever-end supports, lever-end supports, levers attached to said lever-end supports and to the valve; a valve to close the opening in the valve-casing, pins on the levers arranged so as to come in contact with corresponding rounded surfaces on the levers to keep the valve in position, substantially as described.

591,024. DYNAMO-ELECTRIC MACHINE. MILTON E. THOMPSON, Ridgway, Pa., assignor of one-half to Charles L. Cornell, Hamilton, Ohio. Filed Apr. 13, 1897. Serial No. 631,764. (No model.)



Claim.—1. In a dynamo-electric machine, the combination, substantially as set forth, of a coil of wire having a binding-wrapper, as of cord, and studs projecting from the faces of the coil and having feet engaging under the wrapper.

2. In a dynamo-electric machine, the combination, substantially as set forth, of a field-core provided with a dividing slot, and a coil disposed upon said core and free therefrom so as to form an air-space extending around the core and in communication with the slot therein.

3. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame, a core projecting inwardly therefrom and provided with a dividing slot and with a projection inwardly at the root of the slot, and a coil disposed upon said core and near said field-frame but free from the core and field-frame so as to leave an air-space in communication with said slot and extending between the coil and core and between the coil and field-frame.

4. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame, having inwardly-projecting field-cores, cylindrically bored at their faces, and a bushing-ring carrying coils, and having its periphery engaging the face of said cores.

5. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame having inwardly-projecting field-cores cylindrically bored at their faces, a bushing-ring carrying coils and having its periphery engaging the faces of said cores, and circumferential rib and groove connections between the bushing-ring and core-faces to retain the bushing-ring sidewise.

6. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame having inwardly-projecting field-cores cylindrically bored at their faces, a bushing-ring carrying coils and having its periphery engaging the faces of said cores, and symmetrically-disposed circumferential rib and groove connections between the bushing-ring and core-faces to retain the bushing-ring sidewise and to permit of its reversal within the field-frame.

7. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying inwardly-projecting cores and field-coils, an armature concentrically mounted within the field-frame, a bushing-ring carrying coils and encircling the armature and supported by the cores of the field-frame.

8. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame provided with poles and magnetizing-coils, an armature, and a ring carrying coils and interposed between said armature and field-frame.

9. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying inwardly-projecting cores and field-coils, an armature concentrically mounted within the field-frame, a bushing-ring encircling the armature and supported by the cores of the field-frame, and a circumferential series of conductors carried by the bushing-ring and disposed parallel with the axis of the armature.

10. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying inwardly-projecting cores provided with field-coils, an armature mounted concentrically within the field-frame, a bushing-ring surrounding the armature and supported by the field-frame and provided with passages extending through it parallel with its axis, and conductors extending across the bushing-ring through said passages.

11. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame, a bushing-ring surrounding the armature and supported by the field-frame and having passages through it parallel with its axis, and conductors disposed within said passages and joined at each side of the bushing-ring to form a circumferential series of coils carried by the bushing-ring.

12. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame, a bushing-ring having a tire fitting within and held by the field-cores and provided with lugs extending across the tire and projecting inwardly to near the armature, and coils formed of conductors wound upon said lugs.

13. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame, a bushing-ring comprising a transversely and circumferentially slotted tire, and slotted lugs projecting inwardly from the tire to near the armature, and coils formed by conductors wound upon said lugs.

14. In a dynamo-electric machine, the combination, substantially as set forth, with a field-frame and armature, of a tire having pairs of transverse slots and having circumferential slots between the pairs of transverse slots, commutation-lugs projecting from the tire between each pair of transverse slots, additional lugs projecting from the tire between the commutation-lugs and divided by inward prolongations of said circumferential slots, and coils formed by conductors wound on said lugs.

15. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame, cores projecting therefrom and having dividing slots, coils on said cores, a tire supported by said cores and having circumferential slots registering with the slots in said cores, lugs projecting inwardly from the tire, and coils formed by conductors wound upon said lugs.

16. In a dynamo-electric machine, the combination with a field-frame and armature of a ring interposed between said field-frame and armature and carrying compensating-coils.

17. In a dynamo-electric machine, the combination, substantially as set forth, with a field-frame and armature, of a slotted tire, lugs projecting inwardly from the tire and having less width than the tire, additional lugs projecting inwardly from the tire between the first-mentioned lugs and having a greater width than the first-mentioned lugs, bridges extending across the ends of the first-mentioned lugs and connecting the lugs immediately at each side of the first-mentioned lugs, and coils formed by conductors wound upon said lugs.

18. In a dynamo-electric machine, the combination, substantially as set forth, with a field-frame and armature, of a tire held by the field-frame, lugs projecting inwardly from the tire and provided with inner feet cylindrically bored to form a chamber for the armature, and coils wound upon said lugs between said tire and feet.

19. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within said field-frame and having a diameter less than the bore of the series of field-cores a circumferential series of coils disposed around the armature between the armature and the field-cores, and a metallic support for said last-mentioned coils and connected separably with the field-frame.

20. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying inwardly-projecting cores, field-coils on said cores, an armature mounted concentrically within the field-frame and having a diameter less than the bore of the series of field-cores, coils disposed in circumferential series around the armature between the armature and the field-cores, the last-mentioned coils having longitudinal elements parallel with the axis of the armature, and the axis of each of said last-mentioned coils coming midway between the axis of the pair of field-cores, and a support engaging said field-cores and said last-mentioned coils.

21. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame and having a diameter less than the bore of said field-cores, fixed conductors parallel with the axis of the armature and disposed in circumferential series around the armature between the armature and the field-cores, and connections to convey current through said conductors in direction opposite to that followed by the current flowing through contiguous conductors in the armature.

22. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame and having a diameter less than the bore of the series of field-cores, fixed conductors parallel with the axis of the armature and arranged in circumferential series between the armature and the field-cores, and connections between said fixed conductors and the armature to convey the current traversing the armature-conductors through said fixed conductors in such direction that the current flowing in each of said fixed conductors will magnetically oppose that flowing in the contiguous armature-conductor.

23. In a dynamo-electric machine, the combination, substantially as set forth, with a field-frame carrying cores and field-coils, and an armature mounted within the field-frame, of fixed conductors parallel with the axis of the armature and disposed in circumferential series around the armature, connections conveying current through said fixed conductors in direction to magnetically oppose the currents flowing through contiguous armature-conductors, commutation-lugs disposed between the field-cores and magnetically energized by the currents flowing in said fixed conductors.

24. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within said field-frame and having a diameter less than the bore of the field-cores, a commutation-lug disposed between each pair of field-cores and presenting a pole to the armature, additional similar lugs disposed between said commutation-lug, and coils formed by winding a conductor first upon a commutation-lug and then outside the pair of additional lugs at each side of the commutation-lug.

25. In a dynamo-electric machine, the combination, substantially as set forth, of a field-frame carrying cores and field-coils, an armature mounted concentrically within the field-frame and having a diameter less than the bore of the series of field-cores, and a series of fixed coils disposed around the armature between the armature and the field-cores, the coils of said series alternating in direction of winding.

26. In a dynamo-electric machine, the combination, substantially as set forth, of a longitudinally-grooved armature-barrel, ribs of non-magnetic metal disposed in said grooves, a series of disks with their bores engaged by said ribs, and clamps secured to the armature-barrel and engaging the end of the series of disks.

27. In a dynamo-electric machine, the combination, substantially as set forth, of an armature-barrel, a series of disks thereon and provided with a circumferential series of radial slots, each slot being widened at its outer portion, and clamps carried by the armature-barrel and engaging the ends of the series of disks.

28. In a dynamo-electric machine, the combination, substantially as set forth, of longitudinally-slotted armature-bars disposed within said slots and projecting endwise from the body of the armature, bends formed upon the projecting ends of said bars to bring the ends of a pair of bars toward each other, and flat coupling-strips united to and connecting the ends of such pair of bars.

29. In a dynamo-electric machine, the combination, substantially as set forth, of a longitudinally-slotted armature, bars disposed in said slots and projecting endwise from the body of the armature, bends formed upon the projecting ends of said bars to bring the ends of a pair of bars toward each other, connections between the ends of such pair of bars, and rings concentrically carried by the armature within the projecting connected ends of the bars and forming a support for such projecting ends.

30. In a dynamo-electric machine, the combination, substantially as set forth, of an armature-hub, arms projecting endwise therefrom, a hollow nose carried by said arms, and a commutator-hub having its bore fitting upon said nose.

31. In a dynamo-electric machine, the combination, substantially as set forth, with balancing-coils for neutralizing armature reaction, of a bushing-ring carrying said balancing-coils and supported by the field frame.

32. In a dynamo-electric machine, the combination, substantially as set forth, with balancing-coils for neutralizing armature reaction and disposed within the main field of magnetic force impressed upon the armature, of commutation-lugs passing through the centers of said balancing-coils and energized solely by said coils.

33. In a dynamo-electric machine, the combination, substantially as set forth, with balancing-coils for neutralizing armature reaction, of a bushing-ring carrying said balancing-coils, and commutation-lugs passing through the centers of said balancing-coils and energized thereby.

34. In a dynamo-electric machine, the combination, substantially as set forth, with balancing-coils for neutralizing armature reaction, of a bushing-ring formed of magnetic material and carrying said balancing-coils, and commutation-lugs passing through the centers of said balancing-coils and energized thereby.

35. In a dynamo-electric machine, the combination, substantially as set forth, with an armature and a field-frame and cores, of a ring carrying balancing-coils and commutation-lugs contiguous to the armature.

591,025. UNICYCLE. THOMAS TOLSON, Boston, Mass. Filed Dec. 20, 1886. Serial No. 617,417. (No model.)



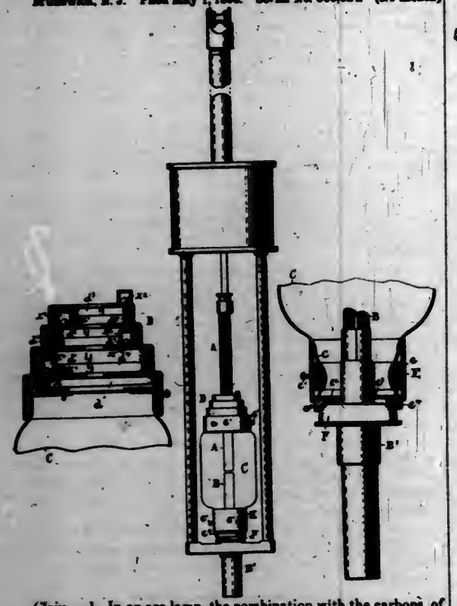
Claim.—1. In a unicycle a frame having a saddle-supporting bar G, combined with a saddle H, longitudinally adjustable thereon, a lever pivotally connected to the frame and having a tooth or projection adapted to interlock in teeth on the saddle-bar and a spring for holding said lever and saddle in the adjusted locked position substantially as and for the purpose set forth.

2. In a unicycle, in combination, an outer wheel-ring and a propelling-wheel arranged to be frictionally rotated against the interior of said wheel-ring and a brake device consisting of a brake-rod, pro-

vided with a brake-shoe and having teeth adapted to interlock with a projection on the interior frame and a spring-pressed lever for operating said brake and to hold it in locked position after being set or released substantially as described.

3. In combination, in a unicycle or velocipede driving device, a crank-shaft, cranks secured thereto, pedal and arm rods pivoted to said cranks, the pedal-rod having a socket *m* for the purpose of limiting the oscillating motion of the arm-rod substantially as herein set forth and described.

591,026. ELECTRIC-ARC LAMP. CHARLES S. VAN NUIS, New Brunswick, N. J. Filed May 1, 1896. Serial No. 589,934. (No model.)



Claim.—1. In an arc-lamp, the combination with the carbons, of an inclosing globe for the arc, having an aperture through which a carbon passes with a practically air-tight fit, and an adjustable and practically air-tight joint for said globe where the other carbon enters and whereby the globe is free to adjust itself relative to the carbons while maintaining said last-named joint air-tight, substantially as set forth.

2. In an arc-lamp, the combination with the carbons, of an inclosing globe for the arc, having an aperture through which a carbon passes with a practically air-tight fit, and a practically air-tight ball-and-socket joint for said globe where the other carbon enters and whereby the globe is free to adjust itself relative to the carbons while maintaining said last-named joint air-tight, substantially as set forth.

3. In an arc-lamp, the combination with the carbons, of an inclosing globe for the arc, having an aperture through which a carbon passes with a practically air-tight fit, a base carried by the lower carbon-holder, and a collar at the lower end of said globe seated on said base to support the globe, said base and collar forming a practically air-tight ball-and-socket joint, which joint permits the globe to adjust itself relative to the carbons while maintaining the joint air-tight, substantially as set forth.

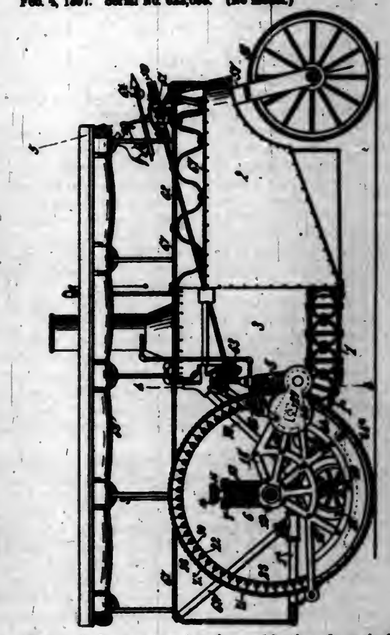
4. In an arc-lamp, the combination with the carbons, of an inclosing globe for the arc, a cap at one end of the globe provided with an aperture through which a carbon passes with a practically air-tight fit, and an adjustable and practically air-tight joint at the other end of the globe where the second carbon enters, and which joint permits the globe to adjust itself relative to the carbons while maintaining the joint air-tight, substantially as set forth.

5. In an arc-lamp, the combination with the carbons, of an inclosing globe for the arc having two or more chambers at one end thereof, and provided with apertures through which a carbon passes with a practically air-tight fit, a valve for permitting the escape of gas from the inclosing globe into the adjacent chamber when the pressure becomes too high, and valves for each chamber permitting the escape of gas to successive chambers and to the exterior of the last chamber, substantially as set forth.

6. In an arc-lamp, the combination with the carbons, of an inclosing globe for the arc, a cap for said globe provided with two or more chambers having apertures through which a carbon passes with a practically air-tight fit, and valves for each chamber permitting the escape of gases to successive chambers and to the exterior of the cap, substantially as set forth.

7. In an arc-lamp, the combination with the carbons, of an inclosing globe, and a cap therefor through which one of the carbons passes, said cap consisting of several circular cup-shaped parts screwed together to form separate chambers having central openings in the walls thereof for the carbon, and valves for each chamber, substantially as set forth.

591,027. ROAD-ENGINE. WILLIAM B. WOOTTON, Roanoke, Va., assignor to Vesta L. Wootton and J. J. Wootton, same place. Filed Feb. 4, 1897. Serial No. 622,062. (No model.)



Claim.—1. In a road-engine, the combination of a main frame 1 supporting a boiler and engines, a main rear axle elastically connected with said main frame, the centerless track-wheels or drive-rims disconnected from said axle but having their axes coincident therewith, the two-part frames 18 supported on the ends of the main rear axle and extended on both sides of each of said track-wheels, the bearing-wheels 21 having their axles supported in said two-part frames and running on a track 22 on the inner periphery of the said drive-rims, a thrust roller or wheel mounted in the forward portion of each frame 18 in contact with the outer periphery of each track-wheel or drive-rim, a steady-roller mounted in contact with the inner periphery of each drive-rim opposite said thrust-wheel, and gearing connecting the engines with teeth on the inner periphery of each drive-rim, substantially as described.

2. In a road-engine, the combination of the main frame 1 and its elastically-connected main rear axle 10, the centerless track-wheels or drive-rims 23 each having on its outer periphery a central track 40 and on its inner periphery a central track 22 with staggered teeth on each side thereof, the two-part frames 18 supported on the ends of the main rear axle and extended on both sides of the said drive-rims, the frames 45 having trunnioned connections with the frames 18, the frames 47 connected with the said frames 45 and having a laterally-oscillating connection with the main frame, two independent engines, the engine-shafts mounted in the frames 47, the drive-shafts mounted in the frames 18 and 45 through their trunnioned connections or boxes, detachable universal couplings for connecting said engine-shafts with the drive-shafts, thrust-wheels or pressure-rollers sleeved loosely on the said drive-shafts to rotate thereon in contact with and in advance of the outer peripheral tracks of the centerless drive-rims, shafts mounted in boxes on the frames 18 and carrying pinions in mesh with the staggered inner peripheral teeth of the drive-rims and also a loose steady roller in contact with the central inner peripheral track of the drive-rims, and gearing connecting said pinion-shafts with the drive-shafts that couple with the engine shafts, substantially as described.

3. In a road-engine, the combination of a flexibly-connected framework adapted for forward, backward and lateral oscillation, a main rear axle elastically connected with the main portion of the frame, the centerless track-wheels or drive-rims, the two-part frames extended on both sides of each of said track-wheels and supported on the ends of the said main rear axle, means for steadying said rims from the said two-part frames, and engines geared independently with teeth on the inner peripheries of said centerless drive-rims, substantially as described.

4. In a road-engine, the combination of a main frame 1 having horizontal rearward extensions 1ª, the main rear axle 10, the axle-boxes 9 provided with vertical standards 8 having cushioned heads 14, the hangers 6 having cross-heads 7, the springs 13 surrounding said standards between the said axle-boxes and hanger-heads, the depending shanks 1ℓ on the axle-boxes, truss-rods 17 connecting said shanks of opposite axle-boxes, the sleeves 56 surrounding the rearward extensions 1ª of the main frame and engaged by the hangers 6 and shanks 16, the centerless track-wheels or drive-rims 23, frames 18 supported on the ends of the main rear axle 10 and provided with means for supporting and steadying the said centerless drive-rims or track wheels, and engines geared with the inner peripheries of said wheels or rims, substantially as described.

5. In a road-engine, the combination of the main frame having an elastically-supported main rear axle, the centerless track-wheels or drive-rims, two-part frames supported on the ends of said axle and extended on both sides of the respective centerless track-wheels or drive-rims, pinion-shafts mounted in said frames, a pair of pinions carried on each of said pinion-shafts and each provided with a series of rollers journaled in its periphery and adapted to engage with staggered teeth on opposite sides of an inner peripheral track with which each track-wheel or drive-rim is provided, loose steady-rollers also carried on said pinion-shafts in contact with the said inner peripheral tracks of the drive-rims, drive-shafts geared with the pinion-shafts, engines having their shafts connected with said drive-shafts by universal couplings, sleeves loose on said drive-shafts, and thrust wheels or rollers mounted on said sleeves in contact with outer peripheral tracks of the track-wheels or drive-rims and in advance thereof, substantially as described.

6. In a road-engine, the combination of the main frame, a main rear axle elastically connected with said frame, the centerless track-wheels or drive-rims, the two-part frames supported on the ends of the main rear axle and extended on both sides of the said track-wheels, the rear bearing-wheels supported in said two-part frames, steady-rollers for the track-wheels, and the engines geared with inner peripheries of said track-wheels through universally-coupled and end-playing shafts, substantially as described.

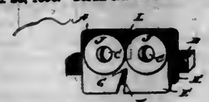
7. In a road-engine, the combination of the main frame, a main rear axle, elastic or spring connections between said frame and axle, the centerless track-wheels or drive-rims and their independent engine-gearing, a guide-wheel for supporting the forward end of the main frame, worm-gearing for controlling the guide-wheel, and a direction-indicator mounted on the worm-gearing parallel with the vertical plane of the guide-wheel, substantially as described.

8. In a road-engine, the combination of the main frame, the rear centerless track-wheels or drive-rims, the rear bearing-wheels tracking in said rims, the engines independently geared with said rims, the forward supporting and guide wheel having a shank or support extended vertically through the forward portion of the main frame, a spring on said shank, a gear-wheel keyed on the upper portion of the said shank, worm-gearing for steering the guide-wheel through said gear-wheel, and an indicator or pointer mounted on the horizontal plane of said gear-wheel and in the vertical plane of the guide-wheel, substantially as described.

9. In a road-engine, the combination of a laterally, forwardly and backwardly oscillatory framework, a main rear axle having elastic and flexible connection with said framework, the centerless track-wheels or drive-rims, rear bearing-wheels tracking in said drive-rims, the engines independently geared with said drive-rims through shafts having universal and end-play couplings, the forward supporting and guide wheel, its steering or controlling mechanism, and a pointer for indicating the direction and degree of inclination given to said guide-wheel, substantially as described.

10. In a road-engine, the combination with the carriage-frame, the bearing-wheels, and the drive-gearing, of centerless track-rims each composed of a railroad-rail bent to circular form with the top surface of the rail forming an inner peripheral track for the bearing-wheels, a tire shrunk onto said rim, and bolts and nuts connecting the said rim and tire, the heads of said bolts being adapted to serve as cogs or teeth for meshing with the drive-gearing and the nuts on said bolts serving as a roughened shoeing for the track-rim, substantially as described.

591,028. SHARPENER. WILLIAM P. BAUROTH, Springfield, Ohio. Filed Dec. 26, 1896. Serial No. 616,967. (No model.)



Claim.—1. The herein-described new article of manufacture comprising a combination-sharpener consisting of a clamping-frame an abrasive piece with a plurality of abrasive surfaces, clamped within said frame, the frame having a transverse incision leading to one surface of the abrasive piece and a transverse slot for knife-blades, and plates secured to said frame with their meeting edges opposite said slot.

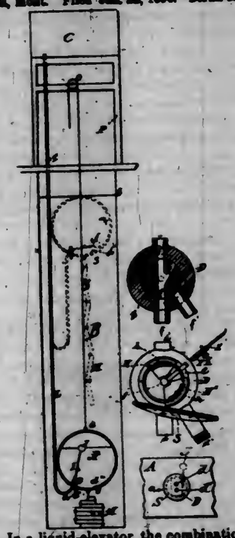
2. The herein-described improved article of manufacture, the same comprising a combination-sharpener consisting of a clamping-frame having cheek-pieces, an abrasive piece held within it adjacent to the cheek-pieces, clamping screws or bolts, plates mounted thereon with sharpening edges, and the frame provided with an inclined transverse incision in the cheek-plate pieces and a transverse slot opposite the meeting edges of said plates.

3. The herein-described improved article of manufacture, the same comprising a combination-sharpener consisting of a clamping-frame A, cheek-pieces E, bolts or screws C, sharpening-plates J thereon, the frame having an inclined incision F with a beveled end G and a transverse slot L and a four-sided abrasive piece B clamped and held within the frame.

4. The herein-described improved article of manufacture comprising a skate and scissors sharpener, the same consisting of a clamping-frame, bolts or screws therethrough, and an abrasive piece with a plurality of sides held and clamped therein and forming with the sides of the frame a channel for skate-runners, the frame having an inclined transverse incision leading to one side of the abrasive piece for sharpening scissors.

5. The herein described new article of manufacture comprising a combination-sharpener, consisting of a clamping-frame, an abrasive piece held therein, the frame having a transverse incision leading to one surface of said abrasive piece, and a slot for knife-blades, and a plate secured to said frame with its edge opposite said slot.

591,029. COMPRESSED-AIR WATER-ELEVATOR. PAUL S. A. BUCKH, Helena, Mont. Filed Jan. 22, 1896. Serial No. 576,473. (No model.)



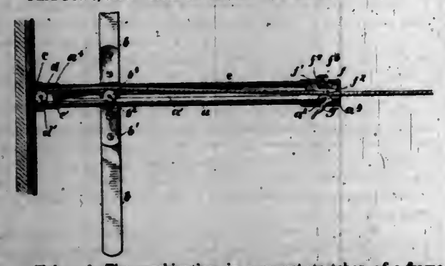
Claim.—1. In a liquid-elevator, the combination of an air-tight vessel having an inlet and an outlet for the liquid only, with means for raising and lowering said vessel in the liquid, means for closing said inlet at the lowest point reached, thereby securing the liquid and air therein, at the surrounding pressure, means for releasing the liquid therein under the force of the said compressed air, as the vessel is raised, and a discharge-pipe.

2. A liquid-elevator composed of an air-tight vessel, having an inlet for the liquid only, controlled by a valve which permits the inflow of the liquid as the vessel is lowered therein, and closes as the vessel is raised, and having an outlet for the liquid only, controlled by a valve which is closed when the vessel is lowered and is opened when the vessel is raised, and of means for raising and lowering said vessel.

3. A liquid-elevator composed of an air-tight vessel, having an inlet for the liquid only, controlled by a valve which opens as the vessel is lowered in the liquid, and closes as it is raised therein, and an outlet for the liquid only controlled by a valve with the reverse action, a discharge-pipe, means for raising and lowering the vessel in the liquid, and adjustable means for minimizing its weight in the liquid.

4. In a liquid-elevator, two similar air-tight vessels, each having an inlet, for the liquid only, controlled by a valve, which opens as the vessel is lowered in the liquid, and closes as it is raised therein, and an outlet, for the liquid only, controlled by a valve with the reverse action, and discharge-pipes; means for raising and lowering the vessels in the liquid; and adjustable means for minimizing the weight of said vessels in the liquid.

591,080. CARPET-STRETCHER. Casper T. Bucher, Tiffin, Ohio. Filed Feb. 8, 1897. Serial No. 623,450. (No model.)



Claim.—1. The combination, in a carpet-stretcher, of a frame having a hollow tubular section, a stretcher-bar connected with the latter section to be guided thereby, pulleys supported within said tubular section, an operating-rope passing around said pulleys and connecting with the stretcher-bar at a point within the said tubular section, and means supported within the latter for automatically engaging with the operating-rope to hold the same after the stretcher-bar has been operated to stretch the carpet, substantially as described and for the purpose set forth.

2. The combination, in a carpet-stretcher, of a frame having a hollow tubular section, a stretcher-bar connected with the latter to be guided thereby and having a connecting pin or stud passing through a longitudinal slot in said section, an operating-rope having connection with said stretcher-bar through the medium of said connecting pin or stud and passing around pulleys supported within the said tubular section, and a locking device for automatically engaging with said rope after being released by the operator, supported within the said tubular section and having an operating part projecting through an opening in the latter, substantially as described and for the purpose set forth.

3. The combination, in a carpet-stretcher, of a frame having a hollow tubular section, a stretcher-bar connected with the latter to be guided thereby and having a connecting pin or stud extending through a longitudinal slot in said section, a pulley supported upon said stretcher-bar pin or stud within said tubular section, a second pulley supported upon a stationary pin within the latter, an operating-rope having one end secured to a stationary support within said section and passing around the said pulleys therein, and a locking device also supported within said tubular section for automatically engaging with the rope after being released by the operator, substantially as described and for the purpose set forth.

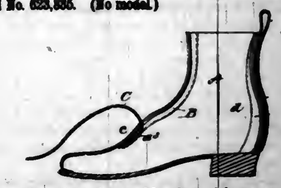
4. The combination, in a carpet-stretcher, of a frame, a stretcher-bar connected with the latter to be guided thereby, an operating-rope connecting with said stretcher-bar, and a locking device for engaging with said rope after being released by the operator, consisting of an eccentric-lever and a sliding or movable wedge between which the rope passes, substantially as described and for the purpose set forth.

5. The combination, in a carpet-stretcher, of a frame having a hollow tubular section, a stretcher-bar connected with the latter to be guided thereby, an operating-rope passing around pulleys supported within said section and having connection with the stretcher-bar, a locking device supported within said tubular section for engaging with the operating-rope, consisting of a sliding wedge and a pivoted eccentric between which the rope is passed, and means whereby the parts of said locking device may be operated to release the rope from the exterior of the said tubular section, substantially as described and for the purpose set forth.

6. The combination in a carpet-stretcher, of a frame, consisting of a horizontally-arranged tubular section, a vertical standard connecting with one end of the latter and provided with a pointed end or projection adapted to be driven into the floor, and an angular brace connecting with and supporting said horizontal and vertical parts of the frame, a stretcher-bar connected with said horizontal section of the frame to be guided thereby, an operating-rope connecting with said stretcher-bar at a point within said tubular section and passing around pulleys supported within the latter, and a locking device supported within said tubular section for engaging with the operating-rope in a manner, substantially as described and for the purpose set forth.

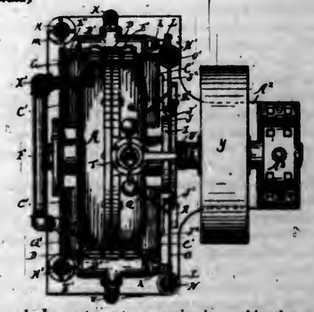
7. The combination, in a carpet-stretcher, of a frame, consisting of a horizontally-arranged section having connection at one end with a standard arranged at a slightly-obtuse angle thereto, and an angular brace connecting with and supporting said horizontal and vertical parts, a stretcher-bar connected with said horizontal section to be guided thereby, an operating-rope connecting with said stretcher-bar at a point within said tubular section and passing around pulleys supported within the latter, and a locking device supported within said tubular section for engaging with the operating-rope, and having means extending through an opening in said section whereby it may be operated from the exterior of the latter substantially as described and for the purpose set forth.

591,081. SHOE-UPPER. John H. Clappison, Easton, Pa., assignor of one-half to Helen I. Clappison, same place. Filed Feb. 17, 1897. Serial No. 623,335. (No model.)



Claim.—In a shoe, the combination, with an upper having a back seam, of a stay-strip folded double and having one portion secured on the outside of the upper and the other portion on the inside of the upper, both portions being over said back seam, the said stay-strip having its double end projecting above the top of the shoe to serve as a pulling-strap, and an inner lining-piece connected to that portion of the stay-strip inside the shoe, said inner lining-piece widening toward its bottom and being secured to the lining of the upper, substantially as described.

591,082. ROTARY STEAM-ENGINE. John A. Cooker, Joliet, Ill., assignor of two-thirds to Colin H. Macdonald, same place, and Herbert M. Cooker, Lockport, Ill. Filed Dec. 30, 1896. Serial No. 617,510. (No model.)



Claim.—1. In a rotary steam-engine in combination with the annular cylinder provided with gate-recesses as set forth; the double piston carried upon the drive-shaft by means of circular web; the oscillating gates, provided with hollowed sides adapted to conform to the walls of the cylinder-chamber when open, placed in said recesses; toothed segments arranged connecting the stems of said gates; intermittently-actuated lever mechanism arranged to open said gates at the approach thereto of the engine-pistons and to close them immediately preceding the passing thereof of said pistons; steam-chests provided with ports leading to within the cylinder in close proximity to said gates; oscillating valves arranged in said chests; intermittently-actuated mechanism for oscillating said valves to supply steam to within the cylinder in rear of the pistons at a point in close proximity to said gates, and to cut off such supply at a fraction of one-half revolution of the engine drive-shaft; exhaust-ports leading from the cylinder-chamber adapted to permit the escape of utilized steam and condensation; and a governor arranged and connected with the steam-valve-actuating mechanism and adapted to control the steam-supply to the cylinder, substantially as specified.

2. In the herein-described rotary engine; the combination with the cylinder provided with the oppositely-arranged gate-recesses; the oscillating gates hollowed in their side and oppositely arranged in said recesses in pairs, and connected by means of segments, whereby they are adapted to operate jointly; and the rotating pistons arranged in said cylinder and adapted to operate in conjunction with said gates, in the manner substantially as and for the purpose specified.

3. In the herein-described rotary engine in combination with the oscillating steam-valves provided with the bell-cranks fixed to their extending stems, the disk fixed upon the drive-shaft and provided with the opposite wrist-rollers; the annular cam reciprocally supported by the cylinder-shell, and adapted to be reciprocated horizontally by said wrist-rollers; the rods provided with the side extending lugs pivotally connected with said bell-cranks and arranged extending in an inclined position toward said cam; the trip-hooks carried by said cam and adapted to engage said rod-lugs, to operate said rods and thereby operate said valves in one direction; the dash-pots and dash-rods thereof arranged connecting said bell-cranks and adapted to reversely operate said valves when released by said trip-hook mechanism; and governor-controlling rods provided with the side extending wrist-rollers, and adapted to control the position of said trip-hooks to thereby govern the duration of time of their operative contact with said rod-lugs, substantially as and for the purpose specified.

4. In the herein-described rotary engine in combination with the oscillating gates provided with the extending stems; the toothed segments fixed on said stems and arranged in mesh with each other in pairs; the disk fixed upon the drive-shaft and provided with the opposite wrist-rollers; the levers fulcramed to the cylinder-shell and adapted to be intermittently actuated by said wrist-rollers; the rods arranged connecting one segment of each said pairs with said levers; and springs arranged connecting said levers through the agency of rods for yieldingly holding said levers in operative contact with said wrist-rollers; substantially as and for the purpose specified.

5. In the herein-described rotary engine the combination of the disk I provided with the rollers I′ I′, and the cam J provided with the feet J′ J′, and the guides for guiding said feet and supporting said cam, substantially as set forth.

6. In the herein-described rotary engine, the combination of the reciprocating cam J; the trip-hooks R and R′ carried by said cam; the steam-valve bell-cranks L, L′, the rods O and O′ provided respectively with the lugs O^2 and O^2; the governor-controlling rods Q and Q respectively provided with the rollers W and W′; and the dash-pots and their dash-rods, substantially as and for the purpose set forth.

7. In the herein-described rotary engine the gates B B hollowed in one side and made of such cross-sectional form, at their end portions as to have a less radius at said cut-away or hollowed side than at their solid side, substantially as and for the purpose specified.

591,083. FAN. Herman B. Collins, Fulton, N. Y. Filed June 9, 1896. Serial No. 594,851. (No model.)

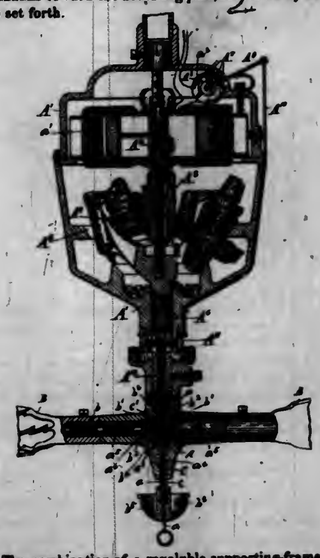
Claim.—1. The combination of fan-blades having their adjacent ends provided with spindles or shanks formed with grooves extending outwardly from their axes, and a movable actuating part having engaging faces movable in said grooves, substantially as and for the purpose described.

2. The combination of fan-blades having their adjacent ends provided with spindles or shanks formed with grooves extending outwardly from their axes, a movable actuating part having engaging faces movable in said grooves, said actuating part being revolubly independently of the fan-blades, substantially as and for the purpose specified.

3. The combination of fan-blades having their adjacent ends provided with spindles or shanks formed with grooves extending outwardly from their axes, and a movable actuating part provided with a substantially spherical projection movable in said grooves, substantially as and for the purpose specified.

4. The combination of fan-blades having their adjacent ends provided with spindles or shanks formed with grooves extending outwardly from their axes, a movable actuating part having engaging faces movable in said grooves, and springs for forcing the spindles or shanks toward the actuating part, substantially as and for the purpose described.

5. The combination of a revoluble supporting-frame, fan-blades having their adjacent ends provided with spindles or shanks journaled in the supporting-frame, said spindles or shanks having their adjacent sides provided with laterally-extending arms or projections formed with grooves extending outwardly from the axes of the spindles or shanks, a movable actuating part having a substantially spherical projection movable in said grooves and springs for forcing the spindles or shanks toward the actuating part, substantially as and for the purpose set forth.



6. The combination of a revoluble supporting-frame, fan-blades having their adjacent ends provided with spindles or shanks journaled in the supporting-frame and formed with grooves extending outwardly from the axes, an actuating part reciprocally movable in the frame and revoluble independently of the fan-blades, said actuating part being provided with a substantially spherical projection movable in said grooves, substantially as and for the purpose described.

7. The combination of fan-blades having their adjacent ends provided with spindles or shanks formed with grooves extending outwardly from their axes, a movable actuating part having engaging faces movable in said grooves, for adjusting the fan-blades, said actuating part being provided with a lengthwise passage a switch for controlling the operation of the fan-blades and a second actuating part movable in the lengthwise passage and connected to the switch, substantially as and for the purpose specified.

8. The combination of fan-blades having their adjacent ends formed with grooves extending outwardly from their axes, a movable actuating part having engaging faces movable in the grooves for adjusting the fan-blades, said actuating part being provided with a lengthwise passage, means for actuating the fan-blades, and a second actuating part movable in the lengthwise passage for controlling the operation of said means, substantially as and for the purpose set forth.

591,084. SASH-CORD GUIDE. Charles F. Doehler, Hartford, Conn. Filed Jan. 30, 1897. Serial No. 621,264. (No model.)



Claim.—1. The combination, with a pulley, of a sheet-metal casing supporting the same and having inwardly-projecting convex rope-guides struck up from the plane of the sides of the casing near the upper side of the pulley and in juxtaposition with the pulley-rim and in position to prevent slipping of the rope off from the pulley.

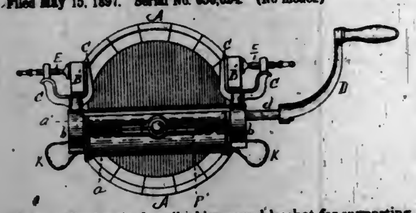
2. A pulley comprising a hub, a circular web, and a divided resilient compressing-rim adapted to be sprung over the web and having annular holding-flanges at its sides for engaging said web.

3. A pulley comprising a pair of disks having central openings of the same diameters as the corresponding small diameters of the hub; a hub having a central portion of large diameter and end portions of smaller diameter adapted to receive said disks and to be headed up to hold said disks in engagement with the ends of the central portion of the hub; and a rim encircling said disks.

4. A blank having a pulley-opening and a pair of side pieces at opposite sides, respectively, of said opening and adapted to form the side walls of the casing, said side pieces having rounded rope-guides struck up therefrom near the upper ends thereof.

5. The combination, with a face-plate, of a pulley-casing having side walls provided with struck-up, inwardly-projecting rounded rope-guiding bosses and also having connecting-strips joining said side walls and secured to the face-plate, said connecting strips having their outer edges within the upper and lower edges of the side walls; and a pulley mounted between said side walls.

591,035. SCRUBBING-PAIL. GEORGE DOHERTY, Boston, Mass. Filed May 15, 1897. Serial No. 636,624. (No model.)



Claim.—The herein-described improved bucket for supporting a clothes-wringer, constructed with the two upward thickened extensions B' from two substantially opposite and non-adjoining staves, said thickened extensions being parallel with each other and each having its opposite sides flat and parallel, and being both on one side of a horizontal line extending centrally across the bucket, whereby a wringer may be clamped at its opposite ends to said extensions and be thus secured with its rolls horizontally and approximately centrally across the bucket, substantially as described.

591,036. INCANDESCENT GAS-BURNER. MORITZ EISNER, New York, N. Y. Filed Apr. 2, 1897. Serial No. 630,418. (No model.)



Claim.—In an incandescent gas-burner, a hollow globe forming a gas and air mixing chamber constructed in two horizontally-divided sections, with lateral air-inlet openings in its lower part, a gas-supply nozzle connected to the bottom of the globe, a draft-tube connected to the top of the globe, an air-controlling valve encircling the lower part of the globe with openings adapted to register with said air-inlet openings thereof, a ball suspended in the center of the globe, forming a deflector of the mixed gas and air, and the ball-supporting wires fitted in the joint between the globe-sections substantially as herein described.

591,037. KITCHEN-CABINET. WILLIAM J. GOOCH, Franklin, Ky. Filed Oct. 31, 1896. Serial No. 610,771. (No model.)

Claim.—1. In a kitchen-cabinet, a hollow base portion formed with compartments therein, an upright bin-body arranged on top of the hollow base and communicating with one of the compartments thereof at its lower end, said bin-body being provided within the lower open end portion thereof with a depending supporting-flange and a circular series of supporting-studs projected across the space between such flange and the body of the bin, a sifter frame or rim provided with an upwardly-disposed flange embracing said depending supporting-flange and provided in its edge with a plurality of notches adapted to detachably interlock with said supporting-studs, a horizontal sifter-screen fitted within the sifter frame or rim, a transverse brace-bar arranged directly under the sifter-screen and provided with a centrally-located pivot-opening, a circular skeleton agitator-grating arranged on top of the sifter-screen and provided with a central depending pivot-stud working in the opening of said brace-bar, and a laterally-swinging lever-arm detachably connected at its inner end with the pivot-stud of the grating and having its outer end projected through and working in a slot formed in the wall of the bin body, substantially as set forth.



2. In a kitchen-cabinet, the combination with an upright compartment-casing provided with an upright canister-compartment and a plurality of canister-openings communicating with such compartment; of the spice-canisters, each comprising a cylindrical body provided at one end with an inturned threaded flange and at its opposite end with an interior sifting-screen plate and a threaded top neck, a screw-cap fitted on the threaded top neck of the canister-body, and a dished bottom cap having a threaded flange engaging the inturned threaded flange of the canister-body, and a transverse finger-piece, substantially as set forth.

3. In a kitchen-cabinet, the combination with an upright casing having a drawer-opening; of a grater-drawer adapted to be fitted in said drawer-opening and provided with a hinged cover-plate at its upper side, a grating-plate fitted transversely within the grater-drawer, a laterally-movable hopper-box slidably fitted on said grating-plate and provided with an offstanding cylindrical spring-barrel, a follower-plate mounted to work within said hopper-box, and a spring arranged within said barrel at one side of the follower-plate, substantially as set forth.

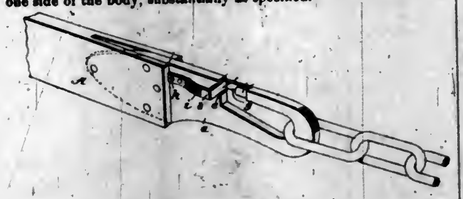
4. In a kitchen-cabinet, the combination of an upright bin-body having a vertical partition therein forming a side coffee-compartment provided within the lower portion thereof with a laterally and downwardly inclined chute-plate having therein a feed-opening, the space below said chute-plate forming a coffee-mill compartment to hold an ordinary coffee-mill, and open at its side, a side plate detachably fitted over the open side of the coffee-mill compartment and provided at its lower edge with an inwardly-disposed integral tray-plate having a bottom discharge slot or opening and formed with a flared collecting-tray, and a coffee-drawer removably mounted within the lower part of the coffee-mill compartment below said tray-plate, substantially as set forth.

5. In a kitchen-cabinet, a hollow base formed with compartments therein, an upright bin-body arranged on top of the hollow base and communicating with one of the compartments thereof, said bin-body being provided within the lower open end portion thereof with a depending supporting-flange, a sifter frame or rim provided with an upwardly-disposed flange having a detachable interlocking connection with the depending supporting-flange of the bin-body, a horizontal sifter-screen fitted within the sifter frame or rim, a circular skeleton agitator-grating movably arranged on top of the sifter-screen and provided with a pendent pivot-stud extending below the screen, and a lever-arm extending outside of the bin-body and having a detachable connection at its inner end with said pivot-stud of the grating, substantially as set forth.

591,038. TRACE-HOOK. BENJAMIN A. GOODWIN, Ripon, Cal. Filed Apr. 19, 1897. Serial No. 632,891. (No model.)

Claim.—1. As an improved article of manufacture, the hook described comprising the body having the shoulder and the recess therein and terminating at its forward end in the hook, and the resilient tongue connected to one side of the body and formed in one piece with the outwardly-bent portion, the transversely-disposed portion adapted to rest and move in the recess in the shoulder of the body and the longitudinally-disposed end portion adapted to normally rest flat against one side of the body, substantially as specified.

2. As an improved article of manufacture, the herein-described hook comprising the body having the shoulder and the recess therein and terminating at its forward end in the hook having the rabbet *k'*, in one of its sides, and the resilient tongue connected to one side of the body and formed in one piece with the outwardly-bent portion, the transversely-disposed portion adapted to rest and move in the recess in the shoulder of the body and the longitudinally-disposed end portion adapted to normally rest in the rabbet *k'*, and flush with one side of the body, substantially as specified.



91,039. CUTTER-HEAD. RUTLEDGE HARRIS, Cedar Falls, Iowa. Filed Mar. 15, 1897. Serial No. 627,726. (No model.)



Claim.—1. The combination in a machine of the class specified, of a divided cutter-head having overlapping and interlocking portions coincident with some of the cutter-seats, radial seats for the cutters, cutters with shanks fitting said seats, and with cutting-blades adapted to cut most deeply at some distance from the shanks, slots in the shanks of said cutters, and retaining bolts or screws adapted to connect the separate parts of the head and the cutters fitted to said interlocking parts, as described.

2. The herein-described cutter-head, consisting essentially of a divided hub, a disk portion attached to each, and having radial cutter-shank seats formed therein, projecting, overlapping and interlocking portion of said disk, forming portions of some of said seats, and connecting-bolts adapted also to retain cutters, as described.

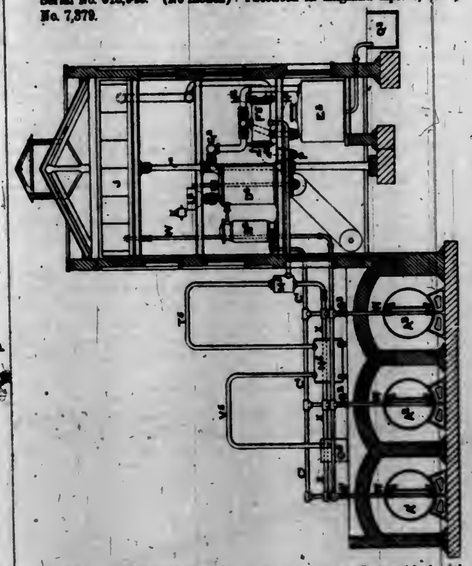
591,040. ROSETTE CUTTER-HEAD. RUTLEDGE HARRIS, Cedar Falls, Iowa. Filed Mar. 15, 1897. Serial No. 627,727. (No model.)



Claim.—1. In a rosette cutter-head, the combination of a face-plate having a series of round conical holes therein, and one or more cutters having a tapered shank fitting said holes, a threaded extremity and a nut therefor, and a blade having laterally-extended cutting edges and standing at a raking forward and pitched angle to said shank, substantially as and for the purpose set forth.

2. In a rosette cutter-head, the combination of a face-plate provided with a series of concentric lines or grooves, and a series of round tapered holes for the cutter-shanks, and one or more cutters having tapered, screw-threaded shanks and a cutting-blade having laterally-extended cutting edges and standing at a forwardly-inclined angle thereto, and a retaining-nut for the shank, substantially as and for the purpose set forth.

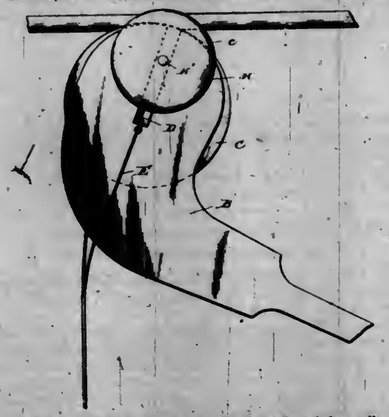
591,041. APPARATUS FOR EXTRACTING OIL. WILLIAM R. HARRISON and EDWIN STEPHENSON, Hull, England. Filed Nov. 20, 1896. Serial No. 613,946. (No model.) Patented in England Apr. 7, 1896, No. 7,879.



Claim.—1. The combination, with an extractor D provided with means for heating it and a pipe for the admission of steam to its interior, and agitating mechanism inside the said extractor of a generator B for vaporizing solvent said generator being connected to the extractor by a pipe provided with a stop-valve, an oil-separator provided with means for heating it and connected to the extractor by a pipe provided with a stop-valve, a condenser, a pipe provided with a stop-valve and connecting the oil-separator with the condenser, and a second pipe provided with a stop-valve and connecting the extractor with the condenser, substantially as set forth.

2. The combination, with an air-separator M, and a pipe for admitting condensed steam, condensed solvent, and air, thereto; of an air-receiver N, a pipe T connecting the upper parts of the said separator and air-receiver, a bubble-tank O, a pipe V connecting the upper parts of the said air-receiver and bubble-tank, and pipes connected to the lower parts of the said separator and air-receiver for removing the water and solvent from them, substantially as set forth.

591,042. TROLLEY FOR ELECTRIC CARS. WILLIAM I. HAWIE, Newton, Mass. Filed Oct. 2, 1896. Serial No. 607,673. (No model.)



Claim.—1. The combination with the fork and the trolley-wheel mounted therein, of plates, one upon each side of the fork and hinged at their upper ends to the upper ends of said fork, cords connected to the lower ends of said plates, and gripe rotatably mounted on said

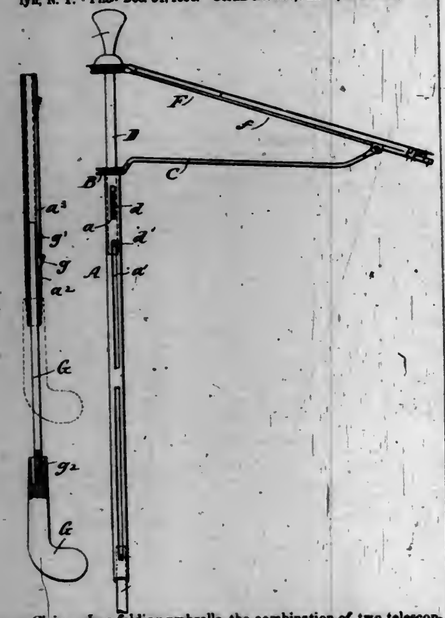
plates and extended beyond the upper ends thereof, substantially as described.

2. The combination with the fork and the trolley-wheel mounted therein, of plates, one upon each side of the fork and hinged at their upper ends to the upper ends of said fork, cords connected to the lower ends of said plates, and grips rotatably mounted on said plates and extended beyond the upper ends thereof, and springs arranged between the outer faces of the fork and the inner faces of said plates, substantially as described.

3. The combination with the fork and the trolley-wheel mounted therein, of plates, one upon each side of the fork and hinged at their upper ends to the upper ends of said fork, cords connected to the lower ends of said plates, and grips rotatably mounted on said plates and extended beyond the upper ends thereof, springs arranged between the outer faces of the fork and the inner faces of said plates, and guides on the outer faces of the fork through which said cords pass, substantially as described.

4. The combination with the fork and the trolley-wheel mounted therein, of plates, one upon each side of the fork and hinged at their upper ends to the upper ends of said fork, cords connected to the lower ends of said plates and grips rotatably mounted on said plates and extended beyond the upper ends thereof, the journals of said grip-wheels being disposed at right angles to the plates, substantially as described.

591,043. FOLDING UMBRELLA. ARTHUR H. HOWTLEY, Brooklyn, N. Y. Filed Dec. 31, 1896. Serial No. 617,542. (No model.)

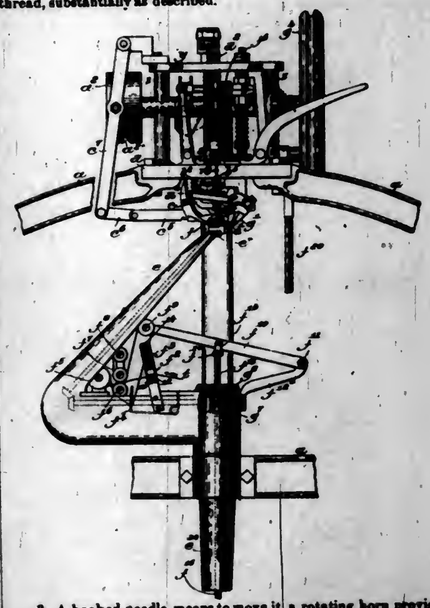


Claim.—In a folding umbrella, the combination of two telescopical rods having handles upon the outer ends thereof, and a tube for receiving said rods, the lower of said rods provided with a circumferential groove in the handle thereof, adapted to receive the lower end of said tube, and a framework comprising folding ribs attached to a runner on the tube, and means for locking the rods in an extended or outward position, substantially as shown and described.

591,044. SEWING-MACHINE. THOMAS K. KEITH, Boston, Mass., assignor to the Keith Lasting Machine Company, Kittery, Me. Filed Sept. 16, 1896. Serial No. 606,013. (No model.)

Claim.—1. In a sole-sewing machine, the following instrumentalities, viz: a hooked needle, means to actuate it; a rotating horn; a needle-thread-presenting device; a take-up lever mounted on said horn, a rod extended through the shank of said horn and loosely connected with the said take-up lever, a gear keyed on said rod to actuate said needle-thread-presenting device, a shuttle, and means to actuate shuttle to pass it through the loop of said needle thread, substantially as described.

2. In a sole-sewing machine, the following instrumentalities, viz: a hooked needle, means to move it; a rotating horn, a needle-thread-presenting device; a take-up carried by said horn, means to actuate said take-up and said needle-thread-presenting device, a shuttle and means to actuate said shuttle to pass it through the loop of said needle-thread, and a pusher to act on the shuttle-thread and push it aside to prevent the point of the shuttle from catching said shuttle-thread, substantially as described.

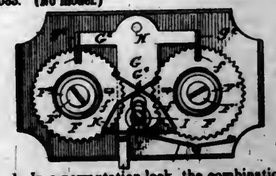


3. A hooked needle, means to move it, a rotating horn provided with thread-presenting mechanism, a take-up lever mounted on said horn, a rod connected therewith loosely and extended through the shank of the horn, and means to reciprocate said rod in said spindle to actuate said take-up lever, combined with a shuttle-race occupying a diagonal position above and at the rear of the tip of said rotating horn, a shuttle and means to actuate it in said race, substantially as described.

4. The rotating horn having a hollow shank, a thread-presenting device or whirl in the tip of said horn, a rod inside the shank of the horn, means to rotate and slide said rod, a gear splined on said rod, gears and shafts intermediate the gear loose on said rod and the whirl to rotate the latter, combined with a take-up lever connected loosely to one end of said rod, whereby the said rod is adapted to not only operate the take-up but also the whirl, substantially as set forth.

5. The hooked needle, means to actuate it, the rotating horn having a thread-presenting device to coöperate with said needle, and a shuttle-race located at one side and above the center of motion of the tip of said horn, a shuttle in said race, a driver having an attached shaft provided with a pinion, and a grooved cam, means to rotate said driver-shaft, and a shuttle-thread pusher, combined with means between said grooved cam and said pusher to actuate the latter, substantially as described.

591,045. KEYLESS LOCK. JOHN S. KITTLE, GEORGE L. BARNEY, and JOHN L. CLOUGH, Indianapolis, Ind. Filed Mar. 27, 1897. Serial No. 629,583. (No model.)



Claim.—1. In a permutation-lock, the combination with a face-plate having a dial or dials formed therein, of a back plate having raised washers also formed therein, substantially as described.

2. In a permutation-lock, the combination with a face-plate having a raised dial or dials and a back plate having a raised washer or washers, of a stem passing through openings in the plates and carrying an indicator-arm, substantially as described.

3. In a permutation-lock, the combination with a stem having a thumb-piece and indicator and having a shoulder c' and recess c^2, of a notched wheel mounted on the stem and bearing against the shoulder, and a washer secured to the stem by a screw, the said washer having a pin entering the recess in the stem whereby the tumbler is held in frictional contact between the shoulder on the stem and the washer and the latter is held immovable with relation to the stem, substantially as described.

4. In a permutation-lock, the combination with the notched wheels and a latch engaging the notches, of means for holding the latch in its normal position, a spring for engaging the wheels put under tension when the latch is operated and released when the latch is released, and devices connected with the wheels whereby when the spring is released the wheels will be automatically moved, substantially as described.

5. In a permutation-lock, the combination with the notched wheels, of means for operating them, a latch having dogs engaging the wheels, a rivet serving as a guide for the latch and a support for a spring, the spring being put under tension by the latch, and posts on the wheels operated by the spring when released, substantially as described.

591,046. GAS-BURNER. JOSEPH A. KLOSE, Washington, D. C., assignor of one-half to Carl J. Hess, same place. Filed Feb. 20, 1897. Serial No. 624,297. (No model.)



Claim.—1. A gas-burner having a plurality of mixer-tubes provided with independent gas-inlet orifices and contiguous to each other, and equidistant from a common point, openings for the admission of a combustion-supporting-agent, said tubes being contiguous to combine the flames issuing therefrom, and a common burner-cap 10 into which the flames issuing from the several tubes are discharged, the same being removably fitted upon and supported by the tubes, substantially as specified.

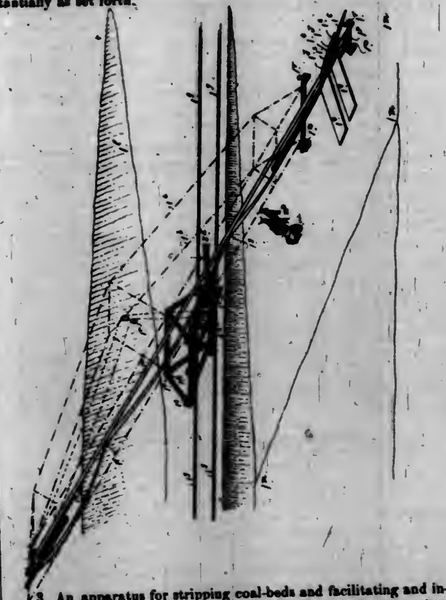
2. A gas-burner having a receiver provided with a removable head, a plurality of mixer-tubes supported by the said head and arranged contiguous to each other to combine their flames, and plugs having gas-inlet orifices removably fitted in the lower ends of the tubes, said tubes being provided with lateral air-inlet openings, substantially as specified.

3. The herein-described gas-burner comprising a plurality of contiguous mixer-tubes communicating through reduced gas-inlet orifices with a common receiver, and each provided with lateral air-inlet openings, controlling devices for varying the areas of said air-inlet openings, a common cap for the mixer-tubes whereby the flames discharged therefrom are combined, said cap having openings in its floor to receive the mixer-tubes and being contracted toward its open outer end, and also having its floor extended beyond the remote sides of the mixer-tubes and provided with air-inlet openings, a disk-valve coextensive with the perforated floor of the cap, and provided with a plurality of openings and allied collars, corresponding in number with the mixer-tubes and fitted thereon for sliding movement parallel therewith, whereby the disk-valve may be adjusted to vary the admission of air through the openings in said floor of the cap, and set-screws mounted upon the collars of the disk-valve for impinging against the surfaces of the mixer-tubes to secure said valve at the desired adjustment, substantially as specified.

591,047. METHOD OF AND APPARATUS FOR STRIPPING COAL-BEDS. ARTHUR J. MASON and FRANK K. HOOVER, Kansas City, Mo. Filed Apr. 3, 1896. Serial No. 586,105. (No model.)

Claim.—1. The method of stripping coal or making like excavations, which consists in forming and maintaining an inclined working end face, loosening the said end face, and hauling or scraping the material downhill upon said end face to the receiving end of a conveyer located upon the bed of the excavation, and by said conveyer transporting the material to the dump; from time to time removing said conveyer to different sites on said working face in order to command all the loosened material upon said face within a desired short haul, in such a manner as to remove successive prisms from the end or working face and thus maintain the face at a desired constant and economical form substantially as set forth.

2. The method of stripping coal or making like excavations, which consists in forming and maintaining a working face or plane, loosening the material on said plane, collecting, hauling or scraping the same to the receiving end of a conveyer located upon said working face or plane and transporting the material to the dump by said conveyer; from time to time removing said receiving end of the conveyer to different sites on said plane, in order to command all the loosened material upon said face within a desired short haul, in such a manner as to remove successive prisms from said working face substantially as set forth.



3. An apparatus for stripping coal-beds and facilitating and increasing the efficiency of wheel or other scrapers in such operation, consisting of a truss supported upon a movable truck and adapted to rock thereon, a conveyer adapted to travel on said truss, a platform upon said truss at or near one end thereof provided with a trap-opening upon said conveyer, and wings or driveways connected with said platform for approaching said trap, substantially as set forth.

4. In an apparatus for stripping coal-beds, the combination with a truss of a single movable truck on which said truss has a rocking bearing, a jack-screw mounted on said truck for rocking said truss thereon and so arranged that when the receiving end of the truss is elevated the entire weight of the truss is carried upon said truck, a conveyer traveling on said truss, and a belt traveling over suitable sheaves for operating said conveyer substantially as set forth.

5. An apparatus for stripping coal-beds and facilitating and increasing the efficiency of wheel and other scrapers in such operation, consisting of the combination with a conveyer, a movable support, a truss having a rocking bearing on said support, and upon which said conveyer is adapted to travel, and a jack-screw for rocking said truss upon its support, of a platform on said truss at or near one end thereof, a trap in said platform over said conveyer, and wings or driveways connected with said platform for approaching said trap, substantially as set forth.

6. In an apparatus for stripping coal-beds, the combination with a movable support, a truss having a rocking bearing on said support and adapted to rock thereon, and a conveyer adapted to travel on said truss, of a platform at or near one end of said truss provided with a trap over said conveyer, and wings or driveways connected with said platform for approaching said trap, substantially as set forth.

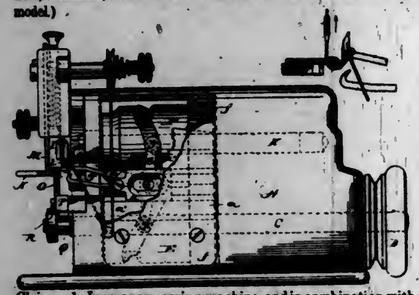
591,048. WEATHER-STRIP. DANIEL D. MAYFIELD, Robinson, Ill. Filed Oct. 12, 1896. Serial No. 608,617. (No model.)



Claim.—A weather-strip attachment for doors, consisting of a main continuous sheet-metal strip 1, hinged at its upper edge to the door, and formed with a vertically-disposed flat upper portion 4.

adapted to closely contact flat against the adjacent surface of the door, a flat outturned foot portion 7, adapted to lie flat against the floor, and with an intermediate bowed portion 5, adapted to engage the threshold, said portions 4, 5, and 7 extending longitudinally from end to end of the strip, a separate continuous spring-strip 8, secured fast along its upper edge to the door, and extending down to form a lower edge rolled inward in a continuous rounded bead extending the full length of the strip and bearing against the upper flat portion 4 of the main hinge-strip, and a combined guard and deflector secured at its opposite ends respectively to the threshold and floor, substantially as set forth.

591,049. OVERSEAMING SEWING-MACHINE. JOSEPH M. MERROW, Mansfield, Conn. Filed Oct. 23, 1896. Serial No. 609,791. (No model.)



Claim.—1. In an overseaming-machine, and in combination with a work-support and a reciprocating thread-carrying needle, a horizontally-reciprocating loop-carrier, an oscillatory reciprocating thread-carrying looper, moving around the edge of the work-support in a vertical plane, intersecting the path of the loop-carrier below, and of the needle above, the work-support and mechanism for reciprocating the loop-carrier and for reciprocating and oscillating the looper, said loop-carrier being arranged to draw a loop of the main-needle thread horizontally beneath and toward the edge of the fabric, the looper passing through said loop and advancing upward and laterally therethrough toward the main needle, to deliver the second thread; substantially as described.

2. In an overseaming-machine the combination with the work-support and main-thread-carrying and longitudinally-reciprocating needle, of a longitudinally-reciprocating loop-carrier provided with an upturned point or extremity, and a thread-carrying looper provided with a horizontal shank and upturned point, said looper reciprocating longitudinally of its shank in a plane parallel with the movement of the loop-carrier and oscillating vertically to cross the path of the loop-carrier and traverse alternately on opposite sides of the work-support; substantially as described.

3. In an overseaming-machine, the combination with a fabric-penetrating thread-carrying needle, of a horizontally-reciprocating loop-carrier having an upturned hooked and pointed extremity engaging said needle-thread to draw a loop horizontally beneath the fabric, a thread-carrying looper provided with an upturned point, and actuating mechanism for the needle, loop-carrier and looper, said looper reciprocating alternately on opposite sides of the fabric and passing around the edge thereof in a path intersecting the loop on the loop-carrier below the fabric and the path of the fabric-penetrating needle above the fabric, substantially as described.

4. In an overseaming-machine the combination with a reciprocating main-thread-carrying needle, a horizontally-reciprocating loop-carrier mounted upon a reciprocating support, and a thread-carrying looper pivotally mounted upon the reciprocating support of the loop-carrier to reciprocate in unison with the loop-carrier and oscillate independently thereof; substantially as described.

5. In an overseaming-machine the combination with a work-support and a reciprocating thread-carrying needle, of a horizontal loop-carrier provided with upturned point and mounted upon a reciprocating support, and a horizontal thread-carrying looper provided with an upturned point and pivoted upon the reciprocating support of the loop-carrier, whereby said looper and the loop-carrier are caused to reciprocate horizontally in unison and the said looper is permitted to oscillate independently in a vertical plane and traverse around the edge of the work-support; substantially as described.

6. In an overseaming-machine the combination with the main or fabric-penetrating needle and its actuating mechanism, of a reciprocating loop-carrier attached to a movable block or support, a thread-carrying looper attached to a carrier pivotally mounted upon said block or support, and actuating devices, such as cams, engaging said carrier to reciprocate both the loop-carrier and looper and to oscillate the latter; substantially as described.

7. In an overseaming-machine the combination with the main or fabric-penetrating needle, its actuating mechanism and a work-plate or fabric-support, of a loop-carrier reciprocating beneath the work-support and secured to a block movable in guides, an oscillatory reciprocating thread-carrying looper secured to a carrier pivotally attached to said movable block or support, and two cams operating upon said carrier to control the movements of the loop-carrier and looper; substantially as described.

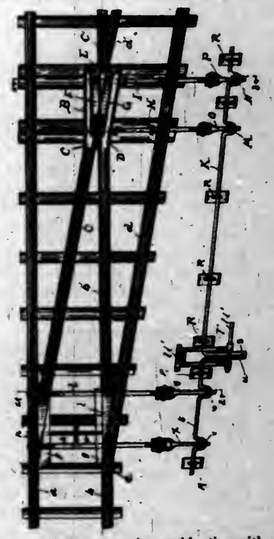
591,050. PENCIL-STERILIZING CASE. ABNIL MOFFATT, Indianapolis, Ind. Filed Dec. 26, 1896. Serial No. 617,010. (No model.)



Claim.—1. In a pencil-holder, a single sheet of metal perforated as described and forming the bottom and having one end bent up approximately at right angles and then forward parallel with the bottom, and having the other end bent up, and finally, down in an inclined position with the bottom, said inclined section having numbered openings to receive the ends of the pencils, and said sheet of metal forming the bottom of the holder, having one side edge only, bent up to form a stiffening-flange and said bottom having holders to grasp the pencils.

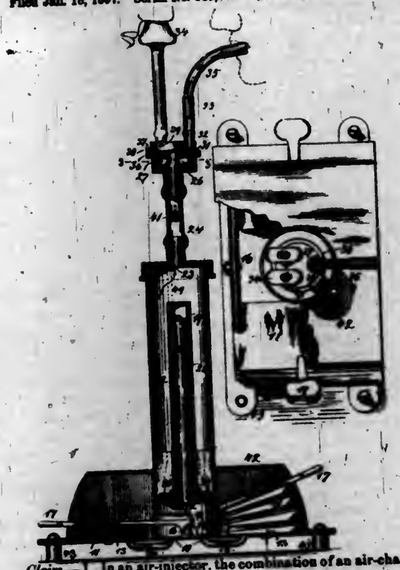
2. The combination, with a case having a perforated bottom and a close-fitting lid, of a plurality of trays containing pencils or penholders, said trays being made out of a single sheet of wire-cloth or perforated metal and having its ends bent up at right angles and then inward approximately parallel with the bottom and having one of its ends bent downwardly and provided with numbered openings to receive the ends of the pencils and having one side edge only, bent up to form a stiffening-flange, said bottom having holders to grasp the pencils, and said case to receive the trays having an air space or chamber between the lower tray and the bottom of the case, all substantially as described and for the purposes specified.

591,051. RAILWAY-SWITCH. MILTON MCCULLY, West Mansfield, Ohio, assignor of one-third to Charles C. Keller, same place. Filed July 15, 1896. Serial No. 599,251. (No model.)



Claim.—In a switch system, the combination with switch-tongues and frog members adapted to rise and fall to open the main track or sideway, of wedge-blocks adapted to operate the tongues and frog members, bell-crank levers having connections with the wedge-blocks to reciprocate them, a frame inclosing the power ends of said levers, a bell-crank lever pivoted in the frame and having a broadened end adapted to normally lie in the path of the aforenamed levers whereby the latter may be retained in operative position.

591,052. INHALER. BRADFORD MCGREGOR, Covington, Ky. Filed Jan. 18, 1897. Serial No. 619,007. (No model.)



Claim.—1. In an air-injector, the combination of an air-chamber, a double-acting air-compressor supplying it with air in a manner that a continuous current of it is caused to leave therefrom, a mixing-chamber which the air so compressed is caused to enter and in which it is brought in contact with certain substances which it is adapted to take up, said two chambers connected by a conduit which has an ascending and descending branch and air-discharge pipes having their outer ends provided with suitable nozzles fitted for insertion into the outer openings of the respiratory ducts.

2. In an air-injector, the combination of an air-chamber, a double-acting air-compressor supplying air in a manner that a continuous current of it is caused to leave the former, a distributing-chamber receiving the compressed air from the air-chamber first mentioned, air-discharge pipes communicating with said distributing-chamber and a cut-off device controlling all air-outlets and whereby the air may be entirely cut off from the discharge-pipes or be permitted to pass out through certain ones only.

3. In an air-injector, the combination of an air-chamber, an air-compressor supplying air to it, a mixing-chamber 22, a connecting-conduit through which it receives the air from the air-chamber, said conduit having an ascending and descending branch whereby the air is caused to enter the mixing-chamber near the bottom thereof, the outlet thereat being constructed to cause the air to discharge in jets and air-discharge pipes having their outer ends provided with suitable nozzles adapted for insertion into the parts and openings where the air is to be applied.

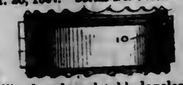
4. In an air-injector, the combination of an air-chamber, an air-compressor supplying air to it, a mixing-chamber 22, a connecting-conduit through which it receives the air from the air-chamber, which conduit is formed by a tube 18 extending upwardly from the outlet of the air-chamber and a tube 19 of larger diameter, closed at its upper end, surrounding tube 18, the air passing up in the latter and down in the space between the tubes, the outer tube having a flange 28 around its lower end with downwardly-extending lugs whereby such end is elevated to permit the air to pass out, dividing it at the same time in numerous jets, and air-discharge pipes having their outer ends provided with suitable nozzles adapted for insertion into the parts and openings where the air is to be applied.

5. In an air-injector, the combination of an air-compressor, an air-chamber receiving air from it, a mixing-chamber superimposed upon and in communication with the air-chamber from which it receives the compressed air, a distributing-chamber above the mixing-chamber which receives the compressed and medicated air after it has passed through the two chambers first mentioned, a neck 24 provided with a check-valve connecting it with the mixing-chamber, air-discharge pipes communicating with said distributing-chamber and a cut-off device whereby the air may be entirely cut off from the discharge-pipes or be permitted to pass out through certain ones only.

6. In an air-injector, the combination of an air-compressor, an air-chamber receiving air from it, a distributing-chamber receiving the air from the air-chamber, air-discharge pipes mounted upon the top of the latter and communicating with the interior thereof, a pivotally-supported cut-off plate with openings controlling the outlet from the distributing-chamber through said air-discharge pipes and capable of adjustment to cut off such outlet entirely or limit it, and stops indicating certain positions of said cut-off plate for certain purposes.

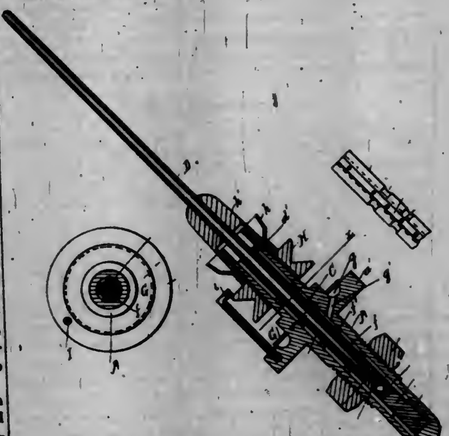
7. In an air-injector, the combination of an air chamber, two bellows connected to each other in a manner which causes them to act simultaneously, one for receiving, the other for discharging air, so that one is always supplying air to the air-chamber whereby an uninterrupted current is caused to leave the latter, air-conduits 14 connecting the bellows with the air-chamber, receiving and discharge valves for both, a mixing-chamber 22, a connecting-conduit through which it receives the air from the air-chamber, said conduit having an ascending and a descending branch whereby the air is caused to enter the mixing-chamber near the bottom thereof, the outlet thereat being constructed to cause the air to discharge in jets, a distributing-chamber receiving the air from the mixing-chamber, three air-discharge pipes mounted upon the top of the distributing-chamber and having their ends fitted with suitable nozzles for application and a pivotally-supported cut-off plate with openings controlling the outlet from the distributing-chamber through said air-discharge pipes and capable of adjustment to cut off such outlet entirely or limit it, and stops indicating certain positions of said cut-off plate for certain purposes.

591,053. BILLIARD AND POOL TABLE LEVELER. GEORGE W. HENDERSON, Butler, Pa., assignor of one-half to John F. Huselton, same place. Filed Mar. 25, 1897. Serial No. 629,109. (No model.)



Claim.—In a billiard and pool table leveler, the combination of a sleeve having exteriorly-situated fine screw-threads and a lower flange with depending teeth adjacent to the periphery thereof, a collar having corresponding interiorly-situated screw-threads to adjustably engage the said sleeve provided with lugs for turning the same, and a rotatable supporting-ring resting on the upper portion of the collar and entirely separate from the latter and having upwardly-projecting teeth near the periphery thereof and a depending rib forming a concentric shoulder which is engaged by the upper edge of the said collar, substantially as described.

591,054. SPINDLE FOR SPINNING-MACHINES. LUDGER A. O. HINE and EUGENE AYOTTE, Lowell, Mass. Filed Apr. 14, 1897. Serial No. 632,708. (No model.)



Claim.—1. The combination, with a spindle, and its bolster; of a ball supporting the said spindle, and means for clamping the said ball in the bolster, substantially as set forth.

2. The combination, with a spindle, and a bolster provided with a cavity in its lower part; of a ball arranged in the said cavity under the spindle, and a plug screwed into the lower end portion of the said bolster and clamping the said ball in the cavity, substantially as set forth.

591,055. BURGLAR-ALARM. LEWIS M. PRATT, Belleville, Kans., assignor of one-half to J. A. Boyd, same place. Filed May 22, 1897. Serial No. 637,750. (No model.)



Claim.—1. In a burglar-alarm, a supporting-frame consisting of an angle-iron, the vertical member of which is adapted to be secured to a fixed support, such as a door-frame, and a horizontal member having an opening adapted to receive and support a cartridge, combined with a spring pivotally secured at one end to the said horizontal member and its free end extending over the cartridge-opening, a pin on the under side of the spring at its free end adapted to engage the cartridge-cap, a lever pivoted on the vertical member of the frame with one end adapted to work through an opening in the horizontal member of the frame to engage the spring and lift it, and a trigger pivoted on a vertical axis in the supporting-frame with its upper end adapted to support the free end of the spring in an elevated position, and its lower end to be engaged by a movable object, such as a door, substantially as described.

2. In a burglar-alarm, a supporting-frame consisting of an angle-iron, the vertical member of which is adapted to be secured to a fixed support, such as a door-frame, and the horizontal member having an opening adapted to receive and support a cartridge, combined with a spring secured at one end to the said horizontal member and its free end extending over the cartridge-opening, a pin on the free end of the spring adapted to engage the cartridge-cap, and a trigger pivoted on a vertical axis in the supporting-frame, said trigger consisting of a piece of wire having its upper portion bent to form a crank adapted to be turned below the free end of the spring when elevated, and its lower portion bent to form a substantially S-shaped horizontal portion adapted to be engaged by a moving object, such as a door, substantially as described.

3. In a burglar-alarm, a supporting-plate adapted to be secured to a fixed support, such as a door-frame, and having an opening near one end to receive and support a cartridge, combined with a spring secured at one end to the said plate with its free end extending over the cartridge-opening, a trigger pivoted on a vertical axis in the plate with its upper end adapted to support the free end of the spring in an elevated position, and its lower end to be engaged by a movable object, as a door, and a lever pivoted intermediate its ends in an opening in the plate and adapted to lift the spring, substantially as described.

591,056. PICTURE-HANGER. MICHAEL F. REILLY, Brooklyn, N. Y. Filed Dec. 22, 1896. Serial No. 616,617. (No model.)



Claim.—The combination with a picture or other frame, of means connected with the back thereof near the upper end thereof, for suspending the same from a wall or other support, an arm secured to the back of the frame near the lower end thereof, and projecting upwardly, and an adjusting device mounted on said arm and adapted to slide thereon, said adjusting device being provided with outwardly-directed arms which bear on the back of the frame, and with a backwardly-directed arm which bears on the wall or other support, substantially as shown and described.

591,057. WAGON-CHUTE. WILLIAM ROSENBAUER, Philadelphia, Pa. Filed June 3, 1897. Serial No. 639,256. (No model.)

Claim.—1. A discharge for wagons, carts, &c., having a tailpiece with an opening therein, posts at the sides of said openings, a bottom piece extending in the rear of said tailpiece, side walls on said bottom piece adjacent to said posts, a plate secured to the latter, a swinging plate journaled at one end, at or near the central portion of the outer end of said bottom piece, and having a plate pivoted to its free end, said latter plate being adapted to abut against either of said side walls.

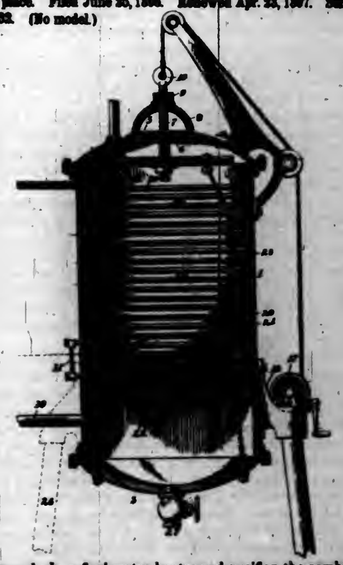


2. In a discharge for wagons, a tailpiece with an opening, the posts B at the sides of said openings, the gate C guided on said posts, the bottom piece G secured to said posts, and extending rearward of said tailpiece, the flaring side walls H forming the shoulders N with said posts, the plate J secured to said posts, the swinging plate L having bearings in the outer ends of said plate J and bottom piece G, and having the plate M pivotally secured thereto on its outer and free end and adapted to contact with said shoulders N.

3. In a discharge for wagons, carts, &c., a tailpiece with an opening therein, a rearwardly-extending bottom piece with flaring side walls at the inner end or portion, and a plate having one of its ends journaled on the outer end of said bottom piece and having on its free end a plate centrally pivoted thereto so as to fold on either side thereof and adapted to contact with either of said flaring side walls.

4. A discharge for wagons, carts, &c., having posts, a bottom piece secured to said posts, side walls, a plate secured to said posts, a guide pivoted to said plate and said bottom piece, and a plate hinged to said guide and adapted to abut against said walls or to pass the latter.

591,058. FEED-WATER HEATER AND PURIFIER. CHARLES B. ROGERS, St. Peter, Minn., assignor of three-fourths to Mile Carrier, same place. Filed June 25, 1896. Renewed Apr. 23, 1897. Serial No. 633,552. (No model.)



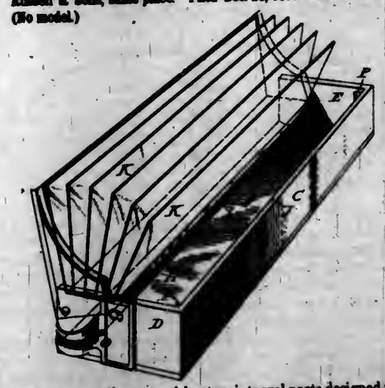
Claim.—1. In a feed-water heater and purifier, the combination of a shell or casing supported in an upright position at a proper elevation, a head detachably fitted to the lower end of the shell, a separating and purifying mechanism suspended within the shell and adapted to be lowered when the said head is detached, and a hoisting mechanism operating through the upper head of the shell to elevate and lower the separating and purifying mechanism, substantially as described for the purpose specified.

2. In a feed-water heater and purifier, the combination of a shell or casing supported in an upright position at a proper elevation, a head detachably fitted to the lower end of the shell, a connected series of separating-pans suspended within the shell and having the lower head connected therewith and adapted to be lowered, and a hoisting mechanism operating through the upper head of the shell to elevate and lower the pans and lower head, substantially as described.

3. In a feed-water heater and purifier, the combination of a shell or casing closed at its upper end by a head having a manhole, a head detachably fitted to the lower end of the shell, a separating and purifying mechanism removably fitted within the shell and having its lower head connected therewith, means for closing the manhole in the upper head, and a hoisting mechanism adapted to operate through the said manhole for raising and lowering the separating and purifying mechanism and the parts connected therewith, substantially in the manner set forth for the purpose specified.

4. A feed-water heater and purifier, comprising the following elements: a shell or casing supported in an upright position at a proper elevation, a head closing the upper end of the shell and having a central manhole, a head detachably fitted to the lower end of the shell, a cap closing against the inner side of the manhole, a crab spanning the said manhole, a threaded stem passing through the crab and cap and provided with means for drawing them together upon opposite sides of the upper head, a series of separating-pans, a basket, means for connecting the said pans, basket and lower head together and to the threaded stem, and a hoisting mechanism connected with the said stem to lower and raise it and the parts connected therewith when the lower head and the threaded stem are loosened, substantially as described for the purpose specified.

591,059. BOX. SAMUEL T. RUSSELL, Ilion, N. Y., assignor to A. H. Russell & Sons, same place. Filed Dec. 28, 1896. Serial No. 617,270. (No model.)



Claim.—1. A box comprising two integral parts designed to form a complete closure, one of said parts consisting of a side, top and ends; the other a bottom and side; and a pivot for said parts located at a point approximately midway of the ends of said bottom, whereby a leverage is secured to aid in opening the box.

2. A box comprising two parts pivoted together and designed to form a complete closure, one of said parts consisting of a side, top and ends; and the other a bottom and side; stays at the ends of said bottom and side, substantially as and for the purpose described, and a pivot for said parts located at a point approximately midway of the ends of said bottom.

3. A box comprising two parts pivoted together, substantially as shown, and designed to form a complete closure, one of said parts consisting of a side, top and ends, said side being formed with a recess or depression I on its inner face near its lower edge; and said second part consisting of a bottom and side.

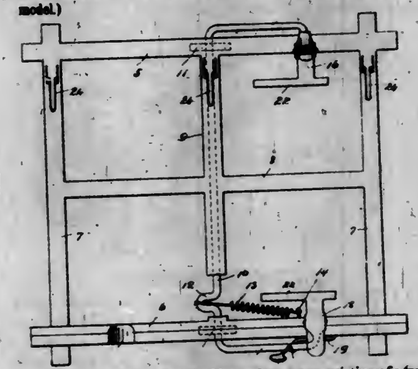
4. A box comprising two parts pivoted together and designed to form a complete closure, one of said parts consisting of a side, top and ends; and the other a bottom and side, said side being provided with a spring-catch upon its upper edge designed to pass under and engage the under face of the top.

5. A box comprising two parts designed to form a complete closure; one of said parts consisting of a side, a top and ends; the second section comprising a side and bottom; a latch for holding said parts in their closed position, a stop to prevent said sections from closing too far and a pivot for said parts located at a point approximately midway of the ends of said bottom.

6. A box comprising two parts pivoted together and designed to form a complete closure; one part comprising side F, top C, ends D and E, and stops P; the other side consisting of bottom H, side G, and end stays N; a series of leaves mounted on the upper face of bottom H; and a catch for holding the parts closed.

7. In a box, the combination of the two pivoted sections, substantially as described; a series of superposed strips L secured to the upper inclined face of the bottom of the box; and a series of leaves secured to the edges of the strips by textile material, substantially as and for the purpose set forth.

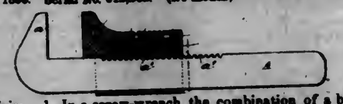
591,060. MUSIC HOLDER AND TURNER. WALLACE L. SABORN, Anthony, R. I. Filed May 19, 1897. Serial No. 637,144. (No model.)



Claim.—1. A sheet-music holder and turner, consisting of a frame a shaft mounted centrally of the back thereof, and provided at each end with arms which project in the same direction, a spring-clamp connected with each of said arms, and extending in the direction of the transverse center of the frame, said shaft being provided with a crank, and a spring which is secured thereto, and to the frame at the right of said shaft, and a spring-arm which is adapted to engage with the arm which is formed on or secured to the lower end of said shaft, substantially as shown and described

2. A sheet-music holder and turner, consisting of a frame, a shaft mounted centrally of the back thereof, and provided at each end with arms which project in the same direction, a spring-clamp connected with each of said arms, and extending in the direction of the transverse center of the frame, said shaft being provided with a crank; and a spring which is secured thereto, and to the frame at the right of said shaft, and a spring-arm which is adapted to engage with the arm which is formed on or secured to the lower end of said shaft, said clamps being provided with jaws which are adapted to engage with and hold a sheet of music, substantially as shown and described.

591,061. WRENCH. FRANK S. SMITH, Chicago, Ill. Filed Nov. 16, 1896. Serial No. 612,282. (No model.)



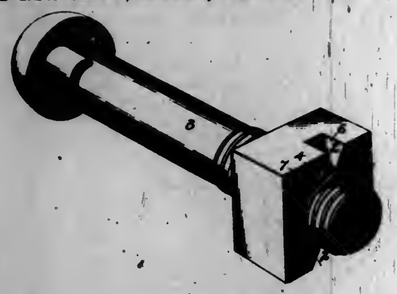
Claim.—1. In a screw-wrench, the combination of a body portion provided with teeth and a jaw portion, a jaw slidingly mounted thereon, a worm-shaft laterally movably mounted in the sliding jaw and provided with diametrical openings—one at each end thereof, and helical coiled springs at each of such openings in the worm-shaft for holding the parts in operative engagement and locking them together, substantially as described.

2. In a screw-wrench, the combination of a body portion provided with teeth and a rigid jaw, a second jaw slidingly mounted thereon and provided with elongated openings, a worm-shaft laterally movably mounted in the sliding jaw and provided with diametrical openings, one at each end thereof, and a helical coiled spring in each of such openings for holding the parts in operative engagement and locking the same together, substantially as described.

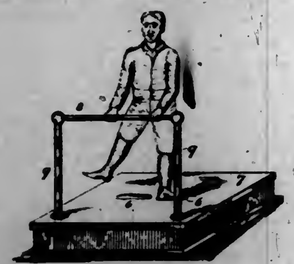
591,062. NUT-LOCK. JOHN W. SMITH, Holgate, Ohio, assignor of one-half to R. Huber, Marion, Ohio. Filed Mar. 23, 1897. Serial No. 628,221. (No model.)

Claim.—1. In a nut-lock, the combination of a nut provided in its outer face with a recess having an inclined wall forming a guide for a chisel, and a bolt having a portion of its threads raised to provide a spur or lug, said spur or lug having a shoulder at one side and a beveled face at the other to lock the nut against rotation and to enable to same to be forced over it when rotated by a wrench in the proper direction, substantially as described.

2. In a nut-lock, the combination of a nut provided with an inclined recess, and a bolt having a portion of its threads raised to provide a spur or lug, said spur or lug having a beveled face at one side and a shoulder at the other, the shoulder being disposed opposite the front face of the recess to lock the nut positively against retrograde rotation, whereby the said nut must be first rotated forward and then backward to remove it, substantially as described.



591,068. APPARATUS FOR PHYSICAL CULTURE. JOSEPH C. SPILLS, Cincinnati, Ohio. Filed May 17, 1897. Serial No. 636,840. (No model.)



Claim.—A platform having depressions 6, adapted to receive the soles of feet and of a depth which gradually decreases toward the part occupied by the toes where they run out and meet the surface of the platform.

591,064. WIRE FENCE. RANDALL T. VAN VALKENBURG, Bucyrus, Ohio, assignor of one-half to John H. Neal, Coldwater, Mich. Filed Jan. 23, 1897. Serial No. 621,131. (No model.)



Claim.—1. A wire fence comprising a series of line-wires secured to suitable supports, main stays composed of wires twisted together and having one of the wires of each stay extended at intervals in its length to provide loops which are secured to the intermediate fence-wires by being twisted therearound, the end portions of the said stays being firmly attached to the lowermost and to the topmost fence-wires but one, and auxiliary or slip stays formed of wires doubled upon themselves and having their upper ends firmly attached to the topmost wire, and having the folded parts twisted together, leaving an eye at their lower ends through which the upper ends of the respective main stays play loosely, substantially as described for the purpose set forth.

2. The herein-described stay for wire fencing, comprising a plurality of wires twisted together and having an eye at one end and a series of offstanding loops at intervals in its length, the loop adjacent to the eye end of the stay being opened and adapted to be severed between its ends to provide an auxiliary or slip stay, substantially as set forth, for the purpose described.

3. As a new article of manufacture, a fence-stay formed from a wire which is doubled upon itself to provide an eye at one end, and which has its folded portions twisted together, except for a short distance near the said eye, which portion is bent to provide an open loop 5, and having one of the wires formed into closed loops, the said wires being reversely twisted on opposite sides of the said loops, substantially as set forth for the purpose described.

591,065. BRICK-KILN. HENRY R. VAUGHAN, Belfast, Ireland. Filed Sept. 30, 1896. Serial No. 607,410. (No model.) Patented in England Oct. 31, 1895, No. 20,540.

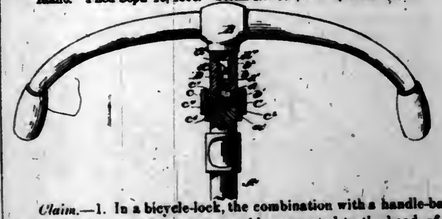
Claim.—1. A kiln having two rows of chambers arranged side by side, three parallel flues extending longitudinally with the kiln, the intermediate flue having its middle section between the two rows of chambers, and its two end sections below the chambers, and each chamber having passage-ways communicating respectively with the two flues nearest to said chamber, as set forth.



2. A kiln having two rows of chambers arranged side by side, three parallel flues extending longitudinally with the kiln, the intermediate flue having its middle section between the two rows of chambers, and its two end sections below the chambers, the end chambers communicating respectively with one side flue and one of the end sections of the intermediate flue, and the intermediate chambers communicating respectively with one side flue and the middle section of the intermediate flue, and transverse flues connecting the adjacent end chambers, all as set forth.

3. A kiln having two rows of chambers arranged side by side, three parallel flues extending longitudinally with the kiln, and each chamber having passage-ways communicating respectively with the two flues nearest to said chamber, passage-ways between the adjacent chambers, and transverse passages *j j* communicating with the adjoining chambers at each end respectively of the kiln, all as set forth.

591,066. BICYCLE-LOCK. BYRON H. WALKER, Cœur d'Alene, Idaho. Filed Sept. 16, 1896. Serial No. 606,047. (No model.)



Claim.—1. In a bicycle-lock, the combination with a handle-bar having a hollow pendent stem rotatably connected to the head, of a square sliding bolt mounted in said hollow stem and adapted to enter a square recess formed in the head to lock the parts together, and means for raising said bolt to disengage its squared end from the head and permit the handle-bar to rotate independently of said head, substantially as described.

2. In a bicycle-lock, the combination with a handle-bar having a hollow pendent stem rotatably connected to the head of the machine, of a sliding bolt so mounted within said hollow stem as to be incapable of rotation independently of the same and adapted to enter the head to hold said stem and head locked together, a headed locking-spring upon said bolt adapted to be held into or out of engagement with the stem, and a key for disengaging said locking-spring and raising or lowering the bolt, substantially as described.

3. In a bicycle-lock, the combination with a handle-bar having a hollow stem provided with an annular flange, of a screw-threaded sleeve adapted to rest upon said flange, a steering-head having a squared socket, an auxiliary sleeve connecting the flanged sleeve and said head, a squared bolt mounted within the hollow stem and adapted to engage the squared recess in the head, and a suitable key for raising or lowering said bolt, substantially as described.

591,067. AUTOMATIC SIPHONING DEVICE. DAVID S. WALLACE, Denver, Colo., assignor to the Wallace Plumbing Improvement Company, same place. Filed Dec. 12, 1896. Serial No. 615,523. (No model.)

Claim.—1. In a siphoning device a tubular, flexible sleeve having one end adapted to be connected to the discharging terminal end of liquid discharging passages, pipes and conduits, and a normally-converged, opposite discharging end adapted to automatically enlarge under coacting internal varying pressures of the liquid and the constant external pressure of the elastic material of which the siphon device is made, substantially as described.

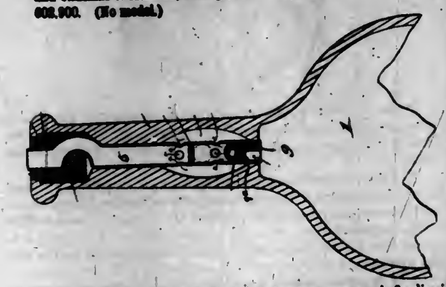
2. A siphoning device consistidg of a flexible and elastic rubber sleeve provided with a connecting end adapted to be secured to the terminal ends of discharging-passages, conduits and pipes, and a discharging end molded or formed into a plurality of flexible, corrugated-shaped folds or flutes, the bottoms of which approach close to the sleeve's axis and normally contract the internal area of the sleeve at its connecting end to a very small discharging-orifice, the said flutes being adapted to unfold concentrically under internal pressure of water running through said sleeve and to contract under the elastic pressure of the sleeve as the pressure of the water decreases, substantially as described.



3. A siphon device comprising a pliable rubber conical-shaped sleeve having its apex molded into a series of flutes adapted to normally diminish its discharging end to a small orifice and arranged and adapted to expand and enlarge under the pressure of water flowing through it and to maintain through the external pressure of the rubber sleeve an air-tight contact with the flowing water, and a flange upon the inlet end at approximately right angles to the body of the sleeve.

4. In an automatic siphoning device, the combination of a pliable and elastic conical-shaped sleeve having one end arranged and adapted to be connected to the discharging-outlets of water-closet bowls and its discharging end provided with a plurality of radially-disposed ribs and intervening flute-shaped depressions extending either axially or spirally from the discharging end along a portion of the sleeve's length, the said depressions converging concentrically at the end in close proximity to the axis of the sleeve and leaving a very small central outlet-orifice with narrow radial outlets extending into said ribs, the said ribs and depression being adapted under the cooperating influence of the liquid flowing through it and the resilient pressure of the conical rubber sleeve upon its external surface to maintain a perfect siphon in the discharge-passage.

591,068. NON-REFILLABLE BOTTLE. FRANK LA RUE BANTA and CHARLES C. MARBLE, Chicago, Ill. Filed Aug. 15, 1896. Serial No. 602,900. (No model.)

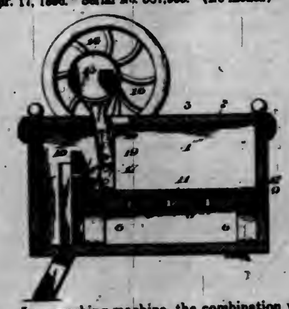


Claim.—1. In a non-refillable bottle having a reservoir for liquid in the neck thereof, substantially as specified; the combination therewith of a tube having a curve above the reservoir and provided at its lower portion with a ball adapted to move between a partition and valve, a crescent-shaped plug in the tube serving as a seat for the valve 9^a, normally closed to prevent downward flow, ports below the partition for the admission of liquid from the tube to the reservoir and ports above the partition for admission of liquid from the reservoir to the main tube, substantially as shown and described.

2. In combination with a bottle; a neck in which is a groove for sealing material and a portion of which is provided with a reservoir, a tube adapted to fit within the neck of the bottle, having a curve in its upper portion and provided at its lower end with a crescent-shaped plug adapted to serve as a seat for the valve 9^a, normally closed to prevent inflow from the neck, and ports for the admission of the liquid from the bottle into the reservoir, and ports in the main tube above a partition for the admission of the liquid to the main tube, substantially as shown and described.

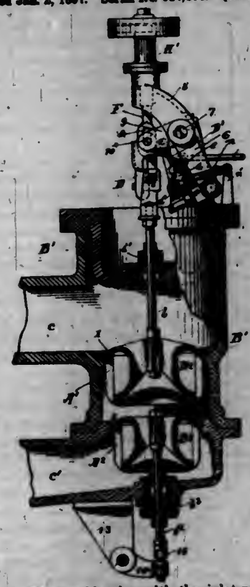
3. A non-refillable bottle, comprising a bottle having a neck, a portion of which is provided with a reservoir, a tube adapted to fit within the neck of the bottle, having its upper end bent and its lower end provided with a flap-valve and crescent-shaped plug, a ball between the partition and valve, ports for the admission of the liquid from the bottle into the reservoir, ports in the main tube above a partition for the admission of the liquid to the main tube from the reservoir, and means for holding the tube in place comprising a cork secured around the bent portion of the tube, and a covering of molten glass above the cork and around the straight portion of the tube, substantially as shown and described.

591,069. WASHING-MACHINE. JOHN G. BUSH, Canton, Mo. Filed Apr. 17, 1896. Serial No. 587,965. (No model.)



Claim.—In a washing-machine, the combination with a rectangular receptacle, of a vertically-movable yieldingly-supported bed spaced at one end from the adjacent end of the receptacle to provide a passage and having its other edges in contact with the corresponding walls of the receptacle, the upright extension 10 rising from that edge of the bed which is spaced from the end wall of the receptacle, the bed and the extension being perforated and the latter terminating short of the cover of the receptacle, whereby when the bed is depressed the liquid contents of the receptacle will flow upward through the said passage and over the upper edge of the extension, the inwardly-beveled flange arranged around the edge of the bed at its upper face, the imperforate oscillating presser provided with a beveled or undercut edge and hinged at one end to the receptacle, the vertical cleats 7 secured to the side walls of the receptacle at the outer face of the extension 10 and forming guides for the bed, and means for oscillating the presser, substantially as described.

591,070. VALVE MECHANISM FOR ENGINES. GEORGE S. BECKLEY, San Francisco, Cal., assignor to the Union Iron Works, same place. Filed Jan. 2, 1897. Serial No. 617,834. (No model.)



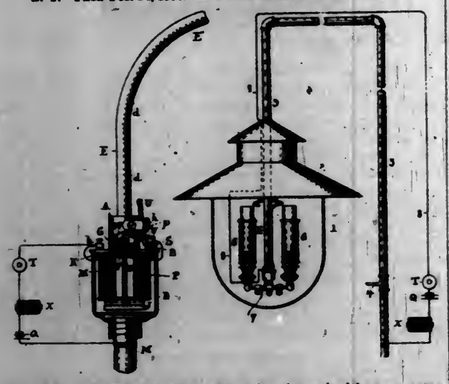
Claim.—1. The combination with the inlet-valves, of the yoke connected to the stem of said valve, the claw carrying a block which

engages with a block secured to the valve-yoke, mechanism for raising the claw in order to lift the yoke and inlet-valve, a tail connected to the yoke, and of mechanism for controlling the movement of the tail of the claw so as to move the same in or out of engagement with the valve-yoke.

2. The combination with the inlet-valve, of the yoke connected to the stem of said valve, the claw for engaging with said yoke in order to lift the same, mechanism for imparting vertical movement to the claw, spring-actuated tailpiece carried by said claw, a reciprocating arm for throwing the tailpiece inward to release the claw from engagement with the yoke, and of the eccentric cut-off mechanism for controlling the movement of the said arm.

3. The combination with the inlet-valves, of the yoke connected to the valve-stem thereof, a claw for engaging with said yoke, mechanism for imparting vertical movement to said claw, a spring-actuated tailpiece carried by the claw, a reciprocating arm for throwing the tailpiece to release the claw from engagement with the yoke, the eccentric cut-off mechanism for controlling the movement of the reciprocating arm, and of the connection between the governor and the reciprocating arm for throwing the claw.

591,071. ELECTRIC GAS-LIGHTING APPARATUS. ADRIAN L. ROSART, Jamaica, N. Y., assignor to William B. M. Jordan, New York, N. Y. Filed Feb. 24, 1897. Serial No. 624,853. (No model.)



Claim.—1. The combination in an electric gas-igniting apparatus, of a main gas-supply pipe, a by-pass, valves for independently controlling the main supply and by-pass, a flash-ladder connected to the by-pass, an electric igniter, and means for operating the said igniter and jets to be ignited by the flash-light, substantially as set forth.

2. The combination in an electric gas-igniting apparatus, of a main gas-supply pipe, a by-pass, valves for independently controlling the main supply and by-pass, a flash-ladder connected to the by-pass, an electric igniter, and means for operating the said igniter and by-pass valve together and jets to be ignited by the flash-ladder, substantially as set forth.

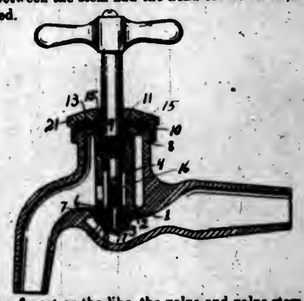
3. The combination in an electric gas-igniting apparatus, of a flash-ladder, a gas-supply pipe therefor and a valve for controlling the gas-supply for the flash-ladder independently of the main gas-supply valve, an electrical igniter and valve-controller comprising an electromagnet and valve-carrying armature, said igniter being operated by the movement of the valve-carrying armature, and means for controlling the electrical circuit, substantially as set forth.

4. The combination in an electric gas-igniting apparatus, of a by-pass from the main gas-supply, a flash-ladder connected with said by-pass, and an electrical valve-controller adapted to maintain the valve open while the circuit is closed at the circuit controller or key, and to close the valve when the circuit is open at the circuit controller or key, substantially as set forth.

5. The combination with a closed globe, of a gas burner or burners located therein, a valve or cock controlling the supply of gas thereto, a flash-ladder within said globe, a valve controlling the gas-supply to said flash-ladder independently of the gas-burner supply, an electric igniting apparatus, and means for operating the same and the valve simultaneously, substantially as set forth.

591,072. FAUCET. EDWARD DOUBER, Allegheny, Pa. Filed Feb. 8, 1897. Serial No. 622,561. (No model.)

Claim.—1. The valve for faucets and the like comprising an elastic tubular body, an inner thimble of less length than the body, a screw passing freely through the thimble, and a valve-stem, the latter being threaded to receive the screw, whereby the valve-body is compressible between the stem and the head of the screw, substantially as described.



2. In a faucet or the like, the valve and valve-stem, the removable valve-seat tube provided with an angular head and a flange below said head, combined with the valve-casing having a diaphragm, and with the cap and the two washers between the cap and flange, one washer surrounding the head, and one surrounding and fitting the valve-stem, substantially as described.

591,073. TEST-PLATE CLEANER FOR TYPE-DISTRIBUTING MACHINES. PAUL P. COX, Chicago, Ill., assignor to the Cox Type Setting Machine Company, same place. Filed Feb. 13, 1897. Serial No. 623,256. (No model.)



Claim.—1. The combination with a type-distributing machine, of means substantially as described for cleaning the test-plates while the machine is in operation, all substantially as and for the purpose described.

2. The combination with the reservoir, and test-plates of a type-distributing machine, of means substantially as described for automatically cleaning one or more test-plates of the machine when and while the type-channels of the reservoir and test-plate are in register, during the operation of the machine, all substantially as and for the purpose described.

3. A device for cleaning test-plates of type-distributing machines, consisting of a test-plate-cleaning device adapted to be slipped into a type-channel of the machine, and means for reciprocating said test-plate-cleaning device past the test-plate, when the test-plate registers with the channel, for the purpose and substantially as described.

4. The combination with the undistributed-type reservoir and the test-plate disk of a type-distributing machine; of one or more test-plate-cleaning rubbers or brushes in one or more of the type-channels of the reservoir, and means for reciprocating said rubbers or brushes past the test-plates so as to clean them when the type-channels and test-plates are in register, all substantially as and for the purpose described.

5. The combination with the undistributed-type reservoir, and the test-plate disk below the reservoir, and means for moving one of said parts in relation to the other so as to cause the test-plates to successively register with the type-channels of the reservoir; of one or more vertically-movable slides in one or more of the type-channels, provided with test-plate-cleaning rubbers or brushes on their lower ends; oscillating levers connected to the upper ends of said slides, and a cam and springs for oscillating said levers when the test-plates and type-channels are in register, all substantially as and for the purpose described.

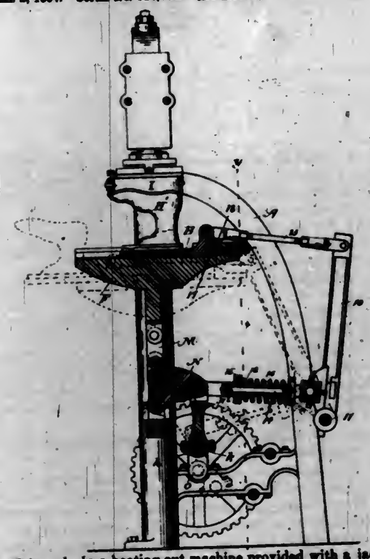
591,074. CURRYCOMB. ISAAC O. DAY, Ottumwa, Iowa, assignor of one-half to John Wonnhoudt and H. D. Wonnhoudt, same place. Filed May 19, 1897. Serial No. 637,368. (No model.)



Claim.—1. The combination with the currycomb having a rectangular tooth-frame, of a frame carrying stripper-plates pivotally attached to one side of said tooth-frame and having a crank-bend in one of its sides, and a spring-impelled rod connected to said crank-bend and operating to hold the stripper-plates on the teeth substantially as set forth.

2. The combination with the currycomb having rectangular tooth-frame and perforated handle, of a frame carrying stripper-plates and pivotally attached to one side of the tooth-frame, a crank-arm on one side of the stripper-frame, a rod connected with said crank-arm and extending through the handle, and a spring in the recess of the handle around said rod, normally holding it in position to keep the stripper-plates on the teeth-plates, substantially as set forth.

591,075. BEATING-OUT MACHINE. GEORGE R. GAYTE, Lynn, Mass., assignor to the Tripp Giant Leveller Company, same place. Filed Jan. 2, 1897. Serial No. 617,744. (No model.)

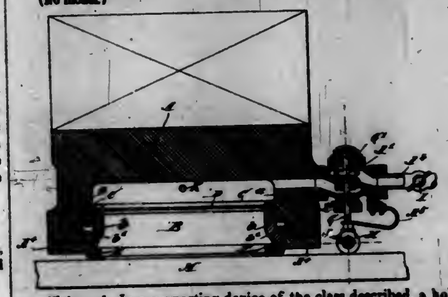


Claim.—1. In a beating-out machine provided with a jack-carrying table, movable toward and from a suitable mold and provided with toggle mechanism for operating the said table, an automatic throw-out for the jack thereof comprising a jack-supporting slide upon the said table, an arm pivoted at its lower end to the framework of the machine, a connecting-rod pivoted to the said pivoted arm near the lower end of the latter and also pivoted to the toggle mechanism, and a connecting-rod connecting the upper end of the said pivoted arm to the jack-supporting slide, one of said connecting-rods being longitudinally compressible, in combination with mechanism for operating said toggle mechanism, all substantially as described.

2. In a beating-out machine provided with a jack-carrying table movable toward and from a suitable mold and provided with toggle mechanism for operating said table, an automatic throw-out for the jack thereof comprising a jack-supporting slide upon the said table, an arm pivoted at its lower end to the framework of the machine, a longitudinally-compressible rod pivoted to the said pivoted arm near the lower end thereof and also pivoted to the toggle mechanism, and an adjustable rod connecting the upper end of the said pivoted arm with the jack-supporting slide, all substantially as described.

3. In a beating-out machine provided with a jack-carrying table, movable toward and from a suitable mold and provided with toggle mechanism for operating said table, an automatic throw-out for the jack thereof comprising a jack-supporting slide H, an arm 10 pivoted at its lower end to the framework of the machine, a longitudinally-adjustable rod 13 connecting the upper end of the arm 10 to the slide H, and a rod 12 connecting said toggle mechanism with the arm 10 near the lower end of the latter, the rod 12 being made in two sections guided with respect to each other and having a spring 16 between them, whereby said rod 12 is made longitudinally compressible, for the purpose set forth.

591,076. APPARATUS FOR SUPPORTING LOADS. BERTHOLD GERDAU, Duesseldorf, Germany. Filed Apr. 23, 1897. Serial No. 633,430. (No model.)



Claim.—1. In a supporting device of the class described, a hollow cylinder with valves for admitting and discharging water under pressure, said cylinder being formed with an internal offset, in combination with an annular piston B, formed with an external offset adapted to bear the load, and arranged to serve therewith, substantially as herein specified.

2. In a supporting device of the class described, a hollow cylinder, an annular piston fitting easily therein, a supply for admitting water under pressure, a valve for said supply, a rod for automatically changing the adjustment of the valve as the position of the cylinder and piston relatively varies, and a wheel or roller H supporting such rod and bucket without friction on the surface M, all combined and arranged to serve substantially as herein specified.

3. In a supporting device of the class described, a hollow cylinder with valves for admitting and discharging water under pressure, an annular piston fitting easily therein, and a shoe A^4 in the bottom of the cylinder for confining the piston, combined and arranged to serve substantially as herein specified.

4. In a supporting device of the class described, a hollow cylinder, an annular piston fitting easily therein, a supply for admitting water under pressure, a valve for said supply, and a spring-depressed roller for normally holding the valve closed but adapted to yield and open the same when the piston moves within the cylinder, all combined and arranged to serve substantially as herein specified.

5. In a supporting device of the class described, a hollow cylinder with valves admitting and discharging water under pressure, an annular piston fitting easily therein, and top and lower inner packing-glands, adjustably connected by rings to the piston, substantially as herein specified.

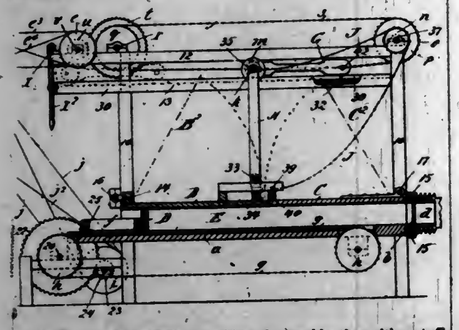
6. In a supporting device of the class described, a hollow cylinder with valves for admitting and discharging water under pressure, said cylinder being formed with an internal offset, in combination with an annular piston B formed with an external offset adapted to bear the load, and a shoe A^4 in the cylinder-bottom to serve as a rest for the cylinder and to confine the piston, substantially as herein specified.

591,077. MACHINE FOR STUFFING MATTRESSES. ARMIND GRIFFITH, Springfield, Mass. Filed May 21, 1897. Serial No. 637,562. (No model.)

Claim.—1. In a mattress-stuffing machine, the combination with a stuffing-box and two hinged cover-sections therefor, of a bar and supports on which the same is mounted to move, wheels *p q* and chains or like flexible appliances running around said wheels and having a connection with said bar, means for imparting rotary movements to one of said wheels, a supporting and guiding wheel *n*, a chain or like flexible connection secured to said bar, running around said wheel *n* and connected to one of the cover-sections, and the bar H pivotally sustained by the said movable bar and pivotally connected to the other cover-section, substantially as described.

2. In a mattress-stuffing machine, the combination with a stuffing-box and two hinged cover-sections therefor, of the paired bars G G united by the cross-rod and supports on which the said bars are mounted to move, wheels *p q* and chains or like flexible appliances

running around said wheels and having connections with said bars, means for imparting rotary movements to one of said wheels, a supporting and guiding wheel *n*, a chain or like flexible connection connected to said bar running around said wheel *n* and connected to one of the cover-sections and the bars H pivotally hung on said rod which is sustained by said movable bars, and having their lower ends pivotally connected to the other cover-section, substantially as described.



3. In a mattress-stuffing machine, the combination with a stuffing-box and two hinged cover-sections therefor and the rails 12, 13, the latter having the longitudinal groove, of the paired bars G G having the wheels *m m*, united by the cross-rod and the projections 32, wheels *p q* and chains or like flexible appliances running around said wheels and having a connection with said bar, means for imparting rotary movements to one of said wheels, a supporting and guide wheel *n*, a chain or like flexible connection connected to said bar running around said wheel *n* and connected to one of the cover-sections and the bars H pivotally hung on said rod which is sustained by said movable bars, having their lower ends pivotally connected to the other cover-section, the spout, gate and reciprocatory ejector-bar D substantially as described.

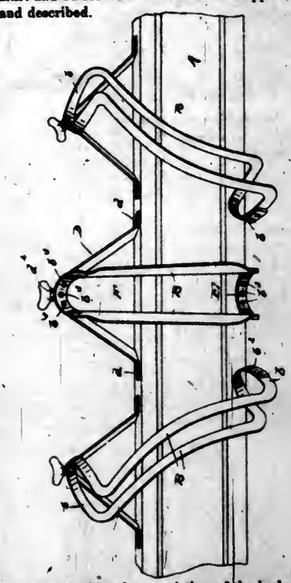
4. In a mattress-stuffing machine, the combination with the stuffing-box having the hinged cover-sections and the horizontal guideways, of the bars G G movably mounted on said guideways and having connections with the cover-sections whereby, as they are moved, said sections will be opened and closed, wheels *p q* and chains or like flexible appliances running around them and connected to said bars G, and mechanism for imparting at pleasure forward or rearward rotary movement to said wheels *q*, substantially as and for the purposes set forth.

5. In a mattress-stuffing machine, the combination with the stuffing-box having the hinged cover-sections and the horizontal guideways, of the bars G G movably mounted on said guideways and having connections with the cover-sections whereby, as they are moved, said sections will be opened and closed, wheels *p q* and chains or like appliances running around them and connected to said bars G, a gear *t* connected to move in unison with the wheels *q*, a shaft *v* having two, reversely driven, pulleys, loose thereon, and a fixed pinion *u* in mesh with gear-wheel *t*, a clutch to place either of said reversely-driven pulleys in driving connection with shaft *v* and means for operating the clutch, substantially as described.

6. In a mattress-stuffing machine, in combination, the stuffing-box having the spout *d*, gate *b*, reciprocatory bar D, and means for imparting its movement thereto, and the hinged cover-sections B D, the horizontal separated rails 12, 13 constituting guideways, the bars G G movable in said guideways and united by the cross-shaft *k*, the shafts *v* and *r*, the former having the sprocket-wheels *n* and *p*, and the latter having the sprocket-wheels *q* and the gear-wheel *t*, the sprocket-chains *s s* running around the sprocket-wheels *p q*, and connected to said bars G, the chain J connected to the shaft-*k* which is sustained by said bars, and running around sprocket-wheel *n* and connected to one of the covers near its edge, the bars H H hung on said rod *k* and pivoted to the other cover-section, shaft *v* having pinion *u* and reversely-driven loose pulleys *c c²* and having the clutch member *w*, the slide-rod *x* having the arm which engages clutch *w*, and the lever x^a for operating said rod *x*, all substantially as described and for the purposes set forth.

591,078. BICYCLE-HOLDER. CHARLES R. JEWELL and MAJOR R. JEWELL, Seneca Falls, N. Y. Filed July 11, 1896. Serial No. 598,827. (No model.)

Claim.—1. A support for bicycles consisting of the body B, formed of a continuous strip of material bent to form curved or segmental sides adapted to clasp, engage or receive the wheel, and backwardly-directed curved, or segmental yokes in which the tire rests; and a triangular brace secured to the upper yoke and adapted to be secured to a wall or support to hold said yoke outwardly with the sides ranging diagonally inward, and the lower yoke being adapted to rest against and be secured to such wall or support, substantially as shown and described.



2 A support for bicycles, consisting of the body B, formed of a continuous strip of material bent to form curved or segmental sides adapted to clasp, engage or receive the wheel, and backwardly-directed curved or segmental yokes in which the tire rests; means connected with the upper yoke for adjustably or pivotally securing the same to a wall or support, and the lower yoke being adapted to be adjustably secured to such wall or support.

3. A bicycle-holder, comprising two parallel side bars or plates, which are segmental in form, and which are provided at each end with backwardly-directed yokes, said yokes being adapted to be secured to a plate or other support, by means of a triangular or other formed brace, which is connected with the yoke at the upper end of the holder, the yoke at the lower end of the holder being also adapted to be connected with said plate or support, and means for changing the position of the holder or the angle thereof to the plate, substantially as shown and described.

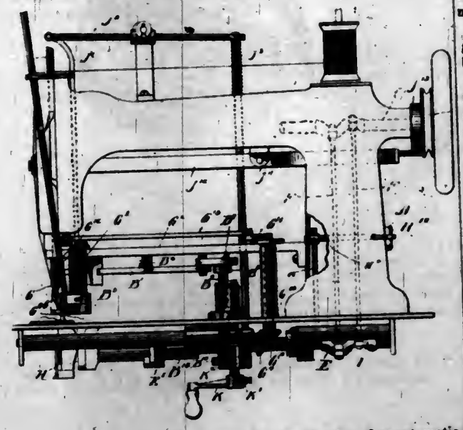
4. A bicycle-holder, comprising two parallel side bars or plates, which are segmental in form, and which are provided at each end with backwardly-directed yokes, said yokes being adapted to be secured to a plate or other support, by means of a triangular or other formed brace, which is connected with the yoke at the upper end of the holder, the yoke at the lower end of the holder being also adapted to be connected with said plate or support, and means for changing the position of the holder or the angle thereof to the plate, consisting of a plurality of holes or openings, in each of said yokes, and a set-screw which is adapted to pass through one of said holes, and through the brace by which the upper end thereof is supported, and a screw or bolt which is adapted to pass through one of the holes or slots in the lower yoke, substantially as shown and described.

5. A bicycle-holder comprising two parallel side bars or plates provided at each end with backwardly-directed yokes, means for securing said yokes to a plate or other support, and means for adjusting the position or angle of the holder with respect to said plate or support.

6. The combination with a plate or other support of a bicycle-holder comprising two parallel side bars or plates connected together and adapted to engage or receive the wheel, said side bars being movably connected with the said plate or support and a set-screw engaging the holder to secure the same at desired positions or angles with respect to the plate or support.

591,079. SEWING-MACHINE FOR SEWING SPANGLES ON FABRICS. ALPHONSE H. KURSHEEDT and JOSEPH A. GNEHM, New York, N. Y., assignors to said Kursheedt. Filed Nov. 1, 1895. Serial No. 567,696. (No model.)

Claim.—1. In a spangle-sewing machine, the combination of an automatic sewing mechanism, an automatic spangle-feeding mechanism for feeding the spangles to the sewing mechanism, and an automatic work-advancing mechanism, said sewing mechanism, spangle-feeding mechanism and work-advancing mechanism coöperating one with another to automatically feed the spangle to the sewing mechanism to sew the spangles onto the fabric by continuous threads, and to automatically feed the work forward.



2. In a spangle-sewing machine, the combination of an automatic sewing mechanism, mechanism for feeding spangles to the sewing mechanism, automatic work-advancing mechanism and means for automatically regulating the extent of the feed of the work and means for determining the direction thereof, and intermediate mechanism between said spangle-feeding mechanism, sewing mechanism and work-advancing mechanism, as and for the purposes set forth.

3. In a spangle-sewing machine, the combination of an automatic sewing mechanism, spangle-feeding mechanism, and work-advancing mechanism capable of advancing the work in two or more directions, and intermediate mechanism between said spangle-feeding mechanism, sewing mechanism and work-advancing mechanism, whereby the parts are automatically operated to feed the spangles, to sew the spangles fed and to feed the material.

4. In a spangle-sewing machine, the combination of sewing mechanism, spangle-feeding mechanism feeding above the cloth-plate of the machine for successively feeding disconnected spangles to the sewing mechanism and upon the upper side of the fabric, a work-advancing feeding-foot combined with means for throwing the said feeding-foot and with a presser-foot which bears upon the spangles, as and for the purposes set forth.

5. In a spangle-sewing machine, the combination of sewing mechanism, an automatic spangle-feeding mechanism feeding above the cloth-plate of the machine for successively feeding disconnected spangles up to the sewing mechanism and upon the upper side of the fabric, a feeding-foot, a presser-foot, means for throwing the feeding-foot to advance the work, and means for actuating the presser-foot to hold the spangles being sewed.

6. In a spangle-sewing machine, the combination of a sewing mechanism, mechanism for feeding disconnected spangles to the sewing mechanism, intermediate mechanism between said sewing and spangle-feeding mechanisms, a feeding-foot and mechanism for throwing the feeding-foot upon lines at an angle to one another.

7. In a spangle-sewing machine, the combination of a sewing mechanism, a spangle-feeding mechanism for feeding disconnected spangles to the sewing mechanism, intermediate mechanism between said sewing and spangle-feeding mechanisms, a feeding-foot mechanism for throwing the feeding-foot on lines at angles to one another, and means for determining the direction of such throw.

8. In a spangle-sewing machine, the combination of a sewing mechanism, mechanism for feeding disconnected spangles to the sewing mechanism, intermediate mechanism between said sewing and spangle-feeding mechanisms, a feeding-foot, means for throwing the feeding-foot on lines at an angle to one another to effect the advance of the work, means for determining the direction of such movements and means for determining the length of such movements.

9. In a spangle-sewing machine, the combination of sewing mechanism, spangle-feeding mechanism, comprising a spangle-carrier, and a spangle-guide, with means for bringing the spangles up to the guide, and intermediate mechanism between said sewing and spangle-feeding mechanism for automatically moving the spangle-carrier to bring the spangles into the path of the needle of the sewing mechanism.

10. In a spangle-sewing machine, the combination of sewing mechanism, spangle-feeding mechanism comprising a slotted, spangle-guide having the slotted portion thereof projecting into the path of the needle of the sewing mechanism, a spangle-carrier provided with a slotted socket for receiving a spangle, and intermediate mechanism between the sewing mechanism and the spangle-carrier for automatically swinging said carrier into the path of the needle of the sewing mechanism, substantially as described.

11. In a spangle-feeding mechanism, the combination of a spangle-guide, a movable spangle-carrier, and a friction-plate interposed between the guide and carrier.

12. In a work-advancing mechanism, the combination of a feeding-foot, a cam-surface, a connection between the cam-surface and the feeding-foot for transmitting motion from the cam-surface to the feeding-foot to throw the feeding-foot, a rock-shaft for transmitting motion to the cam-surface, a pivoted yoke, means for transmitting motion to the yoke, a link connecting said rock-shaft and yoke, and means for varying the distance between the pivot of the yoke and its connection with the link.

13. In a spangle-sewing machine, the combination of sewing mechanism, mechanism for feeding disconnected spangles to said sewing mechanism, a work-advancing mechanism, means for regulating the length of throw of the work-advancing mechanism, means for determining the direction of throw of the work-advancing mechanism, means for disengaging the work-advancing mechanism from the work, and intermediate mechanism between said sewing and work-advancing mechanisms, whereby all of said parts coöperate one with another to automatically feed disconnected spangles to the sewing mechanism and sew on such spangles in lines determined by the work-advancing mechanism.

14. The combination of a feeding-foot, a cylindrical inclined pin, means for reciprocating and rotating the inclined pin, and a pivoted link connecting directly to the feeding-foot and pin, substantially as described.

15. The combination of a feeding-foot, an inclined pin, means for reciprocating and rotating the inclined pin, a pivoted link connected to the feeding-foot at one end and provided at its other end with an aperture consisting of conoidal sections joined by their narrowest parts, said apertures surrounding the before-mentioned pin, substantially as described.

16. The combination in a spangle-sewing machine, of an annular feeding-foot, a sewing mechanism, a spangle-feeding mechanism for feeding disconnected spangles within the annulus of the feeding-foot and a presser-foot working within the annulus of the feeding-foot to hold the spangles in the position to which they are fed.

17. The combination of a spangle-guide, a spangle-containing tube removably connected therewith and a spangle-carrier for conveying spangles from the spangle-guide, substantially as described.

18. In a machine of the character specified, the combination of a spangle-guide, a spangle-carrier G^9 for conveying spangles from said spangle-guide, said spangle-carrier having a depression G^{10} of suitable shape and dimensions to receive a spangle with a slot G^{11} in said depression for permitting of the withdrawal of the carrier while the needle is through the spangle, substantially as described.

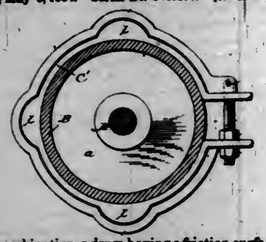
19. In a spangle-sewing machine, the combination of a sewing mechanism, means for feeding disconnected spangles to said sewing mechanism, a presser-foot adapted to bear upon a spangle and hold it against the fabric while the sewing mechanism is operating thereon, and intermediate mechanism between said sewing mechanism, spangle-feeding mechanism and presser-foot to automatically operate said parts.

20. In a spangle-sewing machine, the combination of an automatic sewing mechanism, an open feeder-foot therefor, means for feeding disconnected spangles to said sewing mechanism and within the open feeder-foot, and a presser-foot adapted to bear upon a spangle and hold it against the fabric while the sewing mechanism is operating thereon.

21. In a spangle-sewing machine, the combination of an automatic sewing mechanism, a spangle-receptacle, a spangle carrier for conveying disconnected spangles from said spangle-receptacle to the sewing mechanism, and intermediate mechanism between said sewing mechanism and spangle-carrier for automatically operating the spangle-carrier to convey spangles to the sewing mechanism and to automatically sew the spangles thus conveyed.

22. In a spangle-sewing machine, the combination of an automatic sewing mechanism, a spangle-receptacle, a spangle-carrier for conveying disconnected spangles from said spangle-receptacle to the sewing mechanism, means for maintaining a spangle in said spangle-carrier, and intermediate mechanism between said sewing mechanism and spangle-carrier for automatically operating the spangle-carrier to convey spangles to the sewing mechanism and to automatically sew the spangles thus conveyed.

591,080. CLUTCH. WILLIAM H. LAFAMILLE, Boston, Mass., assignor of two-thirds to Henry F. Hephen and Hubert H. Waldron, same place. Filed May 6, 1897. Serial No. 635,407. (No model.)



Claim.—In combination, a drum having a friction-surface, a clutch comprising a friction-band having projecting ends, a bonnet or frame secured to the shaft and in connection with the friction-band, a bolt eccentrically pivoted in the bonnet and adjustably secured to the friction-band and an extension from the eccentric support of the bolt with means for operating said extension to apply or throw off the friction, substantially as described.

591,081. METHOD OF MAGNETIZING. WILLIAM D. MARKS, Philadelphia, Pa., assignor to the American Electric Meter Company, same place. Filed Aug. 3, 1897. Serial No. 646,895. (No model.)



Claim.—1. The method of tempering and magnetizing steel, consisting in first heating the steel to a sufficient degree then simultaneously subjecting the heated steel to the influence of a magnet and immersing the heated steel in a tempering-bath, substantially as set forth.

2. The method of tempering and magnetizing steel, consisting in first heating the steel to a red heat and while red-hot subjecting the steel to the influence of a magnet and immersing the steel in a tempering-bath while red-hot and in the field of force of the magnet, substantially as set forth.

3. In apparatus for tempering and magnetizing steel, the combination of a magnet and a tank made of non-magnetic material located between the poles of the magnet and containing a suitable tempering fluid, substantially as set forth.

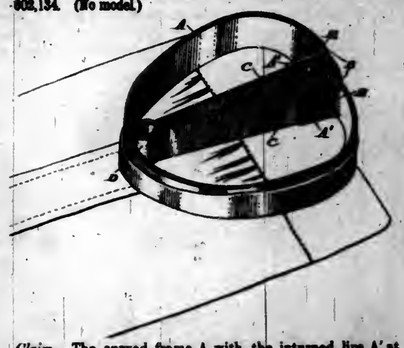
4. In apparatus for tempering and magnetizing steel, the combination of an electromagnet provided with pole-pieces, and a tank made of non-magnetic material located between the pole-pieces and containing a suitable tempering fluid, substantially as set forth.

591,082. COASTING SPROCKET-WHEEL. GEORGE H. MORAN, New York, N. Y. Filed Nov. 17, 1896. Serial No. 612,451. (No model.)



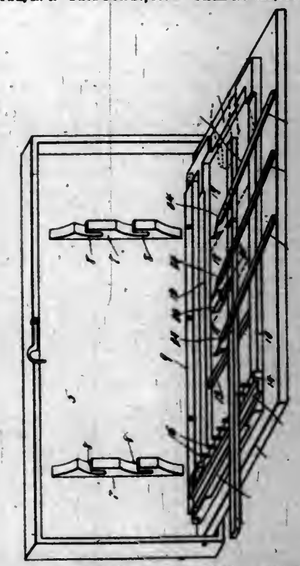
Claim.—The herein-described sprocket-wheel comprising a central circular portion consisting of two disks 5, secured together by bolts 6, and provided with a central circular opening 8, a revoluble rim 10, mounted on said disks, having a flange 11, being provided with notches 13, and a corresponding number of projections 14, a supplemental disk 15, mounted between the disks 5 and rigidly secured thereto, said supplemental disk being provided with notches 17, said disk 5 being provided with a corresponding number of openings 18, said supplemental disk being also provided with a plurality of dogs pivotally connected therewith, and adapted to occupy notches 17, and to be thrown into engagement with the said notches 13, said dogs being provided with springs 20 for actuating the same, all substantially as shown and for the purpose set forth.

591,088. SHAPER FOR NECKBANDS OF SHIRTS. ALBERT PARADIS and JACOB FALTERMAYER, Philadelphia, Pa., assignors to Samuel Sternberger, same place. Filed Aug. 8, 1896. Serial No. 602,134. (No model.)



Claim.—The curved frame A with the inturned lips A' at the separated ends thereof, in combination with the arms of the plate C which are connected with said lips and provided with the spring-bend B within the frame opposite to the separated ends thereof.

591,084. MANIFOLD LETTER-WRITER. JOHN M. ROSS, Elizabethtown, N. C. Filed Feb. 27, 1897. Serial No. 625,307. (No model.)



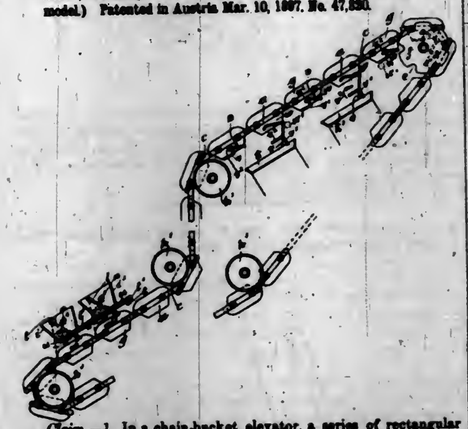
Claim.—1. A manifold letter-writing device, consisting of a plate or board on which is mounted a pivoted frame, by means of which separate sheets of paper are held on said plate or board, said pivoted frame being provided at one end with a cross-plate, to which is secured a number of vertical pins, and a bar which is provided with a longitudinal groove in the lower side thereof, in which one of said pins is adapted to operate, said bar being also provided with transverse penholders, substantially as shown and described.

2. A manifold letter-writing device, consisting of a plate or board on which is mounted a pivoted frame, by means of which separate sheets of paper are held on said plate or board, said pivoted frame being provided at one end with a cross-plate, to which is secured a number of vertical pins, and a bar which is provided with a longitudinal groove in the lower side thereof, in which one of said pins is adapted to operate, said bar being also provided with transverse penholders, and said plate or board being pivotally connected with a box or casing into which it is adapted to be folded, substantially as shown and described.

3. A manifold letter-writing device, consisting of a plate or board on which is mounted a pivoted frame, by means of which separate sheets of paper are held on said plate or board, said pivoted frame

being provided at one end with a cross-plate, to which is secured a number of vertical pins, and a bar which is provided with a longitudinal groove in the lower side thereof, in which one of said pins is adapted to operate, said bar being also provided with transverse penholders, and said plate or board being pivotally connected with a box or casing into which it is adapted to be folded, and said box or casing being provided with transverse strips which are secured to the back thereof, in which are formed notches or recesses, substantially as shown and described.

591,085. CHAIN-BUCKET ELEVATOR. CARL SCHLICKEISEN, Berlin, Germany. Filed May 25, 1897. Serial No. 638,073. (No model.) Patented in Austria Mar. 10, 1897. No. 47,230.



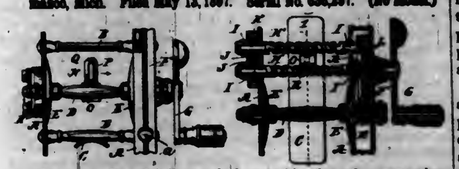
Claim.—1. In a chain-bucket elevator, a series of rectangular frames A, links *e* and equidistant pivots *d'*, connecting the same together, a roller *d'* on each pivot, in combination with a driving-wheel having equally-spaced teeth adapted to receive the rollers, and with elevator-buckets *g* carried in the said frames, all arranged to serve substantially as herein specified.

2. In a chain-bucket elevator making changes of inclination, a series of frames A, links *e* and pivots *d'* connecting the same together, which latter are set on the frames and spaced at equal distances apart, a roller *d'* on each pivot, in combination with a driving-wheel adapted to receive the rollers, one or more other wheels adapted to keep the chain extended, and with means as the counter-rails *k* for preventing the chain from leaving the path in the reëntering angles of the latter, all arranged for joint operation substantially as herein specified.

3. In a chain-bucket elevator, the combination with a hopper having a hinged bottom normally closed by a weight, of a series of rectangular bucket-carrying frames A, links *e* and equidistant pivots *d'* connecting the frames together, a roller *d'* on each pivot, stops on the frames for operating the hopper-bottom, and a driving-wheel having equally-spaced teeth for receiving the rollers, all arranged to serve substantially as specified.

4. In a chain-bucket elevator, in combination with the buckets *g* linked together, and impelling means *f*, the guide-rails *d* and means as the hopper *i* and its operating mechanism for charging such buckets, and with the bottom flap *r* hinged to each bucket as a means of closing the base, and with a hook or catch r^3 engaging with the rail *w* carried with the bucket to hold the flap in the closed position, and with a fixed pin or stop *s* arranged to act on the catches r^3 at the passage of the latter, and means as the roller *w'* for again closing the bottom and reëngaging the catch with the rail, all arranged for joint operation substantially as herein specified.

591,086. FISH-LINE REEL. WILLIAM SHAKESPEARE, Jr., Kalamazoo, Mich. Filed May 13, 1897. Serial No. 636,297. (No model.)



Claim.—1. In a fish-line reel, the combination of a supporting-frame, a winding-cylinder, two grooved spindles geared together, a guide-block for the line supported upon and reciprocated by the grooved spindles, and a crank to actuate the several devices, for the purposes set forth.

2. In a fish-line reel the combination of a supporting-frame, a winding-cylinder, two grooved spindles geared together, a crank upon one of the spindles to which a large gear is attached, a small gear on the axis of the winding-cylinder, a guide for the line which is supported upon and reciprocated by the grooved spindles and a crank to actuate the several devices for the purposes set forth.

3. In a fish-line reel, the combination of a supporting-frame, a winding-cylinder, two grooved spindles geared together, a large gear upon one of the spindles which meshes into a small gear upon the shaft of the winding-cylinder, a crank upon the spindle which has the large gear, and a guide for the line reciprocated by the grooved spindles, for the purposes set forth.

4. In a fish-line reel, the combination of two spindles adapted to be rotated in different directions and both of them grooved in the same direction, the grooves near the ends of the spindles gradually "vanishing," and a guide for the line supported upon the spindles and provided with a transversely-movable pin adapted to enter and operate in the grooves on the spindles, for the purposes set forth.

5. In a fish-line reel, a guide for the line comprising a portion having a hole therein, through which the line may pass, a pin transversely movable through said portion and adapted to engage with grooves in the actuating-spindles, said grooved spindles themselves, and means to rotate the same, for the purposes set forth.

6. In a fish-line reel, guiding mechanism for the line, comprising two parallel grooved and rotatable spindles, the grooves in which gradually "vanish" at or near the respective ends of the spindles, a guide-block for the line supported upon the said spindles and provided with means to engage with the grooves in them, for the purposes set forth.

7. In a fish-line reel actuating mechanism for the line comprising two parallel grooved and rotatable spindles, a guide-block for the line supported upon the said spindles, and provided with a movable pin adapted to engage with the grooves in the spindles, and by them automatically shifted from one side to the other, for the purposes set forth.

8. In a fish-line reel guiding mechanism for the line, comprising two parallel, grooved and rotatable spindles, the grooves in which gradually vanish at their ends, the vanishing part of the grooves in one spindle being opposite the part of the groove in the opposite spindle which has full depth, a guide-block for the line adapted to be reciprocated upon the spindles, and provided with a movable, transverse pin which engages with the grooves on the spindles, for the purposes set forth.

9. In a fish-line reel, the combination of a guide-block for the line, two transverse, rotatable spindles, means upon the guide-block, which engages with means on the spindles for actuating the guide-block, and means for rotating the spindles, the construction and arrangement being such that one of the spindles moves the block in one direction, and the other in the opposite direction, for the purposes set forth.

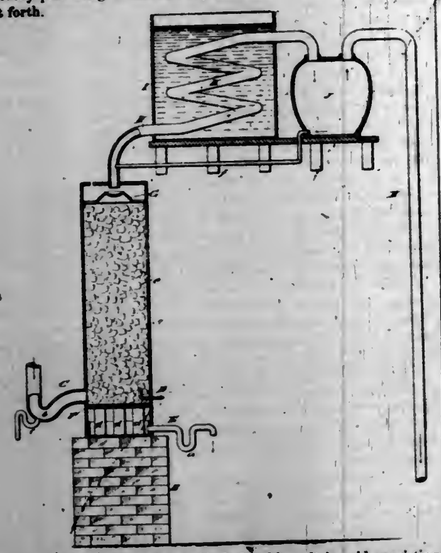
10. In a fish-line reel the combination of a supporting-frame, a winding-cylinder, two grooved spindles geared together at one end, a crank upon one of the spindles, a large gear-wheel upon the same spindle as the crank, which meshes into a smaller gear on the shaft of the winding-cylinder, a guide-block for the line, supported upon the two grooved spindles, and having a transversely-movable pin which engages successively with the grooves in the said spindles, and means upon the spindles to shift the pin upon the completion of the travel of the block in one direction, for the purposes set forth.

591,087. PROCESS OF MANUFACTURING NITRIC ACID. JEAN V. SKOGLUND, Brooklyn, N. Y., assignor of one-half to Albert Winter, New York, N. Y. Filed Apr. 2, 1895. Renewed Mar. 6, 1897. Serial No. 626,230. (No model.)

Claim.—1. The method herein specified of manufacturing nitric acid, consisting in conveying the nitric-acid vapors into a chamber containing pieces of acid-proof material, causing such vapors to condense and run in thin films over such pieces of acid-proof material, maintaining the temperature of such chamber at the temperature of the incoming nitric-acid vapors or nearly so, condensing the acid vapors and allowing the liquid to run back over such pieces of acid-proof material for driving off impurities from the acid, substantially as set forth.

2. The method herein specified of manufacturing nitric acid, consisting in passing the nitric-acid vapors into a chamber containing pieces of acid-proof material, maintaining the temperature of said chamber equal to or higher than the boiling-point of the nitric acid, and at such a temperature that the watery materials will be condensed, and passing the nitric-acid vapors into a second tower or chamber containing pieces of acid-proof material and maintaining

such tower or chamber at a temperature corresponding or nearly so to the entering nitric-acid vapors, condensing the vapors and allowing the nitric acid to run back over the pieces of acid-proof material in the form of thin films and conveying away the gaseous impurities, thereby producing a substantially pure nitric acid, substantially as set forth.



3. The method herein specified of making nitric acid, consisting in passing the nitric-acid vapors into a chamber or tower containing pieces of acid-proof material, condensing such vapors and allowing the nitric acid to run in thin films over the pieces of acid-proof material, maintaining the temperature sufficiently high to drive off impurities and simultaneously exposing the acid to the oxidizing action of atmospheric air, substantially as specified.

591,088. TOOL-CHUCK. IRVING BARKER, Springfield, Ill., assignor of one-half to Albert L. Ide, same place. Filed Apr. 5, 1897. Serial No. 630,777. (No model.)



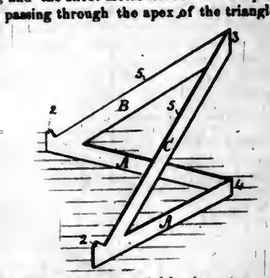
Claim.—1. The combination of a chuck having a socket for the reception of a tool, a slot being formed in said chuck, a key or spline pivoted in said chuck, and a rotatable sleeve surrounding said chuck which is provided with a slot adapted to register with the slot in the chuck; jointly with a tool having a longitudinal keyway or slot with which the key is adapted to be engaged, substantially as described.

2. The combination of a tool having a keyway formed in the shank thereof; jointly with a tool-chuck provided with a socket for the reception of the shank of the tool, said chuck having a slot a^5 communicating with the socket, a key or spline provided within said slot, a rotatable sleeve surrounding said chuck and provided with a slot adapted to register with the key, and a spring engaging said key and tending to thrust the same within the socket and into engagement with the keyway upon the shank of the tool, substantially as described.

3. The combination of a chuck having a socket for the reception of a tool, a slot being formed in said chuck, a key provided in said slot, and a sleeve surrounding said chuck, the bore of the sleeve being substantially smooth and tapering from the mouth of the socket, the portion of the chuck surrounded by the sleeve being correspondingly tapered; jointly with a tool having a keyway or slot with which the key is adapted to be engaged, substantially as described.

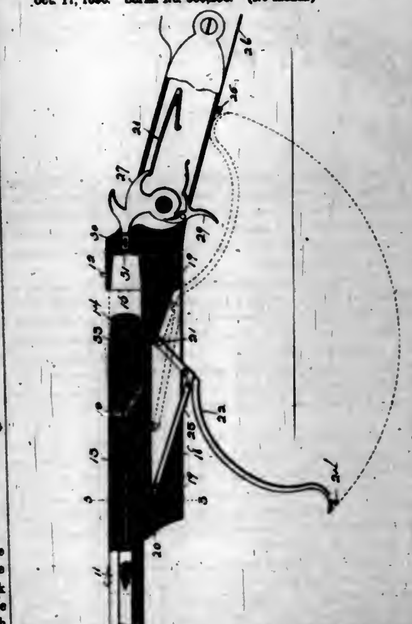
591,089. PICTURE-SUPPORT. CARL H. W. BERBECKER, Waterbury, Conn. Filed May 24, 1897. Serial No. 637,852. (No model.)

Claim.—1. An easel of sheet metal cut out triangularly with projecting fingers or supports 2 at the junction of the base and the diagonal bars, and the sheet metal folded in a line perpendicular to the base and passing through the apex of the triangle, substantially as set forth.



2. An easel of sheet material having a base and two integral inclined bars and the fingers or rests 2 at the lower ends of the inclined bars, such sheet metal being bent on a line perpendicular to the base and passing through the apex at the junction of the inclined bar, substantially as set forth.

591,090. TOY GUN. JOHN W. BILLINGS, Grinnell, Iowa. Filed Oct. 17, 1896. Serial No. 609,258. (No model.)



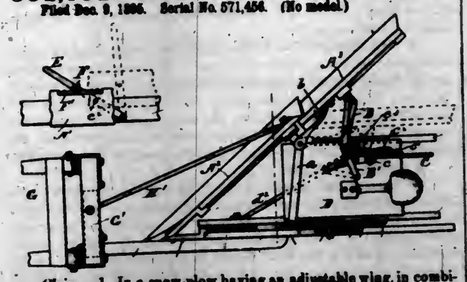
Claim.—1. In a toy gun, a socket arranged to receive a wafer cap, a barrel slidingly mounted and having a bore reduced in diameter at its rear end arranged to contain a shot in communication with said cap, said bore branching at the rear of the reduced portion and means for exploding the cap and communicating the force thereof to the shot.

2. A toy gun comprising a slidingly-mounted barrel having a bore reduced in diameter at its rear end to receive and retain a shot and branching at the rear of the reduced portion, a breech having a socket arranged to contain a wafer cap in communication with the branching portions of the bore of the barrel a needle arranged to impact said cap against the rear end of the barrel, a hammer arranged to engage said needle, a trigger controlling said hammer and means for reciprocating said barrel as set forth.

3. A toy gun comprising a stock, a breech carried by said stock, lock mechanism carried by said breech, a needle carried by said breech and arranged to be engaged by the lock, a fore-end carried by the breech and vertically slotted, a barrel slidingly connected to said fore-end and formed with a reduced rear end portion arranged to enter a socket in the breech, a lever fulcrumed in the slot of the fore-end and connected with said barrel and means for temporarily locking said lever to the stock, the barrel being provided with a bore having a reduced rear portion and branching at the rear of the reduced portion thereof.

4. In a gun, the combination of a needle having a concussion-head corresponding in size with the diameter of the bore of a chamber or socket at the end of the barrel, a gun-barrel having a bore of less diameter than said chamber or socket, and a socket at the rear end of the barrel having a small bore at its rear end and center to admit the needle having a concussion-head, for the purposes stated.

591,091. SNOW-PLOW. ALBERT B. BLACK, Lexington, Mass. Filed Dec. 9, 1896. Serial No. 571,456. (No model.)



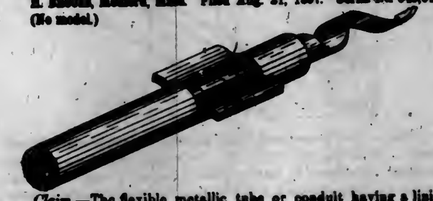
Claim.—1. In a snow-plow having an adjustable wing, in combination with a pair of toggle-arms, one end connected to said adjustable wing and the other to an opposing stationary portion of the plow, a vertically-moving handle-lever and means whereby said handle-lever and said toggle are pivotally connected, said means consisting of connected links each having a horizontal and a vertical pivot and all connected together and to the toggles and levers in substantially the manner described.

2. In a snow-plow, two or more runners and a plow linked together as described, one link connection being near each end of each runner, the upper end of one link being extended to form a handle-lever whereby said plow may be lifted vertically and seated on the runners, substantially as set forth.

3. In combination, a snow-plow and two or more runners located within the angle of its sides and linked thereto and means whereby said plow is given an upward and rearward motion, the front of one of said runners being adapted to engage with the angular wall of said plow and form a stop to its rearward movement, as set forth.

4. In a snow-plow having a straight side, a draft-bar located at the front end of and at right angles to the straight side and connected thereto, and a draft-rod connected to said draft-bar at one end, its rear end being attached to the middle of the angular side of the plow whereby the plow is drawn by power directly applied to the plow itself and its course is maintained in line parallel with its straight side, all as and for the purposes as set forth.

591,092. FLEXIBLE METALLIC TUBE OR CONDUIT. HERBERT H. BROOKS, Medford, Mass. Filed Aug. 31, 1897. Serial No. 649,016. (No model.)



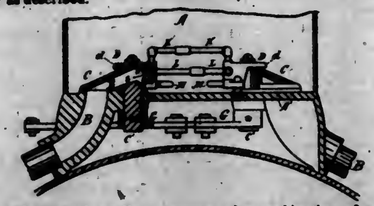
Claim.—The flexible metallic tube or conduit having a lining composed of a strip of sheet metal provided with an insulating coating or surfacing and formed into a spiral, substantially as described.

591,093. TRACK-SANDING APPARATUS. THEODORE H. OBERTS, Cleveland, Ohio. Filed June 26, 1896. Serial No. 597,097. (No model.)

Claim.—1. In a track-sanding apparatus, the combination of a sand-delivery-pipe cover having a passage therethrough, with a primary blast to blow sand into the passage through said cover, and a secondary blast, substantially as described.

2. In a track-sanding apparatus, the combination of a sand-delivery-pipe cover having a passage therethrough, and a primary blast to blow sand into said passage, with a secondary blast opening into said passage, substantially as described.

3. In a track-sanding apparatus, the combination with a sand-delivery pipe, of a horizontal seat with a sand-discharge opening therethrough, said discharge-opening connecting with the sand-delivery pipe; a swing-cover with a sand-passage therethrough resting upon said seat, said passage connecting with said openings, a stationary cap fixed above the entrance to the passage, said cap being separate from the swing-cover, and a primary blast to blow the sand under said cap into the passage and through the opening, substantially as described.



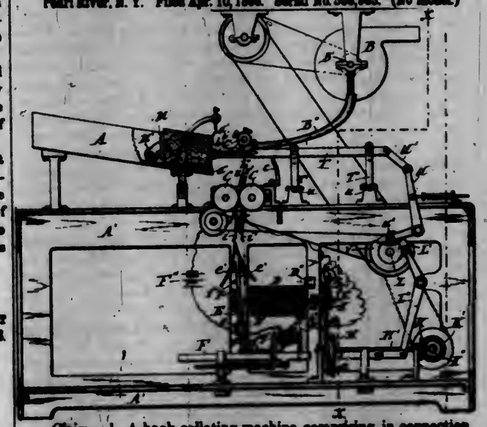
4. In a track-sanding apparatus, the combination of a swing-cover having a passage therethrough, and a stationary cap fixed above the opening to said passage, with a primary blast to blow sand under said cap into the passage, and a secondary blast opening into said passage, substantially as described.

5. The combination in a track-sanding apparatus, of a cover having a passage therethrough, a stationary cap above the cover, a primary and a supplementary blast, substantially as described.

6. The combination in a track-sanding apparatus, of a cover having a passage therethrough, a primary blast, a secondary blast, and a supplementary blast, substantially as described.

7. The combination, in a track-sanding apparatus, of a swing-cover, having a passage therethrough, a stationary cap fixed above the cover, a primary blast, a secondary blast, and a supplementary blast, substantially as described.

591,094. BOOK-COLLATING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed Apr. 10, 1896. Serial No. 586,963. (No model.)



Claim.—1. A book-collating machine comprising in connection with a plurality of signature-hoppers, a signature-gatherer, and means for delivering the signatures from the hoppers toward the gatherer, switch-arms disposed to receive the signatures in transit from the respective hoppers and movable to conduct the signatures either to or from the gatherer and controlled automatically in their conducting positions by the signatures in transit.

2. A book-collating machine comprising in combination with the signature-hoppers, a traveling signature-gatherer and means for delivering the signatures from the hoppers to said gatherer, switch-arms movable to conduct the signatures either to or from the gatherer, an electric circuit, a magnet in said circuit controlling the positions of said switch-arms, and separate sets of circuit makers and breakers actuated by the signatures in transit from the respective hoppers to the gatherer.

3. In combination with the signature-hoppers, a traveling signature-gatherer, means for delivering the signatures from the hoppers to said gatherer and mechanism imparting motion to the gatherer an electric circuit, a magnet in said circuit controlling the motion of said mechanism, and separate sets of circuit makers and breakers actuated by the signatures in transit from the respective hoppers to the carrier.

4. In combination with the signature-hoppers a traveling signa-

ture-gatherer, means for delivering the signatures from the hoppers to said gatherer, switch-arms movable to conduct the signatures either to or from the gatherer, and mechanism imparting motion to the gatherer, an electric circuit, magnets in said circuit controlling the positions of said switch-arms and the action of the gatherer-actuating mechanism, and separate sets of circuit makers and breakers actuated by the signatures in transit from the respective hoppers as set forth.

5. In combination with the signature-hoppers, a traveling signature-gatherer and means for removing the signatures from said hoppers, rollers disposed side by side and geared to receive positive rotary motion, said rollers receiving between them the aforesaid signatures and propelling the same toward the gatherer and switch-arms controlled by the signatures in transit to conduct the signatures either to or from the gatherer as set forth.

6. In combination with the signature-hoppers, a traveling signature-gatherer and means for removing the signatures from the hoppers, rollers disposed side by side and geared to receive positive rotary motion and disposed to receive and propel the aforesaid signatures, switch-arms supported movably to deliver the signatures from said rollers either to or from the gatherer, mechanism imparting motion to said gatherer, an electric circuit, magnets in said circuit controlling the positions of the aforesaid switch-arms and the action of the gatherer-actuating mechanism, and separate sets of circuit makers and breakers actuated by the signatures in transit from the respective hoppers to the switch-arms as set forth.

7. In combination with the signature-hoppers, means for removing the signatures from said hoppers and a traveling gatherer for receiving the delivered signatures, switch-arms movable toward and from the said carrier and provided with chutes extending in opposite directions from said arms to deliver the signatures either to or from the gatherer, a spring forcing the switch-arms in one direction, a reciprocating pitman, an electric circuit, a magnet in said circuit mounted on the pitman, a dog actuated by the armature of said magnet and adapted to tilt and release the aforesaid switch-arms during the movement of the pitman and a circuit maker and breaker actuated by the signatures in transit to the gatherer, as set forth.

8. In combination with the signature-hoppers, means for removing the signatures from the hoppers, and a traveling gatherer for receiving the delivered signatures, rollers receiving the signatures and propelling the same toward the carrier, switch-arms movable toward and from the gatherer and provided with chutes extending in opposite directions from the arms to deliver the signatures from the rollers either to or from the gatherer, a spring forcing the switch-arms in one direction, a reciprocating pitman, an electric circuit, a magnet in said circuit carried on the pitman, a dog actuated by the armature of said magnet and caused thereby to tilt the aforesaid switch-arms, during the movement of the pitman and separate circuit makers and breakers actuated respectively by the signatures in transit from the different hoppers as set forth.

9. In combination with the signature-hoppers, means for removing the signatures from said hoppers, and a traveling gatherer for receiving the delivered signatures, positively-revolving rollers disposed side by side to receive the signatures between them and propel the same toward the gatherer, the rollers at one side of the bite being journaled in laterally-yielding boxes, switch-arms conducting the signatures from said rollers either to or from the aforesaid gatherer, a spring forcing said switch-arms in one direction, a reciprocating pitman, an electric circuit, a magnet in said circuit carried on the pitman, the armature pivoted to the pitman and provided with a dog adapted to move the aforesaid switch-arms in opposition to the spring, and a circuit-controller having one terminal stationary and the cooperating terminal carried on the laterally-yielding journal-box of the aforesaid roller as set forth.

10. In combination with the signature-hoppers, means for removing the signatures from said hoppers, and a traveling gatherer for receiving the delivered signatures, rollers receiving between them the signatures, the rollers at one side of the bite being journaled in laterally-yielding boxes, switch-arms supported movable laterally to conduct the signatures from the rollers either to or from the gatherer, an electric circuit, a magnet in said circuit controlling the position of the aforesaid switch-arms, a pivoted arm actuated by the sliding movement of one of the aforesaid journal-boxes, and a circuit-controller actuated by said arm as set forth.

11. In combination with the signature-hoppers, means for removing the signatures from the hoppers, and a traveling gatherer for receiving the removed signatures, which gatherer is supported by and receives motion from wheels fixed to their shafts, a pawl and ratchet transmitting motion to said gatherer, an electric circuit, a magnet in said circuit controlling the action of said pawl, a switch-arm for conveying the signature either to or from the gatherer, a magnet in the aforesaid circuit controlling the position of the guide, and a circuit-controller actuated by the signature in transit to said switch-arm as set forth.

12. In combination with a plurality of signature-hoppers, an intermittently-traveling signature-gatherer, pneumatic suction-pipes carried to and from the respective hoppers to draw the front signatures from said hoppers and carry said signatures to the points of delivery to the gatherer and switch-arms guiding the signatures either to or from the gatherer and controlled by the signatures in transit, as set forth.

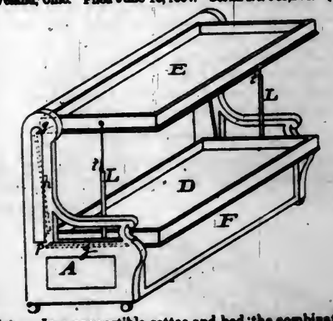
13. In combination with a plurality of signature-hoppers and the traveling signature-gatherer, pneumatic suction-pipes carried synchronously to and from said hoppers to draw the front signatures from all of said hoppers toward said gatherer, strippers removing the signatures from said pipes, and switch-arms for guiding the signatures either to or from the gatherer and controlled by the signatures in transit, as set forth.

14. In combination with a plurality of signature-hoppers, an intermittently-traveling signature-gatherer, pneumatic suction-pipes carried synchronously to and from said hoppers to draw a signature from each hopper, positively-rotated rollers disposed side by side and receiving the signatures from the suction-pipes and forcing the signatures toward the gatherer, and switch-arms controlling the delivery of the signatures either to or from the gatherer and controlled by the signatures in transit.

15. In combination with a plurality of signature-hoppers, an intermittently-traveling signature-gatherer, pneumatic suction-pipes carried synchronously from the fronts of the hoppers and in vertical planes parallel to the longitudinal central lines of the hoppers, valves connected to said pipes, and trippers in the paths of the valves to automatically open and close said valves during the movements of the pipes to and from the hoppers and thereby cause said pipes to draw the front signatures from the hoppers and discharge them at the points of delivery to the gatherer as set forth.

16. In combination with the main supporting-frame and a plurality of signature-hoppers disposed side by side and in a row across the said frame, the signature-gatherer moving intermittently crosswise the delivery ends of the hoppers, two parallel shafts extending across the frame, arms arranged in pairs mounted on said shafts at points in lines parallel with the respective hoppers, bars pivotally connected to the pairs of arms and carried thereby endwise toward and from the hoppers, pneumatic suction-pipes connected to the ends of said bars adjacent to the hoppers to draw the signatures therefrom, and oscillatory bell-cranks imparting reciprocating motion to said bars, as set forth.

591,095. CONVERTIBLE SETTEE AND BED. JOHN H. EVANS, Cleveland, Ohio. Filed June 10, 1897. Serial No. 640,271. (No model.)

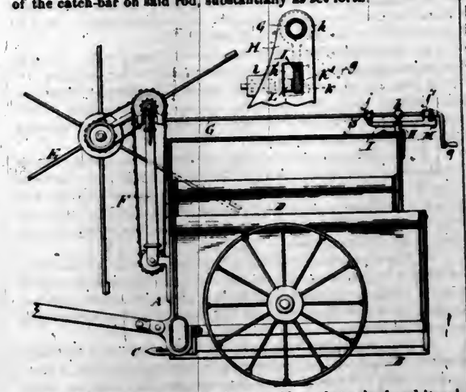


Claim.—In a convertible settee and bed, the combination of end frames A A, having the horizontal and vertical grooves *g* and *h*, a reversible seat-frame D, having pins *p* sliding in said horizontal grooves *g*, a reversible back E having the pins *q* sliding in the grooves *h*, and an adjustable support L, connecting the ends of the frame E with the end frames A A, constructed and adapted to be transformed from a settee to a double bed, and vice versa, substantially as and for the purpose set forth.

591,096. GRAIN-HARVESTER. GEORGE A. FARRALL, Batavia, N. Y., assignor to the Johnston Harvester Company, same place. Filed Mar. 12, 1897. Serial No. 627,208. (No model.)

Claim.—1. The combination with the movable reel-standard and its adjusting-rod capable of longitudinal and rotary movement, of a catch-bar hung on said rod and provided with locking-teeth on its side, and a stop with which said catch-bar is interlocked by a rocking movement of the bar on said rod, substantially as set forth.

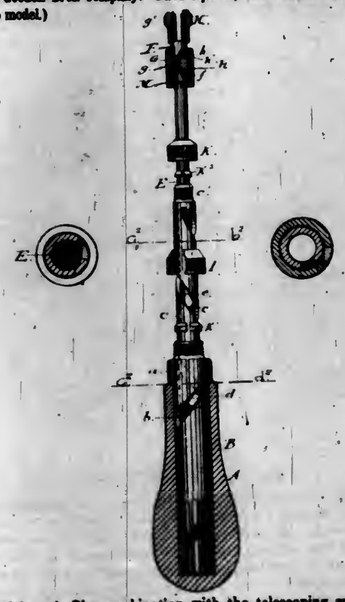
2. The combination with the movable reel-standard and its adjusting-rod, of a bearing in which the rear portion of said rod is supported and in which said rod can turn and also move lengthwise, a catch-bar hung on said rod and provided with teeth on its side, and a stop with which said catch-bar is engaged by a rocking movement of the catch-bar on said rod, substantially as set forth.



3. The combination with the movable reel-standard and its adjusting-rod capable of longitudinal and rotary movement, of a catch-bar hung on said rod and provided with locking-teeth on its side, a stop with which said catch-bar is interlocked by a rocking movement of the bar on said rod, and a spring which tends to hold said bar in engagement with said stop, substantially as set forth.

4. The combination with the movable reel-standard and its adjusting-rod capable of longitudinal and rotary movement, of a catch-bar hung on said rod and provided with locking-teeth on one side, a bracket provided with a bearing in which said rod is arranged, and an opening in which the catch-bar is arranged, a stop which is arranged on the bracket on one side of the catch-bar and with which the catch-bar is interlocked by a rocking movement of the bar on said rod, and a spring arranged on the bracket on the opposite side of the catch-bar and adapted to hold the bar yieldingly in engagement with said stop, substantially as set forth.

591,097. REVERSIBLE AUTOMATIC SCREW-DRIVER. HENRY E. GOODELL and HERBERT D. LANPAIR, Greenfield, Mass., assignors to the Goodell Bros. Company. Filed Apr. 18, 1896. Serial No. 588,164. (No model.)



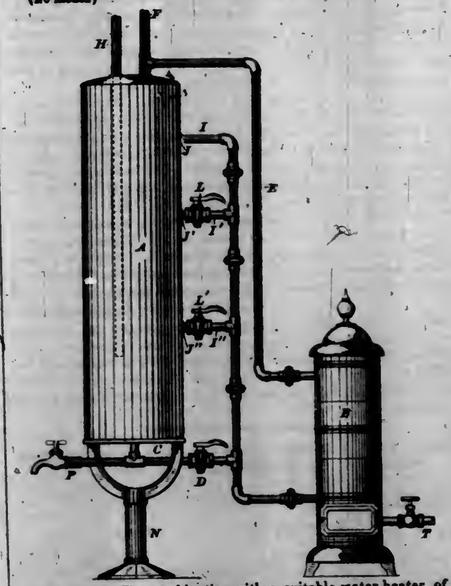
Claim.—1. The combination with the telescoping spindle, the screw-threaded spirally-grooved cylinder and the screw-threaded nut conforming interiorly to a beveled ring and adapted to engage the end of the said cylinder, of the independent interposed ring annularly beveled and laterally split, at one point, as and for the purpose set forth.

2. In a screw-driver, the combination with the rod or spindle, having a stud fixed at one end and a loosely-attached bit-holder at its opposite end, of the left grooved cylinder, screw-threaded at one end, said stud engaging said groove, the split conical ring and the conical nut adapted to engage said split ring and clasp the spindle when said nut is driven upon the screw-threaded end of the said grooved cylinder, as and for the purpose set forth.

3. The combination with the handle of the screw-driver, the right spirally-grooved cylinder fixed therein provided with a screw-threaded end, of the left spirally-grooved cylinder described having a stud fixed thereto to engage the groove of the right spirally-grooved cylinder, the conical split ring encircling the left spirally-grooved cylinder and the conical nut adapted to engage the screw-threads of the right grooved cylinder, as and for the purpose specified.

4. The combination in the right-and-left screw-driver which consists of two cylindrical tubes, each provided with a spiral groove, the one arranged to telescope into the other, and a rod or spindle telescoping into the smaller of the two cylinders, said smaller cylinder and the said spindle provided with fixed studs to engage their respective grooves and each of the said cylinders provided with nuts, and the said spindle and smaller cylinder provided with conical split rings, as and for the purpose set forth.

591,098. HOT-WATER-BOILER CONNECTION. GEORGE W. GRAVES, Rochester, N. Y. Filed Nov. 30, 1896. Serial No. 613,696. (No model.)



Claim.—1. The combination with a suitable water-heater, of a hot-water boiler, the feed-pipe provided with a valve connecting the bottom of the boiler with the heater, the return-pipe connecting the heater with the top of the boiler, and a supplementary feed-pipe connected to the boiler at a point above its lower end, whereby only the water in the boiler above the supplementary feed-pipe is circulated through the heater, substantially as described.

2. The combination with a suitable water-heater, of a hot-water boiler provided with two or more openings in its sides at different distances above its lower end, the feed-pipe provided with a valve connecting the bottom of the boiler with the heater, the return pipe connecting the heater with the top of the boiler, and two or more supplementary feed-pipes connected to the said openings in the boiler, and valves in each of the said supplementary pipes below the upper one, substantially as described.

3. The combination with the water-heater B, of the boiler or tank A, provided with opening J in its side at a suitable distance below its upper end, the feed-pipe C provided with valve D, the hot-water-return pipe E, and the supplementary feed-pipe I connecting the heater with the opening J, substantially as described.

4. The combination with the water-heater B, of the boiler or tank A, provided with two or more openings J J′ in its side at differ-

ent points in its height, the feed-pipe C provided with valve D, the hot-water-return pipe E, and two or more supplementary feed-pipes I I' connected respectively to the openings J J', the lowest of said supplementary pipes being provided with a suitable valve L, substantially as described.

591,099. ADJUSTABLE SUPPORT FOR INVALIDS. WINFIELD HARRAGER, Alameda, Cal. Filed June 10, 1896. Serial No. 595,019. (No model.)



Claim.—1. In an article of the class described the combination with a back-rest, of a series of members so arranged and secured to said back-rest in such a manner that by changing the inclination of said members the position of said back-rest can be changed without changing its inclination, while the inclination of said back-rest can be accomplished without changing the position or inclination of said members, and means for firmly locking said rest at any angle or any shifted position for the purpose set forth.

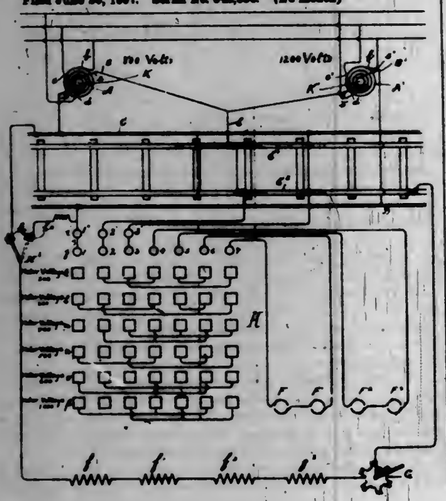
2. In an article of the class described the combination with a forward and a rear member, of an intermediate member the opposite extremities of which are hinged to diametrically opposite extremities of said forward and said rear member, and adjustable rods connecting said members, said rods being broken and hinged to permit of folding, substantially as and for the purpose set forth.

3. In an article of the class described the combination with a back-rest, of a series of members hinged to said rest, adjustable locking means between said rest and said members and by means of which said rest can be advanced or retracted and firmly locked in the same or a different angle of inclination, said locking means being further adapted to adjust the angle of inclination of said rest without changing the position of said members.

4. In an article of the class described the combination with a forward and a rear member, of an intermediate member the opposite extremities of which are hinged to diametrically opposite extremities of said forward and said rear members and adjustable rods connecting adjacent members for the purpose set forth.

5. In an article of the class described the combination with a back-rest, of a plurality of members connected to said rest, a plurality of adjustable locking devices positioned on said article, one of said devices being adapted to adjust the angle of inclination of said rest and firmly hold it in said position, while the other device is adapted to advance or retract said rest and shift its position for the purpose set forth.

591,100. ELECTRIC RAILWAY. JOHN C. HENRY, Denver, Colo. Filed June 30, 1897. Serial No. 642,898. (No model.)



Claim.—1. In an electric-railway system, the combination with a plurality of electric supply-circuits, of a series of motors having their fields excited from one of said circuits by a circuit independent of the armature-circuits, and variable connections between the supply-circuits and the armatures of said motors.

2. In an electric-railway system, the combination with a plurality of electric supply-circuits, of a series of motors having their fields excited from one of said circuits by a circuit independent of the armature-circuits, means for regulating the strength of current in said field-circuit, and variable connections between the supply-circuits and the armatures of said motors.

3. In an electric-railway system, the combination with a plurality of circuits supplying electricity at different potentials, of a series of electric motors having their field-magnets energized from the supply-circuit of lowest potential, by a circuit independent of the armature-circuits, and variable connections between the supply-currents and the armature-currents.

4. The combination with an electric supply-current, of a plurality of electric motors connected thereto and having their field-magnets excited by a current independent of the armature-currents, and controlling devices for connecting the armatures of said motors in series or parallel relation.

5. The combination with a plurality of motors, of a controller adapted to place the motor-armatures in series or in parallel, in combination with a rheostat, arranged to independently vary the resistance of the field-magnet circuit of said motors.

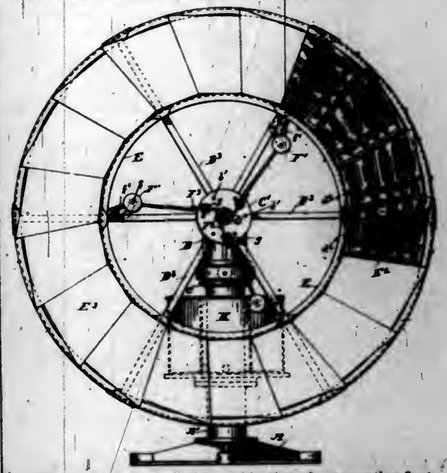
6. The combination with a plurality of motors, of a controller adapted to place the motor-armatures in series or in parallel, in combination with a rheostat arranged to independently vary the resistance of the field-magnet circuits and a single lever operating both said controller and said rheostat.

7. The combination with a plurality of circuits and an electric motor, of a controller adapted to variably connect the armature of said motor to the several circuits, and a rheostat connected with the field-magnet in an independent circuit and adapted to vary the resistance of said circuit, and a single handle controlling the motor of both said controller and said rheostat.

8. The combination with an electric-circuit breaker, of a casing inclosing the same and a means for supplying in said casing an atmosphere incapable of supporting combustion.

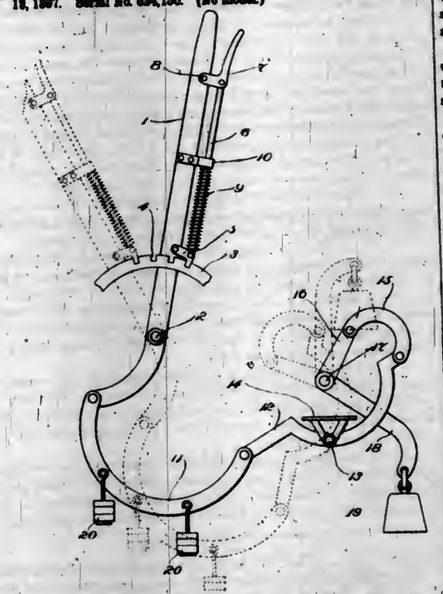
9. The combination with a circuit-breaker of a source of compressed carbonic-acid gas and means for directing said gas to a point where the circuit is broken.

591,101. WINDMILL. HENRY A. HYDE, San Francisco, Cal. Filed Aug. 26, 1896. Serial No. 603,970. (No model.)



Claim.—In a windmill, the combination of a supporting-frame, a turn-table thereon, a drive-shaft mounted in bearings on the turn-table, a hub on said shaft, inner and outer rims secured to spokes projecting from said hub, a series of vanes, blades or paddles hinged to said rims, an oscillating solid ring connected by a link to each of said vanes, blades or paddles, a plurality of bell-crank levers fulcrumed on said spokes, a connection from the arm of each bell-crank lever to the oscillating ring, a weight on the other arm of each bell-crank lever, a bent lever fulcrumed on said hub for each bell-crank lever, a link connecting the bent lever to each weighted arm of a bell-crank lever, a sliding plunger-rod working in said drive-shaft, links connecting the bent levers with said plunger-rod, a weighted lever supported by said turn-table, and a connection between said angle-lever and said plunger-rod, substantially as described.

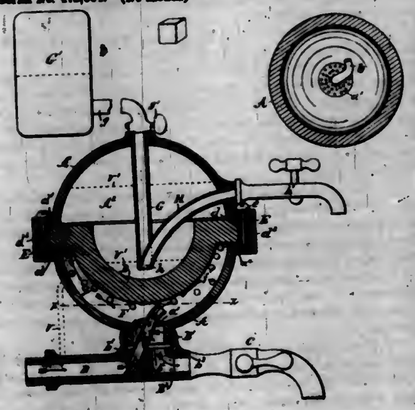
591,102. MECHANICAL MOVEMENT. WILLIAM MARTIN, Salem, Mass., assignor of one-half to Thomas F. Little, same place. Filed Feb. 18, 1897. Serial No. 624,130. (No model.)



Claim.—1. The combination with the actuating-lever 1, of the link 11, the lever 12, the link 15, the arm 16, and the rock-shaft 17, all substantially as and for the purpose set forth.

2. The improved mechanical movement comprising in combination, the actuating hand-lever 1, having the recurved lower arm, the weighted curved link 11 having one extremity thereof connected pivotally with the said curved lower arm, the lever 12 having the other extremity of the link 11 connected pivotally therewith and having also the curved upwardly-extending arm, the curved link 15 having one extremity thereof connected pivotally with the said upper arm of the lever 12, the arm 16 having the other extremity of the said link 15 connected pivotally therewith, and the rock-shaft 17 having the said arm 16 made fast thereon, substantially as described.

591,103. METHOD OF AND MEANS FOR CLEANING FILTERING-SURFACES. JOHN MOSHER, Lancaster, Pa. Filed May 3, 1893. Serial No. 473,661. (No model.)



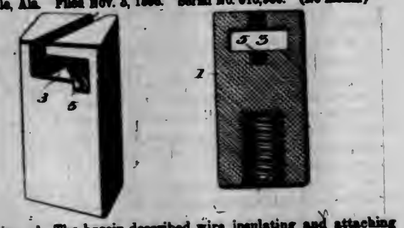
Claim.—1. The within-described improvement in the method of cleaning the lower side of a horizontally-disposed filtering medium, the same consisting in supporting buoyant cleaners in contact with said lower side of the filtering medium and producing friction between the same and the cleaners by agitating the liquid in which the cleaners float.

2. The within-described improvement in the method of cleaning the lower side of a horizontally-disposed filtering medium, the same consisting in supporting buoyant cleaners in contact with said lower side of the filtering medium and producing friction between the same and said cleaners by injecting a stream beneath said surface.

3. The combination, in a filter, of a filtering medium having a convex surface, floating cleaners maintained in contact therewith, and means for injecting a stream of water into the filter at an angle with said surface, for the purpose specified.

4. The combination, in a filter, of a filtering medium having a convex surface, floating cleaners maintained in contact therewith, and a nozzle for injecting a stream of water into the filter and having its discharge end curved at an angle with the filtering-surface, for the purpose specified.

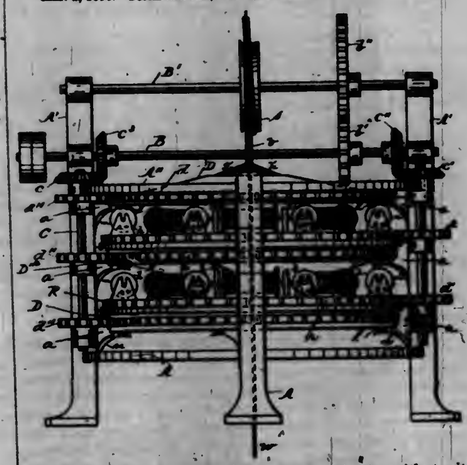
591,104. INSULATOR FOR ELECTRIC WIRES. WILLIS ROGERS, Mobile, Ala. Filed Nov. 2, 1896. Serial No. 610,969. (No model.)



Claim.—1. The herein-described wire insulating and attaching device provided with a transverse opening or passage, a slot to admit the wire and a groove to receive the wire passed into said slot and opening, the said slot and groove being arranged at an angle to each other and in communication with the said transverse opening and the said groove being adapted to engage and retain the wire in such manner as to prevent turning or unscrewing of the device, substantially as specified.

2. A wire attaching and insulating device provided with a transverse opening, a slot to admit the wire into said opening and a groove intersecting said slot and adapted to receive and retain the wire, substantially as shown and described.

591,105. ELECTROMAGNETIC BRAIDING-MACHINE. ALPHEUS C. SHUTTLEWORTH, Philadelphia, Pa., assignor to Hugh M. Guinn, Philip R. Wells, Howard A. Ingle, and W. Howard Holden, same place. Filed Mar. 2, 1896. Serial No. 581,490. (No model.)



Claim.—1. In a braiding-machine, the combination with a suitable frame, of a series of oppositely-revolvable shells mounted therein, means for driving said shells, a set of bobbins mounted on each alternate shell of said revolvable series, a series of shuttles carried by

the other shells of said series and cooperating with said bobbins, and electromagnets for controlling the position of said shuttles.

2. In a braiding-machine, the combination with a suitable frame, of a set of bobbins and shuttles operatively mounted in said frame, mechanism for driving said bobbins and shuttles, electromagnets arranged in proximity to the said shuttles, and means for energizing said magnets at predetermined intervals to control the position of said shuttles.

3. In a braiding-machine, the combination with a suitable frame, of a series of oppositely-revoluble shells mounted therein, means for driving said shells, a set of bobbins mounted on each alternate shell of said series, a series of shuttles carried in pockets between said shells, electromagnets carried by said shells and arranged in close proximity to said shuttles, a source of electrical energy, and connections between said source of electrical energy and said electromagnets to energize the latter at predetermined intervals and cause them to attract the shuttles.

4. In a braiding-machine, the combination with a suitable frame, of a series of oppositely-revoluble shells mounted therein, means for driving said shells, a set of bobbins carried by each alternate shell, a series of shuttles supported between the other shells and driven thereby, electromagnets carried by said last-named shells in proximity to the path of said shuttles, and means for energizing said magnets at predetermined intervals so as that they will attract said shuttles.

5. In a braiding-machine, the combination with a suitable frame, of a series of open-centered bobbin-carrying shells mounted therein, a series of frusto-conical-shaped shuttle-carrying shells nested in alternate series with said first-named shells, means for driving the two series in opposite directions, electromagnets mounted on said shuttle-carrying shells, and means for intermittently energizing said electromagnets to attract said shuttles and determine their positions at predetermined intervals.

6. In a braiding-machine, the combination with a suitable frame, of a series of oppositely-revoluble toothed shells nested together and supported by said frame, gear-wheels meshing with and driving said toothed shells, horizontally-placed bobbins mounted on each alternate shell, shuttles carried in suitable pockets formed in the other shells of said series, electromagnets placed in proximity to said shuttles on either side thereof, contact-plates carried by said revoluble shuttle-carrying shells, brushes carried by the frame which complete the circuit with said magnets through said contact-plates, and a source of electrical energy for exciting said magnets.

7. In a braiding-machine, the combination with a suitable frame, of a series of frusto-conical-shaped shells nested together and supported by said frame, a set of bobbins mounted on each alternate shell, a series of shuttles carried between the other shells of the series in pockets in which said shuttles have a slight vertical movement, circular depressions formed in each of the shuttle-carrying shells to receive magnetic coils, said magnetic coils and said shuttle-carrying shells forming electromagnets, said magnets being so arranged as that the shuttles lie within their field of attraction, and means for energizing said magnets so as to cause them to raise or depress the shuttles in their pockets at certain points in the travel of the shells.

8. In a braiding-machine, the combination with a suitable frame, of circular series of bobbins operatively mounted on said frame, circular series of shuttles lying within the circle of said bobbins and cooperating therewith, and means for raising and depressing the said shuttles alternately as they pass the bobbin-threads.

9. In a braiding-machine, the combination with a suitable frame, of circular series of bobbins operatively mounted on said frame, circular series of shuttles lying within the circle of said bobbins and cooperating therewith, and an electromagnet and means to excite said magnet at predetermined intervals so as to raise the shuttles as they pass each alternate bobbin-thread.

10. In a braiding-machine, the combination with a suitable frame, of circular series of bobbins operatively mounted on said frame, circular series of shuttles lying within the circle of said bobbins and cooperating therewith, and electromagnets on either side of said shuttles, said electromagnets being excited alternately to raise and depress the shuttles as they pass the bobbin-threads.

11. In a braiding-machine, the combination with a suitable frame provided with inwardly-projecting supports, of a series of circular shells revolubly mounted on said supports, horizontal bobbins mounted tangentially on each alternate shell, guides to carry the threads from said bobbins to the center of said circular shells, a series of shuttles carried in pockets in the remaining shells, electromagnets to raise and depress said shuttles, means for driving said bobbin-carrying shells in one direction and said shuttle-carrying shells in an opposite direction, contact-plates carried by said revoluble shells, stationary brushes mounted on said frame in the path of said contact-plates, and a source of electrical energy with which said brushes are in circuit so as that said electromagnets are energized and the shuttles are attracted at the moment of contact between said brushes and said traveling contact-plates.

12. In a braiding-machine, the combination with the frame A having the projections a, of the circular shells R provided with the integral supporting-lugs r^4, bobbins b mounted in said lugs, guides r^5 for the bobbin-threads, the shells D, D″, nested with said shells R and provided with shuttle-pockets, shuttles g mounted therein, electric-current conductors k to magnetize shells D to control said shuttles, and means for driving said shells R and D, D″, in opposite directions.

13. In a braiding-machine, the combination with the frame A provided with inwardly-projecting lugs a, of the open-centered shells R revolubly mounted on said lugs and provided with teeth on their peripheries, the toothed shells D, D″, revolubly supported by said lugs a in alternate series with shells R, said shells D, D″, being provided with pockets d^5 for the shuttles g and circular depressions d^6 for electric-current conductors k to magnetize shells D, gear-wheels d' meshing with said toothed shells R and D, D″, a main shaft B, and connections between said main shaft and gear-wheels d' whereby the latter drive the shells R and D, D″, in opposite directions.

14. A shuttle for braiding-machines comprising two plates, a post for supporting the cop uniting said plates at their centers, and a separate encircling ring held between the edges of said plates.

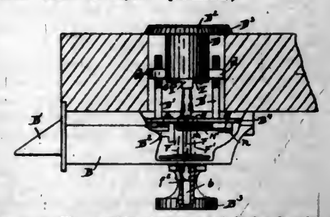
15. A shuttle for braiding-machines comprising two circular plates, a cop-supporting post uniting said plates at their centers, and a circumferential spring-ring encircling the edges of said plates.

16. A shuttle for braiding-machines comprising two concave-convex plates, a central cop-supporting post uniting said plates, and a spring-ring encircling the edges of said plates, said ring being provided with a yarn-guiding aperture.

17. A shuttle for braiding-machines comprising two concave-convex plates, a central cop-supporting post uniting said plates, a spring-ring encircling the edges of said plates, said ring being provided with a yarn-guiding aperture, and a tension-spring for the cop carried by said spring-ring.

18. A shuttle for braiding-machines comprising two circular concave-convex plates, a cop-supporting post on which said plates are mounted so as that they are slightly separated at their edges, and a circumferential spring-ring held between the edges of said plates.

591,106. CYLINDER-LOCK. WILLIAM F. TROAST, Connellsville, Pa., assignor to the Slaymaker-Barry Company, same place. Filed Dec. 16, 1896. Serial No. 615,906. (No model.)



Claim.—1. The combination, in a night-latch, of a key-hub, a spindle having an end loosely seated in an opening in the end of said hub, a stud on the side of said opening, a plate on the stud and having the inner end loosely engaging a notch in the spindle, means for preventing the detachment of the spindle from said plate, and the revoluble parts of the lock, adapted to be engaged by the spindle, for the purpose specified.

2. The combination, in a night-latch, of a key-hub, a spindle having an end loosely seated in an opening in the end of said hub, studs on the end of the key-hub and on opposite sides of said opening therein, the space between the studs being greater than the thickness of the spindle, a plate on one of the studs and loosely engaging a notch in the spindle, the depth of said notch being greater than the normal penetration of said plate, and the revoluble parts of the lock, adapted to be engaged by said spindle, substantially as and for the purpose specified.

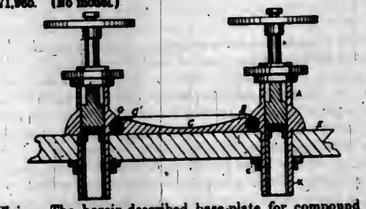
3. The combination, in a night-latch, of a key-hub, a spindle having an end loosely seated in an opening in the end of said hub, a stud on one side of said opening and having a shoulder on the outer edge thereof, a plate on said stud and bearing against said shoulder, the inner end of the plate loosely engaging a notch in the spindle, a single rivet securing the plate to the stud, means for preventing the detachment of the spindle from said plate, and the revoluble parts of the lock, adapted to be engaged by said spindle, for the purpose specified.

4. The combination, in a night-latch, of a key-hub, a spindle having an end loosely seated in an opening in the end of said hub, studs on the end of the key-hub and on opposite sides of said opening, the space between the studs being greater than the thickness of the spindle, a shoulder on one of said studs, a plate on the shouldered stud and bearing against said shoulder, said plate loosely engaging a notch in the spindle, the depth of said notch being greater than the normal penetration of said plate, a single rivet securing the plate to the stud, and the revoluble parts of the lock, adapted to be engaged by said spindle, for the purpose specified.

5. The combination, in a lock, of a revoluble sleeve located in an opening in a plate of said lock, wings on the sleeve, a block on one side of said sleeve, and a plate secured on said block and bearing on the end of the sleeve to which said wings are attached, for the purpose specified.

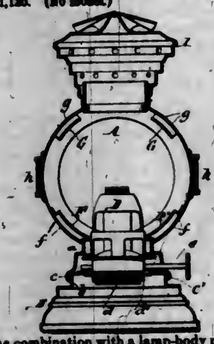
6. The combination, in a lock, of a revoluble sleeve located in an opening in a plate of said lock, wings on the sleeve, a block on one side of said sleeve, a tongue on said block, a plate on the block and having a notch engaging said tongue, the plate bearing on the end of the sleeve to which said wings are attached, a single stud on the block and engaging an opening in the plate, and means adapting the stud to secure the plate in place, substantially as and for the purpose specified.

591,107. WATER-COCK FOR TOILET-BASINS OR BATH-TUBS. WILBUR F. WASHBURN, Yonkers, N. Y. Filed Dec. 13, 1895. Serial No. 571,965. (No model.)



Claim.—The herein-described base-plate for compound water-cocks having supply-openings at opposite ends thereof and the passage G in its front part and connecting said openings, the cavity or soap-holding recess C between the openings, the supporting-collar H formed integral with the plate, the said openings, passage G, cavity, and collar H being in the same horizontal plane, and the discharge-nozzle D connected with the passage G, the valve-casings A A and legs K K thereof, also formed integral with the plate, substantially as shown and described.

591,108. BICYCLE-LAMP. CHARLES L. BEYER, New York, N. Y., assignor to the R. E. Dietz Company, same place. Filed July 31, 1896. Serial No. 601,126. (No model.)



Claim.—The combination with a lamp-body provided at its lower end with a bead having its recessed side arranged inwardly and having notches in its lower edge, one of said notches being of suitable height to receive the wick-raiser shaft, of an oil-pot adapted to enter said beaded collar and provided with outwardly-projecting lugs adapted to be passed upwardly through said notches and to enter the recess of said bead by a turning movement, and a screw-burner seated in said oil-pot and provided with a wick-raiser shaft adapted to enter one of said notches, whereby the burner is prevented from turning with the oil-pot and can be screwed down tightly by turning the oil-pot with its lugs in the recessed bead of the lamp-body, substantially as set forth.

591,109. MEDICATED NEST-EGG. NEWMAN S. CLARK, Los Angeles, Cal., assignor, by mesne assignments, to the Zucker Manufacturing Company, Oakland, Cal. Filed Mar. 18, 1896. Serial No. 583,782. (No specimens.)

Claim.—1. A nest-egg the shell of which is composed of kaolin, flint, feldspar, and asbestos in the proportions substantially as specified.



2. The filling for a nest-egg composed of powdered asbestos and suitable medicaments substantially as set forth.

591,110. SAVINGS-BANK. ARTHUR R. CLARKE, Chicago, Ill., assignor of three-fourths to Emma Allardyce and Victor Dumont, same place. Filed May 10, 1897. Serial No. 635,870. (No model.)



Claim.—1. The combination with a casing, of a wheel or disk pivotally secured therein and exposed to view, a spring-actuated lever pivotally secured in said casing and having an arm or extension, the free end of which is adapted to contact with the wheel, a sliding bar extending through the casing near said lever and having means to secure a coin thereon, to engage the lever as the bar is pushed inwardly, substantially as described.

2. The combination with a casing, of a wheel or disk pivotally secured therein and exposed to view, a spring-actuated lever pivotally secured in said casing and having an arm or extension, the free end of which is adapted to engage the wheel, a sliding bar extending through the casing near said lever and having means to secure a coin thereon to engage the lever as the bar is pushed inwardly, the transverse compartment at the end of the casing, in which the sliding bar is inserted, said compartment having slots or openings at each of its ends, and a sliding bar having on its lower surface an inclined lug and at its inner end a deflected piece, said sliding bar extending across the first-named bar, substantially as described.

591,111. KNOB ATTACHMENT. THOMAS M. DILL, Davenport, Iowa. Filed Mar. 25, 1896. Serial No. 584,859. (No model.)



Claim.—1. The combination with a knob-spindle, and a knob fitted for axial movement thereon, of connections between the knob and spindle including a sleeve threaded upon the thimble of the knob, and a pin adjustably engaged with the spindle and arranged in the path of the sleeve for movement independently of the knob, whereby adjustment of the sleeve causes relative opposite movement of the knob and spindle substantially as specified.

2. The combination with a knob-spindle having perforations, of a knob fitted for axial movement upon said spindle and having a thimble provided with an elongated opening or slot arranged parallel with the spindle, a pin arranged in said opening or slot in the thimble and engaged with one of the perforations in the spindle, the length of said slot being approximately equal to the interval between contiguous perforations in the spindle, and a sleeve adjustably fitted as by threads upon the thimble to engage the outer extremity of the pin and cause relative axial movement of the spindle and knob, substantially as specified.

591,112. CURTAIN-FIXTURE. ROBERT R. DOTY and CHARLES MILLER, Vergennes, Ill. Filed June 25, 1896. Serial No. 596,862. (No model.)



Claim.—1 A curtain-fixture comprising a slotted and serrated plate adapted to be secured to a window-casing, an adjustable clamp-

ing device comprising a jaw having an outlying flange, a shank extending at right angles to said jaw and provided with side pintles, said shank being of a width to fit and slide along the slot with the pintles upon one side of the plate and said shank extending from the pintles through to the opposite side of the slot, a grip straddling the outer end of the shank and having serrated terminals, and a binding-screw for the grip, the space between the shank and the flange on the clamp being just sufficient to snugly hold a curtain-roller bracket, substantially as described.

2. A curtain-fixture consisting of a slotted plate 1 rabbeted and provided with serrations, the adjustable part comprising the bracket receiving and clamping portion 6 having flange 12 and studs 9, and the shank 7 provided with pintles 8 for bearing under the plate 1 at the sides of the slot, and the grip 15 having serrated terminals and the binding-screw, substantially as described.

591,118. FRUIT-GATHERER. IRA C. DRAKE, South Prairie, Wash. Filed Oct. 3, 1896. Serial No. 607,767. (No model.)

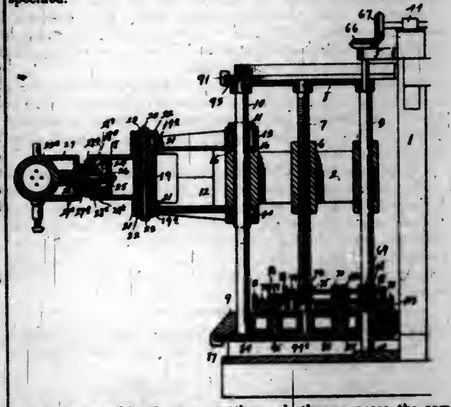


Claim.—1. A fruit-gatherer comprising a pole, a fixed jaw arranged at the top of the pole, upper and lower levers fulcrumed intermediate with their ends on the pole and provided with loops, the loop of the upper lever forming a movable jaw and being arranged to coöperate with the fixed jaw, a flexible tube having its ends connected with the loops of the levers, and means for operating the upper lever, whereby the lower lever will be simultaneously operated and caused to close the lower end of the flexible tube automatically, substantially as described.

2. A fruit-gatherer comprising a pole, a fixed jaw mounted on the upper end of the pole, upper and lower levers fulcrumed intermediate of their ends and the pole, extending from opposite sides thereof and provided at the front ends with loops, the loop of the upper lever forming a movable jaw and being arranged to coöperate with the fixed jaw, a flexible tube having its ends secured to the said loops and being spread by the same, and a connecting-rod disposed longitudinally of the pole and pivoted to the rear ends of the levers, substantially as and for the purpose described.

591,114. STONE CUTTING OR CARVING MACHINE. ARGUET O. EDMUND and HANNAH EDMUND, Seattle, Wash. Filed June 8, 1896. Serial No. 593,997. (No model.)

Claim.—1. In a machine of the character described, the combination with a main frame having a stationary segmental rack, a vertical rotary shaft journaled in the said frame, a secondary frame mounted to swing on the said shaft, a screw-shaft journaled in said secondary frame, gear whereby said screw-shaft may be rotated in both directions, a gear-wheel carried by the said secondary frame and engaging the said rack, means whereby said gear-wheel may be rotated in both directions, a jointed arm loosely sleeved on said rotary shaft and having a hub portion which engages the said screw-shaft, and a tool-operating engine mounted upon the outer section of the said arm and capable of a universal adjustment, substantially as specified.



2. In a machine for stone-cutting and other purposes, the combination with a main frame, and the vertical rotary shaft 3, of a jointed tool-carrying arm loosely sleeved on said shaft, arms 8 and 9 also loosely sleeved on said shaft, the screw-shaft 7 journaled in said arms and engaging a threaded sleeve or hub of the tool-arm, gear for rotating said screw-shaft in either direction, the non-rotary shaft 10 carried by the arms 8 and 9 and upon which the tool-arm is also sleeved, the gear-wheel on the lower portion of said shaft 10, the semicircular rack in which said gear-wheel travels, means for rotating said gear-wheel in either direction and the upper semicircular guide-frame, substantially as specified.

3. In a machine for stone-cutting and other purposes, the combination of the main frame, the upper and lower semicircular frames or castings bolted thereto, the lower of said frames or castings having a rack, the vertical rotary shaft 3 journaled in said frame, driving-gear for said shaft, the upper and lower arms 8 and 9 swung from said shaft and having each a frog at its outer portion engaging and traveling upon the respective frames or castings, the screw-shaft 7 journaled in said arms 8 and 9, the non-rotary shaft supported by said arms, the gear-wheel thereon running in the rack of the lower frame or casting, gear for rotating said gear-wheel in either direction, and a tool-arm loosely sleeved on the shafts 3 and 10 and having a threaded engagement with the screw-shaft 7, substantially as specified.

4. In a machine for stone-cutting and other purposes, the combination with the tool-arm, the swinging arms 8 and 9, the shafts 3, 7 and 10, the semicircular rack and the gear-wheel on the shaft 10 engaging said rack, of worm-gear driven from the shaft 3 and arranged to drive the said gear-wheel in either direction, substantially as specified.

5. In a machine for stone-cutting and other purposes, the engine having a jointed piston-rod the lower section of which forms a hammer-head for the tool, and the interiorly-beveled sleeve in which said section works, substantially as specified.

6. In a machine for stone-cutting and other purposes, the combination with the tool-arm, of the casting 27 rotatably jointed to said arm, the worm-wheel rotatably seated on said casting, a blank or casting bolted to said worm-wheel and having a seat for a tool-operating engine, a worm in engagement with said wheel, an engine seated in said casting and having a reciprocating piston and hammer-rod, a tool-holding sleeve on said engine, and a handle on said sleeve engaging the groove in the piston-rod, substantially as specified.

7. In a machine of the character described, the combination with a main frame, a vertical rotary shaft journaled therein, a pair of arms loosely sleeved on said shaft one above the other, a jointed tool-arm also loosely sleeved on said shaft, a screw-shaft journaled in said pair of arms and engaging a threaded hub of the tool-arm, gear for rotating said screw-shaft in either direction, a gear-wheel mounted on one of the said pair of arms and engaging a stationary semicircular rack on the frame, and means for rotating said gear-wheel in both directions, substantially as specified.

591,115. WIRE-STRETCHER. ROBERT J. GARRETT, Rocksprings, Tex. Filed May 12, 1897. Serial No. 636,804. (No model.)

Claim.—1. A wire-stretcher comprising a pair of substantially L-shaped bars or members forming handle portions and engaging arms and similarly disposed and pivoted together flat against each other with the pivot disposed in a plane at right angles to both the handle portions and the arms, whereby the arms may be brought sufficiently close to clamp a fence and are capable of being rotated against a fence-post to wrap a fence-wire around them and stretch the same to the desired tension, substantially as described.

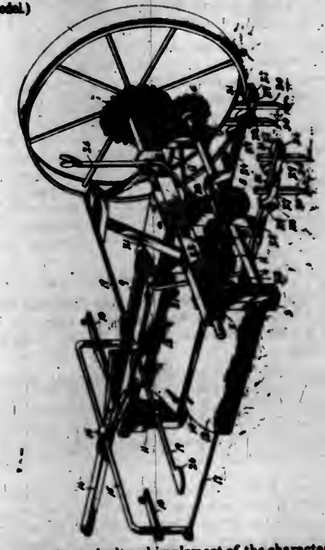


2. A wire-stretcher comprising a pair of L-shaped bars or members arranged flat against each other and pivoted together near their angles with the pivot disposed at right angles to their arms and handle portions, one of the bars or members being provided at the inner face of its arm with a wire-receiving groove, substantially as described.

3. A wire-stretcher comprising a pair of substantially L-shaped bars or members pivoted together near their angles and forming shanks or handle portions and wire-engaging arms, one of the arms being provided with a transversely-disposed wire-receiving loop, arranged to receive and support the other arm, whereby the wire is clamped in the loop, substantially as and for the purpose described.

4. A wire-stretcher comprising the L-shaped bar or member 1, provided at its angle with a heel forming an extension of the engaging arm, the latter being pointed and slightly curved, the similar L-shaped bar or member 2 provided at the inner face of its engaging arm with transverse grooves and having a substantially rectangular loop arranged at the outer end of its engaging arm, and adapted to receive the arm of the other L-shaped bar or member, whereby the same is supported and the wire is clamped, and a pivot connecting the bars or members and located adjacent to the angle of the same, substantially as described.

591,116. COTTON CHOPPER AND CULTIVATOR. BYRON L. HAMROVE, McLendons, Tex. Filed Nov. 24, 1896. Serial No. 613,306. (No model.)



Claim.—1. An agricultural implement of the character set forth for the purpose described, comprising an axle having ground-wheels, a shaft parallel with the axle and driven from a ground-wheel, a second shaft at right angles to the first shaft and driven therefrom, and bearing hoe or chopping blades, a bracket-casting having detachable connection with the axle and supporting the said second shaft, and an arched rod or bar having connection with the bracket-casting and bearing beams carrying plows or cultivators, substantially as set forth.

2. In an implement of the character set forth, the combination of an axle bearing ground-wheels and having hangers, a shaft journaled in the hangers and driven from a ground-wheel, a bracket-casting having detachable connection with the axle, a second shaft journaled at right angles to the first shaft in the pendent portions of the bracket-casting and bearing hoe or chopping blades, an arch, rods connecting the pendent ends of the arch with the end hangers of the axle, an arched rod or bar mounted upon the rear portion of the bracket-casting, braces connecting the pendent ends thereof with the hangers of the axle, and beams bearing plows or cultivating devices secured to the lower extremities of the said arched rod or bar, substantially as set forth.

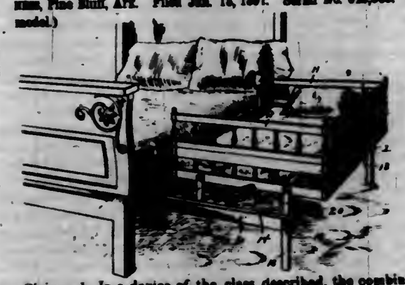
3. In an agricultural implement of the character specified, the combination of an axle having ground-wheels at its ends, a middle and end hangers secured to the axle, the end hangers comprising separable parts, a shaft journaled in the hangers and driven from a ground-wheel, a bracket detachably connected with the axle, a shaft journaled in pendent portions of the bracket and in the middle hanger and receiving its motion from the first-mentioned shaft, hoe or chopping blades secured to the second shaft, and an arched rod or bar removably connected with the bracket-casting and having beams connected therewith bearing plows or cultivators, substantially as set forth.

4. An implement of the character specified, comprising an axle having ground-wheels, a shaft removably connected with the axle and driven from a ground-wheel, a bracket-casting detachably connected with the axle, a second shaft journaled in pendent portions of the bracket-casting and driven from the first-mentioned shaft, and bearing hoe-blades, a tongue adapted to be secured to either the bracket-casting or the axle, and an arched rod or bar adapted to be mounted upon either the bracket-casting or the tongue, and having connection therewith of beams bearing plows or cultivating devices, substantially as set forth.

5. In combination, a beam, a block having one end contracted and its opposite end expanded and provided with an arcuate slot, and having a seat intermediate of its ends in the side facing or adapted to be placed against the beam, a plow or cultivator having its shank fitted in the said seat, a fastening pivotally connecting the contracted end of the block with the beam, and a second fastening operating through the arcuate slot and serving to secure the block in an adjusted position, and both fastenings acting jointly to clamp the shank between the block and beam, substantially as set forth.

6. The herein-described implement, comprising an axle having ground-wheels and hangers, a shaft journaled in the hangers and driven from a ground-wheel, a bracket-casting having detachable connection with the axle, a second shaft journaled in the pendent portions of the bracket-casting and driven from the first-mentioned shaft, hoe or chopping blades having adjustable connection with the second shaft, an arched rod or bar secured to the rear portion of the bracket and braced from the hangers, beams having adjustable connection with the arched rod or bar and bearing plows or cultivating devices, an arch secured near the front end of the machine and having its bent end portions connected with the end hangers of the axle, and a rod bearing scraping-blades, substantially as and for the purpose set forth.

591,117. CRIB ATTACHMENT FOR BEDS. HARRY I. HOLDERNESS, Pine Bluff, Ark. Filed Jan. 18, 1897. Serial No. 619,535. (No model.)



Claim.—1. In a device of the class described, the combination of the hollow transverse ways open at their inner faces and front ends, the hollow track-bars slidingly mounted in the ways, slides provided with rollers mounted in the hollow track-bars, a folding crib, link-bars connecting the folding crib to the slides, and means for securing the parts in operative position, substantially as described.

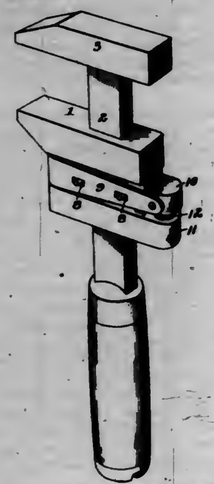
2. In a device of the class described, the combination with a bed, of the hollow transverse guides each secured to a slat of the bed, hollow track-bars slidingly mounted in the guides, slides provided with rollers arranged in the track-bars, a folding crib, link-bars connecting the folding crib to the slides, and spring-catches arranged to engage one of the track-bars and one of the slides, substantially as described.

3. In a device of the class described, the combination of suitable guides, sliding track-bars mounted therein, slides arranged on the track-bars, a folding crib comprising a body portion, a hinged side

and end rails, the hinges being arranged at the inner faces of said rails at the bottom edges thereof and located at different elevations to permit the same to fold inward upon the body portion, and means for securing the crib in its operative position, substantially as described.

4. In a device of the class described, the combination of the transverse guides open at their inner faces and ends and composed of vertical back walls and horizontal top and bottom walls and provided with longitudinal flanges mounted on the top and bottom walls, the sliding track-bars composed of vertical back walls and horizontal top and bottom walls and provided with longitudinal flanges, slides provided with groove drawers arranged between the flanges of the sliding track-bars, a folding crib, link-bars connecting the crib with the slide, a fastening device mounted on one of the sides after engaging the crib, and catches mounted, respectively, on one of the guides and on one of the track-bars and adapted to engage the adjacent track-bar and slide, substantially as described.

591,118. WRENCH. BERTIE R. HOBB, Abingdon, Ill., assignor of one-half to Jesse H. Turner, same place. Filed Mar. 5, 1897. Serial No. 626,045. (No model.)



Claim.—1. In a wrench, the combination of a shank, a stationary jaw at the outer end of the same, a sliding jaw mounted on the shank and provided in advance and in rear of the same with longitudinal slots having angularly-disposed outer edges converging toward the outer end of the shank, rollers arranged in the slots and adapted to be forced against the shank by the outer edges of the slots, a movable frame embracing the sliding jaw and provided with slots receiving journals of the rollers, and a spring engaging the movable frame and holding the rollers normally in contact with the shank, substantially as described.

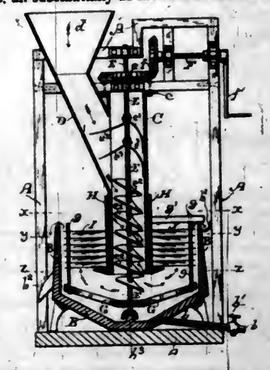
2. In a wrench, the combination of a shank, a stationary jaw located at the outer end of the same, a sliding jaw mounted on the shank, provided with a rearwardly-extending lug and having longitudinal slots located at the front and rear of the shank and having converging outer sides, rollers arranged in the slots and engaging the shank, a movable frame comprising a metal strap embracing the sliding jaw, arranged in recesses of the side faces thereof and provided with slots receiving journals of the rollers, and a block secured between the terminals of the strap and located at the back of the sliding jaw at a point above the lug, and a spring interposed between the block and the lug, substantially as described.

591,119. AMALGAMATOR. JOHN P. SCHMITZ, San Francisco, Cal. Filed Oct. 8, 1896. Serial No. 608,266. (No model.)

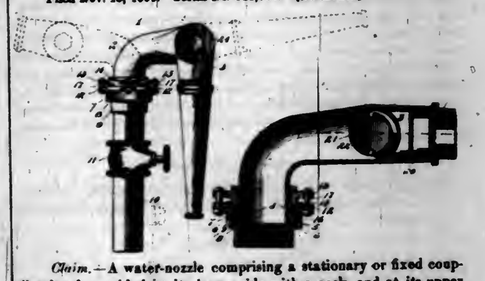
Claim.—1. The combination, in an amalgamating apparatus, of the shaft E, spring-agitators e^3, screw e^3, spider-frame G, pins g, brush H I, pipe C, and pipe D, all substantially as shown and described.

2. In an amalgamating apparatus, the screw e^3, rotating partly within and partly below the lower end of pipe C, and projecting deep into the mercury or lead within pot B, in combination with shaft E, spring-agitators e^3, spider-frame G, pins g, brush H I, pipe C, and pipe D, substantially as shown and for the purpose specified.

3. The combination of frame A, pot B, gutter b^3, outlet-pipe b, faucet b', step b^3, spider-frame G, pins g, pusher g', brush H I, pipe C, shaft E, screw e^3, spring-agitators e^3, pinion e, gear f, shaft F, pipe D, and hopper Z, all substantially as shown and described.



591,120. WATER-NOZZLE. JAMES M. SHERMAN, Columbia, Mo. Filed Nov. 13, 1896. Serial No. 611,967. (No model.)



Claim.—A water-nozzle comprising a stationary or fixed coupling-head provided at its lower side with a neck, and at its upper side with a bearing cup formed with a horizontal interior annular flat seat 6, an elbow-pipe section, an exterior packing-collar 4, fitted fast on the lower end of the elbow-pipe section and provided at its lower edge with an outturned flange 5, turning on the interior seat 6, packing filling the space between the packing-collar and the sides of the cup, a ring-gland loosely encircling the elbow-pipe section and provided with a depending flange working within the bearing-cup on the packing therein, an adjustable bolt connection between the gland and the bearing-cup, and a pivotal nozzle member pivotally joined to and communicating with the upper end of the elbow-pipe section, substantially as set forth.

591,121. POINT-PROTECTOR FOR FLEXIBLE FASTENING-PINS. WALTON D. SMITH, Prophetstown, Ill., assignor of one-half to Fred L. Adams, same place. Filed Feb. 3, 1896. Serial No. 577,960. (No model.)



Claim.—1. As an article of manufacture, a point-protector for flexible fastening-pins comprising a flexible body adapted to be strung on the pin-points and provided with an integral flap arranged to be folded over the pin-points, and means for sealing together the body portion and flap, substantially as set forth.

2. As an article of manufacture, a point-protector for flexible fastening-pins comprising a flexible body portion provided with a pin-opening therein, and an integral imperforate sealing-flap arranged to be folded over the pin-points, and means for sealing together the body portion and flap, substantially as set forth.

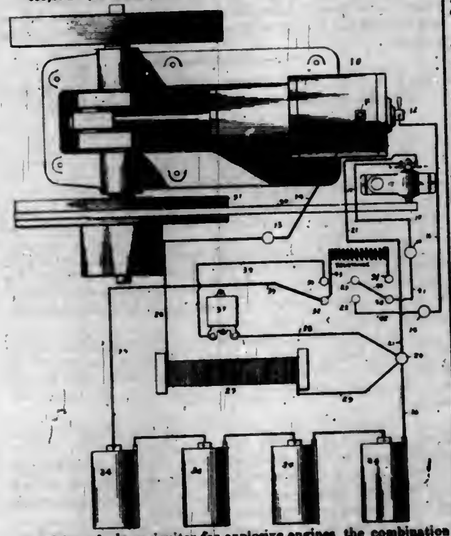
3. As an article of manufacture, a point-protector for flexible fastening-pins comprising a flexible paper body portion having one or more pin-openings therein, and a foldable imperforate integral flap portion of the same size and shape as said body portion, said flap portion being provided at one side with a gum coating and adapted to be folded over to conceal the body portion and sealed to one side of the latter over the pin-points, substantially as set forth.

591,122. ADJUSTABLE PICKER-STAFF CHECK. DANIEL H. WRIGHT, Lansingburg, N. Y. Filed Sept. 9, 1896. Serial No. 605,310. (No model.)



Claim.—In a picker-staff check for looms, the combination of the lay-beam provided below and at opposite sides of its slot with offstanding socket projections formed with bolt-openings in their outer ends, a fixed attaching-block arranged at the under side of the beam, a pair of duplicate flat spring check-plates arranged respectively at opposite sides of the picker-staff and fixedly fastened at one end to said attaching-block, the unattached ends of said plates being normally disposed closely together, adjusting-bolts arranged in said socket projections and connected at their inner ends with the movable end portions of said plates, nuts engaging the outer portions of the bolts exterior to the socket projections, and springs coiled on the bolts within the socket projections, substantially as set forth.

591,123. IGNITING MEANS FOR EXPLOSIVE-ENGINES. VINCENT G. APPLE, Miamisburg, Ohio. Filed Apr. 22, 1897. Serial No. 633,234. (No model.)



Claim.—1. In an igniter for explosive engines, the combination with an explosive-engine and contact-points therein, of a dynamo driven by said engine and in circuit with said contact-points, a battery also in circuit with said contact-points, an electric alarm, and a switch and connections adapted to cause said battery to furnish current to cause the first few explosions until said engine is driving said dynamo at normal speed, when said dynamo develops current to sound said alarm which ceases only when said switch is moved to bring only said dynamo in circuit with said contact-points.

2. In an igniter for explosive-engines, the combination with an explosive-engine and current-breaking points operated thereby, of a dynamo driven by said engine, a battery, a switch, a circuit in which are located said points, and switch and separate connections between said switch and said battery and dynamo, said switch being adapted to temporarily throw only said battery in circuit with said contact-points, and then substitute only said dynamo for said battery, substantially as specified.

3. In an igniter for explosive-engines, the combination with an explosive-engine, contact-points therein, and means for operating said contact-points at predetermined intervals by the operation of said engine, of a dynamo driven by said engine, a battery, an electric circuit in which are located said contact-points, a switch and connections for placing at will said battery or said dynamo in said circuit with said contact-points, and means for shunting or passing some of the dynamo-current through said battery only when said dynamo is in circuit with said contact-points.

4. The combination with an explosive-engine, and contact-points therein and operated thereby, of a dynamo driven by said engine; a battery; a switch; and electrical connections arranged between said contact-points, battery, dynamo and switch in such manner that said battery or said dynamo may at will be in circuit with said contact-points, and when said dynamo is in said circuit, some of the dynamo-current is being shunted or passed through said battery.

5. The combination with two sources of electrical energy, one of which being a battery of the ordinary dry-cell or Edison-Lelande and analogous types, of electrical connections and a switch adapted to temporarily substitute said battery for said other source of electrical energy; and means for shunting or passing current through said battery from said other source, while said battery is displaced, substantially as specified.

6. The combination of a dynamo, a battery of the dry-cell or Edison-Lelande and analogous types, an electric circuit in which said dynamo is normally located, a switch and connections for temporarily displacing said dynamo for said battery in said circuit, and means for shunting or passing only a small part of the current from said dynamo through said battery only when said dynamo is in said circuit, whereby said battery is strengthened or replenished.

7. The combination with an explosive-engine, and current-breaking points operated thereby, of a dynamo, a battery, a spark-coil, a circuit in which are located said points and said spark-coil, a switch in said circuit, separate connections between said switch and said battery and dynamo for placing either the battery or said dynamo in the circuit with said contact-points, and means for shunting or passing some of the dynamo-current through said battery when said dynamo is in circuit with said points, substantially as specified.

8. The combination with an explosive-engine, and contact-points therein and operated thereby, of a dynamo driven by said engine, a battery, a spark-coil and an alarm all having electrical connections with said contact-points through an intermediate switch adapted first to place said battery in circuit with said contact-points until said dynamo is generating sufficient current to sound said alarm, when said switch is operated to throw said battery out and said dynamo in circuit with said contact-points, substantially as specified.

9. The combination with the explosive-engine having contact-points 11 and 12 operated thereby, of a dynamo driven by belt 50 from wheel 51 on said engine, a battery 34, a spark-coil, switch pivot-post 22 and switch contact-posts 30 and 32, and electrical connection between contact-point 12 and post 22, an electrical connection between post 32 and the positive pole of battery 34, an electrical connection from the negative pole of said battery through the spark-coil to the contact-point 11, wires 21 and 38 connected to said connection between the negative pole of battery 34 and said spark-coil; said wire 38 leading to alarm 37 connected by wire 39 to switch contact-post 33; wire 43 connecting the switch contacting-posts 31 and 32; wire 40 between switch pivot-post 23 and switch contact-post 30; said post 30 being electrically connected to positive pole of said dynamo, while its negative pole is connected to wire 21; and switch-blades 25 and 26 respectively pivoted to posts 22 and 23, said switch-blade 25 being adapted to contact with either post 30 or 32, while said switch-blade 26 is adapted to contact with either post 31 or 33, substantially as specified.

10. The combination with a cabinet, of a battery and a coil inclosed within said cabinet; binding-posts 13, 15, 18, and 20 and switch-posts 22, 23, 30, 31 and 32 mounted upon and projecting from said cabinet; said coil being electrically connected to posts 13 and 20; an electrical connection between posts 15 and 22, and between posts 18 and 30; the positive and negative poles of said battery being respectively connected to posts 32 and 20; an electrical connection between posts 18 and 30 and 22, also between posts 31 and 32; switch-blades 25 and 26 pivoted respectively to posts 22 and 23, said blade 25 being adapted to contact at will with post 30 or post 32, while said blade 26 is adapted at will to contact with or remain free from post 31; a dynamo in circuit with posts 18 and 20; and a working circuit connected to posts 13 and 15, substantially as specified.

11. The combination with a cabinet, of a battery and a coil inclosed within said cabinet; binding-posts 13, 15, 18 and 20 and switch-posts 22, 23, 30, 31 and 32 mounted upon and projecting from said cabinet; an electrical connection within said cabinet and connecting said coil with posts 13 and 20; electrical connections within said cabinet and between posts 15 and 22 and between posts 18 and 30; an electrical connection within said cabinet and connecting the positive and negative poles of said battery respectively with posts 32 and 20; electrical connections inclosed within said cabinet and connecting posts 18, 30 and 23, also posts 31 and 32; switch-blades 25 and 26 pivoted respectively to posts 23 and 23 and exposed upon the face of said cabinet; a handle 24 secured to said blades 25 and 26; said blade 25 being adapted to contact at will with post 30 or post 32, while said blade 26 is adapted at will to contact with or remain free

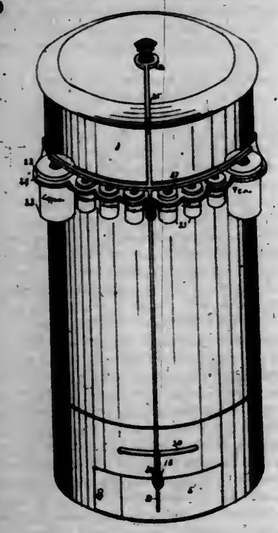
from post 31; a dynamo exposed connections between said dynamo and posts 18 and 20; and an exposed working circuit connected to posts 13 and 15, substantially as specified.

12. The combination with a cabinet, of a battery and a coil, binding-posts 13, 15, 18, and 20 and switch-posts 22, 23, 30, 31, 32, and 33 mounted upon said cabinet; said coil being electrically connected to posts 13 and 20; an electrical alarm, an electrical connection between said alarm and post 33, and between said alarm and post 20; an electrical connection between posts 15 and 22, and between posts 18 and 30; an electrical connection between said battery and the posts 20 and 32; a dynamo, or similar source of current, in circuit with posts 18 and 20; a working circuit connected to posts 13 and 15; and switch-blades 25 and 26 pivoted respectively to posts 22 and 23, said blade 25 being adapted to contact with post 30 or post 32, while said blade 26 is adapted to connect with post 33 or remain disconnected therefrom, substantially as and for the purpose specified.

13. The combination with a cabinet, of a battery and coil arranged within said cabinet, binding-posts 13, 15, 18 and 20 and switch-posts 22, 23, 30, 32 and 33 mounted upon and projecting from said cabinet; an electrical alarm mounted upon said cabinet; an electrical connection within said cabinet and between said alarm and posts 20 and 33; an electrical connection within said cabinet and connecting said coil to posts 13 and 20; an electrical connection within said cabinet and between posts 15 and 22, and between posts 18 and 30; an electrical connection within said cabinet and between said battery and the posts 20 and 32; a dynamo, or similar source of current, in circuit with posts 18 and 20; a working circuit connected to posts 13 and 15; and switch-blades 25 and 26 connected by handle 24 and pivoted respectively to posts 22 and 23, said blade 25 being adapted to contact with post 30 or post 32, while said blade 26 is adapted to connect with post 33 or remain disconnected therefrom, substantially as specified.

14. The combination with a cabinet, of a battery and coil arranged within said cabinet, binding-posts 13, 15, 18 and 20 and switch-posts 22, 23, 30, 31, 32 and 33 mounted upon and projecting from said cabinet; an electrical alarm mounted upon said cabinet; an electrical connection within said cabinet and between said alarm and posts 20 and 33; an electrical connection within said cabinet and connecting said coil to posts 13 and 20; electrical connections within said cabinet and between posts 15 and 22, between posts 18, 30 and 23, between posts 31 and 32, and between the respective poles of said battery and the posts 32 and 20; switch-blades 25 and 26 pivoted respectively to posts 22 and 23; a handle 24 secured to said switch-blades; said switch-blades being adapted to simultaneously engage the posts 30 and 31, or the posts 32 and 33; an explosive-engine having successively-contacting points therein; an electrical connection between said contact points and the posts 13 and 15; a dynamo driven by said explosive-engine and electrically connected to posts 18 and 20, substantially as specified.

591,124. FLOUR-BIN AND SPICE-RECEPTACLE. MILLARD F. BROWN, Kansas City, Mo. Filed Oct. 5, 1896. Serial No. 607,837. (No model.)



Claim.—1. In a kitchen-cabinet the combination of a major receptacle having an upper and lower opening each provided with a removable lid or cover; a removable sieve within the receptacle between the openings; an agitator within the sieve; an agitator-handle connected therewith and extending through the wall of the receptacle; a series of minor receptacles arranged about and supported by the major, and a locking-bar adapted to lock the lids in closed position, the agitator-handle against movement, and the minor receptacles to the major, substantially as and for the purpose set forth.

2. In a kitchen-cabinet a receptacle for flour &c. provided with a removable sieve consisting of an annular guide-rim, 7, and a screen-bottom, 8; V-shaped grooves in the annular portion and flanged wedges, 21, adapted to take into the grooves and expand the guide-rim against the inner periphery of the receptacle, substantially as and for the purpose set forth.

591,125. BOTTLE. LEANDER BURNETT, Ravenswood, Ill. Filed Jan. 19, 1897. Serial No. 619,202. (No model.)



Claim.—In a bottle, the neck thereof carrying an upwardly-extending arm having a lug near its upper end, said arm adapted to be heated and bent across the neck of the bottle, said lug engaging the inner face of the neck when the arm is bent, and the portion beyond the lug engaging the rim of the neck, substantially as shown and described.

591,126. PLUG-SWITCH. WILLIAM R. COLE, Detroit, Mich. Filed Mar. 11, 1897. Serial No. 626,973. (No model.)



Claim.—1. In a plug-switch the combination of two parallel insulator-plates apertured in line with each other, a spring-socket contact placed in each aperture and ears on said sockets extending between and clamped by said plates serving to hold said sockets in position out of contact with each other.

2. In a plug-switch, a spring-socket contact comprising a cylindrical body formed from a sheet-metal blank and having the inwardly-curved spring-arms *a* projecting longitudinally from one end and the outwardly-bent ears *b* at the other end for the purpose described.

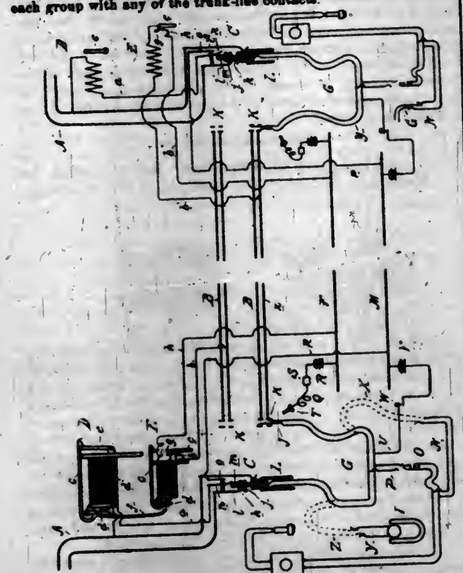
3. In a plug-switch the combination with two parallel insulator-plates apertured in line with each other of spring-socket contacts placed in said apertures, provided with the ears *b* extending between and clamped by said plates, serving to hold the sockets in position and out of contact with each other, and the inwardly-curved spring-arms *a* extending oppositely from said sockets.

4. In a plug-switch, the combination with the two parallel insulator-plates A A′ having the apertures B B′ in line with each other, and the apertures B^3 in the plate A′ of the spring-socket contacts C C′ placed respectively in the apertures B B′, each being provided with the ears *b* clamped between the plates, and the oppositely-extending inwardly-curved arms *a*, and the arm *e* on the socket C extending through the aperture B^3.

5. In a plug-switch, a plug comprising the end contact *d* having a rearwardly-extending shank *d′* of reduced size, threaded at its end, the insulating-collars *e f* sleeved upon said shank, the hollow contact *g* between having the shoulder *h* and threaded shank *i*, the nut *j* for clamping the parts together, the tubular handle *n* secured to the shank *i* and the flexible cord containing the electric conductors connected respectively to the shanks *d′* and *i*.

591,127. TELEPHONE-EXCHANGE SYSTEM. WILLIAM R. COLE, Detroit, Mich. Filed Apr. 28, 1897. Serial No. 634,307. (No model.)

Claim.—1. The combination with the main lines and terminal contacts therefor, arranged in groups of trunk-lines equal in number to the total number of main lines and extending to all the groups, main and auxiliary annunciators for each of said main lines and their corresponding trunk-lines, arranged at their respective main-line groups, said main annunciators adapted in their operation to operate their auxiliary annunciators, and said auxiliary annunciators adapted when operated to break their operating electric circuits, means at each group for closing an electric circuit through any one of the trunk-lines and its auxiliary annunciator when the latter is in its normal position, a signal for indicating to the operator when said circuit is closed, and means for connecting any of the main-line contacts of each group with any of the trunk-line contacts.



2. The combination with the main lines having terminal contacts arranged in groups, and trunk-lines adapted to form connections between the main lines of different groups, of main and auxiliary annunciators for each of said main lines and its corresponding trunk-lines, arranged at their respective main-line groups, each main annunciator being in shunt with its line and adapted in its operation to also operate its auxiliary annunciator and each auxiliary annunciator being adapted when operated to break its own circuit, means at each of the groups for operating any of said auxiliary annunciators when in normal position by closing an electric circuit through their corresponding trunk-lines, and means for indicating to the operator when said circuit is closed.

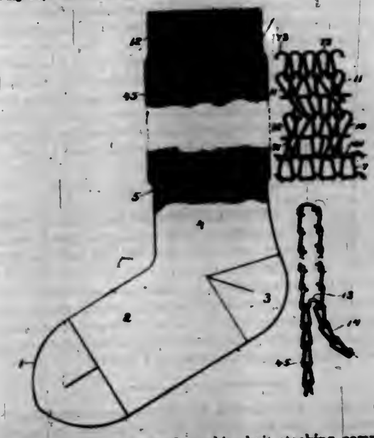
3. The combination with the main lines having terminals therefor arranged in groups and trunk-lines equal in number to the total number of main lines extending to all the groups and adapted to form intermediate connections between the different main lines, of an annunciator for each of the main lines arranged in a shunt therewith, auxiliary annunciators for each of the trunk-lines arranged in proximity to their corresponding main annunciators and adapted to be operated upon the operation of the latter, the line F extended to each of the groups, a connection between each of the trunk-lines and the line F including the corresponding auxiliary annunciator and a normally-closed break adapted to be opened upon the operation of the auxiliary annunciator, and a connection including an electric generator and a signal adapted to complete the circuit between said lines F and each of the trunk-lines and to indicate when the electric circuit is closed.

4. The combination with the main lines having terminal contacts arranged in groups, a trunk-line extending between said groups and connections adapted to couple main lines of different groups through said trunk-line, of an annunciator for each main line arranged in a shunt between it and the return main circuit, the line M extending to each group, means for breaking the connection of said annunciator with the return-circuit and connecting it to the line M, and means at each group for connecting said trunk-line and line M to complete an electric circuit through said annunciator.

5. The combination with main lines having their terminal contacts arranged in groups, a trunk-line extending to the different groups, annunciators for each of the main lines and coupler connections for coupling main lines of different groups through said trunk-lines, of the line M, a connection for each main line including its annunciator and having a normally-opened branch connection to the line M and a normally-closed connection to the main-line return-circuit, an electric generator at each group adapted to be coupled between the line M and said trunk-line, and a switch for breaking said closed main-line connection and closing said branch connection adapted to be operated by the coupling of said main and trunk lines.

6. In a telephone-exchange system the combination with the main lines having their terminal contacts arranged in groups with an annunciator for each line, of a test and notification system comprising auxiliary annunciators corresponding to said main annunciator, each adapted to be operated from each of the groups and to be automatically operated by the operation of its corresponding main annunciator, and means for ascertaining from each of the groups whether said auxiliary annunciator is in use.

591,128. KNIT GOODS. WILLIAM BURT, Laconia, N. H. Filed July 20, 1894. Serial No. 518,111. (No model.)



Claim.—1. The improved machine-knit stocking composed of knit fabric in which the courses progress or are developed from the toe to the top, and having a plain seamless foot portion with narrowings and widenings forming heel and toe gores and a ribbed leg portion, the entire stocking being formed of continuous yarn or thread, and thereby having unbroken and uninterrupted courses of loops at and adjacent to the place where the change from plain goods to ribbed goods is made, substantially as described.

2. The improved machine-knit stocking composed of knit fabric in which the courses progress or develop from the toe to the top, and having a plain seamless foot portion with narrowings and widenings forming heel and toe gores and a ribbed leg portion, the entire stocking being formed of continuous yarn or thread, and thereby having unbroken or uninterrupted courses of loops at and adjacent to the place where the change from plain goods to ribbed goods is made, with the eyelet-holes which usually exist at such place, closed or obviated by the said yarn or thread without the employment of supplemental yarn or thread, substantially as described.

3. The improved machine-knit stocking composed of knit fabric in which the courses progress from the toe to the top and having a plain seamless foot portion with narrowings and widenings forming heel and toe gores and a ribbed leg portion with a knit welt or hem at the top of the latter, the entire stocking being formed of continuous yarn or thread and thereby having unbroken and uninterrupted courses of loops at and adjacent to the place where the change from plain goods to ribbed goods is made.

4. The improved machine-knit stocking composed of knit fabric in which the courses progress or develop from the toe to the top and having a plain seamless foot portion with narrowings and widenings forming heel and toe gores and a ribbed leg portion with a knit welt or hem at the top of the latter, the entire stocking being formed of continuous yarn or thread and thereby having unbroken and uninterrupted courses of loops at and adjacent to the place where the change from plain goods to ribbed goods is made, and with the eyelet-holes which usually exist at such place closed or obviated by such yarn or thread without the employment of supplemental yarn or thread.

5. The improved knitted fabric composed of plain goods in its lower portion and of ribbed goods in its upper portion, with unbroken courses of loops where the change from plain goods to ribbed goods is made, with a welting course 9 of such yarn or thread in the upper part of the plain goods having loops thereof engaging the connecting portions of yarn which join the loops of a course of the plain goods, such loops of the welting course being drawn up behind a course or

courses of the plain goods and constituting the starting-loops of the ribs, substantially as described.

6. The improved knitted fabric composed of plain goods in its lower portion and of ribbed goods in its upper portion, with unbroken courses of loops where the change from plain goods to ribbed goods is made, with a welting course 9 of such yarn or thread in the upper part of the plain goods having loops thereof engaging the connecting portions of yarn which join the loops of a course of the plain goods, such loops of the welting course being drawn up behind a course or courses of the plain goods and constituting the starting-loops of the ribs, and also being shogged, all substantially as described.

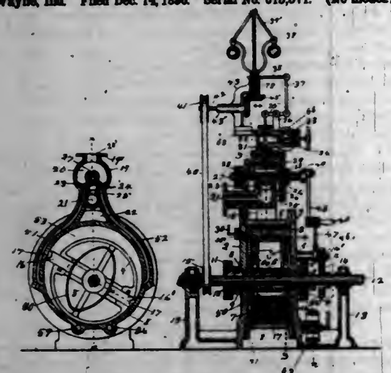
7. The improved knitted fabric composed of plain goods in its lower portion and of ribbed goods in its upper portion, having near the upper edge of the plain goods loops drawn from between the regular loops of such goods to the reverse of the fabric, such loops being drawn up behind a course or courses of the plain goods and constituting the starting-loops of the ribs, and also being shogged, all substantially as described.

8. A stocking or the like having the upper portion thereof knit in ribbed goods and finished with a hem knit in plain goods, the final portion of such hem being knit in rib goods and united to the reverse side of the stocking by the last loops pertaining to the ribs in said upper portion of the stocking, such final portion of the web having a trimmed edge on such reverse side which is secured by being fastened off, substantially as described.

591,129. METHOD OF TREATING TOBACCO AND TOBACCO PRODUCTS, &c. Hugo Gerold, Halle, Germany, assignor to Hermann Otto Wendt, Bremen, Germany. Filed Mar. 24, 1893. Serial No. 467,473. (No specimens.)

Claim.—The method of treating tobacco-leaves or tobacco products, substantially as hereinbefore described, which consists in impregnating the tobacco with a solution of tannic acid combined with the oil of *origanum vulgare*, whereby the injurious action of nicotine is prevented and brittleness of the leaves is avoided.

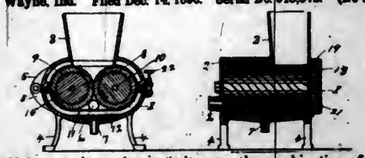
591,130. ROTARY STEAM-ENGINE. John R. Gunsther, Fort Wayne, Ind. Filed Dec. 14, 1896. Serial No. 615,571. (No model.)



Claim.—1. In a rotary engine, the combination of the main shaft 12; the gear-wheel 14 fixed thereon; the counter-shaft 61 carrying the fixed meshing gear-wheel 14′ and the eccentric 46; the lever-arm 47 slotted as described; the pitman 48 pivotally connecting the said lever-arm with the crank 49; the crank 49 fixed on the rock-shaft 27; the rock-shaft 27 rotatably mounted in proper steam-tight bearings in the top of the cylinder as shown; and the cut-off valve 23 fixed on said rock-shaft as described, and having an expansion-spring arranged therein to secure the said valve upon its seat, and adapted to regulate the supply and exhaust of motive fluid to the working chamber of said cylinder, all substantially as described.

2. In a rotary engine a cylinder 1 having a chambered vertical extension provided with an induction-port, a steam-chamber for the cut-off valve, an exhaust-outlet, and steam-conduits arranged as shown connecting the said steam-chamber with the working chamber; a piston-wheel concentrically fixed on the main shaft and eccentrically arranged in said working chamber, provided with diametric guideways for the pistons, and adapted to form an abutment by the contact of its perimeter with the inside of the cylinder; a pair of rotatable spring-pressed diametric pistons radially slidable in said guideways, and against which the motive pressure is exerted circumferentially in a crescent-shaped steam-space in the upper portion of the working chamber; and a pair of elliptical springs arranged in said wheel as described, and having their sides secured to the inner end of said pistons and adapted to normally force the said working pistons outwardly, in combination with the main shaft 12; the gear-wheel 14 fixed thereon; the counter-shaft 61 carrying the meshing gear-wheel 14′ and the eccentric 46; the lever-arm 47 slotted as described; the pitman 48 pivotally connecting the said lever-arm with the crank 49; the crank 49 fixed on the rock-shaft 27; the rock-shaft 27 rotatably mounted in proper steam-tight bearings in the top of the cylinder as shown; and the cut-off valve 23 fixed on said rock-shaft as described, and having an expansion-spring arranged therein to secure the said valve upon its seat, and adapted to regulate the supply and exhaust of motive fluid to the working chamber, all substantially as described.

591,131. FRUIT OR WINE PRESS. John R. Gunsther, Fort Wayne, Ind. Filed Dec. 14, 1896. Serial No. 615,572. (No model.)

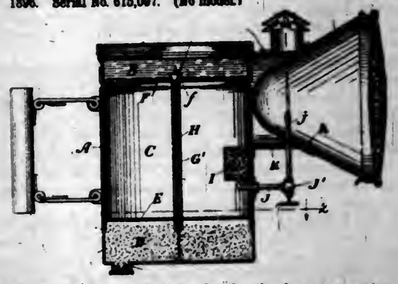


Claim.—1. In a wine or fruit press, the combination of an ellipsoidal body having proper supporting-legs, a horizontal discharge-opening for the refuse arranged as shown, a vertical discharge-opening for the expressed juices, and a cylindrical perforated sheet-metal partition embracing the crushing-rollers, and provided with a removable lid 2 having a feeding-hopper 3; the longitudinal shafts 10 and 15 rotatably mounted in said body; a pair of adjacent crushing-rollers rigidly fixed on said shafts, the said rollers having a vulcanized-rubber periphery provided with a series of spiral ribs arranged as shown and adapted to be self-discharging, as described; a pair of meshing gear-wheels fixed on said shafts for the purpose specified and means for actuating said shaft 10, all substantially as described.

2. The combination, in a fruit-press of a chambered press-body having a hinged lid therefor provided with a vertical hopper, the said body having a discharge-opening at the rear end of the crushing-rollers, and a perforated partition embracing said rollers, and so arranged therein as to form a receptacle-chamber 12 for the expressed juices; a pair of adjacent crushing-rollers revolubly mounted in said body, having a periphery of hard rubber provided with spiral ribs adapted to express the juices without crushing the seeds, the said ribs being so arranged as to make the said rollers self-discharging longitudinally; and means for actuating the said rollers, all substantially as described.

3. The combination of the press-body 1 having a hinged lid 2, and a two-part perforated partition 11 separating the crushing-rollers from the juice-chamber; the longitudinal shafts 10 and 15 revolubly mounted in said body; the crushing-rollers 8 and 9 fixed on said shafts respectively, and provided with flexible coincident spiral peripheral ribs for the purpose specified, and so arranged as to be self-discharging as described; the meshing gear-wheels 14 and 13 fixed on said shafts for the purpose specified; and the actuating crank-handle 20 fixed on the outer extended end of the shaft 11 as shown, all substantially as and for the purpose specified.

591,132. ACETYLENE-GAS LAMP. Henry M. Hanbury, Chicago, Ill., assignor to Chester J. McPherson, same place. Filed Dec. 10, 1896. Serial No. 615,097. (No model.)



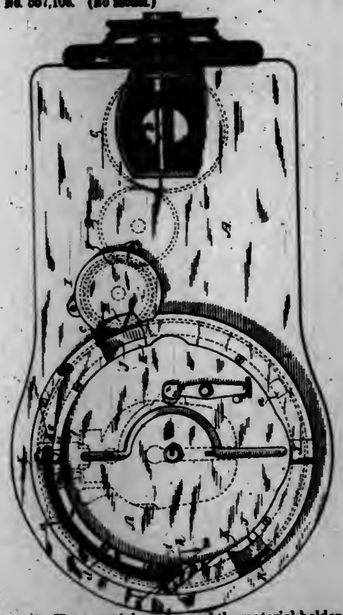
Claim.—1. A lamp for bicycles, &c., having a generator comprising a water-chamber, a gas-chamber separated therefrom by a flexible diaphragm, a chamber containing carbid of calcium connected with the two other chambers, and a valve controlling the connection between the water and carbid chambers and operated by the pressure of the gas in the gas-chamber upon the flexible diaphragm, substantially as set forth.

2. A lamp for bicycles, &c., having a generator comprising a water-chamber, a gas-chamber separated therefrom by a flexible diaphragm having a valve-opening, a chamber containing carbid of calcium below the water-chamber, and a fixed valve against which the flexible diaphragm is pressed by the gas in the gas-chamber to close the valve-opening and stop the flow of water, said diaphragm reacting when the pressure falls to reëstablish the flow, substantially as set forth.

3. A lamp for bicycles, &c., having a generator comprising in a single closed body a water-chamber, a fixed gas-chamber not in direct communication therewith, a flexible diaphragm between said chambers having a valve-opening, a carbid-of-calcium chamber, and a fixed valve against which the flexible diaphragm is pressed by the gas in the gas-chamber to close the valve-opening and stop the flow of water, said diaphragm reacting when the pressure falls to reëstablish the flow, substantially as set forth.

4. A lamp for bicycles, &c., having a generator comprising in a single closed body a water-chamber, a gas-chamber below the same and separated therefrom by a flexible diaphragm having a valve-opening, a chamber containing carbid of calcium below the gas-chamber and separated therefrom by a perforated diaphragm, a pipe extending from the valve-aperture of the flexible diaphragm to the carbid-chamber, and a fixed valve against which the flexible diaphragm is pressed by the gas in the gas-chamber to close the valve-opening and stop the flow of water, said diaphragm reacting when the pressure falls to reëstablish the flow, substantially as set forth.

591,188. BUTTONHOLE-STITCHING MACHINE. John Q. A. Houghton, Baltimore, Md., assignor, by mesne assignments, to David H. Flack and George C. Morrison, same place. Filed July 26, 1895. Serial No. 557,108. (No model.)



Claim.—1. The material-carrier, and the material-holder turning thereupon, in combination with the rotary rack surrounding said carrier and holder and concentric with the axis upon which said holder turns, and means for coupling said holder and rack whereby said holder is turned on said carrier, substantially as set forth.

2. The material-carrier and the material-holder turning thereupon, in combination with the rotary annular rack operatively connected to the carrier, the drive-shaft, the gearing intermediate between the rack and shaft, and means for coupling and uncoupling said holder and rack, substantially as set forth.

3. The bed-plate, the rotary annular rack above the same, the rack-gear above the bed-plate engaging said rack, the drive-shaft, and intermediate gearing below the bed-plate connecting said rack-gear and drive-shaft, in combination with the material-carrier and the material-holder turning thereupon, said carrier being operatively connected to said rack and means for coupling said holder and rack, substantially as set forth.

4. The rotary rack driven from the same drive-shaft which actuates the stitch-forming mechanism at such a speed as to turn the material-holder upon the carrier through a quadrant within the time required for the formation of a single stitch, in combination with the material-carrier and the material-holder turning thereupon, and means for coupling said holder and rack, substantially as set forth.

5. The rotary annular rack, and the annular casing therefor, in combination with the material-carrier and the material-holder turning thereupon, and means for coupling said holder and rack, substantially as set forth.

6. The rotary rack provided with one or more recesses, in combination with the material-carrier and the material-holder turning thereupon, said holder having a stud adapted to engage with said recesses, substantially as set forth, whereby said holder is turned upon said carrier.

7. A stationary part of the machine such as the rack-casing, having a quadrantal opening therein, and a rotary part having a rack thereon and having one or more recesses therein, in combination with the material-carrier and the material-holder turning thereupon, said holder having a stud adapted to engage with said recesses through said quadrantal opening, substantially as set forth.

8. A stationary part of the machine, such as the rack-casing, having an abutment, and a rotary part having a rack thereon, in combination with the material-carrier and the material-holder turning thereupon, said material-holder having a normally-upheld stud adapted to engage said rotary part, and a trip actuated by said abutment for releasing said stud, substantially as set forth.

9. A stationary part of the machine, such as the rack-casing, having a disengaging-cam, and the rotary part having a rack in combination with the material-carrier and the material-holder turning thereupon, said material-holder having a stud which engages with the rotary part, and which is disengaged thereupon by said cam, substantially as set forth.

10. The rotary part having a rack, the material-carrier, and the material-holder turning thereupon, said holder having a stud which engages said rotary part, in combination with a stationary part of the machine, such as the rack-casing, having a restoring-cam which restores said stud to its normal inactive position, substantially as set forth.

11. The material-carrier, and the holder turning thereupon, said holder having a vertically-moving stud *b*, in combination with the rotary part having a rack, said part adapted to be engaged by said stud, substantially as set forth.

12. The material-carrier, and the holder turning thereupon, said holder having a horizontally-moving stud *b*, in combination with the rotary part having a rack, said part adapted to be engaged by said stud, substantially as set forth.

13. The material-carrier, and the holder turning thereupon, said holder having a vertically-movable, and horizontally-swinging stud *b*, in combination with the rotary part having a rack, said part adapted to be engaged by said stud, substantially as set forth.

14. The material-carrier, and the holder turning thereupon, said holder having the stud *b*, having each of the following characteristics: first, it has a normal inactive outer elevated position, being maintained there by a suitable retaining device; second, it has an operative outer depressed position in engagement with the material-holder-shifting mechanism, into which position it is automatically brought by the movement of said retaining device; third, it has an inoperative inner depressed position in which it is locked by a suitable locking device; and fourth, it is restored to its normal position by being uplifted, whereby it is unlocked and automatically moved to its outer position, in combination with said material-holding-shifting mechanism, said retaining device, said locking device, and means for uplifting said stud, substantially as set forth.

15. The material-carrier, in combination with the material-holder turning thereupon, said holder having a spring-actuated vertically-sliding plunger, and the stud *b*, pivoted thereto and adapted to engage the rotary rack-bearing part, substantially as set forth.

16. The material-carrier, in combination with the material-holder turning thereupon, said holder having the stud *b*, and the trip-slide which upholds the same, said slide having a depressed portion which on the movement of the slide allows said stud to fall and engage the rotary rack-bearing part, substantially as set forth.

17. The material-carrier, in combination with the material-holder turning thereupon, means locking the carrier and holder against relative movement, said holder having the trip-slide, the trip *f*, carried thereby, operative mechanism between said locking means and the slide, and the spring for moving said slide in one direction to restore it to its normal direction, whereby the carrier and holder are unlocked when the slide is tripped, substantially as set forth.

18. The material-carrier, in combination with the material-holder turning thereupon and normally locked thereto, said holder having the trip-slide controlling the locking mechanism and the trip pivoted to the slide, substantially as set forth.

19. The material-carrier, in combination with the material-holder turning thereupon, said holder having stud *b*, holder-shifting mechanism with which said stud engages, the automatically-locking lock for locking the holder and carrier together, and means for unlocking the same when the stud *b*, engages with the holder-shifting mechanism, substantially as set forth.

20. The material-carrier, in combination with the material-holder turning thereupon, said holder having stud *b*, the latch for holding the stud *b*, in its inner position, and means for actuating said latch, and the rotary part adapted to be engaged by the stud, substantially as set forth.

21. The material-carrier, in combination with the material-holder turning thereupon, said holder having the stud *b*, and levers 38, and 40, in operative relation with said stud, and the rotary part adapted to be engaged by the stud, substantially as set forth.

22. The material-carrier, in combination with the material-holder turning thereupon, said holder having the stud *b*, slotted lever 38, spring therefor, the lever 40, spring therefor, and the plunger 32, in operative relation with said stud, and the rotary part adapted to be engaged by the stud, substantially as set forth.

23. The material-carrier, in combination with the material-holder turning thereupon, said holder having the bracket R, and the housing 231, adjustable thereupon, means locking the holder and carrier against relative movement, and mechanism within the housing controlling said locking means, substantially as set forth.

24. The rotary annular rack, in combination with the material holder and carrier which executes its operative movements within the inner periphery of said rack, substantially as set forth.

25. The stitch-forming mechanism, and the rotary rack having its center at the inthrow of the needle, in combination with the material-carrier, and the material-holder turning upon said carrier, substantially as set forth.

26. The material-carrier L, the plate O, rotating on said carrier and longitudinally adjustable thereon, and the holder M, longitudinally adjustable on said plate O, in combination with automatic shifting mechanism for turning said plate O, substantially as set forth.

27. The combination of the material-carrier, the adjustable plate P, adjustable thereon, adjustable holder M, adjustable with reference to said plate, and adjustable housing 231, adjustable on said holder, substantially as set forth.

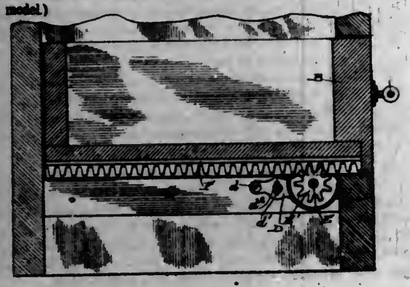
28. The material-carrier L, and the adjustable plate P, longitudinally adjustable on said carrier, in combination with the rotary plate O, turning within the plate P, and partaking of the longitudinal adjustment thereof, and the holder M, carried by said plate O, substantially as set forth.

29. The rotary rack and its casing, in combination with the two-part material carrier and holder, and means for coupling said holder to said rack, substantially as set forth.

30. The rotary rack having recesses *a*, and the rack-casing having abutment, quadrantal slot, releasing and restoring cams, in combination with the material-carrier, the holder turnable thereupon, said holder having trip *f*, adapted to said abutment, and stud *b*, adapted to said recesses, slot, and cams, substantially as set forth.

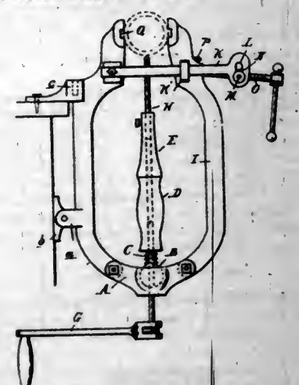
31. The combination of the rack, means for driving the same, the material-carrier, the material-holder, housing 231, on said holder, plunger 32, therein, having three pins 44, 45, 47, spring for said plunger, stud *b*, pivoted to said plunger, pivoted slotted lever 38, connected with said stud, spring therefor, latch-lever 40, spring therefor, notched trip-slide, spring therefor, trip pivoted to said slide, spring therefor, lock-lever, and spring therefor, substantially as set forth.

591,184. EQUALIZER FOR FURNITURE-DRAWERS. CHARLES E. HOWARD, Chicago, Ill. Filed Aug. 24, 1896. Serial No. 604,155. (No model.)



Claim.—The combination with the main frame, having an opening for the drawer, of a bearing-bracket pivotally and adjustably secured to each side of the main frame below said opening, each of said brackets having a curved flange on the adjacent surfaces, a shaft or rod having its bearings in said brackets, a cogged gear or pinion rigidly fixed on each end of said shaft or rod, and adapted to operate within the curved flange of the brackets, and a rack-bar secured to the bottom of the drawer at each side or end thereof and adapted to mesh with the cogged gears or pinions, substantially as described.

591,185. COMBINED VISE AND DRILL. AARON KERBY, Marysville, Mich., assignor of one-half to Myron Mills, same place. Filed Jan. 11, 1897. Serial No. 618,807. (No model.)



Claim.—1. The combination of a yoke, jaws hinged thereto, means for actuating the jaws, a drill, a drill-stock swiveled in said yoke and held therein from longitudinal movement, and means for feeding the drill, substantially as described.

2. The combination of a yoke, jaws hinged thereto, means for holding the jaws in clamping position, a screw-threaded sleeve swiveled in said yoke and adapted to swing laterally, a drill-shaft working in said sleeve and provided at one end with the drill-chuck and at the other end with operating means, and a feed-sleeve D working on said screw-threaded sleeve and abutting against said chuck, substantially as described.

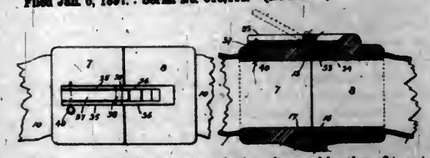
3. The combination of a yoke composed of two separated plates, a drill-stock journaled between them, and adapted to swing laterally, and two jaws pivoted between the ends of said yoke-plates, one on either side of the drill-stock, separated bars connecting the upper ends of the jaws, and means for drawing the jaws together or separating them.

4. The combination of the yoke, and the jaws, of the drill-stock swiveled in the yoke and comprising the sleeve C, exteriorly screw-threaded, the adjustable sleeve D thereon and the collar or chuck E against which the adjusting-sleeve D abuts, for the purposes described.

5. The combination with the yoke, the jaws, and the drill between the jaws, of the separated bars K pivoted at one end to one jaw, slidingly engaging in lateral bearings in the other jaw, a screw-block loosely mounted in the ends of these bars and a screw passing through the block and engaging the jaw for the purpose described.

6. The combination with a clamp having ribs T thereon, of a combined drill and vise having jaws provided with grooves Q in their inner faces adapted to engage said ribs, and means on one jaw for attachment to a bench or other support, substantially as described.

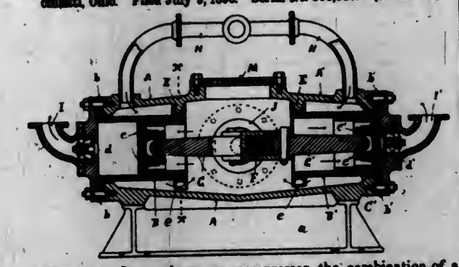
591,186. HOSE-COUPLING. SEYMOUR W. LUCAS, Meriden, Conn. Filed Jan. 6, 1897. Serial No. 618,111. (No model.)



Claim.—1. In a pipe-coupling device, the combination of two tubular heads, one of which is provided on its under side with a keeper, and the other with a lug or projection which is adapted to enter the same, one of said tubular heads being also provided in its inner end with an annular groove, and the other with an annular flange or rim adapted to enter said groove, and one of said coupling-heads being also provided on its upper side with a pivoted locking-bar, which is adapted to engage with suitable keepers, lugs or projections formed on the other, and means for holding the free end of said lever in connection with said keepers, lugs or projections, substantially as shown and described.

2. The hose-coupling device herein described, the same consisting of two similar tubular heads, one of which is provided on its under side with a projecting keeper and the other with a lug or projection which is adapted to enter the same, one of said coupling-heads being provided at its inner end with an annular groove, in which is placed a ring of packing material, and the other with an annular flange or rim adapted to enter said groove, one of said coupling-heads being also provided on its upper side with a pivoted locking-bar, and with a keeper for one end of said bar, and the other coupling-head being provided with a corresponding keeper for the opposite end of said bar, substantially as shown and described.

591,187. AIR OR GAS COMPRESSOR. STEPHEN S. MILES, Cincinnati, Ohio. Filed July 9, 1896. Serial No. 598,580. (No model.)



Claim.—1. In an air or gas compressor, the combination of a casing, a cylinder wholly inclosed in said casing and having an open end or mouth projecting into said casing and its other end provided with a flange that closes that end of the casing, a cylinder-head that is bolted to the flanged end of the cylinder and also to the casing, there being an annular jacket-space between said cylinder and casing and wholly surrounding the said cylinder, an annular rib or partition between the casing and the inner end of the cylinder, said partition being provided with a passage for communication between the jacket-space and the main interior portion of the casing, a pipe for admission of return gas to the annular jacket-space and thence around the cylinder and to the casing through the passage in the annular partition, a plunger provided with an inlet-valve to the cylinder, an exit-valve in the head of the cylinder, and a pipe from said exit-valve to a condenser, substantially as described.

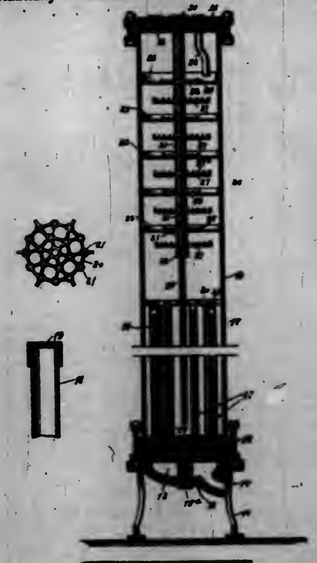
2. In an air or gas compressor, the combination of a casing having a cranked shaft centrally therein, cylinders projecting into opposite ends of said casing and wholly inclosed therein with intermediate annular jacket-spaces, annular ribs or partitions between the casing and the inner ends of said cylinders and each provided with a passage for communication between the jacket-spaces and the central portion of the casing, inlets for admission of return gas into the annular jacket-spaces to circulate around the cylinders and into the central portion of the casing, plungers carried by the central cranked shaft and provided with inlet-valves to the cylinders, exit-valves in the cylinder-heads, and pipes from said exit-valves to a condenser, substantially as described.

591,188. STILL. WILLIAM M. MEYER, New York, N. Y., assignor to Warren B. Hutchinson, trustee, same place. Filed Dec. 10, 1896. Serial No. 615,220. (No model.)

Claim.—1. The combination with the still, of the discharge-pipe extending centrally downward into the still, and alternating series of transverse deflectors discharging one upon the other, the smaller deflectors being secured to the discharge-pipe, and the larger deflectors being secured to the discharge-pipe and extending against the still-walls, the larger deflectors being provided with central openings, substantially as described.

2. The herein-described still, comprising a shell having an internal heating apparatus at the bottom, a discharge-pipe extending from the top downward into the still, a series of transverse deflectors held within the still, the smaller of said deflectors being secured to the discharge-pipe, and the larger being secured to the discharge-pipe and arranged to engage the still-walls, an inlet delivering upon the upper deflector, and a gas-outlet at the top of the still, substantially as described.

3. The combination with the still having deflecting apparatus therein as specified, of the heating apparatus, comprising a series of relatively large exterior pipes closed at the top, a series of internal pipes contained in the larger pipes, and provided with reduced vents, a steam-supply for the interior pipes, and an outlet for the exterior pipes, substantially as described.



591,189. COMBINED LEVEL AND PLUMB. WILLIAM M. MORTON, New Haven, Conn. Filed Feb. 8, 1896. Serial No. 578,490. (No model.)



Claim.—1. In a spirit-level, a frame composed of a top plate, a bottom plate, and an intermediate plate, of sheet metal, said intermediate plate being perpendicular to the top and bottom plates and being united to the latter at their center line; a bubble-glass case seated within a recess in the upper edge of said intermediate plate and retained therein by the overlapping top plate; and a cap-plate detachably secured to and covering a slot in the top plate of said frame, said cap-plate containing an opening which exposes to view the bubble-glass in said case, substantially as described.

2. In a spirit-level, the combination with a frame composed of three plates of sheet metal, to wit, a top plate, a bottom plate, and an intermediate plate forming a right angle with said top and bottom plates and riveted to the latter along the center line, of a level-bubble-glass case and a plumb-bubble-glass case seated within recesses or openings in said intermediate plate, each of said cases being provided with a slotted cap-plate adapted to be removed therefrom and returned thereto without disturbing the cases, substantially as and for the purpose described.

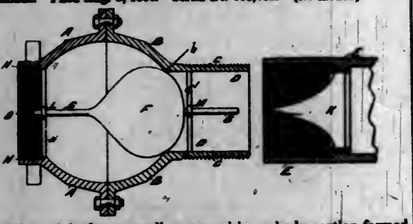
3. In a spirit-level, the combination with a frame composed of an intermediate plate of sheet metal having projecting from its side edges a series of tenons, and a top plate and a bottom plate also of sheet metal provided at their center line with a series of slots or mortises to receive the tenons on said intermediate plate, of a level-bubble-glass case and a plumb-bubble-glass case seated within recesses or openings in said intermediate plate, each of said cases being provided with means whereby its bubble-glass can be removed and returned thereto without disturbing the position of the case on said plate, substantially as and for the purpose described.

4. In a spirit-level, the combination with the frame composed of the sheet-metal plates *a b c* united together substantially as described, of the bubble-glass case *e* seated within a recess in said plate *a* and having the exterior groove *f* to receive the edge of said plate, said

case being provided with the removable cap-plate *g* located within a slot in said plate *b*, substantially as described.

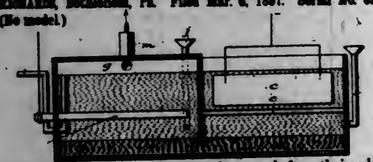
5. In a spirit-level, the combination with the frame composed of the plates *a b c*, said plate *a* having therein the opening *m* in the wall of which are located the shoulders *m'*, of the bubble-glass case *k* seated within said opening, said case being provided with the removable cap-plate *n* the ends of which are engaged by said shoulders *m'* when said cap-plate is in its operative position.

591,140. HYDRANT-COUPLING. JEAN NAUD, Fils, Montreal, Canada. Filed Aug. 5, 1896. Serial No. 601,702. (No model.)



Claim.—A hydrant-coupling, comprising a body portion formed in halves A and B secured together, the part A being provided with an internally-screw-threaded portion O, and a guide H, and the part B being provided with an externally-screw-threaded pipe D, a valve-seat *b*, and a guide I; a valve F provided at each end with a stem G slidable in the said guides H and I; and an internally-screw-threaded pipe E engaging with the pipe C and provided with a ram K projecting within its screw-threaded portion and operating to open the said valve, substantially as set forth.

591,141. PROCESS OF AND APPARATUS FOR ELECTROLYTIC EXTRACTION OF METALS FROM THEIR SOLUTIONS. JOSEPH W. RICHARDS, Bethlehem, Pa. Filed Mar. 6, 1897. Serial No. 626,305. (No model.)



Claim.—1. The process of extracting metals from their solutions, which consists in subjecting such solutions to the electrolytic action of an electric current passing into the solution by a liquid-amalgam anode, and separating said anode from its cathode by a porous partition, substantially as described.

2. The process of extracting metals from their solutions, which consists in subjecting such solutions to the electrolytic action of a pair of electrodes, of which the anode is composed of a liquid amalgam, with a porous plate interposed between the electrodes, the solution from which the metal is to be extracted passing through the cathode-compartment, substantially as described.

3. The process of extracting metals from their solutions, which consists in subjecting them to electrolytic action by means of a liquid-amalgam anode situated in one of two compartments separated by a porous partition, the cathode-compartment being filled with the solution from which the metal is to be extracted, and the anode-compartment being filled with a suitable electrolyte maintained at a slightly-increased pressure, substantially as described.

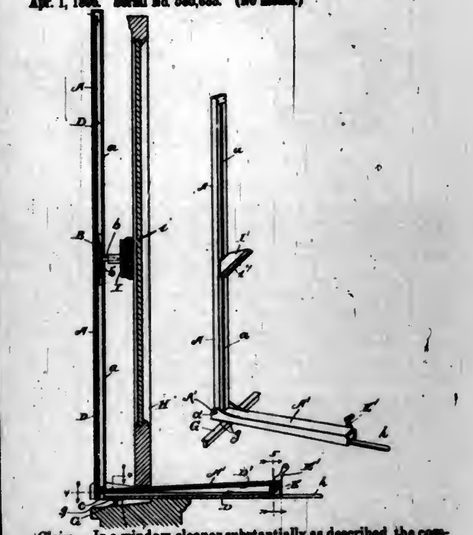
4. An apparatus for electrolytically separating metals from their solutions, which consists in the combination of a cell with means for electrolytically producing an amalgam therein; a second cell to which the amalgam formed in the first cell is conveyed; a cathode in said second cell as to which the amalgam therein is constituted an anode; a porous partition between said anode and cathode; and means for subjecting the metal-containing solution to electrolytic action between the anode and cathode in the second cell, substantially as described.

5. An apparatus for electrolytically separating metals from their solutions, which consists in the combination of a cell, having means substantially as set forth for electrolytically producing an amalgam therein; a second cell; means substantially as set forth by which the amalgam formed in the first cell is conveyed to the second cell; a cathode in said second cell, as to which the amalgam therein is constituted an anode; a porous partition between said anode and cathode; and electrical connections whereby said first and second cells are maintained in series in the same electric circuit, substantially as described.

6. An apparatus for electrolytically separating metals from their solutions, which consists in the combination of a cell with means for electrolytically producing an amalgam therein; a second cell to which the amalgam formed in the first cell is conveyed; a cathode in said second cell as to which the amalgam therein is constituted an anode; a porous partition between said anode and cathode; means for passing the metal-containing solution through the cathode-compartment thus formed; and means for subjecting the liquid in the anode-compartment to a pressure greater than that existing in the cathode-compartment, substantially as described.

7. An apparatus for electrolytically separating metals from their solutions, which consists in the combination, with a tank containing a liquid-amalgam anode in its bottom region, and an electrolyte in the region above said anode, and having a cathode-plate arranged in the region of the electrolyte; of a porous partition arranged above said anode and dividing the region of the electrolyte horizontally into two compartments; and means, substantially as set forth, (as a stand-pipe,) communicating with the lower of said two compartments, whereby a body of liquid electrolyte may be maintained in said lower compartment at a pressure in excess of the pressure of the body of liquid electrolyte in the upper compartment, substantially as and for the purposes specified.

591,142. WINDOW-CLEANER. JOHN RUSS, Chicago, Ill. Filed Apr. 1, 1896. Serial No. 585,683. (No model.)



Claim.—In a window-cleaner substantially as described, the combination with a standard, a base-piece, a knuckle-joint connecting its outer end to the lower end of the standard, cleaning devices sliding vertically in the latter, a windlass in the base-piece, and connections between the windlass and cleaning devices for causing the vertical reciprocation of the latter; of two cleats secured transversely beneath the outer end of the base-piece, and a brace T-shaped in cross-section whose head is loosely clamped between the cleats and whose stem rests upon the window-sill, as and for the purpose set forth.

591,148. HEAT-DETECTOR. HERMANN RUSTEBIEL, Newark, N. J. Filed Mar. 25, 1897. Serial No. 629,270. (No model.)



Claim.—1. The herein-described circuit-closer, comprising, in combination, with an open frame, a fine metallic wire stretched in said frame, a pair of electrical contacts in said frame, and a spring in said frame, said spring having a perforated contact end portion, through which said wire passes, to normally force said spring out of contact with one of said electrical contacts on said frame, substantially as and for the purposes set forth.

2. The herein-described circuit-closer, comprising, in combination, with an open frame, a fine metallic wire stretched in said frame,

a contact-post *c*, a screw A connected with said post, a spring in said frame, said spring having a perforated contact end portion, through which said wire passes, and a contact-post c^4 and a contact-screw, with which said spring is adapted to make contact, substantially as and for the purposes set forth.

3. The herein-described circuit-closer, comprising in combination, with a pair of bars *a* and *a'*, metallic blocks *c* and *c'* between said bars and a fine wire connected with said blocks, a pair of electrical contacts, one on each bar *a* and *a'*, and a spring connected with one of said bars, said spring having a perforated contact end portion, through which said wire passes, to normally force said spring out of contact with one of said electrical contacts, substantially as and for the purposes set forth.

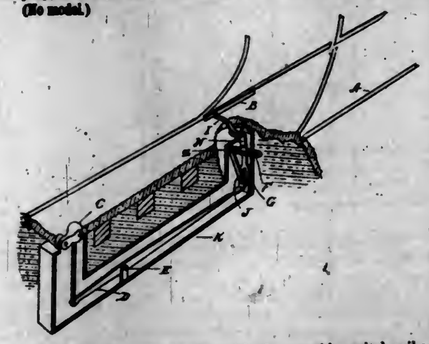
4. The herein-described circuit-closer, comprising, in combination, with a pair of bars *a* and *a'*, metallic blocks *c* and *c'* between said bars and a fine wire connected with said blocks, a contact-post *c* on said bar *a*, a screw A connected therewith, a spring connected with said bar *a'*, having a perforated contact end portion, through which said wire passes, a contact-post c^3 on said bar *a'* and a contact-screw c^5, with which said spring is adapted to make contact, substantially as and for the purposes set forth.

5. The herein-described circuit-closer, consisting, essentially, of a pair of bars *a* and *a'*, metallic blocks *c* and *c'* between said bars, a fine wire connected with said blocks, and a spring *i* between said bars, said spring having a perforated contact end portion, through which said wire passes, and a contact on one of said bars, with which said spring is adapted to make contact, substantially as and for the purposes set forth.

6. The herein-described circuit-closer, consisting, essentially, of a pair of bars *a* and *a'*, metallic blocks *c* and *c'* between said bars, a fine wire connected with said blocks, a contact-post *c* on said bar *a*, a contact-screw A connected with said post *c*, a contact-post c^3 on said bar *a'*, a bar c^1 connected therewith, a contact-screw c^5 on said bar c^1, and a contact-spring connected with said screw A, said spring having a perforated contact end portion, through which said wire passes, substantially as and for the purposes set forth.

7. The herein-described circuit-closer, consisting, essentially, of a pair of bars *a* and *a'*, metallic blocks *c* and *c'* between said bars, a fine wire connected with said blocks, a contact-post *c* on said bar *a*, a contact-screw A connected with said post *c'*, a contact-post c^3 on said bar *a'*, a bar c^1 connected therewith, a contact-screw c^5 on said bar c^1, and a contact-spring connected with said screw A, said spring having a coiled portion i^3, an arm i^2, a flattened end contact portion i^4, and a perforated bent part i^5, through which said wire passes, substantially as and for the purposes set forth.

591,144. SWITCH-OPERATING MECHANISM. FREDERICK A. RUFF, Detroit, Mich., assignor to the Detroit Automatic Switch Company, Limited, same place. Filed Feb. 3, 1897. Serial No. 621,788. (No model.)



Claim.—1. The combination with the movable switch-rail and its actuating arm or tread, of intermediate mechanism between said arm or tread and rail, comprising a walking-beam and a reciprocating and oscillating connecting-rod slidingly secured to the beam adapted in its forward stroke to rock said beam and to slide to the opposite end thereof in its return stroke.

2. The combination with the movable switch-rail and its actuating arm or tread, of intermediate mechanism between said arm or tread and rail, comprising a lever connected at one end to said tread and extending beneath said switch-rail, a walking-beam connected to said rail and a reciprocating and oscillating connecting-rod between said lever and beam slidingly secured to the latter, and adapted in its forward stroke to rock the beam and to slide to the opposite end thereof in its return stroke.

591,145. BICYCLE-SADDLE. BENJAMIN S. SHARAR, Canton, Ohio. Filed July 17, 1896. Serial No. 599,676. (No model.)



Claim.—In a bicycle-saddle and in combination with post K, and spring C, of the clamp L, having kerfed prongs *a*, in which are placed clamp-bits *c* and *d*, the former adapted to engage the post, the latter in conjunction with the former to engage the spring C and the tightening-nut M, substantially as set forth.

591,146. PUZZLE. JOHN E. STANHARD, Springfield, Mass. Filed Feb. 1, 1897. Serial No. 621,453. (No model.)

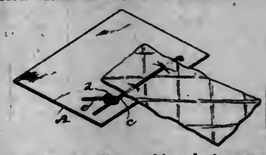


Claim.—1. A puzzle, consisting of a series of disks, journaled concentric upon a spindle, said disks having holes therethrough, and means for locking the disks together in pairs, substantially as and for the purpose set forth.

2. A puzzle, consisting of a series of disks, a spindle upon which said disks are journaled, means for securing said disks upon the spindle, said disks having the holes E formed therethrough and each alternate disk a hole G formed therethrough, while the remaining disks have the depressions F formed therein, and pins H fitted in the holes G and adapted to lock the disks together in pairs, substantially as and for the purpose set forth.

3. A puzzle, consisting of a series of disks, a spindle upon which said disks are journaled, means for securing said disks upon the spindle, said disks having the holes E formed therethrough and each alternate disk a hole G formed therethrough, while the remaining disks have the depressions F formed therein, pins H fitted in the holes G and adapted to lock the disks together in pairs, and a series of letters, numbers and arbitrary characters placed upon the peripheries of the disks, substantially as and for the purpose set forth.

591,147. PIN-TICKET. PETER T. STOWELL, Racine, Wis. Filed Apr. 19, 1897. Serial No. 633,800. (No model.)



Claim.—1. A merchandise-marking device comprising a ticket and a pin for attaching the same, this pin being a wire having a portion thereof parallel with the obverse side of the ticket, another portion or tongue extending through said ticket to normally stand at an angle to the same, and the remainder of said wire also extended through the aforesaid ticket but bent in rear thereof to form an ogee and stem, this configuration constituting a clasp for the tongue.

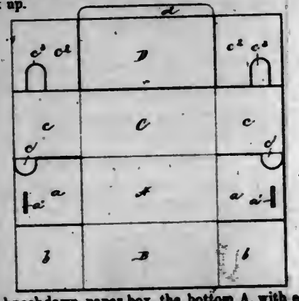
2. A merchandise-marking ticket and a two-prong pin for attaching the same, both prongs being extended through the ticket and one of the prongs configured to form a clasp for the other when the latter is bent over from normal position, the latter prong being necessarily passed at least twice through the material to which the ticket may be attached.

591,148. PAPER BOX. WILLIAM J. WALKER, Chicago, Ill., assignor to the Chicago Folding Box Company, same place. Filed Dec. 5, 1896. Serial No. 614,800. (No model.)

Claim.—1. In a knockdown paper box, the bottom A, with end flaps *a*, provided with slots *a'*; the side B, with end flaps *b*; and side C, with end flaps *c*, said end flaps being provided with tongues *c'* adapted to be tucked through the slots *a'* and between the flaps *a* and *b* when the box is struck up.

2. In a knockdown paper box, the bottom A, with end flaps *a*, provided with slots *a'*; the side B, with end flaps *b*; and side C, with

end flaps *c*, said end flaps being provided with tongues c^3 adapted to be tucked through the slots *a'*, and with tongues *c'* adapted to be tucked between the bottom edges of the end flaps *a* and *b*, when the box is struck up.

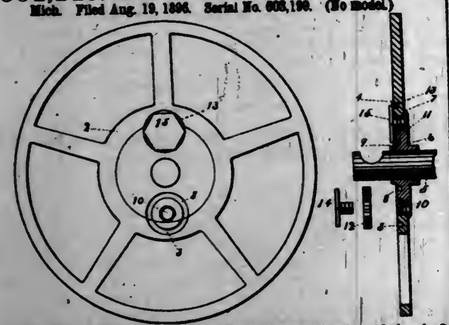


3. In a knockdown paper box, the bottom A, with end flaps *a*, provided with slots *a'*; the side B, with end flaps *b*; and side C, with end flaps *c* and c^3, the said end flaps *c* being provided with tongues c^3 adapted to be tucked through the slots *a'*, and with tongues *c'* adapted to be tucked between the bottom edges of the end flaps *a* and *b*, when the box is struck up.

4. In a knockdown paper box, the bottom A, with end flaps *a*, provided with slots *a'*; the side B, with end flaps *b*; the side C, with end flaps *c* and c^3, the said end flaps *c* being provided with tongues c^3 adapted to be tucked through the slots *a'*, and with tongues *c'* adapted to be tucked between the bottom edges of the end flaps *a* and *b*, when the box is struck up; and the lid D hinged to the side C and provided with a side flap *d*.

5. In a knockdown paper box, the bottom A having the end flaps *a*; with the side B having the flaps *b*; and the side C having the end flaps *c* provided with the tongues *c'* projecting from the bottom edges adapted to be inserted between the flaps *a* and the flaps *b*, when the box is struck up.

591,149. REMOVABLE WHEEL. MELVIN L. WILCOX, Bay City, Mich. Filed Aug. 19, 1896. Serial No. 603,190. (No model.)



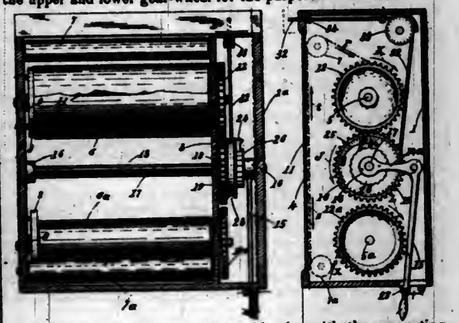
Claim.—1. In a removable wheel, the combination of the shaft and its hub, of a wheel to be attached to the shaft-hub, the hubs having complementary sectors of a ring-shaped groove at adjacent points, and a ring secured in said groove.

2. In a removable wheel the combination of a wheel provided with a hub, said hub provided with arcual grooves formed in its outer face, the shaft-hub, the annular rings, and the stud-bolts provided with polygonal heads, the said shaft-hub provided with a shoulder on the back side of its outer rim and arcual grooves formed in its outer face and threaded holes provided in the radius-centers of the said grooves, substantially as described.

3. In a removable wheel, in combination, a shaft, a hub thereon, a wheel fitting the shaft-hub, the hubs having complementary sectors of a ring-shaped groove at adjacent points, a ring fitting in said groove, serving to prevent rotation of the wheel on the hub, and means for preventing endwise displacement of the wheel on the hub, forming the securing means for the ring.

591,150. STATION-INDICATOR. EDWARD C. WESTERN, Buffalo, N. Y. Filed Nov. 3, 1896. Serial No. 610,892. (No model.)

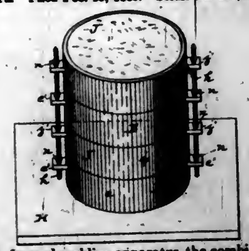
Claim.—1. In a street-indicator, the combination with the indicating-belt its two front supporting-rollers 7 and 7^a, and its two receiving and operating rollers and their spur gear-wheels located one above the other, the upper end of the belt being secured to the top side of the upper roller and the lower end of the belt to the top side of the lower roller, of an intermediate gear-wheel rigidly secured to its shaft, an operating-disk provided with a cord for operating it and loosely secured to the same shaft so as to turn therein, a spring for holding said disk in its normal position, a spring-actuated pawl pivoted to the side of the disk and a ratchet-wheel rigidly secured to the same shaft and adapted to engage with said pawl and means for moving the intermediate gear-wheel into or out of engagement with the upper and lower gear-wheel for the purposes described.



2. In a street-indicator, the combination with the supporting-frame, and the indicating-belt rollers mounted therein, of a friction-disk mounted on the shaft at the end of each roller, springs for keeping said disks in frictional contact and means for locking the disks to the supporting-frame, and thereby preventing them from turning on or with the shafts, for the purposes described.

3. In a street-indicator, an indicator-belt carrying a series of street-names, its supporting-rollers and spur gear-wheels, located one above the other, in combination with an intermediate gear-wheel mounted rigidly on its shaft, an operating-disk provided with a cord for operating it and mounted loosely on the same shaft alongside of said gear-wheel so as to turn loosely on said shaft, a spring for moving said disk to its normal position when released from its operating-cord, a ratchet-wheel rigidly secured to the shaft alongside of the operating-disk, a spring-actuated pawl pivoted to the operating-disk and in engagement with the ratchet-wheel, and means for moving the intermediate gear-wheel into or out of gear with the gear-wheels 12 and 12; for the purposes described.

591,151. SAND-MOLDING APPARATUS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Feb. 15, 1893. Serial No. 462,364. (No model.)



Claim.—1. In sand-molding apparatus the combination of a table or support having vertical guide-bars extending up therefrom to a height greater than that of the guide-lugs on the highest flask part to be guided to place, and two or more flask parts, each having lugs thereon provided with guiding seats, or grooves, larger than the guide-bars, so providing for bringing the flask part into exact line by a horizontal movement against the guide-bars and vertical movement along said bars, substantially as set forth.

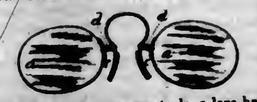
2. In sand-molding apparatus, the combination of a table having vertical guides extending up therefrom, and two or more flask parts having guiding-seats adapted to engage with such guides, one of said guiding-seats being a straight face, and the other guiding-seat being V-shaped so as to fit partially around the guide-bar of the table by a horizontal movement, substantially as and for the purposes set forth.

3. In sand-molding apparatus, the combination of a flask to receive the sand to be compacted around the pattern, and a supporting-frame having movable bars fitting in guideways in said frame and adapted to enter the sand of the flask in a diagonal direction, substantially as and for the purposes set forth.

4. In sand-molding apparatus, the combination of a flask to receive the sand to be compacted around the pattern, a supporting-frame having bars extending vertically down therefrom and adapted to enter the sand of the flask, and movable bars fitting in guideways in said frame and adapted to enter the sand of the flask in a diagonal direction, substantially as and for the purposes set forth.

5. In sand-molding apparatus, the combination of a flask, a sustaining-plate of smaller diameter than the flask and adapted to enter the same, a vertically-movable stripping-table on which such plate rests for stripping the flask from the mold supported on the plate, and a removable flask-retaining device adapted to engage with the flask parts and hold them down when the mold is forced from the flask, substantially as and for the purposes set forth.

591,152. EYEGLASSES. GEORGE BAMON, Syracuse, N. Y. Filed Jan. 11, 1897. Serial No. 618,725. (No model.)



Claim.—1. In an eyeglass or spectacle, a lens having a groove in its periphery, and a transverse notch, combined with a wire around it in said groove and engaging with said notch to prevent slipping.

2. In an eyeglass or spectacle, the combination with a lens grooved peripherally and bound with a wire seated in said groove and having its ends twisted or permanently secured together, of a post having a foot concaved to straddle the wire, and secured thereto.

3. In an eyeglass or spectacle the combination with a grooved lens bound with a wire in said groove having its ends crossed or lapped and secured together, of a post and foot receiving said wire and secured thereto and bearing against the lens on each side of the wire.

4. In an eyeglass or spectacle a lens grooved peripherally and notched transversely, combined with a lens-frame consisting of a wire embedded in said groove and having its intersecting ends bent into said notch, to lock the lens into said frame.

5. In an eyeglass or spectacle, a lens grooved peripherally, and notched transversely, combined with a wire bound around it without grinding to fit and engaging with said notch, and a post suitably secured to said wire after it is bound around the lens.

6. In an eyeglass or spectacle, a lens grooved peripherally, a wire bound around it and seated in said groove, and a post provided with a foot secured astride of said wire and having lateral bearings against the edge of the lens on each side of said wire.

591,153. ENGINEER'S OR SURVEYOR'S INSTRUMENT. CHRISTIAN L. BERGER, Boston, Mass. Filed Dec. 17, 1896. Serial No. 616,008. (No model.)



Claim.—1. In a telescope, the combination with the object-glass, and a focusing-eyepiece, of a reticule-frame, a plurality of reticules therein, in parallel planes, and means to simultaneously adjust all of said reticules in and with relation to the telescope, substantially as described.

2. In a reticule, the combination with the sighting-wires, and stadia-wires, of sun-wires arranged to intercept segments of the sun's disk, substantially as described.

3. In a reticule, the combination with the sighting-wires, of sun-wires arranged obliquely to said sighting-wires to intercept segments of the sun's disk, substantially as described.

4. In a reticule, the combination with the sighting-wires, of sun-wires arranged in an inclined square intersecting said sighting-wires at its corners, substantially as described.

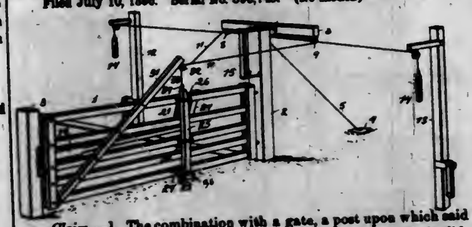
5. A spirit-level, having a main tube and an air-chamber separated therefrom by the apertured end of the main tube, made in one integral, homogeneous piece, substantially as described.

6. A spirit-level, comprising a main tube, and an air-chamber, said chamber being separated from the tube by a wall, and the latter being provided with a narrow opening at or near the center thereof, substantially as described.

7. A spirit-level, comprising a main tube, and an air-chamber, said chamber being separated from the tube by a wall and the latter being provided with a narrow opening at or near the center thereof, and extending radially outward therefrom, substantially as described.

8. A spirit-level, comprising a main tube, and an air-chamber, said chamber being separated from the tube by a wall, and the latter being provided with a narrow opening at or near the center thereof, and extending radially outward therefrom, the inner connecting-surface of the said tube and chamber adjacent the outer end of the said opening being depressed, substantially as described.

591,154. GATE. JESSE L. BLOCKENSTAFF, North Manchester, Ind. Filed July 10, 1896. Serial No. 598,745. (No model.)



Claim.—1. The combination with a gate, a post upon which said gate is mounted and a latch-post for the same, of a latch-bolt slidingly mounted in said gate and adapted to engage a mortise or slot in said latch-post, a spring for normally holding said latch-bolt in its outer position, a lever to which said bolt is connected, an inclined lug or projection on said lever, a release-bar moving in guideways on said gate, a pin on said release-bar which is adapted to engage the lug on said lever and means, actuated from a distance, for raising and lowering said release-bar, substantially as and for the purpose described.

2. The combination with a gate, a post upon which said gate is supported and a second post to which said gate is latched, of a latch-bolt slidingly mounted in said gate, a spring for normally holding said bolt in its outward position, a lever to which said bolt is pivotally connected, an angularly-arranged lug or projection on one side of said lever, a release-bar mounted in suitable guideways on said gate, a pin on said release-bar adapted to engage the lug on said lever, a beam secured to said gate and projecting upwardly therefrom, a pulley mounted in said beam just above said release-bar, a cross-head on the upper end of the post upon which said gate is supported, pulleys in the outer ends thereof, posts located on each side of said gate, cords passing over pulleys on said posts, pulleys on said cross-head, and a pulley on said beam and connected to the upper ends of said release-bar, substantially as and for the purpose described.

591,155. RECOIL-OPERATED GUN. WILLIAM S. BURGESS, Brookline, Mass. Filed Nov. 2, 1896. Serial No. 610,791. (No model.)

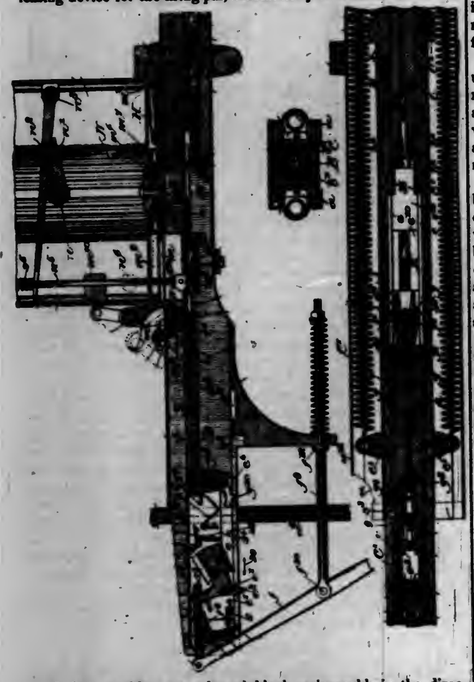
Claim.—1. In a machine-gun, a supporting-frame, the barrel longitudinally movable therein, a barrel-retracting spring, means to at times lock the barrel and breech-block from relative movement, a spring-controlled firing-pin carried by the breech-block, outwardly movable therewith, cocking mechanism for the pin, automatically operated upon return of the breech-block, a manually-controlled releasing device for said mechanism, actuating mechanism for the breech-block governed by the recoil, and connections between said mechanism and the locking means, to control the latter, substantially as described.

2. In a machine-gun, a breech-block reciprocable in the direction of the length of the barrel, and moved in one direction by the recoil, means to positively move it in the opposite direction, a spring-controlled firing-pin longitudinally movable in said block, mechanism to retain the firing-pin stationary during a portion of such latter movement of the breech-block, a releasing device for the pin, operative when the breech-block is locked, and a locking device for said breech-block to retain it in firing position, substantially as described.

3. In a machine-gun, a longitudinally-movable breech-block guide, a breech-block reciprocable thereon, means, actuated by the recoil, and including an accelerating-lever to move the breech-block and its guide outwardly at different speeds, and a locking device for the breech-block, governed by said means, combined with means carried by the breech-block to positively retain the locking device inoperative during the return movement of the breech-block, and a trip to release the locking device when the breech-block reaches the end of such movement, substantially as described.

4. In a machine-gun, a longitudinally-movable breech-block guide, a breech-block reciprocable thereon, means, actuated by the recoil, to move the breech-block and guide outwardly at different speeds, a detent for the breech-block, operative during a portion of its inward movement, a locking device for the breech-block, governed by said actuating means, and a trip for the detent, substantially as described.

5. In a machine-gun, a longitudinally-movable breech-block guide, a breech-block reciprocable thereon, a spring-controlled firing-pin longitudinally movable in said breech-block, the barrel rigidly attached to the said guide, a supporting-frame in which the barrel and guide are movable, mechanism to cock or set the firing-pin on the inward movement of the breech-block, means, actuated by the recoil, to move the breech-block outwardly and relatively to its guide, a retracting-spring to effect the return of the barrel and guide to normal position, to thereby move the breech-block inward, and a releasing device for the firing-pin, substantially as described.



6. In a machine-gun, a breech-block reciprocable in the direction of the length of the barrel, means controlled by the recoil to actuate the breech-block, a firing-pin longitudinally movable in said breech-block, its actuating-spring, a sear mounted on the block, a cooperating latch on the firing-pin, and means to hold the firing-pin stationary relatively to the breech-block on the inward movement of the later, substantially as described.

7. In a machine-gun, a breech-block reciprocable in the direction of the length of the barrel, means controlled by the recoil to actuate the breech-block, a spring-controlled firing-pin longitudinally movable in said breech-block, means to set or cock the pin on the inward movement of the breech block, and a sear and cooperating latch, to retain the firing-pin cocked, substantially as described.

8. In a machine-gun, a breech-block reciprocable in the direction of the length of the barrel, means controlled by the recoil to actuate the breech-block, a spring-controlled firing-pin longitudinally movable in said breech-block, means to set or cock the pin on the inward movement of the breech-block, and a trip for said means, a sear and cooperating latch, to retain the pin cocked, and means controlled by a trigger to disengage the sear and latch, substantially as described.

9. In a machine-gun, a breech-block guide, a breech-block reciprocable thereon, a spring-controlled firing-pin longitudinally movable in said breech-block, means to automatically set it on the inward movement of the breech-block, means actuated by the recoil to operate the breech-block, cartridge-gripping devices mounted on the latter, to grip a cartridge, insert it in the barrel, and eject the empty shell, and means, controlled jointly by movement of the breech-block and firing-pin to operate said gripping devices, substantially as described.

10. In a machine-gun, the barrel and attached breech-block guide, a breech-block reciprocable in the latter, a supporting-frame on which the barrel and guide are longitudinally movable, retractile springs for the barrel, means, actuated by the recoil, to move the breech-block outwardly, and a buffer forming a part of said means to cushion the return of the barrel to firing position, substantially as described.

11. In a machine-gun, the barrel and attached bifurcated breech-block guide provided with a shoulder, a breech-block reciprocable in and between the sides of the latter, a supporting-frame on which the barrel and guide are longitudinally movable, retractile springs for the barrel, means, actuated by the recoil, to move the breech-block outwardly, a locking device pivotally mounted on the block to at times lock the breech-block to its guide, a dog, forming a part of said locking device and means to rock said device to bring the dog into engagement with the shoulder and thereby effect a slow initial movement to the breech-block and guide in unison and to thereafter fully release the locking device, substantially as described.

12. In a machine-gun, an open supporting-frame, comprising upper and lower side bars in parallelism, end pieces and a trunnion-ring rigidly secured thereto, a barrel, and a breech-block guide rigidly attached thereto, both longitudinally movable on said frame and within the side bars thereof, a breech-block reciprocable on its guide, a retractile spring, and a buffer for the barrel upon its return to normal position, substantially as described.

13. In a machine-gun, a longitudinally-movable bifurcated breech-block guide, a breech-block reciprocable within the side walls thereof, means actuated by the recoil, to move said guide and block outward, said means including an accelerating-lever yieldingly connected between its ends to the guide, and connections between the free end of the lever and breech-block, to start the latter slowly, and thereafter to increase the speed of the breech-block relatively to the guide, and a retractile spring to return the said guide to normal position, substantially as described.

14. In a machine-gun, a breech-block, means actuated by the recoil, to cause it to reciprocate in the direction of the length of the barrel, a firing-pin, a device fixed relatively to the breech-block to move the firing-pin into cocking position at or near the beginning of the return movement of the breech-block, means carried by the breech-block to thereafter move forward, engage and retain the firing-pin cocked, means to release the pin from control of the relatively fixed device, and a manually-operated releasing device for said retaining means, whereby the gun may be discharged automatically or at will, substantially as described.

15. In a machine-gun, the barrel, a breech-block guide movable therewith, and having a locking-notch, a reciprocating recessed breech-block, having curved shoulders, a locking-block pivoted in the recess to rest against the curved shoulders and enter the notch, to thereby lock the breech-block to the guide, accelerating mechanism to reciprocate the breech-block relatively to the guide, connections between said mechanism and the locking-block to rock the latter, and unlock said guide and breech-block, the shoulders transmitting the recoil shock through the locking-block to the guide, and retractile springs to control the recoil of the barrel, substantially as described.

16. A magazine for machine-guns, comprising a fixed cylindrical case having a discharge-opening in its lower end, an intermittingly-movable transferrer movable over said lower end and having open, cartridge-receiving pockets, means to support a series of superposed cartridges in the case above the transferrer to deliver the cartridges one by one to the latter, a follower reciprocable in line with the discharge-opening of the case, to follow a discharged cartridge through said opening, and means to reciprocate the follower, substantially as described.

17. In a machine-gun, a breech-block reciprocable in alinement with the barrel, devices carried by said breech-block to grip a cartridge and insert it in the breech-chamber, a cartridge-magazine having a discharge-opening, a support located below the opening to receive a cartridge from the magazine and support it until engaged by the gripping devices, a transferrer to deliver cartridges one by one to the discharge-opening of the magazine, and means to actuate the transferrer intermittingly, substantially as described.

18. In a machine-gun, a stationary magazine having a discharge-opening in its lower end, a transferrer to deliver cartridges singly to said opening, a support below the opening, to receive and sustain a cartridge discharged from the magazine, means operative by the recoil, to actuate the transferrer, and a carrier to engage a supported cartridge, and convey it to the breech-chamber, substantially as described.

19. In a machine-gun, a stationary magazine having a discharge-opening in its lower end, a transferrer to deliver cartridges singly to said opening, a support below the opening, to receive and sustain a cartridge discharged from the magazine, a follower to yieldingly retain a cartridge on its support, means operative by the recoil, to operate the transferrer and follower intermittingly, and a carrier to positively engage a supported cartridge and convey it to the breech-chamber, substantially as described.

20. In a machine-gun, the barrel having a breech-chamber provided with lateral recesses, a cartridge-support, a cartridge-carrier having jaws to grip and hold a supported cartridge and convey it to the breech-chamber, means to retain the jaws closed until the empty shell has been withdrawn from the breech-chamber, and mechanism controlled by the recoil, to reciprocate the carrier and operate the jaws, the latter entering the lateral recesses of the breech-chamber when the cartridge is therein, substantially as described.

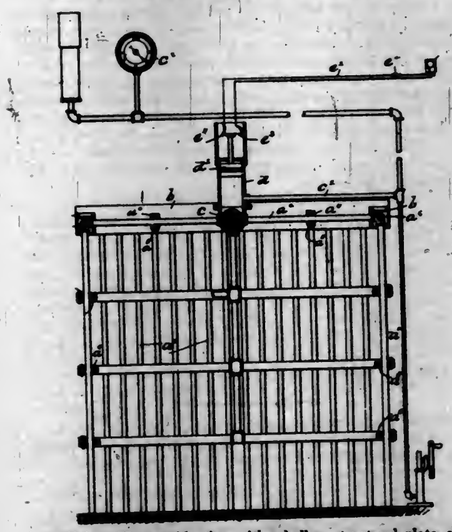
591,156. VENT AND PRESSURE-PLUG FOR BARRELS. HENRY CASE and JOHN G. LEE, Gloversville, N. Y., assignors of one-third to Christopher Beaman Coleman, same place. Filed Mar. 5, 1897. Serial No. 625,927. (No model.)



Claim.—1. In a combined vent and pressure apparatus for barrels, a tubular body, having a boring-point provided with passages between itself and the body, the body itself having a passage, as *l*, communicating from outside the barrel with the interior of the body, and an independently-rotatable cap for opening and closing such passage, substantially as described.

2. In a combined vent and pressure apparatus, for barrels, a tubular body, having a boring-point provided with passages between itself and the body, the body itself having a passage, as *l*, communicating from outside the barrel with the interior of the body, and an independently-rotatable cap for opening and closing such passage, provided with a ball-valve for normally closing the apparatus against loss of contents of the barrel, substantially as described.

591,157. JAIL-CELL, &c. JAMES P. CASEY, Chattanooga, Tenn., assignor to the Casey & Hodges Manufacturing Company, same place. Filed Nov. 14, 1895. Serial No. 568,911. (No model.)

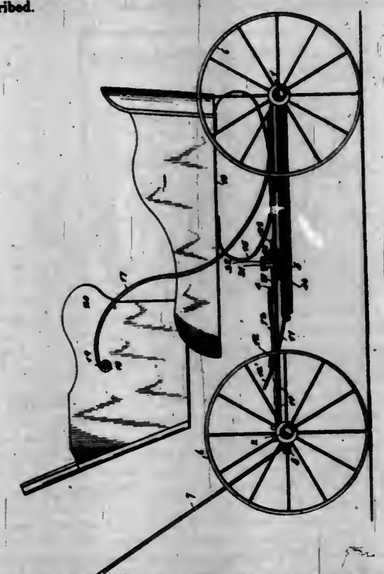


Claim.—The combination with a hollow structural plate, of a series of hollow vertical bars connected to the same, and horizontal bars connected to said vertical bars, a connecting box or casing extending around and connecting said vertical and horizontal bars, a central trunk to which all the hollow or tubular portions are connected, and a connection from said trunk to an indicator, substantially as specified.

591,158. FOLDING BABY-CARRIAGE. CHARLES D. CHAMBLIN, Dunsmuir, Oreg. Filed Apr. 20, 1897. Serial No. 634,304. (No model.)

Claim.—1. A folding baby-carriage, comprising the hinged frame 4, the plates 27 and 28 having the angular parallel flanges 29 30, and the clamp-dog 31 pivoted to the flange 29 and adapted to detachably engage the opposite flange 30, substantially as shown and described.

2. A folding baby-carriage, comprising the hinged frame 4, the spring 9 fixed at one end to the forward end of said frame and having a hand-grip 12 provided with a transverse pawl 12' secured to the yoke 11 attached to said spring, in combination with the rod 13 journaled in the rear end of said frame and provided with a series of notches 14 adapted to engage said pawl, substantially as shown and described.



3. A folding baby-carriage, comprising the hinged frame, the elliptical springs 15 15 fixed on the forward end of said frame, the body-section 16 mounted on said springs and provided at its rear edge with the hooks 23, in combination with the S-shaped side springs fixed in said frame and having their upper ends terminating in integral eyes 18, and the body-section 20 supported in said eyes by the bolts 19, and provided with the hinged transverse board 21 having the eyes 22, adapted to engage the hooks 23 on the opposite body-section, and the foot-board 24 hinged to said transverse board and provided with the right-angular flange 25, substantially as shown and described.

591,159. BOTTLE-STOPPER. SAMUEL CROCKER, Oklahoma, Okla. Filed May 26, 1897. Serial No. 638,136. (No model.)



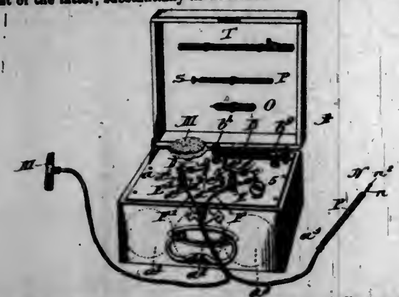
Claim.—1. In a self-acting bottle-stopper, the combination of a stopper to fit in the mouth of the bottle, a wire flexibly connected at its upper end to the stopper and extending into the bottle and having its other end bent at an angle, and a weight connected to the wire within the bottle, said bent end serving to prevent the withdrawing of the weight from the bottle, substantially as described.

2. In a self-acting bottle-stopper, the combination of a conical stopper to fit in the mouth of a bottle, a weight having an opening extending through it, a wire bent upon itself and inserted through the opening in the weight, and the loop in the wire being expanded to form a support for the weight, one end portion of the wire being bent at an angle to prevent the withdrawal of the weight from the bottle, a wire firmly secured to the stopper and having a link connection with the unbent end of the wire connected to the weight, substantially as described.

591,160. ELECTRIC APPARATUS FOR SURGICAL PURPOSES. WILLARD R. DOW, Braintree, Mass. Filed Aug. 16, 1897. Serial No. 648,200. (No model.)

Claim.—1. In a rheostat, a resistance coil or helix; a contact-piece in constant electrical engagement with the convolutions there-

of; and means, acting upon rotation of said coil, to cause axial movement of the latter, substantially as described.



2. In a rheostat, a rotatable body or support; a helix or resistance-wire mounted thereon; a contact-piece in constant electrical engagement with one or more of the coils of said helix; and means engaging said body and acting upon rotation of the same to cause axial movement thereof, substantially as described.

3. In a rheostat, a rotatable cylindrical body of insulating material having a longitudinal bore; resistance-wire wound on said body in the form of a helix with separated coils; a contact-piece in constant electrical engagement with said helix; a rod entering the bore of said cylinder, and means intermediate said rod and cylinder, acting upon rotation of the latter to cause axial movement thereof, substantially as described.

4. In a rheostat, a rotatable tabular body of insulating material provided with a peripherally-mounted resistance-helix, and threaded interiorly; a threaded member entering and in operative engagement with said tabular body, and electrically connected with one end of said helix; a clip or contact-piece embracing said body and in electrical contact with said helix; means to rotate said body; a support for said threaded member; and a base upon which said clip and support may be fixed in adjusted relative position, substantially as described.

5. An insulating-handle of the class described, comprising an elongated support of insulating material provided at its ends with similar contact-sockets electrically connected with one another and adapted to receive interchangeably any of a series of electrodes having similar contact pieces or shanks, substantially as described.

6. A universal electrode support or handle composed of a plurality of coaxially-arranged tubes, the outer of said tubes being formed of insulating material, and the inner of conductive material arranged to present open ends respectively adapted to receive any of a series of interchangeable electrodes, substantially as described.

7. An electrode of the class described, comprising a contact-shank adapted to enter a suitable contact-socket and having a split portion or member adapted to receive a pellet of fibrous material or other suitable vehicle for an anesthetic, substantially as described.

8. An electrode of the class described, comprising a shank or contact-piece; a bundle of wires secured thereto; and a ring or the like to regulate the degree of separation of the wires in said bundle, substantially as described.

9. An electrode consisting of a contact piece or shank, adapted to enter and be supported by a suitable contact-socket, said shank being provided with a head, or laterally-extended member, substantially as described.

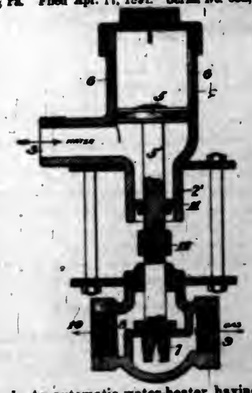
10. An electrode, or cautery, of the class described, comprising an elongated tubular support of insulating material; a conductor arranged longitudinally within said support; a bipart sheath of conductive material mounted externally on the support, the members of the sheath being insulated from each other; a cautery-loop between and electrically connecting said conductor and sheath at one end; means to connect the members of said sheath electrically at will; said electrode having its parts arranged at its end distant from the cautery-loop to enter a suitable contact-socket, substantially as described.

11. A magnet or magnetic electrode, comprising an elongated core of magnetizable material, an insulated helix of wire surrounding the same and a metallic sheath for said helix and core, said electrode presenting at one end a reduced continuation of the core, beyond said helix and sheath, and means to connect said helix in circuit with a suitable source of electricity, substantially as described.

12. An electrode of the class described, comprising a nail-like core of magnetizable material; an exciting-helix therefor and having one end of its wire connected thereto; a metallic protecting-sheath for the intermediate portion of the core, and electrically connected to the other end of the helix-wire; said core extending at its point beyond said sheath and helix, and arranged at its head to enter and engage with one contact member of a suitable contact-socket, while the portion of the sheath adjacent the head of the core is adapted to engage with the other contact member of said socket, substantially as described.

13. An electrode of the class described, comprising a shank or contact-piece; a split portion or member adapted to receive a pellet of fibrous material or other suitable vehicle for an anesthetic; and a bead or beads of insulating material to regulate the diameter of said split portion, substantially as described.

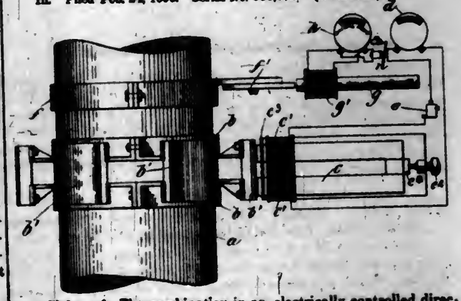
591,161. WATER-REGULATING APPARATUS. JOHN FARRELL, Pittsburg, Pa. Filed Apr. 17, 1897. Serial No. 632,602. (No model.)



Claim.—1. An automatic water-heater having a receptacle for water, a supply-pipe leading to the receptacle, a burner arranged to heat the same, a gas-supply pipe leading to the burner, said water-supply pipe having a chamber containing oppositely-acting pressure-plates or pistons subjected to the water-pressure, said chamber having a passage leading around one of the pistons when the water-current is flowing through the chamber, such piston being beyond the port and subject to balanced pressure when the water-current is stopped, the other piston being subject to a constant water-pressure, and a connection between the pistons and a valve in the gas-supply pipe; substantially as described.

2. An automatic water-heater having a receptacle for water and a gas-burner therefor, a water-supply pipe leading to the receptacle, a gas-supply pipe leading to the burner, a gas-valve having a tapered slot within the gas-supply pipe, a water-supply pipe having a chamber containing connected oppositely-acting pressure-plates or pistons, said chamber having a port leading around one piston when the water-current is flowing through the chamber, said piston being beyond the port and subject to balanced pressure when the water-current is stopped, the other piston being subject to constant water-pressure, and an adjustable connection between the stem of the pistons and the gas-valve; substantially as described.

591,162. SPEED AND DIRECTION INDICATOR. BRADLEY A. FISKE, U. S. Navy, assignor to the Western Electric Company, Chicago, Ill. Filed Feb. 24, 1896. Serial No. 580,332. (No model.)



Claim.—1. The combination in an electrically-controlled direction-indicator, with a direct current responsive device or indicator, of a helix connected permanently in electrical circuit therewith, a soft-iron core whereon said helix is mounted, and a magnetic device having a plurality of dissimilar pole-pieces mounted upon and adapted to be actuated by the movement of the indicated part to present said dissimilar pole-pieces to the core in different predetermined orders corresponding to the direction of movement of said part, whereby actuating-currents are generated in the indicator-circuit, substantially as described.

2. The combination with an indicator situated in a casing mounted in gimbals, of a rheostat mounted upon the standard supporting said gimbals, and flexible conductors connecting the rheostat and the indicator, whereby the rheostat may be adjusted without interfering with the freedom of movement of the indicator, substantially as described.

3. In an electrically-operated direction-indicator, the combination with a direct-current responsive device or indicator, of a generating helix and an audible electric signaling device connected permanently in an electrical circuit, a soft-iron core on which said helix is mounted, and a magnetic device provided with a plurality of dissimilar pole-pieces mounted to be actuated by the part the direction of movement of which is to be indicated, said magnetic device being adapted to be presented to said core and generate alternating currents in the helix corresponding to the movement of the indicated part, whereby movement is imparted to the needle of the indicator in one direction or the other corresponding to the direction of movement of the indicated part and the audible signaling device is actuated, substantially as described.

4. In a combined speed and direction indicator, the combination with a soft-iron core, *g*, of coils *g'* mounted thereon, a responsive device or indicator *h* connected permanently in electrical circuit therewith, and a bipolar magnet *f'* carried upon the moving part, the poles of said magnet being adapted to be moved successively past the end of the soft-iron core at each completed movement of the said part, the order of presentation depending upon the direction of movement, whereby the needle of the indicator is actuated to give a positive corresponding signal at each successive movement of the part, substantially as described.

5. In a combined speed and direction indicator, the combination with a soft-iron core *g*, of coils *g'* mounted thereon, a responsive device or indicator *h* connected permanently in electrical circuit therewith, an audible signaling device also connected permanently with the coils, and a bipolar magnet *f'* carried upon the moving part, the poles of said magnet being adapted to be moved successively past the end of the soft-iron core at each completed movement of the said part, the order of presentation depending upon the direction of movement, whereby the needle of the indicator is actuated to give a positive corresponding signal at each successive movement of the part and the audible signal is simultaneously sounded, substantially as described.

6. In a combined speed and direction indicator, the combination with a responsive device or indicator, of coils permanently connected in electrical circuit therewith, an inductor actuated by the moving part the speed and direction of movement of which are to be measured and adapted to induce alternating currents in said coils, a second responsive device or indicator, coils permanently connected in electrical circuit therewith, and an inductor carried upon the moving part and adapted to produce in said coils currents which impart movement to the needle of said indicator, the frequency of which is in direct ratio to the rate of speed of the said moving part, the said movement of the needle being in one direction or the other according to the direction of movement of the moving part, substantially as described.

7. In a combined speed and direction indicator, the combination with a helix of a magnetic device provided with a plurality of dissimilar pole-pieces adapted to generate alternating currents in said helix, one of the above-named elements being mounted to be actuated by the indicated part whereby the dissimilar pole-pieces are presented to the helix in different predetermined orders corresponding to the direction and rate of movement of said indicated part, and corresponding currents are generated in the helix and a direct-current-indicating device connected in continuously-closed circuit with said helix adapted to be actuated by said currents and indicate the direction and speed of the indicated part, substantially as described.

8. In a speed-indicator, the combination with a magnet *c* stationarily mounted, of coils *c'* carried upon said magnet, an indicating device *d* permanently connected in electrical circuit with said coils, and adapted to be actuated by the current generated therein, sectional collars *b b* adapted to be secured to the speed-measured part and inductors *b' b'* carried thereon, and adapted to be moved past the poles of the magnet whereby current is generated in the coils and the indicating device is actuated, substantially as described.

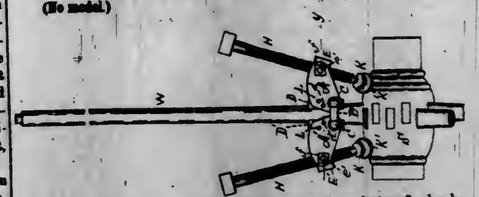
9. The combination in a speed-indicator, with a permanent magnet *c* stationarily mounted, of helices *c'* carried upon the poles of said magnet, a current-indicating device *d* connected permanently in electrical circuit with said helices, a rheostat *e* included in the said circuit, sectional collars *b b* adapted to be secured upon the rotating shaft *a*, inductors *b' b'* mounted upon said collars adapted to be rotated by said shaft past the poles of magnets *c* whereby actuating currents are generated in the helices, and means for securing the lateral adjustment of the magnet, substantially as described.

591,163. DEVICE FOR PUTTING UP STOVEPIPES. WILLIAM T. GILL, Lincoln, Mo. Filed June 25, 1897. Serial No. 642,235. (No model.)



Claim.—A new article of manufacture comprising a tapering ring or body portion corrugated on the inside, a handle integral with said body, and a reaming-bracket integral with the body and handle, substantially as described.

591,164. DEVICE FOR REMOVING SPOKES FROM WHEELS. GEORGE A. GOLAR, Milton, Mass. Filed May 19, 1897. Serial No. 637,222. (No model.)



Claim.—1. A device for removing spokes from hubs of wheels, comprising the two pairs of plates A, A'; the clamps D, D', the former pivotally secured to and between the plates A and the latter similarly secured to and between the plates A'; links pivotally connecting each of the pairs of plates A with the pairs of plates A'; internally-screw-threaded tubular connections secured to and between the plates A and the plates A' near their outer ends; and screws extending through said tubular connections and provided with suitable feet adapted to bear against the hub, substantially as described.

2 The herein-described device for removing spokes from the hubs of wheels, comprising the two pairs of plates A, A'; the clamps D, D', the former pivotally secured to and between the plates A and the latter similarly secured to and between the plates A'; the links B connecting each plate A with its opposite plate A'; the internally-screw-threaded tubes E, E' pivotally hung between and secured to the plates A and the plates A' near their onter ends; the screws H extending through said threaded tubes; and the feet K connected with the lower ends of said screws in such a manner as to enable said feet to accommodate themselves to the surface of the hub, substantially as set forth.

591,165. COMPOUND ROTARY STEAM-ENGINE. ARTHUR M. GREEN, Port Gibson, Miss. Filed Apr. 19, 1897. Serial No. 632,782. (No model.)

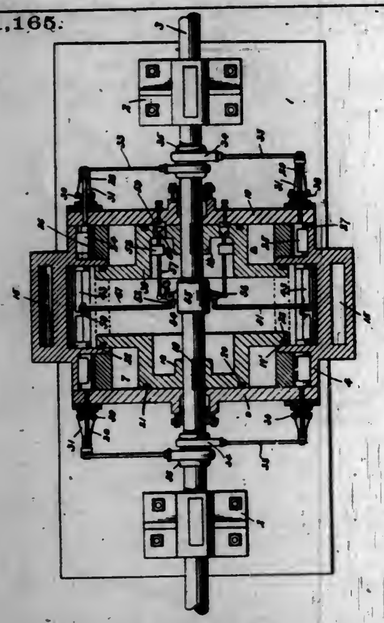
Claim.—1. A rotary compound steam-engine, comprising two or more cylinders of unequal diameter, an exhaust-port extending entirely around the larger cylinder and forming a steam-jacket therefor, an integral duplex rotary piston common to both cylinders, and means substantially as described for independently admitting steam to each cylinder, as and for the purpose set forth.

2. A rotary compound steam-engine, comprising the low-pressure cylinder provided with a central exhaust-chamber, the lateral parallel high-pressure cylinders formed integral therewith, in combination with the integral low and high pressure pistons, and means substantially as described for automatically controlling the admission of steam independently to each piston, as and for the purpose set forth.

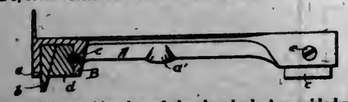
3. A rotary compound steam-engine, comprising the low-pressure cylinder, the lateral high-pressure cylinders arranged parallel with and on each side of said low-pressure cylinder, and a central chamber or receiver 42 arranged intermediate said high-pressure cylinders and within said low-pressure cylinder, substantially as shown and described.

4. A rotary compound steam-engine, comprising a high and a low pressure cylinder, in combination with a receiver, as 42, adapted to receive the exhaust-steam from the high pressure cylinder and conduct it to the low-pressure cylinder, substantially as shown and described.

591,165.

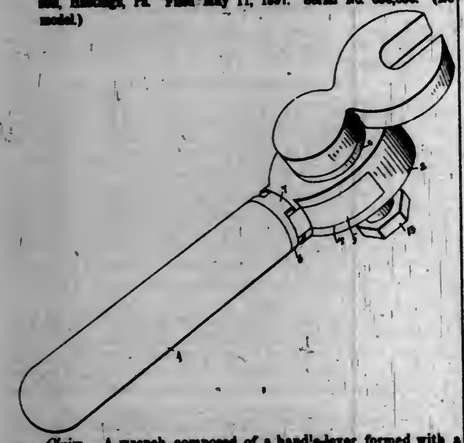


591,166. HORSESHOE. JOHN D. HALL, Orrville, Ohio. Filed Sept. 5, 1896. Serial No. 604,903. (No model.)



Claim.—The combination of the shoe-body A provided with the rectangular receptacles upon its under side formed by the flanges *a*, the calks *b* and *c* tapered from their upper edges toward their bottom or lower edges, the retaining blocks or keys *d* formed of a length to correspond with the receptacles, and their bottom or lower edges tapered toward their top or upper edges and provided with the socket *f*, and the set-screws *e*, all arranged substantially as and for the purpose specified.

591,167. WRENCH. ANDREW HANNABERSON and OTTO CARLSON, Hastings, Pa. Filed May 11, 1897. Serial No. 636,056. (No model.)



Claim.—A wrench composed of a handle-lever formed with a head having a circular recess and provided with pawl-recesses, spring-actuated pawls pivoted in their recesses and provided on their working faces with curved ribs, an adjusting-band surrounding the handle and provided with a projecting lip to hold the pawls into engagement with the hub, a ratchet-hub located in said circular recess and provided with a ratchet-face to be engaged by the pawls, and with an annular groove to be engaged by the ribs on the pawls, and with a square socket and a nut-socket having a square portion adapted to said square socket, and having a screw-threaded stud which projects entirely through the head of the handle-lever and is provided with a securing-nut, substantially as set forth.

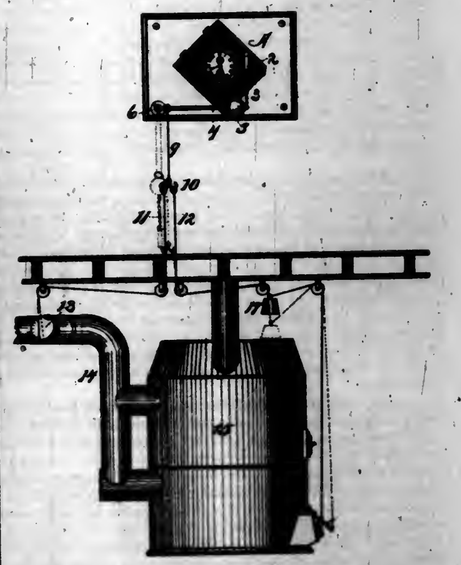
591,168. ARTIFICIAL STONE. CHRISTIAN HEBERLING, Frankfort-on-the-Main, Germany. Filed July 23, 1894. Serial No. 518,268. (No specimens.)

Claim.—1. The herein-described method of manufacturing artificial stone, which consists in compressing the mixed ingredients in a dry state in suitable molds, thereafter exhausting the air, and then introducing an amalgamating agent into the thus-exhausted ingredients and while still substantially *in vacuo*, substantially as described.

2. The herein-described method of manufacturing artificial stone, which consists in compressing the mixed ingredients in a dry state in suitable molds, thereafter exhausting the air, then introducing an amalgamating agent into the thus-exhausted ingredients and while still substantially *in vacuo*, and finally treating the stone with a melted oleaginous substance, substantially as described.

3. The herein-described method of manufacturing artificial stone, which consists in mixing dry pulverized silicious material and burnt lime, compressing in suitable molds, exhausting the air therefrom, subjecting the mass to the action of a fluid amalgamating agent, again exhausting the air, and introducing carbonic-acid gas under pressure, substantially as described.

591,169. TIME DAMPER MECHANISM. WALTER P. KELLOGG, Syracuse, N. Y. Filed Apr. 5, 1897. Serial No. 630,695. (No model.)



Claim.—1. The combination with a clock and its alarm mechanism, of a trip normally supported thereby, a swinging lever normally supported by said trip, a link permanently connected to said lever and operating as a supporting medium until said trip is released at a predetermined time permitting said lever to drop and swing upon its pivot and said link to slide along said lever to its free end without becoming detached therefrom and thereby release the mechanism normally supported by said trip, lever and link.

2. The combination with a clock-movement and its alarm mechanism, of a lever pivoted at one end, a trip normally connecting it thereto and supporting its free end, a link normally connected to said lever adjacent to its pivot whereby the greater part of the force of the weight carried by said link is removed from said trip, and means to release said trip to permit said lever to drop, swinging upon its pivot and said link to the free end of said lever and release the devices carried by it without its becoming disconnected from said lever.

591,170. DRESS-STAY ATTACHMENT. EMMA M. D. LANDENBERGER, St. Louis, Mo. Filed Aug. 23, 1896. Serial No. 604,173. (No model.)



Claim.—1. As a new article of manufacture, a dress-stay attachment comprising a clip provided with means whereby it is adapted to be secured to the lower end of a dress-stay and an arm or plate pivoted to the clip; substantially as described.

2. A dress-stay attachment comprising a clip formed of a front plate and a back plate each having a notched upper end, and the back plate having an offset portion below the notched portion, and an arm or plate pivoted to the lower end of the clip, beneath the offset portion, substantially as described.

591,171. TICKET-HOLDER. EVERETT G. LEWIS, Woonsocket, R. I., assignor of one-half to Alvertus Dean. Filed June 5, 1896. Serial No. 594,407. (No model.)



Claim.—1. A ticket-holder comprising a block having a curved ticket slot or opening, the walls of which are parallel as to their height at any cross-section, substantially as described.

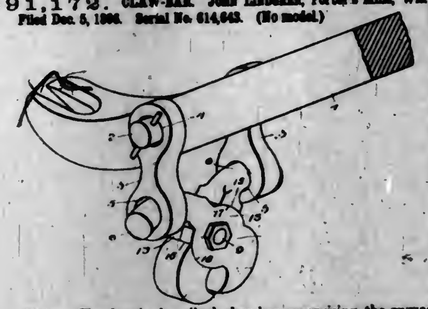
2. A ticket-holder comprising a block having a curved ticket slot or opening, the walls of which are parallel at any cross-section and relatively stationary, said slot being formed with a flaring mouth or entrance, substantially as described.

3. A ticket-holder comprising a block having a ticket slot or opening, the side walls of which are straight and parallel as to height at any cross-section and curved in the direction of the length of the slot, the said walls being relatively stationary, substantially as described.

4. A ticket-holder comprising a block constructed of two parts each having a curved wall or face, which when joined provide a ticket-slot between them, the walls of said slot being parallel as to height and a fastening device for securing the parts of the block together and to a support, substantially as described.

5. A ticket-holder comprising a block constructed of two parts which when joined provide a ticket-slot between them, one of said parts being formed with a projecting seat at the base and opposite shoulders, and the other with a recessed under surface to receive said seat, both the seat and the part resting thereon having holes for the passage of a fastening-screw, substantially as described.

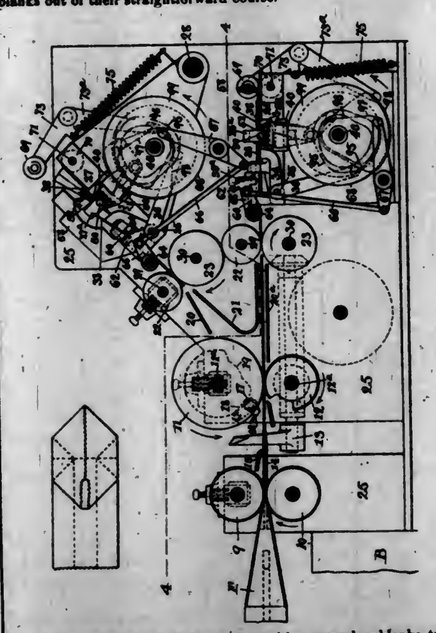
591,172. CLAW-BAR. JOHN LINDGREN, Porter's Mills, Wis. Filed Dec. 5, 1896. Serial No. 614,643. (No model.)



Claim.—The herein-described claw-bar comprising the curved claw 1, the transverse bolt 2, the links 3, pivoted on the outer ends of said bolt, the gripping device 7, consisting of the crossed gripper-jaws, halved in, and pivoted together as described, and formed with the cylindrical curved arms 6, adapted to automatically slide inward through the apertures in the outer ends of said links, as the gripper-jaws are closed, substantially as and for the purpose set forth.

591,178. PAPER-BAG MACHINE. WILLIAM A. LOCKE, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed Jan. 6, 1897. Serial No. 618,901. (No model.)

Claim.—1. In combination with tube-forming mechanism, and with means for severing blanks therefrom, a pair of rotating guide-rolls, an arm on which one of the rolls is journaled, the arm being mounted to oscillate upon an axis substantially concentric with that of the other guide-roll, and a cam for oscillating that arm at the alternate rotations of the guide-rolls, thereby deflecting the alternate blanks out of their straightforward course.



2. In combination with means for making paper-bag blanks, two sets of diamond-folding devices operating in conjunction with stationary folding-beds, with means for guiding the succeeding blanks alternately to the two sets of folding mechanisms.

3. The combination of a stationary folding-bed, a presser-plate for clamping the bag-blanks thereon, oppositely-disposed tuck and box blades for forming the diamond folds, side-folder plates for flattening those folds, means for feeding the succeeding blanks into register upon the stationary folding-bed, and means for delivering them therefrom at the completion of the bottom-folding operation.

4. In combination with a single set of devices for making paper-bag blanks, two or more stationary folding-beds, each provided with a presser-plate for clamping a bag-blank thereon, oppositely-disposed box and tuck blades for forming the diamond folds, and side-folder plates for flattening down those folds, with switching or guiding devices arranged and operating to guide the succeeding bag-blanks from their forming device to each of the stationary folding beds in regular sequence, substantially as described.

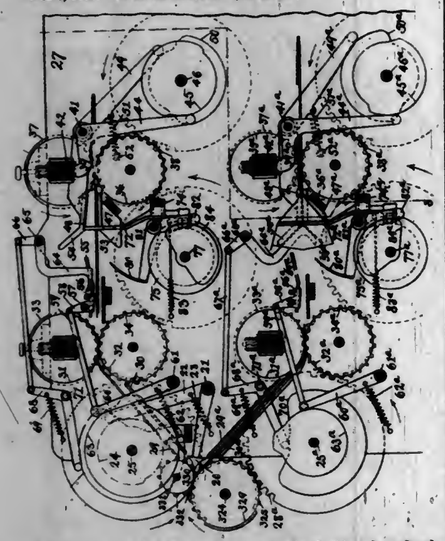
5. In a paper-bag machine, in combination with a stationary folding-bed, devices operating in conjunction therewith to form the diamond fold upon a stationary bag-blank, a rotating delivery-roll mounted upon the folding-bed beneath the blank, and a laterally-movable roll, with means whereby it is carried out of the path of the blank during its folding operation, and whereby it is moved into co-operative relation to the rotating roll at the conclusion of the folding operation, so as to grip the completed blank between them and deliver it from the machine.

6. In a paper-bag machine, in combination with the bottom-folding devices thereof mounted upon and operating in conjunction with a stationary folding-bed, a blank-delivering device therefor consisting of a rotating delivery-roll journaled in the stationary folding-bed, beneath the position of the blank, and a coacting delivery-roll therefor mounted upon an arm, with means for moving the arm, whereby its delivery-roll is carried out of the path of movement of the blank during the folding operation, and is brought down upon the blank at the completion of that operation, thereby engaging the flattened blank between the two rolls and delivering it from the machine, substantially as described.

7. In combination with tube-forming mechanism and with means for severing blanks therefrom, a plurality of stationary folding-beds for supporting the blanks, each bed being provided with a presser-

plate for stopping the blank in suitable position and clamping it to its bed, with guiding or deflecting devices for directing the severed blanks in proper succession to each of the stationary folding-beds.

591,174. PAPER-BAG MACHINE. WILLIAM A. LORENZ, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed Jan. 6, 1897. Serial No. 618,202. (No model.)



Claim.—1. A defining-plate having inclined side edges for defining the lines *r*, *r*, at or near the mouth end of a paper-bag blank, for the purpose specified.

2. A pair of defining-plates arranged on opposite sides of a paper-bag blank, provided with inclined edges for defining the lines *r*, *r*, upon each side thereof.

3. A pair of defining-plates arranged on opposite sides of a bellows-sided paper-bag blank, having coinciding transverse defining edges for defining the extent of distention of the mouth end of the blank, and having inclined edges on each side thereof for defining the limits of the spread of the side tucks, for the purpose specified.

4. A pair of defining-plates for engaging the opposite sides of a paper-bag blank, provided with outwardly and oppositely extending portions for limiting the angular distention of the mouth of the blank, substantially as described.

5. In combination with means for engaging the opposite sides of a bag-blank, and for defining the limit of distention thereof, a distender for entering and distending the blank.

6. The combination of defining-plates for engaging the opposite sides of a paper-bag blank, and defining therein the longitudinal limit of distention, the ends of the plates being turned outwardly from the blank to substantially an angle of forty-five degrees therefrom, and thus limiting the angular extent of the distention, a distender arranged adjacent thereto, and operating to enter the mouth of the blank and distend its sides, substantially as described.

7. The combination of defining-plates for defining and limiting the extent of distention of a paper-bag blank, a distender arranged to enter the mouth of the blank and distend it, and a laterally-swinging lifter for initiating the opening movement of the blank to enable the distender to enter.

8. Means for spreading the side tuck of a bellows-sided bag-blank, consisting of a V-shaped plate arranged transversely to the blank with its apex in the plane thereof, the angle formed by the edges of the V plate being substantially equal to the angle to which the tucks are to be spread, substantially as described.

9. Means for spreading the side tucks of a bellows-sided bag-blank, consisting of a pair of V-shaped plates disposed at opposite edges of the blank, and arranged transversely thereto, the apexes of the V-shaped plates being located substantially in the plane of the blank.

10. Means for spreading the side tucks of a bellows-sided bag-blank, consisting of a pair of V-shaped plates disposed at opposite edges of the blank, and arranged transversely thereto, the apexes of the V-shaped plates being located substantially in the plane of the blank, with means for moving the plates laterally into and out of the side tucks.

11. In combination with means for supporting the blank and for defining therein the line *r*, upon which the tucks are to be spread open, a tuck-spreader having a V-shaped portion arranged transversely to the blank, with its apex substantially in the plane thereof, with means for moving the spreader into and out of the tucked side of the blank.

12. In combination with means for supporting the blank and for defining therein the lines *r*, *r*, upon which the tucks are to be spread open, a pair of tuck-spreaders arranged transversely to the blank at the opposite edges thereof, the blank-engaging edges of the spreaders being at an angle substantially equal to that of the desired spread of the tucks.

13. The combination of a V-shaped tuck-spreader for opening and flattening the triangular ply *t*, with a folder-blade for reversing that ply by refolding it in the opposite direction, substantially as described.

14. In combination with means for supporting the bag-blank, oppositely-disposed transversely-arranged V-shaped tuck-spreaders for opening and flattening the triangular plies *t*, and a folder for reversing those plies by refolding them in the opposite direction between the tucks of the blank, substantially as described.

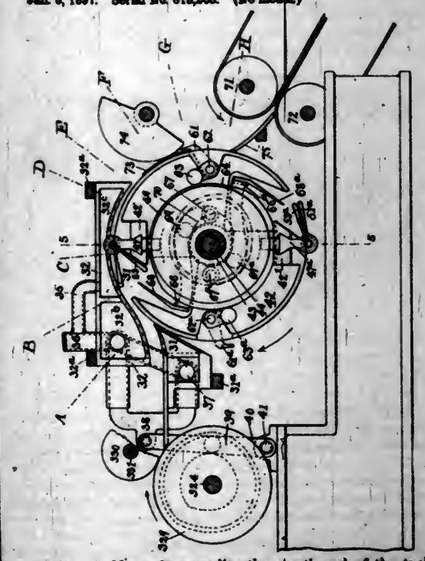
15. In combination with plates for supporting the blank and for defining therein the lines *r*, *r*, and *u*, oppositely-disposed tuck-spreaders arranged transversely to the blank, and substantially in line with those edges of the defining-plates which are to define the line *u*, a distender for distending the mouth of the blank upon the line *u*, and a folder for reversing and refolding the triangular plies *t* upon their lines *s*.

16. In combination with means for supporting a bag or blank, a defining-plate, means for holding it against the blank with suitable pressure, and means for engaging with the blank and drawing it from beneath the plate, all arranged and operating to smooth and flatten the folds in the blank, substantially as described.

17. The combination of defining-plates arranged on opposite sides of the blank, means for engaging with and drawing the blank from between the plates, and means for controlling the amount of separation between the plates, whereby they are made to engage with suitable pressure against the blank which is being drawn between them, substantially as described.

18. In combination with means for supporting a bag or a blank, a defining-plate, means for moving it against the blank and its support with suitable pressure, means for engaging with the blank and for drawing it from the plates, and a folder for following the blank to and between the defining-plate and the support, substantially as described.

591,175. PAPER-BAG MACHINE. WILLIAM A. LORENZ, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed Jan. 6, 1897. Serial No. 618,203. (No model.)



Claim.—1. Means for spreading the mouth end of the tucked side of a paper-bag blank, and for defining the limits of the described mouth-folds therein, consisting of a pair of blades having inclined edges for defining the lines 20 of the described blank, means for moving the blade into the tuck, and means for oscillating one of the blades whereby they are separated to an angular extent substantially equal to the desired angle of the triangular ply 76.

2. Means for spreading the mouth end of the tucked side of a paper-bag blank, and for defining therein the lines 20 of the triangular ply 76, consisting of a pair of blades, one of which is arranged to oscillate upon an axis which intersects the bottom of the tucked side at the desired location of the apex 19 of the triangular ply, with means for moving the blades into the tucks, and for oscillating the movable blade to an extent substantially equaling the desired angle of the triangular ply 76, substantially as described.

3. Means for forming reëntrant plies in the mouth end of the tucked sides of a paper bag, consisting of angular blades for entering and spreading the side tucks, and of a folder-blade having beveled sides for reversing and doubling outwardly the plies thus opened, substantially as described.

4. Means for forming the described folds in a paper bag, consisting of two pairs of tuck-spreading blades, disposed on opposite sides of the bag-blank, means for carrying each pair of blades into its adjacent side tuck and for oscillating one of the blades of each pair so as to spread the side tucks, whereby an acute-angled triangular ply is formed in each of them, and a blade having inclined side edges for reversing the middle fold of each of the triangular plies by folding them between the respective pairs of tuck-spreading blades, substantially as described.

5. Means for forming the described angular folds in the tucked side of a bag-blank, consisting of a pair of angular blades, one of which is movable upon an axis transverse to the bag-blank, at a point thereof at which the common apex of the triangular folds is to be located, and a folding-blade arranged to pass into the mouth of the bag between the angular blades when in their open position, reversing the middle fold of the tuck and doubling between the blades, substantially as described.

6. Means for forming the described fold in the tucked side of a paper-bag blank, consisting of blades having inclined edges for defining the lines 18 20, and a folder-blade having an inclined edge cooperating therewith to reverse the triangular ply 77 upon its middle fold by doubling it outwardly between and against the defining edges of the blades, substantially as described.

7. In combination with a blank-carrying folding-bed, two oppositely-disposed pairs of tuck-spreading blades carried thereon, having inclined edges for defining the outer limits of the desired folds, means for moving the blades into and out of the side tucks of the blank, and for moving one of each pair of the blades so as to spread the side tucks, and a folder-blade arranged to pass into the mouth end of the blank, having inclined edges for folding outwardly between each of the pairs of blades the triangular portions of the side tucks lying between and defined by them.

8. Means for forming the described mouth-folds in a paper-bag blank, consisting of a traveling folding-bed, means for gripping the forward end of the bag or blank upon the bed, suction devices for separating the two side plies adjacent to the mouth end of the bag-blank, oppositely-disposed tuck-spreading blades carried upon the traveling folding-bed, one of the blades being movable upon an axis coincident with the apex of the triangular mouth-folds to be made, and a folder for reversing the triangular plies formed by the tuck-spreading blades and doubling those plies between those blades, substantially as described.

9. The combination of a traveling blank-carrying folding-bed, a gripper mounted thereon arranged to grip the leading end of the bag or blank to the cylinder, a suction-box having its suction-surface arranged adjacent to and substantially parallel with the path of travel of the blank, whereby the outer ply of the blank is drawn away from the ply which is in contact with the folding-bed, and is held fastly in contact with the suction-box, thereby resisting the tendency of the folding devices to distort the blank by crowding it together laterally, substantially as described.

10. The combination of a traveling blank-carrying folding-bed, a gripper thereon for seizing the leading end of the blank and holding it to the folding-bed, stationary suction-boxes arranged on opposite sides of the path of the blank, with means for timing the operation of the suction in the boxes, whereby it operates only upon the rearward or mouth ends of the passing blanks, for the purpose specified.

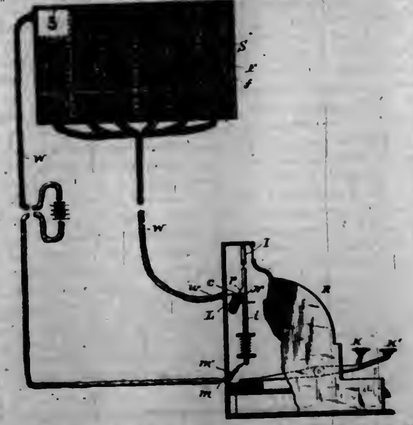
11. The combination of a rotating cylindrical folding-bed, a gripper mounted thereon for seizing the front end of the bag or blank, suction-boxes arranged on opposite sides of the path of the blank, leading to the folding-bed, means for timing the operation of the suction therein, whereby it operates only upon the rearward or mouth ends of the passing blanks, the suction-boxes on the outer side of the blank being extended part way around the cylinder in substantial conformity therewith, with means carried upon the cylindrical folding-bed for spreading the side tucks of the blank at its mouth end, and for forming therein the described mouth-folds.

12. In combination with a rotating cylindrical blank-carrying folding-bed, a suction-box 32 mounted with its suction-surface substantially parallel with and adjacent to the path of the blank, to and part way around the cylindrical folding-bed, the suction-box being provided with two compartments, with means for causing the suction to operate intermittently in the first compartment, and to operate constantly in the second compartment, substantially as described and for the purpose specified.

13. The combination of a rotating cylindrical folding-bed, provided with means for gripping the leading end of the blank thereto, slides mounted upon opposite sides of the folding-bed and moving toward and from the cylinder, each slide having fixed thereon a tuck-spreading blade, located substantially in a tangential relation to the periphery of the cylindrical folding-bed, a movable tuck-spreading blade journaled in each of the slides upon coincident axes located transversely to the cylinder, and substantially at the periphery thereof, means for moving the slides toward and from the cylinder, and with means for oscillating the movable blades away from the fixed blades, substantially as described.

14. The combination of a rotating cylindrical folding-bed, provided with means for gripping the leading end of the blank thereto, slides mounted upon opposite sides of the folding-bed and moving toward and from the cylinder, each slide having fixed thereon a tuck-spreading blade, located substantially in a tangential relation to the periphery of the cylindrical folding-bed, a movable tuck-spreading blade journaled in each of the slides upon coincident axes located transversely to the cylinder, and substantially at the periphery thereof, means for moving the slides toward and from the cylinder, means for oscillating the movable blades away from the fixed blades, and a folder journaled upon the traveling folding-bed, and oscillating in the plane of movement thereof, with means for moving the folder into the angular opening between the fixed and the movable tuck-spreading blades, substantially as described.

591,176. CASH-REGISTER. CHARLES MCNABB, Knoxville, Tenn. Filed Mar. 5, 1897. Serial No. 626,082. (No model.)



Claim.—1. The combination, with a cash-register, of electric circuits, indicators interposed therein and adapted to be operated by said electric circuits when established, and a circuit-breaker common to and controlled by the operating-keys of the machine, whereby said circuits may be automatically established and broken at each operation of the register, substantially as described.

2. The combination, of the indicator-rods of a cash-register, with electric circuits, corresponding in number to the number of said indicator-rods, incandescent lamps on each of said circuits, symbols on said lamps corresponding to the symbols or indicators operated by said indicator-rods, means for operating said indicator-rods, and means for opening and closing said electric circuits through said indicator-rods and incandescent lamps, substantially as described.

3. The combination, with a cash-register, of the indicators, the indicator-rods, the indicator-carriage, projections on said indicator-rods adapted to engage on said indicator-carriage when said indicators are displayed in the well-known manner, connecting-plates attached to the top of said indicator-carriage and to be interposed between the projections on said indicator-rods and said indicator-carriage, when corresponding indicators are displayed, means for inse-

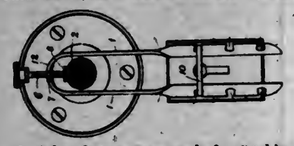
lating said connecting-plates from said indicator-carriage and from each other, means whereby the projections on said indicator-rods may be engaged with, and disengaged from, said connecting-plates, when said indicators are operated, means for operating said indicators, electric circuits adapted to be established and broken when the projections on said indicator-rods are engaged with, and disengaged from, said connecting-plates, respectively, and incandescent lamps adapted to display figures or symbols when said circuits are established, substantially as described.

4. The combination, with a cash-register, of the indicators, the indicator-rods, the indicator-carriage, projections on said indicator-rods adapted to engage on said indicator-carriage when said indicators are displayed in the well-known manner, connecting-plates attached to the top of said indicator-carriage and to be interposed between the projections on said indicator-rods and said indicator-carriage, when corresponding indicators are displayed, means for insulating said connecting-plates from said indicator-rods and from each other, means whereby the projections on said indicator-rods may be engaged with, and disengaged from, said connecting-plates, when said indicators are operated, means for operating said indicators, electric circuits adapted to be established and broken when the projections on said indicator-rods are engaged with, and disengaged from, said connecting-plates, respectively, and incandescent lamps, each in a separate compartment of a suitable cabinet and adapted, when said circuits are established, to display figures or symbols on the fronts of said compartments corresponding to the figures or symbols on the indicators of the cash-register when said circuits are established, substantially as described.

5. The combination, with a cash-register, of the indicators, the indicator-rods, the indicator-carriage, projections on said indicator-rods adapted to engage on said indicator-carriage when said indicators are displayed in the well-known manner, connecting-plates, attached to the top of said indicator-carriage and to be interposed between the projections on said indicator-rods and said indicator-carriage when corresponding indicators are displayed, means for insulating said connecting-plates from said indicator-carriage and from each other, means whereby the projections on said indicator-rods may be engaged with, and disengaged from, said connecting-plates when said indicators are operated, means for operating said indicators, electric circuits adapted to be established and broken when the projections on said indicator-rods are engaged with, and disengaged from, said connecting-plates, respectively, and auxiliary indicators, at a point remote from the register but corresponding in significance with the indicators thereon, and adapted to be operated when said circuits are established, substantially as described.

6. The combination, with a cash register, of the indicators, the indicator-rods, the indicator-carriage, projections on said indicator-rods adapted to engage on said indicator-carriage, when said indicators are displayed in the well-known manner, connecting-plates attached to the top of said indicator-carriage and to be interposed between the projections on said indicator-rods and said indicator-carriage when corresponding indicators are displayed, means for insulating said connecting-plates from said indicator-carriage and from each other, means whereby the projections on said indicator-rods may be engaged with, and disengaged from, said connecting-plates, when said indicators are operated, means for operating said indicators, electric circuits adapted to be established and broken when the projections on said indicator-rods are engaged with, and disengaged from, said connecting-plates, respectively, and an auxiliary indicating device at a point remote from the first-named cash-register, adapted to be operated when said circuits are established, substantially as described.

591,177. KEY-FASTENER. HERBERT A. PALMER, Winthrop, Mass. Filed Mar. 19, 1897. Serial No. 628,256. (No model.)



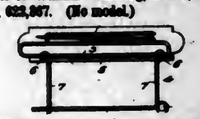
Claim.—1. A key-fastener composed of a metal bar of inverted-U shape, having oppositely-registering notches in the outer edges of the lower portion of the arms, and having a take-up screw passing through a threaded hole in the bow of the fastener, substantially as described.

2. A key-fastener composed of a flattened metal bar of inverted-U shape, the upper portions of the arms having their faces parallel with each other, and the lower portions having their faces at right angles with the upper portions, with their edges toward each other, notches in the outer edges of the lower portions which register with each other, and a take-up screw extending through the bow of the fastener, substantially as described.

3. A key-fastener composed of a metal bar of inverted-U shape, having oppositely-registering notches in the outer edges of the lower portions of the arms, said notches widening from the outer edge inward, and a take-up screw passing through a threaded hole in the bow of the fastener, substantially as described.

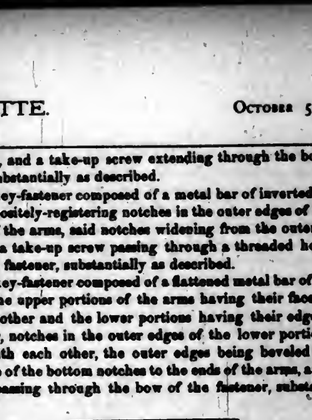
4. A key-fastener composed of a flattened metal bar of inverted-U shape, the upper portions of the arms having their faces parallel with each other and the lower portions having their edges toward each other, notches in the outer edges of the lower portions which register with each other, the outer edges being beveled from the lower edge of the bottom notches to the ends of the arms, and a take-up screw passing through the bow of the fastener, substantially as described.

591,178. SPOOL-HOLDER. CLAUDE R. PECK, Diamond, Ind., assignor of one-half to William Wellberg, Brazil, Ind. Filed Feb. 10, 1897. Serial No. 622,867. (No model.)



Claim.—A spool-holder consisting of a plate having a safety-pin permanently attached near the upper edge of the reverse side thereof for connecting the plate to the clothing of the wearer, and a separate supporting device secured below the safety-pin on the same side of the plate, said supporting device comprising a piece of wire doubled upon itself to form parallel members, one of said members being attached to the plate and the other member forming a detachable support for the spool-holder, a keeper on the attached member, and a spool-holder comprising a rectangular frame having eyes at its upper corners for connection to the support, and a bar for holding the spools detachably connected by a keeper or guard to one of the end bars of said holder, substantially as described.

591,179. ANNUNCIATOR. FRED P. STEVENS, Colorado Springs, Colo. Filed Oct. 13, 1896. Serial No. 608,775. (No model.)



Claim.—1. In an annunciator, the combination of a slotted plate, an indicating-plate having projections operating in the slot of the first-mentioned plate, an electromagnet having a projecting pole-piece, a stop to engage with a projection of the indicating-plate and hold it out of sight, and an armature connected with the said stop and recessed to receive the pole-piece of the electromagnet, substantially as set forth.

2. In an annunciator, the combination of a slotted resetting-plate, an indicating-plate having a projection working in the slot of the resetting-plate, an electromagnet having a projecting pole-piece of conoidal shape, a frusto-conical armature provided with a stop to engage with the projection of the indicating-plate to hold the latter out of sight, and having a recess in its rear face to correspond with and normally receive the terminal of the said pole-piece, and a spring attached to the electromagnet and carrying the armature, substantially as set forth.

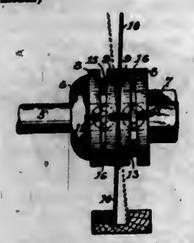
3. In an annunciator, the combination of an indicating-plate, an electromagnet having a projecting pole-piece, an approximately V-shaped spring having one member apertured to receive the pole-piece to which it is secured, and an armature carried by the other member and adapted to engage with and hold the indicating-plate out of sight, substantially as specified.

4. In an annunciator, the combination of a case having a series of observation-openings, a relatively movable frame, a series of electromagnets attached to the said frame, stops controlled by the electromagnets, a relatively movable resetting-plate interposed between the electromagnets and the observation-openings, and having a reciprocating movement, and a series of indicating-plates attached to and carried by the resetting-plate and normally supported by the electrically-controlled stops, substantially as and for the purpose set forth.

5. In an annunciator, the combination of a case having a series of observation-openings in its front, a relatively movable back, a series of electromagnets attached to the back, a resetting-plate hinged to the back and interposed between it and the front, and having a reciprocating movement, and provided with a series of vertical slots, and a series of indicating-plates having projections operating in the slots of the resetting-plate and normally supported out of register with the observation-openings by means of stops controlled by the electromagnets, substantially in the manner set forth.

6. In an annunciator, the combination of a case comprising a front having a series of observation-openings, a movable back, a frame, and a resetting-plate, the latter having a sliding hinge connection and provided with a series of slots which are enlarged at a point in their length, indicating-plates having T projections operating in the slots of the movable plate, electromagnets secured to the said back and having projecting pole-pieces, approximately-V-shaped springs secured at one end to the pole-pieces and having stops at the opposite end to engage with a projection of the indicating-plates to support the latter out of register with the observation-openings, and armatures secured to the free ends of the springs and recessed to receive the terminals of the aforesaid pole-pieces, substantially as shown and described.

591,180. GROOVING-CUTTER. RICHARD TRACHERAY and WILLIAM FERGUSON, Fall River, Mass. Filed Feb. 26, 1896. Serial No. 580,844. (No model.)



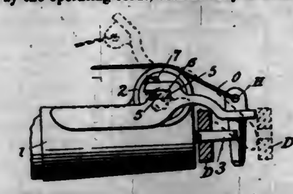
Claim.—1. In a grooving-machine, the combination with a circular saw, the arbor, the usual collar on the arbor, and the nut for clamping the saw on the arbor, of two pairs of disks the two disks of each pair pivotally connected to permit of the oblique adjustment of one of each pair of disks, radial screw-threaded ways on the adjacent sides of each pair of disks, a conical screw-plug engaging with each of the screw-threaded ways of the adjacent disks, and a coiled spring interposed between each pair of disks on the side opposite the screw-plug; whereby the saw may be clamped between the two pairs of disks oblique to the axis of the arbor, as described.

2. In a grooving-machine, the combination with a circular saw, the arbor, the usual collar on the arbor, and the nut for clamping the saw on the arbor, of the disks 8 8 and 9 9, the radially-extending screw-threaded ways 14, and the screw-plugs 13; whereby the inner disks 9 9 bearing on the circular saw may be adjusted oblique to the arbor by screwing the screw-plugs on the opposite sides of the arbor toward or from the arbor, as described.

3. In a grooving-machine, the combination with the circular saw 10, the arbor 5, the collar 6 on the arbor, and the nut 7, of the two pairs of disks 8 9 8 9, the circular blocks 11 11 provided with annular grooves, and the screw 12 12 secured in the disks and extending into the annular grooves to form the pivotal connections between the disks 8 and 9, the radial screw-threaded ways 14, the screw-plugs 13, and the coiled springs 16, said screw-plugs and coiled springs disposed on a radial line at right angle to the pivotal connections of the disks and at opposite sides of the arbor; whereby the saw may be adjusted by screwing the screw-plugs on the opposite sides of the arbor toward or from the arbor and all adjusting parts contained within the peripheral surface of the disks, as and for the purpose described.

591,181. TRACE-DETACHER. ISADORE VANDERBECK and MARTHE R. VANDERBECK, Huntsville, Mo. Filed June 15, 1897. Serial No. 640,860. (No model.)

Claim.—A horse-detacher consisting of a casing mounted on the end of a singletree, and provided with a smooth round upper surface to serve as a bearing for the operating-cords, a spring in the casing connected to a shaft or pintle having squared ends projecting outward through the casing, in combination with a trace-holder having open slotted rear ends to engage the squared ends of the shaft, set-screws to close the slots, and the front end of said holder carrying a depending pin designed to hold the trace on the stud 3, and to be released by the operating-cords, substantially as described.



591,182. ELECTRIC-ARC LAMP. ERNEST P. WARNER and ARTHUR J. OSBORNE, Chicago, Ill., assignors to the Western Electric Company, same place. Filed Aug. 10, 1896. Serial No. 602,206. (No model.)



Claim.—1. In an arc-lamp the combination with a flexible supporting-ribbon of a wheel or pulley, over which the ribbon passes, a vertically-adjustable carbon-carrier, suspended from one end of said ribbon, a weight suspended from the other end of said ribbon, an electrically-operated clutch mechanism engaging the said ribbon, adapted to control its feeding movement and secure the adjustment of the same and means controlled by the movement of said ribbon for altering the circuits through the lamp, substantially as described.

2. In an arc-lamp, the combination with a vertically-adjustable carbon-carrier, of a flexible conducting-ribbon supporting at one end the said carbon-carrier, a wheel or pulley over which the ribbon passes, a weight suspended from the other end of said ribbon adapted to maintain the same taut, a clutch device for controlling the vertical feed of the ribbon and carbon-carrier, an electromagnet connected in shunt with the arc adapted to actuate the said clutch, a spring opposing the said magnet adapted to separate the carbons and form the arc, when the magnet is partially deenergized, and means for adjusting the throw of the spring whereby the length of the arc is governed, substantially as described.

3. In an arc lamp, the combination with a flexible metallic ribbon *b* passing over and supported by wheel or pulley *c*, of a carbon-carrier *a* adjustably suspended within the lamp-frame from one end of the ribbon *b*, weight *d* suspended from the other end of said ribbon adapted to maintain the same taut, ribbon-clutch *e* controlling the feed and adjustment of the carbon-carrier, electromagnet *g* connected in shunt with the arc, magnet-armature *f* connected with the said ribbon-clutch, whereby the same is actuated to engage or release the said ribbon and secure the carbon adjustment in the lamp,

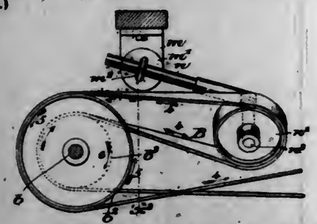
contact-arm *q* controlling the circuit through the magnet and means controlled by the carbon adjustment for the operation thereof, substantially as and for the purpose described.

591,183. DRINKING-FOUNTAIN FOR POULTRY, &c. FRANCIS A. WILLIAMS, Jacksonville, Fla. Filed Nov. 28, 1896. Serial No. 613,775. (No model.)



Claim.—A drinking-fountain for poultry, comprising the vessel 1, having the orifices 12, and provided with the central conical flue 4, having an internal spiral recess 5, formed in its upper end, the removable screw-cap 3, the transverse fixed tube 23, and the bottom 9, formed with the projecting flange 10, in combination with the removable adjustable hood 8, having the depending prongs 7 7 formed with laterally-projecting teeth 6 6, the removable lamp 15, the shaft 22 detachably secured to said lamp, and the annular ring 13, having orifices 14 14, as and for the purpose set forth.

591,184. POWER-REVERSING MECHANISM. JOHN H. WINDLE, Worcester, Mass. Filed Apr. 13, 1894. Serial No. 506,912. (No model.)



Claim.—1. A power-reversing mechanism for a shaft, consisting of a main or driving shaft having a driving-pulley, a second shaft substantially parallel thereto, two loose pulleys surrounding said second shaft, clutch mechanism to enable either of said pulleys to be coupled at will with and to drive said second shaft, and an idler-pulley, combined with a single belt surrounding said driving-pulley and passed about said two loose pulleys on the second shaft and said idler, whereby one and the same belt may be made to drive said loose pulleys continuously in opposite directions, to thereby enable said second shaft to be rotated in either direction, substantially as described.

2. A power-reversing mechanism for a shaft, consisting of a main or driving shaft having a driving-pulley, a second shaft substantially parallel thereto, two pulleys loosely mounted on said second shaft in close alinement with each other, clutch mechanism on said second shaft to be reciprocally engaged with either one of said loose pulleys, and an idler adjacent to said loose pulleys and mounted to revolve in a plane at an acute angle to said loose pulleys, combined with a single belt surrounding said driving-pulley and passed about said two loose pulleys and said idler, whereby one and the same belt is made to drive said loose pulleys continuously in opposite directions to thereby enable said second shaft to be rotated correspondingly in either direction by the movement of said clutch mechanism into engagement with the loose pulley revolving in said direction, substantially as described.

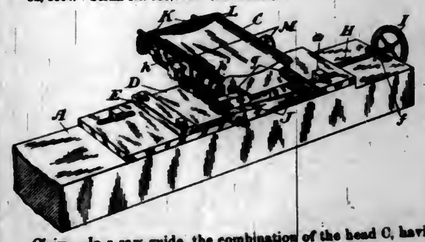
3. A power-reversing mechanism for a shaft, consisting of a main or driving shaft having a driving-pulley and driven continuously in one direction, a second shaft substantially parallel thereto, two pulleys of different diameters loosely mounted on said second shaft in close alinement with each other, clutch mechanism on said second shaft to be reciprocally engaged with either one of said loose pulleys, and an idler adjacent to said loose pulleys and mounted to revolve in a plane at an acute angle to said loose pulleys, combined with a single belt surrounding said driving-pulley and passed about said two loose pulleys and said idler, whereby one and the same belt is made to drive said loose pulleys continuously in opposite directions to thereby enable said second shaft to be rotated correspondingly in either direction but at different speeds by the movement of said clutch mechanism into engagement with the loose pulley revolving in said direction, substantially as described.

4. A power-reversing mechanism for a shaft, consisting of a main or driving shaft having a driving-pulley, a second shaft substantially parallel thereto, two pulleys loosely mounted on the said second shaft in close proximity to each other, and clutch mechanism on said second shaft to be reciprocally engaged with either one of said loose pulleys, combined with an idler-pulley mounted for adjustment to and from said loose pulleys, and a single belt passed around said idler and said driving-pulley and having its upper and lower portions passed around said loose pulleys respectively in the same direction, thereby to drive said two loose pulleys in opposite directions, substantially as described.

5. In a power-reversing mechanism for a shaft, two pulleys loosely mounted thereon in close proximity to each other, and clutch mechanism for alternate engagement thereof with said shaft, combined with an idler-carrier, an idler journaled therein, said carrier being mounted to rotate and move longitudinally in a transversely-pivoted clamp therefor, whereby said carrier may be adjusted radially about the axis of said shank by reason of the rotation thereof and toward said clamp by reason of the longitudinal movement of said carrier and around said clamp as a center by reason of the pivotal arrangement thereof, and a single belt passed around said idler and having its upper and lower portions passed around said loose pulleys respectively in the same direction, substantially as described.

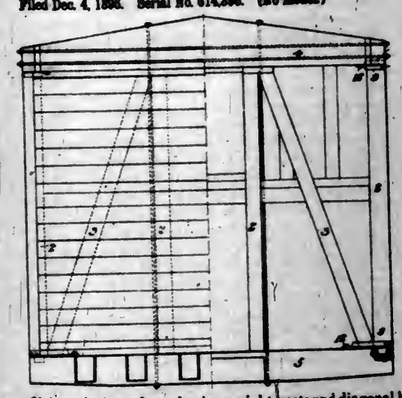
6. In a power-reversing mechanism, a shaft, two pulleys loosely mounted side by side on the said shaft close to each other, combined with clutch mechanism on the shaft at the outer sides of each of said two pulleys to alternately engage said respective pulleys with the shaft, a second shaft substantially parallel to said first-mentioned shaft, a pulley thereon, an idler adjacent said two contiguous pulleys, and a belt passed around the three pulleys and the idler to drive said two contiguous pulleys in opposite directions, substantially as described.

591,185. SAW-GUIDE. FRED CLIFF, Mar, Canada. Filed Jan. 11, 1897. Serial No. 618,870. (No model.)



Claim.—In a saw-guide, the combination of the head C, having recesses *h*, *h'*, and similarly-located bolt-holes formed therein; the guides J, provided with stems *g*; the strap L; and the adjusting-nuts K, substantially as and for the purpose specified.

591,186. FRAME FOR CARS. WALTER R. COFFIN, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Dec. 4, 1896. Serial No. 614,396. (No model.)

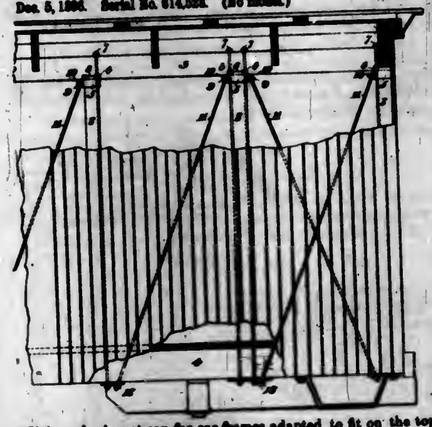


Claim.—1. A car-frame having upright posts and diagonal braces and a retaining-plate secured to the corner of the frame and having an outer surface against which the ends of the post and brace abut and having, at the outer sides only, lateral flanges which confine said post and brace.

2. A retaining-plate for car posts and braces of L shape, said plate having a flat outer surface and being provided at its outer margin only with flanges which extend laterally in opposite directions.

3. A retaining-plate for car posts and braces, of L shape flanged at the outer margin only, and a mortise hole at the middle.

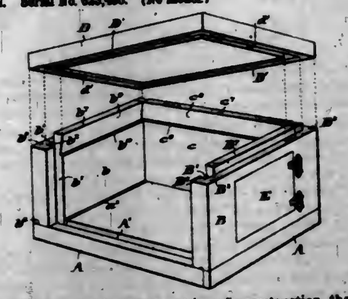
591,187. CAR-FRAME. WALTER R. COFFIN, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Dec. 5, 1896. Serial No. 614,532. (No model.)



Claim.—1. A post-cap for car-frames adapted to fit on the top of the post and having an end lug or socket for the passage of the brace-rod, said end lug or socket being open at its upper side to receive the nut.

2. A post-cap for car-frames adapted to fit on the top of the post, having an end lug or socket for the passage of the brace-rod, and having vertical sockets adapted to enter the side plate and to receive the tie-bolts.

591,188. SAFE. WILLIAM H. HOLLAR and ANTHONY KENNEDY, Philadelphia, Pa.; said Kennedy assignor to said Hollar. Filed Feb. 15, 1897. Serial No. 623,466. (No model.)

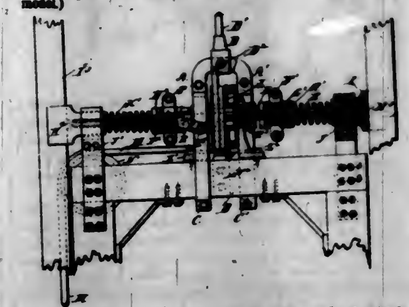


Claim.—1. As an improvement in safe construction, the combination of substantially integral and massive top and bottom, side and end elements of steel armor-plate; and interlocking flanges and grooves at the lines of junction of said elements, certain of the grooves being undercut and of greater width than the correspondingly-shaped flanges, and locking members within the safe in the spaces thus formed and firmly locking said top, bottom, ends and sides together against separation in any direction, the combined strength of the pairs of flanges being not substantially less than the total strength of the individual elements, whereby a practically integral structure is obtained, substantially as set forth.

2. As an improvement in safe construction, the combination of substantially integral and massive top and bottom, side and end elements of steel armor-plate; interlocking flanges and grooves at the lines of junction of said elements, certain of the grooves being undercut and of greater width than the correspondingly-shaped flanges whereby locking-spaces are formed within the safe, the combined strength of the pairs of flanges being not substantially less than the total strength of the elements themselves; locking members or strips in the said locking-spaces whereby lateral separation of adjacent flanges is prevented; and interior retaining devices adapted to hold said locking members in position, substantially as set forth.

3. The combination of the bottom slab, having side grooves of rectangular cross-section and undercut end grooves; the end slabs, having projecting bottom flanges conforming to the undercut faces of the end grooves, and having top flanges with internally overhanging faces, and side grooves of rhomboidal cross-section; the side slabs, having bottom flanges of rectangular cross-section, top flanges with inwardly overhanging faces and end flanges conforming to the trapezoidal grooves of the end slabs; the top slab having grooves of trapezoidal cross-section parallel to each edge, each of said slabs being substantially integral and massive; the locking members or strips in said grooves adapted to prevent lateral displacement of the interlocked flanges at the bottom of the end slabs and the top of the end and side slabs; and the interior retaining devices adapted to hold said locking members in position, substantially as set forth.

591,189. POSITIVE AUTOMATIC SAFETY-BRAKE. ALFRED F. C. LOEB, Pittsburg, Pa. Filed Dec. 11, 1896. Serial No. 615,261. (No model.)



Claim.—1. The combination with a cable-operated vehicle of a safety appliance consisting of a pair of brake-shoes attached to a shaft, a sheave loosely mounted on said shaft, a clutch for connecting said shaft and sheave and a cable adapted to rotate said sheave, and operate said brake-shoes, substantially as described.

2. The combination with a cable-operated vehicle of a safety appliance consisting of a revoluble shaft having right and left handed screws on its opposite ends, and brake-shoes screwed thereon, a loose sheave mounted on said shaft, a pair of clutches controlling the movement of said sheave, and operative devices controlled by the tension of the operating-cable of the elevator for controlling the movement of said clutches, substantially as described.

3. In a safety appliance for cable-operated vehicles the combination with a revoluble shaft, mounted on the vehicle and carrying brake-shoes on its opposite ends, of a loose sheave carried by said shaft, a spring-controlled clutch to connect said shaft and sheave, a cable to revolve the sheave and a series of links connecting the clutch and hanger of the elevator as and for the purpose set forth.

4. In a safety appliance for cable-operated vehicles, the combination with a revoluble shaft mounted on said vehicle, a loose sheave surrounding said shaft and continually rotated by means of a cable, during the movement of the vehicle, and means for connecting said sheave and shaft, of a pair of brake-shoes operated by the revolution of said shaft and sheave, substantially as described.

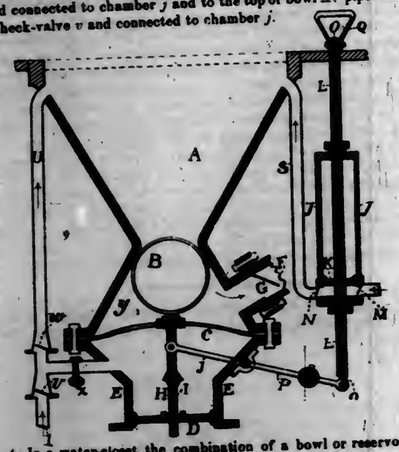
591,190. WATER-CLOSET FOR YACHTS OR VESSELS. THOMAS A. MACDONALD, Boston, Mass. Filed Aug. 26, 1896. Serial No. 603,662. (No model.)

Claim.—1. In a water-closet the combination of a bowl or reservoir a chamber below said bowl a flexible diaphragm in said chamber and a floating sphere or valve operating as a check-valve having its seat against or at the upper part of the said chamber and means for operating said diaphragm substantially as described.

2. In a water closet the combination of a bowl or reservoir having a chamber Y at its bottom, a loose floating sphere or valve B, operating as a check-valve inclosing an aperture between the bowl or reservoir A and chamber Y, a flexible diaphragm C provided with a device for operating it, and a discharge-opening F for said chamber Y provided with a check-valve G.

3. In a water-closet the combination of a bowl or reservoir A: chamber Y a check-valve having its seat against or at the upper part of said chamber Y flexible diaphragm C in said chamber provided

with means for operating it: discharge-opening F provided with check-valve G: casing E, E, forming chamber *j*: pipe U having check-valve *w* and connected to chamber *j* and to the top of bowl A: pipe *l* having check-valve *v* and connected to chamber *j*.

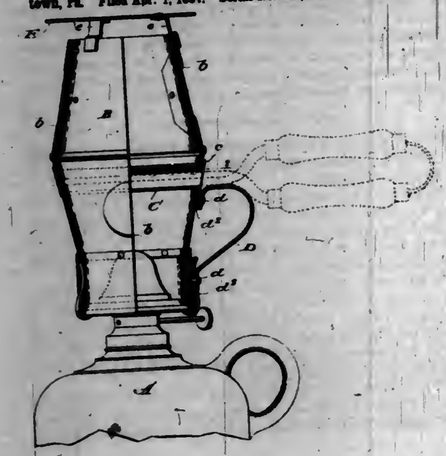


4. In a water-closet the combination of a bowl or reservoir a chamber below said bowl a loose floating sphere or valve operating as a check-valve having its seat against or at the upper part of said chamber: discharge-opening F having check-valve G: casing E, E: piston D within casing E, E, and provided with means for attaching and operating it.

5. In a water-closet the combination of bowl A: chamber Y below said bowl discharge-opening F provided with check-valve G floating check-valve B: flexible diaphragm C casing E, E, pipes U and *l* connected to said casing E, E, and provided with check-valves *w* and *v*, pipe U being also connected to the top of bowl A, piston D provided with means for attaching and operating it substantially as described.

6. In a water-closet the combination of bowl A chamber Y below said bowl: discharge-opening F for said chamber Y and provided with a check-valve G: floating check-valve B in said chamber Y, and flexible diaphragm C: lever P attached to said diaphragm C forming a pump for discharging the contents of bowl A walls or cylinder J, J, having suction and discharge pipes R and S, provided with check-valves M and N piston K: hollow piston-rod L L, attached to said piston K: handle Q having a semiannular projection on the inner side of same and attached to said hollow piston-rod L L forming a pump for flushing bowl A: rod O, O, passing through hollow piston-rod L, L, and having its lower end attached to lever P and having a slot *r* in its upper end, all being so arranged that one or both pumps may be operated at one and the same time by handle Q substantially as and for the purposes described.

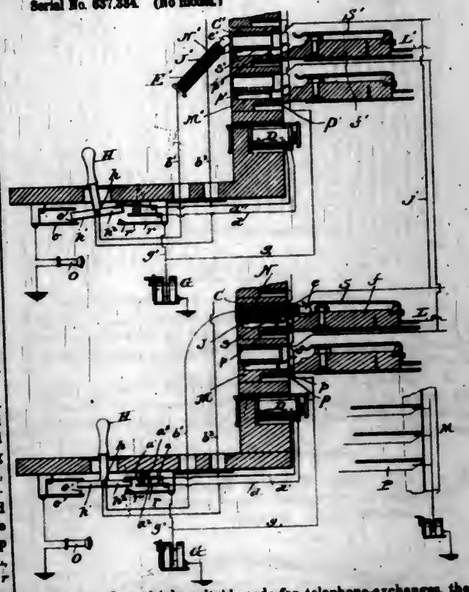
591,191. CURLING-IRON HEATER. SMITH D. MURPHY, Johnstown, Pa. Filed Apr. 1, 1897. Serial No. 630,296. (No model.)



Claim.—1. A heater for curling-irons comprising a casing made up of a pair of frustums which are connected to each other, the lower frustum having a cylindrical ring or band which depends therefrom, and adjacent to its upper or wider portion a tube, a handle attached to the lower frustum and ring, the upper end of the handle being positioned on a line with the lower portion of the tube, substantially as shown and for the purpose set forth.

2. In a curling-iron heater, the combination with a metallic chimney having its greatest diameter near its center, of a tube C, positioned centrally so as to intersect the larger portion of the chimney and a combined handle and rest for the curling-iron secured to the lower portion of the chimney and insulated therefrom, the upper portion of the handle being on a line with the lower portion of the tube, substantially as shown and for the purpose set forth.

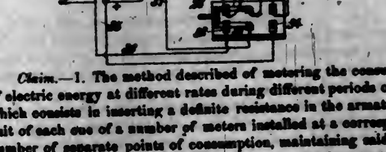
591,192. MULTIPLE SWITCHBOARD FOR TELEPHONE-EXCHANGES. WALTER S. HASS, Knoxville, Tenn. Filed May 20, 1897. Serial No. 637,334. (No model.)



Claim.—In multiple switchboards for telephone-exchanges, the combination of the subscriber's telephone in electrical connection with corresponding line-switches on several multiple boards of the exchange, each attached in a suitable manner to the frame of a corresponding spring-jack, a test-thimble to each of the spring-jacks, spring-switches, one end of each being in electrical engagement with the test-thimble of a corresponding spring-jack, and adapted to be operated by the insertion of a suitable switch-plug through the thimble of the spring-jack, means for electrically connecting the thimbles of corresponding spring-jacks on the several multiple boards of the exchange, contact-points in electrical connection with a suitable generator and adapted to electrically engage said spring-switches when same are depressed, switch-plugs insulated save at their extremities one of said switch-plugs being inserted through the test-thimble of a spring-jack in electrical connection with a corresponding spring-switch, from which it is insulated, into electrical engagement with one of said contact-points, a similar switch-plug on a different multiple board of the exchange, a switch-lever in electrical connection therewith, an arm on said switch-lever, adapted when the switch-lever is operated in one direction to engage a contact-point in electrical engagement with the operator's head-phone, and another arm on said switch-lever which when said switch-lever is operated in another direction breaks its connection with the operator's telephone, to engage a contact-point in the calling-circuit, actuated by said generator and adapted when established to ring up both subscribers whose lines are connected, substantially as described.

591,193. LEATHER WASHER. JOHN L. OSGOOD, Buffalo, N. Y. Filed Dec. 4, 1896. Serial No. 614,805. (No model.)

Claim.—1. A leather washer, consisting of a circular strip having its ends scarf-jointed to each other, and a metallic fastening device passed through the said ends and bent across the seams of the joint.



2. A leather washer, consisting of a circular strip, having its abutting ends lapped, and a wire fastening device passing through the said lapped ends, its protruding ends being bent across the seam of the joint, and then inwardly into the leather, as set forth.

3. A leather washer, consisting of a body portion or strip, having its ends lapped or half-dovetailed together, and a wire fastening device passed through both of the said lapped ends, the protruding end of the wire on the periphery or exterior edge of the body being bent longitudinally across the joint of the said ends, and the protruding end on the interior edge in the opposite longitudinal direction and also across the joint, as set forth.

591,194. METHOD OF AND APPARATUS FOR MULTIPLE RATE-METERING FOR ELECTRIC CURRENTS. BENJAMIN OXLEY, Washington, D. C. Filed Aug. 28, 1897. Serial No. 649,260. (No model.)

Claim.—1. The method described of metering the consumption of electric energy at different rates during different periods of time, which consists in inserting a definite resistance in the armature-circuit of each one of a number of meters installed at a corresponding number of separate points of consumption, maintaining said resistances in said circuits during the period of consumption at a reduced charge, and withdrawing said resistances during the period of consumption at full rate substantially as described.

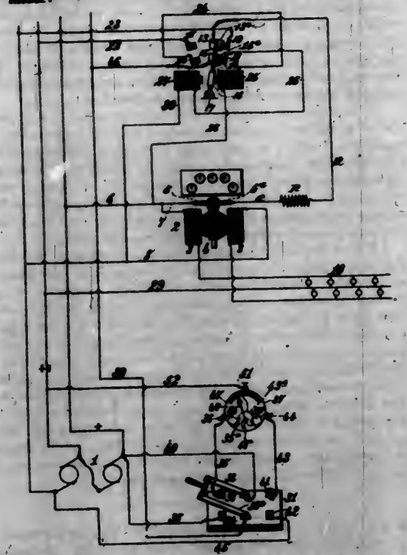
2. The method of metering the consumption of electric energy at different periods and rates which consists in inserting definite resistances in the armature-circuits of a series of meters during the hours of consumption at low or reduced rates, withdrawing said resistances during the hours of consumption at full rate or increased rate, and controlling the said insertion and withdrawal of these resistances from a single point, such as a central station, substantially as described.

3. In a three-wire system of electrical distribution, the combination with a number of meters, one at each point of consumption, of a corresponding number of definite resistances at said points, and means controlled from a single point for inserting said resistances in and withdrawing the same from the armature-circuits of the said meters, substantially as described.

4. In a system of electrical distribution, the combination of a number of meters at a corresponding number of points of consumption, of a control apparatus at each point, a circuit containing a resistance which can be thrown into and out of the armature-circuit of the meter at said point, and a control-switch at a single point to simultaneously insert and withdraw all said resistances from the armature-circuits of said meters, substantially as described.

5. In a system of electrical distribution the combination of a meter, of a control switch and circuit, an armature-circuit for the meter, a branch of said circuit containing a definite resistance, and a vibratory bar carrying a switch which is connected to a return-wire, to insert and withdraw said resistance in and from the armature-circuit of said meter, and electromagnets and circuits operated by the control-switch, substantially as described.

591,195. METHOD OF AND APPARATUS FOR MULTIPLE RATE-METERING FOR ELECTRIC CURRENTS. BENJAMIN OXLEY, Washington, D. C. Filed Aug. 23, 1897. Serial No. 649,270. (No model.)



Claim.—1. The method herein described of metering electric energy consumed during different periods of a day and at different rates, which consists in varying the speed of the registering mechanism at a number of consumers' stations by connecting the armatures of the meters between the two outside wires of a three-wire system, for one period and rate, and between the neutral and one of the outside wires for the other period and rate, substantially as described.

2. The method described for metering the consumption of electric energy on a three-wire system during two different periods of a day and at two different rates, which consists in connecting the armatures of the meters at the consumers' stations between the two outside wires for one period and rate, and between the neutral and one of the outside wires for the other period and rate, and controlling the connection from a single point, such as a central station, substantially as described.

3. In a three-wire system of electrical distribution, the combination with a number of single meters arranged at a corresponding number of consumers' premises, of a circuit making and breaking apparatus at each consumer's station, a plurality of circuits including the armatures of the meters, the wires of the system and the circuit making and breaking apparatus, and a single control-circuit to operate said apparatus and connect the armatures of the meters between the two outside wires of the system, for one period or rate, and between one of said wires and the neutral for the other period or rate, substantially as described.

4. In a three-wire system of electrical distribution, the combination with a number of meters upon the premises of a corresponding number of consumers, of a switch at a single point common to all said meters, a control-circuit opened and closed by said switch, a circuit making and breaking apparatus at each point where a meter is located controlled by the single switch, and a plurality of local circuits at each of said points so arranged that by one movement of said circuit making and breaking apparatus, the armatures of all the meters will be connected between the positive and negative sides of the system to meter the consumption during one period, and by a

second movement of said apparatus said armatures will be connected between the neutral wire and either the positive or negative wire of the system, to meter the consumption during the other period, and an indicator at the central station to show which rate is being metered, substantially as described.

5. In a three-wire system of electrical distribution, the combination of a number of meters installed upon the premises of a corresponding number of consumers, of a circuit making and breaking apparatus consisting of an armature pivoted between four clips, two on each side of a non-conducting bar, vibrated by said armature between said clips, having knife-blades which project upon both sides of said bar, a circuit consisting of a single wire with branches going to one of the knives on the armature-bar and including one of the clips, one of the electromagnets, and one side of the system, a second independent circuit also including both sides of the system, one of the clips, the other knife-blade, the other electromagnet, two separate circuits for the armature of the meter, one including the two outside wires of the system, and switch connections, the other circuit including the neutral and one outside wire and suitable switch connections, means arranged at a single point of control to operate the circuit making and breaking apparatus, and a control-circuit consisting of a single wire, substantially as described.

6. In a three-wire system of electrical distribution the combination of a number of meters, one at each point of consumption, of an apparatus arranged at each point, a control-circuit to operate said apparatus from a single point, a plurality of independent circuits at each point arranged to be closed through the two outside wires of the system, or between the neutral and one outside wire, a switch at a single point common to all said apparatus, and a control-circuit for the latter and said switch, substantially as described.

7. In a three-wire system of electrical distribution, the combination with a number of meters, one at each point of consumption, of an apparatus arranged at each of said points, a control-circuit, and a switch to actuate said apparatus from a single point, a circuit at each point of consumption including both outside wires, open connections on the apparatus, and a movable conductor to close said circuit, a second circuit at said point comprising one outside wire, the neutral open connections on the apparatus, and a movable conductor to close the circuit at said connections, a meter-armature common to both circuits, and an indicator coupled with the control-switch and having an index hand or pointer to show which rate is being metered, two electromagnets to operate the index in both directions, and independent circuits for said magnets closed and opened alternately by the switch, substantially as described.

591,196. NUT AND PIPE WRENCH. WILLIAM R. POMEROY, Lincoln, Nebr. Filed Feb. 27, 1897. Serial No. 625,268. (No model.)



Claim.—An improved wrench, comprising the handle 1 provided with the integral slotted head 2, and the inclined-face jaw 3 provided with the recess 19, in combination with the movable jaw 6, fulcrumed in the slotted head and provided with the curved serrated face 10, the pivoted pawl 14 having an inwardly-projecting lug 17, and the spiral spring 18, seated in the recess 19 in said jaw 3, substantially as shown and described.

591,197. WAGON RUNNING-GEAR. CHARLES H. ROGERS, Sayre, Pa. Filed Apr. 3, 1897. Serial No. 631,214. (No model.)

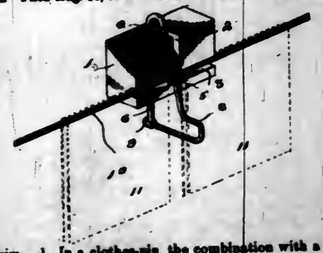


Claim.—1. In a running-gear, the combination with front and rear axles, of stationary perch-sections connected to said axles but separate from each other, sliding perch-sections movable on said stationary sections and pivoted together, and a brace pivoted to one sliding perch-section and pivoted to the other stationary perch-section.

2. In a wagon running-gear, the combination with front and rear axles, of perch-sections connected thereto and independent of each other, said sections each having a longitudinally-extending groove, auxiliary perch-sections slidable in the grooves and pivoted together, guides for holding the auxiliary sections in position, and a reach.

3. A wagon running-gear comprising the combination of front and rear axles, a reach pivoted to said axles, stationary perch-sections connected to the axles but separate from each other, auxiliary perch-sections slidable on said stationary sections and pivoted to each other, and a brace rod or bar pivoted to one auxiliary section and pivoted to the other stationary section.

591,198. CLOTHES-PIN. ANDREW J. SEXTON, Jonesborough, Tenn. Filed Aug. 10, 1896. Serial No. 602,320. (No model.)



Claim.—1. In a clothes-pin, the combination with a block, of a movable lock having a portion located outside the block and adapted to bind the clothes-line thereagainst, said outer portion of the lock being formed into a loop adapted to loosely receive the clothes-line when the lock is shifted.

2. In a clothes-pin, the combination with a block, of a movable lock having a portion slidable in the block and an outer portion adapted to bind the clothes-line against the block, said outer portion being formed into a loop adapted to receive the clothes-line when the lock is shifted.

3. In a clothes-pin, the combination with a block having a groove in its face, of a lock consisting of a portion slidable through the block, and a second portion slidable in the groove and adapted to hold the clothes-line against the block.

4. In a clothes-pin, the combination with a block provided with two grooves that intersect each other and also having an opening therethrough, of a lock made of a single piece of wire which has a portion slidable in the opening, another portion slidable in one of the grooves, and is provided with a loop.

591,199. KNITTING-MACHINE. WALTER STAFFORD, Little Falls, N. Y. Filed Feb. 18, 1897. Serial No. 624,045. (No model.)

Claim.—1. An attachment for knitting-machines consisting of a rotary pattern-controller set at an angle to the horizontal plane of the knitting-cylinder driven directly by said cylinder and provided with lifting-spurs adapted to engage under the needle-butts.

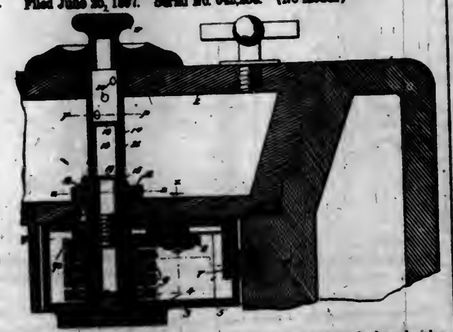
2. An attachment for knitting-machines consisting of a gear-wheel meshing with the tricks of the knitting-cylinder and a pattern-disk carried by the said gear-wheel and provided with integral lifting-spurs adapted to engage under the butts of the knitting-needles.

3. An attachment for knitting-machines consisting of gear-wheels meshing with the tricks of the knitting-cylinder and concentric pattern-disks carried by said gear-wheels and provided with lifting-spurs adapted to engage under the needle-butts.



4. An attachment for knitting-machines consisting of a bracket adapted to be secured to the bed-plate of the knitting-machine, an obliquely-arranged stud secured in said bracket, concentric sleeves or hubs fitted on said stud, gear-wheels at the upper ends of said sleeves, and pattern-disks at the lower ends of the same.

591,200. SAFE-LOCK. ANDREW STEVENSON, Ellensburg, Wash. Filed June 25, 1897. Serial No. 642,268. (No model.)



Claim.—1. In a safe-lock, the combination of a safe-door having a threaded transverse opening and a longitudinal groove in the wall of said opening at the inner end thereof, an exteriorly-threaded sleeve arranged in said opening and having a longitudinal groove at its inner end serving in conjunction with that in the wall of the opening to form a socket and also having its interior diameter abruptly decreased at an intermediate point in its length and the interior shoulder formed by such reduction, a key arranged in the aforesaid socket and adapted to prevent turning of the sleeve and a pin or shaft arranged and adapted to be turned in the sleeve and having a shoulder for engaging the shoulder of the sleeve and also having one or more inlaid pieces of hard metal between its shoulder and outer end; said pin or shaft being adapted to carry a tumbler-operating plate, substantially as specified.

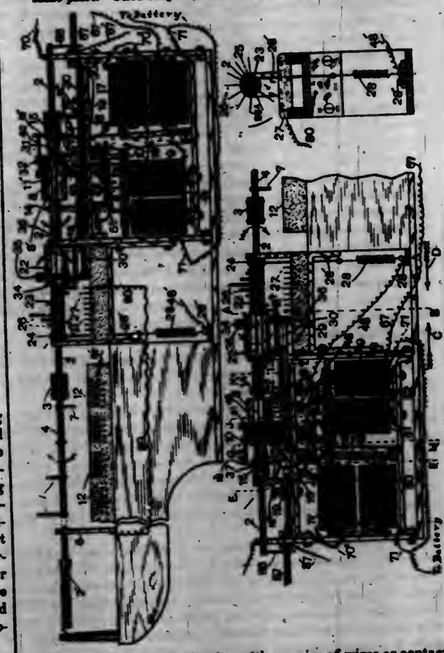
2. In a safe-lock, the combination of a safe-door, a lock-casing at the inner side thereof, a sleeve extending through and fixed in the safe-door and having its interior diameter abruptly decreased at an intermediate point in its length and the interior shoulder formed by such reduction, a rotatable pin or shaft arranged and adapted to be turned in said sleeve and extending into the casing and having a shoulder for engaging the shoulder of the sleeve and also having one or more inlaid pieces of hard metal between its shoulder and outer end, a locking-bolt, a tumbler-working plate on the pin or shaft, tumblers, mechanism controlled by the tumblers for holding the bolt in its locked position, a stop having a tendency to engage and hold the bolt against inward movement, and means for holding the stop out of engagement with the bolt so long as the tumblers are not moved out of their original position, substantially as specified.

3. In a safe-lock, the combination of a locking-bolt, suitable means for holding the bolt in its locked position, a stop having a tendency to engage and hold the bolt against movement in a direction to unlock the safe, and means for holding the stop out of engagement with the bolt so long as the means for holding the bolt in its locked position is not displaced or rendered inoperative, substantially as specified.

4. In a safe-lock, the combination of a safe-door, a lock-casing at the inner side thereof, a rotatable pin or shaft extending through the door and into the casing; a locking-bolt, a tumbler-working plate on the pin or shaft, tumblers, mechanism controlled by the tumblers for holding the bolt in its locked position, a stop having a tendency to engage and hold the bolt against inward movement, and means for holding the stop out of engagement with the bolt so long as the tumblers are not moved out of their original position, substantially as specified.

5. In a safe-lock, the combination of a safe-door, a lock-casing at the inner side thereof, a rotatable pin or shaft extending through the door and into the casing, a locking-bolt, a tumbler-operating plate on the pin or shaft, tumblers, mechanism controlled by the tumblers for holding the bolt in its locked position, a spring-pressed stop adapted to engage and hold the bolt against inward movement, and a rod connected to the stop and impinging against the portion of the casing coincident with the tumblers, whereby the stop will be normally held out of engagement with the bolt and when the tumblers and said portion of the casing are moved out of their original position will be released, substantially as specified.

591,201. ELECTRICAL EXCHANGE. ALMON B. STROWGER, FRANK A. LUNDQUIST, JOHN ERICKSON, and CHARLES J. ERICKSON, Chicago, Ill., assignors to the Strowger Automatic Telephone Exchange, same place. Filed July 17, 1895. Serial No. 556,220. (No model.)



Claim.—1. The combination with a series of wires or contacts of a series of rods or parts, each insulated from the other, and each carrying angularly-displaced contact arms or wipers, means for rotating the rods step by step to bring the arms thereof into engagement with the wires, and a selector for connecting a line-wire with either of the said rods, substantially as described.

2. The combination with a series of wires or contacts, of a series of rods or parts, each insulated from the other and each carrying contact arms or wipers, means for imparting to the rods a step-by-step longitudinal motion, and means for rotating the rods step by step to bring the arms thereof into engagement with the wires and a selector for connecting a line-wire with either of the said rods substantially as described.

3. The combination with a series of wires or contacts, connected respectively with the telephone-lines, of a series of rotating rods or parts, each insulated from the other, and each carrying angularly-displaced contact arms or wipers, connected with one of the telephone-lines, an electromagnet controlled from the subscriber's station, mechanism operated by the electromagnet, for rotating the rods step by step to bring the arms thence into contact with the wires, and a selector connecting a line-wire with either of the said rods substantially as described.

4. The combination with a series of wires or contacts, connected respectively with the telephone-lines, of a series of rotating rods or

parts, each insulated from the other, and each carrying contact arms, or wipers, connected with one of the telephone-lines, an electromagnet controlled from the subscriber's station, mechanism operated thereby for moving the rods longitudinally step by step, a second electromagnet controlled from the subscriber's station, mechanism operated thereby for rotating the rods step by step to bring the arm into contact with the wires, and a selector connecting a line-wire with either of the said rods substantially as described.

5. The combination with a series of wires or contacts, of a series of rotating rods or parts each insulated from the other, and each carrying angularly displaced contact arms or wipers adapted to make contact with the wires, a ratchet-wheel mounted to rotate with the rods, an electromagnet, a pawl operated by the electromagnet adapted to engage the ratchet-wheel to rotate the rods step by step, and a selector connecting a line-wire with either of said rods substantially as described.

6. The combination with a series of wires or contacts, of a series of rotating rods or parts, each insulated from the other and each carrying angularly-displaced contact arms or wipers adapted to make contact with the wires, a rack mounted to move with the rods, an electromagnet, a pawl operated thereby and adapted to engage the rack to move the rods longitudinally step by step, a ratchet-wheel mounted to rotate with the rods, an electromagnet, a pawl operated thereby and adapted to engage the ratchet-wheel to rotate the rods step by step, and a selector connecting a line-wire and either of said parts substantially as described.

7. The combination with a series of rods, each insulated from the other, and each rod carrying contact-arms, of an electromagnetic device for moving the rods longitudinally step by step, an electromagnetic device for rotating the rods step by step, a selector connecting a line-wire with either of said rods, and mechanism controlled by the electromagnetic devices for releasing the rods and returning the same to their original position, substantially as described.

8. The combination with a series of rotating rods each insulated from the other, a number of series of wires corresponding to said rods, a selector for connecting a line-wire with either of said rods, and each carrying contact-points, of a ratchet-wheel mounted on the driving-shaft thereof, an electromagnet and a pawl controlled thereby for rotating said ratchet-wheel, a detent or dog engaging the ratchet-wheel to prevent backward rotation, a rack provided upon the driving-shaft, an electromagnet and a pawl controlled thereby for moving the rack longitudinally, a detent or dog engaging the rack to prevent backward movement of the same, and means controlled by electromagnet for removing the detent from engagement with the ratchet wheel and rack, and returning the rods to their original position, substantially as described

9. The combination, with a series of contact arms or wipers, of a selector, a cut-out for the selector, two terminals insulated from each other, one of which is in electrical connection with the wipers and the other one in connection with the cut-out, a contact movable between said terminals and normally in engagement with one of them, two magnets, and means for moving the contact from one terminal to the other when one of the magnets is energized, substantially as set forth.

10. The combination, with a series of contact arms or wipers, of a selector, a cut-out for the selector, two terminals insulated from each other, one of which is in the talking-circuit and the other one is in the operating-circuit, one of the terminals being electrically connected with the wipers and the other one in electrical connection with the cut-out, a contact movable between said terminals and normally in engagement with one of them, and means for moving the contact from one terminal to the other, substantially as set forth.

11. The combination, in an automatic telephone-exchange provided with an operating and a talking circuit, of two terminals one of which is in the talking-circuit and the other one is in the operating-circuit, of a contact movable between the terminals, a lever, one end of which is adapted to engage with the contact, and two magnets, the armature of one of which is provided with means for moving the lever whenever said magnet is energized, substantially as set forth.

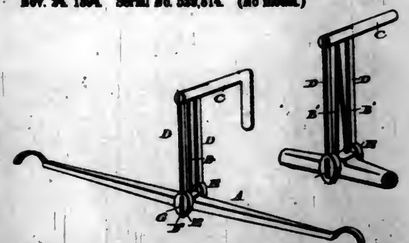
12. In an automatic telephone-exchange, the combination with a rotary shaft, of an elongated ratchet-wheel secured thereon, one end of the ratchet-wheel having a reduced portion, a pin projecting radially from said reduced portion, a lever, a magnet for operating said lever, and a pawl on the lever for initially engaging with said pin and rotating the shaft one step, substantially as set forth.

13. The combination in an automatic telephone-exchange provided with a plurality of electromagnets, of a series of substations in circuit with the exchange, yielding contact-points in each of the electromagnet-circuits, a movable holder for the receiver permanently connected with one of the wires of the electromagnet-circuits, a contact upon the arm, a circuit-breaker in front of the contact-point, said parts being so arranged that when the receiver is placed in position the holder will be moved and the circuit-breaker and the contact-points will be passed between the yielding contact-points, substantially as set forth.

14. The combination in an automatic telephone-exchange provided with a plurality of electromagnets, of a series of substations in circuit with the exchange, a movable holder for the receiver, in permanent contact with one of the wires of the electromagnet-circuits, pairs of yielding contact-points in a line with the path of the holder, a contact-point upon the holder adapted to be passed between each pair of yielding contact-points, the distance between said pairs of contact-points being such that the contact-points upon the holder may be in engagement with one point of each pair of points at the same time, and a circuit-breaker in front of said contact-points upon the arm, substantially as set forth.

15. The combination in an automatic telephone-exchange, provided with a plurality of electromagnets, of a series of substations, a pair of yielding contact-points in the circuit of each of the electromagnets, a movable holder for the receiver, a plate upon the holder, and a piece of insulating material upon the plate, one end of which projects in front of the plate and is adapted to be passed between the yielding contact-points, and the plate is adapted to engage consecutively and simultaneously with one of the points of each of the pairs of yielding points, substantially as set forth.

591,202. SCALE. JOSEPH R. WITHEE, Philadelphia, Pa. Filed Nov. 24, 1894. Serial No. 529,814. (No model.)

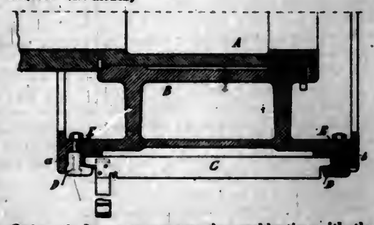


Claim.—1. A scale-beam having gudgeons thereon, a support having depending bars on opposite sides of said beam and a flexible piece connecting said beam and support.

2. In a scale, a support, bars depending from said support and having eyes therein, a scale-beam having gudgeons in said eyes and a flexible piece connecting said beam with said support.

3. A scale-standard having depending bars with eyes at their lower ends, a scale-beam with gudgeons on opposite sides of the center thereof, and a flexible piece connecting said standard and beam and carrying the latter, said bars being on opposite sides of said beam forming guides therefor.

591,208. COMMUTATOR FOR DYNAMO-ELECTRIC MACHINES. JAMES J. WOOD, Fort Wayne, Ind. Filed Apr. 29, 1897. Serial No. 634,355. (No model.)

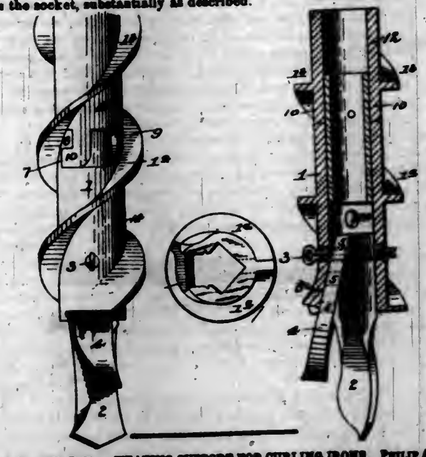


Claim.—1. In a commutator, the combination with the spider and segments the latter having substantially parallel clamping portions at opposite ends, of two segmental clamping-rings overhanging the opposite clamping ends of the segments, and radial screws or bolts for drawing the segmental clamping-rings against the segment ends.

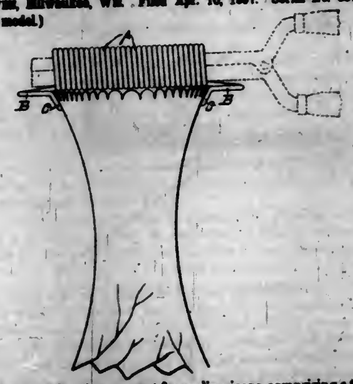
2. In a commutator, the combination with the spider and segments of a segmental clamping-ring overhanging the segment ends, and radial screws or bolts engaging the spider and the segments of the clamping-ring for drawing the latter against the segment ends, and a removable flange fastened to the outer end of the spider against said segmental ring for taking the end thrust.

591,204. COAL OR ROCK DRILL. GEORGE H. BETTENHEIMER, Plymouth, Pa. Filed May 18, 1897. Serial No. 637,003. (No model.)

Claim.—In a coal or rock drill, the combination with the tube or socket, formed with a spiral thread on its exterior, the stationary bit, the adjustable bit provided with a series of holes, the pin passing through said socket and bits, and the lugs at the upper end of said socket, of the tube formed with lugs engaging with the lugs of the socket, and the spiral thread forming a continuation of the thread on the socket, substantially as described.



591,205. HEATING-SUPPORT FOR CURLING-IRONS. PHILIP A. BOWEN, Milwaukee, Wis. Filed Apr. 10, 1897. Serial No. 631,897. (No model.)



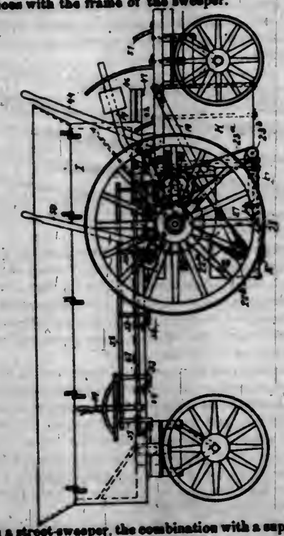
Claim.—A heating-support for curling-irons, comprising a tubular holder formed of a single piece of spirally-coiled wire, adapted to receive the curling-iron, and having laterally-projecting loops adapted to serve as handles, and downward projections adapted to engage the top of a lamp-chimney, substantially for the purpose set forth.

591,206. STREET-SWEEPER. ELLSWORTH BRESTLEBEN, Dayton, Ohio. Filed Jan. 23, 1897. Serial No. 621,060. (No model.)

Claim.—1. In a street-sweeper, the combination with a carrying-frame, of a rotary brush, adjustable drag-bars connecting said brush to the frame, a carrier parallel with said brush and adapted to receive dirt directly therefrom, a casing inclosing said brush and carrier, and mounted on the axle of said brush with its forward end flexibly connected to the carrying-frame and a dirt-receptacle on one side of the frame below and adjacent to the discharge end of the carrier, substantially as shown and described.

2. In a street-sweeper, the combination with the frame of a rotary brush; a carrier mounted parallel thereto; movable guide-plates interposed in an inclined position between said brush and carrier, and a casing mounted on the axle of said brush, and inclosing said carrier, guide-plates and brush; and a flexible connection between the front portion of said casing and the sweeper-frame.

3. In a street-sweeper, the combination with a sweeper-frame, a rotary brush, and drag-bars connecting said brush with the sweeper-frame, of a carrier having flexible connections throughout its length, and mounted parallel and adjacent to said brush, two series of overlapping plates forming inclined guides to direct the dirt onto said carrier, the said plates being loosely mounted between the carrier and brush, and a casing mounted on the axle of the brush, and having flexible connections with the frame of the sweeper.



4. In a street-sweeper, the combination with a supporting-frame, and a rotary brush, of a carrier mounted parallel to said brush, and adapted to deliver dirt at one side of the machine, a receptacle on a side of the machine to receive said dirt, a cleaning-brush mounted below and parallel with the delivery end of said carrier, and an inclosing case mounted on the axle of the brush, and having a flexible connection with the frame of the machine, the said case inclosing the brush, carrier, and guide-plates.

5. In a street-sweeper, the combination with a supporting-frame of a rotary brush; a carrier running parallel with said brush, the said brush and carrier driven simultaneously from the main axle of the machine; a dust-proof casing mounted upon the axle of the brush; adjustable drag-bars connecting the brush to the frame of the machine; flexible connections between said drag-bars, the front of the casing, and the frame of the machine; and a series of inclined guide-plates interposed between the brush and carrier to direct the dirt to the latter.

6. In a street-sweeper, the combination with the frame of the sweeper, of a rotary brush extending across the said frame; a series of movable plates mounted parallel with said brush and adapted to yield in passing over obstructions, and to return to their normal positions after said obstruction is passed, a carrier mounted parallel with said plates, a casing inclosing said brush, plates and carrier, and having flexible connections with the frame of the sweeper, a dirt-receptacle on a side of the machine adjacent to the delivery end of the carrier, and means on the frame of the sweeper adjacent to said dirt-receptacle for supporting a wagon-bed in juxtaposition to said dirt-receptacle.

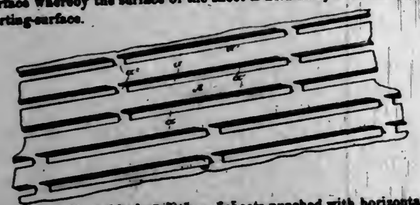
7. In a street-sweeper, a carrying-frame having a dirt-receptacle on one side, and means for removably supporting a wagon-bed adjacent to said dirt-receptacle, in combination with a wagon-bed having a longitudinal channel or track on its lower side; rollers adapted to elevate said wagon-bed from the frame of the sweeper; one of said rollers adapted to fit in the said track, and the other of said rollers being in advance of the last-named roller, and means for dumping said wagon-bed, as herein shown and described.

8. In a street-sweeper, the combination with the sweeper-frame having a dirt-receptacle located on one side, and means for supporting an end of a wagon-bed adjacent to said dirt-receptacle, in combination with a dirt-carrier extending across the machine, and adapted to deliver dirt into said receptacle; a brush extending across the machine parallel with said carrier; a series of movably-mounted guide-plates between said brush and carrier, and an inclosing case flexibly mounted on the axle of the brush, and the frame of the machine.

591,207. LATHING AND FURRING FOR BUILDINGS. MARTIN GARDNER, San Francisco, Cal. Filed Apr. 30, 1897. Serial No. 634,360. (No model.)

Claim.—1. Metallic lathing consisting of sheets having parallel slots or channels punched therethrough in series with inwardly-turned

lips or shelves formed by folding the punched portion inwardly about its connected side, vertical connecting-strips between the ends of said slots or channels and V-shaped folds projecting inwardly from the face of the lath adapted to be nailed or secured to the supporting-surface whereby the surface of the sheet is held away from the supporting-surface.



2. Metallic lathing-plate consisting of sheets punched with horizontal parallel strips with inwardly-folded ledges formed therewith, vertical V-shaped channels bent inwardly from the face of the sheet, said channels resting upon the supporting-wall and adapted to be nailed thereto whereby the sheets are supported, and slits made in the edges of the sheets whereby the adjacent sheets above and below are connected together by fitting into said slits.

3. A metallic lathing consisting of sheets having horizontal slots or channels punched therethrough, with inwardly-turned ribs or ledges formed therewith, vertical strips intervening between the ends of the channels, and V-shaped inwardly-turned angular channels serving to support the metallic surface away from the wall to which they are nailed, and the ribs of each sheet breaking joints or alternating with those next adjacent above and below and slits made in the edges of the sheets so that the edges of the adjacent sheets above and below may slip into and engage said slits.

4. Metallic lathing consisting of sheets punched with longitudinal slots or channels with interned ledges formed therewith and intermediate connecting strips or bars between the ends of the channels, channel-iron beams, the width of which is equal to the space desired between sheets secured upon opposite sides to form partitions, said sheets overlapping at their edges and being riveted to the parallel flanges of the channel-iron strips and an internal brace or stiffener for the sheets.

5. Metallic lathing consisting of sheets punched with longitudinal slots or channels with interned ledges formed therewith and intermediate connecting strips or bars between the ends of the channels, channel-iron beams, the width of which is equal to the space desired between sheets secured upon opposite sides to form partitions, said sheets being riveted to the parallel flanges of the channel-iron strips, and intermediate horizontally-disposed channel-iron bridge-bars extending between the vertical channel-iron centers.

6. Metallic lathing consisting of sheets having parallel grooves or channels with interned flanges and intermediate connecting and supporting strips, channel-iron strips to which the sheets are riveted, said channel-irons having cut-away end portions whereby they are supported upon the flanges of horizontally-laid I-beams, the metallic sheets projecting at their junction so as to overlap and form a continuous surface, and transverse braces between the channel-irons.

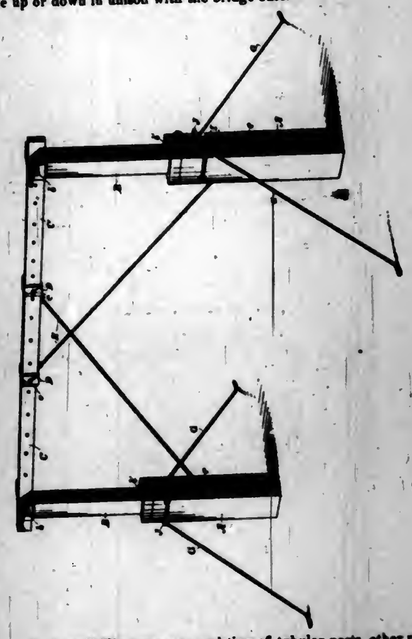
7. Metallic lathing consisting of sheets having parallel slots or channels cut therethrough with interned ledges and intermediate transverse connecting-strips between the ends of the slots, channel-iron strips bent or curved to fit spaces between floor-beams and having intermediate ribs at intervals, said lathing adapted to receive a filling of plaster or concrete to form a floor-surface upon the upper side and a plastered or ceiling surface below.

8. Metallic lathing consisting of sheets having a series of parallel slots or channels punched therethrough with the punched portions turned inwardly about the single connected edges to form ledges, intermediate vertical continuous strips between the ends of the channels upon the lines of which the sheets may be bent to fit internal or external angles, said sheets having supplemental longitudinal slots or channels at intervals intermediate with the main slots.

591,208. ADJUSTABLE SCAFFOLD. MARTIN CARRICK, San Francisco, Cal. Filed June 28, 1897. Serial No. 642,572. (No model.)

Claim.—1. A scaffolding-support consisting of vertical hollow posts with other posts telescoping therein, holes made in each of the posts so as to coincide with each other, bolts by which they are united together, transverse bridge-bars extending between the posts and brace-rods attached to the posts extending diagonally outward and downward in opposite directions, said rods crossing each other and adapted to rest upon the floor or surface and retain the posts in an upright position and means for preventing the braces closing toward each other.

2. A scaffolding-support consisting of vertical hollow posts, other posts adapted to telescope within them, extending upwardly therefrom, each of the posts having the holes adapted to coincide with each other, and bolts or pins by which they may be united at any degree of extension, bridge-bars fitting in slots in the upper ends of the telescoping posts, said bars crossing each other between the posts having guiding-slides fixed to the end of each within which the opposite one is slidable, bolts by which said bridge-bars are secured to the tops of the posts and other bolts by which they are secured in their overlapping adjustment, and brace-rods having the upper ends of each secured to the ends of one of the bridge-bars, said brace-rods crossing each other and having the lower ends formed with eyes and fitted to the same bolts which adjustably unite the telescopic posts whereby the brace-rods are secured to the vertical columns and movable up or down in unison with the bridge-bars.

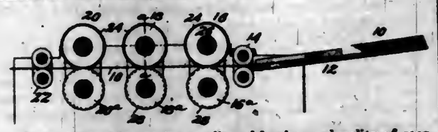


3. A scaffolding-support consisting of tubular posts, other posts slidable therein with holes adapted to coincide in each and bolts by which the two are secured together to produce any desired height, overlapping bridge-bars extending across between the upper ends of the slidable sections, fitting in slots made in said ends, sliding yokes fixed to each of the ends of the bridge-bars and inclosing the opposite bar whereby said bars are slidable within said yokes, pins passing through the yokes and bars by which the bars are held at any point of adjustment to make a wide or narrow scaffolding, brace-rods, each having the upper ends connected to one of the bridge-bars and the lower ends secured to the posts A by the bolts which secure the upper and lower sections of the posts together, whereby a horizontal or vertical adjustment of the scaffolding-support may be effected without alteration in the position of the braces.

4. In a scaffolding-support consisting of posts formed in vertically-slidable adjustable sections, transverse bridge-pieces fixed to the tops of the posts and correspondingly adjustable to allow the posts to be brought together or separated, brace-rods extending from the bridge-posts crossing each other having the lower ends fixed to the supporting-posts so that vertical or horizontal adjustments are made without altering the brace-rods, other diagonal brace-rods fixed to the lower post-sections crossing each other transversely having feet adapted to rest upon the floor at a distance from each side of the bases of the posts, yokes fixed to the side of the post inclosing said brace-rods to prevent their spreading outwardly, and pins entering the posts beneath the points of the crossing of the brace-rods whereby they are locked together.

591,209. APPARATUS FOR SCORING, CUTTING, AND PRINTING CARDBOARD BOXES. DWIGHT B. CLARK, Boston, Mass., assignor to William H. Forbes, same place. Filed July 30, 1896. Serial No. 601,053. (No model.)

Claim.—1. A machine for scoring cardboard having a plurality of scoring-rules of similar outline, a bed on which the cardboard rests, and means for actuating the different rules successively to operate on the same line of the cardboard, the succeeding rule compressing the same scoring-line to a greater extent than the preceding rule, in combination substantially as described.



2. A machine for scoring cardboard having a plurality of scoring-rules and a plurality of corresponding intaglio depressions, means for actuating the rules to operate in succession on the same portion of cardboard and compress it to successively greater extent into the successive depressions, and means for moving the cardboard from one operative position to another, all combined substantially as described.

3. In a machine for scoring cardboard, a plurality of blunt scoring-rules of identical outline but progressively greater projection, a similar number of surfaces having intaglio depressions corresponding to the outline of the scoring-rules, means for passing the cardboard from one scoring couple to the succeeding scoring couple, and means for simultaneously compressing scores of like outline, but of progressive compression on the cardboard, in combination substantially as described.

4. In a machine for scoring cardboard, a plurality of cylinders having scoring-rules of like outline but of successively greater projection relatively to the opposing cylinder, a similar number of cylinders coupled in surface movement with the rule-cylinders, and means for driving the cylinders at similar surface speed so that the same line of cardboard shall be acted on successively by the rules and compressed to successively greater extent, in combination substantially as described.

5. In a machine for scoring cardboard, a plurality of pairs of cylinders coupled together to rotate with equal surface speed, one cylinder of each pair having a blunt scoring-rule projecting therefrom, the succeeding cylinder having a rule of similar outline but greater projection, the cylinders coupled to said rule-cylinders having intaglio depressions corresponding in outline to the rules, and means for driving all the cylinders so that the rules on succeeding cylinders shall operate on the same line of cardboard as the preceding rule, all combined substantially as described.

6. An organized machine for scoring and printing cardboard, having a plurality of blunt scoring-rules of similar outline but of successively greater projection arranged to successively compress the same lines of cardboard as the sheet moves from one to the other, and a printing couple having form and impression surface actuated at similar speed as the scores, to print on the cardboard as the scoring progresses, all combined substantially as described.

7. In an organized machine for scoring, printing, and cutting cardboard, the plurality of cylinders driven at similar surface speed and having scoring-rules of like outline but successively-increasing projection to operate on the same surface of the cardboard, a printing and an impression cylinder moving at the same surface speed and connected to the scoring-cylinders, and coupled cutting-cylinders driven at like surface speed, all arranged to operate on a continuous strip of cardboard, substantially as described.

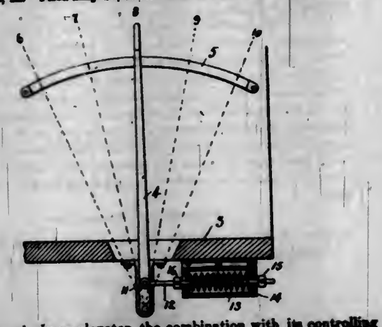
8. In a scoring-machine, a scoring-cylinder consisting of blunt rules on edge inclosed and supported by the cylinder-body and extending beyond the general parallel surface of said body to the extent only that the cardboard is entered or displaced by the rules, with inclined annular spaces or depressions in the cylinder-face close to each projection; in combination with an intaglio cylinder placed oppositely in relation to the scoring-cylinder and registering therewith, but removed therefrom by nearly the thickness of the cardboard to be scored; substantially as described.

9. In a scoring-machine two or more scoring-cylinders in sequence having rules in relief upon the surfaces increasing in elevation from the first cylinder to the last; in combination with and geared to a large intaglio cylinder provided with grooves to receive the projecting rules upon the scoring-cylinder in register, with means for feeding the cardboard to be scored to and under the scoring-cylinders, and with means for driving all the cylinders; substantially as described.

10. A box-blank machine consisting of the following elements: two or more scoring-cylinders acting in succession; in combination and in operative proximity with an intaglio cylinder and in register with the depressions in the same; with a cutting-cylinder also in operative relation and in register with the intaglio cylinder; with bearers on the latter and on the cutting-cylinder to keep the cutters positively from actual contact with the metallic surface cut against; and with means for conveying the cardboard to and from the machine; substantially as described.

11. A box-blank machine consisting of the following elements: a form-cylinder carrying printing matter in relief, in operative relation with a bare intaglio cylinder, provided with bearers and in combination with the same; with two or more scoring-cylinders placed in operative proximity to the intaglio cylinder and in register therewith; with a cutting-cylinder having bearers and registering with the intaglio cylinder, with means for inking the relief matter on the form-cylinder; and with means for conveying the cardboard to and from the machine; substantially as described.

591,210. ELEVATOR SAFETY DEVICE. RICHARD T. CRANE, Chicago, Ill. Filed May 26, 1897. Serial No. 638,214. (No model.)



Claim.—1. In an elevator, the combination with its controlling mechanism of a yielding-resistance device and means whereby said resistance device is adapted to oppose movement of such controlling mechanism beyond a position of moderate speed and whereby free movement of the controlling mechanism is permitted up to this point, substantially as described.

2. In an elevator, the combination with its controlling mechanism of a spring and means whereby said spring is adapted to offer yielding resistance to the movement of such controlling mechanism beyond a position of moderate speed, and whereby free movement of the controlling mechanism is permitted up to this point, substantially as described.

3. In an elevator, the combination with its controlling-lever, of a spring and means whereby said spring is adapted to offer yielding resistance to movement of such controlling-lever beyond the position of moderate speed, and whereby free movement of the controlling-lever is permitted up to this point, substantially as described.

4. In an elevator, the combination of a controlling-lever 4, a case 14, a spring 13 within said case, and a rod attached at one end to said lever and passing through said spring, said rod also being provided with stops, said stops being at a distance respectively from the ends of the spring when the lever is in stop position whereby said spring is adapted to offer yielding resistance to movement of such controlling-lever beyond a position of moderate speed and whereby free movement of the controlling-lever is permitted up to this point, substantially as described.

591,211. KITE. MAX A. DARRIER, West Berkeley, Cal. Filed Jan. 15, 1897. Serial No. 619,283. (No model.)



Claim.—1. A kite consisting of the parallel triangularly-disposed side rods or frames, the diagonal uniting-rods connecting them at their front and rear ends so as to form an open triangular frame with its broad base presented upwardly, and a covering fixed to the exterior rods of said frame to form surfaces for the action of the air.

2. A kite consisting of rods united together at the angles to form obtuse triangles, with their bases presented upwardly, parallel rods

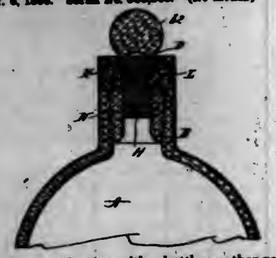
extending through said angles with uniting-clamps whereby they are detachably secured together, a covering material extending between the parallel longitudinal rods and having the edges united to the triangularly-disposed rods as described.

3. A kite consisting of rods united to form an obtuse triangle with its base presented upwardly, parallel rods passing through the angles of said triangles longitudinally, covering material extending between the longitudinal rods in sections approximately at the front and rear ends thereof, leaving an intermediate open space between the covered end sections.

4. A kite consisting of frames or rods united to form obtuse triangles, longitudinal parallel rods united by clamps to said triangles extending from end to end of the kite, covering-sections uniting the longitudinal rods in planes parallel with the triangularly-united rods, and exterior wings fixed to the rear lowermost end of the kite and adjustable thereon.

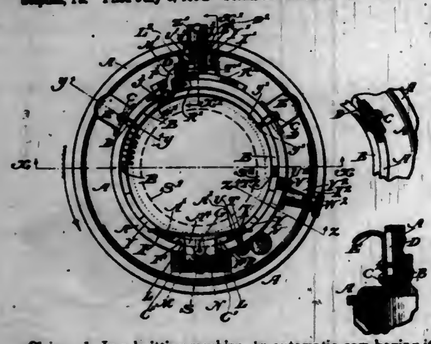
5. A kite consisting of rods united to form obtuse triangles with longitudinal parallel connecting-rods passing through the angles thereof and covering material extending between the longitudinal rods in sections at the top and bottom of the kite, a suspending-loop connecting with the rod forming the apex line in front of the triangle, for the attachment of the holding-cord, a shaft journaled upon the lowermost of the longitudinal rods, projecting rearwardly therefrom, a propeller fixed to the rear end of the shaft whereby it is rotated, a crank fixed upon the shaft and a mechanism mounted intermediate between the covering-sections and actuated by the rotation of the shaft.

591,212. BOTTLE. RICHMOND S. DICKINSON, Kissimmee, Fla. Filed Apr. 6, 1896. Serial No. 586,263. (No model.)



Claim.—The combination with a bottle or other vessel provided with a neck B and having formed in the inner walls of the upper portion thereof an annular groove or enlargement L of a tabular plug N which is opened at the bottom and closed at the top and provided with a spherical body b^2 between which and the plug is a deep annular groove D the upper portion of said plug N being cut away to correspond with the enlargement L and the cork in the neck of the bottle inside of the plug and cement to secure the plug in the neck of the bottle.

591,218. CIRCULAR-KNITTING MACHINE. JOHN G. REILY, Philadelphia, Pa. Filed July 6, 1894. Serial No. 516,733. (No model.)



Claim.—1. In a knitting-machine, an automatic cam having its upper face terminating in a central apex, and provided with shoulders at its opposite ends, the under sides of said cam being curved and meeting at a point under said apex, in combination with an arm pivotally supported, connecting devices common to said arm and cam, whereby the latter is capable of both a rocking and lateral movement, a latch pivoted to said arm and locking devices for said latch.

2. In a knitting-machine, an automatic cam having its upper face terminating in a central apex, and provided with shoulders at its opposite ends, the under sides of said cam being curved and meeting at a point under said apex, in combination with an arm P pivotally supported, connecting devices common to said arm and cam, whereby the latter is capable of both a rocking and lateral movement, a latch pivoted to said arm and having a recess therein, and a pin adapted to be engaged by said recess.

3. In a knitting-machine, the automatic cam F, having shoulders at its opposite ends, its upper face terminating in a central apex, and its under face curved as described, lugs attached to said cam, and an arm P pivotally supported and having a deflected portion attached to said lugs, in combination with a latch R attached to said arm, and means for locking said latch.

4. In a knitting-machine, the automatic cam F having shoulders at its opposite ends, its upper face terminating in a central apex, and its under face provided with a plurality of concave curves which meet at a point under said apex, lugs attached to the back of said cam, an arm P pivotally supported and having a deflected portion to which said lugs are pivotally attached, a latch R attached to said cam, and means for locking said latch in combination with the stationary cams X having the curved faces Z, and the inclined faces B' and C^2, said cams X having the shoulders A' which serve to limit the movement of said cam F.

5. In a circular-knitting machine, the combination of a needle-cylinder having a projection, and a cam-cylinder having a stop, the latter being provided with devices for moving it into and out of line with said projection.

6. In a circular-knitting machine, a device for depressing and throwing into operation one by one, at the end of each course, the needles which are inoperative, the same consisting of a head rotatably mounted, and having a V-shaped slot therein, in combination with a finger pivotally mounted in said slot.

7. In a circular-knitting machine, the finger F' having the shoulders G' and H', and back J', the above device being pivotally secured above the heels of the needles, in combination with the guide R^2 suitably supported, against which said back is adapted to contact.

8. In a circular-knitting machine, the head T', a rotatable shaft therefor, the finger F' pivotally mounted in said head and having the shoulders G' and H', and back J', the above device being pivotally secured above the heels of the needles, and a spring-pressed plunger adjacent to said shaft, in combination with a guide R^2 suitably supported, against which said back is adapted to contact.

9. The herein-described needle-depressing device, consisting of the arm M', pivotally secured in the V-shaped recess S' of the head T', the shaft U' having its under side constructed as shown, and the spring-pressed plunger thereunder, said parts being combined.

10. In a knitting-machine, a bracket X', a block upon which said bracket is pivotally mounted, said block being provided with recesses C^2, D^2 and a spring-pressed pin J^2 supported within said bracket, the extremity of said pin being adapted to engage said recesses, in combination with a spring-pressed plunger supported near the upper portion of said bracket, a shaft U' rotatably mounted in said bracket, and having a portion of its periphery squared and in contact with said plunger, a head T attached to said shaft and provided with a recess therein, an arm pivotally mounted in said recess, and a finger rotatably mounted in said arm.

11. The stop V^2 having attached thereto a spindle the hollow boss Y^2 having the inclined face Z^2 and spring B^2, the button W^2 attached to said spindle, and the pin A^2 attached to the inner face of said button, in combination with a needle-cylinder having a projection thereon, which is adapted to abut against said stop at proper intervals.

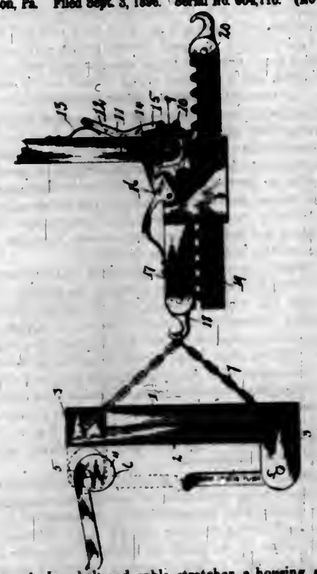
12. In a knitting-machine, a head T' rotatably mounted, means for accelerating the movement of said head in either direction from its central position, a V-shaped recess in said head, an arm provided with a tongue pivotally mounted in said recess, a stem L' rotatably mounted in said arm, and a finger F' having the shoulders G', H' attached to said stem.

13. In a knitting-machine, the finger F', the arm M' pivotally secured in the V-shaped recess in the head T', the shaft U' having its under side constructed as shown, a spring-pressed plunger, and means for mounting said parts upon the cam-cylinder.

14. In a circular-knitting machine, the device for depressing the inoperative needles one by one, comprising the finger F', the head T' rotatably mounted and having a V-shaped recess therein in which said finger is pivotally mounted, in combination with provisions whereby said finger is rendered capable of five different movements—viz., a retarding oscillating movement, up to its central position, an accelerated movement beyond this point in either direction, an additional oscillating movement, a rotatable movement about its vertical axis, and lastly a movement to and from the center of the supporting-cylinder.

15. In a circular-knitting machine, the combination of the finger F', and provisions whereby said finger is rendered capable of five different movements—viz., a retarded oscillating movement up to its central position, an oscillating movement beyond this point in either direction, an additional oscillating movement, a rotatable movement about its vertical axis, and lastly a movement to and from the center of the supporting-cylinder.

591,214. BELT-STRETCHER. JOHN FERN and CALVIN LYNCH, Scranton, Pa. Filed Sept. 3, 1896. Serial No. 604,710. (No model.)



Claim.—1. In a belt and cable stretcher, a housing, an arm secured thereto, a rack-bar adapted to slide in said housing, a toothed wheel pivoted in said housing and adapted to engage said rack-bar, a lever pivoted to said wheel, a dog pivoted to the housing, said dog having a concaved edge and a projecting nose engaging the wheel, a lever secured to the axis of the wheel, and a spring-pressed dog pivoted to the lever with its pivoted portion adapted to lie in the concaved portion of the other dog when they approach, said second dog having a nose to engage the teeth of the wheel, substantially as described.

2. In combination, a housing, a toothed wheel pivoted thereon, a dog having a nose engaging the toothed wheel, the edge of the dog being concaved, a second dog operated by a lever and having a nose operating over the concaved portion of the first-named dog and engaging the toothed wheel, substantially as described.

591,215. MATCH-CABINET. HENRY F. GANON, Indianapolis, Ind. Filed Jan. 21, 1897. Serial No. 620,157. (No model.)



Claim.—1. In a match-cabinet, the casing with an opening therein to receive an advertising-card, a head about such opening to prevent the escape of such card to the front, and a match-safe inserted within such casing with its front wall arranged to close said opening at the back, and an adjusting-screw to press the front of said match-safe against the front wall of the casing.

2. In a match-cabinet, a receptacle for matches provided with an inclined forward extension with a vertical passage-way from the lower portion of such extension, said passage-way being provided on either side with beads or extensions to prevent the heads of the matches engaging with the walls of the extension on each side, and central openings in the top and bottom of such extension with a web or plate extending across the front of the upper opening and down sufficiently near the bottom of the extension to leave a passage way for a match.

3. A match-cabinet comprising a casing with an opening in its lower end, a match-safe that is inserted in said casing and has an inclined forward lower extension through the opening in the casing, a sliding lid for said casing, lugs to prevent the upward movement of said lid, and a screw extending through the lid into the casing to prevent the horizontal movement thereof.

591,216. POISON-DISTRIBUTER FOR FIELD USE. MARTIN L. GRIFFIN, Priest Valley, Cal. Filed Mar. 12, 1897. Serial No. 627,096. (No model.)



Claim.—1. A device for distributing and placing poison consisting of the containing-case having the rectangular extension at the lower end, a spout projecting from one side and below said extension, an intermediate channel between said spout and the opposite side of the extension of the case, openings made from the lower part of said extension into the intermediate channel, and from the channel into the discharge-spout and out of line with each other, a slide fitting and movable in the intermediate channel, a spring-pressed foot-piece connecting with said slide whereby pressure upon the foot-piece moves the slide upward and when relieved from said pressure allows the spring to return the slide to its normal position, a chamber formed in the slide and normally standing in line with the opening from the casing whereby the chamber is filled therefrom, said chamber being moved with the slide to cut off communication with the supply, and bring it into line so as to discharge its contents into the spout upon the opposite side.

2. A device for distributing and placing poison for vermin, consisting of a containing-case having a contracted extension at the lower end, a discharge-spout extending downwardly from the lower part of said extension, a closed channel intermediate between said spout and the opposite side of the extension having passages out of line with each other communicating respectively with the spout and with the extension, a slide fitting and movable in said passage, a foot-piece or shank fixed to the lower end of the slide so that pressure of the same upon the ground acts to move the slide upwardly within its channel, a spring connecting with the slide and foot-piece whereby the slide is returned to its normal position when pressure upon the foot-piece is relieved, a chamber formed in said slide standing normally in line to be filled from the lower part of the casing, said chamber being cut off from the source of supply and brought into communication with the discharge-spout by the upward movement of the slide and returned to its normal position by the action of the spring, and a spring-closed gate at the lower end of the spout, with connections whereby it is opened and closed in unison with the movement of the slide.

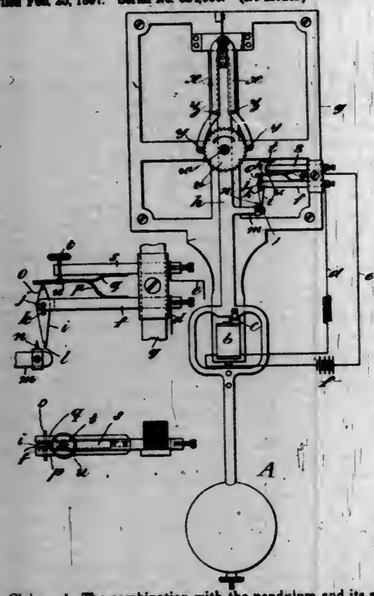
3. A device for distributing and placing poison for vermin, consisting of a containing-case having a contracted extension at the

lower end, a discharge-spout projecting downwardly from one side of said extension, a closed channel intermediate between the spout and the opposite side of the extension, passages connecting the extension with said channel and with the spout, out of line with each other, a slide movable in the intermediate channel having a spring-pressed foot-piece whereby pressure upon the lower end of said foot-piece moves the slide upwardly and when relieved from said pressure returns the slide to its normal position, a chamber formed in said slide adapted to be brought alternately into line with the supply-passage from the containing-case and with the discharge-passage into the spout, and an adjustable moving side to said chamber whereby the amount received and discharged may be regulated.

4. A poison distributing and placing device consisting of the containing-case having the contracted lower end, a discharge-spout connected with and extending downward from one side, an intermediate channel having openings out of line with each other communicating respectively with the discharge spout and with the containing-case, a slide movable in the intermediate channel having an independent slidable block forming a chamber between itself and the lower end of the main slide, a screw-threaded rod extending through the top of the main slide having a swivel-head in the lower end turning loosely in the sliding block whereby the latter is movable to increase or diminish the size of the chamber in the slide.

5. A device for distributing and placing poison consisting of a containing-case having the contracted extension at the lower end, a discharge-spout extending downwardly from one side thereof, an intermediate closed channel between said spout and the opposite side of the containing-case having passages out of line with each other communicating respectively with the discharge-spout and with the containing-case, a slide movable in the intermediate channel having an adjustable chamber formed within it and capable of being brought alternately into line with the passage to the containing-chamber and with the passage to the discharge-spout, a rod connecting with the slide and adapted to regulate the size in the chamber thereof by turning, said rod extending upwardly from the top of the containing-case, a tubular extension or handle within which the rod is movable having a handle at the upper end and an independent handle upon the rod whereby the latter may be turned, and whereby it may also be used to move the slide independently of the foot-piece.

591,217. ELECTRIC CLOCK. CARL GULLBERG, Jersey City, N. J. Filed Feb. 25, 1897. Serial No. 624,906. (No model.)



Claim.—1. The combination with the pendulum and its switch-actuating spur, of the swinging and automatically vertically sliding switch-point having a notch in its lower end for lodgment of said spur therein, and the contact-spring located in relation to the upper end of the switch-point for contact therewith when lifted by the spur, said spring and the switch point being in connection with the circuit-wires respectively substantially as described.

2. The combination with the pendulum and its switch-actuating spur, of the swinging and automatically vertically sliding switch-point having a notch in its lower end for lodgment of the spur therein, the contact-spring located in the relation to the upper end of the switch-point for contact therewith when lifted by the spur, and the adjusting-screw for the spring adapted to limit the movement of the spring toward the end of the switch-point, and to permit unlimited movement of the spring by the switch-point, said spring and the switch-point being in connection with the circuit-wires respectively substantially as described.

3. The combination with the pendulum and its switch-actuating spur, of the switch-point having a notch in its lower end for lodgment of said spur therein, the pivot for said switch-point located on a fixed support, the switch-point being automatically vertically movable on said pivot, and the contact-spring located in the relation to the upper end of the switch-point for contact therewith when lifted by the spur, said pivot and spring being in connection with the circuit-wires respectively substantially as described.

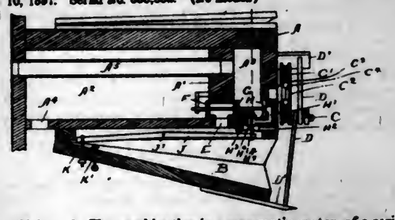
4. The combination with the pendulum and its switch-actuating spur, of the switch-point pendent from a supporting-pivot intermediate of its ends and at its lower end subject to the actuating-spur, and the contact-spring located above the upper end of the switch-point and in the relation whereby the switch-point has rubbing contact with the spring, said spring and switch-point being in connection with the circuit-wires respectively substantially as described.

5. The combination with the pendulum and its switch-actuating spur, of the switch-point and contact-spring in the relation whereby the switch-point has rubbing contact with the spring, said switch-point also having rubbing contact with its pivot, and said pivot connected with one of the circuit-wires, and the said contact-spring being in connection with the other circuit-wire substantially as described.

6. The combination with the pendulum and its switch-actuating spur, of the swinging and vertically-sliding switch-point having a notch in its lower end for lodgment of said spur therein, the contact-spring located in the relation to the upper end of the switch-point for contact therewith when lifted by the spur, and the auxiliary spring for double contact of the switch-point.

7. In a gravitating-pawl mechanism for actuating the clock-train the combination with the pendulum, of pendent gravitating pawls adapted to be retracted by the pendulum, a ratchet-wheel for actuating the train and having bevel or tangent teeth substantially as described, and pallets of the pawls so arranged that when a pawl returns upon the wheel it strikes the tangent side of a tooth near the point and the wheel is impelled by the pressure of the pallet moving along the said tangent side of the tooth, substantially as specified.

591,218. WIND-MOTOR. FREDERICK W. HEDGELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed May 10, 1897. Serial No. 635,852. (No model.)



Claim.—1. The combination in a pneumatic-motor, of a series of pneumatics, a series of valves corresponding to the pneumatics and acting to control the inflating and deflating thereof, and means whereby each pneumatic, independently of the other pneumatics, is enabled to control its own valves, substantially as specified.

2. The combination in a pneumatic-motor, of a series of pneumatics, a series of valves corresponding to the pneumatics and acting to control the inflating and deflating thereof, and a separate motor device in the case of each pneumatic for operating said valves, such motor device being under the independent control of the movable side of the corresponding pneumatic, substantially as specified.

3. The pneumatic-motor, wherein are combined a series of pneumatics B, and their controlling-valves, each pneumatic being provided with means whereby it may, independently of all the other pneumatics, control its own valves, substantially as specified.

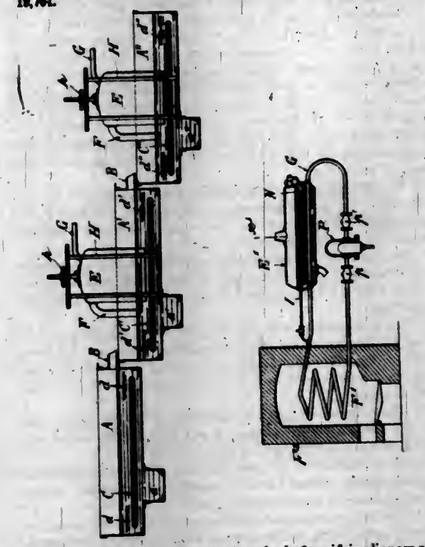
4. The combination with a pulley or other rotating device, of a wind-motor for driving the same, said motor containing a series of pneumatics, valves controlling said pneumatics, and means whereby each pneumatic may, independently of the other pneumatics, operate its own valves, substantially as specified.

5. The combination in a pneumatic-motor, of a series of power-pneumatics B, a wind-chamber, valves controlling the passages between the chamber and the pneumatics, a separate lever for each pneumatic actuated by the moving side thereof, and devices whereby each of said levers controls the valves of its own pneumatic, substantially as specified.

6. The wind-motor, consisting of a series of pneumatics arranged around a wind-chest, valves for each pneumatic controlling the inflating and deflating thereof, a membrane-motor for shifting the valves of each pneumatic, and a lever adjacent to and actuated by the moving side of each pneumatic, and serving to cause the operation of the membrane-motor of the same pneumatic, substantially as specified.

7. The pneumatic-motor, consisting of a series of pneumatics, each provided with separate valves, and each having its movable side connected to and controlling its own valves by means of connections independent of the other pneumatics, substantially as specified.

591,219. PROCESS OF AND APPARATUS FOR RECOVERING GLYCERIN FROM SPENT SOAP-LYE. HENRI J. R. HEBBEBUTTE, Paris, France. Filed Feb. 26, 1897. Serial No. 625,094. (No model.) Patented in Belgium Apr. 3, 1896, No. 120,797; in France Sept. 24, 1896, No. 260,963; in Italy Sept. 30, 1896, XXXVI, 43,750, LXXXIII, 406; in Austria Oct. 6, 1896, No. 47/188, and in Spain Oct. 8, 1896, No. 19,761.



Claim.—1. The herein-described method of purifying liquors containing glycerin, which consists in first decomposing the soap that may exist therein with acid, then removing the fatty acids, then adding to the liquor sodium carbonate in quantity sufficient to render the liquor strongly alkaline, and then neutralizing the liquor by the addition of calcium chlorid, substantially as and for the purposes set forth.

2. The herein-described method of purifying liquors containing glycerin, which consists in first decomposing the soap that may exist therein with acid, then removing the fatty acids, then adding to the liquor sodium carbonate in quantity sufficient to render the liquor strongly alkaline, then neutralizing the liquor by the addition of calcium chlorid, and finally adding a small quantity of pure aluminium silicate for freeing the liquor of organic matter, substantially as and for the puposes set forth.

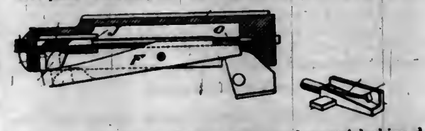
3. The herein-described method of treating soap liquors for the recovery of glycerin contained therein, which consists in first decomposing with acid the soap that may exist therein, then removing the fatty acids, then adding to the liquor sodium carbonate in quantity to render the same strongly alkaline, then neutralizing the liquor with calcium chlorid, then concentrating the liquor and removing the major portion of the salts therefrom, and finally distilling the crude glycerin, substantially as set forth.

4. The concentrating apparatus herein described, the same comprising the series of vats A, A' and A", provided with heating-coils C, C' and C", the movable, annular plates *d*, *d'*, *d"*, over the respective coils, the pockets *a*, *a'*, *a"*, in the bottoms of the respective vats, and agitators in the vats, substantially as set forth.

5. The combination with the vat, of an intermittently-operating agitator, comprising a suspended bell, the mouth of which is adapted to be submerged in the liquor in the vat, the sealing pipe or tube F, connecting with the upper part of said bell and depending to a less extent than the bell, and an outlet from the top of the bell for the constant exhaust of the air therefrom, substantially as set forth.

6. The apparatus for distilling the crude glycerin, which comprises a cylinder E, a furnace, the connected coils F and G, the former in the furnace and the latter in the said cylinder, the circulating-pump in connection with said coils, the false bottom N, in the cylinder above the coils G, and the slender pipe I, connected at one end with the coil-pipe and extending into the cylinder, for supplying superheated steam to the mass of crude glycerin therein, substantially as set forth.

591,220. SAFETY DEVICE FOR BOLT-GUNS. LEWIS L. HEPBURN, New Haven, Conn., assignor to the Marlin Fire Arms Company, same place. Filed May 17, 1897. Serial No. 636,891. (No model.)



Claim.—1. In a repeating firearm, a supplemental locking device, comprising a loosely-mounted sliding block, free to have limited longitudinal movement, and actuated in one direction by the recoil of the gun, said block when in its rearward position projecting into the path of movement of one of the operative parts of the breech-locking mechanism and thereby locking the breech-bolt.

2. In a repeating firearm, a locking-bolt, a supplemental locking means therefor, the latter comprising a sliding block having limited longitudinal movement in line with the barrel and actuated in one direction by the recoil of the gun, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent movement of the latter.

3. In a repeating firearm, a reciprocating breech-bolt, a locking-bolt, a supplemental locking means carried within said breech-bolt, comprising a loosely-mounted sliding block having limited independent movement in line with the barrel, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent movement of the latter.

4. In a repeating firearm, a reciprocating breech-bolt, a locking-bolt carried thereby, a supplemental locking means, comprising a loosely-mounted sliding block located within said breech-bolt, and having limited longitudinal movement with respect thereto and actuated in one direction by the recoil of the gun, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent movement of the latter.

5. In a repeating firearm, a reciprocating breech-bolt, a tilting locking-bolt carried thereby, a supplemental locking means comprising a block carried within said breech-bolt, and having limited independent longitudinal movement with respect thereto, frictional retaining means therefor, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent movement of the same.

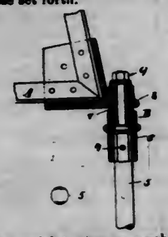
6. In a repeating firearm, a reciprocating breech-bolt, a firing-pin carried thereby, and a tilting locking-bolt, a supplemental locking means for said locking-bolt, comprising a longitudinally-movable block carried within said breech-bolt, means for limiting the longitudinal movement of said block with respect to said bolt, a spring carried thereby, the free end of said spring bearing in suitable notches, said block when in its rearward position projecting into the path of movement of said locking-bolt to prevent the tilting of the same.

7. In a repeating firearm, a reciprocating breech-bolt, a tilting locking-bolt and a firing-pin carried thereby, and a supplemental locking means for said locking-bolt, comprising a block having limited independent longitudinal movement with respect to the adjacent parts, a spring carried by said block, the free end of said spring frictionally bearing in suitable notches in the side of said firing-pin, said block when in its rearward position projecting into the path of movement of said locking-bolt, to prevent the movement of the same.

8. In a repeating firearm, a supplemental locking device, comprising a loosely-mounted sliding block, free to have limited longitudinal movement in the line of the barrel and actuated in one direction by the recoil of the gun, said block when in its rearward position projecting into the path of movement of the locking-bolt, a nose on said block projecting through an opening, whereby said block may be manually operated.

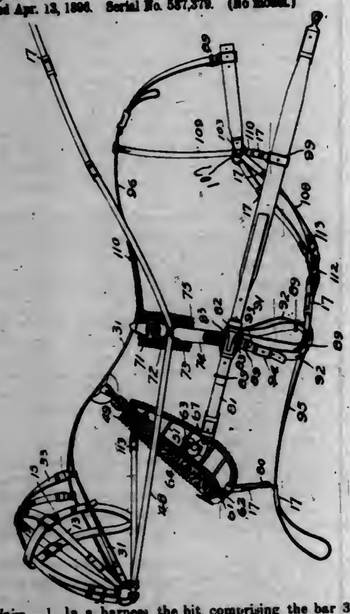
591,221. SUPPORT FOR AERIAL WIRE ROPEWAYS. JULIUS S. LANE, Westport, Conn. Filed Dec. 18, 1896. Serial No. 616,141. (No model.)

Claim.—1. An aerial tramway comprising means for the transportation of sand or minerals, and a series of supports for said means for transportation individually provided with means for their progressive raising as the dump is built up or increased in height, substantially as and for the purpose set forth.



2. A support for aerial tramways, combined with one or more screw-piles rotatively connected therewith to adapt the structure for progressive raising as the dump is built up, substantially as described.

591,222. HARNESS. JOHNSTON MEALEY, Howard Lake, Minn. Filed Apr. 13, 1896. Serial No. 587,379. (No model.)



Claim.—1. In a harness, the bit, comprising the bar 3 having holes extending through it near each end, at right angles to each other, the rings 7 passing through the holes that are nearest the end of the bar, and the larger rings 5 passing through the inner holes, for the purpose set forth.

2. In a harness, the combination, with the bit, provided with the bar 3 having two holes passing through it near each end thereof, said holes being arranged with their axes at right angles to each other, of the rings 7 passing through the outer holes and provided with the rolls 9, and the larger rings 5 passing through the inner holes, for the purpose set forth.

3. In a harness, the combination, with the bit, consisting of the bar 3 having two holes at each end, with their axes at right angles to each other, of the rings 7 passing through the outer holes, and the larger rings 5 passing through the inner holes, the headstall and check connected to the inner or larger rings 5, and reins connected to said rings 7, for the purpose set forth.

4. In a harness, the combination with the bit, consisting of the bar 3 provided with holes at each end thereof, with their axes at right angles to each other, of the rings 7 passing through the outer holes and the larger rings 5 passing through the inner holes, of the check 31 consisting of the strap having a fork arranged at a point that will come substantially over the neck of the horse when the device is in use, the ends of said check being connected to said rings 5, the check-carriers 33 having their ends connected to said rings 5 and passing over the top of the headstall, and their free ends forming carriers, upon the opposite sides of the horse's neck, for said check 31, for the purpose set forth.

5. The combination, with the bit, consisting of the bar 3 having rings 5 and 7 passing through openings in said bar that are at right angles to each other, of the single continuous strap 13 forming the headstall and connected to said rings 5 by suitable buckles 17, the single continuous strap 15 forming the brow-band and the throat-latch and connected to said strap 13 at right angles thereto by the buckles formed of the rectangular frames 27 28 having open centers, one of said bars 27 being provided with the pin 29, and one of the bars 28 being provided with the oppositely-projecting pin 30, for the purpose set forth.

6. The combination, with the bit, consisting of the bar 3 provided with holes at right angles to each other in its ends, of rings 7 passing through the holes in the bar and the larger rings 5 passing through inner holes therein, the headstall consisting of a single strap having its ends connected to said rings 5 by means of the buckles 17, the continuous strap 15 forming the brow-band and throat-latch and connected to said headstall 13 at right angles thereto by the rectangular frames 27 28, provided upon the part 27 with the stud 29 and upon the part 28 with the oppositely-projecting studs 30, the check-rein 31 consisting of a single strap divided at a point which in use will be substantially over the neck of the horse, and having its ends also connected to said rings 5 by buckles 17, the check-carrier 33 having its lower ends connected to said rings 5 by buckles 17, the two parts of said check-carrier being united at a point below the brow-band and passing over and being connected to the top of the headstall, the free ends of said check-carrier being provided with the rectangular frame 43, provided with the cross-bars 44 and secured to said check-carrier by the studs 45, said frame 43 having the loops 46 provided with the rolls 47 over which said check passes, for the purpose set forth.

7. The combination, with the collar-frame consisting of the side bars 50, transverse bars 51 connecting said side bars, of a flexible covering passing through said frame above and below said cross-bars, and a suitable pad secured thereto.

8. In a harness, the combination, with the metallic collar-frame, transversely concave in its inner side, of the pad 53 secured in concave form with the inner surface of said collar-frame, for the purpose set forth.

9. The combination, with the concave frame, consisting of the side bars 50, the transverse bars 51 connecting the upper and lower edges of said side bars, of the leather covering threaded or woven through said frame above and below said cross-bars, and the pad secured thereto.

10. The combination, with the neck-pad, of the two parts of the collar, and vertical pivots connecting said parts of the collar with said neck-pad, for the purpose set forth.

11. The combination, with the neck-pad, of the collar consisting of the independent frames, each arranged to turn or swivel upon its longitudinal axis, for the purpose set forth.

12. The combination, with the neck-pad, of the collar-frames, the pins 55 upon which said frames are adapted to turn, and means connecting said pins to said neck-pad.

13. The combination, with the collar-frames provided with the transverse projections 54, of the pins 55 extending through openings in said projections, means for securing said pins in position, and the link-loops 56 connecting said pins to the neck-pad.

14. The combination, with the collar-frame having the transverse bars 51, of the pin 53, two of said bars 51 being arranged to receive said pin 53, and the ring-block 64 and the loop 67 arranged on said pin and interchangeable thereon, substantially as described.

15. The combination, with the neck-pad, of the collar-frame adjustably mounted upon the pins 55 upon which said frames are free to turn, and means connecting said pins with said neck-pad.

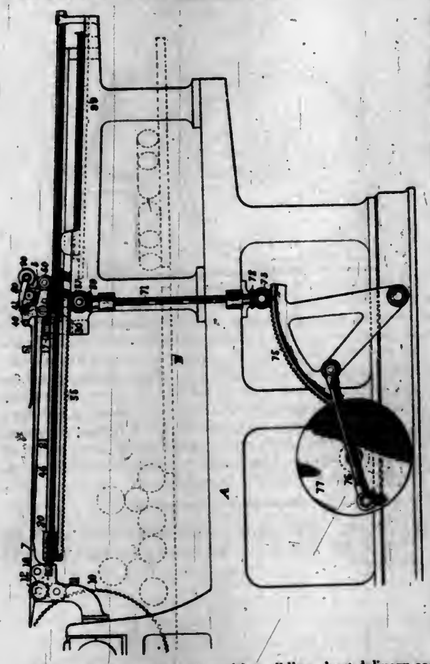
16. The combination, with the collar-frame having the side bars 50, brought together at their upper end and secured in the tube 76, the upper portion of said tube being indented or recessed, the transverse projection 54, and the pin 55 mounted in openings in said projections, means for adjustably securing said pins in position, the neck-pad, and means for securing said neck-pad to said pins, for the purpose specified.

17. The combination, with the open concave collar-frame, the leather covering 52 secured to said frame, the pad 53 arranged under said leather covering and the ventilating-tube 78 securing said pad to said covering.

18. The combination, with the back-strap and breeching, of the breeching-carrier straps 97 and the crupper 98, said straps 97 and said crupper 98 being secured to said back-strap by the same buckles 17, for the purpose specified.

19. The combination, with the back-strap, of the hip-strap 109 secured to said back-strap by means of the buckle 28, the ends of said hip-strap being connected to the end of the breeching by means of the buckle 17, and the carriers 108, and the breeching-carrying straps 97 connected to the ends of the back-strap by the buckles 17 and connected to said breeching at opposite sides of the same.

591,228. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. THOMAS M. NORTH, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Feb. 6, 1896. Serial No. 577,532. (No model.)



Claim.—1. The combination with a sliding sheet-delivery carriage, and means for reciprocating the same between its sheet-receiving position and over the piling-table, of a rotating delivery-roller 50 and margin-rolls 90 supported by the carriage and operating first to nip the sheet during the outward movement of the carriage, and then to positively roll the sheet therefrom during the return stroke of the carriage, onto the piling-table, substantially as described.

2. The combination with a sliding sheet-delivery carriage, carrying tapes propelling the sheet onto the carriage, and means for reciprocating the carriage from its sheet-receiving position to one over the piling-table, of means on the carriage operating by nipping contact to hold the front edge of the sheet during the outward movement of the carriage and to positively roll the sheet from said carriage, during its return stroke, onto the piling-table, substantially as described.

3. The combination with a sliding sheet-delivery carriage, and means for reciprocating the same between its sheet-receiving position and over the piling-table, of a rotating delivery-roller 50 and margin-rolls 90 moving with the carriage and operating first to nip the sheet during the outward movement of the carriage and then to positively roll the sheet from said carriage during its return stroke onto the piling-table, and a fixed rack 64 and intermediate mechanism driven thereby to revolve the roller 50, substantially as described.

4. The combination with a sliding sheet-delivery carriage, means for reciprocating the same between its sheet-receiving position and over the piling-table, a rotating delivery-roller 50, and margin-rolls 90 moving with the carriage and operating first to nip the sheet during the outward movement of the carriage, and to positively roll the sheet from said carriage during its return stroke onto the piling-table, of a fixed rack 64, pinion 60 revolved thereby, and a clutch mechanism intermediate of the rack 64 and pinion 60, whereby the latter is rotated in one direction only, substantially as described.

5. The combination with a sliding sheet-delivery carriage, means for reciprocating the same between its sheet-receiving position and over the piling-table, and rotating devices supported by the carriage and operating by nipping contact therewith to nip and hold the sheet during the outward movement of the carriage, and to positively roll the sheet from the carriage onto the piling-table, of means for bringing the same into coactive relation to nip the sheet, substantially as described.

6. The combination with a sliding sheet-delivery carriage, means for reciprocating the same between its sheet-receiving position and over the piling-table, rotating devices for rolling the sheet from the carriage onto the piling-table, and means for bringing the same into coactive relation to nip the sheet, of sheet-stops and means for vibrating them, substantially as described.

7. The combination with a sliding sheet-delivery carriage, means for reciprocating the same between its sheet-receiving position and over the piling-table, a delivery-roller and margin-rolls for rolling the sheet from the carriage onto the piling-table, of a rock-arm 81, and stop 19 whereby the margin-rolls are controlled in relation to the delivery-roller, substantially as described.

8. The combination with a sliding sheet-delivery carriage, means for reciprocating the same between its sheet-receiving position and over the piling-table, a delivery-roller and margin-rolls for rolling the sheet from the carriage onto the piling-table, of a rock-arm 81, locking-lever 82 and tripping device, whereby the margin-rolls are brought into coactive relation with the delivery-roller, substantially as described.

9. The combination with a sliding sheet-delivery carriage, means for reciprocating the same between its sheet-receiving point and over the piling-table, a delivery-roller and margin-rolls for rolling the sheet from the carriage onto the piling-table, a rock-arm 81 and locking-lever 82, and a tripping device whereby the margin-rolls are brought into coactive relation to the delivery-roller, of a stop, as 19, for raising the margin-rolls, substantially as described.

10. The combination with an impression-cylinder and sheet-propelling tapes leading outward therefrom, of a reciprocating sheet-delivery carriage consisting essentially of fingers 46 for receiving and transporting the sheets, a delivery-roller, as 50, propelled in one direction only, and margin-rollers, as 90, substantially as described.

11. The combination with an impression-cylinder and sheet-propelling tapes leading outward therefrom, of a reciprocating sheet-delivery carriage consisting essentially of fingers 46 for receiving and transporting the sheets, vibrating sheet-stops, a delivery-roller, as 50, propelled in one direction only, and margin-rollers, as 90, substantially as described.

591,224. BAKER'S OVEN. BAPTISTE YCRE, New York, N. Y. Filed May 17, 1897. Serial No. 636,833. (No model.)



Claim.—1. In a baker's oven, the combination with a baking-chamber having a main opening leading into said chamber, of shiftable closing-blocks in said opening, and a gate for closing the main opening, substantially as set forth.

2. In a baker's oven, the combination with a baking chamber having a main opening extending across the full width of the chamber, of shiftable closing-blocks guided in said main opening, means whereby said blocks may be shifted singly or simultaneously, and a gate for closing the main opening, substantially as set forth.

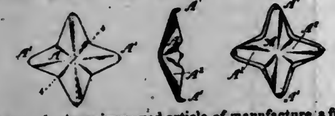
3. The combination, in a baker's oven, of a baking-chamber having a main opening extending across the full width of the chamber, of shiftable closing-blocks in said main opening, sliding auxiliary gates at the corners for opening and closing the end portions of the main opening, and a vertically-guided drop-gate for closing the entire main opening and the intermediate closing-blocks, substantially as set forth.

4. In a baker's oven, the combination of a baking-chamber having a main opening extending across its full width, of shiftable closing-blocks guided in ways of the bottom of the main opening, said blocks being composed of a metallic casing and refractory filling, vertically-sliding doors for closing the end portions of the main opening, and a vertically-guided drop-gate extending over the closing-blocks and end doors, substantially as set forth.

5. The combination, in a baker's oven of a main opening extend-

ing across the entire width of the chamber, provided with a casing having a removable panel at one end of the same, longitudinally-shiftable closing-blocks guided in ways of the bottom of said casing and adapted to be removed on removing said panel, vertically-sliding doors for closing the end portions of the main opening, and a vertically-guided drop-gate extending over said closing-blocks and end doors, substantially as set forth.

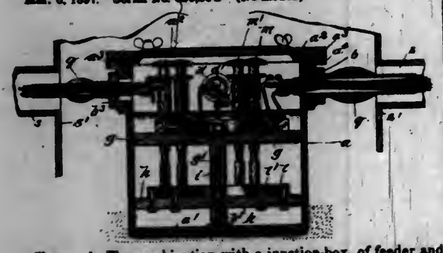
591,225. TUMBLING-STAR. GEORGE D. BARTLETT, Plymouth, Mass. Filed Jan. 11, 1896. Serial No. 575,073. (No model.)



Claim.—1. As an improved article of manufacture, a freely-tumbling star composed of an angular piece of sheet-steel, dished, crimped and hardened, and externally presenting the radial angular edges substantially as herein specified.

2. In a tumbling-star, an angular piece of sheet-steel dished, having its several points bent bookwise as indicated by A^2, the whole star hardened, as herein specified.

591,226. JUNCTION-BOX. JACOB CLOOS, Milwaukee, Wis. Filed Mar. 6, 1897. Serial No. 626,204. (No model.)



Claim.—1. The combination with a junction-box, of feeder and main conductors leading thereto and extending therefrom, a bus bar, bars, or conductors with which the feeder or feeders are connected, and switching mechanism for uniting the mains with said bus bar or bars, substantially as described.

2. The combination with a junction-box, of feeder and main conductors leading thereto and extending therefrom, a support *g*, contact-plates carried by said support to which the feeder and main conductors are connected, a second support *h*, a bus bar or bars carried thereby, and plugs for electrically connecting said contact-plates with said bus bar or bars, substantially as described.

3. The combination with a junction-box, of feeder and main conductors leading thereto and extending therefrom, a support *g*, contact-plates carried by said support to which the feeder and main conductors are connected, a second support *h*, a bus bar or bars carried thereby, said supports being arranged in horizontal planes with support *g* disposed above support *h*, and plugs for connecting said bus bar or bars with said plates, oil being provided within said junction-box to a depth sufficient to immerse the contact portions of said bus bar or bars that are initially engaged by said plugs, substantially as described.

4. In a system of electrical distribution, the combination with a plurality of junction-boxes, of bus-bars or conductors located therein, feeders and mains connected with said bus-bars, auxiliary feeders extending between the junction-boxes, and switching mechanism for uniting said auxiliary feeder with said bus-bars, substantially as described.

5. The combination with a junction-box, of feeder and main conductors leading thereto and extending therefrom, terminal plates having conducting stems, connectors, as h^3 h^4, for uniting said stems and conductors, and switching mechanism for uniting the feeding and main conductors, said stems, plates and switching mechanism being immersed in oil, substantially as described.

591,227. BICYCLE. CARL RICHMEYER, Yonkers, N. Y. Filed Nov. 12, 1896. Serial No. 611,831. (No model.)

Claim.—1. In a bicycle, the combination, with the steering-spindle, of the upright head-bearing for said spindle, a handle-bar, means for connecting the handle-bar at its mid-length with a rearwardly-extending portion of the steering-spindle, said handle-bar extending in forward direction, a U-shaped, seat-supporting rod supported at its lower end on the frame of the machine, said rearwardly-extending portion of the steering-spindle extending into the U-shaped seat-supporting rod so that the latter extends around and above the handle-bar, and a seat arranged on the upper end of the supporting-rod, substantially as set forth.



2. In a bicycle, the combination, with the spindle of the front fork and the front wheel mounted in the front fork, of the upright head-bearing for said spindle, a rearwardly-extending tube at the upper end of said spindle, a handle-bar, means for fastening and securing the handle-bar at its mid-length to the rear end of said tube, said handle-bar extending in forward direction, a U-shaped seat-supporting rod supported by its lower end from the bearing of the front-fork spindle, said rearwardly-extending tube extending into the U portion of the supporting-rod so that the latter extends around and above the handle-bar, and a seat arranged on the upper end of the supporting-rod above said rearwardly-extending tube and the spindle of the front fork, substantially as set forth.

591,228. SHUT-OFF FOR FOUNTAIN-SYRINGES. ADA V. GOLTERMANN, New York, N. Y. Filed Mar. 8, 1897. Serial No. 626,201. (No model.)



Claim.—A shut-off for fountain-syringes, consisting of a valve-casing provided with a guide-opening in one end, said casing having a removable cap at the other end, branch pipes or nipples extending from opposite sides of said casing, and being offset with relation to each other, a valve-seat in said casing, arranged between the branch pipes, a valve-stem guided in said guide-opening and provided with a valve, a washer fitted on the valve, a second washer arranged above the valve-washer, and means for retaining the same on the valve-stem, both of said washers and the valve being arranged in the chamber of the casing and at a suitable distance apart, so that the fluid passing through the casing is prevented from flowing in either direction past the two washers, and a knob arranged at the outer end of the valve-stem, substantially as set forth.

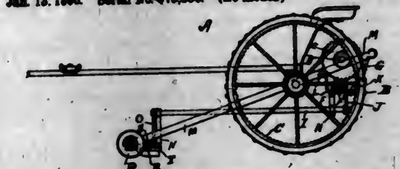
591,229. PUMP FOR PNEUMATIC TIRES. ANTHONY KOHL and FRANK R. KOHL, Connersville, Ind., assignors of two-thirds to William R. Hoeb, Catherine I. Kohl, and Domian L. Kohl, same place, and George Roch, Indianapolis, Ind. Filed June 5, 1897. Serial No. 638,503. (No model.)

Claim.—1. The combination, in a vehicle-wheel, of the wheel-hub, a rotary pump constructed within said wheel-hub, a bicycle-tire, and a tube extending from said hub to said tire, said tube being adjustable longitudinally and said pump being provided with a projection into the path of which the adjustable tube is adapted to be projected, said projection being properly located relatively to the egress-opening of the pump so that further adjustment accomplishes a contact between said tube and said egress-opening.

2. The combination, in a vehicle, of a non-rotary wheel-shaft, a pump-piston mounted thereon, a pump-cylinder surrounding said piston and provided with ingress and egress openings for the air and a detent projection alongside the egress-opening, and a tube extending between the wheel-hub shell and the wheel-rim and adjustable radially of the wheel, its inner end being adapted to be adjusted into the path of the projection alongside the egress-opening in the pump-cylinder and to make a contact with said egress-opening, the adjustment at the same time causing the opening of the tire-valve at the other end of the tube, substantially as set forth.

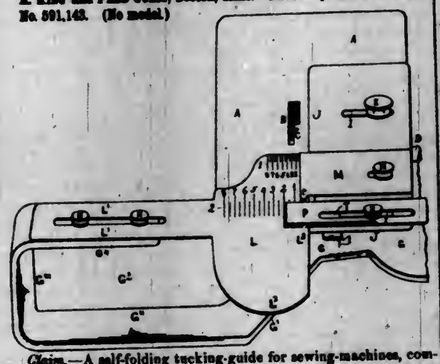


591,230. MOWER. CHARLES G. KERR, Indianapolis, Ind. Filed Jan. 13, 1896. Serial No. 575,396. (No model.)



Claim.—In a power mowing-machine, the combination of the frame M L suitably mounted and having the knife-bar carrier attached to the forward ends thereof; the hangers G G depending from said frame and supporting the shaft F'; the cam Q secured to said shaft F' between said hangers; the drop-bracket H supported by said hangers; the standard N attached to said knife-bar carrier; the rocking shaft I journaled at its forward end on said standard and at its rear end on said drop-bracket; the rocking arm O secured to the forward end of said rocking shaft and connecting the knife-bar; the rocking arm J secured to the rear end of the shaft I and having at its upper end a pin engaging the groove of said cam, by which a vibratory motion is imparted to said arm, with means for rotating said shaft F', substantially as shown and described.

591,231. TUCKING-GUIDE FOR SEWING-MACHINES. EDWARD A. KING and FRED GUSH, Boston, Mass. Filed May 11, 1896. Serial No. 591,143. (No model.)



Claim.—A self-folding tucking-guide for sewing-machines, comprising the adjustable folder-plate L, an adjustable guide-plate J having an edge arranged adjacent to and parallel with the edge of the folder-plate, an adjustable spring and yielding gage-plate P having an upward-projecting flange along its front and inner edges, and a spring presser-plate M arranged to bear upon the goods being tucked between the gage-plate and the presser-foot of the sewing-machine and formed with an upturned lip *e* at its front edge, substantially as set forth.

591,232. RUBBER-TREAD HORSESHOE. JULIUS KORBIEL, Baltimore, Md., assignor of one-half to George C. Snow, same place. Filed June 2, 1897. Serial No. 639,158. (No model.)



Claim.—A horseshoe having the outer side edges of its bottom face cut away or rabbeted to form nail-flanges, said face provided with a groove or channel corresponding to the shape of the shoe, the outer wall of said groove having bearing-surfaces of greater width at the sides of the heels than between the ends of the nail-flanges, the inner sides of the inner and outer walls of the groove being convex and concave respectively, and a rubber cushion seated in said groove and securely held by the convex and concave sides of the groove.

591,233. SWITCH-OPERATING MECHANISM FOR CARS. JOS. LAMONTAGNE, Northampton, Mass., assignor of two-thirds to Arthur J. Lamontagne and Avon C. Matthews, same place. Filed Apr. 26, 1897. Serial No. 634,069. (No model.)



Claim.—1. The combination, with a car, of a tripping device, a vertically-movable rotary switch-throwing device, and a chain for connecting the same, and means for moving the two devices vertically in unison with each other, substantially as set forth.

2. The combination, with a car, of a vertically-movable shaft, means upon the upper end thereof for rotating the same and moving it longitudinally, a vertically-movable rotary switch-throwing mechanism, and a chain for connecting said mechanism with the shaft, substantially as set forth.

3. The combination, with a car, of a vertically-movable spring-actuated shaft, each end of which is provided with a wheel, means for engaging with the upper wheel and rotating the shaft, a vertically-movable rotary switch-throwing device, the upper end of which is provided with a wheel, in the same horizontal plane with the wheel upon the lower end of the shaft, a chain upon said wheels, and means for moving the wheels vertically in unison, substantially as set forth.

4. The combination, with a car, of a vertically-movable shaft, a wheel upon each end thereof, a spring between the upper wheel and the platform of the car, a handle provided with a barrel-wheel in engagement with a wheel upon the upper end of the shaft, a vertically-movable rotary switching device provided with a wheel, and means for connecting said wheel with the lower wheel upon the shaft, substantially as set forth.

5. The combination, with a car, of two vertically-movable shafts, the upper end of each of which is provided with a gear-wheel, a handle, the lower end of which is provided with a barrel-gear in engagement with said wheels, two vertically-movable switch-throwing devices, and means for connecting each of said devices with its respective shaft, substantially as set forth.

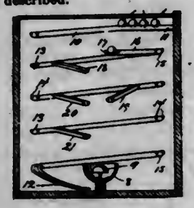
6. The combination, with a car, of a vertically-movable shaft, a sprocket-wheel upon the lower end thereof, a vertically-movable shaft, the lower end of which is provided with a switching device and the upper end is provided with a sprocket-wheel, interlocking bars secured at their central portions to the car, the opposite ends of said bars being slotted and engaging with the shafts, and a sprocket-chain upon the sprocket-wheels, substantially as set forth.

591,234. PUZZLE. BENJAMIN C. LORING, Providence, R. I. Filed June 26, 1897. Serial No. 643,473. (No model.)

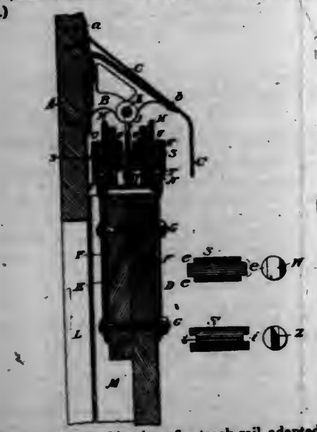
Claim.—1. A puzzle comprising a box or casing provided with a transparent side, and a removable top, said box or casing being also provided at the bottom thereof, with a bell or gong, and with a spiral track or way which extends from the bottom to the top of said box or casing, said spiral track or way being also provided with a plurality of inwardly-directed radial branches, and a plurality of balls or spherical bodies which equal in number said branches, substantially as shown and described.

2. A puzzle comprising a box or casing provided with a trans-

parent side, and a removable top, said box or casing being also provided at the bottom thereof with a bell or gong, and with a spiral track or way, which extends from the bottom to the top of said box or casing, said spiral track or way being also provided with a plurality of inwardly-directed radial branches, and a plurality of balls or spherical bodies which equal in number said branches, all of said branches being open at their inner ends with the exception of the upper one which is provided with a cup-shaped receptacle, substantially as shown and described.



591,285. DOOR-HANGER. WILLIAM LOUDEN and ROBERT B. LOUDEN, Fairfield, Iowa. Filed Aug. 3, 1896. Serial No. 601,553. (No model.)



Claim.—1. The combination of a track-rail adapted to carry a sliding door; track-suspending devices secured at intervals to said track-rail, so as to permit the passage of door-hangers thereby, and brackets adapted to be secured at one side to a wall and pivotally support the suspending devices, substantially as described.

2. The combination of brackets adapted to be secured at one side to a wall; a track having wheel-supporting edges on its opposite sides, and adapted to be supported by the brackets so as to leave an open space between it and the wall; hangers adapted to be secured to opposite sides of a door, and wheels mounted on the upper ends of said hangers, and having an open space between them so as to pass the supports and run on the opposite wheel-supporting edges, substantially as described.

3. The combination of a track adapted to carry a sliding door; brackets adapted to be secured at one side to a wall; a cover adapted to be secured at its upper edge to the wall and to be connected to the outer ends of the brackets, and suspending devices secured to said track and connected to said brackets, substantially as described.

4. The combination of a track adapted to carry a sliding door; brackets adapted to be secured at one side to a wall; a metallic cover adapted to be secured at its upper edge to the wall and near its center to the brackets, while its lower edge projects outwardly and downwardly below said brackets, and suspending devices secured to said track, and connected to said brackets, substantially as described.

5. The combination of brackets adapted to be secured at one side to a wall; a track having wheel-supporting edges on its opposite sides; suspending devices secured at intervals to the central portion of the track, and connected to the brackets so as to leave an open space between the track and the wall; hangers adapted to be secured to opposite sides of a door, and wheels mounted on the upper ends of said hangers so as to pass the suspending devices and run on the opposite edges of the track, substantially as set forth.

6. The combination of a metallic track-rail comprising a vertical web and wheel-supporting flanges on the sides of said web; brackets adapted to be secured at one side to a wall and suspending devices adapted to be pivotally connected to said brackets, and having their lower ends bifurcated to straddle said web and be rigidly connected to the track, substantially as set forth.

7. The combination of a metallic track-rail having wheel-supporting flanges on each of its sides; brackets adapted to be secured to a wall, suspending devices secured to said track and pivotally connected to said brackets, and door-hangers provided with wheels and adapted to be secured to opposite sides of a door and to traverse said wheel-supporting flanges, substantially as described.

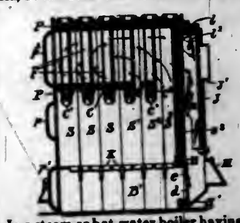
8. The combination of a sliding-door track consisting of abutting sections of metallic track-rail; brackets adapted to be secured to a wall; suspending devices connecting the track-rail to the brackets, and a combined suspending and splicing device adapted to join the abutting ends of the sections together and connect them to one of the brackets, substantially as set forth.

9. The combination of a track-rail comprising horizontal flanges and a vertical upper web, suspending-hooks secured to said web, hangers secured to the opposite sides of the door and adapted to run on said horizontal flanges and a stop adjusted upon the shank of one of the suspending-hooks above the rail and adapted to arrest the movement of the hangers substantially as set forth.

10. The combination of a track-rail comprising horizontal flanges and a vertical upper web, suspending-hooks secured to said web, hangers secured to the opposite sides of the door and adapted to run on said horizontal flanges, and a forked stop clamped upon the shank of one of the suspending-hooks above the rail and adapted to arrest the movement of the hanger, substantially as set forth.

11. A sliding-door hanger having its lower end adapted to bolt to a door and its upper end to incase a wheel; a wheel-supporting shaft mounted in said incasing part of the hanger; a series of rollers to revolve around the shaft; a wheel mounted on said rollers, and a washer placed on each end of the shaft between the hub of the wheel and the casing, so as to entirely cover the ends of the rollers and more or less of the ends of the hub, and to revolve with the wheel and rollers or to remain stationary with the casing, substantially as set forth.

591,286. BOILER FOR STEAM OR HOT-WATER HEATING. WILLIAM M. MACKAY, Newark, N. J., assignor to the Hart & Crouse Company, Utica, N. Y. Filed Mar. 8, 1897. Serial No. 626,208. (No model.)



Claim.—1. In a steam or hot-water boiler having fire-arches with spaces between the same in some of the rear sections for the upward movement of the gases and a forward flue over the middle of the fire-arch with backward flues over the sides of the same, a flat vertical section with water-legs at the bottom to inclose a fire-box, a fire-arch to form the top of the fire-box, a water-arch at the top of the section, vertical passages connecting the ends of the water-legs and fire-arch, vertical water-tubes connecting the water-arch and fire-arch between such passages, the fire-arch having its upper part the full thickness of the section, and upon its lower side a central projecting water-channel of less thickness, and said arch being notched at the middle upon opposite sides to permit the upward passage of the gases between such sections, substantially as herein set forth.

2. In a steam or hot-water boiler having fire-arches with spaces between the same in some of the rear sections for the upward movement of the gases and a forward flue over the middle of the fire-arch with backward flues over the sides of the same, a flat vertical section having water-legs A connected at the top upon their inner sides by the fire-arch C, and provided upon their outer sides at the ends of such fire-arch with the outwardly-projecting chambers A', passages E extended upwardly from the chambers A' at the outer sides, a water-arch D connecting the tops of such passages, and vertical water-tubes F connecting the water-chamber and the fire-arch intermediate to the passage E, as and for the purpose set forth.

3. In a steam or hot-water boiler having fire-arches with spaces between the same in some of the rear sections for the upward movement of the gases and a forward flue over the middle of the fire-arch with backward flues over the sides of the same, a flat vertical section having water-legs A connected at the top upon their inner sides by the fire-arch C, and provided upon their outer sides at the ends of such fire-arch with the outwardly-projecting chambers A', passages E extended upwardly from the chambers A' at the outer sides, a water-arch D, of greater sectional area than the passages E connecting the tops of such passages, vertical water-tubes F and F^3 connecting the water-arch and the fire-arch intermediate to such passages, and the tubes F^3 at opposite sides of the center having the full thickness of the section, and the remaining tubes having a less thickness, as and for the purpose set forth.

4. In a steam or hot-water boiler having fire-arches with spaces between the same in some of the rear sections for the upward movement of the gases and a forward flue over the middle of the fire-arch with backward flues over the sides of the same, a flat vertical section having water-legs A connected at the top upon their inner sides by the fire-arch C, and provided upon their outer sides at the ends of such fire-arch with the outwardly-projecting chambers A', passages E extended upwardly from the chambers A' at the outer sides, a water-arch D connecting the tops of such passages, vertical water-tubes F and F^3 connecting the water-arch and the fire-arch intermediate to such passages, the tubes F^3 at opposite sides of the center having the full thickness of the section, and the remaining tubes having a less thickness, and the fire-arch being notched laterally between the tubes F^3 to admit the gases upwardly among the tubes F, substantially as herein set forth.

5. In a steam or hot-water boiler, composed of flat vertical sections as described, the intermediate section having water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C, having central water-channel C' upon its under side, passages E extended upwardly from the chambers A' at the outer side, a water-arch D connecting the tops of such passages, the water-tubes F and F^3 connecting the water-arch and the fire-arch, the water-tubes F^3 having the thickness of the section, and the water-tubes F having the thickness of the water-channel, and one side of the fire-arch notched between the water-tubes F^3 to permit the upward passage of the gases at one side of the fire-arch, substantially as herein set forth.

6. In a steam or hot-water boiler, a flat vertical section having water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C, passages E extended upwardly from the chambers A at the outer side, a water-arch D connecting the tops of the passages, vertical water-tubes connecting the water-chamber and the fire-arch, and the fire-arch having its upper part the full thickness of the section, and upon its lower side a central projecting water-channel of the same thickness as the central water-tubes, and the fire-arch being notched laterally at the middle portion to the thickness of the water tubes and channel, substantially as herein set forth.

7. In a steam or hot-water boiler, a rear section consisting of the plate s^3 having the water-legs A upon one side with the chambers A' extended outwardly therefrom, and portions of a fire-arch C^3 projected inwardly from such chambers, and the water-arch D at the top of the water-plate connected with the chambers A' and fire-arch portions C^3 by passages E, tubes F' and F^3, with the smoke-spaces G' between the same, substantially as herein set forth.

8. In a steam or hot-water boiler, a rear section consisting of the plate s^3 having the water-legs A upon one side with the chambers A' extended outwardly therefrom, and portions of a fire-arch C^3 projected inwardly from such chambers, and the water-arch D at the top of the water-plate connected with the chambers A' and fire-arch portions C^3 by passages E, tubes F' and F^3, with the smoke-spaces G' between the same, the passages H connecting water-legs A, and the vertical passages I within the plate s^3 connecting the passage H and arch D, substantially as herein set forth.

9. In a steam or hot-water boiler, a rear section consisting of the plate s^3 having the water-legs A upon one side with the chambers A' extended outwardly therefrom, and portions of a fire-arch C^3 projected inwardly from such chambers, and the water-arch D at the top of the water-plate connected with the chambers A' and fire-arch portions C^3 by passages E, tubes F' and F^3, with the smoke-spaces G' between the same, the passage H connecting water-legs A at the grate level with opening below the same between the water-legs, and the vertical passages I within the plate connecting the passage H with the water-arch D, substantially as herein set forth.

10. In a steam or hot-water boiler, the flat vertical section having water-legs A connected at the top upon their inner sides by the fire-arch C, and provided upon their outer sides at the ends of such fire-arch with the outwardly-projecting chambers A', passages E of less sectional area than the water-legs extended upwardly from the chambers A' at the outer sides of the same, a water-arch D of greater sectional area than the passages E connecting the tops of such passages, and vertical water-tubes connecting the water-chamber and the fire-arch, substantially as herein set forth.

11. In a steam or hot-water boiler, the flat vertical section having water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C, having central water-channel C' upon its under side, passages E of less sectional area than the water-legs extended upwardly from the chambers A' at the outer side, a water-arch D, of greater sectional area than the passages E connecting the tops of such passages, and vertical water-tubes of the same thickness as the water-channel C' connecting the water-chamber and the fire-arch, as and for the purpose set forth.

12. In a steam or hot-water boiler, the flat vertical section having water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C, having central water-channel C' upon its under side, the passages E of less sectional area than the water-legs extended upwardly from the chambers A' at the outer side, a water-arch D, of greater sectional area than the passages E connecting the tops of such passages, and vertical water-tubes of the same thickness as the water-channel C' connecting the water-chamber and the fire-arch, and the fire-arch being notched at the middle to the sides of the water-channel C' to permit the upward passage of the gases between a series of such sections, substantially as herein set forth.

13. In a steam or hot-water boiler, the flat vertical section having water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire arch C, having central water-channel C' upon its under side, passages E of less sectional area than the water-legs extended upwardly from the chambers A' at the outer side, a water-arch D, of greater sectional area than the passages E connecting the tops of such passages, the water-tubes F and F^3 connecting the water-chamber and fire-arch, the water-tubes F^3 having the thickness of the section, and the water-tubes F having the thickness of the water-channel C', and the side of the fire-arch being notched between the water-tubes F^3 to permit the upward passage of the gases, substantially as herein set forth.

14. A vertical sectional boiler comprising a series of flat sections having the vertical water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C and having the passages E of the same thickness as the section extended upwardly from the chambers A' at the outer side, with water-arch D connecting the tops of such passages, and vertical water-tubes connecting the water-arch and the fire-arch, substantially as herein set forth.

15. A vertical sectional boiler comprising a series of flat sections having the vertical water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C and having the passages E of the same thickness as the section and of less sectional area than the water-legs extended upwardly from the chambers A' at the outer side, with water-arch D of greater sectional area than the passages E connecting the tops of such passages, and vertical water-tubes of the same thickness as the water-channel C' connecting the water-chamber and the fire-arch, and the fire-arch being notched at the middle to the sides of the water-channel C' to permit the upward passage of the gases between a series of such sections, substantially as herein set forth.

16. A vertical sectional boiler comprising a series of flat sections having the vertical water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C and having the passages E of the same thickness as the section and of less sectional area than the water-legs extended upwardly from the chambers A' at the outer side, with water-arch D of greater sectional area than the passages E connecting the tops of such passages, the vertical water-tubes F^3 of the same thickness as the section, the water-tubes F and F' of the same thickness as the water-channel C', and the water-arch between the tubes F^3 being notched upon the side, as and for the purpose set forth.

17. A vertical sectional boiler comprising a series of flat sections having the vertical water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by the fire-arch C having water-channel C', and having the passages E of the same thickness as the section and of less area than the water-legs, extended upward from the chambers A' at the outer side, with water-arch D of greater sectional area than the passages E connecting the tops of such passages, the vertical water-tubes F^3 of the same thickness as the section, the water-tubes F and F' of the same thickness as the water-channel C', and the water-arch between the tubes F^3 being notched upon the side, as and for the purpose set forth.

18. In a boiler comprising a series of flat vertical sections having each the water-legs A, water-chambers A', fire-arch C, passages E, water-arch D, and water-tubes connecting the fire-arch and water-arch, the combination, with the sections S having the fire-arch the full thickness of the section, of the intermediate and rear sections S', S^2 and S^3 having the fire-arch notched to permit the upward movement of the gases, and the rear section formed with the plate s^3, and provided upon its upper part with the openings G', the whole arranged and operated substantially as herein set forth.

19. In a boiler comprising a series of flat vertical sections having each the water-legs A, water-chambers A', fire-arch C, passages E, water-arch D, and water-tubes connecting the fire-arch and water-arch, the combination, with the sections S having the fire-arch the full thickness of the section, of the intermediate and rear sections S', S^2 and S^3 having the fire-arch notched to permit the upward movement of the gases, and the rear section formed with the plate s^3, having upon its upper part the openings G' and upon its lower part the transverse water-passages H and H' with openings for dust-flue be-

tween such passages, the whole arranged and operated substantially as herein set forth.

20. In a boiler comprising a series of flat vertical sections having each the water-legs A, water-columns A', fire-arch C, passages E, water-arch D, and water-tubes connecting the fire-arch and water-arch, the combination, with the sections S having the fire-arch the full thickness of the section, of the intermediate and rear sections S', S^2 and S^3 having the fire-arch notched to permit the upward movement of the gases, and the rear section formed with the plate s^3, having upon its upper part the openings G' and upon its lower part the transverse water-passages H and H' with the plate *d* secured thereon and the dust-damper *e* fitted to an opening in such plate, and a smoke-box fitted to the section S^2 and inclosing the passages G' and dust-damper, substantially as herein set forth.

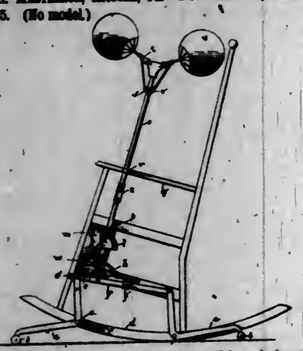
21. A vertical sectional boiler comprising a series of flat sections having the vertical water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C and having the passages E of the same thickness as the section extended upwardly from the chambers A' at the outer side, the water-arch D of the same thickness as the section connecting the tops of such passages, vertical water-tubes connecting the water-arch to the fire-arch, the notches C^3 in the fire-arches of the rear sections, and certain of the water-tubes made the full thickness of the section, and the remainder of less thickness, to form a forward flue over the fire-box and backward flues at the sides of the section over the chambers A', substantially as herein set forth.

22. In a boiler comprising a series of flat vertical sections of greater width upon the upper than upon the lower part, with a rear section having the plate s^3 with flue-openings G' in the upper part, the combination, with such sections, of the smoke-box J of greater width in the upper than in the lower part, at set forth, fitted to the rear section to inclose the said flue-openings, and provided with smoke-outlet in the middle at the upper part, and having the dampers L pivoted in the smoke-box between such outlet and flue-openings, and provided with the narrowed portions *l'* at the lower end extended downward into the narrow part of the smoke-box, substantially as herein shown and described.

23. In a boiler comprising a series of flat vertical sections with a rear section having the plate s^3 with flue-openings G' in the upper part, the combination, with such sections, of the smoke-box J fitted to the rear section to inclose the said flue-openings, and provided with smoke-outlet upon the center line, and having the dampers L pivoted in the smoke-box between such outlet and flue-openings, with the cranks *l* attached to the spindles, and the link *m* bolted to one of said cranks and provided with two pins *n* fitted interchangeably and detachably to an eye upon the other crank to adjust the dampers open and shut respectively, substantially as herein set forth.

24. A vertical sectional boiler comprising a series of flat sections having the vertical water-legs A with outwardly-projecting chambers A' at the top connected at their inner sides by fire-arch C, and having passages E of less sectional area than the water-legs extended upwardly from the chambers A' at the outer side, with water-arch D of greater sectional area than the passages E connecting the tops of such passages, and vertical water-tubes connecting the water-arch with the tops of the chambers A' and the fire-arch, the united area of the tubes over the top of each water-chamber being less than the area of the water-legs, to drive the current of water from the water-legs partially into the fire-arch, substantially as herein set forth.

591,237. FAN ATTACHMENT FOR ROCKING-CHAIRS. PATRICK H. MASTERSON, Altoona, Pa. Filed Mar. 26, 1897. Serial No. 629,375. (No model.)



Claim.—1. In a fan attachment for rocking-chairs, the combination of the crank-arm, fulcrumed to the rocker, a connecting-bar pivotally engaging at one end, to one of the crank-arms and provided with a slot engaging a lug carried by the front crank-arm, a rod pivoted to an adjustable sliding sleeve, and to a segment, engaging a cog-wheel on a rod secured to the side of the chair, and carrying fans on its upper end, substantially as shown and described.

2. In a fan attachment, the combination of the supporting-rod, carrying the fans, said rod carrying on the lower end a cog-wheel adapted to engage a segment, said segment connected by a pivoted rod to an adjustable sliding sleeve, carried by the connecting-bar, said connecting-bar pivoted at one end to a crank-arm fulcrumed to the rocker, and provided at the other end with a longitudinal slot engaging a pin carried by the front crank-arm, a spiral spring, one end of which is fastened to the connecting-bar, and the other end to the front crank-arm, adapted to hold it normally in engagement with the floor, during the forward and rearward motion of the chair, and communicating motion to the fans, substantially as shown and described.

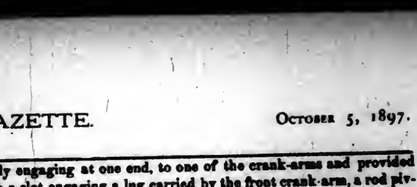
3. In a fan attachment, the combination of a detachable supporting-rod, carrying on one end an adjustable fan-socket provided with braces engaging an adjustable sliding sleeve carried by said rod, and on the opposite end a sliding sleeve adapted to hold the rod in operative engagement with a rod journaled to the side of the chair, and provided with a cog-wheel, a segment secured to the chair and provided with an arm, said cog-wheel engaging the segment operated by crank-arms, fulcrumed to the rocker and connected by a bar and rod to the arm of the segment, substantially as shown and described.

591,238. WIRE-TIGHTENER FOR FENCES. FRANKLIN MOSURE, Vera Cruz, Ind., assignor of one-half to John Mosure, same place. Filed Apr. 8, 1896. Serial No. 544,942. (No model.)



Claim.—A wire-tightener comprising a rectangular winding-bar and a hook thereon to receive the wire and engage the said bar therewith having two longitudinally opposite holes passing through the bar on one side thereof to receive a holding-staple during adjustment and two second longitudinally opposite holes in said bar to receive a second staple for holding the wire on the bar after it has been wound, substantially as described.

591,239. CURLING-IRON HOLDER. AUGUSTUS K. MCKOWN, St. Louis, Mo. Filed Dec. 5, 1896. Serial No. 614,616. (No model.)



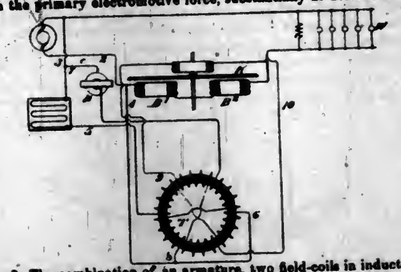
Claim.—1. A holder for supporting curling-irons, comprising a clamp to engage a gas-burner, a clip to hold the curling-iron, and three jointed arms connecting said two parts, one of said arms having the said clip adjustably mounted thereon.

2. A holder for supporting curling-irons, comprising a clamp to engage a gas-burner, a series of jointed arms connected with said clamp, and a spring-clip constructed of two pieces of spring metal bent inwardly and outwardly to form spring-tangs *g* to engage the curling-iron and depending ears *g'*, said ears being adjustably mounted upon the free end of the outer jointed arm, substantially as described.

591,240. PHASE-ADJUSTING METHOD AND MEANS FOR ALTERNATING-CURRENT APPARATUS. OLIVER B. SHALLENBERGER, Rochester, Pa. Filed Jan. 9, 1897. Serial No. 618,587. (No model.)

Claim.—1. The combination with a field-coil supplied with an alternating current, of a second field-coil and a transformer having a secondary circuit including the said second field-coil and inductively influenced by two primary circuits connected to the source supplying the said first field-coil by circuits having different coefficients of self-induction, substantially as described.

2. The combination with a field-coil supplied with an alternating current, of a second field-coil and a transformer having a secondary circuit including the said second field-coil and inductively influenced by two primary circuits connected to the source supplying the said first field-coil by circuits having different coefficients of self-induction, the said secondary circuit and primary circuits being so adjusted and arranged as to produce a current in the secondary in quadrature with the primary electromotive force, substantially as described.

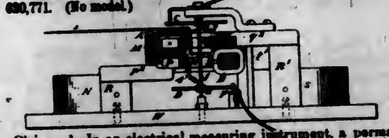


3. The combination of an armature, two field-coils in inductive relation thereto an alternating-current circuit connected with one of said field-coils, a transformer having two primary circuits of different coefficients of self-induction connected with said alternating-current circuit, and a secondary connected with the other of said field-coils, substantially as described.

4. The combination, in an electrical measuring instrument of an armature, two field-coils so combined as to produce a shifting field in inductive relation thereto, an alternating-current circuit connected with one of said field-coils, a transformer having two primary circuits of different coefficients of self-induction connected with said alternating-current circuit and a secondary connected with the other of the said field-coils, the said secondary circuit and primary circuits being so adjusted and arranged as to produce a current in the secondary circuit which is in quadrature with the primary electromotive force, substantially as described.

5. The method hereinbefore described of producing an alternating current in quadrature with the impressed electromotive force which consists in lagging a derived current, inducing a secondary current by means of such lagged current and modifying the phase-angle of the secondary current by the inductive influence of a second derived current substantially in phase with the impressed electromotive force.

591,241. ELECTRICAL MEASURING INSTRUMENT. OLIVER B. SHALLENBERGER, Rochester, Pa. Filed Jan. 26, 1897. Serial No. 620,771. (No model.)



Claim.—1. In an electrical measuring instrument, a permanent magnet constituting the field-magnet of the instrument and provided with a pair of polar extensions, each in the form of a ring, said rings being placed side by side, parallel to each other and separated by an air-gap, substantially as described.

2. In an electrical measuring instrument, the combination of a field-magnet consisting of a permanent magnet having polar extensions in the form of rings placed side by side, parallel to each other and separated by an air-gap, with a coil for carrying the current to be measured, threaded upon one of the said polar rings and mounted mechanically so as to be movable circumferentially upon the same, substantially as described.

3. In an electrical measuring instrument, the combination of a field-magnet consisting of a permanent magnet having polar extensions in the form of rings placed side by side, parallel to each other and separated by an air-gap, of a coil for carrying the current to be measured, threaded upon one of the said rings and a damper threaded upon the other of the said rings, the said coil and damper being carried by a common mechanical support in such manner that they are movable circumferentially on said rings, substantially as described.

4. In an electrical measuring instrument, a field-magnet consisting of a permanent magnet having polar extensions in the form of rings placed side by side and parallel to each other and separated by an air-gap, the point of attachment of one of the said polar extensions to the magnet being diametrically opposite to the point of attachment of the other, substantially as described.

5. In an electrical measuring instrument, the combination of a field-magnet consisting of a permanent magnet having annular pole-pieces extending toward each other from opposite directions and overlapping so as to be concentric, parallel to each other and separated by an air-gap, with a coil for carrying the current to be measured threaded upon one of the said annular pole-pieces, and mounted mechanically so as to be movable circumferentially upon the same, substantially as described.

6. In an electrical measuring instrument, the combination of a field-magnet consisting of a permanent magnet having annular pole-pieces extending toward each other from opposite directions and overlapping so as to be concentric, parallel to each other and separated by an air-gap, with a coil for carrying the current to be measured threaded upon one of the said annular pole-pieces, a damper threaded upon the other of said pole-pieces and placed diametrically opposite to the coil, and a common mechanical support carrying the coil and the damper in such manner that they are movable circumferentially upon the said pole-pieces, substantially as described.

7. In an electrical measuring instrument, a field-magnet consisting of a permanent magnet having annular polar extensions placed side by side, parallel to each other and separated by an air-gap, each of said rings being composed of two or more parts of magnetic material separable from each other, substantially as described.

8. In an electrical measuring instrument, a field-magnet consisting of a permanent magnet having annular polar extensions placed side by side, parallel to each other and separated by an air-gap, each of the said polar extensions being constructed of two parts in the form of bars terminating in semicircles detachable from each other, substantially as described.

9. In an electrical measuring instrument, the combination of a field-magnet consisting of a permanent magnet having annular polar extensions placed parallel to each other and separated by an air-gap, of a magnetic shield substantially surrounding the annular polar extensions, but sufficiently separated from the magnet to avoid short-circuiting the field to an injurious extent, substantially as described.

10. In an electrical measuring instrument, the combination of a field-magnet consisting of a permanent magnet having annular polar extensions placed parallel to each other and separated by an air-gap, of a magnetic shield substantially surrounding the annular polar extensions but sufficiently separated from the magnet to avoid short-circuiting the field to an injurious extent and adjustable with respect to the annular extensions, substantially as described.

11. In an electrical measuring instrument, the combination with an annular field, of a coil for carrying the current to be measured, a damper placed diametrically opposite the coil, a pointer, and a mechanical support for the coil, the damper and the pointer being so arranged as to permit of circumferential movement of the parts about the annular field, substantially as described.

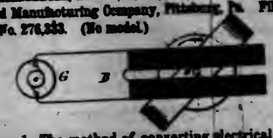
12. In an electrical measuring instrument, the combination with an annular field, of a coil for carrying the current to be measured, a damper and a pointer, the coil, damper and pointer being balanced on a common supporting-shaft, substantially as described.

13. In an electrical measuring instrument, the combination of a field-magnet having annular pole-pieces extending in opposite directions from its poles and overlapping so as to be concentric, parallel to each other and separated by an air-gap, of a coil for carrying the current to be measured threaded upon one of the pole-pieces, a damper placed diametrically opposite the coil and threaded upon the other pole-piece, a common supporting-shaft for the coil and the damper so arranged that the coil and the damper are movable circumferentially upon their respective pole-pieces, and a magnetic shield substantially surrounding the pole-pieces, but sufficiently separated from the field-magnet to avoid injurious short-circuiting of the field and adjustable with respect to the pole-pieces, substantially as described.

14. An electrical measuring instrument comprising a permanent magnet having polar extensions and a magnetic shield partially surrounding said extensions for equalizing the distribution of the magnetic field.

15. An electrical measuring instrument comprising a permanent magnet having polar extensions and a magnetic shield partially surrounding said extensions for equalizing the distribution of the magnetic field and means for adjusting said shield with reference to the polar extensions.

591,242. ALTERNATING-CURRENT ELECTRIC MOTOR. OLIVER B. SHALLENBERGER, Rochester, Pa., assignor to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed June 7, 1888. Serial No. 276,233. (No model.)



Claim.—1. The method of converting electrical energy of alternating currents into mechanical energy which consists in establishing by such alternating currents a system of lines of force, causing a portion of such lines of force to produce secondary alternating currents, establishing a second system of lines of force the general axial line of which is at an angle with reference to that of the first-named system the time of the phases of such second system being determined by the resultant of the lines of force inducing the secondary currents

and the lines of force due to such secondary currents, and causing the two systems of lines of force to act upon a movable element.

2. The method of converting electrical energy of alternating currents into mechanical energy in an electric motor, which consists in establishing by such currents a system of alternating lines of force, causing a portion of such lines of force to directly induce secondary alternating currents, the direction of whose path is at an angle to the first-named currents, establishing by such secondary currents lines of force at an angle with reference to the polar line of the first-named currents, and causing the movable element of the motor to move under the influence of the resultant effects of the two systems of lines of polarization thus produced.

3. The combination of a rotating armature, an inducing-circuit establishing when traversed by alternating electric currents, lines of magnetic force which polarize said armature, a second circuit having its polar line at an angle with reference to that of the inducing-circuit and in which currents are induced from the first-named circuit, having phases subsequent to the phases of the currents in the first circuit and means for establishing lines of magnetic force by the currents in the second circuit tending to polarize the armature in a different direction.

4. The combination with a coil or conductor to be traversed by alternating currents, of a stationary closed-circuit conductor, located in the field of said coil but at an angle with reference to the first-named coil whereby the alternations of a portion of the field of force shall be displaced in phase from the alternations of another or adjoining portion of the field.

5. The combination of a coil or conductor to be traversed by alternating currents and a displaced closed-circuit conductor in inductive relation thereto whereby the alternations of a portion of the field of force of said coil and closed-circuit conductor shall be displaced in phase from the alternations of another or adjoining portion and an armature in the resultant field thus produced.

6. The combination of a coil for receiving alternating currents, a closed-circuit conductor in which alternating impulses are directly induced by alternations in said coil and a continuously-rotating armature exposed to alternating inductive actions, which are the resultant of the action of the alternations in said coil and in the said closed-circuit conductor.

7. The combination with an alternating-current coil or conductor, of a stationary closed-circuit conductor, having their axial lines non-coincident but intersecting and influencing the same field whereby the field may have adjoining portions in which the phases of alternation are displaced, as and for the purpose described.

8. The combination of a coil or conductor for alternating electric currents, a closed-circuit conductor at an angle but in inductive relation thereto, and an armature placed within the inductive field of both the coil and conductor.

9. The combination with a coil or conductor for alternating electric currents, and a closed-circuit conductor in inductive relation thereto, of an armature placed within the inductive field of both the coil and conductor, and means for reversing the armature by changing the relations of the closed-circuit conductor and the armature.

10. The combination of a rotary armature, an inducing-circuit, and closed secondary circuit at an angle therewith but in inductive relation to the inducing-circuit and to the armature, the said circuits having lines of polarization which intersect each other, substantially as described.

11. The combination of a rotating armature, an inducing conductor, establishing, when traversed by alternating electric currents, lines of magnetic force which polarize said armature, and a secondary conductor closed upon itself and receiving currents from the first-named conductor by induction and presenting lines of magnetic force tending to polarize the armature in a different direction.

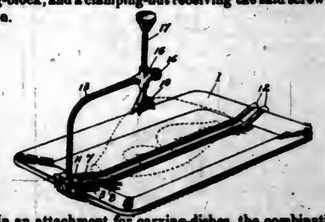
12. In combination, a rotating metallic disk, a coil in proximity thereto for inducing a polar line therein, and a second coil also in proximity to said disk so arranged as to have currents directly induced therein which currents induce a second polar line at an angle with the polar line induced by the first coil

13. In combination, a rotating metallic armature, a coil in proximity thereto for inducing a polar line therein, and a second coil also in proximity to said armature so arranged as to have currents directly induced therein which currents induce a second polar line at an angle with the polar line induced by the first coil.

591,243. CARVING-DISH ATTACHMENT. SAMUEL SHERMAN, Boston, Mass. Filed Sept. 17, 1896. Serial No. 606,129. (No model.)

Claim.—1. In an attachment for carving-dishes, the combination with a clamping-block adapted to engage with one portion of the dish, of a rest comprising separated parallel bars having portions hooked and engaging with the dish, and an adjustable connection between the rest and the block, the article to be carved being received between the parallel bars.

2. In an attachment for carving-dishes, the combination with a clamping-block adapted to engage with the carving-dish, of a rest having a portion adapted to engage with the carving-dish and provided with a screw-threaded projection which passes through the clamping-block, and a clamping-nut receiving the said screw-threaded projection.



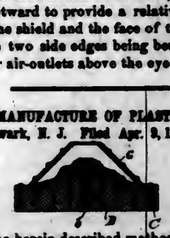
3. In an attachment for carving-dishes, the combination with a clamping-block having arms which straddle the edge of the carving-dish, of a rest comprising separated parallel bars lying adjacent to the dish and provided with hooked ends which engage with the latter, said bars having screw-threaded portions which pass through the clamping-block, and thumb-nuts located on said screw-threaded portion.

591,244. EYE-PROTECTOR. ELLA R. WYLIE, Boston, Mass. Filed Mar. 25, 1897. Serial No. 629,199. (No model.)



Claim.—An eye protector or shield, constructed of ductile metal having a covering of fabric, and having means for holding it in place on the wearer, said shield having its upper edge slightly curved to closely fit the forehead and having its lower side edges curved to closely fit the cheek and one side of the nose, the center of the lower edge being bent outward to provide a relatively narrow passage or air-inlet between the shield and the face of the wearer, and the upper portions of the two side edges being bent to provide relatively narrow passages or air-outlets above the eye of the wearer.

591,245. MANUFACTURE OF PLASTER CORNICES. ARTHUR CARLEWITH, Newark, N. J. Filed Apr. 9, 1897. Serial No. 631,482. (No model.)



Claim.—1. The herein-described method of forming a mold for casting articles from plaster which have surface ornamentation in relief, which consists in first placing a pattern in a frame then forming a coating of clay over the face of the pattern, then casting a thick backing of plaster on the clay, then removing the clay, and then filling the space previously occupied by the clay with a gelatinous compound, and finally removing the pattern after the gelatinous compound shall have congealed, substantially as set forth.

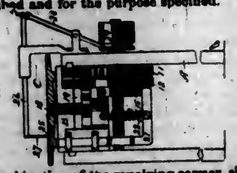
2. A mold for casting cornices, which have a surface ornamentation in relief, consisting essentially of a base D of plaster with a removable facing I of tough elastic gelatinous composition, having formed in it the mold for the relief ornamentation of the front of the casting, and a frame G to form the back of said casting substantially as shown and described.

3. The combination, to form a mold for casting articles of plaster which have surface ornamentation in relief, of the metal frame G, the frame C, adapted to fit on the frame G, the backing D, of plaster in the frame C, and the removable face I, on the backing D, said face being of tough, elastic, gelatinous composition and having formed in it the mold for the relief ornamentation of the article to be cast, substantially as set forth.

591,246. COUNTING MECHANISM FOR PRINTING-PRESSES. LUCIAS C. CLARK, Plantsville, Conn. Filed Apr. 1, 1895. Serial No. 544,122. (No model.)

Claim.—1. The combination of the reciprocating bed and delivering devices of a printing-press, an intermittingly-moving carrier having a plurality of pile-receivers, a counting mechanism, an actuating device that reciprocates with said bed for moving said counting mechanism intermittingly, and a second actuating device that also reciprocates with said bed for moving said carrier one movement for a given number of strokes of said bed and counting mechanism, substantially as described and for the purpose specified.

2. The combination of the revolving carrier, shaft, and wheel 19, with the ratchet-wheel 11, cam-disk 12, mounted to move independently and having a pin-and-slot connection with said wheel, a side cam on said cam-disk for acting on the wheel 19, a peripheral shoulder or tooth on said cam-disk, and two reciprocating pawls for acting respectively upon said ratchet-wheel and cam-disk, substantially as described and for the purpose specified.



3. The combination of the revolving carrier, shaft and wheel 19, with the ratchet-wheel 11, cam-disk 12 having side cam and peripheral shoulder and loosely connected with said ratchet-wheel to move independently thereof at times, pawls for acting respectively upon said wheel and disk, the locking-slide 21 and cam 15 moving with said cam-disk, substantially as described and for the purpose specified.

4. The combination of the reciprocating bed of a printing-press, an intermittingly-moving carrier having a plurality of pile-receivers, mechanism for permitting said carrier to remain at rest during a given number of strokes of said bed and then giving it one movement, the knock-out fingers, and mechanism for operating said knock-out fingers to remove a pile during each period of rest of said carrier, substantially as described and for the purpose specified.

5. The combination of the reciprocating bed and delivery devices of a printing-press, an intermittingly-moving carrier having a plurality of pile-receivers, a reciprocating carrier-operating device moving synchronously with the said bed, a counting mechanism actuated intermittingly by a device which reciprocates with said bed, and devices connected with said counting mechanism and carrier, whereby the said carrier is given one movement for a given number of movements of said counting mechanism, substantially as described and for the purpose specified.

591,247. OIL-STOVE BURNER. LOUIS B COAME, Lawrence, Mass. Filed May 14, 1897. Serial No. 636,457. (No model.)

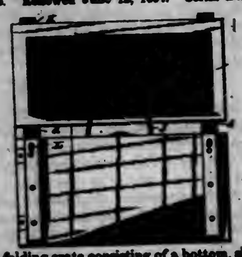


Claim.—1. A wick-feeding device consisting of ratchet-wheels cut away at one side to afford an unobstructed wick-passage in the burner, substantially as and for the purposes specified.

2. In a wick-feeding device, consisting of a tube having a shaft extending therethrough with a series of ratchet-wheels thereon with cut-away portions to afford an unobstructed wick-passage in the burner, substantially as and for the purposes specified.

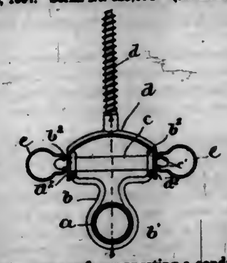
3. A wick-feeding device, consisting of a tube, a shaft mounted therein, and ratchet-wheels on the said shaft having cut-away portions adapted to alinse with the adjacent wall of the tube, said shaft and ratchet-wheel being supported in a struck-out chamber formed in one side of the tube, substantially as and for the purposes specified.

591,248. FOLDING CRATE. MAGNUS EK, Silverton, Oreg. Filed Apr. 11, 1896. Renewed June 12, 1897. Serial No. 640,570. (No model.)



Claim.—A folding crate consisting of a bottom, sides thereto and one having a vertical groove in its inner face, end pieces hinged to one of the sides, a partition hinged to the inner face of one of the sides and adapted to engage in the groove on the inner face of the opposite side, and a lid hinged to said side and adapted to fold down against the outer face thereof, and provided with a pad upon its under face provided with a strap, substantially as described.

591,249. PIPE-HANGER. VICTOR J. BRADY, Quincy, Mass. Filed Feb. 16, 1897. Serial No. 623,004. (No model.)



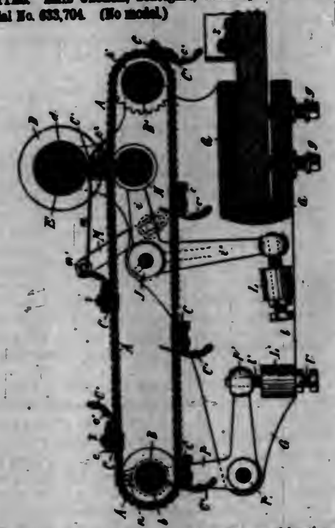
Claim.—1. As a means for supporting a conducting-pipe or the like, the combination with a bracket comprising a screw-threaded shank portion, and an inverted-U-shaped portion provided with apertured ears, of a pipe-supporting collar having its ends apertured, and a horizontally-movable bar adapted to fit the apertures in the bracket and collar and lock said bracket and collar together.

2. A device of the character specified, comprising a bracket provided with means for attachment to a fixed support, and with ears having rectangular slots, a bar rectangular in cross-section and adapted to slide in said ears, a pipe-embracing collar having its ends bent to form hooks adapted to fit said bar, and means for locking the bar against endwise movement.

3. A device of the character specified, comprising a bracket provided with means for attachment to a fixed support, and a flexible collar having its ends detachably connected with said bracket and having a loop portion, the sides between the loop portion and the ends being bent inward and adapted to be altered in shape to permit the loop portion to embrace different sizes of pipe.

4. A device of the character described, comprising a bracket provided with means for attachment to a fixed support and having slotted ends, a longitudinally-movable bar fitting the slots thereof and having notches or recesses near its ends, a pipe-embracing collar having its ends engaging said bar, and spring-clips engaging the recesses of the bar to prevent longitudinal movement thereof.

591,250. MACHINE FOR PRESSING AND CUTTING CIGARETTES. EMIL GERMANI, Stuttgart, Germany. Filed Apr. 24, 1897. Serial No. 633,704. (No model.)



Claim.—1. In a cigarette-machine, the combination of an endless chain, a series of compressing-dies carried by said chain, revoluble knives working above said chain, and mechanism for simultaneously operating said knives, dies, and the chain.

2. In a cigarette-machine, the combination of a pair of knives, an endless chain arranged below said knives, compressing-dies carried by said chain and adapted to pass closely between said knives, and mechanism for simultaneously operating the knives, dies, and the chain.

3. In a cigarette-machine, the combination of an endless chain, clamps carried by said chain, dies removably fitted in said clamps, means for automatically closing the clamps, and means for operating the chain.

4. In a cigarette-machine, the combination of an endless chain, compressing-clamps carried thereby, a stud arranged in the path of said clamps to close the same, a spring extending from said stud and adapted to bear on the passing clamps, and means for operating the chain.

5. In a cigarette-machine, the combination of a pair of revoluble knives, a compressing-roller arranged between the same, an endless chain, compressing-clamps mounted on said chain and carried thereby between the knives and below the compressing-roller, and means for simultaneously operating the chain, knives and roller.

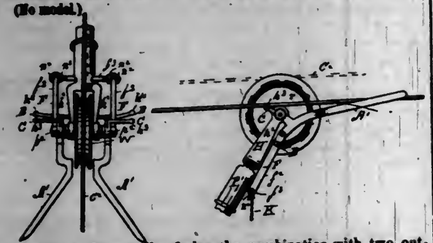
6. The combination of the endless chain, compressing-dies carried thereby, a pair of knives adapted to operate at the ends of the dies, a compressing-roller above the chain, an adjustable pressure-roller below the chain and in the same vertical plane as the compressing-roller, and suitable operating mechanism.

7. A machine for compressing and trimming cigarettes comprising a pair of knives, an endless belt passing below said knives, a series of compressing-dies carried by said belt, and means for keeping the dies closed as they pass between the knives.

8. A cigarette-machine comprising means for compressing the cigarettes into elliptical form and means for trimming the ends of the cigarette simultaneously with the compressing thereof.

591,251. TROLLEY-FINDER FOR ELECTRICAL RAILROADS.

PAUL GOLDSMITH, Troy, N. Y. Filed Feb. 10, 1897. Serial No. 622,804. (No model.)



Claim.—1. In a trolley-finder the combination with two outwardly-flaring arms arranged to approach each other, and the trolley-wheel in close proximity to the rim of the latter at its top, and each journaled onto the trolley-wheel shaft where projecting beyond the wheel; of a frame part which at each of its two upper ends is hinged to the lower end of one of the trolley-finder arms, with the latter and said frame part constructed to lock and be reversed on their hinged connection with the frame, substantially in the manner as and for the purposes set forth.

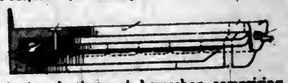
2. In a trolley-finder the combination with two outwardly-flaring side arms, which at their inner ends approach each other to be in close proximity to the rim of the trolley-wheel at its top, and each provided with a journaled connection with the shaft of the wheel, where projecting beyond the latter, and each of said arms having at its lower end an outwardly and inwardly laterally-projecting bar; of a frame having each of its sides at its upper ends hinged to the lower end of one of said arms so as to lap past the latter, and each of said frame sides provided with a notch in its rear edge, whereby the bars of said arms are adapted to enter said notches to interlock the frame parts and arms, and to unlock when the frame parts and arms are reversed on their hinged connection, substantially as and for the purposes set forth.

3. In a trolley-finder, the combination with a trolley-wheel, mounted on a pole to turn therein, on a shaft provided with bearings and arranged to pass through, and beyond the wheel at each side thereof; of two outwardly-flaring arms which at their inner ends approach each other so as to be in close proximity to the trolley-wheel rim at the top of the latter, and journaled onto said shaft where projecting beyond the wheel at each side thereof, and each of said arms provided with a laterally and outwardly extended bar at its lower end; a frame part having each of its sides hinged to one of said arms near its lower end so as to lap past the latter, and each made with a notch in its rear edge, by which notch in the frame and bar on the arms, the latter and the frame may interlock, and on which hinged connection the arms may reverse, substantially as and for the purposes set forth.

4. In a trolley-finder the combination with a trolley-wheel mounted upon the upper end of a pole, and provided with a shaft on which to turn, with said shaft constructed to pass beyond the wheel at each side thereof; of two outwardly-flaring arms which at their inner ends are in close proximity to the rim-top of the trolley-wheel, and each journaled onto one of the projecting ends of said shaft, and each of said arms provided with a crank-form arm projected from its side where journaled to the shaft, with an outwardly and inwardly laterally-projecting bar, at its lower end; and a frame having each of its sides at its upper end hinged to one of the arms, near its lower end, so as to lap past the latter, and each of said frame sides notched at its rear edge by which said arms and frame part may lock and unlock to reverse, substantially as and for the purposes set forth.

5. The combination with the wheel W, mounted in the upper end of the pole P, upon the shaft S, with the latter at its ends projecting beyond the wheel; of the outwardly-flaring frame parts A', A', each having the straight sides a^2, outwardly extended at a^4, and then downwardly extended at a^5, to form exteriorly the curve D, and each provided with the bar B, at its lower end, and the bearing-arm J, with the crank-form arm C, projected therefrom: and the frame F, having each of its sides f^3, hinged at p^3, to the lower end of one of the arms A', to lap past the latter, and each of said frame parts made with a notch n, constructed and arranged to operate, substantially in the manner as and for the purposes set forth.

591,252. CUSHIONED HORSESHOE. JOHN R. CRAVE, Canton, Ohio, assignor of one-half to Theodore C. McGuate. Filed June 17, 1897. Serial No. 641,106. (No model.)



Claim.—1. An elastic-tread horseshoe comprising a metallic plate, having formed upon its outer edge clips terminating in vertical flanges at the heel, a rubber cushion seated therein, a clamping-plate having projecting lugs engaging the metallic plate, and a retaining-bolt, substantially as described and for the purpose set forth.

2. An elastic-tread horseshoe comprising a metallic plate having formed upon its outer edge clips terminating at the heel in vertical flanges at right angles thereto, a rubber cushion seated therein and carrying a stiffening-wire, the free ends of which engage the vertical projections at the heel, a clamping plate having projecting lugs adapted to engage the metallic plate, and a retaining-bolt by means of which the metallic plate and clamping-plate are held in engagement, substantially as described and for the purpose set forth.

3. The combination in an elastic-tread horseshoe, of a metallic plate having formed upon its outer edge clips, closed heels at right angles thereto, a rubber cushion adapted to be seated therein, and a clamping-plate conforming thereto and having projecting flanges adapted to engage with the metallic plate, and a retaining-bolt by means of which the metallic plate and clamping-plate are held in engagement, substantially as described and for the purpose set forth.

591,253. WORKMAN'S TIME-RECORDER. DANIEL HEPP, Chicago, Ill. Filed Jan. 25, 1897. Serial No. 620,631. (No model.)



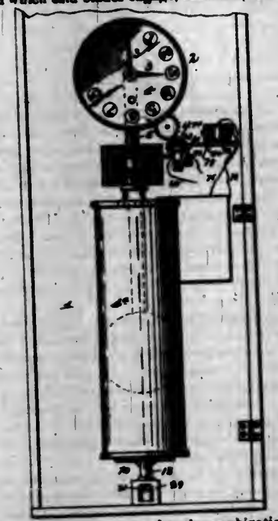
Claim.—In a recording-key of the character described, the combination with the cylindrical block having a cylindrical bore, the head at one end provided with a pin and with a central annular bore, of the reciprocating tube located in said bore, having a slot therein, the pin secured to said block and working in said slot, the coiled spring surrounding said tube, the screw-cap on the end of said block, the removable marker of absorbent material located in said tube, the plate at the end of the tube, and the coiled spring in said tube, substantially as described.

591,254. WATCHMAN'S TIME-RECORDER. DANIEL HEPP, Chicago, Ill. Filed Jan. 25, 1897. Serial No. 620,632. (No model.)

Claim.—1. In a watchman's time-recorder, the combination with the rotatable cylinder, the supporting-plate, and the vertically-movable shaft, provided with pins, of the socket, having opposite slots through which said pins project, the pivoted lever, the spring-arms provided with blades, and the plate having an opening, the sides of which are formed with slots with which said blades engage, substantially as described.

2. In a watchman's time-recorder, the combination with the rotatable cylinder, the supporting-plate, the sleeve and the stud-shaft provided with a pin, of the socket in which said shaft is stopped, having a slot through which said pin projects, the pivoted lever, the spring-arms provided with blades, and the plate having an opening, the sides of which are formed with slots with which said blades engage, substantially as described.

3. In a watchman's time-recorder, the combination with the rotatable cylinder, the supporting-plate, the sleeve secured thereto, the stud-shaft fitting loosely in said sleeve having a recess in its upper end and a grooved annular flange intermediate its ends, the balls seated in said groove and recess, the pin secured to said shaft, the socket in which said shaft is stepped, having a slot through which said pin projects, the pivoted lever, the spring-arms provided with blades, and the plate having an opening, the sides of which are formed with slots with which said blades engage, substantially as described.



4. In a watchman's time-recorder, the combination with the recording-electromagnets, of the armature, the disk-holders pivoted thereto each consisting of a piece of sheet metal, bent over to form two parallel arms and the felt disks pivoted to the free ends of said arms, substantially as described.

5. In a watchman's time-recorder, the combination with the casing, the rotatable cylinder, the recording-electromagnets, the station sockets or casings, and the conductors connecting said magnets and sockets, of the shaft provided with a cog-wheel adapted to mesh with a train of clock-gearing located in said casing, the ratchet journaled on said shaft and rotating therewith by frictional contact, provided with a contact-arm, the pivot contact-piece with which said arm is adapted to contact by the rotation of said ratchet, and the electric bell electrically connected with said arm and contact-piece, substantially as described.

6. In a watchman's time-recorder, the combination with the casing, the rotatable cylinder, the electromagnets, the station sockets or casings, and the armatures and recording-disks, and the conductors connecting said sockets and electromagnets, of the shaft provided with a cog-wheel driven by a clock-movement located in said casing, the ratchet journaled on said shaft and rotating by frictional contact therewith, provided with a contact-arm, the contact-piece with which said arm is adapted to contact by the rotation of said shaft, the electromagnets electrically connected with said first-mentioned electromagnets, the conductors electrically connecting said arm and contact-piece with the same, the pivoted armature provided with a hook adapted to engage with said ratchet and the bell in circuit with the electromagnets connected with said arm and contact-piece, substantially as described.

7. In a watchman's time-recorder, the combination with the cabinet and the door provided with a curved plate at the inner side, of the rotatable vertically-movable form-cylinder, the pivoted armatures and marking-disks, the springs for throwing said disks away from said cylinder, the arms secured to the free ends of the armatures against which said curved plate strikes when the door is closed, to force the armatures into close proximity to the cylinder, the station sockets and the conductors connecting them with said electromagnets, substantially as described.

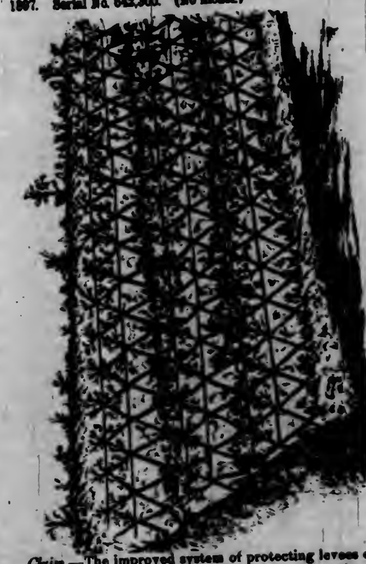
591,255. PERPETUAL CALENDAR. FREDERICK S. HODGDON, Rumford, Me. Filed Apr. 6, 1897. Serial No. 630,974. (No model.)

Claim.—1. In a calendar, the combination with a suitable base and back extending upward therefrom and provided at or near its top with a horizontal bar, of a pair of end rollers journaled in said bar and base and spaced a suitable distance apart, a flexible sheet wound thereon and having the days of the month imprinted upon it, a second horizontal bar located below and spaced apart from the upper bar and having the days of the week permanently represented thereon, and a pair of short intermediate rollers journaled in said bars and having a flexible sheet wound thereon, said sheet carrying the names of the months, all arranged for joint operation, substantially as described.



2. In a calendar, the combination with a suitable base and back, of a top or horizontal bar connected to the back, end-rollers journaled in said top bar and base and having a flexible sheet wound thereon and carrying figures, a second or intermediate horizontal bar arranged at a distance from and below the top bar, and intermediate rollers journaled in said bars and having wound thereon a flexible sheet bearing the names of the months, the lower or intermediate horizontal bar being secured to the back and terminating at its ends adjacent to the end rollers, substantially as described.

591,256. SYSTEM OF PROTECTING LEVEES. WILLIAM R. HUDLEY and WILLIAM T. HARRIS, Jr., Richmond, Ky. Filed June 25, 1897. Serial No. 642,305. (No model.)

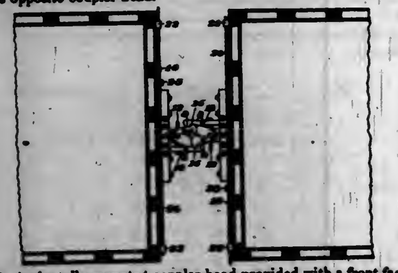


Claim.—The improved system of protecting levees consisting of setting out a series of rows of plants arranged one above the other on the inner face of the levee, crossing the plants and tying them together at the crossing-points, and connecting the upper portions of the plants in each row to the plants in the row immediately above it, substantially as and for the purpose described.

591,257. CAR-COUPLING. JOHN JARRETT, Pittsburg, JOHN R. DAVIES, Duquesne, and JOHN EDWARDS, Homestead, Pa. Filed Jan. 18, 1897. Serial No. 619,535. (No model.)

Claim.—1. A coupler provided with a front face having a concave and convex portion, these portions merging into each other, said coupler having on one side a swinging knuckle, and on the other side a rigid hook portion arranged to be engaged by the knuckle of the opposite coupler.

2. A pivotally-mounted coupler-head, provided with a front face having a concave and convex portion, these portions merging into each other, said head having at one side a swinging knuckle and at the other a rigid hook portion arranged to be engaged by the knuckle of the opposite coupler-head.



3. A pivotally-mounted coupler-head provided with a front face having a concave and convex portion, these portions merging into each other, said head having pivoted to one side thereof a swinging knuckle, a spring arranged to force the knuckle normally inwardly, and a rigid hook portion upon the other side of the head arranged to be engaged by the knuckle of the opposite coupler-head.

4. A coupler-head having a front face which is provided with a transverse concave portion merging into a convex portion, a swinging knuckle pivoted at one side of the coupler-head, a rigid hook portion at the other side of the coupler-head arranged to be engaged by the knuckle of the opposite coupler-head, and a draw-bar having a pivotal connection with the coupler-head.

5. A coupler-head having a pivotal connection with a draw-bar, said connection consisting of interfitting lugs, and a pivot-pin passing therethrough, a swinging knuckle having a similar pivotal connection to the coupler-head, and a rigid hook upon the other side of the coupler-head.

6. A coupler-head having a front face provided with a concave and convex portion, these portions merging into each other, a rigid hook at one side thereof, a swinging knuckle pivoted at the other side, and having a tailpiece, a spring arranged to normally throw the knuckle inwardly, and a chain connected to the tailpiece.

591,258. BACK-BAND FOR HARNESS. GARRETT M. KIRWIN, Newport, R. I. Filed June 19, 1896. Serial No. 596,180. (No model.)



Claim.—1. The combination with a saddle, of a continuous elastic back-band extending over and mounted to slide longitudinally upon the saddle and adapted for terminal attachment to thill-supports, substantially as specified.

2. The combination with a saddle, of a longitudinally-elastic rubber back-band extending continuously over and mounted to slide longitudinally upon the saddle, and adapted for terminal attachment to thill-supports, substantially as specified.

3. The combination with a saddle, of a longitudinally-elastic back-band of frictional or adhesive material, extending over and mounted to slide longitudinally upon the saddle and having attached thill-supports, and side guides on the saddle for holding the central portion of the back-band in frictional contact with the surface of the saddle, to prevent longitudinal shifting of the back-band when subjected to moderate longitudinal strains, substantially as specified.

4. The combination with a saddle having guides, of a longitudinally-elastic rubber back-band extending over and mounted to slide longitudinally upon the saddle, and having frictional or adhesive contact therewith at its center, to prevent longitudinal shifting of the back-band when subjected to moderate strains, said back-band having terminally-attached thill-supports, substantially as specified.

591,259. PACKING-AUGER. JOHN KOEHLER, Louisville, Ky., assignor to the Ballard & Ballard Company, same place. Filed Feb. 18, 1897. Serial No. 624,070. (No model.)

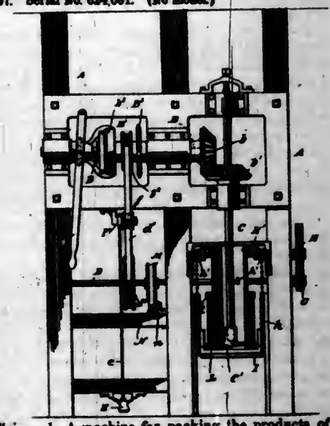


Claim.—1. A packing-auger for the products of grain and other material, comprising a rotary blade or flange extending outwardly from a stem or shaft and having a heel and toe portion slightly separated from each other and extending inwardly from the circumference of the flange to substantially the vertical axis thereof, so as to adapt the same to receive and discharge the material at the side of the axis on which said opening is located in a sheet of a width substantially equal to the distance from the center to the circumference of the flange; the latter being gradually inclined and having a smooth lower surface from its toe to its heel, whereby the material may be equally distributed and packed without injury thereto, substantially as described.

2. A packing-auger for the products of grain and other material, comprising a shank or stem adapted to be secured to a rotatable shaft, and a spiral flange extending outwardly from said shank and having a discharge-opening extending from the periphery of the flange to substantially the vertical axis thereof, said flange forming an inclined plane or surface which is smooth on the under side thereof from the highest point of the toe to the heel or discharge, whereby the material may be equally distributed and packed without injury thereto, substantially as described.

3. A packing-auger for the products of grain and other material, comprising a shank or stem adapted to be secured to a rotatable shaft, and a substantially disk-shaped feeding device on the lower portion of said shank, consisting of a single spiral blade or flange forming a gradually-inclined plane and provided with an engaging lip or toe and a heel beneath said toe extending from the circumference of the flange to substantially its vertical axis, so as to form a discharge-opening which also extends from the circumference of the flange to substantially the vertical axis thereof, said blade being smooth on the under side thereof from its toe to its heel, whereby the material may be equally distributed and packed without injury thereto, substantially as described.

591,260. BRAN-PACKER. JOHN KOEHLER, Louisville, Ky., assignor to the Ballard & Ballard Company, same place. Filed Feb. 18, 1897. Serial No. 624,081. (No model.)



Claim.—1. A machine for packing the products of grain and other materials into angular packages by the use of a round auger, comprising a vertically-movable platform and means for raising the same and permitting it to descend with a yielding resistance against applied pressure, a jacket or casing mounted on said platform having a polygonal opening therethrough, a polygonal stationary casing arranged over said jacket adapted to fit the interior thereof and having a cylindrical opening therethrough, a packing-auger working in said opening, and means for rotating the auger, whereby a square or polygonal package may be formed by the action of a round feeding and forcing device adapted to force the material from a cylindrical into a polygonal opening containing the sack to be filled, substantially as described.

2. In a machine for packing the products of grain and other materials, a vertically-disposed shaft carrying a packing-auger, a stationary tube in which said auger works, a vertically-movable platform arranged below said cylinder, means for permitting said platform to descend with a yielding resistance opposing the pressure of the auger on the material that is being packed, mechanism for elevating the platform, and a casing or jacket on said platform having its interior shaped to conform to the exterior of said tube and between the same and the elevating mechanism arranged in substantially the same vertical plane with the auger-shaft or axis of the auger, to make telescopic connection therewith; said platform being suspended by connections arranged so that the resistance to the pressure of the packing-auger shall be exerted centrally thereof, substantially as described.

3. In a machine for packing the products of grain and other materials, a vertically-disposed shaft carrying a packing-auger, a stationary tube in which said auger works having its exterior angular in cross-section, a vertically-movable platform arranged below said cylinder, means for permitting said platform to descend with a yielding resistance opposing the pressure of the auger on the material that is being packed, mechanism for elevating the platform, and a casing or jacket on said platform having its interior shaped to conform to the exterior of said tube and arranged to make telescopic connection therewith; said platform being suspended by flexible connections between the same and the elevating mechanism arranged in substantially the same vertical plane with the auger-shaft or axis of the auger, so that the resistance to the pressure of the packing-auger shall be exerted centrally thereof, substantially as described.

4. In a machine for packing the products of grain and other materials, a round packing-auger combined with a cylindrical inclosure in which the auger works having an exterior casing made square or polygonal in cross-section to receive the sack to be packed, together with a jacket having an angular opening therethrough corresponding in shape with said exterior casing and adapted to fit over the sack stretched on said casing; said jacket being mounted on a vertically-movable platform suspended by flexible connections arranged centrally below the axis of rotation of the auger, and means for raising the platform and yieldingly resisting its downward movement caused by the pressure of the auger on the material that is being packed, substantially as described.

591,261. FASTENING DEVICE FOR GLOVES. WARREN B. PAGE, Newton, Mass., assignor of one-third to William B. Draper, Malden, Mass. Filed Mar. 11, 1897. Serial No. 626,942. (No model.)



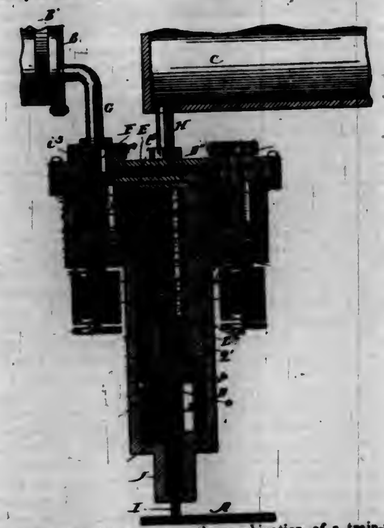
Claim.—1. In a fastening device of the character specified, a socket member comprising an annular sheet-metal body having an annular socket provided with an outwardly-inclined inner wall to receive and turn the end of an attaching-eyelet, said body also having a resilient inwardly-projecting flange integral with said body and extending in a direction opposite to the opening or entrance to the annular socket and formed to engage a stud member.

2. In a fastening device of the character specified, a member comprising, first, a sheet-metal annular body having an annular socket and a divided or slotted resilient inwardly-projecting flange integral with the body, and extending in a direction opposite to the opening or entrance to the annular socket and secondly, an eyelet having a head or cap at its outer end, its inner end being adapted to enter and be spread in said annular socket.

591,262. PNEUMATIC AND ELECTRIC CONTROLLED BRAKE. HARVEY S. PAGE, Chicago, Ill., assignor to the Westinghouse Air Brake Company, Allegheny County, Pa. Original application filed Nov. 23, 1887, Serial No. 256,252. Divided and this application filed July 2, 1888. Serial No. 278,991. (No model.)

Claim.—1. In a fluid-pressure brake apparatus, the combination, with a train-pipe, and a brake-cylinder, of a valve device operated by variations of fluid-pressure to apply and release the brakes, a normally-closed exhaust port, or passage, and electrical controlling devices, whereby the exhaust port or passage may be alternatively controlled by the fluid-pressure-operated valve device or by the electrical controlling devices.

2. In a fluid-pressure brake apparatus, the combination, with a train-pipe, and a brake-cylinder, of a main valve operated by variations of fluid-pressure, electrical controlling devices, and a normally-closed exhaust port, or passage, adapted to be controlled alternatively by the main valve or the electrical controlling devices, substantially as set forth.



3. In an air-brake system, the combination, of a train-pipe, a brake-cylinder, an auxiliary reservoir, a main valve operated by variations of fluid-pressure, a normally-closed exhaust-port, a separate induction-valve normally closed, and electric devices for operating the separate induction-valve, whereby fluid under pressure may be supplied to the brake-cylinder by the operation of the main valve or the separate induction-valve, substantially as set forth.

4. In an air-brake system the combination of a train-pipe, a brake-cylinder, a car-reservoir, a main valve operative by variations of fluid-pressure and controlling the induction and eduction of air to and from the brake-cylinder, separate induction and eduction valves, and electrical devices for operating them independent of the main valve, substantially as set forth.

5. In an air-brake system, the combination of a train-pipe, a brake-cylinder, an auxiliary reservoir, an eduction-port normally closed, and independent pneumatic and electric devices controlling the valve for the eduction-port, substantially as and for the purposes specified.

6. In an air-brake system, the combination of a train-pipe, a brake-cylinder, an auxiliary reservoir, a normally-closed eduction-port, a normally-closed induction-port, and independent electric pneumatic devices controlling the valves of the eduction and induction ports, substantially as and for the purposes specified.

7. In an air-brake system the combination of a brake-cylinder, an eduction-passage from the brake-cylinder, a valve for such eduction-passage normally closed, a piston controlling said valve, a passage from the brake-cylinder to the back of the piston, a valve for such passage and electric devices for controlling such valve, substantially as set forth

8. In an air-brake system the combination of a train-pipe, a brake-cylinder, an auxiliary reservoir, a chamber communicating with the train-pipe, brake-cylinder and car-reservoir, a second chamber connected with the main chamber and the brake-cylinder, an eduction-passage in said second chamber, a valve controlling said eduction-passage, a piston attached to the valve and located in the chamber, a passage leading from the main chamber below the piston, a passage leading from the brake-cylinder below the piston, a valve electrically controlled for said last-named passage, and a main pneumatic valve, substantially as and for the purposes specified

9. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a car-reservoir, a chamber communicating with the train-pipe, brake-cylinder and car-reservoir, a main pneumatic valve in said chamber, a chamber communicating with main chamber and the brake-cylinder, an eduction-passage in said chamber, a valve for said eduction-passage, a piston in the eduction-chamber carrying the valve, passages leading to the eduction-chamber from the main chamber and the brake-cylinder, an electric-controlled valve for such brake-cylinder passage, another chamber communicating with the main-valve chamber, an induction-port from such

chamber, a valve normally closed for such induction-port, a piston in the chamber carrying said valve, a passage leading from its main-valve chamber to the chamber last named back of the piston and an electric-controlled valve for the last-named passage, substantially as and for the purposes specified.

10. In an air-brake system the combination of a main valve and a brake-cylinder, an eduction-passage from the brake-cylinder, an eduction-valve controlling such passage and a passage controlled by the main valve for admitting air to the piston of the eduction-valve when the main valve is in release position, whereby the eduction-valve is opened to release the brakes, substantially as set forth.

11. In an air-brake system the combination with a main valve and a brake-cylinder of an eduction-passage from the brake-cylinder, an eduction-valve controlling said passage and operated by a piston, a chamber containing fluid under pressure for causing the opening of the eduction-valve, and a passage controlled by the main valve and leading from said chamber to the piston of the eduction-valve, substantially as set forth.

12. In an air-brake system the combination of a brake-cylinder passage, a main-valve chamber, an eduction-chamber communicating with the brake-cylinder passage, a passage leading from the eduction-chamber, a valve normally closed for said passage, a piston in the eduction-chamber for controlling the eduction-valve, a passage in the chamber below the piston, passage connecting the main-valve chamber and the brake-cylinder passage with the passage into the chamber back of the piston, a main pneumatic valve, and electric devices for controlling the eduction-port, substantially as specified.

13. In an air-brake system, the combination of a brake-cylinder, a main chamber, a passage communicating with the brake-cylinder and the main chamber, an eduction-chamber communicating with the brake-cylinder passage, a passage leading from the eduction-chamber to the atmosphere, a valve normally closed for said passage, a piston controlling said valve, a passage leading to the chamber back of the piston, and communicating with the main pneumatic valve-chamber and the brake-cylinder passage, a main pneumatic valve, and electrical devices for controlling the normally-seated valve of the eduction-passage, substantially as specified.

14. In an air-brake system the combination of a train-pipe, a brake-cylinder, a car-reservoir, a chamber communicating with the train-pipe and car-reservoir, a passage communicating with the main chamber and brake-cylinder, an eduction-chamber communicating with the brake-cylinder passage, a passage leading from the eduction-chamber to the atmosphere, a valve normally closed for said passage, a piston operating said valve, a passage leading to the eduction-chamber, below the piston and communicating with the brake-cylinder passage and the main chamber, a main pneumatic valve and devices electrically controlled for opening the eduction-port, substantially as specified.

15 In an air-brake system, the combination of a train-pipe, a brake-cylinder, a car-reservoir, a chamber communicating with the train-pipe and car-reservoir, a passage communicating with the chamber and brake-cylieder, an eduction-chamber communicating with the brake-cylinder passage leading from the eduction-chamber to the atmosphere, a valve normally closed for said passage, a piston in the eduction-chamber operating the valve, a passage into the eduction-chamber below the piston and communicating with the brake-cylinder passage and the main chamber, a main pneumatic valve, a piston for said valve having a refilling-passage with a downwardly-seated valve, and devices electrically operated to open the eduction-valve, substantially as and for the purposes specified.

16. In an air-brake system, the combination of a passage communicating with the brake-cylinder and chamber for the main pneumatic valve, an induction-chamber communicating with the brake-cylinder passage, and the main-valve chamber, a valve normally seated for the passage from the induction-chamber to the brake-cylinder passage, a device electrically controlling said induction-valve, and a main valve, substantially as and for the purposes specified.

17. In an air-brake system the combination of a passage communicating with a brake-cylinder and a main valve-chamber, an induction-chamber communicating with the main-valve chamber and the brake-cylinder passage, a main pneumatic valve, a normally-closed induction-valve, a piston operating the induction-valve, and devices electrically operated, controlling the piston for opening the induction-port, substantially as specified.

18. In an air brake system the combination of a passage communicating with the brake-cylinder and main-pneumatic-valve chamber, an induction-chamber communicating with the brake-cylinder passage and the main-valve chamber, a normally-closed valve for the passage from the induction-chamber to the brake-cylinder passage, a piston controlling said valve, a passage from the main-valve chamber to the induction-chamber back of the piston, a valve electrically controlled for said passage, and a main pneumatic valve, substantially as and for the purposes specified.

19. In an air-brake system, the combination of a passage communicating with the brake-cylinder and main-pneumatic-valve chamber, an eduction-chamber communicating with said passage, a passage from the eduction-chamber, a valve normally closed for said passage, a piston operating said valve, a passage leading to the eduction-chamber back of the piston, a passage from the main chamber to said passage, a passage from the brake-cylinder passage to said passage, a valve controlling said last-named passage electrically operated, and a main valve, substantially as specified.

20. In an air-brake system, the combination of a passage communicating with the brake-cylinder and main-pneumatic-valve chamber, an eduction and an induction chamber, communicating with the said passage, and valves normally closed for the eduction and induction chambers, one operated pneumatically and electrically and the other electrically, substantially as specified.

21. In an air-brake system, the combination of a passage communicating with the brake-cylinder and main-pneumatic-valve chamber, an eduction and an induction chamber communicating with the said passage, valves normally closed for said chambers, and pistons in said chambers, operating the valves, electropneumatically, substantially as specified.

22. In an air-brake system, the combination of a passage communicating with the brake-cylinder, main-pneumatic-valve chamber, and eduction and induction chambers, a main valve, valves for the eduction and induction chambers, pistons operating said valves, passages to the eduction and induction chambers back of the piston, and valves controlling said passages electrically operated, substantially as specified.

23. In an air-brake system, the combination of a passage communicating with a brake-cylinder, a main-pneumatic-valve chamber, and eduction and induction chambers, a main valve, a piston actuating the main valve, a train-pipe, a brake-cylinder, a car-reservoir, normally-closed valves for the eduction and induction chambers, pistons for actuating said valves, passages leading to the chambers back of the pistons, passages connecting the main chamber with the piston-chamber passage back of the piston, a passage connecting the brake-cylinder passage with the passage to the eduction-chamber back of the piston, and valves electrically controlled, substantially as and for the purposes specified.

24. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a car-reservoir, a chamber communicating with the train-pipe and car-reservoir, a valve in said chamber, a piston-stem carrying the valve, and having a chamber formed in it and closed at its ends, with a release-port therefrom, and a filling-port therefor in the main chamber, and a valve device operated by fluid from the release-port, substantially as and for the purposes specified.

25. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a storage-reservoir, a chamber communicating with the train-pipe and storage-reservoir, a piston in said chamber, a piston-stem having a chamber closed at its ends, a main pneumatic valve carried by the stem, a port in said valve, a passage from the stem-chamber through the valve, a grading-port from the main chamber coacting with the valve-port, a by-pass in the chamber and passage from the chamber coacting with passage for the stem-chamber, for applying a grading pressure and releasing the brakes, substantially as specified.

26. In an air-brake system, the combination of a train-pipe, a brake-cylinder, a car-reservoir, a chamber communicating with the train-pipe and car-reservoir, a piston in said chamber, a stem for the piston having a chamber closed at its ends, a main valve carried by the piston, a grading-port in the valve, a release-passage from the chamber of the piston-stem, a grading-port from the main chamber, a filling-port from the main chamber for the stem-chamber, a release-port from the main chamber, a second chamber connected with the release-port of the main chamber, a piston in said last-named chamber, a valve carried by the piston, and an eduction-passage normally closed by said valve, for applying the brakes with a grading pressure, and venting the brake-cylinder to release the brakes, substantially as specified.

27. In an air-brake system a main-valve casing, a main valve sliding therein, a chamber connected to and movable with the valve and a port in the chamber for registering with ports in the main-valve casing whereby the chamber may be charged with air in one position and this air released when the chamber is in another position for the purpose of operating a second valve, substantially as specified.

28. In an air-brake system a main-valve casing with connections to the train-pipe, auxiliary reservoir, and brake-cylinder, a main valve in the casing for controlling the brake-cylinder and auxiliary reservoir connections, a closed chamber in the casing connected to and movable with the main valve and a port in the movable chamber for registering with ports in the casing whereby the movable chamber may be filled with compressed air and the air released therefrom to operate a second valve, substantially as described.

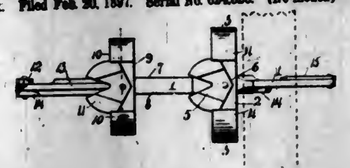
29. In an automatic air-brake system, a main valve for controlling communication between the train-pipe, auxiliary reservoir, and brake-cylinder, a separate eduction-valve operated by air-pressure supplied through the main valve, substantially as described.

30. In an automatic air-brake system, the combination of a train-pipe, auxiliary reservoir, and brake-cylinder, of a main valve and a separate eduction-valve which is held closed by brake-cylinder pressure and opened by auxiliary-reservoir pressure.

31. In an automatic air-brake system, the combination with a train-pipe, an auxiliary reservoir and a brake-cylinder of a main valve operated by variations in the train-pipe pressure and controlling communication between the auxiliary reservoir and the brake-cylinder, and a separate eduction-valve opened and closed by brake-cylinder pressure.

32. In an automatic air-brake system, the combination with a train-pipe, an auxiliary reservoir, and a brake-cylinder of a main valve operated by variations in the train-pipe pressure and controlling communication between the auxiliary reservoir and the brake-cylinder, and a separate eduction-valve opened and closed by brake-cylinder pressure controlled by an electrically-operated valve, substantially as described.

591,263. WIRE-STRETCHER. THOMAS F. SHARPE, Wolfe City, Tex. Filed Feb. 20, 1897. Serial No. 624,223. (No model.)

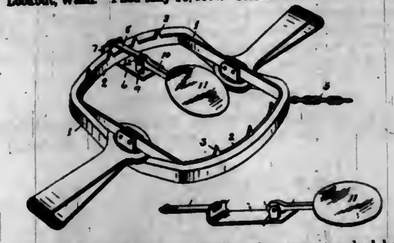


Claim.—1. In a wire-fence tightener, the combination of the bar having means for securing the same to the post, a clamp rigidly secured to the bar and presenting stationary members between which is pivoted a double cam; together with a block in sliding engagement with the bar and provided with stationary members between which is pivoted a double cam, and a lever pivoted to the bar and connected to the sliding block, substantially as shown and for the purpose set forth.

2. A clamp for wire-fence tighteners comprising stationary members, and a double cam pivoted between said members to engage the same when swung in opposite directions, the cam being projected on both sides of its pivot to provide the portion by which it can be operated, substantially as shown and for the purpose set forth.

3. In a wire-fence tightener, the combination with the bar 1 having projecting members 3, hooks 14 and 15 pivoted to opposite ends of the bar and adapted to engage the post when the members 3 are in contact with the same, a clamp rigidly secured to the bar, a second clamp in sliding engagement with said bar, and a lever pivoted to the bar and connected to the sliding clamp, the parts being constructed and organized, substantially as shown and for the purpose set forth.

591,264. STEEL TRAP. FRED G. ABBEY and JOHN G. MCLEOD, Lookout, Wash. Filed May 11, 1897. Serial No. 635,998. (No model.)



Claim.—In a trap, the combination of a support or bed having a clear opening in the center thereof, spring-actuated jaws mounted on said support or bed, and an independent pan and trigger adapted to be applied to either side of said trap, substantially as and for the purpose specified.

591,265. HIGH-TENSION BATTERY. RALPH ASHLEY, Port Republic, N. J., assignor, by direct and mesne assignments, to the Guarantor Electric Company, of New Jersey. Filed Nov. 27, 1895. Renewed Mar. 25, 1897. Serial No. 629,269. (No model.)

Claim.—1. A secondary or storage battery comprising the non-conducting cups or trays nested together but out of contact with each other, forming a vertical stack or pile, the positive and negative electrodes secured to the inner and outer sides of the bottom of said cups, the conductors connected with the negative electrodes of each cup passing up over the edge of the cups and then down to and connected with the positive electrode, substantially as described.



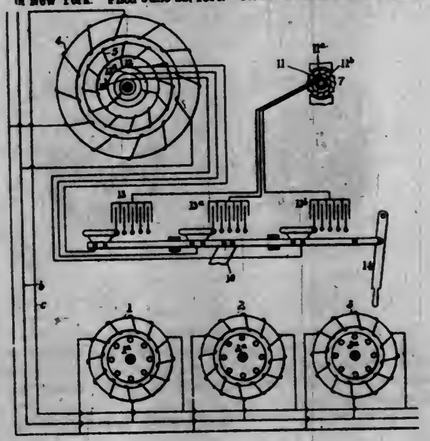
2. A secondary or storage battery comprising the non-conducting cups or trays superimposed upon but out of contact with each other, the positive and negative electrodes secured thereto, the perforated separating-plates, the asbestos sheet and the conductors secured to said negative electrodes, and running up the outside and then down the inside of the cup or tray above and secured to the positive electrodes thereon; substantially as described.

591,266. SPRINKLER-HEAD. JOSEPH BISHOP, Meriden, Conn., assignor of one-half to John Tait, same place. Filed June 30, 1896. Serial No. 597,344. (No model.)



Claim.—In a sprinkler-head, the combination with the valve and the adjusting-screw thereof, of an independently-formed, horizontally-arranged valve-lever, having its inner end engaged with the valve, and its outer end constructed with a transverse notch extending across its upper face and with a longitudinal slot intersecting the said notch, an independently-formed screw-lever having its lower end engaged with the screw, and its upper end adapted to enter the longitudinal slot in the valve-lever, and a fusible pin mounted transversely in the upper end of the screw-lever, and entering the transverse notch of the valve-lever which is engaged at a point near its inner end by the screw-lever, whereby the two levers are engaged at a point near to but outside of the line of pressure which is the line joining the centers of the valve and the screw.

591,267. ALTERNATING-CURRENT GENERATOR. CHARLES S. BRADLEY, Avon, N. Y., assignor to the General Electric Company, of New York. Filed June 22, 1896. Serial No. 596,625. (No model.)



Claim.—1. An alternating-current electric generator provided with means for varying the rate of alternation, and adjusting devices to vary the product of capacity and inductance to produce resonance at the several rates.

2. An alternating-current generator provided with a rotary-field winding on its magnetizing element, an alternating-current exciter for furnishing the magnetizing-current, and means for varying the rate of the exciter.

3. An alternating-current generator provided with a rotary-field winding on its magnetizing element, a polyphase-exciter, and means for varying the rate of the exciter.

4. An alternating-current generator provided with a rotary-field winding on its magnetizing element, an exciter of variable rate, and adjusting devices for varying the product of capacity and inductance to produce electrical resonance.

5. The method of varying the rate of an alternating current consisting in causing a differential motion of the magnetic poles set up by a charging current and the core magnetized by said charging-current relatively to the generating-winding, and varying said differential motion.

6. The method of varying the rate of an alternating-current generator, consisting in developing a rotary magnetic field in one winding and varying the rate of rotation of the field.

7. The method of varying the rate of an alternating-current generator consisting in developing a rotary magnetic field in its magnetizing-winding, and varying the rate of rotation of the field, and simultaneously adjusting the circuits for electrical resonance at the different rates.

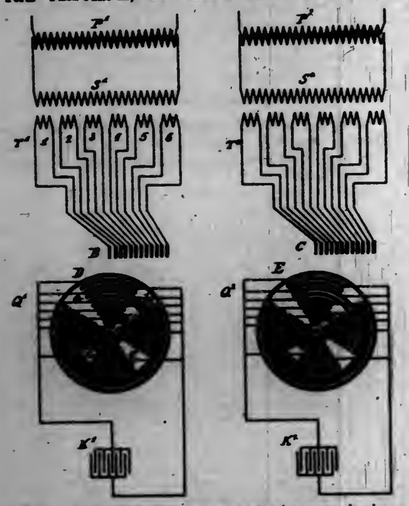
8. An alternating-current generator comprising a rotary-field winding driven by a prime mover, an exciter for charging the field, and means for varying the speed of the exciter.

9. An alternating-current generator comprising a rotary-field winding driven by a prime mover, an exciter for charging the field, means for varying the speed of the exciter, and adjusting devices for varying the capacity inductance product of the field-circuits to produce electrical resonance.

10. The combination of an induction-motor, a generator having its generating-winding connected therewith, and a rotary-field winding on its magnetizing element, and means for varying the speed of the rotary field.

11. The combination of an induction-motor, an induction-generator having its secondary connected with said motor and a rotary-field winding on its primary, means for varying the speed of the rotary field, and adjusting devices for varying the capacity inductance product of the rotary-field circuits to vary the speed of the motor.

591,268. ALTERNATING-CURRENT MOTOR. CHARLES S. BRADLEY, AVON, N. Y., assignor to the General Electric Company, of New York. Filed June 22, 1896. Serial No. 596,429. (No model.)



Claim.—1. An alternating-current induction-motor having a revolving element inductively related to a rotary magnetic field and inductively related to an auxiliary stationary circuit including current-regulating devices.

2. An alternating-current induction-motor having a field-core provided with a rotary-field winding, a rotary armature electrically connected with the revolving primary coil of a transformer, and a stationary secondary coil of the transformer connected with a regulating-switch.

3. An alternating-current induction-motor having a stationary element provided with a rotary-field winding and a rotary element in fixed connection with a polyphase circuit including the primary coils of a transformer, and stationary secondary coils for the transformer including devices for regulating the capacity inductance product of the circuit including it.

4. An alternating-current induction-motor having a stationary element provided with a rotary-field winding, a rotary element connected with a primary coil wound on an annular core fixed to the rotary element, a secondary coil on a core in close inductive relation to the primary coil, and a regulating-switch in circuit with the secondary coil.

591,269. DICE-BOX. ORIN R. DUBOIS, Fall River, Mass., assignor to Charles H. Carr, same place. Filed July 6, 1897. Serial No. 643,608. (No model.)

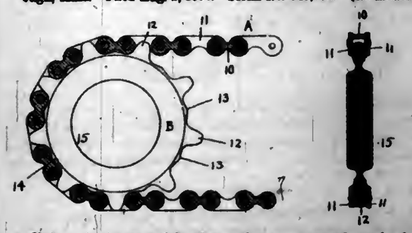


Claim.—1. As an article of manufacture, a dice-box having a transparent body closed at its ends by pieces of material each shaped to afford a base or support for the box when stood on end, and a rod extending longitudinally through the body of the box from one end thereof to the other and provided with transverse projections, substantially as and for the purpose described.

2. In a dice-box, the combination with a tubular body of transparent material, of an end portion adapted to close each end of said tubular body and afford a base or support for the box, a rod connected at its ends to said end portions and extending longitudinally through the body, whereby said end portions and said body are held together, and transverse arms or projections from said rod extending substantially to the inner wall of the body, substantially as described.

3. In a dice-box, the combination with a tubular body *a* of transparent material, of the ends or base portions *b* adapted to close the ends of said tubular body, the rod *c* extending longitudinally through said body and provided at its ends with screw-threads to respectively engage the base portions *b*, and transverse rods c^2 secured in transverse openings in the rod *c*, the said rods c^2 being set at an angle to each other and adapted to extend substantially across from one side of the body to the other, substantially as described.

591,270. SPROCKET-WHEEL. ERNEST V. GAUTHIER, Westborough, Mass. Filed Aug. 2, 1897. Serial No. 646,763. (No model.)

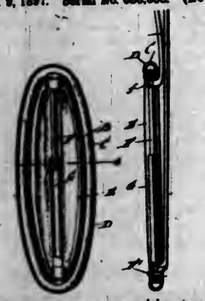


Claim.—1. As an article of manufacture, a sprocket-wheel having supporting-surfaces for engaging the blocks of a sprocket-chain, flanges for engaging the side links of the chain, and extending teeth undercut at their bases, substantially as described.

2. As an article of manufacture, a sprocket-wheel having supporting-surfaces for engaging the blocks of a sprocket-chain, flanges of less diameter than said surfaces for engaging the side links of the chain, and extending teeth narrowed or undercut at their bases, so that the side links of the chain will be held away from the supporting-surfaces for engaging the blocks, substantially as described.

3. The combination of a sprocket-chain A comprising blocks 10 and side links 11, and a sprocket-wheel B having supporting-surfaces 13 for engaging the blocks 10, flanges 14 for engaging the side links 11, and extending teeth 12 narrowed or undercut at their bases to hold the side links away from the supporting-surfaces 13, substantially as described.

591,271. GAS-MAIN STOPPER. PATRICK GOODMAN, New York, N. Y. Filed Mar. 9, 1897. Serial No. 626,600. (No model.)



Claim.—1. A gas-main stopper, comprising two sliding bars, two spring-bars having one end of each pivoted to one end of one sliding bar and their other ends pivoted to the opposite end of the other sliding bar, a yielding packing outside the spring-bars, a sheet of flexible material attached to the outer packing and permitting the spring-bars to assume a circular position, and operating-arms pivoted to the sliding bars, substantially as described.

2. A gas-main stopper, comprising two sliding bars, two spring-bars pivoted at one end to the outer end of one sliding bar and at their other end to the opposite end of the other sliding bar, a yielding packing outside of the spring-bars, a sheet of flexible material attached to the outer packing, and an arm pivoted to each of the sliding bars having offsets or bends near said pivots, substantially as described.

3. A gas-main stopper, comprising connected spring-bars adapted to lie parallel or be bent into a circle, a sheet of flexible fabric connecting the same, telescoping bars to the opposite end of which the springs are pivoted, and arms connected to the telescoping bars from the rear and inner sides and adapted to compress or extend the springs, substantially as described.

4. A gas-main stopper, comprising two spring-bars pivoted at their ends, packing on the outer sides thereof, a flexible diaphragm connected thereto, longitudinally-sliding bars pivoted to the ends of the springs, and rods pivoted to the sliding bars, said rods being bent rearwardly or offset near said pivots, substantially as described.

5. A gas-main stopper, comprising an expansible and compressible ring, a flexible diaphragm connected thereto, and bars pivotally attached at opposite points to said ring and curved or offset near said pivots so as to pass entirely to the rear of the ring when placed parallel with the plane thereof, substantially as described.

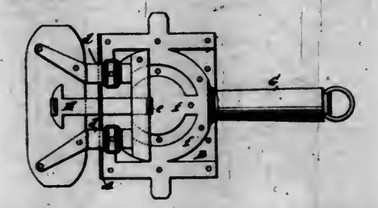
591,272. SPOOL-RACK. MARGARET GRAAF, Estherville, Iowa. Filed May 13, 1897. Serial No. 636,312. (No model.)



Claim.—1. A spool-rack, comprising a base having a recess in the side thereof, a drawer pivoted to slide in said recess, and a thread-cutter formed at one end with cutting-blades and having its lower end pivoted to the base so that said blade end is adapted to be turned down to hold the drawer closed, substantially as described.

2. A spool-rack, comprising a base, spool-holders mounted thereon, a thread-cutter at one end of the base, a transverse rib provided with thread-guides and extending parallel with the end of the base adjacent said thread-cutter and arranged between the thread-cutter and spool-holders, and a guard arranged between the spool-holders and transverse rib, said guard consisting of a piece of wire having one end secured to the base and formed with a resilience-coil, and the opposite free end thereof extending from said coil parallel with said rib and forming a guard for the thread, substantially as described.

591,273. COMBINED CURRYCOMB AND BRUSH. MARTIN VAN BUREN GRIFFEY, Moscow, Ky. Filed Jan. 16, 1897. Serial No. 619,423. (No model.)



Claim.—1. A combined currycomb and brush, comprising a comb, a brush hinged thereto, and adapted to be folded thereon with its back toward the back of the comb, or to be turned down to occupy a like plane with the comb, and means for fastening the brush in either of said positions, substantially as described.

2. The combination with a currycomb, and a brush hinged to the comb near its forward end, of a sliding catch on the comb for holding the brush in the same plane with the comb, substantially as described.

3. The combination with a currycomb, and a brush hinged to the comb near its forward end, of a sliding catch on the top of the comb for holding the brush in the same plane with the comb, said catch being provided with a lip for engaging the brush when folded upon the comb, substantially as described.

4. In a combined currycomb and brush, the combination with the main frame provided with a handle, of a comb-frame, springs interposed between the two frames and connecting them together, a brush hinged to the main frame and adapted to be turned down to occupy a like plane with the comb or to be folded upon the top or outer surface of the main frame, and means for locking the said brush in either the folded or unfolded position, substantially as and for the purpose set forth.

591,274. TRACK-CLEARING BOARD AND ARM FOR MOWING-MACHINES OR THE LIKE. JACOB B. HAVER, Moorestown, N. J. Filed Feb. 23, 1897. Serial No. 624,655. (No model.)

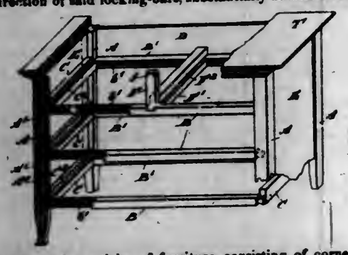


Claim.—In combination with a finger-bar, a track-cleaner consisting of an arm extending part of its length at right angles to the finger-bar for the purpose described, then deflected inwardly, an arm having one end secured in a clip on the track-cleaner, a coil in the arm also secured by a clip and an extension curved up and extending beyond the track-cleaner, substantially as set forth.

591,275. FRAMING FOR ARTICLES OF FURNITURE. JOHN C. HORN, Chicago, Ill. Filed Dec. 26, 1896. Serial No. 617,044. (No model.)

Claim.—1. A frame for articles of furniture, consisting of corner-posts having dovetail slots extending in a horizontal direction partially across one face and opening toward the center of the frame, bars having longitudinal parallel-sided slots upon their inner edges and dovetail tenons upon their ends, the latter being adapted to fit the dovetail slots in the corner-posts, locking-bars having tenons upon their ends adapted to fit the longitudinal slots in the bars, and means for binding together pairs of posts in the direction of said locking-bars, substantially as described.

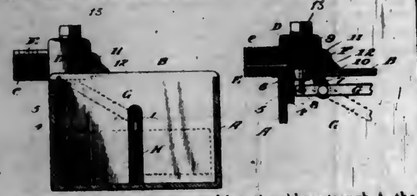
2. A frame for articles of furniture, consisting of corner-posts having dovetail slots extending in a horizontal direction partially across one face and opening toward the center of the frame, bars having longitudinal parallel-sided slots upon their inner edges and dovetail tenons upon their ends, the latter being adapted to fit the dovetail slots in the corner-posts, locking-bars having tenons upon their ends adapted to fit the longitudinal slots in the bars, and having their upper inner edges grooved to form bottom and end bearing-surfaces for a drawer, and means for binding together pairs of posts in the direction of said locking-bars, substantially as described.



3. A frame for articles of furniture, consisting of corner-posts having dovetail slots extending in a horizontal direction partially across one face and opening toward the center of the frame, and also having longitudinal slots in the rear posts outside of the dovetail slots and which face the adjacent posts upon each side, and the front posts having similar slots facing to the rear, bars having longitudinal parallel-sided slots upon their inner edge and dovetail tenons upon their ends, the latter being adapted to fit the dovetail slots in the corner-posts, locking-bars having tenons upon their ends adapted to fit said longitudinal slots in the bars, and panels adapted to enter the vertical slots in the corner-posts to form the sides of the furniture, substantially as described.

591,276. STOCK-WATERER. KINBER P. JOHNSON, Harlan, Iowa.

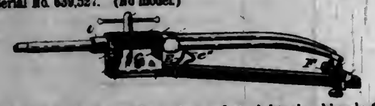
Filed June 20, 1896. Serial No. 596,354. (No model.)



Claim.—A stock-waterer, comprising the oblong trough A, the float-chamber B located midway the length thereof in combination with a socket D having the integral threaded nipple E and depending ear 7, the lever G fulcrumed in said depending ear 7, its shorter end in operative connection with the valve F, an opening 9 in the top of said socket D through which to insert said valve in its seat, a screw-plug 13 for closing said opening 9, a float H in operative connection with the longer end of said lever G, the said lever adapted to operate transversely of said trough A, a lug 11 formed integral with said socket D, receiving a key 12, for removably securing a cover over said float-chamber B, substantially as set forth and described.

591,277. TRUING AND STRAIGHTENING GAGE FOR BICYCLE-FORKS. ROBERT JOHNSTON, Wilkes-Barré, Pa. Filed June 5, 1897.

Serial No. 639,527. (No model.)



Claim.—1. In a gage for truing and straightening bicycle-forks, the combination with a clamping-chuck, of a pivoted lever-arm adapted to be swung in a vertical plane, and an adjustable squaring-gage connected to said arm and having a transverse top bar, adapted to be adjusted under the crown of the bicycle-fork, substantially as described.

2. In a gage for truing and straightening bicycle-forks, the combination with the clamping-chuck, of a squaring-gage for the fork-crown and an adjustable truing-gage having jaws for bearing against the fork ends, substantially as described.

3. In a gage for truing and straightening bicycle-forks, the combination with the clamping-chuck, for holding the stem of the fork, of a pivoted lever-arm, a squaring-gage on said arm, adapted to bear against the crown of the fork, and a truing-gage adjustable on said arm, and having adjustable jaws, substantially as and for the purpose described.

4. The combination with the clamping-chuck, of a lever-arm pivoted thereto, a squaring-gage pivotally connected to said arm near the chuck and an adjustable truing-gage on the arm and having movable jaws, provided with vertical and horizontal bearing-surfaces, substantially as and for the purpose described.

5. In a gage for truing and straightening bicycle-forks, the combination with the clamping-chuck, for holding the stem of the fork, of a truing-gage having adjustable jaws for bearing upon the ends of the fork, and means for squaring the fork or adjusting the crown thereof parallel with said truing-gage, substantially as described.

6. In a gage for truing and straightening bicycle-forks, the combination with the clamping-chuck for holding the stem of the fork, of a lever-arm pivoted thereto and adapted to be swung in a vertical plane, and a truing-gage adjustable longitudinally on said arm, and having transversely-adjustable jaws for bearing upon the ends of the fork, whereby the gage is adapted for truing forks of different rake or curve and of different length, substantially as described.

7. In a gage for truing and straightening bicycle-forks, the clamping-chuck having a longitudinal slot in its under side, in combination with a lever-arm pivoted in said slot, an adjustable truing-gage having transversely-movable jaws on said lever-arm, and means for squaring the fork or arranging its crown parallel with said truing-gage, substantially as described.

591,278. SNOW-PLOW. FRANK B. JOHNS, Bessemer, Mich.

Filed Mar. 8, 1897. Serial No. 626,508. (No model.)



Claim.—1. In a snow-plow the combination with the inclined platform provided at its lower end with a knife and a series of apertures extending transversely of the platform, of the plow provided at its front end with a projection for engaging said apertures, supports for the rear end of said plow and an adjusting device for moving said inclined platform toward and from the ground in the plane of said platform, substantially as described.

2. In a snow-plow the combination with the main body provided with runners, of the auxiliary movable runners and devices for adjusting said movable runners vertically, substantially as described.

3. In a snow-plow the combination with the main body provided with runners, of an auxiliary runner movably secured to each of said runners and independent adjusting devices for moving said movable runners vertically, substantially as described.

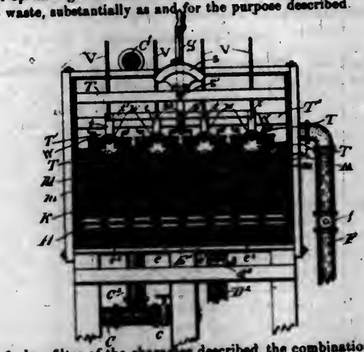
4. In a snow-plow the combination with the inclined platform, of a plow mounted thereon and vertically and laterally adjustable wings secured to main body of the device adjacent to the rear of said plow, substantially as described.

5. In a snow-plow the combination with the inclined platform, of a plow mounted thereon, laterally-movable wings pivotally connected to the main body adjacent to the rear end of the plow, independent devices for adjusting said wings vertically, independent devices for adjusting said wings laterally and means for adjusting said inclined platform, substantially as described.

6. In a snow-plow the combination with the inclined platform, of a plow mounted thereon, means for adjusting the point of said plow laterally on said platform and an auxiliary moldboard adapted to be detachably secured to said plow, substantially as described.

591,279. FILTER. MARION E. JONES, Gadsden, Ala. Filed Jan. 8, 1897. Serial No. 618,479. (No model.)

Claim.—1. In a filter of the character described, the combination with a box or tank partly filled with filter material, with valves mounted in the said filter material near the base thereof, and filter material contained within said valves, of branch pipes connected to said valves, a clear-water pipe connected to said branch pipes, a waste-outlet connected to said clear-water pipe, a main supply-pipe connected to said clear-water pipe and also opening into the upper portion of the filter-box, overflow-pipes opening into said filter-box, stirrers in said filter material, longitudinal shafts carrying said stirrers, sprocket-wheels mounted on said shafts outside of said tank, a driving-sprocket, a chain connecting the same with the aforesaid sprockets, a plurality of shafts above said stirrers, rakes mounted on said shafts, means for imparting longitudinal, transverse and vertical motion to said shafts and rakes, and valves controlling all of said pipes, whereby the supply of water may be directed either into the upper portion of the filter-box upon said filter material, or may be forced in a reverse direction through the clear-water pipe up through the filter material, whereby water is passed downward through the clear-water pipe and off to waste or to the reservoir for use, or up through the filter material for washing the same and then off to waste, substantially as and for the purpose described.



2. In a filter of the character described, the combination with a box or tank partly filled with filter material, with valves mounted in the said filter material near the base thereof, and filter material contained within said valves, of branch pipes connected to said valves, a clear-water pipe connected to said branch pipes, a waste-outlet connected to said clear-water pipe, a main supply-pipe connected to said clear-water pipe and also opening into the upper portion of the filter-box, overflow-pipes opening into said filter-box, rotary stirrers embedded in said filter material, longitudinal shafts carrying said stirrers, sprocket-wheels mounted on said shafts outside of said tank, a driving-sprocket and a chain connecting said driving-sprocket to the sprockets on said shafts, a plurality of shafts above said stirrers, rakes mounted on said shafts, eccentrics mounted in said tank and engaging the ends of said shafts carrying the rakes, a lever connected with a plurality of said eccentrics for rocking the same, levers engaging said shafts for imparting longitudinal motion thereto and valves controlling all of said pipes, whereby the supply of water may be directed either into the upper portion of the filter-box upon said filter material or may be forced in a reverse direction through the clear-water pipe up through the filter material, whereby water is passed downward through the clear-water pipe and off to waste or to the reservoir for use, or up through the filter material for washing the same and then off to waste, substantially as and for the purpose described.

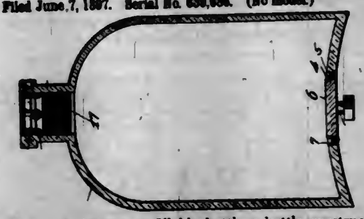
3. In a filter of the character described, the combination with a box or tank partly filled with sand and gravel, with valves H mounted in the said gravel near the base thereof, and filter material contained within said valves, or branch pipes connected to said valves, a clear-water pipe E connected to said branch pipes, a waste-outlet D^6 connected to said clear-water pipe, a main supply-pipe C connected to said clear-water pipe and also opening into said filter-box just above said filter material, stirrers in said filter material, longitudinal shafts carrying said stirrers, sprocket-wheels mounted on said shafts outside of said tank, a driving-sprocket and a chain connecting said driving-sprocket to the sprockets on said shafts, a plurality of shafts above said stirrers, and means for supporting the same, rakes mounted on said shafts, means for raising and lowering said rake-shafts and imparting longitudinal motion to the same, and valves c', d, d', d^3 and f controlling said pipes respectively whereby the supply of water may be directed either into the upper portion of the filter-box upon said filter material, or may be forced in a reverse direction through the clear-water pipe up through the filter material, whereby water is passed downward through the clear-water pipe and off to waste or to the reservoir for use, or up through the filter material for washing the same and then off to waste, substantially as and for the purposes described.

4. The combination with a filter of an agitating apparatus consisting of a plurality of longitudinal shafts mounted in said filter, a plurality of stirrers mounted on said shafts, sprocket-wheels mounted on one end of each of said shafts, a driving-sprocket mounted near said first sprockets, a chain connecting the sprockets on the shafts with said driving-sprocket, a plurality of shafts mounted above the aforesaid shafts, with a plurality of rakes on the said shafts, a plurality of eccentrics mounted in said filter, the said shafts mounted in said eccentrics, arms connected to a number of said eccentrics and a lever connected to said arms for rocking the same, and levers engaging the said shafts for imparting longitudinal motion thereto, substantially as described.

5. The combination with a filter, of an agitating apparatus consisting of a plurality of longitudinal shafts mounted in said filter, a plurality of stirrers mounted on said shafts, sprocket-wheels mounted on one end of each of said shafts, a driving-sprocket mounted near said first sprockets, a chain connecting the sprockets on the shafts with said driving-sprocket, a plurality of shafts mounted above the aforesaid shafts, with a plurality of rakes on the said shafts, a plurality of eccentrics mounted in boxes in said tank and carrying said rake-shafts, a plurality of arms connected to the eccentrics, a cross-arm attached to all of the said arms, slotted levers connected to said cross-arm for rocking said eccentrics, and a lever connected to the said shafts for imparting longitudinal motion to the same, substantially as described.

591,280. NON-REFILLABLE BOTTLE. EDWARD JUNKER, St. Louis, Mo., assignor of one-half to Charles Greimann, same place.

Filed June 7, 1897. Serial No. 639,686. (No model.)

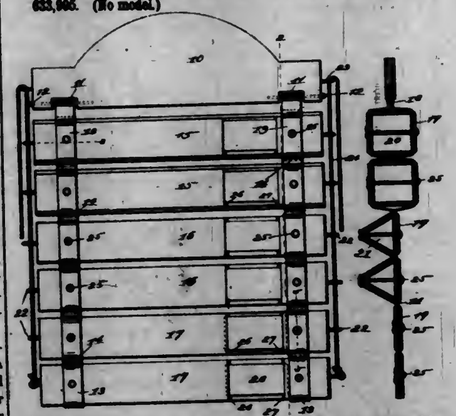


Claim.—1. In a non-refillable bottle, a bottle constructed with an opening in its bottom, a cap of frangible material inserted through said opening and located in the neck of the bottle, said neck and said cap being so constructed that the cap cannot be removed outwardly from the neck without being broken, substantially as specified.

2. In a non-refillable bottle, a bottle constructed with an opening in its bottom, a cap of frangible material inserted through said opening and located in the neck of the bottle in such a way that it will not pass through the neck of the bottle without breaking, and means of sealing said opening in the bottom of the bottle, substantially as specified.

3. In a non-refillable bottle, a bottle constructed with an opening in its bottom, a cap of frangible material inserted through said opening and located in the neck of the bottle in such a way that it will not pass through the neck of the bottle without breaking, a plug screw-seated in said opening in the bottom of the bottle as required to seal said opening, said plug having an operating-handle connected to it by a frangible neck designed to be broken off after the plug has been placed in position, substantially as specified.

591,281. TRANSFORMABLE ADVERTISING OR DISPLAY RACK. EDWARD JUTT, St. Louis, Mo. Filed Apr. 26, 1897. Serial No. 633,905. (No model.)



Claim.—1. In a device of the class described, a head-board having notches cut in its lower edge, webs doubled upon themselves and stitched together at intervals as required to form loops, the upper ends of said webs being placed in said notches and secured in posi-

tion by means of pins inserted from the ends of said head-board through said webs, slats or placards removably inserted in the loops formed by said webs, open screw-eyes inserted in the ends of said slats or placards, closed screw-eyes inserted in the ends of said head-board and cords attached to the screw-eyes of the lower one of said slats or placards and extending upwardly through the intermediate ones of said slats or placards and through the closed screw-eyes in the ends of said head-board, substantially as specified.

2. In a device of the class described, a slat or placard having saw cuts 26 and 27 formed from its face, the card 29 having the horizontal slits 30 and 31 placed in position with its ends in said saw cuts 26 and 27, the small cards 32 having letters or figures printed upon their faces and placed in position with their ends in said slits 30 and 31, substantially as specified.

3. In a device of the class described, the head-board 10 having the notches 11 formed in its lower edge, the webs 13 doubled upon themselves and secured together at intervals by the stitching 14 and forming loops, the pins 12 inserted from the ends of said head-board through the upper ends of said webs, slats inserted in said loops, fasteners inserted through said webs and through said slats, said slats having saw cuts 26 and 27 formed in their faces to receive the ends of price-list cards, substantially as specified.

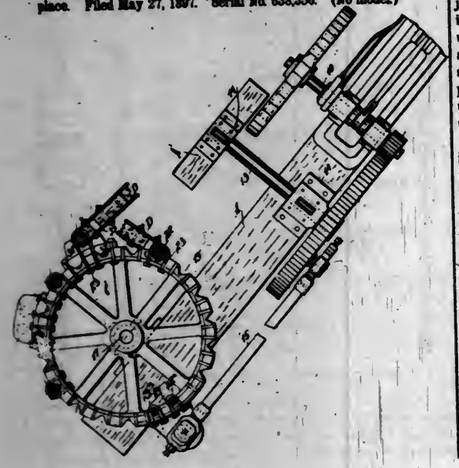
591,282. INDICATOR FOR CARRIAGES, &c. JOHN A. KUHEN, New York, N. Y. Filed June 14, 1897. Serial No. 640,686. (No model.)



Claim.—1. A carriage-call comprising multiple series of plates, said series being arranged alongside of each other, each plate of a series having different numerals, a casing having vertical guideways for said plates and windows to render the upper portion of said guideways visible, levers pivoted beneath said plates but disconnected therefrom, each supporting a plate, connections to said levers by which any one desired may be operated and means for illuminating the space behind the plates.

2. A carriage-call comprising a box or casing divided into a series of chambers extending from front to rear and having windows rendering the upper portions of said chambers visible from the outside, the side walls of said chambers having a series of vertical guideways adapted to receive the number-plates, glass number-plates freely sliding therein and bearing each a numeral, each plate having a lever pivoted beneath one edge thereof and supporting the same, said lever extending in the same direction as the number-plate, a cord attached to one end of the lever and extending through the bottom of the case by which the lever may be thrown to substantially a vertical position, said plates resting upon the levers but disconnected therefrom.

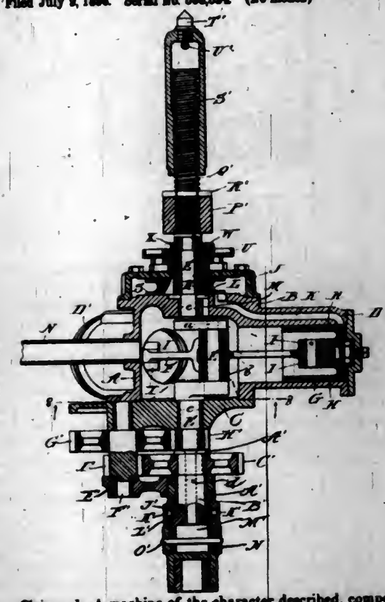
591,283. POWER DEVICE FOR PUMPING WELLS. JOSEPH J. KWIS, Findlay, Ohio, assignor to the Adams Brothers Company, same place. Filed May 27, 1897. Serial No. 638,356. (No model.)



Claim.—1. In a power device for pumping wells and for similar purposes, the combination, with a drive-wheel having a toothed rim, brackets attached to said rims and pivot-pins adapted to receive surface rods or like devices, secured in the spaces between the teeth on the rim of said wheel and in the said brackets, for the purpose set forth.

2. In a power device for pumps, the combination of a drive-wheel having a toothed periphery, a bracket having teeth adapted to mesh with the teeth of the drive-wheel, a pin held by the bracket, and a surface rod having pivotal connection with the pin.

591,284. PNEUMATIC DRILL. JAMES H. MANNING, Omaha, Nebr. Filed July 9, 1896. Serial No. 598,594. (No model.)



Claim.—1. A machine of the character described, composed of the casing or shell having the plurality of cylinders, the crank-shaft extending at its opposite ends through the casing and journaled therein, the pistons in the cylinders having their rods connected to the crank-shaft, a valve mounted upon the projecting upper end of the crank-shaft within a valve chamber at the upper end of the casing and controlling the ports leading to the outer ends of the cylinders, a pinion fast upon the projecting lower end of the crank-shaft, on the opposite side of the casing from the valve, a tool-holding shaft journaled in a support upon the under side of the casing beneath and in line with the projecting lower end of the crank-shaft, a gear fast upon the upper end of said tool-holding shaft, a spindle journaled in a support at one side of and parallel with the lower end of the crank-shaft and upper end of the tool-holding shaft, and a gear-wheel and pinion fast upon said spindle and meshing respectively with the pinion upon the lower end of the crank-shaft and the gear-wheel upon the upper end of the tool-holding shaft, substantially as described.

2. A machine of the character described, composed of the casing or shell having the plurality of cylinders, the crank-shaft extending at its opposite ends through the casing and journaled therein, the pistons in the cylinders having their rods connected to the crank-shaft, an eccentric valve mounted upon the projecting upper end of the crank-shaft within a valve-chamber at the upper end of the casing and controlling the ports leading to the outer ends of the cylinders, means for connecting said eccentric valve to and disconnecting it from the shaft and turning it from one position to another thereon, for the purpose of reversing the direction of rotation of the shaft, a tool-holding shaft journaled in a support upon the under side of the casing beneath and in line with the lower end of the crank-shaft, and a train of speed-reducing gearing connecting the lower end of the crank-shaft with the upper end of said tool-holding shaft, substantially as described.

3. A machine of the character described, composed of the casing or shell having the plurality of cylinders, the crank-shaft extending at its opposite ends through the casing and journaled therein, the pistons in the cylinders having their rods connected to the crank-shaft, a valve mounted upon the projecting upper end of the crank-shaft within a valve-chamber at the upper end of the casing and controlling the ports leading to the outer ends of the cylinders, a tool-holding shaft journaled in a support upon the under side of the casing beneath and in line with the lower end of the crank-shaft, a train of speed-reducing gearing connecting the lower end of the crank-shaft with the upper end of said tool-holding shaft, a pinion fast upon the lower end of the crank-shaft and the gear C fast upon the upper end of the tool-holding shaft, substantially as described.

4. A machine of the character described, composed of a multiple-cylinder engine, a rotary crank-shaft driven thereby and projecting below the casing of the engine, an independent tool-holding shaft journaled in a support upon the under side of the casing beneath and in line with the lower end of the crank-shaft and driven by the crank-shaft through a train of speed-reducing gearing, a force-feeding device mounted in a support on the upper side of the casing above and in line with the upper end of the crank-shaft, and a circle of antifriction-balls interposed between the tool-holding shaft and the support upon the under side of the casing in which said shaft is journaled, to take the end thrust of the machine produced by the force-feeding device at its upper end, substantially as described.

5. The combination of the central casing or shell A having the integral upper end or head B and the detachable lower end or cap C and the three projecting cylinders D D′ and D″ having the ports K leading to their outer ends, the crank-shaft E projecting at its opposite ends through the upper head B and lower cap C of the casing, the pistons G located in the several cylinders and having their rods F connected to the crank-pin of the shaft E, the valve-box J bolted to the upper side of the head of the casing A, the upper surface of said head B constituting the valve-face through which the inner ends of the ports K open and being provided with the annular recess L around the shaft E and the circle of ports M connecting said recess with the exhaust chamber within the casing A, and the eccentric valve R S turning with the shaft E within the valve-box J and controlling communication between the interior thereof and the ports K, and between the ports K and the exhaust-recess L, substantially as described.

6. The combination of the central casing or shell A having the plurality of projecting cylinders, the crank-shaft E extending at its opposite ends through said casing and journaled therein, the pistons G located in the several cylinders and having their rods connected to the crank-shaft E, a valve mounted upon the upper end of the crank-shaft E within the valve-box J and controlling the ports K leading to the outer ends of the cylinders, the yoke A′ secured to the lower end of the casing A, the tool-holding shaft B′ journaled in said yoke beneath and in line with the lower end of the crank-shaft E, the pinion H′ fast upon the lower end of the crank-shaft and the gear C′ fast upon the upper end of the tool-holding shaft B′, the spindle F′ journaled in supports at the side of the shafts E and B′, and the gear G′ and pinion I′ fast upon said spindle and meshing respectively with the pinion H′ and gear C′, substantially as described.

7. The combination of the central casing or shell A having the plurality of projecting cylinders, the crank-shaft E extending at its opposite ends through said casing and journaled therein, the pistons G located in the several cylinders and having their rods connected to the crank-shaft E, a valve mounted upon the upper end of the crank-shaft E within the valve-box J and controlling the ports K leading to the outer ends of the cylinders, the yoke A′ secured to the lower end of the casing A, the tool-holding shaft B′ journaled in said yoke beneath and in line with the lower end of the crank-shaft E, the pinion H′ fast upon the lower end of the crank-shaft and the gear C′ fast upon the upper end of the tool-holding shaft B′, the spindle F′ journaled in supports at the side of the shafts E and B′, the gear G′ and pinion I′ fast upon said spindle and meshing respectively with the pinion H′ and gear C′, the yoke P′ secured to the upper end of the casing A, the screw Q′ fixed at its lower end in said yoke in line with the crank-shaft E, the nut S′ applied to said screw and having the centering-pin T′ at its upper end, and the circle of antifriction-balls K′ interposed between the yoke A′ and an annular shoulder upon the tool-holding shaft B′ to take the end thrust of the machine produced by turning the nut S′ upon the screw Q′, substantially as described.

8. A machine of the character described, comprising a multiple-cylinder engine, a rotary shaft driven thereby, the eccentric valve mounted upon the shaft and controlling the ports leading from the valve-chamber to the exhaust and to the cylinders, the hand-wheel secured to the eccentric of the valve, for turning it upon the shaft, the dog fast upon the shaft, and the clutch devices between the hand-wheel and dog for connecting them together at the opposite positions of the hand-wheel, for the purpose specified.

9. In a machine of the character described, the combination of the cylinders D D′ D″, the pistons G therein, the rotary crank-shaft E, the rods F connecting said shaft with the several pistons, the eccentric valve mounted upon the shaft E within the valve-chamber and controlling the ports leading to the exhaust and to the outer ends of the cylinders, the hand-wheel U secured to the upper end of the stem of the eccentric and provided with a stud V, and the dog W having the two shoulders and the springs X cooperating with the stud V, as and for the purpose set forth.

10. A machine of the character described, composed of the casing or shell having the plurality of cylinders, the crank-shaft extending at its opposite ends through said casing and journaled therein, the pistons in the cylinders having their rods connected to the crank-shaft, the eccentric valve located in the valve box or chamber at the upper side of the main casing of the machine and controlling the inlet and exhaust to the outer ends of the respective cylinders, the eccentric valve being provided with an extended sleeve or hub projecting through the upper side of the valve-chamber, and the upper end of the crank-shaft extending through and projecting above said valve and hub, a hand-wheel secured upon the upper end of said hub, by which the eccentric valve may be turned to reverse the direction of motion of the crank-shaft, the dog fast upon the upper end of the crank-shaft, a clutch connection between said hand-wheel and dog by which they may be connected with and disconnected from each other at will, to connect the eccentric valve with and disconnect it from the crank-shaft, the tool-holding shaft journaled in a yoke secured to the lower side of the machine, in line with the crank-shaft, and a train of speed-reducing gearing interposed between the crank-shaft and tool holding shaft, for the purpose described.

11. A machine of the character described, composed of the casing or shell having the plurality of cylinders, the crank-shaft projecting at its opposite ends through the upper and lower sides of said casing and journaled therein, the pistons in the respective cylinders having their rods connected to the crank-shaft, the valve mounted upon the upper end of the crank-shaft within a valve box or chamber at the upper side of the casing, and operating to control the inlet and exhaust to the outer ends of the cylinders, the force-feeding device at the upper end of the machine, the hollow tool-holding shaft journaled in a yoke secured to the under side of the machine, in line with the crank-shaft and having the lower end of the latter fitting within its upper end, a train of speed-reducing gears between said crank-shaft and tool-holding shaft, through which the latter is driven by the former, and ball-bearings interposed between the tool-holding shaft and the yoke in which it is journaled, for the purpose described.

12. A machine of the character described, composed of the casing or shell having the plurality of cylinders, the crank-shaft journaled therein and having its opposite ends projecting through and beyond the upper and lower sides of the casing, said crank-shaft being formed in two parts connected together by one end of its eccentric portion fitted in an eye or opening in one of its arms, the pistons in the respective cylinders having their rods connected to said crank-shaft, the valve mounted upon the upper end of said shaft in a valve box or chamber at the upper side of the casing and controlling the inlet and exhaust to the outer ends of the cylinders, the tool-holding shaft journaled in a yoke secured to the under side of the machine, in line with the crank-shaft and driven by the latter through a train of speed-reducing gears, and ball-bearings interposed between said tool-holding shaft and the yoke in which it is journaled, to take the end thrust of the machine, as described.

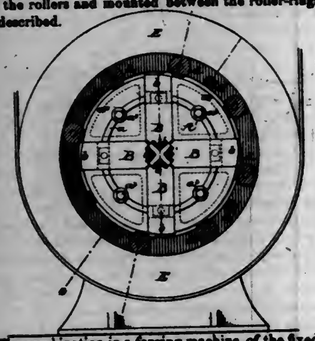
13. A machine of the character described, composed of the multiple-cylinder engine, the crank-shaft driven thereby, the valve mounted upon the upper end of said shaft within the valve box or chamber at the upper side of the machine, the force-feeding device at the upper side of the machine, the hollow tool-holding shaft B′ journaled in the yoke A′ secured to the under side of the machine, in line with the crank-shaft and having the lower end of the latter fitting in its upper end, and driven by the crank-shaft through a train of speed-reducing gears, and the ball-bearings K′ interposed between the lower end of the yoke A′ and the annular shoulder or enlargement of the tool-holding shaft B′, and having their seats in the rings J′ L′ seated respectively in said yoke and shoulder, for the purpose described.

591,285. METAL-FORGING MACHINE. FREDERICK G. MYERS, Philadelphia, Pa. Filed Dec. 24, 1896. Serial No. 616,881. (No model.) Patented in South African Republic May 1, 1895, No. 858.

Claim.—1. The combination in a machine for forging star bits, of a head, four radial dies therein, a driven ring and rollers mounted between the driven ring and the head and acting to force the dies toward a common center, each die having a shouldered V-shaped end beveled at the outer edge, forming, when the dies are closed, a cruciform channel enlarged at one end, substantially as set forth.

2. In a forging-machine, the combination of the fixed head, two or more dies adapted to slide therein, and adapted to extend beyond the periphery of the head, a series of rollers mounted on the periphery of the head, and a driven ring carried solely by the rollers, so that on the rotation of the ring the rollers will rotate on the periphery of the fixed head, and around their own axis, substantially as described.

3. The combination in a forging-machine of the fixed head, sliding dies therein adapted to extend beyond the periphery of the head, two roller-rings D D, rollers mounted therein adapted to travel on the periphery of the fixed head, a driven ring having its bearings solely on the rollers and mounted between the roller-rings, substantially as described.



4. The combination in a forging-machine, of the fixed head having an annular recess, a cap secured to the head so as to form therewith an annular channel, two roller-rings, and rollers mounted in the channel, the rollers adapted to travel on the periphery of the fixed head, a cap, dies confined between the head and the cap and having their outer ends in the form of cams, with a driven ring carried by the rollers, and mounted between the roller-rings, substantially as specified.

5. The combination in a machine for forging rock-drills, a frame having a head provided with slideways, dies adapted to said slideways, means for operating the dies, said head having a water-chamber at the back of the slideways, so as to keep the slideways cool and to counteract the heat of the dies, substantially as described.

6. The combination of the frame having a fixed head provided with slideways, reciprocating dies adapted to said slideways, means for operating the dies, the head having a water-chamber at the back and at each side of each slideway, so as to keep the slideways cool and to counteract the heat of the dies, substantially as described.

7. The combination in a forging-machine of the fixed head having slideways therein, a cap secured to the head, a frame, an annular channel, an annular rib on one part adapted to an annular groove in the other part, means for securing the two parts together, dies adapted to the slideways, rollers adapted to travel around the head within the annular channel and to act upon the dies, with a driven ring carried by the rollers, substantially as described.

8. In a forging-machine, the combination of the fixed head, a central opening therein, two or more dies adapted to slide in the said head, each die having a cam-face, a series of rollers mounted on the periphery of the head, a driven ring carried solely by the rollers, a cap having a central opening, said cap being secured to the head, the arrangement being such as to allow for the free passage of a tool or blank through the center of the machine, substantially as described.

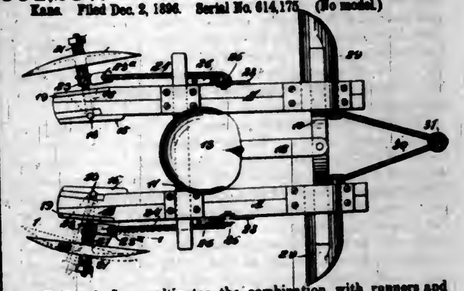
591,286. YOKE FOR REAR FORKS OF BICYCLES. HUGH MCDONALD, Williamsport, Pa. Filed Mar. 13, 1897. Serial No. 627,314. (No model.)



Claim.—1. A yoke for the rear fork of a bicycle formed of a single piece of sheet metal provided with a slot to receive the axle, a dished portion in line therewith, and having integral projecting portions at each end of said dished portion provided with threaded portions to receive an adjusting-screw, substantially as described.

2. A yoke for the rear fork of a bicycle formed of a single piece of sheet metal, provided with a slot to receive the axle, a dished portion in line therewith, and a struck-up perforated ear at each end of said dished portion, disposed perpendicularly to the main body of the yoke, and having their perforations, substantially in the plane of the main body of the yoke, substantially as described.

591,287. CULTIVATOR. GEORGE MCDOUGALL, Cedar Junction, Kans. Filed Dec. 2, 1896. Serial No. 614,175. (No model.)

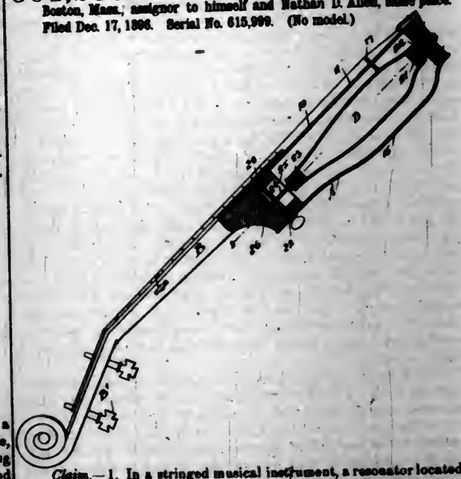


Claim.—1. In a cultivator, the combination, with runners and means for connecting the runners, the runners being provided at their rear ends with recesses in their under surfaces and with horizontal slots above the recesses, of spindles provided with T-heads, the said spindles being passed through the horizontal slots in the runners, boxes in which the heads of the spindles are mounted to turn, disk cutters held to turn on the said spindles, shifting levers, and connections between the shifting levers and the spindles, as and for the purpose specified.

2. In a cultivator, the combination, with runners having their rear extremities inwardly inclined and their under rear portions provided with recesses, each runner at the rear being further provided with a horizontal slot extending through from side to side, of boxes secured to the inner faces of the runners at the rear, spindles having T-heads, the head portions of the spindles being mounted to turn in the said boxes, the body portions of the spindles extending outwardly through the slots in the runners, disk cutters mounted to turn upon the spindles, having concaved inner and convexed outer faces, shifting levers fulcrumed upon the runners, locking devices for the said levers, and a link connection between each of the said levers and one of the said spindles, whereby the spindles may be adjusted laterally and held in the adjusted position, as and for the purpose specified.

3. In a cultivator, the combination of a runner having at its rear end a horizontal slot, the walls of which diverge outward from the inner side of the runner, a spindle capable of swinging through the horizontal slot and forming at its inner end a transverse head mounted to rock in the runner and located at the inner end of the horizontal slot, a cultivating-tool carried on the spindle, and means for adjusting and holding the spindle, substantially as described.

591,288. MUSICAL INSTRUMENT. BENJAMIN MCLAUGHLIN, Boston, Mass., assignor to himself and Nathan D. Allen, same place. Filed Dec. 17, 1896. Serial No. 615,999. (No model.)



Claim.—1. In a stringed musical instrument, a resonator located below the head of the body of the instrument, being pivoted at the tail portion of the body, and an adjusting device at the neck-section of the body, controlling the corresponding end of the resonator, substantially as shown and described.

2. In a stringed musical instrument, a resonator adapted to be located below the head or top of the instrument, and tubes carried by the resonator, as and for the purpose specified.

3. In a stringed musical instrument, a bridge secured to the head or top of the instrument, extending above and below the same, and a resonator located below the top or head and adapted for engagement with the lower portion of the said bridge, as and for the purpose specified.

4. In a stringed musical instrument, a resonator located below the head or top of the said instrument and pivoted at one end, and an adjusting device connected with the opposite end of the resonator, whereby it may be carried to or from the said head, as and for the purpose set forth.

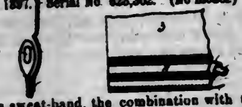
5. In a stringed musical instrument, a resonator located below the head or top of the said instrument and pivoted at one end, an adjusting device connected with the opposite end of the resonator, whereby it may be carried to and from the head, and a bridge secured to the head or top of the instrument, extending above and below the same, the lower end of the bridge being adapted for engagement with the upper surface of the resonator, as and for the purpose set forth.

6. In a stringed musical instrument, a resonator adapted to be located below the head or top of the instrument, the said resonator being provided with tubes having open ends, as and for the purpose set forth.

7. In a stringed musical instrument, a resonator adapted to be located below the head or top of the instrument, the said resonator being provided with tubes having open ends, each tube being further provided with an opening in its side, the openings in the sides being differently located in the different tubes and arranged to be beneath the string of the instrument whose vibration is to be aided by the tubes of the resonator, as and for the purpose set forth.

8. A resonator for attachment to stringed musical instruments and adapted to be placed below the head thereof, the said resonator consisting of a chambered body, tubes crossing the said chamber, graduated in size and open at their ends, each of the said tubes being also provided with a side opening, which side openings in the said tubes are located at different distances from their ends, substantially as shown and described.

591,289. SWEAT-BAND. ADAM MCMEEKIN, Dough, Ireland. Filed Feb. 13, 1897. Serial No. 623,302. (No model.)



Claim.—In a sweat-band, the combination with the band, of a thin strip of flexible material having its edges folded upon itself longitudinally and secured by a line of stitches, forming a larger and a smaller fold in said strip; an inflatable tube inclosed in the larger of said folds; a strip of fiber inclosed within the smaller of said folds; and a line of stitching securing said folded strip to the edge of said band, substantially as described.

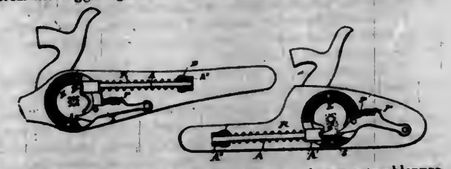
591,290. PORTABLE CLOTHES-LINE HOLDER. EMIL HOLL, St. Louis, Mo. Filed Apr. 4, 1894. Renewed Apr. 7, 1897. Serial No. 631,165. (No model.)



Claim.—In a clothes-line reel, a drum 14 having the central angular bore 15 in one of its ends and the central cylindrical bore 20 in its other end, the frame 10 having the bearings 12 in transverse alinement and the loop 22 at the front end of said frame, the crank-shaft 17 operating in one of the bearings 12 and in said angular bore 15, the pin 24 penetrating said crank-shaft and designed to hold said shaft in position, the pin 21 operating in said cylindrical bore and the pin 23 penetrating said pin 21 and designed to hold said pin 21 in position, substantially as specified.

591,291. LOCK MECHANISM FOR FIREARMS. HENRY PIEPER, Liége, Belgium. Filed Jan. 23, 1897. Serial No. 620,449. (No model.)

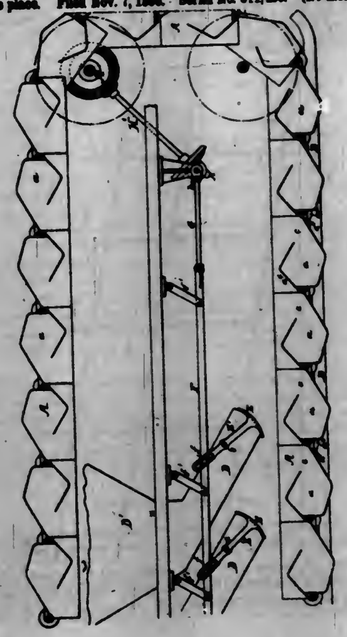
Claim.—1. In a gun-lock a coiled mainspring guided on a rod or bolt provided on one end with a collar adapted to limit the expansion of the spring and provided on its other end with a head contacting with the hammer at a point near its pivot in combination with a trigger fulcrumed in the ordinary manner to the frame of the gun-lock and provided in a bore near its pivot with a coiled spring adapted to press the trigger against the hammer, substantially as described.



2. In mechanism for discharging firearms, a hammer-tumbler provided with a laterally-projecting cylindrical pin adapted to move in a corresponding bore of the lock-plate and carrying on its outer end a hammer, said tumbler being inclosed in a circular casing and having a projection to be acted upon by the mainspring and having notches to receive the tongue of the sear or trigger, which is pivotally secured in a suitable cut-out of the casing, and which carries in a bore a small coiled spring adapted to press the sear against the notches of the hammer in combination with a coiled mainspring surrounding a rod or bolt the head of which, passing through a suitable cut-out within the casing, engages with the projections of the tumbler, said rod or bolt being limited in its forward motion by a collar secured to its end so that after having effected the percussion the hammer is free to rebound and is held in a partially-cocked position by the spring-actuated sear, substantially as described.

3. In mechanism for discharging firearms, a hammer-tumbler provided with a laterally-projecting cylindrical pin adapted to move in a corresponding bore of the lock-plate and carrying on its outer end a hammer, said tumbler being inclosed in a circular casing, having two projections E' and E², to be acted upon by the mainspring and having notches to receive the tongue of the sear or trigger, which is pivotally secured in a suitable cut-out of the casing, and which carries in a bore a small coiled spring adapted to press the sear against the notches of the hammer in combination with a coiled mainspring surrounding a rod or bolt the head of which, passing through a suitable cut-out within the casing, engages with the projections of the tumbler, first with E' to throw the hammer down and then with E² after it performs the percussion, so as to throw the hammer back into the rebound position, substantially as described.

591,292. VALVE FOR CONVEYER-CHUTES. CHARLES PIKE, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed Nov. 7, 1896. Serial No. 611,430. (No model.)

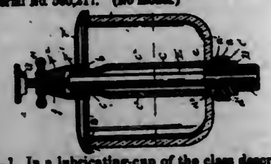


Claim.—1. The combination of a conveyer, a feed-chute, a valve at the end of the feed-chute adapted to travel in a segment of a circle, arms on the said valve pivoted to the chute, said arms having extensions, a bar adapted to engage with the said extensions, links suspending the said bar, a driving-shaft, a crank thereon and a rod connecting the said crank to the bar, substantially as described.

2. The combination of a series of feed-chutes, valves therefor, an operated bar and means for connecting any one of said valves to the bar, substantially as described.

3. The combination of an endless-chain bucket conveyer, driving mechanism therefor, a feed-chute above the open mouth of the conveyer-buckets, a valve for the feed-chute acting intermittently to cut off the flow of material from the chute during the travel of the conveyer so as to uniformly load the buckets, and means connecting the valve with the driving mechanism of the conveyer, substantially as described.

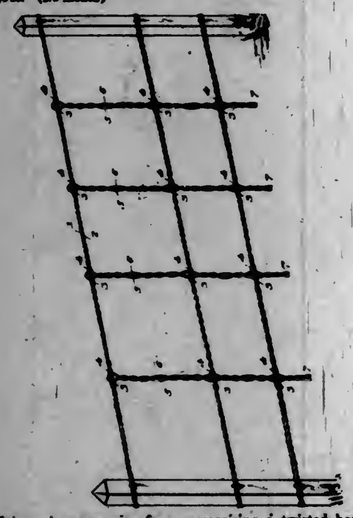
591,293. OIL-CUP. JOHN PRICE, Trenton, N. J. Filed June 11, 1896. Serial No. 595,217. (No model.)



Claim.—1. In a lubricating-cup of the class described, the combination of the cup, the laterally-open feed-tube secured at its lower end, and having a threaded portion *e* at its upper end, an inner skeleton cover having a central nut portion which screws upon the portion *e*, the outer solid cover having the boss F^6, formed with a threaded socket which also engages the said portion *e*, the feed-plug within said feed-tube, the adjusting-screw having a threaded seat in said boss, and the lock-nut on said screw, substantially as specified.

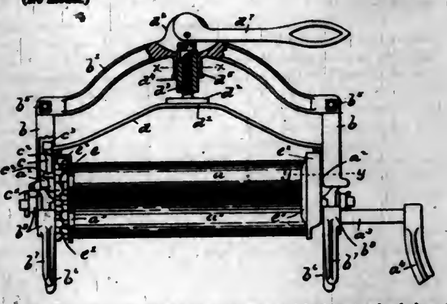
2. In a lubricating device of the character described, the combination of the cup having a skeleton top formed with a central nut portion, and a laterally-slotted feed or valve tube threaded at its upper portion upon which the said skeleton top is screwed, of the closed cover also screwed upon the upper end portion of the said valve or feed tube and formed with a central external boss, the reciprocating valve-rod or plunger which extends up through the said skeleton top into the said boss, an adjusting-screw seated in the said boss with its lower end in position to engage the upper end of the said valve-rod or plunger, and a lock-nut on said screw and adapted to seat against the upper end of the said boss, substantially as specified.

591,294. WOVEN-WIRE FENCE. STEPHEN H. PERDY and RAYMOND R. CARSON, Fultonville, N. Y. Filed Feb. 10, 1897. Serial No. 622,946. (No model.)



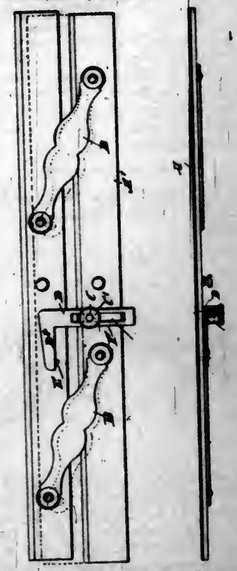
Claim.—A woven-wire fence, comprising a twisted horizontal cable provided at intervals with contiguous eyes 3 4, the direction of the twist being reversed between each two pairs of eyes, in combination with a series of twisted vertical cables interlocking with said eyes, and having the direction of their twist reversed between each two contiguous horizontal cables, substantially as shown and described.

591,295. CLOTHES-WRINGER. CHARLES W. RENYER and CHARLES W. LEUTZ, Columbus, Ohio, assignors to the Stone Manufacturing Company, same place. Filed May 26, 1896. Serial No. 593,054. (No model.)



Claim.—In a wringer the combination with side standards having downwardly-projecting legs and bearing-guides, an arch constructed in a single piece and formed at each end to engage lugs on said standards, said arch being provided at the center with a socket and a bifurcated portion, an adjusting-screw and clamping-lever in said socket and bifurcated portion respectively, an upper roll having bearings fitted in the bearing-guides of said standards, a lower roll journaled in hinged legs pivoted to said standards, a spring over the upper roll, a flat head on the adjusting-screw and an opposing flat bearing-surface on the spring substantially as and for the purpose specified.

591,296. SECTION-LINER ATTACHMENT FOR PARALLEL-RULERS. JOHN C. RICHARDSON, Middlesborough, Ky. Filed Sept. 14, 1896. Serial No. 605,747. (No model.)

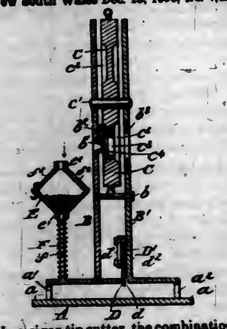


Claim.—1. A sectional-liner attachment for parallel-rulers, comprising an arm slidably and adjustably held on one member of the ruler and having its other end projecting over the other member of the rule and provided with a horizontally-projecting foot, and a stop-pin on the member of the ruler over which the free end of the said arm projects and with which the foot of the said arm engages to limit the opening movement of the members of the ruler, substantially as described.

2. A sectional-liner attachment for parallel-rulers, comprising a post secured on one of the members of the ruler, an arm fitted to slide on the said post and adapted to be secured thereto, said arm being formed with a horizontally-projecting foot, and a stop-pin held on the other member of the ruler and adapted to be engaged by the foot of the said arm, the members of the ruler being free to move toward each, but movable from each other only a predetermined distance, substantially as shown and described.

3. An attachment for parallel-rulers, comprising a post secured to one member of the ruler and provided with a nut on its end, a slotted arm fitting on the post and having one end projecting upon the other member of the ruler and provided with a horizontally-projecting foot, a nut for clamping the arm in the post, and a stop-pin on the said member of the ruler and with which the foot engages, to limit the opening movement of the members of the ruler, substantially as herein shown and described.

591,297. CIGAR-TIP CUTTER. THOMAS H. ROSS, Sydney, New South Wales. Filed June 9, 1897. Serial No. 639,973. (No model.) Patented in New South Wales Dec. 15, 1896, No. 7,129.



Claim.—1. In a cigar-tip cutter, the combination of a front standard having an aperture formed therein adapted to receive the tip of a cigar, a rear standard, a shaft mounted with its ends in said standards, a rotatable disk carried by said shaft between said standards having an annular groove formed therein concentric with said shaft and registering with the aperture in said front standard and adapted to gage the introduction of a cigar-tip inserted in said aperture, and a knife carried by said disk in said groove and adapted to cut the tip of a cigar projecting into the said groove.

2. In a cigar-tip cutter, the combination of a front standard adapted to receive the tip of a cigar, a rear standard having an aperture formed therein immediately back of the aperture in the front standard, a shaft mounted with its ends in said standards, a rotatable disk carried by said shaft between said standards having an annular groove formed therein concentric with said shaft and registering with the aperture in the front standard, and a knife carried by said disk in said groove adapted to cut the tip of a cigar projecting into the said groove, the said disk having an opening coincident with said groove and immediately back of said knife adapted to allow the passage of a severed tip to the aperture in the rear standard and from the machine.

591,298. TUBE FOR STEAM-GENERATORS. LEON SERPOLLET, Paris, France, assignor to La Société des Générateurs à Vaporisation Instantanée, (Système Leon Serpollet,) of France. Filed June 26, 1897. Serial No. 642,603. (No model.) Patented in France Jan. 30, 1897, No. 263,566.



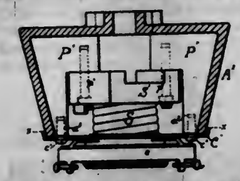
Claim.—A steam-boiler tube, flattened and having an approximately capillary internal space, said tube being twisted so that its longitudinal edges assume the form of two parallel helices, substantially as described.

591,299. METHOD OF JOINING EDGES OF PREVIOUSLY-WAXED FABRICS. WILLIAM W. SIMONSON, Cincinnati, Ohio, assignor to C. C. Mackrille & Co., same place. Filed Apr. 12, 1897. Serial No. 631,868. (No specimens.)

Claim.—1. The herein-described method of seaming or joining together the edges of previously-waxed fabric consisting in applying an adhesive material thereto, then overlapping said edges, and then applying heat and pressure to the edges, substantially as set forth.

2. The herein-described method of seaming or joining together the edges of previously-waxed fabric, consisting in applying a glutinous adhesive material thereto, then overlapping said edges, and then applying heat and pressure to the edges, substantially as set forth.

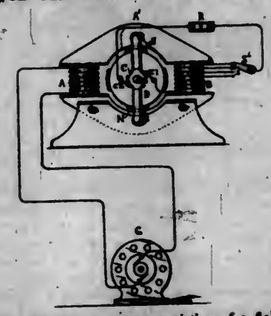
591,300. OUTLET-BOX FOR ELECTRIC WIRING. WILLIAM SCOTT, New York, N. Y., assignor to Hubert Krantz, Brooklyn, N. Y. Filed Dec. 24, 1896. Serial No. 616,962. (No model.)



Claim.—1. An outlet-box for electric wiring having within the box, pillars or lugs for the support of a rosette or other insulation-fixture some distance from the bottom of the box, substantially as described.

2. An outlet-box for concealed electric wiring having its walls tapering, wider at the back where the wiring-tubes enter than at the front, substantially as and for the purposes set forth.

591,301. ALTERNATING-CURRENT ELECTRIC MOTOR. WILLIAM STANLEY, Jr., Great Barrington, Mass., assignor, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed Oct. 23, 1888. Serial No. 288,962. (No model.)



Claim.—1. An electric motor consisting of a field-magnet having a closed core and having two coils, one adapted to be connected in series with a source of alternating electric currents, and the other acting as a secondary coil with reference to the first, whereby the effects of the current induced in the latter and the current flowing in the former combine to establish poles in the field-magnet core, and an armature in the field of force thus established.

2. The combination in an electric motor of a field-magnet having a closed core, a coil applied to each field-magnet connected to the source of supply, a second coil receiving current by induction therefrom, and an armature having its coils supplied with current from said second coils of the field-magnet.

3. In an alternating-current electric motor having consequent field-magnet poles, the combination of independent armature and field-magnet coils, and a second set of field-magnet coils connected in circuit with the armature-coils.

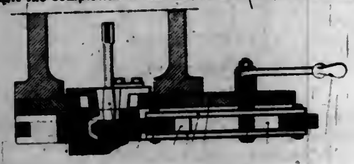
4. In an alternating-current electric motor, the combination of a field-magnet and armature having independent coils, of a second set of field-magnet coils through which the armature-coils are connected, and means for modifying the effective length of the supplemental coils.

5. In an alternating-current electric motor, a field-magnet wound with two magnetizing-coils, one designed to be connected in an alternate-current circuit, and the other to receive currents by induction therefrom, the currents traversing the latter coils tending to increase the field of force established by the currents in the former, and an armature traversed by the lines of force established by the field-magnet.

591,302. APPARATUS FOR MOLDING CLAY, &c. HENRY SERRE, Paris, France. Filed June 15, 1896. Serial No. 595,941. (No model.)

Claim.—In an apparatus for molding clay, the combination with a formative mouthpiece, of a supporting-frame, two frames movable toward and from each other on the said supporting-frame, two jaws

supported by said movable frames to form prominences on the tile transverse to its length, a lever arranged between said movable frames upon a fulcrum between its ends, which are provided with rolls, grooves formed in said movable frames at right angles to the line of their movement, said grooves receiving the rolls upon the ends of the lever and means for operating said lever to draw the movable frames toward each other and into cooperative relations with said formative mouthpiece, then transversely in front of said mouthpiece to cause said jaws to form prominences on the tile transverse to its length, and finally away from each other, to uncover the mouthpiece and permit the completion of the tile, substantially as described.



591,303. METAL JOINT. HENRY C. SWAN, Oshkosh, Wis. Filed May 25, 1897. Serial No. 638,018. (No model.)

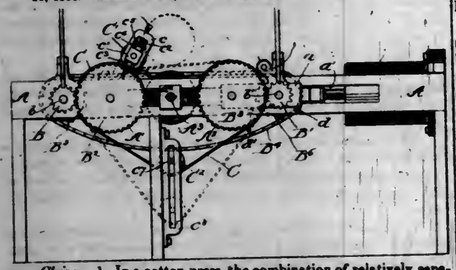


Claim.—1. The combination with a socket having a tapered inner surface, of a slotted thimble having a correspondingly-tapered outer surface arranged to fit therein, a post extending through the thimble and having a shoulder engaging therewith, and a nut engaging the end of the post and arranged to draw the thimble into the socket.

2. The combination with a socket having a tapered inner surface, of a slotted thimble having a tapered outer surface arranged to fit therein, a hole in the lower end of the thimble, a post extending within the thimble and having a reduced and screw-threaded portion extending through said hole, and a nut arranged to close the lower end of the socket and draw the socket and post into place.

3. The combination with a socket having a tapered inner surface, of a thimble having a correspondingly-tapered outer surface arranged to fit therein, a post extending within the thimble, and a nut at the end of the post and out of contact with the thimble, said nut being arranged to draw the thimble into the socket.

591,304. COTTON-PRESS. MAGNUS SWENSON, Chicago, Ill., assignor to the American Cotton Company, New York, N. Y. Filed Oct. 16, 1896. Serial No. 609,148. (No model.)



Claim.—1. In a cotton-press, the combination of relatively separable compression-rolls, a core roll supported between said compression-rolls, a belt or endless apron which passes in contact with and over said compression-rolls and beneath the core-roll, means for simultaneously rotating the compression-rolls so as to thereby drive the belt, and means for allowing the belt to be looped down between said compression-rolls to accommodate the enlarging bale and to apply pressure to the bale, substantially as described.

2. In a cotton-press, the combination of relatively separable compression-rolls, a core-roll supported between said compression-rolls, a belt or endless apron which passes in contact with and over said compression-rolls and beneath the core-roll, and means for positively rotating the compression-rolls at the same surface speed, the belt being thereby driven by friction from said compression-rolls, whereby the enlarging bale will loop the belt or apron downward and move said belt against the friction imposed thereon, substantially as described.

3. In a cotton-press, the combination of a compression roll mounted in stationary bearings, a compression roll mounted in sliding bearing-blocks, a core-roll mounted in sliding bearing-blocks between said compression rolls, a belt or endless apron which passes in contact with and over said compression-rolls and beneath the core-roll, means for simultaneously rotating the compression-rolls so as to thereby drive the belt, and means for allowing the belt to be looped down between said compression rolls to accommodate the enlarging bale and to apply pressure to the bale, substantially as described.

4. In a cotton-press, the combination of two relatively movable compression-rolls, a core-roll supported between said compression-rolls, a belt or endless apron which passes in contact with and over said compression-rolls and beneath the core-roll, means for simultaneously rotating both compression-rolls so as to thereby drive the belt, and means for elevating the looped portion of the belt to eject the finished bale, substantially as described.

5. In a cotton-press, the combination of two relatively movable compression-rolls, a core-roll supported between said compression-rolls, a belt or endless apron which passes in contact with and over said compression rolls and beneath the core-roll, means for simultaneously rotating both compression-rolls so as to thereby drive the belt, and means for driving only one of said rolls so as to elevate the looped portion of the belt to eject the finished bale, substantially as described.

6. In a cotton-press, the combination of two relatively movable compression-rolls, a core-roll supported between said compression-rolls, a belt or endless apron which passes in contact with and over said compression-rolls and beneath the core-roll, and means for both simultaneously and independently rotating said compression-rolls, substantially as described.

7. In a cotton-press, the combination of a stationary compression-roll, a movable compression-roll, a core-roll movably supported between said compression-rolls, a belt which passes over said compression-rolls and beneath said core-roll, means to create a strong frictional engagement between said belt and compression-rolls, and means for driving said compression-rolls either simultaneously or independently, substantially as described.

8. In a cotton-press, the combination of a stationary compression-roll, a movable compression-roll, a core-roll movably supported between said compression-rolls, a belt which passes over said compression-rolls and beneath said core-roll, means to create a strong frictional engagement between said belt and said compression-rolls, means to rotate said compression-rolls such that they may be operated simultaneously or independently of each other and stops to limit the approach of the movable roll to the stationary roll, substantially as described.

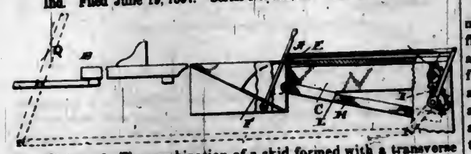
9. In a cotton-press, the combination of a stationary compression-roll, a movable compression-roll, a core-roll movably supported between said compression-rolls, a belt which passes over said compression-rolls and beneath said core-roll, a heavy roll supported in the bight of the belt beneath the press and means to rotate said compression-rolls such that they may be operated simultaneously or independently of each other, substantially as described.

10. In a cotton-press, the combination of a stationary compression-roll, a movable compression-roll, a core-roll movably supported between said compression-rolls, a belt which passes over said compression-rolls and beneath said core-roll, a roll supported above the stationary compression-roll, which holds said belt in contact with said stationary roll and means to rotate said compression-rolls such that they may be rotated simultaneously or independently of each other, substantially as described.

11. In a cotton-press, the combination of a stationary compression-roll, a movable compression-roll, a core-roll movably supported between said compression-rolls, a belt which passes over said compression-rolls and beneath said core-roll, a roll supported above the stationary compression-roll so as to be adjustable toward and from the same, a tension-roll supported adjacent to the movable compression-roll and means to rotate the compression-rolls such that they may by operated simultaneously or independently of each other, substantially as described.

12. In a cotton-press, the combination of a stationary compression-roll, a movable compression-roll, a core-roll movably supported between said compression-rolls, a belt which passes over said compression-rolls and beneath said core-roll, a heavy roll supported in the bight of the belt beneath the press, a roll adjustably supported above the stationary compression-roll, a tension-roll supported adjacent to the movable compression-roll and means to rotate said compression-rolls so that they may be operated simultaneously or independently of each other, substantially as described.

591,305. SAWMILL ATTACHMENT. FRANZ S. THOMAS, Salem, Ind. Filed June 19, 1897. Serial No. 641,502. (No model.)



Claim.—1. The combination of a skid formed with a transverse abutment, a log-turning block movable vertically therein, an actuating mechanism, and a shouldered link connecting the block and actuating mechanism, the shoulder of the link engaging the skid-abutment when the block is raised, thus locking the latter in elevated position, substantially as shown and described.

2. The combination of a skid formed with an abutment, an inclined track therein, a turn-block slidable on the track, an actuating mechanism, a link connecting the block and actuating mechanism and at its top formed with a shoulder, the link extending longitudinally of the skid and adapted to engage its shoulder with the skid-abutment after moving the block forward and upward on the track, substantially as shown and described.

3. The combination of the longitudinally-recessed skid formed at its top with a transverse abutment, the inclined track in the forward end of the recess, the block slidable on the track, a link hinged at its forward end to the block and on its top formed with a shoulder adapted to engage the abutment as described, an actuating-shaft, and a rock-arm on the shaft hinged to the rear end of the said link substantially as shown.

591,306. BICYCLE-FRAME. THOMAS TOLSON, Boston, Mass. Filed Nov. 30, 1896. Serial No. 613,902. (No model.)

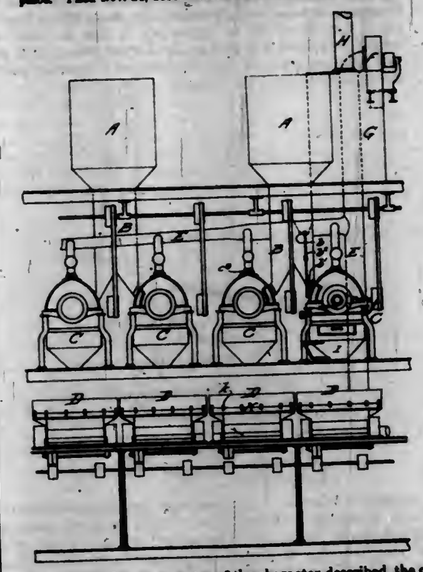


Claim.—1. In a velocipede-frame, the combination with the front and rear members thereof, of an arched tube projecting outward from one member and extending to near the opposite member, a coiled spring arranged in said tube, a second arched tube projecting from said opposite member into the first-named tube and arranged to have a compressing action upon the spring, and a pivotal connection between other portions of the frame members, such pivot being the center of the curvature of the arched tubes, substantially as described.

2. In a velocipede-frame, the combination with the front and rear members thereof, of an arched tube projecting outward from one member to near the opposite member, a coiled compression-spring arranged within said tube, a second arched tube projecting from said opposite member into the first-named tube, an adjustable nut on the said second-named tube said nut being arranged to have a compressing action upon the spring, and arms projecting outward from other portions of the frame members and pivoted together at their ends, such pivot being the center of the curvature of the arched tubes, substantially as described.

3. In a velocipede-frame, the combination with the front and rear members thereof, of an oppositely-curved tube projecting outward from the upper and lower portions of said members, a coiled spring arranged within each tube, similarly-curved tubes projecting outward from the opposite frame members and entering the first-named tubes and arranged to have a compressing action upon the springs, and an arm projecting outward from each frame member intermediate the arched tubes, and having a pivotal connection at their ends, substantially as described.

591,307. APPARATUS FOR ROASTING COFFEE. BENJAMIN TURNBULL, London, England, assignor to Joseph Baker & Sons, same place. Filed Nov. 21, 1896. Serial No. 613,096. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a roasting-machine, a cooler into which the roasted berries are discharged, a chaff-arrester, and means for conveying the fumes from the roaster and induced air from the cooler and delivering them into the chaff-arrester, all as set forth.

2. In an apparatus of the character described, a cooler having a perforated bottom, a perforated pipe in communication with the interior of the cooler and extending transversely thereof within the same, fixed supports in which said pipe is pivotally mounted, said pipe thus forming pivots for the cooler, means for rocking or oscillating the cooler on its pivots and a fan in communication with the said pipe

3. In an apparatus of the character described, a cooler having a perforated bottom and chambers beneath said bottom as described, a perforated pipe arranged to communicate with said chambers and extending beyond the cooler at each end, hollow supports in which the ends of the pipe are journaled, conduits in communication with the interior of said supports, and an air-pipe in communication with the said conduits, and a fan adapted to create a current of air through the cooler and the pipes, as set forth.

4. In an apparatus of the character described, the combination with the roasting-drum, a hollow trunnion thereon, a burner-pipe arranged within said hollow trunnion, and a pipe adapted to conduct a cooling medium into the interior of the drum arranged within said trunnion adjacent to the burner-pipe.

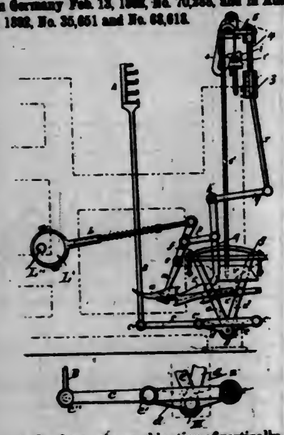
5. In an apparatus of the character described, the flight-arrester consisting in the combination with a vessel having a tangential inlet, a volute partition in said vessel, forming a volute passage, a waste-pipe communicating with the inner end of said passage, a body of water contained within the vessel and into which water the lower end of said partition dips, an outlet at the inner end of the waste-pipe, and a door or flap controlling said outlet and means for operating said door or flap, as specified.

6. In an apparatus of the character described, a cooler adapted to be oscillated and vanes or blades arranged within said cooler for the purpose set forth.

7. In an apparatus of the character described, the combination with the roasting-drum, an inclosing casing therefor, and an exhaust-pipe communicating with the interior of said casing, of a baffle-plate arranged between the roasting-drum and the casing and surrounding said drum, said baffle-plate being provided at or near its bottom with an opening, as set forth.

8. In an apparatus of the character described, the cooler adapted to be oscillated and a discharging-door for said cooler at one side thereof, in combination with a lever adapted to operate the door of the cooler when the latter is in a tilted position, a chain connected with the lever to cause it to operate the door, and an operating-handle for said chain, as set forth.

591,808. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. PAOLO VIGANÒ, Tringgio, Italy. Filed Mar. 17, 1894. Serial No. 504,112. (No model.) Patented in Italy Nov. 15, 1891, No. 30,709; in France Feb. 9, 1892, No. 219,250; in Belgium Feb. 10, 1892, No. 96,308; in Switzerland Feb. 10, 1892, No. 4,893; in England Feb. 13, 1892, No. 2,851; in Germany Feb. 13, 1892, No. 70,283, and in Austria-Hungary Mar. 14, 1892, No. 35,651 and No. 63,612.



Claim.—1. In a loom, the combination of vertically-movable shuttle-boxes, a jacquard mechanism, a rod carrying the shuttle-boxes, a rocking lever for raising and lowering said rod, two pivoted bell-crank levers attached at their shorter extremities to said rocking lever, bars *t* and *u* pivoted intermediate their ends to the longer arms of said bell-crank levers, mechanism for engaging said bars to rock the bell-crank levers in one direction, mechanism for engaging said bars to rock the bell-crank levers in the opposite direction, and two weighted rods arranged over the extremities of the said bars and controlled by the jacquard mechanism, said rods when dropped by the jacquard mechanism engaging the extremities of the bars *t* and *u* and throwing the latter out of engagement with one of the operating mechanisms and into engagement with the other, substantially as described and for the purpose specified.

2. In a loom, the combination of vertically-movable shuttle-boxes, a jacquard mechanism, a rod carrying the shuttle-boxes, a rocking lever for raising and lowering said rod, two bell-crank levers pivoted upon a common center and pivotally attached at their shorter extremities to said rocking lever, bars *t* and *u* pivotally attached intermediate their ends to the longer arms of said bell-crank levers and provided with projecting hooks or noses, mechanism for engaging said hooks to rock the bell-crank levers in one direction, an oscillating lever *q* adapted to engage the hooks to rock the bell-crank levers in the opposite direction, and two weighted rods arranged over the free ends of the bell-crank levers and controlled by the jacquard mechanism and operating when dropped by said mechanism to oscillate the bars *t* and *u* and throw the hooks into the path of the oscillating lever *q*, whereby the bell-crank levers are thrown in the opposite direction, substantially as described and for the purpose specified.

591,809. RED DYE. JULES VILLE, Montpellier, France. Filed Feb. 16, 1897. Serial No. 623,257. (Specimens.)

Claim.—1. The process of producing coloring-matters by heating a fatty hydrazin with resolic acid, substantially as described.

2. The described red coloring-matters resulting from heating a fatty hydrazin with resolic acid, said coloring-matters being a pulveralent mass, having a brilliant reflection, soluble in alcohol and acetic acid forming red solutions, and in hydrochloric and sulfuric acids forming yellowish solutions, as set forth.

591,810. KNIFE-GUARD. FRANK W. WAITE and WILLIAM D. BROADWELL, Petersburg, Va. Filed May 7, 1897. Serial No. 635,475. (No model.)



Claim.—1. The combination with a knife-blade, of a guard provided with end sections, spaced bars connecting said end sections and lying one in advance of the said blade and the other in engagement with the rear of said blade, and tongues engaging the front of said blade and coacting with the bar at the rear of said blade to hold the guard in place, substantially as set forth.

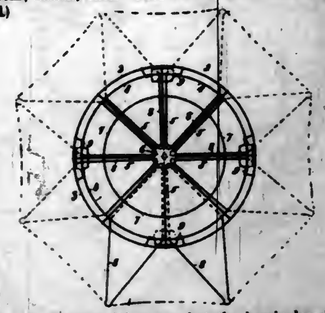
2. A knife-guard, consisting of end sections in the same plane, arched bars connecting the end sections, and tongues connected with the end sections at the outer or forward portions thereof, the tongues being forwardly inclined and at an angle to the said end sections, for the purpose set forth.

3. A knife-guard, consisting of flat end sections, said sections being in the same horizontal plane, connecting-bars uniting the end sections, the connecting-bars being arched in the same plane, the arching of the bars being in a forwardly direction, extensions from the forward portions of the end sections, said extensions being carried laterally in opposite directions from the end sections, and in the same plane therewith, and tongues connected with the said extensions, and located one near each end section of the guard, said tongues being also given an outward inclination, being at an angle to the end sections, for the purpose specified.

4. The combination, with a knife-blade, of a guard, said guard consisting of horizontal end pieces, arched bars connecting the end pieces, and spring-tongues projected at an angle from the end pieces, arranged for engagement with the front portion of the blade, the edge of the blade being adapted to enter the space between the arched bars, and the rearmost arched bar being arranged for engagement with the back of the blade, for the purpose set forth.

5. The combination, with a knife-blade, of a guard consisting of end pieces in the same horizontal plane, upwardly-arched bars connecting the end pieces, and tongues projected from the said portion of the end pieces, said tongues being at an angle to the end pieces and arranged to engage with the front of the blade, the cutting edge of the blade entering the space between the arched bars, the arched bars being at an angle to the said blade, one bar in advance of the blade and out of contact therewith, and the other bar at the rear of the blade and in engagement therewith, for the purpose set forth.

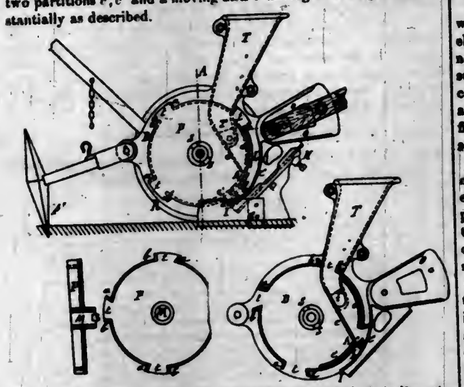
591,811. EXPANSIBLE CAP. RICHARD P. WARNER and ALBERT G. LISTOCK, Detroit, Mich. Filed June 7, 1897. Serial No. 639,740. (Model.)



Claim.—In an expansible cap or hat the herein-described wire crown comprising an outer circle 3 and an inner concentric circle 4, united at intervals by radial arms intermediately strengthened by a circular brace 7 and having their inner ends permanently secured in the hollow shank of a central button 6; the vertically-swinging V-shaped wires having their free ends hinged on the inner wire circle 4 and their apexes adjustably secured under the flange of the said central button; the coiled springs adapted to actuate the V-sections when released from the button; the expansible shade or cover attached to the V-sections and the removable outer cover 11, all constructed and combined substantially as herein shown and described.

591,812. MACHINE FOR SOWING SEED IN LINES, &c. LOUIS F. WAUTHIER, Ligny, Belgium. Filed May 7, 1897. Serial No. 636,598. (No model.)

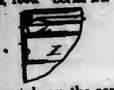
Claim.—1. A sowing apparatus for sowing groups of seeds in lines with intervals, comprising two sets of seed-spoons, a single funnel V, a hopper T, in combination with a stationary disk D having two partitions *c*, *c'* and a moving disk P having two flanges *a b*, substantially as described.



2. In a sowing-machine for sowing groups of seeds in line, the combination of a stationary disk carrying on one side a hopper and on its other side partitions, with a moving disk having a flange which retains the seeds until the moment when an opening lets them pass, and sides to then carry the seeds along the circular passage formed by the partitions, as and for the purposes set forth.

3. In a sowing-machine for sowing groups in line, a sowing-plow S mounted to slide with a setting-screw so as to vary at will the depth of the furrow, this plow cutting the furrow exactly at the place where the seeds are to be deposited in it, and having its lower side formed as an edge, substantially as described.

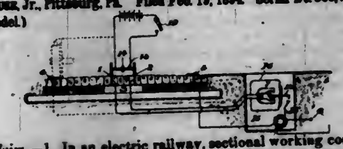
591,813. SHEET-METAL CAN. FREDERICK WESTERBECK, St. Louis, Mo. Filed Dec. 14, 1896. Serial No. 615,683. (No model.)



Claim.—1. In a sheet-metal can, the combination of a can-body provided with an inturned shoulder, an outturned shoulder, a stiffening-band located in the channel formed by the shoulders and fitting between said shoulders, a vertical extension above said outturned shoulder, and a cover provided with a flange and located within the body, said extension and flange being arranged to be folded over inwardly together into a seam, substantially as described.

2. In a sheet-metal can, the combination of a can-body provided with an inturned shoulder, an outturned shoulder, an inwardly-projecting bead located beneath said outturned shoulder, a stiffening-band located in the channel formed by the shoulders and fitting between said shoulders, an extension above said outturned shoulder, and a cover provided with a flange and located within the body, said extension and flange being arranged to be folded over inwardly together into a seam, substantially as described.

591,814. ELECTRIC-RAILWAY SYSTEM. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Feb. 19, 1894. Serial No. 500,731. (No model.)



Claim.—1. In an electric railway, sectional working conductors the sections of which are arranged in laterally-disposed pairs, a stationary source of current and means for automatically connecting said stationary source of current with every alternate laterally-disposed pair of sections in multiple during the passage of the car, substantially as described.

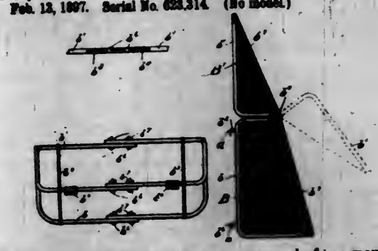
2. In an electric railway, sectional working conductors the sections of which are arranged in laterally-disposed pairs, a pair of contact devices carried by the car and insulated from each other and adapted to bear on said working conductors, a source of current carried by the car and having its terminals respectively connected to said pair of contact devices, electromagnetic switches the coil of each of which is permanently connected to a pair of working-conductor sections in multiple, and a stationary source of current which is connected to said pairs of working-conductor sections in multiple by said switches when energized, substantially as described.

3. In an electric railway, a main source of current and a pair of working conductors arranged side by side, in combination with an electromagnet, wires connecting the terminals of the coil of said magnet with the two working conductors, means carried by the car for supplying exciting-current to said working conductors, an armature controlled by said magnet, a movable switch member actuated thereby and directly connected electrically with said wires in multiple, and a fixed switch member connected electrically with one terminal of said source of current, substantially as described.

4. In an electric railway, a main source of current, an electromagnetic switch for making temporary connection therewith, a generator on the car and working conductors arranged in laterally-disposed pairs between said switch and said generator and connected to the latter for difference of potential, and to said main source of current for approximately identical potential, substantially as described.

5. In an electric railway, two lines of sectional working conductors, a main source of current, an electromagnetic switch for making temporary connection therewith, said switch being provided with a single actuating-coil, a generator on the car, a two-part traveling contact device, a circuit including the generator, the two parts of the contact device and the switch-actuating coil in series, and a circuit closed by said switch but independent of said coil, and connecting said main source of current with the two parts of said contact device in multiple, substantially as described.

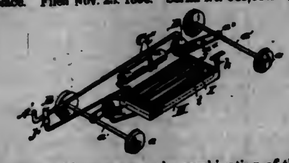
591,815. FIRE-FENDER. HENRY WILSON, Richland, Ga. Filed Feb. 13, 1897. Serial No. 623,314. (No model.)



Claim.—1. A fender for fireplaces composed of two members, a lower member consisting of a frame covered with wire-netting, said lower member being detachably secured to the fireplace and adapted to inclose the lower portion of the same, and an upper member also composed of a frame covered with wire-netting and hinged to the top and front of the said lower member, adapted to swing outward from the said fireplace to open the fender and to inclose the upper portion of the said fireplace when closed, substantially as described.

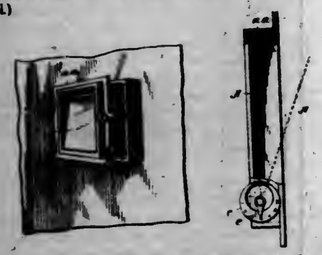
2. A portable fire-fender made in the shape of a blower and composed of a two-part frame, said frame being covered with wire-netting, the two parts being hinged together, said frame being expansible to fit different sizes of fireplaces, and means for securing the frame in any adjusted position, the upper part of the fender being adapted to fold down over the lower part and being provided with a handle, substantially as described.

591,816. REFRIGERATOR-CAR. WILLIAM H. WOODS, Detroit, Mich., assignor of two-thirds to Robert Ferguson and Elbert R. Todd, same place. Filed Nov. 23, 1896. Serial No. 613,067. (No model.)



Claim.—In a refrigerator-car, the combination of the expansion-pipes within the car, a coil of pipe underneath the car connecting opposite ends of said pipes, means for circulating water over the coil of pipes operated by the movement of the car, said means consisting of an outer tank H, and an inner tank I within which the coil lies suitably suspended beneath said car, and a pump operated by the movement of said car, pipes connecting said tanks with the pump whereby the pump may draw water from one tank and discharge it into the other, a pump to draw the vapor from the pipes and force it into the coil, and a resistance-valve adapted to deliver the vapor from the coil into the pipes only at a high pressure, substantially as described.

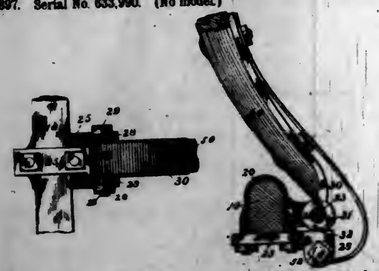
591,317. AUTOMATIC DRAFT-REGULATOR. CHARLES R. ALDEN, Philadelphia, Pa. Filed Nov. 19, 1896. Serial No. 612,660. (No model.)



Claim.—1. In a device of the character described, a shaft, an overbalanced wheel adjustably rotatable on the shaft, a valve connected to the shaft, an index-finger on the shaft and a series of characters on the wheel registering with the index-finger to indicate the position of the wheel with relation to the valve, as and for the purpose described.

2. In a device of the character described, a post, a sleeve rotatable thereon, a valve connected to the sleeve, an overbalanced wheel adjustably rotatable on the sleeve, an index-finger on the post and a series of characters on the wheel registering with the index-finger to indicate the position of the wheel relative to the valve, as and for the purpose described.

591,318. COMBINED ANTIRATTLER, SHAFT-SUPPORT, AND SAFETY-STRAP. SELDEN A. BAILEY, New York, N. Y. Filed Apr. 26, 1897. Serial No. 633,990. (No model.)



Claim.—1. In a thill-coupling the combination of an axle-clip, a thill shackled thereto, a metallic spring rigidly fastened at one end to the thill and shackled at the other end to said clip at a point adjacent to and vertically in line with the shackle of the thill, said spring being bowed outward permitting the thill to rest on the ground or in upright position and serving as a support, as a safety-strap, and as an antirattler.

2. In a thill-coupling, the combination of an axle-clip, a thill shackled thereto, a metallic spring rigidly fastened at one end to the thill and shackled at the other end to said clip at a point adjacent to and vertically in line with the shackle of the thill, said spring being curved inward near its point of connection with the thill and bowed outward in its rear portion, permitting the thill to rest on the ground or in upright position and serving as a support, as a safety-strap and as an antirattler.

3. In a thill-coupling, the combination of an axle-clip having shackle-jaws, and a clip-yoke extending under said shackle-jaws and also provided with shackle-jaws, a thill having a thill-iron shackled to the jaws of the axle-clip, the eye of said thill-iron having a flat face for engaging said yoke, and a metallic spring fastened to the thill and shackled to said clip.

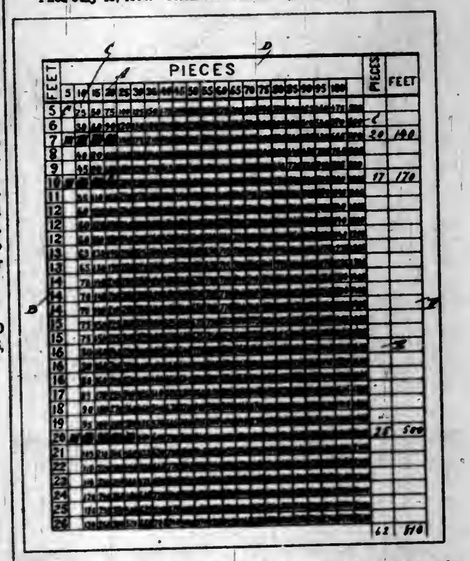
4. In a thill-coupling, the combination of an axle-clip, a clip-yoke thereon, a thill-iron shackled to said clip, the eye of said thill-iron having a flat face for engaging said yoke, and a spring fastened at one end to the thill and at the other end to the axle-clip.

5. In a thill-coupling, the combination of an axle-clip, the bow thereof having shackle-jaws, and the yoke having a front extension projecting under said jaws and provided with shackle-jaws, a thill-iron, the eye of which is pivoted to the jaws of said bow and adapted to bear on said front extension, and a spring connected at one end to said thill-iron and shackled at the other end to the shackle-jaws of said yoke, said spring operating to hold the eye of said thill-iron in contact with said front extension when the thill is in operative position and thereby serving as an antirattler.

6. In a thill-coupling, the combination of an axle-clip, a thill shackled thereto, a spring rigidly fastened at one end to the thill and shackled at the other end to said clip at a point directly under and vertically in line with the shackle of the thill.

7. In a thill-coupling, the combination of an axle-clip, a thill shackled thereto, a spriag rigidly fastened at one end to the thill and shackled at the other end to said clip at a point directly under and vertically in line with the shackle of the thill, said shackles forming a close joint whereby the eye of the thill-iron is adapted to bear firmly against the clip-yoke.

591,319. TALLY-SHEET. HERBERT L. BAKER, Whitecastle, Ia. Filed July 15, 1897. Serial No. 644,620. (No model.)



Claim.—1. A tally-sheet, provided with a head-line of figures for showing the number of pieces tallied upon each line, a column of figures showing the amount of each piece tallied, and spaces for receiving the tally-marks, the spaces being in alinement with the said head-line and the said figure-column, the spaces adjacent to the figure-column being blank and the remaining ones having figures indicating the amount of lumber tallied, the figures being so arranged that the total amount of lumber as tallied in the preceding spaces is indicated by the figure in the next adjacent space, substantially as shown and described.

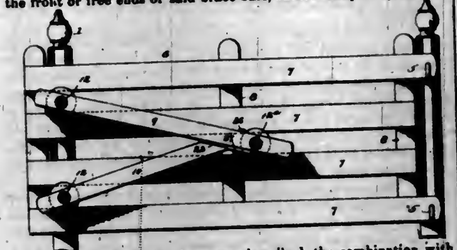
2. A tally-sheet, provided with a head-line of figures for showing the number of pieces tallied upon each line, a marginal blank column for receiving the numeral indicating the number of pieces tallied, a figure-column adjacent to the marginal blank column and showing the amount of each piece tallied, spaces in alinement with the said head-line and said figure-column, for receiving the tally-marks, the spaces adjacent to the figure-column being blank, and the remaining ones having figures indicating the amount of lumber tallied, the figures beiag so arranged that the total amount of lumber as tallied in the preceding spaces is indicated by the figures in the next adjacent space, and a marginal blank column adjacent to the last row of spaces, and adapted to receive the total amount of lumber tallied in a row of spaces, substantially as shown and described.

591,320. GATE. ROBERT H. BERENTHEIMER, York, Pa. Filed June 9, 1897. Serial No. 640,050. (No model.)

Claim.—1. In a gate of the character described, the combination with the posts and the plates having pintles secured to one of said posts, of the gate proper, the adjustable brace-bars, the shafts at the inner ends thereof having holes with which the said pintles engage and to which shafts said brace-bars are pivoted, the flanged wheels bearing upon the opposite edges of the horizontal rails of the gate proper, the flanged wheel at the lower end of the upper brace-bar, and the plate and bolt adjustably connecting the free ends of said brace-bars, substantially as specified.

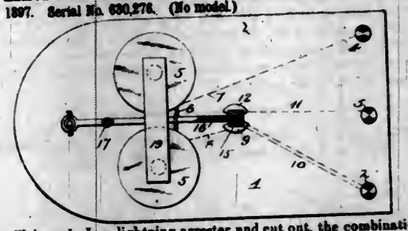
2. In a gate of the character described, the combination with the posts and the plates secured thereto provided with pintles, of the gate proper, the shafts comprising the plates having holes with which

said pintles engage, and the cylindrical and reduced screw-threaded portions, the flanged hubs, the circular washers, the washers and nuts at the screw-threaded ends of the shafts, the flanged wheel at the front end of the upper brace-bar and the plate and bolt connecting the front or free ends of said brace-bars, substantially as specified.



3. In a gate of the character described, the combination with the posts, the gate proper, and the wheels, of the inclined brace-bars pivoted to the shafts of the wheels at the inner end of the gate, of the plate secured to said lower brace-bar serrated on its upper side and projecting beyond the end of said bar and formed with a slot and two opposite flanges, the headed screw-bolt passing through said slot and through the upper brace-bar, and the nut on the end of said bolt engaging with said flanges, substantially as specified.

591,321. LIGHTNING-ARRESTER AND CUT-OUT. CHARLEY BRADBELL, Ashland, Wis., assignor of a part to Charley Hilton, S. Gust Peterson, Axel Fridstrom, John Sundell, Monson & Larson, Andrew C. Anderson, and Walfrid Nystrom, same place. Filed Apr. 1, 1897. Serial No. 630,276. (No model.)



Claim.—1. In a lightning-arrester and cut out, the combination of the base, the coils mounted thereon and connected in circuit, the plates on the base 1 being connected with one coil and the other being connected with the ground the other coil being connected with the line, a spring connection leading from one of the plates to the instrument-terminal, and the lever fulcrumed near its outer end to the base, having an adjustable spring connection leading from its outer end to the base and having its inner end provided with a head or disk for operating on the spring connection to shift it to throw the current into the ground connection.

2. In a lightning-arrester and cut-out, the combination of the base, the coils mounted thereon and connected together and to the line-terminal, the magnet, the lever having the spring adjusting devices connected to the magnet and carrying the disk, the tip adapted to be engaged by said disk, the sprihg-plate carrying the tip, the conducting-plates adapted to be engaged by said spring-plate, and the connections leading from said plates and grouad and instrument.

591,322. RAISIN-SEEDER. JOHN W. BROWN, Jr., Philadelphia, Pa. Filed Nov. 27, 1896. Serial No. 613,503. (No model.)



Claim.—1. As a new article of manufacture the frame of a raisin-seeder, having the discharge-spout formed integral therewith and having a spindle fixed thereto for the reception of the seeding-wheel, the spindle and spout being rigid in respect to each other so that when the machine is dismembered for cleansing the relation of the spout to the spindle cannot be altered, substantially as described.

2. As a new article of manufacture a head of a raisin-seeder, consisting of an integral structure having a hopper, side plate and discharge-spout for the seeds cast integral therewith and open at one side for the removal of the seeding-roll, and having a permanent stud upon which the seeding-roll is mounted, substantially as described.

3. The herein-described raisin-seeder consisting of a casing having an upwardly-exteeding hopper provided with bearings for seeding and presser rolls, a seeding-roll mounted in the bearings at the bottom of the hopper, a presser-roll mounted in its bearings in front of the seeding-roll, the said casing having a discharge-spout extending downwardly therefrom below the rolls, the inner edge of said spout being turned up and extending close to the surface of the seeding-roll to form a scraping edge, substantially as described.

4. The herein-described raisin-seeder consisting of a casing comprising an overhanging arm A', having a hopper extending upwardly therefrom, a downwardly-extending discharge-spout having its inner edge turned up to form a scraping edge, a seeding-roll mounted in bearings at the bottom of the hopper and rotating close to the scraping edge of the spout, and a presser-roll mounted in front of the seeding-roll, substantially as and for the purpose set forth.

5. The herein-described raisin-seeder consisting of a casing having an upwardly-extending hopper, the lower portion of said hopper being shaped to conform to seeding and presser rolls, and provided with a downwardly-extending spout, the inner edge of which forms a scraping edge, a seeding-roll mounted in said hopper, close to the said scraping edge, doffers carried by the shaft of said seeding-roll and extending through an opening in the casing formed by the inner edge of the spout-bottom and the lower portion of the back section of the casing, substantially as and for the purpose set forth.

6. The combination in a raisin-seeder, of the casing having a hopper and spout, a presser of yielding material, a stud projecting from the frame, a sleeve carried thereby and confined longitudinally thereon, toothed disks and washers mounted on the sleeve, a handled nut screwed onto the sleeve and adapted to confine the disks thereto, with loose rings between the disks and having projections adapted to rest against the back portion of the frame and discharge the raisin-pulp from the machine, substantially as described.

7. The combination in a raisin-seeder, of the casing, a stud projecting therefrom, a sleeve mounted on the said stud having a head at one end and screw-threaded at the opposite end, a series of disks and rings alternately arranged upon the said sleeve, a handled nut adapted to the screw-threaded portion of the sleeve and acting to clamp the disks and rings to the sleeve, substantially as described.

8. The combination in a raisin-seeder, of the main frame having the feed-hopper thereon, the seeding-roll mounted on said frame below the hopper, a frame pivoted to the hopper above the seeding-roll and carrying in its lower end a presser-roll of yielding material in front of the seeding-roll, and a lug extending upwardly from said frame and provided with a set-screw bearing against the side of the hopper, substantially as described.

9. The combination in a raisin-seeder, of the main frame having the feed-hopper therein, the seeding-roll mounted on said frame below the hopper, a yoked frame carrying a presser-roll and pivoted to the main frame above the seeding-roll, a lug extending upwardly from said frame, and a set-screw carried by said lug and bearing against the outwardly-flaring side of the hopper, substantially as described.

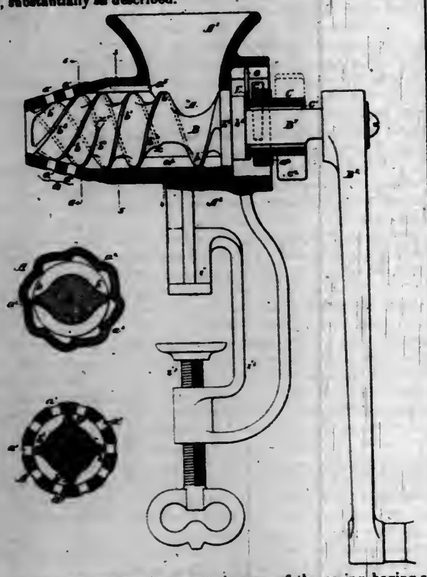
591,328. MEAT-CHOPPER. JOHN W. BROWN, Jr., Philadelphia, Pa. Filed Jan. 21, 1896. Serial No. 576,331. (No model.)

Claim.—1. The combination in a meat-chopper, of the casing made in one piece and having a hopper, a perforated and tapered forward end and an open rear end, a combined feed-screw and cutter adapted to be inserted into the casing through the opening in the rear end, and having a shank to which the handle is secured and a follower adapted to the open end of the casing and having an opening greater in diameter than the shank of the feed-screw, the follower being free from contact with the shank, and serving only as a means of forcing the cutting portion of the feed-screw against the perforated and tapered front end of the casing, the combined feed-screw and cutter having its bearing solely in the casing, substantially as described.

2. The combination in a meat-chopper of the casing made in one piece and having an open rear end, a hopper, a straight body with straight longitudinal ribs therein, and a perforated and tapered front end, said ribs terminating at the perforated end portion, with a combined feed-screw and cutter, having its bearing within the casing, and a follower adapted to the open rear end of the casing and acting to force the cutting portion of the feed-screw against the perforated portion of the casing, substantially as described.

3. The combination in a meat cutter, of the casing having a straight barrel and a perforated and tapered end portion, a combined feed-screw and cutter having its bearing solely within the casing, the threads of said screw being arranged substantially as shown, one

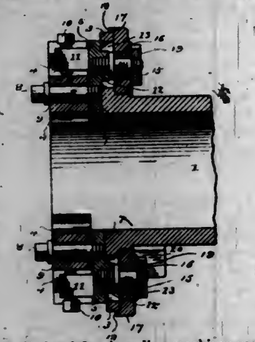
thread extending throughout the length of the screw, another thread extending from the hopper forward and the two remaining threads commencing at the point where the case tapers and extending to the end, substantially as described.



4. The combination in a meat chopper, of the casing having a hopper, a perforated and tapered forward end and an open rear end, a combined feed-screw and cutter tapered at the forward end and having a solid portion b^4 at the opposite end, the tapered portion of the feed-screw fitting the tapered portion of the casing and the solid portion of the feed-screw fitting snugly the rear of the casing, the main body of the screw fitting loosely the ribbed portion of the casing, a follower adapted to hold the screw in position in the casing and means for turning the screw, substantially as described.

5. The combination in a meat-chopper, of the casing having a hopper, a perforated and tapered forward end and a tapered opening at the rear end, a combined feed-screw and cutter adapted to be inserted in the casing through the opening in the rear end, said feed-screw having a tapered end adapted to the tapered portion of the casing and a tapered solid portion b^4 adapted to the tapered opening in the rear of the casing, the main body of the screw loosely fitting the casing, a shank on the feed-screw adapted to fit the handle and a follower for holding the feed-screw in position within the casing, substantially as described.

591,324. DIE-HEAD FOR THREADING-MACHINES. LARS F. CARSTENSEN, Bridgeport, Conn., assignor to the Armstrong Manufacturing Company, same place. Filed Mar. 9, 1897. Serial No. 626,590. (No model.)



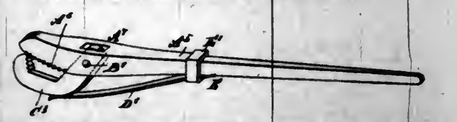
Claim.—1. A die-head for threading-machines comprising in its construction a head 3 provided with radial slots 13, a plurality of carriers 5 each of which is movable in a recess in the face of the head and has a boss 12 extending into one of the slots 13, dies connected with said carriers, studs 14 projecting from the carriers, and the ring 17 having cam-slots 16 to receive the studs and mounted on the barrel of the die-head and adapted to be oscillated to move the die-carriers and dies radially, the said studs being extended through the slots 16 and provided with nuts 19 bearing on the rear surface of the head 3.

2. The combination with the barrel 1 having the integral flange or head 3 provided with radial slots 13, of the carriers 5 movable in recesses in the face of the head and having bosses 12 extending into the slot 13, dies adjustably connected with said carriers, studs 14 engaged with the bosses 12, and the ring 17 having cam-slots 16 to receive the studs and mounted on the barrel behind the head and adapted to be operated to move the die-carriers and dies radially, the said studs being extended through the slots 16 and provided with nuts 19 bearing on the rear surface of the head 3.

3. The combination with the barrel 1 having the flange or head 3 provided with radial slots 13, of the carriers 5 movable in recesses in the face of the head and having bosses 12 extending into the slots 13 and having also the lugs 11, the dies 4 having elongated slots 9, bolts 8 extending through said slots into the carriers, screws 10 in the lugs 11 and bearing on the dies, studs 14 projecting from the bosses 12, and the rings 17 having cam-slots 16 to receive the studs and mounted on the barrel behind the head and adapted to be oscillated to move the die-carriers and dies radially, the said studs being extended through the slots 16 and provided with nuts 19 bearing on the rear surface of the head 3.

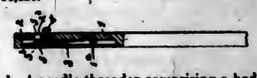
4. A die-head for threading-machines comprising in its construction a head 3 provided with radial slots 13, a plurality of carriers 5 each of which is movable in a recess in the face of the head and has a boss 12 extending into one of the slots 13, dies connected with said carriers, studs 14 projecting from the carriers, and the ring 17 having cam-slots 16 to receive the studs, the said studs being extended through the slots 16 and provided with nuts 19 bearing on the rear surface of the head 3; each of said slots being at its inner end concentric with the center of the die-head and eccentric at its outer end, the said ring being mounted on the barrel of the die-head and adapted to be oscillated to move the die-carriers and dies radially and to lock them in their inner positions.

591,325. PIPE-WRENCH. EDWARD B. CHARLEY, Kewanee, Ill. Filed Jan. 2, 1897. Serial No. 617,736. (No model.)



Claim.—A pipe-wrench comprising a stock formed with a handle, a curved end having teeth on its outer edge, a notch in said edge in the rear of the teeth, and an opening between said teeth and notch, a hook-shaped jaw pivoted in said opening and extending forwardly having its end formed with teeth arranged to operate in conjunction with the teeth on said stock, a spring engaging said notch and having its free end bearing against said jaw to close the same, and a sleeve fitting over said stock and forced to engage said spring whereby the tension of the spring is increased as the sleeve is forced over the same, as and for the purpose set forth.

591,326. NEEDLE-THREADER. GEORGE COLLINGS, Pietermaritzburg, Natal. Filed Aug. 6, 1896. Serial No. 601,673. (No model.) Patented in England Oct. 7, 1895, No. 18,750, and in Germany Jan. 23, 1896, No. 90,239.

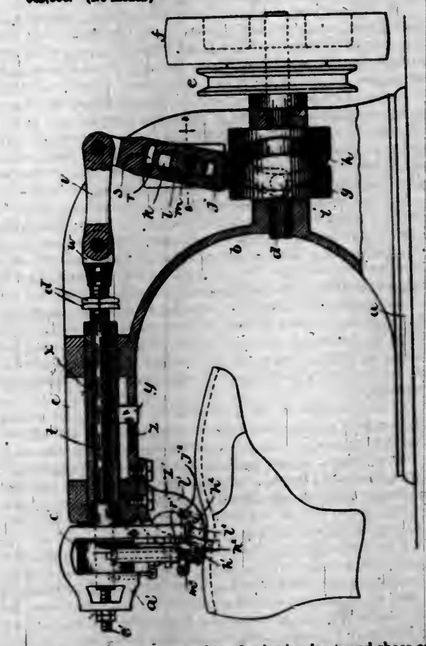


Claim.—1. A needle-threader comprising a body in which there is a longitudinal hole for insertion of a needle to be threaded and also a guiding-hole arranged at right angles thereto for cotton or thread, a spring device located wholly within the said body and adapted to grip and hold the needle in position for threading, and a knob whereby the said spring device can be moved and held out of the path of a needle while it is being inserted into the first-mentioned hole for the purpose of being threaded, or having been threaded, is being withdrawn from the instrument, all substantially as described.

2. A needle-threader comprising a body 1 with needle-hole 2, 2^a and thread hole 5, a removable cover-plate 1^a with thread-hole 5, the two holes 5 registering with each other so as to form a continuous hole through the threader, a spring-blade 3 fixed near one end within said body and provided near the other end with a hollow conical projection 3^b flattened at two opposite sides, and a pusher 4 extending through the wall of said body and arranged to act against said spring-blade, substantially as described for the purposes specified.

3. A needle-threader comprising a body, a spring device located within said body, an opening for a needle in said body, a hollow projection on said spring device registering with and adapted to guide the thread to the eye of the needle, and an opening in said body for the admission of the thread, substantially as described.

591,827. SEWING-MACHINE FOR LASTING BOOTS OR SHOES. WILLIAM C. COLLYER, Reading, Mass. Filed Sept. 8, 1896. Serial No. 605,060. (No model.)



Claim.—1. A sewing-machine for lasting boots and shoes comprising in its construction, pincers for the upper, a needle, a looper, a longitudinally-reciprocating shaft for operating all of the enumerated elements, and means for actuating said shaft.

2. A sewing-machine for lasting boots and shoes comprising in its construction a needle-carrier having internal threads, a needle mounted on the carrier, a threaded shaft engaging the internal threads of the needle carrier, and means for reciprocating said shaft.

3. A sewing-machine for lasting boots and shoes, comprising in its construction, a needle, pincers for the upper, and a screw-shaft for causing said pincers to engage the upper and draw it taut over the last.

4. A sewing-machine for lasting boots and shoes comprising in its construction, a needle, a needle-carrier, pincers for the upper, and a screw-shaft for operating the said needle-carrier and the said pincers.

5 A sewing-machine for lasting boots and shoes comprising in its construction, a needle, a needle-carrier, and a screw-shaft for feeding said needle-carrier laterally when said needle is in engagement with the work.

6. A sewing-machine for lasting boots and shoes comprising in its construction, an internally-threaded needle-carrier, a screw-shaft for oscillating said carrier, and means operated by said shaft for shifting said needle-carrier laterally.

7. A sewing-machine for lasting boots and shoes comprising in its construction a needle-carrier having a cam, and having a threaded aperture, pincers arranged to be operated by said cam, and a screw-shaft passing through said threaded aperture to actuate said needle-carrier.

8. A sewing-machine for lasting boots and shoes comprising in its construction, a needle-carrier, pincers for the upper, and single means for actuating said needle-carrier and said pincers, and then feeding them laterally.

9 A sewing-machine for lasting boots and shoes comprising in its construction, a stationary rest for the last, and a stationary lip-turner or abutment, in combination with a needle-carrier, pincers for the upper, and means for actuating said needle-carrier and said pincers and feeding them laterally.

10. A sewing-machine for lasting boots and shoes comprising in its construction a stationary rest for the last, a needle-carrier and pincers movable relatively to the rest, means for actuating said pincers and said needle-carrier, and devices operated by said means for feeding said pincers and said needle-carrier laterally.

11. A sewing-machine for lasting boots and shoes comprising in its construction, a needle-carrier, pincers for the upper, means for actuating said carrier and said pincers, a stationary rest for the last having a recess to receive the thumb or finger of the operator.

12. A sewing-machine for lasting boots and shoes comprising in its construction, a needle-carrier, pincers for the upper, means for actuating said carrier and said pincers, a stationary rest for the last, and an abutment projecting from the rest to resist the thrust of the pincers.

13. A sewing-machine for lasting boots and shoes comprising in its construction, a needle-carrier, a movable plate, a stationary bracket, pincers mounted on said plate, and a looper mounted on the stationary bracket and connected with said plate so as to be actuated by the movement thereof.

14. A sewing-machine for lasting boots and shoes comprising in its construction, a frame, a non-rotatable sleeve slidably mounted in said frame, and formed with a bracket, a needle-carrier having a threaded aperture and connected with said bracket to rotate relatively thereto and to slide therewith, pincers mounted on said bracket and operated by said needle-carrier, and a screw-shaft for oscillating said needle carrier and then sliding said sleeve, for the purposes set forth.

15. A sewing-machine for lasting boots and shoes comprising in its construction a frame having an overhanging C-arm, a driving-shaft mounted in the vertical portion of said arm, and a shaft operated by said driving-shaft and mounted in the horizontal part of said arm, in combination with a needle-carrier, pincers for the upper, and a looper for throwing the thread over the needle, all of which last-mentioned parts are mounted on the outer end of the C-arm.

16. A sewing-machine for lasting boots and shoes comprising in its construction a frame having an overhanging C-arm, a bracket mounted on said arm, a rotatable cam on said arm, a pair of pincers pivoted together at one end, and one jaw of said pincers being pivoted to said bracket, said pincers being arranged with relation to the cam in such way that the cam is adapted to engage the free jaw of the pincers and, gripping it against the other jaw, swing them both about the pivot connecting them to the bracket.

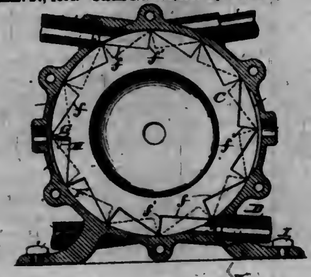
17. A sewing-machine for lasting boots and shoes comprising in its construction a needle-carrier having a needle, pincers for the upper, a reciprocatory shaft for operating said parts, and means for shifting the needle and pincers laterally to feed the work for another stitch.

18. A sewing-machine for lasting boots and shoes comprising in its construction, a needle-carrier provided with a needle, a bracket, pincers pivoted to said bracket and swinging them bodily about their pivot, a shaft for operating the needle, and a cam on the needle-carrier for actuating the pincers.

19. A sewing-machine for lasting boots and shoes comprising in its construction a needle-carrier provided with a needle, a bracket, pincers pivoted to said bracket, a cam on the needle-carrier for actuating the pincers, a shaft for actuating the needle-carrier, and means operated by the said shaft for feeding the needle-carrier and the bracket with the pincers.

20. A sewing-machine for lasting boots and shoes comprising in its construction a needle-carrier provided with a needle, pincers for the upper, an abutment to resist the thrust of the pincers, a device for engaging the insole, and means operating with the needle-carrier for actuating the pincers and the insole-engaging device simultaneously with said carrier.

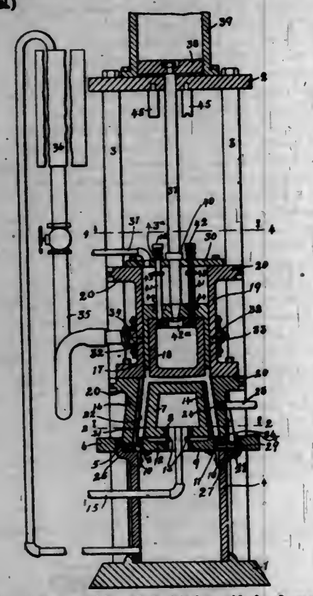
591,328. ROTARY ENGINE. HENRY S. DAGGETT, Pueblo, Colo. Filed Mar. 27, 1896. Serial No. 585,139. (No model.)



Claim.—1. An improved reversible rotary engine, comprising a piston centrally divided by a peripheral flange, a continuous series of buckets on each side of the flange, the buckets of one series arranged opposite to those of the other series, a casing in which the piston fits steam-tight and in which it is adapted to rotate, the flange of the piston dividing the casing into two compartments, the inner wall of the casing being formed with exhaust depressions or cavities extending across the line of the central flange of the piston, whereby both series of buckets are common to and adapted to exhaust in said depressions, and two inlet-ports for each series of buckets, two of the ports—one for each series—being arranged to simultaneously admit steam for rotating the piston in one direction, the other two ports similarly coacting to actuate the piston in opposite direction, substantially as shown and described.

2. An improved reversible rotary engine, comprising a piston formed with three peripheral flanges, a casing in which the piston fits and is adapted to rotate, the central of the three piston-flanges dividing the casing into two separate compartments, the inner wall of the casing being formed on each side with a depression traversing the line of the central flange and into which each of the casing-compartments is adapted to exhaust, oppositely-arranged series of buckets between the respective outer flanges and the central flange of the piston, and two steam-inlet ports on each side of the casing, the ports of each side being arranged respectively above and below the exhaust-depressions, said two ports entering separate casing-compartments and adapted to discharge steam against the abutments of the buckets, whereby in rotating the piston in one direction steam will be admitted in the upper inlet-port on one side of the casing and the lower port on the opposite side, and vice versa for a reverse movement, the inlet-ports being arranged in lines substantially at right angles to the exhaust-depressions, whereby the steam acts on the buckets during a quarter-revolution of the piston before exhausting, substantially as shown and described.

591,329. MACHINE FOR MAKING HOLLOW WARE. JAMES A. DUNMORE, Winnetka, Ill. Filed July 17, 1894. Serial No. 517,834. (No model.)



Claim.—1. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core, ports in said mold for supplying the material to be cast, a plunger located and sliding within said mold, means for reciprocating said plunger, a die located and sliding within said plunger, and connections between the die and the mold, substantially as described.

2. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core, ports in said mold communicating with a channel therein, a pipe or passage for supplying the material to be cast to said channel, a plunger located and sliding within said mold, means for reciprocating said plunger, a die located and sliding within said plunger, and connections between the die and the mold, substantially as described.

3. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core and having a closed upper end, ports in said mold for supplying the material to be cast, a plunger having a closed upper end located and sliding within said mold, means for supplying a fluid to the space between the closed ends of said mold and plunger, means for reciprocating said plunger, a die located and sliding within said plunger, and connections between said die and mold for moving said die, substantially as described.

4. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core and having a closed upper end, ports in said mold for supplying the material to be cast, a plunger having a closed upper end located and sliding within said mold, means for supplying a fluid to the space between the closed ends of said mold and plunger, means for reciprocating said plunger, a connection between said plunger and mold for moving the mold with the plunger during the latter portion of its downward movement, a die located and sliding within said plunger, and connections between said die and mold for moving said die upwardly with the plunger, substantially as described.

5. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core and having a closed upper end, ports in said mold for supplying the material to be cast, a plunger having a closed upper end located and sliding within said mold, means for supplying a fluid to the space between the closed ends of said mold and plunger, means for reciprocating said plunger, a shoulder or projection carried by said plunger and located to engage the mold during the latter portion of the downward movement of the plunger, a die located and sliding within said plunger, and connections between said die and mold for moving said die upwardly with the plunger, substantially as described.

6. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core, ports in said mold for supplying the material to be cast, a plunger located and sliding within said mold, means for reciprocating said plunger, means for raising the mold by and with the plunger, a die located and sliding within said plunger, and connections between the die and mold for moving the die in one direction, substantially as described.

7. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core, ports in said mold for supplying the material to be cast, a plunger located and sliding within said mold, means for reciprocating said plunger, means for raising the mold by and with the plunger, a die located and sliding within said plunger, yielding connections between the die and mold for moving the die in one direction, and stops on the frame adapted to arrest the upward movement of the die with the mold, all substantially as and for the purpose described.

8. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core, ports in said mold for supplying the material to be cast, a plunger located and sliding within said mold, means for reciprocating said plunger, means for raising the mold by and with the plunger, a die located and sliding within said plunger, rods secured to said die and engaging elastic cushions carried by the mold, and stops on the frame located to encounter said rods, substantially as and for the purpose described.

9. In a machine of the kind specified, a frame carrying a stationary core, a mold moving in guides upon said frame and adapted to receive the core, ports in said mold for supplying the material to be cast, a plunger located and sliding within said mold, means for reciprocating said plunger, means for causing the mold to rise with the plunger, a die located and sliding within said plunger, connections between the die and mold for moving the die in one direction, and a stop or projection carried by said die and adapted to engage said plunger to limit the separation of the die and plunger, substantially as described.

10. In a machine of the kind specified, the combination with a frame carrying a stationary core, of a mold moving in guides upon said frame and adapted to receive said core and provided with devices for moving the same and for supplying the material to be cast, and a seat in said frame located to receive the lower end of said mold and provided with cushions, substantially as described.

11. In a machine of the kind specified, the combination with a frame carrying a stationary core of a mold moving in guides upon said frame and adapted to receive said core, devices for moving said mold and for supplying the material to be cast, a ring 26 resting on a stationary part of the machine and forming the bottom of the mold, and catches carried by said mold and adapted to engage said ring when the mold is at the lower limit of its movement, and to lift said ring a little distance during the first part of the upward movement of the mold, substantially as described.

12. In a machine of the kind specified, a cylinder, a plate 9 supported at the upper end of said cylinder and smaller than said cylinder, and a core and mold provided with reticulated casings and grooves, said grooves communicating with said cylinder, substantially as described.

13. In a machine of the kind specified, a mold-cylinder carrying a mold, a plunger located to slide within said mold-cylinder, said plunger and mold-cylinder having closed upper ends and a pipe or passage 31 leading through the upper end of the mold-cylinder, substantially as described.

14. In a machine of the kind specified, a plunger closed at its upper end and open at its lower end, a die located within said plunger, said die being hollow and provided with an opening at its upper end, and a pipe or passage 41 communicating with the interior of said die, substantially as described.

15. In a machine of the kind specified, a mold-cylinder carrying a mold and closed at its upper end, a plunger located within said mold-cylinder and carried by a piston extending through the upper end of the same, a pipe or passage communicating with the upper end of the mold-cylinder, rods 41 resting upon cushions upon the top of the mold-cylinder and engaging a die located within said plunger and having an opening at its upper end, an opening or passage through one or more of said rods 41, stops or collars 43 upon said rods, and seats 44 in said plunger to receive said stops or collars, substantially as described.

16. The combination of a dished plate 9 mounted upon a stationary support, a hollow core fixed upon said plate having grooves on its sides, communicating at bottom with the hollow of the plate, and a reticulated casing fitted on said core; with a vertically-movable mold having grooves on its inner face, a reticulated casing fitted over the grooves within the mold; and means for conducting away fluids, &c., drained into said dished plate, all substantially as and for the purpose described.

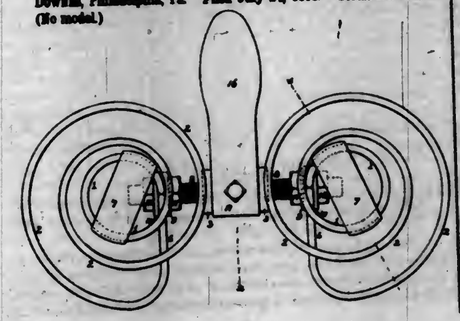
17. The combination of a cylinder having a seat on its upper end and a core supported on said cylinder and surrounded by said seat; with a mold adapted to rest in said seat having grooves on its inner face and a channel communicating with said grooves; and a reticulated casing covering said grooves, all substantially as and for the purpose set forth.

18. The combination of a cylinder having an annular seat at top; a dished plate within said seat; a core resting on said seat having grooves communicating with the dished plate, and a reticulated casing over the core; with a mold adapted to set in said seat over the core having grooves on its inner face communicating with the seat, a reticulated casing or lining over the grooves in the mold; means for supplying pulp to the interior of the mold, and means for pressing the pulp, all substantially as and for the purpose described.

19. The combination of a core and a movable mold and mold-cylinder; with a plunger within the mold cylinder; means for reciprocating said plunger; and means for introducing compressed fluid into the mold-cylinder between the head of the latter and the plunger, for the purpose and substantially as described.

20. The combination of a core, a movable mold and mold-cylinder, a plunger within the mold-cylinder and means for reciprocating said plunger; with a movable die within the plunger, yielding connections between the die and head of the mold-cylinder whereby the die is raised with the mold-cylinder; and means for introducing compressed fluid between the heads of the plunger and mold-cylinder, all substantially as and for the purpose described.

591,330. SEAT OR SADDLE FOR BICYCLES. ANDREW J. DOWNS, Philadelphia, Pa. Filed July 24, 1896. Serial No. 600,372. (No model.)



Claim.—1. A seat or saddle for bicycles, &c., having opposite supporting portions or seats substantially rigid against vertical pressure at points corresponding with the tuberosities of the ischia of a normal adult and in which said tuberosities individually rest, said seats having elastic portions beginning immediately beyond the substantially rigid portions, substantially as specified.

2. A seat or saddle for bicycles, &c., comprising opposite supporting portions or seats disconnected from each other and having no connection with the nose or pommel, but presenting portions rigid against vertical pressure at points corresponding to the tuberosities of the ischia of a normal adult and in which said tuberosities individually rest, said seats being elastic beyond said rigid supporting portions, substantially as specified.

3. A seat or saddle for bicycles, &c., having opposite supporting portions or seats each composed of wire bent to form an inner coil or loop of small diameter, substantially rigid against vertical pressure and forming a support for one of the tuberosities of the ischia of the rider, and outer convolutions yielding to pressure, substantially as specified.

4. A seat or saddle for bicycles, &c., consisting of opposite supporting portions or seats each composed of an inner coil of small diameter substantially rigid against vertical pressure and forming a support for one of the tuberosities of the ischia of the rider, and outer convolutions yielding to pressure, the terminals of the wire being bent downward to form a vertical supporting-leg adjacent to said inner coil, substantially as specified.

5. A seat or saddle for bicycles, &c., consisting of opposite supporting portions or seats each composed of wire bent to form an inner coil of small diameter, and outer vertically-elastic convolutions, the terminals of the wire being bent downward so as to form a vertical supporting-leg, and the outermost convolution terminating in a portion extending inwardly so as to provide a vertical support for the inner coil, substantially as specified.

6. A seat or saddle for bicycles, &c., comprising opposite independent and disconnected supporting portions or seats each having a downwardly-extending leg terminating in an eye, an attaching-bar having projecting threaded stems passing through said eyes, and nuts adapted to said threaded stems and flanking each of the legs of the seats, whereby the latter can be adjusted laterally on the projecting stems and secured in position thereon after adjustment, substantially as specified.

7. A seat or saddle for bicycles, &c., having opposite supporting portions or seats with downwardly-projecting legs having eyes at their lower ends, an attaching-block having laterally-projecting threaded stems passing through said eyes, and washers recessed for the reception of the eyes of the legs and extending upward so as to inclose said legs, substantially as specified.

8. A bicycle seat or saddle having opposite disconnected supporting portions or seats each with downwardly-projecting leg terminating in an eye, an attaching device having laterally-threaded stems passing through said eyes, washers mounted on said stems and cupped or recessed for the reception of the legs of the seats, other washers fitting into said recessed washers, and nuts adapted to the threaded stems and bearing upon said washers, substantially as specified.

9. A bicycle seat or saddle consisting of opposite supporting portions or seats each composed of wire bent to form an inner coil rigid against vertical pressure, and outer convolutions yielding to such pressure, and a strip or band crossing said inner coil and supported thereby, said strip providing a support for one of the tuberosities of the ischia of the rider, substantially as specified.

10. A bicycle seat or saddle having opposite supporting portions or seats each consisting of wire bent so as to form an inner coil rigid against vertical pressure, and outer convolutions yielding to such pressure, with strips or bands extending across said inner coils, and disposed at an angle so as to flare laterally from front to rear, substantially as specified.

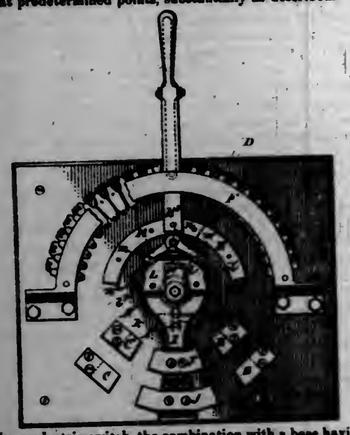
11. A bicycle seat or saddle having opposite supporting portions or seats each consisting of wire bent to form an inner coil rigid against vertical pressure, and outer convolutions yielding to such pressure and strips or bands extending across said inner coils and dished or bent so as to project below the same, substantially as specified.

591,331. ELECTRIC SWITCH. WILLIAM A. DREWETT, Brooklyn, N. Y. Filed Mar. 15, 1897. Serial No. 627,667. (No model.)

Claim.—1. A switch comprising a base provided with stationary contacts, a contact-arm, a spring adapted to hold said arm in its normal open position, a handle, and connections between the handle and arm to move the arm in either direction to close the circuit and to release the arm and permit it to assume its normal position under the influence of the spring to break the circuit, substantially as described.

2. A switch comprising a base, contacts mounted thereon, a contact-arm, a spring adapted to hold said contact-arm in its normal

open position, a handle, pawl-and-ratchet connections between the handle and arm, and means for releasing the pawl-and-ratchet connections at predetermined points, substantially as described.



3. In an electric switch, the combination with a base having stationary contacts, of a contact-arm, a spring controlling said contact-arm, a handle, pawls connected to the handle, a ratchet connected to the arm, and a cam-plate controlling the pawls and ratchet, substantially as described.

4. In an electric switch, the combination with a base having stationary contacts, of a contact-arm, a spring controlling said arm, a ratchet connected to the arm, a handle, pawls connected to the handle and engaging the ratchet, and a cam-plate having cams controlling the pawls, the cams being arranged to permit the movement of the arm to close the contact and then to disengage the pawls and ratchet and also to permit the moving of the arm to break the contact and to then disengage the pawls and ratchet, substantially as described.

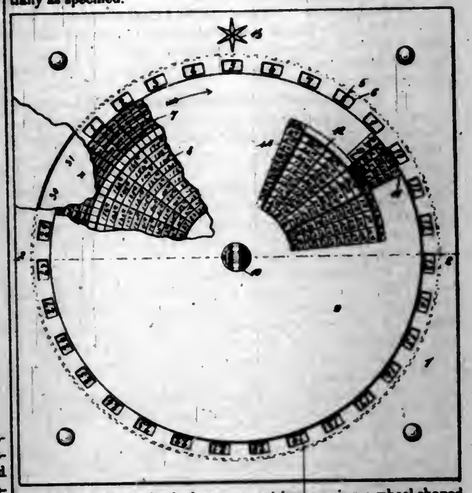
5. In an electric switch, the combination with a base having contacts, of a spring-controlled contact-arm, a handle, connections between the handle and contact-arm, resistance devices, and a contact carried by the handle controlling the resistance devices, the arrangement being such that the arm is moved to close the contact before the resistance devices are cut out of circuit, while the circuit can be broken after the resistance devices are cut in, substantially as described.

6. In an electric switch, the combination with a base having main-circuit terminals and resistance-contacts, of an arm arranged to make contact with the main terminals, a handle controlling the resistance-terminals, and connections between the handle and arm whereby the main circuit is closed before the resistance is cut out and may be broken after most of the resistance is cut in, but cannot be again closed until all the resistance is included in the circuit, substantially as described.

591,332. MECHANICAL CALCULATOR. ROBERT DUNCAN, Knoxville, Tenn. Filed Feb. 8, 1897. Serial No. 622,532. (No model.)

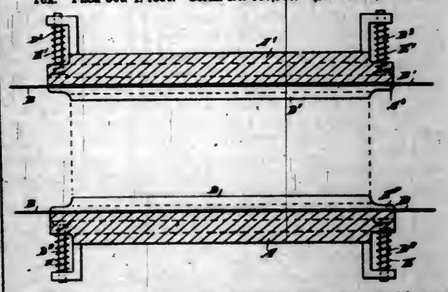
Claim.—1. A mechanical calculator, comprising a rotary calendar-disk, the said calendar-disk having figures indicating the numbers of days and also a series of figures indicating total amounts, and another disk mounted to rotate relatively to the first-named disk and having an opening in its edge to disclose figures indicating the number of days, and having letters printed on one side of said opening indicating fractions of a day and also having letters at the lower edge of said opening indicating the fractions of a day, a series of figures indicating day-rates printed at one side of another opening in said last-named disk, and a series of figures printed at the opposite side of said last-named opening indicating the cost-price for fractions of a day, substantially as specified.

2. A mechanical calculator, comprising a casing having a circular row of slot-openings through its front wall, a disk mounted to rotate in said casing and having day-dates printed near its periphery to be disclosed through said slot-openings, the said disk also having a series of annular rows of figures indicating numbers of days and also having a series of annular rows of figures indicating total amounts, and another disk mounted to rotate relatively to the first-named disk and having an opening in its edge, on the inner and one side edge of which are printed the letters B, D, S, L, the said other disk being also provided with a keystone-shaped opening adjacent to one edge of which is printed a series of figures indicating the rate of cost per day, and having printed adjacent to the other side of said opening a series of figures indicating the cost for fractions of a day, substantially as specified.



3. A mechanical calculator, comprising a casing, a wheel-shaped disk having day-indicating marks near its edge, designed to be disclosed through openings in the casing, radial spokes on said disk having per-day cost-marks, a series of figures on the casing indicating total amounts, a series of figures on said casing indicating total numbers of days, and a disk having an opening in its edge through which day-indicating figures may be seen, one of said openings being longer than the other so that an instrument may be moved along it while engaged with the disk for rotating it, substantially as specified.

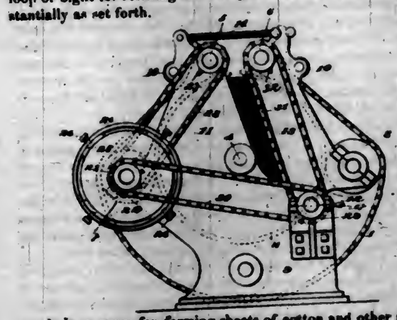
591,333. BALE-BAND TIGHTENER. JOHN L. DUVAL, Houston, Tex. Filed Oct. 1, 1896. Serial No. 607,536. (No model.)



Claim.—A baling-press provided with platens formed with transverse grooves for the reception of the bands and of a width and depth corresponding to the width and thickness of said bands, and recesses between pairs of grooves considerably deeper than the same, bars having their inner faces slightly rounded and formed with longitudinal grooves to allow air to escape from the top and bottom of the bale in compressing, the bars being fitted to slide in said recesses and having their inner ends chamfered and their outer ends provided with guide-rods, brackets along the side edges of the platens and receiving said guide-rods to slide therein, and springs encircling said rods and forcing said bars normally out of recesses in which they are fitted and beyond the faces of the platens, the said bars receding into their recesses which are of such a depth that the bars will be flush with the faces of the platens when the bale is compressed, as and for the purpose set forth.

591,334. COTTON-PRESS. FRANK L. DYER, Washington, D. C., assignor to the American Cotton Company, New York, N. Y. Filed Jan. 3, 1896. Serial No. 574,231. (No model.)

Claim.—1. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of a belt, a portion of which is formed into a loop or bight which partially surrounds the bale during its formation, and means stationed at the entrance of said loop or bight for resisting the enlargement of said loop or bight, substantially as set forth.



2. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of a belt, a portion of which is formed into a loop or bight, two rollers to which said belt is positively connected, means for driving said belt, and means for rotating one of said rollers faster than the other of said rollers, substantially as set forth.

3. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight which partially surrounds the bale during its formation, and means for applying tension to a portion only of said belt, so that the remaining portion of said belt will not be under tension, substantially as set forth.

4. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight which partially surrounds the bale during its formation, and means stationed at the entrance of said loop or bight for resisting the enlargement of said loop or bight, substantially as set forth.

5. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight, two rollers to which said belt is positively connected, means for driving said belt, means for allowing one of said rollers to rotate faster than the other of said rollers, and means for resisting the rotation of one of said rollers with respect to the other, substantially as set forth.

6. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected and between which the belt is formed into a loop or bight, and means for driving one of said rollers faster than the other of said rollers, whereby said belt will be driven and said loop or bight will enlarge with the bale, substantially as set forth.

7. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of two supporting-rollers over which passes an endless belt, a portion of which is formed into a loop or bight, the space between said supporting-rollers constituting the entrance to said loop or bight, and means for driving one of said rolls faster than the other of said rollers, substantially as set forth.

8. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of two supporting-rollers over which passes an endless belt, a portion of which is formed into a loop or bight, the space between said rollers constituting the entrance to said loop or bight, means for positively driving said rollers, and differential connections between said rollers for allowing one of said rollers to rotate faster than the other of said rollers, as said loop or bight enlarges with the bale, substantially as set forth.

9. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of two supporting-rollers over which passes an endless belt a portion of which is formed into a loop or bight, the space between said rollers constituting the entrance to said loop or bight, means for driving one of said rollers faster than the other of said rollers, and differential connections between said rollers for allowing one of said rollers to move independent of the other of said rollers, substantially as set forth.

10. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight which partially surrounds the bale during its formation, and means stationed at the entrance of said loop or bight for resisting the enlargement of said loop or bight, said resistance gradually increasing as the loop or bight enlarges, substantially as set forth.

11. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected and between which the belt is formed into a loop or bight, means for driving said belt, and a friction device between said rollers for allowing one of them to rotate independent of the other as the loop or bight enlarges, substantially as set forth.

12. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected and between which the belt is formed into a loop or bight, means for driving said rollers whereby the belt will be driven, and a friction device between said rollers for allowing one of them to rotate independent of the other, whereby said loop or bight will be gradually enlarged, substantially as set forth.

13. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight which partially surrounds the bale during its formation, a core stationed in said loop or bight on which the bale is formed, and means stationed at the entrance of said loop or bight for resisting the enlargement of said loop or bight, substantially as set forth.

14. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight, a core stationed in said loop or bight on which the bale is formed, two rollers to which said belt is positively connected, means for driving said belt, means for allowing one of said rollers to rotate faster than the other of said rollers and means for resisting the rotation of one of said rollers with respect to the other, substantially as set forth.

15. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight, a core stationed in said loop or bight on which the bale is formed, two rollers to which said belt is positively connected and between which the loop or bight is formed, and means for driving one of said rollers faster than the other of said rollers, whereby said belt will be driven and said loop or bight will enlarge with the bale, substantially as set forth.

16. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight which surrounds the bale during its formation, a core stationed in said loop or bight on which the bale is formed, and means stationed at the entrance of said loop or bight for resisting the enlargement of said loop or bight, said resistance increasing as the loop or bight enlarges, substantially as set forth.

17. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight, a core stationed in said loop or bight on which the bale is formed, two rollers to which said belt is positively connected, and between which the loop or bight is formed, means for driving said belt, and a friction device between said rollers for allowing one of them to rotate independent of the other as the loop or bight enlarges, substantially as set forth.

18. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which partially surrounds the bale during its formation, means stationed at the entrance of said loop or bight for resisting the enlargement of said loop or bight, and means for opening said loop or bight for the removal of the finished bale, substantially as set forth.

19. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight, two rollers to which said belt is positively connected, means for driving said belt, means for allowing one of said rollers to rotate faster than the other of said rollers, means for resisting the rotation of one of said rollers with respect to the other, and means for opening said loop or bight for the removal of the finished bale, substantially as set forth.

20. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected and between which the belt is formed into a loop or bight, means for driving one of said rollers faster than the other of said rollers, whereby said belt will be driven and said loop or bight will enlarge with the bale, and means for opening said loop or bight for the removal of the finished bale, substantially as set forth.

21. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into a loop or bight which partially surrounds the bale during its formation, means stationed at the entrance of said loop or bight for resisting the enlargement of said loop, said resistance gradually increasing as the loop or bight enlarges, and means for opening said loop or bight for the removal of the finished bale, substantially as set forth.

22. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected and between which the belt is formed into a loop or bight, means for driving said belt, a friction device between said rollers for allowing one of them to rotate

independent of the other as the loop or bight enlarges, and means for opening said loop or bight for the removal of the finished bale, substantially as set forth.

23. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of a suitable frame, a pair of swinging arms hinged to said frame at both ends thereof, a roller carried by each pair of swinging arms, a shaft mounted in said frame between said rollers, an idler on said shaft, a connection between said shaft and one of said rollers, and an endless belt passing over said rollers and idler and formed into a loop or bight between each of said rollers and said idler, substantially as set forth.

24. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of a suitable frame, rollers mounted in said frame, an endless belt carried on said rollers, said belt being formed into a plurality of loops or bights in each of which a cylindrical bale is formed, and means stationed at the entrance of said loops or bights for resisting the enlargement of the same, substantially as set forth.

25. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected, and means for driving one of said rollers faster than the other of said rollers, whereby said belt will be driven and said loops or bights will enlarge with the bale, substantially as set forth.

26. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of two supporting-rollers over which passes an endless belt, a portion of which is formed into two loops or bights, the space between said supporting-rollers constituting the entrance to said loops or bights, and means for driving one of said rollers faster than the other of said rollers, substantially as set forth.

27. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of two supporting-rollers over which passes an endless belt, a portion of which is formed into two loops or bights, the space between said rollers constituting the entrance to said loops or bights, means for positively driving said rollers, and differential connections between said rollers for allowing one of said rollers to rotate faster than the other of said rollers, as said loops or bights enlarge with the bales, substantially as set forth.

28. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of two supporting-rollers over which passes an endless belt, a portion of which is formed into two loops or bights, the space between said rollers constituting the entrance to said loops or bights, means for driving one of said rollers faster than the other of said rollers, and differential connections between said rollers for allowing one of said rollers to move independent of the other of said rollers, substantially as set forth.

29. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into two loops or bights which partially surround the bales during their formation, and means stationed at the entrance of said loops or bights for resisting the enlargement of said loops or bights, said resistance gradually increasing as the loops or bights enlarge, substantially as set forth.

30. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected and between which the belt is formed into two loops or bights, means for driving said belt, and a friction device between said rollers for allowing one of them to rotate independent of the other as the loops or bights enlarge, substantially as set forth.

31. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into two loops or bights, means for driving said rollers, whereby the belt will be driven, and a friction device between said rollers for allowing one of them to revolve independent of the other, whereby said loops or bights will be gradually enlarged, substantially as set forth.

32. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into two loops or bights which partially surround the bales during their formation, a core stationed in each of said loops or bights on which the bales are formed, and means stationed at the entrance of said loops or bights for resisting the enlargement of said loops or bights, substantially as set forth.

33. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into two loops or bights, a core stationed in each of said loops or bights on which the bales are formed, two rollers to which said belt is positively connected and between which the loops or bights are formed, and means for driving one of said rollers faster than the other of said rollers, whereby said belt will be driven and said loops or bights will enlarge with the bales, substantially as set forth.

34. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into two loops or bights which surround the bales during their formation, a core stationed in each of said loops or bights on which the bales are formed, and means stationed at the entrance of said loop or bight for resisting the enlargement of said loops or bights, said resistance increasing as the loops or bights enlarge, substantially as set forth.

35. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into two loops or bights, a core stationed in each of said loops or bights on which the bale is formed, two rollers to which said belt is positively connected and between which the loops or bights are formed, means for driving said belt, and a friction device between said rollers for allowing one of them to rotate independent of the other as the loops or bights enlarge, substantially as set forth.

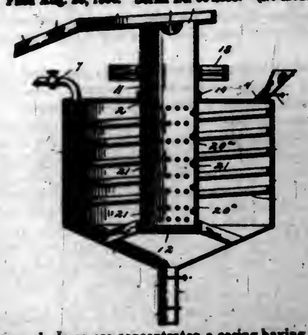
36. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into two loops or bights, means stationed at the entrance of said loops or bights for resisting the enlargement of said loops or bights, and means for opening said loops or bights for the removal of the finished bales, substantially as set forth.

37. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected, means for driving one of said rollers faster than the other of said rollers, whereby said belt will be driven, and said loops or bights will enlarge with the bales, and means for opening said loops or bights for the removal of the finished bales, substantially as set forth.

38. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, a portion of which is formed into two loops or bights which partially surround the bale during its formation, means stationed at the entrance of said loops or bights for resisting the enlargement of said loops or bights, said resistance gradually increasing as the loops or bights enlarge, and means for opening said loops or bights for the removal of the finished bales, substantially as set forth.

39. In a press for forming sheets of cotton and other materials into cylindrical bales, the combination of an endless belt, two rollers to which said belt is positively connected, means for driving said belt, a friction device between said rollers for allowing one of them to rotate independent of the other as the loops or bights enlarge, and means for opening said loops or bights for the removal of the finished bales, substantially as set forth.

591,885. CONCENTRATOR. HOWARD I. ELTON, Philadelphia, Pa. Filed Aug. 20, 1896. Serial No. 604,253. (No model.)



Claim.—1. In an ore-concentrator, a casing having a water-inlet, an ore-inlet, an outlet at the lower end of said casing, valves controlling said inlets and outlet, a rotatable hollow cylinder situated within said casing having a closed lower end provided with a valve, the upper end portion of said cylinder extending through the top of the casing and leading to an outlet, openings in the sides of said cylinder, and an agitator carried by said cylinder, substantially as described.

2. In an ore-concentrator, a casing having a water-inlet, an ore-inlet, an outlet at the lower end of said casing, valves controlling said inlets and outlet, a rotatable cylinder situated within said casing and communicating therewith and provided with an agitator, receptacles situated within said cylinder for the reception of chemicals, and the upper end portion of said cylinder communicating with an inclined pan, substantially as described.

3. In an ore-concentrator, a casing having a water-inlet, an ore-inlet, an outlet at the lower end of said casing, valves controlling said inlets and outlet, a rotatable cylinder situated within said casing and provided with an agitator comprising a spirally-arranged plate, openings in the sides of said cylinder between the convolutions of the spiral, and a suitable outlet at the upper end of said cylinder, substantially as described.

591,886. BOTTLE AND STOPPER THEREFOR. LOUIS J. A. FERNANDEZ, New York, N. Y. Filed Feb. 2, 1897. Serial No. 621,966. (No model.)



Claim.—1. The combination with the neck of a bottle provided with a valve-seat, of a valve-cage stationarily placed in the neck above said seat and leaving spaces between said cage and bottle-neck, said valve-cage being placed with its body portion flush with the upper edge of the bottle-neck and having a cap of less diameter than said body portion and extending above the upper edge of the said neck, a valve having sliding movement in the valve-cage, being adapted to normally rest upon said valve-seat, an extension of the neck of the bottle formed with the diameter of its interior equal to the exterior diameter of the body portion of the valve-cage, and means for securing said extension to the main portion of the neck of the bottle, as and for the purpose set forth.

2. The combination with the neck of a bottle provided with a valve-seat, and at its upper edge with an internal shoulder, of a valve-cage having a main or body portion flush with the upper edge of the neck and formed with exterior ribs having offsets resting upon said internal shoulder, said ribs engaging with the interior walls of the bottle-neck and leaving spaces between said cage and neck, a valve having sliding movement in said cage and adapted to normally rest upon said valve-seat, and an extension permanently secured to said bottle-neck and resting upon the upper edge of said neck and upon the said offsets and formed with an internal groove located above the ribs of the valve-cage, as and for the purpose set forth.

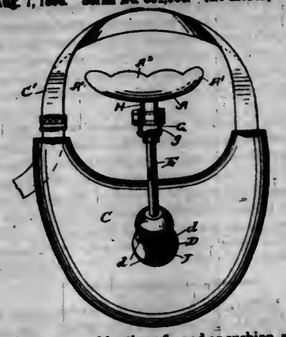
3. The combination with the neck of a bottle having a valve-seat therein, an external groove near its mouth, a shoulder beyond the said groove, and an internal shoulder near the mouth; of a valve-cage having its body portion flush with the upper edge of the neck and formed with a cap of less diameter than said body portion and extending above the upper edge of the neck, ribs on the sides of the valve-cage, said ribs contacting with the interior walls of the neck and provided with offsets which engage with the internal shoulder, a valve held to slide in said cage, and an extension of the main neck, being of internal diameter equal to the exterior diameter of the body portion of the valve-cage, said extension resting upon said offsets and being provided with an internal groove located over the ribs of the valve-cage and with a cup-flange at its bottom engaging with the external shoulder of the main neck, a cementing material being contained within the cup-flange and permanently securing the said extension to the main portion of the neck, as and for the purpose set forth.

591,887. ANIMAL-YOKE. ALVIN I. FISHER, Almena, Kans. Filed Apr. 24, 1896. Serial No. 588,943. (No model.)



Claim.—In a reversible animal-yoke, the combination with a suitable nose-piece, of a yoke formed of a single yielding rod or wire bent intermediate its ends to produce a pair of side arms terminating in hooks, one of the yoke side arms being coiled at an intermediate point to form an eye 6, a cross-bar 1 intersecting said side arms, clamping-bolts adjustably fitted in the bar and formed at one end with hooks having a clamping engagement with said side arms, a spring-wire snap-hook 17 having its closed end portion loosely hung in the eye 6 of one of the yoke side arms, and a flexible connection engaged at one end with said nose-piece and having its other end detachably engaging with said spring-wire snap-hook 17, substantially as set forth.

591,888. DENTAL CHIN-REST. FRANK P. FORTNEY and THOMAS H. STEVENS, Ravenna, Ohio; said Fortney assignor to said Stevens. Filed Aug. 7, 1896. Serial No. 601,963. (No model.)

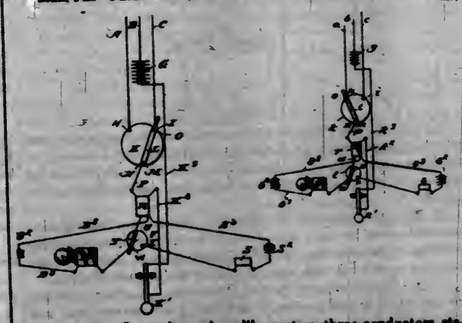


Claim.—1. The combination of a pad or cushion, a plate attached to the cushion or pad and provided with a forwardly-projecting arm or member, an upwardly and rearwardly extending arm connected with the forward end of the aforesaid forwardly-projecting member, and the chin-rest proper supported from the upper end of said rearwardly-extending bracket or arm, substantially as shown and described.

2. The combination of a pad or cushion, a plate attached to the cushion or pad and provided with a forwardly-projecting member, a rearwardly and upwardly extending laterally-swinging arm or bracket supported from the aforesaid forwardly-projecting member, and the horizontally-rotating and vertically-tilting chin-rest proper supported from the upper end of said rearwardly-extending bracket or arm, substantially as shown and described.

3. The combination of a pad or cushion, a plate attached to the cushion or pad and provided with a forwardly-projecting member, a rearwardly and upwardly extending arm or bracket connected, at its lower end, with the aforesaid forwardly-projecting member by means of a ball-and-socket joint, the chin-rest proper, an arm or piece bearing the chin-rest proper and supported from the aforesaid rearwardly-extending arm or bracket and connected with said bracket or arm by means of a ball-and-socket joint, substantially as shown and described.

591,889. RAILWAY-TELEGRAPH. ALBERT C. FRIESNER, Floral Bluff, Fla. Filed Nov. 20, 1895. Serial No. 569,522. (No model.)



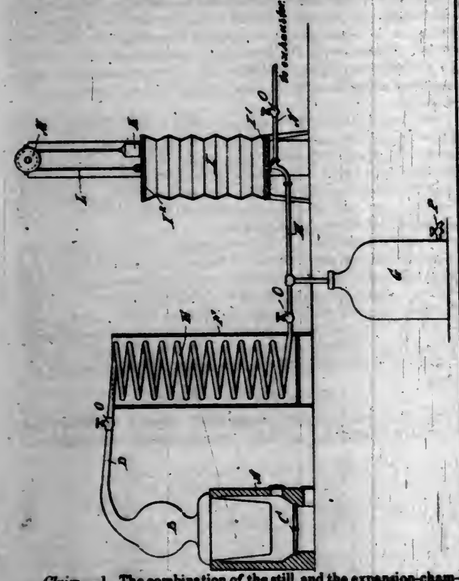
Claim.—1. In a telegraph or like system, three conductors, stations connected to said conductors, each containing a two-point switch having its points connected to two of the conductors, receiving and transmitting instruments, wires connecting said instruments to the lever of the switch and the third conductor, and an electric generating device connected to said third conductor, substantially as described.

2. In a telegraph system, three conductors, stations connected to said conductors, each containing a two-point switch having its points connected to two of the conductors, a relay and key, wires connecting the relay and key together and to the lever of the switch and the third conductor, an electric-supply source connected to the third conductor, a second two-point switch having its lever connected to one of the contact-points of the relay, a bell and battery connected between one of the points of the second switch and the other contact-point of the relay, and a sounder and battery connected between the other point of the second switch and the second-named contact-point of the relay.

3. In an electric railway, three conductors extending along the railway-track, trolleys carried by the cars having three trolley-arms connected thereto and insulated from each other, a trolley-wheel journaled in each trolley-arm and adapted to travel in contact with one of the conductors, a set of instruments carried by each car consisting of a two-point switch having its points connected to two of the trolley-arms, receiving and transmitting instruments connected to the lever of the switch and an electric-supply source connected between the instruments and the third trolley-arm, substantially as described.

4. In a railway telegraph or telephone system, a main station and substations carried by trains, three wires connecting said stations, a set of instruments in each station, the instruments of the main station being connected to the first and second wire, the instruments of the substations being connected in multiple to the second and third wires, a switch at the main station to throw the instruments of that station in connection with the second and third wires, and switches in the substations to throw their instruments in connection with the first and second wires.

591,840. DISTILLING APPARATUS. José Gallegos, Antigua, Guatemala. Filed Apr. 20, 1897. Serial No. 633,903. (No model.)



Claim.—1. The combination of the still, and the expansion-chamber having a movable wall so that its volume can vary according to the pressure within the apparatus and the cooler or condenser located between the still and the expansion-chamber, substantially as described.

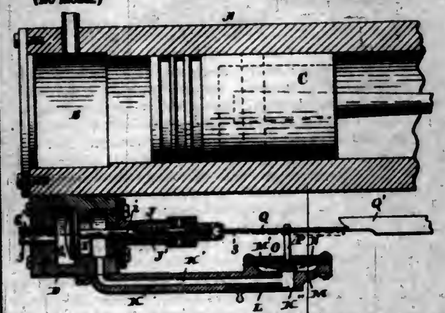
2. The combination of the still, the cooler or condenser, the expansion-chamber having a movable wall so that its volume can vary according to the pressure within the apparatus, and a counterbalance connected to said movable wall, as and for the purpose set forth.

3. The combination of the still, the cooler or condenser, the bellows connected to said condenser, and having a stationary wall, and a movable wall opposing the stationary wall, a flexible connection, one end whereof is secured to said movable wall, and a counterweight secured to the other end of said connection, substantially as described.

4. The combination of the still, the cooler or condenser, the expansion-chamber connected to the condenser and having a movable wall, a flexible connection, one end whereof is secured to said movable wall, and a counterweight secured to the other end of said connection and tending to draw the movable wall away from the stationary part of the expansion-chamber, substantially as described.

5. The combination of the still, the cooler or condenser, the expansion-chamber connected to the condenser and having a stationary bottom and a movable top wall, a flexible connection extending upwardly from said movable top, a pulley or guide over which passes said connection, and a counterweight secured to the free end of the said connection and arranged to pull said movable wall upward, substantially as described.

591,841. ENGINE-GOVERNOR. Frank Kohler and Charles J. Macomber, St. Mary's, Ohio. Filed Feb. 23, 1897. Serial No. 624,554. (No model.)



Claim.—1. In an explosive-engine, the combination of an explosion-chamber, an air-admission valve, a gas-admission valve, controlled actuating mechanism for the gas-valve, and mechanism for opening the air-valve in advance of the gas-valve and for holding said valve open until after the closing of the gas-valve, substantially as shown and described.

2. In an explosive-engine, the combination of a mixing-chamber, a positively-acting air-admission valve, an inlet for said valve adapted to pass a predetermined amount of air, a gas-admission valve, and governing mechanism therefor adapted to be directly actuated by reduction of atmospheric pressure in the air-inlet when the velocity of the piston in its charging stroke is sufficient to draw more air than can pass the controlled inlet, substantially as shown and described.

3. The combination of an engine-cylinder having an unobstructed exhaust, a piston, a mixing-chamber, a positively-acting valve controlling the communication between the chamber and the cylinder, a controlled air-inlet for the mixing-chamber, a normally-closed valve controlling the admission of gas to the mixing-chamber, and mechanism governing the movement of the gas-valve, said mechanism being actuated by a reduction of pressure in the controlled air-inlet of the mixing-chamber, substantially as shown and described.

4. In a governor, a constantly-open air-inlet and a positively-acting charging-valve, in combination with a gas-inlet valve, a hit-and-miss operating mechanism for the gas-valve, and a diaphragm or equivalent device adapted to move the hit-and-miss mechanism out of operative position upon the reduction of atmospheric pressure in the air inlet, substantially as shown and described.

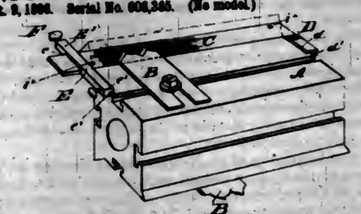
5. In a governor, a constantly-open air-inlet, a device for regulating the flow of air thereinto, and a positively-acting charging-valve, in combination with a gas-valve, a mechanism for operating the latter, and a diaphragm or equivalent device adapted to move said mechanism out of operative position upon the reduction of atmospheric pressure in the air-inlet, substantially as shown and described.

6. In an explosive-engine, the combination of an exploding-chamber, a positively-acting air-admission valve, eloegated air-duct K having controlled ingress-port K", chamber M adjacent with the duct and communicating therewith, the flexible diaphragm in chamber M, an air-admission valve, operating means therefor, and a hit-and-miss mechanism between the same and the gas-valve and actuated by the diaphragm, substantially as shown and described.

7. The combination with the mixing-chamber, of the channeled air-inlet chamber in communication therewith, said chamber being formed with a depression common to the inlet-channel, the flexible diaphragm arranged over the depression and adapted to control the operating mechanism for the gas-inlet, substantially as shown and described.

8. The combination with the air and gas valve, the gas-valve, rods for operating the valves, a long cam for reciprocating the rod for the air and gas valve, and the short cam for reciprocating the gas-valve, the action of the short cam beginning and terminating during the action of the long cam, substantially as shown and described.

591,842. GAGE. Harry R. Brown, Minneapolis, Minn. Filed Oct. 9, 1896. Serial No. 608,345. (No model.)



Claim.—1. A gage of the class described, comprising a rule provided with a graduated face and having a laterally-projecting arm provided with a lip and a shoulder at one end, and a slide transversely mounted upon said rule and having a projecting end corresponding to the fixed arm of the rule, said slide carrying means for securing it in adjusted position upon the rule and means carried at its projecting end for securing the device in position upon a cutter-head, substantially as and for the purpose set forth.

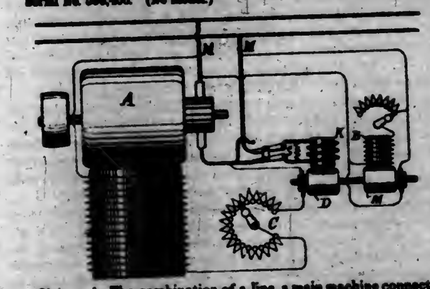
2. An improved gage of the class described, comprising a rule provided with a graduated face and having a laterally-projecting arm at one end, and a slide transversely mounted upon said rule and having a projecting end provided with a lip and a shoulder and corresponding to the fixed arm of the rule, said slide carrying a set-screw in its opposite end at right angles to the rule for securing the slide in adjusted position upon the latter, said slide being provided with a shoe G, and a set-screw transversely arranged in the projecting end of the slide for securing the device in position upon a cutter-head, substantially as shown and described.

3. An improved gage of the class described, comprising a rule provided with a graduated face and having an arm projecting laterally at one end at right angles to said rule, the inner edge of said arm being provided with a lip and shoulder, a slide transversely mounted upon said rule and projecting at opposite sides of the same, one projecting end of said slide corresponding to the fixed arm of the rule and having its inner edge correspondingly provided with a lip and shoulder, a set-screw working in the opposite projecting end of the slide at right angles to the rule, and a set-screw working transversely in the projecting arm of the slide at right angles to the fixed arm of the rule, substantially as and for the purpose set forth.

4. As an improvement in gages of the class described, the combination, with a graduated rule provided at one end with a projection adapted to form a rest upon and against the end of a cutter-head, of an adjustable slide mounted transversely upon said rule and adapted to be secured in adjusted position, said slide having a projecting portion comprising a lip and shoulder, adapted to form a rest upon and against the opposite end of a cutter-head, and means for locking the device in position upon the cutter-head, substantially as and for the purpose set forth.

5. In a gage of the class described, the combination, with a gage device embodying a rule carrying projecting arms adapted to embrace the opposite ends of a cutter-head, and means for securing said arms in position upon the cutter-head, of a detachable supplementary rule or attachment having an inclined graduated face, said attachment being adapted for the setting of milled knives, and means for securing said supplementary rule upon the main rule, substantially as and for the purpose set forth.

591,843. INDIRECT REGULATION OF DYNAMO-ELECTRIC MACHINERY. Gano S. Dunn, East Orange, N. J., assignor to the Crocker-Wheeler Electric Company, of New Jersey. Filed July 8, 1896. Serial No. 598,400. (No model.)

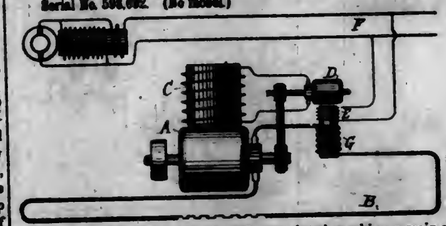


Claim.—1. The combination of a line, a main machine connected to the line, and a regulating-machine, with a field-coil of the regulating-machine connected to the line in series with the armature of the main machine, and with the armature of the regulating-machine and a field-coil of the main machine, connected across or in multiple with the line and in series with each other, whereby the field strength of the regulating-machine is dependent upon the current in the armature of the main machine, and the field strength of the main machine is dependent upon the algebraic sum of the voltages of the line and the regulating-machine, substantially as described.

2. The combination of a main machine and a regulating-machine, the latter having two opposing field-coils, one the excitation of which is constant, and the other connected in series with the armature of the main machine, the armature of the regulating-machine being connected in series with a field-coil of the main machine, substantially as described.

3. The method of regulating one dynamo-electric machine by another such machine, which consists in making variations in the field strength of the regulating-machine dependent upon the current in the armature of the machine to be regulated, and independent of the current in its own armature and making variations in the field strength of the machine to be regulated dependent upon the algebraic sum of the voltages of the line and the regulating-machine, substantially as described.

591,844. INDIRECT REGULATION OF DYNAMO-ELECTRIC MACHINERY. Gano S. Dunn, East Orange, N. J., assignor to the Crocker-Wheeler Electric Company, of New Jersey. Filed July 10, 1896. Serial No. 598,692. (No model.)



Claim.—1. The combination of a regulated machine, a main circuit to be supplied with constant current, the armature of the regulated machine being connected in the main circuit, a field-circuit for the regulated machine, a regulating-machine the armature of which is connected in this field-circuit, a constant-potential source, means dependent upon the constant-potential source for exciting the field of the regulated machine, a field-coil for the regulating-machine which is connected in the main circuit, the elements being so arranged that the effect of the current from the constant-potential source and the effect of the current in the main circuit oppose each other in the field-circuit of the regulated machine so that its field is a resultant due to the difference between their effects, and varies with changes in the strength of the current in the main circuit, substantially as described.

2. The combination of a regulated machine, a main circuit to be supplied with the constant current, the armature of the regulated machine being connected in the main circuit, a field-circuit for the regulated machine, a regulating-machine the armature of which is connected in this field-circuit, a constant-potential source, means dependent upon the constant-potential source for exciting the field of the regulated machine, and a field-coil for the regulating-machine which is connected in the main circuit, for regulating the current supplied to the field-circuit of the regulated machine and thereby regulating the current supplied to the main circuit under varying load, substantially as described.

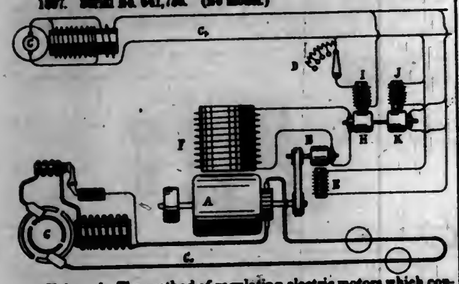
3. The combination of a regulated machine, a main circuit to be supplied with constant current, the armature of the regulated machine being connected in the main circuit, a field-circuit for the regulated machine, an exciter the armature of which is connected in this field-circuit, a field-magnet which controls the output of the exciter the strength of which is the resultant of two magnetising forces opposed to each other, and means for varying the difference between the two magnetizing forces as the current varies in the main circuit, whereby variations in the current of the main circuit are corrected, substantially as described.

4. The combination of a regulated machine, a main circuit to be supplied with the constant current, the armature of the regulated machine being connected in the main circuit, a field circuit for the regulated machine, an exciter the armature of which is connected in the field-circuit, and a field-magnet for the exciter the strength of which is the resultant of two magnetising forces opposed to each other, one being constant and the other varying directly with the current in the main circuit, whereby the field of the regulated machine varies with the difference between the constant and the variable magnetizing forces, substantially as described.

5. The combination of a regulated machine, a main circuit to be supplied with constant current, a field-circuit for the regulated machine, a regulating-machine the armature of which is connected in this field-circuit, a constant-potential source connected to the main circuit through the armature of the regulated machine, means dependent upon the current in the main circuit for varying and reversing the field of the regulating-machine with changes of current in the main circuit so that the voltage developed by the regulated machine shall vary with the current in the main circuit, and shall add to or cut down the voltage developed by the constant-potential source, whereby the current in the main circuit is maintained constant, substantially as described.

6. The method of obtaining a constant current upon a main circuit which consists in connecting the said circuit to a constant-potential source through the armature of a regulated machine, energizing the field-magnets of the main regulated machine from a source which is controlled by the current in the main circuit, and varying and reversing the current supplied to the field-coils of the regulated machine, whereby the current on the main circuit is kept constant, substantially as described.

591,845. INDIRECT REGULATION OF DYNAMO-ELECTRIC MACHINERY. GANO S. DUNN, East Orange, N. J., assignor to the Crocker-Wheeler Electric Company, of New Jersey. Filed June 22, 1897. Serial No. 641,726. (No model.)



Claim.—1. The method of regulating electric motors which consists in supplying the armature with a constant current, supplying the field from a source of energy separate from that which supplies the armature, and varying the field by varying the effective electromotive force in the field-circuit simultaneously with the speed of the armature of the machine to be regulated, substantially as described.

2. The method of regulating motors consisting in supplying the armature with a constant current, and supplying the field with the current resulting from balancing a constant electromotive force against an electromotive force which is varied proportionately and simultaneously with the speed of the machine to be regulated, substantially as described.

3. The method of regulating electric motors which consists in supplying the armature with a constant current, and supplying the field by balancing a constant potential against the electromotive force generated in a regulating-machine, and controlling the electromotive force generated in the regulating-machine by the speed of the armature of the machine to be regulated, substantially as described.

4. The method of regulating motors consisting in supplying the armature with a constant current, and supplying the field with the current resulting from balancing a constant electromotive force against the electromotive force of a dynamo-electric machine which is mechanically connected to the armature of the machine to be regulated and controlled by the speed thereof, substantially as described.

5. The method of regulating electric motors consisting in supplying the armature with a constant current and supplying the field with a current resulting from balancing a constant electromotive force against an electromotive force which is varied proportionately and simultaneously with the speed of the machine to be regulated, and varying or reversing the potential of the constant-potential source, substantially as described.

6. The method of regulating electric motors which consists in supplying the armature with a constant current, supplying the field from a source of energy separate from that which supplies the armature, consisting of two armatures, provided with constant fields and connected in series with the field of the machine to be regulated, driving one of these armatures at a constant speed, and varying the speed of the other of these armatures proportionately and simultaneously with the speed of the armature of the machine to be regulated, substantially as described.

7. The combination of a machine to be regulated, a constant-potential machine and a regulating-machine connected with the field of the machine to be regulated, and means for varying the speed of the armature of the regulating-machine proportionately and simultaneously with the speed of the armature to be regulated, substantially as described.

8. The combination of a machine to be regulated, a constant-potential machine and a regulating-machine connected with the field of the machine to be regulated, means for varying the speed of the armature of the regulating-machine proportionately and simultaneously with the speed of the armature of the machine to be regulated, and means for reversing the field of the constant-potential machine, substantially as described.

9. The combination of two dynamo-electric machines with their armatures mechanically connected together, with field-coils of one in series with the armature of the other and a reversing-switch in circuit with said armature and field, and a circuit-closer to control the other field, the reversing-switch and circuit-closer being mechanically connected, substantially as described.

591,846. SENSITIZED PHOTOGRAPHIC FILM. WILLIAM V. RUNDELL, New York, N. Y., assignor to the E. & H. T. Anthony & Company, of New York. Filed Nov. 25, 1896. Serial No. 613,423. (No model.)



Claim.—1. The above-described article of manufacture, comprising a strip of sensitized film, a piece of black paper attached at one end thereof, the whole rolled upon itself into a spoolless coil, with the black paper outwardly, and a label or cap of light-obstructing material attached at the edges of the strip at each end of the coil, for the purposes set forth.

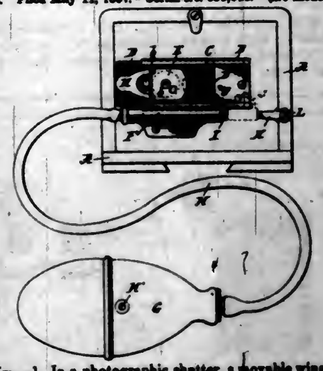
2. The above-described article of manufacture, comprising a strip of sensitized film, a piece of black paper attached at each end thereof, the whole being rolled upon itself into a spoolless coil, and a label or cap of light-obstructing material attached to the edges of the strip at each end of the coil, for the purposes set forth.

3. The above-described article of manufacture, to wit: a strip of sensitized film, a piece of black paper attached at one end thereof, the whole being rolled upon itself into a spoolless coil, with the black paper outwardly, and a label or cap of light-obstructing material, adapted to be torn by the paper as it unwinds, attached to the edges of the strip at each end of the coil, for the purposes set forth.

4. The above-described article of manufacture, to wit: a strip of sensitized film, a piece of black paper attached at each end thereof, one of said pieces having adhesive material upon it, the whole being rolled upon itself into a spoolless coil, with said last-named piece of black paper outwardly, and a label or cap of light-obstructing material, attached to the edges of the strip at each end of the coil, the said labels and the end of the external piece of black paper being confined in place by adhesive material, for the purposes set forth.

5. The above-described article of manufacture, to wit: a strip of sensitized film, a piece of black paper attached at each end thereof, adhesive material applied to the ends of said black paper, the whole rolled upon itself into a spoolless coil, and a label or cap of light-obstructing material attached at the edges of the strip at each end of the coil, for the purposes set forth.

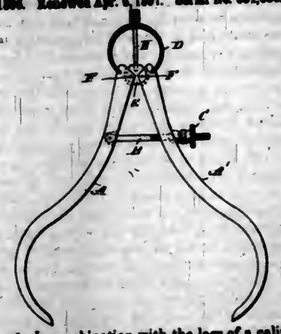
591,847. PHOTOGRAPHIC SHUTTER. WILLIAM V. RUNDELL, New York, N. Y., assignor to the E. & H. T. Anthony & Company, same place. Filed May 11, 1897. Serial No. 636,011. (No model.)



Claim.—1. In a photographic shutter, a movable wing provided with an exposure-aperture, a spring-plate attached to the wing, and a flat, perforated diaphragm adapted to be slipped under the spring-plate and held by its resiliency against the face of the wing, for the purposes set forth.

2. In a photographic shutter, a movable wing provided with an exposure-aperture, a spring-plate attached to the wing, a flat, perforated diaphragm adapted to be slipped under the spring-plate, and interlocking or engaging devices on the spring-plate and diaphragm to aid in holding the latter to the shutter-wing, for the purposes set forth.

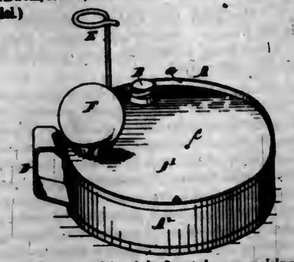
591,848. CALIPERS. CHARLES P. FAY, Chicopee Falls, Mass., assignor to the J. Stevens Arms and Tool Company, same place. Filed May 27, 1896. Renewed Apr. 6, 1897. Serial No. 631,096. (No model.)



Claim.—1. In combination with the legs of a caliper, means for adjusting said legs toward and from each other, a spring encircling the upper ends of said legs and engaging therewith, a pivot-plate between the said ends of the caliper-legs, pivot-pins passing through each of said legs and said plate, and a uniting member between said plate and said spring, substantially as set forth.

2. The combination with the legs of a caliper, means for adjusting said legs toward and from each other, a spring engaging the upper ends of said legs, of a pivot-plate for said legs depending from said spring, and a pivot pin passing through and uniting each of said legs to said plate, substantially as set forth.

591,849. MARKING-INK FOUNTAIN. FREDERICK E. FROST, Worcester, Mass., assignor to Charles M. Fowler, same place, and Francis D. Griswold, Keene, N. H. Filed July 13, 1896. Serial No. 598,966. (No model.)



Claim.—1. In a marking-ink fountain, comprising a reservoir provided with the top or palate plate having the orifice and tube connected therewith for delivery of ink or color from the reservoir to the palate-surface; the combination of the projecting cup-flange attached to said top plate, the hollow elastic ball seated directly within said flange, a cement material attaching said ball to its seat and the short tube within said seat passing from the interior of the ball to the interior of the fountain-reservoir, as set forth.

2. In a stencil or marking ink fountain the reservoir for containing the ink or color formed with its top plate or palate-surface sunk below the level of the top edge of the surrounding rim, and means, consisting of the closely-attached elastic ball supported thereon substantially as described, for controlling the delivery of ink from the reservoir to the palate-surface, as set forth.

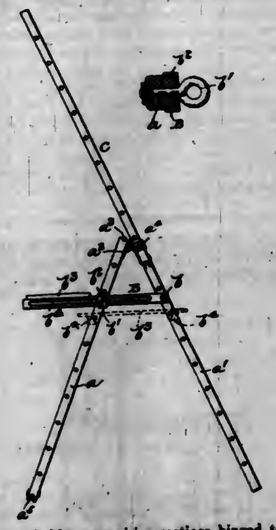
3. A stencil for the purpose specified, comprising the cylindrical metal can having the handle D and recessed top and bottom, the flat top with the orifice O and depending tube C' connected therewith, the air-tight screw-cap B, the wire brush-supporter E fixed to the side of the can, the upward cup-flange H, the hollow rubber ball F seated within said flange, and the tube G communicating between the interiors of said ball and can, all substantially as shown and described.

591,850. IRONING-BOARD. GEORGE A. HOSE, Newark, N. Y., assignor of one-half to John S. Ross, Rochester Mills, Pa. Filed June 21, 1897. Serial No. 641,815. (No model.)



Claim.—An ironing-board formed with a central, longitudinal slot through its forward end, and provided with a pinch-lever pivoted beneath the board, with its upper end adapted to pass through said slot, and formed with a jaw above the board, the latter being formed with longitudinal recesses on either side of said jaw, and movable stops in said recesses adapted to be longitudinally adjusted therealong, and clamping-bolts for said adjustable stops, substantially as and for the purpose specified.

591,851. LADDER. THOMAS W. HUGHES, Harrisonburg, Va., assignor of three-fourths to Oliver B. Keller, Edward C. Martz, and Edward Purcell, Jr., same place. Filed Feb. 26, 1897. Serial No. 626,141. (No model.)



Claim.—1. A ladder comprising sections hinged together, and braces pivotally secured to the side of one of the said sections and provided with longitudinal slots, clamping-bolts secured to the other section and working in said slots and angle-clips interposed between the heads of the clamping-bolts and the said braces for supporting bearing-surfaces for the said bolt-heads and preventing the spreading of the slotted portions of the said braces, substantially as described.

2. A ladder comprising sections hinged together at their ends, braces pivotally secured to the sides of one of said sections, provided with longitudinal slots, clamping-bolts working in said slots for clamping the braces to the sides of the opposite section whereby the sections may be secured at different angles to each other, the said slots being of sufficient length to permit of the ladders being straightened out to form one continuous ladder, angle bearing-plates interposed between the heads of the clamping-bolts and in the outer surfaces of the braces for preventing the spreading of the slotted portions thereof, and limiting-lugs secured to the outer surface of one of said ladder-sections whereby the movement of the braces is limited and the ladder is adapted to be strengthened when in its extended position, substantially as described.

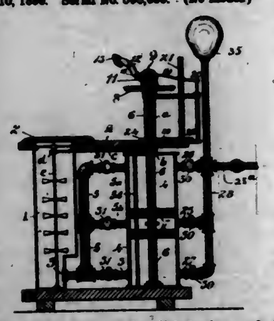
3. In a ladder, the combination with side bars, of steps between the same, wire loops passing through the said side bars beneath the steps, one end of each loop passing along under each edge of the step and extending toward the center of the ladder and meeting the ends of the opposite loop, the said loops having their opposite ends twisted together to exert a tension upon the parts, the construction being such that the steps are supported along both edges by the wires upon which they directly rest, so that they cannot tip in either direction, substantially as described.

4. In a ladder, the combination with side bars, of steps interposed between the same, U-shaped pieces of wire extending through the said side bars and beneath the steps to support them, both ends of each loop or piece extending toward the center of the ladder along each edge of the steps and meeting the opposite loop, and having their opposite ends twisted together and their twisted ends turned up, the said steps resting directly upon the loops and being provided with apertures in their under sides to receive the bent-up ends, the construction being such that the steps are supported along both edges so as not to tip in either direction, substantially as described.

5. A ladder comprising two sections of equal length hinged together at their ends, side braces consisting of straight bars pivotally secured to the outer sides of one of said sections and provided with longitudinal slots, clamping-bolts secured to the other section and adapted to engage said slots, bearing-plates interposed between said plates and the braces and adapted to inclose said braces to prevent the slotted portion thereof from spreading, the construction being such that upon the sections being arranged at any suitable angle with relation to each other, the outer ends of said braces will extend beyond one of said sections and assume a horizontal position to form a support to one side of the ladder for the platform or other suitable device, substantially as described.

6. In a ladder, the combination of sections of equal length hinged together at their ends, said hinges being opposite a rung of the ladder, braces consisting of straight bars pivotally secured to one of said ladders on the outer sides thereof, and provided with longitudinal slots, clamping-bolts adapted to engage said slots for securing the braces to the ladder whereby the ladder sections may be set at an angle to each other to form a self supporting ladder, an extension-section provided with bifurcated lower ends, a rung of said section having its ends extending beyond the surfaces of the side bars thereof and adapted to engage the half-recesses of the rung opposite the hinges in the upper ends of said lower section, the construction being such that the ladder-sections are adapted to form a self-supporting extension-ladder, substantially as described.

591,352. APPARATUS FOR DISINFECTING AND DEODORIZING PURPOSES. ALEXANDER G. HUNTER, Toronto Junction, Canada. Filed July 10, 1896. Serial No. 598,698. (No model.)



Claim.—1. In an apparatus for disinfecting and deodorizing a tank for holding the disinfectant, an agitator in said tank, a cylinder, suitable connections between said tank and cylinder, a right and left hand screw-threaded rod passing through the center of said cylinder, two pistons mounted upon said screw-threaded rod and means such as described for operating said screw-threaded rod whereby the pistons will be drawn toward each other or forced apart so that the disinfectant will be drawn from the tank into both ends of the cylinder or into the center of same and expelled therefrom according to the motion of the pistons substantially as set forth.

2. In an apparatus for disinfecting or deodorizing, a cylinder, a right and left hand screw-threaded rod passing longitudinally through the same, means for rotating said rod alternately in one direction and then in the opposite direction, two pistons having screw-threaded holes mounted upon said screw-threaded rod, so that said pistons will be drawn toward each other or forced apart according to the movement of the screw-threaded rod, means for keeping the pistons from rotating, a tank, an agitator in said tank and suitable pipe connections between the tank and both ends and center of the cylinder also suitable pipe connections for delivering said fluid from both ends and center of the cylinder substantially as set forth.

3. In an apparatus for disinfecting and deodorizing a cylinder a right and left hand screw-threaded rod passing through same, two pistons each having central screw-threaded holes mounted upon said screw-threaded rod and suitable pipe connections for drawing disinfecting fluid into said cylinder at both ends or into the center between the pistons and conducting said fluid therefrom, a bevel-wheel on the upper end of said screw-threaded rod, a shaft passing over same, two loose pinions and a clutch mounted upon said shaft, a fork fulcrumed on the end of a rod and having its two ends in contact with the clutch and means such as described for operating said fork substantially as set forth.

4. In an apparatus for disinfecting and deodorizing a cylinder a screw-threaded rod passing through the center of same the lower end of which is carried by a step inside the cylinder the portion of said rod within the cylinder being formed with a right and left hand screw-thread, two pistons each having screw-threaded holes mounted upon the screws of said rod, a tank, an agitator within same, suitable pipe connections between the tank and both ends and center of the cylinder and means such as described for imparting motion to the agitator from the screw-threaded rod substantially as set forth.

5. In an apparatus for disinfecting and deodorizing a cylinder, a right and left hand screw-threaded rod passing through said cylinder, two pistons each having screw-threaded holes mounted upon said screw-threaded rod, a shaft at right angles thereto, two loose pinions and a clutch mounted upon same and a crank on the end of said shaft in combination with a cog-wheel secured upon the screw-threaded rod, an intermediate cog-wheel and a cog-wheel having a screw-threaded hole through same, a screw-threaded rod passing through said cog-wheel, cams on the upper end of said rod and a pivoted fork operated by said cams for shifting the clutch substantially as set forth.

6. In an apparatus for disinfecting and deodorizing the combination of a tank, an agitator arranged therein, a cylinder, two pistons each having screw-threaded holes in said cylinder, a right and left hand screw-threaded rod for operating said piston connections between the bottom of the tank and the upper, lower and central portions of the cylinder, discharge-pipes from each end of and between the pistons of said cylinder, check-valves arranged in said pipes and means such as described for imparting a rotary motion in one direction to the screw-rod and agitator and then in a reverse direction substantially as and for the purposes set forth.

7. In a disinfecting and deodorizing apparatus the combination of a tank, an agitator arranged therein a cylinder having two pistons formed with a screw-threaded hole, a right and left handed screw-threaded rod for operating said pistons to draw them together or force them apart, connections between the tank and cylinder above, below and between the pistons and discharge-pipes above, below and between said pistons all of said discharge-pipes entering a main delivery-pipe and an air-chamber on the upper end of said main delivery-pipe all arranged and operating substantially as set forth.

591,358. MACHINE FOR MAKING LEATHER-BOARD BOOT OR SHOE SHANKS, &c. JOHN HYSLOP, Abington, Mass., assignor of one-half to Joseph Potter, Jr., Whitman, Mass. Filed Feb. 26, 1897. Serial No. 625,207. (No model.)

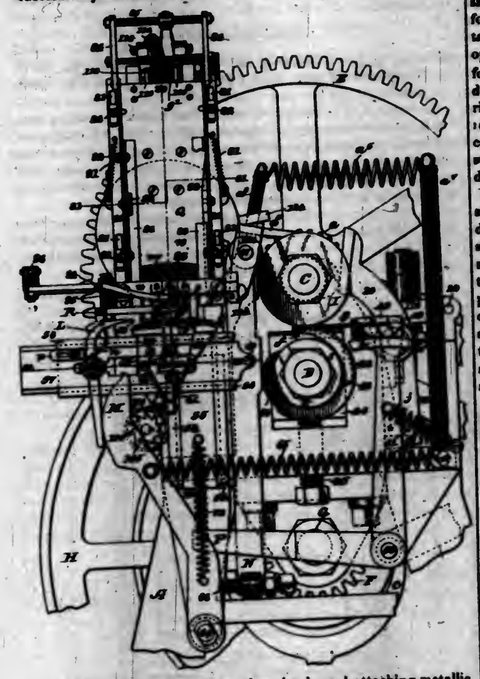
Claim.—1. In a machine for making shoe-shanks, a shank-cutter consisting of a roll mounted on a shaft and provided with cutting edges corresponding in shape to that of the sides of the shank to be cut, the surface of the roll between the cutting edges being of concave form, whereby the shank as it is forced against said surface is made of convex form in cross-section, substantially as described.

2. In a machine for making shoe-shanks, a combined shank cutter and former, comprising a roll provided with cutting edges for cutting the sides of the shank and a concave die occupying the space between said cutting edges for giving the shank a convex form in cross-section while being cut, said cutting edges and die being formed in a single piece, substantially as described.

3. In a machine for making shoe-shanks, the combination with a smooth-faced roll mounted on the end of a shaft, of a cooperating roll also mounted on the end of a shaft parallel therewith and provided with a die having cutting edges for cutting the sides of the shank and a concave surface occupying the space between said cutting edges, whereby the shank as it passes between said rolls is simultaneously cut, given a convex form in cross-section and curved in the direction of its length, substantially as described.

4. In a machine for making shoe-shanks, the combination with a pair of cooperating rolls mounted on the ends of parallel shafts, one of said rolls having a smooth face and the other provided with means for cutting and shaping the shank as it passes between said rolls, of a reciprocating feed-rest for positively feeding the strip of material from which the shanks are to be cut, to the rolls, the forward movement of said rest being properly timed to bring the edge of the strip of material into a position to be caught by the end of the cutting and shaping device, substantially as described.

5. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with a pair of feed-rolls provided with means for simultaneously cutting and shaping the shoe-shank, of tack-driving mechanism for driving the tacks for securing the metallic stiffener to the shank, a reciprocating carrier for taking the shank after it leaves the feed-rolls and placing it in a position beneath the tack-drivers and means for placing a metallic stiffener on the shank after the latter has been placed beneath the tack-drivers, substantially as described.



6. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with the shank cutting, forming and feeding device, of tack-driving mechanism for driving the tacks for securing the metallic stiffener to the shoe-shank, means for taking the shank as it leaves the cutting, forming and feeding device and placing it in position beneath the tack-driving mechanism, a rack or container for holding a supply of metallic stiffeners and means for taking a single stiffener from the rack and placing it on the shank under the tack-drivers, substantially as described.

7. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with the shank cutting, forming and feeding device, of tack-driving mechanism for driving the tacks for securing the metallic stiffener to the shoe-shank, means for taking the shank as it leaves the cutting, forming and feeding device and placing it in position beneath the tack-driving mechanism, a rack or container for holding a supply of metallic stiffeners, means for taking a single stiffener from the rack and placing it on the shank under the tack-drivers and an ejector for discharging the shank from the machine after the stiffener has been attached thereto, substantially as described.

8. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with the shank cutting, forming and feeding device, of a rack for holding a supply of stiffeners tack-driving mechanism comprising two tack-drivers and means for supplying tacks to the same, a carrier for taking the shank as it leaves the cutting, forming and feeding device and placing it in a position beneath the tack-drivers, means for taking a single stiffener from the rack and placing it in position on the shank with its holes beneath the nozzles of the tack-driving mechanism and means for simultaneously operating the two tack-drivers to drive two tacks through the opposite ends of the stiffener into the shank and clenching the same on its under side, substantially as described.

9. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with a pair of feed-rolls provided with means for simultaneously cutting and shaping the shoe-shank as it passes between them, of tack-driving mechanism comprising two tack-drivers and means for operating the same, two raceways for supplying tacks to the tack-drivers, a carrier for taking the shank as its leaves the feeding, cutting and shaping rolls and placing it in position beneath the tack-drivers, a rack for containing a supply of metallic stiffeners and means for taking a single stiffener from the rack and placing it on the shank under the tack-drivers, substantially as described.

10. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with a pair of feed-rolls, one of said rolls having a smooth face and the other provided with means for cutting and shaping the shank as it passes between said rolls, of tack-driving mechanism comprising two tack-drivers and means for operating the same, a rotary tack magazine or reservoir and means for operating the same, two raceways leading from said magazine directly into the channels in which the tack-drivers operate, a carrier for taking the shank as it leaves the feeding, cutting and shaping rolls and placing it in a position beneath the tack-drivers, a rack for containing a supply of metallic stiffeners and means for taking a single stiffener from the rack and placing it on the shank under the tack-drivers, substantially as described.

11. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination of a shank cutting and shaping device, feed mechanism for positively feeding the material to the shank cutting and shaping device at the proper time, tack-driving mechanism, comprising a tack magazine or reservoir, two tack-drivers, two tack-raceways for supplying tacks to the tack-drivers, a carrier provided with a gripper-finger for taking the shank from the feeding device and placing it beneath the tack-drivers, means for taking a single stiffener from the rack and placing it on the shank under the tack-drivers and means for operating said several devices and mechanisms at the proper times with relation to each other, substantially as described.

12. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination of shank cutting, forming and feeding rolls, tack-driving mechanism, comprising two tack-drivers, two raceways and a tack magazine, a carrier for conveying the shank from the cutting, forming and feeding rolls to a position beneath the tack-drivers, a rack for holding a supply of metallic stiffeners, means for taking a single stiffener from the rack and placing it on the shank under the tack-drivers and a hammer for producing a concussion for keeping the tacks in motion as they pass down the raceways, substantially as described.

13. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination of a shank-cutting mechanism, a rack for containing metallic stiffeners, mechanism for placing a metallic stiffener on the shank and attaching it thereto and a carrier for conveying the shank from the cutting mechanism to the stiffener-attaching mechanism, substantially as described.

14. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination of a shank-cutting mechanism, a shank-forming mechanism, a rack for containing metallic shank-stiffeners, mechanism for placing a metallic stiffener on the shank and attaching it thereto and a carrier for conveying the shank from the cutting mechanism to the stiffener-attaching mechanism, substantially as described.

15. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination of a shank cutting and forming device, feed mechanism for feeding the material to the cutting and forming device, a rack for holding the metallic stiffeners, a shank-stiffener-attaching mechanism, a carrier for conveying the shank from the cutting device to the stiffener-attaching mechanism and a device for taking one shank-stiffener at a time from the bottom of the stiffener-rack and depositing it upon the shank beneath the attaching mechanism, all cooperating substantially as described.

16. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, a shank-carrier, consisting of a vertically-moving slide having a horizontal guideway, a slide reciprocating in said horizontal guideway and provided with a supplementary slide, a pair of anvils secured, one to the main horizontal slide, and the other to the supplementary slide, said anvils being normally separated by a spring and means for actuating the said vertical and horizontal slides to raise and lower the shank supported upon the anvils and carry it from the feeding mechanism to the stiffener-attaching mechanism, substantially as described.

17. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with the shank-carrier and its anvils, of a gripper-finger pivoted to the main horizontal slide of said carrier and provided with a retracting-spring and a lever for horizontally reciprocating the carrier and actuating the gripper-finger to cause it to hold the shank upon the rear anvil, substantially as described.

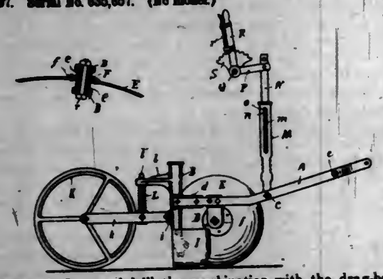
18. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, a shank-stiffener rack consisting of a vertical back plate and side pieces sliding vertically on said back plate, said side pieces being provided with front strips and having their lower ends turned inward to form supports for the ends of the stiffeners in the rack and means for vertically reciprocating the side pieces to raise

and lower the pile of stiffeners in the rack, substantially as and for the purpose set forth.

19. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with the stiffener-rack provided with a support 93 adapted to extend under the center of the lowermost stiffener in the rack, of a horizontally-reciprocating slide provided with a pair of fingers *t*, *t*, arranged one on each side of the support 93 and extending under the bottom of the rack, said fingers each having a shoulder 104 on its upper side for engaging the lowermost stiffener in the rack and pushing it into a position over the center of the shoe-shank and the plate *v* with its gage *w* for limiting the backward movement of the stiffener, substantially as described.

20. In a machine for making shoe-shanks and attaching metallic stiffeners thereto, the combination with the stiffener-rack provided with a support 93 adapted to extend under the center of the lowermost stiffener in the rack, of the horizontally-reciprocating slide *s* provided with a pair of fingers *t*, *t*, arranged one on each side of the support 93 and extending under the bottom of the rack, said fingers each having a shoulder 104 on its upper side for engaging the lowermost stiffener in the rack and pushing it into a position over the center of the shoe-shank, the plate *v* with its gage *w* for limiting the backward movement of the stiffener and the shank-carrier with its anvils, said carrier having a slight upward movement after the stiffener has been placed upon the shank, whereby the ends of the curved-spring shank-stiffener will be tightly pressed against the shank to enable the fingers *t*, *t*, to be withdrawn from under the stiffener without moving the latter from its central position, substantially as described.

591,854. SEEDING-MACHINE. SYLVESTER H. JOHNS, Richmond, Ind., assignor to the Hoosier Drill Company, same place. Filed May 8, 1897. Serial No. 635,857. (No model.)



Claim.—1. In a seed-drill the combination with the drag-bars rigidly connected to the seed-tube of the disk journaled between hangers attached to and depending from said drag-bars and at an angle to the line of the travel, substantially as specified.

2. In a seeding device the combination with a main drag-bar attached to the seed-tube and an auxiliary drag-bar connected to the main drag-bar and terminating near the axis of a seed-disk journaled to said drag-bars by means of depending arms which clamp the ends of the disk-journal, substantially as and for the purpose specified.

3. In a seed-drill the combination of a main drag-bar attached to the seed-tube by the brace-ear *d*, and an auxiliary drag-bar rigidly secured to the main drag-bar, the depending disk-hangers D rigidly secured to said drag-bars, the disk E provided with the cylindrical support F and flange *f*, and means for clamping the said cylindrical support between the ends of the dependent hangers, substantially as specified.

4. In a seeding-machine the combination with the elevated drag-bar rigidly secured to the seed-tube, of the supporting-bars *k* hinged to the rear side of said seed-tube and the furrow-opener I rigidly secured to the lower end of said tube and adjacent to the disk E journaled to dependent hangers, substantially as specified.

5. In a seeding-machine, the combination of an elevated main drag-bar rigidly secured to a seed-tube, an auxiliary drag-bar rigidly secured to said main bar, and terminating near the axis of the seed-disk, a seed-disk journaled to said drag-bars by means of dependent hangers, and the scraper H secured to the rear end of said auxiliary drag-bar, substantially as specified.

6. In a seeding-machine, the combination with the drag-bars and a seed-tube rigidly attached thereto, of hangers depending from the drag-bars, a disk journaled in said hangers, a furrow-opener rigidly secured to the lower end of said feed-tube, a tube connected at its lower end to the drag-bars, a coiled spring arranged in the tube, a plunger-rod movably arranged in the tube and bearing against the upper end of the spring, and a straining shaft and lever for vertically adjusting the plunger in the tube to regulate the tension of the spring to control the depth of the furrow, substantially as described.

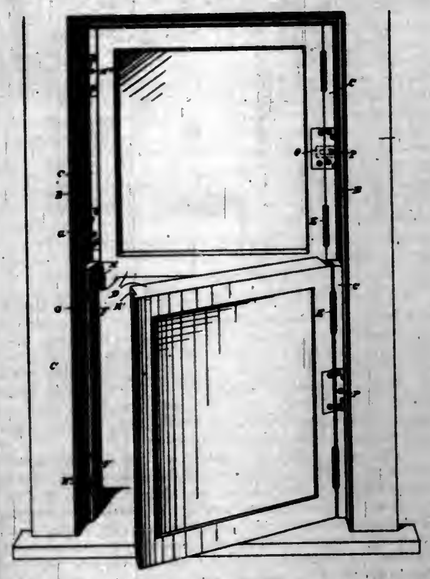
7. In a seeding-machine, the combination of the seed-tube B, the elevated main and auxiliary drag-bars, the hangers D depending from the drag-bars, a disk E journaled in said hangers, a furrow-opener I and supporting-arms K attached to the seed-tube, the covering-wheel K journaled in said arms, and a spring-controlling device attached to said drag-bars in front of the disk and furrow-opener, substantially as described.

591,855. PROCESS OF OBTAINING CAST TITANIUM. HENRI MOISSAN, Paris, France. Filed May 3, 1895. Serial No. 547,982. (Specimens.)

Claim.—1. The process of making cast metallic titanium combined with carbon, consisting in subjecting an oxid or salt of titanium in presence of carbon to an electric arc produced by a current of from one thousand to two thousand amperes, and sixty to seventy volts, thereby fusing the titanium, which combines with the carbon forming masses of metallic titanium, substantially as described.

2. As a new composition of matter, a cast metallic substance consisting of titanium and a small proportion of carbon, and distinguished by a crystalline formation, by being corredible by dilute hydrochloric acid, and by the other characteristics, herein set forth.

591,856. HINGED SLIDABLE WINDOW-SASH. WILLIAM McCALL, San Francisco, Cal., assignor of three-fourths to Elvin C. McCall, Clarence C. McCall, and Michael O'Sullivan, same place. Filed Apr. 10, 1897. Serial No. 631,491. (No model.)



Claim.—1. The combination with window-sashes of slides adapted to travel vertically in grooves in the casing with connected counter-balance-weights, hinges by which the sashes are connected to the slides upon one side and about which the sashes are turnable, a turnable sleeve having latches adapted to engage with the sashes when the latter are closed upon the slides, and to be disengaged therefrom and engaged with the openings in the casing whereby the slides are locked and prevented from being moved by the counterweights when the sashes are opened therefrom and a means engaging the latches and holding them in a locked position.

2. The combination with window-sashes of slides movable vertically in grooves in the casing, hinges by which one edge of each sash is connected with a corresponding slide, pivoted double-ended latches within the slide upon the opposite side, openings in the edges of the sash adapted to be engaged by the latches upon one side whereby the sash and slide are connected together, corresponding openings in the casing adapted to be engaged by the latches upon the opposite side of the slides simultaneously with their disengagement from the sashes, whereby the latter are allowed to swing about their hinges while their slides are locked to the casing, a means engaging the latches in their several positions and holding them in a locked condition and means for releasing said latches.

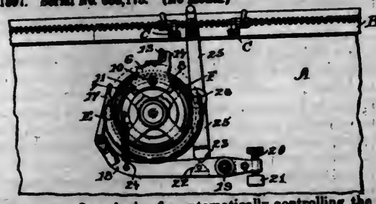
3. The combination with window-sashes of a pair of slides for each sash adapted to move in grooves or channels in the casing, hinges by which one edge of a sash is connected with one of said slides, double-ended latches pivoted in the casing upon the opposite side, holes or depressions in the sash and in the casing whereby the latches are engaged with the sash and disengaged from the casing or engaged with the casing and disengaged from the sash simultaneously and spring-pressed catches adapted to engage and lock the latches in either position.

4. A window-sash and slides, to one of which the sash is hinged and to the other of which it is connected or disconnected by turnable latches, double-ended latches mounted upon a central turnable sleeve, having one end adapted to enter and engage a slot by which the slide is temporarily locked to the sash and the other end to engage and lock the slide to a corresponding slot in the casing and simultaneously disengage it from the sash, spring-pressed latches, a sleeve upon which the turnable latches are mounted having an opening to receive a key by which the sleeve is turnable from the outside and an arm turnable with the sleeve whereby the spring-catches are first disengaged from the turnable latches and the latter are afterward turned to engage either with the sash or casing.

5. In a window and sashes of the class described, the independent slides movable in vertical guides in the casing, hinges by which the sashes are connected to the slide upon one side, and latches by which the opposite edge of the sash is engaged with or disengaged from the slide upon that side, said catches operating to simultaneously engage the slide with the casing when it is disengaged from the sash, locking devices upon the slide to which the sash is hinged, whereby said slide and sash are temporarily locked to the casing and means for releasing the locking devices.

6. In a window with slidable sashes of the class described independent slides movable in guiding-channels in the casing, hinges by which the sash is engaged with the slide upon one side, a guide-strip fixed in the casing and a hook-slide fixed to the edge of the sliding strip to which the sash is hinged, with its edges turned over to engage the strip in the casing whereby the slide is kept in position and prevented from falling outwardly when the sash is opened.

591,857. MICROMETER-FEED FOR GRINDING OR OTHER MACHINES. CHARLES H. MORTON, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed Apr. 21, 1897. Serial No. 633,178. (No model.)



Claim.—1. In a device for automatically controlling the operation of a cutting-tool, the combination with the screw-spindle connected with the tool-support and a reciprocating part of the machine, of a disk connected to and rotating with the screw-spindle, a micrometer-scale on the disk, ratchet teeth on the edge of the disk, a carriage provided with a shield adjustably secured to the disk, and a pawl to which reciprocating motion is imparted from a moving part of the machine, said pawl engaging with the ratchet-teeth on the edge of the disk, whereby the operation of the cutting-tool is automatically controlled, as described.

2. In a cross-feed mechanism for grinding and similar machines, the combination with the frame of the machine and the bed supporting the cutting-tool, of the screw-spindle D, a hand-wheel on the screw-spindle, a graduated disk, having ratchet-teeth on its periphery, secured to and turning with the screw-spindle, a shield partially covering the periphery of the disk, a carriage sliding on the disk and supporting the shield, a spring-pressed lever pivotally supported in the carriage and in engagement with the peripheral ratchet-teeth on the disk, a pawl engaging with the peripheral ratchet-teeth on the disk, and mechanism for reciprocating the pawl whereby the tool is automatically fed up to the work, as described.

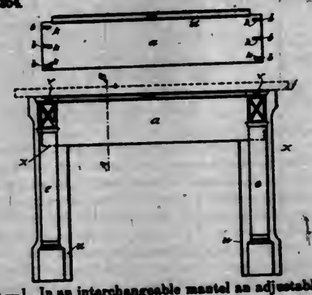
3. In an automatic micrometer device for controlling the cutting-tool, the combination with the screw-spindle, the disk secured to the screw-spindle, the peripheral ratchet-teeth on the disk, and the reciprocating pawl 17, of the carriage 7 provided with the shield 11, the spring-pressed pawl 12 and the lever 13, pivotally supported in the carriage, provided with a spring-pressed pawl at the lower end, and a spring interposed between a fixed part of the carriage and the lever 13, whereby the carriage and shield may be moved by the said lever through a predetermined distance, as described.

4. In a micrometer-feed-controlling device, the combination with the graduated disk, peripheral ratchet-teeth on the disk, and the carriage supporting the shield, of the lever 13, and the screw 16 forming an adjustable stop for the lever, whereby the movement of the lever is restricted, as described.

5. In a micrometer-feed-controlling device, the combination with the graduated disk F, the peripheral ratchet-teeth *g*, the undercut annular groove A, and the curved segmental bar 5, of the carriage 7 provided with pawls engaging with the peripheral ratchet-teeth, and the side 6 pivotally secured to the segmental bar 5 by the screw 8, whereby the carriage may be raised free off from the ratchet-teeth and adjusted, as described.

6. In a micrometer-feed for grinding and similar machines, the combination with the frame A, the bed-plate B, the stops C C, the screw-spindle D, the hand-wheel E, and the graduated disk F provided with the peripheral ratchet-teeth *g*, of the lever 25 provided with the cam 23, the lever 18 having the adjusting-screw 20 cooperating with the stop 21, the cam-surfaces 22, the coiled spring 24 secured at opposite ends to the lever and the frame, the pawl 17 connected with the lever 18 and engaging with the ratchet-teeth *g*, and the adjustable carriage 7 provided with the shield 11 whereby the progressive feed of the grinding-tool to the work is automatically controlled, as described.

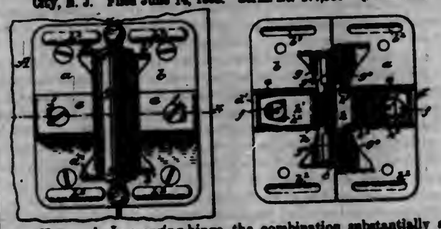
591,858. WOOD MANTEL. JOHN PARKER, Birmingham, England, assignor to Parker's, Limited, same place. Filed June 27, 1896. Serial No. 597,243. (No model.) Patented in England July 13, 1892, No. 12,854.



Claim.—1. In an interchangeable mantel an adjustable frieze or mantel *a* constructed of one or more sliding shelves *q*, adjusted by means of parallel ends *p*, taking into the guiding-slots *n* of adjustable jambs *m*, in conjunction with frieze-adjusting slots *b* as and for the purpose described.

2. In an interchangeable mantel adjustable jambs, constructed with frieze-shelf slots *n* and molding-slots *s* formed on the inside faces of the jambs together with frieze end recesses *x*, by means of which the jambs can be adjusted over the frieze *a* and over the frieze shelf or shelves *q*, to suit any width of grate-opening, as illustrated and described.

591,859. SPRING-HINGE. LE DEU B. POMEROY, Cleveland, Ohio, assignor to the Van Wagener & Williams Hardware Company, Jersey City, N. J. Filed June 14, 1893. Serial No. 477,899. (No model.)



Claim.—1. In a spring-hinge, the combination substantially as hereinbefore described, of a pair of hinge-leaves having projecting ears pivotally connected; a sheet-metal bow-spring in line with the axis of the spring; and a pair of spring-stud locks, each of which is loosely connected at one end with an appropriate arm or hooked edge of the spring, and at its other end is hinged to its appropriate leaf remotely from the hinge-line, the organization being such that when the hinge is closed, the spring will be under its minimum tension, and moved bodily away from both leaves of the hinge during the initial opening movement.

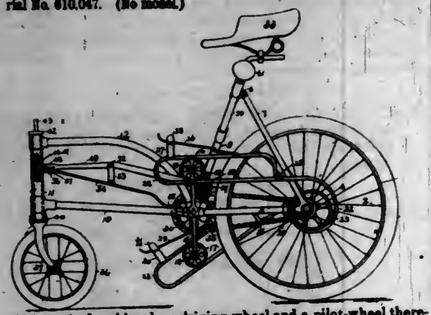
2. In a spring-hinge, the combination substantially as hereinbefore described, of a sheet-metal bow-spring; a pair of hinge-leaves,

and a pair of T-shaped spring-stud links, each having its two arms engaged by hooks on the spring, and its shank hinged to its appropriate leaf remotely from the hinge-axis.

3. In a spring-hinge, the combination substantially as hereinbefore described, of a pair of sheet-metal hinge-leaves, each having projecting ears, and a centrally-located lateral chamber, open at the inner edge of the leaf; a sheet-metal bow-spring in the line of the hinge-axis; and a pair of T-shaped spring-stud links, each of its arms in hook engagement with one arm of the spring, and at the end of its shank flexibly connected with an appropriate leaf within its chamber.

4. The combination with hinge-leaves having projecting ears, and a sheet-metal bow-spring in line with the hinge-axis, partly between the two pairs of ears, and partially overlying said ears at their outer ends, substantially as described.

591,860. BICYCLE. WILLIAM GUHEN, Philadelphia, Pa., assignor of one-half to Lewis H. French, same place. Filed Oct. 26, 1896. Serial No. 610,047. (No model.)



Claim.—1. In a bicycle, a driving-wheel and a pilot-wheel therefor somewhat smaller than the driving-wheel, a crank-shaft and cranks, sprocket-wheels and a chain therefor, grooved wheels upon the crank, springs guided in grooves in the periphery of the wheels at their upper and lower sides, and forming a loop for the wheels to run in, and thereafter secured to the framing at their rear end and foot-rests upon the springs, substantially as described.

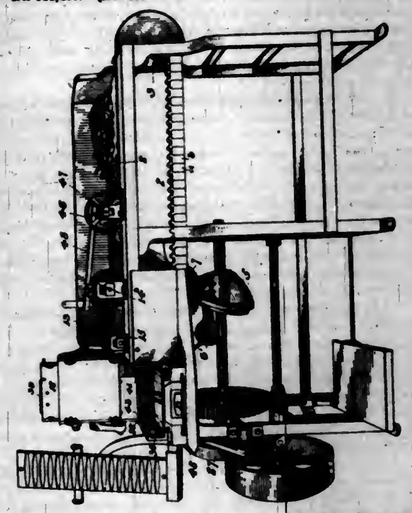
2. In a bicycle, a driving and a pilot wheel of different diameters, a frame therefor, a crank-shaft supported by the frame and carrying crank-arms and a sprocket-wheel, a sprocket-wheel upon the driving-shaft, a chain connecting the sprocket-wheels, wheels upon the crank-arms said wheels being grooved to receive and move within pedal-springs inclosing them and allowing for their free movement therein while revolving around the axle, coiled ends at the rear and attached ends of the springs, means to attach the springs to the framework and foot-rests upon the springs having side guides, substantially as specified.

3. In a bicycle a framework therefor carrying wheels of different diameters and having a spindle-case normally vertical as its front member, diverging members from its member in front of the driving-wheel whereon is supported the saddle, a spindle within the spindle-case having double spiral grooves, ball-bearings at its lower end, a fork carrying a pilot-wheel back of its central axis, slots within opposite sides of the spindle-case, a fork having means to pass through the slots and engage the spiral grooves, and means to operate the fork for movement of the spindle, substantially as described.

4. In a bicycle, a framework substantially as described, having a front member guiding a spirally-grooved spindle, a middle member upwardly and rearwardly tending in front of the driving-wheel and attached to the crank-shaft casing, diverging frame members attached thereto at their lower end, thereafter tending divergingly upward and outward, joined at their upper part to the frame member in front of the wheel, a fixed handle surmounting one of the diverging members, a steering-handle attached to the other diverging frame member, having therewith connected a screw, a spiral-ended rod embracing said screw and extending downward therefrom within one diverging and the front frame member, and thereafter passing outward through a slot in said front frame member and mechanism connected therewith and to the spiral grooves in the steering-spindle, substantially as described.

5. In a bicycle, a framework therefor carrying a driving-wheel and a pilot-wheel of different diameters, means to pivot the pilot-wheel at the front of the frame to the spindle, back of the spindle center, spiral grooves within the spindle for attaching a fork, means to attach the fork mechanism to a handle supported to the framing at one side of the central line of the machine, in proximity to the saddle and means upon the handle and connected therewith to operate the spindle, substantially as described.

591,861. MACHINE FOR MAKING CIGAR-BUNCHES. STEPHEN A. SHEPARD, Allegheny, Pa., assignor of three-fifths to Charles C. Smith and William R. Taylor, same place. Filed Nov. 9, 1896. Serial No. 611,469. (No model.)



Claim.—1. In a cigar-machine, the combination of a traveling sectional mold made up of flexibly-connected sections with a trough-like cavity of rectangular cross-section, and a conductor-trough of like cross-section which fits neatly into the end of one of the branches of the mold and is adapted to receive tobacco therefrom; substantially as described.

2. In a cigar-machine, a traveling sectional mold made up of flexibly-connected sections, in combination with a conductor, a moving feeder situate above the mold and adapted to convey the tobacco therefrom, and mechanism for moving the feeder simultaneously with the sectional mold, said feeder extending beyond the mold; substantially as described.

3. In a cigar-machine, an endless sectional mold, mechanism for moving the same, a conductor-trough fitting into the end of one of the branches of the endless mold and adapted to receive the tobacco therefrom, a moving feeder set in the mold above the position of the tobacco, extending beyond the mold and adapted to convey the tobacco therefrom through the conductor, and mechanism for actuating said feeder; substantially as described.

4. In a cigar-machine, a traveling sectional mold made up of flexibly-connected sections, in combination with a conductor leading therefrom, and a moving feeder adapted to convey the tobacco from the mold, said feeder consisting of an endless moving flexible band or chain extending beyond the delivery end of the mold; substantially as described.

5. In a cigar-machine an endless sectional mold, mechanism for moving the same, a conductor-trough fitting into the end of one of the branches of the endless mold, and adapted to receive the tobacco therefrom, a feeder adapted to convey the tobacco from the mold through the conductor, mechanism for moving the feeder, and a knife situate at the limit of the forward motion of the feeder, said feeder extending beyond the mold; substantially as described.

6. In a cigar-machine, a traveling sectional mold made up of flexibly-connected sections, in combination with a conductor leading from the mold, a moving feeder set in the mold above the position of the tobacco therein and extending beyond the delivery end of the mold, said feeder being adapted to convey the tobacco from the mold, and mechanism for moving the feeder and mold intermittently, but simultaneously with reference to each other; substantially as described.

7. In a cigar-machine, the combination of a stationary conductor-trough, a feeder adapted to bear upon the tobacco therein, mechanism for moving the feeder to advance the tobacco in the trough, a knife situate at the limit of motion of the feeder, and mechanism constructed to actuate the knife when the feeder has advanced and when the tobacco is held thereby in the trough; substantially as described.

8. The combination with the apron, of a trough composed of sections 31 31′, situate below the same and hinged together, a spring which bears upon the section 31′, a vertically-moving plunger, and means whereby the plunger on its descent opens the said section 31′; substantially as described.

9. In a cigar-bunching machine, the combination with an apron, of a rolling-table to which one end of the apron is attached, and means for adjusting said table horizontally to vary the length of the slack of the apron and the size of the pocket produced, said adjusting means being applied to the end of the table to which the apron is attached, and the other end of the apron being unattached to the table; substantially as described.

591,862. INSERTIBLE JOINT FOR IRON PIPES. JACOB D. SIMON, Worcester, Mass., assignor of one-half to Israel L. Currier, same place. Filed Nov. 16, 1896. Serial No. 612,237. (No model.)



Claim.—1. A cast-iron hub-pipe section having the hub B and shoulder C, and formed with an annular swell or circumferential bulge D adjacent to said hub immediately below said shoulder, as shown and hereinbefore described.

2. In combination with the main-line pipe F, the branch connection having the enlarged circular hub and shoulder, and provided with the annular enlargement D adjacently below said shoulder, and the metal ring G arranged to slip onto the main-pipe end and adapted to fit within the space between the pipe and hub surfaces and upon said shoulder, concentrically sustaining said parts and forming a seat for the joint-packing, as set forth.

3. The combination with a cast-metal hub-pipe fitting, Y branch, or T connection, having a socket-hub, a shoulder, and an internal chamber of greater lateral dimension than the main pipe diameter, of an annular packing seat or ring having an internal dimension corresponding with the main-pipe diameter, and externally fitted to match and rest upon said shoulder within the socket-hub, and adapted to serve for wedging the joint above said chamber, as set forth.

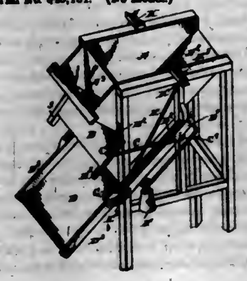
591,863. CALIPERS. FRANK SPALDING, Providence, R. I., assignor to The Brown & Sharpe Manufacturing Company, same place. Filed May 6, 1897. Serial No. 635,260. (No model.)



Claim.—1. In a spring-caliper, the combination with the legs *a a* and the screw-threaded rod *d* pivotally secured to one leg and extending through an opening in the other leg, of the conical cup *e*, the sleeve *k* having the peripherically-milled flange *l*, the split nut *f* having the conical end *g*, the groove *i* and flange *h*, the flange *h* and the sleeve *k* being secured together, as described.

2 In a caliper, the combination with the legs *a a*, the fulcrum *b*, the spring *c* acting on the legs above the fulcrum, and the screw-threaded rod *d* pivotally secured to one leg and extending through an opening in the other, of the conical cup *e*, the sleeve *k*, the peripherically-milled flange *l* on the sleeve, the longitudinally-split nut *f*, the conical end *g*, the groove and flange *h* integral with the split nut *f*, said flange *h* secured to and rotating with the sleeve *k* and the knob *m* on the end of the rod; whereby the adjusting-nut may be rapidly moved longitudinally on the screw-threaded rod *d*, as described.

591,864. COAL-CHUTE. GRANVILLE W. TURNER, Springfield, Mo., assignor to Flavous J. Underwood, same place. Filed July 19, 1897. Serial No. 645,181. (No model.)



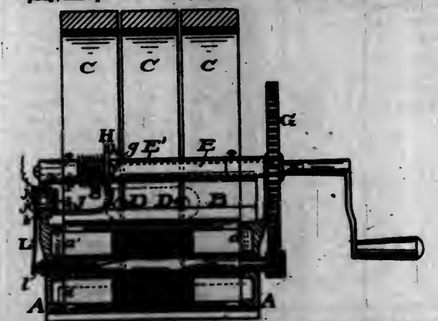
Claim.—1. The combination of a swinging apron for a coal-chute having levers, D^4, and suspension-bars, E, for hinging, substantially as shown and described.

2. A swinging apron D, having levers D^4, combined with slotted push-rods, C, for automatically opening the gate of a coal-chute, substantially as shown and described.

3. A swinging gate to a coal-chute having projecting pieces, B^5, combined with a swinging apron, D, having sides, D^6, for holding the gate shut substantially as shown and specified.

4. The combination of a swinging gate to a coal-chute, a swinging apron and adjustable swinging rods E, all substantially as shown and described.

591,865. MAGNETO-ELECTRIC GENERATOR. JOSEPH A. WILLIAMS, Cleveland, Ohio, assignor to the Williams Abbott Electric Company, same place. Filed May 3, 1897. Serial No. 634,805. (No model.)



Claim.—1. In a magneto-electric generator, the pole-piece consisting of a plate cut, stamped and formed with the lower edge slitted, folded upward, and with the outward bends forming seats for the permanent magnets, substantially as described.

2. In a magneto-electric generator, the combination with the magnets C C C, of the flattened bolts D D, substantially as and for the purpose set forth.

3. In a magneto-electric generator, the combination with the driving-shaft E of the cylinder E′, notch *g* in end of said cylinder, sleeve and disk H, projection *h* on said disk engaging with said notch, spring *s* on the sleeve H, and collar *r* on the shaft E, the arm J attached to plate A by insulating-pieces *k k*, and contacting with the disk H, and the strip L, attached on outside of plate A, by the screws *j j* and contacting with the pin *l* in the armature-shaft, the arrangement being such that when the machine is at rest a short circuit is made through the arm J and disk H as and for the purpose specified.

591,866. HEEL-NAILING MACHINE. HENRY W. WHITE, Boston, Mass. Filed Nov. 27, 1896. Serial No. 613,580. (No model.)

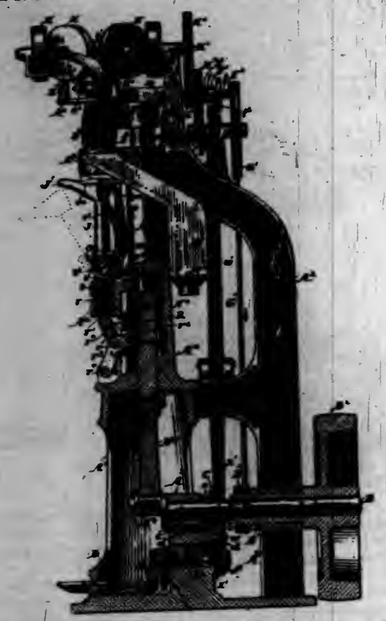
Claim.—1. In a heel-nailing apparatus, a work-support, a nail-block, nail-distributing mechanism, means to convey the nails directly therefrom to the nail-block, to be driven, a reciprocating plunger, a gang of nail-drivers mounted thereupon and actuated thereby, and means operated by said plunger to cause relative movement of the work-support and nail-block to compress the heel on its shoe prior to the insertion of the nails, substantially as described.

2. In a heel-nailing apparatus, nail-distributing mechanism, a nail-block fixed relatively thereto, a nail-guide block above it, having a series of removable and adjustable branching throats, nail-passages leading from the distributing mechanism to one of the branches of each throat, and a gang of drivers reciprocable in the other branches of the throats, to drive the nails from the nail-block into the heel, the openings of the nail-passages being closed by the drivers as the latter descend, substantially as described.

3. In an apparatus of the class described, nail-transferring mechanism, comprising a movable nail-distributor having nail-pockets, and a series of nail-tubes connected therewith; a superposed stationary receiver having open peripheral pockets, and a concentric nail-carrier, to receive nails singly from each of a plurality of raceways, combined with means to move said carrier to transfer the nails to the receiver to pass therefrom by gravity to the distributer, and means to move the latter successively to present a new series of pockets to receive a fresh supply of nails from the receiver, substantially as described.

4. In an apparatus of the class described, nail-transferring mechanism, comprising a stationary receiver, and a movable nail-carrier, having each a like number of nail-receiving portions, and a nail-distributer having a series of pockets, a multiple of the number of nail-

receiving portions of the receiver, combined with means to move said carrier to transfer a set of nails to the receiver, means to move the distributer step by step after each movement of the carrier, to present a new series of pockets to receive the nails from the receiver, and a series of nail-passages connected to said distributer, substantially as described.



5. In an apparatus of the class described, a series of raceways along which nails pass by gravity, a common transferring mechanism, comprising a fixed nail-receiver having a series of open pockets, an oscillating carrier to take nails singly from each of said raceways and present them to the pockets, a let-off to govern the movement of the nails in the raceways, and means carried by said let-off, to eject the nails from the carrier, substantially as described.

6. In an apparatus of the class described, a series of raceways along which nails pass by gravity, a common transferring mechanism, comprising a fixed nail-receiver having a series of open pockets, an oscillating carrier to take nails singly from each of said raceways and present them to the pockets, a let-off to govern the movement of the nails in the raceways, means to eject the nails from the carrier, and a distributer to distribute the nails ejected into the receiver, substantially as described.

7. In an apparatus of the class described, a series of nail-raceways, a carrier to take nails singly therefrom and deposit them in a receiver, the receiver, a distributer having a series of flexible nail-tubes attached thereto, means to move the distributer to take nails from the receiver and direct them to the tubes, and a nail-block having nail-driving passages, the lower ends of said nail-tubes communicating with the passages, substantially as described.

8. In a heel-nailing apparatus, a nail-block having a series of nail-passages provided each with a shoulder, a tube inserted in each hole and resting on the shoulder, said tube being longitudinally slotted at its lower end to leave yielding detent-fingers to grasp the nail and retain it in the nail-block till positively removed therefrom, substantially as described.

9. In a heel-nailing apparatus, a nail-block having a series of nail-passages provided each with a shoulder, a tube inserted in each hole and resting on the shoulder, said tube being longitudinally slotted at its lower end to leave yielding detent-fingers, two of said detent-fingers being bent inward to contract the lower end of the tube, said bent fingers acting to tip or slant the nail toward the center of the heel into which it is to be driven, substantially as described.

10. In an apparatus of the class described, a rotatable hopper, its support having an opening communicating with the hopper, a raceway having its upper end extended through said opening into the hopper, a guard embracing said raceway at the bottom of the opening, and a pivotally-mounted gate to straddle said raceway within the guard, to return improperly-presented nails to the hopper, substantially as described.

11. In an apparatus of the class described, a rotatable hopper having an open mouth in one side thereof, a raceway extended through the mouth of and into the hopper, to receive the nails, the heads of the latter being supported with their bodies depending between the walls of the raceway, and means to retard the nails successively and tip them to cause the head of each to overlap the head of the nail next below it, substantially as described.

12. In an apparatus of the class described, a series of hoppers to receive the nails in bulk, means to continuously rotate said hoppers, nail-transferring mechanism, to receive the nails from the hoppers, and to transfer them to a nail-block, the nail-block, nail-passages leading directly thereto from the transferring mechanism, and means to operate said mechanism intermittingly, substantially as described.

13. In an apparatus of the class described, a series of hoppers to receive the nails in bulk, means to continuously rotate said hoppers, nail transferring mechanism, to receive the nails from the hoppers, and to transfer them to a nail-block, the nail block, nail-passages leading directly thereto from the transferring mechanism, a gang of drivers, a reciprocating plunger to actuate them, connections, including a clutch, between the transferring mechanism and the means to rotate the hoppers, and a clutch-controller governed by movement of the plunger, whereby the transferring mechanism is intermittingly operated, substantially as described.

14. In an apparatus of the class described, a work-support, a slide-block on which it is mounted, and a toggle to raise and lower said block, combined with a stationary nail-block, a gang of drivers, a reciprocating plunger to actuate them, and a cam on said plunger, to straighten the toggle and raise the work-support before the drivers drive the nails into the heel, substantially as described.

15. In an apparatus of the class described, a work-support, a slide-block on which it is mounted, and a toggle to raise and lower said block, combined with a stationary nail-block, a gang of drivers, a reciprocating plunger to actuate them, a cam on said plunger, having an inclined and a vertical face, to act successively upon and to straighten the toggle, and thereafter to maintain it in such condition while the nails are being driven, substantially as described.

16. In an apparatus of the class described, a nail-block, a work-support, means to move one relatively to the other, to compress the heel of a shoe, a gang of drivers, a reciprocating plunger on which they are mounted, and a controlling device on said plunger, to govern the means for causing relative movement of the nail-block and work-support, substantially as described.

17. In an apparatus of the class described, a work-support adapted to swing in a vertical plane, a head upon which it is pivotally mounted, said head having a partially-circular periphery provided with a plurality of depressions therein, and a spring-controlled locking member carried by the work-support and comprising a spring and a locking ball adapted to enter one or other of said depressions in the circular-periphery, to maintain the work-support in such position unless positively withdrawn therefrom by bodily movement of the work-support, substantially as described.

18. In an apparatus of the class described, a work-support, and a cooperating positioning device for the work, said device comprising upturned, separable arms, an equalizing connection between them, separable clamping members pivotally mounted on said arms, to rock in substantially horizontal planes to grasp the sides of the shoe, and spring-actuated equalizing connections between the clamps, substantially as described.

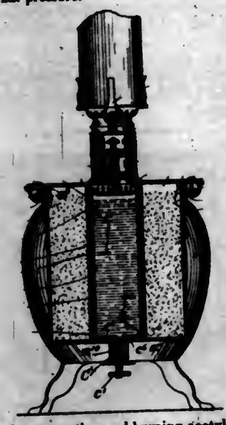
19. In an apparatus of the class described, a work-support, and a cooperating positioning device for the work, said device comprising pivotally-mounted laterally-swinging clamping members each having two convexed portions on their inner faces, to engage the upper of the shoe, said clamps being upturned at their outer ends to engage the sole at or near the shank, substantially as described.

591,867. ACETYLENE-GAS LAMP. CHARLES W. BECK, Chicago, Ill. Filed Sept. 14, 1896. Renewed Sept. 11, 1897. Serial No. 651,308. (No model.)

Claim.—1. A lamp for generating and burning acetylene gas, comprising a compartment for carbid, a liquid-receptacle arranged in juxtaposition to the carbid-receptacle, apertures in each of said receptacles, arranged normally in register, and means operated by pressure of the gas generated, for moving one of said receptacles bodily with relation to the other to close said apertures when the pressure exceeds a predetermined limit.

2. A lamp for generating and burning acetylene comprising a receptacle for carbid, a liquid-receptacle one of said receptacles being made movable relatively to the other, a valve-port in the wall of the movable receptacle, a duct affording communication between the valve-port and stationary receptacle, a piston subject to the pressure of gas generated, directly connected with the movable one of said receptacles, whereby the wall of the latter acts as a valve-plate to close the duct when the pressure exceeds a predetermined limit.

3. A lamp for generating and burning acetylene gas, comprising a receptacle for carbid, a liquid-receptacle, one of said receptacles being made movable relatively to the other, a valve-port in the wall of the movable receptacle, a duct affording communication between the valve-port and stationary receptacle, a cylinder and a piston therein, said cylinder being in communication with the carbid-receptacle at one side of the piston and in communication with the atmosphere at the opposite side thereof and directly connected with the movable one of said receptacles, and a spring acting on the piston in opposition to the internal pressure.



4. A lamp for generating and burning acetylene gas, comprising a carbid-compartment, a liquid-receptacle, a series of outlet-ducts arranged at different levels of the liquid-receptacle, means for opening said ducts successively, a slide-valve arranged to control said openings, a piston subject to pressure of the gas generated and operative connections between the piston and slide-valve whereby the supply of liquid will be automatically cut off when the pressure reaches a predetermined limit.

5. In a lamp for generating and burning acetylene gas, the combination of a generator, comprising an outer receptacle for the carbid, an internally-arranged cylindric liquid-receptacle provided with outlet-passages arranged at different levels, a valve-sleeve having telescopic connection with the cylindric walls of the said liquid-receptacle and provided with valve-outlet apertures adapted to be moved into and out of registry with the outlet-passages of the liquid-receptacle, a cylindric chamber communicating with the carbid-receptacle and also having communication with the atmosphere through an aperture in the side wall thereof, a piston in said chamber, a spring arranged to hold said piston normally in a position to prevent the escape of gas through the apertures in the cylindric chamber, and operative connections between said piston and valve-sleeve whereby the latter will be raised so as to shut off the supply of liquid to the carbid whenever the pressure exceeds a predetermined limit.

6. In a lamp for generating and burning acetylene gas, the combination of a generator, comprising an outer receptacle for the carbid, an internally-arranged cylindric liquid-receptacle provided with outlet-passages arranged at different levels, a valve-sleeve having telescopic connection with the cylindric walls of the said liquid-receptacle and provided with valve-outlet apertures adapted to be moved into and out of registry with the outlet-passages of the liquid-receptacle, the apertures in one of said bars being arranged spirally with relation to those of the other, a cylindric chamber communicating with the carbid-receptacle and also having communication with the atmosphere through an aperture in the side wall thereof, a piston in said chamber, a spring arranged to hold said piston normally in a position to prevent the escape of gas through the aperture in the cylindric chamber, operative connections between said piston and valve-sleeve whereby the latter will be raised so as to shut off the supply of liquid to the carbid whenever the pressure exceeds a predetermined limit, and a stem connected with said valve-sleeve and extending out through the generator-casing whereby the valve-sleeve may be rotated upon its longitudinal axis.

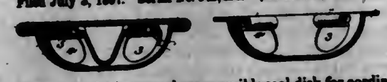
7. In a generator for acetylene gas, the combination of a carbid-receptacle, a liquid-receptacle having communication therewith, a cylindric chamber, a piston therein subject upon one side to the pressure of the gas generated, a spring arranged to act on said piston in opposition to the gas-pressure and an exhaust-passage controlled by said piston and arranged to be opened when the piston is forced back to a predetermined point by the pressure of the gas; and a valve actuated by said piston to restrict the flow of gas to the burner when the pressure exceeds a predetermined height, so as to visibly affect the burner.

8. In a lamp for burning gas generated from calcic carbids and similar compounds, the combination of a chamber for the compound, a concentric cylindrical chamber for the slaking fluid, perforated for the passage of said fluid, a perforated sleeve fitting the perforated wall of the fluid-chamber and means for rotating one of said parts relatively to the other to register progressive areas of its openings with the openings of the other part.

9. In a lamp for burning gas generated from calcic carbids and similar compounds, the combination of a chamber for the compound, a concentric cylindrical chamber for the slaking fluid, perforated for the passage of said fluid, a perforated tubular wall closing around said latter chamber, means for rotating said diaphragm to register progressive areas of its openings with the openings through the wall of the fluid-chamber, and an external scale indicating the areas thus opened.

10. In a lamp for burning gas generated from calcic carbids and similar compounds, the combination of a chamber for the compound, a concentric perforated chamber for the slaking fluid, a perforated sleeve closing around said latter chamber, a sheet of porous material interposed between the fluid and carbid, through which the fluid is compelled to filter, and means for shifting the position of the diaphragm to register progressive areas of its openings with the openings through the fluid-chamber.

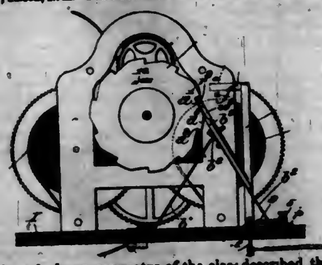
591,868. CORDING-SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed July 3, 1897. Serial No. 643,451. (No model.)



Claim.—1. An improved compressible seal-disk for cording-seals composed of a back plate having a concavo-convex main portion provided with threading-holes, an internal locking-plate having lateral edges and a central guide-rib which project into the concavity of said back plate, and ragged eyelets masked within caps between said edges and rib, and a face plate interlocked at its perimeter with said back plate, substantially as hereinbefore specified.

2. The combination with the ends of a shackle-cord of a seal-disk of sheet metal comprising a back plate having threading-holes through which the cord extends and bolsters at the outer edges of said holes composed of the partially severed and curled metal cut from said holes, and a face plate interlocked with said back plate at its perimeter, substantially as hereinbefore specified.

591,869. ILLUMINATED ELECTRIC SIGN. GEORGE K. BURLEIGH, Northfield, N. H., assignor to the Flask Light and Cyclometer Company, Tilton, N. H. Filed Oct. 31, 1896. Serial No. 610,733. (No model.)



Claim.—1. In an apparatus of the class described, the main circuit, a plurality of branch lamp-circuits, circuit-closers intermediate the main and branch circuits, a spring-motor to operate the circuit-closers, and a cut-out, one member of which is connected with the main circuit and the other member with the circuit-closers, the yoke-like movable member of said cut-out being engaged and moved by the expansion of the motor-spring, to finally cut out the lamps, substantially as described.

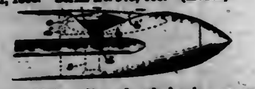
2. In an apparatus of the class described, a plurality of pens extending from a plate *p*, each pen being provided at its free end with an extension of insulating material fixed thereon, circuit-terminals to engage said pens, a break-wheel operating on said insulated extensions beyond said pens, and an actuator therefor, substantially as described.

3 In an apparatus of the class described, a plurality of pens extending from a plate *p*, each pen being provided at its free end with an extension of insulating material fixed thereon, means to adjust

the free ends of said pens relatively to the insulated extensions, circuit-terminals to engage said pens, a break-wheel operating on said insulated extensions beyond said pens, and an actuator therefor, substantially as described.

4. In an apparatus of the class described, the main circuit, a plurality of branch lamp-circuits, circuit-closers intermediate the main and branch circuits, a spring-motor to operate the circuit-closers, and a cut-out, one member of which is connected with the main circuit and the other member with the circuit-closers, the yoke-like movable member of said cut-out having an adjustable member engaged and moved by the expansion of the motor-spring, to finally cut out the lamps, substantially as described.

591,870. SELF-THREADING LOOM-SHUTTLE. GEORGE O. DRAPER, Hopedale, Mass., assignor to Geo. Draper & Sons, same place. Filed Jan. 11, 1896. Serial No. 575,093. (Model.)



Claim.—1. A self-threading shuttle having an open side eye, a thread-receiving opening in the front end wall of the bobbin-receiving slot, a stud in advance of said opening having a laterally-extended head slabbed off at its rear side to fit against said end wall, a downturned pin thereon curved inward toward the longitudinal center of the shuttle, forming one side of and nearly closing the thread-receiving opening, through which the thread passes to and around the stud, and a steadying-pin secured to the head and entering the shuttle at the rear wall of the side eye, substantially as described.

2. A self-threading shuttle having an open side eye, a concavity in the top of its delivery end, and a transverse wall having a thread-receiving opening, an eccentrically-located internally-threaded stud adjacent thereto, having a laterally-extended head, convexed on its under side and slabbed off at its rear side, to fit against the transverse wall, and a retaining-screw to enter the internally-threaded stud from the bottom of the shuttle, a free passage for the thread being provided on three sides of the stud between the under side of the head and the concavity, to guide the thread to the side eye, the shuttle being rearwardly and downwardly inclined above the latter, substantially as described.

591,871. STOVE OR FURNACE GRATE-BAR. CHARLES D. HOWARD, Syracuse, N. Y. Filed Apr. 5, 1897. Serial No. 630,791. (No model.)



Claim.—1. A grate-bar comprising a core and serpentine spines or flanges, the core being provided with lateral passages and the spines or flanges being so disposed that the opposite concave surfaces of adjoining ones will substantially surround said passages.

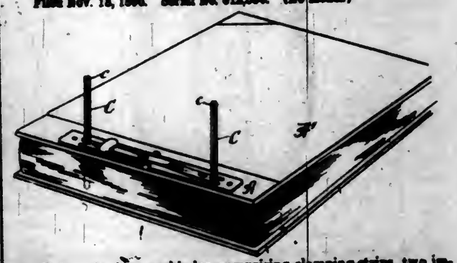
2. A grate-bar comprising a core and serpentine spines or flanges, the core being provided with lateral passages and the spines or flanges being so disposed, relative thereto, that their concave surfaces will substantially surround and aline with the sides of said passages.

3. A grate-bar comprising a core and serpentine spines or flanges, the core being provided with lateral passages flaring from the center of the core outward, and the spines or flanges being so disposed, relative thereto, that their concave surfaces will aline with the sides of the passages.

4. A grate-bar comprising a core and two sets or pairs of spines or flanges, the core being provided with two series of passages, the passages of one series being at right angles to those of the other series and the spines or flanges of each set or pair being so disposed relative to each other and to the adjoining spines or flanges of the other set or pair that all convex surfaces of each spine or flange will stand opposite to convex surfaces and all concave surfaces of each spine or flange will stand opposite to concave surfaces of adjoining spines or flanges, and the concave surfaces being so arranged relative to said passages as to substantially surround the same.

5. A grate-bar comprising a core and two pairs or sets of spines or flanges, the core being provided with two series of passages, the passages of one series being at right angles to those of the other series and the passages of one series alternating with those of the other, and the spines or flanges of each pair or set being so disposed, relative to each other and to the adjoining spines or flanges of the other pair or set, that all convex surfaces of each spine or flange will stand opposite to convex surfaces and all concave surfaces of each spine or flange will stand opposite to concave surfaces of adjoining spines or flanges, and the concave surfaces being so arranged relative to said passages as to substantially surround the same and to aline with the sides thereof.

591,872. PAPER-BINDER. ALFRED W. RAMSDELL, Chicago, Ill. Filed Nov. 18, 1896. Serial No. 612,556. (No model.)



Claim.—1. A paper-binder comprising clamping-strips, two impaling-pins, a flat spring mounted on one of the clamping-strips and engaging at its ends when extended said impaling-pins, a bifurcated lever, oppositely-extending trunnions on the inner ends of the arms of said lever adapted to engage apertures in upwardly-extending parallel bearing-studs on said clamping-strip, and a shoulder on said lever adapted to engage said spring between its ends, said lever being inserted in place by pressing the arms together so that the trunnions thereof will enter the apertures in said studs from the inside thereof and being held in place by the resiliency of said arms.

2. A paper-binder comprising clamping-strips, two impaling-pins and a locking device mounted on one of the clamping-strips, said locking device consisting of a base-plate which is provided with apertures for the passage of the impaling-pins, a single leaf-spring having sliding engagement with said base-plate and adapted to engage at its ends, when extended, said impaling-pins, means for guiding said spring comprising outwardly-extending studs on said base-plate adapted to engage slots adjacent to the ends of the spring, a bifurcated lever provided on the outer ends of the arms thereof with oppositely-extending trunnions adapted to engage apertures in outwardly-extending parallel studs on said base-plate and provided with a shoulder adapted to engage the spring between its ends said lever being inserted in place by pressing the arms together so that the trunnions thereof will enter the apertures in said bearing-studs from the inside thereof and being held in place by the resiliency of said arms.

591,873. HAIRLESS HORSESHOE. HARRY D. SHAUFFER, Philadelphia, Pa., assignor of one-sixth to Henry B. Hanford, same place. Filed Aug. 7, 1896. Serial No. 602,390. (No model.)



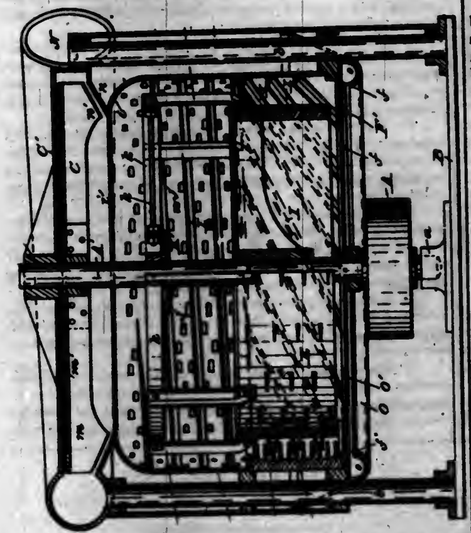
Claim.—1. A horseshoe comprising a plurality of parts or halves pivotally connected together and having an inset formed in the under surface of the front end of each of the halves, the said front ends being cut away at the sides and forming projections, in combination with a clamp adapted to fit over said projections and having orifices in alinement with the orifices in the projections, when the said clamp is in place upon the shoe, substantially as described.

2. A horseshoe comprising a plurality of parts or halves connected together and having insets formed in the under surface of the opposite front ends of the parts, the said front ends being also cut away at the sides and forming downward projections, in combination with a clamp adapted to fit over said projections, and having a base of greater thickness than the depth of the inset so as to form a toe-calk.

3. A horseshoe comprising a plurality of parts or halves pivotally connected together, and having an inset formed in the under surface of the front end of each of the halves, the said front ends being cut away at the sides and forming projections, in combination with a clamp adapted to fit over said projections, and means for detachably securing said clamp to said projections, substantially as described.

REISSUES.

11,681. CENTRIFUGAL GRAIN-SEPARATOR. FRANK F. LANDIS, Waynesborough, Pa. Filed Apr. 20, 1897. Serial No. 633,062. Original No. 551,494, dated Dec. 17, 1895.



Claim.—1. The combination, with a vertical shaft, and a toothed threshing-cylinder secured thereon; of a chamber encircling the said cylinder and provided with spiral ribs on its periphery, and a concave arranged at one part of the periphery of the said chamber and provided with projecting teeth arranged to pass between the teeth of the said cylinder, substantially as set forth.

2. The combination, with a vertical shaft, and a threshing-cylinder secured thereon; of a chamber encircling the said cylinder and provided with spiral ribs on its periphery, a concave arranged at one part of the periphery of the said chamber, a circular trough provided with a delivery-pipe and arranged under the said chamber, and arms secured on the said shaft and provided with ends revolving in said trough and operating to force the grains up the said pipe, substantially as described.

3. The combination, with a vertical shaft, and a threshing-cylinder secured thereon; of a chamber encircling the said cylinder, a concave at one part of the periphery of the said chamber, a grain-table at the bottom of the said chamber, and a mechanical grain-feeding device arranged crosswise of the said table, substantially as set forth.

4. The combination, with a threshing cylinder, and bars projecting longitudinally beyond one end of the cylinder; of a separating-chamber provided with spiral ribs on and passages in its periphery, and encircling the said cylinder and arms, substantially as set forth.

5. The combination, with a threshing-cylinder, and bars projecting from one end of the cylinder; of a separating-chamber provided with spiral ribs I and I' encircling the said cylinder and bars respectively, the ribs I having a greater inclination than the ribs I', substantially as set forth.

6. The combination, with a threshing-cylinder, and bars projecting longitudinally beyond one end of the cylinder; of a separating-chamber provided with passages in its periphery and encircling the said cylinder and bars, and means for moving the straw in the said chamber in a direction parallel with the axis of the cylinder, substantially as set forth.

7. The combination, with a separating-chamber having continuous and spirally-arranged ribs on its periphery and passages between the said ribs, of a central shaft, and bars supported by the said shaft and operating to whirl around the straw in the said chamber, substantially as set forth.

8. The combination, with a separating-chamber, having passages in its periphery and an inwardly-curved portion at one end, of a central shaft, a discharger secured on the said shaft beyond the said curved portion and operating to draw the straw out of the chamber, said bars supported on the said shaft under the said curved portion and operating to whirl around the straw in the said chamber, substantially as set forth.

9. The combination, with a separating-chamber provided with an opening at its top, and means for whirling around the straw in the said chamber; of a discharger-casing provided with a conical throat-piece secured over the said opening, and a revolubie discharger provided with arms having downwardly-projecting portions revolving in the said throat-piece, substantially as set forth.

10. The combination, with a threshing-cylinder, its shaft, and bars projecting longitudinally beyond one end of the cylinder; of a separating-chamber provided with spiral ribs, passages between the ribs, and an inwardly-curved portion over the upper ends of the said bars; and a centrifugal straw-discharger secured on the said shaft above the said chamber, substantially as set forth.

11. In a threshing-machine, the combination, of the cylinder mounted on a vertical shaft, a surrounding-casing having a concave set in one side thereof and extending above said cylinder to form a separating-chamber, means for whirling the straw therein, and a pneumatic discharger connected with the top thereof, substantially as set forth.

12. In a threshing-machine, the combination, of the cylinder, a surrounding chamber, a concave, a separating-chamber above said cylinder, arms extending from said cylinder up into said chamber, and a pneumatic discharger connected with the top thereof, substantially as set forth.

13. In a threshing-machine, the combination, of a vertical casing, a threshing and separating chamber within said casing, one directly above the other, the threshing-cylinder mounted vertically in said threshing-chamber, means for imparting centrifugal action mounted in the separating-chamber, and means for conveying the straw from one through the other, and discharging it, substantially as set forth.

14. In a threshing-machine, the combination with the threshing mechanism, of a separator consisting of a vertical cylindrical casing, means for imparting centrifugal motion to its contents and inclined or spiral flights on its sides, whereby as said contents is whirled it is also conveyed toward the discharger, substantially as set forth.

15. In a threshing-machine, the combination, of the threshing mechanism, and the separating mechanism mounted one above the other in vertical relation, the casing of said separating mechanism being vertical and perforated, means therein for whirling around its contents, conveying forms around its periphery, and a discharger, substantially as set forth.

16. In a separator for threshing-machines, the combination of the vertical shaft, the cylinder, the concave, the separating-chamber, a grain-receiving trough beneath, and a scraper mounted on said shaft and arranged to travel in said trough, whereby the grain is carried around to the discharger-spout, substantially as set forth.

17. In a separator for threshing-machines, the combination, of the vertical shaft, the threshing mechanism, the separating-chamber, the circular grain-receiving trough below the edge of said chamber, and an arm carrying a scraper mounted on said shaft, said scraper being arranged to travel in said trough, substantially as set forth.

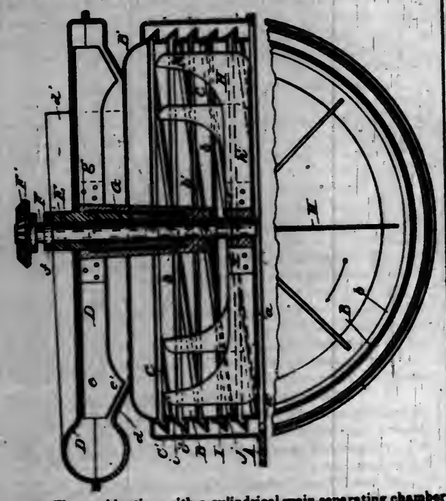
11,682. CENTRIFUGAL GRAIN-SEPARATOR. FRANK F. LANDIS, Waynesborough, Pa. Filed Apr. 20, 1897. Serial No. 634,493. Original No. 551,495, dated Dec. 17, 1895.

Claim.—1. The combination, with a cylindrical grain-separating chamber having an inlet-opening for straw at its bottom and formed of a series of superposed rings having passages between them and lips arranged below the said passages, of means for whirling around the straw in the chamber, substantially as set forth.

2. The combination, with a cylindrical grain-separating chamber having an inlet-opening for straw at its bottom and formed of a series of superposed rings having passages between them and lips arranged below the said passages, of means for whirling around the straw in the chamber, and guiding devices for causing the straw to pass upwardly through the chamber, substantially as set forth.

3. The combination, with a cylindrical grain-separating chamber having an inlet-opening for straw at its bottom and formed of a series of superposed rings having passages between them and lips arranged below, the said passages, of a discharger arranged on top of the said chamber and operating to draw a current of air through it and through its passages, and means for whirling around the straw in the chamber, substantially as set forth.

4. The combination, with a cylindrical grain-separating chamber having an inlet-opening for straw at its bottom and formed of a series of superposed rings having passages between them, of rings having inclined portions encircling the said passages and inwardly-projecting lips at their lower edges, and means for whirling around the straw in the chamber, substantially as set forth.



5. The combination, with a cylindrical grain-separating chamber formed of superposed rings having passages between them and lips arranged below the said passages, of guides secured spirally to the inner surfaces of the said rings, and means for whirling around the straw in the said chamber, substantially as set forth.

6. The combination, with a cylindrical grain-separating chamber formed of a series of superposed rings separated by circumferential passages and provided with an inwardly-curved portion at its top; of a centrifugal discharger arranged above the said chamber, and means for whirling around the straw in the said chamber, substantially as set forth.

7. The combination, with a base-plate provided with an inlet-opening, and a cylindrical grain-separating chamber provided with circumferential passages and supported over the said opening, an annular space being left between the periphery of the said chamber and the edge of the said opening; of an outer casing encircling the said chamber and opening, and means for whirling around the straw in the said chamber, substantially as set forth.

8. The combination, with a centrifugal grain-separating chamber, and a discharger-casing provided with a long bearing depending centrally in the said chamber; of a shaft journaled in the said bearing, radial arms secured on the shaft in the separating-chamber, and a discharger provided with radial arms in its said casing, and having a long hub secured on the said shaft, encircling the said bearing and provided with a bearing journaled on the upper part of the aforesaid bearing, substantially as set forth.

9. In a threshing-machine, a separating-chamber having openings in its sides, which openings are covered by arresting-plates a short distance outside thereof between said chamber and the surrounding casing, and means for creating a centrifugal action in said chamber, substantially as set forth.

10 The combination with a separating-chamber formed with openings in its sides, of arresting devices on the outside thereof between said chamber and the surrounding casing, means for creating centrifugal action therein, and a discharger connected with its top, substantially as set forth.

11. The combination of a separating-chamber formed with annular openings in its sides, a ring connected to the bottom of each section and extending down over the opening between it and the next section a short distance outside said chamber, and means for creating centrifugal action in said casing, substantially as set forth.

12. A separating-chamber provided with annular openings, rings extending down over said openings outside its casing formed with inturned lower edges, and means for creating centrifugal action in said chamber, substantially as set forth.

13. The combination, with the separating-chamber, formed with openings in its sides, of arresting devices arranged opposite said openings outside said chamber, with spaces between them, and means for creating centrifugal action in said chamber, substantially as set forth.

TRADE-MARKS

REGISTERED OCTOBER 5, 1897.

30,598. MUSICAL INSTRUMENTS. CHARLES MESSER, New York, N. Y. Filed July 6, 1897.

GLOBE

Essential feature.—The word "GLOBE" or the representation of a globe. Used since 1885.

30,599. MISCELLANEOUS STATIONERY. TIFFANY & COMPANY, New York, N. Y. Filed Feb. 17, 1897.

TIFFANY & CO

Essential feature.—The word, character, and abbreviation "TIFFANY & Co." Used since 1868.

30,600. WRITING-PAPER. THE PLATNER & PORTER PAPER MANUFACTURING COMPANY, Unionville, Conn. Filed Aug. 17, 1897.

BEEKMAN

Essential feature.—The word "BEEKMAN." Used since May 1, 1897.

30,601. PAPER AND ENVELOPE. CHESTER PAPER COMPANY, Huntington, Mass. Filed July 21, 1897.

TACONIC

Essential feature.—The word "TACONIC." Used since June 1, 1897.

30,602. PAPER SUITABLE FOR COVERS FOR PAMPHLETS. NIAGARA PAPER MILLS, Lockport, N. Y. Filed Aug. 3, 1897.

ROYAL MELTON

Essential feature.—The words "ROYAL MELTON." Used since May 1, 1897.

30,603. PAPER BAGS. UNION BAG AND PAPER COMPANY, Chicago, Ill. Filed July 15, 1897.

BUFFALO

Essential feature.—A symbolic representation of a buffalo, either by word or picture. Used since November 1, 1896.

30,604. ROUND OR TUBULAR BRAIDED CORDS FOR EYEGLASSES AND ORNAMENTAL PURPOSES. UNION BRAIDING COMPANY, Sandwich and Boston, Mass., and New York, N. Y. Filed July 17, 1897.

HERCULES

Essential feature.—The word "HERCULES." Used since January 1, 1891.

30,605. BRAID. D. GOFF & SONS, Pawtucket, R. I. Filed June 5, 1897.

Angora

Essential feature.—A representation of a goat's head and the word "ANGORA." Used since July 3, 1896.

30,606. SEAMLESS-FABRIC HOSE. BUSKEA FIRE HOSE COMPANY, New York, N. Y. Filed Aug. 17, 1897.



Essential feature.—The representations of an eagle, hydrant, and hose. Used since December, 1893.

80,607. SEAMLESS-FABRIC HOSE. BURDSAL FIRE HOSE COMPANY, New York, N. Y. Filed Aug. 17, 1897.



Essential feature.—A representation of an eagle and a hydrant. Used since April, 1876.

80,608. CORSETS. CHICAGO CORSET CO., Chicago, Ill. Filed May 3, 1897.

KABO.

Essential feature.—The word "KABO." Used since July, 1888.

80,609. SUSPENDERS, BRACES, AND GARTERS. HARRIS SUSPENDER CO., New York, N. Y. Filed Aug. 2, 1897.



Essential feature.—The word "MYSTIC." Used since May 1, 1897.

80,610. COTTON GOODS. BERKHEIMER & WALTER, New York, N. Y. Filed June 11, 1897.

LIKESILK



Essential feature.—The word "LIKESILK," combined with the representation of a sea-horse. Used since April 15, 1897.

80,611. WOVEN COTTON FABRICS. MASSACHUSETTS COTTON MILLS, Lowell, Mass. Filed Apr. 12, 1897.



Essential feature.—A representation of an elephant's head. Used since January 13, 1897.

80,612. CLOTHS AND STUFFS OF WOOL, WORSTED, OR HAIR. WILLIAM HOLLINS & COMPANY, (NOTTINGHAM,) LIMITED, Mansfield, England. Filed July 20, 1897.



Essential feature.—The words "VITELLA" and "DAY & NIGHT" and devices of the sun and moon. Used since November, 1896.

80,618. DRESS OR BUST FORMS. SHIRMER BROTHERS & CO., Nazareth, Pa., and New York, N. Y. Filed Aug. 27, 1897.

La Forma

Essential feature.—The words "LA FORMA." Used since March 10, 1897.

80,614. PATENT AND ENAMELED LEATHER. JOHN REILLY, Newark, N. J. Filed May 10, 1897.



Essential feature.—A representation of an eagle and a shield upon its breast displaying the symbol "J R." Used since February, 1897.

80,615. COSMETICS. MARGARET A. VAN HEST and MINNIE A. VAN HEST, Binghamton, N. Y. Filed Aug. 3, 1897.



Essential feature.—A representation of a bottle inclosed in a wreath of roses. Used since February, 1893.

80,616. TOILET SOAPS, PERFUMES, WATERS, POWDERS, AND COSMETICS. THE COURT PERFUMERY COMPANY, New York, N. Y. Filed Aug. 11, 1897.

Court

Essential feature.—The word "COURT." Used since June 20, 1897.

80,617. PREPARATION FOR HEALING AND REDUCING INFLAMMATORY DISEASES OF THE SKIN. GEORGE W. HANSON, Chicago, Ill. Filed Apr. 14, 1897.

LODOL

Essential feature.—The word "LODOL." Used since January, 1896.

80,618. LINIMENT OR OIL FOR INTERNAL AND EXTERNAL USE. SAMUEL A. HARRISON, Adutt, Ms. Filed Sept. 1, 1897.



Essential feature.—A monogram comprised of the three letters "S A H" within a circle. Used since July 30, 1897.

80,619. MEDICINAL PREPARATION FOR USE IN LIEU OF COD-LIVER OIL. JOSEPH BOUILLOT, Paris, France. Filed July 13, 1897.

PANGADUINE

Essential feature.—The word "PANGADUINE." Used since December 23, 1896.

80,620. MEDICINE FOR HOGS AND CHICKENS. JOHAN CHRISTIAN ACKERMANN, Summerford, Ohio. Filed July 16, 1897.

HOGCHICK

Essential feature.—The word "HOGCHICK." Used since June 15, 1897.

80,621. SARSAPARILLA-ROOT. JOSEPH ASCHERI, New York, N. Y. Filed Aug. 19, 1897.

J.&C.T.

Essential feature.—The letters and abbreviation "J. & C. T." Used since 1877.

80,622. MALT EXTRACT. D. G. YUENGLING & SON, Pottsville, Pa. Filed Sept. 1, 1897.

JUVETONIC

Essential feature.—The word "JUVETONIC." Used since April 1, 1896.

80,623. MALT EXTRACTS. HOWARD & CHILDS, New York, N. Y. Filed Aug. 6, 1897.

Homo-Curo
EXTRACT OF MALT.

Essential feature.—The compound word "HOMO-CURO" in characteristic script lettering, with the words "EXTRACT OF MALT" in plain block letters. Used since August 1, 1896.

80,624. MALT EXTRACTS. MALT-DIASTASE COMPANY, New York, N. Y. Filed Aug. 14, 1897.

MALTZYME

Essential feature.—The word "MALTZYME." Used since July 1, 1897.

80,625. MALT EXTRACTS. KATHREINER'S MALZKAFFEE-FABRIKEN GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Munich, Uerdingen, and Berlin, Germany. Filed May 20, 1897.

KNEIPP

Essential feature.—The word "KNEIPP." Used since June 5, 1891.

80,626. MALT EXTRACTS. KATHREINER'S MALZKAFFEE-FABRIKEN GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Munich, Uerdingen, and Berlin, Germany. Filed June 1, 1897.



Essential feature.—A picture of Kneipp, the German priest, together with a facsimile of his signature. Used since June 5, 1891.

80,627. BEER, ALE, PORTER, AND MALT EXTRACT OR TONIC. JOHN JUNG BREWING COMPANY, La Crosse, Wis. Filed July 19, 1897.



Essential feature.—The letter "G," containing a representation of Gambrinus within it. Used since July, 1880.

80,628. SPRING-WATER. PAUL SMITH'S HOTEL COMPANY, Brighton, N. Y. Filed July 15, 1897.



Essential feature.—The words "PAUL SMITH'S ADIRONDACK" and a representation of a deer's head. Used since May 25, 1897.

80,629. CERTAIN NAMED SPRING-WATER. MOUNT ZIRCON SPRING COMPANY, Oxford County, Me., and Boston, Mass. Filed June 9, 1897.



Essential feature.—The words "MOUNT ZIRCON MOON-TIDE" and a representation of a crescent moon. Used since January 1, 1897.

80,630. TABLE MINERAL WATERS AND CARBONATED BEVERAGES. JACOB RIES, Shakopee, Minn. Filed July 6, 1897.



Essential feature.—The words "ROCK SPRING," in connection with and on a green-colored irregular octagon-shaped label. Used since November 1, 1896.

30,631. TABLE MINERAL WATERS AND CARBONATED BEVERAGES. JACOB RIES, Shakopee, Minn. Filed July 6, 1897.

ROCK SPRING

Essential feature.—The words "ROCK SPRING," in connection with and on a green-colored parallelogram-shaped label. Used since November 1, 1896.

30,632. GINGER-ALE, ORANGEADE, AND SODA-WATER. W. A. ROSS & SONS, LIMITED, Belfast, Ireland. Filed Apr. 15, 1897.

ROYAL

Essential feature.—The word "ROYAL." Used since June, 1879.

30,633. GINGER-ALE AND SODA-WATER. W. A. ROSS & SONS, LIMITED, Belfast, Ireland. Filed Apr. 15, 1897.

ROSS'S ROYAL BELFAST

Essential feature.—A diamond-shaped label having a red border and green center with circular seals in the two acute angles and a shield and crest in the upper obtuse angle and the words "ROSS'S ROYAL BELFAST." Used since June, 1879.

30,634. WHISKY. LUTTER BROTHERS, New York, N. Y. Filed July 22, 1897.

REX

Essential feature.—The word "REX." Used since July 6, 1897.

30,635. ALL KINDS OF SMOKING-TOBACCO, INCLUDING GRANULATED, FINE-CUT, LONG-CUT, AND PLUG-CUT. LÜPPERT, SCALM & CO., Winston, N. C. Filed Aug. 16 1897.



Essential feature.—The words "SCHOOL BOY" or the representation of a school-boy. Used since January 1, 1894.

30,636. PLUG, CHEWING, AND SMOKING TOBACCOS. LIGGETT & MYERS TOBACCO COMPANY, St. Louis, Mo. Filed July 21, 1897.

SWEET MOMENTS

Essential feature.—The words "SWEET MOMENTS." Used since June, 1896.

30,637. TOBACCOS AND CIGARETTES. LIGGETT & MYERS TOBACCO COMPANY, St. Louis, Mo. Filed July 21, 1897.

SCALPING KNIFE

Essential feature.—The words "SCALPING KNIFE." Used since 1882.

30,638. SMOKING-TOBACCO. LIGGETT & MYERS TOBACCO COMPANY, St. Louis, Mo. Filed July 26, 1897.

OLD SLEDGE

Essential feature.—The words "OLD SLEDGE." Used since January 1, 1873.

30,639. CIGARS. José BALSA and ROGERIO BALSA, Vera Cruz, Mexico, and Tampa, Fla. Filed July 29, 1897.

FLOR DE BALSA

Essential feature.—The words "FLOR DE BALSA." Used since June 1, 1896.

30,640. CHEWING-GUM. FAULTLESS CHEMICAL COMPANY, Baltimore, Md. Filed July 29, 1897.

FAD

Essential feature.—The word "FAD." Used since September 1, 1896.

30,641. CONFECTIONS AND CHEWING-GUM. AMERICAN PEPSIN GUM COMPANY, Newark, N. J. Filed June 3, 1897.

CAMEO

Essential feature.—The word "CAMEO." Used since March 1, 1897.

30,642. ICING AND FROSTING COMPOUNDS. FREDERIC S. SNYDER, Boston, Mass. Filed May 15, 1897.

FROSTLENE

Essential feature.—The word "FROSTLENE." Used since December, 1896.

30,643. JELLY COMPOUNDS OR POWDERED MIXTURES OF SUGAR, GELATIN, FLAVORS, &c., FROM WHICH JELLY IS MADE. STERN & SAALBERG, New York, N. Y. Filed June 28, 1897.

Diamond

Essential feature.—The word "DIAMOND." Used since June 1, 1897.

30,644. TOMATO-CATCHUP. GARRET BERGEN, New York, N. Y. Filed July 8, 1897.

SADDLE ROCK

Essential feature.—The compound word "SADDLE-ROCK." Used since January 1, 1897.

30,645. CAKE YEAST. THE RALSTON YEAST COMPANY, Topeka, Kans. Filed Mar. 12, 1897.



Essential feature.—A representation of a loaf of bread from which sections have been cut, the cut portions lying at the bottom of the loaf, and the words "RALSTON HEALTH YEAST." Used since November 1, 1896.

30,646. RICE AND RICE-FLOUR. THOMAS O. BULLOCK, New York, N. Y. Filed June 29, 1897.

B & Co. Standard

Essential feature.—The capital letter "B" in a diamond, the symbol "&," the contraction "Co.," and the word "STANDARD." Used since 1870.

30,647. TEA FROM CHINA AND CEYLON PRINCIPALLY. L. H. PARKE & Co., Philadelphia, Pa. Filed July 3, 1897.



Essential feature.—A representation of a badge, ribbon, or banner, upon which is printed the name of the registrant and below it the word "UNMATCHABLE," said ribbon supporting a star within an inverted crescent, both pendent by their points from the badge, ribbon, or banner. Used since June 1, 1897.

30,648. PREPARATION USED IN THE LAUNDRY FOR COLORING PURPOSES, BUT NOT INCLUDING LAUNDRY BLUE. THE MAYPOLE COMPANY, LIMITED, London, England. Filed Feb. 16, 1897.



Essential feature.—A representation of two human hands in juxtaposition, with the thumbs pointing upward and fingers parallel thereto. Used since January 18, 1896.

30,649. PAINTS FOR USE IN THE FINE ARTS. JOHANNES SCHUHACHER, St. Louis, Mo. Filed Aug. 7, 1897.

X RAYS

Essential feature.—The letter and word "X RAYS." Used since May 28, 1897.

30,650. POLISHING-POWDER. HENRY T. SIDWAY, Chicago, Ill. Filed June 16, 1897.

DIAMOND FOSSILITE

Essential feature.—The words "DIAMOND FOSSILITE." Used since March 1, 1897.

30,651. SPECIAL MATERIAL FORMED BY CRUSHING SERPENTINE ROCK AND LIBERATING THE ASBESTOS THEREIN, BEING A MIXTURE OF CRUSHED SERPENTINE ROCK AND SHORT-FIBERED ASBESTOS. THE AMERICAN ASBESTIC COMPANY, New York, N. Y. Filed June 26, 1897.



Essential feature.—A representation of a trowel, with the letter "A" shown in the center of the back of the blade of said trowel. Used since April 1, 1897.

30,652. DYNAMITE. THE ATLANTIC DYNAMITE COMPANY OF NEW JERSEY, Kenvil, N. J. Filed July 22, 1897.

CUAUHTEMOC

Essential feature.—The word "CUAUHTEMOC." Used since June 2, 1897.

30,653. STEAM-BOILERS DESIGNATED "HORIZONTAL DIRECT RETURN TUBULAR." JAMES BOGUE & Co., New York, N. Y. Filed July 29, 1897.

DIRECTURN

Essential feature.—The word "DIRECTURN." Used since July 10, 1897.

30,654. ANTIRATTLERS FOR THILL-COUPLINGS. COLUMBIAN NOVELTY COMPANY, North East, Pa. Filed Dec. 2, 1895.

BURTON

Essential feature.—The word "BURTON." Used since March, 1887.

30,655. JOINT AND VALVE PACKINGS. H. W. JOHNS MANUFACTURING COMPANY, New York, N. Y. Filed July 19, 1897.

KEARSARGE

Essential feature.—The word "KEARSARGE." Used since July 7, 1897.

30,656. CHAIN PIPE-WRENCHES. J. H. WILLIAMS & COMPANY, Brooklyn, N. Y. Filed Aug. 30, 1897.

VULCAN

Essential feature.—The word "VULCAN." Used since August 12, 1897.

30,657. PEDALS. UNION CYCLE MANUFACTURING COMPANY, Highlandville, Mass. Filed Aug. 11, 1897.

Record

Essential feature.—The word "RECORD." Used since 1895.

30,658. PNEUMATIC RUBBER TIRES. PARA RUBBER TIRE AND MANUFACTURING COMPANY, Williamsport, Pa. Filed Aug. 30, 1897.



Essential feature.—The words "SEE THE POINT" and a representation of a portion of a wheel-rim and pneumatic tire in cross-sectional perspective, with a nail or tack piercing an outer part of the tire-tread and pushing back an inner part. Used since June 23, 1897.

30,659. MOUSE-TRAPS. JAMES A. HUFFER and ROBERT STRELLOW, Peoria, Ill. Filed July 21, 1897.

KORN-A-KOB



Essential feature.—The hyphenated word "KORN-A-KOB" and a representation of a mouse-trap and its victim held therein. Used since June 1, 1897.

PHOTO LITH. THE NORRIS PETERS CO. WASHINGTON, D. C.

DECISION OF THE COMMISSIONER OF PATENTS.

COMMISSIONER'S DECISIONS.

IN RE JOHN WEDDERBURN AND JOHN WEDDERBURN & CO.

Decided September 30, 1897.

1. JOHN WEDDERBURN AND JOHN WEDDERBURN & CO. HELD GUILTY OF GROSS MISCONDUCT, AND ALSO HELD THAT HE AND THEY SHOULD BE DISBARRED.

The report of the Assistant Commissioner in reference to the order upon John Wedderburn and John Wedderburn & Co. to show cause why he or they should not be refused recognition as patent agent or patent agents, and the facts, evidence, and arguments in the case examined, and *Held* that the said Wedderburn and Wedderburn & Co. have been guilty of gross misconduct as agents or solicitors before the Patent Office, and that he and they should be disbarred.

2. DISBARMENT PROCEEDINGS—JURISDICTION OF THE COMMISSIONER—RELATION OF SOLICITORS TO THE COMMISSIONER DISTINCT FROM THAT OF A LAWYER TO A JUDGE.

The relation which a patent solicitor sustains to the Commissioner of Patents is not the same as that which a member of a bar sustains to a court. The Commissioner is not a member of the judiciary, practitioners are not members of a court of which the Commissioner is judge, nor does the Commissioner have the authority or jurisdiction of a judge in a similar proceeding.

3. SAME—SAME—CORPORATION.

The respondent corporation having, by advertisements, by their pamphlets and letter-heads, and by the whole tenor of their correspondence with clients, put themselves before the public as patent attorneys, cannot be heard to deny that they are in fact subject to the jurisdiction of the Commissioner simply because they are in fact a corporation not legally competent to practice law.

4. SAME—RULES OF EVIDENCE—SUFFICIENCY OF PROOF.

In proceedings under a rule to show cause why an attorney should not be disbarred, it is not necessary that the rules of evidence applicable in criminal proceedings be strictly observed, such proceeding being in its nature civil. (*Ex parte* Wall., 107 U. S., 265.) Nor is it necessary in proceedings of this nature that offenses be proved beyond a reasonable doubt. It is sufficient if the investigation be conducted with fairness and the respondents be afforded ample opportunity to explain the transactions on which the charges were based and to vindicate their conduct in reference thereto. (*Randall* v. *Bingham*, 7 Wall., 523.)

5. SAME—FAILURE OF RESPONDENT TO APPEAR IN HIS OWN BEHALF.

Since disbarment proceedings in this Office are not *quasi* criminal in character, the failure of a respondent in such proceedings to appear and testify in his own behalf, as well as his failure to exhibit to the inspection of the Office the organization and details of his business, may properly be made subjects for consideration in arriving at a conclusion.

6. SAME—DUTY OF AN ATTORNEY TO EXPLAIN PRACTICES CHARGED TO INVOLVE GROSS MISCONDUCT.

When an attorney is charged with dishonest practices before this Office, since the character of such practices is peculiarly within his own knowledge, it is not only competent for him to testify concerning them, but it is his duty to himself, to the Patent Office, and to the public to show, if he can, that such practices are legitimate and proper.

7. SAME—PROPER SUBJECTS OF INQUIRY.

The methods employed by the respondent corporation in gathering in for prosecution applications for patent, the methods employed by the corporation in making searches on inventions, the correspondence carried on with clients, the methods employed for securing fees from clients for foreign patents, for advertising inventions for sale, for appealing rejected applications, in general the methods employed to get money from clients, may be inquired into by the Commissioner, not only as bearing on the fitness of J. W. to continue in practice, but as bearing on the fitness of the corporation to continue in practice, either directly or through its agent. It is impossible in this inquiry to separate the president of the corporation from the corporation of which he is president.

8. SAME—RESPONSIBILITY OF A CORPORATION FOR ACTS OF AN AGENT IN PROFESSIONAL MATTERS.

It appearing that while applications for patent were filed in the name of J. W. as attorney all correspondence with clients was carried on in the name of the corporation J. W. & Co., J. W. being the president thereof, J. W. is to be considered as merely the agent of the corporation and the corporation must and should be held responsible for his acts.

9. SAME—PRACTITIONERS—PRESUMPTION AS TO RESPONSIBILITY.

The name of J. W. having appeared continuously since 1893 on papers filed in this Office, he cannot be presumed to be ignorant of the requirements of attorneys or agents practicing before this Office. As president of the corporation he must be held to have been cognizant of and responsible for whatever has been done by the corporation or its employees.

10. THE PUBLIC SHOULD BE PROTECTED IN THE TRANSACTION OF BUSINESS WITH THE DEPARTMENTS.

If it were true that a solicitor might falsely and deceitfully obtain business from clients, might utilize the offer of the Government to grant patents to defraud citizens, might advise the public falsely that advice would be given free, and might fraudulently induce clients to intrust the prosecution of claims to him without notice of such things being taken by the head of the proper Department, the result would be the organization of combines of confidence men to plunder the public. It is the duty of the head of each Department to protect the public in its relations to such Department.

11. DISBARMENT PROCEEDINGS—STRICTNESS REQUIRED IN THE INVESTIGATION OF DISHONEST PRACTICES.

When the evil results of the business methods of a practitioner have effected great injury upon the Patent Office and have placed the practice before this Bureau upon a low moral plane, if the result of dealing with such practices slightingly would be to make the Office an apologist therefor, and a participant in reprehensible conduct, and thus bring the Government and its administration into contempt, strict dealing will be observed in any investigation concerning such methods.

12. ADVERTISEMENTS, MISREPRESENTATION BY.

An advertisement of an "$1,800 prize offer," when the largest prize actually paid was $150, was false and misleading, and was known to be so by the respondents. Whether it called for expenditure on the part of any one is not material. It was misrepresentation for a purpose, that purpose being to secure the name and address of would-be patentees in order to secure fees from them.

13. NOTICE OF PATENTS PROCURED—DECEPTIVE.

A notice that the number of patents procured in a certain week was 391 and that 124 were sold, when stamped on a letter-head which stated the business of the respondents to be the soliciting of patents and the sale of patents, *Held* to have been intended as a statement of the number of patents procured that week by the respondents and the number of patents sold by them, and is deceptive and misleading.

14. COMPETITION FOR PRIZES—UNFAIR COMPETITION.

A prize competition open only to those who have paid money to the respondents clearly has nothing philanthropic or generous about it, is not intended for broadly stimulating invention, but is intended solely to boom respondents' business. It is necessary to a fair competition that the jury or board of awards should be impartial, disinterested men, competent to decide on the merits, and it is also necessary that such jury or board should see and examine the invention submitted. To permit the merit of inventions to be finally passed upon by inexperienced and incompetent searchers is to make the competition a mere farce and a fraud.

15. SIMPLE INVENTIONS — MISREPRESENTATION — GROSS MISCONDUCT.

To encourage would-be patentees to believe there is a great demand for the most simple inventions, when in fact there is no such demand, to endeavor to impress upon the public a false and exaggerated idea of the value of simple inventions, to induce ignorant persons to believe that old and well-tried fields of invention are new and untried fields in which inventions of value can be readily made by them, all for the purpose of inducing the payment of fees for searches and for other purposes, is demoralizing and deceptive and amounts to gross misconduct.

16. SAME—DECEPTIVE STATEMENTS AS TO THE VALUE OF.

While it is true that some simple inventions which required little thought and little knowledge of the prior art on the part of the inventor have proved of value, such is not usually the case. The valuable inventions are those which are the result of hard work, careful study and experiment by those who have familiarized themselves with what others have done and with the real needs of the art. Further, it is only those simple inventions which are broadly new which are of any considerable value. Hence efforts on the part of parties representing themselves to be attorneys to create in the public mind an impression to a contrary effect are in the nature of fraud—are misleading.

17. ADVICE AS TO PATENTABILITY AND SALABILITY—DECEPTIVE.

An offer to advise free as to patentability and salability of any device a supposed inventor who had failed to respond to J. W. and Co.'s first letter with its accompanying papers, in view of the fact that the advice given was a mere statement that the device was of a patentable nature, but to determine its patentability a search at a cost of $5 would have to be made, and a statement that a successful device of this nature if patented immediately and properly handled would net its owner not less than so many thousand dollars is deceptive and a mere trick to reopen correspondence with the inventor to lead him on to send fees to J. W. & Co.

18. VALUATIONS OF INVENTIONS—MISLEADING ESTIMATES.

The fact that the expert chief of the sales department of J. W. & Co. placed values on inventions at sight, sometimes without even sight of the invention or even full description of it—without study of the invention, without inquiry as to its novelty, and without consultation of books—such valuation being a mere off-hand opinion on which neither he nor any other person could have passed intelligent judgment without careful study and full knowledge of all material facts; the fact that this expert never failed to place a substantial value on every device submitted to him; the fact that this expert was one of the incorporators of J. W. & Co., and for a time one of its officers, all show that it was intended that all inventions should be reported to their clients as of very considerable value, without regard to their novelty or real value.

19. SAME—SAME.

The scheme, as carried out by J. W. & Co., of placing a valuation on inventions before their novelty was even looked into is deceptive and fraudulent on its face. It is utterly indefensible and clearly amounts to gross misconduct. The sending of a false valuation in a single case known to be, or which should be known to be, without value, where by reason of such valuation the inventor might be induced to part with a sum of money, indicates, at least, gross negligence. To make a practice of sending out false valuations indicates deliberate purpose.

20. PRELIMINARY SEARCH—PROPER SEARCH.

In order to disclose references that may exist in the records of the Patent Office which are accessible to the public, it is necessary that the search be made by a competent person skilled in this line of work, able to recognize a reference when he sees it, that this expert searcher take sufficient time to fully understand the invention on which he is making the search, and that he take sufficient time to make a thorough and complete examination of all classes of invention that may reasonably be supposed to have any bearing upon the invention.

21. SAME—WHEN REPORT OF SEARCHER SHOULD BE ACCEPTED BY ATTORNEY.

An attorney is not justified in reporting that a thorough examination of the records has been made and no reference found unless such search has been prosecuted by a competent searcher and in a thorough and careful manner, nor is he justified in accepting the favorable report of an inexperienced or incompetent searcher or the favorable report of even an experienced and competent searcher unless that searcher has had sufficient time within which to make a complete search.

22. SAME—SAME—DUTY OF ATTORNEY—CLOSE REFERENCES SHOULD BE CITED.

It is the duty of an attorney to report the result of a search fully and correctly to the inventor. A false and misleading report upon a search is as grossly deceptive as such a report would be if no search had been made. When references exist which approach the invention so closely as to throw doubt on the advisability of taking out a patent, they should be called to the inventor's attention, even though they do not completely anticipate.

23. SAME—CRUDE CHARACTER OF INVENTIONS GATHERED IN BY RESPONDENTS.

That an insufficient number of searchers, many of them inexperienced and some of them incompetent, were able in two years to find anticipating references in 20,000 cases shows the supposed inventions gathered in by the respondents through their advertisements and their pamphlets and papers to be merely conceptions of a crude character. It shows that large numbers of persons were falsely induced by the respondents to believe themselves inventors and were led to send fees to the respondents.

24. SAME—SAME—FAILURE TO REVISE REPORTS OF UNSKILLED SEARCHERS.

The failure to revise the favorable reports of unskilled searchers indicates reckless disregard of the rights of clients, indifference to the agreement as to the character of the search, and intended fraud. It was the duty of respondents to have had reports made under such circumstances, revised.

25. SAME—SAME—RESPONSIBILITY FOR IMPROPER SEARCHES.

The respondents were bound by their agreement with their clients to have searches made properly. Their failure to do so is gross and inexcusable negligence. They must be held responsible for the acts of their employees in making these searches, particularly as the system under which the searchers worked was of respondents' creation.

26. SAME—SAME—FRAUDULENT REPORTS—GROSS MISCONDUCT.

The sending of favorable reports by personal direction of J. W. in cases in which references had been found by searchers, without waiting to obtain copies of these references was nothing less than a deliberate fraud upon the clients and amounts to gross misconduct.

27. SAME—REPORT OF SEARCH—DECEPTIVE AND MISLEADING REPORT—GROSS MISCONDUCT.

A report of search which, while citing an anticipating reference, included a request to send on money for fees and a promise, on receipt of fees, to prepare the necessary application papers and an offer to find a purchaser, is not an unfavorable report and was not intended to be understood by the client as an unfavorable report. It is upon its face a deceptive and fraudulent report. It was intended to deceive and mislead the client. Its use, followed up by the acceptance of fees for the preparation of application papers, is clearly gross misconduct.

28. ATTORNEYS—APPLICATIONS FOR INVENTIONS KNOWN TO BE UNPATENTABLE—DUTY OF ATTORNEYS TOWARD CLIENTS AND PATENT OFFICE.

It is perhaps an open question whether an attorney may properly file an application for patent for an invention which he believes to be unpatentable. If it is certain that the invention is not patentable, the attorney in filing such an application is false to his client and false in his duty toward the Office. It is the duty of an attorney to assist the Patent Office in doing justice toward his client and justice toward the public. He cannot be a party to an attempt to secure a patent for what he knows to be old any more than he can permit the Office to refuse to his client the protection to which he is entitled.

29. SAME—DUTY OF ATTORNEYS TO CLIENTS—GROSS MISCONDUCT.

When an attorney believes an invention to be unpatentable, he should not file an application therefor without the express direction of the client, given after the reasons why the invention is believed unpatentable have been fully and clearly laid before him. To deceive the client as to facts which negative patentability, or by failure to clearly and definitely state the facts to allow the client to deceive himself as to such facts, is gross misconduct.

30. SAME—SELLING PATENTS.

The propriety of an attorney or solicitor of patents combining the business of soliciting with that of selling patents is questionable. Doubtless it may be done honestly; but propositions for undertaking the sale of inventions which require the payment of a fee in cash in advance are justly condemned.

31. SAME—ADVICE RESPECTING FOREIGN PATENTS.

Advice to take out foreign patents should be given to clients only in those cases in which it is clear that such patents will be of advantage to the clients. In cases in which the invention is not patentable the advice to take out foreign patents presents a plain case of attempt to defraud the client for the benefit of the attorney. That this is gross misconduct is not open to question.

32. SAME—CONCEALMENT OF FACTS FROM CLIENT.

Studious concealment from the client of the true condition of his case, or positive misrepresentation of the condition of the case, in each case representing the condition of the case more favorably than the facts justified, while at the same time the attorney is urging the taking out of foreign patents or the payment of fees to the attorney for advertising the invention for sale, is gross misconduct.

33. SAME—INFORMATION TO CLIENT—FRAUD.

An attorney is bound to inform his client of such steps in the progress of the case as he should know, and he should at least tell the truth and treat his client with candor when he does inform or advise him in regard to his case. If he does not do so, and is at the same time urging further expenditure of money for purposes which he knows cannot result in advantage to the client, his misrepresentation of the condition of the case is conclusive evidence of fraud.

34. SAME—DUTY OF ATTORNEY IN APPEAL CASES.

A letter merely stating to a client that his application is finally rejected and the only course open is to appeal, without explanation of the references, information as to the grounds of the rejection, or advice as to the wisdom of appealing, such as a capable and honest attorney is bound to give to his client, is not such a letter as in fairness and justice to clients, should be written.

35. SAME—SAME—GROSS MISCONDUCT.

An attorney is employed because he is of greater skill and experience in prosecuting applications than his client. He is bound to give his client the advantage of his skill and experience. When he not only fails to do so, but omits that duty for an unworthy purpose, he is guilty of gross misconduct. At so critical a period in the case as that at which the question of appeal has to be considered, the client is entitled to the best information and the best judgment of the attorney.

36. SAME—SAME—SAME.

For persons who represent themselves to be attorneys of experience in practice and skilled in patent matters to accept appeal fees in cases in which they knew there was nothing patentable and appeal would be useless, without hesitation or explanation, purposely keeping the client in ignorance of the true significance of the Examiner's rejection and thus misleading them as to the possibility of favorable action on appeal is gross misconduct.

37. SAME—SAME—GROSS NEGLIGENCE.

An attorney who after repeated assurances to his client that he would do his best on the appeal, fails to appear to argue the case orally and fails to even file a written brief, is guilty of gross negligence.

38. THE AWARD OF SILVER MEDALS FOR UNPATENTABLE INVENTIONS—GROSS MISCONDUCT.

To award an inventor a silver medal and to state to him that his invention is of special merit and promises to be exceedingly profitable, when the invention is known to be unpatentable and therefore worthless, and to subsequently accept fees for the preparation of an application therefor, shows that the medal was sent intentionally and for a definite purpose and such award is deceptive and fraudulent and amounts to gross misconduct.

39. THE AWARD OF SILVER MEDALS—GROSS DECEPTION.

Even if the silver medals had been sent only in those cases on which favorable reports had been made by the searchers, the fact that such medals, together with the accompanying award-letter, were sent in 11,000 cases shows that many inventors whose inventions were in no sense remarkable, in no sense valuable, and in no sense such as would be selected by any competent or honest board of awards, received these medals and that the respondents in sending medals in these cases were guilty of grossly deceiving a large number of their clients.

40. RETENTION OF EXCESS OF FEES, DISHONEST.

It appearing that in each of twenty cases $5 more than the fees agreed on was asked for and paid to the respondents and not returned by them, *Held* that this excess could not have been called for by mistake and it is not seen that the retention of this excess is anything less than petty cheating.

41. DUPLICATE APPLICATIONS—WHEN IT IS IMPROPER TO FILE.

An attorney who files several successive applications for the same unpatentable invention, in behalf of different clients to whom he has successively reported such invention patentable, is either grossly negligent or has committed a grave offense against law and morals.

42. APPLICATIONS FILED BY RESPONDENTS—DECEPTIVE STATEMENTS.

In view of the fact that only a little over fifty per cent. of the applications filed by the respondents have been found to contain allowable claims, the assurance made by them to their clients that "it is extremely rare that a patent is refused on an invention which we report new and patentable," is obviously a falsehood, promulgated to deceive the unwary.

43. CHARGES AGAINST RESPONDENTS SUSTAINED.

There can be no doubt that the facts brought out in the record fully sustain the charges, with one exception, and show that respondents carried out in their practice a skilfully-planned scheme of deception, misleading and defrauding thousands of would-be inventors out of hundreds of thousands of dollars, and have used to further their schemes the offices of the Government and its postal facilities.

44. DUTY OF PATENT OFFICE AS TO RECOGNITION OF ATTORNEYS OR AGENTS.

The Patent Office cannot, without bringing lasting reproach upon itself, permit the continuance of such deliberate and systematic deception of inventors as has been practiced by respondents. The duty of the Patent Office to inventors and the public demands that the respondents be no longer permitted to be recognized as patent attorneys or agents.

45. RESPONSIBILITY OF EMPLOYEES OF A DISHONEST ATTORNEY.

Persons in the employ of an attorney who has been engaged in fraudulent practices when, being in responsible positions, they have coöperated and assisted in carrying forward such practices, and when in view of prior experience, such persons must be presumed to have been aware of the nefarious nature of such practices, must be held to be sharers in his guilt and with him, be held unfit to practice before this Office.

ORDER upon John Wedderburn and John Wedderburn & Co. to show cause why the Commissioner of Patents should not refuse to recognize them, or either of them, as patent agents or attorneys.

Mr. C. C. Stauffer and *Mr. F. W. Winter* for the Patent Office.

Mr. E. M. Marble, *Mr. W. H. Doolittle*, and *Mr. S. T. Fisher* for the Bar Association.

Mr. Wm. Small for Laura A. Peck and other complainants.

Mr. J. M. Wilson and *Mr. W. L. Ford* for the respondents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 30, 1897.

SIR: I have examined with great care your decision and the report of Assistant Commissioner Greeley in the John Wedderburn and John Wedderburn & Co. case and herewith return them expressing my full approval of both.

I direct that when the decision and report are

printed you transmit a copy of each to the Postmaster-General and that his attention be specially called to the use that has been made of the United States mail by John Wedderburn & Co.

Very respectfully,

C. N. BLISS,
Secretary.

To the Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 28, 1897.

SIR: Soon after I assumed the duties of Commissioner of Patents my attention was repeatedly called to the numerous complaints by applicants having business with the Office and by members of the bar to the methods and practices of John Wedderburn and John Wedderburn & Co.; and as I proceed to consider this matter I shall treat John Wedderburn and John Wedderburn & Co. as convertible terms, being, for all purposes of the investigation of which I shall speak and the conclusions I have reached, the same.

THE CHARGES.

It was charged that the said Wedderburn, by himself and through the corporation he had organized under the name and style of John Wedderburn & Co., had adopted methods and practices as solicitor of patents that in manner and moral quality savored of a confidence game; that by a peculiar system of advertising and the use of misleading circulars, supplemented by correspondence which was at once deceptive and uncandid in form, and written with fraudulent intent, a vast number of citizens were defrauded, a branch of the public service was being demoralized, the practice of the law degraded, and the respect and confidence of the community in the dignity and integrity of the administration of the Patent Office undermined.

These were grave and serious charges, and should not be made or entertained without good cause shown, but if ascertained to be well founded the delinquents should be promptly disbarred and the public have full assurance that no department of the Government can be used as a means or agency for the purpose of conducting a confidence game or any other reprehensible money-getting scheme, no matter by what name the business may be called.

I made sufficient inquiry to convince me that a thorough and full investigation should be instituted to determine the exact truth and that such an investigation was demanded in the interest of the Patent Office and the public.

I personally reported the matter to you, with the suggestion that such investigation be promptly made and that such action be taken as might be found necessary to put an end to any reprehensible or fraudulent practices in conducting business before the Department, if such practices were found to exist.

You heartily approved of the recommendation, and directed that the investigation be made promptly and thoroughly and that nothing be left undone which could properly be done to render abuses or dishonest practices on the part of attorneys or others having business with the Bureau of Patents impossible in the future.

I assigned Mr. Chas. C. Stauffer, a member of the legal staff of this office, to formulate the charges and a rule against the respondents requiring them to show cause why they should not be disbarred for "gross misconduct." Mr. Stauffer and Mr. F. W. Winter, one of the principal examiners of this office, were charged with the duty of conducting the investigation.

I file herewith a copy of the charges and the rule to show cause which were served upon the respondents.

In a nut shell, the charges are that the respondents, as solicitors practicing before the Office, concocted a scheme and plans to impose on, deceive, and defraud unsuspecting and unwary persons throughout the country by a system of advertising and correspondence which was false in suggestion, misleading in fact, and fraudulent in tendency and purpose; that the effect of their scheme and plans was to induce thousands, in fact tens of thousands of persons to believe that the Government of the United States would readily grant a patent on any improvement on articles or utensils in common use; that there was and is just now an active demand among capitalists and manufacturers for such inventions, and that they stood ready to purchase any one of a thousand of such inventions; the suggestion being that John Wedderburn & Co. had knowledge of this great demand and could successfully avail themselves of it to sell the patents of their clients, and that a fortune may be made out of some simple little thing; that the respondents, while calling attention to these alleged rare opportunities, felt anxious lest inventors and those who are struggling to be inventors may fall into the hands of unscrupulous patent sharks, or ignorant and dishonest solicitors, who are seeking employment; and the impression is created by the literature of respondents that while in soliciting employment they accept compensation for services, yet one of the motives, if not a controlling motive, with them was to protect and aid struggling inventors, and save them from being entrapped by capitivating and alluring advertisements which inspire delusive hopes and suggest promises of gain that can never be realized; and that while evincing in their publications this tearful solicitude for the honest, well-meaning, and wholly unsuspecteng person who is so liable to be wronged by sharpers, the respondents themselves were in fact doing the very thing they so feelingly deprecate and condemn; and indeed issued the very character of literature and published the kind of advertisement they criticise and denounce; and have so successfully employed these means and agencies that more than 33,000 persons have been induced to establish the relation of clients of John Wedderburn & Co., and that of the 33,000 clients less than 1,600 applications have been allowed.

The charges in effect are that the respondents are using means and agencies that do more than suggest that they have been obtaining money by a system of false pretenses.

The respondents were given until the 26th of June to answer. They filed a joint and several answer in writing, a copy of which I also hand you herewith.

The Bar Association of Washington appointed a committee, consisting of Hon. E. M. Marble, late Commissioner of Patents, and ex-Assistant Commissioners of Patents Doolittle and Fisher, to represent them in the investigation. Mr. Small, a member of the Washington bar, also assisted.

CONDUCT OF THE INVESTIGATION.

My assistant, Mr. Arthur P. Greeley, sat with me and aided in the conduct of the investigation. He heard the oral evidence, which was reported stenographically. After full conference and discussion with him I requested him to prepare a report of the findings and a synopsis of the evidence submitted in support thereof. The report is very full and clear. A copy of said report and findings is filed herewith.

The first point raised by counsel for the respondents was as to the nature and extent of the jurisdiction of the Commissioner of Patents to deal with the alleged delinquents in the proceeding to disbar.

RELATIONS OF RESPONDENTS TO THE OFFICE.

It was urged that the relation of Wedderburn and Wedderburn & Co. to the Commissioner and to the Honorable Secretary of the Interior was that of a member of the bar to the judge upon the bench, and that the Department has the same jurisdiction to disbar and none other, and that the proceeding is *quasi* criminal; that the proof of gross misconduct must be established beyond a reasonable doubt; that no inference prejudicial to the respondents could result from the fact that Wedderburn refused to testify or from the fact that he failed to produce as witnesses those who were in charge of the several departments of his business, the integrity of the management of which was especially called in question, and who doubtless could readily have explained, if such explanation was possible, that their business methods, which were the subject of inquiry, were free from the taint of fraud and deceit, and made clear in what cases, if any, delinquencies were due to accident, oversight, or unintentional errors, and not to moral obliquity.

Counsel were urgent in protesting that these omissions to do what every rule of right and common sense enjoined were not circumstances that could properly reflect on the respondents to their prejudice; that the fact that the respondents could have shown whether there was in fact what might properly or improperly be called a "Roll of Honor," of which so much is said in the Wedderburn & Co. advertisements and correspondence, or whether it was a fraudulent pretense; that they could have shown, if such a showing was possible, that their "sterling silver medals" were gotten up and distributed for a purpose and in a manner consistent with honorable conduct and not as a snare. Their refusal to open their mouths in that behalf could not, say the counsel, be considered to the prejudice of the respondents.

The relation of the National Recorder to John Wedderburn & Co., of whose knowledge, experience, integrity, and irregular practices it has been the indorser and champion, they refused to explain or even speak of or testify about. (Page 5 et seq., Greeley's report.)

By what arrangement the respondents succeeded in inducing several thousand newspapers throughout the land to commend them and, in effect, stand as sponsors for the dishonest practices in question, calling the attention of their readers to the respondents as *capable* solicitors of profound knowledge of patent law and practice coupled with wide experience and high integrity, in justice to all parties that might be affected, needed explanation. But not a word of explanation was offered; the respondents left the more than three thousand newspapers in the position of defenders of a confidence game and recipients of the profits of the odious offense; and counsel protest that their silence is not against them, and that no presumption could arise by reason of the failure of John Wedderburn & Co., or their agents employed to contrive and work the scheme, to explain that which needed explanation or give information where information was indispensable to vindicate the integrity of his action and that of his company.

But it was urged that the respondents occupied in the behalf mentioned precisely the position of a criminal at the bar who was being tried by a jury for the commission of a crime, i. e., that silence argued nothing, and that no inference prejudicial to them could be drawn from their refusal to impart knowledge which they alone could impart, and in the absence of which the conclusion is inevitable that they were silent because the less known of their methods and practices the better for them.

From all these propositions touching the jurisdiction of the Commissioner and the effect of Wedderburn's conduct in this investigation I wholly dissent.

First, it is not true, in law or in fact, that Mr. Wedderburn or his company sustains the relation to the Commissioner of Patents that a member of the bar sustains to the court.

JURISDICTION OF COMMISSIONER.

The Commissioner of Patents is not a member of the judiciary, nor are the practitioners before the Patent Office members of a court of which the Commissioner is the judge; nor does the Commissioner have the authority or jurisdiction that a judge has in investigating the conduct of a lawyer who is charged with gross misconduct. It is doubtless true that the standard of integrity and character of men practicing as solicitors before the Department should be as high as that properly demanded of an attorney practicing before a court of justice.

But an attorney is an officer of the court and subject to the order of the court. He takes an oath of office when he is admitted to the bar, and in an investigation properly instituted for his disbarment the court has power to compel the attendance of witnesses and the production of papers. I do not mean by this that the judge can compel any individual to testify against himself or that the accused may be compelled to produce papers or records which will tend to convict him.

As to the presumption which arises in Wedderburn's case, I hold that whenever it was within the power of the respondents to make clear the reason

for not performing a plain duty toward a client, or for having misstated a fact to a client to his injury, or for treating him uncandidly or dishonestly, he should have availed himself of the opportunity; and when the integrity of the methods employed of giving expert estimates of the value of inventions and the conduct of the sales department were called in question—and it was not only charged, but, in the nature of things, judged by results, and in the absence of explanation the conclusion was irresistible that they were a farce and worse—and it appeared that the knowledge of the alleged "expert in values" was a pretense and a sham, and that he was constantly fixing fictitious values on inventions, it was not only competent for Mr. Wedderburn, but it was his duty to himself, to the Patent Office, and to the public to explain, if he could, how his conduct in the matters called in question was defensible, and to show, if he could, in the light of what had been proved, that his methods and practices were not instruments of fraud, but legitimate and proper.

This the respondents wholly neglected and refused to do, and hence, without explanation, I am forced to conclude, and the proof is overwhelming, that their "roll of honor," and their 25-cent "medal," and their "expert in values of patents," were largely shams and mere pretentious demonstrations utilized by them to induce would-be inventors to employ them.

I hold that counsel for respondents were wrong in their contention concerning the jurisdiction of the Commissioner, and also as to the rule of evidence by which he should be guided.

THE RESPONDENTS.

Again, it was urged that John Wedderburn & Co. were a corporation and that they could not practice before the Department, and hence were not amenable for the shortcomings of John Wedderburn, who appeared, nominally, to conduct all the business solicited by John Wedderburn & Co.

There are several answers to this: One is that John Wedderburn & Co. *did* solicit business and hold themselves out to the public as solicitors of patents; it is true that they were employed as such; it is true that through John Wedderburn they did prosecute applications for patents; it is true that all their correspondence shows that that was their professed avocation, and they were paid by their clients for doing what their counsel *now* say they *did* not and *could* not do.

If they are not solicitors of patents, practicing before this Office, if they did not in fact do what they publish, promise, and undertake to do, they for that reason are guilty of obtaining money under false pretenses.

But they are solicitors of patents before this Office, whether trustworthy or not, and the fact that they, for any purpose satisfactory to themselves, have changed front when they come here to answer for alleged delinquencies does not change their relation and attitude toward the Office, but may suggest motives other than creditable for doing business in that way, but which I need not now consider.

In occurs that substantially all there was of John Wedderburn & Co. conspicuously in evidence was John Wedderburn, and whether *he* used the *corporation* for the purpose under consideration or the *corporation* used *him* is not of vast concern in dealing with the methods and practices in question.

It appears also that the company and the National Recorder are the instrumentalities by and through which the respondent, John Wedderburn, has been enabled to successfully carry out and into effect the plans and purposes complained of.

But counsel may treat the exact reverse of that as the real fact if they prefer. The change of front does not change or relieve the situation with reference to the matters under consideration.

John Wedderburn & Co. do all the soliciting of employment. The company appears in all the papers, advertisements, and literature, and when the client has been secured John Wedderburn steps to the front, nominally, to do what the company undertook to do; and it is true that the *name* of John Wedderburn & Co. does not appear in conducting the business *in* the Patent Office, except through John Wedderburn, whose name appears on the papers on file in this Bureau, and he alone, nominally, at least, through employees of his or the company's, conducts the business, whether it be to make a search, prepare a specification, or otherwise.

In other words, John Wedderburn uses John Wedderburn *and Company* to solicit business, and when they get the employment *he* transacts the business in the Patent Office and Wedderburn and Company conduct the *business correspondence*. We will try and deal with the substance of things and not with shadows.

THE NATIONAL RECORDER.

So far as the National Recorder is concerned, which is the journal connected with and used to boom this enterprise and its promoters, it appears to have its inspiration from the same source, its foundation laid upon the same individual, and they are elements of the same peculiar combination.

TENDENCY OF RESPONDENTS' METHODS.

It was urged by counsel that with regard to the methods adopted in soliciting and conducting business, so far as the Commissioner of Patents and the Secretary of the Interior are concerned it is *none of their business* whether these methods are up to a proper standard of professional ethics or not; that they have not nor has either of them jurisdiction to call in question the character or quality of those methods; and that all the Commissioner has to do and the extent of his jurisdiction is to see that the business when brought to the Office is properly conducted, but that the means employed by the respondents to *secure* the business, their dealings with the clients, or the manner in which that business is handled for the client is matter of no proper concern to the Commissioner of Patents or to the head of the Department.

Let us see whither we would drift if the contention of counsel be admitted as correct.

The Government has offered to grant patents to inventors for certain new and useful improvements in the arts, and has prescribed the mode of obtaining a patent.

The citizen may apply to the Government in person, or he may act by an attorney or agent who is recognized as competent and fit to appear as such agent or attorney.

It is a novel proposition that an attorney or solicitor may advertise that he has not only consummate ability, large experience as an attorney, and high integrity, but that he has also special facilities for conducting business with the Departments of the Government, and for these several reasons solicits employment as a solicitor to obtain patents, and is employed by reason of those representations; but whether what the solicitor says and does in this behalf is true or false, honest or dishonest, whether in the conduct of the business with the Department the agent or attorney is guilty of fraudulent practices in that behalf or not, is matter of no concern to the Commissioner or the head of the Department; that the solicitor may utilize the offer of the Government to grant a patent as a means and instrumentality to defraud citizens by improperly inducing them to believe that they can readily acquire a fortune by a slight mental effort in the direction of improving on some simple device; that he may falsely represent to those citizens that they will receive advice free; that he may make fraudulent and misleading statements to them in matters which are material and important for the purpose of inducing them to employ him to represent their claims to secure the grant from the Government, and that his methods, whether honest or fraudulent, whether he is practicing law or conducting a confidence game, are matters of which the head of the Department shall not take notice.

If the position taken by counsel is correct, and it was so proclaimed to the world, it would result that within six months every city in the United States would have an organized combine of confidence men, guided by unscrupulous attorneys, plundering the unsuspecting members of the community by representing that they could at small cost obtain from the Government something of great value; and as a result the cutpurse could with advantage leave his calling, and the footpad abandon the road, and both seek an easier and safer method of obtaining money by prosecuting business with the several Departments of the Government.

DUTY OF THE COMMISSIONER.

I submit that it is the duty of the Commissioner of this Bureau (and every other bureau of the Government and the head of the department to which the bureau belongs) to see to it that every citizen transacting business with the Bureau or Department is protected in his rights, and that no individual, whether he is a member of the bar or not, shall utilize his relation to the Department to defraud citizens who have or who are induced to believe that they have business with the Government and intrust that business to a solicitor.

It is pertinent to add here that as Commissioner of Patents in conducting these proceedings I am not clothed with the power of a court to compel the attendance of witnesses or the production of books and papers.

Whether the respondents or their employees or agents would testify concerning their business methods and practices, or in any behalf material to develop the truth, was entirely optional with them; and it is proper to say that although the methods and practices of Mr. Wedderburn and his company were directly called in question, and the charges were of such a nature as to impute to him and some of those associated with him moral turpitude and fraud in dealing with clients, he availed himself of his right to refuse to testify, nor did he produce books or papers to refute or mitigate the charges against him, nor did he call as witnesses persons whose connection with and knowledge of his acts, methods, and practices, the integrity of which was called in question, enabled them to tell the truth with reference to acts complained of.

It is difficult to conceive of a person so preternaturally dull as not to know that, if the business methods and practices complained of were defensible and proper, the respondents would have welcomed with pleasure the opportunity to show that they had told their clients the truth, that they had not swindled them, but dealt with them in some measure conformably with the duty imposed upon them as a result of their employment, and thus have vindicated their claims to confidence.

So far from this open, manly course they tried to exhibit a veneering of honesty by calling two witnesses who were employed *after* the criticism and condemnation of the methods and practices of the respondents had become open, notorious, and severe, and those witnesses seem to have been selected with more reference to what they did *not* know about the whole range of the respondent's business methods and practices than what they *did* know.

They were called to show, that so far as their knowledge of searches was concerned, the delinquencies charged might possibly be due to mistake or oversight; and that so far as they were personally concerned they did, within the sphere of their somewhat limited jurisdiction, discharge their duty properly and to the best of their ability.

Some affidavits were also filed in the same behalf by the respondents, which were read in place of depositions.

It is proper here to say that it is one of the worst features of the methods and practices of Wedderburn & Co. that young men anxious for employment are employed and utilized by respondents to write in praise of and assist in promoting business schemes and enterprises which are reprehensible in method and influence, if, in fact, they escape being criminal, the tendency being to proclaim to the community, and especially to young men desiring to engage in business and to earn money, that neither strict integrity, candor, nor the observance of the recognized canons of common honesty are necessary, or in fact desirable, in money getting.

INFLUENCE OF RESPONDENTS' METHODS AND PRACTICES.

And there is little doubt that the demoralizing influence of the methods and practices of the respondents as solicitors of patents, during their brief career,

has been far-reaching by reason of the agencies employed, of which I shall speak hereafter, and has done more to injure the Patent Office and to place the practice before that Bureau upon a low moral plane than the combined efforts of all the delinquent practitioners who have appeared before the office in a quarter of a century; and it results that to deal with those methods and practices slightingly or to treat them as if they were oversights, mistakes, the result of bad judgment, or pardonable indiscretions is to make the Department not only an apologist for, but an active participant in, the reprehensible conduct, and thus bring the Government and its administration into deserved contempt.

The very essence of the offense is the methods and agencies employed and the manner of their employment to mislead and entrap the unsuspecting, doubtless in the belief that the victims of the deception are helpless and without remedy, and that the vast sums of money realized will enable the delinquents to secure immunity and pay for hunting down any official or citizen who calls the delinquents to answer for their offenses.

THE SULZER LETTER.

The evidence sustains the charges against the respondents, except that of forging the name of Hon. William Sulzer.

They are in no wise guilty of that offense, and the charge was dismissed.

Mr. Sulzer called at the Patent Office and explained that he knew nothing of the respondents, their character, standing, ability, methods, or practices, but that on examining the letter in which he commended Mr. Wedderburn he found he had signed it, and then recalled that he had been requested to do so by William L. Cronnse, a correspondent of the New York World, upon whose statement in regard to Wedderburn he relied, and it appears that that correspondent has been a business associate, identified with the respondents in at least one branch of their enterprise, and it was a part of his mission to obtain commendations of Wedderburn from men of known character and standing, and these recommendations thus obtained were and are used to induce the public, especially the unsuspecting throughout the country, to trust the respondents as solicitors before the Department.

These recommendations were some of the decoys used. Thus public men, many proprietors of newspapers, and others of known probity, having no knowledge of the schemes and practices of the respondents, were made the innocent instruments of promoting that which they would unhesitatingly condemn had they known the real facts.

Recommendations thus obtained were and are used to the utmost to convince the readers of the respondents' literature that they are solicitors of rare capacity, large experience, unusual facilities, and spotless integrity.

FORTUNES FROM PATENTS.

As is known, large fortunes have occasionally been made out of patents. Sometimes devices seemingly simple and inconsequential have proved very valuable to the inventor or owner of the patent, but these instances are, like angels' visits, very few and far between.

They serve, however, when placed before plain, honest people, in connection with certain suggestive hints and misrepresentations to the effect that there is a great unoccupied territory which inventors may immediately enter with profit and honor; and that the arts pertaining to the common affairs of life and the utensils of everyday use may be readily improved upon, and the improvements patented with pecuniary profit and advantage to the inventor, to mislead and deceive; and thus, by well-contrived, false, and delusive suggestions and misleading statements, thousands of men and women in various parts of the country have been induced by the respondents to part with their money in the belief that an opportunity to make a fortune awaited them if they could invent some improvement on an attachment for a rocking-chair, a chalk sharpener, washing machine, buckle, butter and cheese cutter, or any one of the thousand things used on the farm, in the shop, factory, or home, and with reference to which an improvement in the shape of a change or modification could be made from the precise thing these would-be inventors were in their experience accustomed to use; and they were also invited by this same advertisement and circular to enter the lists for the $1,800 Wedderburn prize, it being false that an $1,800 prize was offered, except in the advertisement.

And the astounding explanation or apology was offered by one of the counsel, who had been a member of the Wedderburn Company, that if the readers were deceived *at first*, they were, or could be, *undeceived later on*, and the victim of the deception might or could learn from the literature sent him after Wedderburn succeeded in getting into correspondence with him, that there was in fact no $1,800 prize, but twelve $150 prizes offered during the year.

That is, having been induced to bite at the $1,800 bait, after the victim was on the hook he learned that there was only $150 bait, and, later, that while a vast number felt the hook very few got even a taste of the bait.

The readers were also assured in one of the pamphlet advertisements, and in other cases by correspondence, that they would have advice as to the patentable nature of an invention, or supposed invention, *free of cost*.

This was another false and delusive statement.

If the respondents ever gave advice of advantage to the client, or the person they were trying to make their client, free on any subject, no matter in fact about the quality, the record does not disclose the fact, and the advice they did give in regard to values, which was to the supposed inventor matter of substance, and to control his action, was not only of no value to the client but was a farce, and worse than a farce, as it occurred that one individual, whom they were pleased to call their "expert," on having some device or alleged invention shown him stated, obviously without knowledge of its value, that it was worth $2,000, or $5,000, or $10,000, or $20,000, and a report of this "expert opinion" would be presented to the misguided and credulous applicant as if some

intelligent gentleman, an expert in the art to which the proposed or alleged invention belonged, had, after careful investigation into the state of the art and the relation of this particular device or contrivance to those already in use, ascertained that probably the invention might be worth in the market $2,000, $5,000, $10,000, or $20,000, or more *if patented immediately* and *properly handled*. (Greeley's report, p. 17 et seq.)

And it must be observed that, by a singular coincidence, each of the thousands of applicants was assured that he presented an invention of "rare merit," or of "great value," "if patented immediately" and judiciously handled.

It was seriously urged (and it was a cause of surprise and regret that any attorney could urge such a view), as hereinbefore mentioned, that the practices and methods of John Wedderburn and Wedderburn & Co. in the behalf I have mentioned were none of my business, and, by the same token, matter of no concern to the head of the Department; that whether his and their methods and practices in soliciting and conducting business before this Bureau were well or ill, creditable or discreditable, honest or dishonest, was matter with which we have nothing to do.

If that is true, the Government and its officials are in a most deplorable situation.

If it is true, it must follow that a cutpurse or a footpad stands on the same plane, so far as our right to inquire into his character and business methods is concerned, with a reputable attorney of known probity and uprightness, and the former, after once on our roll, has the same right to act as agent, solicitor, or attorney, transacting business for others with this Department, seeking the grant of a patent, or other relief.

Another result must be that our penal institutions may become kindergartens in which to train solicitors to represent claimants and petitioners before the several Government Departments.

Certainly no reputable or self-respecting man would consent to remain at the head of the Patent Office, or any of the other bureaus, after he ascertained that it was being used, and could legally be used, to promote confidence games and entrap the unwary to get their money.

It was also urged with serious countenance, strange and revolting as it may appear, especially by the attorney who wrote a part of the misleading and deceptive literature, that the information contained in the literature under consideration was true in form, even if for any reason it was misleading, and that at best the use of such literature is a matter of taste, and that is all.

In regard to that, I may say that it is well known that the worst, most deceptive, and dangerous character of lying is that which finds expression in the suppression, perversion, or distortion of the truth; and it occurs that a large part of the correspondence and literature offered in evidence, and which was sent through the United States mail from the office of the respondents, was intended to mislead or deceive; or, if it was not so intended, but was intended to express the exact truth, the author of those productions had a singularly fatal faculty of utterly failing in that behalf to make himself understood.

An examination of the literature and correspondence as a whole shows that it was prepared with intent to deceive and mislead the unwary and the unsuspecting; and that it did do just that thing is established beyond question, and the evidence on that score is accumulating.

Whether Mr. Wedderburn himself has knowledge of the patent law, or could properly prepare an application for a patent, would not ordinarily be of consequence, for I deem that whether he was learned in the law or was wholly unfamiliar with patent practice, nevertheless he might employ thoroughly skilled and competent men to transact the business; nor would he be censurable for any oversight or neglect of a competent person selected with care and charged with the proper conduct of the business, but for the fact that Mr. Wedderburn seeks clients by announcing to them that *he* is a lawyer of ability, large experience, and of most captivating integrity.

If the respondents have these qualifications in substantial measure, there is a lack of evidence to establish the fact. The promise and the performance appear in inverse proportions.

There were competent persons in the employ of Wedderburn & Co., more especially *after* his methods became the subject of such general comment and criticism, and in most instances these persons discharged the duty assigned them fairly well; but it is not *complimentary to some of these young men* that they were identified with an enterprise which employed methods that were, or should have been, known to them to be of doubtful honesty and well calculated to compromise and injuriously affect not only the Patent Office in its dealings with the tens and hundreds of thousands of persons who have business with it, but to create the impression that the profession of the law was made up of unscrupulous sharpers; and it was this fact that induced the Washington Bar Association to demand an investigation, that the integrity of its members might be vindicated as having no lot or part in or sympathy with the practices and methods that have been called in question.

And here it is proper to say, in defense of members of the bar, that the statement has been circulated with scrupulous or unscrupulous care that the criticism of the methods of the respondents by honorable members of the bar was due to the fact that the critics were envious of the success of the respondents as solicitors of patents.

It is enough to say that it would be difficult to find a lawyer of any repute who would envy the man, firm, or corporation the success that comes from the ultilization of the corrupt and degrading methods herein called in question.

It is somewhat startling if members of the legal profession are to be denounced by scribbling bandits because they feel called upon to defend the honor and integrity of the profession against being placed in the category of solicitors who adopt dishonorable and dishonest practices in order to obtain clients and use the same methods in dealing with those clients after the relation of attorney and client has been established.

The respondents seem not to have taken a single

step without having carefully considered every question of legal liability, civil and criminal, that might attach to their acts, and to have hugged the line closely at every point, seeking, however, to avoid liability.

THE RESPONDENT CORPORATION.

With a view of reaching the greatest number of people and of inducing correspondence, two companies were organized—John Wedderburn & Co. and the National Recorder Company, the former for the purpose of soliciting employment as solicitors of patents, etc., and the other to aid in accomplishing that purpose.

The Wedderburn company has a nominal capital stock of $100,000—$90,000 *preferred stock* and $10,000 common stock. The $10,000 common stock has the control.

In other words, it may be assumed that Mr. Wedderburn, or a triumvirate, has the controlling power. This stock, according to the showing of the respondents, seems to have been carefully placed in the hands of over 3,000 newspapers or "newspaper men" throughout the country, so that the "plain people" throughout the Union who reside away from the great commercial marts and highways of commerce and manufacture could be put in communication with Wedderburn & Co., and be advised touching the great opportunities to make a fortune by little inventions, and be induced to believe that they would be advised free of cost as to the patentability of their conceptions or endeavors in the inventive line.

How the newspapers were interested in the ventures of John Wedderburn & Co. is of interest alike to the public and the newspapers holding the relation of stockholders to the John Wedderburn & Co. corporation.

The point was to get into correspondence with those whom Wedderburn referred to, in his conversation with witness Benjamin, as "suckers."

The object was to induce the "suckers" to write to the respondent company, if the writer had a conception or thought which for any reason he deemed to be patentable.

Those who wrote to John Wedderburn & Co. had reason to expect free advice in response to their letters; but after being in communication with these would-be inventors, the respondents notified them that their supposed inventions seemed to present "rare merit," but that a search in the Patent Office was essential, which would cost but $5; and on receiving the stock of literature and encouraging letters, the persons addressed promptly forwarded the money. (Greeley's report, p. 16.)

Thus respondents were, in *thirty-three thousand* cases, enabled to get a fee in consideration of having a search made that probably cost 25 cents or less, so that a thriving business was done in that behalf.

If the search disclosed what is known as a "reference"—that is, a previous patent or publication which seemed to anticipate the supposed invention of the client—instead of advising the client fully and frankly in the matter, a letter was sent informing him that the inclosed patent is the nearest reference, and without further information from the respondents as to whether the supposed invention was patentable or not, the poor client is left to wrestle with the patent for himself. The reference (i. e., the patent) contains a drawing which not one in a hundred would understand after he looked at it.

But that is not all. In that same letter citing the reference the respondents proceed precisely as if the alleged improvement *was* patentable, and suggest that they will do everything in their power to obtain a patent and to sell the same.

This communication reaches some farm, store, blacksmith's shop, sewing girl's room, or wherever the unpretentious but struggling inventor lives, and he or she, as the case may be, takes it for granted, of course, that if the device was *not* patentable, or if it were *not* a wise expenditure of money to file an application, the trusted solicitor who has said so much about his *capacity, experience, purity of motive*, and utter devotion to his clients, and has so earnestly cautioned the struggling inventor against *patent sharks* or *unscrupulous sharpers*, would, in the conscientious discharge of his duty as an attorney, so advise the client.

But no such candid judgment and advice was given, and in many cases the client, in ignorance of the want of novelty or other patentable merit in the invention, and the impossibility of getting a patent, sends on the money, $20, to cover what the respondents say is for the first Government fee of $15, and $5 for a drawing.

And right here is another peculiarity of the practice of the respondents.

Instead of requesting that a fee be sent for preparing the application, including the drawing, they send for the money for the *first Government fee*, knowing that no fee will be paid to the Government unless the application is filed, but that the applicant is more apt to send the money where the Government demands it as a fee than to advance fees to the lawyer; and so, having received this $20, Wedderburn & Co. are then in a position to compel payment for the work by retaining that $20 whether the application is filed or not. It is of a piece with all the rest.

THE WEDDERBURN PRIZE.

Having received the application, to quicken the action of the applicant, Wedderburn & Co. send a letter of extravagant praise, and, as the facts disclose, without regard to the real merit of the invention, extolling the genius of the inventor and suggesting that the invention will prove very valuable if patented immediately and judiciously handled. These letters are substantially the same.

But the respondents do not stop here, but surprise the client by informing him that the merit of his invention is such that he is entered upon the "*roll of honor*," and, beyond that, that without cost to him, other than the *payment of the fees* for prosecuting his application, he will be entered for the "*Wedderburn prize.*"

This, of course, coming from competent, able, and conscientious solicitors, who have been indorsed by Senators, Congressmen, and the newspapers, induces the applicant to believe that he has really discovered

something remarkable, or invented something of great value, in recognition of which he has not only been entered on a "roll of honor," but has also, without his request, but because of his exceptional genius, been entered for the "Wedderburn prize," all of which is, in its essence, a plain fraud; but it has put the correspondent in a state of mind necessary for bleeding his pocket.

THE SILVER MEDALS.

Beyond that, if there is any tardiness, in order further to spur the victim to prompt payment, he is, with much literary demonstration, sent a "reward of genius," which consists of a silver medal, inclosed in a box with what purports to be a certificate by the *Treasurer of the United States that that particular medal is* of sterling silver. (Greeley's report, p. 33.)

Thus the client is given to understand that even the Government of the United States has been at pains to certify that John Wedderburn's medals are of sterling silver.

I will hand the Secretary a few specimens of those medals, said to be a "reward of genius."

It will be noted that the *name* of the genius does not appear upon the medal, but that of John Wedderburn & Co. does; nor is the invention mentioned, so that the medal could be worn by a man or a dog with equal propriety, and would serve the same purpose as a cheap advertisement for the respondents.

The cost of the medal certainly would not exceed 20 or 25 cents; but its judicious use as a "reward of genius" may enable the respondents to secure a tribute to their genius of from $25 to $150.

THE NATIONAL RECORDER.

But the client, the "sucker," as Wedderburn facetiously calls him, is played still further along the line, thus: About the time that the sterling medal reaches the supposed inventor, he or she, as the case may be, receives a communication, *without date*, from the National Recorder, which announces that the Recorder has learned that the party addressed has been placed upon *Wedderburn's "roll of honor,"* and has received a "*sterling silver medal*" as a "*reward of genius;*" and the *National Recorder* appears to the reader of the letter to be wonderfully wrought up over the discovery of a budding genius of such rare merit; and the Recorder proposes at once to "write up," or have written up, the individual who has won such distinction as to get on Wedderburn's "roll of honor," and to receive a "sterling silver medal" as a "reward of genius;" and the Recorder will, for the small sum of *five dollars*, insert a cut of the inventor and a brief sketch of his life, and will send the hero a number of copies of the paper, etc., and this of course pays the cost of extensively advertising the respondents. (Greeley's report, p. 38.)

And so, in good time, the Recorder comes out with a whole page of the pictures of these credulous and duped mortals, who have paid $5 each for this boost up the ladder of fame, and the *Post-Office Department of the United States* and *the Patent Office* were for nearly two years the agents and instrumentalities used for carrying on these schemes, to the disgrace of the Government.

EXTENT OF THE ENTERPRISE.

In this enterprise, by judicious advertising and making certain newspaper proprietors, or writers therefor, stockholders of his "joint stock company," Wedderburn & Co. are enabled to reach every neighborhood in the country, and as these poor inventors (or men who are encouraged to suspect they are inventors), scattered from Texas to Maine and from Alaska to Florida, strangers to each other and having no communion of interest, and remediless, are plucked by schemes, supposed not only to be within the protection of the law but to be sanctioned and aided by some of the Government agencies; and the victims are of course helpless, while the respondents here in Washington, as before stated, utilize the two great Departments of the Government to reach these victims of their rapacity and induce them to part with their money in the manner I have described.

And the brilliancy and pecuniary profit of the achievement have hitherto purchased absolute immunity and even favor.

If it is so in the future with reference to the respondents or any other company, combine, or person adopting and using such methods (and there are many of them), it will be due to gross neglect of duty on the part of governmental officials who are charged with the administration of the law.

So far as the searches were concerned, they were until recently largely searches in form rather than in substance.

It occurs that more than half the communications sent to the respondents describing a device to be patentable, were found to contain something so obviously simple and utterly wanting in novelty that the merest tyro employed to make the searches could discover that they were not patentable.

And even in these cases, instead of frankly writing the truth and advising the client of the fact, as in plain duty bound, and as they had advertised to do, the client is charged $5 for information that was often worthless, and in very many cases information that would have been useful was conveyed in a way to mislead and to encourage the client to do the very thing a capable and honest lawyer would have advised him not to do.

THE ESTIMATE OF VALUE.

As suggested above, on finding a thing was *possibly* patentable, or, at least, upon reporting that it was probably patentable, the respondents suggest to the client the *rare merit* or *value* of his invention, and offer at once to place it on sale; and then, using their so-called "sales department," or "expert in patent values," a vision of a small fortune is created in the mind of the applicant by informing him that their expert estimates the value of the invention to be $2,000 or $5,000, or $10,000, or $20,000, as before stated.

More definite and ample information was asked for as to the conduct of this promotion and sales department, and the attainments of the expert who could on sight of a drawing or on hearing the description of an invention read fix its probable value with such readiness, and a number of questions were propounded to the respondents, *not one* of which was answered, but for reasons that seem obvious all information on

the matters inquired about in those questions was withheld. (Greeley's report, p. 18.)

It did not require an examination or cross-examination of the expert of the respondents to ascertain the fact that he did not and could not, as no other man could, but as *he pretended to*, know the value or probable value of the thousands of devices relating to different arts and the value of which he fixed, as hereinbefore mentioned.

No twenty men in the country, with their combined intelligence and experience, without full and careful examination, could have given an estimate upon the value of an invention that would have been of value to the client, and especially before its patentability had been ascertained; and yet this individual sat as a kind of oracle, and fixed values without proper knowledge, without needful experience, and, as I must believe, without the slightest concern as to the effect his statement would have upon the client, except to induce him to forward some money to Wedderburn & Co.

To illustrate what I have been saying, I will take up some of Wedderburn's advertisements and literature, and call attention to each sample in the order in which it was sent out, to show just how the scheme was worked and how the clients were coralled.

APPEALS.

But before I take up the literature there is another matter to be noted.

Where an examiner refuses a patent an appeal will lie to the board of examiners in chief.

In case an examiner cited references and reports that there is nothing patentable in the application, it is the duty of the capable and honest lawyer—or the *honest* solicitor, whether *capable* or not—to give to the client his best judgment as to the wisdom and expediency of taking an appeal.

This respondents did not do, but advised the client that he *could* take an appeal, and then suggest how earnestly they will endeavor to reverse the action of the examiner if an appeal is taken; and the cost of the appeal and the fee for prosecuting it are named, and invariably (prior to February, 1897), if they do not covertly suggest the wisdom of an appeal, they seldom, if ever, however bald and absurd an appeal would be, advised the client *not* to take an appeal. (Greeley's report, page 50.)

They take the chances of misleading the client and getting an additional fee, and, strangely enough, out of all the cases appealed (about 35) in comparatively few of them did the respondents put in an appearance to make an oral argument or file a brief; and their counsel, in a manner as amazing as it was original, cite the fact that the *respondents* had better luck and won more cases when they did *not* make an argument than when they *did*, and offered this result as an excuse, if not a justification, of the failure of Wedderburn to do his duty in that behalf.

It is by no means improbable that in view of the fact that there appears to have been manifested in the conduct of respondents a want of active concern for the interests of the client, it was of small consequence whether in cases on appeal they made an argument or not, and the fact that the arguments they did make were in effect, as they assert, worse than none, forces the conclusion that the respondents were engaged in getting money, and in practicing law as in some measure a necessary incident.

But, however that may be, it shows that the business of the respondents was not to faithfully, conscientiously, and intelligently serve a client, but to *get his money* and make the professional service a mere incident in some measure essential to the chief purpose.

A few words concerning the relation of attorney and client are pertinent just here. The relation of the solicitor to his client and the obligations resting upon each are involved in this investigation. The relation of the solicitor as a practitioner before the Department and the jurisdiction of the Department to deal with delinquent solicitors are also involved.

As to the relation of the lawyer to the client, it is needless to say that no higher standard need be required than that proclaimed in the circulars issued by John Wedderburn & Co.

It is a confidential relation; the client should give to the solicitor his confidence, and the attorney is under the highest obligations to give to the client his best efforts and his best judgment, and to act toward him with perfect candor.

This is precisely what the respondents proposed and promised in their literature to do; and they were especially careful to caution confiding citizens against methods and practices which respondents say are too common, i. e., imposing upon the public by flaming advertisements that are misleading, inspiring false hopes, and promising impossibilities, and practicing all the arts that can be used to inspire confidence; and in their circulars they caution the unsuspecting public to beware of such methods and such persons.

This, in them, was hyprocrisy's masquerade.

The investigation in this case shows how pertinent and timely such words of caution were, if those to whom they were addressed had properly applied them.

Offensive as it is to good morals, it was urged that so long as the advertisements, circulars, and correspondence in form state the truth, the fact that persons may be, and are, misled by them to their injury is not the fault or concern of the respondents; that they have a right to advertise in any way and to any extent they please.

It is not questioned that they may laud themselves without stint and within limits print and publish what they please; but if, taken singly or as a whole, their advertisements, circulars, and correspondence show a studied plan to secure clients by methods that are deceptive and dishonorable, and to deceive them as to their rights and as to the probabilities of securing a patent; to mislead them as to the value of a supposed invention; to induce them to believe that they have discovered or invented something remarkable, when it should be obvious to the attorney that they have discovered or invented nothing of value; in other words, when the whole plan and purpose, judged in the light and results of all their methods and conduct, leave no doubt that they are conducting a scheme to get money by irregular and

reprehensible means, then they have passed the limit which marks the boundary of a proper use of otherwise justifiable and even commendable agencies, and are guilty of gross misconduct.

It is proper to say here that as to the practices, methods, and conduct under consideration, no matter by whom practiced, *we are at the parting of the ways.*

It is well known that the methods and schemes here condemned are becoming common as a result of the supposed immunity the delinquents find in *the money* they make and the influence and power the money so obtained will purchase and control.

PATENT SOLICITING.

Soliciting patents and conducting cases for inventors and owners of patents in courts is an honorable employment, and one that requires legal training and integrity; and it is well known that while flaming advertisements and the distribution of self-laudatory circulars are exceptional among capable and honorable lawyers, yet those methods can not be said to be immoral or reprehensible if properly utilized.

But, as intimated above, it is well known that it is common for individuals, firms, and corporations, without having any substantial, much less thorough, fitness for conducting the business they solicit, and without ordinary, much less exceptional, facilities for soliciting patents or selling them, and without knowledge of the value of invention, and without experience, to mislead and impose upon the uninformed and credulous by a system of advertising and newspaper laudation, supplemented by correspondence which has no higher aim or purpose than to filch money from persons who trust them, and without reference to the quality of the service rendered.

In many of these cases the parties to whom I refer, in order to succeed, seem to have done things and employed methods and agencies that barely fall short of subjecting them to criminal prosecution, and in many cases they do violate the criminal statutes of the United States and of the several States, but unfortunately those who do the wrong seem to be *above* the power of the law, and the poor victims of the wrong appear to be *beneath* its care.

It is a question now whether these methods shall be denounced and those who employ them be prohibited in future from indulging in a practice so utterly demoralizing and corrupting.

In other words, will the Department compel men doing business before it to observe in the transaction of that business the dictates of common honesty, or permit "rogues within the law" to utilize their relation to the Department for the purpose of fleecing those whom they are able to dupe and mislead?

The action in this case will establish a precedent of far-reaching influence for good or ill, and the action taken will help to compel the observance of honest methods, or will grant immunity to those who are, to say the best that can be said of them, rogues within the law.

RESPONDENTS' ADVERTISEMENTS.

The following is a sample of the advertisements of respondents:

WANTED—AN IDEA.

W o can think of some simple thing to patent? Protect your ideas; they may bring you wealth. Write John Wedderburn & Co., patent attorneys, Washington, D. C., for their $1,800 prize offer and list of 200 inventions wanted.

I need not again comment upon the offer of an $1,800 prize. The "list of 200 inventions wanted" is deceptive and must have been so intended.

If the respondents or their expert had been placed on the stand and asked to name one invention wanted, it may well be doubted if they could have mentioned one.

What *was* wanted was that the respondents should be employed by persons who might read the advertisement.

The result was that they received thousands of letters of inquiry, and in response sent out a mass of literature of the kind and quality hereinbefore referred to and hereinafter mentioned.

Most of this literature is defended by counsel, and particularly by the counsel who wrote part, if not the most, of it, and who assisted in organizing the Wedderburn company.

ONE THOUSAND INVENTIONS WANTED.

He said in his argument that these circulars and advertisements stated the truth, although the manner of stating the truth might mislead the individual who read it. For instance, take the circular "One thousand inventions wanted," and the notice stamped on the letters, "370 patents procured this week; 100 patents sold." What is understood by that? Mr. Wedderburn's counsel says, "As to the 1,000 patents wanted," that simply meant that if a man could invent a good thing it could be sold on the market at a profit.

Nobody doubts that if a good thing is invented and patented it may be sold at a profit; but it was not the intention of this circular to say just that.

The respondents or their employees doubtless went to the Patent Office and read the various classes of inventions and selected and numbered them, and then published in effect in their literature that there were to the knowledge of respondents *one thousand inventions wanted*, and suggested in effect that there is wanted an improvement in each one of the arts mentioned; and they further suggested, by inference, that there is now a pressing, active demand, of which respondents know, for these various improvements, and that there is a vast unoccupied field open for inventors to produce just what is wanted.

Counsel insists that the circular does not say so. Well, the argument is disingenuous, for the idea intended to be conveyed is just what I have stated, and is the idea that is conveyed to every mind that is capable of receiving an impression.

This circular contains certificates from a number of persons for whom John Wedderburn & Co. are supposed to have taken out patents. The person who wrote the advertisements states in that behalf, by way of inducement, that these fulsome letters are "a few extracts selected at random from thousands we have received, all of which testify to the scrupulous care, promptness, and fidelity with which interests confided to us are treated. These pleasant words have come without the slightest solicitation on our part, and are the more gratifying on that account.

I quote this, particularly the last sentence, because, so far as I have been able to learn, the business of one of the persons connected with the respondents was to solicit from public men of known probity, but who knew very little, if anything, about the respondents, letters of recommendation, which are afterwards published and scattered broadcast, as if Members of Congress, Senators, and others who signed them, had familiar knowledge of Wedderburn's methods and practices and approved them altogether.

"HINTS TO INVENTORS."

Besides the "One Thousand Inventions Wanted," there is also issued "Hints to Inventors, by John Wedderburn, Solicitor of Patents."

This book is written to show what fortunes may be made out of a little invention, and also to show the necessity of employing a patent attorney.

As indicating the impressions he desired to create in the minds of the individual he reached with this literature, he says, in regard to doing scrupulously honest work: "All communications embodying a disclosure of an invention are held by us in strict confidence. A query may arise in your mind as to what would prevent us from taking undue advantage of your confidence in patenting your invention for ourselves. We answer, the reputation and character of our institution, and our unwillingness to destroy our business for the sake of a theft of problematic value."

It will be observed that the respondents state here, in what I am about to quote, the standard by which they desire to be judged when he says (the italics are ours): "*One betrayal of a client would end our professional career*, not only ruining a business as valuable as that of a great bank or trust company, but also bringing our sponsors into irremedial disgrace and subjecting ourselves to prosecution and punishment."

Below, on page 9 of his "Hints to Inventors," he says: "We do not try, however, to compete with so-called cheap patent attorneys, nor can they compete with us in quality of work." Hardly.

It is also stated on page 11: "We can say that the special search determines the probable patentability of an invention, and it is rare that a patent is refused on an invention which we report as new and patentable." This was not true in fact, but was intended, of course, to induce each one for whom a search was made and where a favorable report was sent to proceed at once to send on the money, as "it *is* rare that a patent is refused on an invention which we report as new and patentable."

The point is that these searches *were induced* by unfair and unprofessional means, having first gotten into correspondence with these parties by misrepresentation and holding out delusive hopes, and by suggesting that they will get information free.

The course of conduct of Wedderburn & Co., after correspondence was opened, is shown by stipulations and exhibits filed.

I shall make some quotations from them, as indicating that from the moment the respondents got into correspondence with a client, that client, unless he was exceptionally alert, was misled and imposed upon.

THE PRIZE AWARDS.

There is another advertising dodge—a false light on the shore—which, while ostensibly organized and conducted to determine which of the inventions alleged to possess "rare merit" was superior in novelty and usefulness, was really a pretentious humbug and advertising dodge, which, if not used in conjunction with other agencies to mislead, deceive, and defraud, would be pardonable, whether creditable or not.

It was the meeting held from time to time to award prizes, a proceeding with which the names of honorable gentlemen are connected, and connected only for the purpose of creating the impression abroad that men of character, dignity, and familiarity with patents and patent matters had solemnly met, and after laboring with the question of merit, novelty, and value with impressive deliberation, awarded the "Wedderburn prize." (Greeley's report, p. 12a.)

And this laughable farce was promptly written up and given wide publicity, as if the respondents were, or thought they were, doing something meritorious.

It would be difficult to conceive of a more pretentious sham, so far as the prime essentials of such a proceeding, conducted for a proper and useful purpose, are concerned. As stated, a dress parade of this prize court was sent throughout the country, supplementing the 25-cent silver medal and the "roll of honor" endeavor.

If it be said that these things were merely matters of taste:

I agree that it is so, but may add that they are of such shocking bad taste, when taken as a whole, revealing a concerted plan to mislead and defraud members of the community, that they should be publicly and privately condemned.

It was earnestly pressed by one of respondents' counsel, he taking these several things up, each by itself, that *it* did not constitute such conduct, and was not so misleading or in such bad taste that it could merit anything severer than a rebuke. I may agree to that proposition, but it does not relieve or even help the situation.

It would be just as pertinent, and be an answer as sufficient, to say that where a victim was killed with poison, administered in small doses through weeks and months, that no single dose administered would destroy life.

That might be true in the case supposed, and may be true with reference to single acts in this case, but I am *now* dealing with the fact that the poison *was administered*, as a whole, to take the life of the victim.

This poison that I complain of in the case at bar has been administered in broken doses, but following so swiftly on the heels of each other that the party to whom the doses were administered yielded finally to its influence, and the result was that he parted with his money without consideration rendered therefor, or a consideration so grossly inadequate as to make the transaction a fraud on the part of the respondents.

As another means of creating a false impression and working money out of the deceived, and to create a belief that respondents were doing a vast business, not only in making searches and filing applications but in procuring patents for clients, and an equally extensive business in *selling* patents, and that patents are easily and readily sold by them, they stamped upon letter heads the following, in large letters:

"Notice: Total number of patents procured last week 370, 100 were sold."

Here again counsel, instead of denouncing this bald imposition, suggested that the respondents did not *say in terms* that *they* took out 370 patents, or that *they sold* 100, but simply announced that 370 patents *were taken out* and that 100 *were sold*, and it is doubtless *true* that the *United States* did issue 370 patents and that the records of assignments at the Patent Office would show that 100 *were* sold. Neither the bald attempt to deceive nor the pitiable apology for the deception deserves further comment.

CORRESPONDENCE WITH CLIENTS.

It occurred that thousands of persons, seeing the advertisement for 200 inventions wanted and the offer of large prizes, and an easy way to get money, wrote to the respondents for information, and in reply received answers of the following tenor and effect:

DEAR SIR: We have received your letter of inquiry of recent date, and we herewith inclose copy of our $1,800 prize offer and our Hints to Inventors, which contain full information as to how our patent business is conducted.

We also send you, under separate cover, a copy of the National Recorder.

If you will send us a sketch of your invention, together with a description or model, if you have one, we will make a thorough examination of the Patent Office records and advise as to whether a patent can be obtained. We charge $5 for this service, which amount will entitle *your invention* to be entered in competition for *our prizes* and will be deducted from our *fee* for preparing the case.

The letter closes with the statement—

After a patent has been obtained we can place the same before the proper capitalists, if you do not intend to manufacture and market the goods yourself.

The italics are mine.

This ordinarily brought $5, which would doubtless yield a clear profit of $4.75 to the respondents, but if the party addressed failed to respond promptly, a letter of the following tenor was forwarded:

DEAR SIR: We have not heard from you since we replied to your favor of a recent date, sending you our pamphlet and a copy of the National Recorder.

We again ask your consideration of our excellent facilities for selling and procuring patents, and if you have not already selected your attorney, we should be most happy to *advise you without charge*, either in a personal interview or by mail, as to the *patentability* and *salability of any device which you may have in mind*.

The italics are mine.

This usually brought the required answer. Thereupon the client (?) was sent a letter of the following tenor:

DEAR SIR: We are in receipt of your esteemed favor of —— instant, inclosing sketch and description of your invention, of which reference has been made to the *chief of our sales department*, and this is the principal cause of delay in answering. In *his expert opinion a successful device of this nature, if patented immediately and properly handled, would net its owner not less than $5,000 on direct sale, or yield a good income for several years if transferred on the royalty plan. Its cheapness and simplicity are strongly desirable elements* in its favor, as there would be little or no experimental cost to eat up the profits, and a *practically unlimited market* would be furnished for such a successful device.

There is *no doubt of its patentable nature*, but you will readily understand that no human being can carry in his head the hundreds of thousands of inventions on file in the Patent Office. For this reason we always recommend our clients to have a special search of the records made, with a view of avoiding infringements on other patents. Our charge for this service is ordinarily $5 in each case; but we will make two searches on inventions submitted at the same time for $5; four for $10, or as many as you please in the same ratio, enter any invention you may select in competition for our monthly prizes, and will further agree to make our subsequent fee for the preparation and prosecution of your case $20 instead of $25.

JOHN WEDDERBURN & Co.

The italics are mine.

This letter was undoubtedly prepared by a lawyer, who had more capacity than conscience; as any expert will see that it *affects* to say what it does not in fact say, and is carefully worded to mislead.

The language, "In his expert opinion a successful device of this nature, if patented *immediately* and properly handled, would net its owner *not less than $5,000 on direct sale*, or yield a good income for several years if transferred on the royalty plan," is as shrewd as it is uncandid.

Five dollars is received, and a search is made in these cases, and thereupon a letter of the following tenor is addressed to the client:

DEAR SIR: We have made a thorough search of the records of the Patent Office and fail to find any reference approaching your invention sufficiently near to prevent you from securing a patent, and we therefore have to report that in our opinion a patent can be obtained.

Then he is advised to remit $20, to cover the first *Government* fee of $15, and $5, the cost of one sheet of official drawing, and this is followed by the statement that—

There is no doubt that your invention is a *very valuable one, and that good money could be made out of the same if properly handled*.

The italics are mine.

"*If properly handled*" always cuts a figure. The letter then states that the invention will be entered in competition for the "Wedderburn prize," and they then propose in the letter to find a purchaser.

After these alluring observations the applicant applies for a patent, which, in the vast majority of cases, he is not entitled to and never gets; and it often occurred that after having stated that the $5 would be credited on the fee of $25, we find the full amount of $25 is demanded and collected. (Greeley's report, p. 40.)

Following in the wake of the other communications, if the vein seemed to be one which could be profitably worked, a letter of the following tenor was addressed to the client: (The italics are mine.)

DEAR SIR: We take pleasure in informing you that the *Board of Awards has selected your invention for special merit, and your name will appear on our Roll of Honor for last month for the Wedderburn prize*. Under the terms of our recent decision to recognize those inventors submitting *especially meritorious devices*, we have determined to present a sterling silver medal to each person entitled to a place upon the *Roll of Honor*.

We therefore send you by to-day's mail a *Sterling Silver Medal*, accompanied by a *United States Treasury* certificate as to its standard fineness. It is of pure silver, and we regard

its design as exceedingly artistic and effective. Congratulating you upon the *merit of your invention*, which promises to be *exceedingly profitable to you*, we are, with kind regards,

Very truly yours,

JOHN WEDDERBURN & Co.

Then, as if they had forgotten to mention something of superior advantage, which the correspondent was entitled to enjoy, they add the following postscript:

P. S.—The receipt of this medal does not prevent your device from being favorably considered in subsequent contests for the *big prize*. We enclose a proposition *from the National Recorder which we would recommend that you* accept, as past experience shows that this publication has been the means of securing good prices for many of our clients' patents.

The italics are mine.

There probably could not be a more unblushing fraud perpetrated by the use of the same number of words than crops out in this communication.

First, their "Board of Awards," for all practical purposes, was a myth, and their "Roll of Honor" a sham and a pretense, and their "Sterling Silver Medal," *eleven thousand* of which they sent out as a "reward of genius," was a cheap advertisement for Wedderburn & Co., and contained no reference to the invention, nor yet to the inventor, in recognition of whose genius it was supposed to have been a tribute.

It is neither valuable for the silver nor for the inscription, nor for any one of the purposes for which the client is induced to believe it was sent.

Nor is that all. A certificate, as if issued with direct reference to *that particular medal* by the Treasury of the United States, is forwarded. This is another sham and pretense, which the Government should promptly put its foot upon.

Then comes the postscript, the last part of which is the catchpenny clause.

There is no suggestion in it that John Wedderburn & Co. are the proprietors, for all practical purposes, of the National Recorder; that it is their organ, or that it is in anywise controlled by John Wedderburn; and thus while they use the National Recorder to secure business for John Wedderburn & Co., John Wedderburn & Co. are used to secure business for the National Recorder. We shall see in a moment how the elements in this remarkable combination act and coact.

The next communication addressed to the client, after the foregoing, shows that the scheme has worked. It recites:

We have received your properly executed papers prepared in the matter of your invention in finger shield. The application will be promptly filed in the Patent Office and the case prosecuted with diligence.

The next communication indicates that the client is becoming impatient, and the cause of the delay is explained. The following letter does the same, and the next calls the attention of the client to the fact that the examiner has "*finally rejected the application*," and that he has cited one or two patents, as the case may be, and "notwithstanding repeated amendment and argument he adheres to his opinion." There is surprise in the language of the letter whether there was in the mind of the writer or not.

They then state:

The only course now open, should you desire to contest the matter further, is to appeal to the Board of Examiners in Chief. The cost of such appeal is $25, covering the Government fee of $10 and our fee for presenting the appeal, $15. If you desire to pursue the course mentioned, remit the amount above, upon receipt of which we will take the necessary appeal in your behalf.

In some cases they use stronger language and state how earnestly they will endeavor to reverse the action below if the client will appeal.

As stated hereinbefore, they do not give any advice, as in duty bound, as to the propriety or wisdom of an appeal, but encourage the client to go ahead by leaving it to him to judge in a matter where his judgment would really at best be of little valne, as it is a matter which the attorney and not the client should in the first instance determine. (Greeley's report, p. 50.)

The statement, "There is no doubt but that your invention is a *very valuable one and that good money could be made out of the same if properly handled*," is a common form (except the italics, which are mine).

It will be observed that they have made 33,000 searches during the brief time that they have been in business, and have filed less than 4,000 applications.

Of these applications about 50 per cent have been rejected by the Office as containing nothing patentable, and yet, notwithstanding all this, Wedderburn & Co. have sent out over *eleven thousand* of these "sterling silver medals," as a "reward of genius" to the inventor, and as evidence of the superior merit of his invention, which he was assured was of value, etc., and they have placed as large, or possibly a larger, number on their fictitious roll of honor.

THE RECORDER "WRITE UP."

It seems, if the correspondent is susceptible, or what he writes indicates that he is a proper subject for flattering treatment, immediately on the heels of his receipt of the silver medal and the information that he is now on the Wedderburn "roll of honor," he receives a letter from the National Recorder of the following tenor:

DEAR SIR: *The National Recorder is informed* that you have been awarded a *silver medal* by Messrs. John Wedderburn & Co. for an invention of *unusual merit* entered in that firm's competition. It is the purpose of the Recorder to publish, for the benefit of its readers, a short sketch and likeness of as many of these medal winners as possible, in order that inventors, and those who are striving to become such, may enjoy the advantage of the experience of their successful colleagues.

If, therefore, you will send us a photograph and a brief account of your life, giving special attention to the experiences that have aided you to become an inventor, accompanied by $5 to cover the cost of preparing sketch, inserting the same in Recorder, and engraving the accompanying portrait, we will write up, and place upon our subscription list for one year the names of any two persons to whom you desire the paper to be sent.

An affirmative answer to this proposition must be mailed within a week after the receipt of this letter to insure publication.

After the National Recorder has expressed or suggested its admiration of the genius and perseverance of the individual who had invented an improvement on a latch string, or a shoe buckle, or a bottle stopper, or a finger guard, or suspected that he had invented *something*, and had proposed to him for $5

to publish a sketch of the now thoroughly captivated correspondent, it suggests as follows:

We would also say that when you are prepared to advertise your invention for sale, we will run it free for one month under our head of patents for sale. if you will inclose this letter with your order.

And then the correspondent is warned that—

This *combination proposition* with regard to a write-up of yourself is the only one we make in this connection.

NATIONAL RECORDER PUBLISHING CO.

Unfortunately for the "client," there is an element in the "combination" with which he does not become familiar until he has parted with his money and has nothing in return except a 25-cent silver medal and a place on the Wedderburn "roll of honor."

THE ASSISTANT COMMISSIONER'S REPORT.

In his report of the findings and evidence, Mr. Greeley has with care and candor gone through the whole range of discreditable conduct which characterized the career of the respondents. His comments are just and his recommendations timely and valuable. I will not review the report, but supplement it in announcing this decision.

I desire, however, to particularly call your attention to Mr. Greeley's findings respecting the conduct of the respondents' sale department and their conduct respecting *foreign patents*. As is clearly shown in said findings and report, their sale offer and their advice to take out foreign patents were mere traps for the unwary.

The respondents invariably represented to clients that their inventions were *valuable and salable*, whether in fact they were patentable or not. It only needed the skill and experience of respondents in handling such matters to make the clients sure of a good return. But before they could proceed to find a purchaser $20 "for advertising purposes" must be paid by the client. This sum was asked for and accepted in a number of cases in which the respondents knew there was nothing patentable and nothing valuable. (See Greeley's report, pp. 41–44.)

The respondents also *invariably* advised their clients to take out *foreign* patents on inventions which they well knew were unpatentable, knowing that foreign patents, if granted, would be worthless. The taking out of foreign patents meant large fees to the respondents, for which the clients received no return. (See Greeley's report, pp. 44–48.)

The character and influence of the methods and agencies used by respondents, and their potentiality for evil, become more apparent as the investigation proceeds, and when carefully studied are, in their adaptability for obtaining money under false pretenses and in their tendency to corrupt and degrade the persons and agencies employed, positively startling.

To understand and appreciate all the agencies and means employed, and the purpose and manner of their use (each considered alone harmful only in a degree, but taken together, outrageous and corrupting), it is necessary to become familiar with the entire scheme and the appliances utilized to obtain the desired results.

It would seem to be obvious that there would not be a tumultuous rush from all parts of the country to get stock in the John Wedderburn & Co. corporation.

THE RESPONDENTS AND THE NEWSPAPERS.

But it occurred to the promoters of the scheme under consideration that to reach the quiet neighborhoods, where intelligent, enterprising, God-fearing people live, it was necessary to utilize the local newspapers, and some means had to be devised to reach them.

The proprietors of these newspapers could not very well investigate either the peculiarities or methods of John Wedderburn & Co., as these newspapers are remote from headquarters, but we have the following assurance in the literature published by one, through the procurement of the respondents; the assurance being also extensively circulated, at what cost we do not know, that over *three thousand* newspapers throughout the country are stockholders in the John Wedderburn & Co. corporation; and through those newspapers, which are in the main confessedly innocent of any sympathy with the fraudulent scheme to trick citizens out of their money, John Wedderburn & Co. were enabled to reach the humble homes throughout the country and hold out these seductive, false, and delusive promises. And having in some manner placed some shares of the stock of John Wedderburn & Co. in the hands of this vast number of newspapers, these same newspapers unwittingly aided in fleecing their own subscribers and neighbors.

To accomplish this, circulars were sent out broadcast.

These circular letters, a copy of which I will here insert, seem to have induced a great many persons to become stockholders in the John Wedderburn company, if we believe what is asserted in that behalf in his literature.

For instance, we find the following in several papers, among others in Frank Leslie's Weekly, under date of March 11, 1897 (the italics are mine):

As in the organization of the Examiner Bureau of Claims, so in establishing his own firm Mr. Wedderburn recognized the indispensable assistance of the press, not only in building up a business enterprise by bringing it to the attention of the public, but also by securing the countenance and support of the newspapers themselves *by making them his business associates and partners in the responsibility he assumed*. It is a remarkable fact that the firm of John Wedderburn & Co. to-day embraces more than *three thousand well-known newspapers*, all of which *are stockholders*, and whose *vital interest* it is, not only to spread abroad the fame of this firm, but also to guarantee to the public the skill and integrity of its management.

These newspapers now have an opportunity to vindicate the integrity of its management. We will see with what promptness they *vindicate*.

There is then mentioned below a list of newspapers, comprising the leading journals in nearly all if not quite every State in the Union.

The respondents seem to have exhausted their ingenuity to avail themselves of every possible opportunity to prey upon the hopes and desires of well-meaning citizens.

There is no doubt but that Wedderburn & Co., whatever that stands for or means, in a short space

of time received money enough to employ many persons who have the genius to write and the conscience to write what the employer demanded, and it was hoped and believed that these 3,000 newspapers were strong enough, if they could be prevailed upon to do so, to uphold and defend the iniquities here described, and thus prevent any interference with the planned system of plunder that promised such great profit, and that any official or individual who dared to call in question their right to practice their schemes would and could be destroyed through the agencies which John Wedderburn & Co., by the means hereinbefore stated, believed they could control.

It remains to be seen whether this is such an utterly venal age that all the canons of public and private morality can be outraged for the purpose of getting any dividend John Wedderburn & Co. could pay, as a result of the successful prosecution of their schemes.

It is proper to say, and nothing could be more timely than to say it here and in this behalf, that if a successful money-getting scheme, without regard to its moral quality or the unworthy methods it adopts, can, by reason of the vast amount of money its methods enable it to collect, defy law, defy morals, and go unrebuked and unpunished, we are rapidly reaching the time when men will become a law unto themselves in another sense and manner than that which finds expression in peaceful methods.

It will readily be understood that if there is silence on the part of the newspapers that have helped, though unwittingly, to establish the scheme to defraud, in the matter of condemning the iniquity, we may infer that such conduct is due to the interest which attaches to ownership of stock in the fraudulent agency.

CIRCULAR LETTERS SENT OUT BY RESPONDENTS.

Here are samples of the circular letters sent to newspapers by John Wedderburn & Co.:

[Office of John Wedderburn & Co. (incorporated), solicitors of American and foreign patents, trade-marks, and copyrights, 618 F street NW. P. O. box 333. Recorder Building. John Wedderburn, president; Wm. L. Ford, secretary; A. L. Hughes, treasurer. Directors: John Wedderburn, patent attorney; Wm. L. Ford, attorney-at-law; A. L. Hughes, attorney-at-law; Wm. L. Crounse, journalist; Thos. B. Crittenden, journalist. General counsel: Wm. L. Ford, John Wedderburn, A. L. Hughes.]

WASHINGTON, D. C., *March 16, 1895.*

ADVERTISING PROPOSITION.

PUBLISHER.....

DEAR SIR: We have an appropriation of a limited amount for immediate expenditure. In placing our advertisements we wish to include as many papers as possible, provided we can do so at a very moderate rate. We wish to run a total of 208 inches during *one year*, the whole of which will be occupied by a four-inch (single column), metal-base electrotype, to appear *fifty-two* times during the year. We are *not* particular about location.

For the insertion of the above in your *weekly* edition, or for the insertion once a week in your *daily*, we can pay you twelve dollars ($12), payable as follows: Two dollars ($2) in cash, payable semi-annually *in advance*, and the sum of ten dollars ($10) in preferred 6 per cent stock of The John Wedderburn & Co. corporation, thus giving you ten shares of the capital stock of our company, the par value of which is one dollar ($1) per share. If you accept this proposition, notify us and we shall immediately forward our cut, together with one dollar ($1). At the end of every six months we will forward you the stock earned, together with the other dollar. The proof of cut is herein inclosed.

Hoping that you will accept this proposition and that our future relations may prove mutually profitable, we are, dear sir,

Very truly yours, JOHN WEDDERBURN & Co.

P. S.—We are interested in the success of *The National Recorder*, a good weekly journal published in this city, valuable to inventors, builders, claimants, and those doing business with the United States Government. It contains a weekly list of patents granted, arranged alphabetically by States, which publishers can use in their respective localities with profit to themselves. We will send you the paper *also* if you accept the above offer.

[Wedderburn letter head.]

WASHINGTON, D. C., *May 2, 1895.*

ADVERTISING PROPOSITION.

PUBLISHER.....

DEAR SIR: On account of the gratifying success which has attended the organization of this company, we desire especially to systematize our business promptly and classify our patrons without delay. With a view of completing at once the number of newspapers set as the limit of our plan, we propose to *increase* the original offer to you.

We wish you to run our 4-inch single-column metal-base electrotype for fifty-two times. We are willing to pay you the sum of $22, payable as follows: Two dollars in cash, payable semiannually in advance, and the sum of $10 in preferred 6 per cent nonassessable stock of the John Wedderburn & Co. corporation, and also give you our promissory note for the sum of $10 as per inclosed blank form. This note can be used at any time the same as cash in payment of our fee for professional services, such services being performed at our regular charge. If you can not use the note personally, you can easily dispose of it to some inventor for cash by making a slight discount.

A special feature of our offer is a year's subscription to the National Recorder, which we furnish free of cost. The Recorder is designed by its publishers to cover the field of important official information at the capital, and to be of great aid to publishers of newspapers in communities of moderate size. It pays special attention to patents, pensions, and similar matters likely to prove of interest to your readers, and exceptional facilities are afforded you for making immediate use in your own columns of the matter which it contains. The Recorder will publish weekly three special letters, dated Washington, and written from the standpoint of the Democratic, Republican, and Populist parties, respectively. These letters are prepared by able writers, and are offered gratuitously for republication in your columns. In addition, the Recorder prints weekly the full list of patents granted throughout the United States, classified by States, so that you can clip this valuable information and print it in your own columns for the benefit of your readers. The latest court decisions, pension rulings and allowances will also appear regularly. It will thus be seen that the Recorder will make a most valuable addition to your exchanges—furnishing you, in fact, with a first-class Washington service without any expense whatever.

If you accept this proposition, notify us and we shall immediately forward our cut, together with $1 in cash and our note for $10. At the end of every six months we will forward you the stock earned, together with the other dollar. A proof of our cut is herewith inclosed.

Trusting that you will accept this proposition, and that our future relations will prove mutually profitable, we are,

Yours, very truly, JOHN WEDDERBURN & Co.

[Law offices of John Wedderburn & Co., solicitors of American and foreign patents, trade-marks, and copyrights, 618 F street NW. Cable address, "Wedpatent," Washington, D. C.]

WASHINGTON, D. C.

PUBLISHERS.....

DEAR SIR: Being an advertiser in your paper, and thinking that perhaps there may be some inventors in your town with whom you are personally acquainted, we inclose herewith our promissory note for the sum of $15, payable in professional services by whomsoever presented. This note will be accepted by us at any time the same as cash at our regular rates for securing a patent. We believe that you may be able to discount this note if you should have an acquaintance or find some one who desires to secure the services of a patent attorney. Our regular fee is, including drawings, search, and the prosecution of the case, $35. Out of this you would get $15 and we $20 in the prosecution of any case which you may send us.

We inclose a reading notice, printed in the New York World, descriptive of our prize, the advertisement of which has been running in your paper from time to time, concerning the prize winner for the past month. A gratuitous publication of the same on your part will be greatly appreciated.

Very truly, yours, JOHN WEDDERBURN & Co.

How the aid of those who personally knew the quality of the enterprise and the means and methods to work it out were secured we are not advised; they must answer at the bar of public opinion for careless conduct or conscious wrongdoing.

CONCLUSION.

In conclusion, I repeat that if the business and the methods and practices of the respondents had been tolerable and of a character that could be defended the respondents and their backers and indorsers would have made all haste to make known, not only to the Commissioner and to the Secretary, but to the public that was interested to know, that they were carrying on a *legitimate* business in a *legitimate* way; but instead of that they have made substantially no showing at all, either in extenuation or defense of their offenses or in answer to the questions propounded, which were rendered necessary by reason of the facts hereinbefore recited, and which were not answered, nor was one of them answered.

It is proper to state that one of the attorneys said they did not want to publish their *business* to the world. The answer to that is that nobody asked them to publish their business to the world, or publish to the world any fact or circumstance connected with their business that an *honest* man would hesitate to communicate, especially when the integrity of his business and his business methods were called in question by those who had a right to inquire, and in the presence of the charges of a large number of honorable citizens that they have been swindled as a result of those methods.

The recommendation made in Mr. Greeley's report that the facts shown in this record be called to the attention of the Post-Office Department and the District Attorney meets with my hearty approval.

RESPONDENTS DISBARRED.

My conclusion is, and I so decide, that John Wedderburn and John Wedderburn & Co. have, as solicitors before this office, been guilty of gross misconduct, and that they should be disbarred from practicing before the Department of the Interior, and I recommend that the honorable Secretary so order.

Very respectfully, your obedient servant,

BENJ. BUTTERWORTH,
Commissioner.

To the SECRETARY OF THE INTERIOR.

Report of Assistant Commissioner Greeley.

DEPARTMENT OF THE INTERIOR,
PATENT OFFICE,
Washington, D. C., September 22, 1897.

SIR: I have the honor to make the following report respecting the order issued and served by you on June 14, 1897, directing John Wedderburn & Co. and John Wedderburn to show cause on or before the 26th day of June why the Commissioner of Patents should not refuse to recognize them or him as patent agents or agent.

For satisfactory reasons the time for showing cause under this order was extended to July 3. On that date the respondents, by E. H. Bond, an employee of the respondent corporation, appeared and read their answer to the order to show cause. After the reading of this answer certain documentary evidence was introduced, and on July 5, Mr. W. L. Ford, of counsel for respondents, and Mr. Bond being present, the introduction of documentary evidence was continued. This documentary evidence consisted mainly of the files and drawings of certain applications filed and prosecuted before this Office by John Wedderburn, together with letters relating thereto written by John Wedderburn & Co. to the applicants.

The hearing on the matter was continued at the request of counsel for the respondents and for satisfactory reasons to July 24, on which date the hearing was resumed before me, Mr. J. M. Wilson and Mr. Ford being present on behalf of the respondents.

The Office was represented in this investigation by Mr. C. C. Stauffer, one of the law clerks, and Mr. F. W. Winter, one of the examiners. Messrs. E. M. Marble, W. H. Doolittle, and S. T. Fisher represented the Washington Patent Law Association and Mr. William Small represented certain complainants and others.

PROCEEDINGS UNDER THE ORDER TO SHOW CAUSE.

On the resumption of the hearing Mr. Wilson, for the respondents, objected to the hearing proceeding in the absence of the Commissioner and without personal hearing by him. This objection was entered of record and the hearing proceeded with.

On July 26, the hearing having been resumed, certain affidavits were offered in evidence by Mr. Stauffer for the Office. On the objection of the counsel for respondents I refused to receive the affidavits and directed that the witnesses be called and examined orally, which was done. The examination of witnesses for the Office continued on July 28 and 29. These witnesses were Messrs. Benjamin, Gowans, Elliott, Snyder, Gillis, and Whittaker. The testimony in chief for the Office was closed on the 29th.

In order to avoid delay I directed the respondents to put in the evidence in their behalf, so far as possible, by affidavit, and continued the case until August 4 for the purpose.

On August 4 proceedings were resumed. Mr. Ford, of counsel for the respondents, presented and read at length affidavits of Messrs. Stockbridge, Smith, Funk, Acker, Abel, Gurley, McGowan, Jackson,

George Byrne, H. H. Byrne, and Alexander Wedderburn, all employees of the respondents. It was then urged on behalf of respondents that the principal examiners be called for examination with reference to certain reports made by them in regard to applications filed and prosecuted in the Office by the respondents. With some reluctance, for the reason that it appeared to me that such examination would unnecessarily delay the proceedings, I finally consented that the examiners be called, and as many of them as were desired were called and examined by counsel for the respondents.

BOND'S TESTIMONY.

On August 5, E. H. Bond, an employee of the respondents, was called in their behalf as a witness, Mr. Bond being examined "as an expert and a man who knows this business." (Wilson, p. 371.) Mr. Bond's examination continued through the 6th, 7th, 9th, 10th, 11th, 12th, and part of the 13th of August, most of the time being taken up with examination as to certain applications filed and prosecuted by the respondents and made exhibits herein. In the examination of Mr. Bond as to these exhibits I deemed it necessary and best to personally question him as to the state of facts indicated by these exhibits. By reason of the evident disposition of the witness to evade questions and to avoid disclosure of material facts, as clearly appears from his testimony with reference to the Sooker, Fossett, and Rucktaeschel cases (p. 380 et seq.), it became necessary to question him closely and to make my examination more in the nature of a cross-examination than would otherwise have been done.

Bond's testimony, so far as the exhibits were concerned, consisted of a statement with respect to each, of whether, in his opinion, there was anything patentable in the case; whether, in his opinion, a proper search had been made, and statements as to certain other matters appearing of record in these cases. He admitted in a large proportion of the cases as to which he testified that there was nothing patentable, and in many of them that no proper or complete search had been made. These cases being for the most part cases in which the search had been made prior to his connection with the respondents he was unable to state of his own knowledge whether or not searches had been made. He had before him the respondent's office files of these cases, and his testimony as to searches was based wholly on the penciled memoranda on these files, each memorandum, so far as searches were concerned, consisting of the abbreviations, "fav." or "unfav." These files referred to by him were not, however, put in evidence.

Certain applications not previously introduced in the record, but in which searches had been made during the present year, some of them made during the time Bond was in charge of the search department, were introduced by counsel for the Office for the purpose of showing that searches made during the present year were not proper or complete. In a number of these cases Bond admitted that there was nothing patentable, and no proper or complete search had been made.

After Bond left the stand Mr. Julihn, an employee of the respondents, was called as a witness in their behalf.

Various documentary exhibits were from time to time introduced on behalf of the respondents, all of which appear upon the record.

At the conclusion of the testimony for the respondents a stipulation as to what would be shown by further evidence, documentary and otherwise, was prepared and signed by the counsel for the respondents and by counsel for the Office. This stipulation is entered of record in the case.

The testimony given orally, together with all proceedings relating thereto, was regularly taken down stenographically and, together with the affidavits introduced as above stated, the stipulation above referred to, and the arguments of counsel, form a volume of nearly one thousand pages.

A full and carefully prepared brief was submitted by Messrs. Stauffer and Winter in support of the order to show cause. No brief was filed on behalf of the respondents, and the report of the arguments of Messrs. Wilson and Ford is not as full as might be desired. Opportunity was given them to file such brief or such notes of their arguments as they wished, but they have not seen fit to furnish them.

FINAL HEARING.

On August 14 the case was closed so far as the introduction of evidence was concerned, and August 30 was set for final argument. Notwithstanding the fact that the case had been closed, the respondents, through their counsel, after August 19, offered the affidavit of Randall, and it was accepted as part of the record. On August 30 and on the three following days you listened with me to a full and exhaustive discussion of the evidence and of the law bearing on the case. The arguments of Messrs. Wilson and Ford, counsel for the respondents, consumed two full days of this time, the other two days being taken up with arguments in support of the order to show cause by Messrs. Stauffer and Winter for the office, Messrs. Marble, Doolittle, and Fisher for the Bar Association, and Mr. Small for the parties represented by him.

The taking of testimony consumed more time than, in my opinion, it should have done, but it was my purpose throughout to give the respondents every opportunity that they could, with the slightest reason ask for, to introduce any and all evidence which could by any possibility be of value to them.

INFORMATION REFUSED.

To a certain extent I was hampered in this investigation by the fact that I had no power to compel the attendance of witnesses or the production of papers. Neither the respondent John Wedderburn, nor any officer of the respondent corporation, nor any employee who admitted any general knowledge of the business was brought forward as a witness by the respondents. Information respecting the respondents, their organization and their relation to the National Recorder was brought but refused.

A letter dated August 3, 1897, was sent by you to the respondents, through their counsel Messrs. Wilson and Ford, asking that answers duly verified be furnished to the following interrogatories:

First. Who are the members of the firm or corporation John Wedderburn & Co.?

Second. Who are the officers of said firm and what office does each officer hold?

Third. How is each of said officers chosen?

Fourth. How is each of said officers compensated for his services?

Fifth. How and by whom is the stock of said company distributed and held?

Sixth. How and by whom was the National Recorder Publishing Company organized?

Seventh. Who are the members of the firm, company, or corporation the National Recorder Publishing Company?

Eighth. Who are the officers of said company and what office does each officer hold?

Ninth. How is each of said officers chosen?

Tenth. How is each of said officers compensated for his services?

Eleventh. How and by whom is the stock of said company distributed and held?

Twelfth. What connection, if any, exists between the firm or corporation John Wedderburn & Co. and the firm or corporation National Recorder Publishing Company?

Thirteenth. How are business or professional advertisements of John Wedderburn & Co. placed?

Fourteenth. In what papers have such advertisements been inserted?

Fifteenth. How are such advertisements paid for?

Sixteenth. How are the advertisements of inventions and patents for sale placed?

Seventeenth. In what papers have such advertisements been inserted?

Eighteenth. How are such advertisements paid for?

Also please furnish me with—

(*A.*) A copy of the by-laws of the firm or corporation John Wedderburn & Co.

(*B.*) A copy of the charter or articles of incorporation, if any, of the National Recorder Publishing Company.

(*C.*) A copy of the by-laws of the National Recorder Publishing Company.

These interrogatories do not call for any information that could not properly be furnished by the respondents. They afford ample opportunity to the respondents to explain the connection between them and the National Recorder Publishing Company, which is indicated by the evidence in this case. The facts that W. L. Crounse, one of the incorporators of the corporation John Wedderburn & Co., is the editor of the Recorder; that the pages of the paper in every issue which has been put in evidence (see Exhibit 125) are largely taken up with advertisements of the respondents and advertisements secured through them; that nearly every issue contains a large number of "write-ups" of recipients of respondents' silver medals, and that the respondents furnished the paper with the names and addresses of these silver-medal recipients, and advised the acceptance of the "write-up" proposition as well as advised their clients to advertise in that paper, all point to a connection between the respondents and this company, which it was proper should be inquired into in this investigation.

To this letter no reply has been received. In fact, since the close of the testimony in this case it was stated by counsel for the respondents that no reply would be made.

The attempt of Mr. Wilson, of counsel for the respondents, to examine Mr. Snow, who was present in the room as a spectator and was not introduced as a witness, I did not permit (p. 358). In no other matter was the counsel for the respondents restricted.

EVIDENCE IN DISBARMENT PROCEEDINGS.

While it is true, in proceedings under a rule to show cause why an attorney should not be disbarred, it is not necessary that the rules of evidence applicable in criminal proceedings be strictly observed, such proceeding being held by the Supreme Court to be in its nature civil (*Ex parte Wall*, 107 U. S., 265), no evidence was put upon the record in this case which would not be admissible in any court and in any proceeding. In this opinion I have based my conclusions mainly upon the testimony of witnesses introduced by and in behalf of the respondents, on exhibits put in evidence by them upon the stipulation signed by their counsel. No evidence introduced on the part of the Office has been given weight except that which respondents have had ample opportunity to explain or deny. No evidence was introduced on behalf of the Office after the respondents' case was closed, though in conformity with the usual procedure the Office could have introduced evidence in rebuttal. And though it is not necessary in a proceeding of this nature that the offenses be proved beyond a reasonable doubt, every fact stated in this opinion is so proved. The investigation was conducted with entire fairness and the respondents were afforded ample opportunity to explain the transactions on which the charges were based and to vindicate their conduct. (See *Randall* v. *Bingham*, 7 Wall., 523.)

THE RESPONDENTS.

It is admitted in the answer of respondents that John Wedderburn & Co. is a corporation incorporated under the laws of the State of Virginia, and its business is to gather in for prosecution claims against the United States, including patents; and the said corporation has been so engaged since the date of its organization, March, 1895. That John Wedderburn is the president of this corporation and that cases are filed and prosecuted in his name as attorney is also admitted in the answer.

The answer is signed by John Wedderburn as president of the corporation, and Thomas B. Crittenden certified that he was then the secretary of this corporation, and that John Wedderburn was then the president.

The purpose of the corporation is stated in the answer to be to gather in for prosecution claims against the United States, including patents.

It appears from the certified copy of the charter of John Wedderburn & Co., introduced as Exhibit 131, that application for incorporation was made on March 6, 1895, by John Wedderburn, William L. Ford, Arthur L. Hughes, William L. Crounse, and Thomas B. Crittenden, and that the charter was granted March 25, 1895, the officers of the corporation for the first year being stated to be John Wedderburn, William L. Ford, Arthur L. Hughes, William L. Crounse, and Thomas B. Crittenden.

The purpose of the corporation is thus stated in paragraph 2 of the charter:

The purpose for which the company is to be formed is the

prosecution of claims against the United States, and of patents and other business before the courts, the Departments, and Congress.

In paragraph 6 the chief business is thus stated:

The chief business to be transacted by the said company is the prosecution of claims against the United States, and of patents and other business before the courts, the Departments, and Congress.

It clearly appears from the exhibits that while applications have been usually filed and prosecuted before the office by John Wedderburn as attorney, all correspondence with clients, both before the filing of the application and during its prosecution, has been carried on by John Wedderburn & Co. In certain cases, however, applications have been filed in the name of John Wedderburn & Co. as attorneys.

The closeness of the relation between John Wedderburn & Co. and John Wedderburn shown by the evidence is such that even if no application had been filed in the name of John Wedderburn & Co. as attorneys, that corporation must be considered for this proceeding subject to your jurisdiction. So far as the prosecution of applications before this Office is concerned John Wedderburn is merely the agent of the corporation of which he is president, and that corporation may be and should be held responsible for his acts.

Further, the advertisement, "Wanted an Idea," hereinafter referred to as extensively circulated by this corporation, requests inventors to write to "John Wedderburn & Co., patent attorneys;" the pamphlet "One Thousand Inventions Wanted," hereinafter referred to, bears in conspicuous letters "John Wedderburn & Co., patent attorneys," and the other pamphlets and papers sent out by this corporation, whether stating or not that John Wedderburn & Co. are patent attorneys, clearly imply that they intend to be so considered. In the letter heads used in all correspondence with inventors and others by this corporation John Wedderburn & Co. are announced to be "Solicitors of American and Foreign Patents."

Throughout this correspondence with applicants John Wedderborn & Co. represent themselves as conducting the prosecution of their applications before the Patent Office and did no doubt so do through their employes, notwithstanding that the formal power of attorney was to John Wedderburn.

JURISDICTION OF COMMISSIONER.

Having by these advertisements, pamphlets and letter heads, as well as by the whole tenor of their correspondence, put themselves before the public as patent attorneys, these respondents, John Wedderburn & Co., can not be heard to deny that they are, for the purposes of this investigation, in fact, patent attorneys or agents practicing before this Office and subject to the jurisdiction of the Commissioner simply because they are in fact a corporation not legally competent to practice law and because the prosecution of cases was done in the name of John Wedderburn.

The methods employed by this corporation in gathering in for prosecution applications for patent and other business relating to patents, the methods employed by the corporation in making searches on inventions submitted to it, the correspondence carried on with clients, the methods employed by it for securing fees from clients for foreign patents, for advertising inventions for sale, for appealing rejected applications, in general, the methods employed by it in hunting clients for their money, may properly be inquired into by you not only as bearing on the fitness of John Wedderburn to continue to practice before this office, but as bearing on the fitness of this corporation to practice before this office either directly or through its agent. It is impossible in this inquiry to separate the president of the corporation from the corporation of which he is president. The two must stand or fall together.

From an article in the nature of an advertisement of these respondents, published in the Washington Post of March 7, 1897, a copy of which was introduced as an exhibit in this case, it appears that John Wedderburn, prior to the organization of the corporation John Wedderburn & Co., was for four years manager of the bureau of claims and had made a comprehensive study of patent law. Prior to the organization of the corporation John Wedderburn & Co., as appears from exhibits in this case, John Wedderburn was manager of the Press Claims Company and appeared as attorney in application papers filed at this Office. The earliest date at which John Wedderburn appears as attorney in any case introduced as an exhibit herein is the case of Kramer & Mosher, filed October 10, 1893. Since that date his name has constantly appeared as attorney upon papers filed in this Office. He can not be presumed to be ignorant of the requirements of attorneys or agents practicing before this Office or ignorant of what constitutes fair and honest dealing towards clients. As president and representative before this Office of the corporation he must be held to have been fully informed of the business of the corporation and to have been cognizant of and responsible for whatever has been done by the corporation or its employes. The corporation, with a man who has so long appeared as attorney before this Office at its head, can not be held to be ignorant of what was required of it in honesty and decency in its relations with its clients.

ADVERTISEMENTS—THE $1,800 PRIZE OFFER.

The method employed by this corporation for opening correspondence with those who had made or might be induced to make inventions consisted in advertising extensively in the newspapers of Washington and elsewhere substantially as follows:

WANTED.—An Idea. Who can think of some simple thing to patent? Protect your ideas; they may bring you wealth. Write John Wedderburn & Co., Patent Attorneys, Washington, D. C., and get their $1,800 prize offer and list of inventions.

Mr. Ford, of counsel for the respondents, in his argument asserted with more ingenuity than candor, that there is not anything said in this advertisement about an $1,800 prize, taking the ground that an $1,800 prize offer would not be understood to be an offer of an $1,800 prize. With this view, it is hardly necessary to say that I can not agree.

This advertisement was false and misleading in its reference to an $1,800 prize offer. The evidence clearly shows that there was no $1,800 prize offered by Wedderburn & Co., and that they made no prize offer which could fairly and honestly be considered an $1,800 prize offer. The prize offered by them was a prize of $150 only. Their explanation of the $1,800 prize offer is that, as $150 was offered each month, the aggregate amount for twelve months would be $1,800.

By this adroitly worded but deceptive advertisement many persons were induced to send to this corporation for the $1,800 prize offer and list of inventions. In reply to such requests, Wedderburn & Co. were accustomed to send certain printed matter, comprising a pamphlet entitled "How to get a patent," written by Mr. Ford, one of the incorporators and at one time an officer of this corporation (as appears from the charter), and one of the counsel for the respondents in this proceeding; another pamphlet entitled "Have you an Idea? One Thousand Inventions Wanted;" a copy of the slip entitled "A New Departure, by John Wedderburn & Co. A Special Search Service," and the paper entitled "Prizes on Patents," "$1,800 Given Away, etc." With these was sent a letter substantially in the form given on page 1 of the stipulation signed by counsel, stating terms for preparing, filing, and prosecuting an application for patent and stating that after a patent has been obtained "we can place the same before the proper capitalists, etc."

"PATENTS PROCURED."

The letter head on which this letter is written is as follows:

Correspondents:
Great Britain,
France,
Spain,
Denmark,
Belgium,
Austria,
Germany,
Italy,
Russia,
Australia.

Law Offices of
JOHN WEDDERBURN & CO.,
Solicitors of American and Foreign Patents, Trade-Marks and Copyrights,
618 F Street, N. W.
[Cable address, "Wedpatent," Washington, D. C.]
WASHINGTON, D. C.

Patents Sold on commission and placed on royalty.
Taxes paid and patents worked in foreign countries.
Royalty contracts. Partnership agreements and assignments drawn and recorded.

P. O. Box 385.

It will be noted that it is stated in this letter head, as part of the business of the respondents—

Patents Sold on Commission and Placed on Royalty.

On this letter head was stamped in red ink, as admitted in the stipulation signed by counsel, a notice, of which the following is an example:

NOTICE!!

Total number of patents procured last week, 301; 124 were sold.

That this was intended to be understood and would be understood, by anyone reading it in connection with the letter head and the sale offer contained in the letter, as a statement of the number of patents procured by the respondents and the number sold by them is obvious, particularly in view of the fact that subsequent to January 15, 1897, as stated in the stipulation signed by counsel, the notice with reference to patents was made to read—

NOTICE.

Total number of patents allowed by United States Patent Office last week, 306; 322 were assigned,

and this was stamped, not on the letter with its letter head above referred to, and containing the sale offer, but on the back of the "New Departure" circular.

This change in the wording of the notice, the omission of the word "procured," with its necessary implication of agency, and the change in placing the notice, clearly indicate that the notice in its original form and location was recognized as not a proper notice, even by the respondent.

THE PRIZE COMPETITION.

The paper entitled "Prizes on Patents, &c.," states the condition of the prize competition and states the amount of the prizes ($150 each month) and the manner of awarding them.

In this paper it is stated that the prizes will be awarded by a jury consisting of one reputable patent attorney and two of the leading business men of Washington. It is stated in this paper that in order to enter the competition for the prize every competitor must apply for a patent for his invention through the respondents, or if he has already secured a patent through another agency he must submit it to the respondents for examination as to its validity. If he has not secured his patent, he must first have made a preliminary search at a cost of $5.

In other words, the competition is open only to those who have paid money to the respondents. This is perhaps not unfair, though it makes clear the fact that there is nothing either philanthropic or generous in such an offer, and that instead of being intended for the broad purpose of inducing "people to keep track of their bright ideas and see what is in them" it is intended solely to boom the business of the respondents.

But whatever may be said of the purpose of this prize competition, it was not fairly conducted. The jury of awards did not include a patent attorney, either reputable or otherwise. It included a United States Senator, an ex-Senator, a Member of Congress, and certain business men of more or less prominence. The awards were not made in all cases by the full jury or board of awards. On at least one occasion (page 772 et seq.) one member only of the board of awards was present. Julihn testified that he did not know the face of Mr. Eckloff, of this board of awards (page 775). The inventions submitted in competition for these prizes were not all of them brought before this board, whether one member was present or five. Many of them, in fact the greater proportion of them, were thrown out by the searchers, many of whom are shown to have been incompetent, and only those selected by these searchers as most promising were submitted to the board. This is clearly shown by the testimony of Bond, Julihn, and Gillis. The respondents, in their cross-examination of Gillis, put in evidence the following order (page 197):

"Search Department. All search makers must select one invention each month to be submitted for the monthly prize of $150. The features to be considered are simplicity, commercial value, usefulness, ingenuity, and patentability. Any

cases upon which a fee has been paid during said month can be entered in competition. Dated October 26, 1896."

To permit an invention submitted in accordance with the conditions of the paper "Prizes on Patents" in competition for the prize of $150, to be awarded by a jury or board, such as described in that paper, to be thrown out by an inexperienced and incompetent searcher because *he* does not think it worthy of the prize, is not fair or just to the competitor. It is necessary to a fair competition that the jury or board of award should be impartial, disinterested men, competent to decide upon the merit of the inventions, and it is also necessary that this jury or board should see and examine the inventions submitted. Otherwise the competition is a farce and a fraud.

Whether the jury or board which awarded respondents' $150 prize was competent or not need not be considered. The fact that the inventions submitted were judged not by them, but by inexperienced and incompetent subordinates of the givers of the prize, stamps the competition as an utter sham and fraud.

It is held by respondents that this paper, "Prizes on Patents," clears up any misunderstanding that might have existed by reason of the advertisement above referred to; that after this paper has been received there is nothing that requires explanation (p. 496). It was further stated by counsel for the respondents that the advertisement was not misleading, for the reason that it called for no expenditure on the part of anyone, and before any money was called for the paper fully explaining the prize offer was sent out.

With this explanation I can not agree. The advertisement above referred to was, in my opinion, false and misleading and known to be so by the respondents. It was intended to catch the attention and secure the response of persons to whom a prize offer of $150 would not have appealed strongly. It was misrepresentation for a purpose, that purpose being to secure the name and address of would-be patentees that respondents might begin upon them a systematic course of misrepresentation which they employed to entice from clients fees for preparing and prosecuting applications and for various other purposes—in other words, to begin hunting the inventor for his money.

It may be open to question whether this advertisement, untruthful and misleading as it is, is in itself alone sufficient to amount to gross misconduct. It is, however, of importance as being one of the steps in the system employed by the respondents.

PAPERS SENT OUT BY RESPONDENTS.

The various papers sent by the respondents with their first letter to a correspondent—the "How to Get a Patent," "One Thousand Inventions Wanted," etc.—were calculated and intended to encourage would-be patentees to believe that there was a great demand for the most simple inventions; that in many fields of invention there were no satisfactory devices; that the public was eagerly awaiting inventions in lines in which, as a matter of fact, there are hundreds of devices already patented. The "One Thousand Inventions Wanted," as is evident to anyone experienced in the arts, is little more than a list of old inventions. Certainly very many of the inventions therein stated to be "wanted" are inventions for which many patents have been granted.

Throughout their advertisements and the pamphlets and papers sent out by them, these respondents endeavor to impress upon the public the value of simple inventions. They state in "How to Get a Patent" that small things are the most valuable. In "Prizes on Patents," they state that "it is not the great, complex, and expensive inventions that bring the best returns to their authors, but the little, simple, and cheap ones." In the advertisement "Wanted, an Idea," they ask, "Who can think of some simple things to patent?" In all this there is that half truth that is in its effect worse than a falsehood.

SMALL INVENTIONS.

It is true that some small inventions, simple inventions, which have required little thought and little knowledge of the prior art on the part of the inventor, have proved of value. It is equally true, no doubt, that in lotteries some one for a trifling outlay has won a large prize. Yet the effect of lotteries is recognized as demoralizing to a degree. To endeavor to impress upon the public the idea that anyone without experience in the art, without knowledge of what is claimed in the art, without study and thought and experiment can evolve inventions of value is as demoralizing as the idea so strenuously insisted on by lottery agents that anyone who buys a ticket may win the great prize. It is as true in inventions as in everything else that what costs nothing is worth nothing. The valuable inventions are those which are the result of hard work, careful study, and experiment, by those who have familiarized themselves with what others have done and with the real needs in the art. The careful student does not always produce inventions of value, but he is at least not likely to merely reinvent what is already known, what is already before the public, either adopted by the public or tested and thrown aside as worthless.

The tyro, ignorant of what has already been done, ignorant of what is practical, what is needed in the art, having before him such meager and misleading information as that contained in the "One Thousand Inventions Wanted," works in the dark, and it is not surprising that he at most merely reinvents what is old. Out of 33,000 inventions on which searches were made by the respondents in two years, over 20,000 were, even by their searchers, incompetent and inexperienced as many of them were, found to be at most reinventions of what was already old.

Further, it is only those simple inventions which are broadly new that are of any considerable value. Patents which are limited to mere improvements on inventions broadly covered by existing patents are in most cases of little value. Inventions which differ only slightly from inventions already patented, particularly in such lines as the following—all of which are given in the list of "One Thousand Inventions Wanted"—Gate openers (7), self-closing gates (9), rakes (16), wrenches (98), alarm locks for doors (110), bale ties (143), baseball bats (157), flag staffs (524), soldering iron heaters (579), irregular form lathes (637), moth-proof bags (695), pruning implements (812), coin-registering purses (822), key-opening cans (933), pocket stoves (973), and the like, have to compete before the public with the earlier devices of which many have been patented in each of these lines, as well as in nearly all the lines of invention mentioned in that list, and are not likely to prove valuable, as must be well known to these respondents.

From the exhibits in the case, it is apparent that a large proportion of those reached by the respondents' advertisements are country people, many of them, as shown by their letters, possessed of little education and small knowledge of the arts. To induce such people to believe that these old and well-worked fields of invention are new and untried fields in which inventions of value could be readily made by them is grossly deceptive; is demoralizing to the same extent and in the same way as the alluring prospects held out by the lottery agent.

It is admitted that as a result of sending these pamphlets and papers to persons who have been led to write to the respondents by the advertisement above referred to, such persons have sent conceptions or inventions to the respondents, together with sums of money, and the respondents have for these sums of money undertaken and agreed to make in each case a thorough examination of the records of the Patent Office when so requested. (See answer, p. 2.)

It has not always been the case that inventors sent on their inventions at once upon receipt of the respondents' first letter with its accompanying pamphlets and papers.

PATENTABILITY AND SALABILITY.

When the supposed inventor failed to reply promptly, the respondents have in many instances, as shown by the evidence and as admitted in the stipulation signed by counsel, sent him an undated circular letter offering to advise him free of charge as to the patentability and salability of any device he might have.

Those who took advantage of this apparently liberal offer (as, for instance, Nagaye, letter of August 3, 1896, p. 460) received in reply a letter containing information which, in so far as it was not positively false and misleading, was such advice as could very well have been given for nothing, for it was worth nothing. Instead of giving substantial advice as to patentability, it merely stated that the invention was of a patentable nature, but stated that to determine its patentability a search at a cost of $5 would have to be made. The respondents, in sending out the letter promising advice free of charge as to patentability, were well aware that novelty is an essential, the primary essential, of patentability, and no advice as to patentability that would be of any value could be given without determination of the novelty.

This letter, replying to those who took advantage of the offer of advice free of charge as to patentability and salability, contained also a statement which, it is supposed, was intended to have some bearing on the question of salability of the invention. This statement is in the following language:

> We are in receipt of your esteemed favor of ——, inclosing sketch and description of your ——, of which reference has been made to the chief of our sales department, and this is the principal cause of delay in answering. In his expert opinion, a successful device of this nature, if patented immediately and properly handled, would net its owner not less than —— on direct sale, or yield a good income for several years if transferred on the royalty plan. Its cheapness and simplicity are strongly desirable elements in its favor, as there would be little or no experimental cost to eat up the profits, and a practically unlimited market will be furnished for such a successful device.

This either is or is not intended to be understood by the client as an estimate of the value of the invention submitted by him to John Wedderburn & Co. for their promised advice as to its salability. If it is not intended to be understood as an opinion as to the value of that invention, an expert opinion of a person who is "chief of our sales department," and necessarily a trusted employee whose competency is vouched for by the respondents, then it is not such advice as is promised by the respondents, is worthless to the client, and is a delusion and a sham, and the offer of advice free of charge is a mere trick to reopen correspondence with the inventor in the hope of leading him on to send fees to the respondents for search or other purposes.

If this expert opinion of the chief of the sales department is intended to be understood as an opinion of the trusted expert, whose competency is vouched for by respondents, as to the commercial value of the invention submitted by the client, then it becomes necessary to inquire into the actual competency of this so-called expert, the manner in which he determined the value of the invention, the relations of this expert to the respondents, and the propriety of sending such an estimate in advance of any information as to the novelty of the submitted invention.

The evidence discloses the fact that this expert chief of the sales department was Arthur L. Hughes, one of the incorporators of John Wedderburn & Co., and for the first year one of the officers of the corporation. Neither Bond nor Julihn, witnesses for and trusted employees of the respondents, is able so state anything as to the qualification of this expert. A number of cases in which he placed a valuation of from $2,000 to $20,000 are in evidence (see stipulation), and in nearly all of these cases there is admittedly nothing patentable, and therefore nothing of value.

VALUES PLACED ON INVENTIONS.

Values were placed on inventions by this expert Hughes at sight, sometimes without even sight of the invention or even full description of it—without study of the invention, without inquiry as to its novelty, without consultation of books—such valuation being a mere off-hand opinion, or statement rather than an opinion, on a matter upon which neither he nor any other person could have passed intelligent judgment without careful study and full knowledge of all material facts.

It is testified and not denied that Hughes never failed to place a substantial value upon every device submitted to him. Even a perpetual-motion device was estimated by him to be worth a million "if it would work"—an opinion which, in the judgment of Mr. Ford, of counsel for the respondents, was a proper opinion. (P. 224.)

There can be no doubt that the respondents employed Hughes for a definite purpose, that purpose being to direct that in every case submitted to him the invention should be reported to the client as of a very considerable value, without the slightest regard to the novelty of the device or its real value. Hughes, being one of the incorporators, and for a time, at least, one of the officers, could be depended on to carry out the schemes of the respondents, however deceptive and fraudulent they might be. He was intrusted with this work, and he did this work, no doubt, in precisely the way it was intended he should.

This scheme of placing a valuation on inventions before their novelty was even looked into is deceptive and fraudulent on its face. It is utterly indefensible. It was intended to mislead and deceive the client, to make him believe his invention to be of great value, and, so believing, to proceed further with it by paying fees. at least the search fee, to the respondents. This report of value was calculated to so influence the mind of the inventor that he would be slow to accept even an unfavorable report as to novelty, and no doubt in part explains the action of the inventors in those cases in which, after anticipating references. which they probably never understood, were shown them, they persisted in making application for patent.

This valuation scheme as carried out by the respondents through Hughes is in and of itself fraudulent and deceptive, and clearly amounts to gross misconduct on their part. As one of the steps in the respondents' adroitly planned and skillfully executed scheme for securing fees from would-be inventors, as one of the steps in hunting the inventor for his money, it is even more glaringly fraudulent.

The sending of a false valuation in a single case known to be or which should be known to be without value, where by reason of such valuation the inventor might be induced to part with a sum of money, indicates at least gross negligence. To make a practice of sending out false valuations indicates deliberate purpose.

THE HEVERLY CASE.

Even in the Heverly case, page 522, after completely anticipating references had been found and cited in rejection by the Patent Office (Office letter of October 9, 1896), the respondents failed to correct the estimate of value. and even stated that they saw no reason to change their opinion as to its practical value (letter of November 7, 1896). After the receipt of the rejection by the Office, they proceeded with the prosecution of the case, advised the taking out of foreign patents (letters of October 22, 1896, and January 2, 1897), offered to sell the invention (letter of November 19, 1896), and sent the usual letter in reference to taking appeal (letter of March 27, 1897).

If these estimates were given through mistake, the respondents should have been, and doubtless would have been, quick to correct the mistake as soon as it was made known to them, in order that the client might be prevented from further outlay of money.

THE PRELIMINARY SEARCH.

By these methods the respondents have induced inventors to send to them their efforts at invention, together with sums of money, for the purpose of having preliminary searches made in each case to determine the probable patentability of the invention. Upon the result of this preliminary search depends the future action of the inventor. If the search be properly made, if it be a thorough examination of the records of the Patent Office by a competent person skilled in such matters, and if on such a search no reference is found, the inventor may reasonably expect that his invention, or some feature thereof, is patentable. If, on the other hand, the search discloses anticipating references—that is, that the invention is not new—and the inventor is informed of that fact, he knows that he can not get a patent and that further expenditure of money in attorneys' fees or applications fees is useless—is throwing his money away. In order to disclose any references that may exist in the records of the Patent Office which are accessible to the public, it is necessary that the search be made by a competent person skilled in this line of work, able to recognize a reference when he sees it, and that this expert searcher take sufficient time to fully understand the invention on which he is making the search, and that he take sufficient time to make a thorough and complete examination of all classes of invention which may reasonably be supposed to have any bearing upon the invention.

IMPORTANCE OF SEARCH.

The importance of this search is fully recognized by the respondents, as appears from their pamphlet "How to Get a Patent" (see pp. 24 and 25):

> The value of such a report depends upon the carefulness with which the investigation is made and the skill and experience of the examiner making it. * * * We should * * * advise all inventors * * * to have a special search made. * * * Our report, if adverse, will save them money, as they will not persist in fruitless efforts to obtain a patent at a loss to themselves.

It may be that in some cases an anticipating reference has been found by an inexperienced and incompetent searcher. It may be in some cases that an anticipating reference has been found in a very few minutes. In general, it may be assumed that an unfavorable search—that is, a search which discloses an anticipating reference—takes less time than a search which fails to disclose a reference, for as soon as the anticipating reference or references is disclosed the search is complete.

But in order to be satisfied that an invention is not anticipated a long search is often necessary. This is admitted by respondents' witness Bond (p. 643), it being stated that such a search is sometimes a matter of days. No attorney is justified in reporting that a thorough examination of the records has been made and no reference found unless such search has been prosecuted by a competent searcher and in a thorough and careful manner. No attorney is justified in accepting the favorable report of an inexperienced or incompetent searcher, or the favorable report of even an experienced and competent searcher unless that searcher has had sufficient time within which to make a complete and thorough search.

Further, it is the duty of the attorney not only to have the search properly made, but it is also his duty

to report the result of the search fully and correctly to the inventor. A false or misleading report of a search is as deceptive as if no search had been made. Even though the search fails to disclose references which so completely anticipate the invention that there is no possibility of obtaining a patent, it may be that references found upon the search approach the invention so closely as to throw doubt on the advisability of taking out such a patent as could be obtained. Where this is the case, the favorable report should call the inventor's attention to and explain the bearing of such references, so that

> the inventor may acquaint himself with the condition of the art as it bears on his device.

See page 22 of "How to Get a Patent," before referred to.

RESPONDENTS' SEARCH DEPARTMENT.

The respondents, as is shown by the evidence and admitted, employed inexperienced and incompetent searchers. Not all of their searchers were inexperienced and not all were incompetent. There has been since the beginning of this year some more or less effective supervision of the inexperienced and incompetent searchers by persons who were both experienced and competent. Yet supervision is not enough. An incompetent searcher can not be trusted to make proper searches unless the supervision amounts to practically taking the work out of his hands.

No less than nine searchers employed by the respondents are shown by the evidence to have been without experience as searchers prior to their employment by the respondents. These are George Byrne, Jackson, McGowan, Alex Wedderburn, H. H. Byrne, Addison, Gowans, Berry, and Gurley. Of these, George Byrne was discharged for incompetency and afterwards reemployed (p. 653). Gurley was admittedly incompetent (p. 645), and Alex Wedderburn's work is stated by Gillis to have been poor (p. 229).

The searchers, incompetent as well as competent, averaged, during the period that Bond was in charge of the search department, seven and one-half searches a day, the search in each case including reading up the case as well as examining the records of the office (p. 641). At one time, prior to January, 1897, an order was issued requiring searchers to make twelve searches a day (p. 193 and affidavit of George Byrne). Gowans testified that he understood that nine searches a day were required (p. 107). Some of the searchers made as high as eighteen searches a day; others made twelve or more. Berry, an inexperienced searcher, made five searches the first day of his employment, six the second day, and five the third (p. 640). Gowans, an inexperienced searcher, made two hundred and fifty searches in thirty-one working days (p. 110).

There was constant pressure to hurry the searches (pp. 189–192). Searchers were urged to make reports of searches within twenty-four hours (pp. 192–198).

The number of searchers employed in June, 1896, was three (George Byrne's affidavit), one of them being George Byrne, afterwards discharged as incompetent. Gillis states that but four searchers were employed when he took charge of the search department, September or October, 1896 (p. 235), and that the largest number of searchers employed under him up to January 15, 1897, was six or seven (p. 236). Four searchers only signed their names on the back of the order issued by Gillis on December 28, 1896 (p. 195). Eight or nine searchers were employed during the period that Julihn was in charge of the search department, January 15, 1897, to February 15, 1897 (p. 769). The average number of searchers during the period that Bond was in charge of the search department, February 15 to May 7, 1897, was but twelve or thirteen (p. 645).

These searchers, it is stated on behalf of respondents, in two years reported on 33,000 inventions. Of these the searchers reported unfavorably on 60 per cent or more, or 20,000 in round numbers. That this insufficient number of searchers, many of whom were inexperienced and some of whom were incompetent, were able to find anticipating reference in 20,000 cases, shows what kind of crude conceptions and supposed inventions were gathered in by the respondents through their advertisements and their pamphlets and papers. It shows that large numbers of persons were falsely induced by the respondents to believe themselves to be inventors, and were led to send to the respondents fees which should never have been sent.

This raising of false hopes is demoralizing to these persons. It has no other purpose than to secure from them money for searches, money, if possible, for applications for patent, money for foreign patents, money for advertising, money for "write-ups" in the "National Recorder," and money for appeals. It shows a reckless disregard of the rights of people, a disposition to secure money by any misrepresentation, any pretense, however false.

REPORTS OF SEARCHERS.

The searchers employed by the respondents up to December, 1896, made reports either "favorable" or "unfavorable." Later they were instructed to report "doubtful" those cases in which there was doubt as to patentability. The report made by a seacher, however inexperienced, however incompetent he might be, and however hurried and incomplete his search, was, up to January, 1897, accepted by the respondents and a report sent to the client that his invention was patentable (p. 163). There was no revision of favorable reports up to January, 1897, (p. 163). Subsequent to the 1st of January, 1897, favorable reports were revised in some cases, but not always (p. 185). Subsequent to the 1st of January, 1897, there seems to have been a rule of the respondents that searchers would be held accountable for improper searches. If a reference was found by the Office which completely met a case on which a favorable report had been made the searcher, under that rule, would be discharged (pp. 165, 367). If, when a research was ordered, an anticipating reference was found the searcher, under the rule, would be docked for the research (p. 368). Yet, though references were cited by the Office completely anticipating inventions on which favorable report had been made and though references were found on researches, no instance of the discharge or docking of a searcher for

making an incomplete search has been brought to light by the respondents. Inquiry was repeatedly made of the witnesses, Bond and Julihn, put upon the stand by the respondents, for such instances and they were unable to furnish them. This indicates that the rule as to discharge or docking of a searcher was a mere pretense, never intended to be put into effect.

At the time that these changes in the respondents' methods of doing business, above referred to as beginning subsequent to the 1st of January of the present year, were made it appears that the criticism and condemnation of the methods of these respondents had become matters of common report. Bond admits that before he became connected with the respondents he had heard that there "were some complaints against him" (Wedderburn) (p. 638).

About this time occurred the remarkable correspondence between these respondents and their employee, Julihn, which was introduced in evidence by the respondents (p. 716). This correspondence consists of a letter written by the respondents to Julihn in reference to his taking charge of the search department and his reply. The necessity for transacting such business in writing when the employee was in constant personal communication with the respondents is not apparent. It shows, if it shows anything, that up to that time the "best possible preliminary examinations" had not been made "in all cases" (letter January 15, 1897, to Julihn, p. 716), and it shows that the respondents were especially anxious that something to indicate that they had experienced a change of heart should be on record if it should be needed in any "case which might come before the office or court" referred to by Gillis (p. 186). This correspondence shows clearly that the respondents were aware, at least as early as the beginning of January of the present year, that their methods were criticised and that such criticism was deserved.

REVISION OF REPORTS.

Though there was no revision of favorable reports, though the statements of inexperienced and incompetent searchers that they were unable to find a reference were accepted as satisfactory evidence that references could not be found, the unfavorable reports of searchers were always revised. Their judgment adverse to patentability was never accepted, their judgment favorable to patentability was, substantially, always accepted.

This failure to revise the favorable reports of inexperienced and incompetent searchers or to have researches made upon the cases favorably reported by them, when by such revision or research an anticipating reference might have been disclosed and the inventor thereby prevented from paying further fees, indicates not only reckless disregard of the rights of the client and indifference to the agreement entered into with respect to the search, but deliberate and intended fraud. The respondents had no right to accept as true and complete searches the searches made by such men as they employed under such circumstances as they were forced to work under. These searchers and the circumstances under which they worked were under the control of the respondents and they must be held to a full responsibility for their competency and care, particularly in view of the fact that the necessity for care, skill, and experience on the part of the searcher was fully recognized by the respondents, as appears from their pamphlet, "How to Get a Patent," page 24:

> The value of such a report (the report of search) depends upon the carefulness with which the investigation is made and the skill and experience of the examiner making it.

THE FAVORABLE REPORT.

The report sent out by the respondents in those cases on which the searchers reported that they were unable to find references is, as set forth in the stipulation, as follows:

> We have carefully considered your invention and made a thorough examination of the records of the Patent Office, and fail to find any reference which, in our opinion, will prevent you from securing a patent. In view of the favorable result of our search we have to report that it is our opinion that a patent can be obtained.
>
> The next remittance now due is $20, to cover the first Government fee of $15, and $5, the cost of one sheet of official drawings, and upon receipt of this amount we will prepare the necessary application papers and send them to you for approval and execution. Your invention appears to be a good one, and if properly protected and handled may prove valuable from a financial point of view.
>
> We have entered your invention in competition for our prizes, in connection with which you have our best wishes.
>
> The total cost of preparing, filing, and prosecuting an application for patent upon a simple invention before the primary examiner is $45, which covers $15, the first Government fee, and $5, the cost of one sheet of official drawings, payable when we are instructed to prepare the application papers, and $25, our fee for services, which should be returned with the application papers after they have met with approval and been executed. In addition to the above is a final fee of $20, which is payable at any time within six months after the application has been examined and allowed.
>
> As soon as the application is filed in the United States Patent Office, and you are secure from anticipation by any other inventor, we will at once proceed to seek a purchaser, if you desire us to sell the patent.
>
> For your further information we inclose herewith a copy of our $1,800 prize offer, and also send under separate cover our pamphlet entitled "How to Get a Patent." If you have received these circulars before, will you kindly hand them to some friend who is interested in patent matters?
>
> Very truly, yours, ———— ———.

A form of this report shown to have been used in nearly every case which is in the record as an exhibit is as follows:

> We have received your letter of the ——, inclosing —— to cover the cost of a special search in the matter of your invention in ——.
>
> We have made a thorough examination of the records of the Patent Office and fail to find any reference approaching your invention sufficiently near to prevent you from securing a patent. We therefore have to report that in our opinion a patent can be obtained.
>
> Please remit $20, to cover the first Government fee of $15, and $5, the cost of one sheet of official drawings, and upon the receipt of this amount we will prepare the necessary application papers and send them to you for approval and execution.
>
> There is no doubt but that your invention is a very valuable one, and that good money could be made out of the same if properly handled.
>
> Your invention will be entered in competition for our prizes.
>
> As soon as the application is safely filed in the United States Patent Office, and you are secure from anticipation by any other inventor, we will at once proceed to find a purchaser, should you desire us to sell the patent.
>
> We await your instructions.

This report, whichever form be considered, is not

a proper form except in those cases in which there are no references that approach the invention, no references which are of importance showing "the condition of the art as it bears on his (the inventor's) device." ("How to Get a Patent," p. 22.) Where such references exist they should be cited, that the inventor may have full information before him in determining whether or not to proceed.

It is not a proper report in any case in which the invention is either on its face not valuable or is so nearly like the prior state of the art as to be of doubtful value.

This report was sent in a large number of cases in which it is admitted that no proper search had been made, was sent in a number of cases in which no search at all was made, and, as testified to by Gillis and not contradicted, was sent by personal direction of the respondent, John Wedderburn, in a number of cases in which references had been found by searchers. There being some delay in obtaining copies of the references in these cases, Wedderburn directed Gillis, in the presence of one Tabler, an employee of the respondents, who is not called as a witness, not to wait for these copies, but to send out favorable reports. (p. 209.)

The sending of a favorable report in the cases in which no proper search had been made is claimed by the respondents to have been a mistake for which they should not be held responsible. The sending of a favorable report in the cases in which no search had been made is also explained to have been a mistake for which the respondents should not be held responsible.

I can not agree with the respondents that they should not be held responsible for these reports. The respondents must be held fully responsible for the acts of their employees, and were bound by their agreement with their clients to have these searches made properly. Their failure to do so in these cases is gross and inexcusable negligence. The fault lay not so much with the searchers as with the system under which they worked. This system was of the respondents' creation, and they must be held directly and fully responsible for it. Inexperienced and incompetent searchers can not be trusted to make favorable reports, and no searchers, competent or otherwise, can be expected to make proper and complete searches under pressure.

The sending of favorable reports in the cases as to which Gillis testified was nothing less than a deliberate fraud upon the clients. Without question it amounts to gross misconduct.

THE SO-CALLED UNFAVORABLE REPORT.

In those cases which were reported unfavorably by the searchers, that is, the cases in which anticipating references had been found, the respondents were accustomed up to December, 1896, as is admitted in the stipulation, to send a report in the following form:

> We have received your letter of the ——, inclosing —— to cover the cost of a special search in the matter of your invention in ——, sketch and description of which have also come to hand.
>
> We have made a thorough examination of the records of the Patent Office and find as the nearest reference approaching your invention patent No. —, copy of which we herewith inclose.
>
> Please remit $20, to cover the first Government fee of $15, and $5, the cost of one sheet of official drawings, and upon receipt of this amount we will prepare the necessary application papers and send them to you for approval and execution.
>
> Your invention will be entered in competition for our prizes.
>
> As soon as the application is safely filed in the United States Patent Office, and you are secure from anticipation by any other inventor, we will at once proceed to find a purchaser, should you desire us to sell the patent.
>
> We await your instructions.
>
> Very truly, yours, JOHN WEDDERBURN & Co.

This letter was sent in many thousands of cases. Just how many of the twenty thousand or more cases, above referred to as the cases in which anticipating references were found, were searched prior to December, 1896, does not appear, but the number can not be less than from ten to fifteen thousand. In substantially all of these this, the usual, "unfavorable" report was used. It was used in one case, the Hershberger case, as late as January 2, 1897. (See p. 697.)

This letter is not an unfavorable report. It was not intended to be understood by the client as an unfavorable report. It was drawn up and was used by respondents deliberately and with full knowledge of its meaning. The respondents are not inexperienced in patent business nor are they ignorant of the meaning of words or unskillful in the use of language.

This letter is one which might with propriety be used in a case in which, while references somewhat near the invention had been found, nothing to anticipate the invention, nothing to prevent the granting of a patent for the invention had been found. In such a case the letter, though not as full and definite as it should be, would not be open to serious objection. In such a case the inventor might properly be encouraged to send on money for preparation of papers.

But this letter was not used in such cases. It was used in cases in which the reference, stated to be the "nearest reference approaching the invention," was a full and complete anticipation, and it was useless for the inventor to make application for patent. It is upon its face a deceptive and fraudulent report. Its deliberate and continued use by the respondents was in violation of the trust reposed in them by their clients, in violation of the express agreement entered into with their clients, in violation of honesty and common decency. The report in the cases in which it was sent is a false and lying report. Its purpose is evident from its language. It was intended to deceive and mislead the client, to induce him to believe his invention patentable, notwithstanding the patent cited. It did deceive and mislead the client in many of the cases in which it was sent, as is clear from the fact that in these cases the client, notwithstanding the patent cited, sent on the money called for in this letter, and the respondents accepted this money and prepared and filed the applications in the face of the record showing that their own searchers had found anticipating references.

This so-called unfavorable report was so grossly misleading that these respondents' employees realized that its use would hurt the business (Gillis) p. 186; that it would appear badly in any case that might come before the Office or court (p. 186), and about the 1st of January of the present year, after it had been in use for many months—nearly two years, in fact—it was changed to the form given on page 28 of the stipulation, a form somewhat less baldly misleading, and later a revised form, given on page 27 of the stipulation, was adopted.

The sending of this so-called unfavorable report in these cases, followed up as it was by the acceptance of fees for the preparation of application papers without further explanation of the circumstances, is clearly gross misconduct.

APPLICATIONS FOR UNPATENTABLE INVENTIONS.

It is perhaps an open question whether an attorney may properly prepare and file an application for patent for an invention which he believes to be unpatentable.

If the ground of his belief is such as amounts to an absolute certainty—as, for instance, in the Whitman case (Exhibit 62, in this case), in which the reference, patent to Cheney, No. 116,553, found by the respondents' search and reported to the applicant in the usual so-called "unfavorable report" letter, shows absolutely every feature of Whitman's invention—the attorney, in filing such an application, is false not only to his client, but is false in his duty toward this Office. That the attorney has a duty toward this Office as well as toward his client can not be questioned. He is to assist the Patent Office in doing justice toward his client and justice toward the public. He can not be a party to an attempt to secure a patent for what he knows to be old, an attempt to take from the public what has become public property, any more than he can permit the Office to refuse to his client the protection to which that client is under the law entitled.

There may be circumstances under which an attorney, even though he may believe—such belief not amounting to an absolute certainty—an invention to be unpatentable, may properly file an application for patent therefor, but this should never be done without the express direction of the client, given after it has been stated to him that the invention is believed to be unpatentable and the reasons why it is believed unpatentable have been fully and clearly laid before him by the attorney. To deceive the client as to facts which negative patentability, or by failure to clearly and definitely state the facts to allow the client to deceive himself as to such facts, does not show that "highest good faith" which is recognized by the respondents as "necessary and required" (How to Get a Patent, p. 18) between attorney and client. It is nothing less than gross misconduct.

THE SILVER MEDALS.

The respondents make it a practice to send a silver medal to every applicant for a patent upon whose device, after search, a favorable report is made. They admit that in some cases where unfavorable reports had been made the medal was sent, but state that the order was to send medals only when favorable reports were made. (See stipulation, p. 32.)

This silver medal was in each case accompanied by the following letter:

> We take pleasure in informing you that the board of awards has selected your invention for special merit, and your name will appear on our roll of honor for last month for the Wedderburn prize. Under the terms of our recent decision to recognize those inventors submitting especially meritorious devices, we have determined to present a sterling silver medal to each person entitled to a place upon the roll of honor.
>
> We therefore send you by to-day's mail a sterling silver medal, accompanied by a United States Treasury certificate as to its standard fineness. It is of pure silver, and we regard its design as exceedingly artistic and effective.
>
> Congratulating you upon the merit of your invention, which promises to be exceedingly profitable to you, we are, with kind regards,
>
> Very truly, yours,
>
> JOHN WEDDERBURN & CO.

Notwithstanding the order that medals were to be sent only in cases in which favorable reports had been made, the record shows that the silver medal and accompanying letter congratulating the inventor "on the merit of your invention, which promises to be exceedingly profitable to you," were sent in no less than ten of the comparatively few cases made exhibits in this case in which the so-called unfavorable report had been sent.

In seven of these cases, six of which are given on page 6 of the stipulation, the other being the Baker case, page 532 of the record, the medal and letter were sent from six to forty-eight days after the so-called unfavorable report citing an anticipating reference had been sent, and in nearly all of these cases before any communication had been received from the client. To this number should be added the case of Whitman, in which the silver medal and letter were sent the day before the so-called unfavorable report citing an anticipating patent was sent (pp. 599 and 600, Exhibit 62).

If in these cases the respondents, after sending the silver medal and letter, had on receipt of fees for the preparation of papers returned the fees and written the client that the medal had been sent by mistake, and that by reason of an anticipating reference having been found they could not advise him to go on with the case, their assertion which they make now, that the medal was sent by mistake and contrary to their general order, would be accepted without question. But this was not the case. In every one of these cases the fees were sent on by the client so soon after the receipt of the medal and letter that it can not be doubted that its receipt was the means of inducing the client to proceed further with the case. In every one of these cases the respondents accepted the fees without hesitation and without explanation to the client. The fact that the respondents took advantage of the condition brought about by sending the silver medal and letter in these cases, and in so doing defrauded the client of the money sent on by him, in my opinion shows clearly that in these cases the medals and letters were sent to the clients with the full knowledge and approval of the respondents, for the purpose of inducing the payment of further fees in cases in which the so-

called unfavorable report citing a reference had not secured a response from the client as quickly as was deemed desirable by the respondents.

In some of the cases in which an anticipating reference had been cited in the so-called unfavorable-report letter the medal and its accompanying letter were not needed to secure a response from the client. (See cases of Robb, Gray, and Fenn.) In such cases the fees sent on by the client were accepted by the respondents without hesitation or explanation and the preparation of application papers was proceeded with, notwithstanding that the record of the case showed that an anticipating reference had been found and cited to the client. In these cases the silver medal and letter were sent subsequent to the receipt of the first installment of fees. In substantially all the cases made exhibits in this case, whether the report of search was favorable or unfavorable, a silver medal and its accompanying letter were sent to the client at some time during the progress of the case, and in every instance after the client had been asked to send on money for some purpose, either preparation of application papers (cases of Witte and others, page 6 of stipulation), the second installment of the fees (cases of Sooker, Bulin, and others, page 6 of stipulation), money for foreign patents (cases of Purdy and others, page 7 of stipulation), for advertising the invention for sale (cases of Baum and others, page 7 of stipulation), or for other purposes. In the cases of Haynes and Russell this silver medal and its accompanying letter were sent after part only of the second installment of fees had been sent and while the client was endeavoring to raise money for the balance of the fees.

PURPOSE OF SILVER MEDAL.

There can be no doubt, in my opinion, that the silver medal and its accompanying letter were intended to be used and were used to stimulate to action clients who were less quick in sending fees than the respondents deemed desirable. It was used with great adroitness, and in many cases secured the result desired. It was an important element in the scheme of securing money from clients. The medal itself and the high-sounding phrases of the letter, the reference to the board of awards, and the assurances that the client's invention was of "special merit," "especially meritorious," "which promises to be exceedingly profitable," etc., all coming from a corporation claiming to be patent attorneys of long experience and of the highest standing and integrity, and claiming to be indorsed by Senators and Representatives and others prominent in public life, can not but have had great weight with inventors. It was a powerful engine for mischief, and it was used without scruple by these respondents.

This letter accompanying the silver medal was false in its statement that a "board of awards" had selected the invention for special merit, etc. There was no board of awards which selected these inventions for special merit. There was no selection by anyone. The medals and letter were sent in all cases in which favorable report was made by the searchers, without regard to or consideration of their merit, and was, as has been above stated, sent in many cases in which an unfavorable report had been made by the searcher. (Stipulation, p. 32.)

Even if the silver medals had been sent only in those cases on which favorable report had been made by the respondents' searchers, and the respondents admit that it was their rule to send silver medals in all such cases, they are clearly guilty of grossly deceiving a large number of their clients. It is admitted that in two years the respondents sent out favorable reports in 11,000 cases. In two years these respondents filed applications in less than 4,000 of these cases, and of these applications less than 1,500 had been up to August 1, 1897, found allowable. Beyond question the respondents were well aware that in many of the cases in which they sent out favorable reports the invention, even though patentable, was so narrow, differed so little from prior devices, that it could not fairly or honestly be said to be of "special merit," "especially meritorious," or be said to promise "to be exceedingly profitable," even though it might be patentable. Beyond question the respondents were well aware when the order that a silver medal should be sent out in every case in which, after search, a favorable report had been made, was issued by them that the result would be that many inventors whose inventions were in no sense remarkable, in no sense valuable, and in no sense such as would be selected by any competent or honest board of awards, would receive medals and would be led to believe their invention to be of great merit. The record shows that the respondents were well aware with how much pride and pleasure would-be inventors received these medals. The record is full of letters from these respondents to their clients, in which they state, "We are glad to know of your appreciation of the medal."

There can be no reasonable doubt that the silver-medal scheme was fraudulent in its conception and fraudulent in its execution. It was intended to mean one thing to the inventor who received the medal and quite another thing to the respondents. It was intended that the inventor should believe the medal and certificate to be what on its face it purported to be—a reward of genius, a certificate that his invention has been selected by some competent and disinterested board of awards for its remarkable importance. Who this board of awards might be the inventor could not know, but he would naturally believe it to be composed of persons known by his trusted attorneys, the respondents, to be persons of good judgment and high standing. To the respondents and their employees this medal and award of merit meant nothing more than that some searcher had failed to find a reference, and that a favorable report on the invention had been sent to the inventor.

Such a scheme has no place in the legitimate business of an attorney.

THE RECORDER "WRITE UP."

It appears from the evidence that the National Recorder Company was at once informed of the sending out of this medal and award letter and given the inventor's address, and they at once proceeded to send to him the "write-up" letter given on page

7 of the stipulation, calling for $5 for which they would insert in that paper a portrait and sketch of the life of the alleged inventor, a proposition which was accepted by a large number of those to whom the letter was sent. (Stipulation, p. 8.)

The letter accompanying the silver medal is clearly false, and was known to be false by respondents. Its use as the respondents used it was deceptive and fraudulent and constitutes gross misconduct.

Having by false and misleading advertisements attracted the attention of the would-be inventor and secured his address; having sent him the various pamphlets and papers before referred to, which are deceptive and misleading as to the value of simple inventions; having stirred the inventor to activity by the offer of free advice as to patentability and salability, and having in response to his inquiry given him a recklessly false and misleading estimate of the value of the invention; having by these means induced the inventor to pay for having a search made; having reported the result of the search favorably, whether properly made or not, or having sent the inventor the false and misleading unfavorable report letter, as the case may be; having, if deemed necessary to secure an early response, sent the inventor a silver medal and its accompanying letter; having by the use of any or all of these means secured from the inventor the first installment of fees for the preparation of application papers, the respondents proceeded to prepare the necessary papers, in many cases telling the client that—

We have received your letter of the —— ultimo, inclosing $20 to cover the preliminary fees in the matter of your invention in ——.

We will immediately prepare the application papers to broadly cover the device and send them to you for approval and execution.

Your invention will be entered in competition for our prize, which will be awarded sometime during this month.

This, which is in effect an assurance that the invention is a broad one, was sent without reference to the real novelty of the invention; was sent in a number of cases in which no proper search had been made, and was sent in a number of cases in which the so-called unfavorable report citing references had been sent. It was like the estimate of value, and like the silver-medal letter, calculated and undoubtedly intended to encourage the inventor to believe his invention of great value, whatever the facts might be, so that he might be in a condition of mind to receive favorably the advice to take out foreign patents, to advertise the invention for sale, and to take an appeal. All these offers were to come, and it was necessary, in order that the client should be ready to accept them, that no opportunity should be lost to impress upon him the value and importance of the invention, whether, as a matter of fact, it was of value or was wholly unpatentable and worthless.

The application papers having been prepared, sent to the client for execution, and returned to the respondents, together with the balance of fee asked for, the application was duly filed.

EXCESS PAYMENT.

In twenty of the cases made exhibits in this case the respondents, in asking for the balance of fees, asked for and received from clients $5 more than the sum for which they had agreed to prepare, file, and prosecute the case. In eleven other cases the excess of $5 was called for but was not paid, the respondents admitting when attention was called to the matter that the sum ($25) called for was called for by mistake and a less sum ($20) only was due. In no case in which this excess was paid by the client was it returned by the respondents, so far as appears from the record. (See stipulation, p. 9.)

That this excess of $5 was in fact called for by mistake I can not believe. The slightest examination of the files should have disclosed the mistake, if mistake it was. The eleven cases in which the mistake was acknowledged should have been sufficient to call the respondents' attention to the matter. Had the respondents been disposed to deal fairly and honestly with their clients they would have been quick to notice and return the excess paid by the client if it had been called for by mistake.

I can not see that the retention of this excess of fees in these cases is anything less than petty cheating. While it is not directly shown that in any case this excess payment was returned, and there is nothing to indicate that in any of the twenty cases mentioned in the stipulation the excess was returned, it does appear, from the affidavit of Gurley and the schedule annexed thereto, that in the aggregate a considerable sum of money was returned to clients by these respondents. In some cases they returned the full fees paid to them except the search fee, but in no case, so far as shown in the record, was this done prior to January of the present year. As about that time it appears that even Bond had heard that there were complaints respecting the respondents' method of doing business, and as they were then well aware that their methods of doing business were open to serious criticism, it can hardly be claimed that this return of fees was anything more than a mere attempt to forestall just complaint. Much was made in Bond's testimony of the fact that in the Ashton case (see p. 614) the fees were returned, but when I asked if any fees had been returned in the Triacca, in the McConnell case, in the Polsley case, in the Taggart case, in the Baker case, in the first Hilliard case, in the Heverly case, in the Hinsdale case, in the Howroyd case, in all of which cases Bond had admitted that there was nothing patentable and no proper search had been made, the witness stated that he "did not recollect any of these cases" (p. 615).

In the schedules attached to Gurley's affidavit it is set forth that the total amount returned prior to January 1, 1897, was but $118, the largest single amount being but $20. This clearly does not show that prior to January, 1897, the full fees were returned in any case. The return to correspondents of $118 in three months is insignificant.

THE SALE OFFER.

In the first letter sent to those who answered the respondents' advertisement was an offer to find a purchaser for the invention. This offer was repeated in both the favorable report of search and the so-called

unfavorable report. To those who made inquiry with respect to selling their inventions, and in some cases in which no direct inquiry was made, the respondents sent a letter substantially to the following effect:

Replying to your favor of the ——, we have to say that our terms for selling patents are 10 per cent of the first $5,000 of the purchase price and 7 per cent of all sums in excess of that amount. All patents intrusted to us for sale are extensively advertised in the large metropolitan journals of this country. To cover this expense we also make an advertising charge of $20, which is payable in advance.

On receipt of this remittance, together with your instructions, we will be pleased to take up the case and will use our best efforts to effect a sale for you.

This was sent in no less than thirty-seven of the cases made exhibits in this case. (Stipulation, pp. 9, 10). In three or more of these cases the so-called unfavorable report had been sent citing anticipating references. In twelve of these cases this sale offer was sent after the application had been rejected by the Patent Office. (Stipulation, pp. 10, 11).

In four cases, in none of which has anything been allowed by the office and in three of which there is nothing patentable, the advertising fee of $20 was paid. (Stipulation, p. 10). It is needless to state that in none of these cases has the invention been sold.

The propriety of an attorney or solicitor of patents combining the business of soliciting with that of selling patents is, in my opinion, questionable. Doubtless it may be done honestly, but the respondents' methods are shown to be such as to sell the clients rather than their patents. These respondents, in their pamphlet "How to Get a Patent," on page 31, publish a "warning" against these concerns which offer to sell patents in language which describes with scrupulous exactness the reprehensible methods which they themselves practiced to deceive their clients and conveys a correct estimate of the moral quality of their practices. This "warning" is as follows:

Patentees, as soon as they receive their patents, or within a short time after, will be beset, importuned, and harassed by offers, propositions, requests, and solicitations of all kinds and descriptions, coming from persons, firms, and companies not only in this country, but also in Europe and even in South America. * * * The propositions will be very attractive and temptingly prepared—just the thing to catch the eye and fancy of the unwary. The offers will appear "gilt edge." The circulars accompanying them are all high-sounding and rose-colored. Patentees will be surprised at the great attention their inventions have attracted at home and abroad. Glorious visions of immense fortunes almost within their grasp will be held up before their eyes. These propositions will vary with the ingenuity of their authors. Some will pretend to want to purchase patents outright; others to place them on royalty; and still others to sell them on commission, inclosing formidable-looking contracts drawn up in an impressive way, highly advantageous to patentees. * * * All of these propositions, though apparently different, will have this one point in common—they will require *the payment of a fee in cash in advance.* One will say it is necessary to have money, calling it an extremely small amount, to defray the cost of securing copies of the patent for distribution; another will call it a membership fee; another, the cost of advertising the patent; another, the cost of having circulars printed, and so on. There is no end to the pretexts. None of these humbugs will help you. *Do not send them any money. Every cent you pay them is money thrown away.*

With the exception that these respondents do not wait to make this offer until the invention is patented, but make the offer not only before the patentability of the invention had been determined, but even after that question has been determined adversely in some cases by their own searchers, in other cases by the Patent Office, this scheme of soliciting inventions for sale against which they so hotly condemn is precisely the scheme which they adopt.

I have no doubt that the warning thus published by the respondents is fully justified.

It has been brought to my notice that a number of concerns scattered throughout the country are practicing precisely the fraudulent methods described in the above-quoted paragraphs, with the result of deceiving inventors and defrauding patentees. Many of these concerns do not make any pretense of practicing before the Office and can not be reached directly by this Office. It is to be regretted that such concerns should be permitted to use the United States mails in carrying out their fraudulent schemes, and I have the honor to suggest that the matter be called to the attention of the postal authorities.

The adoption by these respondents of the same scheme against which they warn their clients shows beyond a doubt a deliberate intention on their part to defraud. This intention was carried into effect in the four cases above referred to, in which the advertising fee of $20 was paid, and they were in these cases clearly guilty of fraud.

ADVICE TO TAKE OUT FOREIGN PATENTS.

In a large proportion of the cases filed as exhibits in this case the respondents advised their clients as to taking out foreign patents in substantially the following language:

We deem it our duty to suggest to you the advisability of taking out patents on your invention in Canada and Great Britain at least. The invention is a most useful one, and should be amply protected, so that you can reap the reward to which your ingenuity entitles you. We believe that the device would have extensive sale in these countries, which are so closely associated with our own in a commercial and business way. The cost of a Canadian patent is $30; a British patent, $35. We will be pleased to furnish you any further information that you may desire in regard to foreign patents.

This was sent in a number of cases in which anticipating references had been found on their own search, and had been cited to the client in the so-called unfavorable report letter; it was sent in not less than ten of the cases made exhibits in this case, after the application had been rejected by the Patent Office on references which clearly met the invention, as is admitted in six of these cases; it was sent in at least three cases after the applications had been for the second time rejected by the Patent Office, and in two of these cases it is admitted that there is nothing patentable.

THE HARTMAN CASE.

In one of these cases in which substantially this advice as to foreign patents was sent after the application had been rejected by this office, the correspondence clearly brings out the utter disregard by these respondents of the obligations resting on them as the trusted attorneys to whom their client looked for advice and protection from those who would cheat and defraud her. The record shows that in this case, the application of Anna S. Hartman

(p. 431), the client sent to the respondents on April 13, 1897, a letter containing the following:

I received your letter of April 8. I was very glad to know that I could sell the invention. * * * But I fully trust you. * * * Mr. Wedderburn, I would like to know, please, the price of Canada, Germany, and France, as I would like to have it protected in those countries, if you think it would be well.

This client was a woman in far from prosperous circumstances, and in response to this letter stating that she fully trusts the respondents and stating that she wishes to have the invention protected in foreign countries "if you think it would be well" the respondents wrote (p. 431) stating that—

We are indeed glad to hear that you contemplate putting your invention in our hands for sale. * * * In answer to your inquiry, we desire to state that the cost of a Canadian patent is, in an ordinary case, $30, a German patent $75, and a French patent $70. * * * Upon receipt of your instructions and the necessary remittance * * *, we will prepare the necessary application papers and forward them to you for approval and execution, etc.

The letter from which this is quoted was sent, although the respondents knew the applicant had nothing patentable, to a client who "fully trusted" the respondents, and asked "if you think it would be well" to take out foreign patents.

More complete violation of the obligations which the respondents well knew rested upon them as attorneys, more complete violations of the requirements of decency, fairness, and honesty, it would be hard to find outside of the record of this case. This, it is to be observed, occurred during the present year, but a few months ago, some months after the reforms in the practice of the respondents are said to have been made, on or about the 1st of January, 1897. It is true that in this particular case no money was paid by the client for taking out foreign patents, but the methods and fraudulent intent of the respondents are clearly here brought out.

THE ENGLISH CASE.

In the case of English (p. 630), a case in which an anticipating reference had been found upon the search made by respondents and cited to the client in the usual so-called unfavorable-report letter, a case in which it was so clear that there was nothing patentably new that the respondents deemed it advisable on March 9, 1897, after the criticism and condemnation of the respondents' methods had resulted in charges made before the Post-Office Department, to return to the inventor the fees for the United States application, these respondents, on January 8, 1897, after the application had on January 5 been rejected by the Patent Office, filed an application for patent in Canada and informed the client on January 20 that such application had been duly filed. On May 13, 1897, the respondents wrote English that—

We inclose herewith a blank application and authorization for patent in Great Britain, which you will please sign, etc.

This letter of May 13, 1897, referred to a letter from the respondents to the client dated May 11, 1897, which is as follows:

We beg to acknowledge receipt of your favor of recent date and have carefully noted everything stated therein with respect to your interests.

That you could not secure a United States patent to cover your "envelope" is a matter of much regret to us, but it was impossible to induce the Patent Office to pass your case to allowance in view of the prior state of the art. Under the circumstances we can assure you that everything was done for your interests that could have been done by anyone.

We are very sorry to have to advise you further that, as you feared would be the case, the Canadian patent office has practically rejected your case. After carefully examining the foreign reference cited by said patent office, we deem it our duty to inform you that, in our judgment, there is no chance for securing a Canadian patent.

It gives us pleasure to say, on the contrary, that there is no doubt of getting a British patent for you to cover your device. Our charge for this service is, as you are aware, $65, of which we hold $50 to your credit. In view of the unfortunate outcome of your Canadian application, we are willing to allow $15 of the amount paid in that connection to go toward defraying the expense of your British patent. The necessary application papers will, therefore, be prepared without delay and forwarded to you for approval and execution.

Whenever you are ready to proceed toward obtaining foreign patents on your "lamp-wick attachment," we shall be happy to place our best services at your disposal. Do not hesitate to command us whenever we can be of assistance to you in this or other matters.

Trusting that this letter will be satisfactory, and awaiting further suggestions or instructions at any time, we are,

Very truly, yours,

JOHN WEDDERBURN & CO.

Of course the client could obtain a British patent, because the granting of such patent does not hinge on the relation which the invention might pertain to the prior state of the art as disclosed by a careful examination, such as is required by our law. But the respondents had no reason to suspect that this British patent would be worth a penny when granted. In fact, they well knew, as appears from their pamphlet "How to Get a Patent" (p. 53), it would be invalid and worthless.

In this case the respondents, with full knowledge of the fact that the invention was not patentable, took advantage of the confidential relations with their client to defraud him of the amount of money necessary for the Canadian application.

In the case of Fossett (pp. 394–395) part of the fees for British and Canadian patents were accepted by the respondents after the applicant's invention had been rejected by the Patent Office. The British patent was of course granted, but this patent is, as is well known to the respondents, necessarily invalid and worthless.

FOREIGN PATENTS.

Advice to take out foreign patents should be given to clients only in those cases in which it is clear that such patents will be of advantage to the clients. Foreign patents, unless the inventor has means for exploiting the invention, are very often, particularly if the invention is a narrow one in a field already well occupied, of no value whatever to the inventor, and give him no return for the money which it requires to take them out. Besides the fees necessary to take out these patents, there are in most foreign countries large annual fees required, in default of payment of which the patent lapses. This fact, though mentioned in "How to Get a Patent," was not, in any letter in evidence herein, brought to the clients' attention. In cases in which the invention is not patentable the advice to take out foreign patents presents a plain case of attempt to defraud the client for the benefit of the attorney. That this is gross misconduct is not open to question.

This practice of advising clients to take out foreign patents, in any and all cases of which these respondents are clearly shown to be guilty, has become a widespread and serious evil of the business of soliciting patents. It is notorious that there are numerous concerns throughout the country which make it a practice to urge not only applicants for patent but even those who have taken out patents here to apply through them for patents in foreign countries, with the full knowledge that such patents, though obtainable by reason of the fact above referred to, that in most foreign countries there is no examination as to novelty preliminary to the grant of a patent, would be necessarily invalid by reason of the issue of the patent here. Many of these concerns do not attempt to practice before this Office, and for this reason can not be reached directly by you. The attention of the Post-Office authorities should, in my opinion, be called to these concerns with a view to refusing them the use of the mails.

MISREPRESENTATION OF THE CONDITION OF CASES.

Throughout the progress of the applications prosecuted by the respondents, so far as the applications made exhibits in this case are concerned, the record shows that they studiously concealed the true condition of the case from the clients when that condition was unfavorable, and did not hesitate to positively misrepresent the condition of the case, in every instance representing the condition as being more favorable than the facts justified. (See the cases of Sooker and Sackett and others, on page 15 et seq. of the brief in support of the order to show cause.) In many of these cases, as pointed out, the respondents are shown by the record to have been aware that the clients had or believed he had other inventions on which he might be induced to pay them fees.

This misrepresentation of the condition of the case was and could have been for no other purpose than to deceive the client into the belief that his invention was patentable, that he might be in a condition of mind ready to accept the respondents' sale offer, the offer to obtain foreign patents, and to send to the respondents other inventions with fees for searches or for preparing application papers.

It had the same deceptive purpose that characterizes the correspondence in which the chief of what the respondents were pleased to call their sales department gave his opinion that the invention was worth such a sum of money, in which the invention was stated to be very valuable, of special merit, broadly covered, etc. It was all a part of the same scheme to inspire the client with high hopes and full confidence, in order that the respondents might take advantage of that confidence to their own profit, whatever it might cost the client.

DUTY OF ATTORNEYS.

The respondents urge that there was no obligation resting on them to notify their clients of every action taken by the office, or every step taken by them in the prosecution of the case. In a sense this is true. An attorney worthy to be intrusted with the prosecution of a case should be trusted to take such action as may be necessary for the protection of his client's interest without stopping to consult him in advance as to every step. But the attorney is bound by the obligations which rest upon him to inform the client of such steps in the progress of the case as he should know, and the attorney should at least tell the truth and treat his client with candor when he does inform or advise him in regard to his case. If he does not do so, and is at the same time urging further expenditure of money for purposes which he knows can not result in advantage to the client, his misrepresentation and concealment of the true condition of the case is conclusive evidence of fraud.

There can be no doubt that concealment by the attorney from his client of the fact that the Patent Office has rejected his invention, while the attorney is at the same time urging the taking out of foreign patents or the payment of money to the attorney for advertising the invention for sale, is gross misconduct.

APPEALS.

In a very large proportion of the cases made exhibits in this case the respondents, as is admitted in the stipulation (pp. 12–13), after final rejection of the application by the Patent Office, sent the following letter:

We are in receipt of your favor of recent date, and regret to inform you that the Examiner in charge of your application for patent for improvement in —— has finally rejected the same upon reference to certain prior patents. We have tried in vain by repeated amendment and argument to induce the Examiner to alter his holdings, and the action taken is final so far as he himself is concerned. The only course now open to you to pursue is to take an appeal to the Board of Examiners-in-Chief, the cost of which is $25, $10 being the Government fee and $15 our fee for presenting the appeal. If you desire to take this course and will remit the above amount, we will immediately prepare the necessary papers to present the appeal in the strongest possible manner, and use our utmost efforts to secure a reversal of the Primary Examiner's decision.

In none of the cases in which this letter was sent, so far as disclosed by the evidence, had the respondents at any time given the applicant any information as to the references relied on by the examiner or his reasons for rejecting the application. In all these cases this information appears to have been studiously concealed from the applicant. In many of these cases the applicant had been repeatedly assured that his invention was meritorious and valuable, and that it was undoubtedly patentable and salable. In some of these cases the search had disclosed anticipating references which had been cited to the applicant in the so-called unfavorable-report letter. In a very large proportion of these cases there was, as admitted by respondents, nothing patentable. In other words, this letter, without explanation, information, or advice, which a capable and honest attorney is bound to give his client, as to the wisdom of appealing, from which the client might well infer that it was important to take an appeal, was sent by these respondents in numerous cases in which they well knew there was nothing patentable; in which they well knew that appeal was useless and a mere wanton appropriation to themselves of their client's money.

It is urged that this letter does not advise an appeal. That is true, and in that it lacks the elements of honesty and candor—it gives no advice in a matter in

which the competent and honest attorney does give advice one way or the other. He is supposed to know what ought to be done. His client only knows through him.

In view of the previous misrepresentations and concealment of material facts, the object and intent of the failure to advise is not left in doubt. It is clearly not such a letter as the respondents in fairness and justice to their clients should have written.

DUTY OF ATTORNEYS.

An attorney is employed because he is of greater skill and experience in prosecuting applications than his client. He is bound to give his client the advantage of his skill and experience. When he not only fails to do so, but omits that plain duty for an unworthy purpose, he is guilty of gross misconduct. The respondents were under obligation to give to their clients at so critical a period in the case as that at which the question of appeal has to be considered the benefit of their best information and their best judgment. Their failure in those cases in which they knew the invention to be unpatentable to so inform their client in clear and definite terms shows the quality of their conduct.

In a number of these cases the fees for appeal were paid and were accepted by the respondents, though they well knew that there was nothing patentable in the case and that an appeal was useless. These respondents represented themselves to be attorneys of experience in practice before this Office, and presumably skilled in patent matters; hence to accept appeal fees in such cases without hesitation or explanation and purposely keep clients in ignorance of the true significance of the examiner's rejection, thus misleading their clients as to the possibility of securing favorable action on appeal, is gross misconduct on their part.

In some of these cases in which the appeal fee was paid the respondents made no attempt, either by oral argument or by written brief, to argue the case before the Examiners-in-Chief to secure favorable action, even in cases where there was patentable matter in the case. (Stipulation, p. 14.) In the case of Triacca (p. 575) the respondents, after repeated assurances to the client that they would do their best on appeal, failed to appear to argue the case orally and failed to file a written brief. In other words, after promising to do their best they did nothing. The neglect of the client's business in this case, and it is, as appears from the record, not an exceptional case, shows gross negligence on the part of the respondents which amounts to gross misconduct.

DUPLICATE APPLICATIONS.

It is admitted by the respondents that in not less than six instances, after filing an application for one inventor for an invention which was unpatentable, they subsequently filed a like application for another inventor, and in one case for two, and in another case for three, each application for the same unpatentable invention. Had this happened in respect to inventions the patentability of which was open to doubt, the respondents' excuse of oversight, mistake, inadvertence, might be accepted in extenuation of the offense. But three of these successively filed applications were for "string envelopes," a class of invention notoriously old; two were for envelopes perforated at the end; two were for stovepipe sections provided with screw threads for joining sections together, an invention notoriously old; three were for cooking pots in which an inner pot which can be lifted out contains the vegetables to be cooked, an invention also notoriously old.

The nature of the inventions in these cases of duplicate applications shows conclusively that the respondents were grossly negligent and indifferent to the interests of their clients in making searches, in that they failed on repeated searches to find references which any competent searcher should have found on the first search, and that they deliberately disregarded the information bearing on the novelty of the invention brought to their attention by the Patent Office.

It is clear that when so many applications for string envelopes, screw stovepipes, cooking pots, and other unpatentable inventions have been simultaneously or successively prepared in the office of the respondents, they either were grossly negligent in not knowing the fact, or, if they knew it and nevertheless filed the applications, they were guilty of a gross offense against law and morals.

APPLICATIONS FILED BY RESPONDENTS.

The respondents in their pamphlet "How to Get a Patent," on page 24, state that "it is extremely rare that a patent is refused on an invention which we report new and patentable." That statement was written in utter disregard of the truth and obviously written to deceive. The records of the office, in evidence in this case, show that of nearly 3,800 applications filed by the respondents between March 3, 1895, and March 3, 1897, only 1,884, or a little over 50 per cent, had, on August 1, 1897, been allowed or found to contain allowable claims. 909 of these cases had been finally rejected, and of the remainder 941 stood on August 1st, with all claims rejected. This record evidence shows how utterly untruthful and deceiving is the assurance the respondents gave their clients.

It is true that some of these rejected applications are cases in which the respondents had found references on search and had cited these references to the client in the so-called unfavorable report-letter; but this fact is hardly more to the credit of the respondents than an admission that the invention in all these rejected cases had been reported patentable by them on the search.

The statement in the pamphlet "How to Get a Patent," above referred to, is in view of the facts a falsehood, promulgated to deceive the unwary.

There can be no doubt that the facts clearly brought out in the record as above set forth fully sustain the charges on which the order to show cause was based, except the charge respecting the Sulzer letter, which charge was withdrawn.

RESPONDENTS' SCHEME OF DECEPTION.

The facts brought out in the record show further that these respondents carried out in their practice a skillfully planned scheme of deception, misleading

their clients without regard to the dictates of truth, justice, or decency. By false and high-sounding promises they played upon the credulity and desire of their clients to make money quickly, and led them on by misrepresentation and concealment of material facts to send on money, and more money, the Patent Office and the business of patent soliciting being used as an agency wherewith to practice their schemes to make money easily and, as they hoped, without risk.

DUTY OF THE PATENT OFFICE.

The statement made on their behalf of the number of searches made by them in two years, 33,000, in 60 per cent of which they found anticipating references, and the fact shown by the record that nearly 3,800 applications were filed by them in two years, in nearly 50 per cent of which nothing patentable has been found by this Office, show clearly that the respondents have by their misrepresentation and deception defrauded thousands of would-be inventors out of hundreds of thousands of dollars, and it is far from creditable to the Government that its offices and its postal facilities have been used by these respondents openly and in defiance of law to promote their dishonest schemes. To permit such methods to be practiced and to permit those who practice such methods to longer be recognized as patent attorneys or agents would be to make this Office a partner in the offense.

The Office can not, without bringing lasting reproach upon itself, permit the continuance of such deliberate and systematic deception of inventors as is clearly shown upon full and fair investigation to have been practiced by the respondents. The duty of this Office toward inventors and the public imperatively demands that the attorneys practicing before it who are shown beyond reasonable doubt to have been so utterly false to their obligations toward this Office and toward their clients, so utterly false to professional honesty and fairness, so utterly false to even common decency, should no longer be permitted to be recognized.

RESPONDENTS GUILTY.

In my judgment the respondents, John Wedderburn and John Wedderburn & Co., have been guilty, not only of gross misconduct in particular cases, but of a long-continued, systematic, and deliberate course of gross misconduct. In justice to this Office and in justice to the public, these respondents should be refused further recognition as patent agents or attorneys, and the facts disclosed should be reported to the district attorney for such action as the delinquency of the respondents and the safety of the community demands. The fact that the United States mail was being used by these respondents to promote schemes of fraud was called to the attention of the Post-Office Department many months ago, but the matter was, I understand, placed in the hands of an official of that Department, who for some reason failed to do his duty. He has since, I am informed, been dismissed and criminal proceedings against him for misconduct in office are pending.

THE RESPONDENTS AND THE NEWSPAPERS.

If it be true, as stated in the article advertising the respondents published in the Washington Post on March 7, 1897, before referred to—an article which evidently emanated from the office of the respondents—if it be true, as stated in that article, that—

It is a remarkable fact that the firm of John Wedderburn & Co. to-day embraces more than 3,000 well-known newspapers, all of which are stockholders and whose vital interest it is not only to spread abroad the fame of this firm, but also to guarantee to the public the skill and integrity of its management,

and that—

It is natural that the newspaper publishers of the United States should have an especially kindly feeling for Mr. Wedderburn. A large number of them are his intimate personal friends. He has patronized them lavishly, and they have generously donated their space without compensation whenever he has requested a favor for his firm or for a client. * * * The newspapers appreciate keenly the principle of reciprocity, and for every dollar spent they have been glad to devote $2 worth of space for the purpose of showing their appreciation of the man who has taken the first rank in his profession, largely by reason of his generous patronage of the press;

if it be true, as also stated in this article, that—

Scores of Senators and Representatives have gladly availed themselves of Mr. Wedderburn's recognized ability and integrity to refer to him the business of their constituents sent to them for reference to reputable attorneys,

then it would seem that the respondents have not only practiced the deceit and misrepresentation in which they are shown to be past masters upon the unlearned and the unwary, but have successfully practiced the same deceit and misrepresentation on the newspapers supposed to possess both high intelligence and keen business sagacity, and upon public men of the widest experience and largest knowledge of affairs.

That these respondents have not only used the offices of the Government and its postal facilities to promote their dishonest schemes, but have, by their trickery and deceit, by their pretense of the highest integrity, honesty, and fair dealing, secured the guaranty of their "skill and integrity" from thousands of newspapers throughout the land and the indorsement and apparent approval of public men of the highest standing indicates an astounding condition of affairs. If the respondents, shown by the record to be dishonest and dishonorable in their business methods and absolutely without integrity, could, by the mere distribution of their stock and "generous patronage," secure this guaranty of their "skill and integrity" from so many newspapers, it is not to be wondered at that the would-be inventors, inexperienced and unacquainted with the ways of the world, have been helpless in their hands; it is not to be wondered at that the respondents have successfully practiced their schemes of deception upon thousands with great profit to themselves. Beyond question the indorsements thus obtained from the press and from public men have been of the greatest value to the respondents and have had much to do with securing the confidence of those whom they have deceived and defrauded; have given the respondents an assurance, a confidence, and boldness which they could not otherwise have had.

If it has happened that these three thousand newspapers have knowingly lent their aid to the unscrupulous schemes of these respondents, or have, for the

sake of the shares of stock and the lavish patronage, shut their eyes to these schemes, then there is here indicated a gigantic conspiracy the danger of which to the Government and to the community can not be overestimated.

RESPONDENTS' EMPLOYEES.

In conclusion I deem it my duty to call your attention to the fact that the respondents in the conduct of the business as carried on by them, and in the execution of their dishonest and fraudulent schemes, had the cooperation and assistance of certain persons, as the responsible heads of the various departments of their office, who were, prior to their employment by the respondents, in practice before this office, some of whom may attempt to resume practice and some of whom have in fact applied for registration under the present Rules of Practice. I can not but be of the opinion that such persons, who, having had experience in practice must be presumed to be aware of what honest and honorable methods of practice are, were willing to aid and abet the respondents in their peculiar practices and continued to do so after the attention of the public had been called to these practices by the institution of proceedings against these respondents, must be held to be sharers in the guilt of the respondents and unfit to be permitted to practice before this Office. In my judgment none of these persons should be admitted to practice or permitted to be registered, except upon clear and convincing proof that they had no part in, and were in no sense responsible for, any of the fraudulent and deceptive schemes of the respondents.

Respectfully submitted.

A. P. GREELEY,
Assistant Commissioner.

To the COMMISSIONER OF PATENTS.

[Vol. 81. No. 1.]

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 2. TUESDAY, OCTOBER 12, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
ATTORNEYS	181
COMMUNICATIONS TO THE PATENT OFFICE	181
PRICE OF PRINTED COPIES OF SPECIFICATIONS AND DRAWINGS	181
REGULATIONS IN RELATION TO MAIL-MATTER	181
CORRESPONDENCE	181
WITHDRAWAL OF APPLICATIONS FROM ISSUE FILES	181
MONEY BY MAIL	182
PRINTS	182
ISSUE OF OCTOBER 12, 1897	182
APPLICATIONS UNDER EXAMINATION	182
PATENTS GRANTED	183
REISSUES	323
DESIGNS	324
TRADE-MARKS	328
LABELS	None.
COMMISSIONER'S DECISION—	
Keller v. Wethey v. Roberts	331
DECISIONS OF THE U. S. COURTS—	
Electric Smelting and Aluminium Company v. Carborundum Company	332

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., October 1, 1897.

SIR: The Secretary of the Interior has ordered that John Wedderburn, of Washington, D. C., either individually or under the fanciful title of John Wedderburn & Company, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Communications to the Patent Office.

RULE 2. * * * All letters and other communications intended for the Office must be addressed to "The Commissioner of Patents." If addressed to any of the other officers, they will ordinarily be returned.

RULE 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Price of Printed Copies of Specifications and Drawings.

It is hereby ordered, pursuant to an amendment of section 498 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1896, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1896.

Regulations in Relation to Mail-Matter.

(ORDER NO. 1,129.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 18, 1897.

In order to insure the ready identification of the division from which mail-matter emanating from this Office was sent, and the prepayment of any foreign postage thereon, as well as to prevent the retention for general delivery in the post-office of this city of any wrongly-addressed letter when this Office could supply a fuller or more accurate address, it is directed that the following regulations be observed with reference to all mail-matter forwarded from this Office:

Each envelop forwarded from any division will be stamped or marked in the upper left-hand corner with the division number or letter, as the case may be.

Each envelop addressed to a foreign country must be forwarded to the mail-room and the proper stamps affixed thereto before mailing.

Such mail as is to be delivered in this city shall be directed "Washington, D. C." If a letter addressed to a person in this city and not marked for general delivery be returned to this Office, it will be promptly remailed with an accurate and full local address supplied, if possible. In remailing, the envelop should be marked or stamped "Hold in General Delivery," but no envelop should be thus marked until the address thereon is as full and accurate as the Office can supply. A letter to a person in this city will not be filed "Undelivered" until it is returned to this Office in an envelop thus addressed and marked.

BENJ. BUTTERWORTH,
Commissioner.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.

2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.

3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.

4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.

5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

Withdrawal of Applications from Issue Files.

After the notice of allowance of an application is given, the case will not be withdrawn from issue on account of any mistake or change of purpose of the applicant or of his attorney, nor for the purpose of enabling the inventor to procure a foreign patent, nor in any other case, without the approval of the Commissioner.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

Print.

54.—Title: "THE KIMBALL SITUATION." *W. W. Kimball Company*, Chicago, Ill. Application filed August 19, 1897.

Issue of October 12, 1897.

Patents	427—	No. 591,374 to No 591,800, inclusive.
Designs	22—	No. 27,712 to No. 27,733, inclusive.
Trade-Marks	24—	No. 30,660 to No. 30,683, inclusive.
Labels	None.	
Prints	1—	No. 54.
Reissues	1—	No. 11,638.
Total issue	475	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	4		New Hampshire	1	1
Arizona Territory			New Jersey	17	1
Arkansas	5		New Mexico Territ'y		
California	16		New York	60	7
Colorado	5		North Carolina	4	
Connecticut	21		North Dakota	3	
Delaware			Ohio	33	1
District of Columbia	1		Oklahoma Territory		
Florida	1		Oregon	1	
Georgia	2		Pennsylvania	47	2
Idaho	2		Rhode Island	3	
Illinois	40	3	South Carolina		
Indian Territory			South Dakota	1	
Indiana	5		Tennessee	1	
Iowa	6		Texas	13	
Kansas	1		Utah		
Kentucky	6		Vermont	4	
Louisiana	1		Virginia	2	1
Maine	4	1	Washington		
Maryland	1		West Virginia	4	
Massachusetts	42	1	Wisconsin	6	
Michigan	13	2	Wyoming	1	
Minnesota	8		U. S. Army	1	
Mississippi			U. S. Navy		
Missouri	10	2	Total to citizens of the United States	400	22
Montana	1				
Nebraska	2				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		
Austria-Hungary			Newfoundland		
Barbadoes			New South Wales		
Belgium			New Zealand		
Bermuda			Norway		
Brazil			Portugal		
Canada	11		Queensland		
Cape Colony			Roumania		
Chile, Republic of			Russia	1	
China			Scotland	1	
Colombia			South African Republic		
Cuba			South Australia		
Denmark			Straits Settlements		
Egypt			Sweden		
England	16	1	Switzerland	2	1
Finland			Venezuela	1	
France	4		West Australia		
Germany	12	1	Total to citizens of foreign countries	49	3
India	1				
Ireland					
Japan					

APPLICATIONS UNDER EXAMINATION.

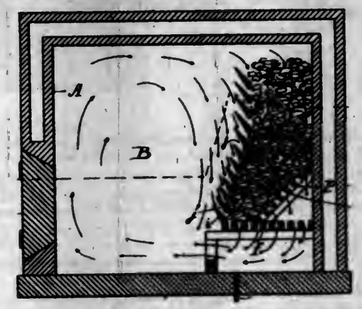
Condition at Close of Business October 5, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Sept. 9	Sept. 7	149
	Between one and two months.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Aug. 6	Sept. 21	382
200	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Aug. 20	Sept. 22	177
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Aug. 5	Sept. 11	216
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Aug. 27	Sept. 10	143
215	XVII. Paper Manufactures and Printing.	Aug. 5	Sept. 10	182
98	XXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Aug. 12	Sept. 7	223
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Aug. 12	Sept. 3	213
286	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 11	Aug. 26	253
242	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Aug. 9	Aug. 24	275
106	II. Farm Stock, Products, etc.	Aug. 17	Aug. 20	350
	Between two and three months.			
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 16	Sept. 27	276
102	XIX. Stoves and Furnaces	July 19	Sept. 22	330
256	XII. Mechanical Engineering, Store-Service, etc.	July 23	Sept. 20	149
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 22	Sept. 16	141
98	XXI. Textiles, etc	July 26	Sept. 13	231
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	July 15	Sept. 11	307
90	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	July 19	Sept. 10	431
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Aug. 2	Sept. 1	200
253	X. Carriages and Wagons	July 9	Sept. 1	393
282	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 16	Aug. 21	341
89	XXVI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 17	Aug. 14	583
946	I. Tillage and Fences	July 6	Aug. 5	339
	Between three and four months.			
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 21	Sept. 14	252
248	XVIII. Steam-Engineering, etc.	June 26	Sept. 13	366
128	XXIV. Sewing-Machines, Apparel, and Toilet.	June 11	Sept. 11	184
95	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	June 7	Aug. 28	529
281	XXIII. Instruments of Precision, Acoustics, etc.	June 24	Aug. 7	333
940	VII. Velocipedes	June 21	July 21	1284
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	July 15	371
	Between four and five months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	June 4	Sept. 27	675
67	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	May 28	Aug. 30	173
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 20	Aug. 21	600
	Total number of applications awaiting action			11,175
	Between one and two months.			
	Designs	Aug. 26	Sept. 10	227
	Trade-Marks	Sept. 2	Sept. 28	36

PATENTS

GRANTED OCTOBER 12, 1897.

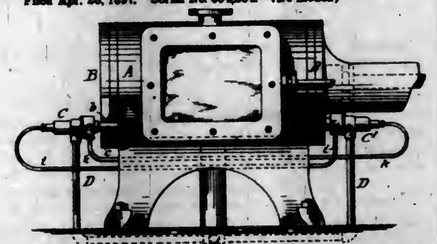
591,874. REFRIGERATOR. SOLOMON W. BATES, Portland, Me. Filed Dec. 14, 1896. Serial No. 615,897. (No model.)



Claim.—1. The herein-described refrigerator having a refrigerating-chamber and an ice-chamber separated by a generally vertical partition composed of flattened horizontal bars having one edge thicker than the other said bars being placed one above the other to form spaces inclining and tapering or contracting downward toward the ice-chamber.

2. The herein-described refrigerator having a refrigerating-chamber and an ice-chamber placed side by side and separated by a partition having a series of openings inclining toward said ice-chamber, the lower portion of said partition extending farther into said refrigerating-chamber than the upper portion.

591,875. RELIEF-VALVE. JOSEPH H. BEARE, Stockton, Cal. Filed Apr. 23, 1897. Serial No. 634,284. (No model.)



Claim.—1. In combination with an engine-cylinder, a relief-valve casing at each end thereof, an exit for steam from said casing, a valve in said casing adapted to be closed by steam-pressure from the cylinder, an outlet for water from the casing, and an inlet for admitting pressure from the other end of the cylinder to open said valve, substantially as described.

2. In combination with an engine-cylinder and its piston, a valve-casing at each end of the cylinder, separate pipes connecting the casings each with the other, and a relief-valve in each casing normally open to permit the piston to eject water through it at the end of each stroke, each valve being closed by live-steam pressure at its end of the cylinder, and opened by live-steam pressure in one of said pipes from the other end of the cylinder, substantially as described.

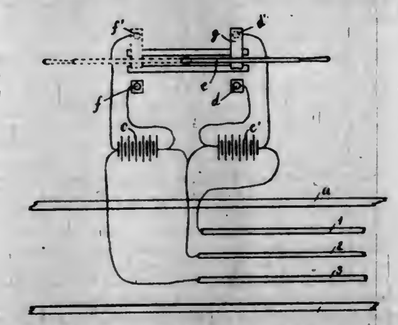
3. In combination with an engine-cylinder and piston, a relief-valve casing at each end of the cylinder having a valve, a separate pipe connecting the body of each valve-casing with the end of the other, and an escape for water from the body of each casing; whereby at the end of each stroke water is discharged by the engine-piston through the open relief-valve, while at the admission of steam immediately after, each relief-valve is closed, and steam and water pressure produced through one of said pipes to open the other relief-valve, substantially as described.

4. In a relief-valve, and in combination, a coupling forming a hollow chamber and adapted to be connected to an engine-cylinder, a valve-casing connected to said coupling, an exit for steam from said hollow chamber, a valve in said chamber seating against the end of said casing when closed by steam-pressure from the engine-cylinder, a piston connected to said valve and fitted to slide in the casing, an outlet for water, and an inlet for admitting pressure against said piston to open said valve, substantially as described.

5. In a relief-valve, and in combination, a coupling forming a hollow chamber and adapted to be connected to an engine-cylinder, a perforated diaphragm secured within said chamber, a valve-casing forming a continuation of said chamber, a piston sliding therein, a water-exit from the valve-casing between said valve and piston, and an inlet for pressure at the outer end of the casing, substantially as described.

6. In combination with an engine-cylinder, a relief-valve casing at each end thereof containing a valve-seat, a sliding valve in each casing, a sliding piston connected to each valve, a spring for each valve tending to unseat it, an escape for water from each casing, and pipes connecting said casings with each other, all constructed and arranged, so that said valves are normally operated by steam-pressure from the cylinder, but are opened by said springs, as soon as the engine is at rest, substantially as described.

591,876. SIGNALING ON RAILWAYS. ARCHIBALD C. T. BOND, London, England. Filed May 14, 1897. Serial No. 636,567. (No model.)

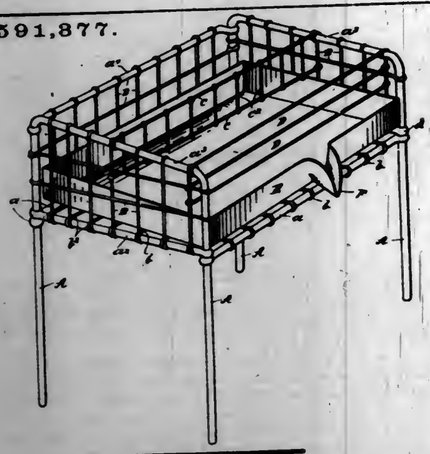


Claim.—A railway-signal comprising two rails and a return; batteries connected respectively with the rails and the return; contacts for rendering either of the batteries inoperative and a lever between the contacts for operating them, together with a cab electrically connected with the rails and the return, and carrying signal devices in the electrical connections.

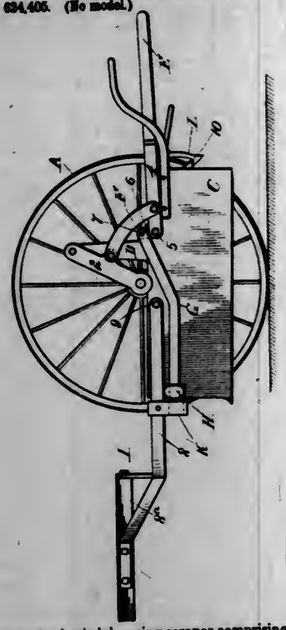
591,877. DISH-DRAINER. RICHARD BURGE, Brooklyn, N. Y. Filed Apr. 12, 1897. Serial No. 631,704. (No model.)

Claim.—As an improved article of manufacture, a dish-drainer, comprising a frame supported by legs A, and which consists of side rods a, end rods a^3, cross-rod a^4, wires B, transverse rods b; a brace consisting of horizontal rods C, short rods c^3, brace-rods D', a tray E, having a discharge-spout F, substantially as and for the purpose set forth.

591,877.



591,878. DUMPING-SCRAPER. MORTON G. BUSHELL, Chicago, Ill., assignor to Frederick C. Austin, same place. Filed Feb. 20, 1897. Serial No. 624,405. (No model.)

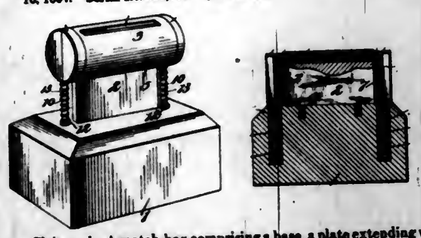


Claim.—1. A wheeled dumping-scraper comprising the bowl and a crank-movement by which it is raised and lowered; a draft attachment and a raising and lowering lever adapted for operating the crank-movement, both pivoted to the bowl; a longitudinally-reciprocating bolt having a hinge connection with and extending forward from the raising and lowering lever; a guide upon the bowl for the bolt; and a catch or keeper which is arranged upon the draft attachment and engaged by the bolt when the bowl is lowered into working position by the raising and lowering lever and the bolt thrust forward by the upward swing of said lever.

2. The combination in a wheeled dumping-scraper, of the bowl arranged to be raised and lowered; a draft attachment and a raising and lowering lever both pivoted upon the bowl; a bolt pivoted to the raising and lowering lever adjacent to the pivot for the latter; a guide H through which the bolt is extended, arranged upon the scoop at the forward portion thereof; and a keeper K arranged upon the draft attachment and in position to receive the forward end of the bolt when the lever is raised and the bowl lowered into working position.

3. In a dumping wheeled scraper, the scoop and mechanism for raising and lowering the same; a bolt G operated by the raising and lowering mechanism and arranged to engage with a catch or keeper on a draft attachment having hinged connection with the bowl; and a guide or keeper for the bolt arranged on the bowl and positioned to engage the draft attachment as a stop when the bowl is in raised, carrying position, substantially as described.

591,879. MATCH-BOX. JOHN R. BURKHEIMER and GEORGE K. COLBORN, Bayard, W. Va., assignors to R. M. Tabb, same place. Filed May 10, 1897. Serial No. 635,963. (No model.)



Claim.—1. A match-box comprising a base, a plate extending vertically therefrom and provided with a match-receiving groove and having flanges at its side edges, a vertically-removable receptacle slotted at its top and bottom to receive the plate and having vertical grooves at its ends for the reception of said flanges, rods depending from the receptacle and located beyond the side edges of the plate, and springs arranged adjacent to the side edges of the plate and housed in suitable sockets of the base, said springs being disposed on the rods, substantially as and for the purpose described.

2. A match-box comprising a base, a vertical plate rising therefrom and provided with a match-receiving groove and having flanges at its side edges, a vertically-movable match-receptacle mounted on the plate, provided at its top and bottom with slots and having vertical grooves at its ends to receive the said flanges, said receptacle being composed of two sections, and end bands connecting the sections and forming stops to be engaged by the said flanges for limiting the vertical movement of the receptacle, substantially as described.

591,880. SASH-CORD FASTENER. JOHN C. BYRNE and PETER H. PETERSEN, Pensacola, Fla. Filed Sept. 16, 1896. Serial No. 605,963. (No model.)

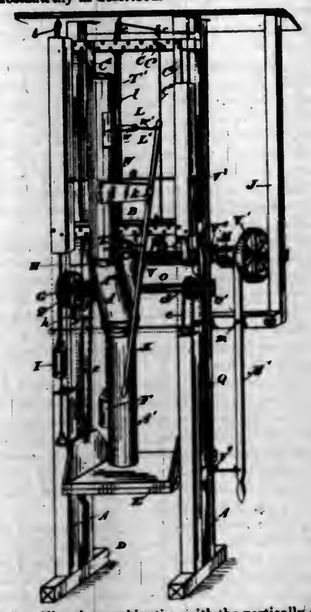


Claim.—1. In combination with a window-frame, strips slidable therein, a spring secured to one of said strips bearing against the frame and a sash secured between the strips, as and for the purpose described.

2. In a device of the character described, a sash-cord fastener consisting of a strip of metal B bent to form an offset D at its lower end, plate-springs E secured to the top and bottom of said strip, a lug C on the side of the strip to engage a window-sash and means on the strip for securing a sash-cord, as and for the purpose described.

591,881. BAG-FILLER. ROBERT O. CAMPBELL, Victoria, Canada. Filed Nov. 12, 1896. Serial No. 611,836. (No model.) Patented in Canada May 18, 1896, No. 52,300.

Claim.—1. In a bag-filler in combination the table, the feeding-tube, a cut-off permanently located therein, an adjustable tube fitted within the feed-tube intermediately of the length thereof and supported wholly thereby, and a second cut-off carried by said adjustable tube, substantially as described.



2. In a bag-filler the combination with the vertically-adjustable table supported between suitable upright posts and brake for holding same in any desired position of the feeding-tube containing an adjustable inner tube and the upper and lower cut-offs extending into the tube and operated by a lever the lower end of which is convenient to the attendant an intermediate enlargement of the tube, and a plunger designed to extend over the lower portion of the tube, a supporting-rod for such plunger held in suitable bearings and supported by a counterbalancing-weight, belts connected to a sliding bar and wound upon the counter-shaft of the machine, a suitable clutch on the main driving-shaft a hand-lever pivoted in the frame and connected by a rope Q, extending across the machine as indicated, and a roller on the sliding bar C, designed to engage with the horizontal portion of the rope Q, as and for the purpose specified.

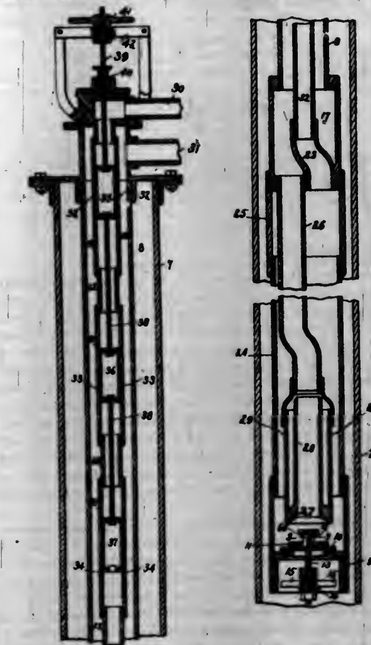
591,882. APPARATUS FOR PUMPING WATER. MATTHEW T. CHAPMAN, Aurora, Ill. Filed May 4, 1894. Serial No. 510,118. (No model.)

Claim.—1. In an apparatus for raising water from wells, the combination with a tube 26 arranged in the bottom of the well, a tube 8 communicating with the top thereof and extending to the top of the well, a tube 18 arranged within the tube 8 and extending from the top of the well to and communicating with the upper end of a tube 24 surrounding the tube 26, substantially as described.

2. In an apparatus for raising water from wells, the combination with a tube 8 extending from the top of the well to near the bottom thereof, a tube 24 arranged in the bottom of the well and connected to the lower end of the tube 8, a tube 18 extending down through the tube 8 and communicating at its lower end with the upper end of the tube 24, and a tube 26 arranged within the tube 24 and opening at its lower end into the latter and communicating at its upper end with the tube 8, substantially as described.

3. In an apparatus for raising water from wells, the combination with a tube 18 extending from the top of the well to near the bottom thereof, a tube 24 arranged in the bottom of the well and communicating at its upper end with the bottom of the tube 18, a tube 8 surrounding the tube 18, a tube 26 arranged within the tube 24 and opening thereinto at its lower end and at its upper end communicating with the tube 8, a valve controlling the opening in the lower end of the tube 24, and a nozzle 27 having perforations 29 and opening into the lower end of the tube 26, substantially as described.

4. In an apparatus for raising water from wells, the combination with a tube 18 extending from the top of the well to near the bottom thereof, a tube 24 arranged in the bottom of the well and communicating at its upper end with the bottom of the tube 18, a tube 8 surrounding the tube 18, a tube 26 arranged within the tube 24 and opening thereinto at its lower end and at its upper end communicating with the tube 8, a valve controlling the opening in the lower end of the tube 24, and a nozzle having concentric inner and outer tubes, the inner tube opening into the lower end of the tube 26 and the outer tube having perforations 29, substantially as described.



5. In an apparatus for raising water from wells, the combination with a tube 18 extending from the top of the well to near the bottom thereof, a tube 24 arranged in the bottom of the well and communicating at its upper end with the bottom of the tube 18, a tube 8 surrounding the tube 18, a tube 26 arranged within the tube 24 and opening thereinto at its lower end and at its upper end communicating with the tube 8, a valve controlling the opening in the lower end of the tube 24, and a nozzle having its lower end arranged above said valve and its upper end directed into the lower open end of the tube 26, substantially as described.

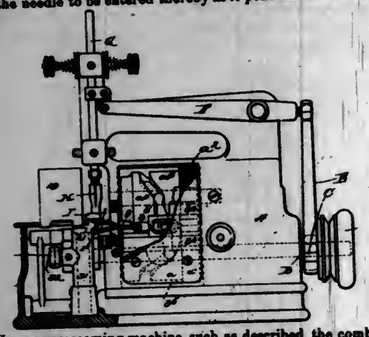
6. In an apparatus for raising water from wells, the combination with a tube 18 extending from the top of the well to near the bottom thereof, a tube 24 arranged in the bottom of the well and communicating at its upper end with the bottom of the tube 18, a tube 8 surrounding the tube 18, a tube 26 arranged within the tube 24 and opening thereinto at its lower end and at its upper end communicating with the tube 8, a valve controlling the opening in the lower end of the tube 24, and a nozzle arranged above the valve and comprising an inner and outer concentric tube, the inner tube being open at its opposite ends and directed at its upper end into the lower open end of the tube 26, and the outer tube being closed at its lower end and provided with perforations 29, substantially as described.

7. In an apparatus for raising water from wells, the combination with the tube 24 arranged in the bottom of the well, and having arranged therein a water-discharge tube 26 opening at its lower end into the tube 24, a tube 8 extending to the top of the well and communicating at its lower end with the upper end of the tube 26, a tube 18 arranged within the tube 8 and extending down to and arranged to deliver compressed air into the tube 24, and a check-valve arranged below the lower end of the tube 26, substantially as described.

591,888. OVEREDGE SEWING-MACHINE. JOHN T. COLLINS, Hartford, Conn., assignor to the Morrow Machine Company, same place. Filed May 20, 1897. Serial No. 637,419. (No model.)

Claim.—1. In an overseaming-machine such as described, the combination of a reciprocating thread-carrying needle, and two reciprocating thread-carrying loopers, one of said loopers moving in a path transverse to the axis of the needle, to enter the loop of needle-thread below the fabric, and the other looper moving transversely to the first-named looper's line of motion, to enter the loop of thread

carried by the said first-named looper and deliver its loop in position beneath the needle to be entered thereby as it penetrates the fabric.

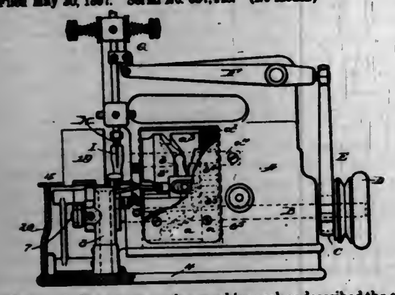


2. In an overseaming-machine such as described the combination of the vertically-reciprocating thread-carrying needle, the work-plate, a thread-carrying looper reciprocating horizontally beneath the work-plate in proximity to the needle when below the work-plate, to enter the loop of needle-thread, and a thread-carrying looper reciprocating vertically and horizontally in proximity to the paths of the first-named looper and the needle, to enter the loop of thread carried by said first-named looper below the work-plate and carry its thread above the work-plate in position to be entered by the needle; substantially as described, whereby a loop of second thread will be carried through the loop of needle-thread, and a loop of third thread through the loop of second thread, said third-thread loop being confined by a second loop of needle-thread passing through it and the fabric.

3. In an overseaming-machine such as described, the combination of the work-plate, the reciprocating thread-carrying needle, a thread-carrying looper reciprocating around or over the edge of the work-plate in a plane substantially parallel with the needle's path, and a horizontally-reciprocating thread-carrying looper moving below the work-plate in a path diagonal to the plane of the first-named looper's motion and extending from a point in rear of the needle to a point in front of the first-named looper; substantially as described.

4. In an overseaming-machine such as described, the combination of the work-plate; the vertically-reciprocating thread-carrying needle; the thread-carrying looper 1, provided with an entering-point, thread-guides, and a recess 12, said looper reciprocating horizontally beneath the work-plate; and the thread-carrying looper 9 provided with an entering-point, an eye and a recess 14, said looper reciprocating around the edge of the work-plate from a point below looper 1 to a point above the work-plate beneath the needle.

591,884. OVEREDGE SEWING-MACHINE. JOHN T. COLLINS and WILLIAM H. STRONAN, Hartford, and JOSEPH M. MERROW, Mansfield, Conn., assignors to the Merrow Machine Company, Hartford, Conn. Filed May 20, 1897. Serial No. 637,443. (No model.)



Claim.—1. In an overseaming-machine such as described the combination with the reciprocating thread-carrying needle, of the oscillatory reciprocating thread-carrying looper moving in a curved path in a single plane around the edge of the cloth-plate, and the loop-carrier provided with an entering-point and retaining-shoulder, said loop-carrier moving horizontally in a path diagonal to the plane of movement of the looper; substantially as described.

2. In an overseaming-machine such as described the combination with the reciprocating thread-carrying needle and feed-dog, of the loop-carrier and its actuating mechanism located and supported on one side of the needle and feed-dog, and the thread-carrying looper and its actuating mechanism supported on the opposite side of the needle and feed-dog, the looper moving in a path around the edge of the fabric and the loop-carrier moving horizontally in a path diagonal to the plane of movement of the looper; substantially as described.

3. In an overseaming-machine, such as described, the combination with the main driving-shaft, the needle, actuating mechanism intermediate the needle and the driving-shaft for reciprocating the needle, the oscillatory reciprocating looper-carrier and its two actuating-cams, of the pivotally-supported loop-carrier driven from a crank on the main driving-shaft, and the thread-carrying looper secured to the looper-carrier, said loop-carrier operating to carry the needle-thread loop and present it in the path of the looper, and the latter operating to carry its thread through the needle-thread loop and present it to the needle; substantially as described.

4. The combination with the reciprocating needle, the oscillatory reciprocating looper-carrier and the driving mechanism therefor including the two cam-cylinders rotating in unison, of the thread-carrying looper secured to the looper-carrier, and the loop-carrier provided with an entering-point a lower loop-retaining shoulder, and a curved shank, the latter secured to a pivoted driver receiving motion from the driving-shaft through a crank-and-pitman connection; substantially as described.

5. In an overseaming-machine such as described, the combination with the reciprocating needle, the cloth-plate and the feed-dog, the thread-carrying looper moving around the edge of the cloth-plate from a point below and near the edge to a point above the cloth-plate beyond the path of the needle and the loop-carrier, projecting across the plane of the feed-dog and reciprocating horizontally in a path extending from one side the needle to the opposite side the looper; substantially as described.

6. In an overseaming-machine such as described, the combination of the needle, and the feed-dog, of the upwardly-curved thread-carrying looper, supported and operated by the oscillatory reciprocating looper-carrier, and the loop-carrier formed with a horizontally-curved shank and provided with an entering-point and thread-engaging shoulder, said loop-carrier being attached to a vertically-pivoted oscillatory driver and extending through an opening in the feed-dog.

7. The combination with the reciprocating needle, and the oscillatory reciprocating loop-carrier and its thread-carrying looper, of the loop-carrier, its vertically-pivoted driver supported to oscillate about a fixed stud, and the horizontal driving-shaft connected to said driver through a link, a spherical crank-pin and a spherical joint; substantially as described.

8. In an overseaming-machine, such as described, the combination with the reciprocating needle, of the thread-carrying looper, having its point curved upward, and to one side, mechanism for reciprocating said looper in a curved path lying in a vertical plane and extending around the edge of the cloth-plate, the loop-carrier provided with an entering-point, a thread-engaging shoulder in rear of the point and a horizontally-curved shank, said loop-carrier reciprocating in a horizontal plane beneath the cloth-plate, its engaging end moving in a path diagonal to the plane of the looper's movement and extending from on one side the needle's path to the opposite side of the looper's plane of motion; substantially as described.

591,885. CAR-COUPLING. LLOYD COLLIS, New York, N. Y. Filed Mar. 31, 1897. Serial No. 630,124. (No model.)



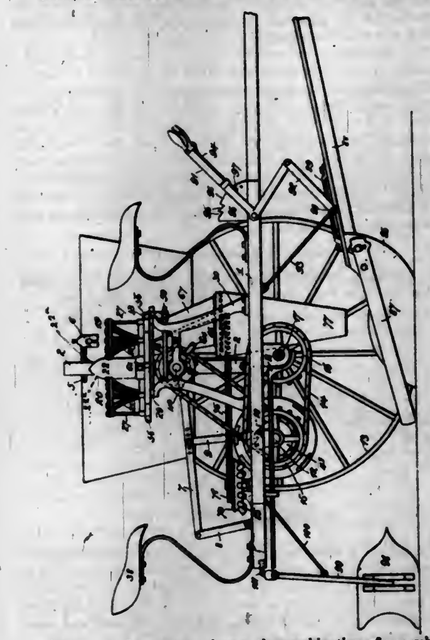
Claim.—1. A wearing-plate for car-coupler knuckles having a vertically-elongated body portion conforming substantially to the lines of the wearing-face of the knuckle, a central enlargement on the rear face of said wear-plate having a vertical aperture therein for the reception of a pin and a lock working in said aperture for locking the plate to the pin; substantially as described.

2. A wearing-plate for the knuckles of car-couplers having the vertically-elongated body conforming approximately to the lines of the wearing-surface of the knuckle, a central enlargement or projection on the rear face of said wear-plate and end flanges adapted to take over the bottom and top edges of the knuckle; substantially as described.

3. A wearing-plate for the knuckles of car-couplers having a vertically-elongated body and conforming approximately to the lines of the wearing-surface of the knuckle, a central projection or enlargement on the rear face of the wearing-plate and undercut end flanges for taking over the top and bottom edges of the knuckle; substantially as described.

4. The combination with the horizontally-swinging knuckle of a car-coupling having an ordinary link-opening in its forward portion and a pin-opening intersecting said link-opening, of a wear-plate having a wearing-face corresponding approximately to the lines of the wearing-face of the knuckle and a centrally-arranged projection on its rear face adapted to fit into the link-opening with an aperture adapted to register with the pin-opening and a pin passing through said opening to retain the wear-plate in position; substantially as described.

591,886. POTATO-PLANTER. JOSEPH P. DAVENPORT, Downer's Grove, Ill. Filed Dec. 7, 1896. Serial No. 492,974. (No model.)



Claim.—1. In a potato-planter, the combination of a number of hoppers, cutting mechanism, a set of spouts common to all of said hoppers for receiving the pieces of potato therefrom, and means for imparting an intermittent rotary movement to said hoppers, in the same direction of rotation substantially as set forth.

2. In a potato-planter, the combination with a number of hoppers and cutting mechanism, of a set of spouts common to all of said hoppers, a revoluble frame upon which said hoppers are mounted, having lugs, a latch arranged to engage said lugs and means for disengaging said latch and giving said frame partial revolutions always in the same direction, substantially as set forth.

3. In a potato-planter, the combination of a number of revoluble hoppers, and cutting mechanism, of a set of spouts arranged under said hoppers, ground-wheels, a clutch having one member geared to said ground-wheels and the other geared with said hoppers for revolving them over said spouts, and means for automatically disengaging said clutch members when the hoppers coincide with the spouts, substantially as set forth.

4. In a potato-planter, the combination with a hollow standard having a longitudinal slot therein, a slotted sleeve journaled on said standard, a sliding bar arranged within said standard, and having an arm projecting through said slot in the standard, a plunger carried by said arm, means for raising said plunger-arm above said sleeve, a number of hoppers carried by said sleeve and means for imparting intermittent rotation to said sleeve, substantially as set forth.

5. In a potato-planter, the combination of a rising-and-falling plunger having an arm, a revoluble frame carrying a number of hoppers and having a slotted sleeve into the slot of which said arm descends, said sleeve being beveled or inclined on the sides of said slot, and means for raising said arm above said sleeve and revolving said frame, substantially as set forth.

6. In a potato-planter, the combination of a revoluble hopper-frame, cutting mechanism, means for imparting a partial revolution to said frame and an intermittently-engaging latch for arresting the movement of said frame, substantially as set forth.

7. In a potato-planter, the combination of revoluble hoppers, cutting mechanism, a clutch having connection with said hoppers for revolving them, means for disengaging the members of said clutch, a latch for arresting the movement of said hoppers and means for disengaging said latch before said clutch members come into engagement, substantially as set forth.

8. In a potato-planter, the combination of cutting mechanism, a hopper-frame carrying hoppers and being provided with lugs, a latch normally in the path of said lugs, and means for disengaging said latch and intermittently imparting a partial revolution to said frame, substantially as set forth.

9. In a potato-planter, the combination of cutting mechanism, a revoluble hopper-frame carrying hoppers, a shaft geared to said frame for revolving it, means for intermittently revolving said shaft, a latch for locking said frame, and a continuously-moving lug for periodically disengaging said latch, substantially as set forth.

10. In a potato-planter, the combination of cutting mechanism, a revoluble frame carrying hoppers, a shaft geared to said frame for revolving it, a clutch mounted upon said shaft and having one member secured thereto and the other member loose thereon, the ground-wheels geared with the loose member of said clutch, and means for automatically disengaging said clutch members, substantially as set forth.

11. In a potato-planter, the combination of knives for cutting the potato, a rising-and-falling plunger for cooperating with said knives, a revoluble frame carrying the hoppers, a shaft geared to said frame for revolving it, a clutch for revolving said shaft having means for causing its members to automatically engage, and means for holding said clutch members out of engagement during the rising-and-falling movement of said plunger, substantially as set forth.

12. In a potato-planter, the combination of a hopper-frame, a shaft geared to said frame for revolving it, a notched disk secured to said shaft, a sprocket-wheel loose on said shaft, a pivoted dog carried by said wheel and normally engaging with said disk, a band arranged in the path of said dog and adapted to hold the same out of engagement, and means for driving such sprocket-wheel, substantially as set forth.

13. In a potato-planter, the combination of a hopper-frame, means for revolving said frame intermittently, and means for imparting an initial movement to said frame in advance of its said intermittent revolution, substantially as set forth.

14. In a potato-planter, the combination with a number of spouts for holding the eyes or sections of the potato, of means for opening said spouts successively and closing them at unequal periods of time, said means being also adapted to close all of said spouts at once, substantially as set forth.

15. In a potato-planter, the combination of a number of spouts for receiving the eyes or sections of the potato, arranged in a series with a space between the first and last, a valve for closing all of said spouts at once, having a gap or opening, and means for imparting to said valve, partial rotations at unequal periods of time, substantially as set forth.

16. In a potato-planter, the combination of a set of spouts for receiving the eyes or pieces of potato, a valve for closing all of said spouts at once, having a gap or opening therein, a worm-wheel connected with said valve for rotating it, a drum or wheel having feathers or cams thereon engaging with said worm-wheel for imparting an intermittent rotation thereto, and means for revolving said drum, substantially as set forth.

17. In a potato-planter, the combination of a set of spouts for receiving the pieces or eyes of potatoes, having a gap or opening therein, a worm-wheel connected with said feathers or cams thereon for engaging with said worm-wheel and being arranged at unequal distances apart for imparting partial revolutions to said valve at unequal periods, substantially as set forth.

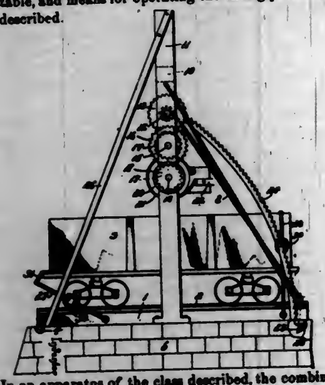
18. In a potato-planter, the combination of the frame, a pivoted beam for carrying the furrow-opener, a stud having slotted connections with said beam, pivoted rods connecting said stud with said frame, a lever, a link connecting said lever with said stud, and means for locking said lever, substantially as set forth.

19. In a potato-planter, the combination with a plunger, of a hopper having a number of spring-tongues provided with outwardly-turned portions, and a ring surrounding said outwardly-turned portions and forming an abutment therefor, said outturned portions bearing normally against said ring, substantially as set forth.

591,887. APPARATUS FOR DUMPING CARS. GEORGE T. DIXON, Butte, Mont. Filed Oct. 30, 1896. Serial No. 610,807. (No model.)

Claim.—1. In an apparatus of the class described, the combination of a tilting platform adapted to receive a car, front and rear clamps arranged to engage the front end of a car and the upper edges

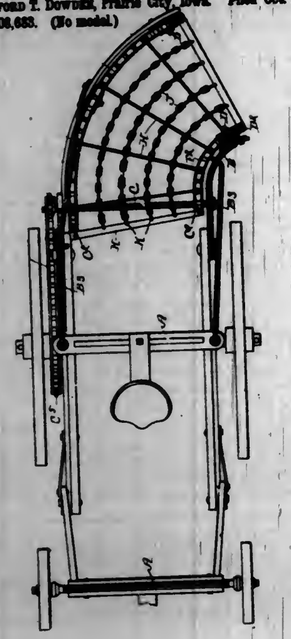
of its sides to hold the car against upward or forward movement independent of the platform, said clamps each consisting of two rods or sections having their adjacent ends oppositely threaded, the inner rod or section being pivoted to the platform, and the outer rod or section being provided with a hook, and a connecting turnbuckle engaging the threaded ends of the rods or sections, whereby the clamps are adjustable, and means for operating the tilting platform, substantially as described.



2. In an apparatus of the class described, the combination of a supporting-frame, a tilting platform provided at its back with pulleys, chains passing around the pulleys and having one end attached to the supporting-frame, a horizontal shaft journaled on the supporting-frame, connected with the other ends of the chains and adapted to wind the same on it, gearing for rotating the shaft, a ratchet arranged adjacent to the platform, a pawl carried by the latter and automatically engaging the ratchet, and a brake connected with the gearing and adapted to regulate the descent of the platform, substantially as described.

3. In an apparatus of the class described, the combination of a supporting-frame, a tilting platform adapted to receive a car, a horizontal shaft journaled on the supporting-frame and located above the platform, chains connected with the shaft and with the platform, curved ratchets located at opposite sides to the rear end of the platform, pawls mounted on the platform and arranged to engage the ratchets, and means for rotating the shaft, substantially as described.

591,888. SEGMENTAL CONVEYER FOR POTATO-HARVESTERS. ASHFORD T. DOWDEN, Prairie City, Iowa. Filed Oct. 12, 1896. Serial No. 608,683. (No model.)

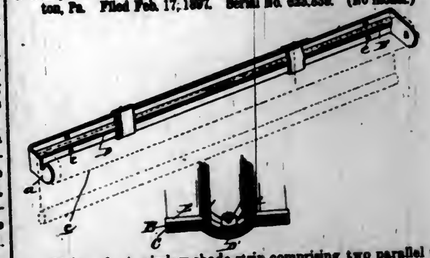


Claim.—1. A segmental conveyer, comprising a curved frame, a shaft rotatably mounted therein, means for rotating the shaft, two sprocket-wheels mounted on the ends of the said shaft, two sprocket-wheels loosely mounted on the opposite end of said frame, one or more sprocket-wheels loosely mounted on the outer side of the frame between the aforesaid sprockets, a sprocket-chain connecting the outer sprockets, and a sprocket-chain connecting the inner sprockets, cross-pieces secured to the sprocket-chains, and chains connecting the said cross-pieces, for the purposes stated.

2. A segmental conveyer, comprising a curved frame, two sprocket-wheels mounted in one end of the frame to rotate in a vertical plane, two sprockets mounted in the other end to rotate in a vertical plane at a considerable angle relative to the other sprockets, two chains passed around the sprocket-wheels, cross-pieces for connecting the chains and means for rotating the sprocket-wheels, and guides fixed to the segmental frame to engage the longer chain and cause it to travel in a segment, for the purposes stated.

3. A side-delivery conveyer for potato-harvesters, comprising a segmental frame supported at the rear of the harvester, a shaft rotatably mounted therein and inclined downwardly and rearwardly at one end, a large sprocket-wheel on one end of the shaft and a small sprocket on the other end, two sprocket-wheels loosely mounted at the rear end of the frame, two sprocket-chains passed over said sprocket-wheels, cross-bars connecting the sprocket-chains, a cross-piece at the rear end of the segmental frame, a series of collars having integral uprights thereon placed on said shaft and cross-pieces and straight bars bolted to said uprights to serve as a track for the conveyer for the purpose stated.

591,889. CURTAIN-SHADE STRIP. ABRAHAM B. DUNKLE, Stockton, Pa. Filed Feb. 17, 1897. Serial No. 623,330. (No model.)



Claim.—1. A window-shade strip comprising two parallel parts or members sliding upon each other, one of said parts having longitudinal slits and that portion of its material between the slits struck up to form a raised portion or tongue, and a clamp encircling said two members or portions and held in place under said tongue or raised portion; substantially as described.

2. A window-shade strip comprising two parts, each having a longitudinal bead formed on its surface extending throughout the length thereof and arranged to fit one upon the other, and guiding-clamps, one for each of said parts, one of said parts being provided with a slit forming a tongue by which the overlapping ends of its clamp are firmly secured; substantially as described.

3. A window-shade strip comprising two parts, each having a longitudinal bead formed on its surface extending throughout the length thereof and arranged to fit one upon the other, and guiding-clamps, one for each of said parts, one of said parts being provided with a slit forming a tongue by which the overlapping ends of its clamp are firmly secured, and the other part having its raised bead cut away sufficiently to receive the plain face of its clamp, the ends of said clamp embracing the other part; substantially as described.

591,890. FLOWER-HOLDER FOR BICYCLES. JAMES F. DURHIGAN, Greenfield, Mass. Filed Dec. 5, 1896. Serial No. 614,633. (No model.)



Claim.—1. A flower-holder consisting of two arms secured to a bicycle, a ring detachably pivoted between the arms and a holder carried by said ring, as and for the purpose described.

2. A flower-holder consisting of a single piece of wire bent to form a loop, the loop end being bent to form a hook, and a ring detachably pivoted between the arms of the loop, substantially as described.

3. A flower-holder consisting of a single piece of wire bent to form two parallel arms, the loop end of said arms being bent to produce a hook, a ring detachably pivoted between the outer ends of said arms and a receptacle fitted in said ring, substantially as described.

4. A flower-holder consisting of a wire loop, and a ring detachably pivoted between the arms of the loop, substantially as described.

5. A flower-holder consisting of a single piece of wire doubled to produce arms running in the same direction, the loop end of said arms being bent to form a hook, a ring, lugs formed on opposite sides of the ring, and inserted in openings of the arms, and a receptacle fitted in the ring, substantially as described.

591,891. WEED-DESTROYER. PAUL B. BRIGHTON, Scandia, Kans. Filed Apr. 14, 1897. Serial No. 632,176. (No model.)



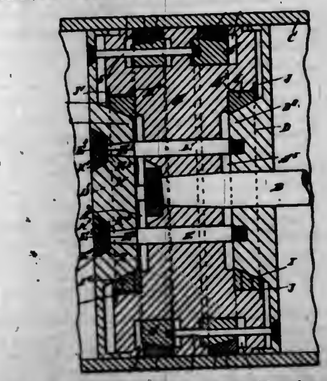
Claim.—1. In a weed-destroyer for railways, the combination with a car, of a metal plate connected at each end to the said car and adapted to engage the road-bed on either side of the rails, said plate having longitudinal grooves in its lower face to fit over the rails, substantially as described.

2. In a weed-destroyer for railways, the combination with a car, of a metal plate connected at each end to the car, said plate having its ends inclined upwardly and outwardly from its bottom, and being provided with longitudinal grooves in its lower face to fit over the rails of the track, whereby said plate is enabled to slide upon the road-bed, both inside and outside the rails, substantially as described.

3. In a weed-destroyer for railways, the combination with a car, of a plate secured at each end to the car and adapted to engage the road-bed, levers pivoted in standards supported on the car-platform and pivotally connected at one end to the ends of said plate, and weights adjustable on said lever, substantially as described.

4. In a weed-destroyer for railways, the combination with a car, of a plate connected at each end to the car and adapted to engage the road-bed, levers pivoted in standards supported on the platform of the car, links extending through openings in the platform and being pivotally connected at their lower ends to the ends of said plate and at their upper ends to said levers, weights adjustably supported on the long arms of said levers, and means to hold said weights in their adjusted position, substantially as described.

591,892. PISTON. CHARLES G. EVANS, Union, Canada. Filed Dec. 14, 1896. Serial No. 615,556. (No model.)



Claim.—1. A piston, provided with packing-rings, and followers rigidly connected with each other and fitted to slide longitudinally by the pressure of the motive agent in the ends of the cylinder, the follower on one side of the piston being connected with the packing-ring for the other side of the piston, substantially as shown and described.

2. A piston, provided with packing-rings, followers rigidly connected with each other and fitted to slide longitudinally by the pressure of the motive agent in the ends of the cylinder, the follower on one side of the piston being connected with the packing-ring for the other side of the piston, and a device for limiting the sliding motion of the followers and the expansion of the rings, substantially as shown and described.

3. A piston, provided with packing-rings, a device for expanding and releasing each of the said packing-rings, and followers rigidly connected with each other and fitted to slide longitudinally, the follower on one side of the piston being rigidly connected with the expansion and releasing device on the other side of the piston, substantially as shown and described.

4. A piston, provided with packing-rings, a device for expanding and releasing each of the said packing-rings, followers rigidly connected with each other and fitted to slide longitudinally, the follower on one side of the piston being rigidly connected with the expansion and releasing device on the other side of the piston, and a limiting device for each follower, for limiting the sliding motion of the same, substantially as shown and described.

5. A nut-lock, comprising a rod having right and left hand threads, and nuts on the said threads and formed with registering apertures adapted to be filled with a setting or hardening substance, the said apertures being countersunk at their adjacent ends, substantially as shown and described.

6. A piston, provided with an expansion-ring for the packing-ring, and made in sections of metal of different degrees of hardness, substantially as shown and described.

7. A piston having a body, a follower at each end of the body, two packing-rings running around the body, an expanding-ring beneath each packing-ring, and connections respectively between the followers and the expanding-rings farthest therefrom, substantially as described.

8. A piston having a body, a follower at each end of the body, expansive packing-rings, and connections respectively between the followers and the packing-rings farthest therefrom, whereby upon the movement of one follower the packing-ring farthest from said follower will be expanded, substantially as described.

9. A piston having a body, a follower thereon, an expansive packing-ring, an expanding-ring having connection with the packing-ring and moving to expand the same, and a connection between the follower and the expanding-ring, substantially as described.

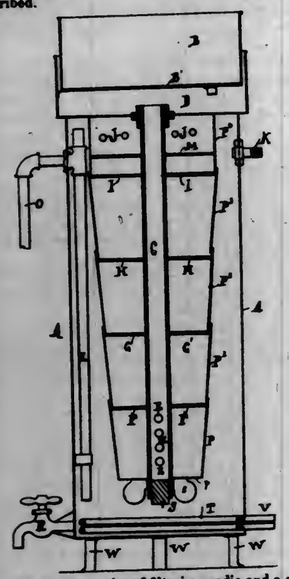
591,893. WHEEL. DANIEL FAREY, Graceville, Minn. Filed May 7, 1896. Serial No. 590,637. (No model.)



Claim.—The improved wheel herein shown and described comprising a hub, spokes arranged in pairs, the wooden felly or rim made up of a series of sections treated with moisture-proof composition, and each section being a continuous arc-shaped piece having a pair of spokes secured thereto at points within its terminals, which are disposed at intervals midway between the spokes to which the felly-section is attached and adjacent pairs of spokes, the sectional tire fitted to the rim and composed of sections, each equal in length to the rim-sections, and arranged in alternate relation thereto, to break joints therewith, and to bring the terminals of the tire-sections to bear upon the solid parts of the rim-sections at points midway between the ends of said rim-sections, a series of bolts passing through the tire-sections near the ends thereof and the solid parts of the rim-sections, and other bolts passing through the ends of the rim-sections and the solid parts of the tire-sections; said tire-sections arranged to leave small spaces between the contiguous ends thereof to receive a suitable filling medium, substantially as described.

591,894. OIL-PURIFIER. WILLIAM C. FAHY, Philadelphia, Pa. Filed Apr. 21, 1896. Serial No. 588,587. (No model.)

Claim.—1. In an oil-purifier, a series of filtering media those adapted to remove the finer impurities being percolated last by the oil, a separating-tank receiving the oil and water from said filtering media, an oil-withdrawing pipe in communication with the said tank, and a water-withdrawing pipe in communication with said tank, and opening into the same at a considerably lower level than the oil-withdrawing pipe, and rising to a level considerably above that to which it dips, but below the level of the oil-withdrawing pipe and being arranged so as to prevent siphon action therethrough, substantially as described.



2. In an oil-purifier a series of filtering media and a settling-tank in communication with said filtering media, an oil-withdrawing pipe in communication with said settling-tank, a water-withdrawing pipe in communication with said settling-tank, and opening into said settling-tank at a much lower level than said oil-withdrawing pipe, and rising to a level nearly as high as said oil-withdrawing pipe, a pipe communicating with the air in communication with the higher part of said water-withdrawing pipe substantially as described.

3. In an oil-purifier, the combination of filtering means, a filtering-chamber for containing said means a settling-tank a water-withdrawing pipe having an inlet toward the bottom of said tank and rising to a level above said inlet, and provided with an outlet to the outer air extending upward from said pipe to a point above the level of the liquid in the tank and an oil-outlet pipe rising to a higher level than the top of the water-outlet pipe substantially as described.

4. The combination of the tank, the pan above said tank, the removable pan having a perforated bottom adapted to be placed in said first-named pan, a pipe opening into said first-named pan and extending downward into said tank, and having apertures at the bottom, a series of pans each provided with a perforated diaphragm, resting in each other the uppermost of said pans having openings into said tank, an oil-withdrawing pipe, a water-withdrawing pipe and a heating-coil all substantially as described.

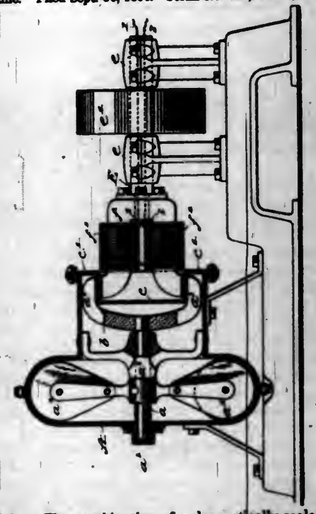
5. The combination in an oil-filter of a pan of a pipe penetrating the bottom of said pan and extending slightly above it and secured thereto, a series of pans each containing a perforated diaphragm surrounding said pan, and fitting snugly to each other, and means movably secured to the bottom of said pipe, for clamping the pans together between said means and said pan at the top of said pipe substantially as described.

6. The combination of a pan, a pipe leading downward from said pan and having apertures at the bottom of same, a series of casings surrounding said pipe, diaphragms secured to said casings, said diaphragms at the top having finer perforations than those at the bottom, and the top casing fitting tightly into the bottom of the next, means for securing these casings together and a tank for permitting the separation of the oil and water by gravity, substantially as described.

7. The combination of a pan, a pipe secured to the bottom of said pan and projecting at its end, slightly above this bottom, a series of casings fitting around said pipe, and provided with diaphragms the bottom of one casing fitting into the top of the one below, and the top casing fitting against the bottom of said pan, and removable means for securing said casings against each other and the bottom of said pan, a settling-tank surrounding said pipe, and casings, and means for withdrawing the oil and water separately therefrom substantially as described.

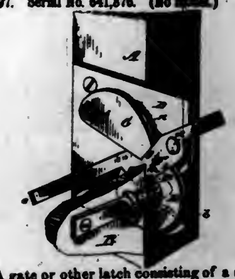
8. The combination of filtering devices, a settling-tank in which the oil and water separate through the difference of their specific gravities, two pipes entering said tank, one for withdrawing the water and one for withdrawing the oil, the outlet of the oil-pipe being higher than the outlet of the water-pipe, the latter pipe extending downward toward the bottom of the tank, and having a pipe extending from said water-pipe to a point above the outlet of the oil-pipe substantially as described.

591,895. MAGNETIC COUPLING. THOMAS J. FAY, Brooklyn, N. Y., assignor to the American Electric Cold Supply Company, of Maine. Filed Sept. 30, 1896. Serial No. 607,426. (No model.)



Claim.—The combination of a hermetically-sealed case, a machine therein having a main rotating shaft to be driven, a driving-motor and its rotating shaft located outside of said casing, an electromagnetic clutch having its two members mounted respectively on the two rotating shafts, one member being inside the casing and the other outside thereof, whereby the clutching and unclutching of the two rotating shafts may be effected through an unperforated wall of the casing.

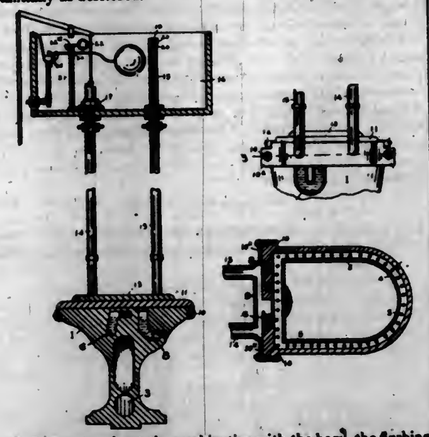
591,896. LATCH. PETER F. FLEMING, Huntsville, Mo. Filed June 23, 1897. Serial No. 641,876. (No model.)



Claim.—A gate or other latch consisting of a suitable base-plate having an opening to receive the end of the bolt, a segmental keeper eccentrically pivoted thereto, a pivoted locking-lever adapted to engage the open ends of the keeper, a pivoted gravitating dog having a cam-face against which the lever bears in raising it, said dog adapted to engage with and positively lock the lever, substantially as and for the purpose set forth.

591,897. WATER-CLOSET. WILLIAM T. FOX, Rochester, N. Y. Filed Jan. 7, 1896. Serial No. 574,574. (No model.)

Claim.—1. In a water-closet, the combination with the bowl, the flushing jet-passage and a trapped washing-passage, of an elevated tank, a water-pipe leading therefrom having a small opening at its upper end and connected with the flushing jet-passage and the washing-passage, a valve for admitting water from the tank to said pipe, and the pipe of sufficient size to serve as a water-reservoir open at its upper end and connecting with the water-pipe at or near the bowl, substantially as described.



2. In a water-closet, the combination with the bowl, the flushing jet-passage, a trapped washing-passage, and a single plate on the bowl at the entrance of both passages and forming a chamber, of an elevated tank, a pipe leading therefrom connected to the chamber and having a restricted opening at its upper end, a valve for admitting water to the pipe from the tank and a pipe of sufficient size to serve as a water-reservoir connected to the plate and opening into the chamber and also open at its upper end, substantially as described.

3. In a water-closet, the combination with a bowl, a flushing jet-passage and a trapped water-passage, of an elevated water-tank, a pipe leading therefrom and communicating with the jet and flushing passage, a valve for admitting water from the tank to said pipe, and a second pipe of sufficient size to serve as a water-reservoir connecting with the water-pipe below the tank extending above the bottom of the latter and having its upper end open to the air, substantially as described.

4. In a water-closet, the combination with a bowl having a flushing jet-passage and a trapped water-passage, of an elevated tank, a pipe leading therefrom to the bowl, a valve for admitting water from the tank to said pipe, a second pipe connecting with the water-pipe below the tank and extending above the bottom of the latter, the check-valve at the upper end of said second pipe, substantially as described.

5. In a water-closet, the combination with a bowl having a flushing jet-passage and a trapped water-passage, of an elevated tank, a pipe leading therefrom to the bowl, a valve for admitting water from the tank to the pipe, a pipe communicating with the water-pipe near its upper end, and a check-valve for closing it, said pipe having a small aperture for permitting the entrance of air when the check-valve is closed, whereby the water in the pipe may force the air out through the check-valve, and the fall of the column of water in said pipe will be gradual, substantially as described.

6. In a water-closet, the combination with a bowl having a flushing jet-passage, and a trapped washing-passage, of an elevated tank, a water-pipe leading therefrom to the bowl, an overflow-pipe, and a float-valve normally closing it, a valve for admitting water to said pipe from the tank, a pipe connecting with the water-pipe at or near the bowl extending to near the top of the tank and having a small aperture open to the air, and a check-valve closing the end of the pipe, substantially as described.

591,898. MOTOR-VEHICLE. GEORGE H. GREELEIGH, Cincinnati, Ohio. Filed Aug. 14, 1896. Serial No. 602,780. (No model.)

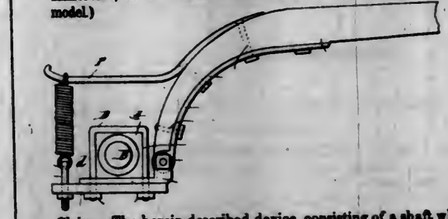
Claim.—1. The combination with the motor-box and the front axle, of the cap on said box, the slide thereon, the pivoted catches and the handle, all as set forth.

2. The combination with the front axle and the motor-box, of the cap on said box, the slide, its guide, the pivoted catches and the notched curved bar and the handle and the curved arm carried thereby, substantially as specified.

3. The combination with the vertical rod and the handle, of the curved arm carried by the handle, the slide, the pivoted catches arranged to be actuated by said slide and the curved notched bar, all substantially as specified.



591,899. SHAFT FOR VEHICLES. WILLIAM H. H. HALLOCK, Manorville, N. Y. Filed June 13, 1896. Serial No. 595,409. (No model.)



Claim.—The herein-described device, consisting of a shaft which is pivotally connected with a vehicle by means of the usual plate and yoke, the arms of said yoke being extended and adapted to receive a supplemental plate thereon, a bolt attached to the rear end of said supplemental plate, the upper end of said bolt being provided with an eye, an arm secured to the said shaft at the upper side thereof, said arm conforming to the outline of the shaft for a part of its length when it projects therefrom in a line parallel with said supplemental plate, and provided with a hook at the end of said projection, and a spiral spring engaging said eye and said hook, all substantially as shown and described, and for the purpose set forth.

591,400. NON-REFILLABLE BOTTLE. EDMUND A. HAMPSHIRE and JAMES R. DAVISON, Pittsburg, Pa. Filed Mar. 5, 1896. Renewed Mar. 5, 1897. Serial No. 626,155. (No model.)



Claim.—1. In a non-refillable bottle, the body portion having a tube constructed therein, said tube being connected to the top portion around the opening and being provided at the bottom with a cut-away portion and at the top with an interior groove and air-hole, substantially as shown and described.

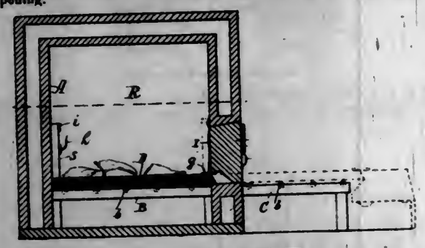
2. In a non-refillable bottle, the body portion having a slightly-rounded top, a tube provided in said body portion inclosing the opening, said tube having a cut-away portion at the base and an interior groove and air-hole at the top, the said top portion having a tapered groove forming a spout, substantially as shown and described.

3. In a non-refillable bottle, the body portion having a slightly-rounded top, a tube provided in said body portion inclosing the opening, said tube having a cut-away portion at the base, an interior groove at the top, and an air-hole in the groove through the tube, the said top portion having a tapered groove forming a spout in combination with a cork having a rod secured therein and extending in alinement therewith, substantially as shown and described.

591,401. MARKET-REFRIGERATOR. FRANK M. HARRISON and JAMES W. KELLEY, Portland, Me. Filed Dec. 14, 1896. Serial No. 615,604. (No model.)

Claim.—1. The herein-described market ice-box having a refrigerating-chamber, a meat-bench normally located therein, a supporting track in said chamber for supporting said bench, a continuation of said track outside of said ice-box, said bench being adapted to slide or move longitudinally on said track, an opening in said ice-box to allow the passage of said bench, a partition on the outer end of said bench adapted to close said opening hinged to the outer end of said bench and adapted to turn down and form a section thereof.

2. The herein-described market ice-box having a refrigerating-chamber, a meat-bench normally located therein, a supporting-track in said chamber for supporting said bench and a continuation of said track outside of said ice-box, said bench being adapted to slide or move longitudinally on said track, an opening in said ice-box to allow the passage of said bench, a door for closing said opening, a partition on the rear end of said bench adapted to close said opening when the bench is drawn out and a flexible curtain hung on the inside of said opening.



591,402. BOTTLE-STOPPER AND HOLDER FOR SAME. WILLIAM HASKINS, Troy, N. Y. Filed June 26, 1897. Serial No. 642,704. (No model.)



Claim.—1. The combination with a bottle, of a single piece of wire bent to form loops 4 and 5, being adapted to fit over the neck of the bottle, a chain secured to the loop 6 at one end, and having its other end connected to the eye on the top of the bottle-stopper, substantially as and for the purpose set forth.

2. The combination with a bottle-neck, of a weighted stopper therein, provided at its upper side with an eye, a chain connected to said eye, and having its other end connected with a loop 6, loops 4 and 5 formed of the combination of the wire forming loop 6, said loops 4 and 5 being adapted to fit over the neck of the bottle, substantially as and for the purpose set forth.

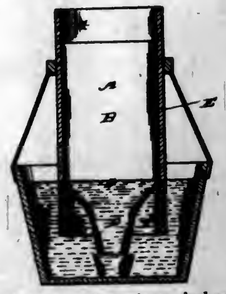
591,408. VETERINARY ECRASEUR. FERDINAND F. HOFFMANN, Brookville, Pa. Filed Aug. 23, 1896. Serial No. 604,196. (No model.)



Claim.—1. An ecrasèur having an operating-rod terminating at one end in a hook provided with cutting and contusing edges, a guide for said rod terminating at one end in a sheath having cutting and contusing edges to cooperate with those of the hook, said sheath comprising a keeper portion carrying said cutting edges and adapted to receive the hook, and a open-sided portion arranged in rear of the keeper portion and adapted to expose the hook when drawn rearwardly through and beyond the keeper portion, and means for operating the rod, substantially as specified.

2. An ecrasèur having a tabular body portion in which is fitted a longitudinally-movable operating-rod provided with means whereby it may be actuated, said operating-rod terminating at its front end in a hook having opposite smooth and serrated cutting edges, and a sheath carried by the tube forming the body portion, having an inclosed or keeper portion adapted to receive the hook and provided with smooth and serrated edges for cooperation therewith, and having one side wall of said keeper portion extended and attached to the tube, the opposite side of the sheath being open to form a space exceeding the hook in length, whereby the hook may be wholly exposed by drawing the same rearwardly beyond the keeper portion, substantially as specified.

591,404. MANUFACTURE OF PAPER-COVERED VESSELS. URAL HULL, Newton, N. J. Filed Oct. 13, 1896. Serial No. 608,632. (No model.)



Claim.—1. The process of covering necked and shouldered vessels with a seamless homogeneous covering of paper which consists in shrinking upon the body of the vessel, a wet pulp tube having an extension E around the neck and shoulder of the vessel, then softening said extension in a bath of water, and manipulating the same to conform closely to the neck and shoulder portions of the vessel, and thereby providing said portions with a thickened or reinforced covering or jacket expressing the water by compression, drying the same, and finally waterproofing the surface of the paper covering thus formed, substantially as specified.

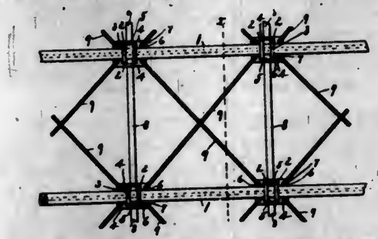
2. The process of covering necked and shouldered vessels with a seamless homogeneous covering of paper, which consists in providing an elongated wet tube of pulp shrinking the same upon the body of the vessel so that end extensions F and G thereof will project from each end of said body portion, softening said extensions to pulp-like condition by water, manipulating the same to conform closely to the neck and shoulder and to the bottom of said vessel, and drying the same, whereby said covering being held at the shoulder and bottom by the molded extensions, shrinks in a vertical direction and becomes closely fitted to the surface of the vessel, substantially as specified.

3. The process of covering necked and shouldered vessels with seamless homogeneous covering of paper, which consists in providing an elongated wet tube of pulp, shrinking the same upon the body of the vessel so that end extensions F and G thereof will project from each end of said body portion, softening said extensions to pulp-like condition by water, and manipulating the same to conform closely to the neck and shoulder and to the bottom of said vessel, expressing the water by compression, drying the same, and finally waterproofing the paper covering thus formed, substantially as specified.

4. The herein-described vessel having a jacket or covering shrunk thereon, and formed from a seamless homogeneous tube of paper-pulp, one end portion of said tube being molded around the neck and shoulder portion of the vessel to provide a covering of greater thickness at such portions, and the opposite end portions being molded under and upon the bottom of the vessel, substantially as specified.

5. The method of covering a shouldered vessel which consists in surrounding the same with a wet elongated tubular jacket of fibrous material, having its fibers extending circumferentially thereof, shaping the end portions of said jacket to fit closely the shoulder and bottom portions of the vessel, and drying the same, whereby the jacket, being held at the shoulder and base, shrinks crosswise of the fibers, and thereby becomes closely fitted to the surface of the vessel, substantially as specified.

591,405. CONSTRUCTION OF CONCRETE FLOORS FOR BUILDINGS. WARNER H. JENKINS, Philadelphia, Pa. Filed Oct. 7, 1896. Serial No. 608,062. (No model.)



Claim.—1. In a flooring of the nature described, the combination of the beams, the saddles resting thereon, the secondary saddles or plates which engage the limbs of the first-named saddles, the cross-bars, and the diagonally-extending rods whose end portions engage said secondary saddles or plates, substantially as and for the purpose specified.

2. In a flooring of the nature described, the combination of the beams, the saddles 2 resting thereon, the cross-bars whose ends are supported by said saddles, the saddles 4 which engage the vertical limbs of the saddles E and rest upon said cross-bars, and the diagonal rods whose ends are connected to the saddles 4, substantially as specified.

591,406. SELF-OILING DEVICE FOR JOURNALS. CHRISTIAN H. G. KOCH, Chicago, Ill., assignor to the Chicago Lubricating and Manufacturing Company, of Illinois. Filed July 30, 1896. Serial No. 600,969. (No model.)



Claim.—1. As a new article of manufacture a self-contained lubricating device composed of a series of flexible fibrous oil-receiving conducting portions, a metallic binding, and stiffening device to hold the fibrous portions closely together, said binding and stiffening device being wholly within the outer boundary of the finished lubricating device, so that it will not come in contact with any part of the journal-box and so rigid as to enable the lubricating device to be forced into the journal-box endwise without injuriously bending the device or displacing the fibrous portions such fibrous portions so firmly bound together as to be capable of standing alone when placed in the box and saturated with oil.

2. A lubricating device for journals adapted to be removed from and inserted into the journal-box and comprising a series of pad portions adapted to be saturated with oil, a binder passing around said pad portions near their middle so as to make the device reversible, a strengthening-piece outside the pad portions and inclosed by the binder so as to strengthen the pad portions and render the use of a supporting-frame unnecessary.

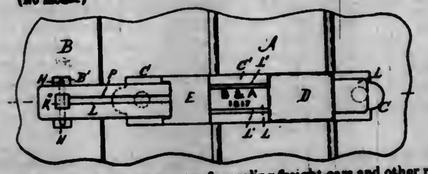
3. A lubricating device for journals adapted to be removed from and inserted into the journal-box and comprising two pad portions adapted to be saturated with oil, a binder passing around said pads near their middle so as to make the device reversible, a strengthening-piece outside the pad portions and inclosed by the binder so as to strengthen the pad portions and render the use of a supporting-frame unnecessary, and an intermediate fibrous portion between the two pad portions.

4. A lubricating device comprising two fibrous pads of approximately the same length and of such length that their upper ends engage the axle tangentially, while their lower ends lie upon the floor of the box, an intermediate short fibrous portion whose upper end engages the axle radially, a binder surrounding the fibrous parts about midway and holding them securely together so that the device is reversible and needs no supporting-frame.

5. A lubricating device comprising two fibrous pads of approximately the same length and of such length that their upper ends engage the axle tangentially, while their lower ends lie upon the floor of the box, an intermediate short fibrous portion whose upper end engages the axle radially, a binder surrounding the fibrous parts about midway and holding them securely together so that the device is reversible and needs no supporting-frame, and strengthening parts outside the lubricating device proper, held in position by the binder and adapted to strengthen the outside fibrous pad portions and hold them in position.

6. In a car-axle-lubricating device, the combination of an axle-box with an axle therein, and a lubricating-pad, comprising two outer pad portions of substantially the same length, the upper end of each bearing upon the axle tangentially, and the lower end being rolled up against the bottom and sides of the box; intermediate short vertical fibrous parts of a length approximately equal to the distance between the axle and the bottom of the box and bearing radially against the axle, and a binder which surrounds the parts midway, thus making the device reversible and securely holding them together, thus avoiding the necessity of a supporting-frame for the lubricating device.

591,407. SEAL-LOCK. CHARLES R. LEE, Nashua, and WILLIAM C. HOYT, Merrimac, N. H. Filed June 21, 1897. Serial No. 641,592. (No model.)



Claim.—1. In an apparatus for sealing freight-cars and other receptacles for merchandise, a seal or tag consisting of the metallic strip L provided with the longitudinal slot P formed with an enlarged end P', said strip being provided with suitable characters identifying the seal; a locking device adapted to be secured to the door or opening portion of the receptacle, and provided with a bolt adapted to extend through the enlarged portion of said slot in the seal; a bridge formed on said locking device and extending over and concealing the bolt; and a securing device extending from the jamb or body portion of the receptacle through and over the edges of said slot in the seal, substantially as set forth.

2. In an apparatus for sealing freight-cars and other receptacles for merchandise, a seal or tag consisting of the metallic strip L provided with the longitudinal slot P formed with an enlarged end P', said strip being provided with suitable characters identifying the seal; a locking device adapted to be secured to the door or opening portion of the receptacle, and provided with a bolt adapted to extend through the enlarged portion of said slot in the seal; a bridge formed on said locking device and extending over and concealing the bolt; the staple H secured to the jamb or body portion of the receptacle; and the bolt K loose upon said staple and adapted to both swing and slide thereon, said bolt being formed with the neck K' and head K" for engagement with said slot in the seal, substantially as described.

3. In an apparatus for sealing freight-cars and other receptacles for merchandise, a seal or tag consisting of the metallic strip L provided with the longitudinal slot P formed with an enlarged end P', said strip being provided with suitable characters identifying the seal; a locking device adapted to be secured to the door or opening portion of the receptacle, and provided with a bolt adapted to extend through the enlarged portion of said slot in the seal; a bridge formed on said locking device and extending over and concealing the bolt; a second bridge formed on the locking device and extending over and concealing the private characters thereon; and a securing device extending from the jamb or body portion of the receptacle through and over the edges of said slot in the seal, substantially as set forth.

591,408. FIRE-ALARM. SAMUEL W. LUDLOW, Cincinnati, Ohio. Filed Nov. 20, 1896. Serial No. 612,980. (No model.)



Claim.—1. An automatic fire-alarm provided with a suitable base having a chamber or chambers containing a fulminate, in combination with a chamber produced by two thin sheets of metal of segmental spherical form one smaller than and within the other, so arranged that the outer one will resist the pressure from within, while the inner one will readily yield to such pressure, said chamber containing a volatile substance which will expand at a low temperature and the inner or yielding diaphragm forming the chamber operating a friction-pin to ignite and discharge the fulminate, substantially as and for the purpose described.

2. An automatic fire-alarm consisting of a suitable base, provided with several chambers containing fulminate and with a fuse connect-

ing all these chambers and in one of these chambers a friction-pin for igniting the fulminate operated by the expansion of the contents of an outer chamber filled with a volatile substance and exposed to the outer temperature, substantially as shown and described.

3. An automatic fire-alarm provided with a suitable base and having a chamber or chambers containing a fulminate in combination with a chamber produced by two thin sheets of metal of segmental spherical form, one smaller than and within the other, so arranged that the outer one will resist the pressure from within while the inner one will readily yield to such pressure, said chamber containing air which will expand by the action of heat on the outer metal sheet and buckle or collapse the inner or yielding diaphragm forming the chamber and move a friction-pin to ignite and discharge the fulminate, substantially as shown and described.

591,409. HEAT-INSULATING ARTICLE. JOHN LUBLEY, San Francisco, Cal., assignor of one-half to William Borrows, same place. Filed Aug. 24, 1896. Serial No. 603,744. (No specimens.)

Claim.—As a new article of manufacture, the herein-described heat-insulating product for coverings, linings, &c., consisting of infusorial earth or "fossil meal" and the fiber of "*Typha latifolia*" intimately mixed in suitable proportions, molded into forms, and dried in coherent blocks, masses or sheets, substantially as specified.

591,410. STATION-INDICATOR. JOHN A. MAGOLA, Moundsville, W. Va. Filed Nov. 30, 1896. Serial No. 613,970. (No model.)



Claim.—1. The combination of the case, of a shaft supported in the end walls of the case, disks connected by said shaft, card-letters arranged between said disks and having at their ends pins inserted in perforations in the disks near their outer edges, and a cam-shaped projection on the inner wall of the end of the case and arranged in the path of the bent ends of said pins, all substantially as and for the purpose specified.

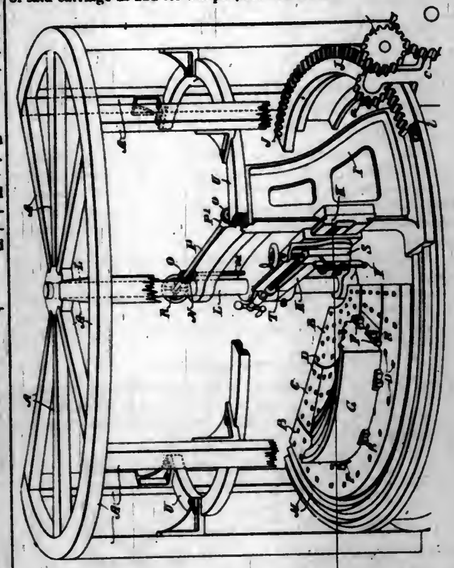
2. The combination of the case, of a shaft supported in the end walls of the case, disks connected by said shaft, card-letters arranged between said disks and having at their ends pins inserted in perforations in the disks near their outer edges, and a cam-shaped projection on the inner wall of the end of the case and arranged in the path of the bent ends of said pins, and cards carried by said letters and arranged to drop by gravity after being started in such movement by the engagement of said projection with the bent ends of the pins, all substantially as and for the purpose specified.

591,411. STONE-PLANING MACHINE. JAMES MAHR, Philadelphia, Pa. Filed Feb. 5, 1897. Serial No. 622,100. (No model.)

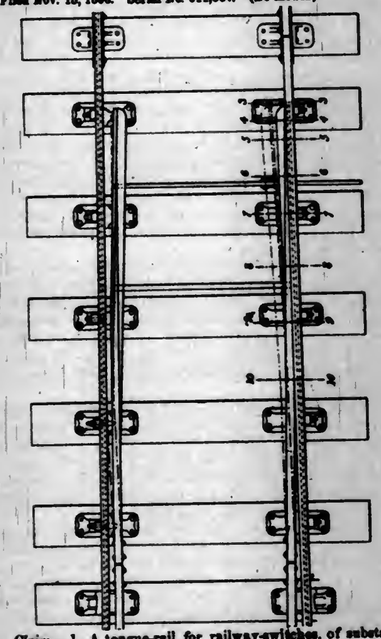
Claim.—1. In a stone-planing machine, in combination, a circular segmental track or guide, a carriage mounted and adapted to be reciprocated on said track or guide, a vertical post placed concentrically with said track or guide, a horizontal tool-carrying guide one end of which is carried by said carriage and the other by said post, a tool holder or holders carried by said guide horizontally adjustable thereon, means for vertically adjusting said horizontal guide upon said central post and said carriage, a stationary bed-plate adapted to hold the stone to be cut, and means for reciprocating said carriage and its connected parts.

2. In a stone-planing machine, in combination, a circular segmental track or guide, a carriage mounted and adapted to be reciprocated on said track or guide, a horizontal tool-carrying guide one end of which is carried by said carriage and the other by said post, a tool holder or holders carried by said guide and horizontally adjustable thereon, means for vertically adjusting said horizontal guide on said central post and said carriage, a stationary bed-plate adapted to hold the stone to be cut, a circular segmental rack, concentric with said segmental track or guide, carried by said carriage, a pinion gearing with said rack, and means for driving said pinion, all substantially as and for the purposes set forth.

3. In a stone-planing machine, in combination, a segmental track or guide, a carriage adapted to travel on said track or guide, a segmental rack attached to or forming part of said carriage, a vertical post placed concentrically with said track or guide, a horizontal tool-holder guide one end of which is vertically adjustable on said post and adapted to turn with or around the same, and the other end of which is vertically adjustable on said carriage, a tool holder or holders horizontally adjustable on said guide, means for vertically adjusting said guide, means for driving said rack and carriage back and forth on said guide or track, and a segmental guide engaging the top of said carriage as and for the purposes set forth.



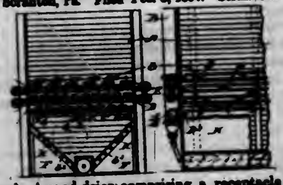
591,412. TONGUE-RAIL FOR RAILWAY-SWITCHES. EDWARD P. MARTIN, Dowlais, and RICHARD PRICE-WILLIAMS, London, England. Filed Nov. 13, 1896. Serial No. 611,967. (No model.)



Claim.—1. A tongue-rail for railway-switches, of substantially the same sectional area throughout the greater part of its length, having a projection all along the inner side of the tapering portion to fit below the head of a stock or fixed rail.

2. A tongue-rail for railway-switches, of substantially the same sectional area throughout the greater part of its length, having a projection all along the inner side of the tapering portion to fit below the head and alongside the web of a stock or fixed rail, the top surface of the tapering portion sloping down from the level of the stock-rail to the top of the projection.

591,413. SAND-DRIER. ROBIN L. MERRIMAN and JOSIAH W. VOORHIS, Scranton, Pa. Filed Feb. 3, 1897. Serial No. 621,842. (No model.)



Claim.—1. A sand-drier comprising a receptacle for the sand having entrance and discharge openings at the top and bottom respectively, a system of heating-pipes arranged in said receptacle and constituting irregular passages through which the sand passes to the discharge-openings, and grates having movable slats arranged immediately beneath the heating-pipes for regulating the discharge of sand and the length of time the sand shall be held in contact with said pipes; substantially as described.

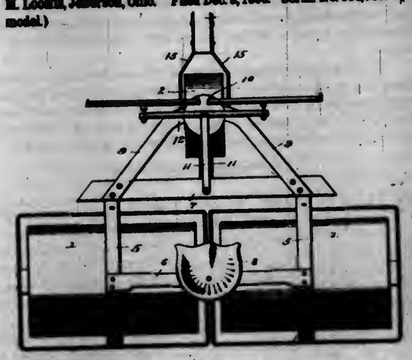
2. A sand-drier comprising a receptacle having entrance and discharge openings at top and bottom, an interposed system of heating-pipes and ventilators interposed in said pipes for the purpose of drawing the moisture from the sand passing between the pipes and an adjustable grate located immediately beneath the pipes and above the discharge-opening for regulating the discharge of sand and the length of time the sand shall be held in contact with the pipes; substantially as described.

3. A sand-drier comprising a receptacle for the sand having entrance and discharge openings at top and bottom, an intermediate system of heating-pipes with ventilators for withdrawing the moisture vaporized from said pipes, hot-air flues or passages arranged at the bottom of the receptacle to heat the sand which has already passed through between the heating-pipes and communicating with the receptacle at a higher point to supply heated air to the body of sand for carrying off the vaporized moisture; substantially as described.

4. A sand-drier comprising a receptacle having a discharge-opening at the bottom and an interposed system of heating-pipes between which the sand passes, and ventilators formed by inverted-V shape sand-separators, said separators being arranged at different levels and with those at the lower level opposite the spaces between the higher separators, and having transverse V-shaped branches and ventilator-pipes communicating with the spaces beneath the separators; substantially as described.

5. A sand-drier comprising a receptacle, an interposed system of heating-pipes between which the sand passes and a grate for regulating the passage of sand through said pipes formed of slats hinged at one edge and a transverse slat adapted to close or open the same; substantially as described.

591,414. LAND-ROLLER. WILLIAM A. MIDDLETON and GEORGE M. LOCHER, Jefferson, Ohio. Filed Dec. 8, 1896. Serial No. 614,969. (No model.)



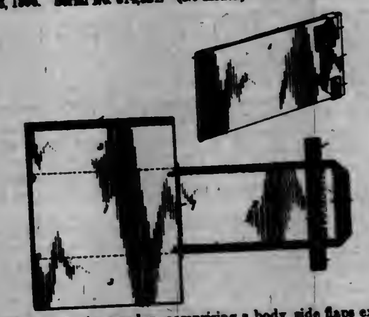
Claim.—1. In a land-roller, the combination of a draft-bar, bars secured to the draft-bar and curving rearwardly and upwardly, arched bars disposed in the line of motion of the implement and secured to the said curved bars, a coupling-bar connecting the arched bars intermediate of their ends, independent frames disposed in transverse alinement and having pivotal connection between their ends with the extremities of the arched bars, so as to tilt vertically and at right angles to the line of motion of the machine, and rollers journaled to the pivoted frames, substantially as described.

2. In a land-roller, the combination of a draft-bar, independent frames having pivotal connection with the draft-bar and provided with rollers, hounds having connection with the draft-bar and provided with a plate at their front ends, a frame of arched form having pivotal connection with the said plate and bearing a pilot-roller, and a pole or tongue having pivotal connection with the side members of the arched frame near their upper ends, substantially as set forth for the purpose described.

3. In a land-roller, the combination of a draft-bar, longitudinally-disposed curved bars having connection at their front ends with the end portions of the draft-bar, arched bars secured to the curved bars, a coupling-bar connecting the arched bars, independent frames having pivotal connection with the arched bars and bearing-rollers, hounds secured to the aforesaid draft-bar, a frame bearing a pilot-wheel having pivotal connection with the front ends of the hounds, and a pole or tongue having pivotal connection with the pilot-roller-bearing frame, substantially as set forth.

4. In a land-roller, a draft-bar, curved bars attached at their front ends to the draft-bar, a coupling-bar connecting the rear ends of the curved bars and supporting a seat, arched bars rigidly connected to the curved bars, frames having pivotal connection intermediate of their ends with the extremities of the arched bars, rollers journaled to the pivoted frames, hounds having connection with the aforesaid draft-bar, a pilot-roller having its frame pivotally connected with the hounds so as to turn about a vertical axis, and a pole or tongue having pivotal connection with the frame of the pilot-roller, substantially in the manner set forth for the purpose described.

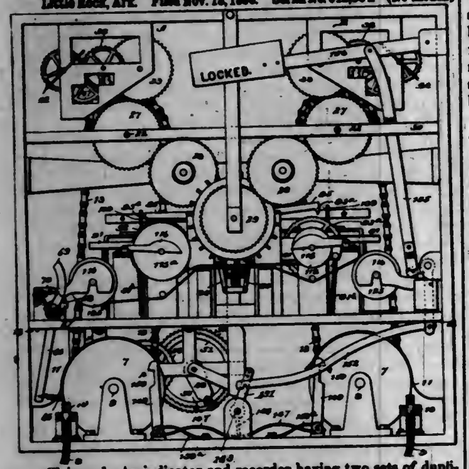
591,415. ENVELOP. HESTER A. MOSBY, Denver, Colo. Filed Dec. 8, 1896. Serial No. 614,991. (No model.)



Claim.—1. An envelop, comprising a body, side flaps extending outwardly from said body and adapted to be folded thereon, a main flap projecting from one end of the body and adapted to be folded upon the side flaps, a sealing-flap projecting outwardly from the outer end of the main flap, and outwardly-projecting tabs formed on the main flap and adapted to be folded upon the sealing-flap to prevent the same being opened without detection, substantially as set forth.

2. An envelop, comprising a body, outwardly-projecting flaps arranged at the sides of said body and provided with a suitable adhesive substance, said flaps being adapted to be folded on the body, a main flap extending from one end of the body and of substantially the same dimensions as the latter, a suitable adhesive substance provided on said main flap at its edges and outer end, a sealing-flap projecting from the outer end of the main flap and provided with a suitable adhesive substance, said main flap being adapted to be folded upon the side flaps and secured thereon, said side flaps reinforcing the body, oppositely-arranged outwardly-projecting tabs arranged at a point adjacent to the sealing-flap and provided with a suitable adhesive substance, said tabs being adapted to be folded upon the sealing-flap when the latter is secured to the body of the envelop, whereby any attempt to open said sealing-flap may be readily detected, and an opening-wire arranged at the point of juncture of the main flap and the body and extending transversely thereof, the ends of said wire projecting beyond the side edges of the envelop and folded thereon, whereby the same may be readily grasped to apply pressure to the wire for opening the envelop, substantially as set forth.

591,416. INDICATOR AND RECORDER. EDWARD L. MORGAN, Little Rock, Ark. Filed Nov. 16, 1896. Serial No. 612,564. (No model.)



Claim.—1. An indicator and recorder having two sets of duplicate dials facing upon opposite sides of the register each set having different units of value, two shafts one in common for each set of dial-pointers, type-wheels corresponding to each set of duplicate dials, connected to and operated by said shafts and means for actuating either set of dial-pointers and their corresponding type-wheel independently from either side of the register.

2. In a recording-indicator the combination of the dial, the pointer, a recording type-wheel corresponding to said dial, the dial-pointer shaft, and means for connecting said shaft and type-wheel whereby said pointer and wheel will turn in unison in either direction, first indicating and recording the required number or word and then automatically returning to zero.

3. An indicator and recorder having two dials, one marking dollars or words and the other cents provided with independently-operating pointers, two type-wheels corresponding to said dials and actuated independently of each other by the dial-pointer shafts to move in unison with said pointers and record side by side the number indicated on its corresponding dial in the dollars or cents column.

4. In a double-faced indicator the combination of the dial-pointer shaft extending to each face of the indicator and carrying pointers at each end, a shaft carrying two pulleys, means for connecting said shafts, and operating-cords for said pulleys' shaft leading from opposite faces of the register.

5. In an indicating and recording appliance, the combination of the main indicator and recorder, the telltale-indicators located upon opposite sides of said main indicator and connected therewith by an operating line-shaft, a locking mechanism located in the main indicator connected by a locking line-shaft to said telltale-indicators, and means for connecting said lock-shaft to a key-arbor at either end of the car.

6. The combination of the cam 17, the horizontal lever actuated by said cam, the connecting-rod 120 pivoted to said lever, the crank-arm operated by said connecting-rod carrying a pawl, and the rock-shaft 122 having the paper-feed spool and a ratchet-wheel actuated by said pawl.

7. In an indicator the combination of the dial-pointer shaft having the toothed disk and the cam-shaft disk provided with lugs which engage lugs on said toothed disk, means for operating said shafts in common, and independent means substantially as described for effecting the return movements of said shafts at different intervals.

8. The combination of the dial-pointer shaft, a return-motor connected thereto and causing the return movement of the same, and a type-wheel operatively connected with the dial-pointer shaft and actuated simultaneously therewith.

9. In an indicator and recorder the combination of the dial-pointer shaft, the cam-shaft, the main horizontal lever, the type-wheel, the vertical motor-rod, means for effecting the downward movement of said rod, and a type-hammer operated by said rod substantially as described.

10. In a double indicator and recorder, the combination of the dial-pointer shaft, the cam-shafts, the horizontal levers pivoted to opposite sides of the casing, the vertical motor-rod connected to the free ends of said levers and having a return-motor at its lower end, the type-wheels, the type-hammer common to both type-wheels, and the return-motors A and B.

11. In a device for indicating and recording different units of value or words, the combination of the dial-pointer shafts, the cam-shafts, independent return-motors for said dial-pointer shafts, the two horizontal levers, a rod connecting one of said levers with the paper-feed shaft, the vertical motor-rod connected to said levers, a main return-motor for said motor-rod, a carbon-ribbon feed actuated by said motor-rod, and a spring-actuated hammer-arm sprung and tripped by said motor-rod.

12. The combination of the dial-pointer shaft having a toothed disk, the cam-shaft, a main horizontal lever, a vertical motor-rod, means for operating said lever and rod, a gravity-rod, and a hinged arm having catches which engage the teeth of said disk substantially as described.

13. The combination of the gong-hammer, the hinged arm connected therewith, the cam-shaft, the dial-pointer shaft, means for operating said shafts and independent means substantially as described for effecting the return movements of said shafts at different intervals, whereby after the gong is sounded the dial-pointer is held on the number or word registered for a given time before the pointer is returned to zero.

14. In a recording-indicator the combination of the vertical motor-rod, the type-hammer arm actuated by said rod, the jointed yoke actuated by said hammer-arm, the pivoted arms connected to the yoke and having actuating-pawls, and the ratchet-wheels operated by said pawls and actuating the carbon-spools substantially as described.

15. In a recording-indicator, the combination of the vertical motor-rod, the type-hammer arm actuated by said rod, the jointed yoke actuated by said arm, the pivoted arms connected to said yoke, the ratchet-wheels actuated by said pivoted arms, the trip-pawls, and means for actuating and tripping said pawls.

16. In a recording-indicator, the combination of the vertical motor-rod, the type-hammer arm, sprung and tripped thereby, the jointed yoke depressed by said arm, the pivoted arms connected to said yoke, the ratchet-wheels operated by said pivoted arms, the trip-pawls, the pivoted dogs, the counterbalance and means for automatically shifting said counterbalance to reverse the carbon-feed.

17. In a recording-indicator, the combination of the jointed yoke, the pivoted arms connected thereto, the ratchet-wheels on the carbon-spool shafts actuated by the trip-pawls, the counterbalance, the pinion on the carbon-spool shaft, the horizontal reciprocating frame having a rack-bar engaging said pinion, the pivoted switch-lever actuated by said frame, and the horizontal reciprocating rod actuated by said switch-lever to shift the counterbalance substantially as described.

18. The combination of the frame 106, the bell-cranks, a laterally-shifting carriage for the carbon-spools, means for connecting said bell-cranks, and means for operating said frame.

19. In a recording-indicator, the combination with the reversing mechanism for the carbon-spools, of a pivoted switch-lever, means for operating said lever, a horizontal bar actuated by said lever having coiled springs at each end, a reciprocating frame 114 actuated by said coiled springs and provided with tripping-pawls actuated by said switch-lever, and the counterbalance and means for shifting the same.

20. In a locking mechanism for registers the combination of the rock-shaft 143 having a key-arbor, a rock-shaft 148 connected to and operated by said first-named shaft, and locking-arms secured to the latter shaft adapted to engage and hold the grooved pulleys substantially as described.

21. The combination of the rock-shaft 143 extending to opposite sides of the indicator-casing having key-arbors at each end, a rock-yoke 148 upon each side of shaft 143 connected therewith and operated thereby provided with locking-arms engaging operating-pulleys connected to separate registering mechanisms.

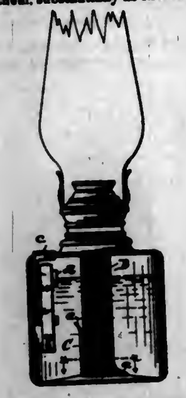
22. The combination of the shafts 143, the rod 152 connected to said shaft, the arm 158 connected to said rod and carrying a pawl, the ratchet-wheel 126 actuated by said pawl, and the paper-feed shaft, whereby the locking mechanism operates the paper-feed when unlocked.

23. In an indicator and recorder, the combination of the cam-shaft, the main horizontal lever, the vertical motor-rod the jointed yoke actuated by said rod and operating the carbon-spools, the connecting-rod 120 connected to said motor-rod and the rock-shaft 122 carrying the paper-feed spool and operated by said rod 120.

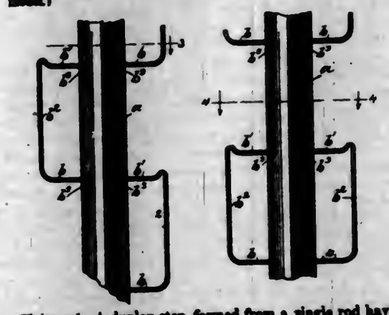
591,417. LAMP. FREDERIC A. MORSE, Pawtucket, R. I. Filed Sept. 18, 1896. Serial No. 606,220. (No model.)

Claim.—1. A center draft for lamps, combined with a short curved shield, provided at its lower edge with a flange *b*, and which shield is secured to the bottom of the lamp close to the central-draft tube, and extends parallel with the tube upwardly into the body of the lamp, substantially as shown.

2. In a center-draft lamp, a short curved shield which is secured to the bottom of the lamp-body and extends vertically therein parallel with the center-draft tube, there being sufficient space between the draft-tube and the shield to allow the lower edge of the wick to pass down between them, substantially as shown.



591,418. LADDER AND DUPLEX STEP THEREFOR. LA VERNE W. NOYES, Chicago, Ill. Filed May 26, 1897. Serial No. 638,196. (No model.)



Claim.—1. A duplex step formed from a single rod having the ends bent into parallel positions to form foot-treads joined by an upright support and handhold, substantially as described.

2. A duplex step formed from a single rod having the ends bent into parallel positions to form foot-treads joined by an upright support and handhold, the ends of said steps having upset shoulders thereon and shanks extending therefrom, substantially as described.

3. A duplex ladder-step formed from a rod having the ends bent at right angles to form a pair of foot-treads joined at the ends by a vertical support and handhold, the upper foot-tread being bent upward where it joins the vertical handhold to form a foot-guard, substantially as described.

4. A duplex ladder-step formed from a rod having the ends bent at right angles to form foot-treads joined by a vertical support and handhold the ends of said steps having upset shoulders thereon and threaded shanks extending therefrom, substantially as described.

5. A duplex ladder-step formed from a rod having the ends bent at right angles to form foot-treads joined by a vertical support and handhold, the ends of said steps having shoulders the faces of which are at an angle to the steps, and threaded shanks extending beyond said shoulders at an angle to the steps, substantially as described.

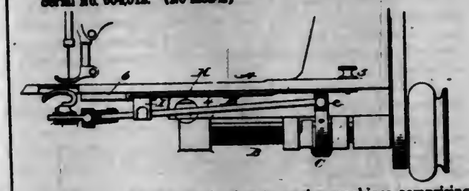
6. A ladder having a central support and duplex steps mounted in sinuous form alternately upon opposite sides of said support each of said duplex steps comprising a pair of parallel foot-treads joined by an upright handhold, substantially as described.

7. A ladder having a central support and duplex steps mounted upon opposite sides thereof, each of said duplex steps comprising a pair of parallel foot-treads joined by an upright handhold, the steps being placed so that there will be two foot-treads at each elevation upon opposite sides of the support, substantially as described.

8. A ladder comprising an upright support the faces of which are at an angle to the plane of the ladder, and a series of duplex steps each comprising a pair of horizontal foot-treads joined at the outer ends by an upright support and handhold, said duplex steps being arranged upon said support in a common plane and so that there will be two foot-treads at each elevation upon opposite sides of the support, substantially as described.

9. A ladder comprising an upright or support in the form of an angle-bar and a series of duplex steps mounted upon the opposite sides thereof and each comprising a pair of horizontal foot-treads joined at the outer ends by a vertical support and handhold, the inner ends of said foot-treads each carrying an upset angularly-situated shoulder adapted to rest against the face of the angle-bar and a threaded shank passing perpendicularly through said angle-bar, and a nut screwing upon said shank, substantially as described.

591,419. LOOPER-ACTUATING MECHANISM FOR SEWING-MACHINES. LEMUEL OSBORNE, Boston, Mass., assignor to The Union Special Sewing Machine Company, of Illinois. Filed Sept. 1, 1896. Serial No. 604,512. (No model.)



Claim.—1. A looper mechanism for sewing-machines, comprising a looper-carrier having four substantially distinct movements, means for imparting such movements, including a gyratory lever, and means for adjusting the extent of each of the looper-carrier's movements, substantially as described.

2. A looper mechanism for sewing-machines, comprising a looper-carrier having four substantially distinct movements, means for imparting such movements, and means for adjusting the extent of each of such movements, substantially as described.

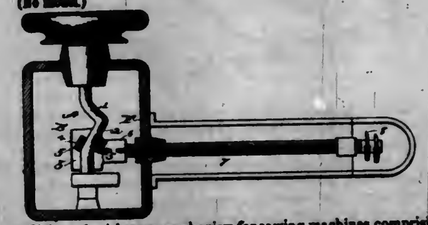
3. A looper mechanism for sewing-machines, comprising a gyratory lever and means for positively actuating the same in all its movements, an independent looper-carrier journaled to rock and slide in fixed bearings and operative connections between the lever and carrier, whereby the gyratory movement of the lever is transformed into four substantially independent and positive movements of the looper-carrier.

4. A looper-operating mechanism for sewing-machines comprising a gyratory lever and means for actuating the same, a looper-carrier journaled to rock and slide in fixed bearings and an independent actuating-pin connected to the gyratory lever and operatively engaging the looper-carrier.

5. A looper-operating mechanism for sewing-machines comprising a gyratory lever and means for actuating the same, a looper-carrier journaled to rock and slide in fixed bearings, an actuating pin or rod as G, mounted in a universal joint in said gyratory lever and operatively engaging the looper-carrier.

6. A looper mechanism for sewing-machines, comprising a gyratory lever, means for actuating the same, an independent looper-carrier journaled to rock and slide in fixed bearings, and operative connections between said lever and carrier, said lever being provided with means for adjusting the extent of the rocking and sliding movements given the looper-carrier, substantially as described.

591,420. SEWING-MACHINE. LEMUEL OSBORNE, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Aug. 6, 1896. Renewed Aug. 23, 1897. Serial No. 648,944. (No model.)



Claim.—1. A looper mechanism for sewing-machines comprising an actuating device, a looper-carrier, and operative connecting means between the actuating device and the looper-carrier, the said means including a pair of wings and transverse pins connecting the same, substantially as described.

2. A looper mechanism for sewing-machines, comprising an actuating device, a looper-carrier, and operative means between the said device and carrier for imparting to the latter a right-line reciprocation and transverse oscillation, said means including a pair of wings and transverse pins connecting the same, substantially as described.

3. A looper mechanism for sewing-machines comprising a main shaft, a looper-shaft, and operative connections between the two, the latter comprising a frame having wings, and connecting transverse pins; substantially as described.

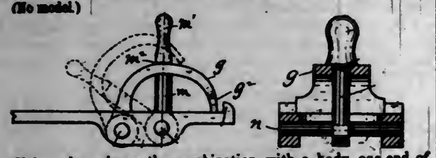
4. A looper mechanism for sewing-machines, comprising a main shaft, a looper-shaft and operative connections between the same, the latter comprising an actuating-frame, having parallel wings and transverse connecting-pins; substantially as described.

5. A looper mechanism for sewing-machines comprising a main shaft, a looper-shaft, and operative connections between the two, the latter comprising a frame, having wings and transverse connecting-pins, and an inclined crank for actuating the frame; substantially as described.

6. A looper mechanism for sewing-machines comprising a main shaft, a looper-shaft and operative connections between the two, the latter comprising a frame having wings and connecting transverse pins the latter having bearing-blocks journaled thereon; substantially as described.

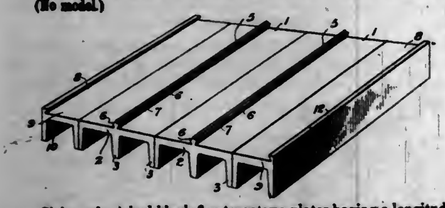
7. The herein-described looper-operating mechanism for sewing-machines comprising the driving-shaft, the looper-supporting carrier or frame an inclined crank driven from the driving-shaft, wings on said carrier or frame embracing the inclined crank, and pins extending transversely of the wings, between which pins the inclined crank also works; substantially as described.

591,421. CLAMP. REUBEN T. PALMER, Jr., and FREDERIC W. MERRIMS, New London, Conn. Filed Apr. 24, 1896. Serial No. 588,902. (No model.)



Claim.—In a clamp, the combination, with a body, one end of which forms a jaw and the opposite end is provided with means for securing it in position, and the intermediate portion is provided with an opening, of two pins within the opening, one in front of the other, a removal jaw pivotally secured upon the rear pin, the intermediate portion of which jaw is slotted longitudinally, and the rear end of the slot is enlarged, the upper surface of the jaw at the rear wall of the enlarged portion being farther away from the forward pin than the surface at the front wall of the enlargement, a lever pivotally secured upon the forward pin, the upper end of which projects through the jaw and is enlarged and forms a shoulder that engages with the portion of the jaw in front of the enlargement, but engages with the rear wall of the enlargement, whereby the jaw is closed when the lever is moved forward and opened when the lever is moved backward, substantially as set forth.

591,422. BED-BLOCK FOR STEREOTYPE-PLATES. CARL PIEPER, Menominee, Wis. Filed Apr. 20, 1897. Serial No. 632,973. (No model.)



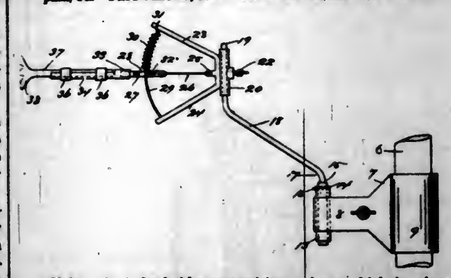
Claim.—1. A bed-block for stereotype-plates having a longitudinal rail integral therewith and extended to form a column-rule, substantially as shown and described.

2. A bed-block for stereotype-plates having a longitudinal rail formed integral therewith, the side edges of said rail being undercut and the upper part extended to form the ordinary column-rule to be used in connection with stereotype-plates having recessed edges, substantially as shown and for the purpose set forth.

3. A bed-block for stereotype-plates having a longitudinal rail formed integral therewith and presenting an undercut edge, in connection with the stereotype-plate having recesses in its side edges, substantially as shown and described.

4. The combination with a bed-block for stereotype-plates, of a longitudinal rail formed integral with said bed-block at the center of its top, said rail presenting side extensions which are undercut, and an upper extension which is brought to an edge to form the ordinary column-rule, in connection with the stereotype-plates having longitudinal recesses in their side edges to conform with the shape of the rails, substantially as shown and for the purpose set forth.

591,423. FAN-HOLDER. FREDERICK W. R. POHLERS, Philadelphia, Pa. Filed June 26, 1897. Serial No. 642,223. (No model.)



Claim.—1. A fan-holder, comprising a clamp which is adapted to be secured to a chair or other article of furniture, a tube secured therein, a rod or arm mounted in said tube and laterally adjustable therein, said rod or arm being provided with an upwardly-directed extension, a sleeve connected with said extension, and provided with outwardly and upwardly, and outwardly and downwardly directed arms, the outer ends of which are connected with a curved or segmental rod, a spring connected with said sleeve, centrally of said arms, and the outer end of which is connected with a bar through which said curved or segmental rod passes, a spiral spring mounted on the upper portion of said curved or segmental rod, and one end of which is connected with said outwardly and upwardly directed arm, and the other end with said bar, and a fan-holder connected with the outer end of said bar, substantially as shown and described.

2. A fan-holder comprising a clamp which is adapted to be connected with a chair or other article of furniture, a tube secured in said clamp and provided with serrations or teeth at its upper end; a tubular head mounted in said tube, and provided with a projecting pin, and with a rod or arm which is secured therein, a sleeve connected with said rod or arm, outwardly and upwardly and outwardly and downwardly directed arms connected with said sleeves, a curved or segmental rod by which the outer ends of said arms are connected, a spring connected with said sleeve between said arms, a bar connected with the outer end of said sleeve and provided with a slot or opening through which said curved or segmental rod passes, a spring mounted on the upper end of said curved or segmental rod, and one end of which is connected with said bar, and the other with the outwardly and upwardly directed arm, and a fan-holder connected with the outer end of said bar, substantially as shown and described.

3. A fan-holder consisting of means for securing a fan to a chair or other article of furniture, a rod or arm adjustably connected therewith, outwardly-directed arms connected with said rod or arm, a curved or segmental rod by which the outer ends of said arms are connected, a spring also secured to said rod or arm the outer end of which is connected with a bar through which said curved or segmental rod passes, a fan-holder connected with said bar, and a spiral spring mounted on said curved or segmental rod, and the opposite ends of which are connected one with said bar and the other with one of the arms with which the curved or segmental rod is connected, substantially as shown and described.

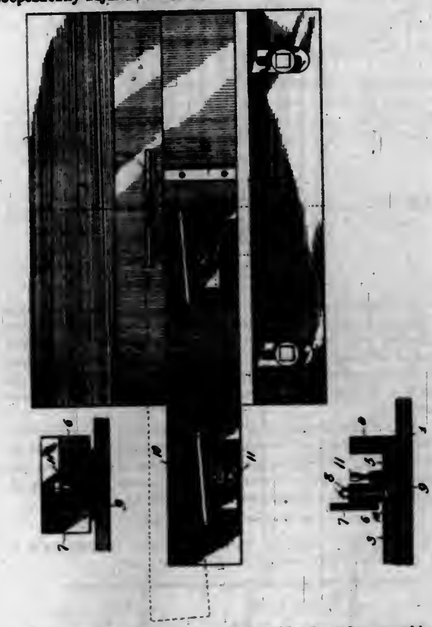
591,424. WOODWORKING-MACHINE. WILSON POPPLES, Chicago, Ill. Filed Feb. 1, 1897. Serial No. 621,405. (No model.)

Claim.—1. In woodworking-machines, the combination, with a saw-table and a saw, of a frame movable upon the table and adapted to carry the work and blocks having straight edges or faces and adjustable transverse on the frame and at right angles to the saw, such blocks being located on the same side of the saw and loosely pivoted to adapt the straight edges to the work presented.

2. In woodworking-machines, the combination with a saw-table and a saw, of a frame movable upon the table, blocks working upon the frame and adjustable thereon transverse to the frame and with respect to each other, such blocks being loosely pivoted and having straight edges which assume their position after the work is placed on the frame.

3. In woodworking-machines, the combination, with a saw-table and saw, loosely-swiveled blocks adjustable toward and away from the saw and into the same or different planes with respect to each other and having faces which form straight edges when the work is placed on the table and in contact with the blocks.

4. In woodworking-machines, the combination of a saw-table, a saw, a straight strip parallel to the saw, a gage parallel to the strip and forming a guide or channel together with the strip, a frame movable in the guide, and swiveled blocks mounted upon the frame and independently adjustable thereon.



5. In woodworking-machines, the combination of a saw-table, a saw, a frame movable thereon, blocks, base-pieces upon which the blocks are swiveled, the frame having transverse grooves in which the base-pieces are adapted to slide and means for securing the base-pieces in predetermined positions upon the frame

6. In woodworking-machines, the combination of a saw-table, a saw, a frame 5 movable thereon, base-pieces 9, blocks 7 pivoted upon the base-pieces, the frame having transverse grooves in which the base-pieces are adapted to slide and set-screws 11 for securing the blocks and base-pieces in predetermined positions on the movable frame.

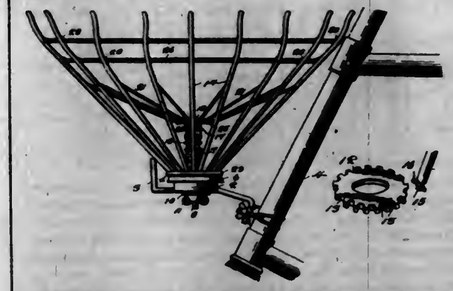
7. In woodworking-machines, the combination of a saw-table, a raised strip 3 thereon parallel to the saw, a gage 4 forming a guide with the parallel strip, a frame 5 movable in the guide and having transverse guides 10, a cleat 13 at its forward end, and adjustable block devices comprising base portions 9 movable in said guides, blocks 7 pivoted upon the base portions and set-screws 11 for holding the block devices in predetermined positions upon the movable frame.

8. In woodworking-machines, the combination of a saw-table 1, saw 2, a raised strip 3 thereon parallel to the saw, a gage 4 upon the table forming a channel or guide with the strip 3, a flat piece or frame 5 slidable on the table in said channel or guide, and an adjustable straight-edge device comprising two blocks, 7, base portions 9, the frame 5 having transverse grooves in which the base portions 9 slide, pins 8 passing through the base portions and the blocks whereby the latter are pivotally mounted on the former and a set-screw 11 for holding the blocks and base portions in predetermined positions transverse of the frame 5, the blocks capable of adjustment independent of each other to form a straight edge oblique to the saw.

591,425. LUGGAGE-CARRIER. JOHN H. QUINTON, San Diego, Cal. Filed Sept. 11, 1896. Serial No. 605,505. (No model.)

Claim.—1. A luggage-carrier comprising a series of radiating arms pivotally connected to a common support, an automatically-operated spreading device for simultaneously moving said arms apart, and a device adapted to be connected to a vehicle and on which the pivoted ends of the arms are supported, whereby when the upper ends of the arms are spread open they form a basket or receptacle for packages &c., substantially as described.

2. A luggage-carrier comprising a suitable base, a series of pivoted arms radiating therefrom, a spreading device for opening said arms, a spring for actuating said spreading device when the arms are released, and a device adapted to be connected to a vehicle and on which the said base is supported, whereby when the arms are spread open they form a basket or receptacle for packages &c., substantially as described.



3. A luggage-carrier comprising a suitable base, a series of pivoted arms radiating therefrom, a central post, a runner, braces interposed between said runner and arms, a spring for actuating the runner, and a device adapted to be connected to a vehicle and on which the said base is supported, whereby when the arms are spread open they form a basket or receptacle for packages &c., substantially as described.

4. A luggage-carrier comprising a series of arms pivotally connected to and radiating from a common base, an automatically-operated device for spreading the said arms, one or more flexible connections common to all of said arms and attached thereto for holding said arms equidistant when spread, and a device adapted to be connected to a vehicle and on which the said base is supported, whereby when the arms are spread open they form a basket or receptacle for packages &c., substantially as described.

5. A luggage-carrier, comprising a plurality of pivoted hollow arms connected to and radiating from a common base, a center post, a spreading device consisting of a runner and braces extending therefrom to said arms, and the wires passing through the deflected outer ends of said braces and extending longitudinally within said arms, substantially as and for the purpose described.

6. A luggage-carrier, comprising a series of pivoted arms connected to and radiating from a common base, and means for spreading said arms and holding the same closed, in combination with a slotted bracket forming the support for said carrier, and means for adjusting the carrier longitudinally of said bracket and holding the same, substantially as described.

7. A luggage-carrier, comprising a base having a circumferential flange with a conical outer surface, a series of radiating arms pivotally connected to said base, a ring arranged above said flange and adapted to surround and slide upon said arms for holding the same closed, a center post having a square cross-sectional shape, a runner having a square opening fitting said post, a head at the end of said post, forming a stop for the runner, a spring surrounding the post for actuating the runner, and pivotal braces extending from the runner to said arm, all arranged substantially as and for the purpose described.

8. A luggage-carrier comprising a suitable base, a series of radiating arms pivoted thereto, a spring for simultaneously spreading said arms, and one or more chains connecting said arms for limiting the spreading thereof and also contributing to form the sides of the carrier, substantially as described.

9. A luggage-carrier, comprising a base, radiating arms pivoted thereto, a center post extending through the base and having a clamping-nut beneath the same, and means for spreading said arms, substantially as described.

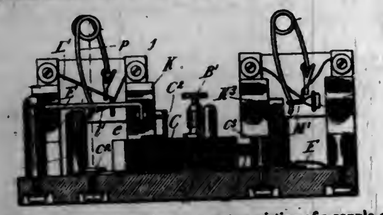
10. A luggage-carrier comprising a base, a series of radially-disposed folding arms, and a threaded center post, in combination with a supporting-bracket having a longitudinal slot in which said post is movable, and a clamping-nut on said post for engaging the bracket and holding the carrier at any adjustment, substantially as described.

591,426. ELECTRICAL PROTECTOR. CHARLES A. ROLFE, Chicago, Ill. Filed Jan. 11, 1897. Serial No. 618,794. (No model.)

Claim.—1. A protector comprising a cut-out for removing the instrument from the line; a ground-circuit provided with a cut-out operating upon an excess of current therein; and means for including the ground cut-out in the ground-circuit after the operation of the line cut-out.

2. A protector comprising a cut-out for removing the instrument from the line; means for bridging the break caused by such removal; a ground-circuit provided with a cut-out operating upon an excess

of current therein; and means for including the ground cut-out in the ground-circuit after the operation of the line cut-out.



3. A protector comprising a cut-out consisting of a couple of removable sections of conductor arranged for bodily removal from the circuit for removing the instrument from the line; a ground-circuit provided with a cut-out operating upon an excess of current therein; and means for including the ground cut-out in the ground-circuit after the operation of the line cut-out.

4. A protector comprising a cut-out for removing the instrument from the line; a ground-circuit provided with a cut-out consisting of a section of removable conductor arranged for bodily removal upon the passage of an excess of current in the ground-circuit; and means for including the ground cut-out in the ground-circuit after the operation of the line cut-out.

5. In a protector having means for automatically cutting the instrument to be protected out of the operating-circuit, and for bridging the break caused by such removal of the instrument; a ground-circuit provided with a cut-out device which is arranged for inclusion in such circuit after the operation of the protector to cut out and bridge the instrument, said device comprising a removable holder for a fine or high-resistance wire, a mass of fusible material having embedded therein a coil formed of a portion of such high-resistance wire and a spring normally held in tension and arranged to throw the movable holder out of its coöperating contacts upon the fusion of the mass of fusible material, substantially as described.

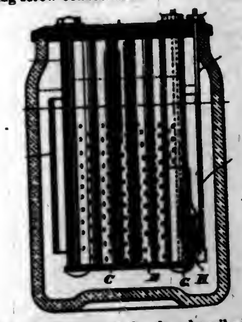
6. In a protector constructed with a couple of conductors adapted for inclusion in the operating-circuit on either side of the instrument to be protected, a third conductor arranged to connect the other two conductors and subject to a spring tending to bring about such connection, a movable stop normally opposing the action of said spring, and means for simultaneously removing said stop and cutting out the instrument from circuit when the current therein becomes excessive; a ground-circuit terminating in the third conductor and provided with a cut-out device which is arranged for inclusion in such circuit after the connection of the pair of conductors by the third, said device comprising a removable holder for a fine or high-resistance wire, a mass of fusible material having embedded therein, a coil formed of a portion of such high-resistance wire, and a spring normally held in tension and arranged to throw the movable holder out of its coöperating contacts upon the fusion of the mass of fusible material, substantially as set forth.

7. In a protector constructed with a couple of conductors adapted for inclusion in the operating-circuit on either side of the instrument to be protected, a third conductor arranged to connect the other two conductors and subject to a spring tending to bring about such connection, a movable stop normally opposing the action of said spring, and a couple of cut-out devices situated to be included in the sides of the circuit between said pair of conductors and the terminals of the instrument, each of said devices comprising a movable holder having secured thereto a spring which is held in tension in one device by a fusible button containing a coil of fine or high-resistance wire, and in the other by a loop of fusible wire, both of said springs being arranged to liberate when released themselves, a kicker-spring which is normally held in tension and which is situated to throw the movable holders out of their coöperating contacts and to withdraw the stop from the third conductor when freed by either of said springs; a ground-circuit terminating in the third conductor and provided with a cut-out device which is arranged for inclusion in such circuit after the connection of the pair of conductors by the third, said device comprising a removable holder for a fine or high-resistance wire, a mass of fusible material embedded therein, a coil formed of a portion of such high-resistance wire, and a spring normally held in tension and arranged to throw the movable holder out of its coöperating contacts upon the fusion of the mass of fusible material, substantially as described

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591,427. GALVANIC BATTERY. CHARLES R. SCHOONMAKER, Waterbury, Conn. Filed Feb 2, 1897. Serial No. 621,601. (No model.)

Claim.—1. In a primary battery of the class described, the combination of a jar provided with a cover, a basket forming an electrode attached to said cover and having a corrugated peripheral surface, a depolarizing material within said basket, projections upon the bottom of said basket, insulating-blocks adapted to fit upon said projections and to support a zinc, a zinc encircling said basket and having a binding-screw connection.



2. In a galvanic battery of the class described, the combination of the jar, a cover fitted thereto, a perforated corrugated conducting-basket containing a suitable depolarizing material, bolts passing through said basket securing the bottom and cover thereto, detachable insulating-blocks resting upon projections of the bottom of the basket, a circular zinc supported upon said blocks, substantially as described.

3. In a galvanic battery of the class described, the combination of the jar, a cover fitted thereto, a conducting-basket within said jar and containing a depolarizing agent, an annular zinc encircling said agent and provided with a conducting-wire secured between the adjacent vertical edges of said zinc, substantially as described.

591,428. FENCE. WILLIAM F. SHELDON, Lyndonville, N. Y. Filed July 8, 1897. Serial No. 643,881. (No model.)



Claim.—1. In a fence, the combination with runners and an intersecting stay, of a continuous tie-wire provided with spaced coils respectively engaging the runners, and each consisting of a looped portion of the tie-wire, and having its intermediate portions, between said coils, wrapped around the stay to form coils which frictionally engage the stay, substantially as specified.

2. In a fence, the combination with runners and an intersecting smooth-surfaced stay, of a continuous tie-wire provided with spaced runner-engaging coils, each consisting of a looped portion of the tie-wire, and having coiled intermediate portions engaging the stay between the planes of the runners, substantially as specified.

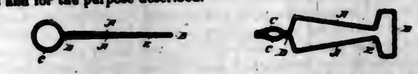
3. In a fence, the combination with runners and an intersecting stay, of a continuous tie-wire having spaced runner-engaging coils, each consisting of a looped portion of the tie-wire, and having intermediate stay-engaging coils, each consisting of a bowed portion of the tie-wire connecting two contiguous runner-engaging coils, substantially as specified.

4. The herein-described tie for wire fences, the same consisting of a continuous blank of wire provided with spaced loops and intermediate connecting bowed portions, adapted to be coiled respectively around the runners and a stay of fence, substantially as specified.

591,429. SNAP-HOOK. CHRISTIAN A. SEMB, St. Hilaire, Minn. Filed Oct. 21, 1896. Serial No. 609,533. (No model.)

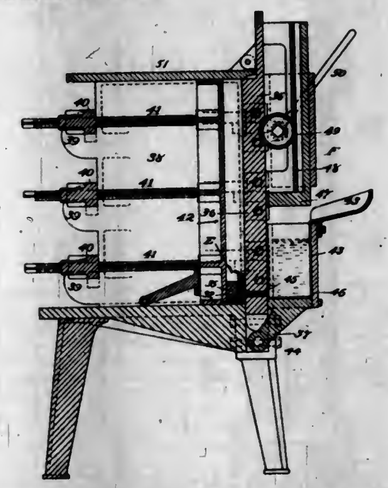
Claim.—1. A snap-hook formed of a single piece of wire doubled on itself to produce a loop, the end of the loop being squared, the arms being then bent toward each other producing an eye, said arms diverging from the eye, bent toward each other and crossed near their outer ends, said ends being bent up and down respectively at

right angles to the plane of the loop, each of said ends being curved to form an arc greater than a semicircumference, so that they form a complete circle when fitted together, the ends overlapping and flattened, said circle thus formed being bent sidewise in compound curves to provide shields for the protection of the ends of the wire, as and for the purpose described.



2. In a hook, wire members bent to overlap each other and form a ring, said ring being bent in compound curves to form humps for protecting the ends of the wire members said humps being adapted to form cams, to hold the members together when strain is brought to bear on them, substantially as described.

591,430. PROCESS OF AND APPARATUS FOR CASTING PRINTING-TYPE. JOHN J. C. SMITH, Passaic, N. J. Filed Nov. 8, 1894. Serial No. 528,168. (No model.)



Claim.—1. The herein-described process of making small types of hard refractory metal with sufficient accuracy for general printing, which consists in forming integral bar or slab shaped molds with a series of individual type-molds wholly inclosed within them and a longitudinal gate in one edge uniting the individual type-molds, firmly supporting said molds together side by side, casting comb-shaped series of type in said molds, finishing each comb-shaped series of type as a whole, and finally separating the finished type, substantially as set forth.

2. In the process of making small types of hard refractory metal with sufficient accuracy for general printing, casting type-combs of hard refractory metal, casting thereupon a suitable material filling the spaces between the type and wholly embedding the type-faces, subsequently treating the solid slab thereby formed for finishing the type and finally separating the type from the embedding material substantially as set forth.

3. The process of making small types of hard, refractory metal, consisting in forming comb-shaped patterns whose individual type-faced teeth are united by a rigid base, molding thereupon bar-shaped molds of porous material having individual type-molds united by a longitudinal gate, drawing said molds from the patterns and drying the same, locking a plurality of said molds together in a frame in such manner as to support them against strain, casting in the several molds simultaneously, a series of type-combs of hard, refractory metal, withdrawing the said combs from the molds, casting upon the individual combs a suitable material filling the spaces between the type and wholly embedding the type-faces, subsequently treating the solid slabs thereby formed for finishing the type, and finally separating the type from the embedding material, substantially as described.

4. The combination of a comb-shaped pattern A having individual type-patterns 2 united by a solid base 1, a molding flask or box having at bottom a central longitudinal slot of the width of the thickness of the base of said pattern-comb and suitable means for holding said pattern-comb in said molding flask or box, substantially as set forth.

5. In an apparatus for casting type, a mold-drawing apparatus consisting of a platform having suitable guides, means for fastening a pattern to the platform, sliding plates confined between the guides and working inside of the pattern-fastening means, said plates being adapted to engage the mold above and below said pattern, and means for operating said sliding plates for pushing the said mold off of the said pattern, substantially as set forth.

6. In apparatus for casting type, a mold-drawing apparatus consisting of a platform having suitable guides, means for attaching the pattern thereto and for supporting a mold thereon, a sliding plate supported on said platform and adapted to move underneath said pattern, a hinged plate connected to said sliding plate and adapted to overlie said pattern and means for operating said plates, substantially as and for the purposes set forth.

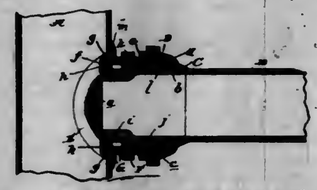
7. In an apparatus for casting type, a mold-drawing apparatus consisting of a platform provided with suitable guides and a parallel slot, screws for attaching a pattern to the platform, a sliding plate 18, supported on the platform between the guides and provided with a threaded lug which works in the slot of the platform, another plate 20 connected to plate 18, said plates being adapted to engage a mold above and below the pattern, and a screw 22 supported in suitable journals and working in the threaded lug for moving the plates 18 and 20 over the platform, substantially as set forth.

8. In apparatus for casting type, the combination of a mold-containing frame, a series of single integral slab or bar shaped molds adapted to occupy the same, each formed with a series of individual type-molds wholly inclosed therein and united by a longitudinal gate in one edge, means for clamping the said molds in said frame and a common gate communicating with and conveying fluid metal to all of said longitudinal gates, substantially as set forth.

9. In apparatus for casting type, the combination of a series of bar shaped molds, a containing-frame therefor and a series of metal-separating strips placed between the several molds, substantially as set forth.

10. In apparatus for casting type, the combination of a series of bar-shaped molds, a containing-frame therefor, the several molds having individual type-matrices and a gate on each mold common to all of the individual matrices on said mold, a filling-block in said frame at the end of said molds having suitable gates and a covering-plate for said molds attached to said frame and having a gate connected with said gates on said block, substantially as set forth.

591,431. COUPLING FOR TRAPS AND PIPES. NATHANIEL R. SMITH, Jersey City, N. J. Filed May 13, 1897. Serial No. 636,329. (No model.)



Claim.—1. In a pipe-coupling, the combination of a soft-metal-pipe section having an opening at an intermediate point of length, the threaded, inner coupling-section arranged in the opening of the pipe-section and having a flange shaped in conformity to the interior of the same, a collar surrounding the inner coupling-section and bearing against the outer side of the pipe-section, a tubular, threaded union engaging the inner coupling-section and bearing against the collar and having the tapered outer end, a second soft-metal-pipe section having its end flared and arranged on the tapered end of the union, a tapered annulus mounted on the flared end of the said pipe-section and having a flange, and a thimble loosely mounted on said annulus and having a shoulder engaging the flange of the same and threaded to engage the union, substantially as specified.

2. In a pipe-coupling, the combination of a soft-metal-pipe section having an opening at an intermediate point of its length, the threaded inner coupling-section arranged in the opening of the pipe-section and having a flange *f*, shaped in conformity to the interior of the same and provided with an outwardly-directed marginal flange, packing arranged between the flange *f*, and the inner side of the pipe-section and seated in the channel formed by the marginal flange, a collar surrounding the inner coupling-section and bearing against the outer side of the pipe-section, a tubular threaded union engaging the inner coupling-section and bearing against the collar and having the tapered outer end, a second soft-metal-pipe section having its end flared and arranged on the tapered end of the union, a tapered annulus mounted on the flared end of the said pipe-section and having a flange, and a thimble loosely mounted on said annulus and

having a shoulder engaging the flange of the same and threaded to engage the union, substantially as specified.

3. In a coupling, the combination of a soft-metal-pipe section having an opening at an intermediate point of its length, the threaded inner coupling-section arranged in the opening of the pipe-section and having a flange shaped in conformity to the interior of the same and provided with an outwardly-directed marginal flange, packing arranged between the flange *f*, and the inner side of the pipe-section and seated in the channel formed by the marginal flange, a collar surrounding the inner coupling-section and bearing against the outer side of the pipe-section, and a tubular threaded union engaging the inner coupling-section and bearing against the collar, substantially as specified.

4. The combination of a soft-metal-pipe section having its end portion flared and its end square, the tapered annulus arranged on said end portion of the pipe-section and having a flange at its inner end and also having said end square and flush with the end of the soft-metal-pipe section, the thimble mounted on the annulus and having the interior shoulder engaging the flange of the same and also having interior threads in its portion which extends beyond the flange, and the hard-metal, tubular union or pipe-section having a tapered end arranged in the flared end portion of the soft-metal-pipe section and also having exterior threads engaging the interior threads of the thimble and the exterior, square shoulder engaging the square flush ends of the soft-metal-pipe section and annulus, whereby the flared end portion of said soft-metal section is supported on its inner and outer sides by the tapered portion of the union and the annulus, respectively, and is also supported at its end by the shoulder of the union, substantially as specified.

5. In a coupling, the combination of a soft-metal-pipe section having an opening, an inner threaded coupling-section having a flange *f* surrounding the said opening and shaped in conformity to the interior of the pipe-section and provided with an outwardly-directed marginal flange, packing arranged between the flange *f*, and the inner side of the pipe-section and seated in the channel formed by the marginal flange, an outer coupling-section, connected with the inner coupling-section and a collar interposed between the outer coupling-section and the pipe-section and having a flange shaped in conformity to the exterior of the pipe-section, substantially as specified.

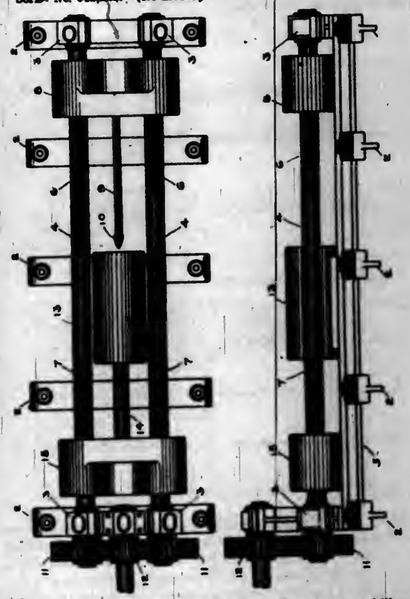
591,432. SNOW-PLOW. THOMAS SMITH and ELWIN P. WHITE, Southampton, N. Y. Filed Apr. 22, 1897. Serial No. 633,317. (No model.)



Claim.—1. In a snow-plow, the combination with the plow having supporting-wheels mounted therein, the forward supporting-wheel being connected to a shaft provided with a hand-wheel located above a platform near the upper end of the plow, sockets rigidly secured to the platform, and hooks also secured to the platform in the rear of the sockets, a draft appliance comprising poles or shafts which are passed through the hooks and into engagement with the sockets, a removable pin for holding the poles or shafts into such engagement, and a cross-bar attached to the rear part of the pole or shaft, a caster-wheel supporting the cross-bar and a driver's seat mounted thereon, the parts being constructed and arranged, substantially as shown and for the purpose set forth.

2. In an apparatus of the character described, the combination of a snow-plow having supporting-wheels mounted therein, a vertical shaft supporting the forward wheel and having a hand-wheel at its upper end, the said plow being provided with a platform near its upper end, sockets and hooks rigidly secured to the platform, a pole or poles forming part of the draft appliance and having a cross-bar secured near its rear end, single or double trees connected to the cross-bar, and a supporting wheel or wheels braced to the cross-bar and pole, a driver's seat mounted upon the cross-bar, and a cross-bar located at the forward part of the draft appliance to provide for connecting the holdback-chains thereto, substantially as shown and for the purpose set forth.

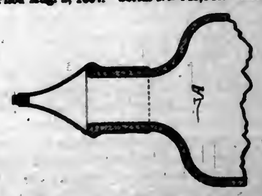
591,433. APPARATUS FOR MAKING HOLLOW BILLETS OR INGOTS. JOHN STEVENSON, Jr., New Castle, Pa. Filed Nov. 16, 1896. Serial No. 612,222. (No model.)



Claim.—1. In apparatus for forming hollow ingots or billets, the combination with a hollow receptacle, of a mandrel, means for forcing the mandrel through the metal in the receptacle, a plunger arranged to enter the opposite end of the receptacle, and means for forcing said plunger inwardly so as to drive the metal over the mandrel.

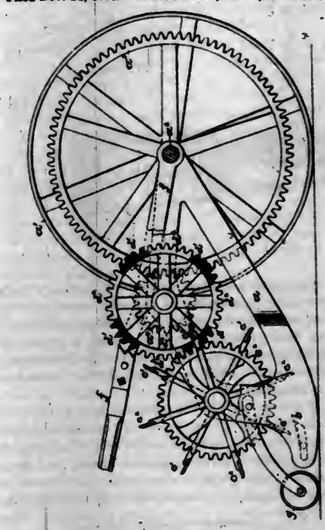
2. In apparatus for forming hollow ingots or billets, the combination with a stationary hollow receptacle arranged to receive the metal, of a mandrel having means for forcing the same into the metal in the receptacle, a hollow plunger arranged to enter the other end of the receptacle, and means for forcing said hollow plunger inwardly as the mandrel is driven in.

591,434. EXUDATION-CAP. JAMES W. TALLMADGE, Boston, Mass. Filed Aug. 2, 1897. Serial No. 646,849. (Model.)



Claim.—As a new article of manufacture, an exudation-cap adapted to be placed upon receptacles, consisting of a flexible open-ended portion, said portion having incorporated in the outer open end and essentially unified therewith, a porous nozzle, substantially as described.

591,435. LAWN-MOWER. SAMUEL P. TOWNSEND, Philadelphia, Pa. Filed Nov. 21, 1895. Serial No. 569,713. (No model.)



Claim.—1. In a lawn-mower, the combination of a cutter-reel having a duplex spur-pinion with a duplex segment-gear, having one portion adapted to mesh with one part of said duplex pinion, and the other portion with the other part of the same, the toothed segments and spaces of said duplex segment-gear being so disposed that when a toothed segment of one section of the gear is in mesh with one section of the reel-pinion, a blade of the reel will be passing through a space of the other section of the segment-gear.

2. In a lawn-mower, the combination of a duplex segment-gear having the toothed segments of one section alternating with those of the other section, with a cutter-reel having a duplex pinion for meshing with said duplex segment-gear, and cutting-blades arranged in two series, the blades in one series alternating with those of the other.

3. In a lawn-mower, the combination of a duplex segment-gear having the toothed segments of one section alternating with those of the other section, with a cutter-reel having a duplex pinion adapted to mesh with said duplex segment-gear, and cutting-blades arranged in two series, the blades in one series alternating with those of the other, and the inner ends of the two series of blades overlapping.

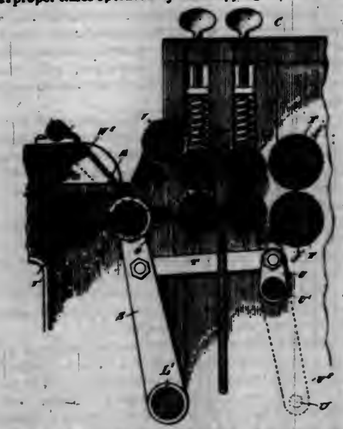
4. In a lawn-mower, the combination of a main frame, a cutting-reel, main driving-wheels disposed within the lateral limits of the cutting-blades of the reel, a duplex segment-gear connected to said driving-wheels and having the toothed segments of one section alternating with those of the other section, and a duplex pinion on the cutter-reel adapted to mesh with said duplex segment-gear, substantially as specified.

5. In a lawn-mower, the combination of a cutter-reel having the cutting-blades arranged in two series, the blades in one series alternating with those of the other, a duplex pinion on said cutter-reel, and a duplex segment-gear for driving said pinion, said duplex segment-gear consisting of two series of toothed segments, those of one segment alternating with those of the other, and the end teeth of adjoining segments being united and forming a tooth common to both series, substantially as specified.

6. In a lawn-mower, the combination of a cutter-reel having the blades arranged in two series, a duplex pinion on said cutter-reel having projections to support the inner ends of each series of cutting-blades, and a duplex segment-gear having the toothed segments of one section alternating with those of the other, said duplex segment-gear meshing with the duplex pinion of the cutter-reel, substantially as specified.

591,436. TOBACCO-STEMMING MACHINE. JOSEPH R. UNDERWOOD, Fayetteville, N. C. Filed June 30, 1896. Serial No. 597,575. (No model.)

Claim.—1. In a tobacco-stripping machine, the combination with the leaf drawing and stripping mechanism, and a feedway of a gravity drop-leaf stop arranged in such feedway and means for raising such stop at proper times operated by the stripping mechanism as set forth.



2. In a tobacco-stripping machine, a feedway, and a leaf-stop held therein, means for raising same at predetermined intervals, said stop having a limited free lift movement independent of the means for raising it, substantially as shown and described.

3. In a tobacco-stripping machine, a feedway having a series of independent feed-belts, a single drawing and stripping mechanism common to all the feedways, and a series of leaf-stops, one for each feedway, having each a limited, free and independent movement upward and automatically-operated, means for raising all the stops in unison as specified.

4. In a tobacco-stemming machine, the combination of a drawing mechanism, stripper-rolls arranged in advance of the drawing mechanism, and means to separate the stripper-rolls and bring them together again at predetermined intervals substantially as described.

5. In a tobacco-stemming machine, the combination of drawing-rolls, automatic feed devices, stripper-rolls disposed between the feed devices and drawing-rolls, and means for parting the said stripper-rolls as the butt of the leaf is passed through them to engage the drawing-rolls as specified.

6. In a tobacco-stemming machine the combination with drawing-rolls, and feed devices arranged substantially as shown, of a pair of superposed contacting stripper-rolls rotating in a direction reverse to rotation of said drawing-rolls, and means for separating the stripper-rolls during the passage of the butt-end of the leaf to the drawing-rolls as specified.

7. In a tobacco-stripping machine, the combination with the drawing-rolls, and the stripping-rolls arranged in advance thereof, a pair of movable rolls held in advance of the stripping-rolls, means for alternately bringing such rolls together to form feed-rolls, and for separating such rolls and bringing the upper one of such rolls in close relation to the upper stripping-roll whereby to form a cleaner-roll therefor as specified.

8. In a tobacco-stemming machine, the combination of an initial feeding device, stripping and drawing rolls and a supplemental pair of feed-rolls located between the initial feed device and the stripper-rolls and means for separating said feed-rolls and bringing them together again at predetermined intervals, substantially as described.

9. In a tobacco-stripping machine, the combination of an initial feeding device, stripping-rolls, and feed-rolls arranged between the initial feed device and stripping-rolls, the upper roll being movable in the arc of a circle, with means for raising and lowering it, substantially as shown and described.

10. In a tobacco-stripping machine, the combination of an initial feeding device, a stop device, stripping-rolls, feeding-rolls arranged between the initial feed device and the stripping-rolls, said feeding-rolls being movable toward and away from each other the movement of the upper roll being greater than the lower one and means for operating the feeding-rolls in the manner set forth and for the purpose described.

11. In a tobacco-stripping machine, the combination of feeding-belts, stripping and drawing rolls, and feeding-rolls arranged between the stripping-rolls and feeding-belts, said feeding-rolls being movable toward each other in arcs of circles, and means for operating the feeding-rolls in the manner stated.

12. In a tobacco-stripping machine, the combination of an initial feeding device, a stop device, stripping and drawing rolls and intermediate feed-rolls movable toward each other, and means for mov-

ing the said feed-rolls in the manner stated substantially as shown and described.

13. In a tobacco-stripping machine, the combination of an initial feeding device, a stop device, and the feed-rolls movable to and from each other, and means for operatively connecting the said rolls and stop device whereby as the rolls move toward each other, the stop will be raised, means for moving the feed-rolls to and from each other substantially as shown and described.

14. In a tobacco-stripping machine, the combination of a series of feedways each having a feed-belt and a stop device, separable feed-rolls and operative connections between the feed-rolls and stop device for the purpose described, the drawing and stripping rolls, and means for separating and closing the feed-rolls substantially as shown and described.

15. In a tobacco-stemming machine, the combination with a feed-table, having a series of feedways each of a width to admit of the free passage of the leaf lengthwise and preclude the passage thereof crosswise, stripping-rolls extended across the discharge end of the table, and leaf-drawing devices, a stop device located within each feedway having an independent movement, and means for raising the stop devices in unison, substantially as specified.

16. In a tobacco-stemming machine the combination of a feed-table having a series of feedways each of a width to admit of the free passage of the leaf endwise and preclude the passage thereof crosswise, a stripping and drawing mechanism common to all the feedways, and a stop device in each feedway, having a limited up movement independent of the other stops together as set forth.

17. In a tobacco-stripping machine, the combination of an initial feed device, a stop device, separable feed-rolls, a rocking arm and cradle said cradle carrying one of the feed-rolls and connections between said stop device and rocking arm and cradle, whereby as the stop device is raised the feeding-rolls are separated substantially as shown and described.

18. In a tobacco-stripping machine, the combination of an initial feed device, a stop device, separable feed-rolls, a rocking arm and cradle and connections between said cradle, arm and stop device, and stripping-rolls substantially as shown and described.

19. In a tobacco-stripping machine, the combination of an initial feed device, a stop device, separable feed-rolls, rocking arm and cradle, stripping-rolls, the upper one of which is journaled in the cradle, the drawing-rolls and connections between said rocking arm, cradle and stop device, substantially as shown and described.

20. In a tobacco-stripping machine, the combination of the stripping and drawing rolls, a feed-roll, normally on the level of the lower stripper-roll, a rocking arm carrying said roll, an upper feed-roll, a cradle carrying said roll, and connections between the said rock-arm and cradle, whereby when the lower roll is moved up, the upper roll will be moved down and vice versa, substantially as shown and described.

21. In a tobacco-stripping machine, the combination with the stripping mechanism, and a series of feedways, of a leaf-stop for each feedway, having an independent lift movement and means for raising all of such stops in unison as set forth.

22. In a tobacco-stemming machine, the combination with feed devices, draw-rolls, and a rocking arm, of superposed contacting stripper-rolls rotated in a direction reverse to the feed of the leaf, means for operating such rolls as stated cradles pivoted to the frame, and carrying the upper stripping-roll, and connections between the rocking arms and the cradle substantially as shown and for the purposes described.

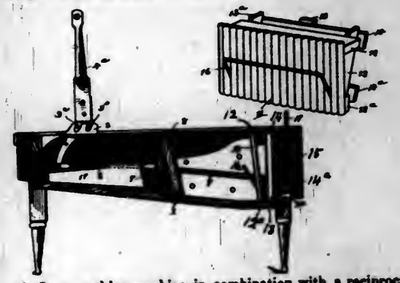
23. In a tobacco-stemming machine, an automatic feed mechanism, a drawing device, rearwardly-rotating stripper-rolls disposed between the feed and drawing mechanism, and automatic devices operatively connected with the stripper-rolls, adapted to separate the said stripper-rolls as the butt-end of the leaf is fed therethrough to the drawing mechanism, and to close such rolls to engage the leaf when the butt of the leaf is engaged by the drawing mechanism, means for operating the stripper-rolls as stated substantially as shown and described.

24. The combination with a feed and drawing mechanism, of the intermittently opening and closing stripping-rolls, arranged between the said feed and drawing mechanism and mechanism for operating the stripping-rolls substantially as shown and described.

591,437. WASHING-MACHINE. JAMES H. VERITY, Portland, Mich. Filed Apr. 21, 1897. Serial No. 633,096. (No model.)

Claim.—1. In a washing-machine in combination with a reciprocating cross-head, a vertically-disposed grating adapted to receive the forward thrust of the clothing, a spring located in front of the grating and adapted to engage the mass of clothing and throw the top part thereof away from the grating whereby under successive strokes of the cross-head the mass of the clothes is rolled over and over, substantially as described.

2. In a washing-machine, a reciprocating cross-head, a grating adapted to receive the thrust of the cross-head, a spring-bail located in front of said grating and adapted to coact with the cross-head to roll the mass of clothes, and a spring mechanism located at the rear of the grating, substantially as described.



3. In a washing-machine in combination with a reciprocating cross-head or pounder, a system of links and levers adapted to give to the cross-head a quick initial movement and a strong terminal movement, a spring-actuated grating adapted to receive the thrust of the cross-head, a spring located in front of the grating and adapted to coact with the cross-head to roll the clothes over and over, substantially as described.

4. In a washing-machine, the combination of a tub provided with guiding-tracks at its sides, a lever-actuated cross-head adapted to be used as a pounder or squeezer and provided with slides adapted to travel in said guides, a spring-supported grating and a spring-bail located in front of said grating and adapted to coact with the cross-head to turn the mass of clothes, substantially as described.

591,438. MATERIAL FOR HOODS OR MANTLES FOR INCANDESCENT GAS-LIGHTS. WILLIAM L. VOELKER, Elizabeth, N. J., assignor to the Voelker Light Company, of New Jersey. Filed Aug. 18, 1896. Serial No. 603,147. (No specimens.)

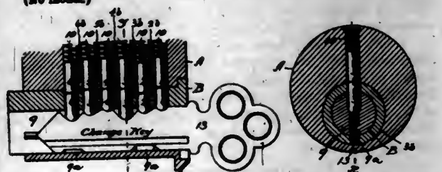
Claim.—1. A material for use in making incandescents, consisting of a base composed of the oxids of calcium and magnesium combined substantially in the proportions hereinbefore specified and then fused together at high temperatures, and a deposit of thorium oxid, baked thereon, substantially as described.

2. A hood or mantle for incandescent gas lighting composed of filaments which consist of a base which is composed of the oxids of calcium and magnesium combined substantially in the proportions hereinbefore specified and then fused together at high temperatures, and a deposit of thorium oxid, baked thereon, substantially as described.

3. A material for use in making incandescents, consisting of a base composed of the oxids of calcium and magnesium combined substantially in the proportions hereinbefore specified and then fused together at high temperatures and a deposit of thorium oxid with a trace of cerium oxid baked thereon, substantially as described.

4. A hood or mantle for incandescent gas lighting, composed of filaments which consist of a base which is composed of the oxids of calcium and magnesium combined substantially in the proportions hereinbefore specified and then fused together at high temperatures, and a deposit of oxid of thorium with a trace of cerium baked thereon, substantially as described.

591,439. GRAND-MASTER-KEY CYLINDER-LOCK. HENRY G. VOIGHT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Mar. 26, 1897. Serial No. 630,174. (No model.)



Claim.—1. In a cylinder-lock, the combination of a plug provided with a reduced portion, a ring mounted thereon, the plug and case tumblers, said tumblers bearing directly against each other, said ring having a tumbler-recess that registers with the recesses and tumblers of the case and plug whereby the division of the said plug and case tumblers may be on the outer or inner side of said ring, substantially as described.

2. A cylinder-lock having case and plug tumblers acting against each other, a plug provided with a plurality of reduced portions and separate rings mounted thereon, said rings having tumbler-recesses that register with the tumbler-recesses and tumblers of the case and plug whereby the division of the tumblers may be on the outer or inner side of said rings, substantially as described.

3. The combination of the case having tumblers, the plug arranged to rotate in said case and also having tumblers adapted to engage directly with the tumblers of the case, separate rings mounted on said plug and having tumbler-recesses whereby the division of the case and plug tumblers may be in part at the outer side of said rings and in part at the inner side of said rings, substantially as described.

4. A lock having case and plug tumblers, the cylinder or plug of which lock has peripheral reduced portions of varying depths and rings thereon which correspondingly vary in thickness, substantially as described.

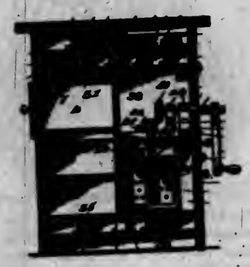
5. A lock, the cylinder or plug of which is provided with a reduced portion or groove, and a circular and slotted ward surrounding said reduced portion, the slot in which constitutes a portion of the keyway, substantially as described.

6. A cylinder-lock, the cylinder or plug of which has at each end a bearing in the case and a reduced portion or groove surrounding its periphery at one of its tumbler-recesses between said end bearings, substantially as described.

7. A cylinder-lock, the cylinder or plug of which has a reduced portion or groove surrounding its periphery at one of its tumbler-recesses, and a slotted ring loosely mounted thereon and means for locking said ring against rotation to make it to serve as a ward for the key, as described.

8. In a cylinder-lock, the combination of the cylinder with wards that substantially surround the said cylinder but which are slotted in alinement with the keyway of said cylinder when in its locked position, and a key bitted on one edge for acting in connection with the tumblers and having notches on its opposite edge to correspond with the wards of the lock, substantially as described.

591,440. KITCHEN-CABINET. FORTUNE WASHINGTON, Colchester, Ill., assignor of one-half to Ambrose Cube, same place. Filed Apr. 22, 1897. Serial No. 633,282. (No model.)

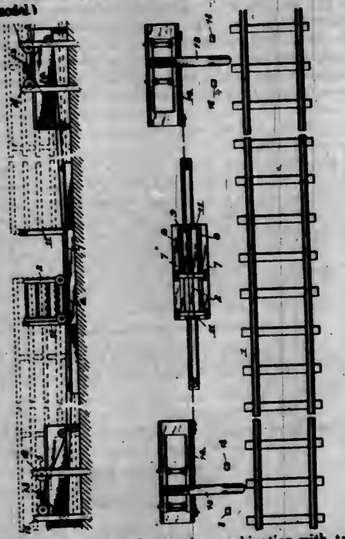


Claim.—1. A kitchen-cabinet provided with a chamber having an open front and adapted to receive a churn, transverse bars supported within the chamber intermediate its upper and lower ends, bearings on said bars, a vertical shaft and a horizontal shaft journaled in the respective bearings and provided with meshing bevel-gears, the vertical shaft being adapted to be detachably connected to the shaft of the churn-dasher, and the horizontal shaft extending through the open front of the chamber, pins on one of said bars projecting through the open front of the chamber, a hinged door to close the front opening below the transverse bars, a shutter to close the remainder of said front opening, said shutter having openings for the reception of the horizontal shaft and the said pins, devices to lock the shutter and the door in their closed positions, and a crank-handle removably connected to the outer end of the horizontal shaft, substantially as described.

2. A kitchen-cabinet provided with a chamber at its upper end, ways in said chamber, an ironing-board adapted to slide between said ways in the chamber and through an opening in the wall of the cabinet, said board being provided with a recess in its lower face, a standard provided with laterally-projecting guide-arms, said arms sliding in ways within the cabinet, and a lug or pin on the upper end of the standard adapted to fit in the said recess in the ironing-board, substantially as described.

3. A kitchen-cabinet provided with chambers at its upper and lower end, a clothes-rack consisting of a series of parallel bars supported within the upper chamber and adapted to slide through openings in the wall of the cabinet, a cross-bar connecting the outer ends of said parallel bars, spaced standards connected at their upper ends to the said cross-bar and having their lower ends connected by a cross-brace, and guide-arms projecting horizontally from the said standards through openings in the wall of the cabinet into the lower chamber, substantially as described.

591,441. AUTOMATIC GATE FOR RAILROADS. HENRY WERTHAMMER, Petri Station, Ky. Filed Dec. 31, 1896. Serial No. 617,572. (No model.)

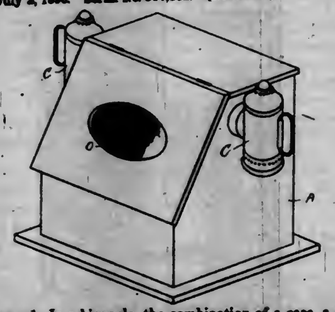


Claim.—1. In a railroad-gate, the combination with two operating-carriages connected with a gate to move said gate in opposite directions, a track upon which said gate travels, posts at the opposite ends of said track, and horizontal wheels depending from said gate and situated beneath said track, substantially as described.

2. In a railway-gate, the combination with a movable gate, of movable carriages situated to one side of the track and connected with said gate to move the same in opposite directions, laterally-projecting arms upon said carriages extending toward the track, and upright posts or stops situated on opposite sides of said arms, substantially as described.

3. In a railway-gate, a movable gate mounted upon a suitable platform and provided with horizontal and upright wheels at opposite ends thereof, movable carriages situated beyond the ends of said gate, cables connected with said carriages and with said gate in a manner to cause said gate to move in opposite directions as said operating-carriages are moved toward or away from said gate, substantially as described.

591,442. BINNACLE. FRANK M. WHEELER, South Elliot, Me. Filed July 2, 1896. Serial No. 597,812. (No model.)



Claim.—1. In a binnacle, the combination of a case, a compass inclosed therein and a lamp, of a light-conveying tube, whereby light

is conducted from said lamp and delivered upon the face of said compass, an inner removable tube held in said light-conveying tube, and a mirror supported by said removable inner tube, substantially as described.

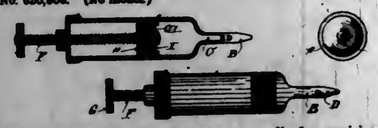
2. In a binnacle, the combination with a case and compass inclosed therein, of a horizontal tube extending from the interior to the outside of said case and adjustably supported thereby, a lamp supported by the outer end of said horizontal tube, and a vertical tube supported by the inner end of said horizontal tube and communicating therewith and having an open end directly above said compass, said tubes being adjustable relatively to said compass, substantially as described.

3. In a binnacle, the combination, with a case and compass inclosed therein of a horizontal tube extending from the interior to the outside of said case and supported thereby, a lamp supported by the outer end of said horizontal tube, a vertical tube communicating with said horizontal tube and having an open end directly above said compass, said horizontal tube being capable of sliding in said case and a screw-threaded rod attached to said horizontal tube and adjustably held by said case, whereby said tubes are adjusted relatively to said compass, substantially as described.

4. In a binnacle, the combination of a case, a compass inclosed therein and a lamp, of a horizontal light-conveying tube having its outer end supported by said case and communicating with said lamp, a vertical tube communicating with said horizontal tube and open at its ends, a removable inner tube held in said vertical tube with its lower end open and directly above said compass and with its upper end closed, and a mirror supported by said inner tube at the intersection of said horizontal and vertical tubes and at an angle to the axis of each, substantially as described

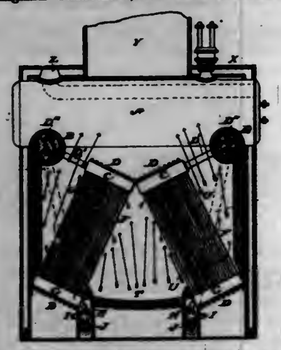
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591,443. NEEDLE FOR REPAIRING PUNCTURES IN BICYCLE-TIRES. CHARLES F. WHITE, Denver, Colo. Filed Jan. 26, 1897. Serial No. 620,808. (No model.)



Claim.—The combination in a cement-needle for repairing bicycle-tires of a cylinder adapted to hold cement and having a needle-point, an eye in the needle below its point and a cap screwed to the inlet end of said cylinder, with a piston threaded to said cap, having a reduced inner end, a leather cup-shaped washer on the said reduced portion of said inner end of said piston adapted to form a piston-head, a metal washer on the reduced end of the piston inside of the cupped portion of said piston-head and against its outer side and the inner periphery of said cup-shaped portion of the piston, a metal washer on the opposite side of said cup-shaped piston-head a trifle smaller in diameter than the bore of the cement-chamber and resting against the shoulder of the reduced end, and an upset end on the extremity of the reduced end of the piston adapted to clamp the said cup-shaped piston-head between the said metal washers and the washers against the shoulder of the reduced portion of the piston substantially as described.

591,444. WATER-TUBE STEAM-BOILER. EUSTACE E. WICKELL, London, England. Filed Jan. 25, 1897. Serial No. 620,654. (No model.)

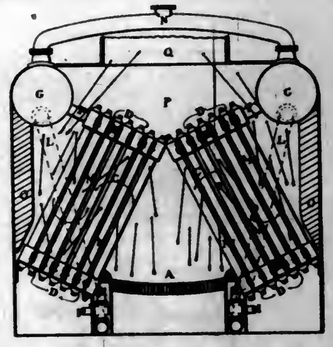


Claim.—1. The combination, in a water-tube steam-boiler, of groups of vertical angle-tube united in sections by end boxes, at top and bottom, water-chests at top, tubular connections between the upper end boxes and said water-chests, inlet-pipes at bottom, tubular connections between said inlet-pipes and the lower end boxes, circulating-tubes connecting said inlet-pipes and water-chests, a horizontal steam and water chest at right angles to said water-chests and parallel with the front of the boiler, and tubular connections between the water-chests and the water-space of said steam and water chest, substantially as hereinbefore specified.

2. In a water-tube steam-boiler, the combination, substantially as hereinbefore specified, of vertical angle-tubes of uniform length united in sections by end boxes at top and bottom and arranged in groups with flue-spaces and baffle-plates between said tubes, said end boxes being arranged side by side and rendering the ends of the groups substantially closed as regards flue-spaces, horizontal steam or water chests at top, and tubular connections between the upper end boxes and said steam or water chests forming flue-spaces between the same at the sides of said chests.

3. A water-tube steam-boiler having uniform straight tubes arranged in two upwardly-converging groups and in parallel sections, end boxes in the form of square tubes at the top and bottom of each section, a horizontal inlet-pipe at the bottom for each group, branch pipes extending from said pipe into the adjacent ends of the lower end boxes individually, connecting-tubes extending endwise from the outer ends of the upper end boxes individually, a pair of steam or water chests into which said connecting-tubes open, and a connection between said chests, flue-spaces being formed between the tubes of both groups and also between said connecting-tubes, substantially as hereinbefore specified.

591,445. WATER-TUBE STEAM-BOILER. EUSTACE E. WICKELL, London, England. Original application filed Jan. 25, 1897, Serial No. 620,654. Divided and this application filed Apr. 16, 1897. Serial No. 632,436. (No model.)



Claim.—1. In a water-tube steam-boiler, the combination substantially as hereinbefore specified of withdrawable water-tubes in a group or groups, made up of segregable sections, and having end boxes in the form of square tubes at the top and bottom of each section arranged with top and bottom surfaces at an angle to the horizontal, and provided with hand-holes in the tops of the upper end boxes and bottoms of the lower end boxes in line with the individual tubes, an inlet-pipe at the bottom of each group, branch pipes connecting said inlet-pipes with the lower end boxes, and means for stopping said branch pipes individually.

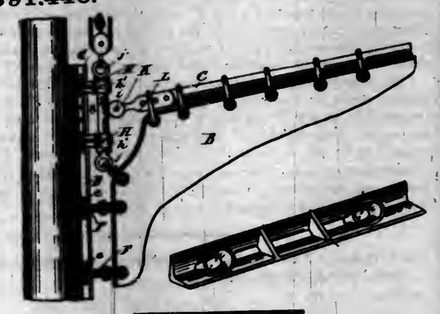
2. The combination, in a water-tube steam-boiler, of a horizontal inlet-pipe at the bottom, end boxes at the bottom of each section, branch pipes extending from said inlet-pipe into the adjacent ends of said end boxes individually, and a stop-cock in each of said branch pipes, substantially as hereinbefore specified.

3. The combination, in a water-tube steam-boiler, of a horizontal inlet-pipe at bottom, end boxes at the bottom of each section, branch pipes extending from said inlet-pipe into the adjacent ends of said end boxes individually, a stop-cock in each of said branch pipes having a gage-hole in its square, and a padlocked rod which occupies said gage-holes when all the stop-cocks are open, substantially as hereinbefore specified.

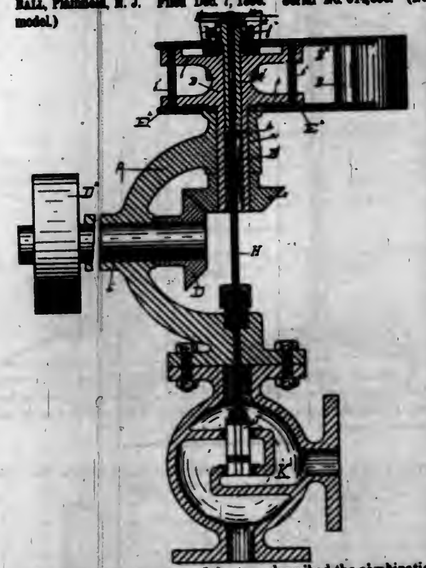
591,446. SAIL-SLIDE. CHARLES H WORTHEN, Taunton, Mass. Filed Nov. 29, 1895. Serial No. 570,373. (No model.)

Claim.—In a sail-slide, a grooved jack in combination with a sliding yoke consisting of the shields G, hanks H, sleeve I and connecting-bolt J, substantially as described.

591,446.



591,447. ENGINE-GOVERNOR. FRANK H. BALL and BERT C. BALL, Plainfield, N. J. Filed Dec. 7, 1896. Serial No. 614,698. (No model.)



Claim.—1. In a governor of the type described the combination of the weight having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia-governing force; a regulator operated by oscillatory or reciprocating movement but normally at rest; and means connecting the weight with the regulator and arranged to communicate the governing movement of the weight to the regulator.

2. In a governor of the type described the combination of two weights symmetrically placed and locked to act in unison and each of said weights having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia-governing force, a regulator operated by oscillatory or reciprocating movement but normally at rest; and means connecting the weights with the regulator and arranged to communicate the governing movement of the weights to the regulator.

3. In a governor of the type described, the combination of a rotative carrier; a weight pivoted on said carrier with the axis of its pivot substantially parallel to the axis on which the carrier rotates, said weight having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia force and to make active the tangential inertia force; a regulator operated by an oscillatory or reciprocating movement; mechanism arranged to move in the direction of or parallel to the axis of the carrier and to actuate the regulator by its movement; and means for communicating the action of the weight to said mechanism and for converting the pivotal movement of the weight on the carrier to an oscillatory or reciprocating movement in the regulator.

4. In a governor of the type described, the combination of a rotative carrier; two weights symmetrically placed and locked to act in unison, and each of said weights having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia force and each pivoted on the carrier with the axis of its pivot substantially parallel to the axis on which the carrier rotates; a regulator operated by an oscillatory or reciprocating movement; mechanism arranged to move in the direction of or parallel to the axis of the carrier and to actuate the regulator by its movement; and means for communicating the action of the weights to said mechanism and for converting the pivotal movement of the weights on the carrier to an oscillatory or reciprocating movement in the regulator.

5. In a governor of the type described the combination of the weight having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia-governing force and to make active the tangential inertia force; a regulator operated by oscillatory or reciprocating movement but normally at rest; and means connecting the weight with the regulator and arranged to communicate the governing movement of the weight to the regulator.

6. In a governor of the type described, the combination of the weight having its mass distributed so that the bulk of the mass is remote from its center of gravity and arranged to produce an effective angular inertia-governing force and to make active the tangential inertia and centrifugal forces; a regulator operated by oscillatory or reciprocating movement but normally at rest; and means connecting the weight with the regulator and arranged to communicate the governing movement of the weight to the regulator.

7. In a governor of the type described, the combination of a rotative carrier; a weight pivoted on said carrier with the axis of its pivot substantially parallel to the axis on which the carrier rotates, said weight having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia force and to make active the tangential inertia force; a regulator operated by an oscillatory or reciprocating movement; mechanism arranged to move in the direction of or parallel to the axis of the carrier and to actuate the regulator by its movement; and means for communicating the action of the weight to said mechanism and for converting the pivotal movement of the weight on the carrier to an oscillatory or reciprocating movement in the regulator.

8. In a governor of the type described, the combination of a rotative carrier; a weight pivoted on said carrier with the axis of its pivot substantially parallel to the axis on which the carrier rotates, said weight having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia force and to make active the tangential inertia and centrifugal forces; a regulator operated by an oscillatory or reciprocating movement; mechanism arranged to move in the direction of or parallel to the axis of the carrier and to actuate the regulator by its movement; and means for communicating the action of the weight to said mechanism and for converting the pivotal movement of the weight on the carrier to an oscillatory or reciprocating movement in the regulator.

9. In a governor of the type described, the combination of the weight pivoted with the axis of its pivot substantially perpendicular to the plane of rotation and having its mass distributed so that the bulk of the mass is remote from its center of gravity and extended on both sides of the pivot and being arranged to produce an effective angular inertia-governing force; a regulator operated by oscillatory or reciprocating movement but normally at rest; and means connecting the weight with the regulator and arranged to communicate the governing movement of the weight to the regulator.

10. In a governor of the type described, the combination of two weights pivoted with axes substantially perpendicular to the plane of rotation, said weights being symmetrically placed and locked to act in unison and each of said weights having its mass distributed so that the bulk of the mass is remote from its center of gravity and extended on both sides of the pivot and being arranged to produce an effective angular inertia-governing force; a regulator operated by oscillatory or reciprocating movement but normally at rest; and means connecting the weights with the regulator and arranged to communicate the governing movement of the weights to the regulator.

11. In a governor of the type described, the combination of a rotative carrier; a weight pivoted on said carrier with the axis of its pivot substantially parallel to the axis on which the carrier rotates, said weight having its mass distributed so that the bulk of the mass is remote from its center of gravity and extended on both sides of the pivot and being arranged to produce an effective angular inertia-governing force; a regulator operated by an oscillatory or reciprocating movement; mechanism arranged to move in the direction of or parallel to the axis of the carrier and to actuate the regulator by its movement; and means for communicating the action of the weight

to said mechanism and for converting the pivotal movement of the weight on the carrier to an oscillatory or reciprocating movement in the regulator.

12. In a governor the combination of a rotative carrier; two weights pivoted on said carrier with the axes of their pivots substantially perpendicular to the plane of rotation, each of said weights having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia-governing force; and a spring forming a medium of connection between the weights and arranged to exert its force centripetally upon said weights approximately at or through the center of gravity of the weights.

13. In a governor, the combination of a rotative carrier, two weights pivoted on said carrier with the axes of their pivots substantially perpendicular to the plane of rotation, each of said weights having its mass distributed so that the bulk of the mass is remote from its center of gravity and being arranged to produce an effective angular inertia-governing force; a spring forming a medium of connection between the weights and arranged to exert its force centripetally upon said weights approximately at or through the center of gravity of the weights; a regulator operated by an oscillatory or reciprocating movement; mechanism arranged to move in the direction of or parallel to the axis of the carrier and to actuate the regulator by its movement; and means for communicating the action of the weights to said mechanism and for converting the pivotal movement of the weights on the carrier to an oscillatory or reciprocating movement in the regulator.

14. In a governor of the type described, the combination of a rotative carrier; a weight pivoted on said carrier with the axis of its pivot approximately parallel to the axis of the carrier; a regulator; mechanism as the block G at the axis of the carrier connected with and arranged to actuate the regulator by a movement in line with the axis; and a link connecting the weight approximately at the center of gravity with said mechanism and arranged to communicate the movement of the weight to the mechanism.

15. In a governor of the type described, the combination of a rotative carrier; a weight pivoted on said carrier with the axis of its pivot approximately parallel to the axis of the carrier; a regulator; mechanism as the block G at the axis of the carrier connected with and arranged to actuate the regulator by the movement in line with axis; a link connecting the weight approximately at the center of gravity with said mechanism and arranged to communicate the movement of the weight to the mechanism; and a centripetally-acting spring arranged to exert its force against the weight approximately at or through the center of gravity in said weight.

16. In a governor of the type described, the combination of a rotative carrier; two weights pivoted on said carrier with the axes of their pivots approximately parallel to the axis of the carrier, said weights being located on opposite sides of the axis of the carrier; a regulator; mechanism as the block G at the axis of the carrier connected with and arranged to actuate the regulator by a movement in line with the axis; links connecting said weights approximately at the center of gravity with said mechanism at the axis and arranged to communicate the movement of the weight to the mechanism; and a spring forming a medium of connection between said weights approximately at or through the center of gravity of said weights.

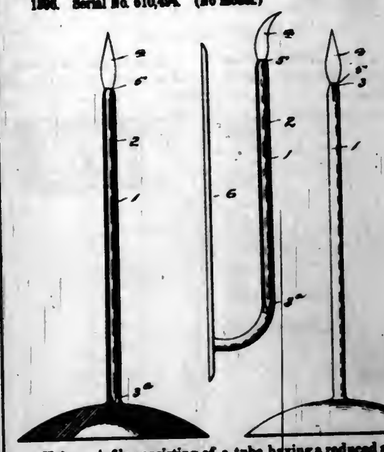
17. In a governor of the type described, the combination of a rotative carrier; two weights pivoted on said carrier with the axes of their pivots approximately parallel to the axis of the carrier, said weights being located on opposite sides of the axis of the carrier; a regulator: mechanism as the block G at the axis of the carrier connected with and arranged to actuate the regulator by a movement in line with the axis; links connecting said weights approximately at the center of gravity with said mechanism at the axis and arranged to communicate the movement of the weight to the mechanism; and a spring forming a medium of connection between said weights and arranged to exert its force opposingly upon said weights in a line through the axis of rotation.

18. In a governor of the type described, the combination of a rotative carrier; two weights pivoted on said carrier with the axes of their pivots approximately parallel to the axis of the carrier said weights being located on opposite sides of the axis of the carrier; a regulator; mechanism as the block G at the axis of the carrier connected with and arranged to actuate the regulator by a movement in line with the axis; links connecting said weights approximately at the center of gravity with said mechanism at the axis and arranged to communicate the movement of the weight to the mechanism; and a spring forming a medium of connection between said weights and arranged to exert its force opposingly upon said weights in a line through the axis of rotation, and approximately at or through the center of gravity of said weights.

19. In a governor of the type described, the combination of the rotative carrier B; the weight comprising the members E and E' connected by an arm E^2 said weight being pivoted on the carrier intermediately of the members E and E'; a regulator operated by oscillating or reciprocating movement, but normally at rest; and means connecting the weights with the regulator and arranged to communicate the governing movement of the weights to the regulator.

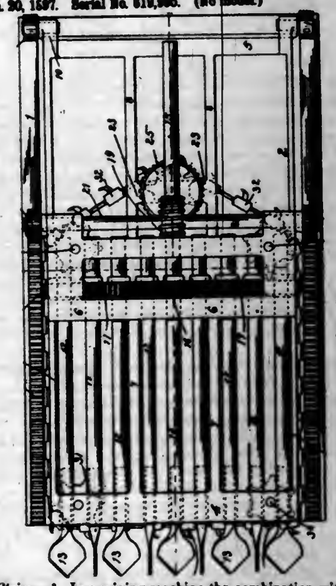
20. In a governor of the type described, the combination of the rotative carrier B; two weights each comprising members E and E' connected by an arm E^2 and each of said weights being pivoted on the carrier intermediately of its members; a regulator; mechanism as G at the axis of the carrier connected with and arranged to actuate the regulator; pivot-pins *f* on said weight-arms; links F connecting said pins with the mechanism at the axis of the carrier; and the spring I acting on the weights through the pins *f*.

591,448. FILE. HARVEY A. BELLE, Everett, Pa. Filed Oct. 20, 1896. Serial No. 610,494. (No model.)



Claim.—A file consisting of a tube having a reduced and slotted end portion, and a needle having a pointed lower end, tapering head and a shoulder between the main portion of the needle and the said tapering head.

591,449. MINING-MACHINE. JOHN BLAIR, Newark, Ohio. Filed Jan. 20, 1897. Serial No. 619,995. (No model.)



Claim.—1. In a mining machine the combination with a traveling frame, means for feeding said frame forward and backward and an endless tool-carrying chain movably mounted in said frame, of a series of drill-carrying shafts rotatably mounted in said frame at intervals between the side bars thereof and adapted to operate in conjunction with said chain cutters to produce a kerf, substantially as and for the purpose specified.

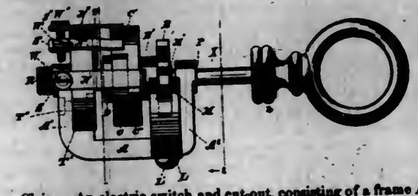
2. In a mining-machine the combination with an external frame, a traveling frame mounted thereon and an endless cutter-chain movably mounted in said traveling frame and running across the front of the latter, of a series of drill-shafts journaled in said traveling frame at intervals between the side bars thereof, detachable drills projecting from said shafts at the front of said machine and means for imparting a backward or forward movement to said sliding frame, a rotary movement to said drill-shafts and a traveling movement to said chain, substantially as and for the purpose specified.

591,450. ROPE-ADJUSTING DEVICE. JAMES BRAYSHAW, Weymouth, Mass. Filed Feb. 19, 1897. Serial No. 624,246. (No model.)



Claim.—The substantially U-shaped governor formed with the long open slot, *a'*, and having the eyes, *a*, one on each side of the mouth of said open slot, in combination with the rope, B, passed through both of said eyes, and having knotted ends adapted to be engaged in said slot, substantially as and for the purpose set forth.

591,451. ELECTRIC SWITCH. JOHN C. CASSIDY, East Orange, N. J. Filed Mar. 20, 1897. Serial No. 628,380. (No model.)

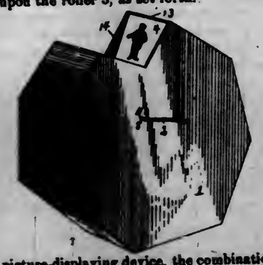


Claim.—An electric switch and cut-out, consisting of a frame A, having collars A' and A^2, and screw R, which are integral parts of said frame A, to which said collar A' of said frame A is affixed an insulated block T' by means of the screw T', said block T' carrying contact-pieces S, S' and S'', having screws W, W', W'', and arm T, in combination with a rotary shaft X, which said rotary shaft X has affixed at its one end, a finger-piece A, and bears through opening P in collar A^2, through the rotary wheel B and collar B' of said rotary wheel B, and through the insulating-wheel C and collar D, into the insulating-block T'; said rotary wheel B having a smooth surface and corrugations M', M'', and M^2, and said insulating-block C having an insulated surface C', and conducting-surface C', all in combination with a spring L fastened to said frame A by the screw L', said spring L carrying a roller M adapted to engage with the corrugations M', M'' and M^2, all so arranged with reference to each other, that the said rotary wheel B and insulating-wheel C will be caused to revolve together when said rotary shaft X is caused to revolve, and said corrugations M being so placed with reference to said conducting-surface C', that when the spring L by means of the roller M, is in engagement with the corrugations M', M'' and M^2, the said surface C' will be in juxtaposition to the said corrugations M', M'' and M^2, all in combination with contact-pieces S, S' and S'' and contact-screws W, W' and W'', substantially as and for the purposes described.

591,452. PICTURE-DISPLAYING DEVICE. FRANK S. CHASE, Indianapolis, Ind. Filed Apr. 15, 1897. Serial No. 632,255. (No model.)

Claim.—1. As an article of manufacture, a picture-displaying device having a case 1, provided with a V-shaped opening in the top thereof, the roller 3, having a fabric 5, to which are adhesively attached sheets 4, removably fixed thereon, said roller journaled in said case 1 by means of the axle 8, said axle being positioned slightly out of the center of said case for the purpose of bringing the outer edges of the sheets 4 into more decided contact with the shoulder 6, projecting inwardly from the front edge of the V-shaped opening in said case, substantially as set forth.

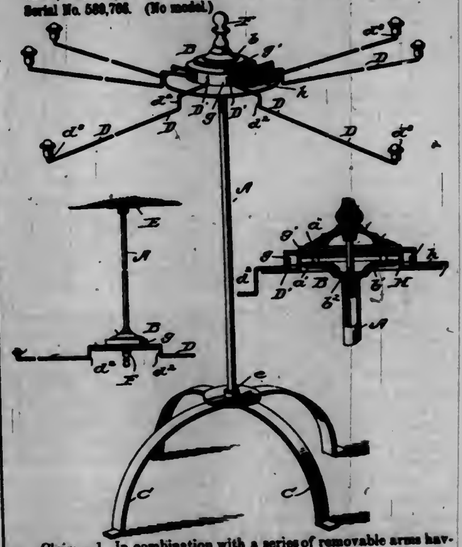
2. In a picture-displaying device of the class described, the combination of the case 1, having the V-shaped top opening 14, and the shoulder 6, projecting inwardly from the front edge of said V-shaped opening, with the roller 3, mounted upon the axle 8, adapted to be rotated by the crank 2, said axle 8, journaled in the case 1, through openings 11, said openings located slightly above the center on a line with said shoulder 6, and the sheets secured to the fabric 5, by means of adhesive substance, in the manner described, said fabric being in turn secured upon the roller 3, as set forth.



3. In a picture-displaying device, the combination of the case 1, provided with the inwardly-projecting shoulder 6 secured inside the case near the front edge of the opening formed therein, and having the V-shaped opening in the top thereof, with a series of sheets 4 mounted upon a fabric 5, and said fabric fixedly secured upon a roller 3, said roller 3 mounted upon an axle 8 fixed in the case 1, upon a line between the center of said case and the point of the shoulder 6, as shown and described.

4. The combination in a picture-displaying device of the class described, of the case 1, having the V-shaped opening 14 in the upper part thereof, the inner depending shoulder 6, and the axle 8 mounted in said case 1, slightly above the center on a line with said shoulder 6, with the roller 3 fixedly mounted upon the axle 8, and having the fabric 5 carrying the adhesively-mounted sheets 4 fixedly secured thereon, as set forth.

591,453. WALL-PAPER EXHIBITOR. FRANK W. CHOCKBURN, Cabot, Vt., assignor to O. R. Collins, same place. Filed Apr. 30, 1896. Serial No. 589,708. (No model.)



Claim.—1. In combination with a series of removable arms having hooked inner ends, a frame adapted to engage and hold the said ends, clamping devices provided with ball-bearings for the said frame and means of supporting the same substantially as set forth.

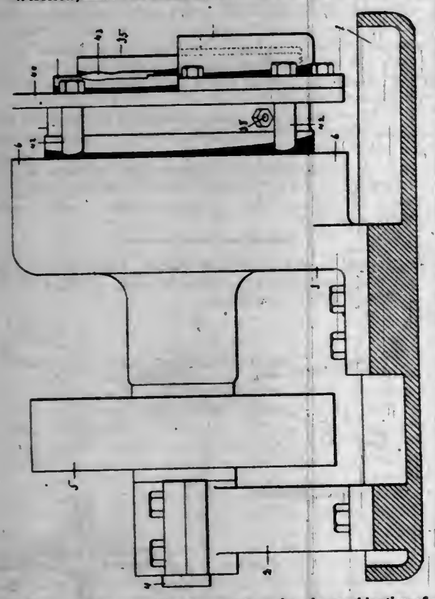
2. A head consisting of two opposed shells, a connecting-rod on which one of the said shells is screw-threaded and a pair of plates G and H turning on the said rod between the said shells and provided respectively with downward flange *g* and platform A, in combination with a series of removable arms adapted to rest on the said platform and catch behind the said flange and means of supporting the said head substantially as set forth.

3. In combination with a circular series of arms a rotary frame to which they are removably attached, a pair of shells, means for clamping the said shells to hold the said frame, the frame being adapted to be reversed in position with respect to the said shells in order that the reversal of position of the head as a whole may leave the said frame adapted to properly support the said arms substantially as set forth.

4. In combination with a reversible head and means for supporting the same in either position, an independent reversible arm-supporting frame secured within said head and a series of arms attached to the said frame, the said head being provided with means for allowing the removal of the said frame or securely holding it at will substantially as set forth.

5. A pair of plates G H provided with a circular flange and platform for holding the radial arms in combination with a series of such arms adapted to rest on the said platform and hook behind the said flange, a double series of antifriction-balls arranged above and below the said plates an upper and lower shell a central screw-threaded rod for clamping the said shells together on the said balls and plates a supporting-rod for the said head and means of enabling it to stand on the floor or be suspended from the ceiling substantially as set forth.

591,454. MACHINE FOR SWAGING WIRE. LEROY COOK, Worcester, Mass. Filed June 15, 1896. Serial No. 593,970. (No model.)



Claim.—1. In a machine for swaging wire, the combination of a rotating plate, swaging-dies carried by said rotating plate, pins projecting from the side of said plate with their axes parallel with the axis of said rotating plate, hangers pivoted upon said pins and operatively connected with said dies to bring them together, and an inclosing ring provided with a series of stationary cam-surfaces arranged in the path of said pivoted hangers whereby said hangers are successively brought into contact with said cam-surfaces, thereby imparting a rocking motion to said hangers in the plane of said inclosing cam-plate, substantially as described.

2. In a machine for swaging wire, the combination with a rotating plate provided with ways for a pair of swaging-dies, of a pair of swaging-dies capable of sliding in said ways, pins projecting from the side of said rotating plate with their axes parallel with the axis of said plate, hangers pivoted upon said pins and operatively connected with said dies, rolls carried by the free ends of said hangers, and an inclosing ring provided with cam-surfaces arranged in the path of said rolls, whereby said hangers are given a rocking motion in the plane of their rotation, substantially as described.

3. In a machine for swaging wire, the combination of a rotating plate, swaging-dies carried by said rotating plate, pivoted hangers carried by said rotating plate and operatively connected with said dies, whereby said dies are brought together by the angular motion of said hangers, an inclosing ring provided with stationary cam-surfaces arranged concentrically to said rotating plate and in the path of said hangers, said ring being capable of a sliding motion in a direction parallel with the axis of sai rotating plate, and means for moving said ring, whereby said cam-surfaces are withdrawn from the path of said hangers, substantially as described.

4. In a machine for swaging wire, the combination of a rotating plate, swaging-dies carried by said rotating plate, pivoted hangers carried by said rotating plate and operatively connected with said dies, whereby the angular motion of said hangers will bring said dies together, a ring concentric with said rotating plate and provided with a series of transverse dovetailed grooves, and a series of detachable hardened-steel plates held in said grooves and provided with cam-surfaces arranged in the path of said hangers, substantially as described.

5. In a machine for swaging wire, the combination of a rotating plate, swaging-dies carried by said rotating plate, pivoted hangers carried by said rotating plate and operatively connected with said hangers, whereby said dies are brought together by the angular movement of said hangers, a ring concentric with said rotating plate and capable of sliding in a direction parallel with its axis, but held from rotation, tapering rolls carried by the free ends of said hangers, said ring having a series of cam-surfaces arranged in the path of said rolls, said cam-surfaces being beveled to correspond with the tapering surfaces of said rolls and means for moving said ring in a direction parallel with its axis, whereby the angular motion of said hangers is varied, substantially as described.

6. In a machine for swaging wire, the combination with a rotating plate, swaging-dies and die-operating mechanism, substantially as described, carried by said plate, of a concentric ring provided with a series of cam-surfaces arranged in the path of said die-operating mechanism, said ring being held from rotation, but capable of sliding in a direction parallel with its axis, a barrel attached to said ring and provided with spiral slots, an oscillating ring concentric with said barrel, rolls carried by said oscillating ring and entering said spiral slots, whereby an endwise motion is imparted to said barrel by the rotation of said oscillating ring, substantially as described.

7. In a machine for swaging wire, the combination of a rotating plate and swaging-dies and die-operating mechanism, substantially as described, carried by said plate, of a concentric ring provided with beveled cam-surfaces arranged in the path of the die-operating mechanism carried by said rotating plate, a barrel attached to said concentric ring and provided with spiral slots, an oscillating ring, rolls carried by said oscillating ring and entering said spiral slots, a lever-handle projecting from said oscillating ring and an adjusting-screw held by the fixed framework of the machine in the path of said handle, substantially as described.

8. In a machine for swaging wire, the combination of a rotating plate provided with ways for a pair of swaging-dies, swaging-dies capable of sliding in said ways, pressure-blocks bearing against said dies, pins projecting from the side of said rotating plate, hangers pivoted upon said pins and having their axes parallel with the axis of said rotating plate, links entering between said hangers and said pressure-blocks, rolls carried by the free ends of said hangers, a ring concentric with said rotating plate and provided with cam-surfaces arranged in the path of said rolls, whereby an angular motion is imparted to said hangers in the plane of their rotation and said dies brought together, substantially as described.

9. In a machine for swaging wire, the combination of a shaft, a plate carried by said shaft, swaging-dies and die-operating mechanism carried by said rotating plate, a shell inclosing said rotating plate and provided with an oil-hole at the top and a semicircular plate attached to the fixed portion of the machine and at some distance forward of the operating mechanism and serving as a dam to check the flow of oil from the interior of said shell and form an oil-reservoir in which a portion of the die-operating mechanism is submerged, substantially as described.

10 In a machine for swaging wire, the combination of shaft 4, plate 8 attached to said shaft, having ribs 9, 9, inclosing a slot 11, swaging-dies 12, 12, held in said slot, plate 19 attached to said ribs 9, 9, and forming chambers 22, 22, hangers 18, 18, pivoted to said plates 8 and 19, pressure-blocks 14, 14 bearing against said dies, links 16, 16 inserted between said pressure-blocks and said hangers, rolls 24, 24, held in the free ends of said hangers and a concentric ring provided with a series of cam-surfaces in the path of said rolls, substantially as described.

11. In a machine for swaging wire, the combination of a rotating shaft, a head carried by said shaft, swaging-dies carried by said rotating head, levers pivoted at one end on said head and operatively connected with said swaging-dies, a shell or case inclosing said rotating head, a ring held in said shell concentrically with said rotating head and provided with transverse grooves, cam-plates held in said transverse grooves and provided with tapering inner surfaces, rolls carried by said pivoted levers and provided with tapering peripheries corresponding with the tapering surfaces of said cam-plates, said cam-plates having their ends abutting against said shell, whereby they are held from endwise movement in said ring, substantially as described.

12. In a machine for swaging wire, the combination of a rotating shaft, a rotating head carried by said shaft and provided with ways for a pair of swaging-dies, swaging-dies capable of sliding in said ways, pressure-blocks resting against said dies and provided with semicircular recesses, levers pivoted in said rotating head and provided with semicircular recesses, links 27 provided with circular ends fitting said semicircular recesses, in said levers and pressure-blocks, and an inclosing ring provided with cam-surfaces arranged in the path of said levers, as they are carried by said rotating head, whereby said swaging-dies are crowded together, substantially as described.

13. In a machine for swaging wire, the combination of a rotating shaft, a plate attached to said shaft and provided with a rib extending diametrically across said plate, said rib having a transverse slot forming ways for a pair of swaging-dies, swaging-dies capable of sliding in said ways, a plate detachably attached to said rib, pins held in said plates, levers pivoted on said pins and held in the spaces between said plates, said levers being operatively connected with said swaging-dies, and means for successively imparting an angular motion to said levers and actuating said swaging-dies, substantially as described.

591,455. BARREL-LINING. CHARLES R. COTTRELL, Minneapolis, Minn. Filed Mar. 6, 1896. Serial No. 582,071. (No model.)



Claim.—1. The combination with a barrel, of a yielding paper lining provided with corrugations of a character to permit said lining to expand and contract with the expansion and contraction of the barrel-staves and thereby prevent the leakage of powdered substances therethrough, substantially as set forth.

2. The combination with a barrel, of an expansible lining provided with corrugated overlapping vertical edges interlocking at their jointure with each other, substantially as set forth.

3. The combination with a barrel, of a corrugated lining adapted to expand and contract with the expansion and contraction of the stave-joints, which said lining is of greater length than the barrel and is folded over the ends adjacent the heads thereof, substantially as set forth.

4. The combination with a barrel or vessel, of an expansible corrugated lining arranged therein and being composed of paraffin or waterproof paper corrugated lengthwise, substantially as set forth.

591,456. WOVEN TIRE. ROBERT COWEN, Cambridge, Mass., assignor to the Boston Woven Hose and Rubber Company, Boston, Mass. Filed Jan. 16, 1897. Serial No. 619,418. (No model.)



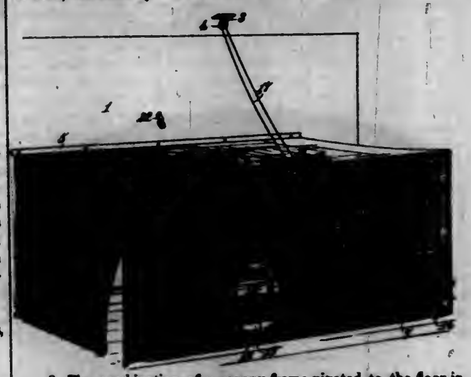
Claim.—1. An endless seamless woven tubular tire containing an endless india rubber tube, substantially as described.

2. An endless seamless woven tubular tire containing an endless india-rubber tube, and covered externally with a vulcanized outer covering, substantially as described.

591,457. CANOPY FOR DINING-TABLES. DANIEL V. DAVIS, Fork Church, N. C. Filed July 9, 1897. Serial No. 644,085. (No model.)

Claim.—1. The combination of a canopy-frame pivoted to the floor in juxtaposition to a wall, a canopy secured to said frame, attached at its inner edge to the wall, and having vertical end portions and a front drop-curtain, a cable-guide secured to the ceiling near the wall, a cable or cord passing over said guide and connected with the lower edge of the drop-curtain to raise the same preparatory to swinging the canopy-frame to fold or unfold the canopy, and means whereby said cable or cord swings the canopy-frame against the wall or outward therefrom, after the lower edge portion of the drop-curtain has been raised, substantially as described.

2. The combination of a yoke-shaped canopy-frame pivoted at its lower end to the floor near a wall, a net canopy secured to said frame and comprising a top portion attached at its inner edge to the wall, vertical end portions and a front drop-curtain, a pulley-bracket extending outward from the canopy-frame, a ceiling-pulley supported near the wall, a cable or cord passing over the ceiling-pulley, through the pulley-bracket and connected with the lower edge of the drop-curtain, and a button or stop secured to the cable or cord below the pulley-bracket, whereby the lower edge of the drop-curtain is raised and the canopy-frame is subsequently swung by pulling on the cable or cord, substantially as described.



3. The combination of a canopy-frame pivoted to the floor in juxtaposition to a wall, a canopy secured to said frame, connected at its inner edge to the wall, and having vertical end portions and a front drop-curtain, a fly-sweeper secured to said curtain, a cable-guide secured to the ceiling near the wall, a cable or cord passing over said guide and connected with the lower edge of the drop-curtain to raise the same preparatory to swinging the canopy-frame, and means whereby said cable or cord swings the canopy-frame against the wall, or outward therefrom after the lower edge of the drop-curtain has been raised, substantially as described.

4. The combination of a canopy-frame pivoted at its lower end to the floor near a wall, a canopy secured to said frame, and comprising a top portion connected at its inner edge to the wall, vertical end portions and a drop-curtain, a flexible fly-sweeper mounted on the inner side of the drop-curtain above the lower edge thereof, a pulley-bracket extending outward from the canopy-frame, a ceiling-pulley, a cable or cord passing over the ceiling-pulley, through the pulley-bracket and connected with the lower edge of the drop-curtain, and a button or stop secured to the cable below the pulley-bracket, substantially as described.

5. The combination of a yoke-shaped canopy-frame pivoted to the floor in juxtaposition to a wall, a canopy secured to said frame, connected at its inner edge with the wall, and having vertical end portions and a front drop-curtain weighted at its lower edge, a fly-sweeper secured longitudinally along the inside of the drop-curtain with the lower edge of the sweeper arranged some distance above the lower edge of the drop-curtain when lowered, a cable-guide secured to the ceiling near the wall, a cable or cord passing over said guide and connected with the lower edge of the drop-curtain to raise the same preparatory to swinging the canopy-frame to fold or unfold the canopy, and means whereby said cable or cord swings the canopy-frame against the wall or outward therefrom, substantially as described.

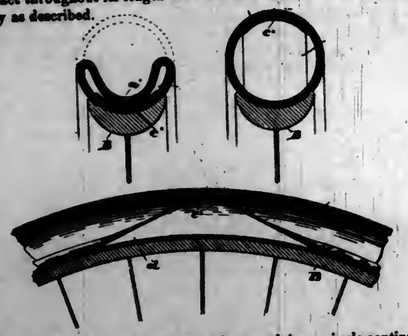
6. The combination of a yoke-shaped canopy-frame pivoted at its lower end to the floor near a wall, a net canopy secured to said frame and comprising a top portion attached at its inner edge to the wall, vertical end portions and a front drop-curtain, a fly-sweeper mounted on the inside of the drop-curtain and having its lower free edge located some distance above the lower edge of the curtain when the latter is lowered, a pulley-bracket extending outward from the canopy-frame, a ceiling-pulley supported near the wall, a cable or cord passing over the ceiling-pulley, through the pulley-bracket and connected with the lower edge of the drop-curtain, and a button or stop secured to the cable or cord below the pulley-bracket, whereby the lower edge of the drop-curtain is raised and the canopy-frame is subsequently swung by pulling on the cable or cord, substantially as described.

591,458. TIRE-TUBE. JOSEPH E. DAVIS, Lynn, Mass., assignor to the Boston Woven Hose and Rubber Company, Boston, Mass. Filed Sept. 12, 1896. Serial No. 605,582. (No model.)

Claim.—1. A hollow or pneumatic tire-tube containing an annular elastic patching-ply normally under tension and thereby held in contact with the rim side of the tube throughout its extent and having free longitudinal edges, substantially as described.

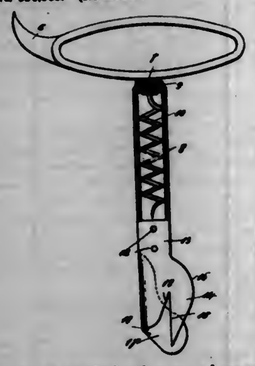
2. A hollow or pneumatic tire-tube containing a narrow continuous, elastic patching-ply normally detached from the tube and in

contact throughout its length with the rim side of the tube, substantially as described.



3. A hollow or pneumatic tire-tube containing a single continuous elastic patching-ply normally unsecured to the tube, the said ply being under sufficient longitudinal tension to cause it to normally contact with and hug the rim side of the tube, throughout its length, substantially as described.

591,459. ATTACHED CAN-OPENER, WIRE-CUTTER, AND CORKSCREW. ALBERT DELL, Dobbs Ferry, N. Y. Filed Apr. 2, 1897. Serial No. 630,365. (No model.)

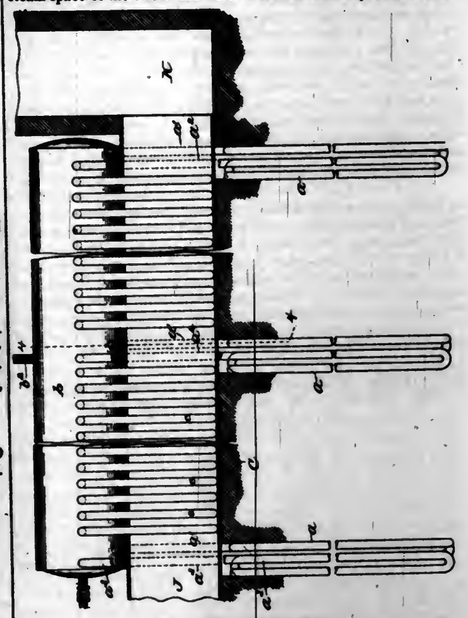


Claim.—1. An attached corkscrew and can-opener, consisting of a handle to one side of which is secured a screw-threaded shank, a corkscrew which is secured to said shank, a tube which is detachably connected with said shank and into which said corkscrew passes, said tube being flattened at its outer end, and provided with a plate which is secured thereto, said plate being provided at one side with a blade, and at the opposite side with a wing or guard which is folded over and parallel with said blade, said blade and said wing or guard being separated by a deep triangular notch or recess, and the cutting edge of the blade being adjacent to said notch or recess, substantially as shown and described.

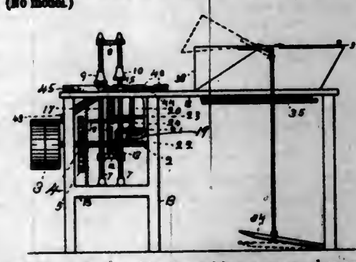
2. An attached corkscrew and can-opener, consisting of a handle to one side of which is secured a screw-threaded shank, a corkscrew which is secured to said shank, a tube which is detachably connected with said shank, and into which said corkscrew passes, said tube being flattened at its outer end, and provided with a plate which is secured thereto, said plate being provided at one side with a blade, and at the opposite side with a wing or guard which is folded over and parallel with said blade, said blade and said wing or guard being separated by a deep triangular notch or recess, and the cutting edge of the blade being adjacent to said notch or recess, and said handle being also provided at one end thereof with a short curved blade, substantially as shown and described.

591,460. STEAM-GENERATOR. GEORGE F. DINSMORE, Boston, Mass. Filed Jan. 11, 1897. Serial No. 618,855. (No model.)

Claim.—The combination, with an apparatus for manufacturing coal-gas, comprising a furnace, and retorts therein, the furnace having a plurality of horizontal and vertical flues and a main flue into which said flues lead, of an apparatus for generating steam comprising a steam and water drum arranged outside of and adjacent to the main flue and a series of pipes each leading from the water-space of the steam and water drum into one of said flues and thence to the steam-space of the steam and water drum, substantially as described.



591,461. MACHINE FOR MAKING POPCORN CAKES. WILBER K. RATON, Lynn, Mass. Filed Apr. 28, 1897. Serial No. 634,341. (No model.)



Claim.—1. In a machine for making popcorn cakes and the like, the combination of forming devices for holding the material and a platen or support for said devices, with a plunger for pressing into cakes the material in said forming devices, and means for changing the relative positions of the platen or support and the plunger member, for presenting the forming devices and completing the pressing operations one after another, and means for automatically removing the forming devices from the platen or support, substantially as described.

2. In a machine for making popcorn cakes and the like the combination of forming devices for holding the material and a platen or support for said devices with a plunger for pressing into cakes the material in said forming devices and a plunger for discharging the cakes from the forming devices and means for shifting the relative positions of the platen or support and the pressing and the discharging plungers for presenting the forming devices and completing the pressing and discharging operations, and means for automatically removing the forming devices from the platen or support.

3. A machine for making popcorn cakes and the like, comprising forming devices for holding the material, and a movable platen for holding the forming devices, combined with a plunger for pressing into cakes the material in said devices, and means for separately discharging the cakes from the forming devices, and means for discharging the forming devices from the platen, substantially as described.

4. In a machine for making popcorn cakes and the like the combination of a movable platen, and forming devices carried by the platen, with a plunger and means for moving the plunger into the path or plane of the platen, for pressing into cakes the material in said forming devices, and a second plunger and means for moving it to discharge the cakes, substantially as described.

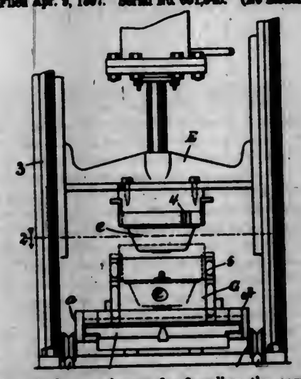
5. In a machine for making popcorn cakes and the like the combination of a movable platen, and forming devices carried by the platen, with a plunger and means for moving the plunger into the path or plane of the platen for pressing into cakes the material in said forming devices and a second plunger and means for moving it to discharge the cakes, and means for automatically locking the platen against movement during the pressing and discharging operations, substantially as described.

591,462. CHECKREIN-FASTENER. HENRY J. ELLIS, Rotterdam Junction, N. Y. Filed Dec. 30, 1896. Serial No. 617,442. (No model.)



Claim.—In a checkrein-snap, the combination with a malleable casting comprising a slideway-barrel, provided at one end with means for securing a checkrein thereto, and at the other end with a pair of arms severally provided at the outer end with a shoulder, of a cushion and cushion-supporting plate inserted between said arms and secured in engagement with the shoulders thereon by overlapping lugs formed by upsetting portions of the arms upon the outer side of said plate, a spring-actuated plunger inserted in the barrel-slideway, and a head on said plunger movable between said arms toward and from said cushion, substantially as described.

591,463. MOLDING APPARATUS. LEONARD FINDAL, Chicago, Ill. Filed Apr. 9, 1897. Serial No. 631,345. (No model.)



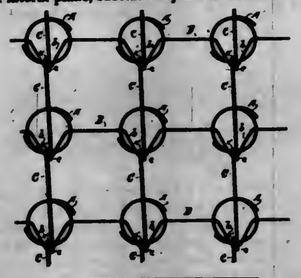
Claim.—1. In a sand-press for founding, the combination of a flask on a truck, a reservoir placed upon the top of the flask for the purpose of holding extra sand for molding, a series of grate-bars under the flask through the apertures of which sand under pressure may escape in forming the mold, and a sheet-iron cover for the grate-bars with an opening therein corresponding with the pattern in the flask as and for the purpose above described.

2. In a sand-press for founding, the combination of a cast-iron frame open at both ends, carrying a second frame within it which has a rack on each side, into the niches of which are placed steel rods forming a grate in the body of the truck, the grate being partially covered by a sheet-iron plate having a portion removed, corresponding to the shape of the pattern in the flask to permit the sand to escape through the grate where the shape of the pattern causes the press to exert the most pressure as and for the purpose specified.

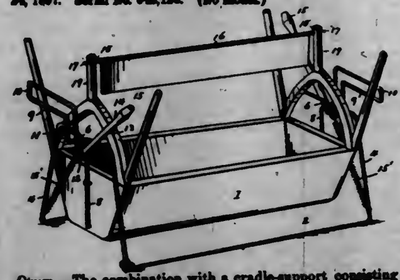
3. In a sand-press the combination of a flask, a reservoir for extra sand placed on top of the flask and which is removed after the mold is pressed, the pattern with its match-board attached to the press, two frames of cast-iron one within the other, mounted upon wheels, the outer having open ends, the other having a rack on each side on which are laid steel rods across the truck forming a grate, removable when desired, providing a means of escape for the surplus sand under pressure, the flask resting on two loose bars over the grate, as and for the purpose specified.

591,464. SPRING-BED. JOHN A. GACKLER, Grand Rapids, Mich., assignor, by mesne assignments, of one-half to Francis Karr, Chicago, Ill. Filed Dec. 2, 1896. Serial No. 614,230. (No model.)

Claim.—The combination, with a double-deck spiral-spring bed-bottom, of longitudinal crimp-rods placed on the line of the lateral center of the circle of the spring and extending the entire length of the bed-bottom, an offset at each spring so situated that the main rod will rest on top of a coil of the spring and the offset will pass out at one side under the same coil and form a loop, and short cross-links having a hook at each end bent in opposite directions, one of said hooks engaging with the loop of the offsets of the crimp-rod outside of the coil of the spring, thence over the coil of the spring, thence across the center of the spring at right angles with the crimp-rods and under the same coil of the spring, thence to the next spring under the loop and over the coil, each loop and coil being engaged by the opposite ends of different links so that all are locked together in such a manner that the springs are held to operate in a direct vertical and lateral plane, substantially as set forth.

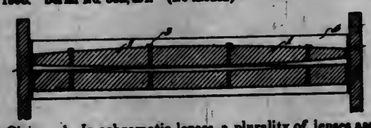


591,465. CRADLE. JOHN R. GARRETT, Ramson, Ind. Filed June 24, 1897. Serial No. 642,128. (No model.)



Claim.—The combination with a cradle-support consisting of a rod bent to form parallel longitudinal feet, and standards having hanger-seats formed at their upper ends, of a cradle provided with hangers adapted to engage said seats and formed with handles and with upwardly and oppositely projecting extensions, sleeves fitted to said extensions and provided with counterbalancing-weights at their upper ends, and a fan supported by said cradle, substantially as set forth.

591,466. LENS. LOUIS GATHMANN, Chicago, Ill. Filed June 11, 1896. Serial No. 552,451. (No model.)



Claim.—1. In achromatic lenses, a plurality of lenses assembled as described in the ordinary manner and each comprising a plurality of members or sections situated side by side in the same plane and forming in conjunction with each other a complete lens and secured within a frame, the frames of the lenses composing said achromatic lens consisting of material having the same coefficient of expansion and contraction, substantially as described.

2. A lens consisting of a plurality of members or sections situated side by side in the same plane and forming in conjunction with each other a telescopic lens, the faces of the members or sections being beveled at the inner sides or edges of said members or sections, substantially as described.

3. A lens consisting of a plurality of members or sections situated side by side in the same plane and forming in conjunction with each other a telescopic lens, and a diaphragm covering a portion of the outer faces of said members or sections at the edges thereof, substantially as described.

591,467. GRATE. JOHN T. GLOVER, High Point, N. C. Filed May 6, 1897. Serial No. 635,865. (No model.)



Claim.—In a grate, a grate-bar comprising two parallel sides having inwardly-projecting flanges, of grate-sections resting on said parallel sides, and having cross-bars engaging the under sides of the flanges, and coacting tongues, and apertures for locking one section to the other, substantially as described.

591,468. HOSE-FASTENING. EDWARD B. GOLD, New York, N. Y. Filed Nov. 23, 1896. Serial No. 491,730. (No model.)

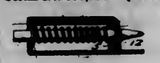


Claim.—1. The nipple for a compressible hose having an elongated cylindrical neck and an enlarged head adapted to enter a hose, in combination with an internally-tapering collar surrounding said hose when on the nipple, the largest diameter of said collar being toward said head, and the smallest diameter of said collar being smaller than that of the hose when surrounding said neck, whereby the hose is compressed between said collar and neck, and expands beyond the inner end of said collar, substantially as set forth.

2. The nipple for a compressible hose having an enlarged head, a square shoulder, and an elongated contracted cylindrical neck between said head and shoulder, the end of the compressible hose passing over said head and neck and abutting against said shoulder, in combination with an internally-tapering collar adapted to surround said neck with the hose between it and said neck, the smallest internal diameter of said collar being at or near its inner end when in place and from whence it enlarges toward said head, said smallest diameter being greater than that of said shoulder and smaller than that of the hose when surrounding said neck, whereby the hose is compressed between said collar and neck and expands between the inner end of said collar and said shoulder, substantially as set forth.

3. The combination with the hose and the nipple on which it is fastened, of a thimble projecting within the hose beyond the end of the nipple, and connected thereto so as to be capable of deflection out of axial line therewith, and stops for limiting the extent of such deflection substantially as set forth.

591,469. SASH-FASTENER. JAMES M. GRAHAM, Drayton, N. D. Filed Apr. 6, 1897. Serial No. 630,966. (No model.)

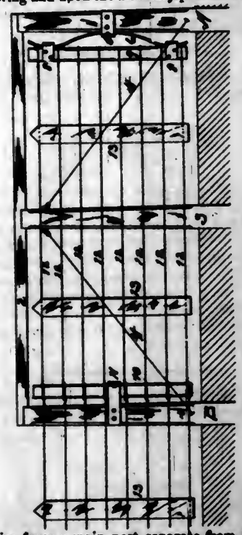


Claim.—1. The combination with a base-plate provided with laterally-projecting perforated ears, one of which is provided with an inclined end having a niche, a pin or stud projecting laterally from the base-plate at the side of said inclined end, said base-plate being also provided with two slots, of a barrel embracing the ears and provided with tongues inserted through said slots and bent back upon the base-plate, a bolt located within said barrel, a spring for actuating said bolt, said bolt being provided with a thumb-button adapted to engage the inclined end of the ear, and when retracted to engage the niche in the inclined end, and provided with a slot to engage the pin or stud and lock the bolt against longitudinal movement, substantially as set forth.

2. A sash-fastener comprising a base-plate, a barrel on the base-plate, a bolt passing through the barrel, and a spring surrounding the bolt, the outer end of the barrel being formed with a cam-surface, and the head of the bolt having an inclined surface conforming to the end of the barrel, a V-shaped notch in the head to engage a pin on the base-plate to hold the bolt extended, and a niche in the face of the barrel designed to catch the sharp edge of the head to hold the bolt retracted, substantially as described.

591,470. WIRE FENCE. THEODORE M. GUEST, Moravia, N. Y. Filed June 9, 1897. Serial No. 639,963. (No model.)

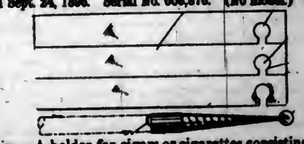
Claim.—1. In a wire fence a main post separate from but in alinement with the wires, an auxiliary post at a fixed distance from the main post and parallel thereto and upon substantially the same line, a top rail connecting both of them, combined with a primary equalizing-bar between said posts, a spring between said main post, and bar connected centrally to the central portion of said main post, and at its extremities to said bar, a secondary equalizing-bar parallel to said auxiliary post, and centrally connected thereto, and wires connected to said equalizing-bars whereby the strain of the wires is exerted upon said bars and upon the central portion of said main post through said spring and upon the auxiliary post through said top rail.



2. In a wire fence a main post separate from but in alinement with the wires, an auxiliary post at a fixed distance from the main post and parallel thereto and upon substantially the same line, an intermediate parallel post, a top rail connecting both of them, combined with a primary equalizing-bar between said main and intermediate posts, a spring between it and the main post, connected centrally to said post and at its extremities to said bar, a secondary equalizing-bar between said auxiliary and intermediate posts and connected centrally to said auxiliary post, and wires connected to both of said equalizing-bars whereby the strain of wires is exerted upon said bars and upon said spring and upon the central portion of said main post, and through it and said rail against the other posts.

3. In a wire fence, a main post and wires, an auxiliary post erected at a fixed distance therefrom in the line of the strain of the wires, an intermediate post, a top rail secured to and connecting all of said posts and stays connected to the upper part of said intermediate post and to the lower part of the other posts, combined with equalizing-bars suitably connected to said auxiliary post, the wires being suitably connected to both of said main and equalizing bars but not to said main posts.

591,471. CIGARETTE-HOLDER. GUIDO HARA, San Mateo, Cal. Filed Sept. 24, 1896. Serial No. 606,676. (No model.)



Claim.—A holder for cigars or cigarettes consisting of a strip of paper or other flexible substance rolled into a convoluted form, a projection formed near the inner extremity of said strip and means for limiting the degree of adjustment of the component coils of said holder relative to each other.

591,472. TAILPIECE FOR MUSICAL INSTRUMENTS. CHARLES F. HENNEY, Akron, Ohio, assignor of one-half to Fred. J. Lamb, same place. Filed Jan. 12, 1897. Serial No. 618,907. (No model.)

Claim.—1. An improved tailpiece for stringed instruments of the class named, consisting of a sheet of metal adapted to be attached to the end of the instrument, and having its front end curved into an arch and thence extended forward to be inserted in a channel in the base of the bridge, said arched portion being provided with holes to receive the knots of the strings, and slits extending from said holes to receive the strings, substantially as shown and described.



2. An improved bridge for stringed instruments of the class named, consisting of a single sheet of metal having a part bent abruptly upward and backward to form the bridge, the backward-bent portion being less in depth than the upward-bent part, to leave a channel for the end of the tailpiece; in combination with a tailpiece adapted to receive and retain the ends of the strings and having its end adapted to enter said channel in said bridge substantially as shown and described.

3. An improved tailpiece for stringed instruments of the class named, consisting of a sheet of metal having its rear end bent to rest against the end of the instrument, arched near its forward end, said arched portion being provided with holes and slits extending forward from them; the front end of said tailpiece extended in substantially the same plane with its body; with the end adapted to enter a notch in the bridge; in combination with a bridge having a channel in the base of its back to receive the end of said tailpiece, all constructed and arranged substantially as shown and described.

591,473. EMBOSSING-MACHINE. MARTIN V. B. HOWE, Gardner, Mass. Filed Jan. 14, 1897. Serial No. 619,133. (No model.)



Claim.—1. As an article of manufacture, a chuck for segmental embossing-dies or similar plates, comprising slabbed or cut-away axially-movable clamping-sections and bolts adjustably connecting said clamping-sections, said parts being arranged so that a plate may be secured upon the surface of the chuck by tightening the bolts to bring the clamping-sections into engagement with a securing rib or projection of said plate, and so that a plate occupying more than half the circumference of the chuck may be rotated thereon and taken laterally off from the chuck without removing the bearings thereof, substantially as described.

2. The combination of a hollow shaft or arbor 10, slabbed or cut-away clamping-sections 11 and 12 loosely mounted on said arbor, retaining-collars 13 and 14 for holding said chuck in place on the arbor, and an embossing-die 15 fitting onto more than half the surface of said chuck, and having a dovetailed rib or projection 16 shaped to engage corresponding surfaces on the clamping-sections, said parts being arranged so that the die can be rotated on the chuck, and taken laterally therefrom, substantially as described.

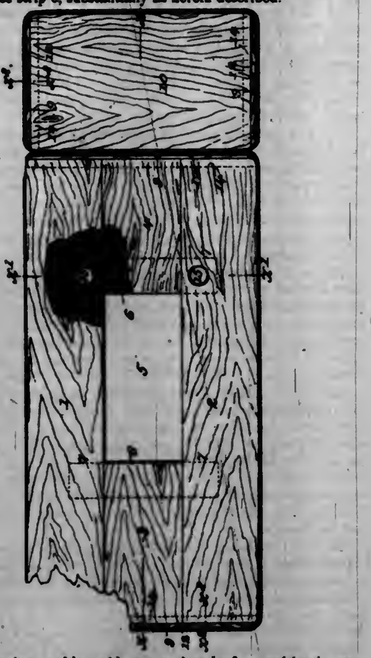
3. The combination of an embossing-die 15, a loosely-mounted chuck, a stop 20 carried by said chuck, a ring, means for adjustably clamping said ring in different positions on the frame of an embossing-machine, a stop extending from said ring in position to engage the projection 20, a cord 23 mounted in a groove 26 in the chuck, and a retractile connected to said cord, the parts being arranged to successfully hold the wedging end of the embossing-die in position to engage the work, substantially as described.

591,474. SEWING-MACHINE TABLE-TOP. NICHOLAS A. HULL, Chicago, Ill., assignor to William G. Foley, same place. Filed Dec. 17, 1896. Serial No. 616,101. (No model.)

Claim.—1. A sewing-machine table-top, comprising in combination, longitudinal outer pieces 1 and 2, middle pieces 3 and 4, the combined length of which is less than the said outer pieces, transverse strips 6, attaching the inner ends of such middle pieces to the outer pieces, and end cleats 9, attaching the outer ends of such pieces together, substantially as herein described.

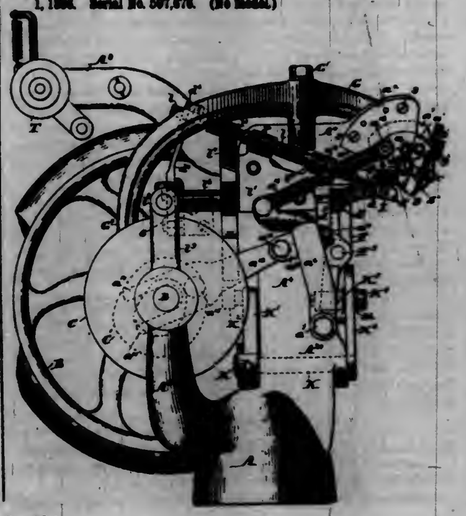
2. A sewing-machine table-top, comprising in combination, longitudinal outer pieces 1 and 2, middle pieces 3 and 4, the combined length of which is less than the said outer pieces, transverse strips 6, fitting mortises in the outer pieces, and grooves in the middle pieces, to attach the inner ends of such middle pieces to the outer pieces, and end cleats 9, attaching the outer ends of such pieces together, substantially as herein described.

3. A sewing-machine table-top, comprising in combination, longitudinal outer pieces 1 and 2, middle pieces 3 and 4, the combined length of which is less than the said outer pieces, transverse strips 6, fitting mortises in the outer pieces, and grooves in the middle pieces, to attach the inner ends of such middle pieces to the outer pieces, cleats 9, attaching the outer ends of such pieces together, and belt-holes 15, extending through the outer pieces 1 and 2, and through the transverse strip 6, substantially as herein described.



4. A sewing-machine table-top, or drop-leaf, comprising in combination, the top or leaf proper, and a transverse end cleat 9, the cleat having an L-shaped formation, comprising a tongue 11, and a head 12, and the end of the table top or leaf having a long extension 13, covering the whole surface of the cleat, and a shorter extension 14, covering the tongue 11, of the cleat, substantially as herein described.

591,475. SOLE-SEWING MACHINE. HARRY L. ELLSWORTH, Lynn, Mass., assignor to Charles H. Riley, Newton, Mass. Filed July 1, 1896. Serial No. 597,676. (No model.)



Claim.—1. In a sewing-machine, an oscillating needle-segment, a curved needle carried thereby, a supporting-stud for said segment, a needle-guide mounted to rock on said stud, adjustable connections between the needle-segment and needle-guide, to retract the latter positively, a stop on the stud, to limit forward movement of the guide, and a depressing-spring for the latter, substantially as described.

2. In a sewing-machine, an oscillating needle-segment, a needle-guide, having a slotted hub, a common fulcrum-stud for said segment and guide, a stop on said stud, to enter the slotted hub and limit movement of the needle-guide toward the work, a depressing-spring for said guide, and connections between the needle segment and guide, whereby the latter is positively retracted against the depressing-spring, substantially as described.

3. In a sewing-machine, a curved hooked needle, means to oscillate it in a vertical plane, a channel-guide, means to move the channel-guide laterally as the work is fed, a feed-point independent of the channel-guide, said point and needle entering the same face of the sole of the shoe and approaching the sole from nearly opposite directions, whereby to support the work against the needle thrust, and means to move said feed-point laterally to feed the work, substantially as described.

4. In a sewing-machine, a stationary head, stitch-forming devices mounted thereon, including a curved hooked needle, means to oscillate it, a channel-guide and an independent feed-point, to engage the sole of the shoe on the outer face thereof and adjacent the needle-path said channel-guide and feed-point diverging from their operative ends, and means to move said channel-guide and feed-point laterally in unison to feed the work, substantially as described.

5. In a sewing-machine, a stationary head, stitch-forming devices carried thereby, and including a curved hooked needle, means to oscillate it, an adjustable channel-guide, means to move it laterally as the work is fed, said guide engaging the sole of the shoe on the face entered by the needle, an adjustable feed-point to enter the work in a direction opposite to the thrust of the needle and on the same face of the sole, and means to move said feed-point laterally to feed the work, and also away from and toward the work, substantially as described.

6. In a sewing-machine, a stationary head, a work-rest mounted thereon, means to move it toward the work yieldingly and thereafter to lock it, an oscillating needle-segment, and an oscillatory and longitudinally-movable looper mounted on the head, means to rotate said looper through a complete circle, first in one and then in the opposite direction, connections between the work-support and looper, whereby the latter is moved longitudinally, a channel-guide and a feed-point, and means to move them laterally to feed the work, substantially as described.

7. In a sewing-machine, a stationary head, an arm mounted thereon to swing on a vertical pivot, a channel-guide, means to adjustably attach it to the arm, a cam, a roll adjustably secured to the depending end of said arm, and to be engaged by the cam, to move the channel-guide positively in one direction, and a spring to move said arm and the guide in the opposite direction, substantially as described.

8. In a sewing-machine, a hollow looper-spindle, a tubular looper on the lower end of said spindle and offset from its longitudinal axis, a pinion on said spindle, a sector-gear in mesh therewith, a slide-pin carrying a roll, a link between said pin and sector-gear, a fixed guide and support for the pin, and a controlling-cam for said roll to rock the sector-gear, substantially as described.

9. In a sewing-machine, a stationary head, a downwardly-bent arm mounted upon a vertical pivot thereupon, a channel-guide holder adjustable on the front end of said arm, a channel-guide longitudinally movable in said holder, means to retain it in adjusted vertical position, and means to move the channel-guide intermittingly in the direction of the line of feed, substantially as described.

10. In a sewing-machine, a feed-point having a shank bent at an angle therewith, a holder for said shank, means to adjust the holder and feed-point as a whole and means to clamp the feed-point in the holder whereby the feed-point may be moved in the holder in the direction of the length of its shank, or upon the latter as a center, substantially as described.

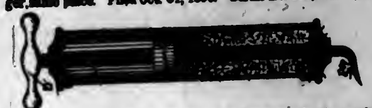
11. In a sewing-machine, a channel-guide adapted to be moved in the direction of the feed, a cooperating feed-point, said guide and feed-point engaging the outer face of the sole of the shoe, but approaching said face from nearly opposite directions, a disk having two cams thereon, and connections between said channel-guide and feed-point and the cams, to actuate the guide and point, substantially as described.

591,476. MUSICAL TOY. JAMES A. IRVING, Columbus, Ohio, assignor of one-half to Martin Jenkins. Filed Nov. 3, 1896. Serial No. 610,963. (No model.)

Claim.—A musical toy consisting of a horn-like body, a rigid foraminate diaphragm 4 extending across its bore, a vibratory diaphragm 3 also extending across the bore and arranged in close proximity to diaphragm 4 so as to vibrate against the same, a loose body arranged between the mouthpiece and the diaphragms and adapted to vibrate against said diaphragms, and a vent 8 in the side of the horn at a point between the mouthpiece and diaphragms, substantially as shown and described.



591,477. MEANS FOR REPAIRING PNEUMATIC TIRES. CHAS. J. JOHNSON, Chicago, Ill., assignor of one-half to George L. Schoenberger, same place. Filed Oct. 31, 1896. Serial No. 610,902. (No model.)



Claim.—In a means for repairing pneumatic tires with viscid cement, a cylinder, a piston within the cylinder having a projection at one side adapted to slide in a longitudinal groove in the cylinder, a screw-threaded revoluble rod disposed axially through the cylinder, and axially through and in engagment with a screw-threaded hole in the piston, a cover at the lower end of the cylinder between which and the piston is a perforated diaphragm and forming a compression-chamber, the diaphragm forming a second chamber between itself and the lower cover, the inner end of the threaded rod mounted in the diaphragm, a hollow needle leading outwardly attached to the lower cover and in communication with the second chamber, the whole serving in combination for the purpose stated.

591,478. SAW-SET. JAMES A. KIDWELL, Corien Heights, Pa. Filed Jan. 7, 1897. Serial No. 618,357. (No model.)



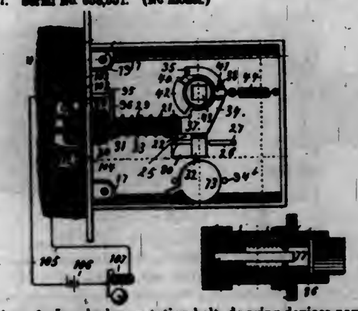
Claim.—1. A saw-set consisting of a body portion having an overhanging guide between which and said body portion the saw is to be inserted, a pivoted gage-block pivoted within an opening in said body portion, a die mounted above said gage-block, and devices for operating said die.

2. A saw set consisting of a body portion having a guide, an opening in said body portion, a rotatable screw-threaded bolt situated within said opening and provided with devices for turning the same and with a nut, a gage-block pivoted to said nut, and an adjustable die and devices for operating the same.

3. A saw-set consisting of a body portion having an adjustable gage-block and a guide, a die and devices for operating the same, a slot in said die, and a pivoted finger having an extension situated within said slot, and a set-screw for controlling the extent of movement of said pivoted finger.

4. In a saw-set, a body portion, a gage-block, carried by said body portion, an upright opening adjacent said gage-block, a die and devices for operating the same, and a guide upon the lower end of said die and situated within said upright opening.

591,479. LOCK. JOHN J. LEEK, St. Louis, Mo. Filed May 27, 1897. Serial No. 638,231. (No model.)



Claim.—1. In a lock, a rotating bolt, dogging devices normally locking said bolt against longitudinal motion, a substantially U-shaped member carried by said bolt, a rotary member situated between the arms of said U-shaped member, devices carried by said rotary member and acting upon said U-shaped member to rotate said bolt to release the dogging devices therefrom and to throw said bolt, and means for actuating said rotary member.

2. In a lock, a rotary member provided with means for throwing said bolt, a stationary casing for said rotary member, suitable rods carried by said rotary member and parallel to its axis, openings in said casing for the reception of the ends of said rods, springs normally pressing said rods into said openings, the forward ends of said pins or rods being covered by said stationary casing, and suitable projections on said pins or rods for engagement with a key.

3. In a lock, a sliding bolt, a rotary member provided with means for throwing said bolt, a stationary casing for said rotary member, rods or pins carried by said rotary member, a set of openings in said casing, springs normally pressing said pins into said openings, a second set of openings in said casing and into which said pins will be pressed if they are moved more than a predetermined amount from their normal position, the forward ends of said pins or rods being covered by said stationary casing, and suitable projections on said pins for the engagement of a key.

4. In a lock, a sliding bolt, a rotary member provided with means for throwing said bolt, a stationary casing for said rotary member, an opening in said rotary member for the reception of a key, pins or rods carried in said rotary member around said opening, the forward ends of said pins or rods being covered by said stationary casing, projections adapted to be engaged by a key carried by said pins and extending into said opening, and openings in said casing into which said pins will project to lock said rotary part against motion except when said pins are in a predetermined position.

5. In a lock, a sliding bolt, a rotary member provided with means for throwing said bolt, a stationary casing for said rotary member, an opening in said rotary member for the reception of a key, pins or rods carried in said rotary member around said opening, the forward ends of said pins or rods being covered by said stationary casing, projections adapted to be engaged by a key and carried by said pins or rods and extending into said opening, openings in said casing into which said pins project to lock said rotary member against motion except when said pins are in a predetermined position, and a central pin or bar carried by said rotary member and determining the distance to which the key can be inserted into the lock.

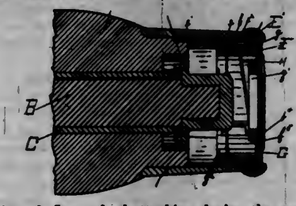
6. In a lock, a lock-case carried by a door, a plate of conducting material carried by the door-frame and normally in contact with said lock-case, a suitable conductor carried by but insulated from said lock-case, means for placing said conductor in electrical contact with said case, a spring-actuated contact normally pressed against said conductor, a circuit provided with a suitable source of electrical energy and an alarm connecting said spring-actuated contact and said plate of conducting material, and means for placing said spring-actuated contact in electrical communication with said plate of conducting material when said spring-actuated contact is released by the opening of the door.

591,480. STOVEPIPE-CLAMP. FREDERICK H. LIVINGSTON, Ithaca, N. Y. Filed Sept. 15, 1896. Serial No. 605,852. (No model.)



Claim.—As an improved article of manufacture, a clamp for stovepipes, comprising the cylindrical collar B, formed with the integral flaring flange B', and having overlapping edges, provided with integral parallel ears *b b*, and alined perforations *c*, in combination with the longitudinal clamp 1, formed with a longitudinal series of raised teats 2 2, and the integral right-angular arm 4, the whole constructed and arranged substantially as shown and described.

591,481. HUB-ATTACHING DEVICE. RICHARD LORD, Kansas, Minn. Filed Sept. 18, 1896. Serial No. 606,189. (No model.)



Claim.—1. In a wheel-attaching device, the combination with the wheel-hub; the spindle; and the nut; of means carried with the hub for engaging the nut and locking the nut to move with the hub and a coiled spring arranged to exert its force in a direction longitudinally of the hub and to hold by this exerted force the locking means normally out of engagement.

2. In a wheel-attaching device, the combination with the wheel-hub; the spindle; and the nut; of means carried with the hub for engaging said nut and locking said nut to move with the hub; of a spring arranged to exert pressure in a direction longitudinally of the hub to hold said locking means normally out of engagement and to seat and hold the mechanisms of said means with sufficient force to prevent rattling.

3. In a wheel-attaching device, the combination with the wheel-hub; the spindle; and the nut; of lugs carried with the hub; means carried with the hub for engaging said nut and locking said nut to move with the hub; means brought to a retaining position on said lugs by rotative movement by said lugs for retaining said locking means in engagement; and a spring for seating said retaining means on said lugs.

4. In a wheel-attaching device, the combination with the wheel-hub; the spindle; and the nut; of lugs carried with the hub; means carried with the hub for engaging said nut and locking said nut to move with the hub; and means brought to a retaining position on said lugs by rotative movement by said lugs for retaining said locking means in engagement and the nut in place in the hub with the wheel removed.

5. In a hub-attaching device, the combination with the wheel-hub; the spindle and the nut; of a protecting ring or band at the outer point of the hub; means carried by the hub and within the protecting ring or band for locking the nut and wheel-hub together to screw on or off the nut by the turning of the wheel; and means also carried with the hub for retaining said locking means in engagement said means being arranged to be brought to a position for release from the hub by rotative movement of the means.

6. In a hub-attaching device, the combination with the wheel-hub; the spindle; and the nut; of lugs carried with the hub; of a ring as F having the retaining-shoulder f^3 and the releasing-slot f^4; and means carried with said ring F for locking the nut to move with the hub.

7. In a hub-attaching device, the combination with the hub; the spindle; and the nut; of a protecting ring or band at the outer point

of the hub; means carried within said band for locking by longitudinal movement of the means the axle-nut and the hub rotatively together; means brought to a retaining position by rotative movement for retaining said locking means against release by rotative pressure incident to the movement of the hub against the nut in either direction; and a dust-cap secured to said retaining means and provided with finger-grip protrusions covering said locking and retaining means.

8. In a hub-attaching device, the combination with the wheel-hub; the spindle; and the nut; of a protecting ring or band, lugs within said band; a wrench-ring locked by said lugs against rotative movement but free to move longitudinally thereby and having a wrench-socket adapted to engage the nut with the wrench-ring at its inward position; and a cam-ring having a cam-shoulder arranged to be brought into position on said lugs by rotative movement to retain the wrench-ring in its inward position.

9. In a hub-attaching device, the combination with the wheel-hub; the spindle; and the nut; of a protecting-band; lugs within said band; a wrench-ring locked by said lugs against rotative movement but free to move longitudinally thereby and having a wrench-socket adapted to engage the nut with the wrench-ring at its inward position; a cam-ring having a cam-shoulder arranged to be brought into position on said lugs by rotative movement to retain the wrench-ring in its inward position; and a spring arranged to press outwardly on the wrench-ring.

10. In a hub-attaching device, the combination with the wheel-hub; the spindle; and the nut; of a protecting-band; lugs within said band; a wrench-ring locked by said lugs against rotative movement but free to move longitudinally thereby and having a wrench-socket adapted to engage the nut with the wrench-ring at its inward position; a cam-ring having a cam-shoulder arranged to be brought into position on said lugs by rotative movement to retain the wrench-ring in its inward position and a dust-cap secured to or formed integrally with said cam-ring.

11. In a hub-attaching device, the combination with the wheel-hub; the spindle; and the nut; of a protecting ring or band; lugs within said band; a wrench-ring locked by said lugs against rotative movement but free to move longitudinally thereby and having a wrench-socket adapted to engage the nut with the wrench-ring at its inward position; and a cam-ring having a retaining-shoulder which is seated on said lugs to retain the cam and wrench rings in their outward positions and provided with a cam-shoulder arranged to be brought into position on said lugs to retain the wrench and cam rings in their inward positions.

12. In a hub-attaching device, the combination with the wheel-hub; the spindle; and the nut; of a protecting ring or band; lugs within said band; a wrench-ring locked by said lugs against rotative movement but free to move longitudinally thereby and having a wrench-socket adapted to engage the nut with the wrench-ring at its inward position; a cam-ring having a retaining-shoulder which is seated on said lugs to retain the cam and wrench rings in their outward positions and provided with a cam-shoulder arranged to be brought into position on said lugs to retain the wrench and cam rings in their inward positions; and a spring arranged to press outwardly on said wrench-ring at both its inward and outward position.

13. In a hub-attaching device, the combination with the wheel-hub; the spindle; and the nut; of a protecting ring or band; lugs within said band; a wrench-ring locked by said lugs against rotative movement but free to move longitudinally thereby and having a wrench-socket adapted to engage the nut with the wrench-ring at its inward position; and a cam-ring having a retaining-shoulder which is seated on said lugs to retain the cam and wrench rings in their outward positions and provided with a cam-shoulder arranged to be brought into position on said lugs to retain the wrench and cam rings in their inward position and also having a releasing-slot by way of which the cam-ring may be released from said lugs and the hub.

14. In combination with the wheel-hub; and the spindle-bearing; of a protecting ring or band carried by the hub at the outer end thereof; lugs within said ring or band; and a dust-cap and cam-ring F carried with the hub and having the retaining-shoulders f^3 and releasing-slots f^2 for the purposes set forth.

15. In combination with the wheel-hub; and the spindle-bearing of a protecting ring or band carried by the hub at the outer end thereof; lugs within said ring or band; a dust-cap and a cam-ring F carried with the hub and having the retaining-shoulders f^3 and releasing-slots f^2 for the purposes set forth; and a spring arranged to press outwardly on said dust-cap to seat the retaining-shoulders on the lugs.

16. In a wheel-attaching device, the combination with the wheel-hub; the spindle; the nut; and the point-band at the outer end of the hub; of a ring carried by the hub and secured to and fixed therewith and forming an extension to the hub-band; and means carried within said ring for locking the wheel-hub and nut together to screw on or off the nut.

17. In a wheel-attaching device, the combination with the wheel-hub; the spindle; the nut; and the point-band at the outer end of the hub; of a ring carried by the wheel-hub and locked against axial movement relatively to the hub by means independent of the point-band and arranged to form an extension to the point-band; and means carried within said ring for locking said ring with the nut for the purposes set forth.

18. In a wheel-attaching device, the combination with the wheel-hub; the spindle; the nut; and the point-band at the outer end of the hub; of a ring carried by the wheel-hub and locked against axial movement relatively to the hub by means independent of the point-band and arranged to form an extension to the point-band; and means carried within and by said ring for locking said ring with the nut for the purposes set forth.

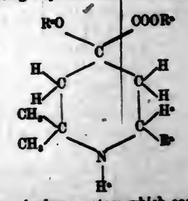
591,482. BALL-BEARING. William H. Makupham, Princeton, Ill. Filed Feb. 23, 1897. Serial No. 624,867. (No model.)



Claim.— The combination of an axle, an axle-box mounted thereon and provided at each end with an interior annular recess, a ball-cup detachably connected to the axle at each end of the axle-box and locked against rotary movement on the axle, cones at the ends of the axle-box, each having a stem portion fitting into the recess at its end of the axle-box and being locked to the box to turn with it, said cones engaging the working faces of the balls, and a screw in the end of the axle provided with a flat head to cover the joint between the axle and the ball-cup at its end and lock the latter against longitudinal movement on the former, substantially as described.

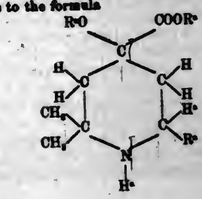
591,488. COMPOUND OF GAMMA-OXYPIPERIDIN-CARBOACIDS AND PROCESS OF MAKING SAME. Georg Merling, Berlin, Germany. Filed Sept. 13, 1895. Serial No. 562,437. (Specimens.)

Claim.—1. As new chemical products, compounds of gamma-oxypiperidin-carboacids which are mostly colorless crystals containing acidyl as well as alkyl groups and whose composition corresponds to the formula



wherein H^a signifies a hydrogen atom which can be replaced by an alkyl group, R^b an acidyl group, and R^a an alkyl group, said compounds in the form of free bases being nearly insoluble in water, adapted to combine with inorganic and strong organic acids to form corresponding salts, the hydriodates being almost insoluble in water, while by continued boiling of said compounds with alkalies the acidyl and alkyl groups are split off thereby forming the corresponding acid and alcohol and regenerating gamma-oxypiperidin-carboacid, substantially as set forth.

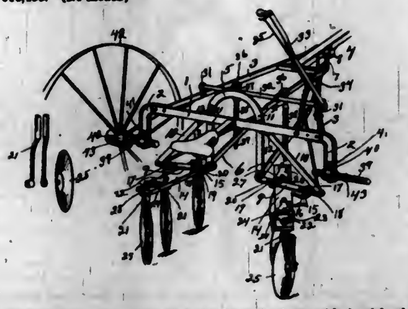
2. The process of manufacturing gamma-oxypiperidin-carboacids containing acidyl as well as alkyl groups and whose composition corresponds to the formula



in which H^a signifies a hydrogen atom, which can be replaced by an alkyl group, R^b an acidyl group and R^a alkyl groups, which consists in combining triacetonamin and its analogous combinations, as for instance benzaldiacetonamin, vinyl-diacetonamin, with hydrocyanic acid, and then saponifying the so-obtained cyanhydrins (nitryls), substantially as described.

3. In a process of manufacturing compounds of gamma-oxypiperidin-carboacids containing both acidyl and alkyl groups, the step of heating gamma-oxypiperidin carboacid, with both acidyl and alkyl reagents, whereby the acidyl and alkyl groups are introduced into combination with the gamma-oxypiperidin-carboacid, substantially as set forth.

591,484. DISK CULTIVATOR. Charles B. Miller, Canton, Ohio, assignor to Eli Miller, same place. Filed Jan. 6, 1897. Serial No. 618,153. (No model.)



Claim.—1. The combination of the axle 1, provided with the spindle portions 2, spindles adjustably connected to the spindle-bearing portions, an arched connecting-bar located between the spindles and provided with the lateral arms 9, hinged to said arched connecting-bar, and means for adjusting the head-blocks and their disks at an angle to the hinged arms, substantially as and for the purpose specified.

2. The combination of an axle provided with traveling wheels, a connecting-bar having attached to the bottom or lower ends thereof hinged arms, head-blocks connected to the hinged arms, disk-yokes provided with segmental arms provided with teeth, retaining-blocks having attached thereto handle-bars, and springs located around said handle-bars, and disks journaled to the yokes, substantially as specified.

3. The combination of an axle having adjustably attached thereto spindles provided with traveling wheels, an arched connecting-bar independently attached to the truck or frame of the cultivator, hinged arms connected to the lower ends of the arched connecting-bar, head-blocks having journaled thereto disk-yokes provided with disks, and means for adjusting and holding the disks vertically or at an inclination to a vertical line, substantially as and for the purpose specified.

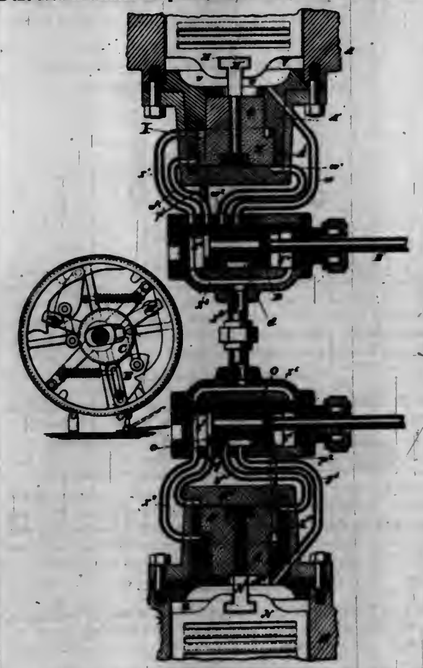
4. The combination of the head-blocks 14, carried by the hinged arms 9, disks carried by said head-blocks and independently adjustable to a line oblique to the line of draft, and adjustable in unison vertically, and means for holding said disks at the desired points of adjustment, substantially as and for the purpose specified.

591,485. STEAM-ENGINE. Matthew R. Moore, Indianapolis, Ind. Filed May 13, 1896. Serial No. 591,270. (No model.)

Claim.—1. In a valve-motion for steam-engines, a trunk-cylinder and a trunk-piston, and connections from the latter to a main valve of the engine, in combination with passages for steam, admitting constant pressure to the smaller face of the trunk-piston, and means as an action-valve with ports and passages for alternately admitting and releasing the steam-pressure to and from the larger face of the trunk-piston to operate the main valve, together with variable mechanism operating the action-valve by the motion of the engine, substantially as herein specified.

2. In valve-actuating gear for steam-engines, a trunk-cylinder containing a trunk-piston adapted to be driven alternately in opposite directions by the pressure of steam on one of the end faces and on an annular area at the waist, connected with a main valve and with an action-valve, and variable mechanism as a shifting eccentric C and with means as the governor B for variably operating the action-valve by the motion of the engine, all combined and arranged for joint operation as herein specified.

3. In a valve-actuating gear for steam-engines, a trunk-cylinder containing a trunk-piston adapted to be driven alternately in opposite directions by the pressure of steam on one of the end faces controlled by ports and passages and the action-valve D, the said trunk cylinder and piston forming at the waist an annular area, together with ports and passages x' and y', communicating with said area, and with the action-valve, and adapted to be closed to enable the steam in the area to cushion the piston, substantially as herein specified.



4. In valve-actuating gear for steam-engines, a trunk-piston working in a trunk-cylinder having ports w^3 and x', arranged to cushion the steam and cause such piston to be arrested gently at the end of its movement, the piston being connected with a corresponding main valve in combination with an action-valve, variable mechanism as a shifting eccentric C, and means as a governor B for variably operating the action-valve by the motion of the engine arranged for joint operation as herein specified.

5. A valve-motion for steam-engines comprising two trunk-pistons working in corresponding trunk-cylinders and connected to two main valves of the engine, and provisions as the shifting eccentric and governor and connections to the steam action-valve D, and exhaust action-valve O, and the requisite ports for operating one by the pressure of live steam and the other by the pressure of the exhaust from the first, all substantially as herein specified.

6. A valve-motion for steam-engines, comprising four separate main valves, and four operating-pistons therefor, working in four corresponding cylinders, and four action-valves for operating such pistons from a single shifting eccentric, in combination with each other and with a governor and provisions as the nuts O^3, O^4, for independently adjusting the position of each action-valve relatively to such eccentric, all arranged for joint operation substantially as herein specified.

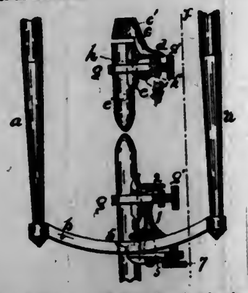
591,486. CARBON-HOLDER FOR ARC-LIGHTS. Oscar S. Moss, Syracuse, N. Y. Filed Jan. 28, 1897. Serial No. 621,054. (No model.)

Claim.—1. A carbon-holder comprising a top adapted to receive a lamp-rod, and having an inner convex bearing-surface, a side piece having both faces concaved, one of which is adapted to engage with the carbon, and the other with the inner face of the top, and means for holding them and the carbon together.

2. A carbon-holder comprising a top adapted to receive a lamp-rod, and having a laterally-projecting housing, an inner convex bearing-surface, a side piece having both faces concaved, one of which is adapted to engage with the carbon and the other with the inner face of the top, and means for holding them and the carbon together.

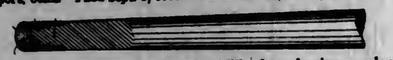
3. A carbon-holder comprising a top adapted to receive a lamp-rod, and having a laterally-projecting housing, a lower extension provided with lugs, said extension having an inner convex bearing-surface, a side piece having laterally-extending lug or lugs and both faces concaved, one of which is adapted to engage with the carbon

and the inner face of the top, and means for holding them and the carbon together as set forth.



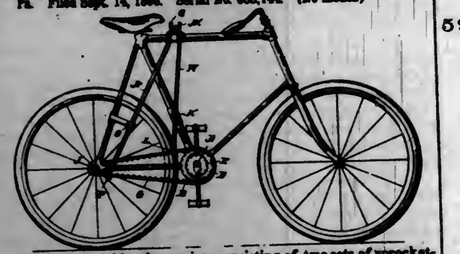
4. A carbon-holder comprising a bracket having a lower extending foot, and means for securing said foot to the cross-piece of the lamp, said bracket having a portion of its upper inner face convexed, a side piece having its faces concave and adapted to engage with the carbon and the inner face of the bracket, and means for holding them and the carbon together as set forth.

591,487. TIP FOR BILLIARD-CUES. GUSTAVE MÜLLER, Bridgeport, Conn. Filed Sept. 3, 1896. Serial No. 604,753. (No model.)



Claim.—In the combination of a billiard-cue having a reduced extension on the end thereof, plates having teeth on the inner side adapted to engage said extension, a strong rubber band passing over said plates, a tip having a cylindrical projection on its inner side and adapted to be engaged by said plates, substantially as described.

591,488. BICYCLE-GEARING. SAMUEL MCMULLIN, Philadelphia, Pa. Filed Sept. 14, 1896. Serial No. 605,744. (No model.)



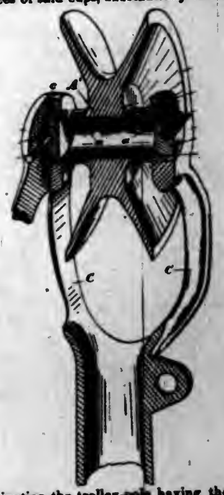
Claim.—1. A bicycle-gearing, consisting of two sets of sprocket-wheels, each set having two concentric wheels of different diameters and an eccentric wheel interposed therebetween, said eccentric wheel adapted to act as a rider, and the chain which may be shifted from one wheel to the other, as specified.

2. A bicycle-gearing, consisting of two sets of wheels, each set composed of two concentric sprocket-wheels and an eccentric sprocket-wheel interposed therebetween, the periphery of the last-named wheel lying tangentially to both of the first-named wheels, a series of notches formed in the wheels, and a chain having projections for engagement with said notches, as specified.

3. The herein-described combination of two sets of wheels, one carried by the crank-shaft of a bicycle and the other by the hub of the rear wheel of said machine, each set being composed of two concentric wheels of different diameters, said wheels being arranged reversely relative to the wheels of the other set and an eccentric wheel interposed between the wheels of each set and so disposed that its periphery passes into the same plane as the peripheries of the concentric wheels, notches formed in said wheels, a chain composed of links adapted to pass around the wheels, and lugs formed with the links of the chain for engagement with the notches in the wheels, substantially as and for the purpose set forth.

591,489. TROLLEY-WHEEL. RICHARD S. MCPHAIL, Toronto, Canada. Filed May 18, 1896. Serial No. 591,963. (No model.)

Claim.—1. In combination the trolley-pole having forked ends, cups immovably secured in said ends, a hollow axle journaled in said cups, oil-conduits running obliquely through said ends and cups, and discharging directly into said hollow axle, the filling end of said conduit being located in the outer face of the forked ends, said axle having distributing oil-conveying notches in the body thereof leading from its interior to its exterior, said notches extending full width of the bearing-surfaces of said cups, substantially as described.



2. In combination the trolley-pole having the forked end, cups immovably secured in said forks, a trolley-wheel, a hollow axle immovably secured within the hub of the wheel and extending outwardly beyond the faces of the hub at each end and journaled in said cups, and oil-distributing notches located outside the faces of the hub in the axle and designed to lubricate the outer peripheral surfaces of the axle which rotates within the cups.

591,490. FITTING FOR GLOW-LAMPS. FRIEDRICH PALM, Nuremberg, Germany. Filed May 10, 1897. Serial No. 635,980. (No model.)



Claim.—1. A holder for glow-lamps consisting of the insulated socket provided with pressure-fingers for each terminal, in combination with the naked main wires properly spaced apart.

2. A holder for glow-lamps consisting of the insulated socket provided with spring pressure-fingers for each terminal, said fingers being provided with outwardly-curved portions near their ends, in combination with the naked main wires suitably spaced apart which are securely grasped by the said spring pressure-fingers.

591,491. ELECTRIC SWITCH. JOSEPH W. PARKIN, Philadelphia, Pa. Filed Jan. 21, 1897. Serial No. 620,080. (No model.)

Claim.—1. In an electric switch, a disk, a contact-strip mounted thereon, one end of which projects through said disk, a plurality of auxiliary contact-strips supported on said disk, and each having an end projecting therethrough, a second disk rotatably supported, and a contact-plate mounted on said last-mentioned disk, which is adapted to contact with said contact-strips and close the circuit.

2. In an electric switch, a disk, a main contact-strip thereon, a series of auxiliary strips on said disk, a second disk, contact-strips thereon, conductors leading therefrom, an intermediate disk, contact-plates on said intermediate disk and having a portion which is adapted to contact with said strips and means for rotating said intermediate disk.

3. In an electric switch, an upper disk having a main contact-strip D attached thereto, the free end of the latter projecting through a recess in said disk, a plurality of auxiliary contact-strips H', supported on said disk and having their free ends H, projecting therethrough, a disk W rotatably supported and having a ring attached thereto, having the wide and narrow portions Z, Y, and means for rotating and locking said disk.

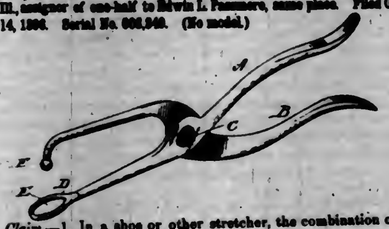


4. In an electric switch, an upper disk having a main contact-strip D and series of auxiliary contact-strips H', a lower disk J', having a series of contact-strips N', said strips H', N' having conductors leading therefrom to the lamps to be lighted, an intermediate disk W provided with rings Y, C', on either side thereof, said rings being provided with widened portions C, D' and being in electrical communication with each other, and means for rotating said disk W.

5. In an electric switch, an upper and lower disk A, J', an intermediate disk W, the above being constructed with suitable non-conducting material, a main contact-strip B and a series of auxiliary contact-strips H', supported upon said upper disk and having their free ends projecting therethrough, a series of auxiliary contact-strips N' supported upon the lower disk J' and having their ends projecting therethrough, rings Y, Z, and C, D' located on opposite sides of said disks W and in electrical communication with each other, a recess E' in one side of said disk W, a stem H' adapted to pass through an opening in said disk J' and a pin G', which latter is adapted to engage said recess E', and means for holding said disks in assembled position and for locking said intermediate disk.

6. In an electric switch, an upper and lower disk A, J', a main contact-strip D supported on said upper disk and having auxiliary contact-strips H' supported thereon, their free ends projecting therethrough, an intermediate disk W located adjacent said disk A, and having a corrugated periphery with ridges of various thickness on opposite sides thereof and in electrical communication with each other, a resilient arm R having a roller supported therein and adapted to contact with the corrugated periphery of said disk W, a lower disk J', having auxiliary contact-strips N' attached thereto, the free ends of said strips projecting through said disk, means for rotating said disk W and means for holding said disks in assembled position.

591,492. SHOE-STRETCHER. CHARLES L. PARSONS, Fulton, Ill., assignor of one-half to Edwin L. Passmore, same place. Filed Oct. 14, 1896. Serial No. 608,949. (No model.)



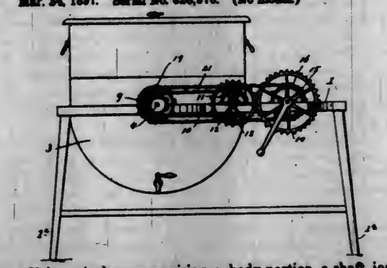
Claim.—1. In a shoe or other stretcher, the combination of a pair of pivoted members provided respectively with a female member or ring and a male member or plunger.

2. In a leather-stretcher, the combination of a face D provided with a bottomless opening E said face being adapted to be placed on one side of the leather, and a knob F of smaller diameter than the opening E adapted to be placed on the opposite side of said leather, and to be forced into said opening or through it, carrying said leather with it, and thereby locally stretching the latter, substantially as shown and for the purpose described.

3. In a leather-stretcher, the combination, of a pair of levers pivotally secured together, one end of one of which is provided with a ring and the corresponding end of the other one is provided with a knob of less size than the ring and adapted to be passed entirely through the same, whereby the amount of pressure to be applied to the material may be varied, substantially as set forth.

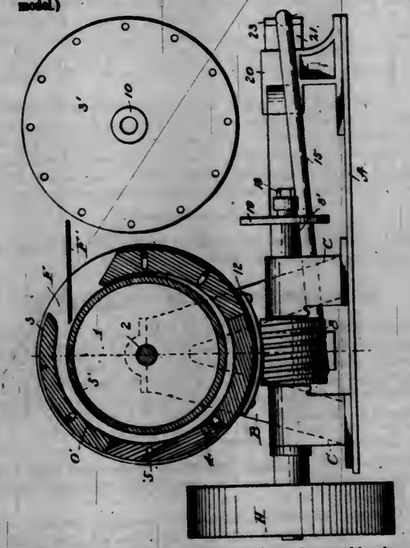
4. In a leather-stretcher, the combination, with a pair of levers pivotally secured together near one end, of a ring detachably secured to one end of one of the levers, and a knob detachably secured to the corresponding end of the other one, said knob being of a less size than the diameter of the ring and adapted to be passed entirely through the same, substantially as set forth.

591,493. CHURN. OTTO B. PAULSEN, New York, N. Y. Filed Mar. 24, 1897. Serial No. 628,976. (No model.)



Claim.—A churn comprising a body portion, a shaft journaled therein and having a reduced portion near the outer face thereof, sleeves movably mounted on the said reduced portions of the shaft, the enlarged portion and the said sleeves of the shaft being formed with radially-arranged parallel pairs of ears, inside dashers secured in the ears on the shaft and rotatable in one direction therewith, outside dashers of greater dimension surrounding the inside dashers and secured to the ears on the sleeves, one of the said sleeves being formed with depressions in its one edge, a sleeve mounted on one of the reduced portions of the shaft and having its inner edge formed with teeth and engaging the depressions in the adjacent sleeve to which a portion of the outside dashers are attached, a gear-wheel keyed to said last-mentioned sleeve, a gear attached to the outer reduced portion of the shaft, driving-gears having sprocket-wheels in connection therewith, and chains surrounding the sprocket-wheels and the gears of the shaft and sleeve, the end of the shaft opposite to that at which the driving mechanism is located being formed with a collar by reducing the shaft at this point to limit the movement of the dasher-sleeve and also of the shaft itself, substantially as described.

591,494. DISINTEGRATING-MACHINE. GOLDSBURY H. POND, Ashburnham, Mass. Filed May 25, 1896. Serial No. 593,091. (No model.)



Claim.—1. In a disintegrating-machine, the combination with the rotatable cylinder having a roughened surface, and the vibrating casing surrounding the same, having a roughened eccentric and adjustable surface, of means for vibrating and rotating said casing and cylinder, substantially as described.

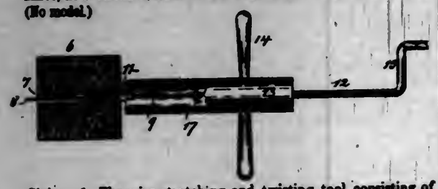
2. In a disintegrating-machine, the combination with the rotatable cylinder and means for rotating the same and said cylinder formed with a roughened surface, of the vibrating casing surrounding said rotating cylinder consisting of the end heads, the adjustable and eccentric segments having roughened surfaces and formed with slots in the ends, the screws passing through said heads and ends for adjusting the segment to and from the rotating cylinder, and means for actuating the vibrating casing, substantially as described.

3. In a disintegrating-machine, the combination with the roughened cylinder, the rotatable shaft, the worm-wheel, the pinion meshing therewith and the shaft to which said pinion is secured, of the adjustable cylindrical casing having a roughened inner surface, the end heads secured thereto, journaled on said cylinder-shaft, the grooved depending lug, the rectangular frame engaging therewith, the block, the toggle-levers, the crank-shaft and block and the wrist-pin and disk, substantially as described.

4. In a disintegrating-machine, the combination with the roughened cylinder, the rotatable shaft, the worm-wheel, the pinion meshing therewith and the shaft to which said pinion is secured, of the cylindrical casing having a roughened inner surface, the end heads secured thereto journaled on the cylinder-shaft, the grooved depending lug, the rectangular frame engaging therewith, the block, the grooved plate, the spring-buffer, the toggle-levers connected with said lug and slide by ball-and-socket joints, the crank-lever, the block thereon with which said levers are also connected by ball-and-socket joints, the wrist-pin and the crank, substantially as described

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591,495. WIRE-STRETCHING IMPLEMENT. ABRAHAM B. PROSSER, near Lebanon, Ohio. Filed May 3, 1897. Serial No. 634,903. (No model.)



Claim.—1. The wire stretching and twisting tool consisting of the combination of a barrel 13, a screw 12 within, the two mounted on each other in a manner to permit independent rotation for each on the other, and locking means at the inner end of the screw adapted to permit temporary connection of the wire loop thereto, the end of the barrel resting against the post when the tool is in position to permit the locking means to draw the end of the wire into the barrel.

2. The wire stretching and twisting tool consisting of the combination of a barrel 13 having handles 14, screw 12 mounted in one end of the same, a handle 15 at its outer end and locking means at the inner one, adapted to permit temporary connection of a wire loop thereto.

3. The wire stretching and twisting tool consisting of the combination of a barrel 13, a screw 12 within the same, the two mounted on each other in a manner to permit independent rotation for each on the other and a hook 17 at the free end of the screw, the wire being stretched by operating screw 12 in a manner to cause hook 17 to move into the barrel while the end of the latter rests against the post.

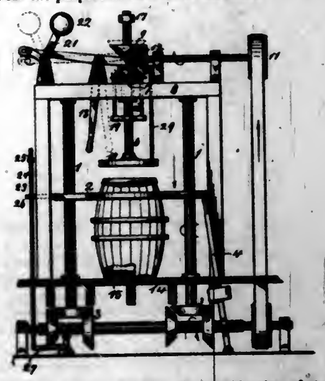
591,496. LINGO. HOLDEN RIGBY, Paterson, N. J. Filed May 18, 1897. Serial No. 637,095. (No model.)



Claim.—A lingo or heddle-weight consisting of a body having means for connecting a tail-cord thereto, said means consisting of side flaps bent toward each other, the metal at the top between the flaps being thicker than the lower portion thereof to thereby form a conical seat for the tail-cord and a reinforce for the head of the lingo, substantially as described.

591,497. BARREL-HOOPING MACHINE. ALEXANDER T. S. ROSSELOT, Cincinnati, Ohio. Filed Nov. 24, 1896. Serial No. 613,329. (No model.)

Claim.—1. The combination in a barrel-hooping machine of an independently-mounted stave-compressing device, operated by independent motive mechanism adapted to lower and raise the same independently, of a form adapted to encircle the outside of the barrel and uniformly compress the staves about the head in downward movement upon the barrel, and an independently-mounted hoop-driving device operated by independent motive mechanism, adapted to lower and raise the same independently of and separately from the stave-compressor or its motive mechanism, of a form adapted to bear upon the outer edge of the hoop in driving same, and strike the end of the barrel after the hoop is driven, for the purpose of holding the barrel to place during the retractive movement of the stave-compressor without displacing the hoop, together with suitable mechanism for such independent operation of each device, suitable framework for support and means for operating the mechanism, substantially in the manner and as and for the purpose as shown and described.



2. In a barrel-hooping machine the combination of stave-compressing device 2, in the form of a solid ring of suitable diameter, width, and thickness, mounted in a manner adapted for reciprocation with suitable mechanism for the independent operation thereof reciprocatively, for the purpose of compressing the staves about the head of the barrel in downward movement, and hoop-driving device 10, in the form of a plate or platen of sufficient diameter to bear upon the outer edges of the hoop in driving same, and adapted to strike the end of the barrel after the hoop is driven, for the purpose of holding the barrel while the stave-compressor is withdrawn, without displacing the hoop, mounted in a manner adapted for reciprocation, with suitable mechanism for the independent operation thereof reciprocatively, together with suitable framework for supporting each device and its mechanism, and suitable means of operation for the independent mechanism attached to each form of device, substantially as shown and described.

3. In a barrel-hooping machine, the combination of stave-compressor 2, mounted in a manner adapted for reciprocative movement upon screws 1, 1, of a form adapted to uniformly compress the staves about the head by its downward movement for the purpose of driving a hoop upon the end of the barrel, while so compressed, and hoop-driver 10, mounted in a manner adapted for reciprocative movement upon screw 6, of a form adapted to drive the hoop by bearing upon its outer edge and strike the end of the barrel when the hoop is driven, for the purpose of holding the barrel without displacing the hoop during removal of stave-compressor, together with means for operating the screws attached to each form of device, suitable framework for support thereof respectively, and suitable mechanism for the operation of each device independently of the other, for the purpose and in the manner substantially as shown and described.

4. In a barrel-hooping machine, the combination of stave-compressor 2, of a form adapted to encircle the outside of the barrel and compress the staves uniformly about the head in downward movement, mounted for reciprocative movement upon screws 1, 1, together with cones 3 with means for the operation and control thereof, and hoop-driver 10, of a form adapted to drive the hoop by bearing upon the outer edge thereof, and strike the end of the barrel after the hoop is driven, mounted for reciprocative movement upon screw 6, provided with nut 7, and rod 29 passing through cross-bar 8, stop-nut 17 adapted to disengage cones 9 and 12 at a predetermined point in descent, and stop-nut 19 adapted to strike pins 20 and disengage said cones 9 and 12 at a predetermined point in ascent of said hoop-driver, means for the operation and control thereof, suitable framework for support, and suitable mechanism for the operation and control of stave-compressor 2 reciprocatively and independently of the hoop-driver, and for the operation reciprocatively, and control of the hoop-driver 10 independently of the stave-compressor, for the purpose of operating each device singly, or both simultaneously, in one direction, or both devices simultaneously in opposite directions, at the will of the operator, substantially in the manner described and shown.

5. In a barrel-hooping machine, the combination of a barrel-centering device mounted in a manner adapted for independent reciprocation, of a form adapted to encircle the outer diameter of the barrel, for the purpose of centering same for driving the hoops, in downward movement, and an independently-operated hoop-driving device, mounted in a manner adapted for reciprocation, of a form adapted to drive the hoop by bearing upon the outer edge thereof, and strike the end of the barrel after the hoop is driven, for the purpose of holding the barrel to place without displacing the hoop, during the retraction of the centering device, together with suitable framework for support, suitable operative mechanism attached to each form of device, and suitable means for operating the mechanism independently, substantially for the purpose as shown and described.

6. In a barrel-hooping machine, the combination of a stave-compressing device mounted in a manner adapted for reciprocation, of a form adapted to encircle the outside of the barrel and uniformly compress the staves about the head thereof in downward movement, together with suitable mechanism for the independent operation thereof reciprocatively, and a barrel-restraining device of a form adapted to bear upon the end of the barrel after the staves are compressed, for the purpose of restraining the same during the removal of the stave-compressor, mounted in a manner adapted for reciprocative movement, together with suitable mechanism for such reciprocative and independent movement, suitable means for operating the mechanism, and suitable framework for support.

591,498. CAR-STARTER. GUILFORD D. ROWELL, Appleton, Wis. Filed Mar. 29, 1897. Serial No. 629,650. (No model.)



Claim.—1. In a car-starter, the combination, of a handle, a member or part having its forward end of substantially I shape in cross-section, the web of said I-shaped end adapted to fit in a recess in the end of the handle and the flanges of the I-shaped end adapted to bear against opposite sides of the handle, a bolt passing through the handle and through the connecting-web of the I-shaped portion of the projecting member or part, and a shoe pivoted to said projecting member or part.

2. In a car-starter, the combination, of a handle formed or provided with a projecting member or part, said member or part provided with a downwardly-projecting lug, and a shoe having a bifurcated portion straddling the projecting member or part and pivoted thereto, the furcate parts on their under edges being connected by a transverse connecting-web which is adapted to be contacted with by the downwardly-projecting lug, whereby the extent of down pressure on the handle is regulated.

3. In a car-starter, the combination, of a member adapted to engage a car-wheel, and provided on its under side, near its forward end, with a recess having a beveled shoulder at one end, a spur provided with a plurality of corners or angles, said spur being less in width than the width of the recess, and adapted to have one of its inclined sides bear against the inclined end shoulder of the recess, a plate filling up the remaining width of the recess and adapted to bear against and hold the spur against the shoulder, and a bolt removably holding the plate in position.

4. In a car-starter, the combination, of a member adapted to engage a car-wheel, a spur provided with a plurality of corners or angles and adapted to be placed against a shoulder on the under side of the member, a plate bearing against the spur to hold said spur against the shoulder, a screw-bolt passing through the plate, and a spring-plate having its free edge normally extending down beyond the point of the spur, and having its opposite edge clamped between the plate and the under side of the member.

591,499. ELECTRIC DENTAL MALLET. PERCY RUSSELL, New Market, Md., assignor of one-half to Isaac S. Russell, same place. Filed Oct. 6, 1896. Serial No. 608,099. (No model.)

Claim.—1. In an electromagnetic dental mallet or similar tool having a helix surrounding a hollow iron core, the combination of the mallet-stem passing axially through said core and consisting of the magnetic part, *d*, and the non-magnetic part, *d'*, with the iron core-hammer, *f*, surrounding the part, *d'*, substantially in the manner described and for the purposes set forth.

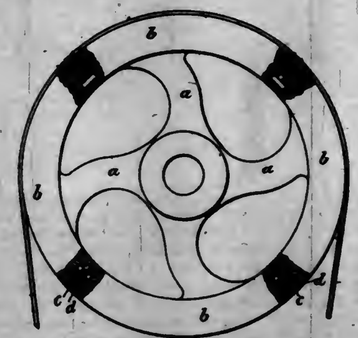
2. In an electromagnetic dental mallet or similar tool, the combination of the contact-screw, *s*, the elastic lever, *q*, mounted upon the pivot-plate, *r*, the helix, *g*, the core-hammer, *f*, the spring, *u*, and the screw, *y*, substantially in the manner and for the purposes described.

3. In an electromagnetic dental mallet or similar tool the combination of the annular head, *w*, the plate, *r'*, the helix-terminal, *w''*, the screw, *r''*, and binding-post, *t'*, substantially in the manner described and for the purposes set forth.

591,499.



591,500. DEVICE FOR PREVENTING SLIPPING OF BELTS. FRANZ SCHIEMEN, Hennef, Germany. Filed Mar. 29, 1897. Serial No. 629,902. (No model.)

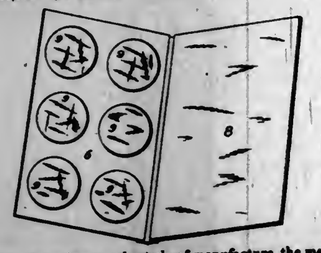


Claim.—1. As a means for preventing a belt slipping on a pulley on the latter surpassing a certain maximum of speed, the combination with the pulley and the belt passing around its rim, of movable pieces held by said pulley and adapted to protrude beyond the rim and to lift the belt off said rim under the influence of centrifugal force arising on the maximum of speed being surpassed.

2. As a means for preventing a belt slipping on a pulley on the latter surpassing a certain maximum of speed, the combination with the pulley and the belt passing around its rim, of movable pieces held by said pulley and protruding beyond the rim, and springs tending to keep said pieces in this position; said springs having a strength allowing of being overcome by the pressure of the belt upon the protruding pieces at any speed below said maximum.

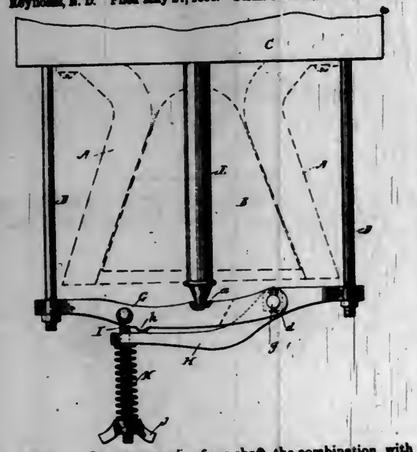
3. As a means for preventing a belt slipping on a pulley on the latter surpassing a certain maximum of speed, the combination with the pulley and the belt passing around its rim, of bolts arranged radially within said rim, and adapted to glide within suitable guides, substantially as described.

591,501. MEANS FOR MENDING INNER TUBES OF BICYCLE-TIRES. ARTHUR V. SCHOONOVER, Denver, Colo., assignor of one-half to Wm. R. Wilcox, Steamboat Springs, Colo. Filed Oct. 8, 1896. Serial No. 608,315. (No model.)



Claim.—As an improved article of manufacture, the means herein described to facilitate the mending of pneumatic tires and other rubber goods, said means comprising a backing of cardboard or other material of sufficient stiffness for the purpose, and a layer or thickness of the patching material applied to said backing in such a manner that the adhesion between the patch and the backing is less than that between the tire and the patch, whereby the backing may be removed after the patch is applied to the tire.

591,502. END BEARING FOR SHAFTS. PETER A. SCHUMACHER, Reynolds, N. D. Filed May 27, 1896. Serial No. 593,356. (No model.)

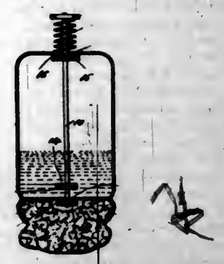


Claim.—1. In a step-bearing for a shaft, the combination, with a lever G pivotally supported at one end and provided with a forked portion at its other end, a recess in its upper side for the end of the shaft to run in, and a stop on its under side; of a lever H pivotally supported at one end and pivoted in the said forked portion and bearing against the said stop; a rod connected to the lever G and passing through a hole in the free end of the lever H, an adjusting-nut on the lower part of the said rod, and a spring arranged between the said nut and the lever G, substantially as set forth.

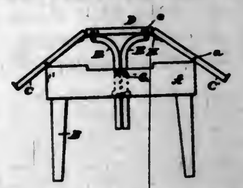
2. In a step-bearing for a shaft, the combination, with a lever G pivotally supported at one end and extending under and supporting the shaft; of a lever H pivotally supported at one end, pivoted to the free end of the lever G, and also extending under the said shaft; and a spring supported by the lever G and operating to press the free end of the lever H against the lever G, substantially as set forth.

591,503. DEVICE FOR CLEANING SLATES. JOHN G. SCHWENFURTH, Birmingham, Ala. Filed May 6, 1897. Serial No. 635,372. (No model.)

Claim.—A device for cleaning slates or other articles, consisting of a casing which is provided with ports or passages at both ends, means for connecting a sponge or similar article with one end thereof, a spring-operated valve-rod passing longitudinally through said casing, and through said ports or passages at each end thereof, that end of said rod which passes through the end of the casing with which the sponge is connected, being provided with a valve which is mounted thereon outside of said casing, and said rod being also provided with a valve which is mounted thereon adjacent to the opposite end of said casing, and inside thereof, said valves being adapted to close said ports or passages in each end of said casing, and said rod being also provided within said casing and adjacent to the end thereof with which the sponge is connected, with a supplemental valve, substantially as shown and described.



591,504. DISPLAY-TABLE. CHARLES A. SHAFFER, Indianapolis, Ind. Filed Feb. 18, 1897. Serial No. 623,383. (No model.)



Claim.—1. In a display-table, a top divided longitudinally into two equal parts and hinged to the frame of the table whereby lateral movement and vertically-swinging movement of the parts will be secured, and a third section of the top hinged to the frame whereby it can be dropped between and below the two first-mentioned sections when the table-top is at its minimum width or raised into a position between and on a level with said first-mentioned sections to produce the maximum width of top or raised above the normal top of the table substantially as shown and described and for the purposes specified.

2. In a display-table, a top divided longitudinally into two equal parts and hinged to the frame of the table whereby lateral movement and vertically-swinging movement of the parts will be secured, and a third section underlying the two above-mentioned sections when the top is at its minimum width, said third section being connected with the frame of the table by standards as described whereby it can be maintained above the table-frame, and means for removably securing the middle section to the two outside sections, all substantially as described and for the purposes specified.

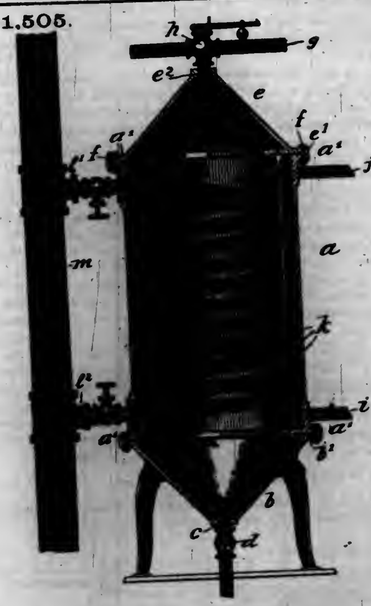
3. In a display-table, the combination with the frame supported by legs, of the sections C and C' forming the top, said sections having transverse grooves covered with longitudinally-slotted plates and the frame having knobs to engage the slotted plates as described, plates F secured to the ends of the frame and having the loop *f*, and vertical web *f'*, standards E having curved ends as shown and terminating with eyes to which buttons *e*, are pivotally secured and the auxiliary section of the table-top D with transverse grooves covered with slotted plates, the buttons *e* engaging the slotted plates, substantially as shown and for the purposes specified.

591,505. WATER HEATER AND PURIFIER. WILBUR L. SHEPARD and ERASTUS W. WHITLOCK, Elmwood, Conn. Filed Dec. 12, 1863. Serial No. 493,547. (No model.)

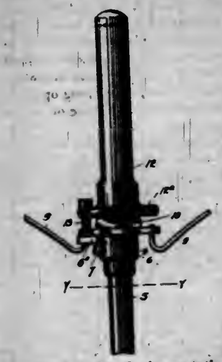
Claim.—1. In combination in a water-heater, the shell, a cone-shaped cap secured to and with its axis in line with the axis of the shell and forming a tapered scum-chamber, a coil of pipes arranged within the shell, and a blow-off pipe extending through the wall of the tapered cap at the highest part of the chamber, and with its axis in line with the axis of the cap and shell, all substantially as described.

2. In combination in a water-heater, a shell, a cone-shaped cap secured to and with its axis in line with the axis of the shell and forming a tapered chamber, a coil of pipes arranged within the shell, a blow-off pipe extending through the wall of the tapered cap at the highest part of the chamber and with its axis in line with the axis of the cap and shell, and an outlet from the shell located below the line of water-level in the boiler.

591,505.



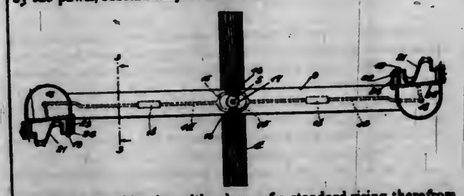
591,506. BURNER FOR GASOLENE-LAMPS. ABRAHAM M. SOUTHARD, Denver, Colo. Filed Apr. 12, 1897. Serial No. 631,896. (No model.)



Claim.—The combination with the inner stationary tube having its free extremity perforated, of a sleeve detachably applied to said tube at a suitable distance below its perforated extremity, the upper portion of said sleeve being exteriorly threaded, the sleeve being also provided with separated lugs located below its threaded portion, the outer movable tube perforated to register with the perforated portion of the inner tube, the perforated tube extremities being constructed to fit closely together to form a gas-tight joint when the tubes are relatively adjusted to bring their orifices out of line with each other, the base of the outer tube being interiorly threaded and screwed upon the threaded portion of the detachable sleeve, the lower portion of the outer tube having a collar provided with a threaded aperture, a screw inserted in said aperture and projecting downwardly between the separated lugs of the sleeve allowing a limited movement of the outer tube, as and for the purpose set forth.

591,507. CAROUSEL. PETER J. SPRACKLEN, Kenton, Ohio, assignor to Bessie W. Thomson, same place. Filed Dec. 11, 1896. Serial No. 615,235. (No model.)

Claim.—1. The combination with a base, of a standard rising therefrom, two beams intermediately mounted to turn on the standard, the beams being connected at each end by means of two vertical braces, an arm projecting downwardly and laterally from the upper portion of each brace, a double shaft journaled in the lower portion of each pair of arms, a crank at each end of each double shaft, a link connected to each crank, a T-shaped rod, to two ends of each of which the links are respectively connected, two standards rising from the lower beam and respectively on each side of the standard which rises from the base, a sleeve carried by the upper end of each of the standards on the beam, a rod running through each sleeve, the rods having their outer ends respectively connected to the remaining end of the T-shaped rods, a pawl connected to the inner end of each rod, and two ratchet-wheels fixed on the standard of the base and engaged by the pawls, substantially as described.



2. The combination with a base, of a standard rising therefrom, a frame swinging around the standard, a sleeve held rigidly on the frame, a rod sliding in the sleeve and radially with reference to the standard, a pawl carried by the rod, a ratchet-wheel fixed to the standard, a shaft revolubly mounted in the frame and having two cranks, a T-shaped rod one extremity of which is pivoted to the sliding rod, and two rigid links respectively connected to the cranks and to the remaining ends of the T-shaped rod, substantially as described.

591,508. PUZZLE. JOSEPH H. STAUDER, Osborn, Mo. Filed Feb. 3, 1897. Serial No. 621,533. (No model.)



Claim.—1. A puzzle comprising pockets having contracted throats formed by heads which are of greater breadth than the entrance of said pockets, the entrance to one pocket being diametrically opposite to the head of another pocket and movable bodies adapted to pass from one pocket to the other, substantially as set forth.

2. A puzzle comprising a back, a transparent front or face, an interposed disk formed with a series of annularly-arranged pockets having contracted throats formed by circular heads, the breadth of which is greater than the width of the throats, and the throat of one pocket being diametrically opposite the head of another pocket, substantially as set forth.

591,509. OAR-LOCK. JOHN R. SUPPLE, San Diego, Cal., assignor of three-fourths to R. G. Patterson and H. C. Gordon, same place. Filed Feb. 27, 1897. Serial No. 625,261. (No model.)



Claim.—1. An oar-lock consisting of a yoke having the upper ends of its branches provided with lugs a^2 projecting from their outer sides, in combination with a sleeve having chambered lugs projecting from its outer sides, each lug provided with a flange b^3 inwardly projecting from its lower end, substantially as described.

2. In an oar-lock the combination of a yoke having its upper ends substantially knife-edged and provided with lugs a^2 projecting from their outer sides, with a sleeve having chambered lugs constituting acute bearings, each lug provided with an inwardly-projecting flange on its lower end substantially as described.

591,510. HORSE-FOOT PROTECTOR. JOHN W. THURLOW, Osceola, Iowa. Filed Mar. 1, 1897. Serial No. 625,505. (No model.)

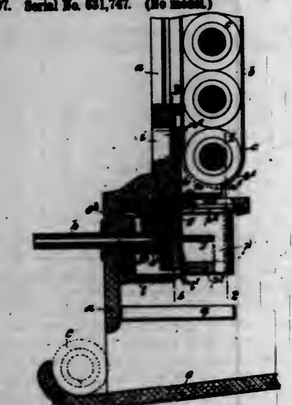


Claim.—1. A foot-protector for horses, comprising a flexible band adapted to be fastened around a foot, and pieces of metal armor fixed on the outside surface of the band, and fastening devices on the ends of the flexible band.

2. A foot-protector for horses consisting of mating curved skeleton metal armor-pieces fixed to a flexible band to produce a hinge-joint between them and fastening devices on the ends of the flexible band for detachably connecting the ends.

3. The armor-pieces A and B, a flexible band consisting of two mating parts corresponding in form with the said armor-pieces and a flexible piece D fixed to the inner ends of the mating parts of the band to produce a hinge-joint between the two end portions and straps and buckles on the free ends of the band, arranged and combined as and for the purposes stated.

591,511. COIN-FREED GOODS-DELIVERY APPARATUS. JOHN TURNER-TURNER, Avon Castle Hotel, Hampshire, England. Filed Apr. 13, 1897. Serial No. 631,747. (No model.)



Claim.—1. In an apparatus for delivering an article in exchange for a coin, a block sliding on guide-rods at its lower part and having a vertical slot through it, normally in line with a slot in an upper sliding plate carrying an ejector, but closed at the bottom by the guide-rods except at the end of the rearward travel of the block, in combination with laterally-movable serrated plates or racks immediately above the vertical slot in the sliding block, which racks are constantly pressed inward toward each other, substantially as and for the purposes described.

2. In an apparatus for delivering an article in exchange for a coin, a compartment adapted to hold articles one above another and having a chute and curved lip at its lower end in combination with a sliding plate having a downwardly-projecting lug or pin, a lateral slot opening at the top and bottom of the plate and carrying an ejector having a rearwardly-curved lower portion and a ledge at its upper part, substantially as described.

3. In an apparatus for delivering an article in exchange for a coin, a compartment adapted to hold articles one above another, a sliding plate having a slot, a downwardly-projecting lug or pin and carrying an ejector, in combination with a block sliding on guides at its lower part and having a vertical slot through it normally in line with the slot in the sliding plate but closed by the guide-rods except at the end of the rearward travel of the block; a forwardly-projecting extension at the upper part of, and a push-rod attached to, the said block, substantially as described.

4. In an apparatus for delivering an article in exchange for a coin, the compartment *b*, for containing articles to be delivered, having a delivery-chute *c* for discharging such articles, and coin-chute *h*, in combination with the device *n* consisting of the plate *n'*, pin or lug n^4 and ejector n^5; the block *e* having a slot *f* and push-rod *k*; the guide-rods *j j* and the racks or plates *p p*, for permitting delivery of such articles in exchange for a coin, substantially as and for the purpose set forth.

5. In apparatus for delivering an article in exchange for a coin, a casing having a coin-slot, in combination with a movable pusher in said casing having a slot normally in line with that of the casing, a movable ejector in said casing having a slot normally in line with that of the pusher, means holding a predetermined coin within the slots of both the pusher and ejector during the movement of said parts requisite to the operation of the latter, and then releasing such coin, a laterally-movable serrated part engaging the coin while so held and preventing return of the pusher during such movement, and means pressing said serrated part against the coin, whereby the coin operatively connects the pusher and ejector, and the serrated part prevents return of the pusher until the ejector has operated.

6. In an apparatus for delivering an article in exchange for a coin, a compartment adapted to hold articles one above another, and having elevating ledges, for preventing the removal of the lowermost article until it has been pushed forward and so raised over such ledges, and having also a delivery-chute, in combination with an ejector for successively delivering such articles, coin-controlled mechanism for operating said ejector, a casing for said parts, said ejector having an upwardly-extending lower portion for receiving and pushing the lowermost article up over such ledges, and means for sustaining the superposed articles while delivering the lowermost from beneath them, substantially as and for the purpose set forth.

591,512. TOOL-HANDLE. CHARLES A. VAUGHN, Vineland, N. J. Filed June 23, 1897. Serial No. 642,626. (No model.)



Claim.—1. A wooden tool-handle provided with a metal ferrule having a thick outer end with a hole or opening therethrough formed partly round and partly angular, combined with a tool the tang of which is provided with round and angular portions corresponding to the round and angular parts of said hole or opening and at the juncture of which round and angular portions of said ferrule and tang are formed shoulders, said tang extending through said hole or opening in the outer end of said ferrule into said wooden handle with the round and angular portions of said tang opposite the round and angular parts of the said hole or opening of the ferrule, substantially as shown and described.

2. A wooden tool-handle provided with a metal ferrule having a thick outer end with a hole or opening therethrough formed partly round and partly angular, combined with a tool the tang of which is provided with round and angular portions corresponding to the round and angular parts of said hole or opening, with shoulders at the juncture of said round and angular portions of said ferrule and tang, said tang extending through said hole or opening in the outer end of said ferrule into said wooden handle with the round and angular portions of said tang opposite the round and angular parts of the said hole or opening of the ferrule, and said ferrule being provided with one or more inwardly-projecting lugs to afford hold of the ferrule on the handle to prevent the former from turning on the latter.

3. A wooden tool-handle provided with a metal ferrule having a thick outer end with a hole or opening therethrough formed partly round and partly angular, combined with a tool the tang of which is provided with round and angular portions corresponding to the round and angular parts of said hole or opening, with shoulders at the juncture of said round and angular portions of said ferrule and tang, said tang extending through said hole or opening in the outer end of said ferrule into said wooden handle with the round and angular portions of said tang opposite the round and angular parts of the said hole or opening of the ferrule, the inner end of said ferrule being beveled or chamfered off internally to enable the ferrule to be driven tightly on the handle without cutting the wood of the latter.

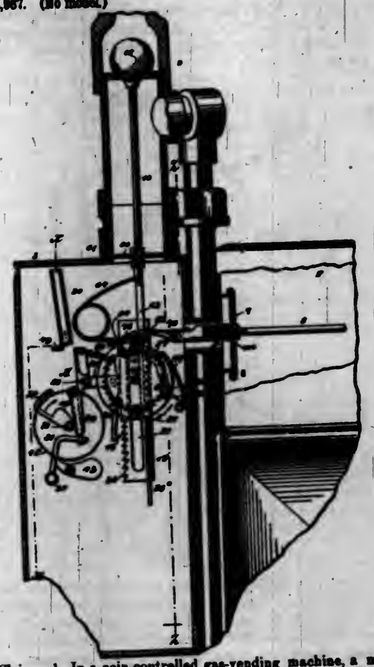
591,513. GRIDDLE. THOMAS A. WATSON, Hudson, N. Y., assignor of one-half to ANN W. LA FRANCE, same place. Filed Dec. 15, 1896. Serial No. 615,723. (No model.)



Claim.—1. A griddle provided with a depending flange, in combination with a central tubular venting-stem capped with a handhold, whereby the griddle may be lifted and manipulated substantially as described.

2. A griddle provided with a depending flange having air-inlet openings, in combination with a tubular venting-stem adapted to be screwed or otherwise fastened in an opening at the center of the griddle, said stem having a non-conductive handle at its top, substantially as described.

591,514. COIN-CONTROLLED GAS-VENDING MACHINE. WESLEY WERNER, New York, N. Y. Filed Aug. 26, 1896. Serial No. 603,967. (No model.)



Claim.—1. In a coin-controlled gas-vending machine, a meter-controlling rack, a pair of pawls operating on the same side of said rack, a metric wheel operated by the meter, and means connected to said metric wheel for successively tripping the said pawls; substantially as described.

2. The combination with the meter-controlling rack and a metric wheel operated by the meter, of two pawls on the same side of the rack, one projecting beyond the other, and means operated by said metric wheel for successively tripping said pawls; substantially as described.

3. In a coin-controlled gas-vending machine, a valve-operating rack held to move longitudinally, formed upon one side with valve-opening notches and formed upon the other side with valve-closing notches, a valve-opening pawl, a pair of pawls arranged to engage with the valve-closing notches, and a metric wheel operated by the meter and provided with means for tripping said pair of pawls; substantially as described

4. In a coin-controlled gas-vending machine, a pivoted coin-carrier formed with channels for temporarily holding a coin therein, a cam for pushing said coin and oscillating said coin-carrier, and a hook arranged to overlap the edge of the coin and to discharge it from said coin-carrier; substantially as described.

5. In a coin-controlled gas-vending machine, a coin-carrier held on stationary pivots and provided with channels for temporarily holding a coin therein, a pair of supports for holding the coin in said carrier, a cam for shoving said coin off from said supports and oscillating said coin-carrier, and a hook arranged to overlap the edge of said coin; substantially as described.

6. In a coin-controlled gas-vending machine, a coin-carrier held on stationary pivots and provided with a valve-opening or meter-releasing lever and formed with channels for temporarily holding a coin therein, a pair of supports for holding the coin in said carrier, a cam for shoving said coin off from said supports and oscillating the coin-carrier, and a hook arranged to overlap the edge of said coin; substantially as described.

7. In a coin-controlled gas-vending machine, a shaft arranged to be rotated through part of a revolution by a knob or crank or handle outside of the box or casing, a spring for completing the revolution, and a hook arranged to span one edge of a coin held in a coin-carrier; substantially as described.

8. In a coin-controlled gas-vending machine, a main casing formed with a coin-slot therein, and having therein a primary coin-retaining chamber open at its bottom, a curtain arranged to be oscillated across said coin-slot and provided with an arm arranged to be oscillated across the bottom of said coin-chamber, in combination with a shaft adapted to be rotated by a crank or handle outside of the said casing and provided with a cam adapted to oscillate said curtain; substantially as and for the purposes specified.

9. In a coin-controlled gas-vending machine, a main casing formed with a coin slot therein, and having therein a primary coin-retaining chamber open at its bottom, a curtain arranged to be oscillated across said coin-slot and provided with an arm arranged to be oscillated across the bottom of said coin-chamber, the said curtain being also provided with another arm arranged to be acted upon by a projection on a rack operated in one direction step by step on the insertion of coins, and in the opposite direction step by step by the action of meter; substantially as described.

10. In a coin-controlled gas-vending machine, a primary coin-chamber fed from a coin-slot in the casing, and a pivoted curtain provided with an arm or plate for closing the bottom of said chamber, in combination with a cam arranged to move said curtain across said coin-slot and withdraw its said plate or arm from the bottom of said coin-chamber; substantially as described.

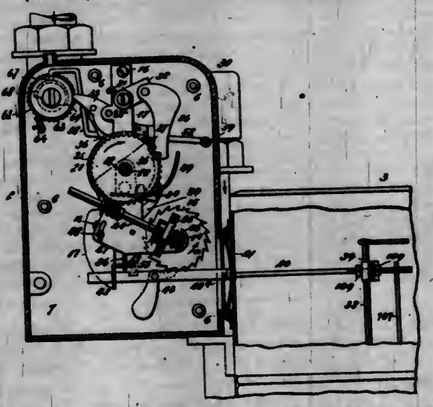
11. In a coin-controlled gas-vending machine, a valve-stem formed with a slot at its inner end, a spring connected at one end to said valve-stem, its opposite end resting free at the end of the said slot, in combination with a longitudinally-movable valve-controlling rack formed or provided with an arm or projection for compressing said spring for causing it to open the valve; substantially as described.

12. In a coin-controlled gas-vending machine, a units or metric wheel and a valve-controlling rack in combination with a cam arranged to support said rack and permit it and the valve to move gradually in the valve-closing direction for dimming the lights; substantially as described.

13. In a coin-controlled gas-vending machine, a cam rotated by the meter and provided with undulations on its periphery in combination with a valve-stem arranged to rest upon said cam; substantially as described.

14. In a coin-controlled gas-vending machine, a reciprocating rod loosely connected to one of the flag-arms or tangent arms of the meter, its opposite end reaching into and operating the meter-controlling mechanism; substantially as described.

591,515. COIN-CONTROLLED GAS-VENDING MACHINE. WESLEY WERNER, New York, N. Y. Filed Mar. 2, 1897. Serial No. 626,715. (No model.)



Claim.—1. In a coin-controlled gas-vending machine, an escapement-rack, means operated by the insertion of a coin for winding up the rack one tooth for each coin inserted, means operated by the meter mechanism for letting the rack back one tooth for each coin's equivalent in gas passed through the meter, a valve fitted in the gas-pipe, means operated by the meter mechanism for closing the valve, and means operated by the insertion of a coin for disconnecting the valve from the valve-closing mechanism; substantially as described.

2. In a coin-controlled gas-vending machine, a valve fitted in the gas-passage, a lug or projection rotated by the power of the meter

mechanism and directly engaging the valve-gear for closing the valve, and a lever arranged to be operated by the insertion of a coin for opening said valve; substantially as described.

3. In a coin-controlled gas-vending machine, a valve fitted in the gas-passage, an arm or lever connected to the stem of the valve, a valve-closing link connected to said arm, an escapement-rack, a valve-closing stud or projection operated by the power of the meter mechanism, and means operated by the insertion of a coin for disconnecting the valve-closing link from the valve-closing stud and for simultaneously winding up the escapement-rack; substantially as described.

4. In a coin-controlled gas-vending machine, the combination with an escapement-rack, a valve fitted in the gas-passage, a coin-carrier, and a rotatory stud arranged to engage with a link for closing the valve, of a lever 33 having an arm 34 and provided with a pawl 36 for setting back or winding up the escapement-rack, the said arm and lever being arranged to disconnect the valve from the said stud and to open the valve; substantially as described.

5. In a coin-controlled gas-vending machine, a valve fitted in the gas-pipe and provided with an arm and link, an escapement-rack, a rotatory stud for engaging with said link for closing the valve, means for disconnecting said link from said stud, and an eccentric or cam for holding said link out of the path of said valve-closing stud till the consumption of the last coin's equivalent in gas is in progress; substantially as described.

6. In a coin-controlled gas-vending machine, a valve fitted in the gas-passage and provided with an arm and link for closing the valve, in combination with a rotatory projection or stud for closing the valve, and a flange adjacent to and rotating with said stud for disconnecting it from the valve-closing link; substantially as described.

7. In a coin-controlled gas-vending machine, a rotatory apertured valve plug in a seat, the plug being formed with passages, races, or slots on the diagonally opposite edges of the aperture of said plug; substantially as described.

8. In a coin-controlled gas-vending machine, a rotatory coin-carrier formed with an eccentric or cam, and a reciprocating power-transmitting rod operated by the meter, in combination with a locking plate or bolt adapted to engage with the said rod and lock the same at the time the coin-carrier is in position to open the gas valve, and held out of engagement with the said rod at other positions of the coin-carrier; substantially as described.

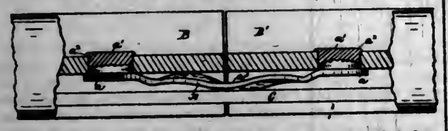
9. In a coin-controlled gas-vending machine, in combination with a gas-meter, a toothed wheel intermittently rotated by a pawl connected to a rod reciprocated by an arm attached to the flag of the meter; substantially as described.

10. In a coin-controlled gas-vending machine, a toothed reducing-wheel rotated in only one direction by the mechanism of the meter, a coin's-equivalent wheel rotated by means rotated by the said reducing-wheel said coin's-equivalent wheel being provided with means for releasing at each rotation an escapement-rack one tooth or notch; substantially as described.

11. In a coin-controlled gas-vending machine, an escapement-rack secured to a shaft which reaches to the front of the dial-plate, combined with a coin's-equivalent wheel journaled on said shaft and provided with a sleeve which also reaches to the front of the dial-plate, said shaft and sleeve being each provided with a pointer, means operated by the insertion of a coin for rotating said escapement-rack in one direction, and means operated by the meter mechanism for rotating said coin's-equivalent wheel in one direction and for setting back the said escapement-rack; substantially as described.

12. In a coin-controlled gas-vending machine, an inclosing casing formed with a coin-slot, a rotatory coin-carrier having a slot or recess formed therein adapted to receive a coin from said slot, a spring-pressed slotted plate interposed between said slot and said coin-carrier, and a cam formed on or arranged to rotate with said coin-carrier and arranged to reciprocate said plate so as to alternately aline and throw out of alinement the slot in the casing, the slot in the plate and the slot or recess in the coin-carrier; substantially as described.

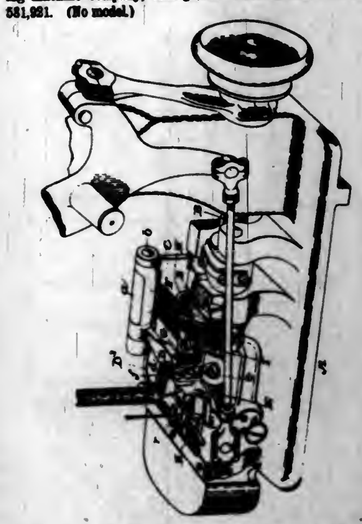
591,516. ELECTRICAL RAIL-BOND. William H. Wiggin, Worcester, Mass., assignor to the American Electrical Works, Providence, R. I. Filed Apr. 26, 1897. Serial No. 633,909. (No model.)



Claim.—1. An electrical rail-bond composed of a flat-sided plate, provided on one of its side faces at its respective ends with terminal studs adapted to seat in apertures in the web of the meeting ends of rails, and having a partial, flatwise twist in its central portion or body, between said terminals, substantially as and for the purpose specified.

2. An electrical rail-bond composed of an edgewise-curved, flat-sided plate, provided on one of its side faces at its respective ends with terminal studs adapted to seat in apertures in the web of the meeting ends of rails, and having a partial, flatwise twist in its central portion or body, between said terminals, substantially as and for the purpose specified.

591,517. FEED MECHANISM FOR SEWING-MACHINES. Russel G. Woodward, Waukegan, Ill., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Mar. 5, 1896. Serial No. 581,921. (No model.)



Claim.—1. A feeding mechanism for sewing-machines comprising a driving-shaft, a rocking frame, a main feed-bar, and means carried by said shaft for giving said bar its backward and forward motions; a supplemental feed-bar operatively connected to the rocking frame, whereby its forward and backward movements are in unison with the main feed-bar; and means also carried by said shaft for actuating both feed-bars vertically in opposition to clamp and release the work, said means acting directly upon both bars, substantially as described.

2. A feeding mechanism for sewing-machines comprising a driving-shaft, a rocking frame, a main feed-bar, and means carried by the said shaft on the forward end thereof for giving said bar its backward and forward motions; a supplemental feed-bar operatively connected to the rocking frame, whereby its forward and backward movements are in unison with the main feed-bar, and means also carried by said shaft on the forward end thereof for actuating both feed-bars vertically in opposition to clamp and release the work, substantially as described.

3. A feeding mechanism for sewing-machines comprising a driving-shaft, a main feed-bar and a supplemental feed-bar; means common to both bars for imparting thereto longitudinal reciprocations in unison, and means for imparting to said bars vertical vibrations in opposition, said means including two adjacent eccentrics having their centers arranged on opposite sides of the driving-shaft's axis, and acting directly upon the respective bars substantially as described.

4. A feeding mechanism for sewing-machines comprising a driving-shaft, a main feed-bar and a supplemental feed-bar; and means carried by said shaft for actuating both feed-bars to impart thereto longitudinal reciprocations in unison and vertical vibrations in opposition, said means including two adjacent eccentrics having their centers arranged on opposite sides of the driving-shaft's axis, and acting directly upon the respective bars substantially as described.

5. A feeding mechanism for sewing-machines comprising a driving-shaft, a rocking frame, a main feed-bar, and a supplemental feed-bar, both said bars being pivotally connected to the rocking frame; and means carried by said shaft for actuating the rocking frame to thereby impart to both bars longitudinal reciprocations in unison, said means including a device for imparting to said bars vertical vibrations in opposition, substantially as described.

6. A feeding mechanism for sewing-machines comprising a driving-shaft, a main feed-bar and a supplemental feed-bar; means for imparting to both bars their longitudinal reciprocations in unison and their vertical vibrations in opposition, said means including an eccentric on the driving-shaft, a yoke on the supplemental bar one branch of which is elastic, and means for adjusting said branch, substantially as described.

7. A feeding mechanism for sewing-machines, comprising upper and lower four-motion gripping and feeding jaws, each having its supporting and actuating means located entirely below the bed-plate of the machine, and the upper jaw being removably connected with its supporting means, whereby upon the removal of said jaw the machine is converted into one of single feed and nothing of the upper feeding mechanism remains above the bed-plate to impede or interfere with the work, substantially as described.

8. A feeding mechanism for sewing-machines comprising a feed-dog-carrying bar provided with a laterally-adjustable holder, and a feed-dog vertically adjustable on said holder by means of a screw passing vertically through the dog and impinging upon the top of the holder, substantially as described.

9. A "top feed" for sewing-machines comprising a feed-bar located below the machine bed-plate and having a dog secured thereto which projects through said bed-plate and extends in rear of the presser-foot of the machine and has a portion which lies alongside of and normally, substantially, parallel with said foot on the surface of said plate, substantially as described.

591,518. CORSET. Clara R. Woodworth, London, Canada. Filed June 6, 1896. Renewed Sept. 15, 1897. Serial No. 651,800. (No model.)



Claim.—A corset comprising front sections, back sections, means for adjusting the back sections, and side sections consisting of a series of transverse elastic bands having spaces between them, and gradually increasing in length from the waist-line of the corset in both an upward and downward direction, the bands above the waist-line of the corset being formed of a single thickness of material and those at the waist-line of the corset and adjacent thereto beneath the waist-line being formed of two or more folds or thicknesses of material so that the upper bands may yield more readily than the lower bands on account of the figure being larger above the waist-line of the corset than beneath it; substantially as described.

591,519. BENCH-DOG. Eli Sherman, Watertown, N. Y., assignor of one-half to the Hitchcock Lamp Company, same place. Filed Feb. 19, 1897. Serial No. 624,233. (No model.)



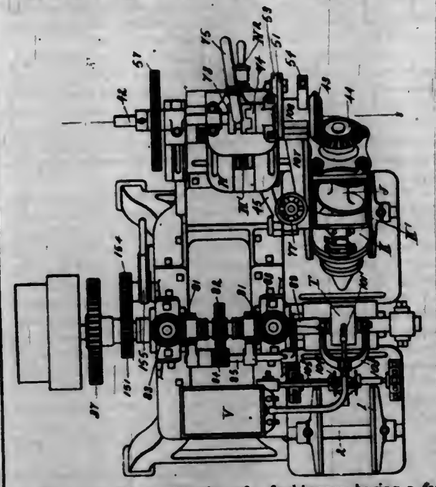
Claim.—1. An open-throat carrier having means for adjustably attaching the same to a suitable bench or work-table for the purpose of projecting the carrier beyond one side or edge of said table, combined with a bench-dog mounted on said carrier to be adjustable therewith and provided with means for gripping the work independently of the adjustment of said carrier, substantially as and for the purposes described.

2. The carrier provided with a work-receiving throat or space and with means for adjustably fastening the same to a work table or bench, combined with a bench-dog having its members pivoted to said carrier on opposite sides of the throat thereof and having gripping-jaws to engage with work introduced into the dog, substantially as described.

3. The combination with a work bench or table, of a horizontally adjustable carrier provided with an open throat attached to the bench or table for adjustment at one side or edge of the table or bench or for retraction within said edge to rest upon the table or bench, and a bench-dog having its members pivoted to said carrier, as and for the purposes described.

4. The carrier provided with a work-receiving throat and with an extended attaching-shank, combined with a clamp adapted to engage with said shank to hold the carrier firmly in place, and a bench-dog having its members pivoted to said carrier on opposite sides of the throat thereof, as and for the purposes described.

591,520. MOLDING-MACHINE. William Zoeller, Chicago, Ill. Filed Feb. 15, 1897. Serial No. 623,513. (No model.)



Claim.—1. The combination of a feed-hopper having a feed-outlet; a rotary feed device confined within the feed-hopper and arranged to feed the material out of the outlet of the latter; and a transverse rotary axle or shaft about which the hopper is arranged to swing, and with which its feed device has a power-transmitting connection, as set forth.

2. In a machine for making picture-moldings, a swinging feed-hopper having a feed-outlet and arranged for swinging motion in a manner to permit of its outlet being moved in a direction longitudinally of the path of travel of the molding-strip, as set forth.

3. In a machine for making picture-moldings, the combination of a feed-hopper having a feed-outlet and supported so as to permit the adjustment of said outlet; a feed device confined within the feed-hopper and arranged to feed the material out of its outlet; and means for operating the feed device independent of the position in adjustment of the feed-hopper.

4. In a machine for making picture-moldings, the combination of a swinging feed-hopper having a feed-outlet; a feed device confined within the feed-hopper and arranged to feed the material out of its feed-outlet; and means for operating the feed device independent of the position in swinging adjustment of the feed-hopper, as set forth.

5. In a machine for making picture-moldings, the combination of a feed-hopper having a feed-outlet; a feed device confined within the feed-hopper and arranged to feed the material out of its feed-outlet; a couple of sliding carriages supporting the feed-hopper and arranged for sliding adjustment in directions laterally to one another; and means for operating the feed device of the feed-hopper independent of the position in adjustment of said sliding carriages, as set forth.

6. In a machine for making picture moldings, the combination of a swinging feed-hopper having a feed-outlet; a feed device confined within the feed-hopper and arranged to feed the material out of its feed-outlet; a couple of sliding carriages supporting the feed-hopper and arranged for sliding movement in directions laterally to one another; and means for operating the feed device of the feed-hopper independent of the position of the latter in swinging adjustment, or of the position of either of said carriages in sliding adjustment as set forth.

7. In a molding-machine, the combination of a feed-hopper having a feed-outlet; a sleeve to which the feed-hopper is pivotally connected; a rotary feed device confined within the feed-hopper and arranged to feed the material out of its feed-outlet; and a rotary member arranged within said sleeve and connected with the feed device so as to rotate the same, as set forth.

8. In a molding-machine, the combination with the feed-hopper inclosing a rotary feed screw or conveyer; the lower supporting carriage arranged for sliding movement relatively to the frame of the machine, and in a direction laterally to the path of travel of the molding-strip; the upper supporting carriage mounted upon the lower one, and arranged for sliding movement relatively thereto in a direction parallel with the said path of travel of the molding-strip; a rotary shaft mounted upon the upper carriage; and a rotary sleeve fitted over said shaft, which sleeve is gear-connected with the feed-screw, and is provided with a clutch member adapted to engage a

cooperating clutch member with which said shaft is provided substantially as described.

9. In a molding-machine, the swinging feed-hopper, provided with adjusting means having swiveled connections with the feed-hopper, and with the support for said hopper, as set forth.

10. In a molding-machine, the combination with the feed-hopper, of the upper sliding carriage to which said hopper is pivotally connected; the lower sliding carriage upon which the upper carriage is mounted and arranged for sliding movement; an adjusting screw-rod which has a swiveled connection with the feed-hopper, and works in a threaded socket which is pivotally supported upon a concave seat formed in the lower end of an arm with which said lower carriage is provided, substantially as described.

11. In a molding-machine, the combination with the feed-hopper provided with a socket 54, and also with a circularly-slotted flange 51; of a support to which said feed-hopper is pivotally connected, said support being provided with an ear 53 arranged opposite the flange 51 and also with an adjusting-bolt 55 arranged to extend through the circular slot of the flange 51, substantially as described.

12. In a molding-machine, the combination with the rotary feed device provided with a bevel gear-wheel, of a rotary member arranged transversely to the axis of rotation of the feed device and provided with a similar gear-wheel meshing with the gear-wheel of the feed device for driving the latter, one of said gear-wheels having with the member to which it is attached, a connection adapted to permit of its removal therefrom in a lateral direction, whereby the feed device can be removed from the feed-hopper without necessitating a preliminary detachment either of the latter or of the rotary driving member, as set forth.

13. In a molding-machine, the combination with the rotary feed device, of a sliding carriage supporting the same; a rotary driving-shaft arranged for connection with the feed device and supported upon said carriage with its axis arranged transversely to the direction of motion thereof; a counter-shaft connected with said driving-shaft through the medium of a sprocket-chain and sprocket-wheels mounted upon the shafts; and idle-wheels situated between said shafts and arranged for movement laterally to the direction of travl of the chain, so as to take up the slack of the latter, as set forth.

14. In a molding-machine, the combination with the feed device, of a sliding carriage by which the same is supported; a rotary driving-shaft arranged for connection with the feed device and supported upon said carriage with its axis arranged parallel with the direction of motion thereof; a couter-shaft connected with said driving-shaft through the medium of a sprocket-chain and sprocket-wheels mounted on said shaft, whereof the sprocket-wheel on the driving-shaft is splined thereto so as to be capable of sliding movement thereon; and a bearing for the driving-shaft situated so that when the sprocket-wheel on said shaft abuts against it, said sprocket-wheel will be in alinement with the sprocket-wheel on the counter-shaft, substantially as described.

15. In a molding-machine, the combination with the embossing-roll arbor constructed with jointed and independently-adjustable sections, of a rotary shaft having a couple of pairs of clutch members, each pair of which is arranged for independent engagement, and is connected with means for adjusting one of the arbor-sections, as set forth.

16. In a molding-machine, the combination with the embossing-roll arbor constructed with jointed and independently-adjustable sections, of screw-rods connected at their lower ends with bearings for said arbor-sections, and confined at their upper ends within rotary nuts; a rotary shaft provided with suitable driving means, and provided also with a couple of pairs of clutch members, whereof, in each pair, one member is gear-connected with one of said rotary nuts, and the other is arranged for independent engagement and disengagement with its cooperating member by a sliding movement on said shaft, whereby said arbor-sections can be adjusted separately or jointly, substantially as described.

17. In a molding-machine, the combination with the jointed and adjustable arbor, of a bearing arranged to fit upon the end of said arbor; and a swinging link having a pivotal and sliding connection with the frame of the machine, and adapted to form a support for said bearing, as set forth.

18. In a molding-machine, the combination with the arbors whereof one is jointed and adjustable with reference to the other, of a detachable bearing for the stationary arbor; a swinging link having a pivotal and sliding connection with the detachable bearing for the stationary arbor; and a bearing for the relatively-adjustable arbor, said bearing being pivotally connected with the swinging link, as set forth.

19. In a machine for making picture-moldings, the combination with the rotary embossing-roll, of a rotatory sponge supported above and in contact with said embossing-roll; a horizontally-sliding arm to which said sponge is attached; a vertically-adjustable rod providing a guideway for said sliding arm; and a water-tank having a connection for supplying water to the sponge, and also having supports constructed to provide guideways for said vertically-adjustable rod, substantially as described.

20 The combination of an adjustable feed-hopper having a feed-outlet; a feed device confined within the feed-hopper and arranged to feed the material out of the feed-outlet thereof; means for adjusting the feed hopper independently in transverse directions; and means for operating the feed device independent of the position in adjustment of the feed-hopper, as set forth.

21. The combination of a swinging feed-hopper having a feed-outlet; and adjustable supporting means therefor provided with means for adjusting and holding the same in swinging adjustment, as set forth.

22. The combination of a swinging feed-hopper having a feed-outlet; and supporting means therefor adapted for adjusting the same independently in transverse directions, and provided with means for adjusting and holding the same in swinging adjustment, as set forth.

23. In a machine for making picture-moldings, the combination of a feed-hopper provided with a feed-outlet and arranged for swinging motion so as to permit of its outlet being raised or lowered relatively to the molding-strip; supporting means therefor adapted for adjusting the same independently longitudinally and laterally of the direction of travel of the molding-strip, and provided with means for adjusting and holding the same in swinging adjustment, as set forth.

24. In a picture-molding machine, the combination of a feed-hopper provided with a feed-outlet and arranged for swinging motion so as to permit of its outlet being raised or lowered relatively to the molding-strip; a feed device confined within the feed-hopper and adapted to feed the material out of the outlet thereof; hopper-supporting means adapted for adjusting the same independently longitudinally and laterally of the direction of travel of the molding-strip, and provided with means for adjusting and holding the same in swinging adjustment; and means for operating the feed device independently of the position in adjustment of the feed-hopper, and also independently of the position in adjustment of the supporting means, as set forth.

25. The combination of an adjustable feed-hopper having a feed-outlet; a feed device confined therein and arranged for feeding the material out of the outlet thereof; means for operating the feed device independent of the position in adjustment of the hopper; and means for starting and stopping the operating means at will, as set forth.

26. The combination of a swinging feed-hopper having a feed-outlet; a rotary feed device confined therein and arranged to feed the material out of the outlet thereof; and a rotary shaft providing an axis about which the hopper swings, and having with the feed device a power-transmitting connection adapted to permit the operation of the same independent of the position in adjustment of the feed-hopper, as set forth.

27. The combination of a swinging feed-hopper having a feed-outlet; a rotary feed device confined therein and arranged to feed the material out of the outlet thereof; a rotary shaft providing an axis about which the hopper swings, and having a gear connection with the feed-hopper; and clutch mechanism between the rotary shaft and the gear connection of the same with the feed device, as set forth.

28. The combination of a swinging feed-hopper having a feed-outlet; a rotary feed device confined within the hopper and adapted to feed the material out of the outlet thereof; a rotary shaft providing an axis about which the hopper swings; a rotary sleeve inclosing the rotary shaft and pivotally supporting the feed-hopper; clutch mechanism between the shaft and inclosing sleeve; and suitable gearing between the latter and the feed device, as set forth.

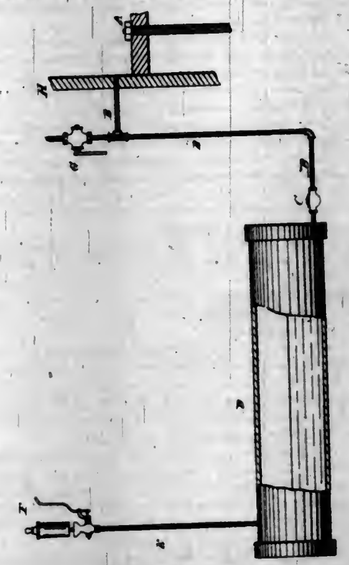
29. The combination with the feed-hopper of a couple of supporting-carriages therefor, one of said carriages being adjustable relatively to the frame of the machine, and the other being adjustable relatively to the first-mentioned one; and means for adjusting said carriages in their respective adjustments independently of one another, and also for holding them in such adjustments, as set forth.

30. The combination of a couple of supporting-carriages arranged for sliding adjustment in lateral or transverse directions; and a couple of rotary screw-rods for independently adjusting the same, as set forth.

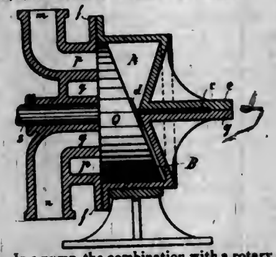
31. A cylindrical feed-hopper comprising a couple of longitudinal halves detachably secured to one another, and constructed with laterally-extending tabular portions providing a tubular side feed-inlet; a rear end piece adapted to provide a bearing or support for a feed device; and a detachable nozzle screw-threaded to the forward end of the longitudinal halves, substantially as described.

591,521. WHISTLE FOR GAS OR GASOLENE ENGINES. Geo. F. Arp, Spirit Lake, Iowa. Filed Nov. 24, 1896. Serial No. 613,273. (No model.)

Claim.—In a gas-engine, the whistle F, pipe E, water-pipe D, and the piping B, the latter provided with check-valve C and stop-cock G, in combination with the engine-cylinder, all constructed and arranged substantially as shown and described.



591,522. ROTARY PUMP. Ivan Artemkin, Moscow, Russia. Filed Jan. 13, 1896. Serial No. 575,412. (No model.)



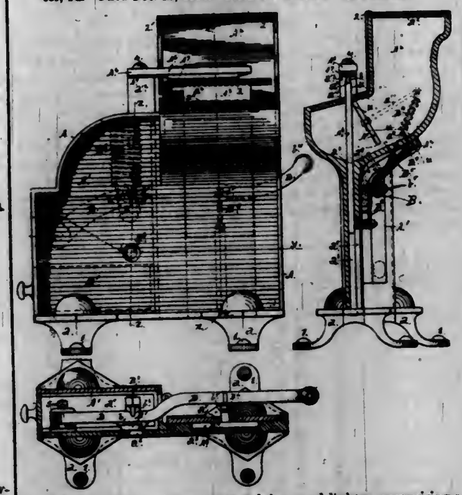
Claim.—1. In a pump, the combination with a rotary piston having unequal volumes on two opposite sides of its axis of rotation and having two passages through it, of a symmetrical casing adapted in form to receive said piston, whereby, as the piston rotates, opposite sides of the casing will contain alternately larger and smaller portions of the piston, a suction-passage in constant communication with one end of one of said passages through the piston, a discharge-passage in constant communication with the corresponding end of the other of said passages, the other ends of said passages through the piston, communicating with the interior of said casing and lying substantially in the plane between the larger and smaller sides of the piston, and a partition movably mounted in said casing in position to engage the piston and divide the unoccupied portion of the casing into two portions, substantially as described.

2. In a pump, the combination with a rotary piston having unequal volumes on two opposite sides of its axis of rotation and having two passages through it, of a symmetrical casing adapted in form to receive said piston, whereby as the piston rotates, opposite sides of the casing will contain alternately larger and smaller portions of the piston, a suction-passage in constant communication with one end of one of said passages through the piston, a discharge-passage in constant communication with the corresponding end of the other of said passages, the other ends of said passages through the piston communicating with the interior of said casing and lying, substantially in the plane between the larger and smaller sides of said piston and a partition movably mounted in said casing, in position to engage the piston and divide the unoccupied portion of the casing into two portions, and a valve mounted on the edge of the partition, which engages the piston, in position to cover the ports therein, which communicate with the interior of the casing as they pass such edge, substantially as described.

3. In a rotary pump, the combination with a cylindrical casing, one head of which is cone-shaped, with the apex toward the interior of the casing, and the other head of which is plane and provided with suction and discharge passages, and a cylindrical piston, wedge-shaped in a direction transverse to the axis of rotation, and having two diametrically opposite passages through it, communicating with the interior of the casing and with said suction and discharge passages respectively, and a rocking partition, mounted in the casing in position to engage the inclined face of the piston, substantially as described.

4. In a rotary pump, the combination with a cylindrical casing, one head of which is cone-shaped, with the apex toward the interior of the casing and the other head of which is plane and provided with suction and discharge passages, and a cylindrical piston, wedge-shaped in a direction transverse to the axis of rotation, and having two diametrically opposite passages, through it, communicating with the interior of the casing and with said suction and discharge passages respectively, a rocking partition in the casing, in position to engage the inclined face of the piston and a valve hinged to said partition to rest on the inclined face of the pistou, substantially as described.

591,523. CIGAR-TIP CUTTER AND MATCH BOX AND LIGHTER. Samuel E. Ball, Dayton, Ohio, assignor to Amos B. Hostetter, Lancaster, Pa. Filed Feb. 16, 1897. Serial No. 623,661. (No model.)



Claim.—A cigar-tip cutter, match-box, and lighter, comprising a casing or framework having a vertical side wall with an aperture through its body and a hopper or match-box on its top at one end thereof, a lever lying adjacent thereto with one end extending beyond the hopper and the other end pivoted to said side wall near the other end thereof, a cutter-blade secured to said lever and adapted to move over the adjacent opening of said aperture, a spring having one end secured to the lever and the other end to the casing, a plunger-plate in guideways within said side wall and movable up and down through the body of said hopper and through a slot in the top thereof with pivoted link connections between the adjacent sides of said plate and said lever, a match-igniting strip secured to the adjacent side of an arm extended over the slot in the hopper-top and having one end secured to a projection from said casing, with means provided to agitate or shake the matches within the hopper or match-box, all substantially as described and for the purpose hereinbefore set forth.

591,524. SHAFT OR BLAST FURNACE. Franz Burgers, Gelsenkirchen, Germany. Filed July 8, 1896. Serial No. 598,415. (No model.) Patented in Luxemburg Apr. 16, 1896, No. 2,488.

Claim.—1. In shaft or other furnaces, the arrangement of an iron ring composed of hollow outwardly-open iron segments for replacing the corresponding part of the furnace-wall, which segments are fitted or adapted to the inner furnace-profile and can be provided on the inner surface with a thin fire-resisting lining while outwardly a water-pipe for supplying cooling-water and for drizzling or sprinkling the same against the free and outwardly-visible segment-surface of

the externally-open hollow segments is arranged in such a manner that it can be freely seen and controlled, the lower bearing-flange of the segments forming a water-trough or collecting-channel for regularly draining off the cooling-water, such iron ring being provided with a supporting construction (such as pillars) for supporting the part of the furnace, which part is arranged over such construction.



2. In the hearth of shaft or other furnaces, the arrangement of an iron ring composed of hollow outwardly-open iron segments having twyers passing through it for replacing the corresponding part of the furnace-wall, which segments are fitted or adapted to the inner furnace-profile and can be provided on the inner surface with a thin fire-resisting lining while outwardly a water-pipe for supplying cooling-water and for drizzling or sprinkling the same against the free and outwardly-visible segment-surface of the externally-open hollow segments is arranged in such a manner that it can be freely seen and controlled, the lower bearing-flange of the segments forming a water-trough or collecting-channel for regularly draining off the cooling-water.

591,525. RECOIL-OPERATED FIREARM. ANDREW BURGESS, Buffalo, N. Y. Filed Feb. 20, 1896. Serial No. 580,015. (No model.)



Claim.—1. The receiver, of sheet metal, having flat sides, arched top, and open at the bottom, and the breech-bolt and operating mechanism carried by said receiver, combined with the frame having guide-ribs over which the lower edges of the receiver lap, and means for retaining said parts in contact so that the receiver and connections may slide on the frame, all combined substantially as described.

2. The frame having slotted guide-ribs, and the receiver having an arched top and side plates overlapping said ribs, a retaining-pin passing through said side plates and the slots in the ribs, and the breech-operating mechanism carried by said receiver, all combined substantially as described.

3. The frame having longitudinal guide-ribs provided with slots, and with a hood covering the rear portion of the receiver, combined with the movable receiver and connections, a pin passing through said receiver and guide-ribs, the rear end of said receiver entering said hood, all combined substantially as described.

4. The receiver and the frame having a longitudinal guideway on which said receiver moves, the breech-bolt carried by the receiver, the operating-lever pivoted to the receiver and engaging the breech-bolt to reciprocate the same, said lever connected to and resisted by the frame below the lever-pivot, whereby the longitudinal movement of the receiver causes the opening or closing of the breech-bolt, all combined substantially as described.

5. The receiver and the frame having a longitudinal guideway on which said receiver moves, the operating-lever pivoted in said receiver and engaging the breech bolt to reciprocate the same, a link connected to said lever and to the frame, and the hammer carried by the receiver, and in position to be pressed back by the backward movement of the operating-lever.

6. The receiver, the frame having a longitudinal guideway for said receiver, the operating-lever, breech bolt, and hammer carried by said receiver, a link connected to the operating-lever and to the frame, and the mainspring having its bearings against the frame and the hammer, and serving to advance the receiver by pressure on the hammer, all combined substantially as described.

7. The frame having a guideway, the receiver reciprocating in said guideway, the hammer and sear carried by the receiver, the trigger hung in the frame forward of the sear and engaging the sear only when the sear is in forward position, and the safety-catch automatically engaging the trigger to hold the trigger away from the sear, all combined substantially as described.

8. The frame having a guideway, the receiver reciprocating on said guideway, the hammer and sear carried by said receiver, the trigger hung in the frame in position to engage the sear only when the receiver is in its forward position, and the safety-catch arranged as described for engaging said trigger, all combined substantially as described.

9. The frame having a longitudinal guideway, the receiver reciprocating in said guideway and carrying the hammer and breech-closing mechanism, the trigger hung in the frame and engaged by a part on the receiver to press the trigger out of firing position as the receiver recoils, and the safety-catch for locking said trigger, all combined substantially as described.

10. The combination with the trigger hung in the frame, the safety-catch also hung in the frame and engaging a notch in said trigger, said safety-catch operating to cam the trigger forward by its engagement with the eccentric rear surface of the trigger to thereby automatically engage the notch in the trigger, and the hammer and sear carried by the reciprocating receiver, all combined substantially as described.

11. The combination of the frame, the reciprocating receiver guided thereon, and the cartridge-carrier pivoted in the receiver, and having a projection at one side of its fulcrum, in position to engage and be operated by an abutment of the frame as the receiver nearly completes its backward movement, substantially as described.

12. The receiver and operating-lever pivoted therein, the frame and guideway on which said receiver reciprocates, the carrier pivoted in the receiver in position to be engaged and lifted by the operating-lever, and the link connected to said lever and to the frame, all combined substantially as described.

13. The breech-bolt and locking-brace pivotally connected thereto, the abutment on the receiver against which said brace bears with an inclined bearing, whereby backward pressure on the bolt tends to unlock the brace, and the moving piece engaging and locking said brace firmly by positive engagement at the instant of firing, all combined substantially as described.

14. The breech-bolt and the pivoted brace carried thereby, the abutment on the receiver with which said brace engages with an inclined bearing tending to unlock automatically, and the firing-pin having wedge-pieces engaging said brace and locking the same when the firing-pin is in its forward position, all combined substantially as described.

15. The arched receiver having flat sides, the connecting-piece having a tongue-and-groove connection with said sides and means for securing the same together, and the barrel having screw-threaded engagement with said receiver and connecting-piece, all combined substantially as described.

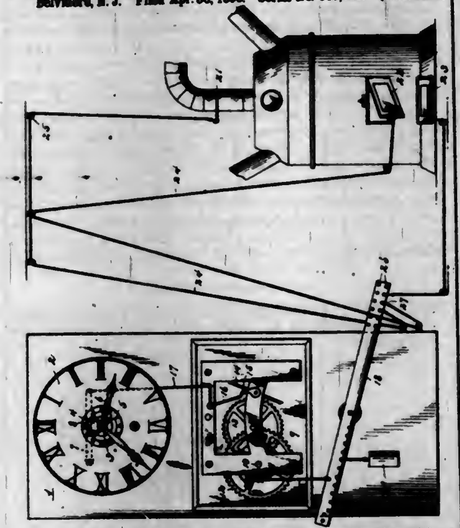
16. The receiver-front having a cylindrical hole therein, and the thin metal tube forming the magazine, having its end compressed sidewise to retain cartridges, but of a character to assume the cylindrical form as the magazine is inserted, substantially as described.

17. The combination with the receiver-front having a cylindrical hole with a conical mouth, of the thin metal tube having its mouth distorted, but capable of conforming to the hole in the receiver-front when inserted therein, substantially as described.

18. The combination with the gun-barrel of the spring-clip, having wings surrounding the barrel, and wings forming an open-sided clasp for a magazine, all combined substantially as described.

19. The combination with the gun-barrel of the spring-clip having a front ring portion which surrounds the barrel and is secured thereto, said clip having leaves which form an open-sided spring-clasp, and the magazine-tube entered into said clasp and having its end resting against the ring around the barrel, all combined substantially as described.

591,526. HEAT OR DAMPER REGULATOR. JACOB F. BURLEY, Belvidere, N. J. Filed Apr. 30, 1896. Serial No. 589,703. (No model.)

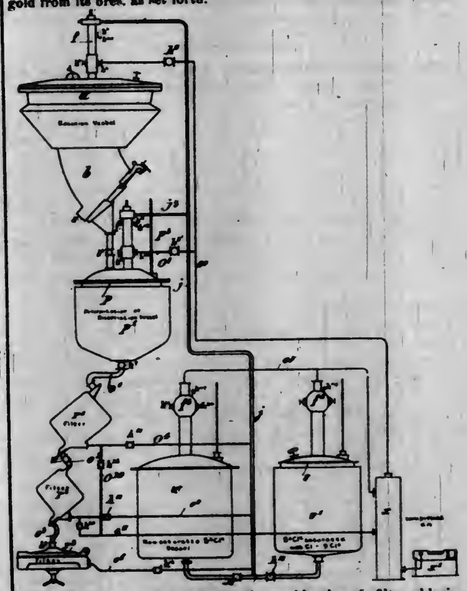


Claim.—In a draft-controlling device, the combination with an ordinary clock-movement, of a straight lever 18 pivoted or fulcrumed intermediate its ends to a fixed point of attachment, a flexible draft-controlling connection having a detachable and adjustable engagement at one end with one end portion of said straight lever, a weight detachably and adjustably engaging with the opposite end portion of said straight lever, a train of gearing independent of the clock-movement arranged above, in a proximal relation to, the straight lever and having a winding-drum, a single direct flexible connection 19 between the weighted end of the straight lever 18 and the winding-drum of the independent train of gearing, and a releasing mechanism actuated by the clock-movement and having a connection with the independent train of gearing for liberating the latter at a predetermined moment, substantially as set forth.

591,527. PROCESS OF AND APPARATUS FOR EXTRACTING GOLD FROM ORES. LOUIS C. DAUMAS, Paris, France. Filed Feb. 21, 1896. Serial No. 580,173. (No model.) Patented in France July 26, 1895, No. 249,204.

Claim.—1. The herein-described process for the extraction of gold from its ore, which consists in heating protochlorid of sulfur saturated with chlorin to a temperature of 80°, mixing the pulverized ore with protochlorid of sulfur saturated with the said chlorin at 80° centigrade; subjecting the mass to a temperature of about 130° centigrade so as to dissolve the gold and form a double chlorid of gold and sulfur; filtering and heating the filtrate to about 138° centigrade to decompose the double chlorid of gold and sulfur and obtain the gold in a pulverulent condition the gold being afterward separated from the liquid by a second filtration; substantially as specified.

2. The apparatus for carrying out the herein-described process of extracting gold from its ore, consisting in the combination of an attacking vessel containing a filter; a filter beneath and connected to the attacking vessel through which filter the auriferous solution is filtered; a decomposing vessel connected to the filter in which the filtered auriferous liquid is received; two filters for receiving the products of decomposition from the receiving vessel having cylindrical tubes of porous clay, and a single filter having a porous-stone slab for retaining the gold in powder, the said filters being in communication with the said decomposing vessel; a vessel for containing the protochlorid-of-sulfur filtrate connected to the attacking vessel, a vessel of one-half less capacity connected therewith for containing the protochlorid of sulfur which has been or is to be saturated with chlorin and communicating with the attacking and decomposing vessels; a reservoir of compressed air, and connections connecting the reservoir with the attacking vessel, the filters and the protochlorid-of-sulfur-containing vessel all operating substantially as described to extract gold from its ores, as set forth.



3. In a chlorination apparatus, the combination of a filter, chlorinating-solution-containing vessels, of a hopper-shaped steam-jacketed attacking vessel terminated by a bend at the lower part so as to bring the mouth of the vessel toward one side and provided with a cover having apertures for the introduction of the ore and for the insertion of a thermometer, a cylindrical head provided with valves which separately give passage to the gases, the compressed air and the protochlorid of sulfur saturated with chlorin, said vessel having at its lower part a filter formed of two circular plates with filtering material adapted to be raised and lowered by worm-gear, as described.

591,528. WRENCH. JEROME B. FORD, Bristol, Conn. Filed Jan. 6, 1896. Serial No. 574,412. (No model.)



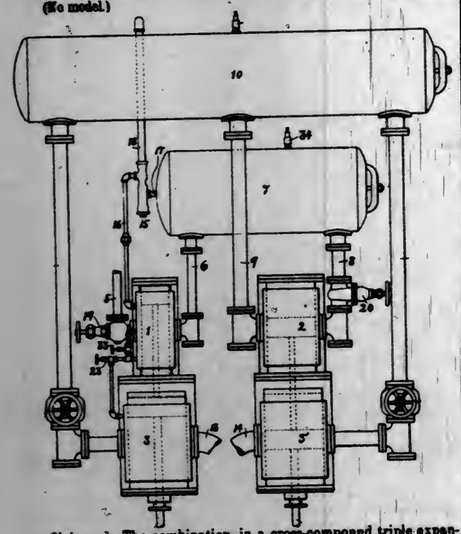
Claim.—1. In combination in a wrench, a handle-section comprising a fixed jaw with the shank and the offset portion, and a sheet-metal shell bent to U shape and secured to the fixed jaw and its appurtenant parts, a nut-socket formed through the side walls and back edge of the shell, a movable jaw having a threaded shank extending within the socket in the handle portion of the wrench, and a nut located in the socket on the threaded shank of the movable jaw and with its periphery extending beyond the side and back walls of the shell, all substantially as described.

2. In combination in a wrench, a sheet-metal casing bent to U shape, a nut-socket formed through the side walls and back edge of the shell, a jaw secured to the casing, a movable jaw having a shank extending within the casing, and a nut located in the socket on the threaded shank of the movable jaw, all substantially as described.

3. In combination in a wrench, a casing formed of sheet metal bent to U shape, a fixed jaw secured to the casing and having a shank closing the opening along the front end thereof, a nut-socket formed through the side walls and back edge of the shell, a movable jaw having a shank extending within the casing, and a nut located in the socket on the threaded shank of the movable jaw, all substantially as described.

4. In combination in a wrench, a casing struck from sheet metal bent to U shape, a fixed jaw having a shank less in width than the width of the casing and closing the front of the opening therein, an integral offset portion on the shank closing the end of the opening in the casing, a movable jaw having a shank extending within the casing, a nut-socket formed through the side walls and back edge of the shell, and a nut located in the socket on the threaded shank of the movable jaw, all substantially as described.

591,529. DUPLEX ENGINE. HORACE B. GALE, San Francisco, Cal.
Filed Sept. 18, 1894. Renewed Mar. 18, 1897. Serial No. 628,228. (No model.)



Claim.—1. The combination, in a cross-compound triple expansion duplex pump-engine, of a pair of pumps, a pair of equal low-pressure cylinders, one on each side of the engine, a high-pressure cylinder coupled with one of the said low-pressure cylinders to operate one of the pumps, an intermediate-pressure cylinder—whose effective volume is a mean proportional between that of the high-pressure cylinder and the sum of the effective volumes of the two low-pressure cylinders—coupled with the other low-pressure cylinder to operate the other pump, and receivers interposed respectively between the high-pressure and the intermediate cylinder, and between the intermediate and the two low-pressure cylinders, whereby the required equable operation of the two pumps is maintained automatically under different working pressures, substantially as set forth.

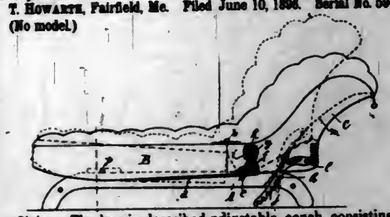
2. The combination, in a triple-expansion, duplex pumping-engine, of four engine-cylinders, comprising one high-pressure cylinder, one intermediate cylinder, and two low-pressure cylinders, one of the latter coupled with the high-pressure cylinder to operate one of the pumps, and the other coupled with the intermediate cylinder to operate the other pump, an intermediate-pressure receiver which receives the exhaust of the high-pressure cylinder and delivers it to the intermediate cylinder, a low-pressure receiver which receives the exhaust of the intermediate cylinder and supplies each of the two low-pressure cylinders, and an automatic by-pass valve for regulating the pressures in the receivers, by which a quantity of steam is shunted by one or more of the cylinders, so as to maintain the receiver-pressures in such a relation as will produce an equable action of the two pumps, under variable working conditions.

3. The combination, in a four-cylinder, triple-expansion, duplex pumping-engine, of a pair of low-pressure steam-cylinders of approximately equal volume, one on each side of the engine, a high-pressure cylinder coupled with one of the said low-pressure cylinders, an intermediate-pressure cylinder, whose effective volume is approximately a mean proportional between that of the high-pressure cylinder and the sum of the effective volumes of the two low-pressure cylinders, coupled with the other low-pressure cylinder, an intermediate-pressure receiver between the high-pressure and the intermediate-pressure cylinders, a low-pressure receiver between the intermediate-pressure cylinder and the two low-pressure cylinders, and an automatic pressure-regulating valve, by which steam is shunted by the high-pressure or intermediate-pressure cylinder, into or out of the intermediate-pressure receiver, as required to maintain equality of work between the two sides of the engine under varying working pressures, substantially as set forth.

4. In a cross-compound, duplex, steam pumping-engine, an automatic by-pass valve for regulating the pressure in the intermediate receiver, which consists of a casing having high-pressure, intermediate-pressure, and low-pressure chambers, two connected pistons of different effective areas kept in equilibrium by the intermediate pressure acting on the larger piston, opposed by the high pressure and low pressure acting respectively on the smaller piston and on the annulus representing the difference in the areas of the two pistons, and a port whose opening is controlled by the movement of the pistons whereby steam is shunted into or out of the intermediate receiver as required to keep the pressures in equilibrium, substantially as set forth.

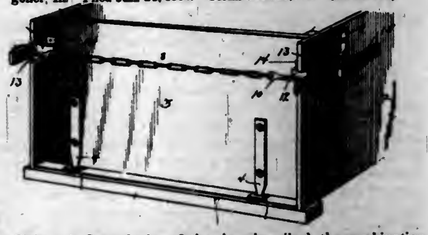
5. In a cross-compound, duplex, steam pumping-engine, an automatic, two-way, by-pass valve for regulating the pressure in the intermediate steam-receiver, which consists of a casing having chambers connected respectively with the high-pressure steam-chest, the intermediate receiver, and the low-pressure receiver, a piston-valve having two pistons of different diameters, kept in equilibrium by the intermediate pressure acting on the larger piston, opposed by the high pressure and low pressure acting respectively on the smaller piston and the annulus representing the difference in area of the two pistons, ports by which communication is opened between the intermediate-pressure chamber and either the high-pressure or low-pressure chamber, as may be required, and a dash-piston by which too sudden movements of the valve are prevented, substantially as set forth.

591,530. ADJUSTABLE COUCH. JAMES G. GOODINE and GEORGE T. HOWARTH, Fairfield, Me. Filed June 10, 1896. Serial No. 594,905. (No model.)



Claim.—The herein-described adjustable couch consisting of a base or carriage, a couch-frame placed thereon and pivoted thereto at one end, a head-piece pivoted at the opposite end of said couch-frame, a catch or locking device for connecting the side bars of said couch-frame and said head-piece composed of a flat spring secured on the lower edge of one of said side bars, the free end of said spring overlapping the other side bar, a pin or projection on the free end of said spring and a recess in which the same fits, a releasing-bolt held in a vertical recess and having its lower end impinge on the free end of said spring, a cam for depressing said releasing-bolt to release said catch and means for adjusting said head-piece vertically.

591,531. END-GATE FOR WAGONS. EDWARD E. HANKEN, Waggoner, Ill. Filed Jan. 20, 1897. Serial No. 619,975. (No model.)



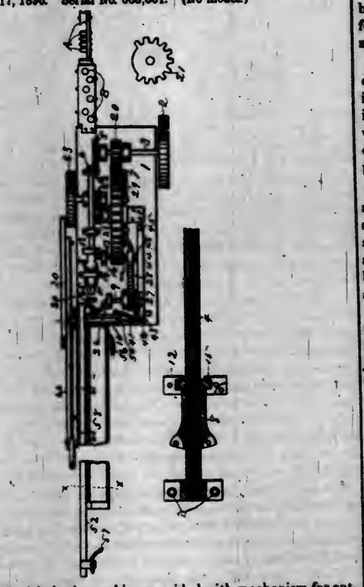
Claim.—1. In a device of the class described, the combination with a wagon-body provided at the inner face of each of its sides with a cleat, and an end-gate arranged against the cleats, of a pair of horizontal levers fulcrumed at their front ends on the outer faces of the sides of the wagon-body and provided between their ends with inwardly-extending arms engaging the rear face of the end-gate at each side of the wagon-body and holding the said gate against the cleats, and means for connecting the locking-levers, whereby the arms are held in engagement with the end-gate, substantially as described.

2. In a device of the class described, the combination of a wagon-body provided at the inner faces of its sides with cleats, an end-gate arranged against the same and provided with horizontal flanges, locking-levers fulcrumed at their front ends on the outer faces of the sides of the wagon-body and provided between their ends with inwardly-extending arms engaging the rear face of the end-gate at points above said flanges, whereby the end-gate is locked against upward and outward movement, and connections between the rear portions of the levers for holding the arms in engagement with the end-gate, substantially as described.

3. In a device of the class described, the combination of a wagon-body, an end-gate provided with horizontal flanges, locking-levers fulcrumed on the sides of the wagon-body and provided between their ends with arms engaging the outer face of the end-gate directly above the said flanges, whereby the end-gate is locked against upward and outward movement, bolts mounted on the levers at the outer ends thereof, one of the bolts being detachably interlocked with its lever, nuts arranged on the bolts and means for connecting the latter, substantially as described.

4. In a device of the class described, the combination of a wagon-body, an end-gate, horizontal levers hinged to the outer faces of the sides of the wagon-body and provided with arms extending inward and engaging the end-gate, one of the levers being provided with a perforation and the other having a notch and beveled at its outer face, eyebolts passing through the perforation and the notch, means for connecting the bolts, and nuts arranged on the bolts, one of the nuts having its inner face beveled and cooperating with the beveled face of the lever, substantially as and for the purpose described.

591,532. BALE-TIE MACHINE. OWEN K. HARRY, Dallas, Tex.
Filed Aug. 17, 1896. Serial No. 603,061. (No model.)



Claim.—1. A bale-tie machine provided with mechanism for cutting wire and forming loops in same, consisting of a shifting-wheel having dogs attached to the side thereof, a cutting device suitably mounted, levers 40 and 41 arranged to be actuated by one of said dogs, a rod for bending the wire, said rod having a bent portion, a shaft for said rod provided with suitable bearings, a pinion mounted on said shaft, a rack meshing with said pinion, means for driving said rack, said loop-forming mechanism being actuated by one of said dogs, a lug over which the wire is bent, and a guide against which the wire is pressed.

2. In a bale-tie machine, means for cutting the wire, consisting of a wheel mounted on a suitable shaft, a dog attached to the side of said wheel, a rod mounted in a sliding bearing, a roller adapted to engage said dog mounted on said rod, a lever mounted adjacent to said rod, a bell-crank lever suitably mounted, means connecting said levers, and a cutter-bar pivotally joined to said bell-crank lever.

3. In a bale-tie machine, a wire-twisting device consisting of a shaft suitably mounted, a body portion mounted loosely on said shaft and having an annular flange or rib at one end, clamps mounted on said body portion, said clamps having a groove engaging said flange, fingers pivoted in the other end of said body portion, a bearing for said fingers mounted on said shaft, and means for moving said body portion back and forth on said shaft, thereby adapting said fingers to grasp and release the wire.

4. In a bale-tie machine, means for folding the wire consisting of a guide mounted on a rigid support, a lug around which wire is bent, a rod suitably journaled and provided with a crank-arm for folding the wire, means for operating said mechanism consisting of a pinion, a rack meshing with said pinion, a bar mounted in a suitable bearing and bearing a roller, and a drive-wheel provided with a dog adapted to engage said roller.

5. In a bale-tie machine, a device for discharging the wire consisting of a bar provided with a lug adapted to engage the loop of the wire, a second bar pivotally attached to said first bar and having a loop adapted to rest around said lug and having a curved portion at the other end, a track for said first bar, a curved arm attached to said track-bars adapted to trip said second bar, and means for driving said first bar.

6. A bale-tie machine provided with mechanism for discharging wire, means for driving said mechanism consisting of two quadrilateral frames, the larger frame being connected to said mechanism, each having pivotally-jointed corners, the lower and smaller frame being formed in part by the extension of two sides of the larger frame, a guide for said smaller frame, a drive-wheel, a pitman-rod, a bar pivotally joined to said rod, said bar being pivoted on a suitable support, and a link-bar pivotally joined to said bar and to the juncture of said frames.

7. In a machine for making bale-ties, a hollow shaft suitably mounted, a beveled pinion on said shaft, a beveled cog-wheel for driving said pinion, a wire-twister mounted on said shaft, said twister being provided with fingers adapted to grasp the wire, and means for moving said twister, back and forth lengthwise of said shaft, and means for revolving said twister on said shaft intermittently.

8. A bale-tie machine having a device for cutting wire at a predetermined length, a carrier adapted to remove and throw the wire into a convenient trough, means for driving said carrier, a loop-forming mechanism and a wire-twister, a common shifting-wheel provided with means for operating said devices, said carrier being adapted to engage the wire and to remain stationary while said twister completes the loop in the wire, and means to remove the completed tie.

9. A bale-tie machine provided with wire-receiving mechanism and a tie-discharger, said wire-receiving mechanism consisting of straightening-rollers, a hollow shaft and means for driving said shaft, said discharger consisting of a track, a traveling bar provided with a lug to engage the tie, a bar pivotally mounted on said traveling bar, means for tripping said pivoted bar, and driving mechanism for said discharger.

10. A bale-tie machine having a wire-delivering device and a track for same, and means for driving said device consisting of wheel 23 mounted on a suitable shaft, pitman-rod 70, bar 68, pivotally joined to said rod, said bar being pivoted on the platform of said machine, frames H and G, link-bar 66, connecting said bar 68 and said frames at their juncture, and a guide 83 for frame G.

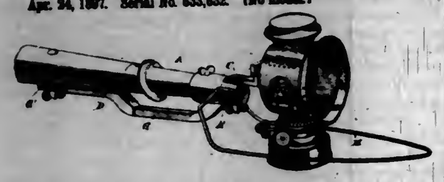
11. In a bale-tie machine, an automatic counting device, said device being mounted on the platform of said machine, said device consisting of ratchet 76, and a pawl for same, hanger 74 supporting said ratchet, arm 75 adapted to drive said ratchet during the operation of said machine, a disk 73 provided with teeth extending therefrom, one of said teeth being longer than the other, a bell 77, a pivoted spring-pressed clapper, said ratchet being provided with a lug adapted to engage the teeth of said disk, the long tooth of said disk being adapted to engage said bell-clapper.

12. In a bale-tie machine, the combination of a wire-cutter, a loop-forming mechanism, a twister, a shifting-wheel provided with dogs, one adapted to actuate the driving mechanism of each of said devices, a wire-discharger, driving mechanism for same, means adapted to stop said mechanism intermittently, and a counting device operated by the driving mechanism of said discharger.

13. In a machine for making bale-ties, said machine being provided with a cutter, a folder, a twister, and driving mechanism for said devices, a shifting or drive wheel provided with dogs adapted to actuate the driving mechanism of each of said devices.

14. In a bale-tie machine, the combination of a driving-shaft 3 suitably mounted, a pinion 20 mounted on said shaft, a shifting-wheel 7, dogs 18, 19, 33, and 49 attached to said wheel, rollers suitably mounted and adapted to be engaged by said dogs, a shaft for wheel 7, pinion 21 on said shaft, pinion 22 meshing with said pinion 21, a shaft for pinion 22 and wheel 23, the pinion 21 being adapted to stop the wheel 23 intermittently.

591,583. LAMP-HOLDER. EDGAR B. HOLMES, Ayr, Nebr. Filed Apr. 24, 1897. Serial No. 633,632. (No model.)



Claim.—1. The combination with a wagon pole or shaft of a lamp-holder detachably connected with the end thereof, and a guard for the lamp connected therewith, substantially as shown and described.

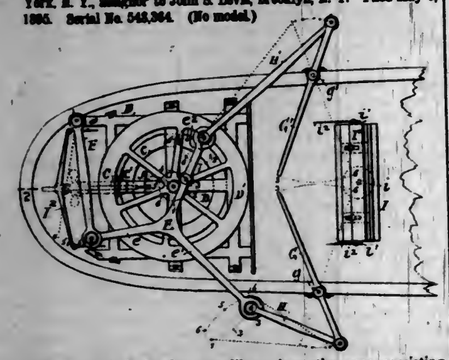
2. The combination with a wagon pole or shaft of a lamp-holder connected therewith, consisting of the socket-piece fitting on the end of the pole and provided with an extension adjustably and detachably held to the pole, substantially as shown and described.

3. The combination with a wagon pole or shaft of a lamp-holder fitting on the end thereof, said holder consisting of the socket-piece, the extension having the bifurcated end having teeth formed on its upper surface, and means for adjustably and detachably connecting this end to the pole consisting of the locking-plate having teeth which engage the teeth on the end, and the bolt and nut for holding the two parts into engagement, substantially as shown and described.

4. The combination with a wagon pole or shaft of a lamp-holder fitting on the end thereof, said holder consisting of a socket-piece fitting on the end of the pole or shaft and carrying a set-screw, an extension adjustably and detachably connected with the wagon pole or shaft, and a lamp-bracket detachably connected with the socket-piece, substantially as shown and described.

5. The combination with a wagon pole or shaft of a lamp-holder fitting on the end thereof, and a guard consisting of the loop, having its ends connected with a plate, and said plate being provided with means for attaching the guard to the holder, substantially as shown and described.

591,584. MEANS FOR PROPELLING BOATS. JOHN KEIR, New York, N. Y., assignor to John S. Lovis, Brooklyn, N. Y. Filed May 6, 1895. Serial No. 548,364. (No model.)



Claim.—1. A device for propelling a boat the same consisting of a propeller-shaft, a vertical shaft, means for transmitting motion from said vertical shaft to the propeller-shaft, a fly-wheel on said vertical shaft, a three-armed lever mounted on a crank-pin on said fly-wheel, an arm pivotally secured at one end to the boat, the other end of said arm being connected to one arm of the three-armed lever, and means secured to the other two arms of the three-armed lever, for transmitting motion thereto, substantially as specified.

2. A device for propelling a boat comprising in combination a rotary shaft, a three-armed lever having a pivotal connection with a crank-pin attached to a fly-wheel on said shaft, a vibratory or fulcrum arm pivoted at one end to the boat and at the opposite end to said three-armed lever, oar-like levers fulcrumed to the boat, links connecting said levers with the said three-armed lever, and means for transmitting motion from said rotary shaft to the propeller-shaft substantially as specified.

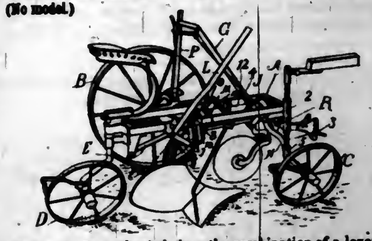
3. A device for propelling a boat having in combination a propeller-shaft, a vertical rotary shaft imparting motion thereto, a three-armed lever having a pivotal connection with a crank-pin attached to a fly-wheel on the vertical shaft, a vibratory or fulcrumed arm pivoted at one end to the boat and at the opposite end to said three-armed lever, oar-like levers fulcrumed to the boat, and links connecting said levers with the said three-armed lever, substantially as specified.

4. A device for propelling a boat having in combination a propeller-shaft, a second shaft imparting motion to the first shaft, a three-armed lever having a pivotal connection with a crank-pin attached to a fly-wheel on the second shaft, a movable fulcrum for said three-armed lever, and means operated by the rower for vibrating said three-armed lever on its fulcrum, substantially as specified.

5. A device for propelling a boat having in combination a propeller-shaft, a second shaft imparting motion to the first shaft, a three-armed lever consisting of a fulcrumed arm and two power-arms, said three-armed lever having a pivotal connection with a crank-pin attached to a fly-wheel on the second shaft said connection being situated on a power-arm, a movable fulcrum for the fulcrum-arm, and means connected with the power-arms for vibrating said three-armed lever on its fulcrum, substantially as specified.

6. A device for propelling a boat having in combination a propeller-shaft, a second shaft imparting motion to the first shaft, a three-armed lever consisting of a fulcrumed arm and two power-arms said three-armed lever having a pivotal connection with a crank-pin attached to a fly-wheel on a second shaft said connection being situated on a power-arm, a vibratory or fulcrum arm pivoted to the boat and to the fulcrum-arm, oar-like levers fulcrumed to the boat, and links connecting said levers with the power-arms, substantially as specified.

591,585. WHEELED PLOW. SIMON A. KERNS and FREDERICK A. HEAD, Rock Island, Ill. Filed June 18, 1897. Serial No. 641,322. (No model.)



Claim.—1. In a wheeled plow, the combination of a lever G provided with a spring-pawl 4 pivoted at its forward end to the frame of the machine, an arm H having a sleeved connection at its lower end with vertical portion 3 of the axle of the front furrow-wheel C and at its upper end pivoted to the lever G a slight distance in the rear of the attachment of said lever to said frame, vertical sleeve 2 attached to said frame and the furrow-wheel C provided with the vertical axle 3 projected upward through said sleeve 2 substantially as shown and for the purpose described.

2. The combination of an adjustable hand-lever G pivoted at its forward end to the frame of the plow, a quadrant J carried on said lever and adapted to be engaged by the spring-pawl 4 seated on said lever, and the arm H suitably pivoted and sleeved at its lower end on the axle 3 of the furrow-wheel C and pivoted at its upper end to the lever G in position to oscillate fore and aft in the movements of said lever G substantially as shown and for the purpose described.

3. In a wheeled plow, the combination of the lever L provided with a short arm 6, arm 7 pivoted thereto, arm 8 pivoted at one end to said arm 7 and at its opposite end to the frame A, arm 9 divergent from and integral with the arm 8 and oscillating on the same pivot and pivotally attached at its opposite end to the plow-beam F, substantially as shown and for the purpose described.

4. In a wheeled plow, the combination of the lever L arms 7 and 8 flexibly connecting said lever to the frame of the machine and arms 9 and 10 extending said connection to the beam F, land-wheel B, axle O thereof journaled in the frame A and post 11 pivotally seated at one end on the inner extremity of the axle O and adapted to be attached at its opposite end to the casting 15 fastened to the plow-beam F whereby the raising and lowering function exerted by the lever L is extended to said axle O and by axially rocking the latter concurrently levels the plow laterally, substantially as shown and for the purpose described.

5. In a wheeled plow, in combination with the mechanism for raising and lowering the latter, the land-wheel B crank-axle O thereof, bolt 11 connecting the wrist of said crank to the beam of the plow, in the manner shown whereby the vertical movement of the plow-beam concurrently axially rotates the axle O in a proportionate degree to level the plow laterally for the purpose specified.

6. In a wheeled plow, the combination of the axle O of the land-wheel thereof provided at its inner end with a crank formation, the bolt 11 sleeved on the wrist of said crank and loosely attached through an opening to either the frame of the machine or the plow-beam, and a coiled spring 13 interposed between the head of said bolt and its opposite point of attachment whereby the concussions imparted to said axle by the irregularity of the land-wheel B are precluded from communication to said plow beam or frame, substantially as shown and for the purpose described.

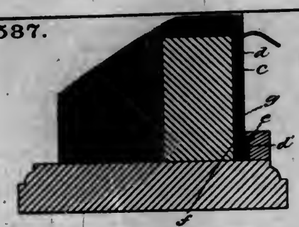
7. In a wheeled plow, the combination of the frame A duplex bracket R attached thereto provided with the slots 17 of variant widths and the plow-beam F provided with lateral bosses 16 projected respectively into said slots and adapted to traverse the wider portion of the latter when the plow is at work, substantially as shown and for the purpose described.

8. In a wheeled plow, the combination of the lever L, suitably-supported frame A, the plow-beam F pivotally connected to said frame, arms 7 and 9 and toggles 8 and 10 intermediate said lever and said beam and adapted, in the rearward throw of said lever, to lock said beam in a suspended position and in the forward throw of said lever to lock said beam downward to its work, substantially as shown and for the purpose described.

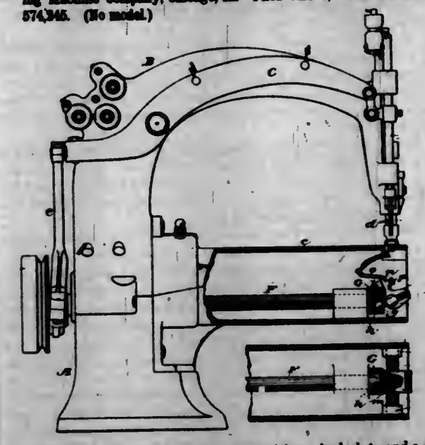
9. In a wheeled plow, the combination of suitably-supported frame A, plow-beam F, suitably supported on said frame, toggle 10 pivoted at its lower end to said beam and at its upper end to the rocking arm 9, the arms 8 and 9 pivoted integrally to the frame A, arm 7 pivoted at one end to arm 8 and at its opposite end to the arm 6 of lever L, the said parts being so interconnected as when the lever L is thrown forward, the joint between arm 9 and toggle 10 falls forward of the line between the opposite ends of said arm and toggle and locks the plow downward, and when said lever is thrown rearward, the joint between the arm 7 falls slightly to the rear of the line between the opposite end of arm 7 and the angle of said lever L whereby the weight of said lever serves to lock said plow in an elevated position and thereby serves the double function of optionally locking the plow up or down, substantially as shown and for the purpose described.

10. In a wheeled plow, the combination of a suitably-supported frame A, lever G provided with spring-pawl 4 and pivoted at its forward end to the front of said frame, vertical axle 3, sleeve 2 seated loosely thereon and attached to said frame A, sleeve 5 seated on the lower portion of said vertical axle 3 and arm H pivotally attached at its lower end to said sleeve 5, quadrant J united integrally or otherwise to the upper end of said arm H and both said quadrant and said arm pivotally attached to said lever G on one common pivot whereby the longitudinal oscillations of the lever G raise and lower the front of the frame A and at the same time the quadrant J and arm H rise and fall in reference to said frame, substantially as shown and for the purpose described.

591,587.



591,588. LOOPER MECHANISM FOR SEWING-MACHINES. LARKIN ONDERDONK, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Jan. 3, 1896. Serial No. 574,345. (No model.)



Claim.—1. A sewing-machine comprising a bed-plate and a driving-shaft extending lengthwise thereof, a looper-carrier supporting a thread-carrying looper journaled in the bed-plate in advance of the forward end of said shaft, means for oscillating the looper longitudinally and for positively vibrating the same laterally bodily, said means consisting of an inclined crank engaging the looper-carrier and connected with the driving-shaft, and means for actuating the driving-shaft; substantially as described.

2. A sewing-machine comprising a bed-plate and a driving-shaft extending lengthwise thereof, a looper-carrier supporting a thread-carrying looper journaled in the bed-plate in advance of the forward end of said shaft and means for oscillating the looper longitudinally and for positively vibrating the same laterally, bodily, said means comprising an inclined crank engaging the looper-carrier, eccentrically connected at one end with the driving-shaft and having its other end extending inwardly toward the axis of the driving-shaft, whereby said inclined crank gives all the respective looper movements, and means for actuating the driving-shaft; substantially as described.

3. A sewing-machine comprising a bed-plate and a driving-shaft, a looper-carrier comprising a thread-carrying looper journaled in the forward end of the bed-plate, means on the forward end of the driving-shaft for oscillating the looper longitudinally and laterally vibrating the same, said means comprising an inclined crank engaging the looper carrier and eccentrically connected by a universal joint with the driving-shaft, and means for actuating the driving-shaft; substantially as described.

4. In a sewing-machine a looper-operating mechanism comprising a driving-shaft, a looper mounted to slide and rock in bearings, one of said movements being bodily in a line across the line traversed by the looper in its other movement, a rod or arm operatively connected with the looper and having a universal-joint connection at one end of the driving-shaft; substantially as described.

5. A looper-operating mechanism for sewing-machines comprising a driving-shaft having an eccentrically-arranged socket on its outer end, a rigid bar or arm having a ball fitting said socket and held in place therein, a looper-carrier mounted on an axis transverse to the axis of the driving-shaft and free to slide and rock, said rigid bar or arm operatively engaging the looper-carrier, whereby in the rotation of the driving-shaft forward-and-backward and sliding movements are given to the looper-carrier, one of said movements being bodily in a right line across the line traversed by said carrier in its other movement; substantially as described.

591,586. LETTER OR CHARACTER FOR SIGNS. EDGAR J. LUTWYCHE, Chicago, Ill., assignor of one-fourth to Elizabeth A. Lutwyche, same place. Filed Dec. 5, 1896. Serial No. 614,565. (No model.)



Claim.—1. A letter, figure, character, or symbol having a body of transparent and amber tinted or colored material and one side thereof covered with a brilliant coating, producing in effect, a gold letter, figure, character or symbol.

2. A letter, figure, character, or symbol having a body of amber tinted or colored transparent material and one side thereof coated with a deposit from nitrate of silver, producing in effect, a gold letter, figure, character or symbol.

3. A letter, figure, character or symbol having a body of amber tinted or colored glass and one side thereof covered with a brilliant material, producing in effect, a gold letter, figure, character or symbol.

4. A letter, figure, character or symbol having a body of amber tinted or colored glass and one side thereof silver-coated, producing in effect, a gold letter, figure, character or symbol.

5. A letter, figure, character or symbol having a body of amber tinted or colored glass provided with a concave back covered with a brilliant material, producing in effect, a gold letter, figure, character or symbol.

6. A letter, figure, character or symbol having a body of amber tinted or colored glass concavo-convex in transverse section and the concave side coated with a deposit from nitrate of silver, producing in effect, a gold letter, figure, character or symbol.

591,587. SASH-FASTENER. WILLIAM J. HEIM, New Britain, Conn. Filed Nov. 16, 1896. Serial No. 612,334. (No model.)

Claim.—In combination, the sash *a*, the clip *c*, the pull-catch *d d'* hung loosely in the clip and provided with stops *g*, the catch *e*, and the spring *f*, all substantially as described and for the purposes set forth.

6. A sewing-machine comprising a driving-shaft, a looper-carrier with its axis transverse to the axis of the driving-shaft, a looper supported by said carrier having its longitudinal axis at an angle to the axis of its carrier, and means comprising an inclined crank on the forward end of the driving-shaft extending from its point of connection with said shaft in a direction toward the plane of the central axis of said shaft and operatively connected with the looper-carrier for giving a loop-taking movement in the direction of the length of the looper and a positive bodily needle-avoiding movement in a line at right angles to the longitudinal axis of said looper; substantially as described.

7. A looper-operating mechanism for sewing-machines comprising a driving-shaft, a rigid rod or arm eccentrically connected to one end thereof, a looper mounted to slide and to rock in bearings and operated by said rod or arm and means for varying the distance of the point of attachment of said rod or arm from the center of the driving-shaft whereby the amount of throw of said looper may be varied; substantially as described.

8. In a sewing-machine, a looper-operating mechanism comprising a driving-shaft having flaring sockets, a collar supported on said shaft and having screws passing therethrough into said sockets whereby the position of the collar on the shaft may be shifted circumferentially, and a looper-rod eccentrically connected to the collar; substantially as described.

9. A looper-operating mechanism for sewing-machines comprising a driving-shaft, a head secured to the outer end thereof and having a diametric groove, an annular piece having a tongue adjustable in said groove and a looper-rod connected at one end to the annular piece; substantially as described.

10. A looper-operating mechanism for sewing-machines comprising a driving-shaft, a head secured to the outer end thereof and having a diametric groove, an annular piece having a tongue adjustable in said groove and having a socket, a rod or arm having a ball on one end fitting within said socket, a sliding and rocking shaft carrying a looper, and with which sliding and rocking shaft the rod or arm is operatively connected; substantially as described.

11. A sewing-machine comprising a bed-plate, a driving-shaft, and means for actuating the same; a looper-carrier, journaled in the bed-plate, a looper supported thereon; means on the driving-shaft for oscillating the looper in the direction of its length and for positively vibrating the same laterally, bodily, said means consisting of a single crank connected and inclined with respect to the driving-shaft and operatively engaging the looper-carrier, substantially as described.

12. In a sewing-machine a looper-operating mechanism comprising a driving-shaft, a looper-carrier, a looper supported thereon, means carried by the driving-shaft for oscillating the looper in the direction of its length and for positively vibrating it laterally, said means consisting of an inclined crank eccentrically mounted at one end on the forward end of the driving-shaft and directly engaging the looper-carrier, substantially as described.

13. In a double-chain-stitch sewing-machine, a driving-shaft and means for actuating the same, a looper-carrier, a looper supported thereon, means on the driving-shaft for oscillating the looper in the direction of its length and for positively vibrating the same laterally, said means consisting of a single crank connected and inclined with respect to the driving-shaft and operatively engaging the looper-carrier; substantially as described.

14. In a double-chain-stitch sewing-machine, a driving-shaft and means for actuating the same, a looper-carrier, a looper supported thereon, means on the driving-shaft for oscillating the looper in the direction of its length and for positively vibrating the same laterally, said means consisting of a single crank connected and inclined with respect to the driving-shaft and operatively engaging the looper-carrier, said crank being carried on the outer end of the driving-shaft forward of its front or outer bearing; substantially as described.

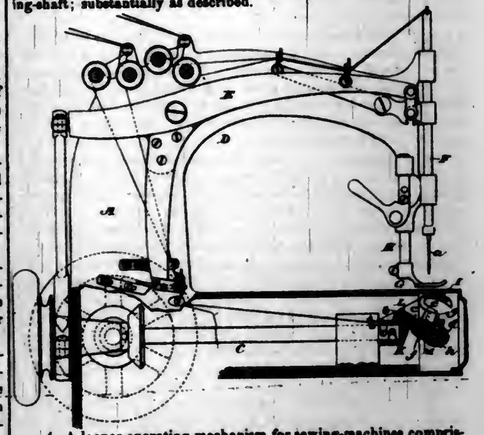
591,539. LOOPER MECHANISM FOR SEWING-MACHINES.

LAMBERT ONDERDONK, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Jan. 4, 1896. Serial No. 574,391. (No model.)

Claim.—1. A looper-operating mechanism comprising a driving-shaft, a straight looper-pin rigidly fixed eccentrically to the driving-shaft, a looper-carrier mounted to slide and rock in bearings and provided with a fork embracing said pin, and a block supported by said looper-carrier having an opening through which the looper-pin passes; substantially as described.

2. A looper-operating mechanism for sewing-machines comprising a driving-shaft, a pin driven from the main shaft, a looper-carrier having oppositely-extending sleeves, journals secured to the machine-frame on opposite sides thereof, over which the sleeves fit and upon which they slide and rock and operative connections between the pin and the carrier; substantially as described.

3. A sewing-machine comprising a bed-plate and a driving-shaft, a looper-carrier supporting a thread-carrying looper journaled in the forward end of the bed-plate, means on the forward end of the driving-shaft for oscillating the looper longitudinally and laterally vibrating the same, said means comprising a rigid straight pin eccentrically connected to the forward end of the driving-shaft and engaging the looper-carrier for oscillating the latter, and a pivoted block secured to said carrier with which said pin also engages whereby the vibratory movement is given the looper, and means for actuating the driving-shaft; substantially as described.



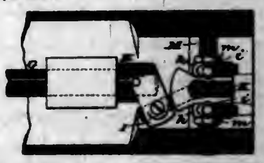
4. A looper-operating mechanism for sewing-machines comprising a driving-shaft, a collar secured to one end thereof, and having an arm projecting from said collar at an angle to the axis of the driving-shaft, an inclined looper-pin connected with said projecting arm, and a looper-carrier having a fork engaged by said pin; substantially as described.

5. A sewing-machine comprising a bed-plate and a driving-shaft, a looper-carrier supporting a thread-carrying looper journaled in the bed-plate in advance of the forward end of said shaft, and means for oscillating the looper longitudinally, and for positively vibrating the same laterally bodily, said means comprising an arm projecting from the driving-shaft on an incline in a direction away from the central axis thereof, and an inclined pin attached to said projecting arm and extending in a direction toward the plane of the central axis of the driving-shaft and operatively engaging the looper-carrier; substantially as described.

6. In a sewing-machine having a driving-shaft, a looper-carrier with means for supporting it, and means for operating said looper-carrier to give the looper forward and backward movements in the direction of its length and bodily sidewise movements across the line traversed by said looper in its other movements, said means comprising a rigid straight inclined pin mounted on the forward end of the driving-shaft and a fulcrum-block, secured to the looper-carrier with which said pin engages, substantially as described.

591,540. LOOPER MECHANISM FOR SEWING-MACHINES.

LAMBERT ONDERDONK, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Jan. 7, 1896. Serial No. 574,638. (No model.)



Claim.—1. A sewing-machine comprising a driving-shaft, a looper-carrier having sliding and rocking movement, and provided with rearwardly and forwardly extending wings, an inclined pin or rod mounted on the forward end of the driving-shaft and embraced by the rearwardly-extending wings and a member engaged by the forwardly-extending wings, substantially as described.

2. In a sewing-machine, a looper, a support therefor having rearwardly and forwardly extending wings and means for operating the same to give loop-taking, loop-leaving and needle-avoiding movements to the looper, said means comprising an inclined rod or pin embraced by the rearwardly-extending wings, a member engaged by the forwardly-extending wings and means for giving rotary movement to the inclined rod or pin, substantially as described.

3. A looper-operating mechanism comprising a driving-shaft, a rigid rod or pin eccentrically connected at one end with said driving-shaft, and having its outer end bent to lie in a plane approximately parallel with the axis of the driving-shaft and a looper-carrier to which said rigid bent rod or pin is operatively connected, said looper-carrier being supported in fixed bearings and having oscillating and sliding movements at right angles to each other, the oscillating movement of the looper being imparted to it by means of the eccentric connection of the pin or rod with the driving-shaft, and the sliding sidewise movement of the looper being imparted to it by that portion of the pin or rod which is approximately parallel with the axis of the driving-shaft; substantially as described.

4. A looper-operating mechanism for sewing-machines comprising a driving-shaft, a looper-carrier having oppositely-extending journals mounted to slide and rock in fixed bearings, a rigid bar or rod having an inner portion inclined at an angle to the axis of the driving-shaft, and eccentrically connected thereto, and having an outer portion lying in a plane substantially parallel with the axis of the driving-shaft, and means for adjusting the outer portion with relation to the axis of the driving-shaft, said rigid bar or rod being operatively connected with the looper-carrier; substantially as described.

5. A looper-operating mechanism for sewing-machines comprising a driving-shaft having a collar thereon with an inclined projection, a rod or pin having an inclined portion adjustably secured to said projection and having an outer portion arranged with its axis substantially parallel with the axis of the driving-shaft, a looper-carrier mounted to slide and rock in fixed bearings to which carrier said rod or pin is operatively connected; substantially as described.

6. A looper-operating mechanism comprising a carrier having oppositely-extending journals mounted to slide and rock in fixed bearings, a rigid bent pin or rod operatively connected with the driving-shaft and operatively connected to the looper-carrier, with means for adjusting the bent pin to vary the amount of sliding movement of the looper-carrier journals; substantially as described.

7. A looper-operating mechanism comprising a driving-shaft, a looper-carrier having journals mounted to slide and rock in fixed bearings, a rigid bent pin eccentrically connected with the driving-shaft and adjustable axially with respect thereto, and operatively connected with the looper-carrier, and means for adjusting the looper-carrier circumferentially on its supporting-axis to bring it nearer to or farther from the needle; substantially as described.

8. A looper-operating mechanism for sewing-machines comprising a shaft mounted to slide and rock in fixed bearings on the machine-frame, said shaft being provided with a screw-threaded shoulder, a looper-carrier arranged on said shaft and a screw-threaded collar for holding said looper-carrier in position; substantially as described.

9. A looper-operating mechanism comprising a shaft having projecting portions with screw-threaded openings therein, a looper-carrier on said shaft, said looper-carrier being provided with projections and adjusting-screws passing through said projecting portions and bearing against the projections on the looper-carrier, whereby the latter is adjusted radially with respect to the axis of the shaft; substantially as described.

10. A looper-operating mechanism for sewing-machines comprising a shaft mounted to slide and rock in fixed bearings on the machine-frame, a looper-carrier on said shaft capable of circumferential movement around the same, and screws, one above and one below the central longitudinal axis of the shaft on which the carrier is supported said screws bearing on the carrier and means for supporting said screws; substantially as described.

11. A looper-operating mechanism comprising a sliding and rocking carrier, a driving-shaft, an inclined crank-pin eccentrically connected with the driving-shaft, and operatively engaging the carrier and means for adjusting said crank-pin in the direction of its length; substantially as described.

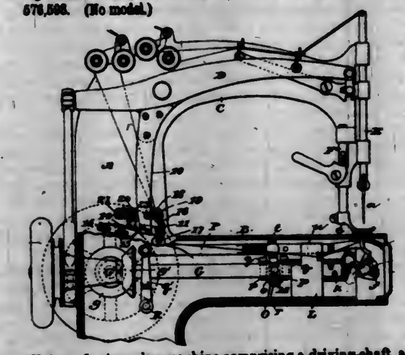
12. A sewing-machine comprising a bed-plate and a driving-shaft, a looper-carrier supporting a thread-carrying looper journaled in the forward end of the bed plate, means on the forward end of the driving-shaft for oscillating the looper longitudinally and vibrating it laterally, said means comprising a crank-pin having an inclined portion engaging the looper-carrier and a substantially straight portion also engaging the looper-carrier, and means for actuating the driving-shaft substantially as described.

13. A sewing-machine comprising a bed-plate and a driving-shaft, a looper-carrier supporting a thread-carrying looper journaled in the forward end of the bed-plate, means on the forward end of the driving-shaft for oscillating the looper longitudinally and vibrating it laterally, said means consisting of a crank-pin eccentrically connected with the driving-shaft and having an inclined portion engaging the looper-carrier and a substantially straight portion also engaging the looper-carrier, and means for actuating the driving-shaft; substantially as described.

14. A looper-operating mechanism for sewing-machines comprising a looper-carrier, a shaft to which the looper-carrier is attached having oppositely-extending pivot-points, and screws, one above and one below the central axis of the shaft, and means for supporting said screws adjacent the carrier to bear upon the same whereby it is adjusted, substantially as described.

591,541. LOOPER MECHANISM FOR SEWING-MACHINES.

LAMBERT ONDERDONK, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Jan. 23, 1896. Serial No. 576,508. (No model.)



Claim.—1. A sewing-machine comprising a driving-shaft, a feed-dog-carrying bar or frame arranged parallel therewith, connections between the driving-shaft and feed-dog-carrying bar whereby the latter is given the usual four motions, and a shaft arranged transversely of the driving-shaft and adapted to slide and rock in bearings on the machine-frame, a looper-carrier supported on said shaft, a looper on said carrier arranged with its longitudinal axis at an angle to the axis of said transverse shaft and a rod operatively connected with said looper-carrier or shaft, for giving it an oscillatory movement in the direction of the length of the looper and a sliding movement across the line traversed by said looper in its oscillating movement, said rod being eccentrically connected at its inner end to the driving-shaft; substantially as described.

2. A sewing-machine comprising a driving-shaft, a feed-dog-carrying bar or frame arranged parallel therewith, connections between the driving-shaft and feed-dog-carrying bar whereby the latter is given the usual four motions, and a shaft arranged transversely of the driving-shaft, and adapted to slide and rock in bearings on the machine-frame, a looper-carrier supported on said shaft, a looper on said carrier arranged with its longitudinal axis at an angle to the axis of said transverse shaft and a rod operatively connected with said looper-carrier or shaft, for giving it an oscillatory movement in the direction of the length of the looper and a sliding movement across the line traversed by said looper in its oscillating movement, said rod having an eccentric and universal-joint connection with the driving-shaft, substantially as described.

3. In a sewing-machine having a cylindrical casing and a driving-shaft extending lengthwise thereof, a feed-dog-carrying bar arranged parallel with said driving-shaft, an eccentric adjustably inclined on said driving-shaft, a strap embracing said eccentric, a universal-joint connection between the strap and the feed-dog-carrying bar, and a looper operatively connected with the driving-shaft, and having an oscillating movement on an axis at an angle to the axis of the driving-shaft; substantially as described.

4. In a sewing-machine having a cylindrical casing and a driving-shaft extending lengthwise thereof, a feed-dog-carrying bar arranged parallel with said driving-shaft, an eccentric adjustably inclined on said driving-shaft, a strap embracing said eccentric, a universal-joint connection between the strap and the feed-dog-carrying bar, and a looper operatively connected with the driving-shaft and with its longitudinal axis arranged substantially longitudinally of the bed-plate; substantially as described.

5. The herein described looper-operating mechanism for sewing-machines comprising a looper-carrier having oppositely-extending trunnions, a fulcrum-pin set therein, and means for adjusting said pin, and a looper-rod fulcrumed on said pin; substantially as described.

6. The herein-described looper-operating mechanism for sewing-machines and the like comprising a looper-carrier having oppositely-extending trunnions mounted to slide and rock in fixed bearings its sliding movements being bodily in a right line across the line traversed by it in its rocking movements, an operating-rod for said carrier, and an adjustable post or pin on which the operating-rod is fulcrumed; substantially as described.

7. A looper-operating mechanism comprising a looper-carrier mounted to slide and rock, the socket-piece set therein, the looper-rod passing therethrough, said looper-rod being slotted, and a pin or post adjustable on the machine-frame engaging the slot in the looper-rod; substantially as described.

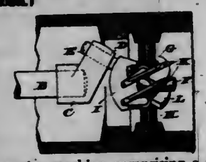
8. A looper-operating mechanism comprising a looper, a carrier therefor, a rod driven from the main shaft and an adjustable fulcrum therefor, comprising a post extending down through an opening in the bed-plate, a sleeve surrounding the same, and means for holding the post and sleeve in position; substantially as described

9. A looper-operating mechanism comprising a looper, a carrier therefor, a rod driven from the main shaft and an adjustable fulcrum therefor, comprising a post extending down through an opening in the bed-plate, a sleeve surrounding the same having a head resting on the casing and having its lower part extending below the casing and screw-threaded to receive a nut, said post having a shoulder resting on the head of the sleeve and a nut on its lower end; substantially as described.

10. A sewing-machine comprising a bed-plate, a feeding mechanism moving in a defined path longitudinally thereof and a looper-carrier, a thread-carrying looper therein, said looper being arranged with its longitudinal axis approximately parallel with the line of feed, and means for giving said looper an oscillatory movement in the direction of its length and a bodily-sliding movement transverse to the line of feed and also across the line traversed by said looper in its oscillating movement; substantially as described.

11. A sewing-machine comprising a bed-plate, a feeding mechanism moving in a defined path longitudinally thereof, and a looper-carrier, a thread-carrying looper thereon, said looper being arranged with its longitudinal axis approximately parallel with the line of feed, said means for giving said looper an oscillatory movement in the direction of its length and a sliding movement across the line traversed by said looper in its oscillating movement, said means comprising a driving-shaft also extending longitudinally of the bed-plate and an inclined pin eccentrically connected to the driving-shaft, and operatively engaging the looper-carrier; substantially as described.

591,542. LOOPER MECHANISM FOR SEWING-MACHINES. LAMBIE OSBERDOUW, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Feb. 19, 1896. Serial No. 579,573. (No model.)



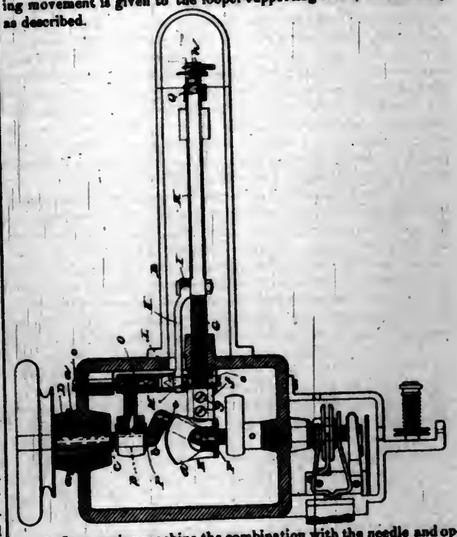
Claim.—1. A sewing-machine comprising a main shaft, an inclined rod or pin eccentrically connected therewith and having a straight portion, a looper-carrier operatively connected to the inclined rod or pin for oscillating the looper-carrier and having an inclined way or groove between which the straight portion fits and upon the sides of which way or groove it bears to give the looper-carrier its sliding movements; substantially as described.

2. A sewing-machine comprising a driving-shaft, an inclined pin or rod eccentrically connected therewith and having at its outer end a straight portion arranged parallel with the axis of the main shaft, a looper-carrier mounted to slide and rock in fixed bearings and provided with an inclined way embracing the straight portion of the bar or rod, and having rearwardly-extending wings embracing the inclined portion of said bar or rod; substantially as described.

591,543. LOOPER MECHANISM FOR SEWING-MACHINES. LAMBIE OSBERDOUW, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Apr. 6, 1896. Serial No. 586,312. (No model.)

Claim.—1. A sewing-machine comprising a main-shaft, a looper-supporting shaft extending at a right angle thereto, a suitable bed-plate inclosing the same, a feeding device working longitudinally thereof, a frame to which one end of the looper-supporting shaft is connected having wings and a yoke, said main shaft having a crank working between said wings to vibrate the looper-shaft, and an eccentric working in the yoke to give longitudinal sliding movement to the looper-supporting shaft; substantially as described.

2. In a sewing-machine, a main shaft formed at one portion with an inclined crank and having also an eccentric combined with a looper-supporting shaft extending longitudinally of the bed-plate of the machine, a looper-rocking frame to which the looper-supporting shaft is connected at its rear end and having wings embracing the inclined crank and having rearward of the wings an opening constituting a yoke in which the eccentric on the main shaft works, whereby in the rotation of the main shaft a rocking and reciprocating movement is given to the looper-supporting shaft; substantially as described.



3. In a sewing-machine the combination with the needle and operating mechanism, of a looper-carrier comprising a shaft extending lengthwise of the machine bed-plate and carrying near its outer end a looper, and having at its rear end wings and a yoke, and a rotating shaft having means for engaging the yoke and wings; substantially as described.

4. A sewing-machine comprising a bed-plate and stitch-forming mechanism, the latter including a sliding and rocking looper-carrier, comprising a long shaft extending longitudinally of the bed-plate and carrying the looper and having the rocking frame at the other end provided with a yoke; substantially as described.

5. In a sewing-machine having a cylindrical bed-plate, a transverse main shaft, having a crank and an eccentric thereon, a looper-carrier having wings and a yoke engaging respectively the crank and eccentric, and having a rigid portion extending longitudinally of the bed-plate, and a looper secured thereto; substantially as described.

6. In a sewing-machine a main shaft, having a crank and an eccentric thereon, a looper-rocking frame having wings and a yoke engaging respectively the crank and eccentric, and having a laterally-extending tubular portion, and a looper-supporting shaft carrying a looper and removably and adjustably secured within said tubular portion; substantially as described.

7. In a sewing-machine a rotating shaft having suitable supporting-bearings and having an inclined crank and an eccentric, a looper-carrier having wings and a yoke, which engage respectively the inclined crank and eccentric and having a rigid laterally-projecting portion on one side only and a looper secured to said rigid projecting portion; substantially as described.

8. In a sewing-machine, the main shaft, the looper-supporting shaft with connections between the two for reciprocating and oscillating the latter, a feed-dog-carrying bar, a rocking frame to which the same is attached, and a cam reciprocating and oscillating with the looper-supporting shaft and engaging the feed-dog-carrying bar for raising the same, and means for oscillating the said rocking frame; substantially as described.

9. A sewing-machine comprising a rear transverse standard, a main shaft supported thereon, a feed-rocking frame also entirely supported within said standard, a looper-rocking frame within the same and operatively connected to the main shaft, a bed plate or casing extending at right angles to the rear standard and inclosing a feed-dog-carrying bar and reciprocating and oscillating looper-supporting shaft which, at their rear ends, extend into the rear standard and are operatively connected to the feed-rocking frame and looper-rocking frame, respectively; substantially as described.

10. A sewing-machine comprising a driving-shaft, a bed-plate, and a looper-operating device comprising a shaft extending longitudinally of the bed-plate and having at its inner end a frame, an inclined crank operatively engaging the frame to give an oscillating motion to the shaft and means for reciprocating said shaft; substantially as described.

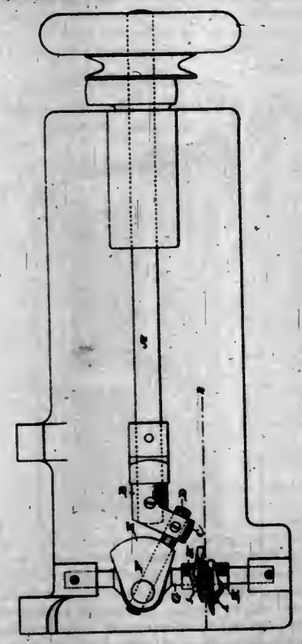
11. A sewing machine comprising a driving-shaft, a looper-supporting shaft journaled in bearings on the machine-frame and having a reciprocatory and oscillatory motion, a rocking frame to which the looper-supporting shaft is attached, and a rigid crank and eccentric connection between the rocking frame and the driving-shaft; substantially as described.

12. A sewing-machine comprising a driving-shaft, a bed-plate, and a looper-operating device comprising a shaft extending longitudinally of the casing, and having at its inner end a frame, and means carried on the driving-shaft directly engaging said frame to give said oscillatory and reciprocating movements; substantially as described.

13. In the herein-described sewing-machine, the driving-shaft provided with the rigid integral inclined crank and an eccentric, both arranged between the bearings thereof the looper-supporting mechanism having a rocking frame connected with the crank and with the eccentric for reciprocating and oscillating the looper; substantially as described.

14. A sewing-machine comprising a driving-shaft, a bed-plate and a looper-operating device comprising a shaft extending longitudinally of the bed-plate and having at its inner end, a frame, and an inclined crank and eccentric operatively engaging the frame, and operated from the driving-shaft, substantially as described.

591,544. LOOPER MECHANISM FOR SEWING-MACHINES. LAMBIE OSBERDOUW, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Apr. 15, 1896. Serial No. 587,676. (No model.)



Claim.—1. A sewing-machine comprising a driving-shaft, a second shaft arranged forward of the main shaft and with its axis at right angles thereto and supported in fixed bearings on the machine-frame, an inclined crank and rocking-fork connection between the driving-shaft and the transverse shaft, and a longitudinally and circumferentially adjustable looper-support arranged on said transverse shaft independently of the rocking fork; substantially as described.

2. A looper mechanism for sewing-machines, comprising a looper-shaft, a plurality of looper-supports carried by said shaft, means for adjusting said supports circumferentially and longitudinally of said shaft, loopers carried by said supports, and means for adjusting the loopers on said supports vertically and laterally, substantially as described.

3. A looper mechanism for sewing-machines, comprising an actuating-shaft, a looper-shaft, and a looper-support, actuating mechanism for imparting to the looper-support a rocking and laterally-vibrating movement comprising a rocking fork, and means for adjusting said support independently of said fork, substantially as described.

4. A looper mechanism for sewing-machines, comprising an actuating-shaft, a looper shaft, and a looper-support, actuating mechanism for imparting to the looper-support a rocking and laterally-vibrating movement comprising a rocking fork arranged near one end of the looper-shaft, the looper-support being arranged near the other end of the looper-shaft, and means for adjusting said support upon said looper-shaft, substantially as described.

5. A sewing-machine comprising a looper-operating shaft, and a plurality of split collars on said shaft, with means for securing them in any position thereon, said split collars being provided with sockets for the reception of loopers, whereby the distance apart or the position on the shaft, of said loopers may be varied; substantially as described.

6. A sewing-machine comprising a driving-shaft, a looper-supporting shaft mounted to slide and rock in fixed bearings on the machine-frame, means on the forward end of the main shaft for oscillating and reciprocating the second shaft comprising an inclined pin adjustably secured to the main shaft and operatively connected with the second shaft, whereby both the sliding and oscillating movements of said second shaft may be varied, and a circumferentially and longitudinally adjustable clamping-collar arranged on said second shaft, and a looper secured thereto; substantially as described.

591,545. LOOPER MECHANISM FOR SEWING-MACHINES. LAMBIE OSBERDOUW, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed July 16, 1896. Serial No. 599,689. (No model.)



Claim.—1. A looper mechanism for sewing-machines comprising a looper-carrier; a block having an adjustable connection therewith; and a looper having an adjustable connection with the block, the latter adjustment being substantially at right angles to the former, substantially as described.

2. A looper mechanism for sewing-machines, comprising a looper-carrier; a looper supported by said carrier; and means for securing two bodily, right-line adjustments of said looper relative to its carrier, substantially at right angles to each other, substantially as described.

3. A looper mechanism for sewing-machines, comprising a looper-carrier; a block having an adjustable connection therewith; a second block having an adjustable connection with the first block; and a looper carried by said second block, substantially as described.

4. A looper mechanism for sewing-machines, comprising a looper-carrier; two blocks supported by said carrier; means for adjusting said blocks relative to the carrier and to each other; the adjusting means between the two blocks being a pin-and-slot connection, substantially as described.

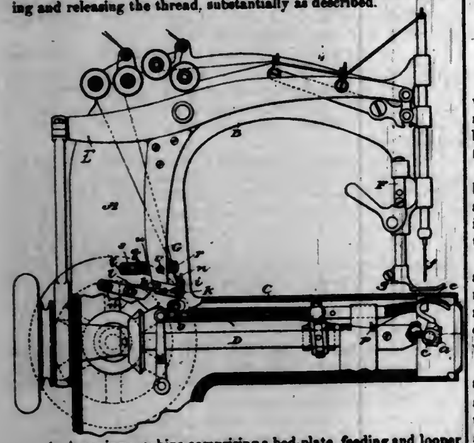
591,546. TAKE-UP MECHANISM FOR SEWING-MACHINES. LAMBIE OSBERDOUW, Boston, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Jan. 23, 1896. Renewed Aug. 23, 1897. Serial No. 649,243. (No model.)

Claim.—1. A sewing-machine comprising suitable stitch-forming mechanism including a needle-operating lever having a rigid downward extension thereupon, a forked piece secured to said downward extension, each side of the fork being provided with a thread-guiding eye, a stationary cam projecting into the plane between the two guiding-eyes, and a thread-clamping device secured to the machine-frame and means carried by the needle-lever and operatively engaging the thread-clamping device to cause the same to grip and release the thread; substantially as described.

2. In a sewing-machine the combination with the needle the lever operating the same and having a downward extension, the looper and the main driving-shaft, of a positively-actuated take-up for the lower thread consisting of a forked piece provided with a guiding-eye on each part of the fork secured on said downward extension, a stationary cam projecting into the path of the thread and between the guiding-eyes, a lug or projection on said lever, and a clamping device for the thread secured to the machine-frame and having a spring member adapted to be operated by the projection or lug on the lever to alternately grip and release the lower thread; substantially as described.

3. A sewing-machine comprising a bed-plate, feeding and looper

mechanisms arranged therein, a needle-operating lever having a downward extension and a take-up mechanism comprising a cam, a forked piece attached to said downward extension and reciprocating back and forth in the movement thereof, and means for alternately catching and releasing the thread, substantially as described.



4. A sewing-machine comprising a bed-plate, feeding and looper mechanisms arranged therein, a needle-operating lever having a downward extension, and a take-up mechanism comprising a cam, a forked piece attached to said downward extension and reciprocating back and forth in the movement thereof, a clamping device attached to the machine-frame, and a projection carried on said needle-lever extension adapted in its reciprocation to cause said clamping device alternately to catch and release the thread, substantially as described.

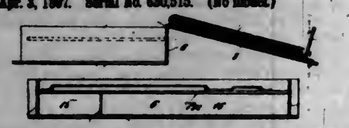
591,547. HANDLE. JAMES O'NEILL, Wallace, Idaho. Filed June 6, 1896. Renewed Aug. 20, 1897. Serial No. 643,960. (No model.)



Claim.—1. The combination with the plate, having end flanges and parallel ears struck up from the body of plate and the handle proper pivoted between said flanges and ears substantially as shown and described.

2. The combination with the plate, having end and bottom flanges and ears parallel with the end flanges, the handle pivoted between the ears and flanges and the spring attached to handle and bearing upon the plate substantially as shown and described.

591,548. POCKET-CASE. VINCENZO SOLAMONE, Brooklyn, N. Y. Filed Apr. 3, 1897. Serial No. 630,515. (No model.)



Claim.—1. A pocket-case, comprising a box which is open at one side, and at the front and the back of which is provided with a hinged cover to which is secured a longitudinal plate which is adapted to close the open front of the case, said case being also provided with a longitudinal partition-plate between which and one side thereof is placed a transverse partition-plate, and said longitudinal partition-plate being provided with straps for holding a comb, and other articles, substantially as shown and described.

2. A pocket-case, comprising a box which is open at one side, and at the front and the back of which is provided with a hinged cover to which is secured a longitudinal plate which is adapted to close the open front of the case, said case being also provided with a longitudinal partition-plate between which and one side thereof is placed a transverse partition-plate, and said longitudinal partition-plate being provided with straps for holding a comb, and other articles, and said cover being provided with a note-book which is detachably connected therewith, substantially as shown and described.

591,549. COMBINED CANE AND CAMP-STOOL. JOACHIM H. A. BERENS, Hamburg, Germany. Filed Feb. 24, 1897. Serial No. 624,818. (No model.)



Claim.—1. In a combined cane and camp-stool, the cane provided with a perforated ferrule in combination with two pivoted legs adapted to clamp the cane above their point of connection, and a brace pivoted at the end of each leg and adapted to engage the perforations in the ferrule, substantially as set forth.

2. In a combined cane and camp-stool, the hollow cane in combination with a pair of legs pivoted together, each leg provided with a cut-away portion above the pivot, said cut-away portions combining to form a seat and clamp for the cane, and means for preventing the spread of the legs, substantially as and for the purpose set forth.

3. A cane hollow throughout its length, a ferrule and detachable handle therefor, in combination with a pair of shorter pivoted rods, means for connecting the lower end of said rods with the ferrule, and a foldable seat adapted to be connected to the upper ends of the cane and rods, and said seat and rods adapted to be contained within the cane, substantially as and for the purpose set forth.

4. In a combined cane and camp-stool, the cane provided with a perforated ferrule, in combination with two legs pivoted together, a cut-away portion in each leg above the pivot, said cut-away portions combining to form a seat and clamp for the cane, braces foldable upon the legs and adapted to engage the perforations in the ferrule, and a detachable triangular seat, said legs, braces and seat adapted to be contained within the cane, substantially as and for the purpose set forth.

591,550. SCREEN-DOOR. JULIA PEITZ, Concord, Mich. Filed Feb. 27, 1897. Serial No. 625,205. (No model.)



Claim.—1. As a new article of manufacture, a fly-guard constructed of flexible material provided with folding sections adapted to fold one upon the other and allow the guard to collapse, one edge of the said guard being adapted to be attached to the door-frame and the other edge to the door, substantially as described.

2. A fly-guard for doors, constructed of flexible material formed with folding portions adapted to fold upon each other to allow the guard to be collapsed, one edge of the guard being adapted to be attached to the door-frame and the other edge to the door, and said guard provided with an extension adapted to be secured to one side of the door and prevent entrance of the flies at that point, substantially as described.

3 A fly-guard for doors, constructed of flexible material having stays pivoted together and forming folding sections adapted to fold one upon the other, one edge of the guard being adapted to be secured to the door-frame and the other edge to the door, substantially as described.

4. A fly-guard for doors, constructed of two layers or plies of flexible material provided with stays between said plies secured thereto by stitching, said stays having their ends at one side of the guard connected by rivets and forming folding sections adapted to fold together to permit the guard to collapse, substantially as described.

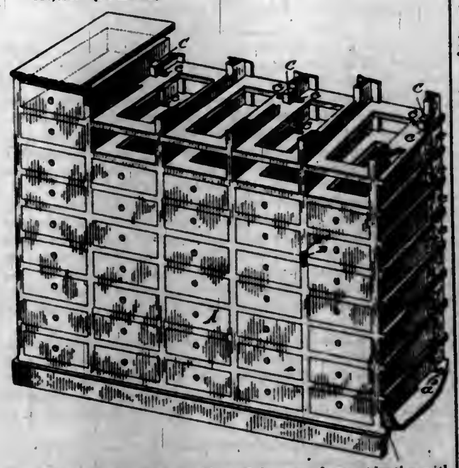
5. In a fly-guard for doors, the combination with a door-frame and a door, of a fly-guard constructed of flexible material provided with stays riveted together at one end and forming folding sections to permit the guard to collapse, one edge of the guard being secured to the horizontal bar of the door-frame and the other edge thereof to the horizontal top bar of the door, and said guard also provided with an extension secured to the vertical side of the bar of the door and projecting over upon the door-jamb, substantially as described.

591,551. PNEUMATIC TIRE. OLIVER S. HARMON, Toronto, Canada. Filed Feb. 1, 1897. Serial No. 621,453. (No model.)



Claim.—The combination with the pneumatic tire B, having an elastic collar 7 at one end and cut away in rear thereof, the button 9 secured to said tube, and the tongue 8 secured to the tube and passing through the said collar and engaging with the button 9, of the elastic tire A having the edges turned inwardly, the wires to which said turned-in edges are secured, the layer 5, of textile material, and the crescent-shaped strip 4 of leather and the lining 2 of textile material, substantially as described.

591,552. DEVICE FOR LOCKING DRAWERS OF CABINETS. DAVID R. HUNTER, Cambridge, Mass. Filed Jan. 4, 1897. Serial No. 617,899. (No model.)



Claim.—1. In a case or cabinet of drawers, the combination with a plurality of longitudinally-movable locking-rods, carrying locking devices, adapted to engage stops of the drawers, of a transverse shifting-bar, pivoted levers loosely connecting said bar to said rods, said levers having an arm pivoted to said bar and an arm connected to said rod, and two of said levers have each a third arm extended laterally, and a counterbalance-weight suspended from said third arms, substantially as described.

2. In a device of the class described, a locking-rod, carrying locking devices, adapted to engage drawer-stops intermediate the lengths of the drawers, a flat arm rigidly extending vertically edgewise therefrom to the rear of the case, a bracket provided with an alining slot for said arm, a shifting-bar, connections between said arm and shifting-bar, and means to operate said shifting-bar, substantially as described.

3. In a case or cabinet of drawers, the combination with a plurality of longitudinally-movable locking-rods, carrying locking devices, adapted to engage stops of the drawers, of a plurality of shifting-links pivotally connected to each other and extending across the case, pivoted levers, each having an arm connected to an adjacent locking-rod and an arm connected to the shifting-links, and a key-rod extending to the front of the case and eccentrically connected at its rear to said links, substantially as described.

4. In a case or cabinet of drawers, the combination with a plurality of longitudinally-movable locking-rods, carrying locking devices, adapted to engage stops of the drawers, of a plurality of shifting-links pivotally connected to each other and extending across the case, pivoted levers, each having an arm connected to an adjacent locking-rod and an arm connected to the shifting-links, and certain of said levers having third arms extending horizontally, a counterbalance-weight suspended therefrom, and a key-rod extending to the front of the case and eccentrically connected at its rear to said links, substantially as described.

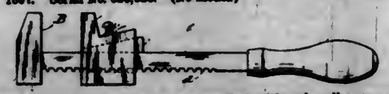
5. The combination with a stationary barrel, provided with peripheral slots, having offset ends at each end of said slots, of a plug fitted to rotate within said barrel, tumblers carried by said plug, said tumblers being adapted to work in said slots, and means to normally engage said tumblers with said offsets, said plug being adapted to be rotated by a key, substantially as described.

6. The combination with a stationary barrel, provided with peripheral slots, having T-shaped opposite ends, of a plug fitted to rotate within said barrel, tumblers carried by said plug, said tumblers being adapted to work in said slots, and means to normally engage said tumblers with said T-shaped ends, said plug being adapted to be rotated by a key, substantially as described.

7. The combination with a stationary barrel, provided with peripheral slots, having offset ends, and a plug fitted to rotate within said barrel, of locking-rods, and operating mechanism therefor, a rotatable key-rod being included in the latter, a socket-piece interlocked with said key-rod, and spindles adjustably secured in said plug and extending beyond the latter into said socket-piece, substantially as described

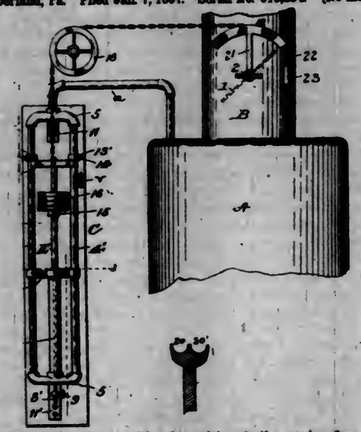
8. The combination with a stationary barrel, provided with peripheral slots, having offset ends, tumblers, nibs on the latter to operate in said slots, and a plug fitted to rotate within said barrel, of locking-rods, and operating mechanism therefor, a rotatable key-rod being included in the latter, a socket-piece interlocked with said key-rod, spindles adjustably secured in said plug and extending beyond the latter into said socket-piece, and springs between said adjustable spindles and said tumblers, substantially as described.

591,553. WRENCH. JOHANNES H. JOHNSON, North Cape, Wis., assignor of one-half to Oscar A. Spillum, same place. Filed Jan. 21, 1897. Serial No. 620,026. (No model.)



Claim.—In a wrench, a bar provided with a handle at one end thereof, a fixed jaw at the other end and rack-teeth on its under side, a sliding-jaw member provided with a passage through which the said bar extends, a clamping jaw-piece and an extension in rear thereof having a longitudinal slot and teeth in the passage opposite said slot to engage those on the bar, a wedge-block inserted in said passage between the bar and jaw and having its enlarged exterior disposed at the rear thereof, a stud provided with a head and projecting through said slot and a threaded shank engaging the said wedge-block, a washer bridging said slot, and a spring between said washer and stud-head, substantially as described.

591,554. DAMPER-REGULATOR. CHARLES C. KNITT, Northumberland, Pa. Filed Jan. 7, 1897. Serial No. 618,234. (No model.)



Claim.—1. The combination with a boiler and a furnace, of a fluid-pressure damper-regulator, comprising an angular steam-pipe

frame, a pipe connection therefrom to the boiler, a pressure-cylinder secured to and opening into the lower end of the steam-pipe frame, a piston in the cylinder, a guide cross-bar on the upper end of the piston having its ends slidingly engaging the side pieces of the frame, a damper journaled in the furnace-flue, a grooved pulley, a chain over the said pulley and operatively connected to the piston and the damper and a counterbalance-weight on the damper.

2. In a fluid-pressure damper-regulator, the steam-pipe frame herein described, comprising parallel steam side pipes, tubular cross-heads connecting said side pipes at top and bottom, a piston-cylinder extending vertically from the lower cross-head, a piston in the vertical cylinder, a guide cross-rod on the upper end of the piston having its ends slidingly engaging the parallel side pipes, and a steam-pipe secured to the upper cross-head.

591,555. **DISK HARROW.** PETER R. LITTLE, Dayton, Ohio, assignor to the Ohio Rake Company, same place. Filed May 24, 1897. Serial No. 637,980. (No model.)



Claim.—1. In a disk harrow, the combination, with the disk gang, of a buffer-head mounted to rotate on the inner end of the gang, and provided with an annular groove on its under surface, with a series of balls carried in said groove of a diameter slightly in excess of the depth of the groove and bearing against the surface of the innermost disk, to receive the thrust of the opposing disk gang, substantially as shown and described.

2. In a disk harrow, the combination, with the disk gangs, of a pair of buffer-heads mounted to rotate on the inner ends of the gangs, and each provided with concentric annular grooves on their under surfaces, with a series of balls carried in said grooves of a diameter slightly in excess of the depth of the grooves, and bearing against the surface of the innermost disks of each gang, substantially as shown and described.

591,556. **MECHANICAL SPLICE-BAR.** HENRY H. LINCOLN, Hartford, Conn., assignor to The Johns-Pratt Company, same place. Filed July 1, 1897. Serial No. 643,087. (No model.)



Claim.—1. A splice-ear having means for attachment to a supporting part, a wire-groove along the lower edge and opening downwardly, and a movable jaw arranged to project into the wire-groove and normally make contact with the surface of the wire in the groove in a manner that allows the wire to be thrust into the groove but not drawn out of the groove, substantially as specified.

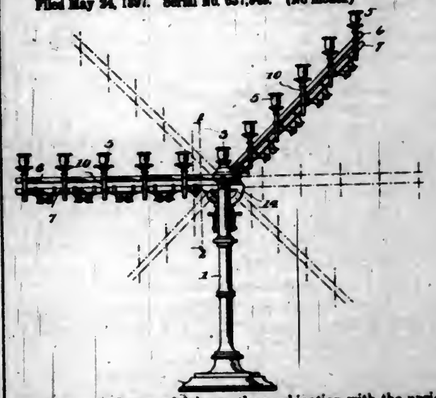
2. A splice-ear having means for attachment to a supporting part, a wire-groove along the lower edge and opening downwardly, and a pair of movable jaws arranged to project into the wire-groove and normally make contact with the surface of the wire in the groove in a manner that allows the wire to be thrust into the groove but not drawn out of the groove, substantially as specified.

3. A splice-ear having means for attachment to a supporting part, a wire-groove opening downwardly along the lower edge each side of the middle of the ear, a partition dividing the wire-groove at the middle of the ear, and movable jaws arranged to project into the wire-groove and normally make contact with the surface of the wire in the groove in a manner that allows the wire to be thrust into the groove but not drawn out of the groove, substantially as specified.

4. A splice-ear having a threaded stud-socket, openings on each side of the socket, a groove along the lower edge, movable jaws located in the openings and arranged to project into the groove and normally make contact with the surface of the wire in the groove in a manner that allows the wire to be thrust into the groove but not drawn out of the groove, substantially as specified.

5. A splice-ear having a threaded stud-socket, openings in the side of the socket, a groove along the lower edge, a partition dividing the groove at the middle of the ear, movable jaws pivoted in the openings and arranged to project into the groove and normally make contact with the surface of the wire in the groove in a manner that allows the wire to be thrust into the groove but not drawn out of the groove, and means for keeping the jaws so as to normally make contact with the wire in the groove, substantially as specified.

591,557. **CANDELABRUM.** JOHN MARKOWSKY, Philadelphia, Pa. Filed May 24, 1897. Serial No. 637,949. (No model.)



Claim.—1. In a candelabrum, the combination with the upright standard and adjustable arms pivoted thereto and consisting each of two parallel bars, the parallel bars of each arm being pivotally connected together by the stems of candle-holders, of a segmental ratchet at the inner end of one bar of each arm, and a sliding spring-actuated pawl to engage each segmental ratchet to hold the arms in various adjustments, said pawls being attached to the upright standard beneath the ratchets in position to engage their respective ratchets, substantially as and for the purposes described.

2. In a candelabrum, the combination with the vertical standard and adjustable arms pivoted thereto, of the segmental ratchets, one to each arm, and the pawls arranged on opposite sides of the standard to engage the ratchets of the arms to hold the arms at various adjustments, said pawls having a recessed portion adjacent to the ratchet of the adjoining arm to permit said ratchet to move therein without engagement with it, substantially as and for the purposes described.

3. In a candelabrum, the combination with the upright standard and the adjustable candle-socket-carrying arms pivoted thereto and having ratchets at their inner ends, of the slotted pawls secured to the standard by screws passing through the slots, and springs for holding the pawls in engagement with the ratchets, substantially as and for the purposes described.

4. In a candelabrum, the combination with the upright standard and the adjustable candle-socket-carrying arms pivoted thereto and having ratchets at their inner ends, of the sliding pawls arranged on opposite sides of the upright standard to engage said ratchets, a spring to act on each pawl, and a sustaining-rod for said spring passed through the spring, substantially as and for the purposes described.

591,558. **LOCKING DEVICE FOR SHAFTS.** ALLAN G. MATHER, Milwaukee, Wis. Filed Aug. 26, 1896. Serial No. 603,906. (No model.)



Claim.—1. A locking device for shafts comprising a shaft, a mechanism surrounding the said shaft and interposed reversely-disposed curved segmental wedges, one of which is fastened to the shaft and another to the encircling mechanism.

2. A locking device for shafts, comprising a shaft provided with an eccentric annular boss, a mechanism encircling the boss, and interposed reversely-disposed curved segmental wedges, one of which is keyed to the shaft and another to the shell.

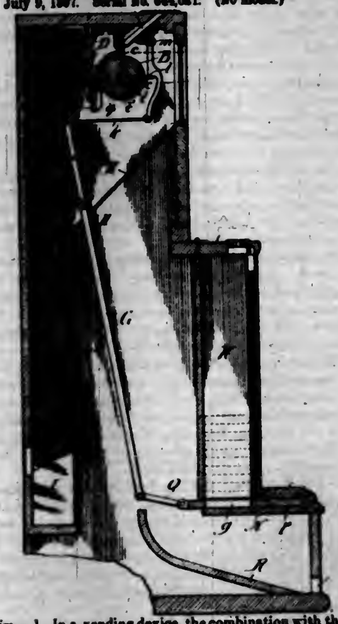
3. A locking device for shafts comprising a cylindrical shaft, a mechanism having a bore formed in a true circle, interposed reversely-disposed curved segmental wedges, both the outer and inner surfaces formed on true circles respectively conforming to the surface of the shaft and the bore of the encircling mechanism, and keys holding one wedge to revolution with the shaft and the other to revolution with the encircling mechanism.

4. A locking device for shafts, comprising a shaft provided with an eccentric annular boss formed on a true circle, an annular shell or analogous device having a bore formed in a true circle, interposed reversely-disposed curved segmental wedges both the outer and inner surfaces of which are formed on true circles respectively conforming to the surface of the eccentric boss and to the surface of the bore of the encircling device, and keys holding one wedge to revolution with the shaft and the other to revolution with the encircling device.

5. A locking device for shafts, comprising a shaft provided with an annular eccentric boss and an annular boss medially about the eccentric boss, an annular shell or analogous device provided with an annular interior rib or projection, interposed reversely-disposed curved or segmental wedges provided with interior and exterior channels receiving said annular boss and rib, and keys holding said wedges respectively to revolution with the shaft and with the encircling device.

6. The combination with a shaft and an encircling mechanical device, of interposed curved or segmental wedges reversely disposed and provided with a series of holes or key-seats whereby the wedges are adapted to be secured to an adjacent part adjustable revolubly, and keys adapted to secure the wedges respectively to the shaft and to the encircling device.

591,559. **VENDING DEVICE.** MORTIMER B. MILLS, Chicago, Ill. Filed July 9, 1897. Serial No. 644,021. (No model.)



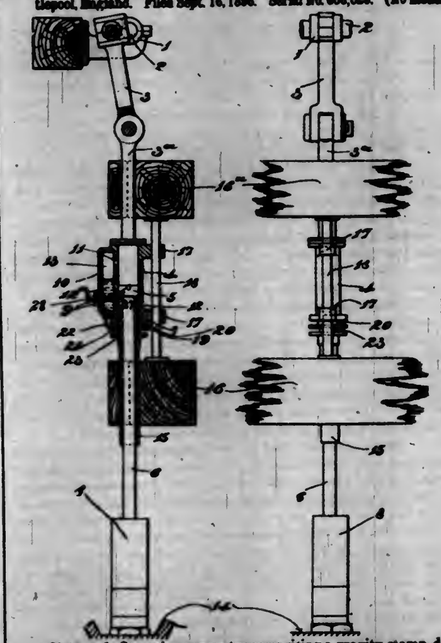
Claim.—1. In a vending device, the combination with the casing, of a drum journaled therein provided with a pocket, a store-chamber for the articles to be vended, means controlling the discharge from said chamber, a coin-slot in the casing leading to the pocket in said drum, a cylindrical hood partially enveloping the drum and journaled concentric therewith, and an operating-lever connected with said hood and projecting through the casing for rotating the drum through the medium of the hood and coin thereby to operate said controlling means guarding the discharge from said store-chamber, substantially as and for the purpose set forth.

2. In a vending device, the combination with the casing, of a drum journaled therein provided with a pocket, a store-chamber for the articles to be vended, a slide guarding the discharge-opening of said chamber, a hood partially enveloping said drum and journaled concentric therewith, an operating-lever connected with the hood, a slot in the casing leading to the pocket in said drum, a rocker-arm pivotally suspended in the casing adjacent to the cylindrical surface of said drum, a lever pivotally secured in the casing and operatively joined to the lower end of said rocker-arm and to said slide, and a spring controlling said lever, substantially as and for the purpose set forth.

3. In a vending device, the combination with the casing, of a drum journaled therein provided with four longitudinally-extending rows of pockets, separated by an angle of substantially ninety degrees, a series of slots in the casing leading to the vertically-disposed pockets on the drum, a rotatable hood partially enveloping said drum, a lever pivotally joined to the casing and connected with said hood, a series of rocker-arms pivotally suspended in the casing adjacent to the drum-surface, vertically-disposed store-chambers provided with discharge-openings, slides guarding said discharge-openings, levers pivotally mounted in the casing and linked at their upper ends to said rocker-arms and at their lower ends to said slides, springs controlling said levers, and guide-chutes for the coins discharged from the drum, substantially as set forth.

4. In a vending device, the combination with the casing, a drum journaled therein provided peripherally with four pockets at substantially ninety degrees apart, a slot in the casing leading to a point above said drum, a store-chamber and discharging means, of a device for automatically regulating the turning movement of the drum, comprising a square-shaped disk rigid with the drum-shaft provided with concaved edges, a rocker-arm pivoted in the casing and provided with a convex projection fitting said concaved edges, and a spring pressing said curved surfaces together, substantially as and for the purpose set forth.

591,560. **STAMPING APPARATUS.** DONALD B. MORISON, Hartlepool, England. Filed Sept. 16, 1896. Serial No. 606,089. (No model.)



Claim.—1. Stamping apparatus comprising a gravity-stamp, driving apparatus therefor, a reciprocatory vessel connected to one of said parts and arranged above said stamp, a piston or plunger located within said vessel and connected to the other of said parts, a body of liquid located between the bottom of said vessel and piston or plunger, and means for automatically introducing liquid into the vessel below the piston to make good leakage whereby the reciprocating vessel and the piston are repeatedly positively connected by the liquid at exactly the same point substantially as described for the purpose specified.

2. Stamping apparatus comprising a gravity-stamp, driving apparatus therefor, a reciprocatory vessel connected to one of said parts and arranged above said stamp, a piston or plunger movable within said vessel and connected to the other of said parts, and a liquid-chamber connected by a port or passage with the space between the bottom of said vessel and said piston or plunger, said port or passage being arranged at a point above the bottom of said ves-

sel and arranged to be opened and closed by downward and upward movements respectively of said vessel relatively to said piston substantially as described for the purposes specified.

3. In stamping apparatus, a stamp connected by a rod to a piston, a cylinder wherein said piston is located so as to be in frictional driving connection therewith, means for imparting a vertical reciprocatory motion to said cylinder, and a chamber or reservoir charged with liquid and adapted to be placed by a port or passage in communication with the space between the piston and cylinder-bottom at a point above the latter when said cylinder-bottom moves relatively away from said piston substantially as herein described for the purposes specified.

4. In stamping apparatus, a stamp connected by a rod to a piston, a cylinder wherein said piston is located, means for imparting to said cylinder a vertical reciprocating motion which may be of greater stroke than that of the stamp a chamber or reservoir charged with liquid, and a port or passage for placing said chamber or reservoir in communication with the space between the piston and cylinder-bottom at a point above the latter, said port or passage being arranged to be opened and closed by downward and upward movement of said cylinder relatively to said piston substantially as herein described for the purposes specified.

5. In stamping apparatus, a stamp connected to a piston, a cylinder wherein said piston is located, means for imparting a vertical reciprocating motion to said cylinder, a chamber or reservoir charged with liquid and means whereby communication between said chamber or reservoir and the space between the piston and cylinder-bottom can be opened at different positions of said piston relatively to said cylinder-bottom, thus changing the point at which the piston and cylinder are positively connected by said liquid substantially as herein described for the purpose specified.

6. In stamping apparatus a combined cylinder and liquid-chamber arranged side by side and the wall between the said cylinder and chamber being formed with two or more holes 9^a arranged at different heights above the bottom of said cylinder, valves for separately controlling each hole, means for imparting a vertical reciprocating motion to said combined cylinder and liquid-chamber, and a stamp connected to a piston located within said cylinder, substantially as herein described for the purpose specified.

7. In stamping apparatus a stamp connected by a rod to a piston, a cylinder wherein said piston is located, means for imparting a vertical reciprocating motion to said cylinder, a chamber or reservoir charged with liquid, a port or passage whereby said chamber or reservoir can be placed in communication with the space between the piston and cylinder-bottom, a valve for controlling said communication, and means for automatically opening and closing said valve, substantially as herein described for the purposes specified.

8. Stamping apparatus comprising a stamp 8, a piston 5, a rod connecting said stamp and piston, a vertically-guided cylinder 4 containing said piston, a chamber 10 carried by said cylinder and charged with liquid, ports 9 and 11 connecting said cylinder and chamber at points below and above said piston respectively, a vertically-guided rod connected to said cylinder, a rotary crank 1, a link 3 connecting said crank to the rod connected to said cylinder, and transvere guides through which said rods work, substantially as described.

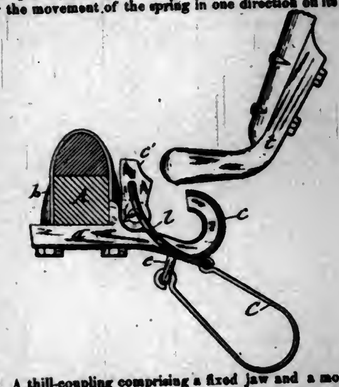
9. Stamping apparatus of the kind herein referred to, comprising a stamp 8 with rod 6 and piston 5, a vertically-guided cylinder 4 containing said piston, a chamber 10 carried by said cylinder and charged with liquid, said chamber communicating with said cylinder above and below the piston therein through ports 9 and 11 in the cylinder-wall, a vertically-guided rod 3^a connected to said cylinder, a rotary crank 1, a link 3 connecting said crank and the rod 3^a, transverse guides 16, 16^a through which said rods 6 and 3^a respectively work, and a sleeve 15 connected to said cylinder and arranged to surround said rod 6 so as to be located between the same and the guide 16, substantially as described for the purposes specified.

10. In stamping apparatus of the kind herein referred to, the combination with a stamp, a piston connected thereto, a cylinder 4 having a stuffing-box 7, and wherein said piston is located a liquid-containing chamber 13 connected by a port 9 with said cylinder, and means for reciprocating said cylinder and chamber of a pipe or conduit connecting said stuffing-box and chamber, substantially as described for the purpose specified.

591,561. THILL-COUPLING. HARVEY A. MOYER and CHARLES J. GRAF, Syracuse, N. Y.; said Graf assignor to said Moyer. Filed Aug. 12, 1897. Serial No. 647,965. (No model.)

Claim.—1. A thill-coupling comprising two jaws or eye-sections grasping between them the coupling pin or bolt and separable to release the same, and a spring connected to one of the parts to be coupled and reversible thereon and thereby confining and releasing the coupling-pin in and from the grasp of the jaws.

2. A thill-coupling comprising a fixed jaw and a movable jaw receiving between them the coupling pin or bolt, a spring pivoted at one end to one of the parts to be coupled, and a link actuated by said spring and pressing the movable jaw onto the coupling pin or bolt by the movement of the spring in one direction on its pivot.



3. A thill-coupling comprising a fixed jaw and a movable jaw receiving the coupling-pin between them, a spring pivoted at one end to swing in a plane at right angles to the axle, and a link actuated by the free end of said spring and forcing the movable jaw into its closed position by the swinging of the spring in one direction.

4. The combination with a fixed jaw and a hinged jaw receiving the coupling-pin between them, a spring pivoted at one end to the member carrying the fixed jaw, and a link connected to the free end of said spring and forcing the hinged jaw into its closed position by the swinging of the spring in one direction.

5. The combination with a fixed jaw and a hinged jaw receiving the coupling-pin between them, a spring pivoted at one end to the member carrying the fixed jaw, and a link connected at its opposite ends, respectively, to the free end of the spring and to the hinged jaw to move the same to and from its closed position automatically with the swinging of the spring on its pivot.

6. The combination with a fixed jaw and a movable jaw receiving the coupling-pin between them, of a C-spring having one end extending beyond the other end and pivoted at the longer end to the member carryng the fixed jaw, and a link connecting the shorter end of said spring to the movable jaw.

7. The combination of the draft-bar provided with a fixed hook-shaped jaw for receiving the coupling-pin, a locking-jaw hinged to said draft-bar and confining the locking-pin in the said fixed jaw, a C-spring having one end extending beyond the other and hinged to the draft-bar, and a link connecting the shorter end of the spring to the hinged jaw, as set forth and shown.

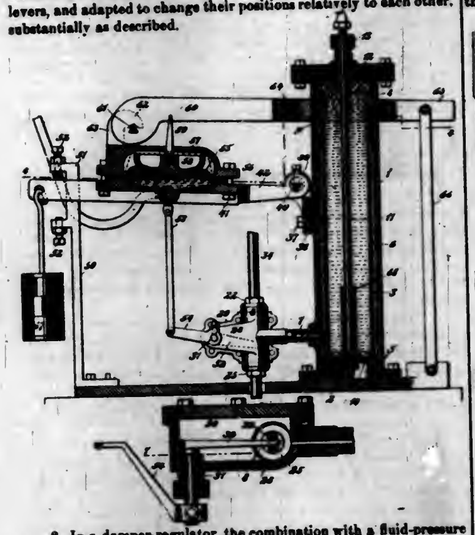
8. The combination with the thill-iron and coupling-pin affixed thereto, the draft-bar formed with a hook-shaped jaw for receiving said coupling-pin, a locking-jaw hinged to said draft-bar and confining the coupling-pin in said hook-shaped jaw, an eye attached transversely to the draft-bar, a C-spring hinged at one end to said eye, and a link connecting the opposite end of said spring to the hinged jaw, substantially as set forth and shown.

9. In a thill-coupling having a fixed jaw and a movable jaw receiving the coupling-pin between them, the combination of a C-spring pivotally connected at one of its ends to one of the parts to be coupled and a link connecting the free end of the spring to the movable jaw, the swinging of the spring on its pivot in one direction forcing the movable jaw into its closed position and locking the spring, and in swinging the spring in the opposite direction throwing the said jaw into its open position, as set forth.

10. In a thill-coupling having a fixed jaw and a movable jaw receiving the coupling-pin between them, the combination of a spring having its ends pointing approximately in the same direction and one end pivotally connected to one of the parts to be coupled, and the opposite end coupled to the movable jaw, the swinging of the spring on its pivot into a reversed position causing the free end thereof to cross the pivoted end and force the jaw to its closed position and retain the spring in its reversed position.

591,562. DAMPER-REGULATOR. FREDERICK T. KUELLER, New York, N. Y. Filed June 17, 1897. Serial No. 641,080. (No model.)

Claim.—1. In a damper-regulator, the combination with a fluid-pressure motor, of a valve for governing the supply of food to the motor, a lever pivoted to a support and adapted to actuate the valve, a second lever pivoted to the free end of said former lever and fulcrumed at its other end, and a suitably-supported motor in communication with the boiler and operatively connected with the two levers, and adapted to change their positions relatively to each other, substantially as described.



2. In a damper-regulator, the combination with a fluid-pressure motor for operating the damper, of a valve for controlling said motor, and means for operating the valve, said means consisting of two levers, one end of each being pivoted to a stationary support, and the movable end of one of the levers being pivotally connected to the movable end of the other lever, a motor in communication with the boiler and carried by one of the levers and operating against the other lever and tending to separate them, and means for transmitting motion from some part of the lever system to said valve, substantially as described.

3. In a damper-regulator, the combination with a damper and motor for operating the same, of a valve connected with and controlling the motor, a movable support for operating said valve, a pressure-motor supported thereby, a lever pivotally secured at one end to a stationary support, and at its opposite end supported by said motor and connected to said movable support, substantially as described.

4. In a damper-regulator, the combination with a motor for operating the damper, of a valve for controlling said motor, the pivoted support 41 provided with a water-chamber 43 communicating with the boiler, a diaphragm located in said chamber, a lever pivoted at one end to a stationary support and connected at its opposite end to said movable support, and a piston resting upon said diaphragm and against said lever for raising the latter and said movable support, when the excess of pressure in the boiler is exerted upon said diaphragm, substantially as described.

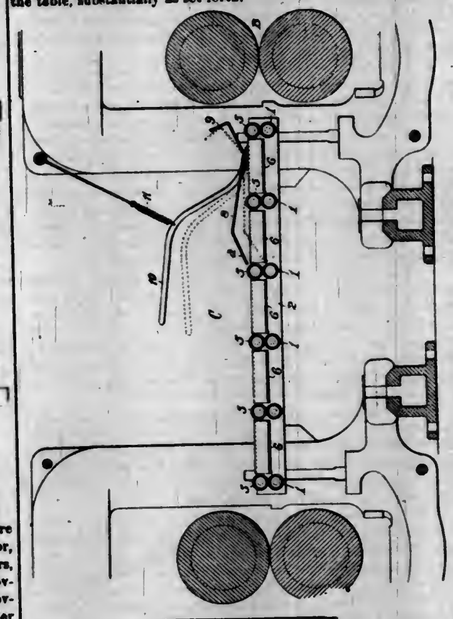
591,563. FEED-TABLE. WILLIAM H. MCFADDEN, Allegheny, Pa. Filed June 16, 1897. Serial No. 640,976. (No model.)

Claim.—1. In a rolling-mill, the combination of two stands of rolls arranged in the common line of feed, a feed-table having positively-driven feeding members, arranged between the stands of rolls and mechanism for removing one or more of the articles from the feed-table without interfering with the movements of other articles along the table, substantially as set forth.

2. In a rolling-mill, the combination of two stands of rolls arranged a distance apart greater than the length of the articles being rolled, a feed-table having positively-driven feeding members arranged between the stands of rolls and mechanism for removing one or more of the articles from the feed-table without interfering with the movements of other articles along the table, substantially as set forth.

3. In a rolling-mill, the combination of two or more stands of rolls arranged in the common line of feed, a feed-table having positively-driven feeding members arranged between the stands of rolls and mechanism movable into and out of the path of movement of articles along the table and adapted to remove one or more of such articles from the table, substantially as set forth.

4. In a rolling-mill, the combination of two stands of rolls arranged a distance apart greater than the length of the articles being rolled, a feed-table having positively-driven feeding members arranged between the stands of rolls, and an apron arranged above the table and movable into and out of the line of movement of articles along the table, substantially as set forth.



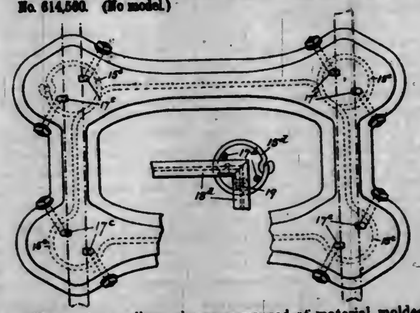
591,564. BUTTON. FRANKLIN G. NEUBERT, Waterbury, Conn. Filed Apr. 13, 1897. Serial No. 631,965. (No model.)

Claim.—1. A button constructed with a depressed center, an independent die or anvil located and secured in the bottom of said depressed center, and a spacer engaging with said depressed center above said die or anvil, substantially as described.

2. A button constructed with a face-plate having its central portion depressed, an independent die or anvil located in the bottom of said depressed center, the metal of the latter being bent inwardly forming a recess therein above said anvil, and a spacer fitting around said depressed center and having its upper edge bent or turned inwardly into the recess therein for holding said spacer in engagement therewith, substantially as described.

3. A button constructed with a face-plate having its central portion depressed and provided with an opening in the bottom thereof, an independent die or anvil located in the bottom of said depressed center and over said opening, and a spacer fitting around and secured to said depressed center above said anvil or die, substantially as described.

591,565. RAILWAY-SLEEPER. GEORGE A. OWEN, Springfield, Mass., and GEORGE A. BATES, Brooklyn, N. Y. Filed Dec. 5, 1896. Serial No. 614,560. (No model.)



Claim.—1. A railway-sleeper composed of material molded to shape while in a plastic state, having embedded therein metallic loops

encircling those portions of the sleeper which form the seats for the rails, and for the rail-bolts, the loops being connected by means of a beam of I-section, also embedded in the interior of the sleeper, whereby it serves to connect the two loops, and to stiffen the sleeper against lateral strains, substantially as described.

2. A rail-bolt provided with a head or lip for engaging with the rail-flange, and having a body portion curved in substantially the arc of a circle, the rail-engaging lip of the bolt being turned at an angle with the plane of the curve of its body, substantially as described.

3. In combination with a railway-sleeper, a rail-bolt therefor, having its curved body substantially in the arc of a circle, having at one end a head or lip for engaging with the rail, and having at its opposite end a screw-threaded portion, the sleeper being provided with a correspondingly-curved passage or recess for the bolt, whereby the bolt-head may project from the upper or rail surface of the sleeper, with its opposite or threaded end projecting from the side surface of the sleeper for receiving a nut, substantially as described.

4. In combination with a railway-sleeper, a rail-bolt therefor, having a head or lip for engaging with the rail, and having its body curved in the arc of a circle, the sleeper being provided with a correspondingly-curved passage or recess for the bolt, whereby the bolt enters the upper or rail surface of the sleeper and emerges from the side surface thereof, the vertical plane of the curved passage in the sleeper being at a substantial angle to the vertical plane of the rail, for the purpose specified.

5. A composition railway-sleeper having metallic reinforcing-loops surrounding and binding together the portions thereof which form the seats for the rails and their bolts, the sleeper being provided with curved passages for the rail-bolts leading from the rail-surface, and extending in a curve therefrom to the side surface of the sleeper, passing within the metallic reinforcing-loops.

6. A rail-supporting structure consisting of a plurality of members located transversely of the rails at the desired distance apart, and connected by members running longitudinally of the rails, the structure being formed of material molded while in plastic condition, having metallic loops surrounding the portions thereof which receive the rail-bolts, the loops being connected both longitudinally and laterally of the track-rails by means of metallic cross-ties, substantially as described.

7. A rail-supporting structure consisting of a plurality of members located transversely of the rails at the desired distance apart, and connected by members running longitudinally of the rails, the structure being formed of material molded while in plastic condition, and reinforced by metallic loops, surrounding the portions thereof which receive the rail-bolts, the loops being connected both longitudinally and laterally of the track-rails by means of metallic beams of I-section embedded in the interior of the plastic material, serving to connect the metallic loops, and to stiffen the structure both laterally and longitudinally of the track-rails, substantially as described.

591,566. BICYCLE. LEWIS F. PAREN, Cincinnati, Ohio. Filed July 24, 1896. Serial No. 600,450. (No model.)



Claim.—1. A bicycle having a saddle located over the rear wheel, and facing forward, a saddle located over the forward wheel and facing rearward, a common crank-shaft located between said saddles and provided with pedals adapted to receive the feet of both riders, substantially as specified.

2. In a bicycle a main frame provided with a saddle over the rear wheel facing forward, a saddle over the front wheel facing rearwardly, a common crank-shaft located between said saddles and provided with pedals adapted to receive the feet of both riders, and handle-bars curving from beneath said forward saddle outwardly and upwardly, substantially as specified.

3. A bicycle having a saddle over the rear wheel facing forward, a saddle over the forward wheel facing rearward, said forward saddle being located between the handle-bars, which are curved from beneath the saddle outwardly, upwardly, and rearwardly so as to leave room between the handle-bars for the person on the forward saddle, and so as to be grasped by both riders, and a common crank-shaft located between said saddles and provided with pedals adapted to receive the feet of both riders.

591,567. MOWING-MACHINE. CLINTON A. PATTEN, Somerville, Mass. Filed Oct. 7, 1896. Serial No. 608,084. (No model.)

Claim.—1. A mowing-machine containing a series of blades made into a chain, each blade being connected to a blade-holder, having a concavity between its ends, and the blade-holders being pivotally connected together by links, combined with wheels embraced by the said chain, said wheels having sprocket-teeth to enter the spaces between the ends of adjacent blade-holders opposite said links, the convexed surfaces of said wheels lying between said teeth entering the concavities of the said blade-holders, substantially as described.



2. In a moving-machine, an upper plate, a sprocket-wheel, a slide c^3 carrying said sprocket-wheel, a foot at the opposite end of said plate, a sprocket-wheel on said foot, an endless chain of blades, carried by said sprocket-wheels and an eccentric cooperating with said slide to change the position of the sprocket-wheel on said upper plate to effect the easy removal of the chain from the machine, substantially as described.

3. In a mowing-machine, an upper plate and a lower plate, a sprocket-wheel on said upper plate, a foot, a sprocket-wheel on said foot, an endless chain of blades carried by said sprocket-wheels, and adjusting-screws between said under plate and said foot, the movement of said screws adjusting said under plate longitudinally with relation to said foot to compensate for wear of said chain, substantially as described.

4. In a mowing-machine, a lower plate having a series of projections constituting the under sides and points of fingers, combined with an upper plate having a series of projections constituting parts of the tops of said fingers, the projections of the upper plate being hinged to the projections of the lower plate to leave a space between them in which the cutter-blades may move, the overturning of the upper plate exposing said blades, substantially as described.

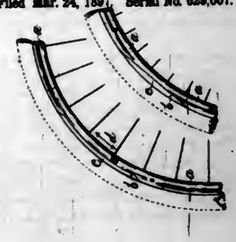
5. In a mowing-machine, an endless chain of blades, sprocket-wheels to move said chain, a lower plate having a series of projections constituting the under sides and points of fingers, combined with an upper plate having a series of projections constituting parts of the tops of said fingers, the projections of the upper plate being hinged to the projections of the lower plate to leave a space between them in which the cutter-blades may move, the overturning of the upper plate exposing said blades, substantially as described.

6. In a mowing-machine, a lower plate having a series of projections constituting the under sides and points of fingers, combined with an upper plate having a series of projections constituting parts of the tops of said fingers, the projections of the upper plate being hinged to the projections of the lower plate to leave a space between them in which the cutter-blades may move, the overturning of the upper plate exposing said blades, and a locking device to retain the said plates closed, substantially as described.

7. In a mowing-machine, a series of blades, each connected to a blade-holder having its rear side concaved to leave two flat heels, and links joining said blade-holders, combined with two sprocket-wheels having teeth and convexities between said teeth, the teeth engaging the spaces between the ends of said blade-holders and opposite said links, the heels and concavities coming against the convexities of said sprocket-wheel, and an adjustable guide-bar f'' against which the said heels travel, to operate, substantially as described.

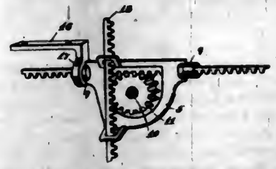
8. A mowing-machine containing a series of blades made into a chain, each blade being connected to a blade-holder having a concavity between its ends and having its ends rounded, said blade-holders being pivotally united together by means of links, combined with wheels embraced by the said chain, said wheels having sprocket-teeth to enter the spaces between the ends of adjacent blade-holders and opposite the said links, the convex surfaces of said wheel between said teeth entering the concavities of the said blade-holders to operate, substantially as described.

591,568. RIM FOR PNEUMATIC-TIRED WHEELS. JOHN PEARSON, Levenshulme, England, assignor of two-thirds to John Bennett Price, Chorlton-cum-Hardy, and Edward Turner Whitelow, Manchester, England. Filed Mar. 24, 1897. Serial No. 629,007. (No model.)



Claim.—In combination with a wheel-rim adapted to receive a pneumatic tire and provided with a gap in its periphery, a sliding filling-piece adapted to close the said gap and provided with short transverse slots and headed studs extending ont through the said slots substantially as set forth.

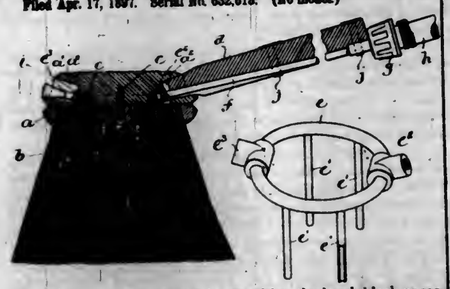
591,569. TRANSOM-LIFTER. HERBERT W. PEIRCE, Waltham, Mass. Filed May 25, 1897. Serial No. 638,023. (No model.)



Claim.—1. In a transom-lift, the combination with a bracket having horizontal sleeves adapted to be journaled, and vertical guides, of bearings for the sleeves, a pinion rotatably mounted in the bracket, a rack movable through the vertical guides and in engagement with the pinion, and means reciprocal through the bearing-sleeves, for rotating the pinion.

2. The combination with a bracket having the frame 5 furnished with the brace 6, the guides 7 and 8, and the sleeves 9 9, the filling-piece 14 secured as described, and the pinion 11 rotatably mounted in the bracket, of the vertical rack 18, movable through the guides 8 and 9 in engagement with the pinion, the horizontal rack 20 reciprocal in the sleeves 9 9, and means for reciprocating said rack, as described.

591,570. FOUNTAIN-BRUSH. JAMES W. POOR, Boston, Mass. Filed Apr. 17, 1897. Serial No. 632,613. (No model.)



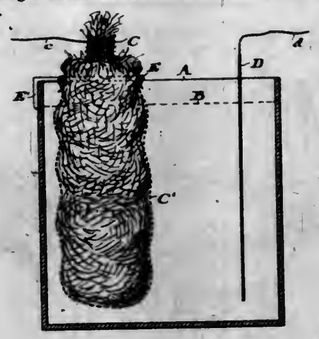
Claim.—1. A fountain-brush comprising the brush block or section a having a flat or unrecessed rear face, the outer section a' having a handle fitted thereto and having a recess or socket in the side adjoining the section a, a water-tube e fitted in said recess or socket, and communicating with the bristle side of the section a, and means for detachably clamping the two sections and the water-tube together, said means serving to retain the water-tubes in position in the recess of the section a'.

2. A fountain-brush comprising a brush block or section a, the outer section a' having a recess or socket in the side adjoining the section a, a water-tube e fitted in said recess or socket and communicating with the bristle side of the section a, means for detachably clamping the two sections and the water-tube together, the handle d having a longitudinal groove in one side and secured to the outer section a', the tube f secured in the groove of the handle and connected with the tube e, and means for connecting the end of the tube f with a hose, substantially as described.

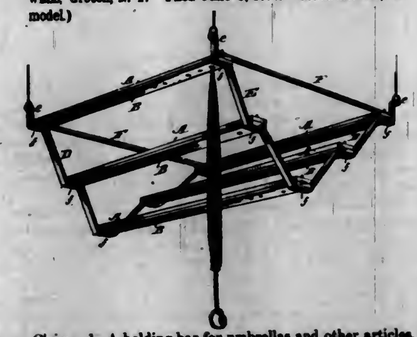
591,571. PROCESS OF AND APPARATUS FOR ELECTROLYTIC RECOVERY OF METALS FROM THEIR SOLUTIONS. JOSEPH W. RICHARDS and CHARLES W. ROEPPER, Bethlehem, Pa. Filed Jan. 7, 1897. Serial No. 618,385. (No model.)

Claim.—1. The process of recovering metals from their solutions, which consists in first, applying an electrically-conductive coating to and throughout a highly-porous mass of organic substance, having an extensive internal surface and penetrable by the electrolyte; second, in depositing the metal, which is to be recovered, upon the mass thus coated, by constituting it a cathode in an electrolytic bath containing said metal in solution; and, third, in recovering the metal thus deposited, by destroying said substance by heat, substantially as described.

2. A cathode for receiving electrolytically-deposited metal, which consists of a highly-porous mass of an organic substance, having an extensive internal surface and penetrable to a circulating electrolyte, said mass having its conductivity increased by a superficial and interstitial coating of an electrically-conductive material, substantially as described.



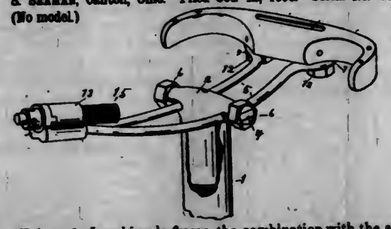
591,572. DISPLAY-RACK FOR UMBRELLAS. ULYSSES G. ROCKWELL, Groton, N. Y. Filed June 3, 1897. Serial No. 639,210. (No model.)



Claim.—1. A holding-bar for umbrellas and other articles, consisting of two longitudinal sections connected together, one of said sections having a plurality of mortised and circular seats, and circular rubber disks loosely held therein to freely turn with the umbrella or other article suspended therefrom, said sections and disks having holes on a line with each other, substantially as and for the purpose set forth.

2. A display-rack for umbrellas consisting of a plurality of holding-bars comprising two longitudinal sections to form said bar, mortised seats formed in one of said sections, rubber disks held therein, holes through the sections and disks, V-shaped metal frames having a plurality of seats for the ends of the holding-bars, and suitable braces for holding the frames rigid, substantially as and for the purpose specified.

591,573. BICYCLE-SADDLE FRAME AND HOLDER. BENJAMIN S. SEAMAN, Canton, Ohio. Filed Oct. 12, 1896. Serial No. 608,567. (No model.)

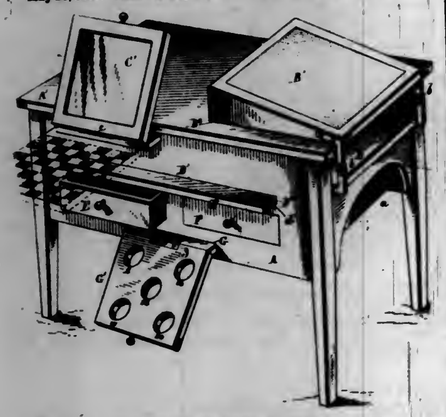


Claim.—1. In a bicycle-frame, the combination with the saddle-post having a screw-threaded T-shaped portion formed with longitudinal slots, of the saddle-spring located in said slots, the clamps seated in said slots and bearing against the spring, and the securing-nuts, substantially as described.

2. The combination with a bicycle-saddle post, the saddle-spring of the form shown provided with loops at the rear end, and the can-

tle provided with a transverse recess in its upper side, of the staple having screw-threaded ends passing through holes in the cantle and through the loops of the spring, and the conical nuts engaging with the screw-threaded ends of the staple, substantially as described.

591,574. CABINET. GEORGE C. SMITH, New York, N. Y. Filed May 28, 1895. Renewed Sept. 1, 1897. Serial No. 650,295. (No model.)



Claim.—1. In a cabinet the frame A, having a continuous top A', and a compound slide in two parts B B', joined by angular hinges *b*, set on the edges respectively and having bearings at each edge which are wedge-formed adapted to support the desk-surface B' at a gentle inclination leaving the main surface of the top unmarred, all combined and arranged for joint operation substantially as herein specified.

2. In a cabinet the frame A having a continuous top A' and a compound slide in two parts B B', joined by angular hinges *b*, set on the edges respectively and having bearings at each edge which are wedge-formed adapted to support the desk-surface B' at a gentle inclination, in combination with each other and with the series of transverse slides C C' and D D', adapted to serve as herein specified.

3. In a cabinet a slide in two parts hinged together and having greater dimensions at the line of the hinges, arranged to serve in either of two positions at will, in combination with a frame A having a close-fitting aperture in its side through which the slide is moved, adapted to temporarily increase the friction and thus to conveniently give notice to the operator when the slide has been drawn out to the proper extent to allow of serving in one position and to again reduce the friction when this point has been passed, and allow the slide to be drawn easily outward into the second position, all substantially as herein specified.

4. In a cabinet the frame A having a continuous top A' and a compound slide in two parts B B', joined by angular hinges *b* set on the edges respectively and having bearings at each edge which are wedge-formed adapted to support the desk-surface B' at a gentle inclination, in combination with each other and with a series of slides each adapted to serve either in the horizontal position or to fold upward and to serve by resting against the edge of the top A', substantially as herein specified.

5. In a cabinet a slide in two parts D D' adapted to serve in either of two positions at will, connected by hinges *d*, the hinged part D' being a frame open on one edge and having a slot *d'* in one of the lateral edges, in combination with each other and with a series of exchangeable slates adapted to be inserted and removed through such slot, all substantially as herein specified.

591,575. FOOD-CHOPPER. LEVI T. SNOW, New Haven, Conn. Filed Feb. 1, 1897. Serial No. 621,424. (No model.)

Claim.—1. In a food-chopper, the combination with a case provided with a circular series of cutting-ribs, the outer ends of which project beyond its outer end, and the spaces between which form discharge-openings, of a rotatable forcer located within the case, and a cutter connected with the forcer for rotation therewith and located entirely without the said case, and provided with teeth which are extended rearward back of the outer end of the forcer and which coact with the projecting outer ends of the said ribs to cut the material to be chopped at a point within the point where the outer end of the forcer ceases to exert feeding-pressure upon the material.

2. In a food-chopper, the combination with a case having a screw-like forcer located within it, and a double or reversible cutter having radially-arranged teeth applied to the outer end of the forcer, located entirely without the case and having more teeth at one end than at the other.



3. In a food-chopper, the combination with a case provided with a circular series of cutting-ribs, the outer ends of which project beyond its outer end, and have their outer faces rearwardly beveled, and form a circular series of wedge-shaped discharge-openings, the outer ends of which are larger than their inner ends; of a forcer located within the said case, and a cutter removably applied to the outer end of the forcer, located entirely without the case and furnished with cutting-teeth having their inner faces beveled to conform to the bevel of the outer faces of the projecting ends of the ribs.

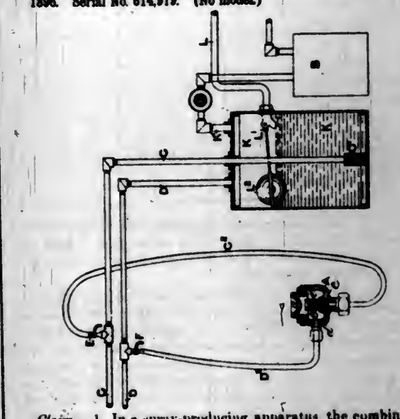
4. In a food-chopper, the combination with a case provided with a circular series of cutting-ribs, the outer ends of which project beyond its outer end, and the spaces between which form discharge-openings, and having its outer end formed with a clearance-bevel which virtually enlarges the said openings; of a forcer located within the said case, and a cutter applied to the outer end of the forcer and furnished with teeth conforming to and coacting with the outer faces of the projecting outer ends of the said ribs for chopping the food.

5. In a food-chopper, the combination with a case provided with a circular series of cutting-ribs, the outer ends of which project beyond its outer end and having their inner faces beveled, of a forcer located within the case and bearing at its outer end upon the said beveled faces of the said ribs, and a cutter applied to the outer end of the forcer, and furnished with cutting-teeth extending rearward back of the outer end of the forcer and coacting with the projecting outer ends of the said ribs.

6. A double or reversible cutter, said cutter being composed of two independently-formed disks furnished with radially-arranged cutting-teeth, rigidly secured together, and adapted to be removably coupled to the outer end of the forcer of a food-chopper, the said disks being differentiated as to the number of their cutting-teeth, so that the cutter may be used for chopping coarse and fine.

7. In a food-chopper, the combination with a case provided with a circular series of cutting-ribs, the outer ends of which project beyond its outer end, and having their inner faces beveled, of a screw-like forcer located within the case, having its forward end furnished with a bevel bearing upon the said beveled inner faces of the ribs, and also having its forward end formed with a circular shoulder; and a cutter connected with the outer end of the forcer, located entirely without the case, coacting with the outer faces of the projecting outer ends of the said ribs, and having a recess for the reception of the said circular shoulder of the forcer.

591,576. HUMIDIFIER. JAMES THOMPSON, Parel, and VISHNOO VAMANA SOHONI, Thakurdwar Girgaum, Bombay, India. Filed Dec. 8, 1896. Serial No. 614,919. (No model.)

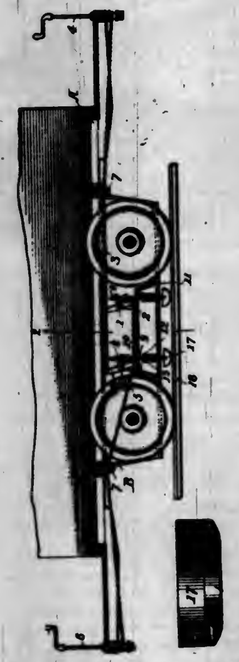


Claim.—1. In a spray-producing apparatus, the combination of a water-nozzle having a conical outlet with an outlet for air and water having a conical aperture in line with that of the water-nozzle.

a closed air and water reservoir, and communications between the said reservoir and the said nozzle and outlet substantially as set forth.

2. The combination with an air and water nozzle of a closed air and water reservoir communicating therewith for obtaining and maintaining an equal pressure of the air and water substantially as set forth and shown.

591,577. CAR-BRAKE. WILLIAM TIMMS, Pittsburg, Pa., assignor of one-half to Frank W. Bailey and Caroline B. Pier, same place. Filed July 13, 1897. Serial No. 644,407. (No model.)



Claim.—1. The combination with a car, of a plurality of transverse rock-shafts mounted thereon, vertically-arranged levers having their middle points connected to said rock-shafts, a connection between the upper ends of said levers and a brake-shaft at one end of the car, a connection between the lower ends of the levers and a brake-shaft at the opposite end of the car, vertical plungers guided in suitable brackets, brake-shoes at the lower ends of the plungers, springs resting on the lower brackets and arranged to raise the plungers and brake-shoes, and arms at the ends of the rock-shafts arranged to engage the plungers and apply the brakes when the shafts are rocked, substantially as described.

2. In a car-brake, the combination of a transverse rock-shaft, a lever centrally connected to said rock-shaft, a connection from the upper end of said lever to the brake-shaft at one end of the car, a connection from the lower end of said lever to the brake-shaft at the opposite end of the car, vertically-arranged plungers guided in suitable brackets, brake-shoes on the lower ends of the plungers, springs arranged to raise the plungers and hold the brake-shoes normally away from the track, arms on the ends of the rock-shaft arranged to engage and depress the plungers, and springs interposed between said arms and said plungers, substantially as described.

591,578. ELEVATOR. GEORGE H. TUTTLE, Braintree, Mass. Filed Dec. 13, 1895. Renewed Sept. 4, 1897. Serial No. 650,668. (No model.)

Claim.—1. The combination with an elevator-well, of fire-doors, having swinging supports for their opposite ends near their inner edges, said doors being unsupported at their outer edges except by said well, and adapted to slide freely upwardly at their outer edges against a fixed part of the interior of the well, as the doors are forced apart by the elevator-carriage provided with suitable wedges, substantially as described.

2. An elevator-well, a pair of sliding doors therein, which when closed occupy a position inclined one toward the other with their outer upwardly-extended edges loosely supported by and against the interior of the well, said doors always having their outer edges uppermost both when in open and in closed position, and means to sustain and guide the said doors near their inner or contiguous edges, substantially as described.

3. The pivoted radius-bars, combined with the sliding doors pivoted on the said bars, said doors being inclined upwardly from their inner edges outward, and having their outer edges resting loosely against the interior of the elevator-well, said doors always having their outer edges uppermost both when in open and in closed position, and adapted to be forced bodily upward by the elevator against said well in sliding engagement therewith for opening and closing said doors, substantially as described.

4. The pivoted radius-bars, combined with the sliding doors pivoted to the upper ends of said bars, said doors being inclined upwardly toward their outer edges, and having their outer edges resting loosely against the interior of the elevator-well, said radius-bars being pivoted at their lower ends outside of the path of movement of said outer edges and having their said upper ends out of vertical alinement with their said lower ends and toward the center of the well, whereby their said upper ends may swing past the vertical lines passing through the pivots of the radius-bars in the opening of the doors, substantially as described.

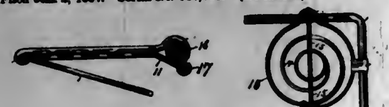
5. The pivoted radius-bars, combined with the sliding doors pivoted on the said bars, and having their outer edges resting loosely against the interior of the elevator-well, said radius-bars being pivoted at their lower ends outside of the path of movement of said outer edges and having their said upper ends out of vertical alinement with their said lower ends and toward the center of the well, whereby their said upper ends may swing past the vertical lines passing through the pivots of the radius-bars in the opening of the doors, substantially as described.

6. The pivoted radius-bars, combined with the sliding doors pivoted on the said bars, and having their outer edges inclined upwardly and resting loosely against the interior of the elevator-well, and devices connected to the outer edges of said doors to aid in lowering the same in closing them, substantially as described.

7. An elevator-well, a pair of sliding doors therein, which when closed occupy a position inclined one toward the other with their outer upwardly-extended edges loosely supported by and against the interior of the well, said doors always having their outer edges uppermost both when in open and in closed position, and means to sustain and guide the said doors near their inner or contiguous edges, combined with an elevator-carriage having an attached wedge, the said wedge forcing said doors into sliding engagement along the wall of said well and thereby moving the said doors apart and turning them upwardly at their outer edges into substantially vertical position against the inner wall of the well, substantially as described.

8. A pair of fire-doors located in an elevator-well, and radius-bars to which the said doors are pivoted at their opposite ends near their inner edges, the outer edges of said doors being supported against or within the elevator-well, combined with an auxiliary door hung within the well at the end and independent of the sliding door, and adapted to be lifted substantially in line with the sliding door as the latter is put into its closed position, and adapted to fall by gravity against the wall of the well when the sliding door is opened, being then entirely unsupported at its swinging ends, the closing of the auxiliary door stopping the space between the end of the sliding door and the wall of the well, substantially as described.

591,579. SPRING-BED. WILLIAM C. VAN CISE, Jamestown, N. Y. Filed Jan. 2, 1897. Serial No. 617,761. (No model.)

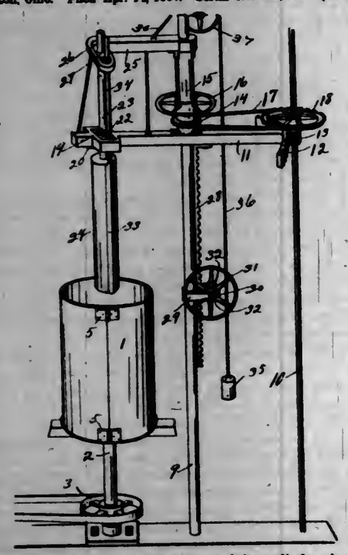


Claim.—1. In springs for beds, double-coiled springs having a central enlargement, spiral coils turned into said enlargement and crossing the bed at right angles, the top of the outer row of springs given a short downward and outward turn to pass beyond the body of the spring, a heavy edge wire resting on said springs, a clamp hinged to the projecting part of the coil and locking the edge wire and secured to the opposite part of the coil, substantially as shown.

2. In springs for beds, one coil-spring placed on top of another to form a double spring, spiral coils turned into said springs where they come together and crossing the bed to hold the springs together and in position in the bed, the top of the coil of the outward row of springs being given a short downward and outward turn, a heavy edge wire which rests on the projecting portion of the coil, a clamp hinged into the outward curve that projects beyond the edge wire and clamping the edge wire or rim to the outward row of springs as described.

3. In combination with a bed-spring having projections beyond the body of its outward row of coils at top and bottom, heavy metal rims extending around the bed and resting on said projections, a clamp hinged to the projection outside the rim and passing around the rim and across the coil to the opposite side of the coil to hold the rim in place, as shown and described.

591,580. POTTERY-MOLDING MACHINE. JOHN A. ZEPPLER, Canton, Ohio. Filed Apr. 14, 1897. Serial No. 632,150. (No model.)



Claim.—1. The combination of a revolving cylinder, the parallel bars 9, and 10, located to one side of the cylinder, the bar 11, journaled upon the bar 9, and provided with the segment 12, the housing 19, having journaled thereto the bearing 22, the scraper 33, located adjacent to the roller 24, and the roller 24, and means for rocking the segment and bar 11, substantially as and for the purpose specified.

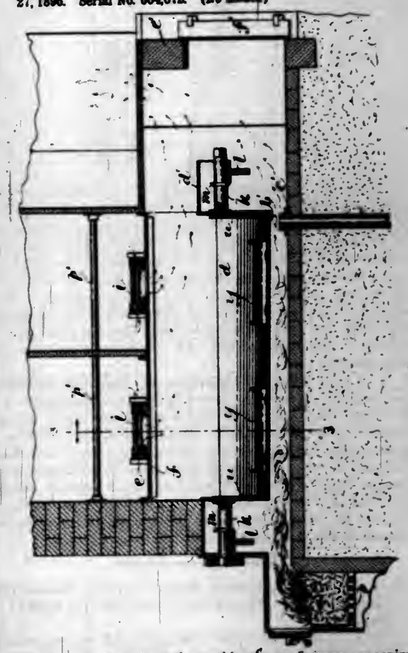
2. The combination of a revolving cylinder, the shaft 23, and the roller 24, and the scraper 33, a vertically-movable bar 11, carrying the roller-shaft 23, and the roller 24, said roller-shaft hinged to the bar 11, substantially as and for the purpose specified.

591,581. REFRIGERATOR SHIPPING-BOX. OTIS ANDREWS, El Paso, Tex. Filed Oct. 23, 1896. Serial No. 609,794. (No model.)



Claim.—In a device of the character described, a wooden box lined with zinc, a cover for the box, a reinforcement arranged on the cover to fit within the box when closed, rectangular clips secured on the bottom adapted to receive a receptacle, a metallic receptacle fitted within said clips, so as to leave a space surrounding, a bead formed around the receptacle near the top, a cover spring-strips secured to the top of the cover and adapted to bear against the walls of the receptacle above the bead, substantially as described.

591,582. DRY CLOSET. EDGAR W. ANTHONY, Boston, Mass., assignor to the Smith & Anthony Company, same place. Filed Aug. 27, 1896. Serial No. 604,072. (No model.)



Claim.—1. In a closet, in combination, a furnace, an aspirating shaft or chimney connected with said furnace by a flue, a series of seats located above the flue, a single invertible concavo-convex waste-receptacle located in said flue below the seats and extending entirely across said flue, and also having closed ends, whereby the products of combustion pass below the receptacle to the aspirating-shaft, and are prevented from gaining access to space above the receptacle and below the seats, and means for inverting the said receptacle to discharge the waste matter, said receptacle when inverted forming the upper wall of an uninterrupted flue.

2. In a closet, in combination, a furnace, an aspirating shaft or chimney connected with said furnace by a flue, a series of seats located above the flue, sills on both sides of the said flue, and an invertible concavo-convex waste-receptacle pivoted in the flue and located below the seats, to form the upper wall of the flue, said receptacle having longitudinal lips or flanges to rest against said sills, when said receptacle is in its normal position and when it is inverted.

3. In a closet, the combination with a line of seats, a furnace at one end of said line of seats, and an aspirating shaft or chimney at the other end of said line of seats, of a single waste-receptacle extending continuously under the line of seats and situated so as to be under the influence of the heated air and products of combustion from the furnace, said receptacle being provided with movable means, located in the bottom thereof, for separating the liquid matter from the solid matter, and discharging said liquid matter while the solid matter is retained.

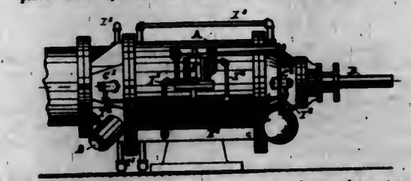
4. In a closet, the combination with a line of seats, a furnace and an aspirating shaft or chimney, of a single invertible waste-receptacle extending under the line of seats and situated so as to be under the influence of the heated air and products of combustion from the furnace, said receptacle being provided with a discharge-aperture for the liquid waste, and a series of movable means for receiving and maintaining the solid waste matter, one of said means being located under each seat.

5. In a closet, the combination with the seat-supports, and the seats, of a waste-receptacle arranged beneath the said seats, said receptacle being constructed to discharge the liquid waste, and being provided with hinged bridges to receive the solid waste, and means for inverting the said receptacle.

6. In a dry closet, the combination of a furnace, an aspirating-shaft, a horizontal flue connecting the same, ledges or flanges along opposite longitudinal walls of said flue and projecting thereinto to present both upper and lower abutments, a waste-receptacle extending longitudinally of the said flue and pivotally supported at its ends to render it invertible, said receptacle underlapping one of the flue-ledges along one longitudinal edge and overlapping the other of said flue-ledges along the opposite longitudinal edge whereby in both positions of said receptacle the flue is closed by abutment of the receptacle against the ledges; and seats over the receptacle which is common to them all.

7. In a dry closet, the combination of a furnace, an aspirating-shaft, a horizontal flue connecting the same, a waste-receptacle extending longitudinally of the said flue and invertible therein, said receptacle carrying arches or bridges on one side and pivotally connected therewith so as to depend automatically when the receptacle is inverted; and seats arranged above the receptacle and over the said bridges respectively.

591,583. REGULATING APPARATUS FOR AIR-COMPRESSING ENGINES. THOMAS J. BARBOUR and CHRISTIAN M. HANSEN, San Francisco, Cal., assignors to the Risdon Iron and Locomotive Works, same place. Filed Apr. 30, 1896. Serial No. 589,645. (No model.)

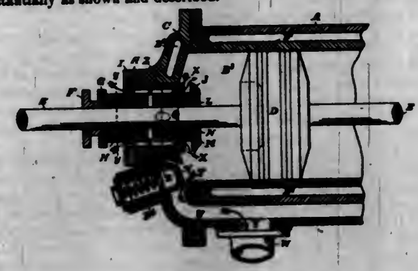


Claim.—1. In an air-compressing engine, the supplementary cylinder F, piston G, weighted lever J, and balanced valve N' N², in combination with relief-valves C' C², one at each end of the compression-cylinder, and pipes I² establishing communication between said balanced valve and the relief-valves, substantially as shown and described.

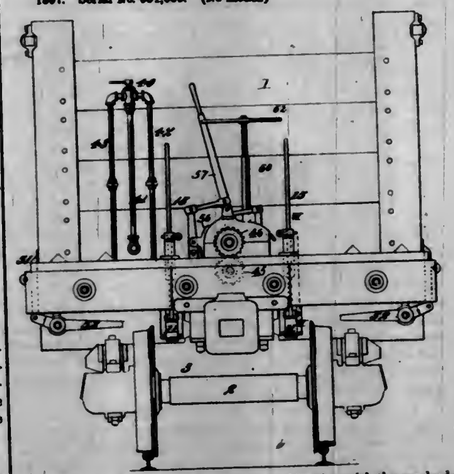
2. In an air-compressing engine, the supplementary cylinder F, piston G, weighted lever J, links L' L², edge pivots K' K², balanced valve N' N², and pipes I², in combination with the relief-valves C' C², comprising valve-disk S, piston W, coil-spring X, and provided with openings Y, all substantially as shown and described.

591,584. AIR-COMPRESSING ENGINE. THOMAS J. BARBOUR and CHRISTIAN M. HANSEN, San Francisco, Cal., assignors to the Risdon Iron and Locomotive Works, same place. Filed Apr. 30, 1896. Serial No. 589,680. (No model.)

Claim.—In an air-compressing engine, the combination of the cylinder-head C, shell 1, having openings R R, packing-box G, and packing-gland F, with the piston-rod E, annular inlet-valve J provided with openings Q, friction-blocks L, springs M, and screw-pins P, whereby the said annular valve is prevented from turning, and its range is limited, said valve J being also seated both at O and S, substantially as shown and described.



591,585. DUMPING-CAR. OTTO C. BAUER, St. Louis, Mo., assignor to the Missouri Car and Foundry Company, same place. Filed Apr. 6, 1897. Serial No. 631,009. (No model.)



Claim.—1. In a dumping-car, the combination with the car-body, of dumping-gear therefor, a power-cylinder operatively connected with the dumping-gear, and auxiliary hand-operated mechanism for actuating the dumping gear should the power-cylinder fail.

2. In a dumping-car, the combination with the car-body, of dumping-gear therefor, a power-cylinder operatively connected with the dumping-gear, and auxiliary hand-operated mechanism for actuating the dumping-gear should the power-cylinder fail, said hand-operated mechanism being adapted to be thrown into or out of connection with the dumping-gear, as required.

3. In a dumping-car, the combination with the main dumping-shaft, of an auxiliary worm-wheel shaft geared thereto, a worm-spindle adapted to be thrown into or out of engagement with the worm-wheel, a friction-drum on the worm-wheel shaft, and a hand-brake coöperating with said friction-drum.

4. In a dumping-car, the combination with the main dumping-shaft, of an auxiliary worm-wheel shaft geared thereto, a worm-spindle adapted to be thrown into or out of engagement with the worm-wheel, a friction-drum on the worm-wheel shaft, and a hand-brake coöperating with said friction-drum, said hand-brake consisting of brake-shoes bearing against opposite sides of the drum and connected by swinging links to an operating-lever.

5. In a dumping-car, the combination with the dumping-shaft, of a drum geared thereto, a power-cylinder, and rigging intermediate of the cylinder and drum, for transmitting motion from the cylinder to the drum and consequently to the dumping-shaft, said rigging consisting of ropes secured at one end to the drum-barrel and at the other end to a fixed point of attachment and passing over pulleys mounted upon the cylinder.

6. In a dumping-car, the combination of a movable cylinder inclosing a fixed piston, pipes for admitting fluid to said cylinder on opposite sides of the piston, and dumping-gear connecting said cylinder to the car-body

7. In a dumping-car, the combination of a movable cylinder, a fixed piston inclosed by said cylinder, a hollow perforated rod to which said piston is secured, pipes connected to said rod for admitting fluid to said cylinder on opposite sides of said piston, and dumping-gear connecting said cylinder to the car-body.

8. In a dumping-car, a mechanism for rocking the body of said car, consisting essentially of the sliding cylinder containing a fixed piston, means for admitting fluid to said cylinder on each side of said piston, a drum, ropes connected to said drum and to fixed points of attachment on the car and which pass around pulleys secured to said cylinder, and a dumping-shaft having chain connection with the car-body, and a gear connection with said drum.

9. In a dumping-car, the combination of a car-body, a shaft journaled to the car-body and provided with chain-wheels, chains connected to said body and passing over said chain-wheels, a drum geared to said shaft, a sliding cylinder, ropes secured to the car-body and to said drum, and which pass around pulleys secured to said cylinder, a fixed piston within said cylinder, a hollow piston-rod, pipes connecting respectively with the opposite ends of said piston-rod, and a valve for controlling the passage of fluid through said pipes.

10. In a dumping-car, the combination with the releasing-latches for the hinged sides thereof, of friction-rollers mounted to revolve freely in contact with the rear side of the latches.

591,586. GATE-LATCH. ORIS BOWER, Brodhead, Ky., assignor of one-half to George Bower, same place. Filed June 2, 1897. Serial No. 639,133. (No model.)

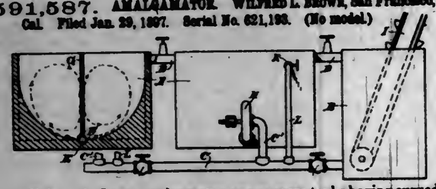


Claim.—1. A gate-latch, comprising a toothed wheel mounted on a horizontal pin projecting from the outer end of the gate, an inclined rack provided with teeth to correspond with the teeth of the wheel and secured to the face of the gate-post in the path of the wheel while closing the gate, and a latch on the gate to lock the wheel against turning, substantially as described.

2. A gate-latch, comprising a toothed wheel mounted on a horizontal pin projecting from the outer end of the gate, an inclined rack provided with teeth to correspond with the teeth of the wheel and secured to the face of the gate-post in the path of the wheel while closing the gate, and a latch-bar pivoted to the gate, its outer end engaging the teeth of the wheel to lock the wheel from turning, when desired, substantially as described.

3. A gate-latch, comprising a wheel mounted on a horizontal pin projecting from the outer end of the gate, having exterior and interior teeth, an inclined rack secured to the face of the post, provided with teeth to engage the exterior teeth of the wheel, and a latch-bar on the gate, adapted to engage with the interior teeth of the wheel, all substantially as set forth.

591,587. AMALGAMATOR. WILFRED L. BROWN, San Francisco, Cal. Filed Jan. 29, 1897. Serial No. 621,193. (No model.)

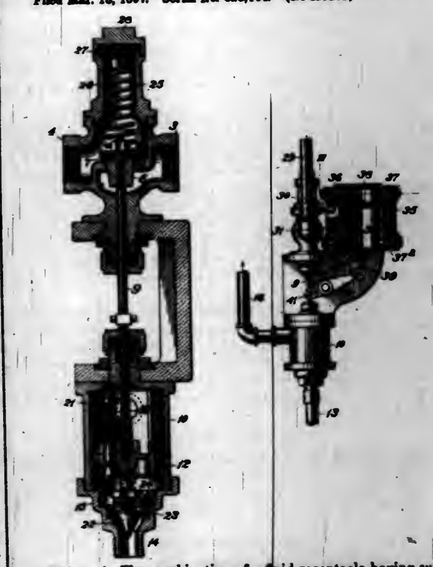


Claim.—1. In an amalgamator, one or more tanks having curved sides and amalgamating-plates fitted thereto, a pipe extending axially between the lower edges of the plates having inclined perforations made therein, a vertical partition extending upwardly from the pipe and from one end of the tank to a point near the other leaving an open channel at this end, a device whereby pulp may be impelled through the angular openings of the pipe whereby it is caused to impinge against the amalgamating-plates upon each side of the partition with a spirally-revolving movement in each of the chambers, a discharge-passage leading from one of said chambers to a succeeding settling-tank through which the circulation may be continued.

2. In an amalgamator, one or more amalgamating tanks having curved amalgamating-plates in the bottom, a centrally-located pipe extending longitudinally through the lower part of the tank having oppositely-inclined openings upon its opposite sides, a vertical partition extending upwardly from the pipe and extending from one end of the amalgamating-chamber to near the other, whereby the material is allowed to pass from one side to the other of the partition, a settling-tank connecting with the amalgamating-tanks, intermediate forcing mechanism by which the material is forced through the perforated pipes of the amalgamators and given a spirally-revolving motion in each of the chambers, connecting-pipes whereby the surplus material flows successively from one amalgamating-chamber to the next of the series, and thence returns to the supply-tank whereby a continuous circulation of the material is produced through the entire apparatus.

3. In an amalgamator, a series of amalgamating-tanks with connecting-pipes, central longitudinal partitions and circulating-pumps as shown, intermediate gates by which the tanks may be isolated from each other, and pipes extending from the main circulating-pipes to the upper parts of the tanks, with controlling-gates, whereby an independent circulation may be induced in each of the tanks.

591,588. WATER-HEATER. AUGUST BUERKLE, Allegheny, Pa. Filed Mar. 18, 1897. Serial No. 628,114. (No model.)



Claim.—1. The combination of a fluid-receptacle having supply and outlet pipes, a gas-burner for heating the receptacle, a valve for regulating the flow of gas to the furnace, a piston adapted to be shifted on the withdrawal of water from the receptacle and connected to the gas-regulating valve, and a valve operated by the movements of the piston for controlling the flow of water to the heater, substantially as set forth.

2. The combination of a fluid-receptacle having supply and outlet pipes, a piston adapted to be shifted by and in accordance with the escape of water from the receptacle, a valve controlling the flow of water to the receptacle and adapted to be shifted by the piston in accordance with its movements, a gas-burner for heating the receptacle, and a valve operated by the piston and adapted to control the flow of gas to the burner proportional to the flow of water through the heater, substantially as set forth.

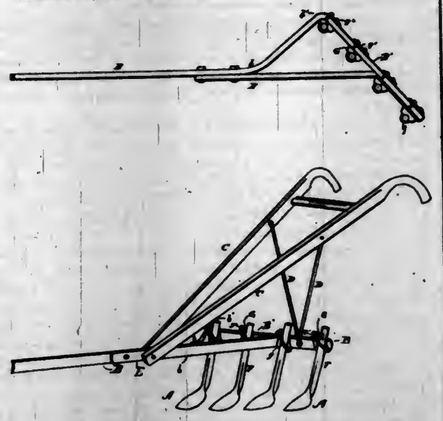
3. The combination of a main gas-burner, a pilot-light burner and means operative on the flow of gas to the main burner and its cut-off therefrom for increasing the flow of gas to the pilot-burner, substantially as set forth.

4. The combination of a main gas-burner, a pilot-light burner and means operative on the flow of gas to the main burner for increasing the flow of gas to the pilot-burner, substantially as set forth.

5. The combination of a main gas-burner, a pilot-light burner and means operative on the cut-off of gas from the main burner for increasing the flow of gas to the pilot-burner, substantially as set forth.

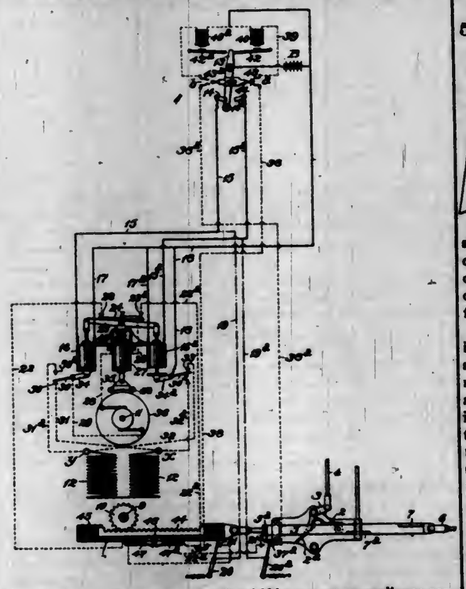
6. The combination of a fluid-receptacle having inlet and outlet pipes, a cylinder arranged in the line of connection of the inlet-pipe, a piston arranged to operate between the inlet and outlet ports of the cylinder, and provided with a passage therethrough, a valve controlling the flow of water through the piston and adapted to be unseated on the movement of the piston, a gas-burner for heating the receptacle, and a valve connected to the piston for regulating the flow of gas to the burner, substantially as set forth.

591,589. CULTIVATOR. EZEKIEL V. BURROW, Monrovia, Ala., assignor to R. M. Thompson & Sons, same place. Filed Jan. 6, 1897. Serial No. 618,212. (No model.)



Claim.—A cultivator-frame consisting of a beam B bent at *b* and at *b'* and terminating in an inclined cross-head for the teeth, and a metallic brace-bar E connecting the cross-head with the beam, substantially as shown and described.

591,590. SWITCH APPARATUS. JOHN P. COLEMAN, Swissvale, Pa., assignor to the Union Switch and Signal Company, same place. Filed July 3, 1897. Serial No. 643,353. (No model.)



Claim.—1. In an apparatus for shifting a part or appliance connected to a track for controlling the movement of trains, the combination of a motor, a generator having each of its poles connected to both poles of the motor, a circuit-changer controlling the connection of the generator to the motor, a magnet controlling the circuit-changer, a motor-brake, a magnet controlling said brake and included in the motor-circuit and connections from the motor to the part or appliance to be shifted, substantially as set forth.

2. In an apparatus for shifting a part or appliance connected to a track, the combination of a motor, a generator having each of its poles connected to both poles of the motor, a circuit-changer controlling the connection of the generator to the motor, a magnet controlling the circuit-changer, a motor-brake, a magnet controlling said brake and included in the motor-circuit and connections from the motor to the part or appliance to be shifted, substantially as set forth.

3. In an apparatus for shifting a part or appliance connected to a track, a motor connected to such part or appliance, a generator having each of its poles connected to both poles of the motor, a circuit-changer controlling the connection from the generator to the motor, a magnet controlling the circuit-changer, and a make-and-break mechanism included in the motor-circuit and operated by the part or appliance to be shifted, substantially as set forth.

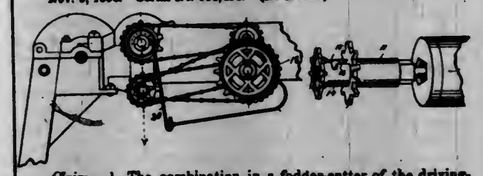
4. In an apparatus for shifting a part or appliance connected to a track, a motor connected to such part or appliance, a generator having each of its poles connected to both poles of the motor, a circuit-changer controlling the connection from the battery to the motor, a magnet controlling the circuit-changer, a make-and-break mechanism included in the motor, circuit-stops controlling the make-and-break mechanism, magnets controlling said stops, and make-and-break mechanisms in the circuits of said magnets controlled by the part or appliance to be shifted, substantially as set forth.

5. In an apparatus for shifting a part or appliance connected to a track, an electric motor, a resilient connection between the motor and the part or appliance to be shifted, a make-and-break mechanism in the circuit of the motor and operated by a part of the resilient connection, substantially as set forth.

6. In an apparatus for shifting a part or appliance connected to a track, the combination of a slide connected to the part or appliance to be shifted, a rack-bar resiliently connected to the slide, a motor having a gearing connection to the rack-bar, a make-and-break mechanism in the motor-circuit controlled by the rack-bar, substantially as set forth.

7. In an apparatus for shifting a part or appliance connected to a track, a motor connected to such part or appliance, a generator having each of its poles connected to both poles of the generator, a circuit-changer controlling the connection from the generator to the motor, a magnet controlling the circuit-changer and normally-closed make-and-break mechanisms included in the motor-circuits and adapted to be opened by the part or appliance to be shifted, substantially as set forth.

591,591. FODDER-CUTTER. JOSEPH DICK, Canton, Ohio. Filed Nov. 9, 1896. Serial No. 611,498. (No model.)



Claim.—1. The combination in a fodder-cutter of the driving-shaft having loosely journaled thereon, the lower feed-roller, and a coupling-sleeve with sprocket-wheel mounted thereon, and revoluble on the shaft, with a driving train of gear and sprocket wheels and a chain connection therewith, substantially as and for the purpose set forth.

2. The combination in a fodder-cutter, of the driving-shaft, having loosely journaled thereon, the lower feed-roller and coupling-sleeve, adapted to engage therewith, and having a sprocket-wheel mounted thereon, and revoluble on the shaft, with a train of gear and sprocket wheels mounted on the side of the feed-box, and driving-chains connected therewith, and with a sprocket-wheel attached to the outer end of the driving-shaft, and an upper feed-roller journaled in a vertically-slotted box having a hinged housing, and a spring connection with the feed-box, substantially as and for the purpose set forth.

3. A feed-roller for a fodder-cutter, adapted to be loosely journaled on the driving-shaft thereof, having a coupling-sleeve adapted to engage therewith, and a sprocket-wheel mounted thereon and revoluble on the shaft, substantially as and for the purpose set forth.

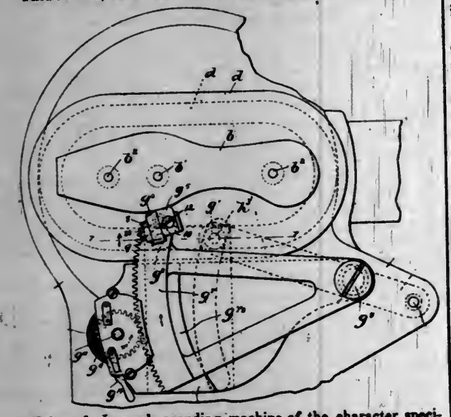
591,592. THREAD-SEVERING ATTACHMENT FOR SPOOLS. WILLIAM H. EARLE, Providence, R. I. Filed Mar. 13, 1897. Serial No. 627,371. (No model.)

Claim.—1. The cord or thread savering attachment for spools, hereinbefore described, the same consisting of the small thin metal disk *c* slightly concavo-convex in cross-section, and a central pin or spur, as *c'*, through which the said disk may be rigidly secured to the end of the spool.



2. The combination with the usual wooden thread-holding spool *a* having a thread-securing notch *a'* formed in one of its end flanges, of the small metal disk *c* permanently secured to the said notched end and contiguous to but below the mouth of the securing-notch *a'*, constructed, arranged and adapted for use substantially as hereinbefore described and for the purpose set forth.

591,593. SOLE-ROUNDING MACHINE. EDWARD ERICKSON, Boston, Mass., assignor to the Flagg Manufacturing Company, same place. Filed Mar. 12, 1896. Serial No. 582,908. (No model.)



Claim.—1. In a sole-rounding machine of the character specified, the combination with the fixed pattern, the fixed cam-plate, and the rotary driver, of the knife-carrier engaged as described with the cam-plate and driver, a slide pivoted at one end to the carrier and having a rack-segment at its swinging end, a pinion journaled on the carrier and meshing with the said segment, a spring arranged to impel the pinion, a locking device on the carrier adapted to lock said pinion, and a knife-holder engaged with the swinging end of the slide.

2. In a sole-rounding machine, the combination with the spring-pressed slide having a stud, of a knife-holder having a slot which is open at the rear side of the holder to receive said stud and has a closed end within the holder forming a bearing for the stud.

3. In a sole-rounding machine, the combination with the spring-pressed slide having a stud, of a knife-holder having a slot which is open at the rear side of the holder to receive said stud and has a closed end within the holder forming a bearing for the stud, a knife secured to said holder, and means for adjusting the knife relatively to the said bearing.

591,594. SNOW-GUARD. HENRY M. BEMIS, Boston, Mass. Filed May 11, 1896. Serial No. 591,067. (No model.)



Claim.—1. A snow-guard composed of a single piece of wire bent to form a shank and an upturned loop or snow-stop, said wire intermediate the shank and loop being of increased diameter in a plane perpendicular to the plane of the roof or other support, and parallel to the direction of movement of the snow thereon, substantially as described.

2. A snow-guard adapted to be inserted between the roof members after the latter have been secured in place, said guard being composed of a single piece of wire bent to present a snow-stop portion, and a holding-shank extended therefrom, said holding-shank being constructed for insertion between two previously-positioned roof members, and provided with a depending centrally-located resilient retaining-prong integral with the said holding-shank and surrounded by the rigid or unyielding body of the shank, whereby said surrounding rigid body portion presents a leading end for the shank unaffected by the changing positions of the resilient retaining-prong, and therefore presenting at all times a leading end capable of ready insertion between adjacent roof members without binding upon either, substantially as described.

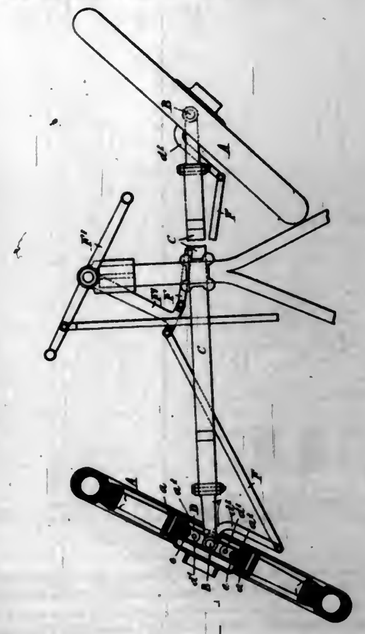
3. A wire snow-guard comprising a shank laterally flattened at one end and provided with a downturned resilient projection, an upturned loop at the other end of and transverse to the shank, the metal between said shank and loop being swaged to impart greater rigidity and strength thereat in the line of greatest strain, substantially as described.

4. A snow-guard comprising a shank laterally flattened at one end and provided with a retaining projection, and upturned at its other end to form a loop or snow-stop transverse to the shank, the latter between said loop and flattened portion being downwardly and inwardly beveled along its sides, substantially as described.

5. A snow-guard composed of a single piece of wire bent to present a snow-stop transversely to the direction of movement of the snow and having a shank to rest in the interstice between a plurality of roof members lying substantially in the same plane, said shank being wedge-shaped in cross-section with the apex of the wedge inferiorly located so that the pressure of the snow against the stop will tend to wedge or seat the shank against the abutting edge or edges of the adjacent roof member or members, substantially as described.

6. A snow-guard composed of a single piece of wire adapted to be positioned after the several roof members are in place, said guard consisting of a snow-stop portion and its flattened supporting-shank, the latter being adapted to be inserted between and held entirely beneath two adjacent previously-positioned roof members, while the former extends upwardly between and above said adjacent members, said flattened shank having a resilient retaining-prong integral with and normally projecting beyond the central portion of the under face of said shank, substantially as described.

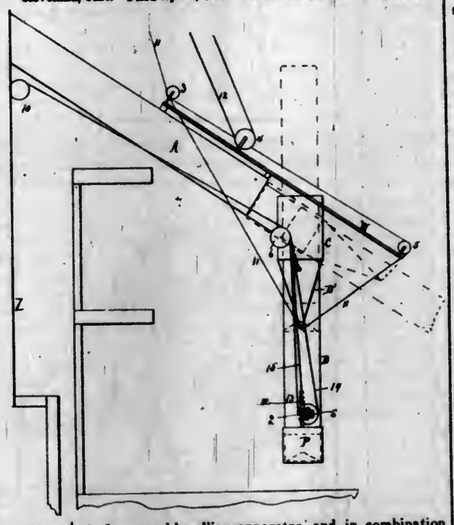
591,595. STEERING MECHANISM FOR MOTOR-VEHICLES. CAMILLE A. FAURE, Paris, France. Filed Jan. 18, 1897. Serial No. 619,661. (No model.) Patented in Belgium May 4, 1895, No. 115,426, and in France Nov. 4, 1895, No. 251,431.



Claim.—1. The combination with a wheel and an axle therefor, of a disk pivoted to the axle in the plane of the wheel and located within the hub of the latter, ball-bearings located in corresponding grooves in the periphery of the disk and the interior of the hub, an adjustable ring which forms in part one of said grooves, and means for turning the disk on its pivot, substantially as described.

2. The combination with a wheel and an axle therefor, of a disk upon which the wheel rotates, said disk being formed in two parts with a slot at their meeting edges into which the axle projects, and a pin passing from one part of the disk to the other through the axle, whereby the disk is pivoted to the axle, substantially as described.

591,596. DEVICE FOR HANDLING COAL. HANNA H. FLEKDNER, Cleveland, Ohio. Filed Apr. 1, 1897. Serial No. 630,267. (No model.)



Claim.—1. In a coal-handling apparatus, and in combination with the apron-chute thereof, a sleeve, pivotally secured to the discharge end of said apron-chute, and a supplemental chute engaging with and vertically adjustable in said sleeve, substantially as and for the purpose specified.

2. In a coal-handling apparatus, and in combination with the apron-chute thereof, a sleeve pivotally secured at the discharge end of said apron-chute, a supplemental chute engaging with and vertically adjustable in said sleeve, a cage at the lower end of said supplemental chute, said cage having a pyramidal bottom, and an adjustable sleeve around said cage, substantially as and for the purpose set forth.

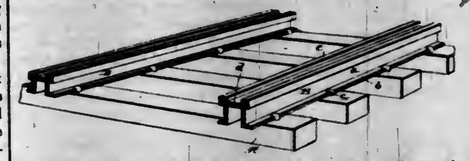
3. In combination with a main chute, a supplemental chute for a coal-handling device and an adjustable inclosing sleeve P at the lower end of the supplemental chute, as a means for enlarging or diminishing the discharge-opening from said supplemental chute, substantially as and for the purpose set forth.

4. In combination with a main chute, a supplemental chute adapted to have a vertical and radial adjustment in relation to said main chute, and plates H and K, slidingly engaging said supplemental chute, substantially as and for the purpose set forth.

5. In combination with a main chute, a sleeve C, pivotally secured to the discharge end of said main chute, a supplemental chute D, vertically adjustable in said sleeve, the plates H and K, a cage M, at the lower end of said supplemental chute, and an adjustable inclosing sleeve P, the parts being constructed, arranged and operating substantially in the manner and for the purpose specified.

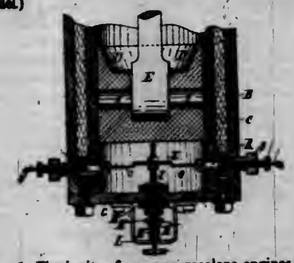
591,597. RAILROAD. THOMAS M. GALBREATH, Memphis, Tenn. Filed May 12, 1897. Serial No. 636,168. (No model.)

Claim.—1. In a railroad, the combination of sleepers or cross-ties laid below the surface of the street pavement or roadway and the tracks arranged upon and connected to the sleepers or cross-ties and formed by rails each of which is formed in one piece and comprises the parallel webs or uprights having outwardly-directed base-flanges, the flat head *d*, and the guard-flanges *c*, at opposite sides of the head *d*, extending above same and also extending laterally beyond the webs *a*; the said rails being so arranged that the upper side of the guard-flange *c*, is flush with the surface of the pavement or roadway, substantially as specified.



2. The railway-rail described formed in one piece and comprising the webs or uprights having outwardly-directed base-flanges, the head and the guard-flanges at opposite sides of the head extending above the same and also extending laterally beyond the webs, substantially as specified.

591,598. IGNITER FOR GAS OR GASOLENE ENGINES. MILOS O. GORDON, Monrovia, Cal. Filed Feb. 3, 1897. Serial No. 621,906. (No model.)

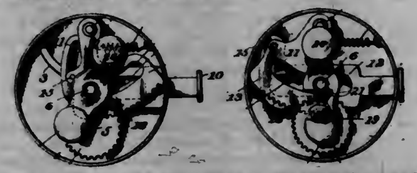


Claim.—1. The igniter for gas or gasolene engines consisting of a stem sliding and capable of being moved round within a stuffing-box at the inner or rear end of the cylinder of a gas or gasolene engine, the said stem being provided with a disk on its inner end for making and breaking contact with two or more spring electrical contact-pieces within the cylinder; the said stem being also provided at its outer end with a spiral spring for forcing it inward in order to make and break another electrical contact when the piston has commenced its outward stroke, the said stem being also provided with a finger-piece at its outer end so that contact may be made and broken and sparks produced within the cylinder by operating the igniting device by hand at or when starting a gas or gasolene engine into operation all substantially as hereinbefore described and shown upon the annexed drawings.

2. The stem of the spring electrical contact-pieces constructed with a square portion fitting into a correspondingly square hole in the insulating stuffing-box constructed and operating substantially as set forth.

3. The combination of a stuffing-box in the end or cylinder cover of a gas or gasolene engine, the stem movable within said stuffing-box, the disk on the inner portion of said stem, the spiral spring on the outer portion of said stem, the guide for maintaining the spiral spring in its relation to said stem, the finger-piece at the outer end of said stem, the stems carrying the spring contact-pieces formed with a square portion fitting the square hole in the insulating stuffing-box for receiving the said square portion of the spring-contact-piece stems, the connection of the said contact-piece-carrying stems with a battery or circuit operated by a dynamo, the whole constituting my improved igniting device for gas or gasolene engines and operating in the manner substantially as described and shown upon the annexed drawings.

591,599. BICYCLE-BELL. SAMUEL GOULDEN, Newark, N. J., assignor of one-half to Edward Zust, same place. Filed June 7, 1897. Serial No. 639,727. (No model.)



Claim.—1. In a bell, the combination of a slotted base, a pusher, a gong, and a hammer-carrier with a segmental rack-plate provided with a pin passing through said pusher and into the slot in the base,

and intermediate gearing between the rack and the hammer-carrier, substantially as described.

2. In a bell, the combination of a base having a curved slot, a pusher having a slot arranged at an angle to the slot in the base, a pivoted rack-plate carrying a headed pin working in the slots in the pusher and base, a hammer-carrier, a gong on which the hammer operates, and intermediate gearing between the hammer-carrier and rack-plate, substantially as described.

591,600. BICYCLE-BELL. SAMUEL GOULDEN, Newark, N. J., assignor of one-half to Edward Zust, same place. Filed June 7, 1897. Serial No. 639,724. (No model.)



Claim.—The combination in a bell, of the base 1, having slotted flange 6, the pusher 8 working through said flange, the arm 11 pivoted to the base and to said pusher, the U-shaped spring 13 having one end connected to the arm 11 and its other end slotted, and the hammer 16 having an arm 15 working in the slot in the spring, all substantially as described and shown.

591,601. ELASTIC HORSESHOE. PHILANDER H. GRAVES, Chicago, Ill. Filed Apr. 24, 1897. Serial No. 633,646. (No model.)



Claim.—1. A horseshoe composed of rubber and having at its toe portion a rearwardly-projecting V-shaped extension giving increased width and bearing-surface to said toe portion, said shoe being provided in its under side with a groove extending from heel to heel, in combination with a metal strip or frame having a central V-shaped offset and located in said groove which is of corresponding shape and provided with openings for the reception of attaching means, substantially as described.

2. A horseshoe composed of rubber and provided in its under side with a groove, in combination with a metal strip or frame located in said groove and having openings for the reception of attaching means, and a toe-plate formed from sheet metal and embracing the toe portion of the shoe, said toe-plate extending around the under side of the shoe and having its edge curled or rolled and embedded in the rubber, substantially as described.

3. A horseshoe provided in its under side with a groove, in combination with a metal strip or frame located in said groove and provided with openings for the attaching means, and a toe-plate formed of sheet metal bent around the under side of the shoe and having its front edge curled or rolled and embedded in the rubber, said plate being also deflected or curved in the plane of the base of the groove so as to form a seat or bearing-surface for the metal strip or frame, substantially as described.

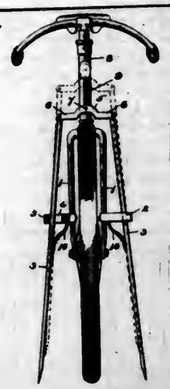
4. A horseshoe composed of rubber and provided along its under side with a groove, in combination with a metal strip or frame fitted in said groove and provided with openings for the attaching means and a pair of heel-plates each consisting of a piece of sheet metal having its corners or edges rolled and embedded in the rubber, said heel-plates being flush with the under side of the shoe, substantially as described.

5. A horseshoe composed of rubber and provided in its under side with a groove, in combination with a metal strip or frame arranged in said groove and having openings for the attaching means, and bearing-plates on the upper side of the shoe arranged at the toe and heel end thereof, said plates having their edge portions rolled and embedded in the rubber, substantially as described.

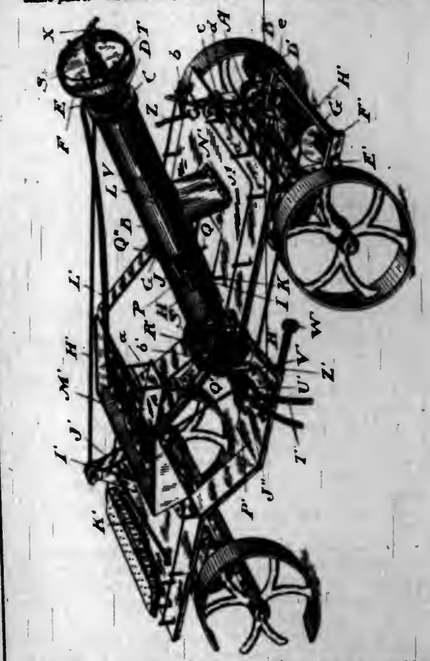
591,602. BICYCLE-SUPPORT. JAMES HARPER, Carrollsburg, Pa. Filed Nov. 7, 1896. Serial No. 611,391. (No model.)

Claim.—The combination with a bicycle having the lateral projections 2 and springs 10, of the sliding plate 5 having pivoted legs 3 passing through openings in said projections and engaging said springs, substantially as described.

591,602.



591,603. WATER-TOWER. FREDERICK S. HENNIG and WILLIAM PIGOTT, Toronto, Canada, assignors of one-third to Hugh Strain, Jr., same place. Filed Oct. 5, 1896. Serial No. 607,940. (No model.)



Claim.—1. In a device of the class described, the combination of a vehicle, a tilting tower mounted thereon, and mechanism connecting said tower to the driving power of said vehicle, whereby said tower is tilted by the operation of the driving power of said vehicle, substantially as described.

2. In a device of the class described, the combination of a vehicle having the usual ground-wheels, a movable tower carried thereby, mechanism arranged to connect the ground-wheels of the vehicle and said tower whereby the movement of said wheels raises the tower, substantially as described.

3. In a device of the class described, the combination with a vehicle having the usual ground-wheels, of a tilting tower, mechanism whereby the tower is raised from the ground-wheels, the said tilting tower being formed of two or more telescopic sections arranged to be extended by hydraulic power, substantially as and for the purpose specified.

4. In a water-tower, the combination of a base-pipe suitably trunnioned on the vehicle, a winding-drum suitably journaled and driven by one of the wheels of the vehicle, a rope suitably connected to the top of said base-pipe and to said winding-drum and means for throwing said winding-drum out of gear with said wheel, substantially as specified.

5. In a water-tower, the combination of a base-pipe suitably trunnioned on the vehicle and containing one or more telescopic pipes, a rope suitably connected to the top of the base-pipe and to a winding-drum suitably journaled; gearing connecting with a pinion on a rotatable axle of the vehicle to operate the winding-drum; and means for throwing the gearing into or out of clutch with said pinion, substantially as specified.

6. In a water-tower, the combination of a base-pipe suitably trunnioned on the vehicle containing one or more telescopic pipes, a rope suitably connected to the top of the base-pipe and to a winding-drum which is suitably journaled; gearing connecting with a pinion on a rotatable axle of the vehicle to operate the winding-drum; means for throwing the gearing into or out of clutch with said pinion; and means for controlling the motion of the winding-drum when the gearing is out of clutch, substantially as specified.

7. In a water-tower, the combination of a base-pipe suitably trunnioned on the vehicle and containing one or more telescopic pipes; a rope suitably connected to the top of the base-pipe and to a winding-drum, which is suitably journaled; gearing connecting with a pinion on a rotatable axle to operate the winding-drum; means for throwing the gearing into or out of clutch with said pinion; means for controlling the motion of the winding-drum when the gearing is out of clutch and of retaining the water-tower at any desired angle; a hose-pipe connected to a nozzle which is suitably held on the top of the tower and means for controlling the movement of said nozzle; and means for directing the water from the engine or other source of power either through the tower, or through the hose-pipe, or through both the tower and hose-pipe simultaneously, as well as cutting off the water-supply; and means for permitting the water forced into the tower to escape, substantially as specified.

8. In a device of the class described, the combination with a vehicle having a platform A formed thereon, of a base-pipe B having trunnion-arms J" journaled in box P', an axle E', a winding-drum G' carried thereby, a gear-wheel D' connected to said axle E', a pinion C' connected with a rotating shaft, a spur-wheel A' interposed between said gear-wheel D' and pinion C', suitable guide-pulleys, a rope H' passing over said guide-pulleys and having one end connected with said base-pipe B and its other end connected with said winding-drum G', substantially as described.

9. In a device of the class described, the combination with a vehicle having a platform A formed thereon, of a base-pipe B suitably journaled on said vehicle and arranged to be tilted, a rotatable shaft carrying a pinion C', a shaft E' carrying a winding-drum G' and having a gear-wheel D' connected thereto, means as the rope H' connecting said base-pipe B with said winding-drum G', a spindle B' interposed between said pinion C' and gear-wheel D', a spur-wheel A' slidingly secured to said spindle B', and a clutch-lever Z connected with said sliding spur-wheel, substantially as and for the purpose specified.

10. In a vehicle of the class described, the combination with a vehicle having a platform A formed thereon, of a base-pipe B suitably journaled on said vehicle and arranged to be tilted, a rotatable shaft carrying a pinion C' a shaft E' carrying a winding-drum G' and having a gear-wheel D' connected thereto, means as the rope H' connecting said base-pipe B with said winding-drum G', a spindle B' interposed between said pinion C' and gear-wheel D', a spur-wheel A' slidingly secured to said spindle B', a clutch-lever Z' connected with said sliding spur-wheel A', a friction-drum *e* located on one of said shafts, a friction-band *d* coacting with said friction-drum, and a friction-lever *b* controlling said friction-band, substantially as described.

11. In a device of the class described, the combination of a longitudinally-extensible water-tower having the usual nozzle X, flexible joint W and rotatable pipe O suitably secured in position, an upper platform F, guide-pulleys M and R supported thereby, a pulley as N on said rotatable pipe O, and a rope L passing around said pulley N and over said guide-pulleys M and R, a bracket as G, and independent reels H and I suitably journaled on said bracket and having the ends of the rope L wound thereon, substantially as described.

12. In a device of the class described, a water-tower having the usual nozzle X, flexible joint W and rotatable pipe O suitably secured in position, in combination with an upper platform F, a standard T supported thereby, a lever S having one end pivoted to said standard T and its other end having a connection with said nozzle X, a bracket G connected with the base-pipe and having a reel P suitably journaled thereon, and a cord V connecting said pivoted lever S with said reel P, substantially as described.

13. In a device of the class described, a water-tower having the usual nozzle X, flexible joint W and rotatable pipe O suitably secured in position, in combination with an upper platform F, a pulley N connected with said rotatable pipe O, guide-pulleys M and R supported on said platform, independent reels H and I suitably journaled, and a rope L passing around said pulley N over said guide-pulleys and having its ends connected with said independent reels H and I, a standard T supported by said platform, a lever S having one end pivoted to said standard T and its other end having a connection with said nozzle X, a reel P, and a cord V connecting said pivoted lever S with said reel, substantially as described.

14. In a device of the class described, the combination of a water-tower, having a platform F near the top thereof, a rotatable pipe O, a pipe *c'* projecting through said platform and connecting the upper end of said tower with said pipe O, a collar *f'* on the said pipe *c'* bearing against the lower side of said platform, a nut *g'* secured to said pipe *c'* and firmly connecting said pipe *c'* and said platform, and a nut *i* connecting said rotatable pipe O with said pipe *c'*, substantially as described.

15. In a device of the class described, the combination of a water-tower having a platform F near the top thereof, a water-chamber E at the top of said water-tower and beneath said platform, a rotatable pipe O having a nozzle X and flexible joint W above said platform, a pipe *c'* located in said water-chamber E and projecting through said platform and having a collar *k'* thereon bearing against the bottom of said platform, a nut *g'* secured to the upper part of said pipe *c'* and firmly connecting said pipe *c'* and platform, a nut *i'* connecting said pipes O and *c'*, and a water-inlet as *k'*, substantially as described.

16. In a water tower, the combination with a platform as A and a base-pipe as B, of a trunnion-arm J" fixed to said base-pipe and suitably journaled, a ratchet *m* connected with said trunnion-arm J", a dog *n* engaging said ratchet, a spring Q acting on said dog, a lever as *o* carrying a cam *p* arranged to coact with said dog *n*, and a stop R arranged to control the movement of said trunnion-arm J", substantially as described.

17. In a water-tower, the combination with a base-pipe as B having one or more pipes arranged to coact therewith and be extended therefrom by hydraulic pressure, the uppermost of said pipes being closed at its top, of a water-chamber located in the top of the said uppermost pipe, a water-cock communicating with said base-pipe, a pipe as L' connecting said cock with said water-chamber, the said cock being constructed to supply water to said pipes and chamber, substantially as described.

18. In a water-tower, the combination with the base-pipe B, suitably trunnioned on the vehicle and adapted to be raised vertically as well as lowered; of the telescopic pipes *i* and *h*, suitably connected together and to the base-pipe B; the water-chamber E; the water-tower pipe *c'*; hose-pipe L connecting said pipe *c'* and chamber E; the three-way cock; the draw-off cock *b'*; and the hose outlet-pipe *z*, substantially as described.

19. In a water-tower, the combination with the base-pipe B, suitably trunnioned on the vehicle and adapted to be raised vertically, as well as lowered; of the telescopic pipes *i* and *h* suitably connected together and to the base-pipe B; the water-chamber E; the rotatable pipe O, suitably held in operative position on the upper platform F and within the water-chamber; nozzle X, flexibly connected to the rotatable pipe O, and means for controlling the motion of the nozzle; the water-tower pipe *c'*; the three-way cock; the draw-off cock *b'*; the hose outlet-pipe *z*; and hose-pipe L, substantially as described.

591,604. METALLIC ALLOY. CHARLES F. HITCHCOCK, San Francisco, Cal., assignor to the Hitchcock Metal Company, same place. Filed Jan. 23, 1897. Serial No. 620,451. (No specimens.)

Claim.—1. A metallic alloy consisting of the following metals mixed together in the following proportions: zinc .854 parts, antimony .06 parts, tin .08 parts, copper .002 parts, aluminium .004 parts.

2. A metallic alloy consisting of from ninety to fifty-eight per cent. of zinc, five to fifteen per cent. of antimony, five to fifteen per cent. of tin, one-tenth of one to one per cent. of copper, and one-fourth of one to one per cent. of aluminium, substantially as set forth.

591,605. SPOOL-HOLDER. ORVILLE R. LOSEWELL, Hillsborough, Ill. Filed Mar. 31, 1897. Serial No. 630,161. (No model.)



Claim.—1. A spool-thread holder comprising a frame, one of the end bars of which is formed, at an intermediate point of its length, with a keeper, and a side bar provided with a guide-loop, and a spool-spindle extending centrally across the frame, looped at its free end to engage with the keeper, and doubled back upon itself to form the brake-arm which is provided at its free end with a loop, slidably fitted on the end bar opposite to the keeper, as and for the purposes described.

2. A spool-thread holder comprising a frame provided with a keeper, as 9, on one end bar, a handle, and a double spindle continuous with the handle and extending across the frame to have its doubled end engage detachably with the keeper, said spindle being provided at its free end with an eye which slidably fits on the other end bar, whereby said spindle is attached at both ends to the frame to hold the spool against endwise displacement and one member of the spindle is capable of a limited yielding movement to serve as a brake for the spool, substantially as described.

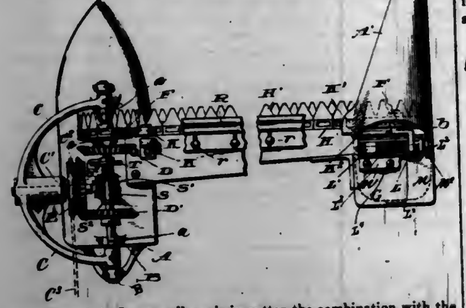
3. A spool-thread holder comprising a frame provided on one of its side bars with a guide eye or loop, a cutter on the other side bar of said frame, a keeper on the top bar, and a spindle extending from the bottom bar across the frame, between its side bars, and engaged detachably with the keeper, substantially as described, for the purposes set forth.

4. A spool-thread holder comprising a substantially rectangular frame, having one of its end bars provided with a laterally-extending keeper, situated at a point intermediate of the length of said bar, and a spindle extending from the opposite end bar, across the frame, and bent upon itself to form a looped end to engage with the keeper, and to form a spring-brake 7, the free end of which is looped to engage the end bar from which the spindle projects, as and for the purposes described.

5. A spool-thread holder bent from a single piece of wire to form a frame, a handle extending beyond one of the bars of said frame, and a spindle extending across the frame substantially in alinement with the handle, the part of the wire that forms the handle and spindle being doubled back upon itself to provide a spring-brake, as and for the purposes described.

6. A spool-thread holder bent from a single piece of wire to form a frame, a handle extending beyond said frame, and a spindle extending across the frame, that part of the wire forming the handle and spindle being doubled upon itself and slidably attached to the frame to form a spring-brake, and the other end of the wire having a loop to embrace the handle substantially at the point where the latter joins the frame, as and for the purposes described.

591,606. ENDLESS-CHAIN CUTTER. THOMAS E. MARTIN, Rush, N. Y. Filed June 4, 1897. Serial No. 639,450. (No model.)

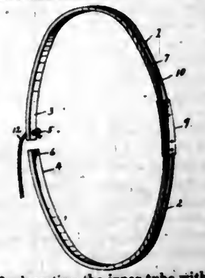


Claim.—1. In an endless-chain cutter, the combination with the endless chain, the tension-regulating plate L, movably held to the outer end of the cutter-bar, the idler-carrying arm mounted on said plate, and carrying the outer sprocket-chain wheel, of a casting L^3, on which the plate is mounted, and an apertured screw-threaded nut l', of the threaded bolt working through said nut, a spring interposed between the nut and movable plate, and a hand-wheel at the outer end of the said adjusting-bolt, and spring-catch to hold the hand-wheel in a fixed position, substantially as described.

2. In an endless-chain cutter, the combination with the shoe A, the shaft B mounted in lugs thereon, the bracket-arms journaled to the said shaft, of the sprocket-carrying chain-wheels, the beveled geared wheels D and D', of the collars S^3, keyed to shaft B, the threaded lug S, and hollow sleeve carried therein, and through which sleeve the shaft B is loosely journaled, of the hand operating-wheel integral with the sleeve and a spring-actuated catch *m* designed to normally engage in a notch in the periphery of the said hand-wheel, substantially as described.

591,607. DEVICE FOR INSERTING TUBES IN PNEUMATIC TIRES. CHARLES MCCLURE, U. S. Army.—Filed Feb. 20, 1897. Serial No. 624,400. (No model.)

Claim.—1. A device of the character described comprising sections adapted to form a circle when united, the outer face of the sections being grooved, and a means for attaching the inner tube of the tire to the circular device whereby the said tire may be inserted within an outer casing, the same being prevented from slipping by the groove, substantially as shown and described.

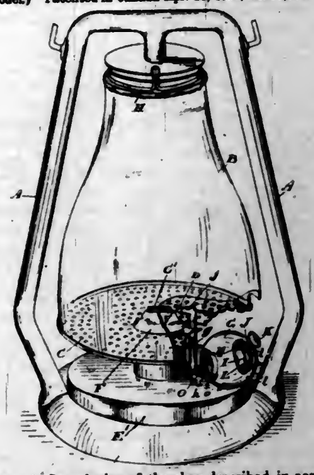


2. A device for inserting the inner tube within the outer casing of a pneumatic tire consisting in the groove members, one of said members provided with a cavity adjacent its end, a casing on the end of the other section, a spring secured within the casing and projecting therefrom, a lug carried by the end of said spring and adapted to engage the cavity of the other section for uniting the sections to form a hoop, and a means carried by the end of said hoop for attaching the inner tube thereto, substantially as shown and described.

3. A device for the purpose of inserting the inner tube within the outer casing of a pneumatic tire consisting of curved sections grooved circumferentially, one of said sections having a cavity near its end, a casing secured to one end of the opposite section, a projecting spring secured to said casing and provided with a depending lug on its free end whereby the sections may be united by the cavity-carrying end extending within the casing of the opposite section and secured therein by the engagement of the lug with the cavity and a means carried by the ends of the sections for attaching the inner tube of a pneumatic tire thereto, substantially as shown and described.

4. A device for inserting an inner tube within a bicycle-tire, comprising a hoop having its free ends overlapping and provided with perforations, the said hoop being grooved circumferentially, and cords in said perforations for attaching the tube thereto, substantially as shown and described.

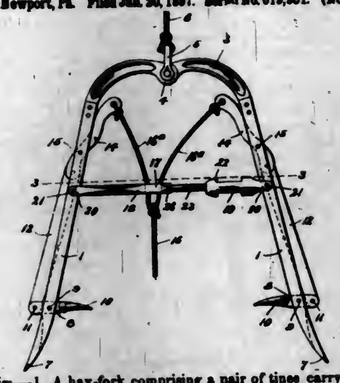
591,608. LAMP OR LANTERN EXTINGUISHER. DANIEL T. K. MCEWEN, Roxborough, Canada. Filed Feb. 8, 1897. Serial No. 622,596. (No model.) Patented in Canada Apr. 10, 1897, No. 55,567.



Claim.—1. In a device of the class described, in combination, a hollow metal ball, an internal rubber bulb having communication with a metal tube leading from the ball up to within suitable distance of the flame, a flat semicircular spring suitably secured to the inside of the sphere and designed to normally rest close to the bulb, a pin connected to the spring, extending out through a hole in the hollow ball and provided with a head or button at its outer end, as set forth and for the purpose specified.

2. In a device of the class described, the combination of the ball, bulb situated within such ball, spring suitably held and normally resting close to such bulb, pin for depressing such spring so as to expel air from the bulb the tube *g* provided at its upper end with a gradually-tapered portion D which terminates in a small hole V from which the air is expelled from the tube against the flame, as and for the purpose specified

591,609. AUTOMATIC HARPOON HAY-FORK. JEROME L. RITTER, Newport, Pa. Filed Jan. 30, 1897. Serial No. 619,951. (No model.)



Claim.—1. A hay-fork comprising a pair of tines carrying harpoon prongs or barbs and hinged together at one end, and a sectional brace comprising a guide-sleeve pivotally connected to one of the tines, and a slide-bar pivotally connected to the opposite tine and provided with a spindle extension detachably and slidably engaging with said sleeve, substantially as set forth.

2. A hay-fork comprising a pair of tines carrying harpoon prongs or barbs and provided at one end with inturned head extensions connected together by a hinge-joint, and at their opposite ends with tapered outwardly-curved points, substantially as set forth.

3. A hay-fork comprising a pair of tines carrying harpoon prongs or barbs and hinged together at one end, a tubular guide pivotally connected to one of the tines intermediate its ends and provided at its inner end with a collar having in the lower side of its opening a groove, and a slide-bar pivotally connected to the opposite tines and provided at its inner end with a spindle extension sliding in said collar and having at one end a stop lug or pin adapted to be turned into alinement with said groove, said slide-bar being further provided at the base of its spindle extension with oppositely-located stop-lugs, substantially as set forth.

591,610. TRACE-CARRIER. JACOB SCHULLIS, Dysart, Iowa. Filed May 22, 1897. Serial No. 637,737. (No model.)



Claim.—1. In a trace-carrier, a frame of skeleton form comprising a base portion of oblong shape having front, rear and side or end bars, providing loops for the several straps, arched bars connecting the front and rear bars and joined at their upper ends by a coupling-bar, the juncture between the coupling and arched bars being expanded and slotted, guard-bars in a higher plane than the side or end bars parallel therewith, notched at their inner side at a middle point, and springing from the arched bars, and gravity-dogs having pivotal connection with the arched bars and having inner extensions at their knuckles to engage with the said coupling-bar, and having their free ends bent inwardly toward each other and having their terminals thickened and deflected outwardly away from the bent ends to enter the notches of the guard-bars, substantially as set forth for the purpose described.

2. The herein shown and described trace-carrier, comprising a skeleton frame of oblong form comprising a base portion having parts deflected to provide front and rear and side or end bars or loops, arched bars joining the front and rear bars and inclining toward each other and connected by a coupling-bar midway of their ends, and having the juncture between the coupling and arched bars expanded and slotted at right angles to the coupling-bar and parallel with the arched bars, guard-bars parallel with the side or end bars and in a higher plane than the base portion of the frame, and having notches at their inner side midway of their extremities, and gravity-dogs having wings at their pivotal ends which are thrust through the aforesaid slots and are bent to embrace the portion of the arched bars adjacent to the said slots, and formed with inner extensions opposite the knuckles to engage with the aforesaid coupling-bar and limit the inward movement of the free ends of the said dogs, the latter having their ends bent inwardly toward one another and their terminals thickened and deflected outwardly to enter the notches of the guard-bars, substantially as shown for the purpose set forth.

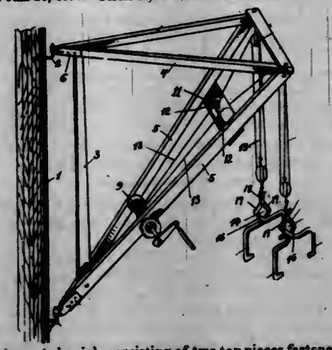
591,611. FRAME FOR SKYLIGHTS. CHARLES W. STRAN, Cleveland, Ohio. Filed Jan. 2, 1897. Serial No. 617,731. (No model.)



Claim.—1. The combination with an inclined bar or rafter of a skylight, of a curb upon which the rafter is supported, and an anchor interposed between the rafter and curb, and comprising an inclined central portion fitting upon the upper side of the curb, and an inner depending portion secured to the inner face of the curb, and an outer upwardly-inclined integral portion fitting upon and overlapping the outer inclined end of the rafter.

2. The combination with an inclined bar or rafter of a skylight, provided with a hollow web, of a curb upon which the rafter is supported, an anchor comprising a central portion fitting upon the upper side of the curb, an inner depending portion secured to the inner face of the curb, and an outer upwardly-inclined integral portion fitting upon the outer end of the rafter, and a plate secured to the outer portion of the anchor, and provided with a lug extending into and secured to said hollow web.

591,612. FARM-DERRICK. PETER H. SWANSON, Galva, Ill. Filed Jan. 20, 1897. Serial No. 619,849. (No model.)



Claim.—A derrick consisting of two top pieces fastened together at an angle and having their joining ends tapering, a strap around said tapering end, inclined converging braces having their lower ends tapered and joined, a strap around the lower ends of said braces, an angular upright fastened between the crotches of said top pieces and braces, a cross-piece fastened to the outer ends of said top pieces and braces, a winding-drum upon said braces, and a cross-bar having guide-pulleys at the upper and outer ends of said braces.

591,613. PLANTER. JAMES D. TINNIN, Hutto, Tex. Filed May 4, 1897. Serial No. 635,735. (No model.)

Claim.—1. In an agricultural implement, the combination of a standard, a plow-stock, links connecting the plow-stock with the standard, and means applied to the plow-stock for adjusting it vertically, substantially as set forth.

2. In an agricultural implement, the combination of a standard, a plow-stock, links connecting the plow-stock with the standard, a bell-crank lever having one arm in engagement with the plow-stock, and means applied to the opposite end of the bell-crank lever for turn-

ing it to adjust the plow-stock vertically and holding it in an adjusted position, substantially as set forth.



3. In an agricultural implement, the combination of the vertically-adjustable plow-stock, a frame mounted independently of the plow-stock and capable of vertical movement and provided with planting mechanism, a shaft mounted independently of the plow-stock and frame bearing the planting mechanism and having oppositely-extending arms, independent connections between the said arms and the plow-stock and planter-frame, and a lever applied to the shaft for turning it to effect a simultaneous vertical movement of the plow-stock and planter-frame, substantially as and for the purpose specified.

4. In an agricultural implement, the combination of an axle, hangers mounted upon the axle, a planter-frame capable of vertical adjustment having sliding connection with the said hangers, laterally-extending braces having connection at one end with the axle to turn thereon and having their opposite end slidingly connected with the planter-frame, and means for raising and lowering the planter-frame, and admitting of the latter moving to adapt itself to the rolling surface of the ground, substantially as set forth.

5. In an agricultural implement, the combination of an axle, slotted hangers pendent from the axle, a vertically-adjustable planter-frame having sliding connection with the slotted portion of the hangers, braces mounted upon the axle and having their rear ends curving inwardly toward each other and slotted, and having adjustable connection with the planter-frame, and means for raising and lowering the planter-frame and admitting of it turning to adapt itself to the nature of the ground over which the implement is drawn, substantially as set forth.

6. In combination, a vertically-adjustable frame bearing a planting mechanism, a transverse shaft having horizontally-extending arms and provided with means for turning it in its bearings and holding it in an adjusted position, rods having adjustable connection with the outer ends of the horizontal arms and having their lower ends slotted and receiving fastenings by means of which they are connected to the planter-frame, and springs mounted upon the rods and interposed between the planter-frame and projecting parts or stops of the said rods, substantially as and for the purpose set forth.

591,614. KNOTTING MECHANISM FOR SELF-BINDING HARVESTERS. JOHN F. APPLEBY, Harvey, Ill. Filed Mar. 2, 1897. Serial No. 625,713. (No model.)

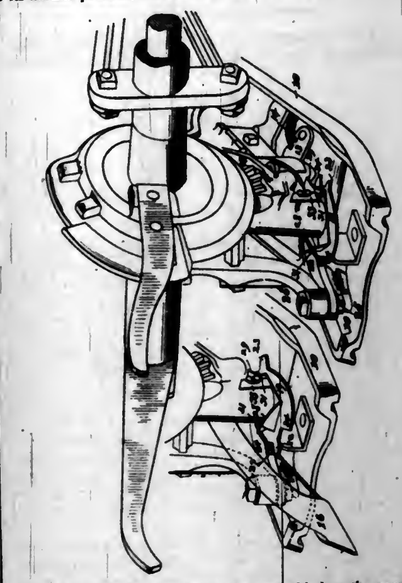
Claim.—1. A cord-holder comprising in combination a disk having peripheral prongs or teeth extending in the plane of the body of the disk, a shoe having a portion thereof curved to conform to the disk and arranged adjacent thereto and a groove in the plane of said disk and into which said prongs may enter and said disk having upon its surface upstanding deflecting-plates, substantially as described.

2. A cord-holder disk having outstanding pins or prongs at opposite points of its periphery and upstanding plates on opposite sides of its axis, said plates having inclined edges arranged to deflect the strand of the cord carried by the needle, substantially as described.

3. A cord-holder comprising in combination a rotatable disk having its periphery composed of two eccentric segments each terminating in a shoulder, an outstanding prong or tooth projecting from each of said segments near its base, a cooperating shoe having a curved grooved edge adjacent to the edge of the disk, the prongs serving to carry the cord to the knotter and the shoulders serving to clear the groove, substantially as described.

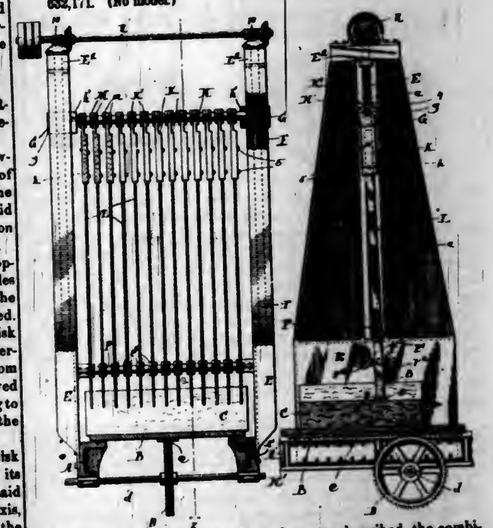
4. A cord-holder comprising in combination a rotatable disk having pins or prongs projecting from its edge in the plane of its body, a grooved shoe arranged adjacent to the edge of the disk, said disk having upstanding deflecting-plates on opposite sides of its axis, said plates having notched ends, and a stationary knife to which the cord is carried by the notched ends of the plates, substantially as described.

5. The combination with a slotted breast-plate having a shoulder projecting into the slot of a spring-controlled latch pivoted opposite the shoulder and a cord-knotter hook rotatably mounted in such relation to the latch that by the rotation of the hook the cord is caused to raise the end of the latch, the spring returning the latch to its normal position, substantially as described.



6. In a knotting mechanism for grain-binders the combination with a slotted breast-plate having an angular shoulder crossing the plane of the slot, a rotating knotter-hook and a pivoted latch having its free end parallel to the plane of the slot and its pivot so located that the strain of the cord against the end of the latch is radial to the pivot while the knotter-hook is stationary and said latch being adapted to be opened by the upward and outward strain of the cord, during the rotation of the hook, substantially as described.

591,615. STONE-CHANNELING MACHINE. ABRAM C. BACKUS, Chicago, Ill. Filed May 2, 1896. Renewed Apr. 14, 1897. Serial No. 632,171. (No model.)



Claim.—1. In apparatus of the character described, the combination with a suitable work-holding bed and with a vertically-movable tool-support, of a series of tools pivotally sustained from said support to vibrate in the plane of travel of the bed, and arranged transversely of said bed, said tools being adjustable in lateral direction with respect to each other and transversely of the work-holding bed, substantially as described.

2. In apparatus of the character described, the combination with a suitable work-holding bed, having standards at its sides provided with guideways, of a tool-support sustained within the upper part of said guideways, a series of tools pivotally carried by said support and arranged to vibrate therefrom as a center, said tools being arranged transversely of the bed and being individually adjustable in vertical direction and being laterally adjustable with respect to each other, substantially as described.

3 In apparatus of the character described, the combination with a suitable work-holding bed and with a tool-holding shaft or bar mounted above said bed transversely thereof, of a series of individual tool-holders laterally adjustable upon said shaft or bar and pivoted to swing thereon in the plane of travel of the bed, and a series of double-pointed tools carried by said tool holders and adjustably connected therewith, substantially as described.

4. In apparatus of the character described, the combination with a tool-holding shaft or bar, of a series of tool-holders adjustably mounted upon said bar, tools carried by said tool-holders and front and rear guide-bars for the lower portions of said tools, substantially as described.

5. In apparatus of the character described, the combination of a tool-holding shaft H, suitable slide-blocks G for sustaining said shaft, means for moving said slide-blocks up and down, laterally-adjustable tool-holders K connected to said shaft H, front and rear guide bars or shafts P, P' between which the lower ends of said tools extend and laterally-adjustable guides upon said shafts or bars P, P', substantially as described.

591,616. TRISAZO DYE. MELANTON BÜRGER, Basle, Switzerland, assignor to Chemische Fabrik, vormals Sandoz, same place. Filed June 26, 1897. Serial No. 642,412. (Specimens.) Patented in France Dec. 11, 1896, No. 262,100, and in England Dec. 16, 1896, No. 25,810.

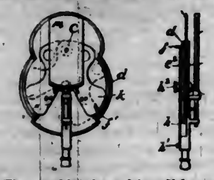
Claim.—1. The process of producing substantive trisazo coloring-matters which consists in combining one molecule of the tetrazo compound of a paradiamin such as benzidin with one molecule of paraxylidin to form intermediate products, in rediazotising these intermediate products and in combining the thus-produced tetrazo compounds with two molecules of amidonaphthol-disulfonic acid H, substantially as hereinbefore described.

2. The within-described new trisazo dyestuffs of the general formula

Paradiamin < paraxylidinamidonaphthol-sulfonic acid H
Paradiamin < amidonaphthol-sulfonic acid H,

being powders of slaty to purplish-brown color, easily soluble in water and methylic alcohol but very sparingly soluble in ethyl alcohol, dissolving in strong sulfuric acid with greenish-blue color; dyeing unmordanted cotton from a bath containing common salt in intense blue shades ranging between indigo and dark-greenish blue; producing when diazotised on the fiber by combination with beta-naphthol a deep black, with metaphenylene-diamin a greenish black and with resorcinol a dark green.

591,617. OPTHALMOSCOPE. JAMES T. BRAYTON, Chicago, Ill. Filed Nov. 24, 1896. Serial No. 613,227. (No model.)



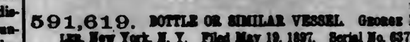
Claim.—1. The combination with a disk provided with a series of lenses with like signs, varying by single dioptrics, of a disk with two opposed series of lenses whereof one series begins with plus nine and the other series with minus ten, each starting near the same radial point and running in a direction opposite to the other set of lenses, and each lens axially coincident with the series of lenses in said former plate, a central stud for said disks, means to axially coincide and hold any of said contrary-signed with any of said first series of lenses, a concaved peep-holed mirror axially coincident with said lenses when ranged for use, substantially as specified.

2. The combination with two superimposed separately-rotatable disks and a series of like lenses varying by single dioptrics in one of said disks and a series of lenses beginning with plus nine and increasing by powers of ten dioptrics on one half of the other disk, and a series of lenses beginning with minus ten and increasing by powers of ten dioptrics on the other half of said disk, of a sector provided with a minus lens having a fractional dioptric power on one side of its center and a plus lens with a fractional dioptric power on the opposite side of the center of said sector and means to superimpose any of said lenses in said several disks and register their effect, substantially as specified.

3. The combination with two superimposed separately-rotatable disks and a series of like lenses varying by single dioptrics in one of said disks and radially under them the numerals 1, 2, 3, 4, 5, 6, 7, 8, 9, corresponding to the dioptric value of said lenses, and radially within said numerals a second circle of numerals with a cipher under the said numeral 9, one under 8, and so on, running in the opposite direction to the numbers of the outer circle, of a series of lenses beginning with plus nine and increasing by powers of ten dioptrics on one half of the other disk and a series of lenses beginning with minus ten and increasing by powers of ten dioptrics in the other half of said disk and a series of openings radially under said minus lenses and coincident with said outer circle of numerals and a series of openings radially under said plus lenses and coincident with the said inner circle of numerals, the openings in said circles provided with numbers which form a part of the register read with the numeral exposed by said openings, and means to superimpose any of said lenses, and to read said registers, substantially as specified.

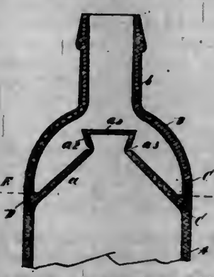
4. The combination with a disk provided with a series of lenses with like signs, varying by single dioptrics, of a disk with two opposed series of lenses whereof one series begins with plus nine and the other series with minus ten, each starting near the same radial point and running in a direction opposite to that of the other, and each lens axially coincident with the series of lenses in said former plate, a central stud for said disks, means to axially coincide and hold any of said contrary-signed with said first series of lenses, a fixed peep-hole and a peep-holed mirror, each axially coincident with said lenses when ranged for use, substantially as specified.

591,618. ADJUSTABLE BENCH-DOG. HERMANN H. BROCKSMITH, Vincennes, Ind. Filed Dec. 21, 1896. Serial No. 616,373. (No model.)



Claim.—The combination of a bench having a groove therein, a bench-dog movably seated in said groove and consisting of a body with a suitable spur thereon and a pair of extensions from said body, a cam-block pivoted between said extensions, the thickness of the cam-block and of the extensions where said cam-block is mounted varying in a reverse order, whereby when the block is rotated it will press said extensions apart, and means for rotating said cam-block.

591,619. BOTTLE OR SIMILAR VESSEL. GEORGE M. BROMLEE, New York, N. Y. Filed May 19, 1897. Serial No. 637,161. (No model.)

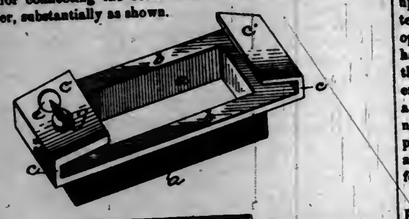


Claim.—The herein-described bottle comprising a body portion A, having a contracted portion a, and neck a^2, conical in form, the lower portion thereof being directed downwardly and provided with a deep annular groove between said contracted portion a, and conical neck a^2, a plate a^4 mounted upon said neck and adapted to be sealed thereon, metal strips C, mounted in each of said parts A and B, and having a portion of the outer surface thereof free and a metal strip E, secured to said strips C, whereby the said parts A and B are held together, substantially as and for the purpose described.

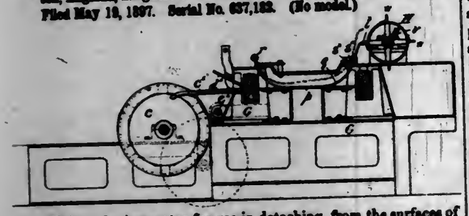
591,620. METALLIC DOOR-JAMB. JAMES P. BUCHANAN, Allegheny, Pa. Filed Sept. 17, 1896. Serial No. 606,063. (No model.)

Claim.—The flanged metallic box, or frame, that fits over the top of a vertical post or jamb, and which is provided upon opposite sides with the flanges b, and upon opposite ends with the vertical flanges c, and the two inwardly-turned flanges c'; the box serving as

a means for connecting the beams that extend at a right angle to each other, substantially as shown.



591,621. APPARATUS FOR REMOVING SCALE FROM SHEET METAL. EDWARD A. DAVIES and STEPHEN T. THOMAS, Wolverhampton, England, assignors to Davies Brothers & Co., Limited, same place. Filed May 19, 1897. Serial No. 637,122. (No model.)

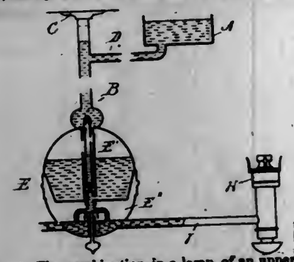


Claim.—1. Apparatus for use in detaching, from the surfaces of metal sheets, scale which has been raised thereupon in a suitable furnace, which comprises a backing or support for the sheets, means for traversing the sheets along the backing or support, beaters arranged in position over the backing or support, and mechanism for operating the beaters, all substantially as described and shown.

2. Apparatus for use in detaching, from the surfaces of metal sheets, scale which has been raised thereupon in a suitable furnace, which comprises a backing-plate or support for the sheets, a pair of feeding-in rolls, a pair of withdrawing-rolls, beaters arranged over the backing-plate or support, and a rotating appliance for operating the beaters, all substantially as described and shown.

3. The combination of the backing-plate or support *p*, feeding-in rolls *n n*, withdrawing-rolls *o o*, beaters *q*, rotating frame H having lifters *w*, substantially as described and shown, for the purpose set forth.

591,622. SYSTEM OF LIGHTING FOR HYDROCARBON-LAMPS. ROBERT L. DORAN, Bay City, Mich., assignor of one-half to Thomas R. Webster, same place. Filed Nov. 24, 1896. Serial No. 613,262. (No model.)



Claim.—1. The combination, in a lamp, of an upper reservoir, a lower reservoir secured thereto, a self-regulating discharge-nozzle from the upper into the lower reservoir, a hollow hanger extending upwardly from the top of the reservoir to the ceiling and provided with an open top and means for securing it to the ceiling, a storage-tank located below the top of said hanger and provided with a discharge connection into the hanger, and two connected valves, one between the hanger and the upper reservoir and the other in the self-regulating discharge-nozzle.

2. The combination in a lamp, of a self-flowing fountain composed of an upper and lower reservoir and a self-regulating discharge-nozzle terminating at its upper end in a hollow valve-plug forming in connection with a valve-seat in the bottom of the upper reservoir, a valve for closing the passage through said discharge-nozzle, a valve-stem carrying said nozzle and extending downwardly through the lower reservoir and carrying a finger-piece, and a tube in the lower reservoir through which the stem passes.

3. The combination in a lamp, of a self-flowing fountain composed of an upper and lower reservoir united together, a combined regulating discharge-nozzle and valve forming a passage from the upper into the lower reservoir, and provided with a valve-stem extending out through the bottom of the lower reservoir for closing or opening said passage at will, an elevated storage-reservoir, a hollow hanger through which the elevated storage-tank communicates into the top of the upper reservoir, and a plug-valve between the lower end of the hanger and the top of the upper reservoir provided with a hollow valve-plug arranged in vertical axial line with the discharge-nozzle and connected therewith for joint operation, the hollow valve-plug having its inlet-opening above the top of the upper reservoir and its outlet-opening below the top of the same to form a chamber for compressing the air in filling said reservoir.

4. The combination in a lamp, of a self-flowing oil-fountain composed of an upper reservoir E' provided with means for filling the same at will while in position on the lamp, a lower reservoir E² united thereto and forming with said upper reservoir a closed vessel, the hollow plug-valve *g*, forming a combined valve and a regulating discharge-nozzle from the upper reservoir into the lower reservoir, the stem *m* of said plug-valve extending through the lower reservoir, and provided with an actuating thumb-piece below, the tube *o*, inclosing said stem within the lower reservoir and the shield *p*.

5. The combination in a lamp of the upper reservoir E² provided with means for filling the same at will, while in position on the lamp, the skirt *a* around said reservoir, the lower reservoir E² complementary to said upper reservoir and provided with a rim having locking means with the skirt *a* and the regulating discharge-nozzle in the bottom of the upper reservoir, said discharge-nozzle constituting a valve and provided with a stem *m* extending through the lower reservoir, substantially as described.

6. In a lamp, the combination of the upper and lower reservoirs E E² united together and forming complementary parts of a spherical vessel, the burners communicating with the lower reservoir, the connected plug-valves *e* and *g* arranged in axial line with each other respectively in the top and bottom of said upper reservoir and provided with flanges *q* and screw-nipples *r*, the tube *t* connecting said nipples, the regulating discharge-nozzle communicating with the valve *g*, the stem *m* extending therefrom through the lower reservoir and provided with a thumb-piece for operating the valves, the tubular open-ended hanger B connected at its lower end to the flange *q* of the valve in the top of the upper reservoir, and provided at its upper end with means for securing it to the ceiling and the storage-reservoir communicating into said hanger.

591,623. DYNAMO-ELECTRIC MACHINE. EDWARD W. FARNHAM, Chicago, Ill. Filed June 14, 1897. Serial No. 640,567. (No model.)



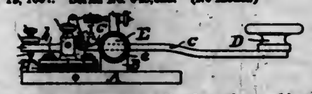
Claim.—1. In a dynamo, the combination of a frame, an armature rigidly secured in the frame, a cylinder over the armature rotatably mounted on the non-rotatable axle of the armature, magnets secured in the cylinder so that the positive poles thereof are adjacent and the negative poles are adjacent, cheek-pieces uniting the positive poles and cheek-pieces uniting the negative poles, a commutator-ring and collector-rings on the armature electrically connected with the wound wire of the armature, and brushes rotating with the cylinder secured to such cylinder in electrical contact with the commutator and collector rings; substantially as described.

2. In a dynamo, the combination of a frame, an armature rigidly secured in the frame, such armature comprising soft-iron bars, radial arms connecting oppositely-placed bars and wound wire on the connecting-arms, such wound wire being overwound from one soft-iron bar to the oppositely-placed soft-iron bar, a cylinder rotatably mounted in the frame over the armature, magnets in the cylinder arranged so that positive poles are adjacent and negative poles are adjacent, cheek-pieces uniting the positive poles and cheek-pieces uniting the negative poles, a commutator-ring on the end of the armature and collector rings, and brushes on the revolving cylinder; substantially as described.

3. In a dynamo, the combination of a frame, an armature non-rotatably secured in the frame, such armature comprising soft-iron bars, radial arms connecting oppositely-placed soft-iron bars and wound wire on the radial arms, a cylinder rotatably mounted in the frame over the armature, magnets in the cylinder arranged so that positive poles are adjacent and negative poles are adjacent; cheek-pieces connecting adjacent poles of the magnets, a commutator-ring on the end of the armature, collector-rings on the end of the armature, brushes on the inner face of one of the ends of the cylinder, one of such brushes in contact with the commutator-ring and one of the collector-rings and the other of such brushes in contact with the commutator-ring and the other of the collector-rings, substantially as described.

4. In a dynamo, the combination of a frame, an armature non-rotatably placed in the frame, such armature comprising soft-iron bars with radial arms connecting oppositely-placed bars and over-wound wire from one of the soft-iron bars to the oppositely-placed one on the connecting-arm, collector-rings on the end of the armature and a commutator-ring, a cylinder rotatably mounted in the frame over the armature, permanent magnets in the cylinder arranged so that positive poles are adjacent and negative poles are also adjacent, cheek-pieces connecting adjacent poles, positive to positive and negative to negative, ends to the cylinders, brushes on the inner surface of one of the cylinder ends adjacent to the commutator and collector rings, one of such brushes in electrical contact with the commutator-ring and with one of the collector-rings and the other of such brushes in electrical contact with the commutator-ring and the other collector-ring and wires electrically connected to the collector-rings and to the circuit on which the current discharged from the dynamo is used; substantially as described.

591,624. TELEGRAPH-KEY. EDWARD W. FARNHAM, Chicago, Ill., assignor of one-half to Charles M. Higginson, same place. Filed July 19, 1897. Serial No. 645,022. (No model.)



Claim.—1. In an electric sending-key, the combination of a depressible lever, an auxiliary depressible lever, a spring attached at its ends to the levers, respectively, yieldingly holding them in a raised position, a contact-point on the auxiliary lever and a spring-anvil in electric connection with one of the main-line binding-posts of the sending-key, whereby the depression of the first-named lever will force the contact-point on the auxiliary lever into contact with the spring-anvil and close the circuit in which the sending-key is placed; substantially as described.

2. In a telegraph sending-key the combination of a spring-anvil, a depressible main lever, an auxiliary lever, a contact-point thereon, such auxiliary lever having a recess into which one end of the main lever extends, a spring attached at its ends, respectively, to the main lever, and to the auxiliary lever, whereby the depression of the handle of the main lever depresses the contact-point into contact with the spring-anvil; substantially as described.

3. In a telegraph sending-key the combination of a spring-anvil, a depressible main lever, an auxiliary lever, a spring attached, at its respective ends, to the respective levers and yieldingly holding them in a raised position, a contact-point mounted on the auxiliary lever, such auxiliary lever having recesses into one of which one end of the main lever extends, permitting the levers to be yieldingly held in a raised position by the connecting-spring and into other of which such end of the main lever may be forced, by the depression of the main lever, thereby maintaining both levers in a depressed position with the contact-point on the auxiliary lever in electrical connection with the spring-anvil and the circuit closed; substantially as described.

4. In a telegraph sending-key the combination of a spring-anvil, comprising a strip of spring metal secured to and electrically connected with the insulated main-line binding-post of the sending-key, a depressible main lever, an auxiliary lever, a spring attached, at its respective ends, to the respective levers and yieldingly holding them in a raised position, a contact-point mounted on the auxiliary lever, such auxiliary lever having recesses into one of which one end of the main lever extends, permitting the levers to be yieldingly held in a raised position by the connecting-spring, the relation of the end of the main lever and of such recess being such that depression of the main lever depresses the auxiliary lever, to close the circuit, and into the other of which recesses such end of the main lever may be forced, by the depression of the main lever below the point necessary to close the circuit, thereby maintaining both levers in a depressed position with the contact-point on the auxiliary lever in electrical connection with the spring-anvil and the circuit closed; substantially as described.

591,625. DYNAMO-ELECTRIC MACHINE. EDWARD W. FARNHAM, Chicago, Ill. Filed July 19, 1897. Serial No. 645,023. (No model.)



Claim.—1. In a dynamo, the combination of a permanent C-shaped magnet, a frame in which the magnet is placed, an armature rotatably mounted in the end walls of the frame, a cylinder forming a casing to the armature, and an outer casing rotatably mounted on the ends of the frame with the inner peripheral surface of the cylinder forming part of the casing in frictional contact with the cylinder of the armature so that rotation of the outer casing produces rotation of the armature; substantially as described.

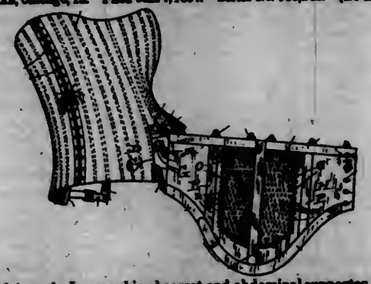
2. In a dynamo, the combination of a permanent C-shaped magnet, a frame in which the magnet is secured, an armature rotatably mounted in the end walls of the frame, a cylinder on the armature covering the winding-wire and the poles thereof, projections on the ends of the frame, standards in which such projections fit and are non-rotatably held, an outer casing rotatably mounted on the projections on the ends of the frame between such ends and the standards supporting the frame, and a connection between such outer casing and the vehicle on which the dynamo is mounted; substantially as described.

3. In a dynamo, the combination of a permanent C-shaped magnet, a frame in which the magnet is non-rotatably contained, an armature rotatably mounted in the end walls of the frame, a cylinder on the armature covering the winding-wires and the pole thereof, projections on the ends of the frame, a passage-way through one of such projections and wires extending through such passage-way to and electrically connected with the brushes of the armature, standards in which the projections on the ends of the frame fit and by which they are held, an outer casing rotatably mounted on the projections on the ends of the frame so that the inner peripheral wall thereof is in frictional contact with the cylinder on the armature, and a connection between the outer casing and the wheel of the vehicle on which the dynamo is mounted; substantially as described.

4. In a dynamo, the combination of a frame consisting of a cylinder, ends to the cylinder and projections on such ends forming in combination with the standard into which the projection fits the support of the frame, a permanent magnet in the frame soft-iron pole-pieces to the magnet a connection between the pole-pieces means for securing the pole-pieces to the ends of the frame, and an armature rotatably mounted in the ends of the frame in the field of the pole-pieces of the permanent magnet, and a cylinder surrounding such armature, whereby the armature may be rotated by frictional contact with the peripheral surface of a wheel; substantially as described.

5. In a dynamo the combination of a frame secured to a non-rotatable shaft, a standard in which the shaft is secured, a permanent magnet in the frame, soft-iron pole-pieces to the magnet, a connection between the pole-pieces, an armature rotatably mounted in the frame in the field of the pole-pieces of the permanent magnet, an outer casing consisting of a cylinder rotatably mounted on the non-rotatable shaft, and a connection between the rotatable casing and the armature, whereby the rotation of the casing produces rotation of the armature; substantially as described.

591,626. CORSET AND ABDOMINAL SUPPORTER. ISAAC FRIEDMAN, Chicago, Ill. Filed Jan. 7, 1897. Serial No. 618,948. (No model.)

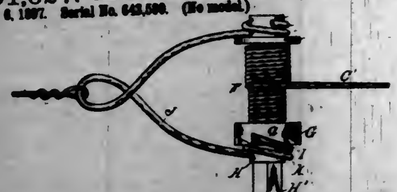


Claim.—1. In a combined corset and abdominal supporter, a corset cut away forward of perpendicular lines on the sides and below

a horizontal line on the waist thereof, straps attached at one end thereof to the corset so as to extend forward from the perpendicular edges respectively, a strip connecting together one end of the straps on one of the sides of the corset, fasteners on such strip and on the corset, in combination with an abdominal supporter, attached at one end thereof to adjacent ends of the straps on one side of the corset, fasteners on the other end of the abdominal supporter, and fasteners on the upper edge thereof engaging with the fasteners on the corset and on the strip, respectively, whereby it may be removably secured to the corset; substantially as described.

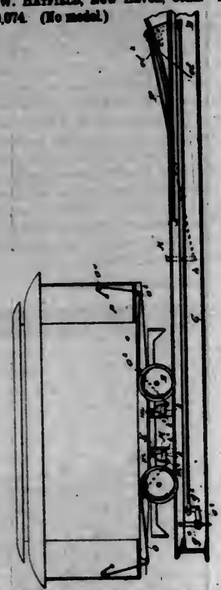
2. In a combined corset and abdominal supporter, a corset cut away forward of perpendicular lines on the sides thereof and below a horizontal line on the waist thereof, adjustable straps secured at one of their ends, respectively, to the corset so as to extend forward from the perpendicular edges thereof, in combination with an abdominal supporter attached at one of its ends to the ends of adjacent straps on one of the sides of the corset and at the other end thereof removably attached to the adjustable straps on the other side of the corset by separable fasteners interposed between such abdominal supporter and the straps at such end, and separable fasteners at the upper edge of such abdominal supporter and on the corset, by which such abdominal supporter is removably attached thereto; substantially as described.

591,627. FENCE. DANIEL D. FRISBIE, Detroit, Mich. Filed July 6, 1897. Serial No. 643,590. (No model.)



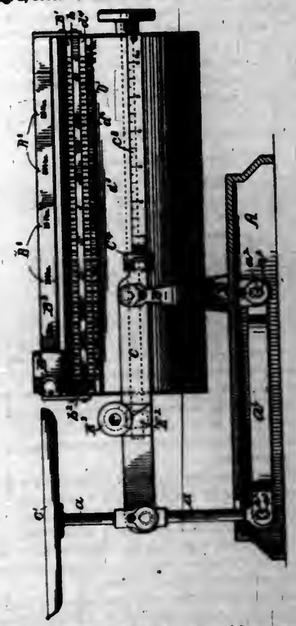
Claim.—In a fence, the combination with the pickets and the fence-wire supporting the pickets, of a tension device in the fence-wire comprising a spool to which one end of the wire is connected, a loop to which the other adjacent end is connected, coils formed in the loop, bearings on the ends of the spool with which said coils engage and a ratchet on the spool adapted to engage with the coil which acts as a pawl.

591,628. STREET-RAILWAY SWITCH. DANIEL W. HATFIELD and GUSTAVE W. HATFIELD, New Haven, Conn. Filed July 14, 1896. Serial No. 599,074. (No model.)



Claim.—In a switch-operating apparatus, of the character described, the combination with the rails of the main and side track, of a switch plate or tongue pivotally supported adjacent to the rails of the side-track, a cross-bar D, pivotally connected beneath the switch-plate, and provided with an arm d, having an upwardly-directed pin d^2, adapted to engage an opening in the switch-plate, a rod pivotally connected with the outer end of the cross-bar, and supported by rollers g, adjacent to the rails of the main track, a crank-lever g^3 pivotally supported, adjacent to the end of said rod, and being provided with a horizontal arm, a vertically-movable bolt g^4, passing through said arm in the end of which project adjacent to the top of the rail of the track, and is adapted to be operated by the wheels of the car, a rod pivotally connected with the free end of the cross-bar, and extending a predetermined distance along the inner side of the rail of the main track, a short lever connected with the free end of said rod F, and extending slightly above the rails of the track, and a hanger K secured upon the under side of the car, having a pivoted arm k, the backward movement of which is limited by a plate k^2, and a spring-retaining arm M, connected with said hanger and adapted to hold the arm k in a horizontal position and means on the car for releasing said arm k to operate said support-lever as set forth.

591,629. COMPUTING-SCALE. IRA G. KOHNER, Columbus, Ohio. Filed Aug. 2, 1895. Serial No. 558,172. (No model.)



Claim.—1. The combination of a pivoted beam carrying a revoluble graduated cylinder, a poise, and means for imparting a revoluble and a longitudinal movement to said poise proportionate to the revoluble movement of said cylinder, substantially as specified.

2. The combination of a pivoted beam, a rotary non-longitudinally-movable cylinder carrying a peripherical scale indicating weight and a series of scales indicating values of predetermined quantities, said cylinder extending on both sides of the fulcrum of said beam; a stationary price-per-pound scale carried by said beam adjacent to said cylinder, a poise within said cylinder, and means for imparting a revoluble and a longitudinal movement to said poise proportionate to the revoluble movement of said cylinder, substantially as specified.

3. The combination of a pivoted beam, a rotary non-longitudinally-movable cylinder carrying a peripherical scale indicating weight and a series of peripherical scales indicating the values of predetermined quantities, a stationary price-per-pound scale carried adjacent to said cylinder, a revoluble longitudinally-movable poise within said cylinder, and means for revolving said poise proportionate to the revoluble movement imparted to said cylinder, substantially as specified.

4. The combination of a pivoted beam, a rotary cylinder carrying peripherical characters computed at different rates per unit, means for designating the proper character indicated, a revoluble counterbalance located within said cylinder, and means including said cylinder and a normally-rigid member for varying said counterbalance in proportion to the revoluble movement imparted to said cylinder, substantially as specified.

5. The combination of a pivoted beam, a rotary cylinder carrying peripherical indicating-characters, means for designating the proper character indicated, a poise mounted upon a normally-rigid screw and within said cylinder, and means for revolving said poise and cylinder in unison, substantially as specified.

6. The combination of a pivoted beam, a rotary cylinder carrying peripherical columns of characters computed at different rates per unit, means for designating the proper character indicated, a poise mounted upon a normally-rigid screw concentric with and independent of said cylinder, said poise being feathered to and free to slide within said cylinder, substantially as specified.

7. The combination of a pivoted beam, a rotary cylinder carrying peripherical indicating-characters, means for designating the proper character indicated, a poise mounted upon a screw concentric with said cylinder, ways on opposite sides of said poise, projections carried by said cylinder and fitting into said ways, one of said projections being rigid with said cylinder, and the other projection being spring-pressed, substantially as specified.

8. The combination of a pivoted beam, a rotary cylinder carrying peripherical indicating-characters, means for designating the proper character indicated, a revoluble poise D^2 mounted on a normally-rigid screw D^2, ways D^4 on opposite sides of said poise, projections D^5 and D^4 fitting into said ways, the projection D^5 being mounted upon a spring-pressed slide, substantially as specified.

9. The combination of a pivoted beam, a revoluble graduated cylinder, a poise moving longitudinally proportionate to the revoluble movement imparted to the said cylinder, and means for operating said poise independent of and without changing the value indicated on said cylinder, substantially as specified.

10. The combination of a pivoted beam, a revoluble cylinder carrying peripherical indicating-characters, means for designating the proper character indicated, a poise located within and moving longitudinally proportionate to the revoluble movement of said cylinder, and means for operating said poise independent of said cylinder to counterbalance tare-weights, substantially as specified.

11. The combination of a pivoted beam, a revoluble graduated cylinder, a poise mounted upon a normally-rigid screw, said poise being feathered to and free to slide within said cylinder, and means for moving said screw to shift said poise without disturbing the indication upon said cylinder to counterbalance tare-weights, substantially as specified.

12. The combination of a pivoted beam, a revoluble graduated cylinder, a poise mounted upon a normally-rigid screw, said poise being feathered to and free to slide within said cylinder, and a worm and worm-wheel mechanism for moving said screw to shift said poise without disturbing the indication upon said cylinder for counterbalancing tare-weights, substantially as specified.

13. The combination of a base, the scale-beam fulcrumed thereon, a platform pivoted to one end of said beam, a retaining-lever a' for said platform, bearings connecting said lever a' with a projection of said platform and of said base, said bearings consisting of diamond-shaped pivot portions a^3 having a series of three or more knife-edges projecting in different directions and engaging in an aperture a^3 provided on opposite sides with bearing-seats a^4, substantially as specified.

14. The combination of a base, the scale-beam fulcrumed thereon, a platform pivoted to one end of said beam, a retaining-lever a' for said platform, a pivot portion a^3 having a series of knife-edges projecting in different directions and rigidly mounted in each end of said lever a', and bearing-seats for said pivots a^3 formed respectively in the projection of said platform and of said base, said bearing-seats consisting of an aperture a^3 provided on opposite sides with V-shaped seats a^4, substantially as specified.

15. In a scale-bearing, the combination of a diamond-shaped pivot a^3 having a series of three or more knife-edges projecting in different directions, and a bearing therefor consisting of an aperture a^3 provided on opposite sides with V-shaped seats a^4; whereby vertical strains bring the upper or lower knife-edges of pivot a^3 in contact only with the upper or lower edge of aperture a^3, while lateral strains are received only by the lateral knife-edges of pivot a^3 contacting only with one of the V-shaped seats a^4, and the position of seats a^4 is such as to free the vertical knife-edges of pivot a^3 from contact with aperture a^3 when one of the lateral knife-edges of pivot a^3 is in contact with one of said seats a^4, substantially as specified.

16. In a scale, the combination of a revoluble cylinder carrying peripherical columns of characters, a normally-rigid screw supporting a variable counterbalance adapted to be revolved and moved longitudinally in proportion to the revoluble movement of said cylinder, non-revoluble end pieces between which said cylinder revolves, and a wire stretched between said end pieces and adapted to accurately designate the proper characters indicated, substantially as specified.

17. In a scale, the combination of a revoluble graduated cylinder, a counterbalance mounted upon a normally-rigid screw, said counterbalance being feathered to and free to slide within said cylinder, for being revolved and moved longitudinally in proportion to the revoluble movement of said cylinder, non-revoluble end pieces between which said cylinder revolves, a covering for said cylinder secured to said end pieces, an exposing-opening in said covering, and a wire extending across said opening to accurately designate the proper characters indicated, substantially as specified.

18. In a computing-scale, the combination of a series of sets of characters indicating values computed at different rates per unit, a second series of characters indicating the units at which said values were computed, a counterbalance member adapted to indicate said first characters, a third series of sets of characters indicating values computed in different multiples of only the highest value indicated by each different set of said first characters, and a second counterbalance member exerting influence in multiples of said first member and adapted to indicate the values representing like multiples in said third series of characters, substantially as specified.

19. In a computing-scale, the combination of a pivoted beam supporting the following instrumentalities, viz., a member provided with a series of sets of characters indicating values computed at different rates per unit, a second member provided with a series of characters indicating the units at which said values were computed, a variable counterbalance, means intermediate said first member and variable counterbalance for automatically indicating all the different sets of values proportionate to the effect exerted by said counterbalance, a third member provided with a series of sets of characters indicating values computed in different multiples of only the highest value indicated by each different set of said first characters, a second variable counterbalance exerting influence only in multiples of said first counterbalance, and means intermediate said third member and said second counterbalance for automatically indicating all the different values representing like multiples proportionate to the influence exerted by said second counterbalance, substantially as specified.

20. The combination of a series of sets of characters computed at different rates per unit, a counterbalance, means including said counterbalance for indicating said characters proportionate to the effect exerted by said counterbalance, a second series of sets of characters adjacent to said first characters, each set of said second characters consisting of values computed at different multiples of only the highest value indicated in each corresponding set of characters in said first series, a second counterbalance, and means including said second counterbalance, for varying the indicated multiple of said second characters over said first characters and changing the counterbalancing effect proportionately, substantially as specified.

21. In a computing-scale, the combination of a pivoted beam supporting the following instrumentalities, viz., a revoluble cylinder carrying a series of peripherical columns of characters indicating values at different rates per unit, said values being adapted to represent equal weights in the same longitudinal row, a scale adjacent to said cylinder for indicating the units at which said characters were computed, a variable counterbalance, means intermediate said cylinder and counterbalance for causing said counterbalance to exert influence proportionate to the values indicated by said cylinder, a second cylinder carrying a series of peripherical columns of characters, each column consisting of a series of characters each computed at a different multiple of only the highest value indicated in each corresponding column of characters on said first cylinder, the characters representing like multiples being arranged in longitudinal rows, a second counterbalance exerting influence only in multiples of said first counterbalance, and means intermediate said second cylinder and said second counterbalance for causing said cylinder to indicate multiples proportionate to the effect of said second counterbalance, a casing for said cylinders and a longitudinal exposing-opening in said casing for each cylinder, substantially as specified.

22. The combination with the revoluble cylinder carrying peripherical rows of characters indicating value and weight, said value-characters being computed at different prices per pound, a price-per-pound scale registering therewith, and a revolubly-variable counterbalance adapted to automatically exert a counterbalancing weight proportionate to the values indicated upon said cylinder, of a second cylinder revolving independent of and carrying characters indicating values in multiples of the capacity of said first cylinder, and a second variable counterbalance adapted to automatically exert a counterbalancing weight proportionate to the values indicated upon said second cylinder, substantially as specified.

23. The combination of the revoluble cylinder carrying peripherical rows of characters indicating different values and weight, a price-per-pound scale registering therewith, a variable counterbalance, means including said cylinder and a normally-rigid member for causing said counterbalance to automatically exert a counterbalancing weight proportionate to the values indicated upon said cylinder, a second cylinder carrying a series of sets of characters each set indicating in multiples of only the highest value indicated in each row of characters indicated by said first cylinder, a second counterbal-

ance, and means for causing said second cylinder to indicate its value proportionate to the counterbalancing weight exerted by said second counterbalance.

24. In a computing-scale, the combination of a computing-cylinder carrying a series of sets of characters computed at different rates per unit, a variable counterbalance therefor, a second cylinder adjacent to said first cylinder and carrying a series of sets of characters, each set consisting of characters each computed at different multiples of only the highest value indicated in each corresponding set of characters on said first cylinder, a beam adjacent to said second cylinder, a poise sliding on said beam, means connecting said poise and second cylinder for causing said second cylinder to indicate multiples proportionate to the counterbalancing effect of said poise, notches in said beam at intervals designating said multiples, and a projection in said poise for engaging said notches, substantially as specified.

25. In a capacity-increasing mechanism for computing-scales, the combination of a series of movable characters indicating a series of different values in multiples of the ordinary capacity of a scale, a counterbalance member exerting influence in multiples of the ordinary capacity of a scale, intermediate means for automatically indicating the series of characters whose values are proportionate to the counterbalancing weight exerted by said counterbalance, a casing for said movable characters, an exposing-aperture in said casing for indicating said characters, and a slot in said casing to accommodate said intermediate means, substantially as specified.

26. In a capacity-increasing mechanism for computing-scales, the combination of a series of characters indicating a series of different values in multiples of the ordinary capacity of a scale, a counterbalance member exerting influence in multiples of the ordinary capacity of a scale, and intermediate means for automatically indicating characters whose values are proportionate to the counterbalancing weight exerted by said counterbalance.

27. In a computing-scale, the combination of a rotary non-longitudinally-movable cylinder provided with a series of peripherical columns of characters computed at different rates per unit, a counterbalance member exerting influence proportionate to the revoluble movement of said cylinder, a shaft upon which said cylinder revolves, a casing for said cylinder and counterbalance member, an aperture in said casing for exposing the characters on said cylinder, an operating member projecting without said casing, and means intermediate said operating member and said cylinder and counterbalance member for adjusting said cylinder and counterbalance member to counterbalance and properly indicate the values and weights, substantially as specified.

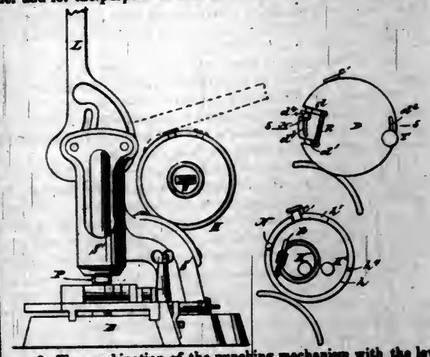
28. In a scale, the combination of a revoluble computing-cylinder, a shaft concentric with said cylinder, a casing for said cylinder, an exposing-opening in said casing for said cylinder, a poise on said shaft, and means for moving said poise without changing the indication of said cylinder.

29. The combination of a revoluble cylinder having a series of peripherical rows of value-indicating characters each computed at a different rate per unit, a stationary plate adjacent to said cylinder and having a series of characters indicating the different units at which said values were computed, each unit-indicating character being opposite its corresponding row of peripherical value-indicating characters, and a member adjacent to said cylinder and provided with one or more series of value-increasing characters indicating values in increments of only the highest value indicated by each row of said peripherical characters on said cylinder, said value-increasing characters being opposite their corresponding rows of characters on said cylinder, substantially as specified.

30. In a computing-scale, the combination of a weight-receiving member; a weight-counterbalancing member; an indicator movable proportionate to said counterbalancing member and having a series of rows of value-indicating characters each computed at a different rate per unit; a casing for said indicator; an exposing-opening in said casing; a series of characters adjacent to said exposing-opening and indicating, adjacent to each row of value-characters on said indicator, the unit at which each row of value-characters were computed; and one or more series of value-increasing characters indicating values in increments of a given value adapted to be indicated by each different row of value-characters on said indicator, said value-increasing characters being adjacent to their corresponding rows of value-characters on said indicator, substantially as specified.

591,680. CARD-CANCELING MACHINE. ABBOT A. LOW, Brooklyn, N. Y. Filed May 9, 1896. Serial No. 590,811. (No model.)

Claim.—1. The combination of a card-canceling machine, a holder for a counting device formed integral with the frame of the canceling-machine, a counting device resting loosely in said rigid holder, and a cover for said holder engaging with said counting device and secured adjustably upon the holder for the purpose of regulating the position of the counting device, substantially in the manner and for the purpose described.



2. The combination of the punching mechanism with the lever L, the receptacle H, the counter C, and push-lever c', the cover D, formed with the slots d, d', d^3, d^3, and d^4, the handle R of the counter, the pin N, and the thumb-screw T, the whole arranged and operating substantially in the manner and for the purpose described.

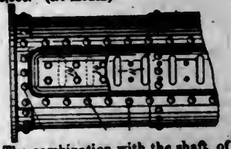
3. The combination of the punching mechanism, the lever L, holder H, formed with the opening h^3, the counter C, with its push-lever c', the cover D, formed with the annular flange d^5, and slots d, d', d^3, d^3, the pin N, and the thumb-screw T, the whole arranged and operating substantially in the manner and for the purpose described.

591,681. BRIDLE. DAVID H. MAYES, Mayfield, TEX. Filed Apr. 19, 1897. Serial No. 633,512. (No model.)



Claim.—The combination with a bridle-blind, of a box-loop formed of a metal blank rigidly secured to the rear edge of said blind and projecting upon each side of the same, said projecting portions of the blank being bent to form loops upon each side of the blind, substantially as described.

591,682. CAISSON-SHAFT. JOHN F. O'ROURKE, New York, N. Y., assignor to Stephens & O'Rourke, same place. Filed Jan. 28, 1897. Serial No. 620,996. (No model.)



Claim.—1. The combination with the shaft, of a ladder formed by slotting the shaft, and an air seal for the slots whereby the escape of air from the shaft is prevented, substantially as described.

2. The combination with the shaft and the ladder-slots therein, of an external cover for the slots, said cover being secured to the shaft so as to form an air seal, substantially as described.

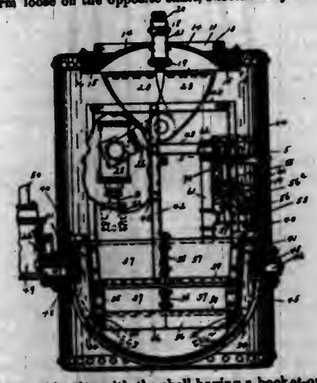
3. The combination with the shaft, adapted to permit the passage of a bucket, cage or similar article, of the ladder sunk in the side of the shaft, whereby the wall of the latter is left essentially plain.

4. The combination with the shaft and the ladder-slots therein, of the bulging cover extending the full length of the ladder formed by the slots, said cover being secured at its edges to the shaft, substantially as described.

591,683. AIR-LOCK FOR CAISSONS. JOHN F. O'ROURKE, New York, N. Y., assignor to Stephens & O'Rourke, same place. Filed May 6, 1897. Serial No. 636,316. (No model.)

Claim.—1. The combination of the shell, the opposite swinging gates, the crossing arms secured to the gates and independently journaled, and gears connecting the adjacent arms, substantially as described.

2. The combination with the shell, and the opposite and aliuing gate-shafts therein, of means for turning the shafts or gates to close the shell-opening, and the overlapping arms secured to opposite sides of the gates, one arm of each gate being secured to one shaft and the opposite arm loose on the opposite shaft, substantially as described.



3. The combination with the shell having a bucket-opening and the ring encircling said opening, of the swinging gates having flanges adapted to come to rest opposite the ring, and a flap-gasket held to effect a closure between the ring and flanges, said gasket being pressed to its seat by the air-pressure in the shell, substantially as described.

4. The combination with the shell, of the essentially-tubular ladder therein.

5. The combination with the shell, of an internal tubular structure held rigidly to the walls of the shell, said structure having inwardly-projecting flanges forming steps, substantially as described.

6. The combination with the shell, of the internal tubular structure having steps thereon, the said structure having its lower end formed into a seat against which the lower closure of the shell can abut, substantially as described.

7. The combination with the shell, of the internal tubular structure formed of ring-sections secured together, said sections having inwardly-projecting step-forming flanges thereon, substantially as described.

8. The combination with the air-lock having suitable end closures, of the internal ladder secured to the lock, the lower end of the ladder carrying a valve-seat, substantially as described.

9. The combination with the shell and the internal essentially-tubular structure having steps thereon, of the skeleton ladder projecting upward from the said tubular structure, substantially as described.

10. The combination with the shell and the ring-sections with steps thereon held within the shell, of the uprights secured to the ring-sections, and the cross-pieces forming rungs secured to the uprights, substantially as described.

11. The combination with the air-lock and the cylinders or motors constructed to work the moving parts of the lock, of a valve mechanism controlling the cylinder or motor air-supply, and an automatic locking device whereby the valves operate in regular sequence, substantially as described.

12. The combination with the air-lock having its movable parts worked by cylinders or motors, of a valve mechanism controlling the air-supply of the cylinders or motors and air-lock, and an automatic locking device for the valve mechanism constructed to cause the movement of the first valve to unlock the next, and so on in sequence through the whole series of valves.

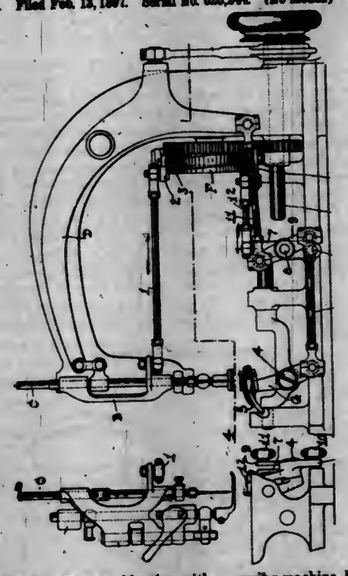
13. The combination with the air-lock and the cylinders or motors constructed to work the moving parts of the air-lock, of an automatic locking device constructed to permit the operation of the valve mechanism only in regular sequence, and a movable latch locking the valve mechanism, and serving as a circuit-closer for an alarm-circuit, substantially as described.

14. The combination with the air-lock and the cylinders or motors working the removable parts of the air-lock, of a series of valves controlling the air-supply to the cylinders or motors and lock, a gear mechanism connecting the several valves, and interlocking disks connected to the valve-stems and constructed to move successively, the movement of one disk unlocking the next, substantially as described.

15. The combination with the air-lock and the cylinders or motors constructed to work the moving parts of the air-lock, of the air-supply pipe, valve-controlled connections between the air-supply pipe, the cylinders or motors, and the inner and outer sides of the air-lock, a gear mechanism connecting the several valve-stems, and interlocking disks connected to the stems and constructed so that the movement of one disk releases the next, and so on in sequence, substantially as described.

16. The combination with the shell and the internal tubular structure terminating at its lower end in a fixed seat or ring, of a lower closure adapted to close opposite the said ring, and the flap-gasket arranged to be pressed by air so as to effect a closure between the said ring and the said lower closure, substantially as described.

591,684. SEWING-MACHINE. WILLIAM H. PARKER, Brooklyn, N. Y. Filed Feb. 13, 1897. Serial No. 623,244. (No model.)



Claim.—1. The combination with a sewing-machine having a stitch-forming mechanism embodying a vertically-reciprocating needle moved or vibrated laterally through a pattern-cam and a reciprocating or oscillating loop-taking device, of a lever, an operative connection between said lever and the loop-taking device, a connection between said lever and the means for vertically reciprocating the needle, and means for vibrating laterally the fulcrum of said lever, substantially as described.

2. The combination with a sewing-machine having a stitch-forming mechanism embodying a vertically-reciprocating and laterally-vibrating needle and a reciprocating or oscillating loop-taking device, of a rocker-arm, a pattern-cam, an operative connection between said pattern-cam and the rocker-arm for vibrating the same, a lever pivoted to said rocker-arm, a connection between said lever and the means for vertically reciprocating the needle, and a connection between said lever and the loop-taking device, substantially as described.

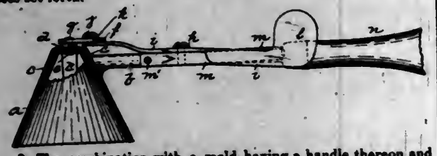
3. The combination with a sewing-machine having a stitch-forming mechanism embodying a vertically-reciprocating needle moved or vibrated laterally through a pattern-cam and a reciprocating or oscillating loop-taking device, of a rocker-arm, an operative connection between said pattern-cam and said rocker-arm, a lever pivoted to said rocker-arm, a connection between said lever and the means for vertically reciprocating the needle, and an operative connection between said lever and the loop-taking device connected with said loop-taking device below its point of pivoting, substantially as described.

591,685. ICE-CREAM MOLD AND DISHER. THOMAS F. RANKIN, Allegheny, Pa., assignor of one-half to Joseph A. Buttress, same place. Filed Nov. 6, 1896. Serial No. 611,244. (No model.)

Claim.—1. The combination with a mold having a handle thereon and cutters journaled in the top of the mold, of a link extending from the head of the cutters, and an operating-lever adapted to move laterally having its end journaled in said link to revolve the cutters, said operating-lever being pivoted on top of the handle and having its free end extending down to one side of the handle, substantially as and for the purposes set forth.

2. The combination with a mold having a handle thereon and cutters journaled in the top of the mold, of a link extending from the

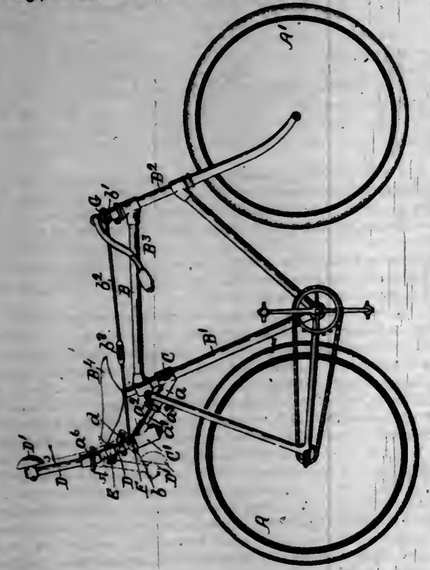
head of the cutters, an operating-lever adapted to move laterally having its end journaled in said link to revolve the cutters, said operating-lever being pivoted on top of the handle and having its free end extending down to one side of the handle, and a thumb-piece secured on the free end of said lever, substantially as and for the purposes set forth.



3. The combination with a mold having a handle thereon and cutters journaled in the top of the mold, of a link extending from the head of the cutters, an operating-lever adapted to move laterally having its free end journaled in said link to revolve the cutters, said operating-lever being pivoted on top of the handle and having its free end extending down to one side of the handle, a thumb-piece secured on the free end of said lever, and a spring engaging with said lever and handle, substantially as and for the purposes set forth.

4. The combination of a mold *a* having a handle *b* thereon and cutters *c* journaled in the top of the mold *a*, a link *f* extending from the head *e* of the cutters *c*, and operating-lever *i* adapted to move laterally having its free end pivoted at *k* within said link *f* to revolve the cutters *c*, said operating-lever *i* being pivoted at *h* on top of the handle *b* and having its free end extending down to one side of the handle *b*, a thumb-piece *l* secured on the free end of said lever *i*, and a spring *m* engaging with said lever *i* and handle *b*, substantially as described.

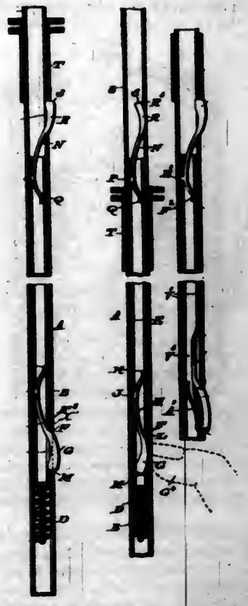
591,686. BICYCLE ATTACHMENT. HARRY J. RICHTER, Chicago, Ill. Filed Oct. 5, 1896. Serial No. 607,910. (No model.)



Claim.—1. In a back-rest and steering attachment for bicycles and the like, the combination with a back-rest post, provided with suitable bearings in which to turn, of a collar, mounted thereon, the steering-head, the companion collar, mounted on said head, and the companion rods, connecting said collars, whereby a bicycle may be steered by the pressure of the body against the back-rest, substantially as described.

2. In a bicycle, the combination with the frame, of the sleeve, C, provided with a tube or socket extension, *a*, a tube *a'*, having its lower end adjustably inserted in the socket extension, a bearing-sleeve, C', provided with a socket in which the upper end of tube, *a'*, is inserted, a back-rest post, having its lower end inserted in the bearing-sleeve C' and adapted to turn therein, a collar, mounted on the back-rest post, the steering-head, the companion collar, mounted thereon, and the connecting-rods, having their respective ends attached to said collars, substantially as described.

591,687. CLOSING DEVICE FOR UMBRELLAS. JOHN B. RIEHL, Philadelphia, Pa., assignor to John B. Riehl Co., Limited, same place. Filed Dec. 9, 1896. Serial No. 615,009. (No model.)



Claim.—1. In a device of the character named, a tubular stick, upper and lower retainers supported therein, each retainer being longitudinally movable relative to said stick, said lower retainer serving both as a catch to hold the umbrella in closed position and also as a finger-piece to close the umbrella and means for enabling said retainers to be actuated in unison.

2. In a device of the character named, a tubular stick, upper and lower retainers supported therein, each being longitudinally movable relative to said stick, and means connected with said lower retainer for supporting the upper retainer and also the umbrella when the latter is in elevated position.

3. In a device of the character named, an umbrella-stick, an upper and lower retainer supported therein, each retainer being movable longitudinally in said stick, mechanism intermediate said retainers, whereby an umbrella-runner is enabled to readily pass by said upper retainer when the lower retainer is pushed inwardly, and means whereby the umbrella when in open position, is supported by the contact of said lower retainer with a wall of a slot in said stick, said lower retainer serving also as a finger-piece for effecting the closing of the umbrella.

4. In a device of the character named, an inner and outer tube, an upper and lower retainer, each of the latter being longitudinally movable relative to said outer tube, said lower retainer sustaining the inner tube and the umbrella-runner, when the umbrella is open, and means actuated by said lower retainer for facilitating the closing of the umbrella.

5. In a device of the character named, an inner and outer tube, means for limiting the upper and downward movement of said inner tube, a yielding support for the latter, an upper retainer supported on said inner tube, a resilient device located in the lower portion of the inner tube and supported upon a wall of a slot in the outer tube, said inner tube being supported on said resilient device, and means for enabling the latter to be pressed inwardly out of engagement from its support, whereby said inner tube is permitted to move downwardly and the closing of the umbrella is effected.

6. In a device of the character named, an inner and outer tube, a yielding support for said inner tube, an upper retainer supported on said inner tube, and having a head projecting through a slot in the outer tube, a lower retainer having a projection engaging the inner tube, and a finger-piece projecting through slots in said tubes, the base of said finger-piece supporting normally the inner tube and its adjuncts.

7. In a device of the character named, an umbrella-stick consisting of inner and outer tubes, an upper retainer supported by the inner tube, and having a portion projecting through a slot in the outer tube, a lower retainer having a projection engaging said outer tube, slots in said inner tube for permitting proper movement thereof, a resilient device located in the lower portion of said inner tube, the latter being supported thereon, a spring on which said inner tube rests, slots in said inner and outer tubes through which a portion of said resilient device projects, and a finger-piece for actuating said projecting portion.

8. In a device of the character named, an inner and outer tube and an upper retainer supported on said inner tube, in combination with a lower resilient device, which primarily controls said upper retainer, and which when pushed inwardly, causes said upper retainer to be unsupported, so that the latter is automatically forced into the adjacent tube by a descending runner.

591,688. TEMPORARY BINDER. JOHN L. RILE and WILLIAM J. RILE, Brooklyn, N. Y. Filed May 13, 1897. Serial No. 636,278. (No model.)



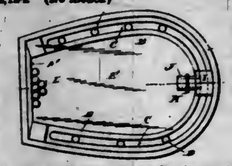
Claim.—1. In a binder, the back, the lugs secured thereto one at each end, a rod extending longitudinally of the back, held at one end in one of said lugs, the opposite end extending through and held in a closed slot in the other, the said slot consisting of a main portion and a pocket portion, and a tongue separating said portions, the said rod being held in permanent engagement with both lugs with liberty to rise in the main portion of said slot and be locked in said pocket portion, all combined and arranged to serve substantially as herein specified.

2. In a binder, the back, the lugs secured thereto one at each end, a rod extending longitudinally of the back, held at one end in one of said lugs, the opposite end extending through and held in a closed slot in the other, the said slot consisting of a main portion and a pocket portion, a tongue separating said portions, the said rod being held in permanent engagement with both lugs with liberty to rise in the main portion of said slot and be locked in said pocket portion, and a raised surface on said back adjacent to said slot, adapted to lock the said rod in said pocket portion by the spring of the rod, all combined and arranged to serve substantially as herein specified.

3. The covers A, A and back B, the plates D and E fastened to the back and bent to form lugs D', E', a rod F extending longitudinally of said back, held loosely in one of said lugs and permanently engaged in the other in the closed slot comprising the curved portion *e* and pocket e^3 separated by the tongue E^3, the latter serving to retain the rod in one portion until it is forcibly transferred to the other, all combined and arranged to serve substantially as herein specified.

4. The covers A, A and back B, the lugs D', E' carried by the back, a rod F extending longitudinally of the said back, held loosely in one of said lugs and permanently engaged in the closed slot *e*, e', e^3 in the other, and the knobs F', F^3 on said rod, in combination with the raised surface G on said back in such relation to said slot as to lock said rod therein by the spring of the latter, and the raised surface G' serving with said surface G and said rod to firmly grip the sheets M at these points, all substantially as herein specified.

591,689. PUZZLE. DOUGLAS ROGERS, Springfield, Ohio, assignor to George S. Bowers and Albert Meise, same place. Filed July 10, 1897. Serial No. 644,134. (No model.)



Claim.—1 In a puzzle, a structure having a field or surface, a groove partially encircling the same with depressions in the groove and a passage from the field to the groove, in combination with rolling objects adapted to be placed on said field and thence rolled into the groove through said passage and finally located in the depressions.

2. In a puzzle, a base having a raised surface or wall partially encircling it, with a groove in said raised surface or wall and depressions in the groove, a space within the raised surface or wall forming a closed field adapted to contain rolling objects, and a cover for the base which incloses said field and groove, the raised surface or wall having a tubular passage from said field to said groove and rolling objects primarily located upon said field.

3. In a puzzle, a base and a top adapted to be secured together, and a field, a groove with depressions, and a passage from the field into the groove.

4. In a puzzle, a glass or transparent base, a top having formed therein an interior field, a partially-encircling groove with a wall between the field and groove, a passage leading from the field into the groove and a series of depressions in the groove.

5. In a puzzle, the combination with the base and a top having formed therein an inclosed field, a partially-encircling groove and a passage leading from the field into the groove.

591,640. SLEIGH. JAMES H. RUSSOSS, Cokato, Minn. Filed Feb. 15, 1897. Serial No. 623,378. (No model.)



Claim.—1. The combination of the sleigh-body, the knees, the runners, and the loop-springs interposed between said runners and said knees.

2. In a sleigh, the combination with the body, the knees, and the flexible runners, of the loop-springs interposed between said runners and knees and supporting said body.

3. In a sleigh, the combination with the runner, of the springs arranged thereon, and the knees having jointed connection with said springs.

4. In a sleigh, the combination with the flexible runners, of the loop-springs secured thereon, and the knees having jointed connection with said springs.

5. The combination with the sleigh-body, of the dashboard, the downwardly and rearwardly extending part at the bottom thereof, the hinge connecting said inclined part to the body, and the side flanges or wings upon said dashboard.

6. The combination with the sleigh-body, of the dash-board having a downwardly and rearwardly inclined lower portion, and the jointed brace-rods for securing it in adjusted positions.

7. The combination with the sleigh-body, of the dashboard having a rearwardly and downwardly inclined portion at the bottom, the hinge connecting said lower portion to the body and the braces for limiting the forward position of the dashboard.

8. In a sleigh, the combination with the body, of the dashboard having its lower portion formed so that when in normal position it serves as an extension of the body, the hinge connection between said dashboard and body, and the jointed brace-rods connecting the dashboard and body.

9. In a sleigh, the combination with the body, of the dashboard having its lower portion formed as an extension of the body, the rearwardly-extending side flanges upon said dashboard, the hinges connecting the dashboard with the body, and the elbow-jointed brace-rods for limiting the forward position of the dashboard.

10. In a sleigh, a vertically-adjustable seat for the same consisting of two-part intermediately-hinged supporting-cleats adapted to be extended so as to support the seat at maximum height or to have the free part turned downward upon its hinge so as to permit the seat to rest upon the other and fixed part of the cleat.

11. In a sleigh, the combination with the runners and knees, of the interposed loop-springs secured to the runners, and the oscillating connection between said knees and springs.

12. In a sleigh, the combination with the knees and runners, of the loop-springs secured upon said runners, and the spring-loops secured to said knees and seated upon said springs and the bolts secured to one part and working in the other so as to permit oscillation between them.

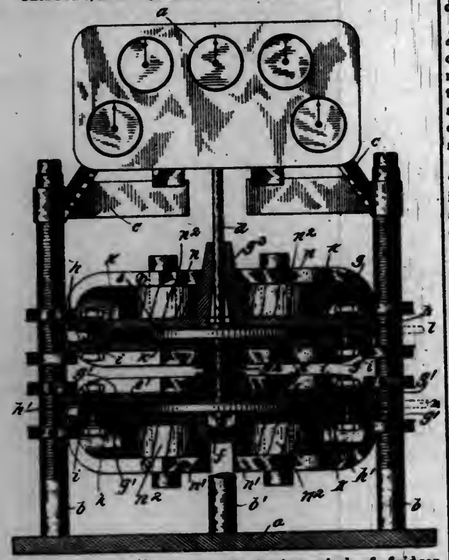
13. In a sleigh, the combination with the spring-runner, the knees, the oscillating connection between, and the interposed friction-rolls serving as a bearing for said knees.

14. The combination with a cutter and its shafts, of the adjustable connections between the same adapted to hold said shafts in alinement with the runners when in normal position and to permit said shafts to be laterally adjustably offset and when so offset to be turned at an angle with the line of the runners proportioned to the degree of lateral adjustment.

15. The combination with a cutter and its shafts, of the adjacent cross-bar upon each, one of which is forwardly convexed, and the clips for adjustably connecting said cross-bars whereby when the

shafts are in normal position their line of draft is coincident with the medial line of the cutter, but when offset laterally they are outturned at an angle with said medial line in proportion to the curvature of said bar and the degree of lateral adjustment.

591,641. ELECTRIC METER. GUSTAVE A. SCHREYER, Peoria, Ill. Filed Dec. 9, 1896. Serial No. 614,992. (No model.)



Claim.—1. The combination with circuit-terminals, of a fluid conducting medium connected therewith, a closed chamber or receptacle for said medium, armatures *e e'* maintained in electrical contact with said conducting medium, and means for directing the greater portion of the current flowing between said terminals through the armatures in series, substantially as described.

2. The combination, in an electric meter, with a body of fluid conducting medium connected with the measured circuit, of armatures *e e'* maintained in electrical contact with said medium, means for directing current from the conducting medium through the armatures substantially in radial directions, and fields before which said armatures are mounted adapted to impart movement to the armatures when current is directed through the same, substantially as described.

3. The combination with circuit-terminals of a body of fluid conducting medium connected therewith, a closed chamber or receptacle containing said medium, rotatable conductors *e e'* maintained in electrical contact with said body of conducting medium, and means for directing the greater portion of the current flowing between said terminals through the said rotatable conductors, substantially as described.

4. In an electric meter, the combination with terminals connected with the measured circuit, of a body of fluid conducting medium electrically connected therewith, armatures *e e'* immersed in said medium, means for directing current from the conducting medium through the said armatures substantially in radial directions, helices connected with the measured circuit and adapted to supply magnetic fields in which the armatures are rotatably mounted, whereby a torque is imparted to the same and a damping effect is obtained, and means for registering the rotation of the armature, substantially as described.

5. The combination in an electric meter, with terminals connected in series with the measured circuit, of a body of fluid conducting medium electrically connected with said terminals, a closed chamber in which said medium is contained, a registering train, a driving-shaft adapted to actuate the same, disk armatures *e e'* mounted upon said shaft within the closed chamber in electrical connection with the fluid medium, means for directing current from said medium through the armatures in series substantially in radial directions, and magnetic fields within which the armatures are rotatably mounted, whereby a torque is imparted to the driving-shaft during the passage of current through the armatures, substantially as described.

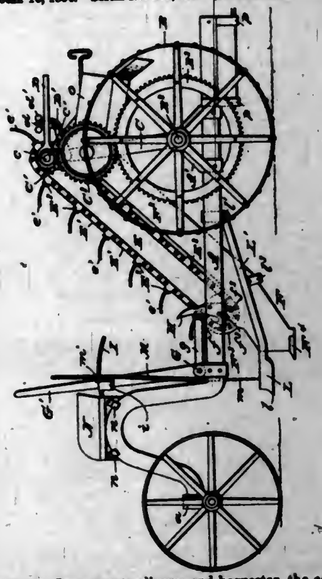
6. In an electric meter, the combination with the fields thereof, of disk armatures *e e'* maintained within said fields, a body of mercury surrounding the armatures in electrical connection with the peripheries thereof, a closed chamber containing the said armatures and body of mercury, terminals connected with the measured circuit in electrical connection with the mercury, means for directing the current flowing in the measured circuit radially through the armatures in series, whereby said current is subjected to the influence of the fields and a torque is imparted to the armatures, and a registering train controlled by the movement of said armatures, substantially as described.

7. The combination with the closed armature-chamber *k*, of disks *e, e'* rotatably mounted therein, a body of mercury maintained in said chamber in electrical contact with said disks, circuit-terminals connected in series with the measured circuit adapted to supply current to said body of mercury and disks *e, e'*, helices connected in a branch across the mains supplying fields to which the current traversing the disks is subjected and means for registering the rotation of said disks, substantially as described.

8. The combination with the registering train of disks *e, e'*, rotatably mounted to actuate the same, closed armature-chamber *k* having its walls *g, g, g', g'*, formed of paramagnetic plates or disks electrically insulated from one another, a body of mercury maintained in said chamber in electrical contact with the disks *e, e'*, fields to which the currents traversing the disks are subjected, whereby a torque is imparted to the rotating parts proportional to the flow of current in the measured circuit, and means for registering the rotation of said parts, substantially as described.

9. The combination in an electric meter with the disks *e e'* formed of conducting material and mounted upon the shaft actuating the registering train of said meter, of magnetic fields provided respectively for said disks in which they are rotatably mounted, a body of fluid conducting medium maintained in electric contact with said disks, circuit-terminals connected with the measured circuit and the fluid conducting medium, and means for directing the greater portion of the current flowing between the said terminals through the disks substantially in radial directions, substantially as described.

591,642. POTATO-DIGGER. JACOB SCHWARTZ, Portland, Oreg. Filed Jan. 16, 1896. Serial No. 575,762. (No model.)



Claim.—1. In a potato digger and harvester, the combination with a wheeled frame having uprights in the upper end of which is journaled a shaft *c* driven from one of the supporting-wheels substantially as shown, of a frame F suspended at its upper end from the shaft *c* and connected at its lower ends to arms projecting from a rock-shaft journaled in the main frame, the frame F having projecting portions F^2 with slots f^3 and f^3 plates K' supporting a transverse shaft K, said plates being secured to the lower end of the frame F by screws which pass through slots in the side pieces of said frame; together with an endless carrier passing over sprocket-wheels on the shaft *c* and over disks on the shaft K, substantially as shown and for the purpose set forth.

2. The combination with a potato-digger having a movable frame F with a slatted bottom over which passes an endless carrier, said frame having upwardly-projecting portions with slots f^3 f^3 and f^3, of bearing-plates K' in which is mounted a transverse shaft having disks over which the endless carrier passes, and adjusting screws or bolts which pass through the slots f^3 in the side pieces of the frame F and engage the plates K' to adjustably connect the same thereto, substantially as shown and for the purpose set forth.

3. The combination with the frame A carrying a rock-shaft G having rearwardly-projecting arms *g*, of a slatted frame F supporting an endless carrier-belt, the arms *g* being connected to the lower forward end of the frame F by studs *f* which project beyond the arms, and plates H rigidly secured to the side pieces of the main frame and having a curved surface and socket with which the studs *f* engage, substantially as shown and for the purpose set forth.

4. The combination with a potato-digger constructed substantially as shown to present a wheel-frame carrying an adjustable frame F provided with longitudinal bars and means for supporting above the same an endless carrier-belt which is driven from one of the supporting-wheels, of adjustable bearings carried by the frame F and having one of the shafts over which the endless belt passes mounted therein, a rock-shaft supported on the main frame and provided with an operating-lever and rearwardly-projecting arms which are connected to the frame F, and plates H secured to the side pieces of the main frame and having a curved surface and socket with which the connecting portion of the arms engage; together with a rack-plate with which the operating-lever engages, the parts being organized substantially as shown and for the purpose set forth.

591,643. WASHING-MACHINE. GEORGE W. SPOONER, Syracuse, N. Y. Filed July 17, 1896. Serial No. 599,480. (No model.)



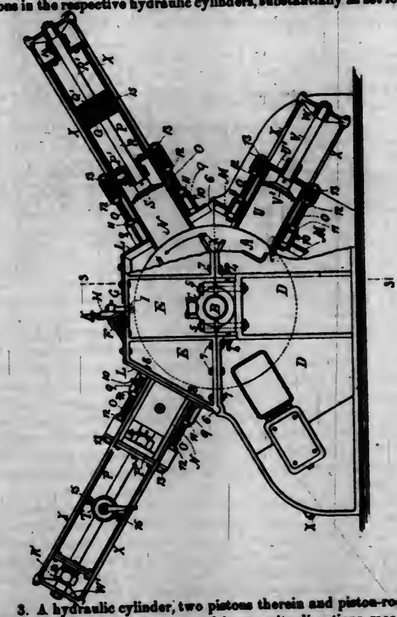
Claim.—1: In a washing-machine, the combination of a tub or receptacle A having its opposite sides provided with separated ribs *a*, supporting-pieces A' secured to the ribs *a*, a roller C having its opposite ends provided with trunnions journaled in the supporting-pieces A', additional rollers C' movable toward and away from the first roller and each having its opposite ends provided with trunnions journaled in said supporting-pieces, substantially U-shaped straps or connecting-pieces *d* interposed between the ribs *a* and having their central portions arranged beneath the trunnions of the roller C, and spiral springs D interposed between the ribs *a* and having their lower ends connected to the opposite extremities of the straps or connecting-pieces *d* and their upper ends connected to the trunnions of the rollers C', substantially as and for the purpose specified.

2. In a washing-machine, the combination of a tub or receptacle A having one of its sides formed with a slot a^3 extending downwardly from its upper edge, supporting-pieces A' secured to the inner sides of the tub or receptacle A, and formed with slots *a'* alined with the slot a^3, a roller C having its opposite ends provided with trunnions *c* removably mounted in the slots *a'* a^3, and a cap a^4 removably secured to the wall of the tub or receptacle formed with the slot a^3, said cap being provided with a rib a^5 arranged in the slot a^3 for holding the adjacent trunnion *c* in position, substantially as and for the purpose set forth.

591,644. WOOD-PULP GRINDER. JAMES H. BAKER, GEORGE F. SEWELIN, and FREDERICK H. BAKER, Saratoga Springs, N. Y. Filed Mar. 5, 1897. Serial No. 626,962. (No model.)

Claim.—1. The combination with the cylindrical grinder and its shaft and supporting-frames, of pockets at opposite sides of the grinder, followers in the pockets, a rod and cross-head connected with one follower, rods extending from said cross-head to the opposite side of the machine, a rod connected with the other follower and a piston thereon, a cylinder receiving such piston and a second piston therein, a rod and cross-head connecting this piston with the rods that extend across the machine, and nuts upon the rods for adjusting the parts as the grinder wears away, substantially as set forth.

2. The combination with the cylindrical grinder and its shaft and supporting-frames, of two pockets below the shaft, followers in the pockets, rods and cross-heads for the respective followers and crossing rods extending above the shaft, two hydraulic cylinders, two pistons in each of the same acting in opposite directions, a rod to one of the pistons in each cylinder and a cross-head to the same and nuts for connecting thereto the crossing rods, a second set of pockets above the shaft, followers therein and rods connecting to the second pistons in the respective hydraulic cylinders, substantially as set forth.



3. A hydraulic cylinder, two pistons therein and piston-rods extending out through the heads and in opposite directions, means for admitting a fluid under pressure to act between the pistons to move them apart or between the pistons and heads to move the pistons toward each other, a grinder and its supporting-shaft and frame, a pocket at one side of the grinder, a follower in the pocket connected to one of the piston-rods, a pocket at the other side of the grinder, a follower therein and a rod and cross-head therewith connected, crossing rods and adjusting-nuts connected with the said cross-head and a second cross-head upon the other piston-rod and nuts for adjusting the position of the cross-head to the crossing rods, substantially as set forth.

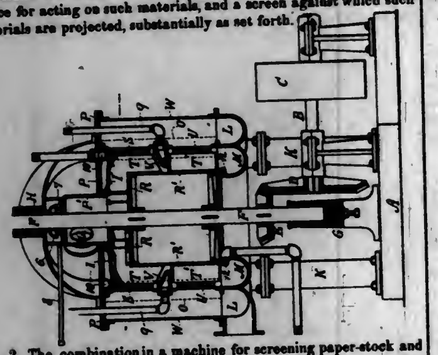
4. The combination with the cylindrical grinder and its shaft, of stationary supporting-frames below the shaft, pockets between the frames and means for adjusting the pockets toward and from the grinder, a separable upper frame and connection therefor with the lower frame, pockets upon the upper frame and means for adjusting the same, hydraulic cylinders connected with the upper adjustable pockets, followers in the respective pockets, rods connected with the followers, pistons in the hydraulic cylinders, piston-rods, cross-heads and connections extending at each side of the grinder-shaft whereby similar pressure is applied by the followers to the opposite grinders by the action of a fluid between the pistons, substantially as set forth.

5. The combination with the cylindrical grinder and its shaft, of stationary supporting-frames below the shaft, pockets between the frames and means for adjusting the pockets toward and from the grinder, a separable upper frame and connection therefor with the lower frame, pockets upon the upper frame and means for adjusting the same, hydraulic cylinders connected with the upper adjustable pockets, followers in the respective pockets, rods connected with the followers, pistons in the hydraulic cylinders, piston-rods, cross-heads and rods extending at each side of the grinder-shaft and nuts upon the screws of such rods for adjusting the parts as the grinder wears away, whereby similar pressure is applied by the followers at the opposite sides of the grinder by the action of a fluid between the pistons, substantially as set forth.

591,645. PULP-SCREEN. JAMES H. BAKER, GEORGE F. SEWELIN, and FREDERICK H. BAKER, Saratoga Springs, N. Y. Filed May 5, 1897. Serial No. 636,120. (No model.)

Claim.—1. The combination in a machine for screening paper-stock and similar material, of a centrifugal plate upon which the

materials to be screened are delivered, a surrounding vertical screen through which the water and fine materials are passed by the centrifugal action, means for supplying water at the top of the screen for washing down the materials that do not pass through the screen and an annular deflector for directing the materials inward, a centrifugal device for acting on such materials, and a screen against which such materials are projected, substantially as set forth.

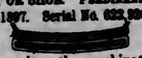


2. The combination in a machine for screening paper-stock and similar material, of a centrifugal device, means for supplying the material to be screened upon such centrifugal device, a surrounding screen through which the water and fine materials are passed by the centrifugal action, means for supplying water at the upper part of the screen to wash down the materials that do not pass through the same, a deflector for passing the materials inward and means for supplying water at such deflector, and a screen below the same against which the materials are projected by the centrifugal device, substantially as set forth.

3. The combination in a machine for screening paper-stock and similar material, of a centrifugal device and means for supplying the material to be screened, a screen against which the materials are centrifugally projected, and means for supplying water upon the upper part of the stationary screen for washing down the materials that do not pass through such screen, substantially as specified.

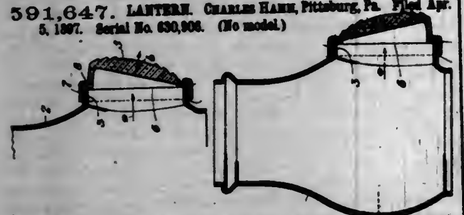
4. The combination in a centrifugal pulp-separator, of upper and lower cylindrical screens, an intervening hollow inward deflector with jet-openings and a water-supply pipe to the same, and a centrifugal device within the screens for directing the water and paper-stock against the upper and lower screens, substantially as set forth.

591,646. BOOT OR SHOE. FERDINAND EPHRAIM, San Francisco, Cal. Filed Feb. 11, 1897. Serial No. 622,936. (No model.)



Claim.—In a boot or shoe, the combination with the inner and outer sole thereof, of a protecting-plate consisting of a single piece of metal arranged between the said soles and having its lower body portion run transverse of the under face of the outer sole.

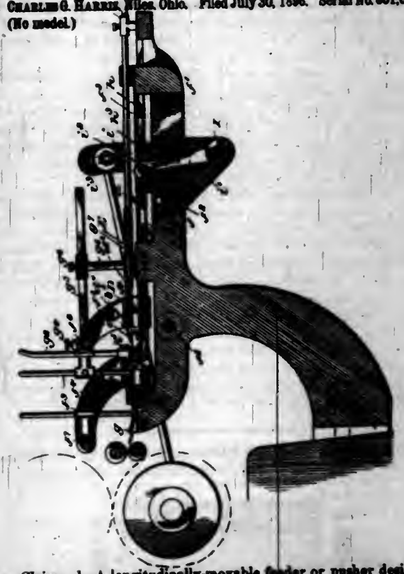
591,647. LANTERN. CHARLES HANN, Pittsburg, Pa. Filed Apr. 5, 1897. Serial No. 630,906. (No model.)



Claim.—1. The combination of a lantern-globe having a circular opening in its side, a lens having an inner annular face conforming to the plane of the opening, an outer light-emitting face conforming to a non-parallel plane, and means for securing the lens upon the face of the opening and permitting of its rotation thereon; substantially as set forth.

2. In combination with a lantern-globe provided with a circular opening in its side, outwardly-extending screw-threaded flanges and a threaded collar thereon provided with an inwardly-extending annular flange; a lens provided with an annular flange secured upon the face of the opening by the flanged collar, having an inner annular face conforming to the plane of the opening, and an outer, light-emitting face, the axial center of which is at an acute angle to such inner face and to the face of the opening, whereby the lens may be rotatably adjusted upon the face of the opening by loosening the collar, substantially as set forth.

591,648. FEED-TABLE AND FEEDER FOR PRINTING-PRESSES. CHARLES G. HARRIS, Niles, Ohio. Filed July 30, 1896. Serial No. 601,064. (No model.)



Claim.—1. A longitudinally-movable feeder or pusher designed to be moved back and forth beneath a pile or stack of cards, envelops or paper, having an inclined portion, and pointed projections designed to protrude above said inclined portion in the forward movement of said feeder, and to be covered by the said inclined portion in the rearward movement of the feeder, as set forth.

2. A longitudinally-movable feeder or pusher designed to be moved back and forth beneath a pile or stack of cards, envelops or paper, having pointed projections designed to engage the bottom of such pile or stack in its forward movement, and a tapered shield carried by said feeder for engaging said pile or stack and designed to cover said pins in the rearward movement of said feeder, substantially as set forth.

3. A feeder of the character herein described having a longitudinally-movable rod, a plate having upwardly-inclined contacting pins, a second plate loosely mounted on said former plate and having a forward inclined end and openings for said pins, as set forth.

4. A feeder of the character herein described having a longitudinally-movable rod, two plates loosely mounted on said rod and independently movable, said plates having inclined contacting portions, in one of which are openings, and contacting pins extending from the other plate into said openings, as set forth.

5. A feeder of the character herein described having a longitudinally-movable rod, a plate loosely mounted thereon having upwardly-inclined contacting pins, a second plate loose on said former plate having an inclined portion provided with openings, and a connection between said rod and said second plate, substantially as set forth.

6. The combination with the rod, of the loosely-mounted plate having obliquely-arranged contacting pins, a second plate having a forward-inclined portion provided with openings for said pins, an inclined or raised portion for effecting the raising and lowering of said upper plate, screws carried by said former plate engaging said latter plate, and a sleeve on said rod engaging and holding said upper plate, substantially as set forth.

7. The combination with the rod, of the plate having a forward-inclined portion, contacting pins mounted thereon, a second plate loose on said former plate and also having an inclined portion and downwardly-inclined end, slots being formed in said inclined portion, said second plate also having apertured flanges, screws extending through said flanges, and a sleeve on said rod having a grooved block engaging said flanges of said second plate, substantially as set forth.

8. A feed-table comprising a central bar and a forward seat for a pile or stack of cards, envelops or paper, two parallel rods extending above said seat at the front and rear thereof, adjustable supports for said rods at the ends thereof, and a series of guide-rods adjustably mounted on said parallel rods in front and rear of said seat and at the sides thereof, substantially as set forth.

9. A feed-table having a longitudinally-reciprocating carriage, a seat at the forward end of said table, comprising a central support and flat plate-bars carried by said carriage, a feeder movable with said carriage, and means for reciprocating the latter, substantially as set forth.

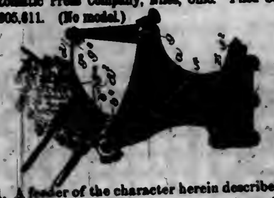
10. A feed-table having a longitudinally-reciprocating carriage comprising movable rails, a cross-bar secured thereto, flat plate-bars mounted on said cross-bar and extended parallel with said rails, plate-fingers secured to said cross-bar and extended beyond the forward ends of said plate-bars, and means for reciprocating said carriage, substantially as set forth.

11. A feed-table comprising a central bar having a seat at its forward end, cross-rods, upright guide-rods supported by said cross-rods, a carriage movable on said central bar, an arm extending from one of said cross-rods, a post depending therefrom, a feeder extended over said central bar and having a rod secured to said carriage and supported by said depending post, substantially as set forth.

12. A feed-table having a central bar and two side bars, a carriage movable longitudinally over said central bar and comprising guide-rails, cross-pieces, and flat plate-bars, a crank-shaft engaging said carriage, and means for rocking said shaft, substantially as set forth.

13. The combination with a feed-table having a longitudinally-reciprocating carriage and a seat for a pile or stack of cards or envelops, a feeder movable over said seat having a rod held by said carriage, a plate on said rod having contacting pins, a second plate having slots to accommodate said pins, a sleeve on said rod engaging said second plate, a cross-rod supported by said feed-table, and a depending post extended from said cross-rod having a collar or tabular portion to accommodate said sleeve, substantially as set forth.

591,649. FEEDING DEVICE FOR PRINTING-PRESSES. CHAS. G. HARRIS, Niles, and JOHN F. MCNUTT, Warren, Ohio, assignors to the Harris Automatic Press Company, Niles, Ohio. Filed Sept. 12, 1896. Serial No. 605,611. (No model.)



Claim.—1. A feeder of the character herein described having an elevated rest or support for a pile or stack of envelops, the latter being stacked with their flaps on the under side, and an ejector capable of oscillating in the arc of a circle and designed to engage the flap of the lowermost envelop and carry the same forward and discharge it so that its flap or reverse side will face upward, as set forth.

2. A feeder of the character herein described having an elevated rest or support for a pile or stack of envelops, the latter being stacked with their flaps on the under side, an ejector designed to engage the flap of the lowermost envelop, and means for guiding the latter so that it will be discharged with its back or reverse side facing upward, as set forth.

3. A feeder of the character herein described having an elevated rest or support for a pile or stack of envelops, the latter being stacked with their flaps on the under side, an ejector designed to engage the flap of the lowermost envelop, and a curved guideway forming an arc of a circle over which the envelop is carried by said ejector so that it will be discharged therefrom with its back or reverse side facing upward, as set forth.

4. A feeder of the character herein described, comprising a rest or support for a pile or stack of envelops, a curved guideway extending below said rest or support with its lower end on a horizontal plane, and an ejector capable of having an oscillating movement beneath said pile or stack so as to engage the flap of the lowermost envelop, and to discharge the latter with its back or reverse side facing upward, as set forth.

5. A feeder of the character herein described, comprising an inclined elevated rest or support, and an upper inclined guideway for a pile or stack of envelops, a lower discharge-guideway extending from said rest or support to a lower horizontal plane, and an ejector capable of having an oscillating movement beneath said pile or stack of envelops and adapted to engage the flap of the lowermost envelop thereof and to discharge the latter with its back or reverse side facing upward, as set forth.

6. The feeder herein described, comprising an elevated rest or support and an upper guideway for a pile or stack of envelops, a curved guideway leading from said rest or support to a lower horizontal plane, and an oscillating rock-shaft carrying fingers designed to engage the flap of one of the envelops of said pile or stack and eject the same from said rest or support and carry it over said curved guideway, substantially as set forth.

7. The feeder herein described comprising an elevated rest or support and an upper guideway for a pile or stack of envelops, a lower guideway forming an arc of a circle extending from said rest or support to a lower horizontal plane, and an oscillating rock-shaft carrying spring-pressed fingers designed to travel beneath said rest and bear against the upper surface of said lower guideway, said fingers being designed to engage the flap of one of the envelops of said pile or stack and carry the same over said lower guideway, substantially as set forth.

8. The combination with an elevated rest or support for a pile or stack of envelops, of a rock-shaft and fingers carried by said shaft designed to pass back of and engage the flap of the lowermost envelop of said pile or stack and to convey the same over a curved plane, substantially as set forth.

9. The combination with an elevated rest or support for a pile or stack of envelops, of a rock-shaft, fingers carried by said rock-shaft designed to pass back of and engage the flap of the lowermost envelop of said pile or stack and convey the same over a curved plane, and a guide or support for said envelop while being so conveyed, substantially as set forth.

10. The combination with the frame, of the rest or support and guideway on the upper portion thereof designed to hold a pile or stack of envelops, a lower curved guideway supported by said frame and extending from said rest or support, and an oscillating rock-shaft carrying fingers designed to pass back of and engage the flap of the lowermost envelop of said pile or stack and convey the same over said curved guideway, substantially as set forth.

11. The combination with the frame, of the upper inclined guideway and the rest or support for a pile or stack of envelops having a bar extended beneath said guideway and formed with a bend or curve, a lower inclined guideway, and an ejector designed to travel back and forth beneath said rest or support and over said inclined guideway, said ejector being adapted to engage the flap of the lowermost one of said pile or stack of envelops, substantially as set forth.

12. The combination with the frame having two upper cross-rods, of the inclined guide-rods secured to one of said cross-rods, the rest or support mounted on the other one of said cross-rods and comprising a central bar and a second bar parallel with said rest or support and perpendicular to said latter cross-rod, a lower curved guideway, and a rock-shaft carrying fingers designed to move beneath said rest or support and over said curved guideway, said fingers being adapted to engage the flap of the lowermost one of said pile or stack of envelops, substantially as set forth.

13. The combination with the frame having two upper cross-rods and a lower cross-rod, of the inclined guide-rods secured to one of said upper cross-rods, the inclined rest or support secured to the other one of said upper cross-rods, the series of curved plates secured to said lower cross-rod, and the rock-shaft carrying fingers adapted to engage the flap of the lowermost one of a pile or stack of envelops, substantially as set forth.

14. The combination with the elevated rest or support and the lower curved guideway, of the oscillating shaft, the arms mounted thereon having slots therein, fingers fitted in said slots, and springs for normally holding said fingers against one of the walls of said slots, substantially as set forth.

591,650. CRANE. THOMAS JAMES, Braddock, Pa. Filed Feb. 16, 1894. Serial No. 500,260. (No model.)

Claim.—1. The combination of a traveling crane, a trolley or carriage thereon, a vertically-movable post, and tongs carried by the post, said post having guide-bearings on the trolley and being rendered rigid from said bearings to the point of attachment of the tongs, substantially as described.

2. The combination of a crane, a trolley or carriage thereon, a vertically-movable post, tongs carried by the post, said post having guide-bearings on the trolley and being rigid from said bearings to the point of attachment of the tongs, and a counterbalance for the post.

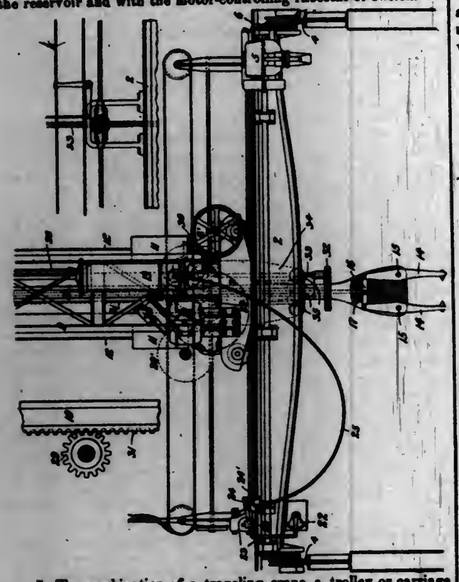
3. The combination of a crane, a trolley or carriage thereon, a vertically-movable post set in a frame on the trolley, pulleys in the frame, counterweights for the post having flexible connections passing over said pulleys, and tongs carried by the post, said post being rigid from the frame to the point of attachment of the tongs.

4. The combination of a traveling crane, a trolley or carriage thereon, a vertically-movable post, and tongs carried by the post, said post having guide-bearings on the trolley and being rendered rigid from said bearings to the point of attachment of the tongs, substantially as described, and a rack and pinion by which the post is moved vertically.

5. The combination of tongs, a fluid-pressure cylinder for actuating the same, a fluid-reservoir, a pump supplying the same, and a governor which controls the pump and is actuated by the fluid-pressure in the reservoir; substantially as described.

6. The combination of tongs, a fluid-pressure cylinder for actuat-

ing the same, a fluid-reservoir, a pump supplying the same, an electric motor which drives the pump, and a governor connected with the reservoir and with the motor-controlling rheostat or switch.



7. The combination of a traveling crane, a trolley or carriage thereon, a vertically-movable post, and tongs carried by the post, said post having guide-bearings with antifriction-rollers on the trolley and being rendered rigid from said bearings to the point of attachment of the tongs, substantially as described.

8. In an overhead traveling crane, the combination with a traveling trolley, of a rack-bar carried by the trolley, a pinion engaging said rack-bar for moving the same vertically, means for actuating the pinion, guides arranged to hold the bar against lateral movement, and means upon the trolley for regulating the movements of the trolley and rack-bar; substantially as described.

591,651. ENVELOP-OPENER. BENJAMIN F. LAPPE, Taylorville, Ill. Filed July 1, 1897. Serial No. 643,128. (No model.)



Claim.—1. As an article of manufacture, an envelop-opener consisting of a body portion having a bifurcated end, a blade secured to an end of one of the side portions so as to be substantially on a plane with the end of the opposite side portion.

2. An envelop-opener comprising a tubular body portion one end thereof being slit, a segmental blade secured to one end of one of the side portions of said tubular body so as to project partially over the slit, substantially as shown.

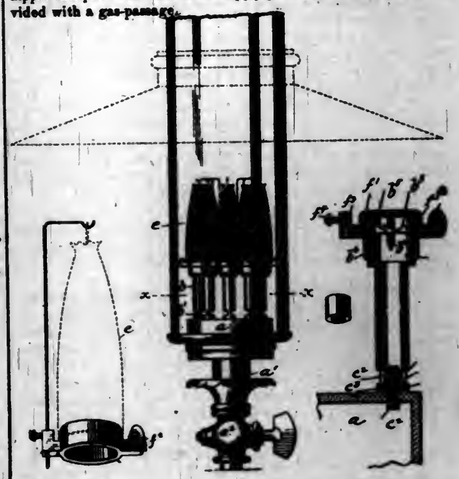
3. An envelop-opener comprising a tube having slots in the side walls of one end of the tube, a blade secured to one end of one of the side portions of the tube, and a bar of rubber carried by the slots so that the end portions thereof will project beyond the sides of the tube, substantially as shown.

4. An envelop-opener comprising a tubular body portion having a bifurcated end, a blade secured to one of the end portions of the tube so that the cutting edge will be nearer one of the side walls of the slot on one side of the blade than it is on the side wall opposite the cutting-point, and a bar or block engaged by the side walls of the slot so as to be movable to and from the blade, substantially as shown and for the purpose set forth.

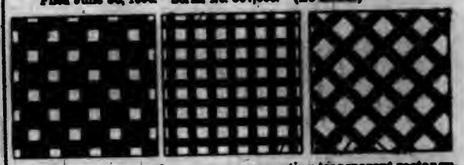
591,652. INCANDESCENT BURNER. JOSEPH R. DE LERY, New York, N. Y. Filed Mar. 2, 1897. Serial No. 625,704. (No model.)

Claim.—1. An incandescent gas-burner consisting of a drum or reservoir to which the gas is admitted, in combination with a plurality of burners attached directly thereto, an incandescing mantle or element mounted upon each burner and means for admitting air to each of the gas-passages between the drum and the incandescing material, whereby uniform pressure and a proper proportion and mixture of air to each burner are insured, substantially as described.

2. In an incandescent burner, the combination of a gas-chamber, a nipple screwed into the same and a burner-tube supported by the nipple and provided with an air-supply passage, said nipple also provided with a gas-passage.



591,653. HALF-TONE SCREEN. MAX LEVY, Philadelphia, Pa. Filed June 30, 1896. Serial No. 597,606. (No model.)



Claim.—1. A grating or screen presenting transparent rectangular apertures on an opaque ground, said apertures being so positioned that they succeed each other in the direction of their corners, the opaque portions of the screen being formed of larger blocks the corners of which overlap, substantially as shown.

2. A grating or screen made up to present a series of rectangular transparent apertures adjacent to which are rectangular opaque portions the corners of which overlie each other, substantially as shown, whereby a grating or screen is produced having a less proportion of transparency than opacity.

3. A grating or screen made up of a pair of plates each having different rulings so that when positioned one adjacent to the other, the completed screen will consist of transparent rectangular apertures on an opaque ground, said apertures succeeding each other in the direction of their diagonals, and opaque portions formed of larger blocks the corners of which overlap.

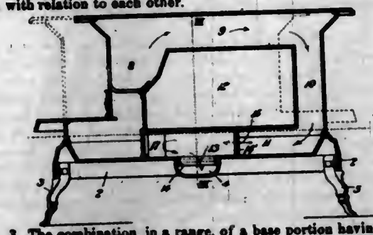
4. A grating or screen for the purpose set forth made up to present a series of rectangular transparent apertures which succeed each other in the direction of their diagonals and are separated by opaque blocks which also succeed each other in the direction of their diagonals, each succeeding opaque portion being intersected by a transparent line, substantially as shown.

5. A grating or screen presenting opaque rectangular portions the corners of which overlap, said opaque portions being intersected or divided to provide transparent portions which are so arranged as to be alternately at right angles with each other, and intermediate transparent rectangular portions which succeed each other in the direction of their diagonals.

591,654. REVERSIBLE RANGE. WILLIAM P. LEWIS, Allegheny, Pa. Filed Apr. 15, 1897. Serial No. 632,356. (No model.)

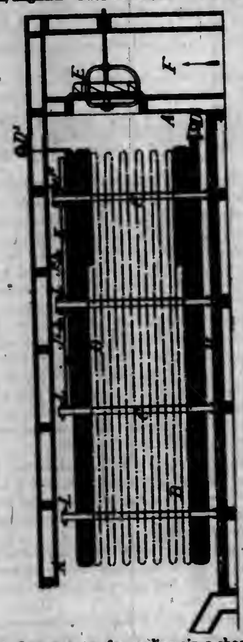
Claim.—1. The combination, in a range, of a base portion having a lateral conduit leading to the stovepipe and an opening in the top communicating with the lateral conduit; and a body portion, reversible relatively to the base portion, constructed and arranged to rest upon the base portion, having an opening in its bottom communicating with the smoke-flue of the range and adapted when the two parts are placed together to register with the opening in the base portion.

2. The combination, in a range, of a base portion having a lateral conduit leading to the stovepipe and an opening in the top communicating with the lateral conduit; a body portion, reversible relatively to the base portion, constructed and arranged to rest upon the base portion, having an opening in its bottom communicating with the smoke-flue of the range and adapted when the two parts are placed together to register with the opening in the base portion; and lugs for holding the top portion and base portion in proper position with relation to each other.



3. The combination, in a range, of a base portion having a lateral conduit leading to the stovepipe and an opening in the top communicating with the lateral conduit; and a body portion, reversible relatively to the base portion, constructed and arranged to rest upon the base portion, having an opening in its bottom communicating with the smoke-flue of the range and adapted when the two parts are placed together to register with the opening in the base portion by means of a flange on one part fitting into the opening in the other.

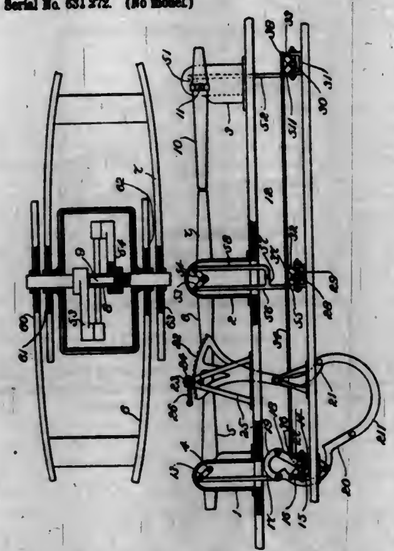
591,655. APPARATUS FOR COOLING AIR. THOMAS B. LIGHTFOOT, London, England. Filed Feb. 21, 1896. Serial No. 580,190. (No model.)



Claim.—1. In apparatus for cooling air, a chamber having pipes arranged in adjacent vertical rows, vertical plates arranged intermediate of said rows of pipes, means for flowing a liquid over the surfaces of the pipes and plates, and means for forcing a current of air through the chamber, substantially as described.

2. In apparatus for cooling air, the combination of pipes through which volatile liquid is made to flow, arranged as a series of upright walls within a closed chamber, a series of vertical plates arranged intermediately between the pipe-walls, a tank or tray below the said pipe-walls and plates containing brine, troughs or distributers arranged above the pipe-walls and plates and supplied with brine from the tank below by means of a pump, so that the brine flows down from the distributers over the pipe-walls and plates into the tank, and an air-propeller at the one end of the chamber for propelling air-currents through the latter in contact with the cold brine flowing down over the pipe-walls and plates substantially as described.

591,656. RAILWAY-GATE. WILLIAM MARTIN, Salem, Mass., assignor of one-half to Thomas F. Little, same place. Filed Apr. 8, 1897. Serial No. 631,372. (No model.)



Claim.—1. The combination of a series of actuating rock-shafts, rocker-arms upon the said rock-shafts, and a rod or rods connecting said arms together, of a second series of rock-shafts, gates mounted on said second series of rock-shafts, rocker-arms upon the latter, links connecting the rocker-arms on one set of shafts with the respective rocker-arms on the other set of shafts, and the lever 21 having the rack 22, an actuating-shaft geared to said rack, whereby to operate said lever 21, and connections intermediate to lever 21 and one of the rock-shafts of the first series, substantially as described.

2. In combination, the pillar 2, the shaft-sections 8 and 9 mounted in the said pillar in line with each other, the gate 6 having one arm thereof fixed upon one shaft-section and the other arm thereof loose upon the second shaft-section, the gate 7 having one arm thereof fixed upon the second shaft-section and the other arm thereof loose upon the first shaft-section, and means to operate the said shaft-sections and gates to raise and lower the latter, substantially as described.

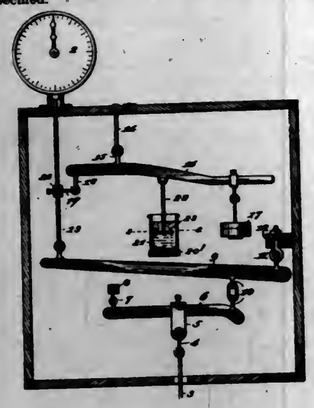
3. In combination, the pillar 2, the shaft sections 8 and 9 mounted in the said pillar in line with each other, the gate 6 having one arm thereof fixed upon one shaft-section and the other arm thereof loose upon the second shaft-section, the gate 7 having one arm thereof fixed upon the second shaft-section and the other arm thereof loose upon the first shaft-section, the arms 53 and 54 on the respective shaft-sections, and operating connections joined to said arms whereby the gates may be raised and lowered simultaneously, substantially as described.

4. The combination of a sectional shaft, gates mounted on the respective sections or portions of said shaft and arranged to rise and fall in opposite directions, rocker-arms mounted on said sections or portions of said shaft, an operating rock-shaft located beneath said sectional shaft, a rocker-arm thereon, a link connecting the latter rocker-arm with the corresponding rocker-arm on said sectional shaft, an offset on said link, and a connecting-bar connecting said offset and the otherwise unconnected rocker-arm on said sectional shaft, substantially as described.

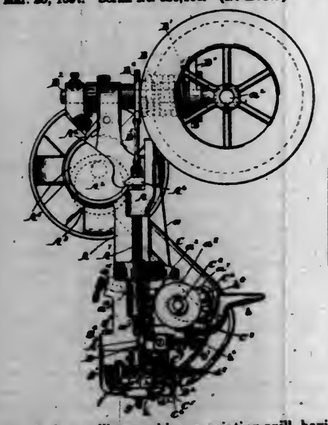
591,657. WEIGHING-SCALE. FRANK B. MOSER, St. Louis, Mo. Filed Jan. 18, 1897. Serial No. 619,582. (No model.)

Claim.—In a scale, the tare-beam 16 mounted in the scale-box as a lever of the first class, the hook 18 attached to the short end of said lever, or tare-beam, the collar 20 adjustably mounted upon the connecting-rod 13 of the scale, the eye 19 projecting from said collar 20 and engaging the hook 18, the cup 21 mounted in position under the long end of said lever or tare-beam, the rod 22 depending downwardly from said lever or tare-beam into said cup, and the disk 23

upon the lower end of said rod 22 operating within said cup, substantially as specified.



591,658. NAILING-MACHINE. STILLMAN W. ROBINSON, Columbus, Ohio, assignor to the Wire Grip Fastening Company, Boston, Mass. Filed Mar. 25, 1897. Serial No. 629,169. (No model.)



Claim.—1. In a nailing-machine, a pointing-quill having a nail-strip passage and a driver-passage, combined with a pivoted swing-plate provided with a cutting-tool, and a suitable means to actuate said swing-plate, substantially as described.

2. In a nailing-machine, a pointing quill having a nail-strip passage and a driver-passage, combined with a pivoted swing-plate provided with a cutting-tool, and a pressing-block to act on the nail-strip, substantially as described.

3. In a nailing-machine, a pointing-quill having a nail-strip passage and a driver-passage, combined with a pivoted swing-plate provided with a cutting-tool, and means to clamp and adjust the said cutting-tool on or with relation to said plate, substantially as described.

4. In a nailing-machine, a fixed pointing-quill having a nail-strip passage and a driver-passage, combined with a pivoted swing-plate provided with a cutting-tool, and having a cam-slot and a carrier-plate having a stud entering said cam-slot substantially as described.

5. In a nailing-machine, a pointing-quill having a nail-strip passage and a driver-passage, a pivoted swing-plate provided with a cutting-tool, and having a cam-slot provided with two shoulders between its ends, combined with a carrier-plate having a stud entering said cam-slot, whereby said swing-plate is enabled to impart intermitting reciprocating motion to said carrier-plate, substantially as described.

6. The pointing-quill having two slots, one for the driver and the other for the nail-strip, the lower end of the quill being slabbed off to leave a secant face in which is exposed the nail-strip groove, substantially as described.

7. A pointing quill or block having a nail-strip passage and a driver-passage and means for holding it, a driver, a swing-plate provided with a cutting-tool and having a cam-slot, a carrier-plate located below said swing-plate and having a nail-carrying block and a stud, combined with a nose-plate having a nose-tube, and with means to actuate said swing-plate and said driver, substantially as described.

8. A pointing-quill having a nail-strip passage and a driver-passage, a driver, a swing-plate provided with a cutting-tool and having a cam-slot, a carrier-plate located below said swing-plate and having a pivoted arm provided with a nail-carrying block and a stud, combined with a nose-plate having a nose-tube, an auxiliary cutting-block, said nail-carrying block and auxiliary cutting-block being shaped substantially as described to form a head on the nail to be made as set forth.

9. In a nailing-machine, a pointing-quill having a nail-strip passage, a swing-plate having a pointing-tool coöperating with said pointing-quill to cut from the strip a chip to aid in forming the point of a nail, a carrying-plate provided with a nail-carrying block having a combined nail and driver passage, and provided at its upper end with a lip, a nose-plate, an auxiliary cutting-block with which said nail-carrying block coöperates, said auxiliary cutting-block having a shearing edge, and means to actuate said carrier-block and said nail-carrying block to remove from the nail-strip a portion of its edge above the previously-formed point and leave at the upper end of the portion so last cut away a head, substantially as described.

10. In a machine of the class described, a carrying-plate, an arm provided with a nail-carrying block, a pin connecting said arm and block and an eccentric located at said pin to, by its adjustment, determine the exact position of the said nail-carrying block on the said carrying-plate, substantially as described.

11. A nose-plate provided with an auxiliary cutting-block, and a carrier-plate provided with an arm having a nail-carrying block, means to actuate said carrier-plate, combined with a bearing-plate to act on and hold the said arm and its nail-carrying block up firmly to the auxiliary cutting-block, substantially as described.

12. In a nailing-machine, a pointing-quill, means to hold it, a swing plate provided with a cutting-tool, a lever, a pivoted link carrying the fulcrum for said lever, combined with a sliding block loosely connecting one end of said lever with said swing-plate, substantially as described.

13. In a nailing-machine the following instrumentalities, viz: a pointing quill or block having a wire-passage and a driver-passage and means for holding it, a driver, a swing-plate containing a pointing-tool and a cam-slot, a carrier-plate having an attached nail-carrier piece and a stud working in said cam-slot, substantially as described.

14. In a nailing-machine, the following instrumentalities, viz: a feeding mechanism to feed a nail-strip intermittingly; a pointing-quill to receive the end of the said nail-strip; a pointing-tool coöperating with said pointing-quill; means to move said pointing-tool to cut into and remove a portion of said strip from one edge thereof to leave a notch at a distance from the end of the strip equal to the length desired for the nail next to be cut from the strip, an auxiliary cutting-block having a driver-passage and a shearing edge; a carrier-plate located below the pointing-tool and provided with a driver-passage and having a lip to overlap the upper end of said auxiliary cutting-block, and means to move said carrier-plate, whereby the notched edge of the strip is further cut away from the top of said notch upwardly for the length desired for the shank of said nail being made below its laterally-extended head, and the said strip is at the same time severed transversely above the head of the nail, leaving it in condition to be driven, substantially as described.

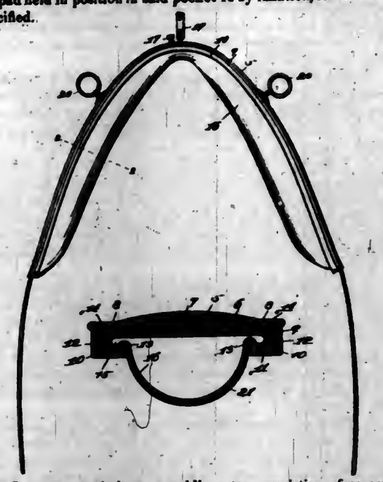
15. In a nailing-machine, the feeding mechanism to feed a nail-strip, a plate provided with a pointing-quill having a nail-strip passage and a driver-passage, combined with a pivoted swing-plate provided with a cutting-tool, and suitable means to actuate said swing-plate, substantially as described.

16. In a nailing-machine, feeding mechanism as described to feed a nail-strip, combined with a lever operated by an eccentric on the main shaft, and a pivoted link carrying the fulcrum of said lever, substantially as described.

17. In a nailing-machine, feeding mechanism consisting of a feed-roll, a pressure-roll and a ratchet-roll, a lever, a link, and a click mounted upon the pivot of the said lever and link, as described, combined with a lever working between stops for controlling the length of the nail, substantially as described.

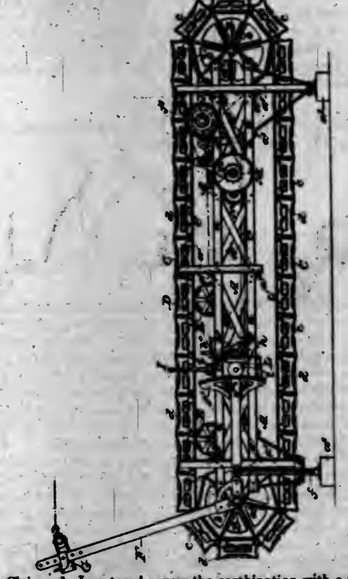
591,659. PNEUMATIC HARNESS-SADDLE. JOSEPH J. SCHMIDT and GEORGE STELLINGER, St. Louis, Mo. Filed May 3, 1897. Serial No. 634,397. (No model.)

Claim.—1. In a pneumatic harness-saddle, a tree consisting of the outer leather section 5, the inner leather section 6, the metallic stiffening-strip 7 placed between said outer and inner sections, the stitching 8 securing said sections 5 and 6 together, the leather strip 10 having the groove 11 in one of its faces secured in position by means of the stitching 14 and forming the pocket 15, and a pneumatic pad held in position in said pocket 15 by inflation, substantially as specified.



2. In a pneumatic harness-saddle, a tree consisting of an outer leather section, an inner leather section, a metallic stiffening-strip placed between said outer and said inner leather sections, means of securing the edges of said leather sections together, a leather strip secured to the inner face and near the edges of the inner leather section, said strip being grooved as required to form an L-shaped pocket between said inner leather section and said strip, and a pneumatic pad inserted in position inside of said leather strip and held in position by inflation, said pad engaging in said L-shaped pocket, substantially as specified.

591,660. TREAD-POWER. CASPER F. SEARLS, Oak Park, Ill., assignor to the Searls Manufacturing Company, Sheboygan Falls, Wis. Filed June 5, 1897. Serial No. 639,503. (No model.)



Claim.—1. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of a draft-lever connection between the rear end of said frame and its support, whereby the draft of the team or animal tends to lift the rear end of the machine, substantially as and for the purposes set forth.

2. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of a lever connection between the rear end of the frame and its support having an adjustable draft connection, substantially as and for the purposes set forth.

3. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of uprights with which the rear end of the frame has guiding connections, and bell-crank levers pivotally connected with the rear part of the frame, fulcrumed by their shorter horizontally-disposed arms to said uprights and having their longer arms extending upwardly and provided with a draft connection, substantially as and for the purposes set forth.

4. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of lifting-levers pivoted to said frame, fulcrumed to stationary supports and provided with a draft connection, and means connected with said levers for manually raising and lowering the rear end of the machine and for locking it in an elevated position, substantially as and for the purposes set forth.

5. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of draft-levers connected with and arranged to lift the rear end of the machine, and a governor adapted to lock said levers when the machine attains a certain speed, substantially as and for the purposes set forth.

6. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of draft-levers connected with and arranged to lift and sustain the rear end of the machine, a brake for stopping or checking the movement of said apron, and a governor arranged to apply said brake when the machine attains a certain speed, substantially as and for the purposes set forth.

7. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of draft-levers connected with and arranged to lift and sustain the rear end of the machine, a brake for stopping or checking the movement of said apron, and a governor adapted to lock said levers and take the weight of the machine off from the draft connection and to apply the brake, when the machine attains a certain speed, substantially as and for the purposes set forth.

8. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of draft-levers connected with and arranged to lift and sustain the rear end of the machine, a cross-shaft carried by said frame and provided with pinions meshing with segment-gears on said levers, and a crank connected with said cross-shaft for manually lifting the machine, substantially as and for the purposes set forth.

9. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of draft-levers connected with and arranged to lift the rear end of the machine, a cross-shaft carried by said frame and provided with pinions which mesh with segment-gears on said levers, a crank connected with said shaft, a brake for stopping and holding the apron, and a rocking arm connected with said brake and located in the path of a projection on one of said segment-gears for applying the brake when the machine is elevated by the draft-levers, substantially as and for the purposes set forth

10. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of draft-levers connected with and arranged to lift the rear end of the machine, a cross-shaft carried by said frame and provided with pinions which mesh with segment-gears on said levers, a ratchet-wheel on said cross-shaft, a detent adapted to engage with said ratchet-wheel and to lock said levers against the descent of the machine, a spring tending to carry said detent into engagement with said ratchet-wheel, a brake for stopping or checking the movement of said apron, a brake-rod for applying said brake adapted when the brake is released to hold said detent out of engagement with the ratchet-wheel, a governor arranged to apply the brake when the machine attains a certain speed, and a spring acting in opposition to the governor upon the brake mechanism and holding the brake and detent normally disengaged, substantially as and for the purposes set forth.

11. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of a draft connection connected with and arranged to lift and sustain the rear end of the machine when it is working, and an automatic locking device for holding said lifting mechanism against the descent of the machine when it is elevated to the extent of its upward movement, substantially as and for the purposes set forth.

12. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of lifting mechanism having a draft attachment, and connected with and arranged to sustain the rear end of the machine when it is working, a locking device for holding said lifting mechanism against the descent of the machine, a brake for stopping or checking the movement of the apron, and having a connection for operating said locking de-

vice, a governor for applying said brake when the machine attains a certain speed, and an adjustable spring tending to release said brake mechanism, substantially as and for the purposes set forth.

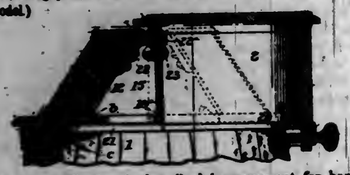
13. In a tread-power the combination with a frame and an endless apron mounted upon suitable wheels carried by said frame, of angular lifting-levers pivoted to the rear part of said machine and having horizontally-disposed arms fulcrumed to stationary supports and provided with segment-gears concentric with their pivots, and also having upwardly-extending arms provided with a vertically-adjustable draft-bar, a cross-shaft carried by said frame and provided with a ratchet-wheel and pinions meshing with said segment-gears, means for manually turning said shaft and lifting or lowering the machine, a detent, a spring tending to hold said detent in engagement with said ratchet-wheel, a brake for stopping or checking the movement of the apron, a longitudinally-movable rod for operating said brake, a centrifugal governor connected with said rod and arranged to apply the brake when the machine attains a certain speed, a rock-shaft having an arm connected with said brake-rod and an arm in the path of a projection on one of said segment-gears, and an adjustable spring acting on said rock-shaft in opposition to the governor, the brake-rod having a projection adapted to engage with said detent and hold it normally out of contact with said ratchet-wheel, substantially as and for the purposes set forth.

14. In a tread-power the combination with sprocket-wheels, of an endless apron carried by chain belts mounted upon said sprocket-wheels and composed of links each of which is formed at one corner with a single transversely-perforated ear and at the corresponding corner on the other end with two transversely-perforated ears and a recess to receive the single ear of the next link which is connected therewith by a pivot pin or bolt, and to form a pocket for the engagement of the sprockets, the ends of the links being constructed and arranged to abut against each other above their pivot connections and to stiffen and hold the upper side of the apron straight, substantially as and for the purposes set forth.

15. A chain belt for tread-powers composed of oblong quadrangular links formed with transverse mortises or sockets to receive end tenons on the lags, each link being formed at one corner with a single transversely-perforated ear and at the corresponding corner on the other end with two transversely-perforated ears and an intervening recess open at the end to receive the single ear of the next link and opening in the bearing-face of the link to receive sprockets of the carrying-wheels, the ends of the links having abutting faces perpendicular to their bearing-faces and in line with their pivot connections, substantially as and for the purposes set forth.

16. In a tread-power the combination with the lags of the apron having end tenons and links of a chain belt having transverse mortises or openings to receive said tenons, of fastenings for holding the tenons in the mortises consisting of sheet-metal plates fastened to the under sides of the lags and extending with their tenons through the links and bent at their outer edges over the outer faces of the links, substantially as and for the purposes set forth.

591,661. DISPLAY-COVER FOR BARRELS. WILLIAM J. TANNER, Bridgeport, Conn. Filed Oct. 5, 1896. Serial No. 607,890. (No model.)



Claim.—1. The herein-described improvement for barrels consisting of a platform to rest on a barrel, a housing rising above such platform, closed at the back and top and open at the front; a rotatable cover; a display-receptacle mounted on such cover and projecting above the surface thereof and placed near the front edge of the same and forward of the center of the circular opening or mouth of a barrel, substantially as set forth.

2. The herein-described improvement for barrels consisting of housing, a support therefor to rest on a barrel, said housing closed at the back and top, but open at the front, a rotatable cover adapted to operate within said housing to open communication with a barrel, and when carried without such housing to close such communication; a display-receptacle mounted on such cover so placed thereon as to operate to one side of the circular opening or mouth of a barrel, substantially as described.

3. The herein-described improvement for barrels consisting of a housing partially covering the open mouth of a barrel and adapted to be supported thereon, said housing open on one side and closed at the back and top, a rotatable cover adapted, when brought to the front, to close communication with a barrel and open communication therewith, when carried within such housing; a display-receptacle mounted on such cover so that such receptacle will operate to one side of the central construction of the open mouth of a barrel, substantially as set forth.

4. The herein-described improvement for barrels comprising in its combination, a housing open at the front and closed at the top and back; a cover adapted to rotate within the housing; a display-receptacle mounted on such cover and placed so as to be one side of the central construction of a barrel, substantially as specified.

5. A display-cover for barrels or other holding devices of like character, consisting of a support adapted to rest on a barrel, a housing rising above such support, said housing closed at the top, back and sides, but open at the front, a display-receptacle adapted to close the open mouth of the housing, or be carried within such housing when required to open communication with the barrel, for the purpose set forth.

6. The herein-described improvement for barrels, comprising in its combination, a platform, a housing mounted thereon whose front is open and top and back closed; a cover adapted to be rotated within and without such housing; a display-receptacle mounted on such cover, an inclined back for such receptacle, the back portion of said cover cut away to coincide with the lower edge of such inclined back, so as to afford a larger opening into the interior of a barrel, substantially as described.

7. The herein-described improvement for barrels, consisting of a platform adapted to be supported on the barrel; a housing mounted on such platform, said housing open at the front and closed at the top and back, and thereby adapted to cover a section of the open mouth of a barrel; a rotatable cover adapted to cover the other section; a display-receptacle mounted on such cover and so placed thereon that it will always be to one side of the central construction of a barrel, said cover adapted to be rotated within the said housing when communication with the barrel is open, and without such housing when such communication is shut off

8. The herein-described improvement for barrels consisting of a platform adapted to rest on a barrel, a housing mounted on such platform, said housing closed at the top and rear; a rotatable cover; a display-receptacle mounted thereon; a dust-proof connection placed between the front under surface of the said housing and the top of the said display-receptacle, as described and for the purpose set forth.

9. In a display-cover for barrels, or other holding device of like character, a housing rising therefrom, said housing closed at the back, top and sides but open at the front, a display-receptacle adapted to close the open mouth of said housing or be carried therein when required to open communication with the interior of the barrel, the top of said housing constructed so as to provide a support for the reception of boxes or other like articles so as to utilize floor-space, for the purpose set forth.

591,662. PLANE. JUSTUS A. TRAUT, New Britain, Conn. Filed July 6, 1897. Serial No. 643,617. (No model.)



Claim.—1. A plane comprising a stock having a mortise in its under side, the front and rear walls of which are beveled, said stock also having an aperture extending therefrom and communicating with the mortise; a mouthpiece having its ends beveled to conform to the walls of the mortise; screws carried by the mouthpiece and bearing against the roof of the mortise; and a holding-screw passing through and of less diameter than the aperture in the stock and having its lower end in threaded engagement with the mouthpiece.

2. A plane comprising a stock having a mortise the front and rear walls of which are beveled, and also having an aperture extending entirely through the stock and communicating with the mortise, said aperture being of different sizes; a mouthpiece bodily adjustable in, and of less depth than, the mortise and furnished with a threaded boss or stud of a less diameter than the wider portion of said aperture, said mouthpiece having its opposite ends beveled to correspond with the beveled surface of the front and rear walls of the mortise; a series of screws threaded in the mouthpiece, the heads of the screws bearing against the roof of the mortise; and a holding-screw passing through the aperture in the stock from the upper side, and having its lower threaded end in engagement with said boss, the screw being of a less diameter than the narrower portion of the aperture through which it passes.

591,663. PLANE. ANDREW TURNBULL, New Britain, Conn., assignor to Justus Traut, same place. Filed June 30, 1897. Serial No. 642,947. (No model.)



Claim.—1. A plane embodying a cutter; a clamp therefor provided with a bridge-piece or arch located above the normal plane of the clamp, the bridge-piece having a pivot-opening and also having projections on its under face; a lever consisting of a disk portion and an operating-arm passing through a slot in the clamp, the disk portion of the lever having a pivot-opening and a plurality of cam-recesses; and a pivot-pin extending through said pivot-openings and headed at its lower end, the pin being disposed transversely to the cutter, whereby when the lever is turned in a direction to lock the cutter the under face of the disk portion will be carried against the head of the pin to move the latter into locking engagement with said cutter.

2. A plane embodying a cutter; a clamp therefor provided with a bridge-piece having a pivot-opening, the bridge-piece having on its under face oppositely-disposed projections at each side of the pivot-opening, said clamp being also slotted; a lever consisting of a disk portion and an operating-arm extending through the slot in the clamp, the disk portion of the lever having a pivot-opening and a plurality of cam-recesses; and a pivot-pin extending through said pivot-openings and headed at its lower end.

3. A plane embodying a cutter; a clamp therefor having a slot; a cam-lever supported by the clamp, the latter having means to cause the working end of the lever to approach and recede from the clamp on the manipulation of the lever, and the lever being provided with a forwardly-extending arm passing through the slot and bearing against and sustained by the clamp; and a locker for the cutter, operated by said lever.

591,664. WASHSTAND. BERNARD BADANES, Boston, Mass. Filed June 3, 1897. Serial No. 639,337. (No model.)



Claim.—1. The herein-described washstand-support, comprising a bracket having its horizontal arm formed with a longitudinal recess, and a plate, one of the ends of which is received by said recess and the opposite end of which is formed with a curved flange, said plate serving to support the basin of the washstand and said horizontal arm serving to support the slab of said washstand substantially in the manner and for the purposes specified.

2. In a washstand of the character described, the combination with the horizontal slab and the basin, of a support at each end of the slab for both the slab and basin, said support consisting of two brackets, each comprising a vertical arm, a horizontal arm projecting outward from the upper end thereof and engaged by the adjacent end of the slab, and a plate supported by said horizontal arm and having at its free end a semicircular flange engaging the adjacent part of the basin, substantially as shown and described.

3. The herein-described washstand-support, comprising a bracket having a fixed horizontal arm at its top, a separately-formed plate adjustably mounted on said arm, and clamp devices for securing said plate in adjusted position, substantially as shown and described.

4. In a washstand, the combination with the slab and basin, of a bracket at each end of said slab, each of said brackets having a fixed horizontal arm engaging the under side of the adjacent end of the slab, each horizontal arm having a longitudinal recess, a horizontal plate for each bracket, each of said plates having at one end a flange set in said recess and its other end formed to engage the adjacent side of the basin, and means for securing said plates to said horizontal arms, substantially as shown and described.

591,665. CAR-ROOF. THOMAS BURANE, Little Rock, Ark., assignor to the Western Railway Equipment Company, East St. Louis, Ill. Filed Dec. 30, 1896. Serial No. 617,522. (No model.)



Claim.—1. In a car-roof, the combination with the roof-timbers, of braces arranged upon said timbers, and strips arranged upon said timbers to build the same up flush with said braces; substantially as described.

2. The combination with the plates, ridge-pole, carlines and purlins, of lateral braces arranged thereon, and strips arranged on the plates, ridge-pole, carlines and purlins, to build said parts up and make their faces flush with the lateral braces, substantially as described.

3. The combination with the plates, ridge-pole, carlines and purlins, of lateral braces arranged thereon in skeleton form, the ends of said braces abutting against each other forming diamond-shaped figures throughout the length of the car, and flushing-strips on the plates, ridge-pole, carlines and purlins, substantially as described.

4. The combination with the truss-rod which passes through the plate, of a nut on said rod which impinges against the outer face of the plate, the side walls of the car formed with a recess which receives said nut, a cornice arranged over the nut, a washer strung on the truss-rod between the cornice and hood, a hood supported by the truss-rod, and a nut on the truss-rod outside of the hood, substantially as described.

591,666. AUTOMATIC HAND-BRAKE-RELEASE MECHANISM. THOMAS BURANE, Little Rock, Ark., assignor to the Missouri Railway Equipment Company, St. Louis, Mo. Filed June 14, 1897. Serial No. 640,784. (No model.)

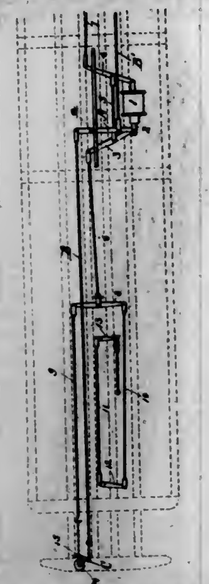
Claim.—1. The combination with the air-brake mechanism of passenger or freight cars, of means operated by said air-brake mechanism to automatically release the manually-set brakes; substantially as described.

2. The combination with the air-brake mechanism of passenger or freight cars, of means connected to and operated by said air-brake mechanism to automatically release manually-set brakes before said air-brake mechanism becomes operative; substantially as described.

3. The combination with the air-brake mechanism of passenger or freight cars in which is included a brake-cylinder and its piston, of means connected to and operated by said piston for automatically releasing manually-set brakes before said piston is operative relative to the air-brake mechanism; substantially as described.

4. The combination with the air-brake mechanism of a passenger or freight car, in which mechanism is included a cylinder and piston, a lever connected to and operated by said piston, and a connection between said lever and the retaining pawl or dog which co-

operates with the ratchet-wheel of the hand-brake staff; substantially as described.



5. The combination with a cylinder and its piston, of a hand-brake mechanism comprising suitable means for applying and retaining power, and a connection between said piston and the retaining device for the hand brake mechanism; substantially as described.

6. The combination with the brake-staff and its ratchet-wheel, of a dog for cooperating with said ratchet-wheel, a cylinder and piston, and a connection between said piston and said dog; substantially as described.

7. The combination with the cylinder and its piston, of suitable brake mechanism which is operated by said piston after the same has traveled some distance on its stroke, and a hand-brake-releasing mechanism connected to and operated by said piston when the same is making its initial movement, or before said piston operates the brake mechanism; substantially as described.

8. The combination with the cylinder and piston, of a brake mechanism in which is included a slotted lever 3, a stop for arresting said lever so that the first movement of the piston will be the distance of said slot before said piston becomes positively connected with the brake mechanism, and means operated by said piston during such initial movement to effect the release of the brakes, should they be manually set; substantially as described.

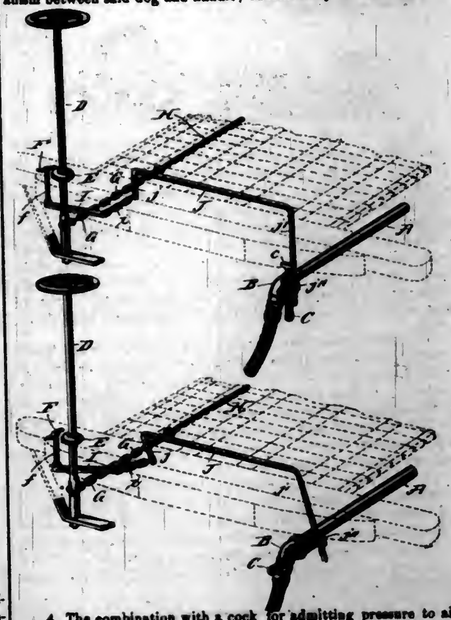
9. The combination with the brake-cylinder and its piston, of brake mechanism in which is included a slotted lever for cooperating with the piston, an adjustable stop on said cylinder for arresting the slotted end of said lever, a lever A positively connected to said piston, said lever A being slotted for the passage of its fulcrum-pin, and rods B and B' connected to said lever A and to the dogs which cooperate with the ratchet-wheels on the brake-staffs at the ends of the car, substantially as described.

591,667. HAND-BRAKE-RELEASE MECHANISM. THOMAS BUBANK, Little Rock, Ark., assignor to the Missouri Railway Equipment Company, St. Louis, Mo. Filed June 14, 1897. Serial No. 640,583. (No model.)

Claim.—1. The combination with an air-brake system of a railway-car, of a hand-brake mechanism, and a connection between the hand-brake mechanism and the air-brake system for rendering the former inoperative when motive fluid is admitted to the latter; substantially as described.

2. The combination with an air-brake system and a cock for admitting pressure thereto, of a hand-brake mechanism in which is included means for locking said mechanism after the brakes have been set by hand, and mechanism which is actuated when the cock is opened to admit pressure to the air-brake system, for releasing the locking means of the hand-brake system and rendering the same inoperative during the time that said cock admits pressure to the air-brake system; substantially as described.

3. The combination with an angle-cock and its operating-handle, of a dog for locking the hand-brake mechanism, and connected mechanism between said dog and handle; substantially as described.



4. The combination with a cock for admitting pressure to air-brake systems, of an operating-handle therefor, a dog for locking the hand-brake mechanism, and mechanism for throwing said dog into an inoperative position, when said operating-handle is thrown to open the valve; substantially as described.

5. The combination with a cock for admitting pressure to air-brake systems, of an operating-handle therefor, a lever which is actuated by said handle, and a connection between said lever and the dog which locks the hand-brake mechanism; substantially as described.

6. The combination with a cock for admitting pressure to air-brake systems, of an operating-handle therefor, a lever which is actuated by said handle in one direction only, and a connection between said lever and the dog which locks the hand-brake mechanism; substantially as described.

7. The combination with a cock for admitting pressure to air-brake systems, of an operating-handle therefor, a heel on said operating-handle, a lever which is actuated by said heel, said lever being provided with a notch for cooperating with the heel in certain of its positions, a rock-shaft on which said lever is mounted, a lever on the other end of said rock-shaft, and a chain connection between said lever and another lever connected to the dog which locks the hand-brake mechanism; substantially as described.

591,668. BOTTLE-STOPPER ATTACHMENT FOR BOTTLES, JUGS, JARS, &c. GEORGE F. JOHNSON, Hartford, Conn. Filed July 14, 1897. Serial No. 644,504. (No model.)

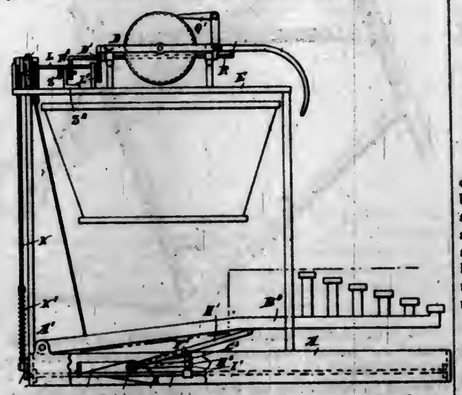


Claim.—1. The combination of a bottle and its stopper, each having an annular channel; a pair of rings loosely disposed in the channels; and a keeper connecting the rings.

2. The combination of a bottle and its stopper, each having an annular channel; a pair of wire rings loosely disposed in the channels and each having loops or eyes at its opposite ends; and a device connecting said rings.

591,669. TYPE-WRITING MACHINE. JOHN C. LANDIS, Middletown, Pa. Filed July 16, 1896. Serial No. 599,367. (No model.)

Claim.—1. A type-writing machine, provided with a spring-pressed carriage fitted to slide and having a fixed rack, a gear-wheel in mesh with the said rack, a ratchet-wheel on the shaft of the said gear-wheel, a lever carrying a pawl engaging the said ratchet-wheel, a shaft controlled by the keys and connected with the said lever to impart a swinging motion to the lever, a dog engaging the said ratchet-wheel to lock the latter against return movement, an arm controlled by a key and adapted to engage the said pawl and dog to throw the same out of engagement to permit the carriage to return automatically, and a brake device controlled by the said arm to regulate the speed of the returning carriage, substantially as described.



2. In a type-writer, the combination of three sets of key-levers, a rock-shaft running parallel with the key-levers, an arm fixed to the first-named rock-shaft, three additional rock-shafts respectively related to the three sets of key-levers, an arm carried by each of said additional rock-shafts, the arms engaging the arm of the first-named rock-shaft and being capable of imparting varying degrees of movement thereto, means respectively connecting the three additional rock-shafts with the three sets of key-levers, and carriage-feed mechanism driven from the first-named rock-shaft, substantially as described.

3. In a type-writer, the combination with a frame, of three sets of key-levers, a rock-shaft extending parallel with the key-levers, an arm fixed to the rock-shaft, a second rock-shaft running transversely to the first rock-shaft, an arm carried by the second rock-shaft and engaged by one set of key-levers, a second arm carried by the second rock-shaft and engaging with the arm of the first rock-shaft, a third rock-shaft, a rocking tabular shaft inclosing the third rock-shaft, arms respectively running from the tubular rock-shaft and from the third rock-shaft to the remaining sets of key-levers, and arms respectively carried by the third rock-shaft and the tubular rock-shaft and extending to the arm of the first-named rock-shaft, and carriage-feed mechanism operated from the first rock-shaft, substantially as described.

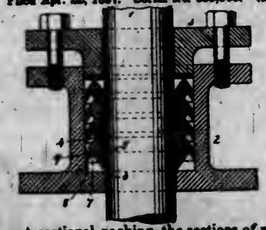
4. In a type-writer, the combination of a key-lever, a rock-shaft, an arm fixed thereon and engaged by the key-lever whereby to turn the rock-shaft, a second arm fixed to the rock-shaft, a second rock-shaft running transversely to the first rock-shaft, an arm fixed to the second rock-shaft and engaged by the second arm of the first rock-shaft and carriage-feed mechanism operated from the second rock-shaft, substantially as described.

5. In a type-writer, the combination of a frame, two levers, a rock-shaft, an arm fixed to the rock-shaft, a second rock-shaft running transversely to the first rock-shaft a tubular rock-shaft inclosing the second rock-shaft, an arm fixed to the second rock-shaft and engaging the arm of the first rock-shaft, an arm fixed to the tubular rock-shaft and engaging the arm of the first rock-shaft arms respectively fixed to the second and tubular rock-shafts and respectively engaged by the key-levers and carriage-feed mechanism operated from the first rock-shaft, substantially as described.

6. In a type-writer, the combination with a frame and a carriage sliding thereon, of a platen carried by the carriage, a shifting-lever fulcrumed on the carriage and turning the platen, a rock-shaft mounted in the carriage and capable of engaging the shifting-lever to operate the same, the rock-shaft having a laterally-extended portion, a bracket fixed to the frame, and a pin carried horizontally in the bracket and adjustable vertically to engage the laterally-extended portion of the rock-shaft as the carriage is moved past the bracket, substantially as described.

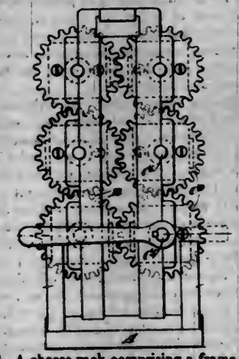
7. The combination of a gear-wheel, two pawls engaging the periphery of the gear-wheel at different points on the periphery thereof, and a pivoted member movable toward and from the gear-wheel and having a projection curved concentrically to the gear-wheel and capable of moving toward and from the pawls to engage and disengage the same from the gear-wheel, substantially as described.

591,670. METALLIC PACKING. WILLIAM H. LAW, Brooklyn, N. Y. Filed Apr. 22, 1897. Serial No. 633,363. (No model.)



Claim.—A sectional packing, the sections of which are formed of split rings each like or a counterpart of the other sections so as to be interchangeable throughout, each section having a channeled face and a ridge-face, the channels having their edges of unequal length and the channel and ridge of each section having their respective apexes out of alinement with one another, combined with a stuffing-box and a piston-rod or movable part, said packing-sections being made to seat their sides against said box and rod while having the ridges partly inserted into the channels substantially as described.

591,671. CHEESE-RACK. JOHN LEVEY, Lindsay, Canada, assignor of one-half to Frank Curtis, same place. Filed Oct. 31, 1896. Serial No. 610,675. (No model.) Patented in Canada Aug. 12, 1896, No. 53,222.



Claim.—1. A cheese-rack comprising a frame, a series of racks each journaled independently in said frame and each having a bottom and top for alternately supporting a cheese on its sides, and means for turning the said racks in unison, substantially as shown and described.

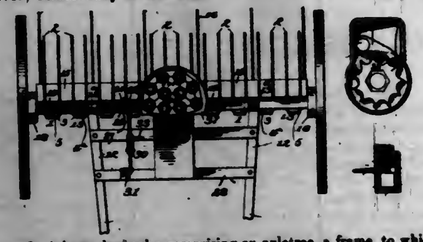
2. A cheese-rack comprising a supporting-frame, a series of racks having bottoms and tops and each journaled at its ends in the said frame, and gear-wheels carried by the journals at one end of the said racks, the said gear-wheels meshing with each other whereby the said racks may be turned in unison, substantially as described.

3. A cheese-rack comprising a supporting-frame, a series of racks each provided with a top and bottom connected by end pieces, the racks being each provided with a back arranged between the top and bottom at one side, journals secured to the end pieces of the racks and engaging suitable bearings in the said frame, gear-wheels carried by the journals at one end of the racks, the said gear-wheels meshing with each other, and a hand-lever secured to one of the journals whereby the several racks may be reversed, substantially as described.

591,672. HORSE HAY-RAKE. CURTIS C. LOCK, Brandon, Vt. Filed July 20, 1896. Serial No. 599,891. (No model.)

Claim.—1. A horse hay-rake comprising an axletree, a frame to which the axletree is hinged eccentrically a boxing secured to an end of the axletree, a ratchet-wheel located in the boxing and secured to a wheel, the lever-shaft having an end located in the boxing, the dog secured to the said end of the lever-shaft and having its outer end provided with a roller adapted to occupy a position between a ratchet-tooth and the boxing so as to lock the wheel to the axletree and to turn the latter on the frame, and a hand-lever secured to the lever-shaft for operating the dog; substantially as described.

2. A horse hay-rake comprising an axletree a bracket having notches and mounted on the axletree, a frame, to which the axletree is hinged eccentrically, having a cross-bar in front of the seat, a boxing secured to an end of the axletree, a ratchet-wheel located in the boxing and secured to a wheel, the lever-shaft having an end located in the boxing, the dog secured to the said end of the lever-shaft and having its outer end provided with a roller adapted to occupy a position between a ratchet-tooth and the boxing so as to lock the wheel to the axletree and turn the latter on the frame, and a hand-lever secured to the lever-shaft for operating the dog, carrying a dog adapted to engage the notches of the bracket and having a handle adapted to come in contact with the cross-bar for releasing the hand-lever; substantially as described.



3. A horse hay-rake comprising an axletree, a frame, to which the axletree is hinged eccentrically, a boxing secured to an end of the axletree, a ratchet-wheel located in the boxing and secured to a wheel, the lever-shaft having an end located in the boxing, the dog secured to the said end of the lever-shaft and having its outer end provided with a roller adapted to occupy a position between a ratchet-tooth and the boxing so as to lock the wheel to the axletree and to turn the latter on the frame, a hand-lever secured to the lever-shaft for operating the dog and means for returning the lever-shaft, ratchet-dog and hand-lever to normal position when the hand lever is released; substantially as described.

4. The combination with the body, the axletree, the rake, and the wheels; of the ratchet and dog connected respectively with a wheel, and with the axletree, and means for controlling the movement of the dog; said dog comprising an arm and a loosely-pivoted spring-pressed antifriction-roller; substantially as described.

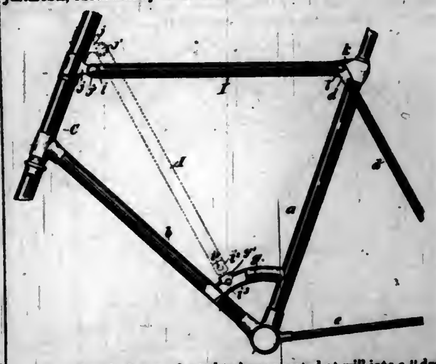
5. A horse hay-rake comprising an axletree, the paired teeth extending horizontally through the axletree and connecting portions located at the front side of the axletree, and the tooth-clamps each consisting of two inner and outer plates: the inner plate being formed with two forwardly-projecting tongues providing a groove in which the connecting portion of a tooth is seated, and with a pendent extension, and the outer plate being formed with an inwardly-projecting tongue, fitted to the connecting portion and with a pendent extension having a lateral leg bearing against the extension of the inner plate and means extending through the extensions of the plates for securing the plates together and to the front side of the axletree; substantially as described.

6. A horse hay-rake comprising an axletree, a bracket having notches and mounted on the axletree, a frame to which the axletree is hinged eccentrically, having a cross-bar in front of the seat, a boxing secured to an end of the axletree, a ratchet-wheel located in the boxing and secured to a wheel, the lever-shaft having an end located in the boxing, the dog secured to the said end of the lever-shaft and having its outer end provided with a roller adapted to occupy a position between a ratchet-tooth and the boxing so as to lock the wheel to the axletree and turn the latter on the frame, a hand-lever secured to the lever-shaft for operating the dog carrying a dog adapted to engage the notches of the bracket and having a handle adapted to come in contact with the cross-bar for releasing the hand-lever, means for returning the lever-shaft, ratchet-dog, and hand-lever to normal position, when the hand-lever is released, and the toggle-lever having a foot-rest and pivoted to the bracket and to the cross-bar at its respective ends for assisting the hand-lever in the tilting of the axletree; substantially as described.

591,673. BICYCLE. FRANK D. MALTBY, Brooklyn, N. Y. Filed Dec. 7, 1896. Serial No. 571,425. (No model.)

Claim.—1. A bicycle-frame adapted to be converted at will into a "drop-frame" or "diamond" frame and provided with a strut spanning the angle between the lower front reach and the seat-post, a brace-rod connected at one end to the upper portion of the steering-post and means for removably connecting the other end of the brace-rod either to the said strut or to the upper portion of the seat-post, substantially as set forth.

2. A bicycle-frame adapted to be converted at will into a "drop-frame" or a "diamond" frame and provided with a strut spanning the angle between the lower front reach and the seat-post, a brace-rod having a sliding connection at one end with the upper portion of the steering-post, means for removably connecting the other end of the brace-rod either to the strut or to the upper portion of the seat-post and means for securing the said sliding connection in its different adjustments, substantially as set forth.



3. A bicycle-frame adapted to be converted at will into a "drop-frame" or a "diamond" frame and provided with a curved strut spanning the angle between the lower front reach and the seat-post, a brace-rod connected at one end to the upper portion of the steering-post and means for removably connecting the other end of the brace-rod either to the curved strut or to the upper portion of the seat-post, substantially as set forth.

4. In a convertible vehicle-frame having a front post, a seat-support, a crank-hanger, stays connected therewith, and a movable connecting-piece to connect the said front post and the said seat-support, the said connecting-piece being slidable upon said front post, a tenon formed on one end of said connecting-piece, a rigid arched piece or tube forming a portion of the said frame between the said stays adjacent to and above the said crank-hanger, one or more lugs rigidly formed on the said arched piece or tube, the said tenon being adapted to fit against or between the said lugs, and having a hole to register with a hole formed through the said lugs and a bolt passing through the said hole and having a nut to secure the said connecting-piece, by means of the said tenon and leg or lugs, to the said lower portion of the frame, substantially as set forth.

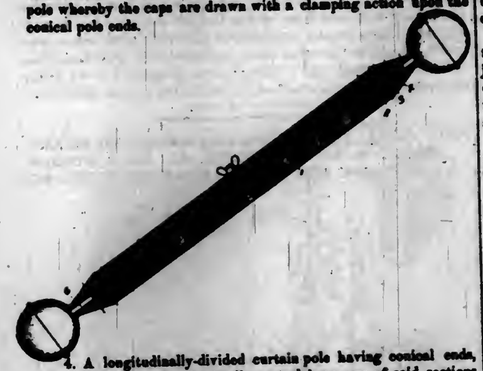
5. In a convertible vehicle-frame having a front post, a seat-support, a crank-hanger, stays connected therewith, and a movable connecting-piece to connect the said front post and the said seat-support, the said connecting-piece being slidable upon said front post, a tenon formed on one end of said connecting-piece, a rigid arched piece or tube forming a portion of the said frame between the said stays adjacent to and above the said crank-hanger, one or more lugs rigidly formed on the arched piece or tube, the said tenon being adapted to fit against or between the said lugs, and having a hole to register with a hole formed through the lugs of the said arched tube, a hole passing through one of the stay-tubes in connection with said arched tube, a packing substance compressed within the portion of the said stay-tube between the said arched tube and the said crank-hanger, and a cap fitting detachably over said lugs, a hole passing through the said lugs and the said tenon, and a bolt passing through the said hole and having a nut to secure the said connecting-piece, by means of the said tenon and leg or lugs, to the said lower portion of the frame, substantially as set forth.

591,674. CURTAIN-POLE. FRANK S. MILEY, Forrest City, Ark., assignor, by mesne assignments, of one-half to Charles H. Sanders, same place. Filed June 12, 1897. Serial No. 640,548. (No model.)

Claim.—1. A longitudinally-divided pole for hanging curtains, having conical ends, in combination with conical caps symmetrical with the pole-cones, and means for engaging and for securing by a drawing action the conical caps upon the conical pole ends whereby to clamp and bind the curtain between the pole-sections.

2. A longitudinally-divided pole for hanging curtains, having conical ends, a longitudinal-central bore at each end and a nut fixed to one of the pole-sections, intersecting each bore, in combination with conical hollow caps, each having a central screw-stem adapted to engage the pole-nuts whereby the caps are screwed upon the conical ends of the pole to clamp and bind the curtain between the pole-sections.

3. A longitudinally-divided curtain-pole having conical ends, in combination with conical caps provided with means for engaging the pole whereby the caps are drawn with a clamping action upon the conical pole ends.



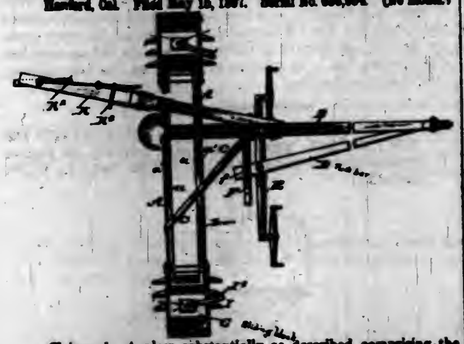
4. A longitudinally-divided curtain pole having conical ends, each end having a longitudinally-central bore, one of said sections having a fixed nut intersecting each bore, in combination with conical caps having each a screw-stem adapted to engage said nuts, the other pole-section having mortises in its meeting face to receive said nuts.

591,675. PROCESS OF MAKING CYANIDS. JEAN B. Mehn, Paris, France. Filed June 9, 1896. Serial No. 594,892. (No specimens.) Patented in France Apr. 12, 1896, No. 246,857; in Belgium Sept. 27, 1895, No. 117,636, and in England Oct. 12, 1896, No. 19,201.

Claim.—1. The herein-described method of manufacturing the cyanids of alkalies and their compounds, which consists in the production of the borid of nitrogen, by calcining a mixture of biborate of sodium and of hydrochlorid of ammonium, separating the borid of nitrogen from the chlorids by treatment with boiling water having a slight addition of hydrochloric acid, and filtration afterward, making an intimate mixture of the borid of nitrogen, thus obtained with carbonate of potassium and carbon and by heating said mixture to a dark red, thereby transforming the mixture into a combination of cyanids and borates, and separating the cyanids from the borates by crystallization.

2. Process of a direct manufacture of ferrocyanids, which consists in preparing a very intimate and pulverized mixture of borid of nitrogen, of carbonate of alkali, of carbon, and of iron filings, in calcining said mass at a dark-red heat, and in separating the formed ferrocyanids from the borates by means of crystallization, substantially as described.

591,676. ORCHARD OR VINEYARD PLOW. FELIX MOORE, Haward, Cal. Filed May 15, 1897. Serial No. 636,604. (No model.)



Claim.—1. A plow substantially as described comprising the frame the tongue, a push-bar connected at its front end with the tongue and adjustable laterally at its rear end, and the plows proper adjustable laterally on the frame substantially as described.

2. In a plow the frame having a cross-beam and an extension-section arranged to be rigidly attached thereto and the plows proper adapted to be adjustably supported either on the cross-beam or the extension section thereof substantially as described.

3. A plow comprising a cross-beam of angle metal, an extension-frame of similar metal, fastenings by which to detachably connect the cross-bars and extension, a block fitted to slide in the cross-frame or its extension the plows and means by which the same may be held to the sliding block substantially as described.

4. In a plow a beam of angle metal combined with a block fitting therein, the plows proper having a head-block and the clamp connecting the same with the sliding block substantially as described.

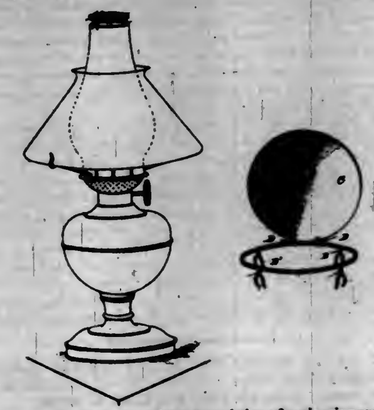
5. A plow comprising the pole the cross-beam having the extension-section, the plows proper carried by said beam, the push-bar jointed at its front end to the pole and adjustable laterally at its rear end and means by which to secure the said push-bar in any adjustment, the draft being applied to said push-bar substantially as described.

6. The combination in a plow, of the frame, the block adjustable in said frame, and the plows proper having a head-block adjustably connected with the first-named block, substantially as described.

7. The combination with the cross-beam of angle metal, an extension-section of similar metal, and fastenings by which to detachably connect the cross-bars and extension-section; of a block adjustable in the cross-beam and extension-section, plows proper having a head-block, and a clamp adjustably connecting said head-block with the first-named block, substantially as described.

8. The plow herein described consisting of the cross-beam, the pole the push-bar, the whiffletree connected with the push-bar, the rudder-wheel and its support, the extension-frame connected with the beam, the block fitted to slide therein and the plows proper connected with said block substantially as described.

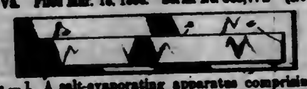
591,677. LAMP-CHIMNEY ATTACHMENT. ROBERT L. MOORE and LOUIS P. MOORE, Statesville, N. C. Filed Nov. 4, 1896. Serial No. 611,022. (No model.)



Claim.—1. A lamp attachment consisting of a wire ring provided with legs whereby it is supported on the top of the lamp-chimney, and a circular metal plate hinged to the ring at one side thereof, substantially as shown and described.

2. A lamp attachment consisting of a circular ring having the legs bifurcated as described, the circular metal plate and the rings or eyes for connecting the said plate to the wire ring all arranged and adapted to operate substantially as shown and described.

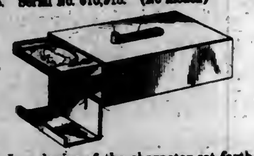
591,678. EVAPORATING-PAN. WORLEY MUSSELWHITE, Saltville, Va. Filed Mar. 18, 1896. Serial No. 583,774. (No model.)



Claim.—1. A salt-evaporating apparatus comprising an outer imperforate receptacle adapted to hold the liquid for evaporation, a smaller inner settling-pan arranged within the outer receptacle out of contact with the bottom thereof and all of its sides, said inner pan being materially shallower than the outer receptacle so as to lie entirely below the plane of the upper edge of the outer receptacle, and provided with an imperforate bottom, and lateral circulating-openings arranged to communicate with the intervening space between the sides of the outer receptacle and the inner pan, and supporting means for the inner settling-pan, substantially as set forth.

2. A salt-evaporating pan or kettle, comprising an outer pan adapted to contain the salt water, and a settling-pan of less width and height than the outer pan and disposed within the same and provided with a circulating-opening at its corners, and feet at the bottom to hold it above and out of contact with the outer pan, substantially as set forth.

591,679. STAMP-BOX. JAMES H. MCNEILL, Staunton, Va. Filed Nov. 3, 1896. Serial No. 610,913. (No model.)



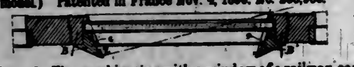
Claim.—1. In a device of the character set forth, the combination with an outer casing, of a sliding stamp-receptacle proper situated within the same and provided with a slotted outer end, a presser-plate situated against the lower face of the slotted outer end portion of the stamp-receptacle, and a movable cover fastened to the sliding stamp-receptacle and which opens automatically when the stamp-receptacle is forced outwardly.

2. In a device of the character specified, the combination with an outer casing having a slot in the top face thereof, of a sliding stamp-receptacle situated within said casing and having a slotted outer end, a stud or projection upon the said stamp-receptacle extending through said slot, a spring-actuated presser-plate situated against the lower face of the slotted portion of said stamp-receptacle, and a cover fastened to said sliding stamp-receptacle and which is automatically thrown open when the stamp-receptacle is moved outwardly.

3. In a device of the character set forth, the combination with an outer casing having an elongated slot therein, of a stamp-receptacle proper slidingly mounted on the inside of said casing, a stud or projection on said receptacle extending out through said slot, the forward end of the top plate of said receptacle being slotted or cut away and provided with flanges on each side of said cut-away portion, a hinged cover for said receptacle, a spring for normally urging said cover outwardly, a presser-plate for said stamps, and a spring to which the forward end of said presser-plate is pivotally connected, substantially as and for the purpose described.

4. In a device of the character set forth, the combination with an outer casing having an elongated slot therein, of a stamp-receptacle proper slidingly mounted on the inside of said casing, a stud or projection on said receptacle extending out through said slot, the forward end of the top plate of said receptacle being slotted or cut away and provided with flanges on each side of said cut-away portion, a hinged cover for said receptacle, a spring for normally urging said cover outwardly, a presser-plate for said stamps, a spring to which the forward end of said presser-plate is pivotally connected, and downwardly-projecting lips or flanges located in the rear of said side flanges between which the spring to which said presser-plate is connected is adapted to move, substantially as and for the purpose described.

591,680. WINDOW FOR RAILWAY-VEHICLES. JACQUES A. NORMAND, Havre, France. Filed May 12, 1897. Serial No. 636,170. (No model.) Patented in France Nov. 4, 1896. No. 260,962.

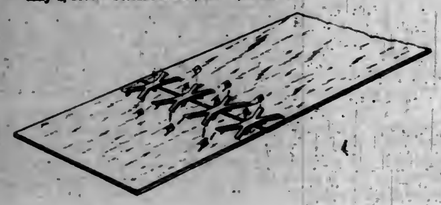


Claim.—1. The combination with a window of a railway-carriage or other vehicle of guide-strips mounted at one or both sides of the window-frame and upon the interior of the car, said guide-strips having faces which diverge outwardly, substantially as hereinbefore described.

2. The combination with the sides of a car-window of guard-strips having outwardly-divergent faces which have one edge lying near the window, crossing the sill of the latter and projecting inwardly beyond the same in converging lines, substantially as described.

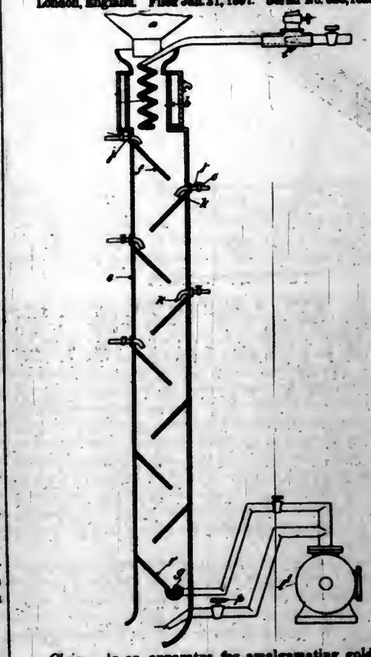
3. The combination with a car-window of guard-strips having rabbets which receive the inner angles of the sides of the window-frame, and provided with slightly-concave faces which cross the sill and project inwardly in lines which converge, substantially as described.

591,681. BELT-HOOK. JOHN B. HORTON, Madison, Wis. Filed May 1, 1896. Serial No. 589,822. (No model.)



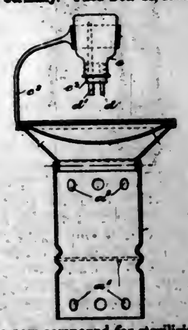
Claim.—A belt-hook formed of a piece of sheet metal, said hook having an oblong body, diverging arms projecting from each corner of the body, said arms being bent downward at approximately midway their length at such an angle that they will clench when pressure is brought to bear from above, the ends of the arms being bent upward and pointed, said pointed ends being adapted to lie beside the body portion when clenched, as and for the purpose described.

591,682. APPARATUS FOR AMALGAMATING AND EXTRACTING GOLD, &c., FROM DRY CRUSHED ORE. EMIL L. OPPERMANN, London, England. Filed Jan. 21, 1897. Serial No. 620,102. (No model.)



Claim.—In an apparatus for amalgamating gold and the like metals in dry crushed ores, the combination of an upper jacketed chamber containing a perforated pipe adapted to deliver, under suitable pressure, mixed mercury vapor and steam; a lower chamber, inclined plates therein on which the material passing through the upper chamber may fall, jets adapted to deliver mixed steam and mercury into said chamber, and a jet adapted to deliver air into said chamber, substantially as described.

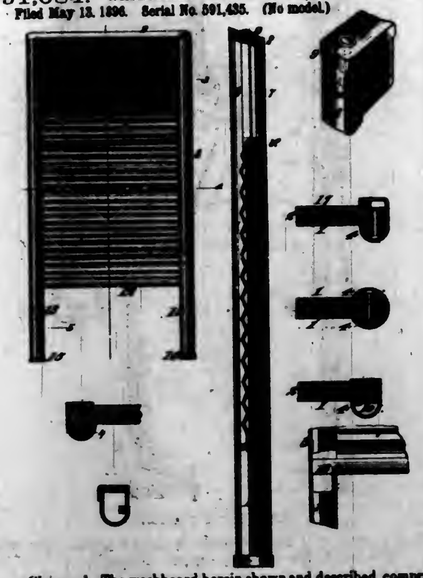
591,683. DISINFECTING COMPOUND AND APPARATUS FOR APPLYING SAME. HEINRICH OPPERMANN, Bernburg, and RICHARD GOEHDE, Berlin, Germany. Filed Dec. 11, 1896. Serial No. 615,370. (No model.)



Claim.—1. As a new compound for sterilizing purposes a liquor composed of formic aldehyde as sterilizing agent, menthol as neutralizer of the bad effect of said aldehyde upon mucous membranes, and methylic alcohol as solvent for both, substantially as described.

2. The combination, with a heater; of a refractory porous vaporizing-plate, a reservoir arranged above said plate for containing a provision of liquor, and a device for causing the liquor to regularly drop from the reservoir to the said porous vaporizing-plate comprising a stopper for closing the reservoir provided with bores and long and short tubes inserted in the bores thereof; substantially as described.

591,684. WASHBOARD. WILLIAM H. OEHMER, St. Louis, Mo. Filed May 13, 1896. Serial No. 591,435. (No model.)



Claim.—1. The washboard herein shown and described, comprising the tubular metallic side rails, having a flat inturned terminal lip, a rubbing portion having a bead secured along the surface of the lateral edges thereof, horizontally grooved to form an interlocking tenon along its inner edge contiguous to the rubbing-surface, to receive the inturned terminal lip of the side rail, the soap-tray suitably secured to the side rails above the rubbing portion and the top cross-piece connecting the upper ends of the side rails, all arranged, applied and operating, substantially as shown and described.

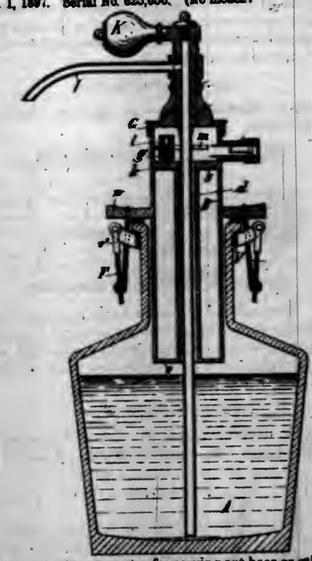
2. The washboard herein shown and described, comprising the tubular metallic side rails, having a flat inturned terminal lip, a rubbing portion having a bead secured along the surface of the lateral edges thereof, horizontally grooved to form an interlocking tenon along its inner edge contiguous to the rubbing-surface, to receive the inturned terminal lip of the side rail, the soap-tray suitably secured to the side rails above the rubbing portion, the top cross-piece connecting the upper ends of the side rails and the cheek-plate arranged to cover the open slot between the bottom feeder 12, and the end of the side rail, its upper end being held in the vertical groove 16, with its top edge fastened to the terminal lip of the side rail, all substantially as shown and set forth.

591,685. TOE-CLIP FOR PEDALS. FREDERICK J. OSMOND and ROBERT H. HOUSMAN, Moseley, England. Filed Dec. 1, 1896. Serial No. 614,126. (No model.)



Claim.—The combination with a pedal having longitudinally-slotted side plates, one of which is provided with a projecting pin, of an adjustable toe-clip inserted through the slotted parts of the side plates and having a plurality of orifices any one of which can be engaged with the aforesaid pin, for the purpose of adjusting the toe-clip to suit the rider, substantially as described.

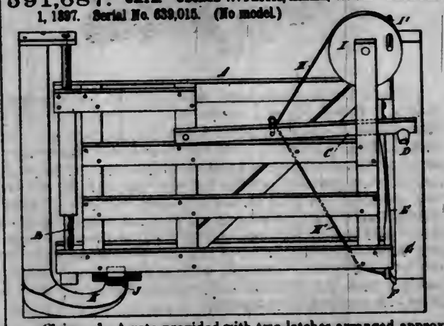
591,686. FAUCET. HERMANN PETER, Berlin, Germany. Filed Mar. 1, 1897. Serial No. 625,650. (No model.)



Claim.—1. An apparatus for serving out beer or other beverages having a reservoir for carbonic acid inserted in the top provided with adjustable means to tightly press it and close said top, which consists of a lower annular chamber and an upper chamber, the latter being in open communication with the space containing the liquid and being in communication with the annular chamber or reservoir for carbonic acid by means of a perforated nipple having a screw-sleeve on it provided with a forked lever and adapted to screw a rubber plug upon said opening said forked lever being adapted to be moved by a cam secured to the siphon-tube, which forms the prolongation of the plug of the faucet, substantially as described.

2. An apparatus for serving out beer and other beverages having a reservoir for carbonic acid inserted in the top provided with a flange to fit or close said top and having projections adapted to receive straps hinged to cylindrical bodies forming nuts on screws which are hinged to suitable projections of the ring placed under the neck of the vase substantially as described and for the purpose set forth.

591,687. GATE. GEORGE W. PETTIT, Athens, W. Va. Filed June 1, 1897. Serial No. 639,015. (No model.)



Claim.—1. A gate provided with two latches arranged approximately at right angles one to the other, and fixed keepers adapted to be engaged by the said latches and having their receiving notches standing at right angles to each other, substantially as shown and described.

2. A gate provided with a gravity-latch, a fixed keeper adapted to be engaged by the said latch, means for swinging the said latch open, a spring-latch held on the gate at right angles to the said gravity-latch, and a second keeper adapted to be engaged by the free end of the said spring-latch, substantially as shown and described.

3. A gate provided with a gravity-latch, a fixed keeper adapted to be engaged by the said latch, means for swinging the said latch

open, a spring-latch held on the gate at right angles to the said gravity-latch, a second keeper adapted to be engaged by the free end of the said spring-latch, and means for connecting the said spring-latch wth the said gravity-latch to open both latches simultaneously, substantially as shown and described.

591,688. BOTTLE. Arthur Pew, Macon, Ga. Filed Jan. 7, 1896. Serial No. 574,583. (No model.)



Claim.—The combination with the bottle having perforated lugs on opposite sides of its neck, a cross-bar arranged in the same and extending across the stopper, and a fender-block c with metal fastening-pins secured in the stopper and projecting beyond the lugs as and for the purpose described.

591,689. COMBINATION-TOOL. August C. Pohlmeyer, Cotulla, Tex. Filed July 13, 1897. Serial No. 644,455. (No model.)

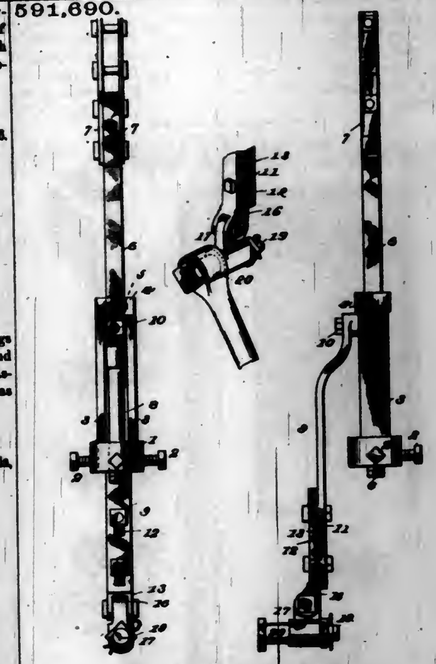


Claim.—The combination-tool herein described comprising two sections, B, C, each having a handle B', C', the former carrying a hatchet-blade F, and the latter a hammer-head G, having a rearwardly-projecting nail-claw *g*, said hatchet-blade and hammer-head having broad horizontal meeting ends adapted to squarely abut against each other and provided with the duplicate claws *h*, *h'*, the semicircular recesses *i*, *i'*, and the shallow transverse recesses *j*, *j'* located midway thereof, a vertical pivot enlargement *d*, *d'* on each handle in rear of said hammer-head and hatchet-blade and connected therewith by the necks *l* and provided with the diagonal beveled-edge notches *k*, *k'* disposed immediately below said claw *g*, and a pivot *e* passed through said pivot enlargements and uniting the two sections of the tool, substantially as described.

591,690. ROD-COUPLING DEVICE. August C. Pohlmeyer, Cotulla, Tex. Filed July 7, 1897. Serial No. 643,740. (No model.)

Claim.—A plunger-rod coupling for windmill and other pumps, comprising the tubular socket 1 formed with the vertical parallel arms 3 3, connected at their upper ends by the guide-head 4, the rectangular plunger-rod 6, having a vertical movement therein, and provided at its upper end with the parallel clamps 7 7, in combination with the lateral connecting-rod 9, removably pivoted at its upper end to said plunger-rod 6, the arm 13 adjustably secured to said rod 9, the socket 17 pivoted to said arm 13, and the wrist-pin 19, journaled in said socket 17, substantially as shown and described.

591,690.



591,691. POTATO-SCOOP. William A. Redoor, Niles, Mich. Filed Oct. 16, 1896. Serial No. 609,046. (No model.)



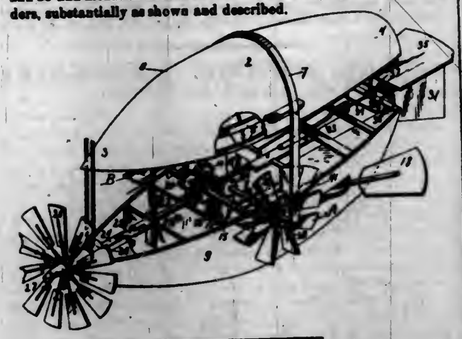
Claim.—1. A scoop-blade substantially as described formed with tines having at their front ends lateral portions extended on straight lines to the next adjacent tine, the several straight-line lateral extensions being in alinement and forming a straight-line edge at the front of the blade substantially as shown and described.

2. A scoop-blade composed of tines provided at their front ends with lateral portions extended to the next adjacent tine and positively connected with such tine at the point of contact therewith at the front edge of the blade substantially as shown and described.

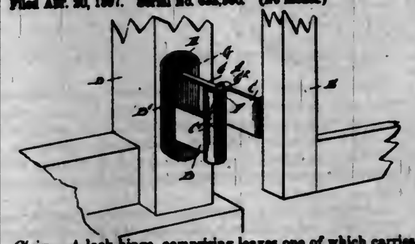
3. A scoop-blade substantially as shown and described composed of tines provided at a short distance back from their front ends with lateral offsets, and having at their front ends lateral portions extended to the adjacent tines and having return bends fitting sidewise against the offset end portion of the said adjacent tine substantially as shown and described.

591,692. AIR-SHIP. Daniel Reed, Eagle Lake, Minn. Filed June 10, 1896. Serial No. 595,025. (No model.)

Claim.—An aerial ship, comprising a cigar-shaped inflatable vessel, a floatable car suspended therefrom by the pivoted arms 7 7, in combination with the horizontal transverse shaft 8, the feathering-paddles A, B, mounted on the outer ends thereof, said shaft being also provided with the spur gear-wheels 10 10 and 19, the counter-shaft 21, the pinion 20 mounted thereon and in mesh with the gear-wheel 19, the bevel-gear 22, fixed on said counter-shaft, a longitudinal shaft 23 mounted in the same plane at a right angle to said counter-shaft and provided on its inner end with a bevel-gear meshing with the bevel-gear 22, the propeller 27 mounted on the outer end of said longitudinal shaft, the crank-shaft 13 formed with the integral motor-cranks 15 15, and the driving-cranks 16 16, gear-wheels 12 12 fixed on said crank-shaft and meshing with the gear-wheels 10 10 on the shaft 8, the lateral paddles 18, the inner ends of which are connected by pitmen 17 to the cranks 16 on the shaft 18, and the rudders 31 and 35 and means as described for simultaneously operating said rudders, substantially as shown and described.

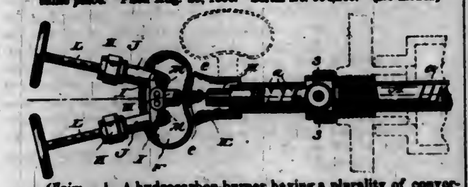


591,693. LOCK-HINGE. Abner Reeves, Brooklyn, N. Y. Filed Apr. 20, 1897. Serial No. 632,980. (No model.)



Claim.—A lock-hinge, comprising leaves one of which carries a fixed pintle and the other is provided with an eye mounted to turn on the said pintle, the latter being formed at its upper end with a diametric slot, and the upper edge of the said eye being formed with notches adapted to register with the said slot, the notches being so arranged relative to the slot that when the shutter is in a closed position neither of the notches registers with the said slot, and a spring removably connected with the attaching-plate for the pintle-leaf and provided near its free end with a lug held by the resiliency of the spring in engagement with the said slot and with one of the said notches in register at the time with the slot, the lug resting on the top edges of the eye when the shutter is in a closed position, substantially as described.

591,694. HYDROCARBON-BURNER. George C. Rossen, Chicago, Ill., assignor to the Troy Laundry Machinery Company, Limited, same place. Filed Aug. 30, 1896. Serial No. 604,263. (No model.)



Claim.—1. A hydrocarbon-burner having a plurality of converging needle-valves located to deliver their jets through an unconfined air-space directly into the mouth of a burner-tube, such tube having orifices along the length thereof, substantially as specified.

2. A hydrocarbon-burner having a plurality of needle-valves arranged with their tubes convergent and terminating at a distance from each other and arranged to deliver their jets in lines crossing each other through an unconfined air-space into the mouth of a burner-tube, such tube having orifices along the length thereof, substantially as specified.

3. A hydrocarbon-burner having its generator arranged in a vertical line with and over the burner tube, and a plurality of needle-valves and tubes each independent of the other and terminating at a distance from the adjacent end of the burner-tube, and constructed and arranged so deliver their jets at angles to the axial line of said tube through an unconfined air-space, and to strike the inner wall of the burner-tube upon opposite sides thereof; substantially as described.

4. The combination with a burner-tube and an end casting thereon having convergent passages, of a generator-chamber and tubes and needle-valves convergent and in line with the convergent passages of the casting and disposed at a distance therefrom to deliver their jets through an unconfined air-space into said burner-tube through the convergent passages of the casting; substantially as described.

5. The combination with the burner-tube and the generator-chamber disposed above the same, of convergent needle-valves and jet tubes supported from said generator-chamber, and constructed and arranged to deliver their jets into the burner-tube through an unconfined air-space upon lines crossing each other; substantially as described.

6. The combination with the burner-tube and the generator-chamber disposed above the same, of convergent needle-valves and jet-tubes supported from said generator-chamber, and constructed and arranged to deliver their jets into the burner-tube through an unconfined air-space upon lines crossing each other, and a casting on the end of the burner-tube having convergent passages in line with the needle-valves; substantially as described.

7. The combination with the burner-tube, of a sleeve thereon having vertical grooves, and a generator-pipe having depending portions fitted to said grooves and supported above the burner-tube; substantially as described.

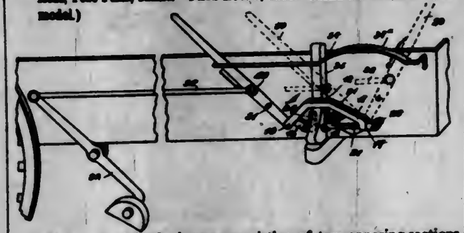
8. The combination with the burner-tube, of a sleeve thereon, a generator-tube detachably supported by said sleeve, and having a depending portion at its outer end, tubes supported from said depending portion independent of each other and convergent, needle-valves mounted in said tubes, and a casting on the end of the burner-tube having convergent passages in line with said tubes; substantially as described.

9. The combination with the burner-tube and its sleeve and casting, of the generator detachably mounted upon the burner-tube and supported and held by said sleeve and casting; substantially as described.

10. The combination with the burner-tube and its sleeve and casting, of the generator detachably mounted upon the burner-tube and supported and held by said sleeve and casting and provided with convergent tubes, and divergent depending tubes communicating therewith and disposed at an angle to the axial line of the burner-tube; substantially as described.

11. The combination with the burner-tube having slits in different portions thereof, of a sleeve mounted upon the tube between the slitted portions, and a generator having depending portions fitted in grooves in said sleeve and at the other end provided with a discharge-tube arranged at an angle to the axial line of the vertical tube and provided with a needle-valve; substantially as described.

591,695. HANGER FOR VEHICLE-BRAKES. Stanton D. L. Ross, Post Falls, Idaho. Filed Nov. 6, 1896. Serial No. 611,303. (No model.)



Claim.—1. A brake-hanger consisting of two opposing sections having an arch shape, each section being provided upon its inner face with a horizontal slot, and a brake-lever having movement between the two sections, and provided with a pin adapted to travel in the slots of the hanger-sections, as and for the purpose specified.

2. The combination of the hanger or support having a longitudinal guideway, and the brake-lever whose fulcrum is mounted to slide in said guideway in unison with the lever, while the lever rests on said sliding fulcrum, substantially as described.

3. The combination of the hanger or support extending longitudinally of the car, and the brake-lever whose fulcrum is mounted to slide longitudinally of said hanger in unison with the lever, while the lever rests on said sliding fulcrum, substantially as described.

4. The combination of the hanger or support having a longitudinal guideway inclined downward from its central portion toward each end, and the brake-lever whose fulcrum is mounted to slide along one inclined portion of said guideway to and along the other inclined end thereof, while the lever rests on said sliding fulcrum, substantially as described.

5. The combination, with a brake-hanger consisting of opposing arched plates having longitudinal slots, each slot terminating at its forward end in a pocket, and the two plates being placed a predetermined distance apart, of a brake-lever having movement in the space between the members of the hanger, the lower end of the

brake-lever being provided with a projection from each of its sides, entering the slots in the members of the hanger, as and for the purpose specified.

6. The combination, with the body of a wagon and an upright of the forward bolster, of a brake-hanger attached to the body of the wagon and provided with offsets between which the standard of the forward bolster is located, whereby the forward bolsters of the body are preserved against rearward or forward movement, as and for the purpose specified.

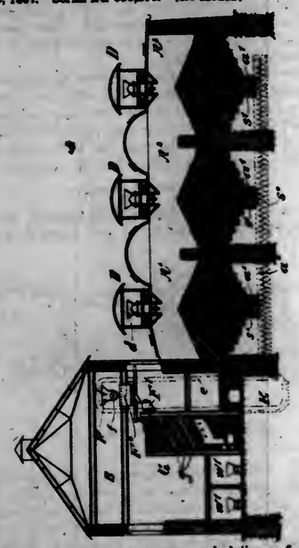
7. The combination of the hanger or support having a longitudinal guideway and the brake-lever whose fulcrum is mounted to slide in said guideway, while the lever rests on said sliding fulcrum the brake-lever having a stop-pin or projection adapted to engage the hanger, substantially as described.

8. The combination of the hanger or support comprising substantially parallel-spaced arms or sections having longitudinal guideways in their opposing faces, and the brake-lever arranged between said sections and having a fulcrum-pin or equivalent part mounted to slide in said guideways.

9. The combination of the hanger or support having a longitudinal guideway, and the brake-lever having a sliding fulcrum movable in said guideway in unison with the lever, the lever being capable of a rocking movement on said sliding fulcrum at different points of said guideway, substantially as described.

10. The combination of the hanger or support having a longitudinal guideway, and the brake-lever having a single fulcrum on which it rests, said fulcrum being mounted to slide in said longitudinal guideway in unison with the lever while the lever rests on the sliding fulcrum, substantially as described.

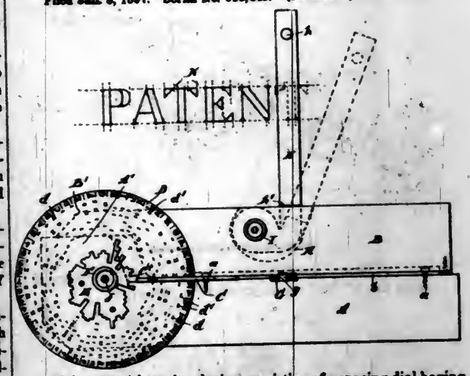
591,696. DEVICE FOR TRANSPORTING GRANULAR OR SIMILAR MATERIALS. ALFRED ROTHENBACH, Zurich, Switzerland. Filed June 3, 1897. Serial No. 639,290. (No model.)



Claim.—1. A system of storage and delivery for pulverulent, granular or lumpy substances, comprising a plurality of storage-bins, means for supplying the substance to be stored from above, a delivery-trough below each bin to which the bottom of the latter slopes and into which the contents of the bin discharge, a mechanical conveyer in said trough, a receiving-trough into which all the delivery-troughs discharge, a distribution-trough, mechanical conveying appliances for conveying the substance from the receiving to the distribution trough, and one or more delivery-hoppers adapted to receive the substance from the distribution-trough, for the purpose set forth.

2. A system of storage and delivery for pulverulent, granular or lumpy substances, comprising a plurality of storage-bins, means for supplying the substance to be stored from above, a delivery-trough below each bin to which the bottom of the latter slopes and into which the contents of the bin discharge, a mechanical conveyer in said trough, a receiving-trough into which all the delivery-troughs discharge, a distribution-trough, mechanical conveying appliances for conveying the substance from the receiving to the distribution trough, one or more delivery-hoppers adapted to receive the substance from the distribution-trough, and one or more feed-hoppers movable to and from the delivery hopper or hoppers and the appliance or appliances to which such substance is to be fed, for the purpose set forth.

591,697. LETTERING DEVICE. LORAN ROSE, Dunkirk, N. Y. Filed Jan. 8, 1897. Serial No. 618,443. (No model.)



Claim.—1. A lettering device, consisting of a spacing-dial having series of radial points thereon, spaced to correspond to the ordinates of the principal parts of the characters to be formed, and a bar provided with a spacing-arm which is adjacent and radial to the dial, and a ruling-arm extending to one side therefrom, said bar and dial being movable relatively to each other, substantially as shown and described.

2. A lettering device, consisting of a bar having pivoted thereon a spacing-dial, and a sliding bar attached thereto, said sliding bar having a ruling-bar and a spacing-point, which latter is adapted to be brought into registry with points upon the spacing-dial and thus move the ruling-bar the required distance for locating the various parts of the letter, substantially as shown and described.

3. A lettering device, consisting of a bar having pivoted thereon a spacing-dial, which has upon its surface series of radial marks spaced to correspond to the ordinates of the principal parts of the characters to be made, a bar mounted to slide upon the first bar, carrying a ruling-arm and a spacing-point, which latter is adapted to be brought into registry with the points upon the spacing-dial, substantially as shown and described.

4. A lettering-scale, consisting of a disk having thereon series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, substantially as shown and described.

5. A lettering-scale, consisting of a disk having thereon series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, and a ruling-bar movable relative to and coöperating with said disk, to transfer the spacings thereof to the paper, substantially as shown and described.

6. A lettering-scale, consisting of a disk having thereon series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, a ruling-bar movable relative to and coöperating with said disk, to transfer the spacings thereof to the paper, and means for adjusting the angle of the ruling edge of said bar with its direction of motion, substantially as shown and described.

7. A lettering-scale, consisting of a disk having thereon series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, a bar having sliding connection to the disk, whereby they may be moved relatively to each other, and a ruling-arm pivoted upon said sliding bar and adapted to project from the side thereof at an adjustable angle, substantially as shown and described.

8. A lettering-scale, comprising two bars having sliding connection with each other, a disk mounted upon one of these bars and having series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, the other bar having a registering-arm with a radially-disposed edge adapted to register a point thereon with the marks upon the disk, said last sliding bar having also a ruling edge located at an angle to its direction of motion, substantially as shown and described.

9. A lettering-scale comprising two bars having sliding connection with each other, a disk mounted upon one of these bars and having series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, the other bar having a registering-arm with a radially-disposed edge adapted to register a point thereon with the marks upon the disk, and a ruling-arm pivoted upon the said sliding bar and projecting therefrom at an adjustable angle, substantially as shown and described.

10. A lettering-scale, comprising two bars having sliding connection with each other, a disk mounted upon one of these bars and having series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, the other bar having a registering-arm with a radially-disposed edge adapted to register a point thereon with the marks upon the disk, and having also a ruling edge at an angle to its direction of motion, and a spacing-stop limiting the relative motion of the two sliding bars, substantially as shown and described.

11. A lettering-scale, comprising two bars having sliding connection with each other, a disk mounted upon one of these bars and having series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, the other bar having a registering-arm with a radially-disposed edge adapted to register a point thereon with the marks upon the disk, and also having a ruling-arm pivoted thereon and projecting therefrom at an adjustable angle, and a spacing-stop fixed to the bar which carries the disk and engaging the registering-arm, substantially as shown and described.

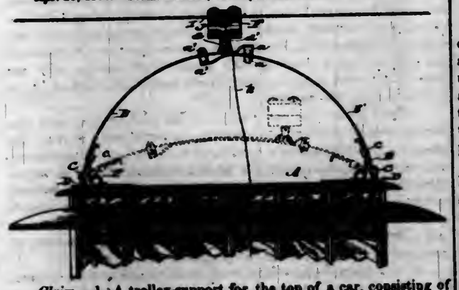
12. A lettering device, consisting of a disk having thereon series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, a spacing pattern-die fixed to one surface of the disk, a ruling-arm movable relatively to the said disk, and a registering-arm connected to and moving with the ruling-arm and upon the line of a radius of the disk and engaging said spacing pattern-die, substantially as shown and described.

13. A lettering device, consisting of a disk having thereon series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, a spacing pattern-die fixed to one surface of the disk, a ruling-arm movable relatively to the said disk, a registering-arm connected to and moving with the ruling-arm and upon the line of a radius of the disk and engaging said spacing pattern-die, and a spacing-top limiting the outward motion of the registering-arm relative to the disk, substantially as shown and described.

14. A lettering device, consisting of a disk having thereon series of radially-disposed marks, spaced to correspond to the ordinates of the principal points of the characters to be formed, a spacing pattern-die fixed to one surface of the disk, a bar movable relatively to said disk, a registering-arm mounted thereon to move radially of the disk and adapted to engage said spacing pattern-die, a stop connected to the disk and limiting the outward movement of the registering-arm, and a ruling-arm movable with the registering-arm and extending at an angle thereto, substantially as shown and described.

15. A lettering device, consisting of two bars mounted to slide one upon the other, a disk pivoted upon one of these bars and having series of radially-disposed marks upon one surface, spaced to correspond to the spacing of the ordinates of the principal points of the characters to be formed, a spacing pattern-die fixed on the disk, a registering-arm fixed to the other sliding bar and located so as to move toward and from the center of the disk, a ruling-arm pivoted to the same sliding bar and projecting therefrom at an adjustable angle, and an adjustable stop fixed to the first sliding bar and engaging the second bar to limit its motion in one direction, substantially as shown and described.

591,698. TROLLEY. GEORGE K. SERVOSS, Johnstown, Pa. Filed Apr. 23, 1897. Serial No. 633,491. (No model.)



Claim.—1. A trolley-support for the top of a car, consisting of two arched springs arranged longitudinally with the car and having each a pair of rollers at its end receiving between them the body of the other spring, substantially as and for the purpose described.

2. A trolley-support for the top of a car, consisting of two arched springs arranged longitudinally with the car and having a lapped and slip joint connection with each other at the top, and a universal joint for connecting the lower ends of the said springs to the car substantially as shown and described.

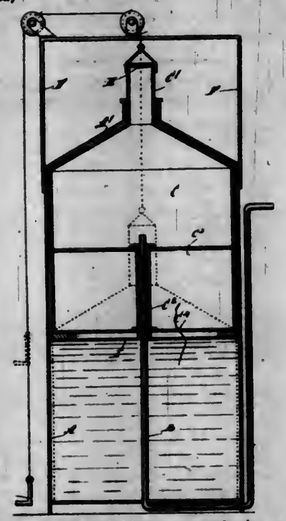
3. A trolley-support for the top of a car consisting of two arched springs arranged longitudinally with the car and having a lapped and slip joint connection with each other at the top, and a separate lifting-spring for each arch spring for forcing the arch-springs up substantially as described.

4. A trolley-support for the top of a car, consisting of two arched springs arranged longitudinally with the car and having a lapped and slip joint connection with each other at the top, a universal joint connecting the springs to the car, and supplemental lifting-springs for the arched springs substantially as and for the purpose described.

5. The trolley composed of a frame of elastic sheet-steel bent to a circular cross-section at its lower side and then extended upwardly and outwardly in the form of flanges, and three wheels, one arranged vertically upon an axis that passes loosely through and extends beyond the side walls of the trolley-frame, and the other two being arranged on the upper flanged edges on opposite sides of the center and inclining inwardly and downwardly substantially as and for the purpose described.

6. The combination with the trolley-frame made of springing material, and the three wheels arranged thereon as described; of two levers each fulcrumed on one side of the frame and extending inwardly and downwardly to bear against the inner wall of the other side, and cords for pulling upon the outer ends of the levers to expand and open the trolley substantially as and for the purpose described.

591,699. AUTOMATIC BLAST-GENERATOR. AARON M. SEDWELL, Jr., Henderson, Tex., assignor of one-half to Samuel R. Miller and Ruben C. Burk, same place. Filed Apr. 9, 1897. Serial No. 631,466. (No model.)



Claim.—1. An automatic blast-generator having an exterior tank capable of containing a liquid in its lower portion, an air vessel movable vertically within the tank, the air vessel having a contracted upper end, an air-inlet valve commanding said contracted upper end, a guide-tube, a spider rigidly holding the guide-tube centrally within the air vessel, and an air-tube standing vertically from the bottom of the tank, the guide-tube being slidable on the air-tube and having a portion extended out of the tank.

2. An automatic blast-generator having an exterior tank, the lower portion of which is capable of containing a liquid, an air vessel movable vertically within the tank and open at the bottom, the air vessel having a valve-controlled air-inlet, a guide-tube located centrally within the air vessel, a spider holding the guide-tube rigid with the air vessel, and an air-pipe standing vertically from the bottom of the tank and having one end extended outside of the tank, the guide-tube receiving and sliding on the air-tube.

3. An automatic blast-generator having an exterior tank with an apertured cover, an air vessel movable vertically in the tank and having a contracted upper end capable of projecting through the aperture of the cover, an inlet-valve controlling the contracted upper end

of the air vessel, a guide-tube located centrally within the air vessel, spiders rigidly attached to the tube and to the air vessel whereby to hold the tube, and an air-pipe standing vertically from the bottom of the tank and slidably received within the guide-tube, the air-tube projecting out of the tank.

591,700. THERMIC FIRE-ALARM. KONSTANTY O. SLOSKY, Philadelphia, Pa. Filed June 5, 1897. Serial No. 639,508. (No model.)



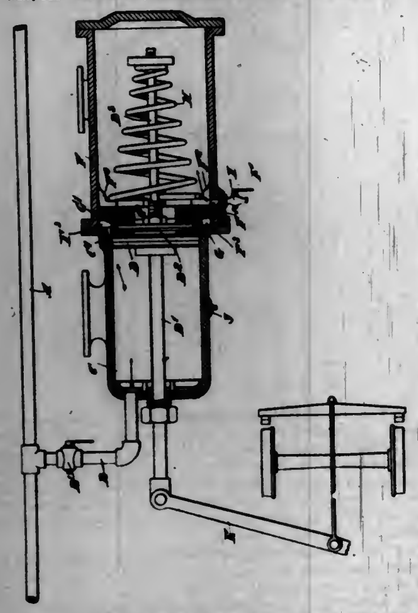
Claim.—1. A thermic fire-alarm consisting of two concave-convexo disks having their surfaces corrugated, contact-points carried by said disks, and an electric circuit in which the alarm is included, as specified.

2. In combination, a casing, two concave-convexo disks secured together and located therein, an adjustable contact-point carried by one of the disks, a spring contact-point carried by the other disk, and an electric circuit in which the alarm is included, as specified.

3. The herein-described combination of the casing A, the disks D and E, each of which is concave-convexo and corrugated, an adjustable contact-point carried by the disk E, a spring-controlled contact-point carried by the disk D, and an electric circuit in which the alarm is included, substantially as and for the purpose set forth.

4. In combination with a fire-alarm of the character described, two concave-convexo corrugated disks so arranged relative to each other and within a casing as to cause the contact-point carried by one of said disks to move to a greater distance than the contact-point carried by the other disk when heat is imparted to the device, substantially as shown and described.

591,701. FLUID-PRESSURE BRAKE. HERBERT S. SMITH, San José, Cal. Filed Dec. 9, 1896. Serial No. 614,964. (No model.)



Claim.—1. The combination of the brake-cylinder, the piston therein, the auxiliary reservoir connected to one end of said cylinder, the piston-valve arranged in said reservoir and adapted to engage the piston, the cylinder having a feed-groove whereby air may get past the piston, and the auxiliary reservoir having a port or channel whereby the air may get past the piston-valve, substantially as described.

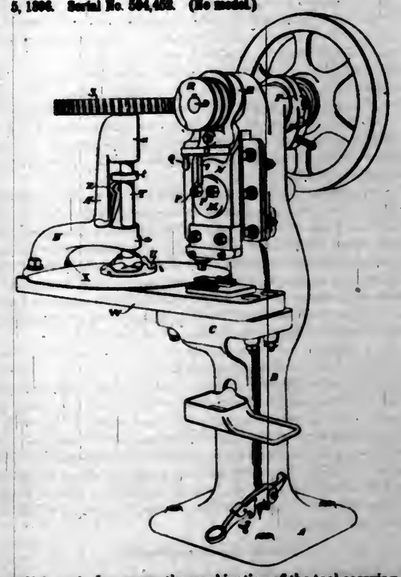
2. The combination of the brake-cylinder, the piston arranged therein and carrying a valve, the auxiliary reservoir connected to the cylinder, the piston-valve in said reservoir, said piston-valve having a through-aperture adapted to be closed by the valve carried by the piston, and means for feeding the air past the piston and the piston-valve respectively, substantially as described.

3. The combination of the brake-cylinder, an auxiliary reservoir of larger diameter than said cylinder, the brake-piston in the cylinder, the piston-valve in the auxiliary reservoir, said valve having a through-aperture and being adapted to engage the brake-piston so that the latter will close said aperture, and means for feeding the air past the piston and the piston-valve respectively, substantially as described.

4. The combination of the brake-cylinder, the piston therein, the auxiliary reservoir connected to the cylinder, the piston-valve movable within said reservoir independently of the piston and adapted to engage said piston, and means for feeding the air past the piston and the piston-valve, substantially as described.

5. The combination of the brake-cylinder, the piston therein, the auxiliary reservoir, said cylinder having a feed-groove at its junction with said reservoir, and the reservoir having a feed port or passage adjacent to its junction with the cylinder, a piston valve controlling said feed-port and having a through-aperture adapted to be closed by the engagement of the piston-valve with the piston, and stops for limiting the movement of the piston-valve, the latter being movable independently of the piston, substantially as described.

591,702. PRESS. OBERLIN SMITH, Bridgeton, N. J. Filed June 5, 1896. Serial No. 594,493. (No model.)



Claim.—1. In a press, the combination of the tool-carrying ram, the driving-shaft, an eccentric on the latter connected with the ram, the worm on the shaft having a portion of its thread uninclined, a second shaft mounted parallel with the line of movement of the ram, a table, or support, from which rises a standard, or post that journals the second shaft, a wheel on said second shaft, meshing with the worm, and a work-holder connected with such shaft, substantially as and for the purpose specified.

2. In a press, the combination of the tool-carrying ram, the driving-shaft, an eccentric on the latter connected with the ram, the worm on the shaft having a portion of its thread uninclined, a second shaft mounted parallel with the line of movement of the ram, a table or support, from which rises a standard or post that journals such second shaft, a wheel on said shaft, meshing with the worm, a work-holder connected with said second shaft, a collar on the latter, and a lifting-lever, to act on said collar, pivoted to the standard, or post, substantially as and for the purpose shown.

3. In a press, the combination of a shaft, an eccentric thereon, the eccentric-strap, a pitman having an extension projecting into an opening in the strap, and having an inclined surface, a pin engaging said surface, with an extended bearing circumferentially and radially, means to move said pin, and a ram connected with the pitman, substantially as and for the purpose set forth.

4. In a press, the combination of a shaft, an eccentric thereon, the eccentric-strap provided with an opening, a pitman having an extension projecting into said opening, an annular groove in said extension having an inclined side, a pin engaging said groove having its end of less thickness than the width of the groove, a screw engaging the pin, and a ram connected with the pitman, substantially as and for the purpose described.

5. In a press, the combination of the punch-carrying ram, a shaft, a threaded pitman connecting the shaft and ram, a handle applied to the pitman, whereby it may be turned, and a stop-pin carried by the handle, substantially as and for the purpose described.

6. In a press, the combination of the punch-carrying ram, a shaft, an eccentric thereon, a pitman connected with the eccentric, a pivot on the ram, a threaded connection between the pitman and the pivot, a handle on the pitman, and a stop-pin on the handle adapted to strike the pivot, substantially as and for the purpose shown.

7. The combination of a work-holder composed of upper and lower parts, the upper part being movable, and adapted to clamp the work upon the lower part by its weight, the vertically-movable shaft, to which said upper part is attached, a collar on the shaft, a cam-lever engaging the under side of the collar, and a feed-wheel for revolving the work, mounted upon said shaft, substantially as and for the purpose specified.

8. The combination of the work-holder having a movable upper part, the shaft to which the latter is attached, the feed-wheel upon said shaft, said parts operating by their gravity to hold work, and the cam-lever for raising the shaft, substantially as and for the purpose shown.

9. The combination of the work-holder, composed of two parts which clamp the work between their opposite faces, means for applying power to one of said parts, to rotate the same, and a coupling-piece extending from one part to the other and engaging each, whereby the rotation of one part may be imparted to the other, substantially as and for the purpose set forth.

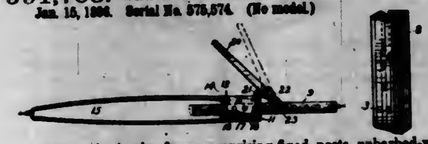
10. The combination of the two-part work-holder, a pivot for one of said parts, means for applying power to the other part to rotate the same, and a key coupling said parts to cause one to rotate the other provided with means to engage the work held between them, substantially as and for the purpose set forth.

11. The combination of the two-part work-holder, a pivot for one of said parts, a shaft carrying the other part, and a key projecting from one part into an opening in the other, and provided with a rib to engage the work held between the work-holder parts, substantially as and for the purpose described.

12. In a press, the combination of a ram, a shaft for actuating the same, a worm on said shaft having a portion of its thread uninclined, a wheel engaged by the worm, a vertically-movable shaft carrying said wheel, and a work-holder comprising an upper and lower part, the upper one being attached to said shaft, substantially as and for the purpose specified.

13. In a press, the combination of the punch-carrying ram, a shaft from which said ram receives motion, a rotary disk-holder, means whereby the latter may be revolved step by step by said shaft, to pass new portions of the disk successively into position to be acted on by the punch, and means for adjusting the position of the punch relative to the work, whereby the punch may be placed so that in its movement by the ram, it will not act on the work, and during such movement may be placed so that it will act on the work, substantially as and for the purpose set forth.

591,708. WIRE FENCE. LABAN SUDDUTH, Oskaloosa, Iowa. Filed Jan. 15, 1896. Serial No. 575,574. (No model.)



Claim.—1. A wire fence comprising fixed posts, unbarbed-wire mediate stringers and a barbed-wire outer stringer supported thereon and a stay having transverse holes through the same in the line of the fence, to allow the unbarbed-wire stringers to pass freely through the stay and having a like transverse hole and an oblique longitudinal aperture leading thereto from the end of the stay to said line-hole to receive the barbed wire, substantially as described.

2. A wire fence comprising posts, unbarbed intermediate wire stringers, a barbed top wire stringer and a stay having apertures bored through the stay in the line of the fence to receive and hold the intermediate wires, and having like holes bored at its ends to receive the barbed wire, and oblique slot-apertures leading from the end of the stay to said line-holes to receive the barbed wire, substantially as described.

3. A tension device for wire fences, consisting of a slide-plate having perforations therein adapted to be connected with one end of the fence-wire, an adjustable bar adapted to be connected to the other end of said fence-wire, and having perforations and a locking-bolt adjustable in the perforations of said slide-plate and bar, substantially as described.

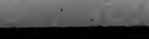
4. A tension device for wire fences, consisting of a slide-plate having perforations therein at opposing sides, an adjustable bar fitted to slide in said plate and having perforations therein at graduated distances greater than the distances between the adjusting-perforations in the slide-plate, and a locking-bolt to engage said perforations, substantially as described.

5. A tension device for wire fences, comprising an adjustable perforate bar, a slide-plate consisting of a rectangular piece of metal slotted intermediately, perforated to receive a locking-bolt and bent longitudinally one end upon the other and united at its corners to receive respectively the ends of a loop-wire, and an adjustable perforate bar to pass through the slot in said plate and be interlocked with the perforations thereof by a bolt, substantially as described.

6. In a fence-wire tightener, the combination of a metal slide-plate as 10 bent one end upon the other and provided with an end slot, rivets securing the ends of said plate together, a perforate adjusting bar fitted within said plate 10 through the end slot, a locking-bolt to connect the said bar and plate, and a loop-wire hooked at its ends around the rivets of the said slide-plate, substantially as described.

7. In a wire fence the combination with the posts and wire stringers of a folded slide-plate and a perforated adjusting-plate secured to said stringers, and a lever consisting of a bar, a hook-plate pivotally connected therewith, a stud projecting laterally from one side of said lever and adapted to engage respectively with the fold of the slide-plate and with the perforations of the adjusting-plates, substantially as described.

591,704. WASHBOARD. JOHN H. STRATHAM, Cape Girardeau, Mo. Filed Jan. 16, 1897. Serial No. 619,478. (No model.)



Claim.—In a washboard, the combination with a frame, of a series of spaced independent strands secured in said frame to provide spaces between the strands, a concavo-convex back also secured in the frame adjacent to but out of contact with the strands and having a recessed lower end forming a water-exit opening between itself and the bottom rail of the frame, as set forth.

591,705. EAVES-TROUGH. CLARENCE J. SWINK, Red Lion, Ohio. Filed June 15, 1897. Serial No. 640,799. (No model.)



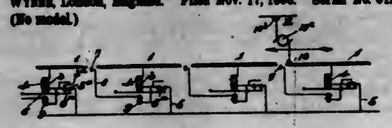
Claim.—1. An eaves-trough or gutter having a depression in its lowest portion and a strip of non-corrosible material secured in said depression substantially as described.

2. In an eaves-trough or gutter the combination of a depression in its bottom with a strip of zinc or other non-corrosible material secured in said depression and arranged to lap over the joints of the sections of the trough as shown and described.

3. An eaves-trough or gutter comprising a depression of the lowest point of the inner periphery thereof, a strip of non-corrosible material adapted to snugly fit in said depression and adapted to overlap the joints of the sections of the trough substantially as described.

4. The combination of an eaves-trough, tubing &c. as described with the depression in its outer periphery, a strip of non-corrosible material secured in said depression and overlapping the sections of tubing, strengthening and forming tight joints of said tubing, substantially as described.

591,706. ELECTRIC RAILWAY. DAVID URQUHART and FRANK WYNNE, London, England. Filed Nov. 17, 1896. Serial No. 612,657. (No model.)



Claim.—1. In apparatus of the kind herein referred to for supplying electricity to electrically-propelled vehicles, the combination with road-contacts, a main conductor, and electromagnetic devices or switches for successively placing said road-contacts in connection with said main conductor, of conducting guard plates or rails located in proximity to the road-contacts and adapted to be connected to the main conductor by the switch of the corresponding road-contact and to be then placed in parallel with the electromagnetic winding of the said switch substantially as described for the purpose specified.

2. In apparatus of the kind herein referred to for supplying electricity to electrically-propelled vehicles, the combination with road-contacts, a main conductor, and electromagnetic devices or switches for successively placing said road-contacts in connection with said main conductor, of conducting guard plates or rails located in proximity to the road-contacts and each connected to a conductor adapted to be placed by the switch of the corresponding road-contact in direct connection with said main conductor when said switch is closed, and electromagnetic devices arranged in the conductors connected to the guard plates or rails and each adapted when excited to open or assist in opening the corresponding switch, substantially as described.

3. In apparatus of the kind herein referred to for supplying electricity to electrically-propelled vehicles, the combination with road-contacts, a main conductor, and electromagnetic devices or switches for successively placing said road-contacts in connection with said main conductor, of conducting guard plates or rails and connected leads arranged in parallel with said switches, and adapted to be directly connected with said main conductor when the corresponding switch is closed and electromagnetic devices included in said leads and adapted when energized to open the corresponding switches, said conducting guard plates or rails being arranged in proximity to said road-contacts and having a part exposed in the roadway so as to come into electrical connection with the car-contact moving over the same substantially as described for the purpose specified.

4. In apparatus of the kind herein referred to for supplying electricity to electrically-propelled vehicles, the combination with road-contacts, a main conductor, and electromagnetic devices or switches for successively placing said road-contacts in connection with said main conductor, of channeled bars surrounding said road-contacts but insulated therefrom, and leads connected to said channeled bars and adapted to be placed in direct connection with said main conductor when the corresponding switch is closed, substantially as described.

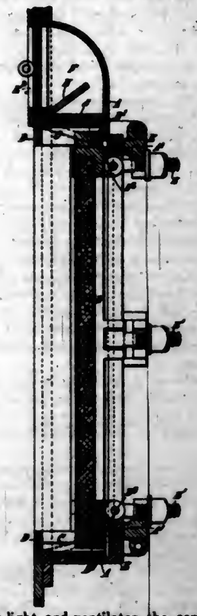
5. In apparatus of the kind herein referred to for supplying electricity to electrically-propelled vehicles, the combination with road-contacts, a main conductor, and electromagnetic devices or switches for successively placing said road contacts in connection with said main conductor, of channeled bars surrounding said road-contacts but insulated therefrom, leads connected to said channeled bars and adapted to be placed in direct connection with said main conductor when the corresponding switch is closed, and electromagnetic devices arranged in said leads and adapted when energized to open or assist in opening said switches, substantially as described.

6. The combination with road-contacts 1, a main conductor 2, and switches each comprising a magnet-winding 3 connected with a road-contact and with a contact 3^a a magnet-core 4 on which said winding is coiled, a conductor 5 connected with said main conductor and with a contact 5^a and a switch-lever serving as an armature to said magnet-core and adapted when in its closed position to electrically connect said contacts 3^a and 5^a, of channeled bars 11, 11^a containing insulating material in which said road-contacts are embedded, leads 8 connected with the winding 3 between the corresponding cores 4 and contacts 3^a, and electromagnets 9 arranged in the leads 8 and adapted to assist in the opening of the corresponding switch-levers, substantially as described for the purpose specified.

7. The combination with road-contacts, a main conductor, and switches adapted to successively place said road-contacts in connection with said main conductor of channeled bars 11, 11^a containing insulating material in which said road-contacts are embedded, leads 8 connected with the winding 3 between the corresponding cores 4 and contacts 3^a, electromagnets 9 arranged in the leads 8 and adapted to assist in the opening of the corresponding switch-levers, and forward projections 7^a exposed in the roadway, each of said projections being arranged in proximity to a road-contact and connected with the channeled bar of the road-contact to the rear of it, substantially as described for the purpose specified.

591,707. LIGHT AND AIR PORT FOR SHIPS. THOMAS UTLEY, Liverpool, England. Filed Apr. 27, 1897. Serial No. 634,165. (No model.)

Claim.—1. In a ship's light and ventilator the combination of a fixed frame projecting inboard and having taper sides, guides at top and bottom of said frame, and a glass-holder constructed with pivots or lugs at top and bottom which slide in said guides, substantially as described.

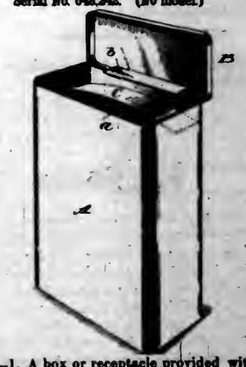


2. In a ship's light and ventilator, the combination of a fixed frame projecting inboard and having taper sides, guides at top and bottom of said frame, a glass-holder constructed with pivots or lugs at top and bottom which slide but cannot turn in said guides, a plate to limit the outward movement of the glass-holder, a flange at the inner end of the frame furnished with an india-rubber ring to make a tight joint with the glass-holder, and means for screwing the glass-holder against said flange, substantially as described.

3. In a ship's light and ventilator, the combination of a fixed frame having taper sides, a glass-holder which is adjustable to and fro in said frame, and a ventilator at the top of the frame, substantially as described.

4. In a ship's light and ventilator, the combination of a fixed frame having taper sides, a glass-holder which is adjustable to and fro in said frame, a grating-ventilator at the top of the frame, and an inclined shield H to prevent rain from beating inboard through the ventilator, substantially as described.

591,708. BOX OR RECEPTACLE FOR PULVERULENT OR GRANULAR MATERIALS. RALPH WALES, Washington, D. C. Filed Aug. 14, 1897. Serial No. 648,242. (No model.)

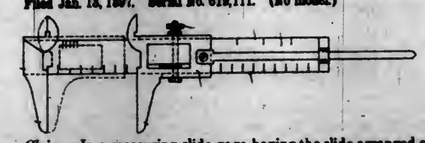


Claim.—1. A box or receptacle provided with a removable lid or cover and containing near its top a shelf or diaphragm distinct and separate from the lid or cover, fitting closely three sides of the box and bounded along its remaining edge by a slot or opening *a*, substantially as and for the purposes hereinbefore set forth.

2. A box or receptacle provided with a removable lid or cover and containing near its top a shelf or diaphragm distinct and separate from the cover, bowed in the direction of its length, closely fitting, convex side uppermost, three sides of the box, and bounded along its remaining edge by a slot or opening *a*, substantially as and for the purposes hereinbefore set forth.

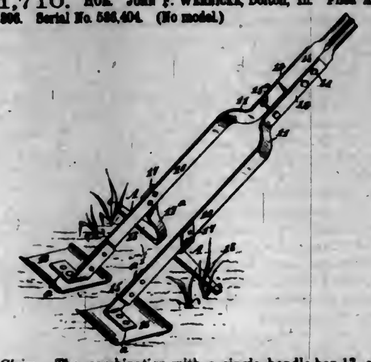
3. A box or receptacle containing near its top a shelf or diaphragm, distinct and separate from the cover, fitting closely three sides of the box, and bounded along its remaining edge by a slot or opening *a* in combination with a cover hinged to that side of the box opposite to the side on which the slot *a* is situated, and a hinge guard or shield *b* attached to and moving with the cover, substantially as and for the purposes hereinbefore set forth.

591,709. SLIDE-GAGE. EUGEN WEBER, Pforzheim, Germany. Filed Jan. 13, 1897. Serial No. 619,111. (No model.)



Claim.—In a measuring slide-gage having the slide arranged on a flat bar and provided with rearwardly-extending projections connected by a screw located behind the bar, the combination with said screw, of a two-legged flat spring forming an obtuse angle, and having its middle part bent inward so as to form a groove adapted to receive said screw said spring being located between the screw and the bar, and the legs of the spring being resting upon said bar, for the purpose as described.

591,710. HOE. JOHN F. WERNICKE, Dolton, Ill. Filed Apr. 6, 1896. Serial No. 586,404. (No model.)



Claim.—The combination with a single handle-bar 13, of two parallel elastic shank-bars 10, 10 bent inwardly at their upper ends and secured to opposite sides of the handle-bar by means of bolts, an adjusting-screw 15^a connecting the shanks below their connection with the handle, said shank-bars having runners at their lower ends adapted to bear upon the ground, and cutting-blades attached to the elastic shank-bars above the runners and extending downwardly, inwardly and outwardly, substantially as shown and described.

591,711. BELT OR BAND FOR DRIVING MACHINERY. JAMES WETHERILT and WILLIAM J. ARMITAGE, London, England. Filed Feb. 23, 1897. Serial No. 624,512. (No model.) Patented in England May 14, 1896, No. 10,314.

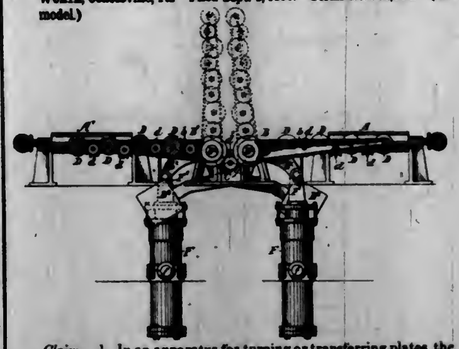


Claim.—1. A band for the transmission of power comprising a continuous metal strip of suitable width and length perforated at adjusted distances with series of holes in combination with recessed plugs of elastic material as rubber held in said holes and means for connecting the ends of said band substantially as set forth.

2. In a band for the transmission of power, longitudinal metal strips laid side by side and perforated with series of holes, other metal strips laid crosswise thereof perforated with series of holes corresponding to those in the longitudinal bands in combination with recessed plugs of elastic material as rubber and means for connecting the ends of the band substantially as set forth.

3. In a band for the transmission of power, longitudinal metal strips laid side by side and perforated at regular distances throughout the band, overlying parallel cross-strips having perforations corresponding to those in the underlying longitudinal strips and coinciding accurately therewith in combination therewith blocks of india-rubber fixed in said perforations and metal eyelet connections at the meeting ends of the bands, substantially as set forth.

591,712. PLATE-TURNER FOR ROLLING-MILLS. JOHN S. WORTH, Coatesville, Pa. Filed Sept. 1, 1896. Serial No. 604,554. (No model.)



Claim.—1. In an apparatus for turning or transferring plates, the combination of a platform pivoted at one side, with means for elevating the platform on the pivots, and one or more rows of driven rollers on said platform, substantially as described.

2. The combination in apparatus for turning plates, of the two platforms, a pivot at one side of each platform, and means for turning the platforms on their pivots so as to bring them up face to face, with a space between them when in a vertical position and for turning the platform carrying the plate past the center, whereby a plate carried by one platform can be transferred to the other platform, substantially as set forth.

3. The combination of the two platforms, pivots therefor, said pivots being arranged at the adjacent edges, independent mechanism for turning the platforms, a center bearing on which the plate rests, when turned from one platform to the other, substantially as described.

4. The combination in apparatus for turning plates, of the two platforms, a pivot at one side of each platform, the platforms being so arranged that when turned to a vertical position they will be face to face with a space between them, and independent means for raising and lowering each platform, so that the one carrying the plate can be turned past the center to transfer the plate to the other platform, substantially as described.

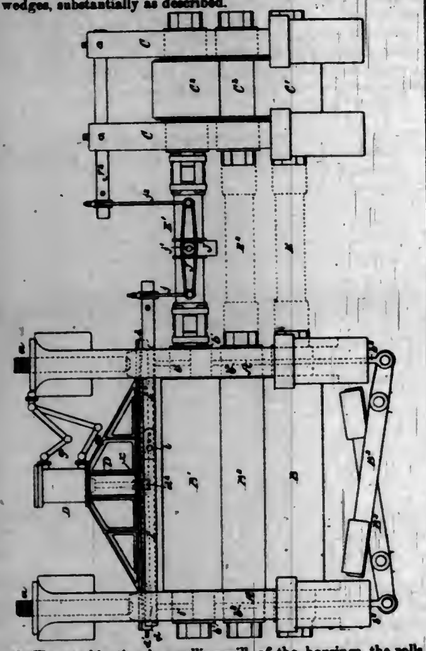
5. The combination of the delivery-table of a rolling-mill, rollers thereon, a platform consisting of a rock-shaft and a series of arms projected between the rolls of the delivery-table, means for elevating the platform on the pivots, a pivoted platform arranged adjacent to the aforementioned platform, and consisting of a rock-shaft and arms, rollers between the arms forming continuation of the delivery-table of the rolls, and means for operating the said platform, so that a plate can be turned from one portion of the delivery-table to the other, substantially as described.

6. The combination of the pivoted platform, means for turning the same on its pivots, a train of rollers on the platform, a second platform adjacent to the aforementioned platform, pivots therefor, and means for turning it on the pivot, a train of rollers on the platform, and means for operating the trains of both platforms, so that a plate can be shifted from one platform to the other, without turning, substantially as described.

7. The combination in an apparatus for turning or shifting plates, the same consisting of two platforms pivoted adjacent to each other, each platform made up of a series of arms mounted on a rock-shaft, rollers on each arm, geared entrain, a central shaft, gears on said shaft meshing with the trains on the several arms, and means for turning the platforms on their pivots, so that a plate can be either shifted from one platform to the other by setting the rollers in motion, or turned and shifted by turning the platforms on their pivots, substantially as described.

591,718. ROLLING-MILL. JOHN S. WORTH, Coatesville, Pa. Filed Nov. 21, 1896. Serial No. 613,063. (No model.)

Claim.—1. The combination in a rolling-mill, of the housings, the rolls, bearing-boxes for the rolls, adjusting mechanism, a frame resting upon the upper boxes of the upper roll, wedges interposed between the frame and the adjusting mechanism, with means for withdrawing the wedges, substantially as described.



2. The combination in a rolling-mill, of the housings, the rolls, bearing-boxes for the rolls, a frame mounted on the upper boxes of the upper roll, a block above the frame, adjusting-screws, wedges mounted between the frame and the blocks, a fluid-cylinder mounted on the frame, and a piston therein connected to the wedges, substantially as described.

3. The combination of the housings, the rolls, the lower boxes for the upper roll, mechanism for supporting these boxes independent of the lower rolls, a frame mounted above the upper rolls and supported by the lower boxes of the said upper roll, wedges carried by the frame and means for withdrawing the wedges and adjusting mechanism for regulating the distance between the rolls, substantially as described.

4. The combination of the housings, the rolls, boxes for the upper roll, means for supporting said boxes independently of the lower rolls, a frame extending over the boxes of the upper roll, levers adapted to carry said frame, bars on which said levers rest, said bars extending to the lower boxes of the upper roll, bearing-blocks, adjusting-screws, wedges mounted between the bearing-blocks and the frame, a cylinder, a piston and its rod, and rods connecting the levers to the head of the piston-rod, substantially as described.

5. The combination of the housings, the rolls, a frame supported above the rolls and having means for releasing the rolls in the event of their sticking, driving-gears, spindles connecting the driving-gears to the rolls, the upper spindle, having a saddle, a lever pivoted to the saddle, one end of said lever being connected to a fixed point, levers resting upon the boxes of the upper roll and supporting the frame D and connected to the lever supporting the spindle, substantially as described.

6. The combination of the roll-housings A, the rolls mounted thereon, a frame D having wedges, a cylinder, its piston connected to the said wedges, means for controlling the flow of fluid into the cylinder and compound levers I, I', at each side of the frame resting upon the boxes of the upper roll, a spindle E', a saddle J' therefor, two levers mounted on the saddle one arm of each lever being connected to a lever I', the other arm being connected to a fixed point, substantially as described.

7. The combination of the roll-housings A, the rolls mounted thereon with suitable boxes and supports, a frame D resting on the upper boxes of the upper rolls having means for releasing the rolls and the line b^3 between the frame D and the top box b^3, substantially as described.

8. The combination of the roll-housings, rolls mounted thereon, boxes for the rolls, the upper boxes of the top rolls having concaved upper surfaces, circular liners resting in the concaves of the said boxes, a frame mounted on the liners, wedges on the frame, means for moving said wedges with adjusting mechanism above the wedges, substantially as described.

591,714. WINDOW-SCREEN. EDWARD A. WORTHEN, Burlington, Vt. Filed Mar. 27, 1897. Serial No. 629,531. (No model.)



Claim.—1. The combination of a window-sash, a transversely-movable screen carried thereby and held normally in extended position, means for automatically retracting the screen, and a lock adapted to engage the screen automatically when retracted, substantially as shown and described.

2. The combination of the upper sash, a screen movable transversely thereunder, the lower sash, devices carried by the lower sash for automatically retracting the screen from engagement with said sash, and a lock carried by the upper sash for engaging and holding retracted the screen, substantially as shown and described.

3. The combination of the upper sash, a spring-actuated screen movable on the under side thereof, the lower sash which the screen is adapted to normally engage, and downwardly-inclined guides carried by the lower sash adjacent its lower rail for engaging and retracting the screen to enable it to freely pass said rail, substantially as shown and described.

4. The combination of the upper sash, a spring-actuated screen movable transversely on the under side thereof, the lower sash which the screen is adapted to normally engage, and guides having vertical lower portions adapted to be secured to the outer surface of the bottom rail of the lower sash and having their upper ends inclined inward toward the glass of the lower sash, the guides being adapted to engage the screen and retract the same so as to freely pass said bottom rail, substantially as shown and described.

5. The combination of the upper sash having the bottom rail thereof formed with a vertical bolt-passage, a spring-actuated screen slidable on the under side of the sash and formed with an opening adapted to aline when the screen is contracted with the bolt-opening and be engaged by the bolt, thus holding the screen contracted, substantially as shown and described.

591,715. COTTON-CHOPPER. DAVID A. YARBROUGH, Pettey, Ala. Filed July 3, 1897. Serial No. 643,373. (No model.)

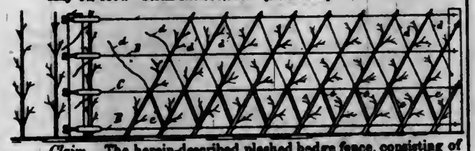


Claim.—1. In a cotton-chopper, the combination of the runners, the front cross-bar and rear cross-bar secured to said runners, a transversely-arranged rock-shaft journaled to the runners at a point between the front and rear cross-bars, plow beams and handles secured to said rock-shaft, transversely-arranged bars secured to the downward and forwardly curved rear ends of said plow-beams, chopper-blades detachably secured at intervals to and between said bars, standards connecting said bars with the plow-handles and braces connecting said handles with the plow-beams, and a vertically-adjustable bracket supported on the rear cross-bar and having a seat for the cross-bar of the plow-handles to support the choppers at any required elevation, substantially as described.

2. In a cotton-chopper, the combination of the runners, the front and rear cross bars, the transversely-arranged rock-shaft, the plow-beams and the handles secured to said rock-shaft, the handle cross-bar, transversely-arranged bars secured to the downward and forwardly curved rear ends of the plow-beams, the chopper-blades detachably secured to and between the said bars, an upright on the rear cross-bar, and a bracket vertically adjustable in a slot of said upright and provided at the top with a seat for the cross-bar of the handles, to support the choppers at any required elevation, substantially as described.

3. In a cotton chopper, the combination of the runners connected by a front cross-bar and a rear cross-bar, the transversely-arranged rock-shaft, the plow beams and handles secured to said rock-shaft, transversely-arranged bars secured to the rear ends of the plow-beams, a series of chopper-blades detachably secured to said bars, a vertically-adjustable bracket secured on the rear cross-bar and provided with a seat to support the plow-handles and hold the chopper-blades at any required elevation, a lever fulcrumed to a standard on the rear cross-bar and extended to the driver's seat, and a rod connecting said lever with one of the plow-beams, substantially as described.

591,716. HEDGE FENCE. LORIN YOUNG, Dayton, Ohio. Filed May 14, 1897. Serial No. 636,526. (No model.)



Claim.—The herein-described plashed hedge fence, consisting of posts, a series of horizontal wires stretched between and secured to said posts along a line of plants, and a series of looped wires embracing the two lowermost horizontal wires and a plurality of plants to hold said plants in an inclined position and a secondary wire extending from said looped wire and engaging the upper courses of horizontal wires to confine the plants thereto, said secondary wires being securely fastened to the topmost horizontal wire, substantially as described.

591,717. HEDGE FENCE. LORIN W. YOUNG, Dayton, Ohio. Filed June 30, 1897. Serial No. 642,961. (No model.)



Claim.—1. A plashed hedge fence consisting of a line of plants supported between a series of horizontal wires on one side, and a wire-netting on the other side, fastening-ties securing the netting to the horizontal wires in rear of the inclined plants, substantially as specified.

2. A plashed hedge fence composed of a series of horizontal wires and a wire-netting tied to the horizontal wires, a line of plants between said horizontal wires and netting and supported thereby, substantially as specified.

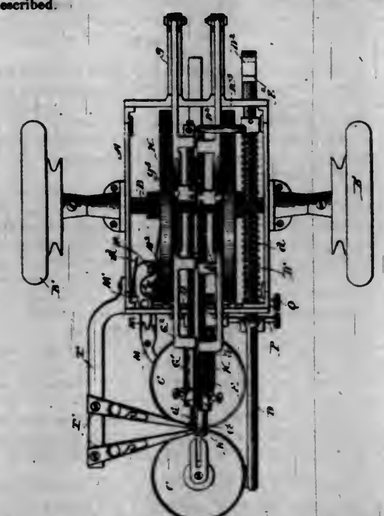
3. A plashed hedge fence consisting of a series of horizontal wires, a strip of netting connected to the two lower horizontal wires, hedge plants inclined between said wires and netting and held by the horizontal wires on one side and the engagement of the branches along the base of the plants with the wire-netting on the opposite side, substantially as specified.

591,718. SEWING-MACHINE. DAVID H. AGAN and JESSIE AGAN, New York, N. Y. Filed Feb. 23, 1897. Serial No. 624,505. (No model.)

Claim.—1. In a sewing-machine, the combination with the work holding and feeding mechanism, driving mechanism and reciprocatory needle-bar, of two independently supported and guided loopers cooperating with the loop cast off by the needle and spreading the same to encircle the path of the needle on both sides of the fabric whereby the needle is caused to pass through the loop on both sides of the fabric and independent operating mechanism interposed between said loopers and the driving mechanism; substantially as described.

2. In a sewing-machine, the combination with the work holding and feeding mechanism, the reciprocatory needle-bar and the driving mechanism, of cooperating independently supported and guided loopers engaging the same loop cast off by the needle and spreading the same to encircle the path of the needle on both sides of the fabric, of independent looper-carriers for said loopers and independent cams on the driving mechanism for operating said looper-carriers; substantially as described.

3. In a sewing-machine, the combination with the work holding and feeding mechanism, reciprocatory needle-bar and drive-shaft of the secondary looper-carrier, a link interposed between said looper-carrier and frame of the machine to permit of a bodily horizontal reciprocation and vertical oscillation of said secondary carrier, cams on the drive-shaft for moving said secondary carrier vertically and horizontally, a primary looper-carrier journaled in said secondary carrier to oscillate on its longitudinal axis, a cam and an arm on said primary carrier cooperating with the cam whereby the primary carrier is oscillated and a looper mounted in said carrier; substantially as described.



4. In a sewing-machine, the combination with the work holding and feeding mechanism, the reciprocatory needle-bar and drive-shaft, of the secondary looper-carrier pivotally supported on a link at one end, a primary looper-carrier journaled to oscillate in said secondary carrier, a cam on the drive-shaft for reciprocating the looper-carriers horizontally, a cam-disk on the drive-shaft having cam-grooves therein and projections on the primary and secondary looper-carriers cooperating with said grooves to move said looper-carriers vertically and to oscillate the primary looper-carrier on its axis and a looper; substantially as described.

5. In a sewing-machine, the combination with the horizontally-arranged work holding and feeding disks, reciprocating needle-bar and transverse driving-shaft, of a secondary looper-carrier and link pivotally supporting said looper-carrier at one end, vertically-arranged bearing-surfaces on said secondary looper-carrier, a grooved cam on the driving-shaft with which said vertically-arranged bearing-surfaces cooperate to reciprocate the looper-carrier horizontally, a primary looper-carrier journaled in the secondary looper-carrier to oscillate on its longitudinal axis, a disk on the drive-shaft having cam-grooves therein and projections on the primary and secondary looper-carriers respectively for moving the secondary looper-carrier vertically and oscillating the primary looper-carrier on its longitudinal axis; substantially as described.

6. In a sewing-machine, the combination with the horizontally-arranged work holding and feeding disks, one of said disks being movable with relation to the other and a needle-bar and driving mechanism substantially as described, of a looper for spreading the loop cast off by the needle, an operating mechanism therefor including a looper-carrier adapted to be moved abnormally, a feed-disk-moving mechanism and connection between said feed-disk-moving mechanism and looper-carrier whereby when the feed-disks are separated the looper-carrier is moved in unison with the movable disk; substantially as described.

7. In a sewing-machine, the combination with the fixed and movable work holding and feeding disks, the carrier for the movable disk and means for moving said carrier and disk, of a reciprocatory needle-bar, a looper and looper-carrier, driving mechanism for said needle-bar and looper-carrier and an arm on the disk-carrier cooperating with the looper-carrier to move said parts in unison when the disks are separated; substantially as described.

8. In a sewing-machine, the combination with the horizontally-arranged work holding and feeding disks, one of said disks being movable with relation to the other, a disk support or carrier with means for moving the same, a driving-shaft, a reciprocatory needle-bar driven from said shaft, of a looper and primary looper-carrier

held in working position by spring-pressure, mechanism for operating said looper-carrier and an arm on the feeding-disk support or carrier coöperating with the looper-carrier to move the same when the feeding-disks are separated; substantially as described.

9. In a sewing-machine, the combination with the stitch-forming mechanism and the work holding and feeding disks, of a reciprocating feeding-pawl coöperating with one of said disks to rotate the same and a lock engaging the disk for holding the same against retrograde movement, with connections between said lock and the driving mechanism, whereby the lock is moved out of contact with the disk by the driving mechanism during the time the feeding-pawl is operative; substantially as described.

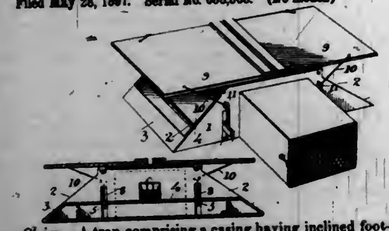
10. In a sewing-machine, the combination with the stitch-forming mechanism, driving-shaft and work holding and feeding disks, of a feeding-pawl coöperating with one of said disks, a lock for holding said disk against retrograde movement and cams rotated by the drive shaft and coöperating with the feeding and locking mechanism to alternately throw the same into and out of engagement with the disk: substantially as described

11. In a sewing-machine, the combination with the drive-shaft, stitch-forming mechanism and rotary work holding and feeding disks, of a feeding-pawl coöperating with one of the disks, an operating mechanism for said pawl, a cam on the drive-shaft coöperating with said pawl operating mechanism, a locking-pawl coöperating with the disk to prevent retrograde movement thereof, an operating-lever controlling said locking-pawl and a cam carried by the drive-shaft coöperating with said operating-lever to release the pawl when the feeding mechanism is operative; substantially as described.

12. In a sewing-machine, the combination with the stitch-forming mechanism, drive-shaft and rotary work holding and feeding disks, of a pivoted pawl-carrier, a pawl pivotally mounted on said carrier, an adjustable stop for limiting the movement of the pawl-carrier, a cam on the drive-shaft, a spring-pressed-pawl operator having a projection lying in the path of said cam and an adjustable stop for limiting the movement of said pawl-operator; substantially as described.

13. In a sewing-machine, the combination with the stitch-forming mechanism, drive-shaft and work holding and feeding disks, a pawl-carrier pivoted concentrically with one of said disks, a pivoted pawl mounted on said carrier and coöperating with the disk, a spring for holding the pawl-carrier in normal position, a stop for limiting the movement of the pawl-carrier to regulate the extent of feed, a pawl-operating slide coöperating with the rear end of the pawl and controlling its engagement with the disk, a cam on the drive-shaft and a projection on the pawl-operating slide coöperating with said cam; substantially as described.

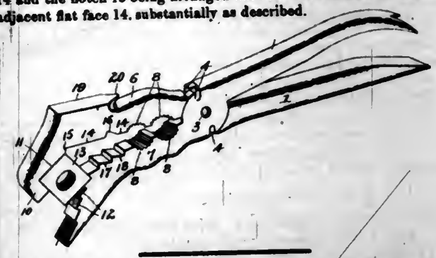
591,719. ANIMAL-TRAP. JAMES A. ALLEN, South Arm, Mich. Filed May 28, 1897. Serial No. 638,563. (No model.)



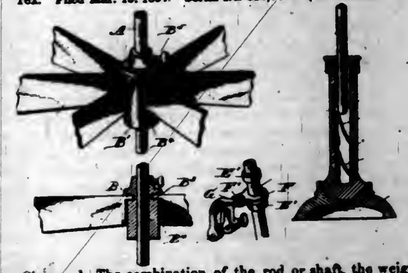
Claim.—A trap comprising a casing having inclined foot-boards, and provided with a prison having an inwardly opening door, a movable floor for said casing provided with rods that project through vertical slots in the side of the casing, doors hinged to the upper side of the casing and provided with weights which normally hold the doors open and the floor elevated, and cords connected to the rods and to the doors and passing through eyes secured in the sides of the casing above the slots, whereby when the weight of the animal is placed upon the floor, it will lower the doors and close the entrance to said casing, substantially as set forth.

591,720. COMBINATION-TOOL. CHARLES J. ARMSTRONG, Austin, Tex., assignor of one-half to Charles Wolf, same place. Filed Mar. 25, 1897. Serial No. 629,267. (No model.)

Claim.—A device of the class described comprising the pivoted bars or members provided with jaws having angular extensions at their terminals, one of the jaws being provided with a continuous curved series of notches 12, 17 and 18 to receive a corner of a nut, and the other jaw 6 being provided at the extension with a flat inner face 11 and an inwardly-extending lug 10, forming a shoulder to engage the outer edge of a nut, said jaw 6 being also provided at its inner portion with the flat nut-engaging faces 14 and having the notches 15 and 16, the notch 16 being interposed between the faces 14 and the notch 15 being arranged between the flat face 11 and the adjacent flat face 14, substantially as described.



591,721. FAN ATTACHMENT. ISRAEL A. BAILEY, Farmer's Branch, Tex., assignor of one-half to Lambert F. Fouts, Trinity Mills, Tex. Filed Mar. 13, 1897. Serial No. 627,302. (No model.)



Claim.—1. The combination of the rod or shaft, the weighted base, a clamp, adapted to be secured to a chair or cradle, a plate through which said shaft passes, a fan secured on said shaft, having its blades hinged at their inner, upper corners, and means for rotating the fan actuated by the rocking of the chair or cradle, substantially as set forth.

2. The combination of a weighted base, having a curved groove in its upper face, a socket connected to said base by a knuckle-joint and provided with spiral grooves in its interior, a shaft fitted in said socket, having tangs to engage in said grooves, a clamp adapted to be secured to a chair or cradle, a ring-plate, through which the shaft passes, hinged to said clamp, nuts threaded on the shaft above and below said plate, and a fan adjustably secured to the rod or shaft, substantially as set forth.

591,722. MACHINE FOR MIXING DOUGH. JACOB BALLIN, Scranton, Pa. Filed June 21, 1897. Serial No. 641,637. (No model.)



Claim.—1. The combination of a frame or support, an arm connected thereto, a roller-truck mounted to reciprocate upon guides of the said arm, a jaw-piece journaled or pivoted in the said truck to turn in a horizontal plane, a lever pivoted to said jaw-piece to move in a vertical plane, and a mixing-paddle attached to said lever, substantially as specified.

2. The combination with a suitable base or support, an arm pivoted thereto and having guides, a roller-truck mounted to reciprocate upon said guides, a jaw-piece or arm pivoted in said truck to swing in a horizontal plane, a lever pivoted to said jaw-piece or arm to move in a vertical plane, a mixing-paddle connected to said lever, and a mixing bowl or vessel supported upon said base beneath the said lever, substantially as specified.

3. The combination with a base or support containing a flour bin or drawer, a mixing bowl or vessel secured to the top of said base or support, and an arm pivoted to said base or support and having guides, of a roller-truck mounted to reciprocate upon said guides, a jaw-piece or arm pivoted to said truck to turn in a horizontal plane, a lever pivoted to said jaw-piece or arm to move in a vertical plane, and a mixing-paddle connected to said lever, substantially as specified.

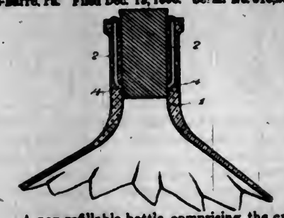
4. The combination with a frame or support adapted to receive and hold thereon a bowl or other vessel, and with an arm pivotally connected to the said frame or support and projecting beyond the same when in operative position, said arm having a guide thereon, of a sliding part mounted on said arm to reciprocate on said guide toward and away from the frame or support, a lever loosely connected to said sliding part to move both horizontally and vertically, and a paddle carried by said lever and arranged to operate within said bowl or vessel, substantially as specified.

591,723. SHUTTER-FASTENER. JOHN RANKIN, Providence, R. I. Filed July 21, 1897. Serial No. 645,411. (No model.)



Claim.—A shutter or blind fastener, comprising a threaded sleeve provided at one end with an integral collar having a projecting slotted stop-lip, said sleeve being formed of two semicylindrical sections provided with inwardly-projecting lugs, a transverse pin or bolt extending through said lugs and sides of the sections and uniting the same, a fastener consisting of a shank pivoted to said bolt and provided at each end with a locking-head, and a pawl or latch pivoted to and operating in the slot of said locking-lip and adapted to engage the inner head of the fastener to hold it locked, substantially as described.

591,724. NON-REFILLABLE BOTTLE. GEORGE F. BARRETT, Wilkes-Barré, Pa. Filed Dec. 19, 1896. Serial No. 616,261. (No model.)

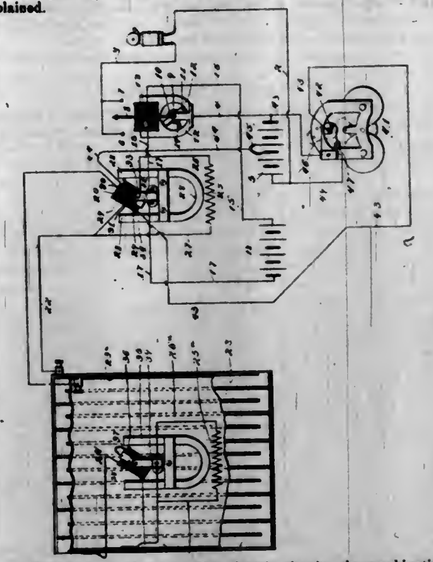


Claim.—A non-refillable bottle, comprising the cylindrical neck 1, having its mouth terminating in a horizontal plane flange and the walls of the neck formed with vertical parallel orifices 2 2, the lower ends 4 4, of which come inwardly and communicate with the passage in the neck, in combination with the removable cork 6, adapted to close the lower ends 4 4 of said vertical parallel orifices 2 2, the upper ends of which are then sealed with melted glass, substantially as shown and described.

591,725. PROTECTING ALARM-CIRCUIT. IRVIN H. BARRICLOW, Dallas, Tex. Filed June 22, 1896. Serial No. 596,506. (No model.)

Claim.—1. In a device for protecting electric circuits, the combination of a suitable alarm, an electromagnetic device controlling said alarm and arranged to be held normally inoperative by a current of certain intensity, a circuit including both the alarm-actuating device and the distant object to be protected pole-changers located in said circuit at the station and at the distant object respectively, resistances adjacent to the respective pole-changers and adapted to be alternately introduced into the said circuit, and means for actuating the pole-changers synchronously as and for the purposes set forth.

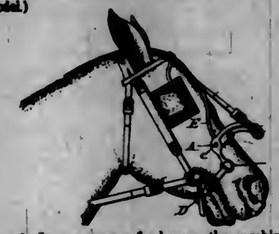
2. In a device for protecting electric circuits, the combination of an alarm or equivalent indicator, a normally open circuit controlling same, a circuit-closer interposed in said alarm-circuit, an electromagnet combined with said circuit-closer so as to keep the same normally open but permit it to close upon a change taking place in the current passing through said magnet, a line-circuit including said electromagnet, and leading to the distant point to be protected, a resistance arranged in shunt with said line-circuit, a pole-changer having a local circuit for actuating it and combined with the line-circuit in such manner as to reverse the current therethrough and to simultaneously cut in and out the resistance arranged in shunt therewith, a pole-changer located at the distant point to be protected and actuated by alternations on the line-circuit, and a resistance at said distant point alternately cut in and out by said pole-changer; the pole changers being synchronous in action and the two resistances being equal and introduced alternately into the line-circuit as explained.



3. In a device for protecting electric circuits, the combination of an alarm device or indicator held normally inactive by a current of constant measure and duplicate sets of apparatus located respectively at the alarm-station and at the distant point to be protected and each comprising a resistance, contacts for cutting said resistance alternately in and out and synchronously but oppositely vibrating circuit-closers moving back and forth between the two contacts, to alternately effect changes in the line-circuit in continuous operation, such changes being the same in character and together maintaining the constancy of the current which controls the alarm device.

4. In a device for protecting electric circuits, the combination of an indicator held normally inactive by a constant current over the circuit to be protected, and means for detecting interference with said circuit consisting of two resistances located respectively at the indicator-station and at the distant point, a pole-changer at the distant station for alternately cutting in and out the resistance there, a pole-changer at the indicator-station for cutting in and out the resistance there alternately with the resistance at the distant station, and also simultaneously reversing the current over the line-circuit, a clock-work or equivalent mechanism having a constantly-vibrating part, wires connecting the respective ends of the local pole-changer with the middle point of a battery and with the constantly-vibrating part, and contacts coöperating with said vibrating part and connected respectively with the opposite poles of said battery, substantially as and for the purposes set forth.

591,726. GOVERNOR OR CHIN-REST FOR HORSES. CHARLES S. BAUM, Williamsport, Pa. Filed Jan. 27, 1897. Serial No. 620,915. (No model.)

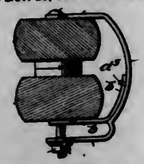


Claim.—1. In a governor for horses, the combination with the nose-band thereof having a spring within the same, of angular levers pivotally connected to the nose-band, said connection being at and within the angle of said levers, overdraw-rings on said levers for attachment to the overdraw or check, and chin-strap rings on the levers for attachment of the chin-strap, so that the pressure on the chin-strap and overdraw will be uniform.

2. In a governor for horses, the combination with the angular

levers thereof, of a nose-band pivotally connected to and lying within said levers, the pivotal connection being at the angle of said levers, rings on each of the free ends of the levers for attachment of the overdraw and chin-rest straps, and face-pieces connected with the nose-band, so that the nose-band may be properly adjusted upon the horse.

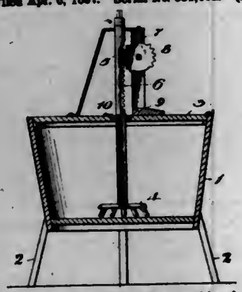
591,727. WHIFFLETREE-FASTENING. WALTER H. BAYLEY, Peacham, Vt. Filed Nov. 18, 1896. Serial No. 612,602. (No model.)



Claim.—1. The combination with a cross-bar, a whiffletree, and a bolt through said cross-bar and whiffletree, of a plate carried by the cross-bar, a brace-arm having an opening therethrough projecting from said plate, a plate having a lug thereon engaging the opening in the brace-arm, and spring-arms extending from said plate, said spring-arms engaging the said bolt, substantially as described.

2. The combination with a cross-bar, a whiffletree, and a bolt through the cross-bar and the whiffletree, of a plate upon the cross-bar, a brace-arm extending from said plate, said brace-arm being provided with an opening, a yoke of spring material having a lug thereon engaging the opening in the brace-arm, the said yoke having arms provided with openings through which the said bolt passes, substantially as described.

591,728. WASHING-MACHINE. WILLIAM BAYLIS, Winnipeg, Canada. Filed Apr. 6, 1897. Serial No. 631,002. (No model.)

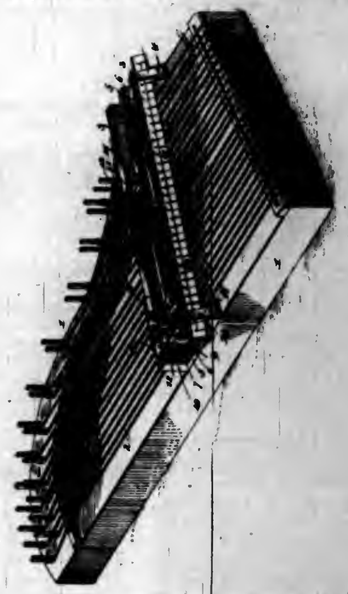


Claim.—In a washing-machine, the combination with the tub or suds-box and a removable cover provided with a central aperture, of a pounder, the shaft of which for a portion of its length is polygonal in cross-section, and provided with a vertical row of teeth, a collar loosely mounted to rotate in the central aperture of the cover, the opening through said collar corresponding in shape with the cross-section of the shaft, a latch pivoted to the cover and adapted to engage the collar and lock it against rotation, a mutilated-gear wheel suitably supported on said cover and engaging the teeth of said shaft, a crank by means of which either the pounder-shaft may be rotated to impart a rotary motion to the pounder or the shaft of the mutilated gear rotated to impart a vertical reciprocating motion to the pounder, substantially as set forth.

591,729. AUTOHARP. WILHELM B. BERNER, Phillips, Wis., assignor of one-half to W. A. Pridemore, Ashland, Wis. Filed Aug. 8, 1896. Serial No. 602,141. (No model.)

Claim.—1. The combination with a stringed instrument, of a slide mounted for vertical swinging movement and horizontal sliding movement in a direction transverse to the strings, parallel fixed and horizontally-movable damper-bars carried by the slide and having their cushions arranged in contact with the strings when the slide is in its normal position, and means, consisting of a normally-interlocking rack and pointer, one of which is carried by and movable with the slide while the other is arranged in a fixed position contiguous to the free edge of the slide, for holding the slide at the desired adjustment, the vertical swinging movement of the slide being adapted to allow longitudinal change of adjustment to cause engagement of the pointer with different teeth of the rack, substantially as specified.

2. The combination with a stringed instrument, of a slide mounted for vertical swinging movement and horizontal sliding movement in a direction transverse to the strings, parallel fixed and horizontally-movable damper-bars carried by the slide and having their cushions arranged in contact with the strings when the slide is in its normal position in which it is yieldingly held, a fixed rack arranged near the free edge of the slide, and a pointer fixed to the slide to engage the rack, said slide being adapted to be raised to allow change of adjustment of the pointer in the rack, substantially as specified.



3. The combination with a stringed instrument, of a slide mounted for horizontal and vertical movement, damper-bars carried by the slide and arranged normally in contact with the strings, and a pointer carried by the slide to engage a fixed rack, whereby when the slide is elevated to change the adjustment of the pointer with relation to the rack the damper-bars are removed from contact with the strings, substantially as specified.

4. The combination with a stringed instrument, of a parallel-sided guide-frame, a slide having a main damper-bar arranged between said side bars, arms carried by the said damper-bar and provided with hinge-eyes mounted to slide upon elongated hinge-rods, and a pointer carried by the slide to engage a fixed rack, substantially as specified.

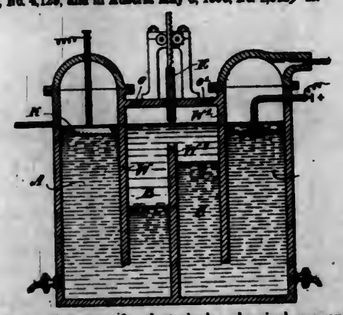
5. The combination with a stringed instrument, of a stationary guide-frame having front and rear parallel bars, a slide having damper-bars arranged between said front and rear bars, the slide having a hinged connection with the rear bar, a pointer at the front side of the slide to engage a fixed rack on the front bar, and a reversible longitudinally-movable scale-bar fitted in keepers on the front bar and traversed by said pointer, the opposite sides of said scale-bar having respectively numerical and letter scales, substantially as specified.

6. The combination with a stringed instrument, of a slide mounted for movement transverse to the strings, means for securing the slide at the desired adjustment, fixed and movable damper-bars carried by the slide, the movable damper-bars being yieldingly held in their normal positions, and operating devices for the movable damper-bars including a rotary handle or knob operatively connected with the damper-bars, substantially as specified.

7. The combination with a stringed instrument, of a slide mounted for movement transverse to the strings, means for securing the slide at the desired adjustment, fixed and movable damper-bars carried by the slide, the movable damper-bars being yieldingly held in their normal positions, a rotary handle or knob, and an index arranged in operative relation with the pins carried by the damper-bars, substantially as specified.

8. The combination with a stringed instrument, of a slide mounted for movement transverse to the strings, means for securing the slide at the desired adjustment, including a stationary rack and a pointer carried by the slide, fixed and movable damper-bars carried by the slide, the movable damper-bars being yieldingly held in their normal positions, a rotary handle or knob operatively connected with the movable damper bars, and a holding-arm having a stud or ear arranged in operative relation with the teeth of the rack and adapted to engage the same to secure either of the movable damper-bars in its adjusted position, substantially as specified.

591,730. PROCESS OF AND APPARATUS FOR ELECTROLYZING. WILLY BEIN, Berlin, Germany. Filed June 15, 1896. Serial No. 595,681. (No model.) Patented in Germany Oct. 22, 1893, No. 84,547; in England Nov. 12, 1894, No. 21,338; in France July 20, 1895, No. 236,203; in Belgium July 20, 1895, No. 116,863; in Hungary Oct. 31, 1895, No. 4,129, and in Austria May 3, 1896, No. 1,812/46.



Claim.—1. A process for electrolyzing chemical compounds and gaining the products of decomposition produced by the electrolysis which consists in filling an electrolytic cell, the passage of the current through which, from the anode to the cathode, is free from obstruction, by a porous diaphragm with the salt solution to be decomposed, allowing the chemically-different layers formed by the electrolysis to remain undisturbed and unaltered as long as the current is passing through the cell, then feeding fresh solution to the intermediate undecomposed layer of salt solution, which should be retained at a certain depth, and withdrawing the uppermost and lowermost layers of decomposed products at a point outside the influence of the path of the current, in such proportion as to retain a predetermined position of the respective layers and at the close of the electrolysis dividing the layers by means of interposed partitions said partitions being mechanically impervious to the liquid substantially as described.

2. A process for electrolyzing chemical compounds, which consists in first producing in an electric cell, the passage of the current through which, from the anode to the cathode is free from obstruction by a porous diaphragm, a layer of non-decomposed solution, passing an electric current through the cell and allowing a layer of the respective components into which the said solution is decomposed to form, one above and one below the said non-decomposed layer feeding fresh solution to the latter layer and withdrawing the decomposed anodic and cathodic solutions in such proportions as to retain approximately unaltered the layers formed by the electrolysis and finally at the close of the electrolysis substituting an actual mechanical partition for the non-decomposed layer, substantially as described.

3. The combination of a receptacle having a series of vertical partitions, arranged as regards the interior of the vessel or receptacle so as to allow the passage of the liquid above or below the said partition-walls, horizontally-disposed electrodes, arranged in different vertical planes, a feed-pipe at a point between said electrodes for the fresh solution and outlet-pipes above and below said electrodes for the decomposed layers said feed and outlet pipes having spray-heads, and means for passing the current to the electrodes substantially as described.

591,731. MAIL-BAG HOLDING AND CATCHING DEVICE. CHARLES M. BENNETT, Zanesville, Ohio, CHARLES LIEBSTROM, Altoona, Pa., and WILLIAM R. MCKEEN, Jr., Terre Haute, Ind. Filed Feb. 15, 1897. Serial No. 623,532. (No model.)



Claim.—1. The combination of the hook and hanger-bar of a mail bag-catching device with an arm having a hook facing in the opposite direction from the catcher-hook and constructed for the support of a mail-bag, said arm being perforated for the passage of the hanger-bar, in combination with a U-bolt and nuts whereby the supplementary arm is confined to the bend or bow of the catcher-hook, substantially as specified.

2. The combination of the hook and hanger-bar of a mail-bag catcher, with an arm having a hook facing in the opposite direction from the catcher-hook and constructed for the support of a mail-bag, said arm being perforated for the passage of the hanger-bar and bent so as to lie snugly against the outside of the bend or bow of the catcher-hook, a U-bolt engaging said bend or bow of the catcher-hook and having legs passing over the supplementary arm and through a backing plate, and nuts applied to said legs of the bolt outside of said plate, substantially as specified.

3. The within-described mail-bag holder for mail-cars, said holder consisting of a yoke comprising opposite side legs and a connecting bottom bar, said side legs being pivoted at their upper ends in hangers on the car side on opposite sides of the doorway, and the connecting bottom bar being provided with means for receiving and retaining the eye at the bottom of a mail-bag, substantially as specified.

4. The within-described mail-bag holder for mail-cars, said holder consisting of a yoke comprising opposite side legs and a connecting bottom bar, said side legs being pivoted at their upper ends in hangers secured to the car sides on opposite sides of the doorway and said connecting bottom bar having hooks projecting in opposite directions therefrom and each adapted for the reception and retention of an eye at the bottom of a mail-bag, substantially as specified.

5. The combination of a mail-bag holder consisting of a yoke having opposite side legs pivoted at their upper ends in hangers on the car side on opposite sides of the doorway, and a connecting bottom bar provided with means for receiving and retaining an eye at the bottom of a mail-bag, and elastic retaining means for holding said yoke in position against the car side, substantially as specified.

6. The combination of the mail-bag holder comprising opposite side legs pivoted at their upper ends in brackets on the car side on opposite sides of the doorway, and a lower connecting-bar provided with means for receiving and retaining an eye at the bottom of a mail-bag, and spring-clips mounted upon the car side at each side of the doorway and engaging said side legs of the yoke when the latter are drawn in against the car side, substantially as specified.

7. A mail-bag crane consisting of an upright frame composed of opposite tubular bars, placed parallel with the track, tubular transverse brace-bars, tubular rear braces extending outwardly and downwardly from the upright tubular bars of the crane, fittings whereby said tubular bars are joined together where they meet, and bag-supporting arms or levers hung between the upright bars of the crane, substantially as specified.

8. A mail-bag crane consisting of upright tubular bars, a transverse brace occupying a position in front of said upright bars, short end connections and fittings whereby said bars are connected together, substantially as specified.

9. A mail-bag crane consisting of upright tubular bars connected together at their upper ends, and a bag-supporting lever hung so as to swing between said upper ends of the bars, substantially as specified.

10. A mail-bag crane consisting of upright tubular bars bent toward each other at their upper ends, Y-fittings to which said upper ends of the bars are connected and a bag-supporting lever swinging between said Y-fittings, substantially as specified.

11. The combination of the upright bars of a mail-bag crane, fittings to which said bars are connected, a tube passing through said fittings, and a bag-supporting lever hung upon said tube between said fittings, substantially as specified.

12. The combination of the upright bars of a mail-bag crane, fittings to which the upper ends of said bars are secured, a tube passing through said fittings, a bolt passing through said tube and having caps confined by nuts against the ends of said tube, and a bag-supporting lever hung to the tube between the fittings, substantially as specified.

13. The combination of the upright bars of a mail-bag crane, fittings to which the upper ends of said bars are connected, a bag-supporting lever hung between said fittings, and shoulders formed upon the hub of the lever and upon the fittings, and serving to limit the movement of the lever, substantially as specified.

14. A mail-bag crane having a bag-supporting lever hung thereto so as to swing in a vertical plane, and a bag-holding arm pivoted to said lever so as to swing in a plane at right angles thereto, said bag-holding arm being such that when projected in line with the lever it will cause a preponderance of weight on that arm of the lever carrying the same, but when swung around toward the fulcrum of the lever will deprive said arm of its preponderance of weight, substantially as specified.

15. The combination of a mail-bag crane, with a structure comprising a bar having thereon a boss for the reception of a mail-bag-holding arm and oppositely-inclined heads for the reception of mail-bag-catching hooks, and means for mounting said bar upon the frame of the crane so that it can swing vertically, substantially as specified.

16. The combination of a mail-bag crane, with a structure comprising a tubular bar having thereon a boss for the reception of a bag-holding arm, and an inclined head or heads for the reception of a bag-catching hook, blocks mounted upon the frame of the crane, and a bolt passing through said blocks and through said tubular bar and serving to pivot the latter to the crane, substantially as specified.

17. The combination of a mail-bag crane, with a swinging structure comprising a tubular bar having thereon a boss for the reception of a bag-holding arm and one or more inclined heads for the reception of bag-catching hooks, blocks secured to the frame of the crane, a bolt passing through said blocks and through the tubular bar and elastic buffers interposed between said blocks and the ends of said tubular bar, substantially as specified.

18. A mail-bag crane mounted upon elastic supports, substantially as specified.

19. A mail-bag crane having upright legs mounted upon elastic supports and having their upward movement restrained, whereby vertical or lateral shocks are cushioned, substantially as specified.

20. A mail-bag crane, having upright legs, with feet at the lower ends, springs upon which said feet are mounted, and inclosing casings for said springs having portions for arresting the rise of said feet, substantially as specified.

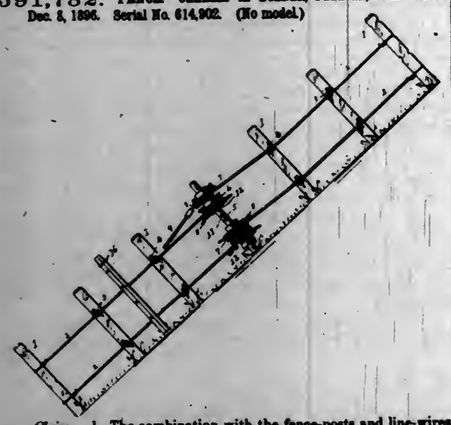
21. A mail-bag crane having upright legs with feet at their lower ends, springs upon which said feet are mounted, inclosing casings having interned flanges, and springs interposed between the feet and said flanges, substantially as specified.

22. The mode herein described of mounting two mail-bags for simultaneous delivery to a mail-bag catcher, said mode consisting in collecting the contents of each bag in one end, and disposing the bags so that an empty and flat end is laid against a full end, whereby the eyes at the ends of the bags can be brought together, and applied to the same supporting device, substantially as specified.

23. The mode herein described of mounting two mail-bags for simultaneous delivery to a bag-catcher, said mode consisting in collecting the contents of each bag in one end of the same, disposing the bags so as to bring an empty and flattened end against a full end, confining the middle portions of the two bags together, and mounting a full and an empty end of a bag upon both the upper and lower holding devices, substantially as specified.

24. The combination of the catcher-hook and hanger-bar of a mail-bag catcher, with a bag-suspending arm hung upon said hanger-bar and having a hook facing oppositely from the catcher-hook, means for connecting said catcher-hook and suspending-arm, and a handle secured to the inner end of the suspending-arm whereby power is applied directly to said arm to lift the bag, substantially as specified.

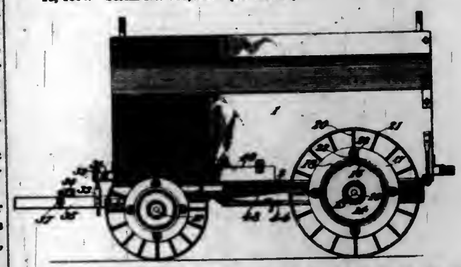
591,782. FENCE. CHARLES A. BOEHER, Paducah, Tex. Filed Dec. 3, 1896. Serial No. 614,902. (No model.)



Claim.—1. The combination with the fence-posts and line-wires of a wire fence, of a cylindrical post or shaft, a series of drums mounted for rotation on said post or shaft, and radially-extending projections on said drums constituting handles and adapted to receive an operating-lever formed with a socket in which said projections fit.

2. The combination with the fence-posts and line-wires of a wire fence, of a cylindrical post or shaft having transverse openings therein, a series of drums to which said line-wires are connected mounted for rotation on said cylindrical post provided with openings therein which are adapted to be passed through the openings in said drums and post for preventing the backward movement of said drums, and radially-extending projections on said drums constituting handles and adapted to coact with an operating-lever having a socket in it in which said projections fit, substantially as and for the purpose described.

591,783. VEHICLE. JOSEPH C. BONNER, Toledo, Ohio. Filed Jan. 11, 1897. Serial No. 618,833. (No model.)



Claim.—1. The combination with a body and its axles, one of which is swiveled thereto, of hounds upon the axles, a bumper upon the body, apertures in the hounds and bumper, respectively, adapted to be brought into alinement and to receive a pin for securing the axle immovably to the body, substantially as set forth.

2. In a convertible wheel, the combination with a car-wheel, provided, as usual, with tread and flange, of a wheel-rim embodying a wheel-band fitted to the tread and flange of the car-wheel, and adapted to secure the rim to the car-wheel, substantially as set forth.

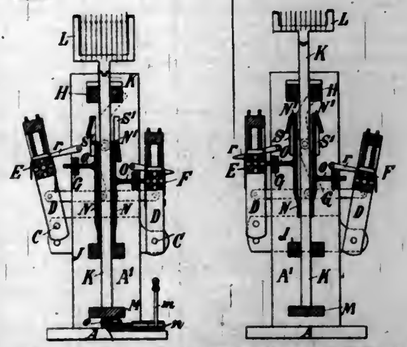
3. In a convertible wheel, the combination with a car-wheel provided, as usual, with tread and flange, of a wheel-rim embodying a wheel-band fitted to the tread and flange of a car-wheel, and means for uniting the band to the car-wheel, substantially as set forth.

4. In a convertible wheel, the combination with a car-wheel provided with tread and flange, of a wheel-rim embodying a wheel-band, sockets in the wheel-band, shoes in the sockets, and means for forcing the shoes in the sockets against the tread of the car-wheel for fastening the wheel-rim in place upon the car-wheel, substantially as set forth.

5. In a convertible wheel, the combination with a car-wheel provided with the usual tread and flange, of a wheel-rim embodying a wheel-band fitted to the tread and flange, sockets in the rim, shoes in the sockets, bolts passing through the rim, and the shoes, respectively, a head on the bolt adapted to engage with the flange of the car-wheel, and a nut screwing on the opposite extremity of the bolt for uniting the parts together, substantially in the manner and for the purpose specified.

6. In a convertible vehicle, the combination with a body part, and interchangeable wheels, of bumpers attached to the body part, and serving the purpose of a coupler when the vehicle is used as a railroad-car, substantially as set forth.

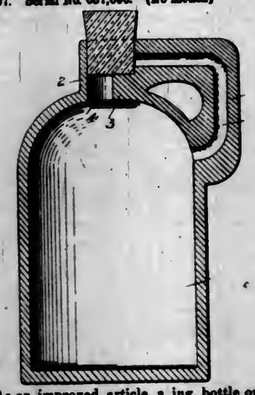
591,784. LOOM. BERNHARD BÖHM, Barmen, Germany, assignor to Biernatzki & Co., Hamburg, Germany. Filed Dec. 16, 1896. Serial No. 572,339. (No model.) Patented in Germany Apr. 16, 1894, No. 16,033.



Claim.—In a loom, the combination of the arms P, P, and connecting-bolt R, the lifting-blades Q, Q', having angular parts, as described, the legs K provided with leaves L and supporting-board M, the elastic lifting-wires N having hook N' adapted to be engaged by the angle parts of the lifting-blades, the frames D, D' provided with

perforated cylinder-cards E, F, the needle-boards G, and needles e and a pivoted hand-lever and crank, to operate the supporting-board M and the mechanism connected therewith substantially as set forth.

591,785. JUG. WILLIAM M. BREWER, New Brighton, Pa. Filed May 18, 1897. Serial No. 637,090. (No model.)



Claim.—As an improved article, a jug, bottle or other similar receptacle having a web or partition formed in the neck with a contracted opening therein eccentric to the upper enlarged opening or mouth forming a ledge for the lower end of the cork or stopper, and the handle formed with an air-passage communicating with the body of the receptacle and with the enlarged opening in the neck, substantially as described.

591,786. TRUSSED AXLE FOR WHEELED VEHICLES. JOHN S. BROWN, Galveston, Tex. Filed May 21, 1897. Serial No. 637,564. (No model.)

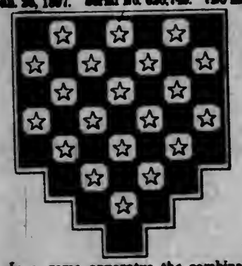


Claim.—1. The combination with an axle-body, of an axle-skein mounted thereupon, a truss-rod having one end arranged in the axle-skein, an axle-box rotatable on the skein, and a nut engaged with the truss-rod and the skein and serving to retain the axle-box on the latter, substantially as described.

2. The combination with an axle-body, of axle-skeins mounted thereupon, a truss-rod running longitudinally of the axle-body and extending through the axle-skeins, axle-boxes rotatable on the skeins, and screw-nuts having screw-threaded engagement with the truss-rod and axle-skeins and serving to retain the axle-boxes on the latter, substantially as described.

3. The combination with an axle-body, of an axle-skein mounted thereupon and having an internally-screw-threaded outer end, a truss-rod having one end arranged in the axle-skein, an axle-box rotatable on the axle-skein, and an externally-screw-threaded nut screwed into the axle-skein and having a screw-threaded socket engaged with the end of the truss-rod, substantially as described.

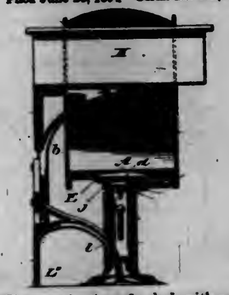
591,787. GAME APPARATUS. CHARLES R. CARRUTH, Cold Point, Pa. Filed Jan. 26, 1897. Serial No. 620,742. (No model.)



Claim.—1. In a game apparatus, the combination of a board having two sets of squares or spaces of different colors or designations, said squares being arranged in the form of a rectangle having an offset at one side occupied by squares decreasing in number, a set of pieces or men corresponding in number to the number of squares in one of the sets, and a cap or crown adapted to fit on any of the pieces.

2. In a game apparatus, the combination of a board ruled off into two sets of squares or spaces, the squares of the sets being differently colored or designated, and arranged in lines in the form of a rectangle having an offset at one side which contains similar lines of squares, the number of squares in the lines in the offset diminishing by twos, and one of said sets containing twenty-four squares and the other twenty, of a series of playing-pieces or men corresponding in number to the number of squares in the smaller set, and a cap or crown adapted to fit on any of the pieces.

591,788. SCHOOL DESK AND SEAT. FRANK C. CHENEY, New York, N. Y. Filed June 29, 1897. Serial No. 642,787. (No model.)



Claim.—1. The combination of a desk with a supporting-standard arranged wholly at one end thereof, a revoluble seat, and stops which limit its movements to substantially a half-revolution, and permit it to turn only toward the open end of the desk, substantially as set forth.

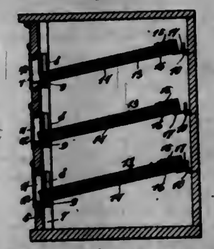
2. The combination of a desk having a supporting-standard arranged wholly at one end thereof, a revoluble seat, stops which limit its movements to substantially a half-revolution, and permit it to turn only toward the end of the desk opposite to the standard, and a lock which holds the seat when it is faced toward the desk, substantially as set forth.

3. The combination with a revoluble seat, of a locking-bolt, and a movable back arranged to force the lock into its locking position, substantially as set forth.

4. The combination with a support and a seat arranged to turn thereon, of a locking-bolt arranged to connect the seat and the support and hold the former from turning, and a pivoted back which engages with the bolt and forces it into its locking position, when the back is in its normal position, substantially as set forth.

5. The combination with a support having a head formed with recesses or notches, and a seat mounted thereon and adapted to turn thereon, of a sliding bolt mounted on the under side of the seat, and having its inner end adapted to engage with the said recesses or notches, a spring arranged to force the bolt out of engagement with the said recesses, and a back pivotally connected with the seat, and adapted to bear upon the outer end of the said bolt, and to force it into the said recesses against the action of the spring, substantially as set forth.

591,789. FORM-CABINET. ARTHUR F. CRANDALL and GEORGE W. BYERS, Beresford, S. D. Filed May 22, 1897. Serial No. 637,713. (No model.)



Claim.—1. A cabinet having a pad-support adjacent to one side, a hook attached to the opposite side of the cabinet, and a pad having one portion rested on the pad-support and having the other portion provided with an eye adapted to engage the hook on the cabinet.

2. A cabinet having a bar extending horizontally across one side, a hook secured to the opposite side of the cabinet, and a pad spanning the cabinet between the hook and bar, one edge of the pad being rested on the bar and the other edge of the pad having an eye capable of engagement with the hook, whereby to permit tugging edgewise on the pad to remove a single leaf therefrom.

3. A cabinet having a door closing one side and provided with an opening, a hinged plate hanging to normally cover the opening, a bar secured in the cabinet adjacent to the door and to the opening therein, a hook secured to the inner face of that wall of the cabinet which is opposite the door, and a pad provided with an eye, the eye receiving the hook and the opposite edge of the pad resting on the bar.

4. A cabinet provided with a pad raised at one side and with a plurality of pad-securing devices at an opposite side, the pad-securing devices being approximately in the same plane, and the cabinet being capable of holding the pad with one edge rested on the pad-support and the opposite edge held by the pad-securing devices whereby the pad is prevented from edgewise movement.

591,740. PRESERVE-JAR. FREDERICK DEDREUX, Cleveland, Ohio. Filed Aug. 26, 1896. Serial No. 603,993. (No model.)



Claim.—A jar having a tapered neck and an annular recess about the top of the neck and parallel ribs around said neck retired from the plane of the neck below the recess, in combination with a thin and flat flexible band drawn over said ribs and a rigid cover having a slightly-flaring flange engaged over said neck and bearing wholly upon said band to bind the band against and between said ribs, substantially as described.

591,741. SADDLE-CLAMP FOR VELOCIPEDES. MILLER M. DUNN, Reading, Pa., assignor of one-half to P. & F. Manufacturing Co., same place. Filed June 23, 1897. Serial No. 641,935. (No model.)



Claim.—1. A bicycle-saddle clamp consisting of a lower yoke-piece having slotted ends, the lower surfaces of which are upwardly inclined, an upper yoke-piece having downwardly-inclined threaded arms passing through the slots in the ends, nuts upon said threaded arms, and plates intermediate the nuts and the lower yoke-piece, substantially as described.

2. A bicycle-saddle clamp consisting of a lower yoke-piece having upwardly-inclined slotted ends and having a shoulder and a recess upon the under side of each end, an upper yoke-piece having downwardly-inclined threaded arms passing through the slots in the ends and provided with nuts, and plates intermediate the nuts and the lower yoke-piece, said plates each having a recess to engage the shoulder upon the yoke and a recess opposite the recess on the yoke, substantially as described

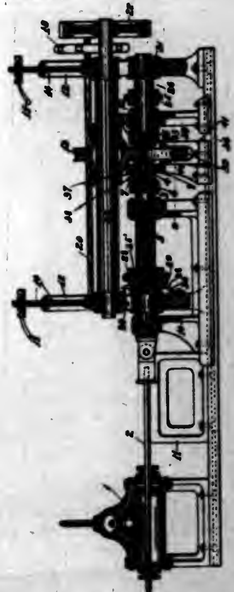
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591,742. APPARATUS FOR ROLLING PIPE-COUPLINGS. CHARLES D. DE FOREST and WILLIAM F. KENNA, Pittsburg, Pa. Filed Oct. 31, 1896. Serial No. 567,566. (No model.) Patented in France Aug. 7, 1896, No. 258,710.

Claim.—1. In a machine for rolling pipe sockets, couplings and similar articles, the combination with a compressing or welding roll, and power devices for rotating said roll, of a rotary mandrel, means for holding the mandrel below the welding-roll, a stripper extending around the mandrel adjacent to the welding-roll and adapted to form a side guide for the article being rolled, and means for reciprocating the mandrel longitudinally through said stripper, substantially as and for the purpose set forth.

2. In a machine for rolling pipe sockets, couplings and similar articles, the combination of the welding-roll, the mandrel, two abutments situated respectively at the ends of the socket or coupling when in position for welding, and means for varying the relative positions of the mandrel and said abutments, to cause one of the latter to engage positively with the socket or coupling to force it from the mandrel, substantially as and for the purpose set forth.

3. In a machine for rolling pipe sockets, couplings and similar articles, the combination of the external compressing or welding roll, the interior mandrel adapted to extend through the socket or coupling being welded, means for reciprocating said mandrel, a support for the free end of the mandrel when in the operative position, and means supplemental and adjacent to the mandrel for engaging positively with the end of the coupling or socket and forcing it from the end thereof, substantially as and for the purpose set forth.



4. In a machine for rolling pipe sockets, couplings and similar articles, the combination of the exterior welding or compressing roll, the interior longitudinally-movable mandrel, the detachable support for the end of the mandrel on one side of the central transverse vertical plane of the welding-roll, the cylinder for steam or equivalent agent, the piston therein, and means connecting said piston with the mandrel and adapted to move the free end of the latter into and out from the said support, substantially as and for the purpose set forth.

5. In a machine for rolling pipe sockets, couplings and similar articles, the combination of a welding-roll, a mandrel, a rotary carrier for the mandrel, a rotary support for the free end of the mandrel, and means adapted to positively engage with the end of the socket or coupling to force it from the mandrel, substantially as set forth.

6. In a machine for rolling pipe sockets, couplings and similar articles, the combination of a welding-roll, the mandrel, the two abutments each situated at an end of the socket or coupling which is being welded, and one of which is adapted to move along the axis of the welding article, and means for holding both of said abutments stationary as to said axis, substantially as set forth.

7. In a machine for rolling pipe sockets, couplings and similar articles, the combination of a welding-roll, the mandrel adapted to support the metal for forming the socket or coupling, means for adjusting the mandrel longitudinally, and the intermittingly-rotating stripper, adapted to positively engage with the socket or coupling on the mandrel, substantially as set forth.

8. In a machine for rolling pipe sockets, couplings and similar articles the combination of a welding-roll, the mandrel for supporting the socket or coupling while welding, means for moving the mandrel, and the stripper adapted to move longitudinally of the coupling or socket, substantially as set forth.

9. In a machine for rolling pipe sockets, couplings and similar articles, the combination of a welding-roll, the mandrel for supporting the coupling or socket while welding, and the sliding intermittingly-rotating stripper, substantially as set forth.

10. In a machine for rolling pipe sockets, couplings and similar articles, the combination of a welding-roll, the mandrel for supporting the coupling or socket while welding, the stripper mounted loosely upon the mandrel, and means for detachably connecting together the mandrel and stripper, substantially as set forth.

11. In a machine for rolling pipe sockets, couplings and similar articles, the combination of the welding-roll, the mandrel for supporting the coupling or socket while welding, the sliding stripper, and a standard or projection carried by the frame to stop the stripper, substantially as set forth.

12. In a machine for rolling pipe sockets, couplings and similar articles, the combination of a welding-roll, the longitudinally-reciprocating rotary mandrel, and the longitudinally-reciprocating non-rotary carrier or advancing devices for the mandrel, substantially as set forth.

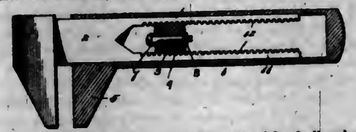
13. In a machine for rolling pipe sockets, couplings and similar articles, the combination of a welding-roll, the longitudinally-reciprocating mandrel, the standards, at 9, 10, which support the mandrel, the stripper, and a supplemental bearing or standard for the stripper, substantially as set forth.

14. In a machine for rolling pipe sockets, couplings and similar articles, the combination of a shaft or plunger terminating in a mandrel, and having near the outer end thereof a cap; said shaft being adapted to be reciprocated longitudinally; a roll suitably mounted in housings, and located immediately above said mandrel, and adapted to be elevated and lowered in its housing; a stripper suitably mounted between the cap on said reciprocating shaft and the edge or rim of said roll, and adapted to rotate and slide backward and forward in its bearings; a cap or head mounted upon an auxiliary shaft opposite and in line with said mandrel, said cap impinging upon the edge or rim of the roll opposite to that impinged upon by the stripper; means to rotate said roll and said last-mentioned shaft, and means to reciprocate said mandrel, substantially as described.

15. The combination of a cylinder, a piston therein connected with a shaft, the end of which terminates in a mandrel adapted to be rotated, and provided with a bevel-cap; a power-shaft geared with said last-mentioned shaft; shaft 20 suitably geared with said power-shaft; shaft 23 parallel with and between said before-mentioned shafts, and suitably geared to shaft 20; shaft 26 geared with said power-shaft; said shaft 26 having a grooved cap 36; a stripper suitably mounted between the bevel-caps, mounted respectively upon the shafts 3 and 26, the inner face of said stripper being correspondingly grooved with the inner face of the bevel-cap 36 on the shaft 26, substantially as herein described.

16. The combination of a cylinder, a piston therein connected with a shaft, the end of which terminates in a mandrel adapted to be rotated, and provided with a bevel-cap; a power-shaft geared with said last-mentioned shaft; shaft 20 suitably geared with said power-shaft; shaft 23 parallel with and between said before-mentioned shafts, and suitably geared to shaft 20; shaft 26 geared with said power-shaft; said shaft 26 having a grooved cap 36; a stripper suitably mounted between the bevel-cap, mounted respectively upon the shafts 3 and 26, the inner face of said stripper being correspondingly grooved with the inner face of the bevel-cap 36 on the shaft 26, and a deflecting or guide roll to the rear of and beneath the welding-roll and mandrel, substantially as herein described.

591,748. ADJUSTABLE WRENCH. EDMOND P. DREW, Glenville, Ohio. Filed Jan. 15, 1897. Serial No. 619,312 (No model.)



Claim.—1. In a wrench the combination with a hollow body portion having a rigid jaw and slotted side walls, of a sliding jaw provided with spaced notched tines adapted to slide into said body portion, and a locking-nut mounted in said body portion and adapted to engage the notches of the respective tines to lock the same in position, substantially as described.

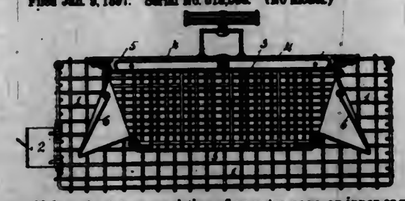
2. In a wrench, the combination with a hollow body portion having a rigid jaw and slotted side walls, of a sliding jaw having spaced notched tines adapted to slide in said hollow body portion, and a rotatable locking-nut mounted in the hollow body portion and projecting through the slotted side walls of the same and provided with threads adapted to engage the notches of the tines and thus lock the sliding jaw in its adjusted position, substantially as described.

3. In a wrench, the combination with a hollow body portion having a rigid jaw and slotted side walls, of a sliding jaw provided with spaced notched tines adapted to be applied within the hollow body portion, of a rotatable nut mounted in said hollow body portion and projecting through the slotted side walls and formed with a plurality of spaced tapering threads adapted to engage the notches of the tines and bind against the same to lock the sliding jaw in its adjusted position, substantially as described.

4. In a wrench, the combination with a hollow body portion having a rigid jaw and slotted side walls, of a sliding jaw provided with spaced notched tines adapted to slide within the hollow body portion, and a rotatable locking-nut mounted in said hollow body portion and projecting through the slotted side walls of the same and formed with a plurality of threads which cover only a portion of its periphery whereby upon the rotation of said nut the tines are either left free to slide or are locked in their adjusted position, substantially as described.

5. In a wrench, the combination with a body portion having a rigid jaw, of a sliding jaw provided with spaced notched tines adapted to slide on said body portion, and a locking-nut mounted in said body portion and adapted to engage the notches of the respective tines to lock the sliding jaw in its adjusted positions, substantially as described.

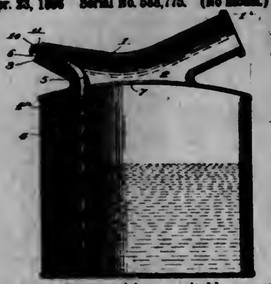
591,744. ANIMAL-TRAP. JESSE J. DREW, Philadelphia, Pa. Filed Jan. 9, 1897. Serial No. 618,586. (No model.)



Claim.—1. A trap consisting of an outer cage, an inner cage supported from the top of said outer cage and extending only partially between the top and bottom of the same, inwardly-opening pivoted traps in the top of said inner cage, and outwardly-opening pivoted doors in the sides of said inner cage, substantially as described.

2. A trap consisting of an outer and inner cage, a plurality of cross-pieces extending across the top of said inner cage, inwardly-opening pivoted traps situated within said cross-pieces and outwardly-opening pivoted doors in the sides of said inner cage, substantially as described.

591,745. ATOMIZER. NAPOLEON DU BOIS, Cincinnati, Ohio. Filed Apr. 23, 1896. Serial No. 588,775. (No model.)



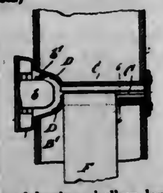
Claim.—A sprayer comprising a suitable receptacle having an opening 7, the blast-tube 1 formed with an open base 2, with an upwardly-projecting mouthpiece 1^a, with an upwardly-projecting nozzle 3 and with a downwardly-extending projection 4^a the pendent liquid-tube 4 having a bend 5 and secured to the projection so as to have its upper end 6 adjacent to the outer end of the nozzle, and the screw 10 threaded into the upper end of the tube and having a head providing a cap to the nozzle; substantially as described.

591,746. COMBINATION POCKET-BOOK. DANIEL DUBART, JR., Syracuse, N. Y. Filed Apr. 24, 1897. Serial No. 633,758. (No model.)



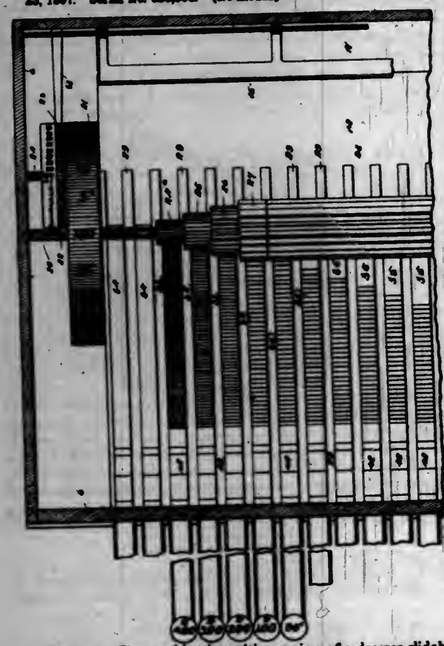
Claim.—A pocket-book comprising the covers 1 and 2, provided with pockets on their inner sides and with loops connected to the rear edges of the covers, writing-sheets, a bail engaging said writing-sheets, and having its hooked ends engaging the aforesaid loops, loops secured to the free edges of the cover, and a pencil or its equivalent inserted through said loops to hold the covers closed, substantially as set forth.

591,747. TAPE-REEL. JOHN G. EDDY, Brooklyn, N. Y., assignor to G. M. Eddy & Co., same place. Filed May 29, 1897. Serial No. 638,719. (No model.)



Claim.—A tape-reel, having a hollow, longitudinally-slotted barrel having projecting teeth at each end, and adapted to receive a fold of the tape within the slot, a pin or staple within the barrel and adapted to enter a fold in the tape, a crank-arm having a slot receiving the teeth upon one end of the barrel, and a washer having perforations receiving the teeth upon the other end of the barrel, substantially as described.

591,748. CASH-REGISTER. WILLIAM J. ELSWORTH, Erie, Pa., assignor of one-fourth to John W. Galbraith, same place. Filed Jan. 23, 1897. Serial No. 620,206. (No model.)



Claim.—1. The combination with a casing, of a drawer slidable therein, a movable plate normally sustained by the drawer, a rack-bar sliding on and carried by the plate, a gear engaged by the rack-bar and from which the rack-bar is moved by the movement of the plate carrying the rack-bar, and registering mechanism in connection with the gear, substantially as described.

2. The combination with a casing, of a drawer slidable therein, a plate normally sustained by the drawer, a rack-bar carried on and moving with the plate, and mechanism engaged and operated by the rack-bar, and from engagement with which the rack-bar moves when the plate carrying the rack-bar is moved, substantially as described.

3. The combination with a casing, of a drawer slidable therein, a movable plate sustained by the drawer, a rack-bar sliding on and supported by the plate, a gear with which the rack-bar engages and from which the rack-bar moves when the plate is dropped, and registering mechanism in connection with the gear, substantially as described.

4. The combination with a casing, of a drawer movable therein, a movable plate normally sustained by the drawer, a catch holding the drawer in position to sustain the plate, a rack-bar sliding on and carried by the plate and capable of releasing the catch, and registering mechanism in connection with and operated by the rack-bar and from which the rack-bar moves when the movable plate moves, substantially as described.

5. The combination with a casing, of a drawer movable therein, a catch holding the drawer, a movable plate normally sustained by the drawer, a rack-bar sliding on and supported by the movable plate and capable of releasing the catch as the rack-bar is moved, and registering mechanism operated by the rack-bar and from which the rack-bar moves when the movable plate moves, substantially as described.

6. The combination with a casing, of a drawer movable therein, a stationary plate held above the drawer, a movable plate inclosed by the stationary plate and normally sustained by the drawer, a rack-bar movable on and held by the movable plate and capable of releasing the catch upon the movement of the rack-bar, and registering mechanism with which the rack-bar is connected and from which the rack-bar moves when the movable plate moves, substantially as described.

7. The combination with a casing, of an angle sign-plate pivoted therein on an axis coextensive with the angle of the sign-plate, two parts respectively engaging the sign-plate on opposite sides of the pivot thereof, and a part movable within the casing and engaging each of the first-named movable parts to rock the sign-plate back and forth, substantially as described.

8. The combination with a casing, of a sign-plate pivoted therein, two parts respectively engaging the sign-plate on opposite sides of its pivot, and a part movable within the casing and engaging the two first-named movable parts to rock the sign-plate back and forth, substantially as described.

9. The combination with a casing having a pivoted sign-plate therein, two parts respectively engaging the sign-plate on opposite sides of its pivot, and an additional part movable within the casing and having a rise-and-fall cam capable of engaging each of the first-named movable parts to rock the sign-plate back and forth, substantially as described.

10. The combination with a casing, of a member slidable therein, a rack-bar supported by the said slidable member, and mechanism engaged by the rack-bar when the rack-bar is supported by the said slidable member, the slidable member being movable to drop the rack-bar.

11. The combination with a casing, of a slidable member contained therein, a movable plate normally sustained by the slidable member, a rack-bar operative on the movable plate, a gear with which the rack-bar engages and from which the rack-bar moves when the plate is dropped, and registering mechanism coacting with the gear.

12. The combination of a pivoted member, two parts reciprocal longitudinally toward and from the member and respectively on opposite sides of the pivot thereof, and a reciprocal part having a cam movable to successively exert endwise pressure on said two moving parts whereby to alternately operate the same.

13. The combination of a shaft, a series of differential gears thereon, a series of rack-bars respectively engaging the gears and turning the shaft various degrees of revolution, and registering mechanism actuated from the shaft.

14. The combination of a shaft, a bed-plate parallel with the shaft, a series of gears of differential diameter fixed on the shaft, and a series of rack-bars respectively meshing with the gears and having heights varying in accord with the size of the gears.

15. The combination with a casing, of a drawer slidable therein, a vertically-movable plate located above the drawer and supported by the drawer, a rack-bar sliding and carried on the plate, and a gear engaged by the rack-bar when the drawer is located beneath the gear, the drawer when in said position serving to raise the plate.

16. The combination of a plurality of gears, a rigid plate located beneath the gears, the plate having a plurality of parallel guides, rack-bars respectively reciprocal in the guides and respectively engaging the gears, and a drawer located beneath the plate and normally supporting the plate, the drawer being capable of moving from beneath the plate to allow the plate to drop and disengage the racks and the gears.

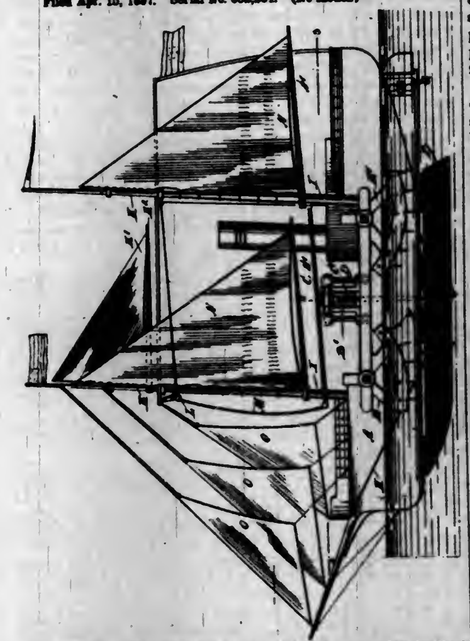
17. The combination of a series of differential gears turning on an axis common to all, a separately-operative gear for each of said differential gears and serving to impart movement thereto, and a registering device in connection with the axis of said differential gears and having movement imparted to it from the movement of the differential gears and proportionately inversely to the size of said gears.

18. The combination of a shaft, a series of differential gears fixed thereon, one of said gears being elongated, a plurality of operating-gears all meshed with the elongated gear and imparting thereto various degrees of movement, additional gears respectively meshed with the remaining of the differential gears, and registering mechanism operated from the differential gears.

19. The combination of a series of differential gears, one of which is elongated with its axis, a series of movement-imparting devices coacting with said gear and serving to impart varying degrees of movement thereto, additional movement-imparting devices respectively coacting with the remaining differential gears, and a registering device operated from said differential gears.

20. In a cash-register, a registering device, a rotatable shaft geared thereto, the diameter of the two portions of said shaft varying, and a plurality of toothed key-rods geared to said toothed shaft.

591,749. MARINE VESSEL. GIL REPIDA, Cariaco, Venezuela. Filed Apr. 15, 1897. Serial No. 632,231. (No model.)



Claim.—1. The combination of the hull having a longitudinal central hinge at its bottom, the keel whose upper edge is secured to said hinge to swing laterally when the vessel rolls, and propelling mechanism operated by the swinging of the keel, substantially as described.

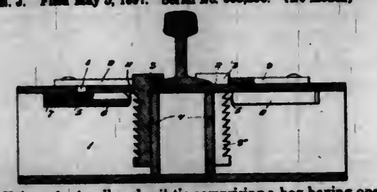
2. The combination of the hull, the keel mounted to swing laterally and adapted to be actuated by the rolling of the vessel, the walking-beam extending transversely of the vessel and arranged to swing vertically, said beam being operatively connected to the swinging keel, and propelling mechanism actuated by the walking-beam, substantially as described.

3. The combination of the hull, the keel mounted to swing laterally and adapted to be actuated by the rolling of the vessel, the walking-beam extending transversely of the vessel and arranged to swing vertically, said beam being operatively connected to the swinging keel, the paddle-frames arranged to swing vertically in planes ranging longitudinally of the vessel, and the pivoted paddles arranged to yield in one direction, substantially as described.

4. A propelling mechanism for vessels, comprising two swinging paddle-frames located one in advance of the other at the sides of the vessel and so connected that their adjacent ends will move up and down in unison, and transverse paddles pivoted to said frames and adapted to abut against stops thereon, substantially as described.

5. The combination of the swinging paddle-frames, located one in advance of the other at the sides of the vessel, the transversely-swinging walking-beam arranged between the swinging frames and connected to the adjacent ends thereof, and the transverse paddles pivoted to the said frames substantially as described.

591,750. RAIL-FASTENER. BENJAMIN FERRIS, Dockertown, N. J. Filed May 5, 1897. Serial No. 635,236. (No model.)

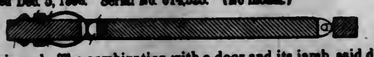


Claim.—1. A railroad-rail tie comprising a box having openings arranged therein, spikes engaging the flanges of the rail and being provided with a series of teeth, and spring-latches arranged in pockets beneath the tops of the boxes adapted to engage the teeth of said spikes and prevent the removal thereof, substantially as described.

2. A railroad-rail tie comprising a box having transverse walls, openings and pockets arranged therein, toothed spikes adapted to said openings, spring-latches to engage the teeth of said spikes and prevent the removal thereof, said latches being provided with depressions to receive a tool or other implement to withdraw the latch from engagement with the teeth, substantially as described.

3. A railroad-rail tie comprising a box having transverse walls, openings and pockets arranged therein, toothed spikes adapted to said openings, and latches arranged in said pockets, one end being beveled to engage the teeth of the spikes, and the other end reduced to receive a spring, said latches being provided with depressions to receive a tool or other implement to withdraw the latch from engagement with the teeth, substantially as described.

591,751. DOOR-CHECK. FRANKLIN C. FISHER, Cascade, Colo. Filed Dec. 5, 1896. Serial No. 614,525. (No model.)



Claim.—1. The combination with a door and its jamb, said door being mounted to swing in two directions, of a bent plate secured to the door, and spring-plates respectively secured to the sides of the jamb, the spring-plates each having a free end contiguous to a bowed portion, and said free ends respectively bearing on the bent plate at opposite sides of the middle thereof, whereby the door is normally held closed and whereby the door is permitted to swing in each direction upon preponderating the force of the spring-plate against which the door moves, substantially as described.

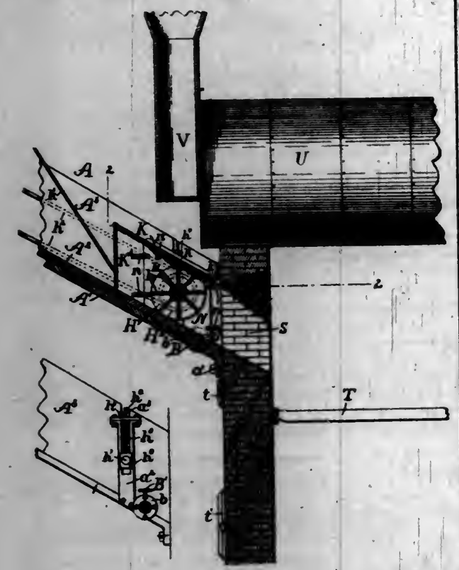
2. The combination of a fixed and a hinged part, the hinged part swinging toward and from the fixed part, a spring-plate, and a rigid member respectively carried on the said parts, the rigid member having an unbroken convex face and the spring-tongue having a free end with a sharp edge capable of engaging the convex face of the rigid member and of impinging against the same.

591,752. APPARATUS FOR FEEDING BAGASSE, SAWDUST, &c., TO FURNACES. JAMES FISHER, New Orleans, La. Filed Feb. 13, 1897. Serial No. 623,203. (No model.)

Claim.—1. In an apparatus of the character described, the combination with a furnace having an opening in the front wall thereof for the admission of fuel; of an inclined chute adapted to receive the fuel at its upper end and supported at said end in any suitable manner; brackets secured to the front of the furnace and supporting the lower end of said chute; a roller having radial blades mounted across said chute near its lower end in bearings in said brackets; means for driving said roller; a pipe having perforations along one side thereof mounted across the floor of said chute at its lower end; means for connecting said perforated pipe with a pipe leading from an air or a steam blast; a door pivoted in front of the furnace and adapted to extend over said perforated blast-pipe and said bladed roller, a second door hinged to the outer end of said pivoted door, and pendent therefrom, and adapted to close said chute; and means connected to said pendent door for operating the same, substantially as described.

2. In an apparatus of the character described, the combination with a furnace having an opening in the front wall thereof for the admission of fuel; of an elevated chute adapted to receive the fuel at its upper end and supported at said end by any suitable means; brackets secured to the front of the furnace and supporting the lower end of said chute; a roller having radial blades thereon mounted across the said chute near its lower end in bearings mounted in said brackets and capable of vertical movement therein; means for driving said bladed roller; a pipe provided with perforations along one side thereof, mounted across the floor of said chute, at its lower end; means for connecting either end of said perforated pipe with a pipe leading from an air or a steam blast; a pivoted door extending over

said perforated pipe and said roller, a second door hinged to the outer end of said pivoted door, and pendent therefrom, and adapted to close said chute; and means connected to said pendent door for operating the same, substantially as described.


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tion, and the said strips being loosely placed on edge, extending down into and nearly dividing the said plastic material but locked therein, substantially as set forth.

8. A pavement having a wearing-facing which consists of plastic material 2 and embedded strips 1, the said strips being of wood, parallel with and isolated from each other, and extending downward in the said plastic material a distance less than the thickness of the said plastic material and interlocked therein, the said plastic material extending beneath adjacent strips in a continuous mass, substantially as set forth.

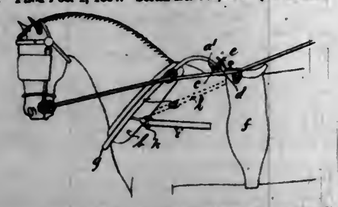
9. In the apparatus for casting paving-blocks, the frame 16 consisting of detachable parts, a base consisting of a plurality of adjustable bars, and means for drawing the said bars together to embrace and hold a plurality of strips, substantially as set forth.

10. In combination in an apparatus or mold for casting paving-blocks, the plurality of bars 12, means for drawing the said bars together, and a lateral confining frame or mold 16 resting upon the said bars, substantially as set forth.

11. In combination in an apparatus or mold for casting paving-blocks, the plurality of bars 12 arranged parallel with each other, leaving intervals between the several bars, a frame superposed upon the said bars, and means for drawing the said bars together to lessen the interval between the several bars, substantially as and for the purposes set forth.

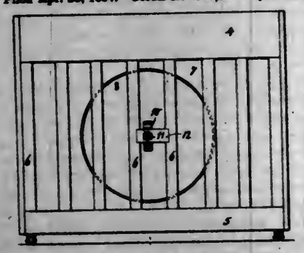
12. In combination in an apparatus or mold for casting paving-blocks, the plurality of bars 12 arranged parallel with each other, leaving intervals between the several bars, a frame superposed upon the said bars, and means for drawing the said bars together, the said frame being provided with grooves running vertically and registering with the said intervals between the said bars, whereby strips may be secured in the said intervals and the said grooves, substantially as and for the purposes set forth.

591,758. HORSE-COLLAR. JOHN S. HAINSWORTH, London, England. Filed Feb. 1, 1897. Serial No. 621,538. (No model.)



Claim.—A horse-collar comprising a frame having applied to the inner sides thereof pads adapted to bear on the shoulders of the horse, the frame being unpadded on the upper and lower ends whereby the throat and neck of the horse are free from contact therewith, the upper ends of said frame being extended and curved backward and secured to the harness-saddle, whereby the collar is supported from said harness-saddle, substantially as described.

591,759. SOUNDING-BOARD. HUBERT A. HAMLOCK, Union Hill, N. J. Filed Apr. 23, 1897. Serial No. 633,464. (No model.)



Claim.—1. A piano or musical instrument having a main and a secondary sounding-board, and a resonator placed into a cut-out portion of the secondary sounding-board substantially as described.

2. A piano or musical instrument having a main and a secondary sounding-board, and a resonator having a vibratory or free edge and placed into a cut-out portion of the secondary sounding-board substantially as described.

3. A piano or musical instrument having a main and a secondary sounding-board, and a resonator placed into a cut-out portion of the secondary sounding-board, said secondary sounding-board being firmly or rigidly secured at its edges substantially as described.

4. A piano or musical instrument having a main and a secondary sounding-board, and a resonator placed into a cut-out portion of the secondary sounding-board, said secondary sounding-board being firmly or rigidly secured at its edges and said resonator being supported at its center portion, the edge or outer part of the resonator being left free substantially as described.

5. A piano or musical instrument having a main and a secondary sounding-board, and a resonator placed into a cut-out portion of the secondary sounding-board, said secondary sounding-board being firmly or rigidly secured at its edges and said resonator being supported at its center portion, the edge or outer part of the resonator being left free and said resonator having a sound-opening and a bow-shaped support made to engage the resonator about said opening substantially as described.

591,760. FENCE. LEVI D. HARDEN, Deemston, Pa. Filed Nov. 11, 1896. Serial No. 611,721. (No model.)



Claim.—1. In a fence, the combination with its posts, horizontal wires secured thereto and vertical wires uniting the horizontal wires together, of a main wire secured to the terminal posts and united to the vertical wires, and hooks secured to the posts and adapted to detachably hold the main wire and to regulate the tension of the panels of the fence through the adjustment of the tension upon the main wire, substantially as set forth.

2. In a fence, the combination with its posts, of horizontal wires secured to the posts, vertical wires secured to the horizontal wires, and a plurality of tightly-twisted wires entwining each one of the horizontal wires, secured alternately to the top and bottom of the posts, and extending continuously from end to end of each section, substantially as and for the purpose specified.

591,761. CYCLOMETER. EDWIN HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed May 29, 1896. Serial No. 593,637. (No model.)



Claim.—1. In a registering mechanism, the combination of a base-piece having arms, a rod or shaft supported by said arms, a series of wheels journaled on said rod or shaft, a shaft carrying a driving-wheel, supported by one of said arms, a casing side attached to said arm, and a casing within which all of the mechanism mounted on the base, except said driving-wheel, is inclosed, such mechanism being removable from the casing through an opening that is closed by the casing side attached to the base-piece arm, substantially as and for the purpose specified.

2. A tappet for cyclometers consisting of two spoke-engaging bars, and screws to clamp said bars on the spoke, the sides of the bars that engage the spoke having inclined grooves, substantially as and for the purpose described.

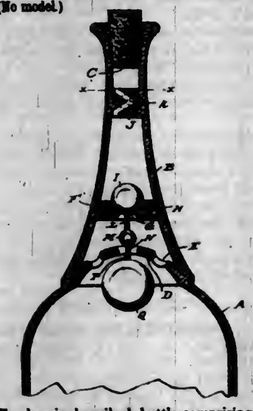
591,762. CYCLOMETER. EDWIN HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed Oct. 30, 1896. Serial No. 610,616. (No model.)



Claim.—In a cyclometer, the combination of a frame comprising a base-plate and end pieces, a rod or shaft mounted in the latter, a series of index-wheels journaled side by side on the shaft, between said end pieces, a toothed wheel attached to the side of each index-wheel, a disk adjacent to the toothed wheel, having a notch and teeth on opposite sides of the notch, a series of pinions having each alternating wide and narrow teeth to cooperate with said toothed wheels and disks, a rod or shaft on which the pinions are placed, mounted in the end pieces of the base-plate, a notched wheel attached to an end of one of the index-wheels, having its periphery between the notches

concave, a disk with a single tooth, adapted to cooperate with the notched and concave portions of said wheel, said disk being adjacent to the inner side of one of the end pieces of the base-plate, a shaft passing through said end piece, on which disk is mounted, a star-wheel, on the outer end of said shaft, and a casing fitting over the base-plate and its end pieces, and all of the mechanism between said end pieces, having one end that is separably connected to the remainder of the casing, and attached to the end piece through which the disk and star-wheel shaft passes, substantially as and for the purpose specified.

591,763. NON-REFILLABLE BOTTLE. FRANK R. HODGSON and RALPH H. RICHARDS, Blackstone, Mass. Filed Dec. 19, 1896. Serial No. 616,236. (No model.)



Claim.—The herein-described bottle comprising essentially the body, the neck connected with the body and having the concavo-convex wall D, arranged with its concave side contiguous to the interior of the body and provided with a plurality of transverse apertures off its center, the wall F, arranged in and connected to the neck above the wall D, and having the central aperture and also having the valve-seat H, in its upper side, the wall J, arranged in and connected to the neck above the wall F, and having one or more tortuous passages K, the ball-valve arranged above the wall F, and adapted to occupy the seat H, thereof, the globular weight arranged below the concavo-convex wall D, and the flexible connection between the valve and weight, all as and for purpose set forth.

591,764. COUPLING FOR VEHICLE-SHAFTS. WILLIAM A. JACKMAN, Cheyenne, Wyo. Filed Feb. 17, 1897. Serial No. 623,775. (No model.)



Claim.—1. In a vehicle-shaft coupling, the combination, with a rear section having a socket formed therein, of a forward section having a tongue arranged to enter the aforesaid socket, a lock-nut held to travel in the rear section and into the said tongue, and means, substantially as described, for moving the lock-nut, as and for the purpose specified.

2. In a vehicle-shaft, the combination, with a rear section provided with a longitudinal socket and transverse openings connecting with the socket, of a forward section provided with a tongue adapted to slide into the socket, having an opening arranged to register with the openings in the rear section, a nut held to travel in the openings in the rear section of the shaft and enter the openings in the tongue of the forward section of the shaft, and means, substantially as described, for moving said nut from the exterior of the shaft, as and for the purpose specified.

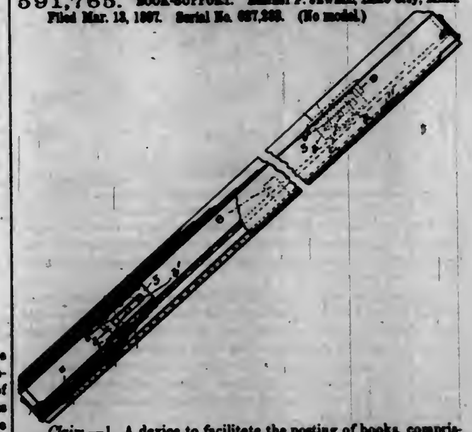
3. The combination, with a rear section of a shaft or pole and a forward section adapted for connection with the rear section, the rear section being provided with a horizontal socket, and an opening communicating with the socket, located partially above and partially below the same, of a tongue extending from the forward section of the shaft, adapted to fit into the socket, a screw operated from the exterior of the shaft and extending through the openings in the rear section and registering opening in said tongue, and a nut carried by said screw, adapted to travel in the opening in the tongue and the registering openings in the rear section of the shaft or pole, substantially as shown and described.

4. The combination, with the rear section of a shaft or pole having a socket formed therein, and a forward section arranged for engagement with the rear section, of a nut having end movement in the rear section and in the tongue, and means, substantially as described, for operating said nut from the exterior of the shaft or pole, as and for the purpose specified.

5. The combination, with a rear section of a shaft or pole and a forward section adapted to be coupled therewith, the rear section being provided with a socket and the forward section with a tongue to enter said socket, the rear section of the tongue being provided with registering openings, of a nut arranged to travel in the registering openings of the tongue and the rear sections of the shaft or pole, and a screw carrying said nut, held to turn loosely in the rear section and arranged to be turned from the exterior of the shaft or pole, as and for the purpose set forth

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591,765. BOOK-SUPPORT. ERNEST F. JEWELL, Lake City, Minn. Filed Mar. 13, 1897. Serial No. 627,268. (No model.)



Claim.—1. A device to facilitate the posting of books, comprising a track-section having rails, a carriage mounted upon the rails and presenting a board or platform having rollers journaled in brackets or bearings depending therefrom; together with a buffer or stop-block mounted centrally in the track-section, and stops or cross-pieces depending from the carriage to engage the stop-block, substantially as shown and for the purpose set forth.

2. A device to facilitate the posting of books, comprising a track-section having rails, a carriage mounted upon the track-section and presenting a board or platform, depending hangers or bearings having longitudinal slots, and rollers with stub-shafts journaled in said slots; together with side pieces depending from the board or platform and provided with inwardly-projecting plates which engage flanges on the track-section, substantially as shown and for the purpose set forth.

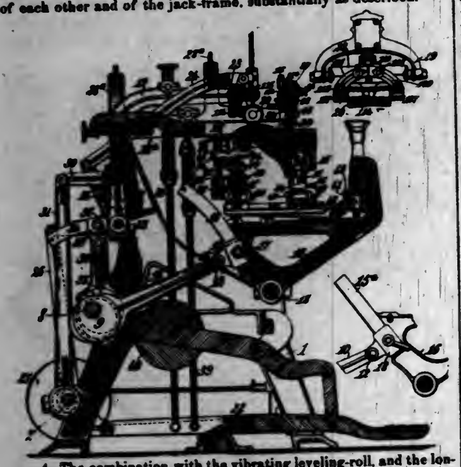
3. The combination in a device to facilitate the posting of books, of a track-section having rails and laterally-projecting flanges, together with a carriage comprising a board or platform, bearings or angle-plates depending from the platform and having longitudinal slots with outwardly-projecting flanges at their upper edges, and side pieces depending from the carriage and having inwardly-projecting plates which engage the flanges of the track-section, the parts being constructed and organized substantially as shown and for the purpose set forth.

591,766. SOLE-LEVELING MACHINE. EDWARD C. JUDD and HARRY H. GILLEY, Boston, and ANNIE C. PAUL, Lynn, Mass.; said Paul assignor to said Judd and Gilley. Filed Jan. 26, 1897. Serial No. 621,066. (No model.)

Claim.—1. The combination of a rocking jack having an arc-shaped or segmental arm, a leveling-roll, a rocker-frame connected with the leveling-roll, an arc-shaped or segmental arm by which the rocker-frame is rocked, a jack-operating shaft having eccentrics, rods engaged at one end with the eccentrics, clamps pivoted to the other ends of the rods and adjustable in circular paths in engagement with the arc-shaped or segmental arms, and clamping devices for rigidly securing the forked clamps to said arms in different positions of adjustment, substantially as described.

2. The combination with a jack-frame, of toe and heel posts adjustable laterally and longitudinally independently of each other and of the jack-frame, for centering a boot or shoe, substantially as described.

3. The combination with a longitudinally-movable jack-frame, of toe and heel posts adjustable laterally and longitudinally independent of each other and of the jack-frame, substantially as described.



4. The combination with the vibrating leveling-roll, and the longitudinally-movable jack-frame, of a sole-leveling machine, of toe and heel posts mounted on the jack-frame and adjustable laterally and longitudinally independently of each other and of said jack-frame, substantially as described.

5. The combination with a jack-frame, of toe and heel posts adjustable laterally and longitudinally independent of each other and of the jack-frame, and a laterally and longitudinally adjustable last-pin carried by the heel-post, substantially as described.

6. The combination with the leveling-roll of a sole-leveling machine, of a jack having longitudinal and laterally adjustable heel and toe posts, the heel-post having a laterally-adjustable last-pin, substantially as described.

7. The combination with the leveling-roll of a sole-leveling machine, of a jack-frame having a shoe-supporting arm provided with heel and toe posts adjustable independently longitudinally and laterally upon said arm, substantially as described.

8. The combination with the leveling-roll of a sole-leveling machine, of a jack-frame having a shoe-supporting arm provided with toe and heel posts independently adjustable longitudinally and laterally on said arm, and a laterally-adjustable last-pin carried by the heel-post, substantially as described.

9. The combination with the leveling-roll of a sole-leveling machine, of a jack-frame having a shoe-support provided with a longitudinal guide or way, and a heel-post adjustable longitudinally and transversely with relation to said guide or way, substantially as described.

10. The combination with the leveling-roll of a sole-leveling machine, of a jack-frame having a shoe-supporting arm provided with a longitudinal guide or way, and heel and toe posts adjustable longitudinally and transversely with relation to said guide or way, substantially as described.

11. The combination with the leveling-roll of a sole-leveling machine, of a jack-frame having a shoe-supporting arm provided with a longitudinal guide or way, a slide-block adjustable longitudinally on said guide or way, and a heel-post engaged with the slide-block and adjustable thereupon transversely of said longitudinal guide or way, substantially as described.

12. The combination with the leveling-roll of a sole-leveling machine, of a jack-frame having a shoe-supporting arm provided with a longitudinal guide or way, slide-blocks adjustable longitudinally on said guide or way, and toe and heel posts carried by the slide-blocks and adjustable thereupon transversely with relation to the longitudinal guide or way, substantially as described.

13. The combination with a jack-frame, of a heel-post consisting of a standard, a vertically-adjustable sleeve, a last-pin holder pivotally mounted on the standard and connected with the sleeve, and means for raising and lowering the sleeve to adjust the last-pin, substantially as described.

14. The combination with a jack-frame, of a heel-post consisting of a standard, a vertically-adjustable sleeve mounted on the standard, a pivoted last-pin holder carried by the standard, a link pivotally connecting the sleeve with the last-pin holder, a last-pin carried by the holder, and means for raising and lowering the sleeve to adjust the last-pin, substantially as described.

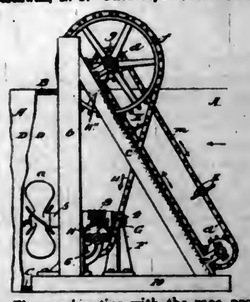
15. The combination with a jack-frame, of a heel-post consisting of a standard, a vertically-adjustable sleeve mounted on the standard, a pivoted last-pin holder carried by the standard and connected with the sleeve, a laterally-adjustable last-pin secured to the last-pin holder, and means for raising and lowering the sleeve, substantially as described.

16. The combination with a jack-frame, of a heel-post consisting of a screw-threaded standard, an internally-screw-threaded sleeve engaging the threaded part of the standard, a sleeve mounted on the standard and having a quick-pitch screw-thread, a locking-plate carried by the screw-threaded sleeve and engaging the quick-pitch screw-thread, a last-pin holder movably mounted on the standard, a last-pin carried by the last-pin holder, and a connection between the last-pin holder and the sleeve having the quick-pitch screw-thread, substantially as described.

17. The combination with a jack-frame, of a heel-post consisting of a standard, a last-pin holder pivotally mounted on the standard, a laterally-adjustable last-pin carried by the last-pin holder, a clamping-screw connecting the last-pin with the last-pin holder, and devices for tilting or tipping the last-pin holder, substantially as described.

18. The combination with a vibrating frame, of a plate centrally pivoted to said frame, and having bolt-holes, two independently-movable arc-shaped or segmental plates mounted on the said plate and having segmental slots and shaft-bearings, a two-part shank-roll carried by said shaft-bearings, bolts passing through the segmentally-slotted plates and the pivotally-mounted plate, and clamping-bolts passing through the segmentally-slotted plates and engaging said pivotally-mounted plate, whereby the parts of the shank-roll are adjustable, substantially as described.

591,767. RACK-CLEANER FOR WATER-RACES. ROSWELL S. JUDSON, Matteawan, N. Y. Filed Sept. 9, 1896. Serial No. 605,308. (No model.)



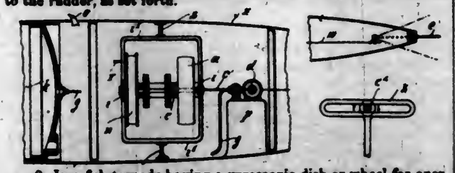
Claim.—1. The combination with the race, provided with the rack or grating, of the endless sprocket-chains, *m*, *n*, the bars K, provided with rake-teeth *k*, fixed to said chains and adapted to travel contiguously parallel to said rack or grating, and a prime motor located in the race in the rear of said rake-teeth and adapted to operate said chains, as and for the purpose set forth.

2. The race, the grating extending across said race, in combination with a traveling rake and the water-motor located below the level of the water in said race, and means substantially as described for communicating a continuous motion from said motor to the rake, as and for the purpose set forth.

3. The race A, the grating H", extending across said race, the transverse parallel shafts, *e e'*, provided with fixed sprocket-wheels on their outer ends and the endless sprocket-chains, *m*, *n*, connecting the respective sprocket-wheels on said parallel shafts, the bars, K, provided with transverse rake-teeth *k*, and having their opposite ends connected to said sprocket-chains, in combination with the sprocket-wheel, *f*, fixed on the shaft *e*, the shaft, 7, provided with the worm-wheel 8, and the sprocket-wheel H, the sprocket-chain 11, connecting said sprocket-wheels, *f* and 8, and the longitudinal shaft 4, the worm-screw, 9, fixed thereon to mesh with the worm-wheel 8, and the propeller-wheel, *a*, fixed on the projecting end of said shaft 4, substantially as and for the purpose set forth.

591,768. STEERING APPARATUS FOR TORPEDOES. EMIL KAMLOWSKY, Berlin, Germany. Filed Oct. 3, 1896. Serial No. 607,763. (No model.) Patented in Germany Oct. 3, 1894, No. 86,522.

Claim.—1. In a fish-torpedo having a gyroscopic disk or wheel for operating the rudder, the combination with said disk or wheel, and its axle or shaft, and a frame carrying said axle or shaft, and adapted to turn around an axis located at right angles to the axle or shaft, of a motor for the gyroscopic disk or wheel also carried by said frame, and means for transmitting the deviations of the latter to the rudder, as set forth.



2. In a fish-torpedo having a gyroscopic disk or wheel for operating the rudder, the combination with said disk or wheel, and its horizontal axle or shaft, and the frame carrying said axle or shaft, and adapted to turn around a horizontal axis located at right angles to the axle or shaft, of a motor for the gyroscopic disk or wheel also carried by said frame; another frame carrying the latter and adapted to turn around a vertical axis, and means for transmitting the deviations of the said frame or frames to the rudder, as set forth.

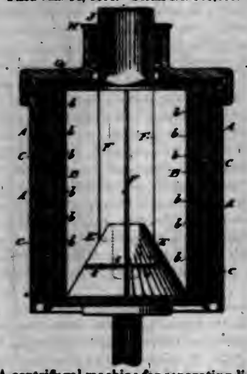
3. In a fish-torpedo having a Servi motor for operating the rudder, and a gyroscopic disk or wheel for operating the valve-motion of said motor, the combination with said disk or wheel, and its horizontal axle or shaft, and the frame carrying said axle or shaft and adapted to turn around a horizontal axis located at right angles to the first-named axle or shaft, of a motor for the gyroscopic disk or wheel also carried by said frame; another frame carrying the latter frame, and adapted to turn around a vertical axis; a rod exteading from the first-mentioned frame in the direction of the said axle or shaft, and a vertical slotted guide-piece secured to the horizontal valve-rod of the Servi motor and taking over the free end of said first rod, substantially and for the purpose as described.

591,769. PROCESS OF TREATING LEATHER PREPARATORY TO DYEING. EMIL KÖSTER, Neumünster, Germany, assignor to Eduard Avellis, Berlin, Germany. Filed Aug. 8, 1896. Serial No. 602,195. (No specimens.)

Claim.—1. The process of preparing acid chrome leather for dyeing consisting in neutralizing the skins, with a solution of chalk and salt, then washing in water to remove the chalk, then treating them with substances containing tannin, and then treating them with tartar emetic, substantially as herein set forth.

2. The process of treating chrome leather for dyeing, consisting in neutralizing the leather, then treating it with substances containing tannin and then treating it with tartar emetic, substantially as herein shown and described.

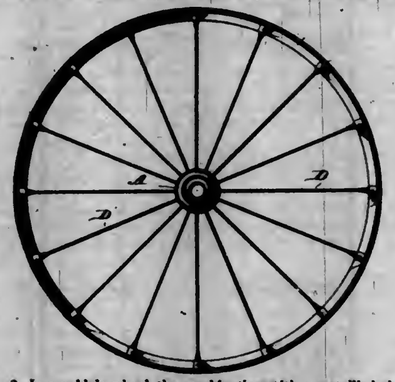
591,770. CENTRIFUGAL MACHINE. JOHN LAIDLAW, Glasgow, Scotland. Filed Jan. 16, 1896. Serial No. 575,769. (No model.)



Claim.—A centrifugal machine for separating liquids of different densities comprising a drum, an annular liner having series of horizontal tangential bores, and located within the drum so as to leave an annular space between the walls of the liner and the drum, the cone provided with holes and located within the liner, and the radial vanes within the liner, substantially as described.

591,771. VEHICLE-WHEEL. GEORGE W. C. LOEB, Birmingham, Ala., assignor of one-half to William S. Locke and Granville W. Worden, Cincinnati, Ohio. Filed Apr. 18, 1896. Serial No. 588,194. (No model.)

Claim.—1. In a vehicle-wheel, the combination, with a hub, of metallic spokes provided with flanges at their inner ends arranged to come within the side edges of the spokes with metallic retaining-bands slotted to receive the side edges of the spokes and allow the bands to embrace said flanges, substantially as shown and described.

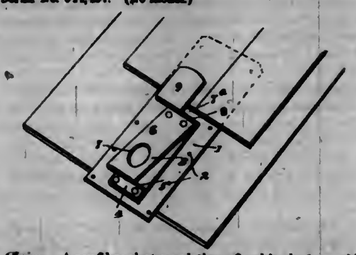


2. In a vehicle-wheel, the combination, with a metallic hub provided with shoulders or rims to form a recess around the center of the hub, of a metallic felly provided with enlargements, having cone-shaped recesses therein, metallic spokes having flanges at their inner ends and bands for securing same to the hub between said shoulders, said spokes being cut away at the outer ends and upset within said recesses to secure same to the felly, substantially as shown and described.

3. In a vehicle-wheel, the combination, with a seamless metallic shell to form the hub, of metallic spokes having flanges at their inner ends and metallic bands fitting over said flanges to secure said spokes to the external surface of the shell, axle-box centered on lugs at each end of the hub-shell, and a brimstone, cement or wood-fiber filling between the axle-box and the internal surface of the shell, substantially as shown and described.

4. In a vehicle-wheel, the combination, with a metallic hub, provided with shoulders or rims to form a recess around the center of the hub, of metallic spokes provided with single flanges of same width as the spokes to fit between said rims and abut against the next spokes with metallic retaining-bands slotted to receive the side edges of the spokes and allow the bands to meet between the spokes, substantially as shown and described.

591,772. ROOF-BRACKET. JACOB MATTER, Lincoln, Cal., assignor to Thomas Charles Ferron, same place. Filed July 13, 1897. Serial No. 644,467. (No model.)



Claim.—A roof-bracket consisting of a shingle 1 provided with a plate 6 secured to the lower portion thereof and provided with an opening 7 and a bracket 7ª at the upper end of said plate.

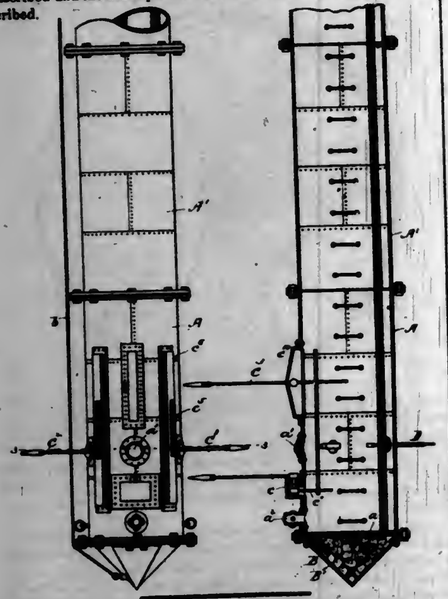
591,773. DIVING APPARATUS. BERNHARD NELSON, Boston, Mass., assignor of one-half to John P. Jacobsen, same place. Filed Mar. 16, 1897. Serial No. 628,124. (No model.)

Claim.—1. In a diving apparatus, the combination of the stand-pipe having the closed-end section A provided with the levers C, C', C², C³ and the ballast-chamber B controlled by the rope *b*, as and for the purposes described.

2. In a diving apparatus, the stand-pipe A', the end section A, the lever C movable in a horizontal plane, the levers C', C² movable vertically and horizontally and the lever C³ movable in the arc of a circle, as and for the purposes described.

3. In a diving apparatus, the stand-pipe A' having the closed-end section A, the levers C', C³, the slide c^4, the slideway c^5 and the slide block c^6, as and for the purposes described.

4. The combination in a diving apparatus of the stand-pipe A having the closed-end section A, the levers C, C', C^2, C^3 movable as described and the blunt-pointed screw D, as and for the purposes described.



591,774. LOOPER MECHANISM FOR SEWING-MACHINES.

Lambert Ohnesorge, Winthrop, Mass., assignor to The Union Special Sewing Machine Company, Chicago, Ill. Filed Dec. 5, 1896. Renewed Sept. 18, 1897. Serial No. 652,179. (No model.)



Claim.—1. A sewing-machine comprising a driving-shaft, a looper-carrier provided with a way or cam-groove with means for giving to the looper-carrier its various movements, said means comprising an inclined crank engaging the looper-carrier and a member fixed against lateral movement engaging the way or cam-groove, substantially as described.

2. In a sewing-machine, a looper, a support therefor having rearwardly and forwardly extending wings, and means for operating the same to give loop-taking, loop-leaving and needle-avoiding movements to the looper, said means comprising an inclined crank embraced by the rearwardly-extending wings, a member fixed against lateral movement engaged by the forwardly-extending wings and means for giving rotary movement to the inclined crank, substantially as described.

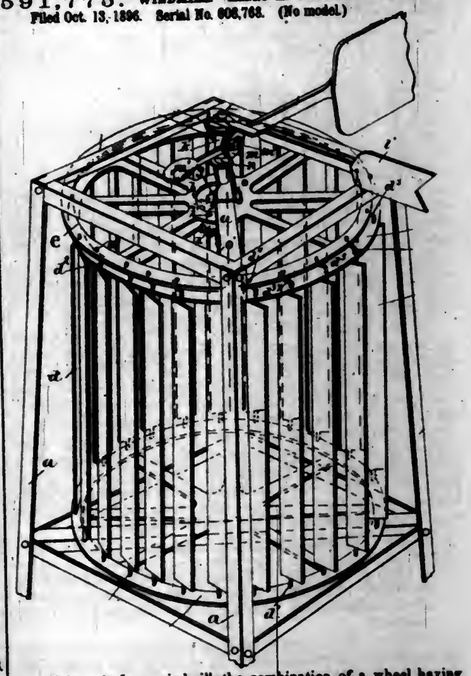
3. A sewing-machine comprising a driving-shaft, a looper-carrier mounted to slide and rock in fixed bearing and provided with a way or cam-groove, means for oscillating the looper-carrier comprising an inclined crank operatively engaging said carrier, means for giving a sidewise motion to said carrier, comprising a member fixed against lateral movement engaging said way or cam-groove, whereby in the oscillation of the looper-carrier the latter is caused to slide in its bearings, substantially as described.

4. In a sewing-machine the combination of a driving-shaft, a looper-carrier with connections between the driving-shaft and looper-carrier for oscillating the latter, a rigid vertical post secured to the machine-frame and a fixed stud secured to said post and engaging a way on said looper-carrier whereby in the oscillation of the latter, a sidewise movement will also be imparted to it, substantially as described.

5. In a sewing-machine a driving-shaft, a looper-carrier having an inclined way, means for oscillating said looper-carrier, a rigid vertical post secured to the frame of the machine, a stud supported by said post, and a cam on said stud in engagement with the inclined way, substantially as described.

591,775. WINDMILL. Henry M. Peterson, Horace, N. D.

Filed Oct. 13, 1896. Serial No. 608,768. (No model.)



Claim.—1. In a windmill, the combination of a wheel having turnable blades, a movable frame carried by the wheel and connected with the blades to control the same, gearing for moving said frame, a pinion independent of the wheel by which said gearing is rotated, a shaft carrying said pinion, a tail-vane mounted to turn loosely on said shaft, a bevel-gear moving with the tail-vane and yieldingly held at its limit of movement in one direction, a bevel-gear rigid on said shaft and meshing with said gear moving with the tail-vane, and a regulator-vane extending laterally from and rigid with said bevel-gear rigid with the shaft, substantially as described.

2. In a windmill, the combination of a wind-wheel having turnable blades provided with actuating and controlling means, a frame having a cross-beam above the wheel, a journal-box in said cross-beam, a vertical shaft in alinement with the wheel-shaft and turnable independently thereof and mounted in and extending through said journal-box with its lower end stepped in the upper end of the wheel-shaft and forming the upper journal for the wheel-shaft, a sleeve loose on said vertical shaft and having its lower end stepped in said journal-box, a tail-vane carried by said sleeve, and a regulator-vane carried by said vertical shaft, substantially as described.

3. In a horizontally-rotating wind-wheel, the combination of the rotary wheel, a frame, a shaft concentric with the wheel-axis and turnable independently thereof, a sleeve turnable on said shaft and carrying the tail-vane, two journals projecting from diametrically opposite sides of said sleeve, a counterweighted gear on one of said journals and which can be placed on either to reverse the wheel, wheel-controlling mechanism comprising gearing and a regulator-vane.

4. In a windmill, the combination of a frame, a wind-wheel having turnable blades, actuating means controlling the positions of the blades and actuated by the rotation of the wheel, a tail-vane movable independently of the wheel, a regulator-vane rigid with said actuating means to control the positions of the blades independently of the tail-vane and gearing connecting the tail-vane and said actuating means and comprising a yieldingly-held gear traveling around with the tail-vane and normally holding the regulator-vane against the wind, substantially as described.

5. In a windmill, the combination of a wind-wheel having turnable blades, movable means controlling the positions of the blades and actuated by and comprising a normally stationary gear, a tail-vane movable independently of the wheel and connected with said gear to shift the same as the tail-vane shifts, a regulator-vane connected with said gear and arranged to shift the same independently of the tail-vane, a swinging lever on connection from the ground or other convenient point connected with said gear to shift the same independently of the tail-vane, and means connecting the regulator-vane and said lever and holding the same yieldingly in their normal positions, substantially as described.

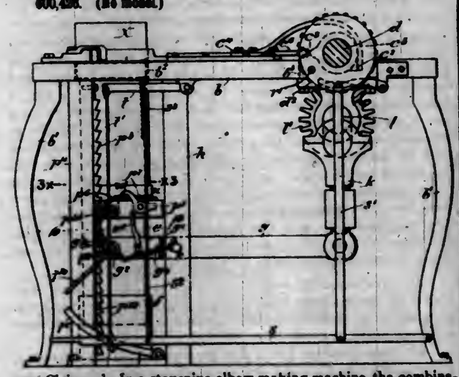
6. In a windmill, the combination of a wind-wheel having turnable blades, controlling means shifting the positions of the blades and actuated by the rotation of the wheel, a normally stationary shaft in alinement with the wheel-axis and connected with and controlling said controlling means, a regulator-vane rigid with said shaft, a tail-vane loose on said shaft, a yieldingly-held gear loosely connected with the tail-vane so as to rotate independently thereof but movable with the same, said gear connected with said shaft to yieldingly hold the regulator-vane in its normal position and to shift the shaft as the tail-vane shifts, substantially as described.

7. In a windmill, the combination of a frame, a wind-wheel having turnable blades, means controlling said blades and actuated by the rotation of the wheel, a shaft, normally stationary, and controlling said means and consequently the positions of the blades, a tail-vane freely turnable on said shaft, a yieldingly-held gear carried by and turnable independently of said vane and geared to said shaft to turn the same as the tail-vane shifts, and a hand-operated connection or lever connected with said gear and yieldingly held in its normal position by the same and arranged to rotate said gear to turn the shaft independently of the tail-vane, substantially as described.

8. In a windmill, the combination of a frame, a wind-wheel having turnable blades, means controlling and changing the positions of the blades and comprising and controlled by a normally stationary gear, a normally stationary shaft mounted in the frame in alinement with the axis of said wheel and having said gear rigid therewith, a regulator-vane rigid with said shaft, a bevel-gear rigid with said shaft, a sleeve loose on the shaft, the tail-vane rigid with said sleeve, a bevel-gear yieldingly held in it normal position and meshing with said bevel-gear on the shaft and journaled on the sleeve, substantially as described.

9. In a windmill, the combination of a frame, a wind-wheel having turnable blades, actuating means changing the positions of said blades and operated by the rotation of the wheel, a normally stationary shaft controlling said actuating means, a tail-vane movable around said shaft independently of the wheel, a movable counterweighted gear movable with the vane and mounted to rotate independently of the vane and geared to rotate said shaft, a regulator-vane rigid with said shaft and yieldingly held in its normal position by said gear, said gear having a sheave, a vertically-movable lever mounted on the frame and having connections to the sheave so that the gear and hence the shaft can be rotated through the medium of the lever, substantially as described.

591,776. STOVEPIPE-ELBOW-MAKING MACHINE. James Russell, Montreal, Canada, assignor to the Thomas Davidson Manufacturing Company, Limited, same place. Filed July 24, 1896. Serial No. 600,498. (No model.)



Claim.—1. In a stovepipe-elbow-making machine, the combination with means for holding the pipe to be operated upon, of a main crimper and a pair of auxiliary crimpers, the latter operated by the main crimper and the main and auxiliary crimpers adapted to impinge upon and crimp the pipe, and means for operating said main crimper.

2. In a stovepipe-elbow-making machine, the combination with means for holding the pipe to be operated upon, of a main crimper and a pair of auxiliary crimpers, the latter operated by the main crimper and the main and auxiliary crimpers adapted to simultaneously impinge upon and crimp the pipe, and means for operating said main crimper.

3. In a stovepipe-elbow-making machine the combination with means for crimping the pipe, of a reciprocating circumferentially-recessed crimping and crimp-flattening head having the parts thereof stationary relatively to one another, and means for reciprocating said head, for the purpose set forth.

4. In a stovepipe-elbow-making machine, the combination with means for holding the pipe to be operated upon and means for crimping the pipe, of a reciprocating head having a rigid pipe-supporting section and a rigid crimp-flattening section formed integrally with said head, said sections being permanently divided by a space adapted to receive the crimped portion of the pipe between them, and means for reciprocating said head.

5. In a stovepipe-elbow-making machine, the combination with means for holding the pipe to be operated upon, of a main crimper and a pair of auxiliary crimpers, the latter operated by the main crimper and the main and auxiliary crimpers adapted to impinge upon and crimp the pipe; means for operating said main crimper; a reciprocating solid head for bending back the crimped portion, and means for reciprocating said head.

6. In a stovepipe-elbow-making machine, the combination of horizontally-operating crimpers, a vertically-reciprocating solid head comprising rigid pipe supporting and rigid crimp-flattening sections, said sections being permanently divided by a space adapted to receive the crimped portion of the pipe between them, means for operating said crimpers and means for reciprocating said head, for the purpose set forth.

7. In a stovepipe-elbow-making machine, the combination, of a horizontal table portion having an opening therein; a main crimper located adjacent to said opening and connected to one end of a slide; a pair of auxiliary crimpers pivoted to said table portion adjacent to said opening; means for operating said main crimper and an operative connection between said main and auxiliary crimpers; a reciprocating mandrel having a head formed integrally therewith, said head being adapted to receive said crimped portion of the pipe and means for operating said main crimper; means for reciprocating said mandrel, and means for feeding the pipe.

8. In a stovepipe elbow-making machine, the combination with means for holding the pipe to be operated upon, of a main crimper; a pair of auxiliary crimpers; link connections between said main and auxiliary crimpers; whereby said main and auxiliary crimpers will be caused to simultaneously impinge upon the pipe, and means for operating said main crimper.

9. In a stovepipe elbow-making machine, the combination with means for holding the pipe to be operated upon, of a main crimper having its ends extended tangentially; a pair of pivoted auxiliary crimpers having their free ends beveled and located in contact with the tangential ends of said main crimper; links carried rigidly upon the free ends of said auxiliary crimpers and adapted to take over said tangential portions of the main crimper and means for reciprocating said main crimper.

10. In a stovepipe-elbow-making machine, the combination with means for holding the pipe to be operated upon, of a main crimper having its ends extended tangentially; a pair of pivoted auxiliary crimpers having their free ends beveled and located in contact with the tangential ends of said main crimper; levers fulcrumed in close proximity to the adjacent ends of said main and auxiliary crimpers and adapted to normally bear upon same; links connecting the ends of said levers to said crimpers; and means for reciprocating said main crimper.

11. In a stovepipe-elbow-making machine, the combination of, a horizontal table portion having an opening therein; a main crimper located adjacent to said opening and connected to one end of a slide; a pair of auxiliary crimpers pivoted to said table portion adjacent to said opening; means for reciprocating said slide and an operative connection between said main and auxiliary crimpers; a vertically reciprocating mandrel having a solid head secured to the upper end thereof, said head being adapted to receive said crimped portion of the pipe; a pair of stationary vertical racks secured to the frame of the machine, a vertically-movable carriage consisting of a rigid portion adapted to encircle said mandrel and an open ring encircling said rigid portion, one of the ends of said ring being provided with a pin projection and the other having an eccentric fulcrumed thereto, said eccentric being slotted to take over said pin projection; a pair of pawls carried by said carriage and adapted to engage said racks, a pair of racks secured at one end to said carriage and a lever fulcrumed to the frame of the machine and carrying a pair of pawls in one end, said pawls being adapted to engage said last-mentioned racks and said lever being operatively connected to said mandrel and means for operating said lever, for the purpose set forth.

12. In combination with the driving-shaft and pipe-feeding carriage of a stovepipe-elbow-making machine, of clutch mechanism mounted tightly upon said driving-shaft and a driving-pulley mounted loosely upon said shaft; a lever fulcrumed adjacent to said clutch mechanism and adapted when moved in one direction to effect the

engagement of said clutch mechanism and driving pulley and when moved in the opposite direction to effect the disengagement of said clutch mechanism and driving-pulley; and means adapted to be engaged and operated by said carriage for moving said lever.

13. In combination with the frame, driving-shaft and pipe-feeding carriage of a stovepipe-elbow-making machine, of clutch mechanism mounted tightly upon said driving-shaft and a driving-pulley mounted loosely upon said shaft; a lever fulcrumed adjacent to said clutch mechanism and adapted when moved in one direction to effect the engagement of said clutch mechanism and driving-pulley and when moved in the opposite direction to effect the disengagement of said clutch mechanism and driving-pulley; a lever fulcrumed to the frame of the machine and adapted to be engaged by said carriage at the completion of an elbow, a lever fulcrumed to the frame of the machine and extending parallel to said last-mentioned lever and said clutch-operating lever, a link connection between said parallel lever and the clutch-operating lever and the lever to be engaged by said carriage for the purpose set forth.

14. In combination with the frame, driving-shaft and pipe-feeding carriage of a stovepipe-elbow-making machine of clutch mechanism mounted tightly upon said driving-shaft and a driving-pulley mounted loosely upon said shaft, a lever fulcrumed adjacent to said clutch mechanism and adapted when moved in one direction to effect the engagement of said clutch mechanism and driving-pulley and when moved in the opposite direction to effect the disengagement of said clutch mechanism and driving-pulley; a lever fulcrumed to the frame of the machine and adapted to be engaged by said carriage at the completion of an elbow, a treadle fulcrumed to the frame of the machine and extending parallel to said last-mentioned lever and said clutch-operating lever, link connections between said treadle and the clutch-operating lever, a U-shaped section having the ends of its arms fulcrumed to the floor and said section having a lateral projection adapted to project under the treadle and engage or be engaged by the same, and a link connection between said U-shaped section and the lever to be engaged by the carriage, for the purpose set forth.

15. In a stovepipe-elbow-making machine, a pipe-feeding carriage consisting of a rigid portion adapted to receive the pipe about the same, an open ring encircling said rigid portion, one end of said ring being provided with a pin projection and the other end having an eccentric fulcrumed thereto and carried thereby, said eccentric being slotted to take over said pin projection.

16. In a stovepipe-elbow-making machine, the combination of, a table portion having an opening therein; a main crimper located adjacent to said opening and connected to one end of a slide; a pair of auxiliary crimpers pivoted to said table portion adjacent to said opening; means for reciprocating said slide and an operative connection between said main and auxiliary crimpers; a reciprocating mandrel having a solid head secured to the upper end thereof, said head being adapted to receive said crimped portion of the pipe; a pair of stationary racks secured to the frame of the machine, a movable carriage consisting of a rigid portion *p* adapted to encircle said mandrel and an open ring encircling said rigid portion, one of the ends of said ring being provided with a pin projection and the other having an eccentric fulcrumed thereto, said eccentric being slotted to take over said pin projection; a pair of pawls carried by said carriage and adapted to engage said racks, a pair of racks secured at one end to said carriage and a lever fulcrumed to the frame of the machine and carrying a pair of pawls in one end, said pawls being adapted to engage said last-mentioned racks, and said lever being operatively connected to said mandrel, and means for operating said lever, for the purpose set forth.

17. In a stovepipe-elbow-making machine, the combination of, a table portion having an opening therein; a main crimper located adjacent to said opening and connected to one end of a slide; a pair of auxiliary crimpers pivoted to said table portion adjacent to said opening; a shaft extending at right angles to said slide, a pair of cams carried by said shaft, an arm carried by said slide and adapted to be engaged by the adjacent side of the cam adjacent thereto, a second arm carried by said slide and extended and curved to extend over and be engaged by the other cam; and an operative connection between said main and auxiliary crimpers; a reciprocating mandrel having a solid head secured to the upper end thereof, said head being adapted to receive said crimped portion of the pipe; a pair of stationary racks secured to the frame of the machine, a movable carriage consisting of a rigid portion *p* adapted to encircle said mandrel and an open ring encircling said rigid portion, one of the ends of said ring being provided with a pin projection and the other having an eccentric fulcrumed thereto, said eccentric being slotted to take over said pin projection; a pair of pawls carried by said carriage and adapted to engage said racks, a pair of racks secured at one end to said carriage and a lever fulcrumed to the frame of the machine and carrying a pair of pawls in one end, said pawls being adapted to engage said last-mentioned racks; and said lever being operatively connected to said mandrel and means for operating said lever, for the purpose set forth.

18. In a stovepipe-elbow-making machine, the combination of, a horizontal table portion having an opening and connected to one end of a slide; a pair of auxiliary crimpers pivoted to said table portion adjacent to said opening; means for reciprocating said slide, a vertically-reciprocating mandrel having a solid head secured to the upper end thereof, said head being adapted to receive said crimped portion of the pipe; a pair of stationary vertical racks secured to the frame of the machine, a vertically-movable carriage consisting of a rigid portion *p* adapted to encircle said mandrel and an open ring encircling said rigid portion, one of the ends of said ring being provided with a pin projection and the other having an eccentric fulcrumed thereto, said eccentric being slotted to rake over said pin projection; a pair of pawls carried by said carriage and adapted to engage said racks, a pair of racks secured at one end to said carriage and a lever fulcrumed to the frame of the machine and carrying a pair of pawls in one end, said pawls being adapted to engage said last mentioned racks, and means for operating said lever, for the purpose set forth.

19. In a stovepipe-elbow-making machine, the combination of, a horizontal table portion having an opening therein; a main crimper located adjacent to said opening and connected to one end of a slide; a pair of auxiliary crimpers pivoted to said table portion adjacent to said openings; means for reciprocating said slide and an operative connection between said main and auxiliary crimpers; a vertically-reciprocating mandrel having a solid head secured to the upper end thereof, said head being adapted to receive said crimped portion of the pipe; a pair of stationary vertical racks secured to the frame of the machine, a vertically-movable carriage consisting of a rigid portion *p* adapted to encircle said mandrel and an open ring encircling said rigid portion, one of the ends of said ring being provided with a pin projection and the other having an eccentric fulcrumed thereto, said eccentric being slotted to take over said pin projection; a pair of pawls carried by said carriage and adapted to engage said racks, a pair of racks secured at one end to said carriage and a forked lever fulcrumed to the frame of the machine, the forked end thereof straddling the mandrel, a spindle passing through perforations in the ends of said fork and through a perforation through the mandrel, a pair of pawls mounted upon said spindle near the ends thereof, said pawls being adapted to engage said last-mentioned racks, and said lever being operatively connected to said mandrel, and means for operating said lever, for the purpose set forth.

20. In a stovepipe-elbow-making machine, the combination of, a horizontal table portion having an opening therein; a main crimper located adjacent to said opening and connected to one end of a slide; a pair of auxiliary crimpers pivoted to said table portion adjacent to said opening; means for reciprocating said slide; a vertically-reciprocating mandrel having a solid head secured to the upper end thereof, said head being adapted to receive said crimped portion of the pipe; a pair of stationary vertical racks secured to the frame of the machine, a vertically-movable carriage consisting of a rigid portion *p* adapted to encircle said mandrel and an open ring encircling said rigid portion, one of the ends of said ring being provided with a pin projection and the other having an eccentric fulcrumed thereto, said eccentric being slotted to take over said pin projection; a pair of pawls carried by said carriage and adapted to engage said racks, a pair of racks secured at one end to said carriage and a forked lever fulcrumed to the frame of the machine, the forked end thereof straddling the mandrel, a spindle passing through perforations in the ends of said fork and through a perforation through the mandrel, a pair of pawls mounted upon said spindle near the ends thereof, said pawls being adapted to engage said last-mentioned racks, a U-shaped section fulcrumed at its ends upon said spindle adjacent to said pawls and having lateral projections adapted to engage said pawls, and means for operating said lever, for the purpose set forth.

21. In stovepipe-elbow-making mechanism, a reciprocating head, a lever for reciprocating said head, a crank-shaft for operating said lever and an extensible pitman for operatively connecting said lever and crank-shaft.

22. In combination with a pipe-feeding carriage of a stovepipe-elbow-making machine and means for moving said carriage, means for retaining said carriage in its fed position consisting of one or more racks secured to the frame of the machine; and one or more spring-actuated pawls carried by said carriage and adapted to normally engage said racks; means for automatically disengaging said pawls and racks at the completion of an elbow.

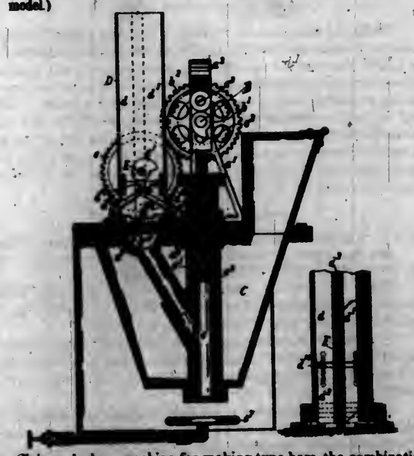
23. In combination with a pipe-feeding carriage of a stovepipe-elbow-making machine and means for moving said carriage, means for retaining said carriage in its fed position consisting of one or more racks secured to the frame of the machine; and one or more spring-actuated pawls carried by said carriage and adapted to normally engage said racks; means for automatically disengaging said pawls and racks at the completion of an elbow, and means for automatically causing the reëngagement of said pawls and racks.

24. In combination with a vertically-traveling pipe feeding carriage of a stovepipe elbow-making machine and means for moving said carriage, one or more racks secured to the frame of the machine, one or more spring-actuated pawls carried by said carriage and adapted to normally engage said racks, said pawls having upwardly-extending ends, a lever carried adjacent to each of said pawls and having one end beveled and extended in close proximity to the upper end of the pawl and said beveled end being adapted to be engaged by the frame of the machine at the completion of an elbow and thus cause said beveled end to engage the upper end of the pawl and disengage said pawl from its rack, and means for causing the reëngagement of said pawl and rack, substantially as and for the purpose set forth.

25. In combination with a vertically-traveling pipe-feeding carriage of a stovepipe-elbow-making machine and means for moving said carriage, one or more racks secured to the frame of the machine, one or more spring-actuated pawls carried by said carriage and adapted to normally engage said racks, said pawls having upwardly-extending ends, a lever carried adjacent to each of said pawls and having one end beveled and extended in close proximity to the upper end of the pawl, and said beveled end being adapted to be engaged by the frame of the machine at the completion of an elbow and thus cause said beveled end to engage the upper end of the pawl and disengage said pawl from its rack; a projecting section immovable relatively to said carriage and carried by the machine in line with the beveled end of said lever and adapted, upon the carriage being moved to a position to receive a pipe-length to be operated upon, to engage said lever and disengage same from the pawl, and allow the reëngagement of said pawl and its rack, substantially as and for the purpose set forth.

26. In combination with the frame, driving-shaft and pipe-feeding carriage of a stovepipe-elbow-making machine, of clutch mechanism mounted tightly upon said driving-shaft and a driving-pulley mounted loosely upon said shaft; a lever fulcrumed adjacent to said clutch mechanism and adapted when moved in one direction to effect the engagement of said clutch mechanism and driving-pulley and when moved in the opposite direction to effect the disengagement of said clutch mechanism and driving-pulley; a lever fulcrumed to the frame of the machine and adapted to be engaged by said carriage at the completion of an elbow, a treadle fulcrumed to the frame of the machine and extending parallel to said last-mentioned lever and said clutch-operating lever, link connections between said treadle and the clutch-operating lever and a yielding support for said treadle; a U-shaped section having the ends of its arms fulcrumed to the floor, said section having a lateral projection adapted to project under the treadle and engage or be engaged by same, and a link connection between said U-shaped section and the lever to be engaged by the carriage, for the purpose set forth.

591,777. MACHINE FOR MAKING TYPE-BARS. CHARLES SEARS, Cleveland, Ohio. Filed Oct. 10, 1894. Serial No. 525,505. (No model.)



Claim.—1. In a machine for making type-bars, the combination of a mold adapted to be opened at one end to permit the removal of the type-bar cast therein, with a perforated nozzle which projects into said mold through one side thereof and forms a recess in one side only of the type-bar, substantially as and for the purpose specified.

2. In a machine for making type-bars, in combination, mechanism for moving a slug and a matrix close and parallel to each other, and for inclosing the space between them, with a perforated nozzle which projects into said space and lies parallel to the proximate faces of said matrix and slug and forms a recess in only one side of the type-bar, and a melting-pot and pump, substantially as and for the purpose specified.

3. In a machine for making type-bars, in combination, two parallel hoppers secured to a bed-plate and adapted to contain respectively matrix-blocks and slugs, a partition between said hoppers which does not descend to the bed-plate, doors closing the ends of said hoppers, laterally-movable plates for forcing the lowest matrix-block and slug toward each other and into engagement with said partition, a nozzle entering the space below said partition, and a melting-pot and pump, substantially as and for the purpose specified.

4. In a machine for making type-bars, in combination, two parallel hoppers, a vertical dividing-partition which does not descend to the bottom of said hopper, sliding doors at the ends of said hoppers, laterally-movable plates adapted to enter said hoppers respectively through the front and rear sides thereof, mechanism for moving said doors, mechanism intermediate of said doors and plates for transmitting motion from one to the other, a nozzle entering the space below the partition, a melting-pot and pump, substantially as and for the purpose specified.

5. In a machine for making type-bars, in combination, two parallel hoppers adapted to contain supplies of matrix-blocks and slugs, a vertical dividing-partition which does not descend to the bottom of the hoppers, a horizontal knife-edge on the lower edge of said partition, the sliding plate a^4 having an upturned knife-edge a^5, the vertically-sliding doors having the vertical knife-edges d^{10}, the laterally-sliding plates entering the hoppers from the front and rear sides respectively, and a nozzle for injecting molten metal between said matrix-block and slug, substantially as and for the purpose specified.

6. In a machine for making type-bars, in combination, two parallel hoppers adapted to contain respectively matrix-blocks and slugs, the dividing-partition which cooperates with the matrix-blocks and slugs to form one side of the mold, mechanism for moving said matrix-blocks and slugs laterally in pairs toward each other until their edges are beneath said partition, sliding doors for closing the sides of said hoppers, a slide adapted to enter one side of said hoppers and to push the matrix-block and type-bar out through the other side of said hoppers, substantially as and for the purpose specified.

7. In a machine for making type-bars, in combination, a mold, a perforated nozzle projecting through the side of said mold, a recess in said side adjacent to said nozzle, and a sliding plate movable toward and from said nozzle, and adapted to cover said recess, substantially as and for the purpose specified.

8. In a machine for making type-bars, in combination, a mold adapted to be opened at one end for the removal of the type-bar, whereby said type-bar and the matrix may be moved endwise while still in contact with each other, with a shelf at the end of said mold onto which the type-bar slides as it moves out of the mold, a lever having a projection adapted to engage with the matrix-block, and mechanism for operating said lever, substantially as and for the purpose specified.

9. In a machine for making type-bars, in combination, a shelf, onto which the type-bar slides as it is pushed from the mold, a finger over said shelf, a pivoted lever, a cross-bar thereon, a spring and a cam for operating said lever, substantially as and for the purpose specified.

591,778. MOUTH GUARD AND PROTECTOR FOR BOTTLES OR DRINKING-GLASSES. JAMES A. DONAHUE and FRED H. LEACH, Los Angeles, Cal. Filed May 7, 1897. Serial No. 635,588. (No model.)

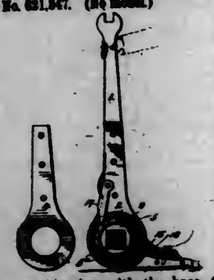


Claim.—1. As an article of manufacture, a metallic guard having its top and its bottom respectively terminating in an inturned spring-flange, whereby when adjusted it will conform to the neck of a bottle as set forth.

2. As an article of manufacture, a metallic guard having a smooth body portion with its top and bottom terminating in an inturned spring-flange, the lower flange being thin whereby when sprung into position the guard will be in tension as set forth.

3. In combination with the neck of a bottle a guard having an inturned spring-flange conforming to the mouth of the bottle, and a thin lower spring-flange fitting a groove in said neck as set forth.

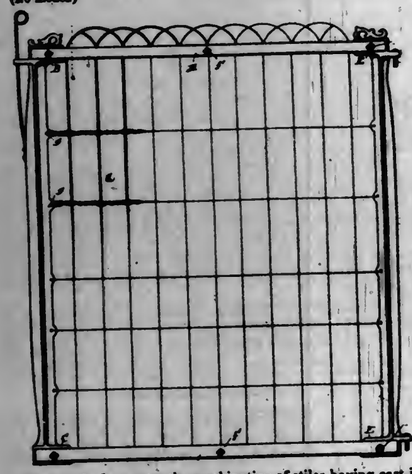
591,779. WRENCH. RANDALL HARRISON, Watago, Ill., assignor of one-half to John F. Hilberg and Amel Hilberg, Galva, Ill. Filed Feb. 3, 1897. Serial No. 621,847. (No model.)



Claim.—1. The combination with the base, the side bearings hald thereon, and the rotary nut-holder journaled in the side bearings, said holder having a central ratchet member, of the lever having its lower end bifurcated and journaled on the holder and having a detachable side portion, said lever having a wrench portion in its upper end and a ratchet-pawl all arranged substantially as shown and described.

2. The combination with the lever having a pawl, and the rotary nut-holder, having a ratchet member, said holder being detachably held to rotate in the lower end of the lever, of the base pivotally hung on the nut-holder, said base having a foot-engaging portion and a ratchet-detent as specified.

591,780. GATE. JOHN LANE, Holly, Mich., assignor of one-half to Cornelius Lane, same place. Filed June 19, 1897. Serial No. 641,425. (No model.)

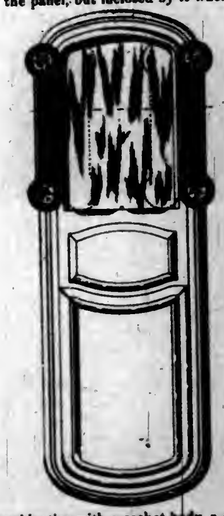


Claim.—1. In a gate, the combination of stiles having cast integral therewith elbows at top and bottom, having therein rabbeted recesses, a compound top and bottom rail made of two sections, the ends of which are adapted to fit into the recesses, a wire fabric interposed between the sections of the rails at the top and bottom, and longitudinally held to the stiles, and means whereby the whole is firmly and rigidly fastened together, substantially as described.

2. In a gate, the combination of double rails located side by side, a double rail being at the top and one at the bottom, a wire-netting comprising a panel for the gate interposed between the sections of the rails, and means whereby the sections are firmly clamped together upon the wire-netting, substantially as described.

591,781. GASKET. HARRY T. LOOMIS, Oneida, N. Y., assignor to the National Casket Company, same place. Filed Sept. 1, 1897. Serial No. 650,235. (No model.)

Claim.—1. The combination with a casket-body, and its removable panel, or cover, of shelves hinged to the upper edges of the cove independent of the panel, but inclosed by it when folded in.



2. The combination with a casket-body, a cove permanently secured thereon, and a removable panel or cover, of shelves separated from the panel and hinged to said cove, and having a bearing thereon when opened out, and inclosed by the panel when folded in.

591,782. STOPPER-NECK. GEORGE W. MARTIN, Henderson, Ky., assignor of one-half to Harry Morgan Stanley, same place. Filed Sept. 25, 1896. Serial No. 606,961. (No model.)



Claim.—A stopper-neck for bottles and like vessels, having its internal diameter gradually reduced from its upper end downwardly to a point intermediate its ends, from which point it again gradually increases toward its lower end, and provided with an internal thread having a rounded bearing-surface which gradually increases in depth and width from its ends to its middle portion, the depth and width of the thread being greatest where the internal diameter of the neck is smallest, whereby a stopper is permitted to expand in the neck above and below the deepest and widest portion of the thread, substantially as and for the purpose specified.

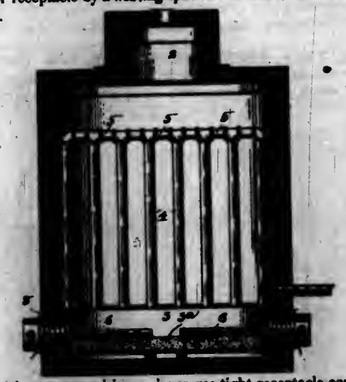
591,788. ELECTRIC HEATER. OSCAR D. MCCLELLAN, Philadelphia, Pa., assignor of one-half to Francis Dougherty, same place. Filed Oct. 17, 1895. Serial No. 565,996. (No model.)

Claim.—1. A heater comprising a gas-tight receptacle, carbon points arranged therein, and an inert gas filling said chamber and designed to circulate therein, substantially as specified.

2. A heater comprising a gas-tight receptacle, carbon points arranged therein, a bed of refractory material, and an inert gas filling said chamber and designed to circulate therein, substantially as specified.

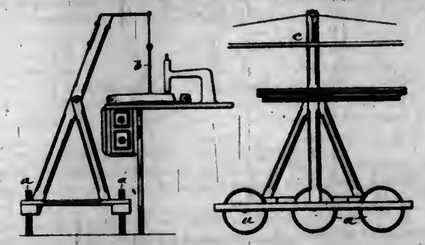
3. A heater comprising a gas-tight chamber or receptacle having a number of tubes radiating therefrom, carbon points arranged in said chamber or receptacle, and an inert gas filling the same and designed to circulate therein, substantially as specified.

4. A heater comprising an inner gas-tight receptacle, carbon points arranged therein, an inert gas filling said receptacle and designed to circulate therein, and an outer receptacle separated from said inner receptacle by a heating space or chamber, substantially as specified.



5. A heater comprising an inner gas-tight receptacle containing an inert gas designed to circulate therein, an outer or surrounding receptacle separated from the inner receptacle by a heating space or chamber, a number of tubes extending through the walls of both said receptacles, and carbon candles or points arranged in said tubes and extending into the inner receptacle, substantially as specified.

591,784. QUILTING ATTACHMENT FOR SEWING-MACHINES. WILLIAM OSBORN, Valley View, Tex., assignor to George Savage, Cooke County, Tex. Filed Jan. 18, 1897. Serial No. 619,626. (No model.)



Claim.—The combination of a quilting-frame support comprising a three-wheeled truck with an inclined standard and two positively-inclined braces, the said standard carrying at its upper end a horizontal rod terminating in a hook, and a quilting-frame having supporting means slidingly mounted upon said rod.

591,785. FAUCET. PATRICK K. O'LALLY, Boston, Mass. Filed Sept. 12, 1896. Serial No. 606,570. (No model.)



Claim.—1. A faucet having a downwardly-projecting nozzle, a downwardly-closing valve in said nozzle, a lever pivoted to the nozzle and having a valve-raising portion within and surrounded by the nozzle below the valve, and an external portion outside the nozzle arranged to be displaced from its normal position by pressure applied outside the nozzle, the displacement of the lever raising the valve from its seat, while the location of the valve-raising portion of the lever within the nozzle prevents the lever from scattering the liquid discharged.

2. A faucet having a downwardly-projecting nozzle, a downwardly-closing valve in said nozzle, a lever pivoted to the nozzle and having a valve-raising portion within and surrounded by the nozzle below the valve, and an external portion outside the nozzle arranged to be displaced from its normal position by pressure applied outside the nozzle, the displacement of the lever raising the valve from its seat, and an adjustable detent for holding the lever and valve in their displaced positions.

3. A faucet comprising a spout having a valve-seat, a check-valve on said seat, and a lever pivoted to the exterior of the faucet at a point above the mouth of the spout and extending along the exterior of the spout toward said mouth in position to receive displacing pressure from a vessel surrounding the spout, the lower end of said lever being provided with an arm projecting upwardly into the said mouth and engaged with the valve.

4. A faucet comprising a spout having a valve-seat, a check valve on said seat, a lever pivoted to the faucet and projecting below the mouth of the spout, said lever being provided with an arm projecting upwardly into the said mouth and engaged with the valve, and with another arm outside the nozzle, and a detent pivoted to the last-mentioned arm and adapted to engage a shoulder or projection on the nozzle.

591,786. COPPER-WARMER. FREDERICK J. PARK, Wheeling, W. Va., assignor to the North Wheeling Glass Company, same place. Filed June 5, 1897. Serial No. 639,551. (No model.)

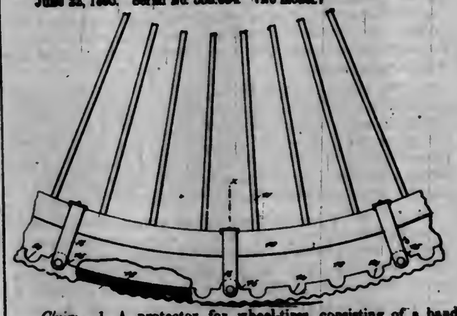


Claim.—1. The combination with a bottle or jar, having oppositely-arranged recesses extending vertically from its bottom, of a holder having a flat base and upwardly-projecting flanges or lips arranged to enter said recesses.

2. The combination with a bottle or jar having in its front and rear faces recesses extending vertically from its bottom, of a holder having a flat base and vertically-extending lips or flanges of greater length than the height of the recesses.

3. The combination with a bottle or jar having vertically-extending recesses, of a holder having a flat base and upwardly-projecting flanges arranged to enter the recesses, and interfitting bosses and recesses in the bottle and holder.

591,787. BICYCLE-TIRE. JOHN D. PARKER, San Diego, Cal. Filed June 22, 1895. Serial No. 553,694. (No model.)



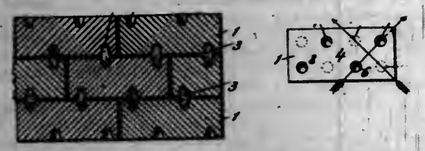
Claim.—1. A protector for wheel-tires, consisting of a band adapted to be applied to the outside of the tire and provided with longitudinal flanges having at their ends notches which remain open when the protector is in position on the tire, the tread-surface of the protector being corrugated transversely, substantially as described.

2. A protector for wheel-tires, the protector consisting of a flexible integral band curved to embrace the tire and corrugated transversely and provided with notches in its edges whereby it may freely bend, the band having means for slidably connecting its ends whereby the ends may move freely on each other and accommodate the band to the varying positions of the tire, substantially as described.

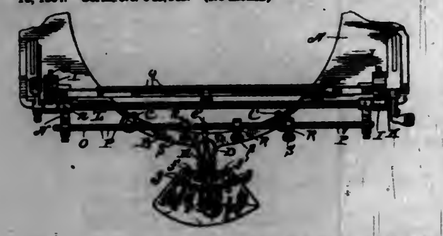
591,788. BRICK. HENRY PRESER, Brooklyn, N. Y., assignor of one-half to Christina Hess, same place. Filed June 7, 1897. Serial No. 639,030. (No model.)

Claim.—1. A brick provided with depressions or indentations on its opposite faces, the indentations in one face of the brick being arranged at an angle to those in the opposite face of the brick.

2. A brick having a plurality of depressions or indentations in its upper face, said depressions or indentations being arranged in pairs at an angle to similar pairs of depressions in the under face of the brick.



591,789. TABULATING ATTACHMENT FOR TYPE-WRITING MACHINES. HERMAN R. SCHNEIDER, Chicago, Ill., assignor of one-half to Hugo C. Krause, same place. Filed Oct. 24, 1896. Renewed Aug. 16, 1897. Serial No. 648,442. (No model.)



Claim.—1. In a tabulating attachment for type-writers the combination of a base, means for attaching the base to a type-writer, a rotatable spindle mounted in the base, a key-lever pivoted in the spindle, such key-lever having a key on one end thereof and a lug on the other end, registering holes and a lug fitting thereinto on the base and key-lever respectively, with an arm mounted on the type-writer carriage to press upon and actuate the release-key of the type-writer carriage when depressed, and a connection between such arm and the pivoted key-lever whereby when the key is depressed the arm is thereby depressed.

2. In a tabulating attachment for type-writers the combination of a rotatable spindle, means for attaching the rotatable spindle to a type-writer, a key-lever having a key on one end thereof and a lug on the other end, mounted on the rotatable spindle, means for registering the key-lever, an arm mounted on the type-writer carriage to press upon and actuate the release-key of the type-writer carriage when depressed, and a connection between such arm and the pivoted key-lever, whereby when the key is depressed the arm is thereby depressed.

3. The combination with the keys of a type-writer of a rotatable spindle, an additional key-lever pivotally mounted on the rotatable spindle, means for registering the rotary movement of the key-lever and spindle, adjustable stops mounted on the type-writer carriage and arranged to be successively carried thereby into contact with the key-lever, and a connection between the key-lever and the release-key of the type-writer carriage; substantially as described.

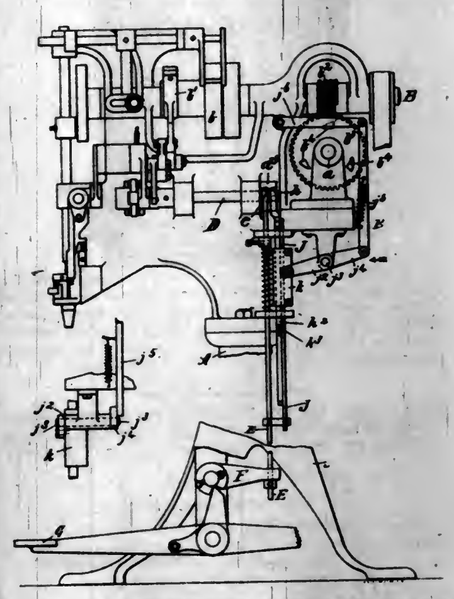
4. In a tabulating attachment for type-writers a frame arranged to be attached to a type-writer carriage, arms pivotally secured in the frame, a rod connecting the arms, attachable stops on the rod and an arm connected to the first-named arms to move therewith and to the release-key of the type writer carriage to actuate it, in combination with a horizontally and vertically movable key; substantially as described.

5. In a tabulating attachment for type-writers a frame arranged to be attached to a type-writer carriage, arms pivotally secured in the frame, a rod connecting the arms, attachable stops on the rod and an arm connected to the first-named arms to move therewith and to the release-key of the type-writer carriage to actuate it, in combination with a horizontally and vertically movable key with means for determining a horizontal movement of the key; substantially as described.

6. In a type-writer attachment a horizontally and vertically movable key, means for determining the horizontal position of the key, and a connection between such key and the type-writer carriage whereby the carriage is released and the movement of the carriage is arrested by the actuation of the key at a place determined by the horizontal position of the key; substantially as described.

7. In a type-writer spacing attachment a horizontally and vertically movable key-lever moving horizontally to correspond with letter-spaces of the type-writer and a connection between such key-lever and the type-writer carriage to release the carriage and arrest it by such key-lever; substantially as described.

591,790. FASTENING-DRIVING MECHANISM. WALTER SHAW, Boston, Mass., assignor to the Continental Lasting Machine Company, of Maine. Filed Apr. 25, 1896. Serial No. 589,072. (No model.)



Claim.—1. In a fastening-driving machine the combination of driving mechanism; fastener-feeding mechanism and speed-reducing mechanism whereby the feeding mechanism feeds only one fastening for several strokes of the driver.

2. In a fastening-driving machine, the combination of driving mechanism; fastener-feeding mechanism; speed-reducing mechanism and a supplementary feed-starting mechanism, all organized and operating substantially as described.

591,791. BICYCLE-TIRE. WILLIAM H. STEVENS, Buffalo, N. Y., assignor of one-half to Edward T. Stevens, same place. Filed Sept. 12, 1896. Serial No. 605,558. (No model.)



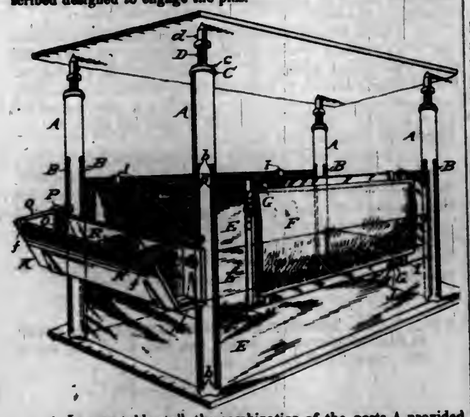
Claim.—A bicycle-tire consisting of an outer casing or tube, an inner inflatable tube, a metallic armor, lying between the outer and inner tubes, consisting of a wire helix or spiral, extending transversely around the inner tube either helically or in separate rings, forming a continuous yielding or elastic metallic envelop around the inner tube and within the outer tube and a flat strip of metal which occupies a diametric position within the helix or spiral parallel with the tread of the tire.

591,792. PORTABLE STALL. DAVID STITZEL, Louisville, Ky., assignor of three-fifths to William F. Brewer, same place. Filed Apr. 12, 1897. Serial No. 631,949. (No model.)

Claim.—1. In a portable stall the combination of the posts A provided with the longitudinal slots having enlargements or eyes at their ends for the purpose set forth, caps C, a bolt D, and the boards E, substantially as described.

2. In a portable stall the combination of the posts A provided with longitudinal slots; caps C; bolts D; and boards E provided with recesses upon their edges and pins or studs mounted in said recesses.

3. In a portable stall the combination of the posts A provided with longitudinal slots; means for securing said posts in place; boards E provided with recesses upon their edges; pins or studs mounted in said recesses; and pads provided with fastenings substantially as described designed to engage the pins.



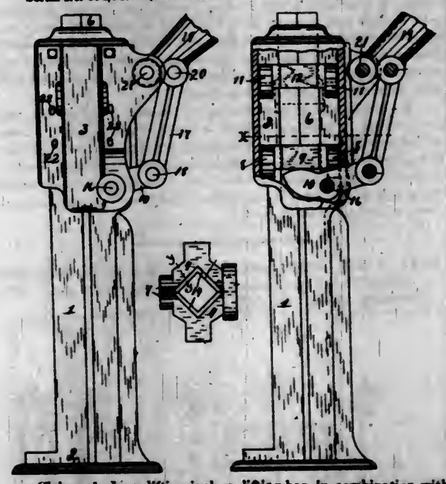
4. In a portable stall, the combination of the posts A provided with longitudinal slots having eyes or enlargements at their ends; a manger comprising the three hinged sections L, M and N; bolts O for holding the section to the posts; and arms such as Q connected to the post and the outer section of the manger.

5. In a portable stall, the combination of the posts A provided with longitudinal slots having eyes or enlargements at their ends; a manger comprising the three hinged sections L, M and N; bolts O for holding the sections to the posts; arms such as Q connected to the posts and the outer section of the manger; and a box R mounted in the manger.

6. In a portable stall, the combination of the posts A provided with longitudinal slots having eyes or enlargements at their ends for the purpose set forth; boards E; and a screen having a headed bolt designed to engage one of the slots and to be fastened to one of the posts and one of the boards, substantially as described.

7. A post for portable partitions comprising the body A provided with teeth upon its lower end; slots B having eyes or enlargements at their ends for the purpose set forth; cap C; and bolt D, substantially as described.

591,793. LIFTING-JACK. GEORGE W. TURNER, Dayton, Ohio, assignor of one-half to John H. Rogge, same place. Filed Apr. 30, 1897. Serial No. 634,549. (No model.)



Claim.—1. In a lifting-jack, a lifting-bar, in combination with two sets of grippers surrounding said bar, each of said sets consisting of two members flexibly connected one set of said grippers being adapted to bind said bar when said bar is set in motion, and the other set of said grippers being adapted to bind said bar to elevate it, a lever under each side of the latter set of grippers, disconnected from but adapted to actuate said grippers, and an operating-lever adapted to simultaneously and correspondingly actuate said levers to raise the lifting bar, substantially as described.

2. In a lifting-jack, a lifting-bar, in combination with lifting and holding grippers, each of said grippers consisting of two angular members flexibly connected and when so connected providing a rectangular opening for the lifting-bar, levers upon which the lifting-grippers are supported, an operating-lever, and a link connecting said operating-lever with the levers under said lifting-grippers, substantially as described.

3. In a lifting-jack, the combination with a casing having openings 22 in a side thereof, of a toothless lifting-bar, two sets of grippers, each set of grippers consisting of two angular members flexibly connected and inclosing when united, all sides of the lifting-bar, the upper set of said grippers being adapted to engage with said bar on the completion of each elevation thereof and the lower set of said grippers being adapted to engage with said bar to lift it, side levers upon which the latter set of grippers are supported, and by which they are lowered and raised, an operating-lever, and a connection between said operating-lever and the side levers, substantially as described.

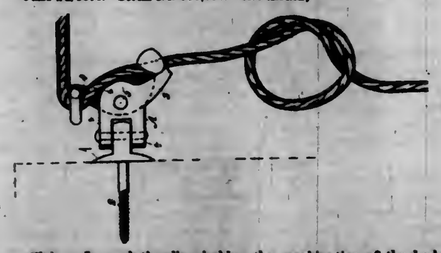
591,794. GAME APPARATUS. PETER ARDNOT, Bellevue, Ky., assignor of one-half to Chas. W. House, Covington, and William J. Wilmer, Fort Thomas, Ky. Filed May 24, 1897. Serial No. 637,827. (No model.)



Claim.—1. In a game of the kind described, the combination of a base-board having a raised rim and a substantial representation of a base-ball field on its upper surface, with depressions indicating certain positions, a ball adapted to enter any one of them, an arm 11 having an elastic reaction when struck by a ball, a spring-actuated pin 9 adapted when released after retracted, to propel the ball against arm 11 and a curved slot 10 within which said pin moves and on any point of which in front of the retracted pin the ball may be placed.

2. In a game of the kind described, the combination of a base-board having a raised rim and a substantial representation of a base-ball field on its upper surface with depressions indicating certain positions, a ball adapted to enter any one of them, a pivotally-supported horizontal spring-actuated arm 11, a vertical pin 9 projecting up through a slot 10 forming the upturned end of a lever 15, the two formed of one piece of wire, the other end of which is set from underneath into the base-board, being first turned to form a coil-spring and a pull-rod 17 connected to this lever 15 and projecting beyond one end of the base-board where it is provided with a handle for manipulation.

591,795. CLOTHES-LINE HOLDER. HORACE CATLIN, Burlington, Iowa, assignor of one-half to Oswald Hirsch, same place. Filed June 24, 1896. Serial No. 596,797. (No model.)



Claim.—In a clothes-line holder, the combination of the body portion having a shoulder projecting outwardly from its face and a depending leg below said shoulder, of a bent lever pivoted to one side of said body portion in rear of said shoulder provided with laterally-extending yokes which cross said body portion above and below said shoulder substantially as described.

591,796. HOSE-FITTING. JOHN O. DE WOLF, Cambridge, Mass., assignor to the Boston Woven Hose and Rubber Company, Boston, Mass. Filed Dec. 17, 1896. Serial No. 615,950. (No model.)



Claim.—1. In a device of the kind described, the combination with a clamp having portions adapted to be brought together about the hose to be clamped, of one or more wedge-shaped members adapted to be acted upon by and during the said clamping operation to coöperate with the clamp in compressing the hose, substantially as described.

2. A hose-fitting, comprising an inner member to fit within the hose, a clamp to embrace the hose between it and said inner member, an outer leg member locked to said inner member at its outer end beyond the hose, and extending against the hose beneath and between the ends of said clamp, and provided with means to maintain it in its said position and prevent it from moving longitudinally of the clamp or the clamp transversely of it, substantially as described.

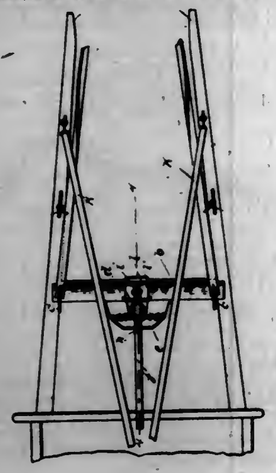
3. A hose-fitting, comprising inner and outer coöperating parts, said parts being adapted to receive the hose between them and being interlocked at their outer ends beyond the hose, said outer part being formed in one piece including a collar to fit around the inner member and a plurality of legs extending from said collar lengthwise of the hose, and an independent clamp overlapping said legs, substantially as described.

4. A hose-fitting, comprising a thimble, a wedge member and a clamp, said wedge member being wedge-shaped in cross-section and adapted thereby to impart a radial pressure to the hose by the tightening of the clamp, substantially as described.

5. A clamp for hose comprising a plurality of members, and including a wedge-shaped member adapted to lie longitudinally of the hose and tapering off on each side, and clamping means overlapping said tapering sides, clamping movement of said means acting against said wedge-shaped member to press it radially inward, substantially as described.

6. A hose-fitting, comprising inner and outer coöperating parts, said parts being adapted to receive the hose between them, and being provided at their outer ends beyond the hose with an interlocking bayonet-joint, said outer part having one or more legs extending lengthwise of the hose, and an independent clamp overlapping said legs to clamp the legs against the hose and thereby clamp the hose immovably between said coöperating inner and outer parts, substantially as described.

591,797. HORSE-DETACHER. GEORGE GREEN, Swanton, Nebr. Filed Apr. 16, 1897. Serial No. 632,495. (No model.)

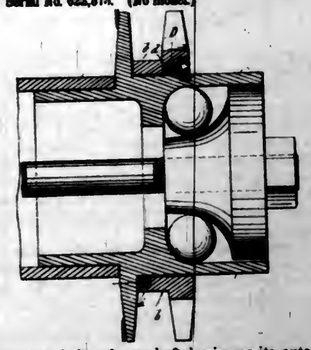


Claim.—1. A horse-detacher comprising the shafts connected by a cross-bar, a band carried by said cross-bar, a singletree held within said band, a pin passing through said band and singletree, a spring-controlled trigger adapted to hold said pin in place and a rod or strap connected to said pin and adapted to withdraw it when desired, substantially as described.

2. A horse-detacher comprising the shafts connected by a cross-bar, a band carried by said cross-bar, a singletree held within said band, a pin passing through said band and singletree, a spring-controlled trigger adapted to hold said pin in position, a rod or strap connected to said pin and adapted to withdraw it when desired and straps to hold the shafts in an elevated position and guide the vehicle after the horse has been detached.

3. A horse-detacher consisting of the shafts or pole having a cross-bar, a band-spring carried by said cross-bar, a singletree encircled by said band-spring, a pin passing through said band-spring and singletree and held in position by a trigger, and an angle-iron carried by said cross-bar, said trigger carried by said angle-iron, a spring controlling said trigger, a releasing-strap attached to said pin, tug-fastenings carried by said singletree and adapted to release the tugs when the singletree is rocked, substantially as described.

591,798. METHOD OF FASTENING WHEELS TO HUBS, AXLES, OR SHAFTS. GUSTAVUS E. STRAUSS, New York, N. Y. Filed Feb. 10, 1897. Serial No. 622,573. (No model.)

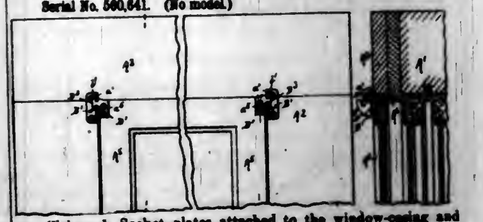


Claim.—1. A hub, axle, or shaft having on its outer periphery an excavation, in combination with a wheel having near its inner periphery a screw-hole, and a screw-bolt fitting into the screw-hole and being provided with an eccentric head, the eccentric portion of which being able to project into the said excavation of the hub, axle, or shaft, substantially as set forth.

2. A hub, axle, or shaft having on its outer periphery an excavation, in combination with a wheel having near its inner periphery a screw-hole with a recess at its outer end, a screw-bolt fitting into the screw-hole and being provided with an eccentric head which is located in the said screw-hole recess, the eccentric portion of the screw-head being able to project into the said excavation of the hub, axle, or shaft, substantially as set forth.

3. A hub, axle, or shaft having on its outer periphery pins and an eccentric, in combination with a wheel provided near its inner periphery with a screw-hole and having a flange provided with slits to be engaged by the said pins, and a screw-bolt fitting into the screw-hole and having an eccentric head, the eccentric portion of which being able to project into the said excavation of the hub, axle, or shaft, substantially as set forth.

591,799. STORM-SASH AND WINDOW-SCREEN HANGER AND OPERATOR. JULIUS D. BRAINARD, St. Paul, Minn. Filed Aug. 27, 1896. Serial No. 603,641. (No model.)

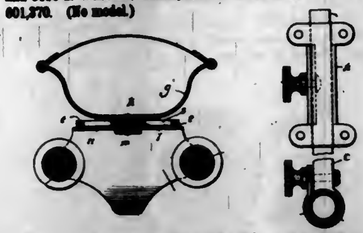


Claim.—1. Socket-plates attached to the window-casing and having depending hooks and shouldered stops, and lugs attached to the sash and adapted to fit behind said hooks and resting upon said shouldered stops, whereby the sash is supported and capable of being swung open at the bottom for a sufficient distance for ventilation without unshipping said lugs, substantially as and for the purpose set forth.

2. Socket-plates attached to the window-casing and having depending hooks and shouldered stops, and lugs attached to the sash and adapted to fit behind said hooks, and resting upon said shouldered stops, and safety-hooks projecting from said socket-plates beneath said shouldered stops, substantially as and for the purpose set forth.

3. A lever having a cam-surface near one end and pivoted to a storm-sash, and a pin upon the window-frame over which said cam-surface may be placed, to draw the sash home when the lever is actuated, and a hook upon the outer end of the lever adapted to support the sash open for ventilation, substantially as and for the purpose set forth.

591,800. PIANO-TECHNIC REGULATOR. JOHN O. FIENBLADE and OTTO T. WIESLIN, Brooklyn, N. Y. Filed Aug. 1, 1896. Serial No. 601,370. (No model.)

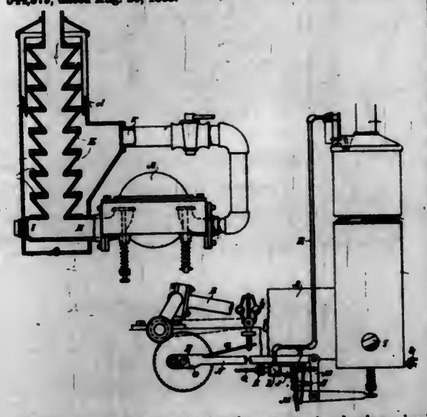


Claim.—1. The combination with the keyboard of a piano or other musical instrument, of arm-rests to control the relative height of the hands to the keyboard, a supporting-rail on which said rests are movable along the keyboard parallel with it, and means to connect said rests to the arms of the player, said rests being detachable from the supporting-rail for enabling the hands to be raised above the normal positions, and provided with the flared downwardly-projecting sides to control the return of the traveler to the bar substantially as described.

2. The combination with the keyboard of a piano or other musical instrument, of arm-rests to control the relative height of the hands to the keyboard, a traveler on which said rests are movable along the keyboard, a supporting-rail for the traveler and a spring to control the alinement of the rests said rests being vibratory on the traveler as the angular relations of the hands vary substantially as described.

REISSUES.

11,688. GAS ENGINE AND GENERATOR. DANIEL BEST, San Leandro, Cal. Filed Apr. 6, 1897. Serial No. 631,331. Original No. 544,879, dated Aug. 20, 1895.



Claim.—1. The combination, with a gas-engine having a horizontally-reciprocating piston, inlet-valves for an explosive mixture and an exhaust-valve through which the products of combustion are discharged, and by the opening and closing of which the action of the inlet-valve is controlled, a vertically-disposed generator adapted to produce an explosive gas or vapor from a hydrocarbon liquid which is fed thereto, a bell-crank lever having a horizontal arm to operate the exhaust-valve and a vertical arm connected with the horizontal reciprocating rod, a pump connected with the bell-crank lever at a point between its fulcrum and the outer end of its vertical arm, and operated by the movement of the reciprocating rod, and a pipe leading from a source of supply to the pump and from the latter to the upper portion of the generator.

2. The combination, with a gas-engine having a horizontally-reciprocating piston, inlet and exhaust valves and a governor, of a vertically-disposed generator consisting of an exterior case, an interior series of superposed and connected cones extending throughout the casing, with a vertical passage centrally through the series of cones, communicating at one side of its lower end with the passage from the exhaust, and opening through the top of the exterior case, a bell-crank lever having horizontal and vertical arms the horizontal one of which actuates the exhaust-valve while the other arm is actuated by the reciprocating rod, a pump having a stem connected with the lever at a point between its fulcrum and the outer end of its vertical arm, and a pipe for conveying the hydrocarbon from the pump to the exterior surface of the uppermost cone.

3. In combination with a gas-engine and a pumping mechanism actuated thereby, a generator consisting of an exterior case, a series of cones formed and inclosed within the case, said cones being inverted with the smaller portion of one connected with the larger portion of another whereby retaining-surfaces are formed at the junction of connected cones, each of said surfaces being surrounded by a raised rim or flange over which the liquid flows so as to be distributed down the outside of the cones, a pipe or passage connecting the interior of the cones with the exhaust from the engine, and a pipe or passage through the whole series of cones leading out through the exterior casing.

4. The combination, with a gas-engine, of a generator consisting of an exterior casing, a series of cones therein with their smaller portions presented downwardly, and connected with the larger portions of contiguous cones, each of said larger portions serving as a flat tabular surface, with a raised surrounding flange, said cones being hollow to form a vertical passage-way through the entire series with the passage at one end connecting with the exhaust from the engine, and at the opposite end leading out through the exterior casing, and another passage with a closing-door adapted to be opened for the introduction of a heating device for initially heating the generator.

5. The combination with a gas-engine, of an independent vaporizer or generator and separator connected therewith and combined in a single apparatus, said vaporizer or generator adapted to supply explosive vapor to the engine when the latter is running and to arrest the flow when the engine stops.

6. The combination with a gas-engine, of an independent vaporizer or generator and separator combined in a sigule apparatus, said vaporizer or generator having inclosed imperforate retaining-surfaces over which the liquid to be vaporized will flow while the engine is in motion, and by which the flow is arrested when the engine stops.

7. The combination with a gas-engine, of a vaporizer or generator having inclosed imperforate retaining-surfaces over which the liquid to be vaporized will flow while the engine is in motion and will cease to flow when the engine stops, said vaporizer provided with means for retaining the crude oil and causing it to separate from the vapor which is supplied to the engine-cylinder.

8. The combination with a gas-engine, of inclosed imperforate retainers exterior to the engine, means by which the liquid to be vaporized is caused to flow over said surfaces while the engine is running, and is arrested when the engine stops, passages through which the hot exhaust products from the engine are delivered to vaporize the liquid and independent discharge-passages for the vapor and the residue.

9. In combination with a gas-engine, a gas or vapor generator consisting of tabular imperforate retaining-surfaces, a device by which the crude petroleum is delivered upon the tables while the engine is running, and where it is heated so as to separate the gas or vapor from the heavy oil, a passage through which the vapor is conveyed from the generator to the engine, and a collecting-chamber and discharge-passage outside the engine for the heavy oil.

10. In combination with a gas-engine, a generator exterior thereto consisting of inclosed imperforate retaining-surfaces over which the oil or crude petroleum is allowed to flow, means for heating these surfaces so that the gas or vapor contained in the oil is separated from the heavy non-volatilizable portion, a passage by which the volatilized portion is conveyed to the engine or receiver, a collecting-chamber outside the engine into which the non-volatilized portion flows by gravitation, a controlled discharge-passage therefrom, and a supply device whereby the oil or crude petroleum is fed to the retaining-surfaces only during the operation of the engine.

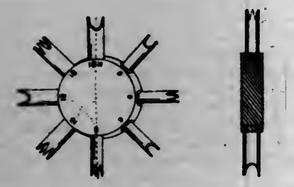
DESIGNS.

27,712. SPECTACLE-BRIDGE. GUSTAV A. RADER, Rochester, N. Y., assignor to the E. Kirstein's Sons Company, same place. Filed July 7, 1897. Serial No. 643,763. Term of patent 14 years.



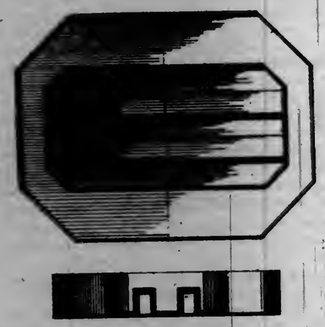
Claim.—The design for a spectacle bridge as herein shown and described.

27,713. WATCHMAKER'S TOOL. HENRY ZIEMSEN, New York, N. Y. Filed Apr. 23, 1897. Serial No. 633,530. Term of patent 7 years.



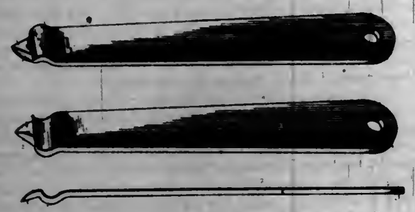
Claim.—The design for a watchmaker's tool herein shown and described.

27,714. TRAY OR SIMILAR ARTICLE. GEORGE EDWARD WALNECK, Jersey City, N. J. Filed Apr. 5, 1897. Serial No. 630,861. Term of patent 3½ years.



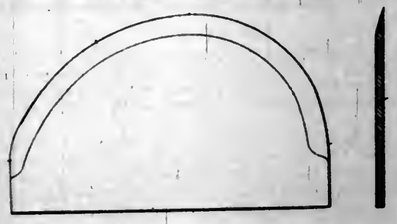
Claim.—The design for a tray or similar article, substantially as shown and described.

27,715. CORK-EXTRACTOR. HENRY STERNFF, St. Louis, Mo. Filed Aug. 16, 1897. Serial No. 648,473. Term of patent 14 years.



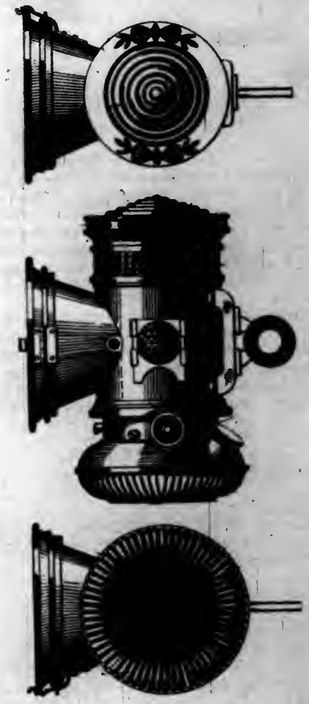
Claim.—The design for a cork-extractor, herein shown and described.

27,716. KNIFE-BLADE. GEORGE WIENERS, Christiana, Pa., assignor of one-half to Isaac H. Dickinson, Quarryville, Pa. Filed Aug. 17, 1897. Serial No. 643,003. Term of patent 14 years.



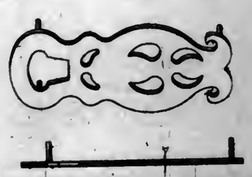
Claim.—The design for a knife for dehorning implements substantially as shown and described.

27,717. LANTERN. FRANK THEODORE WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Aug. 18, 1897. Serial No. 643,724. Term of patent 7 years.



Claim.—The design for a lantern as herein shown and described.

27,718. TRACE-GUARD. WILLIAM L. SUTTERLIN and HOWARD R. SCHILLING, Trenton, N. J. Filed Aug. 14, 1897. Serial No. 643,338. Term of patent 3½ years.



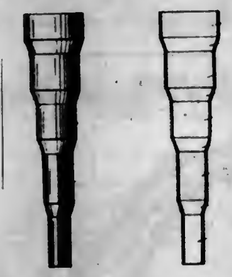
Claim.—The design for trace-guards herein shown and described.

27,719. SHADE-ROLLER AXLE. THOMAS PRYOR BROWN, Belleville, Canada. Filed May 3, 1897. Serial No. 634,943. Term of patent 14 years.



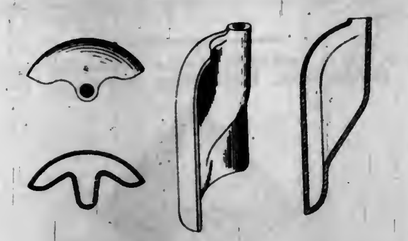
Claim.—The design for a shade-roller axle, as herein shown and described.

27,720. TUBE FOR BURNERS. LEE T. ALTON, Brooklyn, N. Y. Filed Aug. 31, 1897. Serial No. 649,085. Term of patent 7 years.



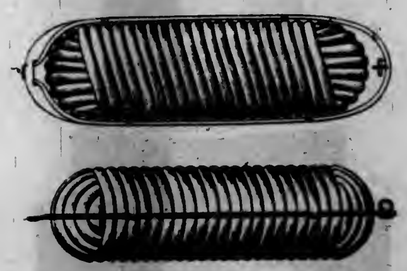
Claim.—The design for a tube for incandescent or Bunsen burners, substantially as herein shown and described.

27,721. WATER-HEATER SECTION. JOHN A. RATHBONE, Detroit, Mich., assignor to the United States Heater Company, same place. Filed May 5, 1897. Serial No. 635,270. Term of patent 14 years.



Claim.—The design for a water-heater section, substantially as shown and described.

27,722. BREAD-PAN. ISAAC HIRSCH, Chicago, Ill. Filed Dec. 21, 1896. Serial No. 616,560. Term of patent 7 years.



Claim.—The design for a bread-pan as herein shown and described.

27,723. STOVE OR RANGE. GEORGE W. CARR, Detroit, Mich., assignor to C. Enrich, Columbus, Ohio. Filed Aug. 11, 1897. Serial No. 647,923. Term of patent 7 years.



Claim.—1. The design for a stove or range substantially as shown and described.

2. In a stove or range the design for the leg and skirting, substantially as shown and described.

3. In a stove or range the design for the oven-door, substantially as shown and described.

4. In a stove or range, the design for a standard supporting the warming-shelf, substantially as described.

27,724. STOVE. HENRY CLAY BASCOM, Lansingburg, and EDWARD ARMSTRONG, Troy, N. Y., assignors to H. Clay Bascom & Co., Troy, N. Y. Filed Nov. 27, 1896. Serial No. 613,090. Term of patent 14 years.



Claim.—1. In a design for a stove, the design for the base portion and legs integral therewith, substantially as herein shown and described.

2. In a design for a stove, the design for the superbase portion B, substantially as herein shown and described.

3. In a design for a stove, the design for the ash-pit portion C substantially as herein shown and described.

4. In a design for a stove, the design for the ash-pit door C, substantially as herein shown and described.

5. In a design for a stove, the design for the division-plate D substantially as shown and described.

6. In a design for a stove, the design for the wall portion E of the fire-pot section, substantially as shown and described.

7. In a design for a stove, the design for the door F, in the wall portion E, substantially as shown and described.

8. In a design for a stove, the design for the ornamental band G, adjoining and above the wall portion E, substantially as shown and described.

9. In a design for a stove, the design for the wall portion H, which incloses the combustion-chamber, substantially as shown and described.

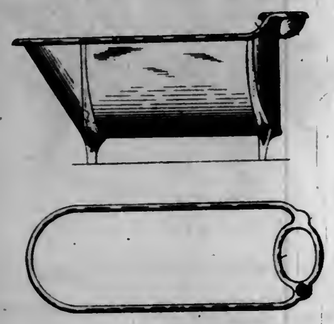
10. In a design for a stove, the design for the door H', of the combustion-chamber of the stove, substantially as shown and described.

11. In a design for a stove, the design for the close upper end wall portion I, substantially as shown and described.

12. In a design for a stove, the design for the base K of the dome, substantially as shown and described.

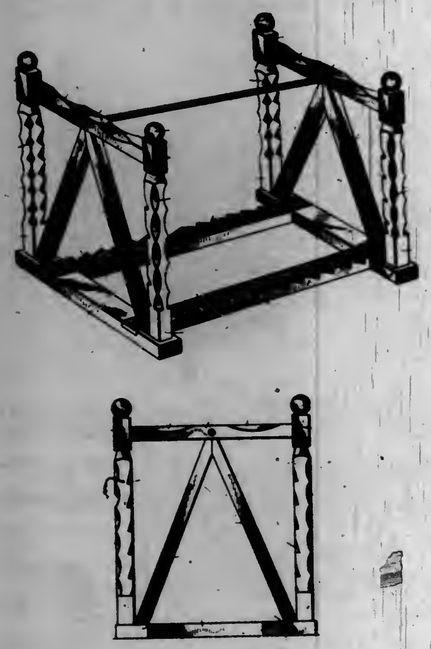
13. In a design for a stove, the design for the dome L substantially as shown and described.

27,725. BATH-TUB. DAVID D. BUICK, Detroit, Mich. Filed Apr. 21, 1897. Serial No. 633,188. Term of patent 14 years.



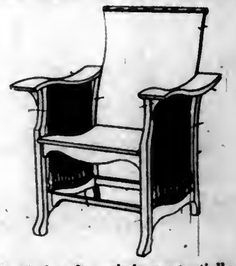
Claim.—The design for a bath-tub, substantially as herein shown and described.

27,726. CRADLE-FRAME. REIS W. HAGGARD, Holbrook, Ky. Filed Jan. 29, 1897. Serial No. 621,243. Term of patent 14 years.



Claim.—The design for a cradle-frame herein shown and described.

27,727. CHAIR. DAVID W. KENDALL, Grand Rapids, Mich., assignor to the Phœnix Furniture Company, same place. Filed July 24, 1897. Serial No. 645,871. Term of patent 3½ years.



Claim.—The design for a chair substantially as shown and described.

27,728. WALL-BRACKET. HERMAN KRAUTH, Meriden, Conn., assignor to Clarence W. Fox, Saugus, Mass. Filed Aug. 19, 1897. Serial No. 648,836. Term of patent 7 years.



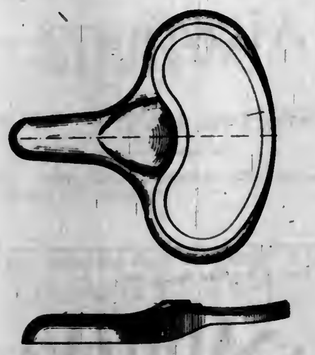
Claim.—The design for a wall-bracket herein shown and described.

27,729. MONUMENT. EDWIN O. TOWNSEND, New York, N. Y. Filed Aug. 30, 1897. Serial No. 649,962. Term of patent 7 years.



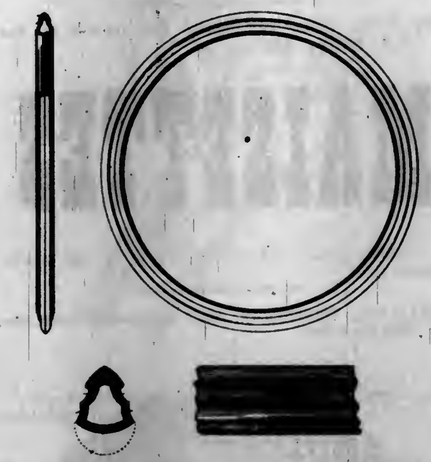
Claim.—The design for a monument herein shown and described.

27,730. BICYCLE-SADDLE. CHARLES H. STANLEY, Chicago, Ill. Filed Mar. 5, 1896. Serial No. 581,880½. Term of patent 7 years.



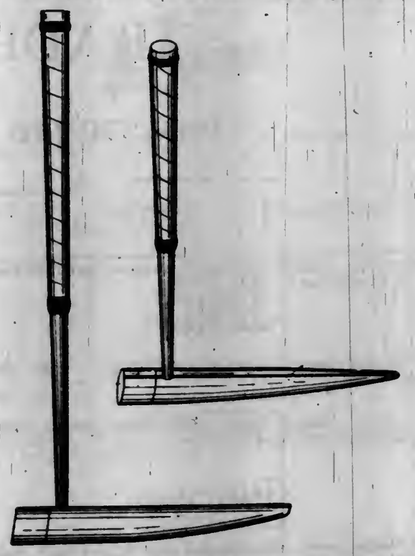
Claim.—The design for a bicycle-saddle as herein described and set forth.

27,731. TIRE. EDWIN G. VAN ZANDT, St. Louis, Mo., assignor to F. B. Hixson, trustee, same place. Filed Aug. 16, 1897. Serial No. 648,474. Term of patent 14 years.



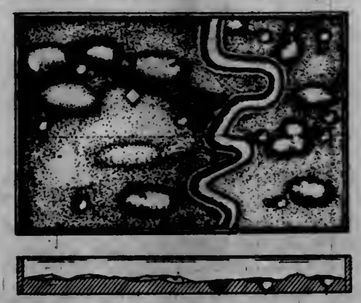
Claim.—The design for tires substantially as herein shown and described.

27,732. GOLF-CLUB. JOHN HOWARD ADAMS, Morristown, N. J. Filed Aug. 21, 1897. Serial No. 649,061. Term of patent 7 years.



Claim.—The design for a golf-club substantially as herein shown and described.

27,733. GAME-BOARD. CHARLES H. LEONARD, Grand Rapids, Mich. Filed Aug. 16, 1897. Serial No. 648,728. Term of patent 7 years.



Claim.—The design for a game-board, substantially as shown and described.

TRADE-MARKS

REGISTERED OCTOBER 12, 1897.

30,660. CANNED LOBSTER. MUHLWYLER & DUHLER, New York, N. Y. Filed Aug. 21, 1897.

"OLD GLORY"

Essential feature.—The words "OLD GLORY." Used since April 15, 1897.

30,661. CERTAIN NAMED CANNED GOODS. PORTLAND PACKING Co., Portland, Me. Filed Aug. 2, 1897.

TALLY-HO

Essential feature.—The compound word "TALLY-HO." Used since February, 1897.

30,662. CHEESE. PROBST & Co., Langnau, Switzerland. Filed Sept. 2, 1897.



Essential feature.—A representation of the monument of William Tell. Used since April 10, 1897.

30,663. CRACKERS AND CAKES. UNITED STATES BAKING COMPANY, Pittsburg, Allegheny, and Williamsport, Pa.; Cincinnati, Columbus, Zanesville, Dayton, Newark, Cleveland, Toledo, Mansfield, Akron, and Springfield, Ohio; Detroit, Bay City, Jackson, Muskegon, and Lansing, Mich.; Indianapolis, Fort Wayne, Richmond, Evansville, and Terre Haute, Ind.; Wheeling, W. Va.; Buffalo and Rochester, N. Y.; Boston, Mass., and Louisville, Ky. Filed Aug. 21, 1897.

X RAYS

Essential feature.—The letter and word "X RAYS." Used since April, 1896.

30,664. FOODS FOR INFANTS AND INVALIDS. THOMAS J. TURNER, Philadelphia, Pa. Filed Aug. 26, 1897.

PO-MELIA

Essential feature.—The compound word "PO-MELIA." Used since January 5, 1897.

30,665. INDIAN-CORN MEAL AND GRITS. J. D. HAAS & Co., New York, N. Y. Filed Aug. 31, 1897.

GAMBRINUS

Essential feature.—The word "GAMBRINUS." Used since January, 1895.

30,666. INDIAN-CORN FLAKES. J. D. HAAS & Co., New York, N. Y. Filed Aug. 31, 1897.

MAISETTES

Essential feature.—The word "MAISETTES." Used since December, 1894.

30,667. WHEAT-FLOUR. WM. S. HILLS COMPANY, Boston, Mass. Filed Aug. 5, 1897.



Essential feature.—The word "PURITY" and a representation of a field of grain, a farm-house, and the recumbent figure of a sleeping child. Used since July 1, 1895.

30,668. FLOUR. CHAS. KING & SON, Alexandria and Charlottesville, Va. Filed Sept. 17, 1897.

SENATOR

Essential feature.—The word "SENATOR." Used since July, 1892.

30,669. COCOA-OATMEAL PREPARATIONS. M. MICHAELS & Sons, New York, N. Y. Filed Sept. 11, 1897.

COCOVENA

Essential feature.—The word "COCOVENA." Used since July 15, 1897.

30,670. MIXTURE SOLD AS A SUBSTITUTE FOR COFFEE. HARRY D. CHIPMAN, Tekonsha, Mich. Filed June 30, 1897.

CHIP'S JAY-VA.



Essential feature.—The words "CHIP'S JAY-VA" and the representation of a bluejay. Used since June 1, 1897.

30,671. DRINK TABLETS. WILSON IMBRIE DAVIDSON, Chicago, Ill. Filed Aug. 2, 1897.



Essential feature.—The word "IMBRIE'S" associated with a portrait of the registrant and the word "TABLETS." Used since July 1, 1897.

30,672. TOOTH-WASHES. THE OPAL CRÈME CO., Bloomington, Ill. Filed May 5, 1897.

OPAL

CRÈME

Essential feature.—The words "OPAL CRÈME." Used since August 1, 1896.

30,673. SOAP. ALBERT R. BRADLEY, New York, N. Y. Filed July 24, 1897.


ALADDIN'S

Essential feature.—A representation of an owl and the word "ALADDIN'S." Used since July 20, 1897.

30,674. WASHING-BLUE. J. & J. COLMAN, LIMITED, London, England. Filed Aug. 9, 1897.



Essential feature.—The words, abbreviation, and figure "COLMAN'S AZURE" and "No. 1" and a representation of a bull's head. Used since 1892.

30,675. BOOT AND SHOE BLACKING. HERRIOTT BROS. & Co., St. Louis, Mo. Filed Aug. 3, 1897.

X-RAYS

Essential feature.—The compound letter and word "X-RAYS." Used since January 1, 1897.

30,676. BOOT, SHOE, AND LEATHER BLACKINGS AND DRESSINGS, STAINS, AND WAXES. HERRIOTT BROS. & Co., St. Louis, Mo. Filed Aug. 3, 1897.



Essential feature.—A pictorial representation of a dog and the words and character "BLACK & TAN." Used since July 1, 1895.

30,677. OILS, WATERPROOF COMPOUNDS, LUBRICANTS, GREASES, AND PETROLEUM PRODUCTS. CHARLES EFNER COMPANY, Bayonne, N. J. Filed May 28, 1897.



Essential feature.—A representation of the globe with the initials and abbreviation "C. E. Co." Used since February 1, 1897.

80,678. STONE-PUTTY. ERNST FRIEDRICH MEYER, Freiburg, Germany. Filed Mar. 30, 1897.



Essential feature.—A figure of a woman holding a wreath and a shield and pictures of the Pantheon and Freiburg Cathedral in the background. Used since June, 1895.

80,679. HOMŒOPATHIC MEDICINES AND REMEDIES. THE BRONX CHEMICAL COMPANY, Yonkers, N. Y. Filed June 21, 1897.



Essential feature.—A symbol composed of a cross on the separate bars of which is placed the word "BRONCHO." Used since November 6, 1896.

80,680. ARTIFICIAL LEATHER. BOSTON ARTIFICIAL LEATHER COMPANY, Salem, N. H., and Boston, Mass. Filed July 29, 1897.

MOROCCOLINE

Essential feature.—The word "MOROCCOLINE." Used since June, 1894.

80,681. MOVING-PICTURE APPARATUR. AMERICAN MUTOSCOPE COMPANY, New York, N. Y. Filed Sept. 4, 1897.

MUTOSCOPE

Essential feature.—The word "MUTOSCOPE." Used since January 1, 1897.

80,682. INJECTORS. PRESBREY INJECTOR COMPANY, Detroit, Mich. Filed Aug. 30, 1897.

AUTO-POSITIVE

Essential feature.—The compound word "AUTO-POSITIVE." Used since May, 1897.

80,688. BICYCLE-PEDALS. WHITE SEWING MACHINE COMPANY, Cleveland, Ohio. Filed Sept. 17, 1897.

SPINAWAY

Essential feature.—The word "SPINAWAY." Used since June 1, 1896.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

KELLER *v.* WETHEY *v.* ROBERTS.

Decided October 1, 1897.

1. INTERFERENCES—TESTIMONY, EXTENDING THE TIME FOR TAKING—OBSERVING THE RULES OF PRACTICE.

The rule for extension of time for taking testimony is a salutary one, made in the interest of all parties. Where there is an obvious disregard of the rule, there is nothing left to do but to abolish the rule or compel its observance, and there is only one way to accomplish the latter, which is to refuse to permit testimony to be taken when it is not observed.

2. RULES OF PRACTICE—JUST COMPLIANCE WITH.

It is better to insist upon a reasonable and just compliance with the Rules of Practice of the Office, though it may work a hardship in an individual case, than adopt a course which would result in a practical abrogation of them, with consequent confusion. (Citing *Smith and Thomas* v. *Cowles*, 30 O. G., 343.)

APPEAL on motion.

ROASTING-FURNACE.

Application of Hermann A. Keller filed February 19, 1896, No. 579,914. Application of Arthur H. Wethey filed January 24, 1896, No. 576,713. Application of William E. Roberts filed December 28, 1895, No. 573,587.

Mr. Henry A. Seymour for Keller.
Messrs. Munn & Co. for Wethey.
Mr. Wm. J. Johnston for Roberts.

BUTTERWORTH, *Commissioner:*

This is an appeal by Roberts from the decision of the Examiner of Interferences granting Wethey's motion for an extension of time within which to take rebutting testimony. Appellant specifies five errors in the decision from which appeal is taken. From the view which I take of this case it is not necessary to review each error separately. The question to be decided is, did the Examiner err in his decision?

This interference was declared March 6, 1897, and dates for taking the testimony were set as follows: Keller to close testimony-in-chief, April 26, 1897; Wethey to close testimony-in-chief, May 17, 1897; Roberts to close testimony-in-chief, June 7, 1897; Wethey to close his rebuttal testimony, June 22, 1897, and Keller to close his rebuttal testimony, July 7, 1897.

No testimony was taken by Keller, nor did he appear to cross-examine on the taking of the testimony of the other parties to this interference. The testimony-in-chief of Wethey was closed at Butte, Mont., on May 11, 1897, within the time fixed by this Office. Immediately after this, by consent of counsel, Roberts was allowed to proceed with the taking of his testimony, which was closed at the same place on May 12, 1897. It is stated on behalf of Roberts, which statement is supported by affidavits and not denied by Wethey, that it was on this 12th of May, at the close of Roberts's testimony, agreed between the parties that on the next day, May 13, at nine o'clock, rebutting testimony on behalf of Wethey should be taken, and arrangements were made to take such testimony on that day; that at the time and place agreed upon Wethey appeared with his witness Doull, together with his local attorney, Mr. Frank E. Corbett, but Wethey refused to take his testimony in rebuttal at this time, but stated that he would serve due notice, as required by the rules of the Patent Office, on Roberts of the time and place at which such testimony should be taken. Shortly before the expiration of the time set by the Office—June 22, 1897—for Wethey to close his rebuttal testimony it seems that he by his attorney attempted to procure a stipulation for an extension of time, but failed in this. On June 17, 1897, he filed the motion under consideration and served notice on Roberts's counsel in this city that he would proceed to take said rebuttal testimony on June 22, 1897, at Butte, Mont. This notice counsel for Roberts refused to accept, as sufficient time was not allowed him to reach Butte in time to be present at the taking of this testimony. That the time was not sufficient or reasonable was admitted by counsel for Wethey at this hearing.

In support of the motion certain affidavits have been filed on behalf of Wethey. The affidavit of R. B. McMaster, who had charge of the taking of the testimony for Munn & Co., Wethey's attorneys, is to the effect that on the 10th day of June he received a letter from Wethey stating that when he came to arrange for the taking of his rebuttal testimony one of his important witnesses was absent from Butte, where all the testimony had previously been taken, and was traveling where it would be difficult to reach him and impossible to take his testimony, and that he would not return to Butte until after June 22, 1897; that he attempted to get Roberts's attorney to sign a stipulation for an extension of time, and that the proposed rebuttal testimony is material and necessary to the ends of justice and to a proper decision of this interference.

Wethey's affidavit is substantially to the same effect. Corbett's affidavit, after stating the facts as to the stipulation for the taking of testimony by Roberts on May 12, is to the effect that the witnesses who were to testify in rebuttal on behalf of Wethey, and particularly James Doull, were absent from the city of Butte, and their attendance at the said city could not be secured within the period set for the taking of the testimony; that unless the time for taking the testimony were extended and Wethey allowed to take the testimony in rebuttal, and particularly that of the said Doull, Wethey would be unable to present his case in full to the Patent Office.

In opposition to the motion an affidavit was filed by W. J. Johnston, Roberts's attorney. In this affidavit Johnston states, among other things, that James Doull, who is named in the affidavit of Frank E. Corbett as the important witness now absent from Butte whose evidence is desired in behalf of Wethey, and because of whose absence an extension of time for taking testimony was asked, was present in the city of Butte on May 13, 1897, when it was arranged that Wethey's rebutting testimony should be taken, and that he was there on the previous days when the testimony was taken and testified on the examination-in-chief of Wethey, and that deponent believes that had said Doull's testimony been deemed important in rebuttal it might easily have been had at that time, and that no good grounds for granting an extension of time have been shown. The motion is also opposed on behalf of Roberts on the ground that the motion for extension does not comply with the Rules of Practice on that subject. The affidavit of McMaster, it is seen, does not give the names of the absent witnesses. Wethey's affidavit also fails to name the absent witnesses. The affidavit of Corbett, however, gives the name of one of the witnesses as Doull. Not one of the affidavits specifies when Doull absented himself from Butte, that his testimony could not have been taken within the time allowed and prior to his departure from Butte, what is expected to be proved by this witness, and wherein his testimony is material.

Rule 154 (4) of the Rules of Practice of this Office provides that—

> if a party shall be unable to take any testimony within the time limited, and desires an extension for such purpose, he must file a motion, accompanied by a statement under oath setting forth specifically the reason why such testimony has not been taken. * * *

Wethey's motion and the affidavits in support thereof utterly fail to comply with this requirement. He has given no reason whatever as to why the testimony of the only witness, Doull, was not taken within the time required. He has not claimed or attempted to show that Doull was not present some time between the 12th day of May, when Roberts's testimony was completed, and the 22d day of June, when he might have been examined in rebuttal.

This same section of the rule provides that—

> if either party shall be unable to procure the testimony of a witness or witnesses within the time limited, and desires an extension for such purpose, he must file a motion, accompanied by a statement under oath setting forth the cause of such inability, the name or names of such witness or witnesses, the facts expected to be proved by such witness or witnesses, the steps which have been taken to procure such testimony, and the dates on which efforts have been made to procure it.

The showing made by Wethey is also lacking in these respects, except as to the affidavit of Corbett, in giving the name of the witness Doull. With this exception not one of the requirements provided by the rule has been complied with.

So far as shown the testimony of Doull could have been taken on May 13, 1897, while Roberts's counsel was at Butte. While it is true that Wethey, under the time set by this Office, had until the 22d of June to take his rebuttal testimony, yet it does not seem to me to be just and equitable under the circumstances of this case to put Roberts's counsel to the expense of another trip to Montana, unless there is some very good reason for it, and when Wethey relies upon his rights under the rule he must be held to a strict compliance with the rule.

The rule for extension of time for taking testimony is, I think, a salutary one, made in the interest of all parties. Wethey's disregard of the rule is obvious, and there is nothing left to do but to abolish the rule or compel its observance, and there is only one way to accomplish the latter, which is to refuse to permit Wethey to take his testimony in rebuttal on the showing made. If he is to suffer by this action, it is to be regretted; but, as I said in the case of *Smith and Thomas* v. *Cowles* (30 O. G., 343)—

> it must occur to counsel that it is better to insist upon a reasonable and just compliance with the rules of the Office, though it may work a hardship in an individual case, than adopt a course which would result in a practical abrogation of them, with consequent confusion.

On the showing made by Wethey I am of the opinion that the decision of the Examiner of Interferences in granting the motion was erroneous, and the decision is therefore reversed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Western District of Pennsylvania.

ELECTRIC SMELTING AND ALUMINIUM COMPANY v. CARBORUNDUM COMPANY.

Decided July 26, 1897.

1. COWLES ET AL.—PROCESS OF SMELTING ORES—INFRINGEMENT.
   Letters Patent No. 319,795, granted June 9, 1885, to Eugene H. Cowles *et al.*, for a process of smelting ores by the electric current, construed and *Held* that the charge of infringement has not been sustained.
2. SAME—ELECTRIC SMELTING-FURNACE—NOVELTY—INFRINGEMENT.
   Letters Patent No. 319,945, granted June 9, 1885, to Eugene H. Cowles *et al.*, for an electric smelting-furnace, was assailed as being void for lack of patentable novelty, but as it was held that it was not infringed the question of patentability was not passed upon.

Mr. E. N. Dickerson and *Mr. C. M. Vorce* for the complainant.

Mr. Geo. H. Christy and *Mr. Thomas W. Bakewell* for the defendant.

BUFFINGTON, *J.*:

The Electric Smelting and Aluminium Company filed this bill against the Carborundum Company,

alleging infringement of three patents owned by the complainant company. At the hearing the infringement of Patent No. 335,068, granted January 26, 1886, to Alfred H. Cowles, was not pressed, but was of all the claims of Patent No. 319,795, issued June 9, 1885, to Eugene H. Cowles *et al.*, for a process of smelting ores by the electric current, and of Patent No. 319,945, issued June 9, 1885, to Eugene H. Cowles *et al.*, for an electric smelting-furnace.

The large mass of testimony presented in this record, the conflicting views of skilled experts, the elaborate and protracted oral arguments of able counsel, and the multiplicity of their briefs present such a vast field for examination and study that confusion might result if sight were lost of the comparatively simple statutory enactments regulating the grant of patents and determining the rights vested by such grants. Turning to such provisions we find a chart by which we can steer the way through the sea of facts, theories, and arguments which characterize the case. In a general way a patent may be said to consist of two parts, first, the specification, which discloses the invention or discovery, and, secondly, the claims allowed, by which the invention disclosed may be secured to the patentee. The specification is the foundation on which the claims rests.

Section 4888 of the Revised Statutes provides that—

> before any inventor or discoverer shall receive a patent for his invention or discovery, he shall make application therefor in writing to the Commissioner of Patents, and shall file in the Patent Office, a written description of the same, and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound and use the same * * * and he shall particularly point and distinctly claim the part, improvement or combination which he claims as his invention or discovery.

It will thus be seen that the statutory requirement embraces certain elements—viz., a description of the discovery and of the process, etc., of using, etc., the same in full, clear, concise, and exact terms and a particular pointing out and claiming of what is claimed.

> The leading purposes of the whole of the statute directions [says Curtis's *Law of Patents*, page 256] are two: first, to inform the public what the thing is of which the patentee claims to be the inventor, and therefore the exclusive proprietor during the existence of the patent; second, to enable the public from the specification itself to practice the invention thus described, after the expiration of the patent.

Patents being wholly a right of statutory creation, the statutory requirements and limitations, respectively, are the foundation and limit of the rights thereby created. Upon a compliance with such requirements depends the existence and validity of the patents issued by virtue of their provisions. The validity of a patent is therefore dependent, among other things, upon the patentee having given such a description of his invention or discovery and the manner and process of using it as the statute requires.

Assuming for present purposes the validity of the process patent in question, No. 319,795, and that the patentee has complied with these statutory requirements, we turn to an examination of its contents to ascertain what was the invention or discovery which Messrs. Cowles disclosed to the public and what they claimed when they were awarded the rights which they now assert are infringed. In these respects the patent is exceptionally explicit and clear. While it pertains to a general subject in which a vast deal of learning is requisite to constitute one, in the words of the statute—

> a person skilled in the art or science to which it appertains,

yet its teachings and disclosures are so plain and void of uncertainty that a person who is not versed to that extent can quite clearly comprehend them. While the superior skill and learning of those versed in the art is of value in amplifying and more thoroughly discussing its terms, yet the explicit and fundamental teachings of the patent may be quite thoroughly understood and appreciated by the lay mind.

The patent recites that it consists in—

> improvements in processes for smelting ores by the electric current,

an art which by the subsequent statements of the patent was concededly not new. The improvements relate to that—

> class of smelting-furnaces which employ an electric current solely as a source of heat.

Heretofore, the patentees state, it had been attempted to reduce ores and perform metallurgical operations by means of an electric arc, and the material to be treated was brought within the field of the arc or passed or fed through it; that objections exist to the arc system—viz., that it is not adapted to long operations on a large scale; that there are very great difficulties in the regulation of the arc and the preservation of a constant resistance, and—

> the heat generated, though intense, is localized and difficult to control.

After reciting these conditions, which have been found objectionable in practice, the patentees recite that the object of their invention is to provide a process where they will—

> secure a distribution of the intense heat which it is well known electricity is capable of generating over a large area or through a large mass in such a manner that a high temperature can be sustained for a long time and controlled.

It will thus be seen that the primary and fundamental idea—the basis and the dominating purpose of the disclosed process—was the diffusion or distribution of heat as contrasted with localization. Localization had been weighed in the balance and found wanting. They turned away from this faulty and supposed objectionable practice and sought its opposite diffusion and distribution. The ingredients and process for securing such diffusion of heat are then described.

A body of granular material of high resistance or low conductivity is interposed within the current so as to form a continuous and unbroken part of the same. This granular body by reason of its resistance is made incandescent and generates the heat required. The ore or substance to be reduced has been mixed with the body of granular resistance material and—

> is thus brought directly in contact with the heat at the points of generation at the same time the heat is distributed through the mass of granular material, being generated by the resistance of all the granules, and is not localized at one point or along a single line.

The patentees then suggest the possible use of several resistance materials, preferably electric-light carbon, which is to be pulverized or granulated to a degree to suit the size of the furnaces. As evidencing the general trend of the patentees' disclosures we note the suggestion of the preferable use of coarse granules rather than finely-pulverized carbon as working better and giving more even results. The better working conditions are, positively, "the electrical energy is more evenly distributed," a distribution desired and in consonance with the patentees' object, and, negatively—

the current cannot so readily form a path of highest temperature and consequently of least resistance through the mass along which the entire current or the bulk of the current can pass—

a localization not desired and not in furtherance of the patentees' desired object.

In our study of this patent we have not ignored the fact that in describing the composition of the charge the patentees stated that the ore "is usually mixed with body of granular resistance material." If by the use of the word "usually" (upon which great stress has been laid by the complainants) is meant there are other ways of preparing the charge than my mixture of the ingredients, such ways are neither stated nor even hinted at elsewhere, nor is any other practice or method of bringing the heat to bear on the ore suggested than the one wherein ore is mixed with the carbon—

and is thus brought directly in contact with the heat at the points of generation.

It would therefore seem that in face of the statutory requirement requiring a full, clear, and exact description of the discovery and the process of using it that no controlling influence should be drawn from the use of the word in its present connection and relation to this particular patent or that its use should avail to give this patent a broader scope than its teachings and disclosures warrant. While we are perhaps not called upon to solve what the patentees themselves have not made clear and explicit, yet we think what the draftsman had in mind is reasonably clear. If instead of qualifying the verb "mixed" by the adverb "usually," implying there was another method than mixing within the range of the suggested process, we apply the phrase "usually mixed" to the "granular" resistance material, we have a reading in consonance with the entire patent, for we note that further on it is stated that the size of the carbon particles used—

may pass beyond what is ordinarily understood by the term "granular" and be, in fact, pieces of carbon of considerable size.

Thus construed the patentees would say that the ore is usually mixed with a body of granular resistance material, implying that it might be mixed with a body of "pieces of carbon of considerable size," and "beyond what is ordinarily understood by the term 'granular.'"

The patent states the operation must necessarily be conducted in an air-tight chamber or a non-oxidizing atmosphere, after which it describes a zinc-furnace which is stated to embody the invention and from which the application of the same to the reduction and smelting of other kinds of ores will be understood. In this furnace we find a cylinder of silica or other non-conducting material imbedded in powdered charcoal, mineral wool, or some poor heat-conducting substance. The rear end of the retort is closed by a carbon plate which forms the positive electrode and is connected with the positive wire of the electric current. The other end is closed by a graphite crucible which forms the negative electrode and serves as a condensing-chamber for zinc-furnaces. Touching the preparation of the charge the patent says:

The zinc ore is mixed with the pulverized or granular carbon and the retort is charged nearly full through the front end with the mixture—

and the operation of the current is thus described:

The circuit between the electrodes, so called, is continuous, being established by means of and through the body of broken carbon. * * * After the plug has been inserted and the joint properly luted the electric circuit is closed and the current allowed to pass through the retort, traversing its entire length through the body of mixed ore and carbon. The carbon constituents of the mass become incandescent, generating a very high degree of heat, and being in direct contact with the ore the latter is rapidly and effectually reduced and distilled.

Not only is the intermixture of carbon and ore explicitly shown, but the result of such contact is emphasized.

It will be observed [says the patent] that the intimate mixture of incandescent carbon and ore affords the most effectual utilization of all the heat evolved. None of it is lost by transmission through any intervening bodies or spaces.

From this detail study of the patent it is quite clear that the two substantial disclosures thereof were the diffusion of the current and a mixture of the carbon resistance material with the subject of reduction as the method of securing the diffusion and utilization of heat and current. Nothing else than what is consonant with these two dominant disclosures is stated or even suggested in the patent. This construction accords with that reached by the Circuit Court for the Northern District of Ohio in the case of *Lowry* v. *The Cowles Electric Co.*, (65 O. G., 295; 56 Fed. Rep., 495,) where the patent was considered by that court. It was there said:

The gist of the Cowles invention is the use of the granular carbon distributed through the mass of granulated ore to carry the current from one electrode to another, and by its low conductivity and resistance to produce intense heat, not at a single point, or in a single line, but throughout the ore, and to maintain it constant.

This same view was emphasized on final hearing of the same case, (68 Fed. Rep., 354,) where the court said:

The gist of the Cowles invention is the use or granular carbon or other equivalent resistance material distributed through the mass of granulated ore to carry the current from one electrode to another, and by its low conductivity or resistance to produce intense heat, not at a single point or in a single line, but throughout the ore, and by the heat thus generated to fuse the ore, and to separate the metal element by the chemical action of the carbon upon the non-metallic element of the ore, just as iron and other like ores are smelted in a furnace.

An analysis of the several claims shows that these two fundamental disclosures—viz., diffusion of the current and the mixture of carbon resistance material with the subject of reduction—characterize the claims. The first one, viz:

The method of generating heat for metallurgical operations herein described, which consists in passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore to be treated by the process being brought into contact with the broken or pulverized resistance material, whereby the heat is generated by the resistance of the broken or pulverized body throughout its mass, and the operation can be performed solely by means of electrical energy,

is for a method of generating heat for metallurgical operations. What are the constituent elements of the method? They are, first,

in passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric current.

Now what this body is, what its form, its purpose and functional work are all disclosed in the specification, for the claims are founded and based upon the discovery disclosed therein. The patentees say:

The material best adapted for this purpose is electric-light carbon;

it—

is ordinarily composed of grains or pieces proximately equal in size;

these grains are preferably coarse, because—

coarse granulated carbon works better than finely-pulverized carbon and gives more even results,

and it is—

interposed within the circuit in such a manner as to form a continuous and unbroken part of the same.

Their use and the manner of their use are—

in order to secure an even distribution of the electrical energy,

and such distribution is defined as where—

the current cannot so readily form a path of highest temperature and consequently of least resistance through the mass along which the entire current or the bulk of the current can pass.

So much for the current and resistance material. The next element of the process is—

the ore to be treated by the process being brought into contact with the broken or pulverized resistance material.

What is meant by the ore "being brought into contact" with the resistance material? The instruction of the specification in that regard is plain, unequivocal, unmistakable. In illustrating the process of zinc smelting where the resistance element is carbon and which process, it is stated in the specification, embodies the invention and from which the application of the process to the reduction of other ores will be easily understood, the patentees say—

the zinc ore is mixed with the pulverized or granulated carbon—

and the condition of being mixed is defined as one where "the carbon constituents of the mass" are "in direct contact with the ore." We think, therefore, that by the teaching of the patent the element under consideration clearly means and must be construed as meaning—

the ore to be treated by the process being mixed with the broken or pulverized resistance material,

and that contact is a physical intermixing of the two ingredients is shown by the statement we have quoted above:

It will be observed that the intimate mixture of incandescent carbon and ore affords the most effective utilization of all the heat evolved. None of it is lost by transmission through any intervening bodies or spaces.

No more thorough and effective intermixture of ingredients could be stated. To give the element in question any other meaning is to broaden its scope, so as to cover by it what was not even hinted at, much less clearly disclosed in the specification, as to do this would pervert the beneficent provisions of the patent laws. The next element of the claim is that this relation of the two elements is one—

whereby the heat is generated by the resistance of the broken or pulverized body throughout its mass.

The teachings of the patent in that regard are that—

the heat is generated by the resistance of all the granules and is not localized at one point or along a single line.

The second claim, viz:

The method of smelting or reducing ores or metalliferous compounds herein described, which consists in subjecting the ore in the presence of carbon to the action of heat generated by passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore being in contact with the broken or pulverized resistance material, whereby the ore is reduced by the combined action of the carbon and of the heat generated solely by the resistance of the broken or pulverized body throughout its mass,

is for a method of smelting or reducing ores or metalliferous compounds. It consists in subjecting the ore in the presence of carbon to the action of heat generated by passing electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore being in contact with the broken or pulverized resistance material—

whereby the ore is reduced by the combined action of the carbon and of the heat generated solely by the resistance of the broken or pulverized body throughout its mass,

is for a method of smelting or reducing ores or metalliferous compounds. It consists in subjecting ore in the presence of carbon to heat generated in the method specified in the preceding claim—

whereby the ore is reduced by the combined action of the carbon and of the heat generated solely by the resistance of the broken or pulverized body throughout its mass.

The third claim:

The method of smelting or reducing ores or metalliferous compounds herein described, which consists in pulverizing the ore and mixing with it pulverized or broken carbon or like material, then introducing the mixed ore and carbon within an electric circuit, of which it forms a continuous part, the said circuit being established through the carbon constituents of the mass, whereby the heat is generated by the electrical resistance of the carbon throughout the mass, and the operation can be performed entirely by means of the carbon reagent and the electrical energy,

consists in the method of smelting or reducing ores or metalliferous compounds wherein pulverized ore is mixed with pulverized broken carbon and subjected to an electric current operating as in the two preceding claims, and—

the operation can be performed entirely by means of the carbon reagent and the electrical energy.

The fourth claim, viz:

The method of smelting or reducing ores or metalliferous compounds herein described, which consists in subjecting the ore in the presence of a reducing agent to the action of heat generated by passing an electric current through a body of broken or pulverized resistance material that forms a continuous part of the electric circuit, the ore being in contact with the broken or pulverized resistance material, whereby the ore is reduced by the combined action of the reducing agent and of the heat generated solely by the resistance of the broken or pulverized body throughout its mass,

is identical with the second, save that for the carbon of that claim it substitutes "a reducing agent."

From this detail study of the specification and claims it is quite clear to the unbiased mind that the entire teaching and disclosure of the patent is a reduction or smelting process in which diffusion or distribution of the current is studiously sought and localization as studiously avoided; that the resistance material used, the mode of its preparation, and the position in which it is placed unite to secure the most marked diffusion of the current and of the heat-generating points, and the material to be reduced is also so relatively placed to and intermixed with the resistance-material particles as to be subjected to the heat at the relatively-separated points of heat generation. These two elements of an intermixture of the resistance material and the substance to be reduced and the diffusion of the current through the resistance material of

the mass are either expressly or by necessary implication embodied in the claims. If, as we stated before, the patentees had any idea of the possible successful use of a localized path of current circulation, it was neither described in their specification or asserted in their claims. Indeed, it seems to us that the construction we place on the claims is the only one that is in harmony with the disclosures of the patent. In the light of those disclosures the claims are quite clear and void of uncertainty, and thus construed they give to the patentees the full measure of protection for the discovery which they revealed to the public. To give them such a broadened, unnatural construction as would make them cover subsequent advance in the art in lines which the patentees never disclosed and in directions which they deprecated and sought to avoid is to shear the claims of that certainty and fixedness which are desirable to both patentee and public and should be their distinguishing feature. In our view the construction we have placed upon them was the just one in the state of art as it existed when they were granted. If such be the case, it is manifest such construction should not be modified to meet the subsequent shifting and development of the art, and, moreover, it is significant to note that the Cowles specification would seem by implication to teach that when the current once found a path of least resistance and highest temperature through the charge mixture it continued to retain it. Such teaching would seem remarkable if the present contention of the complainants is correct that the continued passage of the localized current increased the conductivity of the surrounding mass to the extent of substantially disintegrating the localized current and diffusing it through the mass, for, if such be the case, then it was needless for the patentees to warn and provide against localization of the current when such localization was self-adjusting and could only end in the patentees' desired method of non-localization and a diffusion of the current through the mass.

We next turn to the question whether the respondents infringe. They are the owners of Letters Patent No. 492,767, issued February 28, 1893, to Edward G. Acheson, and are engaged in the manufacture of carborundum in pursuance thereof. What are the terms and scope of that patent are not questions pertinent to the present case, and upon them we express no opinion. The simple question here is, do they infringe complainants' patent, and not what is the scope of their own. We simply allude to it here as a fact in connection with the respondents' operations.

From the proofs it would seem that some years after the Cowles patent in suit Mr. Acheson, who was an electrician of experience, discovered the possibility of uniting a single atom each of carbon and silicon and producing a new chemical product. It is chemically known as "carbid of silicon" and commercially as "carborundum." While extremely cheap to manufacture, it has proved to be an abrasive harder than emery, and indeed than any abrasive material except the diamond, and the dust of the latter is so expensive that its use is restricted to the cutting of gems. The uses to which carborundum has been applied are varied, its adoption rapid, and its sale extensive. Prior to January 1, 1892, there were manufactured about fifty pounds; during 1892, two thousand one hundred and forty-five pounds; during 1893, fifteen thousand two hundred, and during the first nine months of 1894 thirty-two thousand and eighty-five pounds. It has been used as an abrasive for the cutting and polishing of gems by lapidaries, for grinding and seating of valves, for cutting and grinding glass, in the form of wheels for general metal grinding, as in cutlery manufacture, saw manufacturing and sharpening of saws, watch manufacturing, optical work of all kinds, and indeed has been applied to all the varied uses to which emery-wheels have been adapted. In dentistry small wheels or points of it are extensively used for operations on natural and artificial teeth. It has been adapted to these and various other uses, and the proofs show it has attracted the attention and favorable notice of the scientific world.

The respondents' method, ingredients, their mode of treatment, and the results obtained are substantially these: The apparatus used consists of the ordinary engine, dynamo, transformers, and other appurtenances belonging to the generating and regulating of an electric current, and what might be termed an "electrically-heated furnace." Upon an ordinary pedestal of brick is constructed a box of fire-brick nine feet eight inches in length, one foot eleven inches wide, and one foot nine inches deep. No cement or mortar is used in the construction of the side walls of the furnace nor in its ends.

In the construction of the pedestal or base on which the furnace proper is built cement is grouted into the brickwork for the purpose of excluding the gases; but in the walls the joints are quite open to prevent escape of the gases. Through the center of the box, extending lengthwise, is a core or conductor for the conveying of electric current. This conductor is formed of granular coke and has relatively a large cross-section. Its terminals are contracted to nine solid carbon rods. These carbon rods extend through the ends of the furnace and connect with two metallic plates through which electrical connection is made to an alternating-current dynamo. The materials used in forming the mixture of the charge and from which the carborundum is produced are coke and anthracite coal in the form of fine powder, salt, sand, and sawdust. These materials are taken in the proportions, by weight, of thirty-one parts sand, twenty-nine parts coke or coal, two parts salt, and four parts sawdust. They are all thoroughly mixed together, and then form what is called the "charge mixture." A sufficient quantity of the prepared mixture is placed in the furnace to fill it half full. A trough or trench is then dug along the center line of the furnace in the mixture, this trough forming a bed for the conductor of coke. Being thus prepared, one hundred pounds of granular coke

are placed uniformly throughout the length of the trough and rounded up to form as nearly as practicable a cylinder. When complete, the core measures from eight to nine inches in diameter and extends through the length of the furnace for a distance of about eight feet, leaving a small space between its ends and the carbon rods. A good connection is made between the granular core and the carbon rods by introducing finely-powdered carbon, thus completing the electrical conductor through the furnace-chamber and the walls. The remainder of the furnace is filled with another portion of the prepared mixture, reserving at the ends a small space that is filled with the fine carbon, and on top of this bricks are placed to improve the contact by pressing the fine carbon against the terminal rods. When the current is first turned on, it usually has a volume of one hundred and fifty amperes. As a result of the passage of the current through the core its resistance is reduced and the current is proportionately increased until eventually the resistance of the carbon core has become sufficiently low to permit of the passage of one thousand amperes. The volume of the current is maintained at one thousand amperes until the operation of the furnace is completed. During the period of the increasing volume of the current the temperature of the core has been raised, by reason of its resistance to the passage of the current, to a very intense heat, sufficient to effect a direct conversion of the amorphous form of carbon as represented in coke into the graphitic form. The temperature required for this transformation is approximately 7,000° Fahrenheit.

The sample of a run exhibited shows that surrounding the core is a well-defined zone of crystals of brilliant luster. This zone is compact, separate from the core, and after removal retains its circular shape, corresponding to the contour of the core. These crystals are the carborundum or carbid of silicon. There is an appreciable diminution in the size of the outer crystals as compared with the inner ones, and farther out they are not found at all. The outer portions of the charge mixture, save that the salt is melted and the sawdust charred, does not seem to be affected. Between this outer portion and the crystal zone already described there is a zone of about an inch thick, which seems to indicate an intermediate state between the original charge and the crystallized carborundum, and between the core and the carborundum crystals is sometimes found a layer of graphitic carbon and silicon in mechanical mixture. The purpose of the several charge ingredients and the operations they undergo are stated by respondents' witness Acheson thus:

> The fine coke or anthracite coal is introduced for the purpose of providing carbon; the sand is introduced for the purpose of providing silicon. These two materials have sufficient within themselves for the making of carborundum, as it is a product resulting from the simple union in chemical combination of one atom of carbon and one atom of silicon. In the furnace, when the carbon and the sand or oxid of silicon are exposed to the high heat there produced, a portion of the carbon united with the oxygen in the sand, together forming carbon monoxid, while another portion of the carbon unites with the free silicon to form carbid of silicon. The salt, which is the ordinary chlorid of sodium, is introduced into the mixture for the purpose of cementing the black mass together that it may the more easily be removed from the furnace after the operation is complete. It also has the effect of decreasing the possible oxidation or burning away of the carbon in the mixture, which would naturally occur by reason of the contact of the oxygen of the air with the carbon at a high heat. The sawdust is introduced for the double purpose of increasing the resistance of the mixture to the passage of the electric current, and to afford a greater looseness or porosity to the mass, so that the gases which are produced during the operation of the furnace may more readily escape.

The contention of the respondents is that in the commercial manufacture of carborundum as thus carried on by them the electric current passes wholly through the core; that any portion of it that might wander off and pass through the charge mixture is a leakage or loss and plays no part in producing carborundum; that the heat is generated wholly in the core and reaches the charge by radiation and is not generated in the charge mixture by the passage through it of the electric current; that their purpose, means, practice, and result are on wholly different lines from and at variance with the suggestions and disclosures of the Cowles patent, and that their method is one based on localization of the current, heat generation along such localized central line, and that the heat reaches the substances to be affected only by radiation.

In considering this question of infringement it is quite clear to our mind that in the use of a core composed wholly of resistance material in the selection of such resistance material, in the relative size of such resistance material as compared with the resistance material necessarily used in the charge mixture, and in the location of the core with reference to the electrodes the respondents have chosen the most effective agencies for localizing the current. So far as means and method go they have designedly followed a course the reverse of that advised and disclosed by Cowles—actions not usually characteristic of a copyist and infringer. The granular coke of the respondents' core being of a larger cross-section relatively than the powdered coke of the surrounding charge mixture and being in the direct line of the electrodes, attracts and localizes the current initially, and as generation of heat continues its conductivity and current-carrying capacity also increases. It would therefore seem clear, and indeed it is conceded, that initially the Acheson core is the current's chosen path of least resistance and highest temperature, and it cannot be gainsaid that no such practice was taught, suggested, much less disclosed, in the Cowles patent. Nor is such a central core embodied in the elements of any of the claims. Indeed, instead of following the lines of Cowles's teaching the central-core method would seem, at least so far as localizing the current goes, more in the line of a return to the arc notion of a localized current, which Cowles was seeking to avoid. Nor is the mere presence of carbon in the charge mixture proof that its purpose is to afford a current-path. It is a necessary ingredient to unite with silicon in producing carborundum, and in the respondents' working the quantity of carbon in the charge mixture is limited to the amount necessary for that purpose only. While the carbon of the core mixture remains intact at the close of the operation, the carbon of the charge mixture does not. It is clear, too, that

the other ingredients of the charge are not relatively good conductors, and the silicon, which is the largest ingredient, is lacking in a marked degree in that regard.

Moreover, the clear weight of the testimony satisfies us that in the practical commercial making of carborundum by the respondents (and it is in this the respondents must be held to infringe, if at all) the core is not used as a mere choice of different methods, a thing indifferent in itself, or one which could be omitted. The proof is that its use is an absolute necessity, that its very proportions are considerations of extreme importance, and that the absence of such nicely-adjusted proportions result disastrously. Its preparation constitutes one-half the expense of building the furnace. Its resistance and surface area are adjusted to the length of the furnace, potential, and quantity of current employed. Its surface area controls the thickness of the resultant carborundum shell, for the proofs show that when the core is too small in cross-section its mass becomes so highly heated that the carborundum crystals formed in immediate proximity to its surface are destroyed, and when too large the heat conveyed from the surface to the charge mixture is, owing to its increased area, not sufficient to produce the usual thickness of carborundum shell.

It has been determined [says the witness Acheson] purely by experimental work prolonged over many months, that the size of the core should be adjusted to the point where it will be brought to or slightly under the temperature at which the crystals of carborundum are decomposed into free carbon and free silicon.

The central core being an indispensable factor in the process employed by the respondents, being concededly the initial path of the current, and the very decided weight of proof and reasoning being that it continues to carry the substantial bulk of the current in this localized path and that the resultant product is the result of such localization, the case might well be disposed of on that ground, for the use of such current-localizing central core is wholly without the discovery disclosed by the patent in question and an element not found in its claims.

Waiving, however, this point for the present, let us pass on to the inquiry whether the weight of the evidence satisfies the court that the current or any part of it ceases to pass through the core and is established through the carbon constituents of the charge, a burden which rests upon the complainants to show by a fair preponderance of proof if infringement is to be decreed.

From the nature of things the impossibility of observing the interworking of the furnace and the subtle character of the electrical agents absolute demonstration or certainty is impossible. Any conclusion reached is at best a mere deduction from certain observed phenomena. The interior workings can only be surmised by a consideration of the structure, ingredients, operation, and results.

When Mr. Cowles was asked how he would determine the relative quantities of the current flowing through respondents' core at any given zone of the outer mass, he frankly stated:

I know of no way of exactly determining it. Judgments and inferences might be drawn as to the current density in different parts of the cross-section of that apparatus, and possibly some measurements, but I do not think reliable ones could be secured as to the fall of potential between different portions; but to my mind the conditions inside of that furnace are so varied in different parts, and so subject to the actions of gases evolved, variations in temperature and various other conditions, that exact statements could not be made.

The divergent conclusions or views deduced may be seen in the evidence of Messrs. Cowles and Acheson. Mr. Cowles says:

Electrical tests I have made have given me conclusive evidence that with a core present similar to that described in the descriptions of the defendant's furnaces, that all the current does not pass through the core. These experiments were made during the process of the run of December 15th, which I have already described. * * * A large proportion undoubtedly follows the core when it is operated as I have read the description of the operation. It is impossible to say, in my judgment, exactly what portion follows the core.

He then stated that comparing his experiments and the respondents' operation there would not be much difference in the manner in which the current would follow the central core in the two cases. He had already expressed the opinion that such experiments "probably over seventy per cent. and possibly ninety-five per cent." of the current passed through the central core.

Mr. Acheson gives his views as follows:

The working current is confined to and passes through the core. Any current that may wander off from the core and pass through the mixture can only be considered in the light of leakage, precisely as we consider the current that escapes from the ordinary telegraph-line as leakage. A leakage must always be looked upon as a source of loss, and it is in this sense that I look upon the current that by any chance may be deviated from the core to the mixture. It is not, however, a quantity of any particular value, and plays no part in the manufacture of carborundum.

While, as we have said, absolute certainty is impossible, we are by a most patient and detailed study of the case led to two conclusions: first, the weight of the proof and the reasons advanced fail to show that a substantial, effective part of the current passes through the charge mixture in respondents' process, and, secondly, the clear weight of the evidence tends strongly to show that the working, effective current is confined to the central core in respondents' workings.

In reaching such conclusions we are strongly impressed with the fact that the physical indicia at the close of a run of respondents' furnace all point to the idea that whatever be the concealed working of the current the core is the center of heat, energy, and effectiveness. The relative effects of such centrally-located energy, and the central localization of the energy as well, are shown in the existence in equidistant surrounding series of zones of similarly-affected ingredients and by the fact that these rings of zones exhibit different conditions of the material acted upon and such conditions varying according to the relative distances of such zones from the central core. Then, too, the atoms of the charge-zones nearest the core and on all sides of it have been shifted into radial lines uniformly converging from the core and at right angles to its axis, thus showing that the influence or energy which fixed their position emanated from a common central source. That such the case is also evidenced by the fact that the crystal particles varied in size according to their relative distance from the core, diminishing the farther they are

located from it. If the electric current is the basis of energy, the formative cause of these crystals, and of the changed condition of the charge mixture when subjected to it—and such must be the case if infringement exists—it would seem to follow that the diffusion of the current in effective, appreciable quantity through the body of the charge mixture would result in varying and irregular conditions throughout the mass and that there would be an absence of those regular, graduated, and systematic conditions which we find in symmetrical order at the close of run of a core-furnace, and all of which seem in relative relation to the central core. Nor would we find the production of crystals confined to any particular portion of the charge.

The indisputable phenomena found at the end of a core-furnace run are to our mind consistent with the theory that the seat of the thermo-electric energy which causes such phenomena is in a common central current and are not consistent with the theory of a number of effective working currents following numerous diverging paths through the mixture and each constituting an individual radiating center of effective thermo-electric energy. Assuming that a number of fugitive, shunt, subsidiary currents do branch off from the central-current path, yet it must be apparent, if the evidence of the senses can be relied on, that their relative size and influence as compared with the dominating and masterful effect of the central-core current is unappreciable. No traces of their path or even of their existence are found at the close of the run; they have left no carborundum in their vicinage. Assuming that such currents exist, it may be assumed, if they are judged by their fruits, that they are non-effective and a matter of indifference in the production of carborundum in respondents' process.

If we assume that carborundum is produced by thermal radiation from a localized line or current and that such localized current is the dominant and efficient cause of the production, then the mere presence of fugitive, inefficient currents which leave no traces of their path or evidence no result from their passage cannot well be urged as an infringement of a process whose gist, substance, and effectiveness is based upon the diffusion of working and effective currents which produces the desired effect along their several paths throughout the mass. And in this connection we might say that if the escape of fugitive side currents from the main-current path in obedience to the shunt law and their passage thrpugh the charge mixture were in themselves and without reference to their effectiveness to be deemed infringements of the Cowles patent, then the arc method of smelting to which Cowles refers in his specification and which there must have been shunt-currents in certain conditions, might be urged as a substantial anticipation of Cowles patent, since in its practical operation there were diffusive currents as well as localized ones.

That the heat is generated in the core and reaches the charge mixture by radiation and not by currents diffused through the mass and generating heat in their passage is also shown by the fact that within an hour after respondents' run begins the heat generated within the core is sufficient to drive off vapors, while the outside of the charge does not become red-hot for five hours, and even this is hastened by the burning of the gases at the surface. It is also significant as emphasizing the same view that when powdered anthracite coal, which is well known to be of higher resistance material to an electric current than powdered coke, was substituted for the latter, it produced no effect upon the operation or the output of the furnace, thus showing that if side currents were diffused through the charge mixture they were of such trifling character that their increase or decrease in volume was a matter of no relative importance.

The wide variation between the heat extremes at the exterior and interior of the charge mixture is shown by the fact that the exterior zone of the charge undergoes no appreciable change further than the fusion of the salt and the charring of the sawdust, changes which take place at moderate temperature, while the inner zone shows a thin layer of graphite, indicating the most intense heat at that point. Such wide variations of results point to equally widely separated causes, and as the current is the heat-generating source, would indubitably, we might almost venture to say, point to a localized central location for it. The fact that graphite and not carborundum forms where the charge mixture abuts against the core indicates that if the charge mixture was intermixed with the core ingredients and, in the words of the Cowles patent, were—

thus brought directly in contact with the heat at the points of generation,

the respondents' process would be a failure. The conceded results of respondents' operations would therefore seem to show that the desired effect was reached, not by contact of the to-be-treated substance with the heat at its point of generation and where, as in Cowles's process, none of it is lost by "transmission through intervening bodies or spaces," but where the heat radiates from its point of generation in order to reach substance and where some of such heat is lost by transmission through both intervening bodies and intervening spaces.

Indeed, the process, preparation of ingredients, and means employed in the two methods now under consideration are diverse and the desired objects unlike. The like thermo-electric agent is employed in both, but with it the substantial likeness ends. Cowles's object was reduction, while Acheson's was composition. One reduced a substance already in existence; the other by composition produced a new product. With Acheson the new product consumed the carbon constituent of the charge; with Cowles an excess of the carbon constituents remained at the close of the process. In Cowles the charge for functional purposes occupied the central space between the electrodes; in Acheson for functional purposes it was removed from such central space and from electrode con-

tact. In Cowles an excess of carbon was required in the charge mixture as a current-conductor; in Acheson no such excess was required or used, but the carbon for that purpose was isolated in the central core. Their methods are so radically unlike and are carried out on such diverse lines that we are firmly convinced that the charge of infringement has not been sustained. After what we have stated in reference to the Cowles process patent we do not deem it necessary to protract this opinion by a detailed description of the apparatus Patent No. 319,945. It has been strongly assailed as void for lack of patentable novelty; but as we are of opinion that respondents' apparatus does not infringe its claims a discussion of its patentability is needless.

Two species of furnace are illustrated in the drawings and described in the specification. One is for the reduction of zinc ores, the other for non-volatilizable metals which require a very high temperature for their reduction. Though different in construction, these two furnaces are substantially similar in principle, the broad or basis idea being in both that the material under treatment mixed with pulverized carbon or other resistance material is isolated in such a manner that the electric current may pass through the mixture and spend its entire energy within the mixture.

After a discriminating analysis of the patent the respondents' witness Laureau well says, and we agree with his conclusions:

A comparison with the apparatus used by the defendant company and the general mode of procedure in the manufacture of carborundum, would show that there are radical differences between them and the furnace and methods described and claimed by the Cowles patent in suit, No. 319,945. The furnace used by defendant is built loosely without any attempt at making it air-tight, the bricks being simply piled up without any binding material whatever, and the top is left entirely open. The gases have no one particular means of escape, but in fact issue from sides and top with equal facility, the flames on the side being quite as large as those at the top. The material outside of the core is not packed so that it may exclude the heat produced by the electric current going through a core of resistance material. The core which was used is of pure carbon unmixed with any material upon which the current might have a decomposing action, and the mixture from which the product sought for is obtained is not placed as in the Cowles furnace in the direct path of the current, but in the very place from which he specifically states that he wishes to exclude it. The material to be acted upon in the defendant's furnace is placed where the charcoal packing which confines the heat within the core is in the Cowles furnace. * * * The core of the defendant is inert and unproductive so far as final results are concerned; the core of the Cowles patent in suit is the active and productive portion of the furnace.

A detailed examination of the claims shows that all the several elements embodied in the claims are not found in the respondents' furnace. The first claim is:

In an electric smelting or reducing apparatus, a chamber or casing having its longest dimension in a horizontal direction, and adapted to contain a charge of ore and electrical resistance material previously pulverized and mixed together, the oppositely-located electrodes in conductive relation to the charge, but otherwise insulated from one another, and an exit for the escape of the gases and vapors evolved from the charge during the process of reduction, substantially as herein set forth.

When respondents' furnace is in use, it is not—

adapted to contain a charge of ore and electrical resistance material previously pulverized and mixed together, the oppositely-located electrodes in conductive relation to the charge.

The electrodes of respondents are in conductive relation, not to the charge, but to a central core, through which, and not through the charge, the working current passes.

In the second claim we find among the elements—

the smelting-chamber formed of side and bottom walls of closely-packed pulverized or granular material and the permeable top wall formed of a layer of granular non-heat-conducting material;

in the third claim—

the combination of a chamber or casing, the side and bottom layers of closely-packed pulverized or granular material, and the top covering of similar material, made permeable for the escape of gases and vapors;

in the fourth claim—

a smelting-chamber formed of closely-packed granular or pulverized material of a non-heat-conducting nature and of lesser electrical conductivity than the charge to be smelted in the furnace,

and in the seventh claim—

a smelting-chamber formed of closely-packed pulverized material of non-heat-conducting nature and of lesser electrical conductivity than the charge to be smelted within it, a layer of similar material, permeable for the escape of gas, for closing the said chamber.

As bearing on these elements, the specification states:

The space between the carbon plates constitutes the working part of the furnace. This is lined on the bottom and sides with a packing of fine charcoal, O, or such other material as is both a poor conductor of heat and electricity—as, for example, in some cases silica or pulverized corundum or well-burned lime—and the charge P of ore and broken, granular, or pulverized carbon occupies the center of the box, extending between the carbon plates. A layer of granular charcoal, O', also covers the charge on the top. The charge thus forms a core extending lengthwise of the box, in contact with the carbon plates M at the ends, and incased on all sides by the jacket of fine charcoal. Fine charcoal, as is well known, is a very poor conductor of heat, and the charcoal packing confines the heat within the core, protects the walls of the furnace, prevents them from fluxing down and mingling with the charge, thereby introducing deleterious matter, and it forms a deoxidizing-shell for the charge. The protection of the charge from the introduction of deleterious matter by the fluxing down of the walls is a very important matter, and the protection afforded therefrom by the charcoal packing immediately surrounding the charge is complete. It is also a much inferior conductor of electricity than the carbon used in the core, and hence it operates as an insulating-jacket for the charge and confines the current to its path through the charge, besides confining the heat. The protection afforded by the charcoal jacket as regards the heat is so complete that, with the covering-slab removed, the hand can be held within a few inches of the exposed charcoal jacket; but with the top covering of charcoal also removed and the core exposed the hand cannot be held within several feet.

It will thus be seen the charge is enveloped and, as stated above, "forms a core extending lengthwise." In respondents' process these elements are not present. The charge mixture has nothing outside of it whatever, neither chamber-walls not inclosing jacket.

Nor does respondents' apparatus use the form of core specified in the fifth claim—viz., one—

having a greater number of points of contact in a cross-section of the body taken close to the plates than in a cross-section of the same taken at intermediate parts thereof.

Moreover the body or core therein interposed, which the claim states "is substantially as described," is, by reference to the specification, found to be composed of the charge mixture Thus—

the charge thus forms a core extending lengthwise of the box, in contact with the carbon plates M at the ends, and incased on all sides by the jacket of fine charcoal.

In respondents' furnace the charge mixture forms no part of the core, and these same remarks are applicable to the sixth claim.

After careful examination, being of opinion that infringement has not been shown, the complainants' bill will be dismissed.

Let a decree be prepared and submitted.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 3. TUESDAY, OCTOBER 19, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
REGISTRATION OF ATTORNEYS	341
INDEXES TO PERIODICALS	341
PRICE OF PRINTED COPIES OF SPECIFICATIONS AND DRAWINGS	342
LABELS	342
ISSUE OF OCTOBER 19, 1897	343
APPLICATIONS UNDER EXAMINATION	342
PATENTS GRANTED	None.
REISSUES	491
DESIGNS	499
TRADE-MARKS	
COMMISSIONER'S DECISIONS—	
S. Hernsheim, Bros. & Co., Limited, v. J. H. Hargrave & Son	503
Ex parte Hunter	504
DECISIONS OF THE U. S. COURTS—	
United States, ex rel. Bulkley, v. Butterworth, Commissioner of Patents	505
American Street Car Advertising Company v. Newton Street Railway Company et al	506

Registration of Attorneys.

RULE 17. * * * A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of persons in the following classes will, upon their written request, be entered upon this register:

(a) Any person who at the date of the approval of the present Rules of Practice, June 18, 1897, was engaged as attorney or agent in the active prosecution of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(b) Any attorney-at-law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of such clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(c) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(d) Any person not an attorney-at-law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(e) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(f) Any firm not entitled to registration under the preceding sections which shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

After January 1, 1898, no person not registered in accordance with this rule will be permitted to prosecute applications before the Patent Office.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Astrophysical Journal, Chicago, a monthly title-index of publications on astrophysical and allied subjects.

Electrical World, New York, a weekly digest of electrical articles.

Engineering Magazine, New York, a monthly title-index of engineering articles in the English language only.

Electrical Engineer, New York, a weekly synoptical index of electrical literature, American and foreign.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Proceedings of the Physical Society of London, monthly abstracts of the principal articles on physics published in the American and Continental journals since January 1, 1895.

School of Mines Quarterly, New York, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Price of Printed Copies of Specifications and Drawings.

It is hereby ordered, pursuant to an amendment of section 498 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1896, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1898.

Labels.

6,558.—Title: "NORMANDY PURE RYE." (For Whisky.) *The Mellwood Distillery Company*, Louisville, Ky. Application filed September 24, 1897.

6,559.—Title: "OLD WATER-MILL." (For Whisky.) *The Mellwood Distillery Company*, Louisville, Ky. Application filed September 24, 1897.

Print.

55.—Title: "SHAKESPERIAN SERIES." (For Playing-Cards.) *The New York Consolidated Card Company*, New York, N. Y. Application filed September 25, 1897.

Issue of October 19, 1897.

Patents	496—No. 591,801 to No. 592,296,	inclusive.
Designs	41—No. 27,734 to No. 27,774,	inclusive.
Trade-Marks	45—No. 30,684 to No. 30,728,	inclusive.
Labels	2—No. 6,558 to No. 6,559,	inclusive.
Prints	1—No. 55.	
Reissues	None.	
Total issue	515	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	1		New Hampshire	4	
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Arkansas			New Mexico Territory		
California	17	1	New York	67	10
Colorado	2		North Carolina	1	
Connecticut	14	2	North Dakota	4	
Delaware		1	Ohio	24	2
District of Columbia	1		Oklahoma Territory	2	
Florida	5		Oregon		1
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Kansas	3		Utah	1	
Kentucky	3	4	Vermont		
Louisiana	1		Virginia	3	1
Maine	3		Washington	3	
Maryland	4	1	West Virginia	2	
Massachusetts	41	2	Wisconsin	14	
Michigan	18		Wyoming		
Minnesota	10		U. S. Army		
Mississippi			U. S. Navy		
Missouri	11	3	Total to citizens of the United States	496	43
Montana	1				
Nebraska	2				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
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Austria-Hungary	1		Newfoundland		
Barbadoes			New South Wales	1	
Belgium			New Zealand	3	
Bermuda			Norway		
Brazil			Portugal		
Canada	6		Queensland		
Cape Colony			Roumania		
Chile, Republic of	1		Russia		
China			Scotland	3	
Colombia			South African Republic		
Cuba			South Australia		
Denmark			Straits Settlements		
Egypt			Sweden		
England	16	1	Switzerland	1	
Finland			Venezuela		
France	4		West Australia		
Germany	6	3	Total to citizens of foreign countries	41	5
India		1			
Ireland					
Japan					

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business October 12, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Sept. 15	Sept. 18	141
	Between one and two months.			
250	VIII. Furniture, Beds, Store Furniture, etc.	Aug. 13	Oct. 2	373
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Aug. 20	Sept. 22	198
98	XXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Aug. 16	Sept. 20	258
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Aug. 27	Sept. 16	145
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Aug. 20	Sept. 14	223
215	XVII. Paper Manufactures and Printing.	Aug. 18	Sept. 14	185
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 13	Sept. 14	333
106	II. Farm Stock, Products, etc.	Aug. 25	Sept. 1	253
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Aug. 16	Aug. 31	288
	Between two and three months.			
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 15	Oct. 2	278
265	XII. Mechanical Engineering, Store-Service, etc.	Aug. 9	Sept. 27	182
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	July 22	Sept. 25	160
98	XXI. Textiles, etc.	July 30	Sept. 22	232
108	XIX. Stoves and Furnaces	July 20	Sept. 22	359
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	July 19	Sept. 17	435
198	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	July 16	Sept. 15	210
158	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Aug. 9	Sept. 14	252
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Aug. 5	Sept. 8	201
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 17	Sept. 7	346
253	X. Carriages and Wagons	July 14	Sept. 1	424
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 19	Aug. 21	567
246	I. Tillage and Fences	July 12	Aug. 21	350
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	June 16	Oct. 5	606
248	XVIII. Steam-Engineering, etc.	July 7	Oct. 1	362
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 21	Sept. 27	276
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	June 12	Aug. 30	543
240	VII. Velocipedes	June 23	Aug. 1	1395
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	July 15	424
	Between four and five months.			
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 11	Sept. 11	208
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 7	Sept. 1	181
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	Aug. 21	320
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 20	Aug. 21	674

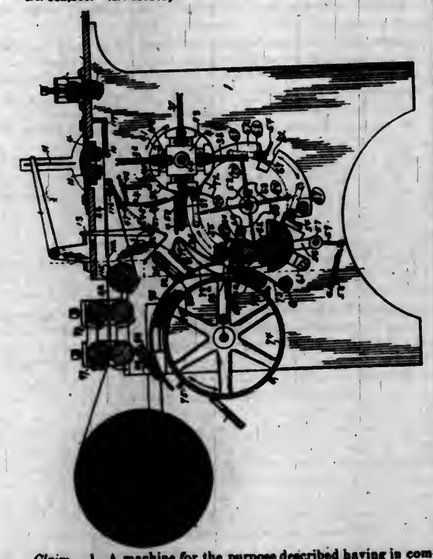
Total number of applications awaiting action 11,575

Under one month.			
Trade-Marks	Sept. 29	Oct. 6	48
Between one and two months.			
Designs	Sept. 8	Sept. 16	257

PATENTS

GRANTED OCTOBER 19, 1897.

591,801. MACHINE FOR FOLDING AND WRAPPING NEWSPAPERS. LEE A. AGNEW, Chicago, Ill. Filed Dec. 16, 1896. Serial No. 615,209. (No model.)



Claim.—1. A machine for the purpose described having in combination mechanism for folding the sheet and wrapping the wrapper partially around said folded sheet; a support for the folded sheet and wrapper after the same leave the folding mechanism; a lap-paster arranged to impinge the lap of the wrapper after it leaves said folding mechanism; a yielding lap-smoothing device having its engaging surface fixed against movement with the wrapper whereby it will drag thereagainst; means for pulling the folded sheet and wrapper bodily from said folding mechanism and forcing the same between said support and lap-smoothing device; and means for folding the pasted lap back against the wrapper, paste side inward, located in the line of travel of the sheet at a point between the lap-paster and the lap-smoothing device, substantially as set forth.

2. A machine for the purpose described having in combination mechanism for folding the sheet and wrapping the wrapper partially around said folded sheet; a support for the folded sheet and wrapper after the same leave the folding mechanism; means for applying paste to the projecting end or lap of the wrapper; a yielding lap-smoothing device pressing continually toward said support and having its engaging side coterminous with said lap-paster and fixed against movement along the line of travel of the wrapper whereby the wrapper will be caused to drag thereagainst and the paste-coated surface smoothed out and pressed into place; and means for pulling the folded sheet and wrapper bodily from said folding mechanism and forcing the same between said support and lap-smoothing device, substantially as set forth.

3. A machine for the purpose described, having in combination mechanism for folding the sheet and wrapping the wrapper partly around said folded sheet, a support for the folded sheet after it leaves the folding mechanism, a deflectable plate impelled toward said support, means for pulling the folded sheet and wrapper bodily from said folding mechanism and forcing the same between said support and plate, said support and plate being arranged to hold the folded sheet, and means for applying paste to the lap of the wrapper and pressing such lap into place, substantially as set forth.

4. A machine for the purpose described, having in combination mechanism for folding the sheet and wrapping the wrapper partly around it, a support for the folded sheet after it leaves said folding mechanism, a deflectable plate impelled toward said support, means for pulling the folded sheet and wrapper bodily from said folding mechanism and forcing the same between said support and plate, said support and plate being arranged to hold the folded sheet, means for applying paste to the lap of the wrapper, and means for imparting a reverse movement to the folded sheet while the lap of the wrapper is yet engaged by said plate, substantially as set forth.

5. A machine for the purpose described, having in combination means for folding the sheet and partly wrapping the wrapper around it, a vibrating lap-pasting device, a plate to and from which said lap-pasting device vibrates, and means for carrying the folded sheet and wrapper bodily between said lap-pasting device and plate, and means for forcing the lap against the wrapper, substantially as set forth.

6. A machine for the purpose described, having in combination a movable holder consisting of independent side pieces arranged to receive the sheet between them, end pieces and sliding blocks secured to said side pieces respectively and adjustably mounted on said end pieces, means for forcing the sheet into said holder, means for doubling the sheet back against the holder and finally withdrawing the folded sheet from the holder, substantially as set forth.

7. A machine for the purpose described, having in combination a movable holder, means for forcing the sheet into said holder, a doubler arranged in the line of movement of said holder and adapted to engage with the sheet therein, circular supports or disks for the folded sheet, and claws carried by said supports for pulling the folded sheet from said holder, substantially as set forth.

8. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the wrapper and sheet into said holder, a doubler arranged in the line of movement of said holder, and adapted to engage with the sheet therein, means for pulling the folded sheet from the holder, and means for securing the lap of the wrapper, substantially as set forth.

9. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into the said holder, a doubler arranged in the line of movement of said holder and adapted to engage with the sheet therein, means for pulling the folded sheet from the holder, means for holding the lap of the wrapper and applying paste thereto and means for reversing the movement of the folded sheet while the lap is being so held, substantially as set forth.

10. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a doubler arranged in the line of movement of said holder and adapted to engage with the wrapper therein, traveling claws for pulling the folded sheet and wrapper from said holder, a lap pasting and holding device past which said claws carry the folded sheet, means for withdrawing said claws from engagement with the folded sheet, and means for carrying the folded sheet in a reverse direction while the lap is being so held, substantially as set forth.

11. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a doubler arranged to engage with the edge of the sheet and wrapper in the holder, means for pulling the sheet and wrapper from said holder, a lap-holder whose one member is a lap-pasting device, and means for moving the folded sheet in a reverse direction while the lap is so held, substantially as set forth.

12. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a doubler arranged to engage with the edge of the sheet and wrapper in the holder, claws for pulling the sheet and wrapper from the holder a cam for forcing said claws into engagement with the sheet, a lap pasting and holding device, means for withdrawing said claws from the folded sheet after it passes said lap-paster, and means for carrying the folded sheet in a reverse direction while the lap of the wrapper is being held by said lap-holder, substantially as set forth.

13. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a doubler arranged to engage with the edge of the sheet and wrapper in the holder, pivoted claws for pulling the sheet and wrapper from the holder, a fixed cam for forcing the claws into engagement with the sheet, a lap-pasting device, said cam having a depression or offset located beyond the lap-pasting device, springs for forcing the claws toward said cam, and means for moving the folded sheet in a direction contrary to the movement of the claws, substantially as set forth.

14. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a doubler arranged to engage with the edge of the sheet and wrapper in the holder, a pair of revolving disks or supports between which said holder passes and upon which the ends of the folded sheet rest, pivoted claws revolving in unison with said disks and adapted to engage the ends of the folded sheet for pulling it from the holder, means for applying paste to the lap of the wrapper, and means for pressing said lap against the folded wrapped sheet, substantially as set forth.

15. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a doubler arranged to engage with the edge of the sheet and wrapper in said holder, means for pulling the sheet and wrapper from said holder, a vibrating lap-pasting device adapted to come against the lap end of the wrapper, a plate arranged opposite said vibrating lap-pasting device and means for turning the folded sheet with reference to the lap until the lap is stuck in place, substantially as set forth.

16. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, means for pulling said sheet and wrapper from said holder, a yielding plate against which said sheet and wrapper are forced, a vibrating lap-pasting device between which and said plate the sheet and wrapper pass, and means for carrying the folded sheet in a contrary direction to force the lap against the wrapper, substantially as set forth.

17. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a yielding plate arranged adjacent to the upper or outer edge of the holder, a vibrating lap pasting device moving to and from said plate, means for pulling the sheet and wrapper from said holder and against said plate and carrying it between said lap-pasting device and plate, a smoothing-plate and means for carrying the folded sheet in a reverse direction against said smoothing-plate, substantially as set forth.

18. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a plate arranged adjacent to the upper or outer end of said holder, a lap-pasting device arranged to make contact with the lap end of the wrapper, traveling claws for pulling the sheet and wrapper from said holder and forcing them against said plate and carrying them between said plate and pasting device, means for withdrawing said claws from engagement with the folded sheet before the lap end of the wrapper passes the lap-paster, a smoothing-plate and means for carrying the folded sheet and wrapper in a reverse direction against said smoothing-plate and thereby pressing the lap in place, substantially as set forth.

19. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a plate arranged adjacent to the upper or outer edge of said holder, a lap-pasting device, means for pulling the sheet and wrapper from said holder and forcing them against said plate and between said plate and lap-pasting device, a cam for periodically forcing said lap-pasting device into the line of movement of the lap of the wrapper, and means for forcing the pasted lap against the wrapper, substantially as set forth.

20. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a pivoted or yielding plate arranged contiguous to the line of movement of said holder, a lap-pasting device arranged opposite said plate, traveling claws for pulling the sheet and wrapper from said holder and forcing them against said plate and between the latter and said pasting device, a yielding smoothing-plate bearing against and forcing said first plate toward said pasting device, and means for carrying the folded sheet in a direction contrary to the movement of said claws and against said smoothing-plate, substantially as set forth.

21. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a yielding plate arranged adjacent to the line of movement of said holder, a lap-pasting device arranged opposite said plate and toward which said plate is normally forced, traveling claws for pulling the sheet and wrapper from said holder and forcing them against said plate and between said plate and pasting device, a drum having lugs, means for revolving said drum in a direction contrary to the movement of said claws, and a yielding smoothing-plate having means for forcing it normally toward said first plate, substantially as set forth.

22. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, supports for the ends of the sheet after it leaves the holder, a yielding plate arranged adjacent to the line of movement of said holder and tending normally toward said support, a lap-pasting device opposed to the said yielding plate, means for pulling the sheet and wrapper from said holder and crowding them between said support and plate and carrying them beyond said lap-pasting device, and means for forcing the lap against the wrapper, substantially as set forth.

23. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a yielding plate arranged adjacent to the line of movement of said holder, a lap-pasting device opposed to the said plate, means for pulling said sheet and wrapper from said holder and crowding the same against said plate and pulling the lap of the wrapper between said plate and pasting device, a smoothing-plate having a pivoted or yielding portion bearing normally against the end of said first plate and forcing it toward the lap-paster and a drum mounted adjacent to said smoothing-plate and having lugs for engaging with the folded sheet, and means for revolving said drum in a contrary direction to the forward movement of the folded sheet, substantially as set forth.

24. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, a plate arranged adjacent to the line of movement of said holder, a lap-pasting device arranged opposite said plate, a drum having peripheral lugs, a rest for the folded sheet arranged opposite said drum, means for pulling the sheet and wrapper from said holder and crowding them against said plate and carrying them beyond said plate between the latter and said pasting device, a smoothing-plate and means for revolving said drum in a direction to carry the folded sheet toward the lap end of the wrapper, substantially as set forth.

25. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, means for doubling the sheet and wrapper back upon the holder, a lap-holding device consisting of a yielding plate and a pasting device, a yielding smoothing-plate, a spring connecting said first plate with said smoothing-plate and forcing the ends of both plates together and toward said pasting device, means for pulling the sheet and wrapper from said holder and carrying them between said pasting device and the first said plate, and means for carrying the folded sheet in a reverse direction against said smoothing-plate, substantially as set forth.

26. A machine for the purpose described, having in combination a movable holder, means for projecting the wrapper across said holder, means for forcing the sheet and wrapper into said holder, means for doubling the sheet and wrapper back upon the holder, means for pulling the sheet and wrapper from said holder and applying paste to the lap end of the wrapper, an adjustable smoothing-plate and means for carrying the folded sheet in a reverse direction against said smoothing-plate for forcing the lap against the wrapper, substantially as set forth.

27. A machine for the purpose described, having in combination means for feeding the sheet to be folded, folding and wrapping mechanism, a driving-pulley, a disengageable connection between said driving-pulley and folding and wrapping mechanism, and a trip or trigger arranged to be struck by the sheet and controlling said disengageable connection for throwing the folding and wrapping mechanism into operation, substantially as set forth.

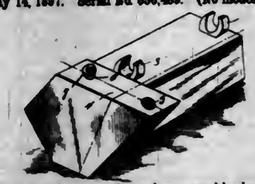
28. A machine for the purpose described, having in combination a number of boxes or chutes arranged at different altitudes and having openings in their forward sides, a table arranged under said boxes, a traveling carrier arranged under said table and having a finger projecting up therethrough for engaging with the sheets in said boxes, and means for elevating said finger at intervals throughout its line of movement under the boxes, substantially as set forth.

29. A machine for the purpose described, having in combination a shaft carrying a number of revolving sheet-holders, lap-pasting mechanism, revolving claws for pulling the folded sheet from said sheet-holders, a revolving cam for oscillating said lap-paster, a disk having a number of radial slots equal to the number of said sheet-holders, for revolving said claws and cam, a revolving pin or lug adapted to engage in the said slots, a second disk on said shaft having radial slots equal in number to the number of said sheet-holders, a second revolving pin or lug for engaging in the slots of said second disk and said second revolving lug being driven by said first slotted disk, substantially as set forth.

30. A machine for the purpose described, having in combination a series of intermittently-revolving sheet-holders, an intermittently rising and falling folding-knife, intermittently-revolving feed-rollers for feeding the wrapper under said knife and over said holders, an intermittently-revolving series of claws for pulling the sheet from said sheet-holders, a plate arranged adjacent to the line of movement of said claws and adapted to press upon the folded sheet, a vibrating lap-pasting device, means for carrying the folded sheet in a contrary direction to that in which it was carried by said claws, a disengageable connection geared with and adapted to operate said revolving holders and claws and to vibrate said paste device, a lock for holding said disengageable connection inactive and a trip arranged to be struck by the sheet for releasing said lock, substantially as set forth.

31. A machine for the purpose described, having in combination a driving-shaft, a rising-and-falling knife operated by said shaft, a pair of rollers between which said knife descends, a clutch on said shaft having its driven member provided with operative connection so as to operate said knife, a lock for holding said clutch inactive and a trip or trigger arranged to be struck by the sheet as it enters the machine and being connected to and adapted to release said lock, substantially as set forth.

591,802. INK-BOTTLE. ALEXANDER C. ANDERSON, Graham, Tex.
Filed May 14, 1897. Serial No. 636,489. (No model.)



Claim.—An inkstand having a hexagonal body, with a pen-rack thereon, and an angular enlargement at one end, with openings therein, forming cups and arranged at opposite angles of inclination, one of said openings leading directly to the ink chamber or reservoir, and the other communicating therewith, substantially as and for the purposes specified.

591,808. GAGE FOR WIRE FENCES. DANIEL W. AYLWORTH, Cleveland, Ohio. Filed Nov. 30, 1896. Renewed Sept. 7, 1897. Serial No. 650,844. (No model.)



Claim.—1. In a gage for wire-fence pickets, the combination with a vertical bar provided with grooves through which pass the horizontal wires, and upon which said bar is movably supported, of horizontal gage-rods passing through grooves in said vertical bar and provided with vertical grooves spaced to the distance between pickets, hooks adapted to support the outer ends of the gages upon the horizontal wires, and a level upon the vertical bar, substantially as described.

2. In a gage for wire-fence pickets, the combination with a vertical bar, supported upon and longitudinally movable upon the horizontal wires by means of grooves, of gage-rods, movably secured to said vertical bar in grooves and provided with grooves spaced to receive the vertical wires, covers for the grooves in the vertical bar hooks adapted to support the outer ends of the gage-rods upon the longitudinal wires, and a level upon the vertical bar, substantially as described.

3. In a gage for wire-fence pickets, the combination with a vertical bar, supported upon the longitudinal wires by means of grooves, of gage-rods passing through grooves in said bar and provided with vertical grooves adapted to receive the vertical wires, all of said grooves being dovetailed in shape to permit of varying the angle of the vertical bar and pickets relatively to the gage-rods and longitudinal wires, hooks upon the outer extremities of the gage-rods, and a level upon the vertical bar, whereby the parallelism of the vertical pickets may be maintained, substantially as described.

591,804. DESK-RULER. JOHN D. BARRIE, Los Angeles, Cal.
Filed Nov. 23, 1896. Serial No. 613,053. (No model.)

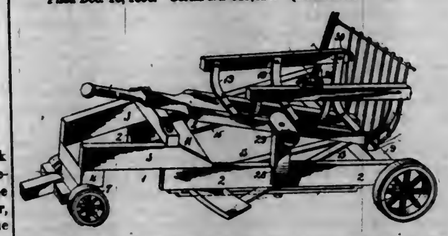


Claim.—1. A desk-ruler having one of its edges grooved parallel with and extending the full length of the ruler forming a guide and knife projecting into said groove and having a cutting edge conforming to the shape of the groove for the purpose of sharpening pencils, substantially as set forth.

2. In a desk-ruler the combination of the body of the ruler, a groove formed in the edge of the ruler, a recess in the side of the ruler, a triangular pencil-sharpening knife secured in said recess, said knife having teeth or serrations which press into the wood of the ruler and assist in holding it in position, substantially as set forth.

3. A desk-ruler having one of its edges formed with a groove parallel with and extending the length of the ruler which groove is coated with emery, and a knife projecting into said groove, whereby said groove is adapted to sharpen pencils by combined cutting and grinding action.

591,805. CORN-HARVESTER. LORENZO W. BELL, Sumner, Mo.
Filed Dec. 10, 1896. Serial No. 615,127. (No model.)



Claim.—1. In a corn-harvester, the combination with the machine-frame, of an adjustable cutter adapted to be moved in a horizontal plane so as to alternately project from opposite sides of the frame, substantially as described.

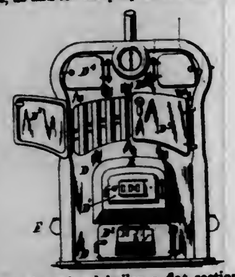
2. In a corn-harvester, the combination with the machine-frame, of a movable cutter pivotally mounted on the machine-frame and adapted to be swung laterally to either side of the machine so as to project laterally therefrom and present an oblique cutting edge, substantially as described.

3. In a corn-harvester, the combination with the machine-frame comprising the spaced side bars, of a movable cutter consisting of a cutting-blade and an arm extending rearwardly therefrom and pivotally connected to the machine-frame at its rear end, and keepers extending beneath and secured to the side bars of the frame and forming supports for said cutter, the latter being adapted to be projected laterally from either side of the machine and to present an oblique cutting edge, substantially as described.

4. In a corn-harvester, the combination with a truck-frame mounted on carrying-wheels, of a carrier or receptacle fulcrumed at its rear end on the truck-frame, a tail gate hinged to an upright or post on the machine-frame, and a catch on the carrier for holding said gate shut, whereby the gate acts as a lock for preventing the accidental tilting of the carrier, substantially as described.

591,806. SECTIONAL BOILER FOR HOT-WATER AND STEAM HEATING. LAWRENCE R. BLACKMORE, Newark, N. J., assignor to the Blackmore Heating Company, of New Jersey. Filed Feb. 19, 1897. Serial No. 624,337. (No model.)

Claim.—1. In a vertical sectional boiler, a flat section having double water-legs at the opposite sides, with a fire-arch connecting the inner water-legs, and a water-chamber connecting the outer water-legs near the top of the section, vertical water-tubes connecting the fire-arch with the water-chamber, and extensions of the outer water-legs above the water-chamber, recurved into the same at opposite sides of the center line, such extensions forming loops over the outer corners of the water-chamber, with flues for the heated gases within such loops, as and for the purpose set forth.



2. In a vertical sectional boiler, a flat section having double water-legs at the opposite sides, with a fire-arch connecting the inner water-legs, and a water-chamber connecting the outer water-legs near the top of the section, vertical water-tubes connecting the fire-arch with the water-chamber, and extensions of the outer water-legs above the water-chamber, recurved into the same at opposite sides of the center line, such extensions forming loops over the outer corners of the water-chamber with flues for the heated gases within such loops, and the contiguous sides of the loops being provided with the outlets G^2 to draw the heated fluid from the section, substantially as set forth.

3. In a vertical sectional boiler, a flat section having double water-legs at the opposite sides, with a fire-arch connecting the inner water-legs, and a water-chamber connecting the outer water-legs near the top of the section, vertical water-tubes connecting the fire-arch with the water-chamber, and extensions of the outer water-legs above the water-chamber recurved into the same at opposite sides of the center line, such extensions forming loops over the outer corners of the water-chamber with flues for the heated gases within such loops, and the inner water-legs being reduced in thickness for the passage of the heated gases, above the base of the fire-arch, and adapted to contact upon the edges of the adjacent sections at the sides of the fire-box, to form a dead-space between the water-legs at the lower part, as and for the purpose set forth.

4. In a vertical sectional boiler, a flat section having double water-legs at the opposite sides of the fire-box, with a fire-arch connecting the inner water-legs, and a water-chamber connecting the outer water-legs near the top of the section, vertical water-tubes connecting the fire-arch with the water-chamber, and extensions of the outer water-legs forming loops over the outer corners of the water-chamber with flues for the heated gases within such loops, the water-tubes having a thickness a little less than the section, and the fire-arch and that portion of the water-chamber below the flues being of still less thickness, to lead the gases freely into and out of the vertical passages between the tubes and conduct the same to the flues, substantially as herein set forth.

5. In a vertical sectional boiler, a flat section having double water-legs at the opposite sides of the fire-box, with a fire-arch connecting the two water-legs, and a water-chamber connecting the outer water-legs near the top of the section, vertical water-tubes connecting the fire-arch with the water-chamber, and extensions of the outer water-legs forming loops over the outer corners of the water-chamber with flues for the heated gases within such loops, the water-tubes having a thickness a little less than the section, and the fire-arch and that part of the water-chamber below the flues being of still less thickness, to lead the gases freely into and out of the vertical passages between the tubes and conduct the same to the flues, and the inner water-legs being adapted to contact upon the edges of the adjacent sections at the sides of the fire-box to form a dead-space between the water-legs at the lower part, and the inner water-leg having direct connection with the water-chamber by one of the vertical water-tubes, substantially as herein shown and described.

6. In a vertical sectional boiler, a flat section having double water legs at the opposite sides of the fire-box, with a fire-arch connecting the inner water-legs, and a water-chamber connecting the outer water-legs near the top of the section, vertical water-tubes connecting the fire-arch with the water-chamber, and extensions of the outer water-legs forming loops over the outer corners of the water-chamber with flues for the heated gases within such loops, the fire-arch having a thickness less than the section and the water-chamber being notched upon the sides below the flues to conduct the gases upward into the same, substantially as herein set forth.

7. In a vertical sectional boiler, a flat section having double water-legs at the opposite sides of the fire-box, with a fire-arch connecting the inner water-legs, and a water-chamber connecting the outer water-legs near the top of the section, vertical water-tubes connecting the fire-arch with the water-chamber, and extensions of the outer water-leg carved outwardly and upwardly at the ends of the water-chamber, and formed into loops over the outer corners of the same, with flues for the heated gases within such loops, the loops having outlets upon the contiguous sides and sufficiently separated to admit a header and pipe connections with union-joints, substantially as herein shown and described.

8. In a vertical sectional boiler, a flat section having double water-legs at the sides of the fire-box, with a fire-arch connecting the inner water-legs and a water-chamber connecting the outer water-legs near the top of the section, vertical water-tubes connecting the fire-arch with the water-passages, and water-columns projected upward from the chamber at opposite sides of the center with outlets upon their contiguous faces, and space between such outlets to admit a header and pipe connections with union-joints, substantially as herein shown and described.

9. In a vertical sectional boiler, a flat section divided vertically in halves upon the middle line, each half-section having double water-legs at one side, a water-chamber extended across the top of the half-section, a half fire-arch projected from the inner water-leg to the dividing-line, with vertical water-tubes connecting such half-arch with the water-chamber, and an extension of the outer water-leg above the water-chamber recurved into the same at one side of the division-line, such extension forming a loop over the outer corner of the water-chamber with flue for the heated gases within such loop, substantially as herein set forth.

10. In a vertical sectional boiler, a flat section divided vertically in halves upon the middle line, each half-section having double water-legs at one side, a water-chamber extended across the top of the half-section, a half fire-arch projected from the inner water-leg to the dividing-line, with vertical water-tubes connecting such half-arch with the water-chamber, and an extension of the outer water-leg above the water-chamber recurved into the same at one side of the division-line, such extension forming a loop over the outer corner of the water-chamber with flue for the heated gases within such loop, and the water-chamber having notches N in its sides upon the outer corner below said flue, to conduct the gases upwardly into the same, substantially as herein set forth.

11. In a vertical sectional boiler, a flat section divided vertically into halves upon the middle line, each half section having double water-legs at one side, a water-chamber extended across the top of the half-section, a half fire-arch projected from the inner water-leg to the dividing-line, with vertical water-tubes connecting such half-arch with the water-chamber, and an extension of the outer water-leg above the water-chamber recurved into the same at one side of the division-line, such extension forming a loop over the outer corner of the water-chamber with flue for the heated gases within such loop, and the fire-arch and water-tubes having a less thickness than the section, and the water-chamber having notches N in its sides upon the outer corner below the said flue, to conduct the gases upwardly into the same, as and for the purpose set forth.

12. In a vertical sectional boiler, a flat section made in halves, each half having double water-legs at one side, a circulating-chamber at the top, an extension of the outer water-leg forming a loop above the water-chamber with flue for the heated gases within such loop, a half fire-arch projected from the inner water-leg, and vertical water-tubes connecting such half-arch with the water-chamber, the fire-arch and water-tubes being less in thickness than the section, and the water-chamber below the flue having less thickness than the tubes to receive the gases from the vertical passages between the tubes, substantially as shown and described.

13. In a vertical sectional boiler, a flat section made in halves, each half having double water-legs at one side, a circulating-chamber at the top, an extension of the outer water-leg forming a loop above the water-chamber with flue for the heated gases within such loop, a half fire-arch projected from the inner water-leg, and vertical water-tubes connecting such half-arch with the water-chamber, the water-tubes having a thickness a little less than the section, and the fire-arch and that portion of the water-chamber below the flue being of still less thickness, to lead the gases freely into and out of the vertical passages between the said tubes, substantially as herein set forth.

14. In a vertical sectional boiler, a flat section made in halves, each half having double water-legs at one side, a circulating-chamber at the top, an extension of the outer water-leg forming a loop above the water-chamber with flue for the heated gases within such loop, a half fire-arch projected from the inner water-leg, and vertical water-tubes connecting such half-arch with the water-chamber, the water-tubes being at the top a little less in thickness than the section and tapering gradually downward, and the fire-arch and that part of the water-chamber below the flue being of still less thickness, to lead the gases freely into and out of the vertical passages between the said tubes, substantially as shown and described.

15. In a vertical sectional boiler, a flat section made in halves, each half having double water-legs at one side, a circulating-chamber at the top, an extension of the outer water-leg forming a loop above the water-chamber with flue for the heated gases within such loop, an outlet upon the inner side of such loop, the fire-arch and water-tubes being less in thickness than the section, and the water-chamber being of less thickness than the outer water-leg which forms the joint between the sections, and having also vertical notches N in its sides below the said flue to conduct the gases upward into the same, substantially as shown and described.

16. In a vertical sectional boiler, a flat section made in halves, each half having double water-legs at one side, a circulating-chamber at the top, an extension of the outer water-leg forming a loop above the water-chamber with flue for the heated gases within such loop, an outlet upon the inner side of such loop, the fire-arch and water-tubes being less in thickness than the section, and the water-chamber being of less thickness than the outer water-leg which forms the joint between the sections, and having also vertical notches N in its sides below the said flue to conduct the gases upward into the same, and the inner water-leg having the same thickness as the section to the top of the fire-box to guard the dead-space between the water-legs near the bottom, substantially as and for the purpose set forth.

17. In a vertical sectional boiler, a flat section made in halves, each half having double water-legs at one side, a circulating-chamber at the top, an extension of the outer water-leg forming a loop above the water-chamber with flue for the heated gases within such loop, a half fire-arch projected from the inner water-leg and connected by vertical tubes with the circulating-chamber, the said arch, tubes, and chamber being of less thickness than the section to admit the gases to the flue, and the inner water-leg below the top of the fire-box having the same thickness as the section to form a dead-space between the water-legs at the lower part, and an inlet M connecting the water-legs below such dead-space, with water-inlet below the bottom of such dead-space, substantially as shown and described.

18. In a vertical sectional boiler, a flat section made in halves, each half having double water-legs at one side, a circulating-chamber at the top, an extension of the outer water-leg forming a loop above the water-chamber with flue for the heated gases within such loop, a half fire-arch projected from the inner water-leg and connected by vertical tubes with the circulating-chamber, the said arch, tubes, and chamber being of less thickness than the section to admit the gases to the flue, and the inner water-leg below the top of the fire-box having the same thickness as the section to form a dead-space between the water-legs at the lower part, and an inlet M connecting the water-legs below such dead-space, with water-inlet below the bottom of such dead-space, supports for grates upon the inner water-leg adjacent to the bottom of the dead-space, and a foot M′ (having the thickness of the section) projected downward from the chamber M to form the sides of an ash-box below the grate, substantially as herein set forth.

19. In a vertical sectional boiler, a rear section having the water-plate C extended from top to bottom with the half water-legs projected from the plate at opposite edges, and formed at the upper corners of the plate with loops having pipe connections upon their contiguous sides, the water-legs being throughout of the same thickness as the section and being connected by the fire-arch C′ forming, in the upper half of the section, a smoke-box C^2 in the center and check-draft door C^4 at one side, substantially as shown and described.

20. In a vertical sectional boiler, a rear section made in halves, each half having the water-plate C′ extended from top to bottom with the half water-leg projected from the plate along one edge, and formed at the upper corner of the plate with the loop U having outlet as set forth, the water-leg being throughout of the same thickness as the section, and having the half fire-arch O, the half smoke-outlet C^3, and the draft-opening C^4, the half fire-arches forming with the water-legs and their extensions a smoke-box in the upper half of the section with a draft-opening at each side of the smoke-outlet, substantially as shown and described.

21. In a vertical sectional boiler, a rear section made in halves, each half having the water-plate C′ extended from top to bottom with the half water-leg upon the edge of the plate having extension forming the loop at the top corner of the same, and having the half fire-arch, the half smoke-outlet, and the half ash-pit draft-opening, the half fire-arches forming with the water-legs and their extensions a smoke-box in the upper half of the section, and the sections being connected at the lower end by the ash-pit-draft-door frame m^3 secured to the same, and the loops having water-outlets upon their contiguous faces, substantially as herein shown and described.

22. In a vertical sectional boiler, a rear section having the water-plate C′ extended from top to bottom, and provided upon one side with the outer water-legs J, the loops L having outlets L′, the inner water-legs I and the fire-arch O connecting the same and the outer legs J, and forming with the loops a smoke-box in the upper part of the chamber, such smoke-box being provided with the smoke-outlet and draft-openings, and the independent water-legs at each edge of the section providing an upward and downward circulation from the fire-arch, substantially as shown and described.

23. In a vertical sectional boiler, a rear section having the water-plate C′ extended from top to bottom, with the inlet-chambers M connected with the same side of the plate at opposite edges, two water-legs extended upward from each chamber, the inner water-legs being connected with the plate C′ and united by a fire-arch, as set forth, and the outer water-legs connected with such fire-arch and continued upward along the edge of the section and formed into a loop at the top of the same, the fire-arch and the extensions of the water-legs forming in the upper half of the section a smoke-box having smoke-outlet, and the water-chambers M having the feet M′ projected downwardly and connected by the plate M^2, having the opening m^2, with the frame m' connecting the two sections together and provided with the draft-slide m, substantially as shown and described.

24. In a vertical sectional boiler composed of a series of flat sections, the section B having the water-plate B′ upon the upper half with the fire-arch O projected from one side of the same and the outer water-leg J, extended downward from the fire-arch and upward along the edge of the section, with extension forming the loop L, the inner water-leg connected with the fire-arch and with the outer water-leg at the bottom by chamber M, the flue-openings L′ through the corners of the section, and the direct-draft opening K′ provided with damper K^2, substantially as shown and described.

25. In a boiler provided with a series of flat sections and having fire-box sections A provided each with water-chamber across the top and fire-arch connected with such chamber by vertical tubes, and having in the corners flue-openings connected with the spaces between such tubes, the means for discharging the gases from the boiler, consisting of the section B having the water-legs I J, and plate B′ provided with the direct-draft opening K′ having damper K^2 and with the flue-openings L′, and having upon the rear side the fire-arch O, and the extensions of the water-legs J along the edges of the plate and over the flue-openings, and the inner leg I connected with the fire-arch and with the leg J by chamber M, and the rear section C having at the outer side the plate C′ extended from top to bottom of the same to close the rear of the fire-box, and provided upon the inner side with the chambers M, water-legs I, J, looped extensions L, and fire-arch O arranged as set forth, and smoke-outlet C^3 through the plate just above the fire-arch, the adjoining spaces above the fire-arches of the two sections forming a smoke-box receiving the smoke at pleasure through the flue-openings L′ or the draft-opening K, substantially as herein set forth.

26. In a vertical sectional boiler, a flat section made in halves, each half having a water-chamber at the top with the column L^2 projected upwardly therefrom and provided with an outlet, the section having a fire-arch connected with such water-leg and with the chamber by water-tubes, and the said column having connection at the top with the water-leg to form a direct channel from the top of the boiler to the bottom through the said water-leg when the outer circulation of the boiler is cut off, substantially as herein set forth.

27. A vertical sectional boiler composed of a series of flat sections secured together, and having each water-legs at the bottom, and water-chamber near the top, and fire-arch connected thereto by water-tubes, with spaces between the sections for the upward movement of the gases, and flues extended within the sections over the top of the water-chamber, and a rear section with smoke-box inside the same, connected to such flues, with an outlet to draw the smoke therefrom, as and for the purpose set forth.

28. A vertical sectional boiler composed of a series of flat sections secured together, and having each water-legs at the bottom, and water-chamber near the top, and fire-arch connected thereto by water-tubes, with spaces between the sections for the upward movement of the gases, and flues extended within the sections over the tops of the water chamber, and two rear sections provided each with a water-plate in the place of water-tubes, and hollowed upon their adjacent sides to form a smoke box connecting with the said flues, such smoke-box being provided with a smoke-outlet, substantially as herein set forth.

29. A vertical sectional boiler composed of a series of flat sections secured together, and having each water-legs at the bottom, and water-chamber near the top and fire-arch connected thereto by water-tubes, with spaces between the sections for the upward movement of the gases, and flues extended within the sections over the

tops of the water-chamber, and a rear section with smoke-box inside the same connected to such flues, a smoke-box upon the middle line of such section, and openings for check-draft dampers at opposite sides of such smoke-outlet, to facilitate the application of a check-draft damper at either side of the boiler, as may be required, substantially as herein set forth.

30. In a vertical sectional boiler, a series of flat flue-sections, each section being formed in halves having a water-leg, a half fire-arch, and a half water-chamber connected thereto by vertical water-tubes, and an extension of the water-leg over the top of the water-chamber having outlet thereon, and forming flue above the water-chamber, substantially as set forth.

31. In a vertical sectional boiler, a series of flat flue-sections, each section being formed in halves having a water-leg, a half fire-arch, and a half water-chamber connected thereto by vertical water-tubes, and an extension of the water-leg over the top of the water-chamber having outlet thereon, and forming flue above the water-chamber, and the opposite sides of the water-chamber being formed with the notches *n'* to admit the gases freely to such flues, substantially as herein set forth.

32. In a vertical sectional boiler, a series of flat flue-sections, each section being formed in halves having a water-leg, a half fire-arch, and a half water-chamber connected thereto by vertical water-tubes, and an extension of the water-leg over the top of the water-chamber having outlets thereon, and forming flue above the water-chamber, the outlets being formed upon the contiguous sides of the loops, and the sections being connected with opposite sides of a header, and the opposite sides of the water-chamber being formed with the notches *n'* to admit the gases freely to the flues, substantially as herein set forth.

33. A vertical sectional boiler composed of a series of flat flue-sections, each section being formed in halves with two water-legs at one side, of the full thickness of the section, a water-chamber at the top connected with the outer water-leg, a fire-arch connected with the inner water-leg and with the water-chamber by vertical water-tubes, an extension of the outer water-leg forming a loop over the top of the water-chamber with flue inside the loop, and the space between the water-legs below the fire-arch being excluded from the circulation of the gases, substantially as herein set forth.

34. A vertical sectional boiler comprising the sections A provided each with water-legs, fire-arch, water-chamber, vertical water-tubes, and extension of the outer water-leg forming flue above the water-chamber, the section B having the plate B' above the fire-arch O and the flue-openings through such plate, and the section C closing the end of the fire-box and having plate above the fire-arch provided with smoke-outlet, the sections B and C being hollowed to form a smoke-box, substantially as herein shown and described.

35. A vertical sectional boiler comprising the sections A provided each with water-legs, fire-arch, water-chamber, vertical water-tubes, and extension of the outer water-leg forming flue above the water-chamber, the section B having the plate B' above the fire-arch O with the flue-openings through such plate, and the section C closing the end of the fire-box and having plate above the fire-arch provided with smoke-outlet, the sections being made each in half and having outlets at the top connected with a common header, and the half-sections having feet M' below the water-legs to close the sides of the ash-pit, and the section C being formed at the bottom with the plate M^3 having the opening m^3 with the frame *m'* arranged to connect the halves of the section at the bottom and provided with the draft-slide *m*, as and for the purpose set forth.

36. A vertical sectional boiler composed of a series of flat sections secured together, and having each water-legs at the bottom, and water-chamber near the top, and fire-arch connected thereto by water-tubes, with spaces between the sections for the upward movement of the gases, and flues extended within the sections over the tops of the water-chamber, a smoke-box at the rear of the boiler connected with such flues and provided with a smoke-outlet, the water-chambers being notched at opposite sides below the flues, and removable flue-stoppers being fitted to certain of the spaces formed by such notches to direct the gases toward the front of the boiler, substantially as herein set forth.

591,807. CAR-JOURNAL BEARING. WILLIAM R. BOWKER and JOHN R. BOWKER, Waltham, Mass. Filed Nov. 4, 1896. Serial No. 611,087. (No model.)

Claim.—1. A lubricator for journal-boxes, comprising a barrel or casing to rest in the bottom of the box and having an inlet and a suitable discharge-nozzle to direct the oil upon the journal, and a freely-movable piston for said barrel or casing, operated solely by the vibration of the car and independent of the journal, substantially as described.

2. A lubricator for journal-boxes comprising piston-barrels adapted to rest at opposite ends of the bottom of the journal-box, and one or both provided with an inlet and a discharge-nozzle to supply oil to the journal, and a piston working freely at its ends in said two barrels past said inlet or inlets and operated solely by the vibrations of the car, substantially as described.



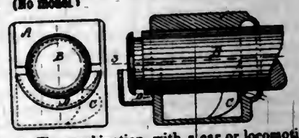
3. A lubricator for journal-boxes comprising the oblong piston barrels or chambers to rest on the bottom of a journal-box at opposite ends thereof and provided with an inlet and a discharge-nozzle to direct the oil up to the journal, and a piston in the form of an oblong block, working freely in said two barrels or chambers and operated by the vibrations of the car, substantially as described.

4. A lubricator for journal-boxes, comprising the two piston-barrels to rest on the bottom of a journal-box and having an inlet and a nozzle to discharge the oil upon the journal, and the pistons working in said two barrels or chambers, and provided therebetween with rollers or wheels running on the bottom of the box, substantially as described.

5. The combination with the box and the journal, of a lubricator comprising a piston-chamber in the bottom of the box, having an inlet and a nozzle to discharge upon the overlying journal, and a freely-movable piston working in the said chamber past said inlet and operated by the vibrations of the car, substantially as described.

6. The combination with the box and journal, of a piston barrel or chamber in the bottom of the box at one end thereof and provided with an inlet and a nozzle extending along the under side of the journal and having discharge-apertures, and a freely-movable piston working in said barrel or chamber and operated by the vibrations of the car past the said inlet, substantially as described.

591,808. CAR-JOURNAL BEARING. WILLIAM R. BOWKER and JOHN R. BOWKER, Waltham, Mass. Filed Feb. 26, 1897. Serial No. 625,076. (No model.)



Claim.—1. The combination, with a car or locomotive journal-box the lower portion of which constitutes an oil-reservoir, of one or more wave-breakers in the said reservoir and shaped to break the oil-waves and splash or spray the oil upwardly against the journal, substantially as described.

2. The combination, with a car or locomotive journal-box the lower portion of which constitutes an oil-reservoir, of one or more wave-breakers located in the corners of the reservoir-bottom and having concavities or inclines to force the oil upwardly toward the journal and overhanging edges at the upper ends of the concavities to break the waves and cause the oil to splash or spray upwardly onto the journal, substantially as described.

3. The combination, with a car or locomotive journal-box, the lower portion of which constitutes an oil-reservoir, of breakers located in diagonally opposite lower corners of the reservoir and having their opposed faces concaved and terminating in overhanging edges to break the ascending waves of oil and splash or spray the same upwardly against the journal, substantially as described.

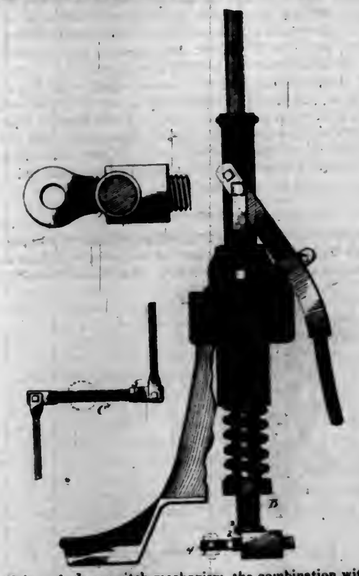
591,809. AUTOMATIC WEATHER-STRIP. DAVID A. BRAWLEY and JAMES F. LEWIS, Charleston, W. Va. Filed Mar. 3, 1897. Serial No. 625,905. (No model.)



Claim.—An automatic weather-strip, comprising a hinged door and its frame, the lower edge of said door being formed with a longitudinal rectangular groove 4, a plate 5 provided with an integral

cylindrical guide-sleeve 7, and the oppositely-disposed guide-plate 13 provided with a rectangular orifice 12, an approximately rectangular bar 9 formed with a cylindrical end 8 engaging the guide-sleeve 7, its opposite rectangular beveled end 10 projecting through the corresponding guide-orifice 12 in the plate 13, and its rectangular body portion formed with the downwardly-extending portions 23 23 having inclined faces 26, the transverse notches 21 21, and the spiral spring 15, in combination with the rectangular follower 18 mounted in said groove 4 and extending parallel with and below said bar, and provided with the vertical parallel ears 19, 19 connected at their upper ends by a transverse bolt 20 extending across the upper edge of the bar 9, the upper edge of said follower being formed with the recesses 24, each of which has an inclined wall 25, and are adapted to receive the bent portions 23 of said bar 9, substantially as and for the purpose set forth.

591,810. SWITCH MECHANISM. EMERY H. BRYANT, Hanson, Mass. Filed Dec. 16, 1896. Serial No. 615,876. (No model.)



Claim.—1. In a switch mechanism, the combination with a target-shaft and a connecting-rod, of a screw-threaded crank-arm passing through the lower end of said target-shaft and connected with said connecting-rod.

2. In a switch mechanism, the combination with a target-shaft and a connecting-rod, of a head or hub secured to the lower end of the target-shaft and having a screw-threaded opening, and a screw-threaded crank-arm passing through said screw-threaded opening and connected with the connecting-rod, substantially as set forth.

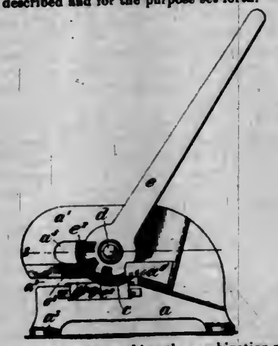
3. In a switch mechanism, the combination with a target-shaft and a connecting-rod, of a head or hub, an offset or enlargement on said head or hub, to which the target-shaft is secured, a screw-threaded crank-arm passing through said head or hub and a connection between said screw-threaded crank-arm and said connecting-rod, substantially as set forth.

4. In a switch-stand, the combination with the spindle or target-shaft, of an adjustable crank comprising a socket, and crank-pin adjustably mounted therein.

591,811. METAL-SHEARING MACHINE. CASPER T. BUCHER, Tiffin, Ohio. Filed Apr. 30, 1896. Serial No. 589,649. (No model.)

Claim.—1. In a metal-shearing machine, the combination with the supporting-frame, of a stationary cutter, a rotary cutter for coacting with said stationary cutter, a lever having a fixed connection with said rotary cutter, and means forming a connection between said lever and the supporting-frame or part thereof, so as to cause the lever, when operated, to have both a rotary and longitudinal movement at its point of connection with the rotary cutter, substantially as and for the purpose described.

2. In a metal-shearing machine, the combination with the supporting-frame, of a stationary cutter-blade, a rotary cutter for coacting with said stationary cutter, a lever having a fixed connection with said rotary cutter and having a rack-and-pinion or gear connection with the said frame or part thereof, the teeth located upon the lever being arranged in the arc of a circle and engaging with teeth arranged in a line parallel with the said stationary cutter-blade, substantially as described and for the purpose set forth.



3. In a metal-shearing machine, the combination with a supporting-frame embracing a horizontal base-plate and a vertical plate extending above said base-plate provided with an elongated opening therein, a stationary cutter-blade supported by said base-plate, a supporting-spindle extending through said elongated opening in the frame to slide and operate therein, provided with a cutter-disk and an operating-lever secured in a fixed position thereon at opposite sides of the said vertical portion of the frame in close engagement with the latter to be supported and guided thereby, substantially as described and for the purpose set forth.

4. In a metal-shearing machine, the combination of a supporting-frame having a part thereof in the form of a flat plate provided with an elongated opening therein, a stationary cutter-blade supported by said frame, a rotary cutter arranged to coact with said stationary cutter and located upon a supporting-spindle, a block arranged to slide in said elongated opening in the frame and provided with a bearing to receive the said spindle therein, a lever having a fixed connection with said rotary cutter, and means forming a connection between said lever and the supporting-frame or part thereof, whereby the said lever, when operated, will actuate said rotary cutter, in a manner substantially as described and for the purpose set forth.

5. In a metal-shearing machine, the combination of a supporting-frame embracing a horizontal base-plate and a vertical plate, a rotary cutter-disk supported by said vertical plate so as to have a sliding and rotary movement, a stationary cutter-blade supported by said base-plate and in operative engagement with said rotary cutter, provided with the beveled ends b^2, b^2, the clamping-bolts *h*, *h*, provided with the tapering heads *h'*, *h'*, for engaging with the beveled ends of the cutter-blade, and the adjusting-screws h^3, h^3, against which the cutter-blade is held in adjustable position by the said clamping-bolts, substantially as and for the purpose set forth

6. In a metal-shearing machine, the combination, with a supporting-frame embracing a horizontal base-plate and a vertical plate, the latter extending above said base-plate and provided with an elongated opening therein and with an elongated countersink or recess in one side thereof, of a stationary cutter-blade supported by said base-plate, a supporting-spindle extending through said elongated opening in the frame, provided with a fixed operating-lever upon one side of said vertical portion of the frame and with a circumferentially-adjustable cutter-disk at the opposite side of the latter within the said elongated recess therein, the interposed frame serving as a guide and support for the cutter-disk and its operating-lever, substantially as described and for the purpose set forth.

591,812. SEMI-ELLIPTIC SPRING. JOHN BUCKLEY, Chicago, Ill. Filed May 17, 1897. Serial No. 637,074. (No model.)



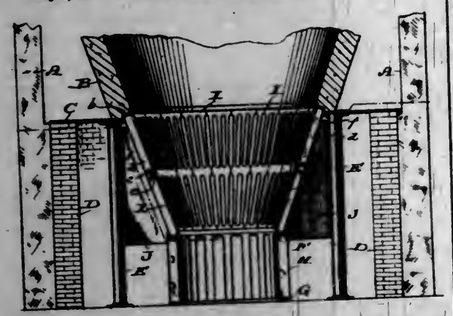
Claim.—1. A semi-elliptic spring comprising the combination of a series of leaves having teats or projections struck upon their upper

sides, and a band for retaining said leaves provided with a groove adapted to receive the teat or projection on the upper side of the top leaf of the spring, and means for holding the spring proper and its constituent leaves or members in locked position in the band, substantially as described.

2. In a semi-elliptic spring, the combination of a series of leaves having teats or projections on their upper side and a band grooved as described for retaining said leaves, and means for locking the spring proper against longitudinal displacement, said means consisting of a pin or bolt passing through the lower portion of said band and into the recess in the lower leaf of the spring, substantially as and for the purpose described.

3. In a device of the character set forth, the combination with a band having a groove in the inner side of the transverse portion thereof extending about half-way through the width thereof, of a series of leaves having teats or projections struck upon their centers, the teat or projection on one leaf adapted to rest in the depression of the adjacent leaf, and the teat or projection of the last leaf being adapted to rest in the groove in the band, means for locking the concrete spring in the band, substantially as described.

591,818. CEMENT-KILN. HENRY CAMPBELL, Milwaukee, Wis., assignor of one-fourth to Philip Gordon Campbell, same place. Filed July 6, 1896. Serial No. 598,090. (No model.)



Claim.—1. A cement-kiln provided with a fireproof lining and having its lower portion of masonry inclosing an air-space, metal columns within the air-space, an apertured metal plate supported by the masonry and columns to constitute a base for said lining, and a kiln-pot comprising a series of grate-bars that form its upper portion, these bars being laid against the lining-base around the aperture therein.

2. A cement-kiln provided with a fireproof lining and having its lower portion of masonry inclosing an air-space, metal columns within the air-space, an apertured metal plate supported by the masonry and columns to constitute a base for said lining, and a kiln-pot having its lower or aye portion in the form of a cast-metal cage surmounted by a series of grate-bars that are laid against the lining-base around the aperture therein.

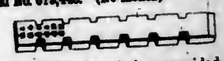
3. A cement-kiln provided with a fireproof lining and having its lower portion of masonry inclosing an air-space, metal columns within the air-space, an apertured metal plate supported by the masonry and columns to constitute a base for said lining and having its aperture surrounded by an angular elevation, together with a kiln-pot that comprises a series of grate-bars having their upper ends laid in under the elevation of said lining-base.

4. A cement-kiln having an inclosed air-space at its base, and the kiln-pot arranged in said space having its upper portion made from a series of longitudinally-apertured bars proportioned to form a funnel-like grating and provided with transverse downwardly-inclined stiffening-webs intermediate of their extremities.

5. A cement-kiln having an inclosed air-space at its base, and the kiln-pot arranged in said space having its upper portion made from a series of longitudinally-apertured grate-bars provided with outwardly-extended longitudinal ribs and intermediate downwardly-inclined webs, said bars being proportioned to form a funnel-like grating and made fast to another by rib-connecting bolts.

6. A cement-kiln having an inclosed air-space at its base, a kiln-pot having a lower portion in the form of a cast-metal cage within the air-space and its upper portion made from a series of longitudinal cast-metal bars that are proportioned to form a funnel-like grating but have transverse downwardly-inclined stiffening-webs, and a suitably-supported metal plate having an aperture around which the aforesaid bars are supported at their upper ends, this plate constituting a base for the fireproof lining of said kiln.

591,814. SIDE-BOX MATRIX-BAR FOR LINE-CASTING MACHINES. ALEXANDER S. CAPEHART, Bismarck, N. D. Filed Jan. 16, 1897. Serial No. 619,440. (No model.)

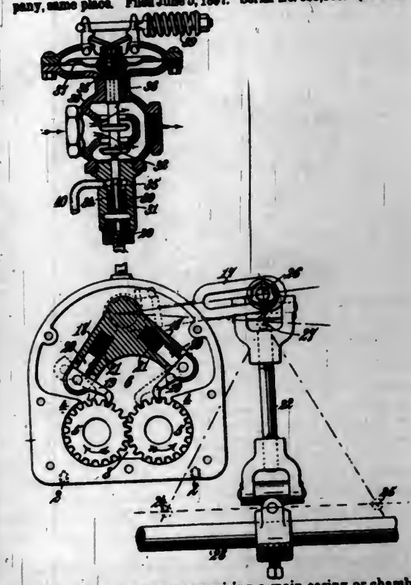


Claim.—1. A side-box matrix-bar provided with a plurality of intaglio or type characters for use in casting, and counterpart or similar intaglio or type characters arranged in juxtaposition to diacritical or distinguishing marks or symbols, each of which symbols indicates the stop-bar required to be moved to arrest the extra, or side-box matrix-bar at the required point to place a particular intaglio in a line being composed in a line-casting machine, substantially as and for the purposes described.

2. In a type-setting and line-casting machine having stop-bars for arresting its matrix-bars at proper points, an extra or side-box matrix-bar having at one edge a group of intaglio or type characters, and at one side a group of corresponding or counterpart intaglio or type characters in juxtaposition to distinguishing marks or symbols, each of which indicates the stop-bar requiring to be shifted by the operator to arrest the extra or side-box matrix-bar at the required point to place a particular intaglio or type character in a line being composed in the machine, substantially as described.

3. In a type-setting and line-casting machine having stops for arresting its matrix-bars at proper points, extra or side-box matrix-bars, each having a plurality of intaglios in one edge for use in casting and in addition thereto a group of characters at one side to indicate the edge intaglios and the stop requiring to be operated to arrest the bar at the required point to place a particular intaglio in a line being composed in the machine.

591,815. FLUID-PRESSURE-CONTROLLED GOVERNOR. ARTHUR W. CASE, Newark, N. J., assignor to the Foster Engineering Company, same place. Filed June 5, 1897. Serial No. 639,503. (No model.)



Claim.—1. A governor comprising a main casing or chamber, a force-pump located in said chamber, a rock-shaft actuated from a reciprocating part of the pump or engine to be governed and carrying pawls engaging with said force-pump, a reservoir for fluid-pressure communicating with the main casing or chamber of the governor through a free feed-passage and also through an adjustably-restricted return-passage, a cylinder communicating with the main casing or chamber of the governor and provided with a piston or plunger, and a throttle-valve directly actuated from said plunger to control the pressure-supply for the pump or engine governed, substantially as described.

2. A governor comprising a main casing or chamber, a force-pump composed of intermeshing gears located in said chamber, a rock-shaft actuated from a moving part of the engine or machine to be governed, mechanism carried by said rock-shaft to engage and drive the pump-gears, a reservoir communicating with the main casing or

chamber through a feed-passage for supply of fluid to the pump and also through a return-passage, a cylinder communicating with the main casing or chamber of the governor and provided with a piston or plunger, and a throttle-valve actuated from said plunger to control the pressure-supply for the engine, pump, or machine to be governed, substantially as described.

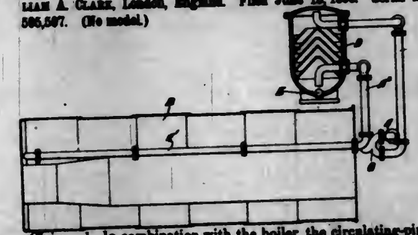
3. A governor comprising a main casing or chamber, a force-pump consisting of intermeshing gears mounted in said chamber, a rock-shaft provided with pawls for driving said gears, means for actuating said rock-shaft from a moving part of the pump or engine to be governed, a reservoir for fluid-pressure communicating with the main casing or chamber of the governor through a free feed-passage and also through an adjustably-restricted return-passage, and a cylinder communicating with the main casing or chamber of the governor and provided with a plunger for actuating a throttle-valve, substantially as described.

4. A governor comprising a main casing having an approximately elliptical recess therein and a larger chamber communicating with said recess, a force-pump consisting of two intermeshing gears fitted in said elliptical recess, a rock-shaft having arms provided with pawls engaged alternately with the teeth of said gears, means for connecting said rock-shaft with a moving part of the pump or engine to be governed, a reservoir for fluid-pressure communicating with a space below and between the gears through a free feed-passage and also communicating with the larger chamber of the main casing through an adjustably-restricted return-passage, and a pipe through which the said larger chamber of the said main casing communicates with a cylinder having therein a plunger for actuating a throttle-valve to control the pressure-supply for the pump or engine governed, substantially as described.

5. A governor having a main casing inclosing an approximately elliptical recess and a larger chamber communicating therewith, two intermeshing rotary gears fitted in said recess and constituting a rotary pump for forcing pressure liquid into the larger chamber of said casing, a rock-shaft having arms provided with spring-pressed pawls alternately engaging the teeth of said gears, means for actuating said rock-shaft, pawls and gears from a moving part of the engine or pump to be governed, a reservoir for fluid-pressure communicating with the main casing, a pipe leading from said main casing to a cylinder having a plunger for actuating a throttle-valve by fluid-pressure, and a pipe leading from said cylinder for return of oil or liquid to the reservoir, substantially as described.

6. A governor comprising a casing having therein an approximately elliptical recess, two intermeshing rotary gears fitted in said recess to force oil or liquid upward in said casing, a pipe through which said casing communicates with a cylinder having a plunger to actuate a throttle-valve, a rock-shaft having arms provided with pawls to drive the said gears, an arm or lever on said rock-shaft, and a link connecting said rock-shaft lever with the piston-rod of an engine or pump, substantially as described.

591,816. FEED-WATER HEATER. WILLIAM CLARK and WILLIAM A. CLARK, London, England. Filed June 15, 1896. Serial No. 595,597. (No model.)



Claim.—1. In combination with the boiler, the circulating-pipes for the feed-water, the supply-pipe for the feed-water, the settling-drum connected with the circulating-pipes, the connecting-pipe from the settling-drum to the boiler for the purified water and the duplex coupling for connecting the feed-water supply and the circulating-pipes and for also connecting the interior of the boiler with the pipe from the settling-drum, said coupling having the two waterways therethrough, substantially as described.

2. In combination with the boiler, the circulating-pipes for the feed-water, the supply-pipe for the feed-water, the settling-drum connected with the circulating-pipes, the connecting-pipe from the settling-drum to the boiler for the purified water and the duplex coupling for connecting the feed-water supply and the circulating-pipes and for also connecting the interior of the boiler with the pipe from the settling-drum, said coupling having the two waterways therethrough with the valve between the said waterways, substantially as described.

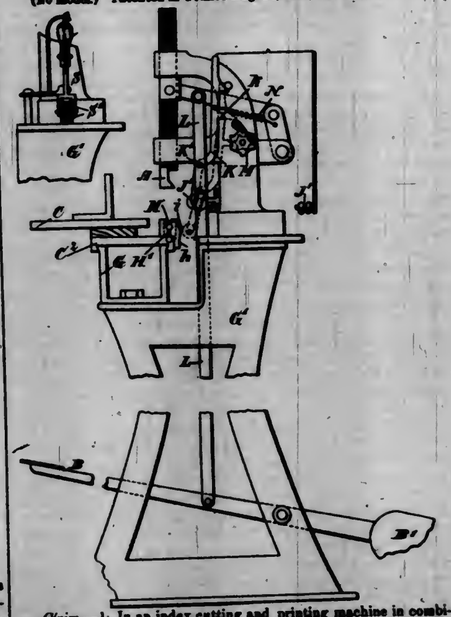
591,817. PUZZLE. CHARLES COLLMAR and SIMON H. RITTER, Reston, Pa.; said Ritter assignor to said Collmar. Filed Dec. 30, 1896. Serial No. 617,578. (No model.)



Claim.—1. The combination with an inclosing glass-covered case having a hole in upper side forming the point of entrance for a suitable metal ball; a hole in the bottom of the box forming the point of exit; a suitable ball, twenty swinging pieces of aluminium of specified shapes and pivotally fastened at specified points, the whole forming an interlocking puzzle substantially as specified.

2. In a puzzle, the combination of a glass-covered box with the entrance-hole and the exit-hole for a suitable ball, a suitable ball and swinging pieces of metal of various shapes pivotally fastened to the bottom of said box to form a puzzle, the swinging pieces to be manipulated by said ball substantially as, and for the purpose set forth.

591,818. INDEX CUTTING AND PRINTING MACHINE. WILLIAM COPER, Liverpool, England. Filed Apr. 2, 1897. Serial No. 630,463. (No model.) Patented in France Aug. 24, 1896, No. 259,113.



Claim.—1. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, means for reciprocating the said knife and means for feeding the said support and the bar forward relatively to the line of movement of the knife, substantially as and for the purpose set forth.

2. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be

turned so as to alternately bring the one and the other of the said faces to the top and mechanism for reciprocating the said knife and feeding the support forward in accordance with the reciprocations of the knife, substantially as and for the purpose described.

3. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the said support forward, and adjusting mechanism for varying the length of the feed movements, substantially as and for the purpose set forth.

4. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, means for reciprocating the said knife, means for feeding the said support and the bar forward relatively to the line of movement of the knife, and an inking mechanism adapted to contact with the type on the type-carrying face of the said bar, substantially as and for the purpose set forth.

5. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the support forward in accordance with the reciprocations of the knife, and an inking mechanism adapted to contact with the type on the type-carrying face of the said bar, substantially as and for the purpose set forth.

6. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the said support forward, adjusting mechanism for varying the length of the feed movements and an inking mechanism adapted to contact with the type on the type-carrying face of the said bar, substantially as and for the purpose set forth.

7. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, means for reciprocating the said knife, means for feeding the said support and the bar forward relatively to the line of movement of the knife, two or more ink-ducts each having individual inking-rollers, and mechanism, as described, for alternately allowing the different inking-rollers to contact with the type on the type-carrying face of the bar during the successive feed movements of the said support, substantially as and for the purpose set forth.

8. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the support forward in accordance with the reciprocations of the knife, two or more ink-ducts each having individual inking-rollers, and mechanism, as described, for alternately allowing the different inking-rollers to contact with the type on the type-carrying face of the bar during the successive feed movements of the said support, substantially as and for the purpose set forth.

9. In an index cutting and printing machine in combination, a sliding support and a reciprocating knife for cutting out index-spaces, a bar journaled on the said sliding support and having a supporting-face and a type-carrying face, both arranged at an angle relatively to each other as described, means for permitting the said bar to be turned so as to alternately bring the one and the other of the said faces to the top, mechanism for reciprocating the said knife and feeding the said support forward, adjusting mechanism for varying the length of the feed movements, two or more ink-ducts each having individual inking-rollers, and mechanism, as described, for alternately allowing the different inking-rollers to contact with the type on the type-carrying face of the bar during the successive feed movements of the said support, substantially as and for the purpose set forth.

10. In an index cutting and printing machine, the combination with the cutting-knife and spring-actuated rollers, of the rotatable bar H having a smooth face A" to coact with the knife, and a type-carrying face i at an angle thereto, to coact with the rollers and provided with a rack J, substantially as and for the purpose set forth.

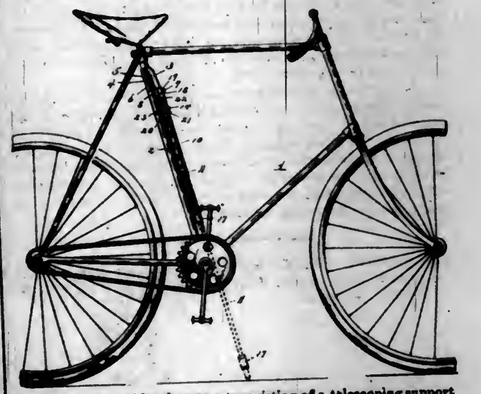
591,819. CYCLE OR OTHER DRIVE-CHAIN. LOCKER S. CRANDALL, Birmingham, England. Filed Dec. 29, 1896. Serial No. 617,291. (No model.)



Claim.—1. In combination the links, the central block formed of one piece bent back or folded upon itself, the pins extending through the links and blocks and the wear-pieces between the bent back portions of the block D, the said blocks forming the inner wearing parts of the chain and the pins projecting beyond the blocks to receive the outer links, substantially as described.

2. In combination the links, the block D bent back or doubled upon itself to leave a space between its sides, the wear-pieces between the links and the pins formed in two parts each engaging one of the wear-pieces, substantially as described.

591,820. BICYCLE-SUPPORT. JOHN G. CROMBACH, New Orleans, La. Filed Dec. 4, 1896. Serial No. 614,471. (No model.)



Claim.—1. A bicycle-support consisting of a telescoping support proper having a sliding extensible member, provision whereby said support may be extended longitudinally, a clip to which said support is pivotally attached and which provides for the attachment of the support as a whole to one of the machine-frame bars, and a spring-clasp connected to said support and adapted to frictionally engage the frame-bar, and at the same time to engage a stud on the sliding member of the support so as to prevent the support becoming accidentally extended, substantially as described.

2. A bicycle-support consisting of a tubular section having a longitudinal slot at each end with lateral offsets or extensions, and an extensible section provided with a projecting stud working in the slot of the tubular section and adapted to engage in said lateral offsets, attaching means for pivotally connecting said support to the frame of a bicycle, and a clasp connected to said support and adapted to engage with the machine-frame for holding the support folded, and also adapted to coact with said stud, substantially in the manner and for the purpose described.

3. A bicycle support comprising a tubular section provided with a longitudinal slot, and an extensible section telescoping therein and provided with a stud projecting through and working in said slot in the tubular section, means for connecting said support pivotally to the frame of a bicycle, and a spring-clasp pivotally connected to said tubular section and provided with a central portion which embraces said section and coöperates with said stud for preventing its downward movement, said clasp also comprising spaced cheek portions adapted to bear frictionally against one of the frame-bars of the machine, substantially in the manner and for the purpose specified.

591,821. AUTOMATIC RAILROAD-SWITCH. JOHN CUMLIP, Nesquehoning, Pa. Filed Jan. 15, 1897. Serial No. 619,377. (No model.)



Claim.—1. The combination with a pair of movable switch-rails, of a tie-bar, a switch-throwing lever pivoted upon the road-bed and to the tie-bar, a connecting-bar pivoted to the free extremity of the switch-throwing lever, oppositely-disposed bell-crank levers pivoted to the opposite extremities of the connecting-bar, connecting-wires secured to the bell-crank levers, a second pair of oppositely-disposed bell-crank levers secured to the connecting-wires, a connecting-bar connected with said last-named bell-crank levers, and a trip-lever pivoted to said connecting-bar and provided with a roller at its extremity, substantially as described.

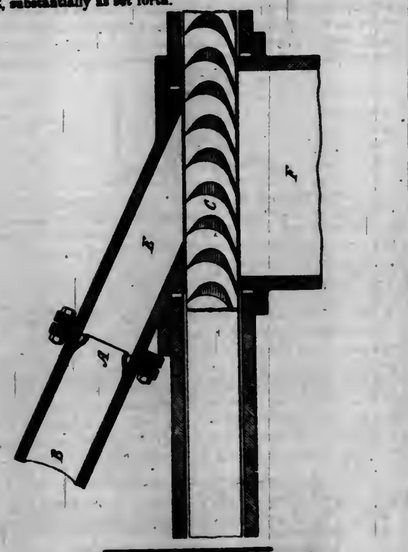
2. The combination with a pair of movable switch-rails, of a tie-bar, switch-throwing levers 7 and 8, connecting-bars 10, bell-crank levers 12 connected to the opposite ends of each of the connecting-bars, connecting-wires 18 connected to each of the bell-crank levers, bell-crank levers 17 connected with said wires, connecting-bars 16 connecting the last-named bell-crank levers, trip-levers 14 and 15 connected with the connecting-bars 16, a trip-lever 23 connected with the trip-lever 15 through a connecting-bar 24 and rollers carried at the extremities of the trip-levers 14, 15, and 22, substantially as specified.

3. In tripping mechanism designed to be carried by a vehicle, the combination with a plurality of cam-brackets, of a plurality of trip-cams, springs designed to yieldingly retain the cams, a cam-actuating lever, and a plurality of bell-crank levers operatively connected with the cam-actuating lever and with each of the trip-cams, substantially as specified.

591,822. ELASTIC-FLUID TURBINE. CHARLES G. CURTIS, New York, N. Y., assignor to the Curtis Company, same place. Filed Aug. 4, 1896. Serial No. 601,604. (No model.)

Claim.—1. In a turbine for utilizing the velocity of steam or other elastic fluid, a jet-delivering nozzle in combination with an expansion and guiding passage having a constant cross-sectional area greater than the nozzle and equal to the issuing jet's cross-section at the desired expansion, located between the nozzle and the vanes of the turbine, whereby the pressure is converted into *vis viva* to any desired extent before delivery to the turbine, substantially as described.

2. In combination with a turbine for utilizing the velocity of steam or other elastic fluid, the conduit B, nozzle A and guiding-passage E, substantially as set forth.



591,823. LOCK FOR CYCLES. ARTHUR H. DICKINSON, Brockley, and HENRY J. FISHER, London, England. Filed Feb. 3, 1897. Serial No. 621,812. (No model.)



Claim.—1. The improved clips for fixing a cycle-lock casing to the lower stay-tubes consisting of the combination with a cycle-lock and its casing of a flexible metal strap bent to the form shown at M so as to partly encircle the tubes T T and fixed to the lock-casing by a screw-bolt R passing through same and having an opening *u* in each end adapted to be sprung over and firmly grip projecting ledges *a* formed on either end of the lock-casing A, substantially as described.

2. In combination with the frame part, the lock-case having the projection *a* at its end, a clip extending around the frame part and having an upturned end with a slot therein fitting over the projection with means for securing the clip to the frame part, substantially as described.

3. In combination the lock-case, the locking mechanism therein, a clip for holding the locking-case to the frame part, a screw for securing the clip, said screw having a portion projecting into the lock-case to be engaged and held from turning by a portion of the mechanism, substantially as described.

4. In combination the frame part, the locking-casing, the clip connecting the casing with the frame part, and the screw extending from the clip through the lock-casing to hold the casing, clip and frame part together, said screw having a square portion and the lock having a portion to engage therewith and prevent turning while the bolt is shot, substantially as described.

5. In combination in a lock, the casing, the screw for holding the casing in place and means for preventing turning of the screw-bolt R when the bolt B is shot, but releasing same when the bolt is retracted, consisting of a square portion *r* formed on the screw-bolt R within the lock-casing, and adapted to engage a flat portion *l*[2] formed on the spring-tumbler L on shooting the bolt B, but released when the tumbler is returned.

6. In combination in a lock, the locking mechanism, the casing, the holding device and means for preventing movement of the holding device consisting of the locking-lever H connected with the locking mechanism to be set thereby, substantially as described.

591,824. BOTTLE-STOPPER. PATRICK DILLON, Milford, Mass. Filed Nov. 9, 1896. Serial No. 611,464. (No model.)

Claim.—1. A bottle-stopper composed of a valve-seat, a cooperating valve in said seat, a cap having a discharge-orifice, said cap inclosing said valve and valve-seat and spring-arms passing down the outer sides of said valve-seat to engage a shoulder inside the bottle to lock the said stopper in place in the bottle neck, combined with a plug inserted in the orifice of said cap, the said plug being adapted to be sealed in the neck of the bottle, substantially as described.



2. A bottle-stopper composed of a valve-seat, a cooperating valve in said seat, a cap having a discharge-orifice, said cap inclosing said valve and valve-seat, a guard between said valve and said discharge-orifice, and spring-arms carried by said guard and passing down the outer sides of said valve-seat to engage a shoulder inside the bottle to lock the said stopper in place in the bottle-neck, combined with a plug inserted in the orifice of said cap, the said plug being adapted to be sealed in the neck of the bottle, substantially as described.

3. A bottle-stopper composed of a valve-seat, a cooperating valve in said seat, a cap having a discharge-orifice, said cap inclosing said valve and valve-seat, a guard between said valve and said discharge-orifice, and spring-arms carried by said guard and passing down the outer sides of said valve-seat to engage a shoulder inside the bottle to lock the said stopper in place in the bottle-neck, combined with a plug inserted in the orifice of said cap, the said plug being adapted to be sealed in the neck of the bottle, and a jacket *f*, substantially as described.

591,825. PUMP-WRENCH. HENRY A. DODGE, Milford, Conn., assignor to the Bosworth Machine Company, same place. Filed Feb. 16, 1897. Serial No. 623,003. (No model.)



Claim.—1. In a pump-wrench, the hollow pump-body, a wrench-stem arranged to traverse the pump-body, a plunger secured to the end of the stem within the body, a fixed jaw and a movable jaw at the other end of the stem, and a finger-piece for operating the movable jaw, the opening in the body through which the wrench-stem passes being large enough to permit the jaws and finger-piece to pass therethrough, whereby the said jaws and finger-piece can be housed within the pump-body to some degree, substantially as described.

2. In a pump-wrench, the hollow pump-body, a wrench-stem arranged to traverse the pump-body, a plunger secured to the end of the stem within the hollow body, guides secured to the wrench-stem, a fixed jaw, and a movable jaw at the other end of the stem, a finger-piece for operating the movable jaw, and a cap applied to the open end of the pump-body, and having an elongated opening therein, the stem with the jaws and finger-piece being arranged to slide into the opening in the cap, substantially as and for the purpose described.

591,826. CARPET-STRETCHER. JOSEPH R. DRAKE, Blue Rapids, Kans. Filed Nov. 20, 1896. Serial No. 612,835. (No model.)



Claim.—1. In a carpet-stretcher, the combination with a body-piece having a clamp consisting of a bar hinged to the upper surface of the body-piece, and adapted to clamp a fold of the carpet between one side edge and the end of the body-piece, of a slide, means for moving the slide and body-piece relative to each other, and an arm pivoted to the slide and having a pointed dog adapted to engage the floor and take the strain, substantially as described.

2. In a carpet-stretcher, the combination with a body-piece having a clamp adapted to engage the carpet, of a slide, means for moving one relative to the other, an arm pivoted to the slide and having a pointed dog adapted to engage the floor and take the strain, and a tack-bar attached to the body-piece and adapted to temporarily secure the carpet to the floor while the clamp is released and the end of the carpet is permanently tacked down, substantially as shown and described.

3. In a carpet-stretcher, the combination with a clamp and means for moving the same forward to stretch the carpet, of a temporary holding device consisting of a bar attached to one member of the clamp, and provided with a number of tacks adapted to temporarily hold the carpet while the clamp is released and the carpet is permanently secured, substantially as shown and described.

4. In a carpet-stretcher, the combination with a clamp adapted to engage a fold of the carpet, and a temporary holding device attached thereto and adapted to secure the carpet to the floor, of stretching mechanism consisting of a rack-bar a slide movable thereon and carrying one member of the clamp, a lever secured to the rack guide or slide, a pawl on the lever adapted to engage the rack as the lever is reciprocated, and a second pawl on the lever to prevent the return of the rack-guide, substantially as shown and described.

5. In a carpet-stretcher, the combination with a body-piece, having a guide for a rack-bar, a tack-bar secured to the body-piece, a clamping-bar hinged to the same and a button for securing the clamping-bar, of a rack-bar having a sliding engagement with the body-piece, a lever pivoted to the body-piece, a pawl on the lever and one on the body-piece, both pawls engaging the rack-bar, and a curved arm pivoted to the rack-bar and having a point engaging the floor, substantially as shown and described.

591,827. TOY DETONATING TRICK DEVICE. MITCHEL H. DREW, Madison, Fla. Filed June 17, 1897. Serial No. 641,195. (No model.)

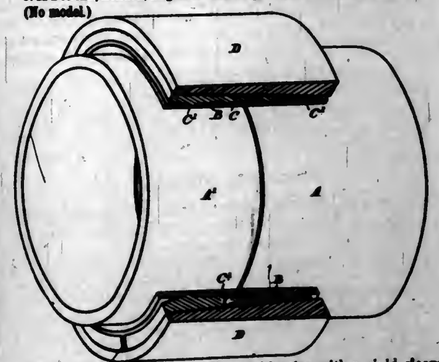


Claim.—1. In a trick detonator, the combination with the case having a cover adapted to be opened, of a spring-operated detonator located within the case, a catch for holding the detonator retracted and a releasing stem for the catch projecting outside of the casing substantially as described.

2. In a trick detonator, the combination with a watchcase and movable stem, of a spring-pressed plunger or detonator mounted in the case, a cooperating cup or anvil for the plunger, a catch for holding the plunger retracted and a projection on the stem for releasing the plunger substantially as described.

3. In a trick detonator, the combination with a watchcase having a cover, case-spring and snap-catch and a stem for releasing the snap-catch to allow the cover to open, of a spring-operated detonator located in the case, a catch for holding said detonator retracted and a catch-controller for releasing the detonator moved by the said stem, substantially as described.

591,828. MEANS FOR JOINTING MAINS, PIPES, &c. DAVID J. R. DUNCAN, London, England. Filed Apr. 19, 1897. Serial No. 633,848. (No model.)



Claim.—1. In a pipe-joint, the combination with a rigid sleeve or compression-ring, having a tapered inner surface, of a correspondingly circumferentially tapered contractible wedge of hard metal as steel, and a packing-strip; substantially as described.

2. In a pipe-joint, the combination with a rigid sleeve or compression-ring having a tapered inner surface, of a correspondingly circumferentially tapered split ring or wedge of hard metal as steel; and a packing-strip.

3. In a pipe-joint the combination of a rigid sleeve or compression-ring and a circumferentially-tapered contractible wedge having a packing-strip attached to it and all forming parts of the permanent joint substantially as described.

4. In a pipe-joint, the combination with a sleeve or compression-ring of a circumferentially-tapered wedge having projections on its inner surface and a packing-strip; substantially as described.

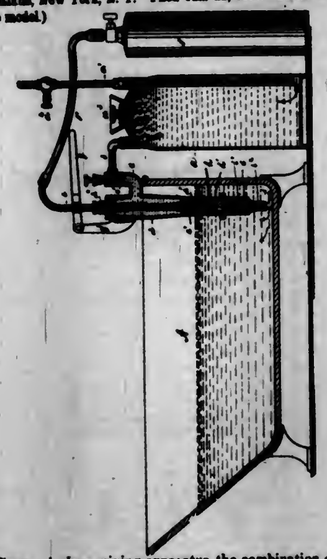
5. In a pipe coupling or joint, the combination with the sleeve or compression-ring having a tapered inner surface, of a correspondingly circumferentially tapered wedge, the contacting face of one of these members being recessed to reduce friction; substantially as described.

591,829. SHOE-PROTECTOR. JOSEPH DYER, Fairfield, Me. Filed Oct. 23, 1896. Serial No. 610,262. (No model.)



Claim.—The herein-described shoe-protector consisting of a metallic guard extending around the edge of the sole from the instep forward and having a vertical and horizontal flange, the rear ends of said guard being joined in rear of the widest part of the sole, a cloth or felt vamp fitting over the shoe and inside of said guard and fastening straps or bands between said vamp and said guard, the lower edge of said vamp and the lower ends of said straps or bands being riveted or otherwise secured to said vertical flange on each side of the shoe.

591,830. APPARATUS FOR MIXING LIQUIDS AND GASES. ROBERT G. FERGUSON, Lakewood, N. J., assignor of one-half to Abraham M. Elkus, New York, N. Y. Filed Jan. 22, 1897. Serial No. 620,229. (No model.)

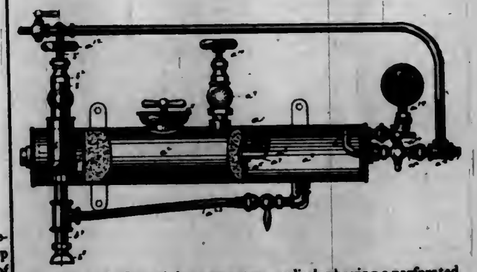


Claim.—1. In a mixing apparatus the combination of an outer tube with an inner tube, a perforated thimble at the bottom of the outer tube, a surrounding chamber, and a nozzle having a series of ducts and arranged beneath said chamber, substantially as specified.

2. In a mixing apparatus the combination of an outer tube having a valve seat with an inner longitudinally-adjustable tube having a head adapted to engage said valve-seat, means for operating the inner tube, a perforated thimble at the bottom of the outer tube, a surrounding chamber, and a nozzle having a series of ducts and arranged beneath said chamber, substantially as specified.

3. In a mixing apparatus the combination of a vessel with a liquid-feed pipe extending into the same to within a short distance of its bottom, an outer tube having a valve-seat and connected to said vessel, a valve between vessel and tube, a gas-cylinder, a longitudinally-movable headed inner tube connected thereto, means for operating the inner tube, a perforated thimble at the bottom of the outer tube, a surrounding chamber, and a nozzle having a series of ducts and arranged beneath said chamber, substantially as specified.

591,831. APPARATUS FOR MIXING LIQUIDS WITH GASES. ROBERT G. FERGUSON, Lakewood, N. J., assignor of one-half to Abraham M. Elkus, New York, N. Y. Filed June 22, 1897. Serial No. 641,750. (No model.)



Claim.—1. In a mixing apparatus, a cylinder having a perforated partition that divides it into a gas and a water compartment, and a valve that controls the opening in said partition, means for connecting the cylinder to the water-main and controlling the flow of water into the cylinder, a mixing-chamber and valve-controlled passages leading from the water and gas compartments to the mixing-chamber, substantially as specified.

2. In a mixing apparatus, a cylinder having a strainer and a partition that divides the cylinder into a gas-compartment, and a water-compartment, means for connecting the cylinder to the water-main, a mixing-chamber and valve-controlled passages from the water and gas compartments to the mixing-chamber, substantially as specified.

3. In a mixing apparatus, a cylinder having a strainer, a perforated partition and a valve that controls the opening in said partition, means for connecting the cylinder to the water-main and controlling the flow of water into the cylinder, a mixing-chamber and valve-controlled passages leading from the water and gas compartments to the mixing-chamber, substantially as specified.

4. In a mixing apparatus, a cylinder containing a delivery-chamber, a chamber to contain salt, and a gas-chamber, the said chambers being separated by a strainer, and a partition having an opening therethrough controlled by a valve, combined with means for connecting the salt-chamber to the water-main, means for regulating the flow from the delivery-chamber, and means for mingling the gas and the water.

5. In a mixing apparatus, a cylinder having a transverse strainer, and a valve-controlled transverse partition, and which is by the strainer and partition divided into three compartments, combined with an injector having a water and a gas tube, and with pipes that connect two of the cylinder-compartments with the injector-tubes, substantially as specified.

6. In a mixing apparatus, a cylinder provided with a transverse strainer, and a valve-controlled perforated partition to form three compartments, combined with an injector, pipes connecting two of said compartments with the injector, and with a drain entering one of said compartments, substantially as specified.

591,832. BRIDGE. DAVID R. FISHER, Kenton, Ohio. Filed Mar. 24, 1896. Serial No. 584,708. (No model.)

Claim.—1. In a bridge, the combination with the frame, of supporting-cables mounted thereon, and locking-levers mounted on the frame and attached to the cables.

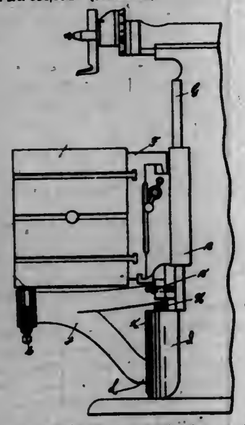
2. The combination with the frame, of locking-levers pivoted thereto and adapted to bear thereon, and supporting-cables attached to said levers and supporting the frame.



3. The combination with the frame, of pulleys mounted on the frame, locking-levers pivoted thereto and adapted to impinge on stops on the side of the frame, and cables passing over the pulleys and attached to the locking-levers.

4. The combination with the chord and the floor-beams, of clevises secured to said beams on opposite sides of the chord, a hanger secured to and depending from said clevises, a roller mounted in said hanger to guide the suspension-cable, and columns rising from the clevises.

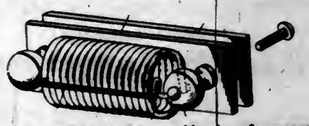
591,833. SUPPORTING DEVICE FOR SHAPER OR METAL-PLANER TABLES. MARK PLATHER, Nashua, N. H. Filed Oct. 26, 1896. Serial No. 610,064. (No model.)



Claim.—1. In a metal planing or shaping machine, the combination of a supporting device attached to the under side of the cross-rail, a slide-block movably attached to said cross-rail and longitudinally movable thereon, a work-table attached to said slide-block, a bearing on the under side of said work-table, an adjustable bearing-block secured in the outer end of said supporting device and means for adjusting the same, and an arm projecting downward which has a bearing on a projection attached to the column of metal planing or shaping machine, substantially as described.

2. In a metal planing or shaping machine, the combination of a supporting device, the inner end of which is attached to the cross-rail of said metal planing or shaping machine, its outer end provided with an adjustable bearing-block which slides on a bearing on the under side of the work-table, and means for adjusting said bearing-block, a downwardly-projecting arm which has a bearing on its lower end, and a projection attached to the column of said metal planing or shaping machine, on the outer face of which said bearing slides, substantially as set forth.

591,884. REIN-HOLDER. ROBERT B. POWERS, Butler, Pa. Filed May 25, 1897. Serial No. 638,119. (No model.)



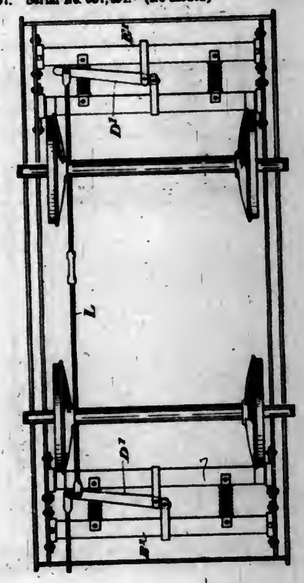
Claim.—In a rein-holder, the combination of a supporting-plate, a coiled spring carried thereby, knobs extending outwardly from the said supporting-plate on opposite ends of the spring, and a keeper attached to one end of said spring having a nose to engage the opposite end, substantially as and for the purposes specified.

591,835. NAPKIN-HOLDER. HENRY H. GOODWIN, Chicago, Ill. Filed Feb. 24, 1896. Serial No. 580,296. (No model.)



Claim.—A napkin-holder having in combination a base-plate having one of its ends reflexed to form a hinge-support, a clamping-jaw hinged thereto, a spring engaging said jaw and holding it normally closed, a pin secured to the base-plate on the side opposite the clamp, and a guard having a slot for receiving said pin, said guard consisting of a flexible reflexed extension of the base-plate, substantially as set forth.

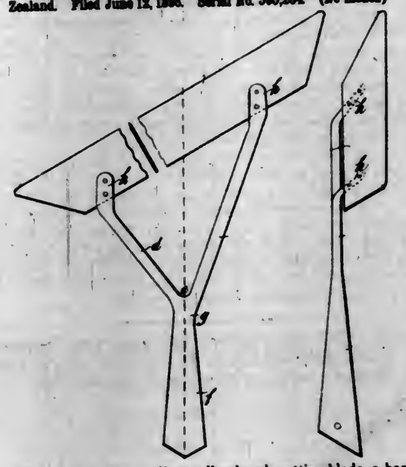
591,836. BRAKE MECHANISM. HENRY S. GOUGHNOUR, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed May 21, 1897. Serial No. 637,491. (No model.)



Claim.—1. In a car-truck, a brake mechanism comprising the combination of a transverse brake-beam at each end of the truck, a counter-lever, compression-springs between, and tending to separate, the counter-lever and contiguous brake-beam, a hand-operated lever pivotally connected to both the contiguous counter-lever and brake-beam, and connections from the mechanism at one end of the truck to that at the other end thereof for operating the brake-beams in unison whether in a forward or a reverse direction.

2. The combination with a truck of a rigid counter-lever at each end thereof, a movable brake-beam contiguous to each counter-lever, compression-springs between each counter-lever and its contiguous brake-beam tending to separate the same, two levers for opposing the action of said springs each of which is pivoted to both a brake-beam and counter-lever, and a connecting-rod securing together said levers.

591,887. PUSH-HOE. GEORGE H. GRAPES, Paraparaumu, New Zealand. Filed June 12, 1896. Serial No. 595,264. (No model.)



Claim.—In a hoe, a diagonally-placed cutting-blade, a handle, a socket therefor, diverging arms extending from the socket and arranged in the same plane with the handle, one of said arms being shorter than the other, the extreme ends of the arms being bent and secured to the blade, substantially as described.

591,838. MACHINE FOR MANUFACTURING RAILWAY-TIES. GRANT GREEN, Jr., New York, N. Y. Filed July 16, 1895. Serial No. 556,184. (No model.)



Claim.—1. In machines for manufacturing railway-ties, the combination of the base frame or support, the side frames, one of which is movably secured upon the base-frame, the other permanently attached thereto, the carrier longitudinally movable upon the base frame or support, and between the two side frames, the rack-bar secured to the under side of the carrier, the transverse shaft, the fixed pinion thereon, adapted to engage the said rack-bar, on the under side of the carrier, and means for operating, the said transverse shaft, the longitudinal shaft, the pinions thereon, and mechanism for operating said shaft and pinions, the transverse rack-bars, at the bottom of the movable side frame, whereby the said movable side frame is carried to and from the central base frame or support, substantially as herein shown and described.

2. In machines for manufacturing railway-ties, the combination of the base frame or support, the side frames, one of which is movably secured upon the base-frame, the other permanently attached thereto, the carrier longitudinally movable upon the base frame or support, and between the two side frames, the rack-bar secured to the under side of the carrier, the transverse shaft, the fixed pinion thereon, adapted to engage the said rack-bar, on the under side of the carrier, and means for operating, the said transverse shaft, the saws and cutters—one saw and one cutter mounted upon the permanent side frame, and one saw and one cutter mounted upon and carried by the movable side frame, each of the said cutters or hewers in the rear of the saws, the longitudinal shaft, the pinions thereon, and mechanism for operating said shaft and pinions, the transverse rack-bars, at the bottom of the movable side frame, whereby the said movable side frame is carried to and from the central base frame or support, substantially as herein shown and described.

3. In machines for manufacturing railway-ties the combination of the said central base frame or support, the side frames of which one, is movably secured upon, and adapted to move to and from, the said central base-frame, the longitudinal, movable carrier, adapted to move longitudinally upon the central base-frame and between the side frames and provided with side arms projecting over the top of each side frame, the rack-bar attached to the under side of the said carrier, the shaft extending transversely of the machine, the pinion carried by said shaft, engaging the said rack-bar the pulley on the outer end of said shaft, and means for operating the shaft, the shifting pulley, lever, and crank for operating the same, saws mounted in the side frames, and operating mechanism therefor, substantially as herein shown and described.

4. In machines for manufacturing railway-ties the combination of the central base frame or support, the two side frames, one of which is fixed to the central base-frame the other laterally movable thereon, the carrier supported upon the central base-frame, the longitudinal shaft, R, the pinions R', fixed thereto, ratchet or pinion, T, upon the end of said shaft R, the lever U, the crank-lever U', the rod U^3, adapted to revolve the said shaft, rack-bars S, S, secured to the bottom of the lateral, movable side frame, and means for operating said rack-bars whereby the said side frame is moved to and from the central base-frame, substantially as herein shown and described.

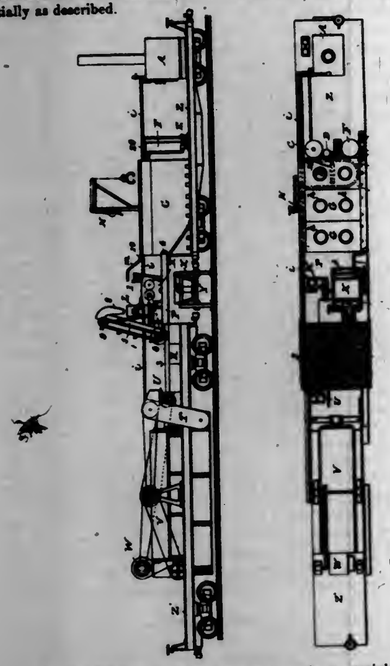
5. In machines for manufacturing railway-ties, the combination of the central base frame or support, the fixed side frame, attached immovably to the said central base-frame, the laterally-movable side frame, adapted to be moved upon, and supported by the said central base-frame, the longitudinal movable carrier having laterally-projecting arms, the rack-bar secured to the under side of the carrier, the shaft extending transversely of the machine, the pinion carried by said shaft, and adapted to engage the said rack-bar, the friction-pulley on the outer end of said shaft, the shifting pulleys, lever and crank, for operating the carrier in opposite direction, saws, and cutters or hewers mounted in side frames, means for operating the saws and cutters, the shaft R, carrying the pinions R', fixed thereon and means for revolving the said shaft, R, substantially as herein shown and described.

6. In machines for manufacturing railway-ties, the central base-frame, the side frame permanently fixed thereto, the laterally-movable side frame, the longitudinal shaft R, the pinions R', splined thereon and means for revolving said shaft, the rack-bars, S, S, attached to the base of the laterally-movable side frame, the carrier movable upon the central base-frame, the rack-bar, M, secured to the under side of the said carrier, the transverse shaft, m, and pinion m', fixed thereon, adapted to engage said rack-bar, M, the friction-pulley N, on the end of the transverse shaft P, shifting mechanism for moving the said carrier in opposite directions, the saw and cutter or hewer mounted upon the fixed side frame, in line with each other the cutter in the rear of the saw, the saw and cutter or hewer, mounted upon the laterally-movable side frame, in line with each other, the cutter in the rear of the saw, whereby two sides of the ties of different widths and thickness may be sawed or slabbed and cut or hewed in passing once through the machine substantially as herein shown and described.

7. In machines for manufacturing railway-ties comprising the central base-frame, the two side frames, one of which is movable laterally, the other permanently fixed to the central base-frame, the longitudinal shaft R, pinions R', splined thereto and means for revolving the said shaft, the rack-bars, S, S, secured to the bottom of the laterally-movable side frame, the longitudinal movable carrier supported by said central base-frame, and adapted to be moved thereon, the rack-bar M, attached to the under side of the carrier, the transverse shaft, m, the pinion fixed to the said transverse shaft, and adapted to engage the rack-bar on the under side of the said carrier, the friction-pulley on the end of the said transverse shaft, m, the shifting, sliding pulleys, lever, crank, and handle for moving the carrier in opposite directions, the saws, mounted one upon the fixed side frame, the other upon the laterally-movable side frame, the cutters or hewers mounted one upon each of the fixed and laterally-movable side frames, and means for operating the saws and cutters, substantially as herein shown and described.

591,839. PLANT FOR PREPARING PAVING MATERIALS. CARLETON GREENE, Buffalo, N. Y., assignor to the Barber Asphalt Paving Company, Washington, D. C., and New York, N. Y. Filed Mar. 30, 1896. Serial No. 585,457. (No model.)

Claim.—1. In a portable plant for preparing paving material, the combination with two cars supporting parts of the apparatus, of a platform movably connected to and supported by one of the cars for transportation, and supporting other parts of the apparatus, said platform, jointly with its apparatus, adapted to be extended from the end of its supporting-car across a space to the end of the other car and to be detachably connected thereto to form an elevated bridge between the cars when the apparatus is in position for use, substantially as described.



2. In a portable plant for preparing paving material, the combination with two cars supporting parts of the apparatus, of a platform supported by one of the cars for transportation and supporting other parts of the apparatus, said platform, jointly with its apparatus, adapted to slide upon its supporting-car and be extended beyond the end thereof across a space to the end of the other car, and to be detachably connected thereto to form an elevated bridge between the cars when the apparatus is in position for use, substantially as described.

3. In a portable plant for preparing paving material, the combination with two cars supporting parts of the apparatus, of a platform having other parts of the apparatus permanently secured thereto, said platform being connected to and supported by the adjacent ends of the cars when the latter are separated to form an elevated bridge between them, and the platform and apparatus thereon being together movable to permit the cars to be coupled, substantially as described.

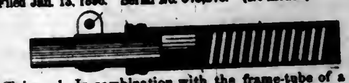
4. In a portable plant for preparing paving material, the combination with two cars, each of which carries parts of the apparatus for preparing the ingredients of the paving material, of a movable platform detachably connected to and supported by the ends of the cars when the latter are separated, to form an elevated bridge between them, said platform having the mixing apparatus secured thereto to be moved therewith, and devices to elevate the ingredients of the paving material and discharge them into the mixing apparatus, substantially as described.

5. In an apparatus for preparing paving material, an air-tight tank to contain the asphalt, suitable heating devices to melt said asphalt, an air-pipe within the tank near the bottom thereof and having openings to direct the air downward, a device to force air through said pipe to the bottom of the tank, thence upward through the asphalt to accumulate under pressure in the tank above the asphalt, and a pipe leading from the tank through which the melted asphalt is discharged by the air-pressure in the tank, substantially as described.

6. In an apparatus for preparing paving materials, the combination with an air-tight tank in which the asphalt is melted, of an air-pipe within the tank near the bottom thereof, a series of detachable screw-plugs extending from the pipe, said plugs having openings through which the air is discharged, and a device to force air through said pipe, substantially as and for the purpose specified.

7. In a portable apparatus for preparing paving material, the combination with a platform-car, of a sand-drier supporter on the top of the platform, a receiver supported beneath the platform into which the dried sand is delivered from the drier, a hollow sand-box R also supported on top of the platform, means to heat the said sand-box, and an elevator to convey the dried sand from the receiver below the car to the sand-box R, substantially as described.

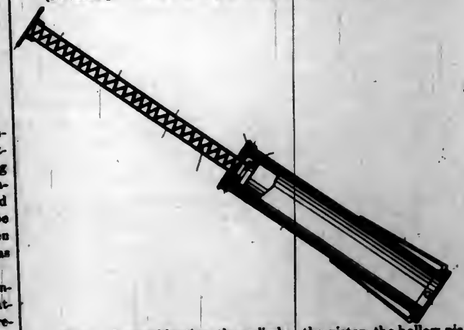
591,840. VEHICLE-SEAT. HUDSON W. HAKES, Millbury, Mass. Filed Jan. 13, 1896. Serial No. 575,276. (No model.)



Claim.—1. In combination with the frame-tube of a vehicle, a tube containing a spring, an inner tube adapted to rest upon said spring, means for preventing the inner tube from turning within the outer tube, a thumb-nut which connects the outer and inner tubes and regulates the tension upon the spring, a seat-post within the inner tube, an adjustable strap encircling the inner tube, whereby the seat-post may be held at any desired height within the inner tube substantially as shown and described.

2. In combination with the frame-tube of a vehicle, a tube containing a spring, an inner tube, split for part of its length, adapted to rest upon said spring, a spline upon the inner surface of the outer tube, a slot upon the outer surface of the inner tube adapted to engage with said spline, a thumb-nut, which connects the outer and inner tubes, and regulates the tension upon the spring, a seat-post, within the inner tube, an adjustable strap encircling the inner tube, whereby the seat-post may be held at any desired height within the inner tube, substantially as shown and described.

591,841. INFLATER FOR PNEUMATIC TIRES. CHARLES G. HEAVEN, Birmingham, England. Filed Jan. 6, 1897. Serial No. 618,900. (No model.) Patented in England Dec. 10, 1896, No. 28,230.



Claim.—In combination, the cylinder, the piston, the hollow piston-rod having the slots therein with right-angular extensions, the spring within the piston-rod and the pin passing through the slots of the rod and held in the cylinder to form both a support for the spring and also a means of locking the piston and rod in closed position by engaging the angular extension of the slot, substantially as described.

591,842. BOTTLE. FRANK JOHNSON, San Francisco, Cal. Filed Nov. 25, 1896. Serial No. 613,429. (No model.)



Claim.—In a non-refillable bottle, the combination with the neck thereof having an internal annular groove therein, a longitudinal chan-

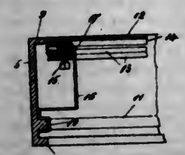
nel leading into said groove, an external groove or weakened portion therein, and an internal enlargement in said neck forming a shoulder at its extreme upper end, of a sealing-cork fitting within said neck beneath said internal groove, a bar or disk for preventing the expulsion of said sealing-cork from internal pressure adapted to be inserted into said internal groove, and a supplemental cork fitting within said neck above said external groove and held in place by a seal of plastic material which fills the enlarged portion of said neck and engages the shoulder formed thereby, substantially as and for the purpose described.

591,843. SLEIGH-KNEE. BYRON W. KELLOGG, Vernonville, Canada. Filed Nov. 18, 1896. Serial No. 612,636. (No model.)



Claim.—In a sleigh-knee, the combination with a flanged box or casting adapted to be secured to one of the sleigh-beams, and provided with bolt-apertures in its bottom, of spaced inclined braces secured to the under side of said box at its opposite edges, and each comprising a main supporting-bar and a bracing-bar extending at an angle thereto, an angular attaching-plate secured to the lower end of said braces and provided with extended apertured ears, a bolt adapted to be passed through the runner, said angular plate, the box or casting and the sleigh-beam, and suitable rivets adapted to be passed through the apertures of the extended ends and the sleigh-runners, substantially as described.

591,844. BANJO OR SIMILAR MUSICAL INSTRUMENT. HORACE O. KELLOGG, New York, N. Y., assignor of one-half to Minerva R. Kellogg, same place. Filed Mar. 2, 1897. Serial No. 625,692. (No model.)

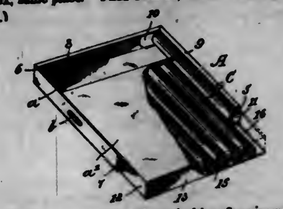


Claim.—1. A banjo or similar musical instrument, comprising a head or band to which the neck of the instrument is secured, and a frame consisting of circular plates to which the drumheads or sounding-board of the instrument is secured, said frame being supported within the head or band by bracket-arms, which are connected therewith, and which are adapted to engage or to be connected with said head or band, said frame with which the drumhead or sounding-board is connected being also provided with an annular plate which is mounted thereover, and said frame being also provided with set-screws which are passed therethrough and which are adapted to bear on the heads of said bracket-arms, substantially as shown and described.

2. A banjo or similar instrument comprising a head or band as 5, a frame by which the drumhead or sounding-board is connected, consisting of annular plates as 13, and a movable plate as 14, mounted over said frame, said annular plates which constitute said frame being also provided with screws or bolts as 15, which are passed therethrough, and bracket-arms as 16, by which said frame is supported, substantially as shown and described.

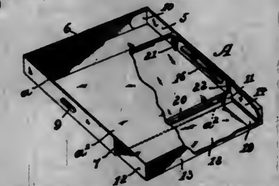
3. A banjo or similar instrument comprising a head or band as 5, a frame with which the drumhead or sounding-board is connected, consisting of annular plates as 13, and a movable plate as 14, mounted over said frame, said annular plates which constitute said frame being also provided with screws or bolts as 15, which are passed therethrough, and bracket-arms as 16, by which said frame is supported, said bracket-arms being adapted to engage at their lower ends with an annular bead or projection as 11, formed on or secured to the inner walls of the head or band, substantially as shown and described.

591,845. HOLDER FOR CIGARETTES OR SIMILAR ARTICLES. HARRY H. KNEE, Philadelphia, Pa., assignor of one-half to Clifford Stanley Fox, same place. Filed Feb. 17, 1897. Serial No. 623,830. (No model.)



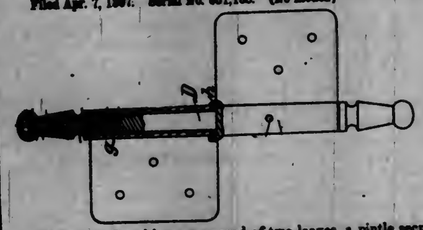
Claim.—The combination, in a holder for cigarettes, &c., of a rectangular bottom shell having three vertical walls, two of which at right angles to each other are provided with overlapping or flanged upper edges, and the front flanged wall near a corner of said shell is provided with a slot 10, and the side flanged wall is provided with a lug 11, and the opposite unflanged side wall being provided with an internal locking projection *b*, and a rectangular top shell provided with three vertical and unflanged edge walls, in one of which is provided an oblong slot to permit said lug 11 to engage therein, said top shell having an internal pocket for the reception of cigarettes or similar articles maintained in position therein under tension of a leaf-spring D, and said articles adapted to be liberated through said slot 10, by causing the articles one by one to engage said lug 11, and said top shell provided in one side wall with an interaal projection *b'*, adapted to lock with said projection *b*, substantially as and for the purposes described.

591,846. HOLDER FOR CIGARETTES OR SIMILAR ARTICLES. HARRY H. KNEE, Philadelphia, Pa., assignor of one-half to Clifford Stanley Fox, same place. Filed Mar. 6, 1897. Serial No. 626,195. (No model.)



Claim.—A holder for cigarettes &c., consisting of two complemental shells, whereof one is provided with a slot 10, in one end wall, a lug 11, projecting from the edge of the open end and indentations in the side vertical walls forming projections 8 and 9, and whereof the other member is provided with a slotted internal pocket having a transverse projection 20, internal indentations forming projections 21 and 22, in the side vertical walls, and a leaf-spring S, mounted in said pocket and the respective ends bearing against one of the side walls and the inserted articles of said pocket, substantially as described.

591,847. DOOR-HINGE. HERMANN KIESSLING, Leipsic, Germany. Filed Apr. 7, 1897. Serial No. 631,185. (No model.)



Claim.—1. In a hinge composed of two leaves, a pintle secured to the lower leaf and having a concave extremity, a plug secured to the other leaf and having a corresponding convex extremity and an angularly-disposed bore, a cap secured on top of said plug and having an orifice and valve-seat in the crown thereof, a valve having its stem guided in said bore and means for normally maintaining the said valve in the seat of the cap, substantially as and for the purposes set forth.

2. In a hinge composed of two leaves, a pintle secured to the lower leaf and having a concave extremity, a plug secured to the other leaf and having a corresponding convex extremity and an angu-

larly-disposed bore having an enlargement to form a shoulder, a cap screwed on top of said plug and having an orifice and valve-seat in the crown thereof, a valve having its stem provided with a disk, and a spring between said shoulder and disk to maintain the valve in the seat of the cap, substantially as and for the purposes set forth.

591,848. TOY. SAMUEL C. KEMBA, Baltimore, Md., assignor of one-half to William R. Price, same place. Filed Dec. 10, 1896. Serial No. 615,123. (No model.)



Claim.—1. A toy consisting of an explosive-chamber, a stopper therefor having a recess, and a parachute attached to said stopper by a series of cords, said parachute being adapted to be folded to form an arrow-head with ends and strings contained in the recess, as and for the purpose described.

2. A toy, consisting of a tube, a flange formed with said tube, said tube having a hole formed therein for the passage of a fire-cracker or other explosive fuse, a stopper fitted to the upper end of the tube, a head formed with said stopper having a recess therein, and a parachute so attached to said head as to permit the folding of its ends, and cords within the recess, as specified.

3. In a toy, the combination of the tube having a hole formed therein for the passage of the fuse of a fire-cracker or other explosive, a flange formed with the lower end thereof, a stopper fitted to the upper end of the tube, a head formed with said stopper, said head having a recess therein, and a parachute attached to said stopper by a series of cords whereby when the stopper is projected upward the parachute will act as an arrow-head, but when the stopper commences its descent the parachute will be spread, as specified.

591,849. BOTTLE-CAP. SIMEON B. KINNAN, Middleburg, Fla. Filed June 1, 1896. Serial No. 593,801. (No model.)



Claim.—1. The combination with a bottle-neck, of a barrel consisting of a screw-threaded piece of spring material bent around the neck and having separated ends, being also provided with a tongue, and a locking-cap provided with grooves adapted to receive the tongue and which cap screws onto the locking-barrel.

2. The combination with a bottle-neck, of a locking-barrel located on said neck, a locking-cap adapted to engage with said barrel, and a cord connected to the barrel and whereby the latter may be held when the cap is being connected thereto.

3. The combination with a bottle-neck, of a screw-threaded locking-barrel located on the neck, a flexible, severable connection secured to said locking-barrel whereby the same may be prevented from turning, and a locking-cap adapted to be screwed on the locking-barrel and sever the said connection.

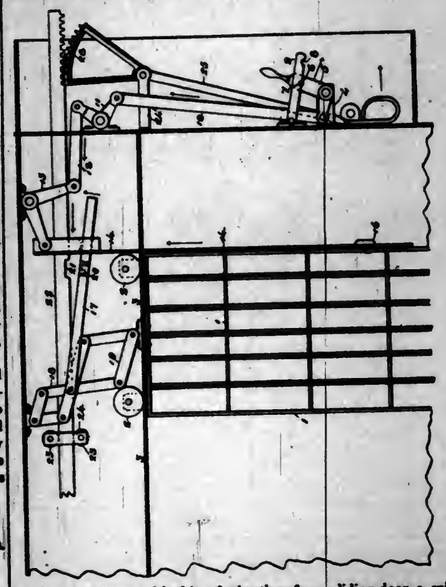
591,850. LOCKING DEVICE FOR DOORS. EDWIN KOLB, St. Louis, Mo., assignor to the Pauly Jail Building and Manufacturing Company, same place. Filed Dec. 11, 1896. Serial No. 615,348. (No model.)

Claim.—1. In a door and locking device therefor, a suitable sliding door, a suitable travel-bar normally disconnected from the door, means for effecting temporary connection between the door and travel-bar, and devices for shifting the travel-bar and door connected thereto, substantially as set forth.

2. In a door and locking device therefor, a suitable sliding door, a locking-bar for the same, a suitable travel-bar normally disconnected from the door, means for effecting temporary connection between the door and travel-bar and simultaneously disengaging the locking-bar from the door, and suitable means for shifting the travel-bar and door connected thereto, substantially as set forth.

3. In a door and locking device therefor, a suitable sliding door, a locking-bar for the same, a suitable travel-bar, means for effecting temporary connection between the door and travel-bar for one position of the locking-bar, and disconnecting the travel-bar for another position of the locking-bar, and suitable means for shifting the travel-bar and door when connected, substantially as set forth.

4. In a door and locking device therefor, a sliding door, a suitable travel-bar, toggle-links between the door and the wall of the cell by which the door is carried, a locking-bar for the door, means for effecting connection between the toggle links and travel-bar for one position of the locking-bar, and means for shifting the travel-bar and door when connected, substantially as set forth.



5. In a door and locking device therefor, a sliding door, a suitable travel-bar, toggle-links having one extremity connected to the door, and the other to the wall carrying the door, a coupling-bar having one end pivotally connected to the toggle-links, an operating-lever for actuating the opposite end of the coupling-bar and adapted alternately to effect connection between it and the travel-bar and then disconnect the same from said travel-bar, and means for shifting the travel-bar, substantially as set forth.

6. In a door and locking device therefor, a sliding door, a suitable travel-bar, toggle-links having one extremity connected to the door, and the other to the wall on which the door is disposed, a coupling bar having one end pivotally connected to the toggle-links, a locking-bar for the door, the opposite or free end of the coupling-bar being carried by said locking-bar, an operating-lever for actuating the locking-bar and effecting, for one position of said locking-bar, positive connection between the coupling-bar and travel-bar, and disengaging the said coupling-bar from the travel-bar for another position of the locking-bar, and suitable devices for shifting the travel-bar, substantially as set forth.

7. In a door and locking device therefor, a sliding door, a locking-bar for the same, toggle-links connected respectively with the door and the wall along which the door is disposed, a coupling-bar interposed between the toggle-links and the locking-bar, said coupling-bar being adapted to effect connection between the toggle-links and travel-bar for one position of the locking-bar, and disconnect said parts for another position of the locking-bar, an operating-lever carried by the wall of the cell, and intermediate connecting links and levers between the actuating-lever and the locking-bar for moving the latter for effecting the coupling or uncoupling referred to between the travel-bar and coupling-bar, substantially as set forth.

8. In a door and locking device therefor, a sliding door, toggle-links connected respectively to the door and to the wall along which the same is mounted, a sliding travel-bar mounted in proximity to the links and door, a locking-bar for the door, a coupling-bar having one end pivoted to the pivotal pin connecting the toggle-links, and the other end passing through a suitable opening formed in the locking-bar, a lug carried by the coupling-bar, and adapted upon the movement of the locking-bar to one of its extreme positions to engage a depression formed in the travel-bar for its reception, suitable means for actuating the locking-bar, a controlling-lever for the travel-bar, and means for retaining the locking-bar, in either its locked or unlocked position, the parts operating substantially as and for the purpose set forth.

591,851. STEERING-GEAR. JOHN C. LAKE, Baltimore, Md., and SIMON LAKE, Atlantic Highlands, N. J. Filed Feb. 24, 1897. Serial No. 624,008. (No model.)

Claim.—1. The combination, with the rudder-post and a suitable frame sustained adjacent thereto, of a steering-wheel shaft mounted upon said frame transverse to the rudder-post and carrying at one end the steering-wheel and at the other end a cam-plate provided with spiral teeth as described, a circular gear-wheel mounted within said frame adjacent to and meshing with said spirally-toothed cam-plate, and means for coupling said gear to the rudder-post in different circumferential relations to said cam-plate, as herein set forth.



2. The combination, with the rudder-post and a suitable frame sustained adjacent thereto, of a steering-wheel shaft mounted upon said frame transverse to the rudder-post and carrying at one end the steering-wheel and at the other end a cam-plate provided with spiral teeth as described, a circular gear-wheel mounted within said frame adjacent to and meshing with said spirally-toothed cam-plate and provided with a central hub having a perforation or socket, and a boss fitted to and locked within said socket and connected to the rudder-post to turn therewith, as herein set forth.

3. The combination, with the rudder-post and a suitable frame sustained adjacent thereto, of a steering-wheel shaft mounted upon said frame transverse to the rudder-post and carrying at one end the steering-wheel and at the other end a cam-plate provided with spiral tooth as described, a circular gear-wheel mounted within said frame adjacent to and meshing with said spirally-toothed cam-plate and provided with a central hub having a perforation or socket, a lever provided upon the under side intermediate to its ends with a boss fitted to and locked within said socket, lateral ears secured to the head of the rudder-post, and links connecting said lateral ears with the ends of the said lever, as herein set forth.

4. The combination, with the rudder-post and a suitable frame sustained adjacent thereto, of the steering-wheel shaft *a* mounted upon said frame and carrying at one end the steering-wheel *w* and at the other end the cam-plate *c* with spiral teeth *c'*, the circular gear-wheel *g* with central hub *g'* formed with star-shaped perforation or socket, and an angular boss fitted to and adapted to engage the angles of said socket and connected to the rudder-post to turn therewith, as and for the purpose set forth.

5. The combination, with the rudder-post and a suitable frame sustained adjacent thereto, of a toothed gear mounted within said frame, the steering-wheel shaft *a* mounted upon said frame slightly out of line with said gear and carrying at one end the steering-wheel *w* and at the other end the cam-plate *c* with its operative face formed with an annular cavity or recess conforming in curvature with and adapted to embrace a portion of said gear as described, said cam-plate being provided with two parallel spiral teeth *c'* having their origin at diametrically opposite points and each inclined throughout toward the center of said gear and adapted to mesh therewith, and a connection from said toothed gear to the rudder-post, as and for the purpose set forth.

591,852. RAILWAY-SWITCH. HANS C. LAUSEN, Newman, Cal. Filed July 15, 1897. Serial No. 644,003. (No model.)

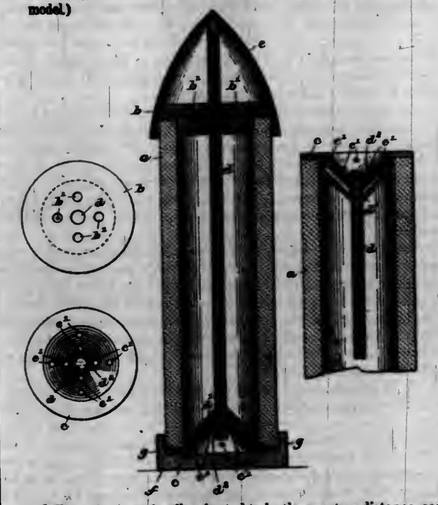


Claim.—1. The combination with a car, of the two vertically-sliding rods just without the planes of the wheels, respectively, rollers mounted upon opposite sides of each rod in a line perpendicular to said planes, levers arranged to force said rods downward, independently, and springs resisting the action of the levers; whereby when either rod is depressed its outer roller may force outward a suitable switch-operating device while the inner roller resting against the corresponding rail relieves the rod from strain.

2. The combination with the main and branch tracks having rigidly-fixed outer rails and intermediate pivoted switch-rails, of the bar passing beneath the rails and attached to the switch-rails, the centrally-pivoted vertical levers pivotally attached to the ends of said bar, respectively, and two bars pivoted to the upper end of each lever, extending oppositely alongside the outer rail, diverging slightly therefrom, and at their other ends held against movement from the rails, substantially as set forth.

3. The combination with the main and branch tracks resting upon cross-ties and having fixed outer rails and intermediate rails with swinging segments, of a bar passing beneath both tracks and attached to said segments, vertical levers centrally pivoted to a tie and pivotally connected to the ends of said bar, respectively, the locking-spring resisting the movement of one lever from either limit of its path, and two bars upon each side of the track pivoted to the upper end of the corresponding lever, extending oppositely therefrom, diverging slightly from the adjacent rail, and secured at their outer ends against lateral movement, substantially as and for the purpose set forth.

591,853. OIL-DISTRIBUTING PROJECTILE. WILLIAM W. LEE, Northampton, Mass. Filed Dec. 9, 1896. Serial No. 615,075. (No model.)



Claim.—1. A projectile adapted to be thrown to a distance, comprising a shell, and a reservoir adapted to contain oil or other fluid and provided with a normally-closed inlet and an outlet passage, in combination with valve mechanism operated by weight of the valve itself for opening said reservoir.

2. A projectile adapted to be thrown to a distance comprising a shell, and a reservoir adapted to contain oil or other fluid and provided with a normally-closed inlet in its top portion and a normally-closed outlet in its bottom portion, in combination with valve mechanism operated by the weight of the valve itself for opening said reservoir.

3. A projectile adapted to be thrown to a distance, comprising a shell, a reservoir adapted to contain oil or other fluid and provided with a normally-closed inlet and outlet passage, and an automatically-detachable base, in combination with valve mechanism for opening said reservoir.

4. A projectile adapted to be thrown to a distance comprising a shell, a reservoir adapted to contain oil or other fluid and provided with a normally-closed inlet and outlet passage, in combination with cap *b* provided with normally-closed inlet-hole *b'*, cap *c* provided with a normally-closed outlet-hole *c'*, rod *d* provided with valve *d'* for opening said reservoir only when the projectile is inverted.

5. A projectile adapted to be thrown to a distance comprising a shell, a reservoir adapted to contain oil or other fluid and provided with a normally-closed inlet and outlet passage, in combination with cap *b* provided with a normally-closed inlet-hole *b'*, cap *c* provided with a normally-closed outlet-hole *c'*, rod *d* provided with valve *d'* and conical shell *e*.

6. A projectile adapted to be thrown to a distance, having an oil-reservoir; a reservoir-inlet toward the front end of the projectile and reservoir-outlet near the butt-end of the projectile; and means which control said inlet and outlet; one end of the projectile being weighted to cause the projectile to float the other end up, in the

water, and the inlet and outlet being then automatically opened to permit water to flow in the reservoir at the inlet to expel the oil therefrom at the outlet.

591,854. LUBRICATOR. NICOLAUS LEHDERS, Milwaukee, Wis. Filed Apr. 1, 1896. Serial No. 585,804. (No model.)



Claim.—1. In a lubricator, the combination with the oil-cup and a central feed-tube through the same, of a piston passing transversely through the tube and provided with a wing lying inside the cup to receive the impact of the oil for reciprocating the piston, the extent of the wing from the periphery of the piston to the periphery of the wing being materially greater than the diameter of the piston, substantially as and for the purposes described.

2. In a lubricator, the combination with the oil-cup and a central feed-tube through the same, of a piston passing transversely through the tube and provided with wings at its opposite ends, one on each side of the tube, to receive the impact of the oil for reciprocating the piston, the extent of the wings from the periphery of the piston to the periphery of the wings being materially greater than the diameter of the piston, substantially as and for the purposes described.

3. In a lubricator, the combination with the oil-cup and a central feed-tube through the same, of a piston passing transversely through the tube and provided with a wing lying within the oil-cup to receive the impact of the oil for reciprocating the piston, the extent of the wing from the periphery of the piston to the periphery of the wing being materially greater than the diameter of the piston, and means for regulating the throw of the piston, substantially as and for the purposes described.

4. In a lubricator, the combination with the base, body and cap, of a tube extending from the base to the cap having a vent at the cap, a piston passing transversely through the lower portion of the tube and provided at each end with wings to receive impact of oil in the cup to reciprocate the piston, and an adjustable pin passing transversely through one side of the cup in line with the wings to regulate the throw of the wings, substantially as and for the purposes described.

591,855. ELECTRODE FOR STORAGE BATTERIES. HERBERT S. LLOYD, Philadelphia, Pa. Filed Mar. 15, 1897. Serial No. 627,531. (No model.)

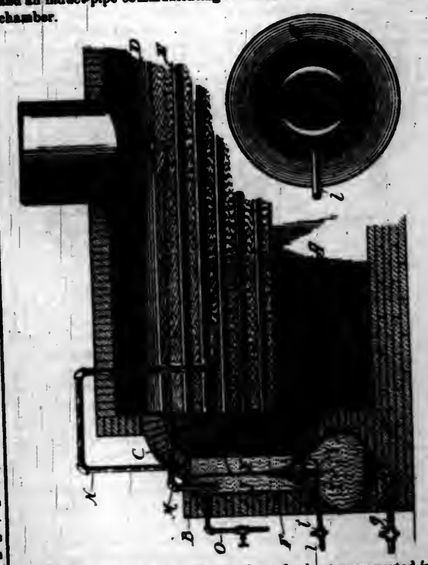


Claim.—1. An electrode comprising a frame, two or more layers or strips formed of lead or an alloy thereof extending between the side bars of the frame, and a perforated leaden plate situated between such layers, substantially as specified.

2. An electrode comprising a frame and two layers of rods or strips of lead or an alloy thereof, said rods or strips being plaited in series and extending between the side bars of the frame, and a perforated leaden plate situated between the said layers, substantially as specified.

591,856. AUTOMATIC BOILER-CLEANER AND FEED-WATER HEATER. JEREMIAH J. LOWE, Chicago, Ill., assignor of one-half to George Hibben, same place. Filed July 9, 1894. Renewed Mar. 19, 1897. Serial No. 628,261. (No model.)

Claim.—1. The combination with a boiler, of a heater, a diaphragm arranged therein and dividing its upper portion into two chambers, only one of such chambers being exposed to heat, an educt-pipe communicating between the boiler and such exposed chamber and an induct-pipe communicating between the boiler and the other chamber.



2. The combination with a boiler, of a heater supported in the shell thereof and forming a portion of the inner walls of the combustion-chamber, a diaphragm within the heater and arranged substantially parallel with the plane of the inner furnace-wall whereby the upper portion of the heater is divided into two chambers only one of which is exposed to the combustion-chamber, and induct and educt pipes communicating with the interior of the boiler and with their respective chambers at the head of the heater.

3. In a feed-water heater and purifier, the combination with a boiler, of a heater supported in the outer shell and forming a portion of the inner walls of the combustion-chamber, a diaphragm within the said chamber dividing its upper portion into two chambers J and K, a pipe leading from the boiler and entering chamber J and a pure-water pipe leading from chamber K to the boiler, whereby a constant and positive circulation is maintained from the heat of the combustion-chamber, substantially as described.

4. In a feed-water heater and purifier, the combination with a boiler, of a heater supported in the outer shell of the boiler forming a portion of the walls of the combustion-chamber, a depending diaphragm arranged within the heater and dividing it into two compartments J and K, a funnel elliptical in cross-section and secured to the lower end of the diaphragm a pipe leading from the boiler to the upper end of the compartment J and a pure-water pipe leading from the upper end of the compartment K back into the boiler, whereby a positive constant circulation of water is maintained through the heater and the water simultaneously heated, substantially as described.

5. In a boiler-cleaner, the combination with a boiler, of a chamber, a diaphragm arranged therein and dividing its upper portion into two compartments J and K, an inverted closed funnel arranged upon the free end of the diaphragm, means communicating with the exterior of the chamber and the interior of the funnel for drawing off its contents, and induct and educt pipes leading to and from the boiler and chamber, substantially as described.

6. In a boiler cleaner, the combination with a boiler, of a chamber, a diaphragm therein provided at its free end with an inverted closed funnel thereby dividing the upper portion of the heater into two compartments, and induct and educt pipes communicating between the boiler and heater, substantially as described.

7. In a boiler-cleaner, the combination with a boiler, of a heater, a diaphragm therein provided at its free end with an inverted closed funnel elliptical in cross-section, thereby dividing the upper portion of the heater into two chambers with contracted throats at their lower ends and induct and educt pipes communicating between the boiler and heater, substantially as described.

8. The combination with a boiler, of a chamber, a flat vertically-depending diaphragm extending from side to side of the chamber and dividing its upper portion into two compartments and an induct and educt pipe communicating with the boiler and with its respective compartment substantially at the top.

9. The combination with a boiler, of a chamber, a depending diaphragm arranged therein and provided at its free end with an inverted closed funnel whereby the upper portion of the said chamber is divided into two compartments, induct and educt pipes communicating with the boiler and with the top of said compartment and an enlarged settling or precipitation chamber arranged below said funnel.

591,857. THREAD-CUTTING ATTACHMENT FOR LOOM-TEMPLES. JOSEPH S. LUDLAM and JOSEPH A. CLAIR, Lowell, Mass.; Annabella R. G. Ludlam administratrix of said Joseph S. Ludlam, deceased, assignors, by mesne assignments, to the Draper Company, Hopedale, Mass. Filed Sept. 18, 1895. Renewed July 14, 1897. Serial No. 644,670. (No model.)



Claim.—1. A loom-temple having a reciprocating temple-bar and carrying a knife which is operated by the reciprocations of said bar to cut the filling end outside of the selvage, substantially as specified.

2. A temple-case, a reciprocating bar free to slide thereon and having fixed to it the stationary blade of a thread-cutting mechanism and having also pivotally mounted on it the movable blade of said cutting mechanism, combined with a connection between said movable blade and said case, whereby the said movable blade is actuated to cut the weft end as the said bar is moved into said case, substantially as described.

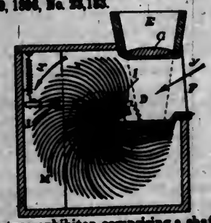
3. A thread-cutting mechanism consisting of a blade fixed to the head of a reciprocating bar of a loom-temple, and a second movable blade pivoted to the shank of said bar and provided with an extended arm, combined with a link adapted to connect said pivoted blade to a stationary part of the loom, as and for the purposes set forth.

4. The reciprocating bar of a loom-temple, and a movable cutting-blade pivoted on said bar, and provided with an extended arm having a projecting stud, combined with a link pivoted on a fixed part of the loom and having a slot to embrace said stud, substantially as described.

5. The combination with the reciprocating bar of a loom-temple having a fixed cutting-blade, and a movable cutting-blade mounted on said bar, of a spring to keep said movable blade pressed toward said fixed blade, and means connected to said movable blade and to a fixed part of the loom to actuate said blades to cut the filling end, substantially as described.

6. The reciprocating bar of a loom-temple, its attached pod, a cutting-blade fixed to said pod and having a concaved edge conforming substantially to the shape of the inner face of the pod, combined with a movable cutting-blade mounted on said bar and with means to actuate said movable blade to cut the weft end, substantially as described.

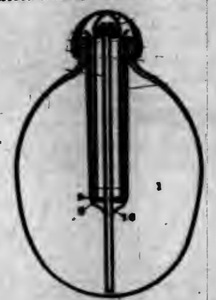
591,858. PICTURE-EXHIBITOR. AUGUSTE LUMIÈRE and LOUIS LUMIÈRE, Lyons, France. Filed Jan. 21, 1897. Serial No. 620,145. (No model.) Patented in France Sept. 10, 1896, No. 253,515, and in England Oct. 12, 1896, No. 23,163.



Claim.—A picture-exhibitor comprising a shaft, a series of cards about the same concaved longitudinally from the inner to the outer end and being flat transversely, and means for contacting with the outer ends of said cards to make them assume a flat form throughout, the said cards carrying the pictures on the concave sides.

591,859. SYRINGE. JOHN M. MACVEAN, Chicago, Ill. Filed Nov. 12, 1896. Serial No. 611,946. (No model.)

Claim.—1. A combined liquid-receptacle and syringe, comprising a receptacle having a syringe-cylinder secured therein, and a piston within such cylinder, all arranged in such manner as to cause the cylinder to automatically fill with liquid when same is pulled outwardly from the receptacle, and to discharge when pushed back into the receptacle, and a cap adapted to close the receptacle; the syringe-cylinder and piston being adapted to be compressed into the receptacle and inclosed entirely within the receptacle and cap.



2. In a combined liquid-receptacle and syringe, a receptacle having an air-hole therein, and having a syringe-casing adapted to close the neck of the receptacle and to extend down into the receptacle, and having a tubular piston secured in the syringe-casing, and opening through same into the receptacle, in combination with a syringe-cylinder adapted to operate on the piston; a valve permitting the liquid to pass through the piston into the cylinder, and preventing the backflow of the liquid; and a cap adapted to close the receptacle; the syringe-cylinder and piston being adapted to be compressed into the receptacle and inclosed entirely within the receptacle and cap.

3. In a combined liquid-receptacle and syringe, a receptacle having an interiorly-threaded neck, with an air-hole entering the receptacle; in combination with an exteriorly-threaded syringe-casing adapted to screw into the neck of the receptacle, and to extend down into the receptacle, and having a tubular piston secured in the syringe-casing and opening through same into the receptacle; a syringe-cylinder adapted to operate on the piston; a valve permitting the liquid to pass through the piston into the cylinder, and preventing the backflow of the liquid; and a cap adapted to close the receptacle; the syringe-cylinder and piston being adapted to be compressed into the receptacle and inclosed entirely within the receptacle and cap.

4. In a combined liquid-receptacle and syringe, a main receptacle having an exteriorly-threaded and interiorly-threaded neck, with an air-hole opening from the exteriorly-threaded portion into the receptacle, in combination with a syringe-casing adapted to fit said interiorly-threaded portion and to extend into the receptacle, and having a tubular piston secured in the syringe-casing and opening through same into the receptacle; a syringe cylinder adapted to operate on the piston; a valve on the piston-head permitting the liquid to pass through the piston into the cylinder, and preventing the backflow of the liquid; and a cap adapted to fit over said exteriorly-threaded portion so as to close said air-hole and inclose the cylinder in the receptacle, substantially as described.

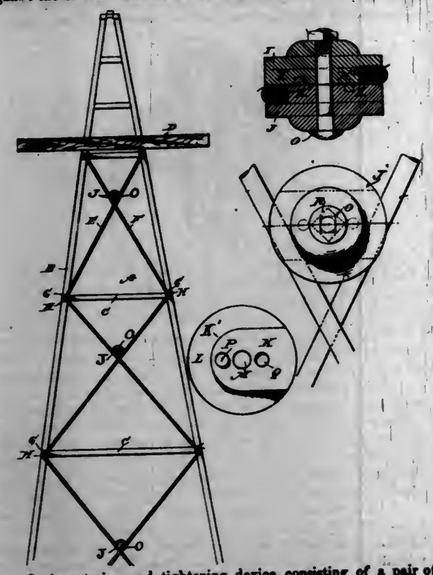
5. A combined liquid-receptacle and syringe, comprising a receptacle; a hollow piston communicating with the receptacle and rigidly secured therein; a syringe-cylinder movable with respect to said piston and receptacle so as to fill and discharge by such movement; and a valve in the piston permitting the liquid to pass from the receptacle into the cylinder, and preventing the backflow of the liquid.

6. A combined liquid-receptacle and syringe, comprising a receptacle; a hollow piston communicating with the receptacle and secured therein; a syringe-cylinder movable with respect to said piston and receptacle so as to protrude from and recede into the receptacle; and a valve in the piston permitting the liquid to pass from the receptacle into the cylinder and preventing the backflow of the liquid.

591,860. CENTERING AND TIGHTENING DEVICE FOR WINDMILL-TOWER BRACES. SAMUEL W. MARTIN, Springfield, Ohio, assignor to the Mast, Foos & Company, same place. Filed Aug. 28, 1896. Serial No. 604,175. (No model.)

Claim.—1. The combination with the intersecting braces of a windmill-tower, of a centering and tightening device consisting of a pair of plates or disks fitted one upon the other in one of the angles and between the braces and having shoulders which fit against and embrace the braces, and a bolt to tighten and hold the parts together.

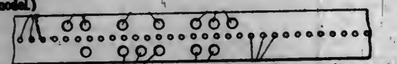
2. The combination with a windmill-tower and its intersecting braces, forming an acute angle between them, of a centering and tightening device consisting of a pair of plates or disks each having a boss forming a shoulder and a receding face, and a socket and stud matching a socket and stud of the other, and a bolt to bind the plates against the braces when the same are fitted in the acute angle.



3. A centering and tightening device, consisting of a pair of plates or disks each having a receding face and a boss forming a shoulder, the receding face of one plate or disk being opposite the boss of the other plate or disk, and each having a central opening, and a bolt fitted in said opening to bind the parts together.

4. A centering and tightening device consisting of a pair of plates or disks, each having a receding face extending partly around it, a boss occupying the rest of the surface, a stud on the boss and a socket in it and a central hole in the boss, the plates or disks being interlocked by the studs and sockets, and a bolt in the opening to bind the parts together.

591,861. ELECTRICAL-CURRENT INTERRUPTER. HENRY W. MATHER, Roseville, N. J., assignor to William Gardam and Joseph Gardam, Brooklyn, N. Y. Filed Feb. 17, 1897. Serial No. 624,118. (No model.)



Claim.—1. A strip or ribbon for an electrical-current-interrupter stencil, made of paper having a portion of its fiber rendered structureless and forming a hard mass about the remaining fibers, substantially as and for the purposes set forth.

2. A strip or ribbon for an electrical-current-interrupter stencil, made of paper having a portion of its fiber rendered structureless and forming a hard mass about the remaining fibers, said strip being oiled, substantially as and for the purposes set forth.

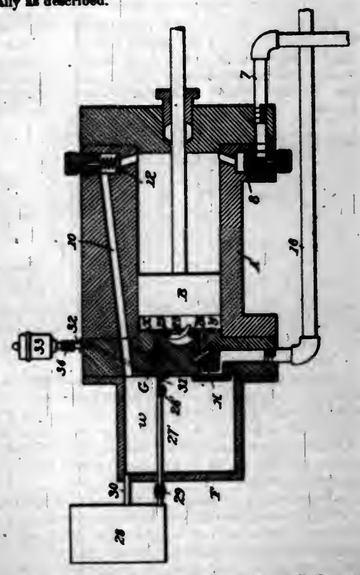
3. An electrical-current-interrupter stencil consisting of a ribbon or strip of paper which has a portion of its fiber rendered structureless and forming a hard mass about the remaining fibers, substantially as set forth.

591,862. GAS-ENGINE. CHARLES L. MATHEW, Saratoga Springs, N. Y. Filed Dec. 11, 1895. Serial No. 571,781. (No model.)

Claim.—1. The combination with a cylinder, piston, inlet and exhaust ports, of plug-valves G, H, an eccentric and connections for rocking the valve H, an arm extending from said valve, a lug upon the valve G arranged to make contact with said arm and springs connected with the valve G to hold it normally in one position, substantially as set forth.

2. The combination with the fixed and movable contacts of an electrical igniter and with the rocking valve G, of a shaft carrying the movable contacts and an arm upon said shaft adapted to make contact with a lug extending from the valve, substantially as set forth.

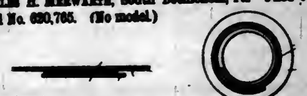
3. In a gas-engine, the combination with the cylinder and its piston, of a compression-chamber at the rear of the cylinder, means for supplying said chamber with compressed air and gas, an inlet-port connecting the cylinder and compression-chamber, and a valve controlling said port, means for positively operating said valve, and means for supplying water to a point adjacent to the inlet-port, substantially as described.



4. In a gas-engine, the combination with a cylinder and its piston, of a chamber at the rear of the cylinder communicating therewith through an inlet-port, a valve controlling said port, means for supplying the chamber with compressed air and gas, open-topped oil and water receptacles within the chamber adjacent the inlet-port, and means for supplying said receptacles with oil and water respectively, substantially as described.

5. The combination with the inlet port of a gas-engine, of an oil-reservoir, an open-topped trough adjacent to the inlet-port, and means for leading the oil to the said trough, substantially as and for the purpose set forth.

591,868. PACKING FOR STEAM AND HYDRAULIC JOINTS. CHARLES H. MERWARTH, South Bethlehem, Pa. Filed Jan. 26, 1897. Serial No. 620,765. (No model.)

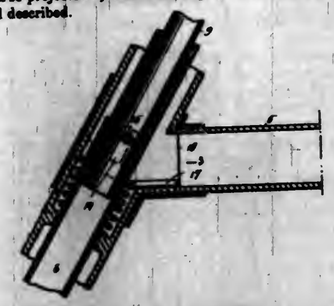


Claim.—A packing for joints, consisting of two strips of soft metal coiled in involute form as described and secured to the opposing surfaces to be joined, the coils of one portion being adapted to intermesh with the coils of the opposing portion, substantially as and for the purpose described.

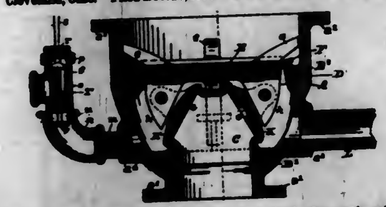
591,864. ATTACHMENT FOR BICYCLES. JOSEPH H. MEYER, Brooklyn, N. Y. Filed Feb. 4, 1897. Serial No. 622,044. (No model.)

Claim.—1. The combination with a bicycle of a sliding sleeve secured to the tubular post of the handle and adapted to slide therewith, a plate pivotally connected with one side of said sleeve and adapted to engage a slot or groove formed in a head which is inserted in the end of the horizontal tube of the frame, said plate being adapted to be disengaged from said groove by pressing down the handle-bar, substantially as and for the purpose set forth.

2. The combination with the tubular head of the forward part of the frame of a bicycle, through which the stem of the forward fork passes, of a spring-operated sleeve mounted on said stem, and adapted to be forced upwardly, a rod which forms a support for the handle-bar and which is slidably connected with the upper end of said stem, by means of a pin which is also secured to said sleeve, said stem being provided with slots through which the said pin passes, said sleeve and the frame of the vehicle being also provided with means for locking the parts together so as to prevent the fork in which the guide-wheel is mounted from turning, consisting of a jaw which is hinged to said sleeve, and which is adapted to be projected through an opening when the said sleeve is in a predetermined position, and held in place when so projected by side walls or projections, substantially as shown and described.



591,865. DRY-PIPE SPRINKLER SYSTEM. JOSEPH F. MILLER, Cleveland, Ohio. Filed Nov. 27, 1896. Serial No. 613,562. (No model.)



Claim.—1. In a valve for dry-pipe automatic fire-extinguishing apparatus the combination with the valve-shell of a water-chamber communicating with the water supply and having oblique ports, a valve-plate seating in the valve-shell and carrying beneath it obliquely-disposed caps which seat upon the oblique ports of the water-chamber when the valve-plate seats, substantially as described.

2. In a valve for dry-pipe automatic fire-extinguishing apparatus the combination with the valve-shell of a water-chamber communicating with the water-supply and having oblique ports, a valve-plate seating in the valve-shell above the water-chamber and carrying beneath it obliquely disposed caps which seat upon the oblique ports of the water-chamber when the valve-plate seats, substantially as described.

3. In a valve the combination of the shell, a water-chamber communicating with the water-supply and having oblique ports, a valve-plate seating in the valve-shell and carrying beneath it pivoted caps which seat upon the oblique ports of the water-chamber when the valve-plate seats, substantially as described.

4. In a valve the combination of the shell, a water-chamber therein having diagonal ports, a valve-plate seating in the shell and having rigid lugs corresponding with the water-chamber ports, and caps pivotally secured to said lugs and adapted to seat upon and close the ports of the water-chamber when the valve-plate seats, substantially as described.

5. In a valve the combination with the shell, a water-chamber having oblique ports, a valve-plate seating in the shell above the water-chamber and having rigid depending lugs corresponding with the water-chamber ports, obliquely-disposed caps secured to said lugs and seating on said ports, guiding-arms on said valve-plate engaging grooves on the water-chamber, and a dog adapted to engage a notch on said guiding-arm when the valve-plate lifts to hold it in the open position, substantially as described.

6. In a valve the combination with the shell, a water-chamber having oblique ports, a valve-plate seating in the shell above the water-chamber and having rigid depending lugs corresponding with the water-chamber ports, obliquely-disposed caps pivotally secured to said lugs and seating on said ports, guiding-arms on said valve-plate engaging grooves on the water-chamber, and a dog adapted to engage a notch on said guiding-arms when the valve-plate lifts to hold it in the open position, substantially as described.

7. In a valve the combination with the shell, a water-chamber therein having oblique ports, a valve-plate seating in the shell and having rigid lugs corresponding with the water-chamber ports, caps pivotally secured to said lugs and adapted to seat upon and close the port of the water-chamber when the valve-plate seats, and an alarm actuated by the lifting of the valve-plate, substantially as described.

8. The combination of the valve-shell having a drip-outlet, a water-chamber having oblique ports, a valve-plate seating in the shell and having lugs corresponding to the water-chamber ports, caps pivotally secured to said lugs and seating on said ports, and a plunger playing in the drip-escape and adapted when forced forward by the rush of water when the valves open to close an electric circuit and sound an alarm.

9. The combination of the valve-shell having waste-outlet and drip-outlet, a water-chamber having oblique ports, a valve-plate seating in the shell and having lugs corresponding to the water-chamber ports, caps secured to said lugs and seating on said ports, and a plunger playing in the drip-escape and adapted when forced forward by the rush of water when the valve opens to close an electric circuit and sound an alarm, substantially as described.

591,866. HOPPLE FOR HORSES. DAVID S. MILTON, New York, N. Y. Filed June 24, 1896. Serial No. 596,763. (No model.)



Claim.—Means for stopping horses consisting of a wide strap or band adapted to pass over the back of said horse and having the lower end thereof buckled over the breast of the same, a strap secured to the lower rear corner of the said band, a ring fastened thereto, a rope passing through said ring, two segmental tubes, a cross-tube secured thereto, said rope passing in succession through said tube and cross-tube and forming thereby loops, elastic or rubber tubes mounted on said rope, plates having inwardly-directed end pieces secured to said band, outwardly-directed flanges engaging said band, a bolt passing through one of said end pieces, a ring at the rear portion thereof, U-shaped brackets engaging said bolt and the said plates, a spring on said bolt in connection therewith, other loops secured to the central portion of said bolts in connection with said rope, a line engaging said bolts adapted to operate the same, said parts being in combination substantially as described.

591,867. FIFTH-WHEEL. JAMES C. MITCHELL and LEVI R. PERRY, Lewiston, Me. Filed Nov. 17, 1896. Serial No. 612,485. (No model.)



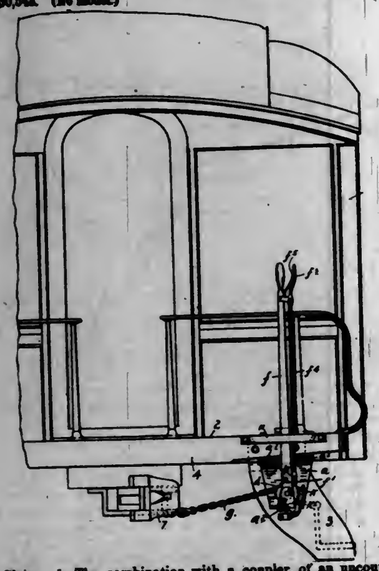
Claim.—1. The herein-described fifth-wheel, comprising upper and lower parts or members provided with annular flanges and central coincident reduced portions, a sand-band surrounding said reduced portions, removable cups secured to the lower face of said upper member, and balls carried by said cups and adapted to bear upon the top face of said lower member, substantially as set forth.

2. The herein-described fifth-wheel, comprising upper and lower parts or members provided with annular flanges and central coincident reduced portions, a sand-band surrounding said reduced portions between said flanges, a series of holes or openings being formed in the face of the reduced portion of said upper member, cups provided with threaded stems working in said openings, and balls carried by said cups and adapted to bear on the top face of said lower member, substantially as set forth.

3. The combination with a car-body having its sill provided with a bearing-plate carrying ball-bearings, of a fifth-wheel comprising upper and lower parts or members provided with annular flanges and central coincident reduced portions, a sand-band surrounding said reduced portions, removable cups secured to said upper member, and balls carried by said cups and adapted to bear on said lower member, substantially as set forth.

4. The combination with a car-body having a fifth-wheel, of a plate secured to the sill of said car having a series of chambers or recesses therein, balls located in said chambers or recesses, smaller balls located in recesses or offsets leading in from said former chambers or recesses and against which said former balls are designed to bear, and a keeper-plate adapted to retain said balls in position, as and for the purpose set forth.

591,868. UNCOUPLING DEVICE FOR COACH DRAW-BARS. Adam L. Mohler, Minneapolis, Minn. Filed Apr. 3, 1897. Serial No. 630,548. (No model.)



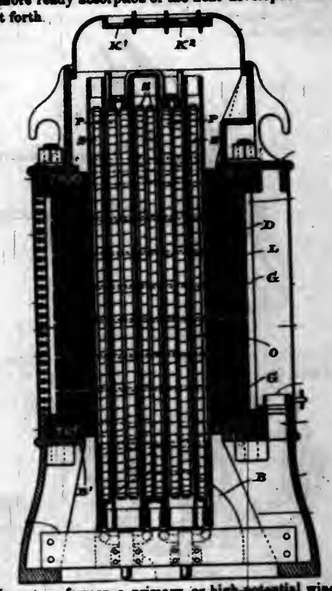
Claim.—1. The combination with a coupler, of an uncoupling device for the same, involving a ratchet-wheel with intermediate connections to said coupler, a retaining-pawl for holding said ratchet-wheel from return movement, and a pawl-lever cooperating with said ratchet-wheel and operative, by an extreme movement, to disengage said retaining-pawl from said ratchet-wheel, substantially as described.

2. The combination with a coupler, of an uncoupling device for the same, involving a windlass, a ratchet-wheel rotatable with said windlass, a flexible connection from said windlass to said coupler, a retaining-pawl normally holding said ratchet-wheel from return movement, and a pawl-lever cooperating with said ratchet-wheel and operative, by an extreme movement, to disengage said retaining-pawl from said ratchet-wheel, substantially as described.

3. The combination with a coupler, of an uncoupling device for the same, involving a supporting-bracket, a fixed spindle or shaft mounted in said bracket, a windlass loose on said spindle and provided with a projecting hub, a portion of which hub is cylindrical and a portion of which is polygonal in cross-section, a ratchet-wheel mounted on the polygonal portion of said hub, a pawl-lever mounted on the cylindrical portion of said hub and provided with the driving-pawl and releasing device for the same, a gravity-operated retaining-pawl, normally holding said ratchet-wheel against return movement and provided with a projecting portion which extends in the path of said driving-pawl, and a flexible connection between said windlass and the draw-bar of said coupler, substantially as described.

591,869. ELECTRIC TRANSFORMER. Walter S. Moody, Lynn, Mass., assignor to the General Electric Company, of New York. Filed May 20, 1897. Serial No. 637,363. (No model.)

Claim.—1. In a transformer, the combination of a core, primary and secondary windings and insulation for insulating the primary winding from the secondary winding, not applied to said windings direct or either of them, but separated from the windings and permitting a more ready absorption of the heat developed in the windings, as set forth.



2. In a transformer, a primary or high-potential winding surrounded by a heavy insulation which is separated from the winding by an air space or spaces, said insulation serving to insulate the primary from the secondary winding.

3. In a transformer, a primary or high-potential winding subdivided into sections slightly separated from one another, and an insulating-casing surrounding said winding and separated therefrom by an air space or spaces, said casing serving to insulate the primary from the secondary winding, as set forth.

4. In a transformer, the combination of primary and secondary windings with passages extending between the windings for the circulation of a cooling medium, and a laminated iron core with a second set of passages, through which circulates an insulating cooling medium, said sets of passages forming independent cooling and ventilating systems, one for the coils and one for the core.

5. In a transformer, the combination of primary and secondary windings, a laminated iron core, passages extending between the windings through which an insulating medium circulates to cool the windings, a second set of passages extending through the iron core independent of the first, in which an insulating medium circulates to cool the iron, and means for regulating the circulation through both sets of passages.

6. In a transformer, the combination of primary and secondary windings, a laminated core, means for maintaining an up-and-down circulation of air through the coils, and means for maintaining a transverse circulation of air through the iron core, both circulations being independent.

7. In a transformer, the combination of primary and secondary windings separated by air-passages, a laminated core divided into sections, and air-passages independent of those between the windings formed between the sections, a common source of air-supply, and means for regulating the flow of air through each set of passages independently.

8. In a transformer, the combination of primary and secondary windings, divided into a number of coils, a laminated iron core, an insulating-case surrounding one or more of the coils and provided with open ends at the top and bottom, and spaces between the coils for the free circulation of an insulating medium.

9. In a high-potential transformer, the combination of an insulating-casing surrounding the primary and secondary windings, with vertically-extending air-spaces between the coils and the case, an insulating-case mounted within the first and surrounding one of the windings, and air-spaces between the last-mentioned winding and its surrounding case, the two sets of air-spaces being independent.

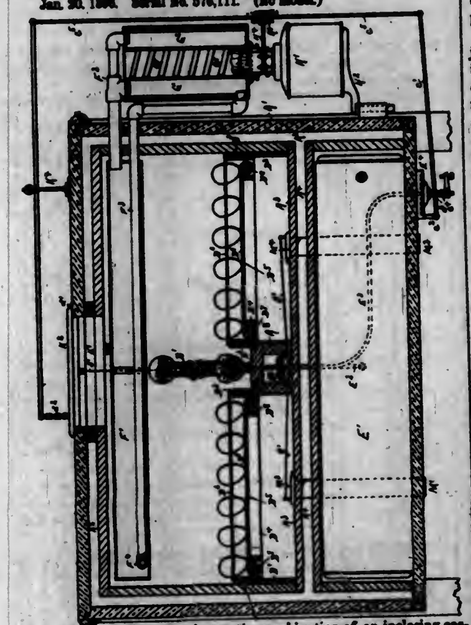
10. In a high-potential transformer, the combination of primary and secondary windings, each composed of a number of turns of wire which are sufficiently insulated to prevent leakage between adjacent turns, but not enough to insulate them from the core and the other winding, a body of insulating material located between the windings, and spaces formed between the windings and the insulation for insulating the coil and permitting the circulation of an insulating and cooling medium.

11. In a high-potential transformer, the combination of primary and secondary windings divided into sections, a laminated core, an insulating-case between the core and the windings, air-passages between the case and the windings, insulating-cases surrounding the primary winding and separating it from the secondary, the cases being provided with open ends which project above and below the ends of the coils so as to increase the creeping or leakage surface, air-passages between the primary coils and the casings, and a common chamber supplying air for both sets of passages.

12. In a transformer, the combination of primary and secondary windings separated by air-passages, a laminated iron core divided into sections, a set of air-passages between the sections and independent of the first, an air-chamber in the base supplying air to the passages between the windings, and a chamber located on one side of the laminæ and connecting with the chamber in the base for supplying air to the passages between the core-sections.

13. In a transformer, the combination of primary and secondary windings, a laminated iron core, air-passages extending in a vertical direction through the windings, air-passages extending through the iron in a direction transverse to and independent of the first set, an air-chamber in the base, a chamber located on one side of the core communicating therewith and supplying air to the core-passages, and means for regulating the passage of air through both sets of passages independently.

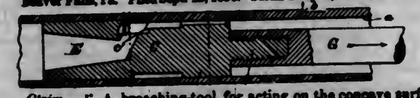
591,870. INCUBATOR. Frank H. Morgan, St. Paul, Minn. Filed Jan. 20, 1896. Serial No. 576,111. (No model.)



Claim.—1. In an incubator, the combination of an inclosing casing, an outwardly-opening valve through the top of said casing, egg-holding trays supported within said casing, a closed water-tank supported in the interior of said casing near the top and beneath said valve so that the escaping air must pass over and around said tank, a heater outside said casing and connected into said tank, a lamp supported beneath said heater, a reservoir of compressed air, a flexible diaphragm connected by tubing with said compressed-air reservoir, a thermostat connected into said tubing and adapted to admit compressed air to the rear of said diaphragm, and a system of levers connecting said valve and the mechanism for adjusting the wick of said lamp; to the front of said diaphragm, whereby the rising and falling of the temperature within said casing will cause said valve to be opened or closed and the flame of said lamp correspondingly raised or lowered, and the temperature within the casing thereby automatically regulated, substantially as and for the purpose set forth.

2. In an incubator, the combination of an inclosing casing, an outwardly-opening valve through the top of said casing, an inwardly-opening valve through the bottom of said casing and connected to be actuated simultaneously with said upper valve, egg-holding trays supported within said casing, a closed water-tank supported in the interior of said casing near the top and beneath said upper valve, a heater connected into said tank, a lamp supported beneath said heater, a reservoir of compressed air, a flexible diaphragm connected by tubing with said compressed-air reservoir, a thermostat connected into said tubing and adapted to admit compressed air to the rear of said diaphragm, and a system of levers connecting said valves and the mechanism for adjusting the wick of said lamp, to the front of said diaphragm, whereby the rising and falling of the temperature within said casing will cause said connected valves to be opened or closed and the flame of the lamp correspondingly increased or decreased and the heated air allowed to escape from the upper part of the casing and the cooler air to enter through the bottom of the casing, substantially as and for the purpose set forth.

591,871. BROACHING IMPLEMENT. William A. McCool, Beaver Falls, Pa. Filed Sept. 12, 1896. Serial No. 605,664. (No model.)



Claim.—1. A broaching-tool for acting on the concave surface of a tube or the like, it having a mandrel or power-transmitting bar, in combination with a head having a cutter, the cutting edge of which is flush with the adjacent surface of the head, means radially opposed to the cutter and advancing therewith and bearing against the inner surface of the tube for holding the cutter to its work, and a guide to prevent rotation of the cutter, substantially as set forth.

2. A broaching-tool for acting on and removing inwardly-projecting metal from the concave surface of a tube or the like, it having a power-transmitting bar, in combination with a head having a cutter secured thereto and having its cutting edge flush with the surface of the head in rear of the cutter, and adapted to remove metal along a line parallel to the axis of the tube, means on said head adapted to bear against the tube at points radially opposed to said line of cut, and means adapted to engage with the metal of the tube to prevent rotation of the cutter, substantially as set forth.

3. The herein-described tool for removing inwardly-projecting metal from the concave surface of a tube or the like by means of a rectilineal cut, it having a cutter-head having a cutting edge situated at a distance from the axis of the tube equal to the radius of the tube, more or less of the exterior surface of said head, on opposite sides of the cutter being that of a cylinder of a diameter equal to that of the tube, whereby said head can bear properly against the interior surface of the tube in every direction radially, and a power-transmitting bar or mandrel connected to the head for moving it through a tube, substantially as set forth.

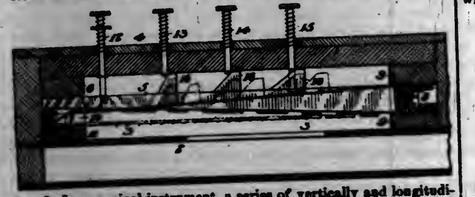
4. A broaching implement having a non-rotary rectilineally-moving body of such size at its ends as to fit snugly within a tube, an intermediate reduced portion connecting said ends, a guiding groove or way, *b*, extending from the chamber formed between the reduced portion of the implement and the wall of the tube being acted on through one end of the implement, and a cutter arranged at the opposite end of said reduced portion and having its cutting edge flush with the surface of the adjacent end portion, said body being adapted to be rigidly attached to a mandrel or power-transmitting bar, substantially as set forth.

5. In a broach or implement for smoothing the inner face or surface of a tube by removing inwardly-extending projections from such surface, the combination of a head provided with a cutter the operative edge of which is arranged to travel through a path parallel to the axis of the tube and at a distance from said axis equal to the radius of the cleaned tube, the body of said head having one or more smooth-surfaced portions adapted to contact with and ride along the inner smoothed surface of the tube in the rear of and at points radially opposed to the said cutting edge, and a bar or rod connected with said head and adapted to move the same longitudinally of the tube, substantially as set forth.

591,872. MUSICAL INSTRUMENT. Frank G. McPherson, Beaver Falls, Pa., assignor to the C. F. Zimmermann Company, Delgeville, N. Y. Filed Nov. 25, 1896. Serial No. 613,437. (No model.)

Claim.—1. In a musical instrument, a vertically-movable mute or presser-bar, having pads on its lower face, a key arranged to move said mute downwardly, and another key arranged to move the bar downwardly and lengthwise so as to bring the pads into a different relation to the strings.

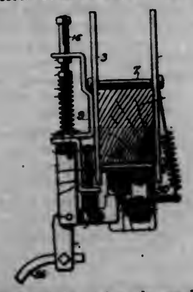
2. In a musical instrument, a vertically and longitudinally movable mute, springs arranged to press the bar endwise and upwardly, and a vertically-reciprocating key having connections arranged to move the bar downwardly and lengthwise in opposition to the springs.



3. In a musical instrument, a series of vertically and longitudinally movable mutes located side by side, springs arranged to press the same endwise and upwardly, a keyboard above the mutes, and keys extending through the keyboard, certain of these keys moving the mutes downwardly, and others arranged to move the mutes downwardly and lengthwise so as to bring them into a different relation to the strings.

4. In a musical instrument of the autoharp variety, a series of transverse mutes having inclined lower faces provided with pads, loose swinging connections at one end of the mutes, springs arranged to hold the other ends in elevated position, said mutes having blocks thereon provided with inclined faces, keys arranged to bear upon the mutes and press them downwardly, and other keys arranged to bear upon the inclined faces of the blocks and move the mutes downwardly and endwise.

591,873. STUBBLE-CATCHER. HANS NESER, Fairmont, Minn. Filed Nov. 19, 1896. Serial No. 612,750. (No model.)



Claim.—1. In a stubble-catcher, the combination with an arm pivoted to swing vertically and horizontally, of a catcher carried thereby, a roller carried by the arm, and a track comprising converging portions over which the roller is adapted to ride.

2. In a stubble-catcher, the combination with an arm pivoted to swing both horizontally and vertically, of a catcher carried thereby, a track, a roller carried by the arm which is adapted to ride on the track, and a spring adapted to draw the roller end of the arm upward and keep it in engagement with the track.

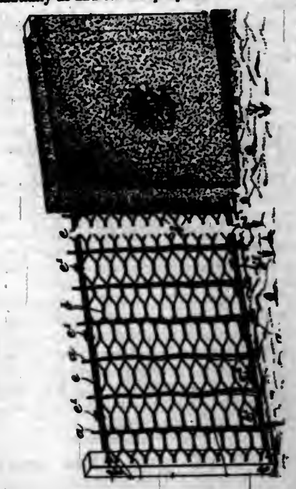
3. In a stubble-catcher, the combination with a vertically-movable rod, of a spring adapted to keep the same upwardly retracted, an arm pivoted to the rod, a catcher connected to the arm, a pivoted bracket, a second vertically-movable rod, a spring for upwardly retracting the same, and a track with which the arm is adapted to engage.

4. In a stubble-catcher, the combination with a vertically-movable spring-retracted rod pivoted to turn horizontally, of a bracket pivoted on the rod, a second upwardly-spring-retracted rod, movable through the bracket, an arm pivoted to both the rods, a catcher carried by said arm, a roller also carried by the arm, and a track on which the roller rides.

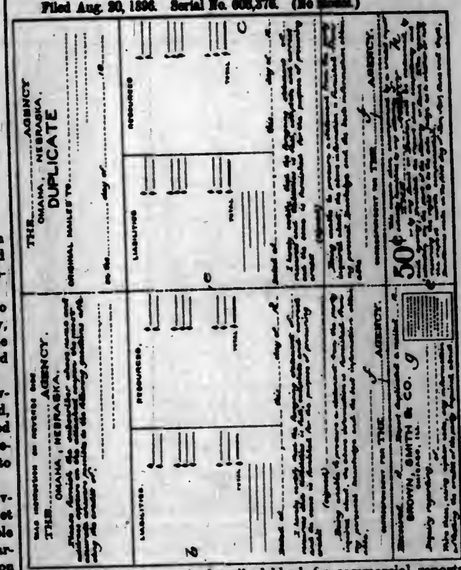
591,874. HEDGE FENCE. MICHAEL NEIL, Dayton, Ohio. Filed Aug. 3, 1897. Serial No. 646,861. (No model.)

Claim.—1. A hedge fence, consisting of a series of plants or canes arranged in vertical position and parallel to each other, a wire-netting placed on one side of the canes, posts or uprights to which the netting is secured, a wire stretched between the posts on the side of the canes opposite to that on which the netting is located, and ties securing the netting to the wire, said wire serving as the main support for the netting, substantially as and for the purposes described.

2. A hedge fence, consisting of a single row of plants or canes arranged in vertical position, a wire-netting placed on one side of the canes but disconnected therefrom, posts or uprights to which the netting is secured, two wires stretched between the posts on the side of the canes opposite to that on which the netting is located and ties securing the top and bottom edges respectively of the netting to said wires, substantially as and for the purposes described.



591,875. BLANK FOR COMMERCIAL REPORTS. HARRY E. O'NEILL, Omaha, Nebr., assignor to the Bartlett Agency, same place. Filed Aug. 20, 1896. Serial No. 603,276. (No model.)



Claim.—1. The herein-described blank for commercial reports, consisting of a leaf having on one side blank spaces and memoranda for recording resources, liabilities, or other information affecting credit and on the obverse side spaces for instructions, in combination with a duplicate leaf directly attached to the original, and connected, but detachable, coupons at the bottom of said leaves, one of said coupons being provided with memoranda-spaces for dating and recording, and the other with credit memoranda relating to the compensation of the correspondent, substantially as described.

2. In a commercial-report blank the combination with an original-report sheet containing two leaves, one bearing items of resources and liabilities, estimates of values, and other information affecting credit, reliability or integrity, to be filled in, and having a detachable coupon at the bottom containing data in relation to time and recording, and the other being a duplicate page of substantially the same size and shape as the original, detachably secured to the latter, and having a detachable credit-coupon at the bottom bearing on its face data as to the amount due to the correspondent for services rendered, all arranged and operated in the manner and for the purposes described.

3. The herein-described blank for commercial reports which consists of the combination of a two-leaved sheet comprising a left-hand leaf bearing an original-report blank, a right-hand duplicate leaf, a coupon on the left-hand leaf containing data in regard to recording the report above, a coupon at the bottom of the right-hand leaf containing data regarding the compensation for the report on the duplicate sheet, said first leaf having on its back printed blanks regarding the name of the agency, instructions to correspondents on the main portion, and instructions about detaching and indexing or recording on the coupon at the bottom, and said second leaf having on its back instructions to the correspondent on both the main portion and back of the coupon at its bottom, all arranged to operate substantially as described.

4. The herein-described blank for commercial reports, consisting of a sheet composed of two leaves, one of which has on its face blanks for the name of the agency and blanks for data concerning liabilities, resources, and matter affecting the credit, and the other being a duplicate adapted to be sent to the home agency; a coupon at the bottom of the first leaf bearing on its face recording memoranda identifying the report above, and on its back instructions about detaching and indexing, and the second leaf being provided with a coupon at the bottom relating to compensation for the report contained on the duplicate said compensation-coupon having on its back instructions about detaching and indexing.

5. The herein-described blank for commercial reports consisting of a sheet divided at *e*, to form two leaves having pages *b*, and *c*, page *b*, being provided with instructions and blank spaces relating to liabilities, resources, credit, and similar items, and with a coupon *g*, at the bottom containing identifying and recording memoranda and adapted to be retained by the correspondent; and a duplicate leaf being provided with a page *c*, bearing memoranda and blank spaces corresponding with and relating to the original, and a coupon *h*, at the bottom, having its end attached to the coupon *d*, and being provided with compensation memoranda, substantially as described.

591,876. HARNESS-RACKET. HARVEY T. PAGE, Centralia, Ill. Filed Nov. 30, 1896. Serial No. 613,948. (No model.)

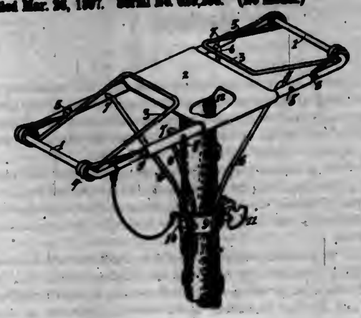


Claim.—1. As a new and useful article of manufacture a ring provided on its inner side with a groove, a sphere resting in said groove, and a handle for said ring, substantially as set forth.

2. As a new and useful article of manufacture a ring constructed of sheet metal provided on its inner side with a groove, a marble resting in said groove and a handle secured to said ring, substantially as set forth.

3. As a new and useful article of manufacture a ring provided on its inner side with an open groove and being constructed of sheet metal, a marble resting in said groove and a handle secured to said ring, substantially as set forth.

591,877. CAMERA-HOLDER. ISAAC P. PERRIN, Woodville, Ohio. Filed Mar. 26, 1897. Serial No. 629,206. (No model.)

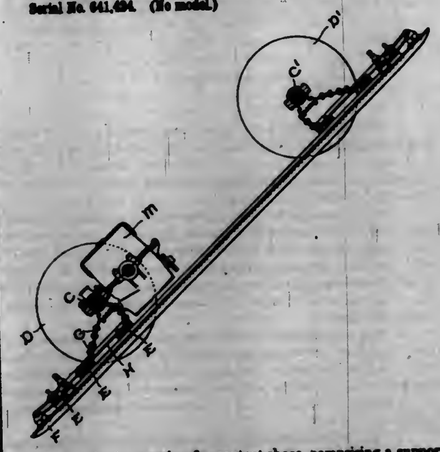


Claim.—1. In a camera-holder, a base, two spring-controlled flaps or wings at opposite ends of said base, adapted to clasp a camera on opposite sides, and to fold inwardly into substantially the same plane as the base, and means for securing said base upon the top of a stick or staff, substantially as and for the purpose specified.

2. In a camera-holder, a base, opposing folding wings or flaps thereon adapted to clasp between them a camera, a pair of depending pieces or loops pivotally secured to said base, a supporting-staff for said base, and means for clamping the lower extremities of said depending pieces or loops to said supporting-staff, substantially as and for the purpose specified.

3. A camera-holder comprising a staff, a base, two opposing, spring-controlled flaps or wings mounted on said base, adapted to clasp between them a camera, and adapted to fold inwardly into substantially the same plane as the base, a spring-socket beneath said base adapted to receive the upper end of the staff, a pair of depending pieces or loops pivotally secured to said base and means for clamping the lower ends of said depending pieces or loops to said supporting-staff, substantially as and for the purpose specified.

591,878. MOUNTING FOR CONTACT-SHOES OF SURFACE-CONTACT RAILWAYS. WILLIAM R. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed June 19, 1897. Serial No. 641,494. (No model.)



Claim.—1. A mounting for contact-shoes, comprising a support substantially rigid at one end, and having a certain play at the other, with springs between the shoe and the support.

2. In a mounting for contact-shoes, the combination of a support rigidly attached to a part of the truck at one end, and having a lost-motion connection with the truck at the other end, with a contact-shoe, and springs between the contact-shoe and the support, the springs having limiting devices preventing excessive play.

3. In a mounting for contact-shoes of surface-contact railways, the combination of a support interposed between the shoe and the truck, the support being substantially rigid with its attachment to the truck at one end, and having a sliding attachment at the other, with a contact-shoe, and intermediate devices connecting the contact-shoe and the support, such intermediate devices consisting of springs and levers having limiting devices preventing excessive play.

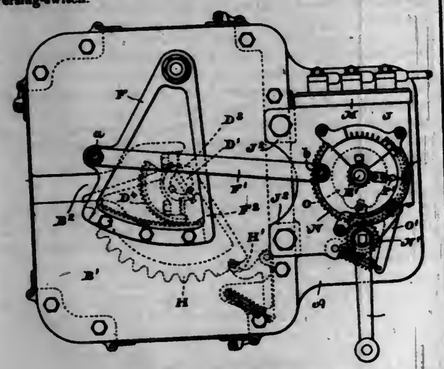
4. In a mounting for contact-shoes, the combination of an intermediate support, a truck, a contact-shoe, and the means for attaching the contact-shoe to the intermediate support, consisting of the lever I, pivoted at N to the intermediate support, and at K to the contact-shoe, with the spring L between the lever and the shoe, and a set-screw A for limiting the motion of the lever.

591,879. ELECTRIC CONTROLLER. HENRY G. REIST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 9, 1897. Serial No. 626,582. (No model.)

Claim.—1. In a controller for alternating-current induction-motors, the combination of a single switch for opening and closing the primary circuit of the motor and for reversing the motor, and a separate regulating-switch in the secondary circuit of the motor.

2. A controller for alternating-current induction-motors, comprising a resistance-switch for varying the resistance of the secondary circuit of the motor, a separate reversing-switch, and a common operating-handle for both switches.

3. In a controller for alternating-current induction-motors, the combination of a drum-switch connected with the secondary of the motor or motors for speed and power regulation, and a separate reversing-switch mechanically geared or connected with the regulating-switch, said switches being so constructed and connected that when the reversing-switch has been thrown in either direction, the regulating-switch may be actuated throughout its range of movement without interrupting or changing the circuit connections of the reversing-switch.



4. In a controller for an alternating-current motor or motors, the combination of a switch immersed in oil and arranged to make and break the motor-circuit, a second switch arranged to vary the resistance of the secondary member of the motor or motors, and means for actuating the switches.

5. In a controller for a three-phase motor or motors, the combination of a switch immersed in oil and arranged to make and break the primary circuit of the motor or motors, a second switch provided with three sets of contacts engaging with as many rows of stationary brushes and arranged to vary the resistance of the secondary member of the motor or motors, and means for actuating the switches simultaneously.

6. In a controller for an alternating-current induction-motor, the combination of a reversing and circuit-opening switch, an inclosing case in which the switch is immersed in oil, a resistance-switch arranged to simultaneously vary the resistance of each of the secondary windings of the motor, and a mechanical connection between the switches.

7. In an electric controller, the combination of a switch mounted for movement in two directions from an off position, means for including the switch in operative relation to the circuit while being moved in either direction, a second switch mounted for movement in a single direction from an off position, and means connecting the switches for simultaneous operation.

8. In an electric controller, the combination of a reversing-switch mounted for oscillating movement in two directions from an off position, brushes engaging therewith during both movements, a regulating-switch mounted for oscillating movement in a single direction from the off position, brushes engaging therewith, and means connecting the switches for simultaneous operation.

9. In an electric controller, the combination of a switch mounted for movement in two directions from an off position, means for including the switch in operative relation to the circuit while being moved in either direction, a second switch mounted for oscillating movement to one side of the off position and operatively connected to the circuit during said movement, and a mechanical connection between the switches for moving one of them at a greater speed than the other.

10. In an electric controller, the combination of a reversing-switch mounted for movement in two directions from an off position and operatively connected to the circuit during both movements, a resistance or regulating switch mounted for oscillating movement on one side of the off position and operatively connected to the circuit during said movement, and a link connecting the switches so arranged that the relative speed of one of the switches increases as the operating devices are moved from the off to full-on position.

11. In a controller for alternating polyphase motors, the combination of a resistance-switch mounted for oscillating movement, a plurality of sets or rows of contacts mounted on the switch, rows of stationary brushes mounted for engagement with the rows of contacts, a switch at which the main circuit is made and broken, and a mechanical connection between the switches for imparting a simultaneous movement thereto.

12. In a controller for a three-phase alternating-current motor, the combination of a resistance-switch mounted for oscillating movement, and comprising a three-arm spider, contacts on the arms, three rows of stationary brushes mounted for engagement with the corresponding rows of contacts, a reversing-switch at which the circuit is made and broken, and a mechanical connection between the switches.

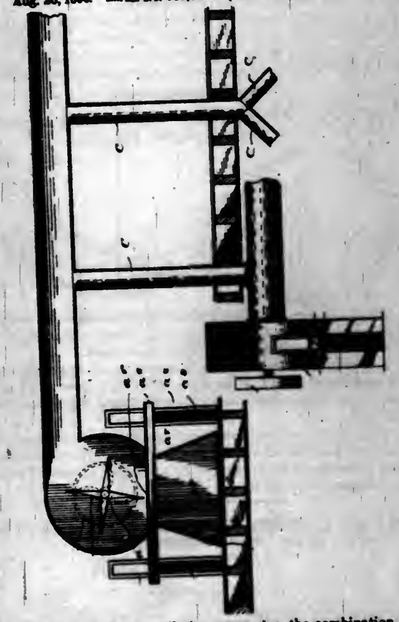
13. In a controller for a three-phase electric motor, or motors, the combination of a resistance-switch arranged to vary simultaneously the resistance of the secondary windings, a reversing-switch for connecting the motor or motors to the source of supply and reversing the direction of rotation, a mechanical connection between the switches, a pinion engaging with a gear mounted on the shaft of one of the switches, and an operating-handle for the pinion.

14. In a controller, the combination of a switch-cylinder mounted on a shaft, bearings for the cylinder supported from a point above the cylinder, stationary brushes engaging with the cylinder, and an inclosing casing in which the stationary brushes and cylinder are submerged in oil.

15. In a controller, the combination of a switch-cylinder mounted on a shaft, a bearing for the upper end of the shaft secured to the cap-plate or other fixed portion of the controller, a lower bearing for the shaft mounted in a piece extending downward from the cap-plate, stationary brushes mounted on the downwardly-extending piece and engaging with the contacts on the cylinder, an inclosing case in which the cylinder and brushes are submerged in oil, and an operating device for the switch.

16. In a controller, the combination of a switch, a shaft therefor, counterpart spiders mounted thereon, each spider being provided with a plurality of arms, the position of the spiders on the shaft being such that the arms of one spider are displaced angularly with respect to another.

591,880. VENTILATOR. MOSES L. RICH, Addison, N. Y. Filed Aug. 30, 1898. Serial No. 608,318. (No model.)

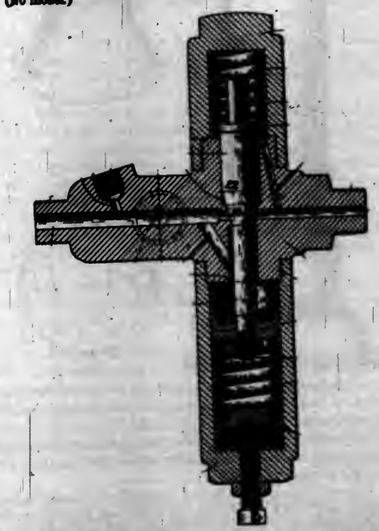


Claim.—1. In a ventilating apparatus, the combination with a fan-casing, of distributing-pipes connected to the same, a fan within said casing, an ice-supporting platform also mounted within said casing, and means for automatically moving the platform toward the fan as the ice melts, substantially as described.

2. In a ventilating apparatus, the combination with suitable distributing-pipes, of a fan-casing, a fan within said casing, an ice-supporting platform also within said casing and spring-supports for said platform adapted to hold the same normally up, substantially as described.

3. In a ventilating apparatus, the combination with suitable distributing-pipes, of a fan-casing communicating therewith, a fan within said casing, an ice-supporting platform also mounted within said casing and having projecting ends, vertical guides for said ends and spiral springs mounted within said guides and under said projecting ends for holding the platform normally up, substantially as described.

591,881. FLUID-PRESSURE REGULATOR. JOHN RISLING and JOHN MAYERS, Philadelphia, Pa. Filed Mar. 15, 1897. Serial No. 627,563. (No model.)

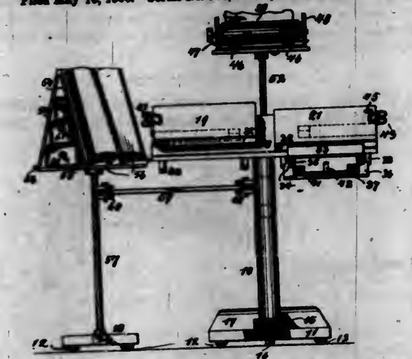


Claim.—1. In a fluid-pressure regulator, the combination of a body portion having threaded nipples, longitudinal bores, upper and lower cylindrical chambers and a valve-seat, the said body having a duct leading from said bore upon one side of said valve-seat to one of said cylindrical chambers, a valve-rod having a valve portion and a cylindrical guiding portion, said guiding portion adapted to fit one of said cylindrical chambers, said valve-rod having upper and lower rod portions, a thimble engaging one of said nipples and covering one end of said valve-rod, a spiral spring placed between said thimble and rod, a second thimble engaging one of said nipples and covering the remaining end of said valve-rod, a piston secured to said rod and fitting the second thimble interiorly, a spiral spring placed within said second thimble against said piston, and means for adjusting the tension of said spring, substantially as described.

2. In a fluid-pressure regulator, the combination of a body portion having threaded nipples, longitudinal bores, upper and lower cylindrical chambers and a valve-seat, the said body having a duct leading from the top of one of said nipples to said longitudinal bore upon one side of said valve-seat, and a duct leading from said bore to one of said cylindrical chambers upon the other side of said valve-seat, a valve-rod having a valve portion and a cylindrical guiding portion, said guiding portion adapted to fit one of said cylindrical chambers, said valve-rod having upper and lower rod portions, a thimble engaging one of said nipples and covering one end of said valve-rod, a spiral spring placed between said thimble and rod, a second thimble engaging one of said nipples and covering the remaining end of said valve-rod, a piston secured to said rod and fitting the second thimble interiorly, a spiral spring placed within said second thimble against said piston, and means for adjusting the tension of said spring, substantially as described.

3. In a fluid-pressure regulator, the combination of a body portion having threaded nipples, longitudinal bores, upper and lower cylindrical chambers and a valve-seat, the said body having a duct leading from the top of one of said nipples to said longitudinal bore upon one side of said valve-seat, and a duct leading from said bore to one of said cylindrical chambers upon the other side of said valve-seat, a relief-valve, a valve-rod having a valve portion and a cylindrical guiding portion, said guiding portion adapted to fit one of said cylindrical chambers, said valve-rod having upper and lower rod portions, a thimble engaging one of said nipples and covering one end of said valve-rod, a spiral spring placed between said thimble and rod, a second thimble engaging one of said nipples and covering the remaining end of said valve-rod, a piston secured to said rod and fitting the second thimble interiorly, a spiral spring placed within said second thimble against said piston, and means for adjusting the tension of said spring, substantially as described.

591,882. WRITING-DESK. GEORGE H. ROGERS, Birmingham, Ala. Filed May 16, 1896. Serial No. 591,755. (No model.)



Claim.—1. In a writing-desk, the combination of a pillar 10, a subtop 18 pivotally supported by it, top-sections 19 and 21 carried on the latter in a manner to have a lateral adjustment, that is, one toward or from each other for the purpose of admitting the back of a book between them while apart and to form, when together, a complete desk-top with unbroken surface.

2. In a writing-desk, the combination of a pillar 10, a subtop 18 pivotally supported by it, slides 20 carried by the subtop in a manner to have a lateral adjustment, that is one toward or from each other and top-sections connected to said slides and having the same adjustment.

3. In a writing-desk, the combination of a pillar 10, a subtop 18 pivotally supported by it, slides 20 carried by the subtop in a manner to have a lateral adjustment, that is, one toward or from each other, screws 22 passing through these slides, top-sections 19 and 21 supported on them, each having the same lateral adjustment with the slides and an independent adjustment on them by means of screws 22, and means to prevent the top-sections from rotating with the screws.

4. In a writing-desk, the combination of a subtop adjustably supported on a pillar and supporting in turn, top-sections 19 and 21 adjustably connected, the adjustment being positive and independent as to each, and arm-rests for each top-section, each having also an independent and positive adjustment to conform to the adjustment of its respective top-section.

5. In a writing-desk, the combination of a subtop 18, a pillar 10 on which it is supported, top-sections adjustably supported on the subtop, grooved strips 38 below the subtop, sliding shelves 36 supported between them, arm-supporting shelves or tops 33 one for each top-section, sliding shelves, which carry them, grooved strips 38 below the subtop two for each sliding shelf to support them, props 34 pivotally secured between shelves 36 and tops 33 at opposite ends, props 35 pivotally secured to the under side of tops 33 and having their free ends connected by a cross-bar 41, and teeth 37 on shelves 36 against any one of which bar 41 may be placed for the purpose described.

6. In a writing-desk, the combination of a subtop 18, a pillar 10 on which it is supported, top-sections adjustably supported on the subtop, a post 52 secured to the subtop, an articulated bracket 51 carried by said post, and a copy-holder supported at the free end of said bracket, consisting substantially of two feed-rollers held normally against each other, and a flap 49 serving as a guide as described.

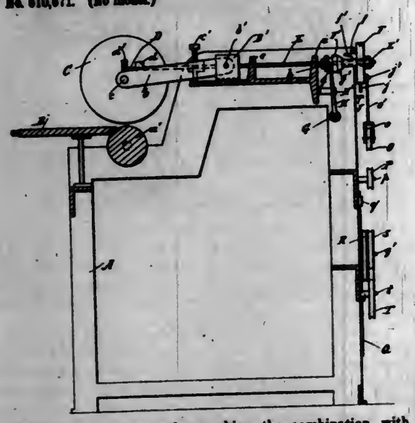
7. A copy-holder consisting substantially of two feed-rollers 46 and 47 between which the paper is advanced, roller 46 being of rubber and not continuous, but in sections only, a guide-flap 49 passing through between the rollers, being cut out to admit the sections of roller 46, such cut-out portion being shaped to form brackets 53 for the purpose described.

8. In combination with the top of a writing-desk, a paper-clamp 43 constructed of wire which is shaped to form two members substantially parallel with each other, and having coil-springs at one end where the two members connect, all parts formed preferably in one piece, staples at the under side of the writing-desk which receive one of the two members, that is the lower one, whereby the clamp is supported in a manner to have a sliding adjustment to or from the edge of the desk, while the other or upper member is adapted to reach over the top of the desk for the purpose described.

9. In a writing-desk, the combination of a pillar 10, a top pivotally secured thereto at 26, a segmental flange 29 reaching downwardly from the under side of the top and into a slot in the upper part of pillar 10, holes 31 therein arranged on a circular line, a hole

in pillar 10 capable of registering with any one of the holes in flange 29, a pin which, when placed in the registering openings, holds the top in position and permits adjustment of the angle of inclination thereof and extensions 30 on flange 29 limiting the adjustment thereof as and for the purpose described.

591,888. LEATHER-MEASURING MACHINE. JEAN B. E. ROUSSEAU and JOSEPH ROUTIER, Quebec, Canada. Filed Oct. 31, 1896. Serial No. 610,671. (No model.)



Claim.—1. In a measuring-machine, the combination, with a main frame, and a shaft E journaled therein; of a crank-plate journaled on the shaft E, a connection—such as a pawl—between the said shaft and crank-plate whereby the crank-plate is revolved by the shaft in one direction only, a frame *b* pivoted to the main frame, a roller journaled in the free end of the frame *b*, a shaft D journaled in the frame *b*, a universal joint coupling the shafts D and E, and toothed driving-wheels coupling the said roller with the shaft D, substantially as set forth.

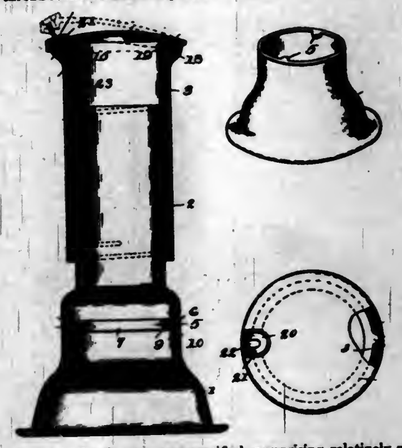
2. In a measuring-machine, the combination, with a series of vertically-movable rollers for bearing on the leather, of a series of crank-plates each operatively connected with one of the said rollers, an indicator, a series of sheaves O each suspended from one of the said crank-plates, a series of stationary sheaves P, stationary sheaves T, vertically-slidable sheaves R and S journaled concentric with each other in pairs, a flexible connection W passing over the sheaves O and under the sheaves P and R, and a flexible connection U passing over the sheaves S and under the sheaves T and operatively connected with the said indicator, substantially as set forth.

3. In a measuring-machine, the combination, with a series of revoluble crank-plates, of a series of sheaves O each suspended from one of the said crank-plates, an indicator, a series of stationary sheaves P, stationary sheaves T, vertically-slidable bars, guides for the said bars, sheaves R and S journaled in pairs on pins projecting from the said bars, a flexible connection W passing over the sheaves O and under the sheaves P and R, and a flexible connection U passing over the sheaves S and under the sheaves T and operatively connected with the said indicator, substantially as set forth.

591,884. STOP-COCK BOX. THOMAS J. RYAN, Buffalo, N. Y. Filed Oct. 26, 1895. Serial No. 566,996. (No model.)

Claim.—1. In combination, a box for stop-cocks and kindred fixtures having an upwardly and outwardly inclined threaded opening at one side, a cover having a reinforced depression in its top side near its edge, and having a radially-disposed elongated opening within the depression to register with the threaded opening of the box, an interlocking joint positively connecting the cover with the box at a point diametrically opposite the aforesaid threaded opening and depression, and a fastening-bolt operating through the elongated opening of the cover and entering the threaded opening of the box to act jointly with the interlocking joint to secure the cover in place, and forming a positive connection between the cover and box at all times, and admitting of the cover moving laterally to part the interlocking joint upon loosening the bolt, so that the cover can be swung upon the said bolt to uncover the box substantially in the manner set forth.

2. A box for stop-cocks and similar fixtures, comprising relatively movable parts and having an intermediate screw-threaded connection comprising a series of thread-sections disposed in vertical alinement and gradually decreasing in length from the top to the lowermost section, whereby the said thread will be self-clearing and the matter dislodged from an upper thread-section will not lodge upon any thread-section immediately below.

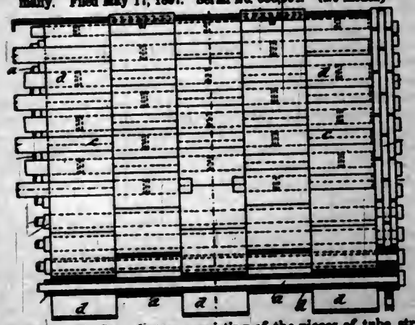


3. A box for the purposes specified, comprising relatively movable parts, the inner or opposing terminals of the parts having a complete thread-section and one of the parts having a series of thread-sections disposed in vertical alinement and gradually decreasing in length from the top to the lowermost section, substantially as set forth for the purpose described.

4. In combination, a base having oppositely-disposed projections at its upper end, and a box having its lower end reduced to enter the base and forming a shoulder to overlap and rest upon the top edge of the base, and having a groove in the reduced end to engage with the said projections, and having a single notch extending from the groove to form a passage for one of the aforesaid projections, and having the groove oppositely inclined from the said notch, substantially as set forth for the purpose described.

5. In combination, a base having inwardly-exteeding projections at its upper end disposed at diametrically opposite points, and a box having its lower end reduced to enter the base and forming a shoulder to rest upon the top edge of the base, and having a straight groove in one side of the reduced end to receive one of the said projections upon tipping the parts, and having an oppositely-inclined groove in the other side formed with a notch to receive the other projection upon bringing the parts into alinement, substantially as set forth for the purpose described.

591,885. ROLLER-SHUTTER. ADOLF E. SCHMIDT, Leipsic, Germany. Filed May 17, 1897. Serial No. 636,901. (No model.)



Claim.—1. In a shutter consisting of the pieces of tube strung together as specified, the combination of sheaths and pivot-bars arranged therein and means for filling out the spaces between the adjacent tube-pieces substantially as described.

2. The combination of a shutter consisting of a series of tubes strung together as specified, a series of pivot-bars to connect the same, and having each a sheath, a series of strips or plates *e* lying within one piece of tube and in the space between the adjacent upper and lower pieces, in the manner and for the purpose substantially as described.

591,886. VALVE PROPER FOR TIRE OR OTHER VALVES. GEORGE H. F. SCHRADER, New York, N. Y. Filed Nov. 28, 1896. Serial No. 613,783. (No model.)



Claim.—1. A valve proper for tire and other valves consisting of an independent body of packing material and a separate pointed stem puncturing and entering said body, frictionally held therein, and projecting therefrom.

2. A valve proper for tire and other valves consisting of a rubber plug and a metal stem embedded frictionally therein and projecting therefrom and means compressing said plug against said stem.

3. For tire and other valves, a valve proper consisting of a body of packing material, a stem projecting therefrom and a casing surrounding said body and unconnected to said stem.

4. A valve proper for tire and other valves consisting of a body of packing material, a stem entering said body and projecting therefrom, and means unconnected to said stem compressing said body thereagainst.

5. A valve proper for tire and other valves, comprising a stem, a body of packing material surrounding said stem, and an imperforate cup-shaped casing surrounding said body and independent of said stem.

6. A valve proper for tire and other valves comprising a stem having a roughened end, a body of packing material enveloping such end, and a metal wall embracing the sides of such material opposite and independent of the end of the stem.

7. For tire and other valves, a valve proper comprising a stem H, a plug I having an annular face *f* surrounding said stem, and a separate casing J enveloping said plug independent of said stem.

591,887. REPEATING ACTION FOR PIANOS. CHARLES R. SCHWEKART, Chicago, Ill., assignor of one-third to Joseph P. Scanlan, same place. Filed Mar. 8, 1897. Serial No. 626,262. (No model.)



Claim.—1. In a piano-action, the combination with a key of a rocker secured on its rear portion, a hammer-shank pivotally secured on said rocker and provided at its front end with a hammer, a spring-actuated repeater pivotally secured near the rear portion of the key and having in its front surface recesses for the reception and operation of the rear end of the hammer-shank, substantially as described.

2. A piano-action comprising a pivoted key, a rocker adjustably secured on its rear portion, a hammer-shank pivotally secured on said rocker and provided at its front end with a hammer, a spring-actuated repeater pivotally secured near the rear end of the key and having in its front portion recesses to receive the rear end of the hammer-shank, substantially as described.

3. A piano-action, comprising a pivoted key provided at its rear end with a regulating-screw, a rocker adjustably secured on the rear portion of the key, a hammer-shank pivotally secured on said rocker and provided at its front end with a hammer, a spring-actuated repeater pivotally secured near the rear end of the key and having its lower front portion forwardly inclined and adapted to contact with the regulating-screw, and provided in its front part above said inclined portion with recesses to receive the rear end of the hammer-shank, substantially as described.

4. In a piano-action, the combination of the pivoted key A, having in its rear end the recess a^3, and the regulating-screw a^4, the rocker D, adjustably secured on the key, the hammer-shank C, pivotally secured on said rocker and provided at its front end with a hammer, and an extension at its rear end, the spring-actuated repeater B, having the recesses b^3, *c*, and *c'*, in its front portion, and the forwardly-inclined part b^5, in its lower part, said repeater being pivotally secured on the rear part of the keyboard, the spring-supported damper F, located above the string and provided with the depending rod f^2, the rod *g'*, having the button *g*, adapted to contact with the rod f^2, and to raise the damper, all constructed, arranged and operating substantially as shown and described and for the purpose set forth.

591,888. WOVEN-WIRE SLIPPER. ALFRED B. SEAY, Leslie, Iowa. Filed Dec. 11, 1896. Serial No. 615,816. (No model.)



Claim.—1. The herein-described protecting-slipper for footwear made from woven wire and incasing the shoe-upper and extending across the bottom of the sole, said slipper having flaps connecting it to the footwear.

2. The herein-described detachable protecting-slipper adapted to fit over the boot or shoe and constructed of woven wire and having flaps, and a buckle for fastening the flaps together.

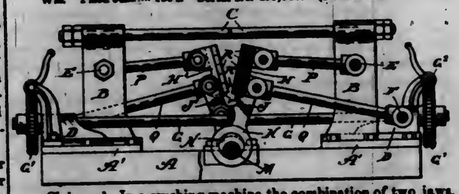
3. The herein-described protecting-slipper made of a body of woven-wire fabric covered with a flexible protecting fabric and adapted to incase the shoe-upper and extend across the sole thereof, said slipper having a device for securing it in position.

591,889. LEG BAND OR GUARD. LEOPOLD B. SHARP, Chicago, Ill. Filed June 28, 1897. Serial No. 642,740. (No model.)



Claim.—A detachable leg band or guard comprising two flaps connected together at their inner ends by means of a wedge shaped piece of elastic material and provided adjacent their outer edges with buttons and buttonholes respectively, and a clasp secured to the inner face of one of said flaps and adapted to engage and hold a fold in the trousers, substantially as described.

591,890. CRUSHING-MACHINE. COURTLAND SKINNER, Baraboo, Wis. Filed Jan. 8, 1894. Serial No. 495,967. (No model.)



Claim.—1. In a crushing-machine the combination of two jaws, a single set of eccentric mechanism below the jaws for moving both the jaws vertically and simultaneously and brace-rods pivoted to the upper and lower edges of the jaws and having their opposite ends pivoted to stationary points, whereby the jaws are moved laterally simultaneously with the vertical movement, substantially as described.

2. In a crushing-machine the combination of two crushing-jaws, a single set of eccentric mechanism for moving both the jaws vertically and simultaneously and brace-rods pivoted to the upper and lower edges of the jaws and pivotally engaged to stationary points at the opposite ends, the outer or stationary ends of the lower rods being adjustable, substantially as described.

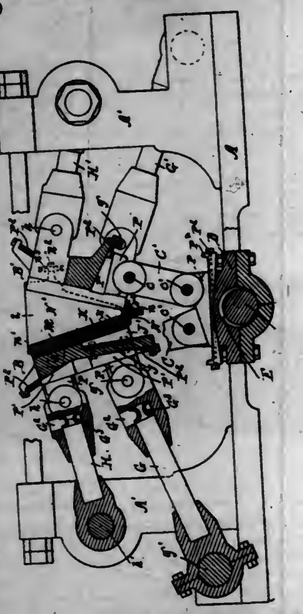
3. In a crushing-machine the combination of two crushing-jaws, vertical supports pivotally engaged to the jaws, and engaged also with a single set of eccentric mechanism to give them a simultaneous vertical movement, and lateral supports consisting of rods pivoted to the upper and lower edges of the jaws and pivoted to stationary points, at least a portion of the pivotal points being adjustable, substantially as described.

4. In a crushing-machine the combination of two jaws, a driving-

shaft below the jaws, eccentrics on the shaft connected with the jaws, brace-rods pivoted to the upper edge of the jaws and pivoted to the bed of the machine and longer brace-rods pivoted to the lower edge of the jaws and pivoted to the bed of the machine, said latter rods made adjustable, substantially as described.

5. The combination of the jaws H H', supports J J', eccentrics N, uprights E, rods P pivoted thereto, blocks D, rods Q pivoted thereto, rods C and rods G, and means for moving the blocks D toward or from those on the opposite end of the machine, substantially as described.

591,891. CRUSHING-MACHINE. COURTLAND SKINNER and FANNIE B. SKINNER, Chicago, Ill. Filed Jan. 18, 1896. Serial No. 576,087. (No model.)



Claim.—1. In a crushing-machine having a reciprocating crushing-jaw, a perforated crushing-plate having a series of vertical bracing-ribs behind the plate said ribs forming channels through which the product is delivered substantially as described.

2. In a crushing-machine two crushing-jaws reciprocating toward and from each other each having on its face a perforated crushing-plate, a series of vertical bracing-ribs behind the plates and channels between the ribs by which the product that is forced through the plate is delivered substantially as described.

3. In a crushing-machine the combination with a reciprocating crushing-jaw, the brace-rods for said jaw, and the sockets pivoted to the jaw and receiving the ends of the rods, of weak pieces placed in said sockets and directly receiving the thrust of the rods substantially as described.

4. In a crushing-machine the combination of two reciprocating jaws, means for moving them vertically, brace-rods for causing them to approach and recede from each other as they are moved vertically, end plates engaged to the jaws and traveling therewith a bottom plate engaged to the end plates, and perforated crushing-plates through which the product is delivered substantially as described.

5. In a crushing-machine the combination with a reciprocating crushing-jaw of a shaft consisting of two portions each portion provided with an eccentric for reciprocating one end of the jaw, said eccentric located below and supporting said jaw, and said two shaft portions adjustable in a rotary direction with respect to each other so that the eccentric may be thrown to a greater or less degree out of alinement with each other and thereby operating the opposing ends of the jaw out of unison with each other, substantially as described.

6. In a crushing-machine the combination with a reciprocating crushing-jaw of a yielding spring-supported stop-plate below the same and extending the width of the jaw and adapted to hold the product where it can be acted upon by the jaw until reduced to the desired size said plate adapted to yield in a vertical direction only substantially as described.

7. In a crushing-machine the combination with two reciprocating crushing-jaws moving toward and from each other of a yielding spring-supported stop-plate for substantially closing the opening between the lower edges of the jaws throughout their width until the product has been reduced to the desired size substantially as described.

8. In a crushing-machine the combination with a crushing jaw or jaws, of a stop-plate vertically spring-supported and means for varying the tension of the spring-support, substantially as described.

591,892. NUT-LOCK. ALBERT D. SMITH, Philadelphia, Pa., assignor of one-half to Paul H. Markley, Hatborough, Pa., and Hamilton Markley, Camden, N. J. Filed June 30, 1897. Serial No. 642,845. (No model.)



Claim.—1. In a nut-lock, an open ring having both ends split at points between its edges to form teeth, the respective teeth at each end being bent laterally in opposite directions, whereby the inner teeth will be made to bear against a nut and plate in close proximity to the bolt and the outer teeth against the nut and plate a distance from said bolt, substantially as set forth.

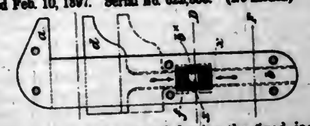
2. In a nut-lock the combination with a bolt, of a plate through which said bolt passes, a spring-washer having both of its ends split, adapted to be inserted on said bolt between the plate and a nut, substantially as set forth.

3. In a nut-lock the combination with a bolt, a nut and a plate, of a spring-washer having its ends split to form two arms or teeth at each end, each diagonally opposite arm or tooth bent laterally into the same plane, substantially as set forth.

4. In a nut-lock, the combination with a bolt, a plate through which said bolt passes and a nut, of a spring-washer composed of a single piece of spring metal, the ends of said washer being split or cut to form two arms or teeth at each end, the diagonally opposite arms or teeth of each end bearing respectively against the plate and nut and at different distances from the bolt, substantially as set forth.

5. As a new article of manufacture, a spring-washer composed of a single piece of spring metal and made into the form of an open ring having flat top and bottom faces, each end of said washer being split or cut to form two arms or teeth bent in laterally opposite directions the diagonally opposite arms or teeth on the respective ends adapted to bear against the plate and nut at different distances from the bolt, substantially as set forth.

591,893. WRENCH. EDWIN B. SMITH, Manchester, England. Filed Feb. 10, 1897. Serial No. 622,853. (No model.)



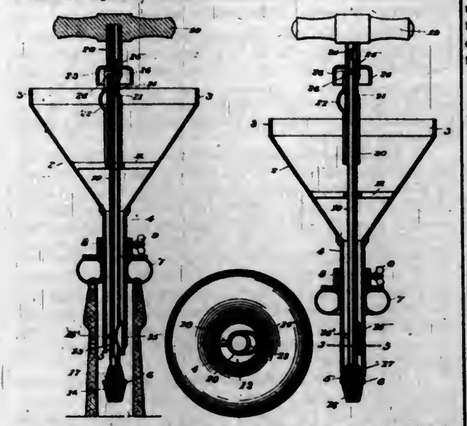
Claim.—A spanner or wrench having the fixed jaw and shank and handle made of side plates *b* with filling-pieces *c* inclosing moving jaw *d* and its mutilated screw *e* having beveled leading ends to the V-threads thereof double-milled slotted nut *f* held by the straps *b*× the sides of the slot in the nut being sloped combined and operating substantially as hereinbefore described and illustrated by the annexed drawings.

591,894. AUTOMATIC FUNNEL. JOHN F. SPRAIN, Brooklyn, N. Y., assignor of one-half to Arthur B. Parsons, New York, N. Y. Filed July 23, 1896. Serial No. 600,211. (No model.)

Claim.—1. The combination of a funnel, an air-tube for leading off the air displaced by the liquid in filling a vessel, the said tube being provided at its upper end with an outlet and at its lower end with a lateral inlet-orifice provided with a shield for diverting the inflowing liquid from said orifice and permitting a free inflow of the displaced air into said tube.

2. The combination of a funnel, an endwise-movable gravity air-tube mounted therein and extending through the funnel-spout, means for limiting the endwise movement of the air-tube in each direction and means for cutting off the passage for the fluid through the spout when said air-tube is at its limit of upward movement, said air-tube being provided at its upper end with an outlet and provided with an inlet near its lower end at a point above the means for cutting off the said passage for the liquid through the spout, said air-tube normally

standing at its lower limit of movement and adapted to be drawn up as the funnel is lifted whereby the fluid-passage and air-inlet may be simultaneously shut off.



3. The combination of a funnel, an endwise-movable air-tube mounted therein extending through the funnel-spout, said air-tube being provided at its upper end with an outlet and provided near its lower end with a lateral inlet-opening and a depending piece or shield projecting from the exterior of the tube over said inlet for diverting the downflowing liquid from the inlet.

4. The combination of a funnel, an air-tube mounted therein extending through the funnel-spout, said air-tube being provided at its upper end with an outlet and provided near its lower end with a lateral inlet-opening, a depending piece or shield projecting from the exterior of the tube over said inlet for diverting the downflowing liquid from the inlet and a piece interposed between the exterior of the air-tube and the interior of the spout at a point substantially opposite the said shield.

5. The combination of a funnel, an endwise-movable air tube 10 mounted therein and extending through the funnel-spout and provided with means for limiting its downward movement, a stop mounted upon the lower end of said air-tube and of a larger diameter than the interior thereof, a washer 6 of soft material mounted upon said stop for engaging the lower end of the spout when the air-tube is drawn up, a downwardly-flaring piece 17 surrounding said tube above said washer and having its largest diameter about equal to that of the interior of said spout, whereby as the air-tube is drawn up, said piece by entering the spout may gradually stop the flow of liquid before the washer is seated against the spout, substantially as and for the purpose set forth.

6. The combination of a funnel, an endwise movable air-tube 10 mounted therein and extending through the funnel-spout and provided with means for limiting its downward movement, a downwardly-tapering stop 16 mounted upon the lower end of said air-tube and having its upper end of greater diameter than the interior of said tube, a washer 6 of soft material mounted upon the upper end of said stop 16 for closing against the end of the spout, a downwardly-flaring piece 17 arranged above said washer for taking in the end of said spout, substantially as and for the purpose set forth.

7. The combination of a funnel, an endwise-movable air-tube mounted in the funnel and extending through the funnel-spout and provided with means for limiting its upward movement, a guide or bridge-piece for said tube, a detachable handle mounted upon the upper end of the air-tube and provided with an extension adapted to engage with said guide or bridge-piece for limiting the downward movement of the air-tube.

8. The combination of a funnel, an endwise-movable air-tube mounted in the funnel and extending through the funnel-spout and provided with means for limiting its upward and downward movements, a detachable handle having a tubular extension fitting over the upper end of the air-tube and means for locking the two together.

9. The combination of a funnel, an endwise-movable air-tube mounted in the funnel and extending through the funnel-spout and provided with means for limiting its upward and downward movements, said air-tube being provided at its upper end with a lateral outlet-opening, a removable handle having a tubular extension adapted to fit over the upper end of said air-tube and provided with a lateral opening adapted to register with the said outlet-opening of the air-tube, and a spring-latch for locking the handle to the air-tube when the two said openings are brought into registration.

10. The combination of a funnel, an air-tube mounted within the funnel and having at its upper end a lateral outlet-opening, a detachable handle provided with a tubular extension adapted to fit over the upper end of said air-tube and provided with a lateral opening adapted to register with the outlet of said air-tube, means for locking the handle to said tube, and a deflector mounted upon said tube adjacent to the lateral opening therein for returning the fluid to the funnel-body.

591,895. ELECTRIC PUSH-BUTTON. ELIJAH H. STANLEY, Lake Geneva, Wis. Filed Dec. 18, 1896. Serial No. 616,191. (No model.)

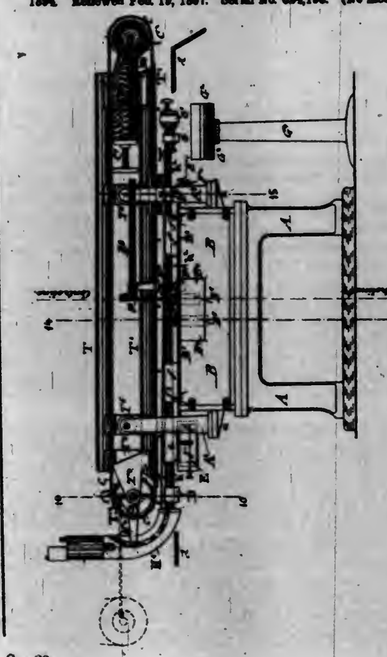


Claim.—1. In an electric push-button, the combination with a shell adapted to be secured directly to the wall and which has recesses in its back, of contact-strips secured in the bottoms of said recesses, and a push-button for causing the free portions of the said strips to contact.

2. The herein-described push-button, comprising a shell provided with a central concavity and branch recesses, said shell having a flange and adapted to be directly secured in position, contact-strips located in the bottoms of the branch recesses and having free portions projecting into the concavity, combined binding and fastening devices for the contact-strips, and a button for causing the said strips to contact.

3. In an electric push-button, the combination with a shell made in a single piece having a flange and having its bottom provided with a central concavity and branch recesses having inclined bottoms, of contact-strips located in said recesses against the bottoms thereof and having free portions projecting into the concavity, combined fastening and binding screws securing the contact-strips to the shell, and a button for causing the free portions of the strips to contact.

591,896. MACHINE FOR SOLDERING SIDE SEAMS OF CAN-BODIES. RICHARD STRESENÜLLER, New York, N. Y., assignor to the Automatic Can Machinery Company, Westfield, N. J. Filed June 30, 1894. Renewed Feb. 19, 1897. Serial No. 624,196. (No model.)



Claim.—1. In a can-body-soldering machine, the combination, with a vertical can-body former-horn, of a curved horn extension, the upper part of which is located vertically below the horn, for dropping the can-bodies by gravity from the former-horn onto the upper part of the horn extension, substantially as set forth.

2. In a can-body-soldering machine, the combination, with a vertical can-body former-horn, of a curved horn extension located vertically below the horn, said extension being reduced in width in one direction, so as to facilitate the passage of the can-bodies over the same, substantially as set forth.

3. In a can-body-soldering machine, the combination of a vertical can-body former-horn, a curved horn extension, means for attaching the horn extension to the lower end of the horn, said extension being provided with a central groove along its lower edge for guiding the side seam of the can-body, substantially as set forth.

4. In a can-body-soldering machine, the combination of a vertical can-body former-horn, a curved horn extension located below the same, an inclined rhombic recess at the upper part of the horn extension, and a curved groove communicating with the lower end of said recess and extending along the lower edge of the horn extension for turning the can-body and guiding it over the extension, substantially as set forth.

5. In a can-body-soldering machine, the combination, with a vertical can-body former-horn, of a curved horn extension below the horn and means for moving the can-body dropped from the horn on the horn extension over the lower end of the latter, substantially as set forth.

6. In a can-body-soldering machine, the combination, with a vertical can-body former-horn, a horn extension located below the same and provided with arc-shaped grooves at opposite sides of the same, of oscillating conveyer-arms provided with push-pins, for engaging the can-body that is dropped by gravity from the horn onto the horn extension, and moving it over the lower end of the extension, substantially as set forth.

7. In a can-body-soldering machine, the combination of a vertical can-body former-horn, a curved horn extension connected to the lower end of said horn and provided with arc-shaped grooves at opposite sides of said horn extension, oscillating conveyer-arms provided with spring-actuated push-pins for engaging the can-body dropped by gravity from the horn onto the horn extension, and means for intermittently oscillating the arms so as to move the can-body in downward direction over the horn and permit the return of the push-pins over the next following can-body, substantially as set forth.

8. In a can-body-soldering machine, the combination with a vertical can-body former-horn, a curved horn extension attached to the bottom of said horn, said extension being provided at opposite sides with arc-shaped grooves and notches at its inner edge, of oscillating conveyer-arms, provided with spring-actuated push-pins at their outer ends for moving the can-body over the horn extension and permitting the return of the arms over the next can-body while the same is retained by one of the notches of the horn extension, substantially as set forth.

9. In a can-body-soldering machine, a hollow horn extension closed at the ends and adapted for use as an acid-receptacle, substantially as set forth.

10. In a can-body-soldering machine, the combination of a can-body former-horn, a hollow horn extension attached to the bottom of the horn, an acid-supply tube passing through the horn and connected with the upper end of the horn extension, and an acid-tube connected with the lower end of the horn extension, said acid-tube being provided with discharge-orifices near its outer closed end, substantially as set forth.

11. In a can-body-soldering machine, the combination of a can-body former-horn, a hollow horn extension adapted to be used as an acid-receptacle, a horizontal acid-tube communicating with the lower end of the horn extension, a water-tube attached to the closed end of the acid-tube and forming an extension of the acid-tube, and a water-supply pipe passing through the horn, horn extension and acid-tube and communicating with said water-tube, substantially as set forth.

12. In a can-body-soldering machine, the combination of a can-body former-horn, a hollow horn extension located vertically below said horn, said extension being adapted to be used as an acid-receptacle, an acid-supply tube connected with the upper end of the horn extension, a horizontal acid-tube connected with the lower end of the horn extension, and a water-tube forming an extension of the acid-tube, substantially as set forth.

13. In a can-body-soldering machine, the combination with a can-body former-horn, a hollow horn extension located vertically below said horn, an acid-supply tube connected with the upper end of the horn extension, a horizontal acid-tube attached to the lower end of said extension, a water-tube attached to the end of the acid-tube and forming an extension of the same, a water-supply pipe passing through horn, horn extension and acid-tube and connecting with the water-tube, and parallel inclined wire rods extending from the lower end of the horn extension to the outer end of the water-tube, for supporting the latter in position, substantially as set forth.

14. In a can-body-forming machine, the combination of a hollow horn extension, adapted for use as an acid-receptacle, a water-tube connected with the end of the horn extension, a water-supply pipe passing through the horn extension to the water-tube, and parallel inclined wire rods extending from the end of the horn extension to the outer end of the water tube, for supporting the latter in position, substantially as set forth.

15. In a can-body-soldering machine, the combination, with a vertical can-body former-horn, a curved horn extension located below the same for receiving the can-bodies by gravity from the horn, a mechanism for moving the can-bodies over the lower end of the horn extension, means for guiding the can-bodies in horizontal direction, and a carrier-chain for moving the can-bodies in longitudinal direction through the machine, substantially as set forth.

16. In a can-body-forming machine, the combination of a hollow horn extension adapted to be used as an acid-receptacle, an acid-tube connected with the lower end of the horn extension and provided with apertures at the lower part and means for supplying the acid to the inner and outer side surfaces of the side seam of the can-body, substantially as set forth.

17. In a can-body-soldering machine, the combination of a vertical can-body former-horn, a hollow horn extension located vertically below the said horn, and adapted to serve as an acid-receptacle, a horizontal acid-tube connecting with the lower end of the horn extension, said acid-tube being closed at the outer end and provided with apertures in its lower part, and wicks for supplying the acid to the inner and outer surfaces of the side seam of the can-body, substantially as set forth.

18. In a can-body-soldering machine, the combination of a vertical can-body former-horn, a curved hollow horn extension located below the same and adapted to serve as an acid-receptacle, an acid-tube attached to the lower end of the horn extension, said acid-tube being provided with discharge-apertures in its lower part, a stationary wick for supplying the acid to the inner surface of the side seam, an acid-collecting tank below said wick, and a spring-actuated wick in said tank for supplying the acid to the outer surface of the side seam, substantially as set forth.

19. In a can-body-soldering machine, the combination of a curved horn extension, provided with means for guiding the can-bodies, means for conveying the can-bodies over the horn extension, a can-body guide device located near the lower end of the horn extension and provided with conveying-flanges at its lower part for directing the seams of the can-bodies into line with the acid-supplying and soldering devices, substantially as set forth.

20. In a can-body-soldering machine, the combination of a hollow horn extension adapted as an acid-receptacle, an acid-supplying tube having apertures, upper and lower wicks for supplying the acid to the inner and outer surfaces of the side seams, grooved jaws for holding the wicks in position and a tank below the wicks for collecting the surplus acid, substantially as set forth.

21. In a can-body-soldering machine, the combination of a hollow horn extension, acting as an acid-receptacle, an acid-supplying tube closed at one end and provided with apertures at its lower part, an upper acid-supplying wick located below the apertures in the acid-tube, an acid-tank below said wick, a lower wick supported between jaws in said tank, pivot-links attached to said jaws a spring applied to said links, and a stop for one of said jaws located in the end wall of the tank, so that the can-body can pass through between the acid-supply wicks by the yielding of the lower wick, and be supplied with acid on the inner and outer surfaces of the side seam, substantially as set forth.

22. In a can-body-soldering machine, the combination of a hollow horn extension adapted to be used as an acid-receptacle, an acid-tube connected with the lower end of said extension, wicks for supplying acid to the inner and outer surfaces of the side seam of the can-body, a solder-tank, a soldering-trough at the upper end of the solder-tank and connected therewith, and means for carrying the side seams of the can-bodies through the soldering-trough, substantially as set forth.

23. In a can-body-soldering machine, a solder-tank, provided with a longitudinal soldering-trough having tapering sides and a longitudinal opening, and outwardly projecting tapering and converging lips in line with the trough at each end of the tank, substantially as set forth.

24. In a can-body-soldering machine, a solder-tank provided with a corrugated bottom and interior transverse braces for connecting the upper ends of the corrugations, substantially as set forth.

25. In a can-body-soldering machine, a solder-tank, composed of a semicircular top, a corrugated bottom forming a large heating-surface, transverse brace-pieces for connecting said corrugations and end walls attached to the top and bottom, substantially as set forth.

26. In a can-body-soldering machine, a solder-tank formed of a semicircular top provided with a longitudinal soldering-trough connected with the tank by a central longitudinal slot, a corrugated bottom, transverse braces for stiffening the corrugations, and end walls provided with beveled lips in line with the soldering-trough, substantially as set forth.

27. In a can-body-soldering machine, the combination of a solder-tank having a longitudinally-slotted soldering-trough, guide-rails at both sides of the trough, means for carrying the can-bodies through said trough, stationary retaining-flanges located at opposite sides of the trough between the same and the guide-rails, and transverse clamping-bolts for said flanges, the flanges serving for keeping the side seams of the can-bodies immersed in the solder during their motion through the trough, substantially as set forth.

28. In a can-body-soldering machine, the combination of a solder-tank having a longitudinally-slotted soldering-trough, a receptacle for receiving solid solder extending into said tank, a cylinder open at the lower end and extending through the receptacle, and means for supplying melted solder from said receptacle to said cylinder and from the same to the tank, so as to keep up a regular level of solder in the soldering-trough, substantially as set forth.

29. In a can-body-soldering machine, the combination with a solder-tank having a longitudinally-slotted soldering-trough, a receptacle for receiving the solid solder, said receptacle extending into the tank, means for supplying melted solder from said receptacle to the tank and trough and an alarm device for indicating the falling of the level of solder in the soldering-trough, substantially as set forth.

30. In a can-body-soldering machine, the combination, with a solder-tank of a receptacle located at one side of the same, for receiving the solid solder, a vertical cylinder in said receptacle open at the lower end and communicating with the receptacle, a vertically-reciprocating dipper in said cylinder, a second cylinder extending through the bottom of the receptacle into the solder-tank, and an inclined gutter connecting the upper end of the dipper-cylinder with the solder-transmitting cylinder, substantially as set forth.

31. In a can-body-soldering machine, the combination, with a solder-tank having a longitudinally-slotted soldering-trough, of a receptacle arranged at one side of said tank and extending into the same for receiving the solid solder, a cylinder extending through the bottom of the receptacle into the solder-tank and an intermittently-operated dipper device for supplying the liquid solder from the receptacle to said cylinder and from the same to the solder-tank for keeping up a uniform level of solder in the soldering-trough, substantially as set forth.

32. In a can-body-soldering machine, the combination of a solder-tank having a longitudinally-slotted soldering-trough, a receptacle arranged at one side of the tank for receiving the solid solder, a dipper-cylinder extending into the receptacle and being open at its lower end, a second cylinder extending through the bottom of the receptacle into the solder-tank, a vertically-reciprocating dipper having a pocket guided in a groove in the dipper-cylinder, an inclined gutter connecting the upper end of the dipper-cylinder with the transmitting-cylinder, for keeping up the supply of solder to the solder-tank and trough, substantially as set forth.

33. In a can-body-soldering machine, the combination of a solder-tank having a longitudinally-slotted soldering-trough, a solder-supplying receptacle at one side of said tank, a dipper-cylinder open at its lower end and extending into said receptacle, a vertically-reciprocating dipper guided in said cylinder, a second cylinder passing through the bottom of the receptacle into the solder-tank and being open at its lower end, an inclined gutter connecting the upper end of the dipper-cylinder with the transmitting-cylinder, said cylinder having an opening in its top adjacent thereto, so as to return the surplus solder supplied by the dipper into the receptacle, substantially as set forth.

34. In a can-body-soldering machine, the combination, of a solder-tank having a longitudinally-slotted soldering-trough, a receptacle for the solid solder arranged along one side of the tank and extending into the same, a dipper device for intermittently supplying the melted solder from the receptacle to the tank, an automatic alarm device for indicating the falling of the level of solder in the receptacle and trough, and means for intermittently actuating the alarm device, substantially as set forth.

35. In a can-body-soldering machine, the combination of a solder-tank having a longitudinally-slotted soldering-trough, a receptacle for the solid solder extending into said tank, a dipper-cylinder located in said receptacle and being open at its lower end, a second cylinder extending through the bottom of the receptacle into the solder-tank, a vertically-reciprocating dipper in the dipper-cylinder, an inclined gutter connecting the upper end of the dipper-cylinder with the solder-transmitting cylinder, an automatically-operated alarm device, and means interposed between the dipper-rod and the bell of the alarm device, whereby the bell is sounded at intervals by the reciprocating motions of the dipper-rod, until the receptacle is resupplied with solid solder, substantially as set forth.

36. In a can-body-soldering machine, the combination with the can-body carrier-chain and the guide-rails for the can-bodies, of an interior pivoted and spring-actuated wiper, a stationary can-body-holding abutment located above the interior wiper and above the can-bodies, and an exterior pivoted and spring-actuated wiper, said interior and exterior wipers serving to remove the surplus solder from the side seams of the can-bodies, substantially as set forth.

37. In a can-body-soldering machine, the combination with the can-body carrier-chain and the guide-rails for the can-bodies, of a longitudinal water-tube, a stationary water-supplying wiper for cleaning the inner surface of the side seam, and a rotary drying-brush for drying the same, substantially as set forth.

38. In a can-body-soldering machine, the combination with the can-body carrier-chain and the guide-rails for the can-bodies, of a valved water-tube having outlet-apertures, a stationary water-supplying wiper on said tube below the apertures, and a rotary drying-brush arranged eccentrically on the water-tube, substantially as set forth.

39. In a can-body-soldering machine, the combination with the can-body carrier-chain and the guide-rails for the can-bodies, of a longitudinal water-tube, a valve in the same, a stationary water-supplying wiper located vertically below the apertures in the water-tube, a drying-brush arranged eccentrically on the water-tube, means for compressing the layers of the drying-brush, and mechanism for imparting rotary motion to said drying-brush, substantially as set forth.

40. In a can-body-soldering machine, the combination with the can-body carrier-chain and the guide-rails for the can-bodies, of a water-supply tube, a wiper for supplying water to the inside of the side seams for cleaning and cooling said seam, a valve in said water-tube for regulating the supply of water to the wiper, a water-tank below the wiper, a rotary drying-brush located eccentrically on the water-tube, and means for imparting rotary motion to said drying-brush, substantially as set forth.

41. In a can-body soldering machine, the combination with the can-body carrier-chain and the guide-rails for the can-bodies, of a valved longitudinal water-tube, having apertures, a stationary wiper below said apertures, an eccentric cylinder on the water-tube, a drying-brush located on said cylinder, and mechanism for transmitting rotary motion to said drying-brush, substantially as set forth.

42. In a can-body-soldering machine, the combination of an upper and a lower horizontal guide-tube, the lower tube being provided with a longitudinal slit, an endless can-body carrier-chain composed of pivot-links and of pushers, the shanks of which pass through the slit of the lower guide-tube, sprocket-wheels for said carrier-chain, and means for imparting rotary motion to one of the sprocket-wheels of the carrier-chain, substantially as set forth.

43. In a can-body soldering machine, the combination of supporting-pillars, stays on said pillars, horizontal guide-tubes attached to said stays, the lower guide-tube being provided with a longitudinal slit in its bottom part, an endless can-body carrier-chain formed of pivot-links and having pushers on some of the links, a driving sprocket-wheel, a guide sprocket-wheel, brackets having bearings for said sprocket-wheels, means for imparting rotary motion to one of the sprocket-wheels, and means for adjusting one of the drums for setting the carrier-chain to the suitable degree of tension, substantially as set forth.

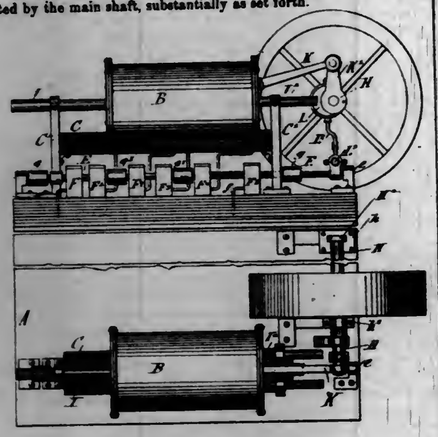
44. In a can-body-soldering machine, the combination of the supporting-pillars, stays supported on said pillars, one of said stays having a slot, transverse clamping-rods passing through the stays and pillar, an upper and a lower horizontal guide-tube supported on said stays, the lower guide-tube having a longitudinal bottom slit, a can-body carrier-chain composed of pivot-links and pushers on some of the links, sprocket-wheels for said carrier-chain, brackets for supporting said sprocket-wheels, and means for imparting rotary motion to one of said sprocket-wheels, the slot in one of said stays permitting the expansion and contraction of the carrier-chain under changes of temperature, substantially as set forth.

591,897. ELECTROMAGNETIC ENGINE. WILLIAM M. STORM, New York, N. Y. Filed Dec. 8, 1896. Serial No. 614,880. (No model.)

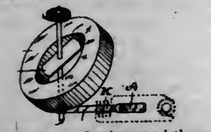
Claim.—1. In an electromagnetic engine, the combination with two helices arranged in an electric circuit, a main shaft, and a solenoid or piston guided in the helices and connected with the main shaft, of mercury-cups to which the terminals of the helices lead, and means actuated by the main shaft, whereby the circuit is alternately closed in said helices through said mercury-cups, substantially as set forth.

2. In an electromagnetic engine, the combination, with two helices, a rock-shaft composed of a number of insulated sections, mercury-cups through which the rock-shaft passes and into some of which the terminals of the two helices respectively project, and into the others of which the terminals of a main conductor are led, and dips arranged

on said rock-shaft within the said mercury-cups, the dips corresponding to the terminals of one helix extending in one direction and the dips corresponding to the terminals of the other helix extending in the other direction, of a solenoid or piston guided in the helices, a main shaft connected with said solenoid, and suitable connections between the main shaft and the rock-shaft whereby the latter is oscillated by the main shaft, substantially as set forth.



591,898. DAMPER FOR ELECTRICAL MEASURING INSTRUMENTS. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed July 22, 1897. Serial No. 645,492. (No model.)



Claim.—1. A damping mechanism consisting of a moving member, a brake-piece, and a coil inducing an alternating magnetic field acting upon the brake-piece to alternately apply and release it, as described.

2. In an electric measuring instrument, a movable element adapted to indicate current values, a circuit carrying the current to be measured, and a damper composed of magnetizable material arranged adjacent to the movable part of the instrument, and means for producing in the damper an intermittent magnetization to cause it to alternately engage and release the movable part.

3. In an electric measuring instrument, a circuit carrying the alternating current to be measured, a movable part acting as an indicator, and a damper consisting of a resilient strip of sheet iron or steel mounted near the movable part and alternately engaging and releasing it as the waves of alternating current pass through the instrument.

4. In an electric measuring instrument, a circuit carrying the current to be measured, a movable part acting as an indicator, and a damping device consisting of a strip of sheet iron or steel adjustably mounted near the moving part of the instrument, with means for alternately magnetizing the strip.

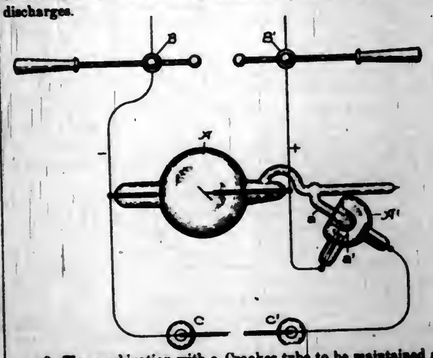
5. In an electric measuring instrument, a circuit carrying the current to be measured, a movable element acting as an indicator, a damping device consisting of a strip of sheet iron or steel mounted near the moving element of the instrument, and a coil carrying alternating or intermittent current arranged to magnetize the strip.

6. A number of electric measuring instruments, with current-actuated damping devices arranged adjacent to their movable parts, and a common source of current for all the damping devices.

7. In an electrical instrument, the combination of an oscillating or swinging shaft, a brake-piece for braking fractionally the movement of said shaft, a spring adjusted to normally hold the brake-piece out of contact with the shaft or parts connected thereto, and a coil inducing an alternating or intermitting magnetic field acting in opposition to the spring upon the brake-piece, as set forth.

591,899. REGULATING ROENTGEN-RAY TUBES. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Aug. 4, 1897. Serial No. 647,035. (No model.)

Claim.—1. As a new article of manufacture, for use with Crookes tubes having an extension containing a volatilizable substance or compound, a separable vacuum-adjuster consisting of an exhausted auxiliary bulb having a portion fitted to the main tube for the transfer of heat thereto, and containing terminals for the passage of electric discharges.

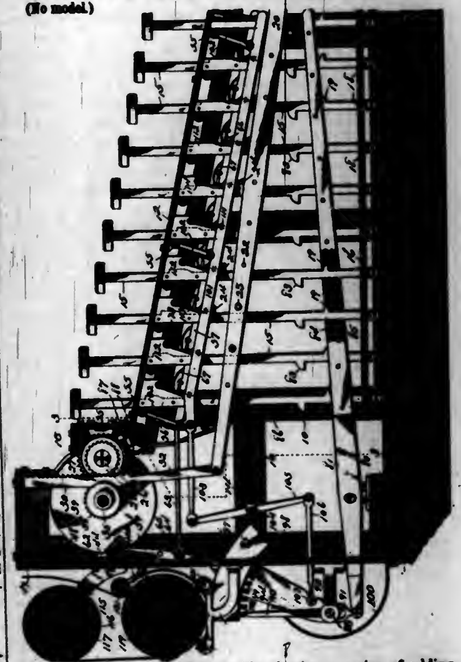


2. The combination with a Crookes tube to be maintained at a critical vacuum for the production of Roentgen rays, of an extension from the main tube containing a salt or substance volatilizable by heat, and a separate exhausted bulb registering with the extension and included in a shunt around the main tube.

3. The combination with a Crookes tube having an extension containing a volatilizable salt or compound, of an auxiliary bulb fitted to or registering with said extension and provided with terminals, whereby it may be included in a shunt around the main tube, with a regulating spark-gap or high resistance in the shunt-circuit.

4. As a new article of manufacture, an exhausted bulb having a depression or recessed portion adjusted or placed within the range of bombardment of cathode-rays within the said bulb by the passage of electric discharges through the same, for the purpose specified.

591,900. TYPOGRAPHICAL ADDING-MACHINE. THOMAS A. TERRY, Jr., Osceola, Iowa. Filed Mar. 2, 1897. Serial No. 625,791. (No model.)



Claim.—1. In an adding-machine having a series of adding-wheels, the combination of a lever for each adding-wheel made of

two parallel parts pivoted at the forward end portion of the machine-frame, a rack pivoted to the rear end of each of said levers, a series of rollers between the levers, means whereby the corresponding adding-wheel is rotated a distance corresponding to the length of stroke of the rack, a spring for normally elevating each lever, a series of key-bars for each of said levers, each series being passed through its corresponding lever and slidingly mounted in a vertical position, and a lug on each one of each of said series of key-bars located in a position thereon farther from the lever in proportion as the value of the number of the key decreases so that each key-lever may be depressed the same distance and yet the lever be moved a distance corresponding to the value of the number on the key depressed.

2. In an adding-machine, the combination of a shaft, a series of adding-wheels rotatably mounted thereon, independent means of rotating each adding-wheel any desired part of a revolution, a cam on the left-hand side of each wheel, except the last to the left, a segment pivoted to a fixed support, a roller connected with the segment to be engaged by said cam, an extensile spring for normally elevating the segment, a ratchet-wheel mounted on the right-hand side of each adding-wheel, a pawl on the adding-wheel in engagement with said ratchet-wheel, a segmental gear fixed to the ratchet-wheel and normally engaged by the aforesaid segment, the said parts being so arranged that the ratchet-wheel will be moved relative to the adding-wheel when the pivoted segment is moving in a direction opposite from the direction of force of its spring, for the purposes stated.

3. In an adding-machine, a device for automatically stopping the adding-wheels when they have completed their desired movement, comprising a bar suspended from a fixed support and capable of an oscillating movement, an extensile spring connected with the bar and with a fixed support in the rear of its point of connection with the bar, a lever pivoted to the machine-frame and having a hook on its upper end, a pitman for connecting it with said bar, an adding-wheel having a stop adjacent to each number thereon in position to be engaged by said hook, a forward projection on each key having an inclined lower edge, a vertical front edge, and a horizontal top, a pawl pivoted to the said oscillating bars adjacent to each of said projections, a pin on the pawl to be engaged by said projection, and a spring for holding each pawl downwardly, all arranged and combined to operate in the manner set forth, and for the purposes stated.

4. In an adding-machine, a device for automatically stopping the adding-wheels when they have completed their desired movement, comprising a bar suspended from a fixed support and capable of an oscillating movement, an extensile spring connected with the bar and with a fixed support in the rear of its point of connection with the bar, a lever pivoted to the machine-frame and having a hook on its upper end, a pitman for connecting it with said bar, an adding-wheel having a stop adjacent to each number thereon in position to be engaged by said hook, and mechanism whereby upon the depression of any key the aforesaid hook will be disengaged from the stop on the adding-wheel and when the key has reached its limit the said lever will be again thrown into contact with the stop on the adding-wheel, substantially as, and for the purposes stated.

5. In an adding-machine, the combination of two or more adding-wheels, stops thereon adjacent to each number on the adding-wheel, a roller on each adding-wheel, a lever fulcrumed to a fixed support to be engaged by said roller, a rod fixed to the lower end of the said lever to extend laterally, a hook-lever fulcrumed to a fixed support in position to engage the stops on the adding-wheel adjacent to the one whose roller engages the first-mentioned lever, and a spring for normally holding the hook-lever in engagement with the stops on the adding-wheel, said parts being so arranged that when the first adding-wheel to the right has been moved one complete revolution its roller will engage the first lever and force it outwardly and thereby cause the second lever to also be forced outwardly from engagement with the stops on the adding-wheel, for the purposes stated.

6. In an adding-machine, the combination of two or more adding-wheels, stops thereon adjacent to each number on the adding-wheel, a roller on each adding-wheel, a lever fulcrumed to a fixed support to be engaged by said roller, a rod fixed to the lower end of the said lever to extend laterally, a hook-lever fulcrumed to a fixed support in position to engage the stops on the adding-wheel adjacent to the one whose roller engages the first-mentioned lever, and a spring for normally holding the hook-lever in engagement with the stops on the adding-wheel, said parts being so arranged that when the first adding-wheel to the right has been moved ten digit-spaces its roller will engage the first lever and force it outwardly and thereby cause the second lever to also be forced outwardly from engagement with the stops on the adding-wheel, a rod having a slot in one end, a screw passed through said slot into the lower end of the hook-lever, and means for moving said rod upon the depression of any key, substantially as, and for the purposes stated.

7. In an adding-machine, a device for stopping the rotation of the adding-wheels at a proper point, comprising a bar suspended from a fixed support and capable of an oscillating movement, a forward projection on each key-lever substantially as shown and described, a spring-actuated pawl on the bar adjacent to each of said projections substantially as shown and described, a yielding pressure device for holding the said bar to its rearward limit, a rod pivoted to the rear end of said bar and having a slot in its end, a lever fulcrumed to the rear of the machine-frame and having a hook at its top, a screw passed through said slot into the lower end of said lever, an adding-wheel having a series of stops thereon to be engaged by the hook on said lever, a second lever fulcrumed to the same support, a rod on its lower end to engage the rear lower edge of the first lever, a second adding-wheel located to the right of the first, and a roller thereon to engage the last-mentioned lever, all arranged and combined substantially in the manner set forth, and for the purposes stated.

8. In a printing attachment for an adding-machine, means for moving a type-bearer any distance relative to the printing center, proportionate to the value of the number on the key depressed, comprising a series of key-bars slidingly mounted in a vertical plane, means for elevating said bars, a plate formed on or fixed to each bar and having an inclined surface on its forward lower edge, the acuteness of the incline of each plate being determined by the value of the number borne by the key, a bar mounted adjacent to the key-bars and capable of an oscillating movement, rollers on said bar to be engaged by said inclined plates, and means for connecting said oscillating bar with the type-bearer, for the purposes stated.

9. In a printing attachment for an adding-machine, means for moving a type-bearer any distance relative to the printing center, proportionate to the value of the number on the key depressed, comprising a series of key-bars slidingly mounted in a vertical plane, means for elevating said bars, a plate formed on or fixed to each bar and having an inclined surface on its forward lower edge, the acuteness of the incline of each plate being determined by the value of the number borne by the key, a downwardly-projecting finger on each of said plates at the upper end of the incline, a bar mounted adjacent to the key-bars and capable of an oscillating movement, rollers on said bar to be engaged by said inclined plates, and means for connecting said oscillating bar with the type-bearer, for the purposes stated.

10. In a printing attachment for an adding-machine, means for moving a type-bearer any distance relative to the printing center, proportionate to the value of the number on the key depressed, comprising a series of key-bars slidingly mounted in a vertical plane, means for elevating said bars, a plate formed on or fixed to each bar and having an inclined surface on its forward lower edge, the acuteness of the incline of each plate being determined by the value of the number borne by the key, a bar mounted adjacent to the key-bars and capable of an oscillating movement, rollers on said bar to be engaged by said inclined plates, means for connecting said oscillating bar with the type-bearer, an arm having a segmental rim thereon and pivotally mounted to a fixed support, a series of types slidingly mounted in said rim, a lever fulcrumed to a fixed support, a pitman connected therewith and with the aforesaid oscillating bar, and a rod connecting the lower end of the lever with the arm of the said type-bearing segment.

11. In an adding-machine or the like, the combination of an arm pivoted to a fixed support to move in an arc, a lever fulcrumed to a fixed support, a rod pivoted to the lever and screw-threaded on its opposite ends, a screw seated in the said arm and provided with a screw-threaded opening to admit the said rod, substantially as, and for the purposes stated.

12. In an adding-machine or the like, the combination of an arm pivoted to a fixed support to move in an arc, a screw-threaded opening extended transversely through said arm near its forward edge, a screw-seat therein of a length corresponding to the thickness of the said arm, and having a screw-threaded opening in its edge, a screw-threaded rod designed to be screwed into the opening of the set-screw, and means for oscillating the said rod, to operate the aforesaid arm, for the purposes stated.

13. In a printing attachment for an adding-machine, the combination with a type-bearing segment, comprising an arm pivoted to a fixed support, a segmental rim on its end, a series of types radially mounted in the rim with their lower ends projecting below the rim, means for operating said segment upon a depression of the key-bars, a lever fulcrumed to a fixed support, rollers fixed to the lever adjacent to the key-bars, lugs on the key-bars to engage said rollers, and a straight hammer having a slot therein designed to encircle the shaft on which the type-bearing segment is mounted, and also designed to engage the lower end of said types, substantially as, and for the purpose stated.

14. In an adding-machine having a series of vertically-movable key-bars and a series of adding-wheels having stops thereon, the combination of a lever fulcrumed to a fixed support, rollers thereon, lugs on the key-bars to engage said rollers, means on the opposite end of the said lever for pressing a type against a platen, a rod pivoted to each of said levers, a bell-crank lever fulcrumed to a fixed

support and having one end connected with said rod and its other end arranged to be brought into engagement with one of the stops on the adding-wheel when any one of the key-bars has been depressed to its full limit.

15. The combination with an adding-machine of a printing device, comprising a series of vertically-movable key-bars, plates fixed thereto, and having inclines thereon, the acuteness of which is determined by the value of the digit on the key, a finger on each plate at the upper end of the plate, a bar suspended from fixed supports and capable of an oscillating movement, rollers on said bar to be engaged by the inclines on said plates, a pitman at the forward end of each bar, a lever fulcrumed to a fixed support having its upper end connected with said pivot, a shaft mounted on the rear face of the machine, a series of arms pivoted to the said shaft, a segmental rim on each arm to extend laterally a slight distance from the arm, a spring for normally holding the arm to its forward limit, a rod for connecting the said lever with said arms, a series of types mounted in each of the said rims, means for holding types to their downward limits, a lever fulcrumed to a fixed support, means whereby one end of the lever is depressed each time one of the key-bars is depressed, a hammer on the opposite end of each of said levers and having a slot therein to encircle the shaft of the aforesaid arms, and having its upper end designed to engage the lower ends of the types, a device for inking the types, a roller-plates, and means for holding a roll of paper on the machine, and for holding a sheet of paper to the platen, all arranged and combined substantially in the manner set forth, and for the purposes stated.

591,901. LOCK. SILAS U. TROTMAN, Traverse City, Mich. Filed Nov. 20, 1896. Serial No. 612,861. (No model.)



Claim.—1. A key having a longitudinal slot formed in the shank, a spring having one end secured in the bottom of said slot, a bit secured to the free end of said spring, and a ring applied about the shank to prevent any excessive outward movement of the spring, substantially as described.

2. The combination with a suitable lock having an eccentric flange arranged about its keyhole, of a key provided with an expansible bit adapted to engage said flange and be gradually expanded into the proper position for raising the tumbler and shooting the bolt, substantially as described.

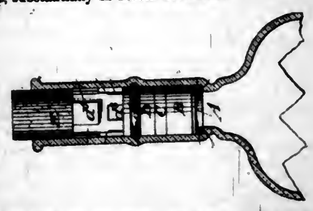
3. The combination with a suitable lock having an eccentric flange arranged about its keyhole, of a key provided with a longitudinal slot, a spring having one end secured in said slot, and a bit mounted on the opposite end of said spring so as to normally lie in said groove but be capable of being positively and gradually withdrawn therefrom by engagement with the eccentric flange about the key, substantially as described.

4. The combination with a suitable lock having an expanding flange about its keyhole, of a key provided with a longitudinal slot, a spring having one of its ends rigidly secured in the bottom of said slot, a bit mounted upon the free end of said spring and provided with inclined faces adapted to engage the flange about the keyhole to cause the expansion of said bit into the proper position to raise the tumbler and shoot the bolt, substantially as described.

5. The combination with a suitable lock having an expanding flange about its keyhole, of a key provided with a longitudinal slot, a spring having one end mounted in said slot, a bit mounted on the free end of said spring, and a ring mounted upon said key for preventing any excessive movement of said spring out of said slot, substantially as described.

591,902. DEVICE FOR PREVENTING REFILLING OF BOTTLES. ORVILLE R. VAN VECHTEN, New York, N. Y., assignor to Stella A. Van Vechten and Edward R. Pollock, same place. Filed Dec. 26, 1896. Serial No. 617,003. (No model.)

Claim.—1. In a device for preventing the refilling of a bottle or other vessel, the combination with a plug which is open at its inner end and contains a dash-pot in its outer end and which is provided with an internal valve-seat from which a nozzle projects outwardly, of an inverted-cup-shaped valve which fits over said nozzle and seats against said seat and the head of which enters as a plunger into said dash-pot, substantially as herein described.

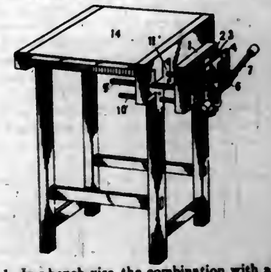


2. In a plug for preventing the refilling of a bottle or other vessel, the combination of an inner inwardly-closing valve and an outer inwardly-closing inverted-cup-shaped valve the head of which is received and operates as a plunger or dasher in a dash-pot constituted by a cavity in the upper part of the plug, the cup of said outer valve fitting over a nozzle which is provided within the said plug and which projects outwardly beyond said inner valve and the edge of said cup seating upon a seat provided in the plug around said nozzle, substantially as herein described.

3. In a device for preventing the refilling of a bottle or other vessel, the combination of an inner valve and a seat for the same, a nozzle above or outwardly beyond said valve and seat, an outer valve-seat surrounding said nozzle, an outer valve of cup form fitted to said seat, and a dash-pot in which the head of said cup-formed valve enters as a plunger or dasher, substantially as herein described.

4. In a device for preventing the refilling of a bottle, the combination of an inner valve and a seat for the same, an internally-conical valve-cap in which are grooves and intervening lands forming respectively liquid-passages and valve-guides, a nozzle and an outer valve-seat surrounding said nozzle both arranged above or outwardly beyond said valve-cap, an outer valve of cup form the edges of which seat on the latter seat, and a dash-pot in which the head of said cup-shaped valve is received and operates as a plunger or dasher, substantially as herein described.

591,903. BENCH-VISE. MERRITT WADE, Detroit, Mich. Filed July 8, 1897. Serial No. 643,915. (No model.)

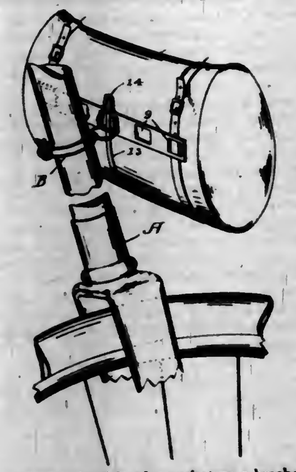


Claim.—1. In a bench-vise, the combination with a bench and a plate 12 having threaded nipples formed integral therewith, adapted to be secured to said bench, of a head, screws adapted to form guides for the head, and arranged to engage with the threaded nipples upon said plate and having their outer ends journaled in said head, gear-wheels secured to the outer ends of said screws, a counter-shaft journaled in said head, having a gear mounted thereon adapted to mesh with the gears upon said screws, and means for operating said counter-shaft whereby said screws are turned to force said head toward and from said bench, substantially as described.

2. A bench-vise of the character set forth, consisting of a head 1 having a plate 2 rigidly secured thereto, a corresponding plate 4 held distant from and secured to said plate 2, by means of studs 3, a counter-shaft journaled in said plates, said shaft having a gear secured thereon between said plates, the outer end of said shaft terminating in a socket in which an adjustable operating-handle is located, gears 9, 10 and 11 also journaled between said plates, the shafts of said gears terminating in elongated screws, the screw-plate 12 having threaded nipples formed integral therewith and said screws adapted to enter and pass through said nipples by the operation of said handle, for the purpose set forth.

591,904. COMBINATION BRACKET AND LUGGAGE-CARRIER FOR BICYCLES. GEORGE W. WEBER, St. Paul, Minn. Filed May 25, 1896. Serial No. 593,081. (No model.)

Claim.—1. As an improved article of manufacture, the clamp formed of a single piece of wire bent to constitute a loop with the members thereof crossed upon each other, each being laterally curved toward each other to form the jaws of a clamp, then bent upon each other to form registering eyes to receive a bolt, the end of each member being formed into an eye surrounding and embracing the other member intermediate of the loop and its clamp, whereby in the opening and closing of the jaws, the eyes slide upon the wire permitting freedom of movement and avoiding strain upon the wire except at the loop.



2. As an improved article of manufacture, a bracket made of a single piece of wire, bent upon itself to constitute bracket or tongue portion, with the members thereof crossed upon each other, and bent to form clamp-jaws, the ends of the wire being formed with eyes fitting over the opposite members to allow the separation of the clamp-jaws to fit different-sized tubing.

3. In combination with the bracket upon the bicycle-standard having a tapering tongue, the luggage-carrier arranged in connection therewith, consisting of a straight bar formed with a tapering socket or loop fitted to said tongue, and with strap openings or loops on each side of said tongue-socket adapted to receive binding-straps.

4. In combination with the bracket upon the bicycle-standard, formed with a tapering tongue, the luggage-carrier arranged in connection therewith consisting of a straight bar formed with a tapering socket fitted to said tongue, and means for binding an object upon said bar.

5. In combination with the bracket secured to the bicycle and formed with an upwardly-projecting tongue, the luggage carrier arranged in connection therewith, consisting of a straight sheet-metal bar or band having loops stamped out of its body to fit over said tongue, and also formed with similar loops through which straps may be passed to secure the article to be carried in place.

6. As an improved article of manufacture, a luggage-carrier for bicycles consisting of a straight bar or band having loops stamped out of the body of the same through which straps may be passed to hold the articles to be carried, the straps being adapted to be wound around the bar when not in use so that the same can be placed in the pocket, and the means for supporting said carrier upon the bicycle-frame, consisting of a tongue upon one fitting into a socket upon the other.

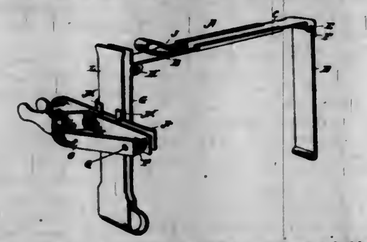
7. In combination with the bracket secured upon the bicycle-standard and formed with an upwardly-projecting tongue, the luggage-carrier consisting of a bar formed with a socket fitting over said tongue, and means arranged in connection therewith for holding the bundle out of contact with the standard.

8. In combination with the bracket secured upon the bicycle-standard and formed with an upwardly-projecting tongue, the luggage-carrier consisting of a bar formed with a socket fitted to said tongue, the straps for securing the article to be carried upon said bar, and the detachable strip arranged in connection with said bracket and carrier adapted to engage the bundle and hold it separated from the standard.

9. In combination with the bicycle-bracket, consisting of a single piece of wire bent upon itself to form a socket portion and an upwardly-projecting tongue, the sides of said socket portion being slidable upon each other to fit it to different-size tubing, the luggage-carrier adapted to be arranged in connection therewith, consisting of a plate or bar formed with a socket fitted to said tongue, and means for securing the article to be carried upon said bar.

10. A luggage-carrier for bicycles adapted to be detachably connected to and supported upon a bracket upon a standard thereof, having an upturned tapering tongue consisting of a bar having an intermediate tapering loop or socket fitted to said tongue, and loops or eyes on each side of said tongue-loop, the same being so disposed and interspaced that the exterior loops may be fitted with straps to surround a package to be supported upon the bracket, but when not in use the straps may be wound upon the bar so as to form a convenient compact parcel for carrying the same detached from the bicycle.

591,905. DRAFT-SCREEN HOLDER. JOSEPH D. WHITE, Altoona, Pa. Filed Jan. 13, 1897. Serial No. 619,071. (No model.)



Claim.—1. As a new article of manufacture, a screen-holder, consisting of a clamp adapted to be adjusted to the back of a car-seat, a holder pivoted to said clamp, and a clip secured to said holder, as specified.

2. In a device of the character described, a clamp, consisting of the members B and C arranged to slide upon each other and be secured in their adjustment, an arm D pivoted to one of the members, a holder pivoted to the member B, flanges M formed with the holder, and a clip adapted to be secured to said holder by the flanges in either of two positions, as specified.

3. A screen-holder, consisting of a clamp adapted to be secured to the back of a car-seat, the holder G hinged to said clamp, a clip adapted to be secured to the holder, and an extension pivoted to the movable jaw of the clip, said extension having an arm pivoted thereto, substantially as and for the purpose set forth.

4. In combination with a clamp and holder of the character described, a clip, consisting of a shank N, a stationary jaw, a spring-actuated jaw, an extension pivoted to said jaw, and an arm pivoted to said extension, substantially as and for the purpose set forth.

591,906. SHARPENING DEVICE FOR SCISSORS. JOSEPH H. WOLF, Pullman, Ill. Filed Dec. 31, 1896. Serial No. 617,575. (No model.)



Claim.—1. In a sharpening device, a pair of relatively-movable abrading-surfaces, in combination with means for adapting said surfaces to automatically accommodate themselves to the varying angles of the blades of the article being sharpened, substantially as described.

2. In a sharpener for scissors, a pair of abrading-surfaces pivotally connected, and means whereby the angle of said surfaces relatively to each other may change automatically, substantially as described.

3. In a sharpening device for scissors, a pair of abrading-surfaces adjustable as to their relative angles, and a movable wedge for changing their relative angles, substantially as described.

4. In a sharpening device for scissors, the combination with movable arms, of a pair of abrading-surfaces mounted between said arms and operatively connected thereto whereby in the inward movement of said arms, said abrading-surfaces will be shifted as to their relative angle, substantially as described.

5. In a sharpening device for scissors, a handle having spring-arms extending therefrom, in combination with a pair of abrading-surfaces pivotally connected and arranged between said arms, and

means whereby said arms are adapted to shift said abrading-surfaces and change their relative angle, substantially as described.

6. In a sharpening device for scissors, the combination with a handle having movable arms provided at their extremities with wedges as described, of a pair of sharpening members interposed between said arms and pivotally related to each other, the said wedges being adapted when moved inward to spread said sharpening members and to vary their relative angle, substantially as described.

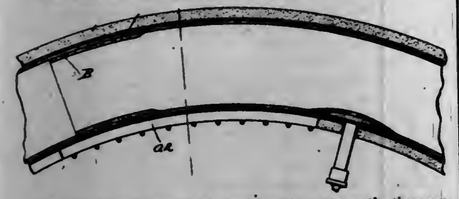
7. In a sharpening device for scissors, the combination with opposing movable arms, and a rod connecting and slidingly related to said arms, of hinged members fulcrumed on said rod and provided with abrading-surfaces, means for forcing the edges of said members yieldingly together, and positive means on the arms for spreading the edges of said members apart, substantially as described.

8. In a sharpening device for scissors, spring-supported sharpening members connected and relatively movable, said members being provided with abrading-surfaces inclined reversely to each other, substantially as described.

9. In a sharpening device for scissors, a pair of hinged members provided with abrading-surfaces inclined reversely to each other and also alternately disposed or arranged out of alinement with each other, substantially as described.

10. In a sharpening device for scissors, the combination with a handle and operating movable arms thereon, of a rod connecting the side portions of said handle, hinged members fulcrumed on said rod, a coil-spring surrounding said rod and bearing against the adjacent surfaces of said members for forcing the same normally apart and holding said members at an angle to each other, and wedges carried by said arms and adapted to be forced between the hinged members for varying their relative angles, said members having abrading-surfaces, substantially as described.

591,907. MANUFACTURE OF PNEUMATIC TIRES. ERNEST W. YOUNG, Austin, Ill., assignor to the Morgan & Wright, Chicago, Ill. Filed June 28, 1897. Serial No. 642,689. (No model.)

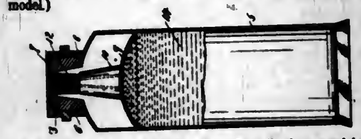


Claim.—1. The process of manufacturing pneumatic tires consisting in separately forming and vulcanizing an annular tubular pneumatic-tire casing and an inner air-tube therefor; coating with cement one or both of the two areas of surface which will be opposed the one to the other, and respectively formed by the inner tube and inner surface of the casing when the inner tube is in place within the latter; drying such cement preparatory to placing the inner tube within the casing; drawing the inner tube within the casing; subjecting the surface thus coated with cement to the action of a solvent to again render it adhesive; and inflating the inner tube to effect a cemented union between the inner tube and casing, substantially as set forth.

2. The process of manufacturing pneumatic tires, consisting essentially in separately forming and vulcanizing an annular, tubular pneumatic-tire casing and an inner air-tube therefor; coating the inner surface of the casing with cement and drying the latter preparatory to the introduction of the inner air-tube; introducing the inner air-tube within the casing thus prepared; subjecting the cement upon the inner surface of the casing containing the inner air-tube to the action of a solvent so as to again render it adhesive; and inflating the inner air-tube so as to bring together the outer surface of the inner air-tube and the inner cement-coated surface of the casing while the cement is in an adhesive condition and cause such opposing surfaces of the casing and the inner air-tube to unite, substantially as described.

3. The process of manufacturing pneumatic tires, consisting essentially in coating with cement the inner lining of fabric of an endless, tubular pneumatic-tire casing composed of layers of fabric and rubber; drying such cement preparatory to introducing an inner air-tube; introducing an inner air-tube within the casing thus prepared; telescoping the ends of the air-tube; passing between the air-tube and inner cement-coated wall of the casing a solvent acting to again render the cement on such inner wall adhesive; and inflating the air-tube while such cement is adhesive so as to unite the outer surface of the air-tube with the inner surface of the casing, substantially as set forth.

591,908. OIL CAN OR RECEPTACLE. CHARLES R. ZACHARIAS, Asbury Park, N. J. Filed Sept. 9, 1896. Serial No. 605,318. (No model.)



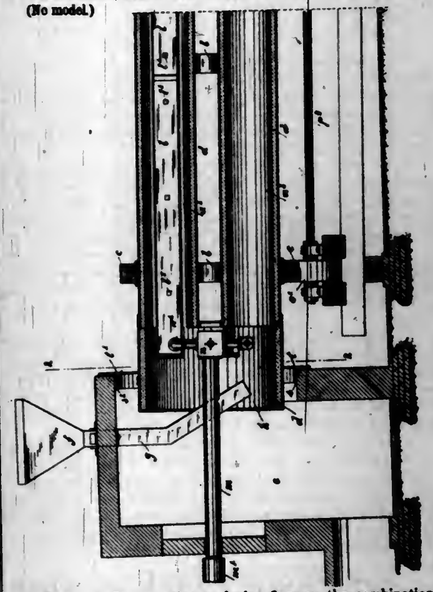
Claim.—1. A device of the class described comprising a compressible receptacle provided with a neck, said neck having a tapering opening, a pistou within the receptacle, a brush carried by the piston and a passage extending through the pistou and leading to the brush.

2. A device of the class described comprising a compressible receptacle having an opening, a piston within the receptacle, a brush carried by the piston and adapted to enter the opening and a passage through the piston leading to the brush.

3. A device of the class described comprising a compressible receptacle adapted to receive a liquid in its lower portion and having a neck provided with an opening, a piston above the lower portion having a projection, a brush carried by the projection adapted to enter the opening, a cover for the opening and a passage through the piston and its projection leading to the brush, whereby the liquid below the piston may be delivered to the brush.

4. In an oil-can, a compressible receptacle 5, sliding piston 9, brush 13, secured to said sliding piston 9, and means for passing lubricant from said receptacle to said brush, substantially as and for the purpose described.

591,909. APPARATUS FOR ROASTING AND DRYING ORES. PHILIP ARGALL, Denver, Colo. Filed Feb. 4, 1896. Serial No. 577,966. (No model.)



Claim.—1 In a roasting or drying furnace, the combination of a plurality of independent non-communicating cylindrical tubes symmetrically arranged around a common axis, mounted in an inclined position and so as to be rotated as one, with a combustion-chamber sending its products of combustion through all the tubes at once, when all are charged with the material to be operated upon in balanced charges, in conjunction with means provided in each tube for sending pure, hot, dry air through the said charges of ore during rotation, substantially as specified.

2. In a roasting or drying furnace, a revoluble cylinder or tube in combination with a hollow rabble fixed relatively thereto to the interior thereof, and means for supplying air in conjunction with the said rabble to the charge during the process of roasting or drying, substantially as specified.

3. In a roasting or drying furnace, a revoluble cylinder or tube in combination with a hollow rabble comprising an air-tube having

adjacent communicating direct and return flues with air-outlet passages leading into the said cylinder, said rabble being fixed relatively to the said revoluble tube to the interior thereof, and means for supplying air to the said rabble during the process of roasting, substantially as specified.

4. In a roasting and drying furnace, a revoluble cylinder or tube in combination with a hollow rabble fixed relatively thereto to the interior thereof; said rabble comprising an air-tube having adjacent communicating direct and return flues with air-outlet passages leading into the said cylinder, means for preventing the air-passages from becoming clogged, and means for supplying air to the said rabble, while the cylinder is revolving, substantially as specified.

5. In a roasting or drying furnace, a revoluble cylinder or tube in combination with a hollow rabble fixed relatively thereto, the said rabble comprising an air-tube having air-outlet passages leading into the said revoluble tube and provided with a projecting ledge or flange, whereby the air-passages are prevented from becoming clogged, and means for supplying air to the said rabble, substantially as specified.

6. In a furnace for roasting and drying ores, the multiple revoluble group of independent cylinders terminating in a single large tube or hood at the feed end of the apparatus, and terminating also in a single tube at the discharge end, in combination with means for revolving said cylinders, means for sending heated gases simultaneously through the same while in revolution, means for feeding ore to the same, and means for sending pure, hot, dry air through the said ore while being simultaneously agitated and heated, substantially as specified.

7. In a furnace for roasting and drying ores, a multiple revoluble group of cylinders provided both at the feed end and at the discharge end with an enlarged terminal tube or extension, in combination with a feeding hopper and chute, means for revolving the said tubes, and means for supplying air to the ore under treatment therein, during the process of roasting or drying through a hollow rabble located in each cylinder, substantially as specified.

8. In a furnace for roasting and drying ores, the multiple hollow revolvable group of tubes or cylinders a', a^2, a^3, a^4 in combination with the hollow rabbles l, fixed relatively thereto one in each tube, having return-passages and outlet-perforations, and means for supplying air in conjunction with said rabbles to the ore during the process of drying or roasting, substantially as specified.

9. In a furnace for roasting and drying ores, the multiple hollow revolvable group of tubes or cylinders a', a^2, a^3, a^4 in combination with hollow rabbles l, one in each tube, fixed to the inside thereof, closed at both ends, having passages l^3, l^4, and perforations l^4, the supply-pipe m, air-box n, distributing-pipes n', n^2, n^3 and n^4, and means for supplying air through the supply-pipe m and the distributing pipes while the furnace is in operation, substantially as specified.

10. The combination of a multitubular revolvable cylinder, having a single terminal tube or extension at each end, hollow rabbles, located one in each tube, fixed to the inside thereof, having direct and return passages, and outlet-perforations, means for revolving the said cylinder, means for sending heated products of combustion through all the tubes simultaneously during rotation, and means for supplying air through the said rabbles and their outlet-perforations to the ore during its agitation while being revolved and heated, all substantially as and for the purpose specified.

591,910. SPINNING-MULE. SAMUEL BARROWCLOUGH and JAMES BROWN, Pawtucket, R. I.; said Barrowclough assignor to said Brown. Filed Nov. 20, 1895. Serial No. 570,389. (No model.)

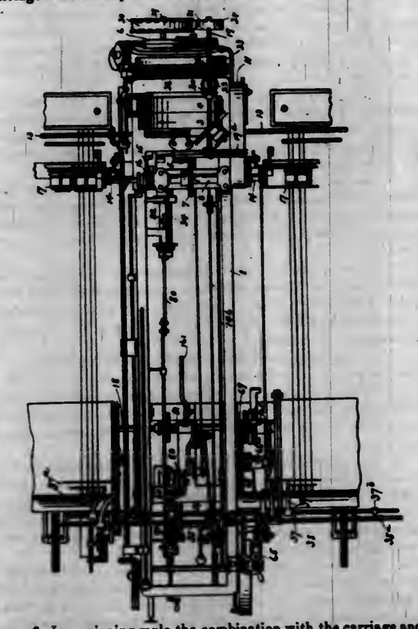
Claim.—1. In a spinning-mule the combination with the cam-shaft of a rotating ratchet-wheel, a pawl carried by said cam-shaft and intermittently-acting mechanism for throwing said pawl into and out of engagement with said ratchet-wheel, substantially as described.

2. In a spinning-mule the combination with the cam-shaft of a rotating ratchet-wheel, a pawl carried by said cam-shaft, an arm engaging said pawl, means for holding said arm stationary to hold the pawl out of engagement with the ratchet-wheel and means for moving said arm when released to engage said pawl with said ratchet-wheel, substantially as described.

3. In a spinning-mule the combination with the cam-shaft of a rotating ratchet-wheel, a pawl carried by said cam-shaft, an arm frictionally mounted on said ratchet-wheel and engaging said pawl and means for stopping and releasing said arm substantially as described.

4. In a spinning-mule the combination with the cam-shaft and carriage of a rotating shaft, means for connecting and disconnecting said shafts including an arm frictionally engaged by said shaft a sliding bar in the path of said arm and provided with a notch, and means whereby the shifting of the bar is controlled by the carriage substantially as described.

5. In a spinning-mule the combination with the cam-shaft of a rotating ratchet-wheel, a pawl carried by said cam-shaft, a friction-strap provided with two arms carried by said ratchet-wheel, one of said arms engaging said pawl, a sliding bar in the path of said arm and provided with a notch, and lugs on said bar in the path of the carriage substantially as described.



6. In a spinning-mule the combination with the carriage and the drawing-out mechanism comprising a shaft carrying a driving and an idle pulley, of a belt-shifting mechanism engaged and operated by the carriage and constructed to assist the carriage in shifting the belt whereby the strain on the carriage is relieved as it reaches the end of its outward movement substantially as described.

7. In a spinning-mule the combination with the carriage of a belt-shifter, a substantially horizontal bar connected to said belt-shifter, a pivoted arm supporting said bar and arranged in the path of the carriage, the parts being so arranged that the carriage moves the arm past the vertical whereby the weight of the arm and bar assist in shifting the belt substantially as described.

8. In a spinning-mule the combination with the carriage and the running-out mechanism therefor, of means for throwing said running-out mechanism into operation, a device carried by the carriage for engaging said means, and mechanism for advancing said device as the cop builds up, substantially as described.

9. In a spinning-mule the combination with the belt-shifting device and the reciprocating carriage of a device carried by the carriage for engaging said belt-shifting device and mechanism for advancing said engaging device as the cop builds up substantially as described.

10. In a spinning-mule the combination with the belt-shifting device and the reciprocating carriage carrying the toe-plate of a rod carried by said carriage for engaging said device, and means whereby the position of the toe-plate determines the position of said rod substantially as described.

11. In a spinning-mule the combination with the belt-shifting device and the reciprocating carriage carrying the toe-plate and means for gradually lowering said toe-plate, of a sliding rod carried by said carriage and provided with a cam-surface, a projection on the toe-plate engaging said cam-surface, whereby the rod is gradually projected as the cop is built up substantially as described.

12. In a spinning-mule the combination with the reciprocating carriage of a belt-shifting device including a spring and means carried by the carriage for controlling the tension on said spring substantially as described.

13. In a spinning-mule the combination with the carriage and the driving-shaft carrying a driving and an idle pulley, of a belt-shifting lever, a second lever a spring connecting said levers, means for locking said belt-shifting lever in position to hold the belt on the idle-pulley, an adjustable projection carried by the carriage for engaging said second lever, and means carried by the carriage for unlocking said belt-shifting lever substantially as described.

14. In a spinning-mule the combination with the carriage the faller carried thereby and means for reciprocating the carriage of means including the faller-shaft for causing the carriage to remain in its inner position substantially as described.

15. In a spinning-mule the combination with the carriage and running-out mechanism therefor, of means for throwing said mechanism into and out of operation, means for locking said mechanism out of operation and means for unlocking said mechanism, substantially as described.

16. In a spinning-mule the combination with the carriage and running-out mechanism therefor, of means for locking said mechanism out of operation, and means carried by the carriage and under the control of the operator for unlocking said mechanism, substantially as described.

17. In a spinning-mule the combination with the carriage and running-out mechanism therefor, of means for locking said mechanism out of operation, and means extending substantially the length of the carriage for unlocking said mechanism, substantially as described.

18. In a spinning-mule the combination with the carriage and means for reciprocating the same including a shaft carrying a driving and an idle pulley, of means including a cam for shifting the belt on said pulleys and means for locking the belt upon the idle-pulley substantially as described.

19. In a spinning-mule the combination with the carriage of means for reciprocating the same including a shaft carrying a driving and an idle pulley, of means including a cam for shifting the belt on said pulleys, means for locking the belt upon the idle-pulley and means carried by the carriage for unlocking the belt substantially as described.

20. In a spinning-mule the combination with the carriage and means for reciprocating the same including a shaft carrying a driving and an idle pulley, of means including a locking-bar for locking the belt upon the idle-pulley, a rock-shaft carried by the carriage, an arm carried by said rock-shaft and arranged to engage said locking-bar substantially as described.

21. In a spinning-mule the combination with the carriage and means for reciprocating the same including a shaft carrying a driving and an idle pulley, of a means including a locking-bar for locking the belt upon the idle-pulley, the faller-shaft carried by said carriage, and an arm carried by the faller-shaft arranged to engage said locking-bar substantially as described.

22. In a spinning-mule the combination with the carriage and means for reciprocating the same including a shaft carrying a driving and an idle pulley, of means including a locking-bar for locking the belt on the idle-pulley, the faller-shaft carried by said carriage, an arm on said faller-shaft arranged to engage said locking-bar and devices carried by the carriage for arresting the movement of the faller-shaft substantially as described.

23. In a spinning-mule the combination with the faller, backing-off chain and a scroll for drawing down said chain, of means independent of said scroll for automatically taking up the slack in said chain as the cop is built up substantially as described.

24. In a spinning-mule the combination with the faller and catch-block of means controlled by the position of the catch-block for drawing down the faller, substantially as described.

25. In a spinning-mule the combination with the faller, toe-plate, backing-off chain and means for drawing down said chain, of means controlled by the position of the toe-plate for taking up the slack in the backing-off chain substantially as described.

26. In a spinning-mule the combination with the faller, catch-block, and means for drawing down said faller, of a faller-lock lever connected to said means and provided with a cam engaging said block, substantially as described.

27. In a spinning-mule the combination with the faller, catch-block, backing-off chain, chain-pulleys and means for winding said chain, of a faller-lock lever provided with a cam-surface engaging said block and a connection between said faller-lock lever and said chain-pulley substantially as described.

28. In a spinning-mule the combination with the spindle-driving shaft and the winding-drum of a pawl-and-ratchet connection between said shaft and drum, means for disengaging said connection embodying a cam-surface and means for giving said cam-surface an oscillating and progressive movement, substantially as described.

29. In a spinning-mule the combination with the spindle-driving shaft carrying a ratchet-wheel, the winding-drum and one or more pawls connected therewith, of means for operating said pawls embodying a cam-surface and means for giving said cam-surface an oscillating and progressive movement, substantially as described.

30. In a spinning-mule the combination with the spindle-driving shaft carrying a ratchet-wheel, the winding-drum, and one or more pawls connected therewith, of a disk adjacent to said ratchet-wheel and provided with a beveled edge for engaging said pawls, and means for oscillating said disk about its axis and moving said disk longitudinally of the spindle-driving shaft, substantially as described.

31. In a spinning-mule the combination with the spindle-driving shaft carrying a ratchet-wheel, the winding mechanism, one or more pawls connected therewith, means for operating said pawls embodying a cam-surface and means for giving said cam surface an oscillating and progressive movement, substantially as described.

32. In a spinning-mule the combination with the spindle-driving shaft and winding mechanism, of means including a cam mounted to oscillate about its axis for connecting and disconnecting said shaft and winding mechanism, the faller-lock lever, and connections between said cam and lever and means for moving said cam longitudinally of its axis, substantially as described.

33. In a spinning-mule the combination with the reciprocating carriage the spindle-driving shaft carried thereby and the winding-drum, of connections between said drum and shaft, means for holding said connection in operation during the inward movement of the carriage and means for throwing said connection out of operation as the spindle-driving shaft starts to revolve substantially as described.

34. In a spinning-mule the combination with the spindle-driving shaft and the winding mechanism, of means controlled from said shaft for throwing said mechanism out of operation, substantially as described.

35. In a spinning-mule the combination with the spindle-driving shaft and the winding-drum, of connections between said shaft and drum, and means controlled from said shaft for throwing said connections out of operation, substantially as described.

36. In a spinning-mule the combination with the spindle-driving shaft, winding mechanism and faller, of means controlled from said faller and driving-shaft for connecting and disconnecting said shaft and winding mechanism, substantially as described.

37. In a spinning-mule the combination with the spindle-driving shaft, winding mechanism and faller, of a pawl-and-ratchet connection for connecting said driving-shaft and winding mechanism, a cam for operating said pawl, connections between said faller and cam for moving the said cam in one direction and means controlled by said driving-shaft for moving said cam in the other direction, substantially as described.

38. In a spinning-mule the combination with the reciprocating carriage, the spindle-driving shaft and the winding-drum, of a pawl and ratchet in engagement during the inward movement of the carriage, and a weight acting to disengage said pawl and ratchet as said shaft starts to revolve substantially as described.

39. In a spinning-mule the combination with a ratchet-wheel, a pawl arranged to engage said ratchet-wheel, a stud, a cam mounted on said stud, a spiral groove in one of said parts, a projection on the other of said parts engaging said groove, and means for oscillating said cam, substantially as described.

40. In a spinning-mule, the combination with a ratchet-wheel a pawl arranged to engage said ratchet-wheel, a stud provided with a spiral groove, a beveled-edge disk mounted on said stud and provided with a projection engaging said groove and means for oscillating said disk substantially as described.

41. In a spinning-mule the combination with the faller-lock lever, spindle-driving shaft, winding-drum and a pawl-and-ratchet connection between said shaft and drum, of a disk arranged to engage said pawl, a spirally-grooved stud carrying said disk, connections between said disk and faller-lock lever for rocking said disk in one direction and a weight for rocking said disk in the opposite direction substantially as described.

42. In a spinning-mule the combination with the reciprocating carriage carrying the spindles, of means for rotating said spindles at gradually-increasing speed during the inward movement of the carriage, means for counteracting the action of said rotating means to a less and less degree as the base of the cop is formed, substantially as described.

43. In a spinning-mule the combination with the winding-drum, quadrant and quadrant-chain of means for counteracting the action of said quadrant to a less and less degree as the base of the cop is formed, substantially as described.

44. In a spinning-mule the combination with the quadrant and quadrant-chain of a winding-drum provided with a cam-surface for a portion of its length, the parts being so arranged that said chain will not unwind from said cam-surface after the cop is built to its largest diameter, substantially as described.

45. In a spinning-mule the combination with the quadrant and quadrant-chain of a winding-drum provided with a cam-scroll substantially as described.

46. In a spinning-mule the combination with the carriage and the running-out gearing of means positively operated by the carriage for throwing said gearing out of operation substantially as described.

47. In a spinning-mule the combination with the carriage and the running-out gearing including a movable gear, of means positively operated by the carriage for moving said gear out of engagement, substantially as described.

48. In a spinning-mule the combination with the carriage the running-out gearing and a frame carrying a part of said gearing, of a cam for lifting said frame and means whereby the cam is positively operated by the carriage substantially as described.

49. In a spinning-mule the combination with the carriage, the running-out gearing, and a pivoted frame carrying a part of said gearing, of a pivoted lever engaging said frame, a lever in the path of the carriage and connections between said levers whereby said frame is positively operated by the carriage substantially as described.

50. In a spinning-mule the combination with the carriage and running-in mechanism, of means comprising a catch independent of said carriage for holding said mechanism out of operation during the backing off, and means carried by the carriage for engaging and operating said catch, substantially as described.

51. In a spinning-mule the combination with the carriage and running-in mechanism, of means comprising a catch independent of said carriage for holding said mechanism out of operation, the faller carried by said carriage and means controlled from said faller for engaging and operating said catch, substantially as described.

52. In a spinning-mule the combination with the carriage and means for reciprocating the same, comprising the running-in mechanism and the running-out mechanism, of means for throwing each of said mechanisms into and out of operation means for locking said running-in mechanism out of operation means for locking said running-out mechanism out of operation and devices for unlocking said mechanisms, substantially as described.

53. In a spinning-mule the combination with the carriage and the running-in mechanism of means for holding said mechanism out of operation during the backing off, comprising a catch, means carried by the carriage for engaging and releasing said catch substantially as described.

54. In a spinning-mule the combination with the carriage and running-in mechanism, of means for holding said mechanism out of operation during the backing off comprising a catch, the faller carried by said carriage and means controlled by said faller for engaging and releasing said catch substantially as described.

55. In a spinning-mule the combination with the carriage and running-in mechanism comprising a clutch, of a rock-shaft connected with said clutch, an arm secured to said shaft, a catch engaging said arm, a rock-shaft carried by said carriage an arm carried by said latter shaft and arranged to engage said catch, the faller and connections between the faller and said latter shaft, whereby the locking of the faller disengages the catch and allows the clutch to be engaged substantially as described.

56. In a spinning-mule the combination with the drawing-rolls of means for operating said rolls to feed a variable amount of yarn during the winding on substantially as described.

57. In a spinning-mule the combination with the drawing-rolls and the winding-drum of means for driving said rolls from said drum substantially as described.

58. In a spinning-mule the combination with the carriage the drawing-rolls and the drawing-roll clutch, of means for holding the members of said clutch in engagement during the inward movement of the carriage substantially as described.

59. In a spinning-mule the combination with the carriage and the drawing-roll clutch, of means for disengaging the members of said clutch, a latch to hold said member disengaged and means whereby the inward movement of the carriage withdraws said latch substantially as described.

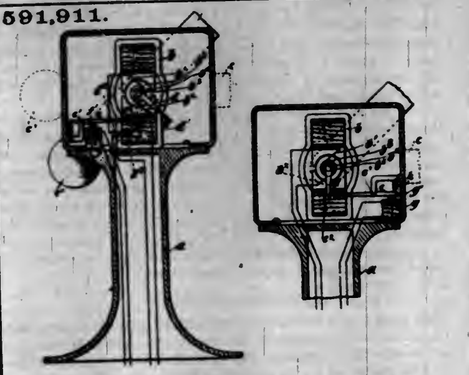
60. In a spinning-mule the combination with the carriage of a clutch, means for disengaging the clutch, a spring-latch for holding said clutch disengaged, a lever engaging said latch and a projection carried by the carriage for engaging said lever and withdrawing the latch substantially as described.

591,911. ELECTRICALLY-OPERATED RAILWAY-GATE. John S. Beggar, Chicago, Ill. Filed July 29, 1895. Serial No. 557,537. (No model.)

Claim.—1. In a railway-gate, the combination with a pivoted gate-arm, provided with a bearing-shaft, of an electric motor connected directly with the shaft and adapted to rotate or rock the same to operate the gate, and electrically-controlled means independent of the motor for holding the gate in a lowered position.

2. In a railway-gate, the combination with an electric motor, of the gate-arm mounted directly upon the shaft of the armature of said motor, means for bringing the armature to rest after a fraction of a complete revolution, a locking device for maintaining the armature in said rotated position, and an electromagnetic device for releasing said locking device; substantially as described.

591,911.



591,912. RANGE-FINDER. Nicholas Bray, Dubuque, Iowa. Filed Mar. 30, 1897. Serial No. 630,011. (No model.)



Claim.—1. A range-finder, consisting of two plates, a measure for setting the plates at a given distance apart, a register with calculations thereon, and one or more sighting-pins, for the purposes shown.

2. A range-finder, consisting of two right-angle plates, a measuring-line removably attached to one arm of each plate, a register having calculations thereon based upon the distance apart of the angle-plates, and removably attached to one angle-plate, one or more sighting-pins and a sighting-glass for viewing the object, all combined, as, and for the purposes shown.

3. A range-finder consisting of plates A, and B, having pins *c*, *d*, *e*, and *f*, measure D, having holes adapted to engage said pins, register S, sighting-pin P and sighting-glass H, all combined to operate as and for the purposes shown.

4. A range-finder consisting of two angle-plates, a measure, a register, one or more sighting-pins, and a plate W, with tape-line Q, combined, as, and for the purposes shown.

591,918. HANDLE FOR SCREW-DRIVERS OR OTHER TOOLS. Levi M. Dwyer, Freeport, Ill. Filed Mar. 16, 1897. Serial No. 628,184. (No model.)



Claim.—1. The combination with a tool having a tapered portion of a handle composed of two parts provided respectively with yokes adapted to embrace said tapered portion and be drawn inwardly thereby to clamp the two parts of the handle together upon the tool; substantially as described.

2. A handle for tapered tools consisting of two separable parts provided with means for preventing them from sliding one upon the other, each of said parts having a yoke adapted to embrace the tapered portion of the tool and be drawn inward thereby to clamp said parts together upon the tool; substantially as described.

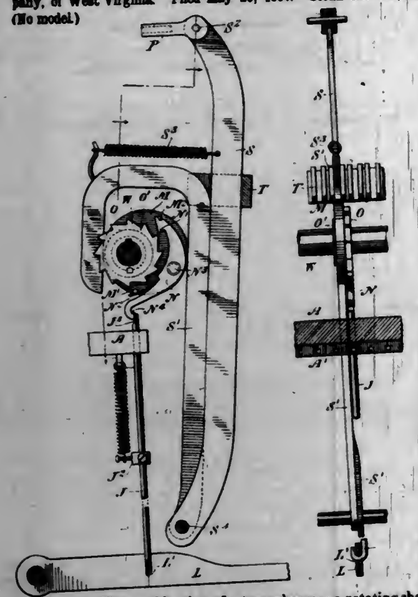
3. A handle for tapered tools consisting of two members each of which has a socket adapted to coact with that upon the other to clamp the shank of the tool, and each of which has a yoke adapted to receive the tapered portion of the tool and be drawn inward by wedging the same between said yokes; substantially as described.

4. A handle for tapered tools consisting of two members provided with engaging portions adapted to prevent them from sliding

one upon the other, said members forming between them a socket fitting the shank of the tool and each of said members having a yoke extending beyond the tapered portion of the tool and embracing the same whereby the two members of the handle may be securely fastened together by wedging said tapered portion into the said yokes; substantially as described.

5. The combination with a two-ended screw-driver bit having a shank narrower than one of the blades of a handle consisting of two members fitting together to form a socket fitting said shank and flaring inwardly to accommodate the wider blade, each of said members having a yoke extending inward and adapted to receive one of the blades of the screw-driver and to be wedged inward by the same whereby either blade of the screw-driver may be laid in one of the members, the other member may be put in position thereon and the two members tightly clamped together by wedging said blade between the two sockets; substantially as described.

591,914. TYPE-SETTING MACHINE. CHARLES W. DICKINSON, Belleville, N. J., assignor to the Empire Type Setting Machine Company, of West Virginia. Filed May 29, 1897. Serial No. 638,679. (No model.)



Claim.—1. The combination of a type-plunger; a rotating shaft; an eccentric cam, mounted loosely on the shaft; devices set in motion by the cam for actuating the type-plunger; a ratchet-wheel keyed to said shaft; a pawl pivoted to said eccentric cam, arranged to engage with said ratchet-wheel when released; a finger-lever arranged to release the pawl and throw the eccentric cam into engagement with the ratchet-wheel during a single revolution of the shaft and actuate the type-plunger.

2. The combination of a type-plunger; a rotating shaft; an eccentric cam mounted loosely thereon; a ratchet-wheel keyed to said shaft; a pawl pivoted to said eccentric cam, arranged to engage with said ratchet-wheel when released; a finger-lever, arranged to release the pawl and throw the eccentric cam into engagement with the ratchet-wheel during a single revolution of the shaft; and a lever connected with the type-plunger, actuated by the eccentric cam, whereby the type-plunger is caused to expel a type and return to its original position, by the revolution of the cam.

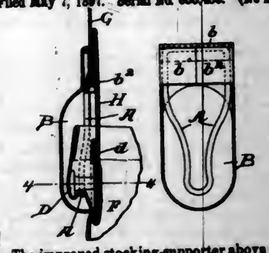
3. The combination of a type-plunger; a rotating shaft carrying an eccentric disk; a lever connected with the type-plunger, composed of a bent portion partially encircling the eccentric disk and adapted to receive a lateral movement therefrom, and a straight portion pivoted to the bent portion and connected with the type-plunger; and a spring connecting the two portions of sufficient tension to hold the two portions together and actuate the type-plunger when the latter is not obstructed.

4. The combination of a type-plunger; a rotating shaft; an eccentric cam, mounted loosely thereon; a lever actuated by said cam at one end, and engaging with the plunger at the other end, composed of two portions pivoted together; and a spring device connecting said portion so that the same shall operate as a single lever until such time as the type-plunger becomes obstructed.

5. The combination of a type-plunger; a rotating shaft; an eccentric cam mounted loosely thereon; a ratchet-wheel keyed to said shaft; a pawl pivoted to said eccentric cam, arranged to engage with said ratchet-wheel; a finger-lever arranged to release the pawl and throw the eccentric cam into engagement with the ratchet-wheel during a single revolution of the shaft; and a lever, composed of two portions pivoted together and held together by a spring device, so as to form a single lever until such time as the type-plunger becomes obstructed, connected with the type-plunger, whereby the latter is caused to move forward and expel a type and return to its original position by the revolution of the cam.

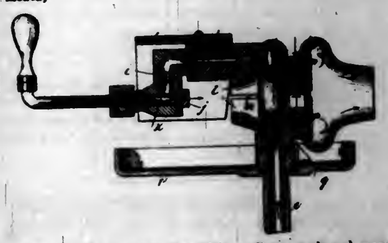
6. The combination of a type-plunger; a rotating shaft; an eccentric disk mounted loosely thereon; a ratchet-wheel keyed to said shaft; a pawl pivoted to said eccentric disk arranged to engage with said ratchet-wheel; devices on said disk for limiting the lateral movement of said pawl in one direction; a spring on said pawl for forcing the pawl into engagement with the ratchet-wheel; a sliding rod arranged to normally hold said pawl out of engagement with the ratchet-wheel; a spring for holding said rod in its normal position; a finger-lever for releasing the pawl from the sliding rod; a lever connected with the type-plunger, composed of a bent portion partially encircling the eccentric disk and adapted to receive a lateral movement therefrom, and a straight portion pivoted thereto; and a spring connecting the two portions of sufficient tension to hold the two levers together and actuate the type-plunger when the latter is not obstructed.

591,915. STOCKING-SUPPORTER. LOUIS D. DRAPER, Boston, Mass. Filed May 7, 1897. Serial No. 635,459. (No model.)



Claim.—The improved stocking-supporter above described, comprising the box B and the loop A slanted as shown and secured at its larger end only to the box B; such box secured to the larger end only of loop A; a supporting-strap G carrying the slanting loop and the box; a stud-supporting strap H, and a stud D connected to the supporting-strap G by the strap H; all combined and operating as and for the purpose specified.

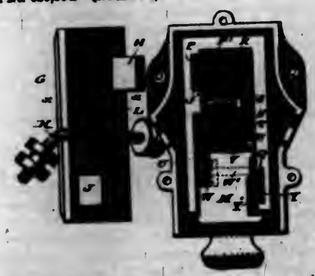
591,916. BURNER FOR PLUMBERS' OR BRAZIERS' FURNACES. JOHN C. DUPER, Chicago, Ill., assignor of one-half to R. J. White, same place. Filed Nov. 23, 1896. Serial No. 613,726. (No model.)



Claim.—1. The combination with an oil-reservoir and means for forcing a jet of oil therefrom under pressure, of a retort, means for projecting a vaporized jet from said retort through an opening extending through said retort into a combustion-chamber, and a combustion-chamber adjacent to said retort, said combustion-chamber having a restricted opening at its outer end, an enlargement in the body thereof next to said retort and a series of openings in its walls in operative proximity to said retort, whereby a portion of the main flame from the combustion-chamber may be reversed as a result of the eddies formed in said enlargement by the forced action of the flame, and caused to impinge upon the retort, substantially as described.

2. As an improvement in blow-torch burners, the combination with a retort and means for projecting a vaporized jet therefrom through an opening extending through said retort, of a pear-shaped projection or shell, the interior of which is adapted to form a combustion-chamber, the base of said shell being attached to said retort and having an interior diameter larger than that of the opening through said retort, an eduction-opening of smaller diameter than that through said retort, and an intermediate enlargement having a series of openings therein in operative proximity to said retort, substantially as described.

591,917. FUSE-BOX. ADAM W. FRANCK, Philadelphia, Pa., assignor of one-half to Arthur H. Jones, same place. Filed Mar. 30, 1897. Serial No. 630,904. (No model.)



Claim.—1. A fuse-box having an outer casing, an inner casing of non-conductible material, a non-conductible plate with oppositely-located contact-points thereon having insulated conductors connected therewith, a block in said inner casing having conducting-bolts passing therethrough from opposite sides thereof, springs connected with the ends of said bolts and in contact with said contact-points and a fusible conductor passing through said block and connected at its ends with said bolts on opposite sides of the said plug.

2. A fuse-box having a sectional outer casing, an inner casing having the oppositely-located recesses P and Q in its inner face, the non-conducting plate G with contacts H and J, having the conductors K and L connected therewith, the block M, the conducting-bolts R and W' passing through the block from opposite sides thereof, the springs J' and Y connected with said bolts, and in contact with said contacts H and J, and the fusible conductor U passing through said block and having its ends connected with the heads of said bolts on opposite sides of said plug.

3. A fuse-box having within an inner case, a non-conducting block with an opening therethrough, conducting-bolts passing through said block, spring-plates secured to said bolts on opposite sides of said block, a tube in said opening in the block, and a fusible conductor leading through said tube and connected at its ends with the heads of said bolts and insulated conductors having connection with contact-points in contact with said spring-plates.

4. In a fuse-box, a non-conducting block N, having recesses P and Q located oppositely therein, conductive screws R and W' located in said block, contact springs J' and Y held in position by said screws, a suitable conductor U intermediate said conductive screws, a passage through said block and a tube of rubber or similar material located in said passage and incasing said fusible conductor, in combination with a plate G having the oppositely-located contacts H and J, projecting therefrom and conductors leading from said contacts, the latter being adapted to enter said recesses P and Q and contact with the springs J' and Y when the parts are assembled.

5. A fuse-box consisting of an outer casing, composed of the sections B and C, a bottom cap D pivotally attached to one of said sections, means for holding said cap in closed position, the non-conducting case N contained within said casing and open at its bottom, the non-conducting block M constructed as described and adapted to be inserted into said case from the bottom thereof, conducting devices carried by said block and the non-conducting plate G having conductors projecting therefrom and adapted to contact with said conducting devices.

591,918. SLAT BLIND. CARL B. FRIEDRICH, Werdau, Germany. Filed Feb. 18, 1897. Serial No. 623,995. (No model.)

Claim.—1. The combination of an upper and a lower bar the upper bar having a guide-pulley at one end and a drum at the other end provided with a pair of guide-pulleys; a series of vertical strips each consisting of a plurality of slats, said strips being pivoted at their opposite ends, respectively, to said bars; a movably-mounted roll; an endless cord passed around the said roll and the several guide-pulleys, respectively, and attached to the vertical strips, whereby on the manipulation of the cord the strips can be adjusted; and means for rolling said series of strips up and down on the upper bar.



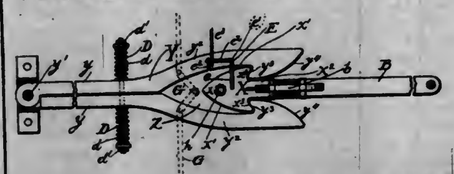
2. The combination of a series of vertical strips formed of slats, and an upper and a lower bar, a drum on said upper bar having mounted therein two guide-pulleys and a cord-roll at the opposite end having mounted therein one pulley, means for pivoting said strips centrally to said upper and lower bar, a cord, attached to one upper corner of each of said strips, laterally-arranged guide-rods on the window-frame and a weighted roll on one of said rods around which said cord passes substantially as described.

3. The combination of an upper and lower bar, a series of strips composed of slats, and centrally pivoted to said upper and lower bar, guide-rolls on said upper bar as specified and laterally-mounted guide-rods *n n*, a weighted guide-roll *m* to slide on one of said rods *n*, a cord without end to pass over said guide-rolls and having one of its lines fixed to corresponding corners of all the strips, means for rotating the top roller, and arms swiveled to the lower roller and means for detachably securing their free ends to the window-frame substantially as described.

4. The combination, with longitudinal guide-rods, of upper and lower bars the upper bar having a guide-pulley at one end and a drum at the other end provided with guide-pulleys; a series of vertical strips consisting of slats, and pivoted, respectively, at their opposite ends to said bars; a movably-mounted roll, the device for supporting the same being in sliding engagement with one of said guide-rods; an endless cord passed around the several guide-pulleys and roll; and means for rolling the series of strips up and down on the upper bar.

5. The combination, with longitudinal guide-rods, of upper and lower bars the upper bar being furnished with a guide-pulley at one end and a drum at the other end provided with a pair of guide-pulleys; a weight in sliding engagement with one of the guide-rods and carrying a roll; an endless cord passed around the several guide-pulleys and roll and attached to the vertical strips; stay-rods connected with the lower bar; and means whereby said stay-rods can be attached to the guide-rods.

591,919. CAR-COUPLING. ALBERT FROHMANN and PHILIPP ENCK, Chicago, Ill. Filed Oct. 19, 1896. Serial No. 609,340. (No model.)



Claim.—1. In a car-coupler, an arrow-like coupling-head pivotally connected to a draw-bar by a leaf or joint *b*, the said coupling-head being provided with means for raising or turning it in a vertical plane, in combination with a coupling-head having laterally-movable jaws for engaging shoulders or projections of first head, substantially as set forth.

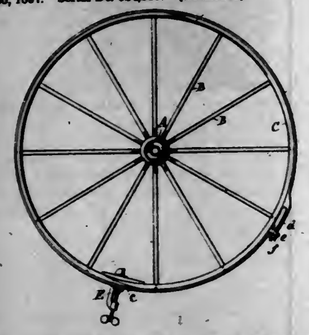
2. In a car-coupler, an arrow-like coupling-head pivotally connected to a draw-bar and a coupling-head having laterally-movable jaws for engaging the first head, the said coupling-heads having their draw-bars or inward portions mounted or supported in brackets which carry buffers beneath the coupling parts, substantially as set forth.

3. In a car-coupler, an arrow-like head X and a head Y having double hooks or jaws, in combination with a movable keeper provided with means for preventing an up or down disengagement of said heads, substantially as set forth.

4. In a car-coupler, an arrow-headed or wedge-shaped draw-head provided with hooks or shoulders, a double-hooked head adapted to engage the first head, and having a transverse keeper adapted to retain the heads in a coupled position, as set forth.

5. In a car-coupler, an arrow-like coupling-head having its draw-bar supported by a bracket or frame carrying a buffer beneath the coupling part, and a coupling-head having laterally-movable jaws for engaging first head and supported by a bracket or frame carrying a similar buffer, in combination with means for disengaging or uncoupling the heads, substantially as set forth.

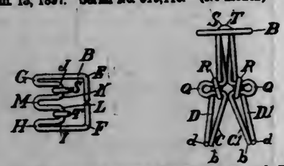
591,920. WHEEL. JAY J. GRAHAM, Morrisville, N. Y. Filed Feb. 23, 1897. Serial No. 624,535. (No model.)



Claim.—1. In a wheel, the combination of the hub and the tenoned wooden spokes, and a grooved mortised felly provided with lap-joints cemented together, said felly being capable of holding the wheel in a dished condition, as set forth.

2. In a wheel, the combination with the hub and the tenoned wooden spokes, of a grooved mortised felly provided with lap-joints cemented together, said felly being capable of holding the wheel in a dished condition, and a pneumatic tire in the groove of said felly, substantially as described and shown.

591,921. CURTAIN-CLAMP. FRANK A. HERRICK, Jackson, Mich. Filed Jan. 13, 1897. Serial No. 619,110. (No model.)



Claim.—1. In a curtain-clamp the levers, C, and, D, said levers being made of wire, the wires of which one of said levers is composed, being bent to form an eye, R, the wire of which the other of said levers is composed being bent into a loop to form the laterally-extending lug, Q, said levers being adapted to be pivoted together by said lug passing into said eye, substantially as shown and described.

2. In a curtain-clamp the levers, C, and, D, said levers being made of wire and bent to form loops, S, and, T, at their tops, the wire of which one of said levers is composed being bent to form an eye, R, the wire of which the other of said levers is composed being bent to form a lug, Q, said levers being adapted to be pivoted together by means of said lug and eye, and a hanger, B, each of the loops, S, and, T, passing over a portion of said hanger, substantially as and for the purpose described.

3. In a curtain-clamp the levers, C, and, D, said levers being made of wire, the wire of which one of said levers is composed being bent into a spiral to form the eye, R, the wire of which the other of said levers is composed being bent to form a lug, Q, said lug having an enlarged outer end, said levers being adapted to be pivoted together by springing the wire of said spiral and passing said lug through the eye formed by said spiral, substantially as shown and described.

4. In a curtain-clamp, the levers, C, and, D, said levers being made of wire, the wire of which each of said levers is composed being bent to form the approximately parallel legs, C, C', and, D, D', united together at the top by the loops, S, and, T, the wire of each of the legs, C C', being bent to form the lugs, Q, Q, the wire of which each of the legs D, D', is composed, being bent to form the eyes, R, R, said levers being adapted to be pivoted together by means of the lugs, Q, Q, and the eyes, R, R, substantially as shown and described.

5. The combination of a pole, A, having a longitudinal slot, *a*, formed therein, said slot being provided with the laterally-extending slots, *a'*, *a'*, a hanger, B, adapted to pass into and be retained in the slots, *a'*, *a'*, in two or more positions and clamping-levers, C, D, secured to said hanger, said positions of said hanger being such that they shall bring the plane of motion of said levers at different angles relative to said pole, substantially as shown and described.

6. The combination of a pole, A, having a longitudinal slot, *a*, formed therein, said slot being provided with laterally-extending slots, *a'*, *a'*, an approximately square hanger, B, adapted to pass into and be retained in position in said slot and clamping-levers, C, D, secured to said hanger substantially as shown and described.

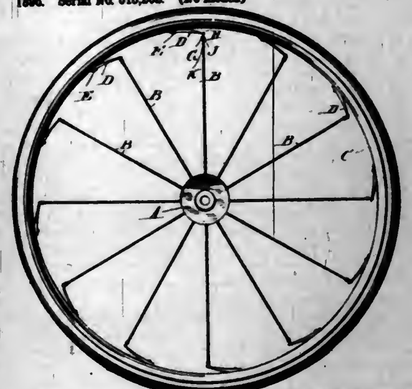
7. The hanger, B, made of wire bent to form an approximately plane figure, with loops, J, K, and, L, I, extending to approximately the center of said figure, substantially as shown and described.

8. The hanger, B, made of wire bent to form an approximately square figure, with loops, J, K, and, L, I, extending to approximately the center of said figure, substantially as shown and described.

9. The combination of the hanger, B, made of wire bent to form an approximately plane figure having loops, J, K, and L, I, extending to near the center of said figure, and the levers, C, D, pivoted together and having loops passing over the portions of the loops, J, K, and, L, I, which are near the center of said hanger and between the parallel sides of said last-mentioned loops, substantially as shown and described.

10. The combination of the hanger, B, made of wire to form an approximately plane figure having the parallel loops, J K, and, L I, extending to near the center of said figure, and the levers, C, D, pivoted together and being provided with loops passing over the portions of the loops, J K, and, L I, which are near the center of said hanger and between the parallel sides of said last-mentioned loops, said levers being adapted to be opened and closed by striking against the parallel sides of the loops, J K, and, L I, as said levers are raised or lowered relative to said hanger, substantially as shown and described.

591,922. BICYCLE-WHEEL. WILLIAM H. KADEL, Rock Falls, Ill., assignor of one-third to Harry L. Kadel, same place. Filed Dec. 11, 1896. Serial No. 615,262. (No model.)



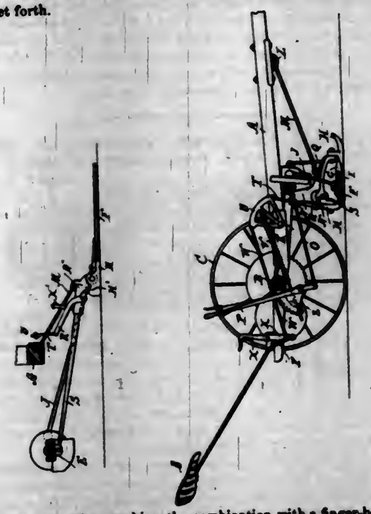
Claim.—In a wheel, the combination, with a rim, of a series of springs rigidly secured to the inner surface thereof at one end, a hub and a series of spokes secured thereto, the outer end of each spoke being screw-threaded, a swivel-nut upon the end of each spoke, and a turnbuckle secured to the nut and provided with a loop through which is passed the free end of the spring, substantially as set forth.

591,923. MOWING-MACHINE. MAURICE KANE, Austin, Ill. Filed July 13, 1896. Serial No. 598,961. (No model.)

Claim.—1. In a mowing-machine, the combination with a hinged finger-bar, a manually-operated lever, connections between such bar and lever including a device for changing the direction of pull, and mechanism for decreasing the effective length of the lever and increasing the effective throw or travel of the weight-arm of the manually-operated lever when it is actuated; substantially as and for the purpose set forth.

2. In a mowing-machine, the combination with a hinged finger-bar and a manually-operated lever, of connections between such bar and lever including an automatic lifting device such as a spring and a device to change the direction of pull and mechanism for decreasing the effective length of the lever and increasing the effective throw or travel of the weight-arm of the manually-operated lever while it is being actuated; substantially as and for the purpose set forth.

3. In a mowing-machine, the combination with a pivoted finger-bar, of a triangular lever connected to the same and pivoted on the frame, a spring connected at one end to the frame and at the other end to the triangular lever, a link connecting the upper side of the triangular lever with another lever within reach of the operator, the lever within reach of the operator having an elongated slot for the end of the link to enter, and a push-bar jointed to the frame and bearing upon the ends of the link, whereby its position in the slot is varied as the lever is turned; substantially as and for the purpose set forth.



4. In a mowing-machine, the combination with a finger-bar pivoted on a transverse pivot, the operating-lever extending within reach of the driver, a link connecting the lower end of such lever with mechanism upon the finger-bar and jointed to such mechanism at a point above the level of its joint with the operating-lever, and a drag-bar pivoted to the tongue or frame and also pivoted to the mechanism upon the finger-bar at a point lower than the joint of the link before mentioned to such mechanism and lower than the joint of the drag-bar to tongue or frame; substantially as and for the purpose set forth.

5. In a mowing-machine the combination with a finger-bar and its shoe, the latter provided with an inwardly-projecting toe, a bridge extending over the finger-bar and pivoted by longitudinal pivots to the shoe, a gag-lever provided at its lower end with a toe bearing on the toe of the shoe, a triangular lever pivoted to the frame and connected to the upper end of the gag-lever, an adjustable spring connected to the frame and bearing on the triangular lever, a link pivoted at one end to the upper end of the triangular lever and at the other end to the operating-lever in an elongated slot thereof, an operating-lever pivoted to the frame and provided with an elongated slot for connection with the link and a push rod or bar pivoted to the frame and bearing upon the end of the link which plays in the elongated slot of the operating-lever; substantially as and for the purpose set forth.

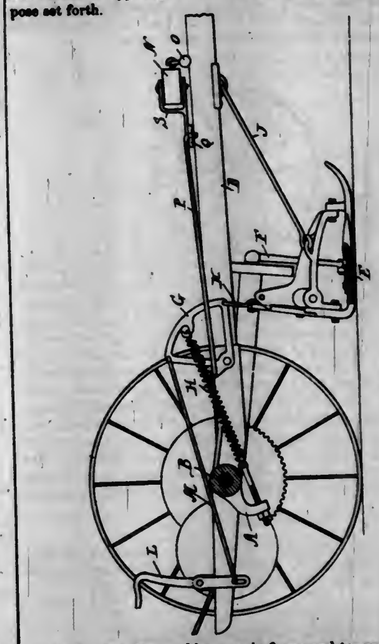
591,924. MOWING-MACHINE. MAURICE KANE, Austin, Ill. Filed Dec. 5, 1896. Serial No. 614,577. (No model.)

Claim.—1. In a mowing-machine, a finger-bar, a counterbalance therefor, means for counteracting the force of the counterbalance with the draft of the horses; as and for the purpose set forth.

2 In a mowing-machine, a main frame, a finger-bar, a bell crank lever mounted on said main frame, connections between said finger-bar and lever, a spring acting through said bell-crank lever to counterbalance said finger-bar, and means for counteracting the force of the counterbalance in the spring with the draft of the horses, including a draft-beam and connections between said beam and lever; as and for the purpose set forth.

3. In a mowing-machine, a main frame, a finger-bar, a bell-crank lever connected to said bar, a spring acting through said lever to counterbalance said bar, and means for counteracting the force of the counterbalance in the spring with the draft of the horses, including a draft-beam and a rod connecting said beam and lever; as and for the purpose set forth.

4. In a mowing-machine, a main frame, a finger-bar, a counterbalancing-spring therefor, a draft-beam and means connected to said draft-beam for opposing the force of said spring; as and for the purpose set forth.



5. In a mowing-machine, a main frame and tongue, a finger-bar, a bell-crank, connections between said crank and bar, a spring connected to said crank for counterbalancing said bar, and means for counteracting the force of the counterbalance in the spring with the draft of the horses, including an arm pivotally mounted on said tongue, connections between said arm and crank, a draft-beam and means for connecting said draft-beam to said arm; as and for the purpose set forth.

6. In a mowing-machine, a main frame and tongue, a finger-bar, a bell-crank lever, connections between said bar and lever, a spring connected to said lever for counterbalancing said bar, and means for counteracting the force of the counterbalance in the spring with the draft of the horses, including an arm pivotally mounted at one end upon said tongue, connections between the other end of said arm and said lever, a draft-beam and means for connecting said beam to said arm; as and for the purpose set forth.

7. In a mowing-machine, a main frame and tongue, a finger-bar, bell-crank lever, and counterbalancing-spring, an arm pivotally mounted at one end on said tongue, a rod connected at one end to the free end of said arm and having connections at the other end to said lever, a draft-beam and means for connecting said draft-beam to said arm, whereby the force of said counterbalancing-spring is counteracted by the draft of the horses; as and for the purpose set forth.

8. In a mowing-machine, a main frame, a finger-bar, a bell-crank lever, and a counterbalancing-spring in combination with means for counteracting the force of the counterbalance in the spring with the draft of the horses, including a draft-beam, and yielding connections between said beam and lever; as and for the purpose set forth.

9. In a mowing-machine, a main frame, a finger-bar, a bell-crank and a counterbalancing-spring, in combination with means for counteracting the force of the counterbalance in the spring with the draft of the horses, including a draft-beam, a rod connected thereto, and a spring connection between said rod and bell-crank lever; as and for the purpose set forth.

591,925. WHEEL ATTACHMENT FOR LEGS. ROBERT H. KINNEMAN, Viola, Ind. Ter. Filed Sept. 19, 1896. Serial No. 606,412. (No model.)

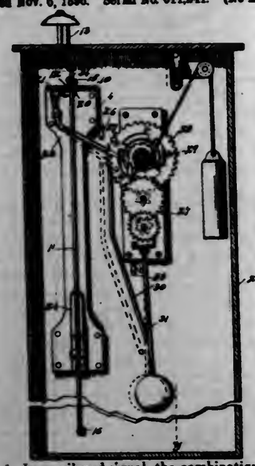
Claim.—1. The herein-described wheel attachment consisting of a support having downwardly-extending forks, a wheel or roller mounted for rotation in said forks, a foot-rest pivotally mounted on the inside of the inner fork, means for attaching said support to the leg of the operator, a brake-lever pivoted to the upper end of the inner fork, a brake-shoe thereon adapted to engage the outer periph-

ery of said wheel or roller, and a pitman connecting the forward end of said brake-lever and the rear end of said foot-rest, whereby, upon the depression of the toe of the latter, said brake-shoe will be drawn down into contact with the periphery of said wheel.



2. The herein-described wheel attachment consisting of a support having downwardly-extending forks, a shaft or axle connecting the lower ends of said forks and extending inwardly a short distance beyond said inner fork, a wheel or roller mounted for rotation upon said shaft or axle, a ratchet-wheel on the inner side of the hub of said wheel or roller, a foot-rest pivotally mounted upon the inner end of said shaft or axle, a spring-actuated pawl or dog on the under side of said foot-rest adapted to engage the teeth on said ratchet-wheel, a brake-lever pivoted to the upper end of said inner fork having a laterally-extending arm thereon, a brake-shoe on said arm adapted to be forced into engagement with the outer periphery of said wheel, a rod or pitman connecting the forward end of said brake-lever and the rear end of said foot-rest, and means for attaching said support to the leg of the operator, substantially as and for the purpose set forth.

591,926. RAILWAY TIME-SIGNAL. WILLIAM R. MITCHELL, Elmhurst, Wis., assignor of one-half to George H. Wunderlich, same place. Filed Nov. 6, 1896. Serial No. 611,241. (No model.)



Claim.—1. In a railroad-signal, the combination of a shaft bearing a signal and having an arm extending therefrom, a vertically-disposed lever, a rod connecting the upper end of the lever with the aforesaid arm, a spring for holding the signal at "safety" and the vertical lever in a normal position, means actuated by a passing train for operating the vertical lever to set the signal at "danger," a spring-actuated catch to engage with the vertical lever and hold the signal at "danger," and a trip having a portion projecting across the path of the spring-actuated catch for disengaging it from the said vertical lever, substantially as shown for the purpose set forth.

2. In a railroad-signal, the combination of a shaft bearing a signal, a lever having connection with the said shaft, means for operating the lever to set the signal to "danger," a catch to interlock with the lever and hold the signal at "danger," a trip for operating the catch, and a clock-movement for automatically actuating the trip to release the lever, substantially as and for the purpose set forth.

3. In a railroad-signal, the combination of a signal, a lever for operating the signal, a catch to interlock with the lever and hold the signal set at "danger," a clock-movement, and a trip for starting and stopping the clock-movement and in turn automatically actuated by the clock-movement for releasing the signal and permitting the latter to automatically return to "safety," substantially as described.

4. In a railroad-signal, the combination of a signal, a lever for operating the signal, a spring for normally returning and holding the signal at "safety," a catch to interlock with the said lever and hold the signal at "danger," a trip, a clock-movement for automatically actuating the trip to liberate the signal when set, and a wire connected with the trip for normally holding the clock-movement out of action, substantially as set forth.

5. In combination, a shaft bearing a signal and having an arm, a lever having connection with an arm of the said shaft, a spring for returning and normally holding the signal at "safety," a gong sounded by the aforesaid lever when the signal is set, a spring-actuated catch for interlocking with the lever and holding the signal at "danger," a trip, a clock-movement for automatically actuating the trip, and a wire having connection with the trip and normally holding the clock-movement out of action, substantially as set forth.

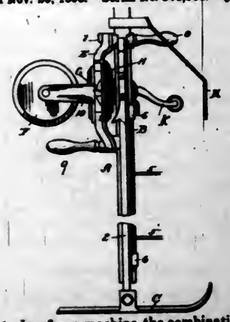
591,927. CAR-COUPLING. SAMUEL MCCANNAFF, Wheaton, Minn. Filed July 7, 1896. Serial No. 598,287. (No model.)



Claim.—1. In a car-coupler, the combination with pivoted jaws having hooked heads at one end, of a single spring adapted for simultaneously spreading the rear ends of the jaws to bring the hook-heads together, a rotatable spindle, means for turning the same, a bracket, a concave roller journaled in the bracket, a cable or equivalent connection between one of the jaws and the spindle, and a second cable also connected to the spindle and passing over the concave roller and connected to the remaining jaw.

2. In a car-coupler, the combination with a casing or housing, of an open or hollow coupling-box slidable longitudinally in said housing, buffer-springs interposed between the rear of the coupling-box and the back of the housing, coupling devices within the box, coil springs which are located inside the housing or casing and bear directly on the opposite sides of the coupling-box and against the housing, whereby to cushion the lateral movement thereof, and means for limiting the longitudinal movement of the said box.

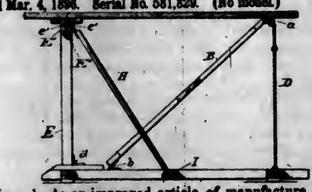
591,928. FENCE-MACHINE. WILLIAM H. FARRIER, Richmond, Ind. Filed Nov. 29, 1895. Serial No. 570,381. (No model.)



Claim.—1. In a fence-machine, the combination with the upright, and a vertically-movable cross-head thereon, of an elbow-arm fulcrumed upon said cross-head and having at its free end a vibratory or swinging movement upward and laterally in a line at right angles to the line of the horizontal wires of the fence, a rotatable spool carried by said arm, a shaft for revolving said spool, a bevel-gear on said shaft having slots for the horizontal wires, a bevel-pinion meshed with said gear, and an operating-handle on the shaft of said pinion, substantially as shown and described.

2. The herein-described fence-machine, embodying a frame, consisting of the upright formed with slots for the horizontal wires, a movable rod for locking the wires in said slots, a cross-head movable vertically on said upright, and an arm to engage the top wire; and the means for coiling the vertical wires around the horizontal wires, consisting of an elbow-arm fulcrumed upon said cross-head and having at its free end a vibratory or swinging movement upward and laterally in a line at right angles to the line of the horizontal wires of the fence, a rotatable spool carried by said arm, a shaft for revolving said spool, a bevel-gear on said shaft having slots for the horizontal wires, a bevel-pinion meshed with said gear, and an operating-handle on the shaft of said pinion, substantially as shown and described.

591,929. IRONING-TABLE. ANDREW PERKINS, Cleveland, Fla. Filed Mar. 4, 1896. Serial No. 581,829. (No model.)

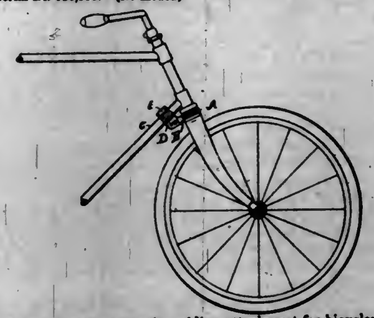


Claim.—1. As an improved article of manufacture, an ironing-table consisting of the board, the cleat upon its under side at one end having its inner face beveled, the base, the brace hinged thereto at one end having its opposite end beveled, a cord or chain connecting the free end of the base to the board, a support hinged to the other end of the base, transverse strips at one end of the same and having a notch, and a bar on the under side of the board adapted to fit said notch, substantially as described.

2. As an improved article of manufacture, an ironing-table consisting of the board, the cleat upon its under side at one end having its inner face beveled, the base, the brace hinged thereto at one end having its opposite end beveled, a cord or chain connecting the free end of the base to the board, a support hinged to the other end of the base, transverse strips at one end of the same and having a notch, and a bar on the under side of the board adapted to fit said notch, a cross-bar on the base, and a brace hinged at one end to one of the transverse strips of said support and adapted to engage said cross-bar on the base, substantially as described.

3. As an improved article of manufacture, an ironing-table consisting of the board, the cleat upon its under side at one end having its inner face beveled, the base, the brace hinged thereto at one end having its opposite end beveled, a cord or chain connecting the free end of the base to the board, a support hinged to the other end of the base, transverse strips at one end of the same and having a notch, and a bar on the under side of the board adapted to fit said notch, a cross-bar on the base, and a brace hinged at one end to one of the transverse strips of said support and adapted to engage said cross-bar on the base, and hooks secured to opposite sides of the board at one end and adapted to engage means on the upright support, substantially as described.

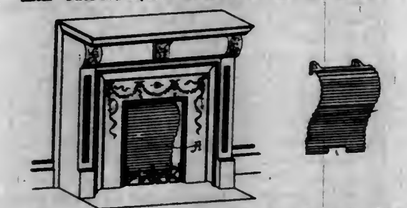
591,930. AUTOMATIC GUIDING ATTACHMENT FOR BICYCLES. HORACE O. PLUSHER, Maplewood, Ind. Filed Oct. 30, 1896. Serial No. 610,553. (No model.)



Claim.—1. An automatic guiding attachment for bicycles consisting of a head-block adapted to be attached to the lower part of a bicycle-frame; spring-guides attached adjustably thereto and adapted to press against the rear part of the arms of a front fork of a bicycle; adjusting-screws on said head adapted to control the tension of said spring-guides independently and means for attaching said head-block to said bicycle-frame substantially as and for the purpose shown and described.

2. In a guiding attachment for bicycles the combination with the frame and fork thereof; of a head-block having a lug at each side thereof provided with a threaded hole extending horizontally therethrough; the clamp rigidly secured to said head and adapted to secure the same to said frame; spring-guides secured to said head-block and adapted to press against the rear of the said fork and adjusting-screws in said lugs pressing against the back of said spring-guides substantially as shown and described.

591,931. FIREPLACE-BACK. SYLVANUS J. REYNOLDS, Saginaw, Mich. Filed Oct. 26, 1896. Serial No. 610,061. (No model.)



Claim.—1. In a fireplace, an insertible back for the fireplace comprising a sheet of flexible metal of the size of the back of the fireplace and bent at its upper part to curve frontward, with its upper edge bent rearward, whereby when its lower end is placed behind the grate the upper part of the sheet will be curved frontward and rearward, the upper part adapted to be movably secured to the rear wall, as and for the purpose set forth.

2. In a fireplace, the combination with the grate, of an insertible back, comprising a sheet of flexible metal adapted to fit behind the grate and extend upward, the upper part being curved forward into the upper cavity of the fireplace, the upper edge curved rearward and movably secured, and means for moving the upper bent portion outward or inward as desired for enlarging or contracting the flue.

591,932. COMBINED MATCH BOX AND LIGHTER. AUGUST RIPPLE and GEORGE E DURLER, Oshkosh, Wis. Filed May 6, 1897. Serial No. 635,375. (No model.)



Claim.—1. In a match-box, the combination, of a frame provided with a match compartment or receptacle, a yielding bottom strip adapted to close the bottom opening of the receptacle, a slide, and means for actuating the slide, said slide, when moved upwardly, adapted to act on the yielding bottom strip so as to move the same and permit the upper edge of the slide to extend into the receptacle, and said slide on its reverse movement outwardly adapted to withdraw a match through the opening of the receptacle, said opening being automatically closed by the yielding strip, when the slide has traveled sufficiently far in its reverse direction to remove its contact against said yielding strip.

2. In a match-box, the combination, of a frame provided with a match compartment or receptacle, having an opening in its bottom, a slide provided at its upper edge with a rear upwardly-extending flange forming a space between it and the inner face of the front piece of the receptacle to accommodate a single match, said slide adapted to work in the opening of the bottom of the receptacle, and means for actuating the slide, said slide when moved downwardly adapted to withdraw a match through the opening of the receptacle.

3. In a match-box, the combination, of a frame provided with a match compartment or receptacle having an opening in its bottom, a strip extending across said opening, and having its ends, journaled in suitable bearings, a spring secured at one end to a fixed point and at its opposite end to the bottom strip, said bottom strip adapted to close the opening of the match-receptacle under normal conditions, a slide, and means for actuating the slide, said slide when moved upwardly adapted to act on the bottom strip to cause said strip to turn and thereby provide an opening for the passage of the upper edge of the slide into the receptacle, and said slide on its reverse movement outwardly adapted to withdraw a match through the opening of the receptacle, said opening being automatically closed by the spring-actuated bottom strip, when the slide has traveled sufficiently far in its reverse direction to remove its contact with the spring-actuated strip.

4. In a match-box, the combination, of a frame provided with a match compartment or receptacle, having an opening in its bottom,

a slide adapted to work in the opening of the bottom of the receptacle, a carriage, and a connection between the carriage and the slide, whereby as the carriage is caused to travel in one direction, the slide is caused to travel in the opposite direction, the carriage when traveling downwardly causing the slide to move upwardly into the receptacle, and when said carriage travels upwardly the slide is caused to travel downwardly out of the receptacle, and to carry the match therewith and deposit said match onto the carriage.

5. In a combined match box and lighter, the combination, of a frame provided with a match compartment or receptacle, having an opening in its bottom, a slide adapted to work in the opening in the bottom of the receptacle, a carriage, and a connection between the carriage and the slide, whereby as the carriage is caused to travel in the opposite direction, one direction, the slide is caused to travel in the opposite direction, the carriage when traveling downwardly causing the slide to move upwardly in the receptacle, and when said carriage travels upwardly, the slide is caused to travel downwardly out of the receptacle, and to carry the match therewith, and to deposit said match onto the carriage, and an igniting-surface against which the match is adapted to bear and to be thereby ignited in the travel of the carriage downwardly.

6. In a match-box, the combination, of a frame, provided with a match compartment or receptacle having an opening therein, a traveling carriage adapted to receive one match at a time from the receptacle, and an inclined ledge adapted to receive the match from the opening and deposit said match onto the carriage said ledge provided with a downwardly-bent lip adapted to prevent the match from passing rearwardly off the carriage.

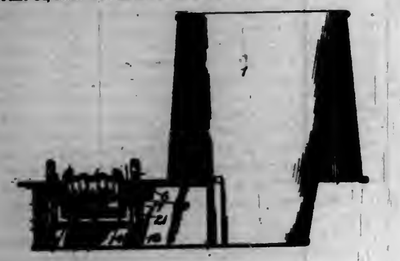
7. In a match-box, the combination, of a frame provided with a match compartment or receptacle, and having a longitudinally-arranged opening along its front face, the opposite bordering edges of said opening being turned downwardly, to form downwardly-extending flanges, a traveling carriage within the frame and beneath the longitudinal opening, and means for actuating the carriage, said carriage adapted, when at the limit of its movement in one direction to receive a match from the receptacle, and when at the limit of its movement in the other direction adapted to permit the match to be withdrawn through the longitudinal opening.

8. In a match-box, the combination, of a frame provided with a match compartment or receptacle having an opening in its bottom, a slide adapted to work in the opening of the bottom of the receptacle, a carriage, and a bell-crank lever having one arm or member connected to the carriage and the other arm or member to the slide, whereby, as the carriage is caused to travel in one direction, the slide is caused to travel in the opposite direction, the carriage when traveling downwardly causing the slide to move upwardly into the receptacle, and, when said carriage travels upwardly, the slide is caused to travel downwardly out of the receptacle, and to carry a match therewith and deposit said match onto the carriage.

9. In a match-box, the combination, of a frame provided with a match compartment or receptacle having an opening in its bottom, a slide adapted to work in said opening, a traveling carriage, a fixed shaft, and a wire coiled around said shaft, and having one end extending in one direction to pivotally connect with the slide and the other end of the coil extending out in an opposite direction to pivotally connect with the carriage.

10. In a match-box, the combination, of a frame provided with a match compartment or receptacle, said receptacle having an opening in its bottom, a slide working in said opening, wires coiled around at opposite points to form eyes, and then extended upwardly, and thence downwardly, a carriage traveling on the downwardly-bent portions of the wires, a pivot-shaft having its ends in the eyes of the bent wire, and a bell-crank lever turning on this pivot-shaft, and having one arm pivotally connected to the carriage, and having its other arm pivotally connected to the slide.

591,933. GLUE-KETTLE. Edgar L. Root, Defiance, Ohio. Filed June 14, 1897. Serial No. 640,773. (No model.)



Claim.—1. A fountain glue-kettle having a lateral extension at its lower end, combined with a spring-pressed roller-valve supported in said extension and closely fitting an opening therein and adapted to be rotated by a board or other object moving over it and to apply glue thereto, substantially as described.

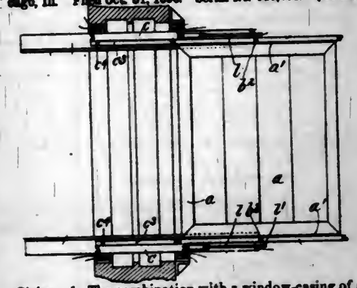
2. A glue-kettle having a lateral extension at its lower end provided with an opening, and an internally-threaded collar secured in the said opening, combined with an externally-threaded disk supported in said collar and provided with an opening, a spring-actuated bearing supported by the disk, a roller-valve journaled in the bearing to work in said opening, and a valve-seat formed of soft metal secured to the disk around the roller-valve, substantially as described.

3. A fountain glue-kettle having a lateral extension at its lower end provided with an opening, a spring-pressed roller-valve supported to fit and work in said opening, and a valve-seat formed of soft metal secured to the extension around the said opening to closely engage the roller-valve, substantially as described.

4. A glue-kettle having a lateral extension at its lower end provided with an opening, a spring-actuated roller-valve supported to work in said opening, a valve-seat formed of soft metal secured to the extension around the said opening to closely engage the roller-valve, and guiding-ribs at each end of the roller-valve also formed of soft metal secured to the extension, substantially as described.

5. A glue-kettle having a lateral extension at its lower end provided with an opening, and an internally-threaded collar supported in the opening, combined with an externally-threaded disk supported in said collar and provided with an opening in its middle portion, pins extending through the disk and having a threaded engagement therewith, a cross-bar loosely connected to the lower ends of the pins, a U-shaped bar having lugs or ears slidingly mounted on said pins, springs between said lugs and the cross-bar, a roller-valve journaled in the U-shaped bar to work in said opening, and a valve-seat of soft metal secured to the disk around its opening to closely engage the valve, substantially as described.

591,934. SUPPORTING-FRAME. Leonard G. Quackenbush, Chicago, Ill. Filed Oct. 21, 1896. Serial No. 610,708. (No model.)



Claim.—1. The combination with a window-casing of a box, runways provided in said casing, adapted to span the space to be traversed by the box on which the box may travel, and a mounting for said runways which permits the removal thereof from the space traversed by the box after the box has reached either end of its travel, substantially as described.

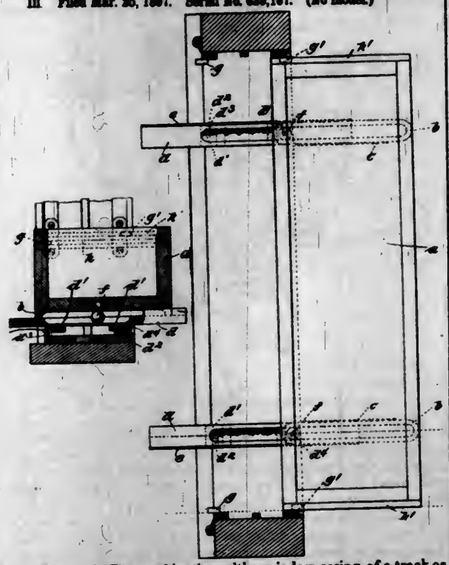
2. In a supporting-frame, the combination with runways associated with the box, of complemental runways normally spanning the space to be traversed by said box, a sliding or rolling connection between each of said runways and its complemental runway, and pivotal supports, one at each end of said complemental runways, whereby each of said complemental runways may be rotated about one of its supports as a pivot, when the box has reached the end of its travel, to remove said complemental runways from obstructing said space, substantially as described.

3. In a support for window-boxes, the combination with the box-body, of runways associated therewith, complemental runways normally spanning the window-frame, a roller connection between each of said runways and its complemental runway, whereby the box may be moved to and fro across the window-frame, and pivotal supports, one at each end of each of said complemental runways whereby the latter may be rotated out of the path of the window-sash, when the box has reached either end of its travel, substantially as described.

4. In a supporting-frame for a window-box, the combination with the box-body, of runways adapted to span the space to be traversed by the box, on which runways the box may travel, a sliding connection between the box and each of said runways, and pivotal supports at each end of said runways about one of which supports said runways may be rotated out of the path of the window-sash when the box has reached the end of its travel, substantially as described.

5. In a support for a window-box, the combination with the box-body, of slotted runways associated therewith, complemental slotted runways adapted to be thrown across the space to be traversed by the box, lugs upon each end of said complemental runways, sockets upon the window-frame adapted to receive and support said lugs, and rollers provided each with two shoulders, one of said shoulders adapted to engage the slot in one of said runways, and the other of said shoulders engaging a corresponding slot in one of said complemental runways, substantially as described.

591,935. WINDOW-BOX. Leonard G. Quackenbush, Chicago, Ill. Filed Mar. 26, 1897. Serial No. 630,167. (No model.)



Claim.—1. The combination with a window-casing, of a track or tracks provided therein, and a mounting for said track or tracks constructed to permit the rotation thereof about pivotal points located near the exterior and interior of the window-casing, whereby the track or tracks may be swung to occupy positions upon the interior or exterior of the window-casing substantially parallel with the sashes and in either position permit of the complete closing of the window, and a window-box adapted to travel upon said track or tracks and to be supported thereby, substantially as described.

2. The combination with a window-casing, of a track or tracks provided therein, and a mounting for said track or tracks constructed to permit the placement thereof in positions substantially parallel with the window-sashes and either near the interior or exterior of the window-casing, whereby the window may be completely closed with the track or tracks in either position, and a window-box adapted to travel upon said track or tracks and to be supported thereby, substantially as described.

3. The combination with a window-casing, of tracks provided therein, two pivots located respectively near the interior and exterior of the window-casing, provided in connection with each of said tracks, each of said tracks being adapted to rotate about either of its pivots and a window-box arranged to travel upon said tracks, substantially as described.

4. The combination with a window-casing, of tracks provided therein, two pivots located respectively near the interior and exterior of the window-casing and upon the sill provided in connection with each track, each of said tracks being adapted to rotate about each of its pivots and a window-box arranged to travel upon said tracks, substantially as described.

5. The combination with a window-casing, of tracks *d d* provided with slotted angle-plates *d' d'*, pivots d^2 d^2 and d^4 d^4 adapted to engage said angle-plates, and a window-box arranged to travel upon said tracks, substantially as described.

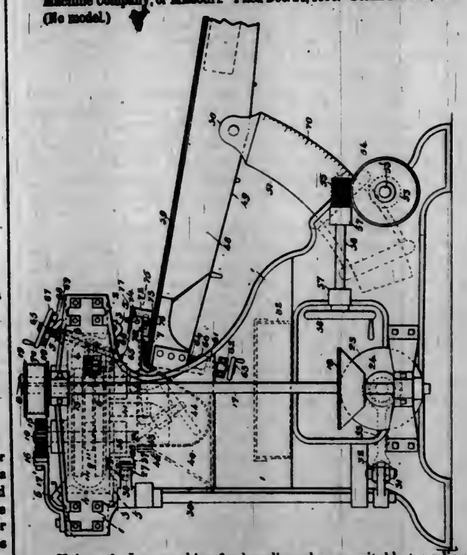
6. The combination with a window-casing, of grooved tracks *d d* provided therein, a window-box, grooved runways *b b* supported upon the bottom of the box, and balls *f f* adapted to engage the grooveways in the tracks and runways, substantially as described.

7. The combination with a window-casing, of tracks provided therein, and a window-box arranged to travel upon said tracks, grooveways *h h* and *h' h'* provided upon said box, and lugs *g g* and *g' g'* adapted to engage said grooveways, substantially as described.

8. The combination with a window-casing, of tracks provided therein, each of said tracks being provided with two pivots located respectively upon the interior and exterior of the casing and upon the sill thereof, a window-box arranged to travel upon the tracks, lugs *g g* and *g' g'* mounted upon the jambs of the casing, and grooveways *h h* and *h' h'* provided upon the box adapted to be engaged by said lugs, substantially as described.

9. The combination with a window-casing, of grooved tracks *d d* provided therein, a window-box, grooveways *b b* supported upon the bottom of the window-box, marginal guards *e e* provided upon the tracks, marginal guards *e e* provided upon the runways *b b*, balls *f f* engaging the grooves provided in said tracks and runways, substantially as described.

591,936. MACHINE FOR BEVELING GLASS. Robert A. Schlegel, St. Louis, Mo., assignor to the Schlegel Patent Beveling Machine Company, of Missouri. Filed Dec. 21, 1896. Serial No. 616,590. (No model.)



Claim.—1. In a machine for beveling glass, a suitable traveling carriage, a grinding disk or block mounted in said carriage, and a rotating device for feeding the grinding material to the disk during the grinding action of the latter, substantially as set forth.

2. In a machine for beveling glass, a suitable carriage, a rotating grinding-disk mounted in said carriage, and a rotating wheel having a series of radiating arms mounted in the carriage and adapted to operate upon and feed the grinding material toward the disk during the rotation of the latter, substantially as set forth.

3. In a machine for beveling glass, a suitable tilting table, a traveling carriage mounted in proximity thereto, a rotating grinding-disk mounted thereon, means for automatically feeding the edge of the plate carried by the table, into contact with the grinding-disk, and rotatable feed-regulating devices normally bearing against the table and adapted to be actuated by the carriage for regulating the rapidity of feed, substantially as set forth.

4. In a machine for beveling glass, a suitable tilting table, a traveling reciprocating carriage mounted in proximity thereto, a rotating grinding-disk mounted in the carriage, suitable springs for automatically feeding the edge of the glass mounted on the table against the grinding-disk, and means for adjusting and varying the tension of said springs, substantially as set forth.

5. In a machine for beveling glass, a suitable tilting table, a traveling carriage mounted in proximity thereto, a rotating grinding-disk mounted in the carriage, suitable springs for automatically feeding the edge of the glass mounted on the table against the grinding-disk during the rotation of the latter, means for adjusting or varying the tension of the springs, suitable rotatable staffs or rods adapted to bear against the table, and intermediate connections between the staffs and the carriage for intermittently rotating the staffs by the action of the carriage and unscrewing the same, whereby the action of the feeding devices located on the opposite side of the table may be regulated, substantially as set forth.

6. In a machine for beveling glass, a suitable frame, a tilting table mounted in connection with said frame, a reciprocating carriage carrying a grinding-disk mounted on the frame and in proximity to one end of the table, a rotatable staff at each end of the frame adapted to move by rotation in a direction parallel to itself in the nature of a screw, a hand-wheel carried at one end of each staff, a series of pins disposed along the rim of the wheel, arms carried by the carriage and extended in opposite directions, each arm adapted at the end of each stroke of the carriage to strike a pin of the wheel at that particular end of the machine, and rotate the hand-wheel and staff of which it forms a part, a distance equal to the space between any two pins, thereby gradually unscrewing the staffs, the opposite ends of the staffs being adapted to bear against the end of the table which is adjacent to the path of the carriage, and suitable feeding devices adapted to press the table and plate carried thereby against the grinding-disk, the rotating staffs being adapted to regulate the intensity and speed of feed of the table and plate mounted thereon, substantially as set forth.

7. In a machine for beveling glass, a suitable frame, a traveling carriage mounted thereon, a rotating grinding-disk mounted in the carriage and adapted to come in contact with the edge of the glass plate, a rotating sand-feeding wheel also carried by the carriage, and actuated upon the rotation of the grinding-disk during the travel of the carriage, substantially as set forth.

8. In a machine for beveling glass, a suitable frame, a reciprocating carriage mounted thereon, a rotating grinding-disk mounted in the carriage and adapted to come in contact with the edge of the glass to be beveled, a rotating sand-feeding wheel also carried by the carriage, and suitable gearing interposed between the rotating disk and the sand-feeding wheel whereby the latter is operated upon the rotation of the disk during the travel of the carriage, substantially as set forth.

9. In a machine for beveling glass, a suitable frame, a traveling carriage mounted thereon, a rotating grinding-disk carried by the carriage, a rotating wheel for feeding the grinding material to the grinding-disk, a spindle for the wheel, a bracket having a bearing for said spindle, intermediate gearing between the grinding-disk and the spindle of the sand-feeding wheel, a hood supported by the bracket and adapted to cover the grinding-disk and sand-feeding wheel, substantially as set forth.

10. In a machine for beveling glass, a suitable frame, a table or bed for the glass, arms pivoted on each side of the table, suitable sockets or cavities formed at the base of the frame for the reception of the lower free ends of the arms, a graduated index carried by one of the arms, said index cooperating with the edge of the socket through which the lower end of the particular arm passes, and suitable mechanism for simultaneously raising or lowering the arms and hence raising or lowering the pivotal axis of the table, substantially as set forth.

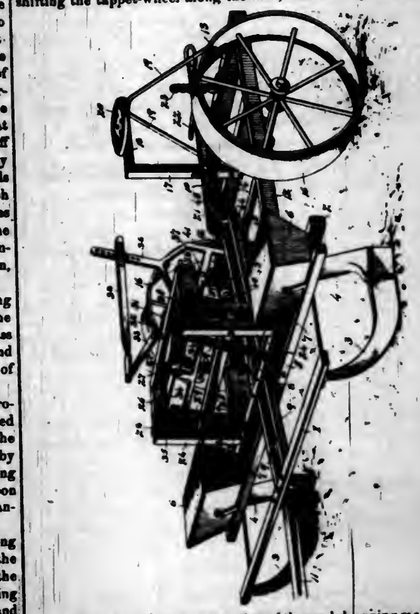
11. In a machine for beveling glass, a suitable frame, a tilting table mounted in connection therewith, arms disposed on each side of one end of the table, a block having a trunnion supported by the free end of each arm, a channel-bar having suitable slots or guideways for the blocks, a screw passed through each block, the base of the screw being adapted to be supported at one end by the base of the channel, a cap-plate spanning the open end of the slot or guideway adapted to hold in place the opposite end of the screw, whereby upon the turning of the screw the position of the block is shifted and hence the position of the channel-bar relative to the table is adjusted, substantially as set forth.

12. In a machine for beveling glass, a suitable sand-feeding wheel comprising a series of radiating arms, the free end of each arm being split, substantially as set forth.

591,987. CORN-PLANTER. DENTON SIMPSON, Centre, Howard County, Ind. Filed Feb. 26, 1897. Serial No. 625,174. (No model.)

Claim.—1. In a planter, the combination with the seed-dropping mechanism, and a rotatable axle or part, of a vertical lever having its lower end forked and spanning the axle, and having its upper end operatively connected with the seed-dropping mechanism, a sleeve mounted upon the axle to turn therewith and movable thereon, and having a tappet-wheel to alternately engage with the fork members of the vertical lever, and means for shifting the sleeve along the axle for throwing the tappet-wheel into and out of the plane of the forked end of the said vertical lever, substantially as set forth.

2. In a planter, the combination with the seed-dropping mechanism, and a rotatable axle or part, of a vertically-disposed lever having one end operatively connected with the seed-dropping mechanism, and having its opposite end forked and spanning the axle, the fork members being of unequal length and terminating in planes above and below a plane passing horizontally through the axle, a tappet-wheel slidably mounted upon the axle and adapted to alternately engage with the forked terminals of the aforesaid lever, and means for shifting the tappet-wheel along the axle, substantially as set forth.



3. In a planter, the combination of the seed-dropping mechanism, a rotatable axle or part, a vertically-disposed lever having one end forked and spanning the axle, and having the fork members of unequal length and provided at their extremities with small wheels, means for adjustably connecting the opposite end of the lever with the seed-dropping mechanism, a disk slidably mounted upon the axle and bearing a tappet wheel to alternately engage with the small wheels at the terminals of the forked members of the aforesaid lever, and means for shifting the disk along the axle, substantially as set forth for the purpose described.

4. In a planter, the combination of a reciprocating bar for transmitting motion to the seed-dropping mechanism, an intermediate pulley, side pulleys operatively connected with the intermediate pulley to move in unison therewith, means for oscillating the intermediate pulley, and connections between the side pulleys and the aforesaid reciprocating bar for actuating the latter, substantially as set forth

5. In a planter, the combination of a reciprocating bar for transmitting motion to the seed-dropping mechanism, a lever having connection with the reciprocating bar, an intermediate and side pulleys connected to move in unison, flexible connections between the side pulleys and the aforesaid lever for vibrating the latter, and means for imparting an oscillating movement to the intermediate pulley, substantially as set forth.

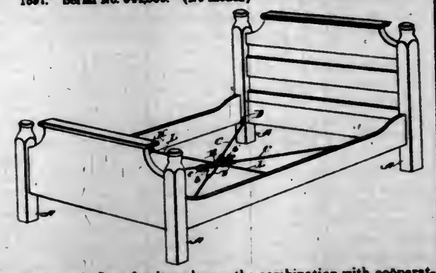
6. In a planter, the combination of a reciprocating bar for transmitting motion to the seed-dropping mechanism, parallel levers having connection at one end with the reciprocating bar, a T-coupling connecting the parallel levers, an intermediate and side pulleys connected to operate simultaneously, means for imparting an oscillating movement to the intermediate pulley, and flexible connections between the side pulleys and the aforesaid T-coupling, substantially as set forth.

7. In a planter, the combination of a reciprocating bar for transmitting motion to the seed-dropping mechanism, means for imparting a reciprocating movement to the said bar, wires or rods having connection with the reciprocating bar and operating loosely through openings in the framework, and extending in opposite directions, parallel with the reciprocating bar, and stops having adjustable connection with the said wires substantially as shown for limiting the throw of the bar in each direction, in the manner set forth for the purpose specified.

8. In a planter, the combination of a reciprocating bar for transmitting motion to the seed-dropping mechanism, stops having connection with the bar for limiting its throw in each direction, an intermediate and side pulleys connected to move in unison, flexible connections between the side pulleys and the reciprocating bar, a vertically-disposed lever having a forked end spanning the axle or rotating part, a pitman adjustably connecting the lever with a crank applied to the shaft of the aforesaid intermediate pulley, a tappet movable upon the axle for vibrating the forked lever, and means for shifting the tappet laterally to throw the planting mechanism into and out of gear, substantially as set forth.

9. In combination, a connecting-bar, vertical levers connected therewith, a T-coupling adjustably connecting the upper ends of the vertical levers, a pulley, means for oscillating the pulley, direction-pulleys at the sides of the oscillating pulley, and flexible connections passing around the oscillating pulley in reverse directions, thence around the direction-pulleys, and having connection with the T-coupling to impart a vibratory movement to the vertical levers for reciprocating the connecting-bar and the seed-dropping plates attached thereto.

591,988. FURNITURE-BRACE. GEORGE M. SPENCE, Raleigh, N. C., assignor of one-half to James A. Sexton, same place. Filed July 14, 1897. Serial No. 644,539. (No model.)



Claim.—1. In a furniture-brace, the combination with cooperating plates, sliding one upon the other, of a screw journaled in one of said plates and held against longitudinal movement therein, threaded projections upon the cooperating plate through which said screw passes, and brace rods or links for connecting said plates and opposite corners of the article of furniture; substantially as described.

2. In a brace for furniture, the combination with the cooperating plates, sliding one upon the other and having brace rods or links connected to opposite corners thereof, of threaded projections on one of said plates, a screw passing through said threaded projections, a corresponding projection on the cooperating plate and an open bearing therein, for holding the screw against longitudinal movement whereby the screw may be released from the last-mentioned plate and the parts separated; substantially as described.

3. In a brace for furniture, the combination with the cooperating plates, struck up from sheet metal, with upwardly-extending projections thereon, having their sides turned in to form braces for said projections, of a screw journaled in the projections on one of the said plates and passing through threaded apertures in the projections on the other of said plates, for adjusting the plates longitudinally, with respect to each other, and links or rods connected with said plates for joining said plates and opposite ends of the articles of furniture; substantially as described.

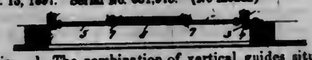
4. The combination with a bedstead, having corner-posts and side rails as described, of links extending inwardly from said corner-posts and from said side rails at intermediate points, cooperating plates movable with respect to each other, to which the inner ends of said links are connected and a longitudinal screw journaled in one of said plates and cooperating with threaded apertures in the other end of said plates for adjusting the plates longitudinally with respect to each other, and putting the links under tension, whereby the side rails are prevented from bending when the corner-posts are drawn inward; substantially as described.

591,989. PRESS-BOARD. MARGARET STEELE, Pittsburg, Pa. Filed Oct. 17, 1896. Serial No. 608,354. (No model.)



Claim.—In a press-board, the combination with the base, the upright hinged to one end thereof, having a hole near its upper end, and the rectangular plate secured to said upright and having an opening alined with said hole, of the headed screw passing through said plate, the concavo-convex reversible arm approximately oval in cross-section, to one end of which said screw is secured, and having a hole at the free end, the fixed upright having a slot in its upper end and the pin secured to said upright and adapted to engage with the hole in said arm, substantially as described.

591,940. GRAIN-DOOR. JAMES WATSON, Rantoul, Ill. Filed Apr. 13, 1897. Serial No. 631,975. (No model.)



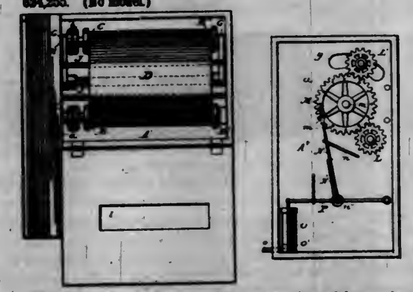
Claim.—1. The combination of vertical guides situated at the sides of a car-door opening, and extending from the car-floor for a distance equal, substantially, to the width of a door, a hinge-rod secured at one side of the door-opening, and extending parallel to one of the vertical guides adjacent thereto, and a door having eyes or loops mounted for pivotal and sliding movement on the hinge-rod, said door arranged to have both edges thereof engaged with said vertical guides when lowered, to be held securely thereby without other fastening means and adapted, when raised clear of the guides, to swing pivotally into an open position, substantially as described.

2. The combination of vertical guides situated at the opposite sides of a car-door opening and extending from the floor for a distance equal substantially to the width of a door, a hinge-rod secured at one side of the door-opening and extending parallel to one of the vertical guides adjacent thereto, a continuous sheet-metal door fitted in said guides to be held thereby when lowered and adapted when raised to be entirely free from engagement with the guides, and longitudinal reinforcement-bars extending continuously across, and united rigidly to, the door, said bars provided at one end only with loops or eyes which are loosely fitted on the vertical hinge-rod to slidably and pivotally connect said door thereto, for the purposes described, substantially as set forth.

3. The combination of vertical guides situated at both sides of a door-opening and extending from a car-floor a distance equal to the width of a door, a vertical hinge-rod adjacent to, and parallel with, one of said guides, and a continuous, sheet-metal door fitted in said guides to be held thereby when lowered, said door being provided with reinforcement-bars which extend longitudinally thereof and are united rigidly thereto, and one end of said bars bent to form loops or eyes that engage with the hinge-rod to attach said door slidably and pivotally to said rod, as and for the purposes described.

4. A grain car door, consisting of a continuous sheet of metal provided with a central gate-opening, the longitudinal reinforcement-bars applied against the outside of said continuous metallic door, and vertical guide-strips applied against the inside face of the door, on opposite sides of the gate-opening therein, and united with said longitudinal bars to the door by common fastening means, in combination with vertical guides situated at the respective edges of the door, a hinge-rod which receives hinge-loops on the longitudinal bars, and a wicket-gate fitted to the vertical guide-strips and carried by the door in its adjustments, substantially as and for the purposes described.

591,941. STATION-INDICATOR. FILLMORE M. WELSHIMER and BERNEY L. WELSHIMER, Columbia, Ind. Filed Feb. 19, 1897. Serial No. 624,255. (No model.)



Claim.—1. In an indicator, the combination with a casing provided with an observation-slot, of a pair of short lower shafts journaled in said casing, a lower spool fitted between and coupled to said lower shaft, a pair of short upper shafts journaled in arc-shaped slots in the casing, an upper spool fitted between the short upper shafts and coupled thereto, an apron attached to said spools, and mechanism connected with the short shafts for intermittently rotating the spools and thereby feeding the apron from one spool to the other.

2. In an indicator, the combination of a casing provided with an observation-slot, a pair of spring-controlled arms pivoted within the casing, a pair of short shafts journaled in said arms and having their ends extending through arc-shaped slots in the casing, a gear-wheel

located on the end of one of the shafts, a spool removably journaled in the shafts, a relatively stationary spool journaled in another pair of short shafts, a gear-wheel on the end of one of said shafts, an apron connected to the two spools and normally held in a taut condition, a master gear-wheel journaled between the two spools and geared thereto, the said master-gear being provided on its outer face with pins, a reversible feed arm or pawl engaging with the pins of the master gear-wheel, a lever attached to said pawl for raising the same, and means for intermittently operating the lever and thereby the gearing mechanism.

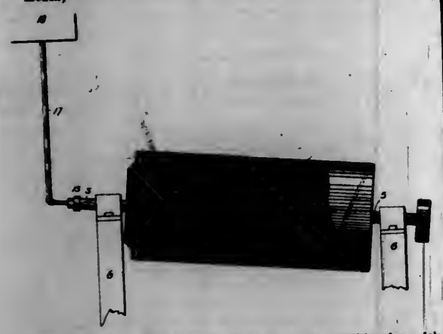
3. In an indicator, the combination of a casing provided with an observation-slot, a pair of spring-controlled arms pivoted within the casing, a pair of short shafts journaled in said arms and having their ends extending through arc-shaped slots in the casing, a gear-wheel journaled in the shafts, a relatively stationary spool journaled in another pair of short shafts, a gear-wheel on the end of one of said shafts, an apron connected to the two spools and normally held taut by the spring-controlled arms, a master gear-wheel journaled between the two spools and geared thereto, the said master-gear being provided on its outer face with pins, a reversible feed arm or pawl engaging with the pins, a lever attached to said pawl for raising the same, and a pressure-cylinder having its piston connected with the lever for operating the same; whereby the apron-carrying spools may be intermittently rotated.

591,942. DEVICE FOR STONING FRUIT. HELEN WILLARD, (now by marriage Helen Willard McNair,) Philadelphia, Pa. Filed Jan. 23, 1897. Serial No. 620,305. (No model.)



Claim.—A device for removing stones and seeds from fruit, the same consisting of an approximately U-shaped loop formed of a wire-like strand of metal, said loop having two longitudinally-extending members, and a transverse member, said members being continuous of each other, the rounded end of the implement being upwardly curved so that its outer end is in a plane at a considerable distance above the plane of the longitudinally-extending members, and the inner ends of the longitudinally-extending members being formed into or provided with a suitable handle,—substantially as and for the purpose specified.

591,943. AMALGAMATING APPARATUS. LAFAYETTE BAUDENDISTEL, Denver, Colo. Filed Feb. 9, 1897. Serial No. 622,665. (No model.)

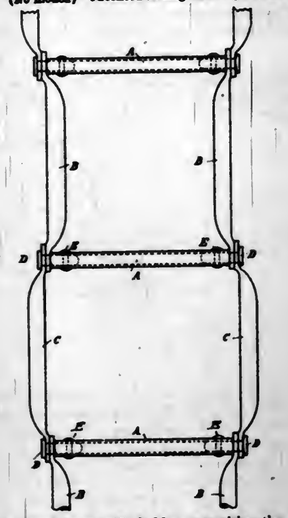


Claim.—1. In an amalgamating apparatus, the combination with the cylindrical plate, the inner screen and the shaft upon which the screen and plate are mounted, of a perforated pipe applied to the outer surface of the screen and connected with a suitable tank adapted to contain a cleansing solution.

2. In an amalgamating apparatus, the combination with a cylindrical plate, the inner concentric screen and the shaft upon which the plate and screen are mounted, said shaft having a hollow portion, of a perforated pipe applied to the outer surface of the screen and communicating with the hollow portion of the shaft, a stuffing-box applied to the hollow portion of the shaft, and a conduit connected with a suitable tank at one extremity and passing through the stuffing-box and communicating with the hollow portion of the shaft at the opposite extremity.

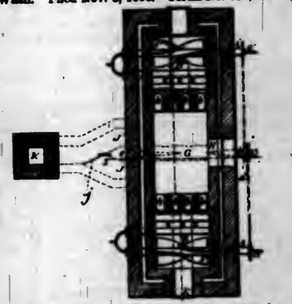
3. In an amalgamating apparatus, the combination with the cylindrical amalgamated plate, the inner concentric screen and the shaft upon which the plate and screen are mounted, of a perforated pipe coiled around the outer surface of the screen and connected with one extremity of the shaft which is hollow, a stuffing-box applied to the hollow extremity of the shaft, and a suitable conduit between the hollow extremity of the shaft and a suitable tank, said conduit passing through the stuffing-box.

591,944. FOLDING LADDER FOR FIRE-ESCAPES, &c. WILLIAM BECKETT, Sheffield, England. Filed Feb. 27, 1897. Serial No. 625,206. (No model.) Patented in England May 21, 1896, No. 10,939.



Claim.—A flexible metallic ladder comprising the tubular side links B and C having flattened and overlapping ends, the flat portion of each link being set out beyond the tubular part and the adjoining links being reversed in position, the tubular rungs A, and the pins D passing through the overlapping ends of the links and having their inner portions secured within the ends of the rungs.

591,945. SMELTING-FURNACE. FERDINAND H. BERGER, Tacoma, Wash. Filed Nov. 6, 1896. Serial No. 611,270. (No model.)



Claim.—1. In a heating-furnace the combination with a hearth or ore-chamber, of chambers upon opposite sides of said ore-chamber and communicating therewith, means for supplying oil to said chambers, and air-inlets for each chamber, fans in each of said chambers and means for revolving each alternately for changing the direction of the draft, through the ore-chamber, substantially as described.

2. In a heating-furnace the combination with a hearth or ore-chamber, of air and gas chambers communicating therewith, burners in said chambers, fans mounted in said chambers, and means for revolving the same, air-inlets for each of said chambers and draft-flues leading from the chambers, substantially as described.

3. In a heating-furnace the combination with a hearth or ore-chamber, air and gas chambers the walls separating said ore-chamber and said air and gas chambers being provided with fire-holes and air-holes, burners in said air-chambers, air-inlets therefor, and means for opening and closing said air-inlets alternately, fans in said air and gas chambers, and means for revolving them alternately for forcing the draft in opposite directions alternately across the ore-chamber, substantially as described.

4. In a heating-furnace the combination of an ore-chamber, air and gas chambers, communicating therewith, air-inlets for said chambers burners in said chambers and fans mounted therein, means for supplying the burners with oil, means for controlling said supply, and means for alternately revolving the fans for changing the draft, substantially as described.

5. In a heating-furnace the combination of an ore-chamber, air and gas chambers communicating therewith, oil-burners in said chambers, and fans mounted therein, flues connecting said chambers with a smoke-stack, a valve for directing the draft in said flues and means for revolving the fans alternately, substantially as described.

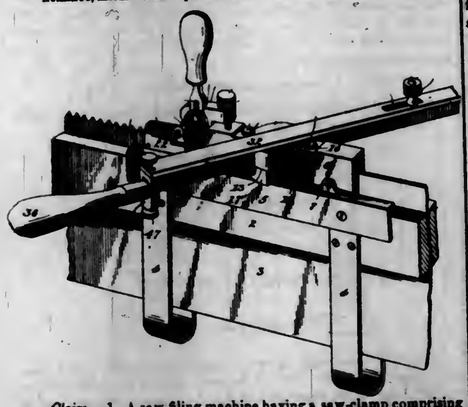
6. In a heating-furnace the combination of an ore-chamber, air and gas chambers communicating therewith, burners in said chambers, and fans also in said chambers, pulleys upon the shafts of said fans, belts for connecting said pulleys with loose pulleys upon a power-shaft and means for throwing said loose pulleys alternately into operative engagement with said shaft for rotating the fans alternately, substantially as described.

7. In a heating-furnace the combination of an ore-chamber, air and gas chambers communicating therewith, burners in said chambers and fans also in said chambers, having hollow shafts, an oil-supply for said burners, passing through said hollow shafts, and means for revolving said fans for changing the draft, substantially as described.

8. In a heating-furnace the combination of an ore-chamber, air and fuel chambers communicating therewith, fans in said air and fuel chambers, pulleys mounted upon the shafts of said fans, belts connecting said pulleys with loose pulleys upon a power-shaft and means for automatically bringing the said loose pulleys into operative engagement with said shaft, at regular periods for revolving the fans, alternately, substantially as described.

9. In a heating-furnace the combination of an ore-chamber, air and fuel chambers separated therefrom by walls having fire-holes and air-holes, burners in each fuel-chamber, fans also in chambers and mounted upon hollow shafts an oil-supply for said burners extending across through said hollow shaft, then into another cross-pipe, means for connecting said cross-pipe with the burners and means for revolving the fans, substantially as described.

591,946. SAW-FILING MACHINE. WILLIAM M. BROWN, Menominee, Mich. Filed Apr. 30, 1897. Serial No. 634,613. (No model.)



Claim.—1. A saw-filing machine having a saw-clamp comprising parallel clamp-bars, means connecting said bars for yieldingly holding them in contact with an interposed saw-blade, and a file-guide carrier mounted upon guides on said clamp-bars, and yieldingly held in engagement with the guides by said connecting means, substantially as specified.

2. A saw-filing machine having saw-clamping bars, means connecting said bars for yieldingly holding them in contact with an interposed saw-blade, and a file-guide carrier having an interlocking sliding connection with the clamp-bars, and held in operative engagement therewith by the connecting means of said bars, substantially as specified.

3. A saw-filing machine having saw-clamping bars, means connecting said bars for yieldingly holding them in contact with an interposed saw-blade, and provided respectively with guides having inturned lips, and a file-guide carrier provided in opposite sides with channels to receive the lips of said guides, said lips being held in engagement with the channels by the connecting means of said clamp-bars, substantially as specified.

4. A saw-filing machine having a file-guide carrier, feeding mechanism for the carrier, and friction devices having oppositely-disposed fixed and yielding friction-pins for bearing terminally upon opposite side surfaces of a saw-blade, substantially as specified.

5. A saw-filing machine having a file-guide carrier, feeding mechanism for said carrier, and friction devices having fixed and yielding friction-pins to bear against opposite side surfaces of a saw-blade, the yielding pin being in duplicate and arranged in planes upon opposite sides of the fixed pin, substantially as specified.

6. A saw-filing machine having a file-guide carrier, feeding mechanism for the carrier, and friction devices consisting of fixed and yielding friction-pins to bear terminally against opposite surfaces of a saw-blade, and adjusting devices for varying the tension of pressure of said yielding pins, substantially as specified.

7. A saw-filing machine having a file-guide carrier, feeding mechanism for the carrier, and friction devices consisting of oppositely-disposed fixed and yielding friction-pins to bear against opposite side surfaces of a saw-blade, the fixed pin being adjustable, and the yielding pins being carried by a spring-plate, and a set-screw to vary the tension of said spring-plate, substantially as specified.

8. A saw filing machine having a file-guide carrier, and feeding mechanism embodying oppositely-disposed clutch-shoes adapted to bear against opposite side surfaces of a saw-blade and provided with exterior bevel or cam faces, an operating lever having cheeks to engage said bevel or cam faces, and a feed-lever having pivotal and longitudinal movement connected with said operating-lever, substantially as specified.

9. A saw-filing machine having a file-guide carrier, a feed-lever mounted for pivotal and longitudinal movement upon the carrier, and a clutch adapted to frictionally engage a saw-blade and having an arm connected with the feed-lever and capable of swinging movement to engage and release the clutch, substantially as specified.

10. A saw-filing machine having a file-guide carrier, a limiting-lever mounted upon the carrier, a feed-lever mounted upon the pivot of the limiting-lever between contiguous shoulders thereof and slotted for longitudinal movement independently of said limiting-lever, means carried by the limiting-lever for controlling the throw thereof in opposite directions, and a clutch operatively connected with the feed-lever and adapted to be engaged and disengaged by longitudinal movement thereof, substantially as specified.

11. A saw-filing machine having a file-guide carrier, a limiting-lever mounted upon the carrier and provided at opposite ends with fixed and adjustable stop pins, whereby the throw thereof is limited, a feed-lever mounted upon the same pivot as the limiting-lever between contiguous shoulders of said lever, said feed-lever being longitudinally slotted for movement independently of the limiting-lever, and a clutch operatively connected with the feed-lever and adapted to be engaged and disengaged by longitudinal movement of the latter, substantially as specified.

12. A saw-filing machine having a file-guide mounted for movement parallel with a saw-blade, and a file-holder having a hollow open-sided slide fitted in said guide, and adjustable means carried by the slide for supporting a file in the open side thereof, substantially as specified.

13. In a saw-filing machine, the combination with a file-guide mounted for movement parallel with a saw-blade, of a file-holder having a hollow slide open at one side, file-supporting devices mounted upon the slide and provided contiguous to the plane of the open side thereof with seats for terminally receiving a file, and means for securing said file-supporting devices at the desired adjustment, substantially as specified.

14. In a saw-filing machine, the combination with a file-guide mounted for movement parallel with a saw-blade, of a file-holder having a slide fitted in said guide, a bearing carried by the slide, a handle having a journal portion revolubly fitted in said bearing and having a seat for one end of a file, alined oppositely-positioned set-screws terminally arranged in operative relation with the journal portion of the handle, and a second supporting device for the opposite end of the file, substantially as specified.

15. In a saw-filing machine, the combination with a file-guide mounted for movement parallel with a saw-blade, of a file-holder having a slide fitted in said guide, a bearing carried by the slide, a handle having a circumferentially-grooved journal portion fitted in a bearing and provided with a seat for one end of a file, and a set-screw threaded in the bearing and terminally engaging the circumferential groove of the handle, and clamping devices including a lock-screw alined with and oppositely positioned with relation to the set-screw, and means for supporting the opposite end of the file, substantially as specified.

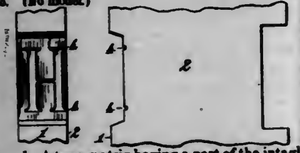
16. In a saw-filing machine, the combination of a file-guide mounted for movement parallel with a saw-blade, of a file-holder

having a slide fitted in said guide, a bearing carried by the slide, a handle having a circumferentially-grooved journal portion mounted in said bearing and provided with a seat for one end of a file, a set-screw mounted in the bearing and terminally engaging the circumferential groove of the handle, a plate-spring bearing terminally against the journal portion of the handle at the opposite side from said set-screw to hold the former in yielding contact with the latter, a lock-screw terminally impinging against the spring for clamping the latter in frictional contact with the handle, and means for supporting the opposite end of the file, substantially as specified.

17. In a saw-filing machine, the combination with a file-guide mounted for movement parallel with a saw-blade, of a file-holder having a slide fitted in said guide, bearings carried by the slide, a handle revolubly fitted in one of the bearings and provided with a seat for one end of a file, a thimble removably fitted in the other bearing and provided with a seat for the other end of the file, and means for locking the handle at the desired rotary adjustment in its bearing, substantially as specified.

18. In a saw-filing machine, the combination with a guide adapted to be arranged in the desired position with relation to a saw-blade, of a file-holder having a hollow open-sided slide adapted to fit in said guide and provided at one end with a fixed bearing, a handle having a journal portion mounted in said bearing and provided with a seat for one end of a file, an adjustable bearing mounted for movement parallel with the slide, means for securing the adjustable bearing in a fixed position, a thimble mounted for rotary adjustment in the adjustable bearing and adapted to receive the other end of a file, springs arranged in operative relation with said adjustable bearing and the journal portion of the handle, a set-screw mounted in the fixed bearing to impinge terminally upon the journal portion of the handle, and a lock-screw to bear in the opposite direction against the journal portion of the handle, substantially as specified.

591,947. MATRIX FOR LINE-CASTING MACHINES. ALEXANDER S. CAPEHART, Bismarck, N. D. Filed Jan. 14, 1897. Serial No. 619,203. (No model.)



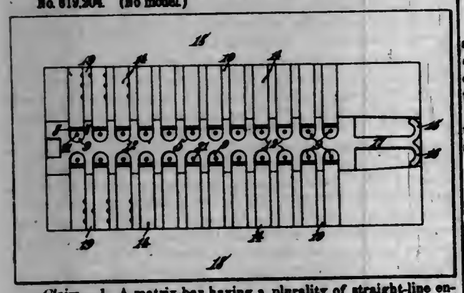
Claim.—1. A type-matrix having a part of the intaglio character open through one side surface thereof, substantially as and for the purposes described.

2. A matrix bar or plate having an intaglio character in its edge placed bodily nearer one side than the other with a part of the intaglio open through one lateral surface of the bar or plate, substantially as and for the purposes described.

3. A matrix bar or plate having parallel sides and provided with an intaglio type-character with a part open through one lateral surface of the bar or plate, substantially as and for the purposes described.

4. A matrix bar or plate having an intaglio type-character opening laterally through a side surface of the bar or plate and provided with a thickened wall at the opposite side, substantially as and for the purposes described.

591,948. MATRIX-BAR AND METHOD OF MAKING SAME. ALEXANDER S. CAPEHART, Bismarck, N. D. Filed Jan. 14, 1897. Serial No. 619,204. (No model.)



Claim.—1. A matrix-bar having a plurality of straight-line entrances in its edge at the several points where intaglio or type characters are formed, substantially as and for the purposes described.

2. A matrix-bar having a plurality of recesses open at the front and both sides and constructed to engage and firmly and squarely hold the type-dies in the formation of intaglio or type characters in the bottom portions of the recesses, substantially as and for the purposes described.

3. A matrix-bar having a plurality of recesses in its edge, containing intaglio characters and constructed with rectilinear, parallel edges which engage and accurately hold the type-dies when the intaglio characters are formed, substantially as and for the purposes described.

4. A matrix-bar having a recess in its edge, containing an electrodeposited intaglio character and constructed with edges which engage and firmly hold the type-die in accurate position to form the intaglio character, substantially as and for the purposes described.

5. A matrix-bar having a plurality of recesses in its edge containing electrodeposited intaglio characters and constructed with straight-line entrances, substantially as and for the purposes described.

6. A matrix-bar having a plurality of recesses in its edge containing anchored intaglio fillings and constructed with rectilinear, parallel edges which engage and firmly hold the dies when the intaglios are formed, substantially as and for the purposes described.

7. A matrix-bar having a plurality of recesses in its edges containing intaglio characters and provided with rectilinear, parallel edges for guiding and firmly holding the intaglio-forming dies, substantially as and for the purposes described.

8. A matrix-bar having straight-line entrances containing electrodeposited intaglio characters, and anchoring cavities or depressions in the side surfaces of the bar below or beyond said entrances, substantially as and for the purposes described.

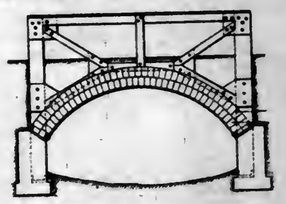
9. A matrix-bar having edge recesses containing electrodeposited intaglio characters, and anchoring cavities or depressions formed in the opposite side surfaces of the bar, substantially as and for the purposes described.

10. A matrix-bar having straight-line entrances in its edge, containing electrodeposited intaglio characters, and substantially semicircular anchoring cavities or depressions in the opposite side surfaces of the bar, the edges of said cavities or depressions forming continuations of the edges of the straight-line entrances, substantially as and for the purposes described.

11. A matrix-bar having an edge recess open at the front and sides, containing an anchored, electrodeposited intaglio, and constructed with parallel edges to guide and maintain the intaglio-forming die, substantially as and for the purposes described.

12. The method herein described of manufacturing matrix-bars, which consists in forming the bar with straight line entrances, fitting type-dies to the rectilinear edges of said entrances, and electrodepositing metal about the type-characters of the dies, substantially as and for the purposes described.

591,949. ARCH CULVERT. GEORGE M. CHENEY, Indianapolis, Ind. Filed Nov. 28, 1896. Serial No. 613,530. (No model.)



Claim.—1. An arch culvert for highway purposes with a rivet steel-frame truss at each end of the arch, riveted to a steel plate or channel forming the upper part of the abutment of the arch, and so constructed as to admit of free and unobstructed passage through the opening of the arch.

2. A riveted steel framework supporting an arch and the end trusses serving as a guard-rail, and as a stay and support for the channels, forming the upper part of the skewback.

3. The construction of an arch culvert of two courses of material, the inner course or intrados, laid with an unyielding mortar, as cement or lime mortar; the outer course or extrados, laid with a yielding mortar as coal-tar or asphalt.

4. In combination, a steel plate or channel, at each foot of the segment of the arch and forming the upper part of the abutment or skewback of the abutment, riveted to and held in place by a vertical truss at each end of the arch, the truss at each end extending above the roadway for a guard-rail and protection of the masonry at the ends of the arch.

591,950. DELIVERY-SLIP HOLDER. FRANK T. CLARK, Omaha, Nebr. Filed Jan. 22, 1897. Serial No. 620,208. (No model.)



Claim.—The combination with two leaves secured by a flexible back of pockets at the ends of said leaves and a plurality of clips near the flexible back, all arranged as and for the purpose set forth.

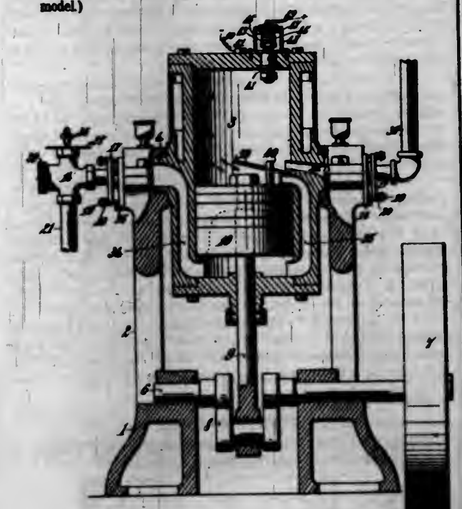
591,951. LINK-HOOK. JAMES H. COOK, Beech Island, S. C., assignor of one-half to Norman L. Lamar, Aiken County, S. C. Filed Mar. 11, 1897. Serial No. 626,963. (No model.)



Claim.—1. A link-hook consisting of two metal bars bent in substantially the middle of their length, each bar having one of its ends looped and interlocked with the loop of the other, the loops being at an angle of ninety degrees to each other, one of the bars having also a hook at one end, and the end of the other bar terminating in a laterally-extended neck and a head on the outer end thereof substantially as described.

2. A link-hook consisting of a metal bar bent in substantially the middle of its length, one end being looped on top thereof, and the other end consisting of a hook, bent upwardly, in combination with a bent metal bar one end of which is looped laterally and the other end is provided with a headed neck extended laterally and adapted to be received within the hook of the other bar substantially as described.

591,952. EXPLOSIVE-ENGINE. CHARLES I. CUMMINGS and JOHN C. HILTON, Erie, Pa. Filed Dec. 19, 1896. Serial No. 616,374. (No model.)



Claim.—1. In a gas-engine, the combination of an oscillating cylinder having hollow trunnions mounted in bearings, a gas-supply pipe connected to one of said trunnions, a port leading from said trunnion to the bottom of the cylinder, a corresponding port communicating with the cylinder near the bottom thereof and intermediate its ends, an exhaust-port, and a piston, substantially as described.

2. In a gas-engine, the combination of an oscillatory cylinder provided with hollow trunnions mounted in bearings, a check-valve arranged in one of said trunnions and opening inwardly, a gas-supply pipe communicating with said trunnion at its outer end, a port leading from the inner end of said trunnion to the bottom of the cylinder, a similar port communicating at its opposite ends respectively with the bottom of the cylinder and at a point intermediate its ends, a piston and an exhaust, substantially as described.

3. In a gas-engine, the combination of an oscillatory cylinder provided with hollow trunnions mounted in bearings, a gas-supply pipe communicating with one of said trunnions at its outer end, a port leading from the inner end of said trunnion to the bottom of the cylinder, a corresponding port leading from the bottom of the cylinder to a point intermediate the ends of the cylinder, an exhaust-port arranged immediately above the upper end of said port, and a piston arranged in the cylinder, substantially as described.

4. In a gas-engine, the combination of an oscillatory cylinder provided with hollow trunnions mounted in bearings, a gas-supply pipe communicating with one of said trunnions at its outer end, a port leading from the inner end of said trunnion to the bottom of the cylinder, a corresponding port leading from the bottom of the cylinder to a point intermediate the ends of the cylinder, an exhaust-port extending through the other trunnion and opening into the cylinder immediately above the upper end of the said port, and a piston arranged to open and close said port and exhaust-port, substantially as described.

5. In a gas-engine, the combination of an oscillatory cylinder provided with hollow trunnions mounted in bearings, a gas-supply pipe communicating with one of said trunnions at its outer end, a port leading from the inner end of said trunnion to the bottom of the cylinder, a corresponding port leading from the bottom of the cylinder to a point intermediate its ends, an exhaust-port extending through the other trunnion, a piston, and an electric sparking device arranged to produce a spark when the piston starts on its downstroke, substantially as described.

6. In a gas-engine, the combination of an oscillatory cylinder provided with hollow trunnions mounted in bearings, a check-valve arranged in one of said trunnions and opening inwardly, a valve-casing communicating with said hollow trunnion and provided with a gas-regulating valve, a gas-supply pipe, an inwardly-opening air-valve for supplying air to said valve-casing, a port leading from the inner end of the said trunnion to the bottom of the cylinder, a similar port communicating at its opposite ends respectively with the bottom of the cylinder and at a point intermediate its ends, a piston, and an exhaust, substantially as described.

7. In a gas-engine the combination of an oscillatory cylinder having hollow trunnions mounted in bearings, a gas-supply pipe connected to one of said trunnions, a port leading from said trunnion to the bottom of the cylinder, a corresponding port communicating with the cylinder near the bottom and intermediate its ends, an exhaust-port arranged above the upper end of said port, a piston, and a funnel-shaped deflector arranged on the upper end of the piston, substantially as described and for the purpose specified.

8. In a gas-engine, the combination of an oscillatory cylinder 3 provided with hollow trunnions 4 and 5 mounted in bearings, the inwardly-beveled thimble 11 fitted in the outer end of the trunnion 4, a check-valve 12 hinged to said thimble, a tapered nipple 13 seated in said thimble and connected with a valved gas-supply pipe, and means for yieldingly holding said nipple to its seat, substantially as described.

9. In a gas-engine, the combination with the cylinder thereof, of a valve-casing 14 connected with a gas-supply pipe and with the cylinder, a valve 22 for controlling the passage of the gas through said cylinder, and an air-valve for periodically admitting air to the valve-casing, said air-valve consisting of a centrally-apertured cap 29 fitted over the nipple 28 and provided with inwardly-projecting guide-fingers 30, a reciprocating valve 31 arranged between said fingers and adapted to seat against the cap 29 over the central aperture, and a coiled spring 33 disposed between the valve 31 and a fixed support on the interior of the valve-casing and operating to normally hold the valve closed, substantially as described.

591,953. SCOOP. MERWIN R. DAVENPORT and ELMER R. DAVENPORT, Baraboo, Wis. Filed June 3, 1897. Serial No. 639,856. (No model.)



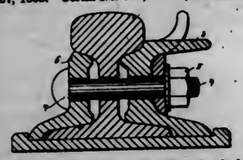
Claim.—1. A scoop having its body constructed out of a single piece of sheet metal cut and bent and pressed to have its spout V-shaped and inclined, its bottom rectangular, and its back of two superposed thicknesses substantially as described.

2. A scoop having its body consisting of a single piece of sheet material cut and bent to have its spout V-shaped, its bottom triangular of two superposed thicknesses, and its back of two superposed thicknesses, substantially as described.

3. A scoop having its body, consisting of a single piece of sheet material cut and bent to have its spout V-shaped, its back of two superposed thicknesses, and its bottom of two superposed thicknesses having tongues overlapping the bottom of the back parts substantially as described.

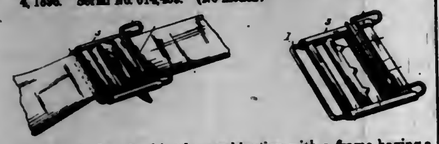
4. A scoop having its body consisting of a single piece of sheet metal cut and bent to have its spout V-shaped, its bottom triangular and its back of two superposed thicknesses, in combination with a handle having a tongue bent down and straddling the upper edges of said back parts substantially as described.

591,954. COMPOUND RAIL. THOMAS F. DAVIES, Duquesne, Pa. Filed Dec. 27, 1895. Serial No. 573,444. (No model.)



Claim.—The combination with the T-rail, of the tram-rail having flanges projecting from one side, one at its top and the other at its bottom, the bottom one adapted to rest upon the flange or base of said T-rail and to project beyond the latter, so as to form an extension in the same plane with the base of the T-rail, and the top flange adapted to rest at its inner edge against the head of said T-rail and slightly below the top thereof, together with means for securing it to said T-rail, substantially as set forth.

591,955. BUCKLE. GEORGE H. DAVIS, Mahaffey, Pa. Filed Dec. 4, 1896. Serial No. 614,469. (No model.)



Claim.—1. In a buckle, the combination with a frame having a rebent portion, of a slide mounted on said frame and adapted to hold a strap between itself and the end of the frame, and a clasp mounted on the rebent portion of the frame.

2. In a buckle, the combination with a frame having a rebent portion, of a slide provided with slots extending across the frame, and a clasp held upon the rebent portion.

3. In a buckle, the combination with a frame having a rebent portion, of a slotted slide, teeth projecting within one of the slots, and a toothed clasp mounted upon the rebent portion of the frame.

4. In a buckle, the combination with a frame having a rebent portion, of a flat metal slide provided with a slot having a plurality of pointed teeth extending thereinto from the slide, and a sheet-metal clasp bent around the rebent portion of the frame and provided with teeth upon the side thereof.

591,956. ANIMAL-TRAP. JOHN B. DAVIS, Abingdon, Ill. Filed Jan. 9, 1897. Serial No. 618,614. (No model.)



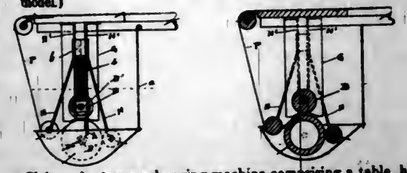
Claim.—1. In an animal-trap, the combination with the base-plate and the spring-actuated jaw pivoted thereon, of a tripping-lever pivoted to the front end of the trap and extending rearwardly beyond the pivotal connection of the jaw to the base, and a trigger pivoted intermediate its ends to the base at a point between the pivotal points of connection between the base and the jaw and the base and the lever, one end of said trigger being adapted to engage the jaw and the other the forward end of the lever, substantially as described

2. In an animal-trap, the combination of a base having one of its end portions halved out or reduced in width, a coiled spring extending transversely of the base and secured thereto, a jaw actuated by the spring, a tripping-lever pivoted at its front end portion to the inner side edge of the reduced end of the base and extending rearwardly over the spring, said lever having an upward bend to fit over the spring, and a trigger pivoted intermediate its ends to the inner side edge of the reduced end of the base in rear of the pivot of the tripping-lever, one end of the trigger being adapted to engage the end of the tripping-lever and its other end to engage the said jaw, substantially as described.

3. In an animal-trap, the combination with the base, a coiled spring extending transversely of the base and secured thereto, and a jaw actuated by the spring, of a tripping-lever pivoted to the frame in advance of the spring and extending rearwardly over the spring, said lever having an upward bend to fit over the spring, and a trigger pivoted intermediate its ends to the base, one end of said trigger being adapted to engage the forward end of the lever and the other end to engage the jaw, substantially as described.

4. In an animal-trap, the combination with the base, of a coiled spring extending transversely thereof, a jaw actuated by said spring, a rod extending through the spring and having at one of its ends a return-bend secured in the edge of the base, and a staple secured in the base to hold the opposite end of the rod to the base, substantially as described.

591,957. PAPER-HANGER'S APPARATUS. OREN M. DEETS, Youngstown, Ohio. Filed Apr. 27, 1897. Serial No. 634,101. (No model.)



Claim.—1. A paper-hanging machine comprising a table, hangers depending therefrom, a paper-roller adjustably journaled to said hangers, a paste-roller also journaled to said hangers, a paste-pan supported by said hangers combined with a paste-distributing roller and guide-rollers all substantially as described.

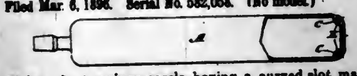
2. A paper-hanger's apparatus comprising a table, depending hangers secured thereto, a paper-roller removably and adjustably journaled thereto, a paste-roller journaled to said hangers, a paste-pan therefor and a paste-distributing roller combined with the paper-guide rollers substantially as described.

3. A paper-hanger's apparatus comprising a table, hangers depending therefrom, a paste-roller and a paste-distributing roller journaled to said hangers, an adjustable journal-box sliding on said hangers, a telescoping sectional shaft journaled in said bearings, a paper-roller rotating on said shaft combined with a paste-pan and guide-roller substantially as described.

4. A paper-hanger's apparatus comprising a table, hangers depending therefrom, a paste-roller, a paste-distributing roller and a guide-roller journaled to said hanger, a paste-pan for said paste-roller, bearing slidably mounted on the hangers, springs controlling the said sliding bearings, the sectional telescopic shaft rotating in said bearings, the roller mounted on said shaft, the depending guide-plates secured to the table and resting on said roller, and the spools rotatably mounted on the sectional shaft substantially as described.

5. A paper-hanger's apparatus comprising a table, hangers depending therefrom, a paste-roller, a paste-distributing roller and a guide-roller journaled to said hangers, lateral lugs projecting from said hangers, a paste-pan pivotally secured to said lugs and means for tipping said pan to any desired angle.

591,958. SYRINGE. MYER DITTENHOFER, New York, N. Y. Filed Mar. 6, 1896. Serial No. 582,058. (No model.)

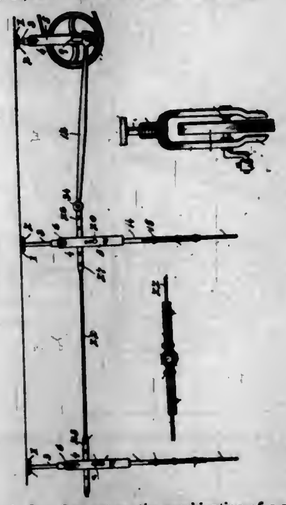


Claim.—1. A syringe-nozzle having a curved slot made in the end thereof, extending entirely through the article, shoulders which are integral with the body of the nozzle, which project inwardly therefrom, and which bridge the slot for supporting the part, which would otherwise be severed, for the purposes set forth.

2. A syringe-nozzle having at its end shoulders separated from each other and located on the inside of the end of the nozzle at different distances from the center, and extending below or beyond the plane of the inner surface of the end of the nozzle, whereby a plurality of circular slots may be made which cut through the end of the nozzle, excepting at said separated shoulders, for the purposes set forth.

3. A syringe-nozzle having shoulders located on the inside of the end of the nozzle and separated from each other, and which are integral with the nozzle and extend beyond the plane of its inner surface and which are located at different distances from the center and break joints with each other, for the purposes set forth.

591,959. SYSTEM OF FANS. EUGENE S. DUNN, Marietta, Ohio. Filed Mar. 18, 1897. Serial No. 628,205. (No model.)

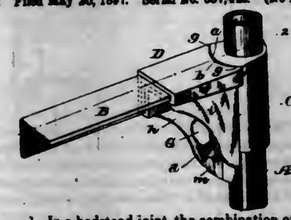


Claim.—1. In a fan system, the combination of a series of fans each having a handle provided with a ball-shaped upper end and with a series of recesses in opposite sides thereof between the ball-shaped end and the fan, a series of hangers suspended from the ceiling and provided with oppositely-arranged set-screws to engage the recesses in the fan-handle, a pitman having a series of sockets to receive the ball-shaped ends of the fan-handles, and means to reciprocate the pitman, substantially as described.

2. In a fan system, the combination of a series of hangers, a series of fans the handles of which are pivoted in said hangers, each handle having a ball-shaped upper end, a pitman formed of a series of sections, couplings connecting the said sections together and to the fan-handles, each coupling consisting of two plates each provided with a semispherical recess to receive the ball-shaped end of the fan-handle, and means to reciprocate the pitman, substantially as described.

3. In a fan system, the combination of a ceiling-plate, a threaded stem extending therefrom, a hanger consisting of spaced arms united at their upper ends by a crown-piece having a threaded socket to receive said threaded stem, a fan-handle having a series of conical recesses in opposite sides, set-screws working in said arms and having conical ends to engage the conical recesses in the handle, jam-nuts on the set-screws adapted to engage the arms and lock the screws in position, and means connected to the upper end of the fan-handle to rock the latter on the set-screws, substantially as described.

591,960. DETACHABLE JOINT FOR METALLIC BEDSTEADS. CHARLES P. DYER, Somerville, Mass., assignor, by direct and mesne assignments, to Lucy R. Dyer, same place, and Mary C. Darrow, Boston, Mass. Filed May 20, 1897. Serial No. 637,442. (No model.)



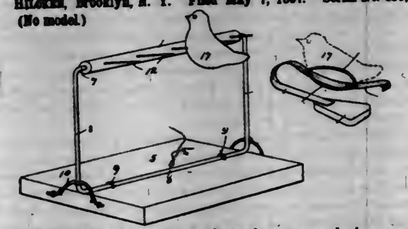
Claim.—1. In a bedstead-joint, the combination of two members having oppositely-curved contacting faces held together by a headed stud on one member, engaging a slot in the other member, and one of said faces being of longitudinally concave form, whereby it is caused to bear against the face of the opposite member at the top and bottom only, while held at a point intermediate between said upper and lower bearings by said stud and slot, substantially as described.

2. A bedstead-joint consisting of two members, the opposing faces of which are respectively concave and convex in cross-section and of different transverse curvatures, whereby they are caused to bear against each other, near the edges only, and one of said members being provided with a headed stud engaging a slot in the other member and taking a bearing against inclined or wedge-shaped surfaces at the sides of said slot, and the opposing face of one member being made concave longitudinally, whereby said members are caused to bear against each other at the top and bottom only, with an intermediate bearing under the head of the connecting-stud, substantially as set forth.

3. A bedstead-joint consisting of a sleeve member, encircling the corner-post of the bedstead and a rail member for receiving the end of the rail, said members having contacting faces oppositely curved transversely and held together by a headed stud on the sleeve member, engaging a slot in the rail member and taking a bearing against inclined surfaces at the sides of said slot, said contacting faces being of different transverse curvatures, whereby they are caused to bear against each other at the edges only, and the face of one member being concaved longitudinally, whereby said members are caused to bear against each other at the top and bottom only, while held at a point intermediate between said upper and lower bearings by said stud and slot, substantially as described.

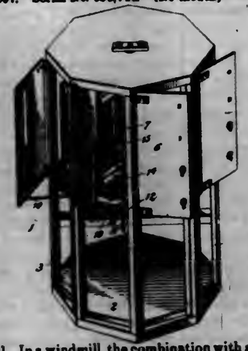
4. In a bedstead-joint, the combination with the two members C, D, having oppositely-curved contacting faces sliding the one upon the other and held together by a headed stud G, on the member C, engaging a slot in the member D, of the lug or projection *m*, extending from the face of the member C, beneath the stud G, and forming a fulcrum for a bar or lever, whereby the member D may be raised to disengage it from the member C, substantially as set forth.

591,961. GAME DEVICE. CORA V. EMERSON and JOHN A. HILSKEN, Brooklyn, N. Y. Filed May 7, 1897. Serial No. 635,506. (No model.)



Claim.—The herein-described puzzle or game device, comprising a base-board, a rectangular frame pivotally mounted thereon, springs secured to each end of said base-plate, and adapted to hold the frame in a vertical position, a cylinder mounted on the upper side of said frame, a plurality of pins projecting from one side thereof in a horizontal manner, said pins being sharpened, a block, a yoke-shaped spring mounted on said block and provided at the free end thereof with a nest-shaped receptacle, and a toy figure composed of material easily perforated and adapted to be projected by said spring against one of said pins, substantially as and for the purpose described.

591,962. WINDMILL. FRANCIS EVISON, Morenci, Mich. Filed May 29, 1897. Serial No. 638,744. (No model.)

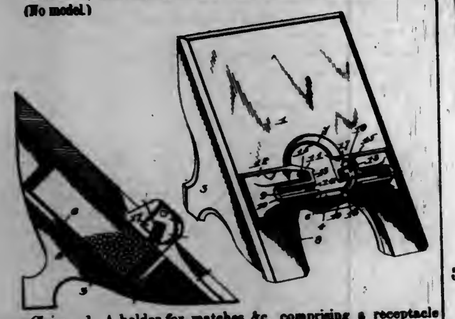


Claim.—1. In a windmill, the combination with a horizontal wind-wheel, of a casing receiving the same and provided with an annular series of hinged doors, vertical shafts journaled on the doors at the free edges thereof and provided with arms extending horizontally

from the shafts, and links pivoted to the casing and to the outer ends of the arms, the arm and link of each door being operated independently of the others and forming a lock to retain the doors in their open and closed positions, substantially as described.

2. In a windmill, the combination with a horizontal wind-wheel, of a casing receiving the same and provided with an annular series of hinged doors, the vertical shafts journaled on the doors at the free edges thereof and provided at their lower ends with depending cranks, the vertical portions thereof forming handles, and links pivoted to the casing and to the vertical portions of the cranks, said links and cranks forming locks to hold the doors open and closed, substantially as described.

591,968. HOLDER FOR MATCHES, TOOTHPICKS, &c. ARTHUR GALBRAITH, Everton, Mo. Filed Mar. 26, 1897. Serial No. 629,443. (No model.)



Claim.—1. A holder for matches &c. comprising a receptacle having a finger-slot and a transverse passage through which the articles may be extracted, and a substantially inverted-U-shaped gravity-guard pivoted at its bend in the slot to form inner and outer side portions and arranged to swing transversely of the passage and through the same, the outer side portion being arranged to be engaged and actuated by the article extracted, and the inner side portion forming a cut-off, substantially as described.

2. A holder for matches, &c., comprising a suitable receptacle provided with a finger-slot and having a passage, a pair of substantially inverted-U-shaped gravity-guards pivoted at their bends in the finger-slot at opposite sides thereof to form inner and outer side portions and arranged to swing transversely of the passage through the same, the outer side portion of each guard being arranged to be engaged by the articles and the inner side portion forming a cut-off, and stops arranged to limit the swing of the guards, substantially as described.

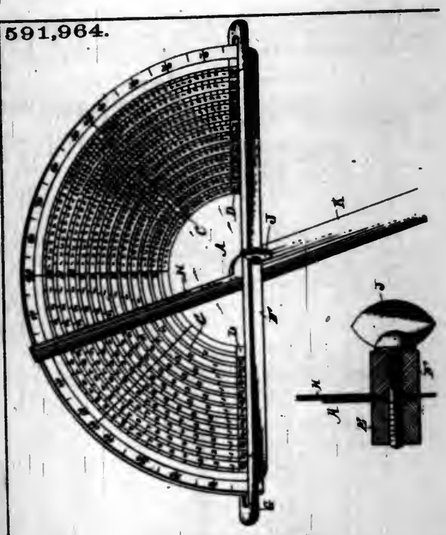
3. A holder for matches, &c., comprising a receptacle adapted to receive an original package and consisting of an inclined front provided with a finger-opening and a passage and having a recess at each side of the opening to form stops and provided with a flange extending around the passage, a bottom, a back, and the substantially triangular side pieces forming rests, and guards pivoted in said recesses and being substantially inverted-U-shaped, substantially as described.

591,964. REVEL-SQUARE AND PROTRACTOR. THOMAS F. GILCREST, Oskaloosa, Iowa. Filed Mar. 18, 1897. Serial No. 628,188. (No model.)

Claim.—1. An instrument of the class described comprising a segmental disk and an adjustable arm or tongue to traverse the same, the surface of the plate being provided with radial lines arranged at angles of forty-five degrees to form intermediate sector-shaped spaces in which are arranged series of concentric lines numbered consecutively from the innermost outward to represent horizontal runs of roof-timbers, each segmental line, between contiguous radial lines, being subdivided to form a number of spaces corresponding with the number of that line, and numbered consecutively from perpendicularly-disposed radial lines inward toward the intermediate forty-five-degree line, to represent the rises of timbers, substantially as specified.

2. An instrument of the class described having a semicircular plate provided with graduations, and having a peripheral degree-scale or protractor, a transverse bar secured to the diametrical edge of said plate and adapted to form a straight-edge, a clamping-bar spaced from the plane of the surface of the plate and connected to said transverse bar by yokes, an adjustable arm or tongue interposed between the clamping-bar and the surface of the plate and adapted to traverse the latter, and a clamping-screw for connecting the clamping-bar to the plate and forming the pivot of said arm or tongue, substantially as specified.

591,964.

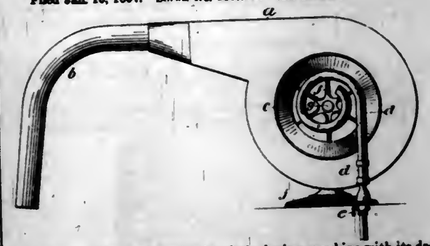


591,965. INK-WELL. MARY G. GROSS, Little Falls, N. Y. Filed Oct. 29, 1896. Serial No. 610,467. (No model.)



Claim.—The combination of an ink-well having a forwardly-exteeding hollow portion, a lip partly surrounding said hollow portion, a cover loosely mounted on the well surrounding said lip and provided in its front side with a centrally-located opening, a lid pivotally suspended in said opening and having its main portion located flush with the front side of the well, and its end portions bent around so as to normally establish a contact with the inner sides of the said cover, substantially as described and for the purpose set forth.

591,966. HAIR-DRIER. HENRY V. HALLIWELL, Tacoma, Wash. Filed Jan. 16, 1897. Serial No. 619,505. (No model.)



Claim.—The combination in a hair-drying machine with its drum *a*, and circular pen-shaped metal band *c*, surrounding the inlet thereof, flexible delivery-tube *b*, and the gas-pipe *d*, coiled within the band *c*, and having in its coiled part the small perforations through which gas passes and is ignited all as substantially described and shown.

591,967. PIPE-THREADING MACHINE. DAVID I. HERR, Lock Haven, Pa., assignor of one-half to William R. Herr, same place. Filed Feb. 15, 1897. Serial No. 623,464. (No model.)

Claim.—1. In a pipe-threading machine, the combination of a clamp having separate jaws for contact with opposite sides of an object to be threaded, said jaws having divergent outer surfaces and a cooperating clamping-ring, and threading devices having a frame upon which the jaws are detachably mounted, substantially as specified.



2. In a pipe-threading machine, the combination of a clamp having separate jaws to bear against opposite sides of an object to be threaded, said jaws being provided with divergent outer sides and spaced seats or notches, a clamping-ring encircling said jaws to engage the seats or notches, and threading devices having a frame upon which the jaws are detachably mounted, substantially as specified.

3. In a pipe-threading machine, the combination with a frame and means for attaching the same to an object to be threaded, of a rotary die-carrier mounted upon the frame and having a yielding die-holder capable of axial movement, and means for communicating motion to the die-carrier, substantially as specified.

4. In a pipe-threading machine, the combination with a frame and means for attaching the same to an object to be threaded, of a rotary die-carrier mounted upon the frame, and including an annular die-holder yieldingly mounted for axial movement, guide-pins for the die-holder, and actuating-springs for advancing the holder, and means for communicating motion to the die-carrier, substantially as specified.

5. In a pipe-threading machine, the combination with a frame and means for securing the same to an object to be threaded, of a rotary die-carrier having an annular disk mounted between the sides of the frame and peripherally fitted in seats formed in the inner edges thereof, a die-holder normally spaced from said disk, and means for yieldingly maintaining the die-holder in its normal position, said disk being provided with a gear, a driving-pinion meshing with said gear, and an operating lever or handle connected to the spindle of the driving-pinion, substantially as specified.

6. In a pipe-threading machine, the combination with a frame and threading devices mounted thereon, of a clamp for engaging an object to be threaded, having separate jaws detachably mounted upon the frame in terminally-open guides for independent transverse adjustment and removal, and means for securing the jaws in their adjusted positions, substantially as specified.

7. In a pipe-threading machine, the combination of a frame and threading devices mounted thereon, said frame being provided with transversely alined undercut guides open at opposite sides of the frame, and a clamp having separate jaws provided with slides fitted in said guides, and independently removable at the outer ends thereof, and means for securing the jaws in their adjusted positions, substantially as specified.

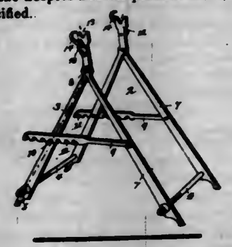
591,968. WATER AND GREASE PROOF PAPER AND METHOD OF MAKING SAME. ALFRED HERRMANN, Berlin, Germany, assignor to the Chemische Fabrik auf Actien, vormals E. Schering, same place. Filed Feb. 16, 1896. Serial No. 579,768. (No specimens.) Patented in Germany July 27, 1895, No. 86,936; in France Dec. 16, 1895, No. 252,501, and in Belgium Dec. 16, 1895, No. 118,877.

Claim.—1. The herein-described method of producing water-proof paper which consists in treating hydrocellulose-paper with cuprammonium and afterward with a solution of pyroxylin, substantially as set forth.

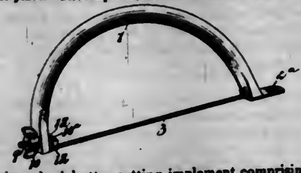
2. The herein-described waterproof paper consisting of a body of parchment-paper impregnated with copper oxid and a coating of pyroxylin permanently united with said body, substantially as set forth.

591,969. BICYCLE-STAND. PAUL HIERMON, Decatur, Ill. Filed May 4, 1896. Serial No. 590,064. (No model.)

Claim.—The herein-described adjustable and foldable bicycle-stand comprising essentially the legs 3, adjustably connected together so as to permit of them being moved toward or from each other, and having the lateral studs 10, at an intermediate point of their length and also having the upper portions 12, disposed at an angle to their lower portions and provided in their upper ends with seats, the legs 7, connected in a hinged manner with the legs 3, at the lower ends of the portions 12, thereof, and also adjustably connected together so as to permit of them being moved toward or from each other, the bars pivotally connected with the legs 7, and having notches to engage the lateral studs of the legs 3, the slotted keepers having hooks at their upper ends, and the threaded studs and nuts thereon adjustably connecting the keepers and the portions 12, of the legs 3, substantially as specified.



591,970. BUTTER-CUTTER. CHARLES H. HOFFMANN, Perrysburg, Ohio, assignor of two-thirds to P. J. Pitson and John G. Hoffman, same place. Filed Apr. 12, 1897. Serial No. 631,795. (No model.)



Claim.—1. A butter-cutting implement comprising a bowed or yoke-shaped frame adapted to serve as a handle and provided, near one terminal, with a transverse bolt-passage and at its other end with a cutter-receiving opening, a headed cutter-wire having an angular end fitted in said cutter-receiving opening of the frame, and a straining-bolt fitted in the bolt-opening in said frame and provided with the spaced jaws to receive the headed end of the cutter-wire, substantially as described, for the purposes set forth.

2. A butter-cutting implement, comprising a yoke-shaped frame, a knife-blade fitted to one terminal of said frame, and a cutter-wire fastened at one end to the frame to clamp the knife-blade thereto, and adjustably attached, at its other end, to said frame, as and for the purposes described.

3. A butter-cutting implement comprising a yoke-shaped frame having a transverse opening 2, a knife-blade fitted to the extremity of said frame and having a longitudinal groove, a cutter wire with an angular end that is fitted in the groove of the blade, and passes through the same and the opening 2 of the frame, to clamp the blade to said frame, and means for adjustably connecting the other end of said wire to the frame, as and for the purpose described.

4. A butter-cutting implement comprising a yoke-shaped frame having, at one end, a pair of lugs disposed on opposite sides of a transverse perforation, a headed bolt passing through said perforation to have the head thereof confined between said lugs, a knife-blade fitted against the other end of said frame, and a cutter-wire headed at one end to connect to the headed bolt and having its other end fastened to the frame to clamp the knife-blade thereto, as and for the purpose described.

591,971. EGG-TESTER. DAVID W. HOSIER, Vandalia, Mo. Filed Jan. 11, 1897. Serial No. 618,707. (No model.)



Claim.—1. In a device of the kind specified, a box provided with a reflective bottom and irreflective sides, two hinged frames to close said box, one of said frames being provided with a central opening, elliptical openings, surrounding the same, and an irreflective lower face and the other being provided with a central opening, and circular openings surrounding the same.

2. In a device of the kind specified; a reflective bottom and irreflective sides, a hinged frame to cover said box provided with a central opening and surrounding openings, and having an irreflective lower face and a ball provided with a lens situated within said central opening.

591,972. COTTON-CHOPPER. ROBERT B. HYLAND, Round Rock, Tex. Filed Aug. 12, 1896. Serial No. 602,530. (No model.)

Claim.—1. In a cotton-chopper, the combination of a forked frame having the edge portions of the forks recurved, bearing-blocks grooved in their sides to receive the recurved edges of the forks, rods having connection with the blocks and operating through the upper end of the frame, springs mounted upon the rods and interposed between the blocks and the upper end of the frame, and a chopping-wheel mounted in the said blocks, substantially as described for the purpose set forth.



2. In combination with a cultivator, a frame, means for vertically adjustably connecting the frame with the cultivator, sectional braces connecting the lower end of the frame with the front portion of the cultivator and adapted to be lengthened or shortened, a chopping-wheel mounted in bearing-blocks, and springs interposed between the upper portion of the vertically-adjustable frame and the bearing-blocks, substantially as and for the purpose described.

3. In combination, a chopping-wheel for thinning rows of plants, comprising a series of radially-slidable sections, and a block or filling-piece to be interposed and secured between the adjacent ends of contiguous sections, substantially as and for the purpose set forth.

591,978. SELF-ATTACHING BUTTON. NATHAN D. INGRAM, Holyoke, Mass., assignor to The Scovill Manufacturing Company, Waterbury, Conn. Filed May 12, 1894. Serial No. 510,963. (No model.)



Claim.—1. A self-attaching button, comprising a button-head having an opening in its back for the entrance of the point of the fastening medium and provided with a cavity adjacent to such opening, and a coiled spring arranged on edge or upright within such cavity with its coils straddling such opening to permit the entrance of the point of the fastening medium between such coils to be engaged by such coils, and constructed and arranged to be engaged by and held in place between the face and back of the button-head, combined with a fastening medium, such as a pointed and grooved tack, substantially as described.

2. A self-attaching button comprising a head, having a tack-receiving opening in its base or back plate, and a coiled spring having its coils arranged upright in a cavity in said head and straddling said opening, and provided with laterally-extended anchoring arms or portions engaged between the face and back of the head, and a pointed and grooved attaching device adapted to be forced between the coils of the spring and to be engaged in its grooved portion by the coils of said spring, substantially as described.

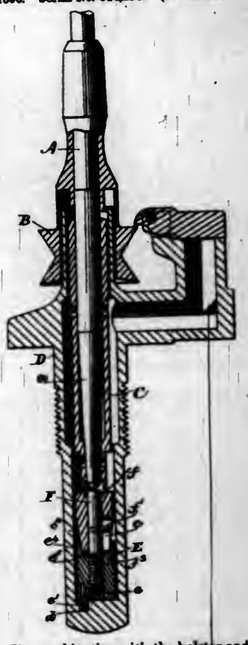
3. A self-attaching button comprising a head, having a conical or tapering shank, provided with an opening, a coiled spring, having its coils arranged upright within said conical shank between the face and back of the button and in line with said opening, and an attaching device adapted to be passed into said opening and forced in between the coils of the spring and to be engaged by the said coils, the conical or tapering shank of the head serving to tighten the grip of the coil upon the attaching device as strain is put upon the attaching device, substantially as described.

591,974. BICYCLE-BRAKE. GEORGE A. JOHNSON, Traverse City, Mich. Filed Aug. 24, 1896. Serial No. 603,750. (No model.)



Claim.—A bicycle consisting of the usual frame and wheels, the brake-lever, brake rod and shoe, and a rim to receive the contact of the brake provided with laterally-projecting lugs D, whereby it is attached to the inner face of the rim of the wheel, the brake lever and shoe being adapted to coact with said brake-rim, for the purpose set forth.

591,975. SPINDLE-BEARING. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,258. (No model.)



Claim.—1. The combination with the bolster and its support, of complementary frictional contact-faces arranged to control the rotation of the bolster without affecting its longitudinal position, substantially as described.

2. The combination with the bolster and its support, of inclined complementary frictional contact-faces arranged to control the rotation of the bolster without affecting its longitudinal position, substantially as described.

3. The combination with the spindle and its step, the bolster, and bolster-support, of means to cause the step to move vertically within the bolster upon the rotation of the bolster, and complementary frictional contact-faces between the bolster and its support, substantially as described.

4. The combination with the bolster-case having a closed bottom, bolster, and bolster-support within the bolster-case, of bars or pins fixed in the walls of the bolster-case for supporting the bolster-support above the bottom of the bolster-case to form an oil-chamber beneath the bolster-support, substantially as described.

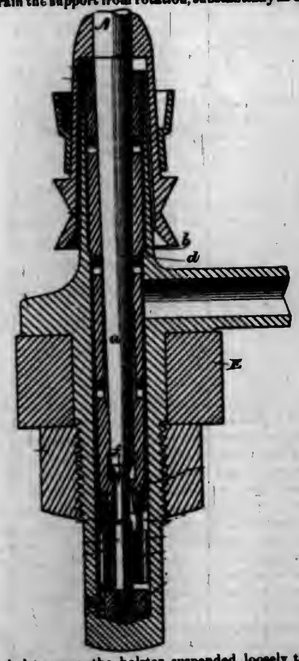
5. The combination with the bolster and its support, of a step-pintle vertically movable by a rotation of the bolster, and complementary frictional contact-faces to restrain the rotation of the bolster, and hold the parts in their adjusted position, substantially as described.

6. The combination with the bolster, its support, and step, of means for adjusting the relative longitudinal position of the bolster and step by a rotation of the bolster, and complementary frictional contact-faces arranged to hold the parts in their adjusted position, substantially as described.

591,976. SPINDLE-BEARING. JOHN KILBURN, Belmont, Mass. Filed Dec. 2, 1896. Serial No. 614,261. (No model.)

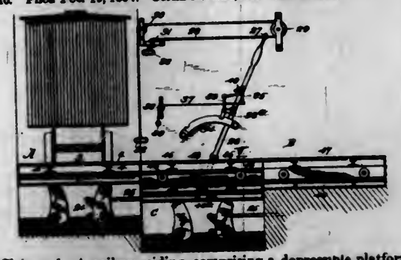
Claim.—1. The bolster-case, the bolster suspended loosely therein and having a recess in its lower end, a step-pintle projected into the recess, a sleeve mounted on the step-pintle and held to rotate therewith, a sliding connection between said sleeve and the bolster, arranged to rotate the sleeve and step-pintle with the bolster, substantially as described.

2. The bolster-case and bolster, a step-pintle projected into the bolster, and a support for the step-pintle loosely fitted in the bolster-case, a threaded connection between the pintle and its support and means to restrain the support from rotation, substantially as described.



3. The bolster-case, the bolster suspended loosely therein and having a recess in its lower end, a step-pintle projected into the recess, a lateral projection on the step-pintle below the bolster, a vertical pin projected from the bottom of the bolster, a bearing for said pin in said projection arranged to permit a lateral movement and vertical reciprocation of said pin, whereby the bolster is adapted to rotate the step-pintle and is free to move longitudinally and to have a slight gyrating movement, substantially as described.

591,977. RAILWAY-SIDING. WALLACE R. KIRK, Kansas City, Mo. Filed Feb. 19, 1897. Serial No. 624,092. (No model.)



Claim.—1. A railway-siding, comprising a depressible platform forming a section normally of a main-line track, a depressible platform arranged parallel with and at the side of the first-named platform, a third platform mounted upon said second depressible platform and adapted when its supporting-platform is not depressed to be moved laterally in a horizontal plane upon the depressed main platform or from its position upon said platform back upon its own supporting-platform, substantially as described.

2. A railway-siding, comprising a depressible platform forming normally a part of a main-line track, a second depressible platform arranged parallel with and by the side of said main-track platform, and a third platform mounted upon said second platform and provided with supporting rollers or wheels, and means to move said platform laterally and in a horizontal plane over upon the depressed main platform, or back upon its own supporting-platform, substantially as described.

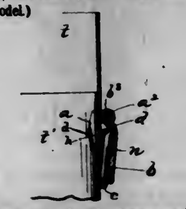
3. A railway-siding, comprising a depressible platform forming normally a part of a main-line track, a depressible supporting-platform arranged parallel with and by the side of said main-track platform, but adapted to occupy a lower horizontal plane when depressed, a third platform upon said supporting-platform and adapted when depressed to occupy the plane of the main-track platform when depressed, and a fourth platform located at the opposite side of and parallel with said third platform and occupying at all times the same horizontal plane as said third platform and the main platform when they are elevated, substantially as described.

4. A railway-siding, comprising a depressible platform forming normally a part of a main-line track, a depressible supporting-platform arranged parallel with and by the side of said main-track platform, but adapted to occupy a lower horizontal plane when depressed, a third platform upon said supporting-platform and adapted when depressed to occupy the plane of the main-track platform when depressed, a fourth platform located at the opposite side of and parallel with said third platform and occupying at all times the same horizontal plane as said third platform and the main platform when they are elevated, and means whereby said last-named or fourth platform may be moved in a horizontal plane and at right angles across the depressed third platform and upon the depressed main platform, so as to form temporarily a continuation of the main-line track, and means to return said platform to its original position, substantially as described.

5. In a railway-siding, the combination with a depressible platform forming normally a continuation or section of a main-line track, a second depressible and supporting platform arranged parallel with and at one side of said main-track platform, a third platform provided with longitudinal tracks and resting upon said supporting-platform, rods projecting from the ends of said platform, and endless chains for moving said platform back and forth in a horizontal plane when the main platform is depressed, and having a positive but sliding connection with said rods, whereby the lateral movement or vertical movement of said platform may take place independently of the other, substantially as described.

6. In a railway-siding, the combination with a depressible platform, forming normally a continuation or section of a main-line track, of a weighing-platform at one side of the same, and a platform which may be shifted laterally from the weighing-platform onto the main-track platform when depressed, and back to its original position, for the purpose set forth.

591,978. COMBINED COLLAR-BUTTON AND TIE-RETAINER. JOHN W. KNAUER, Providence, R. I. Filed Oct. 26, 1896. Serial No. 610,016. (No model.)



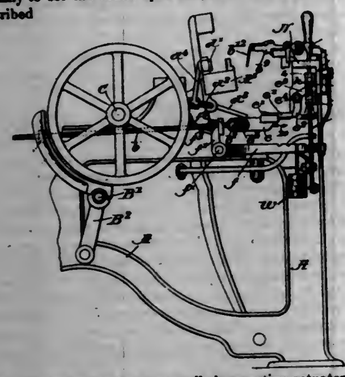
Claim.—1. The combined collar-button and tie-retainer A hereinbefore described, the same comprising the back member *a*, the thin elongated front member *b* adapted to pass through the buttonhole, a flat interposed flexible connection *d* secured to and uniting said front and back members, and having the upper end of said front piece *b* reduced in width and bent to form a hook adapted to receive the upper edge of a necktie, substantially as set forth.

2. In a combined collar-button and tie-retainer, the combination with the back member *a* and the flat elastic connection *d* secured thereto, of the elongated front member *b* having said connection *d* attached thereto above the center of the latter, and having the upper end of the front *b* bent rearwardly to form a hook a^2, the face of the latter being substantially flush or even with the front face of the member *b*, substantially as described and for the purpose set forth.

591,979. STOPPING MECHANISM FOR LOOMS. WALTER LACEY, Adams, Mass., assignor to the Northrop Loom Company, Saco, Me., and Hopedale, Mass. Filed Sept. 29, 1896. Serial No. 607,311. (No model.)

Claim.—1. In a loom, a shuttle-feeler, a bunter controlled thereby, a brake for the loom, an actuating-rod for said brake, a slide-block to be engaged by the bunter, to set the brake when the shuttle is improperly positioned, and a slot-and-pin connection between said actuating-rod and slide-block, combined with a shipper-lever actuated by the bunter, independent means controlled by the failure of the filling

to also actuate the shipper-lever, and connections between said shipper-lever and the brake-rod, to engage and move the brake-rod longitudinally to set the brake upon failure of the filling, substantially as described



2. In a loom, a brake, a normally inoperative actuator therefor, controlling mechanism for the actuator, including a lever connected to said actuator, lugs movable with the lever and above and below its fulcrum, a shipper-lever, and a stop-plate thereon, to cooperate with said lugs and govern the position of the lever, substantially as described.

591,980. THERMOSTATIC VALVE. MEREDITH LEITCH, Richmond, Va., assignor to the Warren Webster & Company, of New Jersey. Filed Sept. 15, 1896. Serial No. 605,877. (No model.)



Claim.—In a thermostatic valve, the combination with the valve-body provided with a valve-seat, a nut I provided with a tapered face i resting on the top of the bonnet of the body, the thermostatic expanding piece carried by the nut I, and the cap J fitting over the nut and carried by the bonnet.

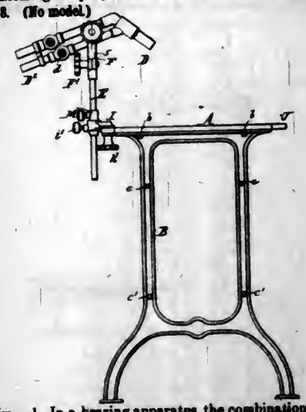
591,981. DRESS-SHIELD. HENRY LEMMERMANN, Hasbrouck Heights, N. J. Filed Mar. 18, 1897. Serial No. 628,164. (No model.)



Claim.—1. A dress-shield, comprising an impervious layer having perforations therein, and a flap also of impervious material loosely covering the said perforations, substantially as set forth.

2. A dress-shield, comprising an impervious layer having perforations therein, and a flap also of impervious material loosely covering the said perforations, and a fabric covering the said impervious materials, substantially as set forth.

591,982. BRAZING APPARATUS. THEODORE G. LEWIS and FREDERICK M. BAILEY, Buffalo, N. Y., assignors to the Buffalo Dental Manufacturing Company, same place. Filed Mar. 1, 1897. Serial No. 626,518. (No model.)

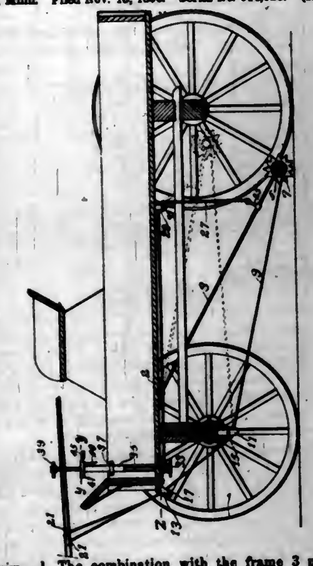


Claim.—1. In a brazing apparatus, the combination with a table or support, of a standard provided at its upper end with a socket, a screw-bolt or pivot carrying a blowpipe and arranged in said socket and provided with a longitudinal groove, a clamping-nut applied to the projecting end of said bolt, and a washer interposed between said socket and said screw-nut and having a radial feather or spline engaging in the groove of the screw-bolt, substantially as set forth.

2. In a brazing apparatus the combination with a table having its bed or top plate provided at one side with a horizontal slot, of an adjustable bracket having a shank or bolt passing through said slot and provided with means for clamping the same in the slot, and a blowpipe-standard carried by said adjustable bracket, substantially as set forth.

3. In a brazing apparatus, the combination with a table having its top plate provided with a horizontal slot, of an adjustable bracket having a screw-bolt passing through said slot and a tenon projecting into the slot, a clamping-nut applied to the projecting end of said screw-bolt, a block interposed between said nut and the top plate and having a tenon projecting into the slot of the plate, and a blowpipe-standard carried by said bracket, substantially as set forth.

591,983. HORSE-STOPPING DEVICE. OLOF LUNDBERG, Minneapolis, Minn. Filed Nov. 13, 1896. Serial No. 611,923. (No model.)



Claim.—1. The combination, with the frame 3 pivotally supported upon the under side of the wagon-body, the shaft 5 mounted in the rear end of said frame and provided with suitable spur-wheels 7, the strap 9 wound upon said shaft and extending through suitable guides to the forward end of the wagon-body, the cord 27 connected to said frame, the shaft 33 to which said cord is connected, the hollow standard 35 in which said shaft is mounted, a casing 41 provided upon said standard, the ratchet-wheel 43 mounted upon said shaft 33, the lever 45 engaging said ratchet-wheel, and the lever 49 engaging said lever 45, for the purpose set forth.

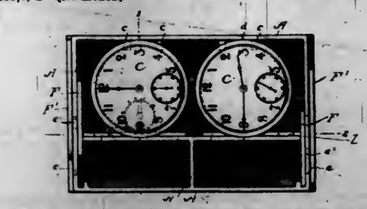
2. The combination with the wagon-body, of the frame pivotally secured beneath the same, the horizontal shaft provided with the spur-wheels 7, the substantially vertical shaft mounted in the forward part of said wagon-body, the cord connecting said frame and said vertical shaft, the strap secured to said horizontal shaft, and extending through suitable guides to the forward end of the wagon-body, the ratchet-wheel carried by said vertical shaft, the lever 45 secured in position to engage said ratchet-wheel, and the lever 49 arranged to engage said lever 45, for the purpose set forth.

591,984. GLOBE-HOLDER. WILLIAM F. MALLOY, Pittsburg, Pa., assignor to the Phœnix Glass Company, Monaca, Pa. Filed Aug. 13, 1896. Serial No. 602,639. (No model.)



Claim.—In a globe-holder, the combination with a suitable base for supporting the globe, of a journal-plate secured to said base, said journal-plate having a depending tongue with a groove formed therein, a locking device consisting of an outwardly-projecting arm adapted to engage the inner face of the globe, a vertical portion journaled in said base and journal-plate, and a lower outwardly-projecting arm adapted to engage the groove in said depending tongue, substantially as set forth.

591,985. TIMING DEVICE FOR HOMING PIGEONS. THOMAS D. MARTINEZ-CARDOSA, Philadelphia, Pa. Filed Dec. 15, 1896. Serial No. 615,774. (No model.)



Claim.—1. The combination of the box, a compartment therein having an opening extending through the wall of the box for the introduction of a band or tag, a slide or gate for closing said opening, a timing device within the box, and a slide adapted to control the timing device and to lock the slide or gate after the latter has been moved to the closed position, substantially as specified.

2. In combination, a box, a compartment therein having an exterior opening extending through the wall of the box for the introduction of a band or tag, a slide or gate for closing said opening, a watch-movement within the box, a spring-actuated slide guided within the box and having a portion normally in contact with the balance-wheel of the watch-movement, said slide being adapted to lock the closing gate or slide after the latter has been moved to the closed position, substantially as specified.

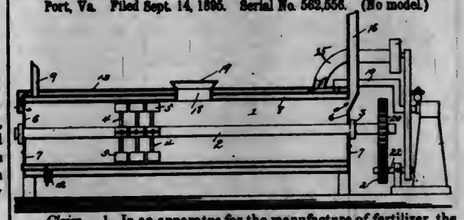
3. The combination of the box, a watch-movement therein, there being in said box an opening for the insertion of a winding and setting key, a compartment in said box having an exterior opening for the introduction of a band or tag, a slide or gate F, F', having a recess, *f*, a slide, H, guided within the box and having a spring, *k*, adapted to make contact with the balance-wheel of the watch-movement, and a spring, *i*, adapted to act on the slide, H, substantially as specified.

4. The combination of the box having two or more compartments and provided with an opening extending into one of such compartments, a slide or gate adapted to close said opening, a recess, *f*, formed in said slide or gate, a watch-movement carried in one of said compartments, a slide, H, guided within the box and adapted to enter the recess, *f*, of said slide or gate, a spring carried by the slide, H, and adapted to be moved into contact with the balance-wheel of the watch-movement, and a spring, *i*, acting on said slide, H, substantially as specified.

5. The combination of the box, two or more compartments formed therein, a watch-movement in one of said compartments a slide or gate adapted to close an opening entering into another compartment, a locking device for arresting or releasing the watch-movement under the control of said slide or gate, a flanged cover adapted to close said box, a locking-pin, N, adapted to pass through openings formed in the flange and devices for locking said pin in position, substantially as specified.

6. The combination of the box, A, having two or more compartments, there being an opening, *c*, extending through the wall of the box into one of such compartments, a sliding gate comprising a recessed plate, F, within the box and a plate, F', on the exterior of the box, a watch-movement, C, within the box and having a balance-wheel, D, a guided slide, H, within said box a spring, *k*, carried by said slide and adapted to be forced into contact with the balance-wheel, D, a spring, *i*, acting on said slide, H, intended to move the latter into the recess of the gate F, a cover-plate, B, having side flanges, *b*, provided with openings, a pin, N, adapted to pass through the openings in the flanges and through an opening formed in a lug, *n*, on the bottom of the box and a lock, S, adapted to an opening in the pin, N, substantially as specified.

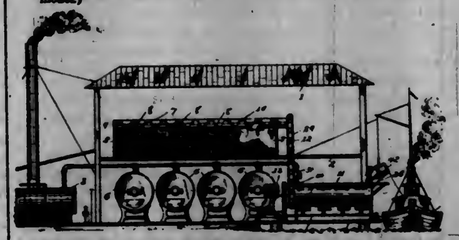
591,986. FISH-DRYING APPARATUS. ALBERT MORRIS, Fair Port, Va. Filed Sept. 14, 1895. Serial No. 562,556. (No model.)



Claim.—1. In an apparatus for the manufacture of fertilizer, the combination of a casing forming a treating-chamber, an eduction-pipe leading from said chamber, a steam jacket surrounding said casing, means for supplying said jacket with steam, a casing inclosing said jacket and forming an air-chamber between said jacket and said casing, means for introducing air under pressure into the chamber formed by said casing and said jacket, and means for connecting said air-chamber with said treating chamber to allow the passage of air from one to the other.

2. An apparatus for the manufacture of fertilizers comprising a closed chamber provided with vapor-exit located at one end thereof, stirrers mounted on a shaft working in bearings secured at the end of said chamber, a steam-jacket surrounding said chamber connected with a source for supplying live steam thereto, means for carrying the live steam after its contact with the chamber to the steam-chest of an engine, a drip-pipe located at the lower end of the steam-jacket, a casing surrounding the steam-jacket, a blower adapted to drive air through said casing into the chamber, said blower and the stirrers in said chamber adapted to be revolved by an engine driven by the excess of steam from the steam-jacket.

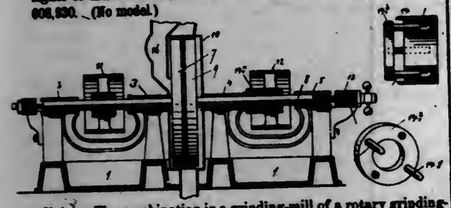
591,987. APPARATUS FOR MAKING FERTILIZERS. ALBERT MORRIS, Fair Port, Va. Filed Aug. 12, 1896. Serial No. 602,553. (No model.)



Claim.—In an apparatus for making fertilizer, the combination of the closed receptacle for cooking the material to be treated, stir-

rers mounted in said receptacle for agitating the material while cooking, a series of closed tanks provided with doors for storing the cooked material out of contact with the air, a distributer passing over said tanks and having openings in its bottom registering with the doors of said tanks, means for closing said openings, and a conveyer leading from the cooker to the distributer.

591,988. GRINDING-MILL. COUNTOIL MUNSON, Utica, N. Y., Florence A. Munson, executrix of said Countoil Munson, deceased, assignor to Munson Bros., same place. Filed Oct. 15, 1896. Serial No. 608,890. (No model.)



Claim.—The combination in a grinding-mill of a rotary grinding-disk, an opposing plate or disk, a shaft carrying the rotary disk, bearings therefor, a forcing-up screw mounted in a fixed support and acting on the end of the shaft and a holding-off collar consisting of part 14^a secured on the shaft and having pin-holes 14^d and partial separate spring-chambers and part 14^b having pins 14^c and partial spring-chambers and springs within the spring-chambers, the part 14^b acting against the end of the shaft-bearing, substantially as set forth.

591,989. FASTENING DEVICE FOR GLOVES, &c. WILLIAM B. MURPHY, New York, N. Y., assignor to Lucius H. Littauer, Gloversville, N. Y. Filed Feb. 6, 1897. Serial No. 622,390. (No model.)



Claim.—1. A spring-stud intended for engagement with a socket having a central section *a* and two side sections *a' a'*, substantially as described.

2. A spring-stud intended for engagement with a socket, the head of which is divided into three or more sections by slits parallel or nearly so, substantially as described.

3. A spring-stud intended for engagement with a socket composed of three sections of which the two exterior sections are capable of lateral compression and the central section is capable of vertical elongation, substantially as described.

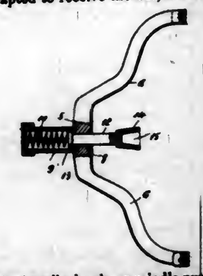
591,990. ICE-CYCLE. ROSA VON HAGY DE MARKOVITS, Buda-Pesth, Austria-Hungary. Filed Jan. 21, 1897. Serial No. 620,154. (No model.)



Claim.—In a bicycle, the combination with the front wheel of a runner secured to the axle by means of rods or supports which are detachably secured to same and with the rear wheel of a fluted roller adapted to be rotated by means of a chain running from a chain-wheel of the crank-axle, such roller being supported by a pair of rods also detachably connected with the crank axle and spindle of the driving-wheel respectively for the purpose of enabling the bicycle to be safely ridden on the ice, substantially as described and shown.

591,991. AXLE-NUT WRENCH. JAMES F. ROGERS, Springville, N. Y. Filed Mar. 10, 1897. Serial No. 626,715. (No model.)

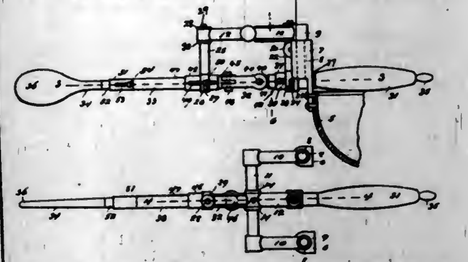
Claim.—1. The herein-described axle or spindle nut wrench, said wrench consisting of a cross-head which is provided with side arms which project in the same direction, and the ends of which are provided with hooks which are turned in opposite directions, said cross-head being also provided on the outer side thereof with a tubular casing in which is mounted a spiral spring, and a shaft which passes loosely through the cross-head of the wrench, and on which said spring bears, said shaft being provided at its outer end with a wrench-head which is adapted to receive the nut, substantially as shown and described.



2. The herein-described axle or spindle nut wrench, said wrench consisting of a cross-head which is provided with side arms which project in the same direction, and the ends of which are provided with hooks which are turned in opposite directions, said cross-head being also provided on the outer side thereof with a tubular casing in which is mounted a spiral spring, and a shaft which passes loosely through the cross-head of the wrench, and on which said spring bears, said shaft being provided at its outer end with a wrench-head which is adapted to receive the nut, and said tubular casing being provided with a removable cap, substantially as shown and described.

3. The herein-described axle or spindle nut wrench, said wrench consisting of a head provided with arms which are provided with hooks which are adapted to engage with the spokes of the wheel, and with a shaft which passes through an opening formed in said head, and into a tubular casing connected therewith, and a spring which is mounted in said tubular casing, and adapted to bear on the end of said shaft, said shaft being also provided with a wrench-head, substantially as shown and described.

591,992. BOW-FACING OAR. ANDREW P. SUNDBERG, Union Hill, N. J. Filed Feb. 13, 1897. Serial No. 623,233. (No model.)



Claim.—1. A rowlock and oar, constructed as herein described, said rowlock consisting of parallel arms 10, which are provided at their inner ends with downwardly-directed tenons or projections, and which are connected at their outer ends by a cross-bar, a cross-head which is revolubly mounted on said cross-bar, and provided at its inner end with a vertical and revoluble cylinder which is mounted therein, and at its outer end with a vertical and revoluble standard and an oar which is composed of separate sections, the inner section of which is connected with said cylinder, and one of said sections with said standard as herein described, said sections being connected between said cylinder and said standard, and the outer section being provided with a paddle as and for the purpose set forth.

2. A rowlock and oar constructed as herein described, said rowlock consisting of two parallel arms which are provided at their inner ends with downwardly-directed tenons or projections which are adapted to enter sockets in vertical standards secured to the side of the boat, and said arms being connected at their outer ends by a cross-bar centrally of which is mounted a cross-head, said cross-head being provided at its inner end with a vertical and revoluble cylinder, and at its outer end with a vertical and revoluble standard, and an oar composed of a plurality of sections, the inner section being hinged to said cylinder by means of a sleeve through which it passes, and in which it is adapted to turn, another of said sections being mounted in a sleeve connected with said standard, and in which it is adapted to turn, said sections being connected by a central piece which is hinged or pivoted to the adjacent ends thereof, one of said hinges or pivotal connections being in a horizontal and the other in a vertical plane, and that section of the oar which is mounted in said standard being provided with a paddle-section, substantially as shown and described.

3. A rowlock and oar constructed as herein described, said rowlock consisting of two parallel arms which are provided at their inner ends with downwardly-directed tenons or projections which are adapted to enter sockets in vertical standards secured to the sides of the boat, and said arms being connected at their outer ends by a cross-bar centrally of which is mounted a cross-head, said cross-head being provided at its inner end with a vertical and revoluble cylinder, and at its outer end with a vertical and revoluble standard, and an oar composed of a plurality of sections the inner section being hinged to said cylinder by means of a sleeve through which it passes, and in which it is adapted to turn, another of said sections being mounted in a sleeve connected with said standard, and in which it is adapted to turn, said sections being connected by a central piece which is hinged or pivoted to the adjacent ends thereof, one of said hinges or pivotal connections being in a horizontal and the other in a vertical plane, and that section of the oar which is mounted in the standard being provided with a paddle-section, which is longitudinally adjustable with reference thereto, substantially as shown and described.

4. A rowlock and oar constructed as herein described, said rowlock consisting of two parallel arms which are adapted to be pivotally connected with standards secured to the side of a boat, said arms being connected at their outer ends by a cross-bar centrally of which is mounted a cross-head which is adapted to turn on said bar, said cross-head being provided at its inner end with a revoluble vertical cylinder and at its outer end with a revoluble vertical standard, and an oar composed of separate sections which are hinged or pivotally connected as herein described, the inner section being hinged to said cylinder and adapted to move in a vertical plane and swing on said cylinder, and another section being mounted in a sleeve connected with said standard and adapted to turn therein, said sections being connected by central coupling devices, as herein described.

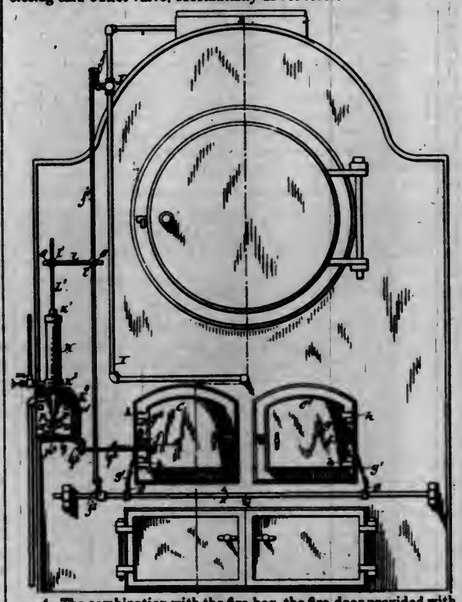
5. A rowlock and oar constructed as herein described, said rowlock consisting of two parallel arms which are adapted to be pivotally connected at their outer ends, with standards secured to the side of a boat, said arms being connected at their outer ends by a cross-bar centrally of which is mounted a cross-head which is adapted to turn on said bar, said cross-head being provided at its inner end with a revoluble, vertical cylinder and at its outer end with a revoluble, vertical standard, and an oar composed of separate sections which are hinged or pivotally connected as herein described, the inner section being hinged to said cylinder and adapted to move in a vertical plane and swing on said cylinder, and another section being mounted in a sleeve connected with said standard and adapted to turn therein, said sections being connected by coupling devices, and the last-named section being also provided with a longitudinally-adjustable paddle-section, substantially as shown and described.

591,993. FURNACE. WILLIAM TOMLISON, Buffalo, N. Y., assignor of one-half to Gilbert S. Graves, same place. Filed May 28, 1897. Serial No. 638,556. (No model.)

Claim.—1. The combination with a pipe or passage adapted to deliver a smoke-consuming medium into the fire-box, and a valve whereby said pipe or passage is controlled, of a piston whereby said valve is actuated, a cylinder in which said piston is arranged, an inlet admitting the actuating fluid to said cylinder, an outlet and outlet-valve, and means whereby said outlet-valve is opened upon opening the furnace-door, whereby the actuating fluid is allowed to escape from said cylinder by opening the outlet-valve, allowing the piston to follow and thereby opening the valve in said pipe or passage, while upon closing the outlet-valve of the cylinder the actuating fluid again accumulates in the same and forces the piston forward, which latter finally closes the valve in said pipe or passage, substantially as set forth.

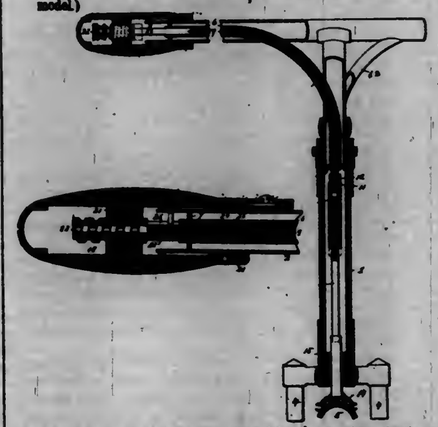
2. The combination with the fire-box and the fire-door, of a pipe or passage adapted to deliver a smoke-consuming medium into the fire-box and provided with a valve, a cylinder having an inlet for a pressure fluid at one end and an outlet at the same end, a piston arranged in said cylinder and connected with said valve, an outlet-valve adapted to open and close said outlet, and a connecting device between the outlet-valve and the fire-door whereby said outlet-valve is operated by the movement of the door, substantially as set forth.

3. The combination with the fire-box and the fire-door, of a pipe or passage adapted to deliver a smoke-consuming medium into the fire-box and provided with a valve, a cylinder having an inlet at one end for a pressure fluid and an outlet at the same end, a piston arranged in said cylinder and connected with said valve, an outlet-valve adapted to open and close said outlet, a cam whereby said outlet-valve is shifted, and a connecting device between the cam and the fire-door whereby the cam is moved by the door for opening and closing said outlet-valve, substantially as set forth.



4. The combination with the fire-box, the fire-door provided with an air-passage, the air-valve arranged in said passage and the steam-pipe opening into the fire-box and provided with a valve, of a vertical cylinder provided at its lower end with an inlet and an outlet, a piston arranged in said cylinder and connected with the air and steam valves, a fluid-pressure pipe connected with the inlet of the cylinder and provided with a regulating-valve, an outlet-valve adapted to open and close said outlet and provided with a valve-stem, a rock-shaft provided with a cam engaging with said valve-stem, a rock-arm arranged on the rock-shaft, and a link connecting the rock-arm with the fire-door, substantially as set forth.

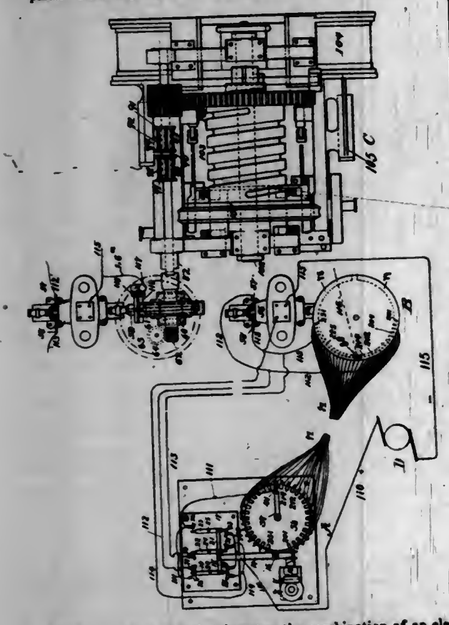
591,994. BICYCLE-BRAKE. JOHN B. WARREN and CHARLES W. JONES, Kansas City, Mo. Filed Apr. 6, 1896. Serial No. 586,433. (No model.)



Claim.—1. A bicycle-brake, comprising an arc-shaped tube projecting at its ends into the steering-head bar and the handle-bar of a bicycle, a brake-carrying rod extending longitudinally within the steering-head bar, a stiff cable extending through and closely embraced by said arc-shaped tube, and connected at its lower end to the brake-carrying rod, and a rotatable handle mounted at one end of the handle-bar and geared to said cable so that the latter, by compression, may cause the brake to be applied.

2. In a bicycle-brake, the combination of a steering-head bar, a handle-bar, an arc-shaped guide-tube projecting at its ends into the steering-head bar and the handle-bar, a brake-carrying rod extending longitudinally within the steering-head bar, a stiff cable extending through and closely embraced by said arc-shaped tube and connected at its lower end to the brake-carrying rod, a grooved worm-rod secured to the upper end of the cable, a pin projecting from the handle into the groove of said worm-rod, a handle rotatably mounted upon said handle-bar and provided internally with a worm-wheel engaging said worm-rod, and a collar to prevent longitudinal movement of said handle upon the handle-bar, and means to lock the handle from rotatable movement substantially as described.

591,995. ELECTRICAL STEERING-GEAR. JOHN D. WILLIAMSON, Jr., Philadelphia, Pa., assignor to Williamson Brothers Co., same place. Filed May 15, 1894. Serial No. 511,341. (No model.)



Claim.—1. In an electric telemotor, the combination of an electric generator: a current-transmitter provided with numerous contact-points for regulating the extent of movement of the object to be moved; a combined current-receiver and circuit-interrupter electrically connected with the contact-points on said transmitter and provided with a series of stationary contact-points and with a series of movable contact-points, one of the latter being a circuit-interrupting contact-point connected by a wire with the generator; an electric motor electrically connected with said receiver and interrupter; and means for mechanically operating said interrupter so as to cause its said circuit-interrupting contact-point to interrupt the circuit to the motor and simultaneously establish a new circuit with the generator through said wire.

2. In an electric telemotor, two fixed plates provided with contact-points in circuit, a movable contact-arm on one of said plates, and a rotary plate on the other of said plates, provided with a series of contact-plates in combination with an electric motor in the same circuit and mechanically connected to said rotary plate to impart motion to the same.

3. In an electric telemotor, a current-transmitter having in combination a switchboard provided with contact-points; a shaft provided with one loose and two fixed helical sleeves: a lever secured to said loose sleeve and adapted to open and close circuits at the contact-points on said switchboard; means for preventing the revolution of said loose sleeve before the proper time; and means for revolving said shaft in both directions independently of the electric motor.

4. In an electric telemotor, a current-transmitter having in combination a switchboard provided with contact-points; a shaft provided with one loose and two fixed helical sleeves; a lever secured to said loose sleeve and adapted to open and close circuits at the contact-points on said switchboard; a friction-brake mechanism on said loose sleeve; and means for revolving said shaft.

5. In an electric telemotor, a current-transmitter having in combination a switchboard provided with contact-points; a shaft provided with one loose and two fixed helical sleeves; a lever secured to said loose sleeve and adapted to open and close circuits at the contact-points on said switchboard; an adjustable friction-strap surrounding said loose sleeve; and means for revolving said shaft.

6. In an electric telemotor, a current-transmitter having in combination an indicator-plate provided with contact-points; an indicator-arm secured to a shaft and provided with a contact-point adapted to make contact with the contact-points on said plate; a worm-wheel on said shaft; a shaft provided with a worm in mesh with said worm-wheel; a switchboard provided with contact-points; one loose and two fixed helical sleeves mounted on said worm-shaft; a lever secured to said loose sleeve and adapted to make contact with the contact-points on said switchboard; means for preventing the revolution of said loose sleeve before the proper time; and means for revolving said worm-shaft.

7. In an electric telemotor, a current-transmitter having in combination an indicator-plate provided with contact-points; an indicator-arm secured to a shaft and provided with a contact-point; a worm-wheel on said shaft; a shaft provided with a worm in mesh with said worm-wheel; one loose and two fixed helical sleeves mounted on said worm-shaft; a switchboard provided with eight contact-points; a lever having one end secured to said loose sleeve and provided at its other end with arms adapted to open and close circuits at the contact-points on said switchboard; means for preventing the revolution of said loose sleeve before the proper time; and means for revolving said worm-shaft.

8. In an electric telemotor, a current-transmitter having in combination an indicator transmitting-plate provided on its circumferential marginal surface with numerous contact-points, insulated from each other, for regulating the extent of movement of the object to be moved; vertical pins projecting from each of said contact-points; an indicator-arm adapted to move over said plate and having a contact-point pivoted to its end for transmitting the current to the contact-points on said plate; and a coiled spring, located within a longitudinal recess in said arm, for the automatic adjustment of said contact-point.

9. In an electric telemotor, a current-transmitter having in combination an indicator transmitting-plate provided on its circumferential marginal surface with numerous contact-points, insulated from each other, for regulating the extent of movement of the object to be moved; vertical pins projecting from each of said contact-points; an indicator-arm having a yielding, self-adjusting, contact-point pivoted to its end for transmitting the current to the contact-points on said plate; and a coiled spring, located within a vertical recess in said arm, for insuring contact between said contact-point and the contact-points on said plate.

10. In an electric telemotor, a combined current-receiver and circuit-interrupter having in combination a member provided with numerous electrical contact-points and a member provided with a circuit-interrupting contact-point and with two longer contact-points independent of each other and of said circuit-interrupting point, one of said members being adapted to rotate in proximity to the other.

11. In an electric telemotor, a combined current-receiver and circuit-interrupter having in combination a member provided with numerous electrical contact-points, and a member provided on its outer marginal surface with a small segmental circuit-interrupting contact-point and with a long segmental contact-point on each side of said circuit-interrupting point and independent thereof, one of said members being adapted to rotate in proximity to the other and cause said segmental contact-points on one member to take an electric current from the contact-points on the other member.

12. In an electric telemotor, the combination of the following-named elements; a combined current-receiver and circuit-interrupter having a member provided with numerous contact-points, and a member provided with a circuit-interrupting contact-point and with two longer contact-points; an electric motor; and wires directly connecting said motor with said longer contact-points, so that a current taken from the other member by said contact-points is transmitted through said wires to said motor.

13. In an electric telemotor, the combination of the following-named elements; a combined current-receiver and circuit-interrupter having a member provided with numerous contact-points, and a member provided with a circuit-interrupting contact-point and with two longer contact-points; an electric motor, and wires connecting said motor with said longer contact-points; one of said members being operated by said motor so that its rotation will cause said circuit-interrupting contact-point to take the current and thereby interrupt the circuit to the motor.

14. In an electric telemotor, a combined current-receiver and circuit-interrupter having in combination a plate provided with numerous contact-points, and a plate provided with a circuit-interrupting contact-point and with a contact-point on each side of said interrupting-point, one of said plates being adapted to rotate in proximity to the other.

15. In an electric telemotor, a combined current-receiver and circuit-interrupter, having in combination a plate provided with numerous contact-points, and a plate provided with one short segmental circuit-interrupting contact-point and with a long segmental contact-point on each side of said interrupting-point, one of said plates being adapted to rotate in proximity to the other.

16. In an electric telemotor, a current-receiver having in combination, a stationary plate provided with contact-points and rollers, and a rotary plate adapted to rotate on said rollers and provided with contact-points.

17. In an electric telemotor, a current-receiver having, in combination, a stationary plate provided on its upper surface with contact-points and rollers, and a rotary plate supported upon said rollers and provided on its lower surface with one short and two long segmental contact-points.

18. In an electric telemotor, a current-receiver having, in combination, a stationary plate provided on its upper surface with contact-points and rollers, and a rotary plate supported on said rollers and provided on its lower surface with contact-points, each of the contact-points on said stationary plate being provided with a spring device for keeping them in contact with the points on said rotary plate.

19. In an electric telemotor, the combination of a combined current-receiver and circuit-interrupter having a stationary plate provided with numerous contact-points, and a rotary plate provided with a circuit-interrupting contact-point and a contact-point on each side of said interrupting-point; an electric motor; and means connecting said motor with said rotary plate so as to rotate the same to cause its circuit-interrupting contact-point to interrupt the circuit to the motor.

20. An electric telemotor having the following-named elements in combination; a current-receiver having a stationary plate provided with contact-points and a plate superposed upon said stationary plate and provided with contact-points; an electric motor provided with a shaft and connected by wires with said superposed plate; a worm on said motor-shaft in mesh with a worm-wheel secured to a second shaft; a worm on said second shaft in mesh with a worm-wheel secured to a third shaft having also a spur-pinion thereon; and a shaft secured to said superposed plate and provided with a sper gear-wheel in mesh with said spur-pinion.

21. In an electric-telemotor system, the combination of the following-named elements: a combined current-receiver and circuit-interrupter having a stationary member and a rotary member each provided with contact-points; an electric motor electrically connected with said receiver; and a shaft, operated by said motor, connected to the valve or valve-rod of an engine by yielding or spring connections constructed and arranged so as to operate said valve in both directions without compression of the springs and to prevent breakage of the valve connections by the compression of said springs at the proper time.

22. In an electric telemotor, the combination of the following-named elements: a current-transmitter; a combined current-receiver and circuit-interrupter having a stationary member provided with contact-points and a rotary member provided with contact-points, one of which is a circuit-interrupting contact-point; an electric motor; an electromagnet electrically connected to said circuit-interrupting contact-point; and means operated by said magnet to arrest the momentum of said motor.

23. In an electric telemotor, the combination of the following-named elements: a current-transmitter; a combined current-receiver and circuit-interrupter having a stationary member provided with contact-points and a rotary member provided with contact-points, one of which is a circuit-interrupting contact-point; an electric motor; an electromagnet electrically connected with said circuit-interrupting contact-point; and a short-circuiting bar operated by said magnet to arrest the momentum of the motor.

24. In an electric telemotor, the combination of the following-named elements: an indicator-transmitting plate provided with numerous contact-points for regulating the extent of movement of the object to be moved; an indicator-arm provided with a contact-point for transmitting the current to the contact-points on said plate; means for moving said arm over said plate; a current-receiver having two members, one provided with numerous contact-points, and the other provided with contact-points, one of which is a circuit-interrupting point; and wires connecting the contact-points on said indicator-plate with the contact-points on one of the members of said receiver.

25. In an electric telemotor, the combination of the following-named elements: a switchboard provided with contact-points; a lever adapted to open and close circuits at said points; an indicator-plate provided with contact-points; an indicator-arm provided with a contact-point; means for mechanically and simultaneously operating said lever and said indicator-arm; a current-receiver having a stationary member provided with numerous contact-points and a rotary member provided with contact-points one of which is a circuit-interrupting contact-point; an electric motor; wires connecting said indicator-plate with said stationary member; wires connecting said motor with said switchboard and said rotary member; and mechanism connecting said motor with said rotary member so as to rotate the same.

26. In an electric telemotor, the combination of the following-named elements: an indicator-plate provided with numerous contact-points for regulating the extent of movement of the object to be moved; an indicator-arm secured to a shaft and provided with a contact-point; means for rotating said shaft; a current-receiver having a stationary member and a rotary member each provided with contact-points, the contact-points on said stationary member being equal in number to those on said indicator-plate and connected thereto by wires, and one of the contact-points on said rotary member being a circuit-interrupting point; an electric motor; wires connecting said rotary member with said motor; and mechanism connecting said motor with said rotary member so as to rotate the same to interrupt the circuit to the motor.

27. In an electric telemotor, the combination of the following-named elements: an indicator-plate provided with numerous contact-points for regulating the extent of movement of the object to be moved; an indicator-arm secured to a shaft and provided with a contact-point; means for rotating said shaft; an electric motor; a current-receiver having a member provided with numerous contact-points severally connected by wires with the contact-points on said indicator-plate, and a member provided with a circuit-interrupting contact-point and with contact-points connected by wires with said motor; and mechanism connecting said motor with one of said members so as to rotate the same to interrupt the circuit to the motor.

28. In an electric telemotor, the combination of the following-named elements: an indicator-plate provided with numerous contact-points for regulating the extent of movement of the object to be moved; an indicator-arm provided with a contact-point; a switchboard provided with contact-points; a lever adapted to open and close circuits at the contact-points on said switchboard; means for mechanically and simultaneously operating said indicator-arm and said lever; a current-receiver having a stationary member provided with numerous contact-points and a rotary member provided with contact-points one of which is a circuit-interrupting contact-point; an electric motor; gearing connecting said motor to said rotary member; wires connecting said indicator-plate with said stationary member; and wires connecting said motor with said switchboard and said rotary member.

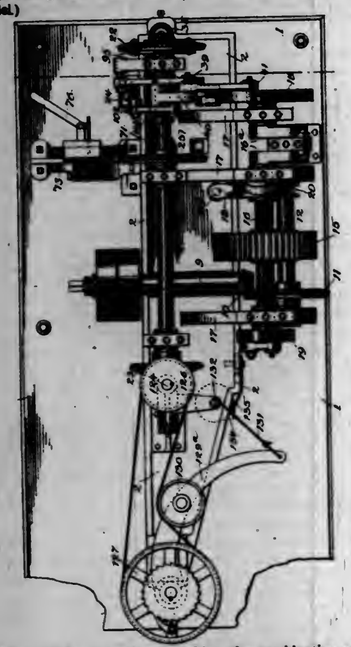
29. In an electric telemotor, the combination of the following-named elements: an indicator-plate provided with contact-points; an indicator-arm secured to a shaft and provided with a contact-point; a worm-wheel on said shaft; a shaft provided with a worm in mesh with said worm-wheel; one loose and two fixed helical sleeves mounted on said worm-shaft; a switchboard provided with contact-points; a lever secured to said loose sleeve and adapted to make contact with the contact-points on said switchboard; means for preventing the revolution of said loose sleeve before the proper time; means for revolving said worm-shaft; a current-receiver having a stationary member and a rotary member each provided with contact-points; an electric motor; wires connecting said indicator-plate with said stationary member; wires connecting said motor with said rotary member and said switchboard; and mechanism connecting said motor with said rotary member so as to rotate the same.

30. In an electric telemotor, the combination of the following-named elements: a current-transmitter having an indicator-plate provided with numerous contact-points, for regulating the extent of movement of the object to be moved, and an indicator-arm provided with a contact-point; a current-receiver having a stationary member and a rotary member each provided with contact-points, the contact-points on said stationary member being equal in number to those on said indicator-plate, and one of the contact-points on said rotary member being a circuit-interrupting point; an electric motor; wires connecting the contact-points on said indicator-plate with those on said stationary member; wires connecting said rotary member with said motor; and a shaft operated by said motor, connected to the valve-rod of an engine.

31. In an electric-telemotor system, the combination of the following-named elements: an indicator-plate provided with numerous contact-points for regulating the extent of movement of the object to be moved; an indicator-arm provided with a contact-point; a switchboard provided with contact-points; a lever adapted to open and close circuits at the contact-points on said switchboard; means for mechanically and simultaneously operating said indicator-arm and said lever; a current-receiver having a stationary member provided with numerous contact-points and a rotary member provided with contact-points one of which is a circuit-interrupting contact-

point; an electric motor; a power-transmitting shaft; gearing connecting said motor to said rotary member and to said shaft; wires connecting said indicator-plate with said stationary member; and wires connecting said motor with said switchboard and said rotary member.

591,996. MACHINE FOR MAKING WIRE FENCING. Albert J. Batm, Joliet, Ill., assignor to the Consolidated Steel and Wire Company, Chicago, Ill. Filed June 21, 1897. Serial No. 641,637. (No model.)



Claim.—1. In a wire-fence machine, the combination of a plurality of coilers through which parallel strand-wires are fed to have the ends of stay-wires coiled around them, mechanism for simultaneously feeding a plurality of stay-wires to the coilers at intervals and cutting off suitable lengths thereof to span the spaces between contiguous strand-wires in line with one another, and strand-wire-feeding mechanism acting upon the wires in advance of the coilers and cutting mechanism, and operating to intermittently push said wires forward through the machine.

2. In a wire-fence machine, the combination of a plurality of coilers through which parallel strand-wires are fed to have the ends of stay-wires coiled around them, driven rolls for simultaneously feeding a plurality of said stay-wires to the coilers, mechanism for cutting off suitable lengths of said stay-wires to span the spaces between contiguous strand-wires in line with one another, and intermittently-acting driven rolls located in advance of the coilers and acting to push said wires forward through the machine.

3. In a wire-fence machine, the combination of a plurality of pairs of positively-driven feed-rolls arranged in a line one over another, bars extending the length of said line of rolls in front and rear of the same, and guide-eyes in said bars centrally alined with the space between the rolls of each pair.

4. In a wire-fence machine, the combination of a plurality of pairs of positively-driven feed-rolls arranged in a line one over another, a plurality of coilers arranged in a line parallel with the line of feed-rolls in rear of the same, bars extending the length of the line of rolls in front and rear of the same, guide-eyes in said bars centrally alined with the space between the rolls of each pair, and guide-tubes extending from the eyes of the rear bar to the coilers.

5. In a wire-fence machine, the combination to form pairs of co-operating wire-feed rolls of a driver secured to a rotary shaft, and a driven roll intergeared therewith, said driven roll being mounted in bearings in a bar sliding in ways in the framing of the machine and removable therefrom.

6. In a wire-fence machine, the combination to form pairs of co-operating wire-feed rolls of a driver secured to a rotary shaft, and a driven roll intergeared therewith, said driven roll being mounted in bearings in a bar sliding in ways in the framing of the machine, and having an adjustable spring acting to force the same inward so as to hold the rolls in operative relation by a yielding pressure.

7. In a wire-fence machine, the combination to form pairs of co-operating wire-feed rolls of a driver secured to a rotary shaft, and a driven roll intergeared therewith, said driven roll being mounted in bearings in a bar sliding in ways in the framing of the machine, an adjustable spring acting to force the same inward so as to hold the rolls in operative relation, and a cam-lever for throwing the spring into and out of action.

8. In a wire-fence machine, the combination to form pairs of co-operating wire-feed rolls of a driver secured to a rotary shaft, and a driven roll intergeared therewith, said driven roll being mounted in removable bearings in the end of the bar sliding in ways in the framing of the machine and pressed inwardly by a spring to hold the rollers in operative relation.

9. In a wire-fence machine, the combination of coilers through which parallel strand-wires are fed, mechanism located in advance of the coilers for forwarding said strand-wires thereto, mechanism for feeding stay-wires to the coilers to be cut into lengths and coiled around the strand-wires, a driven winding-drum upon which the completed fencing is wound, and mechanism for regulating the tension on the fencing.

10. In a wire-fence machine, the combination of coilers through which parallel strand-wires are fed, mechanism located in advance of the coilers for intermittently forwarding said strand-wires thereto, mechanism for intermittently feeding stay-wires to the coilers to be cut into lengths and coiled around the strand-wires, a winding-drum upon which the completed fencing is wound, an intermittently-driven belt roller for rotating the drum, a belt-roller on the drum-shaft and an adjustable regulator for the belt to control the tension on the roll of fencing as its diameter increases.

11. In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of strand-wires, mechanism for intermittently feeding a plurality of stay-wires transversely to the strand-wire, mechanism for cutting off suitable lengths of the stay-wires to span the spaces between the strand-wires, mechanism for coiling the adjacent ends of the stay-wires around the strand-wire, and mechanism for effecting a slight longitudinal movement between the coilers and the strand-wires during the operation of coiling the stay-wires around the strand-wires.

12. In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of strand-wires, mechanism for intermittently feeding a plurality of stay-wires transversely to the strand-wires, mechanism for cutting off suitable lengths of stay-wires to span the spaces between the strand-wires, mechanism for coiling the adjacent ends of the stay-wires around the strand-wires, and mechanism for imparting to the strand-wires a slight additional movement through the coilers during the operation of coiling the ends of the stay-wires around them.

13. In a wire-fence machine, the combination of a plurality of coilers, mechanism for forwarding strand-wires to the coilers, mechanism for feeding a plurality of stay-wires transversely to the strand-wires, mechanism for cutting off suitable lengths of stay-wires to span the spaces between the strand-wires, and mechanism for coiling the ends of the stay-wires around the strand-wires, the strand-wire-forwarding mechanism acting to advance the wires with a step-by-step motion between the operations of the coilers, and being given an additional movement to slightly advance them during the operation of the coilers.

14. In a wire-fence machine, the combination of a plurality of coilers, driven rolls for feeding strand-wires to the coilers, driven rolls for feeding stay-wires transversely to the strand-wires, mechanism for cutting off suitable lengths of stay-wires to span the spaces between the strand-wires, mechanism for coiling the ends of the stay-wires around the strand-wires, said strand and stay wire feeding rolls being actuated intermittently to forward the wires during the intervals between the action of the coilers and to intermit their action during the coiling operation, and mechanism for giving the strand-wire-feed rolls an additional impulse during the coiling operation to impart a slight advance to said wires while the coiling is going on.

15. In a wire-fence machine, the combination of mechanism for feeding strand-wires to a plurality of coilers, mechanism for feeding stay-wires to said coilers and cutting off suitable lengths to span the spaces between the strand-wires, mechanism for operating the coilers to wrap the ends of the stay-wires around the strand-wires, and mechanism for crimping the strand-wires at the junction of the stay-wires, said mechanism consisting of a stationary bar and a movable bar between which the completed fencing passes from the coilers, said bars carrying crimping-jaws adapted to bite the strand-wires on either side of the coils of the stay-wires.

16. In a wire-fence machine, the combination of fixed and movable crimper-bars carrying jaws for crimping the strand-wires, said movable bar being mounted on eccentrics at its opposite ends, a connecting-rod between the arms of the shaft of the eccentrics, and a link connecting the upper arm with a crank-disk 19 on the shaft 16.

17. In a wire-fence machine, the combination of the shafts 83, 84, the eccentrics 81, 82, 92, 93, on opposite ends of said shafts, the arms 85, 86 projecting from one end of said shaft and tied together by the connecting-rod 87, the movable bars of the cutting and crimping mechanisms mounted on said eccentrics, and means for oscillating the shafts.

18. In a wire-fence machine, the combination of mechanism for feeding a plurality of strand-wires, mechanism for feeding stay-wires corresponding to the spaces between strand-wires and cutting and coiling the same around the strand-wires, reciprocating crimping-bars between which the completed fencing passes, said bars having jaws adapted to crimp the strand-wires on either side of the coils, and guides for the upper and lower edges of the fencing whereby the moving strand-wires are kept within the width of the crimping-jaws.

19. In a wire-fence machine, the combination of mechanism for feeding a plurality of strand-wires, mechanism for feeding stay-wires corresponding to the spaces between the strand-wires and cutting and coiling the same around the strand-wires, reciprocating crimping-bars between which the completed fencing passes, said bars having jaws adapted to crimp the strand-wires on either side of the coils, and guides located beyond the bars for acting on the upper and lower edges of the fencing to guide and hold the moving strand-wires within the width of the crimper-jaws, said guides being adjustable to different widths of fencing.

20. In a wire-fence machine, the combination of a plurality of coilers arranged in a line with one another, a gear-rack for rotating said coilers, said rack being supported in parallel relation with the line of coilers by pivoted levers, and mechanism for adjusting the angular relation of the levers, whereby the parallelism of the rack-bar with the line of coilers is determined and preserved.

21. In a wire-fence machine, the combination of a plurality of coilers arranged in line one over another and parallel with each other, a gear-rack for rotating said coilers arranged parallel with said line, an oscillating lever connected to said rack to reciprocate the same, a connecting rod extending from said lever to an operating-crank, and means for adjusting the position of the lever to regulate the path of movement of the rack and the rotation of the coilers.

22. In a wire-fence machine, the combination of the shafts of the strand and stay wire feed rolls, the shaft 21 by means of which said feed-roll shafts are driven in unison, the ratchet-disk 24 on the shaft 21, the oscillating arm 40 carrying the spring-pawl 39, and the spring-pawl 43 for locking the disk against retrograde movement.

23. The combination of the shaft 21, the disk 95 secured thereto, and the gear-wheel 22 secured to said disk by bolts passing through elongated slots to allow a slight movement of the wheel independently of the shaft.

24. In a wire-fence machine, the combination of the strand-wire-feed-roll shaft, the shaft 35 parallel therewith, and differential gearing between said shafts, the shaft 35 being longitudinally adjustable to change the engagement of the gears.

25. The combination of the shaft 28 having pinions 33, 34, and the parallel adjustable shaft 35 having pinions 36, 37, the pinions 33 and 36 being of equal size, and the pinions 34 being twice the diameter of the pinion 37.

26. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, guides located and arranged between the coilers for directing the stay-wires across the intervening space from one coiler to the next, cutters for cutting the stay-wires after they have been projected through the guides, and mechanism for opening the guides to release the stay-wires after the coiling operation is begun.

27. In a wire-fence machine, the combination of a plurality of coilers through which longitudinal strand-wires are fed, guide-grooves extending across the intervening space from one coiler to the next, movable guides located between the coilers and normally closing said grooves, and mechanism for opening the movable guides to expose the grooves and release the stay-wires after the coiling operation begins.

28. In a wire-fence machine, the combination of the movable stay-wire guides, the horizontally-swinging arms 116 upon which said parts are mounted, the vertical shaft 117 having a crank at its upper end, and a rotary cam-wheel 19 for oscillating the shaft and arms to open and close the guides.

29. In a wire-fence machine, the combination of a coiler adapted for the passage therethrough of a strand-wire around which the coiler-pins are to wrap a stay-wire, a guide-tube terminating below the coiler for directing the stay-wire between the strand wire and the coiler-pins, and a supplemental guide located between the end of the tube and the pins to prevent the moving strand-wire from deflecting the stay-wire.

30. In a wire-fence machine, the combination of a coiler adapted for the passage therethrough of a strand-wire around which the coiler-pins are to wrap a stay-wire, a guide-finger located in close proximity to the face of the coiler to hold the stay-wire up to the coiling-pins, and mechanism for moving the finger away from the coiler after the pins have engaged the wire.

31. In a wire-fence machine, the combination of a vertical line of coilers through which strand-wires pass, mechanism for directing stay-wires to the coilers, guide-tubes terminating below the coilers for guiding the stay wires between the strand-wire and the coiling-pins, and a post secured to the frame and carrying supplemental guides 109 extending to a point on the coiler-heads between the tubes and the pins, said guides being adjustable laterally and vertically on the rod.

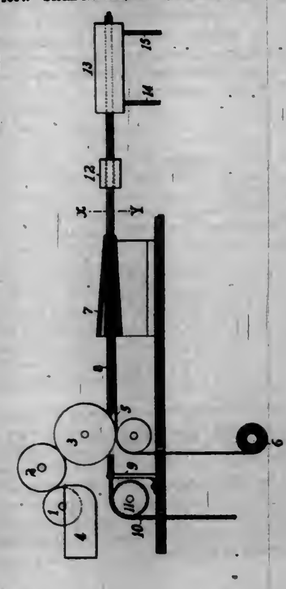
32. In a wire-fence machine, the combination of a coiler centrally through which a strand-wire passes to have the overlapping ends of two stay-wires coiled around it, said coiler standing to receive the stay-wires with its pins at right angles to the general direction of the stay-wires, means for feeding said stay-wires, and two guides located in such proximity and relation to the coiler-heads that one will direct one stay-wire between the strand wire and one of the pins, and the other will direct the other stay-wire between the strand-wire and the opposite pin.

33. In a wire-fence machine, the combination of a coiler through which a strand-wire passes, mechanism for feeding a stay-wire to said coiler, cutters located below the coiler and consisting of fixed and movable knives, and a guide-tube for directing the stay-wire past the cutters to the coilers, the end of the tube being flush with the upper surface of the fixed knife to prevent the drag of the retreating knife from bending back the uncut end of the wire.

34. In a wire fence machine, the combination of the frame-standards 3, 3^a, the standard 4 arranged in rear thereof and carrying the coilers, the standard 73 located at one side of the frame and carrying the stay-wire-feed rolls, guide-eyes 119 in the standard 3^a for directing the stay-wires to said rolls, and supplemental guides 120 immediately in front of said rolls and in line with the eyes in the standard 3^a.

35. In a wire-fence machine, the combination of the frame including base and top plates and vertical standards supporting the operating parts, of a vertical line of coilers, vertically-arranged driven feed-rolls in front of the coilers for forwarding strand-wires thereto, a vertical line of driven rolls for feeding transverse stay-wires to the coilers, a vertically-reciprocating rack for operating the coilers, horizontally-reciprocating crimpers in rear of the coilers, and through which the strand-wires with the stay-wires attached are fed, and a vertically-arranged winding-drum in line with the strand-wire-feed rolls and the coilers and crimpers, whereby the wires are fed straight through the machine and free access is allowed to the operating parts from both sides.

591,997. INSULATED ELECTRIC CONDUCTOR AND APPARATUS FOR MAKING SAME. James D. Bunce, New York, N. Y. Filed June 7, 1897. Serial No. 639,705. (No model.)



Claim.—1. Apparatus for covering a conductor with a continuous tube of flexible insulating material, comprising feed devices for feeding the conductor and a web of insulating material simultaneously to a flaring former to curl the material about the wire with overlapping edges, means for applying adhesive material to an edge of the flexible material to unite the overlapping edges, and a pressure device to force the overlapping edges to adhere to one another.

2. Apparatus for covering conductors with a continuous tube of insulating material, comprising feed devices for feeding the wire and a web of material simultaneously to a flaring former to curl the material about the wire with overlapping edges, means for applying adhesive material to an edge of the flexible material to unite the overlapping edges, a pressure device to force the edges to adhere, and drying-chamber through which the covered wire may pass.

3. Apparatus for inclosing conductors within a continuous, loosely-fitting paper tube, comprising a hollow former through which the conductor passes, said former having converging walls to curl the paper into tubular form greater in diameter than the conductor and with overlapping edges, means for applying adhesive to the paper to fasten together the overlapping edges, a pressure device to squeeze the surfaces into contact, and a pipe or tube supported between the wire and paper tube extending through the hollow former for the purpose specified.

4. An insulated conductor inclosed within a paper tube of greater inside diameter than the conductor having overlapping, longitudinal, sealed edges.

5. An insulated conductor inclosed within a sealed paper tube sealed along a longitudinal seam and having a free air-space between the conductor and the tube.

6. An insulated conductor inclosed within a paper tube of greater diameter than the conductor, said tube having overlapping, longitudinal edges connected by adhesive material.

591,998. FILLING-CHANGING MECHANISM FOR LOOMS.

JOHN L. BURTON, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed June 11, 1897. Serial No. 640,322. (No model.)



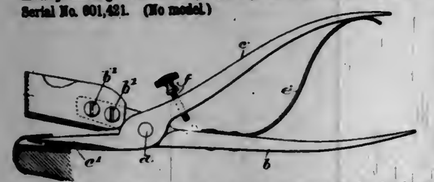
Claim.—1. In an apparatus of the class described, a transferrer for the filling-carrier, and a yielding cushion carried by said transferrer to engage with the filling-carrier, as and for the purpose described.

2. A transferrer for filling-changing mechanism, having a recessed end, and a yielding cushion mounted therein to engage the tip end of the filling-carrier, substantially as described.

3. A transferrer for filling-changing mechanism, having a recessed and transversely-slotted end, and a yielding cushion inserted in the recess and provided with ribs to enter the transverse slot, substantially as described.

591,999. NOTCHING DEVICE FOR LASTING BOOTS OR SHOES.

GEORGE W. CARTER, Haverhill, Mass., assignor to the Consolidated and McKay Lasting Machine Company, Portland, Me. Filed Aug. 3, 1896. Serial No. 601,421. (No model.)



Claim.—1. The herein-described notching device for lasting boots and shoes, said device comprising two cooperating jaws shaped to remove a notch from the shoe-upper, one of said jaws being thinned toward its outer end to enable the notch cut by said jaws to be carried close down to the apex of the converging space between the upper and the inner sole and close to an adjacent fastening to thereby enable said upper to be closely and smoothly lasted about a pointed toe of a last, substantially as described.

2. The herein-described notching device for lasting boots and shoes, said device comprising an upper cutter having vertical cutting edges of V shape in outline, and an under tapered jaw to fit snugly within said vertical edges, the latter moving past said tapered jaw in the cutting operation, said jaw having a thin slender body converging to a pointed end, whereby said jaw may be entered under the pulled-over upper immediately adjacent a tack and a cut thereby made in the upper close to the tack without disturbing the latter, substantially as described.

592,000. STEAM-MUFFLER.

DAVID W. CURTIS, Fort Atkinson, Wis. Filed Feb. 23, 1897. Serial No. 624,513. (No model.)

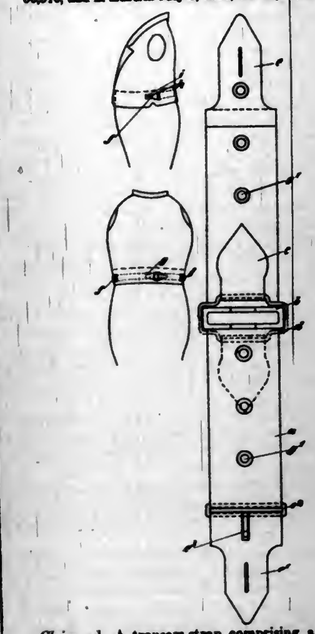


Claim.—1. A steam-muffler consisting of a pipe or socket in combination with an inner pipe of less diameter with central openings and having tapering ends, and the pipes C provided with holes D and having their inner ends fitted tight upon the tapering ends of the inner pipe, whereby they hold the latter centrally in place and form tight joints, substantially as shown and described.

2. The soft-metal tube B provided with central openings and having its ends made conical or tapering as shown and described, whereby it is adapted to form tight joints with the surrounding pipes without any machining or fitting of the parts as set forth.

592,001. TROUSERS-STRAP.

LOUIS DAUM, Loschwitz, Germany. Filed May 23, 1894. Serial No. 512,092. (No model.) Patented in Belgium June 2, 1894, No. 110,369; in England June 13, 1894, No. 11,466; in France June 18, 1894, No. 239,222; in Italy June 30, 1894, XXVIII, 36,310, and in Austria July 3, 1894, No. 44, 2,914.



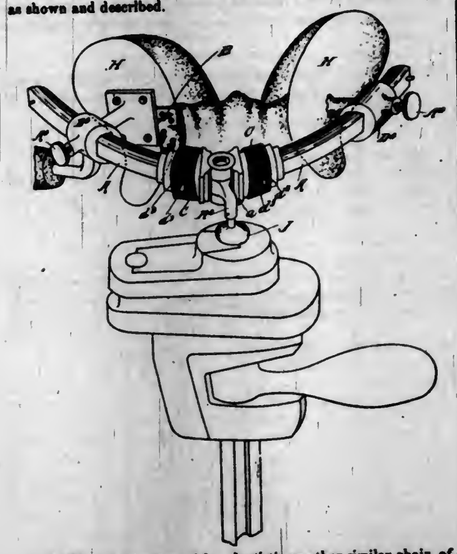
Claim.—1. A trousers-strap comprising a fabric strip doubled upon itself at one end and permanently secured at the said end to a buckle, the other end of said strip passing freely through the buckle whereby it is adjustable thereon, and a buttonhole-tab secured to each end of the strip, and a hook arranged in the loop formed by the double strip, substantially as and for the purpose described.

2. A trousers-strap comprising a fabric strip provided with eyelets and doubled upon itself at one end and permanently secured at the said end to a buckle, the other end of said strip passing freely through the buckle whereby it is adjustable thereon, and a buttonhole-tab secured to each end of the strip, and a hook arranged in the loop formed by the double strip, substantially as and for the purpose set forth.

592,002. HEAD-REST.

ALEXANDER M. DENHAM, Santiago, Chile, assignor to Claudius James Ash and William Henry Ash, London, England. Filed June 5, 1897. Serial No. 639,530. (No model.) Patented in England June 27, 1894, No. 12,477.

Claim.—1. The combination with a dentist's or other chair, of a head-rest connected therewith, by means of a universal joint, said head-rest comprising a ratchet-head and side arms, pivotally connected therewith, said head being also provided with an arm on which is formed a part of said joint, and said side arms being provided with spring-operated pawls or plugs which operate in connection with said ratchet-head, and means for operating said pawls or plugs, and to free them from the ratchet-head, and said side arms being also provided with head-pads which are connected therewith, substantially as shown and described.

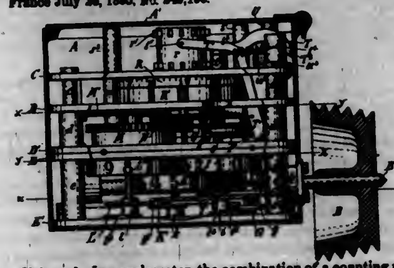


2. The combination with a dentist's or other similar chair, of a head-rest connected therewith, by means of a ball and-socket joint, said head-rest comprising a ratchet-head and side arms pivotally connected therewith, said ratchet-head being also provided with an arm on which is formed a part of said joint, and said side arms being provided at their pivoted ends with central bores, spring-operated pawls or plugs mounted in said central bores, and adapted to operate in connection with said ratchet-head, and sliding collars mounted on said side arms and provided with pins which pass through slots formed in said side arms, said collars and pins being adapted to operate said pawls or plugs, and head-pads which are connected with said arms, substantially as shown and described.

3. The combination with a dentist's or other similar chair, of a head-rest connected therewith, by means of a ball-and-socket joint, said head-rest comprising a ratchet-head and side arms pivotally connected therewith, said ratchet-head being also provided with an arm on which is formed a part of said joint, and said side arms being provided at their pivoted ends with central bores, spring-operated pawls or plugs mounted in said central bores, and adapted to operate in connection with said ratchet-head, and sliding collars mounted on said side arms and provided with pins which pass through slots formed in said side arms, said collars and pins being adapted to operate said pawls or plugs, and head-pads which are connected with said arms, said head-pads being longitudinally adjustable on said arms, and being also connected by an elastic strip or band, substantially as shown and described.

592,003. SPEED-INDICATOR.

EDOUARD DOMON, Jr., Paris, France, assignor to Constant Dinichert Son, Montilier, Switzerland. Filed Mar. 11, 1896. Serial No. 582,794. (No model.) Patented in France July 28, 1895, No. 249,196.

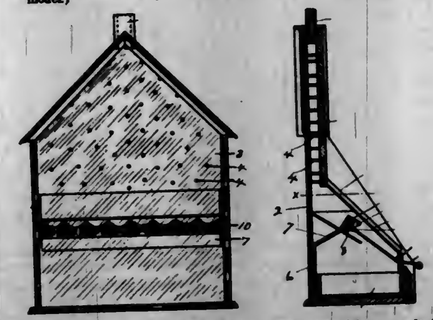


Claim.—1. In a cyclometer, the combination of a counting mechanism having star-wheels, a worm-wheel sliding on a squared shaft and having a pin which can act on the first star-wheel of the counting mechanism, a spiral spring tending to disengage the worm-wheel from its worm and the pin from the first star-wheel of the counting mechanism, a stem U, a spring *u*, acting on the stem U, the three-armed lever T, a stylus on the same, a cam acting on the three-armed lever and also upon the worm-wheel, said stem U being capable of being depressed for the purpose of reengaging the worm-wheel with its worm and the three-armed lever with the cam, substantially as herein and for the purpose set forth.

2. In a cyclometer, the combination with a gear-wheel, for engaging the equidistant holes in a paper band, for the purpose of shifting the band, a stylus for marking upon the paper band, a lever for carrying the stylus, a counting mechanism, a casing containing the counting mechanism, a cover on said casing and means for actuating the lever carrying the stylus, by opening and closing the said cover, substantially as herein shown and described.

592,004. COIN-CONTROLLED APPARATUS.

RAPHAEL E. ESSINGER, Roanoke, Ind. Filed July 28, 1897. Serial No. 646,187. (No model.)



Claim.—1. A coin-controlled apparatus, comprising a suitable frame having a glass front; a coin-chute in the upper edge of the frame, a back having a plurality of forwardly-projecting pins arranged as described; a rearwardly-inclined shelf below said back adapted to receive a coin or token dropped in said chute; a recessed indicator having numbers as stated and pivotally attached to the frame, and having its base resting upon the said shelf; an operating-rod for manipulating said indicator so arranged that the indicator can be raised from its seat upon the said shelf; all arranged substantially as described and shown.

2. A coin-controlled apparatus, comprising a suitable frame having a glass front; a coin-chute in the upper edge of said frame, a back having a plurality of forwardly-projecting pins arranged as described; a rearwardly-inclined shelf below said back adapted to receive a coin or token dropped in said chute; a recessed indicator having its recesses numbered as described, and being pivotally attached to the sides of the frame and having its base resting upon the said inclined shelf; an operating-rod so arranged as to raise the said indicator from said inclined shelf and permit the coins to glide into a drawer beneath the same; a drawer beneath said shelf having compartments to receive the said coin or token; and the recesses in the indicator and the compartments beneath having corresponding numbers or letters; all arranged substantially as described and shown.

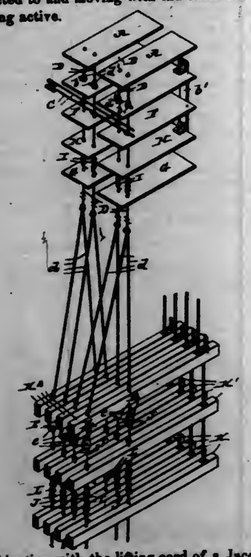
3. A coin-controlled apparatus, comprising a suitable frame having a glass front and suitable orifice for inserting a coin or token; a back having a plurality of forwardly-projecting pins, arranged as described; a rearwardly-inclined shelf below said back adapted to receive a coin or token inserted in said orifice; a recessed indicator having its recesses numbered or lettered, and pivotally attached to said frame and its base in contact with said inclined shelf; an operating-rod pivotally attached to said indicator, and so arranged as by means thereof to elevate the indicator from its contact with said shelf and permit the coin or token to glide into a receptacle or drawer having numbers or letters corresponding to like numbers or letters upon the recesses of the indicator; all arranged as described.

592,005. JACQUARD MECHANISM FOR LOOMS.

HARRY HARDWICK, Philadelphia, Pa. Filed Jan. 21, 1897. Serial No. 620,022. (No model.)

Claim.—1. In a Jacquard mechanism, in combination, with the lifter-board and the lifting-cords, of a supplemental board connected to and moving with the lifter-board provided with orifices through which the lifting cords pass, springs connected with the lifting-cords and rendered active by said supplemental board.

2. In a Jacquard mechanism, in combination with the lifter-board and the lifting-cord, of a spring connected with the lifting-cord, and a device connected to and moving with the lifter-board adapted to render said spring active.

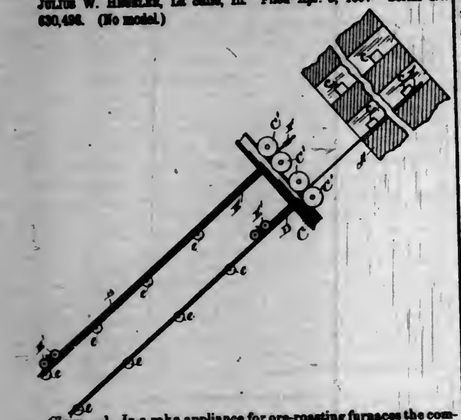


3. In combination with the lifting-cord of a Jacquard mechanism and connection therewith with the warp, of a lingo band connected with the warp, a journal for operating the warp, frames as K, K', secured to and moving with the journals, there being orifices in said frames through which the lingo bands pass, springs equal in number to the lingo bands and interposed between said frames K, K'.

4. In combination with the lifter-board and the lifting-cords of a Jacquard mechanism, of connection between the cords and the warp, a supplemental board connected to and moving with the lifting-board provided with orifices through which the lifting-cords pass, springs connected with the lifting-cords and rendered active by said supplemental board, a lingo band connected with the warp, a spring one end connected with the lingo band, and means to render said spring active and maintain it active during the movement of the warp by the lifting-cord

592,006. RAKE APPLIANCE FOR ORE-ROASTING FURNACES.

JULIUS W. HAEHLER, La Salle, Ill. Filed Apr. 3, 1897. Serial No. 630,496. (No model.)



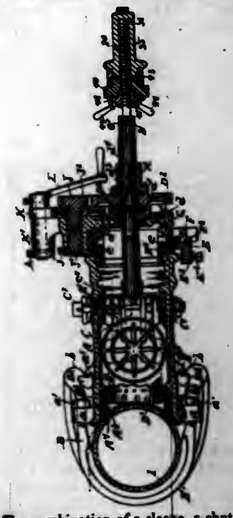
Claim.—1. In a rake appliance for ore-roasting furnaces the combination with the rake-rod of a supporting-frame provided with a track, a series of flanged rollers between the track-rails and a truck connected to the rear end of the rake-rod as specified.

2. In a rake appliance for ore-roasting furnace the rod B provided with an arrow-head, in combination with a cast-iron shoe F secured to the rod near the arrow-head, said shoe being bevel-pointed and thicker than the rod and having a length greater than the width of the cleaning-openings of the furnace whereby it is adapted to operate substantially as specified.

3. In a rake appliance for ore-roasting furnaces the combination with a track E provided with flanged rollers, of a rod B with an arrow-head at the front end, and a truck F at its rear end adapted to the track and rollers all arranged and adapted to operate as specified.

592,007. SHUT-OFF AND PIPE-DRILLING DEVICE.

SOLON G. HOWE, Detroit, Mich. Filed Mar. 30, 1897. Serial No. 629,976. (No model.)



Claim.—1. The combination of a sleeve, a shut-off valve to seat within the sleeve, and a hinge-pin carrying said valve, said hinge-pin and sleeve having a by-pass to open therethrough on both sides of the seat of said valve substantially as described.

2. The combination of a sleeve, a shut-off valve to seat within the sleeve, and a hinge-pin journaled in said sleeve carrying said valve, said sleeve and hinge-pin having registrable ports forming a by-pass to open through the sleeve and hinge-pin on both sides of the valve-seat, substantially as described.

3. The combination of a sleeve, a shut-off valve to seat in said sleeve, and a hinge-pin actuating said valve, said sleeve and hinge-pin provided with registrable ports forming a by-pass to open therethrough on both sides of said seat, said hinge-pin having an idle movement to cause said ports to register before actuating said valve, substantially as described.

4. The combination of a sleeve, a shut-off valve to seat within said sleeve, a hinge-pin, and connecting-arms engaging said valve with said hinge-pin, said hinge-pin and sleeve formed with a by-pass to open on both sides of the valve-seat, substantially as described.

5. The combination of a sleeve, a shut-off valve to seat within said sleeve, a hinge-pin provided with arms connecting the valve therewith, and recessed caps engaged upon the hinge-pin, said hinge-pin and sleeve having registrable ports to form a by-pass to open on both sides of the valve-seat, and said connecting-arms having a limited movement in the recesses of said caps to cause said passages to register before the valve is actuated, substantially as described.

6. The combination of a sleeve permanently engageable upon a water-pipe, a swinging shut-off valve to seat within said sleeve, a by-pass to open upon both sides of the valve-seat, and means to automatically open and close said by-pass upon the actuation of said shut-off valve, substantially as described.

7. The combination of a sleeve permanently engageable upon a water-pipe, a hinge-pin journaled in said sleeve, a swinging shut-off valve connected with said hinge-pin to seat within the sleeve, a by-pass to open upon both sides of the valve-seat, and means actuated by the movement of the hinge-pin to open and close said by-pass substantially as described.

8. The combination of a sleeve permanently engageable upon a water-pipe, a hinge-pin journaled in said sleeve, a swinging shut-off valve carried by said hinge-pin to seat within the sleeve, a by-pass to open upon both sides of the valve-seat, and means actuated by the movement of the hinge-pin to open and close said by-pass, said hinge-pin having a limited movement to open said by-pass before opening the shut-off valve, substantially as described.

9. The combination with a sleeve engageable upon a water-pipe, of means to secure the sleeve upon said pipe, said means consisting of wrought-metal bands, and a supplemental cast-metal yoke, said bands and yoke constructed to pass about the pipe and to be engaged with said sleeve, for the purpose described.

10. The combination of a pipe, a sleeve engageable upon the pipe, a compressible packing between the sleeve and pipe, means to engage the sleeve upon the pipe and to compress said packing therebetween, and a lead packing on the sides and edges of the compressible packing, substantially as described.

11. The combination of a sleeve, means to secure the sleeve upon a pipe, and a supporting-plate held in place between said means and the pipe, substantially as and for the purpose described.

12. The combination of a sleeve engageable upon a water-pipe, means to engage the sleeve upon said pipe, an additional supplemental yoke to encircle a water-pipe and engageable with the sleeve to assist in holding the sleeve upon the pipe, and wedges to hold the yoke and sleeve firmly together, substantially as set forth.

13. The combination of a sleeve constructed with hook-lugs a^5, a yoke engageable therewith to secure the sleeve upon a water-pipe, and wedges to hold the yoke and sleeve firmly together upon the pipe, the outer wedges formed with a lip b' to engage said hook-lugs to prevent a lifting action as the wedges are driven into place, substantially as described.

14. The combination of a sleeve, a hinge-pin journaled therein, a swinging shut-off valve, arms connecting said shut-off valve with the hinge-pin, and arm-caps encircling the hinge-pin and rotatable with the hinge-pin, and a by-pass, said caps recessed on their peripheries to permit the hinge-pin being rotated the length of said recesses before actuating the shut-off valve, substantially as set forth.

15. The combination of a sleeve formed with an orifice to admit a hinge-pin, a shut-off valve carried by said hinge-pin, a nut to close said orifice, a packing-nut engageable upon the first-mentioned nut, and a cap engageable on the hinge-pin, substantially as set forth.

16. The combination of a sleeve formed with an orifice to admit a hinge-pin, a nut to close said orifice, a packing-nut engaged therewith, a cap engaged with the hinge-pin, and a locking-pin in connection with said cap, substantially as described.

17. The combination of a sleeve formed with an orifice to admit a hinge-pin, a nut to close said orifice, a packing-nut engaged therewith, a cap engaged with the hinge-pin, and a locking-pin having a limited movement in connection with said cap, substantially as described.

18. The combination of a sleeve, a hinge-pin journaled therein provided with connecting-arms, a shut-off valve or gate connected with said arms, said gate constructed with lugs provided with square orifices, and said connecting-arms constructed with square orifices at their outer ends, and a square pin uniting the connecting-arms with said lugs, substantially as set forth.

19. The combination of a sleeve, a shut-off valve and a reducing-ring engageable upon the outer end of the sleeve, said reducing-ring constructed with guide-ribs, for the purpose described.

20. The combination with a sleeve of a head engaged thereupon, a cutter-spindle sleeved through said head, a gear provided with a hub mounted upon said spindle, and a ring-plate made in halves secured to said head and having a tongue in grooved connection with the hub of said gear, and mechanism to actuate said gear, substantially as and for the purpose described.

21. The combination of a head, a reciprocatory cutter-spindle sleeved through said head, a feed-screw bearing against said spindle to feed the spindle to its work, mechanism to advance the feed-screw, and means to hold the feed-screw from turning, said spindle being independently retractable, substantially as described.

22. The combination of a reciprocatory cutter-spindle, a support therefor, a feed-screw contacting with the end of said spindle, and mechanism to automatically feed said screw, said spindle being independently retractable, substantially as set forth.

23. The combination of a reciprocatory cutter-spindle, a support therefor, a feed-screw to feed the spindle, automatic mechanism to advance the feed-screw, and means to hold the feed-screw from turning, said spindle being independently retractable, substantially as set forth.

24. The combination of a cutter-spindle, a support therefor, a feed-screw to advance said spindle, a removable pressure-bar to receive one end of the screw, mechanism to advance the feed-screw, and means to prevent the feed-screw from turning within the pressure-bar, substantially as described.

25. The combination of a cutter-spindle, a support therefor, a feed-screw, a removable pressure-bar to receive one end of said screw, a gear mounted upon said spindle, and automatic mechanism actuated by said gear to operate the feed-screw, said feed-screw being non-rotatable, substantially as described

26. The combination of a reciprocatory cutter-spindle, a head through which the spindle is sleeved, mechanism to drive said spindle, automatic and interchangeable feeding devices to feed the spindle to the work, and a pressure-bar carrying the feeding mechanism, said pressure-bar advanceable toward the cutter-spindle, substantially as described.

27. The combination with a reciprocatory cutter-spindle, a support therefor, a pressure-bar, a feed-screw engaged therewith to advance the cutter-spindle, bars 18 and 23 connecting the pressure-bar with said support, sleeves 30 and 31 having a telescopic connection one with the other upon the bar 23, a feed-pinion geared with the cutter-spindle, a friction-roll mounted upon the sleeve 31, a nut to feed the feed-screw, a ratchet-wheel to drive said nut, a sliding bracket, and a pawl carried by said bracket to engage the ratchet-wheel, said friction-roll engageable with said bracket, substantially as and in the manner described.

28. The combination of a reciprocatory cutter-spindle, a removable pressure-bar, a feed-screw, a ratchet-wheel located upon the feed-screw, and a feed-nut 41 engaged with the ratchet-wheel to reciprocate the feed-screw, substantially as described.

29. The combination of a reciprocatory cutter-spindle, a support therefor, bars 18 and 23 connected with said support, a pressure-bar clamped to the bars 18 and 23, and a reciprocatory feed-screw carried by the pressure-bar to advance the cutter-spindle, said pressure-bar having a double clamp to engage one of the bars 18 and 23, substantially as described.

30. The combination of a reciprocatory cutter-spindle, a head provided with a perforated diaphragm, a headed screw extending longitudinally of the spindle engaging the head to said spindle, and a cutter-blade secured to said head, substantially as set forth.

31. The combination with a reciprocatory cutter-spindle of a head keyed to said spindle and provided with a perforated diaphragm, a headed screw extending longitudinally of the spindle engaging the head to the spindle to hold the head from sliding upon said spindle, and a cutter-head secured to said head, substantially as described.

32. The combination of a sleeve engageable upon a pipe and provided with lugs, a tie-plate secured upon said sleeve, tie-rods having a jointed engagement with the tie plate, the opposite ends of said rods provided with sleeve-nuts to engage said lugs, and jam-nuts to lock the sleeve-nuts in place, substantially as described.

33. The combination of a sleeve provided with lugs, bands to engage said sleeve upon a pipe, a tie-plate, tie-rods connected to said tie-plate, sleeve-nuts engaged with the opposite extremities of the tie-rods to engage said lugs, jam-nuts to lock the sleeve-nuts, hooked bolts carried by the sleeve-nuts to hook over the bands, and thumb-nuts upon the outer ends of the hooked bolts to secure the tie-rods to the bands, substantially as described.

34. The combination of a sleeve, a hinge-pin, a swinging gate carried by said hinge-pin to seat within the sleeve, a by-pass to open through the sleeve and hinge-pin upon both sides of said seat, and means to hold the gate from closing without design, substantially as described.

35. The combination of a sleeve, a hinge-pin, a swinging gate to seat within the sleeve, connecting-arms to connect the gate with said hinge-pin, a pin to engage said gate with the connecting-arms, said sleeve formed with an opening through which the pin may be engaged in place with the connecting-arms and gate, and means to close said opening, substantially as described.

36. In combination a pipe, a sleeve, means to secure the sleeve upon the pipe, a compressible packing between the pipe and the sleeve, a compressible cushion extending outward from said packing to relieve the strain upon the sleeve in securing the sleeve to the pipe, and a lead packing about said cushion and packing, said cushion serving to form a stop for the lead packing around the sleeve-joint, substantially as described.

37. The combination of a sleeve, a tie-plate, cutting mechanism carried by said plate, and an interchangeable reducing-ring adjustably secured upon said sleeve, substantially as described.

38. The combination of a sleeve, a tie-plate, and tie-rods jointedly engaged with the tie-plate, said tie-rods adjustably engageable with said sleeve, substantially as described.

39. The combination of a sleeve, a cutter, a support therefor, an independent non-rotatable feed-screw to feed the cutter, a pressure-bar engaging said feed-screw and adjustably connected with said support, whereby the pressure-bar may be accommodated to various lengths of sleeves, substantially as described.

40. The combination of a cutter, a support therefor, means to rotate said cutter, a feed-screw to advance the cutter, a pressure-bar carrying the feed-screw and adjustably connected with said support, an automatic device to actuate the feed-screw and telescoping sleeves carrying the automatic device, substantially as described.

41. The combination of a cutter, an adjustable pressure-bar, an independent non-rotatable feed-screw to advance said cutter housed in said pressure-bar, and means to feed the screw, substantially as described.

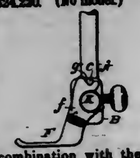
42. The combination of a cutter-spindle, a removable pressure-bar, an independent non-rotatable feed-screw rigidly held from turning in said pressure-bar to advance said spindle, and means to reciprocate the feed-screw, substantially as described.

43. The combination of a cutter, driving mechanism to actuate the cutter, an independent non-rotatable feed-screw, a driving-nut to actuate the feed-screw, and adjustable automatic devices to actuate said nut whereby the feeding of the screw may be regulated, substantially as described.

44. The combination of a sleeve, a reducing-ring, packing between said sleeve and ring, a tie-plate secured to the reducing-ring, packing between the tie-plate and ring, a head secured to the tie-plate, packing between the head and tie-plate, and drilling mechanism carried by said head, substantially as set forth.

45. The combination of a pipe, a sleeve engageable upon the pipe, an inner compressible packing between the sleeve and pipe to act as a water packing and also as a cushion to remedy any unevenness between the sleeve and the pipe, means to engage the sleeve upon the pipe, and to compress said packing therebetween, and an outer lead packing on the sides and edges of the compressible packing, the compressible packing receiving the water-pressure and relieving the lead packing therefrom, for the purpose described.

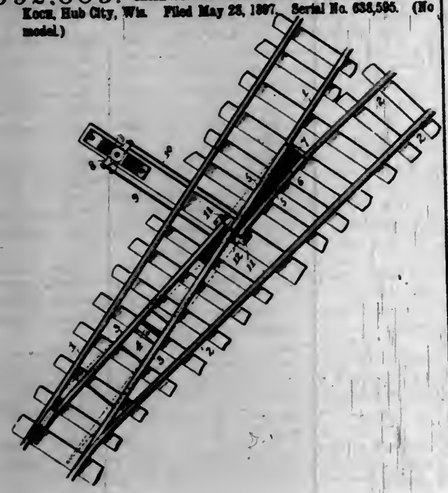
592,008. MEANS FOR SECURING ATTACHMENTS TO SEWING-MACHINES. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Feb. 19, 1897. Serial No. 624,220. (No model.)



Claim.—1. The combination with the presser-bar and a plate carried thereby having three projections on the face thereof, of a presser-foot or similar attachment having an extension thereon, said extension being formed with three recesses or depressions therein adapted to engage respectively with the projections on the plate, two of said recesses being in the edge of the extension and the third in the flat face thereof, and means for clamping the parts together so that upon loosening said clamping means the parts can be separated, substantially as described.

2. The combination with the presser-bar and a plate having a flat face carried thereby, and three projections on the flat face of said plate, one of said projections being hollow and interiorly screw-threaded, of a pressure-foot or similar device having an extension thereon formed with a flat face, said extension having two recesses in the edge thereof, and a third recess in its flat face, said recesses being adapted to receive the projections on the presser-bar plate, and a screw engaging the interiorly-threaded projection and acting to clamp the parts together, substantially as described.

592,009. RAILWAY-SWITCH MECHANISM. MATTHEW T. KOCH, Hub City, Wis. Filed May 28, 1897. Serial No. 638,595. (No model.)



Claim.—The combination with main and siding track rails, of which the outer main and inner siding track rails are cut away, of connected main switch-rails fulcrumed at an intermediate point by means of a pivoted connecting-plate, and adapted respectively for alinement with the outer main and inner fixed rails, connected auxiliary switch-rails interposed between the ends of the main switch-rails and the contiguous extremities of the fixed rails, and fulcrumed at those ends which are remote from the main switch-rails by means of a pivoted connecting-plate, the contiguous free ends of the main and auxiliary switch-rails being capable of simultaneous movement in opposite directions to cause the alinement of the opposite main and auxiliary switch-rails with the fixed rails, and the length of the auxiliary switch-rails being approximately equal to the length of those portions of the main switch-rails between the fulcrum-point of the latter and those extremities which are contiguous to the auxiliary switch-rails, and means for simultaneously swinging the main and auxiliary switch-rails in opposite directions, substantially as specified.

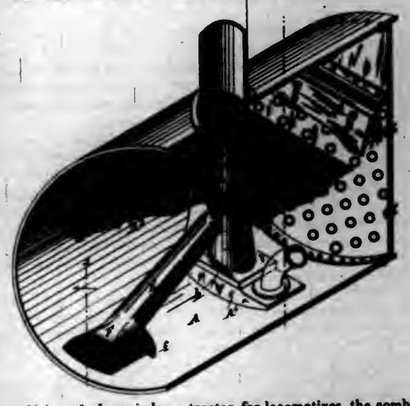
592,010. AIR-VALVE FOR PNEUMATIC TIRES. SAMUEL LAIBORN, HERBERT HARKER, and FREDERICK HARKER, Philadelphia, Pa. Filed Nov. 18, 1896. Serial No. 612,568. (No model.)



Claim.—1. In an air-valve for pneumatic tires the combination with the tubular valve-body having oppositely-tapering valve-seats therein, of separate conical valves entering said body from the opposite ends, one of said valves carrying on its outer end a cap for the end of the valve-body said cap being adapted to move longitudinally with the valve, substantially as set forth.

2. In an air-valve for pneumatic tires the combination with the tubular valve-body having oppositely-tapering valve-seats therein, of separate conical valves entering said body from the opposite ends, one of said valves having an integrally-formed cap on its outer end adapted to inclose the outer end of the valve-body substantially as set forth.

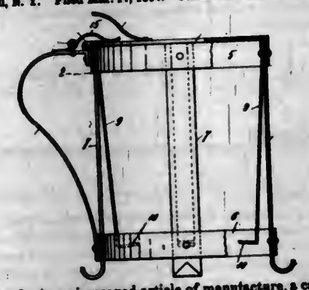
592,011. CINDER-EXTRACTOR. PETER G. LEONARD, Springfield, Ill. Filed Mar. 13, 1897. Serial No. 627,334. (No model.)



Claim.—1. In a cinder-extractor for locomotives, the combination of a shell adapted to fit on the saddle above the cylinder exhaust-pipes of a locomotive, a bifurcated steam-pipe within said shell having members which at their lower ends register with the cylinder exhaust-pipes and merge together in the upper part of said steam-pipe, a forwardly-projecting and downwardly-extending induction-tube opening into said shell, and a dome-shaped hood secured to and inclosing the lower end of said induction-tube, as set forth.

2. In a cinder-extractor for locomotives, the combination of a shell adapted to fit on the saddle of a locomotive above the cylinder exhaust-pipes thereof, a sleeve tapered to form a nozzle and vertically adjustable in the upper end of said shell, a bifurcated steam-pipe within said shell adapted to register with both of the cylinder exhaust-pipes in the saddle of the locomotive, a nozzle adjustable in the upper end of said steam-pipe, a forwardly-projecting and downwardly-extending induction-tube opening into said shell, and a dome-shaped hood closed at its rear end and secured to and inclosing the lower end of said induction-tube, as set forth.

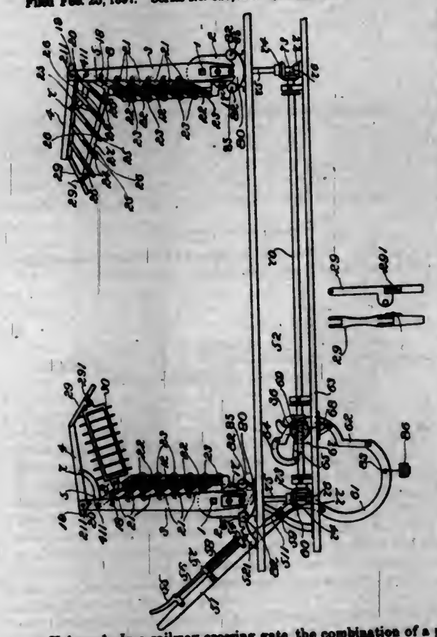
592,012. HOLDER FOR JARS, CANS, &c. HERMAN LEWIS, Brooklyn, N. Y. Filed Mar. 17, 1897. Serial No. 627,998. (No model.)



Claim.—1. As an improved article of manufacture, a can-holder, comprising a top and bottom band, side strips by which said bands are connected, said side strips being provided with downwardly and upwardly curved extensions forming a support; spring-strips secured to said top band, and which are directed downwardly and inwardly, and provided with inwardly-directed angular projections at the lower end thereof; and a spring-operated cover, substantially as and for the purpose set forth.

2. As an improved article of manufacture, a holder for jars or cans comprising a top and bottom band, side strips by which said bands are connected, said side strips being provided with feet which are integral therewith, spring-strips secured to said top band and which are directed downwardly and inwardly and provided with angular extensions at the lower end thereof adapted to hold the can or jar and a handle secured to the top and bottom band, and a lid pivotally connected with the top band adjacent to said handle, a spring secured to said handle and adapted to engage said lid, said lid being also provided with a handle, substantially as and for the purpose set forth.

592,013. RAILWAY-CROSSING GATE. WILLIAM MARTIN, Salem, Mass., assignor of one-half to Thomas F. Little, same place. Filed Feb. 25, 1897. Serial No. 626,008. (No model.)



Claim.—1. In a railway-crossing gate, the combination of a pillar, a gate-arm, means to operate said arm, a bar having a depressed intermediate portion, the said gate-arm and bar being pivoted to the pillar on different centers, a link connecting the free ends of said arm and bar, and slots pivoted to said arm and having slots embracing pins on the depressed portions of the bar, substantially as described.

2. In a railway-crossing gate, in combination, a supporting-pillar, a gate-arm, a rod or bar, the said gate-arm and rod or bar being mounted pivotally on the said pillar on different centers, a link or radius-bar connecting the free end of the said rod or bar to the said gate-arm near the free extremity of the latter, slots pivotally connected to the said gate-arm and engaged with the said rod or bar, a tip or supplementary arm pivotally mounted upon the said main arm, a bell-crank pivotally mounted upon the said main arm and having one arm thereof in sliding engagement with the said tip or supplementary arm and the other arm thereof actuated from the said rod or bar, and a wing or guard depending from the said tip or supplementary arm and connected with the depending arm of the bell-crank, substantially as described.

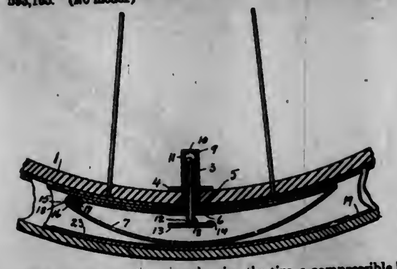
3. In a railway-crossing gate, the combination with the arm thereof, of a depending wing or guard to obstruct the space between the said arm and the roadway, the said wing or guard having a portion thereof near the ground made capable of outward movement to facilitate the escape of a person caught on the tracks by the closing of the gates, substantially as described.

4. In a railway-crossing gate, the combination with the pillar, the main arm, the supplementary arm or gate mounted pivotally on the said arm, the rod or bar 12, the said main arm and the rod or bar 12 being pivoted on the pillar on different centers, the radius-bar or link connecting the free end of the said rod or bar with the main arm, the wing or guard applied to the main arm, the bell-crank, and the wing or guard applied to the supplementary arm or tip and connected with the said bell-crank, the said wing or guard having a post with the lower extremity thereof capable of being swung outwardly to facilitate the escape of a person caught on the tracks by the closing of the gate, substantially as described.

5. In a railway-crossing gate, the combination of a pivoted gate-arm, a bevel-gear on its pivot, a bevel-gear meshing with the said gear and fixed to a vertical shaft, an actuating-shaft, connections whereby said vertical shaft is operated from said actuating-shaft, an arm on said actuating-shaft, an operating-lever and means whereby said lever is operatively connected with the said arm upon the said actuating-shaft, substantially as described.

6. In a system of railway-crossing gates, the combination of a series of gates, an operating-lever, a horizontal shaft provided with bevel-gears, means to actuate said shaft from said lever, horizontal shafts running toward the pillar of each gate and provided with bevel-gears meshing with the gears on the shaft first mentioned, vertical shafts in the said pillars and having bevel-gears meshing with bevel-gears on the said horizontal shafts, and gates pivoted to the pillars and having bevel-gears on their pivots meshing with the said vertical shafts, substantially as described.

592,014. INFLATING DEVICE FOR BICYCLE-TIRES. GEORGE W. MOWRY, Rochester, N. Y., assignor of one-half to Horace M. Crawford and George R. Reynolds, same place. Filed May 26, 1896. Serial No. 593,165. (No model.)



Claim.—1. In combination the rim, the tire, a compressible bulb, a plate 13 fixed to a regulable tube 8 and an elastic cover 14 for such plate, said tube having an air-passage 12 at its foot adjacent the plate, substantially as described.

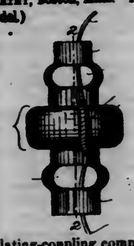
2. In a device for automatically filling the pneumatic tire of a vehicle, the compressible bulb situated within the tire and having a valved connection therewith and a similar connection with the atmosphere, a cylinder 3 passing through and fixed to the wheel-rim, tire and bulb, a tube within said cylinder having a packing adapted to positively close communication between the bulb and the atmosphere, and means for moving the tube endwise of the cylinder, substantially as described.

592,015. AUTOMATIC DEVICE FOR OPERATING WHISTLES. HENRY C. MUSTARD, West Point, Ind. Filed June 20, 1897. Serial No. 642,205. (No model.)

Claim.—The combination, in an automatic apparatus for sounding locomotive-whistles, of a strike positioned adjacent to a railway-track, a rod or lever suitably mounted on the locomotive and adapted to come in contact with and be operated by said strike, the whistle connections running from said rod or lever and adapted to operate said whistle, a detent carried upon a rock-shaft or pivot forming part of said connections, and a catch positioned adjacent to said detent and adapted to engage therewith, whereby the whistle may be held continuously open until purposely closed, substantially as set forth.



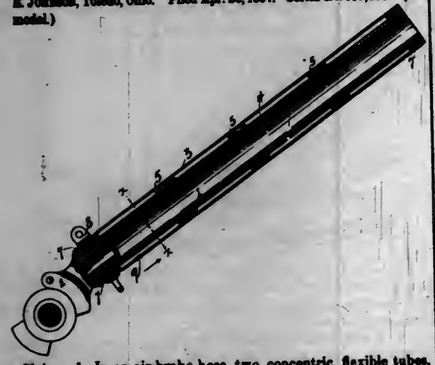
592,016. INSULATING-COUPLING FOR ELECTRIC-WIRE CONDUITS. LOUIS MCCARTHY, Boston, Mass. Filed July 2, 1897. Serial No. 643,207. (No model.)



Claim.—1. An insulating-coupling comprising opposite connections made hollow or tubular for the reception of conducting-wires, and an interposed insulator, and having at opposite sides of the insulator lateral passages to permit the said wires to be withdrawn and passed around the exterior of the insulator, substantially as described.

2. An insulating-coupling comprising opposite connections made hollow or tubular for the reception of conducting-wires, and an interposed insulator to which said connections are applied removably, the said connections respectively having lateral passages to permit the said wires to be withdrawn and passed around the exterior of the insulator, substantially as described.

592,017. AIR-BRAKE HOSE. WILLIAM F. MCCAULEY and LUCIUS B. JOHNSON, Toledo, Ohio. Filed Apr. 26, 1897. Serial No. 633,898. (No model.)



Claim.—1. In an air-brake hose, two concentric, flexible tubes, the wall of the outer of said tubes having therethrough one or more orifices or air-ducts, of limited area, substantially as and for the purpose specified.

2. In an air brake hose, two concentric, flexible tubes having an intervening annular chamber, means within said annular chamber for holding said tubes apart, and one or more air-ducts of limited area leading from said annular chamber through the wall of the outer of said tubes, substantially as and for the purpose specified.

3. An air-brake hose comprising two flexible tubes, one within the other, separating rings or bands between said two tubes, one or more air-ducts of limited area leading from said annular chamber to the outer air, and means at either end of said hose for clamping said two tubes in fixed relation with each other, substantially as and for the purpose specified.

592,018. BICYCLE HANDLE-BAR CLIP. BOSMER H. OLDS, Fort Wayne, Ind. Filed Mar. 1, 1897. Serial No. 625,623. (No model.)



Claim.—1. In a clip for bicycle handle-bars the combination of the spring-metal clip, having its lower end screw-threaded and rigidly secured upon a tubular supporting-stem and having the head thereof extended as described, a clamping-collar 6 having the parallel flanges 8 the serrations 7 and the inclined gripping-faces for the purposes specified and a securing-nut 9 adapted to force said collar toward the handle-bar for clamping the same, all substantially as described and shown.

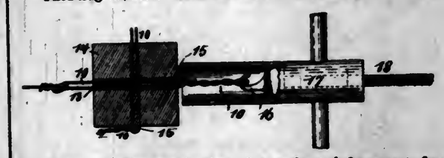
2. The combination in a handle-bar clip for bicycles, of a tubular stem 1; a spring-metal clip 2 having its lower tubular end externally screw-threaded and rigidly fixed upon said stem, as described, and provided at its upper end with a transverse eye for the handle-bar, the sides of said eye being extended as shown; a clamping-collar having parallel sides adapted to compress the sides of the clip-head, and provided with opposite concave serrated gripping-faces adapted to form a bite upon the lower face of the handle-bar for the purpose specified; and a securing-nut adapted to force said collar into a holding engagement with said clip-head and with said handle-bar, all substantially as described.

592,019. TROUSERS. THEODORE PRINCE, New York, N. Y. Filed Dec. 5, 1895. Serial No. 571,164. (No model.)



Claim.—A garment whose limb is provided medially with a tubular guide extending circumferentially around its interior, an adjusting-cord running loosely through said guide, and a fastening-piece secured within said limb at the outlet of the tubular guide, and having a prong to catch and fasten the cord when adjusted, substantially as described.

592,020. WIRE FENCE. ABRAHAM R. PROSSER, Lebanon, Ohio. Filed Aug. 23, 1897. Serial No. 649,151. (No model.)



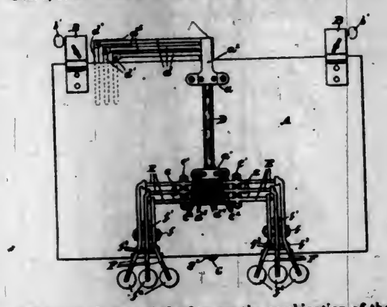
Claim.—1. The combination of a perforated fence-post, fence-wires the ends of which are provided with loops which occupy and extend beyond the perforations in the post, a retaining member 15 resting against the post and occupying the extending part of the loop which part is twisted about itself and against said member, thereby preventing it from slipping back into the perforations of the post, while said member 15 prevents loop and wire ends from slipping entirely through the perforations and away from the post.

2. The combination of a perforated fence-post, a fence-wire having a loop at its end which is introduced into and projects beyond a perforation in the post, a piece of wire or its equivalent inserted into the projecting part of the loop and resting against the post, being held in place by the tension of the fence-wire preventing also the end of the latter from slipping through the perforation, the necessary tension being applied by drawing the loop through the perforation and twisting the drawn-out part of it against the inserted wire between it and the post.

3. The combination of a number of fence-wires having each a loop at its end and a post with perforations through and beyond which these loops are passed, a retaining-wire 15 which by passing through the projecting part of all the loops, prevents them from slipping back, the fence-wire being held in position after stretched by twisting the projecting part of each loop about itself and against wire 15.

4. A fence-wire, the end of which is to be connected to a post by means of a loop, such loop being formed by turning a part of the wire back from the end forming a kink or twist 11 some distance back from the point where the wire has been turned, passing the wire end through such kink and twisting the projecting end about the wire.

592,021. MUSIC-LEAF TURNER. GEORGE ROBBINS, State Hill, N. Y., assignor of one-third to Charles M. Wood, same place. Filed Feb. 1, 1897. Serial No. 621,414. (No model.)



Claim.—1. In a music-leaf turner the combination of the music support or plate, bearings secured to the rear thereof for the shafts and their actuating devices, shafts journaled at the rear of said plate, pinions secured upon said shafts, arms secured on the upper projecting ends of said shafts, the leaf-grasping fingers depending from the outer ends of said arms in front of the plate, the retaining-rod to hold the music on the plate, pivoted arms having rack-segments at their inner ends to engage pinions on said shafts and their outer ends extending over the inner ends of the actuating key-levers, and the key-levers having their inner ends to engage the rack-arms and having pieces passing to the front of the plate in convenient position to be operated by the performer.

2. The combination substantially as set forth of the plate or support, bearings secured to the rear thereof for the shafts and their actuating devices, a tubular shaft journaled in bearings in the rear of the plate, an intermediate tubular shaft therein and a central shaft within said intermediate shaft, pinions secured upon the lower ends of said shafts, arms secured upon the upper protruding ends of said shafts, grasping-fingers depending from the outer ends of said arms, levers having rack-arms at their inner ends to engage the pinions upon said shafts, the lever-keys engaging said arms and having finger-pieces protruding to the front of the plate or support in convenient position to be operated by the performer.

3. The combination of the plate or support, a pivoted rod to hold the piece of music upon said support, reciprocating shafts journaled in bearings in the rear of said support pinions secured to the lower ends of said shafts, arms secured to their upper ends having their inner ends cam-shaped, the leaf-grasping fingers depending from the forward ends of said arms in front of the plate, springs bearing upon the cam ends of said arms to assist in throwing them from one position to the other and retaining them in position, pivoted arms having racks upon one end to engage the pinions upon the said shafts, and key-levers to impart motion to said rack-arms for the purpose of rotating the shafts and throwing the grasping-fingers from one side to the other of the support, substantially as set forth.

4. The combination in a music-leaf turner of the character described of the support for the operative parts, a clamp consisting of a hinged arm secured to the rear thereof, a U-shaped member to pass over the music-rack or other fixed part of the instrument or stand, a set-screw to clamp said member to the fixed support, and a screw-pintle uniting the arm to the U-shaped member for adjusting and holding the support at any desired angle, substantially as shown and described.

5. In a music-leaf turner the combination of the support having operative mechanism secured to the rear end thereof for turning the leaves, a spring-pressed pin passing centrally through the upper end of said support, a retaining-rod pivoted in the outer end of said pin and a retaining device pivoted in the lower edge of said support to hold the rod with yielding pressure upon the music-sheet, substantially as shown and described.

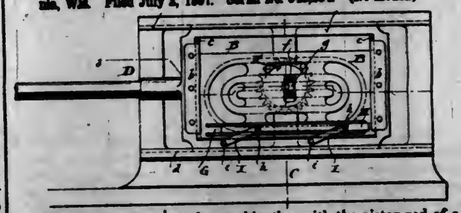
592,022. PROCESS OF DYEING MIXED GOODS. HENRI H. P. SCHLUMPF, Manchester, N. H. Filed Feb. 19, 1897. Serial No. 624,275. (No specimens.)

Claim.—1. The process of dyeing mixed goods composed of animal and vegetable fibers, which consists in dyeing the animal fiber of the goods in a vat or vessel containing a dyeing solution which dyes the animal fiber only, washing the goods so dyed, and then saturating or impregnating the whole of the partially-dyed goods with an anilin-black liquor and subsequently developing the anilin-black on the vegetable fiber of the mixed goods, substantially as described.

2. The process of dyeing mixed goods, composed of animal and vegetable fibers, which consists in dyeing the animal fiber of the goods in a vat or vessel containing a black dyeing solution which dyes only the animal fiber and which is unaffected by the anilin-black, washing and then padding the partially-dyed goods with an anilin-black liquor, and subsequently developing the anilin-black on the vegetable fiber of the mixed goods, substantially as described.

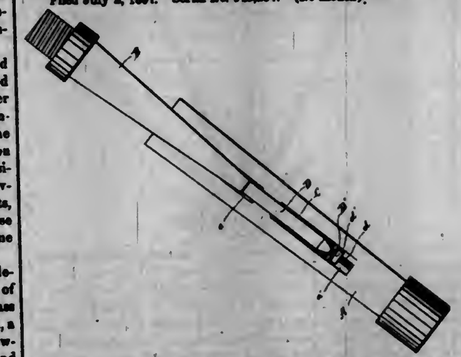
3. The process of dyeing mixed goods composed of wool and cotton a fast black, which consists in dyeing the wool fiber with a black dye which dyes the wool only and which is unaffected by anilin black, and dyeing the cotton by padding the goods with an anilin-black liquor, and developing the black in the cotton after it has been padded, substantially as described.

592,023. ENGINE. PETER SCHMIT and MICH. B. SCHMIT, Prodelin, Wis. Filed July 2, 1897. Serial No. 643,264. (No model.)



Claim.—In an engine, the combination with the piston rod of a cross head rigidly secured thereto and movable in suitable guides or ways, an internal rack having vertical movement within said cross-head, the teeth of said rack being arranged on an oblong round-ended line, a correspondingly-shaped guideway formed on the frame of said rack within the line of said teeth, a horizontal guideway formed on said frame, a slide in said last-named guideway, parallel arms or links pivotally secured to said slide and to said cross head, and a shaft carrying a gear-wheel on its inner end in engagement with said rack-teeth, said inner end projecting beyond said gear-wheel and traveling in the oblong round-ended guideway on the rack-frame, substantially as set forth.

592,024. DRILL-JAR. HARVEY F. SEYBERT, Queenstown, Pa. Filed July 2, 1897. Serial No. 643,267. (No model.)



Claim.—In a drill-jar the combination of the two slotted interlocking members A B, the spring C, the arms D D, the abutment D', the screws *d*, and nuts *d'* all arranged substantially as shown and described, for the purpose set forth.

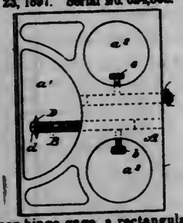
592,025. ELECTRIC-CONDUCTOR-WIRE CONNECTOR. ISAAC GULLUM, Martin, Mich. Filed Apr. 3, 1897. Serial No. 630,397. (No model.)

Claim.—1. The herein-described wire-connector comprising the side pieces 5 5, the block 6, having an eye at its upper end for connection to a rod or span, and the wedging-grooves in its under face, in combination with wedge-pieces to which the ends of the wires are connected, said wedge-pieces held within the grooves in the block by the strain or pull on the wires, and permitted to drop out of the grooves when the wire breaks, substantially as described.



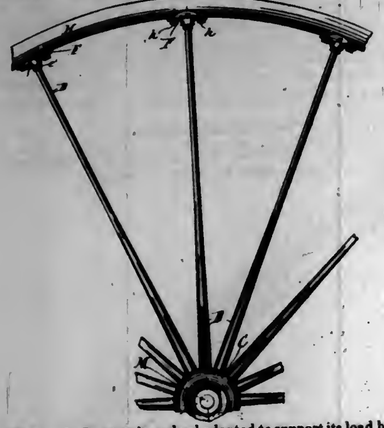
2. A wire-connector consisting of the side pieces 5 5, the block 6 provided with the grooves in its under face, the plate 17' spanning the space between the grooves, the wedge-pieces in the grooves and the wires connected thereto, substantially as described.

592,026. **DOOR-BUTT GAGE.** VAN B. STAPLES, Manchester, N. H. Filed Feb. 23, 1897. Serial No. 624,592. (No model.)



Claim.—In a door-hinge gage, a rectangular plate having perforations as shown and a flange extending laterally along one edge, adjustable rods mounted within said plate, and beveled rotary disks one mounted at the end of one rod outside said plate and the other mounted at the end of another rod within a perforation in said plate.

592,027. **WHEEL.** FRANCIS P. TERRY, Chicago, Ill. Filed Feb. 10, 1893. Renewed July 27, 1896. Serial No. 557,387. (No model.)

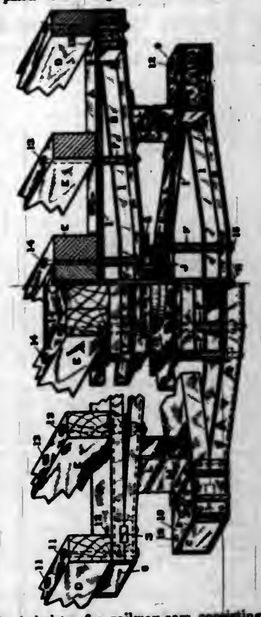


Claim.—1. In a tension-wheel adapted to support its load by suspension, the combination with spokes screwed into the hub in two series upon opposite sides of the plane of the rim, of a hub having a wooden core, and a metallic shell in arch form in longitudinal section and having two annular internal ribs adapted to bear upon the core and to receive the spoke-sockets, substantially as described.

2. In a wheel the combination with a hub having a metallic shell with countersunk and screw-threaded spoke-sockets, of metal spokes having their ends screw-threaded to fit the sockets and tapering away from the screw-threaded portion, and collars having their outer surfaces screw-threaded at one end to engage the countersunk portion of the sockets and polysided at the other end to engage a wrench, and being apertured to fit tightly upon the enlarged end of the spoke, substantially as described and for the purpose specified.

3. The combination with the rim provided with sockets in its inner side, and the spokes, of the draw-nuts secured upon the outer ends of said spokes and adjustable thereon into said sockets, the clips secured to the socketed portions of the rim and formed with tubular projections receiving the upper portions of said draw-nuts and movable thereon, and means in said sockets, consisting of yieldable cushions interposed between the inner ends of the draw-nuts and the inner walls of the sockets, for preventing an accumulation of mud therein, substantially as shown and described.

592,028. **TRUCK AND BODY BOLSTER FOR CARS.** HENRY TERRYMAN, Dayton, Ohio, assignor to the Barney & Smith Car Company, same place. Filed Aug. 24, 1897. Serial No. 649,318. (No model.)



Claim.—1. A bolster for railway-cars consisting of two channeled sections bent to desired shape, filling-blocks located within said sections, at the ends thereof, bosses formed on the top and bottom of said filling-blocks to engage corresponding holes in the flat surfaces of said sections, and means for rigidly securing said sections to said filling-blocks, substantially as set forth.

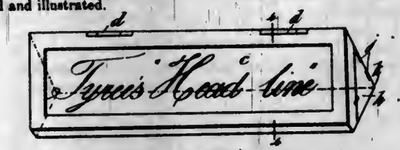
2. A bolster for railway-cars consisting of two channeled sections bent to desired shape, filling-blocks located within said sections, at the ends thereof, bosses formed on the top and bottom of said filling-blocks to engage corresponding holes in the flat surfaces of said sections, means for rigidly securing the flat surfaces of said sections to said filling-blocks, and lugs or bosses formed on opposite sides of the latter to engage cut-outs in the side flanges of said channeled sections, substantially as set forth.

3. In truck and body bolsters for railway-cars, the combination of a truck-bolster and a body-bolster, each composed of two channeled sections bent to desired shape, filling-blocks located within said sections at the ends thereof, bosses formed on the top and bottom of said filling-blocks to engage corresponding holes in the flat surfaces of said sections, means for rigidly securing said sections to said filling-blocks, and side and center bearings located between said bolsters, substantially as set forth.

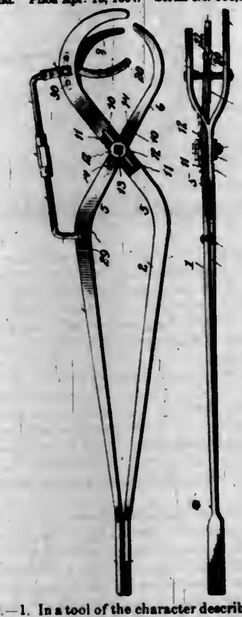
4. In truck and body bolsters for railway-cars, the combination of a truck-bolster and a body-bolster, each composed of two channeled sections bent to desired shape, filling-blocks located within said sections at the ends thereof, bosses formed on the top and bottom of said filling-blocks to engage corresponding holes in the flat surfaces of said sections, means for securing the flat surfaces of said sections to said filling-blocks, lugs or bosses formed on opposite sides of the latter to engage cut-outs in the side flanges of said channeled sections, and side and center bearings located between said bolsters, substantially as set forth.

592,029. **APPARATUS FOR TEACHING WRITING.** WILLIAM TYREE, Christchurch, New Zealand. Filed Aug. 7, 1896. Serial No. 553,483. (No model.)

Claim.—The apparatus for use in teaching writing consisting of the case *a* divided longitudinally by the plate *e* forming a compartment for the reception of writing-copies *c* and a compartment *a'* for writing implements, the door *h* having hinges *j* giving access to the compartment *a'*, and the side *b*, having hinges *d*, giving access to the copies *c* the said side being provided with a longitudinal opening through which the uppermost copy is visible substantially as specified and illustrated.



592,030. **CATCHING AND HOLDING TOOL.** JOHN C. VICKREY, Reno, Ind. Filed Apr. 10, 1897. Serial No. 631,504. (No model.)



Claim.—1. In a tool of the character described, the combination, with a member having a curved finger, and a second member pivoted to the first; of a curved tongue cooperating with said finger and its body pivoted thereto, a two-part link pivoted to said second member and the upper end of the tongue, and a turnbuckle between its parts, as and for the purpose set forth.

2. In a tool of the character described, the combination, with a member having a curved front end, and a second member pivoted to the first; of a tongue having a curved lower end cooperating with the curved end aforesaid, one of such ends being forked, an adjustable pivot between the body of the tongue and the first-mentioned member, and a link pivotally connecting the upper end of the tongue with said second member, as and for the purpose set forth.

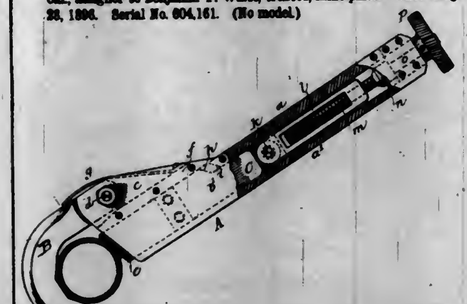
3. In a tool of the character described, the combination, with two members whose arms cross each other and whose front ends are formed into oppositely-curved parts, and an adjustable pivot at the crossing-point; of a tongue having a curved and laterally-dished lower end standing within the opening between said parts, its body being pivoted to one of the latter, and connections between its upper end and the arm of the other part, as and for the purpose set forth.

4. In a catching and holding tool, the combination, with two members whose arms cross each other and are pivoted at their crossing-point and whose front ends are formed into a downwardly-curved prong at the bottom and two upwardly-curved fingers at the top of the snout-opening, one of said fingers being nearer the prong and nearer the pivot than the other for the purpose set forth; of a tongue pivoted between said fingers, and means for moving it forward as the parts come together, substantially as described.

5. In a catching and holding tool, the combination, with two members whose arms cross each other and are there pivoted and whose front ends are oppositely curved, one in a lower prong and the other in two upper fingers of which one is nearer the prong and nearer the pivot than the other; of a tongue having a laterally-dished curved inner end forked at its extremity and standing between the fingers and prong, a pivot through its body and one of said front ends, and means for moving its inner end forward as the members are operated, as and for the purpose set forth.

6. In a catching and holding tool, the combination, with two members whose arms are bent inward and cross each other and whose front ends are formed in oppositely-curved parts, one of the latter comprising two fingers of which one stands nearer the other part and nearer the crossing-point than the other, the arms at their crossing-point having lateral openings, and teeth on their outer faces; of a bolt passing through said openings, and washers under its head and nut having serrated inner faces engaging said teeth, as and for the purpose set forth.

592,031. **PIPE-WRENCH.** GEORGE W. WAITT, San Francisco, Cal., assignor to Benjamin F. Waitt, trustee, same place. Filed Aug. 23, 1896. Serial No. 604,161. (No model.)

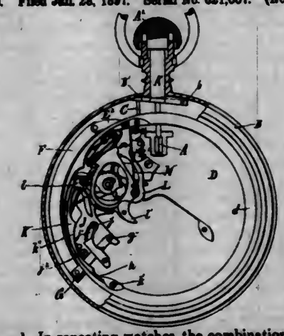


Claim.—1. In a pipe-wrench, a hollow handle, a jaw pivoted thereto, a sliding jaw guided within and by the handle, a screw-rod, having a bearing within the handle, and a nut traveling upon said rod, and hinged to said sliding jaw, substantially as described.

2. In a pipe-wrench, a handle, hollow, and open at both ends, a jaw pivoted in an offset of said handle, a jaw sliding and guided in said handle, and movable through one of its open ends, a threaded nut within the handle, connected to said jaw, a screw-rod engaging with said nut, and projecting through the opposite open end, and an operating-handle on the end of said rod, all substantially as described.

3. In a wrench, and in combination, a handle composed of plates *a*, *a'*, *b*, *b'*, said plates *a*, *a'*, having projections *c*, a jaw B, hinged in the recess formed by said projections, a jaw C sliding in the handle, and having a shoulder, for which said plate *a* is a stop, a separate plate forming a base or bottom to said recess and a guide for said sliding jaw, and means contained within the handle for operating said sliding jaw, substantially as described.

592,032. **REPEATING WATCH.** RODMAN WANAMAKER, Paris, France. Filed Jan. 28, 1897. Serial No. 621,007. (No model.)

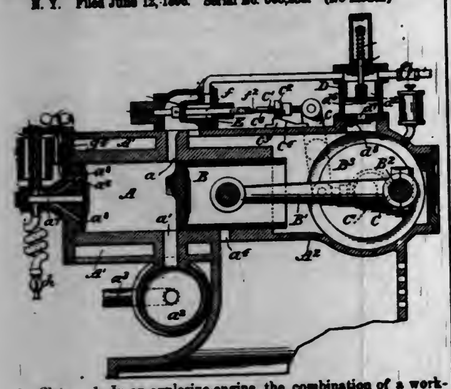


Claim.—1. In repeating watches, the combination of the crown A^2, having a sleeve A', engaged on a square portion of the stem A, with a rocking lever B', acting upon a pin C, pivotally connected to the one arm of a bell-crank lever E' E^2, the rocking movements of which are transmitted by means of an external curved rod F to a lever G, pivoted to the pivot *g*, of the usual rack J, and bearing

against a screw or projection j^3, fixed to the said rack J, causing the said rack J to be rocked with the said lever G, when the pin C is depressed by the action of the crown A^3, substantially, as shown and described.

2. In repeating watches having a rack J, to act upon the main sounding-spring and a repeating rack L, to act upon the repeating hammers the combination of a projection or nose *l*, of the repeating rack L with a locking-lever K engaging said projection or nose *l*, when the repeating mechanism is at rest, the rack J bearing a screw or projection j^3 intended to act upon the eccentrically-curved edge k^3 of said locking-lever K, unlocking the same when the rack J is rocked, substantially as shown and described.

592,033. EXPLOSIVE-ENGINE. CARL W. WEISS, New York, N. Y. Filed June 12, 1896. Serial No. 595,202. (No model.)



Claim.—1. In an explosive-engine, the combination of a working cylinder and piston, an air-compressor, a duct through which the air is free to flow from the compressor to the cylinder when the pressure in the cylinder is less than that in the compressor, a conductor for gas or vapor connected to said duct at a point intermediate the compressor and the cylinder, a valve to close the extremity of said conductor, and means to open and close said valve while the piston is at the forward portion of its stroke, whereby the air from the compressor clears the gases from the duct before the valve is opened and after the valve is closed at each operation.

2. In an explosive-engine, the combination of a working cylinder and piston, an air-compressor, a duct through which the air is free to flow from the compressor to the cylinder when the pressure in the cylinder is less than that in the compressor, a conductor for gas or vapor connected to said duct at a point intermediate the compressor and the cylinder, a valve to close the extremity of said conductor, means operated by the pressure of the air to effect the movement of the gas or vapor through said conductor when the valve is open, and means to open and close said valve while the piston is at the forward portion of its stroke, whereby the air from the compressor clears the gases from the duct before the valve is opened and after the valve is closed at each operation.

3. In an explosive-engine the combination of a gas or vapor supply, an air-compressor connected to the working cylinder to deliver air thereto, a second cylinder communicating with said air-compressor through a port and having the gas or vapor supply connected thereto, a check-valve for said gas or vapor supply and a piston movable in said second cylinder to deliver gas or vapor to the working cylinder and operated directly by the pressure of air in said compressor, said piston having a plug to enter said port to form an air-cushion as the piston returns to normal position.

4. In a governor, the combination with a rod reciprocated longitudinally and movable laterally with variations in the speed, of a valve-stem and a tongue pivoted upon said valve-stem and adapted to be engaged by said rod to shift the valve.

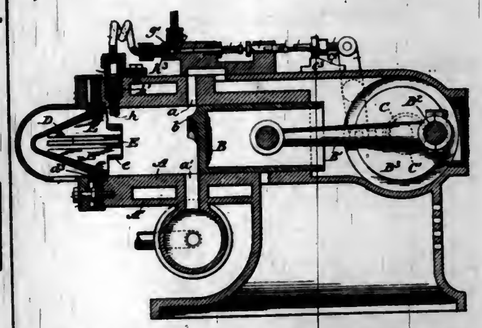
5. In a governor, the combination with a rod reciprocated longitudinally and movable laterally with variations in speed, of a longitudinally movable valve-stem in line with said rod and a tongue pivoted upon said valve-stem and adapted to be engaged by said rod to shift the valve.

6. In a governor, the combination with a rod reciprocating longitudinally and movable laterally with variations in speed, of a longitudinally-movable valve-stem in line with said rod, a tongue pivoted upon said valve stem and adapted to be engaged by said rod to shift the valve, and a spring plunger carried by said valve-stem to maintain said tongue in normal position.

7. In a governor, the combination with a rod reciprocating longitudinally and movable laterally with variations in speed, of a valve-stem movable longitudinally in line with said rod and a tongue pivoted upon said valve-stem and having a sharp edge, said rod having a beveled notch to engage and conform to the sharpened edge of said tongue.

8. In an explosive-engine, the combination with the working cylinder of an igniter, the head of said cylinder having diverging channels connecting said igniter with different points in the cylinder.

592,084. EXPLOSIVE-ENGINE. CARL W. WEISS, New York, N. Y. Filed Dec. 17, 1896. Serial No. 615,975. (No model.)



Claim.—1. In an explosive-engine, the combination with a water-jacketed working cylinder having an unjacketed explosion-chamber, of an oil-duct extended through the jacketed wall of the cylinder and terminating in the cylinder in front of the unjacketed explosion-chamber, a valve to close the extremity of said duct, and means to deliver the oil under pressure through said duct and to keep the duct constantly full.

2. In an explosive-engine, the combination with a cylinder and piston, an explosion-chamber in rear of the piston, a compression-chamber in front of the piston and an air-duct from said compression-chamber having a port opened by the piston at the forward limit of its stroke, of an oil-duct terminating in front of the explosion-chamber, and means to direct the current of air from said port when opened against the extremity of said duct to discharge the oil therefrom.

3. In an explosive-engine, the combination with a cylinder and piston, an explosion-chamber in rear of the piston, a compression-chamber in front of the piston and an air-duct from said compression-chamber having a port opened by the piston at the forward limit of its stroke, of an oil-duct terminating in front of the explosion chamber, a vaporizer located within the explosion-chamber, and means to direct a current of air from said port when opened against the extremity of said duct to discharge the oil therefrom.

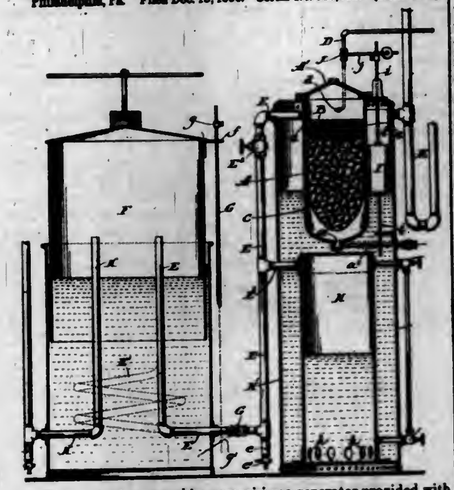
4. In an explosive-engine, the combination with a water-jacketed working cylinder having an unjacketed explosion-chamber, of an oil-duct extended through the jacketed wall of the cylinder and terminating in the cylinder in front of the unjacketed explosion-chamber, a valve to close the extremity of said duct, a reciprocating plunger to force the oil through said duct, and a second valve interposed between said plunger and said duct, the said duct being continuous from the plunger to the valve at the extremity of the duct within the cylinder.

5. In an explosive-engine, the combination with the working cylinder, of a shell forming a vaporizing-chamber and having a flange to fit upon the end of the cylinder, a supplementary shell inclosing the first-named shell and having a flange to fit upon the flange of the first-named shell, and bolts passing through the flange of the supplementary shell and secured in the end of the wall of the cylinder, the flange of the first-named shell being clamped between the flange of the supplementary shell and the end of the cylinder.

6. In an explosive-engine, the combination with a cylinder having an explosion-chamber, of plates disposed radially in said explosion-chamber about an open central space and secured together by a ring.

7. In an explosion-chamber, the combination with a cylinder and piston, an explosion-chamber in rear of the piston, a compression-chamber, an air-duct from said compression-chamber having a port opened by the piston at the forward limit of its stroke, and means to direct the current of air from said port into the explosion-chamber, of plates disposed radially in said explosion-chamber about an open central space and secured together by a ring.

592,085. ACETYLENE-GAS GENERATOR. DAVID S. WILLIAMS, Philadelphia, Pa. Filed Dec. 15, 1896. Serial No. 615,732. (No model.)



Claim.—1. A gas-machine comprising a generator provided with a water-supply pipe and a gas-discharge pipe, a holder connected to the gas-discharge pipe, a valve in said pipe, a rod connected to the bell of the holder and adapted to shut off the supply of gas when the holder is filled, a receiver comprising a reservoir interposed between the generator and holder having a branch communicating with the gas-pipe leading therefrom and constructed to hold a body of water, a reservoir adapted to receive the water discharged by the pressure of gas in the receiver, and a float controlled thereby and adapted to cut off the supply of water to the generator.

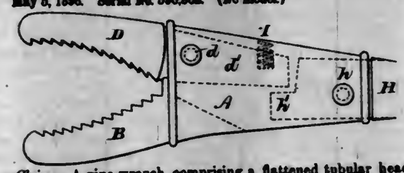
2. A gas-machine comprising a generator provided with a receptacle for containing the gas forming material, a water-supply pipe leading thereto, a receiver in communication with the generator by a pipe, said receiver being provided with a chamber to receive the gas from the generator and a chamber to receive a body of water discharged by the incoming gas, mechanism controlled by the body of water in the receiver to regulate the supply of water to the generator, a pipe in communication with the receiver adapted to discharge the gas therefrom when the receiver is overloaded, a pipe leading from the receiver to the holder provided with a valve controlled by the volume of gas in the holder to regulate the supply of gas from the receiver, substantially as shown and described.

3. A gas-machine comprising a generator provided with a water-supply pipe and a gas-discharge pipe, a holder connected to the gas-discharge pipe, a valve in said pipe, a rod connected to the bell of the holder and adapted to shut off the supply of gas when the holder is filled, a receiver comprising a reservoir interposed between the generator and holder having a branch communicating with the gas-pipe leading therefrom and constructed to hold a body of water, a reservoir adapted to receive the water discharged by the pressure of the gas in the receiver, a float controlled thereby and adapted to cut off the supply of water to the generator and an escape-pipe for discharging the gas from the receiver when the same is overloaded, substantially as set forth.

4. A machine for generating acetylene gas comprising a generator supported by a cylinder comprising the outer wall of the receiver, an inner cylinder secured to the bottom of the outer cylinder and provided with holes through which water passes to the outer cylinder, a gage-glass communicating at the top and bottom with the inner cylinder, a gasometer or holder, a pipe leading from the generator thereto, a branch leading from the said pipe to the inner cylinder of the receiver, a water-supply pipe communicating with the generator, a valve thereon, a weighted lever for operating the valve, a float governed by the water contained in the outer cylinder of the receiver, adapted to automatically regulate the supply of water to the generator, a duct formed at the bottom of the generator having a discharge-pipe leading therefrom, and a valve in the discharge-pipe, substantially as specified.

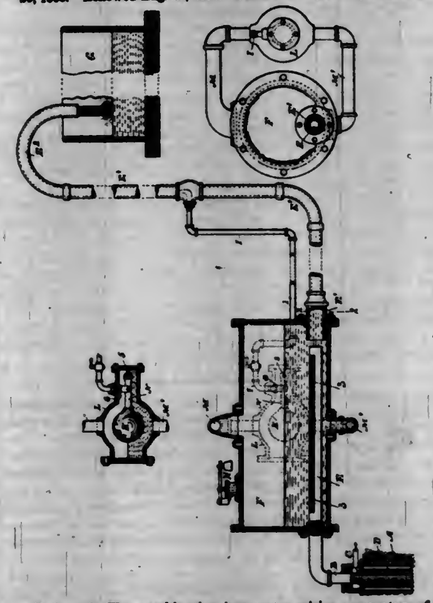
5. A machine for generating acetylene gas comprising in combination a generator provided with a water-supply pipe, and a gas-discharge pipe, the latter leading to the gasometer or holder, a closed cylinder suspending the generator and forming the outer wall of the receiver, an inner cylinder closed at the top and provided with a series of holes at or near the bottom, said cylinders forming together an annular space in the receiver which contains water displaced from the inner cylinder, a branch pipe connected to the inner cylinder of the receiver at the top thereof, and supplying the same with gas from the generator, said pipe connected to and forming part of a line of pipes leading from the generator to the gasometer or holder, a valve in said pipe automatically controlled by the pressure of gas in the gasometer or holder, and adapted to cut off the supply of gas from the generator when the holder is filled, a float adapted to a portion of the receiver acted upon by the water displaced from the inner or gas-holding portion of the receiver, said float automatically regulating the supply of water to the generator by acting upon a valve in the water-supply pipe, and an escape-pipe leading from the receiver to safe means of exit, said pipe conveying the gas from the overloaded inner cylinder of the receiver, substantially as specified.

592,086. PIPE-WRENCH. CHARLES O. WOODS, Lynn, Mass. Filed May 5, 1896. Serial No. 590,302. (No model.)



Claim.—A pipe-wrench comprising a flattened tubular head, a jaw extension on said head having a curved gripping-face, a movable jaw having a corresponding gripping-face, fulcrumed in said head, and extending beyond the fulcrum into said head, a spring arranged to bear on the extension of said movable jaw, to hold the jaw-faces normally at an angle, and a single operating-lever pivoted in said head and extending into the same and engaging the extension of said movable jaw in said head, substantially as described.

592,087. WATER-RAISING APPARATUS. GEORGE R. YOUNG, Ridgewood, N. J., and CLIFFORD SHAW, New York, N. Y. Filed Nov. 20, 1895. Renewed Aug. 20, 1897. Serial No. 648,958. (No model.)



Claim.—1. The combination in a water-raising apparatus, of a descending pipe through which air under pressure is passed, an uptake-pipe in which the water is raised by the action of the air, a vessel near the upper part of the uptake-pipe into which the air and water pass, and in which vessel the air separates from the water by gravity, a pipe extending out from the lower part of this air vessel to a higher elevation for ultimate delivery of the water by the pressure of the air in the air vessel, and means for regulating the escape of surplus air, substantially as set forth.

2. The combination with the uptake-pipe in an apparatus for raising water by air under pressure, of a nearly horizontal pipe having openings in the same for the escape of the air, a surrounding air vessel and a pipe extending out from such air vessel and in line with the perforated pipe for conveying the water to the place of ultimate delivery, whereby the air is separated from the water which flows horizontally or approximately so, an air-pipe leading from the air vessel to the rising pipe for aerating the column of water previous to its final delivery, substantially as set forth.

3. The combination with the uptake-pipe in an apparatus for raising water by air under pressure, of a nearly horizontal pipe having openings in the same for the escape of the air, a surrounding air vessel and a pipe extending out from such air vessel and in line with the perforated pipe for conveying the water to the place of ultimate delivery, whereby the air is separated from the water which flows horizontally or approximately so, an air-pipe leading from the air vessel to the rising pipe for aerating the column of water previous to its final delivery and a valve or cock for regulating the discharge of the air through such pipe, substantially as set forth.

4. The combination with the uptake-pipe in an apparatus for raising water by air under pressure, of a nearly horizontal pipe having openings in the same for the escape of the air, a surrounding air vessel and a pipe extending out from such air vessel and in line with the perforated pipe for conveying the water to the place of ultimate delivery, whereby the air is separated from the water which flows horizontally or approximately so, an air-pipe leading from the air vessel to the rising pipe for aerating the column of water previous to its final delivery, a float and valve for regulating the air passing from the air vessel through such air-pipe, substantially as set forth.

5. The combination with the uptake-pipe in an apparatus for raising water by air under pressure, of a nearly horizontal pipe having openings in the same for the escape of the air, a surrounding air vessel and a pipe extending out from such air vessel and in line with the perforated pipe for conveying the water to the place of ultimate delivery, whereby the air is separated from the water which flows horizontally or approximately so, an air-pipe leading from the air vessel to the rising pipe for aerating the column of water previous to its final delivery, a float and valve for regulating the air passing from the air vessel through such air-pipe, a separate vessel for containing the float, and pipes extending from the same to the air vessel above and below the water-level, substantially as set forth.

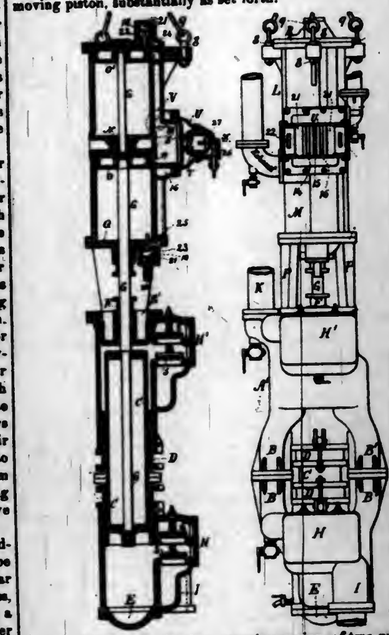
6. The combination in a water-raising apparatus, of a descending pipe through which air under pressure is passed, an uptake-pipe in which the water is raised by the action of the air, a vessel near the upper part of the uptake-pipe into which the air and water pass, and in which vessel the air separates from the water by gravity, a pipe extending out from the lower part of this air vessel to a higher elevation for ultimate delivery of the water by the pressure of the air in the air vessel, and automatic mechanism for maintaining the water at a regular height in the air vessel by allowing the discharge of the surplus air, substantially as set forth.

7. The combination in a water-raising apparatus, of a descending pipe through which air under pressure is passed, an uptake-pipe in which the water is raised by the action of the air, a vessel near the upper part of the uptake-pipe into which the air and water pass, and in which vessel the air separates from the water by gravity, a pipe extending out from the lower part of this air vessel to a higher elevation for ultimate delivery of the water by the pressure of the air in the air vessel, and automatic mechanism for allowing the escape of air, and a pipe for conveying such escaping air to a column of water for aerating the same, substantially as set forth.

592,038. SINKING-PUMP. GEORGE P. ADORN, Warren, Mass., assignor to the Geo. F. Blake Manufacturing Company, New York, N. Y. Filed Aug. 10, 1896. Serial No. 602,284. (No model.)

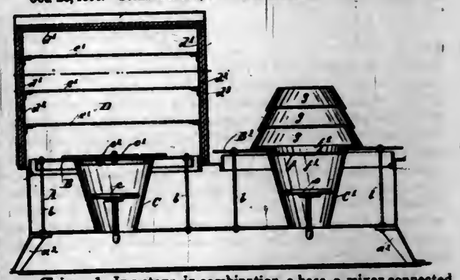
Claim.—1. The combination in a pumping-engine, of two pressure cylinders in line with each other, two pistons in the cylinders and a piston-rod connecting such pistons, a double-acting pump and its plunger in line with and connected to the piston-rod, a valve and valve-seat and one port connecting to the upper ends of the two pressure-cylinders and another port connecting with the lower ends of the two pressure-cylinders for admitting live fluid simultaneously to act upon the pistons in the same direction, and an exhaust-port for allowing the exhaust to pass from either the top or the bottom of the cylinders, a valve-moving piston and a cylinder containing the same, and an automatic mechanism for causing the pressure to move the piston and valve when the cylinder-pistons reach the upper and lower ends of their strokes, substantially as set forth.

2. The combination in a pumping-engine, of two pressure-cylinders and an intermediate head in one casting, and packing in the head between the two cylinders for the piston-rod, two pistons and the connecting piston-rod within the cylinders, a pump-cylinder in line with the pressure-cylinders and rigidly connected therewith, a plunger in the pump connected to the piston-rod of the steam-pistons, a valve at the upper end of the upper pressure-cylinder and at the lower end of the lower pressure-cylinder, each valve being cylindrical and having a stem passing into the cylinder and acted upon by the piston, ports leading from the cylindrical cases of the valves to the chest, a valve and valve-moving piston and pressure and exhaust ports, substantially as specified, whereby the valve-moving piston and valve are moved automatically by the pressure of the fluid, the valves at the top and bottom ends of the pressure cylinders regulating the exhaust from the outer ends of the cylinder containing the valve-moving piston, substantially as set forth.



3. The combination in a pumping-engine, of two pressure-cylinders in line with each other, two pistons in the cylinders and a piston-rod connecting such pistons, a double-acting pump and its plunger in line with and connected to the piston-rod, a valve and valve-seat and one port connecting to the upper ends of the two pressure-cylinders, and another port connecting with the lower ends of the two pressure-cylinders for admitting fluid simultaneously to act upon the pistons in either one direction or the other, and an exhaust-port for allowing the exhaust to pass from either the top or the bottom of the cylinders, and a valve-moving piston and valves for the same acted upon by the pistons near the ends of the strokes, substantially as specified.

592,089. STOVE. WILLIAM H. ALBACH, Mansfield, Ohio. Filed Oct. 26, 1896. Serial No. 610,067. (No model.)



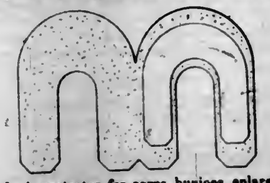
Claim.—1. In a stove, in combination, a base, a mixer connected with said base, and a top plate, unconnected with said base except through the said mixer and slender supporting-rods, whereby the heat is in a measure prevented from being conducted to the said base and thereby lost by radiation, substantially as specified.

2. In a stove, in combination, a base, an inverted conical mixer connected with said base, a fuel-supply within said mixer, an air-supply passage opening into the said mixer at the bottom thereof, and a top plate out of metallic contact with the base except through the mixer and slender supporting-rods, whereby the heat is in a measure prevented from being conducted to the said base and thereby lost by radiation, substantially as specified.

3. A stove having a base, vertical side walls, outturned lateral flanges at the top of the said walls, and vertical flanges within and projecting above said lateral flanges, for preventing displacement of objects, such as an oven, resting upon and supported by the said lateral flanges, substantially as specified.

4. A stove having a base, vertical side walls rising from said base, outturned lateral flanges at the top of said walls, vertical flanges within and projecting above said lateral flanges, and a top plate, unconnected with said side walls and flanges, but supported from the base by slender vertical rods, and a mixer connected with said base and top plate, substantially as specified.

592,040. PAD FOR CORNS, BUNIONS, &c. HENRY M. ALLEN, Milwaukee, Wis. Filed July 16, 1896. Serial No. 599,610. (No model.)



Claim.—1. A protector for corns, bunions, enlarged joints and the like, comprising a flat or plane surfaced doubled pad of soft or yielding material, having an opening extending from the center through one end thereof, and a stiffening-plate of firm but readily-bendable non-resilient material interposed between the outer layers of the pad, substantially as set forth.

2. A protector for corns, bunions, enlarged joints, and the like, comprising a flat or plane surfaced U-shaped pad composed of two layers of soft or yielding material, and a flat or plane surfaced metallic non-resilient bendable stiffening-plate of similar shape but less size, interposed between the outer layers of the pad, substantially as set forth.

3. A protector for corns, bunions, enlarged joints and the like, comprising a flat or plane surfaced doubled pad of soft or yielding material, having an opening extending inward from one edge thereof, and a metallic non-resilient bendable stiffening-plate of similar form interposed between the said layers of soft material, whereby there is formed a body and two arms, the latter being capable of being bent independently of each other, and retaining the form to which they are bent, substantially as set forth.

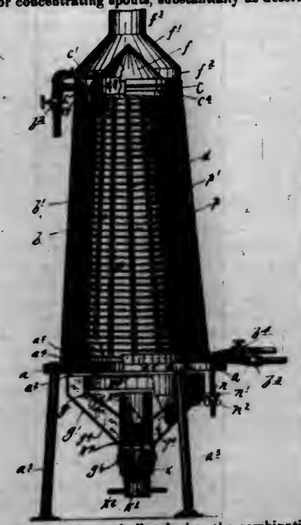
4. A protector for corns, bunions, enlarged joints, and the like, comprising a flat or plane surfaced U-shaped pad composed of two outer layers of soft or yielding material and a flat or plane surfaced metallic non-resilient bendable stiffening-plate of similar shape but less size interposed between said outer layers, said layers and the interposed plate being held together by adhesive material, but the outer surface of the pad being free from adhesive material, and the said pad being capable of being bent from time to time to conform to the shape of the part of the foot to which it is to be applied, and to retain the shape, and its place thereon, free from union with the foot or foot-covering of the wearer, substantially as set forth.

592,041. GRAVITY WHEAT-HEATER. WILLIAM APPEL, Minneapolis, Minn. Filed Feb. 11, 1896. Serial No. 578,901. (No model.)

Claim.—1. In a grain-heater or similar device, the combination with a pair of pipe-coils closely wound to form truncated cones, concentrically located large end downward and spaced apart to form a conical heating-chamber, of a series of straight-line vertical partitions dividing said heating-chamber into a multiplicity of channels which expand circumferentially toward their lower ends, substantially as described.

2. In a grain-heater or similar device, the combination with the pair of pipe-coils closely wound to form truncated cones, concentrically located but spaced apart to form a conical heating-chamber, of the base and head pieces clamped against the ends of said coils and provided with annular series of passages in line with said conical heating-chamber, and the partition bolts or rods passed through said base and head pieces and the conical heating-chamber, certain of said bolts serving to tie said base and head pieces together, substantially as described.

3. In a grain-heater or similar device, the combination with an annular heating-chamber divided into longitudinal spouts or sections, of a hopper receiving from the same, formed with a multiplicity of converging or concentrating spouts, substantially as described.



4. In a grain-heater or similar device, the combination with an annular heating-chamber divided into longitudinal spouts or sections, of a hopper receiving from the same, formed with a multiplicity of converging concentrating spouts or troughs which open to a central common discharge-passage or valve-seat, and a common valve in said discharge-passage or valve-seat for simultaneously opening or closing said concentric spouts, substantially as described.

5. In a grain-heater or similar device, the combination with a hopper formed with a multiplicity of converging concentrating spouts or troughs which deliver to a common discharge-passage or valve-seat, and a common valve in said discharge-passage or valve-seat, for simultaneously opening and closing said concentric spouts, substantially as described.

6. In a grain-heater or similar device, the combination with a hopper provided with a central discharge-passage or valve-seat g^3, of the valve k^3 movable vertically in said passage or seat g^3, the screw-threaded sleeve or socket k secured with said hopper, the screw-threaded hollow pipe-section or follower k' provided with projections k^4, and the connections k^4 between said parts k' and k^3, whereby by turning the follower-section k' within the sleeve or socket k said valve k^3 may be opened or closed at will, substantially as described.

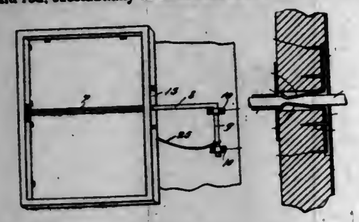
7. In a grain-heater or similar device, the combination with an annular heating-chamber, of a vertically-adjustable concentrating-hopper receiving therefrom, substantially as and for the purposes set forth.

8. In a grain-heater or similar device, the combination with the closely-wound conical coils b b', of the base-casting a with passages a^3 and perforated bolt-lugs a', the head-casting c with passages c' and perforated bolt-lugs c^3, the conical deflector f and shield f' removably supported by said head-casting c, the partition-bolts d passing through said castings a and c and the annular heating-chamber formed between the coils b and b', the heat-insulating jacket surrounding the coil b', the hopper g g' adjustably supported from the base-casting a and formed with the converging concentrating-spouts g^4 which deliver to the common valve-seat g^3, the vertically-movable common valve k^3 in said seat g^3, the socket k secured with said hopper, the hollow pipe-section or follower working with screw-threaded engagement in said socket k, and the brackets k^4 secured to said valve k^3 and follower k', substantially as described.

592,042. SUPPORT FOR MIRRORS. HENRY RADER and HARRY D. CARTWRIGHT, San Francisco, Cal. Filed Oct. 21, 1896. Serial No. 609,561. (No model.)

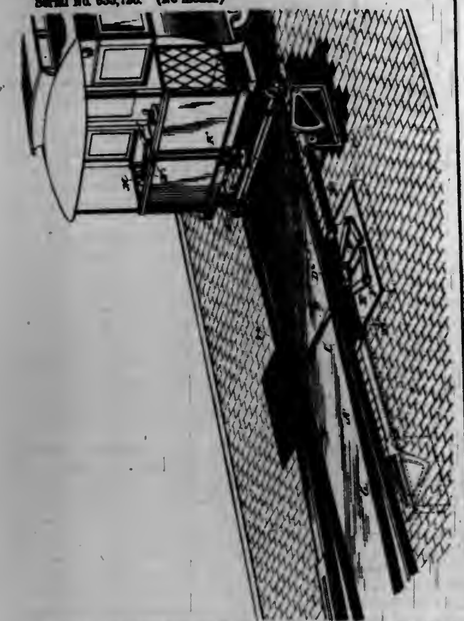
Claim.—1. The combination with a mirror, which is provided transversely of the back thereof, with a friction-tube, which is secured between the sides of the frame, and the ends of which register with openings formed in said sides, and a rod which is passed through the sides of the frame and into said tube, and which is adapted to turn therein, and one end of which projects and is provided with an arm at right angles thereto, which is adapted to be passed through keepers or brackets secured to a support, and the sides of the mir-

ror-frame being provided with spring-operated clamps which bear upon said rod, substantially as shown and described.



2. The combination with a mirror, which is provided transversely of the back thereof, with a friction-tube, which is secured between the sides of the frame, and the ends of which register with openings formed in said sides, and a rod which is passed through the sides of the frame and into said tube, and which is adapted to turn therein, and one end of which projects and is provided with an arm at right angles thereto, which is adapted to be passed through keepers or brackets secured to a support, and the sides of the mirror-frame being provided with spring-operated clamps which bear upon said rod, the spring by which the clamps are operated being mounted in chambers longitudinally of the sides of the frame above and below said rod, substantially as shown and described.

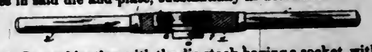
592,048. AUTOMATIC SWITCH. GEORGE RAMSAY, Lilly, Pa., assignor of one-half to L. D. Stiffler, same place. Filed Apr. 24, 1897. Serial No. 633,790. (No model.)



Claim.—The combination of the switch-points of a switch, means in connection therewith for shifting them, said means being located on each side of the track-rails and having segments adapted to be engaged by means carried on the car whereby the switch-points are shifted said means consisting of a pair of wheels mounted on a shaft which is carried by a bracket, said shaft having means in connection with it for shifting it laterally in the bracket consisting of a pulley carried on the shaft or rod provided with the operating-handle at one end and a rope or cord connected with the shaft near each end thereof and having its middle portion passed around the pulley, substantially as shown and described.

592,044. DIE AND DIE-STOCK. ROLLIN S. RASCOM and NATHAN B. MARTIN, Greenfield, Mass. Filed Jan. 11, 1897. Serial No. 618,339. (No model.)

Claim.—1. The combination with the die-stock having the die-socket, of a die held therein having a recess in the outer wall thereof, a guide-plate having a corresponding recess and a stud extending transversely of said stock adjacent to said socket said stud having a portion thereof projected into said socket and adapted to fit the recesses in said die and plate, substantially as described.

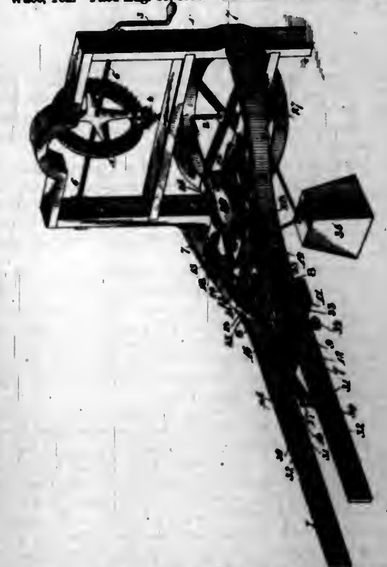


2. In combination with the die-stock having a socket, with a beveled flange extending inwardly around the edge of said socket, the die, the guide-plate having a correspondingly-beveled flange adapted to be seated on the flange of said die-stock, substantially as described.

3. The combination with the die-stock having an adjustable socket, of an annular flange 7 having a beveled upper face extending into said socket, the die, and the guide-plate having an outwardly-extending annular flange 8 of less diameter than said socket, said flange having a beveled face corresponding to the bevel-face of the flange 7 and adapted to be seated thereon, substantially as described.

4. The combination with the die-stock having an adjustable socket of an annular flange 7 having a beveled upper face extending into said socket, the die, and the guide-plate having an outwardly-extending annular flange 8 of less diameter than said socket, said flange having a beveled face corresponding to the bevel-face of the flange 7 and adapted to be movably seated thereon, substantially as described.

592,045. GIN-SAW-FILING MACHINE. JOHN M. BEAVERS, Waco, Tex. Filed Aug. 18, 1896. Serial No. 603,131. (No model.)



Claim.—1. A gin-saw-filing machine having a reciprocatory file-carrier provided with laterally-yielding file-supporting arms, capable of swinging movement in the plane of the saw in contact with which the files are arranged, and constantly-acting means for yieldingly holding the saw normally at rest, the saw being adapted to be advanced by the force exerted by reason of the frictional contact of the files with the teeth, against the resistance offered to the forward movement of the saw, when the filed surfaces of the teeth have reached a predetermined area, substantially as specified.

2. A gin-saw-filing machine having a reciprocatory file-carrier provided with laterally-yielding file supporting arms, adapted for swinging movement in the plane of the saw in contact with which the files are arranged, brake-arms and constantly-acting means for maintaining said arms in frictional contact with the gin-shaft, the saw being adapted to be advanced, in opposition to the resistance offered by the brake-arms, by the frictional contact of the files with the beveled surfaces of the saw-teeth, said frictional contact of the files being insufficient to advance the saw until the teeth have been filed sufficiently to produce beveled surfaces having predetermined areas, substantially as specified.

3. A gin-saw-filing machine having a guide mounted to swing in a plane parallel with a saw, means for limiting the return movement of the guide, a file-carrier mounted upon the guide for reciprocatory movement and carrying laterally-yielding file-supporting arms, brake-arms, and constantly-acting adjustable means for maintaining the brake-arms in contact with the gin-shaft to yieldingly hold a saw against forward feeding movement, said constantly-acting means being adjustable to vary the tension of the pressure of said brake-arms to correspond with the lateral tension of the file-supporting arms, substantially as specified.

4. A gin-saw-filing machine having a guide mounted for swinging movement in the plane of a saw and yieldingly held in its normal position, a transversely-swinging file-carrier mounted for reciprocation upon said guide, spring-actuated file-carrying arms on the carrier, means for adjusting the tension of the actuating-spring of one of the arms, and constantly-acting means for yieldingly holding a saw in a position of rest, substantially as specified.

5. A gin-saw-filing machine having a reciprocable carrier, spring-actuated file-carrying arms supported by the carrier and adapted to bear in opposite directions against the teeth of a saw, means for varying the tension of the pressure of said file-carrying arms toward the saw, and constantly-acting variable means for yieldingly holding a saw in a position of rest, the saw being adapted to be advanced against the resistance offered by said constantly-acting means by the frictional contact of the files with the saw-teeth, substantially as specified.

6. A gin-saw-filing machine having a reciprocatory file-carrier, a laterally-yielding spring-metal file-supporting arm attached to the carrier to operate upon one side of the teeth of a saw, a second file-supporting arm pivotally mounted upon the carrier and provided with an actuating-spring, an adjustable tension device for varying the tension of the actuating-spring, and means for operating the carrier, substantially as specified.

7. A gin-saw-filing machine having a reciprocatory carrier, laterally-yielding file-supporting arms mounted upon the carrier to operate in different transverse planes, one of said arms being vertically yielding and provided with a beveled under surface, an adjusting-arm pivotally mounted upon the carrier in operative relation with said beveled surface, whereby the intervals between the planes of the files may be varied by bringing the arm in contact with the beveled surface at different points, and operating devices for the carrier, substantially as specified.

8. A gin-saw-filing machine having a slide mounted in a suitable guide, a file-carrier pivotally mounted for lateral swinging movement upon said slide and provided with horizontally-swinging file-supporting arms disposed in intersecting vertical planes, and adapted to be arranged at their front ends upon opposite sides of the plane of a saw, whereby said arms are adapted to yield laterally by the movement of said carrier, and means for communicating reciprocatory movement to the carrier, substantially as specified.

9. A gin-saw-filing machine having an angularly-adjustable guide arranged to swing in a vertical plane, means for varying the inclination of said guide, a slide mounted in the guide, a file-carrier mounted upon the slide and provided with file-supporting arms, and means for communicating reciprocatory movement to the carrier, substantially as specified.

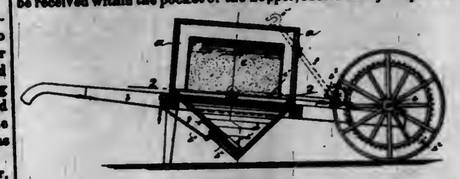
10. A gin-saw-filing machine having forwardly-extending supporting-arms adapted to be arranged upon opposite sides of a saw to rest upon contiguous spacing-blocks, a guide provided at its rear end with a rock-shaft terminally mounted in said arms, a stirrup connecting said arms in front of the rock-shaft to support the front end of the guide, adjustable means for limiting the downward movement of the guide, a slide mounted in the guide, a file-carrier mounted upon the slide and provided with file-supporting arms, and means for communicating reciprocatory movement to the carrier, substantially as specified.

11. A gin-saw-filing machine having a slide mounted in a suitable guide, a file-carrier fulcrumed for lateral swinging movement upon said slide, laterally-yielding file-supporting arms on the carrier, a crank-shaft and means for communicating rotary motion thereto, and a pitman connecting the crank-shaft with the carrier and attached to the carrier coaxially with its fulcrum, substantially as specified.

12. A gin-saw-filing machine having a slide mounted in a suitable guide, a file-carrier fulcrumed for lateral swinging movement upon said slide, laterally-yielding file-supporting arms on the carrier, a crank-shaft and means for communicating rotary motion thereto, a pitman connecting the crank-shaft with the carrier and arranged at its front end coaxially with the same, the carrier being provided with a fulcrum-screw extending through the front end of the pitman, and a plate spring attached to the carrier and bearing upwardly against the head of said screw, said spring being provided with an opening through which the front end of the pitman extends, substantially as specified.

592,046. COURT-MARKER. GERARD G. BEEKMAN, Hempstead, N. Y. Filed Feb. 27, 1897. Serial No. 625,208. (No model.)

Claim.—A suitable frame, provided with handles at one end, and supported at the other by a traction-wheel, the traction-wheel secured to the axle, journaled in the forward end of the frame, toothed wheels secured to the shaft upon which the traction-wheel is secured, and the pinions mounted upon short shafts upon opposite sides of the frame and gearing with the toothed wheels, combined with the connecting-rods which extend through slots in the sides of the inclosing casing, the casing placed upon the top of the frame and inclosing the sieve, a reciprocating sieve, operated by the connecting-rods, and provided with pins to which the rear ends of the rods are fastened, and which pins project through slots in the lower edge of the inclosing frame, a discharge-hopper, placed below the sieve, a gate for closing the opening in the bottom of the hopper, and a series of interchangeable slides having slots of different widths, and adapted to be received within the pocket of the hopper, substantially as specified.



592,047. GAME-COUNTER. ALLEN P. COLE, Chelsea, Mass. Filed Feb. 8, 1897. Serial No. 622,476. (No model.)



Claim.—1. In a game counter and register, an indicating-disk having symbols thereon and having projections corresponding with the said symbols, and a plate on which said disk is pivoted and which has an edge beyond one portion of which said projections project to enable the finger to rotate said disk, and behind another portion of which said projections pass during such rotation to throw off the finger and thereby arrest the disk at a predetermined point.

2. In a game-register, a plate supported at an angle to the table-surface, and having recesses in the edge resting on the table, and symbol-bearing disks pivoted to the plate so that a portion of their periphery projects into said recesses for rotating them by hand.

3. A blank for forming the body or frame of a game-register, comprising an oblong portion with apertures for the display of symbols and with recesses in its lower edge, an upper portion projecting from the middle of the oblong portion with an aperture therein for the display of a symbol, and a semiannular portion inclosing said upper portion and designed for flexure at the points on each side of said upper portion where the said semiannular portion unites with said oblong portion.

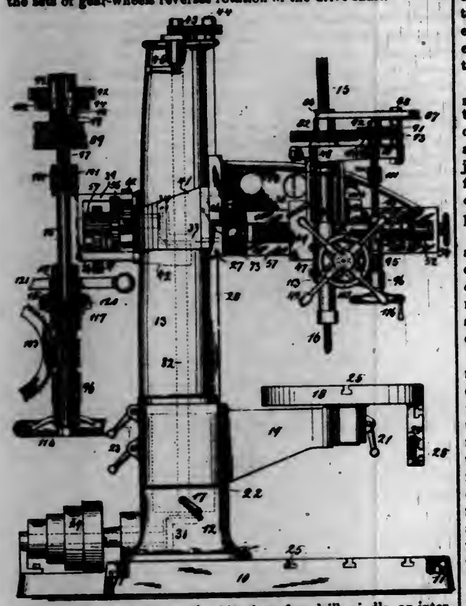
592,048. DRILL-PRESS. HENRY DREES, Cincinnati, Ohio. Filed Jan. 22, 1897. Serial No. 620,179. (No model.)

Claim.—1. In a drill-press, the combination of the drill-spindle, an intermediate driving-shaft for it, and operative connection between the two, a gear-train for actuating this driving-shaft at either one of two different rates of speed, but all in the same direction and an adjustably-supported idler which may be connected with the gear-train in a manner to cause the rotation of the said driving-shaft to be reversed as to one of the speeds to obtain the return motion of the spindle necessary in threading, which return motion is then at a higher speed than the speed used at the time for the forward motion.

2. In a drill press, the combination of the drill-spindle, an intermediate driving-shaft 36 for it, and permanent operative connection between the two, a shaft 35 from which this intermediate driving-shaft receives its motion, the transmission being by two sets of gear-wheels of different speed proportions and a shifting device which operates in a manner that either none, or only one of the two sets of gear-wheels transmits motion to the aforesaid drive-shaft at a time, whereby the spindle is capable of being operated at two interchangeable rates of speed.

3. In a drill-press, the combination of the drill-spindle, an intermediate driving-shaft for it, an operative connection between the two, another shaft from which this intermediate driving-shaft receives its motion, the transmission being by two sets of gear-wheels of different speed proportions, a shifting device which operates in a manner that either none, or only one of the two sets of gear-wheels transmits motion to the aforesaid drive-shaft at a time whereby the

spindle is capable of being operated at two speeds, and an adjustably-supported idler which when interposed between the wheels of one of the sets of gear-wheels reverses rotation of the drive-shaft.



4. In a drill-press, the combination of a drill-spindle, an intermediate driving-shaft 36 for it, a shaft 35 from which the latter receives its motion, two sets of gear-wheels of different speed proportions by either one of which the transmission of motion between these two shafts is effected, a clutch device by which either none or only one of these sets of gear-wheels is engaged to transmit motion at the time and a lever by which the clutch device is operated accordingly.

5. In a drill-press, the combination of a drill-spindle, an intermediate driving-shaft 36 for it, a shaft 35 from which the latter receives its motion, gear-wheel sets 59 57 and 58 and 56 on shafts 36 and 35 respectively, which transmit the motion between the two, one of said gear-wheels having a lateral adjustment by which it may be disconnected from its mate, an adjustably-supported idler by which when interposed the transmission between the separated gear-wheels of the set is then accomplished, but in reversed direction, a clutch device by which either none or only one of the two sets of gear-wheels is caused to transmit motion at the time and a lever by which the clutch device is operated accordingly.

6. In a drill-press, the combination with the drill-spindle, of an intermediate driving-shaft 36, the two operatively connected, two cog-wheels loosely mounted on shaft 36, a clutch device by which either none, or only one of them may be operatively connected to shaft 36, transmitting in the latter contingency, either a slower or faster speed, each of these cog-wheels being provided for such purpose, with one of the engaging clutch-surfaces while the other complementary clutch-surface for each is carried by an adjustable member and a lever whereby this latter is manipulated.

7. In a drill-press, the combination with the drill-spindle, of an intermediate driving-shaft 36, the two operatively connected, two cog-wheels loosely mounted on shaft 36, inwardly-tapering circular recesses in opposite sides of them, the double cone 68 69 mounted upon shaft 36 in a manner to have a sliding adjustment only, a rod 71 within a bore in shaft 36 rigidly connected near one of its ends to the aforesaid double cone, an operating-lever operatively connected to the other end of rod 71, whereby this latter may be moved lengthwise within shaft 36 in a manner to cause the double cone to engage, either none or one only of the recesses in the cog-wheels for the purpose of connecting such cog-wheel temporarily to shaft 36.

8. In a friction-clutch, where a cone-shaped member constitutes one of the engaging parts and a recessed member the other, the combination with these two parts, of an interposed split ring straight on its outside occupying the recessed member and fitted on its inside to the taper of the cone-shaped member, which it is adapted to entirely receive and inclose and a key 77 secured to the cone-shaped member and extending into the split of the ring to prevent independent rotation of such ring within its recess.

9. In a drill-press, the combination of a radially-supported arm 14, a drill-head with drill-spindle carried thereon, an intermediate driving-shaft 36 operatively connected to the drill-spindle, a gear-train whereby this driving-shaft is actuated, a clutch device whereby either none or only one of different sets of this gear-train may be engaged and an operating-lever supported to project at right angles to radial arm 14 for the purpose of manipulating the clutch device.

10. In a drill-press, the combination of the drill-spindle, an intermediate driving-shaft for it operatively connected thereto, a gear-train for actuating the latter, a friction-clutch whereby either none or only one of the different sets of this gear-train may be engaged, an operating-lever for manipulating the friction-clutch, and a projecting pin whereby the frictional engagement of the complementary friction-surfaces may be limited to cause them to slip within each other in case the resistance to the drill-spindle increases beyond a predetermined limit.

11. In a drill-press, the combination with the drill-spindle, of actuating means whereby this latter may be operated at two interchangeable rates of speed, either all in the same direction, or with one in a direction reversed to the other in which case the reversed rotation is of a higher rate of speed than the other, and started and stopped, and a single lever by the manipulation of which all these effects are obtained.

12. In a drill-press, the combination of a drill-spindle, an intermediate driving-shaft 36 for it, a shaft 35 from which the latter receives its motion, gear-wheels 56 57, on shaft 35 engaging with gear-wheels 58 59 respectively, on shaft 36 on which they are loosely mounted, a clutch device and means to operate it, whereby either none or only one of these cog-wheels is operatively connected at the time to shaft 36 in which latter case said shaft then receives motion from shaft 35, cog-wheels 56 and 57 being mounted to be at all times operatively connected for rotation, but capable of a sliding adjustment to disconnect wheel 56 from its mate 58, a compound idler 62 and 63 capable of adjustment in a manner whereby it mediates the transmission of motion between the separated cog-wheels and means to operate said idler for adjustment.

13. In a drill press, the combination of the drill-spindle and means whereby it is rotated, a feed mechanism for it, a driving-shaft 95 for the latter, an intermediate shaft 88 driven from the drill-spindle, the transmission being by belt and a pulley on each, two sets of gear-wheels which transmit motion at two speeds between shafts 88 and 95, the transmission being however by only one set at the time and means to connect or disconnect either one of the sets.

14. In a drill-press, the combination of the drill-spindle and means whereby it is rotated, a feed mechanism for it, a driving-shaft 95 for the latter, an intermediate shaft 88 driven from the drill-spindle, the transmission being by belt and a pulley on each, gear-wheels 91 93 on shaft 88 in mesh with gear-wheels 92, 94 mounted loosely on shaft 95, the engaging sets being of different speed proportions, a sliding key on shaft 95 having a projection 96 adapted to engage a keyway in either one of the loose wheels and a collar to which the key is secured and whereby it may be operated.

15. In a drill-press, the combination of the drill-spindle and means whereby it is operated, a feed mechanism for it, a driving-shaft for the latter which is in two parts one of these parts receiving the transmitted power, the other being provided with a hand-wheel for manual operation and a clutch device between these two shaft parts whereby the power-driven part may be disconnected from the other to discontinue power-feed and to also permit hand-feed.

16. In a drill-press, the combination of the drill-spindle and means for rotating it, a rack and pinion whereby it is fed, a shaft for the pinion, power-driven mechanism for rotating the pinion-shaft, means for connecting or disconnecting the latter from the former and a series of arms or handles forming a pilot-wheel for operating these means, and all so connected at their inner ends that actuation of any of them has the desired effect.

17. In a drill-press, the combination of the drill-spindle and means for rotating it, a rack and pinion whereby it is fed, a shaft for the pinion, power-driven mechanism for rotating the pinion-shaft, a clutch device for connecting or disconnecting the latter from the former and a plurality of arms connected to the adjustable part of the clutch device, the connection being such that by operating any one of these arms, the clutch may be manipulated.

18. In a drill-press, the combination of the drill-spindle and means for rotating it, a rack and pinion whereby it is fed, a shaft 104 for the pinion, a worm-wheel loosely mounted upon shaft 104, a clutch device of which one of its component parts is connected to the worm-wheel while the other part forms a part of a hub 107 which is operatively connected for rotation with shaft 104, but has an independent sliding movement thereon with a normal tendency to approach with its clutch part the other clutch part on the worm-wheel and means to manipulate the sliding clutch-hub.

19. In a drill-press, the combination of the drill-spindle and means for rotating it, a rack and pinion whereby it is fed, a shaft 104 for the pinion, a worm-wheel loosely mounted upon shaft 104, a clutch device of which one of its component parts is connected to the worm-wheel while the other part forms a part of a hub 107 which is operatively connected for rotation with shaft 104, but has an independent sliding movement thereon, a spring-actuated pull-rod 110 connected to hub 107 holding it normally in engagement with the clutch part on the worm-wheel and means to manipulate hub 107.

20. In a drill-press, the combination of the drill-spindle and means for rotating it, a rack and pinion whereby it is fed, a shaft 104 for the pinion, a worm-wheel loosely mounted upon shaft 104, a clutch device of which one of its component parts is connected to the worm-wheel while the other part forms a part of a hub 107 which is operatively connected for rotation with shaft 104, but has an independent sliding movement thereon, a spring-actuated pull-rod 110 connected to hub 107 holding it normally in engagement with the clutch part on the worm-wheel and a number of levers 112 radially arranged on a flange 113 of hub 107 and pivotally secured thereto, the inner ends of all supported loosely in an annular groove 114 in shaft 104 so that by the manipulation of any one of these levers, the adjustable part of the clutch may be operated.

21. In a drill-press, the combination of the drill-spindle and means for rotating it, a rack and pinion whereby it is fed, a shaft 104 for the pinion, a worm-wheel loosely mounted upon shaft 104, a clutch device of which one of its component parts is connected to the worm-wheel while the other part forms a part of a hub 107 which is operatively connected for rotation with shaft 104, but has an independent sliding movement thereon with a normal tendency to approach with its clutch part the other clutch part on the worm-wheel, a spring-actuated locking-pin to hold the clutch-faces separated and means to manipulate the sliding clutch-hub.

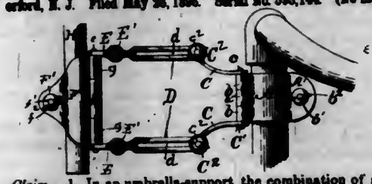
592,049. HAIR-CRIMPER. MANFRED FRICHARDS, Philadelphia, Pa. Filed June 21, 1897. Serial No. 641,567. (No model.)



Claim.—1. A hair-crimper comprising an open-ended loop having its leg members divided longitudinally to form jaws, the jaws of each leg member being of unequal length.

2. A hair-crimper comprising an open-ended loop having its leg members divided longitudinally to form jaws, said jaws being of unequal length and alternately arranged on the respective leg members.

592,050. UMBRELLA-SUPPORTER. HENRY M. FREELAND, Rutherford, N. J. Filed May 26, 1896. Serial No. 593,144. (No model.)



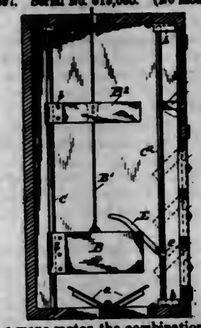
Claim.—1. In an umbrella-support, the combination of a clamp adapted to be mounted on a steering-post, bracket-arms projecting in opposite angular directions up and down from said clamp, a clamp adapted to carry an umbrella two horizontal bars each pivoted at one end to one end of the umbrella-clamp, and means for adjustably connecting the said bars to the bracket-arms, substantially as set forth.

2. In an umbrella-support, the combination of a clamp adapted to be mounted on a steering-post and having two members which are united by a vertical pivot, two bracket-arms mounted on said vertical pivot and projecting forward therefrom, a clamp adapted to carry an umbrella and having two members which are united by a vertical pivot, two bars disposed one above the other and each pivotally connected at one end to the vertical pivot of the umbrella-clamp and at its opposite end to one of the bracket-arms, substantially as set forth.

3. In an umbrella-support, the combination of a clamp adapted to be mounted on the steering-post, a clamp adapted to carry an umbrella, bars pivoted to the umbrella-clamp and supporting respectively a fulcrum and a resistance, the two members of the steering-post clamp, and the bracket-arms and bracket-post connecting the bars with the two members of the steering-post clamp, substantially as set forth.

4. The combination with the steering post and handle-bar of a bicycle, of the clamp having two members united by a vertical pivot, for supporting an umbrella, the clamp having two members united by a vertical pivot, and adapted to be mounted on the said steering-post with its pivot in front of the post the horizontally-adjustable branching bracket-arms mounted on said pivot in front of the steering-post, and means for supporting the umbrella-clamp from the branching bracket-arms, substantially as set forth.

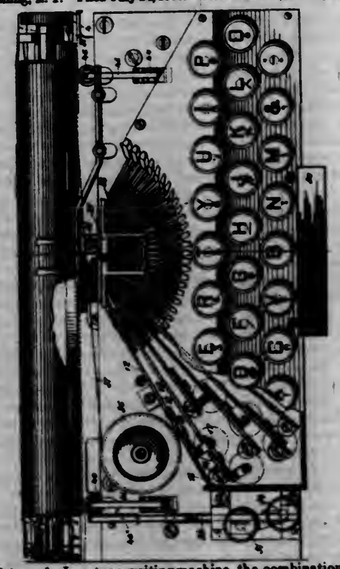
592,051. WAVE-MOTOR. FRANCIS M. GRAHAM, San José, Cal. Filed Jan. 13, 1897. Serial No. 619,095. (No model.)



Claim.—1. In a wave-motor, the combination with the fixed casing, water-openings formed through the bottom and side of the casing, of the inwardly-moving valves controlling the openings in the bottom of the casing, the gates hinged to swing within the side openings of the casing, the lock devices for said gates, the two floats located within the casing and connection between the lock devices and the upper float.

2. In a wave-motor, the combination with the fixed casing, having water-openings in the bottom and side thereof, the valves controlling the openings in the bottom, hinged gates closing the side openings, the main float located within the casing, an auxiliary float placed above the main float, the levers fulcrumed to the main float, the rods movably secured within the casing, said rods being operated by the movement of the fulcrumed levers, the vertically-movable rods secured to the outside of the casing, connection between said rods and the movable rods within the casing, the lock devices for the swinging gates and connection between said lock devices and the vertically-movable rods.

592,052. TYPE-WRITING MACHINE. ESBERT M. HAMILTON, Flushing, N. Y. Filed July 24, 1896. Serial No. 600,364. (No model.)



Claim.—1. In a type-writing machine, the combination of a series of converging bars 25, combined with key-levers and with a universal spacing-bar.

2. In a type-writing machine, the combination with suitable actuating mechanism of a series of type-bars arranged upon a curve, the said type-bars being of successively greater lengths as the middle of the curve is approached, whereby a spoon-like arrangement of the types may be effected, substantially as described.

3. In a type-writing machine, the combination with suitable actuating mechanism of a series of type-bars arranged upon a curve, the said type-bars being pivoted at successively greater distances from the point of convergence thereof as the middle of the curve is approached.

4. In a type-writing machine, the combination with suitable actuating mechanism of a series of type-bars arranged upon a curve, the said type-bars being pivoted on the same plane at successively greater distances from the point of convergence thereof as the middle of the curve is approached.

5. In a type-writing machine, the combination of a series of disconnected converging plates each carrying a type-bar, actuating mechanism for the said type-bars also carried by each of said plates, the said type-bars being arranged on a curve and of successively greater lengths from the ends of the curve to the middle thereof, whereby a spoon-like arrangement of the types may be effected, substantially as described.

6. The combination in a type-writing machine of a series of converging type-bar carriers, pivoted type-bars carried thereby, converging spacing-bars 25 likewise carried by said type-bar carrier, and a universal bar 27 adapted to be operated upon by said spacing-bars.

7. In a type-writing machine, the combination with suitable actuating mechanism of a series of type-bars arranged upon a curve, the said type-bars being of successively greater lengths as the middle of the curve is approached and a platen corresponding in position to a chord of the curve upon which said type-bars are mounted.

8. The following instrumentalities combined in a type-writer: a series of disconnected converging type-bar-carrying plates each provided with independent means for adjusting the same to or from the point or points of convergence, type-bars carried thereby and arranged along a curve, the said type-bars being of greater length at the middle of the curve than at the ends thereof, as and for the purposes set forth.

9. A type-writer printing mechanism comprising a single recessed plate, a type-bar pivoted thereto, a key-stem and a connection between the key-stem and type-bar, working in the recess of the plate, whereby the support for the working parts adds only the thickness of the material to the lateral space occupied by the printing mechanism.

10. A type-writer printing mechanism comprising a plate or frame, a type-bar pivoted thereto, a bell-crank lever also pivoted to the plate or frame, a key-stem for actuating the bell-crank lever, and a link connection intervening between the type-bar and the bell-crank lever.

11. A type-writer mechanism comprising a single apertured plate, a type-bar pivoted thereto, a key-stem for actuating the type-bar and a connection between the key-stem and the type-bar working in the aperture of the plate, whereby the support for the working parts adds only the thickness of the material to the lateral space occupied by the printing mechanism, substantially as described.

12. As a means for rotating the platen of a type-writing machine, the combination with the said platen of a ratchet-wheel carried thereby, a pivoted frame adjacent to said ratchet-wheel, and carrying a plurality of pawls adapted to engage on opposite sides of the said ratchet-wheel, whereby upon swinging the frame one pawl will operate to rotate the ratchet-wheel as the pivoted frame swings, and the other pawl will be brought into contact with the side of the ratchet-wheel opposite to that acted upon by the actuating-pawl so as to bring the ratchet-wheel to rest.

13. As a means for rotating the platen of a type-writing machine, the combination with the said platen and a ratchet carried thereby of a plurality of pawls upon a common carrier, one of the said pawls being laterally movable and the other pawl being rigid, the said pawls being adapted to engage with the opposite sides of the ratchet-wheel, whereby upon movement of the common carrier the laterally-movable pawl will engage with the ratchet-wheel and rotate the same, and the rigid pawl will be brought in contact with the ratchet-wheel to stop the same, the said laterally-moving pawl yielding and gliding over the teeth of the ratchet-wheel upon the return movement of the common carrier.

14. In a type-writing machine, the combination of a platen, a ratchet-wheel 5 carried on one end thereof, a carrier-frame 6 provided with a pawl 7 rigid therewith, and a laterally-yielding pawl 8 provided with the incline 9, the said pawls being adapted to engage with the ratchet-wheel upon opposite sides, the pawl 8 operating to rotate the ratchet until the rigid pawl 7 contacts therewith to stop the same, the whole constituting a platen-rotating device or feed for a type-writing machine.

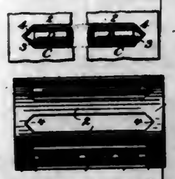
15. In a type-writing machine, the combination of a platen-carriage, a link connected to said carriage for moving the same, said link being on a dead-center with relation to the carriage when the carriage is in its normal position, and one or more keys for moving said link from the dead-center position to shift the carriage.

16. A shifting mechanism comprising a key-stem, a pivoted shifting-link which is on a dead-center with relation to the carriage in one of the printing positions, a platen-link connected to the platen-carriage and means for connecting the pivoted shifting-link with the platen link to move it to and from its dead-center position to shift the carriage, substantially as described and for the purposes set forth.

17. A back-and-forth carriage-shifting mechanism, consisting of a carriage, a platen-link, a plurality of pivoted shifting-links on a dead-center with relation to the carriage in one of the printing positions and adapted to connect with the platen-link for shifting the carriage, the said shifting-links being pivoted on opposite sides of the point of connection thereof with the platen-link, whereby the connection of one pivoted shifting-link with the said platen-link will cause the carriage to be shifted in one direction, whereas the connection of the other shifting-link with the platen-link will cause the carriage to be shifted in an opposite direction.

18. In a carriage-shifting device for type-writers, the combination of a platen-link, a plurality of shifting-links pivoted to swing in opposite directions each of said links being on a dead-center with relation to the carriage in one of the printing positions and adapted to connect with and be disconnected from said platen-link and keys for actuating said shifting-links, substantially as described.

592,053. **ANTIFRICTION-BEARING.** Charles W. Hunt, West New Brighton, N. Y. Filed June 11, 1897. Serial No. 640,233. (No model.)



Claim.—1. In an antifriction-bearing, the combination with the circular cage having parallel mortises, of cylindrical rolls, each setting loosely within its mortise and of a shorter length than such mortise, there being inclined surfaces on the roll and cage acting one against the other for giving end movement to the roll and restoring the same to a normal position by the action of gravity when the roll is free from pressure, substantially as set forth.

2. In an antifriction-bearing, the circular cage having parallel mortises with inclined ends, in combination with rolls setting loosely within the mortises and shorter than such mortises, so that the inclined ends of the mortises give end motion to the rolls in returning them to a normal position when free from pressure, substantially as set forth.

592,054. **GAME-COUNTER.** Wilbur C. James, Dayton, Ky., assignor to the United States Playing Card Company, Cincinnati, Ohio. Filed May 1, 1897. Serial No. 634,689. (No model.)



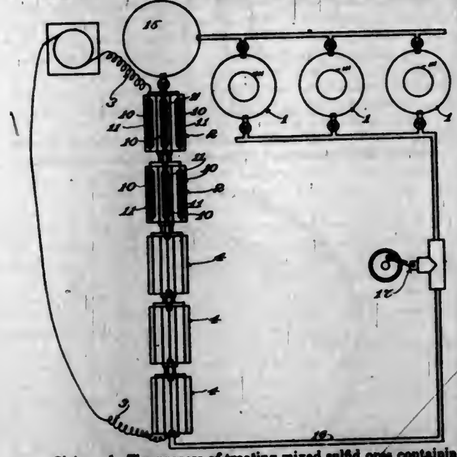
Claim.—1. An apparatus for scoring progressive games, comprising a tablet of superposed tallies or slips of various lengths and bearing the designation relating to the game, whereby designations upon the various tallies may be observed without removing superposed tallies.

2. An apparatus for scoring progressive games, comprising a tablet composed of a series of superposed tallies of contrasting colors and different lengths, each bearing the designation of the result of the game, the number of the game and the sex of the player to whom the tablet is to be delivered at the conclusion of the game, whereby the colors of the tallies of succeeding games are exposed to view as well as the tallies of the game being played, substantially as described.

3. An apparatus for scoring progressive games, consisting of a tablet comprising a plurality of superposed series of tallies bearing the designation relating to the game, each of which is separable from one or more corresponding tallies for the same game and which is individually separable from the tablet, the tallies of one game projecting beyond the edge of the tallies of another game, whereby designations upon the various tallies may be observed without removing superposed tallies.

4. An apparatus for scoring progressive games, comprising a tablet, the adjacent leaves of which are of contrasting colors and of different lengths, each leaf being formed of two or more tallies separable from each other and from the tablet, and each leaf bearing a designation of the sex of the winner, the number of the game and the table at which the game is played, substantially as described.

592,055. **PROCESS OF TREATING ORES.** Bennet C. Ketchum, Boston, Mass. Filed Nov. 21, 1896. Serial No. 612,942. (No specimens.)



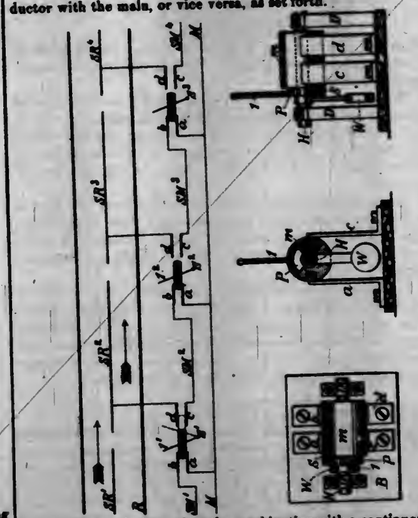
Claim.—1. The process of treating mixed sulfid ores containing lead and zinc, which consists in first roasting the ores, then subjecting the roasted ores to the action of a solution of caustic alkali in the presence of heat to remove from the ores the lead and zinc, then subjecting the caustic solution containing the lead and zinc to electrolytic action in the presence of heat to remove the lead, in a cell or cells in which the anode is immersed in a solution that is free from lead and that also is separated by a porous medium from the electrolyte containing the lead and zinc, and finally subjecting the solution in which the zinc remains to electrolytic action, also in the presence of heat, to remove the zinc, employing electric currents of different electromotive force in effecting the successive decompositions, as set forth.

2. The process of treating mixed sulfid ores containing lead and zinc, which consists in first roasting the ores, then subjecting the roasted ores to the action of a solution of caustic alkali in the presence of heat to remove from the ores the lead and the zinc, then subjecting the caustic solution containing the lead and zinc to electrolytic action in one or more cells to remove the lead, the anodes of which cells are immersed in a volume of pure caustic solution which is separated by a porous medium from the electrolyte containing the lead and zinc, and then subjecting the caustic solution or electrolyte containing the zinc only to electrolytic action in one or more cells to remove the zinc, substantially as set forth.

592,056. **ELECTRICAL TRACTION.** William Kinnland, Llandudno, England. Filed Mar. 5, 1897. Serial No. 626,063. (No model.) Patented in England May 21, 1896, No. 10,906.

Claim.—1. In electrical traction, the combination with a continuous main electrical conductor, and sectional working conductors from which the motor-car directly collects the current, of a number of sectional auxiliary conductors, one such for every sectional working conductor, and through which auxiliary conductor the current is passed from the main to the sectional working conductor aforesaid, and means whereby each sectional auxiliary conductor can be either connected to or disconnected from the main conductor or from its corresponding sectional working conductor, as set forth.

2. In electrical traction, the combination with a continuous main electrical conductor, and a series of sectional working conductors from which the motor-car collects the current, of a number of sectional auxiliary conductors, one such for every sectional working conductor and through which auxiliary sectional conductor the current is passed to the corresponding sectional working conductor aforesaid, contact-pieces at each end of each sectional auxiliary conductor, a contact-piece in constant electrical connection with the main conductor and adjacent to a contact-piece at one end of each sectional auxiliary conductor, and a contact-piece in constant electrical connection with a section of the sectional working conductor, and adjacent to the contact-piece at the other end of the sectional auxiliary conductor, and mechanical means operated by the motor-car either for forming an electrical connection between the contact-piece at one end of a sectional auxiliary conductor with a sectional working conductor, or forming an electrical connection between the contact-piece at the adjacent end of the next sectional auxiliary conductor with the main, or vice versa, as set forth.

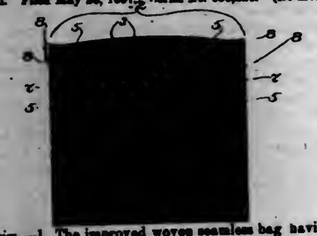


3. In electrical traction, the combination with a continuous main electrical conductor and sectional working conductors from which the motor-car collects the current, of a number of sectional auxiliary conductors, one such for every sectional working conductor, and through which auxiliary conductor the current is passed from the main to the sectional working conductor aforesaid, a cylindrical commutator or switch, a shaft to carry the cylinder, a balanced rock-lever on the shaft operated by the passing vehicle, a segment on the rock-lever, a projection on the cylinder against which the segment acts when rocked, to partially turn the cylinder, two contact-springs on one side of the cylinder respectively in connection with a sectional working conductor, and one end of an auxiliary sectional conductor, and two contact-springs on the other side of the cylinder respectively connected with the main conductor and with one end of the next adjacent auxiliary conductor, and a metallic plate on the cylinder adapted when in one position to electrically connect the two contact-springs on one side, and when rocked over to connect the two contact-springs on the other side, as set forth.

4. In electrical traction, the combination with a continuous main electrical conductor, and sectional working conductors from which the motor-car collects the current, of a series of pairs of sectional auxiliary conductors, one pair for every sectional working conductor, a cylindrical commutator between the ends of each pair of auxiliary sectional working conductors, arms connected with the commutator actuated by the passing vehicle, contact-springs coacting with metallic plates on the commutator and electrical connections to the contact-springs, so that when the commutator receives a partial turn in either direction, the connection between the main and the sectional conductors will be changed from one of a pair of sectional auxiliary conductors to the other of the same pair, as set forth.

5. The continuous main conductor having contacts at intervals along its line and the sectional working conductors for supplying current to the vehicle, and each having a terminal contact, in combination with the auxiliary sectional conductors having contacts at both ends and switches receiving motion from the passing vehicle, the contacts being arranged in pairs at the switches so that one switch connects the sectional working conductor with the main conductor through the auxiliary sectional conductor and the next distant switch, and the second switch when moved breaks the circuit to the charged sectional working conductor and closes the circuit to the next sectional working conductor through the next auxiliary sectional conductor and the distant switch, substantially as specified.

592,057. SEAMLESS WOVEN BAG. JESSE A. KNIGHT, Phenix, R. I. Filed May 26, 1897. Serial No. 638,231. (No model.)



Claim.—1. The improved woven seamless bag having bands of weft reinforcement at and adjacent to the union of the sides thereof, substantially as described.

2. The improved woven seamless bag having the sides thereof interwoven to form uniting-bands or joints at the edges, as at 7, 7, and having the pair of wings or flanges 8, 8, along the outer edge of each uniting-band or joint, to secure against withdrawal the ends of the threads which extend transversely across the bag, substantially as described.

3. The improved continuous bag-web consisting of two plies or cloths which are interwoven at intervals to give shape to the respective bags, and having the intermediate tubular portions 6, 6, at the places where the bags are separated from one another, substantially as described.

4. The improved continuous bag-web consisting of two plies or cloths which are interwoven at intervals to give shape to the respective bags, and having the bands in which the said plies or cloths are interwoven composed of portions of plain or other firm weave with an intermediate portion of a weave of a different texture to relieve the crowding of the threads, substantially as described.

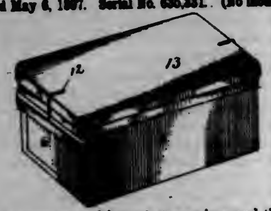
592,058. BREAD-BAKING PAN. CHARLES W. KOLB, Philadelphia, Pa. Filed June 10, 1897. Serial No. 640,128. (No model.)



Claim.—1. A bread-baking pan composed of a pan-body having molds that are sunk beneath the upper edge of the pan body, and a lid having depending projections that are adapted to enter the pan-body and engage the walls of the molds when the lid is closed, substantially as specified.

2. A bread-baking pan composed of a bottom plate bent to form a series of molds and intervening truncated triangular partitions, end plates extending above the flattened apexes of said partitions, a hinged lid, and depending projections on said lid that are adapted to enter the pan-body and rest upon said truncated apexes when the lid is closed, substantially as specified.

592,059. FOLDING EGG-CRATE. JOSEPH S. LEWIS, Ridgewood, Mo. Filed May 6, 1897. Serial No. 635,331. (No model.)



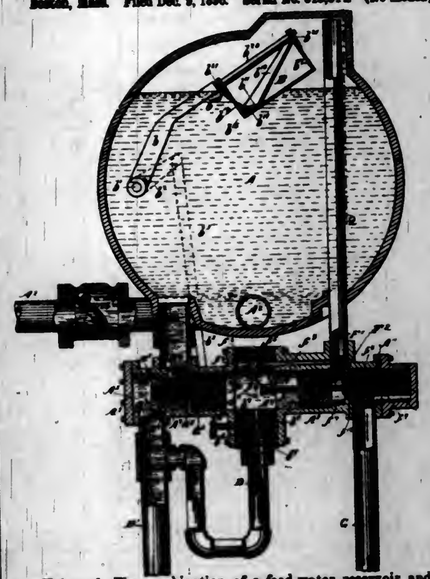
Claim.—A crate comprising a bottom piece and the side pieces, the abutting edges of the bottom and side pieces being beveled and one side piece being connected to the bottom by inside hinges, and the other side piece being connected to the bottom by outside hinges, end pieces having pins which project in pin-holes in the side and bottom pieces, the partition having pins which likewise engage holes in the side and bottom pieces, cleats secured to the end pieces and provided with fastening means, a band surrounding the end and side pieces, and a cover held in position by said fastening means and projected laterally beyond the side pieces, whereby the band is prevented from becoming accidentally disengaged, substantially as set forth.

592,060. GLOVE. SARAH L. LUTHER, Berlin, Wis., assignor of one-half to Frank H. Russell and Will C. Russell, same place. Filed Apr. 24, 1897. Serial No. 633,743. (No model.)

Claim.—The herein-described glove, the front side of the middle fingers of which is separate from the body portion of the glove, and a double welt connecting the body portion of the glove with the front side of the middle fingers and having its terminal ends secured at the back of the index and middle fingers, substantially as set forth.



592,061. AUTOMATIC BOILER-FEEDER. ANDREW T. MACCOY, Boston, Mass. Filed Dec. 9, 1896. Serial No. 615,014. (No model.)



Claim.—1. The combination of a feed-water reservoir and an automatic valve-controller having passages communicating with said reservoir; and comprising independent pistons, a pressure-chamber between them; and valves which automatically control said passages; and means for attachment to a steam-boiler; the valves being attached to said pistons.

2. The combination of a steam-boiler; a feed-water reservoir therefor; and an automatic valve-controller having passages communicating with said reservoir and the boiler; and valves for said passages; a piston to which each valve is secured a pressure-chamber between said pistons; a conduit connecting said pressure-chamber and the boiler; a valve for said conduit and an automatically-operated float within the reservoir and connected to said valve.

3. The combination of a boiler with a feed-water reservoir; the boiler being in communication with the upper and under portions of the reservoir; and automatic means including independent pistons; attached valves; a pressure-chamber between the pistons and auxiliary exhaust-valves to control the passage from the boiler of steam to the reservoir and of feed-water from the reservoir to the boiler.

4. The combination of a steam-boiler with a feed-water reservoir; a conduit from a source of water-supply to the reservoir; a conduit connecting the upper portion of the boiler with the upper portion of the reservoir; a conduit connecting the boiler with the lower portion of the reservoir; a check-valve to prevent backflow from the reservoir into the water-source conduit; and an automatic controller for said boiler-pressure conduits; said controller comprising independent pistons and valves for said connecting-conduits, the valves being movable in relation to their stems which are secured to said pistons.

5. As a new article of manufacture, a boiler-feeder, comprising a feed-water reservoir, and an automatic valve-controller; the controller being in conduit communication with the upper and under portions of the reservoir; and having in communication with conduits, openings for attachment of the device to a steam-boiler; and also having automatic mechanism which controls the steam and water passages through the controller by means of suitable valves attached to independent pistons operated by boiler-pressure in a chamber therebetween, the piston of the steam-supply valve being attached to a steam-exhaust valve.

6. The combination with a feed-water reservoir and an automatic valve-controller having a chamber in communication with the under portion of the reservoir, and a chamber in communication with the upper portion of the reservoir; an opening from each of said chambers for connection with the steam-boiler; a valve for each of said openings; independent pistons controlling said valves; a float within the reservoir and mechanism for automatically controlling a valve which controls a conduit leading into a chamber between said pistons; a pressure-chamber having an outlet controlled by the valve between the pistons; an exhaust-conduit from the steam-conduit, and a valve for the same controlled by the piston controlling the steam-conduit.

7. The herein-described automatic, valve-controllers for boiler-feeders, comprising a lengthwise-chambered case; transversely-arranged valve-seats near the ends thereof; a chamber at each end between each transverse valve seat and a case end; a chamber between said valve-seats; independent pistons in said intermediate chamber with a space between their opposed ends; a valve attached to each piston; a port near each valve seat, at the inner side thereof; a port for each end chamber; a port for the space between the opposed ends of the pistons; a valve for said port; an exhaust-conduit from the steam-escape port; a valve for said conduit, and in operation connected with one of said pistons.

8. In a boiler-feeder, the combination of a casing having chambers A^{10}, A^{11} separated by a valve-seat; a valve and a piston; the valve being chambered and the piston having an arm loosely mounted in said chamber, a pressure-chamber and a port thereto controlled by a valve operated by water in the reservoir.

9. In a boiler-feeder, the combination of a casing having chambers A^{10}, A^{11} separated by a valve-seat; a valve and a piston; the valve being chambered and the pistons having an arm loosely mounted in said chamber; and provided with an enlargement near the free end of the arm; a spring between said enlargement and an end wall of the chamber of the valve; and a spring in the valve-chamber between said enlargement and the butt-end wall of the valve-chamber a pressure-chamber and a port thereto controlled by a valve operated by water in the reservoir.

10. In a boiler-feeder, the combination of a case having chambers A^{10} A^{11} separated by a valve-seat; a valve and a piston attached thereto; one chamber A^{10} being between the piston and the head of the valve; and the other chamber A^{11} being between the valve-seat and an end of the case; the butt-end of the valve projecting into the latter chamber; a steam-inlet port for said latter chamber; and a steam-exit port for the chamber between the piston and the head of the valve, a pressure-chamber and a port thereto controlled by a valve operated by water in the reservoir.

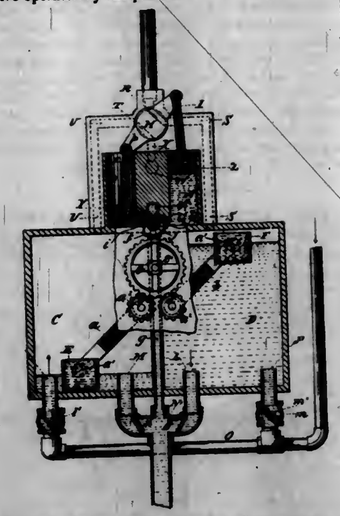
11. In a boiler-feeder, the combination of a case having chambers formed by a transverse valve-seat; a valve and a piston attached thereto; the valve-seat being in one chamber and the piston in the other; and the piston and valve being at a distance apart to form a space between their opposed walls, a pressure-chamber and a port thereto controlled by a valve operated by water in the reservoir.

12. In a boiler-feeder, the combination of an automatic valve-controller having independent pistons and attached valves; of a port opening into a space in said case between the opposed ends of the pistons; a valve controlling said port; a U-shaped conduit; a feed-water conduit; a U-shaped conduit connecting the valve-controlled port with the feed-water conduit; a feed-water reservoir; an automatically-operated valve-controller in said reservoir; and means connecting said controller with the valve for said port.

13. In a boiler-feeder, the combination of an automatically-emptying float; a feed-water reservoir within which the same is contained; an oscillating valve operatively connected with said float and operated thereby; and a feed-water conduit having an exhaust; said oscillating valve controlling said feed-water conduit and said exhaust a pressure-chamber and a piston connected to a valve.

592,062. CONTINUOUS BOILER-FEEDER. ANDREW T. MACCOY, Boston, Mass. Filed Feb. 18, 1897. Serial No. 624,017. (No model.)

Claim.—1. In a boiler-feeder, the combination with the water-cases of a movable valve-controller within each water-case; a pair of pistons and piston-cylinders; conduits from the piston cylinders; a valve which has a plurality of passages and is so mounted as to control said conduits; mechanism which connects the valve-controllers together and with said valve; and a boiler-conduit extending from said valve; steam and water connections of the cases with the boiler and a valve operated by the pistons.



2. In a boiler-feeder, the combination of water-cases; a pair of piston-cylinders and pistons therefor; a conduit leading from one water-case to the other; said conduit having a port for admission of steam; and a steam-exhaust port; a valve having a plurality of passages and so mounted as to control said conduit connecting the water-cases and also the steam inlet and exhaust ports; and mechanism which connects the pistons together and with said valve; water connections from the cases to the boiler; and the valve controlling the pressure to the pistons operated by connected valve-controllers in the water-cases.

3. The new and useful continuously-feeding boiler-feeder herein described, said feeder comprising, in combination, a plurality of water-cases each having near the bottom a water-inlet and water-outlet; a valve-controller movable within each water-case; a plurality of piston-cylinders; conduits therefor near the inner end of the cylinders; a water-exhaust port; a conduit which connects the upper portion of the water-cases and has a steam-inlet port and a steam-exhaust port; a conduit leading boilerward from the conduits from the piston-cylinders; a valve having a plurality of passages and so mounted that it controls the conduits from the piston-cylinders and the water-exhaust port thereof and the conduit leading boilerward therefrom; mechanism which connects said valve-controllers together and with the valve for the piston-cylinder conduits; pistons in said piston-cylinders; a valve having a plurality of passages and so mounted that it controls not only the conduit connecting the water-cases but also the steam inlet and exhaust ports thereof; and mechanism which connects the pistons together and with the valve for the water-case-connecting conduit.

4. In a boiler-feeder, the combination of water-cases; a movable valve-controller in each case; a piston-conduit; an oscillating valve therefor; a rocker arm for each valve-controller; a gear near the butt of each rocker-arm; an intermediate gear meshing with said gears on the rocker-arm; an oscillating valve for said piston-conduit; and a gear fast to the oscillating valve and meshing with said intermediate gear; steam and water connections of the cases with the boiler and the valve operated by the pistons for controlling the passage of steam.

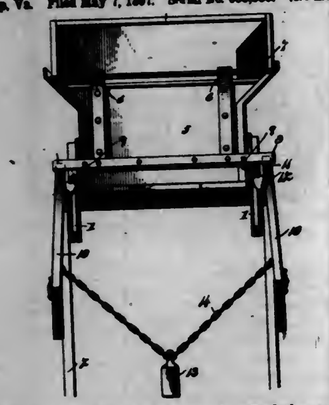
5. In a boiler-feeder, the combination of a pair of water-cases; a conduit connecting the same; an oscillating valve in said conduit; a pair of pistons and piston-cylinders; a walking-beam fast to said oscillating valve and connected by each arm with the pistons; a piston-conduit; an oscillating valve therefor; valve-controllers in the water-cases; means for connecting said oscillating valve in the piston-conduit with the valve-controllers, and steam and water connections of the cases with the boiler and a source of supply.

6. In a boiler-feeder, the combination of a conical oscillating valve having a plurality of openings; automatically-operated valve-controllers connected together and with said valve; a supply-pipe

with which one of said openings communicates to allow water to operate one piston and to allow water in the other cylinder to flow to the exhaust; a pair of pistons and piston-cylinders; a pair of water-cases; a conduit connecting the cases; a valve in said conduit connected to and operated by the pistons; and steam and water connections from the cases to the boiler.

7. In a boiler-feeder, the combination of a pair of water-cases and a pair of piston-cylinders and pistons therefor; conduits from the piston-cylinders; a valve therein between that alternately communicates with one or the other of said conduits for the piston-cylinders; a conduit from said valve-controlled conduits and in alternate communication through said valve with one or the other of said piston-cylinder conduits; a boiler feed-conduit in communication with the conduit from the piston-cylinder conduits, and water-escape conduits from the water-cases to the boiler feed-conduit; steam connections to the cases and the valve operated by the pistons.

592,063. AUTOMATIC LATCH MECHANISM FOR DUMPING-CARS. JOHN A. MORRISON and ALEXANDER J. MORRISON, Big Stone Gap, Va. Filed May 7, 1897. Serial No. 635,533. (No model.)



Claim.—1. In a device of the class described, the combination of a mine-car body provided at opposite sides with keepers, an outwardly-swinging door hinged to one end of the body at the top thereof, the hinge-joint being sufficiently loose to permit the door to have a limited vertical movement, and a latch-bar rigidly secured to the car-door and engaging the keepers and held in such engagement by the weight of said door, substantially as described.

2. In a device of the class described, the combination with a dumping-car provided with a latch, and a tilting platform or tipple, of a hinged or movable releasing device located at the side of the platform or tipple and held away from the car by the said platform or tipple when the same is in a horizontal position and adapted to move inward automatically and engage the latch-bar when the platform or tipple is tilted, substantially as described.

3. In a device of the class described, the combination with a dumping-car having a vertically-movable outwardly-opening door, a rigid latch-bar mounted thereon, and a tilting platform or tipple, of a pair of inwardly-swinging latch-releasing levers normally held out of their engaging position by the platform or tipple and adapted when the latter is tilted to move inward automatically and engage the latch-bar, substantially as described.

4. In a device of the class described, the combination of a dumping-car provided with an outwardly-opening hinged door capable of vertical movement, keepers mounted on the body of the car at opposite sides thereof, a latch-bar rigid with the door and engaging the keepers, and releasing devices having inclined upper edges arranged to engage the latch-bar, substantially as described.

5. In a device of the class described, the combination with a tilting platform or tipple, of a pair of levers hinged at opposite sides of the same and provided at their inner faces with beveled blocks engaging the platform or tipple when the same is in a horizontal position, and means for swinging the levers inward when the blocks are released by the platform or tipple, substantially as described.

6. In a device of the class described, the combination of a platform or tipple, a pair of hinged releasing-levers located at opposite sides of the same, a chain connecting the levers, and a weight carried by the chain, substantially as described.

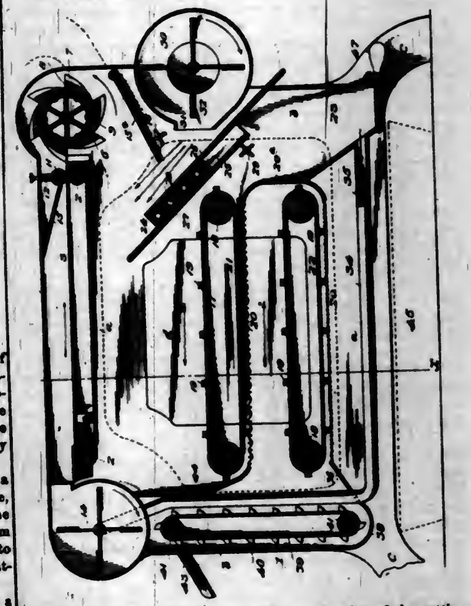
7. In a device of the class described, the combination with a tilting platform or tipple, of a car provided at opposite sides with keeper, an outwardly-swinging door provided at its upper edge with vertically-elongated eyes, a pintle passing through the eyes and hinging the door to the car, a rigid latch-bar projecting from the door and engaging the keepers, and means for operating the latch automatically, substantially as described.

8. In a device of the class described, the combination with a car provided with a latch and having a hinged door carrying the same, a block having an inclined upper edge to engage the latch, and means for automatically forcing the door inward, substantially as described.

9. In a device of the class described, the combination with a car having a hinged door and provided with a latch, of an automatically-operating door-closing device provided with a depressible door-engaging arm adapted after depression to force the door inward, substantially as and for the purpose described.

10. In a device of the class described, the combination with a car having an outwardly-opening door, of an automatically-operating door-closing device comprising a bell-crank lever having one arm weighted and its other arm arranged to engage the outer face of the door, whereby the latter will be closed, substantially as described.

592,064. TOBACCO-CUTTING MACHINE. NICHOLAS P. PERKINS and JAMES O. R. PALMER, Roanoke, Va., assignors of one-half to Joel A. Jamison and Thomas R. Jamison, same place. Filed Apr. 5, 1897. Serial No. 630,851. (No model.)



Claim.—1. In a tobacco-cutter, the combination of the cutting means comprising a rotating drum, and a series of longitudinal strips removably secured to said drum, and each provided with a row of alternating long and short teeth which are in alinement longitudinally of the strip, and an opposing slotted cutter-bar, substantially as and for the purpose set forth.

2. In a tobacco-cutter, the combination with the main frame, of a cutting mechanism, a shaker arranged below the cutting mechanism, a deflecting shaker arranged below the first-named shaker, separators arranged in advance of said shakers, and a blower, the discharge end of which is below the lower end of the first-named shaker, whereby the lighter grains of tobacco will be blown upon the separators and the stems and foreign matter fall upon the deflecting shaker and be led away from the machine.

3. In a tobacco-cutter, the combination with the main frame, of a cutting mechanism, a shaker arranged below the cutting mechanism, a deflecting shaker arranged below the first-named shaker, separators arranged in advance of the shakers, a hopper, a chute leading from one of the separators to the hopper, and a blower, the discharge end of which is below the lower end of the first-named shaker.

4. In a tobacco-cutter, the combination with the main frame, of a cutting mechanism, a shaker arranged below the cutting mechanism, a deflecting shaker arranged below the first-named shaker, separators arranged in advance of the shakers, a hopper, a chute leading from one of the separators to the hopper, an exhaust-pipe leading from said hopper, and a blower, the discharge end of which is below the lower end of the first-named shaker, substantially as set forth.

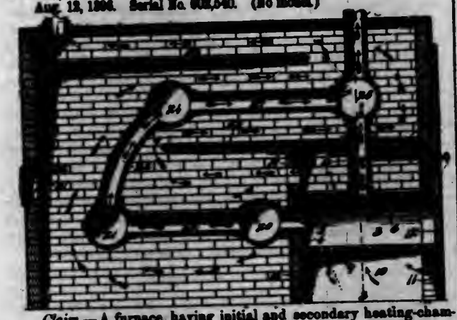
5. In a tobacco-cutter, the combination with the main frame, of a cutting mechanism, a shaker arranged below the cutting mechanism, a deflecting shaker arranged below the first-named shaker, separators arranged in advance of the shakers, a hopper, a chute leading from one of the separators to the hopper, an exhaust-pipe leading from said hopper, a blower, the discharge end of which is below the lower end of the first-named shaker, a conveyer adjacent to the cutting mechanism, and a second blower connected to the exhaust-pipe, substantially as set forth.

6. In a tobacco-cutter, the combination with the main frame, of the cutting mechanism, separators, a shaker arranged under the cutting mechanism, a scrap feed-hopper arranged above said shaker at the rear of the cutting mechanism, a deflecting shaker comprising two boards, one arranged above the other and to the rear thereof and spaced apart, and a blower, the discharge end of which is at the rear and between the first-named shaker and the deflecting shaker.

7. In a tobacco-cutter, the combination with the main frame, of a cutting mechanism, separators, a shaker arranged under the cutting mechanism, a scrap feed-hopper arranged above said shaker at the rear of the cutting mechanism, a longitudinally-adjustable deflecting shaker comprising two boards, one arranged above the other and to the rear thereof and spaced apart, and a blower, the discharge end of which is at the rear and between the first-named shaker and the deflecting shaker, substantially as set forth.

8. In a tobacco-cutting machine, the combination with the main frame, a cutting mechanism secured at one end thereof, means for feeding the tobacco to the cutting mechanism, an inclined shaker arranged beneath the cutting mechanism, a deflecting shaker arranged below the first named shaker and inclined in the opposite direction, a hopper beneath the deflecting shaker, a blower arranged to discharge a blast through the space between the two shakers, separators arranged below and in advance of the blower-discharge, a second blower at the front upper end of the machine to discharge over the feeding means, an exhaust-tube leading from the said hopper to the last-named blower, a pan into which the finished tobacco is delivered, and an endless belt provided with elevator-buckets for elevating the tobacco from the pan and discharging it at the front end of the machine, substantially as set forth.

592,065. FURNACE. ELBERT S. ROGERS, Knoxville, Tenn. Filed Aug. 12, 1896. Serial No. 602,540. (No model.)



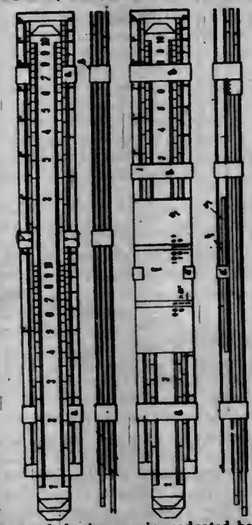
Claim.—A furnace having initial and secondary heating-chambers arranged in a common shell or casing and separated by an intermediate masonry wall and a metallic covering-plate forming the top of the initial heating-chamber, a metal-walled fire-box located in the initial heating-chamber out of contact with the side walls and top thereof, a connected series of heating-drums located in the secondary heating-chamber in communication at one end with an indirect-draft opening in the rear wall of the fire-box, and having a terminal drum located transversely above the covering-plate forming the top of the initial heating-chamber, said series of drums being arranged to form upper and lower horizontal tiers, a lower deflecting-plate formed as an extension of said covering-plate and extending rearwardly between said tiers of drums, a forwardly-extending deflecting-plate projecting from the rear wall of the secondary heating-chamber to a point near the vertical plane of said terminal drum of the series, and a vertical dampered direct-draft flue extending from the top of the fire-box and communicating with said terminal drum of the series, whereby direct heat communicated from the fire-box through said direct-draft flue is adapted to cause a secondary combustion of gases conveyed by the series of drums to the said terminal drum, this terminal drum being located in the path of heated air passing from the initial heating-chamber through the secondary heating-chamber, substantially as specified.

592,066. FLOWER-POT. McDUFF SIMPSON, Bryan, Tex. Filed Feb. 15, 1897. Serial No. 623,490. (No model.)



Claim.—A flower-pot consisting of a body portion formed from a plate of flexible sheet metal, capable of being bent into cylindrical form and having its meeting edges bent outwardly to form oppositely-disposed flanges, a removable sheet-metal strip having flanges formed thereon to interlock with the flanges on the edges of the body portion to lock them together, and a removable bottom, the flanges and the locking-strip terminating at their lower ends at the upper edge of the removable bottom, and the body and bottom of the pot being provided with a series of openings, substantially as described.

592,067. CALCULATING-SCALE. RUDOLPH C. SMITH, Yonkers, N. Y. Filed Feb. 16, 1897. Serial No. 623,637. (No model.)



Claim.—1. A rule having a main graduated body, one or more scales sliding thereon, flexible transparent pieces extending over the other parts and clamps holding all the parts together and also sliding on the transparent covers, substantially as described.

2. A rule having a main graduated flexible body, one or more flexible scales sliding thereon, flexible transparent pieces extending over the other parts, and clamps holding all the parts together and also sliding on the transparent covers, substantially as described.

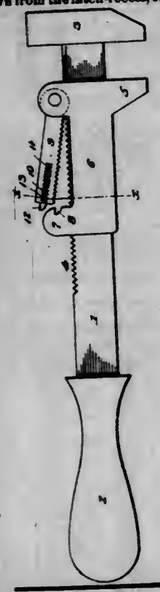
3. A rule having a main body, one or more scales sliding thereon, flexible transparent pieces extending over the other parts, sliding clamps holding all the parts together and an auxiliary scale having one part sliding in respect to the other, and a clamp holding the auxiliary scale to one of the flexible pieces, substantially as described.

4. A scale consisting of separate series of graduated parts, each with transparent flexible covers, and clamps sliding thereon, the said clamps of different series jointed together but adapted to slide independently, substantially as described.

532,068. WRENCH. JOHN W. TAYLOR, Trout, W. Va. Filed Mar. 10, 1897. Serial No. 626,894. (No model.)

Claim.—A wrench consisting of a handle-bar provided at one

end with a handle and at its other end with a fixed jaw having one of its sides provided with teeth, a sliding jaw mounted on said handle-bar provided with a hollow extension to embrace the same, and at one end with a latch-head provided with a latch-recess, a bar pivoted between lugs integral with said sliding jaw and provided with teeth to engage the teeth of the handle-bar and having in its free end a bolt-recess, a spring seated in said recess, and a bolt seated in said recess and adapted to be forced by the spring into the latch-recess aforesaid, said bolt having side extensions which project through transverse slots in the side of the pivoted bar by means of which the bolt may be withdrawn from the latch-recess, substantially as set forth.

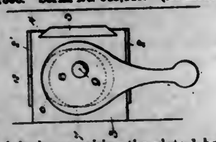


592,069. COMBINED SAW-SET, JOINTER, AND RAKER-GAGE. ALFRED S. TOPPING, Hart, Mich. Filed Apr. 24, 1897. Serial No. 633,779. (No model.)



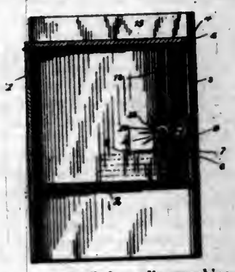
Claim.—A combined saw-set, jointer and rake-gage, comprising the rectangular block 1, having its plane side 2 formed with a beveled face 3, provided with a series of parallel gage-lines 3', a recess 4 formed in its side 5, a gage 6 adjustably secured to said recess and provided with a pointer 9, adapted to register with the gage-lines 3'; the jointer-jaw 11 adjustably secured to the opposite end of said bar by the set-screw 14, and the raker-gage 16 adjustably secured to the side 5 by the set-screw 18 and provided with the longitudinal parallel gage-line 19, adapted to register with the fixed gage-lines 20 20 on the same side of the bar, substantially as shown and described.

592,070. SASH-FASTENER. GEORGE A. TURNER, Roanoke, Va. Filed Nov. 23, 1896. Serial No. 613,813. (No model.)



Claim.—A sash-lock comprising the plate 1 having the parallel guide-flanges 2 2', the latter being formed with an integral spring-dog 12, the rectangular bolt 3 formed with a dovetail recess 4 carrying a removable jaw, and the oval vertical recess 6, in combination with the lever 8 having integral cam 7 and flange 10, and the fulcrum-screw 9, substantially as shown and described.

592,071. COIN-CONTROLLED VENDING-MACHINE. HERMANN C. VIERKANT, Tarrytown, N. Y. Filed Apr. 6, 1897. Serial No. 631,004. (No model.)



Claim.—1. A coin-controlled vending-machine, comprising the feed-shaft, a series of feed-wheels fixed on said shaft, a ratchet-wheel fixed on said shaft, a coin-lever provided with a locking-pawl adapted to travel to and from said ratchet-wheel, a tilting coin-receptacle mounted on said lever, a second ratchet-wheel fixed on said feed-shaft, and a hand-lever mounted on said feed-shaft and adapted to simultaneously operate said feed-shaft and tilt said coin-receptacle to discharge its contents, substantially as shown and described.

2. A coin-controlled vending-machine, comprising a fixed case, a gravitating feed-shaft adapted to deliver a newspaper or analogous article of merchandise, a ratchet-wheel fixed on said shaft, a coin-lever traveling simultaneously with said feed-shaft and provided with a locking-pawl projecting into the path of said ratchet-wheel, and means substantially as described for operating said coin-lever, substantially as shown and described.

3. A coin-controlled vending-machine, comprising a fixed case, a vertically-sliding front provided with a horizontal delivery-slot, a feed-shaft mounted on said front and traveling with it, a ratchet-wheel fixed on said feed-shaft, a coin-lever provided at one end with a tilting coin-receptacle and at the other with a locking-pawl adapted to be projected into the path of said ratchet-wheel, and means substantially as described for operating said feed-shaft and simultaneously tilting said basket as and for the purpose set forth.

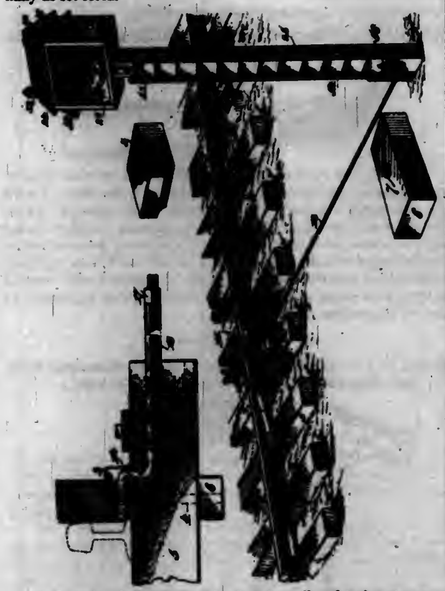
4. In a coin-actuated vending-machine, the case 1 provided with the shelf 2, the vertically-sliding front 3 provided with the horizontal slot 6, the brackets 9 9 fixed to said front, the feed-shaft 10 journaled in said brackets, the hubs 11 fixed on said shaft, and the radiating arms 12 fixed in said hubs, the ratchet-wheel 17 fixed on said feed-shaft, the coin-lever 18 fulcrumed in the bracket 19 fixed to movable plate 15 and provided with the locking-pawl 20 adapted to be projected into the path of the teeth of said ratchet-wheel 17; a coin-receptacle 22 pivoted in the inner end of said lever and a fixed counterbalancing-receptacle 28 at the outer end, the bell crank lever 27 fulcrumed in the bracket 19 and connected by the chain 25 to the edge of said pivoted receptacle 22, in combination with the ratchet-wheel 29 fixed on said shaft 10 and the hand-lever 30 fulcrumed on said shaft and provided with a spring-actuated pawl 31 engaging the teeth on said ratchet-wheel 29, and having its shorter arm 36 provided with a lateral pin 37 projecting into the path of the arm 38 of the bell-crank lever 27, substantially as shown and described.

592,072. RAILWAY TIME-SIGNAL. JOHN I. ALLEN, Loretto, Ky. Filed Oct. 14, 1896. Serial No. 608,962. (No model.)

Claim.—1. In a time-registering mechanism for railroad-trains, the combination of a dial, a time-movement bearing a hand to cooperate with the dial, a counterbalanced lever, actuating mechanism for operating the counterbalanced lever by means of a passing train, and a connection having an end portion wound upon a drum of the time-movement and having its opposite end portion passing loosely through an opening in a part of the counterbalanced lever and having a lateral extension, whereby a downward movement of the counterbalanced lever will unwind the connection from the time-movement and reset the hand and the said lever is adapted to return to a normal position without affecting the said connection, substantially as set forth.

2. In a time-indicating mechanism for railroad-trains, the combination of a dial, a time-movement provided with a hand to cooperate with the dial, a counterbalanced lever, a connection having an end portion wound upon a drum of the time-movement and having its opposite end portion loosely connected with the counterbalanced lever, a shaft mounted so as to be rocked in its bearings by a passing train, a spring projecting laterally from and having connection with the said shaft, and a connection between the said spring and the counterbalanced lever, substantially as shown for the purpose specified.

3. In a registering mechanism for railroad-trains, the combination of a track-bar, a shaft having a crank at its inner end actuated by means of the track-bar, an arm secured to the outer end of the shaft and having its outer end beveled, a spring secured to the lower side of the arm, and a connection for transmitting movement from the free end of the said spring to the indicating mechanism, substantially as set forth.



4. In a time-indicating mechanism for railroad-trains, the combination of an arbor forming a part of the time-movement, a drum loosely mounted upon the arbor and having an extension bearing a disk formed with a stop, a collar secured to the said arbor, cooperating stops between the drum and collar, a spring mounted upon the said collar and having connection at one end therewith, and having its opposite end in connection with a part applied to the drum, a gear-wheel in mesh with the train of gearing of the movement and loosely mounted upon an extension of the drum and engaging frictionally with the disk thereof, a spring-plate supported by a portion of the drum and exerting a pressure against the said gear-wheel to hold it in frictional engagement with the disk, and actuating mechanism operated by means of a passing train for turning the drum upon the arbor and increasing the tension of the spring interposed between the aforesaid collar and drum, substantially in the manner set forth for the purpose described.

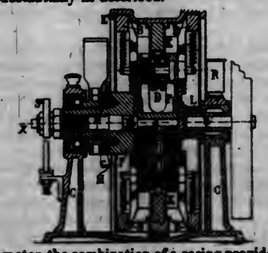
5. In a registering mechanism for railroad-trains, the combination of an arbor bearing a hand to cooperate with a dial and forming part of a time-movement, a drum loosely mounted upon the arbor, a spring connecting the drum with the said arbor for causing the arbor to follow the drum after the latter has been actuated, cooperating stops between the arbor and drum, a disk forming a part of the drum and having an extension to engage with a portion of the frame and limit the movement of the drum in each direction, a gear-wheel in mesh with the train of gearing and concentrically mounted with respect to the arbor and in frictional engagement with the drum, and a flexible connection having connection with the drum and wound thereon, substantially as and for the purpose set forth.

592,073. GAS-ENGINE. PAUL ARNOUX, Paris, France. Filed Apr. 17, 1896. Serial No. 587,990. (No model.) Patented in France Sept. 19, 1895, No. 250,344.

Claim.—1. In a motor, the combination of a casing provided with an elliptical roller-path of unequal axes, a cylinder in communication with a source of motive power, pistons in said cylinder, and rollers carried by said pistons and traveling upon said path, substantially as described.

2. In a motor, the combination of a casing provided with roller-paths of different conformations, a cylinder in communication with a source of motive force, and pistons located in said cylinder and provided with independent rollers to traverse said paths, substantially as described.

3. In a motor, the combination of a casing provided with a roller-path, a cylinder located within said casing, pistons in said cylinder, rollers carried by said pistons and adapted to traverse said path, and springs connected to said pistons to force the same into contact with said path, substantially as described.



4. In a motor, the combination of a casing provided with a roller-path having a projection thereon and a depression therein to form independent paths, a cylinder within said casing and provided at its opposite ends with pistons, a roller located upon one of said pistons and adapted to traverse the raised surface of said path, and a roller located upon said other piston and adapted to traverse the depressed portion of said path, substantially as described.

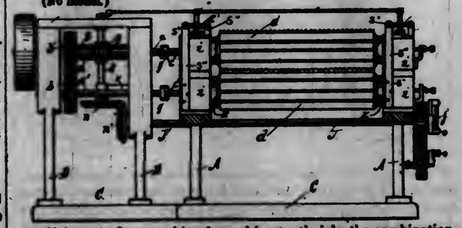
5. In a motor, the combination of a casing provided with a roller-path, a cylinder journaled to rotate within said casing, pistons in said cylinder provided with rollers adapted to traverse said path, a disk carried by said cylinder and provided with a port communicating therewith, a stationary valve-disk in contact with the disk carried by the cylinder and provided with inlet and exhaust ports whereby said ports will be alternately brought into communication with the cylinder in the rotation thereof, substantially as described.

6. In a motor, the combination of a casing provided with a roller-path, a cylinder journaled to rotate within said casing, pistons in said cylinder provided with rollers adapted to traverse said path, a rotating disk carried by said cylinder and provided with a port communicating therewith, a stationary valve-disk adjacent to said rotating disk and provided with inlet and exhaust ports, and means to force said rotating disk into contact with said valve-disk, substantially as described.

7. In a motor, the combination of a casing provided with an annular inwardly-projecting roller-path, a cylinder journaled to rotate within said casing, pistons located at opposite ends of said cylinder and provided with rollers adapted to traverse said path, fly-wheels located at opposite sides of said cylinder and carried thereby in its rotation, and yielding means connecting said pistons with said fly-wheels, substantially as described.

8. In a motor, the combination of a casing provided with roller-paths of different conformations, a cylinder mounted to rotate within said casing and provided with pistons adapted to move in opposite directions therein, independent rollers carried by said pistons to traverse said path whereby in a single revolution the four periods of the cycle of compression gas-engines are accomplished, substantially as described.

592,074. MACHINE FOR MAKING TOOTHPICKS. HOWARD E. BARLOW, Providence, R. I. Filed Mar. 1, 1897. Serial No. 626,462. (No model.)



Claim.—1. In a machine for making toothpicks the combination of two rolls having notched knives on their peripheries longitudinal grooves made in the rolls between said knives, and arranged to run together with the knives in one roll entering the grooves in the other roll, substantially as described.

2. In a machine for making toothpicks the combination of two rolls having notched knives on their peripheries longitudinal grooves made in the rolls between said knives, and arranged to run together with the knives in one roll entering the grooves in the other roll, with means for feeding the blocks of material to said rolls, substantially as described.

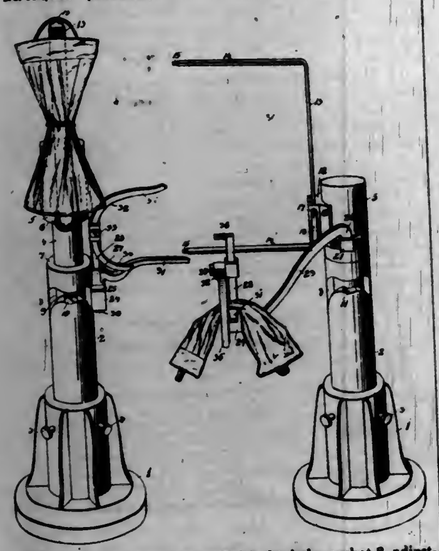
3. In a machine for making toothpicks the combination of two rolls having notched knives on their peripheries, grooves made in the rolls between each two knives, and arranged to run together with the knives in one roll entering the grooves in the other roll, with means for causing the rolls by the operation of the machine, to alternately approach, and to recede from each other, substantially as described.

4. In a machine for making toothpicks the combination of two rolls having notched knives on their peripheries grooves made in the rolls between each two knives, and arranged to run together with the knives in one roll entering the grooves in the other roll, a reciprocating feed-motion consisting of two plates sliding in ways, with means for causing the two plates by the operation of the machine to move forward and back, substantially as described.

5. In a machine for making toothpicks the combination of two rolls having notched knives on their peripheries grooves made in the rolls between each two knives, and arranged to run together with the knives in one roll entering the grooves in the other roll, boxes or bearings for said rolls held to slide in ways toward, or from each other, rocker-shafts held in bearings over said boxes, cross-arms fast on said rocker-shafts, connections from said arms on one side of each shaft to the lower boxes, and connections from the arms on the other side of each shaft to the upper boxes, with means for operating said rocker-shafts, substantially as described.

6. In a machine for making toothpicks the following instrumentalities: two rolls having knives set in their peripheries, and having grooves in them between the knives, sliding boxes for said rolls to turn in, rocker-shafts placed over said boxes with arms connected to the boxes, sliding tables to carry the wooden blocks, racks on said tables with segment-gears engaging in said racks, a feed-shaft with gears and cranks to move said segment-gears, a worm-gear engaging with a worm on a driving-shaft, and a connection between the worm-gear and said rocker-shafts, substantially as described.

592,075. AUTOMATIC RAILWAY MAIL-CRANE. FRANK BEVER and JOHN A. LENTZ, El Dorado, Kans. Filed May 3, 1897. Serial No. 634,520. (No model.)



Claim.—1. The base 1, the cylindrical tubular socket 2, adjustably secured in said base and provided with the inverted-U-shaped slot 8, in combination with the shaft 4 having a vertical oscillating movement in said bracket and provided with the radial friction-roller 9 engaging said slot, the guide-bracket 12 fixed to the upper end of said shaft and provided with the thumb-lever 18 and the bar 13 having a vertical movement in said guide-bracket, and provided with the horizontal parallel spring-arms 14 14, and the retaining-orifice 16, substantially as shown and described.

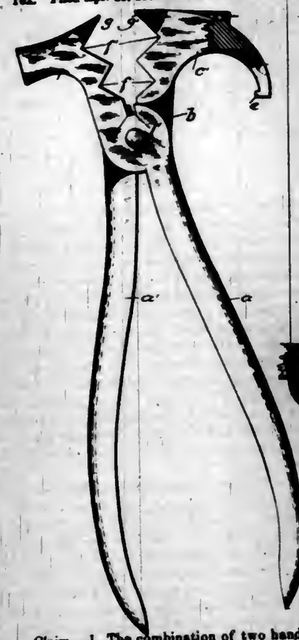
2. The base 1, the tubular socket mounted in said base and provided with the U-shaped slot 8, the shaft 4 having an oscillating movement in said socket, and provided with the radially-mounted friction-roller 9, in combination with the brackets 21 21 fixed to the upper end of said shaft, and the detachable arm 23 formed with a socket 24 provided with the parallel ribs 25 25, the vertical shaft 28 adjustably secured in said socket and provided with the tongue 26, the horizontal arm 31, and the lug 36, the spiral spring 29 encompassing the lower end of said shaft, and the washer 30 fixed on the lower end of the shaft, and the curved lever 32 fulcrumed on the upper end of said shaft, and provided with the curved arms 34 35, substantially as shown and described.

592,076. WINDOW-CLEANER. CHARLES BROWN, Chicago, Ill. Filed Dec. 21, 1896. Serial No. 616,470. (No model.)



Claim.—In a window-cleaner, a solid block of suitable material having one edge thereof enlarged and tapering therefrom toward the other edge, a casing arranged to encircle the enlarged part of said block and provided with an extension forming a support for the tapering extension of said block, said casing being provided with a longitudinally-extending channel or depression, a handle, including holding-jaws, provided at the engaging end thereof with sidewise extensions arranged to be received in said channel or depression; as and for the purpose set forth.

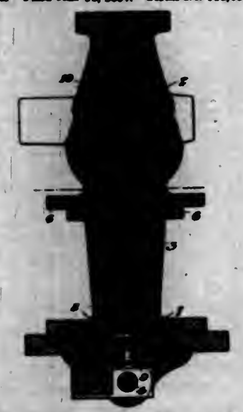
592,077. COMBINATION-TOOL. WILLIAM P. BURKHALTER, Bryan, Tex. Filed Apr. 13, 1897. Serial No. 631,990. (No model.)



Claim.—1. The combination of two handles, a striking portion of a hammer-head formed on the end of one of the handles, and the upper portion of a hammer-head on the corresponding end of the other handle, a nail-set formed on the upper portion of the hammer-head by tapering the lower end thereof downward, a lug having a flattened top formed just above the nail-set, flattened portions formed on the sides of the handles back of the hammer-head, a pin having an enlarged semicircular head formed on one of the flattened sections, a socket formed in the other flattened section having part of its opening closed by a semicircular cap, whereby the pin may be inserted and the handle turned when the head of the pin will engage the under side of the cap, rotatably locking the parts together, for the purpose described.

2. A compound tool composed of two handles, an upper or claw portion of a hammer formed on one handle, a nail-set formed by tapering the lower portion of said claw downward, a striking-lug formed on said claw below a line which is tangent to the curved surface of the claw at the inner end of the notch, a lower or striking portion of a hammer-head formed on the other handle, flattened surfaces formed on the handles back of the hammer-head portions, a pin formed on one of said flattened sections, said pin having a semicircular head, the other flattened surface having a socket, the opening thereto being partly closed by a semicircular cap, as and for the purpose described.

592,078. MANUFACTURE OF GLASSWARE. WILLIAM BUTTLER, Redkey, Ind. Filed Jan. 11, 1897. Serial No. 618,687. (No model.)



Claim.—1. A mold for blowing hollow glass articles having bottoms, said mold having at the bottom end of the matrix-cavity proper a small peripheral groove opening into the matrix-cavity proper and arranged to square up the bottom end of the article.

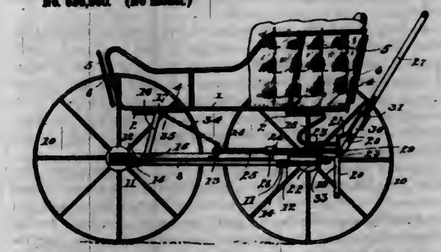
2. A mold for blowing hollow glass articles, having at the end portion a peripheral groove opening into the mold-cavity for squaring the end of the article blown therein, and having a movable bottom plate or block.

3. A mold for forming hollow glass articles having bottoms, said mold having a movable bottom, and means for moving said bottom upwardly during the blowing, to square up the bottom of the article.

4. The method of forming hollow glass articles having bottoms, consisting in blowing the same and moving the bottom of the article upward during the blowing, to square up the same.

5. The method of forming hollow glass articles having bottoms, consisting in blowing the same, rotating the article to shape it exteriorly, and moving the bottom of the article upwardly during the blowing to square up the same.

592,079. FOLDING BABY-CARRIAGE. JAMES C. CRAIG and WILLIAM TAYLOR, Salt Lake City, Utah. Filed May 15, 1897. Serial No. 636,860. (No model.)



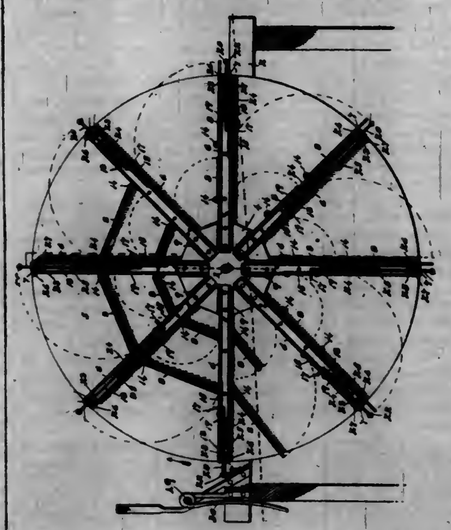
Claim.—1. In a baby-carriage, a body adapted to fold on a central longitudinal line, a running-gear consisting of two side-bars on which the wheels are journaled, pairs of links pivotally connected at one end to the ends of the side-bars and the links of each pair being pivotally connected to each other at their adjacent ends and to a movable bar extending centrally and longitudinally of the body, and links pivotally connecting the body to the running-gear, combined with a casting connected to the body, a sliding rod supported at its rear end in the casting and having a sliding connection with said central bar, and a handle pivotally connected at its lower end to the rear end of the sliding rod and adapted to have a sliding movement through the casting, substantially as described.

2. In a baby-carriage, a running-gear adapted to fold horizontally on a central longitudinal line, combined with a carriage-body consisting of a bottom formed of two sections hinged together at their front and rear ends, sides hinged to the bottom, and ends formed of lazy-tongs frames pivotally connected to the respective ends of the sides, links pivotally connected to the front ends of the sides and the front end of the running-gear, an S-shaped spring connected at its upper end to the body, a casting secured to the lower end of said spring, a sliding rod supported at its rear end in said casting and connected to the running-gear, and a handle pivoted to the rear end of the sliding bar and adapted to have a sliding movement through the said casting, substantially as described.

3. In a baby-carriage, a body the bottom of which is adapted to fold vertically on a central longitudinal line, a running-gear adapted to fold horizontally on a central longitudinal line, and links pivotally connected to the body and running-gear at their front ends, combined with a casting rigidly connected to the body at its rear end, and provided with an oblong rectangular opening, links pivotally connected to the running-gear and said casting, a sliding rod connected to the running-gear and extending through the said rectangular opening, a handle pivotally connected at its lower end to the rear end of the sliding bar, said handle being rectangular in cross-section and adapted to work through said rectangular opening when in a horizontal plane, and means to lock the handle, when elevated, to the casting, substantially as described.

4. In a baby-carriage, a body and running-gear suitably connected together and adapted to fold on a central longitudinal line, combined with a casting rigidly secured to the rear end of the carriage-body the upper end of said casting being bent rearwardly, a lug projecting rearwardly from said bent end, a sliding rod connected to the running-gear and supported at its rear end in said casting, a handle having spaced arms at its lower end pivoted to the rear end of the sliding rod and adapted to receive said lug between them, and a sliding collar on the handle to lock the latter to the lug, substantially as described.

592,080. AIR OR WATER WHEEL. SAMUEL CROCKER, Oklahoma, Okla. Filed Oct. 17, 1896. Serial No. 609,237. (No model.)



Claim.—1. In a power-wheel, the combination of radial arms, paddles bearing at their edges against the arms and held in working position thereby, and hinged at their inner ends and of a length to engage with the adjacent arms when out of action, and independently-operated locking means for each paddle acting jointly with the arms to hold any desired paddle or paddles out of action, substantially as and for the purpose set forth.

2. In a power-wheel, the combination of radial arms, an inner and an outer series of paddles supported at their edges by the arms and pivoted at their inner ends, and of a length to extend across the space between adjacent arms when out of action, and independently-operated locking means for each series of paddles and for the several paddles of the series to admit of either series of paddles or any paddle or number of paddles of the series being held out of

action and released when desired for service, substantially as set forth.

3. In a power-wheel, the combination of a hub having radial seats, arms having their edges flanged and secured at their inner ends in the seats of the hub, a head composed of sections which are secured to the arms, a reinforcing ring or band applied to the peripheral edge portion of the head, and paddles limited in their movement and supported in a working position by the flanged edges of the arms, substantially as set forth.

4. In a power-wheel, the combination of radially-disposed arms, heads secured to the arms, stay-bars connecting the arms at their outer ends, rods connecting the heads a distance from their edges, paddles mounted upon the said rods, and springs secured to the stay-bars intermediate of their extremities and having their end portions projecting to receive the impact of the paddles, substantially as described.

5. In a power-wheel, the combination of hinged paddles, stay-bars, substantially bow-shaped springs applied to the stay-bars, clamps connecting the springs at a middle point to the stay-bars, and pins applied to the stay-bars at points equidistant from the clamps for holding the bow-springs in proper position to receive the impact of the paddles, substantially as set forth.

6. In a power-wheel, the combination with hinged paddles, of a lock-bar for each paddle slidably mounted in guides and having its end extended, and means to be projected across the extended ends of the lock-bars for severally operating them to secure or release any of the paddles, substantially as set forth.

7. In a power-wheel, the combination with hinged paddles, of a longitudinally-movable lock-bar for each paddle, a spring for every lock-bar for holding it projected, means for depressing the lock-bars individually, and means for securing the lock-bars in a depressed position, substantially as described.

8. In a power-wheel, the combination with hinged paddles, of a longitudinally-movable lock-bar adapted to be projected within the path of a paddle, means for securing the lock-bar in a depressed position, and a spring for returning the lock-bar to a normal position when released, substantially as described.

9. In a power-wheel, the combination of hinged paddles, a longitudinally-movable lock-bar for holding a paddle out of working position and having a lateral extension near its outer end, and a spring exerting a lateral pressure against the lock-bar to force the said lateral extension into engagement with a portion of the wheel, whereby the lock-bar will be held depressed, substantially as set forth.

10. In a power-wheel, the combination of hinged paddles, stay-bars, lock-bars operating through the stay-bars and having lateral extensions, springs for projecting the lock-bars outward, and other springs exerting a lateral pressure against the lock-bars to force the lateral extensions thereof in engagement with the stay-bars, substantially as and for the purpose set forth.

11. In a power-wheel, the combination of hinged paddles, guides adjacent to the free ends of the paddles, stay-bars, lock-bars operating through the stay-bars and having their inner ends bent and operating in the said guides, and means for operating the lock-bars, substantially as and for the purpose set forth.

12. In a power-wheel, the combination with hinged paddles, and lock-bars longitudinally movable, of a cross-bar, and a lever mounted upon the cross-bar and adapted to be projected within the path of the outer ends of the lock bars, substantially as set forth.

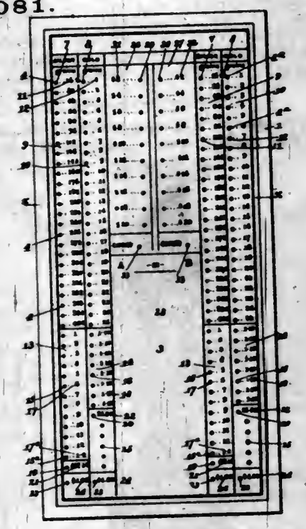
13. In a power-wheel, the combination with hinged paddles, and lock-bars located in different vertical planes, of a cross-bar, and a lever slidingly mounted upon the cross-bar and adapted to be projected within the path of the lock-bars, substantially as and for the purpose set forth.

14. In a power-wheel, the combination with hinged paddles, and longitudinally-movable lock-bars arranged in different vertical planes, of a cross-bar, a lever slidably mounted upon the cross bar, a pin adapted to be engaged with the cross-bar, and a connection slidably mounted upon the cross-bar and secured to the said pin, substantially as set forth.

592,081. GAME APPARATUS. SAMUEL CROCKER, Oklahoma, Okla. Filed Mar. 16, 1897. Serial No. 627,807. (No model.)

Claim.—A game apparatus comprising a tally-board or tablet having a set of apertures to receive the scoring pegs or pins of each player, each set comprising two parallel series having parallel series of guide-numbers corresponding in ratio, supplemental series of apertures also having guide-numbers, an additional aperture below one of said supplemental series, a carry-aperture at the end of each supplemental series, and another series of apertures for recording points won, and having guide-numbers commencing with "2" and increasing by the successive addition of two, pins or pegs for each player comprising a pin for each series of apertures and a separate pin for the additional aperture below the supplemental series of apertures, substantially as set forth.

592,081.



592,082. TEMPORARY BINDER. HARRY E. DADE, Newburg, N. Y. Filed Dec. 7, 1896. Serial No. 614,712. (No model.)



Claim.—1. In a binder, the combination of two posts of substantially uniform size throughout the main portion of their length and rigidly connected together at their bases, a piece having apertures adapting it to slide on the posts, a toggle arranged to clutch the posts against the outer sides of the apertures of the piece, said posts being slightly reduced at their bases on their inner sides, substantially as and for the purpose set forth.

2. In a binder, the combination of two posts of substantially uniform size throughout the main portion of their length and rigidly connected together at their bases, a piece having apertures adapting it to slide on the posts, a toggle arranged to clutch the posts against the outer sides of the apertures of the piece, said posts being slightly reduced at their bases on their inner sides and slightly enlarged at their upper ends along their diameters which run in the direction of the extension of the toggle-arms, substantially as and for the purpose set forth.

3. In a binder, the combination of two posts of substantially uniform size throughout the main portion of their length and rigidly connected together at their bases, a piece having apertures adapting it to slide on the posts, a toggle arranged to clutch the posts against the outer sides of the apertures of the piece, said posts being slightly enlarged at their upper ends along their diameters which run in the direction of the extension of the toggle-arms, substantially as and for the purpose set forth.

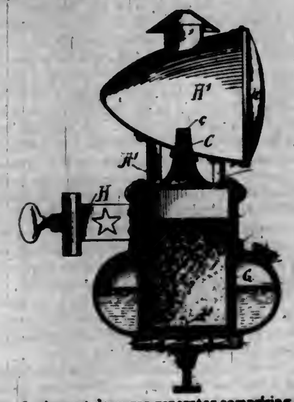
4. In a binder, the combination of a pair of posts rigidly connected together at their bases, a piece formed of one piece of metal into a casing and provided with apertures through its top and bottom adapting it to slide on the posts, the top of the casing having a transverse slot and the bottom of the casing having an aperture beneath the slot, blocks between the top and bottom of the casing and abutting the apertures thereof, a toggle in the casing and having an aperture through its pintle and arranged to engage the posts, and a removable actuating-handpiece for the toggle passing through the slot in the top of the casing into engagement with the toggle, whereby when the handpiece is removed a pin may be set in the aperture of the toggle's pintle and in the aperture in the bottom of the casing to hold the toggle in engaging position, substantially as and for the purpose set forth.

5. In a binder, the combination of a base-plate carrying a pair of posts rigidly fixed thereto, a casing provided with apertures in its top and bottom adapting it to slide on the posts, a toggle inclosed within the casing arranged to engage the posts, and blocks between the top and bottom of the casing and abutting the said apertures, the block having extensions on both sides of the apertures to provide guideways for the ends of the toggle, substantially as and for the purpose set forth.

6. In a binder, the combination of a pair of posts rigidly connected together at their bases, a piece provided with apertures for the posts, a toggle working between the posts and arranged to engage them, the pintle of the toggle having a threaded aperture, and a removable actuating-handpiece for the toggle having a threaded stem adapted to be screwed into the threaded aperture of the pintle, substantially as set forth.

7. In a binder, the combination of two covers having hinged end pieces *a* and *b*, the piece *b* comprising a metal plate having a pair of posts rigidly secured to it, the piece *a* comprising a metal casing provided with apertures adapting it to slide on the posts, a toggle loosely inclosed within the casing and adapted to engage the posts, and arranged to pass the dead-center line when in normal engaging position, the pintle of the toggle having a threaded aperture through it, a removable actuating-handpiece for the toggle having a threaded stem arranged to be screwed into the aperture of the pintle, the bottom of the casing having an aperture and the top of the casing having a transverse slot, the removable handpiece working in the slot and arranged to be screwed down into the aperture in the bottom of the casing when the toggle is in engaging position, and blocks within the casing and abutting its apertures, the posts being slightly reduced on their inner sides at their bases, and slightly enlarged at their upper ends along their diameters which run in the direction of the extension of the toggle-arms, substantially as set forth.

592,088. ACETYLENE-GAS GENERATOR. JOHN C. DUPEE, Chicago, Ill., assignor of one-half to Ripley J. White, same place. Filed Aug. 28, 1896. Serial No. 604,243. (No model.)



Claim.—1. An acetylene-gas generator comprising a generating-chamber provided with a water-inlet opening, a source or means of water-supply and a layer of porous or absorbent material forming a lining in contact with the bottom and sides of said generating-chamber, said layer being interposed between the calcium carbid contained within the chamber and the said water-inlet opening.

2. An acetylene-gas generator comprising a gas-generating chamber provided with a water-inlet opening in its bottom wall, a source or means of water-supply connected with said opening and a layer of absorbent material forming a lining in contact with the bottom and sides of said generating-chamber, said layer being interposed between the calcium carbid contained within the chamber and the bottom wall of said chamber.

3. An acetylene-gas generator comprising a generating-chamber provided with a water-inlet opening, a source or means of water-supply, a valve controlling the entrance of water to the chamber and a layer or mass of porous or absorbent material forming a lining in contact with the bottom and sides of said chamber, said layer being interposed between the calcium carbid contained within the chamber and the said water-inlet opening.

4. An acetylene-gas generator comprising a generating-chamber provided with a water-inlet opening, a source or means of water-supply, a valve for controlling the said opening, a layer or mass of porous or absorbent material interposed between the calcium carbid contained within the chamber and said water-inlet opening and a movable puncturing-needle adapted for insertion through said water-inlet opening to puncture the layer of porous or absorbent material at a point opposite said opening.

5. An acetylene-gas generator comprising a generating-chamber provided with a water-inlet opening, a source or means of water-supply, a layer or mass of porous or absorbent material interposed between the calcium carbid contained within the chamber and the said water-inlet opening and a valve for controlling the supply of water comprising a screw-threaded stem provided with a conical valve-plug and with a puncturing-needle which extends through the water inlet opening.

6. An acetylene-gas generator comprising a generating-chamber provided with a water-supply opening in its bottom, a source or means of water-supply connected with said opening and a continuous porous layer or lining extending over and in contact with the bottom and side walls of the chamber.

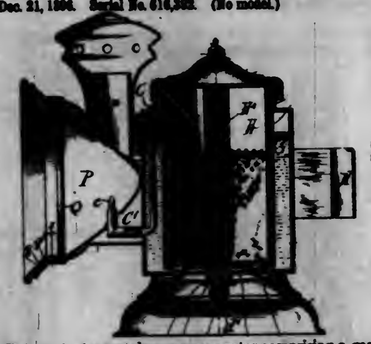
7. An acetylene-gas generator comprising a generating-chamber, a water-receptacle surrounding the chamber, and extending beneath the bottom wall of the generating-chamber, said chamber being provided with a water-supply opening in its said bottom wall and a valve for said opening provided with a screw-threaded stem which passes through the bottom wall of said water-receptacle.

8. An acetylene-gas generator comprising a generating-chamber, a lining of porous material therein, and an interior lining or cylinder of perforated metal located within said porous lining.

9. In combination with an acetylene-gas generator comprising a gas-generating chamber and a water-receptacle surrounding the same, the lower wall of said receptacle extending beneath the bottom wall of the generating-chamber, said bottom wall of the generating-chamber being provided with a central water-inlet opening, of a water-seal between said inlet-opening and the surrounding water-receptacle comprising an annular wall or partition extending between the bottom of the generating-chamber and the lower wall of the water-receptacle and being provided in its lower part remote from said inlet-opening with a plurality of apertures for the passage of water.

10. An acetylene-gas generator and burner comprising a generating-chamber provided with a central burner-tube at its top extending upwardly therefrom and having a water-inlet opening at its bottom, a water-receptacle surrounding the sides of said chamber and communicating with said water-inlet opening, a lamp-body surrounding said central burner-tube and provided with a downwardly-extending flange fitting over and surrounding the upper part of the generating-chamber, and a detachable locking connection between said generating-chamber and the lamp-body.

592,084. ACETYLENE-GAS GENERATOR. JOHN C. DUPEE, Chicago, Ill., assignor of one-half to Ripley J. White, same place. Filed Dec. 21, 1896. Serial No. 616,382. (No model.)



Claim.—1. An acetylene-gas generator comprising a gas-generating chamber provided with a water-inlet opening in its bottom wall, a source or means of water-supply connected with said opening, a perforated tube located in the said chamber above said opening and a mass or filling of porous material within said tube for conveying the water by capillary action into contact with the calcium carbid which surrounds said tube.

2. An acetylene-gas generator comprising a water-receptacle, a gas-generating chamber provided with a water-inlet opening in its bottom communicating with the water-receptacle and provided with a regulating-valve, a gas-delivery pipe leading from the top of the generating-chamber to the burner, and a gas-passage provided with a controlling-valve connecting the top of the generating-chamber with the top of the water-receptacle, said water-receptacle being closed to the external air and having no opening except those connecting it with the bottom and top of the generating-chamber.

3. An acetylene-gas generator comprising a gas-generating chamber having a water-inlet opening in its bottom, a source of water-supply connected with said opening and a perforated tube, located in the chamber and forming an annular space for calcium carbid be-

tween the same and the wall of the chamber, said tube being provided with a filling of porous material by which water is conveyed from the inlet opening to the calcium carbid in contact with said perforated tube.

4. An acetylene-gas generator comprising a generating-chamber having a water-inlet opening in its bottom, a source of water-supply connected with said opening, and a cylindric jacket adapted for insertion within said chamber, said jacket comprising a cylindric wall which is separable or open at its side to permit the removal of spent carbid of calcium therefrom.

5. An acetylene-gas generator comprising a gas-generating chamber having a water-inlet opening in its bottom, a source of water-supply connected with said opening and a jacket adapted for insertion within the chamber said jacket comprising a cylindric side wall which is separable or open at its side, and flanged bottom and top walls, adapted to hold the side wall in cylindric form.

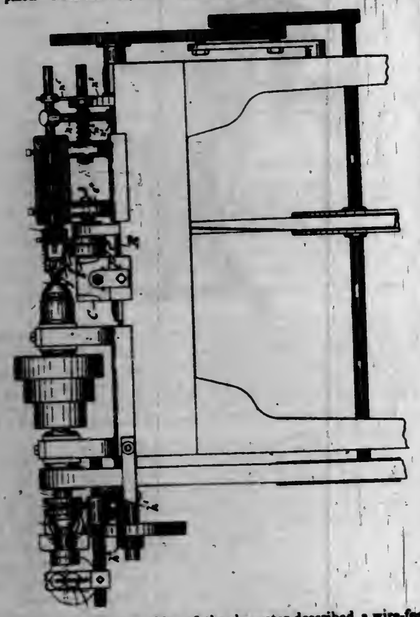
6. An acetylene-gas generator comprising a gas-generating chamber having a water-inlet opening in its bottom, a source of water-supply connected with said opening, and a jacket adapted for insertion in said chamber, said jacket consisting of a cylindric side wall, and perforated bottom and top walls.

7. An acetylene-gas generator comprising a gas-generating chamber having a water-inlet opening in its bottom, a source of water-supply connected with said opening, and a jacket adapted for insertion in said chamber, said jacket consisting of a cylindric side wall, a perforated bottom wall and a central perforated tube rising from the bottom wall.

8. An acetylene-gas generator comprising a gas-generating chamber having a water-inlet opening in its bottom, a source of water-supply connected with said opening, and a jacket adapted for insertion in said chamber, said jacket consisting of a cylindric side wall, a perforated bottom wall, a top wall, and a central perforated tube extending between the bottom and top walls.

9. An acetylene-gas generator comprising a gas-generating chamber having a water-inlet opening in its bottom, a source of water-supply connected with said opening, and a jacket adapted for insertion in said chamber, said jacket consisting of a cylindric side wall, a perforated bottom wall, a top wall and a central perforated tube extending between the bottom and top walls, said side wall being separable at one side and the bottom and top walls being flanged to engage the ends thereof.

592,085. MACHINE FOR MAKING METAL BALLS. NICOLAS FLANNERS, Cleveland, Ohio, assignor to Frank H. Chamberlin, same place. Filed Mar. 25, 1896. Serial No. 584,993. (No model.)



Claim.—1. In a machine of the character described, a wire-feeding device, consisting of the following parts, in combination, two feed-rollers, a disk secured to one of them, curved pins which project in an annular row from the face of said disk, a crank-pin revolving about an axis at right angles to the axis of said disk, and adapted to engage with said curved pins, substantially as and for the purpose specified.

2. In a machine of the character described, the combination of a tubular live-spindle, a chuck and its operating mechanism, and a wire-feeding device, with a tubular dead-spindle, a gage rod movable endwise through the dead-spindle, and mechanism for moving it forward just before the wire is fed, and back just after the wire is fed, substantially as and for the purpose specified.

3. In a machine of the character described, the combination of a tubular live-spindle, a chuck and its operating mechanism, and a wire-feeding device, with a tubular dead-spindle, a gage-rod movable longitudinally in said spindle, an arm adjustably secured to said gage-rod, a cam adapted to engage with and operate said arm, and a spring for retracting the gage-rod, substantially as and for the purpose specified.

4. In a machine of the character described, the combination of a live-spindle, a chuck and its operating mechanism, and a wire-feeding device, with a tubular dead-spindle, a gage-rod movable longitudinally in said dead-spindle, an arm adjustably secured to said gage-rod, a shaft which passes loosely through one end of said arm, thereby supporting and guiding it, a cam adapted to engage with said arm to move it forward, and a spring for retracting said gage-rod, substantially as and for the purpose specified.

5. In a machine of the character described, the combination of a tubular dead-spindle, and a tubular end piece secured thereto having a slot through one side which permits of the entry of the cutting-tool, substantially as and for the purpose specified.

6. In a machine of the character described, the combination of a transversely-movable tool-slide, a bell-crank lever pivoted to a fixed support, a rod c^2 secured to the carriage and having a projection with which one arm of the bell-crank lever engages, a revolving cam, and an arm secured to the bell-crank lever and adapted to be engaged by said cam, substantially as and for the purpose specified.

7. In a machine of the character described, the combination of a transversely-movable tool-slide, a bell-crank lever pivoted to a fixed support, a rod secured to the tool-slide having a projection with which one arm of the bell-crank lever engages, a revolving disk having on its face a cam which is an incomplete ring, an arm secured to the bell-crank lever adapted to engage with said cam, and a pin secured to said disk for engagement with the slide for the purpose of retracting the same, substantially as and for the purpose specified.

8. In a machine of the character described, the combination of a tubular live-spindle, a chuck and its operating mechanism, a tubular dead-spindle adapted to receive the end of the wire on which a ball is to be formed, it having also a slot for the admission of the cutting-tool, said dead-spindle also having a hole in or near its bottom through which the balls which are cut from the wire may be discharged, substantially as and for the purpose specified.

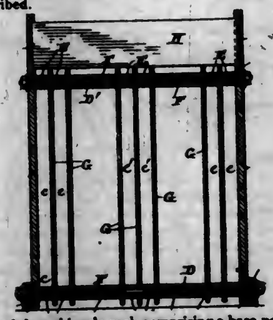
9. In a machine of the character described, the combination of a tube having a flat face which intersects the bore, and a revolving disk which faces and is placed close to said side of the tube, substantially as and for the purpose specified.

10. In a machine of the character described, the combination of a tube having a flat face which intersects the bore, mechanism for supporting said tube, a device for directing the balls as they are cut from the wire into the upper end of said tube, and a rotating disk mounted in front of and close to said face of the tube, substantially as and for the purpose specified.

11. In a machine of the character described, the combination with a tubular dead-spindle adapted to catch the balls as they are cut from the wire and provided with an opening through which said balls may be discharged, with a fixed shaft, a fixed plate adjustably secured thereto, a tube supported by said plate and having a flat face which intersects the bore of the tube, and a rotating disk mounted on said shaft in front of and close to said side of the tube, substantially as and for the purpose specified.

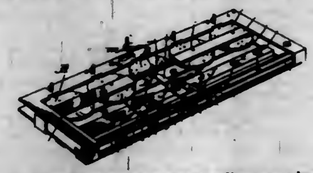
592,086. BICYCLE SUPPORT OR RACK. HENRY S. FRANKEN, East Saginaw, Mich. Filed Aug. 17, 1896. Serial No. 603,010. (No model.)

Claim.—1. A bicycle-support comprising a horizontal base portion formed of two side bars, two connecting end bars or rods, upper and lower central supporting and clamping cross bars or rods, the lower one of which connects the side bars and serves as a journal, and the upper one of which, when the stand is "set up," being considerably above the base and parallel with the same, a plurality of sets of vertical slats forming groups, a series of staying, tubular spacing-blocks of different lengths arranged on the clamping-rods or on the opposite sides of the slats, and placed so as to form passages between the slats of uniform size and passages of greater size between each pair of groups, each of the groups consisting of three upright parallel slats which form two passages for the reception of the wheels of two bicycles, and each pair of groups of slats forming a space of greater width than the openings between the slats of the respective groups for the wheels, so that two or more bicycles, after their wheels have been entered in the spaces between the slats of a group, are prevented from becoming interlocked with one another, screw-threads on the ends of the clamping-rods, and nuts applied on the clamping-rods for drawing and holding the parts together, substantially as described.



2. A knockdown bicycle-rack comprising a base portion formed of two horizontal side bars, upper and lower supporting and clamping cross-rods, the lower one of which is removably connected to the side bars and serves as a journal for turning the central rack portion up or down, the upper one of which when the stand is set up being considerably above the base and parallel thereto, vertically-arranged slats provided with eyes near their upper and lower ends, the clamping-rods being passed through said eyes, removable staying tubular spacing-blocks slipped on the clamping-rods between the slats for properly spacing said slats, screw-threads on the ends of the rods, and nuts applied on the clamping-rods for drawing or holding the parts together, the construction and arrangement being such that the parts can all be separated and the entire rack packed in a small space and be readily set up again, different parts of the rack being in duplicate and of the same construction, substantially as described.

592,087. GAME APPARATUS. CHARLES A. FRENCH, Boston, Mass. Filed July 20, 1894. Serial No. 518,102. (No model.)



Claim.—1. A game apparatus, comprehending a case having suitable sight-openings, a series of character-carriers provided with a series of characters or symbols, mechanism adapted when moved in one direction to effect the spinning or rotation of all or any number of said carriers simultaneously, and when moved in the opposite direction to positively stop the rotation of and position the carriers then in motion to show a character or symbol on each at said sight-openings, and means for preventing the revolution of any number of said carriers while the others are moving, substantially as described.

2. A series of disks, each having a series of numbers or symbols and working on an easily-revolvable spindle, means for preventing the rotation of any number of such disks, and mechanism arranged to revolve all disks simultaneously or any number of them less than all, and to stop all of the revolving disks simultaneously with a symbol or number of each disk opposite to a predetermined reading-point, substantially as described.

3. A game apparatus containing the following instrumentalities, viz: a case having suitable sight-openings; a series of character-carriers each provided with a series of characters or symbols and a toothed wheel, and a series of fingers or flippers to engage said toothed wheels, combined with an actuating device to move said fingers or flippers in one direction to position the character-carriers, and independent springs to move said fingers or flippers independently of each other in the direction to spin or rotate said character-carriers, substantially as described.

4. A series of rotatable character-carriers having a series of characters or symbols, a toothed wheel for each carrier, means for locking any number of said carriers, a series of independent spring-actuated fingers or flippers, and a holding device to hold them in engagement with the toothed wheels to hold the character-carriers at rest, combined with a means for placing the springs actuating the fingers under tension and a releasing device to cause the holders to release the fingers or flippers in order that the cooperating springs may act and effect the movement of the said fingers or flippers and spin or rotate the character-carriers, substantially as described.

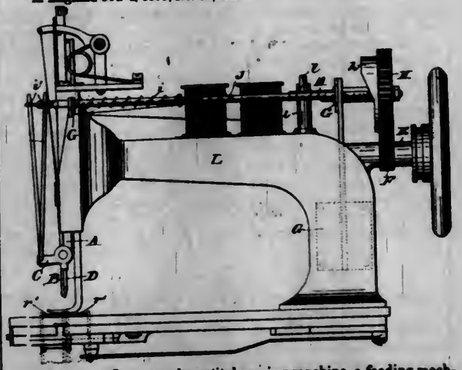
5. In a game apparatus, a series of character-carriers having a series of characters or symbols adapted to be displayed at a proper sight-opening, and toothed wheels cooperating with said carriers, combined with a series of independent pivoted fingers, one for each carrier, an independent spring for each finger and an actuating device common to all said fingers, which, when moved in one direction will move all said fingers to cause them to engage the toothed wheels and position the character-carriers, substantially as described.

6. In a game apparatus, a series of character-carriers having a series of characters or symbols adapted to be displayed at a proper sight-opening, and toothed wheels cooperating with said carriers, combined with a series of independent pivoted fingers, one for each carrier; an independent spring for each finger; an actuating device common to all said fingers, which, when moved in one direction will move all said carriers to cause them to engage the toothed wheels and position the character-carriers; and a series of holding devices to lock said fingers in place to hold the character-carriers in registered position, substantially as described.

7. In a game apparatus, a series of character-carriers having a series of characters or symbols adapted to be displayed at a proper sight-opening, a locking device for each carrier and toothed wheels cooperating with said carriers, combined with a series of independent, pivoted, spring-controlled fingers, one for each carrier; an actuating device common to all said fingers, which, when moved in one direction will move all said fingers to cause them to engage the toothed wheels and position the character-carriers; a series of holding devices to lock said fingers in place to hold the character-carriers in registered position; and a releasing device for each of said holding devices, substantially as described.

8. In a game apparatus, a case having a series of sight-openings; a series of character-carriers and attached toothed wheels; a series of spring-controlled fingers or flippers operating independently of each other through independent springs to effect the positioning of said character-carriers to display their characters or symbols at said sight-openings, combined with a series of locking devices, one for each character-carrier by which to lock out of operation any one of said character-carriers while other character-carriers are being spun or rotated, substantially as described.

592,088. HEMSTITCH SEWING-MACHINE. FRIEDRICH GSELAUF and JOHAN G. GSELAUF, Stockborn, Switzerland. Filed Nov. 28, 1893. Serial No. 492,221. (No model.) Patented in Switzerland Sept. 1, 1893, No. 7,281; in France Sept. 16, 1893, No. 233,867; in Belgium Sept. 23, 1893, No. 106,585; in Germany Sept. 30, 1893, No. 76,076, and in England Oct. 4, 1893, No. 18,565.



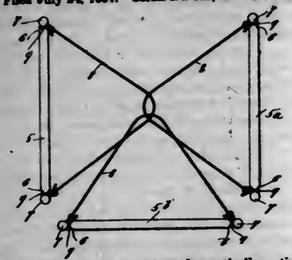
Claim.—1. In a cross-hemstitch sewing-machine, a feeding mechanism, a needle-bar, means for actuating the same to make three reciprocations between successive feeds, combined with a pricker fixed to the lower end of the needle-bar and formed with a pocket for the reception of the needle; an arm pivoted to the lower end of the needle bar and carrying the needle, operative means substantially as shown for holding the needle between the successive feeds against the pricker for the first stitch, away from the pricker for the next stitch and again against the pricker for a third stitch, substantially as described.

2. In a cross-hemstitch sewing-machine, a feeding mechanism, a

needle-bar A, means for actuating the same to make three reciprocations between successive feeds, in combination with two prickers fixed to the lower end of the needle-bar in the line of the feed and provided with pockets for the needles; arms pivoted to the lower end of the needle-bar and carrying the needles, operative means, substantially as shown, for holding the needles between successive feeds against the prickers during the first stitch, away from the same during the second stitch and against the same during the third stitch, substantially as specified.

3. In a cross-hemstitch sewing-machine, a needle-bar A, means for actuating the same to make three reciprocations between successive feeds, in combination with two prickers B B fixed to the lower end of the needle-bar in the line of the feed and provided with pockets *b* for the needles; arms C C pivoted to the lower end of the needle-bar and carrying needles D D, a pinion F on the driving-shaft E of the machine gearing into wheel H, a cam A, rods J J' and connecting-lever M; the rods J J' being connected to the corresponding arms K K attached to the arms C C and actuated by the cam A; two shuttles, and a suitable feed apparatus operated after each third stitch, substantially as described.

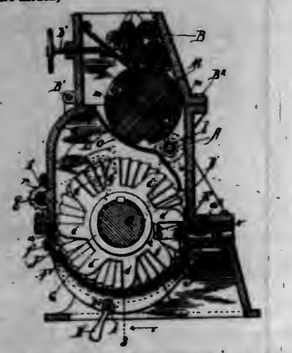
592,089. PUZZLE. WILLIAM J. GILLMAN, Sailors' Snug Harbor, N. Y. Filed July 24, 1897. Serial No. 645,837. (No model.)



Claim.—1. A puzzle comprising three similar sticks, each of which is provided near its end with an annular groove, and three similar cords or strings, one of which is connected with each of said sticks by means of loops formed in the ends thereof, and connected with said annular grooves, said strings or cords being adapted to be connected or interlocked, substantially as shown and described.

2. A puzzle comprising three similar sticks, each of which is provided near the opposite ends thereof, with an annular groove, and three similar strings or cords, the ends of which are provided with loops by means of which they are connected with said sticks, said strings or cords being also formed into loops which are interlocked, substantially as shown and described.

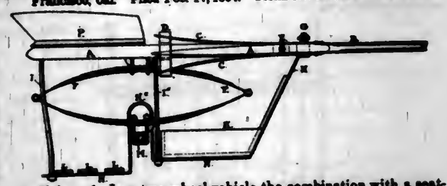
592,090. WOOD-PULP-MAKING MACHINE. JOSEPH J. HARRELL, Chicago, Ill., assignor of three-fourths to Charles H. Abbott and William W. Heaney, Denver, Colo. Filed Dec. 14, 1896. Serial No. 615,674. (No model.)



Claim.—1. In a wood-pulp mill the combination with a plurality of beaters mounted upon a horizontal shaft, a case for inclosing such beaters, and having an enlarged chamber above the beaters to receive the pulp thrown therefrom by centrifugal action, the roof of each chamber being curved to direct the pulp forward in the direction of rotation of the beaters.

2. In a wood-pulp mill the combination with a plurality of rotatable beaters, and a casing for inclosing such beaters of a slotted discharge-screen, the bars of which have their inner faces beveled outwardly in the direction oppositely to the direction of rotation of the beaters.

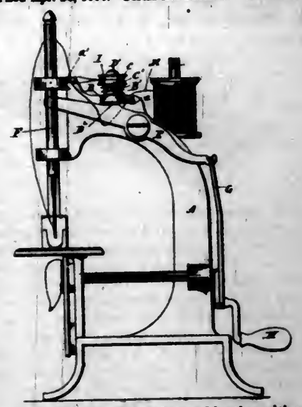
592,091. TWO-WHEELED VEHICLE. MILO P. HOLMES, San Francisco, Cal. Filed Feb. 17, 1897. Serial No. 623,837. (No model.)



Claim.—1. In a two-wheel vehicle the combination with a seat-carrying frame composed of side-bars and front and back bars, and having a whiffletree on the front bar; of shafts attached to the side-bars by pivot-bolts, spring-tongues secured to the rear portion of each shaft, one spring over and the other under the portion of the shaft that extends behind the pivot, a rectangular loop secured to each side-bar and having the free ends of the said springs loosely confined and capable of longitudinal play therein, the said pivot being located between said loop and the points of attachment of the springs to the shaft, as described, to operate as set forth.

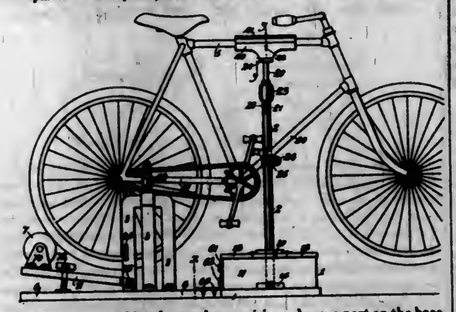
2. In a two-wheel vehicle, the combination, with a seat-frame composed of side-bars and front and rear bars, an axle united to the side-bars by body-springs and a seat mounted on the side-bars of the seat-frame; of boot-carrying irons adapted to support a boot and step under the seat-frame composed of the boot-frame irons each having a slanting member secured to the front bar of the seat-frame, a horizontal member extending rearwardly under the seat-frame and having an upright bow or inverted-U-shaped member over the axle, supporting-rods connected to the rear ends of the boot-frame irons and to the seat-frame, and a boot secured to and supported by said frame-irons, substantially as described for operation as set forth.

592,092. TENSION DEVICE FOR SEWING-MACHINES. ALBERT W. JOHNSON, New Haven, Conn., assignor to J. Wills Downs, same place. Filed Apr. 20, 1896. Serial No. 588,218. (No model.)



Claim.—In a sewing-machine, the combination with a frame having its frame-arm provided with a forwardly-offsetting horizontal flange supporting an upwardly-extending chambered hub, the chamber of which opens downward through the flange, of a vertically-oscillating lever connected at its forward end with the needle-bar of the machine for the operation thereof; and an automatic tension device comprising two friction-disks resting upon the upper end of the said hub, a plunger passing downward through the disks and hub in position to be directly engaged by the upper edge of the forward end of the said lever, which therefore acts directly upon the plunger to automatically operate the same, a heavy spring located within the chamber of the hub, encircling the plunger, and coacting therewith to draw downward upon the plunger and hence draw the two disks together, and a lighter spring encircling the hub and engaged at its upper end with the lower disk which it presses upward to maintain a slight pressure upon the thread passing between the disks when they are relieved of the power of the heavy spring by the lifting of the plunger by the lever which relieves the tension upon the thread between every stitch.

592,093. BICYCLE-TRAINER. SAMUEL H. LAW, Brooklyn, N. Y., assignor to himself, James William Wells, and Harrison G. Law, same place. Filed Apr. 17, 1896. Serial No. 587,949. (No model.)



Claim.—1. A bicycle-stand comprising a base, a post on the base, a clamp mounted on the post and containing a recess conforming to the top tube of a bicycle-frame, the recess being located on one side of the axis of the post, a device on the post adapted to engage the lower forward tube of a bicycle-frame and means for varying the relative positions of said device and said clamp, substantially as shown and described.

2. A bicycle-stand comprising a base, a post on the base, a clamp mounted on the post and containing a recess conforming to the top tube of a bicycle-frame, the recess being located on one side of the axis of the post, a pivoted hook on the post adapted to engage the lower forward tube of a bicycle-frame, and means for securing the clamp at different elevations, substantially as described.

3. A bicycle-stand comprising a base consisting of a box 1, a post supported thereby and located on one side of a vertical plane midway between and parallel to the sides 11 and 12 of the box, the upper part of said post being adapted to turn on its axis, a clamp mounted on the post and containing a recess to receive the top tube of a bicycle-frame, said recess being located on one side of the post and parallel with a line intersecting the axis of the post, whereby the bicycle may be fastened by its top tube in the clamp and suspended in a vertical position over the center of the base, to swing from one position to another by turning the upper part of the post on its axis, substantially as shown and described.

4. A bicycle-support comprising a stand provided with a clamp, adapted and arranged to clamp the top tube of a bicycle-frame, in combination with standards arranged to allow the rear wheel of a bicycle to pass between them and provided with bearing-blocks, containing recesses 84 and adapted and arranged to receive the rear lower braces of the bicycle in the recesses 84, the bearing-blocks extending both under and over the braces, substantially as shown and described.

5. A bicycle-stand comprising a base, a post on the base, a clamp mounted on the post, and a fastening within the clamp whereby the clamp is secured on its support, the fastening being inaccessible when the clamp is closed, substantially as described.

6. A bicycle-stand comprising a base, a clamp containing a bushing 45, a pin projecting from a support on the post and passing through the bushing, and a screw-cap 47 on the pin adapted to press the bushing against the support of the pin, substantially as described.

7. A bicycle-stand comprising a base, a post on the base, a clamp supported by the post and composed of a part 40 and a hinged part 41 and containing a lock 44, and means for fastening the clamp at different elevations, substantially as described.

8. A bicycle-support comprising a base, a post supported thereby, and a clamp carried by said post and containing a recess arranged to clamp the top tube of a bicycle-frame, in combination with standards arranged to allow the rear wheel of the bicycle to pass between them, bearing-blocks carried by said standards and containing recesses 84 and adapted to receive the rear lower braces of a bicycle in the recesses 84, the bearing-blocks extending both under and over the braces, and a bearing-roller arranged to contact with the rear wheel, substantially as shown and described.

9. A bicycle-support comprising a base, standards secured thereto and arranged to allow the rear wheel of a bicycle to pass between them, and adjustable bearing-blocks on said standards containing recesses 84 and arranged to receive the rear lower braces of the frame in the recesses 84, the bearing-blocks extending both under and over the braces, substantially as shown and described.

10. A bicycle-support comprising a base, standards 8 secured on the base, screws 80 fixed in the standards, a nut 81 and bearing-block 82 and nut or screw-cap 83 on each of the screws, and a bearing-roller arranged to make contact with the rear wheel of a bicycle behind the standards, substantially as described.

11. A bicycle-support comprising the base 6, the standards 8 secured on the base, the screws 80 fixed in the standards, the nuts 81 and bearing-blocks 82 and nuts or screw-caps 83 on the screws 80, the arm 71 pivotally connected to the base close to the front end of the arm, the bearing-roller 7 mounted on the rear part of the arm 71, and a set-screw 73 extending from the arm 71 to the base 6, substantially as described.

592,094. OIL-CAN. JOHN LEWIS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Mar. 1, 1897. Serial No. 625,536. (No model.)



Claim.—1. In an oil-can, the combination with the fount thereof, of a longitudinally-movable spout, a guide-pin fitting closely within the spout and forming a guide and a plug therefor, a button located at the lower end of the said pin with which it is rigidly connected, and a button-housing applied to the inner face of the bottom of the fount, and adapted to receive the said button and to permit its lateral movement therein for the accommodation of the pin to any deflections of the spout in the inward and outward movement thereof.

2. In an oiler, the combination with the fount thereof, of a longitudinally-movable or telescopic spout, a guide-pin fitting within the spout, and forming a guide and a plug therefor, a button located at the lower end of said pin, and a disk-shaped box or casing secured to the bottom of the said fount, comprising two sheet-metal shells adapted to receive the said button, and made large enough to permit the same to have lateral movement in it, whereby the pin is loosely connected with the fount.

592,095. DIE FOR MAKING CARTRIDGE-CASES. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed June 28, 1897. Serial No. 642,604. (No model.)



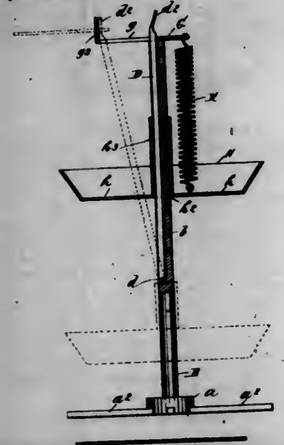
Claim.—A series of dies for forming the heads of that class of cartridge-cases in which the heads thereof are made integral with the body portions thereof, the said series consisting of a primary die having its lower face formed with a centrally arranged, shallow, frusto-conical or flaring recess, and an annular recess concentric therewith, a secondary die, having its lower face formed flat with the exception of a centrally-arranged, shallow, frusto-conical or flaring recess, and a finishing-die having a plain or flat operating-face, the said primary, secondary and finishing dies coacting with a die having a slightly-tapering opening, and a shallow annular recess, and also with a punch which rises into the said opening of the die last mentioned, and the said primary die acting upon the crowning closed end of the cartridge-case blank to form a central frusto-conical boss and a rudimentary bead-like flange, and the said secondary die acting upon the blank-case to flatten down the said flange and the said finishing-die acting upon the blank to flatten down the central frusto-conical boss formed by the primary die, and one or more of the said dies also operating to force the metal of the blank inward into the recess formed in the punch.

592,096. CULINARY DEVICE. THEOPHILUS MATHEW, Detroit, Mich. Filed Feb. 4, 1897. Serial No. 621,918. (No model.)

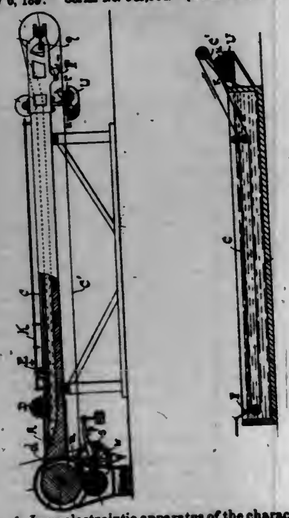
Claim.—1. In a culinary device, the combination of a base, a standard supported thereon, a pan or receptacle provided with a central tube, which is mounted on said standard, and vertically movable thereon, and means for raising said pan or receptacle, on said standard, consisting of a spring which is secured thereto, and to the upper end of the standard, said standard being also provided with a vertical slot at one side thereof, in which is mounted a rod which is pivoted therein, at the lower end thereof, and which is adapted to be swung outwardly so as to hold the pan or receptacle in the depressed or lower position, and means for releasing said rod at predetermined intervals of time substantially as shown and described.

2. In a culinary apparatus, the combination with a suitable base, of a vertical standard secured thereto, and provided with a slot, in

one side thereof which extends from a predetermined point above the base upwardly, the full length of the standard, a rod or arm pivoted in the lower end of said slot said standard being also provided with a pan or receptacle, having a central tube through which the standard and arm are passed, and being also provided with a cross-head at its upper end, to one end of which is secured the end of a spiral spring, the other end of which is secured to the pan or receptacle, and said cross-head being provided at its opposite end with a slot, to which is secured a vertical plate or arm, and said pivoted arm being adapted to be swung outwardly so as to hold the pan in the depressed position, and the end of the pivoted arm and the plate or arm connected with the cross-head being adapted to be connected by a fuse, substantially as shown and described.



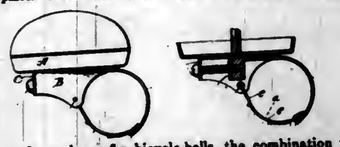
592,097. ELECTROLYTIC APPARATUS. BERNARD MOEBIUS and GUSTAV BEBEL, New York, N. Y.; said Bebel assignor to said Moebius. Filed July 6, 1897. Serial No. 643,504. (No model.)



Claim.—1. In an electrolytic apparatus of the character specified, the combination of a vat for containing the electrolyte; an endless silver-belt; means substantially as described for slowly passing the belt through the vat, out of the vat, and back into the same; and mechanical means for oiling the surface of the belt when out of the bath and after the silver has been scraped off, substantially as described.

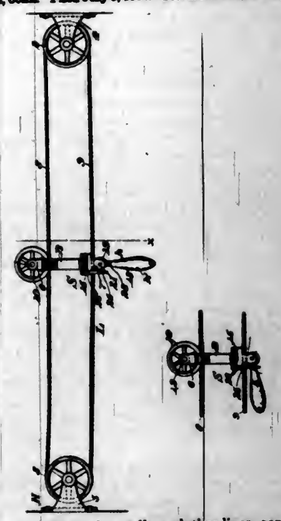
2. In an electrolytic apparatus of the character specified, the combination of a vat for containing the electrolyte; an endless silver-belt; means substantially as described for slowly passing the belt through the vat and returning the same beneath the vat; an oil-tank supported beneath the vat; rolls supported within the oil-tank and bearing against the belt so as to be revolved by the same and to supply oil to the belt; and a roll or scraper for removing the surplus oil, substantially as described.

592,098. CLAMP FOR BICYCLE-BELLS. HERBERT S. PULLMAN, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed June 14, 1897. Serial No. 640,610. (No model.)



Claim.—In a clamp for bicycle-bells, the combination with a housing adapted to be attached to a bicycle-bell, of an inner strap formed at its outer end with an integral inwardly-turned coupling-hook, and provided at its inner end with a nut which is entered into the housing, an adjusting-screw mounted in said housing and entering the said nut, and an outer strap having its inner end permanently connected with the housing, and formed with a series of transversely-arranged slots the lower or outer edges of which are lifted above the plane of the outer face of the strap for the more convenient engagement of the hook with the slots and the better clearance of the hook.

592,099. CLOTHES-LINE SUPPORT. CHARLES L. SCHWALM, New Britain, Conn. Filed July 6, 1897. Serial No. 643,560. (No model.)

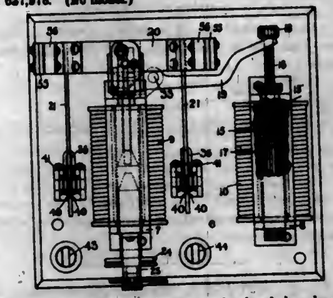


Claim.—1. A support for endless clothes-lines, consisting of a longitudinal body portion bifurcated at its opposite ends; a wheel pivotally supported between the branches of the upper bifurcation; an elastic shoe fitted in a pocket formed by the lower bifurcation; and a locking-lever pivoted between the branches of the lower bifurcation and having a cam-head adapted to cooperate with said shoe.

2. A support for endless clothes-lines, consisting of a longitudinal body portion; a wheel supported at the upper end of the body portion; an elastic shoe fitted in a pocket formed in the lower part of the body portion; a locking-lever pivoted to said body portion and having a weighted handle and also having a cam-head adapted to cooperate with said shoe; and a spring-catch secured to the body portion and furnished with a hook adapted to engage a projection on said handle portion.

3. A support for endless clothes-lines, consisting of a longitudinal body portion bifurcated at its opposite ends and widened near its lower end; a wheel pivotally supported between the branches of the upper bifurcation; an elastic shoe fitted in a pocket formed by the lower bifurcation; a locking-lever provided with a cam-head pivoted between the branches of the lower bifurcation and having a line-receiving notch, the handle of the locking-lever being weighted and furnished with a projection near the cam-head; and a spring-catch secured to said widened portion and having a hook adapted to engage said projection.

592,100. AUTOMATIC MAGNETIC CIRCUIT-BREAKER. WILLIAM M. SCOTT, Philadelphia, Pa., assignor to the Cutter Electrical and Manufacturing Company, of New Jersey. Filed Mar. 17, 1897. Serial No. 627,978. (No model.)



Claim.—1. In an automatic magnetic circuit-breaker the combination with a switch and contacts of a spring adapted to actuate the switch, a latch adapted to restrain the switch against the action of the spring, two coils each provided with a movable core, one core adapted to be actuated by a predetermined magnetic flux to rise in the coil and a pin adapted to communicate the force of the core's movement to the latch to release the switch, the other core adapted to be held within its coil during normal magnetic flux and to fall upon the occurrence of an interrupted or predetermined subnormal magnetic flux and a rod attached to the core, a lever adapted to be actuated thereby and a cam adapted to be actuated by the lever to actuate the latch to release the switch.

2. In an automatic magnetic circuit-breaker the combination with a switch and contacts of springs adapted to actuate the switch, a latch adapted to restrain the switch against the action of the springs, two coils, each provided with a fixed and movable core, one movable core adapted to be actuated by a predetermined magnetic flux to rise in the coil and a pin adapted to communicate the force of the core's movement to the latch to release the switch, the other movable core adapted to be held within its coil during normal magnetic flux and to fall upon the occurrence of an interrupted or predetermined subnormal magnetic flux and a rod attached to the core, a lever adapted to be actuated thereby and a cam adapted to be actuated by the lever to actuate the latch to release the switch.

3. In an automatic magnetic circuit-breaker the combination with a switch and contacts of springs adapted to actuate the switch, a latch adapted to restrain the switch against the action of the springs, a coil provided with a movable core, a rod attached to said core, a lever adapted to actuate and to be actuated by said rod, a cam adapted to actuate and to be actuated by said lever and also adapted to actuate the latch, a resetting-handle pivoted on the switch-arm with limited movement adapted to actuate the cam to actuate the lever to raise the movable core simultaneously with the closing and latching of the switch.

4. In an automatic magnetic circuit-breaker the combination with a switch and contacts of a coil and movable core, a rod attached to the movable core, a lever adapted to engage with the rod to actuate the rod and to be actuated by the rod, a cam adapted to engage with said lever to actuate and to be actuated by said lever, a resetting handle pivoted to the switch-arm adapted to actuate the cam to actuate the lever and a latch adapted to be actuated by said cam upon its being actuated by the movement of the core communicated to it through the rod and lever to release the switch-arm.

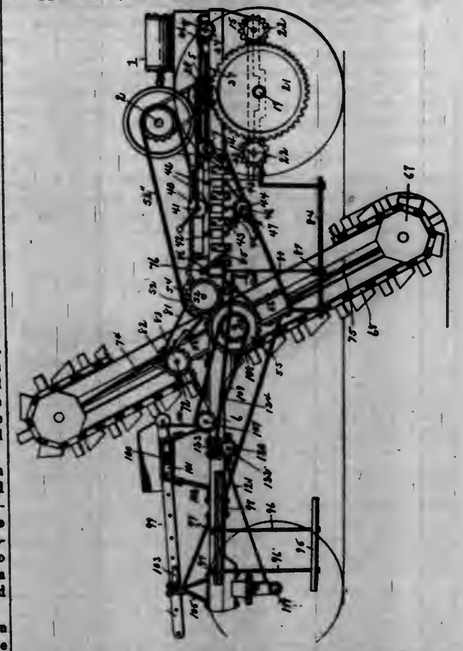
5. In an automatic magnetic circuit-breaker the combination with a switch and contacts of a coil and a core vertically movable therein, said core adapted to be held within the coil during normal flow of current through the coil but to fall by force of gravity upon an interrupted or predetermined below-normal flow, a rod attached to the movable core, a lever adapted to engage with the rod and to be actuated by the rod, a cam adapted to engage with the said lever and to be actuated by it and a latch adapted to restrain the switch and to be actuated by the cam upon the movement of the movable core communicated to it through the rod and lever to release the switch.

6. In an automatic magnetic circuit-breaker the combination with a switch and contacts of a coil having a movable core, switch-arms provided with hubs as means of adequate bearings on their pivots and guards to maintain each arm at a fixed distance from either side of its pivot-leg to afford space for the springs actuating said switch-arms, spring-jaws attached to each of said legs as means of receiving the projecting ends of the switch-arms to check, and stop-plates back of the spring-jaws to finally arrest, the pivotal movement of the switch-arms.

7. In an automatic magnetic circuit-breaker the combination with a switch and contacts of a coil having a fixed and movable core, a latch adapted to engage with the switch, springs adapted to actuate the switch-arms, contact-jaws adapted to receive portions of the switch-arms, an electromagnet and a pivoted armature placed above the latch, said armature adapted upon interrupted or predetermined below-normal flow of current to leave the electromagnet and impinge the latch to actuate it to release the switch, the movable core adapted to be actuated by a predetermined overflow of current, the pin movable through the fixed core adapted to communicate the movement of the movable core to the latch to actuate it to release the switch-arms and drive them from contact.

8. In an automatic magnetic circuit-breaker the combination with a switch and contacts of a coil, a fixed and movable core, an electromagnet and a pivoted armature, a latch adapted to engage with the switch, the pivoted switch-arms and contact-jaws for same, the plate mounted on switch-bridge having a limited movement thereon and having its upper part protruding over the front of the switch-bridge adapted when forced forward by the head in the operation of closing the switch to engage with the armature of electromagnet to force it against the magnet and upon releasing the head the said plate adapted to fall away from the said armature to leave it free upon interrupted or predetermined underflow of current to leave the magnet and impinge the latch to actuate it to release the switch-arms.

592,101. DITCHING-MACHINE. OREN R. SMITH, Athens, Mich. Filed June 26, 1896. Serial No. 596,979. (No model.)



Claim.—1. In a ditching-machine, a frame having an engine supported thereon, a main power-shaft receiving motion from the engine, the rear axle, gear-wheels secured thereto, shafts carrying worm-gears, said shafts receiving motion from the main power-wheel, said worm-gears secured in boxings movable over the gear-wheel upon the rear axle, and means for moving said boxings longitudinally to engage the worm-gear with the gear-wheel or to disengage the same therefrom as desired.

2. In a ditching-machine, a frame supported on front and rear wheels, an engine carried by the frame, a main power-shaft receiving motion from the engine, parallel shafts journaled in boxings secured to the frame receiving motion from the main power-shaft and gear-wheels upon the rear axle, and pinions and worm-gears meshing therewith receiving motion from the parallel shafts heretofore mentioned, clutches upon the parallel shafts, and independent means for operating the same located upon one side of the machine whereby the speed and direction of travel of the machine are regulated.

3. In a ditching-machine, a frame supported upon front and rear

wheels, an engine located thereon, a power-shaft journaled upon the frame receiving motion from the engine, cross-sills, an elevator-frame supported and guided by the cross-sills, a transverse shaft located substantially centrally of the frame longitudinally receiving motion from the said power-shaft, a vertical shaft within the elevator-frame receiving motion from said shaft, transverse shafts at each end of the elevator-frame receiving motion from the vertical shaft, sprocket-wheels located upon each transverse shaft, and a sprocket-chain carried thereby carrying alternate cutters and elevator-buckets and means for adjusting the elevator-frame, and a chain carried thereby vertically.

4. In a ditching-machine, a frame supported upon front and rear axles, transverse sills secured in vertical alinement above and below the frame and at an angle thereto, antifriction-rollers secured to the cross-sills upon each side thereof, an elevator-frame consisting of longitudinal side sections having guide-strips secured thereto for engagement with the antifriction-rollers upon the transverse sills, and means for adjusting the frame vertically, a sprocket-chain carried by the elevator-frame, and alternate cutters and elevator-buckets secured thereon.

5. In a ditching-machine, a frame mounted upon front and rear wheels, an engine, a transverse shaft 107 receiving power from the engine, a crank located centrally of said shaft, a boxing secured upon said crank, a carrier supported above the frame upon transverse supports and movable laterally upon said supports, rollers located along the length of the carrier, a belt running over said rollers, the shaft of the roller at one end having disks upon the outer end of the same, pitmen connecting said disks and the boxing upon the crank of the shaft, whereby motion is imparted to said shaft and said carrier-belt.

6. In a ditching-machine, a frame mounted upon front and rear wheels, an engine located upon the frame, an elevator-frame, digger-chain carried thereby and receiving motion from the engine, cutting-knives and elevator-buckets secured upon a base projecting in front and rear thereof respectively, the knives and buckets being arranged alternately upon the longer links, the base thereof projecting to engage the succeeding base whereby tipping of the knife or bucket is prevented.

592,102. GAS GENERATOR AND BURNER. ORRIN P. TALLEY, Chicago, Ill., assignor of two-thirds to Henry T. Spivey and Robert B. Spivey, same place. Filed May 19, 1897. Serial No. 637,203. (No model.)



Claim.—1. In a vapor-burner the combination with a chambered generating-plate and a burner below such plate and in communication with its chamber, and a rotatable casing attached to the under side of the plate and inclosing the burner and having a lateral opening.

2. The combination with a cylindrical vapor-burner having its discharge orifices above its lower side, of a relatively rotatable member within the burner and having a rib longitudinal as to the burner and in frictional contact with the inner surface thereof.

3. In a burner the combination with a tube having an open end and lateral apertures, of a cap having its closed end transversely slotted and being adapted to fit upon the end of the tube to cover its lateral apertures and having longitudinal slots for the purpose specified.

4. The combination with a vapor-generator, and burner below and in communication with the generator, of a rotatable spindle extending downwardly through the generator and controllable from above, and a laterally-apertured casing inclosing the burner and carried by and rotatable with the spindle.

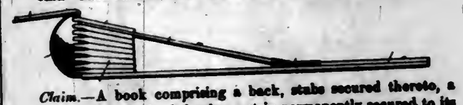
5. In a vapor-generator and burner the combination with a plate having a generating-chamber, a burner below the plate and in communication with its chamber, a rotatable spindle extending downwardly through the center of the plate, a case for inclosing the burner and having a lateral aperture, such case being carried by and rotatable with the spindle.

6. In a vapor-generator and burner the combination with a plate having a generating-chamber, a burner below the plate and in communication with its chamber, a rotatable spindle extending downwardly through the center of the plate and having its upper end adapted to receive a wrench, a case for inclosing the burner and having a lateral aperture, such case being carried by and rotatable with the spindle.

7. The combination with a generating-plate, a burner below the plate and a rotatable case for inclosing the burner, of a finger secured to the case and projecting inwardly toward its axis and being adapted to sweep the bottom of the plate.

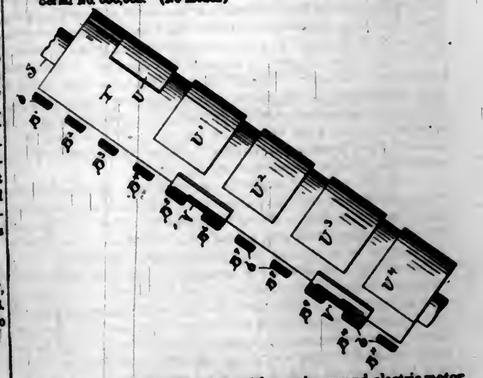
8. In a burner the combination with a tube having lateral apertures, of a cap adapted to fit upon the end of the tube to cover its lateral apertures and having longitudinal slots for the purpose specified.

592,103. SCRAP OR STUB BOOK. ANDREW L. WEIR, Toledo, Ohio. Filed June 30, 1896. Serial No. 597,267. (No model.)



Claim.—A book comprising a back, stubs secured thereto, a cover secured to the back having a strip permanently secured to its inner surface near the margin thereof, and parallel to the stubs, a supplemental strip hinged to the inner edge of the stationary strip whereby it is adapted to be entered between the stubs to support the same when the covers are open.

592,104. CONTROLLER. THORSTEN VON ZWEIGBERGK, Cleveland, Ohio, assignor to the Walker Company, same place. Filed Apr. 3, 1897. Serial No. 630,602. (No model.)



Claim.—1. The combination, with a series-wound electric motor and a controller adapted to entirely open the circuit through the field of the motor, of means for short-circuiting said field just after but not until after said controller has so opened said circuit, substantially as described.

2. The combination with an electric motor and a controller adapted to entirely open the circuit through the field of said motor, of means for short-circuiting said field while leaving the armature-circuit open just after but not until after said controller has so opened said circuit, substantially as described.

3. In a controller, in combination, contact-fingers B^2 and B^3 and contact-plates U' and U^3 and V disposed substantially as shown, whereby the inside distance between the plates U' and U^3 is less than the outside distance between the fingers B^2 and B^3 and the distance between the plate V and the plates U' and U^3 is just a little greater than the width of the said contact-fingers, substantially as described

4. In a controller, a pair of contact-plates electrically separated from each other, a pair of contact-fingers adapted to contact one with one of said plates and the other with the other of said plates, an electric conductor distant from each of said plates a distance just a little greater than the width of the contacting face of said contact-fingers, said contact-fingers being both adapted to contact with said conductor and thereby become electrically connected, substantially as described.

5. In a controller, in combination, a pair of contact-fingers forming the terminals of a field-coil, a pair of contact-plates adapted to connect said fingers with a source of electric energy, whereby an electric current may flow through the coil, means for breaking the contact between said fingers and plates and means for connecting said fingers together just after but not until after said contact is broken, substantially as described.

6. In a controller, in combination, a pair of contact-fingers forming the terminals of a field-coil, a pair of contact-plates adapted to connect said fingers with a source of electric energy, whereby an electric current may flow through the coil, and a contact-plate adapted to connect said contact-fingers directly together and thereby short-circuit the said field-coil, the distance between said last-mentioned plate and said first-mentioned pair of plates being a little more than the width of the contacting face of said contact-fingers, substantially as described.

7. In a controller, in combination, contact-fingers forming terminals of the fields and armatures of a pair of motors, two series of contact-plates adapted to engage said fingers, one series operating to connect the motors in series and the other in parallel, and short-circuiting plates adapted to short-circuit the fields of the motors and located substantially midway between the proximate edges of said two series of first-mentioned plates, substantially as described.

8. In a controller for an electric motor, a pair of contact-fingers forming terminals of a field-coil, contact-plates adapted to contact with said fingers when the controller is in running positions and thereby establish the line-circuit through said coil, and a contact-plate adapted to connect together said pair of contact-fingers when the controller is in the off position, substantially as described and for the purpose specified.

592,105. MATCH-SAFE. ADOS RAMUS, Detroit, Mich., assignor to James Gamble and John M. Brewer, same place. Filed Aug. 31, 1896. Serial No. 604,304. (No model.)



Claim.—1. In a match-safe, the combination of the frame and delivery-roll provided with a longitudinal groove, said roll provided with a series of annular ribs, and a movable front adapted to act as a drag over the roll, said front provided with teeth or ribs adapted to enter between the annular ribs of the roll C, substantially as described.

2. In a match-safe, the combination of the frame, a delivery-roll provided with a longitudinal groove, said roll made thicker in front of the groove and provided with a series of annular ribs on the thickened portion, and a movable front to act as a drag over the roll, substantially as described.

3. In a match-safe, the combination of the frame, a delivery-roll provided with a longitudinal groove mounted in the frame, an inclined bottom forming a step for the matches back of the roll a false bottom pivoted in the frame and extending beyond the true bottom over the roll, substantially as described.

4. In a match-safe, the combination of the frame, a delivery-roll provided with a longitudinal groove, a series of annular ribs in front of the groove, a movable front having teeth to act as a drag over the roll, said front provided with lugs extending outward from the lower edge of the front and provided with beveled lower surfaces, substantially as described.

592,106. COMBINED CIGAR CLIPPER AND REGISTER. THOMAS A. COLE, Indianapolis, Ind., assignor to Miss Keller and Calvin L. Holwell, same place. Filed Feb. 6, 1897. Serial No. 622,594. (No model.)



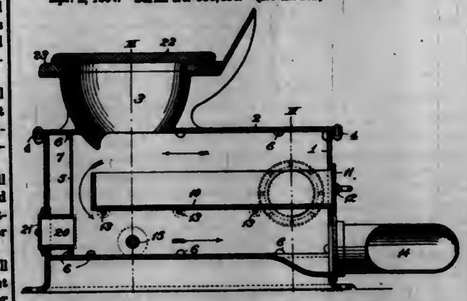
Claim.—1. A combined cigar clipper and register having a sliding cutter or knife normally held against forward movement by means of a spring-plate; a spring-plate adapted to be depressed by the tip of a cigar; an operating-lever for sliding the knife forward to clip the cigar-tips when said lever is depressed, and at the same time actuate the registering mechanism; a registering mechanism consisting of a ratchet-wheel, operating-wheels provided with friction-lugs, friction-wheels and registering-wheels having numerals upon their peripheries, and one of said operating-wheels in turn sounding an alarm when a certain predetermined number of cigars have been clipped, substantially as set forth.

2. A combined cigar clipper and register consisting of a case A, having a slot D, in one end, and a drawer C, in the other, and having register-openings c, and c', and a removable plate F, in the top thereof, said plate having two circular openings b; a cigar clipping mechanism consisting of the knife h, the guides i, the spring-plate k, and lever l; a registering mechanism mounted in frames G, consisting of journals d, d', and d'', a ratchet-wheel e, operating-wheels f, and f', having friction-lugs v, and v', friction-wheels g, and g', registering-wheels H, and H'; an alarm device consisting of a bell r, and a striker s, actuated by a pin t, upon the operating-wheel f, and spring u; and an operating mechanism consisting of a lever E, mounted upon the journal d, having a spring-dog n, secured thereto, said lever held normally in a raised position by means of the coil-spring o, all substantially as shown and described.

3. In a combined cigar clipper and register, the combination of the case A, having a removable plate F, provided with circular openings b, the register-openings c, and c', the drawer C, and the slot D, with the cigar-clipping mechanism adapted to be released by placing the cigar-tip within one of the openings b, in the case, and to be operated by the lever E, the operating-lever E, and the registering mechanism operated by a spring-dog secured to the lever E, all substantially as shown and described.

4. In a combined cigar clipper and register, the combination of the operating and clipping mechanism consisting of the lever E, the coil-spring o, the spring-dog n, the lever l, the knife h, having the ears z, the guides i, and the spring-plate k, having the lug y, with the registering and alarm devices consisting of the ratchet-wheel e, and the operating-wheel f, having the friction-lug v, both mounted on the journal d; the friction-wheel g, the operating-wheel f', having the friction-lug v', and the register-wheel H, all mounted on the journal d'; the friction-wheel g', and the register-wheel H', both mounted on the journal d''; the bell r, and the striker s, actuated by the spring u, and the pin t, upon the operating-wheel f, substantially as set forth.

592,107. DRY CLOSET. FRANK J. CURTIS, Ben Avon, Pa. Filed Apr. 2, 1897. Serial No. 630,411. (No model.)



Claim.—1. In a dry closet, the combination, of a chamber, a removable pan or receptacle so arranged in said chamber as to divide the chamber into two compartments, one of the dimensions of the pan being less than the corresponding dimension of the chamber thereby forming a passage connecting the two compartments, a port arranged to admit air into the compartment above the pan, an outlet connected to the compartment below the pan, and a gas-burner arranged below the pan, substantially as set forth.

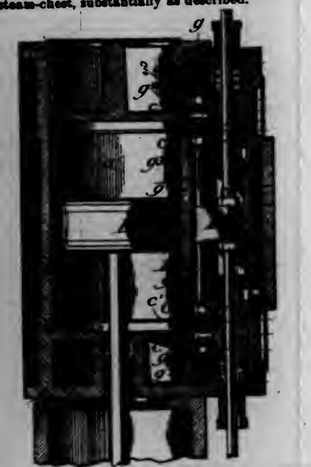
2. In a dry closet, the combination of a shell, a casing so arranged within the shell as to form a passage around the casing, a pan or receptacle arranged within the casing, and dividing the chamber formed by the casing into two connected compartments, the compartment above the pan being connected to said passage and the compartment below the pan being connected to an outlet-pipe, and a gas-burner arranged below the pan, substantially as set forth.

3. In a dry closet, the combination of a shell, a casing arranged within the shell so as to form a passage around the casing, a removable pan or drawer so supported within the chamber formed by the casing as to divide it into two connected compartments, the upper compartment being connected to the passage and the lower compartment being connected to an uptake, and a burner so arranged below the pan that air flowing over the latter will pass through the flame, substantially as set forth.

592,108. FLUID-PRESSURE ENGINE. FRED P. FISHER, Chicago, Ill. Filed Dec. 11, 1896. Serial No. 615,275. (No model.)

Claim.—1. An engine provided with a cylinder having a movable piston located therein, inlet and outlet openings in the cylindrical chamber, one located at each end, slide-valves arranged on seats immediately adjacent to the cylindrical chamber and connected together, an actuating-rod arranged outside of the valves and parallel therewith and connected with a movable part of the engine, both rods arranged within the steam-chest and a spanner or equivalent mechanism connecting the actuating-rod with the operating-valves, substantially as described.

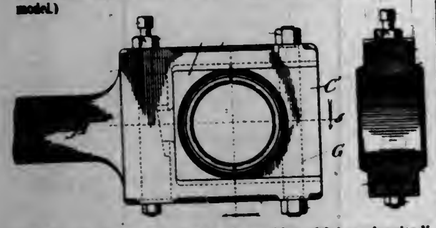
2. An engine provided with a cylinder having a piston movably-mounted therein, and inlet-openings to the cylinder-chamber, one located at each end thereof, slide-valves movably mounted upon the seat portions immediately adjacent to the cylindrical chamber, adapted to cover and uncover the openings to such chamber, a valve-rod adjustably securing such valves together, an actuating-rod arranged outside of the valve-rod and parallel therewith, and a spanner or equivalent mechanism connecting the valve and actuating-rods, all arranged withia the steam-chest, substantially as described.



3. An engine provided with a cylinder having a piston movably mounted therein and provided with openings for the piston-chamber, one at each end thereof, slide-valves movably mounted on the seat portions immediately adjacent to the piston-chamber and on the walls thereof, a valve-rod adjustably securing the valves together, an actuating-rod arranged outside of the valve-rod parallel therewith and connected with a movable part of the engine, both of such rods arranged within the steam-chest and a spanner or equivalent mechanism adjustably securing the valve and actuating-rods together, whereby the valves may be adjusted simultaneously or independently, substantially as described.

4. An engine provided with a cylinder having a piston movably mounted therein and provided with openings in the piston or operating chamber, one located at each end thereof, slide-valves mounted upon the walls of the piston or operating chamber immediately adjacent to such chamber, so as to cover and uncover the inlet and exhaust openings, a rod adjustably securing the valves together, a pressure-plate arranged outside the valves and separating the live-pressure chamber from the exhaust-chamber and adapted to be held by fluid-pressure against the valves and seat, an actuating-rod passed through the pressure-plate, stuffing-boxes to seal the opening in the pressure-plate in which the actuating-rod operates, and a spanner or equivalent mechanism adjustably connecting the valve and actuating-rods together, substantially as described.

592,109. CONNECTING-ROD END FOR ENGINES. Fred F. Fischer, Chicago, Ill. Filed Dec. 11, 1896. Serial No. 615,276. (No model.)



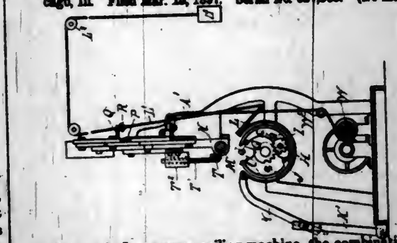
Claim.—1. A connecting-rod end, provided with inner longitudinally parallel cylindrical surfaces, brasses located therein and provided with outer corresponding cylindrical surfaces, and means for securing the parts together, substantially as described.

2. A forked connecting-rod end made in one integral portion, the forks of which are provided with inner substantially longitudinally parallel cylindrical surfaces, brasses located therein and provided with outer corresponding cylindrical surfaces where they fit the forked ends, and means for securing the parts together, substantially as described.

3. A forked connecting-rod end made in one integral piece, the forks of which are provided with inner substantially longitudinally parallel cylindrical surfaces to fit the brasses, and a transverse cylindrical opening for an adjusting-plug, brasses provided with outer substantially longitudinally parallel cylindrical surfaces to fit the forked ends, a cylindrical adjusting-plug in the transverse opening, means for securing the brasses and forked ends together and means for adjustably operating and holding the cylindrical plug in its different positions, substantially as described.

4. A forked connecting-rod end made in one integral piece, the forks of which are provided with substantially longitudinally parallel cylindrical inner surfaces and the body portion of which is provided with a transverse cylindrical opening, a pair of brasses provided with substantially longitudinally parallel cylindrical outer surfaces to fit the forked ends, a cylindrical boss or projection for one of such brasses, means for holding the brasses in position, a cylindrical adjusting-plug in the transverse opening of the forked end arranged to contact the cylindrical projecting boss of the brasses, and screw mechanism for operating such plug and holding it in its various positions, substantially as described.

592,110. VENEER-COILING MACHINE. George A. Gage, Chicago, Ill. Filed Mar. 15, 1897. Serial No. 627,563. (No model.)



Claim.—1. In a veneer-coiling machine, the combination with a collapsible winding-drum, a flexible surrounding sheath therefor, and a presser-roll of mechanism for simultaneously actuating said roll and sheath to apply pressure to the work when coiling, and to release the same.

2. In a veneer-coiling machine, a collapsible winding-drum, comprising a shaft, a segment fixedly secured thereto a movable segment hinged to said fixed segment, gear-segments hinged on said shaft carrying cams, pressing against bearings on said movable segments, a shaft journaled within said drum, gear-segments thereon meshing with the gear-segments on the main shafts and an operating-handle on said second shaft extending out from the drum.

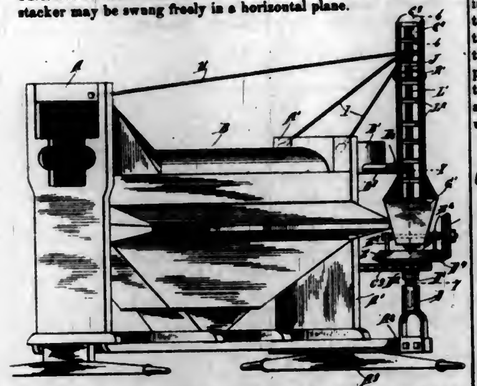
3. In a veneer-coiling machine, the combination with a frame, a collapsible winding-drum journaled therein, and a surrounding sheath therefor, of a frame vertically, slidingly secured to said main frame above said drum, having a presser-roll journaled therein, a weighted lever for depressing said sliding frame and roll, a weight for contracting said sheath around said drum, and power-actuated mechanism for simultaneously lifting said weights.

4. In a veneer-coiling machine, the combination with a frame, a collapsible winding-drum journaled therein, and a surrounding sheath therefor, of a frame, vertically, slidingly secured to said main frame above said drum having a presser-roll journaled therein, means for raising and lowering said sliding frame, a presser-bar beside said presser-roll slidingly secured to said sliding frame, springs for normally raising said presser-bar and a lever for depressing the same.

5. In a veneer-coiling machine, the combination with a frame, a collapsible winding-drum journaled therein, and a surrounding sheath therefor, of a frame vertically, slidingly secured to said main frame above said drum, having a presser-roll journaled therein, a weighted lever for depressing said sliding frame, a weight for contracting said sheath around said drum, a power-driven winding-drum, a starting and stopping lever therefor, and a flexible connection secured to said drum adapted when wound thereon to lift said weights.

592,111. CORN-SHELLER COB-STACKER. John H. Gilman, Ottawa, Ill., assignor to the King & Hamilton Company, same place. Filed Mar. 3, 1897. Serial No. 625,822. (No model.)

Claim.—1. The combination of the cap E rotatably mounted on the vertical post D′ and carrying the shaft F journaled therein, with the stacker G pivotally mounted at its lower end upon said shaft, the tie-rod A and struts I forming a point of support vertically over the post D′, and means including the pivoted hook H³ connecting the outer end of the stacker with the said point of support whereby the stacker may be swung freely in a horizontal plane.



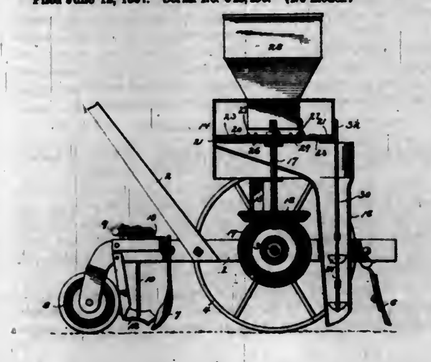
2. The combination of the cap E rotatably mounted on the vertical post D′ and carrying the shaft F journaled therein, with the stacker G pivotally mounted at its lower end upon said shaft, the tie-rod H and struts I forming a point of support vertically over the post D′, the pivoted hook H³ mounted upon said point of support, and means for connecting the upper end of the cob-stacker with the said hook, comprising the chain J adapted to be secured at any desired link to the hook H³.

3. The combination of the cap E rotatably mounted on the vertical post D′ and carrying the shaft F journaled therein, with the stacker G pivotally mounted at its lower end upon said shaft, the tie-rod H secured to the rear of the corn-sheller frame, terminating in a bracket H′, the struts I secured to the forward portion of the corn-sheller frame and connected with the bracket H′, the hook H³ pivotally mounted upon the said bracket at a point vertically over the post D′, and means for connecting the said hook H³ with the outer end of the stacker, comprising a chain J adapted to be hooked at any desired link to the hook H³.

4. In a cob-stacker, the sprocket-wheel journaled at the lower end thereof; the endless conveyer comprising the shovels L³ and sprocket-chain L′, adapted to be driven from the said sprocket-wheel; the roller L⁴, over which the said conveyer passes, mounted at the upper end of the cob-stacker; the idle-pinion M³ mounted in the arms M, pivoted to the cob-stacker beneath the same; and adjustable tension mechanism connecting the said arms with the cob-stacker and adapted to force the pinion M³ yieldingly outward and downward against the said sprocket-chain.

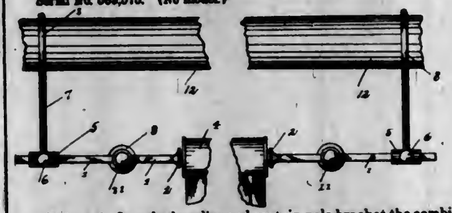
5. In a cob-stacker, the sprocket-wheel journaled at the lower end thereof; the endless conveyer comprising the shovels L³ and sprocket-chain L′, adapted to be driven from the said sprocket-wheel; the roller L⁴, over which the said conveyer passes, mounted at the upper end of the cob-stacker; arms M pivoted to the cob-stacker, provided with a cross-piece M²; the idle-pinion M³ mounted in the lower ends of the said arms; the contracting spring M⁴, at one end connected to the cross-piece M²; and a chain M⁵ at one end connected to the spring M⁴, at its other end hooked at any given link to the hook M⁶ mounted upon the cob-stacker.

592,112. SEED-PLANTER. Martin Harmon, Bloomington, Ill. Filed June 12, 1897. Serial No. 640,458. (No model.)



Claim.—In a seed-planter, the combination with a seedbox, having an inclined bottom and the seed-spout, and the removable scatterer or agitator located in said spout, of the vertical rotatable shaft, the seed-plate secured thereto, having radially-disposed seed-openings therein, the plate secured to the under side of the seed-plate, the plates interposed between said plate and the seed-plate, the projections thereon, the movable seed-slides located in said seed-openings, and formed with slots with which said projections engage, and provided with projections at the inner ends, substantially as described.

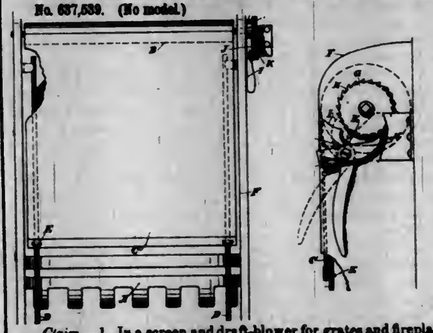
592,118. COMBINED CURTAIN-POLE AND SHADE-ROLLER BRACKET. Wesley C. Hosmer, Columbus, Ohio. Filed Apr. 29, 1896. Serial No. 589,575. (No model.)



Claim.—1. In a shade-roller and curtain-pole bracket the combination with the rod or bar 1 and an adjustable fastening-arm 9 mounted thereon, of an adjustable sleeve 5 mounted on said bar, a pole-supporting arm 7 extending from said sleeve and an arm 13 adjustably connected with the inner end of said bar 1 and a shade-roller-holding socket or projection on the outer end of said arm 13, substantially as and for the purpose specified.

2. The combination of a shade-roller bracket provided with a screw rigidly attached to its end, the sleeves, the extension-shafts, the pole-brackets and the drapery-pole held in place by the brackets substantially as described.

592,114. ADJUSTABLE FIRE-DRAFT BLOWER AND SCREEN. Percy W. Hurndall, San Francisco, Cal. Filed May 21, 1897. Serial No. 637,539. (No model.)

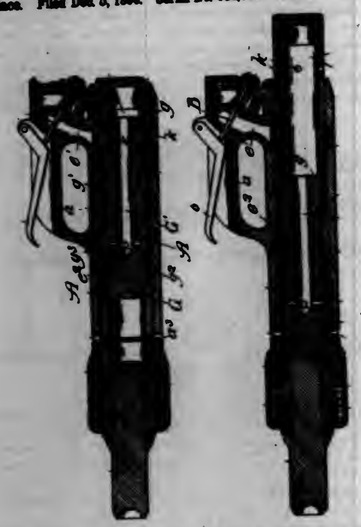


Claim.—1. In a screen and draft-blower for grates and fireplaces, the combination with a spring-actuated roller and a curtain, of a means for holding the curtain and controlling the coiling of the same, consisting of a ratchet-wheel on the axis of the roller, a pawl to engage said wheel and a fulcrumed brake-lever to control the roller, said lever provided with means for engaging and releasing the pawl from its engagement with the ratchet-wheel simultaneously with the application of the brake.

2. The combination with a spring-actuated roller and its curtain, of a means for controlling the coiling of the curtain consisting of a pawl-and-ratchet mechanism and a brake-lever having a part to retard the rotation of the roller and having a second part to engage and release the pawl from its ratchet, whereby the locking devices are released by the brake-lever simultaneously with the application of the brake to the roller.

3. A flexible non-inflammable screen and a spring-actuated roller upon which it is coiled, in combination with a pawl-and-ratchet mechanism whereby the screen is held at any desired point, a lever fulcrumed concentrically with the pawl having a pin projecting therefrom, a spur upon the pawl with which the lever-pin engages when the lever is moved about its fulcrum whereby the pawl is disengaged from the ratchet, a disk fixed upon the roller-shaft by the side of the ratchet-wheel and adapted to be engaged by the inner end of the actuating-lever when the pawl is disengaged whereby the movement of the screen is controlled.

592,115. FLUID-PRESSURE MACHINE. Charles H. Johnson, Springfield, Ill., assignor of one-half to William Barret Ridgely, same place. Filed Dec. 5, 1896. Serial No. 614,559. (No model.)



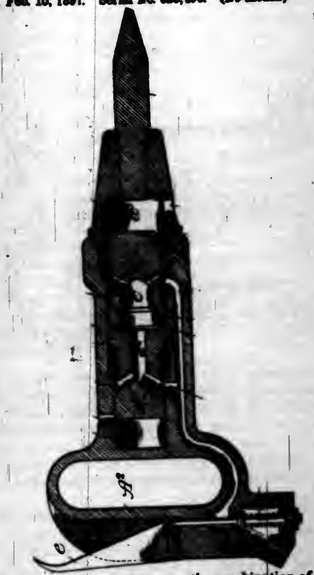
Claim.—1. In mechanisms of the class described, the combination of a casing provided with a cylindrical chamber, a reciprocating cylinder mounted therein having one end closed and providing an annular fluid-pressure chamber between it and the casing to drive it in one direction, and a reciprocating piston mounted in the open end of said cylinder so as to provide a second annular pressure-chamber between it and the cylinder and provided with a longitudinal passage therethrough to furnish communication with the annular chamber and the space between the inner end of the piston and cylinder so as to furnish fluid-pressure to drive the piston in one and the cylinder in an opposite direction, substantially as described.

2. In mechanisms of the class described, the combination of a casing provided with a longitudinal cylindrical chamber, a cylindrical tool-holder yieldingly mounted in one end of the casing, a tool in said holder, a reciprocating cylinder mounted in the casing so as to contact the tool-holder at one limit of its motion, a piston-hammer reciprocatingly mounted in the cylinder and arranged to contact the tool at one limit of its motion and means for furnishing fluid-pressure to the parts so as to operate the same and alternately drive them so as to contact the tool-holder and the tool alternately, substantially as described.

3. In mechanisms of the class described, the combination of a casing provided with a longitudinal cylindrical chamber, a cylindrical tool-holder yieldingly mounted in said chamber at one end of the casing, a tool in said tool-holder, a reciprocating cylinder mounted in the chamber of the casing and arranged to contact such tool-holder at one limit of its motion and providing an annular fluid-pressure chamber between it and the casing, a piston-hammer reciprocatingly mounted in said cylinder arranged to contact the tool at one limit of its motion providing between it and the cylinder an annular pressure-chamber and provided with a longitudinal opening or passage to alternately admit the exhaust fluid-pressure between the end of the piston and the end of the cylinder to assist the reciprocation of the parts, and means for furnishing fluid-pressure so as to operate the parts to contact the tool and holder alternately, substantially as described.

4. In mechanisms of the class described, the combination of a casing provided with a cylindrical chamber, a reciprocating cylinder mounted therein having one end closed and provided with an annular fluid-pressure chamber between it and the casing to drive it in one direction, and with pressure-inlet openings g^5 at one end and exhaust-openings K at or near the opposite end; and a reciprocating piston mounted in the open end of said cylinder so as to provide a second annular pressure-chamber between it and the cylinder and connected with the inlet-opening g^5 and providing a second pressure-chamber between it and the cylinder and provided with a longitudinal passage through the piston to furnish communication with the annular chamber and space between the inner end of the piston and the closed end of the cylinder with the exhaust-openings near the forward end of the piston, substantially as described.

592,116. PNEUMATIC HAMMER. Charles H. Johnson, Springfield, Ill., assignor of one-half to William Barret Ridgely, same place. Filed Feb. 15, 1897. Serial No. 623,496. (No model.)



Claim.—1. In a piston-hammer, the combination of a casing provided with a longitudinal bore and fluid-pressure inlets and outlets, a reciprocating piston-hammer mounted in one end of the bore and provided with a headed portion at its inner end so as to provide an annular chamber between it and the casing and with a longitudinal passage to admit pressure and exhaust it from the interior, a movable counterbalancing-plunger arranged in the longitudinal bore of the cylinder-casing at the opposite end and provided with a headed portion at its inner end to form an annular passage between it and the casing, substantially as described.

2. In a piston-hammer, the combination of a casing provided with a longitudinal bore and fluid-pressure inlets and outlets, a reciprocating piston-hammer mounted in one end of the bore and provided with a headed portion at its inner end so as to provide an annular chamber between it and the casing and with a longitudinal passage to admit pressure and exhaust it from the interior, a movable counterbalancing-plunger arranged in the longitudinal bore of the cylinder-casing at the opposite end and provided with a headed portion at its inner end to form an annular pressure-chamber between it and the casing and a longitudinal passage to admit fluid-pressure to the interior of the chamber between it and the piston-hammer so as to move the parts in an opposite manner, substantially as described.

3. In a pneumatic hammer, the combination of a casing provided with a longitudinal bore and fluid-pressure inlets and outlets, a reciprocating piston-hammer arranged in one end of the bore having a headed inner portion to provide a constant fluid-pressure chamber which communicates with the fluid-pressure inlet and a longitudinal passage to alternately admit pressure to and exhaust it from the rear of the hammer, and a reciprocating counterbalancing-plunger arranged end to end with the hammer and having an inner headed portion to provide an annular pressure-chamber and with a longitudinal passage for admitting and exhausting fluid-pressure to and from the space between it and the hammer both of such the chamber and passage being arranged to be alternately connected and disconnected with the fluid-pressure inlet, substantially as described.

592,117. FIREPROOF FLOOR. Robert A. Kinkele, Stapleton, N. Y. Filed Feb. 27, 1897. Serial No. 626,262. (No model.)

Claim.—1. A fireproof floor, consisting of a series of skewbacks or blocks, a series of ceiling-blocks supported by and between the same, and a series of floor-blocks, arranged to alternate with the skewbacks and ceiling-blocks, and being normally supported from the ends, by the skewbacks, whereby the normal load is transferred directly to the skewbacks, substantially as set forth.

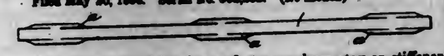
2. A fireproof floor, consisting of flanged supporting-beams, recessed skewbacks or blocks, the recesses of which receive the flanges of the beams, a series of ceiling-blocks supported by and between the skewbacks, and a series of floor-blocks, arranged to alternate with the skewbacks and ceiling-blocks, and being normally supported from the ends, by the skewbacks, substantially as set forth.



3. A fireproof floor, consisting of a series of skewbacks or blocks, a series of ceiling-blocks supported by and between the same, and a series of floor-blocks, arranged to alternate with the skewbacks and ceiling-blocks, said floor-blocks having approximately parallel sides at their upper parts and converging under sides, substantially as set forth.

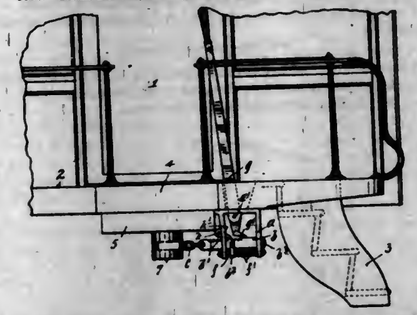
4. A fireproof floor, consisting of a series of skewbacks or blocks, and a series of floor-blocks arranged to alternate with the skewbacks, and the meeting surfaces of the skewbacks and floor-blocks converging, so that the floor-blocks are normally supported from the ends, by the skewbacks, whereby the normal load is transferred directly to the skewbacks, substantially as set forth.

592,118. DRESS-STAY. William H. Lauenstein, Owosso, Mich. Filed May 20, 1896. Serial No. 592,262. (No model.)



Claim.—As an article of manufacture, a dress stay or stiffener made of sheet-steel having parallel sides and oppositely-disposed side extensions partly cut from the body of the plate by longitudinal incisions forming extensions of the side lines of the stay to provide fastening-prongs which are turned up from the body of the plate, substantially as described.

592,119. UNCOUPLING DEVICE FOR COACH DRAW-BARS. Adam L. Moeller, Minneapolis, Minn. Original application filed Apr. 3, 1897, Serial No. 630,548. Divided and this application filed Aug. 6, 1897. Serial No. 647,162. (No model.)



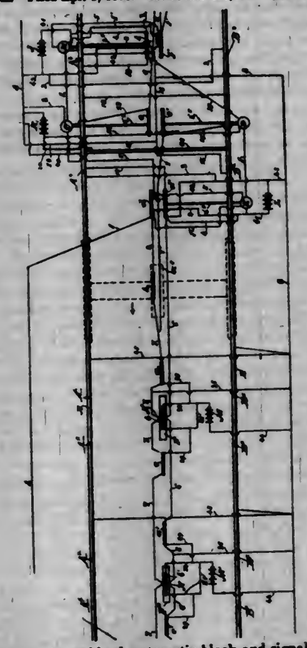
Claim.—1. The combination with a coupler, of an uncoupling device for the same, involving a ratchet-rack or reciprocating plunger with ratchet-teeth, a retaining-pawl normally holding said ratchet-rack from return movement, and a pawl-lever operating, under normal strokes, to move said ratchet-rack, and operative by an extreme movement, to release said retaining-pawl, substantially as described.

2. The combination with a coupler, of an uncoupling device for the same, involving a ratchet-rack or reciprocating plunger with ratchet-teeth, a retaining-pawl normally holding said ratchet-rack from return movement, and a pawl-lever, operating, under normal strokes, to move said ratchet-rack, and operative to release said retaining-pawl, by an extreme movement of the lower end of the same in the direction of the ratchet-rack's releasing movement, substantially as described.

3. The combination with a coupler, of an uncoupling device for the same, involving a toothed ratchet-body, a retaining-pawl normally holding said ratchet-body from return movement, and a pawl-lever, operative to move said ratchet-body under normal strokes, and operative by an extreme movement, to release said retaining-pawl and its own pawl-acting portion, from engagement with said ratchet-body, to release said body, substantially as described.

4. The combination with a coupler, of an uncoupling device for the same, involving a ratchet-rack, a retaining-pawl normally holding said ratchet-rack from return movement and provided with a projecting lug, and a pawl-lever provided at its lower end with a driving-pawl for cooperation with said ratchet-rack, the hub of which driving-pawl is formed-angular or flattened and is adapted to be engaged with the projecting leg of said retaining-pawl, by an extreme movement of said pawl-lever, thereby releasing both of said pawls, substantially as described.

592,120. COMBINED AUTOMATIC BLOCK AND SIGNAL SYSTEM AND BRAKE AUTOMATIC APPLIANCE. James G. Pearce, Oakland, Cal. Filed Apr. 3, 1893. Serial No. 466,891. (No model.)



Claim.—1. A combined automatic block and signal system and brake automatic appliance, comprising a series of depression-levers situated near the station, with electrical wires connected therewith, an indicator at the station from which the train is departing, so connected with a lever that its depression by the passing train operates an adjacent signal and returns the first-named signal to "safety," a second lever succeeding the first one and electrically connected with signals at the succeeding station whereby the depression of the second lever indicates the approach of the train with the section, a series of check-levers and electrical connections situated in groups between the stations for operating the train mechanism, a third lever at the departure station with electrical connections through the groups of levers, whereby the depression of said third lever by the passing train sets the mechanism of the groups throughout the section in condition to check progress of an opposing train.

2. In a railway signal apparatus, a series of depression-levers arranged in groups at stated intervals apart between stations, levers arranged near the station and adapted to be actuated by a passing train, electrical connections between said station-levers and the groups along the line whereby the passing train sets the mechanism of the groups throughout the section in condition to check the progress of an opposing train, and mechanism and batteries arranged with relation to each group of levers so that the passage of the train over the first of said levers actuates the mechanism connected therewith and cuts off the electrical connection through the second lever whereby the train passes over the second lever without interruption, substantially as herein described.

3. A train signaling device, consisting of a series of depression-levers arranged in groups of three at intervals along the line between stations, a lever near the station from which the train departs, and electrical connections between it and the groups of levers along the line, mechanism connected with each of said groups of levers which is actuated by the passage of the train over the station-lever, whereby said mechanism in the groups between the stations is set in condition to check the progress of an opposing train, connection between the

first lever of the group and the mechanism connected therewith whereby the passage of the train over the first lever cuts out the current from the second lever and the train passes over said second lever without interruption, a connection between said second lever and the mechanism, whereby the depression of said lever sets the mechanism and moves a switch to change the electrical circuit and a magnet in said mechanism is cut out of the circuit, substantially as herein described.

4. In a railway signal device, the groups of depression-levers situated at intervals between stations and adapted to be successively depressed by mechanism upon the passing train, a mechanism and battery connected with the levers of each group so that the passage of the train over the first lever breaks the electrical circuit through the second lever, the passage of the train over the second lever sets a portion of the mechanism, changes a switch and cuts the magnet of said mechanism out of the circuit, and the passage of the train over the third lever again makes connection between the central lever and the battery, whereby the passage of a succeeding train over said lever will operate the actuating device upon said succeeding train and arrest said train thereby protecting the first-named train from rear collisions, substantially as herein described.

5. In a railway signal device, a series of depression-levers arranged between the rails of the track in groups and at intervals between stations, mechanisms upon the engine of each train whereby said levers are successively depressed by the passing train, electrical connections between the levers adjacent to the stations through which visible signals are set at the succeeding station when the train leaves the station, electrical connections with the groups of levers whereby the mechanism connected with each of said groups is successively actuated by the passing train, connections whereby the passing of the train over the first lever of a group cuts out the electrical circuit through the second lever, the passage over the second lever sets the mechanism to change the electrical circuit and cut a magnet of the mechanism out of the circuit, the passage of the train over the first lever of the group cuts the central lever of the second preceding group behind out of the circuit so that a following train is not stopped at that group by the brakes being automatically applied, a lever situated at each station and electrical connections with the visible signal at that station so that the passage of the train over said lever restores the visible signal to its normal position, substantially as herein described.

6. In an electrical signal apparatus, the depression-levers hinged at stated points between the rails, springs situated beneath the movable ends of the levers whereby they are normally held up, a drum fixed to an axle of each train adapted to depress the lever by contact therewith, bell-crank levers fulcrumed beneath the depression-levers, rods connecting said bell-crank levers, a mechanism including the sliding bar N, the vibrating bar P and the swinging lever t' and their connections, beneath the track with relation to said depression-levers whereby the passage of a train over the lever depresses it and actuates the bell-crank lever and connecting-rod and through this sets the mechanism, substantially as herein described.

7. In a railway signal device, depression-levers having one end hinged at points between the lines of track and the other end adapted to be depressed by a drum upon an axle of a train whenever said train passes over the lever, a returning-spring by which it is normally held up, contacts g^3, g^4 through which and the lever a standing connection is made when the lever is up and broken when it is depressed, and contacts e^3, f^3 situated below the lever whereby a connection is made between a local battery and the main line at one side of the lever when the latter is depressed, substantially as herein described.

8. In a railway signal device, visible signals consisting of dials with indicator-hands adapted to move over them, mechanism consisting of the gear n^3 q^2 and a ratchet-disk r^2 and pawl, a depression-lever hinged so as to be acted upon by a drum upon the passing train, bell-crank levers and connecting-rods whereby the depression of a lever actuates the gearing and moves the indicator over the dial so as to return it to its normal position whenever a train passes it, substantially as herein described.

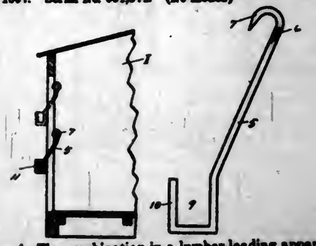
9. In a railway signal device, a depression-lever, bell-crank levers and connecting-rods actuated thereby, an indicator and a dial over which the indicator is moved and returned to its normal position by the action of the levers, a drum upon the indicator-shaft and a weight suspended therefrom, a pawl and ratchet-disk whereby the indicator is normally held at the position in which it is left by the action of the levers, an electromagnet and connecting-wires, and mechanism whereby said magnet is energized when the train enters the section preceding said signal, an armature upon which the pawl is fixed, said armature being attracted when the magnet is energized whereby the pawl is released and the weight operates to move the indicator forward a space upon the dial to show that a train is approaching within the section, substantially as herein described.

10. A railway signal and brake-actuating device consisting of a series of depression-levers fulcrumed between the tracks, drums mounted upon the engine-axle of each train whereby said levers are successively depressed, visible signals which are set by said levers, first, to set back a previously-operated signal, and second, to show at the next succeeding station that it has entered upon the preceding section, levers arranged in groups of three at intervals between the stations, a battery and wires connecting with the central lever of said series, a mechanism upon the locomotive whereby a valve is opened to allow air to pass from the train-pipe to actuate the brake apparatus, an electromagnet and an armature and stop whereby said mechanism is normally retained in position to close the air-valve when the magnet is not energized, connections made through said magnet, the drum of the engine-axle and the depression-lever and also through the axle of the car and the track whereby the magnet upon the engine is energized when the train passes over the lever and the valve is opened and air permitted to pass to the brake mechanism and automatically arrest the motion of the train, substantially as herein described.

11. The air-valve w^3 controlling the passage through which air flows from the engine-reservoir to the train-pipe, the weighted lever x^3 so connected as to open or close the valve by its movements, a stop z^3, a notched lever z^4 engaging the stop and normally retaining the lever in position to close the valve, an electromagnet e^3 so placed that when energized it attracts an armature on the stop-lever, and releases the valve-controlling lever, a wire extending from the magnet to the wheel-axle and connecting through it and the wheels with the rails and through them with one pole of a local battery, another wire connecting the magnet with an insulated drum upon the wheel-axle, levers fulcrumed between the rails so that the drum depresses them when passing, and a wire and contact connecting with the opposite pole of the battery, through which the circuit is completed when the lever is depressed, and the air-valve is actuated, substantially as herein described.

12. The depression-levers *a b c* arranged in groups at intervals between the tracks, a local battery, and a mechanism connected with each group of levers, consisting of the electromagnets *i* and i', contact making and breaking gravity-levers *t* and t', wires connecting the magnets with the main line through contacts controlled by said levers, sliding bars O and P, and rods connecting them with the exterior depression-levers *a* and *c* of each group, by which they are actuated by a passing train to change the position of the levers *t* t', a vertically-sliding bar N actuated by the central depression-lever *b* when a train passes, a switch-lever n^3, a locking-lever R, and a pawl G′ actuated by the movement of the bar N, substantially as herein described.

592,121. APPARATUS FOR LOADING LUMBER. VAN B. PERRIER, Fort Wayne, Ind., and WILLIAM S. BOOS, Montpelier, Ohio. Filed Apr. 9, 1897. Serial No. 631,371. (No model.)



Claim.—1. The combination in a lumber-loading apparatus of a pair of adjustable metallic hangers 5 having upon their upper end a hook 7 laterally bent, as shown, for the purpose specified, and provided upon its lower end with a carrier-receiving portion 10; and a carrier 11 removably mounted in said portion 10 and having its projecting ends adapted to secure the said hangers from derangement in the operation of loading lumber thereon, all substantially as described.

2. In a lumber loading device, a pair of metallic hangers 5 having a hook 7 arranged as shown by a curvature 6, whereby the said hangers are adapted for an oblique arrangement in the car-doorway, and for a vertical adjustment and a hooked engagement with the sides of said doorway, and provided upon their outer and lower end with a carrier-support 10 out of vertical alinement with said hook, all substantially as and for the purpose described.

592,122. BICYCLE. SPENCER H. PHELPS, Janesville, Wis. Filed June 4, 1896. Serial No. 594,323. (No model.)

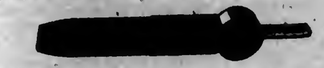
Claim.—1. The combination with a bicycle-frame, of a steering-wheel, a steering-bar, oscillating vertical arms mounted on said frame and connected with said steering-bar, and vertically-oscillating handle-bars extending lengthwise of said frame and connected with said oscillating arms, substantially as shown and described.



2. The combination with a bicycle-frame, of a steering-wheel, a steering-bar, oscillating vertical arms mounted on said frame and connected with said steering-bar, and vertically-oscillating handle-bars adjustable vertically on said oscillating arms and extending lengthwise of said frame, substantially as shown and described.

3. The combination with a bicycle-frame, of a steering-wheel, a steering-bar provided with a toothed pinion, oscillating vertical arms mounted on said frame and provided with toothed racks engaging said pinion, and vertically-oscillating handle-bars extending lengthwise of said frame and connected with said oscillating arms, substantially as shown and described.

592,123. ELECTRIC SWITCHBOARD. GEORGE W. RIBBLE, Hyattsville, Md., assignor of one-half to William James Slater, Washington, D. C. Filed Aug. 19, 1897. Serial No. 648,794. (No model.)



Claim.—1. In an electric switchboard or other like structure, a terminal or circuit-closing part formed with a depression or recess having undercut or overhanging sides, and a marking disk or plate fitting in said depression or recess, engaging beneath the sides and removably held thereby, as explained.

2. In an electric switchboard or other like structure, a terminal or circuit-closing part formed with an undercut depression or recess, and a disk or plate fitting beneath the overhanging edge of the depression or recess, made of flexible material to adapt it to be sprung into and out of the depression or recess past the overhanging edge, and adapted to receive a designating inscription, substantially as herein set forth.

3. In an electric switchboard or other like structure, a terminal or circuit-closing part formed with an undercut depression or recess, adapted to receive and retain a marking-disk or plate, and with a pin opening or channel through which an instrument may be introduced beneath the disk or plate for removing it, as explained.

4. In an electric switchboard or other like structure, a terminal or circuit-closing wedge having an enlarged head, through which the conducting-cord is introduced; said head being formed on its faces with undercut depressions or recesses in which are secured marking-disks of flexible material; substantially as herein described.

5. In an electric switchboard, the combination with the jack beneath which the wedge is introduced, and the removable marking-plate having an undercut depression therein and a flexible marking-disk in said depression; said plate having a pin-opening through the back into said depression, as explained.

592,124. MECHANICAL MOVEMENT. WILLIAM ROBINSON, Boston, Mass. Filed Aug. 13, 1896. Serial No. 602,177. (No model.)



Claim.—1. A mechanical movement consisting, essentially, of two bodies arranged to swivel one upon the other and a segmental bearing between them, said segmental bearing having a hub provided with a diagonal axis pivoted to one of said bodies and its peripheral surface beveled in either direction from its center on a gradually-changing curve, said peripheral surface traveling on a flat or horizontal surface on the other body.

2. A mechanical movement consisting, essentially, of a plurality of segmental bearings located between two bodies arranged to swivel one upon the other, each of said segmental bearings having a hub provided with a diagonal axis pivotally connected to one of said bodies and its periphery having its face beveled off gradually on a changing curve from its center toward either end, said peripheral surface traveling or rolling on a flat or horizontal surface on the other body.

3. A mechanical movement consisting, essentially, of segmental bearings located between two bodies arranged to swivel one upon the other, the hub of each of said segmental bearings swiveling on one of said bodies on an axis forming an acute angle to the inner plane face of said segment, the peripheral surfaces of said segments being beveled off on a gradually-changing curve from their centers toward either end, said peripheral surfaces rolling on the other body in an approximately straight line.

4. In a mechanical movement, a segmental bearing formed with a hub having an axis forming an acute angle with the inner flat or plane face of said segmental bearing, substantially as described.

5. A mechanical movement consisting, essentially, of a plurality of segmental bearings located between two bodies arranged to swivel one upon the other, each of said segmental bearings having a hub provided with a diagonal axis pivotally connected to one of said bodies and its periphery having its surface beveled off gradually on a changing curve from its center toward either end, some of said segmental bearings being arranged in an angular position relatively to some of the other similar bearings, substantially as described.

6. In a mechanical movement, a segmental bearing formed with a hub having an axis coinciding, substantially, with the hypotenuse of a triangle formed, when said segmental bearing is in its normal position, by a horizontal line passing through the center of the base of said segment, a vertical line rising from the center of said base to the center of said axis and a hypotenuse joining the center of said axis and said base-line at the swiveling center of two bodies between which said segment forms a bearing, substantially as described.

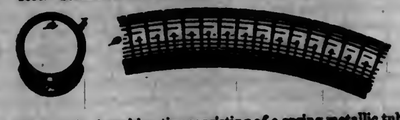
7. In a mechanical movement, a segmental bearing formed with a hub having an axis diagonal to its inner flat or plane surface, said axis pointing to the swiveling center of two bodies between which said bearing is located, the line of said axis, extended, intersecting said swiveling center on a horizontal plane passing through the peripheral contact-point of said segmental bearing with the body on which said periphery travels, substantially as described.

8. In a mechanical movement, a segmental bearing formed with a hub having a diagonal axis and a periphery having its face beveled off gradually or coned on a changing curve from the center toward either end of said periphery, as and for the purpose described.

9. The swiveling sector C having one side provided with the lug or projection *l* located between the axis and periphery of said sector, in combination with the guide *m*, said guide being arranged to govern and limit the position of said sector by engaging said lug or projection *l*, substantially as described.

10. The guide *m* having a narrow opening at the bottom with sides gradually widening out toward the top, in combination with a sector movable on its axis, said sector being provided on one side with a projection or lug located between the axis and periphery of said sector, said guide *m* engaging said lug and thereby controlling the position and movement of said sector, substantially as described.

592,125. TIRE FOR VELOCIPEDES OR OTHER VEHICLES. JOHN B. ROGERS and WILLIAM H. HALL, San Francisco, Cal. Filed June 26, 1896. Serial No. 596,960. (No model.)



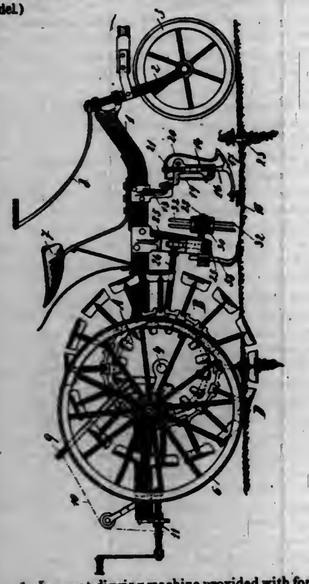
Claim.—1. A cushion-tire consisting of a spring metallic tube alternately slotted from its inner and outer peripheries, substantially as described.

2. A cushion-tire composed of a spring metallic tube alternately slotted from its inner and outer peripheries, in combination with an outer cover incasing the same, substantially as described.

3. A cushion-tire composed of a spring metallic tubular band, alternately slotted from its inner and outer peripheries, substantially as described.

4. A cushion-tire composed of a spring metallic tubular band, alternately slotted from its inner and outer peripheries, in combination with an outer cover incasing the same, substantially as described.

592,126. MACHINE FOR DIGGING BEETS, &c. KARL THOMSEN, Halle-on-the-Saale, Germany. Filed Feb. 16, 1897. Serial No. 623,600. (No model.)



Claim.—1. In a root-digging machine provided with fork-wheels, the combination with said fork-wheels, of a top-conveying device, consisting of a casing attached to the frame of the machine, a chain-wheel mounted in said casing on a shaft operated by said fork-wheels, a shaft mounted in each end of the casing, a wheel carried by one of said shafts and connected by a power-chain with said chain-wheel, a wheel carried by the other shaft, and a conveying-band provided with elastic arms connecting the latter two wheels, substantially as set forth.

2. In a root-digging machine, a topping device constructed of a bracket attached to the frame of the machine, a hollow guide-piece at each end of said bracket and provided with guide-rollers, a vertically-adjustable shaft mounted in said guide-piece, and a projecting shoe at the lower end of said shaft carrying a knife, substantially as set forth.

3. In a root-digging machine, a topping device consisting of a bracket, a hollow guide-piece at each end of said bracket, guide-rollers carried by said guide-piece, a vertically-adjustable shaft mounted in the guide-piece, a projecting shoe carrying a knife located at the lower end of said shaft, an S-shaped bar fixed to the forward end of the shoe and the upper end of the shaft, and two outwardly-curved arms attached to said shaft, each arm carrying a shoe at its extremity, substantially as set forth.

4. In a root-pulling machine, the combination with the crank-shaft, of a fork-wheel, consisting of two guide-pieces adjustably mounted on said shaft and provided with cam-grooves, a disk revolubly mounted on the nave of each guide-piece and provided with projections, adjusting screw-bolts working in said projections, slotted boxes arranged on the periphery of said disks, a lifting or gripping device mounted in said boxes, and a slide-roller mounted on the end of the shaft of the said gripping device and adapted to work in the cam-grooves of the said guide-pieces, substantially as set forth.

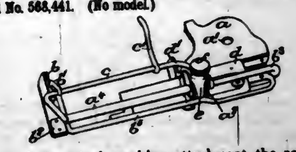
5. In a root digging or raising machine, the combination of fork-wheels, comprising two guide-pieces adjustable on a fixed shaft, grooves formed on their periphery, two revoluble disks simultaneously adjustable toward or away from one another with the guide-pieces, the periphery of said disks being provided with boxes open to the outside, and standing inward, a gripper or lifting device mounted between each two of said boxes, and a pin on said gripper resting in slots in said boxes, said gripper having a shank projecting into the fork-wheel and carrying a roller engaging with one of the guide-pieces, whereby the gripping devices are moved against one another by means of the guide-pieces by the rotation of the disks, and whereby the gripping devices may be suitably adjusted to correspond to the size of the roots to be raised, substantially as set forth.

6. In a root-digging machine, the combination of the fork-wheels provided with disks, gripping devices carried by said disks, flanges attached to the shank of said gripping devices, and cover-plates arranged on the periphery of said disks and engaging over the flanges of the gripping devices, whereby said gripping devices may be changed without dismounting the fork-wheels, substantially as set forth.

7. In a root-digging machine, the combination of the fork-wheels provided with disks and a telescopically-adjustable casing between said disks for preventing the penetration of dust into the interior of the fork-wheels, substantially as set forth.

8. In a root-digging machine, a gripper or lifting device consisting of an entering part having the cross-section of a lens, a shaft, a guide-roller on the end of said shaft, transverse pins integral with said shaft and lateral flanges on said shaft above said pins, substantially as set forth.

592,127. TUCK-MARKING ATTACHMENT FOR SEWING-MACHINES. EDWIN J. TOOT, New Haven, Conn. Filed Nov. 9, 1895. Serial No. 568,441. (No model.)

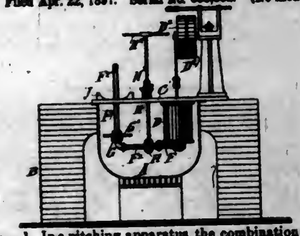


Claim.—1. In a tuck-marking attachment, the combination of the main supporting-frame provided with the vertical post a^3 having a lateral tubular arm a^4, a sliding frame having an arm extending through an opening in said post and into the said tubular arm a^4 thereon, a second sliding frame provided with an elongated slot therein to receive the post a^3, and having a slotted arm loosely embracing the said tubular arm a^4 on the latter, the cap-piece c fitted upon the post a^3 with its lower edge engaging with the said sliding frames, an adjusting-screw engaging with said cap c, and a marking device supported by one of said sliding frames and an edge-guide supported by the other, substantially as described and for the purpose set forth.

2. In a tuck-marking attachment, the combination of the main supporting-frame provided with the vertical post a^3 having a transverse opening therein and a laternal tubular arm a^4, a sliding frame having the arm b^3 extending through said opening in the post a^3 and into the tubular arm thereon, a second sliding frame provided with an elongated slot therein to receive the post a^3, and having a slotted arm loosely embracing the tubular arm a^4, the cap c fitted upon the post a^3 with its lower edge engaging with the said sliding frames, an adjusting-screw engaging with said cap c, the marker-operating lever c journaled at one end in the tubular arm a^4 and at its opposite end upon the arm b^3, and a marking device supported by one of said sliding frames and an edge-guide supported by the other, substantially as described and for the purpose set forth.

3. In a tuck-marking attachment, the combination of the main supporting-frame a provided with the vertical post a^3 having a transverse opening therein, a sliding frame supported by the frame a and provided with an arm b^3 extending loosely through the said opening in the post a^3, a second frame supported to slide upon the frame a and provided with an elongated slot therein to receive the post a^3, the cap c fitted upon the end of the post a^3 with its lower edge engaging with the arm b^3 of the first frame and with the second frame at the opposite sides of the elongated slot therein, an adjusting-screw for engaging with said cap c, and a marking device supported by one of said sliding frames and an edge-guide supported by the other, substantially as described and for the purpose set forth.

592,128. PITCHING-MACHINE. HARRY TORCHIANI, Brooklyn, N. Y. Filed Apr. 22, 1897. Serial No. 633,332. (No model.)



Claim.—1. In a pitching apparatus, the combination of a kettle, and means for heating the same, of a distributing-nozzle, passing through the cover of the kettle, a power-driven pump, attached to the under side of the cover, a supply-pipe connecting the pump with the nozzles, curved reaction-pipes on the shank of said nozzles, and a swivel connection between the supply-pipe and the nozzle-shank, substantially as set forth.

2. In a pitching apparatus, the combination, with a kettle and means for heating the same, of a power-driven pump attached to the under side of the cover of the kettle, a three-way valve, a pipe leading from the pump to said valve, nozzles extending upwardly through the cover, branch pipes connecting the three-way valve with the nozzles, a lever for setting the three-way valve, so as to connect the supply-pipe with either branch pipe, curved reaction-pipes on the shanks of said nozzles, and a swivel connection between the branch pipe and the nozzle-shanks, substantially as set forth.

3. In a pitching apparatus, the combination with a kettle and means for heating the same, of a pump attached to the under side of the cover of the kettle, a supply-pipe leading from said pump, branch pipes connected with said supply-pipe, nozzles attached to said branch pipes and extended upwardly through the cover, a three-way valve between the supply and branch pipes and adapted to direct the pitch into one or the other of the branch pipes, and a lever for operating said valve, said lever projecting over the barrel being pitched and preventing the removal of the same until the valve is turned so as to shut off the flow of pitch, substantially as set forth.

592,129. CAN-OPENER. SAMUEL M. WRIGHT, Denver, Ind. Filed Feb. 27, 1897. Serial No. 625,246. (No model.)



Claim.—1. A can-opener consisting of a handle having an end spur, a flat under surface and a longitudinal slot parallel with said surface, a cutter having a shank adapted to operate in the handle-slot, the said cutter having a depressed point and being provided with an offset and a transverse pin, whereby its shank is retained in the handle-slot, substantially as and for the purpose set forth.

2. The combination in a can-opener, of a handle having a spur at one end thereof, a flat under surface and a longitudinal slot parallel therewith, the advance face of the handle provided, at each side of the slot, with notches as described, and a cutter having a depressed hook-shaped cutting edge, an offset at the base of the said edge, and a transverse pin in the outer end of the shank for adjusting and retaining same in the handle-slot, substantially as specified.

592,130. UNICYCLE ROAD AND RACING SULKY. THOMAS G. COLEMAN, Gunsight, Tex. Filed Mar. 25, 1897. Serial No. 629,246. (No model.)

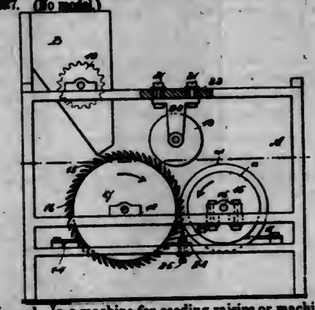


Claim.—1. A one-wheel vehicle, comprising a frame composed of metal tubing and made in separable sections coupled together, said frame consisting of a pair of side-bars extended to form thills and connected in front and rear of the carrying-wheel by cross-bars, pendent V-shaped hangers connected at their ends to the side-bars and declining inward or converging toward their lower ends or vertices, side or lateral braces interposed between the vertices of said hangers and the side-bars, a carrying-wheel journaled between the convergent ends of said hanger, and a superposed seat, substantially as described.

2. A one-wheel vehicle, comprising a frame and composed of metal tubing and made in separable sections coupled together, said frame consisting of a pair of side-bars extended to form thills and connected in front and rear of the carrying-wheel by cross-bars, pendent V-shaped hangers connected at their ends to the side-bars and declining inward or converging toward their lower ends or vertices, a carrying-wheel journaled between the convergent ends of said hangers, a superposed seat over the wheel, a pair of springs interposed between the rear edge of the seat and the rear cross-bar, and a centrally-located spring interposed between the front edge of the seat and the forward cross-bar in advance of the wheel, substantially as described.

3. A one-wheel vehicle, comprising a frame composed of metal tubing, said frame consisting of a pair of side-bars extended to form thills connected in front and rear of the carrying-wheel by cross-bars, pendent V-shaped hangers connected at their ends to the side-bars and declining inward or converging toward their lower ends, a carrying-wheel journaled between the convergent ends of said hangers, a superposed seat above the wheel, a transverse arch connected at its ends to the side-bars and sprung over the wheel, and a wheel-guard connecting said arch to the rear cross-bar of the frame and constituting a limiting-stop for the seat in the downward movement of the latter, substantially as described.

592,131. RAISIN-SEEDER. CARY S. COX, Fresno, Cal., assignor of one-half to Lee I. Gray, same place. Filed Jan. 27, 1897. Serial No. 620,927. (No model.)



Claim.—1. In a machine for seeding raisins or machines of similar character, a seeding-cylinder, teeth extending from the periphery of the cylinder in a direction inverse to the direction of motion of the cylinder, and a seed-receiving cylinder adapted to revolve in the direction of the said seeding-cylinder, the seed-receiving cylinder having a yielding separable surface in which pockets are formed for the reception of seed, the said yielding surface of the seed-receiving cylinder being arranged to receive the rows of teeth on the seeding-cylinder, retaining the seed forced from the raisins by the said teeth, as and for the purpose specified.

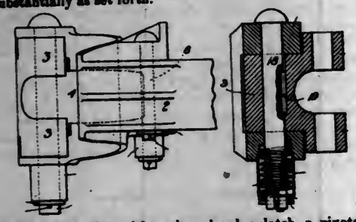
2. In a machine for seeding raisins, or in machines of similar character, a seeding-cylinder, teeth extending from the periphery of the cylinder in a direction inverse to the direction of movement of the cylinder, a seed-receiving cylinder adapted to revolve in direction of the seeding-cylinder, the seed-receiving cylinder having a yielding surface arranged to receive the rows of teeth on the seeding-cylinder, a comb through which the teeth of the seeding-cylinder pass, a scraper for the seed-receiving cylinder, and a dividing-knife located between the two cylinders below the point where the teeth of the one enter the yielding surface of the other, as and for the purpose specified.

3. In a machine for seeding raisins or in a machine of like character, a seeding-cylinder provided with curved teeth on its periphery, the teeth extending from the cylinder in a direction inverse to the direction of movement of the cylinder, a seed-receiving cylinder having a yielding surface arranged to receive the teeth of the seeding-cylinder, the two cylinders being adapted to move in direction of each other, a pressure-roller located over the seeding-cylinder in the path of the material carried by the teeth of the seeding-cylinder, a dividing-knife located between the two cylinders below the point where the teeth of one cylinder engage with the surface of the other, a comb for the seeding-cylinder, and a scraper for the seed-receiving cylinder, as and for the purpose specified.

592,132. CAR-COUPLING. LEVI DAGUE and JAMES F. GREGG, Washington, Pa. Filed Jan. 14, 1897. Serial No. 619,305. (No model.)

Claim.—1. The combination of a draw-head, a spring-controlled coupling-jaw pivotally connected therewith, a latch, a pivotal bolt keyed thereto, a coiled spring encircling the pivotal bolt with one end inserted in the draw-head and the other end secured to the pivotal bolt, and a retracting-lever pivoted to the bottom of the draw-head engaging a bolt secured to the latch and passing through a slot in the bottom of the draw-head, substantially as set forth.

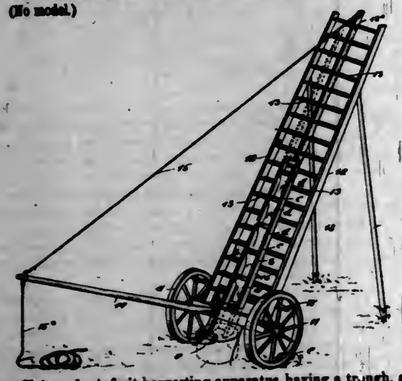
2. The combination of a draw-head, a spring-controlled coupling jaw pivotally connected therewith, a latch, a pivotal bolt keyed thereto, a coiled spring encircling the pivotal bolt with one end inserted in the draw-head and the other end secured to the pivotal bolt, an inclosing shield for the spring entirely surrounding it, a retracting-lever pivoted to the bottom of the draw-head engaging a bolt secured to the latch and passing through a slot in the bottom of the draw-head, substantially as set forth.



3. The combination with a draw-head, a latch, a pivotal bolt keyed thereto, a coiled spring encircling the pivotal bolt with one end inserted in the draw-head and the other end secured to the pivotal bolt, an inclosing shield for the spring, and a retracting-lever for the latch; of a coupling-jaw, a pivotal bolt passing through the draw-head and keyed to the coupling-jaw, a coiled spring encircling the bolt seated in a recess in the draw-head with one end in engagement therewith and the other secured to the pivotal bolt, and an inclosing shield for the spring, substantially as set forth.

592,133. LADDER AND CHUTE FOR FRUIT-GATHERING.

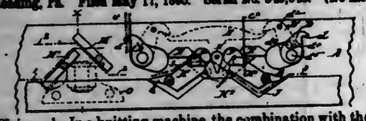
GEORGE K. DAVIS, Lewiston, Me. Filed Oct. 6, 1896. Serial No. 608,009. (No model.)



Claim.—1. A fruit-harvesting apparatus having a trough, a series of cross-bars running transversely across the trough at the open side thereof, and a series of flexible aprons respectively carried by the cross-bars and hanging loosely from the cross-bars, the lower end of each apron projecting below the cross-bar directly beneath the cross-bar on which the said apron is supported and the said lower ends of the aprons being respectively located inward from the cross-bars adjacent thereto, substantially as described.

2. A fruit-gatherer having a mounted axle, a boom or tongue fixed to the axle, a ladder also fixed to the axle and projecting at an angle to the boom or tongue, the ladder being formed of three parallel rails with rungs running between them, a fruit-conductor running along the intermediate rail and carried thereby, a stay rigged between the outer end of the boom or tongue and the outer end of the intermediate rail of the ladder, and two props respectively pivoted to the side rails of the ladder and serving to hold the ladder in an upright position, substantially as described.

592,134. CIRCULAR-KNITTING MACHINE. JAMES L. ROE, Reading, Pa. Filed May 17, 1895. Serial No. 549,640. (No model.)



Claim.—1. In a knitting-machine, the combination with the cam-cylinder, of two oppositely-inclined switch-cams radially movable through openings in the cylinder-wall, shanks projecting through said wall from said cams, retracting-springs on said shanks for holding said cams normally out of the needle-path, a rocking lever arranged to engage one or the other of said shanks when moved from its central position, for projecting said cams one at a time into the needle-path, and means for operating said lever.

2. In a knitting-machine the combination with the cam-cylinder of two oppositely-inclined switch-cams radially movable through openings in the cylinder-wall exterior shanks on said cams provided with retracting-springs, a rocking lever adapted to engage one or other of said cam-shanks when moved from its central position, and a vertically-arranged shaft, provided with a cam engaging said rocking lever and adapted to operate the same, substantially as set forth.

3. In a knitting-machine, the combination with the cam-cylinder of two oppositely-inclined switch-cams radially movable through openings in the cylinder-wall, exterior shanks in said cams provided with retracting-springs, a rocking lever adapted to engage one or other of said cam-shanks when moved from its central position, a vertical shaft, carrying a cam or tooth R adapted to operate and lock said rocking lever, and means for turning said cam-shaft, substantially as set forth.

4. In a knitting-machine, the combination with the cam-cylinder of two oppositely-inclined switch-cams radially movable through openings in the cylinder-wall and having exteriorly-projecting shanks, guides for said shanks having springs thereon arranged to retract the cams, a lever-bracket with rocking lever and cam-shaft mounted thereon for operating the switching-cams, and means for turning the shaft, substantially as set forth.

5. In a knitting-machine, the combination with the cam-cylinder, and the radially-movable switch-cams having shanks, of a rocking lever having its ends arranged to engage and move said shanks inward, and a cam engaging said lever and rocking the same, for the purpose specified.

6. In a knitting-machine, the combination with the cam-cylinder, and the radially-movable switch-cams having shanks, of a rocking lever having its ends arranged to engage and move said shanks inward, said lever being formed with an opening between said ends, a cam within said opening, operating upon the walls thereof to rock said lever and lock the same, and a shaft carrying said cam, substantially as described.

7. In a knitting-machine, the combination with the cam-cylinder, the radially-movable switch-cams having shanks, and springs encircling said shanks for holding the cams normally in their outermost positions, of a rocking lever for projecting said cams one at a time into the needle-path, said lever having its ends arranged to engage said shanks, and being formed with an opening between said ends, a cam within said opening, operating upon the walls thereof to rock said lever, and a shaft carrying said cam.

8. In a knitting-machine, the combination with the cam-cylinder, and the fixed cams H' H' H³ and K K and pivoted cams H and G G, of the throwing-down cams, having hooked ends arranged to automatically lower two needles at the end of a raised series, pivoted arms carrying said throwing-down cams, cross-arms E, throwing-up cams arranged to reraise one of said lowered needles, said throwing-up cams being independent of said cross-arms and having weighted ends.

9. In a knitting-machine, the combination of free narrowing-cams with widening-cams constructed and arranged to throw down two needles at once.

10. In a knitting-machine, the combination with the cam-cylinder, of the widening-cams constructed and arranged to throw down at once two needles at the end of a raised series, and a narrowing-cam arranged to reraise one of said lowered needles, substantially as described.

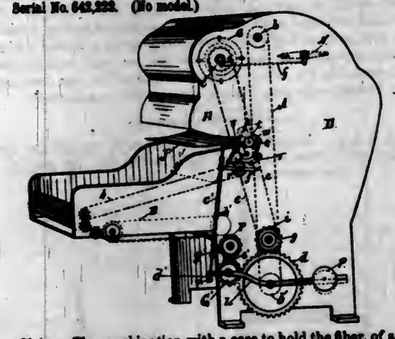
11. In a knitting-machine, the combination of the widening-cams, having hooked ends constructed and arranged automatically to lower at once two needles at the end of a raised series, pivoted arms, carrying said cams, cross-arms E, and narrowing-cams arranged to reraise one of said lowered needles, said narrowing-cams being independent of said cross-arms and having weighted ends, substantially as described and for the purposes specified.

12. The combination of a needle-cylinder, a cam-cylinder, means for operating one of said cylinders, needles disposed in the needle-cylinder, stitch-cams disposed in the cam-cylinder, narrowing-cams for moving individual needles into inoperative position, and widening-cams provided with hooks adapted to engage at once a plurality of inoperative needles to bring them into operative position, each narrowing-cam being movable into and out of operative position independently of the widening-cams.

13. In a knitting-machine the combination of the needles, a needle-engaging cam independent of controlling devices, and a needle-engaging cam constructed to engage two adjacent needles

14. In a knitting machine, the combination of the needles, narrowing-cams independent of controlling devices, and widening-cams constructed to engage two adjacent needles.

592,185. AUTOMATIC FEEDING MECHANISM FOR CARDING-MACHINES. HENRY FIELD, Jr., Olneyville, R. I. Filed June 26, 1897. Serial No. 642,222. (No model.)



Claim.—The combination with a case to hold the fiber, of an elevator-belt, a beater to brush off the surplus fiber, a doffer to detach the fiber from the belt into a chamber having a movable bottom said bottom provided with a shaft, a lower gear to drive the belt, a stud on which lower gear is mounted, a bar also held on said stud, a second stud in one end of said bar, an intermediate gear on said second stud, a weight on the other end of said bar, a driving-gear, an arm on the shaft of said movable bottom, a rod connected to said bottom adapted with said bar to draw the intermediate gear into engagement with said driving-gear, a circular plate held free on said driving-gear and provided with a projection to separate said gears, a side tab on said circular plate with a hole in it to receive said rod and a spring on said rod to press on the top of said tab, a collar on said rod to raise said tab, a connection of said rod with said bar, substantially as described.

592,186. TAG. JOHN G. FISHER, Hanover, Mass. Filed Mar. 10, 1897. Serial No. 626,775. (No model.)



Claim.—1. A tag or label comprising a body adapted to receive a wrapper, the said body being provided with ends re-turned at the back, one of the re-turned ends being formed with a socket and the other with a keeper, and a pin journaled in the said socket and arranged to enter the said keeper, the pin at its pivoted end having a re-turn member terminating in a head which engages with the back of the body when the pin is in position to enter its keeper, thereby exerting a tension on the pin, as and for the purpose specified.

2. A tag or label consisting of a body-plate having end portions re-turned over its back, one re-turned end portion being provided with a socket and the other with a keeper, a wrapper inclosing the body, being carried between the re-turn end portions thereof and opposing surfaces of the body, and a pin journaled in the said socket, being arranged for engagement with the said keeper, as and for the purpose specified.

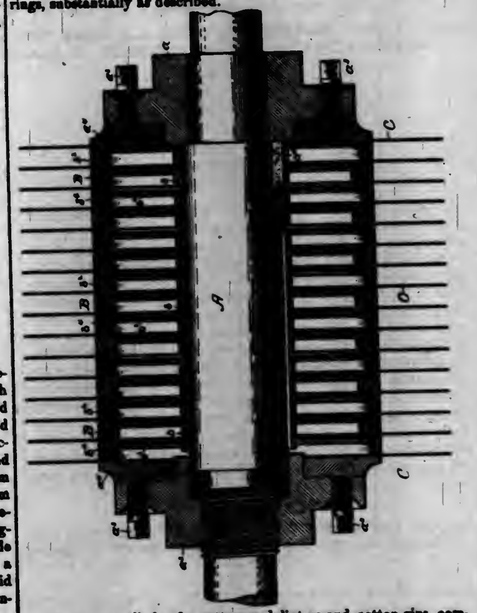
3. A tag or label, comprising a body-plate having the ends re-turned over one of its faces, a wrapper placed around the plate, being passed between its re-turned end surfaces and opposing faces of the body proper, and a fastening device and keeper located at the re-turn portions of the body, as and for the purpose specified.

4. The combination, with a body-plate having its ends re-turned over the back, one re-turn end terminating in a socket and the other in a keeper, and a covering for the body, being carried around the same and between the body and its re-turn end portions, of a pin journaled in the socket, the free end whereof is adapted to enter said keeper, the pin at its pivoted end being carried outside of the socket across the body of the pin and terminating in a head having bearing against the covering, as and for the purpose set forth.

592,187. GIN-SAW. JEFFERSON M. GARDNER, New London, Conn. Filed Mar. 17, 1897. Serial No. 628,088. (No model.)

Claim.—1. A saw-cylinder for cotton-seed linters and cotton-gins, comprising a shaft, a plurality of combined spacing and locking rings thereon provided with outward-projecting lugs, saws having open-ended slots engaging the lugs, and means for securing the saws between the said rings, substantially as described.

2. A saw-cylinder for cotton-seed linters and cotton-gins, comprising a shaft, a plurality of combined spacing and locking rings thereon, held from turning independently of the shaft, and provided with outward-projecting lugs, saws having open-ended slots engaging the lugs, and clamping-collars for securing the saws between the said rings, substantially as described.



3. A saw-cylinder for cotton-seed linters and cotton-gins, comprising a shaft, a plurality of combined spacing and locking rings thereon, held from turning independently of the shaft, and provided with outward-projecting lugs, saws having open-ended slots engaging the lugs, and clamping-collars for securing the saws between the said rings, substantially as described.

4. A saw-cylinder for cotton-seed linters and cotton-gins, comprising a shaft, two collars mounted thereon, one being fixed and the other movable with relation to the shaft, spacing-rings mounted between the collars and having a key connection with the shaft, said rings being provided with lugs or projections, and saws clamped between the spacing-rings and having open-ended slots engaging the lugs, substantially as described.

5. A saw-cylinder for cotton-seed linters and cotton-gins, comprising a shaft having clamping-collars mounted thereon, one of which is stationary and the other movable with relation to the shaft, a plurality of spacing-rings having a key connection with the shaft, said rings being provided with lugs or projections, saws held in place between the said rings and having open-ended slots engaging said lugs, shaft truing collars interposed between the clamping-collars and the spacing-rings at each end of the cylinder, and set-screws carried by the clamping-collars and adapted to be turned into engagement with the shaft-truing collars, substantially as described.

6. As a new article of manufacture, a saw for cotton-seed linters and cotton-gins, consisting of two sections, the meeting edges of each section of which are provided the one with a recess and the other with a tenon and with a slot adjacent to one of the meeting edges, substantially as described.

7. As a new article of manufacture, a saw for cotton-seed linters and cotton-gins, consisting of two sections, the meeting edges of each section of which are provided the one with a recess and the other with a tenon or projection and with a slot adjacent to one of the meeting edges, said slot extending substantially in the direction of the trend of the saw-teeth, substantially as described.

8. As a new article of manufacture, a saw for cotton-seed linters and cotton-gins, consisting of two sections, the meeting edges of each section of which are provided the one with a recess and the other with a tenon or projection and with a curved slot adjacent to one of the meeting edges, said curved slot extending substantially in the direction of the trend of the saw-teeth, substantially as described.

9. As a new article of manufacture, a combined locking and spacing ring for cotton-seed linters and cotton-gins, consisting of a hub, provided with means for holding it from turning upon a shaft, a rim of greater width than the hub, and spokes connecting the rim

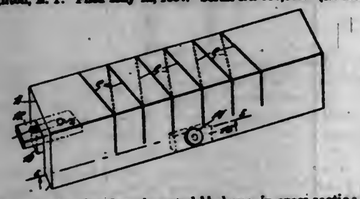
and the hub, pairs of these spokes in opposite alinement being provided with studs projecting beyond the rim, and other pairs of the spokes also in opposite alinement being provided with openings, substantially as and for the purpose specified.

592,138. PNEUMATIC TIRE. WILLIAM A. D. GRAHAM, Owen Sound, Canada. Filed Mar. 28, 1896. Serial No. 585,257. (No model.)



Claim.—A pneumatic tire consisting of an air-tube, a detachable cover consisting of a flexible material, said cover having at each edge and on each side of the edge an enlargement, the rear edges of the enlargements forming plane surfaces and extending at an abrupt angle to the surfaces of the body portion of the cover, the forward portions of the enlargements being beveled and meeting at a common edge, a flexible strip having at both its edges protrusions the inner edge of said protrusions forming plane surfaces and extending at an abrupt angle to the body portion of said strip, said flexible strip being secured at an intermediate point to the intermediate point of the second strip, said second strip being secured to the periphery of the wheel-rim, suitable protrusions supported by the rim, said protrusions having at their inner edges plane surfaces extending at an abrupt angle to the surface of their supports, the last said gripping protrusions adapted to act in conjunction with the gripping protrusions on the first said strip interlocking with the engagements on the outer cover.

592,139. MITER-BOX. THOMAS M. GRIFFITH, West New Brighton, N. Y. Filed May 12, 1897. Serial No. 636,195. (No model.)



Claim.—1. A miter-box inverted-U shape in cross-section and provided with guide-kerfs extending through the top and down into the sides of the box, said kerfs being similarly inclined in parallel planes and evenly spaced apart, substantially as described.

2. A miter-box inverted-U shape in cross-section and provided with guide-kerfs extending through the top down into the sides of the box, said kerfs being similarly inclined in parallel planes and evenly spaced apart, and a longitudinally-adjustable gage-block on the under surface of the top at one end thereof, substantially as described.

3. A miter-box, comprising spaced sides, one of which is recessed and a top integral therewith, the top and sides being provided with kerfs extending through the top and down into the sides, said kerfs being similarly inclined in parallel planes and evenly spaced apart, a slotted gage-block on the under surface of the top, at one end thereof, a set-screw passing through the slot of the block into the top, a clamping-plate in the recess of the side, and a set-screw passing through the said side of the box and engaging the clamping-plate, substantially as herein shown and described.

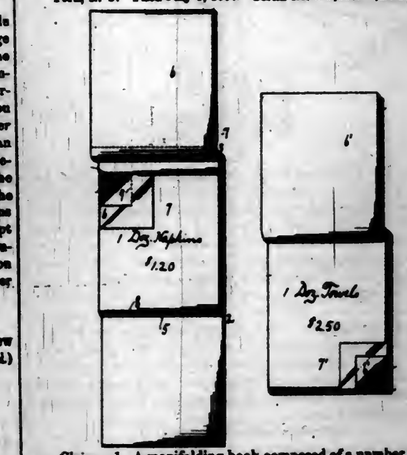
592,140. BOOT OR SHOE. AUGUSTUS GREEN, Sydney, New South Wales. Filed Oct. 10, 1896. Serial No. 608,459. (No model.)



Claim.—1. In combination, the plate A, having rearwardly-turned projections and two upwardly-turned sides, the spring extending between the sides, the ears F for holding one end of said spring, ears at the opposite end of the plate, the toothed locking-plate pivoted between said last-named ears, and the extension on the locking-plate adapted to bear against the free end of the spring, substantially as described.

2. In combination, the plate A having downwardly-turned projections C at each end, the spring extending lengthwise of the plate and having notches at one end, the ears or projections F formed integral with said plate and engaging said notches and folded over to hold the spring in place, the upwardly-turned sides B integral with plate A and forming a guide for the spring, said sides having serrated edges and perforated ears H, and the locking-plate having a pivot extending through the perforations in the ears, said locking-plate having teeth J in line with the serrated edges of the base plate and having laterally-extending wings I, substantially as described.

592,141. MANIFOLD SALES BOOK OR PAD. PHILIP HAAS, New York, N. Y. Filed July 9, 1897. Serial No. 644,001. (No model.)



Claim.—1. A manifolding-book composed of a number of memorandum-leaves and a transfer-leaf coated on its upper side only, said transfer-leaf being arranged beneath all the memorandum-leaves with its coated side in contact with the under side of the lowermost memorandum-leaf, substantially as described.

2. A manifolding-book composed of a number of memorandum-leaves bound together at one edge, and a transfer-leaf coated on its upper side only, said transfer-leaf being bound in the book beneath all the memorandum-leaves with its coated side in contact with the under side of the lowermost memorandum-leaf, substantially as described.

3. A manifolding-book composed of a number of memorandum-leaves, and a transfer-leaf coated on its upper side only, said memorandum and transfer leaves being each bound in the book at a corresponding edge, and said transfer-leaf being arranged beneath all the memorandum-leaves with its coated side in contact with the under side of the lowermost memorandum-leaf, substantially as described.

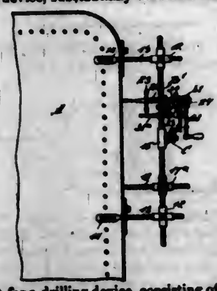
4. A manifolding-book composed of primary and duplicate memorandum-leaves, the duplicate memorandum-leaves being transparent and arranged one beneath each primary memorandum-leaf, and a transfer-leaf coated on its upper side only and arranged beneath all the memorandum-leaves with its coated side in contact with the under side of the lowermost duplicate memorandum-leaf, substantially as described.

5. A manifolding-book composed of a number of memorandum-leaves, and a transfer-leaf coated on its upper side only, said transfer-leaf being of a size corresponding to or greater than the memorandum-leaves and arranged beneath all the memorandum-leaves with its coated side in contact with the under side of the lowermost memorandum-leaf, substantially as described.

6. A manifolding-book composed of a number of folded memorandum-leaves, and a transfer-leaf coated on its upper side only, said transfer-leaf being arranged beneath all the memorandum-leaves with its coated side in contact with the under leaf of the lowermost folded memorandum-leaf, substantially as described.

592,142. DRILL. WILLIAM J. HATTON, Escanaba, Mich. Filed Apr. 2, 1897. Serial No. 630,204. (No model.)

Claim.—1. In a drilling apparatus, a supporting-frame consisting of independent uprights, fastening devices having vertical and lateral adjustment thereon, an adjustable cross-bar connecting the uprights, and an adjustable socket carried by the cross-bar, arranged to receive the drilling device, substantially as shown and described.



2. A support for a drilling device, consisting of uprights, sockets adjustable upon the uprights, fastening devices adjustably connected with said sockets, a cross-bar adjustably attached to the uprights, a socket adjustable upon the cross-bar, a standard which is a portion of the drilling device, a socket adjustable upon said standard, and a guide carried by the latter socket, all arranged for operation substantially as set forth.

3. In a drilling device, the combination, with a support, a nut held to turn in said support, and means for turning the nut, of an exteriorly-threaded tubular feed-shaft passed through said nut and provided with a hand-grip, a drill-shaft mounted to revolve in the feed-shaft, a tool-holder at one end of the drill-shaft, engaging with the end of the feed-shaft, devices for preventing end movement of the drill-shaft, and means, substantially as described, for driving the drill-shaft, for the purpose set forth.

4. A drilling device consisting of a standard, a nut held to turn in said standard and provided with an attached gear, an exteriorly-threaded and hollow shaft received by the said nut, a drill-shaft mounted to turn in the hollow shaft, having a head which engages with one end of the hollow shaft, and a driving mechanism for the drill-shaft, as and for the purpose set forth.

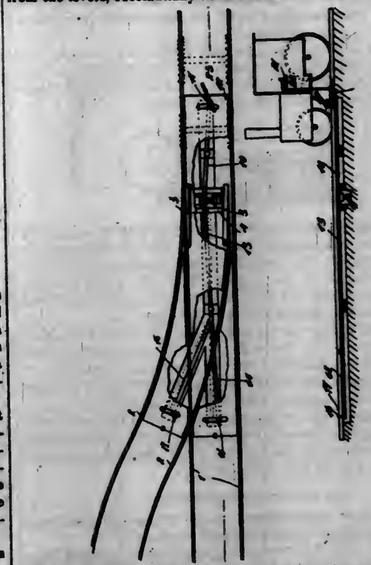
5. In a drill, the combination, with a standard, a nut held to turn in the standard, provided with an attached gear, an exteriorly-threaded hollow shaft received by the said nut and provided with projections at its forward end, and a drill-shaft held to turn in the hollow shaft, provided with a head engaging with one end of said tubular shaft, of means, substantially as shown and described, for revolving the drill-shaft, a shaft driven by said driving mechanism, mounted to turn and to have end movement in the said standard, and a gear connection between the driven shaft and the gear on the said nut, as and for the purpose set forth.

6. In a drill, the combination, with a standard, a nut provided with an attached gear held to turn in the said standard, a tubular shaft exteriorly threaded, received by the said nut, a drill-shaft held to turn in the tubular shaft, having a projection at one of its ends, forming a shoulder for engagement with the tubular shaft, and a ratchet-and-pawl device for turning the drill-shaft, of a driven shaft mounted to turn and to have end movement in said standard or upright, a gear carried by the said driven shaft, a pinion carried by the ratchet-and-pawl driving mechanism, meshing with the said gear, a pinion splined upon the driven shaft, and a double gear, one surface of which double gear meshes with the said pinion and the other surface with the gear on the said nut, substantially as and for the purpose specified.

592,148. RAILWAY-SWITCH-ACTUATING MECHANISM. ALBERT D. HILL, Ottawa, Ill., assignor of one-third to John Pohlig, New Orleans, La. Filed Apr. 5, 1897. Serial No. 630,705. (No model.)

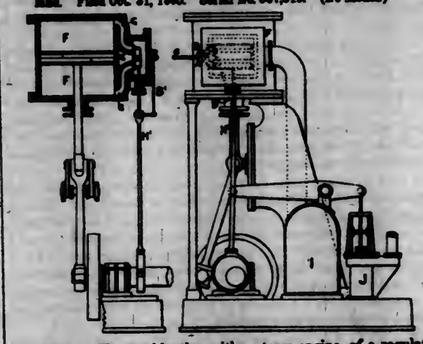
Claim.—1. A switch-operating mechanism, comprising switches, a pivotal connection between said switches, levers extended in opposite directions from the switches and pivoted together, a tappet carried by the levers at their connecting-point, swinging dogs each comprising two diverging arms and adapted to be operated by the tappet, a rack for engagement with said dogs, and means carried by an engine or car for swinging the levers on their pivotal points, substantially as specified.

2. In a switch-operating mechanism, switch-tongues pivotally connected one with the other, swinging levers extended in opposite directions from the switch-tongues and having pivotal connection between the switch-tongues, one of said swinging levers having diverging portions, pins extended upward from the ends of the levers, a tappet carried by the levers at their connecting-point, swinging dogs, each comprising two diverging arms, the inner ones of which are designed to be engaged by the tappet, a rack-bar for engagement with the outer arms of the dogs, and an adjustable shifting lever carried by an engine or car for engagement with the pins extended upward from the levers, substantially as described.



3. A railway-switch, comprising switches, a frame pivotally connected to the switches, rods connected to said frame, dogs mounted to swing on said rods and each consisting of diverging arms, a rack-bar designed to be engaged by the outer arms of the dogs, a horizontally-swinging lever, a tappet carried by said lever and adapted to engage with the inner arms of the dogs to raise the outer arms out of engagement with the rack-bar, a pin extended upward from the lever, and an adjustable shifting lever carried by an engine or car, substantially as specified.

592,144. STEAM-ENGINE. ALFRED HEES, Dunedin, New Zealand. Filed Oct. 31, 1895. Serial No. 567,519. (No model.)



Claim.—The combination with a steam-engine, of a regulating-valve having the semicircular casing A, ports D and E, the T-shaped rocking valve B having its sides rounded to conform to the shape of the said casing, an arm B' attached to the said valve, and inlet C, the said valve attached to the steam-chest of said engine and communicating with the cylinder thereof and adapted to admit water in regular quantities and a valve-rod for actuating said regulating-valve, connected at one end to the eccentric-rod of the said engine and at the other end to the arm B' of the valve, substantially as described.

592,145. PAPER-WEIGHT AND SPONGE-CUP. EPHRAIM JAGGER, Geneseo, Ill. Filed Feb. 3, 1897. Serial No. 621,833. (No model.)

Claim.—1. A paper-weight or like article, provided with a chamber in its upper face, a channel connected with the bottom of said chamber, having an enlargement at its outer end, and a bulb adapted

to contain liquid and constructed of an elastic material, said bulb being provided with a shank arranged to enter the enlargement at the outer end of said channel and to fill the space at said enlargement, as and for the purpose specified.

2. A sponge-holder having a rigid base with a concavity in its upper side forming a cup to receive the sponge, the base having a passage run laterally from the bottom of the concavity, and a compressible bulb in communication with the passage.



3. A sponge-holder having a rigid body portion with a concavity in its upper face, the concavity forming a cup for the sponge, and the body portion having a horizontally-extending passage run from the central lower portion of the concavity to one side of the body portion, and a compressible bulb in communication with said passage and held at the said one side of the body portion.

4. A sponge-holder having a rigid base with a concavity in the upper side, the concavity forming a cup for the sponge and the body portion having a passage run from the concavity to one side of the body portion, and a compressible bulb communicating with the passage and held at the said one side of the body portion.

5. A sponge-holder having a rigid body portion with a concavity in its upper face, the concavity forming a cup for receiving the sponge, and a compressible bulb held at one side of the body portion and having communication with the concavity.

592,146. FENCE-POST. CLINTON H. KEMPTON, Adams, Mich. Filed May 18, 1897. Serial No. 637,058. (No model.)

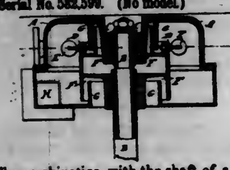


Claim.—1. In a fence-post, the combination of the front and rear rods provided with contiguous upper portions and parallel lower portions and having horizontal bends at the upper terminals of the latter, the rear rod being inclined between the contiguous portions and parallel portions of the rod, upper and lower tie-plates connecting the parallel portions of the rods, the upper tie-plate being provided with grooves receiving said shoulders, and a base arranged within the parallel portions of the rods, between the tie-plates, substantially as described.

2. In a fence-post, the combination of the front and rear rods having parallel lower portions and provided at the upper ends thereof with bends forming horizontal shoulders, upper and lower tie-plates connecting the parallel portions of the rods, the upper tie-plate being provided with grooves receiving the said shoulders, and a base composed of bricks or blocks arranged within the parallel portions of the rods between the tie-plates and provided with grooves receiving the rods, substantially as described.

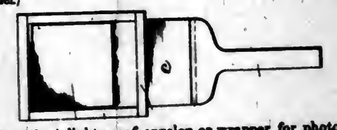
3. In a fence-post, the combination of the front and rear rods formed integral with each other and connected at the top by a bend and having straight contiguous upper portions and straight parallel lower portions, said rods being provided with bends forming horizontal shoulders at the upper ends of the parallel portions, and the rear rod inclining upward therefrom to the contiguous portions, the upper and lower tie-plates connecting the parallel portions of the rods, and a base arranged within the parallel portions of the rods, between the tie-plates, substantially as described.

592,147. CENTRIFUGAL MACHINE. JOHN LAIDLAW, Glasgow, Scotland, and CHARLES A. MATTHEY, Reading, England. Filed Mar. 10, 1896. Serial No. 582,599. (No model.)



Claim.—The combination, with the shaft of a self-balancing suspended centrifugal machine; of a framework provided with an inwardly-projecting flange, and the motor provided with an outwardly-projecting flange overlapping the flange of the framework to prevent the escape of the fluid except through the opening provided for the purpose; substantially as described.

592,148. PHOTOGRAPHIC-PLATE WRAPPER. CLARENCE A. LINDSAY, Washington, D. C. Filed May 8, 1897. Serial No. 635,678. (Model.)



Claim.—1. A light-proof envelop or wrapper for photographic plates having a detachable or removable side or front of the same material as the body thereof and having a transverse slit at one end and means for excluding light therefrom and a pulling piece attached to one end of the front and extending beyond the opposite end.

2. A light-proof envelop or wrapper for photographic plates having a detachable or removable side or front provided with transverse and longitudinal slits or incisions at one end, means for excluding light through the slits and a pulling-piece attached to the front, adjacent to the transverse slit and extending to the opposite end of the envelop.

3. A light-proof envelop or wrapper for photographic plates having a detachable or removable side or front and a pulling-piece secured to one end of said side and extending to the opposite end.

4. A light-proof envelop or wrapper for photographic plates provided with a detachable or removable side or front and having a transverse slit or incision at one end thereof and a pulling-piece secured to said end of the front and extending to the opposite end of the envelop.

5. A light-proof envelop or wrapper for photographic plates having a detachable or removable side or front and having a transverse slit or incision at one end and provided with a light-excluding flap or shield extending over the slit and a separate pulling-piece attached to one end of the front of the envelop.

6. A light-proof envelop or wrapper for photographic plates having a transverse slit at one end and provided with light-excluding shields on the inside and outside of said slit to exclude light therefrom and a pulling-piece extending from one end, to and beyond the opposite end of the envelop.

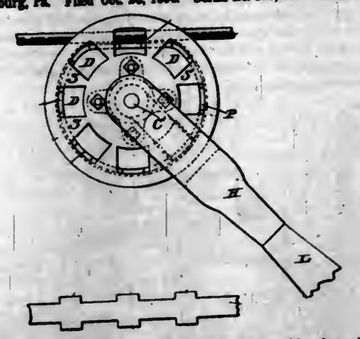
592,149. COAT. GEORGE LEITHAUS, Baltimore, Md. Filed Apr. 13, 1897. Serial No. 631,897. (No model.)



Claim.—1. A garment having a waist provided with a flap on its inner face, a skirt having a pocket to receive the lower end of said waist, fastening means connecting said flap and waist with the inner and outer walls respectively of said pocket and a belt covering the seam formed by the top of the skirt and the waist, said belt being suitably held in place on said skirt.

2. A garment having a waist provided with a flap on its inner face above and near the lower edge thereof and extending around the same, a skirt having a pocket at its upper end to receive the lower end of said waist, fastening means for securing said flap to the inner wall of said pocket and fastening means for securing the lower end of said waist to the outer wall of said pocket, the respective fastening means for said flap and lower end of waist being staggered.

592,150. TRAVELING CONTACT DEVICE. EMIL LUNDQVIST, Pittsburg, Pa. Filed Oct. 28, 1896. Serial No. 610,319. (No model.)



Claim.—1. In a traveling contact device, in combination with a conductor, a wheel, having recesses concentric with the axle of the wheel; an elastic continuous ring, of suitable electric conducting material, on said wheel and supported by the walls of said recesses; means for pressing said wheel against said conductor whereby when the wheel is forced against the conductor that part of the ring so pressed will be forced toward the center of the wheel while the remaining part of the ring is conformed to the said recesses, substantially as described.

2. In a traveling contact device, a wheel, having recesses concentric with the axle of the wheel; an elastic continuous ring, of suitable electric conducting material supported by the walls of said recesses, substantially as described.

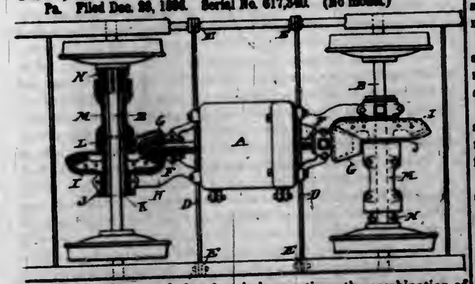
3. In a traveling contact device, a wheel, provided with a groove and having recesses concentric with the axle of the wheel on both sides of the groove; spokes between said recesses; an elastic continuous ring, of suitable electric conducting material supported by the walls of said recesses, substantially as described.

4. In a traveling contact device, a wheel, provided with a groove and having recesses concentric with the axle of the wheel on both sides of said groove; spokes between said recesses; an elastic continuous ring, of suitable electric conducting material in said groove, said ring having projections supported by the walls of said recesses, substantially as described.

5. In a traveling contact device, a grooved wheel, having recesses concentric with the wheel-axle; an elastic continuous ring, of suitable electric conducting material in said groove and supported by the walls of said recesses; said wheel provided with removable flanges, substantially as described.

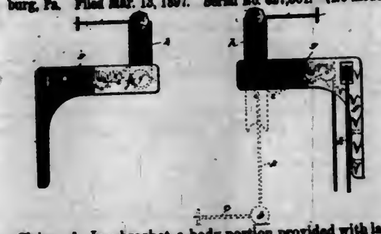
6. In a traveling contact device, a wheel, having recesses concentric with the axle of the wheel; an elastic continuous ring of suitable electric conducting material supported by the walls of said recesses, said ring provided with a supplemental ring of good wearing and electric conducting material, substantially as described.

592,151. ELECTRIC-CAR TRUCK. EMIL LUNDQVIST, Pittsburg, Pa. Filed Dec. 30, 1896. Serial No. 617,340. (No model.)



Claim.—In a truck for electric locomotives, the combination of two wheel-axles; a driving-motor solely mounted on the truck-frame between the axles, a motor-shaft, having a pinion on either end thereof; a motor-casing; said pinions each engaging a gear rotatively mounted in bearings in the extensions of the motor-casing and loosely surrounding the axles, said gears connected to the axles through flexible joints, consisting of sleeves loosely surrounding the axles, one end of each sleeve flexibly coupled to the axles and the other end similarly coupled to the gears, substantially as described.

592,152. CURTAIN-POLE APPLIANCE. JOHN P. S. LYONS, Pittsburg, Pa. Filed Mar. 13, 1897. Serial No. 627,381. (No model.)



Claim.—1. In a bracket, a body portion provided with laterally-extending arms, space between said arms, pulleys secured between said arms, pivoted swinging supports secured to the outer end of each of the arms, and provided with cut-away portions, in combination with a pole adapted to fit in said cut-away portions, and provided with pins having heads, rings carried by said pole, ropes or chains carried by the pole and supported by the pulleys, substantially as shown and described.

2. In a curtain-bracket, a body portion having laterally-extending arms, pulleys secured between the arms of said lateral extensions, pivoted swinging supports secured to the outer end of each arm, in combination with a curtain-pole, means for holding said pole in engagement with said supports, and means for securing said brackets to the window-frame, substantially as shown and described.

592,153. PRECIPITATING PRECIOUS METALS FROM SOLUTIONS. JOHN S. MACARTHUR, Polloksfields, Scotland, assignor to the Gold and Silver Extraction Company of America, Limited, Glasgow, Scotland. Filed Aug. 7, 1894. Renewed Sept. 5, 1896. Serial No. 605,081. (No specimens.) Patented in England Apr. 24, 1894, No. 8,134; in Victoria July 10, 1894, No. 11,497; in New South Wales July 12, 1894, No. 5,171; in Queensland July 14, 1894, No. 2,695; in Tasmania July 16, 1894, No. 1,399; in New Zealand July 23, 1894, No. 6,967; in South African Republic Aug. 7, 1894, No. 634; in Brazil Aug. 23, 1894, No. 1,743; in Canada Oct. 8, 1894, No. 47,145; in South Australia Jan. 2, 1895, No. 2,846; in India Jan. 11, 1895, No. 193; in Western Australia July 10, 1895, No. 701; in Chile Nov. 21, 1895, and in Mexico Nov. 10, 1896, No. 925.

Claim.—1. The process of precipitating a precious metal from a cyanid solution, which consists in subjecting said solution containing a base metal to the action of a precipitant protected by a metal inert in said solution.

2. The process of precipitating a precious metal from a cyanid solution, which consists in subjecting said solution containing a base metal to the action of a precipitant protected by a coating of lead.

3. The process of precipitating a precious metal from a cyanid solution, which consists in subjecting said solution containing a base metal to the action of a precipitant protected by finely-divided particles of lead.

4. The process of precipitating a precious metal from a cyanid solution which consists in subjecting said solution containing a base metal to the action of a precipitant composed of zinc protected by a metal inert in said solution.

5. The process of precipitating a precious metal from a cyanid solution which consists in subjecting said solution containing a base metal to the action of a precipitant protected by lead.

6. The process of precipitating a precious metal from a cyanid solution, which consists in subjecting said solution containing a base metal to the action of a precipitant composed of zinc protected by a coating of lead.

7. The process of precipitating a precious metal from a cyanid solution, which consists in subjecting said solution containing a base metal to the action of a precipitant composed of zinc protected by finely-divided particles of lead.

8. The process of precipitating a precious metal from a cyanid solution which consists in subjecting said solution containing a base metal to the action of a precipitant composed of zinc protected by lead.

9. The process of precipitating a precious metal from a cyanid solution, which consists in subjecting said solution containing a base metal, such as mercury or copper to the action of a precipitant protected by lead.

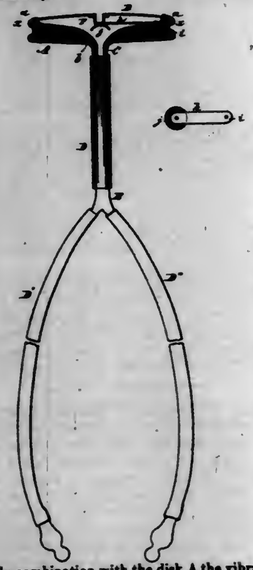
10. The process of precipitating a precious metal from a cyanid solution, which consists in subjecting said solution containing a base metal to the action of a precipitant protected by metallic lead, substantially as described.

11. The process of precipitating a precious metal from a cyanid solution containing copper, which consists in subjecting said solution to the action of a precipitant protected by metallic lead so as to in-

sure perfect contact between the lead and the solution and thereby remove the copper prior to the precipitation of the precious metal

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592,154. APPARATUS FOR EXAMINING HEARTS, LUNGS, &c. DANIEL B. MANN, Blackheath, Canada. Filed Sept. 14, 1896. Serial No. 605,708. (No model.)



Claim.—1. In combination with the disk A the vibrating plate *h*, attached to the inner surface of the disk, and to its outer end is secured a convex-shaped plate *j*, to transmit and focus vibrations from the diaphragm B to the pendant and ear-tips, substantially as specified.

2. In an apparatus for examining the heart and lungs, a metallic disk, having a central opening, and a vibrating diaphragm detachably fastened to said disk, in combination with a plate-spring fastened at one end to the said disk and at the other end in contact with the center of the inner side of the diaphragm, a convex plate attached to the said spring at this central point and presenting its concavity inward and a tube leading from the opening of the said disk and provided with branches which are adapted to be applied to the ears substantially as set forth.

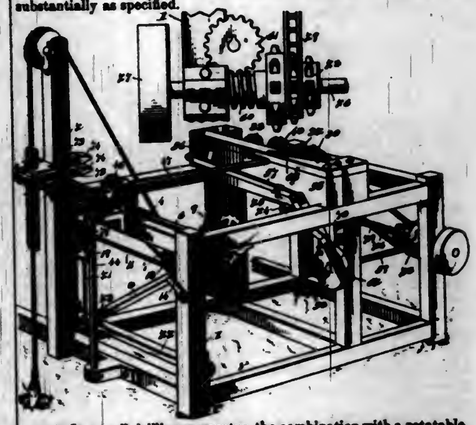
3. In a stethoscope a convex plate *j*, in combination with a vibrating diaphragm with which it moves, a concave disk to which the said diaphragm is attached, and a tube extending from said disk, the concave side of the said plate *j* being arranged over the outlet-opening of the said disk and serving to transmit sound more perfectly through the said tube substantially as set forth.

592,155. WELL-DRILLING MACHINE. PRESLEY P. MANN, South Greenfield, Mo. Filed Dec. 23, 1896. Serial No. 616,756. (No model.)

Claim.—1. In a well-drilling apparatus, the combination of a rotatable drill-rope guide, a slide provided with means for attachment to a drill-rope, and mounted for reciprocatory and held from independent rotary movement in said guide, and means for communicating positive oscillatory movement, or rotary movement alternately in opposite directions, to the guide, said means including a rock-shaft permanently connected by gearing with the guide, oppositely-rotated continuously-operating gears, and means for communicating motion from said gears, alternately, to the rock-shaft, substantially as specified.

2. In a well-drilling apparatus, the combination of a rotatable guide, a slide provided with means for attachment to a drill-rope, and mounted for reciprocatory and held from independent rotary movement in said guide, and means for communicating oscillatory movement, or rotary movement alternately in opposite directions, to said guide, said means including a rock-shaft and operating devices, and a chain traversing and permanently connecting chain-wheels carried respectively by the guide and rock-shaft, substantially as specified.

3. In a well-drilling apparatus, the combination of a tubular rotatable guide having alined trunnions and an intermediate gear, spaced bearing-blocks of which one is removable, means for securing the removable bearing-block in operative relation with the other, a slide provided with means for attachment to the drill-rope and mounted for reciprocatory and held from independent rotary movement in said guide, a rock-shaft and means for actuating the same, and operating connections between the rock-shaft and the gear of the guide, substantially as specified.



4. In a well-drilling apparatus, the combination with a rotatable guide and means for communicating motion thereto, of a slide having parallel sides adapted to fit in opposite grooves of the guide, and also having its ends provided with alined rope-seats, terminal pivotal clamps mounted upon the ends of the slide to close said rope-seats, and means for securing the clamps in operative relation with the rope-seats, the slides being adapted to be introduced longitudinally into the guide, substantially as specified.

5. In a well-drilling apparatus, the combination of a rotary rope-guide through which a drill-rope is adapted to extend, means for attachment to the drill-rope and fitted in said guide to allow reciprocatory and prevent independent rotary movement of said rope, upper and lower bearing-blocks in which the extremities of said guide are fitted, swinging bails connected to the journal-blocks, cams mounted upon the bails for engagement with a derrick-post to secure the bearing-blocks in their operative positions, and means for communicating rotary movement to the rope-guide, substantially as specified.

6. In a well-drilling apparatus, the combination with a rotary rope-guide through which a drill-rope is adapted to extend, and connections between said guide and a drill-rope whereby the latter is allowed reciprocatory and held from independent rotary movement, and means for communicating rotary movement alternately in opposite directions to the rope-guide, said means including a reversible shaft, connections between said shaft and the rope-guide, a counter-shaft having oppositely-disposed pinions adapted to alternately engage a gear on said reversible shaft, and operating devices for the counter-shaft, substantially as specified.

7. In a well-drilling apparatus, the combination with a rotary rope-guide through which a drill-rope is adapted to extend, and connections between the rope-guide and the drill-rope whereby the latter is allowed reciprocatory and held from independent rotary movement, a reversible shaft operatively connected with the rope-guide, a slide having one end of the reversible shaft mounted therein and arranged for movement in a direction transverse to said shaft, a counter shaft carrying the twin oppositely-disposed pinions for alternate engagement by a gear on the transversely-movable extremity of the reversible shaft, and means for communicating continuous rotary movement in a uniform direction to the counter-shaft, substantially as specified.

8. In a well-drilling apparatus, the combination with a rotary rope-guide, and connections between the rope-guide and the drill-rope whereby the latter is allowed reciprocatory and held from independent rotary movement, a reversible shaft operatively connected with said rope-guide, a counter-shaft having twin oppositely-disposed pinions for alternate engagement with a gear on the contiguous extremity of said reversible shaft, a slide adapted for reciprocatory movement to cause the alternate engagement of said pinions with the gear on the reversible shaft, a crank-wheel having a wrist-pin, an operating-lever connected with said slide, a pitman having a slot in which the wrist-pin of said crank-wheel operates, to alternately shift the operating-lever, and means for communicating continuous rotary motion to the crank-wheel and counter-shaft, substantially as specified.

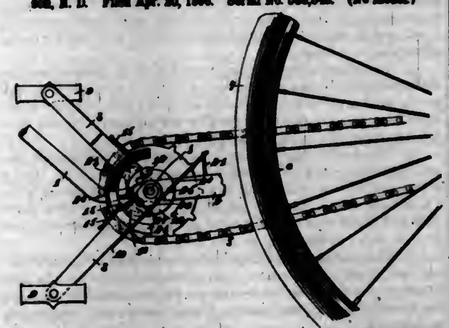
9. In a well-drilling apparatus, the combination with a rotary rope-guide, and connections between the rope-guide and the drill-rope whereby the latter is allowed reciprocatory and held from independent rotary movement, a reversible shaft operatively connected with said rope-guide, a counter-shaft having twin oppositely-disposed pinions for alternate engagement with a gear on the contiguous extremity of said reversible shaft, a slide adapted for reciprocatory movement to cause the alternate engagement of said pinions with the gear on the reversible shaft, a crank-wheel operatively connected with the slide to shift the latter at intervals from one limit of its movement to the other, a locking device including a pin or stud adapted to engage and hold the slide in its operative positions, trip mechanism operatively connected with said crank-wheel for releasing the slide at intervals, and means for communicating rotary movement to the crank-wheel and counter-shaft, substantially as specified.

10. In a well-drilling apparatus, the combination with a rotary rope-guide, and connections between the rope-guide and the drill-rope whereby the latter is allowed reciprocatory and held from independent rotary movement, a reversible shaft operatively connected with said rope-guide, a counter-shaft having twin oppositely-disposed pinions for alternate engagement with a gear on the contiguous extremity of said reversible shaft, a slide adapted for reciprocatory movement to cause the alternate engagement of said pinions with the gear on the reversible shaft, a crank-wheel, connections between the crank-wheel and the slide for shifting the latter at intervals to opposite limits of its movement, a locking device having a pin or stud to engage the slide at the limits of its movement, a trip-rod connected to the pin or stud, a trip-arm arranged in the path of the trip-pin on said crank-wheel, the extremity of the trip-rod being arranged in the path of said trip, and means for communicating rotary motion to the counter-shaft and crank-wheel, substantially as specified.

11. In a well-drilling apparatus, the combination with a rotary rope-guide of tubular construction, a drill-rope extending through said guide, and a slide attached to the drill-rope and mounted for reciprocation in the guide, a spudding-lever carrying a spudding-pulley traversed by said drill-rope, a reversible shaft operatively connected with said rope-guide, a driving-shaft carrying a cam for engagement with the spudding-lever, a counter-shaft having twin oppositely-disposed pinions for alternately engaging and communicating rotary movement in opposite directions to a gear on said reversible shaft, cone-pulleys arranged respectively on the counter and main shafts and traversed by a belt, and means connected with the main shaft for causing the alternate engagement of said pinions with the gear on the reversible shaft, substantially as specified.

12. In a well-drilling apparatus, the combination with a spudding-lever, a drum for a drill-rope, a feed-shaft operatively connected with the drum, a worm meshing with a worm-gear on the feed-shaft, a ratchet-wheel fixed to the spindle of the worm, a pawl for engagement with the ratchet-wheel, a slotted pivot-plate carried by the spudding-lever contiguous to its fulcrum, a set-screw for securing said plate at the desired adjustment, and a pitman connecting the plate with the pawl, substantially as specified.

592,156. BICYCLE DRIVING-GEAR. JAMES H. MARTIN, Hicksville, N. D. Filed Apr. 20, 1896. Serial No. 588,243. (No model.)



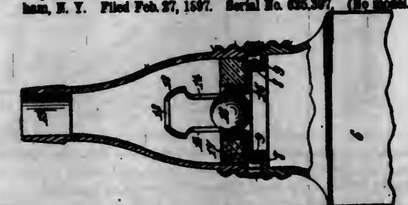
Claim.—1. In a driving-gear for bicycles and the like, the combination of a frame, a crank-shaft journaled therein, ratchet-disks on the ends of the crank-shaft, lugs on the ratchet-disks, pedal-levers having oppositely-acting dogs engaging respectively the teeth and lugs of the ratchet-wheels, one dog of each lever being arranged to lock the lever against backward movement with respect to its ratchet-disk, a connection between the levers, whereby when one is pressed downward, the other will move upward, and means to disengage said dog when the crank reaches the end of its stroke, substantially as set forth.

2. In a driving gear for bicycles, the combination of a frame, a crank-shaft journaled therein, ratchet-disks on the ends of the crank-shaft, lugs on the ratchet-disks, pedal-levers having dogs to engage the teeth of the ratchet-disks and having other dogs to engage the lugs on said disks, a connection between the said levers whereby the movement of one crank in one direction causes a movement of the other crank in the opposite direction and a guide-frame having parts to engage and operate the dogs at the downstroke of the cranks, substantially as set forth.

3. In a driving-gear for bicycles, the combination with a crank-shaft provided with toothed wheels having lugs on their faces, pedal-levers having dogs for engaging the teeth of the said wheels and a connection between the levers whereby the movement of one crank in one direction causes a movement of the other crank in the opposite direction, of dogs pivoted to the levers and adapted to engage the lugs of the said wheels, said dogs having downwardly-projecting curved ends, and stops on the frame and with which the ends of the dogs engage to release them from the lugs, substantially as described.

4. In a driving-gear for bicycles, the combination with a crank-shaft provided with toothed wheels having lugs on their side faces and pedal-levers having dogs for engaging the teeth of the wheel, of gearing between the said levers whereby the movement of one crank in one direction causes a movement of the other crank in the opposite direction, dogs pivoted to the levers and adapted to engage the lugs of the toothed wheels, said dogs having downwardly-projecting curved ends, a guide-frame and rollers on the guide-frame for engaging the dogs to release them from the lugs, substantially as herein shown and described.

592,157. NON-REFILLABLE BOTTLE. ALFRED H. MEEKS, Chatham, N. Y. Filed Feb. 27, 1897. Serial No. 625,397. (No model.)



Claim.—1. The combination with a bottle-body, and a separate bottle-neck, each having a screw-threaded portion, of an external screw-threaded collar connecting the bottle-neck with the bottle-body, a spring-pawl and ratchet engaging said neck and body and preventing the collar from being turned backward to unscrew the parts, and a ball valve arranged in the bottle-body to permit discharge of the contents from, but prevent the introduction of a liquid or substance into the bottle-body, substantially as described.

2. The combination with a bottle-body, and a separate bottle-neck, provided, respectively, with right and left hand external screw-threads, of an external right and left hand screw-threaded collar engaging the right and left hand screw-threads of the bottle-neck and bottle-body, a spring-pawl and ratchet engaging said neck and body and preventing the collar from being unscrewed, a cage extending from the bottle-body into the bottle-neck and constructed with lateral and end orifices, and a ball-valve arranged in said cage, substantially as described.

3. The combination with a bottle-body having at its top portion chambers or recesses and a cage provided with lateral orifices, spring-pawls arranged in said chambers or recesses, a separate bottle-neck, a ball-valve in the cage, means for retaining the ball-valve therein, a screw-threaded collar engaging the bottle-neck and bottle-body and provided with an internal ratchet with which the spring-pawls engage, and means for preventing the bottle-neck from being turned independent of the bottle body, substantially as described.

4. The combination with an externally-screw-threaded bottle-body and an externally-screw-threaded bottle-neck, of spring-pawls seated on the bottle-body, and a screw-threaded collar engaging the screw-threads of the bottle-neck and bottle-body and provided with an internal annular row of ratchet-teeth with which the spring-pawls engage, substantially as described.

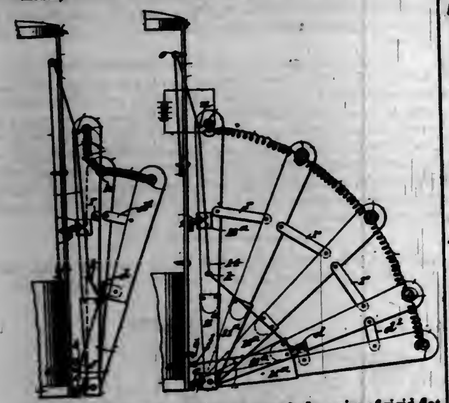
5. The combination with a bottle-body having at its top portion a cage provided with lateral orifices, a packing-ring surrounding the cage, a ball-valve insertible through one of said orifices and retained in the cage by said packing-ring, a bottle-neck closed at its lower end by said packing-ring, and means for connecting the bottle-neck with the bottle-body, substantially as described.

6. The combination with a bottle-body having at its top portion chambers or recesses and a cage provided with lateral orifices, a ball-valve arranged in the cage, a packing-ring surrounding the cage, a

bottle-neck closed at its lower end by said packing-ring, spring-pawls arranged in said chambers or recesses, and a screw-threaded collar connecting the bottle-neck with the bottle-body and provided with an internal ratchet with which the spring-pawls engage, substantially as described.

7. The combination with a bottle-body having at its top portion sockets and a cage provided with lateral orifices, spring-pawls seated in the bottle-body, a separate bottle-neck having lugs or projections to enter said sockets, and a screw-threaded collar connecting the bottle-neck and bottle-body, and having an internal ratchet with which the spring-pawls engage, substantially as described.

592,158. CAR-SIGNAL. CAROLINE B. MILLER, Minneapolis, Minn. Filed May 5, 1896. Renewed May 19, 1897. Serial No. 637,267. (No model.)



Claim.—1. A signaling device, composed of a series of rigid flat blades flexibly connected together and adapted to fold from one end, lights held near the free ends of said blades, and means to fold the blades by draft on the outer blades of the series, as specified.

2. A signaling device, composed of foldable blades apertured near their free ends, an electric light held in the aperture of each blade, and circuit-wires flexibly connecting all the lamps to a source of electricity, as specified.

3. A signaling device, comprising a bracket-plate adapted for upright attachment on either end of a car and transferable from end to end thereof, and a foldable signal composed of a plurality of blades pivoted on a bracket-box by one end of each blade, the blade nearest the bracket-plate being removably attachable thereto, as specified.

4. A signaling device, comprising a bracket-plate adapted for upright attachment on the end of a car, a fan-like foldable signal securable on the side of said bracket-plate, means to illuminate the signal, and a device which is adjustable from the car and adapted to fold the signal, as specified.

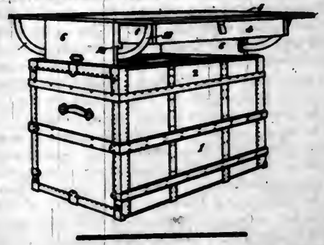
5. A signaling device, comprising a bracket-plate, means to detachably secure said plate on either end of a car, a fan-like foldable signal having its free ends laterally apertured, electric lamps in said apertures, and an electric circuit for said lamps, as specified.

6. A signaling device, comprising a bracket-plate, means to detachably secure said plate on the end of a car, a signal composed of a series of blades pivoted to fold from one end, and having electric lamps held in apertures at opposite ends of said blades, means to removably secure the blades on the bracket-plate, means to fold and release the folded blades, and an electric circuit for the lamps, as specified.

592,159. COMBINED TRUNK-TRAY AND TABLE. CHARLES H. MILLER, Los Angeles, Cal. Filed Jan. 15, 1897. Serial No. 619,295. (No model.)

Claim.—1. The combination of a trunk-tray, a trunk for supporting the tray, the tray having hinged sides adjustably secured in either a vertical or horizontal position which may be inverted to form a table, dowel-pins on the ends of the tray, and sockets in the trunk for supporting the tray when it has been transformed into a table, substantially as set forth.

2. The combination of a tray having hinged sides adapted to be folded back and supported in a horizontal position when it is desired to change the tray into a table, an inner tray adapted to fit within the outer tray and cross-pieces on the outer tray serving as a support for the inner tray which forms a drawer when the outer tray has been converted into a table, substantially as set forth.



592,160. SHIRT-STRETCHER. SIDNEY MOE, Chicago, Ill., assignor to the Troy Laundry Machinery Company, Limited, same place. Filed Jan. 14, 1896. Serial No. 575,339. (No model.)



Claim.—1. A shirt-stretching mechanism comprising independently-pivoted jaws, one of which is provided with a device for retaining the closed jaws in an adjusted position and the other of which jaws is provided with means for releasing said retaining device.

2. A shirt-stretching device comprising jaws, one of which is a gravitating jaw, said jaws being pivotally mounted on a common pivot for independent or synchronous movement, and a pivoted device carried by one of said jaws, and means on the other for cooperation therewith to cause said jaws to move in unison; substantially as described.

3. In a shirt-stretching device, the combination of oppositely-disposed jaws, pivotally mounted for movement independent of each other, means carried by said jaws for connecting them to move in unison, and a rack-and-pawl mechanism for holding the jaws in their adjusted position; substantially as described.

4. The combination with the jaws mounted for independent pivotal movement, of a pivoted lever carried by one jaw, and a projection movable with the other jaw and located upon the opposite side of the axis from the jaw itself whereby the pivoted lever of the other jaw is adapted to wedge against said projection, substantially as specified.

5. The combination with the jaws mounted for independent pivotal movement, of a pivoted lever carried by one of said jaws, a projecting arm carried by the other jaw for engagement with said lever, and a rack-and-pawl mechanism for holding the parts in their adjusted position; substantially as described.

6. The combination with the jaws mounted for independent pivotal movement, of a pivoted lever carried by one of said jaws, a projecting arm carried by the other jaw for engagement with said lever, a rack-and-pawl mechanism for holding the parts in their adjusted position, and means for actuating said pawl to separate the jaws; substantially as described.

7. The combination with the jaws mounted for independent pivotal movement, of means, a portion of which is movable with each jaw for causing the same to move together, and a rack-and-pawl mechanism, and releasing devices carried by and movable with said jaws for separating the same; substantially as described.

8. The combination with the jaws mounted for independent pivotal movement, of a lever pivotally mounted on one of the jaws, a curved arm carried by the other jaw for engagement with said lever, a fixed rack, a pawl carried by one of the jaws for engagement therewith, and means carried by the other jaw to disengage the said pawl from its rack; substantially as described.

9. The combination with the jaws mounted for independent pivotal movement on a common shaft, of means for locking the jaws together to move in unison, and means for automatically returning the same to their normal position when disconnected; substantially as described.

10. The combination with the jaws mounted for independent pivotal movement on a common shaft, of means for locking the jaws together to move in unison, means for automatically returning the same to their normal position when disconnected, and a pawl-and-rack mechanism for holding the same in their adjusted position; substantially as described.

11. The combination with the jaws mounted for independent pivotal movement, of a rack, a pawl pivotally mounted on one of the jaws, and having an arm, and a lug carried by the hub of the other jaw in line with and adapted to move said arm; substantially as described.

12. In a shirt-stretching device, a jaw having a longitudinal recess, combined with a tubular yielding strip having a portion thereof in said recess, and a rod inserted within said strip and compressing the same within the recess; substantially as described.

13. The combination with the jaws mounted for independent pivotal movement, of a rack, a pawl pivotally mounted on one of the jaws, and having an arm, and a lug carried by the hub of the other jaw in line with and adapted to move said arm, and means for locking said jaws together to move in unison; substantially as described.

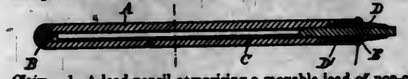
14. In a shirt-stretcher, the combination of jaws pivotally mounted upon a common shaft for movement independent or synchronous, pivoted means on the one jaw engaging means on the other for binding them together to move in unison, and means on the one jaw engaging means on a fixed part for holding the jaws in their clamped adjusted position about their pivot; substantially as described.

15. In a shirt-stretcher, the combination of jaws pivotally mounted upon a common shaft for movement independent or synchronous, pivoted means on the one jaw engaging means on the other for binding them together for moving in unison, means on the one jaw engaging means on a fixed part for holding the jaws in their clamped adjusted position about their pivot, and provision whereby when the jaws are disconnected their holding means are automatically thrown out of operative position; substantially as described.

16. In a shirt-stretcher, a casting formed with horizontal arms, and a toothed bar disposed centrally between said arms, a shaft held in said arms, jaws pivotally mounted upon said shaft for independent movement, means carried by one of the jaws for engagement with cooperating means on the other jaw for locking them together, and a pivoted pawl carried by one of the jaws for engaging the toothed bar to hold the jaws in their adjusted position; substantially as described.

17. In a shirt-stretcher, a casting having horizontal arms adapted to receive a shaft, and a centrally-disposed curved arm toothed upon its under side, combined with a movable jaw supported on a shaft held in said arms, and a pivoted pawl carried by said jaw to engage said toothed arm; substantially as described.

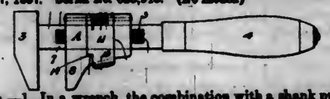
592,161. MECHANICAL LEAD-PENCIL. FREDERICK W. MUSSON, Chicago, Ill. Filed Apr. 6, 1896. Serial No. 586,431. (No model.)



Claim.—1. A lead-pencil comprising a movable lead of non-circular cross-section, the case for said lead having a longitudinal bore which is substantially of the same cross-section, to prevent rotation of the lead, said bore being enlarged at its lower end, a tip having a plain cylindrical portion fitted to the end of the case and a conical end, a nut mounted in the tip near the junction of the cylindrical and conical portions, said lower end and conical portion forming recesses to receive the cuttings or refuse of the lead, said nut being revolved to form notches in and move the lead, substantially as described.

2. A lead-pencil comprising a movable lead of non-circular cross-section, a case for said lead having a longitudinal bore which is of substantially the same cross-section, to prevent rotation of the lead, said bore being enlarged at its lower end, a tip having a slotted cylindrical spring portion *D'*, fitted within the enlarged part of the bore at the end of the case, and a nut mounted in the tip and adapted to engage the lead, and when rotated, to reciprocate it.

592,162. WRENCH. HARRY H. MCKELVEY, Cornopolis, Pa. Filed Feb. 17, 1897. Serial No. 623,915. (No model.)



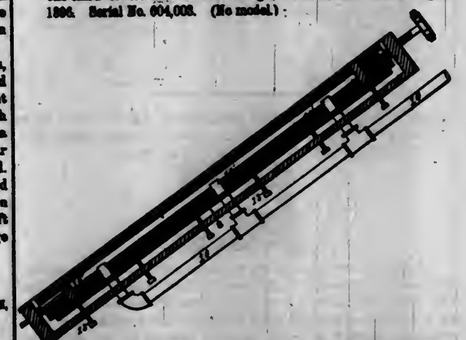
Claim.—1. In a wrench, the combination with a shank provided with a fixed head and countersunk, concave teeth-cavities on one side face of the shank for part of its width and inside the edges; of a sliding jaw mounted on the shank provided with a spring-controlled hinged latch having on its under surface convex projecting teeth adapted to engage the teeth-cavities of the shank, substantially as set forth.

2. In a wrench, the combination with a shank provided with a handle and a fixed head and countersunk, concave, inwardly-tapering teeth-cavities on one side face of the shank for part of its width and inside the edges; of a sliding jaw mounted on the shank provided with a spring-controlled hinged latch having on its under surface convex tapering-sided teeth adapted to engage the teeth-cavities of the shank, substantially as set forth.

3. In a wrench, the combination with a shank provided with a handle and a fixed head and countersunk, concave, inwardly-tapering teeth-cavities on one side face of the shank for part of its width and inside the edges; of a sliding jaw mounted on the shank provided with a spring-controlled hinged latch adapted to be seated between the ends of the jaw and flush with its face, and having on its under surface convex, tapering-sided teeth adapted to engage the teeth-cavities of the shank, substantially as set forth.

4. In a wrench, the combination with a shank provided with a handle and a fixed head and countersunk, concave, inwardly-tapering teeth-cavities on one side face of the shank for part of its width and inside the edges; of a sliding jaw mounted on the shank provided with a spring-controlled hinged latch adapted to be seated between the ends of the jaw and flush with its face, and having on its under surface convex, tapering-sided teeth adapted to engage the teeth-cavities of the shank, and a rounded cross-milled thumb extension, substantially as set forth.

592,163. SUCTION-BOX FOR PAPER-MAKING MACHINES. WILLIAM C. NASH and CHARLES W. BAKER, Neenah, Wis., assignors of one-third to William H. Goodenough, De Pere, Wis. Filed Aug. 26, 1896. Serial No. 604,003. (No model.)

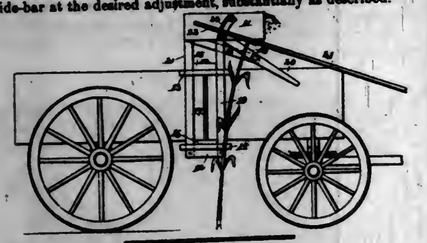


Claim.—1. In a suction-box for a paper-making machine, the combination with said box arranged transversely of the machine, of a pipe arranged lengthwise of said box and terminating near the height of the center of its rolls in a plurality of open ends, a roll arranged lengthwise of said box upon opposite sides of said pipe ends, stops arranged to slide between said rolls near each end thereof for adapting the working length of said box to the width of paper being made, and a follower below said rolls and stops consisting of a straight even-surfaced rectangular-shaped strip having a length substantially the same as said rolls, the surface thereof which is in contact with said rolls being composed of a slightly-compressible material, said follower extending from one to the other of said rolls and to distances beyond their centers, and being arranged to bear upon their under sides and support said rolls substantially their entire lengths, but to permit said stops to slide freely thereon and to thereby exclude the passage of air between said rolls and stops, and also between said stops and the follower, substantially as described.

2. In a suction-box for a paper-making machine, the combination with said box arranged transversely of the machine, of a pipe arranged lengthwise of said box and terminating in a plurality of open ends near the height of the center of its rolls, a roll arranged under the wire and lengthwise of said box upon opposite sides of said pipe ends, stops arranged to slide between said rolls near each end thereof for adapting the working length of said box to the width of paper being made, and a follower below said rolls and stops, consisting of a straight even-surfaced rectangular-shaped strip having a length substantially the same as said rolls, the surface thereof which is in contact with said rolls being composed of a slightly-compressible material, said follower extending from one to the other of said rolls and to a distance beyond their center, and being arranged to bear upon their under side and support said rolls substantially their entire length, but to permit said stops to slide freely thereon and to thereby exclude the passage of air between said rolls and stops, and also, between said stops and follower, and means for driving said rolls independently of the friction of the wire of the paper-making machine, and at a circumferential rate of speed corresponding with that of said wire, substantially as set forth.

592,164. MACHINE FOR TOPPING SORGHUM. TRUMAN M. PARSONS, Percival, Iowa. Filed June 15, 1896. Serial No. 595,583. (No model.)

Claim.—The combination with a vehicle, of two uprights secured thereto, a cross-bar carried by the upper ends of the uprights and projecting forwardly of the forward upright, a diagonal supporting-bar secured to the rear upright and projecting forwardly past the forward upright, a knife carried by the front end of the supporting-bar and extending rearwardly to the forward upright with which the knife is connected, a spring-arm secured to the front arm of the supporting-bar and projecting forwardly and downwardly therefrom, a guide-arm extending from its front end inward over the knife, then back transversely and across the knife, and finally rearward along the outer face of the cross-bar, the transverse portion of the guide-bar being pivoted to the cross-bar, and a rack carried by the cross-bar and coacting with the rear portion of the guide-bar to hold the guide-bar at the desired adjustment, substantially as described.

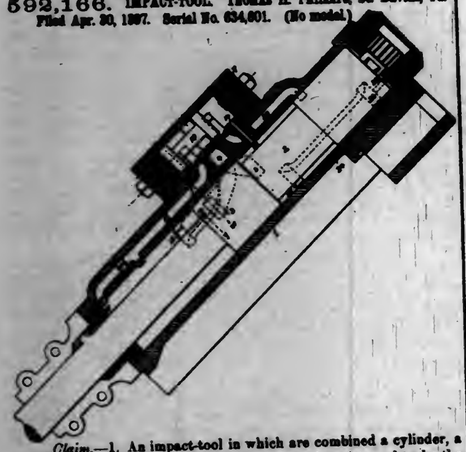


592,165. WIRE-FENCE IMPLEMENT. ISAAC H. PECK, Cohocton, N. Y., assignor of one-half to William S. Burden, Atlanta, N. Y. Filed Apr. 19, 1897. Serial No. 632,857. (No model.)



Claim.—In the construction of wire fences, a winding-spool having its ends constructed to hook on the main strand, and provided with a diagonal aperture to receive the end of the tie-wire, and having at one end adjacent to the lower end of the diagonal aperture a projecting member, all being arranged substantially as shown and for the purposes described.

592,166. IMPACT-TOOL. THOMAS H. PHILLIPS, St. Davids, Pa. Filed Apr. 30, 1897. Serial No. 634,601. (No model.)



Claim.—1. An impact-tool in which are combined a cylinder, a valve-chest, a valve in said chest, a reciprocating piston whereby the flow of steam to the valve-chest is governed, passages for admitting steam to and exhausting it from the ends of the cylinder, and a passage for conveying steam from the cylinder to the front end of the valve-chest, said passage communicating with the cylinder through a main port, and through a contracted passage which is opened to the steam in advance of the opening of the main port, for the purpose specified.

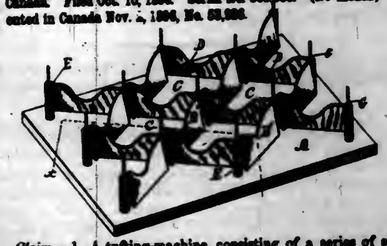
2. An impact-tool in which are combined a cylinder, a valve-chest, a reciprocating piston, a reciprocating valve, passages for admitting steam to and exhausting it from the rear end of the cylinder, an induction and exhaust passage leading from the valve-chest and having two ports in the cylinder, one at the front end of the same, and one some distance rearwardly from said front end, and a choke-plate located in said passage between said ports, the ports being so disposed that the unobstructed port will be covered by the piston while steam is being admitted through the valve, whereby the admission of steam to the front end of the cylinder is wholly through the port controlled by the choke-plate, but the exhaust of steam from said front end of the cylinder is through both ports, substantially as specified.

3. The combination in an impact-tool, of a cylinder having induction and eduction ports, a reciprocating piston in said cylinder, a valve-chest, and a single valve contained therein, said valve controlling the exhaust from both ends of the cylinder and the inlet to the forward end of the same, the inlet of steam to the valve-chest and to the rear end of the cylinder being controlled by the piston, substantially as specified.

4. The combination in an impact-tool, of a cylinder having a reciprocating piston therein, a valve-chest containing a valve adapted to reciprocate therein, and ports and passages for admitting steam from the cylinder first to one end of the valve-chest and then to the other end of the same, the valve-chest having outlets at the ends only through the passages by which steam enters the chest, the piston closing the cylinder end of each inlet-port to the chest when the valve is cushioning, whereby steam trapped in either end of the chest is forced to escape around the disk of the valve or the head of the piston, or both, substantially as specified.

5. The combination in an impact-tool, of a cylinder having a piston adapted to reciprocate therein, a valve-chest having an induction-port communicating with the forward end of the cylinder, and an exhaust-port communicating with the rear end of the cylinder, and a valve adapted to reciprocate in said chest but so disposed in respect to said ports that the exhaust-port will be opened in advance of the inlet-port, substantially as specified.

592,167. TUFTING-MACHINE. EDWARD A. POTTER, Toronto, Canada. Filed Oct. 10, 1896. Serial No. 608,808. (No model.) Patented in Canada Nov. 2, 1896, No. 53,926.



Claim.—1. A tufting-machine, consisting of a series of successive dies, each comprised of a series of plait-formers arranged to form the plaits and recessed at their upper edges, and a series of tuft-formers to form the indentations for the buttons, substantially as specified.

2. A tufting-machine consisting of a base, a series of successive dies mounted on the base, each die comprised of a series of plait-formers recessed at their upper edges and arranged to form the requisite shape and set at an inclination to the base, a tuft-former set at each corner of each die to form an indentation for the button, and a series of pins adapted to be inserted into the tops of the tuft-formers, substantially as specified.

3. A tufting-machine consisting of a base, a series of successive dies mounted on the base, each die comprised of a series of centrally-recessed plait-formers arranged to form the requisite shape and set at an inclination to the base, a tuft-former set at each corner of each die to form an indentation for the button, a series of removable pins adapted to be inserted into the tops of the tuft-formers, and a presser-plate adapted to be supported by the tuft-former, substantially as specified.

592,168. VEHICLE-BRAKE. ISAAC W. PRICE, Rossean, Ohio. Filed Feb. 23, 1897. Serial No. 624,049. (No model.)



Claim.—1. In brakes for vehicles, a lever for drawing said brake in contact with the wheels of the vehicles, provided with a short arm projecting at a right angle thereto, said arm having pivotally secured to its outer end a link pivoted at its opposite end to a bolt secured to the body of the vehicle, a rest or stirrup secured to the body of the vehicle for supporting said link and the short arm of said lever pivoted to said link, substantially as shown and described.

2. In a brake for vehicles the combination of the bent lever Q having the link pivoted to the end of the arm *q* of said lever and the other end of said link pivotally secured to the side of the body of the vehicle, and a draw-rod connecting with the long arm of the bent lever and with a rock-lever secured to the end of a rock-shaft provided with means for drawing a brake in contact with the wheels of the vehicle, substantially as shown and described.

3. In brakes for vehicles an operating-handle consisting of an L or bent lever provided with a short arm, said arm having pivotally attached to the outer end thereof a link-bar pivotally supported at the side of the vehicle-body by a bolt or pin supported at its outer and at its inner end in brackets attached to the body of the vehicle, the heel of the bent lever provided with a spur and said spur engaging with the rod or bolt supporting the end of the link-bar when the bent lever is drawn forward in setting the brake, substantially as shown and described.

4. In brakes for vehicles, an operating-lever for setting a brake consisting of a bent lever provided with a long arm for operating said brake, the short arm of said lever having a link pivoted to its end and said link pivotally secured at its opposite end to the body of the vehicle, a rack provided with spurs and the long arm of said bent lever provided with a feather-edge to engage with said spurs when said brake is set, substantially as shown and described.

5. A brake for wheeled vehicles, consisting of a brake-bar supported on loops attached to bars supported by the hounds of the vehicle, draw-rods connected with said brake-bar and with antifriction sliding blocks, a rock-shaft supporting said sliding blocks, a rocking lever secured to one end of said rock-shaft, a draw-rod connecting said rocking lever with an operating-lever having a bent arm and a link-rod pivoted to said bent arm and to a bolt or pin supported in a bracket attached to the side of the body of said vehicle substantially as shown and described.

6. In brakes for vehicles, antifriction-blocks secured in the ends of loops, draw-rods provided with arms pivotally secured to the sides of said loops on pins passing through said blocks and the arms of said loops, depending arms, rigidly secured to a rock-shaft journaled on the hounds of the vehicle, passing between the arms of the loops in which said blocks are secured, said draw-rods attached to a brake-bar and means for rocking said rock-shaft and drawing said brake in contact with the circumference of the wheels of a vehicle, substantially as shown and described.

592,169. BICYCLE. JOHN C. RAYMOND, New York, N. Y. Filed Oct. 29, 1896. Serial No. 610,424. (No model.)

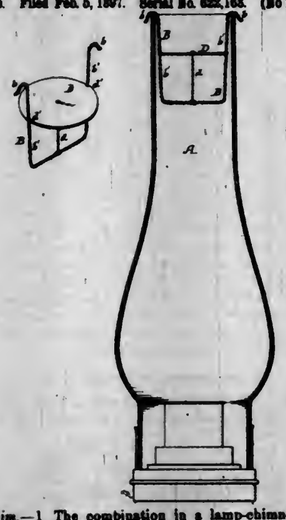


Claim.—1. The combination with the front fork, a drive-wheel mounted in the fork, and a pinion on each end of the shaft of the drive-wheel, of internal gear-wheels mounted on the fork and meshing with the said pinions, crank-arms on the gear-wheels and carrying pedals on their outer ends, a combined handle-bar and handle-crank mounted in a socket carried by the steering-head, and formed of two crank-sections adjustably secured together, whereby the sections can be held diametrically opposite each other or in alinement, and links detachably secured to the crank of the internal gear-wheel and to the sections of the handle-bar, substantially as described.

2. A combined bicycle-handle and handle-crank, consisting of two crank-sections, one provided with a longitudinally-extending angular socket in its inner end and the other with a correspondingly-shaped inner end fitting in the socket, and a screw projecting into the socket and engaging the end of the section in the socket to lock it therein, substantially as described.

3. The combination with a bracket adapted to be secured to the steering-head of a bicycle and provided with a bearing, of a handle-bar mounted in the bearing and held therein by a set-screw, said handle-bar being formed of two crank-sections each provided with a collar, one section having a longitudinally-extending angular socket in its inner end and the other a correspondingly-shaped end fitting in the socket, and a set-screw projecting into the socket into engagement with the end of the section in said socket, substantially as described.

592,170. LAMP-CHIMNEY PROTECTOR. HERMAN ROSENBURGER, Philadelphia, Pa., assignor of one-half to Theodore Binder, same place. Filed Feb. 5, 1897. Serial No. 622,163. (No model.)



Claim.—1 The combination in a lamp-chimney, of a hanger mounted on the chimney and extending within the same, with a solid disk carried by the hanger within the chimney, said hanger extending a considerable distance below the disk, substantially as and for the purpose set forth.

2. The combination of the wire frame having two hooks by which it is hung within the chimney, a central wire extending up from the cross-bar of the frame, a disk mounted on said wire, said disk having notches within which the side bars of the frame rest and said disk being less in diameter than the chimney so as to form a passage around its periphery for the escape of the products of combustion, substantially as described.

592,171. DRAFT-RIGGING FOR CAR-FRAMES. EDWARD M. ROBERTS and EUGENE C. SPALDING, Atlanta, Ga.; said Roberts assignor to said Spalding. Filed Dec. 23, 1896. Serial No. 616,747. (No model.)



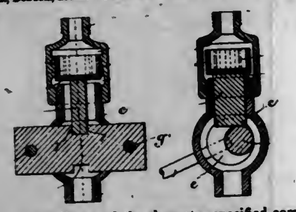
Claim.—1. The combination of the draft-arms, the center-plate carrying the body-bolster, the subsill, and a heel-plate placed between the subsill and body-bolster, and bent to have a bearing on each substantially as shown and described.

2. The combination of the draft-arms, the subsill, the center-plate and body-bolster carried thereby, bolts passing over the body-bolster and passing through the draft-arms and straps located on the inside of the body-bolster, said straps being secured at their lower ends by bolts which pass through the draft-arms and center-plate, and the heel-plate, located between the subsill and body-bolster, substantially as shown and described.

3. The combination of the sill-cap at the end of a car, the arch, the draft-arms, each having an end fitting in the arch, a lug or projection formed on the top and bottom of each arm near the end thereof, said lugs or projections being recessed or cut out to receive the adjacent edges of the arch, bolts passing through the sill-cap, arch and ends of draft-arms, and spools or blocks interposed between the sill-cap and arch; substantially as described.

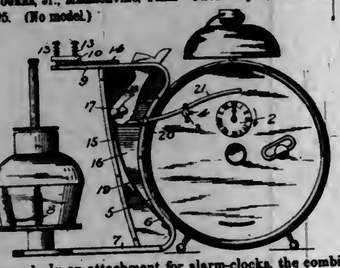
4. The combination of a sill-cap at the end of a car, the arch, the draft-arms each having an end in the arch, a lug or projection formed on the top or bottom of each arm near the end thereof, said lugs or projections being recessed or cut out to receive the adjacent edges of the arch, bolts passing through the sill-cap, arch and ends of draft-arms, and spools or blocks interposed between the sill-cap and arch and adapted to have the ends of the lugs or projections at the top of the draft-arms bear against them; substantially as described.

592,172. VALVE OR FAUCET. ANDREW J. ROBINSON and FRED P. ROBINSON, Boston, Mass. Filed Jan. 23, 1897. Serial No. 620,450. (No model.)



Claim.—An appliance of the character specified comprising the casing *c* having a liquid passage and a valve-seat, the shaft *e* extending through the casing and having a cam-groove therein, a valve stem or strut guided by the walls of the casing and having a step portion fitting in said groove, and a valve adapted to be lifted by the said cam through the medium of said stem or strut, the said cam-shaft being adapted to be inserted from either side of the casing, the fit of the said stem in the cam-groove enabling the cam-shaft to be held from longitudinal movement solely by the stem or strut which, in turn, is held or guided by the walls of the casing.

592,173. TIME LAMPLIGHTER. DILLEN ROGERS, Sr., and DILLEN ROGERS, Jr., Madisonville, Tenn. Filed May 8, 1897. Serial No. 635,695. (No model.)

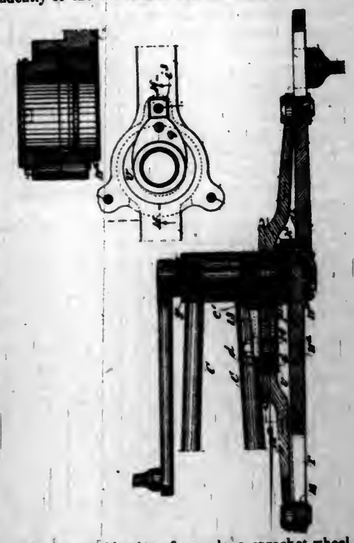


Claim.—1. In an attachment for alarm-clocks, the combination with the frame, the shelf, the pivoted hammer, the spring secured to the frame and bearing against the lower end thereof, and the pivoted trigger of the pins secured to said shelf, the movable serrated plate through which said pins pass, and the coiled springs, substantially as described.

2. The combination with an alarm-clock, provided with an alarm winding-key, and the rib or lug secured to said key, of the frame secured to the clock-case, the shelf, the pivoted hammer having a number of notches, the pivoted trigger engaging therewith, the flat spring secured to the frame and bearing against the lower end of the hammer, the rods at the end of said shelf, the serrated movable friction-plate and the coiled springs, substantially as described.

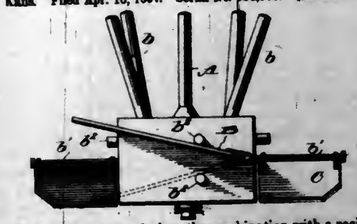
592,174. BICYCLE CRANK MECHANISM. HENRY I. SCRANCH, Holmdel, N. J. Filed June 17, 1896. Serial No. 595,837. (No model.)

Claim.—1. A crank mechanism having an axle, an arm formed integral with the axle and having a hub running around the axle, a second arm with an orificed end receiving a portion of the axle projecting beyond the hub, a ring receiving a portion of the axle on the opposite side of the hub and secured to the second-named arm, a bearing-cone fixed to the axle at a point within the ring, a second bearing-cone fixed to the ring, balls inclosed between the two cones, a joint-ring lying against the bearing-cone which is fixed to the first-named ring, a clamp secured to the outer portion of said first-named ring and extending inwardly to hold the joint-ring in place, a screw extending through the hub to engage the cone on the axle and hold the same, a second joint-ring at the inner side of the bearing-cone for the first-named ring and engaging the hub, a bearing-cone secured to the axle at a point within the second named arm, a second bearing-cone secured to the orifice in said second-named arm, antifriction-balls interposed between the two last-named bearing-cones, a jointring lying against the outer side of the hub of the first-named arm, a nut screwed on the outer extremity of the axle and holding in place the bearing-cone which is carried by said outer extremity, and a cover-plate secured to the second-named arm and inclosing the end of the axle, the second-named arm and the ring which is attached thereto having orifices through which the first-named arm passes, said orifices being larger than the thickness of the first-named arm whereby to permit the second-named arm to have movement independently of the first-named arm, substantially as described.



2. The combination of an axle, a sprocket-wheel mounted eccentrically to the axle and having oppositely-projecting parts, an arm fixed to the axle at a point adjacent to the sprocket-wheel and having a hub running around the axle, a second arm held loosely on the axle and alongside of the hub, the projecting parts of the sprocket respectively having sliding and pivotal connection with the arms, and a ring loose on the axle and at the side of the hub opposite the side having the second arm, the ring and said second arm inclosing the hub of the first arm and being rigidly connected with each other and also having an opening larger than the thickness of the first arm through which opening the said first arm passes and by which the second arm may have slight independent movement on the axle, substantially as described.

592,175. CHURN-DASHER. HOWARD H. SHELLY, Hutchinson, Kans. Filed Apr. 10, 1897. Serial No. 631,599. (No model.)



Claim.—In a churn-dasher, the combination with a reciprocating shaft, of a rotatable rectangular dasher-head or plunger of sufficient area to displace the liquid above and below the same in its reciprocation, vertically-vibrating paddles or blades located upon the sides thereof, journaling pins or posts projecting from one end of each side of said plunger, and pins or lugs carried by each side of the plunger above and below the paddles or blades journaled thereon, substantially as specified.

592,176. REVERSIBLE POCKET-TOOL. LEROY S. STARRETT, Athol, Mass. Filed Apr. 21, 1896. Serial No. 588,441. (No model.)

Claim.—1. The described tool-holding handle, formed of suitable material bent to an approximate U form, and provided with the interior socket *f*, the arms approaching each other, externally threaded at their extremities and having beveled shoulders adjoining such threads, in combination with the milled annular clamping-nut engaging said threads and shoulders and adapted to compress the handle-jaws upon the interposed blade, substantially as set forth.



2. The tapering handle A having the curved external surface and open from end to end, with the adjacent ends parallel, externally threaded and internally grooved longitudinally, in combination with the blade B having one plane side, and upon the other side studs *b b b* adapted to traverse said grooves, whereby the blade may be alternately alined and sheathed, and with the clamping-nut C, serving to tighten the handle-jaws upon said blade, substantially as set forth.

3. The screw-inserting tool described, consisting of the open, tapering handle A of suitable material, having arms parallel at their outer ends, and externally threaded, their flat inner faces longitudinally grooved and one of such grooves being obstructed by a stop, in combination with the reversible blade B adapted to form a perforation and insert a screw therein and having on one face the alined knobs or studs *b* arranged to pass through one groove and to abut on said stop in the other, and with the annular tightening-nut C, inclosing and clamping the jaws and bar, substantially as set forth.

592,177. PORTABLE NEWSPAPER-CABINET. REUBEN O. STUTSMAN, Des Moines, Iowa, assignor to the Bartholomew Company, same place. Filed Mar. 22, 1897. Serial No. 628,664. (No model.)



Claim.—1. The combination of a pair of supporting-wheels, a casing supported at one side of the axle connecting said wheels and having its interior divided into a series of compartments, and a foldable display-stand connected to said casing, substantially as set forth.

2. In a portable newspaper-cabinet, the combination of the casing, A, having its interior divided into a series of compartments, a door for closing each of said compartments, two supporting-wheels arranged on opposite sides of said casing, and an axle connecting said wheels and extending through guides projecting from one of the vertical walls of said casing, substantially as set forth.

3. In a portable cabinet, the combination of a pair of supporting-wheels, an axle connecting said wheels, a casing mounted on said axle and extending above and below the same at one side thereof, and foot-pieces or stops *d* connected to the lower forward end of the casing, substantially as set forth.

4. In a portable cabinet, the combination of a wheeled support, a main casing mounted directly on an axle of said wheel-support, and a supplemental casing adapted to be detachably connected with the main casing and supported thereby on the opposite side thereof from the axle, substantially as set forth.

5. In a portable cabinet, the combination of a wheeled support, a casing mounted on said support, and a supplemental casing having rigidly-projecting arms adapted to extend through guide-clips on the main casing, substantially as set forth.

6. In a portable cabinet, the combination of a pair of supporting-wheels, an axle connecting said wheels, a casing arranged between said wheels and consisting of two parts detachably connected together, one of said parts being supported on the axle and doors for closing each of said sections of the casing, substantially as set forth.

7. In a portable cabinet, the combination of a wheeled support, a casing mounted on said support and a display-stand connected with said casing and consisting of a series of sections hinged together and one or more elastic bands attached to said sections and extending across the upper surface thereof, substantially as set forth.

8. The herein-described display-stand consisting of a relatively stationary section H, a section hinged to each end of said stationary section, and another section hinged to one of the sides of the first said section and adapted to cover said hinged end sections and said stationary section when not in use, substantially as set forth.

9. The herein-described display-stand, consisting of a main stationary section or plate, H, a plate, I, hinged to said stationary section and having a flange, J, at its forward edge, and supplemental sections I′, I², hinged to the ends of said plate, I, and each having at its forward edge a flange I² adapted when said end sections are folded upon the plate I to fit within the space between the forward edge of the body of said plate and the aforesaid flange, J, substantially as set forth.

10. The combination of a pair of supporting-wheels, a casing supported on the axle connecting said wheels and adapted to occupy a vertical position at one side of said axle, and a handle connected with said casing; substantially as set forth.

11. The combination of a pair of supporting-wheels, a casing supported on the axle connecting said wheels and adapted to occupy a vertical position at one side of said axle, and foot-pieces or auxiliary supports on the casing adapted to contact with the ground and partially support the load when said casing is in said vertical position; substantially as and for the purpose set forth.

12. In a portable newspaper-cabinet, the combination of a casing having a door for closing an opening in one of its walls, a pair of supporting-wheels arranged on opposite sides of said casing, an axle connecting said wheels and having the casing supported thereon, and means for holding papers on the outside of said casing; substantially as and for the purpose set forth.

13. In a portable newspaper-cabinet, the combination of a wheeled support, a casing mounted on said support and having a display-surface at its top provided with an upwardly-extending flange or rim along one of its edges, and a yielding retaining-band extending across said display-surface from one side to the opposite; substantially as described.

14. The combination with a portable casing of two leaves each hinged to an end of the top of the casing and adapted to fold against said top when not in use, a supporting device carried by each of said leaves and adapted to engage with a stop on the casing when the leaf is extended, another leaf hinged to one of the sides of the casing-top and adapted to extend parallel to said top when not in use, and an auxiliary support for the last said leaf having its outer end fixed to the leaf and its inner end loosely engaging a guide on the casing, substantially as set forth.

15. The herein-described display-stand consisting of a stationary section or plate H, extension leaves or sections hinged to the ends of said section H, means supplemental to the hinges for supporting the outer ends of said extension-sections, a supplemental section I, hinged to one side of said main section H, means for supporting said supplemental section when in use, and extension leaves or sections hinged to the ends of said supplemental section, I, and provided with means for engaging with the end extensions of the main section, H, when in their extended positions substantially as set forth.

16. The combination with a portable casing, of two leaves H′, H², one hinged to each end of the top of the casing, means carried by each of said leaves for engaging with a stop on the casing and supporting the leaf when in use, another section, I, hinged to one of the sides of the casing-top, an adjustable connection between the outer portion of said section, I, and the casing, and supplemental sections, I′, I², hinged to the ends of the section I and having near their outer ends means for engaging with the sections H′, H², the parts being so related that when not in use the sections H′, H², I′, and I², will fold between the top of the casing and the section I hinged to said top, substantially as set forth.

17. In a portable newspaper-cabinet, the combination of a wheeled support, a casing mounted on said support and a display-stand comprising a series of sections adjustably connected to the casing-top, whereby they can be extended beyond the side of said casing or arranged to lie within the side line of the casing-top, when not in use, substantially as set forth.

592,178. HORSESHOE BAR AND BLANK. WILLIAM A. SWEET, Syracuse, N. Y. Filed Feb. 6, 1897. Serial No. 623,274. (No model.)



Claim.—1. A horseshoe-bar, comprising a body portion tabular or flat along its middle part, with a raised calk portion upon one side or edge thereof, the other side or edge being inclined or beveled from the center outward to form a thinned and lightened base portion, substantially as shown and described.

2. A horseshoe-bar of steel suitable for tempering, comprising a body portion tabular or flat along its middle part, with a sharp raised calk portion upon one side or edge thereof, the other side or edge being thinned on a curved bevel or incline from the center of the bar outward to form a base portion, substantially as shown and described.

3. A horseshoe-bar, comprising the rolled body portion *a*, tabular or flat along its middle part, the upright integral ridge or calk portion *b* sharp on its upper edge and concave on its inner face, and the concave beveled base portion *c*, substantially as shown and described.

4. A horseshoe-bar, comprising the body portion *a*, tabular or flat along its middle part, the upright intermittent ridge portion *b'*, on one margin thereof, constituting integral heel and toe calks for use in the completed shoe, and the concave beveled base portion *c*, on the other margin thereof, substantially as shown and described.

5. A horseshoe-bar, comprising the flat tabular body portion *a*, the upright intermittent ridge portion *b'*, on one margin thereof, constituting integral heel and toe calks for use in the completed shoe, said body portion having the small crease *d* on its flat upper side between the said calks, and the thinned and beveled edge opposite the calk-ridge, forming the base portion *c*, on the other margin thereof, substantially as shown and described.

6. A horseshoe-bar of rolled metal, comprising the flat tabular body portion *a*, the upright intermittent ridge portion *b'*, on one margin thereof, constituting integral heel and toe calks for use in the completed shoe, sharp on their upper edge and concave on their inner face, said body portion having the small crease *d* on its upper side between the said ridge portions, the bevel *e* on its outer edge between the calks, and the thinned and beveled inner edge with concave upper surface, forming the base portion *c*, on the other margin thereof, substantially as shown and described.

7. A horseshoe-blank, comprising a curved flat tabular body portion, integral heel and toe calks constituting an intermittent ridge on the outer margin of the said body portion, and the inwardly-extending base portion on the inner margin of the blank, substantially as shown and described

8. A horseshoe-blank of steel capable of receiving a temper, comprising a curved flat tabular body portion, integral heel and toe calks constituting an intermittent ridge on the outer margin of the said body portion, sharp on the upper edge and concave on the inner face thereof, a crease on the upper surface of the said body portion, near the outer margin thereof between the calks, a bevel *e* on the outer margin of the said body portion between the calks, and an inwardly-extending base portion having a curved beveled upper surface, forming the inner margin of the shoe-blank, substantially as shown and described.

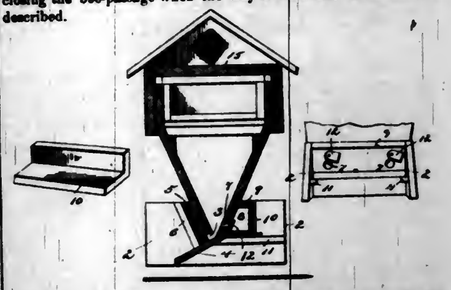
592,179. OIL-CUP. WALLACE R. TILLINGHAST, East Greenwich, R. I. Filed Oct. 10, 1896. Serial No. 608,445. (No model.)



Claim.—The combination with an oil-cup for rapidly-moving parts of machinery and provided with the cylinder, inlet and outlet openings for the oil, the stem, and upper and lower heads; of the herein-described air-valve, provided with a casing inserted in an opening in the upper head extending partly within and partly without the cylinder and provided with lateral ports opening into the cylinder, a valve-seat in said casing, a valve on said valve-seat and arranged to open inwardly, and a spring in said casing below the valve and normally holding said valve upon its seat, the said valve-casing being formed above the valve-seat with an open flared or bell-shaped mouth into which the stem of the valve is extended, whereby the valve-casing acts as a funnel and collects and concentrates the air directly upon the valve to unseat the same when the cup is moving upwardly, as and for the purpose set forth.

592,180. BEEHIVE. JOHN Q. TUCKER, Bolhalis, Tex. Filed May 18, 1897. Serial No. 637,062. (No model.)

Claim.—The combination in a hive provided at its back with a bee-passage and having rearwardly-extending side pieces, of the top cross-piece 9 connecting the side pieces at the upper edges thereof and disposed horizontally, the horizontal cleats 11 secured to the inner faces of the side pieces and located below the bee-passage, the removable tray supported upon the cleats 11 and comprising a horizontal bottom portion extending outward from the rear wall of the beehive and constituting the bottom of the food-chamber, and the vertical end wall extending upward from the outer edge of the horizontal portion to the outer edge of the cross-piece 9, and means for closing the bee-passage when the tray is removed, substantially as described.



592,181. WORK-HOLDER. MARY F. TYREE, Jacksonville, Fla. Filed June 23, 1897. Serial No. 641,915. (No model.)



Claim.—1. The combination with a table-clamp comprising two members A and B, one having a groove therein, a connecting-post C, and a screw, of a lever hinged to member A and having a lip to enter the groove in member A, said lip held normally in yielding engagement in the groove by means of a spring.

2. The combination with a table-clamp comprising two members connected together, the upper member having a groove therein at the end thereof which is connected with the lower member, and a thumb-screw passing through said lower member of the clamp and adapted to engage a table, of standards on the upper member of the clamp, a clip-lever pivoted between its ends between said standards, a lip at one end of said clip-lever and adapted to register with the groove in the upper member of the clamp and a spring secured to the clamp and bearing against the under face of said clip-lever at the other end thereof, substantially as set forth.

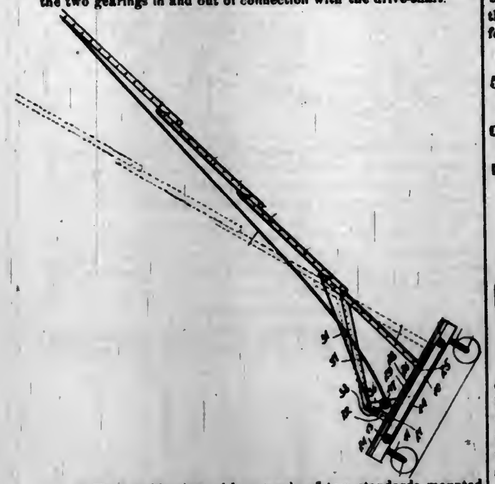
592,182. EXTENSION-LADDER. CHARLES H. WATERMAN, Dayton, Wash., assignor of three-fourths to Adolph Roth, John Brining and James N. Strohm, same place. Filed Apr. 10, 1897. Serial No. 631,540. (No model.)

Claim.—1. The combination with a truck, of a pivoted extension-ladder slidable on the truck, a flexible connection attached to the ladder, a drum to which the flexible connection is attached whereby to swing the ladder on the truck, a flexible connection coacting with the ladder to extend the same, a drum over which the second flexible connection is wound, a drive-shaft geared with the two drums, and clutch mechanism for alternately throwing said gearings in and out of mesh.

2. The combination with a truck, of a pivoted extension-ladder carried thereon, means for swinging the ladder, means for extending the ladder, a drive-shaft, gearing connecting the drive-shaft with the two aforesaid means, and clutch mechanism alternately throwing said gearing in and out of mesh.

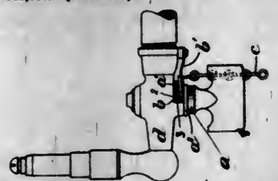
3. The combination of a drive-shaft, a pinion loose thereon, a gear meshed with the pinion, a clutch member sliding on the drive-shaft and capable of engaging the pinion to fix the same to the drive-shaft, a sprocket-wheel loose on the drive-shaft, a second clutch member slidable to engage the sprocket-wheel and fix the same on the drive-shaft, a chain passing over the sprocket-wheel, a U-shaped bar the ends of which are respectively attached to the clutch members to slide the same in unison, and a lever pivoted to the U-shaped bar.

4. The combination with a truck, of an extension-ladder, an endless flexible connection mounted on the truck and attached to the extension-ladder, a link pivotally connecting the extension-ladder with the truck, a flexible connection attached to the extension-ladder to extend the same, two gearings respectively for driving the flexible connections, a drive-shaft, and a clutch alternately throwing the two gearings in and out of connection with the drive-shaft.



5. The combination with a truck, of two standards mounted thereon, a drive-shaft carried in the standards, two pairs of clutch members mounted on the drive-shaft, a U-shaped lever in connection with said pairs of clutch members; a U-shaped shaft in connection with said clutch members, a hand-lever attached to the shaft whereby to communicate movement thereto, an extension-ladder mounted to swing on the truck, and two means, one of said means being for swinging the ladder and the second of said means being for extending the same, such means being respectively controlled by the said pairs of clutch members.

592,188. SELF-LOCKING GAS-FIXTURE. REUBEN S. WHITTIER, Revere, and JOHN H. LANDERS, Boston, Mass. Filed Feb. 6, 1897. Serial No. 622,267. (No model.)



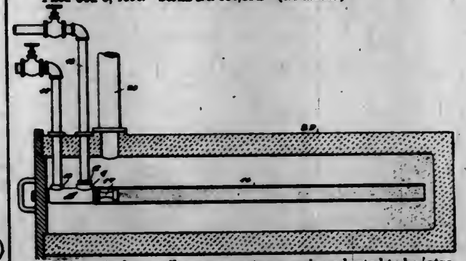
Claim.—A self-locking gas-fixture, comprising a casing having a cock-socket, and a recess at one side of the socket, said recess presenting a horizontal stop-face 2 and vertical stop-faces 3 3; a cock fitted to turn in said socket and having a stud or pin *a'* arranged to bear against either of the stop-faces 3 3, and a stop-flange or shoulder a^2 below the stop-face 2; a spring-supported detent formed to move laterally in the space between the face 2 and flange a^2, and normally in position to engage the pin *a'* when the cock is in its closed position, said detent being provided with a pendent operating device and arranged so that its downward movement by said device is limited by the flange a^2, while its upward movement by the spring is limited by the stop-face 2.

592,184. TIRE. ANGUS M. WILLIAMSON, Philadelphia, Pa. Filed Dec. 21, 1896. Serial No. 616,473. (No model.)



Claim.—As a new article of manufacture, a resilient tire having its body portion formed with a longitudinal and transversely-elongated opening near the central portion of its inner edge extending throughout its length, and in which is received a fastening-band, a second opening which is longitudinal and circular and located immediately above the aforesaid transversely-elongated opening, being in conjunction therewith, but separated therefrom by a strip of flexible material resting upon the fastening-band, and spaced projections of conoidal form and having their outer faces flattened, said projections being integral with the body portion of the tire and extending from the peripheral wall thereof above the longitudinal openings, as and for the purpose set forth.

592,185. GAS APPARATUS. JOSEPH H. BAKER, Brooklyn, N. Y. Filed Oct. 5, 1896. Serial No. 607,894. (No model.)



Claim.—1. In an oil-gas apparatus, a casing adapted to be introduced into a retort, said casing being closed at one end and provided in one side at its closed end with an oil-inlet, and near its open end with a steam-inlet, a distributing-nozzle secured to and projecting from the open end of the casing, and a curved atomizing-nozzle secured in the steam-inlet and projecting into the distributing-nozzle, substantially as described.

2. In an oil-gas apparatus, a casing adapted to be introduced into a retort, said casing being closed at one end and provided with steam and oil openings in its side, a conducting-pipe secured to the open end of the casing, a distributing-nozzle secured to the said open end of the casing and projecting into the conducting-pipe, and a curved atomizing-nozzle secured in the steam-inlet and projecting into the distributing-nozzle, substantially as described

3. In an oil-gas apparatus, the combination with a casing having its open end interiorly and exteriorly threaded and provided in its side with nipples for the attachment of steam and oil supply pipes, a conducting-tube screwed upon the exterior of the casing, a distributing-nozzle screwed into the interior of the said casing and projecting into the conducting-tube, and an atomizing-nozzle provided with a flanged outer end and seated in the steam-nipple, said nozzle being curved and projecting into the distributing-nozzle, substantially as described.

592,186. PROCESS OF PRINTING INLAID PATTERNS UPON LINOLEUM OR LIKE FABRICS. JAMES R. BEDFORD and CHARLES G. BEDFORD, Leeds, England. Filed Aug. 22, 1896. Serial No. 603,598. (No model.) Patented in England June 17, 1896, No. 11,716.

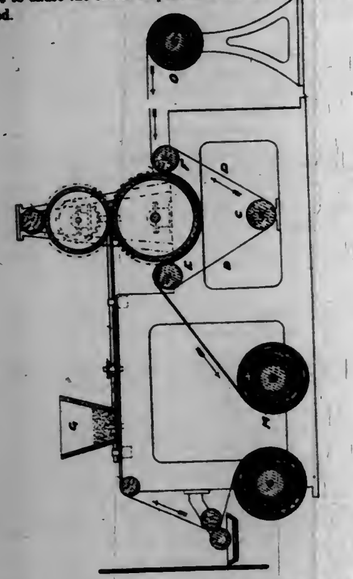
Claim.—1. The herein-described process of producing linoleum and like fabrics consisting in applying the material to produce the fabric evenly to the surface of a backing-cloth using such pressure as to cause the material to adhere to the said backing-cloth in the form of a light porous spongy mass then applying the coloring-matter to the porous surface so that the colors are absorbed, pressing the material so as to cause the colors to penetrate to the backing, and afterward consolidating the fabric by pressure.

2. The herein-described process of producing linoleum and like fabrics consisting in applying the material to produce the fabric evenly to the surface of a backing-cloth using such pressure as to cause the material to adhere to the said backing-cloth in the form of a light porous spongy mass then applying the coloring-matter to the porous surface so that the colors are absorbed, pressing the material so as to cause the colors to penetrate to the backing, then removing the volatile ingredients by means of heat and finally consolidating the fabric by pressure.

3. The herein-described process consisting in applying linoleum material to a backing-cloth so as to form a light porous adhesive mass then applying coloring-matter suspended in a vehicle consisting for the most part of volatile ingredients capable of being removed by stoving the fabric then subjecting it to moderate pressure to cause the colors to penetrate to the backing stoving to remove volatile ingredients and finally consolidating the fabric by pressure.

4. In a linoleum-making machine, the combination of the guiding and supporting means for the backing, means for applying the material to the backing, means for lightly pressing the linoleum material upon the backing to form a light porous and spongy mass and

means for applying the colors to the porous mass and for pressing the same to cause the colors to penetrate the mass, substantially as described.



592,187. VALVE. AUGUST W. R. BERR, San José, Cal. Filed Sept. 9, 1896. Serial No. 605,237. (No model.)



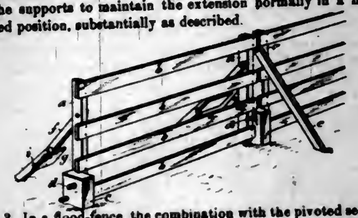
Claim.—1. A cylindrical valve-case having inlet and outlet openings and an intermediate valve-seat, a valve recessed inside of its periphery, a separate and renewable face secured in said recess and being of smaller diameter than the exterior disk to form a circumscribing space whereby the transmitted medium exercises a pressure upon both sides of said partially balances the valve, and means whereby the valve may be turned, said valve and seat having ports through them adapted to be moved into and out of alinement.

2. A cylindrical valve-case having inlet and exit openings and connections upon opposite sides of the periphery, a diaphragm within the case interposed between said openings having passages connecting the two and forming a valve-seat, a circular valve having a depression in its face, a face formed of antifriction metal cast into said depression and faced to fit the valve-seat, said face being of smaller diameter than the exterior disk whereby the transmitted medium exercises a pressure upon both sides of the valve, openings in the valve adapted to coincide with those of the valve-seat or to be turned away from them, transverse parallel bars projecting from the back of the valve, a valve-stem extending axially through the cap of the valve-case having a key upon its inner end which fits loosely between the bars upon the valve whereby the latter may be turned and the pressure of the transmitted medium allowed to act so as to retain it against the valve-seat and form a tight joint.

592,188. FLOOD-FENCE. JAMES M. BIRD and JOHN W. BIRD, Mossy Creek, Tenn. Filed Sept. 4, 1897. Serial No. 650,686. (No model.)

Claim.—1. In a flood-fence, the combination with the pivoted fence-sections, of supports pivoted at their upper ends to said sections and having at their lower ends pivoted extensions to engage the ground, substantially as described.

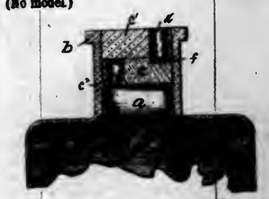
2. In a flood-fence, the combination with the pivoted sections of supports pivoted at their upper ends to said sections and having at their lower ends pivoted extensions to engage the ground, and a stop on the supports to maintain the extension normally in a fixed extended position, substantially as described.



3. In a flood-fence, the combination with the pivoted sections of supports pivoted at their upper ends to said sections and having at their lower ends pivoted extensions to engage the ground, of a float or paddle on said supports affording a stop for the upper ends of the extensions, substantially as described.

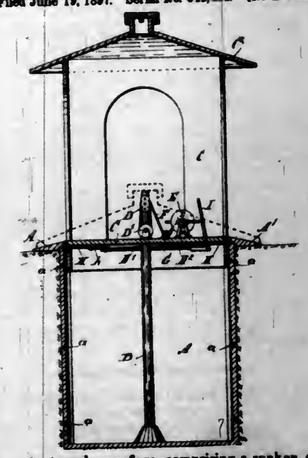
4. In a flood-fence, the combination with the standards of fence-sections pivoted thereon carrying swinging supports, and a stop on said standards to limit the swing of the section in one direction, substantially as described.

592,189. NON-REFILLABLE BOTTLE. ROSS W. BLACK and GUSTAVE A. SAUDER, Pittsburg, Pa. Filed Dec. 28, 1896. Serial No. 617,155. (No model.)



Claim.—In a non-refillable bottle, a bottle-stopper comprising two disks, the lower one having on its upper surface an annular groove, and two enlarged cylindrical cavities *d* and *f* on opposite sides thereof, each communicating with the annular groove, one of said cavities *d*, extending through the lower disk, and provided at its lower end with a valve-seat, the upper disk having a single opening *k*, extending therethrough and placed in alinement with the cavity *f*, substantially as shown and described.

592,190. CYCLONE-REFUGE. RICHARD T. BOND, Atoka, Ind. Ter. Filed June 19, 1897. Serial No. 641,421. (No model.)



Claim.—1. A cyclone-refuge, comprising a sunken chamber or pit, a cage or similar structure having a roof and adapted to fit within said chamber, and catches adapted to support said cage with its major part above said chamber, substantially as described.

2. A cyclone-refuge, comprising a sunken chamber or pit, a cage or other structure having a roof and adapted to fit within said chamber, catches adapted to support said cage with its major part above said chamber, and a lever connected to said catches to simultaneously release them, substantially as described.

3. A cyclone-refuge, comprising a sunken chamber or pit, a cage or similar structure having a roof and adapted to fit within said chamber, catches adapted to support said cage with its major part above said chamber, and hoisting means for raising and lowering said cage, substantially as described.

4. A cyclone-refuge, comprising a sunken chamber or pit, a central mast rising from the bottom thereof, a cage or similar structure having a roof and adapted to fit within said chamber, the floor of the cage having a hole to receive the mast, a hoisting apparatus comprising a cable guide attached to the top of the mast, and winding apparatus attached to the floor of the cage, substantially as described.

5. A cyclone-refuge, comprising a sunken chamber or pit having outwardly-sloping sills about its upper edge, a cage adapted to fit within said chamber and having a roof with projecting cornices adapted to fit closely to said sills, when dropped, and means for lowering and hoisting said cage at will, substantially as described.

6. A cyclone-refuge, comprising a sunken chamber or pit having outwardly-sloping sills about its upper edge, a cage adapted to fit within said chamber and having a roof with projecting cornices adapted to fit closely to said sills, when dropped, means for lowering and hoisting said cage at will, and friction-rollers journaled in the side of the pit, substantially as described.

592,191. SWITCH. JAMES M. BOYLE, Boston, Mass., assignor of one-half to Harry De G. Richards, New York, N. Y. Filed Mar. 2, 1897. Serial No. 626,798. (No model.)



Claim.—1. In a railway-switch the combination of a frog provided with branching grooves in its upper surface, a switch-tongue provided in the frog to form a part of the bottom of one of the said grooves, and mechanism for raising and lowering said switch-tongue, substantially as described.

2. In a railway-switch the combination of a frog provided with branching grooves in its upper surface, two switch-tongues mounted in the frog to form parts of the bottoms of said grooves, and mechanism for raising and lowering said tongues substantially as described.

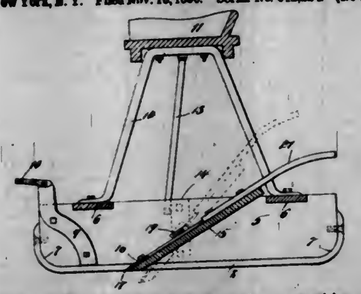
3. In a railway-switch, the combination of a frog having a straight groove in its upper surface in line with the inside of the main-track rail, a branch groove leading therefrom in line with a turnout-rail, and a frog-tongue between said grooves, with a pointed switch-tongue mounted in the straight groove so that its beveled end will form a continuation of the frog-tongue to the main rail, and mechanism to raise and lower said switch-tongue, substantially as described.

4. In a railway-switch the combination of a frog having a straight groove in its upper surface in line with the inside of the main-track rail, a branch groove leading therefrom in line with the turnout-rail and a frog-tongue between said grooves, with a pointed switch-tongue mounted in the branch groove so that its beveled end will complete the inside of the main straight groove, and mechanism to raise and lower said switch-tongue, substantially as described.

5. In a railway-switch, the combination of a frog having a straight groove in its upper surface in line with the inside of the main-track rail, a branch groove leading therefrom in line with a turnout-rail, and a frog-tongue between said grooves, with a pointed switch-tongue mounted in the straight groove so that its beveled end will form a continuation of the frog-tongue to the main rail, a second pointed switch-tongue pivoted in the branch groove so that its beveled end will complete the inside of the main straight groove, and mechanism to raise and lower said switch-tongues, substantially as described.

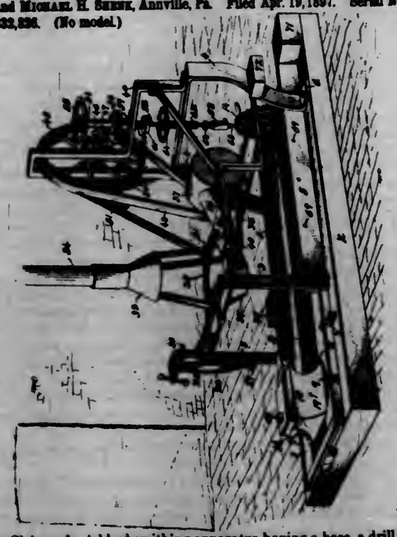
6. The railway-switch frog consisting of the main casting slotted as described and having branching grooves *d* and *e* rails *a b b'* and frog-tongue *c* in combination with switch-tongues C and D pivoted in the slots raising mechanism mounted in the said slots under said switch-tongues for raising and lowering them, substantially as described.

592,192. SNOW-PLOW AND SCRAPER. WILLIAM R. BRADLEY, New York, N. Y. Filed Nov. 16, 1896. Serial No. 612,224. (No model.)



Claim.—The herein-described snow-plow, comprising a frame consisting of side boards 5, cross-plates 6, metal shoes 8, metal strips 9, clevises 10, a seat 11, and braces 12 and 13, metal strips 14, a plow consisting of a board 15, a steel plate 16 having sharpened edges 17 and arms 18, metal blocks 19, pivot pins 20, handles 21, all combined substantially as shown and described and for the purpose set forth.

592,193. BLACKSMITHING APPARATUS. HARVEY R. BREWER and MICHAEL H. SHENK, Annville, Pa. Filed Apr. 19, 1897. Serial No. 632,826. (No model.)



Claim.—1. A blacksmithing apparatus having a base, a drill and a forge supported by the base, an anvil mounted upon the base for movement into operative relation with the drill and forge, and means for adjusting the anvil, substantially as specified.

2. A blacksmithing apparatus having a base provided with a longitudinal guide, an anvil mounted in said guide, adjusting devices connected with the anvil for varying its position in the guide, and a drill and a forge supported by the base on the line of movement of the anvil, substantially as specified.

3. A blacksmithing apparatus having a base provided with a cross-sectionally-dovetailed guide, a drilling mechanism and a forge supported by the base above the guide, an anvil having its foot mounted in said guide, and adjusting devices for the anvil whereby it may be caused to traverse the guide beneath the forge and the drilling mechanism, substantially as specified.

4. A blacksmithing apparatus having a movable anvil, a guide for the foot of the anvil, said guide communicating at one end with a turn-table upon which the anvil may be revolubly adjusted, means for moving the anvil in said guide, and a drill and forge arranged upon the line of the guide, substantially as specified.

5. A blacksmithing apparatus having a base provided with a longitudinal guide and a communicating turn-table, an anvil revolubly seated upon the turn-table and adapted to fit in said guide for longitudinal adjustment, means for holding the anvil at the desired angular and longitudinal adjustment, and a drill and forge arranged upon the line of the guide, substantially as specified.

6. A blacksmithing apparatus having a base provided with a longitudinal guide having an enlargement forming a turn-table, an anvil having its foot mounted in said guide, a feed-screw arranged parallel with the guide, a nut engaged by the feed-screw and having a stem or spindle revolubly mounted upon the anvil, whereby the latter is capable of revoluble adjustment, and means for rotating the feed-screw, substantially as specified.

7. A blacksmithing apparatus having a base provided with a longitudinal guide and a terminal enlargement forming a turn-table, a feed-screw arranged parallel with the guide, a feed-nut engaged by the feed-screw and having a stem or spindle provided with a circumferential groove, an anvil adapted to traverse said guide and having a central bore or opening to receive the stem or spindle of the feed-nut, a key fitted in a transverse opening in the anvil and engaging said groove, and means for rotating the feed-screw, substantially as specified.

8. A blacksmithing apparatus having a base provided with a longitudinal guide and a communicating turn-table, an anvil-carrying device and means for operating the same in a path parallel with said guide, and an anvil revolubly and removably mounted upon the anvil-carrying device, and adapted for rotary adjustment when arranged on the turn table, substantially as specified.

9. A blacksmithing apparatus having a base provided with a longitudinal cross-sectionally-undercut guide having a lateral enlargement forming a turn-table, an anvil-carrying device and means for operating the same in a path parallel with the guide, and an anvil revolubly and removably mounted upon the anvil-carrying device, and having feet to engage the undercut walls of the guide, and disengaged therefrom when arranged in said enlargement of the guide, substantially as specified.

10. A blacksmithing apparatus having a base provided with a longitudinal guide, a drill located contiguous to one end of and above the guide, a forge located contiguous to the other end of the guide, an anvil mounted in the guide and provided with a vertical shearing-knife socket adapted to be alined with the tool-shaft of the drill, to form a drill-socket, and feeding mechanism for moving the anvil, substantially as specified.

11. A blacksmithing apparatus having a base provided with a longitudinal guide, an anvil mounted in said guide, feed mechanism for adjusting the anvil, front and rear standards rising from the base, drilling mechanism supported by the rear standard, a forge supported by the front standard, a blast mechanism, and operating devices for the blast and drilling mechanisms, substantially as specified.

12. The combination with an operating-shaft having a gear, of a tool-shaft, a second gear feathered upon the tool-shaft and adapted to mesh with the first-named gear, and a tubular shifting-screw having a hand-wheel, arranged concentric with the tool-shaft and threaded in a fixed object, said shifting-screw being terminally arranged in operative relation with said second gear, substantially as specified.

13. The combination with an operating-shaft having a gear, of a tool-shaft, a second gear feathered upon the tool-shaft and adapted to mesh with the first-named gear, a shifting-screw having a hand-wheel, arranged concentric with the tool-shaft and threaded in a fixed object, and a follower interposed between the shifting-screw and said second gear, substantially as specified.

14. The combination with an operating-shaft and a gear carried thereby, of a tool-shaft provided at one end with a fly-wheel, a sleeve feathered upon the tool-shaft and carrying a second gear to mesh with the first-named gear, and a tubular shifting-screw having a hand-wheel, arranged concentric with the tool-shaft at an intermediate point, and threaded in a fixed object, said shifting-screw being terminally arranged in operative relation with said second-named gear, substantially as specified.

592,194. POULTRY-COOP. CHARLES W. BUMPASS and WILLIAM M. MCCANDLISH, Bumpass, Va.; said McCandlish assignor to said Bumpass. Filed Feb 18, 1897. Serial No. 623,946. (No model.)

Claim.—1. A coop composed of the top having a base-frame and provided within said frame with downwardly-facing abutments for the bottom the bottom fitting in said frame up against said abutments, and the fastening-straps secured to the bottom and extending thence outward and upward alongside the base-frame and means securing said straps to top section of the coop all substantially as shown and described.

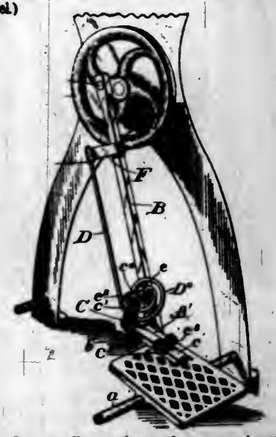


2. A coop consisting of the top portion having a base-frame, the end posts secured within and terminating above the lower edge of the base-frame, the bows and side battens secured within the base-frame and above the lower edge thereof, the bottom fitting in said base-frame below the said battens and end posts, and the straps secured to the bottom and extending thence up alongside the sides of the base-frame and secured substantially as shown and described.

3. In a coop substantially as described the combination of the top portion having a base-frame and provided within the same with downwardly-facing abutments, the bottom composed of the basket-work floor and the frame having sections fitting above and below the floor the straps secured to the floor and extended up alongside the base-frame, and the slides held at one end beneath the end straps and bent thence up over the end pieces of the base-frame and secured all substantially as and for the purposes set forth.

4. In a coop substantially as described the combination with the bottom of the straps secured thereto and the slide-plates fitted at one end under said straps and folded back below and across said straps and secured substantially as described.

592,195. TREADLE MECHANISM. PATRICK H. CHILDRESS, Waynesborough, Va., assignor of three-fifths to Frances A. Loth and Frank P. Loth, same place. Filed July 30, 1897. Serial No. 646,550. (No model.)



Claim.—In a treadle attachment for overcoming "dead-centers" the combination with a bracket having a hollow sleeve thereon, and means for rigidly connecting said bracket to the foot-rest of the treadle mechanism; of a pin adapted to engage in said sleeve on said bracket; means for rotatably adjusting said pin, and for clamping the same; a rod having a spring-coil at one end fixed to said pin; and a clip vertically adjustable upon the pitman-bar of the treadle mechanism, and adapted to engage and hold the opposite end of said rod under tension, substantially as described.

592,196. BREECH-LOADING FIREARM. ALBERT A. CLIVE, Ilion, N. Y. Filed June 28, 1897. Serial No. 642,663. (No model.)

Claim.—1. In a gun, the combination of a stock; a recess formed therein opening toward the rear of the stock; breech mechanism mounted in and movable in and out of said recess; a hammer and a trigger carried by said breech-block; and a barrel secured to the stock extending back over the recess, holding the parts in place.



2. In a gun, the combination of a stock a recess formed therein opening toward its rear; breech mechanism mounted in and movable back and forth in said recess; a hammer, and a trigger carried by said breech mechanism; means for limiting the movement of the breech mechanism; and a barrel secured to the stock extending back over the recess, holding the parts in place.

3. In a gun the combination of a stock a recess formed therein opening toward its rear; breech mechanism mounted in and movable back and forth in said recess; a trigger and hammer carried thereby; means for limiting the movement of the breech mechanism; means for preventing the hammer from descending until the breech is closed; and a barrel secured to the stock extending back over the recess, holding the parts in place.

4. In a gun, the combination of a stock; a breech mechanism mounted and movable back and forth thereon; a hammer; and a trigger and a spring for the hammer designed also to act as an extractor; the parts being carried by the breech mechanism.

5. In a gun, the combination of a stock; a recess formed therein; a slotted plate D secured to the bottom of the recess; and a breech mechanism mounted within said recess and provided with two depending lugs, one of said lugs remaining at all times within the slot and serving to limit the backward movement of the breech mechanism, and the second acting as a safety device to prevent discharge of the gun until the breech is closed.

6. In a gun, the combination of a stock; a recess formed therein; a slotted plate D secured to the bottom of the recess, a breech-block mounted in said recess; a trigger-plate pivoted in said block; and a lug depending from the trigger-plate and entering the slot in the plate.

7. In a gun, the combination of a stock; a recess formed therein; a slotted plate D secured to the bottom of the recess; a breech-block mounted in said recess; a trigger-plate pivoted in said block; and a short and a long lug depending from said plate and entering the slot, substantially as described.

8. In a gun, the combination of a stock; a recess formed therein; a slotted plate D secured to the bottom of the recess; a breech-block mounted in said recess; a trigger-plate pivoted in said block and provided with the depending lugs J and K; a hammer pivoted in the breech-block; and a spring carried by the trigger-plate, and bearing on the hammer.

9. In a gun, the combination of a stock; a recess formed therein; a slotted plate D secured to the bottom of the recess; a breech-block mounted in said recess; a trigger-plate pivoted in said block, provided with a long and a short depending lug designed to enter the slot in the plate; a hammer pivoted in the breech-block and provided with a notch *e*; a spring carried by the trigger-plate and bearing on the hammer; and a projection *f* formed upon the trigger-plate engaging the notch on the hammer when the same is cocked.

10. In a gun; the combination of a breech-block; a trigger-plate pivoted thereto; a hammer also pivoted to said block; and a spring carried by the trigger-plate and bearing on the hammer.

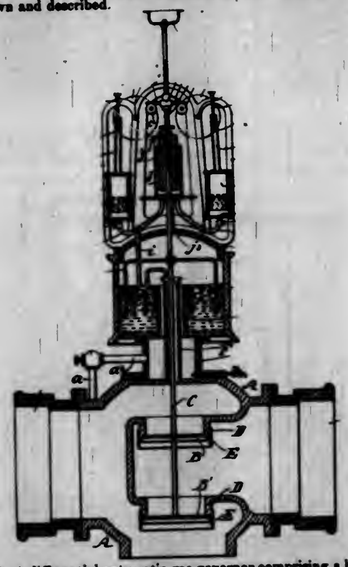
11. In a gun, the combination of a breech-block; a hammer pivoted at or near one end thereof; a trigger-plate pivoted at the opposite end acting in conjunction with the hammer, the trigger proper being located on the rear end of the trigger-plate in rear of the hammer; substantially as described.

12. In a gun the combination of a stock; a combined breech-block, hammer-and-trigger mechanism slidably mounted thereon; and a barrel secured to the stock over said mechanism, to retain it in place.

592,197. FLUID-PRESSURE REGULATOR. DAVID J. FARREN and SAMUEL FARREN, Bloomfield, N. J. Filed Aug. 27, 1896. Serial No. 604,063. (No model.)

Claim.—1. An automatic gas-governor, comprising a plurality of fluid-weight vessels, and means for connecting them to each other and for transferring the fluid weight, a valve, a projecting valve-seat and an adjustable collar thereon, the stem of the said valve having a float thereon engaging with a tank adapted to contain water or other fluid for sealing the gas, and a vertically-adjustable plunger mounted on the valve-stem for adjusting the fluid weight, the said plunger located within one of the fluid vessels; and means for inclosing, supporting and mounting the said parts, for the purpose set forth.

2. In an automatic gas-governor, the combination of a valve and projecting valve-seats, the seats having sliding collars thereon for regulating the flow of gas, and a float and one or more fluid-weight vessels secured to the stem of the said valve, said vessels having vertically-adjustable plungers therein for adjusting the fluid weight, a plurality of fluid-weight vessels communicating with the other said vessels and means for adjustably operating them, a casing surrounding the said valve and a tank inclosing the said float, substantially as shown and described.



3. A differential automatic gas-governor comprising a body portion having an inlet thereto and an outlet therefrom, and downwardly-projecting valve-seats therein, having adjustable collars thereon, and a double valve for engagement with said seats and collars, and a valve-stem which is suspended from friction-rollers located between two revoluble disks or wheels, said stem having a float secured thereto which is located within a tank for sealing the gas, said tank communicating with a receptacle which connects with the outlet portion of the said body, said stem also having a fluid-weight vessel secured thereto with an adjustable plunger therein; and vertically-adjustable fluid-weight vessels communicating with the other said weight vessel, these said vessels being suspended between the said wheels which support the valve-stem, whereby the fluid-weight vessels will be alternately raised or lowered for transferring the weight fluid and for governing the supply of gas for the mains, substantially as and for the purpose shown and described.

4. In an automatic gas-governor, a fluid-weight vessel having an adjustable plunger therein for raising and lowering the surface of the fluid weight, said vessel being secured to the valve-stem of a gas-governor, combined with fluid-weight vessels for transferring and operating the said parts, substantially as and for the purpose set forth.

5. The combination in an automatic gas-governor of fluid-weight vessels having adjustable plungers therein, secured to the valve-stem of the governor; with auxiliary fluid-weight vessels and means for supporting and adjusting them, substantially for the purpose shown and described.

6. The combination in a gas-governor, of a double valve and double-valve seats, said seats being vertically adjustable, the stem of the said valve having a float thereon, also a fluid-weight vessel having an adjustable plunger therein, said vessel communicating with adjustable vessels for transferring the fluid weight; with a rock-shaft mechanism for supporting and moving the said parts, substantially as and for the purpose shown and described.

7. In an automatic gas-governor, a fluid-weight vessel having an adjustable plunger therein for raising and lowering the surface of the fluid weight, said vessel being connected to the valve-stem of a gas-governor, combined with fluid-weight vessels for transferring the fluid weight, for the purpose shown and described.

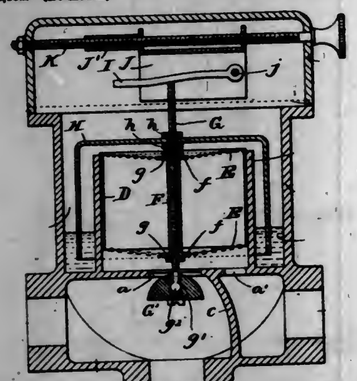
8. The combination with a gas-governor, of projecting valve-seats, said seats being provided with collars or casings surrounding said valve-seats, said collars adapted to be moved up and down on

the seats to regulate the flow of gas to the main, substantially as shown and described.

9. In automatic governors where fluid weight is used and transferred from one vessel to another, means for adjusting said vessels in proper vertical relation to each other, said means comprising plates projecting from the bottoms of said vessels, or their equivalents and adapted to be used as supports upon which to apply a straight-edge for adjusting the same in any desired vertical relation to each other, as described and set forth.

10. In automatic governors where fluid weight is used and transferred from the vessel mounted on the valve-stem to other movable fluid-weight vessels, a vertically-movable plunger mounted on said stem traveling therewith and arranged in said fluid-weight vessel, and adapted to be so adjusted thereon as to change the weight of the liquid in said vessel, substantially as shown and described.

592,198. FLUID-PRESSURE REGULATOR. DAVID J. FARMER and SAMUEL FARMER, Elizabeth, N. J. Filed Jan. 23, 1897. Serial No. 621,132. (No model.)



Claim.—1. A gas-governor having a suspended valve therein, said valve being supported by radially-extended chains connected to the stem thereof, substantially as shown and described.

2. In a gas-governor, the combination of chains or equivalent loosely-hanging supports, a valve-stem and a sleeve surrounding the stem attached to said supports, a cylinder to which are attached the outer ends of said supports, and a casing inclosing the said parts, substantially as and for the purpose set forth.

3. In a gas-governor, the combination of chains or loose flexible supports, and a valve-stem having a valve thereon, and a float attached to the stem, substantially as shown and described.

4. In a gas-governor, the valve having an internal ball-bearing, in combination with a valve-stem having a ball on its lower end and an adjusting-screw to hold said ball closely in its seat as described and set forth.

5. In a gas-governor, the combination of a float and a casing having a reservoir therein, and a valve-stem having a sleeve thereon, and chains for supporting the valve-stem and a valve mounted to the stem by means of a ball-and-socket joint, and a laterally-adjustable weight resting upon the upper end of the valve-stem, substantially as shown and described.

6. In a gas-governor, the combination of a moving carriage having a weighted lever thereon, the surface of said lever resting on and sliding over the top upper end of a vertical valve-stem for changing the leverage to increase or diminish the pressure of gas as herein described and set forth.

7. In a gas-governor, the combination of a movable carriage and weighted lever located thereon, said weight resting on the valve-stem and adapted to be adjusted thereon laterally for changing the leverage thereof to regulate pressure of gas, substantially as shown and described.

8. In a gas-governor, the combination of the laterally-movable carriage, a pivoted lever and a threaded rod for adjusting the carriage; with the suspended valve and stem, substantially as shown and described.

592,199. WRENCH. JOSEPH G. FLETCHER, Hartford, Conn., assignor of one-half to Charles B. Willard, same place. Filed Dec. 21, 1896. Serial No. 616,422. (No model.)

Claim.—In combination in a pocket-wrench, a thin oblong body part having a lengthwise jaw-socket opening into a nut-socket near one end of the body part, a nut-socket having the wall opposing the grasping-face of the jaw shorter than those adjacent and said adjacent flaring sides making with each other an angle of about sixty degrees, the sliding jaw located in the jaw-socket and having a transverse grasping-face and means for reciprocating said jaw in its socket.



592,200. COAT. LOUIS GRAMER, New York, N. Y. Filed Aug. 24, 1897. Serial No. 649,291. (No model.)



Claim.—1. A coat comprising in its construction a body portion proper having revers or lapels, and a foldable collar having downwardly-projecting extensions which are attached to the body portion proper inside of and below the upper edge of the revers or lapels, the collar being adapted to be turned up and its edges brought together in front without affecting the set or position of the revers or lapels, substantially as described.

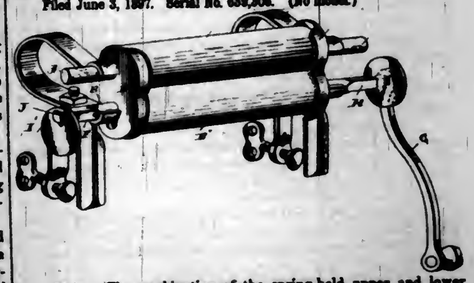
2. A coat comprising in its construction a body portion proper having revers or lapels, and a foldable collar disconnected from the revers or lapels and having downwardly-projecting extensions which are attached to the body portion of the coat inside of and for a considerable distance below the upper edge of the revers or lapels to reinforce the coat at this point, the collar being so constructed and arranged that it can be turned up and its edges brought together in front, above and below the upper edges of the revers or lapels, without affecting the set or position of the latter, substantially as described.

592,201. CASTER-WHEEL. JOHN HARRINGTON, Ryde, England, assignor of two-thirds to Henry Brent, same place, and James Burns, Whitehaven, England. Filed Apr. 16, 1896. Serial No. 587,810. (No model.)

Claim.—1. A caster-wheel composed of a central hub provided with reduced ends, centrally-perforated side cheeks fitted over such reduced ends, and cylindrical flanges connected with said side cheeks and telescoping each other; the reduced ends of said hub being riveted or extended over the side cheeks to retain the parts securely in position, substantially as described.

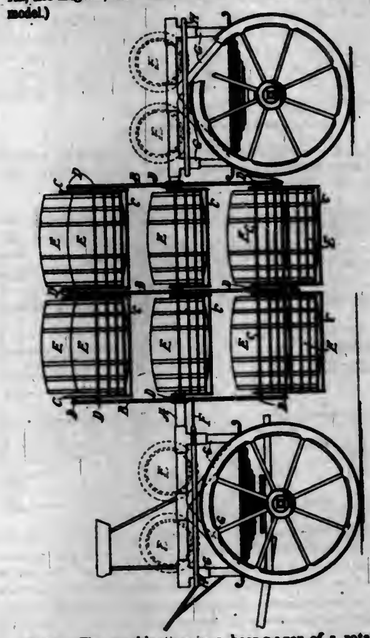
2. In a caster-wheel, the combination of two side cheeks, a central hub composed of two tubes of different lengths fitted one within the other to form shoulders and reduced bearing ends extending beyond the shoulders for the reception of the side cheeks; the inner tube being riveted or extended over said side cheeks, substantially as described.

592,202. CLOTHES-WRINGER. PERRY IRONS, St. Joseph, Ill. Filed June 3, 1897. Serial No. 639,206. (No model.)



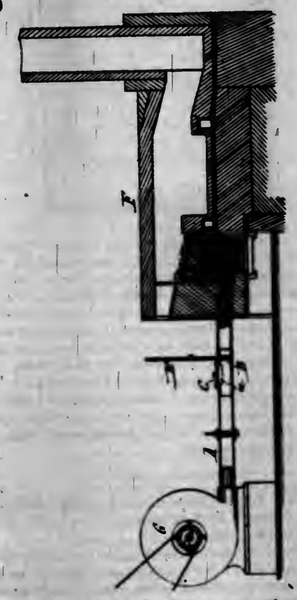
Claim.—The combination of the spring-held upper and lower shafts carrying wringer-rolls and formed with the extended ends, the extensions of the lower shaft in line with the extensions of the upper shaft being squared, the crank-handle at one end of the lower shaft, the headed reduced portion J at the opposite end of the shaft and the curved plates eccentrically mounted and movable longitudinally on the lower shaft and adapted to engage the squared portions thereof so as to turn therewith and engage and move the upper shaft away from the lower shaft, the plates when not in use being moved outward on the lower shaft, one of the plates being confined on the reduced portion J when not in use, substantially as shown and described.

592,208. ROTARY-BARREL-RACK WAGON. WILLIAM H. MARTIN, Los Angeles, Cal. Filed May 12, 1897. Serial No. 636,947. (No model.)



Claim.—The combination in a beer-wagon of a rotary barrel-rack wheel or wheels B supplied with pivoted cradles C for the reception of barrels E, said wheel or wheels turning on said reach-bar A, all substantially as described.

592,204. BLAST-PIPE FOR STEEL-FURNACES. HENRY R. PARSON, Brooklyn, N. Y. Filed Mar. 24, 1897. Serial No. 628,948. (No model.)



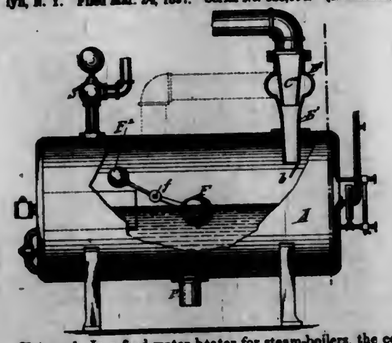
Claim.—The combination, with a steel or other furnace, of a blower, a blast-pipe connecting the blower with the furnace, said blast-pipe being provided with an opening intermediate of the blower and furnace, a steam-blower located in said blast-pipe between the opening and the furnace, and a door for opening or closing said opening, substantially as set forth.

592,205. STEAM-BOILER FURNACE. HENRY R. PARSON, Brooklyn, N. Y. Filed Mar. 24, 1897. Serial No. 628,949. (No model.)



Claim.—In a furnace, provided with a rounded end wall, the combination with the combustion-chamber, of a fire-bridge, and a series of alternately-disposed baffling fire-walls, projecting inwardly from the side walls and inclined thereto, substantially as set forth.

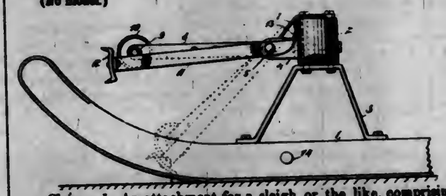
592,206. FEED-WATER HEATER. HENRY R. PARSON, Brooklyn, N. Y. Filed Mar. 24, 1897. Serial No. 628,951. (No model.)



Claim.—1. In a feed-water heater for steam-boilers, the combination of a feed-water tank, a feed-water-supply pipe, an injector for the latter operated by the exhaust-steam from the engine, and a deflector arranged at and inclined relatively to the lower end of the injector, whereby the mixture of water and exhaust-steam is delivered toward the middle of the boiler, substantially as set forth.

2. In a feed-water heater, the combination of a tank, a steam-pipe leading into one end of the tank on a level with the normal water-level, a blow-off cock, located at the other end of the tank, on said level, and deflecting-plates arranged in the tank and converging toward the said cock, substantially as set forth.

592,207. ROLLER ATTACHMENT FOR SLEIGHS. JAMES C. PERKINS, Inwood, Iowa. Filed June 30, 1897. Serial No. 642,906. (No model.)



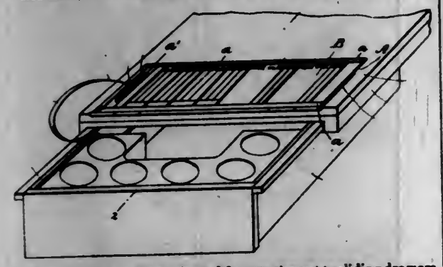
Claim.—1. An attachment for a sleigh or the like, comprising a pivoted arm, a roller carried on the free end of said arm, the said arm being of sufficient length to support the runner above the ground, and a pivoted lifting-arm having a length between its free end and pivotal point somewhat greater than the length between the pivotal point of the roller-arm and the outer periphery of the roller, substantially as specified.

2. An attachment for a sleigh or the like, comprising a roller-bearing arm having pivotal connection with an extension from a bolster, a roller carried by the free end of said arm, a stop for limiting the downward and rearward motion of said arm, a lifting-arm mounted on the pivot of the roller-bearing arm and having a length somewhat greater than said roller-bearing arm, and means for holding said arms in their inoperative position, substantially as specified.

3. An attachment for a sleigh or the like, comprising an arm mounted to slide relatively to the bolster of the sleigh, a roller carried on the free end of said arm, a lifting-arm mounted to swing relatively to the bolster and having a length somewhat greater than the length of the roller-carrying arm, a shoe on the free end of said lifting-arm, a stop for limiting the rearward movement of the roller-carrying arm, and a spring on the bolster, for engaging with the lifting-arm and holding the two arms in their inoperative position, substantially as specified.

4. In a sleigh, the combination with the runners and bolsters thereof, of yokes extended forward from the bolster, roller-carrying arms mounted to swing on said yokes, rollers mounted in the free ends of said arms, the distance between the pivotal point of said arms and the outer periphery of the rollers being greater than the distance between said pivotal points and the bottom of the runners, lifting-arms mounted on said pivots and having a length greater than the roller-carrying arms, stops for limiting the rearward movement of the roller-carrying arms, spring-yielding devices for connecting with the lifting-arms to hold them in a substantially horizontal position, and projections from the roller-carrying arms which engage the upper surface of the lifting-arms, substantially as specified.

592,208. CASH-DRAWER REGISTER. EDWARD W. PITCHER, Red Hook, N. Y. Filed Mar. 5, 1897. Serial No. 626,073. (No model.)



Claim.—1. A register adapted for attachment to sliding drawers, comprising a plate having a hinge thereon for attachment to the framework of a drawer and a bow-spring connected at one end to the said plate and adapted for attachment at its other end to one of the side walls of the drawer, substantially as shown and described.

2. As a cash-register, the combination of a plate having an inwardly-turned flange formed upon three edges thereof for the purpose of receiving a tally-sheet, and an auxiliary plate hinged to said plate, said auxiliary plate adapted for attachment to the drawer-frame, and a spring-bow attached to the said plate at one of its ends, said bow adapted for attachment to a sliding drawer, substantially as shown and described.

3. As a cash-register, the combination of a plate having an inwardly-turned flange on the three edges thereof and a sliding eye engaged in a groove in one end thereof, and a hinged plate attached to the said frame and a bow-spring having one end attached to the said eye; with a sliding drawer, and a framework for supporting the drawer, said drawer being connected to the free end of the bow-spring and said plate being hinged to the upper surface of the framework, substantially as shown and described.

4. The combination with a storekeeper's counter, of a sliding drawer and a hinged plate or casing carrying account-sheets, said plate hinged to the upper surface of the counter and having a bow-spring connected thereto which is also connected to the sliding drawer, whereby the said plate is operated by the sliding action of the drawer, substantially as shown and described.

592,209. MANUFACTURE OF INCANDESCENTS. CHARLES G. RICHARDSON, New Brighton, N. Y. Filed Mar. 10, 1897. Serial No. 626,244. (No model.)

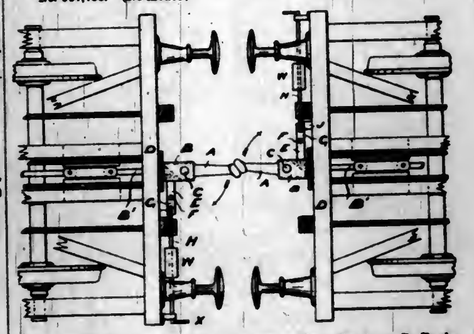
Claim.—1. A framework for incandescents, consisting of aluminium and glucinum oxids combined in the proportions of one molecule or atom of aluminium oxid and one molecule or atom of glucinum oxid, substantially as described.

2. An incandescent consisting of a framework which is composed of aluminium and glucinum oxids in the proportions of one molecule or atom of aluminium oxid and one molecule or atom of glucinum oxid, and oxid of the incandescing earths deposited thereon, substantially as described.

3. The process of producing a framework for incandescents, consisting in first forming a solution containing aluminium and glucinum in the proportion of one molecule or atom of each, then saturating a combustible fabric with said solution and burning out, whereby a framework of the oxids of said minerals is produced in the proportions existing in glucinum aluminate, substantially as described.

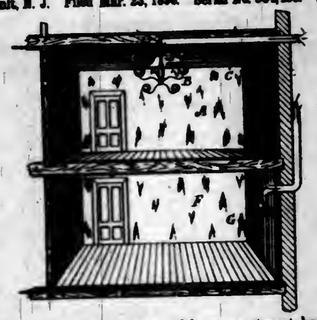
4. The process of manufacturing incandescents, consisting in forming a solution containing aluminium and glucinum in the proportions of one molecule or atom of each, then saturating a combustible fabric in said solution and burning out, whereby a framework of the oxids of said minerals is produced in the proportions existing in glucinum aluminate, and then depositing oxids of the incandescent earths on said framework, substantially as described.

592,210. AUTOMATIC COUPLING FOR RAILWAY-WAGONS, &c. ARTHUR RUSHFORTH, Bradford, England. Filed Oct. 3, 1896. Serial No. 607,753. (No model.)



Claim.—In combination in a car-coupling, the jaws B, B, the hooks pivoted thereto to move horizontally, said hooks having their hooked ends extending vertically from their shank portions and inclined in relation to each other whereby they may slide past each other when contacting and the weighted lever connections to the pivoted hooks for controlling the same.

592,211. APPARATUS FOR VENTILATING. PAUL J. SCHLICHT, Summit, N. J. Filed Mar. 23, 1896. Serial No. 584,406. (No model.)

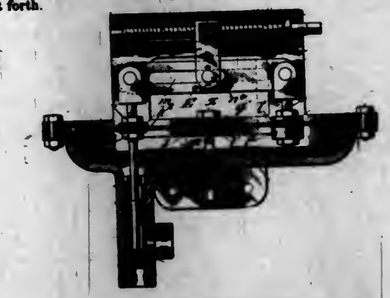


Claim.—1. The combination, with an apartment having a gas-fixture therein, of a ventilating-conduit opening into the apartment above the level of and adjacent to said gas-fixture, and having its outlet provided with a suitable deflector dividing the same into inlet and outlet passages, arranged as described, to initiate and separate inward and outward air-currents, as and for the purpose set forth.

2. The combination, with an apartment having a gas-fixture therein, of a ventilating-conduit opening into an apartment above the level of and adjacent to said gas-fixtures, and having its outlet provided with a suitable deflector dividing the same into inlet and outlet passages, the outlet-passage projecting beyond the mouth of the inlet-passage, to separate the inward and outward currents of air, substantially as herein set forth.

592,212. FLUID-PRESSURE REGULATOR. ELIEL L. SHARPNECK and GEORGE F. KNOX, Chicago, Ill. Filed Jan. 28, 1896. Serial No. 577,123. (No model.)

Claim.—In a fluid-pressure regulator, the combination of a chamber having a depending tubular portion provided with an inlet-port having a valve-seat, and with an outlet, separate diaphragms at said chamber movable under accumulated pressure therein, a valve-stem connected with one of the diaphragms and carrying a valve for the seat at the inlet-port, a lever pivotally connected at opposite end portions with the respective diaphragms, and slotted between said end portions, a frame provided with longitudinally-disposed yokes having guide-slots, a transverse sliding block having lugs or wings movable in said slots and recessed to receive the lever, a roller on the block engaging the slot in the lever to afford a fulcrum for the latter and a screw mounted in the frame and engaging a threaded opening in the block to move the latter, substantially as and for the purpose set forth.



592,213. HAND DRILLING-MACHINE. BENJAMIN F. SMITH, Somerville, Mass. Filed Dec. 21, 1896. Serial No. 616,594. (No model.)



Claim.—1. In a hand drilling-machine the combination of the drill-spindle, a flange surrounding the spindle provided with oppositely-inclined planes, a casing surrounding the spindle between said flange and spindle and provided with several slots for friction-rolls, rolls in said slots, and devices embodying a lever revoluble about its axis and at right angles to said spindle for rotating said casing in either direction, substantially as and for the purpose set forth.

2. The combination of a drill-spindle, a flange surrounding the spindle and provided with oppositely-inclined planes on its interior surface and with a lateral extension, a casing having a slot between said spindle and flange, a roll in said slot, a lever having a bearing in said extension to rotate therein, and an eccentric projection on said lever to engage with said casing, substantially as specified.

3. The combination of a drill-spindle, a flange surrounding said spindle and provided with oppositely-inclined planes, a casing between said flange and spindle having a slot, a roll in said slot, a lever to rotate in said flange, or lateral projection thereof, an eccentric projection on said lever to engage with said casing, and a collar on said lever to engage with the lever and with said flange or projection thereon to form an adjustable clutch, substantially as and for the purpose set forth.

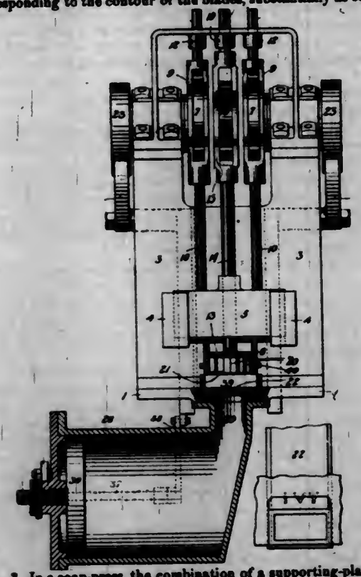
4. In combination with a drill-spindle, a flange surrounding the spindle and provided with oppositely-inclined interior planes, and a casing for holding and changing the position of friction-rolls therein, a lever extending laterally into said flange to rotate therein and adapted to engage with said casing, and an adjustable clutch embodying a spring for securing said lever, flange and casing in the required position for operating the drill in either direction, substantially as specified.

5. In a hand drilling-machine operated by means of friction-rolls in either direction as set forth, a casing to receive the friction-rolls, guide the rolls into the required position and maintain them in that position, in combination with a lever for operating the machine, said lever having an eccentric connection with said casing, and adapted to rotate on its axis, for moving said casing to carry the friction-rolls into said position, substantially as specified.

592,214. SOAP-PRESS. WILLIAM C. SMITH, Pittsburg, Pa. Filed Sept. 20, 1896. Serial No. 607,200. (No model.)

Claim.—1. In a soap-press, the combination of a mold, a compression-plunger, blades operative simultaneous with the plunger for forming cavities through the compressed soap, and means for forcing soap into said cavities simultaneous with the movement of the blades out of the cavities, substantially as set forth.

2. In a soap-press, the combination of a supporting-plate having an opening therethrough, a slide movable back and forth over said opening, a mold, a plunger for compressing soap in the mold, blades for forming cavities in the compressed soap, means for forcing soap through the opening in the supporting-plate and openings in the slide corresponding to the contour of the blades, substantially as set forth.

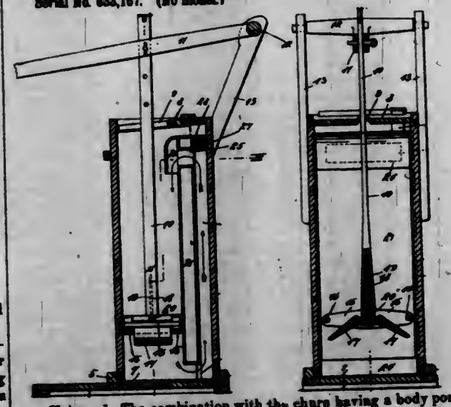


3. In a soap-press, the combination of a supporting-plate having an opening therethrough, a slide provided with an opening and movable back and forth over said opening, in the supporting-plate, a mold, a plunger for compressing soap in the mold, blades for forming passages through the soap, a soap-reservoir having a discharge-opening in line with the opening in the supporting-plate and means for forcing soap from the reservoir or cylinder, substantially as set forth.

592,215. ART OF MAKING BUTTER. ROYAL C. BEARDEN, Knoxville, Tenn., assignor to the Bearden Butter Company, same place. Filed Nov. 17, 1896. Serial No. 491,248. (No specimens.)

Claim.—The herein-described process of making butter, consisting in adding to cream one pound of butter to each pint of cream, churning the mixture in an open vessel at a temperature of about 70° Fahrenheit until combined in a solid mass, and then working the mass in the usual way, substantially as set forth.

592,216. CHURN. JOHN BENNETT, Lyndhurst, Canada, assignor to himself and James Thompson, same place. Filed Apr. 21, 1897. Serial No. 633,167. (No model.)



Claim.—1. The combination with the churn having a body portion, of the hollow partition within said body portion, said partition

providing passages at the top and bottom of the body and through which the cream may circulate, and having an inlet-opening for water, whereby to regulate the temperature of the cream.

2. A churn having a body portion, a hollow partition run longitudinally within the body portion and dividing the same into two passages, the partition having an opening in its upper end through which the cream may pass from one passage to the other and being suspended from such end with its lower end separated from the contiguous wall of the churn to establish communication at the lower portions of the passages, a dasher working in one of the passages to effect a continuous circulation of the cream through the passages and a feed-nipple for the temperature-regulating liquid.

3. The combination with a churn having a rectangular vertically-elongated body portion, of a hollow partition run vertically through said body portion near one side thereof and dividing the churn into two compartments, the partition having an opening in its upper portion by which to establish communication between the compartments, an apron covering the opening and projecting downwardly past the same, and means for filling said hollow partition with a liquid for regulating the temperature of the cream.

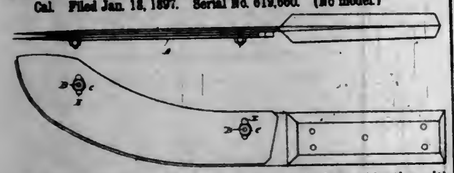
4. A churn having a vertically-elongated body portion, a partition run vertically in the body portion and having an opening therethrough, an apron carried by the partition and running past the opening to guide the cream in its passage from the opening, and a ledge carried by the partition and capable of engaging a portion of the churn-body to support the partition.

5. A churn, the body portion of which has vertical grooves in opposite side walls, a hollow partition provided with flanges beyond its hollow portion and arranged to register in said grooves, a cleat on one wall of said body, and a ledge run out from the partition and resting upon said cleat, whereby the partition is suspended at a distance from the bottom of the body.

6. A churn having a body portion, a hollow partition within the body portion, the partition being slidably arranged in the body portion and having an opening in its upper portion and through which the cream may circulate, an apron extending from one side of said partition and downwardly past the opening therein, a horizontal ledge extending from said partition opposite the said apron, and a cleat in said body portion and on which said ledge rests, said cleat holding the bottom of said partition at a distance from the bottom of the body.

7. The combination in a churn having a body portion, of a dasher mounted to reciprocate in said body portion and arranged to force the cream in but one direction, namely, downwardly, and a hollow partition located in said body portion and providing passages at the top and bottom of the body through which the cream may be circulated by the reciprocal movement of said dasher, said partition being provided with an inlet-opening whereby a fluid may be admitted to the interior of the same to regulate the temperature of the cream as it is circulated.

592,217. SKINNING-KNIFE. DOMINICK BÖLDERL, San Francisco, Cal. Filed Jan. 18, 1897. Serial No. 619,660. (No model.)



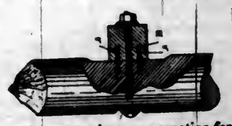
Claim.—In a skinning-knife a cutting-blade, in combination with the shield, A, having a thin dull edge shaped to the cutting-blade and provided with elongated transverse slots near the back, bolts B, adapted to rest in perforations formed in the cutting-blade and to extend through the said transverse slots in the shield, said perforations so formed as to sink the heads of the said bolts flush with the surface of the blade, and nuts, C, to clamp the said shield and blade rigidly together, to raise the forward edge of the said shield away from the cutting edge of the blade, substantially as described, whereby flesh-tissues are permitted to extend between the said blade and the shield.

592,218. RAILWAY CONSTRUCTION. WILLIAM G. CURTIS, San Francisco, Cal. Filed Apr. 1, 1897. Serial No. 630,330. (No model.)

Claim.—A splice for the joints of rails consisting of vertical plates adapted to bear against the under side of the head of the rail and having continuous extensions around and under the flange or base of the rail to near the middle thereof, the said extensions having the center portion struck down and out from the inner edge to a line between the inner and the outer edge to form a vertical reinforcement to bear against the under side of the base of the rail, and held in position by the stretched portions of the metal connecting the reinforcing with the horizontal portion, substantially as described.

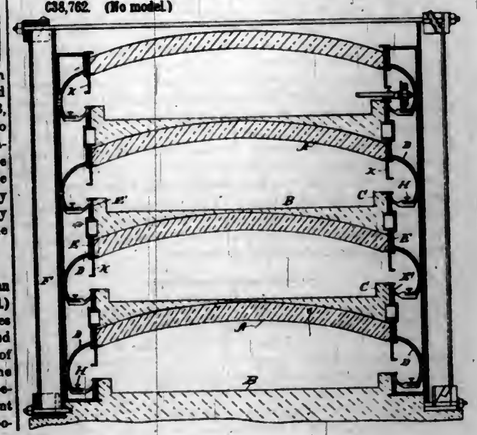


592,219. WOOD CONSTRUCTION. WILLIAM G. CURTIS and JOHN D. ISAACS, San Francisco, Cal. Filed May 6, 1896. Serial No. 590,480. (No model.)



Claim.—In wood constructions a connection for timbers consisting in the combination with circular grooves formed in the faces of the timbers to be joined, said grooves forming an internal core, the sides of which are tapered inward from the base to the top of the said core, of a circular metal ring adapted to fit within both of the said grooves, and of slightly-smaller internal diameter than the base of the said core, and a screw-threaded bolt adapted to be extended through perforations provided in the said timbers through the center of the said cores, substantially as described, whereby the splitting of the timber at the point of connection is prevented.

592,220. HEATING AND ROASTING FURNACE. WILLIAM E. ROBERTS, Butte, Mont., assignor of two-thirds to Jared E. Gaylord and Francis P. Davidson, same place. Filed May 29, 1897. Serial No. 638,762. (No model.)



Claim.—1. A furnace provided with longitudinal slots or openings extending entirely through its side walls from end to end, a plurality of brackets arranged in vertical series along the sides of the furnace the brackets of each series supported one upon another and carrying and supporting the hearth, roof and side walls, and means for taking the lateral strain of the arches, substantially as and for the purpose described.

2. A furnace provided with longitudinal slots extending throughout its side walls, a plurality of brackets supported one upon another and carrying and supporting the hearth, roof and side walls, means for maintaining said brackets against the lateral thrust of the arches, and a track upon said brackets, adapted to carry and support the ends of a rake-shaft, substantially as and for the purpose set forth.

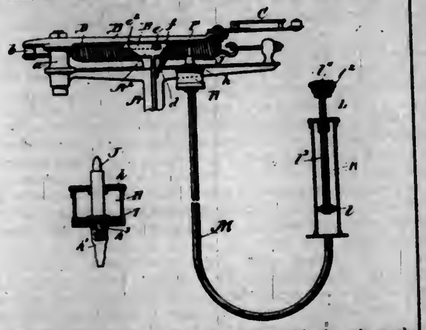
3. A furnace provided with longitudinal slots throughout its side walls, a plurality of brackets supported one upon another and carrying and supporting its side walls, hearth and roof, means for maintaining said brackets against the lateral thrust of the arches; tracks upon said brackets, and a rake-shaft passing through said slots in the side walls, and supported upon said tracks, substantially as and for the purpose described.

4. A furnace provided with longitudinal slots through its side walls, a plurality of brackets supported one upon another and from end to end supporting and carrying the hearths, roofs, and side walls, and vertical columns ranged along the sides of the furnace and bearing against the brackets, substantially as and for the purpose set forth.

5. A furnace provided with longitudinal slots throughout its side walls, brackets supporting and carrying its hearth, roof, and side walls, each bracket supported by the one beneath, a track upon said brackets, a rake-shaft passing through said slots in the side walls and supported upon said tracks, and vertical columns ranged along the side walls and bearing against said brackets, all arranged substantially as and for the purpose set forth.

6. A series of furnaces or ovens located one above the other, each provided with longitudinal slots throughout its side walls; brackets supporting and carrying their hearths, roofs and side walls, each bracket supported by the one beneath; tracks upon said brackets; a rake-shaft projecting through the slots in the side walls and supported on said tracks; means for operating said rake; and vertical columns or buckstays ranged along the side walls and bearing against said brackets, substantially as and for the purpose set forth.

592,221. BALL-TRAP. JAMES M. WELLS and JACOB WAMBSGANS, Peoria, Ill. Filed July 1, 1896. Serial No. 597,793. (No model.)



Claim.—1. In a ball-trap the combination with the trip mechanism thereof of a means for actuating the trip mechanism consisting of an air-cylinder, a piston and piston-head carried in said cylinder and so adjusted that the piston when actuated in the cylinder will contact with and operate the trip mechanism, an air-pump and a tube connecting the pump and cylinder, whereby air may be forced into the cylieder to give an impulse to the piston and piston-head for the purpose of engaging the trip mechanism and the air may be withdrawn from the cylinder so that the piston and piston-head will drop back to normal position and release the trip, all substantially as described and shown.

2. In a ball-trap, the combination with the pivoted trip E, having a part connected therewith adapted to receive a stroke from mechanism adapted to actuate said trip, of mechanism adapted to actuate said trip consisting of the cylinder H, provided with piston-head I having the pin J which is carried through an opening in the head of the cylinder and is adapted to strike the trip; the air-pump K, and the tube M connecting the air-pump and the cylinder all substantially as described and shown.

3. In a ball-trap, the combination with trip mechanism consisting of the pivoted bar E, having a notch at one end adapted to engage the trap throw-arm, and having the bar F attached thereto which is provided with a horizontally-bearing expanded part adapted to receive a stroke from mechanism provided to release the trip, the mechanism adapted to actuate the trip-bar E, consistiag of the cylinder H having an air-inlet opening, the piston-head I, the piston or pin J projecting through an opening in one of the cylinder-heads, the air-pump consisting of the case K, the stem L, having the perforation l^3 therein, the valve l and the knob l^2 and the flexible cap l^4, and the tube M connecting the air-pump and the cylinder, all substantially as described and shown.

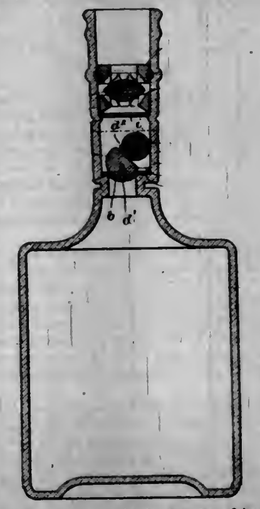
592,222. RAILROAD-SPIKE. JOHN C. BRENEMAN, Tarpon Springs, Fla. Filed Nov. 6, 1896. Serial No. 611,272. (No model.)



Claim.—1. In a railway-spike, an ordinary head, a body portion in combination therewith and provided with an oblong slot therein opened at the lower end, a downwardly-directed wedge-shaped projection provided with a cutting edge at the upper end of said slot and the lower end of the legs being beveled, substantially as described.

2. The herein-described railway-spike comprising a body portion A, a slot D, dividing the lower part into two parts E, thereby forming spikes, a wedge-shaped projection G, provided with a cutting edge the lower ends of said spikes being beveled on the inner side thereof as shown at H thereby forming cutting edges K, and the outer sides thereof being cut away as shown at M, substantially as and for the purpose set forth.

592,223. MEANS FOR PREVENTING REFILLING OF BOTTLES. ALBERT F. CHACE, Boston, Mass. Filed Oct. 8, 1895. Serial No. 564,904. (No model.)



Claim.—1. A bottle having in the interior of its neck a valve-seat surrounding the outlet, a valve formed to close on said seat and hinged to the seat at one side of the outlet, a weight affixed to the valve and projecting upwardly therefrom, said weight being cut away at one side to form, with the inner surface of the bottle-neck, a tapering cavity over the valve-hinge, a loose gravitating weight formed to gravitate into said cavity and thereby engage said protuberance and hold the valve closed, and a perforated guard affixed to the neck above said valve and weight.

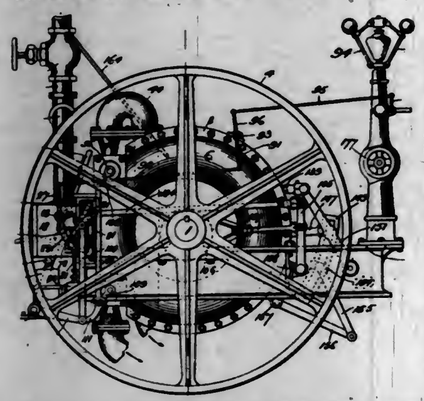
2. A bottle having in the interior of its neck a valve-seat surrounding the outlet, a weighted valve formed to close on said seat and obstruct the outlet and provided with a curved extension connected with the body of the valve by a flexible neck or hinge and formed to rest on the seat, and a resilient U-shaped clamp formed to enter the neck and press outwardly on its inner surface, said clamp

holding the valve extension against the seat to hold the valve in place.

3. A bottle having in the interior of its neck a valve-seat surrounding the outlet, a weighted valve formed to close on said seat, and a perforated guard above said valve, said guard comprising two annular members affixed to the neck, and provided with inclined orifices in their adjacent surfaces, and an interposed member clamped between said annular members and of greater diameter than the openings therein.

4. A bottle having in the interior of its neck a valve-seat surrounding the outlet, a weighted valve formed to close on said seat, and a perforated guard above said valve, said guard comprising two annular members affixed to the neck, and provided with inclined orifices in their adjacent surfaces, an interposed member clamped between said annular members, of greater diameter than the openings therein, and a perforated plate affixed to the neck below said members.

592,224. ROTARY ENGINE. WILLIAM S. COLWELL, Chicago, Ill. Filed Nov. 27, 1896. Serial No. 613,656. (No model.)



Claim.—1. A rotary engine having in combination a revoluble piston-head, a steam-space therefor, a movable abutment, an exhaust-port on each side of said abutment, an inlet-port between each of said exhaust-ports and abutment, means for closing one of said exhausts when the other is open, a valve for controlling each of said inlet-ports and a valve-gear having means of operative temporary connection with both of said valves alternately but not simultaneously whereby one of said inlet-valves remains at rest while the other is active, substantially as set forth.

2. A rotary engine having in combination a revoluble piston-head; a steam-space therefor having inlet and exhaust ports; a movable abutment; a member movable back and forth; means for moving said member back and forth having operative relation to said piston; means having operative connection with said abutment located at substantially the extremity of the stroke of said member and adapted to be engaged by said member for withdrawing said abutment, and means for returning said abutment, substantially as set forth.

3. A rotary engine having in combination a revoluble piston-head; a steam-space therefor having inlet and exhaust ports; a movable abutment; a reciprocating member having operative connection with said piston; means having operative connection with said abutment and being located at the extremity of the stroke of said reciprocating member and adapted to be engaged thereby for withdrawing said abutment: a trip for automatically releasing said means from its connection with said reciprocating member, and means for returning said abutment, substantially as set forth.

4. A rotary engine having in combination a revoluble piston-head, a steam space therefor having inlet and exhaust ports, a movable abutment, positive means of operation connected with said piston for withdrawing said abutment, a trip for releasing said means from its connection with the abutment, means operating independently of the piston for instantly returning the abutment, and an automatic lock for holding the abutment from premature withdrawal, substantially as set forth.

5. A rotary engine having in combination a revoluble piston-head, a steam-space therefor having an exhaust-port and an admission-valve; means operatively and positively connected with the piston for opening said valve, a governor for releasing the valve from its operative connection with the piston; means acting independently of said piston for closing the valve; a movable abutment; means for withdrawing said abutment cooperatively connected with said valve-opening means; and means acting independently of the piston and of said valve-opening mechanism for returning said abutment, substantially as set forth.

6. A rotary engine having in combination a revoluble piston-head; a steam-space therefor having an exhaust-port and an admission-valve; means operatively and positively connected with the piston for opening said valve; a governor for releasing said valve from its operative connection with said piston; means acting independently of the piston for closing said valve; a movable abutment; means for withdrawing said abutment, cooperatively connected with said valve-opening means; and means acting independently of said piston and of said valve-opening means and exerting a continual tendency to return said abutment to a position across the steam-space, substantially as set forth.

7. A rotary engine having in combination a movable abutment, a revoluble piston-head; a steam-space therefor having a valved exhaust-port and an inlet-valve on each side of said abutment; a valve-gear for opening said inlet-valves having operative connection with said piston; a reversing device having connection with the exhaust-valves for alternately opening and closing them respectively and also having operative connection with said valve-gear for alternately bringing the valve-gear into active and inactive relation to the inlet-valves; said valve-gear being without permanent connection with either of said inlet-valves and means for operating said abutment, substantially as set forth.

8. A rotary engine having in combination a pair of revoluble piston-heads connected together and set at different degrees of the circle which they describe whereby one will receive direct pressure of steam while the other acts solely under the expansive force of the steam admitted behind it; an annular steam-space for each of said pistons each provided with an exhaust-port and an inlet-port; a valve for controlling each of said inlet-ports; means for alternately opening said inlet-valves; a movable abutment extending across each of said steam-spaces; oppositely-reciprocating members for alternately withdrawing said abutments, each of said members being provided with means for becoming detachably connected with one of said abutments and the last said means being located substantially at the extremities of the movements of said members respectively; and means for returning said abutments, substantially as set forth.

9. A rotary engine having in combination a revoluble piston-head; a steam-space therefor; a movable abutment; an inlet and an exhaust valve on both sides of said abutment; said inlet-valves being independent and disconnected; a valve-gear having a link arranged in operative relation to both inlet-valves for opening either of them; a second link operating in unison with the piston and having means of connection with said abutment for withdrawing it; and means for returning said abutment, substantially as set forth.

10. A rotary engine having in combination a revoluble piston-head; a steam-space therefor; a movable abutment; an inlet and an exhaust valve on both sides of said abutment; a valve-gear having a link arranged in operative relation to both of said inlet-valves for opening either of them; a second link operating in unison with the piston and having means of connection with said abutment for withdrawing it; said links being operatively connected together whereby they will shift in unison; and means for returning the abutment, substantially as set forth.

11. A rotary engine having in combination a revoluble piston-head; a steam-space therefor; a movable abutment; an inlet and an exhaust valve on both sides of said abutment; a valve-gear having a link arranged in operative relation to both of said inlet-valves for opening them; a second link operating in unison with said piston and having means of connection with said abutment for withdrawing it; a reversing-lever; a shaft to which said lever is secured; a crank-arm on said shaft; a rod pivoted to said crank-arm and supporting the link of said valve-gear; a second rock-shaft rotatively connected with said reversing-lever; a crank-arm secured on said second rock-shaft and supporting said second link, whereby said links will be shifted in unison; and means for returning said abutment, substantially as set forth.

12. A rotary engine having in combination a revoluble piston-head; a steam-space therefor; a movable abutment; an inlet and an exhaust valve on both sides of said abutment; said exhaust-valves being connected together whereby the opening of one will close the other; a valve-gear having a link arranged in operative relation to both inlet-valves for opening them; a second link operating in unison with the piston and having means of connection with said abutment for withdrawing it; said links being operatively connected together whereby they will shift in unison, and a reversing device having operative connection with said links and also with said exhaust-valves, substantially as set forth.

13. A rotary engine having in combination a revoluble piston-head; a steam-space therefor; a movable abutment; an inlet and an exhaust valve on both sides of said abutment; said exhaust-valves being provided with crank-arms; a rod connecting said crank-arms together whereby the opening of one exhaust-valve will close the other; a valve-gear having a link arranged in operative relation to both inlet-valves for opening them; a second link operating in unison with the piston and having means of connection with said abutment for withdrawing it; a rocker-shaft; a reversing device or lever secured to said shaft; a crank-arm on said rocker-shaft; a rod pivoted to said crank-arm and supporting said valve-gear link; the said rod which connects the crank-arms of the exhaust-valves being also pivoted to the crank-arm on said rocker-shaft; a second rocker-shaft operatively connected with said reversing device and having a crank-arm supporting said second link, substantially as set forth.

14. A rotary engine having in combination a revoluble piston; an abutment; an inlet-valve and exhaust-port on both sides of said abutment; a movable portion or lug having operative connection with each of said inlet-valves; and a valve-gear for opening said inlet-valves having a portion provided with a contraction adapted to engage with either of said movable portions or lugs and a diverging or inclined portion leading from said contraction, substantially as set forth.

15. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; an inlet-valve and exhaust-port on both sides of said abutment; a movable stud or lug having operative connection with each of said inlet-valves; and a valve-gear for opening said inlet-valves having a link provided with a contracted portion adapted to engage with either of said studs or lugs and a widened portion incapable of engagement with said studs or lugs, substantially as set forth.

16. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; an inlet-valve and an exhaust-port on both sides of said abutment; a crank-arm on each valve-stem of said inlet-valves, having a stud or lug; a valve-gear for opening said inlet-valves having a link provided with a contracted portion adapted to engage with either of said studs or lugs and a widened portion incapable of engaging with said studs or lugs, substantially as set forth.

17. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; an inlet-valve and an exhaust-port on both sides of said abutment; a movable stud or lug having operative connection with each of said inlet-valves and a valve-gear for opening said inlet-valves having a link provided with a contracted portion adapted to engage with either of said studs or lugs and two widened portions incapable of engaging with said studs or lugs, substantially as set forth.

18. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; an inlet-valve and an exhaust-port on both sides of said abutment; a movable stud or lug having operative connection with each of said inlet-valves; and a valve-gear for opening said inlet-valves having a link provided with a contracted portion adapted to engage with either of said studs or lugs and a widened portion converging toward said contracted portion and being incapable of engaging with said studs or lugs, substantially as set forth.

19. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; an inlet-valve and an exhaust-port on both sides of said abutment; a movable stud or lug having operative connection with each of said inlet-valves; and a valve-gear for opening said inlet-valves having a link whose opposite extremities are widened, and incapable of engagement with said lugs, and gradually converging toward a contracted portion at the mid-length of said link and which contracted portion is adapted to engage with either of said lugs or studs, substantially as set forth.

20. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; an inlet-valve and an exhaust-port on both sides of said abutment; a movable stud or lug provided with a flanged head and having operative connection with each of said inlet-valves; and a valve-gear for operating said inlet-valves having a link provided with a contracted portion adapted to engage with either of said studs or lugs and a widened portion incapable of engaging with said studs or lugs; said flanged heads being lapped over the edges of said link, substantially as set forth.

21. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; an inlet-valve and an exhaust-port on both sides of said abutment; each of said inlet-valves being provided with a stem; a bell-crank loose on each of said valve-stems; a second crank fixed on each of said stems and having a tooth; a stud carried by one arm of each of said bell-cranks; a pivoted dog carried by the other arm of each of said bell-cranks and adapted to engage one of said teeth; a cam for each of said dogs for crowding the same off said tooth; a pivoted lever having opposite ends operatively connected to said cams respectively; a governor connected with said lever for oscillating the same; means connected with each of said valve-stems and exerting a normal tendency to carry said teeth away from said pivoted dogs; a valve-gear having a link provided with a contracted portion adapted to engage said studs and widened portions incapable of engagement with said studs, substantially as set forth.

22. A rotary engine having in combination a revoluble piston-head; a steam-space therefor; a movable abutment; an inlet-valve and an exhaust-port on each side of said abutment; a movable stud having operative connection with each of said inlet-valves; a link embracing both of said studs and having a widened portion for the freedom of each of said studs and a contracted portion for engaging with either of said studs alternately; a yoke secured to said link; a support for said link connected to said yoke and having operative connection with the reversing-lever of the engine and means connected with said yoke and with a moving part of the engine for vibrating said link, substantially as set forth.

23. A rotary engine having in combination a revoluble piston-head; a shell having an annular steam-space for said piston-head and being provided with a continuous surrounding steam-jacket, one side of said shell being provided with a section removable independently of the balance of said side of the shell and also having formed therein a steam-jacket, and the said section and main portion of the shell having registering crossover-passages whereby said section will constitute a part of the said continuous steam-jacket; and means for admitting steam to and exhausting it from said steam-space, substantially as set forth.

24. A rotary engine having in combination a revoluble piston-head; a steam-space therefor provided with inlet and exhaust ports; an abutment movable independently of said piston; a bodily-movable catch having operative connection with said abutment; a reciprocating pull-rod having operative connection with said piston and being provided with a hook for pulling said catch in one direction and withdrawing said abutment; means for automatically disconnecting said hook and catch; means for returning said catch and abutment in the opposite direction; and means for controlling the supply and exhaust to and from said steam-space, substantially as set forth.

25. A rotary engine having in combination a revoluble piston-head; a steam-space therefor provided with inlet and exhaust ports; an abutment movable independently of said piston; a bodily-movable independently-rotatable catch having operative connection with said abutment; a reciprocating pull-rod having operative connection with said piston and provided with a hook for pulling said catch in one direction and thereby withdrawing said abutment; a lug or trip arranged in operative relation to said pull-rod and adapted to disengage said hook and catch; means for returning said abutment and catch to their normal positions; and means for supplying and exhausting steam to and from said steam-space, substantially as set forth.

26. A rotary engine having in combination a revoluble piston-head; a steam-space therefor provided with inlet and exhaust ports; means for controlling the admission and exhaust of steam to and from said steam-space; an abutment movable independently of said piston; a bodily-oscillatory independently-rotatable catch having operative connection with said abutment; a reciprocating pull-rod having operative connection with said piston and provided with a hook for pulling said catch in one direction and thereby withdrawing said abutment; a lug or trip revolving bodily with said catch for engaging a portion thereof and crowding said hook and catch out of engagement; and means for returning said catch and abutment to their normal positions, substantially as set forth.

27. A rotary engine having in combination a revoluble piston-head; a steam-space therefor provided with inlet and exhaust ports; means for controlling the admission of steam to and exhausting it from said space; an abutment movable independently of said piston; a bodily-movable catch having operative connection with said abutment; a reciprocating pull-rod having operative connection with said piston and provided with a hook for pulling said catch in one direction and thereby withdrawing said abutment; means for automatically disconnecting said hook and catch; a lock for holding said abutment against premature withdrawal and being arranged in the line of movement of and adapted to be disengaged by said rod; and means for returning said catch and abutment to their normal positions; substantially as set forth.

28. A rotary engine having in combination a revoluble piston-head; a steam-space therefor provided with inlet and exhaust ports; means for controlling the admission of steam to and exhausting it from said steam-space; an abutment movable independently of said piston; a bodily-movable catch having operative connection with said abutment: a reciprocating pull-rod having operative connection with said piston and being provided with a hook for pulling said catch in one direction and thereby withdrawing said abutment; a second rod supporting said first rod and having one end movable with said catch; means for automatically disconnecting said hook and catch; and means

for returning said catch and abutment to their normal positions, substantially as set forth.

29. A rotary engine having in combination a revoluble piston-head; a steam-space therefor provided with inlet and exhaust ports; means for controlling the admission of steam to and exhausting it from said space; an abutment movable independently of said piston; a movable catch having operative connection with said abutment; a reciprocating pull-rod having operative connection with said piston and provided with a hook for pulling said catch in one direction and thereby withdrawing said abutment; a second rod having a telescopic connection with said first rod and the two cooperating to support each other at their meeting ends; means for automatically disconnecting said hook and catch and means for returning said catch and abutment to their normal positions, substantially as set forth.

30. A rotary engine having in combination a movable abutment; a rotary portion; a pivoted catch carried by said rotary portion; a reciprocating pull-rod adapted to engage said catch and pull it in one direction for withdrawing said abutment; means for holding said catch against independent rotation after it is engaged by said pull-rod; and means for returning said catch and abutment to their normal positions when the catch is released from the pull-rod, substantially as set forth.

31. A rotary engine having in combination a movable abutment; a rotary portion having a shoulder and being operatively connected with said abutment; a dog adapted to fall into engagement with said shoulder; a pivoted catch carried by said rotary portion and having a projecting end; a reciprocating pull-rod adapted to engage said catch and release said dog; a trip or lug revolving with said catch and adapted to engage said projecting end and prevent independent rotation of said catch; and means for returning the abutment and catch when the latter is released, substantially as set forth.

32. A rotary engine having in combination a movable abutment; a rotary portion having operative connection therewith; a sleeve having one end supported by said rotary portion; a pivoted catch carried by said rotary portion; a pull-rod reciprocating in said sleeve and having means of engagement with said catch; means for crowding said rod out of engagement with said catch; and means for returning said abutment when the catch is released from said rod, substantially as set forth.

33. A rotary engine having in combination a movable abutment; a rotary portion having operative connection therewith; a sleeve having one end supported by said rotary portion; a pivoted catch carried by said rotary portion; a pull-rod reciprocating in said sleeve and having means of engagement with said catch; means for crowding said rod out of engagement with said catch and means for returning the abutment and catch when the latter is released, substantially as set forth.

34. A rotary engine having in combination a movable abutment; a rotary portion having operative connection therewith; a sleeve having one end provided with a transverse slot; a pivoted catch carried by said rotary portion and the pivot of which catch passes through said slot and supports said sleeve upon said rotary portion; a pull-rod reciprocating in said sleeve and having means of engagement with said catch; means for crowding said rod out of engagement with said catch; and means for returning said abutment and catch when the latter is released, substantially as set forth.

35. A rotary engine having in combination a movable abutment; a rotary portion operatively connected with said abutment and having a plain edge terminating in a shoulder; a dog arranged to engage said shoulder and having a projecting lip; a catch engaged under said projecting lip and carried by said rotary portion; a reciprocating pull-rod arranged to project between said catch and lip for simultaneously releasing said dog and engaging said catch and means for returning said abutment and catch when the latter is released, substantially as set forth.

36. A rotary engine having in combination a movable abutment; a rotary portion operatively connected with said abutment and having two shoulders and a plain edge extending between said shoulders; a pivoted dog arranged to engage one of said shoulders; a stop arranged to be struck by the other of said shoulders; a catch carried by said rotary portion; a reciprocating pull-rod arranged to be projected between said catch and pivoted dog for simultaneously releasing said dog and engaging said catch; and means for returning said abutment and catch when the latter is released, substantially as set forth.

37. A rotary engine having in combination a movable abutment; a rotary disk operatively connected with said abutment and having a plain edge terminating in two shoulders; a pivoted dog arranged to gravitate into engagement with one of said shoulders; a fixed stop arranged to be struck by the other of said shoulders; a catch pivoted to the side of said disk and having a projection; a trip or lug secured to the side of said disk and adapted to engage under the projection on said catch; a sleeve having a bifurcated end supported over said catch and said pivoted dog being provided with a lip depending into said bifurcation; a reciprocating pull-rod having a hook adapted to be projected through said sleeve between said catch and depending lip and to engage with said catch; and a dash-pot connected with said disk and exerting a normal tendency to rotate it in the opposite direction to the pull of the said rod, substantially as set forth.

38. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; inlet and exhaust valves on each side of said abutment; a valve-gear having means of operative connection with said inlet-valves alternately as the engine is reversed; a link mechanism operated by said piston; a pull-rod reciprocally connected with said link mechanism; means for operatively connecting said rod with said abutment for withdrawing the latter; means for releasing said abutment from its connection with said rod; and a reversing device operatively connected with said link and valve mechanism, substantially as set forth.

39. A rotary engine having in combination a revoluble piston; a steam-space therefor; a movable abutment; inlet and exhaust valves on each side of said abutment; a valve-gear having means of operative connection with the inlet-valves alternately as the engine is reversed; a link mechanism operated by the piston; a lever having a stud engaging in the link of said link mechanism; a pull-rod connected to one end of said lever; means for operatively connecting said pull-rod with said abutment for withdrawing the latter; means for releasing said abutment from its connection with said pull-rod and a reversing device operatively connected with said link mechanism and valve-gear, substantially as set forth.

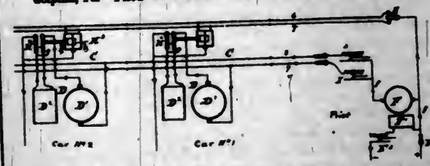
40. A rotary engine having in combination a revoluble piston; a steam-space therefor having two sets of exhaust and inlet valves; a movable abutment arranged between said sets of valves; a valve-gear having means of operative engagement with said inlet-valves alternately as the engine is reversed; a pair of eccentrics operated by the piston; a link connected with said eccentrics; a pull-rod operatively connected with said link; means for operatively connecting said rod with said abutment for withdrawing the latter; and a reversing device operatively connected with said link and valve-gear, said eccentrics being so set with relation to said abutment-withdrawing means that the rod will begin the rapid part of its return stroke as soon as it engages with said abutment-withdrawing means, substantially as set forth.

41. A rotary engine having in combination a revolable abutment; a catch having operative connection with said abutment; a reciprocating pull-rod having means of engagement with said catch; means for releasing said catch from said rod; the extremity of the advancing stroke of the rod being limited to the normal position of the catch whereby the rod will engage the catch substantially at the commencement of its return stroke; and means for returning said catch and abutment to their normal positions, substantially as set forth.

42. A rotary engine having in combination a removable abutment; a crank-arm having a ball-wrist secured thereto for oscillating said abutment; a rotary portion arranged in a plane at an angle to the plane of said abutment and having a ball-wrist; a pitman connecting said ball-wrists; and means for intermittently imparting partial rotation to said rotary portion alternately in opposite directions, substantially as set forth.

43. A rotary engine having in combination a revoluble piston-head; a steam-space therefor having an inlet-valve and an exhaust port; an abutment interposed between said valve and port and being movable independently of said piston-head; means for periodically opening said valve, means acting independently of said piston and exerting a continual tendency to move said abutment in one direction, and means having positive operative connection with the piston, having a reciprocating portion; means operatively connected with said abutment and adapted to be engaged by said reciprocating portion and also being located at the beginning of the stroke of said reciprocating portion whereby the last said means and reciprocating portion will engage without shock, substantially as set forth.

592,225. ELECTRICAL RAILWAY. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed June 12, 1897. Serial No. 640,433. (No model.)



Claim.—1. In an electric-railway car, the combination of a series of electrically-independent longitudinal conductors terminating in suitable couplings at each end of the car, an electric motor on the

car having one terminal of its field-magnets and armature electrically connected with a portion of said longitudinal conductors, and switch devices interposed between the motor and said longitudinal conductors for connecting at least one of the elements (the field-magnets and armature) with either one of the series of said longitudinal conductors.

2. In an electric railway, the combination of one or more cars each provided with a series of longitudinal conductors terminating in suitable couplings at each end, one or more electric motors each having one terminal of its field-magnets and of its armature electrically connected with said longitudinal conductors, switch device for connecting at least one of the elements (the field-magnets and armature) with either one of the series of said longitudinal conductors, a pilot-car also provided with a coupling adapted to connect with the coupling of the car and having extended therefrom a series of electric circuits connected in parallel, a motor-circuit on the pilot-car for supplying current to the longitudinal conductors, and a counter-electromotive-force regulator in the motor-circuit of the pilot-car for regulating the flow of current to the several conductors.

3. In an electric railway the combination of one or more cars each provided with a series of longitudinal conductors terminating in suitable couplings at each end, one or more electric motors each having one terminal of its field-magnets and of its armature electrically connected with said longitudinal conductors, switch device for connecting at least one of the elements (the field-magnets and armature) with either one of the series of said longitudinal conductors, a pilot-car also provided with a coupling adapted to connect with the coupling of the car and having extended therefrom a series of electric circuits connected in parallel, a motor-circuit on the pilot-car for supplying current to the longitudinal conductors, a counter-electromotive-force regulator in the motor-circuit of the pilot-car for regulating the flow of current to the several conductors, and a current-collecting device moving with the pilot-car adapted to make a traveling contact with a line conductor extending along the railway.

4. In an electric railway, the combination of one or more cars each provided with a series of longitudinal conductors terminating in suitable couplings at each end, one or more electric motors each having one terminal of its field-magnets and of its armature electrically connected with said longitudinal conductors, switch device for connecting at least one of the elements (the field-magnets and armature) with either one of the series of said longitudinal conductors, a pilot-car also provided with a coupling adapted to connect with the coupling of the car and having extended therefrom a series of electric circuits connected in parallel, a motor-circuit on the pilot-car for supplying current to the longitudinal conductors, a counter-electromotive-force regulator in the motor circuit of the pilot-car for regulating the flow of current to the several conductors, and independent means to separately control the current supplied to each of the series of conductors which are connected in parallel.

5. In an electric railway, the combination of one or more cars each provided with a series of longitudinal conductors terminating in suitable couplings at each end, one or more electric motors each having one terminal of its field-magnets and of its armature electrically connected with said longitudinal conductors, switch device for connecting at least one of the elements (the field-magnets and armature) with either one of the series of said longitudinal conductors, a pilot-car also provided with a coupling adapted to connect with the coupling of the car and having extended therefrom a series of electric circuits connected in parallel, a motor-circuit on the pilot-car for supplying current to the longitudinal conductors, a counter-electromotive-force regulator in the motor-circuit of the pilot-car for regulating the flow of current to the several conductors, independent means to separately control the current supplied to each of the series of conductors which are connected in parallel, and a current-indicator in each of the circuits to show the relative currents flowing at any moment.

6. The combination of two or more cars, longitudinal conductors on the cars terminating in electric couplings, and a motor on each car having its field-magnets permanently connected with two of said longitudinal conductors so that the field-magnets of two or more cars are connected in parallel and its armature adjustably connected by a switch with either of the other longitudinal conductors so that the armatures of the motors on different cars may be connected with different circuits.

7. The combination of two or more cars, longitudinal conductors on the cars terminating in electric couplings, a motor on each car having its field-magnets permanently connected with two of said longitudinal conductors so that the field-magnets of two or more cars are connected in parallel and its armature adjustably connected by a switch with either of the other longitudinal conductors so that the armatures of the motors on different cars may be connected with different circuits, a pilot-car, a motor-circuit on the pilot-car, electric connections for coupling the longitudinal field-magnet circuits in series with the motor-circuit and armature longitudinal conductors as a whole, and means in the motor-circuit for controlling the current flowing therein.

8. The combination of two or more cars, longitudinal conductors on the cars terminating in electric couplings, a motor on each car having its field-magnets permanently connected with two of said longitudinal conductors so that the field-magnets of two or more cars are connected in parallel and its armature adjustably connected by a switch with either of the other longitudinal conductors so that the armatures of the motors on different cars may be connected with different circuits, a pilot-car, a motor-circuit on the pilot-car, electric connections for coupling the longitudinal field-magnet circuits in series with the motor-circuit and armature longitudinal conductors as a whole, means in the motor-circuit for controlling the current flowing therein, and means for independently controlling the electric current in each of the longitudinal armature-circuits.

9. The combination of two or more cars, longitudinal conductors on the cars terminating in electric couplings, a motor on each car having its field-magnets permanently connected with two of said longitudinal conductors so that the field-magnets of two or more cars are connected in parallel and its armature adjustably connected by a switch with either of the other longitudinal conductors so that the armatures of the motors on different cars may be connected with different circuits, a pilot-car, a motor-circuit on the pilot-car, electric connections for coupling the longitudinal field-magnet circuits in series with the motor-circuit and armature longitudinal conductors as a whole, and means in the motor-circuit for controlling the current flowing therein consisting of a revolving armature moving in a magnetic field, and means for varying the counter electromotive force generated therein.

10. The combination of two or more cars, longitudinal conductors on the cars terminating in electric couplings, a motor on each car having its field-magnets permanently connected with two of said longitudinal conductors so that the field-magnets of two or more cars are connected in parallel and its armature adjustably connected by a switch with either of the other longitudinal conductors so that the armatures of the motors on different cars may be connected with different circuits, a pilot-car, a motor-circuit on the pilot-car, electric connections for coupling the longitudinal field-magnet circuits in series with the motor-circuit and armature longitudinal conductors as a whole, means on the pilot-car to reverse the current in the field-magnets on all of the cars relatively to the armature, and means in the motor circuit for controlling the current flowing therein.

11. The combination of two or more cars, longitudinal conductors on the cars terminating in electric couplings, a motor on each car having its field-magnets permanently connected with two of said longitudinal conductors so that the field-magnets of two or more cars are connected in parallel and its armature adjustably connected by a switch with either of the other longitudinal conductors so that the armatures of the motors on different cars may be connected with different circuits, a pilot-car, a motor-circuit on the pilot-car, electric connections for coupling the longitudinal field-magnet circuits in series with the motor-circuit and armature longitudinal conductors as a whole, means in the motor-circuit for controlling the current flowing therein consisting of a revolving armature moving in a magnetic field, means for varying the counter electromotive force generated therein, and means for independently controlling the electric current in each of the longitudinal armature-circuits.

12. The combination of two or more cars, two longitudinal field-conductors on each car, a series of longitudinal armature-conductors also on each car, one or more motors for each car having the field-magnets permanently coupled in parallel with the longitudinal field-conductors and the armatures connected with one or more of the longitudinal armature-conductors as described, a pilot-car, a motor-circuit on the pilot-car and connecting the longitudinal field-conductors in series, a bus-bar or circuit connecting the longitudinal armature-conductors in parallel and in series as a whole with the longitudinal field-conductors, and means on the pilot-car in the motor-circuit for controlling the current therein.

13. The combination of two or more cars, two longitudinal field-conductors on each car, a series of longitudinal armature-conductors also on each car, one or more motors for each car having the field-magnets permanently coupled in parallel with the longitudinal field-conductors and the armatures respectively connected with one or more of the longitudinal armature-conductors as described, a pilot-car, a motor-circuit on the pilot-car and connecting the longitudinal field-conductors in series, a bus-bar or circuit connecting the longitudinal armature-conductors in parallel and in series as a whole with the longitudinal field-conductors, and means on the pilot-car in the motor-circuit for controlling the current therein consisting of a counter-electromotive-force generator and hand-controlled means for varying its capacity for generating a counter electromotive force.

14. The combination of two or more cars, two longitudinal field-conductors on each car, a series of longitudinal armature-conductors also on each car, one or more motors for each car having the field-

magnets permanently coupled in parallel with the longitudinal field-conductors and the armatures respectively connected with one or more of the longitudinal armature-conductors as described, a pilot-car, a motor-circuit on the pilot-car and connecting the longitudinal field-circuits in series, a current-reversing switch to reverse the current in the field-circuit, a bus-bar or circuit connecting the longitudinal armature-circuits in parallel and in series as a whole with the longitudinal field-conductors, independent means for each of the longitudinal armature-conductors to control the division of the current delivered to the armatures of the several motors, and means on the pilot-car in the motor-circuit for controlling the current therein.

15. The combination of two or more cars, two longitudinal field-conductors on each car, a series of longitudinal armature-conductors also on each car, one or more motors for each car having the field-magnets permanently coupled in parallel with the longitudinal field-conductors and the armatures respectively connected with one or more of the longitudinal armature-conductors as described, a pilot-car, a motor-circuit on the pilot-car and connecting the longitudinal field-conductors in series, a bus-bar or circuit connecting the longitudinal armature-circuits in parallel and in series as a whole with the longitudinal field-conductors, means on the pilot-car in the motor-circuit for controlling the current therein consisting of a counter-electromotive-force generator and hand-controlled means for varying its capacity for generating a counter electromotive force, and means for completing an electric circuit around the counter-electromotive-force generator when it is desired to cut it out of operative circuit.

16. The method of regulating the current supplied to a number of electric motors upon a series of cars which consists in leading a current from a source of supply through the field-magnets of the several motors, then supplying the said current to the several armatures of the motors in parallel, and independently controlling the currents delivered to the several armatures.

17. The method of regulating the current supplied to a number of electric motors upon a series of cars which consists in leading a current from a source of supply through the field-magnets of the several motors in parallel, then supplying the said current to the several armatures of the motors in parallel, controlling at one place the total flow of current through the motors as a whole, and independently controlling the divided currents delivered to the several armatures.

18. The method of regulating the current supplied to a number of electric motors upon a series of cars which consists in leading a current from a source of supply through the field-magnets of the several motors, then supplying the said current to the several armatures of the motors in parallel, independently controlling the currents delivered to the several armatures, and reversing the current in the fields relatively to the armatures for reversing all of the motors simultaneously.

19. The combination of a series of cars, one or more electric motors on each car to propel it, a pilot-car, electric circuits leading from the pilot-car and containing all the armatures of the motors in parallel, a source of electric energy, a single main regulator for simultaneously controlling the current to all of the armatures, and independent means for separately controlling the current delivered to the several armatures relatively one to the other.

20. The combination of a series of cars, one or more electric motors on each car to propel it, a pilot-car, electric circuits leading from the pilot-car and containing all the field-magnets of the motors in parallel, a source of electric energy, a single main regulator for simultaneously controlling the current to all of the field-magnets, and independent means for separately controlling the current delivered to the several field-magnets relatively one to the other.

21. The combination of a series of cars, one or more electric motors on each car to propel it, a pilot-car, electric circuits leading from the pilot-car and containing all the armatures of the motors in parallel, a source of electric energy, a single main regulator for simultaneously controlling the current to all of the armatures, independent means for separately controlling the current delivered to the several armatures relatively one to the other, and means for cutting out of circuit any motor independently of the others.

22. The combination of a series of cars, one or more electric motors on each car to propel it, a pilot-car, electric circuits leading from the pilot-car and containing all the armatures of the motors in parallel, a source of electric energy, a single main regulator for simultaneously controlling the current to all of the armatures, independent means for separately controlling the current delivered to the several armatures relatively one to the other, and means to reverse the current in the field-magnets relatively to the armatures.

23. The combination of a series of electric motors, a source of electric energy, circuits leading from the source of energy and including all of the electric motors, and a regulator to control the current delivered to the motors consisting of a series of counter-electromotive-force generators adapted to produce separate counter electromotive forces, and a hand-switch device for coupling said generators in series or parallel to vary the amount of counter electromotive force opposed to the initial electromotive force of the source of electric energy.

24. The method of regulating the current supplied to a number of electric motors upon a series of cars which consists in supplying a current from a source of energy to the several motors in parallel, and independently and at a distance from the motors controlling the currents delivered to the several armatures of said motors.

25. The method of regulating the current supplied to a number of electric motors upon a series of cars which consists in supplying a current from a source of energy to the several motors in parallel, controlling at one place from one car at a distance from the motors the total flow of current through the motors as a whole, and independently and from the same car distantly removed from the motors controlling the divided currents delivered to the several armatures of said motors.

26. The method of regulating the current supplied to a number of electric motors upon a series of cars which consists in supplying a current from a source of energy to the several motors in parallel, controlling at one place independently of the source of energy the total flow of current through the motors as a whole, independently and at a distance from the motors controlling the divided currents delivered to the several armatures of said motors, and reversing the current in the fields relatively to the armatures for reversing all of the motors simultaneously.

27. The combination of a source of electric energy, circuits leading from the source of energy and including translating or current-consuming devices, and a regulator to control the current delivered to the translating or current-consuming devices consisting of a series of counter-electromotive-force generators adapted to produce separate counter electromotive forces, and a hand-switch device for coupling said generators in series or parallel to vary the amount of counter electromotive force opposed to the initial electromotive force of the source of electric energy.

28. In an electric car, the combination of a series of longitudinal insulated conductors terminating at each end in suitable couplings, one or more electric motors on the car to propel it, and switch devices interposed between the motors and conductors for electrically connecting the armature or armatures of the motor or motors with either of the several longitudinal conductors.

29. The combination of two or more cars, a series of longitudinal conductors on each car, one or more motors for each car having the armatures respectively connected with the longitudinal conductors, a pilot-car, a motor-circuit on the pilot-car connecting with the longitudinal conductors on the cars, means on the pilot-car in the motor-circuit for controlling the current therein, and independent means on the pilot-car for cutting the motor or motors of any car out of circuit.

30. A pilot-car for an electric railway consisting of the combination of a vehicle adapted to the track, current-collecting devices connected with and moved by the vehicle, a motor-circuit leading from the current-collecting devices, a series of independent conductors terminating at one end in coupling devices adapted for connection with corresponding circuits on cars to be connected with the pilot-car and having their other ends connected in parallel with the motor-circuit, and means in the motor-circuit for simultaneously controlling the current in all of the independent conductors.

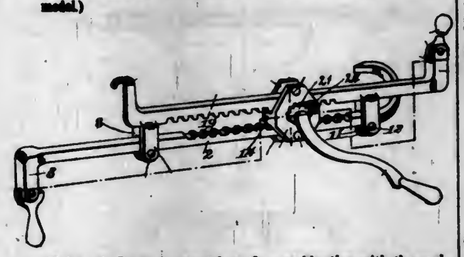
31. A pilot-car for an electric railway consisting of the combination of a vehicle adaped to the track, current-collecting devices connected with and moved by the vehicle, a motor-circuit leading from the current-collecting devices, a series of independent conductors terminating at one end in coupling devices adapted for connection with corresponding circuits on cars to be connected with the pilot-car and having their other ends connected in parallel with the motor-circuit, means in the motor-circuit for simultaneously controlling the current in all of the independent conductors, and independent means in the several independent conductors to independently control the current flowing over them.

32. A pilot-car for an electric railway consisting of the combination of a vehicle adapted to the track, current-collecting devices connected with and moved by the vehicle, a motor-circuit leading from the current-collecting devices, a series of independent conductors terminating at one end in coupling devices adapted for connection with corresponding circuits on cars to be connected with the pilot-car and having their other ends connected in parallel with the motor-circuit, means in the motor-circuit for simultaneously controlling the current in all of the independent conductors, a motor to propel the vehicle, and circuits on the vehicle including the motor in the motor-circuit and in parallel with the independent conductors.

33. A pilot-car for an electric railway consisting of the combination of a vehicle adapted to the track, current-collecting devices connected with and moved by the vehicle, a motor-circuit leading from the current-collecting devices, a series of independent conductors terminating at one end in coupling devices adapted for connection with corresponding circuits on cars to be connected with the pilot-car and having their other ends connected in parallel with the motor-circuit, means in the motor-circuit for simultaneously controlling the current in all of the independent conductors, a motor to propel the vehicle, circuits on the vehicle including the motor in the motor-circuit and in parallel with the independent conductors, and independent means to control the current delivered to the motor of the pilot-car independently of the current in the independent conductors.

34. A pilot-car for an electric railway consisting of the combination of a vehicle adapted to the track, current-collecting devices connected with and moved by the vehicle, a motor-circuit leading from the current-collecting devices, a series of independent conductors terminating at one end in coupling devices adapted for connection with corresponding circuits on cars to be connected with the pilot-car and having their other ends connected in parallel with the motor-circuit, means in the motor-circuit for simultaneously controlling the current in all of the independent conductors, a motor to propel the vehicle, circuits on the vehicle including the motor in the motor-circuit and in parallel with the independent conductors and reversing devices for reversing the current in the motor.

592,226. WIRE-STRETCHER. ARTHUR P. INGRAM and JAMES PAGE, La Grange, Ky. Filed June 23, 1897. Serial No. 641,902. (No model.)



Claim.—1. In a wire-stretcher, the combination with the rack-bars one of which has an upturned end and the other of which a downwardly-turned end, the faces of said ends being serrated and provided with flanges, a lateral hook on one end of one of said bars, a vertical hook on one end of the other of said bars, flanges secured to one bar through which the other bar slides, and a grip-lever pivoted to the said upturned and downwardly-turned ends of the housing, the shaft, the toothed wheel, and the pawl and ratchet, as set forth.

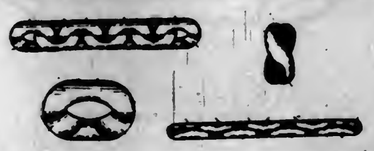
2. The combination of the rack-bar having one end turned upwardly and provided with a serrated face, the other end having a vertical hook, and a like bar having one end turned downwardly and provided with a serrated face, the other end terminating in a lateral hooked arm, and a grip-lever pivoted to each of said serrated ends, with the housing, the toothed wheel, and the shaft, as set forth.

3. The combination with the rack-bars one having a lateral hook and the other a vertical hook, a gripper at the ends of the bars opposite the hooks, the wheel, and the shaft for operating the bars, of the housing comprising a plate having lugs to keep the bars in mesh with the wheel, and a cap or cover secured to the lugs, as set forth.

4. In a wire-stretcher, the combination with the rack-bars having a hook, a like bar having a lateral arm or extension, and a grip upon each bar, of the housing, the shaft journaled in the housing, the toothed wheel in mesh with the rack-bars, and the pawls and ratchets for locking the parts against movement, as set forth.

DESIGNS.

27,734. ORNAMENTAL CHAIN. SIDNEY O. BENNET, Attleborough, Mass. Filed Jan. 19, 1897. Serial No. 619,808. Term of patent 7 years.



Claim.—The design for an ornamental chain herein shown and described.

27,735. HAT-PIN. CARL J. HOLMBERG and BERT J. YOUNGBERG, Minneapolis, Minn. Filed Jan. 9, 1897. Serial No. 618,654. Term of patent 14 years.



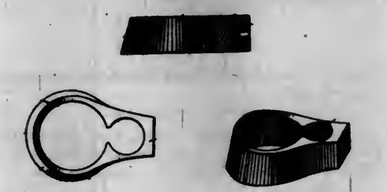
Claim.—The design for a hat-pin, as herein shown and described.

27,736. HANDLE FOR BUTTON-HOOKS. FERDINAND THIELKE, Brooklyn, N. Y. Filed Aug. 24, 1897. Serial No. 649,260. Term of patent 3½ years.



Claim.—The design for a handle for button-hooks, and similar articles, substantially as herein shown and described.

27,737. SUPPORT FOR PENHOLDERS. ARTHUR H. NELSON, Whitney, Mich. Filed Aug. 4, 1897. Serial No. 647,131. Term of patent 14 years.



Claim.—The design for a support for penholders herein shown and described.

27,738. PIPE. HENRY KNEUBUHL, St. Charles, Mo. Filed June 26, 1897. Serial No. 642,542. Term of patent 7 years.



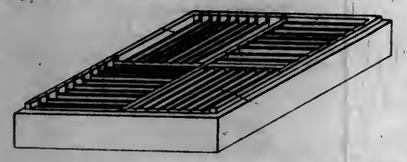
Claim.—The design for a tobacco-pipe consisting of the bowl having upon the periphery thereof, a number of ornamental patterns, with curved ends, arranged in different horizontal planes and shaded so as to have the appearance of being in relief, the tapering stem formed with a series of ornamental oblong patterns arranged to break joints, and shaded so as to have the appearance of being in relief, substantially as shown and described.

27,739. MATCH AND CIGAR SAFE. MARTIN WEBB, San Marcos, Tex. Filed Aug. 24, 1897. Serial No. 649,396. Term of patent 3½ years.



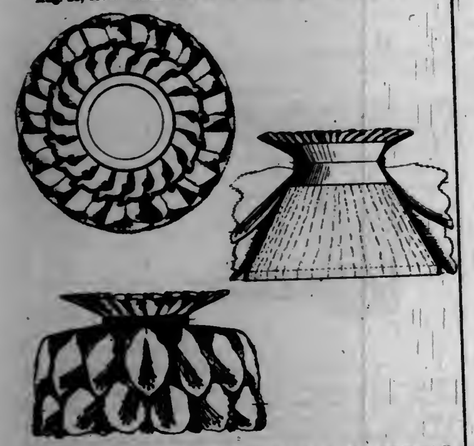
Claim.—The design for a combination match and cigar safe, herein shown and described.

27,740. WHIST-BOX. FREDERICK LEHR, Waterbury, Conn. Filed Sept. 7, 1897. Serial No. 650,853. Term of patent 7 years.



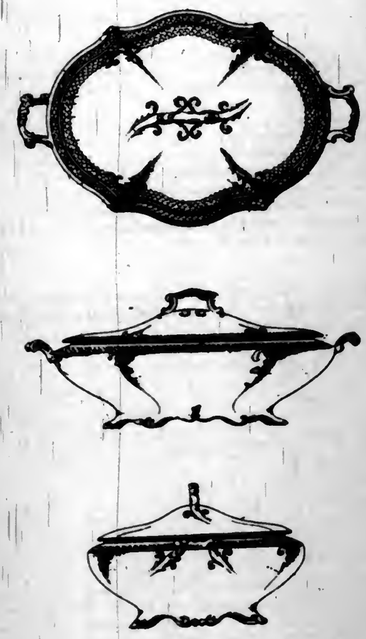
Claim.—The design for duplicate-whist boxes substantially as shown and described.

27,741. CANDLE-SHADE. JEREMIAH VANDERBILT, Brooklyn, N. Y., assignor to the Will & Baumer Company, Syracuse, N. Y. Filed Aug. 23, 1897. Serial No. 649,281. Term of patent 7 years.



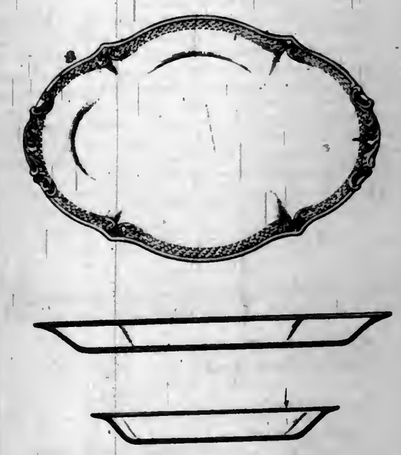
Claim.—The design for candle-shades or the like, substantially as herein described and shown.

27,742. COVERED DISH. WILLIAM H. GRINDLEY, Congleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Sept. 8, 1897. Serial No. 650,994. Term of patent 3½ years.



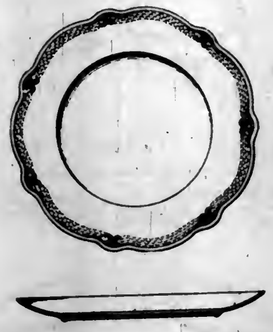
Claim.—The design for dishes substantially as shown and described.

27,743. DISH. WILLIAM H. GRINDLEY, Congleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Sept. 8, 1897. Serial No. 650,995. Term of patent 3½ years.



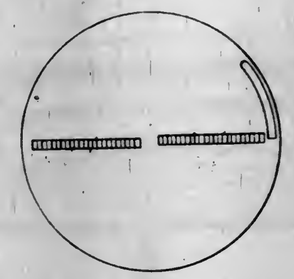
Claim.—The design for a dish substantially as shown and described.

27,744. DISH. WILLIAM H. GRINDLEY, Congleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Sept. 8, 1897. Serial No. 650,996. Term of patent 3½ years.



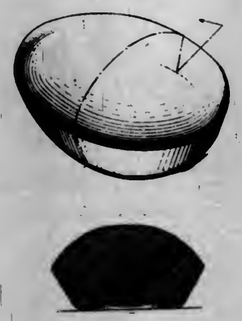
Claim.—The design for a dish substantially as shown and described.

27,745. FACE-PLATE FOR SCALES. FRANK C. HOYT, Cleveland, Ohio. Filed Jan. 21, 1897. Serial No. 620,147. Term of patent 14 years.



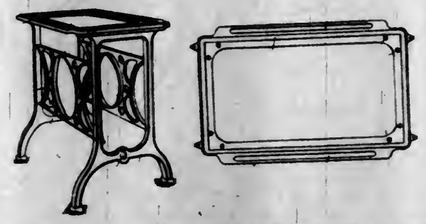
Claim.—The design for a face-plate for a scale, substantially as shown and described.

27,746. BLOCK OF STENCIL-INK. JAMES A. ALLEN, Philadelphia, Pa. Filed Aug. 31, 1897. Serial No. 650,198. Term of patent 14 years.



Claim.—The design for a block of stencil-ink, as herein shown and described.

27,747. BRAZING-STAND. THEODORE G. LEWIS and FREDERICK M. BAILEY, Buffalo, N. Y., assignors to the Buffalo Dental Manufacturing Company, same place. Filed Feb. 19, 1897. Serial No. 624,249. Term of patent 7 years.



Claim.—The design for a brazing-stand, substantially as herein shown and described.

27,748. OIL-CAN. MARK L. SPERRY, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Aug. 4, 1897. Serial No. 647,122. Term of patent 7 years.



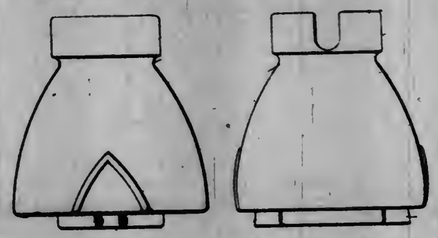
Claim.—The design for the bodies of oil-cans as described and shown in the accompanying illustrations.

27,749. CAR-STRAP. MARY P. M. CARR, St. Louis, Mo. Filed May 26, 1897. Serial No. 638,311. Term of patent 14 years.

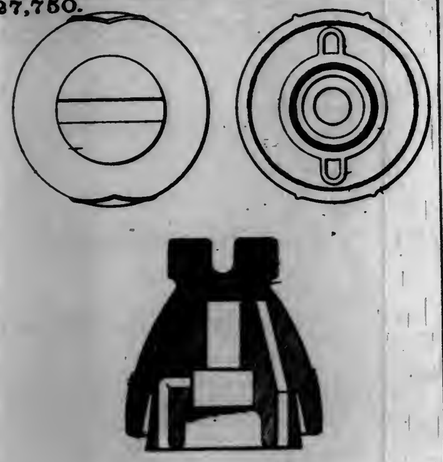


Claim.—The design for a car-strap, substantially as herein shown and described.

27,750. FUSE-BLOCK. WILLIAM DOUD PACKARD, Warren, Ohio. Filed Sept. 11, 1897. Serial No. 651,387. Term of patent 7 years.



27,750.



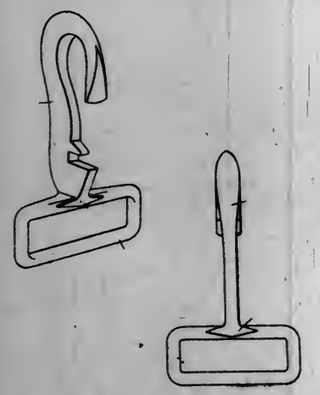
Claim.—The design for a fuse-block, substantially as herein described and shown.

27,751. SNAP-HOOK. LOUIS H. PRIESSLE, New Britain, Conn., assignor to the North & Judd Manufacturing Company, same place. Filed Aug. 26, 1897. Serial No. 649,650. Term of patent 14 years.



Claim.—The design for a snap-hook herein shown and described.

27,752. BODY FOR SNAP-HOOKS. LOUIS H. PRIESSLE, New Britain, Conn., assignor to the North & Judd Manufacturing Company, same place. Filed Aug. 10, 1897. Serial No. 647,755. Term of patent 14 years.



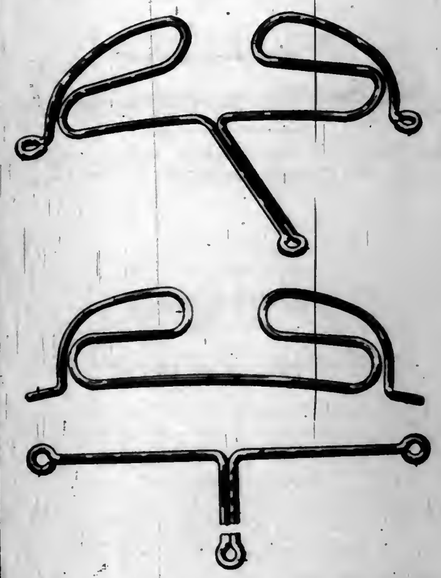
Claim.—The design for the body of a snap-hook, as herein shown and described.

27,753. HARNESS-LOOP. SCOTT H. HULL, Cedaleone, Iowa. Filed Aug. 28, 1897. Serial No. 649,579. Term of patent 14 years.



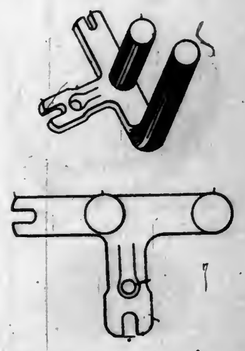
Claim.—The design for a harness-loop, substantially as herein shown and described.

27,754. REIN-HOLDER. DAVID R. SAMMONS and JAMES M. LEE, Houston, Tex. Filed Aug. 30, 1897. Serial No. 650,061. Term of patent 7 years.



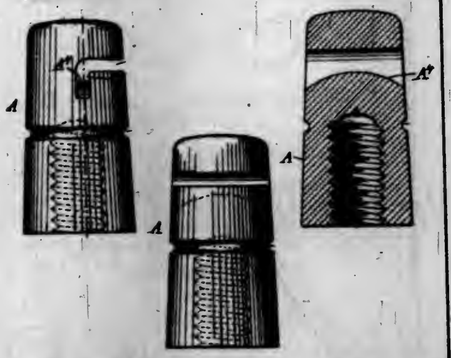
Claim.—The design for a rein-holder, herein shown and described.

27,755. WIRE-JOINING TOOL. JAMES A. MITCHELL, Dayton, Ohio. Filed Aug. 26, 1897. Serial No. 649,647. Term of patent 7 years.



Claim.—The design for a wire-joining tool having the forked or notched arms A A', the stem B, the handle C, and the eye D, as set forth.

27,756. LINE-WIRE INSULATOR. SARAH A. GRAHAM, Marion, Iowa. Filed Aug. 11, 1897. Serial No. 647,894. Term of patent 14 years.



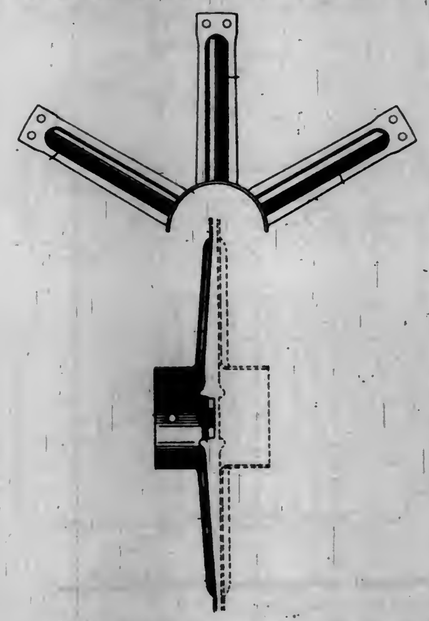
Claim.—The design for an electric-line-wire insulator herein shown and described, which is exteriorly approximately cylindrical, and is characterized by the lateral slot A and the vertically-curved shoulder A^4, located at the inner end of the slot and below the level of its outer end.

27,757. METAL BAR. WILLIAM J. BRADLEY, Troy, and JOHN MATHESON, Lansingburg, N. Y. Filed May 10, 1897. Serial No. 635,967. Term of patent 14 years.



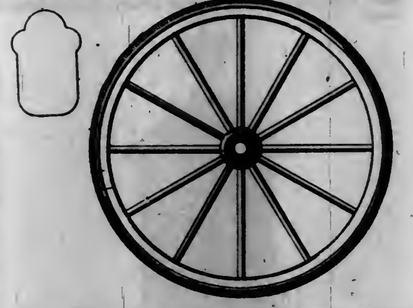
Claim.—The design for a metal bar herein shown and described.

27,758. FRAME FOR PULLEYS. THOMAS CORNELIUS, New Britain, Conn., assignor to the American Pulley Company, Philadelphia, Pa. Filed May 8, 1897. Serial No. 636,748. Term of patent 14 years.



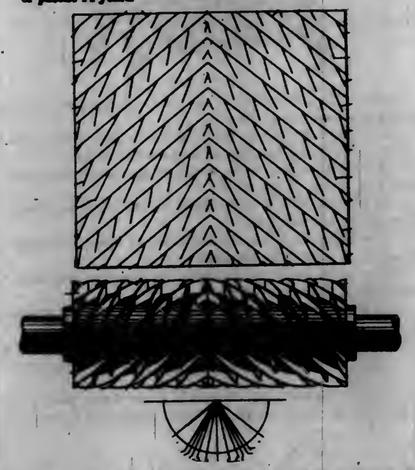
Claim.—The design for a frame for pulleys, as herein shown and described.

27,759. VEHICLE-WHEEL. THOMAS J. LOVETT, Chicago, Ill. Filed Aug. 6, 1897. Serial No. 647,326. Term of patent 14 years.



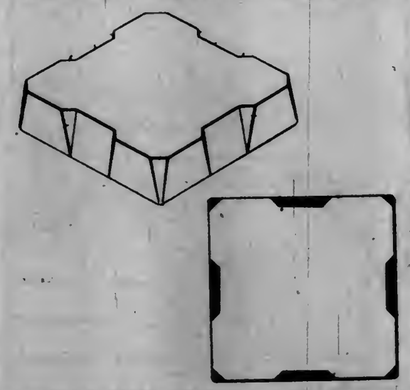
Claim.—The design for a vehicle-wheel, substantially as herein shown and described.

27,760. FINISHING-ROLL FOR LEATHER MACHINERY. JOSEPH HALL, Leeds, England. Filed July 30, 1897. Serial No. 646,561. Term of patent 14 years.



Claim.—The design for a finishing roll or cylinder as herein shown and described.

27,761. LIGHT OR TILE. JOHN W. MANN, New York, N. Y. Filed Sept. 6, 1897. Serial No. 650,991. Term of patent 14 years.



Claim.—The design for a light or tile, substantially as herein set forth.

27,762. STOVE. EDWARD J. KING and THOMAS R. KENNEDY, Rochester, N. Y., assignors to the Cooperative Foundry Company, same place. Filed Aug. 23, 1897. Serial No. 649,233. Term of patent 7 years.

Claim.—1. In a design for stoves the design for the base, substantially as shown and described.

2. In a design for stoves, the design for the base and legs, and the central panel C, substantially as shown and described.

3. In a design for stoves, the design for the fire-pot section, substantially as shown and described.

4. In a design for stoves, the design for the body-front, substantially as shown and described.

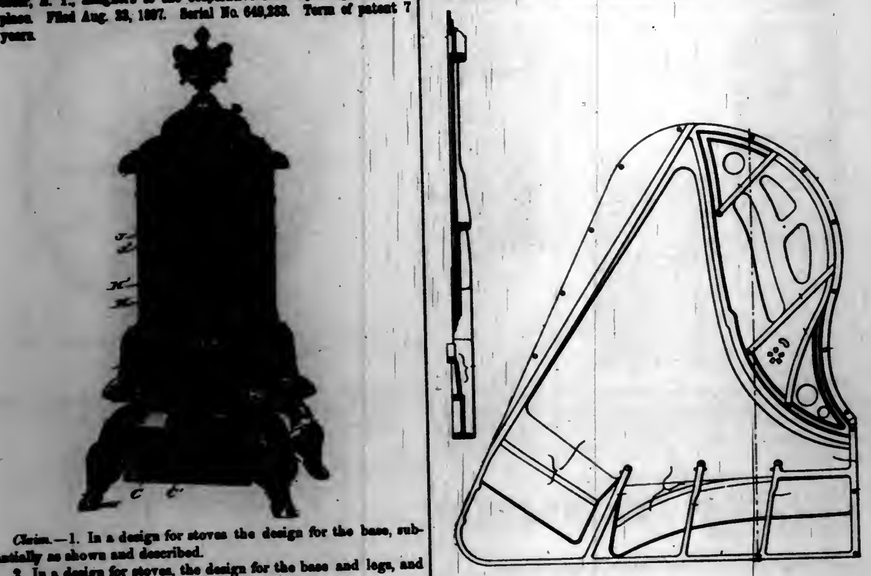
5. In a design for stoves, the design for the lower front door H, substantially as shown and described.

6. In a design for stoves, the design for the upper front door J, substantially as shown and described.

7. In a design for stoves, the design for the top section, substantially as shown and described.

8. The design for stoves, substantially as described and shown.

27,763. PIANO-PLATE. ROBERT S. BOWER, Boston, Mass. Filed Sept. 10, 1897. Serial No. 651,256. Term of patent 14 years.

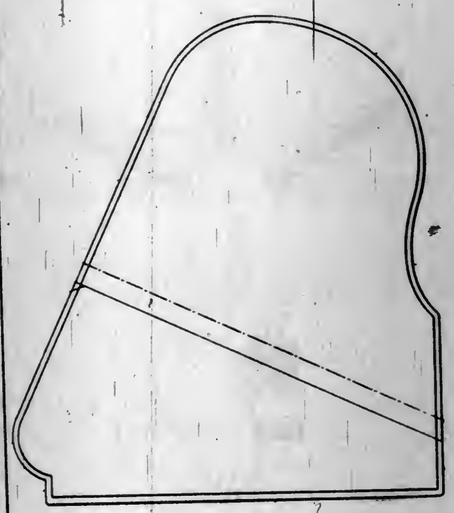


Claim.—The design for a piano-plate substantially as shown and described.

27,764. PIANO-PLATE. ROBERT S. BOWER, Boston, Mass. Filed Sept. 10, 1897. Serial No. 651,256. Term of patent 14 years.

Claim.—The design for a piano-plate substantially as shown and described.

27,765. PIANO-TOP. ROBERT S. BOWER, Boston, Mass. Filed Sept. 10, 1897. Serial No. 651,257. Term of patent 14 years.



Claim.—The design for a piano-top substantially as shown and described.

27,766. BICYCLE AMMONIA-GUN HOLDER. JAMES W. FULLER, Catasauqua, Pa. Filed Sept. 2, 1897. Serial No. 650,408. Term of patent 14 years.



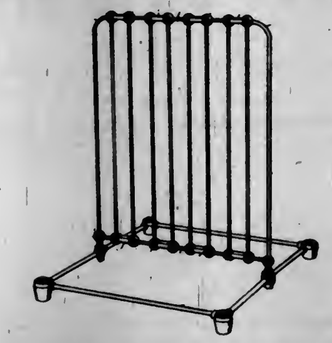
Claim.—The design for a bicycle ammonia-gun holder, substantially as shown and described.

27,767. BICYCLE-FRAME. ARTHUR H. ANDREWS, Williamsport, Pa. Filed Aug. 4, 1897. Serial No. 647,126. Term of patent 14 years.



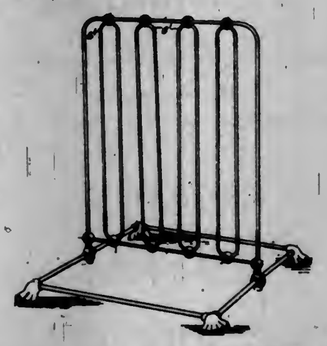
Claim.—The design for a bicycle-frame, as herein shown and described.

27,768. BICYCLE-STAND. WILLIAM OLIVER, Lockport, N. Y., assignor to Oliver Brothers, same place. Filed July 6, 1897. Serial No. 643,661. Term of patent 7 years.



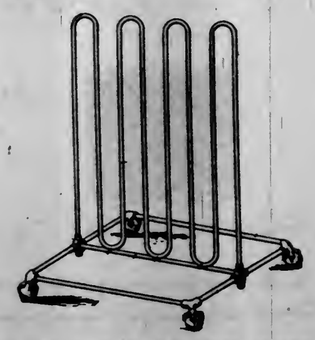
Claim.—The design for a bicycle-stand, substantially as herein shown and described.

27,769. BICYCLE-STAND. WILLIAM K. PIER, Lockport, N. Y., assignor to Oliver Brothers, same place. Filed July 6, 1897. Serial No. 643,663. Term of patent 7 years.



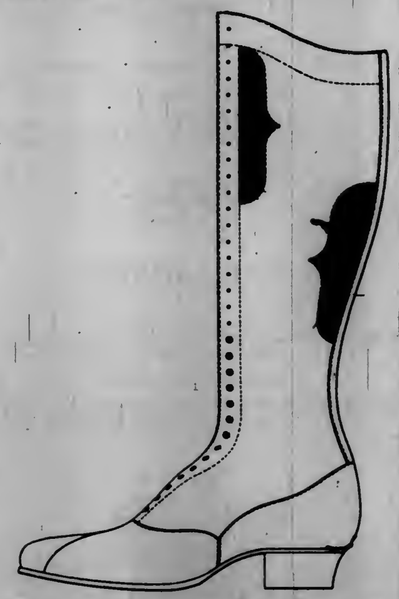
Claim.—The design for a bicycle-stand, substantially as herein shown and described.

27,770. BICYCLE-STAND. WILLIAM K. PIER, Lockport, N. Y., assignor to Oliver Brothers, same place. Filed July 19, 1897. Serial No. 645,179. Term of patent 7 years.



Claim.—The design for a bicycle-stand, substantially as herein shown and described.

27,771. BICYCLE-BOOT. ELMER E. PHINNEY, Middleborough, and JOHN J. FALVEY, Boston, Mass. Filed Aug. 26, 1897. Serial No. 649,646. Term of patent 7 years.



Claim.—The design for a bicycle boot or legging, as shown and described.

27,772. TRIMMING. FRANCIS PAYER, Philadelphia, Pa., assignor to Miriam L. Friedberger, same place. Filed Apr. 7, 1897. Serial No. 631,174. Term of patent 7 years.



Claim.—The design for trimmings, substantially as herein shown and described.

27,773. TRIMMING. Frances Payne, Philadelphia, Pa., assignor to Miriam L. Friedberger, same place. Filed Apr. 7, 1897. Serial No. 631,178. Term of patent 7 years.



Claim.—The design for trimmings, substantially as herein shown and described.

27,774. MONUMENT. William H. Perry, Concord, N. H. Filed Sept. 8, 1897. Serial No. 650,960. Term of patent 14 years.



Claim.—The design for a monument substantially as herein shown and described.

TRADE-MARKS

REGISTERED OCTOBER 19, 1897.

30,684. HEMSTRADS. Henry Shadewald, Philadelphia, Pa. Filed Aug. 10, 1897.

CLARENDALE

Essential feature.—The word "Clarendale." Used since March 20, 1890.

30,685. GARMENT-SUPPORTS. Emmons & Emmons, Oskaloosa, Iowa. Filed Sept. 7, 1897.

MISSING LINK

Essential feature.—The words "Missing Link." Used since March 1, 1897.

30,686. PUBLICATIONS. The Brooklyn Daily Eagle, Brooklyn, N. Y. Filed June 25, 1897.

EAGLE



Essential feature.—The word "Eagle" or a representation of an eagle. Used since 1841.

30,687. SPECTACLES AND EYEGLASSES. American Optical Company, Southbridge, Mass. Filed Sept. 17, 1897.

ALUMNICO

Essential feature.—The word "Alumnico." Used since September 1, 1890.

30,688. WATCHES. Benj. Allen & Co., Chicago, Ill. Filed Sept. 15, 1897.

SOLAR WATCH CO.
1865
CHICAGO ILLS.

Essential feature.—The words and abbreviation "Solar Watch Co.," the numerals "1865," and the word and abbreviation "Chicago, Ills." Used since September 1, 1897.

30,689. WATCHES. Benj. Allen & Co., Chicago, Ill. Filed Sept. 15, 1897.

SOLAR

Essential feature.—The word "Solar." Used since September 1, 1897.

30,690. ORNAMENTED SILVERWARE. Howard Sterling Company, Providence, R. I. Filed Aug. 30, 1897.

1776

Essential feature.—The numerals "1776." Used since January 1, 1897.

30,691. SILVER-PLATED FLAT WARE. R. Wallace & Sons Manufacturing Company, Wallingford, Conn. Filed Aug. 26, 1897.

1835
R. WALLACE

Essential feature.—The figures "1835" and the letter and word "R. Wallace." Used since August 1, 1897.

30,692. CYLINDER AND ROLLED GLASS. Ehret & Hasbrouck, New York, N. Y. Filed Aug. 30, 1897.



Essential feature.—A representation of a crown. Used since January 1, 1896.

30,693. INHALER AND CONTENTS. Howard S. Gloss, Boston, Mass. Filed Aug. 19, 1897.

MICROBYTE

Essential feature.—The word "Microbyte." Used since May, 1897.

80,694. ATOMIZERS, LARYNGOSCOPES, RECTAL DILATORS, STERILIZERS, AND BACTERIOLOGICAL INCUBATORS. WILLIAM BOOKER & Co., Philadelphia, Pa. Filed July 27, 1897.



Essential feature.—The letter "B" inclosed in a circle. Used since July 22, 1897.

80,695. SUPPORTERS. THE HASTINGS & MCINTOSH TRUSS COMPANY, Philadelphia, Pa. Filed Aug. 14, 1897.

McINTOSH

Essential feature.—The word "McINTOSH." Used since 1877.

80,696. DERIVATIVES OF CINCHONA ALKALOIDS. VEREINIGTE CHININFABRIKEN ZIMMER & Co., GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Frankfort-on-the-Main, Germany. Filed Sept. 15, 1897.

Euquinine

Essential feature.—The word "EUQUININE." Used since January 15, 1897.

80,697. REMEDIES FOR INFLUENZA, CONGESTION, CHILLS, COUGHS, COLDS, AND SIMILAR AILMENTS. HORACE PATCHEN, Tillamook, Oreg. Filed July 7, 1897.

NG SPEC

Essential feature.—The hyphenated capital letters "N-G- S-P-E-C." Used since February 1, 1896.

80,698. REMEDIES FOR DYSPEPSIA. WILLIAM H. RYAN, French Lick, Ind. Filed July 28, 1897.



Essential feature.—A portrait of Dr. S. Ryan. Used since January, 1882.

80,699. REMEDY FOR ANÆMIA AND NERVE DISORDERS AND TONICS FOR THE NERVES AND BLOOD. CHARLES J. ULRICI, New York, N. Y. Filed July 23, 1897.

NEURO-STRENGTHINE

Essential feature.—The compound word "NEURO-STRENGTHINE." Used since July 1, 1897.

80,700. SALVE, CORDIAL, AND CATHARTIC PILL. JOSHUA I. ROGERS, Kansas City, Mo. Filed Aug. 26, 1897.

CURENA

Essential feature.—The word "CURENA." Used since August 1, 1897.

80,701. HAIR-INVIGORATOR. JOHN H. HUSTER, Wildwood, Pa. Filed Sept. 21, 1897.

OCEAN SPRAY

Essential feature.—The words "OCEAN SPRAY." Used since September 1, 1897.

80,702. CHEWING-GUM AND COUGH-DROPS. TICKLE-ME-GUM MANUFACTURING CO., St. Joseph, Mo. Filed Sept. 20, 1897.

"TICKLE-ME"

Essential feature.—The compound word "TICKLE-ME." Used since May 20, 1897.

80,703. CACHOUS. T. B. DUNN COMPANY, Rochester, N. Y. Filed Aug. 11, 1897.



Essential feature.—The compound word "SEN-SEN" and a representation of a diagonal ribbon tied in a bow-knot. Used since March, 1894.

80,704. RYE WHISKY. JAS. E. PEPPER & COMPANY, Lexington, Ky. Filed Sept. 9, 1897.



Essential feature.—A representation of a circular field bearing the words "HENRY CLAY RYE." Used since 1880.

80,705. WHISKY. THE OLD BUSHMILLS DISTILLERY COMPANY, LIMITED, Belfast, Ireland. Filed Dec. 28, 1896.



Essential feature.—A representation of a still with the words and abbreviation "THE OLD BUSHMILLS DISTILLERY CO., LIMITED" in a curve above and the word "BUSHMILLS" below. Used since August, 1860.

80,706. WINES. MARKGRAF-SARASIN, Frankfort-on-the-Main, Germany. Filed Aug. 5, 1897.



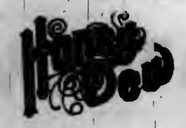
Essential feature.—A representation of two shields, a heraldic helmet arranged above the shields, grape-vine sprigs clustered about the shields, and the marks, in capitals, "GEGR" and "1774." Used since April 3, 1895.

80,707. MALT LIQUORS. D. G. YUENGLING & SON, Pottsville, Pa. Filed Sept. 1, 1897.



Essential feature.—A representation of an eagle with outspread wings, with one foot resting upon a rock and the other foot upon a keg or barrel, and the words "PURITY" and "CLEANLINESS" in proximity thereto. Used since 1829.

80,708. CIGARETTES. NATIONAL CIGARETTE AND TOBACCO COMPANY, New York, N. Y. Filed Sept. 1, 1897.



Essential feature.—The words "HONEY DEW." Used since August 17, 1895.

80,709. PERFUMES, COLOGNES, TOILET WATERS, AND SACHET-POWDERS. LADD & COFFIN, New York, N. Y. Filed Aug. 24, 1897.

ATLI

Essential feature.—The word "ATLI." Used since August 15, 1897.

80,710. PERFUMES, COLOGNES, TOILET WATERS, AND SACHET-POWDERS. LADD & COFFIN, New York, N. Y. Filed Aug. 31, 1897.



Essential feature.—The words "FAIRY FROND." Used since August 20, 1897.

80,711. DEXTRINIZED BARLEY-FLOUR FOR MEDICINAL PURPOSES. GEORGE R. FARLEE, New York, N. Y. Filed July 16, 1897.

DBF

Essential feature.—A diamond-shaped figure embracing the letters "D B F." Used since July 1, 1897.

80,712. WHEAT-FLOUR. HAWORTH & DOWNINGS, LIMITED, Pittsburg, Pa. Filed Feb. 17, 1897.

SATISFACTION

Essential feature.—The word "SATISFACTION." Used since June 1, 1888.

80,713. RICE-STARCH. J. & J. COLMAN, LIMITED, London, England. Filed Aug. 9, 1897.



Essential feature.—The words "COLMAN'S PATENT No. 1 RICE STARCH, LONDON." Used since 1878.

80,714. CERTAIN NAMED CANNED GOODS. ADAMS, BAKER COMPANY, Cheswold, Del., and Baltimore, Md. Filed Sept. 14, 1897.

RUSTIC.

Essential feature.—The word "RUSTIC." Used since September 4, 1891.

80,715. MATCHES. RETAIL MERCHANTS ASSOCIATION OF NEW JERSEY, Paterson, N. J. Filed Aug. 6, 1897.

UTOPIA

Essential feature.—The word "UTOPIA." Used since December 1, 1896.

80,716. PAINTS AND OILS. W. P. FULLER & COMPANY, San Francisco, Cal. Filed Sept. 10, 1896.

EXTRA STAR.



Essential feature.—A pictorial representation of a star formed by placing two triangles one upon the other, and the words "EXTRA STAR." Used since 1880.

80,717. TIRES, HOSE, BELTING, HORSESHOES, AND OTHER MERCHANDISE COMPOSED IN WHOLE OR IN PART OF RUBBER. THE WEITHAS & RABBIS MANUFACTURING COMPANY, Akron, Ohio. Filed July 26, 1897.



Essential feature.—A diamond figure containing within it a representation of a bull's head. Used since July 1, 1897.

80,718. TYPE-WRITER RIBBONS. ADELBERT P. LITTLE, Rochester, N. Y. Filed Aug. 27, 1897.

BRILLIANT.

Essential feature.—The word "BRILLIANT." Used since September 1, 1894.

80,719. TYPE-WRITING MACHINES. REMINGTON-SHOLES COMPANY, Chicago, Ill. Filed Aug. 27, 1897.

REM-SHO

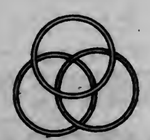
Essential feature.—The compound word "REM-SHO." Used since July 1, 1897.

80,720. WIRE FOR ELECTRIC CONDUCTION. BRIDGEPORT BRASS COMPANY, Bridgeport, Conn. Filed Aug. 10, 1897.

"PHONO-ELECTRIC"

Essential feature.—The compound word "PHONO-ELECTRIC." Used since August 1, 1897.

80,721. CERTAIN NAMED IRON AND STEEL MANUFACTURES. THE FIRM OF FRIED. KRUPP, Essen-on-the-Ruhr, Germany. Filed Feb. 15, 1897.



Essential feature.—A representation of three circles interlacing each other. Used since January 1, 1876.

80,722. SULKY CULTIVATORS, STALK-CUTTERS, HARROWS, GRAIN-HARVESTERS, AND CORN-PLANTERS. THE OHIO CULTIVATOR COMPANY, Bellevue, Ohio. Filed Aug. 26, 1897.

FAMOUS OHIO

Essential feature.—The words "FAMOUS OHIO." Used since January, 1891.

80,723. PLOWS. BRINLY, MILES & HARDY COMPANY, Louisville, Ky. Filed Aug. 14, 1897.



Essential feature.—A representation of a shield with the name "BRINLY" thereon. Used since August 7, 1897.

80,724. STEAM AND WATER HEATERS. A. A. GRIFFING IRON COMPANY, Jersey City, N. J. Filed Sept. 21, 1897.

LA FLORA

Essential feature.—The words "LA FLORA." Used since June 15, 1897.

80,725. STEAM SPECIALTIES, HEATING APPARATUS, AND KINDRED SUPPLIES. A. A. GRIFFING IRON COMPANY, Jersey City, N. J. Filed Sept. 21, 1897.

BUNDY

Essential feature.—The word "BUNDY." Used since September, 1896.

80,726. TABLES AND TABLE PARTS. JOHN B. SHEBLOSKY, St. Louis, Mo. Filed Sept. 17, 1897.

END-WOOD

Essential feature.—The compound word "END-WOOD." Used since August 15, 1897.

80,727. LUMBER, BOTH BUNDLED AND LOOSE, INCLUDING DRESSED LUMBER, BOARDS, FLOORING, CEILING, CEDAR LUMBER, AND SHINGLES. JOHN L. ROPER LUMBER COMPANY, Norfolk, Gilmerton, and Waverly, Va.; Philadelphia, Pa.; New York, N. Y., and Roper, N. C. Filed Sept. 8, 1897.



Essential feature.—A representation of a lion statant. Used since August 15, 1897.

80,728. CANNED OR PRESERVED EDIBLES. WM. NUMSEN & SONS, (INCORPORATED,) Baltimore, Md. Filed Apr. 19, 1897.

CLIPPER

Essential feature.—The word "CLIPPER." Used since 1878.

THE HORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

S. HERNSHEIM, BROS. & CO., LIMITED, *v.* J. H. HARGRAVE & SON.

Decided October 2, 1897.

TRADE-MARKS—INTERFERENCES—BROAD CLAIM UNDER A NARROW ISSUE.

In interferences in trade-mark cases a broad claim should not be placed under a narrow issue, but the practice in patent cases of making the issue as broad as the broadest claim should be followed.

APPEAL from the Examiner of Interferences.

TRADE-MARK FOR LEAF-TOBACCO, ETC.

Application of Hernsheim, Bros. & Co. filed June 18, 1896, No. 51,066. Trade-mark of J. H. Hargrave & Son registered May 1, 1888, No. 15,405.

Messrs. Briesen & Knauth for Hernsheim, Bros. & Co.

Mr. H. Wise Garnett for Hargrave & Son.

BUTTERWORTH, *Commissioner:*

This is an appeal from the decisions of the Examiner of Interferences rendered March 18, 1897, April 27, 1897, and June 2, 1897.

On June 18, 1896, Hernsheim, Bros. & Co., the junior parties to this interference, filed an application for the registration as a trade-mark for leaf-tobacco, manufactured tobacco, and cigars of the words "Black Horse" or the representation of a black horse. Registration was refused on the registered mark to Hargrave & Son, which consisted of the words "Dark Horse" and the pictorial representation of a blanketed horse.

After due proceedings this interference was declared between the two parties, the issue being—

the words "Dark (or Black) Horse" and the picture of a horse applied to chewing-tobacco.

Testimony was duly taken on behalf of Hernsheim, Bros. & Co., there being no appearance for Hargrave & Son, nor did Hargrave & Son take any testimony in their own behalf.

On March 18, 1897, the Examiner of Interferences rendered a decision as follows:

The record of Hernsheim, Bros. & Co., Limited, the junior party, would seem to disclose that "Black Horse" has been used by said junior party and their predecessors in business as a trade-mark for tobacco for about a quarter of a century; but there is not a word of testimony to show that they ever sold an ounce of *chewing-tobacco* under this trade-mark, or that they ever applied this trade-mark to a single package of this class of tobacco. The junior party has therefore entirely failed to show the adoption and use by them of the mark "Black Horse" applied to chewing-tobacco, and hence have not sustained the burden of proof resting upon them.

Judgment of priority of adoption and right of the trade-mark in issue is hereby rendered in favor of J. H. Hargrave & Son, the senior party herein.

On March 24, 1897, Hernsheim, Bros. & Co. made a motion that the Examiner of Interferences suspend the interference and rehear the same, the ground for this motion being substantially that the Examiner erred in holding that the failure of Hernsheim, Bros. & Co. to establish by evidence that they used the trade-mark as defined in the issue on chewing-tobacco at a date prior to the record date of Hargrave & Son was the basis of a judgment that they were not the owners thereof, or if this holding were not erroneous then the Examiner erred in rendering a decision of adoption and use and in not dissolving the interference.

On April 27, 1897, the Examiner of Interferences made a decision denying this motion, stating that—

all the Examiner of Interferences has decided or attempted to decide was as to the ownership of this trade-mark used on the particular article of merchandise named in the issue, and in so doing he is of the opinion that he made no error. Being of that opinion, he must and hereby does refuse to disturb the decision already made, but reaffirms the same.

On May 3, 1897, Hernsheim, Bros. & Co. moved that the issue be re-formed, for the "reasons appearing obviously upon the record." This motion was denied by the Examiner of Interferences on June 2, 1897. From these decisions of the Examiner of Interferences this appeal is taken.

That the issue of this interference is narrower than the claim of Hernsheim, Bros. & Co., which is placed under this issue, is plain from the record. It has been repeatedly held in patent cases that a broad claim should not be put under a narrow issue, and I think that practice should apply in interferences between trade-marks. When it became apparent to the Examiner of Interferences that the issue was not properly drawn to include Hernsheim, Bros. & Co.'s claims and a proper motion was made to re-form the issue, it seems to me that he should have transmitted the motion to the Examiner of Trade-Marks to be determined.

It will serve no satisfactory purpose to prolong this discussion. Suffice it to say that the action of the Examiner of Trade-Marks in drawing the issue as he did and the action of the Examiner of Interferences in refusing to grant the motion to transmit the interference for the purpose of recasting the issue were erroneous.

The decision of the Examiner of Interferences awarding priority is set aside, and the interference papers will be transmitted to the Primary Examiner, who will re-form the issue and return the papers to the Examiner of Interferences for the purpose of considering the question of priority on the new issue.

EX PARTE HUNTER.

Decided September 16, 1897.

1. REOPENING CASE AFTER DECISION OF APPELLATE TRIBUNAL—ALLOWABLE CLAIMS.

The Examiner cannot, under the rules, after a decision by the Examiners-in-Chief, admit even allowable claims, unless such claims are recommended by the Examiners-in-Chief, without written authority from the Commissioner.

2. SAME—ADDITIONAL CLAIMS.

To permit an applicant after decision upon appeal to present additional claims to be considered by the Examiner, and if rejected by him again brought before the Examiners-in-Chief on appeal, is not proper practice.

ON petition.

CIRCUITS ADAPTED TO ELECTRICAL TRANSMISSION OF ENERGY.

Application of Rudolph M. Hunter filed October 4, 1889, No. 325,958.

Mr. R. M. Hunter pro se.

GREELEY, *Acting Commissioner:*

This application is asserted by the applicant to be a division of an earlier application, Serial No. 85,897, filed February 23, 1883. The Examiner held that this application is not properly a division of the earlier application. In this holding he was sustained by the decision of the Assistant Commissioner, dated January 6, 1894. On a petition for rehearing the Assistant Commissioner, on February 16, 1894, in dismissing the petition remanded the case to the Primary Examiner with directions to consider it *de novo* and act on the merits, citing references older than its date of filing if in his opinion it was not a proper division of the earlier application.

There is nothing in this decision of the Assistant Commissioner, dated February 16, 1894, to indicate that his decision of January 6, 1894, sustaining the decision of the Examiner, was to be considered overruled.

The Examiner, in accordance with the decision of the Assistant Commissioner of February 16, 1894, proceeded to reject the claims of this application on references, some of which were earlier in date than the filing date of the applicant's earlier application and some of which were later than that date, but earlier than the date of filing of this application. In his letter citing these references the Examiner repeated the objection previously made—that is to say, the objection that this application is not properly a division of applicant's application of 1883. This rejection having been repeated appeal was taken. The Examiners-in-Chief reversed the decision of the Examiner as to all the claims appealed, holding that certain of the references cited did not meet the invention, and with respect to certain of the references holding that whether they did or did not disclose the invention claimed they were not sufficiently early in date to anticipate the dates of applicant's invention as shown by the records of the Office, it appearing that an amendment filed in the earlier application of March 23, 1885, contained the invention of the claims appealed.

There is nothing in this decision of the Examiners-in-Chief deciding the question whether or not this application is properly a division of applicant's earlier application. Subsequent to this decision by the Examiners-in-Chief this application was referred by the Examiner to the Commissioner for instructions, and the Examiner was instructed by the decision of the Assistant Commissioner, dated July 24, 1896, that—

If the Examiner is of the opinion that this application is not a proper divisional application he should raise that objection. The question may then be settled by petition. If he is of the opinion that it is a proper divisional case, he should consider whether in view of all the facts a *prima facie* showing of public use has been made. In that case he should refer the application to the Commissioner with a recommendation that public-use proceedings be instituted.

The applicant on August 18, 1896, filed a letter requesting that this application be passed to issue, accompanying the request with an amendment in which reference was made to a substitute drawing stated to be filed therewith. The drawing was not then filed. This amendment, which included an additional claim, numbered 7, was not considered by the Examiner for the reason that the drawing forming part thereof had not been filed, as appears from Office letter of August 24, 1896. On February 12, 1897, the applicant filed the drawing referred to in his amendment filed August 18, 1896. On February 17 he requested that action on the case be suspended. On February 23 he filed an amendment containing additional claims, 8 to 10, inclusive. On March 31 he filed an amendment containing claims 11 to 20, inclusive. The Examiner on April 23, 1897, stated that claims 1 to 6, inclusive, had been allowed by the Examiners-in-Chief, and held that claims 7 to 20, inclusive, having been presented after appeal to the Examiners-in-Chief, were presented too late for admission into the case. In this letter the Examiner stated certain reasons why these claims, even if they were held to be admissible, would not, in his opinion, be allowable. This letter did not reopen the case. It is not to be understood as a technical rejection of claims which, as expressly stated in the letter, were presented too late, the case being closed. The case was not in condition for such rejection at the time this letter was written, as it had not been regularly reopened and could not be reopened by the Examiner for consideration on the merits. The Examiner could at that time take such action only in the case as was necessary to carry into effect the decision of the Examiners-in-Chief. Such action in the present case consisted in making such requirements as to matters of form as might be found necessary to put the case in condition for allowance.

The Examiner cannot, under the rules, after a decision by the Examiners-in-Chief, admit even allowable claims, unless such claims are recommended by the Examiners-in-Chief, without written authority from the Commissioner.

It is clear from the Examiner's letter that he understood the practice that is required by the rules and did not intend to reopen the case or to take action which might be construed as reopening the case. He did not admit the claims contained in the various amendments filed by the applicant, but expressly stated that it was too late for the presentation of these claims.

This application has been before the Office since October 4, 1889. The applicant had ample opportunity to present such claims as he saw fit before appeal was taken to the Examiners-in-Chief. To permit him after decision upon such appeal to present additional claims to be considered by the Examiner, and if rejected by him again brought before the Examiners-in-Chief on appeal, is not, in my opinion, proper practice.

As stated in *ex parte Snow*, (80 O. G., 1271:)

There must be an end somewhere to the prosecution of an application, and the Office is justified in restricting the power to bring up for consideration matters which should have been presented and disposed of prior to the closing of the case before the Primary Examiner.

I am clearly of the opinion that this case was not reopened by the action of the Examiner subsequent to the appeal and that it should not now be reopened for the consideration of the claims presented.

The decision of the Examiner, holding that it is too late for the presentation of claims 7 to 20, inclusive, is affirmed, and the petition is denied.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the District of Columbia.

UNITED STATES, *ex rel.* BULKLEY, *v.* BUTTERWORTH, COMMISSIONER OF PATENTS.

Decided October 11, 1897.

1. ACCESS TO RECORDS OF THE PATENT OFFICE—ABANDONED APPLICATIONS—SECTION 892, REVISED STATUTES, CONSTRUED.

Some of the records and papers of the Patent Office are public records, and of these any person is entitled to copies upon paying the usual fee therefor; but there are others not public records, and of these no one is entitled to copies without showing that they are material evidence for him, and the Commissioner of Patents cannot be required to furnish copies until such showing is made. Abandoned applications are evidently of the latter character. (Section 892, Revised Statutes, construed.)

2. SAME—SAME—EVIDENCE IN SUIT—MANDATE OF COURT.

No person is required to submit his private papers to others or produce them in court on the demand of a party to a suit on his allegation or claim that they are material evidence for such party, but only in obedience to the mandate of the court in which such suit is pending, and it is only reasonable that when a public officer has under his control a paper or document in its nature private, or such as the public generally is not entitled to have access to as a public record, he should not be compellable to produce it or deliver copies of it until he has some information from the court in which the case is pending that it is required as evidence.

3. SAME—SAME—TRIBUNAL TO DETERMINE QUESTION OF EVIDENCE.

The court in which a suit is pending and not the Commissioner of Patents is the appropriate tribunal to determine whether a given paper should be produced as evidence, and where there is no satisfactory showing, as by a certificate of the court, that a paper is proper evidence the Commissioner of Patents may refuse copies of such paper, and a writ of mandamus will not issue to him to furnish such copies.

Mr. Charles C. Bulkley pro se.

Mr. W. A. Megrath for the Commissioner of Patents.

COLE, *J.:*

This is an application by the relator for a writ of mandamus against the respondent requiring him to permit the relator to examine the application for a patent of one Frank E. Kinsman, for improvements in telephone-switchboards, filed about the 10th day of April, 1879, and said to have been abandoned expressly or by implication, and to furnish him a copy thereof.

The petition for the writ sets forth, among other things, that there is now pending in the Circuit Court of the United States for the Northern District of California a suit in equity, wherein the Western Electric Company, of Chicago, Ill., is complainant and the Capital Telephone and Telegraph Company and others are defendants, involving the question of infringement by defendants of Letters Patent of the United States No. 252,576, granted to the complainant as assignee of one Leroy B. Firman, for improvements in switchboards for telephone-exchanges, and that the relator is counsel and attorney for the defendants in said suit, and that one of the defenses thereto is that Kinsman and not Firman was the original and first inventor of the patented improvement. The petition also sets forth other facts which indicate that the said Kinsman's application may be competent and material evidence for the defendants in said suit.

The respondent says, substantially, in his answer to the rule to show cause that there was no sufficient showing made in the application to him for leave to inspect and for a copy that the same is competent and material evidence in the said suit, and that, as Kinsman opposed the granting of leave to inspect and take copies, he deemed it his duty to deny the application; but he expresses his willingness to furnish the copies upon a satisfactory showing that the same are proper and material evidence in said suit. He files with his answer, as an exhibit, the petition presented to him praying leave to inspect and to obtain copies as aforesaid, from which it appears that the petitioner therein set forth only the pendency of the suit and the subject-matter thereof, the existence of the alleged abandoned application of Kinsman, and alleged that the same is material and necessary evidence for the defendant in said suit, without setting forth the facts and circumstances showing that it is so, as is done in the petition presented to this court for the writ of mandamus, so that the petition presented to respondent contained nothing more than the opinion of the petitioner therein that the desired copies are proper and material evidence in said suit.

It is contended by the relator that he is entitled to such copies on the showing made before the respondent by virtue of section 892 of the Revised Statutes of the United States, which is as follows:

Sec. 892. Written or printed copies of any records, books, papers, or drawings belonging to the Patent Office, and of Letters Patent authenticated by the seal and certified by the Commissioner or Acting Commissioner thereof, shall be evidence in all cases wherein the originals could be evidence; and any person making application therefor, and paying the fee required by law shall have certified copies thereof.

The construction placed upon this section by the relator is that any person is entitled to a copy of any record or document in the Patent Office upon application therefor alleging that he requires

it as evidence; but this is clearly an erroneous construction. There are undoubtedly some of the records and papers of the Patent Office which are public records, and of these any person is entitled to copies upon paying the usual fee therefor; but there are others not public records, and of these no one is entitled to copies without showing that they are material evidence for him, and the Commissioner of Patents cannot be required to furnish copies until such showing is made. The papers in question are evidently of the latter character.

Section 882 of the Revised Statutes of the United States provides for the admission in evidence of copies of records and papers on file in any of the executive departments upon the certificate of the head of the department under its seal. There is a regulation in each of the departments, including the Interior Department, that any person applying for a copy to be used as evidence under that section shall file along with his application a certificate from the court in which the case is pending or a judge thereof to the effect that the paper or record a copy of which is sought is competent and material evidence for the party making the application. This seems to be a reasonable regulation and one within the competency of the head of one of the departments to make under the act of Congress authorizing the heads of departments to make all necessary rules and regulations for the proper transaction of business before their respective departments not inconsistent with law. Of course this regulation does not apply to any paper or document which is in its nature public, but is intended to apply to those which, although filed and permitted or required by law to be filed in the departments, are in their nature private. No person is required to submit his private papers to others or produce them in court on the demand of a party to a suit on his allegation or claim that they are material evidence for such party, but only in obedience to the mandate of the court in which such suit is pending, and it is only reasonable that when a public officer has under his control a paper or document in its nature private, or such as the public generally is not entitled to have access to as a public record, he should not be compellable to produce it or deliver copies of it until he has some information from the court in which the case is pending that it is required as evidence. The certificate or order which the regulation in question provides for is the equivalent of a *subpœna duces tecum*, and the statute in question was enacted to avoid the necessity of using such process to obtain papers required as evidence from the executive departments of the Government. The court in which a suit is pending and not the department officer is the appropriate tribunal to determine whether a given paper should be produced as evidence, and it is not to be doubted that the respondent upon such certificate from the Circuit Court of the United States for the Northern District of California would furnish the copies requested. In his return he expresses his willingness to furnish copies of the designated papers upon a satisfactory showing that they are proper evidence in the case mentioned, and as no sufficient showing in this regard was made to respondent it follows that the writ of mandamus must be refused and the rule discharged and the petition dismissed, with costs.

U. S. Circuit Court—District of Massachusetts.

AMERICAN STREET CAR ADVERTISING COMPANY *v.* NEWTON STREET RAILWAY COMPANY *et al.*

Decided August 6, 1897.

1. RANDALL—ADVERTISING-RACK FOR STREET-CARS—INVALIDITY—INFRINGEMENT.

Claim 1 of Letters Patent No. 380,696, granted April 10, 1888, to Isaac H. Randall, for an advertising-rack for street-cars, construed and *Held* that the unnecessary designation of certain elements does not invalidate the claim; that the device covered is new, useful, and not anticipated, and that the claim is infringed.

2. CLAIMS—INCLUDING ELEMENTS NECESSARILY UNDERSTOOD.

It is not requisite to include in a claim as elements thereof parts of the machine which are necessary to its action so far as they may be understood and can be supplied by those who are ordinarily skilled in the art.

Mr. Causten Browne and *Mr. William Quinby* for the complainant.

Mr. Charles G. Coe for the defendant.

PUTNAM, *J.*:

As the record is brought to us, it presents a close case. What the respondents have done was merely as follows: They constructed street-railway cars, built where the sides join the roof with the usual concave cornice or cove. In this construction, they made use of the usual moldings for a proper finish at the lower and upper edges of the casing of this cornice or cove. At the inner edges of these moldings they cut grooves in the plane of the exterior surface of the casing, so that, by holding up advertising-cards whose width was somewhat more than the right-line distance between the two moldings, and by inserting their edges in the grooves, and then pressing back the cards against the concave casing, the edges of the cards slide down into the grooves, and the cards take the concave form of the casing, and rest smoothly and securely against it. The use of the concave casing, with or without the moldings, for thus finishing the cars in the way described, is, of course, common in the art of construction. It is a matter of common knowledge that the respondents were entitled to use the same. If the respondents desired also, for any purpose whatever, to cut grooves in the moldings, the court can well conceive that it would follow as a matter of course, in the greater number of instances, that they would be cut in the plane of the convex casing. Therefore the court might well look through the record with the expectancy of finding that all done by the respondents was matter common to the art of construction. Yet the respondents have not shown us the state of the art in this respect beyond what is quite frequent in causes of this nature—that is, beyond the introduction of extracts from the records of the

Patent Office, which often show an eccentric portion of the state of the art rather than the whole of it.

The complainant's patent, No. 380,696, was issued April 10, 1888, and purports to cover "a new and useful advertising-rack for street-cars." The claim in controversy is as follows:

An advertising-rack adapted for use in a street-car, consisting of the body A, having a continuous concave face, and longitudinal moldings along the edges thereof having grooves *c*, adjacent to and in substantially the same plane as the concave face of the body, in combination with screws or equivalent devices for connecting the rack to the car engaging with the moldings outside the grooves therein, substantially as and for the purpose set forth.

The first ground of defense relates to the contents of the file-wrapper. The claim as originally put into the Patent Office was as follows:

An advertising-rack consisting of the curved body, A, and longitudinal stripe or moldings, D, D, and provided with longitudinal grooves, *c*, *c*, substantially as shown and described and for the purposes set forth.

This claim being rejected, the applicant proceeded to amend by inserting after the words "the curved body A" the words "presenting a concave surface to the front." As amended the claim still met with objection at the Patent Office, and finally the applicant cancelled the entire claim, and offered the one now in suit, which was allowed. The law applicable to proceedings of this nature has been fully explained by the Court of Appeals for this circuit in *Reece Company* v. *Globe Company*, (67 O. G., 1720; 61 Fed. Rep., 958,) but the subject-matter is not in any event of importance in the case at bar, because there is no attempt to broaden out the claim in issue beyond what it expressly calls for, and the claim as finally allowed by the Patent Office is clearly coincident with the complainant's invention.

Another ground of defense relates to the fact that the claim in issue enumerates the screws, or equivalent devices, for connecting the complainant's rack to the car and states in substance that these screws, or equivalent devices, engage with the moldings outside the grooves therein. Beyond the fact that the respondents claim that this constitutes an aggregation, it is not entirely clear what their ground of defense is in this connection. It needs no discussion to show that this does not make what is understood by the term "aggregation"—a term, moreover, dangerous and misleading, unless used and applied with very great consideration and care. The screws, or equivalent devices, and the method of their use, described in the claim, are essential to the combination to enable it to perform its function, and, combined with it, operate to produce a single result only. It is not necessary to enlarge into extended explanations to show that this does not constitute an aggregation. Probably the best practical definition of an aggregation is found in *Hailes* v. *Van Wormer*, (5 O. G., 89; 20 Wall., 353, 368,) where the Court said as follows:

It must be conceded that a new combination, if it produces new and useful results, is patentable, though all the constituents of the combination were well known and in common use before the combination was made; but the results must be a product of the combination and not a mere aggregate of several results each the complete product of one of the combined elements.

It is clear that what is covered by the claim at issue does not produce several results within this language. The most that can be said with reference to it is that, inasmuch as it is plainly obvious to any mechanic that screws, or equivalent devices, are essential for attaching a rack to the car, and that as also, almost as a matter of course, the screws would be made use of by any ordinary mechanic in the place pointed out in the claim, it was unnecessary for the complainant to make references to these details as though they were elements of his combination, and therefore the most that can be deduced therefrom is that, perhaps, by thus enumerating them as elements the patentee limited his claim accordingly. We perceive no principle whatever by virtue of which it can be said that the claim is invalid for this reason. The law, which deals mainly with essentials, is not inclined to permit rights to be destroyed by non-essentials, although it is true that persons interested may so insist on non-essentials as to unavoidably limit and qualify their rights. The authorities ordinarily cited to establish a different proposition do not, on examination, seem to us to support it. They consist, mainly, of references to Patent Office decisions relating to the practice of that Office, and, so far as that is concerned, based on good sense, and also tending to promote the interests of applicants for patents; but, like some other rules of the Patent Office, they do not invalidate a patent after it is issued. The respondents have furnished us with no case in point, and the only one which we have been able to find is *Boston Lasting Machine Company* v. *Woodward*, (53 Fed. Rep., 481, 483,) where it is said that certain claims were invalidated by the fact that a foot-treadle was enumerated as an element, the court observing that the treadle played no part in the function of the combination. So, perhaps, it may be said that the screws or equivalent devices in the case at bar play no part in the function of the combination. But the proposition laid down by the court in the case referred to does not appear to have received particular consideration, and, as we have already shown, it is based on neither principle nor authority. It has been commonly said by the courts, as was said by Mr. Justice Curtis in *Forbush* v. *Cook*, (2 Fish. Pat. Cas., 668,) that it is not requisite to include in a claim as elements thereof all parts of the machine which are necessary to its action, so far as they may be understood and can be supplied by those who are ordinarily skilled in the art; and a careful examination of the cases ordinarily cited to the proposition that an enumeration of elements of that character invalidates a claim will be found to establish no proposition beyond that thus laid down. We must therefore hold that this unnecessary designation of the elements to which we refer does not invalidate the claim.

Another ground of defense is the common one of anticipation, and we have been referred to numerous patents with reference thereto. These are pressed on us, both with regard to the question of anticipation strictly and also as showing such a state of the art as defeats any claim of patentable

invention in the device at issue. We do not find it necessary to discuss individually the patents thus cited, nor to explain precisely how they bear on each of the topics referred to. It is sufficient to say that none of them anticipate all the elements found in the claim in issue, and none of them are capable of being operated or used in the manner in which complainant's device was intended to be operated and used, as clearly shown by the specification. This was in all respects the same as the method of use and operation of the moldings in connection with the concave casing built into their cars by the respondents which we have already described. The result was a facility of inserting cards in such a way that, after being pressed back, they would rest smoothly and securely against the concave surface of the casing. These particular features appear in none of the alleged anticipatory matters and are sufficient to distinguish the complainant's device from all of them. By combining what preceded the complainant the result which he secured very likely could have been obtained; but this is not the test, as has been repeated over and over again by the courts. (*Packard* v. *Lacing Stud Company*, 70 Fed. Rep., 66, 68; *The Boston and Revere Railway Company* v. *The Bemis Company*, 80 Fed. Rep., 287, 289.) The same proposition was also well stated by Judge Lowell in *Stewart* v. *Mahoney*, (5 Fed. Rep., 302, 305,) who at the same time added some observations which perhaps will illustrate the character of the invention in the case at bar. He said:

I have examined the evidence and the arguments with care, and I am of opinion that there was both novelty and utility in the subject of the first claim, and that it has been infringed. Many chairs had been made that resembled the plaintiff's in many particulars, and which might easily have been so modified as to embody his invention; but they do not appear to have been so modified before his time.

The question of novelty, including in that word the discovery or invention which will be sufficient to support a patent, is often a very difficult one to decide. Invention often involves a new result, first thought of by the patentee; and in such cases the fact that the mechanical changes he has made are not difficult is often unimportant.

The question of utility must clearly be resolved in favor of the complainant. If there were any doubt about this, it would be entirely obviated by the fact that the respondents, in their carefully drawn specifications for the construction of the cars which are alleged to infringe complainant's patent, required in precise terms that they should be constructed "with Randall's patent advertising-racks, built in." Novelty and utility appearing, we are compelled, on the evidence which we have with reference to the state of the art, to yield to the presumption in favor of patentable invention arising from the issue of the patent, or assume to have more practical knowledge of this limited and special subject-matter than we ought to assume. (*Packard* v. *Lacing Stud Company*, *ubi supra*, at page 67; *The Boston and Revere Railway Company* v. *The Bemis Company*, *ubi supra*, at page 290.)

The question of infringement presents no difficulties. The only possible ground of defense with reference to this branch of the case is the proposition that the patent covers only a portable rack, complete in itself, while the alleged infringing device is a part of the structure of the car. That this proposition does not address itself to the intelligent, practical mind, acquainted with the art, is plain from the reference we have already made to the specifications for building the cars. They describe the device as the "Randall patent rack," although to be built in. Construing strictly, as we must under the circumstances, the complainant's claim in issue, yet every element of it is found in the cars of the respondent corporation. If, in drawing its specifications, it had intended to accomplish what would not infringe the patent, by requiring that the rack should be built into the car, this would have been clearly only an attempted evasion; but the case does not show that it had any such intention. The manner in which it framed its specifications indicates that it intended and understood that it was to obtain the complainant's device, whatever may have been the intention or understanding of the parties who built the cars which the respondent corporation operates.

Some other matters were called to the attention of the court, but they are clearly so unimportant that they do not require any expression of opinion from us.

The bill is filed not only against the Newton Street Railway Company, which controls the cars alleged to infringe, but also against the president and treasurer of the company. We do not perceive any such case made against these individuals as justifies us in holding them responsible in this suit. Therefore, unless the complainant discontinues as to them with costs, the final decree will provide that the bill shall be dismissed so far as they are concerned.

Let the complainant file a draft decree against the Newton Street Railway Company for an injunction and an account, with the direction that by the final decree the bill shall be dismissed as against Coffin and Smith with costs, such draft decree to be filed on or before the 4th day of September next, and corrections thereof to be filed on or before the 11th day of September next.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 4. TUESDAY, OCTOBER 26, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
DISCLAIMER	509
WITHDRAWAL OF APPLICATIONS FROM ISSUE FILES	509
CORRESPONDENCE	509
CHANGES IN CLASSIFICATION	509
PATENTS TO ASSIGNEES	509
DISBARRED ATTORNEYS	509
POWERS OF ATTORNEY	510
PRINT	510
ISSUE OF OCTOBER 26, 1897	510
APPLICATIONS UNDER EXAMINATION	511
PATENTS GRANTED	787
REISSUES	798
DESIGNS	798
TRADE-MARKS	None.
LABELS	None.
DECISIONS OF THE SECRETARY OF THE INTERIOR—	
In re Nash	799
In re Borton	800
COMMISSIONER'S DECISIONS—	
Ex parte Yale & Towne Manufacturing Company	801
Ex parte Sellers *et al*	803
Ex parte Peerless Carbon Black Company, Limited	803
DECISIONS OF THE U. S. COURTS—	
United States *v.* One Case Chemical Compound, (two cases.) In re Société Fabriques de Produits Chimiques de Thann et de Mulhouse, (two cases)	804

Disclaimer.

495,443.—*Charles J. Van Depoele*, Chicago, Ill. IMPROVEMENT IN TRAVELING CONTACTS FOR ELECTRIC RAILWAYS. Patent dated April 11, 1893. Disclaimer filed October 20, 1897, by the assignee, *The Thomson-Houston Electric Company*.

Enters this disclaimer to—

Claims numbered nine, ten, eleven, and thirteen of said Letters Patent No. 495,443, without in any way hereby disclaiming any other of the said claims of said Letters Patent No. 495,443, or any of the subject-matters of said other claims, and without prejudice to any rights vested in your petitioner by or under any similar claims of Letters Patent No. 424,036.

Withdrawal of Applications from Issue Files.

After the notice of allowance of an application is given, the case will not be withdrawn from issue on account of any mistake or change of purpose of the applicant or of his attorney, nor for the purpose of enabling the inventor to procure a foreign patent, nor in any other case, without the approval of the Commissioner.

Correspondence.

1. Communications to the Patent Office must be addressed to the Commissioner of Patents.
2. A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys cannot generally be allowed.
3. The assignee of the entire interest of an invention is entitled to hold the correspondence with the Office.
4. Actions by the Office which are wanting in official propriety will be canceled from the files. Communications to the Office in violation of the requirements of decorum and courtesy will not be accepted or will be returned.
5. Separate letters must be written about assignments for record, final fees for patents, orders for copies, abstracts of title, complaints against officials, and every other distinct subject of communication.

Changes in Classification.

(ORDER No. 1,153.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 16, 1897.

Class 159, Fire Escapes and Ladders, is abolished. Class 227, Fire-Escapes, is hereby established, with the following subclasses:

1. Automatic speed-governors—
2. Escapement-check,
3. Fly-check,
4. Fluid-check.
5. Balcony.
6. Body-catchers.
7. Chutes.
8. Climbers.
9. Convertible furniture.
10. Endless carriers.
11. Fire-escapes.
12. Guided hoists.
13. Hand-protectors.
14. Hoist-rope-supporting trolley.
15. Lazy-tongs—
16. Rack and pinion,
17. Screw,
18. Lazy-tongs—
19. Windlass.
20. Parachutes.
21. Portable spars and towers.
22. Pulley and brake.
23. Reel—
24. End brake,
25. Peripheral brake.
26. Rope-brakes, grip-jaw—
27. Screw-operated,
28. Wedge.
29. Rope-brakes, tortuous—
30. Tortuous and grip,
31. Tortuous and screw-operated grip.
32. Shooting-lines.
33. Sliding-poles.
34. Stairway-towers.

Class 228, Ladders, is hereby established, with the following subclasses:

1. Building-attached—
2. Independent rungs and steps,
3. Non-collapsible—
4. Foldable.
5. Collapsible.
6. Feet.
7. Flexible—
8. Reel—
9. Jointed sections—
10. Upwardly extensible,
11. Single stile.
12. Guards.
13. Hinged sections.
14. Jacks.
15. Ladders.
16. Propped—
17. Collapsible,
18. Hinged sections,
19. Separable sections,
20. Slidable sections.
21. Scaling.
22. Shutter.
23. Single stile.
24. Separable sections.
25. Slidable sections—
26. Stops.
27. Store-service.
28. Trap-door operating.
29. Truck.
30. Trussed.

BENJ. BUTTERWORTH,
Commissioner.

Patents to Assignees.

RULE 201. In every case where it is desired that the patents shall issue to an assignee the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 26.) The date of the record is the date of the receipt of the assignment at the Office.

Disbarred Attorneys.

It is hereby directed that any person who has been disbarred from practice before the Patent Office by order of the Commissioner be denied access to the files of the Office, either in his own capacity or as the representative of any other person or firm.

Powers of Attorney.

Before any person will be recognized as an attorney his special power of attorney in each case must be filed, and thereafter the correspondence will be held with him alone.

Print.

56.—Title: "ROYAL MACE." (For Cigars and Tobacco.) *American Lithograph Company*, New York, N. Y. Application filed October 2, 1897.

Issue of October 26, 1897.

Patents	536—No. 592,227 to No 592,762, inclusive.
Designs	32—No. 27,775 to No. 27,806, inclusive.
Trade-Marks	53—No. 30,729 to No. 30,781, inclusive.
Labels	None.
Prints	1—No. 56.
Reissues	1—No. 11,634.
Total issue	613

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	2	....	New Hampshire	1	....
Arizona Territory	....	....	New Jersey	15	4
Arkansas	1	2	New Mexico Territ'y	....	....
California	9	1	New York	76	13
Colorado	1	....	North Carolina	....	....
Connecticut	12	....	North Dakota	....	....
Delaware	....	....	Ohio	21	1
District of Columbia	6	....	Oklahoma Territory	....	....
Florida	....	....	Oregon	3	....
Georgia	4	....	Pennsylvania	59	4
Idaho	1	....	Rhode Island	8	....
Illinois	156	11	South Carolina	....	....
Indian Territory	....	....	South Dakota	1	....
Indiana	15	....	Tennessee	5	1
Iowa	3	....	Texas	4	....
Kansas	3	....	Utah	1	....
Kentucky	5	....	Vermont	3	....
Louisiana	2	....	Virginia	7	....
Maine	3	....	Washington	1	....
Maryland	5	2	West Virginia	3	....
Massachusetts	21	....	Wisconsin	13	....
Michigan	15	1	Wyoming	1	....
Minnesota	9	....	U. S. Army	1	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	17	3	Total to citizens of the United States	516	43
Montana	1	....			
Nebraska	5	....			
Nevada	1	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	1	....	Mexico	....	....
Australia	....	....	Netherlands	....	....
Austria-Hungary	1	1	Newfoundland	....	....
Barbadoes	....	....	New South Wales	....	....
Belgium	3	....	New Zealand	2	....
Bermuda	....	....	Norway	....	....
Brazil	....	....	Portugal	....	....
Canada	4	....	Queensland	....	....
Cape Colony	....	....	Roumania	....	....
Chile, Republic of	....	....	Russia	1	....
China	....	....	Scotland	1	....
Colombia	....	....	South African Republic	....	....
Cuba	....	....	South Australia	....	....
Denmark	....	....	Straits Settlements	....	....
Egypt	....	....	Sweden	....	....
England	14	3	Switzerland	....	1
Finland	....	....	Venezuela	....	....
France	2	....	West Australia	....	....
Germany	13	4			
Hawaii	....	1			
Ireland	....	....	Total to citizens of foreign countries	42	11
Italy	....	1			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business October 19, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Sept. 22	Sept. 29	137
	Between one and two months.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Aug. 23	Oct. 6	182
250	VIII. Furniture, Beds, Store Furniture, etc.	Aug. 20	Oct. 2	391
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 23	Sept. 28	278
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Sept. 3	Sept. 25	137
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Aug. 25	Sept. 21	276
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Aug. 26	Sept. 16	313
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Aug. 25	Sept. 15	246
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Aug. 20	Sept. 4	266
106	II. Farm Stock, Products, etc.	Aug. 25	Sept. 1	418
	Between two and three months.			
265	XII. Mechanical Engineering, Store-Service, etc.	Aug. 9	Oct. 5	174
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 20	Oct. 4	307
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Aug. 5	Oct. 1	164
108	XIX. Stoves and Furnaces	July 27	Sept. 29	327
98	XXI. Textiles, etc	Aug. 4	Sept. 27	215
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	July 29	Sept. 24	453
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Aug. 14	Sept. 21	264
215	XVII. Paper Manufactures and Printing.	Aug. 16	Sept. 17	176
238	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	July 26	Sept. 13	337
253	X. Carriages and Wagons	July 23	Sept. 1	459
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	July 30	Aug. 26	550
246	I. Tillage and Fences	July 24	Aug. 21	374
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	June 25	Oct. 12	563
120	IX. Hydraulics, Fire-Extinguishers, etc.	June 21	Sept. 28	278
248	XVIII. Steam-Engineering, etc.	July 12	Sept. 27	363
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	July 16	Sept. 15	192
122	XXIV. Sewing-Machines, Apparel, and Toilet.	June 21	Sept. 11	234
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	June 19	Aug. 30	553
240	VII. Velocipedes	July 1	Aug. 1	1434
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	July 15	420
	Between four and five months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 20	Sept. 13	642
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 17	Sept. 11	138
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	Aug. 26	330
	Total number of applications awaiting action			11,561
	Under one month.			
	Trade-Marks	Sept. 29	Oct. 6	98
	Between one and two months.			
	Designs	Sept. 14	Sept. 27	302

PATENTS

GRANTED OCTOBER 26, 1897.

592,227. MATCH AND COMPOSITION FOR SAME. LOUIS ARONSON, New York, N. Y. Filed Dec. 23, 1896. Serial No. 617,319. (No model.)

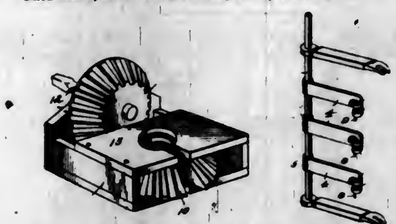


Claim.—1. A fusee or wind-match consisting of a stem with a head ignitible by friction, the ignitible head and the stem adjacent thereto being coated with and enveloped by a material non-ignitible by friction, but having the property of persistent combustibility, as set forth.

2. A fusee or wind-match consisting of a stem with a head ignitible by friction, which, together with a portion of the stem adjacent thereto, is coated with and enveloped by a waterproofing material not ignitible by friction, and having the property of persistent combustibility, as set forth.

3. The material for wind-matches hereinbefore described consisting essentially of chlorate of potash, chromate of lead, amorphous phosphorus, sulfuret of antimony, dextrine, charcoal and one or more resinous gums in substantially the proportions stated.

592,228. FENCE-MACHINE. CHARLES O. BECK, New Geneva, Pa. Filed Mar. 5, 1897. Serial No. 626,121. (No model.)



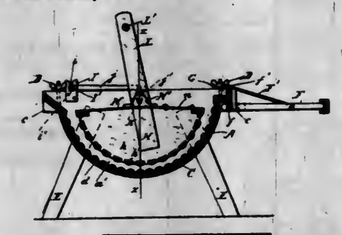
Claim.—1. The herein-described means for spacing fence-wires when applying pickets thereto, consisting of a rod, arms secured to the rod at one end and having their opposite ends curved and notched, and having the portions of the arms upon opposite sides of the notches curled, and pins closing the open ends of the notches and retained in place by the curled end portions of the arms, substantially as set forth.

2. Means for properly spacing the fence-wires when applying pickets thereto, consisting of a rod, terminal and intermediate arms applied to the rod, the intermediate arms having their end portions curved and notched to receive the fence-wires, and having the extremities of the portions bordering upon the notches curled, and the terminal arms having their end portions projecting beyond the ends of the intermediate arms, and flattened and notched to receive the end portions of the pickets and engage with the inner sides of the top and bottom fence-wires, and pins closing the open ends of the notches of the intermediate arms and held in the curled extremities thereof, substantially in the manner set forth for the purpose specified.

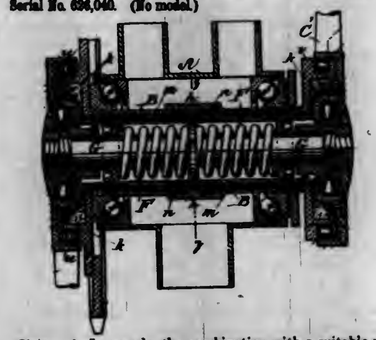
3. A tool for twisting the parts of wire pickets about the fence-wires, comprising a radially-slotted twister-wheel having hub portions, a drive-gear intermeshing with the toothed edge of the twister-wheel and mounted upon a stem constructed to be fitted to a bit-stock, and a frame comprising upper and lower plates receiving the hub portions of the twister-wheel and having slots corresponding with the radial slot thereof, and having the inner ends of the slots enlarged, and an outer plate secured to the lower plate and to the intermediate end pieces and providing a space between its inner side and the outer edge of the upper plate in which operates the drive-gear, substantially as set forth.

592,229. WASHING-MACHINE. GEORGE M. BECK, Lebanon, Ind. Filed Jan. 14, 1897. Serial No. 619,190. (No model.)

Claim.—The combination, with a tub, and brackets I secured to the tub and provided with recessed notches *i*; of a rod I' provided with narrow portions I' near its ends, arms *j* at the extreme ends of the rod, downwardly-bent cranked portions *j'* at the ends of the arms *j*, and pivots K projecting inwardly from the lower ends of the cranked portions *j'*; and a rubber journaled on the said pivots, the said rod being revoluble in and extending through the notches *i* but only free to disengage from them when the rubber is lifted out of the tub, substantially as set forth.



592,230. PROPELLING AND BRAKING MECHANISM FOR CYCLES. GERARD BERKMAN, New York, N. Y. Filed Mar. 5, 1897. Serial No. 626,040. (No model.)



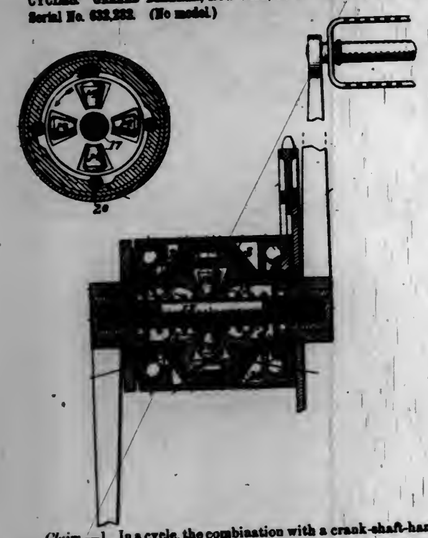
Claim.—1. In a cycle, the combination with a suitable supporting-frame and a rotary driven element mounted therein, of two oppositely-disposed pedal-cranks mounted within said driven element upon shaft-sections having a limited rotative and longitudinal movement relative to each other, mechanism for converting the opposed rotative movement of said shaft-sections in either relative direction from a normal intermediate position into an opposed longitudinal movement thereof in one given direction, and frictional contact-surfaces upon said shaft-sections adapted to engage with frictional contact-surfaces upon said driven element by said opposed longitudinal movement of the sections, and elastic means tending to resist said opposed movements and to maintain the cranks in their normal opposite relation.

2. In a cycle, the combination with a crank-hanger and a rotary tubular driven shaft therein, of two oppositely-disposed pedal-cranks mounted upon shaft-sections having a limited rotative and longitudinal movement relative to each other within said tubular driven shaft, mechanism for converting the opposed rotative movement of said shaft-sections in either relative direction from a normal intermediate position into an opposed longitudinal movement thereof in one given direction consisting in two disks facing the outer extremities of said sections and rigidly connected together by a rod extending through said sections and having V-shaped recesses and corresponding V-

shaped recesses in the outer extremities of the said shaft-sections and rollers interposed in said recesses, frictional contact-surfaces upon said shaft-sections adapted to engage with frictional contact-surfaces upon said driven shaft by said opposed longitudinal movement of the sections, and a spring or springs tending to press the sections outwardly against said disks.

3. In a cycle, the combination with a crank-hanger and a rotary tubular driven shaft therein, of two oppositely-disposed pedal-cranks mounted upon shaft-sections having a limited rotative and longitudinal movement relative to each other within said tubular driven shaft, mechanism for converting the opposed rotative movement of said shaft-sections in either relative direction from a normal intermediate position into an opposed longitudinal movement thereof in one given direction consisting in two disks facing the outer extremities of said sections and rigidly connected together by a rod extending through said sections and having V-shaped recesses and corresponding V-shaped recesses in the outer extremities of the said shaft-sections and rollers interposed in said recesses, frictional contact-surfaces upon said shaft-sections adapted to engage with frictional contact-surfaces upon said driven element by said opposed longitudinal movement of the sections, and a spring or springs tending to press the sections outwardly against said disks, and a positive clutch mechanism engaging said cranks with said driven element for a given direction of rotation.

592,231. PROPELLING AND BRAKING MECHANISM FOR CYCLES. GERARD BERKMAN, New York, N. Y. Filed Apr. 15, 1897. Serial No. 632,252. (No model.)



Claim.—1. In a cycle, the combination with a crank-shaft-hanger box having ball-bearings at each extremity, of a driven shaft rotative in said bearings and carrying a sprocket-wheel or other motion-transmitting device located beyond the extremity of the hanger-box, and two cranks immediately outside the extremities of the driven shaft and having a limited rotative movement with relation to each other, clutch mechanism located between said ball-bearings and inclosed within said hanger-box, and means whereby said clutch mechanism is engaged and disengaged with the driven shaft by the said relative movement of the cranks to communicate motion from the driving to the driven shaft.

2. In a cycle, the combination with a crank-hanger and a rotary tubular driven shaft therein, of two oppositely-disposed pedal-cranks mounted upon shaft-sections extending within the tubular shaft and having a limited rotative and longitudinal movement relative to each other, mechanism for converting the opposed rotative movement of said shaft-sections in either relative direction from a normal intermediate position into an opposed longitudinal movement thereof in one given direction located between the adjacent inner ends of said shaft-sections, tapered frictional contact-surfaces upon said shaft-sections caused to engage with tapered frictional contact-surfaces within said driven shaft by said opposed longitudinal movement of the sections, and springs and means for confining them with inward longitudinal pressure against said shaft-sections.

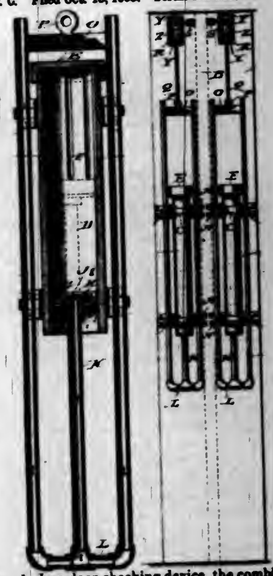
3. In a cycle, the combination with a crank-hanger and a rotary tubular driven shaft therein, of two oppositely-disposed pedal-cranks mounted upon shaft-sections extending within the tubular shaft and having a limited rotative and longitudinal movement relative to each other, mechanism for converting the opposed rotative movement of said shaft-sections in either relative direction from a normal intermediate position into an opposed longitudinal movement thereof in one given direction located between the adjacent ends of said shaft-sections, tapered frictional contact-surfaces upon said shaft-sections caused to engage with tapered frictional contact-surfaces within said driven shaft by said opposed longitudinal movement of the sections, and springs and means for confining them with inward longitudinal pressure against said shaft-sections, and a positive clutch mechanism consisting in rollers located in inclined pockets and interposed between said sections and said driven shaft adapted to engage for a given direction of rotation.

592,232. FIFTH-WHEEL. HERBERT G. BOOSER and JAMES Y. GROSS, Lansdale, Pa. Filed Feb. 4, 1897. Serial No. 621,933. (No model.)



Claim.—In a device of the character described, a fifth-wheel composed of two sections A, and B, having annular grooves formed therein, a set of balls N, in the grooves of the sections, a king-bolt C, on which the sections are journaled and having a forked end engaging the axle, bracket-arms connecting the plate B, with the forked end of the king bolt, flanges F formed on the section B to embrace the axle and forked end of the king-bolt, ribs K, formed on section A, to embrace the bolster and a flange L, on the section A, to surround the section B, as described.

592,233. PNEUMATIC DOOR-CHECK. JOHN A. BOWEN, Washington, D. C. Filed Oct. 15, 1895. Serial No. 565,728. (No model.)



Claim.—1. In a door-checking device, the combination with the door adapted to swing in opposite directions from its closed position, of a vertically-disposed checking-cylinder located adjacent to said door and having the lower end thereof open, a piston therein positively actuated for the compression of air in said cylinder during the closing movement of the door, means to permit the passage of air through said piston in its movement in the opposite direction, and connections with said door whereby the piston is moved in one direction thereby and permitted to move or be moved automatically in the opposite direction, substantially as described.

2. In a door-checking device, the combination with the door adapted to swing in opposite directions from its closed position, of vertically-disposed checking-cylinders located adjacent to said door on opposite sides thereof and having an opening at one end, pistons therein positively actuated for the compression of air in said cylinders during the closing movement of the door, means to permit the passage of air through said pistons in their movement in the opposite direction, means communicating with the upper ends of the cylinders to permit the passage of air compressed by the pistons from one side thereof to the other in the continued movement of the door past its line of closure, and connections with said door whereby the pistons are moved in one direction thereby and permitted to move or be moved automatically in the opposite direction, substantially as described.

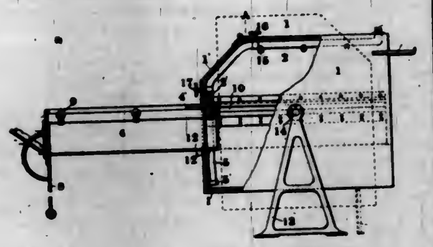
3. In a door-checking device, the combination with a door adapted to swing in opposite directions from its closed position, of a checking-cylinder, a piston therein adapted to compress air above the same in its upward movement, means to relieve the compressed air above said piston, and means connecting said piston with said door, substantially as described.

4. In a door-checking device, the combination with a swinging door, of a checking-cylinder having a releasing-groove formed in its inner surface, a valved piston in said cylinder, means connecting said piston with said door whereby in the upward movement of the piston air will be compressed above the same until the piston lies over said grooves when the compressed air will be released, substantially as described.

5. In a door-checking device, the combination of a cylinder having grooves in its upper portion, the valved piston in said cylinder, the hollow piston-rod depending from said piston, the cross-pipe communicating with said piston-rod, and the vertical pipe leading upward from said cross-pipe, substantially as described.

6. In a door-checking device, the combination with a swinging door, of a checking-cylinder, a valved piston adapted to compress air in said cylinder, means to release said compressed air, and means connecting said piston and door whereby when the door is moved toward the cylinder the piston will be lowered and in the opposite movement of the door the piston raised, substantially as described.

592,284. BATHING APPARATUS. MICHAEL B. BOYLE, Chicago, Ill. Filed Nov. 19, 1896. Serial No. 612,661. (No model.)

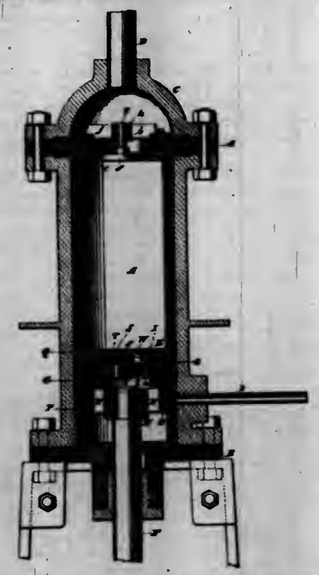


Claim.—1. A bathing apparatus comprising a cabinet pivotally supported upon a substantially horizontal axis, and adapted to completely inclose the body of the bather; a track in the cabinet for supporting and guiding a carriage; a carriage adapted to receive the bather and to run on said track into the cabinet; an aperture in the cabinet adapted to be reduced to the size of the neck of the bather, permitting the bather's head to be outside of the cabinet; and a perforated pipe in the cabinet adapted to provide a shower-bath, substantially as described.

2. A bathing apparatus comprising a cabinet pivotally supported upon a substantially horizontal axis; a carriage adapted to receive the bather and to convey him into the cabinet; a wall near the outer end of the carriage adapted to close the cabinet, and having an aperture therein adapted to be reduced to the size of the neck of the bather, permitting the bather's head to be outside of the cabinet; and a perforated pipe in the cabinet, adapted to provide a shower-bath, substantially as described.

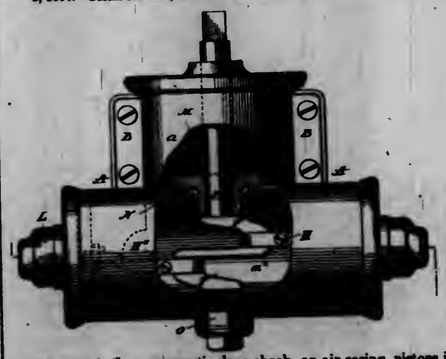
3. A bathing apparatus comprising a cabinet, pivotally supported upon a substantially horizontal axis, and adapted to completely inclose the body of the bather; a track in the cabinet for supporting and guiding a carriage; a carriage adapted to project from the cabinet to receive the bather, and to run on said track, into the cabinet; a step on the cabinet adapted to hold same when turned on its axis so as to bring the bather into a substantially vertical position; and a perforated pipe in the cabinet adapted to provide a shower-bath, substantially as described.

592,285. COMPRESSION-PUMP FOR REFRIGERATING APPARATUS. HORACE J. CAMPBELL, Memphis, Tenn. Filed Dec. 26, 1894. Serial No. 532,935. (No model.)



Claim.—In a compression-pump for refrigerating apparatus, the cylinder having the valve at its upper end, and the reciprocating piston or plunger within said cylinder and having the packing, said piston or plunger comprising the lower section having the central hub and radial arms, and the upper section secured to said lower section and having the valve-seat and internal annular shoulder, combined with the valve for said seat and having a downwardly-extending stem, the winged hub movable within the said piston below said annular shoulder and guided thereby, and means securing the said valve-stem within said hub; substantially as and for the purposes set forth.

592,286. DOOR CHECK AND CLOSER. CROMWELL O. CASE, New Britain, Conn., assignor to the P. & F. Corbin, same place. Filed Feb. 5, 1897. Serial No. 622,119. (No model.)



Claim.—1. In a pneumatic door-check, an air-casing, pistons in opposite ends thereof, a rotary spindle between said pistons and carrying eccentrics on substantially opposite sides thereof, yet in different vertical planes in respect to the axis of rotation of said spindle, and connections between said pistons and eccentrics.

2. In a combined pneumatic door check and closer, an air-chamber, pistons therein, check-valves in said pistons, a rotary spindle between said pistons, eccentrics carried by said spindle, said eccentrics being located in different vertical planes in respect to the axis of rotation of said spindle, and connections between said pistons and eccentrics, with means for rotating said spindle in a direction to close the door.

3 In a pneumatic door-check, a spring-actuated rotary spindle, eccentrics carried thereby and located in different vertical planes with respect to the axis of rotation of said spindle, pistons suitably connected to said spindle and moving in a suitable air-chamber, and vent-ports in the casing of said air-chamber.

4. In a closer and check a rotary spindle, a spring connected thereto for rotating said spindle in the direction to close the door, eccentrics carried by said spindle, said eccentrics being in different horizontal and vertical planes with respect to the axis of said spindle, pistons suitably connected to said rotary spindle and moving in a suitable chamber, ports in the casing of said chamber, and valves therefor.

5. In a door closer and check, a spindle, a spring therefor to rotate the spindle in a direction to close the door, a pneumatic resistance-chamber, pistons adapted to move within said resistance-chamber, and means for connecting said spindle and pistons to cause one of the pistons to move in advance of the other, and means for permitting the pistons to move freely in one direction.

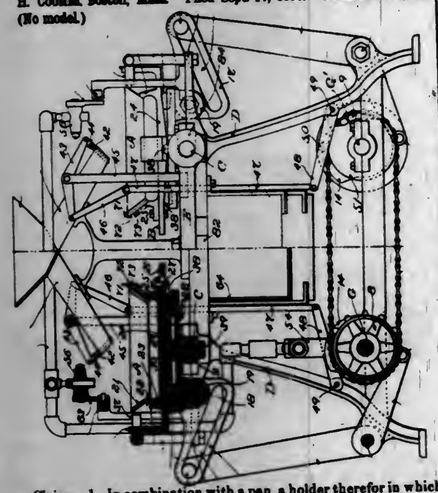
6. In a door-check, comprising in its construction an air-chamber, pistons to reciprocate therein, a rotary spindle stepped in said chamber, and carrying eccentrics pitched at an angle with respect to a vertical plane through the axis of said spindle to cause said pistons to move, one in advance of the other.

592,237. ROTARY PUMP AND ROTARY MOTOR. FRIEDRICH CLOSS, Boehlingen, Germany. Filed Dec. 14, 1896. Serial No. 615,614. (No model.)



Claim.—In a rotary pump, the combination with the cylinder having inlet and outlet ports on its opposite sides, a rotary vane mounted in the cylinder between said ports and to one side of the line of the same, said vane having longitudinal recesses in its edges, rollers mounted loosely in said recesses and bearing against the wall of the cylinder, and a valve-roller resting on the upper side of the vane.

592,238. PANNING AND CONCENTRATING MACHINE. JOHN H. COOMBS, Boston, Mass. Filed Sept. 17, 1896. Serial No. 606,141. (No model.)



Claim.—1. In combination with a pan, a holder therefor in which the pan is detachably clamped, a supporting-frame on which the said holder and pan are axially pivoted, a shaft to which said supporting-frame is fixed, mechanism which rapidly reciprocates said shaft and pan in a straight line longitudinally with said shaft, a guide which pivotally engages with said pan-holder and gives to the pan a rapidly-alternating rotary motion on its axis simultaneously with the straight-line movement, and mechanism which rocks the shaft and tips the pan after a certain number of longitudinal reciprocations and alternating rotary motions, substantially as described.

2. In combination with a pan, a holder therefor, a supporting-frame on which the said holder and pan are axially pivoted, a shaft to which said supporting-frame is fixed, a driving-shaft, a cam with a series of projections thereon rotated by said driving-shaft, a pivoted lever one end of which engages with said cam and whose other end is connected with said reciprocating shaft so that the shaft and pan are reciprocated back and forth in a straight line at each revolution of the driving-shaft as many times as the cam end of the lever rides over a projection on the rotating cam, a guide which pivotally engages with said pan-holder and gives to the pan a rapidly-alternating rotary motion on its axis simultaneously with the straight-line movement, and mechanism actuated by said driving-shaft which tips the pan after a fixed number of reciprocations of the pan and then restores it to its normal position, substantially as described.

3. In a panning and concentrating machine, in combination with a pan, a driving-shaft and intermediate mechanism through which a vibratory movement is imparted to the pan, intermediate mechanism by which the pan is tipped after a fixed number of vibrations, a hopper which feeds to the pan, a gate which controls the outlet of the hopper, and mechanism actuated by the driving-shaft to close the gate of the hopper when the pan is tipped and open the gate after the pan is restored to its normal position, said gate-operating mechanism consisting of a bell-crank pivoted to a fixed portion, one arm of the bell-crank being flexibly connected to said gate and the other arm having a link-and-rod connection with an arm pivoted to a fixed support, a cam on the driving-shaft which engages with the said arm and so adjusted as to actuate the described intermediate mechanism to open and close the gate, substantially as described.

4. In a panning and concentrating machine, in combination with a pan, a supporting-frame on which said pan is pivotally supported on its axis, a reciprocating shaft on which said pan is supported and which imparts a reciprocating movement to said pan, a driving-shaft, a cam with a series of projections thereon rotated by said driving-shaft, a lever with a cam end which engages with said projections on the rotating cam and whose other end is connected with said reciprocating shaft so that the pan is reciprocated backward and forward as many times during each revolution of the driving-shaft as there are projections on the cam, a guide which pivotally engages with said pan on one side thereof, thereby giving the pan an alternating swiveling movement simultaneously with its reciprocating movement, a second cam actuated by said driving-shaft, and intermediate mechanism actuated by said last-mentioned cam to tip the pan after a fixed number of vibrations, substantially as described.

5. In a panning and concentrating machine, in combination with a pan, mechanism for imparting a straight-line reciprocating movement to the pan, mechanism for imparting an alternating swiveling movement to the pan simultaneously with the reciprocating movement, mechanism for tipping the pan after a fixed number of vibrations and swiveling movements, a water-pipe through which water is supplied to the pans, a valve and mechanism which closes said valve and cuts off the flow of water before the pan tips and opens the valve after the pan is restored to its normal position, a hopper which feeds material to the pan, a gate which controls the outlet of the hopper, and mechanism which closes the gate before the pan tips and opens it after the pan is returned to its normal position, substantially as described.

6. In a panning and concentrating machine, in combination with a series of pans, a driving-shaft and intermediate mechanism operated thereby by which the pans are vibrated, intermediate mechanism actuated by said shaft whereby said pans are tipped after a fixed number of vibrations, a pipe through which water is supplied to the pans, cocks controlling the several outlets from the pipe to the pans, a pump connected with said pipe, an eccentric on said driving-shaft operating said pump, an eccentric on said shaft also connected by intermediate mechanism with the said cocks and so adjusted as to close the cocks when the pan tips and to open them when the pan resumes its normal position, substantially as described.

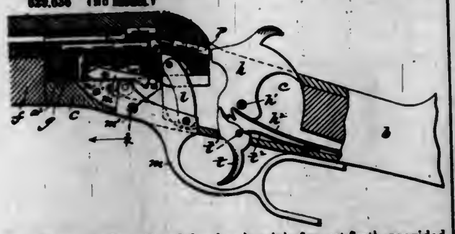
7. In a panning and concentrating machine, a pan, and a holder therefor, mechanism for vibrating the pan, and mechanism for tipping the pan, said mechanism comprising a rotating shaft, a cam on said shaft, a bell-crank lever pivoted on a fixed support, one arm of said bell-crank being engaged by said cam, the other arm of the bell-crank having a pin which engages with a slotted link, said link being secured to the pan-holding frame, substantially as described.

8. In a panning and concentrating machine, a multiple series of pans, each pan being axially pivoted on a supporting-frame, a plurality of reciprocating shafts, one for each series of pans, on which said supporting-frames and pans are mounted and which reciprocate together with said shafts, guides which cause the pans to swivel on their pivots in alternate directions simultaneously with their reciprocation, a plurality of rotating shafts coöperating, one for each series of pans, the rotating shafts having cams at alternate ends thereof, levers corresponding with said cams and pivoted in fixed supports, one arm of each lever engaging with the rotating cam and the other arm engaging loosely with one of the reciprocating shafts, the reciprocating shafts being connected together by levers which are pivoted in fixed supports and which are loosely jointed at both ends to the reciprocating shafts, all coöperating so that the reciprocating shafts and the pans are given a rapidly-reciprocating movement by means of the rotating shafts, cams and pivoted levers, substantially as described.

9. In a panning and concentrating machine, a series of pans, each pan being axially pivoted on a supporting-frame, a reciprocating shaft on which said supporting-frames and pans are mounted and which reciprocate together with said shafts, guides which cause the pans to swivel on their pivots in alternate directions simultaneously with their reciprocation, a driving-shaft having a cam thereon, a lever pivoted in a fixed support, one arm of said lever engaging with the rotating cam and the other arm engaging loosely with the reciprocating shaft, a second cam rotated by the driving-shaft, and a pivoted lever one arm of which engages with said cam and the other arm of which is connected by intermediate mechanism with the pan, all coöperating so that the pans are given a rapidly reciprocating and swiveling movement, and are tipped after a certain number of reciprocations and then restored to their normal positions, substantially as described.

10. In a panning and concentrating machine, a series of pans each pivoted on a supporting-frame, a reciprocating shaft on which said supporting-frames and pans are mounted, and which reciprocate with said shafts, guides which cause the pans to swivel on their pivots in alternate directions simultaneously with their reciprocation, a driving-shaft and a cam rotated thereby, a lever pivoted in a fixed support, one arm of said lever engaging with the rotating cam and the other arm engaging loosely with the reciprocating shaft, a second cam rotated by the driving-shaft, a pivoted lever one arm of which engages with said cam and the other arm of which is connected by intermediate mechanism with the pan, all coöperating so that the pans are given a rapidly reciprocating and swiveling movement and are tipped after a certain number of reciprocations and then restored to their normal positions, a gate which controls the supply of material to the pans, intermediate mechanism and a cam operated by the driving-shaft to open and close the gate, a water-pipe and a pump and an eccentric actuated by the driving-shaft to operate the pump, cocks in the pipes, intermediate mechanism and an eccentric actuated by the driving-shaft to open and close said cocks, all coöperating so that when the pans are tipped the flow of water to the pans is cut off and when the pans are restored to their normal position the cocks will be opened to admit the water, substantially as described.

592,239. SHELL-EJECTING DEVICE FOR FIREARMS. WILLIAM H. DAVENPORT, Norwich, Conn. Filed Mar. 29, 1897. Serial No. 629,636. (No model.)

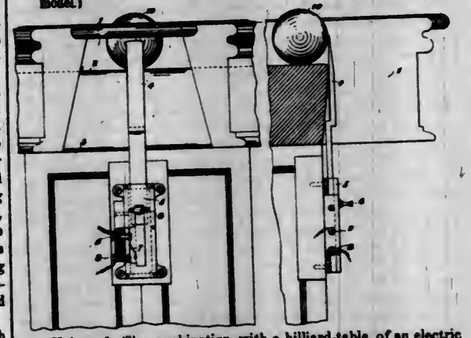


Claim.—1. In a rifle of the class hereinbefore set forth, provided with a vertically-movable breech-block, a guard-lever connected therewith and the usual firing means, the combination therewith of the shell-ejecting device hereinbefore described, the same consisting of the spring-pressed ejector rod or member *r* mounted in the barrel, and means attached to or integral with said guard-lever adapted to automatically release the ejector while the lever is being dropped, as an opening in the rifle.

2. In a breech-loading rifle, a vertically-movable breech-block having its upper end or face contiguous to the barrel beveled at *d'*, in combination with the ejector *r* having its head or rear portion adapted to engage said beveled part of the block and forming a stop therefor when the barrel is open, a spring bearing against the forward end of the ejector, a locking-pin in engagement with the ejector member, and a swinging guard-lever connected with the breech-block and arranged to trip or release the ejector, substantially as hereinbefore described.

3. In a breech-loading firearm, the combination with the vertically-movable breech-block and firing-pin movably mounted therein, of a shell-ejecting device embodying a rod, *r*, having its rear end adapted to receive the rim of the shell *e*, and being vertically grooved to permit the passage of the forward end of the said firing-pin, substantially as described.

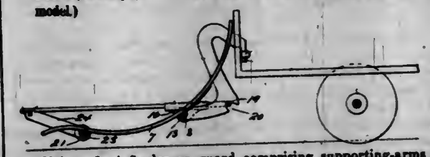
592,240. CHECK ON BILLIARD-MARKERS. JOHN G. DIXON, Penistone, England. Filed Sept. 14, 1896. Serial No. 605,806. (No model.)



Claim.—1. The combination, with a billiard-table, of an electric circuit comprising a battery and wires 31 and 33, said wires being provided with loops 31' and 33' respectively and the said loops being arranged to encircle the said table and provided with pairs of contact-pieces; a series of movable obstructions normally projecting at intervals above the surface of the table and provided with contact-pieces any one of which will complete the circuit through the wires 31 and 33 when the obstruction to which it pertains is depressed; an electromagnet energized when the circuit is completed, a pivoted and spring-controlled armature provided with an indicating-pencil, and clockwork-driving mechanism operating to move a band of paper under the pencil, substantially as set forth.

2. The combination, with a billiard-table, of a case secured to the table, an obstruction slidable in the said case and normally projecting above the surface of the table, means for supporting the obstruction in its raised position, an electric circuit provided with terminals insulated from each other and carried by the said case, and a spring secured to one terminal and arranged below the said obstruction so that it is moved into contact with the other terminal when the said obstruction is depressed below the surface of the table, substantially as set forth.

592,241. FENDER OR GUARD FOR TRAMWAY-CARS. DAVID DORSON, Brooklyn, N. Y. Filed Aug. 11, 1897. Serial No. 647,822. (No model.)



Claim.—1. A fender or guard comprising supporting-arms detachably connected with the platform of a car, and provided at their lower ends with forwardly-directed extensions, a main fender or guard frame pivotally connected with the forward ends of said extensions, said main fender or guard frame being curved upwardly in front of the dashboard, and forwardly and downwardly, tubular keepers also pivotally connected with the forward ends of the extensions of said arms, a supplemental fender or guard frame consisting of a front bar, and side bars which pass backward through said tubular keepers, and which are provided with inwardly-directed extensions or arms which engage with notches or recesses formed in said supporting-arms, and the forward end of said supplemental frame being pivotally connected by means of links or bars with the forward end of the main frame, substantially as shown and described.

2. A fender or guard comprising supporting-arms detachably connected with the platform of a car, and provided at their lower ends with forwardly-directed extensions, a main fender or guard frame pivotally connected with the forward ends of said extensions, said main fender or guard frame being curved upwardly in front of the dashboard, and forwardly and downwardly, tubular keepers also pivotally connected with the forward ends of the extensions of said arms, a supplemental fender or guard consisting of a front bar, and side bars which pass backwardly through said tubular keepers, and which are provided with inwardly-directed extensions or arms which engage with notches or recesses formed in said supporting-arms, and the forward end of said supplemental frame being pivotally connected by means of links or bars with the forward end of the main frame, and said main frame being also provided near its forward end with wheels or rollers, substantially as shown and described.

3. A fender or guard comprising supporting-arms detachably connected with the platform of a car, and provided at their lower ends with forwardly-directed extensions, a main fender or guard frame pivotally connected with the forward ends of said extensions, said main fender or guard frame being curved upwardly in front of the dashboard, and forwardly and downwardly, tubular keepers also pivotally connected with the forward ends of the extensions of said arms, a supplemental fender or guard consisting of a front bar, and side bars which pass backwardly through said tubular keepers, and which are provided with inwardly-directed extensions or arms which engage with notches or recesses formed in said supporting-arms, and the forward end of said supplemental frame being pivotally connected by means of links or bars with the forward end of the main frame, and said main frame, being also provided near its forward end with wheels or rollers, and the body thereof being composed of wire mesh or similar material, substantially as shown and described.

4. A fender or guard for tramway-cars consisting of supports which are adapted to be detachably connected with the platform of the car or the dashboard thereof, a main fender or guard frame pivotally connected with said supports and projecting upwardly, and downwardly and forwardly, a supplemental fender or guard frame pivotally connected with the forward end of the main fender or guard frame by means of links or bars, said supplemental fender or guard frame being provided with side bars which pass backwardly, tubular keepers pivotally connected with the supports and through which said side bars of the supplemental fender or guard frame pass, and the rear ends of said side bars of the supplemental fender or guard frame being adapted to engage with notches or recesses formed in said support, substantially as shown and described.

592,242. BICYCLE-LOCK. Charles R. Ebersle, Philadelphia, Pa. Filed Sept. 19, 1896. Serial No. 606,014. (No model.)



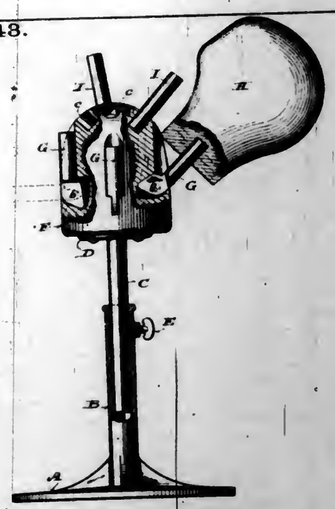
Claim.—The tubular seat-post A, and the crank-shaft hanger B, the crank-shaft, N, journaled therein and provided with the collar M, having the transverse slot *n* formed with parallel radial walls *n' n'*, in combination with the annular guide-rings 4 4 fixed in said seat-post B, the tubular lock-case C, mounted in said guide-rings, and provided with the internal annular guide-collars 5 and 7, and the transverse pin, *b*, and the bolt, D, mounted in the guide-collar 5, its shank 6 provided with a transverse slot, *a*, through which the pin *b* passes and having the end of the shank mounted in the guide-collar 7, the spiral spring *d* encompassing said bolt-shank, one end in contact with the pin *b* and the other end resting against the shoulder 8 on the bolt, and means substantially as described for reciprocating said tubular bolt-case and bolt, as and for the purpose set forth.

592,248. WIG-MAKER'S APPLIANCE. Hugo R. Ebert, Milwaukee, Wis., assignor of one-half to August F. Stahl, same place. Filed Apr. 5, 1897. Serial No. 630,740. (No model.)

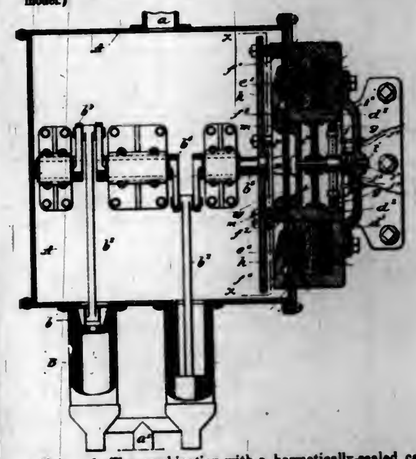
Claim.—1. A head-block in connection with a suitable support, and wig-block supports in the form of pins that normally engage vertical recesses in the head-block and have their lower ends reduced to form shouldered flat shanks of irregular contour, substantially as shown, engaged with head-block slots intersecting said recesses but extended in beyond the same, the contour of each slot being also substantially as shown, whereby the corresponding pin may be swung out to stand at a predetermined angle to said head-block.

2. A head-block in connection with a suitable support, wig-block supports in the form of pins that normally engage vertical recesses in the head-block and have their lower ends reduced to form flat shanks of irregular contour, substantially as shown, engaged with head-block slots intersecting said recesses but extended in beyond the same, the contour of each slot being also substantially as shown, whereby the corresponding pin may be swung out to stand at a predetermined angle to said head-block, and another wig-block support in the form of a pin having engagement with an oblique socket in the aforesaid head-block.

592,248.



592,244. ELECTRICAL POWER TRANSMISSION. Thomas J. Fay, Brooklyn, N. Y., assignor to the American Electric Cold Supply Company, of Maine. Filed Feb. 12, 1897. Serial No. 623,060. (No model.)



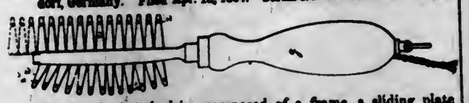
Claim.—1. The combination with a hermetically-sealed casing within which is a machine to be driven, of an electric motor having a rotary member consisting merely of a body of iron, located inside of said casing, and connecting with the machine to be driven and a stationary member upon which the electrical conductors of the motor are wound, located outside of the casing, an unperforated wall of the casing being located between said rotary and stationary members, substantially as described.

2. The combination with a hermetically-sealed casing in which is located a machine to be driven, of an electric motor having a rotary member located inside of said casing and connected with the machine to be driven, a stationary member located outside of said casing and between which and the rotary member an unperforated wall of the casing is located, and a commutating-switch also located outside of said casing, substantially as described.

3. The combination with a hermetically-sealed casing in which is located a machine to be driven, of an electric motor having a rotary member located inside of said casing and connected with the machine to be driven, a stationary member located outside of said casing and between which and the rotary member an unperforated wall of the casing is located, and a commutating-switch also located outside of said casing, said commutating-switch being moved by the magnetic attraction exerted upon it by the rotary member of the motor inside of the sealed casing.

4. The combination with a hermetically-sealed casing in which is located a machine to be driven, of an electric motor whose armature is stationary and located outside of said casing and a portion of whose field-magnet rotates and is located inside of the casing and connected with the machine to be driven.

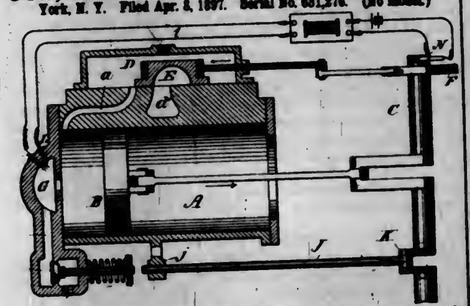
592,245. ELECTRIC HAIR-DRIER. Heinrich Futterer, Dusseldorf, Germany. Filed Apr. 12, 1897. Serial No. 632,082. (No model.)



Claim.—1. A hair-drier composed of a frame, a sliding plate removably secured thereto, and an electric wire for heating the sliding plate, substantially as specified.

2. A hair-drier composed of a frame, an insulating-layer, a face-plate and a sliding comb-plate held by the frame, and an electric wire embedded within the insulating-layer and adapted to heat the sliding comb-plate, substantially as specified.

592,246. COMPRESSED-AIR ENGINE. Lucius T. Gibbs, New York, N. Y. Filed Apr. 8, 1897. Serial No. 631,276. (No model.)



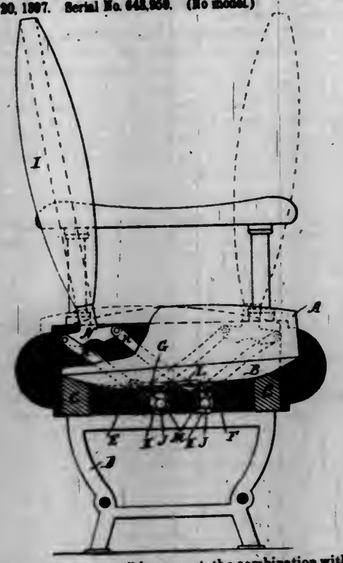
Claim.—1. The combination in a compressed-air engine of a cylinder provided with an inlet and an exhaust port for the admission and exit of the working fluid, a valve controlling said ports, a piston in said cylinder, a gas-chamber opening into one end of said cylinder and communicating with a source of gas-supply, a valve controlling the admission of gas to said chamber, and an igniter in said chamber; the aforesaid parts being constructed, timed, and operating to admit air under pressure to actuate the piston over a part of the working stroke, then to cut off said air to cause said air to work expansively, to admit gas into said chamber when the pressure in said chamber shall have fallen substantially to that of the atmosphere and subsequently to ignite said gas, substantially as described.

2. The combination in a compressed-air engine of a cylinder provided with inlet and exhaust ports for the admission and exit of the working fluid, a valve controlling said ports, a piston in said cylinder, a source of gas-supply also communicating with said cylinder, a valve controlling said gas and means for exploding the gas in said cylinder, the aforesaid parts being constructed, timed, and operating to admit air under pressure to actuate said piston over a part of the working stroke, then to cut off said air to cause said air to work expansively, to admit gas into said cylinder when the pressure therein shall have fallen substantially to that of the atmosphere, and subsequently to ignite said gas, substantially as described.

3. The combination in a compressed-air engine of a cylinder provided with inlet and exhaust ports for the admission and exit of the working fluid, a slide-valve controlling said ports, a piston in said cylinder, a source of gas-supply also communicating with said cylinder, a valve controlling said gas, means for exploding said gas in said cylinder, a main shaft actuated by said piston, and mechanism whereby said shaft is caused to actuate said slide-valve, said gas-valve, and said igniter; the aforesaid parts operating to admit air under pressure to actuate said piston over a part of the working stroke, then to cut off said air to cause said air to work expansively, to admit gas into said cylinder when the pressure therein shall have fallen substantially to that of the atmosphere, and subsequently to ignite said gas, substantially as described.

4. The combination of a motor, a source of air under working pressure, a valve controlling the admission of the same to the motor, a valve admitting inflammable gas, and an igniter, the parts being so organized and timed that an explosion will occur at the point of cut-off of the working air, substantially as described.

592,247. CAR-SEAT. Remington H. Gilfillan, Chicago, Ill., assignor to Harris A. Wheeler, same place. Filed Jan. 28, 1896. Renewed Aug. 20, 1897. Serial No. 648,959. (No model.)



Claim.—1. In a reversible car-seat, the combination with a back, of the arms pivoted to and supporting said back frames at the ends of the seat and movable pivots on the lower ends of said arms adapted to be shifted laterally as the back is reversed, substantially as described.

2. In a reversible car-seat, the combination with a back, of the arms pivotally supporting said back frames at the ends of the seat and the horizontally-movable shafts mounted on the lower ends of said arms, and constituting movable pivots therefor substantially as described.

3. In a reversible car-seat, the combination with a back, of supporting-arms pivotally secured to said back, movable pivots on the lower ends of said arms adapted to be shifted as the back is reversed, a seat arranged to be shifted simultaneously with the back by the lateral movement of said pivots, and frames at the ends of the seat substantially as described.

4. In a reversible car-seat, the combination with a back, of supporting-arms pivotally secured to said back, movable pivots on the lower ends of said arms adapted to be shifted as the back is reversed, a seat adapted to be shifted simultaneously with the back, frames at the ends of the seat and downward projections on said seat arranged between the said movable pivots, and controlled thereby, substantially as and for the purpose described.

5. In a reversible car-seat, the combination with a back, of supporting-arms pivotally secured to said back, movable pivots for the lower ends of said arms adapted to be shifted as the back is reversed, a seat, frames at the ends of the seat, the rockers supporting said seat, and downward projections on said rockers arranged between and in contact with the movable pivots, whereby said seat is shifted simultaneously with the reversal of the back, substantially as described.

6. In a reversible car-seat, the combination with a back, of frames secured at each end of the seat, the movable pivots operating in said frames, and the parallel arms supporting said back and secured to said movable pivots, substantially as described.

7. In a reversible car-seat, the combination with a back, of frames secured at each end of the seat, shafts operating in slots in said frames, and the parallel arms pivotally supporting the back and rigidly secured at their lower ends to the shafts, substantially as described.

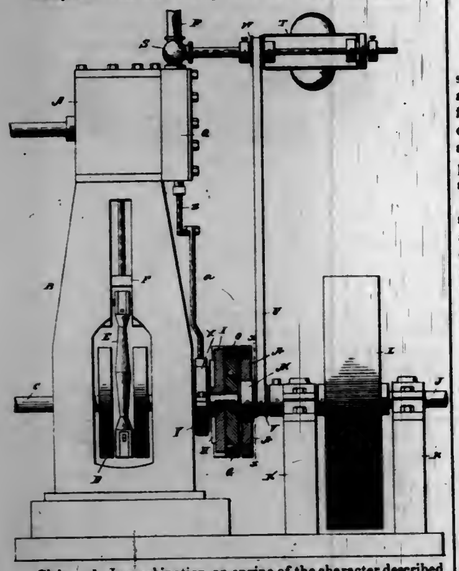
8. In a reversible car-seat, the combination with a back, of frames secured at each end of the seat, shafts operating in slots in said frames, the arms supporting the back and rigidly secured to said shafts, a rack-bar on each frame, and the toothed segments rigid with the shafts and engaging said rack-bars, substantially as described.

9. In a reversible car-seat, the combination with a back, of frames secured at each end of the seat, shafts operating in slots in said frames, the arms supporting the back and rigidly secured to said

shafts, a rack-bar on each frame, the toothed segments rigid with the shaft and engaging said rack-bars, a seat, and downward projections on said seat arranged between and in contact with said shafts, substantially as described.

10. In a reversible car-seat, the combination with a back, of frames secured at each end of the seat and provided with slots therein, shafts extending through and having bearings in said slots, a rack-bar on each frame, the supporting-arms pivoted to the back and rigid with said shafts, the toothed segments on said shafts adjacent to the arms and engaging with said rack, a seat and downward projections on said seat arranged between and in contact with the shafts, whereby said seat is shifted simultaneously with the reversal of the back, substantially as described.

592,248. DIRECT-ACTING ENGINE. JAMES D. GRAY, Baltimore, Md., assignor of two-thirds to William B. Price and Abraham Sharp, same place. Filed Dec. 2, 1896. Serial No. 614,300. (No model.)



Claim.—1. In combination, an engine of the character described, a clutch-disk loosely mounted on the crank-shaft, buffer-blocks placed in one face of the disk, a drive-bar keyed on the shaft and lying between said blocks, and a secondary shaft driven by said clutch-disk, substantially as described.

2. In combination with an engine of the character described, a clutch-disk loosely mounted on the crank-shaft, a drive-bar keyed to said shaft, buffer-blocks placed on either side of said drive-bar in the face of the disk, a secondary shaft run by said clutch, a governor operated by the secondary shaft and a valve operating under the control of the governor for regulating the flow of steam into the chest of the engine, substantially as described.

3. In combination, an engine of the character described, a driving-bar secured upon the crank-shaft thereof, a clutch-disk loosely mounted upon said shaft, buffers carried by said disk embracing the driving-bar, pawls carried by the clutch-disk, a secondary shaft journaled in axial alinement with the crank-shaft, a friction-disk carried by said secondary shaft with which the pawls are adapted to engage, a governor so arranged as to revolve in unison with the secondary shaft, and a valve actuated by the governor, said valve being interposed between the induction-pipe and the chest of the engine for regulating the flow of motive fluid to said chest, substantially as and for the purpose set forth.

4. In an engine of the character described, a clutch-disk loosely mounted on the crank-shaft, a secondary shaft engaged by the clutch, a drive-bar secured on the first-named shaft for causing the disk to revolve in unison with said shaft, and means on the disk for relieving the parts from jar when the engine picks up its load, as and for the purpose described.

592,249. FACE-PLATE FOR FLUSH SWITCHES. GERALD W. HART, Hartford, Conn. Filed Nov. 5, 1896. Serial No. 611,128. (No model.)

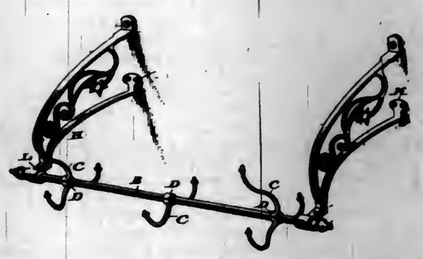
Claim.—1. A new article of manufacture being, a face-plate for electric switches and the like, said article comprising a body portion having an orifice therein, the edge of said body portion adjacent to said orifice being recessed, an independently-formed cupped-shaped blank corresponding substantially in shape, but of greater dimensions, than said orifice, said blank being seated in said recess, the metal of the body portion adjacent said recess engaging and retaining said cupped-shaped blank.



2. A new article of manufacture being, a face-plate for electric switches and the like, said article comprising a body portion having an orifice therein, the edge of said body portion adjacent to said orifice being recessed, an independently-formed cupped-shaped blank corresponding substantially in shape, but of greater dimensions, than said orifice, said blank substantially fitting the recess in the body portion, the metal of the body portion adjacent said recess being upset and engaging and retaining said cupped-shaped blank.

3. A new article of manufacture being, a face-plate for electric switches and the like, said article comprising a body portion having an orifice therein, the rear edge of said body portion adjacent said orifice being recessed, an independently-formed cupped-shaped blank corresponding substantially in shape, but of greater dimensions, than said orifice, the edge of said blank fitting said recessed portion, the external wall of said recess being upset and engaging and retaining said cupped-shaped blank, substantially as described.

592,250. HAT AND CLOTHES RACK. WILLIAM KUEHNLE and WILLIAM POEHLMANN, Philadelphia, Pa. Filed Jan. 29, 1897. Serial No. 621,175. (No model.)



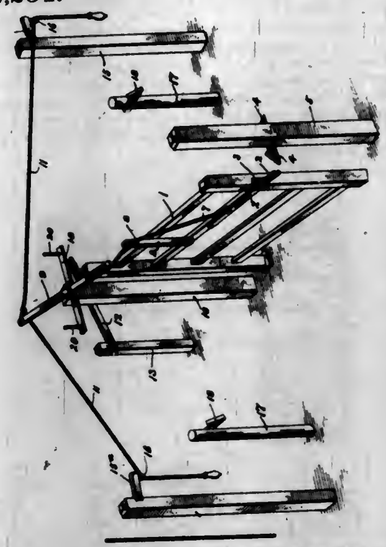
Claim.—1. A hat and clothes rack consisting of side brackets each composed of two sections, each section having at its inner end means for securing it to a suitable support, and at its outer end an angular portion, both limbs of which contact with the angular portion of the other section, the horizontal limb of each of said angular portions having an angular-shaped opening forming a half-socket to receive a cross-bar, and an opening in rear of said angular opening to receive a clamping-screw, and a cross-bar held in said angular openings.

2. An angular rod and hooks with angular bosses freely supported on said rod, in combination with brackets formed in sections, each being provided at one end with an attaching device and at the other end with a half-socket and a screw engaging with proper portions of said sections for closing the half-sockets as one on said rod.

592,251. GATE. DAVID D. OGILVIE, Lee, Nev. Filed May 28, 1896. Serial No. 593,460. (No model.)

Claim.—The herein-described gate, pivoted to swing in opposite directions, and provided with a latch 2, and an upright 8, in combination with a cruciform lever pivoted upon the hinge-post, a cord passing from the latch through the end of upright 8, and secured to the forward end of the lever, pins 20 carried by arms 19 of the lever, and ropes extending from the rear of the lever to posts 15, on opposite sides of the gate, all substantially as described.

592,251.



592,252. SWATHING ATTACHMENT FOR BINDERS. ASHMORE P. PATTERSON, Yeadon, Pa. Filed Nov. 13, 1896. Serial No. 611,963. (No model.)



Claim.—1. In a binder, the combination with the binder-deck, of a swathing attachment removably secured to the lower end of the binder-deck, substantially in the manner set forth.

2. In a binder, the combination with a swather, of a holder independent of the swather and secured to the binder-deck, and adapted to be turned to project from the swather and across the path of the grain and hold the latter in check, substantially in the manner and for the purpose specified.

3. In a binder, the combination with a swather, of a holder independent of the swather and comprising a rod secured to the binder-deck and having its end portions bent at right angles in the same direction, the one forming an operating-arm and the other a retainer to be projected from the swather and across the path of the grain, substantially as and for the purpose set forth.

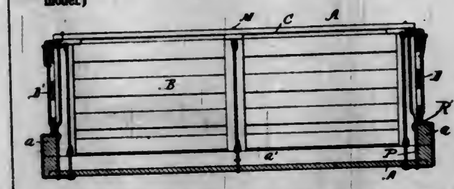
4. In a binder, the combination with the binder-deck, and a swather secured to the lower end of the binder-deck, of a retarder extending over the deck, beyond it and over the swather and cooperating therewith, substantially as and for the purpose specified.

5. In a binder, the combination of a swather, a retarder consisting of a rod having a longitudinally-curved loop at its upper end, and a fastening operating through the loop to adjustably secure it to an arm of the binder, substantially as set forth.

6. In a binder, the combination of a swather, a retarder consisting of a spring-rod having a coil at its upper end and a longitudinally-curved loop, and means for longitudinally and laterally securing the retarder to an arm of the binder and passing through the said curved loop, substantially as and for the purpose set forth.

7. In a binder, the combination with the binder-deck, of a swathing attachment having a spiral declination and formed of a rod bent intermediate of its ends, forming a straight portion and curved arms, the latter being of unequal length and unequal curvature, and means applied to the inner or straight portion of the swather for attaching it directly to the binder-deck, substantially as described.

592,253. FOLDING BOX. CHARLES PECK, Chicago, and FRANK H. PECK, Lombard, Ill. Filed Aug. 29, 1896. Serial No. 604,305. (No model.)



Claim.—1. In a knockdown box of wood and wire the combination of, first, a floor for the box said floor being strengthened by binding-wires which, at the edges of the floor, are formed into and present loops or half-hinges adapted for the hanging thereto of side and end sections of the box; second, side sections and end sections also strengthened with wire or wires which said section-wires are formed into and present, at the section edges, loops or half-hinges linked into said half-hinges of the floor-wires said section-wires also presenting, at the section edges opposite the floor-hinges, loops adapted to serve as half-hinges for the top sections, and also, loops adapted to serve as stanchions formed to engage with hasps on the top sections to support the box when set up; third, top sections also strengthened by wires which said wire or wires are formed into, and present, at the section edges, loops or half-hinges, linked into half-hinges of the side sections, and, at the opposite top section edges, presenting loops or hasps adapted to fit over upright stanchions on the lateral sections to support and lock the box, substantially as described and shown.

2. In a folding or knockdown box composed of connected sections, a wooden section, bound and supported with a wire, which wire also is formed into, and serves on both its opposite sides as, a loop or half-hinge to connect the section with another section or part, substantially as described and shown.

3. In a folding or knockdown box composed of sections, a wooden section bound and supported with a wire which passes around part or all of the section, said wire being also formed into and presenting a loop or half-hinge on one edge and on the other edge a stanchion or hasp adapted to pass into a loop on another section substantially as described and shown.

4. In a knockdown box, a wooden section supported by a wire which passes through part of the wood of the section and also surrounds and supports part of the section, which said supporting-wire is formed into loops on opposite edges of the section, said loops being adapted to be used, either as half-hinges to connect the section with half-hinges of other sections, or, as loops or hasps to fit over other loops or stanchions to support and lock the sections of the box when set up, substantially as described and shown and for the purposes specified.

5. In a knockdown box a wooden section supported by a wire which surrounds part of the wood of the section, which said supporting-wire is formed into loops on opposite edges of the section, said loops being adapted to be used, the loop on one side of the section as a half-hinge, and the loop on the opposite side of the section as a hasp, to pass over a stanchion to lock the section, substantially as described and shown.

6. In a knockdown wooden box the strengthening-wire M having the parts *m* and *n* to surround portions of the wood of the sections, the loops N and N′ to afford half-hinges and fastening-loops and the fastening-loop M′ substantially as described and shown.

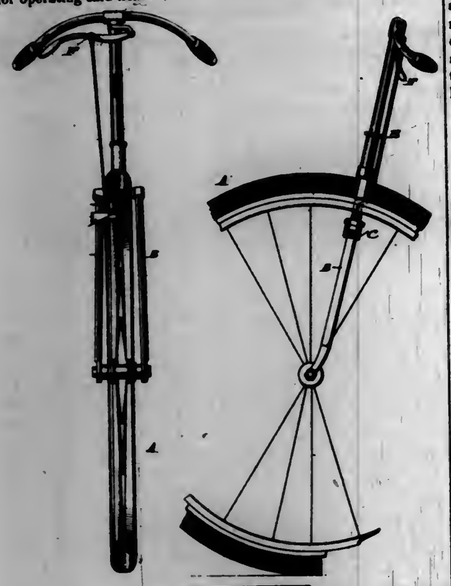
7. In a knockdown wooden box the strengthening-wire M having the parts *m* and *n* to surround portions of the wood and the opposite loops N and N′ to afford half-hinges and fastenings-loops substantially as described and shown.

592,254. BICYCLE-BRAKE. DANIEL M. PETERS, Bellwood, Pa. Filed Nov. 10, 1896. Serial No. 611,613. (No model.)

Claim.—1. A bicycle steering-fork, a brake-head vertically movable on one of the limbs of said fork, a shoe secured to said head and having a recess in its upper face, a tire having a circumferential bead on its inner face adapted to be engaged by said shoe, a lever pivoted to the steering-bar and a rod pivotally connected with said head and said lever.

2. A bicycle steering-fork having a head, vertically movable on one of its limbs and extending inwardly beneath the tire of the wheel, a shoe on the upper surface of said head having a recessed face, a bead on the inner periphery of said tire adapted to be en-

gaged by said shoe and mechanism connected with said head and fork for operating said head.



592,255. CYCLOMETER. CHARLES B. POST, New London, Ohio. Filed Dec. 10, 1896. Serial No. 615,134. (No model.)



Claim.—1. A cyclometer, consisting of a casing, two registering-rings arranged to revolve thereon, gears projecting inward from the rings, one gear having one hundred teeth, while the other is provided with one hundred and one teeth, graduations marked upon the rings, a scroll engaging with the gears, a worm-wheel carrying said scroll, a worm meshing with the worm-wheel, and a star-wheel carried by the spindle of the worm and adapted to be intermittently operated by a suitable striker, as specified.

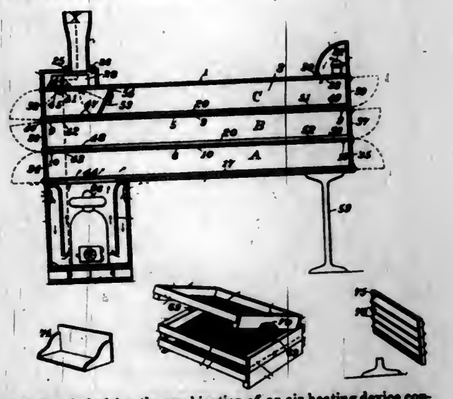
2. In combination, a casing, two registering-rings mounted thereon so as to revolve, a gear having one hundred teeth formed with the outer ring, a gear having one hundred and one teeth formed with the inner ring, a scroll meshing with the two gears, a worm-wheel carrying the scroll, a worm meshing with the last-named wheel, a spindle upon which said worm is formed, a star-wheel carried by the outer end of the spindle, and a striker carried by the wheel of the bicycle for intermittently actuating the wheel, as specified.

3. In a cyclometer of the character described, two registering-rings arranged in the same plane and adapted to rotate, the outer ring carrying a gear with one hundred teeth, the inner ring having a gear with one hundred and one teeth whereby at every rotation of the rings the inner ring will lose a distance equal to one of its teeth relative to the outer ring, a scroll for actuating the rings, and means for revolving the scroll, substantially as and for the purpose set forth.

4. In a cyclometer the combination of a casing, two rings mounted thereon in the same plane and adapted to rotate, a disk for holding said rings in position, a pointer formed with the disk arranged to indicate the movement of the outer ring, gears formed with the rings, the outer gear having one hundred teeth and the inner gear one hundred and one teeth, a scroll meshing with the two gears, a worm-wheel carrying said scroll, a worm meshing with the worm-wheel, a spindle upon which said worm is formed, a star-wheel secured to the outer end of the spindle, and means for intermittently actuating said star-wheel by the rotations of the wheel of the bicycle, substantially as and for the purpose set forth.

592,256. FRUIT-DRIER. BENJAMIN L. RYDER, Chambersburg, Pa. Filed Oct. 24, 1896. Serial No. 609,974. (No model.)

Claim.—1. In a fruit-drier, the combination of an air-heating device consisting of a heater and a hot-air compartment, a suitably-supported box or body in communication with said hot-air compartment, said box being divided into chambers by horizontal floors, each of said chambers having doors at its ends, each of said floors having apertures and dampers near its ends, a stack in communication with the upper chamber of said box, rails secured to the side walls of the lowest chamber of said box, said rails beginning at one end opening of said chamber and terminating within the said chamber, substantially as described.



2. In a fruit-drier, the combination of an air-heating device consisting of a heater and a hot-air compartment, means for regulating the hot-air supply, a suitably-supported box or body in communication with said hot-air compartment, said box being divided into chambers by horizontal floors, each of said chambers having doors at its ends, each of said floors having apertures and dampers near its ends, a stack in communication with the upper chamber of said box, the lowest chamber having an inclined bottom, rails secured to the side walls of said lowest chamber, said rails beginning at the greater end opening of said chamber, converging toward each other and terminating within said chamber, substantially as described.

3. In a fruit-drier, the combination of an air-heating device consisting of a heater and a hot-air compartment, a box or body in communication with said hot-air compartment, one end of said box being supported by the air-heating device, means for supporting the remaining end of the box, said box being divided into chambers by horizontal floors, each of said chambers having doors at its ends, each of said floors having apertures and dampers near its ends, a stack opening into the upper chamber of said box, said upper chamber provided with an adjustable partition, said box having an opening through the top, a hood, said hood being pivotally secured over said box-top opening, a suitable brazier, rails secured to the floors of said chambers, rails secured to the side boards of the lowest of said chambers, said side-board rails beginning at the door of said lowest chamber nearest the air-heating device and terminating within said chamber, substantially as described.

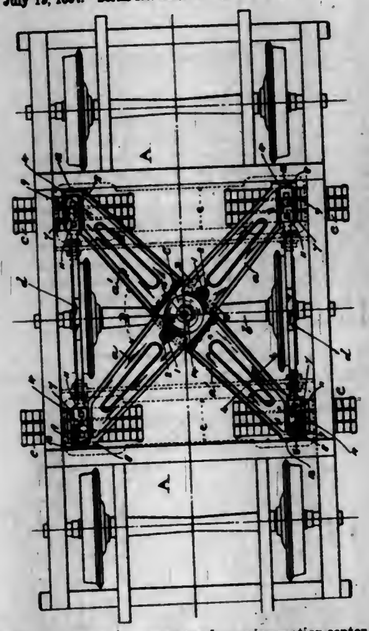
4. In a fruit-drier, the combination of an air-heating device consisting of a heater and a hot-air compartment, a box or body in communication with said hot-air compartment, one end of said box being supported by the air-heating device, means for supporting the remaining end of the box, said box being divided into chambers by horizontal floors, each of said chambers having doors at its ends, each of said floors having apertures and dampers near its ends, a stack opening into the upper chamber of said box, said upper chamber provided with an adjustable partition, the floor of said upper chamber being constructed of metal, said box having an opening through the top, a hood, said hood being pivotally secured over said box-top opening, a suitable brazier, rails secured to the floors of said chambers, rails secured to the side boards of the lowest of said chambers, said side-board rails beginning at the door of said lowest chamber nearest the air-heating device and terminating within said chamber, substantially as described.

592,257. DANCING TOY. WILLIAM H. SALADEE and JAMES CATHER, Bedford, Ind. Filed June 2, 1897. Serial No. 639,115. (No model.)

Claim.—In a dancing toy, the combination with the supporting-bar, of a vibratory platform, a horizontal bracket-bar extending across said platform, and a pair of loosely-jointed figures suspended from said horizontal bar and adapted to move backward and forward thereon while dancing upon the platform, substantially as described.



592,258. CAR-TRUCK. MORSE B. SCHAFFER, St. Louis, Mo. Filed July 19, 1897. Serial No. 645,094. (No model.)

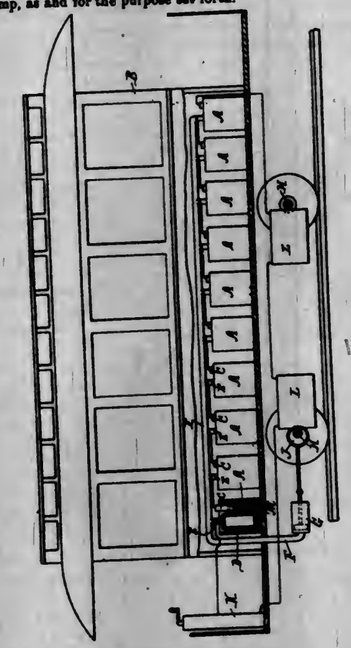


Claim.—1. In a passenger-car truck, a swing-motion center, consisting of a beam spanning the middle axle of the truck, and resting on the elliptic bearing-springs, the said beam having the side bearings attached thereto, and having an integral center-plate, and integral chafing-plates, substantially as described.

2. In a passenger-car truck, a swing-motion center, consisting of two beams crossing each other and spanning the middle axle of the truck, the said beams resting on the elliptic bearing-springs and having the side bearings attached thereto, one of the said beams having the center-plate integral therewith, substantially as described.

592,259. ELECTRICAL EQUIPMENT FOR VEHICLES. SIDNEY H. SHORT, Cleveland, Ohio. Filed Aug. 27, 1896. Serial No. 604,140. (No model.)

Claim.—The combination with a movable vehicle, of translating devices carried thereby, a carbon in electrical connection with one of the terminals of said translating device, a metallic oxidizable material in electrical connection with the other terminal of said translating device, an aqueous electrolyte maintained in an unheated condition in which said carbon and metallic material are immersed or partially immersed, a pump carried by said vehicle, and arranged to deliver oxygen to said electrolyte through said metallic material, and means actuated by the movement of the vehicle for operating said pump, as and for the purpose set forth.



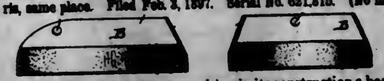
592,260. SUPPORT FOR BICYCLES. CARL SIPMAN, Nottingham, England. Filed Apr. 27, 1896. Serial No. 589,332. (No model.) Patented in England Mar. 9, 1895, No. 5,060, and in Germany July 13, 1895, No. 83,394.



Claim.—1. A bicycle-support comprising a collar adapted to be secured to the bicycle-frame, a depending portion integral with the lower section of the collar, said portion being provided with channels in which the supporting-legs are pivoted, a spring secured to the lower portion of the depending section, and terminating in bifurcated portions, which rest upon each supporting-leg and hold it in any desired position.

2. A bicycle-support comprising a collar adapted to be secured to the bicycle-frame, a depending wedge-shaped portion integral with the lower section of the collar, said portion being provided with diverging channels in which the supporting-legs are pivoted, a spring secured to one face of the wedge-shaped portion of the depending section, and terminating in bifurcated portions, which rest upon each supporting-leg and hold it in any desired position.

592,261. SOFT-TREAD NAILLESS HORSESHOE. DANIEL R. STEPHENS, Duluth, Minn., assignor, by direct and mesne assignments, of nine-sixteenths to William Bernard Topham and James George Harris, same place. Filed Feb. 3, 1897. Serial No. 621,815. (No model.)



Claim.—1. A horseshoe comprising in its construction a base portion constructed of a single piece of solid rubber made in the shape of a horseshoe and provided on its outer surface near its upper edge with a shoulder and a horizontally-extending groove which extend entirely around the base portion, and a spring attaching portion constructed of a single piece of metal which conforms to the shape of the base portion and to the contour of the horse's hoof and is provided with an inwardly-extending flange around its entire lower edge

which flange fits in the groove in the base portion and rests upon the shoulder of the same, the construction and arrangement being such that the bottom of the horse's hoof comes in direct contact with the rubber base portion, substantially as described.

2. A horseshoe comprising in its construction a base portion constructed of a single piece of solid rubber made in the shape of a horseshoe and provided with a shoulder and a groove which extend entirely around the base portion, and a spring attaching portion conforming to the shape of the base portion and to the contour of the horse's hoof and provided with an inwardly-extending flange around its entire base which fits in the groove in the base portion and rests upon the shoulder of the same, and penetrating-teeth formed on the under side of the inwardly-extending flange on the spring attaching portion, which engage the rubber base and prevent said attaching portion from springing outward, and means for attaching the shoe to the horse's foot, substantially as described.

592,262. ANIMAL FEED-BOX. HENRY STILL, Baltimore, Md.
Filed Apr. 13, 1896. Serial No. 545,664. (No model.)

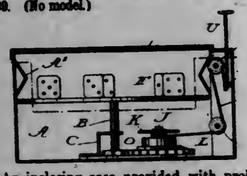


Claim.—1. In a feed-box, the combination with the box or receptacle of the hopper open at the top, and having an inclined rear side leading to the bottom of the box or receptacle, the vertically-adjustable and swinging door at the forward side of said hopper, the vertical bars providing a rack substantially as shown and described.

2. The combination of a feed-box and hopper, said hopper having an inclined rear wall, leading to the bottom of the box, a swinging door suspended from the front edge of the hopper and separating the hopper and feed-box and having a locking and unlocking device adapted to permit the door to swing through a desired angle when locked and be opened to a horizontal or reversed position when unlocked, substantially as described.

3. The combination of a feed-box, and a feed-hopper separated by a bar and a swinging shutter, suspended between the box and hopper and on the box side of the bar.

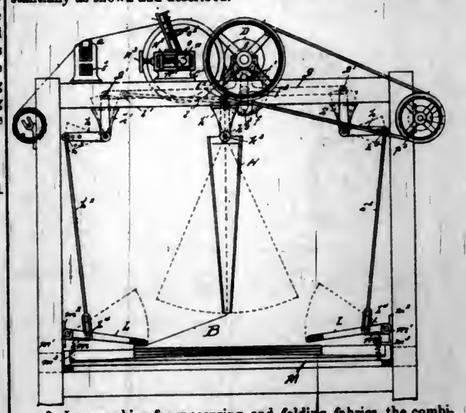
592,263. DEVICE FOR THROWING DICE. FRIEDRICH E. THOMAS, Steinigwoolmsdorf, Germany. Filed Jan. 11, 1897. Serial No. 618,769. (No model.)



Claim.—An inclosing case provided with projections upon its inner side, the rotating disk upon which the dice are placed, an operating mechanism for rotating the disk; a cord connected to the operating mechanism, guiding-pulleys around which the cord passes, and a vertically-moving actuated rod which is connected to the cord, and which rod is returned to its normal position when left free to move by the movement of the operating mechanism in rotating the disk, substantially as set forth.

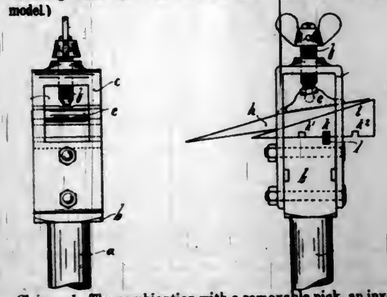
592,264. MACHINE FOR MEASURING AND FOLDING FABRICS, &c. JOSEPH WADSWORTH, Paterson, N. J. Filed Feb. 15, 1897. Serial No. 623,394. (No model.)

Claim.—1. In a machine for measuring and folding fabrics, the combination with the swinging folder and the alternately rising and falling tension-bars, of the frame, a spur-wheel mounted on a stud secured to the frame, a stud eccentrically located on the face of the said spur-wheel and adapted to engage a vertical slot in the traverse-bar, a traverse-bar having a vertical slot to receive said eccentric stud, the rods, the lower ends of which are provided with a slot and are pivotally connected with the tension-bars at the lower portion of the frame, the bell-cranks pivotally secured to the frame and pivotally connecting the upper ends of said rods and the ends of traverse-bar, a bar pivotally connecting the lever-arm of the swinging folder to the traverse-bar, a driving-shaft provided with a spur-pinion to mesh with said spur-wheel and means for driving the said shaft, substantially as shown and described.



2. In a machine for measuring and folding fabrics, the combination with the frame, the driving-shaft and means for driving the same, a shipper-rod, shipper-fork, a friction-cone and a friction-pulley, of a spring-actuated bar over which the goods pass, pivotally secured at one end to the frame above said shipper-rod and provided underneath with a notch, a catch on said shipper-rod to engage the notch in the spring-actuated bar, a spring connecting the shipper-rod and the frame to separate the friction-cone and the friction-pulley by tension on the shipper-rod when the catch on the shipper-rod is released from the notch in the spring-actuated bar, a spring under the free end of said spring-actuated bar having an upward pressure to release the said bar from the catch on the shipper-rod when no fabric is passing over said bar, substantially as shown and described.

592,265. PICK FOR EDGING MILLSTONES. HEINRICH WARNCKE, Lüneburg, Germany. Filed Dec. 30, 1896. Serial No. 617,450. (No model.)



Claim.—1. The combination with a removable pick, an inverted-U-shaped metallic head secured to the end of a handle and provided with oppositely-disposed openings or recesses for the reception of said pick, an adjustable wedge-shaped base having a plurality of grooves adapted to engage with a fixed tongue, and a pressure-screw having ball-and-socket connection with a pressure-plate carried by the end of said metallic head, substantially as described.

2. The combination with a removable eyeless pick, a handle provided with an inverted-U-shaped metallic head having oppositely-disposed openings or recesses for the reception of said pick, a wedge or base which may be of different degrees of slope or inclination to secure the degree of angle desired for the pick in relation to the handle when held by the same, and a pressure-screw carried by the end of said head for the purpose, substantially as described.

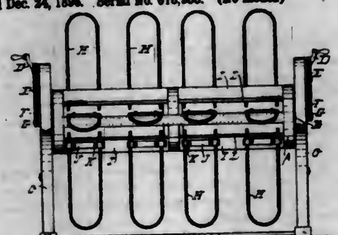
592,266. CLAMP FOR HOLDING SHOES WHILE BEING STRETCHED. ALBERT E. WHITNEY, Muncie, Ind. Filed Feb. 12, 1897. Serial No. 623,046. (No model.)

Claim.—1. A clamp for holding shoes while being stretched, consisting of a plate for receiving the shoe having a raised stationary edge against which one side of a shoe is adapted to bear and an adjustable clamp on the opposite side of the shoe of less height than the stationary edge and adapted to engage the sole only of the opposite side of the shoe, substantially as described.



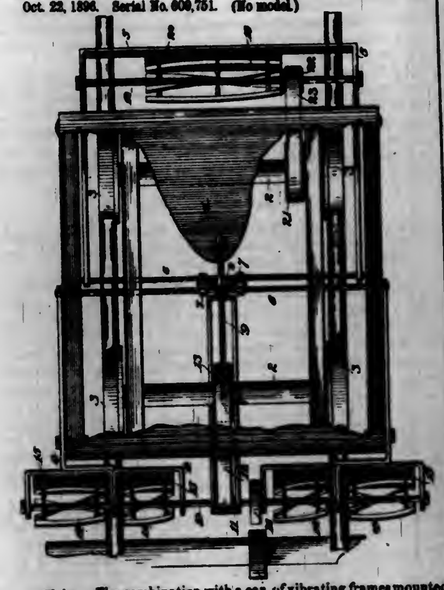
2. A clamp for holding shoes while being stretched consisting of a plate for receiving the shoe having a raised stationary edge, against which one side of the shoe is adapted to bear, and independently-adjustable clamps on the opposite side of the plate of less height than the stationary edge for engaging the sole only of the opposite side of the shoe, substantially as described.

592,267. CARPET-BEATER. JOHN T. WYE, Sheboygan, Wis. Filed Dec. 24, 1896. Serial No. 616,903. (No model.)



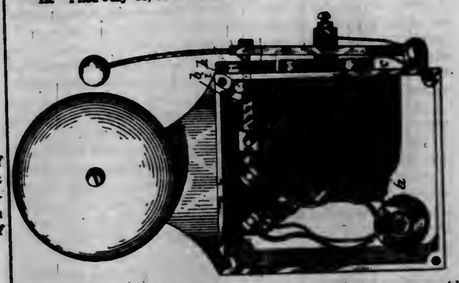
Claim.—A carpet-beater, comprising the standards, a cylinder-frame supported thereby, the beating-ropes arranged in loops and removably clamped to the cylinder-frame, wires arranged in the openings of the cylinder-frame and provided with coils for imparting elasticity thereto, and a manually-actuated crank with suitable gearing, adapted to communicate a rapid movement to said frame, substantially as described.

592,268. WEED-CUTTER. LUKE AGUR, Seward, Nebr. Filed Oct. 22, 1896. Serial No. 609,751. (No model.)



Claim.—The combination with a car, of vibrating frames mounted thereon and connected together at their inner ends, devices for moving said vibrating frames, and rotatable cutters upon the outer ends of said vibrating frames geared to the axle of said car, substantially as described.

592,269. ELECTRIC VIBRATING BELL. HENRY F. ALBRIGHT, Elizabeth, N. J., assignor to the Western Electric Company, Chicago, Ill. Filed July 11, 1896. Serial No. 598,763. (No model.)



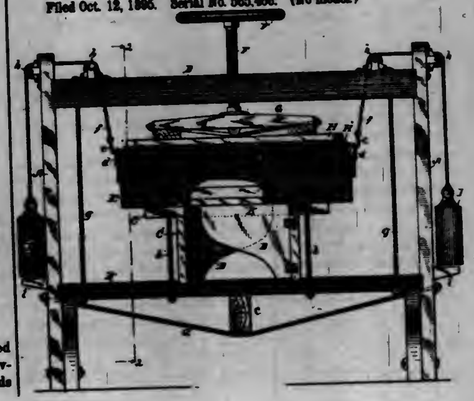
Claim.—1. A waterproof case for a vibrating bell or buzzer, said case containing the electromagnet, the spring-contact and electrical connections and being provided with a diaphragm through which movement of the armature is communicated to the contact within the case to interrupt the circuit, said case being provided also with a soft-rubber plug through which the circuit-wires are led, and a screw cap or clamp for compressing the rubber of the plug about the wires in combination with the vibrating armature, whereby the case is maintained water-tight, while the armature outside the case is permitted to vibrate.

2. In combination, an electromagnet and switch-contacts controlling the current therein, a closed case containing the said electromagnet and the switch-contacts, a diaphragm of yielding material forming a part of said case, a spring-impelled lever carrying one of said contact-pieces normally pressed against the diaphragm, an armature for the electromagnet outside the case and a part impelled thereby adapted to strike the outer face of the diaphragm to move the switch-contacts within the case, substantially as described.

3. As a new article of manufacture an electric bell comprising an electromagnet, an armature therefor, a bell-hammer controlled by the armature, switch-contacts controlling the current in the magnet, and means for moving one of the switch-contacts through the agency of the armature, the electromagnet and the switch-contacts being inclosed in a sealed case, said armature being mounted upon the exterior of the case, substantially as described.

4. The combination with a case having an aperture, a yielding diaphragm or part hermetically closing the aperture, an electromagnet and circuit-breaking spring-contact of a bell or buzzer within the case, of the armature of said electromagnet without the case, adapted to press upon said diaphragm or yielding part when attracted to thereby move the circuit-breaking contact, and thereby interrupt the circuit, whereby the said contact and the electromagnet are protected from water or moisture, while the armature outside the case is permitted to vibrate; substantially as described.

592,270. UPHOLSTERING DEVICE. FRANK R. BACON, Kalamazoo, Mich., assignor to the Michigan Buggy Company, same place. Filed Oct. 12, 1895. Serial No. 565,466. (No model.)



Claim.—1. In an upholstering-machine a combination of the frame composed of the uprights A, A, and the cross-beams B, B', connected together by bolts *g*, plate C, supported on suitable supports C', on beam B'; wings D, D, D', D', hinged to said supports C', and adapted to operate on a level with the top of said plate C; casing E, adapted to move up and down over the plate C and wings D, D, D', D'; weights I, I, to each end of said frame; cords *f*, to pass over suitable pulleys and connected to said weights and detachably attached to the casing E, by hooks *e*, in rings *d*, a screw *f*, through the top beam B, operated by hand-wheel F; cross-head G, on the lower end of said screw; and suitable forms for inserting in said casing to be pressed between the cross-head G, and the plate C, all substantially as described for the purpose specified.

2. In an upholstering-machine the combination of a suitable press-frame; upwardly-projecting supports C', with the plate C, across the top thereof; the casing E, adapted to move up and down over said plate; wings D, D, and D', D', hinged to said supports and adapted to swing outwardly to support the movable casing; counterbalance-weights attached to said casing to raise the same normally against the upper press-plate; and suitable forms for insertion in said casing; press-plate, or form, H, and suitable means for actuating the same; for the purpose specified.

3. In an upholstering-machine the combination of a suitable press-frame; upwardly-projecting supports C', with the plate C, across the top thereof; press-plate, or form, H, above with means of operating the same; the casing E, adapted to move up and down over said plate; counterbalance-weights attached to said casing to raise the same normally against the upper press-plate; and suitable forms for insertion in said casing for the purpose specified.

4. In an upholstering-machine the combination of a suitable press-frame; upwardly-projecting supports C', with the plate C, across the top thereof; a press-plate or form, H, above with means for operating the same; the casing E, adapted to move up and down over said plate C; wings D, D, and D', D', hinged to said supports and adapted to swing outwardly to support the movable casing; and suitable forms for insertion in said casing for the purpose specified.

5. In an upholstering device the combination of the form J, with upwardly-projecting irregular tubes *m* thereon central tubes N, with inwardly-curved springs N', within each tube *m*; a form K, with upwardly-projecting sharp-pointed steel pins L, corresponding to the irregular tubes *m*, on the form J, and adapted to project through the same for locating the cover of the cushion properly on the form J; suitable clothes-pins or instruments M, for retaining the cloth securely on the irregular tubes *m*, a casing E, adapted to slip over the forms J, and K, and project above the same; a form H, with metal rim H', around the same containing apertures H'', corresponding to the irregular tubes *m*, on the form J, adapted to be placed over the back of the cushion; and a suitable press for compressing the forms J, K, and H, together (after the cushion material has been placed upon the cover and the pins M, removed) to puncture the back for receiving the buttons and to afford the opportunity for securing the edge of the cushion; and a suitable form P, with pegs P'', thereon for forcing the buttons through the tube *m*, and through the back of the cushion all coacting together for the purpose specified.

6. In an upholstering device of the class described the combination of the form J, with upwardly-projecting tubes thereon; a form K, with upwardly-projecting sharp-pointed steel pins L, to project upwardly through the tubes on the form J, to locate the cushion-cover securely in place; suitable means of fastening the cover to the upwardly-projecting tubes; and a press to compress the front and back of the cushion together after the cushioning material has been inserted and to force the sharp points of the pins through the backs for the purpose of attaching the buttons and locating them positively in place for the purpose specified.

7. In an upholstering device of the class described the combination of a form J; with upwardly-projecting tubes thereon for the formation of the cushion; inwardly-curved springs N', supported within said tubes as a guide for the buttons; the form P, with the pegs P'', thereon for crowding said buttons to position simultaneously for clenching the buttons for the purpose specified.

8. In an upholstering device of the class described the combination of the form J, with upwardly-projecting tubes thereon for the formation of the cushion; and inwardly-curved springs N', within said tubes to guide the buttons to place for the purpose specified.

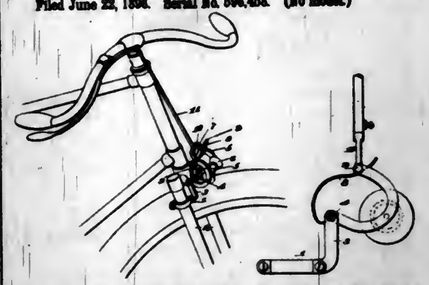
9. In an upholstering device of the class described, the combination of the form, J, with upwardly-projecting tubes thereon; and a form, K, with upwardly-projecting, sharp-pointed pins, L, to project upwardly through the tubes on the form, J, to locate the cushion-cover securely and regularly in place for the purpose specified.

10. In an upholstering device the combination of a bottom having projecting hollow tucking devices, a correspondingly-perforated top, a nail-support having nail-followers, and means whereby the nails are supported in their proper position on said followers when they are simultaneously forced up through the bottom and tucking devices substantially as set forth.

11. In an upholstering device, the combination of a bottom having projecting hollow tucking devices, a correspondingly-perforated top, nail-supports having nail-followers, and guides whereby the nails are held against displacement while being forced simultaneously up through the bottom and tucking devices substantially as set forth.

592,271. BICYCLE-BRAKE. Frederick Bertler, Pittsburg, Pa.

Filed June 22, 1896. Serial No. 596,458. (No model.)



Claim.—The combination with a bicycle-frame, of a bracket secured to the front fork thereof and comprising a pair of parallel arms having upturned forward ends, a rod connecting said ends, a pair of substantially U-shaped parallel arms having one end pivoted upon said rod, a roller mounted for rotation between the U-shaped arms near their center, a cross-bar connecting the other ends of said arms, a spring mounted on the pivot of said U-shaped arms and bearing against said cross-bar, a yoke-shaped piece pivotally connected to said cross-bar and connected directly with the brake-operating rod, the other end of which is pivotally connected with the brake-lever, all substantially as described.

592,272. DOOR-CHECK. Henry Behnewin, Philadelphia, Pa.

Filed Dec. 12, 1896. Serial No. 615,466. (No model.)



Claim.—1. A door check or stop, consisting of a plate, a bolt arranged to slide thereon, two levers pivoted to the lower end of the bolt, a spring for normally separating said levers, and lugs for closing said levers, as specified.

2. In combination, a plate, a bolt adapted to slide thereon, a strap for guiding said bolt, a spring secured to the bolt and adapted to bear against the strap for holding said bolt in any adjustment, two levers pivoted to the lower end of the bolt, a spring for separating the lower end of the levers, feet formed with said levers, and lugs projecting from the plate for closing the levers against the action of their spring when the bolt is elevated, as specified.

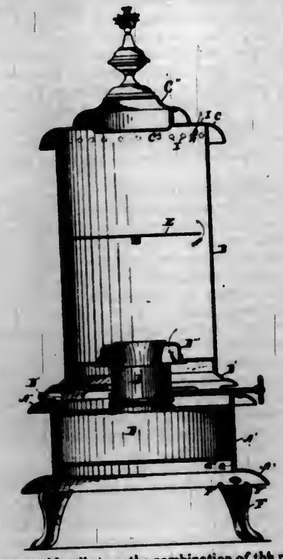
592,273. OIL HEATING-STOVE. Charles H. Bosch, Jackson, Mich., assignor to the Novelty Manufacturing Company, same place.

Filed Apr. 24, 1896. Serial No. 588,959. (No model.)

Claim.—1. In a portable oil heating-stove the combination of the sheet-metal base-rim A, with an upwardly-projecting vertical portion *a*, and the inwardly-projecting flange *a'*, at the top; sheet-metal drum A', resting on the said rim A, and fitting the vertical portion thereof; the sheet-metal rim A'', convex on its upper surface with an annular depression and downwardly-projecting vertical flange fitting inside the drum A'; the fount D, with burner D', supported on the flange *a'*; sheet-metal bottom plate B', the burner-cone B''', at the center of said bottom plate the radiating-drum B, resting on the plate B', and fitting the vertical portion thereof; a suitable deflector E, within the drum to deliver the heated gases to the outside thereof and the top C, with suitable perforations at the top of the drum to insure circulation for the purpose specified.

2. In a portable oil-stove the combination of a suitable base portion; a radiating-drum B, a sheet-metal bottom plate B' for the drum having legs B'', to support it on the base portion and afford a draft-passage for the burner the said plate being formed with a vertical portion to fit within the drum B, and projecting inwardly with the burner-cone B''', at the center coacting as specified.

3. In a portable oil heating-stove the combination of the heating-drum B, the sheet-metal top C, convex toward its outside with a vertical flange at the center the sheet-metal cover C', with a dish-shaped portion C', secured to the under side thereof to fit within the vertical flange and locate the cover and strengthen the same as specified.

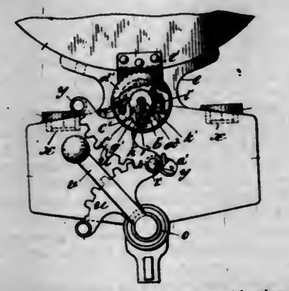


4. In a portable oil-stove the combination of the rims and plates stamped from sheet metal convex toward their outside to strengthen and ornament the same, with flanges at the inside; sheet-metal drums between the various rims and fitted to the flanges thereof to form necessary compartments in the stove and a sheet-metal top convex on its upper surface and fitted to the top of the stove to form a light and strong stove as specified.

5. In a heating-stove the combination of the sheet-metal base-rim A, convex toward its outside; the sheet-metal stove-leg F, having a central strengthening-rib therein with its upper end conformed to the base-rim A, with ears F', projecting under the rim to locate the same and engage the edge securely and a suitable means for joining the two together for the purpose specified.

592,274. MEASURING-FAUCET. Robert Bowring, Yonkers, N. Y., assignor of one-half to James H. Walling, Brooklyn, N. Y.

Filed Mar. 31, 1896. Renewed Mar. 3, 1897. Serial No. 626,913. (No model.)



Claim.—1. In a measuring-faucet, the combination of two separate chambers of equal capacity, an inlet-port to each chamber at the top, a discharge-port to each chamber at the bottom, a valve at the top having communication with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, and a valve having communication with the discharge-nozzle and respectively connecting with the outlet-ports according as it is set, said valves geared together by the toothed segments for joint action and in the relation whereby one valve opens the discharge-port of one chamber, and the other valve opens the inlet-port to the other chamber to fill one chamber while emptying the other in alternate succession, substantially as described.

2. In a measuring-faucet, the combination of the two separate chambers, an inlet-valve communicating with the supply-tank, and respectively communicating with the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, and registering apparatus, means connecting the prime mover of said registering apparatus with one of the valves for being actuated thereby and being arranged to actuate the register before the opening of the valves substantially as described.

3. In a measuring-faucet, the combination of the two separate chambers, an inlet plug-valve communicating with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle, and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with one of the valves for being actuated thereby and being arranged to actuate the register before the opening of the valves substantially as described.

4. In a measuring-faucet, the combination of the separate chambers, an inlet-valve communicating with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle, and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with one of the valves for being actuated thereby, and means for locking the register, controlled by the valve-locking devices substantially as described.

5. In a measuring-faucet, the combination of the separate chambers, an inlet-valve communicating with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with one of the valves for being actuated thereby consisting of the pawl-slide and pawl crank-pin of the valve and the link connecting said pawl slide and crank-pin substantially as described.

6. In a measuring-faucet, the combination of the separate measuring-chambers, an inlet-valve communicating with the supply-tank and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with the valves for being actuated thereby consisting of the pawl-slide and pawl crank-pin of the valve, and the link connecting said pawl slide and crank-pin, the said connection being in the relation whereby a forward-and-backward movement is imparted to the pawl for each single movement of the valves to actuate the registering apparatus prior to opening the valves substantially as described.

7. In a measuring-faucet, the combination of the separate measuring-chambers, an inlet-valve communicating with the supply-tank and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with the valves for being actuated thereby, and means for locking the registering apparatus in connection with the locked valves consisting of the pawl-slide and pawl, crank-pin of one of the valves, and the link connecting said pawl slide and crank-pin, and the locking-spur attached to the slide and adapted for locking said prime mover substantially as described.

8. In a measuring-faucet, the combination of two separate chambers, an inlet-port to each chamber at the top, a discharge-port to each chamber at the bottom, a valve at the top having communication with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, and a valve having communication with the discharge-nozzle and respectively connecting with the outlet-ports according as it is set, said valves geared together by the toothed segments for joint action and in the relation whereby one valve opens the discharge-valve of one chamber, and the other valve opens the inlet-port to the other chamber to fill one chamber while emptying the other in alternate succession, said chambers and the inlet ports and valve arranged to vent the chambers into the supply-tank when filling substantially as described.

9. In a measuring and registering faucet the combination with

the indicator-hand of the front plate, of the register-case having a circle of plug-holes coincident with the scale of the register, and a plug insertible in said holes and adapted for an advance gage to the indicator-hand substantially as and for the purpose specified.

10. In a measuring and registering faucet the front plate of the register-case having the projecting extension along the range of the crank in combination with the overlapping guard on the crank, substantially as and for the purpose set forth.

592,275. AUXILIARY LINK FOR BICYCLE DRIVE-CHAINS. JOHN P. BROWNING, Brantford, Canada, assignor of two-thirds to Alexander David Hardy and Frederick G. Fawkes, same place. Filed Nov. 12, 1896. Serial No. 611,353. (No model.)



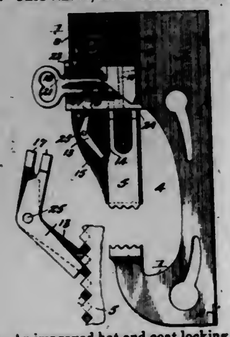
Claim.—1. An auxiliary link for sprocket-chains comprising a flat yoke having a convex central portion adapted to snugly fit the concave part of a solid link, and concave portions forming continuations of said convex portion each end portion of said link extending at right angles to said central portion, and means for detachably connecting said ends, substantially as described.

2. An auxiliary link comprising a thinned yoke having a central convex portion and concave portions forming continuations thereof, the end portions thereof extending substantially at right angles to said central portion and tapering from said concave portions outwardly toward their ends, and the detachable connection between said ends, substantially as described.

3. As auxiliary links for joining broken and disconnected links in a bicycle-chain, two U-shaped yokes adapted to fit snugly around the inner sides and ends of the adjacent disconnected links, a connecting device extending between the outer ends of each U-shaped yoke and a flexible connection between the auxiliary links as and for the purpose specified.

4. As auxiliary links for joining broken and disconnected links in a bicycle-chain, two U-shaped yokes adapted to fit snugly around the inner sides and ends of the adjacent disconnected links, bolts extending through the outer ends of the U-shaped yokes, a jaw-head on the end of one bolt and a flat head on the end of the opposite bolt between the auxiliary links and a pin extending through the jaw-head and flat head to form a hinge as and for the purpose specified.

592,276. HAT AND COAT LOCK. JEREMIAH D. BURNS, Washington, D. C. Filed Jan. 27, 1897. Serial No. 620,981. (No model.)



Claim.—1. An improved hat and coat locking device comprising a rigid body portion having a fixed hook or jaw arranged in front of a recess, and a recessed or chambered front upper portion provided with key-slot, a slidable locking rack-bolt arranged in such chamber above the fixed jaw, and working between parallel guide-walls, and one or more pivoted spring-actuated pawls whose lower ends engage the bolt, their upper ends projecting into proximity to the aforesaid key-slot, substantially as shown and described whereby the pawls normally lock the bolt automatically in the closed position, but are tilted and released therefrom when the key is inserted, as specified.

2. The improved hat and coat locking device, comprising a flat rigid body adapted to be secured vertically to a wall or other support, its front lower portion being formed at a forwardly-projecting hook or jaw, and its front upper portion provided with a recess or chamber having vertical guide-walls and a key-slot in its front edge, a slidable spring-pressed locking-bolt arranged between said walls and directly over the fixed jaw, and having rack-teeth on its front side, also provided with an inclined surface as specified, one or more spring-actuated pawls, pivoted in front of the bolt, and their upper ends lying between its inclined surface and the aforesaid key-slot, substantially as shown and described to operate as specified.

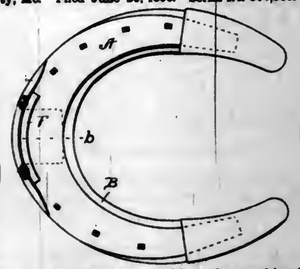
3. In a hat and coat locking device, the rigid body having the fixed lower hook, or jaw, and a recessed upper portion having a key-slot, a spring-pressed slidable bolt arranged in the recess, and having an inclined surface which is opposite said slot when the bolt is in normal position, and also one or more horizontal portions adjacent to the incline, and a key having its upper side constructed with an inclined and horizontal portion adapted to work in sliding contact and also lock with the corresponding surfaces of the bolt for raising the latter and holding it raised, all combined substantially as shown and described.

4. The combination with the rigid body portion having a fixed lower hook or jaw, a recessed, or chambered upper portion having a key-slot, as specified, a slidable spring-pressed bolt or movable jaw arranged in such recess, one or more pivoted pawls, which normally engage the bolt and project above the lower edge of the key-slot; said bolt having an inclined surface and shoulder, and the key having a corresponding inclined edge and shoulder for engaging the bolt, to raise and lock it as specified.

5. In a hat and coat locking device, the combination with the rigid body having a fixed hook or jaw and recessed or chambered upper portion provided with a key-slot, of a bolt or movable jaw adapted to slide and having two rows of rack-teeth which alternate in position as specified and two pivoted pawls whose upper ends are separated so that one is acted on by the key in advance of the other, and they are never in engagement simultaneously with the rack-teeth, substantially as shown and described.

6. In a hat and coat locking device, the combination with the rigid body having a fixed hook or jaw and a recess or chamber provided with key, guides, one or more pawls and a locking rack-bolt which is slidable in the chamber and constitute, the movable jaw, of a key which having its upper and lower edges conformed to the aforesaid key-guides and surfaces on the bolt substantially as shown and described for the purpose specified.

592,277. HORSESHOE-CUSHION. ROBERT H. CARSWELL, Kansas City, Mo. Filed June 29, 1896. Serial No. 597,369. (No model.)



Claim.—1. In a horseshoe-cushion, the combination with the body of the cushion having recesses or pockets adapted to receive the heels of the horseshoe, of means for securing the cushion to the toe of the horseshoe, substantially as described.

2. In a horseshoe-cushion, the combination with the body of the cushion having pockets or recesses adapted to receive the heels of the horseshoe, and a flap at its forward end, of means for securing the said flap to the toe of the horseshoe, substantially as described.

3. In a horseshoe-cushion, the combination with a horseshoe having a projection upwardly extending from the toe, of a covering for the bottom of the shoe having pockets or recesses for the reception of the heels of the horseshoe, said covering being provided with a flap, and means for securing the flap to the horseshoe, substantially as described.

4. In a cushion for a horseshoe, the combination with a covering for the bottom of the horseshoe, of the shoe, means for securing the said covering to the heels of the horseshoe, and a clamping device for securing the said covering to the toe of the shoe, substantially as described.

5. As an article of manufacture, a cover for the bottom of the horseshoe composed of yielding material, and having pockets for the reception of the heels of the shoe, and a flap of yielding material for engaging the forward part of the hoof for the purpose of securing the covering to the shoe, substantially as described.

6. As an article of manufacture, a cover for the bottom of the horseshoe composed of yielding material and having pockets for the reception of the heels of the shoe, and a flap at its forward end having embedded therein a metallic plate, substantially as described.

592,278. HAMMER. EDWARD C. CLARK, Lebanon Springs, N. Y., assignor to Augusta C. Clark, same place. Filed Mar. 6, 1897. Serial No. 626,237. (No model.)



Claim.—1. In a hammer, the combination with the claw members thereof provided with grooves or openings therein, of a friction-bar adapted to be passed through said grooves or openings and connect between the two claw members, substantially as described.

2. A hammer provided with a claw comprising two members each having coincident openings or grooves, and a friction-bar adapted to be inserted through said openings or grooves and project across the space between the claw members, substantially as described.

3. A hammer comprising a hammer-head having a handle-receiving socket and two claw members having an opening between them, the said two claw members being provided with a series of coincident grooves or openings, and a friction-bar adapted to be inserted through said grooves or openings so as to project across the space between the two claw members, substantially as and for the purpose described.

4. A nail or spike drawing device provided with claw members having grooves or notches, and a removable friction-bar adapted to be inserted in said grooves or notches and project across the space between the claws, substantially as and for the purpose described.

592,279. VALVE. ORLANDO F. COSHER, Boston, Mass. Filed May 14, 1897. Serial No. 636,541. (No model.)



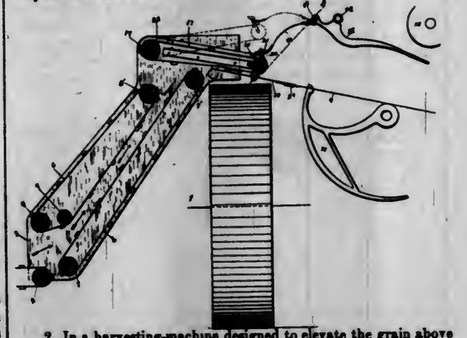
Claim.—1. In a valve, a body portion having passages extending therethrough, a stem, a washer-gate carried by said stem and provided with a passage having a contracted end portion, passages extending around the opening through which the stem passes and a recess communicating with said passages, and a cap extending from said washer-gate, substantially as described.

2. In a valve, a body portion having a central passage adapted to receive a valve-stem, extended end portions provided with valve-openings, a stem held to rotate within said central opening, a washer-gate having passages therein adapted to be rotated by said stem, a cap held upon the body portion of said valve and adapted to retain the washer-gate in position, a cap extending over the upper portion of said stem having a recess therein, a spring held within said recess normally urging said stem outward, and a locking device adapted to hold said valve in closed position, substantially as described

3. In a valve, a washer-gate having a central opening adapted to receive a valve-stem and provided with an entrance-passage having a contracted end, passages extending from said entrance-passage around each side of the central opening, and an egress-passage with which said side passage communicates, substantially as described.

592,280. HARVESTER-ELEVATOR. HENRY F. CRANDALL, Milwaukee, Wis., assignor to the Milwaukee Harvester Company, same place. Filed Nov. 23, 1896. Serial No. 613,118. (No model.)

Claim.—1. In a harvesting-machine, the combination with the elevator and binder, of a vertically-swinging auxiliary carrier, pivotally connected at its grainward end with the elevator-frame and extending therefrom transversely over the upper end of the elevator, and a deflector-sheet pivotally connected with the frame portion of the binder and with the vertically-movable delivery end of the auxiliary carrier, substantially as shown and specified.



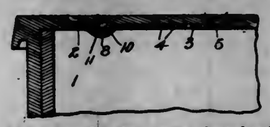
2. In a harvesting-machine designed to elevate the grain above the drive-wheel, and convey it to a binder located upon the stubbleward side of the drive-wheel, the combination of the platform-carrier, the elevator-carriers, the supplemental, overhanging, vertically-swinging, conducting-carrier, having pivotal connection at its receiving end, with the elevator-frame at a point above, and grainward of, the upper roller of the lower elevator-apron and moving in a transverse plane across the delivery end of the elevator-carriers, substantially as described.

3. In a harvesting-machine, the combination of the platform-carrier, the drive-wheel, the binder-deck, the elevator-carriers, the supplemental, swinging conducting-carrier, having its frame pivotally connected with the elevator-frame at a point above, and grainward of the upper roller of the lower elevator-apron, and moving in a transverse plane across the delivery end of the elevator-carriers, of the deflector-sheet pivotally connected with the stubbleward side of the supplemental carrier-frame, of the breast-plate and the pivotal sliding connection between the breast-plate and the stubbleward side of the deflector-sheet, substantially as shown and described.

4. In a harvesting-machine, the combination of the platform-carrier, the elevator-carriers, the drive-wheel, the fixed binder-deck, the supplemental, floating, conducting-carrier frame, pivotally connected with the elevator-frame, its receiving and discharge rollers, its carrier-apron, its swivel journal-bearings at the ends of the discharge-roller, its deflector-sheet, its link connection with said deflector-sheet, and the sliding binder-deck, substantially as and for the purpose specified.

5. In a harvesting-machine, the combination of the platform-carrier, the elevator-carriers, the drive-wheel, the fixed binder-deck, the supplemental, swinging conducting-carrier frame, pivotally connected above the upper rollers of the elevator-carriers, and extending transversely across the delivery end of said carriers, stubbleward over the binder-deck to the binding mechanism, its receiving and discharge rollers, its carrier-apron, and a means for allowing the discharge-roller to have an oscillatory or vibrating movement, conjunctively with its vertically-swinging movement, in relation to the deck of the receiving-roller, substantially as shown and described.

592,281. SAFETY-PLATE FOR STOVES. FRANCIS H. A. DEVLIN, Mauch Chunk, Pa., assignor of one-half to John Leisenring, Upper Lehigh, Pa. Filed Mar. 25, 1897. Serial No. 629,264. (No model.)

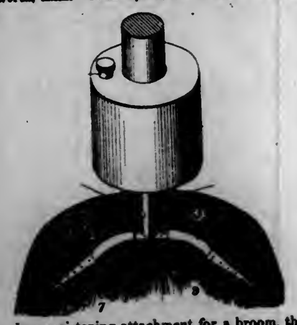


Claim.—1. A safety-plate for a stove adapted to be removably fitted in the ordinary circular stove-lid opening, and having a depressed central portion provided with a series of perforations to admit air to the top of the fire, said depressed portion being of such form and dimensions that an ordinary stove-lid may be removably seated therein, and when in position in the depressed portion will close the perforations against the passage of air to the fire, substantially as and for the purpose described.

2. The combination with a stove-top provided with a circular opening having a rabbet or recess around its edge, of a perforated plate adapted to fit loosely in said opening and having an upwardly and outwardly projecting annular flange adapted to be seated in the recess around said opening to be flush with the top of the stove, said

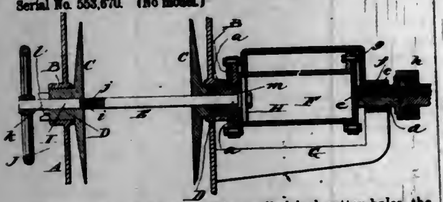
flange having a rabbet or recess around its inner periphery, and a stove-lid adapted to fit within the flange of the perforated plate and be loosely supported on the perforated portion of the latter, said stove-lid having an annular flange to fit in the recess or rabbet in the flange of the perforated plate to be flush with the stove-top, the stove-lid being separately removable and the perforated plate and the stove-lid being removable together, substantially as described.

592,282. **SELF-SPRINKLING BROOM.** EDWARD DUNDON, Fort Leavenworth, Kans. Filed Apr. 2, 1897. Serial No. 630,373. (No model.)



Claim.—In a moistening attachment for a broom, the combination of an annular reservoir having a lower outflow-pipe, a cross-pipe attached to said outflow-pipe, elongated pointed nozzles having openings in one side thereof, and flexible pipes connecting the said nozzles to the ends of the cross-pipe, substantially as and for the purposes specified.

592,283. **CORE AND CORE-OPERATING MECHANISM FOR COTTON-PRESSES.** FRANK I. DYER, Washington, D. C., assignor to the American Cotton Company, New York, N. Y. Filed June 20, 1895. Serial No. 553,670. (No model.)



Claim.—1. In a press for making cylindrical cotton-bales, the combination with end flanges, of a core mounted betwen said end flanges, a separate shaft in one of said end flanges, there being a detachable connection between said shaft and the end of the core, and a key for said shaft, substantially as set forth.

2. In a press for making cylindrical cotton-bales, the combination with end flanges, of a core mounted between said end flanges, a separate shaft in one of said end flanges, there being a screw-threaded connection between said shaft and the end of the core, and a key for said shaft, substantially as set forth.

3. In a press for making cylindrical cotton-bales, the combination with end flanges, of a core mounted between said end flanges, a separate shaft in one of said end flanges, there being a screw-threaded connection between said shaft and the end of the core, a key for said shaft, and a hand-wheel on said shaft for operating the same, substantially as set forth.

4. In a press for making cylindrical cotton-bales, the combination with end flanges formed with bearing-sleeves thereon, of a core mounted between said end flanges, a separate shaft mounted in one of said bearing-sleeves, there being a screw-threaded connection between said shaft and the end of the core, and a key for said shaft engaging against the outer end of said bearing-sleeves, substantially as set forth.

5. In a press for making cylindrical cotton-bales, the combination of a core on which the bale is formed, a cylinder carried by the press, and a piston within said cylinder and to which the core is permanently attached, substantially as set forth.

6. In a press for making cylindrical cotton-bales, the combination of a revoluble core on which the bale is formed, a cylinder carried by the press and revolving with the core, and a piston within said cylinder, and to which the core is permanently attached, substantially as set forth.

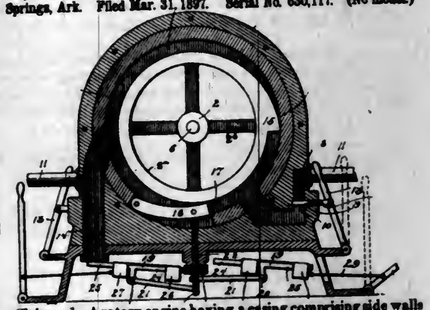
7. In a press for making cylindrical cotton bales, the combination of an end flange against which the bale is formed, a cylinder mounted upon and rotating with the same, a piston in said cylinder, and a core extending through said end flange and connected with said piston, substantially as set forth.

8. In a press for making cylindrical cotton-bales, the combination of the frame of the machine formed with a bearing B therein, a sleeve D mounted in said bearing, there being an end flange C at one end of said sleeve, a cylinder F mounted on the other end of said sleeve, a piston H in said cylinder, and a core E mounted in said sleeve and connected to said piston H, substantially as set forth.

9. In a press for making cylindrical cotton-bales, the combination of the frame of the machine formed with a bearing B therein, a sleeve D mounted in said bearing, there being an end flange C at one end of said sleeve, a cylinder F mounted on the other end of said sleeve, a piston H in said cylinder, a core E mounted in said sleeve and connected to said piston H, and a bracket-arm G carried by the main frame and supporting the outer end of the cylinder, substantially as set forth.

10. In a press for making cylindrical cotton-bales, the combination of two end flanges, a core mounted between the same, means for detachably securing one end of the core, and a steam-cylinder and piston connected with the other end of the core for withdrawing the same from the bale, substantially as set forth.

592,284. **ROTARY ENGINE.** SILVESTER R. FERGUSON, Eureka Springs, Ark. Filed Mar. 31, 1897. Serial No. 630,117. (No model.)



Claim.—1. A rotary engine having a casing comprising side walls and an annular outer wall, having a continuous groove in its inner surface, a concentric piston having a rim forming the inner of the concentric walls of the casing, and provided with a peripheral web projecting radially from the outer surface of its rim, and peripherally seated in said groove in the outer wall of the casing, to divide the interior of the casing into coaxial non-communicating cylinders, moving abutments carried by said web respectively at its opposite sides, to operate in said cylinders, the abutment in one cylinder being reversed in position to that in the other cylinder, relatively-reversed fixed abutments disposed respectively in the cylinders and yieldingly held in their operative positions in the paths of the moving abutments, means for securing either fixed abutment in a retracted position, out of the path of the coöperating moving abutments, and valve mechanism for controlling the admission of motive agent, whereby the same may be applied to either of said cylinders, substantially as specified.

2. A rotary engine having a casing, a concentric piston provided with a moving abutment having a cam-face, a fixed abutment arranged in the path of the moving abutment and capable of radial movement into and out of the path of said moving abutment, and means for yieldingly holding the fixed abutment in its operative position, said means including a rocker operatively connected with the fixed abutment and having adjustable opposing counterpoises adapted to hold the abutment either extended or retracted, substantially as specified.

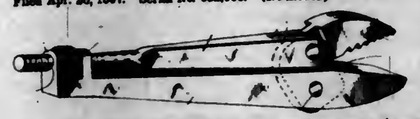
3. In a rotary engine, the combination with a cylinder, a concentric piston having a moving abutment, and a fixed abutment mounted in the cylinder for movement into and out of the path of the moving abutment, of a rocker operatively connected to said fixed abutment and having oppositely-extended guides, and connected weights mounted respectively upon said guides and adapted to be arranged at relatively different distances from the fulcrum of the rocker to vary the position of the fixed abutment, substantially as specified.

4. In a rotary engine, the combination with a cylinder, a piston having a moving abutment, and a pivotal fixed abutment, of a rocker having an adjustable actuating-weight, a stem connecting the fixed abutment with an arm of said rocker, and means for securing the fixed abutment in its depressed position, substantially as specified.

5. In a rotary engine, the combination with a cylinder, a piston having a moving abutment, and a fixed abutment mounted for movement into and out of the path of the moving abutment, of a rocker having oppositely-extended guides, connections between the fixed abutment and the rocker, connected weights mounted respectively upon the guides of the rocker, and means, as a hand-lever, for simultaneously shifting the weights to vary their positions with relation to the fulcrum of the rocker, substantially as specified.

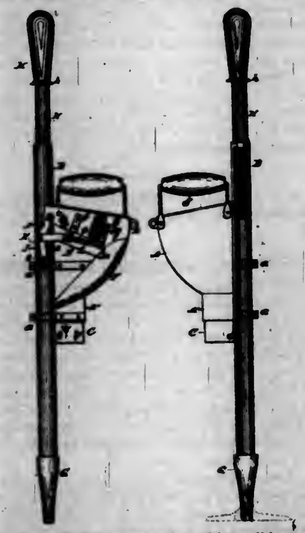
6. In a rotary engine, the combination with a cylinder, a piston having a moving abutment, and a fixed abutment adapted to be extended to normally occupy a position in operative relation with the piston, and mounted for retraction or folding by gravity, of actuating means, operatively connected with a stem of the fixed abutment, for holding the fixed abutment yieldingly extended in opposition to gravity, and devices operatively connected with said actuating means, for relieving the stem of the abutment of the pressure thereof, whereby said abutment is allowed to fold by gravity, substantially as specified.

592,285. **WRENCH.** JOHN P. FORSBERG, Thief River Falls, Minn. Filed Apr. 30, 1897. Serial No. 632,906. (No model.)



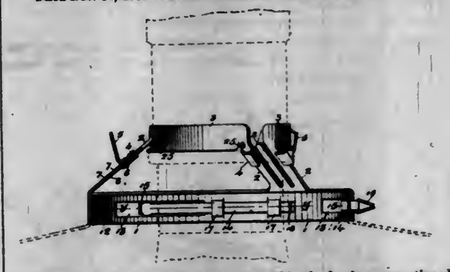
Claim.—A wrench comprising a bar constituting a stationary jaw and a part of the handle, provided with a laterally-extending slot or opening therein and having a pair of laterally-extending parallel lugs at its extreme rear end which are formed with alined openings, a movable jaw having a contracted laterally-projecting arm or extension thereon which fits within said slot and is pivoted to the bar in which said slot is formed, an operating rod or bar for said movable jaw having bifurcated forward ends between which the contracted portion of said movable jaw fits and to which said movable jaw is pivoted, and having a screw-threaded rear end which projects through the alined openings in said lugs, and a nut fitting between said lugs formed with a central threaded aperture within which the rear end of said operating-bar fits, the said operating rod or bar serving as a part of the handle of said wrench, substantially as and for the purpose described.

592,286. **HAND NAILING IMPLEMENT.** JAMES W. GRANDLE, near Marion, Iowa. Filed Dec. 9, 1896. Serial No. 615,043. (No model.)



Claim.—In a nailer, the combination with a nail-hopper and feed-slide, substantially as described, of a tubular stock, a collar playing up an down therein, and connecting with the feed-slide, a collar connecting with mechanism adapted to separate a single nail from a row thereof, a spring between said collars, and a plunger adapted to move them alternately a limited distance in the stock, as described.

592,287. **SHADE-HOLDER.** MORRIS D. GREENGARD, St. Louis, Mo. Filed Nov. 12, 1896. Serial No. 611,878. (No model.)



Claim.—1. In a shade-holder, a suitable shade-ring, a sectional clamping-band forming a part thereof, a series of pairs of webs connecting the sections of the clamping-band to the shade-ring, a tongue carried by the shade-ring and interposed between the members of each pair of webs, a slide for each pair of webs, the said tongue being adapted to retain the slide in any adjusted position on the webs, substantially as set forth.

2. In a shade-holder, a suitable shade-ring, a sectional clamping-band forming a part thereof, a series of pairs of webs connecting the sections of the clamping-band to the shade-ring, a tongue carried by the shade-ring and interposed between the members of each pair of webs, a series of depressions formed along the surface of said tongue, a slide adapted to vary the relative distance of the free ends of the members of each pair of webs, and a knob or projection forming a part of the slide and adapted to coöperate at all times with the depressions of the tongue, substantially as set forth.

3. In a shade-holder, a suitable shade-ring, a sectional clamping-band forming a part thereof, a series of pairs of webs inclined to the plane of the circle of the ring connecting the sections of the clamping-band to the shade-ring, a slide mounted on each pair of webs for drawing their free ends together upon movement of said slide in one direction, and allowing said members to assume their normal position when shifted in the opposite direction, a wing forming a part of each slide, and a cam-ring having a series of cam-slots engaging the wings whereby the slides can be operated simultaneously in one direction or the other by the proper rotation of the said cam-ring, substantially as set forth.

4. In a shade-holder, a suitable shade-ring having a series of cut-away portions, a series of shade-retaining arms adapted to slide about the periphery of the ring for a portion of their length along the inner surface of the shade-ring, suitable guide-loops cut from the ring in which the said arms are guided, a terminal inner finger forming a part of each arm by which the movement of the same is limited in one direction, a portion of the arm projecting outwardly through the cut-away portion of the ring, a gripping end forming a part of each arm, said end being adapted to recede from the center of the shade-ring upon the shifting of the arm outwardly, and to approach the center when moved inwardly, thereby enabling the gripping ends of the arms to seize the shade introduced into the shade-ring, substantially as set forth.

5. In a shade-holder, a suitable shade-ring, a clamping-band forming a part of the same, a series of webs connecting said band to the ring, a series of lips formed in the webs near their juncture with the shade-ring, whereby the upper rim of the shade is properly centered when introduced into the ring, substantially as set forth.

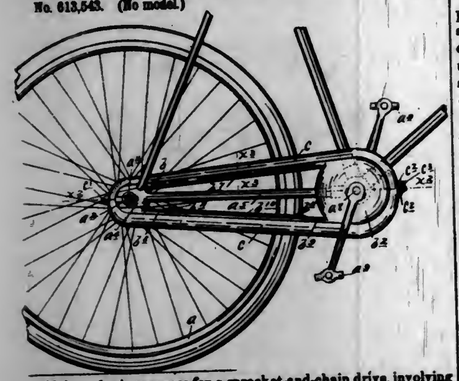
6. In a shade-holder, a suitable shade-ring, a series of pairs of webs projecting therefrom, a series of clamping-band sections connecting the members of one pair of webs with the members of the succeeding pairs of webs, and suitable lips formed in the several webs for centering the shade introduced into the shade-ring, substantially as set forth.

7. In a shade-holder, a suitable shade-ring, a series of cut-away portions formed along the same, a series of shade-retaining arms movable about the periphery of the ring and having inner extensions guided along the inner surface of the ring, and outer portions projecting through the said cut-away portions, a series of depressions formed along the surfaces of the outer projecting portions of the arms, and a knot or projection formed along the inner surface of the ring adjacent to the cut-away portion for coöperating with the depressions formed along the sliding arms, thus retaining them in position when once adjusted, substantially as set forth.

8. In a shade-holder, a suitable shade-ring, a series of pairs of webs carried by the same, band-sections connecting the member of one pair of webs with the nearest member of the next succeeding pair, a controlling-slide for each pair of webs, and a notch formed between each band-section and web to a suitable depth for permitting

the shifting of the slide to a maximum distance toward the medial line of each band-section, substantially as set forth.

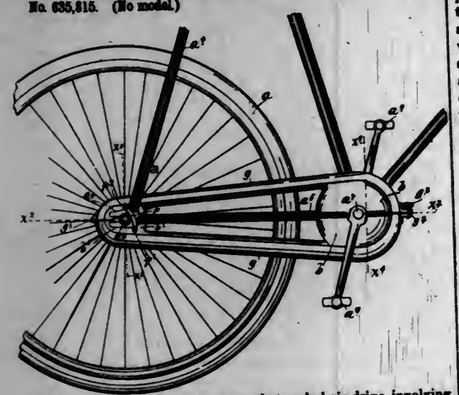
592,288. GEAR-CASE FOR SPROCKET-AND-CHAIN DRIVES. CHARLES B. HOLMES, Minneapolis, Minn. Filed Nov. 27, 1896. Serial No. 613,543. (No model.)



Claim.—1. A gear-case for a sprocket-and-chain drive, involving hood-sections with pronged disk-like sides that substantially cover the sides of the sprocket-wheels, channel-shaped inside case-sections, extending between said hoods, and a channel-shaped marginal cover for said hoods and inside case-sections, formed by two hinged sections that are detachably securable at their free ends, substantially as described.

2. A gear-case for a sprocket-and-chain drive, involving the hood *b* with slots *b'*, the hood-section b^3 with removable side b^3, the inside case-section b^7 uniting said hood-sections *b* and b^3, the stub-sections b^8 b^9, respectively, on said hood-sections *b* and b^3, the removable inside case-section b^{10} and the outside marginal case-sections embracing and closing the outer open margins of said aforenamed case-sections, substantially as described.

592,289. GEAR-CASE FOR SPROCKET-AND-CHAIN DRIVES. CHARLES B. HOLMES, Minneapolis, Minn. Filed May 10, 1897. Serial No. 635,815. (No model.)



Claim.—1. A gear-case for a sprocket-and-chain drive, involving pronged and sectioned or two-part hoods, at least one of which hoods is divided or split on the line of a plane cutting its axial center in the general direction of the length of the gear-case, channel-shaped inside case-sections uniting the sections of the different hoods, and a channel-shaped marginal cover for said hoods and inside case-sections, adapted to embrace and clamp said parts together, substantially as described.

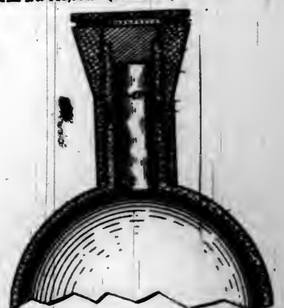
2. A gear-case for a sprocket-and-chain drive, involving pronged hoods which are split or divided on the line of a plane cutting the axes of both of said hoods, or substantially cutting the same, channel-shaped inside case-sections uniting the sections of the different hoods, and a channel-shaped marginal cover for said hoods and inside case-sections, adapted to embrace and clamp said parts together, substantially as described.

3. A gear-case for a sprocket-and-chain drive, involving the supplemental hood-sections *b b*, provided with the half-seats b^5, the supplemental hood-sections *b' b'* with elongated half-seats b^6, the inside case-sections b^3 uniting said hood-sections *b* and *b'* in pairs, and the two-part marginal cover *g* hinged at *g'* and securable together at their free ends, said parts cooperating substantially as described.

4. A gear-case for a sprocket-and-chain drive, involving the supplemental hood-sections *b b*, with half-seats b^5 and half-collars b^5, the supplemental hood-sections *b'* with elongated half-seats b^6, the inside case-sections b^3 uniting said hood-sections *b* and *b'* in pairs, an outside marginal cover for said hoods and inside case-sections, and a ring-like split clamp adapted to embrace said half-collars b^5, substantially as described.

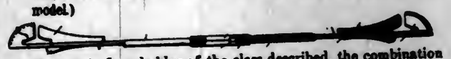
5. A gear-case for a sprocket-and-chain drive, involving pronged and sectioned or two-part hoods, at least one of which hoods is divided or split on the line of a plane cutting its axial center in the general direction of the length of the gear-case, channel-shaped inside case-sections uniting the sections of different hoods, a channel-shaped marginal cover for said hoods and inside case-sections, the said axially-split hood having elongated half-seats and keepers b^5, and the overlapped slot-closing plates *k* working between said keepers b^5 and provided with the reversely-extending slots *k'*, substantially as and for the purposes set forth.

592,290. BOTTLE. PLATT L. HUNT, Nichols, N. Y. Filed Dec. 11, 1896. Serial No. 615,302. (No model.)



Claim.—In an antirefilling bottle, the combination with a bottle proper having a screw-threaded neck with an annular groove formed therein, of a cap adapted to fit over said neck and having a filling-aperture and weakening-groove at its upper end formed in its bottom with weakening-passages, screw-threads formed upon the interior of said cap and adapted to engage the screw-threads of the neck, and a stopper adapted to be held in the upper end of the neck by said cap; the construction being such that after the cap is applied in position the same may be locked in place by a suitable filling of cement injected into the annular groove of the neck through the filling-aperture, substantially as described.

592,291. RAIL-HOLDER. JARED I. IRWIN and ANDREW J. IRWIN, Sandersville, Ga. Filed Oct. 22, 1896. Serial No. 609,757. (No model.)



Claim.—1. In a holder of the class described, the combination with a series of clamp-sections, of a series of locking-blocks adapted to be applied to said sections, and springs for locking the blocks in their applied positions upon the sections, substantially as described.

2. In a holder of the class described, the combination with a series of clamp-sections each of which is provided with a clamping-lug adapted to engage the sides of the track-rails, of a series of removable locking-blocks adapted to be applied to the sections, springs for locking the blocks in their applied positions upon the sections, and means for adjusting the sections toward and away from each other, substantially as described.

3. In a holder of the class described, the combination with a series of clamp-sections, of a series of locking-blocks adapted to be applied to said sections, springs carried by said blocks and adapted to engage the sections to retain the blocks in their proper applied positions thereon, and means for adjusting the sections toward and away from each other, substantially as described.

4. In a holder of the class described, the combination with a series of clamp-sections each of which is provided with an elongated slot, of a series of removable locking-blocks adapted to be inserted in said slots to apply the same to the clamp-sections, springs carried by the blocks for locking the same in their proper applied positions, and means for adjusting the sections toward and away from each other, substantially as described.

5. In a holder of the class described, the combination with a series of clamp-sections each of which is provided with an elongated slot, of a series of removable locking-blocks adapted to be inserted in said slots to apply the same to the clamp-sections, springs carried by the blocks for locking the same in their proper applied positions, and means for adjusting the sections toward and away from each other, substantially as described.

6. In a holder of the class described, the combination with a series of clamp-sections each of which is provided with a clamping-lug and an elongated slot spaced therefrom, of a series of locking-blocks adapted to be inserted in said slots, springs carried by said blocks for retaining the same in their proper applied positions, and means for adjusting the sections toward and away from each other, substantially as described.

7. In a holder of the class described, the combination with a series of clamp-sections each of which is provided with a clamping-lug and an elongated slot spaced therefrom, said lug being provided with a shoulder adapted to lie against the web of the rails, of a series of removable locking-blocks adapted to be inserted in said slots, springs carried by said blocks for locking the same within the slots, and means for adjusting the sections toward and away from each other, substantially as described.

8. In a holder of the class described, the combination with a series of clamp-sections each of which is provided with a clamping-lug and an elongated slot spaced therefrom, of a series of locking-blocks adapted to be inserted in said slots, said blocks being provided with locking-shoulders adapted to lie beneath the clamp-sections when said blocks are inserted within the elongated slots, springs carried by the blocks for locking the latter within the slots, and means for adjusting the sections toward and away from each other, substantially as described.

9. In a holder of the class described, the combination with a series of clamp-sections each of which is provided with a clamping-lug having a locking-shoulder, and an elongated slot spaced from said lug, of a series of locking-blocks adapted to be inserted in said slots, each of said blocks having a locking-shoulder adapted to lie beneath and engage the under surface of the clamp-sections when the blocks are inserted in said slots, springs carried by said blocks and adapted to lock the latter within the elongated slots, the ends of said slots farthest from the clamping-lugs being beveled, whereby said springs are adapted to be seated thereon and lock the blocks within the elongated slots, and means for adjusting the sections toward and away from each other, substantially as described.

592,292. HALTER. ORVILLE G. JOHNSON, Omaha, Nebr. Filed Oct. 10, 1896. Serial No. 608,531. (No model.)

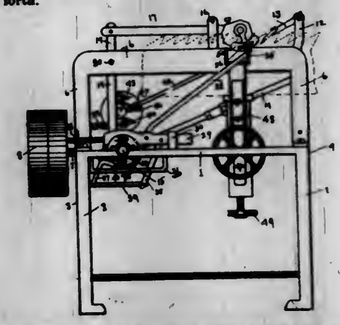


Claim.—A one-piece fiber-strand halter comprising a nose-loop, a cheek-section extending from said nose-loop and recurving through a suitable hooked eye to form a half-section of the throat-latch, then extending through an adjustable retaining device, thence continuing through said nose-loop, thence recurving and repassing through said adjustable retaining device, then diverging to form the remaining lower half-section of the throat-latch, thence passing through a second retaining device, thence extending and recurving to form a crown-loop, thence again passing through said second retaining device and continuing to the end, finally being secured to said nose-loop to form the remaining cheek-section, the hook of said hooked eye being adapted to removably engage the termination of said crown-loop.

592,293. SAW-SWAGING MACHINE. RICHARD JOHNS, Bay City, Mich. Filed Mar. 26, 1897. Serial No. 629,298. (No model.)

Claim.—1. In a saw-swaging machine, the combination of the frame carrying a feed-finger mechanism and devices for supporting the saw, a swage-block adjustably mounted on said frame and carrying an oscillating swaging-die and devices for clamping the saw-tooth, with devices, as a cam for moving said swage-block forwardly, and a spring for moving said swage-block rearwardly for placing the swaging-die upon the tooth, substantially as set forth.

2. The combination in a saw-swaging machine carrying devices for holding the saw and a feed-finger for moving the saw rearwardly, a swage-block provided with an oscillating swaging-die and with saw-clamping devices, with a support for carrying the said swage-block and capable of a to-and-fro movement lengthwise of the saw, a cam for actuating said support forwardly for moving the swage-block over the saw-tooth, and a spring for actuating the support rearwardly for placing the swaging-die upon the tooth, substantially as set forth.



3. The combination in a saw-swaging machine of the frame provided with devices for supporting the saw, a feed-finger for moving the saw rearwardly, a support mounted for sliding on said frame and carrying a swage-block having an oscillating swaging-die and a clamp for holding the saw-tooth, a cam for sliding said support to pass the swage-block forwardly over the saw-tooth, and a spring for sliding said support rearwardly for placing said swaging-die upon the saw-tooth, substantially as set forth.

4. In a saw-swaging machine the combination of the frame-carrying devices for supporting the saw and a finger-feed mechanism for moving the saw rearwardly, with a horizontal bar mounted for sliding on said frame and carrying on its forward end a swage-block having an oscillating swaging-die and clamping devices for holding the saw-tooth, a cam for actuating said bar forwardly to move said swage-block over the tooth, and a spring for moving said bar rearwardly for placing said swaging-die upon the saw-tooth, substantially as set forth.

5. In a saw-swaging machine, the combination with the frame provided with supports for carrying the saw and devices for feeding the saw, with a horizontal bar mounted on guides secured to said frame, and carrying on one end a block having an oscillating swaging-die, and provided with devices for clamping the saw-tooth, a vertical lever pivoted by one end to the opposite end of said bar and with its opposite end pivoted to said frame, a cam for operating said lever to move the bar in one direction, and a spring for operating said lever to move said bar in the opposite direction, and means for operating the clamping devices and for oscillating the swaging-die, substantially as set forth.

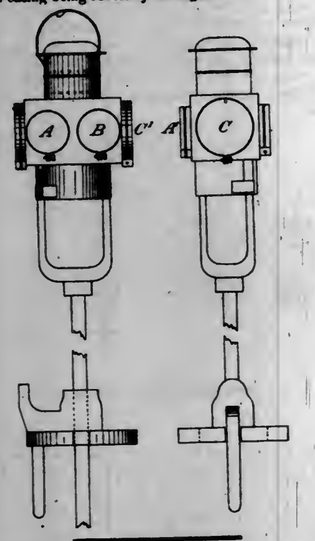
6. In a saw-swaging machine the combination of the frame provided with supports for carrying the saw, and with devices for feeding the saw, a block having an oscillating swaging-die and devices for oscillating said die, a clamping-bolt 27, having on its outer end an operating-lever 28, with a connecting-rod 45, having one end pivoted to the end of said lever 28, and with its opposite end provided with a slot 46, a counter-shaft mounted upon said frame and carrying a disk 44, and a bolt 47, passed through said slot 46, and tapped into the disk, and means for imparting revolution to the counter-shaft, substantially as set forth.

7. In a saw-swaging machine, the combination of the frame provided with devices for supporting and for feeding the saw, a horizontal bar supported on guides on said machine-frame and carrying on its forward end a block provided with rotating devices for clamping the saw-tooth and with a swaging-die having on its outer end a lever for oscillating said die, the portion 29, mounted on said frame for moving endwise and provided with a shoulder 35, a shaft mounted upon said frame and carrying a disk 33, provided with a lug 34, for engaging with said shoulder 35, and a connecting-rod 32, having one end pivoted to said portion 29, and with its opposite end pivoted to said swaging-die lever, substantially as set forth.

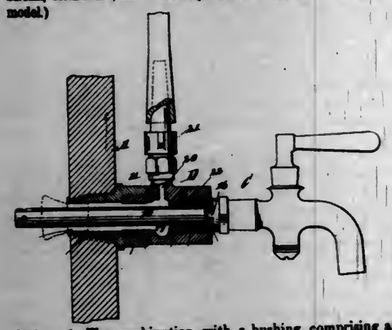
592,294. RAILROAD-SWITCH LAMP. THOMAS JOHNS and SAMUEL A. HOKE, Tacoma, Wash. Filed Apr. 23, 1897. Serial No. 633,523. (No model.)

Claim.—A railway-lamp having a plurality of lenses of different colors on two sides of the casing, the lenses of the same color being

located opposite each other, and the colors of the lenses on opposite sides of the casing being reversely arranged.



592,295. **BUNG AND FAUCET.** GEORGE C. KACHEL and HENRY SAGER, Girardville, Pa. Filed Sept. 2, 1896. Serial No. 604,659. (No model.)



Claim.—1. The combination, with a bushing, comprising an interiorly-threaded head and an exteriorly-threaded shank, of a barrel adapted to screw into the head portion of the bushing, a sleeve screwing into the outer end of the said barrel, and a faucet provided with a stem extending through the sleeve, barrel and bushing, the said sleeve and faucet being provided with means whereby they may be locked to turn together, as and for the purpose specified.

2. The combination, with a bushing provided with a head and a threaded shank, of a barrel adapted to be secured to the head portion of the bushing, a sleeve adapted to enter the outer end of the said barrel, a faucet provided with a stem extending through the sleeve, barrel and bushing, an elastic washer held between the inner end of the sleeve and a support in the said barrel and adapted when compressed by screwing in the said sleeve to form a close frictional engagement with the wall of the barrel and the stem of the faucet, the said faucet and sleeve having a locking engagement with each other, as and for the purpose specified.

3. The combination, with a bushing comprising an interiorly-threaded head and an exteriorly-threaded shank, of a barrel adapted to screw into the head portion of the bushing a sleeve screwing into the outer end of the said barrel, and a faucet provided with a stem extending through the sleeve, barrel and bushing, the said faucet being provided with lugs adapted to engage slots in the outer end of the said sleeve, whereby the said faucet controls the movement of said sleeve, as and for the purpose specified.

4. A faucet provided with a stem adapted to enter a receptacle, a coupling through which said stem extends, a sleeve adapted to screw into the said coupling, a locking engagement between the said faucet and the said sleeve, and a valve-controlled pipe connected by a channel with the interior of said coupling, as and for the purpose specified.

5. A faucet provided with a stem adapted to enter a receptacle, lugs located on the exterior of the said stem, and a sleeve adapted to enter a coupling, having openings to receive the lugs on the faucet, as and for the purpose specified.

6. A faucet provided with a stem adapted to enter a receptacle, lugs located on the exterior of the said stem, a sleeve adapted to enter a coupling, having openings to receive the lugs on the faucet, and a cushion-washer against which the sleeve has bearing, the sleeve being adapted to bear against a support in the coupling into which the faucet is introduced, as and for the purpose specified.

592,296. **HOOK AND EYE.** IRENE P. KIMBALL, Owensville, Ind. Filed Feb. 13, 1897. Serial No. 623,276. (No model.)



Claim.—1. In a hook and eye, the combination with the hook, consisting of a single piece of wire, bent over and contracted at the center and then bent upwardly and backwardly, forming a lug or hook 4, the curved bends 3, in rear thereof and the arms 2, of the eye consisting of single piece of wire bent over at the center and formed with an inwardly-extending lug or tongue 9, two curved eyes or loops 10, inclined at an angle with respect to each other, the stop-bends 11, in rear thereof and the arms 12; substantially as described.

2. In a hook and eye, the combination with the hook made of a single piece of wire, bent over, or doubled at or near the center, and comprising the lug or hook 4, the bends 3, the arms 2, one of which is formed with a spring-coil 5, and a transverse pin 6, and the other formed with a lug 7, and then extended transversely across, and secured to said first-mentioned arm, of the eye made from a single piece of spring-wire doubled at the center and formed with a lug or tongue 9, the inclined eyes or loops 10, the bends 11, and the arms 12, one of which arms is formed with a spring-coil 13, and a transverse pin 14, while the other is formed with a catch or lug 15, and then extended across and secured to the other arm; substantially as described.

592,297. **STAPLE-PULLER.** WILLIS W. KRUTSCH, Coffeyville, Kans., assignor to Hono Dunklin, Little Rock, Ark. Filed Nov. 19, 1896. Serial No. 612,760. (No model.)



Claim.—A combination-tool, consisting of the handles hinged together near one of their ends, each of said handles having the forwardly-projecting jaw formed with the notches for grasping a staple, and each of said handles provided with a groove in the rear of the notches, said grooves being so formed as to present an elliptical opening in which the ends of the wire to be twisted are held, and said elliptical-shaped groove being provided with the flaring entrance at each end, substantially as shown and described.

592,298. **CAP.** WALTER A. LATTIMORE, St. Clair, Pa., assignor to the Lattimore Manufacturing Company, same place. Filed Mar. 30, 1897. Serial No. 628,493. (No model.)



Claim.—1. A cap comprising a top, a side crown consisting of a metal band and a covering therefor, and a metallic vizor having a curved flange integral therewith, said flange being riveted to said crown, and the latter being provided with spurs integral therewith to which said covering is clenched.

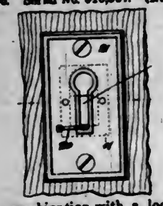
2. A cap consisting of a top, a side crown formed of a band, and a covering therefor, a vizor having a curved flange which is riveted to said crown, and a covered reinforce to which said band is adapted to be secured, said reinforce being connected with said crown and flange.

592,299. **BURNER FOR ACETYLENE GAS.** JULES LEBEAU, Chatelineau, and LEON MIENUR, Brussels, Belgium. Filed Nov. 6, 1896. Serial No. 611,278. (No model.) Patented in Belgium Mar. 25, 1896, No. 120,594, Apr. 16, 1896, No. 120,904, and Sept. 19, 1896, No. 123,584; in England May 5, 1896, No. 9,861, and in France July 19, 1896, No. 256,845.



Claim.—In combination with a block of suitable material which forms the burner for acetylene gas, outlet-conduits for the gas in that block, arranged so as to make the gas-jets meet at a determined point and air-conduits also cut out of the block parallel with the gas-conduits, substantially as described.

592,300. **KEY-GUARD.** ADDISON J. LYON, Mount Vernon, N. Y. Filed Oct. 30, 1896. Serial No. 610,567. (No model.)



Claim.—1. The combination with a lock, and its casing, of a spring-controlled stop carried by a support on one side of the keyhole and normally extending across said keyhole, said stop being movable in a plane which is at right angles to the casing to swing away from the keyhole and admit of the insertion of a key, the spring returning said stop to its normal position after the key has been inserted, as set forth.

2. In a lock, a stop hinged at one end to a support and located within the casing of the lock and extending across the keyhole of the same, a flange against which the free end of the stop has bearing, a spring normally holding the stop in engagement with the said flange, and means for carrying the stop inward against the tension of the said spring, substantially as shown and described.

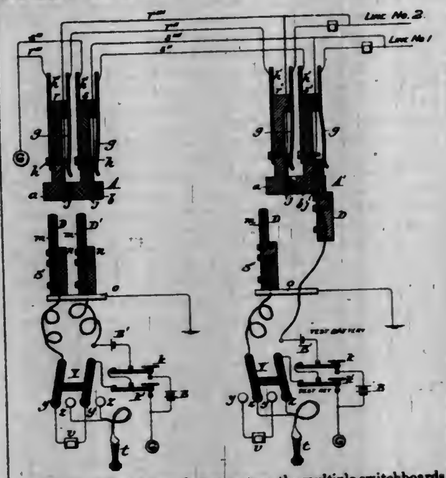
3. A key-guard consisting of a face-plate, a stop hinged in an opening in the said face-plate, spring-controlled in one direction, means for limiting the outward movement of the stop, and an arm mounted to turn in the block and adapted for carrying the stop inward against the tension of its spring, as and for the purpose specified.

4. A key-guard consisting of a face-plate having an opening therein adapted to register with the keyhole of the lock, and a spring-controlled stop hinged to the face-place within the said opening, a flange surrounding the said opening of the face-plate, and devices, substantially as described, for limiting the outward movement of the stop and carrying the said stop inward, as and for the purpose specified.

5. A key-guard, the same consisting of a face-plate having an opening therein, and a flange surrounding the said opening at one side of the face-plate, a stop having a spring-controlled hinged connection with the face-plate at a point within the opening of the same, a flange limiting the movement of the stop in one direction, and a handle extending beyond the face-plate and arranged for carrying the stop inward to permit the withdrawal of the key, as and for the purpose set forth.

592,301. **MULTIPLE SWITCHBOARD.** MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Original application filed Apr. 27, 1887, Serial No. 236,379. Divided and this application filed Nov. 12, 1890. Serial No. 371,225. (No model.)

Claim.—1. In a telephone-exchange system, the multiple switchboards of the exchange to which the same telephone-lines are connected, two of said lines temporarily connected together at either of said boards into a closed circuit for conversation, and an electric battery in the central office connected in the circuit of said lines whenever and as long as they are so connected, in combination with test receiving instruments—one at each board—each instrument being grounded on one side and connected to a switch testing device on the other side, and test-bolts or contact-pieces—one bolt on each board for each line—each bolt being connected to its line, between the subscriber's station and the separable contacts of the line on all the boards, and the testing device at each board being adapted at the will of the operator to be brought into connection with any test-bolt at its board, whereby an operator at any board may connect her test receiving instrument to the circuit of either line and determine that said line is in use for conversation.



2. In a telephone-exchange system, the multiple switchboards of the exchanges for the lines which center at the office, each board being provided with switching devices whereby the operator may connect any two subscribers' lines together into a closed circuit, an electric battery in the closed circuit of said lines whenever and as long as so connected, in combination with test bolts or pieces—one at each board for each line—each test-bolt being connected to its line, between the subscriber's station and the separable contacts of the line on all the boards, and test receiving instruments—one at each board—each instrument being grounded on one side and connected to a switch testing device on the other side, whereby the operator at any board may connect her test receiving instrument to the circuit of any line and always receive a test indication if the line is connected with the circuit of any other line.

3. In a telephone-exchange system, the multiple switchboards of the exchange for the lines which center at the office, each board being provided with switching devices whereby the operator may connect any two of said lines together into a closed circuit for conversation, said lines having normally or when they are not connected for conversation, no battery in their circuit, two of said lines temporarily connected for conversation and an electric battery in the circuit of the lines, whenever and as long as they are so connected in closed circuit, in combination with test bolts or pieces—one at each board for each line—each bolt being connected to its line whether the line is switched for conversation on any board, or not, and test receiving instruments—one at each board—each instrument being grounded on one side and connected to a switch testing device on the other side, whereby the operator at any board may determine that either of said lines is so connected.

4. In a telephone-exchange system, subscribers' lines centering at an exchange office, said lines being grounded at the subscribers' stations and normally grounded at the exchange office, and the multiple switchboards at that office—each board being provided with switching devices whereby the operator may disconnect any two lines from the ground and temporarily connect them together into a closed circuit for conversation, an electric battery in their circuit whenever and as long as they are so connected, in combination with test bolts or pieces—one at each board for each line—each bolt being connected to its line, when the lines are connected for conversation, between the subscriber's station and the separable contacts of the line on all the boards, and test receiving instruments—one at each board—each instrument being grounded on one side and connected to a switch testing device on the other side, whereby the operator at any board may determine whether or not any of the lines are switched for conversation.

5. In a telephone-exchange system, the combination of normally closed ground-circuit lines with switches at the central office—one switch for each line—and annunciators—one annunciator in each line placed in the central office and located in the circuit of the line be-

tween the switch and the subscriber's station—branch wires—one wire branching from each line between the annunciator and the subscriber's station to an insulated piece of its switch—a pair of switch-plugs and flexible cords, and a clearing-out annunciator, said clearing-out annunciator being in a circuit which connects the contact-points of the plugs and each of said plugs being adapted, when inserted into a switch, to disconnect the line which belongs to the switch from the ground and to connect the contact-point of the plug to the line through the insulated contact-piece of the switch and its branch wire, and not through the line-annunciator, whereby, by the insertion of the plugs into the switches belonging to any two lines, the lines are disconnected from the ground and are connected together through their insulated pieces and branch wires, and the clearing-out annunciator is in the circuit of the lines so connected and the line-annunciators are switched from the circuit of the lines.

6. In a telephone-exchange system, the combination of normally closed ground-circuit lines with switches at the central office—one switch for each line—annunciators—one annunciator in each line placed in the central office and located in the circuit of the line between its switch and the subscriber's station—branch wires—one wire branchiag from each line between its annunciator and the subscriber's station to an insulated piece of its switch—the switch-plug with a flexible cord attached, said plug being adapted, when inserted into a switch, to disconnect the line which belongs to the switch from the ground and to connect the contact-point of the plug to the line through the insulated contact-piece of the switch and branch wire, and not through the annunciator, whereby, by the insertion of the plug into the switch of any line, the line is disconnected from the ground and is connected, through its insulated piece and branch wire, into a circuit in which a flexible cord and its annunciator are switched from the circuit of the line.

7. In a telephone-exchange system, a pair of switch-plugs with their flexible cords normally connected together and with a test-battery in their circuit, in combination with an operator's telephone and a test-key, also in the circuit of the plugs, said key being adapted, on being depressed, to disconnect one cord from the other and from the battery, and to ground that with the operator's telephone in its circuit, substantially as and for the purpose set forth.

8. In a telephone-exchange system, two subscribers' lines, temporarily connected together for conversation with a test-battery and an operator's telephone in their circuit, in combination with a test-key in their circuit between the test-battery and the operator's telephone, said key being adapted, at the will of the operator, to open said circuit and to ground one of said lines with the operator's telephone in its circuit, substantially as and for the purpose set forth.

9. In a telephone-exchange system, a pair of switch-plugs with their flexible cords normally connected together, one of said plugs being assigned for connections with the switches of calling subscribers and the other one for connections with the switches of subscribers wanted, in combination with a test-battery, an operator's telephone and a test-key in the circuit between said plugs, said battery being in the circuit nearest said first-mentioned plug, said telephone being in the circuit nearest the other plug and said test-key having contact-points to open the circuit between said plugs and ground that part of the circuit which is connected with said last-mentioned plug, substantially as set forth.

10. In a telephone-exchange system, the combination with a pair of switch-plugs and their flexible cords of a test-battery, a test-key and a telephone included in series in the circuit between the plugs and operating substantially as set forth, and a calling-key also included in said circuit and adapted, on being depressed, to disconnect the test-battery from the calling-plug and throw in a calling-battery.

11. In a telephone-exchange system, the combination with a pair of switch-plugs and their flexible cords one of said plugs (D') being designed for the switches of calling subscribers, and the other (D) for the switches of subscribers to be called, of a telephone, test-battery, and key included in the circuit between said plugs, and a ground connection O upon which the plug D normally rests.

12. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the boards, said lines being grounded at their outer ends and having normally no battery in their circuit, in combination with switching devices, on the several boards, to temporarily connect any two of said lines together in a closed circuit for conversation, an electric battery in the circuit of the two lines whenever and as long as they are thus connected in closed circuit, test bolts or pieces, one at each board for each line, all the bolts of a line being connected to it when it is switched for conversation on any board, and test receiving instruments one at each board each instrument being grounded on one side and connected to a switch testing device on the other side, whereby the operator at any board may connect to the test-bolt of any line, and determine whether or not the line is in use.

13. In a telephone-exchange system two subscribers' lines, each normally grounded at the central office, an annunciator at the central office located in each line between the line-switches at the central office and the subscriber's station, switch devices for each line by which the lines may be disconnected from the ground and connected together for conversation, and branch wires through which the lines are connected together, said branch wires being united with the line between their calling-annunciators and the subscribers' stations, in combination with a clearing-out annunciator in the combined circuit of the two connected lines, substantially as set forth.

14. In a telephone-exchange system, two subscribers' lines, each normally grounded at the central office, an annunciator at the central office located in each line between the line-switches at the central office and the subscriber's station, and switches for each line whereby they may be disconnected from the ground at the central office and connected together for conversation, in combination with branch wires which unite with the lines between their calling-annunciator and subscriber's station, and through which the lines are connected together when switched for conversation.

15. In a telephone-exchange system, multiple switchboards, a ground-circuit line, a test-terminal for the line on each board permanently connected to the line and adapted to form contact with a contact of a switch-plug when a plug is inserted into the line-switch for switching at its board, two plugs of a pair, one of which is inserted into the switch of the line at its board and the other of which has its contact grounded, an operator's telephone and test-battery, and circuit connections to include them in circuit with each other between the contacts of the two plugs, in combination with test receiving instruments, one at each of the other boards, each grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the test-terminal of the line at its board, whereby the line tests busy when and as long as it is connected for conversation with the operator's telephone in circuit with it.

16. In a telephone-exchange, multiple switchboards, and a telephone-line permanently connected to a test-terminal on each of said boards, in combination with test-battery to one side of which said line is connected as long as switched for conversation, the other side of the battery being then connected to ground, and test receiving instruments, one at each board, each connected on one side to ground, and on the other side to a test-plug or device adapted to be brought into connection with said test-terminal at its board, substantially as set forth.

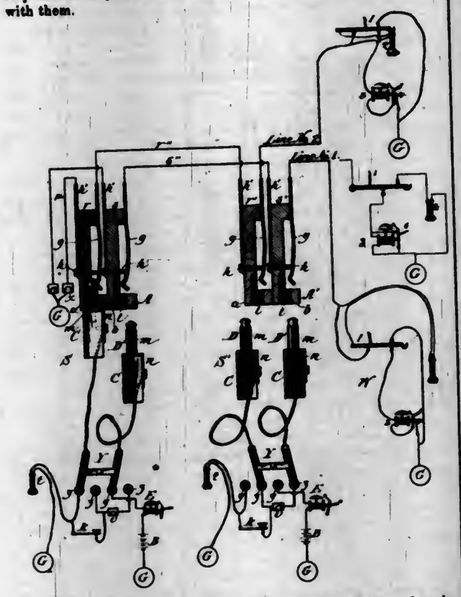
17. In a telephone-exchange, multiple switchboards, and a ground-circuit telephone-line permanently connected to a test-terminal on each of said boards, in combination with an operator's telephone switched for conversation in closed circuit with the line, a test-battery to one side of which said line is connected as long as thus switched for conversation, and test receiving instruments, one at each board, each connected on one side to the other side of said test-battery when the line is thus switched, and on the other side to a test plug or device adapted to be brought into connection with said test-terminal at its board, substantially as set forth.

18. In a telephone-exchange, multiple switchboards, and a telephone-line permanently connected to a test-terminal on each of said boards, in combination with an operator's telephone switched for conversation in closed circuit with the line, a test-battery to one side of which said line is connected as long as thus switched for conversation, the other side of the battery being then connected to ground, and test receiving instruments, one at each board, each connected on one side to ground, and on the other side to a test plug or device adapted to be brought into connection with said test-terminal at its board, substantially as set forth.

19. In a telephone-exchange, multiple switchboards, a subscriber's partly-ground talking circuit or line permanently connected to a test-terminal on each of said boards, in combination with test-battery, to one side of which said line is connected as long as switched for conversation, and test receiving instruments, one at each board, each connected on one side to the other side of said battery and on the other side to a test plug or device adapted to be brought into connection with said test-terminal at its board, substantially as set forth.

592,802. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 19, 1887. Serial No. 238,737. (No model.)

Claim.—1. In a telephone-exchange system, multiple switchboards, telephone-lines each normally grounded at the subscriber's station, and having an automatic vibrator controlled by a switch at the subscriber's station, which cuts out the contacts for said vibrator when the subscriber's-telephone apparatus is in use, in combination with switches, one for each line on each board, each switch having a spring and a contact-piece with which the spring is normally in contact, each line passing successively through such normally closed pairs of contacts of the line on the several boards, passing in each case to the spring first and from the last contact to ground, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug adapted to be placed in any switch at its board and when so placed to separate the spring from the contact-piece and form contact with the spring, and battery in any test-circuit thereby established, said test receiving instruments being so constructed in relation to each circuit-breaker and the battery that it responds to the circuit-breaker when in closed circuit with them.

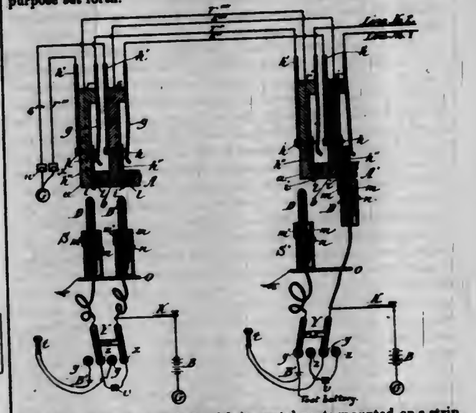


2. In a telephone-exchange system, multiple switchboards, telephone-lines each normally grounded at the subscriber's station, and having a circuit-changer controlled by a switch at the subscriber's station, which cuts out said circuit-changer when the subscriber's-telephone apparatus is in use, in combination with switches, one for each line on each board, each switch having a spring and a contact-piece with which the spring is normally in contact, each line passing successively through such normally closed pairs of contacts of the line on the several boards, passing in each case to the spring first, and from the last contact to ground, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug adapted to be placed in any switch at its board and when so placed to separate the spring from the contact-piece and form contact with the spring, and battery in any test-circuit thereby established, said test receiving instruments being so constructed in relation to each circuit-changer and the battery that it responds to the circuit-changer when in closed circuit with them.

3. In a telephone-exchange system, the combination of multiple switchboards, lines grounded at the subscribers' stations, normally grounded at the central office, and having automatic vibrators controlled by switches at the subscribers' stations, which cut out the contacts for said vibrators when their telephone apparatus is in use, with a test-circuit for each board at the central office, grounded on one side and having included in it, a test receiving instrument, switching apparatus having circuit connections whereby the operator may, in one operation or motion, both disconnect any of said lines from its office ground and connect it to said test-circuit, and signal-battery in said test-circuit, substantially as set forth.

592,803. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 19, 1887. Serial No. 238,738. (No model.)

Claim.—1. The combination, with a strip of insulating material having a plug-hole through it, transverse to its front, of the metal parts of a spring-jack switch mounted thereon, said parts containing a spring-lever placed transverse to the front of said strip and in rear of the plug-hole, and two contact-pieces, normally insulated from each other, said contact-pieces being mounted with their contact-surfaces in the same plane, and on the face of said plug-hole and one of said contact-pieces being normally (or when a plug is not in said hole) in contact with said said spring, substantially as and for the purpose set forth.



2. A spring-jack switch with its metal parts mounted on a strip of insulating material, said strip having a plug-hole through it, transverse to its front, and said metal parts consisting of a spring-lever mounted in the rear of said plug-hole, and transverse to the front of said strip, and two contact-pieces normally insulated from each other, both pieces being mounted with their contact-surfaces in the same plane and on the face of said plug-hole and one of said contact-pieces being normally (or when a plug is not in said hole) in contact with said said spring, in combination with a switch-plug with two contact-surfaces, insulated from each other, and one of which is connected with a switch-cord, said plug being adapted to be inserted into said hole, and when inserted to disconnect said spring from said normal contact with one of said contact-pieces, and connect said spring with said switch-cord, and at the same time electrically connect together said two contact-pieces, and insulate them from said lever and switch-cord, substantially as and for the purpose set forth.

3. A spring-jack switch with its metal parts mounted on a strip of insulating material, said strip having a rectilinear plug-hole through it, transverse to its front, and said metal parts consisting of a spring-lever mounted in the rear of said plug-hole, and transverse to the front of said strip, and the two contact-pieces normally insulated from each other, both pieces being mounted with their contact-surfaces in the same plane, and on one of the faces of said rectilinear plug-hole, and one of said contact-pieces being normally (or when a plug is not in said hole) in contact with said spring, in combination with a switch-plug adapted to fit said plug-hole, and having two contact-pieces insulated from each other, and to one of which is connected a switch-cord, said plug on its insertion disconnecting said spring-lever from said normal contact with one of said contact-pieces, and connecting it with said switch-cord, and at the same time electrically connecting together said two contact-pieces and insulating them from said lever and switch-cord, substantially as and for the purpose set forth.

4. In a spring-jack switch, the contact-pieces A and i mounted along the face of the switch-hole, and with contact-surfaces in the same plane, in combination with the spring-lever *g*, substantially as and for the purpose set forth.

5. In a spring-jack-switch device, the contact-pieces A and i, mounted along the face of the switch-hole, and with contact-surfaces in the same plane, and the spring-lever *g*, in combination with the switch-plug, with contact-pieces *m* and *m'*, substantially as and for the purpose set forth.

6. In a spring-jack switch, the combination of a contact point or piece having a metal surface in line with a face of the switch-hole and extending toward the front of and along said hole, a spring contact-lever in the rear of said hole and transverse to it, and normally or when no switch-plug is in the hole, in contact with said contact-point, and a contact-piece, normally insulated from the other pieces, mounted on a face of said hole with its contact-surface in the same plane as said metal surface, and adjacent to it and reaching to or near the front of said hole, substantially as and for the purpose set forth.

7. The combination, with a spring-jack switch having two contact-points which are normally (or when no plug is in the switch-hole) in contact, and a third contact-point which is normally insulated from the other two, a telephone-line connected to one and a ground connected to the other of said contact-points, which are normally in contact, of a switch-plug and a switch-cord, said plug having two insulated contact-pieces to one of which is connected said switch-

cord, and adapted, on the insertion of the plug into the switch-hole to separate and insulate the points which are normally in contact, connect the line contact-point with the cord, and said third contact-point with the ground contact-point.

8. In a multiple-switchboard exchange, a closed test-circuit for a ground-circuit line which is in use, said circuit including, in the order named, a ground connection, a test outfit and plug, a test contact-piece for the line temporarily connected to said plug for testing, thence to a contact in some other switch of the line where the line is switched for use, and thence to a contact directly connected thereto, mounted on the plug in said switch, but not then connected with the circuit of the line, and thence to a second switch-contact connected to said plug contact while the plug is in the switch but otherwise insulated from said circuit connection, thence to ground.

9. In a multiple-switchboard exchange, a closed test-circuit for a ground-circuit line which is in use, said circuit including, in the order named, a ground connection, a test instrument and plug a test contact-piece for the line temporarily connected to said plug for testing, thence to a circuit connection connecting all the contacts of said line together, thence to a contact in some other switch of the line where the line is switched for use, and thence to a contact directly connected thereto mounted on the plug in said switch but not then connected with the circuit of the line, and thence to a second switch-contact connected to said plug-contact while the plug is in the switch but otherwise insulated from said circuit connection, thence to the cut-off portion of the line through any pair or pairs of normally closed jack-contacts which may be in said portion, and to ground, and means in said test-circuit to cause said test instrument to respond when connected to said closed test-circuit.

10. In a multiple-switchboard exchange, two or more multiple boards, switches, one for each line on each board, each switch having three contacts, a test-contact, a contact connected to the ground, and a contact connected to the line, said test-contacts being electrically united but disconnected normally from the other contacts, and plugs at each board adapted to be inserted into the switches and each having a conducting-piece adapted to connect said test-contact and said ground-contact of the switch by cross-connecting or electrically bridging said test and ground contacts of the switch without connecting said test-contact to the line-circuit.

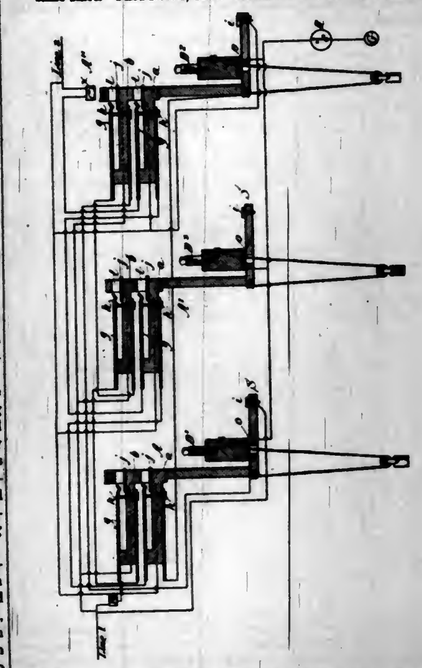
11. In a multiple-switchboard exchange, two or more switchboards, switches, one for each line on two or more boards, each switch having a test-contact, said test-contacts for each line being connected together and normally ungrounded, a contact connected to the ground, and a contact connected to the line, switch-plugs at each board, each plug adapted to be inserted into each switch at each board and each having two insulated contacts, one contact of said plug adapted to be connected to said line-contact, the other contact of said plug adapted to be directly connected to both the test and ground contacts of the switch in which it is inserted and thereby cross-connect or electrically bridge said test and said ground contacts.

12. In a multiple-switchboard exchange, test-contacts one at each board, for each line, the test-contacts of each line being electrically united together and normally ungrounded, a common grounded conductor, a circuit connection between said test-contacts and said common grounded conductor, normally open but closed or bridged by a plug-contact adapted to form a part of said circuit connection while the line is switched for use, a test outfit connected on one side to said conductor, and on the other adapted to be connected to a test-contact for testing, and a test-battery for the test-circuit when established.

13. In multiple-switchboard exchange, switches, one at each of two or more boards for each line, a common conductor, a contact in each switch normally insulated therefrom, a circuit connecting said contacts, one additional contact, in each switch connected to said common conductor, a bridging or cross-connecting contact mounted on a plug, adapted while the line is in use to be directly connected to said contacts and thereby electrically unite them, a test outfit connected on one side to said common conductor and on the other adapted to be connected to a test-contact for testing and a test-battery for said test-circuit.

14. In a multiple-switchboard exchange, line-circuits, each connected to a jack at each board, each jack provided with a strip of insulating material having a plug-hole through it, transverse to its front, of the metal parts of a spring-jack switch mounted thereon, said parts containing a spring-lever placed transverse to the front of said strip and in the rear of the plug-hole, and two contact-pieces, normally insulated from each other, said contact-pieces being mounted with their contact-surfaces in the same plane, and on the face of said plug-hole, and one of said contact-pieces being connected to a common test conductor, and normally or when the plug is not in said hole in contact with said spring, a bridging or cross-connecting insulated contact mounted upon a plug and adapted when said plug is inserted into a line-jack to be directly connected to both of said contacts thereby electrically connecting them, a test receiving instrument connected for testing, on one side to said common conductor and on the other to a plug or device adapted to be applied to the other contact-piece.

592,804. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 8, 1887. Serial No. 254,586. (No model.)



Claim.—1. In a telephone-exchange system, two or more lines centering at a telephone-exchange, a rheotome at the central office, a test receiving instrument connected on one side to one side of the rheotome and on its other side to a switch testing device adapted to be brought into connection with any line whether it is switched or not, and a battery in the test-circuit thereby established, in combination with a switch with a pair of contact-points normally in contact, and a flexible switch-cord with plug attached for each line said line passing through its pair of contact-points and thence to said cord, said plug being normally connected to a switching device which connects it to the other side of said rheotome and adapted to be taken from its normal position and placed in the switch of another line and thereby disconnect the two lines from their normal connection with the rheotome and connect them together, substantially as set forth.

2. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, a rheotome at the central office, test receiving instruments, one at each board, each connected on one side to one side of the rheotome and on its other side to a switch testing device adapted to be brought into connection with any line whether it is switched or not, and a battery in the test-circuit thereby established, in combination with switches with pairs of contact-points normally in contact and flexible switch-cords with plugs attached, one switch on each board, for each line, and one cord with plug for each line, each line passing successively through its pairs of contact-points and thence to its cord, and said plug with cords being distributed among the boards and each plug being normally connected to a switching device which connects it to the other side of said rheotome and adapted to be taken from its normal position and placed in the switch of another line and thereby disconnect the two lines from their normal connection with the rheotome and connect them together substantially as set forth.

3. In a telephone-exchange system, two or more telephone-lines, a rheotome at the central office, a test receiving instrument connected on one side to one side of the rheotome and on its other side to a switch testing device adapted to be brought into connection with any of the test contact-pieces of the lines, and a battery in the test-circuit thereby established in combination with a switch and a flexible conducting-cord with a plug attached for each line, each switch having a line contact-piece connected to the line, and normally in contact with another contact-piece connected to said switch-cord and a test contact-piece connected with the line, and said plug being normally connected to a switching device which connects it to the other side of said rheotome and adapted to be taken from its normal position and placed in the switch of another line and thereby disconnect the line contact-piece of the switch from the contact-piece with which it is normally in contact and connect the line contact-piece with the contact-piece of the plug, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, a rheotome at the central office, test receiving instruments, one at each board, each connected on one side to one side of the rheotome and on its other side to a switch testing device adapted to be brought into connection with any test contact-piece at its board, and a battery in the test-circuit thereby established, in combination with switches, one for each line on each board and flexible switch-cords with plugs attached, one for each line, each switch having a line contact-piece normally in contact with another contact-piece and a test contact-piece connected to the line each line passing successively through the pairs of contact-pieces of its switches which are normally in contact and thence to the switch-cord, passing in each case to the line contact-piece of the switch first, said cords with plugs being distributed among the boards and each of said plugs being normally connected to a switching device which connects it to the other side of said rheotome and adapted to be taken from its normal position and placed in the switch of another line, and thereby disconnect the line contact-piece of the switch from the contact-piece with which it is normally in contact and connect the line contact-piece with the contact-piece of the plug, substantially as set forth.

5. In a telephone-exchange system, two or more telephone-lines, a rheotome at the central office, grounded on one side, and a test receiving instrument grounded on one side but not through the rheotome and connected on its other side to a switch testing plug or device adapted to be brought into connection with any test contact-piece of the lines, and a battery between the ground connection and said testing device, in combination with a switch and a flexible conducting-cord with plug attached for each line, each switch having a line contact-piece connected to the line and normally in contact with another contact-piece connected to said switch-cord and a test contact-piece connected to the line, and said plug being normally connected to a switching device which connects it to the other side of said rheotome and adapted to be taken from its normal position and placed in the switch of another line and thereby disconnect the line contact-piece of the switch from the contact-piece with which it is normally in contact and connect the line contact-piece with the contact-piece of the plug, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, a rheotome at the central office grounded on one side, test receiving instruments, one at each board, each grounded on one side but not through a rheotome and connected on its other side to a switch testing plug or device adapted to be brought into connection with any test contact-piece at its board, and a battery between the ground connection and the switch testing device, in combination with switches, one for each line on each board, and flexible switch-cords with plugs attached, one for each line each switch having a line, contact-piece normally in contact with another contact-piece and a test contact-piece connected to the line, each line passing successively through the pairs of contact-pieces of its switches which are normally in contact and thence to the switch-cord, passing in each case to the line contact-piece of the switch first, said cords with plugs being distributed among the several boards and each of the plugs being normally connected to a switching device which connects it to the other side of the rheotome and adapted to be taken from its normal position and placed in the switch of another line and thereby disconnect the line contact-piece of the switch from the contact-piece with which it is normally in contact and connect the line contact-piece with the contact-piece of the plug, substantially as set forth.

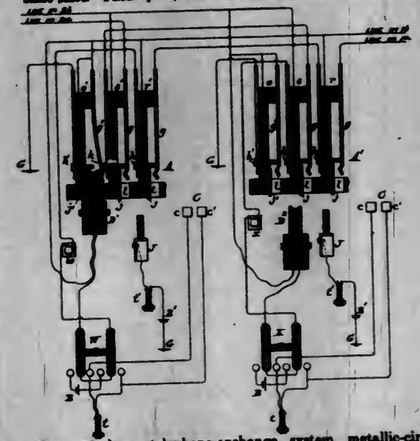
7. In a telephone-exchange system, two or more telephone-lines in combination with a line-switch, a flexible cord with plug attached and an annunciator for each line, each switch having a line contact-piece connected to the line normally in connection with another contact-piece connected to the switch-cord and a third contact-piece also connected to the line, and the annunciator normally in the circuit of the line between said line contact-piece and the connection of the line with said third contact-piece, each plug being adapted to be inserted into the switch of any other line and when inserted to disconnect the two contact-pieces which are normally in contact, and connect the contact-piece of the plug with said line contact-piece and with said third contact-piece of the switch, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, and telephone-lines, in combination with switches, one for each line, on each board, switch-cords with plugs attached and annunciators, one cord and one annunciator for each line, each switch having a line contact-piece normally in connection with another contact-piece and a third contact-piece, each line passing successively through the pairs of contact-pieces of its switches which are normally in contact and thence connected to its switch-cord, passing in each case to the line contact-piece first, said third contact-pieces of the switches of a line being connected to the line and the annunciator of the line being normally in its circuit between its point of connection with said third contact-pieces and its pairs of switch contact-pieces, said plugs being distributed among the boards and each adapted to be inserted into any switch at its board and when inserted to disconnect the contact-pieces which are normally in contact and connect the contact of the plug with said line contact-piece and with said third contact-piece of the switch, substantially as set forth.

9. In a telephone-exchange system, two or more telephone-lines, in combination with a line-switch, a flexible cord with plug attached and an annunciator for each line, each switch having a line contact-piece connected to the line and another contact-piece also connected to the line, and the annunciator normally in the circuit of the line between said line contact-piece and the connection of the line with said other contact-piece, each plug being adapted to be inserted into the switch of any other line and when inserted to connect the contact of the plug with said line contact-piece and with said other contact-piece of the switch, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, and telephone-lines, in combination with switches, one for each line, on each board, switch-cords with plugs attached and annunciators, one cord and one annunciator for each line, each switch having a line contact-piece normally connected with the line and another contact-piece, said other contact-pieces of the switches of a line being connected to the line and the annunciator of the line being normally in its circuit between its point of connection with said other contact-pieces and its line contact-pieces, the plugs being distributed among the boards and each adapted to be inserted into any switch at its board and when inserted to connect the contact of the plug with said line contact-piece and with said other contact-piece of the switch, substantially as set forth.

592,805. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Apr. 1, 1893. Serial No. 468,653. (No model.)



Claim.—1. In a telephone-exchange system, metallic-circuit lines, multiple switchboards for said lines, and switches for said lines, one switch for each line on each board, each switch containing a pair of contact-points which are normally in contact, each line passing through the pairs of contact-points of its switches on the different boards, in combination with loop-switch plugs, one for each line, the plugs being distributed among the several boards, and the two sides of each line terminating in the two contact-pieces, respectively, of its plug, and switching devices, one for each plug, in which the plug is normally placed, each switching device having two contact-pieces, electrically connected, with which the two contact-pieces of the plug when inserted are respectively in contact and thereby bridged, said plugs being adapted to be withdrawn from their normal positions and placed for switching in the switches of any line at their board, and when so placed to disconnect the two contact-pieces of the switch which are normally in contact and connect the two contact-pieces of the plug with the two sides respectively of the line to which the

switch belongs; and a subscriber's generator and a calling-annunciator in the circuit of each line whereby the lines, when in their normal condition, are on closed metallic circuits, in which are included their respective subscribers' generators and calling-annunciators, and by the withdrawal of a plug from its normal position and the placing of it in the switch of another line, the closed circuits of the two lines are opened and the lines are temporarily connected together in one metallic circuit, substantially as set forth.

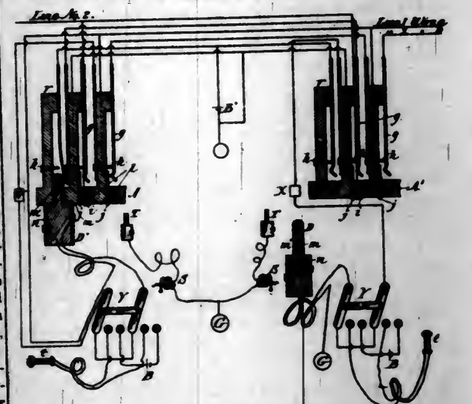
2. In a telephone-exchange system, metallic-circuit lines, multiple switchboards for said lines and switches for said lines, one switch for each line on each board, each switch containing a pair of contact-points which are normally in contact, each line passing through the pairs of contact-points of its switches on the different boards, in combination with loop-switch plugs, one for each line, the plugs being distributed among the several boards and the two sides of each line terminating in the two contact-pieces, respectively, of its plug, switching devices, one for each plug, in which the plug is normally placed, each switching device having two contact-pieces electrically connected with which the two contact-pieces of the plug, when inserted, are respectively in contact and are thereby bridged, and subscribers' generators and calling-annunciators, one of each for each line, each calling-generator being in the metallic circuit of the line at the subscriber's station, each annunciator being located in one of the branches of its line between the plug and the line-switches, each of said plugs being adapted to be withdrawn from its normal position and placed for switching in the switch of any line at its board, and when so placed to disconnect the contact-points of the switch which are normally in contact and connect the two pieces of the plug with the two sides, respectively, of the line to which the switch belongs, whereby the lines, when in their normal condition, are on closed metallic circuit with their annunciators in their circuits, and by the withdrawal of a plug from its normal position and the placing of it in the switch of another line the closed circuits of the two lines are opened and the lines are temporarily connected in one metallic circuit with the annunciator of the line to which the plug belongs in that circuit, substantially as set forth.

3. In a telephone-exchange system, two metallic-circuit lines normally disconnected from each other and each in a closed metallic circuit, and each with its subscriber's generator and calling-annunciator normally in such closed circuit, in combination with a double or loop plug for one of said lines, the two contact-pieces of which are connected to the two sides or branches of its line, respectively, a switching device for said plug in which the plug is normally placed, said device having two contact-pieces electrically connected with which the two contact-pieces of the plug when inserted are, respectively, in contact and are thereby bridged, and a switch for the other line with two contact-points in the circuit of the line which are normally in contact, said plug being adapted to be withdrawn from its normal position and placed in said switch and when so placed to disconnect the contact-points of the switch which are normally in contact and connect the two contact-pieces of the plug with the two sides or branches, respectively, of the line to which the switch belongs; whereby the two lines, when in their normal condition, are on closed metallic circuits, with their subscribers' generators and calling-annunciators, and by the withdrawal of the plug from its normal position and placing of it in said switch, the closed circuits of the two lines are opened and the lines are temporarily connected together into one metallic circuit, substantially as set forth.

4. In a telephone-exchange system, two metallic-circuit lines normally disconnected from each other and each in a closed metallic circuit, with the subscriber's generator in such circuit, in combination with double or loop plugs, one for each line, the two sides of each line terminating in the two contact-pieces, respectively, of its plug, switching devices, one for each plug, in which the plug is normally placed, each switching device having two contact-pieces electrically connected with which the two contact-pieces of the plug when inserted are, respectively, in contact and are thereby bridged, switches, one for each line, each switch having two contact-points normally in contact in the circuit of the line, and annunciators, one for each line, in the circuit of the line between its switch and plug, each of said plugs being adapted to be withdrawn from its normal position and placed in the switch of the other line and when so placed to disconnect the contact-points of the switch which are normally in contact and connect the two contact-pieces of the plug with the two sides or branches of the line to which the switch belongs; whereby the two lines, when in their normal condition, are on closed metallic circuits with their annunciators and generators in their closed metallic circuits, and by the withdrawal of a plug from its normal position and the placing of it in the switch of the other line, the closed circuits of the two lines are opened and the two lines are connected together in one metallic circuit with the annunciator of the line to which the plug belongs only in that circuit, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line normally on closed circuit, a signaling-generator and a calling-annunciator in the normally closed circuit of said line, and a loop-switch plug in the two contact-pieces of which the two sides of the line respectively terminate, in combination with a switching device in which said plug is normally placed, said switching device having electrically-connected contact-pieces with which the two contact-pieces of the plug make contact to electrically connect or bridge the contact-pieces of the plug when the plug is inserted therein; whereby when the plug is placed in its normal position the line is on closed metallic circuit for signaling and when the plug is withdrawn from its normal position the closed metallic circuit of the line is opened for looping with another circuit.

592,806. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Feb. 1, 1893. Serial No. 362,004. (No model.)



Claim.—1. In a telephone-exchange system, multiple switchboards, a single-circuit line grounded at its outer end, a switch on each of said boards for said line, each switch containing a pair of contact points or pieces normally in contact and a third contact-piece normally insulated from the rest (except by the line connections), the line passing successively through said pairs of contact-pieces of its switches and thence normally or while the line is not switched for conversation to a ground wire or connection and a battery in said ground wire or connection, said normally-insulated contact-pieces of its switches being also connected to ground, but not through a battery, and a loop-switch plug, the two contact-pieces of which are connected to the two sides or branches of a metallic-circuit line, said plug being adapted to be inserted into one of the switch-holes and when inserted to disconnect the pair of contact-points which are normally in contact and connect the two contact-pieces of the plug, one with said normally-insulated contact-piece of the switch and the other with that contact-piece of the pair of contact-pieces which is then connected with the line, in combination with test-bolts for the line, one on each board, each test-bolt being apart from the switch-hole of the line and connected to the line, and test receiving instruments, one at each board, each test receiving instrument being grounded on one side but not through a battery and connected on its other side to a test-plug or other test device adapted to be brought into connection with the test-bolt at its board, substantially as set forth.

2. In a telephone-exchange system, multiple switchboards, single and metallic circuit lines connected to said boards, a ground connection for said lines at the central office, a battery in said ground connection, one branch of each of said metallic-circuit lines and said single-circuit lines being normally or while they are not switched for conversation connected to said ground connection, the other branch of each of said metallic-circuit lines being normally open at each of the switchboards, and said metallic-circuit lines being normally and while the subscriber's generator is not operated ungrounded at the subscribers' stations, and switching devices at each board for each of the lines to disconnect the lines from the ground when they are switched for conversation, in combination with test receiving instruments, one at each board, each instrument being grounded on one side (but not through a battery) and connected on its other side to a switch testing plug or device adapted at the will of the operator to connect the instrument to any single-circuit line and to the normally open branch of any metallic-circuit line at her board, substantially as set forth.

3. In a telephone-exchange system, a loop-switch plug, the two insulated contact-pieces of which are connected to the two sides or

branches, respectively, of a metallic-circuit line, in combination with a spring-jack switch for a single or ground circuit line, said switch having two contact-pieces normally in contact and a third contact-piece, normally insulated from the rest (except by the circuit connections), one of said contact-pieces which are normally in contact being connected with the line and the other being normally or while the line is not switched for conversation connected with a ground wire or connection, and a battery in said ground wire or connection, said third contact-piece being permanently connected to the ground, but not through a battery, said plug being adapted to be inserted into said switch and when inserted to disconnect the two contact-pieces of the switch which are normally in contact and connect the two contact-pieces of the plug, respectively, with that contact-piece of the switch which is connected to the line and with said third contact-piece of the switch, substantially as set forth.

4. In a telephone-exchange system, a spring-jack switch containing a contact-piece connected to the line, a contact-piece normally or while the line is not switched for conversation in connection with said other contact-piece and grounded, a battery in the ground connection, and a third contact-piece insulated from the rest (except by the circuit connections) and grounded, but not through the battery in combination with a double or loop plug adapted to be inserted into said switch and when inserted to disconnect said contact-pieces which are normally in contact and connect one of the contact-pieces of the plug with said first-mentioned contact-piece of the switch and the other contact-piece of the plug with said third contact-piece of the switch, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, a telephone-line, a spring-jack switch on each board for said line, each switch containing a pair of contact-points which are normally in contact (and a third contact-piece which is placed along the surface of said switch-hole), said line normally or while the line is not switched for conversation passing successively through said pairs of contact-pieces of its switches and thence to a ground wire or connection, a battery in said ground wire or connection (and said third contact-piece being connected to ground but not through a battery), in combination with test-bolts, one for the line on each board, each bolt being placed apart from the switch-hole of the line and connected to the line, and test receiving instruments, one at each board each grounded on one side and connected on its other side to a test plug or device, adapted, at the will of the operator to be brought into connection with the test-bolt at its board, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, a telephone line, a spring-jack switch on each board for said line, each switch containing a pair of contact-points which are normally in contact, said line normally or while the line is not switched for conversation passing successively through said pairs of contact-pieces of its switches and to a ground wire or connection, and a battery in said ground wire or connection, in combination with test-bolts, one for the line on each board, each bolt being placed apart from the switch-hole of the line and connected to the line, and test receiving instruments, one at each board, each grounded on one side but not through a battery and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the test-bolt at its board, substantially as set forth.

7. In a telephone-exchange system, a switchboard, a telephone-line, a switch on said board for the line, containing a pair of contact-pieces normally in contact and a third contact-piece normally insulated from the rest (except through the circuit connections), one of said contact-pieces which are normally in contact being connected to the line and the other normally or while the line is not switched for conversation connected to a ground wire or connection, a battery in said ground wire or connection, and said third contact-piece being also connected to the ground, but not through a battery, said switch being adapted to receive a switch-plug and said plug when inserted adapted to connect said third contact-piece with one end of another line, in combination with an insulated test-bolt connected to the line and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted at the will of the operator to be brought into connection with said test-bolt.

8. In a telephone-exchange system, a metallic, circuit-line, the two sides or branches of which terminate in the two contact-pieces, respectively, of a loop-switch plug, a switching device for said plug in which it is normally placed, said switching device having a contact-piece which is connected to the ground through a battery, said plug having one of its contact-pieces in connection with said contact-piece of the switching device when in its normal position and adapted to be removed from said normal position and placed in the switch of another line, in combination with a test receiving instrument grounded on one side but not through a battery and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said line, substantially as set forth.

9. In a telephone-exchange system, two metallic-circuit lines, in combination with double or loop plugs, one for each line, in the two contact-pieces of which the two sides or branches of the line, respectively, terminate, switches, one for each line, each switch having two contact-points, normally in contact, in the circuit of one of the sides or branches of its line, a switching device for each plug, in which the plug is normally placed, each switching device having a contact-piece which, when the plug is inserted, is in connection with that side or branch of the line in which are said contact-points of its switch and which contact-piece is connected to the ground through a battery, said plugs being each adapted to be withdrawn from their normal position and placed in the switch of the other line and thereby disconnect the lines from their ground connection and connecting them together, in combination with a test receiving instrument grounded on one side but not through a battery and connected on its other side to a switch testing plug or device adapted to be brought into connection with either line, substantially as set forth.

10. In a telephone-exchange system, metallic-circuit lines normally grounded at the central office and there only, line-switching devices at the central office, one for each line, each switching device containing three contact-pieces, two of which are normally in contact, and one of said pieces which are normally in contact being connected to one side or branch of its line, and the third contact-piece being connected to the other side or branch of its line, double or loop plugs with double flexible cords, one for each line, the two conductors of each cord being respectively attached to the two sides or branches of its line, and the other ends of the conductors being attached to the two contact-pieces of their plug, respectively, and ground switching devices, one for each plug in which the plug is normally placed, each of said switching devices having a contact-piece which is connected to the ground through a battery, and when its plug is in its normal position therein, connecting said contact-piece with that contact-piece of the plug which is connected to the same side or branch of the line as its said pairs of contact-points are in, said plugs being adapted to be withdrawn from their normal positions and placed in the switch of another line, and when so placed to disconnect the two lines from their ground connection through the battery and connect them together, in combination with a test receiving instrument grounded on one side but not through a battery, and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be brought into connection with either of said third contact-pieces of the switches, substantially as set forth.

11. In a telephone-exchange system, metallic-circuit lines normally grounded at the central office and there only, multiple switchboards for said lines, line-switching devices for said lines, one for each line on each board, each switch containing three contact-pieces, two of which are normally in contact, the contact-pieces of the switches which are normally in contact being in the circuit of one side or branch of their line and the other contact-pieces of the switch being connected to the other side or branch of the line, double or loop plugs with double flexible cords, one for each line, the plugs being distributed among the several boards, the two conductors of each cord being attached to the two contact-pieces of its plug, respectively, and the other ends of the conductors being attached to the two sides or branches of their line, respectively, and ground switching devices at the several boards for said plugs, each ground switching device having a contact-piece which is connected to the ground through a battery, said plugs being normally placed in their ground switching device and when so placed grounding that side of their line in which are said pairs of contact-points, through the battery, each of said plugs being adapted to be withdrawn from its normal position and placed in the switch of another line and thereby disconnect the two lines from their ground connection through the battery and connect them together, in combination with test receiving instruments, one at each board, each instrument being grounded on one side, but not through a battery and connected on its other side to a switch testing plug or device, adapted, at the will of the operator, to be brought into connection with any of said third contact-pieces of the switches at its board, substantially as set forth.

12. In a telephone-exchange system, the combination of a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a ground wire or connection with which one side or branch of the line is normally in connection, a battery in said ground wire or connection and contacts by which such normal connection of the line with the ground wire or connection is automatically broken when the plug is withdrawn from its normal position in the switching device, substantially as set forth.

13. In a telephone-exchange system, the combination of a telephone-line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a ground wire or connection with which the line is normally in connection, a battery in said ground wire or connection and contacts by which such normal connection of the line with the ground wire or connection is automatically broken when the plug is withdrawn from its normal position in the switching device, substantially as set forth.

14. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a ground wire or connection with which one side or branch of the line is normally in connection, a battery in said ground wire or connection and contacts by which such normal connection of the line with the ground wire or connection is automatically broken when the plug is withdrawn from its normal position in the switching device, in combination with a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with the line, substantially as set forth.

15. In a telephone-exchange system, a telephone-line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a ground wire or connection with which the line is normally in connection, a battery in said ground wire or connection and contacts by which such normal connection of the line with the ground wire or connection is automatically broken when the plug is withdrawn from its normal position in the switching device, in combination with a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with the line, substantially as set forth.

16. In a telephone-exchange system, the combination of a metallic-circuit line, a switch-plug for the line having a contact-piece with which one side of the line is normally connected, a switching device into which the plug is normally placed, a contact-piece in said switching device with which said contact-piece of the plug comes in contact when the plug is inserted into the switching device, a circuit wire or connection connected on one side to said contact-piece of the switching device and grounded on its other side, and a test-battery in said circuit-wire, substantially as set forth.

17. In a telephone-exchange system, the combination of a telephone-line, a switch-plug for the line having a contact-piece with which the line is normally connected, a switching device into which the plug is normally placed, a contact-piece in said switching device with which said contact-piece of the plug comes in contact when the plug is inserted into the switching device, a circuit wire or connection connected on one side to said contact-piece of the switching device and grounded on its other side, and a test-battery in said circuit-wire, substantially as set forth.

18. In a telephone-exchange system, a metallic-circuit line, the two sides or branches of which are normally open to each other at the central office, a ground connection through which one side or branch of the line is grounded there, and a battery in said ground connection, in combination with a switch for the line adapted to receive the switch-plugs of other lines, a pair of switch-contacts normally closed but open while a plug is in the switch, a switch-plug for the line, a plug switching device in which the plug is normally placed, and a pair of contacts which are closed while the plug is in the switching device and opened by the withdrawal of the plug from the device, said branch of the line which is normally grounded passing through said pair of switch-contacts and thence through said other pair of contacts to ground, substantially as set forth.

19. In a telephone-exchange system, a metallic-circuit line, the two sides or branches of which are normally open to each other at the central office, a ground connection through which one side or branch of the line is grounded there, and a battery in said ground connection, in combination with a switch for the line adapted to receive the switch-plugs of other lines, a pair of switch-contacts normally closed but open while a plug is in the switch, a switch-plug for the line, a plug switching device in which the plug is normally placed, a pair of contacts which are closed while the plug is in the switching device and opened by the withdrawal of the plug from the device, said branch of the line which is normally grounded passing through said pair of switch-contacts and thence through said other pair of contacts to ground, and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with the other side or branch of the line, substantially as set forth.

20. In a telephone-exchange system, a metallic-circuit line the two sides or branches of which are normally open to each other at the central office, a ground connection through which one side or branch of which is normally grounded there, and a battery in said ground connection, in combination with switches for the line, one on each of the multiple switchboards, each switch being adapted to receive the switch-plugs of the other lines located at its board, a pair of contacts for each switch which are normally closed but opened while a plug is in the switch, a switch-plug for the line, a plug switching device in which the plug is normally placed and a pair of contacts which are closed while the plug is in the switching device and opened by the withdrawal of the plug from the device, said branch of the line which is normally grounded passing successively through said pairs of its switch-contact points, and thence through the other pair of contacts to ground, substantially as set forth.

21. In a telephone-exchange system, a metallic-circuit line the two sides or branches of which are normally open to each other at the central office, a ground connection through which one side or branch of which is normally grounded there, and a battery in said ground connection in combination with switches for the line, one on each of the multiple switchboards, each switch being adapted to receive the switch-plugs of the other lines located at its board, a pair of contacts for each switch which are normally closed but opened while a plug is in the switch, a switch-plug for the line, a plug switch device in which the plug is normally placed, a pair of contacts which are closed while the plug is in the switching device and opened by the withdrawal of the plug from the device, said branch of the line which is normally grounded passing successively through said pairs of its switch-contact points, and thence through the other pair of contacts to ground, and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with the other side or branch of the line, substantially as set forth.

592,807. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Mar. 6, 1888. Serial No. 266,815. (No model.)



Claim.—1. In a telephone-exchange system, metallic-circuit lines, each line normally or while it is not switched for conversation at the central office on closed circuit there, and batteries, one for each line at the central office, normally in the line-circuit, in combination with switching apparatus at the central office to switch any line for conversation and by the act of switching and as long as the line is thus switched removing the battery from its circuit, and a telephone at each subscriber's station at the will of the subscriber in closed circuit with his line, whereby the subscriber may determine when the line is switched for use, substantially as set forth.

2. In a telephone-exchange system, metallic-circuit lines, each line normally or while it is not switched for conversation at the central office on closed circuit there, and sources of electricity, one for each line at the central office, normally in the line-circuit, in combination with switching apparatus at the central office to switch any line for conversation and by the act of switching and as long as the line is thus switched removing the source of electricity from its circuit, and a telephone at each subscriber's station at the will of the subscriber in closed circuit with his line, whereby the subscriber may determine when the line is switched for use, substantially as set forth.

3. In a telephone-exchange system, telephone-lines, each line normally or while it is not switched for conversation at the central office on closed circuit there, and batteries, one for each line at the central office, normally in the line-circuit, in combination with switching apparatus at the central office to switch any line for conversation and by the act of switching, and as long as the line is thus switched removing the battery from its circuit, and a telephone at each subscriber's station at the will of the subscriber in closed circuit with his line, whereby the subscriber may determine when the line is switched for use, substantially as set forth.

4. In a telephone-exchange system, telephone-lines, each line normally or while it is not switched for conversation, at the central office on closed circuit there, and sources of electricity, one for each line at the central office, normally in the line-circuit, in combination with switching apparatus at the central office to switch any line for conversation and by the act of switching and as long as the line is thus switched, removing the source of electricity from its circuit, and a telephone at each subscriber's station at the will of the subscriber in closed circuit with his line whereby the subscriber may determine when the line is switched for use, substantially as set forth.

5. In a multiple telephone-exchange system, metallic-circuit lines, each line normally grounded at the subscriber's station and on closed circuit at the central office, and batteries one for each line at the central office, each normally or while the line is not switched for conversation at the central office in the circuit of its line there but switched from its said circuit by the act of switching and as long as the line is switched for conversation there, in combination with a telephone at each subscriber's station, a switch with contacts and circuit connections switching the telephone at the will of the subscriber into the circuit of his line, and opening the normal ground connection of the line at the subscriber's station while the telephone is switched into its line-circuit, and a test receiving instrument at the central office grounded on one side and connected on its other side to a plug adapted to be brought into connection with any line whereby the operator may determine whether, and the subscriber may determine when, the line is switched for use, substantially as set forth.

6. In a multiple telephone-exchange system, metallic-circuit lines, each line normally grounded at the subscribers' station and on closed circuit at the central office, and sources of electricity, one for each line at the central office, each normally or while the line is not switched for conversation at the central office in the circuit of its line there but switched from said circuit by the act of switching and as long as the line is switched for conversation there, in combination with a telephone at each subscriber's station, a switch with contacts and circuit connections switching the telephone at the will of the subscriber into the circuit of his line, and opening the normal ground connection of the line at the subscriber's station while the telephone is switched into its line-circuit, and a test receiving instrument at the central office grounded on one side and connected on its other side to a plug adapted to be brought into connection with any line, whereby the operator may determine whether, and the subscriber may determine when, the line is switched for use, substantially as set forth.

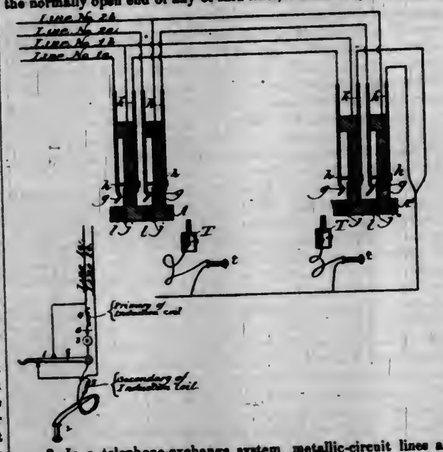
7. In a multiple telephone-exchange system, telephone-lines, each line normally grounded at the subscriber's station and on closed circuit at the central office, and batteries, one for each line at the central office, each normally or while the line is not switched for conversation at the central office in th_ circuit of its line there but switched from its said circuit by the act of switching and as long as the line is switched for conversation there, in combination with a telephone at each subscriber's station, a switch with contacts and circuit connections switching the telephone at the will of the subscriber into the circuit of his line, and opening the normal ground connections of the line at the subscriber's station while the telephone is switched into its line-circuit, and a test receiving instrument at the central office grounded on one side and connected on its other side to a plug adapted to be brought into connection with any line, whereby the operator may determine whether, and the subscriber may determine when, the line is switched for use, substantially as set forth.

8. In a multiple telephone-exchange system, telephone-lines, each line normally grounded at the subscriber's station and on closed circuit at the central office, and sources of electricity, one for each line at the central office, each normally or while the line is not switched for conversation at the central office in the circuit of its line there but switched from its said circuit by the act of switching and as long as the line is switched for conversation there, in combination with a telephone at each subscriber's station, a switch with contacts and circuit connections switching the telephone at the will of the subscriber into the circuit of his line, and opening the normal ground connection of the line at the subscriber's station while the telephone is switched into its line-circuit, and a test receiving instrument at the central office grounded on one side and connected on its other side to a plug adapted to be brought into connection with any line, whereby the operator may determine whether, and the subscriber may determine when, the line is switched for use, substantially as set forth.

592,808. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 16, 1888. Renewed Dec. 20, 1890. Serial No. 375,311. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit telephone-line and a test receiving instrument at the central office, said line being normally connected at the central office but not elsewhere on one of its sides to one side of said test receiving instrument and open on its other side to said instrument, and said instrument being open to the ground in combination with an electric battery at the subscriber's station in the circuit of said line when it is not switched for conversation, a switching device to disconnect said line from its normal connection with said test receiving instrument when the line is switched for conversation, and a switch testing plug or device adapted, at the will of the operator, to connect said instrument on its other side to the side of said line normally open to it, substantially as set forth.

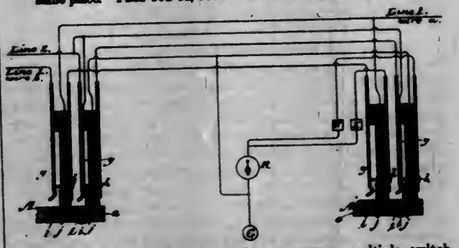
2. In a telephone-exchange system, two or more multiple switchboards at the central office, metallic-circuit lines connected to them and test receiving instruments, one at each board, each line being normally connected at the central office but not elsewhere on one of its sides to each of said test receiving instruments, and said instruments being open to the ground in combination with electric batteries, one in the circuit of each line at its subscriber's station when the line is not switched for conversation, switching devices, one at each board for each line to disconnect the line from its normal connection with said test receiving instruments, and switch testing plugs or devices, one for each test receiving instrument, adapted, at the will of the operator, to connect its instrument on the other side to the normally open end of any of said lines, substantially as set forth.



3. In a telephone-exchange system, metallic-circuit lines and electric batteries, one in the circuit of each line at the subscriber's station when the line is not switched for conversation, in combination with multiple switchboards for said lines at the central office, test receiving instruments, one for each board, switches for said lines, one for each line on each board, each switch having a pair of contact-points normally in contact but opened to each other when its line is switched for conversation, one side of each line passing successively through said pairs of contact-points of its switches on the different boards and thence connected to one side of each of said test receiving instruments and not connected to it elsewhere, and said instruments being open to the ground, test bolts or pieces one for each line on each board and to each of which the other side of its line is connected, and switch testing plugs or devices, one for each of said instruments and each adapted, at the will of the operator, to connect its instrument on the other side to any test bolt or piece located at its board, substantially as set forth.

4. In a telephone-exchange system, metallic-circuit lines, multiple switchboards for said lines and switches, one on each board for each line, in combination with test receiving instruments, one at each board, each instrument being open to the ground, and normally connected on one side to one side or branch of each of said lines, but disconnected from the line when the line is switched for conversation, and connected on its other side to a switch testing plug or device, adapted, at the will of the operator, to be brought into connection with the other side or branch of the line when the line is not in use, substantially as set forth.

592,809. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Oct. 11, 1889. Serial No. 326,695. (No model.)

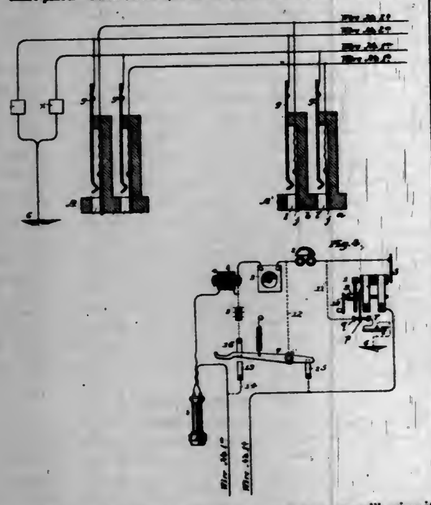


Claim.—1. In a telephone-exchange system, multiple switchboards, a single-circuit line grounded at its outer end, a switch on each board for said line, each switch containing a pair of contact points or pieces normally in contact, and a third contact-piece insulated from the rest (except by the circuit connections) the line passing successively through said pairs of contact-points of its switches, and thence to a ground wire or connection in which is a rheotome, said normally-insulated contact-pieces of its switches being also connected to ground but not through a rheotome, and a loop-plug, the two contact-pieces of which are connected to the two sides or branches

of a metallic-circuit line, said plug being adapted to be inserted into one of the switch-holes and when inserted to disconnect the pair of contact-points which are normally in contact and connect the two contact-pieces of the plug, one with said normally-insulated contact-piece of the switch and the other with that contact-piece of the pair which is then connected with the line, in combination with test-bolts for the line, one on each board, each apart from the switch-hole of the line and connected to the line, test receiving instruments, one at each board, each instrument being grounded on one side but not through a rheotome and connected on its other side to a switch testing plug or device adapted to be brought into connection with the test-bolt at its board, and a battery in the test-circuit thereby established, substantially as set forth

2. In a telephone-exchange system, multiple switchboards, a telephone-line, a spring-jack switch on each board for said line, each switch containing a pair of contact-points which are normally in contact and a third contact-piece which is placed along the surface of the switch-hole, said line passing, successively, through said pairs of contact-pieces of its switches and to a ground wire or connection in which is a rheotome, and said third contact-piece being also connected to the ground but not through a rheotome, in combination with test-bolts for each line on each board, each bolt being placed apart from and to one side of the switch-hole of the line and connected to the line, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device, adapted, at the will of the operator to be brought into connection with the test-bolt at its board, and a battery in the test-circuit thereby established, substantially as set forth.

592,810. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,012. (No model.)



Claim.—1. In a telephone-exchange system, a metallic circuit line normally open at one end at the central office and permanently grounded at its other end at the central office and normally grounded there only, in combination with the transmitter-battery in the circuit of the line at the subscriber's station when his telephone is switched for use and then only, and a test receiving instrument at the central office grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line, substantially as set forth.

2. In a telephone-exchange system, two or more multiple switchboards at the central office, and metallic-circuit lines, each line being normally open at one end and connected to the boards and at its other end permanently grounded at the central office and connected to the boards, and normally grounded there only, in combination with the transmitter-battery in the circuit of the line at the subscriber's station while his telephone is switched for use and then only, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of any line, substantially as set forth.

3. In a telephone-exchange system, multiple switchboards, a metallic-circuit line and switches for the line, one switch on each of the boards, each switch having a contact-point connected to the line and permanently connected to the ground and a second contact-point connected to the line on its other side in combination with the transmitter-battery in the circuit of the line while the subscriber's telephone is switched for use but not otherwise and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with said second contact-piece at its board, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, and switches, one switch on each board for each line, each switch having two contact-points one connected to one side of the line and permanently connected to the ground, and the second contact-point connected to the other side of the line, in combination with the transmitter-battery in the circuit of each line while its subscriber's telephone is switched for use but not otherwise, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with any of said second contact-pieces at its board, substantially as set forth.

5. In a telephone-exchange system, two metallic-circuit lines switched together in multiple circuit for conversation and grounded at the central office and there only, in combination with transmitter-batteries, one at each of the subscribers' stations and each in the circuit of its line while its subscriber's telephone is switched for use but not otherwise said batteries being connected in said metallic circuit in opposition to each other, that is, with their like poles connected together, and a test receiving instrument grounded at one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with either metallic-circuit line with the line-battery between said test connection and said ground connection, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, two metallic-circuit lines connected to said boards and temporarily connected into a metallic circuit at one board for conversation and said circuit being grounded at the central office but not elsewhere, in combination with transmitter-batteries, one at each of the subscribers' stations and each in the circuit while its subscriber's telephone is switched for use but not otherwise said batteries being connected in said metallic circuit in opposition to each other, that is, with their like poles connected together, and test receiving instruments, one at each of the other boards, each instrument grounded on one side and connected on its other side to a test plug or device adapted for testing to be brought into connection with either line with the line-battery between said test connection and said ground connection, substantially as set forth.

7. In a telephone-exchange system, a test receiving instrument at one board, and two metallic-circuit lines temporarily connected at another board into a metallic circuit for conversation and said circuit being connected to one side of said test receiving instrument, in combination with transmitter-batteries, one at each of the subscribers' stations and each in the circuit of its line while its subscriber's telephone is switched for use but not otherwise, said batteries being connected into said metallic circuit in opposition to each other, that is, with their like poles connected together, and a test plug or device at said first-named board adapted to be brought for testing into connection with either line with the battery between said test connection and said connection with the test receiving instrument and said instrument being connected on its other side to said test-plug, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, test receiving instruments, one at each board and two metallic-circuit lines temporarily connected together for conversation and their circuit connected to one side of each of said test receiving instruments, in combination with transmitter-batteries, one at each of the subscribers' stations, each in the circuit of its line while its subscriber's telephone is switched for use but not otherwise and connected into said metallic circuit in opposition to each other, that is, with their like poles connected together, and test-plugs, one for each test receiving instrument and connected to it on the other side, the test-plug at any board where the lines are not switched being adapted to be brought into connection with either line with the line-battery between said test connection and said connection of the circuit with the test receiving instruments, substantially as set forth.

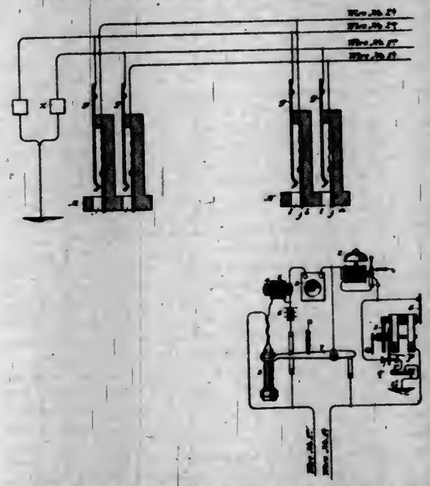
9. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, switches on the several boards to connect any two of said lines together in metallic circuit for conversation, said lines when thus connected being grounded at the central office but not elsewhere, in combination with transmitter-batteries, one at each subscriber's station, each in the circuit of its line while its subscriber's telephone is switched for use but not otherwise, and said batteries being then connected in the same direction with reference to said office ground connection, that is, with their like poles connected together, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with any line with the battery (when in the circuit) between said test connection and said ground connection, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, test receiving instruments, one at each board, metallic-circuit lines, switches on the several boards to connect any two of said lines together in metallic circuit for conversation, said lines when thus connected being connected to one side of each of said instruments, in combination with transmitter-batteries, one at each subscriber's station, each in the circuit of its line while its subscriber's telephone is switched for use but not otherwise, said batteries when thus connected being in their circuits in the same direction with reference to said connection with the test receiving instruments, that is, with their like poles connected together, and test plugs or devices, one for each instrument and connected to it on the other side, each plug being adapted to be brought for testing into connection with any of said lines with the line-battery (when in the circuit) between said test connection and said connection of the line with the test receiving instrument, substantially as set forth

11. A test-circuit for a metallic-circuit line temporarily connected with another such line, from the ground through a test receiving instrument to a test-plug, thence to the line tested and through the circuit of the two lines in parallel circuit and transmitter-batteries, one at each subscriber's station, in the circuit when his telephone is switched for use but not otherwise, to the ground at the central office, said batteries being connected in the metallic circuit of said lines in opposition to each other, that is, with their like poles connected together, substantially as set forth.

12. A test-circuit for a metallic-circuit line temporarily connected with another such line, from one side of a test receiving instrument to a test plug or device at a board at which the line is not switched, thence to the line tested and through the circuit of the two lines tested in parallel circuit, thence to the other side of said test receiving instrument and transmitter-batteries, one at each subscriber's station, in the circuit when his telephone is switched for use but not otherwise, said batteries being connected in the metallic circuit of said lines in opposition to each other, that is, with their like poles connected together, substantially as set forth.

592,811. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,013. (No model.)



Claim.—1. In a multiple-switchboard exchange, a test-circuit containing a circuit-interrupter at the subscriber's station switched from so as not to be a part of said circuit while the telephone is switched for use, but not otherwise, a polarized call-annunciator in said test-circuit so connected as not to be operated thereby, and a call-circuit associated with said annunciator.

2. In a multiple-switchboard exchange, a metallic test-circuit, comprising a test signaling device at the subscriber's station automatically operated by the battery, a test receiving instrument adapted to respond thereto, a battery, a subscriber's-telephone switch controlling said response, a call-circuit, a conductor common to said call and test circuits, and a polarized call-annunciator in said conductor, so connected as not to respond to said test-battery.

3. In a multiple-switchboard exchange, metallic circuits, each comprising in the order named test-contacts, one at each board, a line conductor, a test signaling device at the subscriber's station, a return-line conductor, a test receiving instrument and battery adapted to respond to said test signaling device, and a test plug or device adapted to be connected to a test-contact for testing; in combination with a subscriber's switch to prevent said response while the telephone is switched for use but not otherwise.

4. In a multiple-switchboard exchange, a metallic circuit, closed at subscriber's station, normally open at central, one limb connected through a call-annunciator to ground, an operator's grounded test outfit adapted to be connected to the other limb for testing, an interrupter in said metallic circuit at the subscriber's station cooperating with said test outfit to give a "free" signal, and a subscriber's switch and connections preventing said signal while his telephone is switched for use, but not otherwise.

5. In a multiple-switchboard exchange, in the order named, test-contacts, one at each board, a line conductor, a normally closed subscriber's circuit containing normally a circuit-interrupter at his station, said interrupter being switched therefrom while the telephone is switched for use, a return metallic line conductor, switch-contacts, one at each board, and a test outfit at each board including a test receiving instrument and battery adapted to be connected to a test contact for testing.

6. In a multiple-switchboard exchange, in the order named, test-contacts, a metallic line conductor, a subscriber's station outfit containing a test signaling device, a metallic return-line conductor, jack-contacts, a polarized annunciator, and a connection to a test plug or device containing a test-battery so connected as not to operate said annunciator, and a test receiving instrument adapted to respond to said test signaling device; in combination with a switch in said subscriber's outfit preventing said response while the telephone is switched for use.

7. In a multiple-switchboard exchange, metallic circuits each comprising, in the order named, a test-contact at each of two or more boards, a line conductor, a subscriber's outfit containing an interrupter normally in its circuit, but switched therefrom while the telephone is switched for use, and a generator grounded while calling but not while clearing out, a return-line conductor, a polarized annunciator, and a ground connection; in combination with a grounded test outfit at each board adapted to be connected to a test contact and to respond to said interrupter, and double-cord connecting apparatus adapted to connect two of said metallic circuits together, with a clearing-out annunciator shunting the call-annunciators of said metallic circuits.

8. In a multiple-switchboard exchange, in the order named, test-contacts, one at each board, a metallic line conductor, a subscriber's circuit containing normally a circuit-interrupter at his station, said interrupter being switched therefrom while the telephone is switched for use, a return-line conductor, switch-contacts permanently connected thereto, one at each board, a polarized call-annunciator, and a connection to test outfits in multiple branches, one outfit at each board including a test receiving instrument adapted to respond to said interrupter while testing and the subscriber's telephone is not switched for use but not otherwise; in combination with a test-battery, in said test-circuit, so connected as not to operate said call-annunciator, and a call-circuit and generator for operating said call-annunciator.

9. In a multiple-switchboard exchange, two telephone-circuits connected together for conversation through a clearing-out annunciator, and a test-circuit associated therewith containing said annunciator in the bridge of a Wheatstone bridge.

10. In a multiple-switchboard exchange, two metallic circuits the two limbs of one connected to the two limbs of the other, one limb of each circuit being connected through a resistance to a test outfit and battery in a normally open bridge closed while testing, a clearing-out annunciator in a separate circuit connecting said limbs, and a circuit of substantially no resistance connecting the other limbs of said metallic circuits.

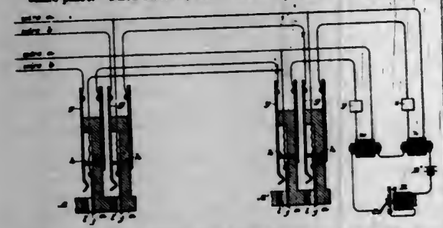
11. In a multiple-switchboard exchange, two circuits of substantially equal resistance connected together at a board into a combined circuit for conversation, a clearing-out annunciator in one side of said combined circuit, a normally open bridge closed for testing, containing a test-battery, connected at one end through call-annunciators of substantially equal resistances to the said combined circuit on either side of said clearing-out annunciator, whereby on testing said clearing-out annunciator will not be operated.

12. In a multiple-switchboard exchange, two "tied-up" metallic circuits of substantially different resistance, one with its telephone switched for use, and the other with its telephone not switched for use, a clearing-out annunciator in one limb of said "tied-up" circuit, a bridge containing a test-battery, normally open at one end but closed for testing, connected at the other end through substantially

equal resistances to both sides of said clearing-out annunciator whereby on testing, said clearing-out annunciator will be operated and the "tied-up" condition dissolved.

13. In a multiple-switchboard exchange, two "tied-up" metallic circuits, a switch for each circuit at each board containing two contacts, one connected to each limb, connecting apparatus at each board to connect the two contacts of one circuit with the two contacts of another circuit, a clearing-out annunciator in said connecting apparatus, a test-circuit for said connected circuits, and a test outfit responding "free" while testing, said connected circuits, when their telephones are not switched for use, and an operator's call-generator adapted to be connected to said circuit to operate said clearing out annunciator.

592,812. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,014. (No model.)



Claim.—1. In a multiple-switchboard exchange, a normally open telephone-circuit, a source of intermittent current in said circuit and a test device and switching apparatus for bridging said telephone-circuit for the purpose of testing.

2. In a telephone multiple-switchboard system, a normally open telephone-circuit, a bridge for said circuit containing a test device, normally open at a set of test-contacts closed by the act of testing, closed at a set of switch-contacts, said switch-contacts being opened when the line is switched for use, and a source of intermittent current normally in said telephone-circuit.

3. In a multiple-switchboard exchange, a normally open telephone-circuit, a normally open bridge containing a test receiving instrument adapted to be closed for testing, a source of intermittent current normally in said telephone-circuit for testing, and contacts and switch apparatus for cutting out said source of intermittent current from said telephone-circuit.

4. In a multiple-switchboard exchange, a normally open telephone-circuit, a bridge for said circuit containing a test receiving instrument, normally open at a set of test-contacts, normally closed at a set of line switch-contacts, said bridge being open at said switch-contacts while the line is switched for use by a subscriber, a source of intermittent current normally in said telephone-circuit, and switch-board-contacts and apparatus for cutting said source of current out of said telephone-circuit when it is switched at a board.

5. In a telephone-exchange system, a metallic-circuit line normally, (or when not in use,) with its two branches open to each other at the subscriber's station and one of them grounded at the subscriber's station when the subscriber's telephone is not switched for conversation but not otherwise, a switch at the central office containing a pair of contact points or pieces normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded at the subscriber's station passing through said pair of contact-points, and thence, by a circuit-wire, to said third contact-piece, and an induction-coil, the secondary of which is in said circuit-wire and the primary of which is in a circuit with a constantly-operating rheotome and a battery, in combination with a switch plug adapted to be inserted into said switch and when inserted to disconnect said pair of contact-points which are normally in contact, and a test receiving instrument grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be connected to said third contact-piece of the switch, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line normally, (or when it is not in use,) with its two branches open to each other at the subscriber's station, and one of them grounded at the subscriber's station when the subscriber's telephone is not switched for conversation but not otherwise, a switch at the central office containing a pair of contact points or pieces normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded at the subscriber's station passing through said pair of contact-points and thence, by a circuit wire, to said third contact-piece, and an induction-coil, the secondary of which is in said circuit-wire and the primary of which has in circuit with it apparatus which produces intermittent electric current, in combination with a switch-plug adapted to be inserted into said switch, and when inserted, to disconnect said pair of contact-points which are normally in contact, and a test receiving instrument grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be connected to said third contact-piece of the switch, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line, the two branches of which are normally open to each other at the subscriber's station, and one of which is normally grounded at the subscriber's station, and an induction-coil, the secondary of which is in the circuit of the line when it is not switched for conversation but not otherwise, and the primary of which is in circuit with a battery and constantly-operating circuit-breaker, in combination with a switch at the subscriber's station with contact-points to remove said ground connection and close said branches to each other when the subscriber's telephone is switched for use, and a test receiving instrument at the central office, grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be brought into connection with a contact-piece connected with said line, with said secondary of the induction-coil normally between the point of contact and said normal ground connection at the subscriber's station, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line, the two branches of which are normally open to each other at the subscriber's station, and one of which is normally grounded at the subscriber's station, and an induction-coil, the secondary of which is in the circuit of the line when it is not switched for conversation but not otherwise, and the primary of which has in circuit with it apparatus which produces intermittent electric current, in combination with a switch at the subscriber's station, with contact-points to remove said ground connection and close said branches to each other when the subscriber's telephone is switched for use, and a test receiving instrument at the central office, grounded on one side and connected on its other side to a switch testing plug or device, adapted, at the will of the operator, to be brought into connection with a contact-piece connected with said line, with said secondary of the induction-coil normally between the point of contact and said normal ground connection at the subscriber's station, substantially as set forth.

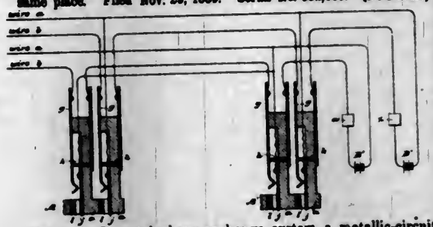
9. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, the two branches of each of which are normally open to each other at the subscriber's station and one branch is normally grounded at the subscriber's station, and induction-coils, one for each line, the secondary of which is in the circuit of the line when it is not switched at any board and not otherwise and the primary of which has in circuit with it apparatus that produces intermittent electric current, in combination with switches with contact-points, one switch at each subscriber's station, to disconnect the line from said ground-contact and close the two branches of the line to each other when the subscriber's telephone is switched for use, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be brought into connection with a contact-piece connected with any of said lines, with the secondary of its induction-coil normally between the point of contact and its said normal ground connection at the subscriber's station, substantially as set forth.

10. In a multiple-switchboard exchange, a normally open metallic circuit, a third conductor normally connected to one side of said circuit, a test receiving instrument connected on one side to said third conductor, and on its other side to contacts adapted to be brought into connection with the other side of said metallic circuit, a source of intermittent current in said metallic circuit, cut off therefrom by the act of switching said circuit for use at any board.

11. In a multiple-switchboard exchange, a normally open metallic circuit, normally grounded on one side but disconnected from ground while switched for use, a grounded test-circuit adapted to be brought into connection with the other side of said metallic circuit, a source of intermittent current in said metallic circuit, cut off therefrom by the act of switching said metallic circuit for use at any board.

12. In a metallic-switchboard exchange, a metallic telephone-circuit, comprising, in the order named, a ground connection, telephone-switch contacts, between said ground connection and the direct conductor of the circuit, said telephone-switch contacts being normally or while the telephone is not switched for use closed to each other, said direct-conductor switchboard-contacts at the central office normally or while the line is not switched at the central office closed to each other, the secondary of an induction-coil, test-contacts on the various boards, a return-conductor, and normally open telephone-switch contacts at the subscriber's station between said direct and return conductors, in combination with the primary of said induction-coil containing the source of intermittent current, and a grounded test receiving instrument, adapted to be connected to one of said test-contacts.

592,818. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,015. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit line, normally (or when not in use) with its two branches open to each other at the subscriber's station, and one of them grounded at the subscriber's station when the subscriber's telephone is not switched for conversation but not otherwise, a switch at the central office, containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded at the subscriber's station passing through said pair of contact-points and thence, by a circuit-wire, to said third contact-piece, and a battery in said circuit-wire, in combination with a switch-plug adapted to be inserted into said switch and when inserted to disconnect the pair of contact-points which are normally in contact, and a test receiving instrument grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be brought into connection with said third contact-piece of the switch, substantially as set forth.

2. In a telephone-exchange system, a telephone-line normally (or when the line is not in use) grounded at the subscriber's station, a switch at the central office containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said line passing through said pair of contact-points and thence, by a circuit-wire, to said third contact-piece, and a battery or source of constant current in said circuit-wire, in combination with a switch-plug adapted to be inserted into said switch and when inserted to disconnect the pair of contact-points which are normally in contact, and a test receiving instrument grounded on one side and connected on its other side to a switch testing-plug or device adapted, at the will of the operator, to be brought into connection with said third contact-piece, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line, the two branches of which are normally open to each other at the subscriber's station, and one of which is normally grounded at the subscriber's station, and an electric battery in the circuit of the line when it is not switched but not otherwise, in combination with a switch at the subscriber's station with contact-points to remove said ground connection and close said branches to each other when the subscriber's telephone is switched for use, and a test receiving instrument at the central office grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be brought into connection with the line, with the battery between the point of contact and said normal ground connection at the subscriber's station, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, the two branches of each of which are normally open to each other at the subscriber's station, and one of which is normally grounded at the subscriber's station, and an electric battery in the circuits of each of the lines when it is not switched for use and not otherwise, in combination with switches with contact-points, one switch at each subscriber's station, to disconnect the line from said ground connection and close the two branches of the line to each other when the subscriber's telephone is switched for use, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be brought into connection with any of said lines, with its battery normally between the point of connection and the normal ground connection at the subscriber's station, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each line normally (or when not in use) with its two branches open to each other at the subscriber's station and one of them grounded at the subscriber's station when the subscriber's telephone is not switched for use but not otherwise, switches, one at each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of each line which is normally grounded at the subscriber's station passing, successively, through the pairs of contact-points on its switches which are normally in contact and thence, by a circuit-wire, to said third contact-pieces of its switches, and an electric battery in said circuit-wire, in combination with switch-plugs adapted to be inserted into said switches, and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch which are normally in contact, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a switch testing plug or device, adapted at the will of the operator, to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, each line normally grounded at the subscriber's station, switches, one at each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said line passing successively through said pairs of contact-points of its switches which are normally in contact and thence, by a circuit-wire, to said third contact-pieces of its switches, and an electric battery or source of constant current in said circuit-wire, in combination with switch-plugs adapted to be inserted into said switches, and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch which are normally in contact, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a switch testing plug or device adapted at the will of the operator, to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line, one branch of which is normally grounded at the subscriber's station and electric battery or source of constant current at the central office in the circuit of said line, normally, or when it is not switched for use but not otherwise, in combination with a switch at the subscriber's station with contact-points to disconnect the line from the ground when the subscriber's telephone is switched for use, and a test receiving instrument at the central office grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be brought into connection with said line, with the battery normally between said point of contact and the normal ground connection at the subscriber's station, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, each normally grounded at the subscriber's station and with an electric battery or source of constant current at the central office in its circuit when it is not switched for conversation, but not otherwise, and switches at each board to connect any two of said lines together for conversation, in combination with test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a switch testing plug or device adapted, at the will of the operator, to be brought into connection with any line, with the battery between the point of connection and the normal ground connection at the subscriber's station, and a switch at the subscriber's station to remove said ground connection when the subscriber's telephone is switched for use, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line, the two branches of which are normally open to each other at the subscriber's station and one of which is normally grounded at the subscriber's station, and an electric battery and an annunciator in the circuit of the line when it is not switched for conversation but not otherwise, in combination with a switch at the subscriber's station, with contact-points to remove said ground connection when the subscriber's telephone is switched for use, and a test receiving instrument at the central office grounded on one side and connected on its other side to a switch testing plug or device adapted to be brought into connection with the line, with the battery and annunciator between the point of contact and the subscriber's normal ground and the battery adjusted to the instrument and annunciator to operate the instrument and not the annunciator, substantially as set forth.

10. In a telephone exchange system, multiple switchboards, metallic-circuit lines connected to the same, each line normally (or when not in use) with its two branches open to each other at the subscriber's station and one of them grounded at the subscriber's station when the subscriber's telephone is not switched for use but not otherwise, switches, one at each board for each line each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of each line which is normally grounded at the subscriber's station passing, successively, through the pairs of contact-points on its

switches which are normally in contact and thence, by a circuit-wire, to said third contact-pieces of its switches, and the other side or branch of the line being connected to said third contact-pieces, and an electric battery in said circuit-wire, in combination with pairs of loop-switch plugs adapted to be inserted into said switches, and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch which are normally in contact, and connect the two contact-pieces of the plug respectively with said third contact-piece of the switch connected with one side of the line and said contact-point of the pair connected with the other side of the line, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a switch testing plug or device, adapted at the will of the operator to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each line normally (or when not in use) with its two branches open to each other at the subscriber's station and one of them grounded at the subscriber's station when the subscriber's telephone is not switched for use but not otherwise, switches, one at each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of each line which is normally grounded at the subscriber's station passing, successively through the pairs of contact-points on its switches which are normally in contact and thence, by a circuit-wire, to said third contact-pieces of its switches, and the other side or branch of the line being connected to said third contact-pieces, and an electric battery in said circuit-wire, in combination with pairs of loop-switch plugs adapted to be inserted into said switches, and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch which are normally in contact, and connect the two contact-pieces of the plug respectively with said third contact-piece of the switch connected with one side of the line and said contact-point of the pair connected with the other side of the line, a switch at the subscriber's station with contact-points to close the sides or branches of the line to each other while the subscriber's telephone is switched for use, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a switch testing plug or device, adapted at the will of the operator to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

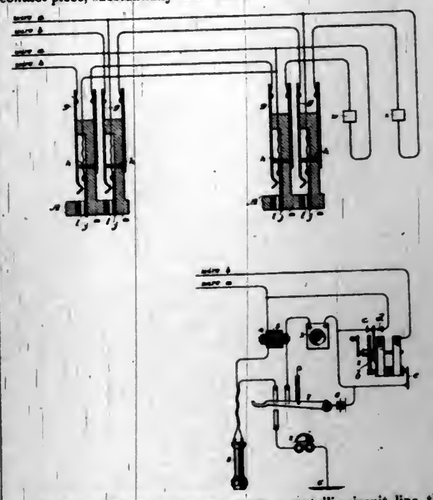
12. In a telephone-exchange system, the combination with several telephone-lines connected with multiple switchboards, of an individual test-battery or generator, individual polarized annunciators, one for each line and normally in the circuit of its line, and a test receiving instrument, the battery being so connected in relation to the annunciator as not to operate it when it is included in a closed circuit with it.

13. In a telephone-exchange system, the combination with a telephone-line, of a test-battery and a polarized annunciator, normally in circuit with the line, the battery being so connected in relation to the annunciator as not to operate it when it is included in closed circuit with it.

592,314. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,017. (No model.)

Claim.—1. In a telephone exchange system, a metallic-circuit line normally (or when the line is not in use) with its two branches open to each other at the subscriber's station and one of them grounded at the subscriber's station when it is not switched for conversation and not otherwise and having a subscriber's transmitter-battery in its circuit, and a switch at the central office containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections) said branch of the line which is normally grounded at the subscriber's station and has a battery in its circuit passing through said pair of contact-points and thence connected to said third contact-piece, in combination with a switch-plug adapted to be inserted into said switch and when inserted to disconnect the pair of contact-points which are normally in contact, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said third contact-piece of the switch, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit telephone-line having its two branches normally open to each other and one of them normally with the subscriber's transmitter-battery in its circuit and grounded at the subscriber's station when it is not in use but not otherwise, and a switch at the central office containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded at the subscriber's station passing through said pair of contact-points and thence connected to said third contact-piece, in combination with a switch-plug adapted to be inserted into said switch and when inserted to disconnect said pair of contact-points, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said third contact-piece, substantially as set forth.



3. In a telephone-exchange system, a metallic-circuit line, the two branches of which are normally open to each other and one of which is normally grounded and has a transmitter-battery in its circuit at the subscriber's station, and a switch with contact-points to remove said ground connection and close the two branches of the line to each other when the line is in use, in combination with a switch to open the closed circuit of the line at the central office when the line is in use, and a test receiving instrument grounded on one side and connected on its other side to a switch testing plug or device, adapted, at the will of the operator, to be brought into connection with the line with the contact-points of said office switch between the connection and the normal ground of the line at the subscriber's station, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, the two branches of which are normally open to each other at the subscriber's station and one of which is normally grounded and has a transmitter-battery in its circuit at the subscriber's station, and switches at each subscriber's station, each with contact-points to disconnect the line from said ground connection and close the two branches to each other when the line is in use, in combination with test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with that branch of any line which is normally grounded at the subscriber's station, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each line being normally (or when not in use) with its two branches open to each other and one of them grounded and with a transmitter-battery in its circuit at the subscriber's station when it is not in use and not otherwise, and switches, one on each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded and has a battery in its circuit at the subscriber's station passing, successively, through the pairs of contact-points of the switches of the line which are normally in contact and thence being connected to said third contact-pieces of the switches, in combination with switch-plugs adapted to be inserted into said switches and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

6. A test-circuit for a subscriber's line, containing normally, at the subscriber's station, a transmitter-battery and a pair of contact-points

normally closed but which are open when the subscriber's telephone is switched for use to open said test-circuit, and at the central office, switch contact-points which open the circuit when the line is switched for use but not otherwise, and a pair of contact-points which are normally open and are closed by an operator on testing, in combination with a test receiving instrument in said circuit, substantially as set forth.

7. A test-circuit for a subscriber's line, containing at the subscriber's station, normally, a transmitter-battery and a pair of contact-points normally closed but which are open when the subscriber's telephone is switched for use to open said test-circuit, and, at the central office, a series of pairs of contact-points normally closed, one pair on each of several multiple boards, each pair open when the line is switched at their board, and a pair of contact-points normally open and closed by an operator on testing, in combination with a test receiving instrument in said circuit, substantially as set forth.

8. A test-circuit for a subscriber's line, containing, at the subscriber's station, normally, a transmitter-battery, and a pair of contact-points normally closed but which are open when the subscriber's telephone is switched for use to open said test-circuit, and, at the central office, switch contact-points which open the circuit when the line is switched for use but not otherwise, in combination with a series of branch or derived circuits to said test-circuit, each containing a test receiving instrument and a pair of contact-points normally open and closed by the operator on testing, substantially as set forth.

9. A test-circuit for a subscriber's line, containing, at the subscriber's station, normally, a transmitter-battery, and a pair of contact-points normally closed but which are open when the subscriber's telephone is switched for use to open said test-circuit, and at the central office, a series of pairs of contact-points normally closed, one pair on each of several multiple boards, each pair open when the line is switched at their board, in combination with a series of branches or derived circuits to said test-circuit, each containing a test receiving instrument and a pair of contact-points normally open and closed by the operator on testing, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each line being normally (or when not in use) with its two branches open to each other and one of them grounded and with a transmitter-battery in its circuit at the subscriber's station when it is not in use, switches, one at each subscriber's station with contact-points to open such ground connection and close the two sides or branches of the line to each other when the subscriber's telephone is switched for use, and switches, one on each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded and has a battery in its circuit at the subscriber's station passing, successively, through the pairs of contact-points of the switches of the line which are normally in contact and thence being connected to said third contact-pieces of the switches, and said third contact-pieces being connected to the other side or branch of the line, in combination with loop-switch plugs adapted to be inserted into said switches and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the two contact-pieces of the plug, respectively, with said third contact-piece of the switch and with that contact-piece of the pair which is then connected with the first-mentioned side or branch of the line, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of said third contact pieces at its board, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each line being normally (or when not in use) with its two branches open to each other and one of them grounded and with a transmitter-battery in its circuit at the subscriber's station when it is not in use, switches, one at each subscriber's station with contact-points to open such ground connection and close the two sides or branches of the line to each other when the subscriber's telephone is switched for use, and switches, one on each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded and has a battery in its circuit at the subscriber's station passing, successively, through the pairs of contact-points of the switches of the line which are normally in contact and thence being connected to said third contact-pieces of the switches, and said third contact-pieces being connected to the other side or branch of the line, in combination with loop-switch plugs adapted to be inserted into said switches and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the two contact-pieces of the plug, respectively, with said third contact-piece of the switch and with that contact-piece of the pair which is then connected with the first-mentioned side or branch of the line, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

12. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each line being normally (or when not in use) with its two branches open to each other and one of them grounded and having normally the subscriber's transmitter-battery in its circuit, switches, one at each subscriber's station with contact-points to open such ground connection and close the two sides or branches of the line to each other when the subscriber's telephone is switched for use, and switches, one on each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded and has a battery in its circuit at the subscriber's station passing, successively, through the pairs of contact-points of the switches of the line which are normally in contact and thence being connected to said third contact-pieces of the switches, and said third contact-pieces being connected to the other side or branch of the line, in combination with loop-switch plugs, the two contact-pieces of each plug being connected with the two contact-pieces, respectively, of its mate by flexible switch-conductors, and each plug adapted to be inserted into said switches at its board, and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the two contact-pieces of the plug, respectively, with said third contact-piece of the switch and with that contact-piece of the pair which is then connected with the first-mentioned side or branch of the line, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

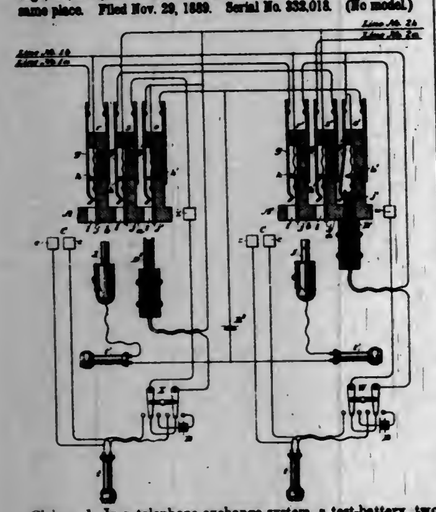
13. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each line being normally (or when not in use) with its two branches open to each other and one of them grounded and having normally the subscriber's transmitter-battery in its circuit, switches, one at each subscriber's station with contact-points to open such ground connection and close the two sides or branches of the line to each other when the subscriber's telephone is switched for use, and switches, one on each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded and has a battery in its circuit at the subscriber's station passing, successively, through the pairs of contact-points of the switches of the line which are normally in contact and thence being connected to said third contact-pieces of the switches, and said third contact-pieces being connected to the other side or branch of the line, in combination with pairs of loop-switch plugs, the two contact-pieces of each plug being connected with the two contact-pieces, respectively, of its mate by flexible switch-conductors, and each plug adapted to be inserted into said switches at its board, and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the two contact-pieces of the plug, respectively, with said third contact-piece of the switch and with that contact-piece of the pair which is then connected with the first-mentioned side or branch of the line, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of said third contact-pieces at its board, and a battery at the subscriber's station in the complete test-circuit thereby established, substantially as set forth.

14. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, one side or branch of each line being grounded, with a transmitter-battery in its circuit at the subscriber's station when it is not in use, switches, one at each subscriber's station with contact-points to open such ground connection and close the two sides or branches of the line to each other when the subscriber's telephone is switched for use, and switches, one on each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded and has a battery in its circuit at the subscriber's station, passing, successively, through the pairs of contact-points of the switches of the line which are normally in contact and thence being connected to said third contact-pieces of the switches, and said third contact-pieces being connected to the other side or branch of the line, in combination with loop-switch plugs adapted to be inserted into said switches and when a plug is inserted into a switch

to disconnect the pair of contact-points of the switch and connect the two contact-pieces of the plug, respectively, with said third contact-piece of the switch and with that contact-piece of the pair which is then connected with the first-mentioned side or branch of the line, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

15. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, one side or branch of each line being grounded, with a transmitter-battery in its circuit at the subscriber's station when it is not in use, switches, one at each subscriber's station with contact-points to open such ground connection and close the two sides or branches of the line to each other when the subscriber's telephone is switched for use, and switches, one on each board for each line, each switch containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded and has a battery in its circuit at the subscriber's station passing, successively, through the pairs of contact-points of the switches of the line which are normally in contact and thence being connected to said third contact-pieces of the switches, and said third contact-pieces being connected to the other side or branch of the line, in combination with pairs of loop-switch plugs, the two contact-pieces of each plug being connected with the two contact-pieces, respectively, of its mate by flexible switch-conductors, and each plug adapted to be inserted into said switches at its board, and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the two contact-pieces of the plug, respectively, with said third contact-piece of the switch and with that contact-piece of the pair which is then connected with the first-mentioned side or branch of the line, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of said third contact-pieces at its board, substantially as set forth.

592,815. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,018. (No model.)



Claim.—1. In a telephone-exchange system, a test-battery, two metallic-circuit lines normally disconnected from said battery, a double or loop-switch plug for one of said lines the two contact-pieces of which are connected to the two sides or branches of its line, respectively, a line-switch for the other of said lines adapted to receive said plug and when the plug is inserted to connect the two contact-pieces of the plug with the two sides or branches, respectively, of the line to which the switch belongs, and a switching device for said plug in which it is normally placed, said switching device having two contact-points which are disconnected when the plug is inserted and electrically connected when the plug is withdrawn, one of said contact-points being connected with the line to which the plug belongs and the other one being connected with one side of said test-battery but not through the ground, in combination with a switch testing device connected on the other side of said test-battery and adapted, at the will of the operator, to be brought into connection with either line, and a test receiving instrument in the test-circuit thus established, substantially as set forth.

2. In a telephone-exchange system, a test-battery, a metallic-circuit line normally disconnected from said battery, the two sides or branches of which are connected to the two contact-pieces, respectively, of a double or loop-switch plug, another metallic-circuit line also normally disconnected from said battery and having a line-switch adapted to receive said plug and when the plug is inserted to connect the two contact-pieces of the plug with the two sides or branches, respectively, of the line to which the switch belongs and thereby connect the two lines together for conversation, and a switching device with contact-points to connect the circuit of said lines with one side of said test-battery but not through the ground when they are thus connected for conversation and not otherwise, in combination with a switch testing device connected on the other side of said test-battery and adapted, at the will of the operator, to be brought into connection with either line, and a test receiving instrument in the test-circuit thereby established, substantially as set forth.

3. In a telephone-exchange system, a test-battery, two metallic-circuit lines normally disconnected from said battery, a double or loop plug for one of said lines the two contact-pieces of which are connected to the two sides or branches of its line, respectively, a line-switch for the other of said lines adapted to receive said plug and when the plug is inserted to connect the two contact-pieces of the plug with the two sides or branches, respectively, of the line, to which the switch belongs, and a switching device with two contact-points normally separated but in contact when the lines are switched for conversation, one of said points being connected to one of said lines and the other point being connected to one side of said test-battery but not through the ground, in combination with a switch testing device connected to the other side of said test-battery and adapted, at the will of the operator, to be brought into connection with either line, and a test receiving instrumeet in the circuit thereby established, substantially as set forth.

4. In a telephone-exchange system, a local ungrounded test wire or circuit containing a test receiving instrument and a test-battery, in combination with two metallic-circuit lines normally disconnected from said test wire or circuit, a double or loop plug the two contact-pieces of which are connected to the two sides or branches of one of said lines, a line-switch for the other line adapted to receive said plug and when the plug is inserted to connect the two contact-pieces of the plug with the two sides or branches of said other line and connect the two lines together for conversation, a switching device in which said plug is normally placed, adapted on the withdrawal of the plug from it to connect electrically the line to which the plug belongs with one end of said test wire or circuit, and a switch testing device adapted, at the will of the operator, to connect said test wire or circuit at its other end to either of said lines, substantially as set forth.

5. In a telephone-exchange system, a local ungrounded test wire or circuit containing a test receiving instrument and a test-battery, in combination with two metallic-circuit lines normally disconnected from said test wire or circuit, a double or loop plug the two contact-pieces of which are connected to the two sides or branches of one of said lines, a line-switch for the other line adapted to receive said plug and when the plug is inserted to connect the two contact-pieces of the plug with the two sides or branches of said other line and connect the two lines together for conversation, a switching device with contact-points to electrically connect the circuit of the two lines when they are thus connected together with one end of said test wire or circuit, and a switch testing device adapted, at the will of the operator, to connect said test wire or circuit, at its other end, to either of said lines, substantially as set forth.

6. In a telephone-exchange system, metallic-circuit lines each normally disconnected from one side of a test-battery and having its two sides or branches connected to the two contact-pieces respectively of a loop-switch plug adapted to be placed in the switch of any other line and when so placed to connect the two contact-pieces of the plug with the two sides or branches of such other line, in combination with a switching device for each plug, into which the plug is normally placed, contact points and connections by which its line is automatically connected with such side of said test-battery by the withdrawal of the plug from its device, a test plug or device connected to the other side of said test-battery and adapted to be brought for testing into connection with either of said lines and a test receiving instrument in any circuit thereby established on testing, substantially as set forth.

7. In a telephone-exchange system, metallic-circuit lines and loop-switch plugs, one for each line, to the two contact-pieces of which are connected, respectively, the two sides or branches of the line, in combination with a test-battery, a switching device for each line, into which the plug of the line is normally placed, said switching device containing two contact-pieces which are out of contact when the plug is in the device but are automatically closed to each other by the withdrawal of the plug, one of said contacts being connected to the line and the other to one side of said test-battery, a plug connected to the other side of the battery and adapted to be brought for testing into connection with the line and a test receiving instrument in the test-circuit thereby established on testing, substantially as set forth.

8. In a telephone-exchange system, electric circuits and switch-plugs, one for each circuit, in combination with a test-battery, a switching device for each circuit, into which the plug of the circuit is normally placed, said switching device containing two contact-pieces which are out of contact when the plug is in the device but are automatically closed to each other by the withdrawal of the plug, one of said contacts being connected to the circuit and the other to one side of said test-battery, a plug connected to the other side of the battery and adapted to be brought for testing into connection with the circuit and a test receiving instrument in the test-circuit thereby established on testing, substantially as set forth.

9. In a telephone-exchange system, a local test wire or circuit containing a test receiving instrument and a test-battery in combination with two metallic-circuit lines normally disconnected from said test wire or circuit, a double or loop plug the two contact-pieces of which are connected to the two sides or branches of one of said lines, a line-switch for the other line adapted to receive said plug and when the plug is inserted to connect the two contact-pieces of the plug with the two sides or branches of said other line and connect the two lines together for conversation, a switching device in which said plug is normally placed, adapted on the withdrawal of the plug from it to connect electrically the line to which the plug belongs with one end of said test wire or circuit, and a switch testing device adapted at the will of the operator, to connect said test wire or circuit at its other end to either of said lines, substantially as set forth.

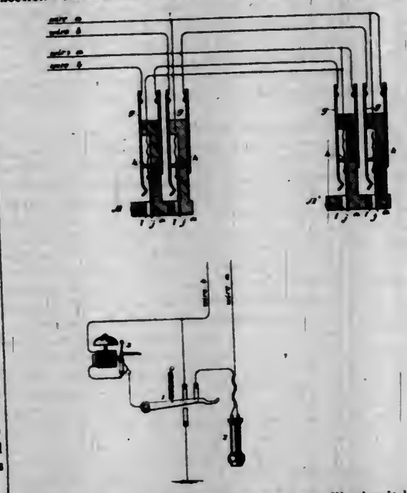
10. In a telephone-exchange system, a local test wire or circuit containing a test receiving instrument and a test-battery, in combination with two metallic-circuit lines normally disconnected from said test wire or circuit, a double or loop plug, the two contact-pieces of which are connected to the two sides or branches of one of said lines, a line-switch for the other line adapted to receive said plug and when the plug is inserted to connect the two contact-pieces of the plug with the two sides or branches of said other line and connect the two lines together for conversation, a switching device with contact-points to electrically connect the circuit of the two lines when they are thus connected together with one end of said test wire or circuit, and a switch testing device adapted at the will of the operator, to connect said test wire or circuit, at its other end, to either of said lines, substantially as set forth.

11. In a telephone-exchange multiple-switchboard system, a metallic-circuit line, a loop-switch plug for said line in the two contact-pieces of which the two sides or branches of the line respectively terminate, and a switching device in which said plug is normally placed, said device having electrically-connected contact-pieces, with which the two contact-pieces of the plug make contact to electrically connect or bridge the contact-pieces of the plug when it is inserted therein, and a contact against which a line-connected contact bears, when the plug is withdrawn, to connect the line with one side of a test receiving instrument, substantially as set forth.

12. In a telephone-exchange multiple-switchboard system, a metallic-circuit line, a loop-switch plug for said line in the two contact-pieces of which the two sides or branches of the line respectively terminate, and a switching device in which said plug is normally placed, said device having means for electrically connecting or bridging the two sides of the line when the plug is in its normal position therein and a contact against which a line-connected contact bears, when the plug is withdrawn from the switching device, to then connect the line with one side of a test receiving instrument, substantially as set forth.

592,816. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,019. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit line normally (or when it is not in use) with its two branches open to each other at the subscriber's station and one of them with an automatic circuit-breaking bell in its circuit and grounded at the subscriber's station when his telephone is not switched for use but not otherwise, and a switch at the central office containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch of the line which is normally grounded at the subscriber's station passing through said pair of contact-points and thence connected to said third contact-piece, in combination with a switch-plug adapted to be inserted into said switch and when inserted to disconnect the pair of contact-points which are normally in contact, and a test wire or circuit at the central office containing a test receiving instrument and battery and grounded at one end and connected at its other end to a test plug or device adapted, at the will of the operator, to be brought into connection with said third contact-piece, substantially as set forth.



2. In a telephone-exchange system, a metallic-circuit line having one of its branches with an automatic circuit-breaking bell in its circuit and grounded at the subscriber's station when his telephone is not switched for use but not otherwise and its branches normally open to each other, and a switch at the central office containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch which is thus normally grounded passing through said pair of contact-points and thence connected to said third contact-piece, in combination with a switch-plug adapted to be inserted into said switch and when inserted to disconnect said pair of contact-points, and a test wire or circuit at the central office containing a test receiving instrument and battery and grounded at one end and connected at its other end to a test plug or device adapted, at the will of the operator, to be brought into connection with said third contact-piece, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line having one of its branches with an automatic circuit-breaking bell in its circuit and grounded at the subscriber's station when his telephone is not switched for use but not otherwise and with its branches normally open to each other, and a switch at the central office containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch which is thus normally grounded passing through said pair of contact-points and thence connected to said third contact-piece, in combination with a switch-plug adapted to be inserted into said switch and when inserted to disconnect said pair of contact-points, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said third contact-piece, and a battery in the test-circuit thereby established, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line the two branches of which are normally open to each other and one of which has an automatic electric-circuit breaker in its circuit and is grounded at the subscriber's station when his telephone is not switched for use, and a switch with contact-points to close said branches to each other and remove said ground connection when the telephone is switched for use, in combination with a switch at the central office with contact-points to open the closed circuit of the line there when the line is switched for use, and a test wire or circuit containing a test receiving instrument and battery and grounded on one side and connected on its other end with a test plug or device adapted, at the will of the operator, to be brought into connection with the line with the pair of contact-points of said office switch between said connection and the normal ground of the line at the subscriber's station, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line the two branches of which are normally open to each other and one of which has an automatic electric-circuit breaker in its circuit and is

grounded at the subscriber's station when his telephone is not switched for use, and a switch with contact-points to close said branches to each other and remove said ground connections when the telephone is switched for use, in combination with a switch at the central office with contact-points to open the circuit of the line when the line is switched for use, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the line with the pair of contact-points of said office switch between said connection and the normal ground of the line at the subscriber's station, and a battery in the test-circuit thereby established, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each normally (or when not in use) with its two branches open to each other and one of them with an automatic electric-circuit breaker in its circuit and grounded at the subscriber's station when his telephone is not switched for use but not otherwise, and switches at the central office, one on each board for each line, each containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections) said branch of each line which is thus normally grounded passing successively through said pairs of contact-points of its switches and thence connected to said third contact-pieces of its switches, in combination with switch-plugs adapted to be inserted into said switches and when a plug is inserted to disconnect the contact-points of the switch, test receiving instruments one at each board, each grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of said third contact-pieces of the switches at its board, and a battery in the test-circuit thereby established, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each of which has its two branches normally open to each other and one of the branches with an automatic electric-circuit breaker in its circuit and grounded at the subscriber's station when his telephone is not switched for use, and a switch for each line with contact-points to close its branches to each other and remove its ground connection when the subscriber's telephone is switched for use, in combination with a switch on each board for each line to open the circuit of the line when it is switched at the board, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any line with the pairs of contact-points of its said switches between said connection and its normal ground connection, substantially as set forth.

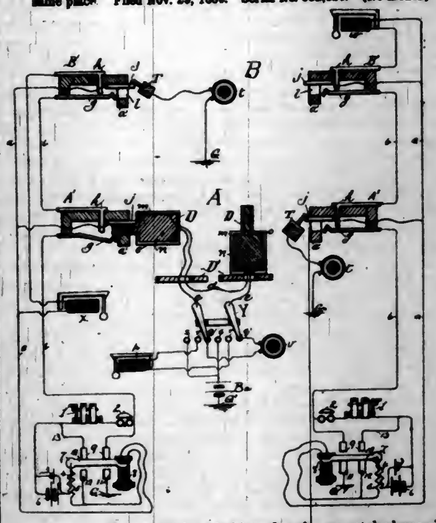
8. A test-circuit for a subscriber's line containing normally at the subscriber's station an automatic circuit-breaking bell and a pair of contact-points which are open when the subscriber's telephone is switched for use but not otherwise and at the central office a pair of contact-points which are open when the line is switched for use but not otherwise, a pair of contact-points which are normally open and closed by the operator on testing and a test receiving instrument and battery, substantially as set forth.

9. A test-circuit for a subscriber's line containing at the subscriber's station, normally, an automatic circuit-breaking bell and a pair of contact-points which are open when the subscriber's telephone is switched for use but not otherwise, and at the central office, switch contact-points which open the circuit when the line is switched but not otherwise, a series of branch or derived circuits to said test-circuit, each containing a test receiving instrument and pair of contact-points normally open and closed by the operator on testing, and a battery in any test-circuit established, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line having one of its branches with both an automatic circuit-breaking bell in its circuit at the subscriber's station and grounded at the subscriber's station when his telephone is not switched for use but not otherwise, and a switch at the central office containing a pair of contact-points normally in contact and a third contact-piece insulated from the rest (except by the circuit connections), said branch which is thus normally grounded passing through said pair of contact-points and thence connected to said third contact-piece, in combination with a switch-plug adapted to be inserted into said switch and when inserted to disconnect said pair of contact-points, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said third contact-piece, and a battery in the test-circuit thereby established, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, metallic-circuit lines connected to the same, each of which has one of the branches with both an automatic electric-circuit breaker in its circuit at the subscriber's station and grounded at the subscriber's station when his telephone is not switched for use, and a switch for each line with contact-points to remove its ground connection when the subscriber's telephone is switched for use, in combination with a switch on each board for each line to open the circuit of the line when it is switched at the board, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any line with the pairs of contact-points of its said switches between said connection and its normal ground connection, and a battery in the test-circuit thereby established, substantially as set forth.

592,317. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,080. (No model.)



Claim.—1. In a multiple-switchboard exchange, a telephone-circuit, a test-circuit associated therewith including normally closed switchboard contacts at central opened while in use, and including a pair of normally closed switch-contacts at the subscriber's station opened when the subscriber's telephone is switched for use, and including also a test-battery individual to the subscriber and located in said circuit between said normally closed contacts at central and at the subscriber's station.

2. In a multiple-switchboard exchange, a telephone-line, a test-circuit associated therewith including normally closed switchboard-contacts, opened when said telephone-line is switched for use at central, and including normally closed switch-contacts at the subscriber's station open while the telephone is switched for use, and including also a test-battery individual to the subscriber and located in said test-circuit between said contacts at central and at the subscriber's station switched from said test-circuit while the telephone is switched for use.

3. In a multiple-switchboard exchange, a telephone-line, and a test-circuit, a conductor common to both containing a test-battery individual to the subscriber, a pair of normally closed switch-contacts on one side of said battery, opened while the subscriber's telephone is switched for use, and normally closed switchboard-contacts at central on the other side of the battery, open while the telephone-line is switched for use thereat.

4. In a multiple-switchboard exchange, a telephone-line containing in the order named a normal ground connection at the subscriber's station, telephone-switch contacts by which said connection is opened when the telephone is switched for use, a combined test and transmitter battery, normally closed switchboard-contacts at two or more boards opened while the line is switched for use thereat, and test-contacts at said boards, in combination with grounded test receiving instruments at said boards adapted to be connected to said test-contacts for testing.

5. In a multiple-switchboard exchange, a metallic-circuit line and test-circuit associated therewith containing, in the order named, a normally closed ground connection at the subscriber's station, a combined test and transmitter battery, a line conductor, switchboard-contacts at central normally closed but open while the line is switched for use, test-contacts at said boards, and a return conductor connected

at the subscriber's station to the normally-grounded limb, in combination with grounded test receiving instruments adapted to be connected to said test-contacts for testing.

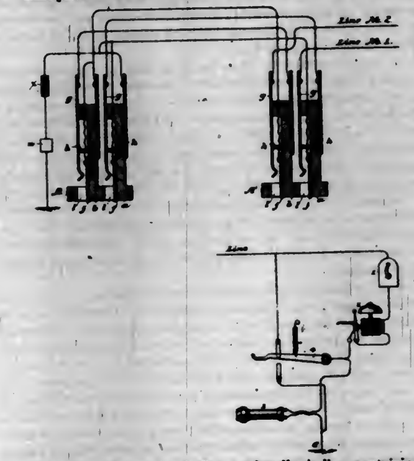
6. In a multiple-switchboard exchange, a telephone-line, a test-circuit associated therewith including normally closed switchboard-contacts at central, opened while in use, and including a pair of normally closed switch-contacts at the subscriber's station opened when the subscriber's telephone is switched for use, and including also a test-battery individual to the subscriber and located in said test-circuit between said normally-closed contacts at central and at the subscriber's station, switched from said circuit while the line is in use.

7. In a multiple-switchboard exchange, a telephone-line, a test-circuit, a conductor common to both, containing an individual test-battery when the subscriber's telephone is not switched for use but not otherwise in said circuit, a pair of normally closed switch-contacts on one side of said battery opened while the subscriber's telephone is switched for use, and normally closed switchboard-contacts at central on the other side of said battery open while the line is there switched for use.

8. In a multiple-switchboard exchange, two tied-up lines connected together at a board, subscribers' outfits in their normal position, test-batteries in said lines, grounded test receiving instruments applied to said connected lines for testing, and ground connections short-circuiting said test receiving instruments rendering them unresponsive to said battery or batteries.

9. In a multiple-switchboard exchange, two tied-up lines connected together at a board, a test-battery in each of said lines, a test receiving instrument in circuit with said batteries, and a short circuit rendering said instrument unresponsive to said batteries.

592,318. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,021. (No model.)



Claim.—1. A test-circuit for a subscriber's line, containing an automatic circuit-breaker in the circuit at the subscriber's station when his telephone is not switched for use but not otherwise, and at the central office a pair of contact-points open when the line is switched at its board but not otherwise, a pair of contact-points normally open but closed by the operator on testing, and a test receiving instrument and battery, substantially as set forth.

2. A test-circuit for a subscriber's line, containing at the central office a pair of contact-points open when the line is switched at its board but not otherwise, a pair of contact-points normally open but closed by the operator on testing, a test receiving instrument and battery, and a current-varying device at the subscriber's station normally in said test-circuit but switched from it when the subscriber's telephone is switched for use, substantially as set forth.

3. A test-circuit for a subscriber's line, containing an automatic circuit-breaker at the subscriber's station when his telephone is not switched for use but not otherwise, and at the central office a series of pairs of contact-points normally closed, one pair on each of several multiple switchboards and each pair open when the line is switched at its board, a pair of contact-points normally open but closed by the operator on testing, and a test receiving instrument and battery, substantially as set forth.

4. A test-circuit for a subscriber's line, containing at the central office a series of pairs of contact-points normally closed, one pair on each of several multiple switchboards and each pair open when the line is switched at its board, a pair of contact-points normally open but closed by the operator on testing, a test receiving instrument and battery, and a current-varying device at the subscriber's station normally in said test-circuit but switched from it when the subscriber's telephone is switched for use, substantially as set forth.

5. A test-circuit for a subscriber's line, containing at the subscriber's station an automatic circuit-breaker in circuit when his telephone is not switched for use but not otherwise, and a pair of contact-points normally closed but open when the line is switched for use, a series of branch or derived circuits to said test-circuit, each containing a test receiving instrument and a pair of contact-points normally open but closed by the operator on testing, and a test-battery, substantially as set forth.

6. A test-circuit for a subscriber's line, containing at the central office a pair of contact-points normally closed but open when the line is switched for use at its board, a branch or derived circuit to said test-circuit, containing a test receiving instrument and a pair of contact-points normally open but closed by the operator on testing, and a test-battery, an instrument at the subscriber's station which gives a defined indication on said test receiving instrument when closed with it and the battery and which is normally in said test-circuit but switched from it when the subscriber's telephone is switched for use, substantially as set forth.

7. A test-circuit for a subscriber's line, containing at the subscriber's station an automatic circuit-breaker in circuit when his telephone is not switched for use but not otherwise, and at the central office a series of pairs of contact-points normally closed, one pair on each of several multiple switchboards, and each pair open when the line is switched at its board, a series of branch or derived circuits to said test-circuit, one for each of said boards and each containing a test receiving instrument, a battery, and a pair of contact-points normally open but closed by an operator on testing, substantially as set forth.

8. A test-circuit for a subscriber's line containing at the central office, a series of pairs of contact-points normally closed, one pair on each of several boards, and each pair open when the line is switched at its board, and a series of branch or derived circuits to said test-circuit, one for each of said boards, and each containing a test receiving instrument and a pair of contact-points normally open but closed by an operator on testing, a test-battery and a current-varying device at the subscriber's station normally in said test-circuit but switched from it when the subscriber's telephone is switched for use, substantially as set forth.

9. In a telephone-exchange system, a subscriber's line grounded at its outer end and containing at the subscriber's station an automatic circuit-breaker when the subscriber's telephone is not switched for use but not otherwise, a switch at the central office having a pair of contact-points normally in contact, but separated by the insertion of a switch-plug, and a test contact-piece insulated from the rest, (except by the circuit connections), said line passing through said pair of contact-points and thence to said test contact-piece, in combination with a test receiving instrument grounded on one side and connected on its other side to a test plug or device, adapted, at the will of the operator to be brought into connection with said test contact-piece and a battery in the test-circuit, substantially as set forth.

10. In a telephone-exchange system, a subscriber's line normally grounded at the outer end and containing at the subscriber's station an automatic circuit-breaker when the subscriber's telephone is not switched for use, but not otherwise, and at the central office a switch containing a pair of contact-points normally in contact but separated by a switch-plug on its insertion, a test contact-piece insulated from the rest (except by the circuit connections) and a resistance, said line passing through said pair of contact-points and thence through said resistance to ground, and said test contact-piece being connected to the line-circuit between the pair of contact-points and the resistance, in combination with a test-wire containing a test receiving instrument and battery grounded at one end and connected at its other end to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, substantially as set forth.

11. In a telephone-exchange system, a subscriber's line grounded at its outer end, and at the central office, a switch containing a pair of contact-points, and an insulated test contact-piece, said line passing through said contact-points and thence being connected to said test contact-piece and said contact-points being normally in contact but opened by a switch-plug on its insertion, in combination with a test receiving instrument grounded at one side and connected at its other side to a switch plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, a battery in the test-circuit, and a current-varying device at the subscriber's station normally in circuit with said line but switched from

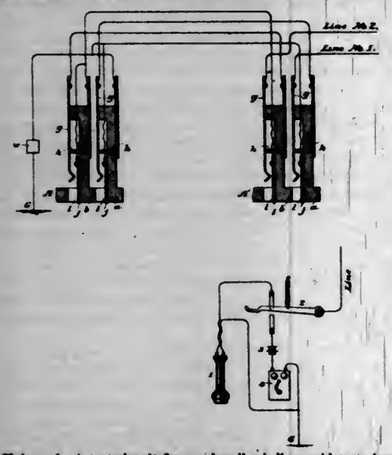
circuit when the subscriber's telephone is switched for use, substantially as set forth.

12. In a telephone-exchange system, a subscriber's line grounded at its outer end and at the central office a switch containing a pair of contact-points normally in contact but separated by a switch-plug on its insertion, a test contact piece insulated from the rest (except by the circuit connections) and a resistance, said line passing through said pair of contact-points and thence through said resistance to ground and said test contact-piece being connected to its circuit between the pair of contact-points and the resistance, in combination with a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, a battery in the circuit between the plug and the ground, and a current-varying device at the subscriber's station normally in the circuit of the line but switched from the circuit when the subscriber's telephone is switched for use, substantially as set forth.

13. In a telephone-exchange system, multiple switchboards, single-circuit lines connected to the same, each line being grounded at its outer end and having at its subscriber's station an automatic circuit-breaker, and a switch with contact-points to switch the circuit-breaker into the circuit of the line when the subscriber's telephone is not switched for use and to switch it from the circuit of the line when the telephone is switched for use, in combination with test contact-pieces one for each line on each board and normally connected to the line, switches with contact-points to disconnect any line from its test contact-pieces when it is switched for use, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted, at the will of an operator, to be brought into connection with any test contact-piece at its board, and a test-battery, substantially as set forth.

14. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same and each grounded at its outer end and having at its subscriber's station an automatic circuit-breaker and a switch with contact-points to switch the circuit-breaker into the circuit of the line when the subscriber's telephone is not switched for use and to switch it from the circuit of the line when the telephone is switched for use, in combination with test contact-pieces, one for each line, on each board, and normally connected to the line, switches with contact-points to disconnect any line from its test contact-pieces when it is switched for use, resistance-coils, each grounded on one side and connected to the circuit of a line between the contact-points of its switches and its test contact-pieces, and test wires or circuits, one for each board, each containing a test receiving instrument and battery and grounded at one end and connected on its other end to a test plug or device adapted, at the will of an operator, to be brought into connection with any test contact-piece at her board, substantially as set forth.

592,319. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 333,022. (No model.)



Claim.—1. A test-circuit for a subscriber's line, said test-circuit being permanently closed at the subscriber's station and extending from the office ground through a test-receiving instrument and a pair of switch contact-points in the central office, normally closed but open while the line is switched for use, and through the circuit of the line to the subscriber's ground, a pair of test-contacts in such circuit, normally open but closed by the operator on testing, and a battery in said circuit at the subscriber's station while his telephone is not switched for conversation but not otherwise, substantially as set forth.

2. A test-circuit for a subscriber's line, said test-circuit being permanently closed at the subscriber's station and extending from the office ground, through a test receiving instrument and a series of pairs of switch contact-points, one pair on each of several boards and each pair open while the line is switched at their board, and through the circuit of the line to the subscriber's ground, a pair of test contact-points in such circuit, normally open but closed by the operator on testing, and a battery in said circuit at the subscriber's station while his telephone is not switched for conversation but not otherwise, substantially as set forth.

3. A test-circuit for a subscriber's line, said test-circuit being permanently closed at the subscriber's station and extending from his ground through the circuit of the line, and a series of pairs of switch contact-points, one pair on each of several boards and each pair normally closed but open while the line is switched at their board, and thence to ground through a series of branch or derived circuits, one for each board, and each containing a test receiving instrument and a pair of test-contacts, normally open but closed by the operator at the board on testing, and a battery at the subscriber's station in the circuit, while his telephone is not switched for conversation, but not otherwise, substantially as set forth.

4. A test-circuit for a subscriber's line, said test-circuit being permanently closed at the subscriber's station and extending from the office ground through a test receiving instrument and a pair of switch contact-points in the central office, normally closed but open while the line is switched for use, and through the circuit of the line to the subscriber's ground, a pair of test-contacts in such circuit, normally open but closed by the operator on testing, and a battery in said circuit when the subscriber's telephone is not switched for use, but not otherwise, in combination with a resistance grounded on one side and connected on its other side to said circuit between said switch contact-points on the one hand and said test contact-points on the other hand, substantially as set forth.

5. A test-circuit for a subscriber's line, said test-circuit being permanently closed at the subscriber's station and extending from the office ground, through a test receiving instrument and a series of pairs of switch contact-points, one pair on each of several boards and each pair open while the line is switched at their board, and through the circuit of the line to the subscriber's ground, a pair of test contact-points in such circuit, normally open but closed by the operator on testing, and a battery in said circuit at the subscriber's station while his telephone is not switched for conversation but not otherwise, in combination with a resistance grounded on one side and connected on its other side to said circuit between said switch contact-points on the one hand and said test contact-points on the other hand, substantially as set forth.

6. A test-circuit for a subscriber's line, said test-circuit being permanently closed at the subscriber's station and extending from his ground through the circuit of the line, and a series of pairs of switch contact-points, one pair on each of several boards and each pair normally closed but open while the line is switched at their board, and thence to ground through a series of branch or derived circuits, one for each board, and each containing a test receiving instrument and a pair of test-contacts, normally open but closed by the operator at the board on testing, and a battery at the subscriber's station in the circuit, while his telephone is not switched for conversation, but not otherwise, in combination with a resistance grounded on one side and connected on its other side to said circuit between said switch contact-points on the one hand, and said test contact-points on the other hand, substantially as set forth.

7. In a telephone-exchange system, a subscriber's line permanently grounded at its outer end and containing at its subscriber's station a battery in its circuit when his telephone is not switched for use but not otherwise, a switch at the central office containing a pair of contact-points normally in contact but separated by a switch-plug on its insertion, and a test contact-piece insulated from the rest (except by the circuit connections), said line passing through said pair of contact-points and thence to said test contact-piece, in combination with a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, substantially as set forth.

8. In a telephone-exchange system, a subscriber's line permanently grounded at its outer end and containing at the subscriber's station a battery in its circuit when his telephone is not switched for use but not otherwise, and at the central office a switch containing a pair of contact-points normally in contact and separated by a switch-plug on its insertion, a test contact-piece insulated from the rest (except by the circuit connections), and a resistance-coil, said line passing through the pair of contact-points and thence to ground through the resistance-coil, and said test contact-piece being connected to the circuit of the line between the pair of contact-points and the resistance coil, in combination with a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, substantially as set forth.

9. In a telephone-exchange system, a subscriber's line permanently grounded at its outer end, and at his station a battery and a switch with contact-points to switch the battery into the circuit of the line while his telephone is not switched for use and to switch the battery from the circuit while the telephone is switched for use, in combination with a test contact-piece at the central office normally connected to said line, a switch with contact-points to disconnect said contact-piece from the line while the line is switched for use, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, substantially as set forth.

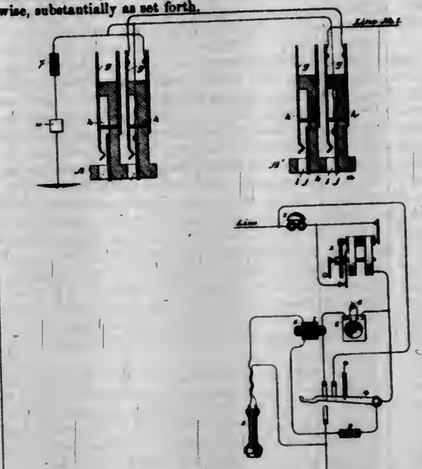
10. In a telephone-exchange system, a subscriber's line permanently grounded at its outer end, and at his station a battery and a switch with contact-points to switch the battery into the circuit of the line when his telephone is not switched for use and to switch the battery from the circuit when the line is switched for use, in combination with a test contact-piece at the central office normally connected to said line, a switch with contact-points to disconnect said contact-piece from the line when the line is switched for use, a resistance-coil grounded on one side and connected to the circuit of the line between the contact-points and the contact-piece, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said contact-piece, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards and telephone-lines connected to the same, each line being permanently grounded at its outer end and having at his subscriber's station a battery and a switch with contact-points to switch the battery into the circuit of the line while the subscriber's telephone is not switched for use and to switch it from the line while the telephone is switched for use, in combination with test contact-pieces, one for each line on each board, the contact-pieces of the line being normally connected to it, switches at the several boards with contact-points to disconnect a line from its test contact-pieces while the line is switched for use, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted, at the will of an operator, to be brought into connection with any test contact-piece at its board, substantially as set forth.

12. In a telephone-exchange system, multiple switchboards and telephone-lines connected to the same, each line being permanently grounded at its outer end and having at his subscriber's station a battery and a switch with contact-points to switch the battery into the circuit of the line while the subscriber's telephone is not switched for use and to switch it from the line while the telephone is switched for use, in combination with test contact-pieces, one for each line on each board, and each normally connected to its line, switches on the several boards with contact-points to disconnect a line from its test contact-pieces while the line is switched for use, resistance-coils one for each line grounded on one side and connected on its other side to the line between its switch contact-points and its test contact-pieces, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with any of the test contact-pieces at its board, substantially as set forth.

592,320. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 333,023. (No model.)

Claim.—1. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test contact-plug and thence to a line-contact when the test is applied, thence in one direction to the office ground through a comparatively high resistance and in the other direction to the subscriber's ground through a pair of switch-contact points in the central office and the subscriber's-station apparatus, in combination with a switch-plug which separates said pair of contact-points while it switches the line, and a switch, apparatus and circuits at the subscriber's station to switch apparatus of comparatively high resistance into the circuit of line when the telephone is switched for use and low resistance when it is not thus switched, said test receiving instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and said several resistances and the circuit to the degree that the instrument sounds when on the test being made neither the telephone nor the line is switched for use and not otherwise, substantially as set forth.



2. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test contact-plug and thence to a line-contact when the test is applied, thence in one direction to the office ground through a comparatively high resistance and in the other direction to the subscriber's ground through a series of pairs of switch contact-points, one on each of several boards, in combination with switch-plugs adapted to be inserted into the switches for switching and when a plug is inserted into a switch to separate its said pair of contact-points while the line is thus switched for use, and a switch, apparatus and circuits at the subscriber's station to switch apparatus of comparatively high resistance into the line-circuit while his telephone is switched for use, and of comparatively low resistance while it is not thus switched, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and said several resistances and the circuit to the degree that the instrument sounds when on the test being made neither the telephone nor the line is switched for use but not otherwise, substantially as set forth.

3. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument to a test contact-plug and thence to a line contact-point when the test is applied, thence in one direction to the office ground through a comparatively high resistance and in the other direction to the subscriber's ground through a pair of switch contact points in the central office and the subscriber's-station apparatus, and a battery, in combination with a switch-plug adapted to be inserted into the switch and when inserted to separate the contact-points while the line is switched for use, and a switch apparatus and circuits at the subscriber's station to switch apparatus of comparatively high resistance into the circuit of the line when the telephone is switched for use and of comparatively low resistance when it is not thus switched, said test instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and said several resistances and the circuit to the degree that the instrument sounds when on the test being made neither the telephone nor the line is switched for use but not otherwise, substantially as set forth.

4. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test contact-plug and thence to a line contact-point when the test is applied, thence in one direction to the office ground through a comparatively high resistance and in the other direction to the subscriber's ground through a pair of switch contact-points in the central office and the subscriber's-station apparatus, in combination with a switch-plug adapted to be inserted into the switch and when inserted to separate the said contact-points while the line is switched for use and a switch at the subscriber's station with contact-points to switch his telephone, secondary of induction-coil and resistance-coil into the circuit of the line while his telephone is switched for use and the signal-bell into the circuit while the telephone is not thus switched, said test instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and said several

resistances and the circuit to the degree that the instrument sounds when on the test being made neither the telephone nor the line is switched for use and not otherwise, substantially as set forth.

5. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument to a test-plug, thence to a line contact-point when the test is applied, thence in one direction to the office ground through a resistance-coil, and in the other direction to the subscriber's ground through a pair of switch contact-points at the central office, and the subscriber's-station apparatus, and battery, in combination with a switch-plug adapted to be inserted into the switch and when inserted to separate the said pair of contact-points while the line is switched for use and a switch at the subscriber's station with contact-points to switch his telephone and secondary of the induction-coil into the line-circuit while his telephone is switched for use and the signal-bell into the circuit while the telephone is not thus switched, said test instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being adjusted to the battery and said several resistances and circuit to the degree that it sounds when on the test being made neither the subscriber's telephone nor the line is switched for use and not otherwise, substantially as set forth.

6. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit, in the station apparatus, a comparatively high resistance while his telephone is switched for use and a comparatively low resistance while it is not thus switched, a switch at the central office having a pair of contact-points normally in contact but separated while the line is thereby switched for use, and a test contact-piece insulated from the rest (except by the circuit connections), said line passing through said pair of contact-points and thence to said test contact-piece, in combination with a resistance-coil grounded on one side and connected on the other side to the line-circuit between the contact-points and the test contact-piece, and a test receiving instrument with battery grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being adjusted to the battery and said several resistances and circuits to the degree that it sounds when on the test being made neither the subscriber's telephone nor the line is switched for use and not otherwise, substantially as set forth.

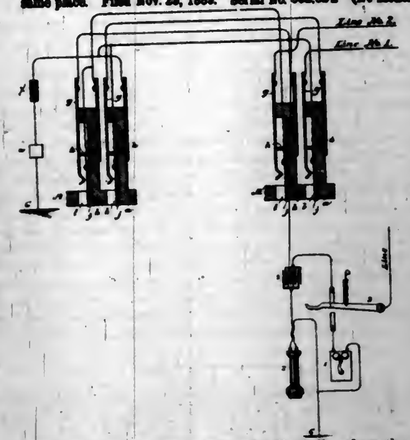
7. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit in the station apparatus, a comparatively high resistance while his telephone is switched for use and a comparatively low resistance while the telephone is not thus switched, a series of switches at the central office for said line, one switch on each of several boards, each having a pair of contact-points normally in contact but separated while the line is thereby switched, and a test contact-piece insulated from the rest (except by the circuit connections) said line passing successively through its said pair of contact-points and thence to said test contact-piece, in combination with a resistance-coil grounded on one side and connected on its other side to the line after it has passed through said pairs of contact-points, and a test wire or circuit containing a test receiving instrument and battery, grounded on one side and connected on its other side to a test plug or device adapted at the will of the operator to be brought into connection with said test contact-piece, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being adjusted to the battery and said several resistances and the circuits to the degree that it sounds when, on the test being made, neither the subscriber's telephone nor the line is switched for use, but not otherwise, substantially as set forth.

8. In a telephone-exchange system, a subscriber's line grounded at its outer end, and at the subscriber's station a switch with contact-points to switch his telephone, secondary of induction-coil and a resistance into the circuit while the telephone is switched for use and the signal-bell into the circuit while it is not thus switched, in combination with a test contact-piece normally connected to the line, switch contact-points which disconnect said contact-piece from the line while the line is switched for use, a resistance-coil connected to said contact-piece on one side and grounded on the other, and a test-wire containing a test receiving instrument and battery, grounded on one side and connected on the other side to a test plug or device adapted to be brought for testing into connection with said test contact-piece, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being adjusted to the battery and said several resistances and circuits to the degree that it will sound when on the test being made neither said telephone nor the line is switched for use and not otherwise, substantially as set forth.

9. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit at his station apparatus of comparatively high resistance while his telephone is switched for use and of comparatively low resistance while it is not thus switched, in combination with a series of test contact-pieces, one piece on each of several boards and normally connected to the line, switch contact-points which disconnect the line from its said contact-pieces while it is switched for use, a resistance-coil connected on one side to said contact-pieces and grounded on the other side, in combination with test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test-plug adapted to be brought for testing into connection with the test contact-piece at its board, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being connected in circuit with a battery and adjusted to it and said several resistances and the circuits to the degree that it will sound when on the test being made neither said telephone nor the line is switched for use and not otherwise, substantially as set forth.

10. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit at his station, apparatus of comparatively high resistance while his telephone is switched for use and of comparatively low resistance while the telephone is not thus switched, multiple switchboards, switches for the line, each having a pair of contact-points normally closed but open while the line is switched at its board, test contact-pieces, one on each board, and a resistance-coil grounded on one side, said line passing, successively, through said pairs of contact-points and thence connected to said test contact-pieces and to the other side of said resistance-coil, in combination with test receiving instruments, one at each board, grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the test contact-piece at its board said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument having a battery in circuit with it and adjusted to the battery and said several resistances and the circuits to the degree that it will sound when on a test being made neither said telephone nor the line is switched for use and not otherwise, substantially as set forth.

592,821. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 20, 1896. Serial No. 332,094. (No model.)



Claim.—1. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test contact-plug, and thence to a line-contact when the test is applied; thence in one direction to the office ground through a comparatively high resistance, and in the other direction to the subscriber's ground through a pair of switch contact-points in the central office and the subscriber's-station apparatus, in combination with as witch-plug which separates said pair of contact-points while it switches the line and a condenser and a switch apparatus and circuits at the subscriber's station to switch said condenser into the circuit of the line when the telephone is switched for use, and thereby practically open the line-circuit to battery-currents, said test receiving instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and to the several resistances and the circuits to the degree that the instrument sounds when, on the test being made, neither the telephone nor the line is switched for use and not otherwise, substantially as set forth.

2. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test contact-plug, and thence to a line-contact when the test is applied, thence in one direction to the office ground through a comparatively high resistance and in the other direction to the subscriber's ground through a series of pairs of switch contact-points, one on each of several boards, in combination with switch-plugs adapted to be inserted into the switches for switching and when a plug is inserted into a switch to separate its pair of contact-points while the line is thus switched for use, and a condenser and switch apparatus and circuits at the subscriber's station to switch said condenser into the line-circuit while his telephone is switched for use, and thereby practically open the line-circuit to battery-currents, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and to the several resistances and the circuits to the degree that the instrument sounds when, on the test being made, neither the telephone nor the line is switched for use, but not otherwise, substantially as set forth.

3. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument to a test contact-plug, and thence to a line contact-point when the test is applied, thence in one direction to the office ground through a comparatively high resistance, and in the other direction to the subscriber's ground through a pair of switch contact-points in the central office and the subscriber's-station apparatus, and a battery in the circuit, in combination with a switch-plug adapted to be inserted into the switch and when inserted to separate the contact-points while the line is switched for use, and a condenser and switch apparatus and circuits at the subscriber's station to switch said condenser into the circuit of the line when the telephone is switched for use, and thereby practically open the line to battery-currents, said test instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and to the several resistances and the circuits to the degree that the instrument sounds when, on the test being made, neither the telephone nor the line is switched for use, but not otherwise, substantially as set forth.

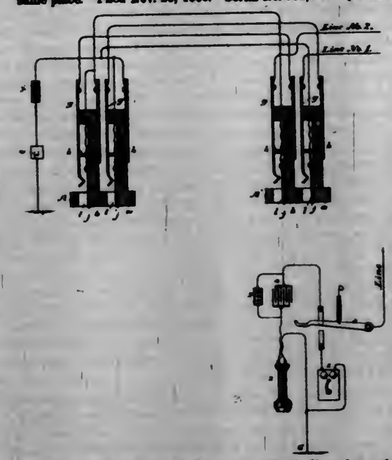
4. In a telephone-exchange system, a subscriber's line grounded at its outer end and having a condenser in its circuit in the station apparatus, while his telephone is switched for use, and a comparatively low resistance while it is not thus switched, a switch at the central office having a pair of contact-points normally in contact but separated while the line is thereby switched for use, and a test contact-piece insulated from the rest, except by the circuit connections, said line passing through said pair of contact-points, and thence to said test contact-piece, in combination with a resistance-coil grounded on one side and connected on the other side to the line-circuit between the contact-points, and the test contact-piece, and a test receiving instrument with battery grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being adjusted to the battery and the several resistances and the circuits to the degree that it sounds when, on the test being made, neither the subscriber's telephone nor the line is switched for use and not otherwise, substantially as set forth.

5. In a telephone-exchange system, a subscriber's line grounded at its outer end and having a condenser in its circuit at his station apparatus, while his telephone is switched for use, and comparatively low resistance while it is not thus switched, a series of switches at the central office for said line, one switch on each of several boards, each having a pair of contact-points normally in contact, but separated while the line is thereby switched, and a test contact-piece insulated from the rest (except by the circuit connections), said line passing successively through its said pair of contact-points, and thence to said test contact-piece, in combination with a resistance-coil grounded on one side and connected on its other side to the line after it has passed through said pairs of contact-points, and a test wire or circuit containing a test receiving instrument and battery, grounded on one side and connected on its other side to a test plug or device, adapted, at the will of the operator, to be brought into connection with said test contact-piece, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength and said instrument being adjusted to the battery and the several resistances and the circuits to the degree that it sounds when, on the test being made, neither the subscriber's telephone nor the line is switched for use, but not otherwise, substantially as set forth.

6. In a telephone-exchange system, a subscriber's line grounded at its outer end and having a condenser in its circuit at his station apparatus, while his telephone is switched for use, and comparatively low resistance while it is not thus switched, in combination with a series of test contact-pieces, one piece on each of several boards, and normally connected to the line, switch contact-points which disconnect the line from its said contact-pieces while it is switched for use, a resistance-coil connected on one side to said contact-pieces and grounded on the other side, in combination with test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test-plug adapted to be brought for testing into connection with the test contact-piece at its board, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being connected in circuit with a battery and adjusted to it and the several resistances and the circuits to the degree that it will sound when, on the test being made, neither said telephone nor the line is switched for use and not otherwise, substantially as set forth.

7. In a telephone-exchange system, a subscriber's line grounded at its outer end and having a condenser in its circuit at his station, while his telephone is switched for use and comparatively low resistance while the telephone is not thus switched, multiple switchboards, switches for the line, each having a pair of contact-points normally closed but open while the line is switched at its board, test contact-pieces, one on each board, and a resistance-coil grounded on one side, said line passing successively through said pairs of contact-points and thence connected to said test contact-pieces and to the other side of said resistance-coil, in combination with test receiving instruments, one at each board, grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the test contact-piece at its board, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument having a battery in circuit with it and adjusted to the battery and the several resistances and the circuits to the degree that it will sound when, on a test being made, neither said telephone nor the line is switched for use and not otherwise, substantially as set forth.

592,822. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 20, 1896. Serial No. 332,095. (No model.)



Claim.—1. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test contact-plug, and thence to a line-contact when the test is applied; thence in one direction to the office ground through a comparatively high resistance, and in the other direction to the subscriber's ground through a pair of switch contact-points in the central office and the subscriber's-station apparatus; in combination with a switch-plug which separates said pair of contact-points while it switches the line, and a switch apparatus and circuits at the subscriber's station to switch apparatus of comparatively high resistance shunted by a condenser into the circuit of line when the telephone is switched for use, and low resistance when it is not thus switched, said test receiving instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and to the said several resistances and the circuits to the degree that the instrument sounds when, on

the test being made, neither the telephone nor the line is switched for use and not otherwise, substantially as set forth.

2. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test contact-plug, and thence to a line-contact when the test is applied, thence in one direction to the office ground through a comparatively high resistance and in the other direction to the subscriber's ground through a series of pairs of switch contact-points, one on each of several boards, in combination with switch-plugs adapted to be inserted into the switches for switching and when a plug is inserted into a switch to separate its said pair of contact-points while the line is thus switched for use, and a switch apparatus and circuits at the subscriber's station to switch apparatus of comparatively high resistance shunted by a condenser into the line-circuit while his telephone is switched for use, and of comparatively low resistance while it is not thus switched, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and to said several resistances and the circuits to the degree that the instrument sounds when, on the test being made, neither the telephone nor the line is switched for use, but not otherwise, substantially as set forth.

3. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument to a test contact-plug, and thence to a line contact-point when the test is applied, thence in one direction to the office ground through a comparatively high resistance, and in the other direction to the subscriber's ground through a pair of switch contact points in the central office and the subscriber's-station apparatus, and a battery in the circuit, in combination with a switch-plug adapted to be inserted into the switch and when inserted to separate the contact-points while the line is switched for use, and a switch apparatus and circuits at the subscriber's station to switch apparatus of comparatively high resistance shunted by a condenser into the circuit of the line when the telephone is switched for use, and of comparatively low resistance when it is not thus switched, said test instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument and battery being adjusted to each other and to said several resistances and the circuits to the degree that the instrument sounds when, on the test being made, neither the telephone nor the line is switched for use, and not otherwise, substantially as set forth.

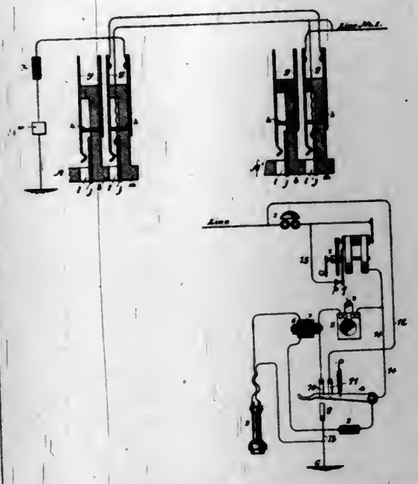
4. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit, in the station apparatus, a comparatively high resistance shunted by a condenser, while his telephone is switched for use, and a comparatively low resistance while it is not thus switched, a switch at the central office having a pair of contact-points normally in contact but separated while the line is thereby switched for use, and a test contact-piece insulated from the rest, except by the circuit connections, said line passing through said pair of contact-points, and thence to said test contact-piece, in combination with a resistance-coil grounded on one side and connected on the other side to the line-circuit between the contact-points and the test contact-piece, and a test receiving instrument with battery grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being adjusted to the battery and said several resistances and the circuits to the degree that it sounds when, on the test being made, neither the subscriber's telephone nor the line is switched for use and not otherwise, substantially as set forth.

5. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit in the station apparatus, a comparatively high resistance shunted by a condenser while his telephone is switched for use, and a comparatively low resistance while the telephone is not thus switched, a series of switches at the central office for said line, one switch on each of several boards, each having a pair of contact-points normally in contact, but separated while the line is thereby switched, and a test contact-piece insulated from the rest (except by the circuit connections), said line passing successively through its said pair of contact-points, and thence to said test contact-piece, in combination with a resistance-coil grounded on one side and connected on its other side to the line after it has passed through said pairs of contact-points, and a test wire or circuit containing a test receiving instrument and battery, grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test contact-piece, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength and said instrument being adjusted to the battery and said several resistances and the circuits to the degree that it sounds when, on the test being made, neither the subscriber's telephone nor the line is switched for use, but not otherwise, substantially as set forth.

6. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit at his station, apparatus of comparatively high resistance shunted by a condenser while his telephone is switched for use, and comparatively low resistance while it is not thus switched, in combination with a series of test contact-pieces, one piece on each of several boards and normally connected to the line, switch contact-points which disconnect the line from its said contact-pieces while it is switched for use, a resistance-coil connected on one side to said contact-pieces and grounded on the other side, in combination with test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test-plug adapted to be brought for testing into connection with the test contact-piece at its board, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument being connected in circuit with a battery and adjusted to it and said several resistances and the circuits to the degree that it will sound when, on the test being made, neither said telephone nor the line is switched for use and not otherwise, substantially as set forth.

7. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit at his station, apparatus of comparatively high resistance shunted by a condenser, while his telephone is switched for use, and comparatively low resistance while the telephone is not thus switched, multiple switchboards, switches for the line, each having a pair of contact-points normally closed but open while the line is switched at its board, test contact-pieces, one on each board, and a resistance-coil grounded on one side, said line passing successively through said pairs of contact-points and thence connected to said test contact-pieces and to the other side of said resistance-coil, in combination with test receiving instruments, one at each board, grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the test contact-piece at its board, said instrument being adjusted to respond to current of certain strength, but not to respond to current of considerably less strength, and said instrument having a battery in circuit with it and adjusted to the battery and said several resistances and the circuits to the degree that it will sound when, on a test being made, neither said telephone nor the line is switched for use, and not otherwise, substantially as set forth.

592,323. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,026. (No model.)



Claim.—1. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test-plug, thence to a line-contact when the test is applied, thence in one direction to the office ground through a pair of switch contact-points normally in contact but separated while the line is switched at their board and through a resistance and in the other direction to the subscriber's ground through his station apparatus and a switch having

contacts and connections at the subscriber's station to switch a comparatively high resistance into the circuit of the line while the telephone is switched for use and a comparatively low resistance while the telephone is not thus switched, said test receiving instrument being so adjusted to the battery and the circuit that it will sound when on a test being made neither said telephone nor the line is switched for use, substantially as set forth.

2. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test-plug, thence to a line-contact when the test is applied, thence in one direction to the office ground through a series of pairs of contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched at their board and through a resistance and in the other direction to the subscriber's ground through his station apparatus, and a switch having contacts and connections at the subscriber's station to switch a comparatively high resistance into the circuit of the line while the telephone is switched for use and a comparatively low resistance while the telephone is not thus switched, said test receiving instrument being so adjusted to the battery and the circuit that it will sound when on a test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

3. A test-circuit for a subscriber's line, from the office ground, through a test receiving instrument and battery to a test-plug, thence to a line-contact when the test is applied, thence, in one direction, to the office ground through a pair of switch contact-points normally in contact but separated while the line is switched at their board, and through a resistance and, in the other direction, to the subscriber's ground through his station apparatus, and a switch at the subscriber's station with contact-points which switch his telephone, secondary of induction-coil and a resistance into the circuit of the line while his telephone is switched for use and a signal-bell into the circuit while the telephone is not thus switched, said test receiving instrument being so adjusted to the battery and the circuit that it will sound when on the test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

4. In a telephone-exchange system, a subscriber's line normally grounded through a pair of switch-contacts and a resistance at the central office, a test-piece for the line connected to the line between the subscriber's station and the pair of switch-contacts, a call-bell normally in the normal ground connection of the line-circuit at the subscriber's station, the subscriber's telephone and switch, and contacts and connections whereby an increased resistance is included in the line-circuit when said telephone is removed from the switch, in combination with a test instrument and battery at the central office grounded on one side and connected on the other side with a test-plug adapted to be brought into connection with the test-piece of the line.

5. A test-circuit for a subscriber's line, from the office ground, through a test receiving instrument and battery to a test-plug, thence to a line-contact when the test is applied, thence, in one direction to the office ground through a series of pairs of contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and a resistance, and, in the other direction, to the subscriber's ground through his station apparatus, in combination with a switch at the subscriber's station with contact-points which switch his telephone, secondary of induction-coil and a resistance into the circuit of the line while said telephone is switched for use and the signal-bell into the circuit while the telephone is not thus switched, said test receiving instrument being so adjusted to the battery and the circuit that it will sound when on the test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

6. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit at the subscriber's station a comparatively high resistance while his telephone is switched for use and a comparatively low resistance while the telephone is not thus switched, and at the central office a switch with a pair of contact-points normally in contact but open while the line is switched by it, a test contact-piece insulated from the rest (except by the circuit connections), and a resistance grounded on one side, said line passing through said pair of contact-points and thence to the other side of said resistance and said test contact piece being connected to the line before the line passes to said contact-points, in combination with a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said test contact-piece, said instrument being so adjusted to the battery and circuits that it will sound when on a test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

7. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit at the subscriber's station a comparatively high resistance while the telephone is switched for use and a comparatively low resistance while the telephone is not thus switched, said test receiving instrument being so adjusted to the battery and the circuit that it will sound when on a test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

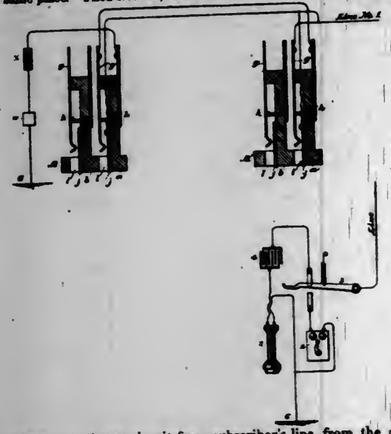
8. In a telephone-exchange system, a subscriber's line normally grounded at its outer end and at the subscriber's station, a switch with contact-points to switch his telephone, secondary of induction-coil and a resistance into the circuit of the line while said telephone is switched for use and the signal-bell into the circuit while the telephone is not thus switched, and at the central office a switch with a pair of contact-points normally in contact but open while the line is switched by it, a test contact-piece insulated from the rest (except by the circuit connections) and a resistance grounded on one side, said line passing through said pair of contact-points and thence to the other side of said resistance and said contact-piece being connected to the line before the line passes to said contact-points, in combination with a test wire or circuit containing a test receiving instrument and battery, grounded on one side and connected on its other side to a test plug or device adapted to be brought on testing into connection with said test contact-piece, said instrument being so adjusted to the battery and circuits that it sounds when on a test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

9. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit in the subscriber's station, apparatus of comparatively high resistance while his telephone is switched for use and apparatus of comparatively low resistance while the telephone is not thus switched, in combination with a test contact-piece at the central office permanently connected to the line, a resistance normally connected on one side to the line and connected on the other side to the ground, switch contact-points which disconnect the line from said resistance while the line is switched for use, and a test wire or circuit containing a test receiving instrument and battery, grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with said test contact-piece, said instrument being so adjusted to said battery and the circuits that it sounds when on the test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, a subscriber's line grounded at its outer end and having in its circuit at the subscriber's station, apparatus of comparatively high resistance while his telephone is switched for use and apparatus of comparatively low resistance while the telephone is not thus switched, and at the central office a series of test contact-points, one on each of the multiple boards and connected to the line, a resistance connected on one side to the ground and normally connected on its other side to the line, and switch contact-points which disconnect the line from said resistance while the line is switched for use, in combination with a test wire or circuit at each board containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said test contact-piece, said instrument being so adjusted to the battery and circuits that it sounds when on a test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, a telephone-line grounded at its outer end and having at the subscriber's station, apparatus of comparatively high resistance in its circuit while his telephone is switched for use and of comparatively low resistance while it is not thus switched, test contact-pieces, one on each board and each connected to the line permanently, switches for the line one on each board and each containing a pair of contact-points normally closed but open while the line is switched at their board, and a resistance grounded on one side, said line passing, successively, through said pairs of contact-points and thence connected to the other side of said resistance, in combination with test receiving instruments, one at each board and grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the test contact-piece at its board, said instruments each having a battery in its test-circuits and being so adjusted to the battery and the circuits that it sounds when on a test of the line being made neither the telephone nor the line is switched for use but not otherwise, substantially as set forth.

592,824. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 29, 1889. Serial No. 332,028. (No model.)



Claim.—1. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test-plug, thence when the test is applied to a line-contact connected with the line between the subscriber's station and the pair of contact-points of his switch at the central office, thence in one direction to the office ground through said pair of contact-points normally in contact but open while the line is switched at their board, and in the other direction to the subscriber's ground through his station apparatus, in combination with a condenser at the subscriber's station and a switch to switch the condenser into the circuit of the line while the telephone is switched for use and out of said circuit while the telephone is not thus switched, substantially as set forth.

2. In a multiple-switchboard system a test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test-plug, at any one of the boards, thence, when the test is applied, to a line-contact at the board where the test is made, thence in one direction to the office ground through all the pairs of contact-points of the line, one pair on each board, each pair normally in contact but open while the line is switched at their board, and in the other direction to the subscriber's ground through his station apparatus, in combination with a condenser at the subscriber's station and a switch with contact-points to switch the condenser into the circuit of the line while his telephone is switched for use and out of said circuit while it is not thus switched, substantially as set forth.

3. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit at the subscriber's station a condenser when his telephone is switched for use but not otherwise, and at the central office a switch with a pair of contact-points normally in contact but open while the line is switched, and a test contact-piece insulated from the rest (except by the circuit connections) said line passing through said pair of contact-points and thence to ground through a resistance and said contact-piece being connected to the line between its switch contact-points and the subscriber's station, in combination with a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with said test contact-piece for testing, said instrument-battery and the circuits being so constructed and related that the instrument will sound, when on the test being made neither the telephone nor the line is switched for use but not otherwise, substantially as set forth.

4. In a telephone-exchange system, a subscriber's line grounded at its outer end and at his station a condenser and a switch with contact-points to switch the condenser into the circuit of the line while his telephone is switched for use and to switch it out of the circuit while the telephone is not thus switched, and at the central office a switch with a pair of contact-points normally in contact but open while the line is switched by it, and a test contact-piece insulated from the rest (except by the circuit connections) said line passing through said pair of contact-points and to ground through a resistance and said contact-piece being connected to the line between its switch contact-points and the subscriber's station, in combination with a test wire or circuit containing a test receiving instrument and battery, grounded on one side and connected on the other side to a test plug or device adapted to be brought into connection with said test contact-piece for testing, said test receiving instrument, battery and the circuits being so constructed and related that the instrument will sound when on a test being made neither the subscriber's telephone nor the line is switched for use but not otherwise, substantially as set forth.

5. In a multiple-switchboard telephone-exchange system, a subscriber's line grounded at its outer end and having at its subscriber's station a condenser in its circuit while his telephone is switched for use but not otherwise, in combination with a test contact-piece on each board at the central office separate from the other switch-contacts and separately connected to the line, a resistance in the circuit of the line between the connection of said test contact-piece and the normal office ground, switch contact-points which disconnect the line from the office ground while the line is switched for use and a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with said test contact-piece for testing, said instrument, battery and the circuits being so constructed and related that the instrument will sound when on a test being made neither said telephone nor the line is switched for use and not otherwise, substantially as set forth.

6. In a multiple-switchboard telephone-exchange system, a telephone-line grounded at its outer end and at the subscriber's station a condenser and a switch with contact-points which switches the condenser into the circuit of the line while the subscriber's telephone is switched for use and out of the circuit while the telephone is not thus switched, in combination with a test contact-piece at each board at the central office separate from the other contacts of the switch and separately connected to the line, a resistance in the circuit between said contact-piece and the office ground, switch contact-points which disconnect the line from the office ground while it is switched for use, and a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with said test contact-piece for testing, said instrument, battery and the circuits being so constructed and related that the instrument will sound when on a test being made neither said telephone nor the line is switched for use but not otherwise, substantially as set forth.

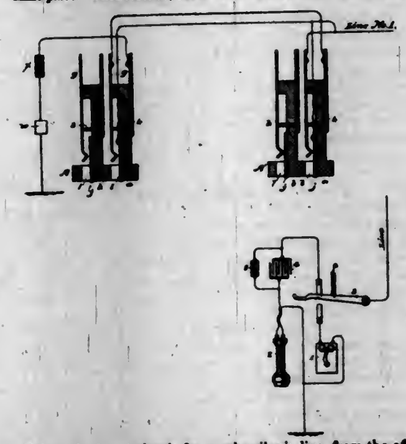
7. In a telephone-exchange system, a telephone-line grounded at its outer end and having at its subscriber's station a condenser in the circuit of the line while it is switched for use but not otherwise, in combination at the central office with a series of pairs of switch contact-points, one on each of several boards, each pair normally in contact, and through which the line passes successively, to the office ground, each pair being open while the line is switched at its board, a test contact-piece at each board separate from the other switch-contacts and separately connected to the line, a resistance-coil in the circuit between the connection of said test contact-piece and the ground, and a test receiving instrument and battery in a test wire or circuit grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with said test contact-piece for testing, said instrument, battery and the circuits being so constructed and related that the instrument will sound when on a test being made neither said telephone nor the line is switched but not otherwise, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, a telephone-line connected to the same and grounded at its outer end, and at the subscriber's station a condenser and a switch with contact-points which switch the condenser into the circuit of the line while the subscriber's telephone is switched for use and out of said circuit while the telephone is not thus switched, in combination with a series of switches for the line, one on each of the boards, each switch having a pair of contact-points normally in contact and the line passing normally through said pairs of contact-points and to ground, each pair of contact-points being open while the line is switched at their board, test contact-pieces, one on each board and each connected to the line between the switch contact-points and the subscriber's station, a resistance-coil in the circuit between the connection of the test contact-pieces to the line and its office ground, and a test receiving instrument and battery for each board in a test wire or circuit grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with said test contact-piece for testing, said instrument, battery and the circuits being so constructed and related that the instrument will sound when on a test being made neither the said telephone nor the line is switched for use but not otherwise, substantially as set forth.

9. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit at the subscriber's station a condenser when his telephone is switched for use but not otherwise, and at the central office a switch with a pair of contact-points normally in contact but open while the line is switched, and a test contact-piece insulated from the rest (except by the circuit connections), said line passing through said pair of contact-points and thence to ground, and said contact-piece being connected to the line between its switch contact-points and the subscriber's station, in combination with a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with said test contact-piece for testing, said instrument, battery and the circuits being so constructed and related that the instrument will sound when on a test being made neither the telephone nor the line is switched for use but not otherwise, substantially as set forth.

10. In a telephone-exchange system, a telephone-line grounded at its outer end and having at its subscriber's station a condenser in the circuit of the line while it is switched for use but not otherwise, in combination at the central office with a series of pairs of switch contact-points one on each of several boards, each pair normally in contact, and through which the line passes successively to the office ground, each pair being open while the line is switched at its board, a test contact-piece at each board separate from the other contacts of the switch and separately connected to the line, and a test receiving instrument and battery in a test wire or circuit grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with said test contact piece for testing, said instrument-battery and the circuits being so constructed and related that the instrument will sound when on a test being made neither said telephone nor the line is switched but not otherwise, substantially as set forth.

592,825. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 30, 1889. Serial No. 332,114. (No model.)



Claim.—1. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test-plug, thence when the line is tested to a line-contact connected with the line between the subscriber's station and the pair of contact-points of his switch at the central office, thence in one direction to the office ground through said pair of contact-points normally in contact but open while the line is switched by the switch which controls them and a resistance, and in the other direction to the ground through the subscriber's-station apparatus, in combination with a resistance-coil and a condenser at the subscriber's station in derived circuit and a switch with contact-points to switch said instruments in derived circuit into the circuit while the subscriber's telephone is switched for use and out of the circuit while the telephone is not thus switched, substantially as set forth.

2. In a multiple-switchboard system, a test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test-plug at any one of the boards separate from the other contacts and separately connected to the line, thence when the test is applied to a line-contact at the board where the test is made, thence in one direction to the office ground through all of contact-points of the line, one pair on each board and each pair normally closed but open while the line is switched at their board and through a resistance, and in the other direction to the ground through the subscriber's-station apparatus, in combination with a resistance-coil and a condenser at the subscriber's station in derived circuit and a switch with contact-points to switch said instruments in derived circuit into the circuit while the subscriber's telephone is switched for use and out of the circuit while the telephone is not thus switched, substantially as set forth.

3. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit in derived circuit a resistance-coil and a condenser while the subscriber's telephone is switched for use but not otherwise and at the central office a switch with a pair of contact-points normally in contact but open while the line is switched by the switch which controls them, and a test contact-piece insulated from the rest, (except by the circuit connections,) said line passing through said pair of contact-points and thence to ground through a resistance and said contact-piece being connected to the line between the switch contact-points and the subscriber's station, in combination with a test wire or circuit containing a test receiving instrument and battery grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said test contact-piece, said instrument being so adjusted to the battery and circuits that it will sound when on the test being made neither the line nor said telephone is switched for use, but not otherwise, substantially as set forth.

4. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit in derived circuit a resistance-coil and condenser while his telephone is switched for use but not otherwise, and at the central office a series of pairs of switch contact-points, one pair on each of several switchboards, each pair normally closed but open while the line is switched for use at their board, and a test contact-piece insulated from the rest, (except by the circuit connections,) said line passing, successively, through said pairs of contact-points and a resistance to ground, and said test contact-piece being connected to the line between the subscriber's station on the one hand and the contact-points and resistance on the other hand, in combination with a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said test contact-piece, said instrument being so adjusted to the battery and circuits that it will sound when on a test being made neither the line nor said telephone is switched for use but not otherwise, substantially as set forth.

5. In a telephone-exchange system, a subscriber's line grounded at its outer end and at his station a resistance-coil and condenser and a switch with contact-points to switch them into the circuit in derived circuit while the subscriber's telephone is switched for use but not otherwise, and at the central office a pair of contact-points normally in contact, but open while the line is switched at the switch which controls them, and a test contact-piece insulated from the rest, (except by the circuit connections,) said line passing through said pair of contact-points and a resistance to ground, and said contact-piece being connected to its circuit between the subscriber's station and the contact-points and resistance, in combination with a test wire or circuit containing a test receiving instrument and battery, grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with said contact-piece, said instrument being so adjusted to the battery and circuits that it will sound when on a test being made neither the line nor said telephone is switched for use but not otherwise, substantially as set forth.

6. In a multiple-switchboard telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit in derived circuit while his telephone is switched for use but not otherwise, in combination with a test contact-piece at each board at the central office separate from the other contacts and separately connected to the line, a resistance in the circuit between the connection of the line with said contact-piece and the normal ground of the line, switch contact-points which disconnect the line from the office ground while it is switched for use, and a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said contact-piece, said instrument, battery, and the circuits being so constructed and related that the instrument will sound when on the test being made neither the line nor said telephone is switched for use but not otherwise, substantially as set forth.

7. In a telephone-exchange system, a telephone-line grounded at its outer end and at the subscriber's station, a resistance-coil and condenser in the circuit of the line in derived circuit while his telephone is switched for use but not otherwise in the circuit, in combination at the central office with a series of pairs of switch contact-points, one on each of several switchboards, each pair normally in contact but open while the line is switched at their board, said line passing successively through said pairs of contact-points and thence to ground, a test contact-piece at each board separate from the other contacts and separately connected to the line, a resistance in the circuit between said connection of the contact-piece and the office ground, and a test receiving instrument and battery in a test wire or circuit grounded at one end and connected at the other end to a test plug or device adapted to be brought for testing into connection with said contact-piece, said instrument, battery, and circuits being so constructed and related that the instrument will sound when on the test

being made neither the line nor said telephone is switched for use but not otherwise, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, a telephone-line connected to the same and grounded at its outer end, and at the subscriber's station a resistance-coil and condenser and a switch with contact-points to switch them into the circuit of the line in derived circuit while the subscriber's telephone is switched for use but not otherwise, in combination with a series of switches for the line, one switch on each of several boards, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, said line passing, successively, through said pairs of contact-points and to ground, test contact-pieces, one on each board and each connected to the line between the subscriber's station and its switch contact-points, a resistance in the circuit between the connection of the line with said contact-pieces and its office ground, and test wires or circuits one for each board, each containing a test receiving instrument and having a battery in its circuit between its ground connection and a test-plug at its other end adapted to be brought for testing into connection with the contact-piece at its board, said instrument being so adjusted to the battery and circuit that it will sound when on a test being made neither the line nor said telephone is switched for use, but not otherwise, substantially as set forth.

9. In a telephone-exchange system, a subscriber's line grounded at its outer end and having in its circuit in derived circuit a resistance-coil and a condenser while the subscriber's telephone is switched for use but not otherwise and at the central office a switch with a pair of contact-points normally in contact but open while the line is switched by the switch which controls them, and a test contact piece insulated from the rest, (except by the circuit connections,) said line passing through said pair of contact-points and thence to ground, and said contact-piece being connected to the line between the switch contact-points and the subscriber's station, in combination with a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said test contact-piece, said instrument being so adjusted to the battery and circuits that it will sound when on the test being made neither the line nor said telephone is switched for use but not otherwise, substantially as set forth.

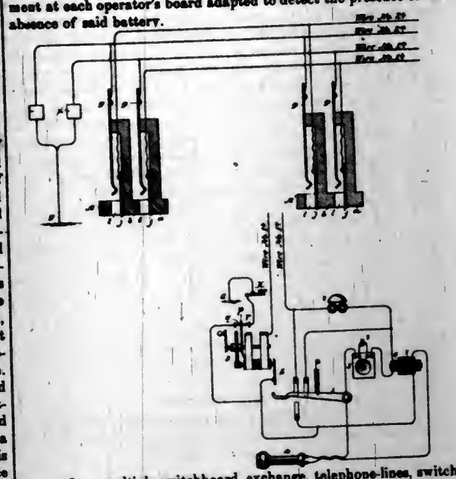
10. In a telephone-exchange system, a telephone-line grounded at its outer end and at the subscriber's station a resistance-coil and condenser in the circuit of the line in derived circuit while his telephone is switched for use but not otherwise in the circuit, in combination at the central office with a series of pairs of switch contact-points, one on each of several switchboards, each pair normally in contact but open while the line is switched at their board, said line passing successively through said pairs of contact-points and thence to ground, a test contact-piece at each board separate from the other contacts and separately connected to the line, and a test receiving instrument and battery in a test wire or circuit grounded at one end and connected at the other end to a test plug or device adapted to be brought for testing into connection with said contact-piece, said instrument, battery, and circuits be so constructed and related that the instrument will sound when on the test being made neither the line nor said telephone is switched for use but not otherwise, substantially as set forth.

592,326. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 11, 1889. Serial No. 333,339. (No model.)

Claim.—1. In a multiple-switchboard exchange, telephone-lines, switching apparatus therefor adapted to switch said lines for use at the central office, a test-circuit for each line adapted to be closed for testing into a complete circuit whether the line is or is not switched for use at the central office or at the subscriber's station, a test signaling device for said test-circuit, a test outfit at the central office adapted to respond thereto, and a switch controlled by a subscriber when he switches his telephone for use to alter said response.

2. In a multiple-switchboard exchange, telephone-lines, switching apparatus for switching said lines together for conversation, a test-circuit for each line adapted to be completely established for testing whether or not the line is switched for use at the central office or at the subscriber's station, a test-battery and a test receiving instrument for said test-circuit cooperating on testing to produce two responses, and a switch controlled by a subscriber to select either response according to whether he switches his telephone into or out of circuit.

3. In a multiple-switchboard exchange, telephone-lines, switch apparatus for switching said lines for use, a test-circuit for each line adapted to be completely established when testing whether or not the line is switched for use at the central office or at the subscriber's station, a test-battery in said test-circuit while the subscriber's telephone is not switched for use but not otherwise, and a test receiving instrument at each operator's board adapted to detect the presence or the absence of said battery.



4. In a multiple-switchboard exchange, telephone-lines, switch apparatus for switching said lines for use at each board, a metallic test-circuit for each line adapted to be completely established for testing whether or not the line is switched for use at the central office, a test signaling device for said test-circuit, a test outfit at each board at central cooperating therewith to give either of two different responses, and a switch controlled by a subscriber when he switches his telephone into or out of use to select the proper response.

5. In a multiple-switchboard exchange, telephone-lines, switch apparatus at each board for switching said lines for use, a metallic test-circuit for each line adapted to be completely established for testing whether or not the line is switched for use at central, comprising in the order named, test-contacts, a line conductor, a normally-ungrounded subscriber's outfit including a subscriber's test-battery normally in the circuit, a return metallic conductor to central, test receiving instruments in multiple, one at each board, and a plug or device for each test receiving instrument adapted to be applied to a test-contact for testing.

6. In a multiple-switchboard exchange, metallic-circuit telephone-lines, double-conductor switching apparatus at central for switching said lines for use, a metallic test-circuit completely established whenever the test is made, comprising in the order named, switchboard test-contacts, a line conductor, a normally-ungrounded subscriber's outfit including a subscriber's test-battery normally in said metallic circuit, including also a switch for switching said battery out of the metallic circuit while the telephone is switched for use, a return metallic conductor to central, test receiving instruments in multiple, one at each operator's board, and a plug or device for each test receiving instrument adapted to be applied to a test-contact for testing, to determine the presence or absence of said battery.

7. In a multiple-switchboard exchange, metallic-circuit telephone-lines, double-conductor switching apparatus for switching said lines for use, a metallic test-circuit completely established for testing whenever a test is made comprising in the order named, switchboard test-contacts, a line conductor, a normally-ungrounded subscriber's outfit including a subscriber's test-battery normally in said metallic circuit, a shunt for switching said battery out of the line-circuit, and a switch with contacts closing said shunt while the telephone is switched for use, a return metallic conductor to central, switchboard-contacts connected to said conductor, test receiving instruments connected in multiple, one for each operator, and a plug or device for each test receiving instrument adapted to be applied to a test-contact for testing.

8. In a multiple-switchboard exchange, metallic circuits, switch apparatus for switching said metallic circuits for use at any board, each circuit comprising continuously in the order named, test-contacts, one at each of two or more boards, a line conductor, a normally-ungrounded subscriber's outfit including a subscriber's test-battery normally in its circuit but switched therefrom while the subscriber's telephone is switched for use, and including a call-generator and normally open ground connection closed during a call, a return metallic conductor to central, switch-contacts at each of said boards, and a ground connection containing a call-annunciator; in combination with test receiving instruments at each of said boards connected on one side to said ground connection and on the other adapted to be connected to said test-contacts for testing.

9. In a multiple-switchboard exchange, metallic-circuit lines, switching apparatus for connecting said lines, each circuit comprising, in the order named, test-contacts, one at each board, a line conductor, a normally-ungrounded subscriber's outfit including a subscriber's test-battery normally in the circuit, a switch for switching said battery out of circuit while the telephone is in use, a normally short-circuited call-generator normally in said circuit, a ground connection closed to said generator while actuated for a call, contacts for opening said short circuit while the generator is actuated, a return metallic conductor to central, and a ground connection containing an annunciator; in combination with a test receiving instrument grounded on one side and on the other adapted to be connected to a test-contact for testing.

10. In a multiple-switchboard exchange, telephone-lines adapted to be connected together and to be "tied up" with their telephones not switched for use, a clearing-out signal for said "tied-up" condition, a test receiving instrument at another board adapted to indicate the switched or unswitched condition of the subscribers' telephones, and a source of electricity for operating said signal, adapted to be connected to said clearing-out signal at said other board.

11. In a multiple-switchboard exchange, telephone-lines adapted to be connected together, and to be "tied up" with their subscribers' telephones not switched for use, a test-circuit, a test receiving instrument at another board adapted to indicate that said telephones are not in use when said lines are "tied up," a clearing-out signal for said "tied-up" condition, means for operating said signal from said other board, and an additional telephone-line adapted to be connected to one of said "tied-up" lines

12. In a multiple-switchboard exchange, two telephone-lines adapted to be connected together at a first board, a clearing-out signal for said lines at said board, a test-circuit for one or more of said lines, a test receiving instrument at a second board adapted to cooperate with said test-circuit and give a "free" signal for either of said lines while the subscribers' outfits thereof are not in use, a third telephone-line adapted to be connected to either of said lines at said second board, and a call adapted to be sent out to the subscriber's outfit of one of said two connected lines, and adapted at the same time to operate said clearing-out signal.

13. In a multiple-switchboard exchange, two "tied-up" metallic circuits switched together at central, a test receiving instrument in a normally open bridge adapted to be closed for the purpose of testing, and subscribers' transmitter and test batteries, one in each metallic circuit, normally, or when the telephones are not switched for use, in the main line in opposition to each other and thereby adapted to assist each other in causing a "free" test signal, a clearing-out indicator in said established circuit, and a call-generator adapted to actuate said clearing-out indicator, thereby calling the desired subscriber, and giving a signal for the "tied-up" lines to be disconnected.

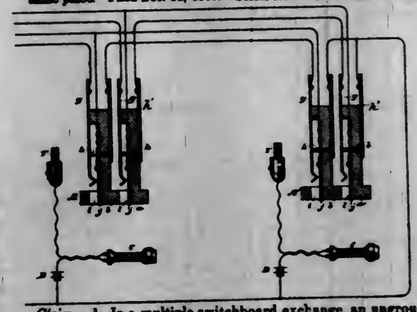
14. In a multiple-switchboard exchange, two "tied-up" lines switched together at central, a test-receiving instrument in a normally open bridge adapted to be closed for the purpose of testing, and subscribers' transmitter and test batteries, one in each circuit while the telephone is not switched for use, with like poles connected to like sides of the circuit, and a call-generator at another board from that at which the lines are "tied up," adapted to be connected to said circuit and to call said subscribers.

15. In a multiple-switchboard exchange, two "tied-up" lines switched together at a board, a normally open test-circuit adapted to be closed at another board and give a "free" signal while the lines are thus connected, a clearing-out indicator in said established circuit at said first board, subscribers' calling devices; and a central call-generator at said other board adapted to operate the clearing-out indicator and the subscribers' call devices, and thereby call the subscriber, and give a signal for the disconnection of said "tied-up" lines at said first board.

16. In a multiple-switchboard exchange, two "tied-up" lines switched together at a board, a ground connection for one side of said established circuit, combined transmitter and test batteries, one in each subscriber's outfit, in the established circuit while the telephones are not switched for use, with like poles connected to like sides of the circuit, a test receiving instrument at a second board grounded on one side and on the other side adapted to be connected to the ungrounded side of an established circuit; subscribers' calling devices in said circuit while the telephones are not switched for use, a clearing-out annunciator in said circuit, and a central calling-generator at said second board adapted to be looped into said circuit to operate the calling devices and the clearing-out indicator, whereby the desired subscriber's line may be tested, found "free," be connected to and called up at the second board, and the "tied-up" lines disconnected at the first board.

17. In a multiple-switchboard exchange, two "tied-up" lines forming an established metallic circuit for communication, a double-conductor-loop at one of the multiple boards, connected to said lines, a clearing-out indicator in said loop, a ground connection for one side of said established metallic circuit while thus connected, test-contacts connected to the other side of said circuit, one at each board, a grounded test receiving instrument at a second one of the multiple boards, adapted to be connected to the test-contact at said board for testing, a calling-generator at said board adapted to be bridged into the established circuit, call bells or devices in said circuit at each subscriber's station, said bells and said clearing-out indicator being operated by said call-generator when thus bridged.

592,327. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 11, 1889. Serial No. 333,340. (No model.)



Claim.—1. In a multiple-switchboard exchange, an ungrounded test-circuit comprising in the order named, test-contacts at two or more boards, line conductors between the subscriber's station and the central office, normally closed pairs of contacts at said boards open while the line is switched for use, a central conductor, and test outfits and plugs or devices one of each at each board, adapted to be applied to the test-contacts at their boards for testing.

2. In a multiple-switchboard exchange, ungrounded test-circuits comprising in the order named, a test plug and outfit, an ungrounded common conductor for a number of telephone-circuits, a limb of each circuit between the subscribers' stations and the central office containing normally closed pairs of contacts open while the line is switched for use, a return limb of each circuit, and test-contacts.

3. In a multiple-switchboard exchange, an ungrounded telephone-circuit comprising in the order named, test-contacts located in a spring-jack, one at each of two or more boards, line conductors closed to each other at the subscribers' stations, normally closed pairs of contacts, one pair at each board located in the jack at that board, and a connection to an ungrounded central conductor; in combination with a test outfit at each board connected on one side to said ungrounded conductor, and on the other side to a plug or device adapted to be brought into connection with the test-contact at its board, and a switch plug or device adapted to open a pair of normally closed contacts while the line is switched for use.

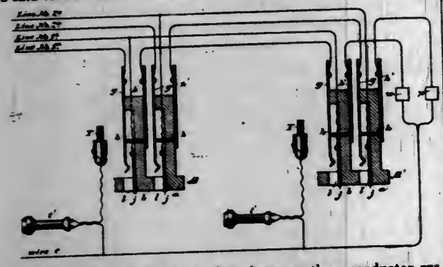
4. In a multiple-switchboard exchange, an ungrounded telephone-circuit comprising in the order named, test-contacts located in the spring-jacks, one at each of two or more boards, line conductors closed to each other at the subscriber's station, normally closed pairs of contacts, one pair at each board located in the jack at that board, and a connection to an ungrounded central conductor; in combination with a test outfit at each board connected on one side to said ungrounded conductor, and on the other to a plug or device adapted to be brought into connection with the test-contact at its board, and a switch plug or device with contacts connected to the two line conductors while inserted in a line-jack, one contact of the plug connected to a test-contact, the other contact of the plug being connected to a spring-contact, and thereby lifting said spring-contact from its anvil.

592,328. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 11, 1889. Serial No. 333,341. (No model.)

Claim.—1. In a multiple-switchboard exchange, a three-conductor system comprising ungrounded call, test and telephone circuits one of each for a subscriber extending from the subscriber's station to the central office, a line conductor common to each of said circuits, a second line conductor common to said test and telephone circuits, an ungrounded conductor common to said call and test circuits, and a subscriber's individual test-battery in said test-circuit.

2. In a multiple-switchboard exchange, an ungrounded telephone-circuit for a subscriber extending from the subscriber's station to the central office normally open at central, an ungrounded call-cir-

cuit for the subscriber normally closed at central but open while the telephone is switched for use, and normally open at the subscriber's station but closed while the generator is actuated for a call, an ungrounded test-circuit for the subscriber normally open at central but closed while testing and while the telephone-circuit is not switched for use but not otherwise, and a subscriber's individual test-battery in said test-circuit.



3. In a multiple-switchboard exchange, a three-conductor system comprising a telephone-circuit for a subscriber, an ungrounded test-circuit associated therewith, said test and call circuits extending from the subscriber's station to the central office, an ungrounded call-circuit also associated therewith, an ungrounded common conductor forming a part of both said test and call circuits extending from the subscriber's station to the central office, normally closed switchboard-contacts in said test-circuit opened while said telephone-circuit is switched for use, and a subscriber's individual test-battery normally in said test-circuit.

4. In a multiple-switchboard exchange, a call and test circuit for a subscriber comprising test-contacts at two or more boards, line conductors including an individual test-battery, a call generator and annunciator for the subscriber, and a connection to an ungrounded common conductor; in a combination with test receiving instruments connected on one side to said common conductor and on the other side adapted to be connected to said test-contacts for testing, an extension from said ungrounded common conductor to the subscriber's station, and contacts at said station adapted to connect said extension to a line conductor for calling.

5. In a multiple-switchboard exchange, in the order named, test-contacts, a line conductor, a subscriber's outfit including a test-battery and a call-generator, a line conductor, normally closed pairs of switchboard-contacts, open while the line is switched for use, an annunciator, an ungrounded conductor, an extension to said conductor, and normally open contacts closing said extension to said call-generator while it is actuated for a call; in combination with a test receiving instrument connected on one side to said ungrounded conductor, and on the other adapted to be connected to a test-contact for testing.

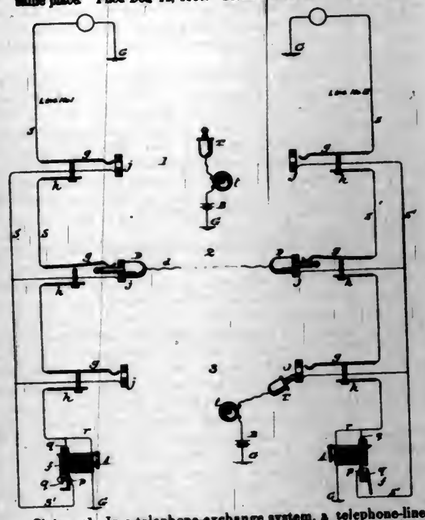
6. In a multiple-switchboard exchange, in the order named, test-contacts, a line conductor, a subscriber's outfit including a test-battery and a call-generator, a line conductor, normally closed pairs of switchboard-contacts, open while the line is switched for use, an annunciator, an ungrounded conductor, an extension to said conductor, and normally open contacts closing said extension to said call-generator while it is actuated for a call; in combination with a subscriber's telephone-switch and connections for switching said battery out of the line-circuit while the telephone is switched for use, and a test receiving instrument connected on one side to said ungrounded conductor and on the other to a test plug or device adapted to be applied to a test-contact for testing.

7. In a multiple-switchboard exchange, in the order named, test-contacts, a line conductor, a subscriber's outfit including a combined transmitter and test-battery and a call-generator, a line conductor, normally closed pairs of switchboard-contacts, open while the line is switched for use, an annunciator, an ungrounded conductor, an extension to said conductor, and normally open contacts closing said extension to said call-generator while it is actuated for a call; in combination with a switch plug or device adapted to open a pair of normally closed contacts, and a test receiving instrument connected on one side to said ungrounded conductor and on the other to a plug or device adapted to be applied to a test-contact for testing.

8. In a multiple-switchboard exchange, in the order named, test-contacts, a line conductor, a subscriber's outfit, including a combined transmitter and test-battery and a call-generator, normally closed pairs of switchboard-contacts, open while the line is switched for use, an annunciator, an ungrounded conductor, an extension to said conductor, and normally open contacts closing said extension to said call-generator while it is actuated for a call; in combination with a subscriber's telephone-switch and connections for switching said battery out of said line-circuit while the telephone is switched for use, and a switch plug or device adapted to open a pair of normally closed contacts, and a test receiving instrument connected on one side to said ungrounded conductor and on the other to a plug or device adapted to be applied to a test-contact for testing.

9. In a multiple-switchboard exchange, in the order named, a test-contact at each of two or more boards, located in a line-jack at each board, a line conductor, a subscriber's outfit including a subscriber's transmitter and test-battery, and a call-generator, a return-line conductor, pairs of normally closed switchboard-contacts, a pair in each jack at each board, a call-annunciator, an ungrounded common conductor, a branch extension therefrom adapted to be connected to said call-generator during a call, two or more additional branches therefrom, one branch at each board, each including a test receiving instrument, and adapted to be connected to a test-contact for testing: in combination with a switch plug or device adapted to be inserted in a jack and thereby open the pair of normally closed contacts in said jack, and a subscriber's telephone-switch and connections adapted to switch said battery from the line-circuit while the telephone is switched for use.

592,829. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 11, 1889. Serial No. 333,342. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line, a test receiving instrument connected on one side with a line in combination with a test wire or circuit normally insulated from the line, an annunciator normally in the circuit of the line with contact-points to close said test wire or circuit to the line while the annunciator indicates a call, and a test plug or device connected to the other side of said test receiving instrument and adapted, at the will of the operator, to be brought into connection with said test wire or circuit, substantially as set forth.

2. In a telephone-exchange system, a telephone-line, a test receiving instrument connected on one side with a line, in combination with a test wire or circuit normally insulated from the line, an annunciator normally in the circuit of the line with contact-points to close said test wire or circuit to the line while the annunciator indicates a call, a test plug or device connected to the other side of said instrument and adapted, at the will of the operator, to be brought into connection with said test wire or circuit, and a battery in the circuit established, substantially as set forth.

3. In a telephone-exchange system, a telephone line, a test receiving instrument connected on one side with a line, in combination with a test wire or circuit normally insulated from the line, an electromagnet normally in the circuit of a line with contact-points to close said test wire or circuit to the line when a call is sent over the line, a test plug or device connected to the other side of said instrument and adapted, at the will of the operator, to be brought into connection with said test wire or circuit, substantially as set forth.

4. In a telephone-exchange system, a telephone-line, a test wire or circuit normally insulated from the line, in combination with an annunciator normally in the circuit of the line when the annunciator indicates a call, and a switch adapted to switch the line with another line, with contact-points to close said test wire or circuit to the line when the line is thereby switched, substantially as set forth.

5. In a telephone-exchange system, a telephone-line, a test wire or circuit normally insulated from the line and from a test receiving instrument, in combination with an annunciator normally in the circuit of the line, with contact-points to close said test wire or circuit to the line when the annunciator indicates a call, a switch adapted to switch the line with another line, with contact-points to close said test wire or circuit to the line when the line is thereby switched, and the test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with said test wire or circuit, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, a telephone-line, a test receiving instrument connected on one side with the line and a test wire or circuit normally insulated from said line, in combination with an annunciator normally in the circuit of the line, with contact-points to connect said test-wire to the line while the annunciator indicates a call, switches for said line, one on each board, and each adapted to switch the line with other lines and with contact-points to connect said test-wire to the line while the line is thereby switched, a test plug or device connected to the other side of said instrument and adapted, at the will of the operator, to connect with said test-wire, and a battery in the circuit thereby established, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, a telephone-line, test receiving instruments one for each board and each connected on one side with the line, and a test wire or circuit normally insulated from said line and extending to all of said boards, in combination with an electromagnet normally in the circuit of said line with contact-points to connect said test-wire to the line when a call is sent over the line, a switch at each board to switch the line with other lines, contact-points to connect said test-wire with the line while the line is thus switched, test plugs or devices, one for each instrument and connected to it on its other side adapted, at the will of the operator, to be brought into connection with said test-wire, and a battery in the circuit thereby established, substantially as set forth.

8. In a multiple-switchboard exchange, a test-circuit for a subscriber's line, comprising in the order named, a grounded subscriber's outfit, a line conductor, a pair of normally open annunciator-contacts, closed while the annunciator indicates a call, a test wire or conductor, and test-contacts, one at each of two or more boards connected to said test-wire; in combination with a test outfit at each board, grounded on one side and on the other adapted to be connected to a test-contact for testing.

9. In a multiple-switchboard exchange, a test-circuit for a subscriber's line comprising in the order named, a grounded subscriber's outfit, a line conductor, pairs of switch-contacts at each of two or more boards, normally open, but each pair closed while the line is switched at its board, one of each of which is also a test-contact or connected with a test-contact, a pair of normally open annunciator-contacts closed while the annunciator indicates a call, said pairs of switch-contacts and said pair of annunciator-contacts being in parallel circuit, a test-conductor connected to said test-contacts and to one of said annunciator-contacts; in combination with a test outfit at each board, grounded on one side and on the other adapted to be connected to a test-contact for testing.

10. In a multiple-switchboard exchange, a line-circuit, a test-conductor normally insulated therefrom, an annunciator in said line-circuit and contacts operated by said annunciator closing the test-conductor to the line-circuit while the annunciator indicates a call.

11. In a multiple-switchboard exchange, a line-circuit, a test-conductor, normally insulated therefrom but crossed therewith while the line is switched for use at a board and an annunciator with contacts closing an additional connection between said line-circuit and test-conductor while it indicates a call.

12. In a multiple-switchboard exchange, a line-circuit, a test-conductor, normally insulated therefrom, but crossed therewith while switched for use at a board, and an annunciator in said line-circuit with contacts closing an additional connection between said line-circuit and test-conductor while it indicates a call.

13. In a multiple-switchboard exchange, a telephone-line, a test-conductor associated therewith but normally disconnected therefrom, a test receiving instrument normally disconnected from said test-wire, and an annunciator with contacts controlling a connection between said line-circuit, said test-conductor, and one side of said test receiving instrument.

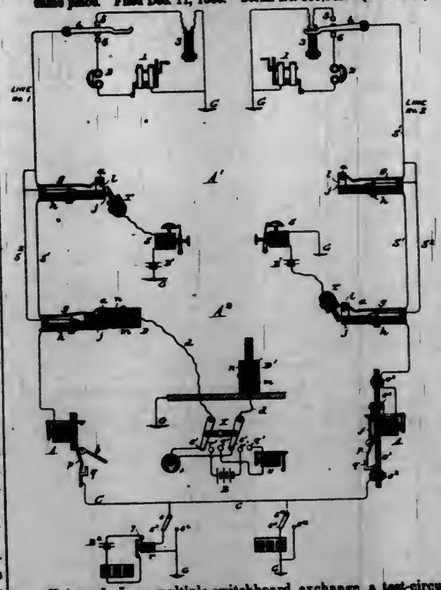
14. In a multiple-switchboard exchange, a telephone-line from the subscriber's station to the central office, a test-wire normally insulated therefrom, and a call-annunciator with contacts closing said test-wire to said line-circuit while said annunciator indicates a call.

15. In a multiple-switchboard exchange, a telephone-line from the subscriber's station to the central office, a test-wire, and a call-annunciator controlling a connection between said line-circuit and test-wire.

16. In a multiple-switchboard exchange, a telephone-line from the subscriber's station to the central office, a test-wire, and a call-circuit controlling a connection between said line-circuit and test-wire.

17. In a multiple-switchboard exchange, a telephone-line, a test-wire, and an annunciator in said line-circuit, controlling a connection between said line-circuit and said test-wire.

592,830. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 11, 1889. Serial No. 333,343. (No model.)



Claim.—1. In a multiple-switchboard exchange, a test-circuit, normally closed contacts in said test-circuit, and a call device opening said contacts while indicating a call.

2. In a multiple-switchboard exchange, a test-circuit, normally closed contacts in said test-circuit, an annunciator in said test-circuit opening said contacts while indicating a call.

3. In a multiple-switchboard exchange, three parallel circuits, one containing normally closed contacts, the second containing the subscriber's line, and a third normally open and closed for testing, containing a test receiving instrument and battery so adjusted to each other and to the two other parallel circuits as to give one indication while the normally closed contacts are closed, and another indication while they are open; in combination with a call device opening contacts while indicating a call.

4. In a multiple-switchboard exchange, a test-circuit, comprising a test outfit, connected on one side to ground and on the other side to a line conductor grounded at both ends; in combination with a circuit-breaker in one grounded end, said test outfit being adjusted to give one indication while the circuit-breaker is closed, and another indication while the circuit-breaker is open, and an annunciator opening said circuit-breaker.

5. In a multiple-switchboard exchange, a telephone-line comprising in the order named, a subscriber's grounded line, test-contacts, one at each board and an office grounded connection containing normally closed contacts; in combination with a grounded test outfit at each board adapted to be connected to a test-contact for testing, so adjusted to the resistance of two grounded ends as to respond while the said contacts are closed but to fail to respond when they are open, and an annunciator opening said contacts while indicating a call.

6. In a multiple-switchboard exchange, a grounded telephone-line comprising in the order named, a subscriber's line, test-contacts, one at each board, normally closed jack-contacts, a pair at each board, and a ground connection containing normally closed annunciator-contacts; in combination with a test outfit at each board adapted

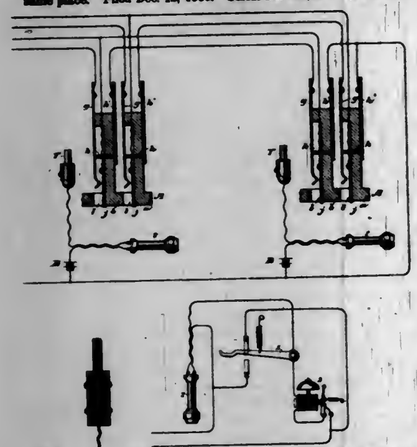
to be connected to a test-contact for testing, so adjusted to the resistances of the grounded ends of the telephone-line as to respond when the annunciator-contacts and the jack-contacts are closed, but to fail to respond when any of the said contacts are opened, an annunciator opening said annunciator-contacts while indicating a call, and a switch-plug adapted to open a pair of jack-contacts while the line is switched for use.

7. In a telephone-exchange system, two or more groups of lines, an indicating device or annunciator for each group common to all the lines of that group, such indicating devices for all the groups being arranged together at the central office, an individual annunciator for each line located at the board where its calls are to be answered, and a generator or source of electricity at each subscriber's station for causing the operation of the individual annunciator of the line and the indicating device of the group to which the line belongs.

8. In a telephone-exchange system, two or more groups of lines, an indicating device or annunciator for each group common to all the lines of that group, such indicating devices for all the groups being arranged together at the central office, an individual annunciator for each line located at the board where its calls are to be answered, a generator or source of electricity at each subscriber's station for causing the operation of the individual annunciator of the line and the indicating device of the group to which the line belongs, and a switch for disconnecting each group of lines from its common indicating device.

9. In a telephone-exchange system, groups of lines each line passing through its switchboard system and an individual annunciator and the lines of a group then uniting into a common wire or circuit for said group, in combination with a relay in the common wire or circuit and an indicator or annunciator controlled by said relay to indicate when a call has been made on any line of its group, the individual annunciator of each line being located at a board of the exchange where its calls are to be answered, and the indicators of the different groups of lines being arranged together at the central office, substantially as set forth.

592,881. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 12, 1889. Serial No. 333,534. (No model.)



Claim.—1. A test-circuit for a metallic-circuit line, from one side of a test receiving instrument to a test plug or device, thence to one side or branch of the line when the test is applied, thence through the circuit of the line and a pair of switch contact-points normally closed but open while the line is switched for use by the switch which controls them, to the other side of said test receiving instrument, in combination with a circuit-breaker in said test-circuit while the subscriber's telephone is not switched for use but not otherwise, and a battery in said circuit, substantially as set forth.

2. A test-circuit for a metallic-circuit line, from one side of a test receiving instrument to a test plug or device, thence to one side or branch of the line when the test is applied, thence through the circuit of the line and pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, to the other side of said test receiving instrument, in combination with a circuit-breaker in said test-circuit while the subscriber's telephone is not switched for use but not otherwise, and a battery in said circuit, substantially as set forth.

3. A test-circuit for one of the metallic-circuit lines, of a telephone exchange from one side or branch of the line, through the circuit of the line and a pair of switch contact-points normally closed but open while the line is switched for use by the switch which controls them, to a wire or circuit common to the other lines, thence through branch or derived circuits, each containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a circuit-breaker at the subscriber's station, a switch with contact-points which switch said circuit-breaker into the circuit of the line while his telephone is not switched for use but not otherwise, and a battery in a test-circuit established, substantially as set forth.

4. A test-circuit for one of the metallic-circuit lines of a telephone-exchange from one side or branch of the line, through the circuit of the line and pairs of contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched for use at their board, to a wire or circuit common to the other lines, thence through branch or derived circuits, one for each board, each containing a test receiving instrument and terminating in a test plug or device adapted to be brought into connection with said side or branch of the line, in combination with a circuit-breaker at the subscriber's station, a switch with contact-points which switch said circuit-breaker into the circuit of the line while his telephone is not switched for use but not otherwise, and a battery in a test-circuit established, substantially as set forth.

5. A test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and pairs of contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched for use at their board to a wire or circuit common to the other lines, thence through branch or derived circuits one for each board, each containing a test receiving instrument and terminating in a test plug or device adapted to be brought into connection with said side or branch of the line, in combination with a circuit-breaker at the subscriber's station, a switch with contact-points which switch said circuit-breaker into the line while his telephone is not switched for use but not otherwise, and a battery between said pairs of contact-points and any test-plug, substantially as set forth.

6. In a telephone-exchange system, a test receiving instrument normally connected on one side to one side or branch of a metallic-circuit line and connected on its other side to a test plug or device adapted to be brought for testing into connection with the other side or branch of the line, in combination with switching devices to open said normal connection between one side of said instrument and one side of said line while the line is switched for conversation, a circuit-breaker in the circuit of the line while the subscriber's telephone is not switched for use but not otherwise, and a battery in the circuit established when the test is made, substantially as set forth.

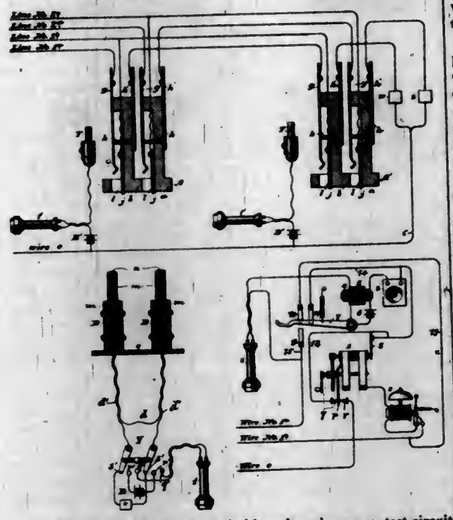
7. In a telephone-exchange system, a metallic-circuit line normally passing, on one side, successively through pairs of contact-points, one pair on each of several boards, each pair being normally closed but open while the line is switched for use at their board, and thence connected to one side of a test receiving instrument, in combination with a test plug or device connected to the other side of said instrument and adapted to be brought for testing into connection with the other side of said line, a circuit-breaker at the subscriber's station, a switch with contact-points which switch the circuit-breaker into the circuit of the line while the subscriber's telephone is not switched for use but not otherwise, and a battery in the circuit established when the test is made, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line normally passing, on one side, successively through pairs of contact-points, one pair on each of several boards, each pair being normally closed but open while the line is switched for use at their board, and thence connected to one side of each of several test receiving instruments, one at each board, and each connected on its other side to a test plug or device adapted to be brought for testing into connection with the other side of said line, in combination with a circuit-breaker at each subscriber's station, a switch with contact-points which switch the circuit-breaker out of the circuit of the line while the subscriber's telephone is switched for use and into the circuit while it is not thus switched, and a battery in the circuit established on making a test, substantially as set forth.

9. In a telephone-exchange system, multiple switchboards, test receiving instruments, one at each board, and a metallic-circuit line normally connected on one side to one side of each of said instruments, in combination with switching devices to connect said line with any other line for conversation and when it is thus connected to open said normal connection between it and said instruments, test plugs or devices, one for each of said instruments and connected to the other side of the instrument, each plug being adapted to be brought for testing into connection with the other side of the line, a circuit-breaker at the subscriber's station, a switch with contact-points which connect said circuit-breaker into the circuit of the line while his telephone is not switched for use and out of circuit while it is switched for use, and a battery in the circuit established on making a test, substantially as set forth.

10. In a telephone-exchange system, metallic-circuit lines, multiple switchboards for said lines, switches for said lines, one switch on each of the boards, each switch having a pair of contact-points normally in contact but open while their line is switched at their board and a third contact-piece insulated from the rest (except by the circuit connections), and test receiving instruments, one at each board, each line passing, on one of its sides or branches, successively through its pairs of contact-points on the several boards, and thence connected to one side of each of said test receiving instruments and connected on its other side to each of its said third contact-pieces, in combination with test plugs or devices, one for each of the test receiving instruments and connected to the other side of the instrument and adapted to be brought into connection with any of said third contact-pieces at its board, a circuit-breaker at each subscriber's station in the circuit of his line while his telephone is not switched for use but not otherwise, and a battery in the test-circuit between each test-plug and the pairs of contact-points of the lines, substantially as set forth.

592,882. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 12, 1889. Serial No. 333,535. (No model.)



Claim.—1. In a multiple-switchboard exchange, a test-circuit containing an intermittent test signaling device at the subscriber's station, a battery, a test outfit responding thereto, "test-contacts," one at each board, electrically connected together whenever a test is made, and containing also normally closed switchboard-contacts opened by the switching of the line for use to prevent said response.

2. In a multiple-switchboard exchange, a telephone-circuit, a test-circuit associated therewith containing a circuit-breaking call device at the subscriber's station, a test receiving instrument and battery adapted to respond thereto, test-contacts, one at each board, electrically connected together whenever a test is made, and containing also normally closed switchboard-contacts opened by the switching of the lines for use to prevent said response.

3. In a multiple switchboard exchange, a test-circuit, containing a test signaling device at the subscriber's station, a test receiving instrument and battery adapted to respond thereto, a subscriber's switch controlling said response, test-contacts, one at each board, electrically connected together whenever a test is made, and containing also normally closed switchboard-contacts open while the line is switched for use to prevent said response.

4. In a multiple-switchboard exchange, a telephone-circuit, a test-circuit associated therewith, a battery, a test signaling device normally in said test-circuit at the subscriber's station but switched therefrom while the telephone is switched for use, test-contacts, one at each board, electrically connected together whenever a test is made, and normally closed switchboard-contacts at the central office open while the line is switched for use to prevent said response.

5. In a multiple-switchboard exchange, a telephone-circuit, a test-circuit associated therewith containing a circuit-interrupter normally in circuit at the subscriber's station, a subscriber's switch and connections for switching said interrupter from the circuit while the telephone is switched for use, test-contacts, one at each board, electrically connected together whenever a test is made, a pair of normally closed switchboard-contacts at the central office, a switch-plug opening said contacts while the line is switched for use, and a test outfit adapted to respond to said interrupter while neither the line at the central office nor the telephone at the subscriber's station is switched for use, but not otherwise.

6. In a multiple-switchboard exchange, in the order named, test-contacts, one at each of two or more boards, a line conductor, a subscriber's test signaling device at the subscriber's station, a return line conductor, normally closed contacts at each board, open while the line is switched for use, test outfits, one at each board, adapted to respond to said test signaling device; in combination with a subscriber's switch to switch said test signaling device from the circuit, and a plug or device adapted to open said normally closed contacts at a board.

7. In a multiple-switchboard exchange, in the order named, test-contacts, one at each board, a metallic telephone-circuit containing a circuit-breaking device at the subscriber's station, switched therefrom while the telephone is switched for use, normally closed contacts, a pair at each board, test receiving instruments and batteries in multiple branches, one at each board, test-plugs, one for each branch, adapted to be connected to a test-contact for testing; in combination with a switch-plug adapted to open a pair of normally closed contacts.

8. In a multiple-switchboard exchange, in the order named, test-plugs, one at each board, test outfits connected thereto, a common conductor, pairs of normally closed contacts at each board for several metallic circuits in multiple, line conductors, subscriber's-station outfits including circuit-breaking bells adapted to cooperate with said outfits, return line conductors, and test-contacts at each board; in combination with subscriber's-telephone switches to switch said bells from the circuit, and switch-plugs adapted to be connected to said circuits and thereby open pairs of normally closed contacts in said circuits.

9. In a multiple-switchboard exchange, a test-circuit containing a test signaling device at the subscriber's station, a test outfit responding thereto, test-contacts, one at each board, electrically connected together whenever a test is made, and normally closed switchboard-contacts opened to prevent said response, a call-circuit, a common conductor to said call and test circuits containing a call-annunciator constructed so as not to be operated by said test outfit.

10. In a multiple-switchboard exchange, a telephone-circuit, a test-circuit associated therewith containing a circuit-breaking call device at the subscriber's station, a test receiving instrument and battery adapted to respond thereto, test-contacts, one at each board, electrically connected together whenever a test is made, and normally closed switchboard-contacts opened to prevent said response, a call-annunciator in said test-circuit adapted not to be operated thereby, and a call-circuit and apparatus for operating said annunciator.

11. In a multiple-switchboard exchange, a test-circuit, containing a test signaling device at the subscriber's station, a test receiving instrument adapted to respond thereto, a subscriber's switch controlling said response, test-contacts, one at each board electrically connected together, and normally closed switchboard-contacts open while the line is switched for use to prevent said response, a call-annunciator in said test-circuit adapted not to be operated thereby, and a call-circuit and apparatus for operating said annunciator.

12. In a multiple-switchboard exchange, a telephone-circuit, a test-circuit associated therewith containing a circuit-interrupter normally in its circuit at the subscriber's station, a subscriber's switch and connections for switching said interrupter from the circuit while the telephone is switched for use, test-contacts, one at each board electrically connected together whenever a test is made, a pair of normally closed switchboard-contacts, a switch-plug opening said contacts while the line is switched for use, and a test outfit adapted to respond to said interrupter while neither the line nor the telephone is switched for use but not otherwise, a call-annunciator in said test-circuit adapted not to be operated thereby, and a call-circuit and apparatus for operating said annunciator.

13. In a multiple-switchboard exchange, in the order named, a test-contact at each of two or more boards, a line conductor, a test signaling device at the subscriber's station, a return line conductor, normally closed contacts at each board, open while the line is switched for use, a call-annunciator, test outfits in multiple branches, one at each board, adapted to respond to said test signaling device and not to operate said annunciator, and a branch conductor reaching to the subscriber's station, normally open thereat but closed through the call-generator while it is operated for a call; in combination with a

subscriber's switch to switch said test signaling device from the circuit, and a plug or device adapted to open said normally closed contacts at, a board.

14. In a multiple-switchboard exchange, in the order named, test-contacts, one at each board, a metallic telephone-circuit containing a circuit-breaking call device at the subscriber's station, switched therefrom while his telephone is switched for use, and a call-generator, normally closed contacts, a pair at each board, a call-annunciator, test receiving instruments and batteries in multiple branches, one at each board, test-plugs, one for each branch adapted to be connected to a test-contact for testing; in combination with a normally open conductor closed while the generator is operated completing a call-circuit, and a switch-plug adapted to open a pair of normally closed circuits.

15. In a multiple-switchboard exchange, in the order named, test-plugs, one at each board, test outfits connected thereto, a common conductor, line-annunciators in multiple, one for each of several metallic circuits, pairs of normally closed contacts at each board, line conductors, subscriber's-station outfits including call-generators, and circuit-breaking bells adapted to coöperate with said outfits, return line conductors, and test-contacts at each board; in combination with normally open branches from said common conductor to the subscribers' generators while calling, subscribers'-telephone switches to prevent the coöperation of the test outfits and bells, and switch-plugs adapted to open pairs of said normally closed contacts.

16. In a multiple-switchboard exchange, ungrounded call, test, and telephone circuits, a line conductor common to each of said circuits, a second line conductor common to said test and telephone circuits, and an ungrounded conductor common to said call and test circuits, and a test signaling device in said test-circuit controlled by a switch in said telephone-circuit, and normally closed switchboard-contacts in said test-circuit open while the telephone is switched for use.

17. In a multiple-switchboard exchange, a three-conductor system comprising a metallic telephone-circuit, ungrounded call and test circuits associated therewith at the subscriber's station test signaling device in said test-circuit, and an operator's test outfit in said test-circuit adapted to respond thereto.

18. In a multiple-switchboard exchange, a metallic telephone-circuit including a subscriber's test signaling device, one limb normally connected through a call-annunciator to an ungrounded conductor normally disconnected from the subscriber's circuit, but connected thereto while calling, a test outfit connected on one side to said ungrounded conductor, and on the other adapted to be connected to the other limb for testing, and a call-generator in circuit with said annunciator while calling.

19. In a multiple-switchboard exchange, in the order named, test-contacts, one at each of two or more boards, a line conductor, a subscriber's outfit including normally a test signaling device, switched therefrom while the telephone is switched for use, and a call-generator, a return line conductor, normally closed switchboard-contacts, a pair at each board, open while the line is switched for use, a call-annunciator, an ungrounded common conductor two sets of branches in multiple, one set including test outfits and the other set comprising extensions to subscribers' stations, each extension being normally open to the subscriber's circuit, and closed through the call-generator while actuated for a call.

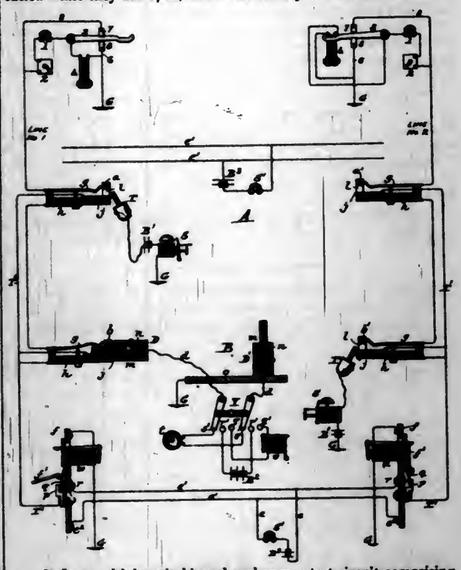
20. In a multiple-switchboard exchange, a telephone-circuit, a combined test and signaling circuit associated therewith, containing a combined test signaling and signal-receiving device at the subscriber's station, a test receiving instrument and battery adapted to actuate said device, and to cause said instrument to respond thereto, test-contacts, one at each board, electrically connected together whenever a test is made, and normally closed switchboard-contacts opened while in use to prevent said response.

21. In a multiple-switchboard exchange, a test and signaling circuit, containing a test signaling and a signal-receiving device at the subscriber's station, a battery operating said device when in closed circuit therewith, a test outfit responding thereto, test-contacts, one at each board, electrically united whenever a test is made, and normally closed switchboard-contacts opened while in use to prevent said response.

22. In a multiple-switchboard exchange, a test and signaling circuit containing a test signaling and a signal-receiving device at the subscriber's station, a test receiving outfit adapted to operate said device and respond thereto, a subscriber's switch controlling said response, test-contacts one at each board, electrically united whenever a test is made and normally closed switchboard-contacts opened while the line is switched for use to prevent said response.

592,883. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 12, 1889. Serial No. 333,536. (No model.)

Claim.—1. In a multiple-switchboard exchange, a test-circuit comprising three parallel branches, one temporarily closed branch containing a test receiving instrument, and each of the other two branches normally closed through contacts opened by switchboard apparatus when in use, said test receiving instrument giving one indication while the two branches are closed, and giving a second indication while they are open, and a test-battery in said test-circuit.



2. In a multiple-switchboard exchange, a test-circuit comprising three parallel branches, one temporarily closed branch containing a test receiving instrument and battery, and each of the other two branches normally closed but opened by switchboard apparatus while in use, resistances in each of said other two branches, said test receiving instrument and battery being so adjusted to each other and to said resistances as to give one indication while the two branches are closed, and a different indication while either or both of said branches are open.

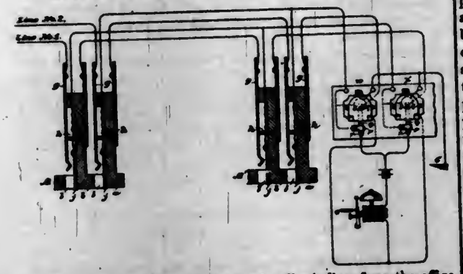
3. In a multiple-switchboard exchange, in the order named, a grounded subscriber's circuit, normally closed switchboard-contacts open while the line is switched for use, test-contacts, call-contacts, normally closed but open during a call, and a ground connection; in combination with a grounded test outfit adapted to be connected to a test-contact and give one indication while said switchboard and call contacts are closed, and a different indication while said contacts are open.

4. In a multiple-switchboard exchange, in the order named, a grounded subscriber's outfit containing a resistance, normally closed switchboard-contacts open which the line is switched for use, test-contacts, and a call-circuit and resistance grounded through normally closed contacts open during a call; in combination with a grounded test outfit adapted to be connected to a test-contact for testing so adjusted to said resistances as to give one indication while said contacts are closed and a different indication while either the call-contacts or the switchboard-contacts or both are open.

5. In a multiple-switchboard exchange, in the order named, a grounded subscriber's line containing a resistance, pairs of normally closed switchboard-contacts, one pair at each board opened while the line is switched for use, test-contacts, one at each board, an annunciator-circuit containing a resistance, normally closed contacts open during a call, and a ground connection; in combination with grounded test receiving instruments, one at each board, adapted to be connected to a test-contact for testing, and test-batteries, said batteries and test receiving instruments being so adjusted to said resistances as to respond while on testing, neither the switchboard nor the annunciator contacts are open, but not otherwise.

6. In a multiple switchboard exchange, in the order named, a grounded subscriber's line containing a resistance, pairs of normally-closed switchboard-contacts, one pair at each board opened while the line is switched for use, test-contacts, one at each board, an annunciator-circuit containing a resistance and normally closed contacts open during a call, and a ground connection; in combination with grounded test receiving instruments, one at each board, adapted to be connected to a test-contact for testing, and test-batteries, said batteries and test receiving instruments being so adjusted to said resistances as to respond while on testing, neither the switchboard nor the annunciator contacts are open, but not otherwise, and a switch-plug adapted to open a pair of said switchboard-contacts.

592,884. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 12, 1889. Serial No. 333,537. (No model.)



Claim.—1. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test-plug and thence to a line-contact when the test is applied, thence in one direction to the office ground through a resistance and in the other direction to the subscriber's ground through a pair of switch contact-points in the central office normally closed but open while the line is switched by the switch which controls them and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, said instrument being so adjusted to the battery and circuits that it will sound when on a test being made neither the line is switched for use, nor the annunciator indicates a call, but not otherwise, substantially as set forth.

2. A test-circuit for a subscriber's line, from the office ground through a test receiving instrument and battery to a test plug and thence to a line-contact when the test is applied, thence in one direction to the office ground through a resistance and in the other direction to the outer ground of the line, through a pair of annunciator contact-points normally closed but open while the line-annunciator indicates a call and through a series of pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at its board, said instrument being so adjusted to the battery and the circuits that it will sound when on a test being made neither the line is switched for use nor the annunciator indicates a call but not otherwise, substantially as set forth.

3. A pair of switch contact points normally closed but open while the line is switched by the switch which controls them, a pair of annunciator contact-points normally closed but open while the line-annunciator indicates a call, and a resistance in combination with a telephone-line grounded at its outer end and passing, successively, through said pair of switch contact-points, said pair of annunciator contact-points and said resistance to the ground, and a test wire or circuit containing a test receiving instrument and battery, grounded on one end and connected on its other end to a test plug or device adapted to be brought into connection with the circuit of the line between said resistance on the one hand and said pairs of switch and annunciator contact-points on the other hand, substantially as set forth.

4. Pairs of switch contact-points, one pair on each of several boards, each pair normally closed but opened while the line is switched at their board, a pair of annunciator contact-points normally closed but open while the line annunciator indicates a call, and a resistance, in combination with a telephone-line grounded at its outer end and passing, successively, through said pairs of switch contact-points, said pair of annunciator contact-points and said resistance to the ground, and a test wire or circuit, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with the line-circuit between said resistance on the one hand and said switch and annunciator contact-points on the other hand, said instrument being so adjusted to the battery and circuits that on a test being made it will sound when neither the line is switched nor the annunciator indicates a call but not otherwise, substantially as set forth.

5. A series of pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, a pair of annunciator contact points normally closed but open while the annunciator indicates a call and a resistance, in combination with a telephone-line passing, successively, through said switch and annunciator contact-points and said resistance, and a test wire or circuit containing a test receiving instrument and battery and connected at one end to a test plug or device adapted to be brought for testing into connection with the line-circuit between said switch and annunciator contact-points on the one hand and said resistance on the other hand, said instrument being so adjusted to the battery and circuits that it will sound when on a test being made neither the line is switched for use nor the annunciator indicates a call but not otherwise, substantially as set forth.

6. In a telephone-exchange system, a subscriber's line grounded at its outer end, at the central office a switch with a pair of contact-points normally closed but open while the line is switched by it, and an annunciator containing a pair of contact-points normally closed but open while the annunciator indicates a call, said line passing, successively, through said pair of switch contact-points, thence through said pair of annunciator contact-points and thence to the ground through the annunciator-magnet, in combination with a test contact-piece connected to the circuit between said annunciator contact-points and said annunciator-magnet, and a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said contact-piece, said instrument being so adjusted to the battery and circuits that it will sound when on a test being made neither the line is switched nor the annunciator indicates a call, but not otherwise, substantially as set forth.

7. In a telephone-exchange system, a subscriber's line grounded at its outer end, at the central office a pair of switch contact-points normally closed but open while the line is switched by the switch which controls them, a pair of annunciator contact-points normally closed but open while the line-annunciator indicates a call, and a resistance, said line passing, successively, through said switch and annunciator contact-points, and thence through said resistance to ground, in combination with a test contact-piece connected to the circuit between said resistance on the one hand and the switch and annunciator contact-points on the other hand, and a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said contact-piece, said instrument being so adjusted to the battery and line that it will sound when on the test being applied neither the line is switched for use nor the annunciator indicates a call but not otherwise, substantially as set forth.

8. In a telephone-exchange system, a subscriber's line grounded at its outer end and at the central office a series of pairs of switch contact-points, one pair on each of several boards and each pair normally closed but open while the line is switched at its board, a pair of annunciator contact-points normally closed but open while the line-annunciator indicates a call, and a resistance, said line passing, successively, through said pairs of switch and annunciator contact-points and thence through said resistance to the ground, in combination with a test contact-piece connected to the circuit between said resistance on the one hand and said pairs of switch and annunciator contact-points on the other hand, and a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with said contact-piece, said instrument being so adjusted to the battery and circuits that it will sound when on the test being applied neither the line is switched for use nor the annunciator indicates a call but not otherwise, substantially as set forth.

9. In a telephone-exchange system, a subscriber's line grounded at its outer end and normally passing to ground at the central office through a pair of annunciator contact-points normally closed but open while the line-annunciator indicates a call and a resistance in combination with switching devices at the central office to disconnect the line from said annunciator contact-points and resistance while the line is switched for use, and a test wire or circuit containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with the circuit of the line between said resistance and said annunciator contact-points, said instrument being so adjusted to the battery and circuits that it will sound when on a test being made neither the line is switched for use nor the annunciator indicates a call, but not otherwise, substantially as set forth.

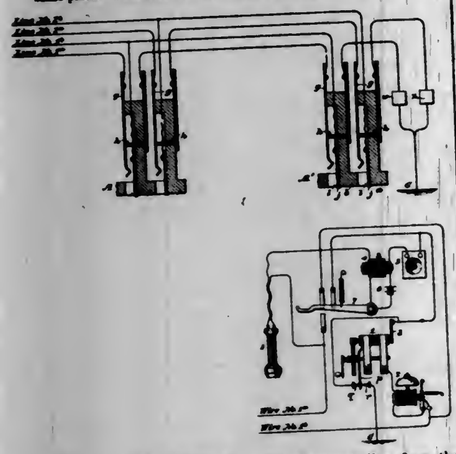
10. In a telephone-exchange system, multiple switchboards and telephone-lines connected to the same, each line normally passing through a pair of contact-points normally closed but open while its annunciator indicates a call and thence through a resistance to the ground, in combination with switching devices at the central office to disconnect a line from its annunciator contact-points and resistance while it is switched for use, and test wires or circuits, one for each board, each containing a test receiving instrument and grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the circuit of

the line between said resistance and said pair of annunciator contact-points, said instrument being so adjusted to a battery in the normally open test-circuit and to the circuits that it will sound when on a test being made neither the line is switched for use nor the annunciator indicates a call, but not otherwise, substantially as set forth.

11. In a telephone-exchange system, a contact-spring normally in contact with one contact-point and open to another contact-point, and an annunciator-drop normally insulated from said spring and which comes into connection with it and presses it away from its normal contact with said first-mentioned point and into contact with said second-mentioned point when it indicates a call, in combination with the line-circuit of the annunciator normally passing through said spring and first-mentioned point and a local circuit the two ends of which terminate in said second-mentioned point and said drop, respectively, substantially as set forth.

12. In a telephone-annunciator, the combination of a contact-spring normally in contact with one contact-point and open to another contact-point and an annunciator-drop normally insulated from said spring and coming into electrical connection with said spring on falling to indicate a call and at the same time pressing said spring away from its normal contact with said first-mentioned point and into electrical connection with said second-mentioned point, substantially as set forth.

592,335. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 12, 1889. Serial No. 333,538. (No model.)



Claim.—1. A test-circuit for a metallic-circuit line, from the ground, through a test receiving instrument to a test plug or device, thence to one side or branch of the line when the test is applied, thence through the circuit of the line and a pair of switch contact-points normally closed but open while the line is switched for use by the switch which controls them, to the ground, in combination with a circuit-breaker at the subscriber's station normally included in said test-circuit a subscriber's telephone its switch-contacts and circuit connection controlled thereby whereby when the telephone is not switched for use the circuit-breaker is included in the circuit, and when the telephone is switched for use the circuit-breaker is switched or shunted from the direct circuit, and a battery in said circuit, substantially as set forth.

2. A test-circuit for a metallic-circuit line, from the ground, through a test receiving instrument to a test plug or device, thence to one side or branch of the line when the test is applied, thence through the circuit of the line and pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, to the ground, in combination with a circuit-breaker at the subscriber's station normally included in said test-circuit, a subscriber's telephone, its switch-contacts and circuit connections controlled thereby whereby when the telephone is not switched for use the circuit-breaker is included in the circuit and when the telephone is switched for use the circuit-breaker is switched or shunted from the direct circuit, and a battery in said circuit, substantially as set forth.

3. A test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and a pair of switch contact points normally closed but open while the line is switched for use by the switch which controls them, to one side of each of several test receiving instruments in multiple or parallel circuit, said instruments being placed, one at each of several boards and each having on its other side a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a circuit-breaker at the subscriber's station, a switch with contact-points which switch the circuit-breaker into his line while his telephone is not switched for use and out of the circuit while the telephone is switched for use, and a battery in any test-circuit established, substantially as set forth.

4. A test-circuit for a subscriber's line, from one side or branch of the line, through the circuit of the line and pairs of contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, to one side of each of several test receiving instruments in multiple or parallel circuit, said instruments being placed one at each of the boards and each having on its other side a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a circuit-breaker at the subscriber's station, a switch with contact-points which switch the circuit-breaker into his line while his telephone is not switched for use and out of the circuit while the telephone is switched for use, and a battery in any test-circuit established, substantially as set forth.

5. A test-circuit for a metallic-circuit line, from the ground, through a battery and a test receiving instrument to a test plug or device, thence to one side or branch of the line while the test is applied, thence through the circuit of the line and a pair of switch contact-points normally closed but open while the line is switched by a switch which controls them, in combination with a circuit-breaker at the subscriber's station, and a switch with contact-points which switch the circuit-breaker into the circuit of his line while his telephone is not switched for use and out of the circuit while it is switched for use, substantially as set forth.

6. A test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and a pair of switch contact-points normally in contact but open while the line is switched by a switch which controls them, thence to one side of a test receiving instrument and through it to a test plug or device adapted to be brought for testing into connection with said side or branch of the line, a battery in the circuit between said pair of contact-points and said switch-plug, a circuit-breaker at the subscriber's station and a switch with contact-points which switch the circuit-breaker into his line-circuit while his telephone is not switched for use and out of the circuit while it is switched for use, substantially as set forth.

7. A test-circuit for a metallic-circuit line containing a test-battery from the ground, through a test receiving instrument to a test plug or device, thence to one side or branch of the line when the test is applied, thence through the circuit of the line, a pair of switch contact-points normally in contact but open while the line is switched by a switch which controls them, and an annunciator, to the ground, in combination with a circuit-breaker at the subscriber's station normally in the test-circuit a subscriber's telephone its switch and contact-points and connections controlled thereby, whereby the circuit-breaker is included in the direct circuit when the telephone is not switched for use but not otherwise, said test battery and instruments being so constructed and connected that when a test is applied it will not operate said annunciator but will operate said test receiving instrument when it is in closed circuit with the circuit-breaker, substantially as set forth.

8. A test-circuit for a metallic-circuit line containing a test-battery from one side or branch of the line, through the circuit of the line, a pair of switch contact-points normally in contact but open while the line is switched by a switch which controls them and an annunciator, to one side of a test receiving instrument and through it to a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a circuit-breaker normally in said circuit, and a switch with contact-points which switch the circuit-breaker at the subscriber's station into the line while the subscriber's telephone is not switched for use and out of the direct circuit of the line while the telephone is switched for use, said battery and instruments being so constructed and connected that when a test is applied it will not operate said annunciator but will operate said test receiving instrument when in closed circuit with the circuit-breaker, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line normally passing, on one of its sides, successively, through pairs of contact-points, one pair on each of several switchboards, each pair normally in contact but open while the line is switched at their board, and thence to the ground, in combination with a test wire or circuit grounded on one end, containing a test receiving instrument and battery and connected on its other end to a test plug or device adapted to be brought for testing into connection with the other side of the line, and a circuit-breaker at the subscriber's station in the circuit of his line while his telephone is not switched for use but not otherwise, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line normally passing on one side, successively, through pairs of contact-points normally in contact but open while the line is switched at their board, and thence to the ground, in combination with test receiving instruments, one at each board where a pair of said contact-points is located, each instrument being grounded on one side and connected on the other side to a test plug or device adapted to be brought for testing into connection with the other side of the line, a battery in circuit with each instrument between the switch contact-points and its test-plug, a circuit-breaker at the subscriber's station and a switch with contact-points which switch the circuit-breaker into the circuit of the line while his telephone is not switched for use and out of the circuit while it is switched for use, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, a metallic line connected to the same and one of its sides or branches normally grounded at the central office, and switching devices to connect said line at any board with another line for conversation and when thus connected to disconnect it from the ground, in combination with test receiving instruments, one at each board, grounded on one side and connected on the other side to a test plug or device adapted to be brought for testing into connection with the other side of said line, a battery in the test-circuit thereby established, and a circuit-breaker at the subscriber's station in the circuit of the line while his telephone is not switched for use but not otherwise, substantially as set forth.

12. In a telephone-exchange system, metallic-circuit lines, multiple switchboards and switches for said lines, one on each board for each line, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, one side of each line passing, successively, through the pairs of contact-points of its switches and thence to ground, in combination with test receiving instruments, one for each board, grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the other side of the line, a battery in the circuit between the switch contact-points and each test-plug, and a circuit-breaker in the circuit at the subscriber's station when his telephone is not switched for use but not otherwise, substantially as set forth.

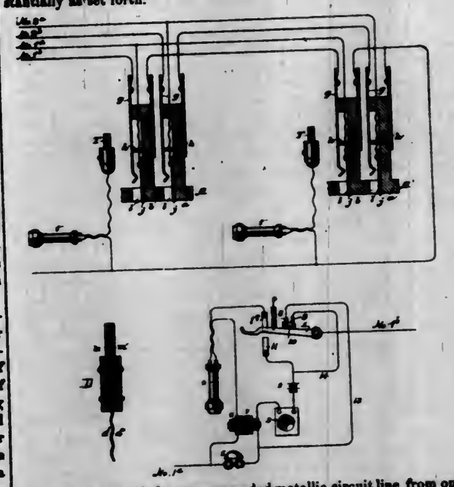
13. In a telephone-exchange system, multiple switchboards, a metallic-circuit line connected to the same and one of its sides or branches normally grounded at the central office through an annunciator, and switching devices to connect said line with another line for conversation and when thus connected to disconnect it from the ground and the annunciator, in combination with test receiving instruments, one at each board and each grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with the other side of the line for testing, a battery in the test-circuit thereby established a circuit-breaker at the subscriber's station in the direct circuit of the line while the line is not in use, the subscriber's telephone, its switch and contacts and connections controlled thereby whereby the circuit-breaker is switched or shunted from the direct circuit of the line when the telephone is switched for use but not otherwise, said battery and instruments being so constructed and connected that when a test is applied it will not operate said annunciator but will operate said test receiving instrument when in closed circuit with the circuit-breaker, substantially as set forth.

592,336. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 13, 1889. Serial No. 333,590. (No model.)

Claim.—1. A test-circuit for a metallic-circuit line disconnected from the ground, from one side of a test receiving instrument to a test plug or device, thence to one side or branch of the line when the test is applied, thence through the circuit of the line and a pair of switch contact-points normally closed but open while the line is switched for use by the switch which controls them, to the other side of said test receiving instrument, in combination with a battery at the subscriber's station in the circuit of the line while his telephone is not switched for conversation but not otherwise, substantially as set forth.

2. A test-circuit for an ungrounded metallic-circuit line, from one side of a test receiving instrument to a test plug or device, thence to one side or branch of the line while the test is applied, thence through the circuit of the line and pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, to the other side of said test receiving instrument, in combination with a battery at the subscriber's station and a switch with contact-points which switch the battery-current into the circuit of the line while the telephone is not switched for use and out of the circuit while the telephone is switched for use, substantially as set forth.

3. A test-circuit for an ungrounded metallic-circuit line, from one side of a test receiving instrument, to a test plug or device, thence through the circuit of the line and a pair of switch contact-points normally closed but open while the line is switched by a switch which controls them, to the other side of said test receiving instrument, in combination with a battery at the subscriber's station, and a switch with contact-points which switch the battery-current into the circuit of the line while the subscriber's telephone is not switched for use and out of the circuit while the telephone is switched for use, substantially as set forth.



4. A test-circuit for an ungrounded metallic-circuit line, from one side or branch of the line, through the circuit of the line and a pair of switch contact-points normally closed but open while the line is switched by a switch which controls them, to a wire or circuit common to the lines, thence through branch or derived circuits, one for each board, each containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a battery in the direct circuit of the line while the subscriber's telephone is not switched for use but not otherwise, substantially as set forth.

5. A test-circuit for an ungrounded metallic-circuit line, from one side or branch of the line, through the circuit of the line and pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, to a wire or circuit common to the lines, thence through branch or derived circuits, one at each board, each containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a battery at the subscriber's station, and a switch with contact-points which switch current from the battery in the circuit of the line while the subscriber's telephone is not switched for use and out of the circuit while the telephone is switched for use, substantially as set forth.

6. In a telephone-exchange system, a test receiving instrument normally connected on one side to one side or branch of an ungrounded metallic-circuit line and connected on its other side to a test plug or device adapted to be brought for testing into connection with the other side or branch of the line, in combination with switching devices to break said normal connection between one side or branch of the line and one side of the test receiving instrument while the line is switched for use, a battery at the subscriber's station and a switch with contact-points which send current from the battery to the circuit of the line while the subscriber's telephone is not switched for use, but not otherwise, substantially as set forth.

7. In a telephone-exchange system, an ungrounded metallic-circuit line, one side or branch of which normally passes, successively, through pairs of switch contact-points, one pair on each of several boards, each pair being normally closed but open while the line is switched at their board, and thence connected to one side of a test receiving instrument, in combination with a test plug or device connected to the other side of said instrument and adapted to be brought for testing into connection with the other side or branch of the line, a battery at the subscriber's station and a switch with contact-points which connect it into the direct circuit of the line while his telephone is not switched for use and only then, substantially as set forth.

8. In a telephone-exchange system, an ungrounded metallic-circuit line, one side or branch of which passes, successively, through

pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and thence connected to one side of several test receiving instruments, one at each of the boards and each connected on its other side to a test plug or device adapted to be brought for testing into connection with the other side or branch of the line, in combination with a battery in the circuit of the line while the subscriber's telephone is not switched for use but not otherwise, substantially as set forth.

9. In a telephone-exchange system, an ungrounded metallic-circuit line, normally connected on one of its sides or branches to one side of each of several test receiving instruments one at each board and each connected on its other side to a test plug or device adapted to be brought for testing into connection with the other side or branch of the line, in combination with switching devices to break the said normal connection betwen the lines and the test receiving instruments while the line is switched for use, a battery at the subscriber's station and a switch which switches current from the battery into the line while his telephone is not switched for use and only then, substantially as set forth.

10. In a telephone-exchange system, ungrounded metallic-circuit lines, multiple switchboards for said lines, switches for said lines, one switch on each of the boards, each switch having a pair of contact-points normally in contact, bat open while their line is switched at their board and a third contact-piece insulated from the rest (except by the circuit connections,) and test receiving instruments, one at each board, each line passing, on one of its sides or branches, successively, through its pairs of contact-points on the several boards and thence connected to one side of each of said test receiving instruments, and each line also connected, on its other side or branch to each of said third contact-pieces of its switches, in combination with test plugs or devices, one for each of the test receiving instruments and connected to the other side of the instrument and adapted to be brought for testing into connection with any of said third contact-pieces at its board, a battery at each subscriber's station and a switch which switches current from the battery into the circuit of the line while the subscriber's telephone is not switched for use, and only then, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, an ungrounded metallic-circuit line, and test receiving instruments, one at each board and each normally connected on one side to one side or branch of said line, in combination with switching devices to connect said line with another line for conversation and when it is thus connected to open said normal connection between it and the test receiving instruments, and a battery in the circuit of the line when the subscriber's telephone is not switched for use but not otherwise, substantially as set forth.

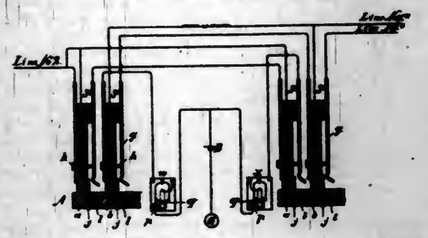
12. A test-circuit for a metallic-circuit line disconnected from the ground, from one side of a test receiving instrument to a test plug or device, thence to one side or branch of the line when the test is applied, thence through the circuit of the line and a pair of switch contact-points normally closed but open while the line is switched for use by the switch which controls them, to the other side of said test receiving instrument, in combination with a battery in the circuit of the line while the telephone is not switched for conversation. substantially as set forth.

13. A test-circuit for an ungrounded metallic-circuit line, from one side or branch of the line, through the circuit of the line and pairs of switch contact-points one pair on each of several boards, each pair normally closed but open while the line is switched at their board, to a wire or circuit common to the lines, thence through branch or derived circuits, one at each board, each containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a battery normally in said test-circuit, substantially as set forth.

592,337. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 20, 1889. Serial No. 334,354. (No model.)

Claim.—1. In a telephone-exchange system, a common ground-wire to which the lines are normally connected, containing a battery, in combination with an annunciator normally in the circuit of the line, a pair of contact-points operated by the annunciator to disconnect the line from said common ground-wire while the annunciator indicates a call, a pair of switch contact-points which disconnect said line from said common ground-wire, while the line is switched by a switch which controls them and a test receiving instrument grounded on one side (but not through the battery) and connected on its other side to a test plug or device adapted to be brought for testing into connection with the line, substantially as set forth.

2. In a telephone-exchange system, a common wire containing a battery to which the lines are normally connected on one side of the battery, in combination with an annunciator normally in the circuit of a line, a pair of contact-points operated by the annunciator which disconnect the line from said common wire while the annunciator indicates a call, a pair of switch contact-points which disconnect said line from said common wire while the line is switched by a switch which controls them and a test receiving instrument connected on one side to the common wire on the other side of said battery and connected on its other side to a test plug or device adapted to be brought for testing into connection with said wire whether the wire is connected to the battery or not, substantially as set forth.



3. In a telephone-exchange system, a common wire containing a battery, to which the lines are normally connected on one side of the battery, in combination with an annunciator normally in the circuit of a line, a pair of contact-points operated by the annunciator which disconnect said line from said common wire while the annunciator indicates a call, a pair of switch contact-points which disconnect said line from said common wire while the line is switched at a switch which controls them, and a test wire or circuit containing a test receiving instrument, connected at one end to said common wire on the other side of the battery and connected at its other end to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected to the battery or not, substantially as set forth.

4. In a telephone-exchange system, a common ground-wire, containing a battery, to which the lines are normally connected, in combination with a subscriber's line, a series of pairs of contact-points for the line, one pair on each of several boards each pair normally in contact but open while the line is switched at their board, said line passing normally, successively, through said pairs of contact-pieces and being thence connected to said common wire, an annunciator normally in the circuit of the line, a pair of contact-points operated by the annunciator which break the connection of the line with said common wire while the annunciator indicates a call, and a test wire or circuit, containing a test receiving instrument, grounded at one end, but not through the battery, and connected at its other end to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected to the battery or not, substantially as set forth.

5. In a telephone-exchange system, a common wire, containing a battery, to which the lines are normally connected, in combination with a subscriber's line a series of pairs of contact-points for the line, one pair on each of several boards, each pair normally in contact but open while the line is switched at their board, said line passing normally, successively, through said pairs of contact-points and being thence connected to said common wire on one side of the battery, an annunciator normally in the circuit of the line, a pair of contact-points operated by the annunciator which break the connection of the line with said common wire, while the annunciator indicates a call and a test receiving instrument connected on one side to the other side of said battery and on its other side to a test plug or device adapted to be brought for testing into connection with said line whether the line is connected to the battery or not, substantially as set forth.

6. In a telephone-exchange system, a telephone-line normally passing, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and thence to a common ground-wire for the lines in which is a battery, in combination with an annunciator normally in the circuit of the line, a pair of contact-points operated by the annunciator which disconnect said line from said common wire while the annunciator indicates a call, and a test receiving instrument grounded on one side (but not through the battery) and connected on the other side to a test plug or device adapted to be brought for testing into connection with the line between the pairs of switch and annunciator contact-points on the one hand and the subscriber's station on the other hand, substantially as set forth.

7. In a telephone-exchange system, a telephone-line normally passing, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched at their board and thence to a common wire for the lines connected to one side of a battery, in combination with an annunciator normally in the circuit of the line, a pair of contact-points operated by the annunciator which disconnect said line from the battery while the annunciator indicates a call, and a test receiving instrument connected on one side to the other side of said battery and on its other side to a test plug or device adapted to be brought for testing into connection with the line between said pairs of switch and annunciator contacts on the one hand and the subscriber's station on the other hand, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line, one of whose sides or branches normally passes successively, through pairs of contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and thence to one side of a battery common to the lines, in combination with an annunciator normally in the circuit of that branch of the line, a pair of contact-points controlled by the annunciator which disconnect the line from the battery, while the annunciator indicates a call and a test receiving instrument connected on one side to the other side of said battery and on its other side to a test plug or device adapted to be brought for testing into connection with the other side or branch of the line, substantially as set forth.

9. In a telephone-exchange system, a battery normally connected on one side, to a subscriber's line, switching devices to disconnect the line from said normal connection with the battery, an annunciator normally in the circuit of the line, and a pair of contact-points operated by the annunciator which disconnect the line from said normal connection with the battery while the annunciator indicates a call, in combination with a test receiving instrument connected on one side to the other side of said battery, and on its other side to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected to the battery or not, substantially as set forth.

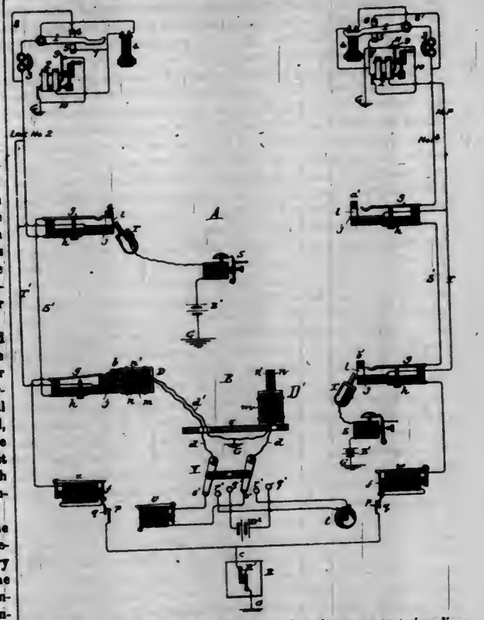
10. In a telephone-exchange system, a battery connected on one side to the ground and on its other side normally connected to a telephone-line, switching devices to disconnect the line from the battery while the line is switched for use, an annunciator normally in the circuit of the line, and a pair of contact-points operated by the annunciator which disconnect the line from the battery while the annunciator indicates a call, in combination with a test wire or circuit grounded at one end (but not through the battery), connected on its other end to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected to the battery or not, and a test receiving instrument in said test wire or circuit, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, a telephone-line, a battery connected on one side to the ground and on its other side normally connected to the line, switching devices at each board to disconnect the line from its normal connection with the battery and switch it with any other line for conversation, an annunciator normally in the circuit of the line, and a pair of contact-points operated by the annunciator which disconnect the line from its normal connection with the battery while the annunciator indicates a call, in combination with test receiving instruments, one at each board each grounded on one side (but not through the battery) and connected on its other side to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected with the battery or not, substantially as set forth.

12. In a telephone-exchange system, multiple switchboards, a telephone-line, a battery normally connected on one side to the line, switching devices at each board to disconnect the line from its normal connection with the battery and switch it with another line for conversation, an annunciator normally in the circuit of the line, and a pair of contact-points operated by the annunciator which disconnect the line from its normal connection with the battery while the annunciator indicates a call, in combination with test receiving instruments, one at each board, each instrument connected on one side to the other side of the battery and on its other side to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected with the battery or not, substantially as set forth.

13. In a telephone-exchange system, a metallic-circuit line, one of whose sides or branches normally passes successively through pairs of contact-points, one pair on each of several boards each pair normally closed but open while the line is switched at their board, and thence to a ground connection common to the lines, in combination with an annunciator normally in the circuit of that branch of the line, a pair of contact-points controlled by the annunciator which disconnect the line from the ground while the annunciator indicates a call, a test receiving instrument connected on one side to the ground and on its other side to a plug or device adapted to be brought for testing into connection with the other side or branch of the line and a battery in the circuit thereby established on testing, substantially as set forth.

592,888. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 20, 1889. Serial No. 334,355. (No model.)



Claim.—1. In a multiple-switchboard exchange, a test signaling device, test-circuits including said device, a test-battery, and call-contacts open while a call is being communicated controlling the condition of each of said test-circuits.

2. In a multiple-switchboard exchange, a rheotome, a number of test-circuits including said rheotome, and annunciator-contacts in each test-circuit, controlling the condition of said test-circuit.

3. In a multiple-switchboard exchange, a rheotome, annunciator-contacts normally closed but open while the annunciator indicates a call, and a test-circuit including said rheotome and contacts.

4. In a multiple-switchboard exchange, a common ground-wire for the lines, a rheotome in said wire, annunciator-contacts in each of said lines normally closed but open while a call is indicated, and test-circuits including said contacts and rheotome.

5. In a multiple-switchboard exchange, a telephone-line, and a test-circuit associated therewith, including a rheotome, a battery, a test receiving instrument adapted to respond thereto, normally open contacts closed for testing, and normally closed call-contacts open while a call is being sent in.

6. In a multiple-switchboard exchange, a telephone-line, a test-circuit associated therewith, including a rheotome, a battery, a test receiving instrument adapted to respond thereto, normally open contacts closed for testing, and two sets of normally closed contacts, one set open while a call is indicated, and the other set open while the telephone-line is switched for use.

7. In a multiple-switchboard exchange, in the order named, a grounded subscriber's circuit, test-contacts, normally closed switch-contacts, open while the line is switched for use, normally closed annunciator-contacts open while a call is being indicated, a rheotome, and a ground connection; in combination with a grounded test outfit adapted to be connected to a test-contact and to respond to said rheotome while said contacts are closed, but not otherwise, and a call-circuit adapted to open said annunciator contacts.

8. In a multiple-switchboard exchange, in the order named, test-contacts, two limbs of a closed metallic circuit, normally closed spring-jack contacts open while the line is switched for use, normally closed call-contacts opened by call apparatus while a call is being communicated, a rheotome, and a test outfit, adapted to respond thereto while connected to a test-contact, and said normally closed contacts are not open, but not otherwise.

9. In a telephone-exchange system, a common ground-wire to which the lines are normally connected, containing a rheotome, in combination with an annunciator normally in the circuit of the line, a pair of contact-points operated by the annunciator to disconnect the line from said common ground-wire while the annunciator indi-

cates a call, a pair of switch contact-points which disconnect said line from said common ground-wire, while the line is switched by a switch which controls them, a test receiving instrument grounded on one side (but not through the rheotome) and connected on its other side to a test plug or device adapted to be brought for testing into connection with the line, and battery in the test-circuit thereby established, substantially as set forth.

10. In a telephone-exchange system, a common wire containing a rheotome to which the lines are normally connected on one side of the rheotome, in combination with an annunciator normally in the circuit of a line, a pair of contact-points operated by the annunciator which disconnect the line from said common wire while the annunciator indicates a call, a pair of switch contact-points which disconnect said line from said common wire while the line is switched by a switch which controls them, a test receiving instrument connected on one side to the common wire on the other side of said rheotome and connected on its other side to a test plug or device adapted to be brought for testing into connection with said wire whether the wire is connected to the rheotome or not, and battery in the test-circuit thereby established, substantially as set forth.

11. In a telephone-exchange system, a common wire containing a rheotome, to which the lines are normally connected on one side of the rheotome, in combination with an annunciator normally in the circuit of a line, a pair of contact-points operated by the annunciator which disconnect said line from said common wire while the annunciator indicates a call, a pair of switch contact-points which disconnect said line from said common wire while the line is switched at a switch which controls them, and a test wire or circuit containing a test receiving instrument and battery, connected at one end to said common wire on the other side of the rheotome and connected at its other end to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected to the rheotome or not, substantially as set forth.

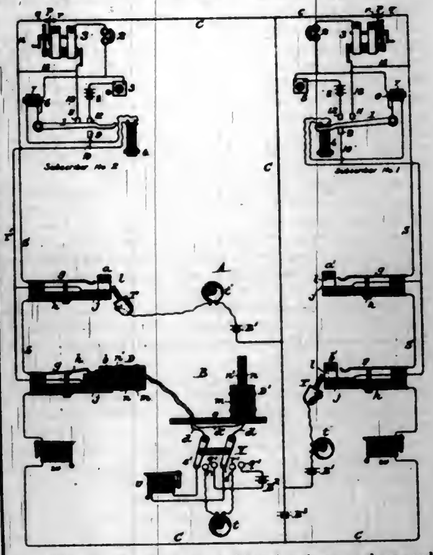
12. In a telephone-exchange system, a common ground-wire, containing a rheotome, to which the lines are normally connected, in combination with a subscriber's line, a series of pairs of contact-points for the line, one pair on each of several boards each pair normally in contact but open while the line is switched at their board, said line passing normally, successively, through said pairs of contact-pieces and being thence connected to said common wire, an annunciator normally in the circuit of the line, a pair of contact-points operated by the annunciator which break the connection of the line with said common wire while the annunciator indicates a call, and a test wire or circuit, containing a test receiving instrument and battery, grounded at one end, but not through the rheotome, and connected at its other end to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected to the rheotome or not, substantially as set forth.

13. In a telephone-exchange system, multiple switchboards, a telephone-line, a rheotome connected on one side to the ground and on its other side normally connected to the line, switching devices at each board to disconnect the line from its normal connection with the rheotome and switch it with any other line for conversation, an annunciator normally in the circuit of the line, and a pair of contact-points operated by the annunciator which disconnect the line from its normal connection with the rheotome when the annunciator indicates a call, in combination with test receiving instruments, one at each board each grounded on one side (but not through the rheotome) and connected on its other side to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected with the rheotome or not, and battery in the test-circuit thereby established, substantially as set forth.

14. In a telephone-exchange system, a metallic-circuit line, one of whose sides or branches normally passes successively through pairs of contact points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and thence to one side of a circuit connection common to the lines, in combination with an annunciator normally in the circuit of that branch of the line, a pair of contact-points controlled by the annunciator which disconnect the line from said common circuit connection while the annunciator indicates a call, a test receiving instrument connected on one side to the said common circuit connection and on its other side to a test plug or device adapted to be brought for testing into connection with the other side or branch of the line, and a battery and rheotome in the test-circuit thereby established, substantially as set forth.

15. In a telephone-exchange system, multiple switchboards, a telephone-line, a rheotome normally connected on one side to the line, switching devices at each board to disconnect the line from its normal connection with the rheotome and switch it with another line for conversation, an annunciator normally in the circuit of the line, and a pair of contact-points operated by the annunciator which disconnect the line from its normal connection with the rheotome while the annunciator indicates a call, in combination with test receiving instruments, one at each board, each instrument connected on one side to the other side of the rheotome and on its other side to a test plug or device adapted to be brought for testing into connection with the line whether the line is connected with the rheotome or not, and battery in the test-circuit thereby established, substantially as set forth.

592,889. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 20, 1889. Serial No. 334,357. (No model.)



Claim.—1. In a multiple-switchboard exchange, a three-conductor system comprising a telephone-circuit, ungrounded call and test circuits associated therewith, each extending from the subscriber's station to the central office, one conductor and one only common to both circuits.

2. In a multiple-switchboard exchange, ungrounded telephone, call and test circuits, each extending from the subscriber's station to the central office, a conductor common to each of said circuits, a second conductor common to said telephone and test circuits, and a third conductor forming a part of said call-circuit, each conductor electrically continuous from the subscriber's station to the central office.

3. In a multiple-switchboard exchange, ungrounded telephone, call and test circuits, each extending from the subscriber's station to the central office, a conductor common to each of said circuits, a second conductor common to said telephone and test circuits, and a third conductor forming a part of said call-circuit, each conductor electrically continuous from the subscriber's station to the central office, said circuits being normally open but closed while performing their several functions.

4. In a multiple-switchboard exchange, a telephone-line, ungrounded call and test circuits associated therewith, three conductors each extending from the subscriber's station to the central office, a single conductor common to both including a call device and normally closed contacts open while the telephone-line is switched for use, a call-generator in said call-circuit, and a test-battery in said test-circuit at the central station.

5. In a multiple-switchboard exchange, ungrounded telephone, call and test circuits, three conductors each extending from the subscriber's station to the central office, a conductor common to said call and test circuits, a second conductor common to said test and telephone circuits, a third conductor forming part of said call-circuit, and a test battery and instrument in said test-circuit at the central station.

6. In a multiple-switchboard exchange, ungrounded telephone, call and test circuits, three conductors each extending from the subscriber's station to the central office, normally open but closed while performing their several functions, a conductor common to said call and test circuits, a second conductor common to said test and telephone circuits, a third conductor forming part of said call-circuit, and a test battery and instrument in said test-circuit at the central station.

7. In a multiple-switchboard exchange, in the order named, test-contacts, an ungrounded metallic circuit closed at the subscriber's station, normally closed switchboard-contacts opened while in use, a call-annunciator, an ungrounded conductor, an extension to the subscriber's station including normally open contacts closed through a call-generator while calling; in combination with a test outfit including a test-battery connected on one side to said ungrounded conductor and on the other side adapted to be connected to a test-contact for testing.

8. In a multiple-switchboard exchange, in the order named, test-contacts, one at each board, a line-conductor, an ungrounded subscriber's outfit including a call-generator, a return line conductor, normally closed jack-contacts, a pair at each board opened while the line is switched, for use, an annunciator and two connections, one to an ungrounded common conductor adapted to be connected to a subscriber's call-generator while calling; the other to an operator's test outfit including a test-battery, adapted to be connected to a test-contact for testing.

9. In a multiple-switchboard exchange, two metallic circuits, each connected in the order named from test-contacts, one at each board, a line conductor, ungrounded subscriber's outfit including a call-generator, a return line conductor, normally closed jack-contacts, a pair at each board opened while the line is switched for use, an annunciator, and two connections one to an ungrounded common conductor adapted to be connected to a subscriber's call-generator while calling; the other to an operator's test outfit including a test-battery, adapted to be connected to a test-contact for testing in combination with loop plugs with cord connections adapted to be inserted in jacks of said two lines and disconnect a pair of normally closed contacts in said jacks, and connect said lines together for conversation.

592,840. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 21, 1888. Serial No. 334,517. (No model.)

Claim.—1. In a multiple-switchboard exchange, a telephone-line, a call-circuit, and a test-circuit insulated from said telephone-line normally closed while testing but open while a call is being indicated.

2. In a multiple-switchboard exchange, a telephone-line, a test-circuit associated therewith, but insulated therefrom, normally closed contacts in said test-circuit, and a call device in a call-circuit adapted to open said contacts while a call is being indicated.

3. In a multiple-switchboard exchange, a telephone-line, a test-circuit associated therewith but insulated therefrom, normally closed contacts in said test-circuit, and a call-annunciator in said telephone-line adapted to open said contacts while indicating a call.

4. In a multiple-switchboard exchange, a telephone-line, a call-circuit associated therewith, a test-circuit associated therewith but insulated therefrom containing normally closed jack and annunciator contacts, open while the telephone-line is in use.

5. In a multiple-switchboard exchange, a telephone-line including call apparatus, and normally closed jack-contacts open while the line is switched for use, a test-circuit associated therewith but insulated therefrom, containing normally closed contacts opened by said call apparatus while a call is being indicated.

6. In a multiple-switchboard exchange, a telephone-line, including call apparatus and normally closed jack-contacts opened while the line is switched for use, a test-circuit associated therewith but insulated therefrom, containing normally closed call-contacts opened by said call apparatus while a call is being indicated, and normally closed jack-contacts opened while the telephone-line is switched for use.

7. In a multiple-switchboard exchange, telephone-lines, switching apparatus at each board adapted to switch said lines together for conversation, test-circuits for said lines, a test outfit at each board cooperating with said test-circuit, spring-jacks, one at each board for each line, a rubber strip for each jack, five contacts in each jack, supported by said strip, a test-circuit for each line, including a pair of normally closed contacts opened by the call-annunciator of the line during a call, and a pair of normally closed contacts in each jack of the line, and terminating in multiple branches in a third contact in each jack of the line, said telephone-lines having connections with two of the contacts in the jacks of their respective lines, the jacks being so constructed that a switching device while inserted in a jack switches said telephone-line contacts in said jack for use, and at the same time opens said normally closed pair of test-circuit contacts in said jack, whereby lines switched for use test "busy."

8. In a multiple-switchboard exchange, telephone-lines, switching apparatus therefor at each board adapted to switch said lines together for conversation, a test-circuit for each of said lines, including a pair of normally closed contacts opened by a calling signal during a call, a test outfit at each board cooperating with said test system, spring-jacks, one at each board for each line, a rubber strip for each jack, five contacts in each jack supported by said strip, said test system and outfits and said telephone-lines cooperating with the contacts of said jacks, said telephone-lines having connections with two of the contacts in the jacks of their respective lines, whereby said lines may be switched for use at any board, and their "busy" condition determined at every other board.

9. In a multiple-switchboard exchange, telephone-lines, switching apparatus therefor at each board adapted to switch said lines together for conversation, a test-circuit for each of said lines, including a pair of normally closed contacts opened by a calling signal during a call, a test outfit at each board cooperating with said test-circuits, spring-jacks, one at each board for each line, a rubber strip for each jack, five contacts in each jack, supported by said strip, each of said test-circuits including in series a normally closed pair of said contacts in each jack of its line, and terminating in multiple branches in a third contact in each jack, whereby said telephone-lines may be switched together at any board, and their "busy" condition determined at every other board.

10. In a multiple-switchboard exchange, telephone-lines, switching apparatus therefor at each board adapted to switch said lines together for conversation, a test-circuit for said lines, including a pair of normally closed contacts opened by a calling-signal during a call, a test outfit at each board cooperating with said test-circuit, spring-jacks, one at each board for each line, a rubber strip for each jack, five contacts in each jack supported by said strip, said test system and said line cooperating with said jack-contacts and so organized that when said telephone-lines are switched together at any board their "busy" condition may be determined at every other board.

11. In a multiple-switchboard exchange, telephone-lines, switching apparatus at each board adapted to switch said lines together for conversation, test-circuits for said lines, a test outfit at each board cooperating with said test-circuits, spring-jacks, one at each board for each line, a rubber strip for each jack, five contacts in each jack supported by said strip, a test-circuit for each line including annunciator-contacts and a set of contacts in each jack of the line, and terminating in multiple branches in a third contact in each jack of the line, said telephone-lines being connected with two of the contacts of the jacks of their respective lines, the jacks being so constructed that a switching device, while inserted in a jack, switches the contacts in said jack for use, and cooperates with said test circuits and outfits to give a silent indication when said lines are thus switched for use and tested.

12. In a multiple-switchboard exchange, telephone-lines, switching apparatus therefor at each board, adapted to switch said lines together for conversation, a test system for said lines, a test outfit at each board cooperating with said test system, spring-jacks, one at each board for each line, a rubber strip for each jack, local and main line contacts in each jack supported by said strip, said test-circuits including a pair of normally closed annunciator-contacts and being connected with the local contacts in said jacks, said telephone-lines being connected with the main-line contacts in the jacks of their respective lines, said jacks being so constructed that a switching device while inserted in a jack switches said main line and local contacts for use, and cooperates with said test-circuits to give a silent test when said lines are tested and thus switched for use.

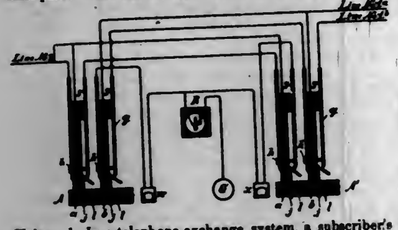
13. A test-circuit for a telephone-line normally open at one point and normally closed at two points, a pair of contacts closed by the operator on testing to close the circuit at said normally open point, a pair of switch contact-points which are opened when the line is switched by the switch which controls them to open the circuit at one of said normally closed points, a pair of annunciator contact-points which are opened when the line-annunciator indicates a call to open the circuit at the other of said normally closed points and a test receiving instrument and battery in the circuit, substantially as set forth.

14. A test-circuit for a telephone-line, normally open at one point and normally closed at a series of points, a pair of contacts closed by the operator on testing to close the circuit at said normally open point, a pair of annunciator contact-points which are opened when the line-annunciator indicates a call to open the circuit at one of said normally closed points, pairs of switch contact-points, one pair on each of several boards, each pair opened when the line is switched at their board by a switch which controls them to open the circuit at one of said normally closed points and a test receiving instrument and battery in the circuit, substantially as set forth.

15. The combination of two or more switchboards with a series of switches, for a telephone-line, one switch on each board, pairs of local contact-points, one pair for each switch, each normally closed but opened automatically by a switch-plug when inserted into its switch, for switching, an annunciator normally in the circuit of the line, a pair of contact-points normally closed but opened by the annunciator while it indicates a call, test receiving instruments, one at each board, battery, test devices, and local circuits, substantially as set forth.

16. The combination of two or more switchboards with series of switches, one series for each telephone-line, and one switch of each series on each board, pairs of local contact-points, one pair for each switch, each normally closed but opened automatically by a switch-plug when inserted into its switch, annunciators, one for each line and normally in its circuit, pairs of contact-points, one for each annunciator normally closed but opened by its annunciator while it indicates a call, test receiving instruments, one at each board, battery, test devices, and circuits, substantially as set forth.

592,841. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 21, 1889. Serial No. 334,518. (No model.)



Claim.—1. In a telephone-exchange system, a subscriber's line permanently grounded at its outer end in combination with a switch for the line into which a double or loop plug is placed, said switch containing a contact-piece permanently connected to the line and a pair of contact-pieces which are normally in contact but which are separated by the plug on its insertion, one of said pair being connected to the line and the other, the third, being connected with the ground, one of the two contact-pieces of the plug being connected to a contact-piece of another plug and while inserted into the switch forming connection with said first contact-piece and the other contact-piece of the plug forming connection with said third-mentioned contact-piece of the switch, respectively, substantially as set forth.

2. In a telephone-exchange system, a pair of double or loop plugs, one of the contact-pieces of each of which is connected with one of the contact-pieces of the other, through flexible conductors, and the other contact-pieces of which are connected with the ground through flexible conductors, and a metal contact-piece which, when the plug is in its normal position (or not in use for switching) connects the two contact-pieces of the plug together, (but not otherwise,) in combination with a subscriber's line grounded at its outer end, a switch for the line into which the other plug is placed, and which then connects the line with said first-mentioned contact-piece of the plug, and an operator's telephone between the first-mentioned contact-pieces of said plugs, substantially as set forth.

3. In a telephone-exchange system, a pair of double or loop plugs, one of the contact-pieces of each of which is connected to one of the contact-pieces of the other, through flexible conductors, and the other contact-pieces of which are connected to the ground through flexible conductors, and a metal contact-piece which, when a plug is in its normal position (or not in use for switching,) connects the two contact-pieces of one plug together, (but not otherwise,) in combination with a single-circuit line grounded at its outer end, a switch for the line into which the other plug is placed, said switch containing a contact-piece connected permanently to the line and two other contact-pieces which are normally in contact, but which are separated by the plug on its insertion, one of the two pieces being connected to the line and the other to the ground, the first-mentioned contact-piece of said other plug, when thus inserted, being connected to the first-mentioned contact-piece of the switch and the other contact-piece of the plug being connected with the ground contact-piece of the switch, and an operator's telephone between the first-mentioned contact-pieces of said plugs, substantially as set forth.

4. In a telephone-exchange system, a subscriber's line permanently grounded at one end and normally grounded at the central office at the other end, in combination with a switch for the line into which a loop plug is placed, said switch containing two contact-pieces normally in the circuit of the line and in contact when the plug is not in the switch but not otherwise, and a third contact piece permanently connected with the line, one of the contact-pieces of the plug being connected to a contact-piece of another plug and when thus inserted forming connection with said third contact-piece and the other contact-piece of the plug forming connection with the contact-piece of the switch which is grounded through the cut-off portion of the line, substantially as set forth.

5. In a telephone-exchange system, a subscriber's line permanently grounded at its outer end, in combination with switches for the line, one on each of several switchboards and into each of which double or loop plugs may be placed for switching, each switch containing a contact-piece permanently connected with the line and two other contact-pieces normally in contact but open while a plug is in the switch, said line passing, successively, through the pairs of contact-pieces and thence to the ground, one of the contact-pieces of a plug being connected to a contact-piece of another plug and while inserted forming connection with said first-mentioned contact-piece of the switch and the other contact-piece of the plug forming connection with the contact-piece of the switch, which is then connected with the ground substantially as set forth.

6. In a telephone-exchange system a subscriber's line, in combination with switches for the line, one switch on each of several boards, and into which double or loop plugs may be placed for switching, two contact-pieces normally in contact but open while a plug is in the switch, said line passing, successively, through the pairs of contact-points, and a contact-piece connected to the line between said pair of contact-points and the subscriber's station, one of the contact-pieces of a plug being connected with a contact-piece of another plug and while inserted forming connection with said last-mentioned contact-piece of the switch and the other contact-piece of the plug forming connection with the contact-piece which is connected with the cut-off portion of the line, substantially as set forth.

7. In a telephone-exchange system a subscriber's line grounded at its outer end, in combination with a switch for the line into which a double or loop plug is placed for switching, said switch containing a contact-piece permanently connected with the line and two other contact-pieces which are normally in contact, but which are separated by the plug on its insertion, one of the pieces being connected with the line and the other with the ground, one of the contact-pieces of the plug being connected with a contact-piece of another plug and the other being connected with the ground through flexible conductors, said first-mentioned contact-pieces of the plug and switch, and said last-mentioned contact-pieces of the plug and switch, being connected together respectively, while the plug is inserted, substantially as set forth.

8. In a telephone-exchange system, a subscriber's line grounded at its outer end, in combination with switches for the line, one switch on each of several boards, and into each of which double or loop plugs may be placed for switching, each switch containing a contact-piece permanently connected with the line and two other contact-pieces normally in contact but open while a plug is in the switch, said line passing, successively, through the pairs of contact-points and thence to the ground, one of the contact-pieces of each switch-plug being connected with a contact-piece of another plug and the other contact-piece being connected with the ground, through flexible conductors, said first-mentioned contact-pieces of a plug, on its insertion into a switch, forming connection with said first-mentioned contact-piece of the switch and the other contact-piece of a plug forming connection with the contact-piece of the switch which is connected with the ground, substantially as set forth.

9. In a multiple-switchboard exchange, a single-circuit line having a common return-conductor, a jack-contact at two or more boards, permanently connected to said single line, a metallic circuit, loop-swich apparatus having two cord conductors, one adapted to connect a contact of said single line to one limb of said metallic circuit, and the other adapted to connect the other limb of said metallic circuit to said return-conductor.

10. In a multiple-switchboard exchange, two or more metallic circuits, two or more single-line circuits having a common return, a jack-contact at each board, permanently connected to each of said single lines, loop-switch apparatus having two cord conductors adapted to connect any two of said circuits together, so constructed that when two metallic circuits are connected together the two limbs of one are connected to the two limbs of the other by said two cord conductors respectively, and when a metallic circuit and a single circuit are connected together one of the jack-contacts of said single circuit is connected to one side of said metallic circuit by one of said cord conductors, and the other side of said metallic circuit is connected to said common return by the other of said cord conductors.

11. In a multiple-switchboard exchange, two or more single-line circuits having a common return, a jack-contact at each board permanently connected to each of said single-line circuits, two or more metallic circuits connected to said boards, the two limbs of each metallic circuit connected to two contacts respectively in each jack, loop-switch apparatus comprising two plugs each having two contacts connected together through two flexible cord conductors, one cord conductor adapted to connect the jack-contact of one of said single circuits with one limb of one of said metallic circuits and the other cord conductor adapted to connect the other limb of said metallic circuit to the common return-conductor, and said loop-switch apparatus also adapted to connect together the two limbs of two metallic circuits.

12. In a multiple-switchboard exchange, a single-circuit telephone-line having a common return, a contact in each of several jacks permanently connected to said line, normally closed pairs of contacts in said jacks through which the line is normally connected to said common return and disconnected by the insertion of a switch-plug; a metallic-circuit, loop-switch apparatus having two cord conductors, one cord conductor adapted to connect a permanently-connected jack-contact of the single-circuit line with one limb of said metallic circuit, and the other cord conductor adapted to connect the other limb of said metallic circuit to said common return.

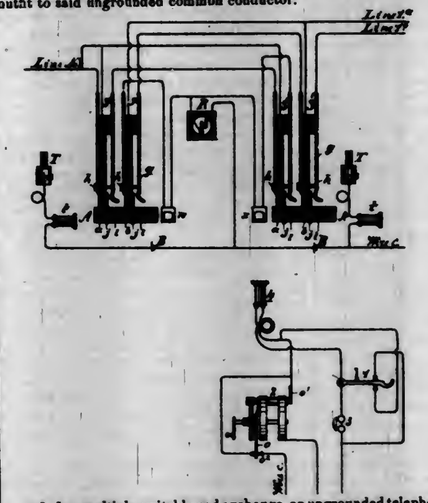
13. In a telephone-exchange, a single-circuit line, an operator's set, loop-switch apparatus adapted to connect said set to said single line comprising two plugs, one carrying a contact adapted to make connection with said line, the other carrying two contacts normally cross-connected by a conducting base-plate, one of said contacts connected through the operator's set to the said contact of the first-mentioned plug, and the other contact connected to the return-conductor of said single-circuit line.

14. In a multiple-switchboard exchange, a single-circuit line continuous in the order named from a common conductor through a subscriber's outfit, a line conductor, electrically-united test-contacts, one at each board, normally closed jack-contacts, a set at each board, and a connection to said common conductor, and metallic circuits continuous in the order named from electrically-united test-contacts one at each board, metallic line conductors including a subscriber's outfit, normally closed jack-contacts, a set at each board, and a connection to said common conductor; in combination with loop-switching apparatus having two cord conductors adapted to connect said circuits, and thereby open a set of normally closed contacts, and test outfits, one at each board, including a test receiving instrument adapted to be connected to a test-contact of either line and thereby establish a circuit for testing while the line is not switched for use, but not otherwise.

15. In a multiple-switchboard exchange, single-circuit lines, each continuous in the order named from a return-conductor through a subscriber's outfit, a line conductor, test-contacts, one at a jack at each board, normally closed contacts, a set in a jack at each board, a rheotome, and a connection to said return-conductor; and metallic circuits each continuous in the order named from test-contacts, one in a jack at each board, metallic line conductors, including a subscriber's outfit, normally closed contacts, a set in a jack at each board, a rheotome, and a ground connection; in combination with loop-switching apparatus comprising two plugs each having two contacts, a contact of one plug connected to a contact of the other plug through a flexible conductor containing an operator's set, the other contacts of the two plugs connected together through a flexible conductor connected to said return-conductor, thus adapted to connect together any two of said circuits, and operator's test outfits, one at each board, adapted to be connected to a test-contact of any line for testing, each outfit including a test-plug, a test receiving instrument and test-battery, in a circuit connected to said return-conductor.

592,842. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 21, 1889. Serial No. 334,520. (No model.)

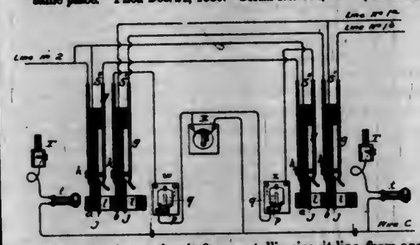
Claim.—1. In a multiple-switchboard exchange, a metallic circuit comprising in the order named, test-contacts, one in a jack at each board, line conductors including a subscriber's outfit, normally closed contacts, a pair in each jack, a rheotome, and a connection to a common ungrounded conductor; a single-circuit line, comprising in the order named, test-contacts, one in a jack at each board, two branches in multiple, one branch including a line conductor, the subscriber's outfit, and a connection to said ungrounded common conductor, the other branch including normally closed contacts, a pair in each jack open while the line is switched for use, a rheotome, and a connection to said ungrounded common conductor; in combination with a test outfit at each board including a test-battery and test receiving instrument, and a test plug or device adapted to be connected to any test contact for testing, and a connection for each outfit to said ungrounded common conductor.



2. In a multiple-switchboard exchange, an ungrounded telephone, test and call system comprising in the order named test-contacts, one in a spring-jack at each board, a line conductor, a subscriber's outfit including a normally open connection to a common ungrounded return-conductor, and including a subscriber's call-generator, a return line conductor, normally closed contacts, a pair in each jack, a call-annunciator, a rheotome, a connection to said ungrounded common conductor, and to a test outfit adapted to be connected to one of said test-contacts for testing.

3. In a multiple-switchboard exchange, an ungrounded test circuit comprising in the order named, test-contacts at two or more boards, line conductors, normally closed pairs of contacts at said boards, open while the line is switched for use, a common ungrounded return-conductor, and test outfits in parallel, one at each board adapted to be applied to the test-contacts at their boards for testing; in combination with a call-circuit including said common return-conductor, one of said line conductors, and said normally closed pairs of contacts, including also an annunciator and call-generator.

592,848. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 21, 1889. Serial No. 334,531. (No model.)



Claim.—1. A test-circuit for a metallic circuit line, from one side or branch of the line, through the circuit of the line and then to a pair of switch contact-points normally in contact but open while the line is switched, to a common wire which extends to the subscriber's station and is normally open to the line there, and from said wire to a test wire or circuit containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side of the line, a rheotome in the circuit of said common wire, between said pair of switch contact-points and the point where said test-wire branches off from said common wire, an annunciator normally in the circuit of the line, a pair of contact-points operated by the annunciator to open the circuit of the line while the annunciator indicates a call, a switching device operated by the subscriber's generator which connects his line to said common

wire while he sends a call, and a battery in the test-circuit established, substantially as set forth.

2. A test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and then to a pair of switch contact-points normally in contact but open while the line is switched, to a common wire which extends to the subscriber's station and is normally open to the line there, and from said wire to a test wire or circuit containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side of the line, a rheotome in the circuit of said common wire, between said pair of switch contact-points and the point where said test-wire branches off from said common wire a pair of contact-points operated by the line-annunciator to open the circuit of the line while the annunciator indicates a call and a battery in the circuit between said switch-points and said test-plug, substantially as set forth.

3. In a multiple-switchboard exchange, a test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and then to pairs of switch contact-points, one pair on each of several boards and each pair normally closed but open while the line is switched at their board, to a common wire which extends to the subscriber's station and is normally open there to the line and from said wire to a test wire or circuit containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, a rheotome in the circuit of said common wire, between said pairs of switch contact-points and the point where said test-wire branches off from said common wire, an annunciator normally in the circuit of the line, a switching device operated by the subscriber's generator which connects his line to said common wire while he sends a call and a battery in the test-circuit established, substantially as set forth.

4. In a multiple-switchboard exchange, a test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and then to pairs of switch contact-points, one pair on each of several boards and each pair normally closed but open while the line is switched at their board, to a common wire which extends to the subscriber's station and is normally open to the line there, and from said wire to a test wire or circuit containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a calling-generator at the subscriber's station with switching devices to connect the line with said common wire while a call is being sent in, an annunciator normally in the circuit of the line, a rheotome in the circuit of said common wire, between said pair of switch contact-points and the point where said test-wire branches off from said common wire and a battery in the circuit between said switch points and said test-plug, substantially as set forth.

5. In a multiple-switchboard exchange, a test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and then to a pair of switch contact-points normally in contact but open while the line is switched by the switch which controls them, to a common wire which extends to the subscriber's station and is normally open to the line there, and from said wire to several test wires or circuits, each branching off from said wire to its switchboard, containing in its circuit at the board a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a calling-generator at the subscriber's station, switching devices to connect the line with said common wire to operate the line-annunciator, a pair of contact-points operated by the line-annunciator to open the line-circuit while the annunciator indicates a call, a rheotome in the circuit of said common wire between said pair of switch contact-points and the place where said test-wires branch off from said wire and a battery in the circuit between said pair of contact-points and any test-plug substantially as set forth.

6. In a multiple-switchboard exchange, a test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and pairs of switch contact-points, one pair on each of several boards and each pair normally closed but open while the line is switched at their board, to a common wire which extends to the subscriber's station and is normally open to the line there, and from said wire to several test-wires, one for each board, each branching from said wire to its board and containing at the board a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, in combination with a calling-generator at the subscriber's station, switching devices to connect the line with said common wire to operate the line-annunciator, a pair of contact-points operated by the line-annunciator to open the line-circuit while the annunciator indicates a call a rheotome in the circuit of said common wire between said pair of switch contact-points and the place where said test-wires branch off from said wire and a battery in any test-circuit established, substantially as set forth.

7. In a telephone-exchange system, a telephone-line normally passing, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and thence connected with a common wire which passes to the subscriber's station and is normally open to the line there, in combination with an annunciator normally in the circuit of the lines, a pair of contact-points operated by the annunciator to open the circuit of the line while the annunciator indicates a call, a switching device operated by the subscriber's generator which connects his line to said common wire while he sends a call, a test wire or circuit branching off from said wire, containing a test receiving instrument and terminating in a test-plug adapted to be brought for testing into connection with the line before it passes to said pairs of contact-points a rheotome in the circuit of said common wire, between said pair of switch contact-points and the point where said test-wire branches off from said common wire and a battery in the test-circuit established, substantially as set forth.

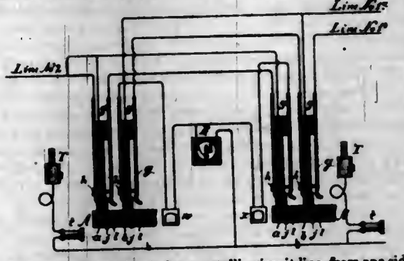
8. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, switches for said lines, one switch on each board for each line, each switch containing a pair of contact-points normally in contact but separated while the line is switched at their board and a third contact-piece insulated from the rest (except by the circuit connections), one branch of the line passing, successively, through the pairs of contact-points of its switches and thence to a common wire which extends to the subscribers' stations and is there open to the lines, and the other branch of the line being connected to said third contact-pieces of its switches, in combination with a pair of contact-points operated by the line-annunciator to open the circuit of the line while the annunciator indicates a call test-wires, one for each board, each branching off from said common wire, containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with any of said third contact-pieces at its board, a rheotome in the circuit of said common wire between said pair of switch contact-points and the place where said test-wires branch off from said wire and a battery in the circuit between said lines and any test-plug, substantially as set forth.

9. In a multiple-switchboard exchange, a test-circuit for a telephone-line, from a test-wire terminating in a test plug or device to a contact piece connected with the line when a test is applied, thence through a pair of switch contact-points normally in contact but open while the line is switched by a switch which controls them, to a common wire which extends to the subscriber's station and is normally open to the line there and from which said test-wire branches, in combination with a calling-generator at the subscriber's station, switching devices to connect the line with said common wire to operate the line-annunciator, a pair of contact-points operated by the line-annunciator to open the line-circuit while the annunciator indicates a call, a test receiving instrument in said test-wire, a rheotome in the circuit of said common wire between said pair of switch contact-points and the point where said test-wire branches off from said common wire, and a battery in the test circuit established on testing, substantially as set forth.

10. In a multiple-switchboard exchange, a test-circuit for a telephone-line, from a test-wire terminating in a test plug or device to the circuit of the line where the test is applied, thence through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, to a common wire which extends to the subscriber's station and is normally open to the line there and from which said test-wire branches, in combination with a calling-generator at the subscriber's station, switching devices to connect the line with said common wire to operate the line-annunciator, a pair of contact-points operated by the line-annunciator to open the line-circuit while the annunciator indicates a call, a test receiving instrument in said test-wire, a rheotome in the circuit of said common wire between said pairs of switch contact-points and the point where said test-wire branches off from said common wire, and battery in the circuit between said switch contact-points and said test-plug, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, telephone-lines, and switches for said lines, one switch for each line on each board, each switch having a pair of contact-points normally in contact but open while its line is switched at their board, each line normally passing successively through the pairs of contact-points of its switches, and the lines thence uniting into a common wire which extends to all the subscribers' stations and in which is a rheotome, in combination with an annunciator normally in the circuit of the lines, a pair of contact-points operated by the annunciator to open the circuit of the line while the annunciator, indicates a call, a switching device operated by the subscriber's generator which connects his line to said common wire while he sends a call, test receiving instruments one at each board each connected on one side to said common wire with the rheotome between the connection and the pairs of switch contact-points of the lines and connected on its other side to a test plug or device adapted to be brought for testing into connection with any line whether the line is switched or not and a battery in any test-circuit established on testing, substantially as set forth.

592,844. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 21, 1889. Serial No. 334,522. (No model.)



Claim.—1. A test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and then to a pair of switch contact-points normally in contact but open while the line is switched by the switch which controls them, thence by an all-metallic connection to a wire common to the lines and through said common wire to a test-wire containing a test receiving instrument and battery, a rheotome in said common wire and a test plug or device in which said test-wire terminates, adapted to be brought into connection with said side or branch of the line, substantially as set forth.

2. A test-circuit for a metallic-circuit line, from one side or branch of the line, through the circuit of the line and then to a pair of switch contact-points normally closed but open while the line is switched by a switch which controls them to a wire common to the lines, thence by an all-metallic connection to a test-wire connected to said common wire and containing a test receiving instrument, a rheotome in said common wire and a test plug or device in which said test-wire terminates, adapted to be brought for testing into connection with said side or branch of the line, and a battery in the circuit between said pair of contact-points and said test-plug, substantially as set forth.

3. A test-circuit for a metallic-circuit line disconnected from the ground at the central office, from one side or branch of the line through the circuit of the line and pairs of contact-points, one pair on each of several boards, to a wire common to the lines, thence to a test-wire, containing a test receiving instrument, said test-wire being connected to said common wire and terminating in a test plug or device adapted to be brought for testing into connection with said side or branch of the line, a rheotome in said common wire and a test-battery between the place where the lines are united with said common wire and said test-plug substantially as set forth.

4. A test circuit for a telephone-line disconnected from the ground at the central office, from one side of a test receiving instrument, through the instrument to a test plug or device, thence when the test is applied to the line, thence through a pair of switch contact-points normally in contact but open while the line is switched by a switch which controls them, to a wire common to the lines, thence, to said side of the test receiving instrument, a rheotome in said common wire, a battery in the circuit between the place where the lines are united to said common wire and said test-plug, substantially as set forth.

5. A test-circuit for a telephone-line disconnected from the ground at the central office, through pairs of contact-points normally in the circuit of the line, one pair on each of several boards, to a wire common to the lines, thence in multiple or parallel circuit to test-wires, one for each board, branching off from said common wire, each containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with the line before the line passes to said pairs of contact-points, a rheotome in the circuit of said common wire between the lines and said test-wires and battery in circuit between the place where the lines are connected to said common wire and any test-plug, substantially as set forth.

6. A test-circuit for a telephone-line disconnected from the ground at the central office, through a pair of switch contact-points in the circuit of the line normally closed but open while the line is switched by a switch which controls them, to a wire common to the lines, thence in multiple or parallel circuit to test-wires, one for each of several boards, each test-wire containing a test receiving instrument and terminating in a test plug or device adapted to be brought for testing into connection with said line before the line passes to said pair of contact-points, a rheotome in the circuit of the common wire between said lines and said test-wires and battery in the circuit thereby established, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line ungrounded at the central office, one side or branch of which normally passes, successively, through pairs of switch contact-points, one pair on each of several boards and each pair normally in contact but open while the line is switched at their board, and thence connected through a wire common to the lines to one side of a test receiving instrument, in combination with a test plug or device connected to the other side of said instrument and adapted to be brought for testing into connection with the other side of the line, a rheotome in said common wire and a battery in the circuit between said contact-points and said test-plug, substantially as set forth.

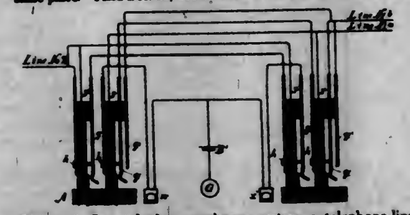
8. In a telephone-exchange system, a line ungrounded at the central office and which normally passes, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and thence through a wire common to the lines to one side of each of several test receiving instruments, one at each of the boards in combination with test plugs or devices, one for each of the instruments connected to it on the other side and adapted to be brought for testing into connection with the line, a rheotome in the circuit of the common wire and a battery in circuit between said contact-points and any test-plug, substantially as set forth.

9. In a telephone-exchange system, a line ungrounded at the central office and normally connected through a wire common to the lines to each of several test receiving instruments, one at each of several boards, in combination with switching devices to disconnect the line from its normal connection with one side of said instruments when the line is switched for conversation, test plugs or devices connected to the other side of the instruments one plug to each instrument and adapted to be brought for testing into connection with the line whether the line is switched or not, a rheotome in said common wire and a battery in circuit between the points where said normal connection may be broken and any test-plug, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, metallic-circuit line, switches for said line, one switch on each board for said line, each switch containing a pair of contact-points normally in contact but separated while the line is switched at their board and a third contact-piece insulated from the rest (except by the circuit connections), one branch of the line passing, successively, through the pairs of contact-points of its switches and thence to a wire common to the lines, and the other branch of which is connected to said third contact pieces of its switches, in combination with test-wires, one for each board, each branching off from said common wire, containing a test receiving instrument at its board and terminating in a test plug or device adapted to be brought for testing into connection with any of said third contact-pieces at its board, a rheotome in said common wire before said test-wires branch off from it and a battery in the test circuit thereby established, substantially as set forth.

11. In a telephone exchange system, multiple switchboards, telephone-lines ungrounded at the central office, switches for said lines, one switch for each line on each of the boards, each switch having a pair of contact-points normally in contact but open while its line is switched at their board, each line passing normally through said pairs of contact-points of its switches and uniting with a wire common to the lines, in combination with test receiving instruments, one at each board each connected on one side to said common wire and on its other side to a test plug or device adapted to be brought for testing into connection with any line whether the line is switched or not, a rheotome in said common wire and battery in any test-circuit established on testing substantially as set forth.

592,845. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 23, 1889. Serial No. 334,666. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line in combination with switches for said line, one switch on each of several boards, each switch having a pair of contact-points normally in con-

tact, but separated by a switch-plug on its insertion into the switch and a third contact-piece connected permanently to the line and normally otherwise insulated from the other switch contact-pieces, said line normally passing, successively, through said pairs of contact-points, and said plug on its insertion into a switch pressing the line contact-piece of its pair of contact-pieces into connection with said third contact-piece of the switch, substantially as set forth.

2. In a telephone-exchange system, a telephone-line normally connected with the ground at the central office, in combination with switches for said line, one switch on each of several boards, each switch having a pair of contact-points normally in contact but separated by a switch-plug on its insertion into the switch and a third contact-piece permanently connected to the line and normally otherwise insulated from the other contact-pieces of the switches, said line normally passing, successively, through said pairs of contact-points and thence to the ground, and said plug on its insertion into a switch pressing the line contact-piece of its pair of contact-pieces into connection with said third contact-piece of the switch substantially as set forth.

3. In a telephone-exchange system, a telephone-line, in combination with switches for said line, one switch on each of several boards, each switch having a pair of contact points normally in contact but separated by a switch-plug on its insertion and a third contact-piece connected permanently to the line and normally otherwise insulated from the other contact-pieces of the switches, said line normally passing, successively, through said pairs of contact-points of its switches and said plug on its insertion into a switch forming connection between its cord and the line contact-piece of the pair of contact-pieces of the switch and pressing said line contact-piece into connection with said third contact-piece of the switch, substantially as set forth.

4. In a telephone-exchange system, a telephone-line normally connected with the ground at the central office, in combination with switches for said line, one switch on each of several boards, each switch having a pair of contact-points normally in contact, but separated by a switch-plug on its insertion into the switch and a third contact-piece permanently connected to the line and normally otherwise insulated from the other contact-pieces of the switches, said line normally passing, successively, through said pairs of contact-points and thence to the ground, and said plug on its insertion forming connection between its cord and the line contact-piece of the pair of contact-pieces of the switch and pressing said line contact-piece into connection with said third contact-piece of the switch, substantially as set forth.

5. In a telephone-exchange system, a telephone line in combination with a switch having a pair of contact-points normally in contact and through which the line normally passes and a third contact-piece permanently connected with the line but otherwise insulated from the other contact-pieces of the switch, said switch being adapted to receive a switch-plug and when the plug is inserted to disconnect said pair of contact-pieces and press that contact-piece of the pair which is then connected with the line into connection with said third contact-piece, substantially as set forth.

6. In a telephone-exchange system, a telephone-line and a switch having a pair of contact pieces or points normally in contact and through which the line normally passes and a third contact-piece permanently connected with the line but otherwise insulated from the other contact-pieces of the switch in combination with a switch-plug with flexible cord adapted to be inserted into the switch and when inserted to disconnect the pair of contact-points, connect that point of the pair which is then connected with the line with its cord and press the point into connection with said third contact-piece, substantially as set forth.

7. In a telephone-exchange system, a subscriber's line grounded at its outer end, a switch for the line containing a pair of contact-points normally in contact, through which the line passes to a battery and thence to ground, and a third contact-piece permanently connected with the line, a metallic-circuit line, a switch for the line containing a pair of contact-points normally in contact, through which one side or branch of the line normally passes to a battery and thence to ground, and a third contact-piece permanently connected to the other side of the line, in combination with a pair of switch-plugs adapted to be inserted into the switches of said lines to switch them together and when inserted, to disconnect the pairs of contact-points which are normally in contact, and a test wire or circuit containing a test receiving instrument, grounded at one end and connected on its other end to a switch plug or device adapted to be brought for testing into connection with either of said third contact-pieces substantially as set forth.

8. In a telephone-exchange system, a subscriber's line grounded at its outer end, switches for the line, one switch on each of several boards, each switch containing a pair of contact-points normally in contact and a third contact-piece, said line passing, successively, through said pairs of contact-points and thence to ground through a battery, and said third contact-pieces being connected permanently to the line, a metallic-circuit line, switches for the line, one switch on each of the boards, each switch containing a pair of contact-points normally in contact and a third contact-piece, one side or branch of the line passing successively, through the pairs of contact-points and thence to ground through a battery, the other branch of the line being connected to said third contact-pieces of its switches, in combination with a pair of double or loop-switch plugs at each board, one of the contact-pieces of each of which is connected by flexible conductors to one of the contact-pieces of the other, and the other contact-pieces of which are connected to the ground through flexible conductors, said plugs being adapted to be inserted into the switches at their board, respectively, and when inserted to disconnect the pairs of contact-points which are normally in contact, and connect the two contact-pieces of one plug with the two sides of the metallic-circuit line and the ungrounded contact-piece of the other plug with the other line, a test receiving instrument at each board, grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with said third contact-pieces at its board, substantially as set forth.

9. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, and switches for said lines, one switch for each line on each board, each switch having a contact-piece permanently connected with one side or branch of the line and another contact-piece permanently connected with the other side or branch of the line, and each switch having also pairs of normally closed contacts, through which successively one side or branch of the line passes to the line-annunciator, in combination with loop-switch plugs at each board each adapted to be inserted into each switch at its board and when inserted to open the pair of normally closed contacts of the switch and form electrical connection within the switch between its two contact-pieces and the two contacts respectively of the switch which are permanently connected with the two sides or branches of the line.

10. In a telephone-exchange system, multiple switchboards, metallic circuit lines, and switches for said lines, one for each line on each board, two line contacts or terminals in each switch to which the two sides or branches of its line are respectively permanently connected, and a pair of contacts in each switch normally closed but automatically opened by a switch-plug on its insertion.

11. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, and switches for said lines, one for each line on each board, two line contacts or terminals in each switch to which the two sides or branches of its line are respectively connected, and a pair of contacts in each switch, each contact being other than either of said line contacts or terminals, normally closed, but automatically opened by a switch-plug on its insertion.

12. In a telephone-exchange system, multiple switchboards, telephone-lines, and switches for said lines, one switch for each line on each board, each switch having a contact-piece permanently connected with one side or branch of the line and another contact-piece permanently connected with the other side or branch of the line, and each switch having also pairs of normally closed contacts, through which successively one side or branch of the line passes to the line-annunciator, in combination with loop-switch plugs at each board, each adapted to be inserted into each switch at its board and when inserted to open the pair of normally closed contacts of the switch and form electrical connection within the switch between its two contact-pieces and the two contacts respectively of the switch which are permanently connected with the two sides or branches of the line.

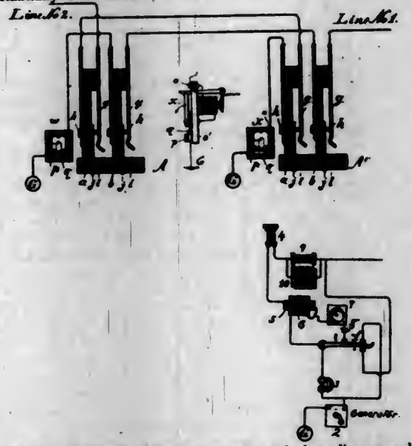
13. In a telephone-exchange system, multiple switchboards, telephone-lines, and switches for said lines, one for each line on each board, two line contacts or terminals in each switch to which the two sides or branches of its line are respectively permanently connected, and a pair of contacts in each switch normally closed but automatically opened by a switch-plug on its insertion.

14. In a telephone-exchange system, multiple switchboards, telephone-lines, and switches for said lines, one for each line on each board, two line contacts or terminals in each switch to which the two sides or branches of its line are respectively connected, and a pair of contacts in each switch, each contact being other than either of said line contacts or terminals, normally closed, but automatically opened by a switch-plug on its insertion.

592,846. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Dec. 31, 1889. Serial No. 335,533. (No model.)

Claim.—1. In a telephone-exchange system, a telephone-line normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line with another line for conversation, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station and a switch at the station which connects them in multiple or parallel circuit in the direct circuit of the line while the subscriber's telephone is switched for use, and loop test-plugs, one at each board, each test-plug having a pair of contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery each loop-plug being adapted to be inserted into any switch at its board, and when inserted to disconnect the pair of contact-points of the switch and connect them with the contact-pieces of the plug, each test receiving instrument and battery being so related that the instrument sounds when they are looped into the normal closed circuit of any line but will not sound when in an open circuit or looped with any line which is switched with another line or has its subscriber's telephone switched for use, substantially as set forth.

and switch the line with another line for conversation, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station and a switch with contact-points to switch them into circuit while the subscriber's telephone is switched for use and out of the direct circuit with the line while the telephone is not thus switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the switch at the board where it is located and when inserted to disconnect the pair of contact-points of the switch and connect them with the contact-pieces of the plug, said test receiving instrument and battery being so related that the instrument will sound when they are looped into the normal closed circuit of the line but will not sound when they are in an open circuit or are looped with a line which is switched with another line or has its subscriber's telephone switched for use, substantially as set forth.



2. In a telephone-exchange system, a telephone-line grounded at its outer end and passing normally successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, and thence to ground, in combination with switching devices at each board to disconnect the pair of contact-points at each board and switch the line with another line for conversation, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station and a switching device to switch said condenser and coil into the circuit of the line while the subscriber's telephone is switched for use and out of the direct circuit while the telephone is not thus switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the switch at the board where it is located and when inserted to separate the pair of contact-points of the switch and connect them with the contact-pieces of the plug, said test receiving instrument and battery being so related that the instrument will sound when they are looped into the normal closed circuit of the line but will not sound when they are in an open circuit or are looped with the line when it is switched with another line or has its subscriber's telephone switched for use, substantially as set forth.

3. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with another line, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station and a switch with contact-points to switch said condenser and resistance-coil into the circuit of the line while the subscriber's telephone is switched for use and out of the direct circuit while the telephone is not thus switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the switch at the board where it is located and when inserted to disconnect said contact-points of the switch and connect them with the contact-pieces of the plug, said test receiving instrument and battery being so related that the instrument sounds when they are looped into the normal closed circuit of the line but will not sound when they are in an open circuit or are looped with the line when it is switched with another line or has its subscriber's telephone switched for use, substantially as set forth.

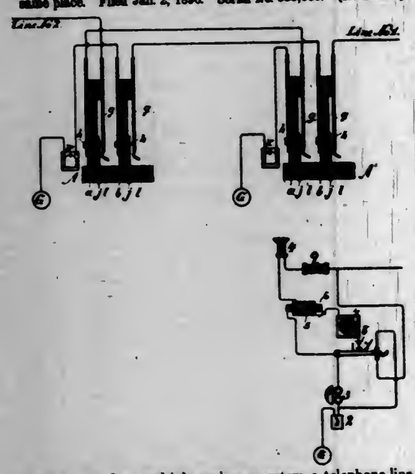
4. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line with another line for conversation, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station and a switch with contact-points which switch said condenser and coil is multiple or parallel circuit into the circuit of the line while the subscriber's telephone is switched for use and out of the direct circuit while the telephone is not thus switched, a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said plug being adapted to be inserted into the switch at the board where it is located and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and battery in the test-circuit established on testing, said test receiving instrument and battery being so related that the instrument sounds when they are looped into the normal closed circuit of the line but will not sound when in an open circuit or looped with a line when the line is switched with another line or has its subscriber's telephone switched for use, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, telephone-lines normally on closed circuit, switches for the lines, one switch on each board for each line, each switch having a pair of contact-points normally closed but open while its line is switched at its board, annunciators, one annunciator for each line, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through the line-annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect any pair of contact-points and connect their line with another line for conversation, a condenser and a resistance-coil at each subscriber's station and a switch at the station which connects them in multiple or parallel circuit in the direct circuit of the line while the subscriber's telephone is switched for use, and loop test-plugs, one at each board, each test-plug having a pair of contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery each loop-plug being adapted to be inserted into any switch at its board, and when inserted to disconnect the pair of contact-points of the switch and connect them with the contact-pieces of the plug, each test receiving instrument and battery being so related that the instrument sounds when they are looped into the normal closed circuit of any line but will not sound when in an open circuit or looped with any line which is switched with another line or has its subscriber's telephone switched for use, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines normally on closed circuit, switches for said lines, one switch on each board for each line, each switch having a pair of contact-points normally in contact but open while its line is switched at its board, annunciators, one for each line, each line passing normally successively through said pairs of contact-points of its switches on the several boards and through its annunciator and a pair of annunciator contact-points normally in contact but open while the annunciator indicates a call, in combination with pairs of switch-plugs at each board, the contact pieces of each pair being connected by a flexible-cord circuit, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch and connect that point which is then connected with the line with the contact-piece of the plug, a condenser and a resistance-coil in multiple or parallel circuit at each subscriber's station and a switch at the station to switch said instruments in multiple or parallel circuit into the circuit of his line when his telephone is switched for use and out of the direct circuit when the telephone is not thus switched, loop test-plugs, one at each board, each test-plug having a pair of contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument, each loop-plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and battery in any test-circuit established on testing, each test receiving instrument and battery being so related that the instrument sounds when they are looped into the normal closed circuit of any line but will not sound when they are in an open circuit, or are looped into circuit with any line which is switched with another line or has its subscriber's telephone switched for use, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, telephone lines grounded at their outer ends, switches for said lines, one switch for each line on each board, each switch having a pair of contact-points normally closed but open while the line is switched at its board, annunciators, one for each line, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through its annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, and thence to ground, in combination with switching devices at each board to disconnect any pair of contact-points at the board and connect their line with another line for conversation, a condenser and a resistance-coil in multiple or parallel circuit at each subscriber's station and a switch which connects them into the circuit of his line while his telephone is switched for use and out of the direct circuit while the telephone is not thus switched, and loop test-plugs, one at each board in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, each loop-plug being adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch and connect them with the contact-pieces of the plug, each test receiving instrument and battery being so related that the instrument sounds when they are looped into the normal closed circuit of any line but will not sound when they are in an open circuit or are in circuit with a line which is switched with another line or has its telephone switched for use, substantially as set forth.

592,347. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 2, 1890. Serial No. 335,696. (No model.)



Claim.—1. In a multiple-exchange system, a telephone-line normally passing successively through several pairs of switch contact-points, in series, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation, apparatus at the subscriber's station normally in the direct circuit of the line, other apparatus of greater resistance normally out of the direct circuit of the line, and switching devices and circuit connections at the subscriber's station to switch the apparatus of greater resistance into the direct circuit of the line while the telephone is switched for use, and a loop test-plug at one of the boards in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the line-switch at the board and when inserted to disconnect said pair of contact-points of the switch and connect them with the contact-pieces of the plug, said test receiving instrument being so adjusted to the battery and to the resistances that the instrument sounds when it is thus looped into the normal closed circuit of the line but will not sound when the circuit is then open or the line is in circuit with another line or the subscriber's telephone is switched for use and the additional resistance is thereby included in the circuit, whereby the differentiation of the various multiple-test signals is obtained by the marginal adjustment of the apparatus, substantially as set forth.

2. In a multiple telephone-exchange system, a telephone-line normally on closed circuit and passing successively through a series of pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation, apparatus at the subscriber's station normally in the direct circuit of the line, other apparatus of greater resistance normally out of the direct circuit of the line, and switching devices and circuit connections at the subscriber's station to switch the apparatus of greater resistance into the circuit of the line, while the subscriber's telephone is switched for use, and a loop test-plug at one of the boards, in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said plug being adapted to be inserted into the switch of the line at that board, and when inserted to disconnect the contact-points of the switch which are normally in contact and connect them with the contact-pieces of the plug, and battery in the test-circuit normally established on testing, said test receiving instrument being so adjusted to the battery and to the resistances that the instrument sounds when it is looped into the normal closed circuit of the line but will not sound when the circuit is open or the line is in circuit with another line or the subscriber's telephone is switched for use and the additional resistance is thereby switched into the circuit, whereby the differentiation of the several multiple-test signals is obtained by a marginal adjustment of the apparatus, substantially as set forth.

3. In a multiple telephone-exchange system, a telephone-line normally on closed circuit and passing successively through a series of pairs of contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched at their board, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line with another line for conversation, apparatus at the subscriber's station normally in the direct circuit of the line, other apparatus of greater resistance normally out of the direct circuit of the line, and switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of the line while his telephone is switched for use, and loop test-plugs, one at each board, each plug having a pair of contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery, each loop-plug being adapted to be inserted into the switch at its board and when inserted to disconnect said pair of contact-points of the switch and connect them with the two contact-pieces of the plug, each test receiving instrument being so adjusted to its battery and to the resistances that the instrument sounds when it is looped into the normal closed circuit of the line but will not sound when the circuit is open or the line is in circuit with another line or the subscriber's telephone is switched for use and the additional resistance is thereby included in the circuit, whereby the differentiation of the several multiple-test signals is obtained by a marginal adjustment of the apparatus, substantially as set forth.

4. In a multiple telephone-exchange system, a telephone-line normally on closed circuit and passing through a series of pairs of contacts at the several boards, one pair at each of the boards, in combination with a test receiving instrument and battery at each board and testing device connected therewith adapted at the will of the operator to open said contacts at the board and loop said instrument and battery into the circuit of the line when thus normally on closed circuit, apparatus at the subscriber's station normally in the direct circuit of the line, other apparatus at the subscriber's station of greater resistance and of continuity to battery-currents normally out of the direct circuit of the line, and switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of the line, while his telephone is switched for use, each test receiving instrument being so adjusted to the battery and the resistances that when thus looped into the circuit of the unswitched line and the subscriber's telephone is not switched for use the instrument will sound, but when the telephone is switched for use and the additional resistance is included in the circuit the instrument will not sound, whereby by the differentiation of the multiple-test signals obtained by a marginal adjustment of the apparatus, the line is prevented from being switched to at either of the boards from the time the subscriber switches his telephone for use.

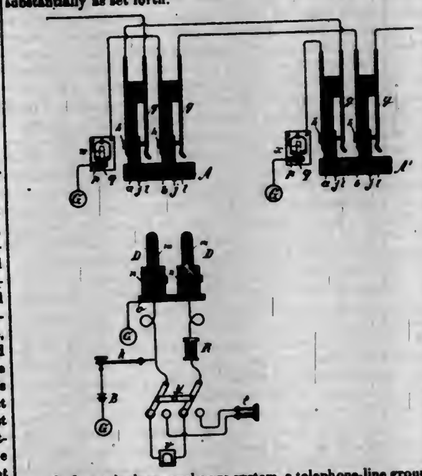
5. In a multiple telephone-exchange system, a telephone-line normally on closed circuit and passing through a series of pairs of contacts at the several boards, one pair at each of the boards, in combination with a test receiving instrument at each board, and testing device connected therewith adapted at the will of the operator to open said contacts at the board and loop said instrument into the circuit of the line when thus normally on closed circuit, apparatus at the subscriber's station normally in the direct circuit of the line, other apparatus at the subscriber's station of greater resistance and of continuity to battery-currents normally out of the direct circuit of the line and switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of the line while his telephone is switched for use, and battery in any closed circuit thus established on testing, each test receiving instrument being so adjusted to the battery and the resistances that when thus looped into the circuit of the unswitched line and the subscriber's telephone is not switched for use the instrument will sound, but when the telephone is switched for use and the additional resistance is included in the circuit the instrument will not sound, whereby by the differentiation of the multiple-test signals obtained by a marginal adjustment of the apparatus, the line is prevented from being switched to at either of the boards from the time the subscriber switches his telephone for use.

6. In a multiple telephone-exchange system, telephone-lines, each normally on closed circuit, and passing through a series of pairs of contacts at the several boards, one pair at each of the boards, in combination with switching apparatus at each board to at the will of the operator connect any two lines into a closed circuit for conversation, a clearing-out-annunciator circuit with the two lines when thus connected, a test receiving instrument and battery at each board, and testing device connected therewith, adapted at the will of the operator to open said contacts at the board and loop said instrument and battery into the normal line-circuit, apparatus at the subscriber's station of metallic continuity normally in the direct circuit of the line, other apparatus at the subscriber's station of greater resistance and also of metallic continuity normally out of the direct circuit of the line, and switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of his line, while his telephone is switched for use, each test receiving instrument being so adjusted to the battery and the resistances that when thus looped into the circuit of an unswitched line and the subscriber's telephone is not switched for use, the instrument will sound, but when the telephone is switched for use and the additional resistance is included in the circuit, the instrument will not sound, whereby a circuit of metallic continuity is obtained for the clearing-out current, and by the differentiation of the multiple-test signals obtained by a marginal adjustment of the apparatus, the line is prevented from being switched to at either of the boards from the time the subscriber switches his telephone for use.

7. In a multiple telephone-exchange system, telephone-lines each normally on closed circuit and passing through a series of pairs of contacts at the several boards, one pair at each of the boards, in combination with switching apparatus at each board to at the will of the operator connect any two lines into a closed circuit for conversation, a clearing-out-annunciator circuit with the two lines when thus connected, a test receiving instrument at each board, and testing device connected therewith adapted at the will of the operator to open said contacts at the board, and loop said instrument into the normal line-circuit, apparatus at the subscriber's station of metallic continuity, normally in the direct circuit of the line, other apparatus at the subscriber's station of greater resistance and also of metallic continuity, normally out of the direct circuit of the line, switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of his line, while his telephone is switched for use, and battery in any closed circuit thus established on testing, each test receiving instrument being so adjusted to the battery and the resistances that when thus looped into the circuit of an unswitched line and the subscriber's telephone is not switched for use, the instrument will sound, but when the telephone is switched for use and the additional resistance is included in the circuit the instrument will not sound, whereby a circuit of metallic continuity is obtained for the clearing-out current, and by the differentiation of the multiple-test signals obtained by a marginal adjustment of the apparatus, the line is prevented from being switched to at either of the boards from the time the subscriber switches his telephone for use.

592,348. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 2, 1890. Serial No. 335,698. (No model.)

Claim.—1. In a telephone-exchange system, a telephone-line normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with a resistance-coil switched into the circuit, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said loop-plug being adapted to be inserted into a switch and when inserted to disconnect said pair of contact-points of the switch which are normally in contact and connect them with the two contact-pieces of the plug, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the closed circuit of the line but does not sound when the resistance-coil is included in the circuit, substantially as set forth.



2. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call and thence to the ground, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with a resistance-coil switched into the circuit, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said plug being adapted to be inserted into a switch and when inserted to disconnect said pair of contact-points of the switch which are normally in contact and connect them with the two contact-pieces of the plug, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the closed circuit of the line but does not sound when the resistance-coil is included in the circuit, substantially as set forth.

3. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and through a pair of contact-points of the line-annunciator normally in contact but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with a resistance-coil then switched into the circuit, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect its said pair of contact-points and connect them with the two contact-pieces of the plug, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when the resistance-coil is included, substantially as set forth.

4. In a telephone exchange system, a telephone-line grounded at its outer end and passing normally successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of contact-points of the line-annunciator normally in contact but open while the annunciator indicates a call, and thence to the ground, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with a resistance-coil then included in the circuit, a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect its said pair of contact-points and connect them with the two contact-pieces of the plug, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when the resistance-coil is switched into circuit with the line, substantially as set forth.

5. In a telephone-exchange system, a telephone-line normally on

closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of contact-points of the line-annunciator normally in contact but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with a resistance-coil then switched into circuit with it, a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect its said pair of contact-points and connect them with the two contact-pieces of the plug, and battery in the test-circuit thereby established, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when the resistance-coil is switched into circuit with the line, substantially as set forth.

6. In a telephone-exchange system, a telephone-line normally on closed circuit and having in its circuit pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched for use at its board and having in its circuit a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with a resistance-coil then switched into circuit with it, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery and adapted to be inserted into the switch of the line at its board, and when inserted to disconnect said pair of contact-points which are normally in contact and connect them with the two contact-pieces of the plug, each instrument and its battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when they and the resistance-coil are switched into circuit with the line, substantially as set forth.

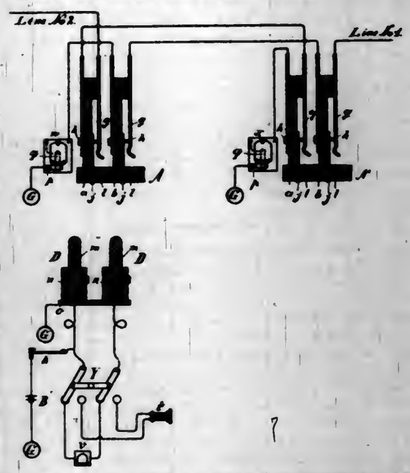
7. In a telephone-exchange system, a telephone-line normally on closed circuit and having in its circuit pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and having in its circuit a pair of contact-points of its annunciator, normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and connect the line for conversation with a resistance-coil then switched into circuit with it, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and adapted to be inserted into the switch of the line at its board and when inserted to disconnect the pair of contact-points which are normally in contact and connect them with the two contact-pieces of the plug, and a battery in the circuit established on testing, each instrument and the battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when they and the resistance-coil are switched into circuit with the line, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, telephone-lines, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact bnt open while a switch-plug is inserted, line annunciators, one for each line, each annunciator having a pair of contact-points normally in contact but open while the annunciator indicates a call, each line passing successively through said pairs of switch contact-points of its switches and through its annunciator and the annunciator contact-points, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by flexible conductors containing a resistance-coil in their circuit, said plugs being adapted to be inserted into the switches at their boards and when inserted into a switch to disconnect the pair of contact-points of the switch and connect the line contact-point of the switch with the plug contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery and adapted to be inserted into any switch at its board and when inserted into a switch to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, each instrument and its battery being so related and adjusted that when they are looped into the simple closed circuit of any line they will sound but will not sound when they and one of said resistance-coils are in circuit with the line, substantially as set forth.

9. In a telephone-exchange system, multiple switchboards, telephone-lines, each line being normally on a closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact and open while a switch-plug is inserted into it, line-annunciators, one for each line, each annunciator having a pair of contact-points normally in contact but open while the annunciator indicates a call, each line passing normally successively through said pairs of contact-points of its switches on the several boards and through its annunciator and the contact-points of the annunciator, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by a flexible conductor containing a resistance-coil in the circuit, said plugs being adapted to be inserted into the switches at their boards and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the line contact-point of the switch with the plug contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery, and adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, each instrument and its battery being so related and adjusted that when they are looped into the simple closed circuit of any line the instrument will sound but will not sound when the instrument and battery are included in the circuit of the line and any of said resistance-coils, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, telephone-lines, each line being normally on closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact but open while a switch-plug is inserted into it, line-annunciators, one for each line, each annunciator having a pair of contact-points normally in contact but open while the annunciator indicates a call, each line passing normally successively through said pairs of contact-points of its switches on the several boards and through the annunciator and the contact-points of the annunciator, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by flexible conductors which contain a resistance-coil in their circuit, said plugs being adapted to be inserted into the switches and when a plug is inserted into a switch to disconnect said pair of contact-points and connect the line contact-point with the contact-piece of the switch, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument, and adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and a battery in any test-circuit established on testing, each instrument and battery being so related and adjusted that when they are looped into the simple closed circuit of any line the instrument will sound but will not sound when they are included in a circuit which contains the line and either of said resistance-coils, substantially as set forth.

592,349. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 2, 1890. Serial No. 335,699. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed, but open while the line is switched at their board and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at

each board to disconnect said pair of contact-points at the board and switch the line for conversation, apparatus and switching devices at the subscriber's station to include a greater resistance in the circuit of the line while the subscriber's telephone is switched for use than when it is not thus switche[d], and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said plug being adapted to be inserted into one of the switches and when inserted to disconnect its said contact-points which are normally in contact and connect them with the contact-pieces of the plug, said test receiving instrument being so related and adjusted that it will sound when looped into the simple normal closed circuit of the line with the battery but will not sound while the circuit is open or the line is in circuit with another line or the subscriber's telephone is switched for use and the additional resistance thereby included in the circuit, substantially as set forth.

2. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, and thence to the ground in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation, apparatus and switching devices at the subscriber's station to include a greater resistance in the circuit of the line while his telephone is switched for use than when it is not thus switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a test-loop containing a test receiving instrument and battery, said plug being adapted to be inserted into one of the switches and when inserted to disconnect the contact-points of the switch which are normally in contact and connect them with the two contact-pieces of the plug, said test receiving instrument and battery being so related and adjusted that the instrument will sound when they are included in the simple normal circuit of the line (the subscriber's telephone not being switched for use) but will not sound when included in circuit with the line and the circuit is open or the line is in circuit with another line or the telephone is switched for use and the additional resistance thereby included in the circuit, substantially as set forth.

3. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched for conversation at their board and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with apparatus and switching devices at the subscriber's station to include a greater resistance in the circuit of the line while his telephone is switched for use than when it is not thus switched, a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said plug being adapted to be inserted into one of the switches and when inserted to disconnect the contact-points of the switch which are normally in contact and connect them with the contact-pieces of the plug, and battery in the circuit established on testing, said test receiving instrument and battery being so related that the instrument will sound when they are included in the simple normal circuit of the line but will not sound when the circuit is open at a pair of contact-points or the line is in circuit with another line or when the subscriber's telephone is switched for use and the additional resistance is thereby included in the circuit, substantially as set forth.

4. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched for conversation at their board and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation, apparatus and switching devices at the subscriber's station to include a greater resistance in the circuit of the line while his telephone is switched for use than when it is not thus switched, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery, each loop-plug being adapted to be inserted into the switch at its board and when inserted to disconnect the said contact-points of the switch which are normally in contact and connect them with the contact-pieces of the plug, each test receiving instrument and its battery being so related that the instrument sounds when they are included in the normal closed circuit of any line but will not sound when the circuit is open at any point or the line is in circuit with another line or the subscriber's telephone is switched for use and the additional resistance is thereby included, substantially as set forth.

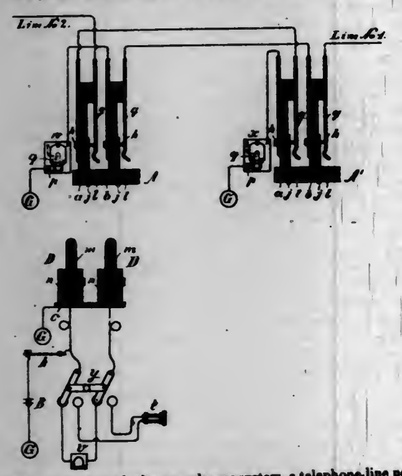
5. In a telephone-exchange system, multiple switchboards, telephone-lines normally on closed circuit, switches for said lines, one switch on each board for each line, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by a flexible-cord circuit, each of said plugs being adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch which are normally in contact and connect the line contact-point of the switch with the contact-piece of the plug, loop test-plugs, one at each board, each loop-plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery, said plugs being each adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and apparatus and switching devices at each subscriber's station to switch a greater resistance into the circuit of his line while his telephone is switched for use than when it is not thus switched, each test receiving instrument and its battery being so related that the instrument sounds when they are included in the normal closed circuit of any line but will not sound when the circuit is open at any point or the line is in circuit with another line or the subscriber's telephone is switched for use and the additional resistance is thereby included, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines normally on closed circuits, switches for said lines, one switch for each line on each board, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with pairs of switch-plugs at each board, the two contact-pieces of each pair being connected by a flexible-cord circuit, each of said plugs being adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points which are normally in contact and connect the contact-point which is connected with the line with the contact-piece of the plug, apparatus and switching devices at each subscriber's station to switch a greater resistance into the circuit of his line while his telephone is switched for use than when it is not thus switched, loop test-plugs, one at each board, each test-plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument, each test-plug being adapted to be inserted into any of the switches at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and battery in any test-circuit established on testing, each test receiving instrument and battery being so related and adjusted that the instrument sounds when they are included in the normal closed circuit of any line but will not sound when the circuit is open at any point or the line is in circuit with another line or the subscriber's telephone is switched for use and the additional resistance is thereby included in the circuit, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, telephone-lines, each line grounded at its outer end, switches for said lines, one switch for each line on each board, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, and thence to ground, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by a flexible-cord circuit, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect said pair of contact-points of the switch and connect the point which is connected with the line with the contact-piece of the plug, apparatus and switching devices at each subscriber's station to switch a greater resistance into the circuit of his line while his telephone is switched for use than when it is not thus switched, and loop test-plugs, one at each board, each test-plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery, each test-plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plugs, each instrument and its battery being so related and adjusted that when they are included in the normal closed circuit of any line the instrument will sound but will not sound if the circuit is open at any point or the line is in circuit with another line or the subscriber's telephone is switched for

use and the additional resistance is thereby included in the line, substantially as set forth.

592,350. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 2, 1890. Serial No. 336,700. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed, but open while the line is switched at their board and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation, a condenser and a switch at the subscriber's station with contact-points to switch the condenser into the circuit of the line while his telephone is switched for use and out of the direct circuit of the line when the telephone is not switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said plug being adapted to be inserted into one of the switches and when inserted to disconnect its said contact-points which are normally in contact and connect them with the contact-pieces of the plug, said test receiving instrument being so related and adjusted that it will sound when looped into the simple normal closed circuit of the line with the battery but will not sound while the circuit is open or the line is in circuit with another line or the subscriber's telephone is switched for use and the condenser thereby included in the circuit, substantially as set forth.

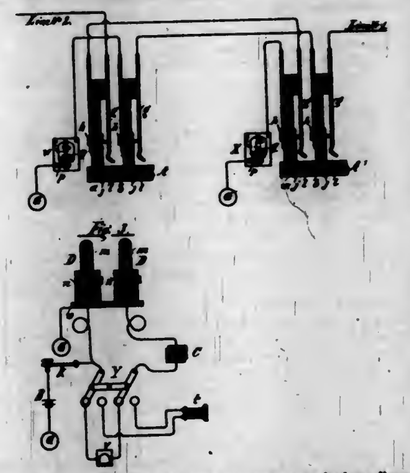
2. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, and thence to the ground, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation, a condenser and a switch at the subscriber's station with contact-points to switch the condenser into the circuit of the line while his telephone is switched for use and out of the direct circuit of the line when the telephone is not switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a test-loop containing a test receiving instrument and battery, said plug being adapted to be inserted into one of the switches and when inserted to disconnect the contact-points of the switch which are normally in contact and connect them with the two contact-pieces of the plug, said test receiving instrument and battery being so related and adjusted that the instrument will sound when they are included in the normal closed circuit of the line (the subscriber's telephone not being switched for use) but will not sound when included in circuit with the line and the circuit is open or the line is in circuit with another line or the telephone is switched for use and the condenser thereby included in the circuit, substantially as set forth.

3. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched for conversation at their board and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation, a condenser and a switch at the subscriber's station with contact-points to switch the condenser into the circuit of the line while his telephone is switched for use and out of the direct circuit of the line when the telephone is not switched, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery, each loop-plug being adapted to be inserted into the switch at its board and when inserted to disconnect the said contact-points of the switch which are normally in contact and connect them with the contact-pieces of the plugs each test receiving instrument and its battery being so related that the instrument sounds when they are included in the normal closed circuit of any line but will not sound when the circuit is open at any point or the line is in circuit with another line or the subscriber's telephone is switched for use and the condenser is thereby included, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, telephone-lines normally on closed circuit, switches for said lines, one switch on each board for each line, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by a flexible-cord circuit, each of said plugs being adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch which are normally in contact and connect the line contact-point of the switch with the contact-piece of the plug, loop test-plugs, one at each board, each loop plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery, said plugs being each adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, a condenser and a switch at the subscriber's station with contact-points to switch the condenser into the circuit of the line while his telephone is switched for use and out of the direct circuit of the line when the telephone is not switched, each test receiving instrument and its battery being so related that the instrument sounds when they are included in the normal closed circuit of any line but will not sound when the circuit is open at any point or the line is in circuit with another line or the subscriber's telephone is switched for use and the condenser is thereby included, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines normally on closed circuit, switches for said lines, one switch for each line on each board, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with pairs of switch-plugs at each board, the two contact-pieces of each pair being connected by a flexible-cord circuit, each of said plugs being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch which are normally in contact and connect the contact-point which is connected with the line with the contact-piece of the plug, a condenser and a switch at the subscriber's station with contact-points to switch the condenser into the circuit of the line while his telephone is switched for use and out of the direct circuit of the line when the telephone is not switched, loop test-plugs, one at each board, each test-plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery, each test-plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plugs, each instrument and its battery being so related and adjusted that when they are included in the normal closed circuit of any line the instrument will sound but will not sound if the circuit is open at any point, or the line is in circuit with another line or the subscriber's telephone is switched for use and the condenser is thereby included in the line, substantially as set forth.

592,351. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 4, 1890. Serial No. 335,859. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line normally passing, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said loop-plug being adapted to be inserted into a switch of the line and when inserted to separate the said two contact-points of the switch and connect them with the two contact-pieces of the plug, substantially as set forth.

2. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, and thence to ground, in combination with a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said loop-plug being adapted to be inserted into a switch of the line and when inserted to separate the said two contact-points of the switch and connect them with the two contact-pieces of the plug, substantially as set forth:

3. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said loop-plug being adapted to be inserted into a switch of the line and when inserted to separate the said two contact-points of the switch and connect them with the two contact-pieces of the plug, substantially as set forth.

4. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched at their board and through a pair of annunciator contact-points normally in contact but open while the annunciator indicates a call, in combination with a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said loop-plug being adapted to be inserted into a switch of the line and when inserted to separate the said two contact-points of the switch and connect them with the two contact-pieces of the plug, and a test-battery in the test-circuit established on testing, substantially as set forth.

5. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched at their board, and through a pair of annunciator contact-points normally in contact but open while the annunciator indicates a call, in combination with a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said loop-plug being adapted to be inserted into a switch of the line and when inserted to separate the said two contact-points of the switch and connect them with the two contact-pieces of the plug, and a battery in the test-circuit established on testing, substantially as set forth.

6. In a telephone-exchange system, a telephone-line normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with a condenser in circuit when the line is switched for use but not otherwise, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said loop-plug being adapted to be inserted into a switch and when inserted to disconnect said two contact-points of the switch and connect them with the two contact-pieces of the plug, substantially as set forth.

7. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, and thence to ground, in combination with switching devices at each board to disconnect said pair of switch contact-points at the board and switch the line for conversation with a condenser in circuit when the line is switched and only then, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said plug being adapted to be inserted into a switch and when inserted to disconnect said two contact-points of the switch and connect them with the two contact-pieces of the plug, substantially as set forth.

8. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through

a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of switch contact-points at the board and switch the line for conversation with a condenser in circuit when the line is switched and only then, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said loop-plug being adapted to be inserted into a switch and when inserted to disconnect said two contact-points of the switch and connect them with the two contact-pieces of the plug, substantially as set forth.

9. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, and thence to the ground, in combination with switching devices at each board to disconnect said pair of switch contact-points at the board and switch the line for conversation with a condenser in the circuit when the line is thus switched and only then, a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said loop-plug being adapted to be inserted into a switch and when inserted to disconnect said two contact-points of the switch and connect them with the two contact-pieces of the plug, and a battery in the circuit established on testing, substantially as set forth.

10. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of switch contact-points at the board and switch the line for conversation with a condenser in the circuit when the line is thus switched and only then, a test receiving instrument temporarily connected into the circuit, and a battery in the test-circuit established on testing, substantially as set forth.

11. In a telephone-exchange system, a telephone-line normally on closed circuit and having in its circuit pairs of switch contact-points, one pair on each of the several boards, each pair normally closed but open while the line is switched for use and a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with a condenser in the circuit when the line is thus switched and only then, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery and adapted to be inserted into the switch of the line at its board and when inserted to disconnect said pair of contact-points at the board which are normally in contact and connect them with the two contact-pieces of the plug, substantially as set forth.

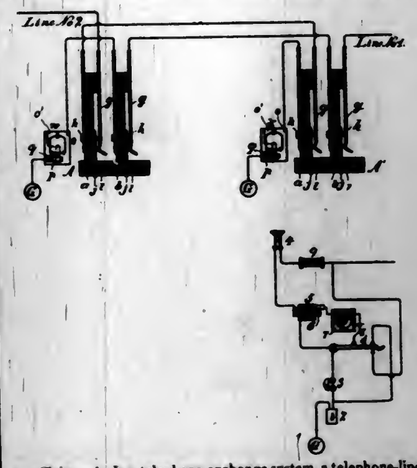
12. In a telephone-exchange system, a telephone-line normally on closed circuit and having in its circuit pairs of switch contact-points, one pair on each of the several boards, each pair normally closed but open while the line is switched for use, and a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of switch contact-points at the board and switch the line for conversation with a condenser in the circuit when the line is switched and only then, loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop, containing a test receiving instrument and adapted to be inserted into the switch of the line at its board and when inserted to disconnect said pair of contact points at the board which are normally in contact and connect them with the two contact-pieces of the plug, and battery in the test-circuit thereby established, substantially as set forth.

13. In a telephone-exchange system, multiple switchboards, telephone-lines, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact, but open while a switch-plug is inserted, line-annunciators, one for each line, each annunciator having a pair of contact-points normally in contact but open while the annunciator indicates a call, each line passing successively through said pairs of contact-points of its switches on the boards and through the annunciator and pair of annunciator contact-points, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by flexible conductors containing a condenser in their circuit, said plugs being adapted to be inserted into the switches at their boards and when inserted to disconnect the pair of contact-points and connect the line contact-point of the switch with the plug contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery and adapted to be inserted into any switch at its board and when inserted to disconnect the two contact-points of the switch and connect them with the two contact-pieces of the plug, substantially as set forth.

14. In a telephone exchange system, multiple switchboards, telephone-lines, each line being normally on closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact but open while a switch-plug is inserted, line-annunciators, one for each line, each annunciator having a pair of contact-points normally in contact but open while the annunciator indicates a call, each line passing successively through said pairs of contact-points of its switches on the boards and through the annunciator and pair of annunciator contact-points, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by flexible conductors containing a condenser in their circuit, said plugs being adapted to be inserted into the switches at their boards and when inserted to disconnect the pair of contact-points and connect the line contact-point of the switch with the plug contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery and adapted to be inserted into any switch at its board and when inserted to disconnect the two contact-points of the switch and connect them with the two contact-pieces of the plug, substantially as set forth.

15. In a telephone-exchange system, multiple switchboards, telephone-lines, each line being normally on closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact, but open while a switch-plug is inserted, line-annunciators, one for each line, each annunciator having a pair of contact-points normally in contact but open while the annunciator indicates a call, each line passing successively through said pairs of contact-points of its switches on the boards and through the annunciator and pair of annunciator contact-points, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by flexible conductors containing a condenser in their circuit, said plugs being adapted to be inserted into the switches at their boards and when inserted to disconnect the pair of contact-points and connect the line contact-point of the switch with the plug contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery and adapted to be inserted into any switch at its board and when inserted to disconnect the two contact-points of the switch and connect them with the contact-pieces of the plug, substantially as set forth.

592,352. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 4, 1890. Serial No. 335,860. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed, but open while the line is switched at their board, and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and

switch the line for conversation with a condenser in the circuit when the line is thus switched and only then in circuit with the line, apparatus and switching devices at the subscriber's station to include a greater resistance in the circuit of the line while the subscriber's telephone is switched for use than when it is not thus switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said plug being adapted to be inserted into one of the switches and when inserted to disconnect its said contact-points which are normally in contact and connect them with the contact-pieces of the plug, said test receiving instrument being so related and adjusted that it will sound when looped into the simple normal closed circuit of the line with the battery but will not sound while the circuit is open or the line has a condenser in circuit with it or the subscriber's telephone is switched for use and the additional resistance thereby included in the circuit, substantially as set forth.

2. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing successively through pairs of switch contact points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, and thence to the ground, in combination with switching devices at each board to disconnect said pair of contact points at the board and switch the line for conversation with a condenser in the circuit with the line when it is thus switched and a condenser then only in circuit with it, apparatus and switching devices at the subscriber's station to include a greater resistance in the circuit of the line while his telephone is switched for use than when it is not thus switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a test-loop containing a test receiving instrument and battery, said plug being adapted to be inserted into one of the switches and when inserted to disconnect the contact-points of the switch which are normally in contact and connect them with the two contact-pieces of the plug, said test receiving instrument and battery being so related and adjusted that the instrument will sound when they are included in the simple normal circuit of the line (the subscriber's telephone not being switched for use) but will not sound when included in circuit with the line and the circuit is open or the line has a condenser in circuit with it or the telephone is switched for use and the additional resistance thereby included in the circuit, substantially as set forth.

3. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched for conversation at their board, and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with a condenser switched into circuit when the line is thus switched and no condenser otherwise in circuit with it, apparatus and switching devices at the subscriber's station to include a greater resistance in the circuit of the line while his telephone is switched for use than when it is not thus switched, a loop test plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said plug being adapted to be inserted into one of the switches and when inserted to disconnect the contact-points of the switch which are normally in contact and connect them with the contact-pieces of the plug, and battery in the circuit established on testing, said test receiving instrument and battery being so related that the instrument will sound when they are included in the simple normal circuit of the line but will not sound when the circuit is open at a pair of contact-points or through a condenser or when the subscriber's telephone is switched for use and the additional resistance is thereby included in the circuit, substantially as set forth.

4. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally in contact but open while the line is switched for conversation at their board, and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with a condenser switched into circuit with it and no condenser otherwise in circuit with it, apparatus and switching devices at the subscriber's station to include a greater resistance in the circuit of the line while his telephone is switched for use than when it is not thus switched, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery, each loop-plug being adapted to be inserted into the switch at its board and when inserted to disconnect the said contact-points of the switch which are normally in contact and connect them with the contact-pieces of the plug, each test receiving instrument and its battery being so related that the instrument sounds when they are included in the normal closed circuit of the line but will not sound when the circuit is open at any point or has a condenser in it or the subscriber's telephone is switched for use and the additional resistance is thereby included in the circuit, substantially as set forth.

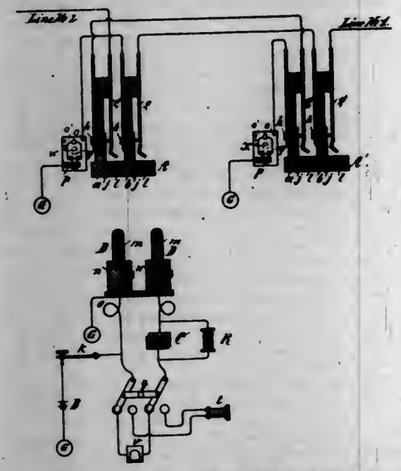
5. In a telephone-exchange system, multiple switchboards, telephone-lines normally on closed circuit, switches for said lines, one switch on each board for each line, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by a flexible-cord circuit containing a condenser, each of said plugs being adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch which are normally in contact and connect the line contact-point of the switch with the contact-piece of the plug, loop test-plugs, one at each board, each loop-plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery, said plugs being each adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and apparatus and switching devices at each subscriber's station to switch a greater resistance into the circuit of his line while his telephone is switched for use than when it is not thus switched, each test receiving instrument and its battery being so related that the instrument sounds when they are included in the normal closed circuit of any line but will not sound when the circuit is open at any point or has a condenser in circuit or the subscriber's telephone is switched for use and the additional resistance is thereby included, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines normally on closed circuit, switches for said lines, one switch for each line on each board, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with pairs of switch-plugs at each board, the two contact-pieces of each pair being connected by a flexible-cord circuit which contains a condenser, each of said plugs being adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points which are normally in contact and connect the contact-point which is connected with the line with the contact-piece of the plug, apparatus and switching devices at each subscriber's station to switch a greater resistance into the circuit of his line while his telephone is switched for use than when it is not thus switched, loop test-plugs, one at each board, each test-plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument, each test-plug being adapted to be inserted into any of the switches at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and battery in any test-circuit established on testing, each test receiving instrument and battery being so related and adjusted that the instrument sounds when they are included in the normal closed circuit of any line but will not sound when the circuit is open at any point or has a condenser in it or the subscriber's telephone is switched for use and the additional resistance is thereby included in the circuit, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, telephone-lines, each line grounded at its outer end, switches for said lines, one switch for each line on each board, each switch having a pair of contact-points normally in contact but open while the line is switched at their board, each line passing normally successively through the pairs of contact-points of its switches on the several boards and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, and thence to the ground, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by a flexible-cord circuit which contains a condenser, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect said pair of contact-points of the switch and connect the point which is connected with the line with the contact-piece of the plug, apparatus and switching devices at each subscriber's station to switch a greater resistance into the circuit of his line while his telephone is switched for use than when it is not thus switched, and loop test-plugs, one at each board, each test-plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and battery, each test-plug being adapted to be

inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, each instrument and its battery being so related and adjusted that when they are included in the normal closed circuit of any line the instrument will sound but will not sound if the circuit is open at any point or has a condenser in it or the subscriber's telephone is switched for use and the additional resistance is thereby included in the line, substantially as set forth.

592,853. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 4, 1890. Serial No. 335,862. (No model.)



Claim.— 1. In a telephone-exchange system, a telephone-line normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with a resistance-coil and condenser in multiple or parallel circuit switched into the circuit, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said loop-plug being adapted to be inserted into a switch and when inserted to disconnect said pair of contact-points of the switch which are normally in contact and connect them with the two contact-pieces of the plug, said battery and instrument being so related and adjusted that the instrument sounds when looped into the closed circuit of the line without the resistance-coil and condenser, but does not sound when the resistance-coil and condenser are included on the circuit, substantially as set forth.

2. In a telephone-exchange system, a telephone-line grounded at its outer end and normally passing, successively, through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, and thence to the ground, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with a resistance-coil and condenser in multiple or parallel circuit switched into the circuit, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument and battery, said plug being adapted to be inserted into a switch and when inserted to disconnect said pair of contact-points of the switch which are normally in contact and connect them with the two contact-pieces of the plug, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the closed circuit of the line, but does not sound when the resistance-coil and condenser are included in the circuit, substantially as set forth.

3. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of contact-points of the line-annunciator normally in contact but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with a resistance-coil and condenser in multiple or parallel circuit then switched into circuit with it, a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect its said pair of contact-points and connect them with the two contact-pieces of the plug, and battery in the test-circuit thereby established, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when the resistance-coil and condenser are included, substantially as set forth.

4. In a telephone-exchange system, a telephone-line grounded at its outer end and passing normally successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of contact-points of the line-annunciator normally in contact but open while the annunciator indicates a call, and thence to the ground, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with a resistance-coil and condenser in multiple or parallel circuit then included in the circuit, a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect its said pair of contact-points and connect them with the two contact-pieces of the plug, and battery in the test circuit thereby established, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when the resistance-coil and condenser are switched into circuit with the line, substantially as set forth.

5. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through a pair of contact-points of the line-annunciator normally in contact but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with a resistance-coil and condenser in multiple or parallel circuit then switched into circuit with it, a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect its said pair of contact-points and connect them with the two contact-pieces of the plug, and battery in the test-circuit thereby established, said instrument and battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when the resistance-coil and condenser are switched into circuit with the line, substantially as set forth.

6. In a telephone-exchange system, a telephone-line normally on closed circuit and having in its circuit pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched for use at its board and having in its circuit a pair of annunciator contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect said pair of contact-points at the board and switch the line for conversation with a resistance-coil and condenser in multiple or parallel circuit then switched into circuit with it, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery and adapted to be inserted into the switch of the line at its board, and when inserted to disconnect said pair of contact-points which are normally in contact and connect them with the two contact-pieces of the plug, each instrument and its battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when they and the resistance-coil and condenser are switched into circuit with the line, substantially as set forth.

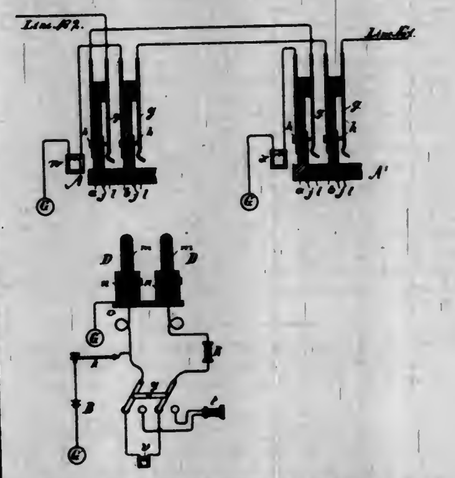
7. In a telephone-exchange system, a telephone-line normally on closed circuit and having in its circuit pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched for use at their board, and having in its circuit a pair of contact-points of its annunciator, normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and connect the line for conversation with a resistance-coil and condenser in multiple or parallel circuit then switched into circuit with it, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop which contains a test receiving instrument and adapted to be inserted into the switch of the line at its board and when inserted to disconnect the pair of contact-points which are normally in contact and connect them with the contact-pieces of the plug, each instrument and its battery being so related and adjusted that the instrument sounds when they are looped into the simple closed circuit of the line but will not sound when the resistance-coil and condenser are switched into circuit with the line, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, telephone-lines, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact but open while a switch-plug is inserted, line-annunciators, one for each line, each annunciator having a pair of contact-points normally in contact but open while the annunciator indicates a call, each line passing successively through said pairs of switch contact-points of its switches and through its annunciator and the annunciator contact-points, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by flexible conductors containing a resistance-coil and condenser in multiple or parallel circuit in their circuit, said plugs being adapted to be inserted into the switches at their boards and when inserted into a switch to disconnect the pair of contact-points of the switch and connect the line contact-point of the switch with the plug contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery and adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, each instrument and its battery being so related and adjusted that when they are looped into the simple closed circuit of any line the instrument will sound but will not sound when they and one of said resistance-coils with its condenser are in circuit with the line, substantially as set forth.

9. In a telephone-exchange system, multiple switchboards, telephone-lines, each line being normally on a closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact and open while a switch-plug is inserted into its line-annunciators, one for each line, each annunciator having a pair of contact-points normally in contact but open while the annunciator indicates a call, each line passing normally successively through said pairs of contact-points of its switches on the several boards and through its annunciator and the contact-points of the annunciator, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by a flexible conductor containing a resistance-coil and condenser in multiple or parallel circuit in the circuit, said plugs being adapted to be inserted into the switches at their boards and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the line contact-point of the switch with the plug contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and battery, and adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, each instrument and its battery being so related and adjusted that when they are looped into the simple closed circuit of any line the instrument will sound but will not sound when the instrument and battery are included in the circuit of the line with any of said resistance-coils with its condenser, substantially as set forth.

592,854. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 4, 1890. Serial No. 335,864. (No model.)

Claim.—1. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends, normally on closed circuit and passing through a series of pairs of switchboard-contacts at the several boards, one pair at each of the boards, and thence to ground, in combination with switching apparatus at each board to at the will of the operator open the pair of normally closed contacts of any two lines at that board and connect the lines into a closed circuit for conversation, a resistance-coil at the central office in the circuit of two lines when thus connected together, a clearing-out annunciator at the central office in the circuit with the two lines when thus connected together, a test receiving instrument at each board, testing devices connected therewith adapted at the will of the operator to open said contacts of any line at the board and loop said instrument into the normal line-circuit for testing said line, and battery in the closed circuit of any test receiving instrument thus looped into circuit, the test receiving instruments being so adjusted to the circuits, resistances and battery by their marginal adjustment thereto, that each instrument sounds or responds when looped into the normal circuit of an unswitched line, but does not sound or respond when in an open circuit or in a closed circuit which contains one or both lines and said resistance-coil, whereby at the central office a circuit of metallic continuity is obtained for the clearing-out current of two lines connected together and the differentiation of the multiple-test signals is obtained by a marginal adjustment of the apparatus, substantially as set forth.

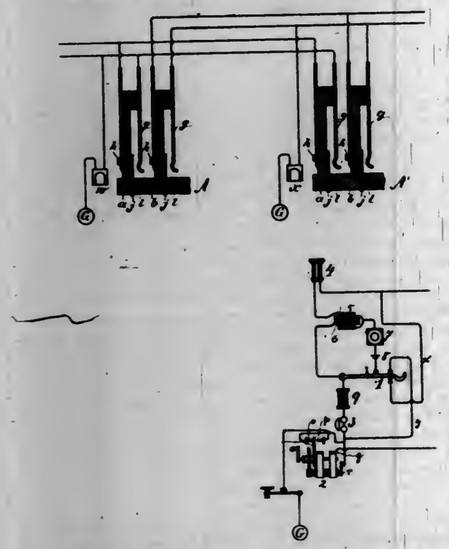


2. In a telephone-exchange system, multiple switchboards, telephone-lines, normally on closed circuit and passing through a series of pairs of switchboard-contacts at the several boards, one pair at each of the boards, in combination with switching apparatus at each board to at the will of the operator open the pair of normally closed contacts of any two lines at that board and connect the lines into a closed circuit for conversation, a resistance-coil at the central office in the circuit of the two lines when thus connected together, a clearing-out annunciator at the central office in the circuit with the two lines when thus connected together, a test receiving instrument at each board, testing devices connected therewith adapted at the will of the operator to open said contacts of any line at the board and loop said instrument into the normal line-circuit for testing said line, and battery in the closed circuit of any test receiving instrument thus looped into circuit, the test receiving instruments being so adjusted to the circuits, resistances and battery by their marginal adjustment thereto, that each instrument sounds or responds when looped into the normal circuit of an unswitched line, but does not sound or respond when in an open circuit or in a closed circuit which contains one or both lines and said resistance-coil, whereby at the central office a circuit of metallic continuity is obtained for the clearing-out current of two lines connected together and the differentiation of the multiple-test signals is obtained by a marginal adjustment of the apparatus, substantially as set forth.

3. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends, normally on closed circuit and passing through a series of pairs of switchboard-contacts at the several boards, one pair at each of the boards, and thence to ground, in combination with switching apparatus at each board to at the will of the operator open the pair of normally closed contacts of any two lines at that board and connect the lines into a closed circuit for conversation, a resistance-coil at the central office in the circuit of the two lines when thus connected together, a clearing-out annunciator at the central office in the circuit with the two lines when thus connected together, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and test-battery, each plug being adapted to be inserted into the switch of any line at its board and when inserted to open said switchboard-contacts of the line and connect them with the two contact-pieces of the plug respectively, the test receiving instruments being so adjusted to the circuits, resistances and battery by their marginal adjustment thereto, that each instrument sounds or responds when looped into the normal circuit of an unswitched line, but does not sound or respond when in an open circuit or in a closed circuit which contains one or both lines and said resistance-coil, whereby at the central office a circuit of metallic continuity is obtained for the clearing-out current of two lines connected together and the differentiation of the multiple-test signals is obtained by a marginal adjustment of the apparatus, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, telephone-lines, normally on closed circuit and passing through a series of pairs of switchboard-contacts at the several boards, one pair at each of the boards, in combination with switching apparatus at each board to at the will of the operator open the pair of normally closed contacts of any two lines at that board and connect the lines into closed circuit for conversation, a resistance-coil in the circuit of the two lines when thus connected together, a clearing-out annunciator at the central office in the circuit with the two lines when thus connected together, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and test-battery, each plug being adapted to be inserted into the switch of any line at its board and when inserted to open said switchboard-contacts of the line and connect them with the two contact-pieces of the plug respectively, the test receiving instruments being so adjusted to the circuits, resistances and battery by their marginal adjustment thereto, that each instrument sounds or responds when looped into the normal circuit of an unswitched line, but does not sound or respond when in an open circuit or in a closed circuit which contains one or both lines and said resistance-coil, whereby at the central office a circuit of metallic continuity is obtained for the clearing-out current of two lines connected together and the differentiation of the multiple-test signals is obtained by a marginal adjustment of the apparatus, substantially as set forth.

592,855. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 8, 1890. Serial No. 336,260. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit telephone-line normally open at one end at the central office and permanently grounded at its other end at the central office and normally grounded there only in combination with apparatus and a switching device controlled by the subscriber's telephone and greater resistance thereby switched into the circuit of the line at the subscriber's station when his telephone is not switched for use than when it is switched for use and a test wire or circuit containing a test receiving instrument and battery grounded at one end and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of the line, said test receiving instrument and battery being so related that the instrument will not sound when the test is applied to the line and the line is not switched for use with another line and the subscriber's telephone is not switched for use, but will sound when the test is applied and either the line or the telephone is switched for use, substantially as set forth.

2. In a telephone-exchange system, two or more multiple switchboards at the central office, and metallic-circuit lines connected to them, each line being normally open at one end and connected to each board and at its other end permanently grounded and connected to each board, and normally grounded there only, in combination with apparatus and a switching device controlled by the subscriber's telephone and greater resistance thereby switched into the circuit of the line at the subscriber's station when his telephone is not switched for use than when it is switched for use and a test wire or circuit containing a test receiving instrument and battery grounded at one end, and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of any line, said test receiving instrument and battery being so related that the instrument will not sound when the test is applied to any line and the line is not switched for use with another line and the subscriber's telephone is not switched for use but will sound when the test is applied and either the line or the telephone is switched for use, substantially as set forth.

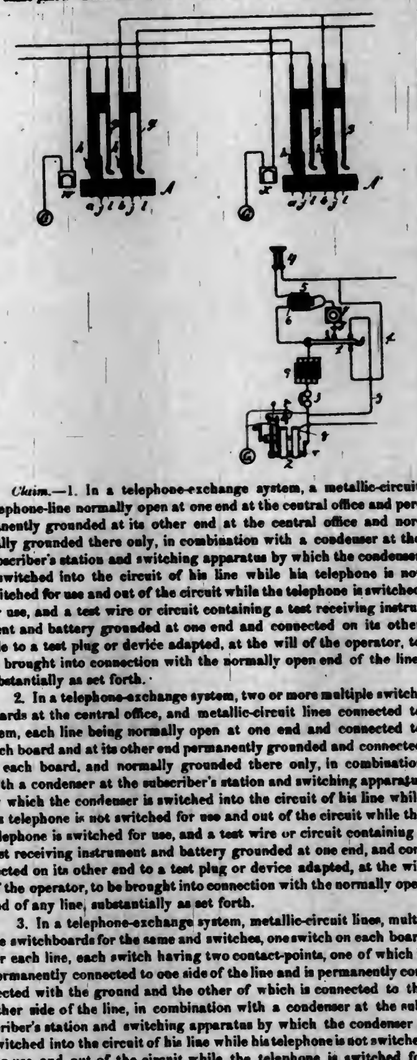
3. In a telephone-exchange system, metallic-circuit lines, multiple switchboards for the same and switches, one switch on each board for each line, each switch having two contact-points, one of which is permanently connected to one side of the line and is permanently connected with the ground and the other of which is connected to the other side of the line, in combination with apparatus and a switching device at each subscriber's station controlled by the subscriber's telephone and greater resistance thereby switched into the circuit of his line while his telephone is not switched for use than is the resistance while the telephone is switched for use, test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a test plug or device adapted at the will of the operator, to be brought for testing into connection with any of said second-mentioned contact-points of the switches at its board, and battery in the test-circuit established on testing, each test receiving instrument and battery being so related that the instrument will not sound when the test is applied to any line and the line is not switched for use with another line and the subscriber's telephone is not switched for use, but will sound when the test is applied and either the line or the telephone is switched for use, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit telephone-line normally open at one end at the central office and permanently grounded at its other end at the central office and normally grounded there only, in combination with apparatus and a switching device controlled by the subscriber's telephone and greater resistance thereby switched into the circuit of the line at the subscriber's station when his telephone is not switched for use than when it is switched for use, a test wire or circuit containing a test receiving instrument grounded at one end and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of the line, and battery in the test circuit established on testing, said test receiving instrument and battery being so related that the instrument will not sound when the test is applied to the line and the line is not switched for use with another line and the subscriber's telephone is not switched for use, but will sound when the test is applied and either the line or the telephone is switched for use, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit telephone-line normally open at one end at the central office and grounded at its other end at the central office when the line is switched for conversation and normally grounded there only, in combination with apparatus and a switching device controlled by the subscriber's telephone and greater resistance thereby switched into the circuit of the line at the subscriber's station when his telephone is not switched for use than when it is switched for use, and a test wire or circuit containing a test receiving instrument and battery grounded at one end and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of the line, said test receiving instrument and battery being so related that the instrument will not sound when the test is applied to the line and the line is not switched for use with another line and the subscriber's telephone is not switched for use, but will sound when the test is applied and either the line or the telephone is switched for use, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit telephone-line normally open at one end at the central office and grounded at its other end at the central office and normally grounded there only, in combination with apparatus and a switching device controlled by the subscriber's telephone and greater resistance thereby switched into the circuit of the line at the subscriber's station when his telephone is not switched for use than when it is switched for use, a test wire or circuit containing a test receiving instrument grounded at one end and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of the line and battery in the test-circuit established on testing, said test receiving instrument and battery being so related that the instrument will not sound when the test is applied to the line and the line is not switched for use with another line and the subscriber's telephone is not switched for use, but will sound when the test is applied and either the line or the telephone is switched for use, substantially as set forth

592,856. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 8, 1890. Serial No. 336,261. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit telephone-line normally open at one end at the central office and permanently grounded at its other end at the central office and normally grounded there only, in combination with a condenser at the subscriber's station and switching apparatus by which the condenser is switched into the circuit of his line while his telephone is not switched for use and out of the circuit while the telephone is switched for use, and a test wire or circuit containing a test receiving instrument and battery grounded at one end and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of the line, substantially as set forth.

2. In a telephone-exchange system, two or more multiple switchboards at the central office, and metallic-circuit lines connected to them, each line being normally open at one end and connected to each board and at its other end permanently grounded and connected to each board, and normally grounded there only, in combination with a condenser at the subscriber's station and switching apparatus by which the condenser is switched into the circuit of his line while his telephone is not switched for use and out of the circuit while the telephone is switched for use, and a test wire or circuit containing a test receiving instrument and battery grounded at one end, and connected on its other end to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of any line, substantially as set forth.

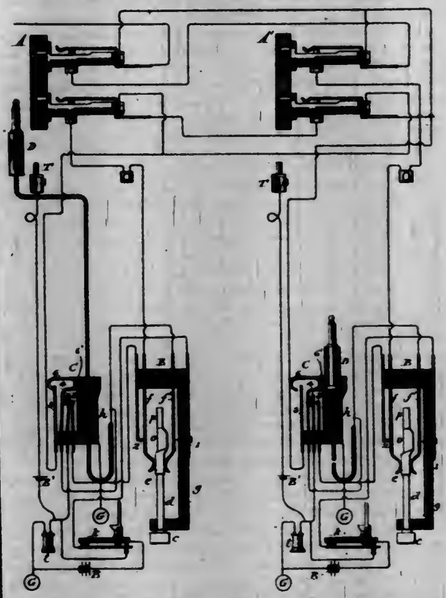
3. In a telephone-exchange system, metallic-circuit lines, multiple switchboards for the same and switches, one switch on each board for each line, each switch having two contact-points, one of which is permanently connected to one side of the line and is permanently connected with the ground and the other of which is connected to the other side of the line, in combination with a condenser at the subscriber's station and switching apparatus by which the condenser is switched into the circuit of his line while his telephone is not switched for use and out of the circuit while the telephone is switched for use, test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought for testing into connection with any of said second-mentioned contact-points of the switches at its board, and battery in the test-circuit established on testing, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit telephone-line normally open at one end at the central office and permanently grounded at its other end at the central office and normally grounded there only, in combination with a condenser at the subscriber's station and switching apparatus by which the condenser is switched into the circuit of his line while his telephone is not switched for use and out of the circuit while the telephone is switched for use, and a test wire or circuit containing a test receiving instrument grounded at one end and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of the line, and battery in the test-circuit normally established on testing, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit telephone-line normally open at one end at the central office and grounded at its other end at the central office when the line is switched for conversation and normally grounded there only, in combination with a condenser at the subscriber's station and switching apparatus by which the condenser is switched into the circuit of his line while his telephone is not switched for use and out of the circuit while the telephone is switched for use, and a test wire or circuit containing a test receiving instrument and battery grounded at one end and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of the line, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit telephone-line normally open at one end at the central office and grounded at its other end at the central office when the line is switched for conversation and normally grounded there only, in combination with a condenser at the subscriber's station and switching apparatus by which the condenser is switched into the circuit of his line while his telephone is not switched for use and out of the circuit while the telephone is switched for use, a test wire or circuit containing a test receiving instrument and battery grounded at one end and connected on its other side to a test plug or device adapted, at the will of the operator, to be brought into connection with the normally open end of the line, and battery in the test-circuit normally established on testing, substantially as set forth.

592,857. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 9, 1890. Serial No. 336,379. (No model.)



Claim.—1. In a telephone-exchange system, a switching device for a switch-plug normally connected to a line and in which the plug normally rests, said switching device having two contact-points which are normally separated when the plug is in the device and are in contact while the plug is out of the device, and an answering-switch for the line having a pair of contact-points normally closed but open while the switch-commutator is drawn from its normal position, and a pair of contact-points normally open but closed while the commutator is drawn from its normal position and again open while the commutator rests in the position it occupies while its line is switched for conversation, said pair of contact-points of the switching device and said first-mentioned pair of contact-points of the answering-switch being in a circuit which connects the line to the ground through the operator's telephone, and the other pair of contact-points of the answering-switch being in a circuit which connects the switch-plug to the ground through the operator's calling-generator, substantially as set forth.

2. In a telephone-exchange system, an answering-switch for a telephone-line, having a pair of contact-points to one of which the line is connected and to the other of which the operator's telephone

is connected, grounded at its other end, and having another pair of contact-points to one of which the cord and plug of the line is connected, and to the other of which the calling-generator is connected, grounded at its other end, in combination with a commutator-piece containing a metal contact-piece on which rest said first mentioned contact-pieces of each pair and which electrically bridges or connects them, said commutator-piece being adapted to occupy three positions at the will of the operator, in the first of which said first-mentioned pair of contact-points alone are in contact, in the second of which said second pair of contact-points alone are in contact, and in the third of which neither of the two pairs are in contact, substantially as set forth.

3. In an answering-switch for a telephone-line, a contact-spring and a contact-point on one side of said spring, in combination with a commutator-piece, adapted to be placed in three positions at the will of the operator and to press against said spring on its other side, said commutator-piece having three surfaces against which said spring alternately presses, the middle surface being farthest from the center of said commutator-piece in its line of motion, whereby when the spring rests on said middle surface, and only then, it is in contact with said contact-point, substantially as set forth.

4. In an answering-switch for a telephone-line, a contact-spring and its contact-point and another contact-spring and its contact-point, in combination with a commutator-piece adapted to be placed in three positions and on which said springs press, said commutator-piece having three commutator-surfaces against which one of said springs alternately presses, the middle surface being farthest from the center of said commutator-piece in its line of motion, and having two other commutator-surfaces against which the other spring alternately presses, the commutator-surface on which said spring presses in the first position of the commutator-piece being farther from the center of the commutator-piece in its line of motion than the surface against which the spring presses in the two other positions of the commutator-piece, whereby in the middle position of the commutator-piece, and only then, the first-mentioned spring is in contact with the first mentioned point, and in the first position of the commutator-piece, and only then, the second-mentioned spring is in contact with the second-mentioned point, substantially as set forth.

5. In an answering-switch for a telephone-line, a contact-spring and its contact-point and another contact-spring and its contact-point, in combination with a commutator-piece adapted to be placed in three positions and on which said springs press, said commutator-piece having a contact-piece of metal with three commutator-surfaces against which one of said springs alternately presses, the middle surface being farthest from the center of said commutator-piece in its line of motion, and two other commutator-surfaces against which the other spring alternately presses, the commutator-surfaces on which said spring presses in the first position of the commutator piece being farther from the center of the commutator-piece in its line of motion than the surface against which the spring presses in the two other positions of the commutator-piece, whereby said springs are electrically connected, and in the middle position of the commutator-piece, and only then, the first-mentioned spring is in contact with the first-mentioned point, and in the first position of the commutator-piece, and only then, the second-mentioned spring is in contact with the second-mentioned point, substantially as set forth.

6. In a telephone-exchange system, an operator's switch having a contact-spring, a contact-point on one side of the spring and a commutator-piece adapted to be placed in three positions at the will of the operator, and to press against said spring on its other side, said commutator-piece having three surfaces against which said spring alternately presses, the middle surface being farthest from the center of said commutator-piece in its line of motion, whereby when the spring rests on said middle surface, and only then, it is in contact with said contact-point, in combination with a telephone-circuit connected to said spring, a calling-generator and a circuit connection from said point through said generator to ground, substantially as set forth.

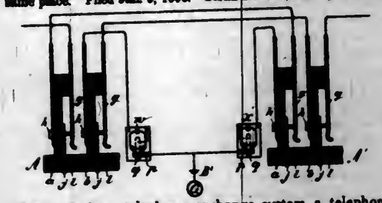
7. In a telephone-exchange system, an operator's switch having a contact-spring, a contact-point on one side of the spring and a commutator-piece adapted to be placed in three positions at the will of the operator, and to press against said spring on its other side, said commutator-piece having three surfaces against which said spring alternately presses, the middle surface being farthest from the center of said commutator-piece in its line of motion, whereby when the spring rests on said middle surface, and only then, it is in contact with said contact-point, in combination with a telephone-circuit connected to said spring, a calling-generator, a circuit connection from said point passing normally through said generator to ground, an operator's telephone and a switch by which the operator may at will switch the generator out of and the telephone into said circuit connection, substantially as set forth.

8. In a telephone-exchange system, telephone-lines and switch-plugs, one for each line, each plug being adapted to be placed in a switch of either of the other lines and thereby connect its line with the other line, in combination with an operator's telephone grounded on one side, a calling-generator grounded on one side, and a commutator-piece for each line adapted to be moved in one plane or direction to occupy three switching positions in said plane, in one of which the other side of the telephone is connected to the line, in another of which said side of the telephone is disconnected from the line and the other side of the calling-generator is connected to the line, and in another of which neither said other side of the telephone nor said other side of the generator is connected to the line.

9. In a telephone-exchange system, two telephone-lines temporarily connected together for conversation, in combination with an operator's telephone grounded on one side, a calling-generator grounded on one side, and a commutator-piece adapted to be moved in one plane or direction to occupy three switching positions in said plane, in one of which the other side of the telephone is thereby connected to the line, in another of which said side of the telephone is thereby disconnected from the line and the other side of the calling-generator is thereby connected to the line, and in another of which neither said other side of the telephone nor said other side of the generator is connected to the line.

10. In a telephone-exchange system, telephone-lines and switch-plugs, one for each line, each plug being adapted to be placed in a switch of either of the other lines and thereby connect its line with the other line, in combination with an operator's telephone, a calling-generator grounded on one side, and a commutator-piece for each line adapted to be moved in one plane or direction to occupy three switching positions in said plane, in one of which the telephone is connected to the line, in another of which the telephone is disconnected from the line and the other side of the calling-generator is connected to the line, and in another of which neither the telephone nor said other side of the generator is connected to the line.

592,358. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 9, 1890. Serial No. 336,380. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line grounded at its outer end and passing normally successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call to a ground-wire which contains a test-battery, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, substantially as set forth.

2. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board and thence through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call to a common wire which contains a test-battery, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation, and a loop test-plug in the two contact-points of which terminate the two sides of a loop containing a test receiving instrument, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect its pair of contact-points and connect them with the two contact-pieces of the plug, substantially as set forth.

3. In a telephone-exchange system, a telephone-line grounded at its outer end and having in its circuit pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched for use at their board, and thence to a common ground-wire containing a battery through an annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate and adapted to be inserted into the switch of the line at its board and when inserted to disconnect the pair of contact-points which are normally in contact and connect them with the two contact-pieces of the plug, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, telephone-lines, each line normally on closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact and open while a switch-plug is inserted into it, each line passing normally successively through the pairs of contact-points of its switch and thence through an individual annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call to a common wire in which is a test-battery, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by flexible conductors in the circuit, said plugs being adapted to be inserted into the switches at their board and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the line contact-point of the switch with the plug contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, substantially as set forth.

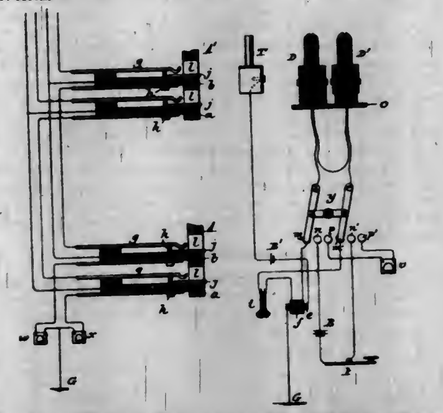
5. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact but open while a switch-plug is inserted into it, each line passing normally successively through the pairs of contact-points of its switches and thence through an individual annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call to a ground-wire which contains a test-battery, in combination with pairs of switch-plugs at each board, each pair having their contact-pieces connected by flexible conductors, said plugs being adapted to be inserted into the switches at their board and when a plug is inserted into a switch to disconnect the contact-points of the switch which are normally in contact and connect the line contact-point with the contact-piece of the plug, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a test receiving instrument, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines, each line normally on closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact and open while a switch-plug is inserted into it, each line passing normally successively through the pairs of contact-points of its switch and thence through an individual annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call to a common wire in which is a test-battery, in combination with switching devices at each board to disconnect any line from said common wire and connect it with any other line for conversation, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact but open while a switch-plug is inserted into it, each line passing normally successively through the pairs of contact-points of its switches and thence through an individual annunciator and a pair of contact-points normally closed but open while the annunciator indicates a call to a ground-wire which contains a test-battery, in combination with switching devices at each board to disconnect any line from said ground-wire and connect it with any other line for conversation, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a test receiving instrument, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, substantially as set forth.

592,859. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 9, 1890. Serial No. 336,381. (No model.)

Claim.—1. In a metallic-circuit telephone-exchange system, a pair of double or loop switch plugs with double flexible cords, the two contact-pieces of one plug being connected with the two contact-pieces of the other plug, respectively, the contact-pieces of one plug being normally bridged and those of the other being normally open to each other, in combination with an operator's telephone and a switch with contact-points by which said telephone is left normally in circuit between two of the contact-pieces of said plugs (one piece on each plug) and is at the will of the operator disconnected from said circuit while the plugs are in use for switching, substantially as set forth.



2. In a metallic-circuit telephone-exchange system, pairs of double or loop switch plugs with double flexible cords, the two contact-pieces of one plug of each pair being connected with the two contact-pieces of the other plug of the pair respectively, the contact-pieces of one plug being normally bridged and those of the other being normally open to each other, in combination with an operator's telephone and switches, one for each pair of plugs, by which the telephone is left normally in circuit between two contact-pieces of each pair, (one piece on each plug) and is at the will of the operator disconnected from the circuit with any pair of plugs while the plugs are in use for switching, substantially as set forth.

3. In a metallic-circuit telephone-exchange system, pairs of double or loop switch plugs located at a switchboard, one plug of each pair having its contact-pieces normally disconnected (except by the cord connections) and adapted to be inserted into the switch of any line whose calls are received at the board and when inserted into the switch to connect the two contact-pieces of the plug with the two sides or branches of the line, and the other plug of the pair having its contact-pieces connected by flexible conductors with the two contact-pieces of its mate respectively, having said contact-pieces normally (or when the plug is resting in its normal position) bridged or connected, and adapted to be inserted into any switch at the board and when inserted to connect the two contact-pieces of the plug with the two sides or branches of the line.

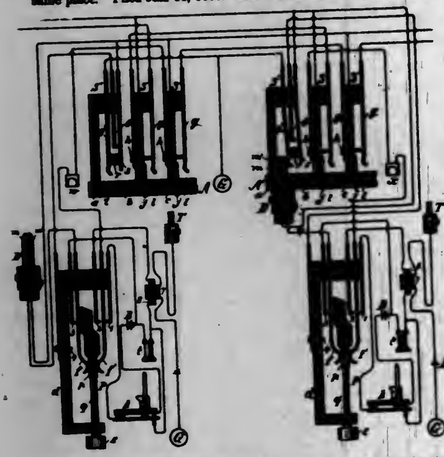
4. In a metallic-circuit telephone-exchange system, pairs of double or loop switch plugs located at a switchboard, one plug of each pair having its contact-pieces normally disconnected (except by the cord connections) and adapted to be inserted into the switch of any line whose calls are received at the board and when inserted into the switch to connect the two contact-pieces of the plug with the two sides or branches of the line, and the other plug of the pair having its contact-pieces connected by flexible conductors with the two contact-pieces of its mate respectively, having said contact-pieces normally (or when the plug is resting in its normal position) bridged or connected, and adapted to be inserted into any switch at the board and when inserted to connect the two contact-pieces of the plug with the two sides or branches of the line, in combination with the operator's telephone and switches, one for each pair of plugs, with contact-points by which the telephone is left normally in the cord-circuit between the contact-pieces of two plugs of each pair, and may be switched from the circuit of any pair while they are in use connecting two lines, substantially as set forth.

5. In a telephone-exchange system, a pair of switch-plugs, in combination with a looping-in switch and clearing-out annunciator for the plugs, and an operator's telephone and her generator, said looping-in switch having two levers to which are connected, respectively, by flexible conductors, a contact-piece of each plug, and three pairs of contact-points, the points of one pair of which are connected to a loop in which is the telephone and on which the levers normally

rest, the points of another pair of which are connected to a loop in which is the calling-generator and are contiguous to said first-mentioned pair of points, and the points of the third pair being connected to a loop in which is the clearing-out annunciator, and are contiguous to said second-mentioned points, whereby while the levers of the switch are moved from their normal position to the position they occupy when the plugs are in use for switching they connect with the terminals of the generator and a calling-current is sent over their circuit.

6. In a telephone-exchange system, a pair of switch-plugs, in combination with a looping-in switch and a clearing-out annunciator for the plugs and an operator's telephone and her generator, said looping-in switch having two levers to which are connected respectively by flexible conductors a contact-piece of each plug, and three pairs of contact-points, the points of one pair of which are connected to a loop in which is the telephone and on which the levers normally rest, the points of another pair of which are connected to a loop in which is the calling-geuerator and are contiguous to said first-mentioned pair of points, and the points of the third pair being connected by a loop contiguous to said second-mentioned points and being the points on which the levers rest while the plugs are in use for switching, whereby when the levers are moved from their normal position and their connection with the operator's telephone to the position they occupy while their plugs are in use, a signaling-current is sent over their circuit.

592,360. **MULTIPLE SWITCHBOARD.** MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 10, 1890. Serial No. 336,597. (No model.)



Claim.—1. An answering-switch for a telephone-line having two contact-springs, a movable commutator-piece adapted to be moved to occupy three positions, and three contact-points, said commutator-piece having parts on which said springs alternately rest, one of said parts being of metal and the other two of an insulation, said parts operating to change the connections between the springs and to electrically connect the springs through the metal part of the commutator, substantially as described.

2. An answering-switch for a telephone-line having two contact-springs, four contact-points and a commutator-piece having a metal part and two rubber or insulation parts, said springs resting alternately on each of said three parts as the commutator-piece is moved, said parts operating to change the connections between the springs and contact-points, substantially as described.

3. In an answering-switch for a telephone-line, a contact-spring and two contact-points, one point on each side of said spring, and another contact-spring and a contact-point placed near the spring, in combination with a commutator-piece adapted to be moved between the springs and on which they press, said commutator-piece having on one side three commutator-surfaces in different planes on which said first-mentioned spring alternately presses and on another side two commutator-surfaces in different planes on which said second-mentioned spring alternately presses, substantially as set forth.

4. In an answering-switch for a telephone-line, a contact-spring and two contact-points, one contact-point on each side of said spring, in combination with a commutator-piece adapted to be moved and having three commutator-surfaces in different planes against which the spring alternately presses, the first surface being nearest the axis of said commutator-piece in its line of motion, the second surface being farthest from said axis of motion and the third surface being in a plane between the two other surfaces, substantially as set forth.

5. In an answering-switch for a telephone-line, a contact-spring and two contact-points, one point on each side of said spring, and another contact-spring and two contact-points, both on the same side of the spring, in combination with a commutator-piece adapted to be moved between the springs and on which they press, said commutator-piece having on one side three commutator-surfaces in different planes against which said first-mentioned spring alternately presses, the first surface being nearest the axis of said piece in its line of motion, the second surface being farthest from said axis and the third surface being a metal surface and in a plane between the two other surfaces, and having on another side three commutator-surfaces in different planes against which said second-mentioned spring alternately presses, the first surface being farthest from the axis of the commutator piece in its line of motion, the second surface being nearest the axis and the third surface being nearest the axis and a metal surface connected with said other metal surface, substantially as set forth.

6. In an answering-switch for a telephone-line, a contact-spring and two contact-points, one point on each side of said spring, and another spring and two contact-points, both points on the same side of the spring, in combination with a commutator-piece adapted to be moved between the springs and on which they press, said commutator-piece having on one side three commutator-surfaces in different planes against which said first-mentioned spring alternately presses, the first surface being nearest the axis of said commutator-piece in its line of motion, the second surface being farthest from said axis and the third surface being in a plane between the two other surfaces, and having on another side three commutator-surfaces in different planes against which said second-mentioned spring alternately presses the first surface being farthest from the axis of the commutator-piece in its line of motion, the second surface being nearer the axis and the third surface being nearest the axis, substantially as set forth.

7. An answering-switch for a telephone-line having two contact-springs, a movable commutator-piece adapted to be moved to occupy three positions, and three contact-points, said springs in one position of the commutator being out of contact with said contact-points but in connection with each other, in another position of the commutator being one in contact with one contact-point and the other in contact with another contact point, and in another position of the commutator said first-mentioned spring being in contact with said first-mentioned point and the other spring out of contact with said second-mentioned point and in contact with the third point, in combination with an operator's telephone and generator, one of said springs being connected to one side and the other spring to the other side of a telephone-circuit, one side of the telephone and one side of the generator being connected to said first mentioned point, the other side of the generator being connected to said second-mentioned point, and the other side of the telephone connected to said third-mentioned point, substantially as set forth.

8. An answering-switch for a telephone-line having two contact-springs, a movable commutator-piece adapted to be moved to occupy three positions, and three contact-points, said springs in one position of the commutator being out of contact with said contact-points but in connection with each other, in another position of the commutator being one in contact with one contact-point and the other in contact with another contact-point, and in another position of the commutator said first-mentioned spring being in contact with said first-mentioned point and the other spring out of contact with said second-mentioned point and in contact with the third point, in combination with an operator's telephone and generator, one of said springs being connected to one side, and the other spring to the other side of a telephone circuit, one side of the telephone and one side of the generator being connected to said first-mentioned point, the other side of the generator being connected to said second-mentioned point, and the other side of the telephone connected to said third-mentioned point, substantially as set forth.

9. An answering-switch for a telephone line having two contact-springs, a movable commutator-piece adapted to be moved to occupy three positions, and three contact-points, said commutator-piece having three parts which act on said springs alternately, and when the commutator-piece is in one position said springs are not in contact with said contact-points but in connection with each other, when the commutator-piece is in another position one of said springs is pressed into contact with one contact-point and the other into contact with another contact-point, and when the commutator-piece is in another position said first-mentioned spring remains in contact with said first mentioned point and the other spring (passing from contact with said second-mentioned point) is in contact with the third point, in combination with an operator's telephone and generator, one of said springs being connected to the line and the other spring to the individual switching cord and plug of the line, one side of the telephone and one side of the generator being connected to said first-mentioned point, the other side of the generator being connected to said second-mentioned point, and the other side of the telephone connected to said third-mentioned point, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line, the contact-points 5, 6, in the switching device in which the plug of the line is normally placed, which are in contact when the plug is removed from the switching device and only then in contact, in combination with the contact-spring *f* and point 4 in the answering-switch of the line, and the commutator-piece of the answering-switch operating when in one of its positions to force the spring into contact with the point 4, said contact-spring being connected to one side or branch of the line and the other side or branch of the line being connected through said pair of contact-points 5, 6, to said point 4, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line, a bridge circuit or connection across the two sides or branches of the line normally or while the plug is in the plug-socket or switching device open at three places, a pair of contacts which automatically closes said circuit at one of said places when the switch-plug of the line is taken from is normal position, a commutator-piece, and pairs of contacts operated thereby which close said circuit at the two other places when said commutator-piece of the answering-switch of the line is moved from its normal position, substantially as set forth.

12. In a telephone-exchange system, a metallic-circuit line, a bridge circuit or connection across the two sides or branches of the line, normally or while the plug is in the plug-socket or switching device open at three places, a pair of contacts which automatically closes said circuit at one of said places when the switch-plug of the line is withdrawn from its normal position, a commutator-piece and pairs of contacts which close said circuit at the two other places when said commutator-piece of the answering-switch of the line is moved from its normal position and an operator's telephone in said bridge-circuit, substantially as set forth.

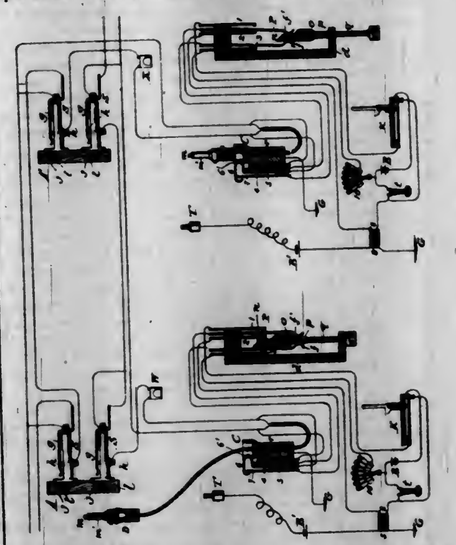
13. In a telephone-exchange system, a metallic-circuit line, a bridge circuit or connection across the two sides or branches of the line, normally or while the plug is in the plug-socket or switching device open at three places, a pair of contacts which automatically closes said circuit at one of said places when the switch-plug of the line is withdrawn from its normal position, pairs of contacts which close said circuit at the two other places when the commutator-piece of the answering-switch is moved from its normal position and an operator's telephone in said bridge-circuit between the two pairs of contacts last mentioned, substantially as set forth.

14. In a telephone-exchange system, a metallic-circuit line, an individual loop switch plug for the line, a switching device into which the plug is normally placed, a bridge circuit or connection between the two sides or branches of the line, and a pair of contacts in said switching device, connected into said bridge circuit or connection, normally open to each other but automatically closed by the withdrawal of the plug, in combination with a calling-generator, and a commutator-piece operating on contacts, and movable in one plane or direction to three positions, in one of which the operator's telephone is in said bridge-circuit, in another of which the telephone is switched from said bridge-circuit and the generator is connected to the line and in the other of which neither the telephone nor the generator is connected to the line, substantially as set forth.

15. In a telephone-exchange system, telephone-lines and switch-plugs, one for each line each plug being adapted to be placed in a switch of either of the other lines and thereby connect its line with the other line, in combination with a contact-spring for each line connected to a line contact of its plug, two contacts for each line, one in connection with an operator's telephone and the other in connection with a calling-generator and a commutator piece adapted to be moved in one plane or direction to occupy three positions, and having three commutator-surfaces in different planes operating on said spring in different positions, in one of which said first-mentioned point is in connection with said spring, in another of which said first-mentioned point is out of connection and said second-mentioned point is in connection with said spring, and in another position of which both points are out of connection with said spring.

592,361. **MULTIPLE SWITCHBOARD.** MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Jan. 10, 1890. Serial No. 336,598. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit line, the two sides or branches of which are normally open to each other at the central office; a switch-plug for the line, a switching device for the plug into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the switching device and out of contact while the plug is inserted in the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, and an answering-switch for the line with contact-points by which the operator may at will loop her telephone into the circuit of said bridge-wire between said pairs of contact-points of the switching device or disconnect her telephone from the bridge-wire and leave said wire open at the answering-switch, substantially as set forth.



2. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device for the line into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-pieces of each pair being in contact while the plug is out of the switching device and out of contact while the plug is inserted into the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, and an answering-switch for the line with contact-points by which the operator may at will either loop her telephone into the circuit of said bridge-wire between said pairs of contact-points of the switching device or may loop her generator into said bridge-wire between said pairs of points, or may leave the bridge-wire open at the answering-switch with neither her telephone nor generator connected to it, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device for the plug in which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the device and out of contact while the plug is in the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, and an answering-switch for the line with contact-points and connections and a commutator-piece adapted to be placed in three positions successively at the will of the operator, in the first position of which her telephone is looped into the circuit of said bridge-wire between said pairs of contact-points of the switching device, in the next position of which the calling-generator is looped into the circuit of the bridge-wire between said pairs of points and in the last position of which said bridge-wire is left open at the answering-switch with neither the telephone nor the generator connected to it, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device for the plug into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the device and out of contact while the plug is in the

device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, an answering-switch for the line with contact-points and connections and a commutator-piece adapted to be placed in three positions successively, at the will of the operator, in the first position of which her telephone is looped into the circuit of said bridge wire between said pairs of contact-points of the switching device, in the next position of which the calling-generator is normally looped into the circuit of the bridge-wire between said pairs of points and in the last position of which said bridge-wire is left open at the answering-switch with neither the telephone nor the generator connected to it, and a key or switch with contact-points by which when the commutator is in said second position the circuit through the generator may be broken, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device for the plug into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the device and out of contact while the plug is in the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, an answering-switch for the line with contact-points and connections and a commutator-piece adapted to be placed in three positions successively, at the will of the operator, in the first position of which her telephone is looped into the circuit of said bridge wire between said pairs of contact-points of the switching device, in the next position of which the calling-generator is normally looped into the circuit of the bridge-wire between said pairs of points and in the last position of which said bridge-wire is left open at the answering-switch with neither the telephone nor the generator connected to it, and a key or switch with contact-points by which when the commutator is in said second position the circuit through the generator may be broken and the circuit established through the telephone, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line, the two sides or branches of which are normally open to each other at the central office, a loop-switch plug for the line in the two contact-pieces of which terminate the two sides or branches of the line, said plug being adapted to be inserted into the switch of any other metallic-circuit line at its board and when inserted to connect the contact-pieces of the switch with the two sides or branches of the line, a switching device for the plug into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the switching device and out of contact while the plug is inserted in the device, in combination with a bridge or connecting wire for said line, the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, and an answering-switch for the line with contact-points by which the operator may at will loop her telephone into the circuit of said bridge-wire between said pairs of contact-points of the switching device or disconnect her telephone from the bridge-wire and leave said wire open at the answering-switch, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line, a loop-switch plug for the line in the two contact-pieces of which terminate the two sides or branches of the line, said plug being adapted to be inserted into the switch of any other metallic-circuit line at its board and when inserted to connect the contact-pieces of the switch with the two sides or branches of the line, a switching device for the line into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-pieces of each pair being in contact while the plug is out of the switching device and out of contact while the plug is inserted into the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, and an answering-switch for the line with contact-points by which the operator may at will either loop her telephone into the circuit of said bridge-wire between said pairs of contact-points of the switching device or may loop her generator into said bridge-wire between said pairs of points, or may leave the bridge-wire open at the answering-switch with neither her telephone or generator connected to it, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line, a loop-switch plug for the line in the two contact-pieces of which terminate the two sides or branches of the line, said plug being adapted to be inserted into the switch of any other metallic-circuit line at its board and when inserted to connect the contact-pieces of the switch with the two sides or branches of the line, a switching device for the plug into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the device and out of contact while the plug is in the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, and an answering-switch for the line with contact-points and connections and a commutator-piece adapted to be placed in three positions successively, at the will of the operator, in the first position of which her telephone is looped into the circuit of said bridge-wire between said pairs of contact-points of the switching device, in the next position of which the calling-generator is normally looped into the circuit of the bridge-wire between said pairs of points and in the last position of which said bridge-wire is left open at the answering-switch with neither the telephone nor the generator connected to it and a key or switch with contact-points by which when the commutator is in said second position the circuit through the generator may be broken and the circuit established through the telephone, substantially as set forth.

9. In a telephone exchange system, a metallic-circuit line, a loop-switch plug for the line in the two contact-pieces of which terminate the two sides or branches of the line, said plug being adapted to be inserted into the switch of any other metallic-circuit line at its board and when inserted to connect the contact-pieces of the switch with the two sides or branches of the line, a switching device for the plug into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the device and out of contact while the plug is in the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, an answering-switch for the line with contact-points and connections and a commutator-piece adapted to be placed in three positions successively, at the will of the operator, in the first position of which her telephone is looped into the circuit of said bridge-wire between said pairs of contact-points of the switching device, in the next position of which the calling-generator is normally looped into the circuit of the bridge-wire between said pairs of points and in the last position of which said bridge-wire is left open at the answering-switch with neither the telephone nor the generator connected to it, and a key or switch with contact-points by which when the commutator is in said second position the circuit through the generator may be broken, substantially as set forth.

10. In a telephone exchange system, a metallic-circuit line, a loop-switch plug for the line in the two contact-pieces of which terminate the two sides or branches of the line, said plug being adapted to be inserted into the switch of any other metallic-circuit line at its board and when inserted to connect the contact-pieces of the switch with the two sides or branches of the line, a switching device for the plug into which the plug is normally inserted, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the device and out of contact while the plug is in the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, an answering-switch for the line with contact-points and connections and a commutator-piece adapted to be placed in three positions successively, at the will of the operator, in the first position of which her telephone is looped into the circuit of said bridge-wire between said pairs of contact-points of the switching device, in the next position of which the calling-generator is normally looped into the circuit of the bridge-wire between said pairs of points and in the last position of which said bridge-wire is left open at the answering switch with neither the telephone nor the generator connected to it and a key or switch with contact-points by which when the commutator is in said second position the circuit through the generator may be broken and the circuit established through the telephone, substantially as set forth.

11. In a telephone-exchange system, a plug switching device for a metallic-circuit line, adapted to receive a loop-switch plug for the line when the plug is not in use, the two contact-pieces of the plug being connected through flexible conductors to the two sides or branches of the line, respectively, said plug switching device having two pairs of contact-points which are open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides of the line, respectively, two of said contacts, one of each pair being springs moved by the plug on its insertion to open the two pairs of points and the two other points being immovable or stationary on the withdrawal or insertion of the plug, in combination with an answering-switch for said line, having two pairs of contact-points normally in contact but opened at the will of the operator, two of such contact-points, one of each pair being connected to the two other contact-points, respectively, of the plug switching device, and the two other contact-points of the operator's switching device being connected to the two sides, respectively, of the operator's telephone, substantially as set forth.

12. In a telephone-exchange system, a plug switching device for a metallic-circuit line, adapted to receive a loop-switch plug for the line when the plug is not in use for switching, the two contact-pieces of the plug being connected, through flexible conductors, to the two sides or branches, respectively, of the line, said plug switching device having two pairs of contact-points which are open when the plug is in the device but are automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches of the line, in combination with an answering-switch for said line, having two pairs of contact-points, two contact-points of which are connected to the two other contact-points of the plug switching device, one of the other points being connected to one side of the operator's telephone and also to one side of her calling-generator and the other point connected to the other side of the telephone, and a fifth point normally out of contact with the other points and connected to the other side of the generator, and a commutator-piece adapted at the will of the operator to be placed in three positions, when in its normal position the two pairs of contact-points of the answering-switch being in contact, when in its next position the pair to which are connected one side of the telephone and generator remaining in contact and the other pair being separated and that one which is connected with the line brought into contact with said fifth point, and when in the third position all the contact-points of the answering-switch being out of contact, substantially as set forth.

13. In a telephone-exchange system, a metallic-circuit line, a loop-switch plug for the line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, a plug switching device into which the plug is placed when not in use, having pairs of contacts therein and connections by which the operator's telephone is bridged across the two sides of the line when the plug is withdrawn from said device, in combination with an answering-switch having pairs of contacts and a commutator-piece therein, and connections by which the operator may at will disconnect said bridge connection through the telephone and connect her calling-generator in a bridge across the two sides of the line and may disconnect both telephone and generator from the line, substantially as set forth.

14. In an answering-switch for a telephone-line, a contact-spring and two contact-points, one point on each side of said spring and another contact-spring and a contact-point placed near the spring in combination with a commutator-piece adapted to be moved between the springs and on which they press, said commutator-piece having on one side three commutator-surfaces in different planes on which said first-mentioned spring alternately presses and on another side two commutator-surfaces only in different planes on which said second-mentioned spring alternately presses, substantially as set forth.

15. In an answering-switch for a telephone-line, a contact-spring and two contact-points, one point on each side of said spring and another contact-spring and a contact-point placed near the spring, in combination with a commutator-piece adapted to be moved between the springs and on which they press, said commutator-piece having on one side three commutator-surfaces in different planes against which said first-mentioned spring alternately presses, the first surface being nearest the axis of said piece in its line of motion, the second surface being farthest from said axis and the third surface being in a plane between the two other surfaces, and having on another side two commutator-surfaces against which said second-mentioned spring alternately presses, the first commutator-surface being farther than the other from the axis of the commutator-piece in its line of motion, substantially as set forth.

16. In a telephone-exchange system, a metallic-circuit line, the two sides or branches of which are normally open to each other at the central office, a switch-plug for the line, a switching device for the plug into which the plug is normally inserted, a pair of contacts, one connected with the line and the other with the ground, normally closed but open on the withdrawal of the plug from the switching device, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections) the two contact-points of each pair being in contact while the plug is out of the switching device and out of contact while the plug is inserted in the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, and an answering-switch for the line with contact-points by which the operator may at will loop her telephone into the circuit of said bridge-wire between said pairs of contact-points of the switching device or disconnect her telephone from the bridge-wire and leave said wire open at the answering-switch, substantially as set forth.

17. In a telephone-exchange system, a metallic-circuit line, the two sides or branches of which are normally open to each other at the central office, a loop-switch plug for the line in the two contact-pieces of which terminate the two sides or branches of the line, said plug being adapted to be inserted into the switch of the other metallic-circuit line at its board and when inserted to connect the contact-pieces of the switch with the two sides or branches of the line, a switching device for the plug into which the plug is normally inserted, a pair of contacts, one connected with the line and the other with the ground, normally closed but open on the withdrawal of the plug from the switching device, two pairs of contact-points in said switching device insulated from each other (except by the circuit connections), the two contact-points of each pair being in contact while the plug is out of the device and out of contact while the plug is in the device, in combination with a bridge or connecting wire for said line the two ends of which are connected to the two sides or branches of the line respectively and in which are said two pairs of contact-points, and an answering-switch for the line with contact-points by which the operator may at will loop her telephone into the circuit of said bridge-wire between said pairs of contact-points of the switching device or disconnect her telephone from the bridge-wire and leave said wire open at the answering-switch, substantially as set forth.

18. In a telephone-exchange system, a plug switching device for a metallic-circuit line, adapted to receive a loop-switch plug for the line when the plug is not in use, the two contact-pieces of the plug being connected through flexible conductors to the two sides or branches of the line, respectively, said plug switching device containing a grounded contact-piece with which a contact-piece of the plug connected with the line is normally in contact and also containing two pairs of contact-points which are open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair being connected to the two sides of the line, in combination with an operator's switching device for said line, having two pairs of contacts normally in contact but opened at the will of the operator, two of such contact-points, one of each pair being connected to the two other contact-points of the plug switching device, and the two other contact-points of the operator's switching device being connected to the two sides, respectively, of the operator's telephone, substantially as set forth.

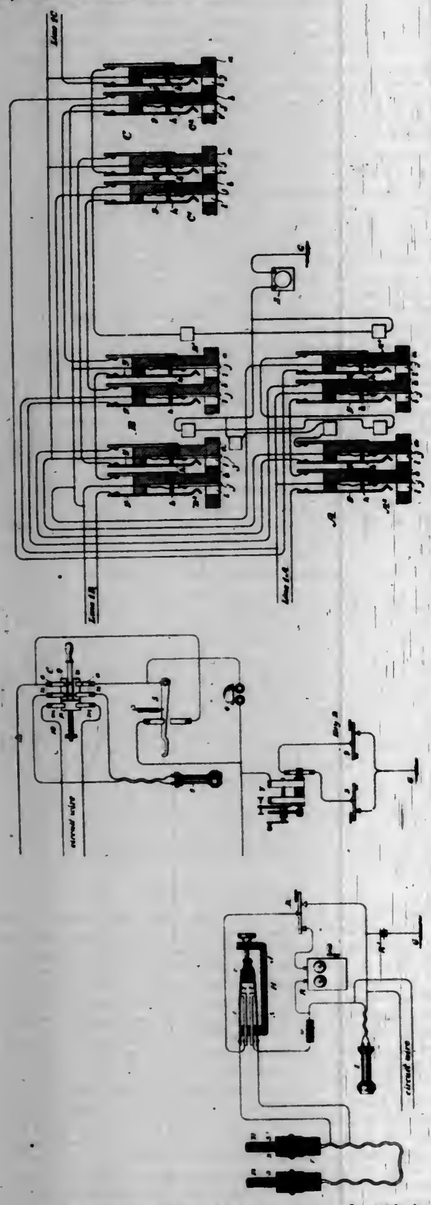
19. In a telephone-exchange system, a metallic-circuit line, a loop-switch plug for the line to the two contact-pieces of which, respectively, are connected the two sides or branches of the line, a plug switching device into which the plug is placed normally or when not in use and a bridge circuit or connection for said line containing the operator's telephone said circuit being normally open but automatically closed by the plug switching device on the withdrawal of the plug from its normal position, in combination with a calling-generator and a commutator-piece moved in one direction at the will of the operator to occupy three positions, in one of which her telephone is in said bridge circuit or connection, in another of which the generator is connected with and the telephone disconnected from the line and in another of which neither the telephone nor the generator is connected with the line.

592,362. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Mar. 24, 1890. Serial No. 345,063. (No model.)

Claim.—1. In a telephone-exchange system, the combination of the telephone-lines divided into three classes, the switchboards divided into three classes, switches, one switch for each line of one class on each board of one class and on one board of each of the other classes, one switch for each line of a second class on each board of a second class and on one board of each of the other classes and one switch for each line of the third class on each board of the third class and on one board of each of the other classes, talking-circuits connected to all the subscribers' stations and to the boards of one class whereby any subscriber may transmit his orders to that class of the boards and connecting apparatus whereby the operators at that class of boards may connect together any two lines, substantially as set forth.

2. In a telephone-exchange system, the combination of telephone-lines divided into three classes, the switchboards divided into three classes, switches, one switch for each line of one class on each board of one class and on one board of each of the other classes, one switch for each line of a second class on each board of a second class and on one board of each of the other classes, one switch for each line of the third class on each board of the third class and on one board of each of the other classes, annunciators for said lines, two for each line located in the line and so constructed and connected that the subscriber can at will operate either, one located in one class and the other in another class of boards, special talking-circuits connected to all the subscribers' stations and to the boards of the third class whereby any subscriber may transmit his orders to that class of boards, and connecting apparatus whereby the operator at any board

may connect together any two lines which have their switches at her board, substantially as set forth.



3. In a telephone-exchange system the combination of telephone-lines divided into three classes, the switchboards divided into three classes, one class of boards for each class of lines, each line being connected to all the boards of its class and to one of the boards of each of the other classes, line-annunciators two for each line, so constructed and connected that the subscriber can at will operate either, one located at a board of one class where the line is connected and the other at a board of the other class where the line is connected, special talking-circuits connected to all the subscribers' stations and to the boards of the third class whereby any subscriber may transmit his orders to a board of that class to which his line is connected, and connecting apparatus whereby the operator at any board may connect together any two lines which are connected to her board substantially as set forth.

4. In a telephone-exchange system, the combination of telephone-lines divided into two classes, switchboards divided into two classes, one class of boards for each class of lines, switches for the lines, one switch for each line on each board of its class and on one board of the other class, an annunciator in the circuit of each line located at a board in one class of boards where the line has a switch, electric calling apparatus whereby the subscriber may at will operate said annunciator, special calling-circuits connected to all the subscribers' stations whereby any subscriber of one class may send his call to a board of the other class where his line has a switch, and connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

5. In a telephone-exchange system, the combination of telephone-lines divided into two classes, switchboards divided into two classes, one class of boards for each class of lines, switches for the lines, one switch for each line on each board of its class and on one board of the other class, an annunciator in the circuit of each line located at a board in one class of boards where the line has a switch, electric calling apparatus whereby the subscriber may at will operate said annunciator, special talking-circuits connected to all the subscribers' stations whereby any subscriber of one class may transmit his orders to a board of the other class where his line has a switch, and connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with a subscriber's calling-generator, and ground-contacts, and two polarized annunciators connected in opposite polarity in said first-mentioned side or branch of the line, pole-changing switch apparatus, and connections by which the subscriber may at will send a current of either polarity from his ground connection through the circuit of said first-mentioned side or branch of the line to its ground connection at the central office to operate either of said annunciators, substantially as set forth.

7. In a telephone-exchange system, a metallic circuit line, normally open to the ground at the subscriber's station, one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with a subscriber's calling-generator, and ground-contacts, and two polarized annunciators connected in opposite polarity in said first-mentioned side or branch of the line, pole-changing switch apparatus, and connections by which the subscriber may at will send a current of either polarity from his ground connection through the circuit of said first-mentioned side or branch of the line to its ground connection at the central office to operate either of said annunciators, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office, and the other side or branch of which is normally open at the central office, in combination with a subscriber's calling-generator, a commutator-piece on the armature-shaft, two commutator-springs bearing alternately on said commutator-piece as the armature revolves, a ground connection for said line passing through the armature-coil to said commutator-piece, and alternately through said commutator-springs into two derived circuits connected respectively to the springs, and switch apparatus whereby the operator may at will close either of said derived circuits, and two polarized annunciators connected in opposite polarity in said normally-grounded side or branch of the line, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line, normally disconnected from the ground at the subscriber's station, one side or branch of which is normally grounded at the central office, and the other side or branch of which is normally open at the central office, in combination with a subscriber's calling-generator, a commutator-piece on the armature-shaft, two commutator-springs bearing alternately on said commutator-piece as the armature revolves, a ground connection for said line passing through the armature-coil to said commutator piece, and alternately through said commutator-springs into two derived circuits connected respectively to the springs, and switch apparatus whereby the operator may at will close either of said derived circuits, and two polarized annunciators connected in opposite polarity in said normally-grounded side or branch of the line, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office, and the other side or branch of which is normally open at the central office, in combination with a subscriber's calling-generator, a commutator-piece on the armature-shaft, two commutator-springs bearing alternately on said commutator-piece as the armature revolves, a ground connection for said line passing through the armature-coil to said commutator-piece, and alternately through said commutator-springs into two derived circuits connected respectively to the springs, and switch apparatus, whereby the operator may at will ground the line through either of said derived circuits, and two polarized annunciators connected in opposite polarity in said normally-grounded side or branch of the line, substantially as set forth.

11. In a telephone-exchange system, the combination of a metallic-circuit line, one of whose sides or branches is normally grounded at the central office the other side or branch being normally open at the central office, and two polarized annunciators connected in opposite polarity in said normally-grounded side or branch of the line, a calling-generator and commutator and switch apparatus and connections by which the subscriber may at will send a current of either polarity through a circuit composed of said normally-grounded side or branch of the line and ground, substantially as set forth.

12. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces, respectively, of the other by flexible conductors, in combination with an operator's telephone, a special calling or talking circuit extending from the central office to one or more subscribers' stations and in which the telephone is connected, a bridge-circuit in which the telephone is connected, said bridge-circuit being normally connected on its two sides to the two cord-circuits, respectively, which connect the contact-pieces of the plugs, and a switching device by which the operator may at will disconnect the telephone from said cord-circuits, substantially as set forth.

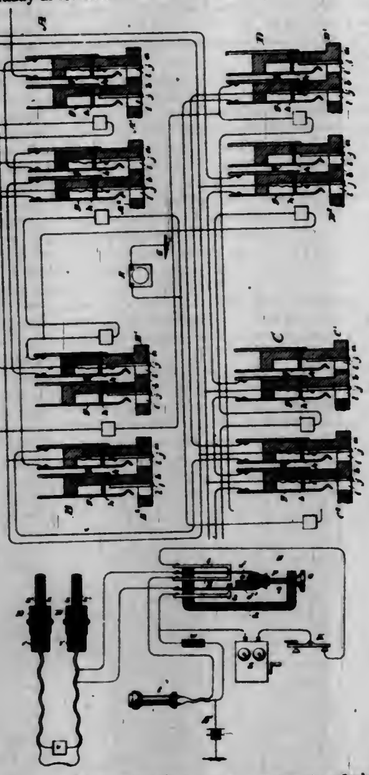
13. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are respectively connected to the two contact-pieces of the other by flexible conductors, in combination with an operator's telephone, a bridge-circuit between said flexible conductors in which is the telephone, a special talking or calling circuit extending from the central office to one or more subscribers' stations and which also includes the telephone, and a switching device by which the operator may at will open or close said bridge-circuit, substantially as set forth.

592,868. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Mar. 24, 1890. Serial No. 345,064. (No model.)

Claim.—1. In a telephone-exchange system, the combination of telephone-lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, special calling-wires, one for each line and extending from the line-station to the central office, polarized annunciators, four for each line, two connected in opposite polarity in the line-circuit and two connected in opposite polarity in its calling-wire, one annunciator being located in each class of boards at a board where the line has a switch, electrical apparatus and switching connections at each subscriber's station by which he may at will send a current of either polarity to either his line-circuit or his special calling-wire circuit, and connecting apparatus at each board by which the operator may at will connect together any two lines which have their switches at her board, substantially as set forth.

2. In a telephone-exchange system, the combination of telephone-lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line connected to all the boards of its class and to one board of each of the other classes, special calling-wires, one for each line and extending from the line-station to the central office, polarized annunciators, four for each line, two connected in opposite polarity in the line-circuit and two connected in opposite polarity in its calling-wire, one annunciator being located in each class of boards at a board where the line has a switch, electrical apparatus and switching connections at each subscriber's station by which he may send at will a current of either polarity to either his line-circuit or his special calling-circuit, and connecting apparatus at each board by which the operator may at will connect together any two lines which are connected to her board, substantially as set forth.

3. In a telephone-exchange system, the combination of telephone-lines divided into two classes, switchboards divided into two classes, one class of boards for each class of lines, switches for the lines, one switch for each line on each board of its class and on one board of the other class, an annunciator in the circuit of a line located at a board of one class of boards where the line has a switch, a special calling-wire for said line extending from the central office to the subscriber's station, an annunciator in said special calling-wire located at a board of the other class of boards where the line has a switch, electric calling apparatus whereby the subscriber may at will operate either of said annunciators, and connecting apparatus whereby the operator at any board where said line has a switch may connect the line with any lines which have their switches at her board, substantially as set forth.



4. In a telephone-exchange system, the combination of telephone-lines divided into three classes, switchboards divided into three classes, one class of boards for each class of lines, switches for the lines, one switch for each line on each board of its class and on one board of the other classes, two polarized annunciators connected in opposite polarity in the circuit of a line located at a board of each of two classes of boards where the line has a switch, a special calling-wire for said line extending from the central office to the subscriber's station an annunciator in said special calling-wire located at a board of the other class of boards where the line has a switch, electric calling apparatus whereby the subscriber may at will operate either of said annunciators and connecting apparatus whereby the operator at any board where said line has a switch may connect it with any lines which have their switches at her board, substantially as set forth.

5. In a telephone-exchange system, the combination of telephone-lines divided into three classes, switchboards divided into three classes, one class of boards for each class of lines, switches for the lines, one switch for each line on each board of its class and on one board of each of the other classes, an annunciator in the circuit of a line located at a board of one class of boards where the line has a switch, a special calling-wire for said line extending from the central office to the subscriber's station, two polarized annunciators connected in opposite polarity in said special calling-wire located at a board of each of the other classes of boards where the line has a switch, electric calling apparatus whereby the subscriber may at will operate either of said annunciators, and connecting apparatus whereby the operator at any board where said line has a switch may connect the line with any lines which have their switches at her board, substantially as set forth.

6. In a telephone-exchange system, the combination of a telephone-line normally grounded at the central office, two polarized annunciators connected in the circuit of the line in opposite polarity, a special calling-wire extending from the subscriber's station to the central office and connected to said telephone-line with the said annunciators between said connection, and the normal ground connection of the line, two polarized annunciators connected in opposite polarity in the circuit of said wire, a calling-generator at the sub-

scriber's station, and switch and commutator apparatus and connections by which the subscriber may at will send a current of either polarity through a ground-circuit from his ground to the central-office ground of his line or a current of either polarity through a metallic circuit composed of his line and his special calling-wire, substantially as set forth.

7. In a telephone exchange system, the combination of telephone-lines divided into four classes, the switchboards divided into the same number of classes, one class of boards for each class of lines each line having a switch connection on each board of its class and on one board of each of the other classes, one of said telephone-lines normally grounded at the central office, two polarized annunciators connected in the circuit of the line in opposite polarity, a special calling-wire extending from the subscriber's station to the central office connected to said telephone-line with said annunciators between said connection and the normal ground connection of the line two polarized annunciators connected in opposite polarity in the calling wire, said four annunciators being located at boards in the four classes where the line has a switching connection, a calling-generator and switch and commutator apparatus and connections by which the subscriber may at will send a current of either polarity through a ground-circuit from his ground to the central-office ground of his line or a current of either polarity through a metallic circuit composed of his line and his special calling-wire, substantially as set forth.

8. In a telephone-exchange system, the combination of a telephone-line normally grounded at the central office, an annunciator in the circuit of the line at the central office, a special calling-wire extending from the subscriber's station to the central office and connected to said line with said annunciator between said connection and said normal ground connection, an annunciator at the central office in said special calling-wire, a calling-generator at the subscriber's station and switch and commutator apparatus and connections by which the subscriber may at will send a calling-current from his ground through the line to the normal ground of the line at the central office or through a metallic circuit which includes the line and said special calling-wire, substantially as set forth.

9. In a telephone-exchange system, the combination of a telephone-line normally grounded at the central office, two polarized annunciators connected in opposite polarity in the circuit of the line at the central office, a special calling-wire extending from the subscriber's station to the central office and connected to said line with said annunciator between said connection and said normal ground connection, an annunciator at the central office in said special calling-wire, a calling-generator at the subscriber's station, and switch and commutator apparatus and connections by which the subscriber may at will send a calling-current of either polarity from his ground through the line to the normal ground of the line at the central office or a current through a metallic circuit which includes the line and said special calling-wire, substantially as set forth.

10. In a telephone-exchange system, the combination of a telephone-line normally grounded at the central office, two polarized annunciators connected in opposite polarity in the circuit of the line at the central office, a special calling-wire extending from the subscriber's station to the central office and connected to said line with said annunciators between said connection and said normal ground connection, an annunciator at the central office in said special calling-wire, a calling-generator at the subscriber's station and switch and commutator apparatus and connections by which the subscriber may at will send a calling-current from his ground through the line to the normal ground of the line at the central office, or a calling-current of either polarity, through a metallic circuit which includes the line and said special calling-wire, substantially as set forth.

11. In a telephone-exchange system, the combination of telephone-lines normally grounded at the central office and divided into two classes, switchboards divided into two classes, one class of boards for each class of lines, switches for the lines, one switch for each line on each board of its class and on one board of the other classes, an annunciator at the central office in the circuit of a line, a special calling-wire for the line extending from the subscriber's station to the central office and connected to the line with the annunciator between such connection and such normal ground connection, an annunciator in said special calling-wire at the central office, a calling-generator at the subscriber's station, and switch and commutator apparatus and connections by which the subscriber may at will send a calling-current from his ground through the line to the normal ground of the line at the central office, or through a metallic circuit which includes the line and said special calling-wire, substantially as set forth.

12. In a telephone-exchange system, the combination of telephone-lines normally grounded at the central office and divided into three classes, switchboards divided into three classes, one class of boards for each class of lines, switches for the lines, one switch for each line on each board of its class, and on one board of each of the other classes, two polarized annunciators connected in opposite polarity at the central office in the circuit of the line, a special calling-wire for the line extending from the subscriber's station to the central office and connected to the line with the annunciators between such connection and such normal ground connection, an annunciator in said special calling-wire at the central office, a calling-generator at the subscriber's station, and switch and commutator apparatus and connections by which the subscriber may at will send a calling-current of either polarity from the ground through the line to the normal ground of the line at the central office, or a calling-current through a metallic circuit which includes the line and said special calling-wire, substantially as set forth.

13. In a telephone-exchange system, the combination of telephone-lines normally grounded at the central office and divided into three classes, switchboards divided into three classes, one class of boards for each class of lines, switches for the lines, one switch for each line on each board of its class, and on one board of each of the other classes an annunciator at the central office in the circuit of a line, a special calling-wire for the line extending from the subscriber's station to the central office and connected to the line with the annunciator between such connection and such normal ground connection, two polarized annunciators connected in opposite polarity in said special calling-wire at the central office, a calling-generator at the subscriber's station, and switch and commutator apparatus and connections by which the subscriber may at will send a calling-current from his ground through the line to the normal ground of the line at the central office or a current of either polarity through a metallic circuit which includes the line and said special calling-wire, substantially as set forth.

14. In a telephone-exchange system, a telephone-line normally disconnected from the ground at the subscriber's station, another line or circuit connection normally open at the subscriber's station to the telephone-line, a calling-generator at the subscriber's station one side of the armature-coil of which is connected to said telephone-line and the other side of the coil of which is connected to a commutator-piece on the armature-shaft, two commutator-springs bearing alternately on said commutator-piece as the armature revolves, and four keys by which the subscriber may at will connect either of said springs with the ground or with said other line or circuit connection, substantially as set forth.

15. In a telephone-exchange system, a telephone-line, a ground connection and another circuit connection at the subscriber's station, a calling-generator at the subscriber's station one side of the armature-coil of which is connected to said line and the other side of the coil of which is connected to a commutator-piece on the armature-shaft, two commutator-springs bearing alternately on said commutator-piece as the armature revolves and switching devices by which the subscriber may at will connect either of said springs with either the ground connection or said other circuit connection, substantially as set forth.

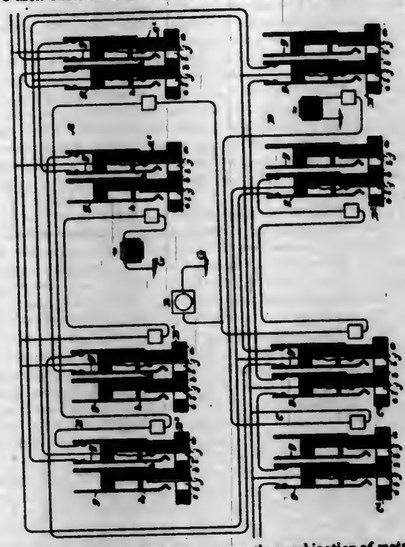
16. In a telephone-exchange system, a telephone-line and two circuit connections at the subscriber's station, a calling-generator at the subscriber's station, one side of the armature-coil of which is connected to said line and the other side to a commutator-piece on the armature-shaft, two commutator-springs bearing alternately on said commutator-piece as the armature revolves, and switching devices by which the subscriber may at will connect either of said springs with either of said circuit connections, substantially as set forth.

592,864. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Mar. 24, 1890. Serial No. 345,085. (No model.) Patented in England Mar. 25, 1890, No. 4,690, and in France Mar. 25, 1890, No. 204,566.

Claim.—1. In a telephone-exchange system, the combination of metallic-circuit telephone-lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

2. In a telephone-exchange system, the combination of metallic-circuit telephone-lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line being connected to each board of its class and to one board of each of the other classes, and connecting apparatus whereby the operator at any board may connect together any two lines which are connected to her board, substantially as set forth.

3. In a telephone-exchange system, the combination of metallic-circuit telephone-lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, signaling apparatus whereby any subscriber may at will signal to a board in each class of boards where his line has a switch and switch-connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.



4. In a telephone-exchange system, the combination of metallic-circuit lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line being connected to each board of its class and to one board of each of the other classes, signaling apparatus whereby any subscriber may at will signal to a board in each class of boards and to a board where his line is connected and switch-connecting apparatus whereby the operator at any board may connect together any two lines which are connected to her board, substantially as set forth.

5. In a telephone-exchange system, the combination of metallic-circuit lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and each branch of each line being normally grounded at the central office, four polarized annunciators for each line, one being located in each class of boards and at a board where the line has a switch, two annunciators being connected in opposite polarity in one branch of the line and the other two being connected in opposite polarity in the other branch of the line, electric calling apparatus and switches at each subscriber's station whereby the subscriber may at will send a current of either polarity into a circuit from the ground through either branch of the line to its office ground, and switch-connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

6. In a telephone-exchange system, the combination of metallic-circuit lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line being connected to each board of its class and to one board of each of the other classes and each branch of each line being normally grounded at the central office, four polarized annunciators for each line, one being located at each class of boards and at a board where the line has a switch, two annunciators being connected in opposite polarity in one branch of the line and the two other annunciators being connected in opposite polarity in the other branch of the line, electric calling apparatus and switches at each subscriber's station whereby the subscriber may at will send a current of either polarity into a circuit from the ground through either branch of the line to its office ground, and switching apparatus whereby the operator at any board may connect together any two lines which are connected to her board, substantially as set forth.

7. In a telephone-exchange system, the combination of metallic-circuit lines divided into two classes, the switchboards divided into two classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of the other class and each branch of the line being normally grounded at the central office, two annunciators for each line, one being located in each branch of the line and at a board in each of the two classes of boards and at a board where the line has a switch and one of the annunciators of each line being permanently in connection with its line, a calling-generator at each subscriber's station and grounding switches or keys at each subscriber's station whereby the subscriber may at will ground either side or branch of his line with his generator in the circuit between such ground and the normal office ground of such branch.

8. In a telephone-exchange system, the combination of a metallic-circuit lines divided into classes, the switchboards divided into classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes and each branch of the line being normally grounded at the central office, two annunciators for each line, one being located in each branch of the line, and at a board in each of two classes of boards, and at a board where the line has a switch and one of the annunciators of each line being permanently in connection with its line, electric calling apparatus and switches at each subscriber's station whereby the subscriber may at will operate either annunciator and switch-connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

9. In a telephone-exchange system, two metallic-circuit lines, each extending from its subscriber's station to the central office, two ground connections at the central office for each line, one for each branch of the line, and two annunciators for each line, one in each of said ground connections, of which one is a permanent connection, in combination with switching apparatus at the central office to connect said lines into a closed metallic circuit which does not contain the line-annunciators, contacts at each subscriber's station to at will ground either branch of the line, and the subscriber's calling-generator in circuit with either branch thus grounded.

10. In a telephone-exchange system, a metallic-circuit line and two annunciators for said line at the central office, in ground connections to the two sides or branches of the line, respectively, and one of them permanently connected with the line, in combination with two keys at the subscriber's station for said line, each key having a lever and a contact-point with which the lever is normally in contact and another contact-point with which the lever may be brought into contact when pressed from its first-mentioned point, one side or branch of the line being connected to one lever and the other side or branch of the line being connected to the other lever and the two first-mentioned contact-points being connected together, and a calling-generator grounded on one side and connected on its other side to the two other contact-points of the keys.

11. In a telephone-exchange system, a metallic-circuit line having two sides or branches each connected to spring-jack contacts at central office, one side or branch of which is grounded at the central office whether either switched or unswitched there and the other side or branch of which is connected to two or more multiple switchboards and is normally grounded at the central office, in combination with switching devices at each board by which the line may be connected in metallic circuit with another line and said second-mentioned or normal ground connection is then broken, substantially as set forth.

12. In a telephone-exchange system, a metallic-circuit line having two sides or branches each connected to spring-jack contacts at central office, one side or branch of which is grounded at the central office whether switched or unswitched there and is connected to two or more switchboards and the other side or branch of which is normally grounded at the central office and is connected to the same switchboards, in combination with switching devices at each board by which the second or normal ground connection may be broken and the two sides or branches of the line connected with the two sides or branches respectively of another metallic-circuit line, substantially as set forth.

13. In a telephone-exchange system, a metallic circuit line having two sides or branches each connected to spring-jack contacts at central office, one side or branch of which is grounded at the central office through an annunciator whether either switched or unswitched there and the other side or branch of which is normally grounded at the central office, in combination with switching devices by which the second or normal ground connection may be broken and the two sides or branches of the line connected with the two sides or branches respectively of another metallic-circuit line but with said annunciator not in the metallic circuit thereby established, substantially as set forth.

14. In a telephone-exchange system, a metallic circuit line having two sides or branches each connected to spring-jack contacts at central office, one side or branch of which is grounded at the central office through a retardation-coil whether either switched or unswitched there and the other side or branch of which is normally grounded at the central office, in combination with switching devices by which said second or normal ground connection may be broken and the two sides or branches of the line connected with the two sides or branches respectively of another metallic-circuit line but with said retardation-coil not in the metallic circuit thereby established, substantially as set forth.

15. In a telephone-exchange system, a metallic-circuit line having two sides or branches each connected to spring-jacks at central office, one side or branch of which is grounded at the central office through an annunciator and a retardation-coil whether either switched or unswitched there and the other side or branch of which is normally grounded at the central office, in combination with switching devices by which said second or normal ground connection may be broken and the two sides or branches of the line connected with the two sides or branches respectively of another metallic-circuit line but with said annunciator and retardation-coil not in the metallic circuit thereby established, substantially as set forth.

16. In a telephone-exchange system, a metallic-circuit line having two sides or branches each connected to spring-jacks at central office, one side or branch of which is grounded at the central office through an annunciator whether either switched or unswitched there and is connected to two or more multiple switchboards and the other side or branch of which is normally grounded at the central office and is connected to the same boards, in combination with switching devices at each board by which said second or normal ground connection may be broken and the two sides or branches of the line connected with the two sides or branches of another metallic-circuit line but with said annunciator not in the metallic circuit thereby established, substantially as set forth.

17. In a telephone-exchange system, a metallic-circuit line having two sides or branches each connected to spring-jacks at central office, one side or branch of which is grounded at the central office through a retardation-coil whether either switched or unswitched there and connected to two or more multiple switchboards and the other side or branch of which is normally grounded at the central office and is connected to the same boards, in combination with switching devices at each board by which said second or normal ground connection may be broken and the two sides or branches of the line connected with the two sides or branches respectively of another metallic-circuit line without the retardation-coil being included in the direct metallic circuit thereby established, substantially as set forth.

18. In a telephone-exchange system, the combination of metallic-circuit telephone-lines divided into three classes, switchboards divided into three classes, one class of boards for each class of lines, each line being connected to each board of its class and to one board of each of the other classes, and connecting apparatus whereby the operator at any board may connect together any two lines which are connected, to her board, substantially as set forth.

19. In a telephone-exchange system, the combination of metallic-circuit lines divided into three classes, switchboards divided into three classes, one class of boards for each class of lines, each line being connected to each board of its class and to one board of each of the other classes, signaling apparatus whereby any subscriber may at will signal to a board in each class of boards and to a board where his line is connected and switch-connecting apparatus whereby the operator at any board may connect together any two lines which are connected to her board, substantially as set forth.

20. In a telephone-exchange system, the combination of two classes of switchboards, two groups or classes of subscribers' lines, one class for each class of boards, switches for said lines, one switch for each line on each board of its class, and on one board of the other class, one of said lines being a metallic-circuit line, having one branch normally grounded at the central office, two polarized annunciators connected in opposite polarity in the normally-grounded branch of said line and located at boards of the two classes of boards where the line has switches, calling apparatus at the subscriber's station whereby the subscriber may send a current of either polarity into a circuit from the ground at the subscriber's station through the normally-grounded branch of the line, and switch-connecting apparatus whereby the operator at any board where said line has a switch may connect the line with any other line having a switch at her board, substantially as set forth.

21. In a telephone-exchange system, the combination of two classes of switchboards, two groups or classes of subscribers' lines, one class for each class of boards, switches for said lines, one switch for each line on each board of its class, and on one board of the other class, one of said lines being a metallic-circuit line, having one branch permanently grounded at the central office, two polarized annunciators connected in opposite polarity in the permanently-grounded branch of said line and located at boards of the two classes of boards where the line has switches, calling apparatus at the subscriber's station whereby the subscriber may send a current of either polarity into a circuit from the ground at the subscriber's station through the permanently-grounded branch of the line, and switch-connecting apparatus whereby the operator at any board where said line has a switch may connect the line with any other line having a switch at her board, substantially as set forth.

22. In a telephone-exchange system, the combination of metallic-circuit lines divided into three classes, switchboards divided into three classes, one class of boards for each class of lines, switches for said lines, one switch for each line on each board of its class and on one board of each of the other classes, one of said lines having both sides or branches normally grounded at the central office, two polarized annunciators connected in opposite polarity in one side or branch of the line and located in two classes of boards and where the line has switches, an annunciator connected in the other side of the line and located at a board in the other class of boards where the line has a switch, electric calling apparatus whereby the subscriber may at will send a calling-current of either polarity through said first-mentioned side or branch of the line, and a calling-current through the other side or branch of the line, and switch-connecting apparatus whereby the operator at any board where said line has a switch may connect the line with any other line having a switch at her board, substantially as set forth.

23. In a telephone-exchange system, two telephone-lines connected for conversation, a generator at each subscriber's station, the two annunciators of the lines at the central office in circuit with each generator, the clearing-out annunciator at the central office also in circuit with each generator, and a shunt-circuit connection (that does not contain the clearing-out annunciator) around the line-annunciators while said lines are thus connected, substantially as set forth.

24. In a telephone-exchange system, two metallic-circuit lines connected together in metallic circuit for conversation, a generator at each subscriber's station, the two annunciators of the lines at the central office in circuit with each generator, the clearing-out annunciator at the central office also in circuit with each generator, and a shunt-circuit connection (that does not contain the clearing-out annunciator) around the line-annunciators while said lines are thus connected, substantially as set forth.

25. In a telephone-exchange, the combination of telephone-lines divided into three classes, the switchboard for said lines divided into three classes, switches for said lines, one switch for each line of one class on each board of one class and on one board of each of the other classes, one switch for each line of a second class on each board of a second class and on one board of each of the other classes, and one switch of each line of the third class on each board of the third class and one board of each of the other classes, connecting apparatus at each board whereby an operator at the board may connect together any two lines which have their switches at her board, substantially as set forth.

26. In a telephone-exchange system, the combination of telephone-lines divided into three classes, the switchboards for said lines divided into three classes, each line of one class being connected to each board of one class and to one board of each of the other classes, each line of a second class being connected to each board of the second class and to one board of each of the other classes, and each line of the third class being connected to each board of the third class and to one board of each of the other classes, signaling apparatus whereby any subscriber may call an operator at a board in each of the classes of boards and where his line is connected, and connecting apparatus at each board whereby the operator may connect together for conversation any two lines which are connected to her board.

27. In a telephone-exchange system, the combination of telephone-lines divided into three or more classes, the switchboards divided into the same number of classes, one class of boards for each class of lines, switches, one switch for each line of each class on each board of its class, and on one board of each of the other classes, signaling apparatus whereby any subscriber may at will signal to a board in each class where his line has a switch and connecting apparatus at each board whereby an operator may connect together any two lines which have their switches at her board, substantially as set forth.

28. In a telephone-exchange, the combination of telephone-lines divided into three or more classes, the switchboards divided into the same number of classes, one class of boards for each class of lines, each line of each class being connected to each board of its class, and to one board of each of the other classes, and connecting apparatus at each board whereby an operator may connect together any two lines which are connected to her board, substantially as set forth.

29. In a telephone-exchange, the combination of telephone-lines divided into three or more classes, the switchboards divided into the same number of classes, one class of boards for each class of lines, each line of each class being connected to each board of its class and to one board of each of the other classes, signaling apparatus whereby any subscriber may at will signal to a board in each class of boards and where his line has a connection, and connecting apparatus at each board whereby the operator may connect together any two lines which have a connection at her board, substantially as set forth.

30. In a telephone-exchange, the combination of telephone-lines divided into three classes, the switchboards for said lines divided into three classes, one switch for each line of one class on each board of one class and on one board of each of the other classes, one switch for each line of a second class on each board of the second class and on one board of each of the other classes, and one switch for each line of the third class on each board of the third class and on one board of each of the other classes, signaling apparatus whereby any subscriber may at will call an operator at a board in each of the classes of boards, and where his line has a switch and connecting apparatus at each board whereby an operator may connect together any two lines which have their switches at her board, substantially as set forth.

31. In a telephone-exchange, the combination of telephone-lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

32. In a telephone-exchange system, the combination of telephone-lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line being connected to each board of its class and to one board of each of the other classes, and switching apparatus whereby an operator at any board may connect together any two lines which are connected to her board, substantially as set forth.

33. In a telephone-exchange system, the combination of telephone-lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line being connected to all the boards of its class, and to one of the boards of each of the other classes, signaling apparatus whereby any subscriber may at will signal to any class of the boards, and switch-connecting apparatus by which the operator at any board may connect together any two lines which are connected to her board, substantially as set forth.

34. In a telephone-exchange system, the combination of a subscriber's calling-generator, a commutator-piece on the armature-shaft to which one side of the armature-coil is connected, two commutator-springs bearing alternately on said commutator-piece as the armature revolves, two normally open circuit connections in derived or parallel circuit connected to said commutator-springs, respectively, and two other normally open circuit connections in derived or parallel circuit also connected to said commutator-springs respectively and keys by which either of said normally open circuit connections may be closed, substantially as set forth.

35. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces respectively of the other by continuous metallic and unbroken flexible-cord circuits, in combination with a switching device for the pair of plugs, two pairs of contact-points in said switching device, a commutator-piece adapted to be moved by the operator to open and close said pairs of points, and a calling-generator, two of said contact-points of the switching device, one of each pair, being connected to the two sides respectively, of the generator, and the two other points being connected to the two cord-circuits, respectively, which connect the plugs, substantially as set forth.

36. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces, respectively, of the other by continuously metallic and unbroken flexible-cord circuits, in combination with a bridge circuit or connection between the two cord-circuits which connect the two plugs, a calling-generator in said bridge circuit or connection and switching apparatus whereby the operator may at will open and close said bridge-circuit, substantially as set forth.

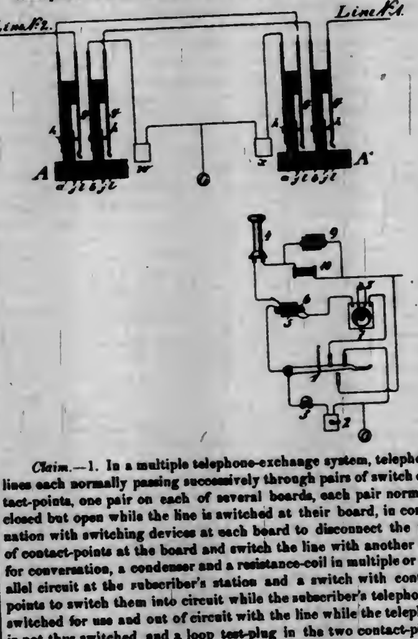
37. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by continuously metallic and unbroken flexible-cord circuits, in combination with a bridge circuit or connection between the two cord-circuits which connect the two plugs, two derived circuits in said bridge-circuit, the operator's telephone in one of said derived circuits, a calling-generator in the other derived circuit, and switching apparatus by which the operator may at will close or open either of said derived circuits, substantially as set forth.

38. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by continuously metallic and unbroken flexible-cord circuits, in combination with two bridge circuits or connections between the two cord-circuits which connect the two plugs, an operator's telephone in one of said bridge-circuits, a calling-generator in the other bridge-circuit and switching apparatus by which the operator may at will open or close either of said bridge-circuits, substantially as set forth.

39. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit continuously metallic and unbroken for conversation, in combination with a bridge circuit or connection at the central office between the two sides or branches of said metallic circuit, two derived circuits in said bridge-circuit, an operator's telephone in one of said derived circuits, a calling-generator in the other derived circuit, and switching apparatus by which the operator may at will open or close either of said derived circuits, substantially as set forth.

40. In a telephone-exchange system, three or more divisions of boards, three or more divisions of lines, one division of boards for each division of lines, the lines of each division of lines adapted to be connected to at the corresponding division of boards, means controlled by a subscriber to at will effect a signal on an annunciator at each division of boards, and means at that division of boards to connect his line with any other line of the division of lines belonging to said division of boards.

592,865. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,074. (No model.)



Claim.—1. In a multiple telephone-exchange system, telephone-lines each normally passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line with another line for conversation, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station and a switch with contact-points to switch them into circuit while the subscriber's telephone is switched for use and out of circuit with the line while the telephone is not thus switched, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the switch at the board where it is located and when inserted to disconnect the pair of contact-points of the switch and connect them with the contact-pieces of the plug, said test receiving instrument being adjusted to the battery and resistances to the extent that the instrument will sound when it is looped into the normal closed circuit of the line when the telephone is not switched for use, but will not sound when it is in an open circuit or is looped into circuit with a line which is switched for conversation into circuit with another line or has its subscriber's telephone switched for use, and the additional resistance is thereby switched into circuit with the line, whereby a condenser-path is provided at the subscriber's station for the telephone-currents, and the differentiation of the various multiple-test signals is obtained by a marginal adjustment of the apparatus, substantially as set forth.

2. In a multiple telephone-exchange system, telephone-lines each grounded at its outer end and passing normally successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and thence to ground, in combination with switching devices at each board to disconnect the pair of contact-points at each board and switch the line with another line for conversation, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station, and a switching device to switch said condenser and coil into the circuit of the line while the subscriber's telephone is switched for use and out of the circuit while the telephone is not thus switched, and a loop test-plug at one of the boards in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the switch at the board where it is located and when inserted to

separate the pair of contact-points of the switch and connect them with the contact pieces of the plug, the resistance in the circuit of the line at the subscriber's station when his telephone is switched for use being then as much increased, and said test receiving instrument being adjusted to the battery and resistances to the extent that the instrument will sound when it is looped into the normal closed circuit of the line, when the telephone is not switched for use, but will not sound when it is in an open circuit or is looped into circuit with the line when it is switched for conversation into circuit with another line or has its subscriber's telephone switched for use, and the additional resistance is thereby switched into circuit with the line, whereby a condenser-path is provided at the subscriber's station for the telephone-currents, and the differentiation of the various multiple-test signals is obtained by a marginal adjustment of the apparatus.

3. In a multiple telephone-exchange system, telephone-lines each normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation with another line, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station and a switch with contact-points to switch said condenser and resistance-coil into the circuit of the line while the subscriber's telephone is switched for use and out of the circuit while the telephone is not thus switched, and a loop test-plug at one of the boards in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument and battery, said plug being adapted to be inserted into the switch at the board where it is located and when inserted to disconnect said contact-points of the switch and connect them with the contact-pieces of the plug, the resistance in the circuit of the line at the subscriber's station being so much increased when his telephone is switched for use and said test receiving instrument being adjusted to the battery and resistances to the extent that the instrument sounds when looped into the normal closed circuit of the line when the telephone is not switched for use, but will not sound when they are in an open circuit or are looped with the line when it is switched for conversation into circuit with another line or has its subscriber's telephone switched for use, and the additional resistance is thereby switched into circuit with the line, whereby a condenser-path is provided at the subscriber's station for the telephone-currents and the differentiation of the various multiple-test signals is obtained by a marginal adjustment of the apparatus.

4. In a multiple telephone-exchange system, telephone-lines each normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line with another line for conversation, a condenser and a resistance-coil in multiple or parallel circuit at the subscriber's station and a switch with contact-points which switch said condenser and coil in multiple or parallel circuit into the circuit of the line while the subscriber's telephone is switched for use, and out of circuit while the telephone is not thus switched, a loop test-plug at one of the boards in the two contact-pieces of which terminate the two sides of a loop which contains a test receiving instrument, said plug being adapted to be inserted into the switch at the board where it is located and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and battery in the test-circuit established on testing, the resistance in the circuit of the line at the subscriber's station being so much increased when his telephone is switched for use, and said test receiving instrument being adjusted to the battery and resistances to the extent that the instrument sounds when looped into the normal closed circuit of the line when the telephone is not switched for use, but will not sound when in an open circuit or looped with a line when the line is switched for conversation into circuit with another line or has its subscriber's telephone thereby switched for use, and the additional resistance is switched into circuit with the line, whereby a condenser-path is provided at the subscriber's station for the telephone-currents and the differentiation of the various multiple-test signals is obtained by a marginal adjustment of the apparatus.

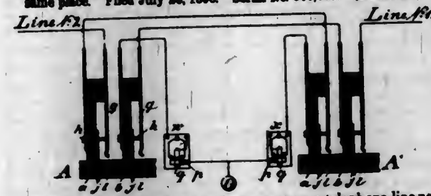
5. In a multiple telephone-exchange system, telephone-lines each normally on closed circuit and passing through a series of pairs of contacts at the several boards, one pair at each of the boards, in combination with a test receiving instrument and battery at each board and a testing device connected therewith, adapted at the will of the operator to open said contacts at the board, and loop said instrument and battery into the circuit of the line when thus normally on closed circuit, apparatus at the subscriber's station normally in the direct circuit of the line, other apparatus at the subscriber's station of greater resistance and of metallic continuity to battery-currents normally out of the direct circuit of the line, switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of the line when the telephone is switched for use, and a condenser in multiple or parallel circuit to said apparatus of greater resistance, each test receiving instrument being adjusted to the battery and the resistances to the extent that when thus looped into the normally-unswitched circuit of the unswitched line and the subscriber's telephone is not switched for use, the instrument will sound, but when the telephone is switched for use and the additional resistance is included in the circuit the instrument will not sound, whereby a condenser-path at the subscriber's station is provided for the telephone-currents and by the differentiation of the multiple-test signals obtained by a marginal adjustment of the apparatus, the line is prevented from being switched to at either of the boards from the time the subscriber switches his telephone for use.

6. In a multiple telephone-exchange system, telephone-lines each normally on closed circuit and passing through a series of pairs of contacts at the several boards, one pair at each of the boards, in combination with a test receiving instrument at each board, and a testing device connected therewith, adapted at the will of the operator to open said contacts at the board and loop said instrument into the circuit of the line when thus normally on closed circuit, apparatus at the subscriber's station normally in the direct circuit of the line, other apparatus at the subscriber's station of greater resistance and of metallic continuity to battery-currents normally out of the direct circuit of the line, switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of the line, while his telephone is switched for use, and a battery in any closed circuit thus established on testing, and a condenser in multiple or parallel circuit to said apparatus of greater resistance, each test receiving instrument being adjusted to the battery and the resistances to the extent that when thus looped into the normally-unswitched circuit of the unswitched line and the subscriber's telephone is not switched for use the instrument will sound, but when the telephone is switched for use and the additional resistance is included in the circuit the instrument will not sound, whereby a condenser-path at the subscriber's station is provided for the telephone-currents and by the differentiation of the multiple-test signals obtained by a marginal adjustment of the apparatus, the line is prevented from being switched to either of the boards from the time the subscriber switches his telephone for use.

7. In a multiple telephone-exchange system, telephone-lines each normally on closed circuit, and passing through a series of pairs of contacts at the several boards, one pair at each of the boards, in combination with switching apparatus at each board to at the will of the operator connect any two lines into a closed circuit for conversation, a clearing-out-annunciator circuit with the two lines when thus connected, a test receiving instrument and battery at each board and a testing device connected therewith, adapted at the will of the operator to open said contacts at the board and loop said instrument and battery into the normal line-circuit, apparatus at the subscriber's station of metallic continuity normally in the direct circuit of the line, other apparatus at the subscriber's station, of greater resistance and also of metallic continuity normally out of the direct circuit of the line, switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of his line, while his telephone is switched for use, and a condenser in multiple or parallel circuit to said apparatus of greater resistance, each test receiving instrument being adjusted to the battery and the resistances to the extent that when thus looped into the circuit of an unswitched line and the subscriber's telephone is not switched for use, the instrument will sound, but when the telephone is switched for use and the additional resistance is included in the circuit the instrument will not sound, whereby a condenser-path at the subscriber's station is obtained for the telephone-currents, a circuit of metallic continuity is obtained for the clearing-out current and by the differentiation of the multiple-test signals obtained by a marginal adjustment of the apparatus the line is prevented from being switched to at either of the boards from the time the subscriber switches his telephone for use.

8. In a multiple telephone-exchange system, telephone-lines each normally on closed circuit, and passing through a series of pairs of contacts at the several boards, one pair at each of the boards, in combination with switching apparatus at each board to at the will of the operator connect any two lines into a closed circuit for conversation, a clearing-out-annunciator circuit with the two lines when thus connected, a test receiving instrument at each board, and a testing device connected therewith, adapted at the will of the operator to open said contacts at the board and loop said instrument into the normal line-circuit, apparatus at the subscriber's station of metallic continuity normally in the direct circuit of the line, other apparatus at the subscriber's station of greater resistance and also of metallic continuity normally out of the direct circuit of the line, switching devices and circuit connections at the subscriber's station to include the apparatus of greater resistance in the direct circuit of his line, while his telephone is switched for use, and a battery in any closed circuit thus established on testing, and a condenser in multiple or parallel circuit to said apparatus of greater resistance, each test receiving instrument being adjusted to the battery and the resistances to the extent that when thus looped into the circuit of an unswitched line and the subscriber's telephone is not switched for use, the instrument will sound, but when the telephone is switched for use and the additional resistance is included in the circuit the instrument will not sound, whereby a condenser-path at the subscriber's station is obtained for the telephone-currents, a circuit of metallic continuity is obtained for the clearing-out current, and by the differentiation of the multiple-test signals obtained by a marginal adjustment of the apparatus the line is prevented from being switched to at either of the boards from the time the subscriber switches his telephone for use.

592,866. **MULTIPLE SWITCHBOARD.** MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,075. (No model.)



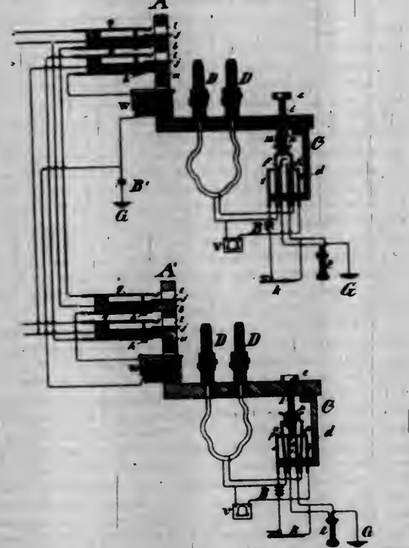
Claim.—1. In a telephone-exchange system, a telephone-line normally on closed circuit and an annunciator normally in the circuit of the line, having contact-points by which the circuit is open while the annunciator indicates a call, in combination with a subscriber's-station apparatus having a telephone, a telephone-switch, resistances, contacts and connections by which a greater resistance is included in the circuit of the line while the telephone is switched for use than while it is not thus switched, a test-loop containing a test receiving instrument and battery, and switch apparatus by which such loop may be connected into the normally closed circuit of the line, the instrument and battery being so constructed that the instrument sounds when they are included in the circuit of the line and neither the telephone is switched for use nor the annunciator indicates a call and not to sound when either the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

2. In a telephone-exchange system, a telephone-line normally on closed circuit and an annunciator normally in the circuit of the line, having contact-points by which the circuit is open while the annunciator indicates a call, in combination with a subscriber's-station apparatus having a telephone, a telephone-switch, resistances, contacts and connections by which a greater resistance is included in the circuit of the line while the telephone is switched for use than while it is not thus switched, switching apparatus by which the line may be switched with another line, a test-loop containing a test receiving instrument and battery, and switching apparatus by which such loop may be included in the normal circuit of the line, the instrument being so constructed and adjusted to the battery and circuits that it will sound or respond when connected into the circuit with the line and neither the telephone is switched nor the line is switched nor the annunciator indicates a call, and not to sound when either the telephone or line is switched or the annunciator indicates a call, substantially as set forth.

3. In a telephone-exchange system, a telephone-line normally on closed circuit and an annunciator normally in the circuit of the line, having contact-points by which the circuit is open while the annunciator indicates a call, in combination with a subscriber's-station apparatus having a telephone, a telephone-switch, resistances, contacts and connections by which a greater resistance is switched into the circuit of the line when the telephone is switched for use than when it is not thus switched, switching apparatus by which the line may be switched with another line, a test receiving instrument, switch apparatus by which the instrument may be included in the normal circuit of the line, and a battery in the normal circuit thereby established, the instrument being so constructed and adjusted to the battery that it sounds or responds when connected into the circuit with the line and neither the telephone nor the line is switched for use nor the annunciator indicates a call, and not to sound or respond when either the telephone or line is thus switched or the annunciator indicates a call, substantially as set forth.

4. In a telephone-exchange system, telephone-lines grounded at their outer ends and multiple switchboards for the lines, each board containing a switch for each line, each switch having a pair of contact-points normally in contact, adapted to receive a switch-plug and when the plug is inserted to have the contact-points separated and the contact-piece of the plug in contact with the line contact-point of the switch and with that only, and adapted to receive a loop test-plug and when the plug is inserted to have the contact-points separated and connection made between them and the two contact-pieces of the plug, respectively, each line passing successively through the contact-points of its switches, passing in its case to the line-point first and from the last switch to the ground, in combination with an annunciator in the circuit of each line, each annunciator having a pair of contact-points in the line-circuit normally closed but open while the annunciator indicates a call, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, resistances, contacts and connections by which a greater resistance is included in the circuit while the telephone is switched for use than while it is not thus switched, a loop test-plug and a test receiving instrument and battery at each board, said instrument and battery being included in a loop the two ends of which terminate in the two contact-pieces of the plug, the instrument being so constructed and so adjusted to the battery and the circuits that it sounds or responds when the plug is inserted into a switch of any line and neither the subscriber's telephone nor the line is switched for use nor the annunciator indicates a call and does not respond when either the telephone or the line is thus switched or the annunciator indicates a call, substantially as set forth.

592,867. **MULTIPLE SWITCHBOARD.** MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,076. (No model.) Patented in France Mar. 25, 1890, No. 204,567.



Claim.—1. In a telephone-exchange system, a pair of loop switch plugs, the two contact-pieces of one of which are connected with the two contact-pieces of the other, respectively, by flexible switch-conductors, in combination with an operator's telephone, a calling-generator, an annunciator, a switching device having two contact-springs each connected at all times to a contact on each of the plugs through a metallically-unbroken connection, respectively, two contacts connected with the two sides of said telephone, against which said springs normally bear, respectively a third contact connected through the generator to one of said other contacts, a fourth contact connected through the annunciator to one of said flexible conductors, and a commutator-piece adapted to be successively in three positions, in the normal position said springs being in contact with said two first-mentioned contacts, in the second position one of said springs being pressed away from the contact with which it normally is in contact and into contact with said third contact, and in the third position said last-mentioned spring being out of contact with either of the contacts and said fourth contact being in contact with the other spring and said metallically-unbroken connections, substantially as set forth.

2. In a telephone-exchange system, a pair of loop-switch plugs,

the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible switch-conductors, in combination with an operator's telephone, a calling-generator, a switching device having two contact-springs each connected at all times through said conductors, respectively, to a contact on each of the plugs through a metallically-unbroken connection, two contacts connected, respectively, to the two sides of said telephone, against which, respectively, said springs normally bear, a third contact connected through said generator to one of said other contacts, and a commutator-piece adapted to be in two positions, in the normal position said springs being in contact with said first-mentioned points, in the second position the spring with which the generator is not normally in connection being pressed away from its normal contact into contact with said third contact and said metallically-unbroken connections, substantially as set forth.

3. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible switch-conductors, in combination with an operator's telephone, an annunciator, a switching device having two contact-springs each connected at all times through said conductors, respectively, to a contact on each of the plugs through a metallically-unbroken connection, two contacts connected, respectively, to the two sides of said telephone, against which, respectively, said springs normally bear, a third contact connected through said annunciator to one of said flexible conductors, and a commutator-piece adapted to be in two positions, in the normal position said springs being in contact with said first-mentioned contacts, and in the other position being out of contact with said contacts, and the spring not normally in connection with the annunciator, being in contact with said third contact, and said metallically-unbroken connections, substantially as set forth.

4. In a telephone-exchange system, two metallic-circuit lines temporarily connected in a metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, an annunciator, a switch device having two contact-springs connected with the two sides of said circuit, respectively, two contacts permanently connected with the two sides of said telephone, against which said springs normally bear, respectively, a third contact connected through the generator to one of said other contacts, which are connected with the two sides of the telephone, a fourth contact connected through the annunciator directly (and not through contacts) to one side of said circuit, and a commutator-piece adapted to be successively in three positions, in the normal position said springs being in contact with said two first-mentioned contacts, in the second position one of said springs being pressed away from the contact with which it normally is in contact and into contact with said third contact, and in the third position said last-mentioned spring being out of contact with either of the contacts and said fourth contact being in contact with the other spring, substantially as set forth.

5. In a telephone-exchange system, two metallic-circuit lines temporarily connected in a metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, a switching device having two contact-springs connected to the two sides of said circuit, respectively, two contacts permanently connected, respectively, to the two sides of said telephone, against which, respectively, said springs normally bear, a third contact connected through said generator to one of said other contacts which are connected with the two sides of the telephone, and a commutator-piece adapted to be in two positions, in the normal position said springs being in contact with said first-mentioned points, in the second position the spring with which the generator is not normally in connection being pressed away from its normal contact into contact with said third contact, substantially as set forth.

6. In a telephone-exchange system, two metallic-circuit lines temporarily connected in a metallic circuit for conversation, in combination with an operator's telephone, an annunciator, a switching device having two contact-springs connected to the two sides of said circuit, respectively, two contacts connected, respectively, to the two sides of the said telephone, against which, respectively, said springs normally bear, a third contact connected through said annunciator directly (and not through contacts) to one side of said circuit, and a commutator-piece adapted to be in two positions, in the normal position said springs being in contact with said first-mentioned contacts, and in the other position being out of contact with said contacts, and the spring not normally in connection with the annunciator, being in contact with said third contact, substantially as set forth.

7. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected with the two contact-pieces of the other, respectively, by flexible switch-conductors, in combination with an operator's telephone, a calling-generator, an annunciator, a switching device having two contact-springs connected with the two flexible conductors, respectively, two contacts connected with the two sides of said telephone, against which said springs normally bear, respectively, a third contact connected through the generator to one of said other contacts, a fourth contact connected through the annunciator to one side of said circuit, a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, and a commutator-piece adapted to be successively in three positions, in the normal position said springs being in contact with said two first-mentioned contacts, in the second position one of said springs being pressed away from the contact with which it normally is in contact and into contact with said third contact, and in the third position said last-mentioned spring being out of contact with either of the contacts and said fourth contact being in contact with the other spring, substantially as set forth.

8. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible switch-conductors, in combination with an operator's telephone, a calling-generator, a switching device having two contact-springs connected with said conductors, respectively, two contacts connected, respectively, to the two sides of said telephone, against which, respectively, said springs normally bear, a third contact connected through said generator to one of said other contacts, a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, and a commutator-piece adapted to be in two positions, in the normal position said springs being in contact with said first-mentioned points, in the second position the spring with which the generator is not normally in connection being pressed away from its normal contact into contact with said third contact, substantially as set forth.

9. In a telephone-exchange system, two metallic-circuit lines temporarily connected in a metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, an annunciator, a switching device having two contact-springs connected to the two sides of said circuit, respectively, two contacts connected with the two sides of said telephone, against which said springs normally bear, respectively, a third contact connected through the generator to one of said other contacts, a fourth contact connected through the annunciator to one side of said circuit, a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, and a commutator-piece adapted to be successively in three positions, in the normal position said springs being in contact with said two first-mentioned contacts, in the second position one of said springs being pressed away from the contact with which it normally is in contact and into contact with said third contact, and in the third position said last-mentioned spring being out of contact with either of the contacts and said fourth contact being in contact with the other spring, substantially as set forth.

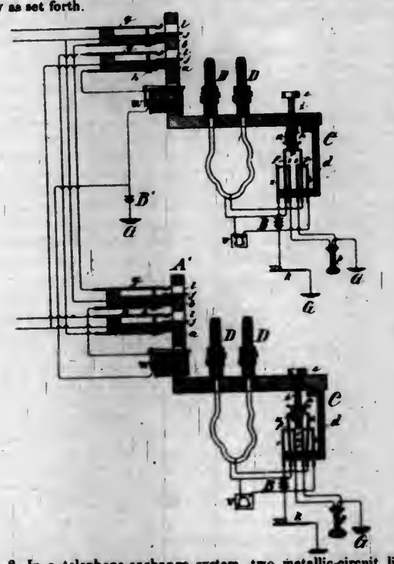
10. In a telephone-exchange system, two metallic-circuit lines temporarily connected in a metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, a switching device having two contact-springs connected to the two sides of said circuit, respectively, two contacts connected, respectively, to the two sides of said telephone, against which, respectively, said springs normally bear, a third contact connected through said generator to one of said other contacts, a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, and a commutator-piece adapted to be in two positions, in the normal position said springs being in contact with said first-mentioned points, in the second position the spring with which the generator is not normally in connection being pressed away from its normal contact into contact with said third contact, substantially as set forth.

11. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces, respectively, of the other by permanently and metallically continuous flexible-cord circuits, in combination with a bridge circuit or connection between the two cord-circuits which connect the two plugs, a clearing-out annunciator in said bridge circuit or connection, and switching apparatus constructed for and opening and closing said bridge-circuit at the will of the operator, substantially as set forth.

12. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by permanently and metallically continuous flexible-cord circuits, in combination with two bridge circuits or connections between the two cord-circuits which connect the two plugs, an operator's telephone in one of said bridge-circuits, a clearing-out annunciator in the other bridge-circuit and switching apparatus by which the operator may at will open or close either of said bridge-circuits, substantially as set forth.

592,368. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 28, 1890. Serial No. 360,077. (No model.)

Claim.—1. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into a closed metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of said circuit, in combination with a calling-generator grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the telephone, a pair of contacts normally open one of which contacts is connected to the other side of the generator and the other of which contacts is connected to said closed metallic circuit, and a commutator-piece adapted to be in three positions, in the first position said normally closed contacts being closed, in the second position said normally closed contacts being open and the other pair closed and in the third position all of said pairs of contacts being open, substantially as set forth.



2. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of said circuit, in combination with a calling-generator grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the telephone, a pair of contacts normally open one of which is connected to the other side of the generator and the other to said metallic circuit, a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, and a commutator-piece adapted to be in three positions, in the first position said normally closed contacts being closed, in the second position said normally closed contacts being open and the other pair closed and in the third position all of said pairs of contacts being open, substantially as set forth.

3. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into a closed metallic circuit for conversation and an annunciator temporarily in a bridge across the two sides of said circuit, in combination with a calling-generator grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the annunciator, a pair of contacts normally open, one of which contacts is connected to the other side of the generator, and the other of which contacts is connected to said metallic circuit, and a commutator-piece adapted to be in two positions, in the first position said closed contacts being closed, in the second position said closed contacts being open, and the other pair closed, substantially as set forth.

4. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into metallic circuit for conversation, and an annunciator temporarily in a bridge across the two sides of said circuit, in combination with a calling-generator grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the annunciator, a pair of contacts normally open, one of which contacts is connected to the other side of the generator and the other to said metallic circuit, a key in circuit with said generator and having a pair of contacts normally closed but opened at the will of the operator, and a commutator-piece adapted to be in two positions, in the first position said closed contacts being closed, in the second position said closed contacts being open, and the other pair closed, substantially as set forth

5. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other, by two flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two flexible conductors, in combination with a calling-generator grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the telephone, a pair of contacts normally open, one of which contacts is connected to the other side of the generator, and the other of which contacts is connected to one of said conductors, and a commutator-piece adapted to be in three positions, in the first position said normally closed contacts being closed, in the second position said normally closed contacts being open and the other pair closed, and in the third position all of said pairs of contacts being open, substantially as set forth.

6. In a telephone exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by two flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two flexible conductors, in combination with a calling-generator grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the telephone, a pair of contacts normally open, one of which is connected to the other side of the generator and the other to one of said conductors, a key in circuit with said generator and having a pair of contacts normally closed but opened at the will of the operator, and a commutator-piece adapted to be in three positions, in the first position said normally closed contacts being closed, in the second position, said normally closed contacts being open and the other pair closed, and in the third position, all of said pairs of contacts being open, substantially as set forth.

7. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by two flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two flexible conductors, in combination with a calling-generator grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the telephone, a pair of contacts normally open, one of which contacts is connected to the other side of the generator, and the other of which contacts is connected to one of said conductors, and a commutator-piece adapted to be in two positions, in the first position said closed contacts being closed, in the second position said closed contacts being open, and the other pair closed, substantially as set forth.

8. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by two flexible switch-conductors and an operator's telephone temporarily in a bridge across the two flexible conductors, in combination with a calling-generator grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the telephone, a pair of contacts normally open, one of which is connected to the other side of the generator and the other to one of said conductors, a key in circuit with said generator and having a pair of contacts normally closed but opened at the will of the operator, and a commutator-piece adapted to be in two positions, in the first position said closed contacts being closed, in the second position said closed contacts being open and the other pair closed, substantially as set forth.

9. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, and a bridge circuit or connection across the two sides of said metallic circuit, in combination with an operator's telephone, an annunciator, a calling-generator grounded on one side, a switching device containing pairs of contacts to connect at will either said telephone or said annunciator into said bridge-circuit, and a pair of normally open contacts adapted to be closed at the will of the operator, one of which contacts is connected with said metallic circuit and the other of which contacts is connected with the other side of the generator, substantially as set forth.

10. In a telephone-exchange system, two metallic circuit lines temporarily connected together in metallic circuit for conversation, and a bridge circuit or connection across the two sides of said metallic circuit, in combination with an operator's telephone, an annunciator, a calling-generator grounded on one side, a switching device containing pairs of contacts to connect at will either said telephone or said annunciator into said bridge-circuit, a pair of normally open contacts adapted to be closed at the will of the operator, one of which is connected with said metallic circuit and the other with the other side of the generator, and a key in circuit with said generator, and having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

11. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conduc-

tors, and a bridge circuit or connection across the two conductors, in combination with an operator's telephone, an annunciator, a calling-generator grounded on one side, a switching device containing pairs of contacts to connect at will either said telephone or said annunciator into said bridge-circuit, and a pair of normally open contacts adapted to be closed at the will of the operator, one of which contacts is connected with one of said switch-conductors, and the other of which contacts is connected with the other side of the generator, substantially as set forth.

12. In a telephone-exchange system a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and a bridge circuit or connection across the two conductors, in combination with an operator's telephone, an annunciator, a calling-generator grounded on one side, a switching device containing pairs of contacts to connect at will either said telephone or said annunciator into said bridge-circuit, a pair of normally open contacts adapted to be closed at the will of the operator, one of which is connected with one of said conductors, and the other with the other side of the generator, and a key in circuit with said generator and having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

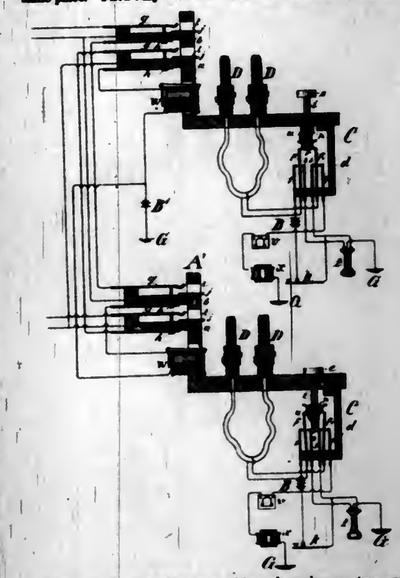
13. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, in combination with an operator's telephone, an annunciator, a calling-generator grounded on one side, a switching device containing two contacts connected respectively to the two sides of said metallic circuit, two contacts connected to the two sides respectively of said telephone, two contacts connected to the two sides respectively of said annunciator, two contacts one of which is connected with said metallic circuit and the other of which is connected with the other side of said generator, and a commutator-piece adapted to be placed at will in three positions, in the first position said two first-mentioned contacts being closed to said two second-mentioned contacts, in the second position said two fourth-mentioned contacts being closed to each other and in the third position said two first-mentioned contacts being closed to said two third-mentioned contacts, substantially as set forth.

14. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, in combination with an operator's telephone, an annunciator, a calling-generator grounded on one side, a switching device containing two contacts connected respectively to the two sides of said metallic circuit, two contacts connected to the two sides respectively of said telephone, two contacts connected to the two sides respectively of said annunciator, two contacts one of which is connected with said metallic circuit, and the other of which is connected with the other side of said generator, a commutator-piece adapted to be placed at will in three positions, in the first position said two first mentioned contacts being closed to said two second-mentioned contacts, in the second position said two fourth-mentioned contacts being closed to each other, and in the third position said two first-mentioned contacts being closed to said two third-mentioned contacts, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator substantially as set forth.

15. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, in combination with an operator's telephone, an annunciator, a calling-generator grounded on one side, a switching device containing two contacts connected respectively to the two flexible switch-conductors, two contacts connected to the two sides respectively of said telephone, two contacts connected to the two sides respectively of said annunciator, two contacts, one of which is connected with one of said conductors, and the other of which is connected with the other side of said generator, and a commutator-piece adapted to be placed at will in three positions, in the first position said two first-mentioned contacts being closed to said two second-mentioned contacts, in the second position said two fourth-mentioned contacts being closed to each other and in the third position said two first-mentioned contacts being closed to said two third-mentioned contacts, substantially as set forth.

16. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, in combination with an operator's telephone, an annunciator, a calling-generator grounded on one side, a switching device containing two contacts connected respectively to the two flexible switch-conductors, two contacts connected to the two sides respectively of said telephone, two contacts connected to the two sides respectively of said annunciator, two contacts one of which is connected with one of said conductors and the other of which is connected with the other side of said generator, a commutator-piece adapted to be placed at will in three positions, in the first position said two first-mentioned contacts being closed to said two second-mentioned contacts, in the second position said two fourth-mentioned contacts being closed to each other, and in the third position said two first-mentioned contacts being closed to said two third-mentioned contacts, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

592,869. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,073. (No model.)



Claim.—1. In a multiple-switchboard exchange, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, an operator's telephone temporarily in a bridge across said metallic circuit, an annunciator and high retardation in a circuit connected on one side permanently to ground, and on the other side to one limb and only one, of the metallic circuit, a switching device, two pairs of contacts in said bridge, one on each side of said telephone, a pair of contacts in said grounded annunciator-circuit, and a commutator-piece adapted to be in two positions, in one position said telephone-contacts being closed and in another position said telephone-contacts being open, and said annunciator-contacts being closed.

2. In a multiple-switchboard exchange, a pair of loop-switch plugs, the two contact-pieces of one connected to the two contact-pieces of the other respectively by flexible cord conductors, an operator's telephone in a bridge across the two conductors, in combination with an annunciator and high retardation in a circuit connection permanently grounded at one end, and at the other end connected to one, and only one, of said flexible cord conductors, two pairs of contacts in said bridge, one on each side of the telephone, a pair of contacts in said annunciator-circuit, a switching device, and a commutator-piece adapted to be in two positions, in one position said telephone-contacts being closed, and in another position said telephone-contacts being open and said annunciator-contacts being closed.

3. In a multiple-switchboard exchange system, two metallic-circuit lines temporarily connected together for conversation, a bridge-circuit across said metallic circuit, a permanently-grounded circuit connection from one limb, and one only, of said metallic circuit, said grounded connection including an annunciator and high retardation, a switching device with sets of contacts to connect at will either said telephone or generator into said bridge-circuit, and a set of contacts operated at the will of the operator to close said grounded annunciator-circuit.

4. In a multiple-switchboard exchange system, a pair of loop-switch plugs, the two contact-pieces of one connected respectively to the two contact-pieces of the other by flexible cord conductors, a permanently-grounded connection for one, and one only, of said cord conductors, said grounded connection including an annunciator and high retardation, a bridge across said cord conductors, a calling-generator, an operator's telephone, and a switching device with contacts and connections by means of which the operator may at will introduce said generator or said telephone into said bridge-circuit and may close said grounded annunciator-circuit.

5. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, and a bridge circuit or connection across the two sides of said metallic circuit, in combination with an operator's telephone, a calling-generator, an annunciator and a retardation-coil in a circuit connection grounded on one side, a switching device containing pairs of contacts to connect at will either said telephone or said generator in said bridge-circuit, a pair of normally open contacts adapted to be closed at the will of the operator, one of which is connected to said metallic circuit and the other to the other side of said circuit connection, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

6. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other, by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with a calling-generator, an annunciator and a retardation-coil in a circuit connection grounded on one side, a switching device containing pairs of contacts to connect at will either said telephone or said generator in said bridge-circuit, a pair of normally open contacts adapted to be closed at the will of the operator, one of which is connected to one of said conductors and the other to the other side of said circuit connection, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

7. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, an annunciator and a retardation-coil in a circuit connection grounded on one side, a switching device containing two contacts f and f' connected respectively to the two sides of said metallic circuit, two contacts 2 and 3 connected to the two sides, respectively, of said telephone, two contacts 1 and 3 connected to the two sides, respectively, of said generator, two contacts f' and 4, one of which is connected to said metallic circuit and the other of which is connected to the other side of said circuit connection, said circuit connection being on that side disconnected at the central office from said metallic circuit except as connected to it through said two last-mentioned contacts, and a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, substantially as set forth.

8. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, an annunciator in a circuit connection grounded on one side, a switching device containing two contacts f and f' connected respectively to the two sides of said metallic circuit, two contacts 2 and 3 connected to the two sides, respectively, of said telephone, two contacts 1 and 3 connected to the two sides, respectively, of said generator, two contacts f' and 4, one of which is connected to said metallic circuit and the other of which is connected to the other side of said circuit connection, said circuit connection being on that side disconnected at the central office from said metallic circuit except as connected to it through said two last-mentioned contacts, and a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, substantially as set forth.

9. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, a retardation coil in a circuit connection grounded on one side, a switching device containing two contacts f and f' connected respectively to the two sides of said metallic circuit, two contacts 2 and 3 connected to the two sides, respectively, of said telephone, two contacts 1 and 3 connected to the two sides, respectively, of said generator, two contacts f' and 4, one of which is connected to said metallic circuit and the other of which is connected to the other side of said circuit connection, said circuit connection being on that side disconnected at the central office from said metallic circuit except as connected to it through said two last-mentioned contacts, and a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, substantially as set forth.

10. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, an annunciator and a retardation-coil in a circuit connection grounded on one side, a switching device containing two contacts connected respectively to the two sides of said metallic circuit, two contacts connected to the two sides, respectively, of said telephone, two contacts connected to the two sides, respectively, of said generator, two contacts, one of which is connected to said metallic circuit and the other of which is connected to the other side of said circuit connection, a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

11. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, in combination with an operator's telephone, a calling-generator, an annunciator and a retardation-coil in a circuit connection grounded on one side, a switching device containing two contacts connected respectively to the two switch-conductors, two contacts connected to the two sides, respectively, of said telephone, two contacts connected to the two sides, respectively, of said generator, two contacts, one of which is connected to one of said switch-conductors, and the other of which is connected to the other side of said circuit connection, a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

12. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, an annunciator in a circuit connection grounded on one side, a switching device containing two contacts connected respectively to the two sides of said metallic circuit, two contacts connected to the two sides, respectively, of said telephone, two contacts connected to the two sides, respectively, of said generator, two contacts, one of which is connected to said metallic circuit and the other of which is connected to the other side of said circuit connection, a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

13. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other, by flexible switch-conductors, in combination with an operator's telephone, a calling-generator, an annunciator in a circuit connection grounded on one side, a switching device containing two contacts connected respectively to the two switch-conductors, two contacts connected to the two sides, respectively, of said telephone, two contacts connected to the two sides, respectively, of said generator, two contacts, one of which is connected to one of said switch-conductors, and the other of which is connected to the other side of said circuit connection, a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

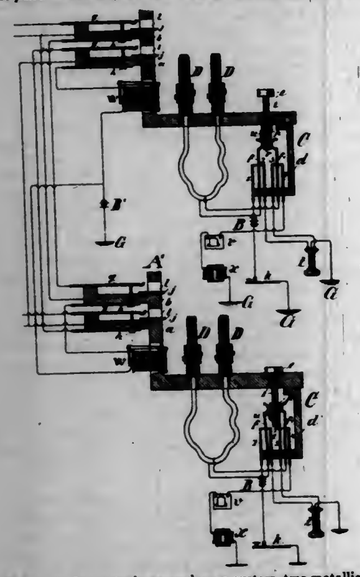
14. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, a retardation-coil in a circuit connection grounded on one side, a switching device containing two contacts connected respectively to the two sides of said metallic circuit, two contacts connected to the two sides, respectively, of said telephone, two contacts connected to the two sides, respectively, of said generator, two contacts, one of which

is connected to said metallic circuit and the other of which is connected to the other side of said circuit connection, a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

15. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other, by flexible switch-conductors, in combination with an operator's telephone, a calling-generator, a retardation-coil in a circuit connection grounded on one side, a switching device containing two contacts connected respectively to the two switch-conductors, two contacts connected to the two sides, respectively, of said telephone, two contacts connected to the two sides, respectively, of said generator, two contacts, one of which is connected to one of said switch-conductors, and the other of which is connected to the other side of said circuit connection, a commutator-piece adapted to be placed at will in three positions, in one position said two first-mentioned contacts being closed to said two second-mentioned contacts, in another position said two first-mentioned contacts being closed to said two third-mentioned contacts, and in another position said two fourth-mentioned contacts being closed to each other, and a key in circuit with said generator, having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

16. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of said circuit, in combination with a circuit connection of high resistance and retardation grounded on one side, an annunciator whose coil comprises part of said circuit connection, a switching device, two normally closed pairs of contacts in said bridge, one on each side of the telephone, a pair of contacts normally open, one of which is connected with said metallic circuit and the other with the other side of said circuit connection, and a commutator-piece adapted to be in two positions, in one position said normally closed contacts being closed, and in another position said normally closed contacts being open, and said normally open contacts being closed, substantially as set forth.

592,370. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,079. (No model.)



Claim.—1. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of the circuit, in combination with an annunciator and retardation-coil in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts of said switching device in said bridge, one pair on each side of said telephone, a pair of normally open contacts of said switching device, one of which contacts of said normally open pair is connected to the other side of said circuit connection containing said generator and the other of which is connected with one of said switch-conductors, another pair of normally open contacts of said switching device, one of which contacts of said last-mentioned pair is connected to the other side of said circuit connection containing said annunciator and retardation-coil and the other of which contacts of said pair is connected to one of said switch-conductors, and a commutator-piece of said switching device, adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, substantially as set forth.

2. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of the circuit, in combination with an annunciator and retardation-coil in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of said telephone, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said generator, and the other of which is connected with said metallic circuit, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said annunciator and retardation-coil, and the other of which is connected to said metallic circuit, a commutator-piece adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, and a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

3. In a telephone-exchange system a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with an annunciator and retardation-coil in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts of said switching device in said bridge, one pair on each side of said telephone, a pair of normally open contacts of said switching device, one of which contacts of said normally open pair is connected to the other side of said circuit connection containing said generator and the other of which is connected with one of said switch-conductors, another pair of normally open contacts of said switching device, one of which contacts of said last-mentioned pair is connected to the other side of said circuit connection containing said annunciator and retardation-coil and the other of which contacts of said pair is connected to one of said switch-conductors, and a commutator-piece of said switching device, adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, substantially as set forth.

4. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with an annunciator and retardation-coil in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of said telephone, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said generator, and the other of which is connected with one of said switch-conductors, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said annunciator and retardation-coil, and the other of which is connected to one of said switch-conductors, a commutator-piece adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, substantially as set forth.

being open, and a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

5. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of the circuit, in combination with an annunciator in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts of said switching device in said bridge, one pair on each side of said telephone, a pair of normally open contacts of said switch device, one of which contacts of said normally open pair is connected to the other side of said circuit connection containing said generator and the other of which is connected with said metallic circuit, another pair of normally open contacts of said switching device, one of which contacts of said last-mentioned pair is connected to the other side of said circuit connection containing said annunciator, and the other of which contacts of said last-mentioned pair is connected to said metallic circuit, and a commutator-piece of said switching device adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, substantially as set forth.

6. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of the circuit, in combination with an annunciator in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of said telephone, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said generator, and the other of which is connected with said metallic circuit, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said annunciator, and the other of which is connected to said metallic circuit, a commutator-piece adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, and a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

7. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with an annunciator in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts of said switching device in said bridge, one pair on each side of said telephone, a pair of normally open contacts of said switching device, one of which contacts of said normally open pair is connected to the other side of said circuit connection containing said generator and the other of which is connected with said metallic circuit, another pair of normally open contacts of said switching device, one of which contacts of said last-mentioned pair is connected to the other side of said circuit connection containing said annunciator, and the other of which contacts of said last-mentioned pair is connected to said metallic circuit, and a commutator-piece of said switching device adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, and a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

8. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with an annunciator in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of said telephone, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said generator, and the other of which is connected with one of said switch-conductors, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said annunciator, and the other of which is connected to one of said switch-conductors, a commutator-piece adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, and a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

9. In a telephone exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of the circuit, in combination with a circuit connection of high resistance and retardation grounded on one side, of which the coils of an annunciator comprise a part, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts of said switching device in said bridge, one pair on each side of said telephone, a pair of normally open contacts of said switching device, one of which contacts of said pair is connected to the other side of said circuit connection containing said generator, and the other of which contacts of said pair is connected with said metallic circuit, another pair of normally open contacts of said switching device, one of which contacts of said last-mentioned pair is connected to the other side of said circuit connection of high resistance and retardation, and the other of which contacts of said last-mentioned pair is connected to said metallic circuit, and a commutator-piece of said switching device, adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, substantially as set forth.

10. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, and an operator's telephone temporarily in a bridge across the two sides of the circuit, in combination with a circuit connection of high resistance and retardation grounded on one side, of which the coils of an annunciator comprise a part, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts in said bridge, one on each side of said telephone, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said generator, and the other of which is connected with said metallic circuit, a pair of normally open contacts, one of which is connected to the other side of said circuit connection of high resistance and retardation, and the other of which is connected to said metallic circuit, a commutator-piece adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, substantially as set forth.

11. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with a circuit connection of high resistance and retardation grounded on one side, of which the coils of an annunciator comprise a part, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed pairs of contacts of said switching device in said bridge, one pair on each side of said telephone, a pair of normally open contacts of said switching device, one contact of which is connected to the other side of said circuit connection containing said generator, and the other contact of which is connected with one of said switch-conductors, another pair of normally open contacts of said switching device, one of the contacts of which is connected to the other side of said circuit connection of high resistance and retardation, and the other contact of which is connected to one of said switch-conductors, and a commutator-piece of said switching device adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, substantially as set forth.

12. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with a circuit connection of high resistance and retardation grounded on one side, of which the coils of an annunciator comprise a part, a calling-generator in a circuit connection grounded on one side, a switching device, two normally closed

pairs of contacts in said bridge, one on each side of said telephone, a pair of normally open contacts, one of which is connected to the other side of said circuit connection containing said generator, and the other of which is connected with one of said switch-conductors, a pair of normally open contacts, one of which is connected to the other side of said circuit connection of high resistance and retardation, and the other of which is connected to one of said switch-conductors, a commutator-piece adapted to be placed in three positions, in its normal position said contacts being in their normal condition, in another position said two first-mentioned pairs of contacts being opened and one of the other pairs being closed, and in the other position said third-mentioned pair of contacts being closed and the other pairs being open, and a key in circuit with said generator having a pair of contacts normally closed but opened at the will of the operator, substantially as set forth.

13. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, in combination with an annunciator and retardation-coil in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, and a switching device containing a pair of contacts, one contact of which is connected with said metallic circuit and the other contact of which is connected with the other side of said first-mentioned circuit connection, another pair of contacts one contact of which is connected to said metallic circuit and the other contact of which is connected to the other side of said second-mentioned circuit connection, and a commutator-piece adapted to be placed in two positions, in one position said first-mentioned pair of contacts being closed and in the other position said second-mentioned pair of contacts being closed, substantially as set forth.

14. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, in combination with an annunciator and retardation-coil in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device containing a pair of contacts, one contact of which is connected with said metallic circuit and the other contact of which is connected with the other side of said first-mentioned circuit connection, another pair of contacts, one contact of which is connected to said metallic circuit and the other contact of which is connected to the other side of said second-mentioned circuit connection, and a commutator-piece adapted to be placed in two positions, in one position said first-mentioned pair of contacts being closed and in the other position said second-mentioned pair of contacts being closed, and a key in circuit with said generator, having a pair of normally closed contacts opened at the will of the operator, substantially as set forth.

15. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with an annunciator and retardation-coil in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, and a switching device containing a pair of contacts, one contact of which is connected with one of said switch-conductors, and the other contact of which is connected with the other side of said first-mentioned circuit connection, another pair of contacts, one contact of which is connected to one of said switch-conductors and the other contact of which is connected to the other side of said second-mentioned circuit connection, and a commutator-piece of said switching device adapted to be placed in two positions, in one position said first-mentioned pair of contacts being closed and in the other position said second-mentioned pair of contacts being closed, substantially as set forth.

16. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with an annunciator and retardation-coil in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, a switching device containing a pair of contacts, one of which is connected with one of said switch-conductors and the other of which is connected with the other side of said first-mentioned circuit connection, a pair of contacts in said switching device, one of which is connected to one of said switch-conductors and the other of which is connected to the other side of said second-mentioned circuit connection, and a commutator-piece adapted to be placed in two positions, in one position said first-mentioned pair of contacts being closed and in the other position said second-mentioned pair of contacts being closed, and a key in circuit with said generator, having a pair of normally closed contacts opened at the will of the operator, substantially as set forth.

17. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, in combination with a circuit connection of high resistance and retardation grounded on one side, a calling-generator in a circuit connection grounded on one side, an annunciator whose coils comprise part of said first-mentioned circuit connection of high resistance and retardation, and a switching device containing a pair of contacts, one contact of which is connected with said metallic circuit and the other contact of which is connected with the other side of said first-mentioned or high-resistance and retardation circuit connection, a pair of contacts one contact of which is connected to said metallic circuit and the other contact of which is connected to the other side of said second-mentioned circuit connection, and a commutator-piece adapted to be placed in two positions, in one position said first-mentioned pair of contacts being closed and in the other position said second-mentioned pair of contacts being closed, substantially as set forth.

18. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with a circuit connection of high resistance and retardation grounded on one side, a calling-generator in a circuit connection grounded on one side, an annunciator whose coils comprise part of said first-mentioned circuit connection of high resistance and retardation, and a switching device containing a pair of contacts one contact of which is connected with one of said switch-conductors and the other contact of which is connected with the other side of said first-mentioned circuit connection, another pair of contacts one contact of which is connected to one of said switch-conductors, and the other contact of which is connected to the other side of said second-mentioned circuit connection, and a commutator-piece adapted to be placed in two positions, in one position said first-mentioned pair of contacts being closed and in the other position said second-mentioned pair of contacts being closed, substantially as set forth.

19. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in a metallic circuit for conversation, in combination with an annunciator in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, and a switching device containing a pair of contacts, one contact of which is connected with said metallic circuit and the other contact of which is connected with the other side of said first-mentioned circuit connection, another pair of contacts one contact of which is connected to said metallic circuit and the other contact of which is connected to the other side of said second-mentioned circuit connection, and a commutator-piece adapted to be placed in two positions, in one position said first-mentioned pair of contacts being closed and in the other position said second-mentioned pair of contacts being closed, substantially as set forth.

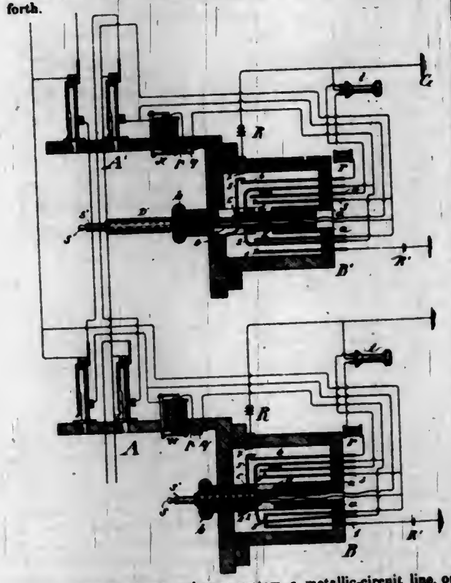
20. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of each of which are respectively connected with the two contact-pieces of the other by flexible switch-conductors, and an operator's telephone temporarily in a bridge across the two conductors, in combination with an annunciator in a circuit connection grounded on one side, a calling-generator in a circuit connection grounded on one side, and a switching device containing a pair of contacts one contact of which is connected with one of said switch-conductors, and the other contact of which is connected with the other side of said first-mentioned circuit connection, a pair of contacts, one contact of which is connected to one of said switch-conductors, and the other contact of which is connected to the other side of said second-mentioned circuit connection, and a commutator-piece adapted to be placed in two positions, in one position said first-mentioned pair of contacts being closed and in the other position said second-mentioned pair of contacts being closed, substantially as set forth.

592,371. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 28, 1890. Serial No. 360,080. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office, in combination with switch-contacts in said side or branch by which said ground connection is broken when the line is switched for use and annunciator-contacts in said side or branch to break such ground connection whenever and during the time the line-annunciator indicates a call, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office, and a test-battery in such normal ground connection, in combination with switch-contacts in said side or branch by which such ground connection is broken when the line is switched for use and annunciator-contacts in said side or branch to break such ground connection whenever and during the time the line-annunciator indicates a call, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office, and a test-battery in such normal ground connection, in combination with switch-contacts in said side or branch by which such ground connection is broken when the line is switched for use, annunciator-contacts in said side or branch to break such ground connection whenever and during the time the line-annunciator indicates a call, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with the other side or branch of the line, substantially as set forth.

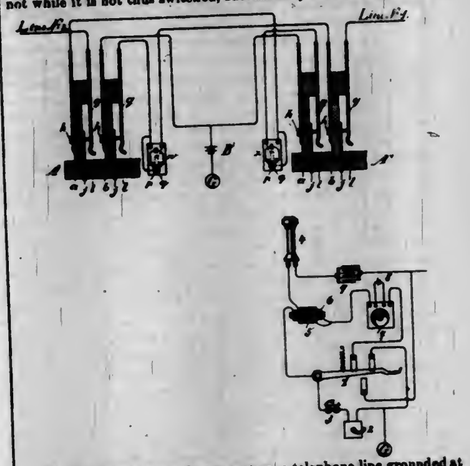


4. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office, in combination with switch-contacts in said side or branch by which such ground connection is broken when the line is switched for use, annunciator-contacts in said side or branch to break such ground connection whenever and during the time the line-annunciator indicates a call, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with the other side or branch of the line, and a test-battery in the circuit thereby established on testing, substantially as set forth.

592,372. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 28, 1890. Serial No. 360,082. (No model.)

Claim.—1. In a telephone-exchange system, a telephone-line grounded at its outer end and passing normally successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and to a ground-wire and test-battery in said ground-wire in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation, and a loop test-plug in the two contact-pieces of which terminate the two sides of a loop containing a test receiving instrument, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and the subscriber's-station apparatus for each line, each with a telephone, a telephone-switch, a condenser and contacts and circuits by which the condenser is included in the circuit of the line while the telephone is switched for use but not while it is not thus switched, substantially as set forth.

2. In a telephone-exchange system, a telephone-line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched at their board, and thence to a common wire and test-battery in said ground-wire, in combination with switching devices at each board to disconnect the pair of contact-points at the board and switch the line for conversation, and a loop test-plug in the two contact-points of which terminate the two sides of a loop containing a test receiving instrument, said plug being adapted to be inserted into the switches and when inserted into a switch to disconnect its pair of contact-points and then connect them with the two contact-pieces of the plug, and the subscriber's-station apparatus for each line, each with a telephone, a telephone-switch, a condenser and contacts and circuits by which the condenser is included in the circuit of the line while the telephone is switched for use, but not while it is not thus switched, substantially as set forth.



3. In a telephone-exchange system, a telephone-line grounded at its outer end and having in its circuit pairs of switch contact-points, one pair on each of several boards, each pair normally closed but open while the line is switched for use at their board, and thence to a common ground-wire and battery therein, in combination with switching devices at each board, to disconnect the pair of contact-points at the board and switch the line for conversation, and loop test-plugs, one at each board each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument and adapted to be inserted into the switch of the line at its board and when inserted to disconnect the pair of contact-points which are normally in contact and connect them with the two contact-pieces of the plug, and the subscriber's-station apparatus for each line, each with a telephone, a telephone-switch, a condenser and contacts and circuits by which the condenser is included in the circuit of the line while the telephone is switched for use, but not while it is not thus switched, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, telephone-lines, each line normally on closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact and open while a switch-plug is inserted into it, each line passing normally successively through the pairs of contact-points of its switch and thence to a common wire and test-battery therein, in combination with pairs of switch-plugs at each board, the contact-pieces of each pair being connected by flexible conductors in the circuit, said plugs being adapted to be inserted into the switches at their board and when a plug is inserted into a switch to disconnect the pair of contact-points of the switch and connect the line contact-piece, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and the subscriber's-station apparatus, with a telephone, a telephone switch, a condenser and contacts and circuits by which the condenser is included in the circuit of the line while the telephone is switched for use, but not while it is not thus switched, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends, switches for said lines, one switch on each of the boards, for each line, each switch having a pair of contact-points normally in contact but open while a switch-plug is inserted into it, each line passing normally successively through the pairs of contact-points of its switches and thence to a ground-wire and battery therein, in combination with pairs of switch-plugs at each board, each pair having their contact-pieces connected by flexible conductors, said plugs being adapted to be inserted into the switches at their board and when a plug is inserted into a switch to disconnect the contact-points of the switch which are normally in contact and connect the line contact-point with the contact-piece of the plug,

and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a test receiving instrument, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact points of the switch and connect them with the contact-pieces of the plug, and subscriber's-station apparatus with a telephone, a telephone-switch, a condenser and contacts and circuits by which the condenser is included in the circuit of the line, while the telephone is switched for use, but not while it is not thus switched, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines, each line normally on closed circuit, switches for said lines, one switch on each of the boards for each line, each switch having a pair of contact-points normally in contact and open while a switch-plug is inserted into it, each line passing normally successively through the pairs of contact-points, of its switch, and thence to a common wire and battery therein, in combination with switching devices at each board to disconnect any line from said common wire, and connect it with any other line for conversation, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a loop containing a test receiving instrument, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and subscriber's station apparatus, with a telephone, a telephone-switch, a condenser and contacts and circuits by which the condenser is included in the circuit of the line while the telephone is switched for use, but not while it is not thus switched, substantially as set forth.

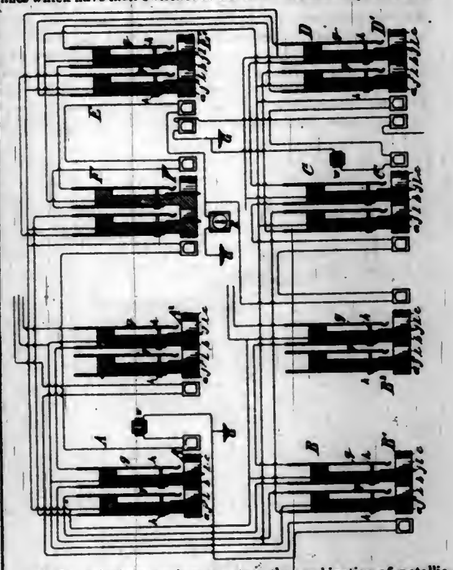
7. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends, switches for said lines, one switch on each of the boards, for each line, each switch having a pair of contact-points normally in contact but open while a switch-plug is inserted into it, each line passing normally successively through the pairs of contact-points of its switches and thence to a ground-wire and test-battery therein, in combination with switching devices at each board to disconnect any line from said ground-wire and connect it with any other line for conversation, and loop test-plugs, one at each board, each plug having two contact-pieces in which terminate the two sides of a test receiving instrument, each plug being adapted to be inserted into any switch at its board and when inserted to disconnect the contact-points of the switch and connect them with the contact-pieces of the plug, and subscriber's-station apparatus, with a telephone, a telephone-switch, a condenser and contacts and circuits by which the condenser is included in the circuit of the line while the telephone is switched for use, but not while it is not thus switched, substantially as set forth.

8. In a telephone-exchange system, telephone-lines and multiple switchboards for said lines, each board having a switch for each line by which the line may be switched with any of the other lines for conversation, each line being connected successively to its switches on the several boards, in combination with line-annunciators, one for each line located at the same board as is the switch of the line connected farthest from the subscriber's station and in the line-circuit between such switch and the preceding switch, and contact-points and connections by which each annunciator-maguet is short-circuited while the annunciator indicates a call, substantially as set forth.

9. In a telephone-exchange system, telephone-lines and multiple switchboards for said lines, each board having a switch for each line by which the line may be switched with any of the other lines for conversation, each line being connected successively to its switches on the several boards, in combination with line-annunciators, one for each line located at the same board as is the switch of the line connected farthest from the subscriber's station and in the line-circuit between such switch and the preceding switch, substantially as set forth.

592,373. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,063. (No model.)

Claim.—1. In a telephone-exchange system, the combination of metallic-circuit lines divided into six classes, the switchboards divided into six classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and each branch of each line being normally grounded at the central office, six polarized annunciators for each line, one being located in each class of boards and at a board where the line has a switch, two being connected in opposite polarity in one branch of the line, two others being connected in opposite polarity in the other branch of the line and the other two being connected in opposite polarity in a special calling-wire for the line, electric calling apparatus and keys or switches at each subscriber's station whereby the subscriber may at will send a current of either polarity into a circuit from the ground through either branch of his line or his special calling-wire to the office ground, and switch-connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at the board substantially as set forth.



2. In a telephone-exchange system, the combination of metallic-circuit telephone-lines divided into five classes, switchboards divided into five classes, one class of boards for each class of lines, switches for said lines, one switch for each line on each board of its class and on one board of each of the other classes, each branch of each line being normally grounded at the central office, a special calling-wire for each line, two polarized annunciators connected in opposite polarity in each of the two branches of each line in four of said classes at boards where the line has switches, an annunciator in the special calling-wire for the line located at a board of the other class where the line has a switch, electric calling apparatus, and keys or switches at the subscriber's station whereby the subscriber may at will send a calling-current of either polarity from his ground through either side or branch of his line to its central-office ground or may send a calling-current through his special calling-wire, and connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

3. In a telephone-exchange system, the combination of metallic circuit lines divided into five classes, switchboards divided into five classes, one class of boards for each class of lines, switches for said lines, one switch for each line on each board of its class and on one board of each of the other classes, each branch of each line being normally grounded at the central office, two polarized annunciators connected in opposite polarity in one branch of each line, an annunciator connected in the other branch of the line, a special calling-wire for each line, two polarized annunciators connected in opposite polarity in said special calling-wire, said five annunciators of each line being located in the five classes of boards at boards where the line has switches, electric calling apparatus whereby any subscriber may send a calling-current of either polarity through either the said first-mentioned branch of his line or his special calling-wire, or send a calling-current through the other branch of his line, and connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

4. In a telephone-exchange system, the combination of metallic-circuit lines divided into four classes, switchboards divided into four classes, one class of boards for each class of lines, switches for said lines, one switch for each line on each board of its class and on one board of each of the other classes, each branch of each line being normally grounded at the central office, a special calling-wire for each line, two polarized annunciators connected in opposite polarity in one branch of the line, an annunciator in the other branch of the line, an annunciator in the special calling-wire of the line, the four annunciators of the line being located at boards in the four classes of boards and where the line has switches, electric calling apparatus whereby the subscriber may send a calling-current of either polarity through said first-mentioned branch of his line and may send a calling-current through the other branch of the line and through his special calling-wire, and connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

5. In a telephone-exchange system, the combination of metallic-circuit lines divided into four classes, switchboards divided into four classes, one class of boards for each class of lines, switches for said lines, one switch for each line on each board of its class and on one board of each of the other classes, each branch of each line being normally grounded at the central office, a special calling-wire for each line, two polarized annunciators connected in opposite polarity in the special calling-wire, and an annunciator in each branch of the line, the four annunciators of a line being located at boards in the four classes of boards, and where the line has switches, and electric calling apparatus whereby the subscriber may send a calling-current of either polarity through his special calling-wire or a calling-current through each branch of his line, and connecting apparatus whereby the operator at either board may connect together any two lines which have their switches at her board, substantially as set forth.

6. In a telephone-exchange system, the combination of metallic-circuit lines divided into three classes, switchboards divided into three classes, one class of boards for each class of lines, switches for said lines, one switch for each line on each board of its class and on one board of each of the other classes, a special calling-wire for each line, an annunciator in each branch of the line, an annunciator in the special calling wire of the line, the three annunciators of the line being located in the three classes of boards and where the line has switches, electric calling apparatus whereby the subscriber may send a calling-current through either branch of his line and through his special calling-wire, and connecting apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, substantially as set forth.

7. In a subscriber's-station apparatus, four calling-keys normally in the circuit of his metallic-circuit line, a calling-generator having commutator parts and connections for taking currents of either polarity and circuits and connections whereby the subscriber may on operating his generator and pressing on one and another of his calling-keys disconnect the two branches of his line from each other and send through each a current of either polarity, substantially as set forth.

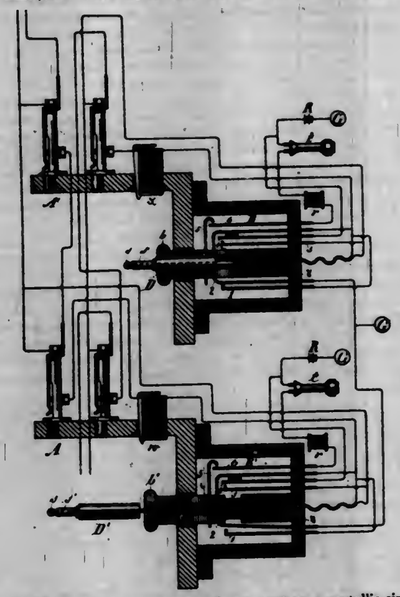
8. In a telephone-exchange system, a metallic-circuit line, and four calling-keys at the subscriber's station, each having a lever normally in contact with a point and another point with which the lever comes in contact when it is pressed by the subscriber away from its other point, said line passing successively through the contacts of the keys normally in contact passing in two of the keys to the levers first and in the other two keys to the points first, in combination with a magneto-generator having a commutator-piece and two commutator-springs for taking currents of the two polarities, the two commutator-springs being connected to the two points respectively not in normal contact with the levers of the first-mentioned keys and also to the similar points respectively of the other two keys, said commutator-pieces being connected to one end of the armature-coil and the other end of the coil being connected to the ground, substantially as set forth.

9. In a telephone-exchange system, the combination of the lines divided into six classes, the switchboards for said lines divided into six classes, one class of boards for each class of lines, switches for said lines, one switch for each line on each board of its class and on one board of each of the five other classes, signaling apparatus for each line giving at the will of the subscriber six indications, one at a board in each of the classes of boards and where his line has a switch, and connecting apparatus at each board whereby an operator at the board may connect together any two lines which have their switches at her board, substantially as set forth.

10. In a telephone-exchange system, the combination of the lines divided into five classes, switchboards for said lines divided into five classes, one class of boards for each class of lines, switches for said lines, one switch for each line on each board of its class and on one board of each of the four other classes, signaling apparatus for each line giving at the will of the subscriber five indications, one at a board in each of the classes of boards and where his line has a switch, and connecting apparatus at each board whereby an operator at the board may connect together any two lines which have their switches at her board, substantially as set forth.

11. In a switching device, two circuit-changing springs *f*, *f'*, placed centrally, the outer points 1, 4, and the inner points 2, 3, all in the same plane and insulated from one another, in combination with the commutator-piece *a*, *o*, *p*, provided with commutator-surfaces in different planes, against which the springs *f*, *f'*, alternately press as the commutator-piece is moved to its different positions there being three surfaces against which spring *f* alternately presses, each of which is farther than the other from the center of the commutator-piece in its line of motion, there also being three surfaces against which spring *f'* alternately presses, the middle surface being farther from such center of the commutator-piece, and the two other surfaces being in the same plane with each other, whereby in the first position of the commutator-piece springs *f f'* are in contact with the points 2 and 3, respectively, in the second position of the commutator-piece, *f'* is in contact with 4 and *f* out of contact with 2, and in the third position of the commutator-piece, *f*, *f'*, are in contact with 1 and 3, respectively, substantially as set forth.

592,374. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,064. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone, a battery through which said operator's circuit or system is grounded, and contact-points and connections by which when the plug is removed from the switching device the two sides or branches of the line are automatically closed to the two sides, respectively, of said operator's circuit or system, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's battery, contact-points and connections by which the battery, grounded on one side, is automatically connected on its other side to the circuit of the line when the plug is removed from the switching device, and a commutator-piece moved by the operator to disconnect the battery from such connection with the line, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone, a battery through which said operator's circuit or system is grounded, contact-points and connections by which when the plug is removed from the switching device the two sides or branches of the line are automatically closed to the two sides, respectively, of said operator's circuit grounded through the battery and a commutator-piece moved by the operator to break such connection between the line and the operator's circuit, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively,

are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and which has two pairs of contact-points, each open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches of the line, the two other points being connected to the two sides of an operator's telephone, and a battery through which the circuit connecting such last points is grounded, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, in the two contact-pieces of which, respectively, are connected through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and which has two pairs of contact-points, each open while the plug is in the device but automatically closed on the withdrawal of the plugs two contact-points, one of each pair, being connected to the two sides or branches, respectively, of the line, the two other points being connected to the sides, respectively, of an operator's telephone battery through which the circuit containing such last points is grounded, and a commutator-piece moved at the will of the operator to open such pairs of contact-points automatically closed on the withdrawal of the plug, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone-battery through which said operator's circuit or system is grounded, contact-points and connections by which when the plug is removed from the switching device the two sides or branches of the line are automatically closed to the two sides, respectively, of said operator's circuit or system, a vibrating bell at the subscriber's station grounded on one side, and contact-points by which the other side of the bell is connected to the circuit of the line when the subscriber's telephone is not switched for use, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's calling-battery, contact-points and connections by which the battery, grounded on one side, is connected on its other side to the circuit of the line by the act of removing the plug from the device, a bell at the subscriber's station and contact-points and connections by which the circuit of the line is grounded through said bell when the subscriber's telephone is not switched for use, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line grounded at the subscriber's station through a bell when the telephone is not switched for use and not otherwise, and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's battery, contact-points and connections by which the battery, grounded on one side, is automatically connected on its other side to the circuit of the line by the act of removing the plug from the switching device, and a commutator-piece moved by the operator to disconnect the battery from such connection with the line, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line grounded at the subscriber's station while his telephone is not switched for use and a switch-plug for the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's calling-battery, contact-points and connections by which the battery grounded on one side is automatically connected to the circuit of the line by the act of removing the plug from the device, and a signal-bell at the subscriber's station in the normal circuit between such subscriber's-station and central-office grounds, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line grounded at the subscriber's station while his telephone is not switched for use but not otherwise and a switch-plug for the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's battery and her telephone, contact-points and connections by which the circuit which contains the battery and telephone grounded on one side is connected to the circuit of the line by the act of withdrawing the plug from the device, and a vibrating bell at the subscriber's station normally in the circuit between said subscriber's-station and central-office grounds, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line grounded at the subscriber's station while his telephone is not switched for use but not otherwise, and a vibrating bell in such ground connection in combination with a circuit at the central office which is grounded at one end, a test receiving instrument and battery in said circuit and a switching device whereby the operator may at will connect the other end of such circuit with the circuit of the line, said battery being of such strength as to operate said bell and said test receiving instrument being such as to indicate the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

12. In a telephone-exchange system, a metallic-circuit line grounded at the subscriber's station while his telephone is not switched for use but not otherwise, in combination with a circuit at the central office which is grounded at one end, a test receiving instrument and battery in said circuit, switching devices whereby the operator may at will connect the other end of such circuit with the line, and a vibrating bell at the subscriber's station in the circuit between such subscriber's-station and central-office grounds, said battery being of such strength as to operate said bell and said test receiving instrument being such as to indicate the make and break of the battery-current, caused by the operation of said bell, substantially as set forth.

13. In a telephone-exchange system, metallic-circuit lines and loop-switch plugs, one for each line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device for each plug, into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone, a battery through which said operator's circuit or system is grounded, and contact-points and connections by which, when the plug is removed from the switching device, the two sides or branches of the line are automatically closed to the two sides, respectively, of said operator's circuit or system, substantially as set forth.

14. In a telephone-exchange system, metallic-circuit lines and loop-switch plugs, one for each line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device for each plug into which the plug is normally placed, and on which it operates, an operator's battery, contact-points and connections by which the battery, grounded on one side, is automatically connected on its other side to the circuit of the line by the act of removing the plug from the switching device, and a commutator-piece adapted to be moved by the operator to disconnect the battery from such connection with the line, substantially as set forth.

15. In a telephone-exchange system metallic circuit lines and loop-switch plugs, one for each line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device for each plug into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone, a battery through which said operator's circuit or system is grounded, contact-points and connections by which, by the removal of the plug from the switching device, the two sides or branches of the line are automatically closed to the two sides, respectively, of the operator's circuit, and a commutator-piece adapted to be moved by the operator to break such connection between the line and the operator's circuit, substantially as set forth.

16. In a telephone-exchange system, metallic-circuit lines and loop-switch plugs, one for each line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device for each plug, into which the plug is normally placed, and which has two pairs of contact-points, each open while the plug is in the device, but automatically closed by the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches of the line, the two other points being connected to the two sides of an operator's telephone, and a battery through which the circuit connecting such last points is grounded, substantially as set forth.

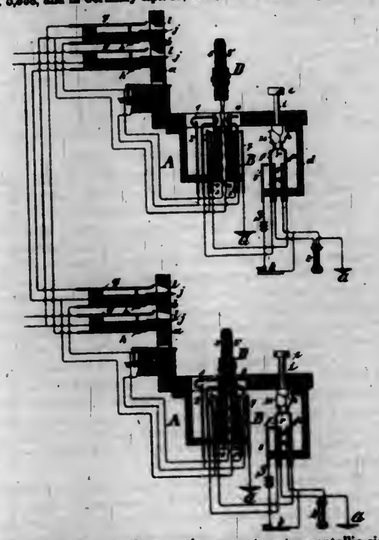
17. In a telephone-exchange system, a metallic-circuit line which is grounded at the subscriber's station when the subscriber's telephone is not switched for use, and a loop-switch plug for the line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's battery, contact-points and connections by which the battery, grounded on one side, is automatically connected on its other side to the circuit of the line by the removal of the plug from the switching device, a commutator piece moved by the operator to disconnect the battery from such connection with the line, and a vibrating bell at the subscriber's station in circuit between such ground connections at the subscriber's station and the central office, substantially as set forth.

18. In a telephone-exchange system, a metallic-circuit line, and a switch at the subscriber's station with contact-points by which the line is grounded when the telephone is switched for use but not otherwise, in combination with a circuit connection at the central office, a battery and test receiving instrument in said circuit connection, said circuit connection being grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the line, and a vibrating bell at the subscriber's station in the circuit which may thereby be established from the central-office ground to the subscriber's ground, said battery having sufficient strength to operate said bell and the test receiving instrument being such as to respond to the vibrations of the bell when the battery, bell and instrument are thus placed on closed circuit, whereby, by one motion, the operator tests the line and also calls the subscriber whose telephone is not switched for use, substantially as set forth.

19. In a telephone-exchange system, metallic-circuit lines and loop-switch plugs, one for each line to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device for each plug into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone and grounded through a battery, contact-points and connections by which, when the plug is removed from the switching device, the two sides or branches of the line are automatically closed to the two sides, respectively, of the operator's circuit, a signal instrument at each subscriber's station through which the line-circuit is normally grounded, adapted to respond when placed on closed circuit with said battery, and a commutator-piece adapted to be moved by the operator to break such connection between the line and the operator's circuit, substantially as set forth.

20. In a telephone-exchange system, a metallic-circuit line which is grounded at the subscriber's station when the subscriber's telephone is not switched for use, and a loop-switch plug for the line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's battery, contact-points and connections by which the battery, grounded on one side, is automatically connected on its other side to the circuit of the line when the plug is removed from the switching device, a signal instrument at the subscriber's station through which the line-circuit is normally grounded adapted to respond when placed on closed circuit with said battery, a commutator-piece adapted to be moved by the operator to disconnect the battery from such connection with the line, and a vibrating bell at the subscriber's station in circuit between such ground connections at the subscriber's station and the central office, substantially as set forth.

592,875. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,095. (No model.) Patented in France Mar. 25, 1890, No. 204,567; in England Apr. 8, 1890, No. 5,968, and in Germany Apr. 12, 1890, No. 60,260.



Claim.—1. In a telephone-exchange system, two metallic-circuit lines temporarily connected together for conversation and an annunciator at the central office bridged across their circuit, in combination with a battery at one of the subscribers' stations and switch-contacts and connections by which the current of the battery is automatically directed to the circuit of his line when he switches his telephone out of use, substantially as set forth.

2. In a telephone-exchange system, two metallic-circuit lines temporarily connected together for conversation and an annunciator at the central office bridged across their circuit, in combination with a battery at each of the subscribers' stations and contact-points and connections by which the current from each battery is automatically directed to the circuit of its line when the subscriber switches his telephone from use and the current from the two batteries passes in the same direction through the circuit of the annunciator, substantially as set forth.

3. In a telephone-exchange system, a plug switching device for a metallic-circuit line, adapted to receive a loop-switch plug for the line when the plug is not in use, the two contact-pieces of the plug being connected through flexible conductors to the two sides or branches of the line, respectively, said plug switching device containing a pair of contact-points normally closed but automatically opened on the withdrawal of the plug, one of said contacts being connected to the ground and the other to the line, and containing two pairs of contact-points which are open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides of the line, respectively, in combination with another, to wit, an operator's switching device for said line, distinct from said plug switching device (except by the circuit connections) said operator's switching device having two pairs of contact-points normally in contact but opened at the will of the operator, two of such contact-points, one of each pair being connected to the two other contact-points, respectively, of the plug switching device, and the two other contact-points of the operator's switching device being connected to the two sides, respectively, of the operator's telephone, substantially as set forth.

4. In a telephone exchange system, a metallic-circuit line, a loop-switch plug for the line, to the two contact-pieces of which, respectively, are connected the two sides or branches of the line, a plug switching device into which the plug is placed, normally or when not in use and two bridge-circuits or connections for said line between the two sides of the line, one containing the line-annunciator and the other containing the operator's telephone, both bridge-circuits being normally open but automatically closed by the plug switching device on the withdrawal of the plug from its normal position, in combination with another switching device distinct or separate from said plug switching device (except by the circuit connections) and having contacts operated at the will of the operator to open said bridge-circuit or connection which contains her telephone, substantially as set forth.

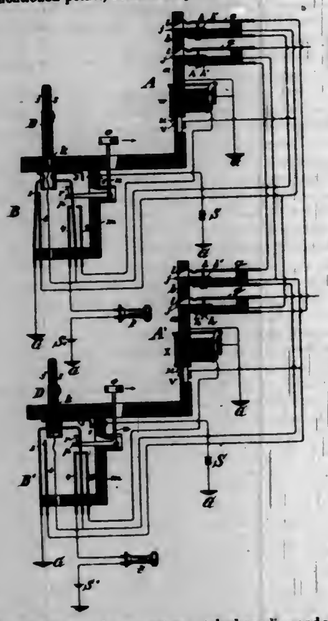
5. In a telephone-exchange system, a metallic-circuit line, a loop-switch plug for the line, to the two contact-pieces of which, respectively, are connected the two sides or branches of the line, a plug switching device into which the plug is placed normally or when not in use and two bridge circuits or connections for said line, one containing the line-annunciator and the other containing the operator's telephone, both bridge-circuits being normally open but automatically closed by the plug switching device on the withdrawal of the plug from its normal position, a calling-generator and another switching device distinct from said plug switching device (except by the circuit connections) and having contacts operated at the will of the operator to switch her telephone out of and the generator into said second-mentioned bridge, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line, a loop-switch plug for the line, to the two contact-pieces of which respectively, are connected the two sides or branches of the line, a plug switching device into which the plug is placed normally or when not in use and two bridge-circuits or connections for said line, one containing the line-annunciator and the other containing the operator's telephone, both bridge-circuits being normally open but automatically closed by the plug switching device on the withdrawal of the plug from its normal position, a calling-generator its circuit connections and a commutator-piece controlled at the will of the operator to at one motion operate contacts to switch her telephone out of and the generator into said second-mentioned bridge, substantially as set forth.

592,876. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,097. (No model.) Patented in England Apr. 8, 1890, No. 5,965, and in Germany Apr. 15, 1890, No. 62,413.

Claim.—1. In a telephone-exchange system, a telephone-line and a switch-plug connected to the line by a flexible conducting-cord, in combination with an operator's telephone, the line-annunciator, a compound answering-switch for the line into which the plug is normally placed, a contact-point in said switch connected with the line, a second point connected with the ground through the annunciator, and a

third point connected to the ground through the telephone, said first and second points being closed while the plug is in the switch but automatically opened on the withdrawal of the plug, and said first and third mentioned points being open while the plug is in the switch but automatically closed on the withdrawal of the plug, and a commutator-piece in said switch adapted to be moved by the operator to close said first and second mentioned points, and open said first and third mentioned points, substantially as set forth.



2. In a telephone-exchange system, a telephone-line and a switch-plug connected to the line by a flexible conducting-cord, in combination with an operator's telephone, a compound answering-switch into which the plug is normally placed, a pair of contacts in said switch closed to each other while the plug is in the switch, but automatically opened on the withdrawal of the plug, to one of which the line is connected and to the other of which the ground is connected, a pair of contacts open while the plug is in the switch but automatically closed on the withdrawal of the plug, to one of which the line is connected and the other of which is grounded through the telephone, and a commutator-piece adapted, when the plug is out of the switch, to be moved by the operator to close said first pair and open said second pair of contacts, substantially as set forth.

3. In a telephone-exchange system, a telephone-line and a switch-plug connected to the line by a flexible conducting-cord, in combination with an operator's telephone, the line-annunciator, a compound answering-switch into which the plug is normally placed, a pair of contacts in said switch closed to each other while the plug is in the switch, but automatically opened on the withdrawal of the plug, to one of which the line is connected and to the other of which the ground is connected, through the annunciator, a pair of contacts open while the plug is in the switch but automatically closed on the withdrawal of the plug, to one of which the line is connected and the other of which is grounded through the telephone, and a commutator-piece adapted, when the plug is out of the switch, to be moved by the operator to close said first pair and open said second pair of contacts, substantially as set forth.

4. In a telephone-exchange system, two lines temporarily connected together in a circuit for conversation, in combination with an operator's telephone, an annunciator and a calling-generator, each grounded on one side, a switching device having three contacts to which said telephone, annunciator and generator are respectively connected on their other side, a connection with the circuit of said lines, and a commutator-piece adapted at the will of the operator to close said connection with either of said contacts, substantially as set forth.

5. In a telephone-exchange system, two lines normally grounded through their line-annunciators, and temporarily disconnected from their annunciators and connected together in a circuit for conversation, in combination with an operator's telephone, a switching device having two contacts, one of which is grounded through the telephone, and the other of which is grounded through one of said line-annunciators, a connection with the circuit of said lines, and a commutator-piece adapted at the will of the operator to close said connection to either of said contacts, substantially as set forth.

6. In a telephone-exchange system, two lines temporarily connected together in a circuit for conversation, in combination with an operator's telephone, an annunciator and a calling-generator, each grounded on one side, a switching device having three contacts to which said telephone, annunciator and generator are respectively connected on their other side, a connection with the circuit of said lines, and a commutator-piece adapted at the will of the operator to be placed in three positions, in the first of which said connection is grounded through the telephone, in the second of which it is grounded through the annunciator, and in the third of which it is grounded through the generator, substantially as set forth.

7. In a telephone-exchange system, a telephone-line and a switch-plug connected to the line by a flexible conducting-cord, in combination with a test-circuit for the line normally open, a switching device into which the plug is normally placed, a pair of contacts in said switching device, normally open, but closed on the withdrawal of the plug, to one of which the test-wire is connected and to the other of which the ground is connected, an annunciator for the line and a pair of contacts in the annunciator, normally open but closed while the annunciator indicates a call, to one of which the test-wire is connected, and to the other of which the ground is connected, substantially as set forth.

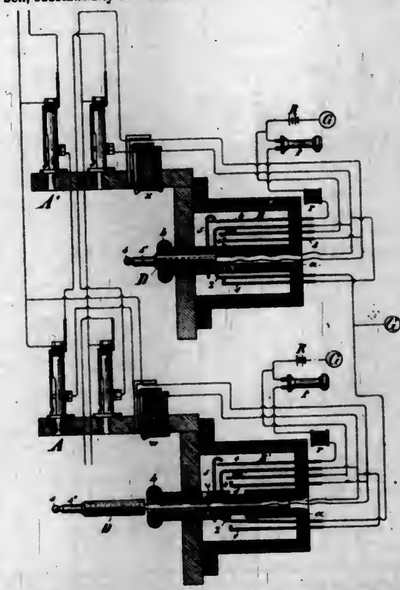
8. In a telephone-exchange system, a telephone-line, switches for the line, one on each of several boards, a switch-plug for the line connected to the line with a flexible conductor and adapted to be placed in the switches of other lines, and a line-annunciator normally in the circuit of the line, in combination with a switching device for the plug into which the plug is normally placed, a normally open test-circuit for the line, a pair of contacts in each of said switches, normally open but closed while a switch-plug is inserted into the switch, a pair of contacts in said switching device, normally open but closed while the plug is withdrawn from the device, and a pair of contacts in said annunciator, normally open but closed while the annunciator indicates a call, one contact of each pair being connected with the ground and the other with said normally open test-wire, substantially as set forth.

9. In a telephone-exchange system, a telephone-line, switches for the line, one on each of several boards, a switch-plug for the line connected to the line by a flexible conductor and adapted to be placed in the switches of other lines, and a line-annunciator, normally in the circuit of the line in combination with a switching device for the plug into which the plug is normally placed, a normally open test-circuit for the line, a pair of contacts in each of said switches, normally open but closed while a switch-plug is inserted into the switch, a pair of contacts in said switching device, normally open but closed while the plug is withdrawn from the device, a pair of contacts in said annunciator, normally open but closed while the annunciator indicates a call, one contact of each pair being connected with the ground, and the other with said normally open test-wire, test receiving instruments, one at each board, each grounded on one side and connected on the other side to a plug or device adapted to be brought into connection with said normally open test-wire, and a battery between the ground and each test-plug, substantially as set forth.

592,877. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,088. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit telephone-line one side or branch of which is normally connected with the ground at the central office but disconnected from such ground while switched for conversation and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station normally in the circuit of the line but switched or shunted from said circuit while the subscriber's telephone is switched for use, and a test wire or circuit at the central office containing a test receiving instrument and battery, grounded at one end and connected at its other end to a plug or device adapted to be brought into connection with the normally open end of the line, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit telephone-line one side or branch of which is normally connected with the ground at the central office but disconnected from such ground while switched for conversation and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station normally in the circuit of such line but switched or shunted from such circuit while the subscriber's telephone is switched for use, a test receiving instrument at the central office grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line, and a battery in the test-circuit established on testing, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.



3. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally connected with the ground at the central office and the other side or branch of which is normally open at the central office, in combination with switching apparatus by which the line is disconnected from such ground connection while it is switched for conversation, a vibrating bell at the subscriber's station, normally in the circuit of the line, a switch with contacts and connections by which the bell is shunted while the subscriber's telephone is switched for use and a test wire or circuit at the central office, containing a test receiving instrument and battery, grounded at one end and connected at its other end to a plug or device adapted to be brought into connection with such normally open end of the line, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally connected with the ground at the central office and the other side or branch of which is normally open at the central office, in combination with switching apparatus by which the line is disconnected from such ground connection while switched for conversation, a vibrating bell at the subscriber's station, normally in the circuit of the line. a switch with contacts and connections by which the bell is shunted while the subscriber's telephone is switched for use, a test receiving instrument at the central office grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with the normally open end of the line, and a battery in the circuit established on testing, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line, one side or branch of which contains a polarized annunciator and is normally grounded at the central office but disconnected from the ground while switched for conversation and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station normally in the circuit of the line but switched or shunted while the subscriber's telephone is switched for use, and a test wire or circuit at the central office containing a test receiving instrument and battery, grounded at one end and connected at the other end to a plug or device adapted to be brought into connection with the normally open end of the line, the annunciator and battery being so connected into the circuit that the battery does not operate the annunciator, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line, one side or branch of which contains a polarized annunciator and is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with switch apparatus by which the line is disconnected from such ground connection while switched for conversation, a vibrating bell at the subscriber's station, normally in the circuit of the line, a switch with contacts and connections by which the bell is switched or shunted from the line while the subscriber's telephone is switched for use, a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with said normally open end of the line, and a battery in the circuit thereby established, the annunciator and battery being so connected into the circuit that the battery does not operate the annunciator, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth

7. In a telephone-exchange system, a metallic-circuit line, one side or branch of which contains an annunciator and is normally grounded at the central office but disconnected from the ground while switched for conversation and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station, a switch with contacts and connections by which the bell is switched or shunted from the circuit while the subscriber's telephone is switched for use, and a test wire or circuit at the central office, containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with the normally open end of the line, said annunciator and battery being so constructed and connected that when thus connected in a circuit the battery does not operate the annunciator, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line one side or branch of which contains an annunciator and is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with switch apparatus by which the line is disconnected from such ground connection while switched for conversation, a vibrating bell at the subscriber's station normally in the circuit of the line but switched or shunted from such circuit while the subscriber's telephone is switched for conversation, a test receiving instrument at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, and a battery in the circuit thereby established, said annunciator and battery being so constructed and connected that when thus connected into a circuit the battery does not operate the annunciator, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line normally disconnected from the ground at the subscriber's station, one side or branch of which is normally connected with the ground at the central office but disconnected from such ground connection while switched for conversation, in combination with a vibrating bell at the subscriber's station, normally in the circuit of the line but switched or shunted from the circuit while the subscriber's telephone is switched for use, and a test wire or circuit at the central office, containing a test receiving instrument and a battery, grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line normally disconnected from the ground at the subscriber's station, one side or branch of which is normally connected with the ground at the central office and the other side or branch of which is normally open at the central office, in combination with switching apparatus by which such ground connection at the central office is broken while the line is switched for conversation, a vibrating bell at the subscriber's station normally in the circuit of the line, a switch with contacts and connections by which the bell is switched or shunted while the

subscriber's telephone is switched for use, a test receiving instrument at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, and a battery in the circuit thereby established, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line normally disconnected from the ground at the subscriber's office, one side or branch of which contains a polarized annunciator and is normally grounded at the central office but disconnected from the ground while the line is switched for conversation and the other side or branch of which is normally open at the central office, in combination with a calling-generator at the subscriber's station, contact-points and connections by which the line is grounded while the generator is operated with the generator in circuit between such ground connection and the normal ground at the central office, a vibrating bell normally in the circuit of the line at the subscriber's station but switched or shunted from circuit while the subscriber's telephone is switched for use and a test wire or circuit containing a test receiving instrument and a battery, grounded at one end and connected at its other end to a plug or device adapted to be brought into connection with the normally open end of the line, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

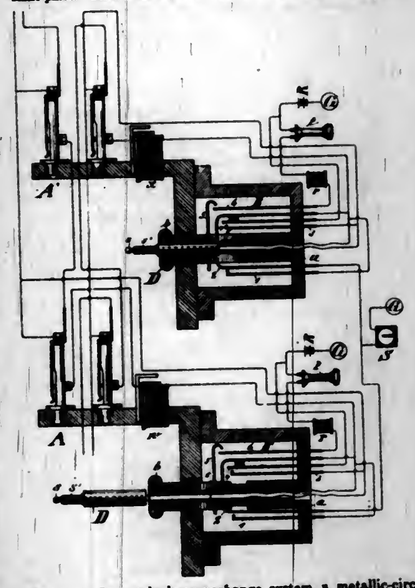
12. In a telephone-exchange system, a metallic-circuit line normally disconnected from the ground at the subscriber's station, one side or branch of which contains a line-annunciator and is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with switching apparatus to disconnect the line from its normal connection with the ground while it is switched for use, a calling-generator at the subscriber's station, contact-points and connections by which the line is grounded while the generator is operated with the generator between such ground connection and the normal ground connection of the line at the central office, a vibrating bell at the subscriber's station normally in the circuit of the line, a switch with contacts and connections by which the bell is switched or shunted from the circuit while the subscriber's telephone is switched for use, a test receiving instrument at the central office, grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, and a battery in the circuit thereby established, said battery being so strong as to operate said bell and said test receiving instrument being such as to respond to the make and break of the battery-current caused by the operation of said bell, substantially as set forth.

13. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with switching apparatus by which such normal ground connection is broken while the line is switched for conversation, a vibrating bell normally in the circuit of the line at the subscriber's station, a switch with contact-points and connections by which the bell is switched or shunted from the circuit while the subscriber's telephone is switched for conversation, connecting apparatus by which the operator may temporarily ground such normally open side or branch of the line, and a battery in the circuit which may thereby be established, said battery being so strong as to operate said bell, and the test receiving instrument being such as to respond to the vibrations of the bell when they are thus included in closed circuit with each other, substantially as set forth.

14. In a telephone-exchange system, a metallic-circuit line which is normally disconnected from the ground at the subscriber's station and has a vibrating bell there in its circuit while his telephone is not switched for use and only then, one side or branch of the line being normally grounded at the central office and the other side or branch of the line being normally open at the central office, in combination with apparatus by which the operator may ground such normally open side or branch of the line and a battery in the circuit thereby established, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

15. In a telephone-exchange system, a metallic-circuit line which is normally disconnected from the ground at the subscriber's station and has there a vibrating bell in its circuit while his telephone is not switched for use, one side or branch of the line being normally grounded at the central office and the other side or branch being normally open at the central office, in combination with switch apparatus by which such normal ground connection is broken while the line is switched for conversation, connecting apparatus by which the operator may temporarily ground such normally open side or branch of the line, and a battery in the circuit thereby established, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

592,878. **MULTIPLE SWITCHBOARD.** MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,089. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit telephone-line one side or branch of which is normally grounded at the central office but is disconnected from the ground while switched for conversation and the other side or branch of which is normally open at the central office, in combination with a signal-bell normally in the circuit of the line at the subscriber's station, and a calling generator or battery grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the open end of the line, said generator or battery being of such strength and kind as to operate said bell when they are thus closed to each other, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit telephone-line one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office and which is normally disconnected from the ground at the subscriber's station, in combination with a signal-bell normally in the circuit of the line at the subscriber's station, and a calling battery or generator grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the open end of the line, said generator or battery being of such strength and kind as to operate said bell when they are thus closed to each other, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit telephone-line one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, and a polarized annunciator in said first-mentioned side or branch of the line, in combination with a calling-battery at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, said annunciator and battery being so connected in the circuit that the battery does not operate the annunciator, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line normally open to the ground at the subscriber's station, one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, a polarised annunciator in said first-mentioned side or branch of the line, in combination with a battery at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, and the battery and annunciator being so connected that the battery does not operate the annunciator when they are thus included in a circuit, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line normally open to the ground at the subscriber's station, one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with a signal-receiving bell normally in the circuit of the line at the subscriber's station, a polarized annunciator in the normally-grounded branch of the line at the central office, and a battery at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, said battery being of such strength as to operate said bell, and said annunciator and battery being so connected that the battery does not operate the annunciator when they are thus included in a circuit, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit telephone-line normally open to the ground at the subscriber's station, one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, and an annunciator in said first-mentioned side or branch of the line, in combination with a signal-receiving bell normally in the circuit of the line at the subscriber's station and a battery at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, said battery being of such strength as to operate said bell, and said annunciator and battery being so constructed and related that the battery does not operate the annunciator when they are thus included in a circuit, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office and the other branch of which is normally open at the central office, and an annunciator in said first-mentioned side or branch of the line, in combination with a signal-receiving bell normally in the circuit of the line at the subscriber's station and a battery at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the open end of the line, said battery being of such strength as to operate said bell, and the annunciator and battery being so constructed and related that the annunciator is not made to indicate when they are thus included together in a circuit, substantially as set forth.

8. In a telephone-exchange system, a metallic line one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, and a polarized annunciator in said first-mentioned side or branch of the line, in combination with a calling-battery and test receiving instrument at the central office in a circuit which is grounded at one end and connected at its other end to a plug or device adapted to be brought into connection with the normally open end of the line, said annunciator and battery being so connected that when thus included in a circuit the battery does not operate the annunciator, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office and the other side or branch of which is normally open at the central office, and a polarized annunciator in said first-mentioned side or branch of the line, in combination with a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, and a battery in the circuit thereby established, said annunciator and battery being so connected that the annunciator is not caused to indicate when they are thus connected into a circuit, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office but disconnected from the ground while switched for conversation and the other side or branch of which is normally open at the central office, in combination with a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, a battery and a rheotome in the circuit thereby established, and a signal-receiving bell at the subscriber's station normally in the circuit of the line constructed to respond to the make and break of the current when on closed circuit with the battery and rheotome, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line and a switch for the line located at a switchboard in the central office, said switch having a pair of contacts normally in contact and a third contact-piece adapted to have a plug applied to it, one side or branch of the line passing through said pair of contact-points to ground and the other side or branch of the line connected to said third contact-piece, in combination with a signal-bell at the subscriber's station normally in the circuit of the line, a calling-battery (or generator) grounded on one side and connected on its other side to a contact-piece of a switch-plug adapted to be inserted into said switch to switch the line with another line and when inserted first to form connection between said contact-piece of the plug and said third contact-piece of the switch and then to separate said normally closed contact-points, said battery being of such strength and kind as to operate said bell when they are thus closed to each other, substantially as set forth.

12. In a telephone-exchange system, a metallic-circuit line and a switch for the line located at a switchboard in the central office, said switch having a pair of contacts normally in contact and a third contact-piece adapted to have a plug applied to it, one side or branch of the line passing through said pair of contacts to ground and the other side or branch of the line connected to said third contact-piece, in combination with a signal-bell at the subscriber's station normally in the circuit of the line, a calling-battery and a test receiving instrument in a circuit wire or connection grounded on one side and connected on its other side to a contact-piece of a switch adapted to be inserted into said switch and when inserted first to form connection between said contact-piece of the plug and said third contact-piece of the switch and then to separate said normally closed contacts, said battery being of such strength and kind as to operate said bell and test receiving instrument when they are thus closed to each other, substantially as set forth.

13. In a telephone-exchange system, a metallic-circuit line, a switch for said line on a switchboard, having a pair of contacts normally in contact through which one side or branch of said line normally passes to ground and a third contact-piece connected to the other side of said line, in combination with a signal bell normally in the circuit of the line at the subscriber's station, a signal-battery at the central office grounded on one side and a switch-plug connected to the other side of said battery, adapted to be inserted into said switch and when inserted to first form connection with said third contact-piece and then to open said pair of contacts, said battery being of such strength as to operate said signal-bell when thus closed with it, substantially as set forth.

14. In a telephone-exchange system, a metallic-circuit line, switches for said line, one on each of the multiple boards, each having a pair of contacts normally in contact through which one side or branch of said line normally passes to ground, and a third contact-piece connected to the other side of said line, in combination with a signal-bell normally in the circuit of the line at the subscriber's station, a signal-battery at the central office grounded on one side, and switch-plugs at each board connected to the other side of said battery, adapted to be inserted into said switch at their board and when inserted to first form connection with said third contact-piece and then to open said pair of contacts of said switch, said battery being of such strength as to operate said signal-bell when thus closed with it, substantially as set forth.

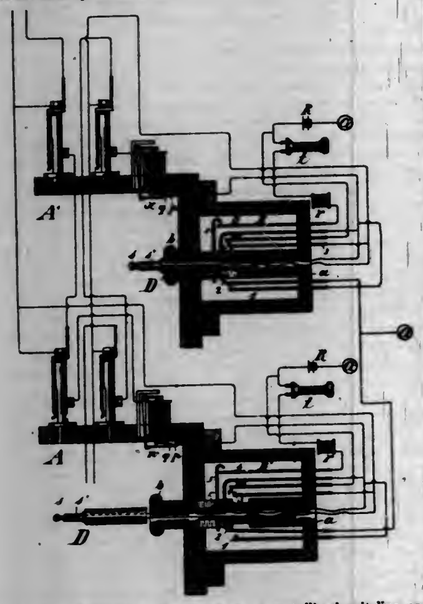
592,879. **MULTIPLE SWITCHBOARD.** MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 26, 1890. Serial No. 360,090. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit telephone-line one side or branch of which is normally connected with the ground at the central office but disconnected from such ground while switched for conversation and has an annunciator normally in its circuit with contact-points by which the circuit is open while the annunciator indicates a call and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station normally in the circuit of the line but switched or shunted from said circuit while the subscriber's telephone is switched for use and a test wire or circuit at the central office containing a test receiving instrument and battery, grounded at one end and connected at its other end to a plug or device adapted to be brought into connection with the normally open end of the line, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit telephone-line one side or branch of which is normally connected to the ground at the central office but disconnected from such ground while switched for conversation and has an annunciator normally in its circuit with contact-points by which the circuit is open while the annunciator indicates a call and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station normally in the circuit of such line but switched or shunted from such circuit while the subscriber's telephone is switched for use, a test receiving instrument at the central office grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line and a battery in the test-circuit established on testing, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally connected with the ground at the central office and has an annunciator normally in its circuit with contact-points by which the circuit is open while the annunciator indicates a call, and the other side or branch of which is normally open

at the central office, in combination with switching apparatus by which the line is disconnected from such ground connection while it is switched for conversation, a vibrating bell at the subscriber's station, normally in the circuit of the line, a switch with contacts and connections by which the bell is shunted while the subscriber's telephone is switched for use and a test wire or circuit at the central office, containing a test receiving instrument and battery, grounded at one end and connected at its other end to a plug or device adapted to be brought into connection with such normally open end of the line substantially as set forth.



4. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally connected with the ground at the central office and has an annunciator normally in its circuit with contact-points by which the circuit is open while the annunciator indicates a call and the other side or branch of which is normally open at the central office, in combination with switching apparatus by which the line is disconnected from such ground connection while switched for conversation, a vibrating bell at the subscriber's station, normally in the circuit of the line, a switch with contacts and connections by which the bell is shunted while the subscriber's telephone is switched for use, a test receiving instrument at the central office grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with the normally open end of the lines and a battery in the circuit established on testing, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line, one side or branch of which contains a polarized annunciator having contact-points by which the circuit is open while the annunciator indicates a call and is normally grounded at the central office but disconnected from the ground while switched for conversation and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station normally in the circuit of the line but switched or shunted while the subscriber's telephone is switched for use and a test wire or circuit at the central office containing a test receiving instrument and battery, grounded at one end and connected at the other end to a plug or device adapted to be brought into connection with the normally open end of the line, the annunciator and battery being so connected into the circuit that the battery does not operate the annunciator, substantially as set forth.

6. In a telephone exchange system, a metallic-circuit line, one side or branch of which contains a polarized annunciator having contact-points by which the circuit is open while the annunciator indicates a call, and is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with switch apparatus, by which the line is disconnected from such ground connection while switched for conversation, a vibrating bell at the subscriber's station, normally in the circuit of the line, a switch with contacts and connections by which the bell is shunted or shunted from the line while the subscriber's telephone is switched for use, a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with said normally open end of the line, and a battery in the circuit thereby established, the annunciator and battery being so connected into the circuit that the battery does not operate the annunciator, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line, one side or branch of which contains an annunciator having contact points by which the circuit is open while the annunciator indicates a call and is normally grounded at the central office but disconnected from the ground while switched for conversation and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station, a switch with contacts and connections by which the bell is switched or shunted from the circuit while the subscriber's telephone is switched for use, and a test wire or circuit at the central office, containing a test receiving instrument and battery, grounded at one end and connected at its other end to a test plug or device adapted to be brought into connection with the normally open end of the line, said annunciator and battery being so constructed and connected that when thus connected in a circuit the battery does not operate the annunciator, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line one side or branch of which contains an annunciator having contact-points by which the circuit is open while the annunciator indicates a call and is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with switch apparatus by which the line is disconnected from such ground connection while switched for conversation, a vibrating bell at the subscriber's station normally in the circuit of the line but switched or shunted from such circuit while the subscriber's telephone is switched for conversation, a test receiving instrument at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, and a battery in the circuit thereby established, said annunciator and battery being so constructed and connected that when thus connected into a circuit the battery does not operate the annunciator, substantially as set forth.

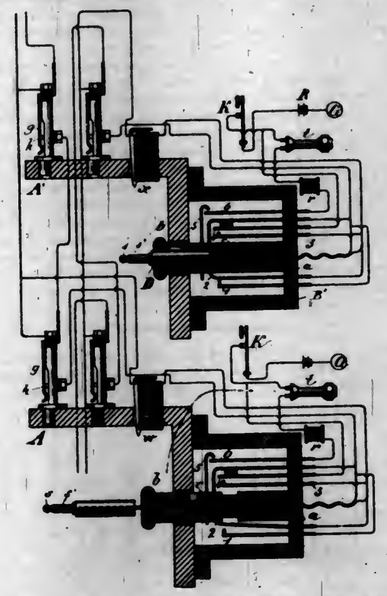
9. In a telephone-exchange system, a metallic-circuit line normally disconnected from the ground at the subscriber's station, one side or branch of which is normally connected with the ground at the central office but disconnected from such ground connection while switched for conversation and has an annunciator normally in its circuit with contact-points by which the circuit is open while the annunciator indicates a call and the other branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station, normally in the circuit of the line but switched or shunted from the circuit while the subscriber's telephone is switched for use, and a test wire or circuit at the central office, containing a test receiving instrument and a battery, grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line normally disconnected from the ground at the subscriber's station, one side or branch of which is normally connected with the ground at the central office and has an annunciator normally in its circuit with contact-points by which the circuit is open while the annunciator indicates a call and the other side or branch of which is normally open at the central office, in combination with switching apparatus by which such ground connection at the central office is broken while the line is switched for conversation, a vibrating bell at the subscriber's station normally in the circuit of the line, a switch with contacts and connections by which the bell is switched or shunted while the subscriber's telephone is switched for use, a test receiving instrument at the central office grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, and a battery in the circuit thereby established, substantially as set forth,

11. In a telephone-exchange system, a metallic-circuit line normally disconnected from the ground at the subscriber's office, one side or branch of which contains a polarized annunciator normally in its circuit with contact-points by which the circuit is open while the annunciator indicates a call and is normally grounded at the central office but disconnected from the ground while the line is switched for conversation and the other side or branch of which is normally open at the central office, in combination with a calling-generator at the subscriber's station, contact-points and connections by which the line is grounded while the generator is operated with the generator in circuit between such ground connection and the normal ground at the central office, a vibrating bell normally in the circuit of the line at the subscriber's station but switched or shunted from circuit while the subscriber's telephone is switched for use and a test wire or circuit containing a test receiving instrument and a battery, grounded at one end and connected at its other end to a plug or device adapted to be brought into connection with the normally open end of the line, substantially as set forth.

12. In a telephone-exchange system, a metallic-circuit line normally disconnected from the ground at the subscriber's station, one side or branch of which contains a line-annunciator having contact-points by which the circuit is open while the annunciator indicates a call and is normally grounded at the central office and the other side or branch of which is normally open at the central office, in combination with switching apparatus to disconnect the line from its normal connection with the ground while it is switched for use, a calling-generator at the subscriber's station, contact-points and connections by which the line is grounded while the generator is operated with the generator between such ground connection and the normal ground connection of the line at the central office, a vibrating bell at the subscriber's station, normally in the circuit of the line, a switch with contacts and connections by which the bell is switched or shunted from the circuit while the subscriber's telephone is switched for use, a test receiving instrument at the central office, grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open end of the line, and a battery in the circuit thereby established, substantially as set forth.

592,380. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed July 28, 1890. Serial No. 360,133. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone and grounded through a battery, contact-points and connections by which when the plug is removed from the switching device the two sides or branches of the line are automatically closed to the two sides, respectively, of said operator's circuit or system, and a key or switch by which the operator may at will open such ground connections through the battery, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's battery, contact-points and connections by which the battery, grounded on one side, is automatically connected on its other side to the circuit of the line when the plug is removed from the switching device, and a key or switch by which the operator may at will open such ground connection through the battery, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's battery, contact-points and connections by which the battery, grounded on one side, is automatically connected on its other side to the circuit of the line when the plug is removed from the switching device, a commutator-piece adapted to be moved by the operator to disconnect the battery from such connection with the line, and a key or switch by which the operator may at will open such ground connection through the battery, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone and grounded through a battery, contact-points and connections by which when the plug is removed from the switching device the two sides or branches of the line are automatically closed to the two sides, respectively, of said operator's circuit, a commutator-piece adapted to be moved by the operator to break such connection between the line and the operator's circuit, and a key or switch by which the operator may at will open such ground connection through the battery, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and which has two pairs of contact-points, each open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, connected to the two sides or branches, respectively, of the line, the two other points connected to the two sides of an operator's telephone, respectively, and the circuit containing such last points grounded through a battery, and a key or switch with contact-points by which the operator may at will open such ground connection through the battery, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and which has two pairs of contact-points, each open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches, respectively, of the line, the two other points being connected to the two sides, respectively, of an operator's telephone and the circuit connecting such last points being grounded through a battery, a commutator piece adapted at the will of the operator to open such pairs of contact-points automatically closed on the withdrawal of the plug, and a key or switch with contact-points by which the operator may at will open such ground connection through the battery, substantially as set forth.

7. In a telephone-exchange system, a switch-plug, a metallic-circuit line, its two sides connected through two flexible conductors to the two contacts on said switch-plug, a switching device into which the plug is placed normally, or while the line is not in use, a pair of contacts in said switching device connected to said two flexible conductors, normally closed to each other but disconnected while the plug is out of the switching device.

8. In a telephone exchange system, a switch-plug, a metallic-circuit line, its two sides connected through two flexible conductors to the two contacts of said plug, a switching device into which the plug is placed normally or while the line is not in use, a pair of contacts in said switching device normally connected and thereby normally connecting together said flexible conductors, automatically opened by the withdrawal of said plug from said switching device.

9. In a telephone-exchange system, metallic-circuit lines, loop-switch plugs, one for each line, each having its two contact-pieces connected, respectively, through flexible conductors, to the two sides or branches of the line, switching devices, one for each plug, each switching device having a pair of contact-points which are closed while the plug is in its normal position in the device and automatically opened on the withdrawal of the plug, said points being connected, respectively, to the two sides or branches of the line, in combination with switches, one for each line, each having a pair of contact-points normally in contact and through which one side or branch of the line passes and a contact-piece to which the other side of the line is connected, each switch being adapted to receive either of said plugs and when the plug is inserted to have the pair of contacts opened and the two contact-pieces of the plug connected with the

two sides or branches of the line to which the switch belongs, substantially as set forth.

10. In a telephone-exchange system, metallic-circuit lines, loop-switch plugs, one for each line, each having its two contact-pieces connected, respectively, through flexible conductors, to the two sides or branches of its line, switching devices, one for each plug and into which the plug is normally placed, each device having a pair of contact points which are closed while the plug is in the device but automatically opened on the withdrawal of the plug, said points being connected, respectively, to the two sides or branches of the line, in combination with switches, one for each line, each having a pair of contact-points normally in contact and through which one side or branch of the line passes and a contact-piece to which the other side of the line is connected, each switch being adapted to receive either of said plugs and when the plug is inserted to have the pair of contact-points separated and the two contact-pieces of the plug connected with the two sides or branches of the line to which the switch belongs, and annunciators, one for each line, connected in the circuit of one branch of the line between a contact-piece of the line-plug and the line-switch, substantially as set forth.

11. In a telephone-exchange system, metallic-circuit lines, loop-switch plugs, one for each line, each having its two contact-pieces connected, respectively, through flexible conductors, to the two branches of the line, switching devices, one for each plug and into which the plug is normally placed, each device having a pair of contact-points which are closed while the plug is in the device but are automatically opened on the withdrawal of the plug, said points being connected to the two sides or branches, respectively, of its line, in combination with switches, one for each line, each having a pair of contact-points normally in contact and through which one side or branch of the line passes and a contact-piece to which the other side is connected, each switch being adapted to receive either of said plugs and when the plug is inserted to have the pair of contact-points which are normally in contact separated and the two contact-pieces of the plug connected with the two sides or branches of the line to which the switch belongs, and annunciators, one for each line, each connected in the circuit of one branch of its line between the said contact-piece of its switch and the contact-piece of its plug, substantially as set forth.

12. In a telephone-exchange system, a loop-switch plug having two plug-contacts, a metallic-circuit line having its two sides connected through two flexible conductors to said plug-contacts respectively, a switching device into which the plug is placed normally or while the line is not in use, said flexible conductors being normally connected together through the influence of said plug, but automatically disconnected by the withdrawal of the plug from its switching device, and an operator's telephone set adapted to be connected automatically in a bridge across said metallic circuit by said withdrawal.

13. In a telephone-exchange system, a loop-switch plug having two plug-contacts, a metallic-circuit line having its two sides connected through two flexible conductors to said plug-contacts respectively, a switching device into which the plug is placed normally or while the line is not in use, said flexible conductors being normally connected together through the influence of said plug, but automatically disconnected by the withdrawal of the plug from its switching device, an operator's telephone set adapted to be connected automatically in a bridge across said metallic circuit by said withdrawal and a commutator-piece adapted to be moved by the operator and break such closed connection between the telephone and the line.

14. In a telephone-exchange system, a metallic-circuit line and a switch-plug to the two contact-pieces of which the two sides of the line are connected by flexible conductors, in combination with a switching device for the plug into which it is normally placed, said device having a pair of contact-points which are in contact when the plug is in the device and automatically open to each other when the plug is withdrawn, the two sides of the line being connected to said contact-points, respectively, and two pairs of contact-points which are open while the plug is in the device and automatically closed on its withdrawal, two of such contact-points, one of each pair, being connected to the two sides, respectively, of the line and the two other points being connected to the two sides, respectively, of an operator's telephone, substantially as set forth.

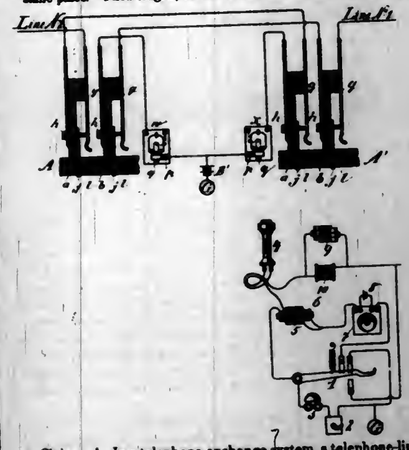
15. In a telephone-exchange system, a metallic-circuit line and a loop-switch plug to the two contact-pieces of which the two sides of the line are connected by flexible conductors, in combination with a switching device for the plug into which the plug is normally placed, which has a pair of contact-points which are in contact when the plug is in the device and out of contact when the plug is withdrawn, the two contact-points being connected to the two sides, respectively, of the line, and which has two pairs of contact-points which are open to each other when the plug is in the device and automatically closed when it is withdrawn, two of such contact-pieces, one of each pair, being connected to the two sides, respectively, of the line and the two other points connected to the two sides, respectively, of an operator's telephone, and a commutator-piece adapted to be moved by the operator to open said pairs of contact-points which are closed on the withdrawal of the plug, substantially as set forth.

16. In a telephone-exchange system, a metallic-circuit line which is grounded at the subscriber's station and has a vibrating bell in its circuit when the subscriber's telephone is not switched for use and a loop-switch plug for the line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's circuit or system containing a telephone and grounded through a battery, contact-points and connections by which when the plug is removed from the switching device the two sides or branches of the line are automatically closed to the two sides, respectively, of said operator's circuit, and a key or switch by which the operator may at will open such ground connection through the battery, substantially as set forth.

17. In a telephone-exchange system, a metallic-circuit line which is grounded at the subscriber's station when the subscriber's telephone is not switched for use and a loop-switch plug for the line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a switching device into which the plug is normally placed and on which it operates, an operator's battery, contact-points and connections by which the battery, grounded on one side, is automatically connected on its other side to the circuit of the line when the plug is removed from the switching device, a commutator-piece adapted to be moved by the operator to disconnect the battery from such connection with the line, and a vibrating bell at the subscriber's station in circuit between such ground connections at the subscriber's station and the central office, substantially as set forth.

18. In a telephone-exchange system, a metallic-circuit line, a switch at the subscriber's station with contact-points by which the line is grounded when his telephone is not switched for use but not otherwise, and a vibrating bell at the subscriber's station in one side or branch of the line when the telephone is not switched for use, in combination with a circuit connection at the central office containing a battery and test receiving instrument, said circuit connection being grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with said branch of the line, said battery having sufficient strength to operate said bell and the test receiving instrument being such as to respond to the vibrations of the bell when the battery, bell and instrument are thus placed on closed circuit, whereby, by one motion, the operator tests the line and also calls the subscriber whose telephone is not switched for use, substantially as set forth.

592,881. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 5, 1890. Serial No. 361,107. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line normally on closed circuit and containing a test-battery in the circuit, in combination with an annunciator normally in the circuit of the line, having contact-points by which the circuit is open while the annunciator indicates a call, a subscriber's-station apparatus containing a telephone, a telephone-switch, a condenser and resistance-coil in derived circuit, contacts and connections by which said condenser and resistance-coil in derived circuit are included in the circuit of the line while the telephone is switched for use and only then, a test receiving instrument and switching apparatus for looping the same into such normally closed circuit, said instrument being constructed and adjusted to sound or respond when looped into such circuit and neither the telephone is switched for use nor the annunciator indicates a call and not to sound or respond when either the telephone is switched or the annunciator indicates a call, substantially as set forth.

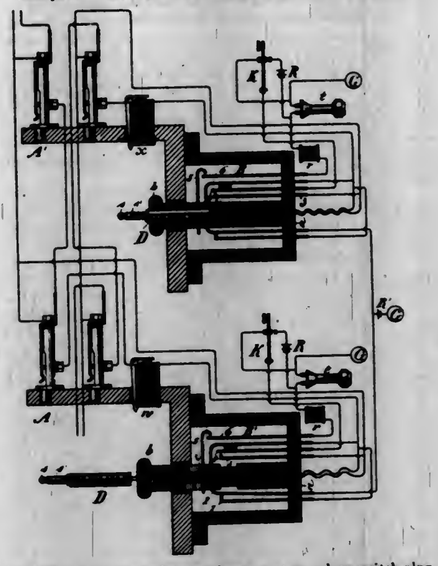
2. In a telephone-exchange system, telephone-lines normally on closed circuit and each having a test-battery in circuit, in combination with an annunciator normally in the circuit of each line, with contact-points by which the line-circuit is open when the annunciator indicates a call, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, a condenser and resistance-coil in parallel circuit, contacts and connections by which said condenser and resistance-coil in parallel circuit are included in the circuit of the line while the telephone is switched for use and only then, a test receiving instrument and switch apparatus for looping the same into the normal circuit of either line, said instrument being constructed and adjusted to sound or respond when looped into the line-circuit and neither the telephone is switched nor the annunciator indicates a call and not to sound or respond when either the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

3. In a telephone-exchange system, ground-circuit lines normally on closed circuit and containing a test-battery in their common ground-wire, in combination with an annunciator normally in the circuit of each line, each annunciator having a pair of contact-points by which its line-circuit is open while the annunciator indicates a call, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, a condenser and resistance-coil in parallel circuit, contacts and connections by which said condenser and resistance-coil in parallel circuit are included in the circuit of the line while the telephone is switched for use and only then, a test receiving instrument and switch apparatus for looping the same into the normal circuit of any line, said instrument being so constructed and so adjusted as to sound when looped into the circuit and neither the subscriber's telephone is switched for use nor the annunciator indicates a call and not to sound or respond when either the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

4. In a telephone-exchange system, a telephone-line normally on closed circuit, in combination with an annunciator normally in the circuit of the line, having contact-points by which the circuit is open while the annunciator indicates a call, a subscriber's-station apparatus containing a telephone, a telephone-switch, a condenser and resistance-coil in derived circuit, contacts and connections by which said condenser and resistance-coil in derived circuit are included in the circuit of the line while the telephone is switched for use and only then, a test receiving instrument, switching apparatus for looping the same into the normal circuit of the line and a battery in the circuit thereby established, said instrument being so constructed and adjusted as to sound or respond when included in such circuit and neither the telephone is switched for use nor the annunciator indicates a call and not to sound or respond when either the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

5. In a telephone-exchange system, telephone-lines grounded at their outer ends and multiple switchboards for the same, each board containing a switch for each line, each switch having a pair of contact-points normally in contact, adapted to receive a switch-plug and when the plug is inserted into the switch to have a pair of contact-points of the switch separated and the contact-piece of the plug in contact with the line contact-point of the switch, and adapted to receive a loop test-plug and when the plug is inserted into the switch to have the pair of contact-points of the switch separated and connection made between them and the contact-pieces of the plug, respectively, each line passing successively through the pairs of contact-points of its switches, passing in each case to the line contact-point first and from the last switch to the ground, in combination with an annunciator normally in the circuit of each line, each annunciator having a pair of contact-points by which its circuit is open while it indicates a call, a test-battery normally in circuit with each line, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, a condenser and resistance-coil in derived circuit, contacts and connections by which the condenser and resistance-coil in derived circuit are included in the circuit of the line while the telephone is switched for use and only then, and a test receiving instrument at each board, included in a loop the two ends of which terminate in the two contact-pieces of a loop test-plug, each instrument being constructed and adjusted to sound or respond when it is included in the normal circuit of either line and neither the line nor the telephone is switched for use nor the annunciator indicates a call and not to sound or respond when either the line or the telephone is switched or the annunciator indicates a call, substantially as set forth.

592,882. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 5, 1890. Serial No. 361,109. (No model.)



Claim.—1. In a telephone-exchange system, a loop-switch plug for a metallic-circuit line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, and a plug switching device into which the plug is normally placed and which has two pairs of contact-points, one contact being a spring with which the plug on its insertion forms contact and which presses each pair open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches, respectively, of the line, and the two other contact-points being connected to the two sides, respectively, of the operator's telephone, in combination with a commutator-piece for said switching device, adapted to be moved by the operator to open said pairs of automatically-closed contact-points, substantially as set forth.

2. In a telephone-exchange system, a loop-switch plug for a metallic-circuit line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the line, in combination with a plug switching device into which the plug is normally placed and which has two pairs of contact-points, one contact being a spring with which the plug on its insertion forms contact and which presses each pair open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches of the line, and the two other points being connected to an operator's circuit which is connected with the ground and contains the operator's telephone between such ground connection and a contact-piece of the switch-plug adapted to be brought for testing into connection with the test-bolts of the other lines, and a commutator-piece adapted to be moved by the operator to open such automatically-closed contacts, substantially as set forth.

3. In a telephone-exchange system, a loop-switch plug for a metallic-circuit line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of the lines, in combination with a plug switching device into which the plug is normally placed and which has two pairs of contact-points, each pair open while the plug is in the switching device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches, respectively, of the line, and the other two points being connected to the two sides, respectively, of the operator's telephone, and a third pair of contact-points of said switching device closed while the plug is in the switching device but automatically opened on the withdrawal, one point of said pair being connected to one side or branch of the line and the other point to the ground, substantially as set forth.

4. In a telephone-exchange system, a loop-switch plug for a metallic-circuit line, to the two contact-pieces of which, respectively, are connected, through flexible conductors, the two sides or branches of

the line, and a plug switching device into which the plug is normally placed and which has two pairs of contact-points, each pair open while the plug is in the device but automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches, respectively, of the line, and the two other contact-points being connected to the two sides, respectively, of the operator's telephone, and a third pair of contact-points of said switching device which are closed while the plug is in the switching device but automatically opened on the withdrawal of the plug, one of said points being connected to one side or branch of the line and the other to the ground, in combination with a commutator-piece for said switching device, adapted to be moved by the operator to open said two pairs of automatically-closed contact-points, substantially as set forth.

5. In a telephone-exchange system, loop-switch plugs, one for each of the metallic-circuit lines, to the two contact-pieces of which are connected, through flexible conductors, the two sides or branches, respectively, of its line, and a switching device for each plug, into which it is normally placed and which has two pairs of contact-points, each pair open while the plug is in its device but automatically closed when the plug is withdrawn from the device, two contact-points, one of each pair, being connected to the two sides or branches, respectively, of its line, and the two other points being connected with the two sides of an operator's telephone, one of the contact-pieces of each switch-plug being adapted to be brought for testing into connection with the test-bolts of the other lines and the operator's telephone grounded with the telephone between the ground connection and the connection established with such contact-piece of the plug on the withdrawal of the plug, and a third pair of contact-points of said switching device which are closed while the plug is in the switching device but automatically opened on the withdrawal of the plug, one of said points being connected with the line and the other with the ground through a test-battery, in combination with a commutator-piece adapted to be moved by the operator to open said pairs of automatically-closed contact-points, substantially as set forth.

6. In a telephone-exchange system, loop-switch plugs, one for each line of the metallic-circuit lines, to the two contact-pieces of which are connected, through flexible conductors, the two sides or branches, respectively, of its line, and a switching device for each plug into which it is normally placed and which has two pairs of contact-points, each pair open while the plug is in its device and automatically closed on the withdrawal of the plug, two contact-points, one of each pair, being connected to the two sides or branches, respectively, of its line, and the two other points being connected to the two sides, respectively, of an operator's circuit containing a telephone said circuit being connected to the ground with the telephone between the ground connection and a contact-piece of the switch-plug which is connected to the circuit on the withdrawal of the plug from its normal position and which is adapted to be brought for testing into connection with any of the other lines, and a third pair of contact-points which are closed while the plug is in the switching device but are automatically opened on its withdrawal, one of said points being connected to the line and the other to the ground, in combination with a commutator-piece adapted to be moved to open said pairs of automatically-closed contact-points, and a battery in the test-circuit normally established on testing, substantially as set forth.

7. In a telephone-exchange system, the combination of a metallic-circuit line, a switch-plug for the line a switching device into which the plug is normally placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, and a wire or connection grounded on one side and connected on its other side to the other point of said pair, substantially as set forth.

8. In a telephone-exchange system, the combination of a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, a wire or connection grounded on one side and connected on its other side to the other point of said pair, and a battery in said wire or connection, substantially as set forth.

9. In a telephone-exchange system, the combination of a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, and the other side of the line being normally open at the central office, and a wire or connection grounded on one side and connected on its other side to the other point of said pair, substantially as set forth.

10. In a telephone-exchange system, the combination of a telephone-line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, and a wire or connection grounded on one side and connected on its other side to the other point of said pair, in combination with a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the line, and a battery in the circuit which may thereby be established on testing, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, the other side of the line being normally open at the central office, a wire or connection grounded on one side and connected on its other side to the other point of said pair, in combination with a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the line, and a battery in the circuit which may thereby be established on testing, substantially as set forth.

12. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, the other side of the line being normally open at the central office, a wire or connection grounded on one side and connected on its other side to the other point of said pair, and a battery in said wire or connection, in combination with a test receiving instrument grounded on one side and connected on its other side to a test plug or device, adapted to be brought for testing into connection with the normally open side or branch of the line, substantially as set forth.

13. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, and a wire or connection connected on one side to the other point of said pair, in combination with a test receiving connected on one side to the other side of said wire or connection, and on its other side to a test plug or device adapted to be brought for testing into connection with the line, and a battery in the circuit which may thereby be established on testing, substantially as set forth.

14. In a telephone-exchange system, a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is normally placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, the other side of the line being normally open at the central office, a wire or connection connected on one side to the other point of said pair, and a battery in said wire or connection, in combination with a test receiving instrument connected on one side to the other side of said wire or connection, and on its other side to a test plug or device adapted to be brought for testing into connection with the normally open side or branch of the line, substantially as set forth.

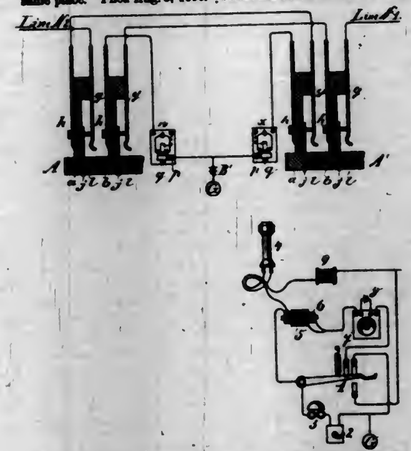
15. In a telephone-exchange system, the combination of a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, and the other side or branch of the line being normally open, a wire or connection grounded on one side and connected on its other side to the other point of said pair, and a switch for the line having a pair of contacts normally closed but open when the switch-plug of another line is placed in the switch, said pair of contacts of the switch being in the circuit of the first-mentioned branch of the line between said pair of contact-points of the switching device, on the one hand and the subscriber's station on the other hand, substantially as set forth.

16. In a telephone-exchange system, the combination of a metallic-circuit line, a switch-plug for the line, a switching device into which the plug is placed and on which it operates, a pair of contact-points of said switching device pressed into contact with each other by the plug when in the device but automatically brought out of contact with each other on the withdrawal of the plug, one of the points of said pair being normally connected with one side or branch of the line, and the other side or branch of the line being normally open, a wire or connection grounded on one side and connected on its other side to the other point of said pair, a switch for the line having a pair of contacts normally closed but open when the switch-plug of another line is placed in the switch said pair of contacts of the switch being in the circuit of the first-mentioned branch of the line between said pair of contact-points of the switching device, on the one hand, and the subscriber's station on the other hand and an annunciator in the circuit of said first-mentioned branch of the line between said pair of contact-points of the switching device, and said pair of contact-points of the switch, substantially as set forth.

17. In a telephone-exchange system, a switching device for a switch-plug for a line into which the plug is placed when it is not in use for switching, said device consisting substantially of the following parts, a pair of contact-points 1, 2, which are in contact with each other when the plug is in the device and out of contact when the plug is withdrawn, two pairs of contacts 3, 4, and 5, 6, of which 5 is a spring-contact connected with 4 by an insulation-piece which carries it, said two pairs of contacts being out of contact when the plug is in the device and coming automatically into contact when the plug is withdrawn from the device, a commutator-piece adapted to be moved by the operator to open said two pairs of automatically-closed contacts, and the insulations and supports for such parts, substantially as set forth.

18. In a telephone-exchange system, a switching device for a switch-plug for a line into which the plug is placed when it is not in use for switching, said device consisting substantially of the following parts, a pair of contact-points which are in contact with each other when the plug is in the device and out of contact when the plug is withdrawn, two pairs of contact-points which are out of contact when the plug is in the device and come automatically into contact when the plug is withdrawn, a commutator-piece adapted to be moved by the operator to open said two pairs of automatically-closed contacts, and insulations and supports for such parts, substantially as set forth.

592,883. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 5, 1890. Serial No. 361,110. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line normally on closed circuit and containing a test-battery in its circuit, in combination with an annunciator normally in the circuit of the line and having contact-points by which the circuit is open when the annunciator indicates a call, the subscriber's-station apparatus, containing a telephone, a telephone-switch, resistance contacts and circuits by which a greater resistance is switched into the circuit of the line when the telephone is switched for use than when it is not thus switched, a test receiving instrument and switch apparatus for looping the same into the normally closed circuit of any of the lines, said instrument being constructed to sound or respond when looped into the circuit and neither the telephone is switched for use nor the annunciator indicates a call and not to respond when either the telephone is thus switched or the annunciator indicates a call, substantially as set forth.

2 In a telephone-exchange system, telephone-lines normally on closed circuit and each having a test-battery in circuit, in combination with an annunciator normally in the circuit of each line, with contact-points by which the line-circuit is open when the annunciator indicates a call, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, resistance, contacts and connections by which a greater resistance is switched into the circuit of the line when the telephone is switched for use, a test receiving instrument and switch apparatus for looping the same into the normally closed circuit of either line, said instrument being constructed and adjusted to sound when looped into the circuit and neither the subscriber's telephone is switched nor the annunciator indicates a call and not to sound when either the telephone is switched or the annunciator indicates a call, substantially as set forth.

3. In a telephone-exchange system, ground-circuit lines normally on closed circuit and containing a test-battery in their common ground-wire, in combination with an annunciator normally in the circuit of each line, with contacts by which the circuit is open when the annunciator indicates a call, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, resistance, contacts and connections by which a greater resistance is switched into the circuit of the line when the telephone is switched for use than when it is not thus switched, a test receiving instrument and switch apparatus for looping the same into the normally closed circuit of any of the lines, said instrument being constructed to sound or respond when looped into the circuit and neither the telephone is switched for use nor the annunciator indicates a call and not to respond when either the telephone is thus switched or the annunciator indicates a call, substantially as set forth.

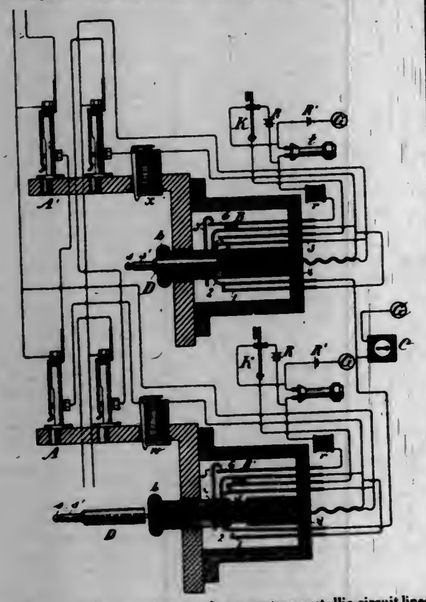
4. In a telephone-exchange system, a telephone-line normally on closed circuit, in combination with an annunciator normally in the circuit of the line, having contact-points by which the circuit is open when the annunciator indicates a call, the subscriber's-station apparatus, containing a telephone, a telephone-switch, resistance, contacts and circuits by which a greater resistance is switched into the circuit while the telephone is switched for use than while it is not thus switched, a test receiving instrument, switch apparatus for looping the same into the line-circuit and a test-battery in the circuit thereby established, said instrument being constructed to respond or sound when looped into the circuit of the line and the annunciator does not indicate a call or the subscriber's telephone is not switched for use and not to sound or respond when either the annunciator indicates a call or the telephone is thus switched, substantially as set forth.

5. In a telephone-exchange system, telephone-lines grounded at their outer ends and multiple switchboards for the same, each board containing a switch for each line, each switch having a pair of contact-points normally in contact, adapted to receive a switch-plug and when the plug is inserted to have the contact-points separated and the contact-piece of the plug in contact with the line contact-point of the switch, and with that only, and adapted to receive a loop test-plug and when the plug is inserted to have the contact-points separated and connection made between them and the two contact-pieces of the plug, respectively, each line passing successively through the pairs of contact-points of its switches, passing in each case to the line contact-point first, and thence to ground, in combination with an annunciator normally in the circuit of each line, each annunciator having a pair of contact-points by which its line-circuit is open while it indicates a call, a test-battery normally in closed circuit with each line, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, resistance, contacts and connections by which greater resistance is included in the line-circuit while the telephone is switched for use than while it is not thus switched, and a test receiving instrument at each board, included in a loop which terminates in the two contact-pieces of a test-plug, each instrument being constructed and adjusted to sound or respond when it is included in the closed circuit of either line and neither the subscriber's telephone is switched for use nor the line-annunciator indicates a call and not to sound when either the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

6. In a telephone-exchange system, telephone-lines grounded at their outer ends and multiple switchboards for the same, each board containing a switch for each line, each switch having a pair of contact-points normally in contact, adapted to receive a switch-plug and when the plug is inserted to have the contact-points separated and the contact-piece of the plug in contact with the line contact-point of the switch and with that only, and adapted to receive a loop test-plug and when the plug is inserted to have the contact-points sepa-

rated and connection made between them and the two contact-pieces of the plug, respectively, each line passing successively through the pairs of contact-points of its switches, passing in each case to the line contact-point first and from the last switch to the common ground of the lines in which is a test-battery, in combination with an annunciator in the circuit of each line, each annunciator having a pair of contact points by which its line-circuit is open while it indicates a call, a subscriber's-station apparatus for each line, containing a telephone, a telephone switch, resistance, contacts and connections by which a greater resistance is included in the circuit of the line while the telephone is switched for use than while it is not thus switched, and a test receiving instrument at each board, included in a loop which terminates in the two contact-pieces of a test-plug, each instrument being constructed and adjusted to sound or respond when it is included in the closed circuit of either line and neither the subscriber's telephone is switched for use nor the annunciator indicates a call and not to sound when either the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

592,384. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 5, 1890 Serial No. 361,111. (No model.)



Claim.—1. In a telephone-exchange system, metallic-circuit lines normally grounded at the central office through a rheotome but disconnected from such ground connection while switched for conversation, in combination with an operator's-telephone coil grounded on one side, a loop-switch plug for each line, one of whose contact pieces is adapted to be brought into contact with the test contact-pieces of the other lines and to the two contact-pieces of which, respectively, are connected through flexible conductors the two sides or branches of the line, a plug switching device into which the plug is normally placed, two pairs of contact-points in said switching device normally open but closed when the plug is withdrawn from the switching device, one of said contact points being connected to the side of the telephone-coil which is not grounded and its mate with said contact-piece of the plug which is adapted to be brought into contact with said test contact-pieces, while the two other points are connected with the other contact-piece of the plug and the other side of the telephone-coil, respectively, and a test-battery in the test-circuit thereby established, substantially as set forth.

2. In a telephone-exchange system, metallic-circuit lines normally grounded at the central office through a rheotome but disconnected from such ground connection while switched for conversation, in combination with an operator's-telephone coil grounded on one side through a test-battery, a loop-switch plug for each line one of whose contact-pieces is adapted to be brought into contact with the test contact-piece of the other lines and to the two contact pieces of which, respectively, are connected through flexible conductors the two sides or branches of the line, a plug switching device into which the plug is normally placed, two pairs of contact-points in said switching device normally open but closed when the plug is withdrawn from the switching device, one of said contact-points being connected to the side of the telephone-coil which is not grounded and its mate with said contact-piece of the plug which is adapted to be brought into contact with said test contact-pieces, while the two other points are connected with the other contact-piece of the plug and the other side of the telephone-coil, respectively, and a test-battery in the test-circuit thereby established, substantially as set forth.

3. In a telephone-exchange system, metallic-circuit lines normally grounded at the central office through a rheotome but disconnected from such ground connection while switched for conversation, in combination with an operator's-telephone coil, a loop-switch plug for each line, one of whose contact-pieces is adapted to be brought into contact with the test contact-pieces which, respectively, are connected through flexible conductors the two sides or branches of the line, a plug switching device into which the plug is normally placed, two pairs of contact-points in said switching device normally open but closed when the plug is withdrawn from the switching device, one of said contact-points being connected to the side of the telephone-coil which is not grounded and its mate with said contact-piece of the plug which is adapted to be brought into contact with said test contact-pieces, while the two other points are connected with the other contact-piece of the plug and the other side of the telephone-coil, respectively, and a test-battery in the test-circuit thereby established, substantially as set forth.

4. In a telephone-exchange system, metallic-circuit lines normally connected at the central office to a common ground wire or connection but disconnected from said common ground-wire while switched for conversation and a rheotome in said common ground-wire, in combination with an operator's-telephone coil grounded on one side, a loop-switch plug for each line, one of whose contact-pieces is adapted to be brought into contact with the test contact-pieces of the other lines and to the two contact-pieces of which plug, respectively, are connected through flexible conductors the two sides or branches of the line, a plug switching device into which the plug is normally placed, two pairs of contact-points in said switching device normally open but closed when the plug is withdrawn from the switching device, one of said contact-points being connected to the side of the telephone-coil which is not grounded and its mate with said contact-piece of the plug which is adapted to be brought into contact with said test contact-pieces, while the two other points are connected with the other contact-piece of the plug and the other side of the telephone-coil, respectively, and a test-battery in the test-circuit thereby established, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line normally connected with the ground at the subscriber's station but disconnected from the ground there while it is in use for conversation, one branch of which is normally or while and as long as the line is not switched for conversation connected to a ground wire or connection at the central office and a rheotome in said ground wire or connection and the other branch of which is normally open at the central office, in combination with a switching device at the central office to disconnect said line from such ground connection through the rheotome when the line is switched for conversation, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line, and a battery in the test-circuit thereby established, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line normally connected with the ground at the subscriber's station but disconnected from the ground there while it is switched for conversation, one branch of which is normally or while and as long as the line is not switched for conversation, connected to one side of a rheotome at the central office and the other branch of which is normally open at the central office and said rheotome, in combination with a switching device at the central office to disconnect the line from such connection with the rheotome, while or during the time the line is switched for conversation a test receiving instrument connected on one side to the other side of the rheotome and on its other side to a test plug or device adapted to be brought into connection with the open end of the line, and a battery in the test-circuit thereby established, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line normally connected with the ground at the subscriber's station, one branch of which is normally or while and as long as the line is not switched for conversation, connected with a ground wire or connection at the central office and a rheotome in said ground wire or connection and the other branch of which is normally open at the central office, in combination with switching devices at the central office which disconnect said line from such ground connection through the rheotome when or during the time the line is switched for conversation, a test receiving instrument grounded on one side and connected on its other side to a switch plug or device adapted to be brought into connection with such normally open branch of the line, and a battery in the test-circuit thereby established, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line normally connected with the ground at the subscriber's station, one branch of which is normally or while and as long as the line is not switched for conversation, connected with one side of a rheotome at the central office and the other branch of which is normally open at the central office and said rheotome, in combination with switching devices at the central office which disconnect the line from such normal connection with the rheotome when or during the time the line is switched for conversation, a test receiving instrument connected on one side to the other side of the rheotome and on its other side to a test plug or device adapted to be brought for testing into connection with such normally open end of the line, and a battery in the test-circuit thereby established, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line normally connected through a resistance to the ground at the subscriber's station but disconnected from the ground there while it is in use for conversation, one branch of which is normally or while and as long as the line is not switched for conversation connected to a ground wire or connection in the central office, a rheotome in said ground wire or connection and the other branch of which is normally open at the central office and said resistance, in combination with switching devices in the central office with contact-points which disconnect said line from said ground connection through the rheotome while or during the time the line is switched for conversation, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line, and a battery in the test-circuit thereby established, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line normally connected through a resistance to the ground at the subscriber's station, one branch of which is normally or while and as long as the line is not switched for conversation, connected to a ground wire or connection at the central office a rheotome in said ground wire or connection, and the other branch of which is normally open at the central office and said resistance, in combination with switching devices in the central office with contact-points which disconnect said line from said ground connection through the rheotome while or during the time the line is switched for conversation, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line and a battery in the test-circuit thereby established, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line normally connected through a signal-receiving bell to the ground at the subscriber's station, one branch of which is normally or while and as long as the line is not switched for conversation connected to a ground wire or connection at the central office a rheotome in said ground wire or connection and the other branch of which is normally open at the central office, and said bell, in combination with switching devices in the central office with contact-points which disconnect said line from said ground connection through the rheotome while or during the time the line is switched for conversation, a test receiving instrument grounded on one side and connected on its other side to a test-plug adapted to be brought for testing into connection with the normally open end of the line and a battery in the test-circuit thereby established, substantially as set forth.

12. In a telephone-exchange system, a metallic-circuit line normally connected through a signal-receiving bell to the ground at the subscriber's station while the line is not in use for conversation, one branch of which is normally or while and as long as the line is not switched for conversation connected to a ground wire or connection at the central office in which is a rheotome and the other branch of which is normally open at the central office, said rheotome and said signal-receiving bell, in combination with switching devices at the central office with contact-points which disconnect the line from said ground connection through the rheotome while or during the time it is switched for use, a test receiving instrument grounded on one side and adapted to be brought for testing into connection with the normally open end of the line and a battery in the test-circuit thereby established, substantially as set forth.

13. In a telephone-exchange system, a metallic-circuit line, one branch of which is normally or while and as long as the line is not switched for conversation connected to a ground wire or connection at the central office in which is a rheotome and the other branch of which is normally open at the central office and said rheotome, in combination with switching devices at the central office with contact-points which disconnect the line from said ground connection through the rheotome while or during the time said line is switched for use, a resistance at the subscriber's station, a switch operated by the subscriber's telephone to ground the circuit of the line through said resistance while the telephone is not switched for use but not otherwise, a test receiving instrument grounded at one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line, at the central office and a battery in the test-circuit thereby established, substantially as set forth.

14. In a telephone-exchange system, a metallic-circuit line, one branch of which is normally or while and as long as the line is not switched for conversation connected to a ground wire or connection at the central office, in which is a rheotome and the other branch of which is normally open at the central office, and said rheotome, in combination with switching devices at the central office with contact-points which disconnect the line from said ground connection through the rheotome while or during the time said line is switched for use, a signal-receiving bell at the subscriber's station, a switch operated by the subscriber's telephone, with contact-points which ground the circuit of the line through said bell when the subscriber's telephone is not switched for use but not otherwise, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line, at the central office, and a battery in the test-circuit thereby established, substantially as set forth.

15. In a telephone-exchange system, a metallic-circuit line, one branch of which is normally or while and as long as the line is not switched for conversation, connected to a ground wire or connection at the central office in which is a rheotome and the other branch of which is normally open at the central office, in combination with switching devices at the central office with contact-points which disconnect the line from said ground connection through the rheotome while or during the time said line is switched for conversation, a signal-receiving bell and a resistance-coil at the subscriber's station, a switch operated by the subscriber's telephone with contact-points which ground the circuit of the line through said bell and resistance-coil while the subscriber's telephone is not switched for use but not otherwise, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line and a battery in the test-circuit thereby established, substantially as set forth.

16. In a telephone-exchange system, a metallic-circuit line, one branch of which is normally or while and as long as the line is not switched for conversation connected at the central office to one side of a rheotome and the other branch of which is normally open at the central office to said rheotome, in combination with switching devices at the central office with contact-points which disconnect the line from said connection with the rheotome while or during the time said line is switched for use, a resistance at the subscriber's station, a switch operated by the subscriber's telephone, which connects the circuit of the line to the ground through said resistance while the subscriber's telephone is not switched for use but not otherwise, a test receiving instrument connected on one side to the other side of said rheotome and on its other side to a test plug or device adapted to be brought for testing into connection with said open branch of the line, and a battery in the test-circuit thereby established, substantially as set forth.

17. In a telephone-exchange system, a metallic-circuit line, one branch of which is normally or while and as long as the line is not switched for conversation, connected at the central office to one side of a rheotome and the other branch of which is normally open at the central office to said rheotome, in combination with switching devices at the central office with contact-points which disconnect the line from said connection with the rheotome while or during the time said line is switched for use, a signal-receiving bell at the subscriber's station, a switch operated by the subscriber's telephone, with contact-points which connect the circuit of the line to the ground through said bell while the subscriber's telephone is not used but not otherwise, a test receiving instrument connected on one side to the other side of said test-battery and on its other side to a test plug or device adapted to be brought for testing into connection with said open branch of the line and a battery in the test-circuit thereby established, substantially as set forth.

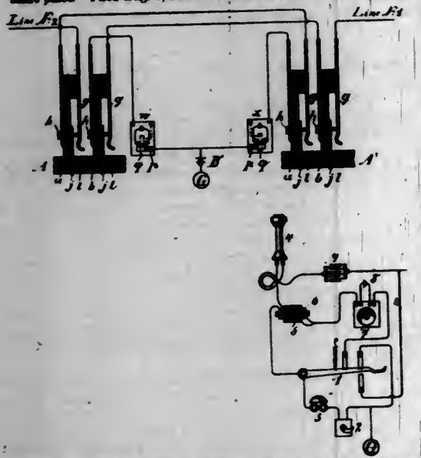
18. In a telephone-exchange system, a metallic-circuit line normally or while and as long as the line is not switched for conversation connected with the ground at the subscriber's station through a resistance but disconnected from the ground there when the line is in use for conversation, one branch of said line being normally connected at the central office with one side of a rheotome and the other branch being open to the rheotome, in combination with switching devices at the central office with contact-points which disconnect the line from said rheotome when or during the time said line is switched for use and a test receiving instrument connected on one side to the other side of said rheotome and on its other side to a test plug or device adapted to be brought for testing into connection with said normally

open end of the line and a battery in the test-circuit thereby established, substantially as set forth.

19. In a telephone-exchange system, a metallic-circuit line, one branch of which is normally connected with the ground wire or connection at the central office in which is a rheotome and the other branch of which is normally open at the central office, and at the subscriber's station a normal ground connection of the line and a signal-bell in said ground connection, in combination with switching devices at the central office which disconnect said line from such ground connection through the rheotome when the line is switched for conversation, a test receiving instrument grounded on one side and connected on its other side to a switch plug or device adapted to be brought into connection with such normally open branch of the line, and a battery in the circuit with the test receiving instrument between its ground connection and its test plug or device, substantially as set forth.

20. In a telephone-exchange system, a metallic-circuit line, one branch of which is normally connected to a ground wire or connection at the central office in which is a rheotome and the other branch of which is normally open at the central office, and at the subscriber's station a normal ground connection of the line of some resistance, in combination with switching devices in the central office with contact-points which disconnect said line from said ground connection through the rheotome while the line is switched for conversation, a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with the normally open end of the line and a battery in the circuit with the test receiving instrument between its ground connection and its test plug or device, substantially as set forth.

592,385. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 5, 1890. Serial No. 361,112. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line normally on closed circuit and containing a test-battery in its circuit, in combination with an annunciator normally in the circuit of the line, having contact-points by which the circuit is open while the annunciater indicates a call, a subscriber's-station apparatus containing a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is included in the circuit of the line while the telephone is switched for use and only then, a test receiving instrument and switch apparatus for looping the same into such normally closed circuit, said instrument being constructed and adjusted to sound or respond when looped into such circuit and neither the telephone is switched for use nor the annunciator indicates a call, and not to sound or respond when either the annunciator indicates a call or the telephone is switched, substantially as set forth.

2. In a telephone exchange system, telephone-lines normally on closed circuit and each having a test-battery in circuit, in combination with an annunciator normally in the circuit of each line, with contact-points by which the line-circuit is open when the annunciator indicates a call, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is included in the circuit of the line when the subscriber's telephone is switched for use and only then, a test receiving instrument and switch apparatus for looping the same into the normally closed circuit of either line, said instrument being constructed and adjusted to sound or respond when looped into the line-circuit and neither the telephone is switched for use nor the annunciator indicates a call and not to sound or respond when either the telephone is switched or the annunciator indicates, substantially as set forth.

3. In a telephone-exchange system, ground-circuit lines normally on closed circuit and containing a test-battery in their common ground-wire, in combination with an annunciator normally in the circuit of each line, each annunciator having a pair of contact-points by which its line-circuit is open while it indicates a call, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is included in the circuit of its line while the subscriber's telephone is switched for use and only then, a test receiving instrument and switch apparatus for looping the same into the normally closed circuit of any line, said instrument being constructed and adjusted to sound when looped into the circuit and neither the subscriber's telephone is switched for use nor the annunciator indicates a call and not to sound when either the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

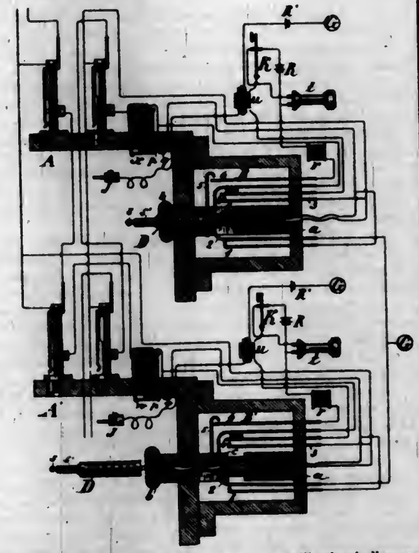
4. In a telephone-exchange system, a telephone-line normally on closed circuit, in combination with an annunciator normally in the circuit of the line, having contact-points by which the circuit is open while the annunciater indicates a call, the subscriber's-station apparatus containing a telephone, a telephone-switch, a condenser, contact-points and connections by which the condenser is included in the circuit of the line while the telephone is switched for use and only then, a test receiving instrument, switching apparatus for looping the same into the normal circuit of the line and a test-battery in the circuit thereby established, said instrument being so constructed and adjusted as to sound or respond when included in such circuit and neither the telephone is switched for use nor the annunciator indicates a call and not to sound when either the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

5. In a telephone-exchange system, telephone-lines grounded at their outer ends and multiple switchboards for the same, each board containing a switch for each line, each switch having a pair of contact-points normally in contact, adapted to receive a switch-plug and when the plug is inserted into the switch to have the pair of contact-points of the switch separated and the contact-piece of the plug in contact with the line contact-point of the switch, and adapted to receive a loop test-plug and when the plug is inserted into the switch to have the pair of contact-points of the switch separated and connection made between them and the two contact-pieces of the plug, respectively, each line passing successively through the pairs of contact-points of its switches, passing in each case to the line-point first and from the last switch to the ground, in combination with an annunciator normally in the circuit of each line, each annunciator having a pair of contact-points by which its circuit is open while it indicates a call, a test-battery normally in circuit with each line, a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, a condenser, contact-points and connections by which the condenser is included in the circuit of the line while the subscriber's telephone is switched for use and only then, and a test receiving instrument at each board, included in a loop the two ends of which terminate in the two contact-pieces of a loop test-plug, each instrument being constructed and adjusted to sound or respond when it is included in the normal circuit of either line and neither the line nor its subscriber's telephone is switched for use nor the annunciator indicates a call and not to sound when either the line or the telephone is thus switched or the annunciator thus indicates, substantially as set forth.

592,386. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 5, 1890. Serial No. 361,113. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office and contains in its circuit an annunciator with contact-points by which the circuit is opened while the annunciator indicates a call, in combination with a test wire or circuit at the central office containing a test-battery and the primary of an induction-coil, and grounded at one end and connected at its other end to a plug or device adapted to be brought for testing into connection with the line, and a test receiving instrument and the secondary of the induction-coil on closed circuit to each other when the test is made, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office and contains in its circuit an annunciator with contact-points by which the circuit is open while the annunciator indicates a call, in combination with a test wire or circuit at the central office, containing the primary of an induction-coil and grounded at one end and connected at its other end to a test plug or device adapted to be brought for testing into connection with the line, a test-battery in the circuit thereby established, and a test receiving instrument and the secondary of the induction-coil in closed circuit to each other while the test is being made, substantially as set forth.



3. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office and contains an annunciator in its circuit with contact-points by which the circuit is open while the annunciator indicates a call, in combination with switching apparatus by which such ground connection is broken while the line is switched for conversation, a test wire or circuit at the central office grounded at one end and connected at its other end to a plug or device adapted to be brought for testing into connection with the line, a test-battery and the primary of an induction-coil in the test-circuit thereby established, and a test receiving instrument and the secondary of the induction-coil in closed circuit to each other when the test is made, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office but is disconnected from the ground while the line is switched for conversation and contains an annunciator with contact-points by which the circuit is open while the annunciator indicates a call, in combination with a test wire or circuit at the central office, containing the primary of an induction-coil and grounded at one end and connected at its other end to a plug or device adapted to be brought for testing into connection with the line, a test-battery in the circuit thereby established, and a test receiving instrument and the secondary of the induction-coil in closed circuit to each other while the test is being made, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office but is disconnected from the ground while the line is switched for conversation and contains an annunciator with contacts by which the circuit is open while the annunciator indicates a call and the other side or branch of which is normally open at the central office, in combination with a test wire or connection at the central office, containing the primary of an induction-coil and grounded at one end and connected at its other end to a plug or device adapted to be brought for testing into connection with the normally open side or branch of the line, a test-battery in the circuit thereby established, and a test receiving instrument and the secondary of the induction-coil on closed circuit to each other while the test is being made, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally connected at the central office to a test wire or circuit which contains the primary of an induction-coil and a test-battery and is disconnected from such test wire or circuit while the line is switched for conversation and contains in its circuit an annunciator with contacts by which the circuit is open while the annunciator indicates a call, in combination with a plug or device connected to the other side of such test wire or circuit and adapted to be brought into connection with the line, and a test receiving instrument and secondary of the induction-coil on closed circuit to each other while the test is being made, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally connected to one side of a test wire or circuit and is disconnected from such test wire or circuit while the line is switched for conversation and has in its circuit an annunciator with contacts by which the circuit is open while the annunciator indicates a call, in combination with a test plug or device adapted to be brought for testing into connection with the line, a test-battery and the primary of an induction-coil in the test-circuit thereby established, and a test receiving instrument and the primary of the induction-coil on closed circuit to each other while the test is made, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally closed to one side of a test wire or circuit and contains an annunciator with contact-points by which the circuit is open while the annunciator indicates a call and the other side or branch of which is normally open at the central office to said test wire or circuit, in combination with a plug or device connected to the other side of said test wire or circuit and adapted to be brought for testing into connection with such normally open side or branch of the line, a test-battery and the primary of an induction-coil in the test-circuit thereby established, and a test receiving instrument and the secondary of the induction-coil in closed circuit to each other when the test is made, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally closed to one side of a test wire or circuit which contains the primary of an induction-coil, said side or branch of the line containing an annunciator with contacts by which the circuit is open while the annunciator indicates a call, and the other side or branch of the line being normally open to the test-wire, in combination with switching apparatus by which such normal connection between the line and the test-wire is broken while the line is switched for conversation, a plug or device adapted to be brought into connection with the normally open side or branch of the line, a test-battery and the primary of an induction-coil in the circuit thereby established, and a test receiving instrument and the secondary of the induction-coil in closed circuit to each other when the test is made, substantially as set forth.

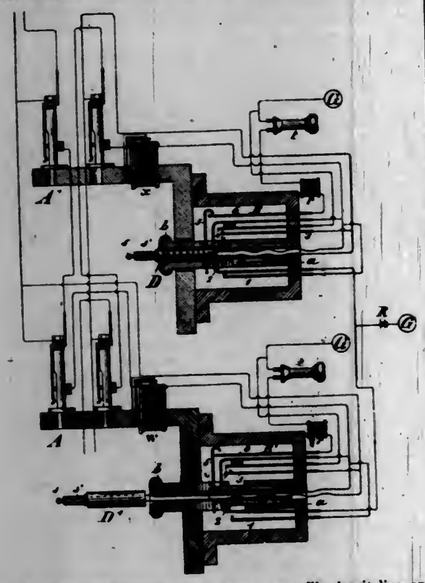
10. In a telephone-exchange system, a metallic-circuit line and an operator's telephone and the secondary of an induction-coil temporarily in closed circuit with the line, in combination with another metallic-circuit line one side or branch of which is normally grounded at the central office but is disconnected from the ground while the line is switched for conversation and has an annunciator in its circuit with contacts by which the circuit is open while the annunciator indicates a call, a test wire or circuit containing the primary of the induction-coil and grounded at one end and connected at the other end to a plug or device adapted to be brought into connection with the line, and a test-battery in the circuit thereby established, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line and an operator's telephone and the secondary of an induction-coil temporarily in closed circuit with the line, in combination with another metallic-circuit line one side or branch of which is normally connected with one side of a test wire or connection but disconnected from the same while the line is switched for conversation, said line having an annunciator in its circuit with contacts and connections by which the circuit is open while the annunciator indicates a call, a plug or device connected to the other side of the test wire or connection and adapted to be brought into connection with the other side or branch of the line, and a battery and the primary of the induction-coil in the circuit thereby established, substantially as set forth.

592,387. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 5, 1890. Serial No. 361,114. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit telephone-line, one side or branch of which is normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with a vibrating bell normally in the circuit of the line at the subscriber's station and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open side or branch of the line, said battery being so strong as to operate said bell and the test receiving instrument being such as to respond to the vibrations of the bell when they are thus included in closed circuit with each other, substantially as set forth.

2. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with a vibrating bell normally in the circuit of the line at the subscriber's station, switching apparatus by which the bell is switched or shunted from the circuit while the subscriber's telephone is switched for use and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open side or branch of the line, said battery being so strong as to operate said bell and the test receiving instrument being such as to respond to the vibrations of the bell when they are thus included in closed circuit with each other, substantially as set forth.



3. In a telephone-exchange system, a metallic-circuit line one side or branch of which in normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with switching apparatus by which such ground connection is broken while the line is switched for conversation, a vibrating bell normally in the circuit of the line at the subscriber's station but switched from the circuit while the telephone is switched for conversation, and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open side of the line, said battery being so strong as to operate said bell and the test receiving instrument being such as to respond to the vibrations of the bell when they are thus included in closed circuit with each other, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with a vibrating bell normally in the circuit of the line at the subscriber's station and apparatus by which the operator may temporarily ground such normally open side or branch of the line, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with a vibrating bell normally in the circuit of the line at the subscriber's station but switched or shunted from the circuit while the telephone is switched for conversation and connecting apparatus by which the operator may temporarily ground such normally open side or branch of the line, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office through a battery but disconnected from such ground connection while the line is switched for conversation and the other side or branch of which is normally open at the central office, in combination with a vibrating bell at the subscriber's station normally in the circuit of the line and connecting apparatus by which the operator may temporarily ground such normally open side or branch of the line, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit telephone-line one side or branch of which is normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with switching apparatus by which such normal ground connection is broken while the line is switched for conversation, switching apparatus for grounding at the central office the normally open side or branch of the line, a vibrating bell normally in the circuit of the line at the subscriber's station and a switch with contacts and connections by which the bell is switched or shunted from the circuit while the subscriber's telephone is switched for use, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office through a battery but which is disconnected from such ground connection while the line is switched for conversation and the other side or branch of which is normally open at the central office, in combination with a vibrating bell normally in the circuit of the line at the subscriber's station, a switch with contacts and connections by which the bell is shunted from the circuit of the line while the telephone is switched for conversation and connecting apparatus by which the subscriber may ground such normally open side or branch of the line, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

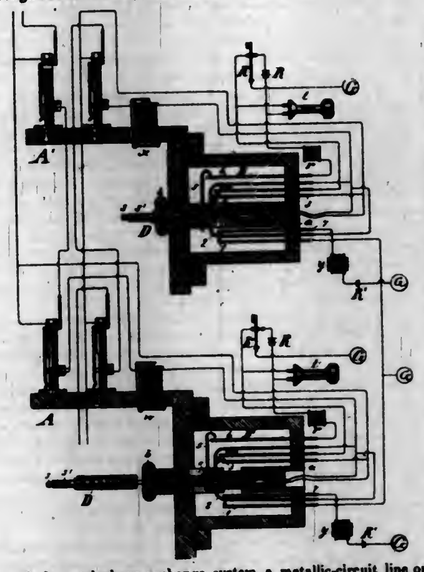
9. In a telephone-exchange system, a metallic-circuit line which is normally disconnected from the ground at the subscriber's station and has a vibrating bell there in its circuit while the subscriber's telephone is not switched for conversation and only then, one side or branch of the line being normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with apparatus by which the operator may at will ground such normally open side or branch of the line, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line which is normally disconnected from the ground at the subscriber's station and has a vibrating bell in its circuit there while his telephone is not switched for use and only then, one side or branch of the line being normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with switch apparatus by which such normal ground connection is broken while the line is switched for conversation and connecting apparatus by which an operator may at the central office ground such normally open side or branch of the line, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line one side or branch of which has a polarized annunciator in its circuit and is normally grounded at the central office through a battery and the other side or branch of which is normally open at the central office, in combination with a calling-generator at the subscriber's station, contacts and connections by which the subscriber may direct a current from his generator which will operate said annunciator, a vibrating bell at the subscriber's station normally in the circuit of the line, and connecting apparatus by which the operator may ground such normally open side or branch of the line, said annunciator and battery being so connected that when thus included in circuit the battery will not operate the annunciator, said battery being so strong as to operate said bell when they are thus included in closed circuit with each other, substantially as set forth.

592,388. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 5, 1890. Serial No. 361,115. (No model.)

Claim.—1. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a test-wire grounded on one side, a test-battery, in said test-wire, a switching device into which the plug is normally placed, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which said line is connected and to the other of which the other side of said test-wire is connected and a pair of contacts through which said line normally passes, normally closed but open on the withdrawal of the plug, by which when the plug is withdrawn from the switching device the said normal ground connection of the line is broken and the line is grounded through the test-battery, substantially as set forth.



2. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire grounded at one end, a retardation-coil in said circuit-wire, and a switching device into which the plug is normally placed, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which said line is connected and to the other of which the other end of said circuit-wire is connected and a pair of contacts through which said line normally passes, normally closed but open on the withdrawal of the plug, by which when the plug is withdrawn from the switching device the said normal connection of the line is broken and the line is grounded through the retardation-coil, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire grounded at one end, a test-battery and retardation-coil in said circuit-wire and a switching device into which the plug is normally placed, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug to one of which said line is connected and to the other of which the other end of said circuit-wire is connected and a pair of contacts through which said line normally passes, normally closed but open on the withdrawal of the plug, by which when the plug is withdrawn from the switching device the line is grounded through the test-battery and retardation-coil, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire grounded at one end, a test-battery in said circuit-wire, a switching device into which the plug is normally placed, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which said line is connected and to the other of which the other end of said circuit-wire is connected and a pair of contacts through which said line normally passes, normally closed but open on the withdrawal of the plug, by which when the plug is withdrawn from the switching device such normal connection of the line is broken and the line is grounded through a test-battery, and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted at the will of the operator to be brought into connection with the line, substantially as set forth.

5. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire grounded at one end, a test-battery and retardation-coil in said circuit-wire, a switching device into which the plug is normally placed, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which said line is connected and to the other of which the other end of said circuit-wire is connected and a pair of contacts through which said line normally passes normally closed but open on the withdrawal of the plug by which when the plug is withdrawn from its normal position in the switching device the normal ground connection of the line is broken and the line is connected to one side of said test-battery, substantially as set forth.

6. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire connected at one end to one side of a test receiving instrument, a test-battery in said circuit-wire and a switching device, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which said line is connected and to the other of which the other end of said circuit-wire is connected and a pair of contacts through which said line normally passes, normally closed but open on the withdrawal of the plug by which when the plug is withdrawn from its normal position in the switching device the normal ground connection of the line is broken and the line is connected to one side of said test-battery, substantially as set forth.

7. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire connected at one end to one side of a test receiving instrument, a retardation-coil in said circuit-wire, and a switching device, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which said line is connected and to the other of which the other end of said circuit-wire is connected and a pair of contacts through which said line normally passes normally closed but open on the withdrawal of the plug by which when the plug is withdrawn from its normal position in the switching device the normal ground connection of the line is broken and the line is connected to one side of said test-battery, substantially as set forth.

8. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire connected at one end to one side of a test receiving instrument, a test-battery and retardation-coil in said circuit-wire, and a switching device, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which said line is connected and to the other of which the other end of said circuit-wire is connected and a pair of contacts through which said line normally passes normally closed but open on the withdrawal of the plug by which when the plug is withdrawn from its normal position in the switching device the normal ground connection of the line is broken and the line is connected to one side of said test-battery, and retardation-coil, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire, a test-battery in said circuit-wire, a switching device into which the plug is normally placed, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which said line is connected and to one of which the other end of said circuit-wire is connected and a pair of contacts through which said line normally passes normally closed but open on the withdrawal of the plug, by which when the plug is withdrawn from the device the normal ground connection of the line is broken and the line is connected to one end of said circuit-wire, and a test receiving instrument connected on one to the other end of said circuit-wire and on its other side to plug or device adapted to be brought into connection with the line, substantially as set forth.

10. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a test-battery and retardation-coil, a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the device the normal ground connection of the line is broken and the line is connected to one side of said test-battery and retardation-coil, and a test receiving instrument connected on one side to the other side of said test-battery and retardation-coil and on its other side to a plug or device adapted to be brought into connection with the line, substantially as set forth.

11. In a telephone-exchange system, a metallic-circuit line, one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for said line, a circuit-wire, a retardation-coil in said circuit-wire, a switching device into which the plug is normally placed, a pair of contacts in said switching device normally open but closed on the withdrawal of the plug, to one of which the other end of said circuit-wire is connected and a pair of contacts through which

said line normally passes normally closed but open on the withdrawal of the plug, by which when the plug is withdrawn from the device the normal ground-connection of the line is broken and the line is connected to one end of said circuit-wire, and a test receiving instrument connected on one side to the other end of said circuit-wire, and on its other side to a plug or device adapted to be brought into connection with the line, substantially as set forth.

12. In a telephone-exchange system, a metallic-circuit line which is normally grounded at the subscriber's station, one side or branch of which is normally grounded and the other side or branch of which is normally open at the central office, in combination with a switch-plug with cord for said line, a test-battery, a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the device the normal ground connection of the line at the central office is broken and the line is grounded through the test battery, and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with said normally open side or branch of the line, substantially as set forth.

13. In a telephone-exchange system, a metallic-circuit line which is normally grounded at the subscriber's station through a resistance, one side or branch of the line being normally grounded and the other side or branch normally open at the central office in combination with a switch with contacts and connections by which such normal ground connection at the subscriber's station is broken while the subscriber's telephone is switched for use, a switch-plug with cord for the line, a test-battery a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the switching device the normal ground connection of the line at the central office is broken and the line is grounded through the test-battery, and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open side or branch of the line, substantially as set forth.

14. In a telephone-exchange system, a metallic-circuit line which is normally grounded at the subscriber's station, one side or branch of which is normally grounded and the other side or branch normally open at the central office, in combination with a switch with contacts and connections by which such normal ground connection at the subscriber's station is broken while the subscriber's telephone is switched for conversation, a switch-plug with cord for the line, a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the switching device the normal ground connection of the line at the central office is broken and the line is grounded through a circuit connection which contains a test-battery and retardation-coil, and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with the normally open side or branch of the line, substantially as set forth.

15. In a telephone-exchange system, a metallic-circuit line one side or branch of which is normally grounded at the central office, in combination with a switch-plug with cord for the line, a test-battery and retardation-coil, a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the device the normal ground connection of the line is broken and the line is connected to one side of a circuit connection containing the test-battery and retardation-coil, and a test receiving instrument connected on one side to the other side of such circuit connection and on its other side to a plug or device adapted to be brought into connection with the line, substantially as set forth.

16. In a telephone-exchange system, a metallic-circuit line normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a test-battery, and a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the switching device the said normal ground connection of the line is broken and the line is grounded through the test-battery, substantially as set forth.

17. In a telephone-exchange system, a metallic-circuit line normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a retardation-coil and a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the switching device the said normal connection of the line is broken and the line is grounded through the retardation-coil, substantially as set forth.

18. In a telephone-exchange system, a metallic-circuit line normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a test-battery and retardation-coil, and a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the switching device such normal ground connection of the line is broken and the line is grounded through the test-battery and retardation-coil, substantially as set forth.

19. In a telephone-exchange system, a metallic-circuit line normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a test-battery, a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the switching device such normal connection of the line is broken and the line is grounded through a test-battery, and a test receiving instrument grounded on one side and connected on its other side to a plug or device adapted at the will of the operator to be brought into connection with the line, substantially as set forth

20. In a telephone-exchange system, a metallic-circuit line normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a test battery and retardation-coil, a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the switching device such normal connection of the line is broken and the line is grounded through said test-battery and retardation-coil, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with the line, substantially as set forth.

21. In a telephone-exchange system, a metallic-circuit line, normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a test-battery, and a switching device with contacts and connections by which when the plug is withdrawn from its normal position in the switching device the normal ground connection of the line is broken and the line is connected to one side of said test-battery, substantially as set forth.

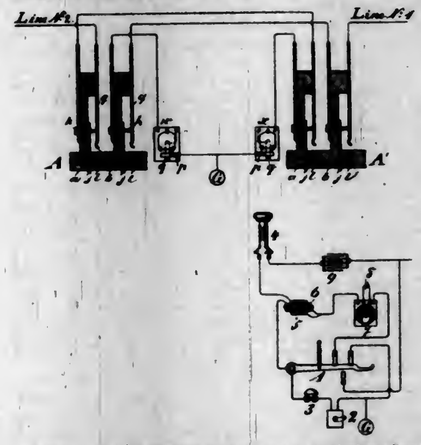
22. In a telephone-exchange system, a metallic-circuit line normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a retardation-coil and a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the device the normal ground connection of the line is broken and the line connected to one side of said retardation-coil, substantially as set forth.

23 In a telephone-exchange system, a metallic-circuit line normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a test-battery and retardation-coil, and a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from its normal position in the device, the normal ground connection of the line is broken and the line is connected to a circuit which contains the test-battery and retardation-coil, substantially as set forth.

24. In a telephone-exchange system, a metallic-circuit line normally grounded at the subscriber's station and one side or branch of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a test-battery, a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the device the normal ground connection of the line is broken and the line is connected to one side of said test-battery, and a test receiving instrument connected on one side to the other side of said test-battery and on its other side to a plug or device adapted to be brought into connection with the line, substantially as set forth.

25. In a telephone-exchange system, a metallic-circuit line, normally grounded at the subscriber's station, and one side or branch, of which is normally grounded at the central office, in combination with a switch at the subscriber's station with contacts to open the ground connection there while the subscriber's telephone is switched for use, a switch-plug with cord for said line, a test battery and retardation-coil, a switching device into which the plug is normally placed, with contacts and connections by which when the plug is withdrawn from the device the normal ground connection of the line is broken and the line is connected to one side of a circuit which contains the test-battery and retardation-coil, and a test receiving instrument connected on one side to the other side of said circuit and on its other side to a plug or device adapted to be brought into connection with the line substantially as set forth.

592,389. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Sept. 4, 1890. Serial No. 363,991. (No model.)



Claim.—1. In a telephone-exchange system, a telephone-line normally on closed circuit, in combination with a subscriber's-station apparatus having a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is switched in the line-circuit while the telephone is switched for use but not otherwise, a test loop containing a test receiving instrument and battery and switch apparatus by which such loop may be connected in the normally closed circuit, the instrument being so constructed and adjusted to the circuits and battery that it sounds or responds when included in the normal line-circuit but does not respond when on open circuit or in circuit with a condenser or in a circuit which has also the resistance of a second line, substantially as set forth.

2. In a telephone-exchange system, a telephone-line normally on closed circuit, in combination with a subscriber's-station apparatus having a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is switched into the line-circuit while the telephone is switched for use but not otherwise, switching apparatus by which the line may be switched with another line, a test receiving instrument, switching apparatus whereby the instrument may be included in the normal circuit of the line, and a battery in the circuit thereby established, the instrument being so constructed and so adjusted to the battery and the circuit that it sounds or responds when connected into the normal circuit but does not respond when on open circuit or in circuit with a condenser or in a circuit which has also the resistance of a second line, substantially as set forth.

3. In a telephone-exchange system, telephone-lines grounded at their outer ends and multiple switchboards for the lines, each board containing a switch for each line, each switch having a pair of contact-points normally in contact, adapted to receive a switch-plug and when the plug is inserted to have the contact-points separated and the contact-piece of the plug in contact with the line contact-point of the switch and with that only, and adapted to receive a loop test-plug and when the plug is inserted to have the contact-points separated and connection made between them and the two contact-pieces of the plug, respectively, each line passing successively through the pairs of contact-points of its switches on the boards, passing in each case to the line-point first and from the last switch to the ground, in combination with a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is included in the circuit of the line when the telephone is switched for use but not otherwise, a loop test-plug and a test receiving instrument and battery at each board, said instrument and battery being included in a loop the two ends of which terminate in the two contact-pieces of the plug, the instrument being so constructed and so adjusted to the battery and the circuits that it will sound or respond when the plug is inserted into the switch of any line in its normal condition but will not respond when on open circuit or in circuit with a condenser or in a circuit which has also the resistance of a second line, substantially as set forth.

4. In a telephone-exchange system, a telephone-line normally on closed circuit, and an annunciator normally in circuit with the line with a pair of contact-points in its circuit normally closed but open while the annunciator indicates a call, in combination with a subscriber's-station apparatus having a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is switched in the line-circuit while the telephone is switched for use but not otherwise, a test-loop containing a test receiving instrument and battery, and switch apparatus by which such loop may be connected in the normally closed circuit, the instrument being so constructed and adjusted to the circuit and battery that it sounds or responds when included in the normal line-circuit but does not respond when on open circuit or in circuit with a condenser or in a circuit which has also the resistance of a second line, substantially as set forth.

5. In a telephone-exchange system, a telephone-line normally on closed circuit, and an annunciator normally in circuit with the line with a pair of contact-points in its circuit normally closed but open while the annunciator indicates a call, in combination with a subscriber's-station apparatus having a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is switched into the line-circuit while the telephone is switched for use but not otherwise, switching apparatus by which the line may be switched with another line, a test receiving instrument, switching apparatus whereby the instrument may be included in the normal circuit of the line, and a battery in its circuit thereby established, the instrument being so constructed and so adjusted to the battery and the circuit that it sounds or responds when connected into the normal circuit but does not respond when on open circuit or in circuit with a condenser or in a circuit which has also the resistance of a second line, substantially as set forth.

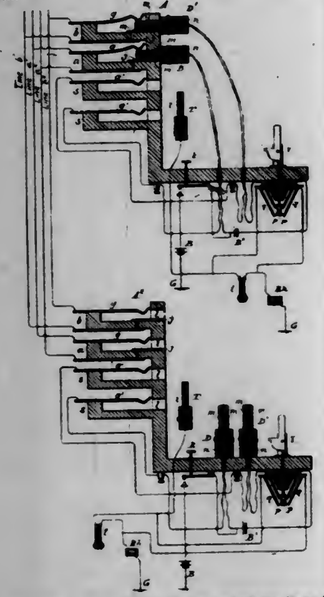
6. In a telephone-exchange system, telephone-lines grounded at their outer ends and multiple switchboards for the lines each board containing a switch for each line, each switch having a pair of contact-points normally in contact, adapted to receive a switch-plug and when the plug is inserted to have the contact-points separated and the contact-piece of the plug in contact with the line contact-point of the switch and with that only, and adapted to receive a loop test-plug and when the plug is inserted to have the contact-points separated and connection made between them and the two contact-pieces of the plug, respectively, each line passing successively through the pairs of contact-points of its switches on the boards, passing in each case to the line-point first and from the last switch to the ground, and an annunciator normally in circuit with the line with a pair of contact-points in its circuit normally closed but open while the annunciator indicates a call, in combination with a subscriber's-station apparatus for each line, containing a telephone, a telephone-switch, a condenser, contacts and connections by which the condenser is included in the circuit of the line when the telephone is switched for use but not otherwise, a loop test plug and a test receiving instrument and battery at each board, said instrument and battery being included in a loop the two ends of which terminate in the two contact-pieces of the plug, the instrument being so constructed and so adjusted to the battery and the circuits that it will sound or respond when the plug is inserted into the switch of any line in its normal condition but will not respond when on open circuit or in circuit with a condenser or in a circuit which has also the resistance of a second line, substantially as set forth.

592,390. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Feb. 26, 1891. Serial No. 383,008. (No model.)

Claim.—1. In a telephone-exchange system, telephone-lines divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs, the plugs having each a contact-piece and the two contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, substantially as set forth.

2. In a telephone-exchange system, telephone-lines normally open at the central office and divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs, the

plugs having each a contact-piece and the two contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, substantially as set forth.



3. In a telephone-exchange system, telephone-lines divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs, the plugs having each a contact-piece and the two contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug having also a second contact-piece and a switching device with a contact-piece connected by a flexible conductor with said second contact-piece of the plug, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said first-mentioned contact-piece is connected with one of the contact-pieces of the switch and in the other of which the first-mentioned contact-piece of the plug is connected with the second-mentioned contact-piece of the switch and the second-mentioned contact-piece of the plug is connected with the first-mentioned contact-piece of the switch, each plug being also adapted to be inserted into each of said switching devices and when inserted to connect its said first-mentioned contact-piece with said contact-piece of the switching device, substantially as set forth.

4. In a telephone-exchange system, telephone-lines normally open at the central office and divided into pairs and switches for said lines on a switchboard one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected in combination with pairs of switch-plugs, the plugs having each a contact-piece and said contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug having also a second contact-piece and a switching device with a contact-piece connected by a flexible conductor with said second contact-piece of the plug, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said first-mentioned contact-piece is connected with one contact-piece of the switch and its second-mentioned contact-piece is connected with the other contact-piece of the switch and in the other of which the first-mentioned contact-piece of the plug is connected with the second-mentioned contact-piece of the switch and the second-mentioned contact-piece of the plug is connected with the first-mentioned contact-piece of the switch, each plug being also adapted to be inserted into each of said switching devices and when inserted to connect its said first-mentioned contact-piece with said contact-piece of the switching device, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, telephone-lines divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and the two contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, telephone-lines normally open at the central office and divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and the two contact-pieces of a pair being connected by a flexible conducting-circuit, each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, telephone-lines divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact-pieces to which the two lines of its pair are respectively connected in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and said contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug having also a second contact-piece and a switching device located at its board with a contact-piece connected by a flexible conductor with said second contact-piece of the plug, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said first-mentioned contact-piece is connected with one contact-piece of the switch and its said second-mentioned contact-piece is connected with the other contact-piece of the switch and in the other of which the first-mentioned contact-piece of the plug is connected with the second-mentioned contact-piece of the switch and the second-mentioned contact-piece of the plug is connected with the first-mentioned contact-piece of the switch, each plug being also adapted to be inserted into each of said switching devices at its board and when inserted to connect its said first-mentioned contact-piece with said contact-piece of the switching device, substantially as set forth.

8. In a telephone-exchange system, telephone-lines divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs, the plugs having each a contact-piece and the contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, and a test-battery in said conducting-circuit between each pair of plugs, substantially as set forth.

9. In a telephone-exchange system, telephone-lines normally open at the central office and divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs, the plugs having each a contact-piece and the contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-piece is connected with one of the contact-pieces of the switch, and in the other of which it is connected with the other contact-piece of the switch, and a test-battery in said conducting-circuit between each pair of plugs, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, telephone-lines divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and the two contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, and a test-battery in said conducting-circuit between each pair of plugs, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, telephone-lines normally open at the central office and divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and said two contact-pieces of a pair being connected together by a flexible conducting-circuit, each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, and a test-battery in said conducting-circuit between each pair of plugs, substantially as set forth.

12. In a telephone-exchange system, multiple switchboards, telephone-lines divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and said contact-pieces of a pair being connected together by a flexible conducting-circuit, a test battery in each of such conducting-circuits, each plug having also a second contact-piece and a switching device at its board with a contact-piece connected through a flexible conductor with said second contact-piece of the plug, each plug being adapted to be inserted into each switch at its board in two positions or directions in one of which its said first-mentioned contact-piece is connected with one contact-piece of the switch and its said second-mentioned contact-piece is connected with the other contact-piece of the switch and in the other of which its said first-mentioned contact-piece is connected with said second-mentioned contact-piece of the switch and its said second-mentioned contact-piece is connected with said first-mentioned contact-piece of the switch, each plug being also adapted to be inserted into each of said switching devices at its board and when inserted to connect its said first-mentioned contact-piece with said contact-piece of the switching device, substantially as set forth.

13. In a telephone-exchange system, telephone-lines grounded at their outer ends and divided into pairs and switches for said lines on a switchboard, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs, the plugs having each a contact-piece and said contact-pieces of a pair being connected by a flexible conducting-circuit, a test-battery in each of such flexible conducting-circuits, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches, substantially as set forth.

14. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends and divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and the two plugs of a pair being connected by a flexible conducting-circuit, a test-battery in each of such conducting-circuits, each plug being adapted to be inserted into each switch at its board in two positions or directions, in one of which its said contact-piece is connected with one of said contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches at its board, substantially as set forth.

15. In a telephone-exchange system, multiple switchboards, telephone-lines normally open at the central office, grounded at their outer ends and divided into pairs, and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and the two contact-pieces of a pair being connected by a flexible conducting-circuit, a test battery in each of such conducting-circuits, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which it is connected with the other contact-piece of the switch, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches at its board, substantially as set forth.

16. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends and divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two contact pieces to which the two lines of its pair are respectively connected in combination with pairs of switch-plugs at each board, the plugs having each a contact-piece and the two contact-pieces of a pair being connected by a flexible conducting-circuit, a test-battery in each of such conducting-circuits, each plug having also a second contact-piece and a switching device at its board with a contact-piece connected through a flexible conductor with said second contact-piece of the plug, each plug being adapted to be inserted into each switch at its board in two positions or directions, in one of which its said first-mentioned contact-piece is connected with one of the contact-pieces of the switch and its second-mentioned contact-piece is connected with the other contact-piece of the switch and in the other of which its said first-mentioned contact-piece is connected with the second-mentioned contact piece of the switch and its said second-mentioned contact-piece is connected with the first-mentioned contact-piece of the switch, each plug being also adapted to be inserted into each of said switching devices at its board and when inserted to connect its said first-mentioned contact-piece with said contact-piece of the switching device and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches and switching devices at its board, substantially as set forth.

17. In a telephone-exchange system, telephone-lines divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with a switch-plug having a contact-piece connected through a flexible conductor to one of said lines and adapted to be inserted into either of said switches in two positions or directions, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which its said contact-piece is connected with the other contact-piece of the switch, substantially as set forth.

18. In a telephone-exchange system, telephone-lines normally open at the central office and divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected, in combination with a switch-plug having a contact-piece connected through a flexible conductor with one of said lines and adapted to be inserted into either of said switches in two positions or directions, in one of which its said contact-piece is connected with one of the contact-pieces of the switch and in the other of which its said contact-piece is connected with the other contact-piece of the switch, substantially as set forth.

19. In a telephone-exchange system, the combination of a switchboard having a series of switches, two independent line contacts at each switch, pairs of telephone-lines, the lines of each pair being respectively connected with the contacts at a switch, operator's central-office apparatus, and switching devices adapted to be placed in either of said switches in two positions or directions to connect either of the two lines of any switch with such apparatus.

20. In a telephone-exchange system, the combination of multiple switchboards, each having a series of switches, two independent line-contacts at each switch, pairs of telephone-lines, the lines of each pair being respectively connected to the contacts of a switch on each board, operator's central-office apparatus at each board, switching devices at each board adapted to be placed in either of said switches in two positions or directions to connect either of the two lines of any switch at a board with such apparatus at said board, and test devices whereby the operator at any board can test any line to determine whether or not it is switched for conversation.

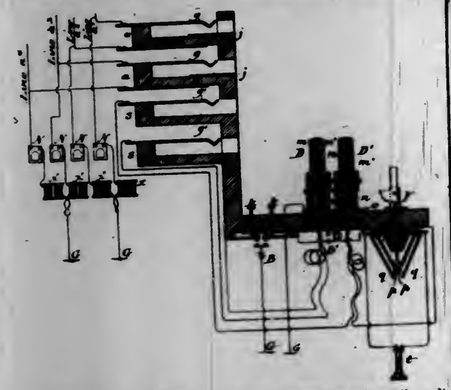
21. In a telephone-exchange system, multiple switchboards, telephone-lines grounded at their outer ends and normally open at the central office, and switch-terminals for said lines, one terminal for each line on each board to which the line is permanently connected, in combination with pairs of switch-plugs at each board, the contacts of each pair of plugs being connected together by a loop which contains a battery, said plugs being adapted to be connected with said switch-terminals, and when a pair are connected with the terminals of any two lines to connect the lines together in circuit, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought for testing into connection with any of said switch-terminals at its board, substantially as set forth.

22. In a telephone-exchange system, multiple switchboards, and a telephone-line normally open at the central office, and grounded at its outer end, and a switch terminal on each of said boards to which the line is permanently connected, in combination with a test-battery through which said line is grounded as long as switched for conversation, and test receiving instruments, one at each board grounded

on one side and connected on its other side to a test plug or device, adapted to be brought into connection with the switch-terminal at its board, substantially as set forth.

23. In a telephone-exchange system, multiple switchboards and a telephone-line grounded at its outer end and a switch-terminal on each of said boards to which the line is permanently connected, in combination with a test-battery through which said line is grounded as long as switched for conversation and test receiving instruments, one at each board grounded on one side and connected on its other side to a test plug or device, adapted to be brought into connection with the switch-terminal at its board, substantially as set forth.

592,891. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 14, 1891. Serial No. 392,717. (No model.)



Claim.—1. In a telephone-exchange system, telephone-lines divided into pairs, annunciators for said lines, one annunciator for each line, and switches for said lines, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected and each line being grounded through its annunciator in combination with batteries and switching apparatus by which any two lines may be connected together in a circuit which includes a battery and does not include their annunciators, substantially as set forth.

2. In a telephone-exchange system, telephone-lines divided into pairs, annunciators and retardation-coils for said lines, one annunciator and one retardation-coil for each line, and switches for said lines, one switch for each pair of lines, each switch having two contact-pieces to which the two lines of its pair are respectively connected, and each line being grounded through its annunciator and retardation-coil, in combination with electric batteries and switching apparatus by which any two lines may be connected together in a circuit which includes a battery and does not include their annunciators and retardation-coils, substantially as set forth.

3. In a telephone-exchange system, two telephones temporarily connected together for conversation and a clearing-out annunciator and battery connected into the closed circuit with them while or as long as the operator leaves them connected together for conversation, in combination with resistances at each subscriber's station and switch apparatus and connections by which a greater resistance is included in the closed circuit when the subscribers' telephones are switched for use than when they are not thus switched, said battery and annunciator being so related to each other and the circuit and resistances that the annunciator is not operated while the telephones are switched for use and the additional resistance is thereby included in the closed circuit of the lines, but the battery causes the annunciator to indicate when the telephones are switched out of use, and the lesser resistance is in such closed circuit, substantially as set forth.

4. In a telephone-exchange system, two telephone-lines temporarily connected together for conversation and in a clearing-out annunciator and battery connected by the act of switching the line for conversation into closed circuit with each line while and as long as they are left by the operator connected together for conversation, in combination with resistances at each subscriber's station and switch apparatus and connections by which a greater resistance is included in the circuit when the subscribers' telephones are switched for use than when they are not thus switched, said battery and annunciator being so related to each other and the circuit that the annunciator is not operated while the telephones are switched for use and the greater resistance is included in closed circuit with them, but the battery causes the annunciator to indicate when the telephones are switched out of use and such greater resistance is not in such closed circuit, substantially as set forth.

5. In a telephone-exchange system, telephone-lines, annunciators for said lines, one annunciator for each line, through which the line is permanently grounded and switches for said lines, each switch having a contact-piece to which its line is connected and each line being grounded through its annunciator, in combination with batteries and switching apparatus by which any two lines may be connected together in a closed circuit which includes a battery, said battery being included in the closed circuit of the two lines thus connected together while and as long as they are left by the operator connected together for conversation and does not include their annunciators, a clearing-out annunciator then in said circuit and apparatus at each subscriber's station cooperating with said battery at the will of the subscriber to operate the clearing-out annunciator.

6. In a telephone-exchange system, telephone-lines, annunciators and retardation-coils for said lines, one annunciator and one retardation-coil for each line, and switches for said lines, each switch having a contact-piece to which its line is connected, and each line being grounded through its annunciator and retardation-coil, in combination with electric batteries and switching apparatus by which any two lines may be connected together in a closed circuit which includes a battery while or as long as they are left by the operator connected together for conversation and does not include their annunciators and retardation-coils, a clearing-out annunciator then in said circuit and apparatus at each subscriber's station cooperating with said battery at the will of the subscriber to operate the clearing-out annunciator.

7. In a telephone-exchange system, two telephone-lines temporarily connected together for conversation, and a line-annunciator for each line, each annunciator being then or while the lines are thus connected together for conversation connected on one side to its line and on the other side to the ground, in combination with a battery and clearing-out annunciator in the closed circuit of said lines thus connected together, and apparatus at each subscriber's station cooperating with said battery at the will of the subscriber to operate the clearing-out annunciator, said line-annunciators being so constructed and related to the battery and the circuits that the battery does not then cause either of them to indicate a call.

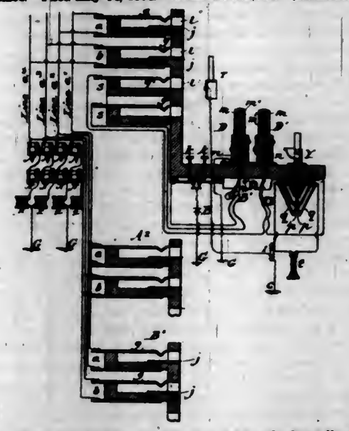
8. In a telephone-exchange system, two telephone-lines temporarily connected together for conversation and a clearing-out annunciator and battery connected into closed circuit with them while and as long as and during the time they are left by the operator connected together for conversation, in combination with resistances at each subscriber's station and switch apparatus and connections by which a less resistance is at the will of either subscriber included in his line-circuit than is the resistance included therein while the line is being used for conversation, said battery and annunciator being so related to the circuit that the battery causes the annunciator to indicate a call on the less resistance being included by either subscriber in his line-circuit, but not otherwise, substantially as set forth.

9. In a telephone-exchange system, two telephone lines temporarily connected together for conversation and a clearing-out annunciator and battery then connected in their circuit, in combination with a line-annunciator for each line, each annunciator being connected on one side to its line while the line is switched for conversation and on the other side to the ground, resistances at each subscriber's station and switch apparatus and connections by which greater resistance is included in the circuit of the lines when the subscribers' telephones are switched for use than when they are not thus switched, said annunciators being so constructed and related to the battery and circuits that neither line-annunciator is caused by the battery to indicate a call, and the clearing-out annunciator is made to indicate a call when the subscribers' telephones are not switched for use, but not otherwise, substantially as set forth.

10. In a telephone-exchange system, a telephone-line grounded at its outer end and at the central office and a polarized annunciator at the central office permanently in circuit with its line, in combination with a signal-receiving bell at the subscriber's station, a calling-battery at the central office grounded on one side and switch apparatus by which the other side of the battery may be connected to the line-circuit, said annunciator being then in circuit between the office ground of the line and said battery, and so connected in circuit as not to be operated by said battery, substantially as set forth.

11. In a telephone-exchange system, two telephone-lines temporarily connected together for conversation, and a line-annunciator for each line, each annunciator being then or while the lines are thus connected together for conversation connected on one side to the direct conductor of its line and on the other side to the return-conductor, in combination with a battery and clearing-out annunciator in the closed circuit of said lines thus connected together, and apparatus at each subscriber's station cooperating with said battery at the will of the subscriber to operate the clearing-out annunciator, said line-annunciators being so constructed and related to the battery and the circuits that the battery does not then cause either of them to indicate a call.

592,892. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 14, 1891. Serial No. 392,718. (No model.)



Claim.—1. In a telephone-exchange system, telephone-lines divided into divisions, the lines of each division divided into pairs, multiple switchboards for said lines divided into divisions, one division of boards for each division of lines, and switches for said lines, one switch for each pair of lines on each of the several boards of their division and on one board only of each of the other divisions, and each switch having a switch connection for each line of its pair, in combination with switching apparatus whereby the operator at any board may electrically connect together any two circuits or lines which have such switch connection at her board, substantially as set forth.

2. In a telephone exchange system, telephone-lines divided into two divisions, the lines of each division divided into pairs, multiple switchboards for said lines divided into two divisions, one division of boards for each division of lines, and switches for said lines, one switch for each pair of lines on each of the several boards of their division and on one board only of the other division and each switch having a switch connection for each line of its pair, in combination with switching apparatus whereby the operator at any board may electrically connect together any two circuits or lines which have their switch connection at her board, substantially as set forth.

3. In a telephone exchange system, telephone-lines divided into divisions, the lines of each division divided into pairs, multiple switchboards for said lines divided into divisions, one division of boards for each division of lines and switches for said lines, one switch for each pair of lines on each of the several boards of their division and on one board only of each of the other divisions and each switch having a switch connection for each line of its pair, in combination with calling apparatus whereby one subscriber may send a call to two boards, one in each division and at a board where his line has a switch connection and switching apparatus whereby the operator at any board may electrically connect together any two circuits or lines which have switching connection at her board, substantially as set forth.

4. In a telephone-exchange system, telephone-lines divided into two divisions, the lines of each division divided into pairs, multiple switchboard for said lines divided into two divisions, one division of boards for each division of lines, and switches for said lines, one switch for each pair of lines on each of the several boards of their division, and on one board only of the other division and each switch having a switch connection for each line of its pair, in combination with calling apparatus whereby any subscriber may send a call to two boards, one in each division and at a board where his line has a switch connection and switch apparatus whereby the operator may electrically connect together any two circuits or lines which have switching connection at her board, substantially as set forth.

5. In a telephone-exchange system, telephone-lines divided into two divisions, the lines of each division divided into pairs, multiple switchboards for said lines divided into two divisions, one division of boards for each division of lines, and switches for said lines, one switch for each pair of lines on each of the several boards of their division and on one board only of the other division and each switch having a switch connection for each line of its pair, in combination with two annunciators for each line located in the two divisions and at boards in which the line has switch connection, subscriber's calling apparatus for each line whereby he may at will make either annunciator of his line indicate a call, and switch apparatus whereby the operator at any board may electrically connect together any two circuits or lines which have switch connection at her board, substantially as set forth.

6. In a telephone-exchange system, telephone-lines divided into two divisions, the lines of each division divided into pairs, multiple switchboards for said lines, divided into two divisions, one division of boards for each division of lines, and switches for said lines, one switch for each pair of lines on each of the several boards of their division and on one board only of the other division and each switch having a switch connection for each line of its pair, in combination with two polarized annunciators for each line connected in opposite polarity in the circuit of the line and located in the two divisions of boards and at boards where the line has switch connection, a signaling-generator at each subscriber's station, switch apparatus whereby the subscriber may at will send a current of either polarity over his line-circuit and connecting apparatus whereby the operator at any board may electrically connect together any two lines which have switch connection at her board, substantially as set forth.

7. In a telephone-exchange system, telephone-lines divided into divisions, the lines of each division divided into pairs, multiple switchboards for said lines divided into divisions, one division of boards for each division of lines, and switches for said lines, one switch for each pair of lines on each of the several boards of their division and on one board only of each of the other divisions and each switch having a switch connection for each line of its pair, in combination with two annunciators for each line located in two divisions of boards and at boards where the line has switch connection, subscriber's calling apparatus for each line whereby he may at will cause either annunciator to indicate a call and switching apparatus whereby the operator at any board may electrically connect together any two lines which have switch connection at her board, substantially as set forth.

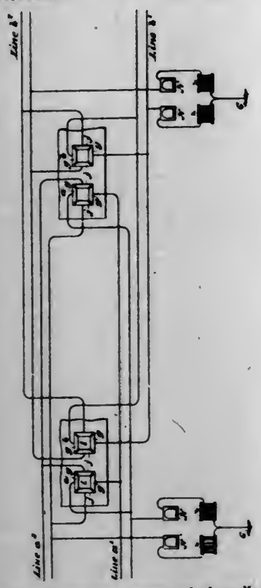
8. In a telephone-exchange system, telephone-lines divided into divisions, the lines of each division divided into pairs, multiple switchboards for said lines divided into divisions, one division of boards for each division of lines, and switches for said lines, one switch for each pair of lines on each of the several boards of their division and on one board only of each of the other divisions and each switch having a switch connection for each line of its pair, in combination with two polarized annunciators for each line connected in opposite polarity in the circuit of the line and located at two divisions of boards where the line has switch connection, a signaling-generator at each subscriber's station, switch apparatus whereby the subscriber may at will send a current of either polarity over his line-circuit, and connecting apparatus whereby the operator at any board may electrically connect together any two lines which have their switch connection at her board, substantially as set forth.

592,893. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 14, 1891. Serial No. 392,720. (No model.)

Claim.—1. In a telephone-exchange system, metallic-circuit lines divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs, the plugs having each a pair of contact-pieces and the two contact-pieces of one plug being connected by flexible conducting-circuits with the two contact-pieces of the other plug of the pair, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, respectively substantially as set forth.

2. In a telephone-exchange system, metallic-circuit lines the two sides of which are normally open at the central office, divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch plugs, the plugs having each a pair of contact-pieces and the two contact-pieces of one plug being connected by flexible conducting circuits, with the two contact-pieces of the other plug of the pair, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are

connected with the other contact-pieces of the switch, respectively, substantially as set forth.



3. In a telephone-exchange system, telephone-lines divided into pairs and switches for said lines, on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs, the plugs having each a pair of contact-pieces and the two contact-pieces of one plug being connected by flexible conducting-circuits with the two contact-pieces of the other plug of the pair, each plug having also a second pair of contact-pieces and a switching device for each plug with two contact-pieces connected by flexible conductors with said second pair of contact-pieces of the plug each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said first-mentioned contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and its said second-mentioned contact-pieces are connected with the other contact-pieces of the switch and in the other of which the first-mentioned contact-pieces of the plug are connected with the second-mentioned contact-pieces of the switch and the second-mentioned contact-pieces of the plug are connected with the first-mentioned contact-pieces of the switch, each plug being also adapted to be inserted into each of said switching devices and when inserted to connect its said first-mentioned contact-pieces with said contact-pieces of the switching devices respectively, substantially as set forth.

4. In a telephone-exchange system, metallic-circuit lines the two sides of which are normally open at the central office, divided into pairs and switches for said lines, on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces, of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs, the plugs having each a pair of contact-pieces and said contact-pieces of a plug being connected by flexible conducting-circuit with the two contact-pieces of its mate each plug having also a second pair of contact-pieces and a switching device with a pair of contact-pieces connected by flexible conductors with said second pair of contact-pieces of the plug each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said first-mentioned contact-pieces are connected with the two contact-pieces of one pair of contact-pieces of the switch and its second-mentioned contact-pieces are connected with the other contact pieces of the switch and in the other of which the first-mentioned contact-pieces of the plug are connected with the second-mentioned contact pieces of the switch and the second-mentioned contact pieces of the plug are connected with the first-mentioned contact-pieces of the switch, each plug being also adapted to be inserted into each of said switching devices and when inserted to connect its said first-mentioned contact-pieces with said contact-pieces of the switching device respectively, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, metallic-circuit lines divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and the two contact-pieces of a plug being connected by flexible conducting-circuits with the contact-pieces of its mate, each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-pieces are connected with the two contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, respectively, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, metallic-circuit lines the two sides of which are normally open at the central office divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and the two contact-pieces of one plug being connected by flexible conducting-circuits with the two contact-pieces of its mate each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-pieces are connected with the two contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, respectively, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, metallic-circuit lines divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and said contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, each plug having also a second pair of contact-pieces and a switching device for each plug located at its board with two contact-pieces connected by flexible conductors with said second pair of contact-pieces of the plug, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said first-mentioned contact-pieces are connected with the two contact-pieces of one pair of contact-pieces of the switch and its said second-mentioned contact-pieces are connected with the other contact-pieces of the switch and in the other of which the first-mentioned contact-pieces of the plug are connected with the second-mentioned contact-pieces of the switch and the second-mentioned contact-pieces of the switch are connected with the first-mentioned contact-pieces of the plug, each plug being also adapted to be inserted into each of said switching devices at its board and when inserted to connect its said first-mentioned contact-pieces with said contact-pieces of the switching device, respectively, substantially as set forth.

8. In a telephone-exchange system, metallic-circuit telephone-lines divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs, the plugs having each a pair of contact-pieces and the contact-pieces of a plug being connected by flexible conducting-circuits with the contact-pieces of its mate each plug being adapted to be inserted into each switch in two positions or directions in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test-battery in one of said circuits between each pair of plugs, substantially as set forth.

9. In a telephone-exchange system, metallic-circuit telephone-lines grounded at the central office and divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs, the plugs having each a pair of contact-pieces and the contact-pieces of a plug being connected by flexible conducting-

circuits with the two contact-pieces of its mate, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test-battery in one of said conducting-circuits between each pair of plugs, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, metallic telephone-lines divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having pairs of two contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and the two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-pieces are connected with the two contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test-battery in one of said conducting-circuits between each pair of plugs, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone-lines, grounded at the central office and divided into pairs and switches for said lines one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and said two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-pieces are connected with the two contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test-battery in one of said conducting-circuits between each pair of plugs, substantially as set forth.

12. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone-lines divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and said contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, a test-battery in one of each of said conducting-circuits, each plug having also a second pair of contact-pieces and a switching device for each plug at its board with two contact-pieces connected through flexible conductors with said second pair of contact-pieces of the plug, each plug being adapted to be inserted into each switch at its board in two positions or directions, in one of which its said first-mentioned contact-pieces are connected with the contact-pieces of one pair of contact-pieces of the switch and its said second-mentioned contact-pieces are connected with the other contact-pieces of the switch and in the other of which its said first-mentioned contact-pieces are connected with said second-mentioned contact-pieces of the switch and its said second-mentioned contact-pieces are connected with said first-mentioned contact-pieces of the switch, each plug being also adapted to be inserted into each of said switching devices at its board and when inserted to connect its said first-mentioned contact-pieces with said contact-pieces of the switching device, respectively, substantially as set forth.

13. In a telephone-exchange system, metallic-circuit telephone-lines grounded on one of their sides and divided into pairs and switches for said lines on a switchboard, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs, the plugs having each a pair of contact-pieces and said contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, a test-battery in one of said flexible conducting-circuits, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches, substantially as set forth.

14. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone-lines grounded on one of their sides and divided into pairs and switches for said lines one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and the two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, a test-battery in one of such conducting-circuits, each plug being adapted to be inserted into each switch at its board in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches at its board, substantially as set forth.

15. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone lines the two sides of which are normally open at the central office grounded on one of their sides and divided into pairs, and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and the two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, a test-battery in one of such conducting-circuits, each plug being adapted to be inserted into each switch at its board in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches at its board, substantially as set forth.

16. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone-lines grounded on one of their sides and divided into pairs and switches for said lines, each switch having two pairs of contact-pieces to which the two lines are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and the two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, a test-battery in one of such conducting-circuits, each plug having also a second pair of contact-pieces and a switching device for each plug at its board with two contact-pieces connected through flexible conductors with said last-mentioned contact-pieces of the plug, each plug being adapted to be inserted into each switch at its board in two positions or directions, in one of which its said first-mentioned contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and its said second-mentioned contact-pieces are connected with the other contact-pieces of the switch and in the other of which its said first-mentioned contact-pieces are connected with the second-mentioned contact-pieces of the switch and its said second-mentioned contact-pieces are connected with the first-mentioned contact-pieces of the switch, each plug being also adapted to be inserted into each of said switching devices at its board and when inserted to connect its said first-mentioned contact-pieces with said contact-pieces of the switching device, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches and switching devices at its board, substantially as set forth.

17. In a telephone-exchange system, metallic-circuit telephone-lines divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with a switch-plug having a pair of contact-pieces connected through flexible conductors to the two sides of one of said lines, and adapted to be inserted into either of said switches in two positions or directions in one of which its said contact-pieces are connected with the contact-pieces of one pair of the

contact-pieces of the switch and in the other of which its said contact-pieces are connected with the other contact-pieces of the switch, substantially as set forth.

18. In a telephone-exchange system, metallic-circuit lines grounded at the central office and divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact pieces of the other pair, in combination with retardation-coils, one for each line and in its ground connection, pairs of switch-plugs, the plugs having each a pair of contact-pieces and the contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test-battery in one of said conducting-circuits between each pair of plugs, substantially as set forth.

19. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone-lines, grounded at the central office and divided into pairs and switches for said lines one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with retardation-coils, one for each line and in its ground connection pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and said two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-pieces are connected with the two contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test-battery in one of said conducting circuits between each pair of plugs, substantially as set forth.

20. In a telephone-exchange system, metallic-circuit telephone-lines grounded on one of their sides and divided into pairs and switches for said lines on a switchboard, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with retardation-coils, one for each line and in its ground connection pairs of switch-plugs, the plugs having each a pair of contact-pieces and said contact-pieces of a plug being connected by flexible conducting-circuits, with the two contact-pieces of its mate, a test-battery in one of such flexible conducting-circuits, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch, and in the other of which they are connected with the other contact-pieces of the switch, and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches, substantially as set forth.

21. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone-lines grounded on one of their sides and divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with retardation-coils, one for each line and in its ground connection pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and the two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, a test-battery in one of such conducting-circuits, each plug having also a second pair of contact-pieces and a switching device at its board with two contact-pieces connected through flexible conductors with said last-mentioned contact-pieces of the plug, each plug being adapted to be inserted into each switch at its board in two positions or directions, in one of which its said first-mentioned contact-pieces are connected with the contact-pieces of one pair of contact-pieces of the switch and its second-mentioned contact-pieces are connected with the other contact-pieces of the switch and in the other of which its said first-mentioned contact-pieces are connected with the second-mentioned contact-pieces of the switch and its said second-mentioned contact-pieces are connected with the first-mentioned contact-pieces of the switch, each plug being also adapted to be inserted into each of said switching devices at its boards and when inserted to connect its said first-mentioned contact-pieces with said contact-pieces of the switching device, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches and switching devices at its board, substantially as set forth.

22. In a telephone-exchange system, metallic-circuit lines grounded at the central office and divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with annunciators, one for each line and in its ground connection, pairs of switch-plugs, the plugs having each a pair of contact-pieces and the contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, each plug being adapted to be inserted into each switch in two positions or directions, in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test-battery in one of said conducting-circuits between each pair of plugs, substantially as set forth.

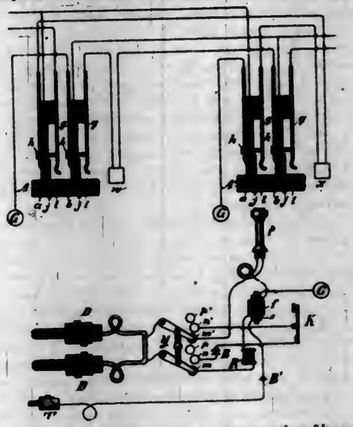
23. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone-lines, grounded at the central office and divided into pairs and switches for said lines one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with annunciators one for each line and on its ground connection pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and said two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, each plug being adapted to be inserted in two positions or directions into each switch at its board, in one of which its said contact-pieces are connected with the two contact-pieces of one pair of the contact-pieces of the switch and in the other of which they are connected with the other contact-pieces of the switch, and a test-battery in one of said conducting-circuits between each pair of plugs, substantially as set forth.

24. In a telephone-exchange system, metallic-circuit telephone-lines grounded on one of their sides and divided into pairs and switches for said lines on a switchboard, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected the two sides of one line to the two contact pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with annunciators, one for each line and in its ground connection pairs of switch-plugs, the plugs having each a pair of contact-pieces and said contact-pieces of a plug being connected by flexible conducting-circuits, with the two contact-pieces of its mate, a test-battery in one of such flexible conducting-circuits, each plug being adapted to be inserted into each switch in two positions or directions in one of which its said contact-pieces are connected with the contact-pieces of one pair of the contact-pieces of the switch, and in the other of which they are connected with the other contact-pieces of the switch and a test receiving instrument grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches, substantially as set forth.

25. In a telephone-exchange system, multiple switchboards, metallic-circuit telephone-lines grounded on one of their sides and divided into pairs and switches for said lines, one switch for each pair of lines on each of said boards, each switch having two pairs of contact-pieces to which the two lines are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with annunciators one for each line and in its ground connection pairs of switch-plugs at each board, the plugs having each a pair of contact-pieces and the two contact-pieces of a plug being connected by flexible conducting-circuits with the two contact-pieces of its mate, a test-battery in one of such conducting-circuits, each plug having also a second pair of contact-pieces and a switching device at its board with two contact-pieces connected through flexible conductors with said last-mentioned contact-pieces of the plug, each plug being adapted to be inserted into each switch at its board in two positions or directions, in one of which its said first-mentioned contact-pieces are connected with the contact-pieces of one pair of contact-pieces of the switch and its second-mentioned contact-pieces are connected with the other contact-pieces of the switch and in the other of which its said first-mentioned contact-pieces are connected with the second-mentioned contact-pieces of the switch and its said second-mentioned contact-pieces are connected with the first-mentioned contact-pieces of the switch, each plug being also adapted to be inserted into each of said switching devices at its boards and when inserted to connect its said first-mentioned contact-pieces with said contact-pieces of the switching device, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a test plug or device adapted to be brought into connection with any of said contact-pieces of said switches and switching devices at its board, substantially as set forth.

26. In a telephone-exchange system, metallic-circuit lines divided into pairs and switches for said lines on a switchboard, one switch for each pair of lines, each switch having two pairs of contact-pieces to which the two lines of its pair are respectively connected, the two sides of one line to the two contact-pieces of one pair and the two sides of the other line to the two contact-pieces of the other pair, in combination with switching devices by which any two of said lines may be connected in metallic circuit for conversation.

592,894. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 16, 1891. Serial No. 392,963. (No model.)



Claim.—1. In a telephone-exchange system, pairs of loop-switch plugs, the two contact-pieces of one of each pair of which are connected to the two contact-pieces of the other, respectively, by two permanently-continuous conductors, in combination with an operator's telephone in a circuit connection normally or during the period when the plugs are not in use bridging or cross-connecting said conductors of each pair, said conductors of each pair being otherwise normally or during the periods the plugs are not in use not bridged or cross-connected with each other, substantially as set forth.

2. In a telephone-exchange system, pairs of loop-switch plugs, the two contact-pieces of one of each pair of which are connected to the two contact-pieces of the other, respectively by two permanently-continuous conductors, in combination with an operator's telephone and a resistance-coil in a circuit connection, normally or during the period when the plugs are not in use bridging or cross-connecting said conductors of each pair, said conductors of each pair being otherwise normally or during the periods the plugs are not in use not bridged or cross-connected with each other, substantially as set forth.

3. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other respectively, by two permanently and metallically continuous conductors, in combination with a switch having two levers connected respectively to said conductors, two pairs of contacts with which said levers may, with one motion, be alternately connected first with one pair and then with the other pair and finally disconnected from either pair, a telephone in circuit between said first-mentioned pair and a calling-generator in circuit between said second-mentioned pair, by which the operator may in one motion first open a connection between the conductors through the telephone, then connect the conductors through the generator and then leave the circuit unconnected through either the telephone or the generator, substantially as set forth.

4. In a telephone-exchange system, two metallic-circuit lines temporarily connected together in metallic circuit for conversation, through two permanently-continuous conductors, in combination with a switch having two levers connected respectively to said conductors, two pairs of contacts with which said levers may be alternately connected first with one pair and then with the other pair, and finally disconnected from either pair, a telephone in circuit between said first-mentioned pair and a calling-generator in circuit between said second-mentioned pair, by which the operator may at one motion disconnect the telephone from the circuit, bridge the circuit through the generator, and leave the circuit unbridged through either telephone or generator, substantially as set forth.

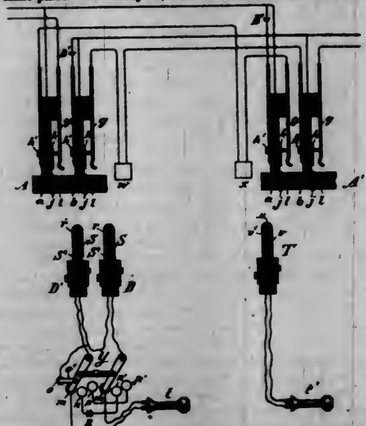
5. In a telephone-exchange system, pairs of loop-switch plugs, the two contact-pieces of one of each pair of which are connected to the two contact-pieces of the other, respectively by two permanently-continuous conductors, in combination with an operator's telephone in a circuit connection which bridges or cross-connects said conductors of each pair, said conductors of each pair being otherwise normally or during the periods the plugs are not in use not bridged or cross-connected with each other, and a switch with contacts by which the operator may at will open said bridge or cross-connecting circuit, substantially as set forth.

6. In a telephone-exchange system, pairs of loop-switch plugs, the two contact-pieces of one of each pair of which are connected to the two contact-pieces of the other, respectively, by two conductors, in combination with an operator's telephone in circuit connection which normally bridges or cross-connects said conductors of each pair, said conductors of each pair being otherwise normally or during the periods the plugs are not in use not bridged or cross-connected with each other, substantially as set forth.

7. In a telephone-exchange system, pairs of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two conductors, in combination with an operator's telephone and a resistance-coil in a circuit connection which normally bridges or cross-connects said conductors, of each pair, said conductors of each pair being otherwise normally or during the periods the plugs are not in use not bridged or cross-connected with each other, substantially as set forth.

8. In a telephone-exchange system, pairs of loop-switch plugs the two contact-pieces of one of each pair of which are connected to the two contact-pieces of the other, respectively, by two conductors, in combination with an operator's telephone in a circuit connection which bridges or cross-connects said conductors of each pair, said conductors of each pair being otherwise normally or during the periods the plugs are not in use not bridged or cross-connected with each other, and a switch with contacts by which the operator may at will open said bridge or cross-connecting circuit, substantially as set forth.

592,895. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 16, 1891. Serial No. 392,964. (No model.)



Claim.—1. In a telephone-exchange system, multiple switchboards, metallic-circuit lines and switches for said lines, one for each line on each board, each switch having a pair of contacts normally closed through which in series one side of its line passes to one side of an individual test-battery for the line, each switch having a third or insulated contact to which the other side of the line and the other side of the individual test-battery for the line are connected, and said individual test-batteries, one for each line, in combination with switching apparatus at each board connecting the two sides of any line with another line by opening the normally closed pairs of switch-contacts of the line at the board and forming connection with one of said normally closed contacts and said third or insulated contacts respectively, and test receiving outfits, one at each board, each having a test receiving instrument and a loop test-plug to the two contacts of which plug the two sides of the test receiving instrument are respectively connected, each loop test-plug being adapted to be in-

serted into each switch at its board, and when inserted opening the pair of normally closed contacts, and forming connection between the two contacts of the plug and said two normally closed contacts of the switch respectively.

2. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, switches for said lines, one switch for each line on each board, one side or branch of each line passing successively through pairs of contacts of the line-switches on the several boards and from the last contact-point through a test-battery to contact-pieces, one for each switch of the line, and to the other side or branch of the line and said test-battery, in combination with pairs of double or loop switch plugs at each board, the two contact-pieces of one plug being connected by flexible conductors to the two contact-pieces of its mate, adapted to be inserted into the switches and when a plug is inserted into a switch to disconnect the pair of contact points and connect one of the contact-pieces of the switch-plug with that contact-point which is connected with said first-mentioned side or branch of the line, while the other contact-piece of the plug forms connection with said contact-piece of the switch and test receiving instruments, one at each board, each connected on its two sides to the two contact-pieces of a loop test-plug adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch and form connection between them and its two contact-pieces, substantially as set forth.

3. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact pieces of the other, respectively, by two flexible switch cord conductors in combination with a switching device having a movable lever or commutator-piece and two contacts operated by said commutator-piece to be opened and closed to each other, one contact being connected to one of said flexible switch cord conductors and the other contact to the other of said flexible switch cord conductors, by which the operator may at will connect or disconnect said cord conductors, substantially as set forth.

4. In a telephone-exchange system, a pair of loop-switch plugs, the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible switch cord conductors, in combination with a switching device, having a movable part containing two levers connected in series in one of said cord-circuits connected to the two plug contact-pieces respectively of that cord-circuit, a pair of contacts connected through the operator's telephone with which said levers in one position connect, another pair of contacts in electrical connection with which said levers in another position connect and a pair of contacts connected to the two cord-circuits respectively closed to each other when the levers are in the first-mentioned position and open to each other when the levers are in the second-mentioned position, by which when the movable part of the switch is in one position the two cord-circuits are connected together and the telephone is in one of the cord-circuits and when the movable part is in another position said connection between the cord-circuits is open and the telephone is switched from the cord-circuit, substantially as set forth.

5. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, in combination with a switching device, having two levers in one of said cord-circuits connected to the two plug contact-pieces respectively of that cord circuit, a pair of contacts connected through the operator's telephone with which said levers in one position connect another pair of contacts connected through a calling-generator with which said levers in another position connect, and a pair of contacts connected to the two cord-circuits respectively closed to each other when the levers are in the first-mentioned position and open to each other when the levers are in the second-mentioned position, by which when the movable part of the switch is in one position the two cord-circuits are connected together and the telephone is in one of the cord-circuits and when it is moved to another position said connection between the cord-circuits is open, the telephone is switched from the cord-circuit and the calling-generator is included in the same cord-circuit, substantially as set forth.

6. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, in combination with a switching device having two levers in one of said cord-circuits connected to the two plug contact-pieces respectively of that cord-circuit, a pair of contacts connected through the operator's telephone with which said levers in one position connect another pair of contacts connected through a calling-generator with which the levers in another position connect, another pair of contacts in electrical connection with which said levers in another position connect, and a pair of contacts connected to the two cord-circuits respectively closed to each other when the levers are in the first-mentioned position and open to each other when the levers are in the second-mentioned position, whereby by one motion or operation the operator may first disconnect the two cord-circuits and switch the telephone out of one of them, secondly switch the generator into one of them and thirdly switch the generator out of the circuit, substantially as set forth.

7. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, in combination with a switching device having two levers in one of said cord-circuits connected to the two plug contact-pieces respectively of that cord-circuit, a pair of contacts connected through the operator's telephone with which said levers in one position connect another pair of contacts connected through a calling-generator with which the levers in their next position connect another pair of contacts in electrical connection with which said levers in another position connect, and a pair of contacts connected to the two cord-circuits respectively closed to each other when the levers are in the first-mentioned position and open to each other when the levers are in the second-mentioned position, by which when the movable part of the switch is in one position the two cord-circuits are connected together and the telephone is in one of the cord-circuits, when the movable part is placed in another position the telephone is switched from the cord-circuit, the cord-circuits are disconnected and the calling-generator is included in one of the cord-circuits and when the movable part is placed in another position, the cord-circuits are disconnected from each other and from both telephone and generator, substantially as set forth.

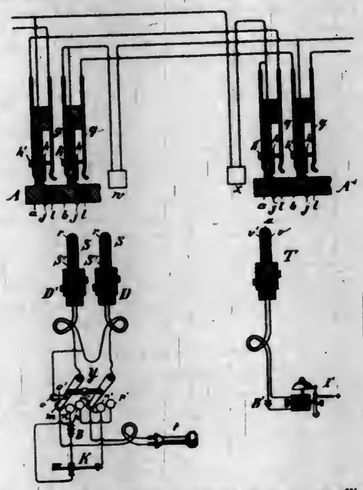
8. In a telephone-exchange system, a pair of loop-switch plugs the two contact pieces of one of which are connected to the two contact-pieces of the other respectively, by two flexible-cord circuits, in combination with a switching device having two levers in one of said cord circuits connected to the two plug contact-pieces respectively of that cord-circuit, a pair of contacts connected through the operator's telephone with which said levers in one position connect another pair of contacts connected through a calling-generator with which the levers in their next position connect another pair of contacts in electrical connection with which said lines in another position connect said levers being adapted by one motion to be placed successively on said pairs of contacts, and a pair of contacts connected to the two cord-circuits respectively closed to each other when the levers are in the first-mentioned position and open to each other when the levers are in the second-mentioned position, whereby by one motion or operation the operator may first disconnect the two cord-circuits and switch the telephone out of one of them, secondly switch the generator into one of them and thirdly switch the generator out of the circuit, substantially as set forth.

9. In a telephone-exchange system, two metallic-circuit telephone-lines temporarily connected together in metallic circuit for conversation, in combination with a switching device having two levers in one of said cord-circuits connected to the two plug contact-pieces respectively of that cord-circuit, a pair of contacts connected through the operator's telephone with which said levers in one position connect, another pair of contacts in electrical connection with which said lines in another position connect, and a pair of contacts connected to the two cord-circuits respectively closed to each other when the levers are in the first-mentioned position and open to each other when the levers are in the second-mentioned position, by which the operator can at will switch the telephone into the metallic circuit and at the same time bridge or cross-connect the two sides of the metallic circuit, substantially as set forth.

10. In a telephone-exchange system, two metallic circuit lines temporarily connected together for conversation, in combination with a switching device having two levers connected respectively to the two terminals of one side or branch of said circuit, a pair of contacts connected through the operator's telephone, with which said levers in one position connect another pair of contacts connected through a calling-generator with which said levers in another position connect, and a pair of contacts connected to the two sides respectively of said metallic circuit closed to each other when the levers are in the first-mentioned position and open to each other when the levers are in the second-mentioned position, by which the operator may at will open such bridge or cross connection and switch the telephone out of and the generator into the circuit, substantially as set forth.

11. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into metallic circuit for conversation, in combination with a switching device having two levers connected respectively to the two terminals of one side or branch of said circuit, a pair of contacts connected through the operator's telephone with which said levers in one position connect another pair of contacts connected through a calling-generator with which the levers in another position connect, another pair of contacts in electrical connection with which said levers in another position connect, and a pair of contacts connected to the two sides or branches of the circuit closed to each other when the levers are in the first-mentioned position and open to each other when the levers are in the second-mentioned position, by which the operator may at will open such bridge or cross connection and switch the telephone out of and the generator into the metallic circuit or leave the circuit unconnected with either telephone or generator, substantially as set forth.

592,396. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 16, 1891. Serial No. 392,965. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit line normally on closed circuit and switching apparatus to open said closed circuit at the central office and loop the line into a continuously metallic or unbroken metallic circuit with another line, in combination with a test receiving instrument and battery and switching apparatus by which the instrument and battery may be looped into the normal circuit of the line, the instrument being so constructed and adjusted to the battery and circuits by its marginal adjustment substantially as described that it will sound when thus looped and the circuit in which it is included is neither open nor contains the additional resistance of another telephone-line, but not otherwise, substantially as set forth.

2. In a telephone-exchange system, multiple switchboards and a metallic-circuit line connected to each of the boards and normally on closed circuit, and switching apparatus to open said closed circuit at the central office and loop the line into a continuously metallic or unbroken metallic circuit with another line, in combination with test receiving instruments, one at each board and connected in a loop with a test-battery, and switching apparatus by which each instrument with its battery may be looped at its board into the normal circuit of the line, the instrument being so constructed and adjusted to the battery and circuits by its marginal adjustment substantially as described that it will sound or respond when thus looped and the circuit is neither open nor contains the additional resistance of another telephone-line, but not otherwise, substantially as set forth.

3. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each connected to each board and normally on closed circuit and switch apparatus to connect any two lines into a continuously metallic circuit and an annunciator in said circuit, in combination with test receiving instruments and test-batteries, one of each at each board, and switch apparatus by which each instrument with its battery may be looped into the normal circuit of any line, the instrument being so constructed and adjusted to the battery and circuits by its marginal adjustment substantially as described that it will sound or respond when thus looped and the circuit is neither open nor contains the combined resistance of two lines, but not otherwise, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, and a metallic-circuit line normally on closed circuit and passing normally successively through pairs of switch contact-points, one pair on each board, in combination with switch apparatus at each board by which the two sides or branches of the line may be connected with the two sides or branches of any of the other lines into a continuously metallic circuit and when they are thus connected at a board said pair of switch contact-points at the board is open and loop test-plugs, one at each board, the two contact-pieces of which are connected to the two sides, respectively, of a loop which contains a test receiving instrument and battery each plug being adapted to be inserted into the line-switch at its board and when inserted to disconnect its said pair of contact-points and connect its said pair of contact-points and connect the two contact-pieces of the plug with said points respectively, the instrument being so constructed and adjusted to the battery and circuits by its marginal adjustment substantially as described that it will sound or respond when thus switched into circuit and the circuit is neither open nor contains the combined resistance of two telephone-lines, but not otherwise, substantially as set forth.

5. In a telephone-exchange system, a telephone-circuit line normally on closed circuit and switching apparatus to open said closed circuit at the central office and loop the line into a metallically continuous or an unbroken metallic circuit with another line, in combination with a test receiving instrument and battery and switching apparatus by which the instrument and battery may be looped into the normal circuit of the line, the instrument being so constructed and adjusted to the battery and circuits by its marginal adjustment substantially as described that it will sound when thus looped and the circuit in which it is included is neither open nor contains the additional resistance of another telephone-line, but not otherwise, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards and a telephone-circuit line connected to each of the boards and normally on closed circuit and switching apparatus to open said closed circuit at the central office and loop the line into a metallically continuous or unbroken metallic circuit with another line, in combination with test receiving instruments, one at each board and connected in a loop with a test-battery, and switching apparatus by which each instrument with its battery may be looped at its board into the normal circuit of the line, the instrument being so constructed and adjusted to the battery and circuits by its marginal adjustment substantially as described that it will sound or respond when thus looped and the circuit is neither open nor contains the additional resistance of another telephone-line, but not otherwise, substantially a set forth.

7. In a telephone-exchange system, multiple switchboards, telephone-circuit lines, each connected to each board and normally on closed circuit and switch apparatus by which any two of the lines may be connected together, a continuously metallic or an unbroken metallic circuit and an annunciator for clearing-out signals in said circuit, in combination with test receiving instruments and test-batteries, one of each at each board, and switch apparatus by which each instrument with its battery may be looped into the normal circuit of any line, the instrument being so constructed and adjusted to the battery and circuits by its marginal adjustment substantially as described that it will sound or respond when thus looped and the circuit is neither open nor contains the combined resistance of two lines, but not otherwise, substantially as set forth.

8. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces, respectively, of the other by two flexible-cord circuits, said two cord-circuits being normally or while they are not in use for switching bridged or cross-connected by a circuit connection and one of them containing normally an operator's telephone, in combination with a switching device having two levers in one of said cord-circuits connected to the two plug-contacts respectively of that cord-circuit, a pair of contacts connected through the operator's telephone with which said levers in their normal position connect, another pair of contacts in electrical connection with which said levers may by one motion be connected, and a pair of contacts connected to the two cord-circuits, respectively, closed to each other when the levers are in their normal position but otherwise open, by which the operator may in one motion both open such bridge or cross connection and switch the telephone from the cord-circuit, substantially as set forth.

9. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, said two cord-circuits being normally bridged or cross-connected and one of them containing normally an operator's telephone, in combination with a switching device having two levers in one of said cord-circuits connected to the two plug-contacts respectively of that cord-circuit, a pair of contacts connected through the operator's telephone with which said levers in their normal position connect, another pair of contacts connected through a calling-generator with which said lines may by one motion be connected, and a pair of contacts connected to the two cord-circuits, respectively, closed to each other when the levers are in their normal position but otherwise open, by which the operator may in one motion open such bridge or cross con-

nection, switch the telephone from and the calling-generator into one of the cord-circuits, substantially as set forth.

10. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, said two cord-circuits being normally bridged or cross-connected and one of them containing normally an operator's telephone, in combination with a switching device having two levers in one of said cord-circuits connected to the two plug-contacts respectively of that cord-circuit, a pair of contacts connected through the operator's telephone with which said levers in their normal position connect, a pair of contacts connected through a calling-generator with which said levers in their next position connect, another pair of contacts in electrical connection with which said levers may by one motion be connected, and a pair of contacts connected to the two cord-circuits, respectively, closed to each other when the levers are in their normal position but otherwise open, by which the operator may open such bridge or cross connection, switch the telephone out of the circuit, switch the calling-generator into one of the cord-circuits and finally leave the cord-circuits both unbridged and unconnected with either telephone or generator, substantially as set forth.

11. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, said two cord-circuits being normally bridged or cross-connected and one of them normally containing an operator's telephone, in combination with a calling-generator, a switch for said plugs, having a pair of contacts normally closed and connected to the two cord-circuits to make such bridge connection and having also contacts and connections for said telephone and generator, by which the operator may open such bridge or cross connection and then switch at will either the telephone or the generator into one of the cord-circuits, substantially as set forth.

12. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, said two cord-circuits being normally bridged or cross-connected and one of them containing normally an operator's telephone, in combination with a switch for said plugs having a pair of contacts normally closed and connected to the two cord-circuits to make such bridge connection, two loops, one containing the telephone and another a calling-generator, connected on their two sides to contacts in one of said cord-circuits and a movable commutator, by which the operator may open such bridge or cross connection, switch either the telephone or the generator into one of the cord-circuits, and leave the circuits unconnected with either, substantially as set forth.

13. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into metallic circuit for conversation and their circuit then bridged or cross-connected by a circuit connection at the central office and containing an operator's telephone, in combination with a switching device having two levers connected respectively to the two terminals of one side of said metallic circuit, a pair of contacts connected through the operator's telephone with which said levers in their normal position connect, another pair of contacts in electrical connection with which said levers may be connected, and a pair of contacts connected to the two sides of the circuit, respectively, closed to each other when their levers are in their normal position and only then to close such bridge connection, by which the operator may open such bridge or cross connection and switch the telephone from the circuit, substantially as set forth.

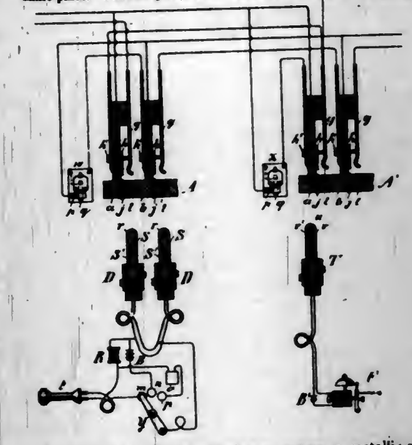
14. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into metallic circuit for conversation and the circuit then bridged or cross-connected by a circuit connection and containing an operator's telephone, in combination with a switching device having two levers connected respectively to the two terminals of one side of said metallic circuit, a pair of contacts connected through the operator's telephone with which said levers in their normal position connect, another pair of contacts in electrical connection with which said levers may, by one motion, be connected, and a pair of contacts connected to the two sides of the circuit, respectively, closed to each other when the levers are in their normal position and only then to close such bridge connection, by which the operator may by one motion open such bridge or cross connection and switch the telephone from the circuit, substantially as set forth.

15. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into metallic circuit for conversation with the circuit bridged or cross-connected at the central office and containing an operator's telephone, in combination with a calling-generator and a switch having two levers connected respectively to the two terminals of one side of said metallic circuit, a pair of contacts connected through the operator's telephone with which said levers in their normal position connect, another pair of contacts connected through the calling-generator with which said levers may by one motion be connected and a pair of contacts connected to the two sides of the circuit, respectively, closed to each other when the levers are in their normal position, and only then to close such bridge connection, by which the operator may in one motion open such bridge or cross connection and switch the telephone from and the generator into the circuit, substantially as set forth.

16. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into a metallic-circuit line for conversation with their circuit bridged or cross-connected at the central office and containing an operator's telephone, in combination with a calling-generator and a switch having two levers connected respectively to the two terminals of one side of said metallic circuit, a pair of contacts connected through the operator's telephone with which said levers in their normal position connect, another pair of contacts connected through the calling-generator with which said levers in another position connect, another pair of contacts in electrical connection with which said levers in a third position connect, said levers being adapted to be moved by one motion from their normal position to the second-mentioned pair of contacts and finally to the third-mentioned pair of contacts, and a pair of contacts connected to the two sides of the circuit, respectively, closed to each other when the levers are in their normal position, and only then to close such bridge connection, by which the operator may in one motion open such bridge connection, switch the telephone from and the generator into the circuit and finally leave the circuit unbridged and unconnected with either telephone or generator, substantially as set forth.

17. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into a metallic circuit for conversation and the circuit then bridged or cross-connected by a circuit connection in the central office, and an operator's telephone in the direct metallic circuit of the two lines thus connected together, in combination with an operator's telephone and a looping-in switch by which the operator may open such bridge or cross connection and switch said telephone into or out of the circuit, substantially as set forth.

592,897. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 16, 1891. Serial No. 392,956. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit line normally on closed circuit and with an annunciator normally in its circuit with contact-points by which the circuit is open while the annunciator indicates a call, in combination with a test receiving instrument and battery and switch apparatus by which the instrument and battery may be looped into the normal circuit of the line, the instrument being so constructed and adjusted that it will sound or respond when thus looped and the circuit in which it is included is neither open nor contains the resistance of two telephone-lines, but not otherwise, substantially as set forth.

2. In a telephone-exchange system, multiple switchboards and a metallic-circuit line connected to each of the boards and normally on closed circuit with an annunciator in the circuit having contact-points by which the circuit is open while the annunciator indicates a call, in combination with test receiving instruments, one at each board and connected in a loop with a test-battery, and switching apparatus by which each instrument with its battery may at its board be looped into the normal circuit of the line, the instrument being so constructed and adjusted that it will sound or respond when thus looped and the circuit in which it is included is neither open nor contains the resistance of two telephone-lines, substantially as set forth.

3. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board and normally on closed circuit with an annunciator in its circuit with contact-points by which the circuit is open while the annunciator indicates a call, and switch apparatus by which any two of the lines may be connected together in metallic circuit, in combination with test receiving instruments and batteries, one of each at each board, and switch apparatus by which each instrument with its battery may be looped into the normal circuit of any line, the instrument being so constructed and adjusted that it will sound or respond when thus looped and the circuit is neither open nor contains the resistance of two lines, but not otherwise, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards and a metallic-circuit line normally on closed circuit and passing successively through pairs of switch contact-points, one pair on each board, and having normally in its circuit an annunciator with a pair of contact-points by which the circuit is open when the annunciator indicates a call, in combination with switch apparatus at each board by which the two sides or branches of the line may be connected with the two sides or branches of any of the other lines and when they are thus connected at a board, said pair of switch contact-points at the board is open, and loop test-plugs, one at each board, the two contact-pieces of which are connected to the two sides, respectively, of a loop which contains a test receiving instrument and battery, each plug being adapted to be inserted into the line-switch at its board and when inserted to disconnect the pair of contact-points of the switch and connect them with the two contact-pieces of the plug, respectively, the instrument being so constructed and adjusted that it will sound or respond when thus switched into circuit and the circuit in which it is included is neither open nor contains the resistance of two telephone-lines, but not otherwise, substantially as set forth.

5. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact pieces of the other, respectively, by two flexible cord conductors, in combination with an operator's telephone, a clearing-out annunciator, a calling-generator, and a switch having a lever connected to one of the conductors and three contacts connected respectively through the telephone, the generator and annunciator with the other conductor, said lever being adapted to be brought at will in connection with either contact, whereby the operator may at will bridge or cross-connect the cord-circuits through either the telephone, or the generator or the annunciator, substantially as set forth.

6. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible cord conductors in combination with an operator's telephone, a clearing-out annunciator, a resistance-coil and a switch having a lever connected to one of the conductors and two contacts connected respectively through the telephone annunciator to the resistance-coil and through it with the other conductor, said lever being adapted to be brought at will in connection with either contact, whereby the operator may at will bridge or cross-connect the two cord-circuits through either the telephone and resistance-coil or the annunciator and resistance-coil, substantially as set forth.

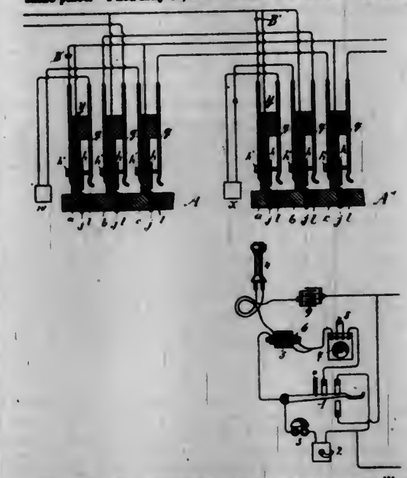
7. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, in combination with a switch having a movable lever and three contact-bolts on which the lever may alternately be placed, an operator's telephone, a calling-generator and a clearing-out annunciator said lever being connected to one of said cord-circuits, one of said bolts being connected to the other cord-circuit through the telephone, another of said bolts being connected to said other cord-circuit through the generator and the third bolt being connected to said other cord-circuit through the annunciator, substantially as set forth.

8. In a telephone-exchange system, a pair of loop-switch plugs the two contact-pieces of one of which are connected to the two contact-pieces of the other, respectively, by two flexible-cord circuits, in combination with a switch having a movable lever and three contact-bolts on which the lever may be alternately placed, an operator's telephone, a calling-generator and a clearing-out annunciator, said lever being connected to one of said cord-circuits, the bolt on which the lever normally rests being connected to the other cord-circuit through the telephone, the next adjoining bolt being connected to said other cord-circuit through the generator and the last bolt being connected to said other cord-circuit through the annunciator, substantially as set forth.

9. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into a metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, a clearing-out annunciator and a switch having a lever and three contact-bolts on which the lever may alternately be placed, one side of said metallic circuit being connected to the lever, the other side being connected through the telephone to one of said bolts, through the generator to another of said bolts and the annunciator to the third of said bolts, substantially as set forth.

10. In a telephone-exchange system, two metallic-circuit lines temporarily connected together into metallic circuit for conversation, in combination with an operator's telephone, a calling-generator, a clearing-out annunciator and a switch having a lever, a contact-bolt on which the lever normally rests and two other contact-bolts on which the lever may be alternately placed, one side of said metallic circuit being connected to the lever, the other side being connected through the telephone to the first-mentioned bolt, through the generator to the next adjoining bolt and through the annunciator to the remaining bolt, substantially as set forth.

592,898. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 16, 1891. Serial No. 392,967. (No model.)



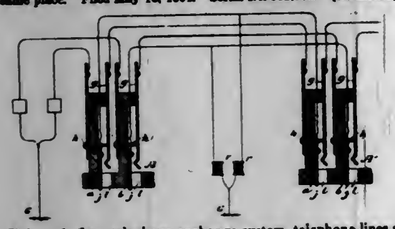
Claim.—1. In a telephone-exchange system, a metallic-circuit line one side or branch of which passes through a pair of switch contact-points and thence through a test-battery to the other side or branch of the line, in combination with switch apparatus by which when the two sides or branches of the line are connected through such switch with the two sides or branches of another metallic-circuit line said pair of contact-points is open, a condenser at the subscriber's station and a switch with contact-points to switch the condenser into the circuit of the line when the subscriber's telephone is switched for use, a test receiving instrument and switch apparatus by which the instrument may be included in the normal circuit of the line, said instrument and battery being so adjusted to each other and the line that the instrument sounds when included in the normal closed circuit of the line, but does not sound when on open circuit with the battery or on closed circuit with the battery and the line with the condenser in the line on the telephone being switched for use, substantially as set forth.

2. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, one side or branch of which passes through a pair of switch contact-points and thence through a test-battery to the other side or branch of the line, in combination with switch apparatus by which when the two sides or branches of the line are connected through such switch with the two sides or branches of another metallic-circuit line said pair of contact-points is open, a condenser at the subscriber's station and a switch with contact-points to switch the condenser into the circuit of the line when the subscriber's telephone is switched for use, a test receiving instrument and switch apparatus by which the instrument may be included in the normal circuit of each line, said instrument and battery being so adjusted to each other and the line that the instrument sounds when included in the normal closed circuit of the line, but does not sound when on open circuit with the battery and the line with the condenser in the line on the telephone being switched for use, substantially as set forth.

3. In a telephone-exchange system, multiple switchboards, me-

tallic-circuit lines, switches for said lines, one switch for each line on each board, one side or branch of each line passing successively through pairs of contacts of the line-switches on the several boards and from the last contact-point through a test-battery to contact-pieces, one for each switch of the line, and to the other side or branch of the line, in combination with pairs of double or loop-switch plugs at each board, the two contact-pieces on one plug being connected by flexible conductors to the two contact-pieces of its mate, adapted to be inserted into the switches and when a plug is inserted into a switch to disconnect the pair of contact-points and connect one of the contact-pieces of the switch-plug with that contact-point which is connected with said first-mentioned side or branch of the line, while the other contact-piece of the plug forms connection with said contact-piece of the switch, test receiving instruments one at each board, each connected on its two sides to the two contact-pieces of a loop test-plug adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch and form connection between them and its two contact-pieces, a condenser at each subscriber's station and a switch with contact-points to switch the condenser into the circuit of the line when its subscriber's telephone is switched for use, said instruments and batteries being so adjusted to each other and the lines that an instrument sounds when included in the normal closed circuit of a line, but does not sound when on open circuit with the battery or on closed circuit with the line and its battery with the condenser in the line on the telephone being switched for use.

592,399. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 16, 1891. Serial No. 392,969. (No model.)



Claim.—1. In a telephone-exchange system, telephone-lines and test wires or connections, one for each line, open to the line and grounded, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, and a test-battery in series circuit between said two test wires or connections, substantially as set forth.

2. In a telephone-exchange system, telephone-lines, test wires or connections, one for each line, open to the line and grounded, and a resistance-coil in each test wire or connection, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, and a test-battery in series circuit between said two test wires or connections, substantially as set forth.

3. In a telephone-exchange system, telephone-lines and test wires or connections, one for each line, open to the line and grounded, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, a test-battery in series circuit between said two test wires or connections, and a test receiving instrument grounded on one side, and connected on its other side to a plug or device adapted to be brought into connection with each of said test wires or connections, substantially as set forth.

4. In a telephone-exchange system, telephone-lines, test wires or connections, one for each line, open to the line and grounded, and a resistance-coil in each test wire or connection, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, a test-battery in series circuit between said two test wires or connections, and a test receiving instrument grounded on one side, and connected on its other side to a plug or device adapted to be brought into connection with each of said test wires or connections, substantially as set forth.

5. In a telephone-exchange system, telephone-lines, a test receiving instrument and test wires or connections, one for each line, open to the line and connected to one side of said test receiving instrument, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, a test-battery in series circuit between said test wires or connections, and a plug or device connected to the other side of said test receiving instrument and adapted to be brought into connection with each of said test wires or connections, substantially as set forth.

6. In a telephone-exchange system, telephone lines, a test receiving instrument, test wires or connections, one for each line, open to the line and connected to one side of said test receiving instrument, and a resistance-coil in each test wire or connection, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, a test-battery in series circuit between said test wires or connections, and a plug or device connected to the other side of said test receiving instrument and adapted to be brought into connection with each of said test wires or connections, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same and test wires or connections, one for each line, open to the line and grounded, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, and a test-battery in series circuit between said two test wires or connections, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, test wires or connections, one for each line, open to the line and grounded, and a resistance-coil in each test wire or connection, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, and a test-battery in series circuit between said two test wires or connections, substantially as set forth.

9. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, and test wires or connections, one for each line, open to the line and grounded, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, a test-battery in series circuit between said two test wires or connections, and a test receiving instrument at each board grounded on one side, and connected on its other side to a plug or device adapted to be brought into connection with each of said test wires, or connections, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, test wires or connections, one for each line, open to the line and grounded, and a resistance-coil in each test wire or connection, in combination with switch apparatus connecting any two of said test wires or connections while their lines are switched together for conversation, a test-battery is series circuit between said two test wires or connections, and a test receiving instrument at each board grounded on one side, and connected on its other side to a plug or device adapted to be brought into connection with each of said test wires or connections, substantially as set forth.

11. In a telephone exchange system, multiple switchboards, telephone-lines connected to the same, a test receiving instrument at each board, and test wires or connections, one for each line, open to the line and connected to one side of said test receiving instrument, in combination with switch apparatus connecting together any two of said test wires or connections while their lines are switched together for conversation, a test-battery in series circuit between said test wires or connections, and a plug or device for each test receiving instrument connected to the other side of said test receiving instrument and adapted to be brought into connection with each of said test wires or connections, substantially as set forth.

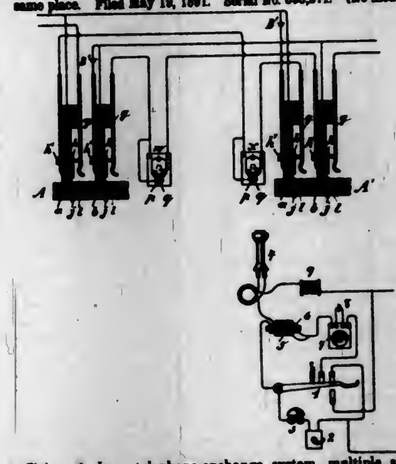
12. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, switch apparatus by which any two of said lines may be connected together for conversation, and test wires or circuits, one for each line, open to the line, extending to all the boards and grounded, in combination with apparatus and connections by which any two of said test-circuits are connected together, and a test-battery in series circuit between them, when their lines are switched together for conversation, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with any of said test-circuits, substantially as set forth.

13. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, switch apparatus by which any two of said lines may be connected together for conversation, test wires or circuits, one for each line, each open to its line, extending to all the boards and grounded, and an individual resistance-coil in each test wire or circuit, in combination with apparatus and connections by which any two of said test-circuits are connected together, and a test-battery in series circuit between them, when their lines are connected together for conversation, and test receiving instruments, one at each board, each instrument grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with any of said test-circuits, substantially as set forth.

14. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, switch apparatus by which any two of said lines may be connected together for conversation and test receiving instruments; one at each board, in combination with test wires or circuits, one for each line, each open to the line, extending to all the boards and connected to one side of each of said test receiving instruments, apparatus and connections by which any two of said test-circuits are connected together, and a test-battery in series circuit between them, when their lines are switched together for conversation, and plugs or devices, one for each test receiving instrument, connected to the other side of the instrument and adapted to be brought into connection with any of said test-circuits, substantially as set forth.

15. In a telephone-exchange system, multiple switchboards, telephone-lines connected to the same, switch apparatus by which any two of said lines may be connected together for conversation and test receiving instruments, one at each board, in combination with test wires or circuits, one for each line, each open to the line, extending to all the boards and connected through an individual resistance-coil to one side of each of said test receiving instruments, apparatus and connections by which any two of said test-circuits are connected together, and a test-battery in series circuit between them, when their lines are connected together for conversation, and plugs or devices, one for each test receiving instrument, each connected to the other side of its instrument and adapted to be brought into connection with any of said test-circuits, substantially as set forth.

592,400. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 19, 1891. Serial No. 393,371. (No model.)



Claim.—1. In a telephone-exchange system, multiple switchboards metallic-circuit lines, switches for said lines one switch for each line on each board, one side or branch of each line passing successively through pairs of contacts of the line-switches on the several boards and from the last contact-point through a test-battery to contact-pieces, one for each switch of the line, and to the other side or branch of the line, in combination with pairs of double or loop-switch plugs at each board, the two contact-pieces of one plug being connected by flexible conductors to the two contact-pieces of its mate, adapted to be inserted into the switches and when a plug is inserted into a switch to disconnect the pair of contact-points and connect one of the contact-pieces of the switch-plug with that contact-point which is connected with said first-mentioned side or branch of the line, while the other contact-piece of the plug forms connection with said contact-piece of the switch, test receiving instruments, one at each board, each connected on its two sides to the two contact-pieces of a loop test-plug adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch and form connection between them and its two contact-pieces, resistances at each subscriber's station and switches with contact-points to switch a greater resistance into the circuit of a line when its subscriber's telephone is switched for use than when it is not thus switched, said instruments and batteries being so adjusted to each other and the lines that an instrument sounds when included in the normal closed circuit of a line but does not sound when on open circuit with the battery or on closed circuit with the line and its battery with the additional resistance in the line on the telephone being switched for use, substantially as set forth.

2. In a telephone-exchange system, a pair of loop-switch plugs, in combination with a switch for said pair of plugs and an operator's telephone, said switch having a lever, two contact-bolts with which said lever connects in one of its positions and another contact-bolt with which the lever connects in another of its positions, two contact-pieces of the plugs, one of each plug, being connected together by a flexible cord conductor and said conductor being connected to one of said two contact-bolts, the other of said two bolts being connected through the telephone and the last-mentioned bolt being connected but not through the telephone, by a flexible conductor, with one of the contact-pieces of the plugs, while the remaining contact-piece of the plugs is connected by a flexible conductor with the switch-lever, substantially as set forth.

3. In a telephone-exchange system, a pair of loop-switch plugs, in combination with a switch for said pair of plugs, a calling-generator and an operator's telephone, said switch having a lever, two contact-bolts with which said lever connects in one of its positions, another contact-bolt with which the lever connects in another of its positions and another contact-bolt with which the lever connects in another of its positions, two contact-pieces of the plugs, one of each plug, being connected together by a flexible cord conductor and said conductor being connected to one of said two contact-bolts, the other of said two bolts being connected through the telephone, the second-mentioned bolt being connected through the generator and the last-mentioned bolt being connected but not through the telephone or generator by a flexible conductor with one of the other contact-pieces of the plugs while the remaining contact-piece of the plugs is connected by a flexible conductor with the switch-lever, substantially as set forth.

4. In a telephone-exchange system, a pair of loop-switch plugs, in combination with a switch for said pair of plugs, a calling-generator, and an operator's telephone said switch having a lever, two contact-bolts with which said lever connects in one of its positions, another contact-bolt with which the lever connects in its next position and another contact-bolt with which the lever connects in its next position, two contact-pieces of the plugs one of each plug, being connected together by a flexible cord conductor and said conductor being connected to one of said two contact-bolts, the other of said two bolts being connected through the telephone, the second-mentioned bolt being connected through the generator and the last-mentioned bolt being connected but not through the telephone or generator by a flexible conductor with one of the other contact-pieces of the plugs, while the remaining contact-piece of the plugs is connected by a flexible conductor with the switch-lever, substantially as set forth.

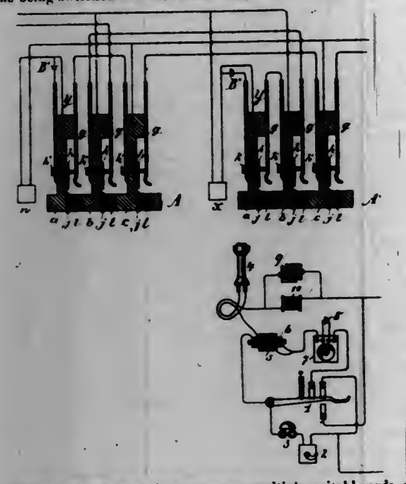
5. In a telephone-exchange system, a pair of loop-switch plugs, in combination with a switch for said pair of plugs and an operator's telephone, said switch having a lever and two contact-bolts on which said lever may alternately be placed, two contact-pieces of the plugs, one of each plug, being connected together by a flexible cord conductor, the other contact-piece of one of the plugs being connected by a flexible conductor to the lever of the switch, and the other contact-piece of the other plug being connected through the telephone to one of said contact-bolts of the switch and also connected, but not through the telephone, with the other contact-bolt of the switch, substantially as set forth.

6. In a telephone-exchange system, a pair of loop-switch plugs, in combination with a switch for said pair of plugs and an operator's calling-generator, said switch having a lever and two contact-bolts on which said lever may alternately be placed, two contact-pieces of the plugs, one of each plug, being connected together by a flexible cord conductor, the other contact-piece of one of the plugs being connected by a flexible conductor to the lever of the switch, and the other contact-piece of the other plug being connected through the calling-generator to one of said contact-bolts of the switch and also connected, but not through the calling-generator, with the other contact-bolt of the switch, substantially as set forth.

7 In a telephone-exchange system, a pair of loop-switch plugs, and a calling-generator, in combination with a switch for said pair of plugs and an operator's telephone, said switch having a lever and three contact-bolts on which said lever may alternately be placed, two contact-pieces of the plugs, one of each plug, being connected together by a flexible cord conductor, the other contact-piece of one of the plugs being connected by a flexible conductor to the lever of the switch, and the other contact-piece of the other plug being connected through the telephone to one of said contact-bolts of the switch, through the generator with another contact-bolt of the switch, and also connected, but not through the telephone or generator, with the other contact-bolt of the switch, substantially as set forth.

592,401. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 19, 1891. Serial No. 393,372. (No model.)

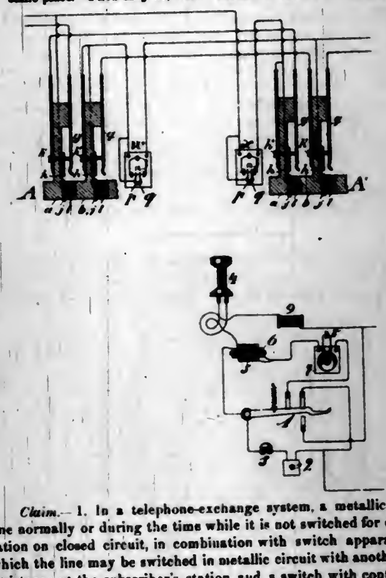
Claim.—1. In a telephone-exchange system, a metallic-circuit line one side or branch of which passes through a pair of switch contact-points and thence through a test-battery to the other side or branch of the line, in combination with switch apparatus by which when the two sides or branches of the line are connected through such switch with the two sides or branches of another metallic-circuit line said pair of contact-points is open, a condenser and resistance-coil in derived circuit at the subscriber's station and a switch with contact-points to switch the condenser and resistance-coil in derived circuit into the circuit of the line when the subscriber's telephone is switched for use, a test receiving instrument and switch apparatus by which the instrument may be included in the normal circuit of the line, said instrument and switch being so adjusted to each other and the line that the instrument sounds when included in the normal closed circuit of the line but does not sound when on open circuit with the battery or on closed circuit with the battery and the line with the condenser and resistance-coil in the line on the telephone being switched for use, substantially as set forth



2. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, one side or branch of each of which passes through a pair of switch contact-points and thence through a test-battery to the other side or branch of the line, in combination with switch apparatus by which when the two sides of the line are connected through such switch with the two sides or branches of another metallic-circuit line said pair of contact-points is open, a condenser and resistance-coil in derived circuit, at the subscriber's station and a switch with contact-points to switch the condenser and resistance-coil in derived circuit into the circuit of the line when the subscriber's telephone is switched for use, a test receiving instrument and switch apparatus by which the instrument may be included in the normal circuit of each line, said instrument and battery being so adjusted to each other and the line that the instrument sounds when included in the normal closed circuit of the line but does not sound when on open circuit with the battery or on closed circuit with the battery and the line with the condenser and resistance-coil in derived circuit in the line on the telephone being switched for use, substantially as set forth.

3. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, switches for said lines, one switch for each line on each board, one side or branch of each line passing successively through pairs of contacts of the line-switches on the several boards and from the last contact-point through a test-battery to contact-pieces, one for each switch of the line, and to the other side or branch of the line, in combination with pairs of double or loop-switch plugs at each board, the two contact-pieces on one plug being connected by flexible conductors to the two contact-pieces of its mate, adapted to be inserted into the switches and when a plug is inserted into a switch to disconnect the pair of contact-points and connect one of the contact-pieces of the switch-plug with that contact-point which is connected with said first-mentioned side or branch of the line, while the other contact-piece of the plug forms connection with said contact-piece of the switch, test receiving instruments, one at each board, each connected on its two sides to the two contact-pieces of a loop test-plug adapted to be inserted into any switch at its board, and when inserted to disconnect the pair of contact-points of the switch and form connection between them and its two contact-pieces, a condenser and resistance-coil in derived circuit at each subscriber's station and switches with contact-points to switch the condenser and resistance-coil in derived circuit into the circuit of the line when its subscriber's telephone is switched for use, said instruments and batteries being so adjusted to each other and the lines that an instrument sounds when included in the normal closed circuit of a line but does not sound when on open circuit with the battery or on closed circuit with the line and its battery with the condenser and resistance-coil in derived circuit in the line on the telephone being switched for use.

592,402. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 19, 1891. Serial No. 393,273. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit line normally or during the time while it is not switched for conversation on closed circuit, in combination with switch apparatus by which the line may be switched in metallic circuit with another line, resistance at the subscriber's station and a switch with contacts to switch a greater resistance into the line-circuit when the telephone is switched for use than the normal resistance, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be looped into the normal circuit of the line, said instrument and battery being so adjusted to each other and the line and the resistances by the marginal adjustment of the instrument to the other parts that the instrument sounds when they are included in the normal closed circuit of the line with its comparatively small resistance, but does not sound when on open circuit or on closed circuit with the line with the additional resistance in the line on the telephone being switched for use or on closed circuit with the line and another line and the comparatively greater resistance being thereby included in the circuit, substantially as set forth.

2. In a telephone-exchange system, multiple switchboards, metallic-circuit lines each normally or during the time while it is not switched for conversation on closed circuit, in combination with switch apparatus by which each line may be switched in metallic circuit with any other line, resistances at the subscriber's station and a switch with contacts to switch a greater resistance into the line-circuit when the telephone is switched for use than the normal resistance, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be looped into the normal circuit of the line, said instrument and battery being so adjusted to each other and the line and the resistances by the marginal adjustment of the instrument to the other parts that the instrument sounds when they are included in the normal closed circuit of the line with its comparatively small resistance but does not sound when on open circuit or on closed circuit with the line with the additional resistance in the line on the telephone being switched for use or on closed circuit with the line and another line and the comparatively greater resistance being thereby included in the circuit, substantially as set forth.

3. In a telephone-exchange system, a metallic-circuit line, one side or branch of which passes through a pair of switch contact-points and thence by an ungrounded connection to the other side or branch of the line, in combination with switch apparatus by which when the two sides of the line are connected through such switch

with the two sides or branches of another metallic-circuit line, said pair of contact-points is open, resistances at the subscriber's station and a switch with contacts to switch a greater resistance into the line-circuit when the subscriber's telephone is switched than otherwise, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be looped into the normal circuit of the line, said instrument and battery being so adjusted to each other and the line and the resistances by the marginal adjustment of the instruments to the other parts that the instrument sounds when they are included in the normal closed circuit of the line with its comparatively small resistance but does not sound when on open circuit or on closed circuit with the line with the additional resistance in the line on the telephone being switched for use or on closed circuit with the line and another line and the comparatively greater resistance being thereby included in the circuit, substantially as set forth.

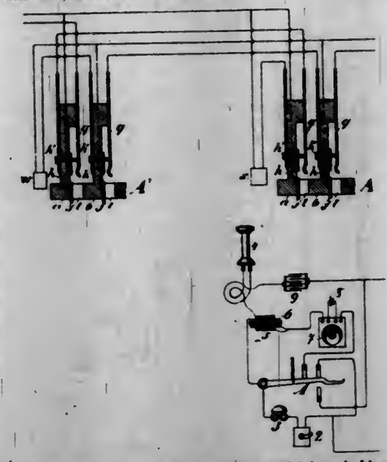
4. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, one side or branch of each of which pass through a pair of switch contact-points and thence by an ungrounded connection to the other side or branch of the line, in combination with switch apparatus by which when the two sides of the line are connected through such switch with the two sides or branches of another metallic-circuit line, said pair of contact-points is open, resistances at the subscriber's station and a switch with contacts to switch a greater resistance into the line-circuit when the subscriber's telephone is switched than otherwise, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be looped into the normal circuit of the line, said instrument and battery being so adjusted to each other and the line and the resistances by the marginal adjustment of the instrument to the other parts that the instrument sounds when they are included in the normal closed circuit of the line with its comparatively small resistance but does not sound when on open circuit or on closed circuit with the line with the additional resistance in the line on the telephone being switched for use or on closed circuit with the line and another line and the comparatively greater resistance being thereby included in the circuit, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, switches for said lines, one switch for each line on each board, one side or branch of each line passing successively through pairs of contacts of the line-switches on the several boards and from the last contact to contact-pieces, one for each switch of the line, and to the other side or branch of the line, in combination with pairs of double or loop switch plugs at each board, the two contact-pieces of each plug being connected by flexible conductors to the two contact-pieces of its mate, adapted to be inserted into the switches and when a plug is inserted into a switch to disconnect the pair of contact-points and connect one of the contact-pieces of the line-switches with that contact-point which is connected with said first-mentioned side or branch of the line, while the other contact-piece of the plug forms connection with said contact-piece of the switch, and loops, one at each board, each containing a test receiving instrument and battery and connected on its two sides to the two contact-pieces of a loop test-plug adapted to be inserted into any switch at its board and when inserted to disconnect the pair of contact-points of the switch and form connection between them and its two contact-pieces, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards and a metallic-circuit line normally on closed circuit, one side or branch of which passes successively through pairs of the line-switch contact-points on the several boards there being one pair only of said contacts for each line on each board and the other side or branch of which is connected to switch contact-pieces of the line on the several boards, in combination with a line-annunciator in the circuit of the second-mentioned side or branch of the line between the switch contact-piece connected farthest from the subscriber's station and the next preceding contact-piece and located at the board where the first-mentioned contact-piece is located, and a pair of contacts shunting the annunciator-magnet while the annunciator indicates a call, substantially as set forth.

592,403. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 19, 1891. Serial No. 393,274. (No model.)

Claim.—1. In a telephone-exchange system, multiple switchboards, and metallic-circuit lines each normally on closed circuit, switches for said lines one on each board, each switch having a pair of contacts through which in series one side of the line passes and each switch having a contact-piece to which the other side or return limb of the line is connected in combination with switch apparatus by which each line may be switched with any other line, a condenser at the subscriber's station and a switch with contacts to switch the condenser into the circuit of the line when the subscriber's telephone is switched for use, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be switched into the normal circuit of the line, said instrument and battery being so adjusted to each other and the line that the instrument sounds when they are included in the normal closed circuit of the line but does not sound when on open circuit or on closed circuit with the line with the condenser in the line-circuit or on closed circuit with the line and another line, substantially as set forth.



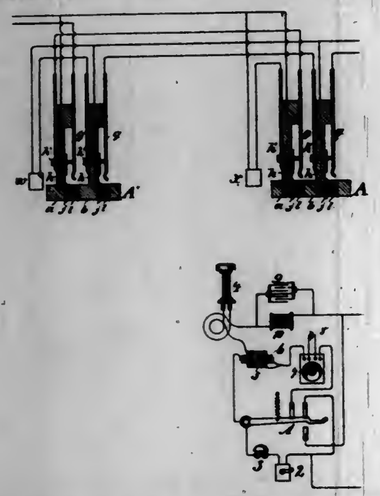
2. In a telephone-exchange system, multiple switchboards and metallic-circuit lines one side or branch of each of which passes through a pair of switch contact-points to the other side or branch of the line, the same being to contacts of the spring-jacks of the line on the several boards, in combination with switch apparatus by which when the two sides of the line are connected through such switch with the two sides or branches of any other metallic circuit line said pair of contact-points is open, a condenser at the subscriber's station and a switch with contacts to switch the condenser into the line-circuit when the subscriber's telephone is switched for use, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be switched into the normal circuit of the line, said instrument and battery being so adjusted to each other and the line that the instrument sounds when they are included in the normal closed circuit of the line but does not sound when on open circuit, or on closed circuit with the line with the condenser in the line-circuit, or on closed circuit with the line and another line, substantially as set forth.

592,404. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed May 19, 1891. Serial No. 393,275. (No model.)

Claim.—1. In a telephone-exchange system, metallic-circuit lines each normally on closed circuit, in combination with switch apparatus by which each line may be switched with any other line, a condenser and resistance-coil in derived circuit at each subscriber's station and a switch with contacts to switch the condenser and resistance-coil in derived circuit into the circuit of the line when the subscriber's telephone is switched for use, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be switched into the normal circuit of the line, said instrument and battery being so adjusted to each other and each line by the marginal adjustment to the resistances that the instrument sounds when they are included in the normal closed circuit of the line with its comparatively low resistance but does not sound when on open circuit, or on closed circuit with the line with the condenser and resistance-coil in derived circuit in the line-circuit, or on closed circuit with the line and another line, thereby increasing the resistance in circuit with the test receiving instrument and battery, substantially as set forth.

2. In a telephone-exchange system, multiple switchboards, metallic-circuit lines each normally on closed circuit, in combination with switch apparatus by which each line may be switched with any other line, a condenser and resistance-coil in derived circuit at each subscriber's station and a switch with contacts to switch the condenser and resistance-coil in derived circuit into the circuit of the line when the subscriber's telephone is switched for use, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be switched into the normal circuit of the line, said

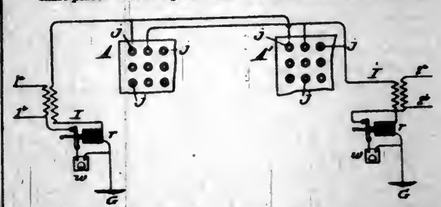
instrument and battery being so adjusted to each other and each line by the marginal adjustment to the resistances that the instrument sounds when they are included in the normal closed circuit of the line, with its comparatively low resistance but does not sound when on open circuit, or on closed circuit with the line with the condenser and resistance-coil in derived circuit in the line-circuit, or on closed circuit with the line and another line, thereby increasing the resistance in circuit with the test receiving instrument and battery, substantially as set forth



3. In a telephone-exchange system, metallic-circuit lines one side or branch of each of which passes through its pair of switch contact-points to the other side or branch of the line, in combination with switch apparatus by which when the two sides of a line are connected through such switch with the two sides or branches of another metallic-circuit line said pair of contact-points is open, a clearing-out annunciator in the circuit of two lines when they are switched together for conversation, a condenser and resistance-coil in derived circuit at each subscriber's station and a switch with contacts to switch the condenser and resistance-coil into the line-circuit when the subscriber's telephone is switched for use, thereby increasing the resistance in circuit with the test receiving instrument and battery, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be switched into the normal circuit of the line, said instrument and battery being so adjusted to each other and each line by the marginal adjustment to the resistances that the instrument sounds when they are included in the normal closed circuit of the line with its comparatively low resistance but does not sound when on open circuit, or on closed circuit with the line with the condenser and resistance-coil in derived circuit in the line-circuit, or on closed circuit with the line and another line, thereby increasing the resistance in circuit with the test receiving instrument and battery, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards and metallic-circuit lines one side or branch of each of which passes through a pair of switch contact-points to the other side or branch of the line, in combination with switch apparatus by which when the two sides of the line are connected through such switch with the two sides or branches of any other metallic-circuit line said pair of contact-points is open, a clearing-out annunciator in the circuit of two lines when they are switched together for conversation, a condenser and resistance-coil in derived circuit at each subscriber's station and a switch with contacts to switch the condenser and resistance-coil in derived circuit into the line-circuit when the subscriber's telephone is switched for use, a test receiving instrument and battery in a loop and switch apparatus by which said loop may be switched into the normal circuit of the line, said instrument and battery being so adjusted to each other and each line by the marginal adjustment to the resistances that the instrument sounds when they are included in the normal closed circuit of the line with its comparatively low resistance but does not sound when on open circuit, or on closed circuit with the line with the condenser and resistance-coil in derived circuit in the line-circuit, or on closed circuit with the line and another line, thereby increasing the resistance in circuit with the test receiving instrument and battery, substantially as set forth.

592,405. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 25, 1891. Serial No. 403,714. (No model.)



Claim.—1. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, translators for said lines, one translator for each line, one coil of which is in the circuit of its line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected through the other coil of the translator to the ground, switch apparatus to connect together by a metallic connection, any two of said switch-contacts at any board, and thereby connect the two coils to which the contacts are connected into a complete circuit, a circuit connection grounded on one side and connected on its other side to said metallic connection at a point between the two coils, a test-battery and an electromagnet annunciator of self-induction in said circuit connection, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with each of said switch-contacts at its board, substantially as set forth.

2. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, translators for said lines, one translator for each line, one coil of which is in the circuit of its line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected to one side of and through the other coil of the translator to the corresponding coil of each of the other translators, switch apparatus to connect together by a metallic connection any two of said switch-contacts at any board, and thereby connect the two coils to which the contacts are connected into a complete circuit, a circuit connection connected on one side to said metallic connection and on the other side to said coils on their other sides and at a point between them, a test-battery and an electromagnet annunciator of self-induction in said circuit connections, and test receiving instruments, one at each board, each connected on one side to said side of said coils, and connected on its other side to a plug or device adapted to be brought for testing into connection with each of said switch-contacts at its board, substantially as set forth.

3. In a telephone-exchange system, multiple switchboards, telephone-lines, translators for said lines, one translator for each line, one coil of which is in the circuit of its line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected to one side of the other coil of the translator and the other sides of such coils being connected together, switch apparatus to connect together by a metallic connection any two of said switch-contacts at any board and thereby connect the two coils to which the contacts are connected into a complete circuit, a circuit connection connected on one side to said metallic connection and on the other side to said coils on their other sides and at a point between them, a test-battery and an electromagnet annunciator of self-induction in said circuit connection, and test receiving instruments, one for each board, each connected on one side to the other side of the battery, and connected on its other side to a plug or device adapted to be brought for testing into connection with each of said switch-contacts at its board, substantially as set forth.

4. In a telephone-exchange system, multiple switchboards, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected through the other coil of the translator to the ground, two of said contacts on a board being connected together for conversation by a circuit connection, a battery and a self-induction electromagnet connected from a point between the two coils as long as the contacts are thus connected in a third leg to ground to the circuit thereby established, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with each of said contacts at its board, substantially as set forth.

5. In a telephone-exchange system, multiple switchboards, two telephone-lines and translators for said lines, one translator for each line, one coil of which is in the circuit of its line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected through the other coil of the translator to the ground, two of said contacts on a board being connected together for conversation by a circuit connection, a battery and a self-induction electromagnet connected from a point between the two coils, as long as the contacts are thus connected, in a third leg to ground to the circuit thereby established, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with each of said contacts at its board, substantially as set forth.

6. In a telephone-exchange system, multiple switchboards, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of its line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected through the other coil of the translator to the ground, two of said contacts on a board being connected together for conversation by a circuit connection, a battery and a self-induction electromagnet connected from a point between the two coils as long as the contacts are thus connected in a third leg to ground to the circuit thereby established, substantially as set forth.

7. In a telephone-exchange system, multiple switchboards, two telephone-lines and translators for said lines, one translator for each line, one coil of which is in the circuit of its line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected through the other coil of the translator to the ground, two of said contacts on a board being connected together for conversation by a circuit connection, a battery and a self-induction electromagnet connected from a point between the two coils, as long as the contacts are thus connected, in a third leg to ground to the circuit thereby established, substantially as set forth.

8. In a telephone-exchange system, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line, grounded through the other coil of the translator, and such contacts being temporarily connected together for conversation between the two subscribers by a circuit connection, and a battery and a self-induction electromagnet connected from a point between the two coils, as long as the contacts are thus connected, in a third leg to ground to the circuit thereby established, substantially as set forth.

9. In a telephone-exchange system, two telephone-lines, and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line grounded through the other coil of the translator, said contacts being temporarily connected together for conversation, by a circuit connection between the two subscribers, and a battery and a self-induction electromagnet connected from a point between the two coils, as long as the contacts are thus connected, in a third leg to ground to the circuit thereby established, substantially as set forth.

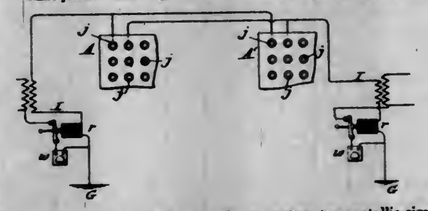
10. In a telephone-exchange system, multiple switchboards, two metallic circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected to one side of the other coil of the translator of the line, the other side of said coil being connected with the like side of the like coil of the other translator, two of said contacts on a board being connected together for conversation, by a circuit connection between the subscribers, a bridge as long as the contacts are thus connected to the circuit of the two coils, said bridge being from points between the coils, a battery and a self-induction electromagnet in said bridge, and test receiving instruments, one at each board, each connected on one side to the last-mentioned side of the translator-coils, and on its other side to a plug or device adapted to be brought for testing into connection with each of said contacts at its board, substantially as set forth.

11. In a telephone exchange system, multiple switchboards, two telephone-lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line on each board, the contacts of a line being connected together and connected to one side of the other coil of the translator of the line, the other side of said coil being connected with the corresponding side of the corresponding coil of the other translator, two of said contacts on a board being connected together for conversation, by a circuit connection between the subscribers, a bridge connected as long as the contacts are thus connected to the circuit of the two coils, said bridge being from points between the coils, a battery and a self-induction electromagnet in said bridge, and test receiving instruments, one at each board, each connected on one side to the last-mentioned side of the translator-coils, and on its other side to a plug or device adapted to be brought for testing into connection with each of said contacts at its board, substantially as set forth.

12. In a telephone-exchange system, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of its line, the other coils of the two translators being temporarily connected together into a complete circuit for conversation between the two subscribers by a circuit connection in combination with a bridge connected, as long as the last-mentioned coils are thus connected, to said circuit of the coils, said bridge being from points between the two coils, and a battery and a self-induction electromagnet in said bridge, substantially as set forth.

13. In a telephone-exchange system, two telephone-lines and translators for said lines, one translator for each line, one coil of which is in the circuit of its line, the other coils of the two translators being temporarily connected together into a complete circuit for conversation between the two subscribers by a circuit connection, in combination with a bridge connected, as long as the last-mentioned coils are thus connected, to said circuit of the coils, said bridge being from points between the two coils, and a battery and a self induction electromagnet in said bridge, substantially as set forth.

592,406. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 25, 1891. Serial No. 403,715. (No model.)



Claim.—1. In a telephone-exchange system, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line, grounded through the other coil of the translator, said contacts being temporarily connected together for conversation between the two subscribers, a clearing-out annunciator and a battery in a third leg to ground to the circuit thereby established, and a calling-generator operated in the closed circuit of his line at either subscriber's station to send the clearing-out signal substantially as set forth.

2. In a telephone-exchange system, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line, grounded through the other coil of the translator, said contacts being temporarily connected together for conversation between the two subscribers, a clearing-out annunciator in a third leg to ground to the circuit thereby established, and a calling-generator operated in the closed circuit of his line at either subscriber's station to send the clearing-out signal substantially as set forth.

3. In a telephone-exchange system, two telephone-lines, and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line, grounded through the other coil of the translator, said contacts being temporarily connected together for conversation between the two subscribers, a clearing-out annunciator, and a battery in a third leg to ground to the circuit thereby established, and a calling-generator operated in the closed circuit of his line at either subscriber's station to send the clearing-out signal substantially as set forth.

4. In a telephone-exchange system, two telephone-lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line grounded through the other coil of the translator, said contacts being temporarily connected together for conversation between the two subscribers, a clearing-out annunciator in a third leg to ground to the circuit thereby established, and a calling-generator operated in the closed circuit of his line at either subscriber's station to send the clearing-out signal substantially as set forth.

5. In a telephone-exchange system, metallic-circuit lines and translators, one for each line, one coil of which is in the circuit of the line, in combination with switch apparatus to switch any two of the other coils of the translators into a complete circuit, a clearing-out annunciator in a bridge or cross connection to such complete circuit between the two coils, and calling apparatus at each subscriber's station to send a calling-current through the translator-coil in circuit with its line, substantially as set forth.

6. In a telephone-exchange system, telephone-lines and transla-

tors, one for each line, one coil of which is in the circuit of the line, in combination with switching apparatus to switch any two of the other coils of the translators into a complete circuit, a clearing-out annunciator in a bridge or cross connection to said circuit between the two coils thus switched, and a calling-generator operated in the closed circuit of his line at either subscriber's station to send the clearing-out signal substantially as set forth.

7. In a telephone-exchange system, metallic-circuit lines and translators, one for each line, one coil of which is in the circuit of the line, in combination with switch apparatus to switch any two of the other coils of the translators into a complete circuit, a clearing-out annunciator in a bridge to the circuit of the coils thus switched, a battery in circuit with the clearing-out annunciator to reinforce any clearing out-signal current, and calling apparatus at each subscriber's station to send a calling-current through the translator-coil in circuit with its line, substantially as set forth.

8. In a telephone-exchange system, telephone-lines and translators, one for each line, one coil of which is in the circuit of the line, in combination with switch apparatus to switch any two of the other coils of the translators into a complete circuit, a clearing-out annunciator in a bridge to such complete circuit between the two coils, a battery in circuit with said annunciator to reinforce any clearing-out-signal current, calling apparatus at each subscriber's station to send a calling-current through the translator-coil in circuit with its line, substantially as set forth.

9. In a telephone-exchange system, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, the two other coils of the translator being temporarily connected together in a complete circuit for conversation between the two subscribers, in combination with a clearing-out annunciator in a bridge or cross connection to said complete circuit, said bridge or cross connection being between the two coils, and a calling-generator operated in the closed circuit of either subscriber's line to send a clearing-out signal substantially as set forth.

10. In a telephone-exchange system, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, the two other coils of the translators being temporarily connected together in a complete circuit for conversation between the two subscribers, in combination with a clearing-out annunciator and a battery in a bridge or cross connection to said complete circuit, said bridge or cross connection being between the two coils, and a calling-generator operated in the closed circuit of either subscriber's line to send a clearing-out signal substantially as set forth.

11. In a telephone exchange system, two telephone-lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, the two other coils of the translators being temporarily connected together in a complete circuit for conversation between the two subscribers, in combination with a clearing-out annunciator in a bridge or cross connection to said complete circuit, said bridge or cross connection being between the two coils, and a calling-generator operated in the closed circuit of either subscriber's line to send a clearing-out signal substantially as set forth.

12. In a telephone-exchange system, two telephone lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, the two other coils of the translators being temporarily connected together in a complete circuit for conversation between the two subscribers, in combination with a clearing-out annunciator and a battery in a bridge or cross connection to said complete circuit, said bridge or cross connection being between the two coils, said battery reinforcing any clearing-out current, and a calling-current in the closed circuit of either subscriber's line to operate the clearing-out annunciator substantially as set forth.

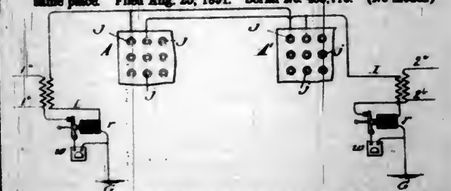
13. In a telephone-exchange system, multiple switchboards, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line on each board, grounded through the other coil of the translator, said contacts being temporarily connected together for conversation between the two subscribers, a clearing-out annunciator and a battery in a third leg to ground to the circuit thereby established, a calling-generator operated in the closed circuit of his line at either subscriber's station to send the clearing-out signal, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with said switch-contacts at its board, substantially as set forth.

14. In a telephone-exchange system, multiple switchboards, two telephone-lines, and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line on each board, grounded through the other coil of the translator, said contacts being temporarily connected together for conversation between the two subscribers, a clearing-out annunciator and a battery in a third leg to ground to the circuit thereby established, a calling-generator operated in the closed circuit of his line at either subscriber's station to send the clearing-out signal, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with said switch-contacts at its board, substantially as set forth.

15. In a telephone-exchange system, multiple switchboards, metallic-circuit lines and translators, one for each line one coil of which is in the circuit of the line, in combination with switch apparatus, at each board, to switch any two of the other coils of the translators into a complete circuit, a clearing-out annunciator in a bridge to the circuit of the coils thus switched, a battery in circuit with the clearing-out annunciator, calling apparatus at each subscriber's station to send a calling-current through the translator-coil in circuit with its line, and test receiving instruments, one at each board, each connected on one side to one of the sides of each of the last-mentioned coils of said translators and on its other side to a plug or device adapted to be brought into connection at its board with the other side of each of said last-mentioned coils, substantially as set forth.

16. In a telephone-exchange system, multiple switchboards, telephone-lines and translators, one for each line, one coil of which is in the circuit of the line, in combination with switch apparatus at each board, to switch any two of the other coils of the translators into a complete circuit, a clearing out annunciator in a bridge to such complete circuit between the two coils, a battery in circuit with said annunciator, calling apparatus at each subscriber's station to send a calling-current through the translator-coil in circuit with its line, and test receiving instruments, one at each board, each connected on one side to one of the sides of each of the last-mentioned coils of said translators and on its other side to a plug or device adapted to be brought into connection at its board with the other side of each of said last-mentioned coils, substantially as set forth.

592,407. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 25, 1891. Serial No. 403,716. (No model.)



Claim.—1. In a telephone-exchange system, metallic-circuit lines, translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with a switchboard, switch-contacts on the board, one for each line, connected through the other coil of the translator to the ground, switch apparatus to connect together any two of said contacts, battery through which the contact of a line is grounded when connected with another contact, and relays one for each line in circuit with the translator-coil between its contact and the ground, said relay having two contacts normally closed but open while connected with the battery, one of said contacts being connected with the line and the other to a connection to ground, substantially as set forth.

2. In a telephone-exchange system, metallic-circuit lines, translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with a switchboard, switch-contacts on the board, one for each line, connected through the other coil of the translator to the ground, switch apparatus to connect together any two of said contacts, a connection from a contact thus connected to the ground, but not through its translator-coil, battery in said connection, relays one for each line in circuit with the translator-coil between its contact and the ground, said relay having two contacts normally closed but opened while connected with the battery, one of said contacts being connected with the line and the other to a connection to ground, and annunciators, one for each line in its connection to ground, substantially as set forth.

3. In a telephone-exchange system, metallic-circuit lines, translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with a switchboard, switch-contacts on the board, one for each line, connected with one side of the other coil of the translator and the other side of the coil being connected with the same side of the same coils of the other translators, switch apparatus to connect together any two of said contacts, relays one for each line in circuit with the translator-coil between its contact and the common connection of the coils, and battery in closed circuit with said relay while a contact of its line is connected with a contact of another line, said relay having two contacts normally closed but opened while connected with the battery, one of said contacts being connected with the line and the other to a connection to ground, substantially as set forth.

4. In a telephone-exchange system, metallic-circuit lines, translators for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with a switchboard, switch-contacts on the board, one for each line, connected to one side of the other coil of the translator, and the other side of the coil being connected with the same side of the same coils of the other translators, switch apparatus to connect together any two of said contacts, relays, one for each line, in circuit with the translator-coil between its contact and the common connection of the coils, and battery in closed circuit with the relay while a contact of its line is connected with the contact of another line, said relay having two contacts normally closed but opened while connected with the battery, one of said contacts being connected with the line and the other to a connection to ground, and annunciators, one for each line in its connection to ground, substantially as set forth.

5. In a telephone-exchange system, metallic-circuit lines and translators, one for each line, one coil of which is in the circuit of the line, in combination with switching apparatus to connect any two of the other coils of the translators into a complete circuit, annunciators, one for each line in a normally closed ground connection of the line, contact-points in such normal ground connection normally closed but open while the translator-coil of the line is connected in circuit with another translator-coil, a ground connection of each line at the subscriber's station, open while the line is in use for conversation and closed while a signal is being sent by the subscriber, and a calling-generator between such grounds at the subscriber's station and central office, substantially as set forth.

6. In a telephone exchange system, metallic-circuit lines and translators, one for each line, one coil of which is in the circuit of the line, in combination with switching apparatus to connect any two of the other coils of the translators into a complete circuit, annunciators one for each line in a normally closed ground connection of the line, a switch at each subscriber's station with contacts to ground the line as long as the telephone is on the switch, and a calling-generator between such grounds at the subscriber's station and central office, substantially as set forth.

7. In a telephone-exchange system, metallic-circuit lines and translators, one for each line, one coil of which is in the circuit of the line, in combination with switching apparatus to connect any two of the other coils of the translators into a complete circuit, annunciators, one for each line in a normally closed ground connection of the line, contact-points in such normal ground connection normally closed but open while the translator-coil of the line is connected in circuit with a translator-coil of another line, a switch at each subscriber's station with contacts to ground the line while the telephone is on the switch, and a calling-generator between such grounds at the subscriber's station and central office, substantially as set forth.

8. In a telephone-exchange system, two metallic-circuit lines and translators for said lines, one translator for each line, one coil of which is in the circuit of its line, the other two coils of the translators being temporarily connected in a complete circuit for conversation between the two subscribers, relay in circuit with said other coils, a ground connection to each line normally closed but open while its translator coil is thus connected for conversation, calling-annunciators, one for each line in its said ground connection, calling apparatus at each subscriber's station in the line-circuit while being operated, and a ground connection for each line at its subscriber's station closed at the will of the operator, substantially as set forth.

9. In a telephone-exchange system, a metallic-circuit line normally grounded at the central office and having in its circuit at the central office one coil of its translator, the other coil of the translator being temporarily switched for conversation with a translator-coil of another line and automatic disconnecting apparatus to disconnect the line from the ground at the central office as long as the coil is thus switched.

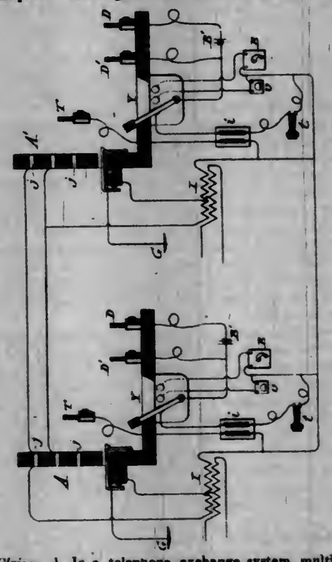
10. In a telephone-exchange system, two metallic-circuit lines, each normally grounded at the central office and having in its circuit at the central office one coil of its translator, the two other coils of the translators being temporarily switched in a circuit for conversation and automatically disconnecting apparatus for each line to disconnect the line from the ground at the central office as long as its coil is thus switched.

11. In a telephone-exchange system, a metallic-circuit line normally grounded at the central office and normally grounded at the subscriber's station, a calling-annunciator in its ground connection at the central office, and a calling-generator in the line-circuit at the subscriber's station, in combination with a translator for the line at the central office, one coil of which is in the circuit of the line, switching apparatus to disconnect the line from the ground at the central office in switching the other coil of the translator in a complete circuit for conversation, and a clearing-out annunciator in said complete circuit.

12. In a telephone-exchange system, subscribers' telephone-lines, annunciators, one for each line, each normally in a circuit with its line, switches on a switchboard, one for each subscriber's talking-circuit and having each a contact-piece, electromagnetic devices, one for each line, each actuated when a current is established through it to open the normal circuit of the line with the annunciator, pairs of switch-plugs, each plug having a contact-piece adapted to form connection with said contact-piece of the switch of a subscriber's talking-circuit when the plug is placed in said switch to switch said talking-circuit for conversation, said contact-pieces of the pair of plugs being connected together by a flexible switch-conductor, and a battery connected on one side to said switch-conductors of said pairs of plugs and on its other side to circuit connections, one through the electromagnetic device of each line to said contact-piece of the switch for the line.

13. In a telephone-exchange system, multiple switchboards, subscribers' telephone-lines, annunciators one for each line, each normally in a circuit with its line, switches, one on each board for the talking-circuit of each subscriber and having each a contact-piece, electromagnetic devices, one for each line, each actuated when a current is established through it to open the normal circuit of the line with the annunciator, pairs of switch-plugs at each board, each plug having a contact-piece adapted to form connection at its board with said contact-pieces of the switches of the subscribers' talking-circuits when the plug is placed in either of said switches to switch a talking-circuit for conversation, said contact-pieces of each pair of plugs being connected together by a flexible switch-conductor, a battery or batteries connected on one side to said switch-conductors of said pair of plugs and connected on the other side in circuit connections, one through the electromagnetic device of each line to said switch contact-pieces of the switches of the line, and test receiving instruments, one at each board, each connected on one side to said last-named side of said battery or batteries and on its other side to a test plug or device adapted to be brought for testing into connection with either of said switch contact-pieces at its board.

592,408. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 31, 1891. Serial No. 404,336. (No model.)



Claim.—1. In a telephone-exchange system, multiple switchboards, metallic-circuit lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line on each board, the contacts of the line being connected together and connected to one side of the other coil of the translator, the other side of said coil being connected by metallic connection with the same side of the other like coils of the translators, switch apparatus at each board to connect together any two of said switch-contacts at the board, a clearing-out annunciator bridged across the cir-

cuit of the coils of two lines thus united and a calling-generator at either of the subscribers' stations operated in the circuit of his line to send a clearing-out signal, substantially as set forth.

2. In a telephone-exchange system, a switchboard, metallic-circuit lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts on said board, one for each line, to which one side of the other coil of the line-translator is connected, a metallic connection between the other sides of said other coils of the translators, switch apparatus to connect together any two of said switch-contacts at the board, a clearing-out annunciator bridged across the circuit of the coils of two lines thus united and a calling-generator at either of the subscribers' stations operated in the circuit of his line to send a clearing-out signal, substantially as set forth.

3. In a telephone-exchange system, a switchboard, metallic-circuit lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts on said board, one for each line, to which one side of the other coil of the line-translator is connected, an ungrounded metallic connection between the other side of said last-mentioned coil and the same side of the same coils of the other translators, switching apparatus to connect together any two of said switch-contacts, a clearing-out annunciator bridged across the circuit of the coils of two lines thus united and a calling-generator at either of the subscribers' stations operated in the circuit of his line to send a clearing-out signal, substantially as set forth.

4. In a telephone-exchange system, a switchboard, telephone-lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line on the board, connected to the one side of the other coil of the translator of the line, metallic connections between the other side of said last-mentioned coil and the same side of the same coil of each of the other translators, switching apparatus to connect together any two of said switch-contacts a clearing-out annunciator bridged across the circuit of the coils of two lines thus united and a calling-generator at either of the subscribers' stations operated in the circuit of his line to send a clearing-out signal, substantially as set forth.

5. In a telephone-exchange system, a switchboard, telephone-lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line and one side of the other coil of which is in a completely metallic connection with the same side of the same coil of each of the other translators, in combination with switch apparatus to connect together the other sides of any two of such coils of the translators a clearing-out annunciator bridged across the circuit of the coils of two lines thus united, a battery in circuit with said clearing-out annunciator, and a calling-generator operated at either of the subscribers' stations in the circuit of his line to send a clearing-out signal.

6. In a telephone-exchange system, a switchboard, telephone-lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line and one side of the other coil of which is in ungrounded completely metallic connection with the same side of the same coil of each of the other translators, in combination with switch apparatus to connect together the other sides of any two of the last-mentioned coils of the translators, a clearing-out annunciator bridged across the circuit of the coils of two lines thus united, a battery in circuit with said clearing-out annunciator, and a calling-generator operated at either of the subscribers' stations in the circuit of his line to send a clearing-out signal substantially as set forth.

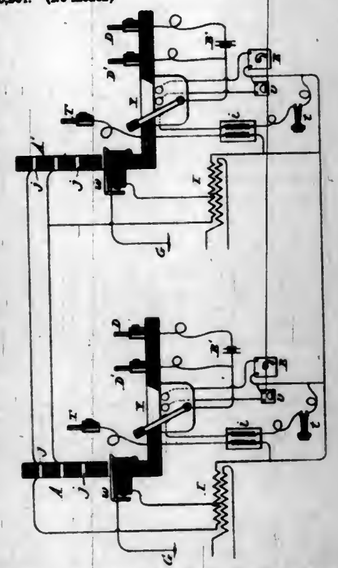
7. In a telephone-exchange system, multiple switchboards, metallic-circuit lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one for each line on each board, the switch-contacts of a line being connected together and to one side of the other coil of the translator of the line and the other side of said coil being connected through metallic conductor to the same side of the same coil of each of the other translators, pairs of plugs at each board, the plugs of each pair being connected by a flexible conducting-circuit and each plug adapted to form connection with each of said switch-contacts at its board, a battery in circuit between the plugs of each pair, a clearing-out annunciator bridged across the circuit of the coils of two lines united by the plugs of a pair of plugs and a calling-generator operated at either of the subscribers' stations in the circuit of his line to operate the clearing-out annunciator, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, metallic-circuit lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one on each board for each line, said contacts of each line being connected together by metallic conductor and to one side of the other coil of the line-translator and the other sides of the same coils being metallically connected together, switching apparatus to connect together any two of said switch-contacts on any board, a battery between them when thus connected, a clearing-out annunciator bridged across the circuit of the coils of two lines thus connected and test receiving instruments, one at each board, each connected metallically on one side to the last-mentioned side of the last-mentioned coils of the translators and on the other side to a plug or device adapted to be brought for testing into connection with each of said switch-contacts at its board, substantially as set forth.

9. In a telephone-exchange system, multiple switchboards, telephone-lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, in combination with switch-contacts, one on each board for each line, said contacts of the line being connected metallically to one side of the other coil of the line, the other side of the coil being connected metallically with the same side of each the same coils of the other translators, switching apparatus to connect together any two of said switch-contacts on any board, a battery between them when thus connected, a clearing-out annunciator bridged across the circuit of the coils of two lines thus connected and test receiving instruments, one at each board each metallically connected on one side to the last-mentioned side of the last-mentioned coils of the translators and on the other side to a plug or device adapted to be brought for testing into connection with each of said switch-contacts at its board.

10. In a telephone-exchange system, metallic-circuit lines and translators for said lines, one translator for each line one coil of which is in the circuit of the line, in combination with the line-annunciator of each line grounded on one side and connected on the other side to the center of said coil of the line, a calling-generator in the circuit of the line at the subscriber's station, switching apparatus at the subscriber's station to at will ground the line-circuit there, a switching apparatus to at will connect together the two other coils of any two translators, and a clearing-out annunciator bridged across the circuit thus established through said coils and from between said coils, substantially as set forth.

592,409. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 31, 1891. Renewed Dec. 30, 1893. Serial No. 495,261. (No model.)



Claim.—1. In a telephone-exchange system, two metallic-circuit lines and translators at the central office for said lines, one coil of each of which is in the circuit of its line, the two other coils of the translators being temporarily connected for conversation in a complete metallic circuit, in combination with a clearing-out annunciator in a bridge connection across said metallic circuit between said coils.

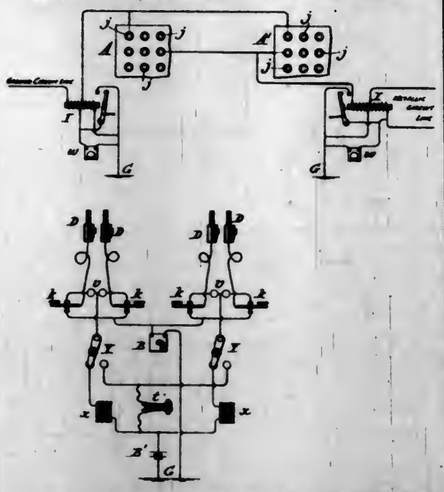
2. In a telephone-exchange system, two metallic-circuit lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, the two other coils of the translators being temporarily connected in metallic circuit for conversation, in combination with a bridge-connection across said metallic circuit, an operator's calling-generator and a switch to at will include said generator in said bridge connection.

3. In a telephone exchange system, two telephone-lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, the other two coils of the translators being temporarily connected together for conversation in a complete metallic circuit, in combination with a clearing-out annunciator in a bridge or cross connection to said metallic circuit between the two coils.

4. In a telephone-exchange system, two metallic circuit lines and translators at the central office for said lines, one coil of each of which is in the circuit of its line, the two other coils of the translators being temporarily connected for conversation in a complete metallic circuit, in combination with a retardation apparatus in a bridge connection across said metallic circuit between said coils.

5. In a telephone-exchange system, two telephone-lines and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, the other two coils of the translators being temporarily connected together for conversation in a complete metallic circuit, in combination with a retardation apparatus in a bridge or cross connection to said metallic circuit between the two coils.

592,410. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Aug. 31, 1891. Serial No. 404,338. (No model.)



Claim.—1. In a telephone-exchange system, a switchboard, telephone-lines, translators for said lines at the central office, one coil of which is in the circuit of the line, switching apparatus to connect together any two of the other coils into a complete circuit for conversation between their two subscribers, and battery in circuit with any coil while thus connected, in combination with annunciators, one for each line, an armature for each translator, moved when its coil is thus connected with a battery, a pair of contacts for each armature, one connected to one side and the other connected to the other side of its line's annunciator, said contacts being normally open to each other but closed when the armature is thus moved.

2. In a telephone-exchange system, a switchboard, telephone-lines, translators for said lines at the central office, one coil of which is in the circuit of the line, switching apparatus to connect together any two of the other coils into a complete circuit for conversation between their two subscribers, and battery in circuit with any coil while thus connected, in combination with annunciators, one for each line, in the circuit of the line, an armature for each line, moved when its coil is connected with a battery, a pair of contacts for each armature, one connected to one side and the other connected to the other side of its line's annunciator, said contacts being normally open to each other but closed when the armature is thus moved.

3. In a telephone-exchange system, a switchboard, telephone-lines, translators for said lines at the central office, one coil of which is in the circuit of the line, switching apparatus to connect together any two of the other coils into a complete circuit for conversation between their two subscribers, and battery in circuit with any coil while thus connected, in combination with annunciators, one for each line, an armature for each line, automatically moved when its coil is thus connected with a battery, a pair of contacts for each armature, one connected to one side and the other connected to the other side of its line's annunciator, said contacts being normally open to each other but closed when the armature is thus moved.

4. In a telephone-exchange system, a switchboard, telephone-lines, translators for said lines at the central office, one coil of which is in the circuit of the line, switching apparatus to connect together any two of the other coils into a complete circuit for conversation between their two subscribers, and battery in circuit with any coil while thus connected, in combination with annunciators, one for each line, in a ground connection of the line, an armature for each line, automatically moved when its coil is thus connected with a battery, a pair of contacts for each armature, one connected to one side and the other connected to the other side of its line's annunciator, said contacts being normally open to each other but closed when the armature is thus moved.

5. In a telephone-exchange system, subscribers' telephone-lines, annunciators, one for each line, each having its magnet permanently in circuit connection with its line, switches on a switchboard, one for each subscriber's talking-circuit and having each a contact-piece, electromagnetic devices, one for each line, each having a different electromagnet than said annunciator-magnet of the line actuated when a current is established through it and preventing the operation of the line-annunciator by a current sent over the line, pairs of switch-plugs, each plug having a contact-piece adapted to form connection with said contact-piece of the switch of a subscriber's talking-circuit when the plug is placed in said switch to switch said talking-circuit for conversation, said contact-pieces of the pair of plugs being connected together by a flexible switch-conductor, and a battery connected on one side to said switch-conductors of said pairs of plugs and on its other side to circuit connections, one through the electromagnetic device of each line to said contact-piece of the switch for the line.

6. In a telephone-exchange system, multiple switchboards, subscribers' telephone-lines, annunciators one for each line, each having its magnet permanently in circuit connection with its line, switches, one on each board for the talking-circuit of each subscriber and having each a contact-piece, electromagnetic devices one for each line, each having a different electromagnet than said annunciator-magnet of the line actuated when a current is established through it and controlling the line annunciator that it will not be then operated by a current sent over the line, pairs of switch-plugs at each board, each plug having a contact-piece adapted to form connection at its board with said contact-pieces of the switches of the subscribers' talking-circuits when the plug is placed in either of said switches to switch a talking-circuit for conversation, said contact-pieces of each pair of plugs being connected together by a flexible switch-conductor, a battery or batteries connected on one side to said switch-conductors of said pair of plugs and connected on the other side in circuit connections, one through the electromagnetic device of each line to said switch contact-pieces of the switches of the line, and test receiving instruments, one at each board, each connected on one side to said last-named side of said battery or batteries and on its other side to a test plug or device adapted to be brought for testing into connection with either of said switch contact-pieces at its board.

7. In a telephone-exchange system, multiple switchboards, subscribers' telephone-lines, switches, one on each board for the talking-circuit of each subscriber and having each a contact-piece, electromagnetic devices one for each line, pairs of switch-plugs at each board, each plug having a contact-piece adapted to form connection at its board with said contact-pieces of the switches of the subscribers' talking-circuits when the plug is placed in either of said switches to switch a talking-circuit for conversation, said contact-pieces of each pair of plugs being connected together by a flexible switch-conductor, a battery connected on one side to said switch-conductors of said pairs of plugs and connected on the other side in circuit connections, one through the electromagnetic device of each line to said switch contact-pieces of the switches of the line, and test receiving instruments, one at each board, each connected on one side to said last-named side of said battery or batteries and on its other side to a test plug or device adapted to be brought for testing into connection with either of said switch contact-pieces at its board.

8. In a telephone-exchange system, multiple switchboards, subscribers' metallic-circuit telephone-lines, switches, one on each board for the talking-circuit of each subscriber and having each a contact-piece not connected to the line, resistances, one for each line, pairs of switch-plugs at each board, each plug having a contact-piece adapted to form connection at its board with said contact-pieces of the switches of the subscribers' talking-circuits when the plug is placed in either of said switches to switch a talking-circuit for conversation, said contact-pieces of each pair of plugs being connected together by a flexible switch-conductor, a battery connected on one side to said switch-conductors of said pairs of plugs and connected on the other side in circuit connections, one through the resistance of

each line to said switch contact-pieces of the switches of the line, and test receiving instruments, one at each board, each connected on one side to said last-named side of said battery or batteries and on its other side to a test plug or device adapted to be brought for testing into connection with either of said switch contact-pieces at its board.

9. In a telephone-exchange system, the combination of a switch board or boards, subscribers' telephone-lines or talking-circuits, switches therefor on the board or boards, an individual annunciator permanently, that is whether the line is switched or not, included in closed circuit with each line and operated by calling-current sent through it, a clearing-out annunciator, means for connecting any two lines together for conversation and connecting the clearing-out annunciator with or into their circuit, a local circuit including a battery that is completed when any two lines are thus connected, a subscriber's calling-generator located in closed circuit with either subscriber's line thus connected and sending clearing-out currents operating said clearing-out annunciator, and electromagnetic means included in the local circuit and operated by the current from the battery therein, thereby preventing the operation of the line-annunciators when clearing-out currents are sent over the line.

10. In a telephone-exchange system, the combination of a switch board or boards, subscribers' telephone-lines or talking-circuits, switches therefor on the board or boards, an individual annunciator permanently, that is whether the line is switched or not, included in closed circuit with each line and operated by calling-current sent through it, a clearing-out annunciator, means for connecting any two lines together for conversation and connecting the clearing-out annunciator with or into their circuit, a local circuit including a battery that is completed when any two lines are thus connected, a subscriber's calling-generator located in closed circuit with either subscriber's line thus connected and sending clearing-out currents operating said clearing-out annunciator, and electromagnetic means included in the local circuit and operated by the current from the battery therein, to prevent the operation of the line-annunciators when clearing-out currents are sent over the line.

11. In a telephone-exchange system, the combination of a subscriber's telephone-line, a call-annunciator included in said line, a normally open short circuit around said annunciator, and means for closing such short circuit by the act of switching the line for conversation.

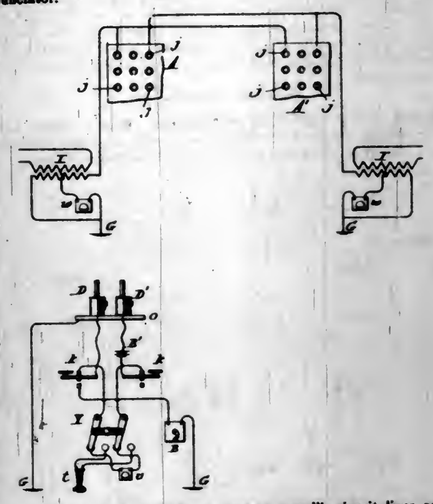
12. In a telephone-exchange system, the combination of a switch-board, two telephone-lines, each having a socket or switching connection on said board, a subscriber's generator at each subscriber's station, a call-annunciator included in or permanently connected with each line at said board, switch-plugs and their cord connections for placing said lines in communication for conversation, a clearing-out annunciator in the equipment of said cord connections, and adapted to be operated by a clearing-out current sent from either subscriber's generator, a normally open short circuit around the call-annunciator of each line, and means for closing such short circuits by the act of placing the lines in communication for conversation, substantially as described.

592,411. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Sept. 8, 1891. Serial No. 405,093. (No model.)

Claim.—1. In a telephone-exchange system, metallic-circuit lines, each grounded at the subscriber's station as long as the subscriber's telephone is not switched for use and only then, and translators for said lines at the central office, one for each line, one coil of which is in the circuit of the line, in combination with annunciators, one for each line, in a ground connection from the center of said coil of the line, signal-bells, one for each line, in the circuit of the line at the subscriber's station while the subscriber's telephone is not switched for use, calling-generators, one for each line in circuit at the subscriber's station between such ground connections of the line at the subscriber's station and the central office, switching apparatus to connect together any two of the other coils of the translators and calling apparatus whereby a calling-current may be sent through either of said other coils of the translators, substantially as set forth.

2. In a telephone-exchange system, metallic-circuit lines, each grounded at the subscriber's station as long as the subscriber's telephone is not switched for use and only then, and translators at the central office for said lines, one for each line, one coil of which is in the circuit of the line, in combination with annunciators, one for each line, in a ground connection of the line at the central office, calling-generators, one for each line, in the circuit of the line whenever the generator is being operated, connecting apparatus to connect together any two of the other coils of the translators and a clearing-out annunciator in circuit with any two coils thus connected, whereby each subscriber may operate his line-annunciator and whenever his line is thus connected for conversation and his generator is operated the clearing-out annunciator will thereby be operated, substantially as set forth.

3. In a telephone-exchange system, metallic-circuit lines and translators at the central office for said lines, one for each line, one coil of which is in the circuit of the line, in combination with annunciators, one for each line, in a ground connection from the center of said coil of the line, a clearing-out annunciator in circuit with the other or local coil of the translator of the line when said coil is connected with the coil of another line for conversation between subscribers, a calling-generator at each subscriber's station in the closed metallic circuit of the line whenever the generator is being operated to call the central office and a ground connection of the line at the subscriber's station closed by the telephone-switch while the telephone is on the switch, whereby the subscriber by operating his calling-generator when the telephone is on the switch operates the line-annunciator and by operating the generator when the telephone is off the switch operates a clearing-out annunciator which may be in circuit with the local coil of the line without operating the line-annunciator.

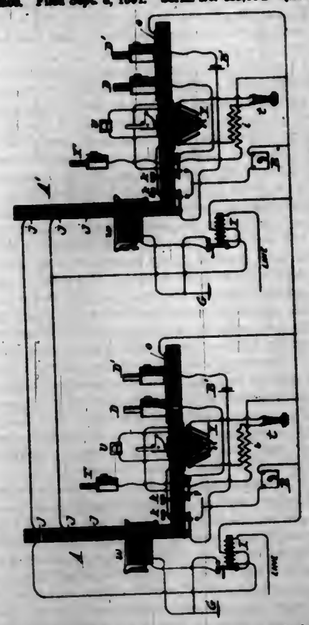


4. In a telephone-exchange system, metallic-circuit lines and translators at the central office for said lines, one for each line, one coil of which is in the circuit of the line and the other coil of which is local to the central office, in combination with annunciators, one for each line, in a ground connection to the line, switching apparatus to connect together any two of said local coils, a clearing-out annunciator in circuit with a local coil when the coil is connected with another coil, a calling-generator at each subscriber's station in the closed metallic circuit of the line whenever the generator is operated for calling, and a ground connection to the line closed at the will of the subscriber, whereby he may at will operate his line-annunciator or whenever he operates his generator a clearing-out annunciator which may be in circuit with the local coil of his line-translator will invariably be operated.

5. A metallic circuit extending from the subscriber's station to the central office and including at the central office one coil of a translator, in combination with a branch from the center of said coil to the ground, an annunciator in said branch, an annunciator in circuit with the other coil of the translator while said coil is connected for conversation, a calling-generator at the subscriber's station in said metallic circuit whenever the generator is operated for calling or clearing out and a ground connection to said metallic circuit at the subscriber's station closed at the will of the subscriber, whereby the subscriber may at will operate said first-mentioned generator and said second-mentioned annunciator is in circuit with the coil of the translator said annunciator will invariably be operated.

6. A metallic circuit extending from the subscriber's station to the central office and including at the central office one coil of a translator, in combination with a branch at the central office from said metallic circuit to the ground, an electromagnet in said branch, an annunciator in circuit with the other coil of the translator while said coil is connected for conversation, switching apparatus at each subscriber's station to, at the will of the subscriber, ground said circuit, and a calling-generator in said metallic circuit whenever the generator is being operated while said ground connection is opened or closed, whereby whenever said generator is operated and said annunciator is in circuit with said other coil of the translator said annunciator will invariably be operated.

592,412. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Sept. 8, 1891. Serial No. 405,094. (No model.)



Claim.—1. In a telephone-exchange system, a switchboard, telephone-lines, each permanently grounded at the outer end and normally grounded at the central office through its annunciator, and translators at the central office for said lines, one for each line, one coil of which is in the circuit of the line, in combination with a normally open ground connection for each line which does not include the line-annunciator, a connection between one side of the other coil of the line-translator and the same side of the same coil of each of the other translators, and switch apparatus to connect the other side of said coil of the line-translator with the same side of the same coil of any other translator and close said normally open ground connection of the line as long as its translator-coil is thus connected.

2. In a telephone-exchange system, telephone-lines, each permanently grounded at its outer end, a ground connection with which it is normally closed, a line-annunciator in such ground connection, and translators at the central office, one for each line, one coil of which is in the circuit of the line, in combination with a second ground connection for each line which does not include the line-annunciator and is normally open to the line, a connection between one side of the other coil of the line translator and the same side of the same coil of each of the other translators, and switch apparatus to connect the other side of said coil of the line-translator with the same side of the same coil of any other translator and as long as the translator is thus connected open the first-mentioned and close the second-mentioned ground connection of the line.

3. In a telephone exchange system, two telephone-lines, each permanently grounded at their outer ends and grounded at the central office while and as long as switched for conversation between subscribers, and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line between such grounds of the line, the other coils of the translators being connected into a complete circuit for conversation, in combination with a clearing-out annunciator and a battery in said complete circuit of the two coils, and calling apparatus at each subscriber's station to send a clearing-out current through his line, said battery being made of too little strength to cause the clearing-out annunciator to be operated when they are in said complete circuit of the two coils but reinforcing the clearing-out current sent by either subscriber to insure the operation of the annunciator.

4. In a telephone-exchange system, two telephone-lines, each permanently grounded at its outer end and grounded at the central office while and as long as switched for conversation between subscribers, and translators at the central office for said lines, one for each line, one coil of which is in the circuit of the line, the other coils being temporarily connected together into a complete circuit for conversation, in combination with a clearing-out annunciator and a battery, said annunciator and battery being in a circuit with each of said last-mentioned coils, and calling apparatus at each subscriber's station to send a clearing-out current through his line, said battery being made of too little strength to cause the clearing-out annunciator to be operated when they are in said complete circuit of the two coils but reinforcing the clearing-out current sent by either subscriber to insure the operation of the annunciator.

5. In a telephone exchange system, two telephone-lines, each permanently grounded at its outer end and normally grounded at the central office through a line-annunciator, and translators at the central office for said lines, one for each line, one coil of which is in the circuit of its line, the other coils of the line-translators being temporarily connected together into a complete circuit for conversation, and said lines being grounded at the central office while, and as long as switched for conversation between subscribers, their coils are thus connected by circuit connections which do not include the line-annunciators, in combination with a clearing-out annunciator in said complete circuit of the two coils, and calling apparatus at each subscriber's station to send a calling-current through his line.

6. In a telephone-exchange system, telephone-lines, each permanently grounded at its outer end, and translators at the central office for said lines, one for each line, one coil of which is in the circuit of the line, each translator having two pairs of contacts operated by an armature, one pair being normally closed and the other pair normally open, one contact of each pair being connected with the line, the other contact of the normally closed pair being grounded through the line-annunciator, and the other contact of the normally open pair being grounded but not through the line-annunciator, in combination with switching apparatus to connect together into a circuit any two of the other coils of the translators for conversation between subscribers, and a battery in any circuit thus established, said battery as long as two coils are thus connected acting on the translator-cores through the coils with which it is in circuit to move the armatare of each of the two translators to open the normally closed and close the normally open pairs of contacts.

7. In a telephone-exchange system, telephone-lines each permanently grounded at its outer end, and translators at the central office for said lines, one translator for each line, one coil of which is in the circuit of the line, each translator having a normally open pair of contacts operated by an armature of the translator, one contact being connected to the line and the other to the ground, in combination with switching apparatus to connect together into a circuit any two of the other coils of the translators, and battery in circuit with each coil as long as thus connected, said battery acting on the translator-coils with which it is in circuit to move the armature of each of the two translators to close its said pair of contacts.

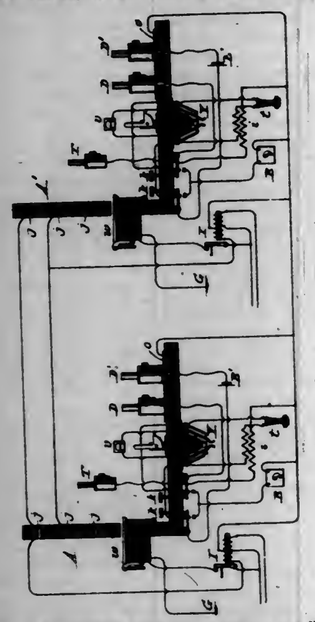
8. In a telephone-exchange system, two telephone-lines permanently grounded at their outer ends and each normally grounded at the central office through its line-annunciator, and translators at the central office for said lines, one for each line, one coil of which is in the circuit of the line, the other two coils being temporarily connected into a circuit for conversation between the two subscribers, and the two lines being thus or as long as the coils are thus connected grounded at the central office and not through the line-annunciators.

9. In a telephone-exchange system, subscribers' telephone-lines, calling-annunciators, one for each line, each normally in a circuit with its line, switches on a switchboard, one for each subscriber's talking-circuit and having each a contact-piece, electromagnetic devices other than said line-annunciators, one for each line, each operated when a current is established through it, and thereby controlling the line-annunciator that it will not then be operated and made to indicate a call by a current sent over the line, pairs of switch-plugs, each plug having a contact-piece adapted to form connection with said contact-piece of the switch of a subscriber's talking-circuit when the plug is placed in said switch to switch said talking-circuit for conversation, said contact-pieces of the pair of plugs being connected together by a flexible switch-conductor, said contact-piece of a line being connected to one side of its electromagnetic device, and the other sides of the electromagnetic devices being connected together, and a battery in the circuit between said contact-pieces of each pair of plugs, thus establishing current through said electromagnetic devices of two lines and then or while the lines are switched controlling their calling-annunciators so that they shall not then be operated by currents sent over the lines from either subscriber's station.

10. In a telephone-exchange system, multiple switchboards, subscribers' telephone-lines, annunciators, one for each line, each normally in a circuit with its line, switches, one on each board for the talking-circuit of each subscriber and having each a contact-piece, electromagnetic devices, one for each line, each actuated when a current is established through it to so control the line-annunciator that it will not then be operated by a current sent over the line, pairs of switch-plugs at each board, each plug having a contact-piece adapted to form connection at its board with said contact-pieces of

the switches of the subscribers' talking-circuits when the plug is placed in either of said switches to switch a talking-circuit for conversation, said contact-pieces of each pair of plugs being connected together by a flexible switch-conductor, said contact-pieces of a line being connected to one side of its electromagnetic device, and the other sides of the electromagnetic devices being connected together, and a battery in the circuit between said contact-pieces of each pair of plugs.

592,413. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Sept. 8, 1891. Serial No. 405,095. (No model.)



Claim.—1. In a telephone-exchange system, two metallic-circuit lines, each having normally a ground connection at the central office, and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, the two other or local coils of the translators being temporarily connected in a circuit for conversation and a battery in said circuit while or as long as said local coils are thus connected together, in combination with an armature for each translator and a pair of contact-points controlled by the armature and through which said ground connection of the line passes, said contact-points being normally closed but opened by the armature when the local coil is connected in circuit with the battery.

2. In a telephone-exchange system, two metallic-circuit lines, each having normally a ground connection at the central office, and translators for said lines, one translator for each line, one coil of which is in the circuit of the line, the two other or local coils being temporarily connected into a circuit for conversation and battery in circuit with each local coil while and as long as it is thus connected, in combination with an armature for each translator and a pair of contacts controlled by the armature and through which said ground connection of the line of the translator passes, said contacts being normally closed but opened by the armature on its being attracted when the local coil is connected in circuit with the battery.

3. In a telephone-exchange system, metallic-circuit lines, each having normally a ground connection in the central office, an annunciator for each line in its ground connection, and translators, one for each line, one coil of which is in the circuit of the line, in combination with switching apparatus to connect together any two of the other coils of the translators, battery in circuit with any coil as long as said coil is thus connected with another coil, an armature for each translator and a pair of contacts for each armature controlled by it through which said ground connection of the line of the translator passes, each pair of contacts being normally closed but opened by their armature when the coil of its translator is thus connected in circuit with the battery.

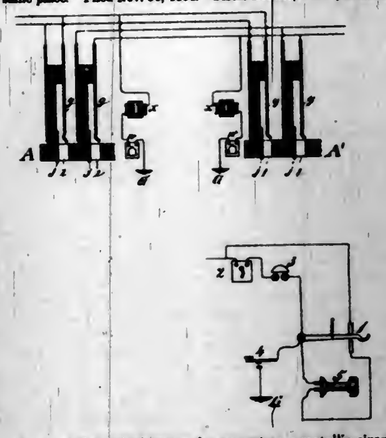
4. In a telephone-exchange system, a metallic-circuit line passing to the central office and through one coil of its translator, in combination with an armature for the translator operated on by the core of the translator to open a pair of contacts when the other coil of the translator is on closed circuit with a battery, a ground connection for the line through said pair of contacts, and a battery in circuit with said other coil of the translator as long as said coil is closed with another translator-coil.

5. In a telephone-exchange system, a metallic-circuit line passing to the central office and through one coil of its translator, in combination with an armature operated by the core of the translator to open a pair of contacts when the other coil of the translator is on closed circuit with a battery, a ground connection for the line through said pair of contacts, an annunciator in said ground connection, and a battery in circuit with said other coil of the translator as long as said coil is connected in closed circuit for conversation.

6. In a telephone-exchange system, subscribers' telephone-lines, annunciators, one for each line, each normally in a circuit with its line, switches on a switchboard, one for each subscriber's talking-circuit and having each a contact-piece, electromagnetic devices, one for each line, each actuated when a current is established through it to open the normal circuit of the line with the annunciator, pairs of switch-plugs, each plug having a contact-piece adapted to form connection with said contact-piece of the switch of a subscriber's talking-circuit when the plug is placed in said switch to switch said talking-circuit for conversation, said contact-pieces of the pair of plugs being connected together by a flexible switch-conductor, said contact-piece of a line being connected to one side of its electromagnetic device, and the other sides of the electromagnetic devices being connected together, and a battery in the circuit between said contact-pieces of each pair of plugs while and as long as the two plugs connect the talking-circuits of two lines for conversation.

7. In a telephone-exchange system, multiple switchboards, subscribers' telephone-lines, annunciators one for each line, each normally in a circuit with its line, switches, one on each board for the talking-circuit of each subscriber and having each a contact-piece, electromagnetic devices, one for each line, each actuated when a current is established through it to open the normal circuit of the line with the annunciator, pairs of switch-plugs at each board, each plug having a contact-piece adapted to form connection at its board with said contact-pieces of the switches of the subscribers' talking-circuits when the plug is placed in either of said switches to switch a talking-circuit for conversation, said contact-pieces of each pair of plugs being connected together by a flexible switch-conductor, said contact-pieces of a line being connected to one side of its electromagnetic device, and the other sides of the electromagnetic devices being connected together, and a battery in the circuit between said contact-pieces of each pair of plugs while and as long as the two plugs connect the talking-circuits of two lines for conversation.

592,414. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 30, 1891. Serial No. 413,604. (No model.)



Claim.—1. In a telephone-exchange system, a metallic-circuit line normally open to the ground at the subscriber's station, a circuit connection at the central office for said line, permanently connected to the line at one end and to the ground at the other end, and the line-annunciator in said circuit connection in combination with a key at the subscriber's station in a normally open ground connection with contact-points to close said connection at will, and a calling-generator

at the subscriber's station in the circuit of the line between said normally open ground connection and the permanent ground connection at the central office, substantially as set forth.

2. In a telephone-exchange system, metallic-circuit lines, each normally open to the ground at its subscriber's station, circuit connections at the central office one for each line, each permanently connected to the ground and permanently connected to its line, and annunciators, one for each line, each in said circuit connection of its line in combination with a key at each subscriber's station in a normally open ground connection with contact-points to close said connection at will, a calling-generator at each subscriber's station in the circuit of the line between said normally open ground connection and the permanent ground connection at the central office, switching apparatus at the central office to connect any two of said lines in a metallic circuit which does not include the annunciators of the lines, and a clearing-out annunciator in circuit with any line thus connected in metallic circuit, substantially as set forth.

3. In a telephone-exchange system, metallic-circuit lines, each normally open to the ground at its subscriber's station, and annunciators, one for each line, through which one side of the line is permanently grounded at the central office, in combination with a key at each subscriber's station in a normally open ground connection with contact-points to close said connection at will, a calling-generator at each subscriber's station in the circuit of the line between said normally open ground connection and the permanent ground connection at the central office, switching apparatus at the central office to connect any two of said lines in a metallic circuit which does not include the annunciator of the lines, and a clearing-out annunciator in a bridge to the circuit of any two lines thus connected in metallic circuit, substantially as set forth.

4. In a telephone-exchange system, a metallic-circuit line normally open to the ground at the subscriber's station, and a line-annunciator and retardation-coil through which one side of the line is permanently grounded at the central office, in combination with a key at the subscriber's station in a normally open ground connection with contact-points to close said connection at will, and a calling-generator at the subscriber's station in the circuit of the line between said normally open ground connection and the permanent ground connection at the central office, substantially as set forth.

5. In a telephone exchange system, metallic-circuit lines, each normally open to the ground at its subscriber's station, and annunciators and retardation-coils, one of each for each line through which one side of the line is permanently grounded at the central office, in combination with a key at each subscriber's station in a normally open ground connection with contact-points to close said connection at will, a calling-generator at each subscriber's station in the circuit of the line between said normally open ground connection and the permanent ground connection at the central office, switching apparatus at the central office to connect any two of said lines in a metallic circuit which does not include the annunciators of the lines, and a clearing-out annunciator in circuit with any line thus connected in metallic circuit, substantially as set forth.

6. In a telephone-exchange system, metallic circuit lines, each normally open to the ground at its subscriber's station, and annunciators and retardation-coils, one of each for each line, through which one side of the line is permanently grounded at the central office, in combination with a key at each subscriber's station in a normally open ground connection with contact-points to close said connection at will, a calling-generator at each subscriber's station in the circuit of the line between said normally open ground connection and the permanent ground connection at the central office, switching apparatus at the central office to connect any two of said lines in a metallic circuit which does not include the annunciators of the lines, and a clearing-out annunciator in a bridge to the circuit of any two lines thus connected in metallic circuit, substantially as set forth.

7. In a telephone-exchange system, two metallic-circuit lines connected together in metallic circuit, and circuit connections at the central office, one for each line, each permanently connected to the ground and permanently connected to its line, and annunciators, one for each line, each in said circuit connection of its line, in combination with a clearing-out annunciator in a bridge connection to said circuit, and a calling-generator in the circuit of each line at its subscriber's station, substantially as set forth.

8. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board, and annunciators, one for each line, through which one side of the line is permanently grounded, in combination with switching apparatus at each board whereby any two of the lines may be included for conversation in a metallic circuit which does not include the annunciators of the line, a rheotome and resistance-coil in derived circuit in a circuit connection branched from a looped-cord circuit connecting any two lines together and through which the metallic circuit thus established is grounded, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug adapted to be brought for testing into connection with each line, and a battery in any test-circuit thus established which contains the rheotome and test receiving instrument, substantially as set forth.

9. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board, and annunciators, one for each line, through which one side of the line is permanently grounded, in combination with switching apparatus at each board whereby any two of the lines may be included for conversation in a metallic circuit which does not include the annunciators of the line, a rheotome branched from a looped-cord circuit connecting any two lines together and through which the metallic circuit thus established is grounded, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug adapted to be brought for testing into connection with each line, and a battery in any test-circuit thus established which contains the rheotome and test receiving instrument, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board, and annunciators, one for each line, through which one side of the line is permanently grounded, in combination with switching apparatus at each board whereby any two of the lines may be included for conversation in a metallic circuit which does not include the annunciators of the line, a retardation-coil and a rheotome and resistance-coil in derived circuit branched from a looped-cord circuit connecting any two lines together and through which the metallic circuit thus established is grounded, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug adapted to be brought for testing into connection with each line, and a battery in any test-circuit thus established which contains the rheotome and test receiving instrument, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board, and annunciators, one for each line, through which one side of the line is permanently grounded, in combination with switching apparatus at each board whereby any two of the lines may be included for conversation in a metallic circuit which does not include the annunciators of the line, a retardation-coil and a rheotome branched from a looped-cord circuit connecting any two lines together and through which the metallic circuit thus established is grounded, test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug adapted to be brought for testing into connection with each line, and a battery in any test-circuit thus established which contains the rheotome and test receiving instrument, substantially as set forth.

12. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board, and annunciators, one for each line, through which one side of the line is permanently grounded, in combination with switching apparatus at each board whereby any two of the lines may be included for conversation in a metallic circuit which does not include the annunciators of the line, a rheotome and resistance-coil in derived circuit in a circuit connection branched from a looped-cord circuit connecting any two lines together and to one side of which the metallic circuit thus established is thereby connected, test receiving instruments one at each board, each connected on one side to the other side of said circuit connection and connected on its other side to a plug adapted to be brought for testing into connection with each line, and a battery in any test-circuit thus established which contains the rheotome and test receiving instrument substantially as set forth.

13. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board, and annunciators, one for each line, through which one side of the line is permanently grounded, in combination with switching apparatus at each board whereby any two of the lines may be included for conversation in a metallic circuit which does not include the annunciators of the line, a rheotome in a circuit connection branched from a looped-cord circuit connecting any two lines together and to one side of which the metallic circuit thus established is thereby connected, test receiving instruments, one at each board, each connected, on one side to the other side of said circuit connection and connected on its other side to a plug adapted to be brought for testing into connection with each line, and a battery in any test-circuit thus established which contains the rheotome and test receiving instrument, substantially as set forth.

14. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board, and annunciators, one for each line, through which one side of the line is permanently grounded, in combination with switching apparatus at each board whereby any two of the lines may be included for conversation in a metallic circuit which does not include the annunciators of the line, a retardation-coil and a rheotome and resistance coil in derived circuit in a circuit connection branched from a looped-cord circuit connecting any two lines together and to one side of which the

metallic circuit thus established is thereby connected, test receiving instruments one at each board, each connected on one side to the other side of said circuit connection and connected on its other side to a plug adapted to be brought for testing into connection with each line, and a battery in any test-circuit thus established which contains the rheotome and test receiving instrument, substantially as set forth

15. In a telephone-exchange system, multiple switchboards, metallic-circuit lines, each line connected to each board and annunciators, one for each line, through which one side of the line is permanently grounded, in combination with switching apparatus at each board whereby any two of the lines may be included for conversation in a metallic circuit which does not include the annunciators of the line, a retardation-coil and a rheotome in a circuit connection branched from a looped-cord circuit connecting any two lines together and to one side of which the metallic circuit thus established is thereby connected, test receiving instruments, one at each board, each connected on one side to the other side of said circuit connection and connected on its other side to a plug adapted to be brought for testing into connection with each line, and a battery in any test-circuit thus established which contains the rheotome and test receiving instrument, substantially as set forth.

16. In a telephone-exchange system, two metallic circuit lines, a switchboard at the central office to which they are connected, and means at the switchboard for switching them together for conversation, in combination with an annunciator for each line at the central office, each annunciator being grounded on one side and permanently connected on its other side to its line, a clearing-out annunciator in circuit with both lines while they are left thus switched for conversation, means at each subscriber's station to at will ground his line, and a calling-generator at each subscriber's station in the circuit of the line between the ground connection through the annunciator at the central office and the ground which may be established at the subscriber's station, whereby either subscriber may at will operate his line-annunciator or when his line is switched the clearing-out annunciator.

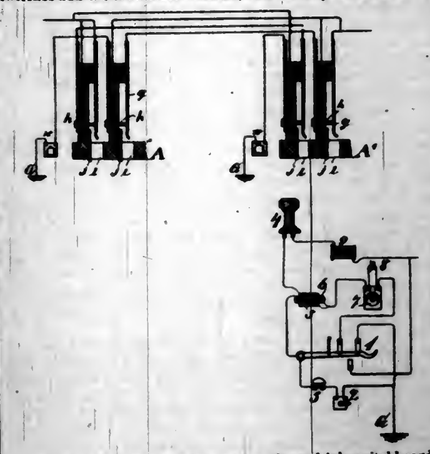
17. In a telephone-exchange system, two metallic-circuit lines, a switchboard at the central office to which they are connected, and means at the switchboard for switching them together for conversation, in combination with an annunciator for each line at the central office, each annunciator being grounded on one side and permanently connected on its other side to its line, a clearing-out annunciator in a bridge or cross-connecting circuit to their combined circuit while they are left thus switched for conversation, means at each subscriber's station to at will ground his line, and a calling-generator at each subscriber's station in the circuit of the line between the ground connection through the annunciator at the central office and the ground which may be established at the subscriber's station, whereby either subscriber may at will operate his line-annunciator or when his line is switched the clearing-out annunciator.

18. In a telephone-exchange system, two metallic-circuit lines, a switchboard at the central office to which they are connected, and means at the switchboard for switching them together for conversation, in combination with an annunciator in a circuit of high resistance and retardation, for each line at the central office, each annunciator being grounded on one side and permanently connected on its other side to its line, a clearing-out annunciator in circuit with both lines while they are left thus switched for conversation, means at each subscriber's station to at will ground his line, and a calling-generator at each subscriber's station in the circuit of the line between the ground connection through the annunciator at the central office and the ground which may be established at the subscriber's station, whereby either subscriber may at will operate his line-annunciator or when his line is switched the clearing-out annunciator.

592,415. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Nov. 30, 1891. Serial No. 413,607. (No model.)

Claim.—1. In a telephone-exchange system, the multiple switchboards of the exchange to which the same telephone-lines are connected, two of said lines temporarily connected together at either of said boards for conversation, and an electric battery at the central office as long as the lines are thus connected in a circuit connection from the circuit of said lines to the ground, in combination with test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to its switch testing device, and test-bolts or contact-pieces, one for each line on each board, to each of which said test device at its board may be applied, each of said test-bolts or contact-pieces being connected to the circuit of its line between the line-switches and the subscriber's station, substantially as set forth.

2. In a telephone-exchange system, the multiple switchboards of the exchange to which the same telephone-lines are connected, two of said lines temporarily connected together at either of said boards for conversation, and an electric battery at the central office as long as the lines are thus connected in a circuit connection from the circuit of said lines to the ground, in combination with test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to its switch testing device, and test-bolts or contact-pieces, one for each line on each board, to each of which said test device at its board may be applied, each of said test-bolts or contact-pieces being connected to the circuit of its line between the line-switches and the subscriber's station, substantially as set forth, and a clearing-out annunciator for each line at the central office, each annunciator being grounded on one side and permanently connected on its other side to its line, a clearing-out annunciator in a bridge or cross-connecting circuit to their combined circuit while they are left thus switched for conversation, means at each subscriber's station to at will ground his line, and a calling-generator at each subscriber's station in the circuit of the line between the ground connection through the annunciator at the central office and the ground which may be established at the subscriber's station, whereby either subscriber may at will operate his line-annunciator or when his line is switched the clearing-out annunciator.



3. In a telephone-exchange system, the multiple switchboards of the exchange, each board being provided with switching devices whereby the operator may connect any two subscribers' lines together in circuit for conversation, and an electric battery through which each such circuit is grounded at the central office as long as it is switched for conversation, in combination with test bolts or pieces, one at each board for each line, each test bolt being connected to its line between its switches and the subscriber's station, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with each test bolt or piece at its board, substantially as set forth.

4. In a telephone-exchange system, the multiple switchboards of the exchange, each board being provided with switching devices whereby the operator may connect any two subscribers' lines together in circuit for conversation, and an electric battery to one side of which each such circuit is connected at the central office as long as it is switched for conversation, in combination with test bolts or pieces, one at each board for each line, each test-bolt being connected to its line between its switches and subscriber's station, and test receiving instruments, one at each board, each instrument being connected on one side to the other side of said battery and connected on its other side to a plug or device adapted to be brought into connection with each test bolt or piece at its board, substantially as set forth.

5. In a telephone-exchange system, the multiple switchboards of the exchange to which the same telephone-lines are connected, two of said lines temporarily connected together at either of said boards for conversation, and a clearing-out annunciator and an electric battery at the central office as long as the lines are thus connected in a circuit connection from the circuit of said lines to the ground, in combination with test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to its switch testing device, and test-bolts or contact-pieces, one for each line on each board, to each of which said test device at its board may be applied, each of said test-bolts or contact-pieces being connected to the circuit of its line between the line-switches and the subscriber's station, substantially as set forth.

6. In a telephone-exchange system, the multiple switchboards of the exchange, to which the same telephone-lines are connected, two of said lines temporarily connected together at either of said boards for conversation, and a clearing-out annunciator and an electric battery at the central office as long as the lines are thus connected in a circuit connection connected on one side to the circuit of said lines, in combination with test receiving instruments, one at each board, each instrument being connected on one side to the other side of said circuit connection, and connected on the other side to its switch testing device, and test-bolts or test-pieces, one for each line on each

board, to each of which said test device at its board may be applied, each of said test-bolts or contact-pieces being connected to the circuit of its line between the line-switches and the subscriber's station, substantially as set forth.

7. In a telephone-exchange system, the multiple switchboards of the exchange, each board being provided with switching devices whereby the operator may connect any two subscribers' lines together in circuit for conversation, an electric battery through which each circuit is grounded at the central office as long as it is switched for conversation, and a clearing-out annunciator in each of such connections to ground, in combination with test bolts or pieces, one at each board for each line, each test-bolt being connected to its line between its switches and the subscriber's station, and test receiving instruments, one at each board, each instrument being grounded on one side and connected on its other side to a plug or device adapted to be brought into connection with each test bolt or piece at its board, substantially as set forth.

8. In a telephone-exchange system, two telephone-lines connected together in a circuit for conversation, and an electric battery at the central office in a connection between said circuit and the ground, in combination with test bolts or pieces, one for each line on a switchboard, each connected to its line between the switch where the line is switched for conversation and the subscriber's station, and a test receiving instrument at said board, grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with each of said test-bolts, substantially as set forth.

9. In a telephone-exchange system, two telephone-lines connected together in circuit for conversation, and an electric battery and a retardation-coil at the central office in a connection between said circuit and the ground, in combination with test bolts or pieces, one for each line on a switchboard, each connected to its line between the switch where the line is switched for conversation and the subscriber's station, and a test receiving instrument at said board, grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with each of said test-bolts, substantially as set forth.

10. In a telephone-exchange system, multiple switchboards, subscribers' lines grounded at their outer ends, switches for said lines, one switch for each line on each board, and connecting apparatus at each board to connect any two lines together for conversation which have their switches at such board, in combination with a test-battery and clearing-out annunciators, circuit connections whereby each line is grounded at the central office through a clearing-out annunciator and said test-battery as long as it is switched for conversation, test bolts or pieces one for each line on each board, connected to its line between its switches and the subscriber's station, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with each test-bolt at its board, substantially as set forth.

11. In a telephone-exchange system, multiple switchboards, subscribers' lines grounded at their outer ends, switches for said lines, one switch for each line on each board, and connecting apparatus at each board to connect any two lines together for conversation which have their switches at such board, in combination with a test-battery and retarding coils, circuit connection whereby each line is grounded at the central office through a retarding-coil and said test-battery as long as it is switched for conversation, test bolts or pieces one for each line on each board, connected to its line between its switches and the subscriber's station, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with each test-bolt at its board, substantially as set forth.

12. In a telephone-exchange system, two subscribers' lines grounded at their outer ends and temporarily connected together at the central office in a circuit for conversation, and an electric battery and a clearing-out annunciator in a circuit connection between each circuit and the ground, in combination with resistances at each subscriber's station and means for including a greater resistance into each line-circuit while the subscriber's telephone is switched for conversation than while it is switched out of use, the battery being of such strength as to operate said annunciator when the subscribers' telephones are switched out of use but not to operate it while they are switched for use, substantially as set forth.

13. In a telephone-exchange system, multiple switchboards, two subscribers' lines grounded at their outer ends and temporarily connected together at one of the boards in a circuit for conversation, and an electric battery and a clearing-out annunciator in a circuit connection between each circuit and the ground, in combination with resistances at each subscriber's station, means for including a greater resistance into each line-circuit while the subscriber's telephone is switched for conversation than while it is switched out of use, the battery being of such strength as to operate said annunciator when the subscribers' telephones are switched out of use but not to operate it while they are switched for use, and test receiving instruments, one at each board, each grounded on one side and connected on its other side to a plug or device adapted to be brought for testing into connection with each line, substantially as set forth.

592,416. SPRING-JACK FOR TELEPHONE-SWITCHBOARDS. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Apr. 1, 1893. Renewed Dec. 30, 1893. Serial No. 495,265. (No model.)







Claim.—1. A spring-jack switch containing a contact-piece in or along the switch-hole, and a pair of contact-pieces normally closed, and another pair of contacts permanently insulated from the rest and normally open, in combination with a loop-switch plug containing two contact-pieces each insulated from the other, and an insulated surface of the plug insulated from said plug contact-pieces, said plug being inserted into said switch, and when inserted automatically opening said normally closed contact-pieces, and forming connection between said two contact-pieces of the plug respectively and said contact-piece is or along the switch-hole and one of the contact-pieces of said pair of normally closed contact-pieces, and said insulated surface of the plug pressing one of said normally open contact-pieces of the switch into electrical contact with its mate.

2. A spring-jack switch containing a contact-piece in or along the switch-hole, and another contact-piece, and a pair of contacts permanently insulated from the rest and normally open, in combination with a loop-switch plug containing two contact-pieces each insulated from the other, and an insulated surface of the plug insulated from said plug contact-pieces, said plug being inserted into said switch, and when inserted forming connection between said two contact-pieces of the plug respectively and said two first-mentioned contact-pieces, respectively, and said insulated surface of the plug pressing one of said normally open contact-pieces of the switch into electrical contact with its mate.

3. A spring-jack switch containing a contact-piece, and a pair of contact-pieces normally closed, and another pair of contacts permanently insulated from the rest and normally open, in combination with a loop-switch plug containing two contact-pieces each insulated from the other, and an insulated piece of the plug insulated from said plug contact-pieces, said plug being inserted into said switch, and when inserted automatically opening said normally closed contact-pieces, and forming connection between said two contact-pieces of the plug respectively and said first-mentioned contact-piece and one of the contact-pieces of said pair of normally closed contact-pieces, and said insulated piece of the plug pressing said normally open contact-pieces of the switch into electrical connection with each other.

4. A spring-jack switch containing a contact-piece in or along the switch-hole, and a pair of contact-pieces normally closed, and another pair of contacts permanently insulated from the rest and normally open, and a test contact-piece a part of or in electrical connection with one of said normally open contact-pieces, in combination with a loop-switch plug containing two contact-pieces each insulated from the other, and an insulated piece of the plug insulated from said plug contact-pieces, said plug being inserted into said switch, and when inserted automatically opening said normally closed con-

tact-pieces, and forming connection between said two contact-pieces of the plug respectively and said contact-piece in or along the switch-hole and one of the contact-pieces of said pair of normally closed contact-pieces, and said insulated piece of the plug bringing said normally open contact-pieces of the switch into electrical connection with each other.

5. A spring-jack switch containing a contact-piece in or along the switch-hole, and another contact-piece, and a pair of contacts permanently insulated from the rest and normally open, and a test contact-piece a part of or in electrical connection with one of said normally open contact-pieces, in combination with a loop-switch plug containing two contact-pieces each insulated from the other, and an insulated piece of the plug insulated from said plug contact pieces, said plug being inserted into said switch, and when inserted forming connection between said two contact-pieces of the plug respectively and said two first-mentioned contact pieces, and said insulated piece of the plug bringing said normally open contact-pieces of the switch into electric connection with each other.

6 A spring-jack switch containing a contact-piece and a pair of contact-pieces normally closed, and another pair of contacts permanently insulated from the rest and normally open, and a test contact-piece a part of or in electrical connection with one of said normally open contact-pieces, in combination with a loop-switch plug containing two contact-pieces each insulated from the other, and an insulated piece of the plug insulated from said plug contact-pieces, said plug being inserted into said switch, and when inserted automatically opening said normally closed contact-pieces, and forming connection between said two contact-pieces of the plug respectively and said first-mentioned contact-piece and one of the contact-pieces of said pair of normally closed contact-pieces, and said insulated piece of the plug bringing said normally open contact-pieces of the switch into electric connection with each other.

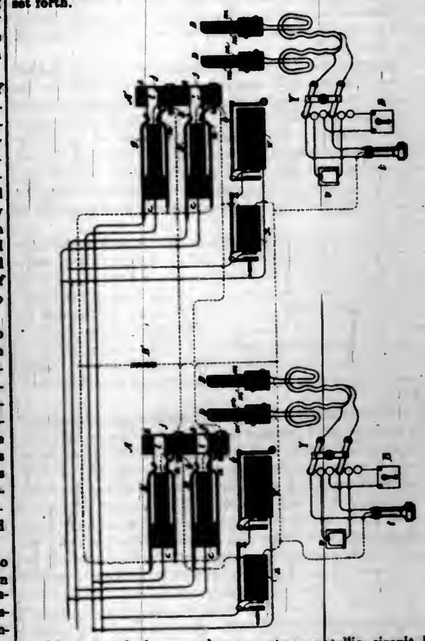
7. A loop-switch plug containing two insulated contact-pieces to each of which a flexible switch-cord is attached, and containing an insulated piece insulated from said contact-pieces of the plug, in combination with a switch adapted to receive the plug, said switch containing a hole into which the plug is placed for switching, containing also two contact-pieces with one of which one of the contact-pieces of the plug forms connection, and with the other of which the other contact-piece of the plug forms connection, when the plug is inserted into the switch, and containing also two other contact-pieces never in electrical connection with the other contact-pieces and normally insulated from each other but automatically electrically connected on the insertion of the plug into the switch by said insulated piece of the plug.

8. A loop-switch plug containing two insulated contact-pieces to each of which a flexible switch-cord is attached, and containing an insulated piece insulated from said contact-pieces of the plug, in combination with a switch adapted to receive the plug, said switch containing a hole into which the plug is placed for switching, containing also two contact-pieces with one of which one of the contact-pieces of the plug forms connection, and with the other of which the other contact-piece of the plug forms connection, when the plug is inserted into the switch, and containing also two other contact-pieces never in electrical connection with the other contact-pieces and normally insulated from each other but automatically electrically connected on the insertion of the plug into the switch by said insulated piece of the plug, one of said last-mentioned contact-pieces extending to the front of the switch.

9. A loop-switch plug containing two insulated contact pieces to each of which a flexible switch-cord is attached, and containing an insulated piece insulated from said contact-pieces of the plug, in combination with a switch adapted to receive the plug, said switch containing a hole into which the plug is placed for switching, containing also two contact-pieces with one of which one of the contact-pieces of the plug forms connection, and with the other of which the other contact-piece of the plug forms connection, when the plug is inserted into the switch, containing also two other contact pieces never in electrical connection with the other contact-pieces and normally insulated from each other but automatically electrically connected on the insertion of the plug into the switch, by said insulated piece of the plug, and containing also a contact-piece at the front of the switch connected with one of said last-mentioned contact-pieces.

592,417. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed June 19, 1893. Serial No. 478,099. (No model.)

Claim.—1. In a telephone-exchange system, metallic-circuit lines, multiple switchboards, switches, one switch on each board for each line, each switch having two contact-pieces to which respectively the two sides of its line are connected, pairs of loop-switch plugs at each board to connect any two lines into a metallic circuit for conversation each of said loop-plugs being adapted to be in any of said switches at its board and having two contact-pieces which when the plug is inserted into any one of said switches form connection with the two contact-pieces of said switches respectively, the two contacts of the two loop-plugs of each pair being connected together respectively by two flexible switch-conductors and a clearing-out annunciator with its magnet bridged across between the two sides of said metallic circuit, in combination with a bridge-circuit for each line between its two sides or branches, an annunciator for each line located at a board and with its magnet located in said bridge-circuit of the line between the two sides or branches of the line, and electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said bridge-circuit of the line, substantially as set forth.

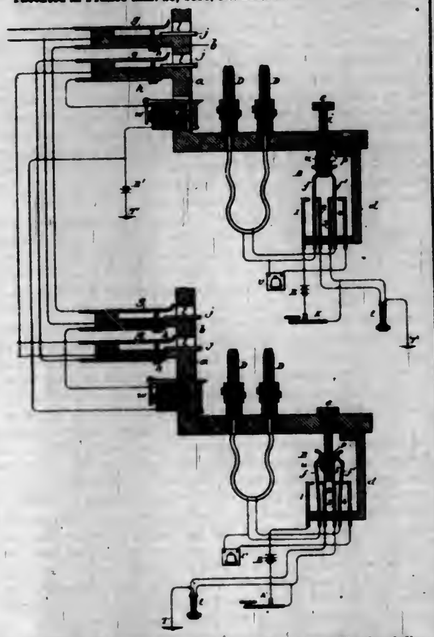


2. In a telephone-exchange system, metallic-circuit lines, a switchboard, a switch on said board for each line, each switch having two contact-pieces to which respectively the two sides of its line are connected, pairs of loop-switch plugs to connect any two lines into a metallic circuit for conversation by joining the contact-pieces respectively of their switches, each of said loop-plugs being adapted to be in any of said switches at its board and having two contact-pieces which when the plug is inserted into any one of said switches form connection with the two contact-pieces of said switches respectively, the two contacts of the two loop-plugs of each pair being connected together respectively by two flexible switch-conductors and a clearing-out annunciator with its magnet bridged across between the two sides of said metallic circuit, in combination with a bridge-circuit for each line between its two sides or branches, an annunciator for each line with its magnet located in said bridge-circuit of the line between the two sides or branches of the line, and electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said bridge-circuit of the line.

3. In a telephone-exchange system, telephone-lines, a switchboard, a switch for each line on said board, each switch having two contact-pieces to one of which the direct conductor and to the other of which the return circuit or conductor of the line are connected, pairs of loop-switch plugs to connect any two lines into a complete circuit for conversation, each of said loop-plugs being adapted to be in any of said switches at its board and having two contact-pieces which when the plug is inserted into any one of said switches form connection with the two contact-pieces of said switches respectively, the two contacts of the two loop-plugs of each pair being connected together respectively by two flexible switch-conductors and a clearing-out annunciator with its magnet bridged across between the direct conductor and the return circuit or conductor of said complete circuit, in combination with a bridge or cross-connection circuit for each line between its direct conductor and return circuit or conductor, an annunciator for each line with its magnet located in said bridge-circuit of the line between the two sides or branches of the line, and electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said bridge-circuit of the line.

4. In a telephone-exchange system, metallic-circuit lines, multiple switchboards, switches, one switch on each board for each line, each switch having two contact-pieces to which respectively the two sides of its line are connected, pairs of loop-switch plugs at each board to connect any two lines into a metallic circuit for conversation by joining the contact-pieces respectively of their switches, each of said loop-plugs being adapted to be in any of said switches at its board and having two contact-pieces which when the plug is inserted into any one of said switches form connection with the two contact-pieces of said switches respectively, the two contacts of the two loop-plugs of each pair being connected together respectively by two flexible switch-conductors, and a clearing-out annunciator with its magnet bridged across the two sides of said metallic circuit, in combination with a bridge circuit or connection for each line between its two sides or branches, an annunciator for each line located at a switchboard and with its magnet located in said bridge circuit of its line between the two sides or branches of the line, an electromagnet-relay for each line with a pair of contacts normally, or when the relay-magnet is not energized, closed to each other, said pair of contacts of the relay being also in said bridge-circuit of its line, battery, and means to automatically close the magnet of the relay of a line with battery when and as long as the line is switched for conversation.

592,418. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Sept. 14, 1893. Serial No. 485,489. (No model.) Patented in France Mar. 26, 1890, No. 204,567.



Claim.—1. In a telephone-exchange system, metallic-circuit lines and annunciators for said lines at the central office, one annunciator for each line, each annunciator normally, or when the line is not switched for use at the central office, connected from one side or branch of the line to the ground, but each disconnected from said side or branch of its line while and as long as the line is switched for use, in combination with switching apparatus at the central office connecting together any two of said lines at the will of the operator into a combined metallic circuit for conversation and the annunciators of the two lines while and as long as the lines are thus switched disconnected from said connection with their respective lines, electromagnetic clearing-out annunciators at the central office, one in a bridge connection across the two sides of the combined metallic circuit of any two lines connected together, and current-generating apparatus at each subscriber's station in the closed circuit of his line and sending current for the clearing-out signal over said metallic circuit.

2. In a telephone-exchange system, multiple switchboards, metallic-circuit lines and annunciators for said lines at the central office, distributed among said boards, one annunciator for each line, each annunciator normally, or when the line is not switched for use at the central office, connected from one side or branch of the line to the ground, but each disconnected from said side or branch of its line while and as long as the line is switched for use, in combination with switching apparatus at the central office connecting together any two of said lines at the will of the operator into a combined metallic circuit for conversation and the annunciator of the two lines while and as long as the lines are thus switched disconnected from said connection with their respective lines, electromagnetic clearing-out annunciators at the central office, one in a bridge connection across the two sides of the combined metallic circuit of any two lines connected together, and current-generating apparatus at each subscriber's station in the closed circuit of his line and sending current for the clearing-out signal over said metallic circuit.

3. In a telephone-exchange system, metallic-circuit lines and annunciators for said lines at the central office, one annunciator for each line, each annunciator normally, or when the line is not switched for use at the central office, connected from one side or branch of the line, but each disconnected from said side or branch of its line while and as long as the line is switched for use, in combination with switching apparatus at the central office connecting together any two of said lines at the will of the operator into a combined metallic circuit for conversation and the annunciators of the two lines while and as long as the lines are thus switched disconnected from said connection with their respective lines, electromagnetic clearing-out annunciators at the central office, one in a bridge connection across the two sides of the combined metallic circuit of any two lines connected together, and current-generating apparatus at each subscriber's station in the closed circuit of his line and sending current for the clearing-out signal over said metallic circuit.

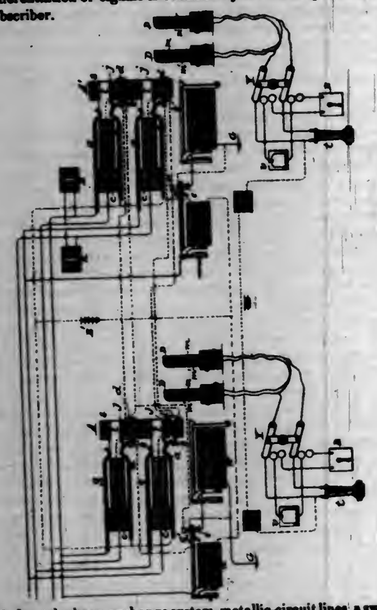
4. In a telephone-exchange system, multiple switchboards, metallic-circuit lines and annunciators for said lines at the central office, distributed among said boards, one annunciator for each line, each annunciator normally, or when the line is not switched for use at the central office, connected from one side or branch of the line, but each disconnected from said side or branch of its line while and as long as the line is switched for use, in combination with switching apparatus at the central office connecting together any two of said lines at the will of the operator into a combined metallic circuit for conversation and the annunciator of the two lines while and as long as the lines are thus switched disconnected from said connection with their respective lines, electromagnetic clearing-out annunciators at the central office, one in a bridge connection across the two sides of the combined metallic circuit of any two lines connected together, and current-generating apparatus at each subscriber's station in the closed circuit of his line and sending current for the clearing-out signal over said metallic circuit.

592,419. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Feb. 12, 1895. Serial No. 538,126. (No model.)

Claim.—1. In a telephone-exchange system, metallic-circuit lines, a switchboard, switches, one switch on said board for each line, each switch having two contact pieces to which respectively the two sides of its line are connected, means at said board to connect any two of said lines into a metallic circuit for conversation by joining together the two contact-pieces respectively of their switches, and a clearing-out annunciator in a bridge or cross connection between the two sides of said circuit so formed, in combination with a ground-circuit connection for each line between one of its two sides or branches and the ground, and an annunciator for each line located in its said ground connection, electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said ground-circuit connection of its line, and a calling-generator at each subscriber's station, operated in a ground-circuit containing one side of the line and the line-annunciator to operate the annunciator while the line is not switched for conversation to indicate the calling-signal, and in the metallic circuit of the two lines to operate the clearing-out annunciator to indicate the clearing-out signal when the line is switched for conversation.

2. In a telephone-exchange system, metallic-circuit lines, a switchboard, switches, one switch on said board for each line, each switch having two contact-pieces to which respectively the two sides of its line are connected, means at said board to connect any two of said lines into a metallic circuit for conversation by joining together the two contact-pieces respectively of their switches, and a clearing-out annunciator in a bridge or cross connection between the two sides

of said circuit so formed, in combination with a ground-circuit connection for each line between one of its two sides or branches and the ground, and an annunciator for each line located in its said ground connection, electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said ground-circuit connection of its line, and a calling-generator at each subscriber's station in two circuits whenever operated to send a calling-signal, one being a circuit which includes the line-annunciator, but is closed only when the line is not switched for conversation, and the other a circuit which includes the clearing-out annunciator, but is closed only when the line is switched for conversation, whereby the differentiation of signals is obtained by the same operation from the subscriber.



3. In a telephone-exchange system, metallic-circuit lines, a switchboard, switches, one switch on said board for each line, each switch having two contact-pieces to which respectively the two sides of its line are connected, means at said board to connect any two of said lines into a metallic circuit for conversation by joining together the two contact-pieces respectively of their switches, and a clearing-out annunciator in a bridge or cross connection between the two sides of said circuit so formed, in combination with a ground-circuit connection for each line between one of its two sides or branches and the ground, and an annunciator for each line located in its said ground connection, electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said ground-circuit connection of its line, a calling-generator at each subscriber's station in the metallic circuit of the line whenever operated, and a ground connection at the subscriber's station for the line when the generator is operated with the generator between such ground connection and the normal ground of the line at the central office.

4. In a telephone-exchange system, metallic-circuit lines, a switchboard, switches, one switch on said board for each line, each switch having two contact-pieces to which respectively the two sides of its line are connected, a retardation-coil for each line in a bridge connection at the central office between the two sides of the line, means at said board to connect any two of said lines into a metallic circuit for conversation by joining together the two contact-pieces respectively of their switches, and a clearing-out annunciator in a bridge or cross connection between the two sides of said circuit so formed, in combination with a ground-circuit connection for each line between one of its two sides or branches and the ground, and an annunciator for each line located in its said ground connection, electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said ground-circuit connection of its line, and a calling-generator at each subscriber's station, operated in a ground-circuit containing one side of the line and the line-annunciator to operate the annunciator while the line is not switched for conversation to indicate the calling-signal, and in the metallic circuit of the two lines to operate the clearing-out annunciator to indicate the clearing-out signal when the line is switched for conversation.

5. In a telephone multiple exchange system, metallic-circuit lines, a switchboard, switches, one switch on said board for each line, each switch having two contact-pieces to which respectively the two sides of its line are connected, a retardation-coil for each line in a bridge connection between the two sides of the line at the board connected to the line farthest from the subscriber's station, means at said board to connect any two of said lines into a metallic circuit for conversation by joining together the two contact-pieces respectively of their switches, and a clearing-out annunciator in a bridge or cross connection between the two sides of said circuit so formed, in combination with a ground-circuit connection for each line between one of its two sides or branches and the ground, and an annunciator for each line located in its said ground connection, electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said ground-circuit connection of its line, and a calling-generator at each subscriber's station, operated in a ground-circuit containing one side of the line and the line-annunciator to operate the annunciator while the line is not switched for conversation to indicate the calling-signal, and in the metallic circuit of the two lines to operate the clearing-out annunciator to indicate the clearing-out signal when the line is switched for conversation.

6. In a multiple telephone-exchange system, a telephone-line and switching apparatus at the central office to connect it at will with another line for conversation, in combination with a local circuit for the line automatically closed by the switching of the line for conversation, an electromagnetic relay and a battery in said closed circuit, said relay having two pairs of contacts, one normally closed, but opened while said local circuit is closed, the other normally open, but closed while said local circuit is closed, the line-annunciator normally in closed circuit with the first-mentioned pair of contacts, and a test receiving instrument and battery in a closed circuit, which contains the second pair of contacts when on testing said second pair of contacts is closed, but not otherwise.

7. In a multiple telephone-exchange system, a telephone-line, an annunciator for the same and switching apparatus at the central office to connect the line at will with another line for conversation, in combination with two local circuits for the line, one automatically closed by the switching of the line for conversation, and an electromagnetic relay and battery in said closed circuit, to make the annunciator inoperative while the line is thus switched, and the other a test-circuit automatically closed at one point by contact-points of said relay when the line is thus switched, said test-circuit being closed at its other open point by the operator on testing the line, and a test receiving instrument and battery in said test-circuit.

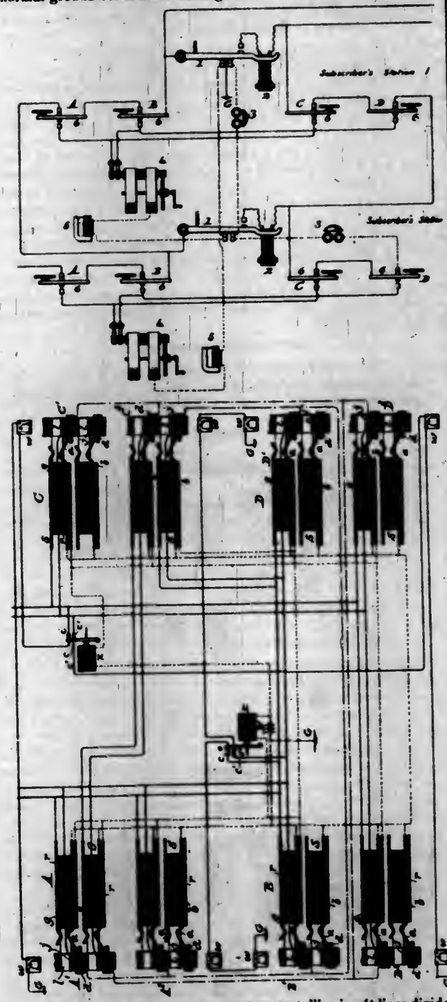
8. In a multiple telephone-exchange system, a telephone-line and switching apparatus at the central office to connect it at will with another line for conversation, in combination with a local circuit for the line automatically closed by the switching of the line for conversation, an electromagnetic relay and a relay-battery in said closed circuit, said relay having two pairs of contacts, one normally closed, but opened while said local circuit is closed, the other normally open, but closed while said local circuit is closed, the line-annunciator normally in closed circuit with the first-mentioned pair of contacts, and a test receiving instrument and a test-battery (not the relay-battery) in a closed circuit, which contains the second pair of contacts, when on testing said second pair of contacts is closed, but not otherwise.

9. In a telephone-exchange system, multiple switchboards and telephone-lines connected to the same, in combination with local test-circuits, insulated and disconnected from the line-circuits, one for each line, each test-circuit containing derived or parallel circuits and a connection common to and in series with said derived or parallel circuits, said common connection being normally open at a single point, said point being common to the boards, but closed at that point whenever the line is switched for conversation at either board, said derived or parallel circuits of said test-circuit, one for each board, being each normally open, but closed by the operator on testing, a different test receiving instrument in each of said derived or parallel circuits, and battery in any test-circuit established on testing.

10. In a telephone-exchange system, multiple switchboards and telephone-lines connected to the same, in combination with local relay-circuits, one for each line, each normally open, but closed while and whenever the line is switched for conversation, a different relay and a battery in each of said circuits, local test-circuits, one for each line, each test-circuit being normally open at the relay of the line, but closed at that point while and whenever the line is switched for use at either board, derived or parallel circuits of said test-circuit, one for each board, each normally open, but closed by the operator on testing, a different test receiving instrument in each of said derived or parallel circuits, and battery in any test-circuit established on testing.

592,420. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Feb. 12, 1895. Serial No. 538,137. (No model.)

Claim.—1. In a telephone-exchange system, metallic-circuit lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with four polarized annunciators for each line, located at the four divisions of boards and where the line has switches, through two of which annunciators connected in opposite polarity one side of the line is normally grounded, and through the other two of which connected in opposite polarity the other side of the line is normally grounded, electric calling apparatus at each subscriber's station to at will send current of either polarity through a ground-circuit containing each side of the line to operate any of said four annunciators, and electromagnetic apparatus automatically controlled by the switching of each line to disconnect the line from its normal ground connections through its annunciators.



2. In a telephone-exchange system, metallic-circuit lines divided into two classes, the switchboards divided into two classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of the other class, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with two polarized annunciators for each line, located at the two divisions of boards and where the line has switches, through which annunciators connected in opposite polarity one side of the line is normally grounded, electric calling apparatus at each subscriber's station to at will send current of either polarity through a ground-circuit containing each side of the line to operate either of said two annunciators, and electromagnetic apparatus automatically controlled by the switching of each line to disconnect the line from its normal ground connections through its annunciators.

3. In a telephone-exchange system, metallic-circuit lines divided into two classes, the switchboards divided into two classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with two annunciators for each line, located at the two divisions of boards, and where the line has switches, through one of which annunciators one side of the line is normally grounded, and through the other one of which the other side of the line is normally grounded, electric calling apparatus at each subscriber's station to at will send current through a ground-circuit containing each side of the line to operate either of said two annunciators, and electromagnetic apparatus automatically controlled by the switching of each line to disconnect the line from its normal ground connections through its annunciators.

4. In a telephone-exchange system, metallic-circuit lines, unconnected with the ground at the subscribers' stations while in use for conversation, a switchboard, switches, one switch on said board for each line, each switch having two contact-pieces to which respectively the two sides of its line are connected, and means at said board to connect any two lines into a metallic circuit for conversation by joining the two contact-pieces respectively of their switches, in combination with a ground connection for each line between one of its two sides or branches and the ground, and an annunciator for each line located in its said ground connection, electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to open said ground connection of its line, a calling-generator at each subscriber's station, and switching apparatus there to at the will of the subscriber include the generator in a ground-circuit with that branch of the line to which its said ground-circuit connection is normally made.

5. In a telephone-exchange system, metallic-circuit lines, and switching apparatus at the central office to connect any two of said lines into a closed metallic circuit for conversation, in combination with two ground connections for each line at the central office, one from each side or branch of the line, a different line-annunciator in each of said two ground connections, and electromagnetic apparatus with a local circuit for each line, including a battery, automatically operated by the switching of the line for conversation to open its two said ground connections, while the line is thus switched for conversation.

6. In a telephone-exchange system, a metallic-circuit telephone-line, one side or branch of which is normally grounded at the central office, a line-annunciator in its said ground connection, and switching apparatus to connect said line for conversation, and then or while the line is thus connected, open its said ground connection, in combination with two substations to which the line extends, a signal-receiving ground connection for said side or branch of said line at its outer end, the signal-receiving bells of the two substations in said signal-receiving ground connection, calling-generator apparatus at each substation, and switching apparatus to at the will of the subscriber disconnect said signal-receiving ground connection of the line and establish a grounded calling-circuit which includes said side or branch of the line and the line-annunciator, when the line is not thus switched, but does not include its said signal-receiving ground connection.

7. Two telephone-lines temporarily connected together at the central office into a combined circuit for conversation and one of them having two subscribers' stations, at each of which is a signal-receiving bell, said receiving-bells being normally in a ground-circuit connection with the line, in combination with a clearing-out annunciator at the central office in a ground connection to said combined circuit and contacts to short-circuit said annunciator, or ground the combined circuit through a circuit of comparatively no resistance, while the annunciator indicates a call, whereby either of said signal-receiving bells of said line will be short-circuited so as to prevent them from sounding continuously when a clearing-out signal is sent from the other line.

8. Two telephone-lines temporarily connected together at the central office into a combined circuit for conversation, and one of them having two subscribers' stations, at each of which is a signal-receiving bell, said bells being each normally in a circuit with the line, in combination with a clearing-out annunciator at the central office in connection with said combined circuits, and with contacts to short-circuit said signal-receiving bells whenever the annunciator indicates a call, whereby a clearing-out signal sent from the other line

will not cause either of said signal-receiving bells to give a prolonged signal.

9. In a divided central exchange, annunciators, one at each division of the exchange for each line, each normally or as long as the line is not switched at the central office in a circuit connection connected with the line, a relay in a relay-circuit for all of said annunciators of each line, opening the circuit of the annunciators connected with the line, and an operator's switch for putting said relay into action.

10. In a divided central exchange, annunciators, one at each division of the exchange for each line, each normally or as long as the line is not switched at the central office in a circuit connection connected with the line, a relay in a relay-circuit for all of said annunciators of each line, opening the circuit of the annunciators connected with the line, put into action by the act of switching said line for use.

11. In a divided central party-line exchange, annunciators, one at each division of the exchange for each line, means for rendering said annunciators irresponsive to calling-currents from the subscribers' stations, while the lines are switched for conversation, in combination with signal-receiving bells at the several subscribers' stations of each line and means for making them irresponsive to the same calling-currents.

12. In a telephone-exchange system, a metallic-circuit telephone-line, one side or branch of which is normally grounded at the central office, a line-annunciator in its said ground connection and switching apparatus to connect said line for conversation, and then or while the line is thus connected, making said annunciator inoperative to calls over the line, in combination with two substations to which the line extends, a signal-receiving ground connection for said side or branch of said line at its outer end, the signal-receiving bells of the two substations in said signal-receiving ground connection, calling-generator apparatus at each substation, and switching apparatus to at the will of the subscriber disconnect said signal-receiving ground connection of the line and establish a grounded calling circuit which includes said side or branch of the line and the line-annunciator, when the line is not thus switched, but does not include its said signal-receiving ground connection.

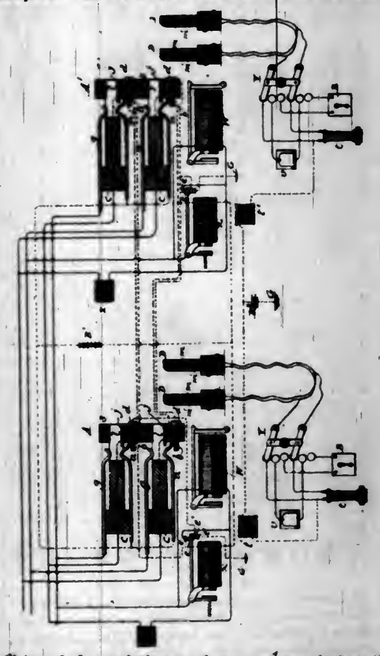
13. In a telephone-exchange system, a telephone-line normally grounded at the central office, and a line-annunciator in its said ground connection, in combination with two substations to which the line extends, a subscriber's calling-generator at each of the substations, a subscriber's calling-key at each of the substations operated at the will of the subscriber, each key having a line-contact connected with the line and another or ground-contact normally insulated from said line-contact but connected with the line-contact when the key is operated by the subscriber, said ground-contact of each key being connected to one side of the subscriber's generator at its substation, the other sides of the two subscribers' generators being brought to a common connection which extends to the two substations and thence to ground, and two telephone-switches, one at each substation, each having a pair of contacts normally closed but open while the telephone is switched for use, said common connection which extends to the two substations and thence to ground passing successively in series through said pair of normally closed contact-points, of each of said telephone-switches, substantially as and for the purpose set forth.

14. In a telephone-exchange system, a telephone-line normally grounded at the central office and a line-annunciator in its said ground connection in combination with two substations to which the line extends, a subscriber's calling-generator at each of the substations, a subscriber's calling-key at each of the substations operated at the will of the subscriber, a signal-receiving bell at one of the substations each key having a pair of normally closed contacts through which pairs of contacts of the two keys the line normally passes and thence to ground through said signal-receiving bell, said pair of contacts being opened when the key is operated each key having a third or ground contact normally insulated its two other contacts and into which that one of them which is then connected with the line is brought into contact when the key is operated, said third or ground contact of each key being connected to one side of the subscriber's generator at its substation, the other sides of the two substations being brought to a common connection which extends to the two substations and thence to grond, and two telephone-switches, one at each station, each having a pair of contacts normally closed but open while the telephone is switched for use, said common connection which extends to the two substations and thence to ground passing successively in series through said pair of normally closed contact-points of each of said telephone-switches, substantially as and for the purpose set forth.

15. In a telephone-exchange system, a telephone-line normally connected to a return at the central office, and a line-annunciator in its connection, in combination with two substations to which the line extends, a subscriber's calling-generator at each of the substations, a subscriber's calling-key at each of the substations operated at the will of the subscriber, each key having a line-contact connected with the line and another or return contact normally insulated from said line-contact but connected with the line-contact when the key is operated by the subscriber, said return-contact of each key being connected to one side of the subscriber's generator at its substation, the other sides of the two subscribers' generators being brought to a common connection which extends to the two substations and thence to said return, and two telephone-switches, one at each substation each having a pair of contacts normally closed but open while the telephone is switched for use, said common connection which extends to the two substations and thence to said return passing successively in series through said pair of normally closed contact-points of each of said telephone-switches, substantially as and for the purpose set forth.

16. In a telephone-exchange system, a telephone-line normally connected to a return at the central office and a line-annunciator in its connection in combination with two substations to which the line extends, a subscriber's calling-generator at each of the substations, a subscriber's calling-key at each of the substations, operated at the will of the subscriber, a signal-receiving bell at one of the substations each key having a pair of normally closed contacts through which pairs of contacts of the two keys the line normally passes and thence to ground through said signal-receiving bell, said pair of contacts being opened when the key is operated each key having a third or return contact normally insulated its two other contacts and into which that one of them which is then connected with the line is brought into contact when the key is operated, said third or return contact of each key being connected to one side of the subscriber's generator at its substation, the other sides of the two substations being brought to a common connection which extends to the two substations and thence to said return, and two telephone-switches, one at each substation, each having a pair of contacts normally closed but open while the telephone is switched for use said common connection, which extends to the two substations and thence to said ground passing successively in series through said pair of normally closed contact-points of each of said telephone-switches, substantially as and for the purpose set forth.

592,421. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Feb. 12, 1895. Serial No. 538,138. (No model.)



Claim.—1. In a telephone-exchange system, telephone-lines, a switchboard and switching apparatus at the board to connect any two lines together for conversation, in combination with an annunciator and a retardation-coil for each line connected with it, an electromagnetic device for each line controlled by the switching apparatus of the line and contacts in said electromagnetic device of each line closed when the line is switched for conversation to short-circuit the annunciator but not the retardation-coil.

2. In a telephone-exchange system, telephone-lines, a switchboard and switching apparatus at the board to connect any two lines together, in combination with an annunciator and a retardation-coil for each line in a circuit connection between the direct and return conductors of the line, an electromagnetic device for each line controlled by the switching apparatus of the line and contacts in said electromagnetic device of each line closed when the line is switched for conversation to short-circuit the annunciator, but not the retardation-coil.

3. In a telephone-exchange system, metallic-circuit telephone-lines, a switchboard and switching apparatus at the board to connect any two lines together, in combination with an annunciator and a retardation-coil for each line in a bridge connection between the direct and return conductors of the line, an electromagnetic device for each line controlled by the switching apparatus of the line and contacts in said electromagnetic device of each line closed when the line is switched for conversation to short-circuit the annunciator, but not the retardation-coil.

4. In a telephone-exchange system, telephone-lines, a switchboard, a switch on the board for each line and switching apparatus, including plugs to be placed into the switches to connect any two lines together for conversation, a pair of contacts of each switch normally open, but closed when a plug is inserted into the switch, and a local circuit for each line closed by the said pair of contacts of its switch, and an electromagnetic device for the line and a battery in its said local circuit, in combination with an annunciator and a retardation-coil for each line in circuit with it, and contacts in said electromagnetic device for each line closed when the line is switched for conversation to short-circuit the annunciator, but not the retardation-coil.

5. In a telephone-exchange system, metallic telephone-lines, a switchboard, a switch on the board for each line, and switching apparatus, including plugs to be placed into the switches to connect any two lines together for conversation, a pair of contacts of each switch normally open, but closed when a plug is inserted into the switch, and a local circuit for each line closed by the said pair of contacts of its switch, and an electromagnetic device for the line and a battery in its said local circuit, in combination with an annunciator and a retardation-coil for each line in circuit with it, and contacts in said electromagnetic device for each line closed when the line is switched for conversation to short-circuit the annunciator, but not the retardation-coil.

6. In a telephone-exchange system, telephone-lines, a switchboard, a switch on the board for each line, and switching apparatus, including plugs to be placed into the switches to connect any two lines together for conversation, a pair of contacts of each switch normally open, but closed when a plug is inserted into the switch, and a local circuit for each line closed by the said pair of contacts of its switch, and an electromagnetic device for the line, and a battery in its said local circuit, in combination with an annunciator and a retardation-coil for each line in circuit between the direct and return conductors of the line, and contacts in said electromagnetic device for each line closed when the line is switched for conversation to short-circuit the annunciator, but not the retardation-coil.

7. In a telephone-exchange system, metallic-circuit telephone-lines, a switchboard, a switch on the board for each line, and switching apparatus, including plugs to be placed into the switches to connect any two lines together for conversation, a pair of contacts of each switch normally open, but closed when a plug is inserted into the switch, and a local circuit for each line closed by the said pair of contacts of its switch, and an electromagnetic device for the line, and a battery in its said local circuit, in combination with an annunciator and a retardation-coil for each line in a bridge connection between the direct and return conductors of the line, and contacts in said electromagnetic device for each line closed when the line is switched for conversation to short-circuit the annunciator, but not the retardation-coil.

8. In a multiple telephone-exchange system, telephone-lines, multiple switchboards, a switch on each board for each line and switching apparatus at the board to connect any two lines together, a pair of contacts for each line at each board normally open, but closed when the line is switched for conversation at the board, and a local circuit for each line normally open, but closed by the said contacts of the line while the line is switched for conversation, in combination with an electromagnetic relay for each line and a battery in its local circuit, and two pairs of contacts in the relay, one normally open, but closed when the relay is energized and controlling the operation of the line-annunciator, and the other normally closed, but open when the relay is energized and controlling the test-signal of the line.

9. In a multiple telephone-exchange system, telephone-lines, multiple switchboards, a switch on each board for each line and switching apparatus at the board to connect any two lines together, a pair of contacts for each line at each board normally open, but closed when the line is switched for conversation at the board, and a local circuit for each line normally open, but closed by the said contacts of the line while the line is switched for conversation, in combination with an electromagnetic relay for each line, and a battery in its local circuit, and a pair of contacts of the test-circuit of the line in the relay normally closed, but open when the relay is energized and controlling the test-signal of the line.

10. In a multiple telephone-exchange system, a local circuit for each line normally open, but closed while the line is switched for conversation, in combination with an electromagnetic relay for each line, and a battery in its local circuit, a test-circuit for each line, said test-circuit being normally closed at a pair of contacts of the line's relay, but open while the relay is on closed circuit with its battery, said test-circuit being normally open at the point where the test is made, but closed then by the operator in testing, and a test receiving instrument and battery in said test-circuit.

11. In a telephone-exchange system, multiple switchboards and telephone-lines connected to the same, in combination with local test-circuits, one for each line, each test-circuit being normally closed at one point, but open at that point whenever the line is switched for conversation at either board, derived or parallel circuits of said test-circuit, one for each board, each normally open, but closed by the operator on testing, a test receiving instrument in each of said derived or parallel circuits, and battery in any test-circuit established on testing.

12. In a multiple telephone-exchange system, a local circuit for each line normally open, but closed while the line is switched for conversation, in combination with an electromagnetic relay for each line, and a relay-battery in its local circuit, a test-circuit for each line, said test-circuit being normally closed at a pair of contacts of the line's relay, but open while the relay is on closed circuit with its battery, said test-circuit being normally open at the point where the test is made, but closed then by the operator in testing, and a test receiving instrument and a different battery (not the relay-battery) in said test-circuit.

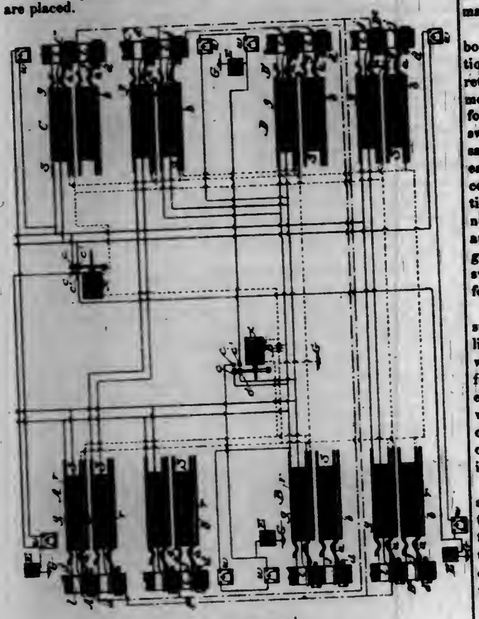
592,422. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Feb. 21, 1895. Serial No. 539,255. (No model.)

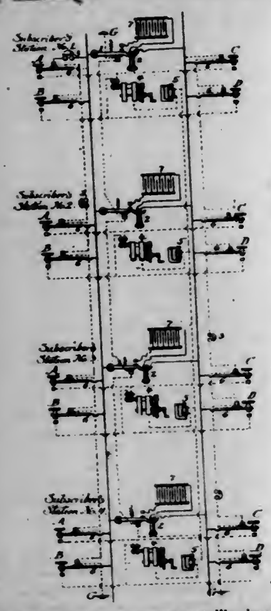
Claim.—1. In a telephone-exchange system, metallic-circuit lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with two retardation-coils and four polarized annunciators for each line, said annunciators being located at the four divisions of boards and where the line has switches, through two of which annunciators connected in opposite polarity and one of said retardation-coils, one side of the line is grounded, and through the other two of which annunciators connected in opposite polarity and the other retardation-coil the other side of the line is grounded, electric calling apparatus at each subscriber's station to at will send current of either polarity through a ground-circuit containing each side of the line to operate any of said four annunciators, and electromagnetic apparatus automatically controlled by the switching of each line to short-circuit said annunciators, but not said retardation-coils from the ground connections of the lines in which they are placed.

2. In a telephone-exchange system, metallic-circuit lines divided into two classes, the switchboards divided into two classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of the other class, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with a retardation coil and two polarized annunciators for each line, said annunciators being located at the two divisions of boards and where the line has switches, through which annunciators connected in opposite polarity and retardation-coil one side of the line is grounded, electric calling apparatus at each subscriber's station to at will send current of either polarity through a ground-circuit containing said side of the line to operate either of said two annunciators, and electromagnetic apparatus automatically controlled by the switching of each line to short-circuit said annunciators, (but not said retardation-coil) from the ground connection in which they are placed.

3. In a telephone-exchange system metallic-circuit lines divided into two classes, the switchboards divided into two classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with two retardation-coils and two annunciators for

each line, said annunciators being located at the two divisions of boards, and where the line has switches, through one of which annunciators and retardation-coils one side of the line is grounded, and through the other one of which annunciators and retardation-coils the other side of the line is grounded, electric calling apparatus at each subscriber's station to at will send current through a ground-circuit containing each side of the line to operate either of said two annunciators and electromagnetic apparatus automatically controlled by the switching of each line to short-circuit the annunciators but not the retardation-coils from the ground connections in which they are placed.





4. In a telephone exchange system, metallic-circuit lines, a switch-board, switches, one switch on said board for each line, each switch having two contact-pieces to which respectively the two sides of its lines are connected, and means at said board to connect any two lines into a metallic circuit for conversation by joining the two contact-pieces respectively of their switches, in combination with a ground connection for each line between one of its two sides or branches and the ground, and an annunciator and a retardation-coil for each line located in its ground connection, electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to short-circuit said annunciator, but not said retardation-coil from said ground connection of its line, a calling-generator at each subscriber's station, and switching apparatus there to at the will of the subscriber include the generator in a ground circuit with that branch of the line to which its said ground-circuit connection is normally made.

5. In a telephone-exchange system, telephone-lines, a switch-board, switches, one switch on the board for each line, in combination with a ground connection for each line, an annunciator, and a retardation-coil for each line located in its said ground connection, and means at said board to connect any two lines into a closed circuit for conversation by joining the contact-pieces of their respective switches with the two sides of said circuit grounded through their said ground connections respectively, electromagnetic apparatus for each line automatically operated by the switching of the line for conversation to short-circuit said annunciator, but not said retardation-coil from said ground connection of the line, a clearing-out annunciator in a bridge connection to said closed circuit of two lines and a calling-generator at each subscriber's station operated in a ground-circuit which includes the line-annunciator when the line is not switched, and the clearing-out annunciator when the line is switched for conversation.

6. In a telephone-exchange system, metallic-circuit lines and switching apparatus at the central office to connect any two of said lines into a closed metallic circuit for conversation, in combination with two ground connections for each line at the central office, one from each side or branch of the line, a different line-annunciator in each of said two ground connections, and electromagnetic apparatus with a local circuit for each line, including battery, automatically operated by the switching of the line for conversation to short-circuit said annunciators from said ground connections, while the line is thus switched for conversation.

7. In a telephone exchange system a metallic-circuit line and a signal-receiving bell at the subscriber's station in a ground connection to one side of said line, in combination with the subscriber's telephone, his telephone-switch, a retardation-coil, and switch contacts and connections to bridge said telephone between the two sides of the line when the telephone is switched for conversation and ground to the other side of the line through the retardation coil.

8. In a telephone-exchange system, a telephone-wire permanently grounded at the central office, and the line-annunciator and a retardation-coil in its said ground connection, there, in combination with a calling-generator at the subscriber's station operated by the subscriber to send calling-current from a ground connection at the outer end of said wire and over said wire, switching apparatus to at the will of the operator switch said subscriber's line with another line for conversation, electromagnetic apparatus automatically controlled by the switching of said line to short-circuit said annunciator but not said retardation-coil from said ground connection, and a clearing-out annunciator also in a ground connection to said wire while the line is switched for conversation

9. In a divided central exchange, annunciators, one at each division of the exchange for each line, each normally or as long as the line is not switched at the central office in a branch circuit connection connected with the line; a short-circuiting device for the annunciators of each line, in a local circuit rendering the annunciators irresponsive, and an operator's switch for putting said circuit into action.

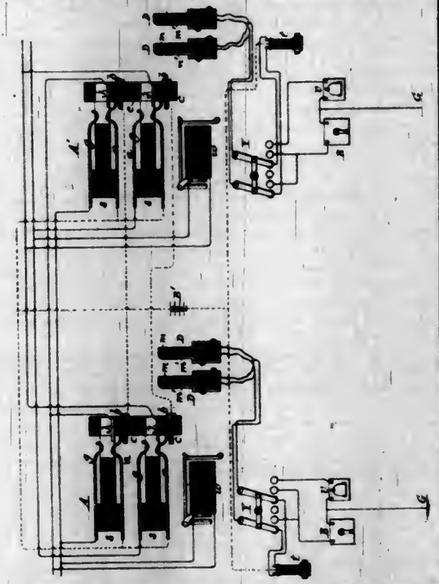
10. In a divided central exchange, annunciators, one at each division of the exchange for each line, each normally or as long as the line is not switched at the central office in a branch circuit connection connected with the line; a short-circuiting device for the annunciators of each line in a local circuit rendering the annunciators irresponsive, put into action by the act of switching said line for use.

11. In a telephone-exchange, annunciators, one for each line, each normally or as long as the line is not switched at the central office in a branch circuit connection connected with the line; a short-circuiting device for the annunciator of each line in a local circuit rendering the annunciator irresponsive, and an operator's switch for putting said circuit into action.

12. In a telephone-exchange, annunciators, one for each line; each normally or as long as the line is not switched at the central office in a branch circuit connection connected with the line; a short-circuiting device for the annunciator of each line in a local circuit rendering the annunciator irresponsive, put into action by the act of switching said line for use.

13. In a party-line telephone-exchange system, a metallic-circuit line, extending to four subscribers' stations, at each of which stations is a subscriber's telephone set in a normally open bridge between the two sides of said metallic-circuit line, at two of which stations connected from one side of the line to ground are two polarized signal-receiving bells connected to respond to opposite polarities of currents sent over the side of the line to which they are connected, and at the two other stations connected from the other side of the line to ground are two other polarized signal-receiving bells connected to respond to opposite polarities of current sent over the side of the line to which they are connected, and at the central office a calling-generator having one side of its armature grounded, commutator devices connected with the other side of the armature to take currents of either polarity, and switching devices to at will direct such current of either polarity to either of said two sides of the line.

592,423. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Feb. 25, 1895. Serial No. 539,620. (No model.)



Claim.—1. In a telephone-exchange system, metallic-circuit lines each normally or while not switched for use ungrounded at the central office, multiple switchboards, switches, one switch for each line on each board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its lines are connected, and means at each board to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals at that board, in combination with line-annunciators, one of each line located at a switchboard and permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation; a calling-generator at each subscriber's station located in the closed metallic circuit with both sides of its line whenever the generator is operated to send any signal (either primary or clearing-out) and means for grounding each closed metallic circuit at the subscriber's station while the subscriber sends a clearing-out signal with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected.

2. In a telephone exchange system, metallic-circuit lines, each normally or while not switched for use ungrounded at the central office, multiple switchboards, switches, one switch for each line, on each board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means at each board to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals at that board, in combination with line-annunciators, one for each line, located at a switchboard and permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, said line-annunciator being of a resistance relatively high to the clearing-out annunciator, a calling-generator at each subscriber's station located in the closed metallic circuit with both sides of its line whenever the generator is operated to send any signal (either primary or clearing-out) and means for grounding each closed metallic circuit at the subscriber's station while the subscriber sends a clearing-out signal, with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected.

3. In a telephone-exchange system, metallic-circuit lines, each normally or while not switched for use ungrounded at the central office, multiple switchboards, switches, one switch for each line on each board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means at each board to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals at that board, in combination with line-annunciators one for each line located at a switchboard and permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation; a calling-generator at each subscriber's station located in the closed metallic circuit with both sides of its line whenever the generator is operated to send any signal (either primary or clearing-out) and means for grounding each closed metallic circuit at the subscriber's station, while the subscriber sends a clearing-out signal, with the ground connection on such side of the generator, that the generator and the clearing-out annunciator are in a closed ground circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected; said annunciators and generators being of such construction that when a generator is operated while its line is not switched, the line-annunciator is operated, and when a generator is operated while its line is switched the line-annunciators are not operated, but the clearing out annunciator through which the circuit of the two united lines is grounded is operated.

4. In a telephone-exchange system, metallic-circuit lines, each normally or while not switched for use ungrounded at the central office, multiple switchboards, switches, one switch for each line on each board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means at each board to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals at that board in combination with line-annunciators, one for each line located at a switchboard and permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation; a calling-generator at each subscriber's station located in the closed metallic circuit with both sides of its line whenever the generator is operated to send any signal (either primary or clearing-out) and means for grounding each closed metallic circuit at the subscriber's station, while the subscriber sends a clearing-out signal, with the ground connection on such side of the generator, that the generator and the clearing-out annunciator are in a closed ground circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected; said annunciators and generators being of such construction that when a generator is operated while its line is not switched, the line-annunciator is operated, and when a generator is operated while its line is switched the line-annunciators are not operated, but the clearing out annunciator through which the circuit of the two united lines is grounded is operated.

5. In a telephone-exchange system, metallic-circuit lines, each normally or while not switched for use ungrounded at the central office, a switchboard, switches, one switch for each line on said board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals, in combination with line-annunciators one for each line permanently bridged across between the two sides or branches of its line, a clearing out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, a calling-generator at each subscriber's station located in the closed metallic circuit with the two sides of its line whenever the generator is operated to send any signal (whether primary or clearing-out) and means at each subscriber's station for grounding his closed metallic circuit while he

sends a clearing-out signal, with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected.

6. In a telephone-exchange system, metallic-circuit lines, each normally or while not switched for use ungrounded at the central office, a switchboard, switches, one switch for each line on said board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals, in combination with line-annunciators, one for each line permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, said line-annunciators being of a resistance relatively high to the clearing-out annunciators; a calling-generator at each subscriber's station located in the closed metallic circuit with the two sides of its line whenever the generator is operated to send any signal (whether primary or clearing-out) and means at each subscriber's station for grounding his closed metallic circuit while he sends a clearing-out signal, with the ground connection on such side of the generator, that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected, said annunciators and generators being of such construction and such relation to each other and to the circuits, that when a generator is operated while its line is not switched its line-annunciator is operated, and when a generator is operated while its line is switched the line-annunciators are not operated, but the clearing-out annunciator through which the circuit of the united lines is grounded is operated.

7. In a telephone-exchange system, metallic-circuit lines, each normally or while not switched for use ungrounded at the central office, a switchboard, switches, one switch for each line on said board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals, in combination with line-annunciators, one for each line, permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, a calling-generator at each subscriber's station located in the closed metallic circuit with the two sides of its line whenever the generator is operated to send any signal (whether primary or clearing-out) and means at each subscriber's station for grounding his closed metallic circuit while he sends a clearing-out signal with the ground connection on such side of the generator, that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected; said annunciators and generators being of such construction that when a generator is operated while its line is not switched the line annunciator is operated and when a generator is operated while its line is switched, the line-annunciators are not operated but the clearing-out annunciator through which the circuit of the two united lines is grounded is operated.

8. In a telephone-exchange system, metallic-circuit lines, multiple switchboards, switches, one switch for each line on each board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means at each board to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals at that board, in combination with line-annunciators, one of each line located at a switchboard and permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, a calling-generator at each subscriber's station in the closed metallic circuit of its line whenever it is operated to send any signal (either primary or clearing-out) and means for grounding each closed metallic circuit at the subscriber's station while the subscriber sends a clearing-out signal, with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected.

9. In a telephone-exchange system, metallic-circuit lines, multiple switchboards, switches, one switch for each line on each board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means at each board to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals at that board, in combination with line-annunciators, one for each line located at a switchboard and permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, a calling-generator at each subscriber's station in the closed metallic circuit of its line whenever it is operated to send any signal (whether primary or clearing-out) and means at each subscriber's station for grounding his closed metallic circuit while he sends a clearing-out signal, with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected; said annunciators and generators being of such construction that when a generator is operated while its line is not switched the line-annunciator is operated and when a generator is operated while its line is switched the line-annunciators are not operated but the clearing-out annunciator through which the circuit of the two united lines is grounded is operated.

10. In a telephone-exchange system, metallic-circuit lines, a switchboard, switches, one switch for each line on said board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected and means to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals, in combination with line-annunciators one for each line permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, a calling-generator at each subscriber's station in the closed metallic circuit of its line whenever it is operated to send any signal (whether primary or clearing-out) and means at each subscriber's station for grounding his closed metallic circuit while he sends a clearing out signal, with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected.

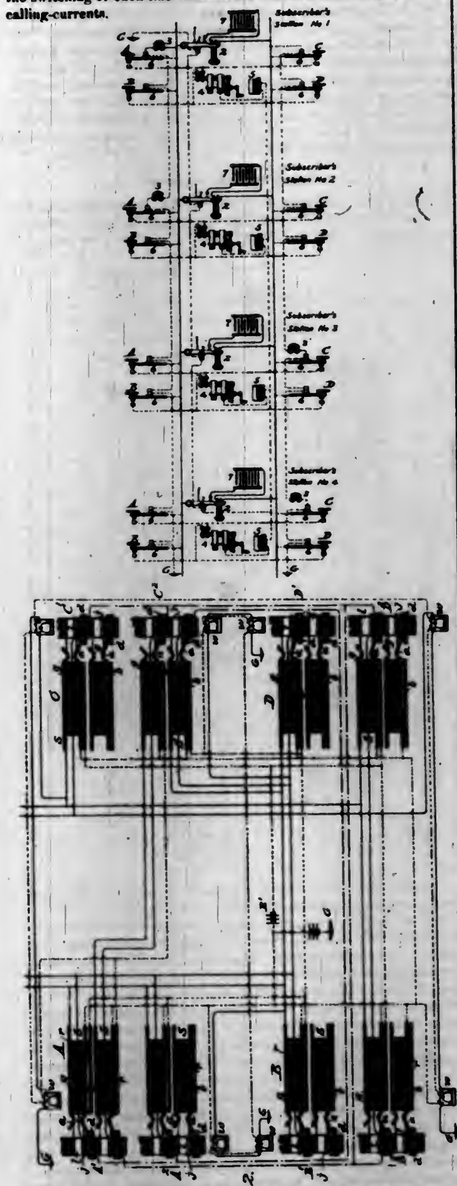
11. In a telephone-exchange system, metallic-circuit lines, a switchboard, switches, one switch for each line on said board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected and means to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals, in combination with line-annunciators one for each line permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, a calling-generator at each subscriber's station in the closed metallic circuit of its line whenever it is operated to send any signal (whether primary or clearing-out) and means at each subscriber's station for grounding his closed metallic circuit while he sends a clearing-out signal, with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected, said annunciators and generators being of such construction that when a generator is operated while its line is not switched the line-annunciator is operated and when a generator is operated while its line is switched the line-annunciators are not operated but the clearing-out annunciator through which the circuit of the two united lines is grounded is operated.

12. In a telephone-exchange system, two metallic-circuit lines and two line-annunciators, one for each line, through which the line is permanently closed at the central office, said lines being temporarily switched together for conversation into a single metallic circuit, in combination with a clearing-out annunciator in a circuit connection from said metallic circuit to ground, and a calling-generator at each subscriber's station in circuit with said line-annunciators and clearing-out annunciator when operated to send a clearing-out signal, substantially as set forth.

592,424. MULTIPLE SWITCHBOARD. MILO G. KELLOGG, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Mar. 2, 1895. Serial No. 540,336. (No model.)

Claim.—1. In a telephone-exchange system, metallic-circuit lines divided into four classes, the switchboards divided into four classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of each of the other classes, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with four polarized annunciators for each line, said annunciators being located at the four divisions of boards and

where the line has switches, through two of which annunciators, connected in opposite polarity, one side of the line is permanently grounded, and through the other two of which annunciators, connected in opposite polarity, the other side of the line is permanently grounded, electric calling apparatus at each subscriber's station to at will send current of either polarity through a ground-circuit containing each side of the line, to operate either of said four annunciators, and electromagnetic apparatus automatically controlled by the switching of each line to make said annunciators irresponsive to calling-currents.



2. In a telephone-exchange system, metallic-circuit lines divided into two classes, the switchboards divided into two classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of the other class, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with two polarized annunciators for each line, said annunciators being located at the two divisions of boards and where the line has switches, through which annunciators, connected in opposite polarity, one side of the line is permanently grounded, electric calling apparatus at each subscriber's station to at will send current of either polarity through a ground circuit containing said side of the line to operate either of said two annunciators, and electromagnetic apparatus automatically controlled by the switching of each line to make said annunciators irresponsive to calling-currents.

3. In a telephone-exchange system, metallic-circuit lines divided into two classes, the switchboards divided into two classes, one class of boards for each class of lines, each line having a switch on each board of its class and on one board of the other class, and switching apparatus whereby the operator at any board may connect together any two lines which have their switches at her board, in combination with two annunciators for each line, said annunciators being located at the two divisions of boards, and where the line has switches, through one of which annunciators one side of the line is grounded, and through the other one of which annunciators the other side of the line is grounded, electric calling apparatus at each subscriber's station to at will send current through a ground-circuit containing each side of the line to operate either of said two annunciators, and electromagnetic apparatus automatically controlled by the switching of each line to make said annunciators irresponsive to calling-currents.

4. In a telephone-exchange system, metallic-circuit lines and switching apparatus at the central office to connect any two of said lines into a closed metallic circuit for conversation, in combination with two ground connections for each line at the central office, one for each side or branch of the line, a different line-annunciator in each of said two ground connections, and electromagnetic apparatus with a local circuit for each line, including battery, automatically operated by the switching of the line for conversation to make said annunciators irresponsive to calling-currents, while the line is thus switched for conversation.

5. In a telephone-exchange system, a telephone-line grounded at the central office, a line-annunciator in its said ground connection, and switching apparatus to connect said line with another line, and then, or while said line is thus connected, make said annunciator irresponsive to calling-currents, in combination with two substations, to which the line extends, a signal-receiving ground connection for said line at its outer end, the signal-receiving bells of the two substations in said signal-receiving ground connection, calling-generator apparatus at each substation, and switching apparatus to at the will of the subscriber, disconnect said signal-receiving ground connection from the line and establish a calling-circuit which includes the line-annunciator, when the line is not switched for conversation, but not the signal-receiving bells of the two substations.

6. In a divided central exchange, annunciators, one at each division of the exchange for each line, permanently in unshunted connection with the line, a retaining-circuit for all of said annunciators of each line to render them irresponsive, retaining mechanism for each annunciator operated by said retaining-circuit and making the annunciator irresponsive to currents passing through its magnet, and an operator's switch for putting said circuit into action.

7. In a divided central exchange, annunciators, one at each division of the exchange for each line, permanently in unshunted connection with the line, a retaining-circuit for all of said annunciators of each line to render them irresponsive, retaining mechanism for each annunciator operated by said retaining-circuit and making the annunciator irresponsive to currents passing through its magnet, put into action by the act of switching said line for use.

8. In a divided central exchange, annunciators, one at each division of the exchange for each line, means for operating a selected annunciator, a resetting-circuit for all of said annunciators of a line operated by an operator at any one of the divisions of the exchange, and resetting mechanism for each annunciator operated by said resetting-circuit and automatically restoring the annunciator-indicator to its normal position.

9. In a divided central exchange, annunciators, one at each division of the exchange for each line, means for operating a selected annunciator, a retaining and a resetting circuit for all of said annunciators of a line operated at any division by the act of switching the line for use thereat, and retaining and resetting mechanism for each annunciator operated by said retaining and resetting circuit restoring the annunciator-indicator to its normal position and making the annunciator irresponsive to currents passing through its magnet.

10. In a divided central exchange, annunciators, one at each division of the exchange for each line, all permanently in unshunted or unshort-circuited circuit with their line, means for rendering said annunciators irresponsive, operated by an operator at a switchboard.

11. In a divided central exchange, annunciators, one at each division of the exchange for each line, all permanently in unshunted or unshort-circuited circuit with their line, means for rendering said an-

nunciators irresponsive, operated by the act of switching said line for use.

12. A telephone-exchange line passing to several subscribers' stations, a signal-receiving wire branching off from said line and passing to said subscribers' stations and to ground, a signal-receiving bell in said signal-receiving wire at one or more of said stations, a calling-generator and a signaling-key at each of said stations, each key having two pairs of contacts insulated from each other, one pair normally closed and in the circuit of said signal-receiving wire but opened on depressing said key, to send a signal, the other pair normally open, but closed on depressing the key, one contact of said normally open pair being connected to the line, and the other through the calling-generator at the station to which the key belongs, to a grounding connection for said generators extending in series through pairs of contacts of telephone-switches of the several subscribers' stations and to ground, each of said pairs of contacts of the telephone-switches being normally (or when the telephone is on the switch) closed, but open while the telephone is off the switch.

13. In a divided central exchange, a metallic-circuit line passing to several subscribers' stations, two signal-receiving wires, one branching off from each of the sides of said line and to said subscribers' stations and to ground, a signal-receiving bell in each of said signal-receiving wires at one or more of said stations, a calling-generator and two signaling-keys at each of said stations, each key having two pairs of contacts insulated from each other, one pair of each of the two keys normally closed and in the circuit of a different one of said signal-receiving wires, but opened on depressing the key to send a signal, the other pair of each of the two keys normally open but closed on depressing the key, two contacts, one of each of said normally open pairs being connected to a different side of the line, and the other two contacts of the keys being connected to the ground through the calling-generator at the station to which the key belongs.

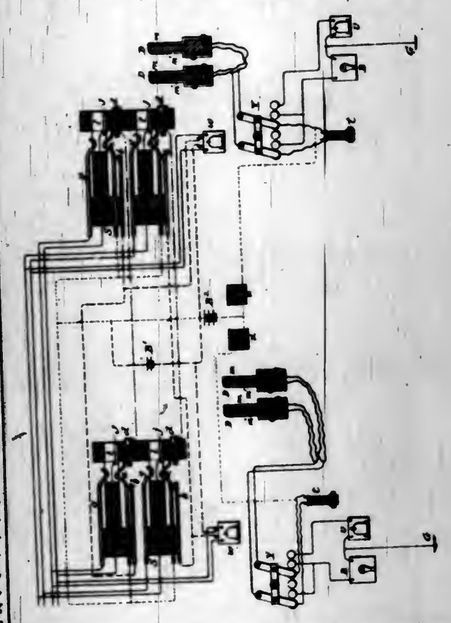
14. In a divided central exchange, a metallic-circuit line passing to several subscribers' stations, two signal-receiving wires, one branching off from each of the sides of said line and to said subscribers' stations and to ground, a signal-receiving bell in each of said signal-receiving wires at one or more of said stations, a calling-generator and two signaling-keys at each of said stations, each key having two pairs of contacts insulated from each other, one pair of each of the two keys normally closed and in the circuit of a different one of said signal-receiving wires, but opened on depressing the key to send a signal, the other pair of each of the two keys normally open but closed on depressing the key, two contacts, one of each of said normally open pairs being connected to a different side of the line, and the other two contacts of the keys being connected through the calling-generator at the station to which the key belongs, to a ground connection for said generators extending in series through pairs of contacts of the telephone-switches of the several subscribers' stations, and to ground, each of said pairs of contacts of the telephone-switches being normally (or when the telephone is on the switch) closed, but open while the telephone is off the switch.

15. A telephone exchange line passing to several subscribers' stations, a signal-receiving wire branching off from said line and passing to said subscribers' stations and to a common return, a signal-receiving bell in said signal-receiving wire at one or more of said stations, a calling-generator and a signaling-key at each of said stations, each key having two pairs of contacts insulated from each other, one pair normally closed and in the circuit of said signal-receiving wire but opened on depressing said key, to send a signal, the other pair normally open, but closed on depressing the key, one contact of said normally open pair being connected to the line, and the other through the calling-generator at the station to which the key belongs, to a connection for said generators extending in series through pairs of contacts of telephone-switches of the several subscribers' stations and to said common return, each of said pairs of contacts of the telephone-switches being normally (or when the telephone is on the switch) closed, but open while the telephone is off the switch.

16. In a divided central exchange, a metallic-circuit line passing to several subscribers' stations, two signal-receiving wires, one branching off from each of the sides of said line and to said subscribers' stations and to a common return, a signal-receiving bell in each of said signal-receiving wires at one or more of said stations, a calling-generator and two signaling-keys at each of said stations, each key having two pairs of contacts insulated from each other, one pair of each of the two keys normally closed and in the circuit of a different one of said signal-receiving wires, but opened on depressing the key to send a signal, the other pair of each of the two keys normally open but closed on depressing the key, two contacts, one of each of said normally open pairs being connected to a different side of the line, and the other two contacts of the keys being connected to the said common return through the calling-generator at the station to which the key belongs.

17. In a divided central exchange, a metallic-circuit line passing to several subscribers' stations, two signal-receiving wires, one branching off from each of the sides of said line and to said subscribers' stations and to a common return, a signal-receiving bell in each of said signal-receiving wires at one or more of said stations, a calling-generator and two signaling-keys at each of said stations, each key having two pairs of contacts insulated from each other, one pair of each of the two keys normally closed and in the circuit of a different one of said signal-receiving wires, but opened on depressing the key to send a signal, the other pair of each of the two keys normally open but closed on depressing the key, two contacts, one of each of said normally open pairs being connected to a different side of the line, and the other two contacts of the keys being connected through the calling-generator at the station to which the key belongs, to a connection for said generators extending in series through pairs of contacts of the telephone-switches of the several subscribers' stations, and to said common return, each of said pairs of contacts of the telephone-switches being normally (or when the telephone is on the switch) closed, but open while the telephone is off the switch.

592,425. MULTIPLE SWITCHBOARD. Milo G. Kellogg, Chicago, Ill., assignor to the Kellogg Switchboard and Supply Company, same place. Filed Mar. 9, 1896. Serial No. 541,161. (No model.)



Claim.—1. In a telephone-exchange system, metallic-circuit lines, multiple switchboards, switches, one switch for each line on each board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means at each board to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals at that board, in combination with line-annunciators, one of each line located at a switchboard and permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation; a calling-generator at each subscriber's station in the closed metallic circuit of its line whenever it is operated to send any signal, (either primary or clearing-out;) means for grounding each closed metallic circuit at the subscriber's station while the subscriber sends a clearing out signal with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected, and electromagnetic apparatus for each annunciator, each in its normally open circuit with battery, said circuit being automatically closed by the switching of the line for conversation, and said electromagnetic apparatus of the annunciator of the line, then or when the line is thus switched, operating so prevent the annunciator from being operated to indicate the passage of calling-current.

2. In a telephone-exchange system, metallic-circuit lines, a switchboard, switches, one switch for each line on said board, each switch having two contact pieces or terminals to which respectively the two sides or branches of its line are connected, and means to connect together any two lines into a metallic circuit for conversation by connecting together their respective contact pieces or terminals, in combination with line-annunciators, one for each line, permanently bridged across between the two sides or branches of its line, a clearing-out annunciator grounded on one side and connected on its other side to one side of a metallic circuit established by connecting any two lines together for conversation, a calling-generator at each subscriber's station in the closed metallic circuit of its line, whenever it is operated to send any signal, (whether primary or clearing-out;) means at each subscriber's station for grounding his closed metallic circuit while he sends a clearing-out signal, with the ground connection on such side of the generator that the generator and the clearing-out annunciator are in a closed ground-circuit which comprises that side or branch of the line to which the clearing-out annunciator is directly connected, and electromagnetic apparatus for each annunciator, each in its normally open circuit with battery, said circuit being automatically closed by the switching of the line for conversation, and said electromagnetic apparatus of the annunciator of the line, then or when the line is thus switched, operating to prevent the annunciator from being operated to indicate the passage of calling-current.

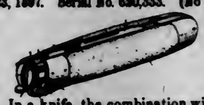
3. In a telephone-exchange system, two metallic-circuit lines temporarily connected together at the central office into a metallic circuit for conversation, and the annunciator of each line, then or when the lines are thus connected, in a bridge at the central office between the two sides, in combination with electromagnetic apparatus for each line, including an auxiliary electromagnet in a normally open circuit with battery, but whenever the line is thus switched for conversation, said normally open circuit being closed to actuate said electromagnetic apparatus of the annunciators to prevent them from being operated to indicate the passage of calling-current, a clearing-out annunciator in a circuit connection from said metallic circuit to ground, a calling-generator at each subscriber's station in the closed metallic circuit of the line whenever operated to send a call, and a ground connection to each line at each subscriber's station, when his generator is operated to send a clearing-out signal, with the calling-generator and the clearing-out annunciator between said ground connection and the ground of the annunciator at the central office.

4. An electric annunciator containing a main-line electromagnet and an armature therefor, with a lever and a catch, a pivoted shutter normally inclined to fall by gravity and held by the catch, but released from said catch when said electromagnet is energized by electric current, an auxiliary electromagnet and an armature therefor, and a link connection between said shutter and said armature, said shutter on falling when released from said catch while said auxiliary electromagnet is not energized carrying the armature of the auxiliary electromagnet away from its core and said auxiliary magnet when energized by the passage of electric current attracting its armature and through said link connection carrying said shutter to its normal position and retaining it there.

5. An electric annunciator containing a main-line electromagnet, and an armature therefor, with a lever and a catch, a shutter pivoted at its lower end, normally inclined to fall by gravity, and held by the catch, but released from said catch when said electromagnet is energized by electric current, an auxiliary electromagnet and an armature therefor pivoted at its upper end, extending in proximity to the core of the electromagnet and connected at its lower end by a link connection to said shutter, near to and above the pivot of said shutter, said shutter on falling when released from said catch while said auxiliary electromagnet is not energized carrying the armature of the auxiliary electromagnet away from its core and said auxiliary magnet when energized by the passage of electric current attracting its armature and through said link connection carrying said shutter to its normal position and retaining it there.

6. An electric annunciator containing a main-line electromagnet and an armature therefor, with a lever and a catch, a shutter pivoted at its lower end, normally inclined to fall by gravity, and held by the catch, but released from said catch when said electromagnet is energized by electric current, an auxiliary electromagnet and an armature therefor pivoted at its upper end, extending in proximity to the core of the electromagnet and connected at its lower end by a flexible connection to said shutter, near to and above the pivot of said shutter, said shutter on falling when released from said catch while said auxiliary electromagnet is not energized carrying the armature of the auxiliary electromagnet away from its core and said auxiliary magnet when energized by the passage of electric current attracting its armature and through said flexible connection carrying said shutter to its normal position and retaining it there.

592,426. POCKET-KNIFE. Gross Meyer Breckenridge, Mich. Filed Jan. 22, 1897. Serial No. 620,333. (No model.)



Claim.—1. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, and a lug extension carried by the bolster and adapted to be seated upon a shoulder formed upon the blade, whereby the latter is held in a rigid position when open, substantially as described.

2. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, a lug extension carried by the bolster and adapted to be seated upon a shoulder formed on the blade, whereby the latter is held in a rigid position when open, and means for automatically opening the blade when the bolster is suitably operated, substantially as described.

3. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, a lug extension carried by the bolster and adapted to be seated upon a shoulder formed upon the blade, whereby the latter is held in a rigid position when open, and a spring for automatically opening the blade when the bolster is suitably operated, substantially as described.

4. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, a lug extension carried by the bolster and adapted to be seated upon a shoulder formed upon the blade, whereby the latter is held in a rigid position when open, means for automatically opening the blade when said bolster is suitably operated, and means for retaining the bolster upon the handle to permit the same to be rotated, substantially as described.

5. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, said bolster being provided with an open side whereby the blade is adapted to freely move, a lug extension carried by the bolster and adapted to be seated upon a shoulder formed upon the blade, whereby the latter is held in a rigid position when open, and means arranged within the handle and adapted to force the blade into open position when the rotatable bolster is suitably operated, substantially as described.

6. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, a spring carried by the handle, and a flange carried by the rotatable bolster and adapted to be engaged by the spring carried by the handle, whereby the rotatable bolster is retained upon the handle, but the same permitted to operate, substantially as described.

7. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, a spring carried by the handle and adapted to force the blade into open position when the rotatable bolster is suitably operated, and a spring also carried by the handle and adapted to retain the bolster thereon, but permit the same to be rotated, substantially as described.

8. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon, and adapted to lock the blade in opened or closed position, a spring carried by the handle and adapted to force the blade open when the rotatable bolster is suitably operated, an outwardly-projecting flange carried by the rotatable bolster, and a spring carried by the handle and provided with a hooked end adapted to engage the outwardly-projecting flange of the bolster, whereby the latter is retained upon the handle, but permitted to be rotated thereon, substantially as described.

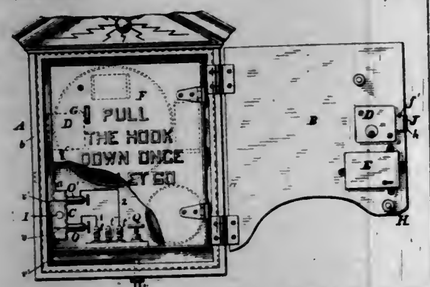
9. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, a spring carried by the handle and adapted to force the blade open when the bolster is suitably operated, said bolster being provided with an open side, whereby free movement of the blade may be had when said open side is caused to register therewith, an outwardly-projecting flange carried by the rotatable bolster, a spring also carried by the handle and provided with a hooked end engaging said flange, whereby the bolster is retained upon the handle and permitted to rotate thereon, and a lug extension also carried by the bolster and adapted to be seated upon a shoulder formed upon the blade, whereby the latter is held in a rigid position when open, substantially as described.

10. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, means for forcing said blade open when said bolster is suitably operated, an outwardly-projecting flange car-

ried by the bolster, a spring also carried by the handle and provided with a hooked end adapted to engage the flange on the bolster, whereby the latter is retained upon the handle but permitted to rotate thereon, said bolster being further provided with a notch in which the hooked end of said spring is adapted to enter to lock the bolster against rotation, and a lug extension carried by the bolster and adapted to be seated upon a shoulder formed on the blade, whereby the latter is retained in a rigid position, substantially as described.

11. In a knife, the combination with the handle thereof, of a rotatable bolster mounted thereon and adapted to lock the blade in opened or closed position, a spring carried by the handle for forcing said blade open, when said bolster is suitably operated, an outwardly-projecting flange carried by the bolster, a spring also carried by the handle and provided with a hooked end adapted to engage the flange on the bolster, whereby the latter is retained upon the handle but permitted to rotate thereon, said bolster being further provided with a notch in which the hooked end of said spring is adapted to enter to lock the bolster against rotation, and a lug extension carried by the bolster and adapted to be seated upon a shoulder formed on the blade, whereby the latter is retained in a rigid position, substantially as described.

592,427. CUT-OUT FOR ELECTRIC-SIGNAL BOXES. LOUIS W. MILLER, Rochester, N. Y. Filed Sept. 29, 1896. Serial No. 607,313. (No model.)

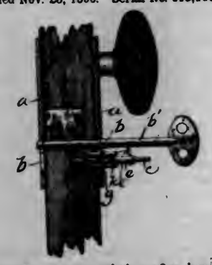


Claim.—1. The combination with the mechanism of an electric-signal box, of suitable ways connected together at their ends by bars of insulating material, a slide of insulating material arranged to travel on the ways and provided with contact plates *g*, *i i'*, the posts O O' and P P', the contact-arms *n n'*, *l l'* and *l'' l'''*, pivoted to the posts, the springs *q*, and suitable electric connections, substantially as described.

2. The combination with an electric signal box provided with a door and lock, of a cut-out arranged to be operated by the closure of the door, and a supplemental spring-actuated lock attached to the door and having a movable bolt adapted to prevent the closing of the door until retracted by the key, substantially as described.

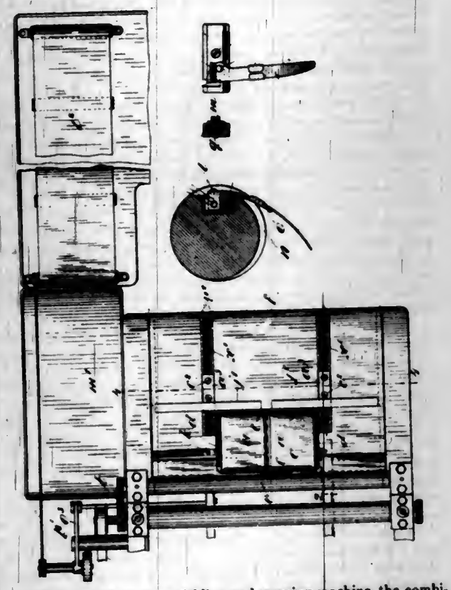
3. The combination with an electric-signal box provided with a door and lock, of a cut-out arranged to be operated by the closure of the door, the supplemental lock D attached to the door and having bolt J provided with spring *m* and pin *d'*, the tumbler *u* having hook *e'*, and the key R, whereby the bolt is automatically projected on opening the door to prevent the closing of the door until the bolt is retracted by the key, substantially as described.

592,428. KEY-FASTENER. WILLIAM W. MITCHELL, McKee's Rocks, Pa. Filed Nov. 23, 1896. Serial No. 613,110. (No model.)



Claim.—A key-fastener consisting of a bar having a flat and rounded portion, wings projecting from the rounded portion, a keeper swiveled on the flat portion, a plate swiveled on the bar between the wings and flat portion, said plate carrying arms projecting on each side thereof, substantially as shown and described.

592,429. BOOK-COVER FOLDING AND PRESSING MACHINE. JOHN A. MÜLLER, New York, N. Y. Filed Dec. 18, 1896. Serial No. 616,117. (No model.)



Claim.—1. In a cover folding and pressing machine, the combination with the folding-roll arranged in fixed bearings, of the work-carrying table arranged in a slideway in the relation to the roll that movement of the table forward and backward under the roll exposes the work to folding and pressing action of the roll in both forward and backward movements, and means to thus actuate the table relatively to the roll substantially as described.

2. In a cover folding and pressing machine, the combination with the folding-roll arranged in fixed bearings, of the work-carrying table arranged in a slideway in the relation to the roll that movement of the table forward and backward under the roll exposes the work to folding and pressing action of the rolls in both forward and backward movements, tangential crimping-blades of the roll adapted to crimp the folded margins at the ends of the cover, and means to effect the forward and backward movements of the table substantially as described.

3. In a cover folding and pressing machine, the combination with the folding-roll, of the tangential crimping-blades, work-table, and means to cause the advance of the table under the roll in opposition to the surface movement of the roll and crimping-blades, said crimping-blades having the oblique relation for drawing against the edges of the body and adapted to yield to the resistance of the body substantially as described.

4. In a cover folding and pressing machine, the combination with the folding-roll, of the tangential crimping-blades, work-table, means to cause the advance of the table under the roll in opposition to the surface movement of the roll and crimping-blades, and the bevel-edged attachment to the table substantially as described.

5. In a cover folding and pressing machine, the combination with the folding-roll arranged in fixed bearings, of the work-carrying table arranged in a slideway in the relation to the roll that movement of the table forward and backward under the roll exposes the work to folding and pressing action of the roll in both forward and backward movements, means to actuate the table in both directions, and a pair of finishing-rolls located and adapted for receiving the folded and pressed covers over the pressing-roll substantially as described.

6. The combination with the pressing and folding roll, and table, of the crimping-blades pivoted to the adjustable blocks in the groove of the roll, and the controlling-springs for said blade substantially as described.

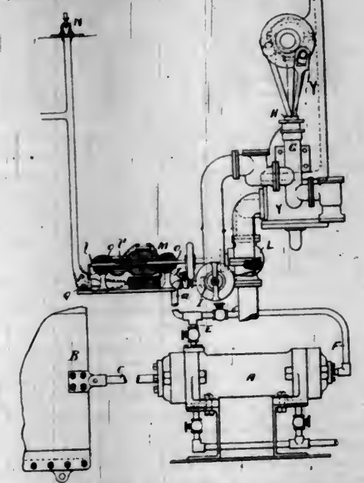
7. The combination of the pressing and folding roll, driving-shaft geared with said roll for synchronous action, sliding work-carrying table, table-actuating straps, cams on the driving-shaft for actuating

the strips, and the retracting-springs connected with the table substantially as described.

8. The combination of the table having the guide-grooves for the gages, flanges in said grooves located below the surface of the table, tongues of the gages resting on said flanges flush with the surface of the table, and the clamping-blocks and screws, whereby the tongues are clamped on the upper sides and the blocks against the under sides of the flanges, substantially as described.

9. The combination of the flanges in the guide-grooves, of the table, of the guide-tongues resting on said flanges, the clamping-blocks under the flanges, and the clamping-screws, said clamping-screws adapted to impinge on the bottom plates of the grooves substantially as described.

592,430. APPARATUS FOR CLOSING WATER-TIGHT BULKHEAD-DOORS. THOMAS MOODIE, Hamilton, Scotland. Filed Nov. 7, 1896. Serial No. 611,339. (No model.) Patented in England July 7, 1896, No. 15,001.



Claim.—1. Apparatus for closing bulkhead-doors in steamships consisting of a steam-pump whose steam-supply valve is connected to and actuated by an electromotor brought into operation by a switch on the bridge or other part of the ship and a hydraulic or other pressure cylinder connected to each bulkhead-door and whose plunger is actuated by fluid under pressure supplied by the pump substantially as described.

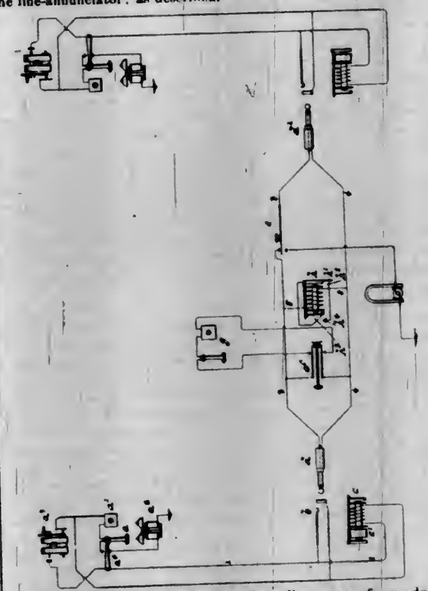
2. In apparatus for closing bulkhead-doors in steamships the combination of a hydraulic or like pressure cylinder having its piston-rod or plunger connected to the bulkhead-door, a ram or pump operated by a steam-engine to supply fluid under pressure to the hydraulic cylinder, an electromotor having its armature-spindle arranged to operate the steam-supply valve of the engine and conductors provided with switches on the bridge and at other suitable points for bringing the electromotor into operation substantially as described.

3. In apparatus for closing bulkhead-doors in steamships, the combination with a steam-pump adapted to transmit power for actuating the door, of an electromotor having its armature-spindle connected to the steam-supply valve of the engine and adapted by the action of the motor upon the throttle-valve to open it and admit steam to a high-speed engine provided with rams which supply fluid under pressure to the cylinders, the motor by its rotation opening a throttle-valve to admit steam to the engine, substantially asdescribed.

592,431. TELEPHONE-SWITCHBOARD APPARATUS. FRANK R. MCBERTY, Downer's Grove, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Sept. 25, 1896. Serial No. 606,944. (No model.)

Claim.—1. The combination with a telephone-line having means for producing signaling-current in the line, of a line-annunciator connected therewith, a clearing-out annunciator also connected with the line, switch-contacts actuated by the clearing-out annunciator in its response, and circuits controlled by the switch adapted to render the line-annunciator inoperative; as described.

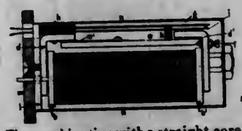
2. The combination with a telephone-line and means for producing current in the line, of a line-annunciator permanently connected with the line, a clearing-out annunciator, and means for temporarily connecting the clearing-out annunciator with the line, switch-contacts actuated by the clearing-out annunciator and a device controlled by the switch-contacts adapted to prevent the actuation of the line-annunciator; as described.



3. The combination with a telephone-line, means for producing current in the line and a line-annunciator permanently connected with the line, of a clearing-out annunciator and means for connecting it temporarily with the line, switch-contacts controlled by the clearing-out annunciator, and circuit connections controlled by the switch adapted to divert the current from the line-annunciator; as described.

4. The combination with the telephone-line, means for producing signaling-current in the line and a line-annunciator being adapted to respond sluggishly to the signaling-current, of a clearing-out annunciator constructed to respond quickly to the signaling-current, means for connecting the clearing-out annunciator to the line and circuit connections controlled by the clearing-out annunciator in its response, adapted to render the line-annunciator inoperative; as described.

592,432. CUT-OFF RELAY FOR TELEPHONE-SWITCHBOARDS. FRANK R. MCBERTY, Downer's Grove, Ill., assignor to the Western Electric Company, Chicago, Ill. Filed Mar. 11, 1897. Serial No. 626,941. (No model.)



Claim.—1. The combination with a straight core and the winding thereof, of pole-pieces for the core extending at right angles thereto and bending toward each other, an armature between the core and the pole-pieces overlapping the pole-pieces, a switch-spring parallel with the armature outside the pole-pieces and a normal resting-anvil therefor, and a stud connecting the armature with the switch-spring, substantially as described.

2. In combination in a rectangular magnetic circuit, a core with a winding thereon, pole-pieces for the core extending toward each other, and an armature lying between the inner faces of the pole-pieces and the core and overlapping the pole-pieces, one extremity of the armature being connected with the corresponding pole-piece through a flexible strap of magnetic material, substantially as described.

3. In combination, a straight core, pole-pieces therefor extending at right angles thereto and having their extremities presented toward each other, an armature lying between the core and the inner faces of the pole-pieces and overlapping the pole-pieces, one extremity

of the armature being secured to one of the pole-pieces by a flexible strap of iron, switch springs extending parallel with the armature and carried on the pole-piece which is connected with the armature, contact-anvils for the other extremities of the springs, and studs upon the armature adapted to engage the switch-springs when the armature is attracted to raise them from their contact-anvils, substantially as described.

4. In combination, the core *a* and its winding, the pole-pieces *d* and *d'*, the armature *e* lying within the said pole-pieces, the anvil-straps *i* and *i'* secured to the pole-piece *d* and resting upon but insulated from the pole-piece *d'*, the switch-springs *g* and *g'* secured to the pole-piece *d* and insulated therefrom and resting on the said anvils, and the studs *k* and *k'* of insulating material on the armature adapted to engage the switch-springs to move them, as described.

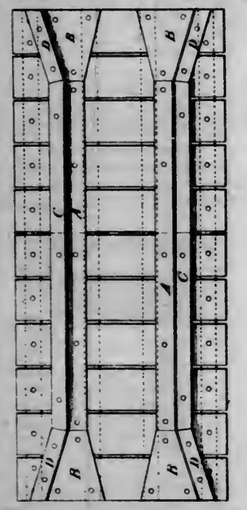
5. The combination with the base-plate carrying several relays, of the core projecting at right angles thereto, the armature parallel with the core, pole-pieces for the core bent to overlap and inclose the extremities of the armature, a switch-spring parallel with the armature and a contact-anvil therefor, said switch-spring being fixed near the base-plate and the movable extremity and contact-point thereof being presented near the other end of the magnet, as described.

6. The combination with the core *a* and its winding, of pole-pieces *d* and *d'* formed as shown, the armature *e* supported near the pole-piece *d* and the adjusting-screw *f* passing through pole-piece *d'* and having a beveled extremity engaging said armature as a stop, substantially as described.

7. The combination with the core *a* and its winding, pole-pieces *d* and *d'* the armature *e* and the flexible strap *e'* of iron securing it to the pole-piece *d*, anvil-straps *i* and *i'* secured at their opposite extremities to pole-pieces *d* and *d'*, respectively, by insulating material, the switch-springs *g* and *g'* secured to pole-piece *d* and insulated therefrom and resting on the said anvils *i* and *i'*, and the studs *k* and *k'* of insulating material carried by the armature and adapted to raise the switch-springs from their anvils when attracted, substantially as described.

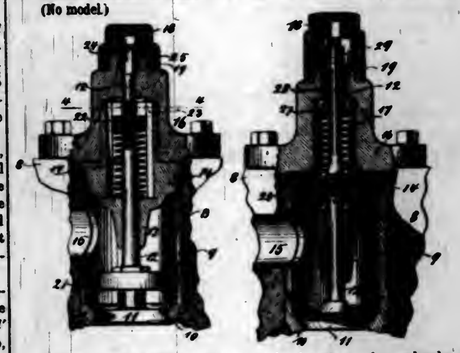
8. In combination, the core *a* with its winding, the pole-pieces *d* and *d'*, the armature *e*, the switch-springs controlled by the armature, the screw *o* and distance-piece *p* carried on the pole-piece *d'*, the circular base-plate *h* fixed to pole-piece *d*, the cylindrical casing *s* inclosing the appliance and embracing the plate *h* and the screw *q* retaining the casing in place, as described.

592,433. WAGON-TRACK. WILLIAM MCCLELLAND, Bloomington, Nebr. Filed Apr. 30, 1897. Serial No. 634,663. (No model.)



Claim.—In a wagon-track for bridges or similar structures having a flooring, the combination with a pair of parallel angle-bars A, A, the horizontal flanges thereof being secured to the flooring, parallel beams C, C, also secured to the flooring so that the vertical members of the angle-bars will abut against the same, of guide-pieces B, B, positioned at each end of the angle-bars, said guide-pieces having vertical flanges which diverge outwardly and horizontal portions which taper or increase in width from the ends of the parallel tracks outwardly, and brace-beams D, for the vertical flanges of the end plates, substantially as and for the purpose set forth.

592,434. SPRING ADJUSTMENT FOR VALVES. WILLIAM F. NIEBLING, Cincinnati, Ohio. Filed Apr. 10, 1897. Serial No. 631,505. (No model.)



Claim.—1. The combination of a valve-housing, valve and valve-stem, a spring to keep the valve normally seated, a chamber within which this spring is confined, a cover 14 which entirely separates the valve-housing from the spring-chamber, which latter contains two abutments between which the aforesaid spring is confined and one of which is connected to the valve-stem, one of said abutments being also adjustable to or from the other one and means accessible from the outside for adjusting such abutment.

2. The combination of a valve-housing and a head to close it, a valve and valve-stem, a spring which keeps the valve seated, and is confined in a suitable chamber, being seated against the end thereof, with a nut 22 at its other end which is adjustably mounted on the valve-stem by a screw connection, but prevented by suitable means from turning thereon, said valve-stem being extended beyond the inclosing head so as to be accessible from the outside to permit it being rotated for purposes of adjusting the position of nut 22.

3. The combination of a valve-housing and a head to close it, a valve and valve-stem, a spring which keeps the valve seated, and is contained in a suitable chamber part of which is formed by a bore within the head above mentioned, the spring being confined between a collar 26 and a flange 27, fitted to said bore the first connected to the valve-stem the other to a sleeve 28 which is adjustably supported within the end of the inclosing head through which end it is extended so as to be accessible from the outside for purposes of adjusting the position of flange 27.

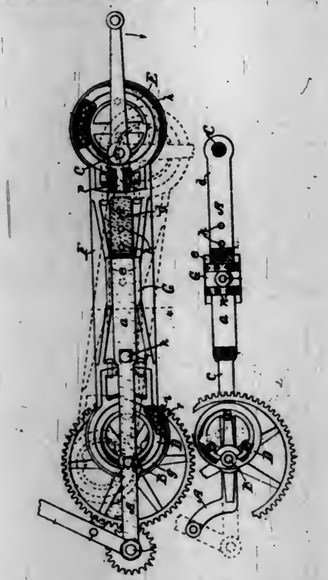
592,435. DEVICE FOR TRANSMITTING POWER. FRANK J. NOECHEL, Rochester, N. Y., assignor to John George Wagner, Jr., and Herman S. Searle, same place. Filed Nov. 27, 1896. Serial No. 613,687. (No model.)

Claim.—1. In a device for transmitting power, the combination, with a two-part frame, the central portion of which is provided with parallel parts, and one of the parts of the frame is longer than the other, of a shaft journaled at each end of the frame, an eccentric upon each shaft, a head upon the parallel portion of the frame, and a connector pivotally secured to the head and having its ends connected with the eccentrics, substantially as set forth.

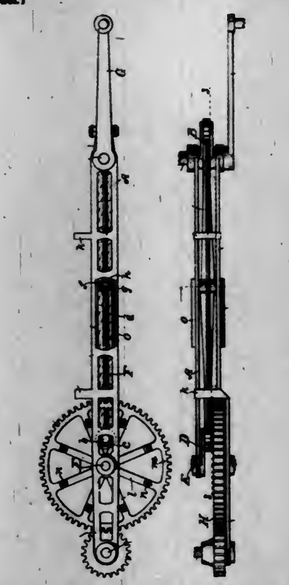
2. In a device for transmitting power, the combination, with a two-part frame, the longer part of which is provided at one end with a projection, and the end of the shorter part is secured thereto, a shaft journaled at each end of the frame, an eccentric upon each shaft, a head upon the frame, a connector pivotally secured to the head and having its ends connected with the eccentrics, substantially as set forth.

3. In a device for transmitting power, the combination, with a two-part frame, the central portion of which is provided with a parallel portion, of a shaft at each end of the frame provided with an eccentric, a two-part head between the parts of the frame, each part of which is provided with means for engaging with the parallel portions of the frame, a pin in the head, an open frame-connector provided with a cross-bar pivotally secured upon the pin, the ends of the connector being connected with the eccentrics, substantially as set forth.

4. In a device for transmitting power, the combination, with a frame, of a shaft journaled at each end thereof, an eccentric upon each shaft, a head upon the central portion of the frame, a connector pivotally secured to the head and having its ends connected with the eccentrics, each end of the connector having an opening leading into the space between the eccentrics and the connectors, and balls within the space, substantially as set forth.



592,436. DEVICE FOR TRANSMITTING MOTION. FRANK J. NOECHEL, Rochester, N. Y., assignor to John George Wagner, Jr., and Herman S. Searle, same place. Filed Dec. 17, 1896. Serial No. 615,967. (No model.)



Claim.—In a device for transmitting motion, the combination, with a frame, of a crank at each end thereof, a wheel at one end provided with a hub and spokes, a detachable rim secured to the spokes, a perforated plate upon the spokes, the pin of the crank at that end being connected with said plate, and a pitman having its ends connected with the cranks and the central portion movably connected with the frame, substantially as set forth.

592,437. GUN-BARREL. PETER OBERHAMMER, Munich, Germany, assignor of one-half to Albert Gerstenhöfer and George Meier, New York, N. Y. Filed Oct. 25, 1895. Serial No. 566,908. (No model.)



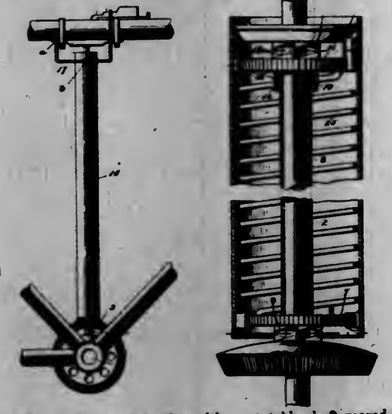
Claim.—1. A gun-barrel for shooting shot charges, said barrel having riflings and being provided with a choke-bore near its muzzle end.

2. A gun-barrel having a reduced caliber at its muzzle end, the two calibers being connected by a transition-cone, said barrel also having riflings extending throughout the portion of reduced caliber and the transition-cone, substantially as set forth.

3. A gun-barrel having a reduced caliber at its muzzle end, the two calibers being connected by a transition-cone, said barrel also having riflings of a progressive twist extending throughout the portion of reduced caliber and the transition-cone, substantially as set forth.

4. A gun-barrel having a reduced caliber at its muzzle end, the two calibers being connected by a transition-cone, said barrel also having riflings of a progressive twist in the reduced portion and riflings of a constant twist in the butt-end of the barrel, substantially as set forth.

592,438. BICYCLE ATTACHMENT. JOHN H. O'BRIEN, Nasby, S. D. Filed Dec. 19, 1896. Serial No. 616,332. (No model.)



Claim.—1. The combination with a rotatable shaft geared to a vehicle-wheel and provided with clutch members, of longitudinally-movable and relatively-rotatable clutch members mounted upon said shaft and adapted to engage the clutch members of the shaft, a winding-spring connected at its ends with said rotatable clutch members, ratchet-wheels carried by said clutch members, pawls to engage said ratchet-wheels, and devices for shifting said rotatable clutch members and for retracting the pawls of one of the ratchet-wheels carried thereby.

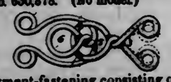
2. The combination with a rotatable shaft geared to a vehicle-wheel and provided with clutch members, of a hollow shaft mounted upon said shaft and provided at its ends with relatively-rotatable clutch members and ratchet-wheels, a casing surrounding said parts and provided with pawls to engage said ratchet-wheels, and devices

for moving said casing and the parts connected to and carried thereby and for retracting the pawls from one of said ratchet-wheels.

3. The combination with a rotatable shaft geared to a vehicle-wheel and provided with clutch members and a wedge, of a hollow shaft mounted upon said shaft and provided at its ends with relatively-rotatable clutch members and ratchet-wheels, a spring connected at its ends with said clutch members, a movable casing provided with pawls to engage said ratchet-wheels, one set of pawls being provided with fingers to be engaged by said wedge, and devices for shifting said casing.

4. The combination with a rotatable shaft geared to a vehicle-wheel and provided with clutch members, of a rotatable hollow shaft mounted upon said shaft and provided at one end with a clutch member to engage one of the members of the first-mentioned shaft and with the ratchet-wheel, a clutch member and ratchet-wheel swiveled to the other end of said shaft, said clutch member being adapted to engage the other clutch member of the first-mentioned shaft, a spring connected at its opposite ends with the clutch members of the hollow shaft, a casing surrounding said parts and provided with pawls to engage said ratchet-wheels, a lever connected with said casing, and a slide having a plurality of projecting faces situated to engage said lever.

592,439. HOOK AND EYE. BENJAMIN F. OREWILER, Shelby, Ohio, assignor of four-ninths to James Currie, same place. Filed Apr. 5, 1897. Serial No. 630,578. (No model.)

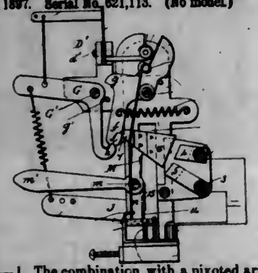


Claim.—1. A garment-fastening consisting of an eye constructed of a single length of wire bent upon itself, forming a ring or circle, and having its side portions brought together and interlocked by half-twists, and having the end portions diverging and terminating in attaching-eyes, and a hook formed of a single length of wire bent to provide a ring or circular bill having its external diameter slightly greater than the internal diameter of the ring of the eye, and having the side portions interlocked by half-twists, and having the end portions exterior and conforming to the circular bill and terminating in attaching-eyes, the front portion of the ring of the eye being deflected to occupy a position between the shanks of the hook when the parts of the fastening are engaged, substantially as set forth.

2. In a garment-fastening, an eye constructed of a length of wire doubled upon itself and bent to provide a ring the front portion of which is deflected, and having the side portions brought together and interlocked by half-twists to permit the contraction and expansion of the ring in the manner and for the purpose described and the end portions diverging and bent inward, forming attaching-eyes, substantially as set forth.

3. In a garment-fastening, a hook constructed of a length of wire doubled upon itself and bent to provide a ring or circular bill, and having the end portions interlocked by intermeshing half-twists to provide for the contraction and expansion of the circular bill and extended, forming shanks which curve around the circular bill so as to leave spaces and terminating in attaching-eyes, substantially as set forth.

592,440. STOP-MOTION FOR KNITTING-MACHINES. JOSEPH OUELLETTE and RAOUL DUPERROUZEL, St. Hyacinthe, Canada. Filed Jan. 26, 1897. Serial No. 621,113. (No model.)



Claim.—1. The combination, with a pivoted arm carrying a contact-piece and normally supported by the yarn, and two stationary contact-pieces arranged in the path of the aforesaid contact-piece; of a pair of spring-actuated shears, a trigger operating to release the said shears when the yarn is drawn too tight, a movable contact-piece operated by the said shears, and two stationary contact-pieces arranged in the path of the last said contact-piece, the circuit being made in two places when the yarn is cut by the shears, substantially as set forth.

2. The combination, with means for supporting the yarn; of a pair of shears, a spring for closing the shears upon the yarn, a trigger controlled by the tension of the yarn and normally holding the shears open, two stationary insulated contact-pieces, and a pivoted insulated contact-piece operated by the said shears and completing the circuit when the shears close, substantially as set forth.

3. The combination, with a frame, of a trigger pivoted to the frame, shears controlled by the said trigger, a bell-crank lever pivoted to the frame, a light spring arranged between the trigger and one arm of the said bell-crank lever, and a screw carried by the frame and bearing against the other arm of the said bell-crank lever, whereby the tension of the said spring may be adjusted, substantially as set forth.

592,441. ELECTRIC CABLE. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Aug. 20, 1896. Serial No. 603,323. (No model.)



Claim.—1. A flat cable, consisting of insulated wires wound spirally about a central metallic ribbon; said metallic ribbon having substantially the rigidity and flexibility of copper.

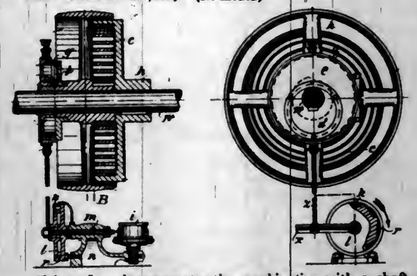
2. An electric cable having the insulated wires thereof wound about a central, metallic ribbon, the edges of said ribbon being covered with paper; substantially as and for the purpose described

3. A flat, electric cable, consisting of insulated wires wound about a central copper ribbon, the wires being bound together by a serving, over which are wound in the order following, paper, lead tape, paper and a serving; said ribbon being adapted to be used as a conductor, while preventing the cable from being compressed edgewise; substantially as and for the purpose specified.

4. The combination in an electric cable, of a flat ribbon rigid transversely, insulated wires laid upon the said ribbon, and a suitable binding about the ribbon and wires, substantially as described.

5. The combination in a flat cable, of insulated wires, a flat transversely-rigid ribbon, and a serving binding the wires to the ribbon, substantially as described.

592,442. DYNAMOMETER. JULIUS W. VON PITTLER, Leipsic, Germany, assignor to Richard Voigtländer, same place. Filed Aug. 24, 1895. Serial No. 560,440. (No model.)

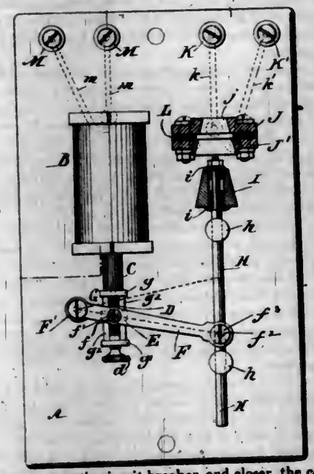


Claim.—In a dynamometer the combination with a shaft of a loose pulley thereon having a differentially-curved groove, a fixed casing having an interlocking spring, an eccentric-hub, an eccentric mounted on the hub having a guide-bolt working in said groove, and an eccentric-rod and a counting mechanism, substantially as described.

592,443. AUTOMATIC ELECTRIC-CIRCUIT BREAKER AND CLOSER. EDMUND PRUCKNER and GEORGE SCHINDLER, Newark, N. J. Filed Feb. 4, 1897. Serial No. 622,029. (No model.)

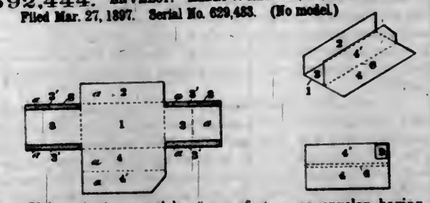
Claim.—1. In a circuit breaker and closer, the combination of a magnetic coil and a vertically movable and adjustable core, said core being mounted upon a rod which is connected to a lever, and a vertically-movable rod having a plug connected thereto and insulated therefrom, and two plates insulated from each other adapted for engagement with the said plug, whereby they may be brought into electrical connection with each other; and a base-plate of insulating material for mounting the said parts, substantially as shown and described.

2. In an automatic circuit breaker and closer, the combination of a magnetic coil and a vertically-adjustable core, said core being mounted upon a screw-rod which engages with a sleeve connected to a swinging lever, said lever also having a rod connected thereto which carries at its upper end a conical plug, which plug is insulated from the rod, and two adjacent plates electrically separated from each other by means of insulating material, said plates, in conjunction, having a conical recess formed therein for engagement with the said conical plug; with an electrical system, substantially as shown and described.



3. In an automatic circuit breaker and closer, the combination of a magnetic coil and a vertically-adjustable core, said core being mounted upon a screw-rod which engages with a sleeve connected to a swinging lever, said lever also having a rod connected thereto which carries at its upper end a conical plug, which plug is insulated from the rod, and two adjacent plates electrically separated from each other, said plates, in conjunction, having a conical recess formed therein for engagement with the said conical plug; with a motor, a secondary battery and a generator arranged in circuit, substantially as shown and described.

592,444. ENVELOP. HENRY J. RATHJEN, Jr., Otter Creek, Wis. Filed Mar. 27, 1897. Serial No. 629,483. (No model.)



Claim.—1. As an article of manufacture, an envelop having a thin layer of wax or similar material deposited upon the inner surface of the envelop-blank, and adapted to be absorbed by the material of the envelop so as to leave a mark of the class described, upon the envelop, after same has been heated or steamed, substantially as described.

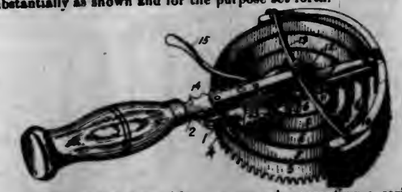
2. As an article of manufacture, an envelop having the flaps 3 with the gummed laps 3' thereon adapted to be sealed to the body of the envelop, and upper and lower laps on the body of the envelop adapted to be sealed upon the flaps 3, one of same, forming the addressing-face of the envelop, being cut away at the proper place for securing a postage-stamp, and having a thin layer of wax or similar material deposited upon its inner surface, adapted to be absorbed by the material of said flap so as to leave a mark of the class described, upon said flap, after same has been heated or steamed, substantially as described.

592,445. COMBINED CURRYCOMB AND BRUSH. DAVID REES, Confidence, Mo. Filed Mar. 16, 1897. Serial No. 627,760. (No model.)

Claim.—1. In combination with a currycomb having toothed rings or circular combs, of a cross-bar pivoted upon the supporting-frame, fingers projecting from said cross-bar to embrace the combs and travel over the sides of the teeth thereof, substantially as shown and for the purpose set forth.

2. In a currycomb, the combination with the toothed rings or circular combs, of a bar pivoted upon the frame of the comb and having depending fingers which embrace the combs and travel over the sides of the teeth, together with means for swinging the bar, substantially as shown and for the purpose set forth.

3. The combination with a currycomb having a series of toothed rings or circular combs, of a cross-bar pivoted upon the currycomb and having depending fingers which embrace the combs and travel over the sides of the teeth, a spring for holding the bar in a normal position, and means for swinging the bar against the action of the spring, substantially as shown and for the purpose set forth.



4. The combination with a currycomb presenting a series of toothed rings or circular combs, of a cross-bar pivoted thereon and having depending fingers which embrace the combs and travel over the teeth thereof, a spring which returns the bar to its normal position, and an operating-lever with interposed mechanism for swinging the bar upon its pivot, substantially as shown and for the purpose set forth.

5. The combination with the toothed rings or circular combs connected to each other, substantially as shown, of a bar pivoted centrally above the combs, fingers depending from said bar and embracing the combs to travel over the sides of the teeth thereof, together with a spring connected with the bar, a pinion also attached to the bar, and a segment-rack in engagement with the pinion and having an operating-lever, the parts being constructed and organized substantially as shown and for the purpose set forth.

6. In a currycomb, the combination with a series of toothed rings or circular combs connected to each other, substantially as shown, of a cross-bar centrally pivoted at the back of the combs and connected with mechanism for swinging the same, of plates carrying depending fingers to embrace the combs and travel over the sides of the teeth, said plates being pivoted near one end to the cross-bar, and loops or bails engaging the opposite ends of the plates, substantially as shown and described.

7. In combination with a currycomb constructed substantially as shown, of a semicircular brush connected thereto by a cross-bar and having a swinging movement with respect to the currycomb, together with a spring for throwing the brush to the limit of its movement in one direction, substantially as shown and described.

8. The combination with a currycomb constructed substantially as shown, of a semicircular brush having a cross-bar connecting the ends thereof and providing means for attaching the brush to the comb, a loop attached to an intermediate portion of the brush and engaged by a projection of the comb, and a flat spring carried by the comb and bearing upon the brush, substantially as shown and for the purpose set forth.

592,446. STEP. JESSIE REYNOLDS, Pittsfield, Ill. Filed Nov. 16, 1896. Serial No. 612,262. (No model.)

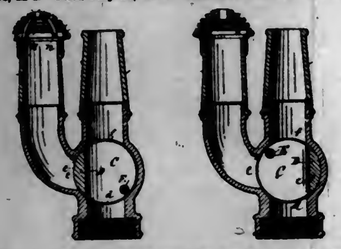


Claim.—1. The combination with the steps proper, of an auxiliary step comprising rigid stair-step-shaped rods, an auxiliary step rigidly connected to the ends of said rods, and a supporting-rod pivotally mounted upon the steps proper and provided at its opposite ends with slots adapted to receive the supporting-bars; the construction and operation being such that the auxiliary step may be extended into operative position or doubled back on the steps proper at will.

2. The combination with the car-steps proper, of an auxiliary step for the same, stair-step bars connected to the opposite ends of said auxiliary step and provided with hooked ends and a transverse rod provided with loops adapted to receive said hooked ends of the stair-step bar, and permit said bar to be turned up, so that the aux-

iliary step will lie upon the top of one of the steps proper, or down, in its opposite position, substantially as described.

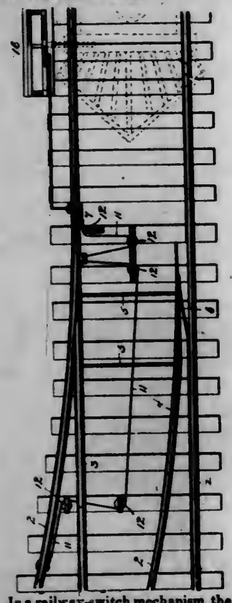
592,447. HOSE-PIPE NOZZLE. CHARLES M. RICHARDSON, Providence, R. I. Filed July 23, 1896. Serial No. 600,156. (No model.)



Claim.—1. In a hose-pipe nozzle, the combination of a nozzle for projecting a full stream, and a nozzle for projecting a spray, with a valve adapted to control the passage of the fluid through the spray-nozzle alone, through the full-stream nozzle alone, or through both together, and having the valve provided with a supporting-bar which upon the turning of the valve for directing the passage of the fluid to either or both of the nozzles, passes from one side to the other of the opening through which the fluid issues, to provide a clear passage for the same, substantially as described.

2. The spraying-tip for hose-pipe nozzles, provided with a series of concentric annular openings, the outer opening being of comparatively narrow width to project a wide protecting-spray, and the others of the series being made of gradually-increasing width, whereby a full volume of fluid will be projected in a forward direction at the inner portion of the spray, substantially as described.

592,448. RAILROAD-SWITCH. CHARLES RICHEY, Atlanta, Ga., assignor of one-half to William Freeman, same place. Filed Feb. 12 1897. Serial No. 623,201. (No model.)



Claim.—1. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, of a pivotal trip arranged contiguous to one of the main-track rails and operatively connected with the switch-rails, whereby when depressed in one direction it moves the switch-rails from their normal position, the extremity of the trip, when depressed, to shift said rails being contiguous to the free end of the adjacent switch-rail, whereby the wheel which depresses the trip passes onto the switch-rail before releasing the trip, substantially as specified.

2. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, of a pivotal trip flexibly connected at its lower end with the switch-rails and yieldingly held in an upright position with its upper arm in the path of the wheels of rolling-stock, said arm being adapted to be depressed in one direction to move the switch-rails out of their normal position, and being jointed above the fulcrum-point to fold in the opposite direction without affecting the lower portion of the trip or the switch-rails, substantially as specified.

3. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, of a pivotal trip having a main arm fulcrumed upon a main-track rail in the path of the wheels of rolling-stock, a short arm pivoted upon the main arm and having its independent movement limited by a stop, and connections between the short arm and the switch-rail, the long arm being adapted to be depressed in one direction to move the switch-rails out of their normal position and to be moved in the opposite direction without affecting the switch-rails, substantially as specified.

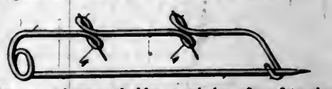
4. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, of a trip having a long arm fulcrumed at an intermediate point and jointed above its fulcrum to fold in one direction, the joint being arranged approximately in the plane of the tread of the contiguous main-track rail, a short arm pivotally mounted upon the lower end of the main arm and having its swinging movement limited by a stop, and flexible connections between the extremity of the short arm and the switch-rails, substantially as specified.

5. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, a jointed trip having a long arm fulcrumed upon a main-track rail and a short arm carried by the long arm and having a limited swinging movement, and connections between the short arm and the switch-rails, of a switch-lever operatively connected with said trip, and a clasp arranged in the path of and adapted to engage the switch-lever to secure the latter against accidental movement, the long arm of the trip being in a horizontal position when the trip-lever is engaged in said clasp, substantially as specified.

6. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, a trip having pivotally-connected long and short arms, of which the former is fulcrumed upon a main-track rail and the latter has a limited swinging movement with relation thereto, and connections between the short arm of the trip and the switch-rails, of a switch-lever connected with the trip and adapted to swing the long arm thereof to its horizontal position out of the path of passing wheels, a yielding clasp arranged in the path of and adapted to engage the switch-lever, and a retracting-spring arranged beyond the clasp and adapted, when the switch-lever is released, after having been brought in contact with to depress the spring, to throw the switch-lever beyond the clasp, substantially as specified.

7. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, a trip having pivotally-connected long and short arms, of which the former is fulcrumed upon the main-track rail and the latter has a limited swinging movement with relation thereto, and connections between the short arm of the trip and the switch-rails, of a switch-lever connected with the trip and adapted to move the latter from its operative vertical to a horizontal position out of the path of the wheels of rolling stock, a clasp and a contiguous return-spring for respectively engaging and returning the switch-lever, fingers of different lengths carried by the switch-lever, and means adapted to be carried by rolling-stock for engaging said fingers separately, to accomplish the adjustment of the lever, substantially as specified.

592,449. BOUQUET-HOLDER. LOUIS F. ROSKOP, Paterson, N. J. Filed Apr. 6, 1897. Serial No. 630,918. (No model.)

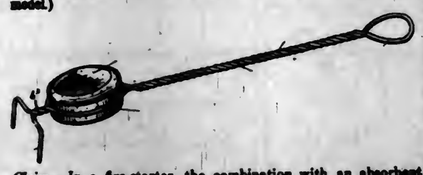


Claim.—1. A bouquet-holder, consisting of a safety-pin the body of which is provided intermediate its ends with one or more eyes, and a strip inserted in said eyes and adapted to encircle the stem of a bouquet, substantially as described.

2. A bouquet-holder, consisting of a safety-pin the body portion of which is bent to form oppositely-located eyes, and a pliable metal strip inserted through said eyes and adapted to be wrapped around a bouquet, substantially as described.

3. A bouquet-holder, consisting of a safety-pin the body portion of which is reversely curved or bent to form a pair of eyes located upon opposite sides of the normal plane of said body, and a pliable metal strip inserted through said eyes and adapted to encircle a bouquet, substantially as described.

592,450. FIRE-LIGHTER. WARREN A. SAUL and JAMES M. SHERMAN, Steelton, Pa. Filed Jan. 7, 1897. Serial No. 618,365. (No model.)



Claim.—In a fire-starter, the combination with an absorbent non-combustible block having a groove formed about its periphery, of a single piece of wire bent to form a loop-handle, an extended twisted shank, a loop surrounding the absorbent block and lying in the groove of the same, a short twisted extension, and two laterally and downwardly projecting spaced supporting-legs, substantially as described.

592,451. THREAD OR SILK HOLDER. EMMA L. SCHROEDER, La Porte, Ind. Filed June 4, 1896. Serial No. 594,304. (No model.)

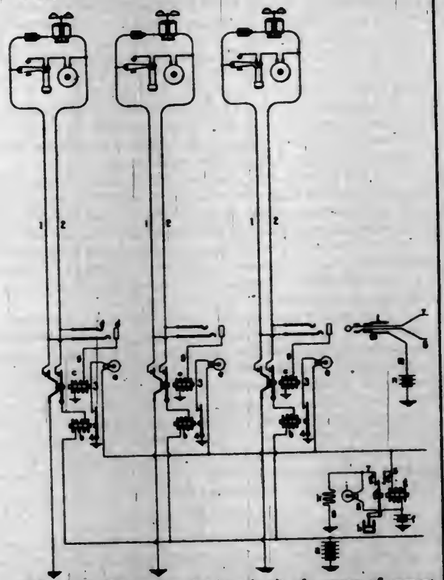


Claim.—1. A holder for thread or silk, having extensions formed upon its ends, and having slits cut through its body, combined with the cross-pieces, which are passed through the slits and held in position by the extensions which are pasted back upon the holder, to secure the cross-pieces in place, substantially as specified.

2. A holder for silk or thread, having slits cut through its body, and a cross-piece passed through the slits and around which cross-piece the skein is made to catch, substantially as described.

3. A holder for thread or silks, provided with extensions upon its ends that are adapted to be pasted back upon the holder and cross-pieces, in order to secure said cross-pieces in position, substantially as described.

592,452. PILOT-LAMP FOR TELEPHONE-SWITCHBOARDS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Mar. 11, 1897. Serial No. 626,954. (No model.)



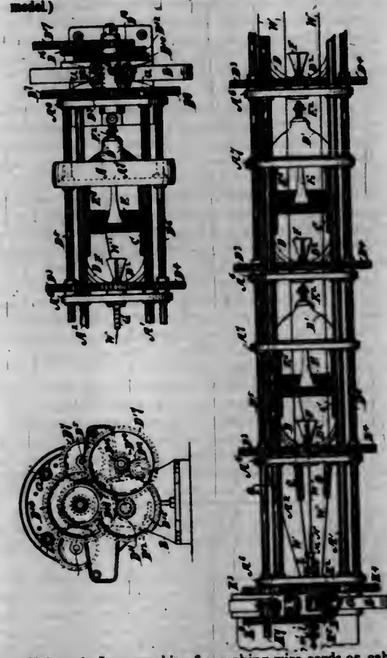
Claim.—1. The combination in a circuit, of a source of current, a switch controlling the continuity of the circuit, an electromagnet in the circuit and switch-contacts actuated thereby, a short circuit of the magnet adapted to be closed by the said switch-contacts when the magnet is excited, and means for retarding the movement of the switch-lever controlled by the magnet.

2. In combination in a circuit, a signal-lamp, a source of current, a switch controlling the circuit, a relay having its magnet in the circuit, switch-contacts of the relay adapted to close a short circuit of the magnet thereof, the lever of the relay being retarded, and a signal controlled by the relay, as described.

3. The combination with a group of signal-lamps and a circuit including the said lamps in multiple together with a source of current and switches controlling the circuits through the lamps, of a relay having a winding interposed in the common circuit of the lamps and a signal controlled thereby, and a shunt of the winding adapted to be closed by the switch-contacts thereof when the relay is excited, as described.

4. The combination with a group of telephone-lines, each having means for determining the flow of current in the line in the use of the telephone and each provided with a relay responsive to such current, a local circuit controlled by the relay and a secondary signal therein, and means for breaking the local circuit when connection is made with the line, a portion of the local circuits of the group being common, of an electromagnet in the common conductor, a signal controlled thereby, switch-contacts closed together when the magnet is excited, and a shunt about the said magnet controlled by the said switch-contacts, as described.

592,453. MACHINE FOR MAKING WIRE CORDS AND CABLES. WILLIAM H. H. SIMM, Belleville, N. J.; Joseph Wilkinson administrator of said Simm, deceased. Filed Jan. 24, 1896. Serial No. 576,749. (No model.)



Claim.—1. In a machine for making wire cords or cables, the combination of a die-block having a number of holes, of two sets of guides for the wires located forward of the die-block, two separate supports for said guides, and means whereby a longitudinal adjustment of one of said sets of guides with reference to the die-block may be made, substantially as specified

2. In a machine for making wire cords or cables, the combination of a die-block having a number of holes, of two sets of guides for the wires located forward of the die-block, two separate supports for said guides, and means whereby a longitudinal adjustment of both of said sets of guides, with reference to the die-block, may be made, substantially as specified.

3. In a machine for making wire cords or cables, the combination with a die-block having a number of holes, of two sets of guides for the wires located forward of the die-block, two separate supports for said guides, and means whereby one of said sets of guides may be adjusted relatively to the other in the direction of the length of the die-block, substantially as specified.

4. In a machine for making wire cords or cables, the combination

with a die-block having a number of holes, of two sets of guides for the wires located forward of the die-block, two separate supports for said guides, and means whereby one of said sets of guides may be adjusted relatively to the die-block both lengthwise of the die-block and rotarily, substantially as specified.

5. In a machine for making wire cords or cables, the combination with a die-block having a number of holes, of two sets of guides for the wires located forward of the die-block, two separate supports for said guides, and means whereby one of said sets of guides may be adjusted relatively to the other set of guides lengthwise of the die-block and rotarily, substantially as specified.

6. In a machine for making wire cords or cables, the combination with a die-block having a number of holes, of two sets of guides for the wires located forward of the die-block, one of said sets of guides being adjustable lengthwise of the die-block, and a core-tube having its end extended forward of the two said sets of guides, and having itself guides for the other wires, and means whereby the said core-tube may be adjusted longitudinally with reference to the die-block, substantially as specified.

7. In a machine for making wire cords or cables, the combination with a die-block having a number of holes, of two sets of guides for the wires located forward of the die-block, one of said sets of guides being adjustable lengthwise of the die-block, and a core-tube having its end extended forward of the two said sets of guides, and having itself guides for the other wires, and means whereby the said core-tube may be adjusted rotarily, substantially as specified.

8. In a machine for making wire cords or cables, the combination of a rotating frame provided at one end with a tubular journal, and at the other end with a tubular extension, a spool carried in said frame, a brake device bearing against the windings on the spool, and means located in said tubular extension for diminishing the pressure of said brake as the wire is paid off from the spool, substantially as described.

9. In a machine for making wire cords or cables, the combination of a rotary frame provided at one end with a tubular journal, and at the other end with a tubular extension, the ring A^6, having a bearing receiving said journal, a curved wire guide leading inward to the journal from the side of the frame on one side of the ring, and a similar guide leading outwardly from the journal on the other side of the ring, a spool in each frame, a brake device bearing against the windings on the spool, and means located in said tubular extension for automatically regulating the pressure of said brake device, substantially as described.

10. In a machine for making wire cords or cables, the combination of a rotary frame provided at one end with a tubular journal, and at the other end with a tubular extension, a spool carried in said frame, a brake device having shoes pressing against the flanges of the spool, and means located in said tubular extension for regulating said brake device, substantially as described.

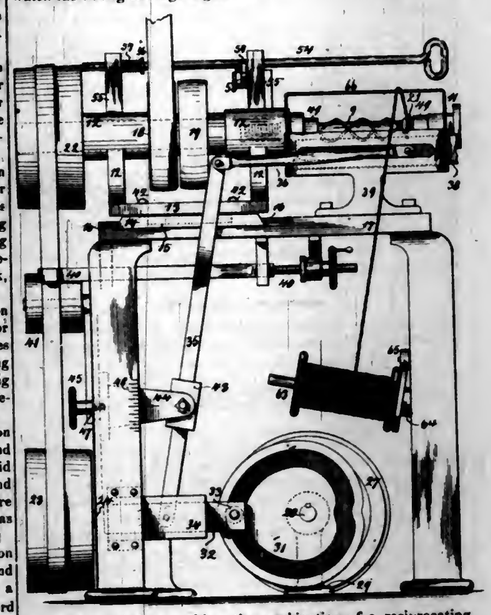
11. In a machine for making wire cords or cables, the combination of a rotary frame provided at one end with a tubular journal, and at the other end with a tubular extension, a spool in each frame, a brake device having an arm and shoes bearing respectively on the windings on the spool and the spool-flanges, and means located in said tubular extension for regulating said brake device, substantially as described.

592,454. ADJUSTABLE WINDING-MACHINE. CHARLES L. STACY, Covington, Ky. Filed Jan. 20, 1897. Serial No. 619,977. (No model.)

Claim.—1. In a winding-machine for the purpose here intended, the combination of the rotating winding-spindle adapted to support a receiving-mandrel, a thread-carrier which delivers the thread thereonto and has a reciprocatory movement in front of the receiving-mandrel, parallel with it and from one end thereof to the other, a sliding carriage and a track therefor on which said winding-spindle is supported and which enables it to yield to the pressure of the accumulating thread as it bears against the thread-carrier, means to rotate the spindle and an oscillating lever for reciprocating the thread-carrier.

2. In a winding-machine for the purpose here intended, the combination of the rotating winding-spindle adapted to support a receiving-mandrel, a thread-carrier which delivers the thread thereonto and has a reciprocatory movement in front of the receiving-mandrel, parallel with it and from one end thereof to the other, a carriage and track therefor on which the winding-spindle is supported in a manner to have a sliding movement enabling it to recede from the thread-carrier, a lever to reciprocate the thread-carrier, means to rotate the spindle and means to oscillate the aforesaid lever, the motion for one of these means being derived from the means for operating the other.

3. In a winding-machine for the purpose described, the combination of a thread-carrier, a cam operated lever for reciprocating it, a spindle 8, a shaft 9 upon which it is mounted, means to rotate shaft 9, all these parts being supported on a sliding carriage whereby the spindle is enabled to recede from the thread-carrier and ways between which the sliding carriage is guided.



4. In a winding-machine, the combination of a reciprocating thread-carrier with a rotating spindle which is supported in a manner to be capable of being adjusted to a position either parallel or at an angle to the path of the thread-carrier.

5. In a winding-machine the combination of a reciprocating thread-carrier, a spindle 8, a shaft 9 whereby it is rotated, a platform 13 upon which shaft 9 is mounted, a sliding platform 14 which carries platform 13, the connection between said platforms being a pivotal one, so that the latter may be turned upon the former and means to guide platform 14.

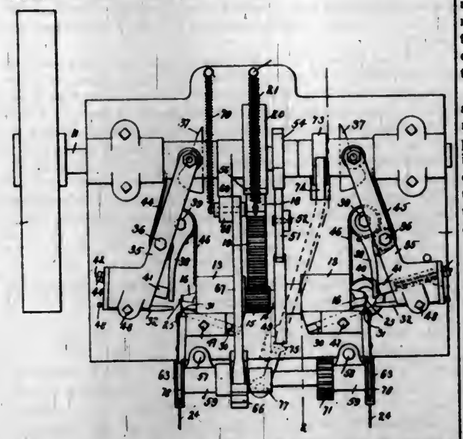
6. In a winding-machine, the combination of the rotating winding-spindle, the reciprocating thread-carrier, an oscillating lever 35 for actuating the latter, a hollow block 43 within which lever 35 is loosely supported, a bracket 44 on which block 43 is pivotally supported, said bracket being secured to the machine-frame and adjustable thereon in a manner to change the fulcrum of lever 35 and means to secure the bracket in its adjusted position.

7. In a winding-machine, the combination with a reciprocatory thread carrier, of a winding-spindle, a driving-shaft for rotating the same, tight and loose pulleys on the latter, a spring-actuated belt-shifter adapted to be locked to hold the belt on the tight pulley, a sliding carriage upon which all these last-named parts are supported and with which they move and a trip device adapted to disengage the locked belt-shifter when the same, moving with the sliding carriage engages therewith for the purpose described.

8. In a winding-machine, the combination with a reciprocatory thread-carrier, of a winding-spindle, a driving-shaft for rotating the same tight and loose pulleys on the latter, a belt-shifter 53 having its shifting rod 54 supported in standards 55, a locking-lever 58 adapted to engage with a notch in rod 54 when the belt is on the tight pulley, a sliding carriage upon which all these last-named parts are supported and with which they move, a trip device 61 projecting within the path of the carriage and adapted to disengage lever 58 from rod 54 when the former, projecting ahead of the carriage, engages the device 61 and a spring to shift the belt-shifter to cause it to move the belt onto the loose pulley.

592,455. MACHINE FOR MAKING LACE-FASTENERS. DANIEL C. STOVER and FREDERICK W. HOEFER, Freeport, Ill., assignors to the Pratt Fastener Company, Chicago, Ill. Filed June 1, 1896. Serial No. 593,951. (No model.)

Claim.—1. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the material from which the fastener is made, means for rotating said mandrel, whereby said material is coiled thereon to form the body of the fastener, in combination with means for bending the ends of the formed fastener at substantially right angles with the plane of the coils thereof; as and for the purpose set forth.



2. In a machine for making lace-fasteners, a coiling mandrel adapted to receive the material from which the fastener is made, means for rotating said mandrel, whereby said material is coiled thereon to form the body of the fastener, means for feeding the material to said mandrel, means for severing the completed fastener after it is formed on said coiling-mandrel and means for bending the ends of the fastener after it is formed at substantially right angles to the plane of the coils thereof; as and for the purpose set forth.

3. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the material from which the fastener is made, means for rotating said mandrel, whereby said material is coiled thereon to form the body of the fastener, means for severing the completed fastener after it is formed on said coiling-mandrel, and means for simultaneously bending both the ends thereof after the fastener is formed at substantially right angles with respect to the plane of the coils; as and for the purpose set forth.

4. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the material from which the fastener is made and to coil the same thereon, and means for rotating said mandrel slightly beyond a predetermined point and for permitting said mandrel to reversely rotate to said predetermined point whereby the coiled fastener is loosened from mandrel, as and for the purpose set forth.

5. In a machine for making lace-fasteners, a coiling-mandrel, means for rotating the same comprising an oscillating segement and means for positively locking said mandrel against rotation at a predetermined point, as and for the purpose set forth.

6. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck having a cylindrical portion upon which the coils forming the body of the fastener are formed and a projecting lip between which and said cylindrical coiling portion the end of the fastener material is adapted to be inserted, and means for rotating said mandrel; as and for the purpose set forth.

7. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck having a cylindrical portion upon which the fastener is spirally coiled into circular convolutions, said spiral coil having the same diameter and a projecting lip, the end of the material from which the fastener is made adapted to be received between such cylindrical portion and such lip, means for rotating said coiling-mandrel, and means for bending the ends of the cylindrical coils of the fastener into right-angular relation with respect to the planes of such coils, as and for the purpose set forth.

8. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck having a cylindrical portion upon which the strip of fastener material is coiled to form the fastener, said chuck also provided with an end wall, a portion of such end wall being arranged in a plane angular with respect to the axis of rotation of such mandrel, as and for the purpose set forth.

9. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck having a portion upon which the coils are formed and also having an end wall, one side of said end wall being cut away, said chuck also provided with a projecting lip, the material from which the fastener is made adapted to be inserted between said lip and the coiling portion of said chuck, in combination with means for severing the fastener from the material from which it is made and for bending the ends of the fastener into the space formed by such cut-away portion of the chuck, as and for the purpose set forth.

10. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for imparting to such mandrel one or more complete revolutions or parts of revolutions, and a plunger arranged to sever the coiled fastener from the strip of material and to bend the ends of such fastener angularly with respect to the plane of revolution of the coils thereof, as and for the purpose set forth.

11. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating said mandrel one or more revolutions or partial revolutions whereby the fastener is coiled upon said mandrel, in combination with a ledger-blade arranged adjacent to said mandrel and in the path of said strip, and a coöperating plunger adapted to sever the completed fastener from such strip and to bend the ends thereof at substantially right angles to the plane of the convolutions or coils of such fastener, as and for the purpose set forth.

12. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating said mandrel one complete revolution and an additional half-revolution, a forked plunger adapted to sever the coiled fastener from such strip and to bend the ends of such fastener at substantially right angles to the plane of the coils thereof, as and for the purpose set forth.

13. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating such mandrel to form said fastener, a plunger arranged to sever the completed fastener from such strip and to bend the ends thereof angularly with respect to the plane of the convolutions or coils of such fastener, and means for retaining such fastener upon said mandrel during the severing and bending processes, as and for the purpose set forth.

14. In a machine for making lace-fasteners, a mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating said mandrel to effect a coiling of the fastener thereon, a plunger adapted to be advanced to sever the completed fastener from said strip and to bend the ends thereof at right angles with respect to the coils or convolutions of such fastener, and means for yieldingly holding the fastener on said mandrel during such severing and bending operations, as and for the purpose set forth.

15. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating said mandrel, a pivotally-mounted arm having the free end thereof arranged to engage said coiling-mandrel to maintain said fastener thereon, in combination with a plunger adapted to be advanced to sever the fastener from the strip of material and to bend the ends thereof at an angle to the plane of the coils of the fastener, as and for the purpose set forth.

16. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating said mandrel, a pivotally-mounted lever having a recess formed in the free end thereof adapted to be rocked to receive the coiling-mandrel in the recess in such end whereby the formed fastener is held upon said mandrel, in combination with a severing and bending die arranged to sever the fastener from the strip of material and bend the ends thereof angularly to the plane of the coils of such fastener, as and for the purpose set forth.

17. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip of material from which the fastener is made, means for rotating said mandrel, a pivotally-mounted lever having the free end thereof arranged adjacent to the end of said coiling-mandrel and adapted when rocked to engage the end of said mandrel to hold the fastener thereon, in combination with a plunger carrying a severing and bending die adapted to sever the fastener from the strip of material from which it is made and bend the ends thereof angularly to the plane of the coils of such fastener, said lever arranged to be engaged and rocked by said plunger when said plunger is advanced to its work, as and for the purpose set forth.

18. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating said mandrel to form the fastener, a severing and bending die adapted to sever the fastener from the strip of material from which the fastener is made and bend the ends thereof angularly to the plane of the coils thereof, means for advancing the same to its work, a spring-mounted plunger carried by said die-operating means, means for holding the fastener during the severing and bending operations, said fastener-holding means adapted to be engaged yieldingly and operated by said spring-mounted plunger, as and for the purpose set forth.

19. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating said mandrel comprising a pivoted arm, a main drive-shaft, a cam thereon, arranged to engage and actuate said arm, means for yieldingly maintaining said arm in engagement with

said cam and means for locking said mandrel at the required point, as and for the purpose set forth.

20. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, a gear-wheel mounted on said mandrel, a movable rack having gear-teeth arranged to engage the gear on said mandrel, a cam for moving said rack, a spring for maintaining said rack in engagement with said cam, and means for locking said mandrel against rotation at a desired point, as and for the purpose set forth.

21. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, a gear mounted on said mandrel, a rack having gear-teeth arranged to mesh with and drive said gear, a main drive-shaft, a cam thereon arranged to engage and actuate said rack to impart to said mandrel one complete revolution and an additional half-revolution, and a tooth formed on said cam arranged to further move said rack to impart to said mandrel a rotary movement beyond the additional half-revolution, means whereby said mandrel will reversely rotate an amount equal to such further rotation, and means for locking said mandrel at the completion of such reverse movement, as and for the purpose set forth.

22. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, a gear carried by said mandrel, a pivotally-mounted arm carrying gear-teeth arranged to engage said gear, a main drive-shaft, a cam thereon arranged to engage said arm and rock the same to impart to said mandrel one complete revolution and an additional half-revolution, and a tooth or projection carried by said cam adapted to rock said arm beyond the point required to impart to said mandrel said additional half-revolution, a spring against the action of which said arm is rocked, whereby said mandrel is reversely rotated an extent equal to the amount of such further rotation beyond said additional half-revolution, and means for locking said mandrel upon the completion of such reverse rotation, as and for the purpose set forth.

23. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, a gear mounted on said mandrel, a rack having gear-teeth adapted to engage the gear-wheel, a main drive-shaft, a cam thereon arranged to engage and move said rack to impart to said mandrel one or more complete revolutions and an additional half-revolution, a spring arranged to maintain said rack in engagement with said cam, a pivotally-mounted dog arranged to engage and lock said mandrel against rotation at the completion of the action of said rack, and a cam mounted on said main drive-shaft arranged to periodically engage and actuate said dog, as and for the purpose set forth.

24. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck, said chuck having a cylindrical coiling portion and a lip projecting in a line parallel with the axis of said cylindrical coiling portion, the end of the strip from which the fastener is made adapted to be received between said projecting lip and the cylindrical coiling portion of said chuck, means for imparting rotation to said mandrel whereby the body portion of said fastener is coiled on the cylindrical coiling portion of said chuck, means for severing the completed fastener and means for feeding the end of said strip into the space between said projecting lip and cylindrical coiling portion to be grasped thereby to form the next succeeding fastener, as and for the purpose set forth.

25. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck having a cylindrical coiling portion and a lip arranged to project parallel with said coiling portion, the end of the strip from which the fastener is made adapted to be received between said projecting lip and said coiling portion, means for imparting to said mandrel one or more complete revolutions and a partial revolution whereby the body portion of the fastener is coiled on said cylindrical coiling portion of the chuck, means for severing the completed fastener from said strip, a feeding mechanism for the strip, and means for actuating said feeding mechanism at the completion of said severing operation whereby the end of the strip is presented to the mandrel to form the next succeeding fastener, as and for the purpose set forth.

26. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the end of the strip from which the fastener is made, means for rotating said mandrel whereby the body portion of said fastener is coiled on said mandrel, means for reversely rotating said mandrel, whereby the coils are loosened upon said mandrel and means for severing the completed fastener from such strip, means for advancing the end of the strip to the mandrel to form the next succeeding fastener and to eject from the mandrel the previously-formed fastener, as and for the purpose set forth.

27. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck, said chuck having a cylindrical portion upon which the coils of the body of the fastener are formed and a projecting lip arranged adjacent to such coiling portion, means for presenting the end of the strip from which the fastener is made to such mandrel and between said lip and said cylindrical coiling portion comprising feeding-rolls, means for periodically clamping said strip between said rolls and gearing for positively rotating said rolls simultaneously with such clamping operation, as and for the purpose set forth.

28. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck having a cylindrical coiling portion and a projecting lip in proximity thereto, a feeding mechanism for the strip of material from which the fastener is made adapted to present the end of the strip in the space between said lip and cylindrical coiling portion, said feeding mechanism comprising a pair of peripherally-grooved feeding-rolls, one of said rolls being yieldingly mounted, means for periodically moving said yieldingly-mounted roll to effect a clamping of the strip in the peripheral grooves in said rolls and gearing for positively and simultaneously with such clamping rotating said rolls, as and for the purpose set forth.

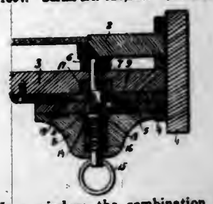
592,456. PANEL FENCE. THOMAS J. THOMPSON, Higgston, Ga. Filed Nov. 21, 1896. Serial No. 613,004. (No model.)



Claim.—1. In a panel fence, two panels, one having a groove between its uprights and the other having its longitudinal rails extended beyond its uprights and adapted to enter said groove, and to be locked thereto with the panels extending at an angle to each other the said extended ends being tapered to fit a corresponding taper on one of the uprights at said groove, substantially as and for the purposes specified.

2. The combination with the fence-panels arranged at an angle to each other and having longitudinal slots, of the locking-keys, having a bob at each end with a square shoulder adapted to enter said slots, and oppositely-disposed inclined portions upon opposite sides of the space between said shoulders, substantially as and for the purposes specified.

592,457. SASH-FASTENER. HECTOR TOOPS, Frankfort, Ind. Filed Mar. 6, 1897. Serial No. 626,223. (No model.)



Claim.—1. In a window, the combination with the frame or casement and sliding sashes, of a fastener secured to the inner side of the lower sash and comprising a locking-bolt to engage with one of a series of openings provided at one side of the frame or casement, an operating-cam for operating the locking-bolt, and a pin or stem slidably mounted within the said cam and adapted to operate it and the locking-bolt at any position within the range of its movement, and located at right angles to the locking-bolt and operating in an opening of the lower sash, and adapted to engage with one of a series of openings provided on the top sash to secure the sashes at any relative adjusted position, substantially as set forth.

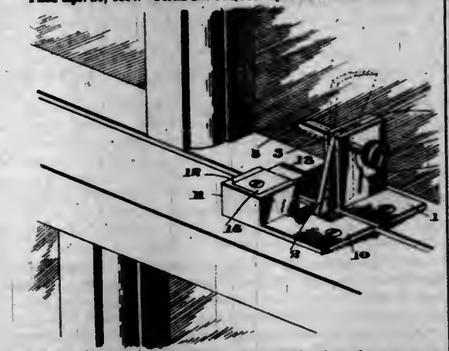
2. In a window, the combination with the frame or casement and sliding sashes mounted therein, of a locking-bolt having an oblong opening and a recess and notch in one side, the notch communicating with the recess and located to one side of the oblong opening, an operating-cam located in the recessed side of the locking-bolt and having its terminal end entering the said notch, and a pin or stem slidingly mounted in the hub portion of the said cam and passing through the oblong opening of the locking-bolt and adapted to operate the latter at any position within the range of its movement, the said pin or stem serving to lock the two sashes in an adjusted position, and the locking-bolt fixing the position of the sashes with respect to the window-frame by entering one of a series of openings provided therein, substantially as set forth.

3. In a combined sash fastener and lock, the combination of a case having a transverse opening and a groove at one side of the said opening, a locking-bolt, an operating-cam, and a stem operating at right angles to the locking-bolt and working through the said cam, and adapted to operate the latter and the locking-bolt at any stage of its movement, and provided at one side with a nib to pass through the groove of the transverse opening in which is mounted the said stem, substantially as and for the purpose set forth.

4. A sash-fastener consisting of a case having a transverse opening and a groove at one side of the opening, a double-ended locking-bolt mounted to reciprocate in the case and adapted to have its ends operate through openings in the ends of the case, a spring mounted upon an end portion of the locking-bolt and confined between the shoulder at the base thereof and the adjacent end of the case, an operating-cam, and a spring-actuated stem mounted to move longitudinally in the said cam and the transverse opening of the case and having a nib at one side to pass through the aforesaid groove and adapted to move the cam and bolt at any position, substantially as set forth for the purpose specified.

5. The herein-described sash-fastener, consisting of a case having a transverse opening and a groove at one side of the opening, a double-ended locking-bolt having an oblong opening and a recess and notch in one side, a spring for holding the lock-bolt in a normal position, an operating-cam located in the recessed side of the locking-bolt and having its terminal end operating in the said notch, a stem working through the case and having an angular portion slidingly mounted in a corresponding opening in the cam, a shoulder and a nib, the latter adapted to move through the aforesaid groove, a spring mounted upon the stem and confined between the shoulder and the case, and a ring or finger-grip applied to the outer end of the stem, the stem being adapted to operate the cam and bolt at any position within the range of its movement, substantially as set forth for the purpose described.

592,458. SASH-FASTENER. ARTHUR M. TYLER, Richmond, Va. Filed Apr. 29, 1897. Serial No. 634,444. (No model.)



Claim.—1. In a sash-fastener, the combination of a support, a cam-dog pivotally mounted in said support, a lateral projection movable with said dog, and relatively-fixed means adapted to engage said projection to actuate the dog, substantially as herein shown and described.

2. A sash-lock comprising a support adapted to be attached to the upper face of the meeting-rail of a sash, a cam-dog pivotally mounted in said support and mounted to swing past the joint between the meeting-rails of the two sashes and to be thrown and held by gravity in inverted position, a lateral projection movable with said dog, and flexible means adapted to engage the projection to actuate the dog, substantially as described.

3. In a sash-fastener, the combination of a support carried by one of the sashes, and a cam-dog mounted therein upon a shaft which is provided with a flattened portion or projection; together with an arm projecting from the other sash, substantially as shown and described.

4. In a sash-fastener, the combination of a support attached to one of the sashes, a shaft journaled in the support and having a flattened portion or projection, a cam-dog connected to the shaft and limited in its movements in both directions, a plate attached to the other sash, and a flexible arm secured to the plate and projecting beyond the sash, substantially as shown and described.

5. In a sash-fastener, the combination of a support presenting stops, a shaft journaled therein and having a flattened portion or projection, a cam-dog attached to the shaft and limited in its movements by the stops, and a knob or wheel secured to one end of the shaft; together with a plate attached to the other sash, and a flexible arm projecting from the plate, substantially as shown and described.

6. In a sash-fastener, the combination with a cam-dog carried by one of the sashes and attached to a shaft having a flattened portion or projection, of a plate attached to the other sash and provided with a socket or seat, and a flexible arm secured in the socket or seat and projecting beyond the sash, the end of the cam-dog and part of the plate with which it engages being roughened, substantially as shown and described.

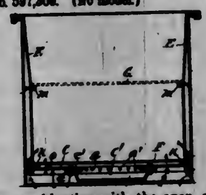
592,459. CONSTRUCTION OF SHEET-METAL PIPES. JACOB F. WEITZEL, Ludlow, Ky. Filed Jan. 11, 1897. Serial No. 618,753. (No model.)



Claim.—1. As a new article of manufacture, a straight sheet-metal pipe-section of polygonal profile, having all its parts, that is corners 7 and sides 6 between them twisted to a spiral shape and the sides 6 concaved between the projecting corners 7, the whole being constructed of one sheet of metal which contains all the sides and the edges of which are connected by a lock-seam 8, such edges being coincident with the edges of the sides 6, so that when they are joined, the completed seam forms one of the corners 7 and is also spirally twisted.

2. A straight section of sheet-metal pipe having a polygonal profile, and its corners 7 and sides 6 between them twisted to a spiral shape, the whole being constructed of one sheet of metal which contains all the sides and the edges of which are crimped to form the component parts of a lock-seam by which they are connected to form the pipe, such edges being coincident with the edges of the sides 6, so that when they are joined the completed seam 8 forms one of the corners 7 and is also spirally twisted, the sides 6 between the corners being concaved, whereby angles are produced of which the one at the seam forms an internal abutment 9 as to one of the component parts of the seam which interlock here and against which abutment 9 the extreme outer edge 10 of the other connecting part rests, whereby the joining parts of the seam are prevented from slipping apart.

592,460. OVEN. GEORGE WELS, Detroit, Mich. Filed June 29, 1896. Serial No. 597,209. (No model.)

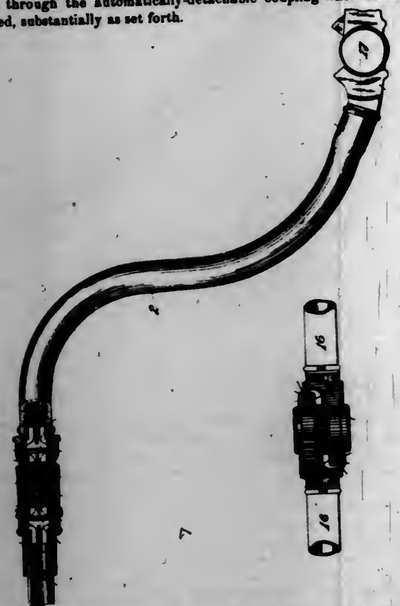


Claim.—1. The combination with the oven, of the bottom suspended therein of less diameter than the oven forming a space around said bottom, said bottom having a central aperture therein, the marginal edge of which is turned forming a downwardly-extending flange having perforations therein, the concave-convex pan located below said aperture, said pan secured to the under face of the bottom of the oven around said aperture and having a series of perforations in the edge thereof.

2. The combination with the oven, of the bottom therein of less diameter than the oven forming a space between said bottom and the oven-walls, said bottom having projections from the edge thereof which engage the walls of the oven, the series of hangers detachably engaging the upper edge of the case of the oven and depending inside thereof, said hangers at their lower ends being provided with loops which engage the sides of the oven-bottom, and with inwardly and outwardly extending lateral bends, said inner bends supporting the removable grates and said outer bends engaging the wall of the oven to space the bottom therefrom.

592,461. AIR-BRAKE. HENRY H. WESTINGHOUSE and JOHN CALDWELL, Edgewood, Pa., assignors to the Westinghouse Air Brake Company, Pittsburg, Pa. Filed Oct. 24, 1894. Serial No. 526,853. (No model.)

Claim.—1. The combination with a section of flexible pipe, or hose, of a half coupling at one end of the section which is adapted to couple with a similar half-coupling on another section of flexible pipe, or hose, and to maintain a continuous passage through the two half-couplings except when disconnected by hand, an automatically-detachable half-coupling at the other end of the section of flexible hose which is adapted to be coupled to the section of train-pipe under a car, and a valve device for reducing the capacity of the passage through the automatically-detachable coupling when disconnected, substantially as set forth.



2. In a fluid-pressure brake system, the combination, with a rigid or fixed section of train-pipe, of a flexible section or hose, an automatically-detachable coupling for connecting one end of the flexible section or hose to the fixed section of train-pipe, a valve in the detachable coupling for closing the passage through which fluid escapes when the coupling is detached, means for permitting a reduced escape of the fluid from the valve-closed hose, and a half coupling for connecting the other end of the flexible section or hose to a similar half-coupling on another flexible section or hose, substantially as set forth.

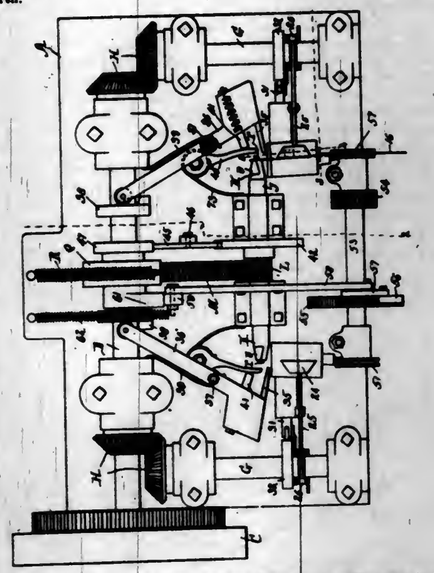
3. In a fluid-pressure brake system, the combination, with a train-pipe, of two sections of flexible hose, a coupling which is adapted to keep the two sections of hose coupled together in case the train breaks in two, an automatically-detachable coupling connecting each section of flexible hose with the train-pipe, and means for reducing or limiting the escape of fluid through each of the parts of the automatically-detachable coupling when the parts are separated, substantially as set forth.

4. In an automatic fluid-pressure brake system, the combination, with a train-pipe, of a flexible hose connecting the sections of train-pipe on two adjacent cars, an automatically-detachable coupling connecting the flexible hose with the section of train-pipe on each car, a valve device in each half of each coupling for preventing an exhaust of fluid from the train-pipe when the parts of the coupling are separated, and a passage for permitting at the same time a gradual exhaust of fluid from the train-pipe sufficient to effect a service application of the brakes, substantially as set forth.

592,462. MACHINE FOR MAKING LACE-FASTENERS. Rudolph Wirth, Chicago, Ill., assignor to the Pratt Fastener Company, same place. Filed June 1, 1896. Serial No. 593,947. (No model.)

Claim.—1. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the material from which the fastener is made, means for rotating said mandrel, whereby said material is coiled thereon to form the body of the fastener, in combination with means for beveling the ends of the material required for each fastener, and means for bending the ends of the fastener after it is formed at substantially right angles with the plane of the coils thereof; as and for the purpose set forth.

2. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the strip of material from which the fastener is made, means for rotating said mandrel, whereby said material is coiled on said mandrel to form the body of the fastener, means for feeding the material to said mandrel, means for severing a sufficient length from the strip of material to form the fastener, means for beveling the ends of the fastener, and means for simultaneously bending the ends of the fastener after it is formed at substantially right angles to the plane of the coils thereof; as and for the purpose set forth.



3. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive and coil thereon the material from which the fastener is made, in combination with means for beveling the ends of the fastener in planes angularly with respect to each other, and means for bending the ends of the formed fastener at substantially right angles to the plane of the coils of the body thereof; as and for the purpose set forth.

4. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the material from which the fastener is made and to coil the same thereon, in combination with beveling-cutters for beveling the ends of the fastener, means for actuating said mandrel and cutters, and means for simultaneously bending both ends of the fastener after it is formed; as and for the purpose set forth.

5. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive and coil thereon the material from which the fastener is made, in combination with beveling-cutters for beveling the ends of the fastener, said cutters being arranged to bevel the said ends in planes in angular relation with respect to each other, and means for actuating said mandrel and cutters; as and for the purpose set forth.

6. In a machine for making lace-fasteners, a coiling-mandrel adapted to receive the material from which the fastener is made and to coil the same thereon, beveling-cutters arranged to bevel the ends of the fastener in planes angular with respect to each other, means for holding the material during the operation of the beveling-cutter, and means for actuating said mandrel and cutters; as and for the purpose set forth.

7. In a machine for making lace-fasteners, a coiling-mandrel adapted to grasp the end of the material from which the fastener is made, means for severing a sufficient length from said material to form a fastener, and means for rotating said mandrel, whereby said detached portion is coiled upon said mandrel into a fastener; as and for the purpose set forth.

8. In a machine for making lace-fasteners, a coiling-mandrel adapted to grasp the end of the material from which the fastener is made, means for severing a sufficient length from said material to form a fastener, means for rotating said mandrel, whereby said detached portion is coiled thereon, and means for bending the ends of the coiled detached portion in substantially right-angular relation with respect to the planes of the coils thereof; as and for the purpose set forth.

9. In a machine for making lace fasteners, a beveling-cutter arranged to bevel the front ends of the strip of material from which the fastener is made, a coiling-mandrel adapted to grasp said beveled front end, means for severing a sufficient length of said material to form the fastener, and means for rotating said mandrel to coil the fastener thereon; as and for the purpose set forth.

10. In a machine for making lace-fasteners, means for beveling the forward end of the strip of material from which the fastener is made, a coiling mandrel adapted to grasp said beveled forward end, means for severing from said strip a sufficient length thereof to form a fastener, means for beveling the severed end of said portion, and means for rotating said mandrel, whereby said severed and beveled ended portion is coiled upon said mandrel into a fastener; as and for the purpose set forth.

11. In a machine for making lace-fasteners, means for beveling the forward end of the strip of material from which the fastener is made, a coiling-mandrel adapted to grasp the beveled forward end, means for severing from said strip a sufficient length thereof to form a fastener, means for beveling the severed end of said portion, and means for rotating said mandrel, whereby said severed and beveled ended portion is coiled into a fastener upon said mandrel, and means for bending the ends of the formed fastener into angular relation with respect to the plane of the coils thereof; as and for the purpose set forth.

12. In a machine for making lace-fasteners, means for beveling the forward end of the strip of material from which the fastener is made, a coiling mandrel adapted to grasp said beveled forward end, means for simultaneously severing and beveling a sufficient length from said strip to form a fastener, means for rotating said mandrel whereby the body of the fastener is coiled thereon, and means for bending the ends of the formed fastener into angular relation with respect to the plane of the coils thereof; as and for the purpose set forth.

13. In a machine for making lace-fasteners, a coiling-mandrel adapted to grasp the end of the material from which the mandrel is made, means for imparting to said mandrel as light initial and a rapid final rotation, whereby said material is first clamped and then coiled upon said mandrel, and means for severing from said strip a sufficient length thereof to form a fastener; as and for the purpose set forth.

14. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck having a body part and a projecting lip, the end of the material from which the fastener is made adapted to be inserted between said lip and body part and means for imparting a slight initial rotation to such mandrel, whereby the material to form the fastener is clamped by said lip; as and for the purpose set forth.

15. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck, having a cylindrical portion upon which the fastener is formed, and a projecting lip, the end of the material from which the fastener is made adapted to be received between said cylindrical portion and said lip, and means for imparting a slight initial rotation and a rapid final rotation to said mandrel, whereby said material is first clamped and then coiled upon said mandrel; as and for the purpose set forth.

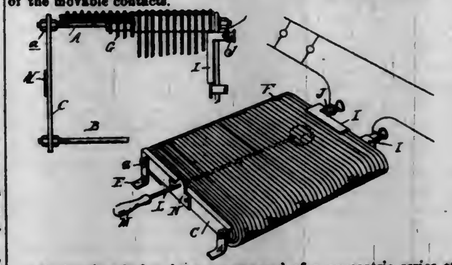
16. In a machine for making lace fasteners, a coiling-mandrel provided with a chuck having an end wall and a coiling portion projecting therefrom, upon which the body of the fastener is coiled, a portion of the plane of said end wall lying in a plane angular with respect to the axis of rotation of such mandrel, in combination with means for beveling the forward end of the strip from which the fastener is made; as and for the purpose set forth.

17. In a machine for making lace-fasteners, a coiling-mandrel provided with a chuck having one side thereof cut away, said chuck adapted to grasp and coil thereon the material from which the fastener is made, in combination with means for simultaneously severing the formed fastener from the material from which it is made and beveling the severed end thereof, and bending both ends into the space formed by such cut-away portion; as and for the purpose set forth.

18. In a machine for making lace-fasteners, a coiling-mandrel adapted to grasp the end of the material from which the fastener is made, means for severing a sufficient length from said strip to form a fastener, means for rotating said mandrel to coil the body portion of the fastener thereon, means for beveling the forward end of the strip of material after such portion has been detached to form the front end of the next succeeding fastener, and means for advancing the beveled end of such strip to said mandrel to form the next succeeding fastener; as and for the purpose set forth.

592,463. ELECTRICAL-RESISTANCE DEVICE. Elliott R. Autrony, Detroit, Mich. Filed Feb 23, 1897. Serial No. 624,543. (No model.)

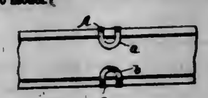
Claim.—1. In an electrical resistance, the combination of a skeleton frame or reel composed of a plurality of longitudinal bars secured at the opposite ends to common end frames or standards, two electric conductors or wires, or multiples thereof wound upon said reel to form a concentric series of flat-sided or polygonal coils electrically insulated from each other and with open air-spaces formed between each pair of coils, a movable contact between each pair of adjacent coils composed of a spring-jack in frictional contact with the coils and secured to a handle adapted to shift its position between the coil and electric connections, whereby the conductors are connected in series with suitable portions of the coils according to the adjustment of the movable contacts.

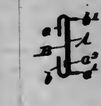


2. An electrical resistance composed of a concentric series of polygonal resistance-coils supported upon a reel or skeleton frame electrically insulated from each other by insulating material at the corners and air-spaces between and a sliding spring-jack in frictional adjustable contact between each pair of coils.

3. In an electrical resistance, the combination of a reel or frame composed of the longitudinal bars A, B, the end frames or supports C C to which the ends of said bars are secured, the conductors wound upon said reel or frame and forming two concentric coils insulated from each other by strips interposed between the bars and coils, the spring-jack provided with the shank and handle and adapted to form a movable contact, the guide N for the contact and the copper strips and binding-post for electrically connecting the resistance-coils into the circuit of an electric conductor.

592,464. COMBINED WAIST, SKIRT, AND BELT HOLDER. George H. Bock, Mattoon, Ill. Filed Mar. 29, 1897. Serial No. 630,790. (No model.)





Claim.—1. A combined skirt, waist and belt holder having two members sliding one upon the other each member having at one end a hook adapted to embrace one edge of a belt and at the other end a series of teeth adapted to engage either a waist or skirt whereby the engagement of said teeth with the waist or skirt may hold the hooks in place upon the belt; substantially as described.

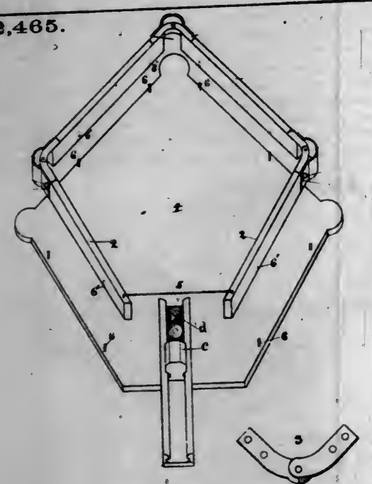
2. A combined belt, skirt and waist holder consisting of two members, A, B, the member, A, having the hook, a, at one end and the teeth, a', and tongues, a^2, a^2, at the other, and the member, B, having the hook, b, at one end and the teeth, b', and slot, b^2, at the other, the member, A, being arranged in the slot, b^2, and the member, B, being embraced between the tongues, a^2, a^2; substantially as described.

592,465. GAME DEVICE. William J. Clark, Janesville, Wis. Filed Mar. 1, 1897. Serial No. 626,565. (No model.)

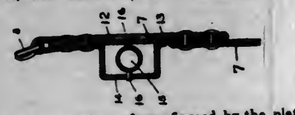
Claim.—1. A game device of the design herein shown and described, consisting of the combination of a frame composed of a number of sides, said sides being attached together by hinges end to end, at both ends of all but two of said sides, one end of each of said two sides being left free, ports formed by the non-contact of the opposing ends of said attached sides, pockets inclosing said ports upon the outside of said frame, a shooting-stick of the design shown and described, all constructed and operating as shown and described.

2. A game device of the design herein shown and described consisting of the combination of a foldable frame composed of a number of sides which are attached together by hinges, end to end, at both ends of all but two of said sides, one end of each of said two sides being left free, ports formed by the non-contact of the opposing ends of said attached sides, detachable pockets inclosing said ports upon the outside of the frame, a detachable base or bottom upon which said frame may be placed and means for holding said bottom and said frame in the proper relative positions substantially as shown and described.

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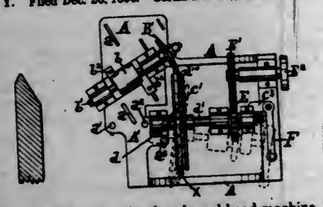


592,466. SHAFT-SUPPORT. THOMAS G. COLEMAN, Gunsight, Tex. Filed Mar. 25, 1897. Serial No. 629,247. (No model.)



Claim.—A tug comprising a frame formed by the plate 12 and the angular plate 14 attached thereto, and the sleeve or ring 15 swiveled in said frame to receive the shaft, said sleeve being provided between its ends with lateral trunnions journaled in bearings located in horizontal alinement in the plates 12 and 14, whereby the sleeve is capable of a vertical rocking motion to conform to the varying inclinations of the shafts to the harness.

592,467. BARREL-HEAD MACHINE. JOHN GREENWOOD, Rochester, N. Y. Filed Dec. 26, 1896. Serial No. 617,128. (No model.)



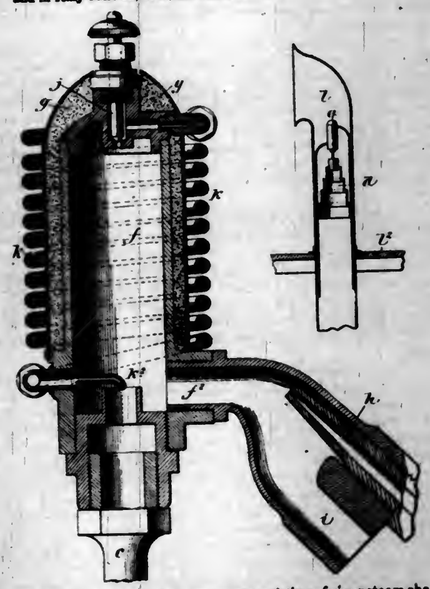
Claim.—1. The combination in a barrel-head machine, of a circular saw B', a pair of revoluble clamping chuck-plates D D' for a barrel-head blank, a swinging frame C having fixed bearings for said chuck-plates, and adapted in its swing to bring a blank to said saw, and means for simultaneously and correspondingly changing the radius of swing of said plates and the pivot-point of said frame C, whereby different bevels may be produced on barrel heads of the same size.

2. The combination in a barrel-head machine, of a circular saw B', a pair of revoluble clamping chuck-plates D D' for a barrel-head blank, a swinging frame C having fixed bearings for said chuck-plates and adapted in its swing to bring a blank to said saw, means for simultaneously and correspondingly changing the radius of swing of said plates and the pivot-point of said frame C, and an adjustable arbor-bracket for said saw, whereby different edge bevels may be produced on barrel-heads of the same or different sizes.

3. The combination in a barrel-head machine, of a circular saw B' having a horizontal arbor b', a swinging frame C having vertical changeable pivots c^3 c^4 for changing simultaneously and correspondingly the radius of swing of said frame with reference to said saw and the pivot-point of said frame, and a pair of chuck-plates D D' set on horizontal revolvable bearings on said frame C, substantially as and for the purposes described.

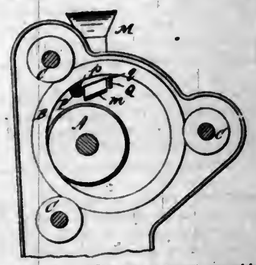
4. The combination in a barrel-head machine, of a circular saw B' having a horizontal arbor b', a swinging frame C having vertical changeable pivots c^3 c^4 for varying the radius of swing of said frame with reference to the saw, an adjustable arbor-bracket for said saw, and a pair of chuck-plates D D' set on horizontal revoluble bearings on said frame C, substantially as and for the purposes described.

592,468. VENTILATING APPARATUS. CHARLES HARRIS and THOMAS F. EVANS, Manchester, England. Filed July 26, 1895. Serial No. 557,252. (No model.) Patented in France May 4, 1895, No. 234,205; in Germany May 4, 1895, No. 89,206; in Belgium May 6, 1895, No. 115,435, and in Italy June 22, 1896, LXXXI, 253.



Claim.—The combined apparatus consisting of air or steam chamber *f*, outlet-nozzle *c*, valve *j*, cooling-coil *k*, with the necessary fittings thereof, and a series of concentric rings *d*, as described and shown hereinbefore and in the accompanying drawings, for the purposes set forth.

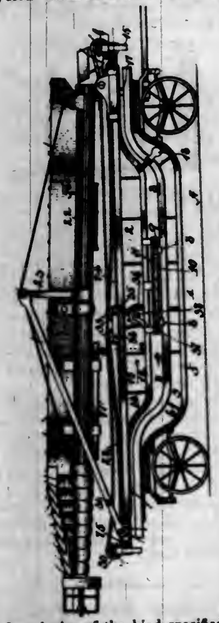
592,469. STONE OR ORE CRUSHER. ALBERTS C. HILSINGER, Killawog, N. Y., assignor to Calvin Amory Stevens, New York, N. Y. Original application filed Sept. 11, 1895, Serial No. 562,151. Divided and this application filed Feb. 26, 1897. Serial No. 625,104. (No model.)



Claim.—1. In a stone and ore crusher the combination of a revoluble attrition-ring, a crushing-roll within said ring, and an air-blast pipe above said crushing-roll arranged to cause air under pressure to impinge against the concave surface of said attrition-ring to drive the finer particles of material under treatment away from the upper side of the crushing-roll, substantially in the manner and for the purpose described.

2. In a stone and ore crusher the combination of a revoluble attrition-ring, a crushing-roll within said ring, an air blast pipe above said crushing-roll arranged to cause air under pressure to impinge against the concave surface of said attrition-ring to drive the finer particles under treatment away from the upper side of said crushing-roll, and a screen interposed in the path of the air-blast and arranged to separate the coarser particles of material dislodged by the air-blast from the finer particles, and to deliver said coarser particles on top of the crushing-roll for further reduction, substantially in the manner described.

592,470. EXTENSION FIRE-LADDER. FERDINAND C. KUHNROW, Chicago, Ill., assignor of one-half to William Juhl, same place. Filed Mar. 16, 1896. Serial No. 583,420. (No model.)



Claim.—1. In a device of the kind specified, a truck mounted upon wheels and consisting of an upper and a lower member, said lower member consisting of two parallel trusses bent upwardly, and said upper member consisting of two parallel trusses having straight upper beams, and lower beams adapted to fit within the recesses formed by the upper beams of the lower truss and converging into said upper beam.

2. In a device of the kind specified, a truck mounted upon wheels and consisting of an upper and a lower member, said lower member consisting of two parallel trusses bent upwardly, and said upper member consisting of two parallel trusses having straight upper beams, and lower beams adapted to fit within the recesses formed by the upper beams of the lower truss and converging into said upper beam, said upper beam being pivotally mounted upon said lower member.

3. In a device of the kind specified, a truck mounted upon wheels and consisting of an upper and a lower member, said lower member consisting of two parallel trusses bent upwardly, and said upper member consisting of two parallel trusses having straight upper beams, and lower beams adapted to fit within recesses formed by the upper beams of the lower truss and converging into said upper beam, said upper member being pivotally mounted upon said lower member and provided with devices at its ends adapted to receive supporting-poles.

4. In a device of the kind specified, an extension-ladder mounted upon a truck, guide-blocks at the lower ends of the extension-ladder, a movable brace pivotally connected at its upper end with said ladder and provided with guide-blocks at its lower end, a rack upon which said guide-blocks move, pawls carried by said blocks and adapted to engage the rack, and means for moving said blocks simultaneously toward or away from each other whereby said ladder will be raised or lowered.

5. In a device of the kind specified, an extension-ladder mounted upon a truck, guide-blocks at the lower ends of said extension-ladder, a movable brace pivotally connected at its upper end with said ladder and provided with guide-blocks at its lower end, a rack upon which said guide-blocks move, pawls carried by said blocks and adapted to engage said rack, and means for moving said guide-blocks simultaneously toward or away from each other to raise or lower the ladder consisting of sprocket-chains connected with said guide-blocks and with gearing.

6. In a device of the kind specified, an extension-ladder mounted upon a truck, guide-blocks at the lower ends of said extension-ladder, a movable brace pivotally connected at its upper end to said ladder and provided with guide-blocks at its lower end, a guide upon which said blocks move, and means for moving said guide-blocks simultaneously toward or away from each other whereby said ladder will be raised or lowered, consisting of endless sprocket-chains running over sprocket-wheels at the ends of said truck, said uppermost portions of said sprocket-chains being connected with one of said guide-blocks and the lowermost parallel portion of said sprocket-chain being connected with the other of said guide-blocks, said sprocket-chains being geared to a crank-shaft on said truck.

7. In a device of the kind specified, the ladder composed of the section, each of said sections comprising angle-irons and rungs secured to said angle-irons; outwardly-extending lugs secured to the lower ends of each of said angle-irons except the angle-irons comprising the lowermost section, a spring-actuated, transversely-movable rod mounted in horizontal guide-slots at the upper ends of each of said angle-irons, except the lowermost and uppermost, and adapted to engage the lugs on the ladder-section above the same.

8. In a device of the kind specified, a ladder-section comprising angle-irons having rungs secured to their outer faces, outwardly-extending lugs at the lower ends of said angle-irons, a spring-actuated transversely-movable rod mounted in guide-slots in the upper end of said ladder-section and normally held in engagement with said lugs on the ladder section above the same when the latter is at the uppermost limit of its movement with relation thereto by a spring, and means for throwing said rod out of engagement with said lugs as each ladder-section is brought to its lowermost position.

9. In a device of the kind specified, an extension-ladder consisting of a plurality of telescopic pipes adapted to fit within each other and carrying devices for introducing fluid-pressure therein to raise the same, cross-pieces at the upper ends of said pipes connecting each pair of pipes on opposite sides of the truck together, and ladder-sections connected at their upper ends to said cross-pieces, said ladder-sections decreasing in width from the lowermost to the uppermost and being adapted to fit telescopically within each other.

10. In a device of the kind specified, an extension-ladder consisting of a plurality of telescopic pipes having ladder sections secured thereto, said ladder-sections adapted to be raised consecutively to any desired height, and devices for locking said ladder-sections in such position and a plate having outwardly-extending lugs or projections adapted to be interposed between the rungs of the lowermost of the raised sections and the sections remaining at the lowest limits of their movement.

11. In a device of the kind specified, an extension ladder consisting of a plurality of telescopic pipes having ladder-sections secured thereto, said ladder-sections adapted to be raised consecutively to any desired height, and devices for locking said ladder-sections in such position and a plate having outwardly-extending lugs or projections adapted to be interposed between the rungs of the lowermost of the raised sections and the sections remaining at the lowest limits of their movement, said plate being pivotally mounted upon the ends of parallel rods pivoted at their other end to a channel-bar adapted to receive said plate.

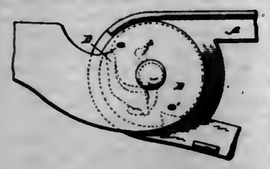
12. In a device of the kind specified, an extension ladder consisting of a plurality of telescopic pipes having ladder-sections secured thereto, said ladder-sections adapted to be raised consecutively to any desired height, devices for locking said ladder-sections in such position and a plate having outwardly-extending lugs or projections adapted to be interposed between the rungs of the lowermost of the raised sections and the sections remaining at the lowest limits of their movement, said plate being pivotally mounted upon the ends of parallel rods pivoted at their other end to a channel-bar adapted to receive said plate, and means for swinging said rods whereby said locking device is thrown into or out of engagement with said ladder-sections.

13. In a device of the kind specified, a locking device consisting of a plate having outwardly-extending lugs or projections adapted to be interposed between the rungs of the ladder-sections for locking the same in their raised positions, said plate being pivotally mounted upon the ends of parallel rods pivoted at their other ends to said lowermost ladder-section, and means for swinging said rods whereby said locking device is thrown into or out of engagement with said ladder-sections.

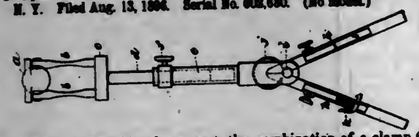
592,471. TABLET-ARM. ALLEN D. LIEN and ALTON A. LITTLE, Grand Rapids, Mich., assignors to the Grand Rapids School Furniture Company, same place. Filed Mar. 24, 1896. Serial No. 584,683. (No model.)

Claim.—In combination, a seat-arm having a flat face, a tablet-arm pivoted thereto having an annular flange with its edges resting against said flat face, a pawl pivoted to said flat face to one side of

and below the pivot of the tablet-arm, a projection extending inwardly from said flange adapted to be engaged by the end of said pawl to support said tablet-arm in a horizontal position, a second projection on the flange for releasing the pawl, and a lug on the tablet-arm adapted to return the pawl to normal position, substantially as described.



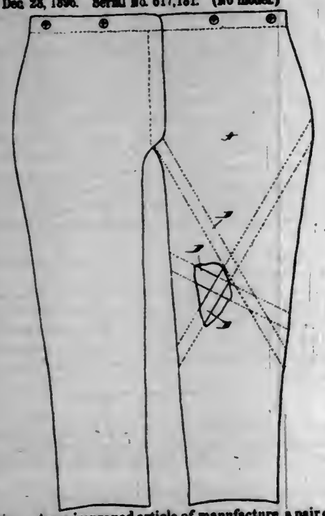
592,472. BICYCLE-SUPPORT. REMIGIO LO FORTE, New York, N. Y. Filed Aug. 13, 1896. Serial No. 602,630. (No model.)



Claim.—1. In a bicycle-support, the combination of a clamp C adapted to connect with a bicycle-frame, a spring-snap joint connected to the clamp, a bit *d* extending from the said snap-joint, a sleeve or shank *e* surrounding the said bit and adjustable up and down on the same, a plurality of legs *h* adjustable in length and pivoted to said sleeve so as to swing in parallel planes in order to form a bifurcated rest and the dog *k* pivoted in one of the adjustable legs *h*, the other of the said legs being provided with a locking-recess *l* adapted to be engaged by a dog *k*, the adjustable legs being adapted to be separated so as to extend at right angles to the plane of the frame of a bicycle.

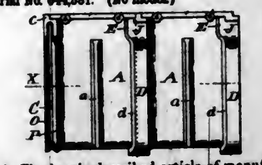
2. In a bicycle-support, the combination of a clamp C, a spring-snap joint connected thereto, the same consisting of a recessed ball *a* secured to the clamp C, a fork comprising springy rods *b b* gripping the opposite sides of the recessed ball, a yoke *c* uniting the said springy rods, a bit *d* projecting from the yoke *c*, a sleeve or shank *e* surrounding the said bit and adjustable up and down on the said bit, a set-screw for locking the shank or sleeve *e* in place on the bit *d*, a plurality of extensible legs *h* pivoted to the shank or sleeve *e*, a spring *j* adapted to separate the said legs so that they form a bifurcated rest, a dog *k* pivoted to one of the said extensible legs, the other of the said legs being provided with a recess *l* for locking with the pivoted dog, substantially as described and for the purpose set forth.

592,473. TROUSERS. JOHN W. MADDEN, Wellsborough, Pa. Filed Dec. 28, 1896. Serial No. 617,181. (No model.)



Claim.—As an improved article of manufacture, a pair of trousers having reinforcing-strips of non-elastic material on the inside thereof, one of said strips extending from the hip downwardly across the knee to the inner seam of the leg below the knee, another extending from the crotch downwardly across the knee to the outer seam below the knee, and a third extending diagonally across the leg from the outer seam to the inner seam, and crossing the other two strips just below their connecting-point, all substantially as shown and described, and for the purpose set forth.

592,474. TILE. JOHN J. MERRILL, Alfred, N. Y. Filed July 13, 1897. Serial No. 644,381. (No model.)



Claim.—1. The herein-described article of manufacture consisting of a tile provided along one edge with raised ribs O and P forming a groove or way C, and along the other edge a groove-cover D having depending from its under surface a rib F of less height than the groove C, said rib F being constructed so as to be contained within said groove when tiles are laid side by side, the sides of the rib F forming sharp angles, while the inside upper corners of the ribs O and P are rounded, producing the air-spaces K K, the ribs O and P being depressed at their upper ends and carved downward at their lower ends, forming a free vent when the depressed portion of one tile receives the downward-bent portion of the adjacent tile, substantially as described and for the purpose set forth.

2. The herein-described article of manufacture, consisting of a tile having ribs O and P which form a groove of equal height with a central rib *a*, and also equal to the vertical distance between the under surface of the raised groove-cover D and the upper surface of the tile A, the groove-cover D being joined to the body A at an obtuse angle, so that when the tiles are set in series upon their sides, the cover D will be supported by the body A, whereby inherent settings are furnished and the tiles cannot warp or be moved from their setting—except in order and from the top, substantially as described and for the purpose set forth.

592,475. BUCKSAW. FRANK H. MORRIS, Blue Earth City, Minn. Filed Mar. 13, 1897. Serial No. 627,322. (No model.)



Claim.—A bucksaw, consisting of a handle having a recess in its front edge, and a transverse pin in said recess, a bow having one end projecting into the recess and notched to receive the pin, a saw-blade secured to the handle and bow, a rod having one end pivoted to the bow and its other screw-threaded and projecting through an opening in the handle, and a thumb-screw on the end of the said rod, substantially as shown and described.

592,476. NECK-YOKE HOLDER FOR WAGON-TONGUES. DONALD MURRAY, Maple Creek, Canada. Filed Mar. 1, 1897. Serial No. 625,455. (No model.)



Claim.—1. As a new article of manufacture, a neck yoke holder consisting of two sections adapted to embrace the end of a vehicle-tongue, a hook formed upon the end of this holder, a dog pivoted therein, a plug adapted to operate said dog, and a spring for holding said plug in its normal position.

2 A neck-yoke holder consisting of two sections adapted to embrace the end of a vehicle-tongue, a hook formed upon the outer end of said holder, a dog pivoted therein, a plug fitted within the holder, a lug projecting from said plug into engagement with a notch of the dog, a spring for holding said plug in its normal position, so as to lock the dog against rotation, and a knob for moving the plug upward, as specified.

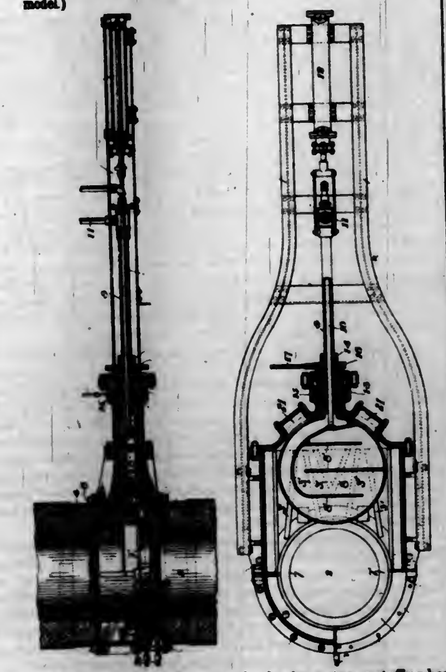
3. The herein-described combination of the two sections A secured about the end of a vehicle-tongue, hooks formed upon each of said sections, a dog pivoted between the sections and provided with a stop-shoulder for limiting its rotary movement, a plug also fitted between the sections, a lug projecting from said plug into engagement with a notch formed in the dog, a spring secured to the sections and to the plug, and a knob for withdrawing said plug upward, as specified.

592,477. BRAIDING-CARRIER. JOHN MCCAREY, Providence, R. I., assignor to the New England Butt Company, same place. Filed Jan. 15, 1897. Serial No. 619,336. (No model.)



Claim.—In a spool-carrier, a standard having a projection made at its top to prevent the pawl from being thrown off by the tension-weight or spool and having its sides narrowed away at the top to allow the pawl to be removed by tipping it over toward the spool, in combination with, a pawl, a tension-weight and a spindle for a spool, substantially as described.

592,478. VALVE. MARVIN A. NEELAND and WILLIAM ROTTNOFF, Duquesne, Pa. Filed Nov. 21, 1896. Serial No. 612,974. (No model.)



Claim.—1. A sliding furnace-valve having a stem, a stuffing-box for the stem fitted so as to have lateral play in a direction at right angles to the plane of the valve, and a clamp for fixing the stuffing-box; substantially as described.

2. A furnace-valve having a stem, a stuffing-box for the stem, fitted so as to have play vertically as well as horizontally, and a clamp for fixing the stuffing-box; substantially as described.

3. A furnace-valve seat having a casing provided with an opening through which the valve is insertible edgewise, and a closing-piece set in said opening on the side of the structure opposite to the valve-stem, substantially as described.

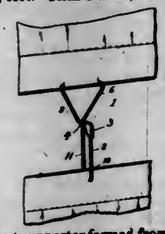
4. A furnace-valve seat having a casing provided with an opening through which the valve-seat is insertible horizontally, and a semiannular closing-piece adapted to be set in said opening in contact with the seat; substantially as described.

5. A furnace-valve seat, having a casing provided with an opening through which the valve-seat is insertible horizontally, and a semiannular closing-piece adapted to be set in said opening in contact with the seat back of a vertically-projecting annular portion of said seat on which the valve travels; substantially as described.

6. A furnace-valve seat, having a casing provided with an opening through which the valve-seat is insertible horizontally, a closing-piece adapted to be set in said opening, a water-pipe extending through said closing-piece to the valve-seat, and a stuffing-box through which the pipe travels; substantially as described.

7. A furnace-valve casing having a sliding valve and supporting-ribs on which the valve moves in opening, said ribs being out of parallel with the path of motion of the valve.

592,479. GARMENT-SUPPORTER. EMILY R. PHILLIPS, Eldon, Mo. Filed Apr. 24, 1897. Serial No. 633,746. (No model.)



Claim.—A garment-supporter formed from a single piece of wire, bent to form a safety-pin and a triangular loop, the planes of the pin and loop being at a right angle to each other, and two sides of the triangle crossing each other to form one of its apexes, one of said sides being of sufficient length and bent to form two arms of the safety-pin, and the other side being shorter and bent twice at substantially a right angle to bring its outer end in a plane parallel with that of the arms of the safety-pin, to form a support for the cap of the safety-pin, and the crossing sides of the triangle being unsecured and separable at the point of crossing, substantially as and for the purpose described.

592,480. PNEUMATIC-TIRE FASTENER. HORATIO A. PORTER, Holyoke, Mass., assignor of one-half to T. B. Flanders, same place. Filed Mar. 31, 1897. Serial No. 630,126. (No model.)



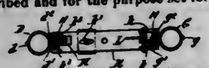
Claim.—1. In combination, a tire having headed studs or pins at intervals in its length, a rim, plates separate and independent of the rim and placed against the outer side thereof and having pairs of openings, one set of openings receiving the headed pins or studs, and spoke-nipples passing through the other set of openings and through corresponding openings in the rim and serving in conjunction with the spokes as means for securing the plates in position on the rim, and the plates in turn providing washers for the heads of the spoke nipples to prevent them from pulling through the rim, substantially as set forth.

2. In combination, a tire, pins or studs secured to the tire and having their projecting ends headed, a rim having recesses at intervals in its outer side, plates seated in the said recesses and coming flush with the outer side of the rim and having pairs of openings, one set of openings receiving the headed ends of the said pins or studs, and spoke-nipples passing through the other set of openings and through corresponding openings in the rim, and serving in conjunction with the spokes as means for securing the plates in position on the rim and the plates in turn providing washers for the heads of the spoke-nipples to prevent them from pulling through the rim, substantially as specified.

592,481. BICYCLE-LOCK. CARROLL H. REED, New York, N. Y. Filed Oct. 21, 1895. Serial No. 566,434. (No model.)

Claim.—1. A bicycle-lock, the same comprising rings or bands D and G, hinged respectively at *d*, and *g*, and each of which is pro-

vided respectively with jaws f' and f^2 and d' and d^2, bolts H, plate K having jaws k, and k^2 longitudinal slots k' adapted to receive a bolt k^2, springs L, lock M; and latch m, combined substantially as shown and described and for the purpose set forth.

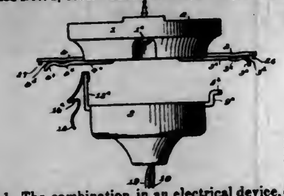


2. A bicycle-lock, comprising two rings or bands, which are adapted to be detachably connected with the rods which compose one of the forks, of the machine, and each of said rings or bands being provided with jaws, which project inwardly, a plate pivoted or hinged to one of said rings or bands, and adapted to be locked to the opposite one, and to be passed between the spokes of one of the wheels, said plate being provided at each end with upwardly-directed jaws which conceal the jaws formed on the rings or bands, and means for locking the plate in position, said plate being provided at its pivoted or hinged end with a spring which is adapted to hold it adjacent to the rod, with which it is connected, when the lock is not in operation, substantially as shown and described.

3. A bicycle-lock, comprising two rings or bands, which are adapted to be detachably connected with the rods which compose one of the forks, of the machine, and each of said rings or bands being provided with jaws, which project inwardly, a plate pivoted or hinged to one of said rings or bands, and adapted to be locked to the opposite one, and to be passed between the spokes of one of the wheels, said plate being provided at each end with upwardly-directed jaws, which conceal the jaws formed on the rings or bands, and means for locking the plate in position, said plate being provided at its pivoted or hinged end with a spring which is adapted to hold it adjacent to the rod with which it is connected when the lock is not in operation, said plate being also composed of sections, which are longitudinally adjustable, substantially as shown and described.

4. A bicycle-lock, comprising two rings or bands, which are adapted to be detachably connected with the rods which compose one of the forks, of the machine, and each of said rings or bands being provided with jaws, which project inwardly, a plate pivoted or hinged to one of said rings or bands, and adapted to be locked to the opposite one, and to be passed between the spokes of one of the wheels, said plate being provided at each end with upwardly-directed jaws, which inclose the jaws formed on the rings or bands and means for locking the plate in position, said plate being provided at its pivoted or hinged end with a spring which is adapted to hold it adjacent to the rod with which it is connected when the lock is not in operation, and said plate being also composed of sections, which are longitudinally adjustable, and the jaws formed on said rings or bands, being united by bolts or nuts, and the shoulders formed on each end of said plate, being adapted to conceal said bolts or nuts when the lock is not in use, substantially as shown and described.

592,482. CEILING-BLOCK. THOMAS C. SWINNERTON, Bridgeport, Conn. Filed Nov. 2, 1896. Serial No. 610,807. (No model.)



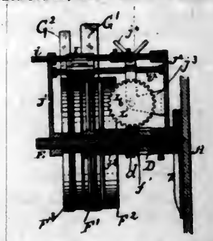
Claim.—1. The combination, in an electrical device, of the character described, of a two part box supporting the line-wires and lamp-wires, consisting of a fixed block, spring-contact clamps secured thereto and projecting without the same to receive the line-wires, a cap carrying the lamp-wires, said cap detachably secured to said fixed block by means of a lug or projection detachably secured to one of the said spring-contact clamps, and a spring-catch secured to the other of said contact-points, substantially as set forth.

2. The combination, in an electrical device, of the character described, consisting of a fixed block and a removable cap therefor, spring-contact clamps secured to the fixed block and projecting from the sides thereof to receive the line-wires between the meeting faces of such spring-contact clamps, said cap carrying a lug or projection to operate as a hinge to engage with one of the spring-contact clamps and be detachably secured thereto, a spring-catch adapted to engage the other spring-contact clamp so that when the cap is attached to said block electrical connection is made with the lamp-wires, for the purpose set forth.

3. In an electrical device, of the character described, comprising a fixed block, self-acting spring-contact plates adapted to hold the line-wires, a detachable cap carrying the lamp-wires, and a hinge member detachably secured to one of the said spring-contact plates and a self-acting spring-catch adapted to engage with the other of said spring-contact plates, for the purpose set forth.

4. The combination, in an electrical device, of the character described, of a fixed block and a removable cap carrying the lamp-wires, spring contact clamps projecting without the said block to receive the line-wires, each of said clamps secured thereto by a single screw, the said removable cap-carrying hinge and spring-catch members to engage with the said spring-contact clamps, each member secured to the cap by a single screw, clamping-plates intermediate of such members and also secured to the cap by a single screw, the ends of the fuse and lamp wires adapted to be held beneath said clamps and hinge and catch members, for the purpose set forth.

592,483. REVERSING-GEAR. JOSEPH H. THERIEN, San Francisco, Cal. Filed Oct. 26, 1896. Serial No. 610,144. (No model.)



Claim.—1. A stationary shaft, a pinion placed thereon, and having a sleeve made integral therewith; and a tight pulley mounted upon said sleeve, combined with belts which run in opposite directions, and which are adapted to be shifted back and forth upon the pulleys; a wheel which meshes with said pinion, two loose pulleys placed upon opposite sides of the tight one, one of the loose pulleys being provided with a hub; a worm mounted upon the hub, a worm-wheel which is operated by the worm, and a belt-shifting mechanism which is operated by said worm, substantially as shown.

2. A stationary shaft, a pinion mounted thereon, and having formed integral therewith, a sleeve, a tight pulley secured to the outer end of said sleeve, and a wheel which meshes with the pinion, and operates the washing-drum; combined with two loose pulleys placed upon opposite sides of the tight one, the inner one of the loose pulleys being provided with a hub, a worm secured to the hub, a worm-wheel which meshes with the worm and is provided with a wrist-pin; a traveler operated by the wrist-pin, two belts which run in opposite directions, and a belt-shifting mechanism which shifts the belts upon the pulleys, substantially as described.

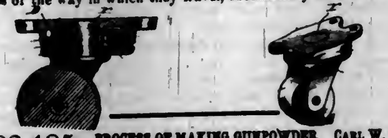
3 A stationary shaft, a pinion placed thereon, and provided with a sleeve that is made integral therewith, a tight pulley, which is secured to the outer end of said sleeve, two loose pulleys placed upon opposite sides of the tight one, the inner one of the loose pulleys being provided with a hub, a worm secured to said hub, a worm-wheel which is operated by the worm and provided with a wrist-pin, two belts which revolve in opposite directions, a traveler placed upon a slidable support, and which is moved back and forth by the wrist-pin, upon the said worm-wheel, and a belt-shifting mechanism by means of which the belts are shifted back and forth upon the pulleys, substantially as specified.

4. In a belt-shifting mechanism, a stationary shaft, a pinion placed thereon and provided with a sleeve which is made integral therewith, a tight pulley secured to the outer end of the sleeve, two loose pulleys placed upon opposite sides of the tight one, two belts of different widths and which run in opposite directions, and a belt-shifting mechanism connected with the belts, combined with a worm placed upon the inner end of the hub of the inner loose pulley, a worm-wheel which is operated by this worm, and is provided with a wrist-pin, a traveler supported upon suitable rods and which is operated by the wrist-pin, a slidable rod, a lever connected thereto, and which is adapted to engage with the traveler, and which slidable rod operates the belt-shifter, substantially as shown.

592,484. CASTER. WILLIAM H. TUCKER, Indianapolis, Ind., assignor to the Phœnix Caster Company, same place. Filed Apr. 3, 1897. Serial No. 630,503. (No model.)

Claim.—A caster composed of a bearing-plate having a central hollow stem and an annular flange extending down therefrom at a distance from said stem, leaving an annular way or space between them, the housing carrying the wheel, said hollow stem extending through an opening therein and being secured thereto by the rivet r, an annular flange formed on the top of the housing-plate a distance

within the flange on the bearing-plate, a ring loosely mounted on the top of said flange and extending to near the flange of the bearing-plate, recesses being formed at intervals around its edge, the antifriction-wheels D mounted in said recesses, and a flange extending upward from the top of said ring in line with the flange of the bearing-plate, whereby supporting-walls for said wheels are formed on both sides of the way in which they travel, substantially as set forth.

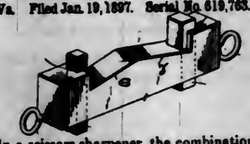


592,485. PROCESS OF MAKING GUNPOWDER. CARL W. VOLNEY, New York, N. Y. Filed Oct. 31, 1895. Serial No. 567,586. (No specimens.)

Claim.—The method of providing grains of gunpowder, containing trinitrocellulose, with a surface coating of dinitrocellulose by reducing the trinitrocellulose upon such surface to dinitrocellulose by reducing agents, such as alkaline sulfites, as hereinbefore described

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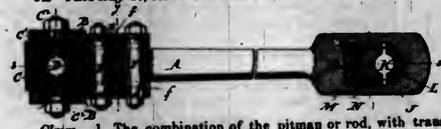
592,486. DEVICE FOR SHARPENING SCISSORS. JOHN T. BORDEN, Norfolk, Va. Filed Jan. 19, 1897. Serial No. 619,763. (No model.)



Claim.—1. In a scissors-sharpener, the combination with a suitable base, provided with a recess having oppositely-facing inclines and vertical walls, of an independent sharpening device of different degrees of fineness, located at the respective intersecting points of the inclines and the vertical walls of the recess, substantially as described.

2. In a scissors-sharpener, the combination with a base provided with vertical passages and a recess having its bottom formed into oppositely-facing inclines, of a file and whetstone applied in the respective vertical passages so as to project into the recess of the base and thumb-screws passing through said base and adapted to engage said file and whetstone respectively to hold the same in their adjusted positions, substantially as described.

592,487. CONNECTING-ROD. MICHAEL COUGHLIN, Philadelphia, Pa. Filed Aug. 25, 1896. Serial No. 603,866. (No model.)



Claim.—1. The combination of the pitman or rod, with transverse adjustable brasses at each end of the pitman or rod the brasses at one end being hinged to the pitman or rod on a transverse axis at right angles to the bearing and the box at the other end being fitted to the pitman or rod and movable upon a longitudinal axis.

2. The combination of the connecting-rod or pitman with brasses, a pivoted box or support for one of the brasses having its axis of oscillation at right angles to the journal-bearing of the brass and adjustably secured upon one end of the connecting-rod, a curved seat for the other brass formed in the end of the connecting-rod.

3. The combination of the connecting-rod or pitman with brasses, a pivoted box or support for one of the brasses having its axis of oscillation at right angles to the journal-bearing of the brass and adjustably secured upon one end of the connecting-rod, a curved seat for the other brass formed in the end of the connecting-rod and adjusting devices for moving the pivoted box or support to or from the curved seat.

4. The combination of the connecting-rod or pitman, with two independent end plates adjustably clamped to the rod to form a longitudinally-adjustable fork, a box pivoted between the plates upon transverse journals, and brasses carried by the box.

5. The combination of the connecting-rod or pitman, with two end plates adjustably clamped to the rod to form a fork, transverse clamping and adjusting bolts extending through the rod and respectively acting upon the plates to adjust and hold them longitudinally upon the rod, a box pivoted between the plates, and brasses carried by the box.

6. The combination of the connecting-rod or pitman, with two end plates adjustably clamped to the rod to form a fork, clamping-plates having wedge or inclined surfaces or parts for holding the end plates, transverse clamping and adjusting bolts extending through the rod and clamping-plates and respectively acting upon the plates to adjust and hold them longitudinally upon the rod, a box pivoted between the plates, and brasses carried by the box.

7. The combination of the connecting-rod or pitman, with two end plates adjustably clamped to the rod to form a fork and having ribs H, transverse clamping and adjusting bolts extending through the rod and respectively acting upon the plates to adjust and hold them longitudinally upon the rod, a box pivoted between the plates, and brasses carried by the box.

8. The combination of the rod A, end plates B, B having ribs H, pivoted box C having journals in said end plates, and clamping-bolts F, F, having the inclined surfaces f acting upon the plates, and brasses D between the box and end of the rod.

9. The combination of the rod A, end plates B, B, having ribs H, and grooves G having inclined bottoms, pivoted box C having journals in said end plates, clamping-plates E, E, each having inclined ribs I fitting into the grooves G, and clamping-bolts F, F, having the inclined surfaces f acting upon the plates and extending through the clamping-plates, and brasses D between the box and end of the rod.

10. The combination of the rod A, the end plates B, B, adjustably secured to the rod and having circular bearings upon their extended ends, a box C having bearings C adapted to said circular bearings, and brasses carried by said box.

11. The combination of the rod A having a curved seat d in its end, the end plates B, B, adjustably secured to the rod and having circular bearings upon their extended ends, a box C having trunnions c c and bearings C adapted to said circular bearings, clamping-nuts C^2 for the screw-threaded trunnions c, and brasses carried by said box and extending to the curved seat in the rod.

12. The combination of the rod A, end plates B, B, brasses held to the end of the rod by the end plates and clamping and adjusting screws F, F, extending through the rod and having inclined or cam surfaces f adapted to act respectively upon the end plates to move them longitudinally upon the rod for adjusting the brasses.

13. The combination of the rod A, end plates B, B, having grooves formed with inclined bottoms, brasses held to the end of the rod by the end plates, clamping-plates E, E, having inclined ribs I fitting the grooves, and clamping and adjusting screws F, F, extending through the rod and clamping-plates and having inclined or cam surfaces f adapted to act respectively upon the end plates to move them longitudinally upon the rod for adjusting the brasses.

14. In a pitman or connecting-rod, the combination of the rod, with brasses at each end provided with parallel transverse holes or bearings and pivoted or journaled to the rod the brasses on one end being pivoted or journaled at right angles to the length of the rod and those at the other end being pivoted upon an axis parallel to the length of the rod and transversely to the hole or bearing.

15. The combination of the pitman-rod, with brasses secured to the end thereof and provided with a transverse hole or bearing always maintained at right angles to the length of the pitman and journaled upon a longitudinal axis whereby the brasses rotate only upon an axis parallel with the length of the rod and means to hold the brasses against movement except at right angles to the length of the pitman.

16. The combination of the pitman-rod, split brasses secured to the end thereof by a journal permitting rotating motion only on a longitudinal axis whereby the bearing therein is always maintained at right angles to the length of the pitman, and a gib and key device fixed to the pitman and having a movable joint with the brasses for adjusting the brasses to compensate for wear and holding them against movement excepting transversely to the length of the pitman.

17. The combination of the rod A having looped end J, brasses K movable within said looped end about a longitudinal axis only, a gib N fitted transversely to the pitman-rod and directly acting upon the brasses, and a key M for adjusting the gib.

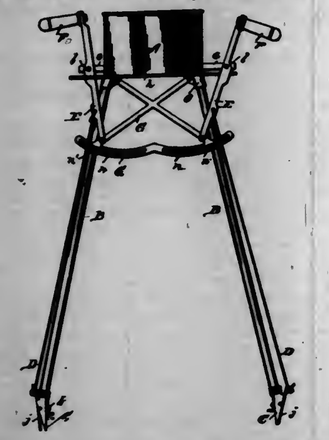
592,488. PNEUMATIC SADDLE FOR BICYCLES. HERBERT B. EWBANK, Sr., Baltimore, Md., assignor, by direct and mesne assignments, to Julia F. Ewbank and Elizabeth D. Crawford, same place. Filed July 6, 1896. Serial No. 598,078. (No model.)



Claim.—In a pneumatic saddle for bicycles the combination of a plate provided with seat-sockets each having a surrounding flange projecting horizontally inward toward the socket and forming an undercut groove; a flexible exterior cushion-case having an outwardly-projecting flange which engages the said undercut groove; and an

air-bag inclosed within said cushion-case and having inner stay-strips connecting the top and bottom surfaces of the air-bag, whereby the air-bag may be inflated without liability of disengaging the flanges of the exterior case from the grooves of the seat-socket, as set forth.

592,489. HAND CORN-PLANTER. THOMAS S. FAIR, Detroit, Mich. Filed June 24, 1897. Serial No. 642,043. (No model.)



Claim.—1. A hand-planter comprising a central hopper, seed-conducting tubes extending downwardly therefrom and provided at their lower ends with planting-points, seed bars or valves controlling the exit of seed from the hopper to the tubes, and handles or levers at opposite sides of the hopper and connected with the seed bars or valves and with the movable members of the planting-points, substantially as described.

2. The combination in a hand-planter, with the central hopper and the conducting-tubes leading down from opposite sides thereof, of horizontal bars or valves extending through opposite sides of the hopper and controlling the exit of seed to the conducting-tubes and vertically-extending hand-levers pivoted at opposite sides of the hopper and pivotally connected to the respective seed-dropping bars or valves, substantially as described.

3. The combination in a hand-planter with the central hopper having the depending seed-conducting tubes and a valve mechanism for delivering seed into each of said tubes, of hand-levers at opposite sides of the hopper and operatively connected with said valve mechanisms, substantially as described.

4. A hand corn-planter comprising, a central hopper, seed-conducting tubes depending therefrom and terminating at their lower ends in planting-points provided with doors, seed-bars extending through opposite sides of the hopper and controlling the exit of seed from the hopper to the tubes, vertically-extending hand-levers pivoted below the seed bars or slides and connected at their middle portions to the outer ends of the seed-bars, and wires or rods connecting the levers below the seed-bars with the doors of the planting-points, substantially as described.

5. The combination with the hopper, its valves and hand-levers, of the hinged conducting-tubes and the collars *o o* sliding on the hinged ends of the tubes to close any opening between the tubes and hopper due to the adjustment of the former, substantially as described.

6. The combination with the conducting-tube having serrations at its lower end, of a planting-point adjustable at an angle to the tube and having a tooth to engage said serrations, substantially as described.

7. The combination with the seed-dropping mechanism and the depending conducting-tubes having serrations at opposite sides of their lower ends, of planting-points having inwardly-extending teeth at opposite sides of their upper ends to interlock with the serrations and hold the points at any desired angle, substantially as described.

8. The combination with the conducting-tube having a transverse hub on its lower end provided with serrated ends, of a planting-point embracing said hub with its upper end and there provided with teeth engaging said serrations, and retaining-screws, substantially as described.

9. A hand-planter comprising a hopper, having opposite outlets, a frame on which the hopper is mounted, lugs or brackets on the under side of the frame adjacent to said hopper-outlets, a depending brace having its lower portion provided with curved slots, seed bars sliding through opposite sides of the hopper and feeding the seed to said outlets, conducting-tubes hinged to said lugs or brackets and provided with adjusting bolts or clips extending through said curved slots and having retaining-nuts, planting-points on the lower ends of the tubes and provided with pivoted doors, hand-levers pivoted at their lower ends to the brace and at their middle portions pivoted to the seed-bars, and rods connecting said levers with said pivoted doors, substantially as described.

10. The combination with the seed-hopper having in its bottom a central opening *g* and an overlying shield *g'*; seed-outlets being provided at opposite sides of the hopper-bottom and cut-offs above the outlets, of opposite, sliding seed-bars extending through the sides of the hopper with their inner ends under said shield, openings *d* being formed through the seed-bars, and means for reciprocating said bars, substantially as described.

11. The combination with the hopper, its seed-bars and the opposite hand-levers connected to the seed-bars, of the conducting-tubes provided at their lower ends with planting-points adjustable at an angle to the tubes and provided with doors operatively connected to said hand-levers, substantially as described.

12. A seed-tube for hand-planters provided at its lower end with a planting-point adjustable at an angle to the tube whereby the point may be always perpendicular regardless of the inclination of the tube, substantially as described.

592,490. SODA-WATER CAN. JOHAN P. FANGEL, Brooklyn, N. Y. Filed Sept. 25, 1896. Serial No. 606,990. (No model.)



Claim.—A can or pitcher consisting of a body portion 1 having a handle, a spout at the upper end of the body portion and opposite said handle, two passages leading through said spout and communicating with the body portion of the vessel, an upright partition providing said body portion with two chambers and extending from a point between the inner ends of the passages in said spout to the opposite side of the body portion, an overhanging ledge 5 at the top of the vessel and adjacent said spout and partially closing the upper end of the vessel, and a cover 6 to fit within the open upper end of said vessel.

592,491. NON-REFILLABLE BOTTLE. JOHN J. HANLON, Allentown, Pa. Filed Jan. 4, 1897. Serial No. 617,876. (No model.)



Claim.—1. A non-refillable bottle having a peripheral bead on the neck thereof, a ridge on said neck above said bead and a recess in said neck above said bead, a cap having a vertically-extending groove in the inner face of one side thereof, to receive said ridge, and a spring connected at one end to the inner side of said cap and having its free end projecting upwardly and adapted to enter the recess in said neck, said cap being seated on said bead and closing the upper end of said neck.

2. A non-refillable bottle having the peripheral bead C on the neck thereof, a vertically-extending ridge D on the outer side of said neck above said bead and a recess in the outer wall of the opposite side of said neck above said ridge, the cap F adapted to be seated on said bead, closing said neck and provided with a groove E to receive said ridge, and a spring G to engage the walls of said recess T, and having a vertically-extending groove K in its outer wall between said spring and said groove.

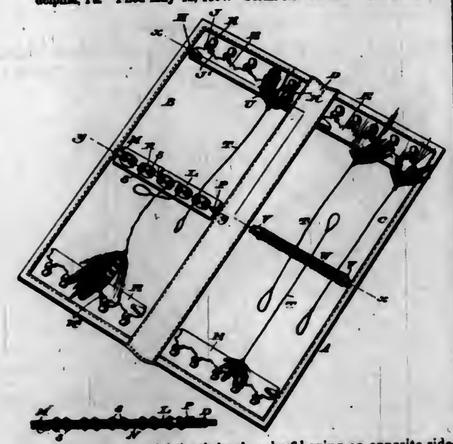
3. A non-refillable bottle having a peripheral bead on the neck thereof, a ridge and a recess on said neck above said bead, a cap having a longitudinally-extending groove in the inner face of a side thereof to receive said ridge, a spring interinediate said cap and the neck of said bottle and adapted to lock said cap in position, the latter being seated on said bead and closing the upper end of said neck.

592,492. CEMENT MANUFACTURE. VALDEMAR KJELDSEN, Pora, Germany. Filed Dec. 19, 1896. Serial No. 616,234. (No specimens.) Patented in England Sept. 3, 1895, No. 16,422.

Claim.—1. The described improvement in the manufacture of cement, consisting in adding to the raw material which is to compose the cement, a small quantity say three to five per cent. of manufactured cement.

2. The described improvement in the method of manufacture of cement, consisting in adding to the raw material which is to compose the cement, a small quantity say from three to five per cent. of manufactured cement, forming this compound into blocks, and subsequently burning the blocks and grinding the product.

592,493. FISH-HOOK BOOK. FREDRICK W. KLEBSER, Philadelphia, Pa. Filed May 12, 1897. Serial No. 636,155. (No model.)



Claim.—1. In a fish-hook book, a leaf having on opposite sides thereof hook-retaining strips, each of which is provided at one of its ends with an integral spur passing through said leaf and clenching upon the strip on the opposite side.

2. A fish hook book consisting of a leaf having on the upper and lower portions thereof, the strips E and G, the strip E having a spur F projecting therefrom and passed through said leaf and clenched upon the strip E, each of said strips having the lip J projecting therefrom, said lip being humped so as to form an eye for the engagement of a fish-hook.

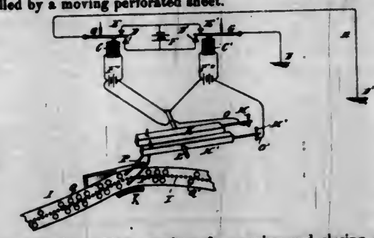
3. A fish-hook book having a leaf thereof provided with devices for holding hooks in position at either end thereof, in combination with an intermediate device for holding the snoods of said hooks in position, said intermediate device consisting of the strips L and N, the strip L having a spur M passed through said leaf and clenched on the strip N, while the latter has spurs Q and P passing through said leaf and clenched on the strip L, both said strips L and N having the cut-out portions R and the bent lips S for holding said snoods in position.

4. A fish-hook book having a leaf with hook-retaining strips at its upper and lower ends and an intermediate strip, each of said strips having a spur passing through said page and connecting it with a similar strip on the opposite side, the upper and lower strips having projecting lips with a deflected member and said intermediate strip having cut-out portions and bent lips.

592,494. TELEGRAPH-TRANSMITTER FOR OCEAN-CABLES. DAVID LYBON, New York, N. Y. Filed Mar. 16, 1895. Renewed Apr. 8, 1897. Serial No. 631,316. (No model.)

Claim.—1. In a system of telegraphy for ocean-cables, the combination with magnets for closing currents in the line in opposite directions, of local batteries in circuit with the magnets, circuit-closers for short-circuiting the said magnets, and means for automatically opening and closing said circuit-closers at predetermined intervals.

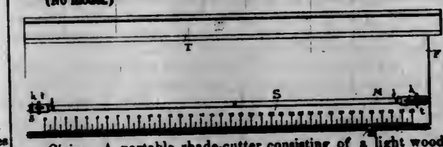
2. In a system of telegraphy for ocean-cables, the combination with magnets for closing currents in the line in opposite directions, of local batteries in circuit with the magnets, circuit-closers for short-circuiting the said magnets, and means for automatically opening and closing the said circuit-closers at predetermined intervals, said means consisting of levers connected with the circuit-closers and controlled by a moving perforated sheet.



3. A telegraphic transmitter for opening and closing different electric circuits, consisting of circuit-closers, adapted to be operated independently of each other, and held open by the action of springs against back stops, arms for the circuit-closers, a plate having grooves in the paths of the arms supporting a moving sheet, provided with two sets of perforations and located between the id arms and the said plate in such a manner that the arms are in the paths of the perforations.

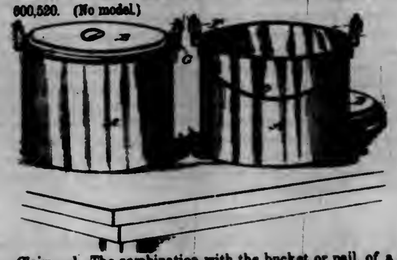
4. A telegraphic transmitter for opening and closing different electric circuits, consisting of circuit-closers, adapted to be operated independently of each other, and held open by the action of springs against back-stops, arms for the circuit-closers, a plate having grooves in the paths of the arms supporting a moving sheet, provided with two sets of perforations and located between the said arms and the said plate in such a manner that the arms are in the paths of the perforations, either circuit-closer being open when its arm is located in the groove and closed when held out of the groove by the paper.

592,495. MACHINE FOR CUTTING WINDOW-SHADES. EDWARD OSWALD, Johnstown, Pa. Filed Jan. 14, 1897. Serial No. 618,164. (No model.)



Claim.—A portable shade-cutter consisting of a light wooden frame having a vertical and a horizontal surface fixed together at a right angle, the edge of the latter projecting beyond the exterior surface of the former, a graduated scale fixed in position upon the horizontal surface, a metal rail fixed in close proximity and parallel to said scale, bearing-pieces perforated to receive the ends of a shade-roller sliding on said rail, a second rail fixed upon the vertical surface parallel to said scale but in a lower plane and a cutting edge adjustably supported on the last-named rail below the projecting edge of the horizontal surface, substantially as described.

592,496. COMBINATION PAIL-EAR AND SPRING-CATCH. CLINTON W. RAKER, Shamokin, Pa. Filed July 25, 1896. Serial No. 600,520. (No model.)



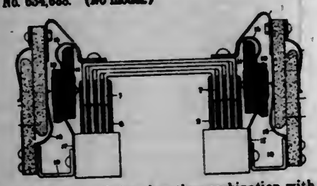
Claim.—1. The combination with the bucket or pail, of a combination ear and fastener comprising an ear proper and a spring integral therewith having an offset or shoulder at its lower end adapted to overlap the edge of the cover or top, said ear proper having an oblique perforation, and the bail or handle the eye or loop of which is passed through the perforation of the ear proper, said bail or handle being adapted to bear upon the spring when the bail is turned down, substantially as shown and described.

2. The combination with the bucket or pail, the combination ear and fastener attached thereto, and comprising the ear proper having

an oblique perforation and the spring-fastener integral with said ear proper, and having an offset or shoulder at its lower end, said spring-fastener being arranged to one side of the perforation in the ear, and the bail or handle having its eye or loop passed through said perforation whereby said bail or handle will operate upon the spring-fastener when turned in one direction and will not operate upon said fastener when turned in the opposite direction, substantially as shown and described.

3. The combination with a bucket or pail, of the ear and fastener fastened thereto, the upper portion of the ear proper having an oblique elongated perforation so as to permit the bail or handle to fall down to an inoperative position, thereby permitting the spring to hold the lid or cover in place until the bail is turned in the opposite direction for the purpose set forth.

592,497. CONTACT IN SHUNT FOR CIRCUIT-BREAKERS. WILLIAM M. SCOTT, Philadelphia, Pa., assignor to the Cutter Electrical and Manufacturing Company, of New Jersey. Filed May 1, 1897. Serial No. 634,688. (No model.)



Claim.—1. In a circuit-breaker the combination with the main contacts of carbon contacts in shunt for final separation with metal plates yieldingly attached to said carbons adapted to overlap the opposite contacting carbons respectively and to contact with said carbons upon the other sides from that of the carbon to carbon contact.

2. In a circuit-breaker the combination with the main contacts of carbon contacts in shunt for final separation with metal plates yieldingly attached to said carbons, each carbon and the plate attached thereto adapted to form a jaw to receive the opposite contacting carbon and hold the same in close contact.

3. In a circuit-breaker the combination with the main contacts of carbon contacts in shunt for final separation with metal plates yieldingly attached to said carbons each carbon and the plate attached thereto adapted to form a jaw to receive the opposite contacting carbon and hold the same in close contact, each carbon adapted to contact on one side only with the opposite contacting carbon and upon the other side with the metal plate attached to said opposing contacting carbon, the metal plates adapted to break contact with the carbons before the carbons break contact with each other.

4. In a circuit-breaker the combination with the main contacts of the supplemental metallic contacts in shunt, said metallic contacts seated in blocks of non-conducting infusible material, the contacting faces of which being flush with the contacting faces of the metallic contacts seated therein and continuing in the same planes respectively beyond the ends of the said metallic contacts, said supplemental metallic contacts arranged and adapted to separate after the separation of the main contacts and the faces of the non-conducting infusible blocks adapted to come together between the ends of the metallic contacts at the instant of their separation, and the carbon contacts in further shunt around the supplemental metallic contacts for final separation with metallic plates yieldingly attached to said carbons, each carbon and the metallic plate attached thereto adapted to form a jaw to receive the opposite contacting carbon and hold the same in close contact, each carbon adapted to contact on one side only with the opposite contacting carbon and upon the other side with the metallic plate attached to said opposing contacting carbon, the metallic plates adapted to break contact with the carbons after the separation of the supplemental metallic contacts and before the carbons break contact with each other.

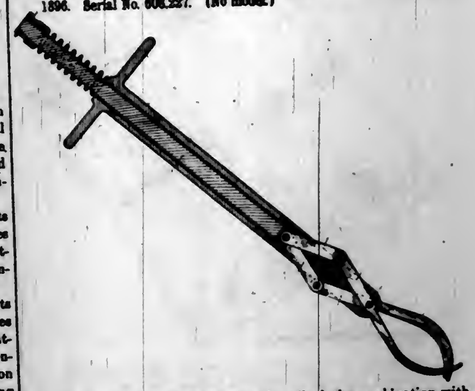
592,498. GAME APPARATUS. DANIEL SMITH, Griffin Corners, N. Y. Filed Oct. 24, 1896. Serial No. 609,917. (No model.)

Claim.—1. A game apparatus or puzzle of the kind described, consisting of a box having a tortuous or serpentine groove produced in the bottom thereof, said groove having recesses near the opposite ends, the recess at the forward end being covered, the recess at the rear end having a cover provided with an opening, and the spherical bodies of different sizes, substantially as shown and described.

2. In a game apparatus of the kind described, a shallow box having a tortuous or serpentine groove produced in the bottom thereof, which groove doubles upon itself one or more times, said groove having recesses near the opposite ends, the recess at the forward end having a cover and the recess at the rear end having a cover provided with a single opening, and the spherical bodies of different sizes, the opening in the recess-cover being of a size to permit the passage of the smaller body, and exclude the larger body, substantially as and for the purpose described.



592,499. SANITARY TONGS. JUDSON W. STEPHENS, Norfolk, Va., assignor of one-half to John W. Barclay, same place. Filed Oct. 8, 1896. Serial No. 608,227. (No model.)



Claim.—In a device of the class described, the combination with a tube having a slotted lower end, and having arms extending laterally from its upper end, of a reciprocatory rod within the tube extending upwardly therefrom, a helical spring encircling the projecting end of the rod, said end being threaded, an adjusting-nut in engagement with the spring, the opposite end of which latter bears upon the upper end of the tube, a combined cap and jam-nut upon the upper extremity of the rod in engagement with the nut, claw-levers crossed and pivoted within the slot of the tube, and links pivoted to the inner ends of the lever and to the lower end of the rod.

592,500. MACHINE FOR CLEANING FISH. GEORGE W. STEVENSON, Cramer's Hill, N. J., assignor of one-half to Theodore Lear, Camden, N. J. Filed June 25, 1897. Serial No. 642,233. (No model.)

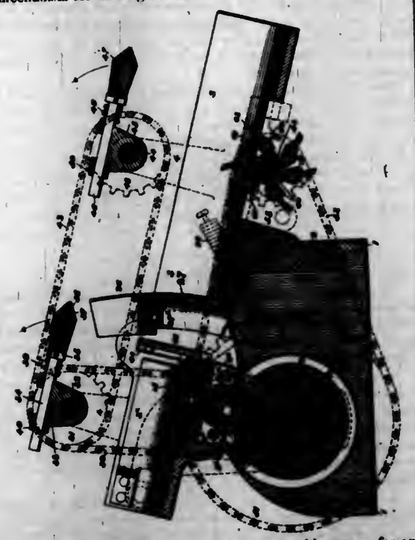
Claim.—1. In a machine of the character named, a receptacle for a fish, a knife automatically operated to cut the same, a transferrer in said receptacle, which is adapted to remove the cut-away portions of the fish and means which are suitably operated to remove the entrails of said fish.

2. In a machine of the character named, a receptacle for a fish, a knife suitably operated for cutting the same, a transferrer in said guide for removing the cut-away portions of the fish, mechanism suitably operated for removing the entrails thereof and means for removing the fish from the knife to said latter-mentioned mechanism.

3. In a machine of the character named, a guide adapted to receive a fish, a knife automatically operated to cut the same, a transferrer in said guide which is adapted to remove the cut away portions of the fish, a nose-piece or stop adjustably secured to said transferrer, mechanism suitably operated for removing the entrails of said fish and mechanism for removing the fish from the knife to said finger.

4. In a machine of the character named, a guide adapted to receive a fish, a knife automatically operated to cut the same, a transferrer in said guide which is adapted to act as a stop and to remove the cut-away portions of the fish, and fingers which are suitably operated to remove the entrails of said fish.

5. In a machine of the character named, a guide adapted to receive a fish, a knife suitably operated for cutting the same, a transferrer in said guide which is adapted to remove the cut-away portions of the fish, fingers suitably operated for removing the entrails thereof, and mechanism for moving the fish from the knife to said fingers.



6. In a machine of the character named, a table, means for operating the same, a knife mounted on said table, a guide adapted to receive the fish, said knife being adapted to enter said guide, means for holding said fish during the cutting, fingers suitably operated to remove the entrails of said fish, and arms having fingers thereon which are adapted to transfer the fish in said guide.

7. In a machine of the character named, a guide adapted to receive a fish, a power-shaft, a cam thereon, a table adapted to be operated by said cam, a knife carried by said table and means for holding said fish during the operation of cutting.

8. In a machine of the character named, a guide adapted to receive a fish, a power-shaft, a cam thereon, a table adapted to be operated by said cam, a knife on said table, means for holding said fish during the operation of cutting, and a transferrer adapted to act as a stop and be operated to remove the cut-away portions of the fish.

9. In a machine of the character named, a guide for the fish, a power-shaft, a table, means on said shaft for imparting motion to said table, a knife carried by said table, means for holding the fish during the cutting, a second shaft, mechanism thereon for removing the entrails of the fish, and means for imparting motion from one shaft to the other.

10. In a machine of the character named, a guide adapted to receive a fish, a power-shaft, a table, a knife for said table, mechanism on said power-shaft for operating said table, a transferrer in said guide adapted to be operated by said power-shaft, arms having fingers thereon mounted on a second shaft, and means for imparting motion thereto.

11. In a machine of the character named, a guide adapted to receive a fish, mechanism for holding said fish therein, a power-shaft, a table, means on said power-shaft for operating the same, a knife on said table, a transferrer, an elbow-lever secured thereto, means on said power-shaft for operating said elbow-lever, arms having fingers adapted to be operated in order to move the fish, a second shaft and fingers mounted thereon adapted to remove the entrails of said fish.

12. In a machine of the character named, a guide adapted to receive a fish, said guide having openings in the bottom thereof, spring-arms secured to said guide adapted to hold said fish, a table carried on suitable bearings, a power-shaft, means on said power-shaft for operating said table, a transferrer movable in said guide, means on said power-shaft for operating said transferrer, arms having fingers carried by suitable shafts, means for imparting motion to said shafts, and fingers carried by a shaft which are adapted to remove the entrails of the fish.

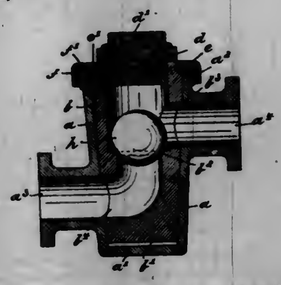
13. In a machine of the character named, a guide having openings in the bottom thereof, a power-shaft, a cam on said power-shaft, a table suitably mounted, provided with a stud which is adapted to move in a groove in said cam, a knife on said table which is adapted to operate in one of said openings in said guide, spring-arms extending partially over one of said openings, a transferrer moving in one of said openings and an elbow-lever suitably mounted, to which said transferrer is pivotally connected, means for returning said elbow-lever to its normal position, arms suitably mounted adapted to operate in order to remove fish from said guide, a shaft having fingers suitably mounted thereon adapted to operate in the other opening in said guide, and means for imparting motion to the last-mentioned shaft.

14. In a machine of the character named, a guide having openings therein, a power-shaft, a cam carried by said power-shaft, a table suitably supported and adapted to be operated by said cam, a knife carried by said table, an elbow-lever suitably supported and adapted to be operated by said power-shaft, means for returning said elbow-lever to its normal position, and a transferrer moving in an opening in said guide and pivotally attached to said elbow-lever, a shaft carrying an arm, means for imparting motion thereto, and fingers which are adapted to operate in an opening in said guide, said fingers being mounted on a shaft to which motion is imparted from said power-shaft.

15. In a machine of the character named, a guide adapted to receive a fish, a knife automatically operated to cut the same, a transferrer in said guide, which is adapted to remove the cut-away portions of the fish and elastic fingers adjustably mounted which are suitably operated to remove the entrails of said fish.

16. In a machine of the character named, a guide adapted to receive a fish, a knife suitably operated for cutting the same, a transferrer in said guide, which is adapted to remove the cut-away portions of the fish, fingers suitably operated for removing the entrails thereof, elastic fingers suitably mounted on the arm which is operated and moves the fish from the knife to said fingers and springs mounted on said arm.

592,501. PLUG CHECK-VALVE FOR BOILERS. GEORGE S. THOMPSON, New York, N. Y. Filed Mar. 25, 1896. Serial No. 584,744. (No model.)



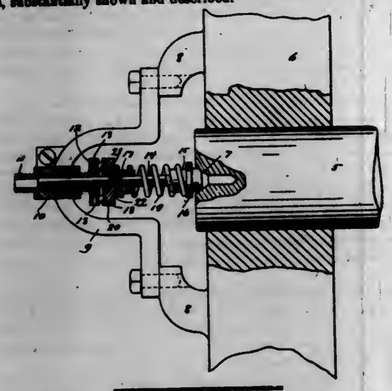
Claim.— The combination, in a plug check-valve, of the casing *a*, having a closed lower end *a'*, and inlet and outlet openings, a conical hollow plug *b*, adapted to turn in said casing and having an opening in its upper end and openings in its wall adapted to register with the openings in the casing, a screw-cap *d'*, adapted to normally close the upper end of said plug, a ball-valve *h*, adapted to be introduced through the opening in the upper end of the plug and to seat itself in the interior of the plug, a ledge *e*, formed on the periphery of the plug, a clamping-ring *f*, adapted to slip over the cap *d'* and the upper end of the plug and to be screwed down on the casing *a*, toward the ledge *e*, a packing *f''*, interposed between the casing and ring, and a washer interposed between the ledge *e*, and said ring, all arranged so that said ball-valve may be removed from the interior of the plug without disturbing said packing and packing-ring and said packing may be removed without removing said plug or ball-valve, substantially as described.

592,502. SUPPORT FOR ARMATURE-SHAFTS. WILLIAM R. THOMPSON, South Norwalk, Conn. Filed Apr. 26, 1897. Serial No. 633,937. (No model.)

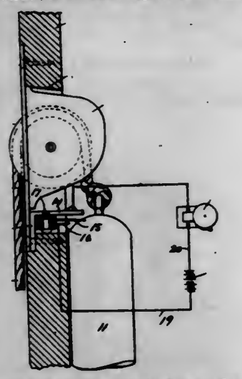
Claim.—1. The combination with the supports of an armature-shaft, of a yoke secured thereto, a tubular screw-threaded shaft passing through said yoke, and a supplemental spring-operated shaft passing thereinto, and adapted to bear on the armature-shaft, substantially as shown and described.

2. The combination with the supports of an armature-shaft, of a yoke secured thereto, a tubular screw-threaded shaft passing through said yoke, and a supplemental spring-operated shaft passing thereinto, and adapted to bear on the end of the armature-shaft, said supplemental spring-operated shaft being provided with a sleeve which is mounted thereon, and with a head which is formed on said sleeve, and said screw-threaded tubular shaft being also provided with a

head between which and the head formed on the sleeve are ball-bearings, substantially shown and described.



592,503. AUTOMATIC ELECTRIC ALARM DEVICE. PAUL V. VANDEVELDE, Corona, N. Y. Filed July 26, 1897. Serial No. 646,085. (No model.)



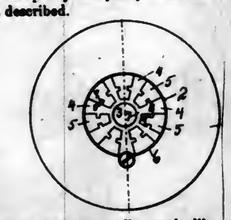
Claim.—1. The combination with the frame and sash of a window of an electrical-alarm device comprising a contact-point mounted in said frame, a spring-brush mounted adjacent thereto and adapted to rest normally in contact therewith, said contact-point and brush being in electrical connection with the circuit whereby the circuit is completed when the said brush is in engagement with the said contact-point, the brush being held out of contact with the said contact-point by the sash-weight when the sash is in a closed position, for the purpose set forth.

2. The combination with a window of an electrical-alarm device comprising a plate mounted in the window frame adjacent to the sash-cord pulley, a spring-brush in contact therewith and projecting into the chamber in which the sash-weight moves, a contact-point mounted adjacent to said spring-brush and normally in contact therewith, said contact-point being insulated from the said first plate and spring brush, said first plate and contact-point being in electrical connection with the circuit which is provided with an electric gong, the said spring-brush being so constructed that it will be engaged by the sash-weight when the window is closed and raised out of contact with said contact-point whereby the circuit is broken when the sash is closed and closed by the operation of the sash, substantially as and for the purpose described

592,504. BUSHING FOR PULLEYS, JOURNALS, &c. JAMES D. ADAMS, Wabash, Ind. Filed Feb. 25, 1897. Serial No. 625,010. (No model.)

Claim.—1. A pulley or the like, a detachable core or bushing for the same comprising sets of alternate longitudinal sections made of different materials, one of which sets has capillary passages, said sections extending the length of the bushing and having their inner faces flush, or continuous with each other circumferentially, and provided with a lubricant-receptacle extended transversely around the exterior of the bushing, and a passage extending from the exterior of the pulley for charging said receptacle, substantially as described.

2. A detachable core or bushing for a pulley or the like comprising sets of alternate longitudinal sections made of different materials, one of which sets has capillary passages, said sections extending the length of the bushing and having their inner faces flush, or continuous, with each other circumferentially, and means for fastening the core in the pulley, said means consisting of a screw-bolt situated in the body of the pulley and having a head and securing-seat seated partly in the pulley and partly in the metal part of the core, substantially as described.



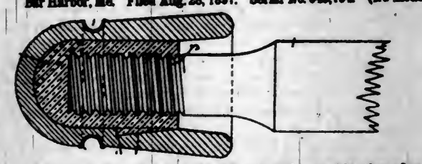
3. A core or bushing for a pulley or the like comprising a metal skeleton consisting of segmental sections joined by rings and wooden sections fitted between the metal sections, said sections extending the length of the bushing and having their inner faces flush circumferentially with each other and with the rings, substantially as described.

4. A core or bushing for a pulley or the like comprising a metal skeleton consisting of segmental sections joined by rings 7 and segmental wooden sections fitted between the metal sections, said sections having their inner faces flush with each other and with the rings circumferentially and having lateral wings or ribs fixed to a part of the sections and entered in recesses or slots in the adjoining sections, substantially as described.

5. A detachable core or bushing for a loose pulley or the like, comprising longitudinal segmental sections each having an inner face flush with those adjoining and the whole series adapted to bear on a shaft, a separable envelop surrounding the sections and means for detachably holding the envelop on the sections, substantially as described.

6. A detachable core or bushing for a loose pulley or the like, comprising longitudinal segmental sections each having an inner face flush with those adjoining and the whole series adapted to bear on a shaft, a separable envelop surrounding the sections, and means for detachably holding the envelop on the sections to confine a lubricating fluid, said sections having lubricating-passages, substantially as described.

592,505. ELECTRICAL INSULATOR. WELLINGTON BARBOUR, Bar Harbor, Me. Filed Aug. 28, 1897. Serial No. 649,794. (No model.)



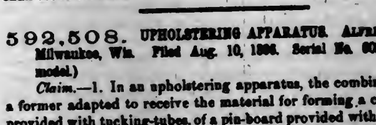
Claim.—1. In an insulator for line-wires, the combination of an inner cylinder of glass or other suitable insulating material provided with an internal screw, and external projections; with an outer covering of elastic material provided with a groove, as set forth.

2. In an insulator for line-wires, the combination of an inner insulator provided with an internal screw and external projections; with an outer covering of elastic material extending in the form of a petticoat below the said inner insulator, and provided with a groove, as set forth.

3. In an insulator for line-wires, the combination of an inner insulator of glass provided with an internal screw and external projections; with an outer covering of elastic material extending in the form of a petticoat below the said inner insulator, and provided with a groove lined by a ring of metal, as set forth.

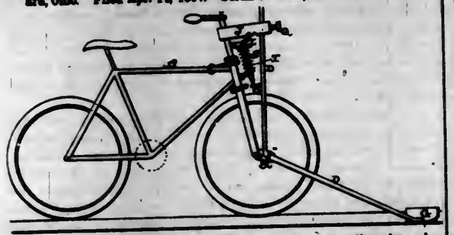
592,506. PIPE-HANGER. ALLAN J. BEATON, Southington, Conn., assignor to the Beaton & Bradley Company, same place. Filed Nov. 27, 1896. Serial No. 613,509. (No model.)

Claim.—1. A pipe-hanger comprising a flattened supporting-strap, a hanger-loop formed of a thin strip of flexible material the middle portion thereof being in the form of a circular loop with the projecting ends of the strip extending from said circular portion at an angle thereto and in the form of two straight shanks resting against the opposite sides of said supporting-strap, means for adjustably securing said shanks to said straps and a holding-ring at the angle formed by the junction of said circular and straight portions of the hanger to prevent the strip from straightening out substantially as described.



2. The herein-described hanger consisting of a long flattened supporting-strap, a hingeless hanger-loop formed of thin flexible metal bent into a circular form with long projecting shanks, said shanks having a series of perforations extending over a substantial part of their length and said strap having projections for engaging said perforations, a holding-cap fitted to engage and hold the top ends of said shanks in place above the cross-pin and the holding-ring fitted to engage and hold said shanks at their lower ends below said cross-pin, substantially as described.

592,507. RAILROAD-BICYCLE. CHARLES L. BLEDSOE, Howard, Ohio. Filed Apr. 14, 1897. Serial No. 632,132. (No model.)



Claim.—1. A bicycle, adapted for running upon railroad-tracks, combined with a loop attached to the guiding-post, a pivoted lever attached to the frame of the bicycle, and a guide or shoe attached to the front end of the lever, combined with a set-screw which passes through the loop and regulates the distance that the lever shall move forward, substantially as described.

2. A bicycle adapted to run upon the rails of a track, combined with a guiding-loop secured to the bicycle, a pivoted lever carrying a guide or shoe at its front end and a spring-actuated catch for holding the lever in position, substantially as set forth.

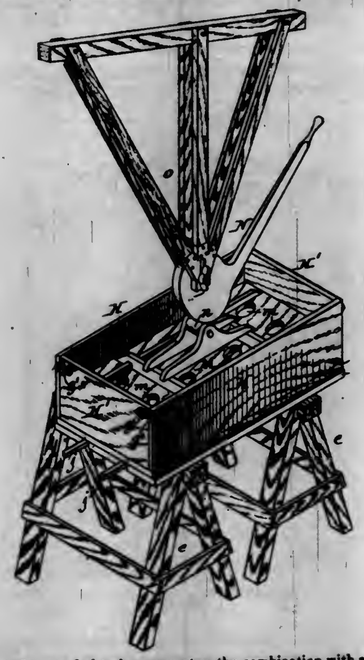
3. A bicycle adapted to move upon a railroad-track and a guiding-loop secured thereto, combined with a lever pivoted upon the bicycle, and which has a shoe or guide secured to its front end, and which lever is made to straddle the front wheel, a spring-actuated catch carried by the lever, and having its upper end to bear against the guiding-loop, and a set-screw passing through the front end of the loop to regulate the distance that the upper end of the lever shall move forward.

592,508. UPHOLSTERING APPARATUS. ALFRED FRENCH, Milwaukee, Wis. Filed Aug. 10, 1896. Serial No. 602,321. (No model.)

Claim.—1. In an upholstering apparatus, the combination with a former adapted to receive the material for forming a cushion and provided with tucking-tubes, of a pin-board provided with pins which enter said tucking-tubes and support the clench-nails within the same when said former is elevated and which have their upper ends provided with clamping-jaws between which the heads of the clench-nails are held, and means for forcing the cushion and former toward the pin-board, whereby the downward movement of the tucking-tubes with said former exposes the clench-nails clamped to the supporting-pins and the nails are driven into the cushion, substantially as set forth.

2. In an upholstering apparatus, the combination with a former adapted to receive the material for forming a cushion and provided with tucking-tubes, of a pin-board provided with pins which enter said tucking-tubes and support the clench-nails within the same when said former is elevated and which have elastic nail-holding jaws secured to their upper ends, and means for forcing the cushion and former toward the pin-board, substantially as set forth.

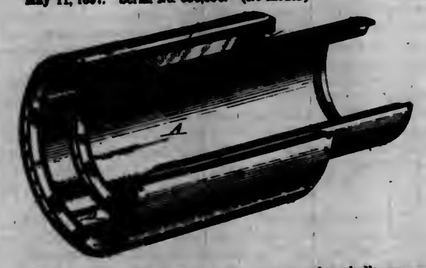
3. In an upholstering apparatus, the combination with a former adapted to receive the upholstering material for forming a cushion and provided with tucking-tubes, of a pin-board provided with pins which enter said tucking-tubes and support the clench-buttons within the same when said former is elevated, rigid supporting devices whereby said former can be rigidly supported above said pin-board to resist the pressure while the upholstering material is being compressed and which can be released, and means whereby the cushion and former can be forced toward the pin-board when said supporting devices have been released, substantially as set forth.



4. In an upholstering apparatus, the combination with a former adapted to receive the upholstering material for forming a cushion and provided with tucking-tubes, of a pin board provided with pins which enter said tucking-tubes and support the clench-buttons within the same when said former is elevated, pivoted cams which are adapted to support said former rigidly above the pin-board and which can be released to allow said former and the cushion resting thereon to move toward the pin-board, and means whereby said cushion and former can be forced toward the pin-board, substantially as set forth.

5. In an upholstering apparatus, the combination with a former adapted to receive the material for forming a cushion and having tacking-tubes, of upright side and end boards movably attached to the sides and ends of said former, a pin-board provided with pins which enter said tucking-tubes and support the clench-nails within the same when said former is elevated, and means whereby said former with its side and end boards and the cushion confined by the same can be forced toward said pin-board, substantially as set forth.

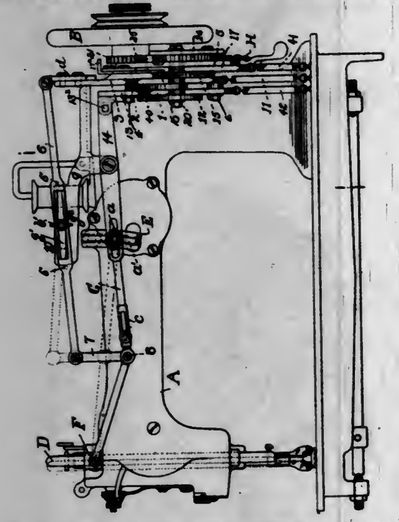
592,509. BOILER. GEORGE W. JOHNSON, Geneva, N. Y., assignor to the New York Central Iron Works Company, same place. Filed May 11, 1897. Serial No. 634,050. (No model.)



Claim.—1. A boiler consisting of two annular shells arranged one within the other with their water-spaces connected, the inner shell projecting at one end, and the outer shell projecting at the opposite end, whereby when set as shown, the products of combustion impinge upon the exterior of the outer shell, then pass between the two shells, and back through the interior of the inner shell, substantially as and for the purpose set forth.

2. A boiler consisting of two shells one within the other, the two shells having their water-spaces connected at opposite sides by oblong openings, and the inner shell being provided with an opening to serve as a direct-draft passage, substantially as shown and described.

592,510. SEWING-MACHINE. WILLIAM H. PARKER, Brooklyn, N. Y. Filed Feb. 20, 1896. Serial No. 579,995. (No model.)



Claim.—1. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, substantially as described.

2. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means for automatically varying the extent of the throw of aforesaid lateral vibrations of the needle-bar, substantially as described.

3. The combination with a sewing-machine having a needle bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means adapted to automatically vary the number of said lateral movements of the working position of said needle-bar, substantially as described

4. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means constructed to vary the extent of said lateral movements of the working position of the needle-bar, substantially as described.

5. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means constructed to automatically vary the extent and the number of said lateral movements of the working position of the needle-bar, substantially as described.

6. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, and means constructed to automatically vary the extent of aforesaid lateral vibrations and to automatically vary the extent and the number of aforementioned lateral movements of the working position of the needle-bar, substantially as described.

7. The combination with a sewing-machine having a needle-bar, means for vertically reciprocating the same, complemental stitch-forming mechanism, a cam, and operative means between the cam and the needle-bar for vibrating the latter laterally, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, substantially as described.

8. The combination with a sewing-machine having a needle-bar, means for vertically reciprocating the same, a complemental stitch-forming mechanism, a cam, and operative means between the cam and the needle-bar for vibrating the latter laterally, of an actuating pattern-cam, and operative means between said pattern-cam and the needle-bar constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, substantially as described.

9. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, a feed mechanism, and means for automatically increasing or decreasing the extent of the throw of the feed, substantially as described.

10. The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, a reversible feed mechanism, and means for reversing the feed mechanism and for changing the extent of movement of the feed mechanism on reversal, substantially as described.

11 The combination with a sewing-machine having a needle-bar, mechanism constructed to vertically reciprocate and laterally vibrate the said needle-bar, and a complemental stitch-forming mechanism, of means constructed to automatically move laterally the working position of the lateral vibration of said needle-bar, a reversible feed mechanism, and means for automatically increasing, decreasing and reversing for a predetermined number of stitches in one direction and a predetermined number of stitches in the opposite direction aforesaid feed mechanism, substantially as described.

12. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and aforesaid needle-bar, a second lever adjustable on its fulcrum and placed in operative connection with aforementioned toggle-joint, and means for actuating said second lever, substantially as described.

13. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and aforesaid needle-bar, a second lever adjustable on its fulcrum and placed in operative connection with aforementioned toggle-joint, a pattern-cam in operative connection with said second lever, and means for actuating said pattern-cam, substantially as described.

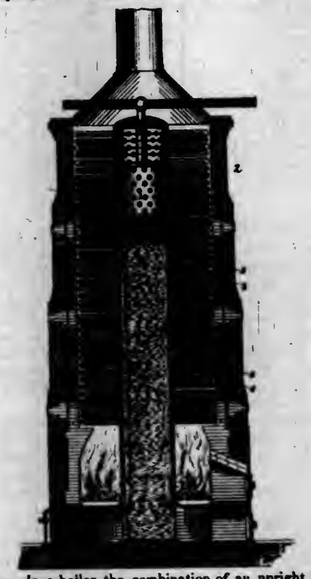
14. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and aforesaid movable needle-bar, a second lever adjustable on its fulcrum and placed in operative connection with aforementioned toggle-joint, a pattern-cam in operative connection with said second lever, a ratchet-wheel in operative connection with said pattern-cam, an adjustable pawl-lever for operating said ratchet-wheel, and an operative connection between the driving-shaft of the machine and said adjustable pawl-lever, substantially as described.

15. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said needle-bar and aforesaid vibratory segment-lever, a gear-wheel driven by the main shaft of the machine, an adjustable crank-pin on the side of said gear-wheel, a lever in operative connection with said adjustable crank-pin, a pawl on said lever, a ratchet-wheel engaged by said pawl, a cam circularly adjustable on the ratchet-wheel shaft, and an operative adjustable connection between said cam and aforesaid toggle-joint, substantially as described.

16. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connected between said vibratory segment-lever and aforesaid needle-bar, a ratchet-wheel mounted to turn loosely on a bearing, a second ratchet-wheel placed at the side of the first ratchet-wheel and fastened on a shaft running through the bearing on which the first ratchet-wheel is mounted, an adjustable pawl-lever in operative connection with the driving-shaft of the machine, a pawl on said lever, means constructed to cause said pawl to engage the ratchet-wheels intermittently and alternately for a predetermined number of strokes, a pattern-cam mounted on same shaft with the second ratchet-wheel, and an adjustable operative connection between said cam and the toggle-joint, substantially as described.

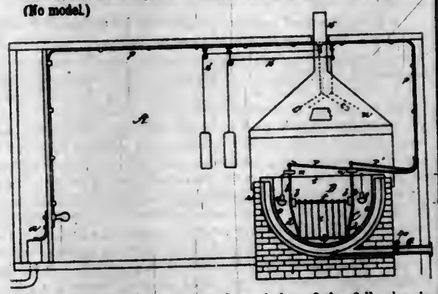
17. In a sewing-machine, the combination of a vertically-reciprocating and laterally-movable needle-bar, a vibratory segment-lever, a toggle-joint connection between said vibratory segment-lever and the needle-bar, two ratchet-wheels of different diameters, the smaller one being loosely mounted and the larger one being adjacent to the smaller and fastened on a shaft, means whereby said ratchet-wheels are caused to intermittently engage with each other, an actuating-pawl for engaging said ratchet-wheels, a pattern-cam mounted on the same shaft with the larger ratchet-wheel, one or more gaps in the periphery of aforesaid larger ratchet-wheel constructed to permit aforesaid actuating-pawl to engage intermittently and alternately with said ratchet-wheels, an adjustable lever connection between the toggle-joint and the pattern-cam, and adjustable means for closing the aforesaid gaps in the periphery of the larger ratchet-wheel so as to cause a continuous feed of said ratchet-wheel by the actuating-pawl, substantially as described.

592,511. TUBULAR BOILER. JAMES M. RICE, Scranton, Pa. Filed Apr. 6, 1897. Serial No. 631,005. (No model.)



Claim.—In a boiler, the combination of an upright cylindrical shell or casing having a series of tubes arranged in vertical lines and projecting radially therefrom, and closed at their outer ends, a manifold located within the shell or casing, a series of upright pipes disposed in parallel relation about and contiguous to the inner side of the shell and having connection with the said manifold, and a series of tubes located centrally within the radial tubes and having connection with the upright pipes, substantially as shown for the purpose described.

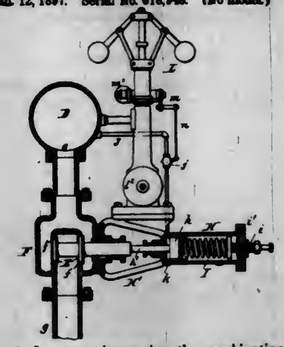
592,512. APPARATUS FOR TREATING OILS. NATHANIEL F. RYDER, Middleborough Mass. Filed Feb. 9, 1897. Serial No. 622,630. (No model.)



Claim.—1. A resistance-piece C consisting of the following instrumentalities, viz., a pair of parallel slabs *b* of non-conductive property, frames *l l* rising therefrom, standards *d d* for supporting the same, guide-rods *f f* extending between the slabs *b b*, guide-rods *h h* connecting the bottoms of the standards *d d*, metal transmission-coils *i i* and a series of wires *p p'* for making the circuit between the electric supply and the resistance-piece, as specified.

2. An oil-receptacle B having an enameled bottom *c*, a flue 18 thereunder, a cold-air pipe G communicating therewith, means of opening and closing the same, a cover *u* with mechanism for raising and lowering it, in combination with a resistance-piece C, an electric supply and their communicating wires *p p'*, constructed to operate in the manner and for the purpose set forth.

592,513. PUMPING-ENGINE. CLARENCE M. SCOTT, Buffalo, N. Y., assignor to the Snow Steam Pump Works of Buffalo, same place. Filed Jan. 12, 1897. Serial No. 618,948. (No model.)



Claim.—1. In a pumping-engine, the combination with the delivery having a by-pass and a valve controlling said by-pass, of a cylinder and piston whereby said valve is actuated, and a speed-governor whereby the admission of the actuating fluid to said cylinder and piston is controlled in such manner that said valve is opened when the speed falls to a certain point and closed when the speed rises above such point, substantially as set forth.

2. In a pumping-engine, the combination with the delivery having a by-pass, of a valve controlling said by-pass, a valve-actuating piston and cylinder, a spring tending to seat said valve, and a speed-governor whereby the supply of the actuating fluid to said cylinder is controlled, substantially as set forth.

3. In a pumping-engine, the combination with the delivery having a by-pass, of a valve controlling said by-pass, an actuating-piston connected with said valve, a cylinder in which said piston is arranged, a spring bearing against said piston and tending to seat said valve, a conduit for actuating fluid opening into the cylinder and provided with a cock, and a speed-governor connected with said cock, substantially as set forth.

592,514. KNOTTER FOR HARVESTERS. WILLIAM M. SHERTS, Defiance, Ohio, assignor of one-half to Michael Walz, same place. Filed Jan. 7, 1897. Serial No. 618,370. (No model.)



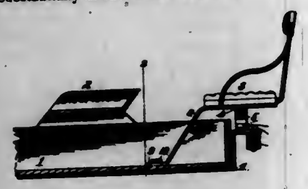
Claim.—1. In a knotter, the combination with a pair of nibs, one rigid and the other pivoted, of a pair of rigid cams, one fixed and the other adjustably connected with the frame of the machine for positively opening and closing the pivoted nib.

2. In a knotter, the combination with a plate having a hole therein, and provided with a depending cam-flange, of a rotary shaft having a nib fixed thereon, a nib pivoted beneath this nib and having a roller thereon, and a closing cam rigidly and adjustably connected with the plate and adapted to be set to close the pivoted nib.

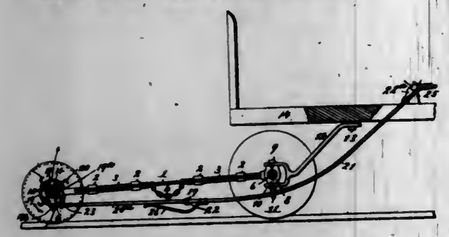
3. The combination with the frame of the machine, a twine-holder revolubly supported thereon, and a twine-stripper pivoted to the frame, of a knotter comprising a rotary shaft having a nib secured thereon and one pivoted thereon, and two rigid cams one fixed and the other adjustably attached to the frame.

592,515. DETACHABLE CHILD'S SEAT FOR BUGGIES. STEPHEN A. BAIR, Chillicothe, Mo., assignor of one-half to Marion J. Matthews, same place. Filed Aug. 5, 1896. Serial No. 601,774. (No model.)

Claim.—In combination, a buggy provided with a socket or clip on its bed, and clamping-bolts having elongated heads, carried by and projecting upwardly from the bed-irons, and a seat, provided with an angle-bracket engaging said socket or clip, and a bar having slotted arms engaged by the said clamping-bolts and resting upon said bed-irons, substantially as shown and described.



592,516. CAR-FENDER. JENNIE P. DUVAL, Kansas City, Mo. Filed May 28, 1897. Serial No. 638,662. (No model.)



Claim.—1. A car-fender, comprising a wheeled frame, a flexible fender or apron provided with guide-loops, bars mounted in said guide-loops and linked together at their opposing ends, and mounted upon the axles of the frame, a break-joint bar secured to a car and engaged with the rear end of said bar, substantially as and for the purpose set forth.

2. A car-fender, comprising a flexible fender or apron, provided with guide-loops at its side, bars engaging said guide-loops, chains connecting the opposing ends of said bars, shafts journaled in said bars at opposite ends of said fender or apron, wheels mounted upon said shafts and running upon the track-rails, a collar secured to the front shaft at its middle, a break-joint bar comprising two sections hinged together rearward of said chains, and one of them provided with a slot which engages the collar upon the front shaft, a guide-loop for the rear member, a spring secured to the rear member, and pressing upwardly against the front member, a bracket upon the car, and a spring-catch upon the rear member of the rod detachably engaging said bracket, substantially as described.

3. A car-fender, comprising a wheeled frame, a flexible fender or apron provided with guide-loops, bars mounted in said guide-loops and linked together at their opposing ends, and mounted upon the axles of the frame, a break-joint bar secured to a car and engaged with the rear end of said bar, a spring-catch secured to the rear end of the break-joint bar, and a bracket upon the car engaged by said catch, substantially as described.

4. A car-fender, comprising a wheeled frame, a flexible fender or apron provided with guide-loops, bars mounted in said guide-loops and linked together at their opposing ends, and supported by the wheeled frame, a rotating sleeve mounted upon the front axle of said frame and provided with arms having hooks so as to constitute a carrier, means to rotate the same, and a break-joint bar connecting the front end of said frame with the car, substantially as and for the purpose set forth.

592,517. PROCESS OF EXTRACTING SUGAR. WALTHER FELD, Hönningen-on-the-Rhine, Germany, assignor to the American Sugar Refining Company, New York, N. Y. Filed Apr. 6, 1896. Serial No. 586,435. (No specimens.)

Claim.—1. In the process of extracting sugar from molasses or other saccharifeious liquors by the use of barium compounds, the method of recovering from the waste lye the sulfur introduced in combination with barium, which consists in saturating the waste lye with carbonic acid, collecting the thereby-developed gaseous hydrogen sulfid and burning the same to sulfurous acid.

2. In processes of extracting sugar from molasses or other saccharifeious liquors by the use of barium compounds, the method of recovering the barium from the waste lye, which consists in first saturating the waste lye with carbonic acid and thereby forming barium carbonate; secondly, introducing a sulfur acid, thereby transforming the barium carbonate into a sulfur salt of barium; thirdly, separating the barium salt from the waste lye by filter-presses, and, finally, reducing it in a reverberatory furnace to barium sulfid, substantially as described.

3. In processes of extracting sugar from molasses or other saccharifeious liquors by the use of barium compounds whereby barium saccharate is formed, the method of recovering the barium, which consists in first mixing the barium saccharate with water; secondly, saturating the mixture with carbonic acid, and thereby forming barium carbonate; thirdly, separating the barium carbonate from the sugar solution; fourthly, mixing the barium carbonate with water; fifthly, introducing a sulfur acid and thereby transforming the barium carbonate into a sulfur salt of barium; sixthly, separating the resulting barium salt from the water, and finally, reducing it in a reverberatory furnace to barium sulfid, substantially as described.

4. The process of extracting sugar from molasses or other saccharifeious liquor by the use of barium compounds, as herein described, whereby the constituents of the compounds employed are recovered in suitable form for repeated use, which consists in treating a saccharine liquor with barium hydroxisulfid, thus forming barium saccharate; separating the barium saccharate from the waste lye; treating the waste lye and the barium saccharate separately with carbonic acid; separating the pure-sugar solution from the barium carbonate; burning the hydrogen sulfid obtained from the waste lye to sulfurous acid; treating the barium carbonate obtained from the saccharate and the barium carbonate present in the waste lye, with a sulfur acid and thereby forming a sulfur salt of barium, finally, reducing the resulting barium salt to barium sulfid, substantially as set forth.

592,518. PROCESS OF EXTRACTING SUGAR. WALTHER FELD, Hönningen-on-the-Rhine, Germany, assignor to the American Sugar Refining Company, New York, N. Y. Filed Aug. 18, 1896. Serial No. 603,105. (No specimens.)

Claim.—1. In processes for extracting sugar from molasses or other saccharifeious liquors by the use of barium compounds, the method of recovering from the waste lye the sulfur introduced in combination with barium, which consists in adding to the waste lye a sulfur salt of magnesium, then boiling the waste lye and collecting the thereby-developed gaseous hydrogen sulfid, and burning the same to sulfurous acid, substantially as described.

2. In processes for extracting sugar from molasses or other saccharifeious liquors by the use of barium compounds the method of recovering the barium from the waste lye, which consists in first boiling the waste lye with a sulfur salt of magnesium; secondly, saturating it with carbonic acid; thirdly, separating the resulting precipitate from the solution by filter-presses; fourthly, mixing said precipitate with water; fifthly, saturating the resulting mixture with a sulfur acid; sixthly, separating the resulting barium salt from said mixture by filtration, and, finally, mixing such barium salt with coal and reducing it in a reverberatory furnace to barium sulfid, substantially as described.

3. In processes for extracting sugar from molasses or other saccharifeious liquors by the use of barium compounds, whereby barium saccharate is formed, the method of recovering the barium which consists in first heating the barium saccharate with a sulfur salt of magnesium; secondly, saturating it with carbonic acid; thirdly, separating the precipitate from the solution; fourthly, mixing said precipitate with water; fifthly, saturating the resulting mixture with a sulfur acid; sixthly, separating the resulting barium salt from the mixture, and, finally, mixing such barium salt with coal and reducing it in a reverberatory furnace to barium sulfid, substantially as described.

4. The process of extracting sugar from molasses or other saccharifeious liquors by the use of barium compounds, as herein described, whereby the constituents of the compounds employed are recovered in suitable form for repeated use, which consists in treating a saccharine liquor with barium hydroxisulfid, thus forming barium saccharate; separating the barium saccharate from the waste lye; heating the barium saccharate with sulfur salt of magnesium and treating it with carbonic acid; separating the resulting sulfur salt of barium and the resulting magnesium carbonate from the remaining pure-sugar solution; heating the waste lye with a sulfur salt of magnesium; collecting the thereby-developed hydrogen sulfid and burning it to sulfuric acid; then treating the waste lye with carbonic acid; separating the resulting magnesium carbonate and sulfur salt of barium; treating said magnesium carbonate and sulfur salt of barium with a sulfur acid, preferably with the sulfurous acid yielded by the burning of the hydrogen sulfid, thereby producing a soluble sulfur salt of magnesium; separating the sulfur salt of barium, and, finally, reducing the thus-obtained barium salts to barium sulfid, substantially as set forth.

592,519. WHEEL-SCRAPER. JOHN R. GRAY, Liberty Hill, Tex., assignor of one-half to T. L. Gray, same place. Filed July 10, 1897. Serial No. 644,097. (No model.)

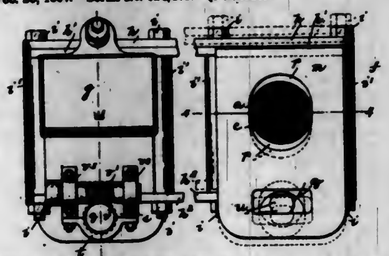


Claim.—1. A device of the class described comprising an adjustable supporting frame provided with means for attaching it to a vehicle, a transverse scraper-blade provided with slots, and side scrapers passing through the slots of the transverse scraping-blade and securing the same to the supporting-frame, substantially as described.

2. A device of the class described comprising a substantially L-shaped supporting-frame capable of longitudinal and transverse adjustment and provided with a longitudinal slot, the adjustable side scrapers having threaded shanks arranged in said slot and provided with nuts, and a transverse scraping-blade provided with openings receiving the said shanks, substantially as described.

3. In a device of the class described, the combination of an L-shaped supporting-frame comprising the longitudinally-disposed sections 5 and 6 adjustably connected together and the transverse sections 7 and 8 adjustable on each other and extending from the outer end of the section 6, the adjustable side scrapers, the transverse scraping-blade, and the inclined brace adjustably secured to the section 6, substantially as described.

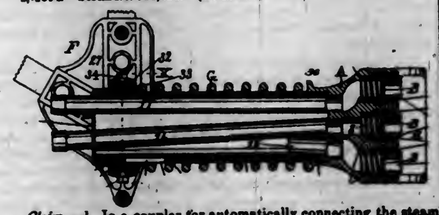
592,520. AXLE-BOX. WILLIAM HYDE, Philadelphia, Pa. Filed Feb. 20, 1897. Serial No. 624,479. (No model.)



Claim.—1. In combination with the axle of a railroad-car, an axle-box provided with a link capable of downward and upward movements, a spindle adapted to be rotated; a cam arranged on said spindle in engagement with said link and adapted to move said link down to bear on said axle, or to move it up to be clear of said axle, as required; spiral springs *w* located outside said axle-box; sockets *x* attached to said link; and sockets *y* attached to said axle-box, substantially as and for the purpose set forth.

2. In combination with the axle of a railroad-car, an axle-box provided with a link capable of downward and upward movements; a spindle adapted to be rotated; a cam arranged on said spindle, in engagement with said link and adapted to move said link down to bear on said axle, or to move it up to be clear of said axle, as required; springs located outside said axle-box and means for holding said springs at one point of the latter, in engagement with said link, and at another point in engagement with said axle-box, substantially as and for the purpose set forth.

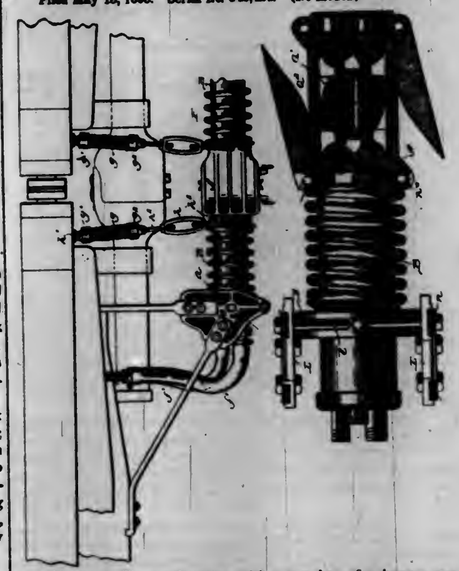
592,521. AUTOMATIC COUPLING FOR STEAM AND AIR PIPES FOR RAILWAY-CARS. JAMES R. MARBLE, Albany, N. Y. Filed Sept. 1, 1894. Serial No. 521,956. (No model.)



Claim.—1. In a coupler for automatically connecting the steam and air pipes of railway-cars, the combination of a coupler-head provided with a chamber or chambers arranged longitudinally therein and opening through the outer face of said head; the inner end of each chamber having an abutment that is integral with said head, a non-corrodible sleeve removably secured in a fixed position in each of said chambers and having a stop or shoulder in or near the outer end of its bore, a tubular joint-piece of a single piece of rubber or other similar material adapted to form a fluid tight joint with a like joint-piece; said joint-piece being fitted to slide telescopically in said sleeve exclusively, and is provided with a peripheral shoulder which—by taking against the shoulder of the sleeve—will limit the outward movement of the joint piece, and a spring arranged to force said joint-piece outwardly, as and for the purpose specified.

2. In an automatic coupler for steam or air pipes of railway-cars, the combination, with a coupler-head provided with one or more chambers opening through the outer face of said head; each of said chambers having a steam or air pipe leading rearwardly therefrom, and a tubular casing secured to said head to form an inclosure for said pipes and provided with a longitudinally-slotted opening, of a universal joint composed of two rings so arranged that one of said rings will encircle the other; the outer ring being provided with trunnions which are journaled in brackets suspended from the bottom of a car, and the inner ring being pivoted to the outer ring so that the axes of the two rings will be at right angles and the inner ring being provided with a guide which enters the slotted opening of the tubular casing and guides the latter in its movement in the universal joint, and a spring encircling said casing; one end of said spring abutting against the foremost face of the inner ring and the opposite end being arranged to bear against the coupler-head, as and for the purpose specified.

592,522. AUTOMATIC COUPLING FOR TRAIN-PIPES. JAMES R. MARBLE, Albany, N. Y., assignor to Edward G. Cox, same place. Filed May 15, 1895. Serial No. 549,421. (No model.)



Claim.—1. The combination with a coupler, of a hanger provided with a gimbal supporting said coupler, said gimbal being loosely journaled in elongated vertical bearings; substantially as described.

2. A coupler provided with a head having fluid-passages, pipes connecting with said passages, an incasing tube for the pipes, and a hanger containing a gimbal supporting the tube, said gimbal being loosely journaled in elongated vertical bearings; substantially as described.

3. A coupler provided with a head having fluid-passages, pipes connecting with said passages, an incasing tube for the pipes, a hanger containing a gimbal supporting the tube, said gimbal being loosely journaled in elongated vertical bearings, and spring-hangers connected with opposite sides of the head; substantially as described.

4. A coupler, provided with a head having a series of fluid-passages whose outlets are arranged in the same central vertical plane and whose inlets are arranged in different vertical planes, pipes connecting with the inlets and parallel to each other, an incasing tube for the pipes, a hanger containing a gimbal through which the tube

passes, and a closing-plate at the end of the tube, through which the pipes pass; substantially as described.

5. A coupler-head having central fluid-passages, and outlying tongues, one of which is straight and the other inclined and both of which are separated from the walls of the central fluid-passages by intervening recesses, and a third inclined tongue projecting from and forming a continuation of one of said walls, the said inclined tongues verging toward each other from without inwardly to practically a single plane of nearest approach and being separated thereat a distance equal to the thickness of the straight tongue; substantially as described.

6. A coupler-head having central fluid-passages and outlying tongues, one of which is straight and the other inclined and both of which are separated from the walls of the central fluid-passages by intervening recesses, and a third inclined tongue projecting from and forming a continuation of one of said walls, the said inclined tongues verging toward each other from without inwardly to practically a single plane of nearest approach and being separated thereat a distance equal to the thickness of the straight tongue and cross-webs connecting the tongues with the walls of the central fluid-passages said cross-webs being likewise inclined and verging toward each other from without inwardly to the plane of nearest approach; substantially as described.

7. A coupler-head fluid-outlet port, having therein a shouldered bushing, a corresponding shouldered spring-seated hollow nipple fitting within the bushing, an expansible packing between the nipple-shoulder and the spring, an annulus of elastic material fitted to the outer end of the nipple and a protecting-ring between said annulus and the bushing; substantially as described.

8. A coupler-head fluid-outlet port, having therein a shouldered bushing, a corresponding shouldered spring-seated hollow nipple fitting within the bushing, an expansible packing between the nipple-shoulder and the spring, an elastic face for the nipple, and an annular recess within which the inner end of the spring is contained; substantially as described.

592,523. TRAIN-PIPE COUPLING. JAMES R. MARBLE, Albany, N. Y., assignor to Edward G. Cox, same place. Filed June 20, 1896. Serial No. 596,337. (No model.)



Claim.—1. A coupler-head for train-pipes, consisting of a casting having ports or channels connected to the air and steam pipes respectively, said casting being cored out between the steam-port and the adjacent air-port to form a way having an inlet and a separate outlet so as to provide for the free circulation of a current of air through the casting and between the two ports; substantially as described.

2. A coupler-head for train-pipes, consisting of a casting having ports or channels connected to air and steam pipes respectively, said casting being cored out between the steam-port and the adjacent air-port to form a throughway extending from the front wall of the coupler-head entirely through the rear wall thereof; substantially as described.

3. A coupler-head for train pipes, consisting of a casting having ports or channels connected to air and steam pipes respectively, said casting being cored out between the steam-port and the adjacent air-port to form a throughway extending from the front wall of the coupler-head entirely through the rear wall thereof, and widening out from front to rear; substantially as described.

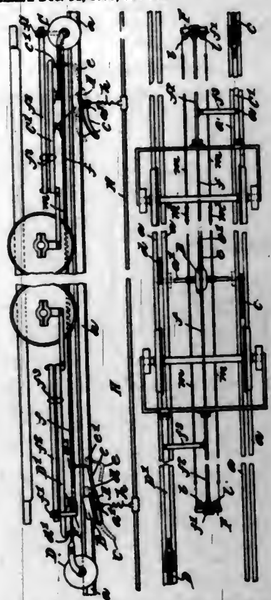
4. A coupling for train-pipes, consisting of duplicate coupler-heads each provided with central fluid-passages and outlying tongues separated from the walls of the central fluid-passages by intervening mortises, said coupler-heads being provided with interlocking supplemental longitudinal recesses and projections for preventing the one coupler-head from tilting with respect to the other after their engagement; substantially as described.

5. A coupling for train-pipes, consisting of duplicate coupler-heads each provided with central fluid-passages and outlying tongues separated from the walls of the central fluid-passages by intervening mortises, one tongue of each of said heads being provided with a supplemental longitudinal side projection, engaging an interlocking longitudinal recess of the other coupler-head; substantially as described.

6. A coupler-head for train-pipes provided with central fluid-passages, outlying tongues, and a third tongue forming a part of the wall of the central fluid-passages, said third tongue and one of the outlying tongues having respectively a longitudinal side projection and a corresponding recess, whereby after coupling the coupler-head is prevented from tilting with respect to the cooperating coupler-head; substantially as described.

7. A coupler-head having central fluid-passages and outlying tongues, one of which is straight and the other inclined outwardly and both of which are separated from the walls of the central fluid-passages by intervening mortises, and a third tongue forming a part of one of said walls, and having an inwardly-inclined face, said third tongue being provided with a longitudinal recess, and the straight tongue being provided with a corresponding longitudinal side projection, whereby corresponding coupler-heads are adapted to interlock and are held against tilting by means of said recesses and side projections; substantially as described.

592,524. SUPPLY SYSTEM FOR ELECTRIC RAILWAYS. AUGUST MÉDICUS, Buda-Pesth, Austria-Hungary. Filed Apr. 13, 1896. Serial No. 587,336. (No model.) Patented in Switzerland Mar. 24, 1896, No. 11,960; in Belgium Apr. 15, 1896, No. 120,834; in Italy May 11, 1896, LXXX, 447; in Spain May 29, 1896, No. 24/311; in France July 3, 1896, No. 255,053; in Sweden July 8, 1896, No. 8,086; in Austria July 31, 1896, No. 46/2,960; in Hungary Sept. 30, 1896, No. 5,256; in Germany Nov. 9, 1896, No. 90,226; in England Dec. 12, 1896, No. 6,481; and in Denmark Dec. 31, 1896, No. 906.



Claim.—1. In electric railways, a single insulated main conductor, rocking feeders arranged at suitable distances apart, conductive connections between said feeders and conductor, and circuit-closers interposed in said connections and provided each with a stationary and a gravitating contact, said circuit-closers carried and rocked by their respective feeders to close and interrupt the feeder-circuit; in combination with a traveling current-collector adapted to take current from said feeders, and appliances independent of and traveling with the collector, operating to rock the successive feeders to move the same alternately into and out of contact with the collector and thereby alternately close and interrupt the feeder-circuit, for the purpose set forth.

2. In electric railways, a track, an underground conduit provided with two parallel slots proximate to the track-rails and with openings from distance to distance on a line parallel with but intermediate of said slots, a main conductor extending along said conduit, rocking feeders adapted to be projected through the conduit-openings, arms extending from the feeders in opposite directions and lying within the conduit-slots, a conductive connection between the feeders and main conductor and circuit-closers, carried by said feeders, interposed in said connections and comprising stationary contacts and a gravitating contact cooperating therewith, the normal relation of said contacts being such as to interrupt the electrical connection between a feeder and the main conductor, in combination with a current-collector traveling along the central slot of the conduit and rollers at suitable distances apart and traveling with the current-collector along the conduit-slots, said rollers adapted to impinge upon the feeder-arms and rock the feeders first in one direction and then in another whereby a feeder is moved alternately into and out of contact with the current-collector and the electrical connection between the collector and feeder alternately made and broken for the purpose set forth.

3. In electric railways, a track, an underground conduit provided with two parallel slots proximate to the track-rails and with openings from distance to distance on a line parallel with but intermediate of said slots, a main conductor extending along said conduit, rocking feeders adapted to be projected through the conduit-openings, arms extending from the feeders in opposite directions and lying within the conduit-slots, a conductive connection between the feeders and main conductor, and circuit-closers carried by said feeders, interposed in said connection and comprising stationary contacts and a gravitating contact cooperating therewith, the normal relation of said contacts being such as to interrupt the electrical connection between a feeder and the main conductor, in combination with a current-collector traveling along the central slot of the conduit, rollers at suitable distances apart and traveling with the current-collector along the conduit-slots, said rollers adapted to impinge upon the feeder-arms and rock the feeders first in one direction and then in another whereby a feeder is moved alternately into and out of contact with the current-collector and the electrical connection between the collector and feeder alternately made and broken and means for limiting the rocking movements of the feeders for the purpose set forth.

4. In electric railways, a single insulated main conductor, rocking feeders arranged at suitable distances apart, conductive connections between the feeders and main conductor, and circuit-closers interposed in said connection and provided each with a stationary and a gravitating contact, said circuit-closers carried and rocked by their respective feeders to close and interrupt the feeder-circuit; in combination with a traveling current-collector adapted to take current from the feeders, appliances independent of and traveling with said collector, adapted to rock the successive feeders alternately into and out of contact with said collector and thereby alternately close and interrupt the feeder-circuit, and means for maintaining such contact when the collector is traveling over a curve, for the purpose set forth.

5. In electric railways, an underground conduit, a main conductor extending centrally along the same, rocking feeders in said conduit at suitable distances apart and adapted to be projected above the surface of the road-bed, conductive connection between the feeders and main conductor, and switches operating automatically to make and break the circuit when said feeders are rocked in one or the other direction, in combination with a traveling current-collector adapted to swing laterally, and appliances connected and traveling with said collector and controlling the swinging movements thereof, said appliances operating to rock the feeders in opposite directions to alternately make and break the main-line circuit, substantially as and for the purpose set forth.

6. In electric railways the combination with a main conductor, a feeder comprising a contact-arm arranged to rock in fixed bearings and provided on opposite sides with actuating-arms extending in opposite directions parallel with the track, a conductive connection between the feeder and the main conductor and a switch carried by the feeder and comprising stationary contacts and a gravitating contact as mercury, cooperating therewith, said switch interposed in the aforesaid conductive connection, of a traveling current-collector comprising a slotted conductor and appliances traveling with said collector and operating on the feeder-actuating arms successively to rock the contact-arm of such feeder in opposite directions, to alternately move the feeder contact-arm into and out of the slot of the collector and to move the gravitating switch-contact to alternately make and break the electrical connection between the feeder and main conductor substantially as and for the purpose set forth.

7. In electric railways the combination with a main conductor, a feeder comprising a contact-arm adapted to rock on horizontal and vertical axes and provided on opposite sides with an actuating-arm extending in opposite directions parallel with the track, a conductive connection between the feeder and main conductor and a switch carried by the feeder, comprising stationary contacts and a gravitating contact cooperating therewith, said switch interposed in the aforesaid conductive connection, of a traveling current-collector comprising two spaced conductive flexible strips and appliances traveling with said collector and operating on the feeder actuating arms successively to rock the feeder and move its contact-arm alternately into and out of contact with said flexible collecting-strips and to move the gravitating switch-contact to alternately make and break the electrical connection between the feeder and main conductor substantially as and for the purpose set forth.

8. In electric railways the combination with a main conductor, a feeder comprising a contact-arm adapted to rock on horizontal and vertical axes and provided on opposite sides with an actuating-arm extending in opposite directions parallel with the track, a conductive connection between the feeder and main conductor and a switch carried by the feeder, comprising stationary contacts and a gravitating contact cooperating therewith, said switch interposed in the aforesaid conductive connection, of a traveling current-collector comprising two spaced conductive flexible strips, appliances traveling with said collector and operating on the feeder-actuating arms successively to rock the feeder and move its contact-arm alternately into and out of contact with said flexible collector-strips, and to move the gravitating switch-contact to alternately make and break the electrical connection between the feeder and main conductor and a tension device for maintaining the aforesaid flexible strips of the current-collector at a proper tension, substantially as and for the purpose set forth.

9. In electric railways, the combination with a main conductor, a feeder comprising a contact-arm adapted to rock on horizontal and vertical axes and provided on opposite sides with an actuating-arm extending in opposite directions parallel with the track, a conductive connection between the feeder and main conductor and a switch carried by the feeder, comprising stationary contacts and a gravitating contact cooperating therewith, said switch interposed in the aforesaid conductive connection, of a traveling current-collector comprising two spaced conductive flexible strips, yielding appliances traveling with said collector and operating on the feeder-actuating arms successively to rock the feeder and move its contact-arm alternately into and out of contact with said flexible collector-strips and to move the gravitating switch-contact to alternately make and break the electrical connection between the feeder and the main conductor, substantially as and for the purpose set forth.

10. The combination with the main conductor H of a feeder comprising a contact-arm adapted to rock on horizontal axes and a switch carried by the feeder, comprising a casing or housing, two conductive cups g' g^2 therein and in communication with each other through a conductive duct, said parts containing a suitable quantity of mercury and said cups arranged relatively to the contact-arm as to cause the mercury to recede from one cup g' when the arm is in a downwardly-inclined position, a contact in, but insulated from said cup g', a conductive connection between said contact and the contact-arm of the feeder and a contact electrically connected with cup g^2 and with the main conductor substantially as and for the purpose set forth.

11. The combination with the main conductor H of a feeder comprising a contact-arm adapted to rock on horizontal and vertical axes and a switch carried by the feeder, comprising two conductive cups g' g^2 in communication with each other through a conductive duct said parts containing a suitable quantity of mercury and said cups arranged relatively to the contact-arm as to cause the mercury to recede from one cup g' when the arm is in a downwardly-inclined position, a contact in, but insulated from said cup g', a conductive connection between said contact and the contact-arm of the feeder, and a contact electrically connected with the cup g^2 and with the main conductor substantially as and for the purpose set forth.

12. The combination with a motor-car and a current-collector comprising two flexible parallel conductive strips or bands, means for holding such at a suitable distance apart, and a tension device consisting of rods connected with the opposite ends of the said bands, and springs connecting one end of said rods together; of a feeder of electricity adapted to be moved between and in contact with said bands, substantially as and for the purpose set forth.

13. The combination with a motor-car and a current-collector consisting of two flexible conductive bands, carriers at each end of the bands, rollers on said carriers over which the bands pass, curved converging guides on said carriers for guiding the bands and holding the same at a suitable distance apart, tension devices for maintaining the bands at a suitable tension, and supporting rods pivotally connected with the car and with the roller-carriers; of current-feeders adapted to be successively moved between the bands as the car travels along, substantially as and for the purpose set forth.

14. The combination with a motor-car, of an arm on each side pivotally connected with the car, said arms extending in opposite directions, a roller at the free end of each arm and a current-collector comprising two flexible parallel conductive strips or bands arranged centrally of the car on its under side, carriers for the opposite ends of said bands, supporting-rods pivotally connected with said carriers, and link connection between said rods and the roller-carrying arms to give a parallel motion; of suitably-spaced rocking feeders on a line with the space between the conductive bands, each of said feeders provided on opposite sides with an actuating-arm, said arms lying in opposite directions in the path of the aforesaid rollers whereby said feeders are successively rocked in opposite directions and alter-

nately moved into and out of contact with the aforesaid bands, substantially as and for the purpose set forth

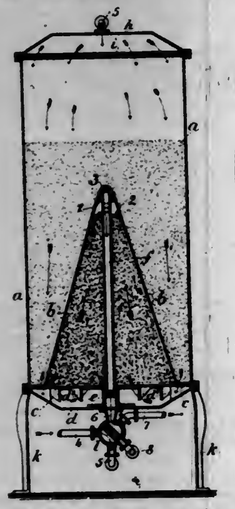
15. The combination with the motor car, two carriers F, the rollers l l^2, the guides l' connected with and arranged on the carriers as described, the spindles f' and supporting swinging rods f^2 pivotally connected with but insulated from said spindles; of the bands f f passing between said rollers l l^2 and over said guides l', and a spring connection between the free ends of the respective bands, substantially as and for the purpose set forth.

16. The combination with a main conductor, a casing A, the insulated conductive rod j^2 therein, the insulated feeder or contact-arm e electrically connected with rod j^2 and provided at its outer end with a bare contact, a carrier for and in which said casing is adapted to rock on horizontal axes; of a switch, consisting of an inclosing casing secured to the casing A, two conductive cups, g' g^2, a like tubular connection, connecting said cups and lying in a plane parallel with the aforesaid feeder arm, an insulated contact extending into the cup g', electrically connected with the rod j^2, and a conductive connection between cup g^2 and the aforesaid main conductor, substantially as and for the purpose set forth.

17. The combination with the casing A provided with vertical journals and with an arm n secured to one of said journals; of a carrier for said casing adapted to rock on horizontal axes and provided with bearings for the vertical journals of said casing, and the spring-actuated arms n^2 pivoted to the carrier and held in perpetual contact with the aforesaid arm n, substantially as and for the purpose set forth.

18. In an underground electric road, the combination with a curved section thereof, an underground conduit, a main conductor therein and a plate G provided with a T-shaped slot G', the stem of which is curved; of a feeder within the conduit comprising a feeder or contact-arm arranged to rock on horizontal and vertical axes, and to be projected through the slot in said plate; of a slotted traveling current-collector adapted to rock in a horizontal plane, and actuating devices traveling with the collector, arranged to rock the feeder successively in opposite directions and move the same into and out of the collector-slot, substantially as and for the purpose set forth.

592,525. FILTER. WILLIAM T. MOFFITT, New Brighton, N. Y. Filed Nov. 27, 1896. Serial No. 613,484. (No model.)



Claim.—1. In a filter, the combination with a cylindrical vessel having top and bottom heads and receiving sand or similar material, of a perforated plate across the vessel above the bottom head, an internal cone rising from and above said perforated plate and inclosing the major portion of its surface and receiving charcoal or similar material and having a perforated plate 2 near its apex, a central pipe within the cone having perforations at its upper end and passing through the perforated plates, a pipe extending to the top of the vessel and a cock connected with the said pipes for admitting water to be filtered into the upper end of the vessel to flow down through the vessel and up within the cone through the perforations of the plates, and down through the central pipe, or in the reverse direction for cleaning out the filter, substantially as set forth.

2. In a filter, the combination with the cylindrical vessel having top and bottom heads, of the perforated plates c and i at the opposite ends of said vessel, a cone b within said vessel resting upon the lower perforated plate c, a central pipe f perforated at its upper end and connected to the small end of the cone, a sleeve between the bottom head and the perforated plate c receiving the central pipe and a five-way cock connected to the bottom head and having one of its pipes connecting with the central pipe and pipes connected with said five-way cock for supplying the water to the top of the cylindrical vessel to pass down through the sand or similar material therein, and up within the cone b and through the charcoal or similar material therein and down through the central pipe f for use, or in the reverse direction for loosening the material and cleaning out the refuse from the filter, substantially as set forth.

3. In a filter, the combination with the cylindrical vessel a having a head h and a perforated plate i, of the concave bottom head d having radial ribs d' adjacent to the peripheral flange of the plate, the perforated plate c resting upon said ribs, the internal cone b over and upon said perforated plate c and the ribs d', the central pipe f perforated and threaded near its upper end, the perforated plate 2 of the cone through which said pipe passes and a screw-cap 3 outside of the small end of the cone and upon and closing the end of the pipe f, the sleeve e between the bottom head and the perforated plate c receiving the lower end of the pipe f, and means, substantially as shown and described, for directing the water through the filtering material in one direction to be filtered, or in the reverse direction to loosen up the filtering material and clean out the filter, substantially as set forth.

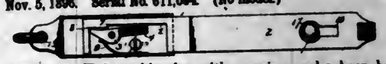
592,526. POCKET MATCH-BOX. HEINRICH WIRTZ, Berlin, Germany. Filed Feb. 24, 1896. Serial No. 580,562. (No model.) Patented in Germany Mar. 23, 1894, No. 83,471; in Belgium Mar. 30, 1894, No. 109,261, and Apr. 8, 1895, No. 114,975; in England Apr. 14, 1894, No. 7,439, and in Austria Apr. 27, 1894, No. 44/1,237, and May 4, 1895, No. 45/1,563.



Claim.—1. As an article of manufacture a cartridge for pocket match-boxes, consisting of a U-shaped paper provided with igniting-surfaces at both ends and having in each side perforations through which the matches are inserted in the cartridge, substantially as set forth.

2. As an article of manufacture a pocket match-box, composed of a cartridge consisting of a U-shaped paper provided with igniting-surfaces at both ends and having in each side perforations through which the matches are inserted in the cartridge, a partition in the cartridge, and a pasteboard case to which the outer ends of the cartridge are pasted so that the igniting substances face each other, substantially as described.

592,527. HASP-LOCK. JOHN R. BRIDGES, Findlay, Ohio. Filed Nov. 5, 1896. Serial No. 611,094. (No model.)



Claim.—1. The combination with a casing, and a hasp having permanent sliding connection within the casing, the end of the hasp within the casing having a slot therein, of a locking mechanism located within the casing and slot and having the double function of locking the hasp in a fixed relation with respect to the casing and also of preventing the withdrawal or separation of one part from the other.

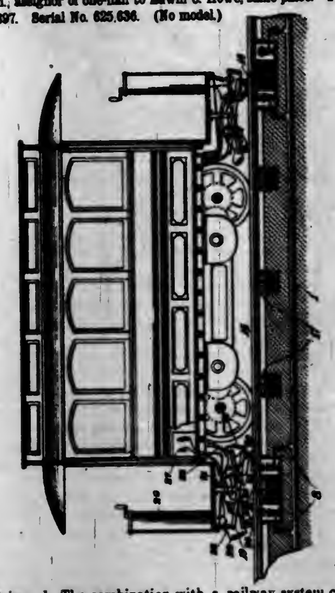
2. The combination with a casing and a hasp having a permanent and sliding connection within said casing, said hasp having a slot therein, said casing and hasp constructed to engage and secure two objects or devices together when the hasp and casing are slid in one direction with relation to each other, and spring-tumbler pivoted within the casing and slot which automatically locks the hasp and casing in one extreme position when said parts are slid into that extreme position.

3. The combination with a casing and a hasp having a permanent sliding telescoping connection with each other, the casing connected to one part of a building and the hasp detachably connected with the door or part to be fastened and having movable connection

therewith, means on the door to which the hasp becomes locked when moved in one of its directions and locking mechanism which automatically locks said casing and hasp when they are pushed together.

4. The combination with a casing and a hasp having permanent and sliding connection within the casing, the end of the hasp within the casing having slot therein and shoulder formed within the slot, of locking mechanism located within the casing and slot and having tumblers located in the slot and casing adapted to operate in connection with the shoulder to prevent sliding movement of the casing and hasp with relation to each other in one direction.

592,528. ELECTRIC RAILWAY. EBEN C. CROCKER, Bridgeport, Conn., assignor of one-half to Edwin C. Howe, same place. Filed Mar. 1, 1897. Serial No. 625,636. (No model.)

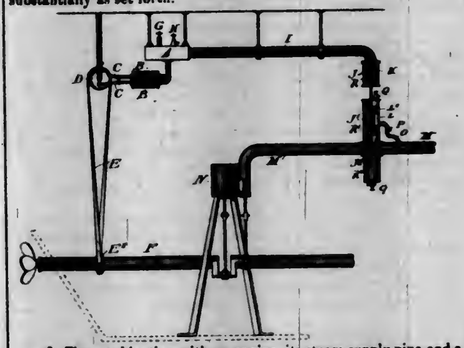


Claim.—1. The combination with a railway system comprising bonded rails and cars capable of traveling thereon each car carrying a suitable motor and controller-box, of a continuous length of insulated rails between the first-mentioned rails laid and secured in position with their abutting ends insulated from each other, magnets carried in pairs at each end of the car and having their cores normally depressed with a spring action against said insulated rails, the coils of said magnets being electrically connected respectively with said cores and controller-box, the insulated line-wire, the insulated solenoids located in the road-bed beneath the insulated rails, the armatures immediately beneath the latter and within the field of said magnets and carrying insulated contacts, and connection between the solenoid-cores and said armatures whereby the elevation of the latter will bring the former within the magnetic field of the solenoids, the coils of said solenoids being electrically connected respectively with said contacts and line wire, substantially as set forth.

2. The combination of the insulated rails, the car carrying the controller box and the pivoted levers which in turn carry magnets at their lower diverging ends, springs attached to said car and levers whereby the cores of said magnets are normally depressed against said rails, the insulator-box sunken in the road-bed beneath said rails and having solenoids mounted therein, the insulated line-wire to which the lower ends of the solenoid-coils are electrically connected, the armatures supported by said solenoids within the field of said magnets and carrying insulated contacts with which the upper ends of the solenoid-coils are electrically connected, rigid connections between said armatures and the cores of the solenoids whereby the elevation of the armatures will bring said cores within the magnetic field of the solenoids, and electrical connections between the lower ends of the magnet-coils and the magnet cores and between the upper ends of said coils and the controller-box, substantially as set forth.

592,529. ENGINE-GOVERNOR. ERICK W. ERICKSON, Brooklyn, N. Y. Filed Sept. 29, 1896. Serial No. 607,369. (No model.)

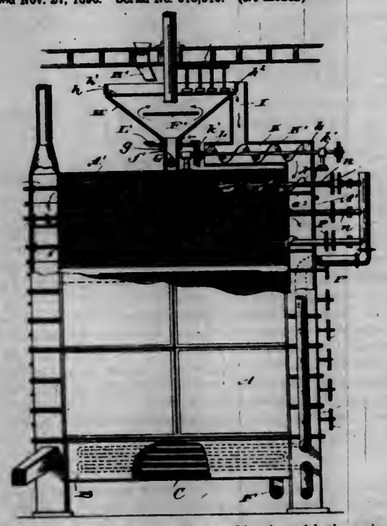
Claim.—1. The combination with an engine, its steam-supply pipe and a power-shaft rotated thereby, of an air-pump operated from said shaft and an air-reservoir connected with and supplied from the pump, and air pipe and cylinder connected with the air-reservoir, a spring and air actuated piston in said cylinder, a chamber connected with the steam-supply pipe and a piston therein and means substantially as shown and described for actuating the same by the spring and air actuated piston, and also by steam, whereby the steam in the engine-pipe is shut off or its admission regulated at pleasure, substantially as set forth.



2. The combination with an engine, its steam-supply pipe and a power-shaft rotated thereby, of a chamber connected with the steam-pipe and connecting valve-sections J' J^2 therein, a piston and a cylinder therefor, a rod from said sections passing to said piston, a spring within said cylinder for moving the piston and valve-sections in one direction and means connected with said piston-cylinder and actuated by the power-shaft for supplying air to act upon the piston to move the same and the valve-sections in the other direction and means for supplying steam to act upon the valve-sections, substantially as set forth.

3. In a steam-engine governor, the combination with the steam-pipe M and the chamber connected therewith, of a steam-pipe O having a cock P and connected respectively to the said steam pipe and chamber, the valve-sections J' J^2 within said chamber, the section J' having a recess L and a hole L^2, an air-pipe I and piston-cylinder connected therewith and in line axially with the chamber of the valve-sections, a piston J and rod connecting the same with the valve-sections, a spring for actuating the parts in one direction and means actuated by the power-shaft for supplying air under pressure to actuate the piston J and parts connected therewith in the reverse direction, substantially as set forth.

592,530. GRAIN-DRIER. JOHN KURTZWORTH, New York, N. Y. Filed Nov. 27, 1896. Serial No. 613,619. (No model.)



Claim.—1. In a grain drier, the combination with the main drying-casing, of a revolving receptacle mounted above the same, means

for heating said receptacle, and a conveyer operatively connected to rotate said receptacle and to convey the material being dried from the receptacle to the main drier, substantially as described.

2. In a grain-drier, the combination with the main drying-casing, of a revolving receptacle mounted above the same, means for heating said receptacle, a stationary mixer arranged within the receptacle, and a conveyer operatively connected to rotate said receptacle and to convey the material being dried from the receptacle to the main drier, substantially as described.

3. In a grain-drier, the combination with the main drying-casing, of a revolving receptacle mounted above the same, a steam-pipe entering said casing, a steam-exhaust pipe communicating with the casing and receptacle, and a conveyer operatively connected to rotate said receptacle, substantially as described.

4. In a grain-drier, the combination with the main casing, of a revolving receptacle mounted above the same, a steam-pipe entering the casing, a steam-exhaust pipe communicating with the casing and receptacle, a deflector-plate within the receptacle, and a conveyer operatively connected to rotate said receptacle, substantially as described.

5. In a grain-drier, the combination with the casing and its conveyers, of a steam-pipe entering the casing, a revolving receptacle, a steam-exhaust pipe communicating with the casing and emptying into the receptacle, a deflector-plate within the receptacle, means for revolving the receptacle and the initial conveyer arranged beneath the receptacle and operatively connected therewith; substantially as described.

6. In a grain-drier, the combination of a casing and its conveyers, of a revolving receptacle, a stationary mixer depending therein, a rim having an opening opposite said mixer, means for revolving the receptacle, and a stationary conductor from the receptacle to a conveyer; substantially as described.

7. The combination with the casing and a conveyer mounted above the same, of a bevel-pinion on the shaft of said conveyer, a rotatable receptacle, and a bevel-pinion on the lower end thereof engaging the pinion on the conveyer-shaft; substantially as described.

8. The combination with the casing having compartments and a chamber beneath the same, of the steam-pipe entering said chamber, the hot-air coil within said chamber, the hot-air conduit connected with all of said compartments and the spiral conveyers having hollow shafts connected therewith; substantially as described.

9. The combination with the casing having compartments and the conveyers therein, of the hot-air coil beneath the casing, the steam-pipe entering a chamber beneath the casing, the exhaust-steam pipe leading from the upper portion of the casing, and the hot-air conduit leading from the lower portion of the casing and having connections with all of the compartments thereof; substantially as described.

10. In a grain-drier, the combination of a casing having compartments and the conveyers, of the hot-air conduit having connection with a portion of the compartments of the casing and with the hollow, perforated shafts of the upper conveyers; substantially as described.

11. The combination with the casing and the conveyers mounted for movement in alternately opposite directions, the rotating receptacle and the initial conveyer operatively connected therewith, of the hot-air coil, the hot-air conduits, the lateral branches therefrom, the steam-supply pipe, and the exhaust-steam outlet-pipe; substantially as described.

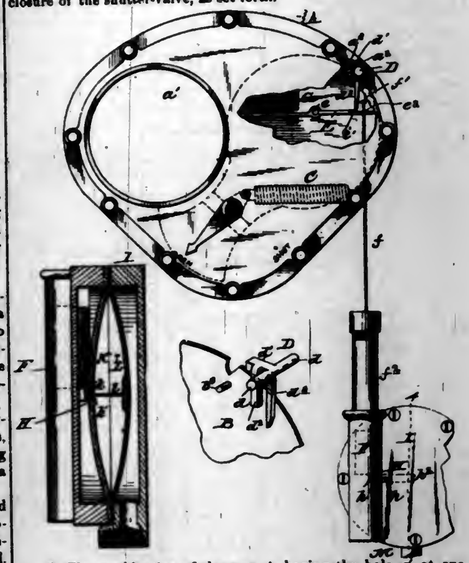
12. The combination with the casing and the revolving receptacle mounted at the upper end thereof and the initial conveyer operatively connected with said receptacle, of the spiral conveyers, hot-air conduits, the steam-supply pipe and the steam-exhaust pipe emptying into the chamber of the receptacle; substantially as described.

13. The combination with the casing and the revolving receptacle mounted at the upper end thereof and the initial conveyer operatively connected with said receptacle, of the spiral conveyers, hot-air conduits, the steam-supply pipe and the steam-exhaust pipe emptying into the chamber of the receptacle, and a stationary steam-exhaust outlet communicating with the chamber of said receptacle; substantially as described.

14. The combination with the casing and the revolving receptacle mounted at the upper end thereof and the initial conveyer operatively connected with said receptacle, of the spiral conveyers, hot-air conduits, the steam-supply pipe and the steam-exhaust pipe emptying into the chamber of the receptacle, a stationary steam-exhaust outlet communicating with the chamber of said receptacle, and a horizontal deflector-plate within said chamber between the inlet and outlet of steam; substantially as described.

592,531. VENTILATOR-VALVE FOR SHIPS. JOSEPH MCCREERY, Toledo, Ohio. Filed June 11, 1897. Serial No. 640,351. (No model.)

Claim.—1. A valve-shutter for a ventilating-opening hinged transversely to such opening, in combination with a lock for holding the valve-shutter open, a water-pressure mechanism and releasing mechanism between the lock and water-pressure mechanism to permit the closure of the shutter-valve, as set forth.

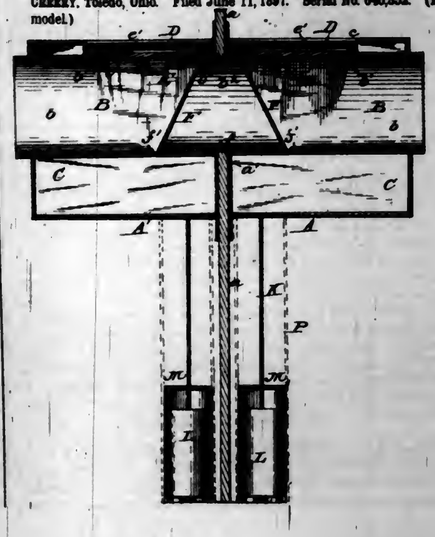


2. The combination of the case, A, having the hole, a', at one side; the valve-shutter, B, pivoted within the case and having the peripheral notch, b^3; the dog, D, hinged in the edge of the case to engage such notch, the spring, C, fastened to the case and to the valve-shutter; the water-pressure mechanism and releasing mechanism between the last and the dog, as set forth.

3. The combination of the case, I, the pipe, M, leading into such case; the diaphragm, L, and plate, K, having the shoulder, k, and hole, k', in such case; the pin, l, secured to the inner side of the diaphragm and passing through the plate-hole, k', and bearing against the latch, H; the latch, H; the cylinder, f^2; the weight, F, in such cylinder; the latch, H, resting under the weight and the shoulder, k; the rod, f; the catch, E, connected to the upper end of the rod, f; the dog, D, held by the catch, E, and engaging a notch in the valve-shutter, B; the valve-shutter, B, having the notch, b^3, and pivoted in the case, A; with the spring, C, and such case, A, as set forth

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592,532. VENTILATING-VALVE FOR SHIPS. JOSEPH MCCREERY, Toledo, Ohio. Filed June 11, 1897. Serial No. 640,352. (No model.)

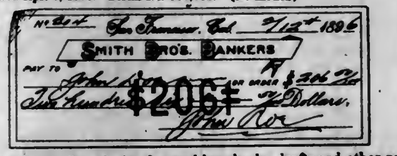


Claim.—1. The bulkhead and the pipe passing therethrough, such pipe having located within it a gravity-valve, in combination with a lock-bolt for holding the valve up and open; a float and connections between the float and lock bolt whereby the valve may be released and dropped when the float rises, as set forth.

2. The combination of the pipe, B, having the internal shoulder, F, and the valve, E, hung in said pipe and fitting the shoulder, with the lock-bolt, G, which engages the valve when it is open and means for releasing such lock-bolt, as set forth.

3. The pipe, B, and casing C, having registering openings, b' and c, and the cover, D, fitting the opening, b', in combination with the valve, E, hung in the pipe, B, the lock-bolt G which engages the valve when it is open and means for releasing such lock-bolt as set forth.

592,533. MACHINE FOR INDELIBLY MARKING VALUES ON CHECKS. JOHN B. ROGERS and WILLIAM H. HALL, San Francisco, Cal. Filed Apr. 7, 1896. Serial No. 586,612. (No model.)



Claim.—1. In a device for marking checks, drafts and other papers, the combination of a male die, a female die corresponding thereto provided with perforations extending through said female die, means for forcing said dies together so that the sizing and fiber of an interposed paper will be mutilated or broken and means for inking or coloring the broken fiber of said paper through the perforations of said female die.

2. In a device for marking checks, drafts and other papers, the combination of a series of male dies, a series of female dies corresponding thereto provided with perforations extending through said female dies, means for forcing said dies together so that the sizing and fiber of an interposed paper will be mutilated or broken, and means for inking or coloring the broken fiber of said paper through the perforations of said female dies.

3. In a device for marking checks, drafts and other papers, the combination of a male die, a female die corresponding thereto one of said dies being provided with perforations extending through said die, means for forcing said dies together so that the sizing and fiber of an interposed paper will be mutilated or broken, and means for inking or coloring the broken fiber of the paper through the perforations of the die.

4. In a device for marking checks, drafts, and other papers, the combination of a series of male dies, a series of female dies corresponding thereto one of said series being provided with perforations extending through the dies of said series, means for forcing said dies together so that the sizing and fiber of an interposed paper will be mutilated or broken, and means for inking or coloring the broken fiber of said paper through the perforations of said dies.

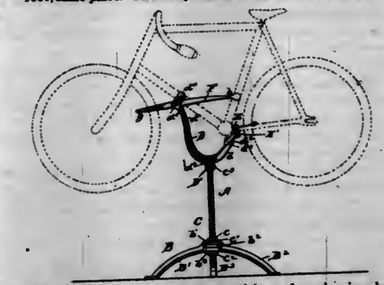
5. In a device for marking checks, drafts and other papers, the combination of a male die, a female die corresponding thereto provided with perforations extending through said female die, means for forcing said dies together so that the sizing and fiber of an interposed paper will be mutilated or broken, and means for simultaneously inking or coloring the broken fiber of said paper through the perforations of said female die.

6. In a device for marking checks, drafts, and other papers, the combination of a series of male dies, a series of female dies corresponding thereto provided with perforations extending through said female dies, means for forcing said dies together so that the sizing and fiber of an interposed paper will be mutilated or broken, and means for simultaneously inking or coloring the broken fiber of said paper through the perforations of said female dies.

7. In a device for marking checks, drafts, and other papers, the combination of a male die, a female die corresponding thereto one of said dies being provided with perforations extending through said die, means for forcing said dies together so that the sizing and fiber of an interposed paper will be mutilated or broken, and means for simultaneously inking or coloring the broken fiber of said paper through the perforations of said die.

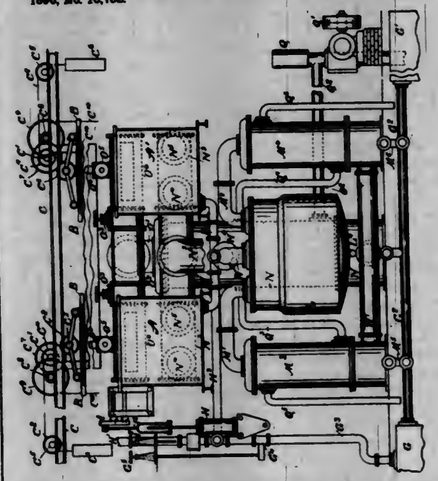
8. In a device for marking checks, drafts, and other papers, the combination of a series of male dies, a series of female dies corresponding thereto one of said series being provided with perforations extending through the dies of said series means for forcing said dies together so that the sizing and fiber of an interposed paper will be mutilated or broken, and means for simultaneously inking or coloring the broken fiber of said paper through the perforations of said dies.

592,534. BICYCLE-STAND. EDWARD H. WEBSTER and JAMES D. WINSLOW, Rutland, Vt., assignors to The Howe Scale Company, of 1896, same place. Filed May 11, 1897. Serial No. 636,025. (No model.)



Claim.—A bicycle support comprising a base having detachable legs, a standard removably secured to said base, a support swivelly mounted upon the upper end of said standard, and having two upwardly-extending arms, an adjustably-secured saddle-support upon the end of one of these arms, a forked-shaped rest upon the upper end of the other arm, and an adjustable arm having forked-shaped extremities intermediately pivotally secured to the swivel-support to hold the bicycle securely in an upright position upon the swivel-support, and to keep the wheels in alinement, substantially as described and set forth.

592,535. APPARATUS FOR EXTRACTING OIL. GEORGE E. WRIGHT and WILLIAM MOSS, Nottingham, England. Filed July 22, 1896. Serial No. 600,805. (No model.) Patented in England May 19, 1896, No. 10,752.



Claim.—1. In combination with a degreasing-tank, an evaporator, an air-circulating system connected therewith including a condenser, a second air-circulating system connected to the tank independently of the evaporator, said second system including a condenser, and a valve for cutting off the evaporator with its air-circulating system from the tank, substantially as described.

2. In combination, the degreasing-tank having a stand-pipe H therein, the removable cover adapted to carry the skins, a charging-tank connected with the stand-pipe, an evaporator connected with the degreasing-tank and a condenser with independent air-circulating systems for the evaporator and the degreasing-tank, substantially as described.

3. The combination with a tank such as A or A', of a movable lid fitted with sliding frames carrying the gratings or equivalents from which the skins are suspended at equal distances apart and means for moving said frames during the degreasing process said covers with the sliding frames being movable vertically to and from the tanks substantially as herein set forth.

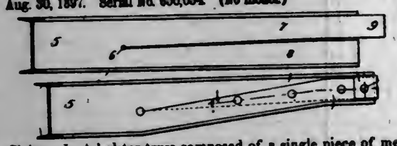
4. In a degreasing apparatus, the combination of a degreasing-tank with inlet and outlet pipes for the liquid solvents, both of said pipes entering the tank at or near the bottom and the removable cover carrying the skins, substantially as described.

5. The combination with a tank such as A or A', of means for withdrawing air from above the level of the liquid volatile solvent in the tank and then heating and forcing the air again into the tank through perforated pipes or equivalents in order to agitate and aerate the solvent and facilitate the degreasing process substantially as herein set forth.

6. In combination, the tank, a cover, a baffle-plate A^2 at one end thereof and an air-circulating system having both its inlet and outlet pipe connected to the tank at the end opposite the baffle-plate whereby the entering air will pass along the top of the tank and return between the skins suspended therein to the outlet at the same end as the inlet, substantially as described.

7. In combination, a degreasing-tank having a baffle-plate and an air circulatng system having both its inlet and outlet ends at the same end of the tank and directed across the same to the opposite end, substantially as described.

592,536. BOLSTER-TRUSS. CARL E. BAUER, Chicago, Ill., assignor to the Simplex Railway Appliance Company, same place. Filed Aug. 30, 1897. Serial No. 650,034. (No model.)



Claim.—1. A bolster-truss composed of a single piece of metal having a web and one or more flanges, the web being split from both ends inwardly toward the middle, the ends of the two split portions at each end of the truss being brought together by bending the webs past each other, and the whole secured by rivets in such bent position, substantially as described.

2. A bolster-truss composed of a single piece of metal having a web and one or more flanges, the web being split from both ends inwardly toward the middle, one split portion forming a compression member and the other a tension member on each end of the truss, the ends of the two split portions being brought together by bending, and the end of the tension-member portion being formed with a projecting tongue which is bent around the end of the compression-member portion in a manner substantially as shown and described.

3. A bolster-truss composed of a commercial rolled piece of metal having its web split from both ends toward the middle, the ends of the split portions being brought together by bending, at each end of the truss, and secured in such bent position by rivets; one split portion on each end forming a tension member, and having a tongue or projection thereon, and the other split portion on each end forming a compression member around which the tongue of the tension member is bent, substantially as described.

4. A bolster-truss composed of a piece of an I-beam having its web split from both ends toward the middle, the ends of the split portions being brought together by bending, at each end of the truss, and secured in such bent position by rivets; one split portion on each end forming a tension member and having a tongue or projection thereon, and the other split portion on each end forming a compression member around which the tongue of the tension member is bent, the flanges of the I-beam forming the top and bottom bearing surface of the bolster, substantially as described.

592,537. LEVEL. JOSEPH CARRIERE, Worcester, MASS. Filed Feb. 8, 1897. Serial No. 622,434. (No model.)



Claim.—1. In a spirit-level, the combination, with a body provided with a shouldered recess or cavity, of a case provided with means for adjustably securing it upon the shoulder, and an indicator, the neck of which is secured within the case and has its body located within the cavity above the shoulder, substantially as set forth.

2. In a spirit-level, the combination, with a body provided with a shouldered recess or cavity, of a case provided with means for adjustably securing it upon the shoulder, and an indicator, the neck of which is secured within the case and the main portion of which is in the form of a flattened bottle, the thickness of which is no greater than the depth of the cavity, substantially as set forth.

3. In a spirit-level, the combination, with a body provided with a shouldered recess or cavity, of a case within the bottom of the cavity, the top of which case is provided with laterally-projecting slotted arms, a fastener through each slot, an indicator, the neck of which is secured within the case and the main portion of which is of a less diameter than the diameter of the upper portion of the recess whereby the edge of the indicator is visible, substantially as set forth.

4. In a spirit-level, the combination, with a body, provided with a shouldered cavity or recess, of a case within the bottom of the cavity, the top of which case is provided with laterally-extending slotted arms, and an inwardly-extending flange or projection, an indicator, the neck of which is provided with a flange, and cement within the case and surrounding the neck, substantially as set forth.

5. In a spirit-level, the combination, with a body, provided with a cavity, of an indicator, the neck of which is secured within the bottom of the cavity, and a cork within the indicator, the inner end of which engages with the surface of the indicator, substantially as set forth.

592,538. TOBACCO-KNIFE. WARREN COLE, JR., Knoxville, Tenn., assignor of two-thirds to James C. Woodward and Walter Woodward, same place. Filed June 4, 1897. Serial No. 639,445. (No model.)

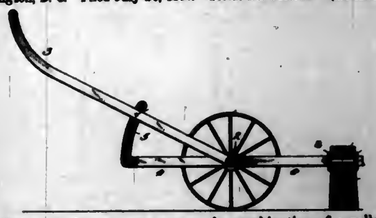


Claim.—1. The herein-described tobacco-cutting implement adapted to embrace a plug of tobacco, and consisting of an elongated and substantially U-shaped bar of metal having a resilient shorter prong provided with an outwardly-turned end, in combination with a substantially parallel prong extended beyond the end of the opposite prong, and provided with a blade the transverse plane of which lies substantially at right angles to that of the body portion of the implement.

2. The herein-described tobacco-cutting implement adapted to embrace under pressure a plug of tobacco, and consisting of a substantially U-shaped continuous bar of metal having a resilient shorter prong provided with an outwardly-turned end, in combination with a substantially parallel longer prong extended beyond the end of the other prong, and having a widened blade thereon, the transverse plane of which extends at right angles to the transverse plane of the body portion of the implement, and being curved laterally out of coincidence with the longitudinal plane of the prong on which it is made.

3. The herein-described tobacco-cutting implement consisting of a continuous metal bar, U-shaped in general outline, and adapted to clasp under pressure a plug of tobacco, one of the prongs being extended beyond the other, and provided with a knife-edge beveled on both sides, and the other shorter arm having its end beveled outwardly to facilitate passing the device astride a plug of tobacco, substantially as described.

592,539. STREET-SWEEPER. ALEXANDER H. S. DAVIS, Washington, D. C. Filed July 26, 1897. Serial No. 645,962. (No model.)

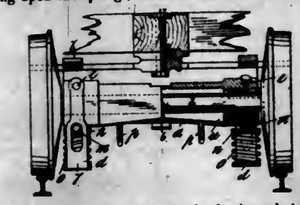


Claim.—1. In a street-sweeper the combination of a roller, an operating frame or handle operatively connected with the roller, a broom-carrying frame having perforated bent arms adjustably coupled with the operating-frame, and a rod or bar for adjusting the frames with relation to each other, substantially as described.

2. The combination of a brush-carrying frame, adjustable with relation to an operating-frame, and having projecting arms and a reversible broom-head consisting of clamping bolts and bars, the bars being provided with sockets to fit the projecting arms, substantially as described.

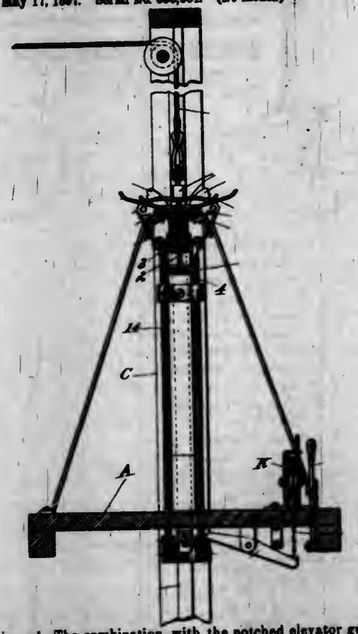
592,540. GEAR FOR ROLLING-STOCK. PETER ELLIS, Christchurch, New Zealand. Filed Nov. 27, 1896. Serial No. 613,689. (No model.)

Claim.—1. In combination, the single axle and wheels, the axle-box, the swing link-hangers depending from each end of said box, the springs in said hangers, and the frame having bolsters upon each side of the axle-box with cross bearing pieces connecting said bolsters and bearing upon the springs, substantially as described.



2. In combination, the axle and wheels, the axle-box, the swing link-hangers depending from each end of said box, the springs carried in the lower portion of said hangers, the frame having bolsters upon each side of the axle, the cross bearing-pieces extending through slots in the hangers and having their ends connected to the bolsters, and bearing-plates located between the springs and cross-pieces, substantially as described.

592,541. ELEVATOR SAFETY DEVICE. ALBERT H. W. ERNST, Chicago, Ill., assignor of one-half to John C. F. A. Schmidt, same place. Filed May 17, 1897. Serial No. 636,901. (No model.)



Claim.—1. The combination, with the notched elevator guides, the elevator-car working between the same, and with the hoisting-rope therefor, of a spring interposed between the rope and the car and normally held in tension by the latter; a couple of rock-shafts provided at their ends with toothed dogs for engaging the guide-faces; a pair of latches adapted for engaging the guide notches; means for maintaining the rock-shafts in position to hold the toothed dogs in inoperative position and also for holding the latches in inoperative position; and means for throwing both the same into operative position upon the releasement of said hoisting-rope spring by the breakage of the hoisting-rope, as set forth.

2 The combination, with the notched elevator-guides, the elevator-car working between the same, and with the hoisting-rope for said car, of a vertically-movable slide attached to the end of the hoisting-rope; a spring engaged by the lower end of said slide and held normally in tension by the weight of the car; a couple of rock-shafts provided at their ends with toothed dogs for engaging the guide-faces; and arranged to be turned by the slide when the same descends upon the releasement of the hoisting-rope spring; springs tending to hold said rock-shafts in position in which the toothed dogs thereof are inoperative; a couple of latches capable of outward projection into position to engage the guide-notches; mechanism for projecting outward said latches; means tending to normally operate said mechanism; and a catch adapted to hold said latches in inoperative position and connected with said rock-shafts so as to release the latches at a time when the rock-shafts are turned by the releasement of the hoisting-rope spring, as set forth.

3. The combination, with the notched guides, the elevator-car working between the same, and with the hoisting-rope therefor, of a spring interposed between the rope and the car and held normally in tension by the weight of the latter; toothed dogs for engaging the guide-faces; mechanism for throwing said dogs into engagement with the guide-faces upon the releasement of the hoisting-rope spring by the breakage of the hoisting-rope; springs for holding the dogs normally out of engagement with said guide-faces; a couple of latches adapted for projection into position to engage the guide-notches; a rock-shaft connected for projecting said latches; a spring tending to turn said rock-shaft; and a catch adapted to hold said latches in inoperative position and connected with the mechanism for operating the toothed dogs so as to release the latches at a time when the dogs are released so as to be thrown into engagement with the guide-faces, as set forth.

4. The combination with the elevator-hoisting rope, of a vertically-movable slide attached thereto, and provided near its upper end with a transverse head or cross-bar; a spring engaged by the movable slide and held in tension by the weight of the car; a couple of rock-shafts provided at their ends with toothed dogs for engaging the guide-faces, and provided also with lateral arms extending below the cross-head of said slide and adapted to be engaged by said cross-head so as to turn the rock-shafts and thereby throw the toothed dogs thereof into engagement with the guide-faces, upon the releasement of the hoisting-rope spring by the breakage of the hoisting-rope, and the consequent descent of the movable slide; and springs tending to normally hold said rock-shafts in position to maintain the toothed dogs thereof out of engagement with the guide-faces, as set forth.

5. The combination with the notched guideways, the elevator-car working between the same, and a hoisting rope or cable for the latter, of a spring interposed between the cable and the car and held normally in tension by the latter; a couple of latches adapted and arranged for projection from the sides of the car into position to engage the guide-notches; mechanism for actuating said latches; spring means tending to operate said mechanism; and a catch adapted to hold the latches in inoperative position and arranged to release the same upon the releasement of the hoisting-rope spring by the breakage of the hoisting-rope, as set forth.

6. The combination, with the notched guides, the elevator-car working between the same, and with the hoisting-rope for the car, of a vertically-movable slide attached to the hoisting-rope; a spring engaged by said slide and normally held in tension by the weight of the car; a couple of latches adapted and arranged for projection outward from the sides of the car into position to engage the guide-notches; a rock-shaft for projecting said latches; a spring tending to operate the rock-shaft so as to project the latches outward; a catch adapted for holding the rock-shaft inoperative; and mechanism for actuating the catch so as to release the rock-shaft upon the releasement of the hoisting-rope spring by the breakage of the hoisting-rope, as set forth.

7. The combination, with the notched elevator-well guides, the elevator-car working between the same, and with the hoisting-rope for the car, of a spring interposed between the hoisting-rope and the car and held normally in tension by the weight of the latter; a couple of latches arranged for projection outward into position to engage said guide-notches; mechanism for operating said latches; a spring tending to actuate said mechanism; a spring-controlled catch adapted, and normally tending to hold said mechanism inoperative; means for withdrawing the catch upon the releasement of the hoisting-rope sprung by the breaking of the hoisting-rope; and hand-controlled means for withdrawing said catch at will, as set forth.

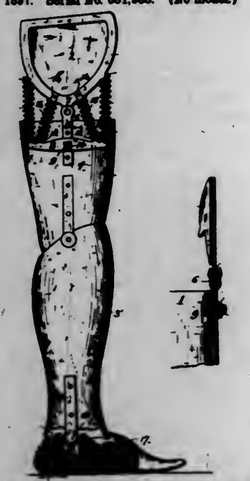
8. In an elevator-car, the combination with the hoisting rope or cable, of a pair of vertically-arranged swinging latches having their upper ends pivotally connected to the car, and their lower ends arranged for outward projection from the sides thereof; a rock-shaft arranged below and substantially parallel to the car-floor, and connected with the latches so as to permit of their being swung inwardly and outwardly by a rocking or turning of the rock-shaft; a spring tending to normally turn the rock-shaft in a direction to swing the latches outwardly; a catch adapted to hold the rock-shaft inoperative; and means for withdrawing the catch so as to permit the spring to turn the rock-shaft and thereby swing the latches outwardly, upon the breakage of the hoisting rope or cable, as set forth.

9. In an elevator-car, the combination with a hoisting rope or cable, of a pair of swinging vertically-arranged latches having their upper ends pivotally connected to the car, and their lower ends ar-

ranged for projection outwardly from the sides thereof; a rock-shaft extending below the car-floor, and having connections with the latches whereby the latter can be swung inwardly and outwardly by turning the rock-shaft; a spring normally tending to turn the rock-shaft in a direction to swing the latches outwardly; a catch adapted to hold the rock-shaft inoperative; means for withdrawing the catch so as to permit the spring to turn the rock-shaft and thereby swing the latches outwardly, upon the breakage of the hoisting rope or cable; and hand-operated means for turning the rock-shaft so as to swing the latches inwardly into inoperative position as set forth.

10. In an elevator, the combination of a pair of vertically-arranged swinging latches having their upper ends pivotally connected with the car, and their lower ends adapted for outward projection from the sides thereof; a rock-shaft extending below the car-floor; links attached eccentrically to the rock-shaft and connected with the latches so as to permit the latter to be swung inwardly and outwardly by turning the rock-shaft; a spring normally tending to turn the rock-shaft in a direction to swing the latches outwardly; a catch adapted to engage a stop or abutment on one of said links so as to hold the rock-shaft inoperative; a spring normally tending to hold the catch in engagement with said stop or abutment; and hand-operated means for drawing the catch out of engagement with the stop or abutment, as set forth.

592,542. ARTIFICIAL LEG. JOSEPH FURBER, East Toledo, Ohio. Filed Apr. 13, 1897. Serial No. 631,983. (No model.)



Claim.—1. In an artificial leg, the combination with a frame attached to the upper member of the leg and pivotally attached to the middle member, of a cross-arm pivotally attached between its ends to said middle member, and springs arranged between the opposite ends of said cross-arm and frame, substantially as described.

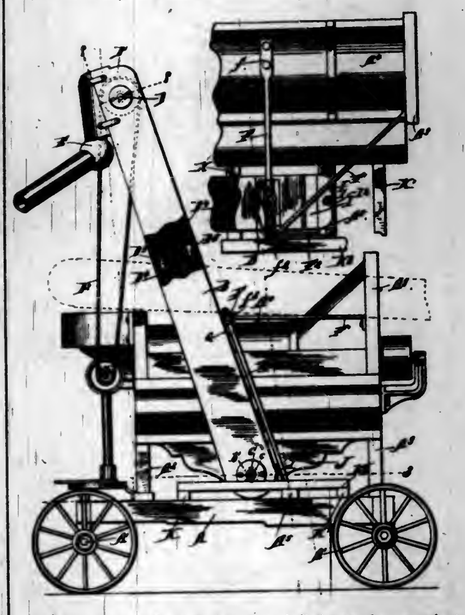
2. In an artificial leg, the combination with the frame attached to the upper member of the leg and provided with downward-projecting lugs, of a metallic strap fixed to the middle member and pivotally connected to said frame, a cross-arm pivoted between its ends to said middle member and provided with upwardly-projecting lugs at its opposite ends, and coiled springs fitted at their opposite ends over the said lugs on the frame and cross-arm, substantially as described.

3. The combination with an artificial leg of an artificial foot articulated thereto and having a rocking motion thereon, a coiled spring arranged in a longitudinal recess in the sole of the foot, and a tang fixed to the leg and projecting down between the convolutions of the spring, substantially as described and for the purpose specified.

592,543. CORN-SHELLER ATTACHMENT. JOHN H. GILMAN, Ottawa, Ill., assignor to the King & Hamilton Company, same place. Filed Apr. 16, 1897. Serial No. 632,452. (No model.)

Claim.—1. In a corn-sheller attachment, the combination of the elevator-frame, the horizontally-disposed shaft, the carrier mounted in said elevator-frame and operated by said shaft, with the horizontally-disposed conveyer, an operating-shaft for said conveyer, which shaft is a continuation of the carrier-shaft, and detachable connections for said shafts, substantially as described.

2. In a corn-sheller attachment, a shelled-corn elevator pivotally mounted upon the machine, adapted to be swung in a vertical plane into and out of operative position; a horizontally-disposed conveyer adapted to convey the shelled corn into the lower end of the elevator when the same is in operative position; and means for driving the said elevator and the said conveyer comprising the shafts J^3 and C, which can be connected and disconnected as desired.



3. In a corn-sheller attachment, a shelled-corn elevator, pivotally mounted upon the machine, adapted to be swung into and out of operative position; a conveyer adapted to convey corn into the lower end of the elevator when the same is in operative position; detachable connections between the elevating mechanism of the elevator and the said conveyer, adapted to drive the latter from the former; and means for driving the said elevating mechanism.

4. In a corn-sheller attachment, a shelled-corn elevator, pivotally mounted upon the machine and adapted to be swung in a vertical plane into and out of operative position; a conveyer adapted to convey corn into the lower end of the elevator when the same is in operative position; detachable connections between the lower shaft of the elevating mechanism and the conveyer-shaft; and means for transmitting power from the machine to the upper shaft of the said elevating mechanism.

5. In a corn-sheller attachment, the elevator B; the horizontal bar F; the tie-rod F'; the strut F^3; a connection between the middle of the elevator and the bar F permitting the elevator to be swung upon the latter as a pivot; and means for securing the elevator in its upright operative position.

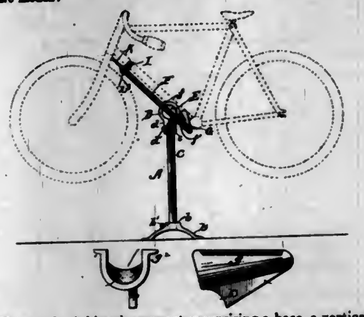
6. In a corn-sheller attachment, the elevator B; the horizontal bar F; the tie-rod F'; the strut F^3; the plate G' secured to the elevator midway its length and adapted to pivot upon the bar F; an eyebolt H securing the said plate to the said bar; and means for holding the elevator in its normal operative position.

7. In a corn-sheller attachment, the elevator B provided at its inner lower end with an aperture B^3; the upper shaft of the elevating mechanism D; means for driving the same from the machine; the lower shaft C; suitable elevating mechanism within the elevator actuated from the said shafts; a hopper J; a barrel J^4, connecting the said hopper with the aperture B^3 of the elevator; and a screw conveyer, the shaft of which is detachably keyed to the lower elevator-shaft C.

8. In a corn-sheller attachment, a shelled-corn elevator B pivotally mounted upon the machine, and adapted to be swung into and out of operative position, provided at its inner lower end with an aperture B^3; the upper shaft of the elevating mechanism D; means for driving the same from the machine; the lower shaft C; suitable elevating mechanism within the elevator actuated from the said shafts; a hopper J; a barrel J^4 connecting the said hopper with the aperture B^3 of the elevator; and a screw conveyer, the shaft of which is detachably keyed to the lower elevator-shaft C.

9. In a corn-sheller attachment, a shelled-corn elevator B provided at its inner and lower end with an aperture B^3; the upper shaft D of the elevating mechanism provided with the driving sprocket-wheel D', and the elevating sprocket-wheel D^2; the sprocket-chain D^3 connecting the sprocket-wheel D' with the driving mechanism of the machine; the lower shaft C of the elevating mechanism provided with a recess c, and carrying a sprocket-wheel C'; an elevator-chain D^4 and buckets D^5 carried by the sprocket-wheels D^2 and C'; a hopper J; the barrel J^4 connecting the said hopper J with the aperture B^3 of the elevator; the conveyer-shaft J^3, the end of which is adapted to fit in the recess of the shaft C, provided with the helical flange J^3; the bar F suitably supported; and a connection between the said bar and the elevator adapted to permit the latter to swing in a vertical plane.

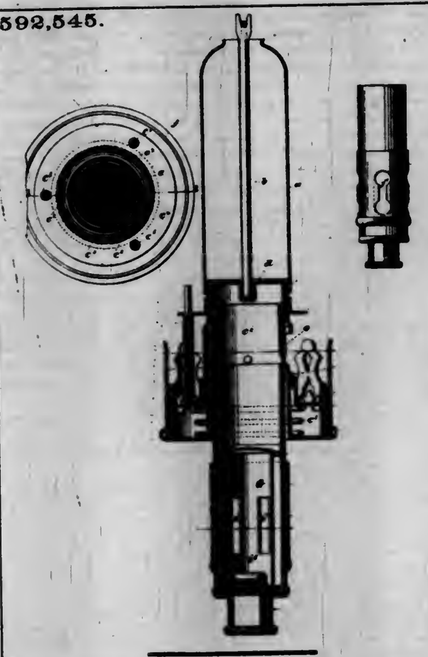
592,544. BICYCLE-STAND. ARCHIBALD P. GRAHAM and SAMUEL T. PEARSONS, Rutland, Vt. Filed May 6, 1897. Serial No. 635,314. (No model.)



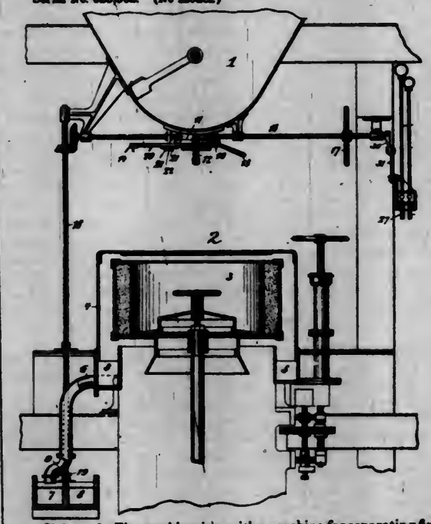
Claim.—1. A bicycle-support comprising a base, a vertical shaft adjustable in said base, a swivel-cap on the top of said shaft, a lock-washer secured to the upper part of said swivel-cap and having a guideway formed on the same, a slide-bar adjustably secured in said guideway and means to clamp said slide-bar at different angles with respect to said shaft, a wedged-shaped support upon the lower end of said slide-bar, rests upon the upper end of said slide-bar to bear against the front forks of the wheel and hold the same in the same plane with the rear wheel and to support the wheel, the crank-hanger being supported and steadied by said wedged-shaped support, substantially as described and set forth.

2. The combination in a bicycle-support of a base, a vertical shaft adjustable in said base, a swivel-cap secured to revolve upon the upper end of said shaft and having an enlarged and recessed upper end, a lock-washer fitting in said recess, and having a guideway formed upon the outer surface of the same, a bar adjustable in said guideway and means to clamp the bar, washer and swivel-cap in any desired position, a support upon the lower end of said bar to support the crank-hanger or hub of a bicycle, and rests upon the upper end of said bar, adjustable thereon, to bear against the front forks of the wheel to keep the wheels in the same plane, and to support the wheel in an upright and steady position in connection with the crank-hanger support, as and for the purposes set forth.

592,545.



592,546. CONTROL APPARATUS FOR CENTRIFUGAL MACHINES. ARTHUR E KRAUSE, Jersey City, N. J. Filed Mar. 1, 1897. Serial No. 625,562. (No model.)



Claim.—1. The combination, with a machine for separating fluids from solids and washing the solids so separated, and a plurality of receptacles adapted to receive the drainings from the machine of a discharge apparatus adapted to direct the drainings into either of said receptacles, a source of supply of washing liquor, a locking device adapted to prevent or to permit the supplying of washing liquor to the machine, at will, and an operating device connected with said discharge apparatus and locking device, and arranged to cause the discharge apparatus to direct the drainings into the one receptacle or the other according as the flow of washing liquor is prevented or permitted by the locking device, substantially as described.

2. The combination, with a machine for separating fluids from solids and washing the solids so separated, a plurality of receptacles

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592,545. BURNER. JOHN F. W. GROTE, New York, N. Y., assignor, by mesne assignments, to the Diamond Light Company. Filed Mar. 2, 1897. Serial No. 625,790. (No model.)

Claim.—1. A mixing-chamber comprising an inner apertured casing, a surrounding outer apertured casing, the said casings being placed with respect to each other in such manner as to bring each of the apertures of the outer casing opposite a solid portion of the wall of the inner casing, combined with a perforated air-shutter for regulating the admission of air to the apertures of the outer casing.

2. The combination of an apertured inner casing and an apertured outer casing having straight-cut apertures substantially as shown, combined with an air-shutter surrounding the said outer casing and having dumb-bell-shaped apertures coöperating with the straight-cut apertures of the outer casing to regulate the air supply thereto.

3. In a burner, the combination with a mantle support, of a cup or collar c, a plurality of standards guiding the said cup, coiled springs surrounding the said standards and supporting the cup and a spring-supporting means for springily supporting the standards.

4. In a burner, the combination of a mantle-supporting cup or collar c, vertically-moving spring-supported standards for guiding the cup or collar in its movement and springs c^2 coöperating with the standards and supporting the cup or collar, substantially as described.

adapted to receive the drainings from the machine, and a charging-receptacle having a supply-valve by which the mixture of solid and fluid matter may be supplied to the machine, of a discharge apparatus adapted to direct the drainings into either of the drainings-receptacles, a source of supply of washing liquor, a locking device adapted to prevent or to permit the supplying of washing liquor to the machine, at will, a second locking device adapted to engage the supply-valve of the charging-receptacle and prevent the opening thereof, and an operating device connected with and adapted to operate said locking devices and said discharge apparatus, and arranged to cause the discharge apparatus to direct the drainings into the one receptacle or the other according as the flow of washing liquor is prevented or permitted, and to cause the locking device to lock the supply-valve when the flow of washing liquor is permitted, substantially as described.

3. The combination, with a machine for separating solids from fluids and washing the solids so separated, and two or more receptacles adapted to receive the drainings from the machine, of a discharge apparatus adapted to direct the drainings into either of said receptacles, a source of supply of washing liquor having a valve, a movable cage inclosing said valve and preventing the opening thereof, but adapted to be removed therefrom, and an operating device, connected with and adapted to operate both said cage and said discharge apparatus, and arranged to cause the discharge apparatus to direct the drainings into the one receptacle or the other according as the opening of the washing-liquor valve is prevented or permitted, by said cage, substantially as described.

4. The combination, with a machine for separating solids from fluids and washing the solids so separated, and two or more receptacles adapted to receive the drainings from the machine, of a discharge-pipe having a movable nozzle by which the drainings may be directed into either of said receptacles, a source of supply of washing liquor, a locking device adapted to prevent or to permit the flow of washing liquor, at will, and an operating device connected with said locking device and with said movable nozzle, and arranged to cause said nozzles to direct the drainings into the one receptacle or the other according as the flow of washing liquor is prevented or permitted, substantially as described.

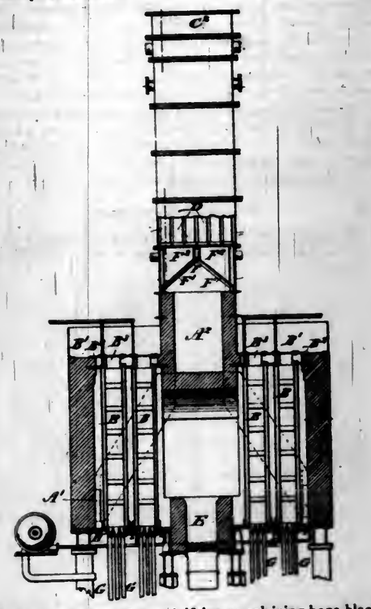
5. The combination, with a machine for separating solids from fluids and washing the solids so separated, two or more receptacles adapted to receive the drainings from the machine, and a charging-receptacle having a supply-valve by which the mixture of solid and fluid matter may be supplied to the machine, of a discharge apparatus adapted to direct the drainings into either of the drainings-receptacles, a source of supply of washing liquor, a locking device adapted to prevent or permit the supplying of washing liquor to the machine, at will, a second locking device adapted to engage the supply-valve of the charging-receptacle and prevent the opening thereof, and an operating-shaft, revolubly mounted, and connected with and adapted to operate said locking devices and discharge apparatus, and to cause the discharge apparatus to direct the drainings into one receptacle, to cause the first locking device to prevent the flow of washing liquor, and to cause the second locking device to unlock the supply-valve, when said shaft is rotated in one direction, and to cause the discharge apparatus to direct the drainings into the other receptacle, to cause the first locking device to permit the flow of washing liquor, and to cause the second locking device to lock the supply-valve, when said shaft is rotated in the other direction, substantially as described.

592,547. APPARATUS FOR REVIVIFYING BONE-BLACK.

ARTHUR R. KRAUSE, Jersey City, N. J. Filed Apr. 13, 1896. Renewed July 10, 1897. Serial No. 644,131. (No model.)

Claim.—1. In an apparatus for revivifying or calcining bone-black and similar substances, the combination, with a kiln having a retort-chamber and a furnace therefor, of a series of vertical retorts in said chamber having passages through which the bone-black may pass by gravity, having openings communicating with the bone-black passages, through which air may be admitted to and brought into contact with the bone-black, and having also escape-openings through which gases liberated within the retorts may escape, and means for conducting air to said air-openings, whereby the decarbonization of the bone-black is effected, substantially as described.

2. In an apparatus for revivifying or calcining bone-black and similar substances, the combination, with a kiln having a retort-chamber and a furnace therefor, of a series of retorts in said chamber having passages through which the bone black may pass, having openings communicating with the bone-black passages through which air may be admitted to and brought into contact with the bone-black, and having also escape-openings through which gases liberated within the retorts may escape, shelves in said bone-black passages above and connecting corresponding air and escape openings and forming transverse air-passages, and means for conducting air to said air-openings, whereby the decarbonization of the bone-black is effected, substantially as described.



3. In an apparatus for revivifying or calcining bone-black and similar substances, the combination, with a kiln having a retort-chamber and a furnace therefor, of a series of retorts in said chamber having passages through which the bone-black may pass, having openings communicating with the bone-black passages, through which air may be admitted to and brought into contact with the bone-black, and having also escape-openings through which gases liberated within the retorts may escape, inclined shelves integral with the retorts in said bone-black passages above and connecting corresponding air and escape openings, which stiffen the retorts and form transverse air-passages, and means for conducting air to said air-openings, whereby the decarbonization of the bone-black is effected, substantially as described.

4. In a revivifying or calcining apparatus, the combination, with a kiln having a retort-chamber and a furnace therefor, of a series of retorts within said chamber having passages for the substances to be calcined, and having air-passages upon the sides against which the furnace-gases impinge, whereby the retorts are protected from overheating on those sides, substantially as described.

5. In an apparatus for revivifying or calcining bone-black and similar substances, the combination, with a kiln having a retort-chamber and a furnace therefor, of a series of vertical retorts within said retort-chamber having passages through which the bone-black may pass by gravity, and arranged to discharge the bone-black into cooling apparatus without the retort-chamber wherein the heat of the bone-black is imparted to the surrounding air, said retorts having also openings through which air may be admitted to and brought into contact with the bone-black and the decarbonization of the bone-black thereby effected, and air-passages connected with said openings and with the air-spaces of the cooling apparatus, and adapted to supply heated air to the retorts, substantially as described.

6. A calcining-retort consisting of a tube formed of one piece of metal and having formed therein a main passage and flues connected with said main passage by openings, said tube being provided with inclined shelves within and extending part way across said main passage, and connecting corresponding openings of said flues, thus forming transverse air-passages across the main passage of the retort, substantially as described.

7. A calcining-retort consisting of a tube formed of one piece of metal and having formed therein a main passage and flues connected with said main passage by openings, and inclined shelves, integral with the retort, within and extending part way across said main passage, and connecting corresponding openings of said flues, which protect the openings, form transverse air-passages across the retort, and stiffen the retort, substantially as described.

8. In a revivifying or calcining apparatus, the combination, with a calcining kiln, of a vertical tubular retort within said kiln, a socket in which said retort rests at the bottom, surrounding the lower end of said retort and adapted to receive luting material, and projecting through an opening in the bottom of the kiln, cooling-pipes connected with said socket-piece, and a spacing-piece within the socket and outside of the retort, for holding the retort stationary in the socket, substantially as described.

9. In a revivifying or calcining apparatus, the combination with a calcining-kiln, of a tubular retort within said kiln having a main passage and an air-flue at the side of said main passage open at the bottom of the retort, and a socket in which said retort rests at the bottom, surrounding the lower end of the retort and adapted to receive luting material, said socket projecting through the bottom of the kiln and having an opening registering with the open end of the air-flue, whereby air may be admitted to the air-flue, substantially as described.

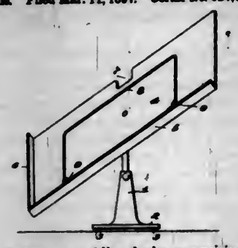
10. In an apparatus for drying pulverulent and granular substances, a drying-tube consisting of a tube formed of one piece, and having a main passage and at opposite sides of said main passage air and exhaust flues, separated from the main passage by partitions integral with the tube which have in them at intervals openings connecting the main passage with the air and escape flues, said tube having its sides set in between the air and escape flues so as to form inclined shelves above said openings extending part way into the main passage, substantially as described.

11. In an apparatus for drying pulverulent and granular substances, the combination, with a casing containing a main chamber and upper and lower air-chambers separated from the main chamber by top and bottom plates, of a series of drying-tubes within said main chamber, having main passages communicating at the bottom with the lower air-chamber through openings in the bottom plates, and having air and exhaust flues at the sides of the main passages and communicating therewith at intervals throughout the length of the main passages, the air-flues being closed at the top and being in communication with the lower air-chamber through openings in the bottom plate, and the exhaust-flues being closed at the bottom and in communication at the top with the upper air-chamber, and means for circulating heated gases through the main chamber of the drier, substantially as described.

12. In an apparatus for drying pulverulent and granular substances, the combination, with a casing containing a main chamber and a lower air-chamber separated from the main chamber by a bottom plate, of a series of drying-tubes within said main chamber having main passages communicating at the bottom with the lower air-chamber through openings in the bottom plate, and having air and exhaust flues at the sides of the main passages and communicating therewith at intervals throughout the length of the main passages, the air-flues being closed at the top and being in communication with the lower air-chamber through openings in the bottom plate, downwardly-projecting aprons at the lower ends of the drying-tubes arranged to prevent the filling up of the openings in the bottom plate communicating with the air-flues, and forming with the material flowing from the drying-tubes air-conduits leading to said air openings in the bottom plate, air-supply pipes arranged to deliver air in the conduits so formed, and means for carrying away the air from the exhaust-flues of the drying-tubes, substantially as described.

592,548. SHEET-ASSEMBLING DEVICE.

JOE LARRABEE, Kansas City, Kans. Filed Mar. 11, 1897. Serial No. 627,044. (No model.)



Claim.—1. A sheet-assembling device comprising in its construction a flat plate or bed having two flanges at a right angle to each other, and means for supporting said plate in a sidewise and endwise inclined position with the angular corner of the flanges at the lowest point.

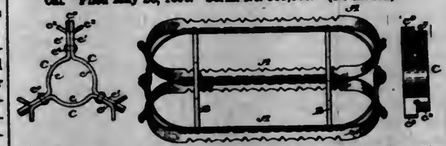
2. A sheet-assembling device comprising in its construction a flat plate or bed having two flanges at a right angle to each other, and means for supporting said plate in a sidewise and endwise inclined position with the angular corner of the flanges at the lowest point, one of the higher edges of the said plate being recessed to facilitate grasping the assembled sheets.

3. A sheet-assembling device comprising in its construction a flat plate or bed having two flanges at a right angle to each other, means for supporting said plate in a sidewise and endwise inclined position with the angular corner of the flanges at the lowest point, and a movable retainer for holding sheets on said plate.

4. The combination with a suitable standard, of the inclined plate or bed having one corner lower than any other portion of its surface and provided with flanges 5 and 6 along its lower edges, and the retainer 8 pivotally connected with one of said flanges, substantially as described.

592,549. PEDAL FOR CYCLES.

ESTELL W. LINCOLN, Pasadena, Cal. Filed May 28, 1896. Serial No. 593,370. (No model.)



Claim.—1. A triangular pedal for cycles, comprising three pieces forming side bars having at one or both ends curved arms, the ends of adjoining pairs of arms being fastened together, and means for attaching said bars to the spindle of the crank, substantially as described.

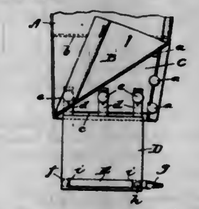
2. A pedal for cycles comprising triangular frame-supports, and side bars each consisting of a middle portion secured to an angle of said supports, with curved arms at one or both ends, the adjoining pairs of arms being secured together, and lying in substantially the same plane as the contiguous portions of the side bars, substantially as described.

3. A pedal for cycles comprising triangular frame-supports and side bars secured thereto, each having at one or both ends, curved arms provided with perforated lugs, said lugs being secured together and rising above the plane of the edges of said bars substantially as described.

4. A pedal for cycles, comprising three side bars having holes, and supports each composed of three similar pieces, each piece having a curved middle portion c and flat end portions c', the latter being slit at the end to form two lugs, one of which c^2 is bent at an angle to the portion c' to form a shoulder on which a side bar rests while the other lug is left projecting to form a tongue c^3, the two tongues on the adjacent ends of each two supporting-pieces being placed side by side, passed through a hole in a side bar, and riveted down thereon, substantially as described.

592,550. KNEE-PROTECTING ATTACHMENT FOR TROUSERS.

EDMUND H. LUDEKE, Denver, Colo. Filed Aug. 12, 1897. Serial No. 647,969. (No model.)



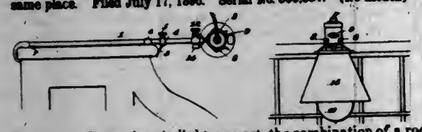
Claim.—1. The combination, with the trousers-leg A having the usual flap B at its lower end, of the supporting fabric C, secured within the trousers-leg beneath the flap B, and the knee-protecting attachment D supported at its upper end by the fabric C and provided at its lower end with the strap E adapted to encircle the leg and hold the attachment D in position upon the knee, substantially as described.

2. The combination, with the trousers-leg A having the usual flap B at its lower end, of the supporting fabric C, secured within the trousers-leg beneath the flap B, and the knee-protecting attachment D connected at its upper end to the fabric C by the elastic straps d and provided at its lower end with the strap E adapted to encircle the leg and hold the attachment in position upon the knee, substantially as described.

3. The combination, with the trousers-leg A having the usual flap B at its lower end, of the supporting fabric C secured within the trousers-leg beneath the flap B and provided with the buttons e, and the attachment D provided at its upper end with the straps d having buttonholes engaging the buttons e, to detachably connect the attachment D to the supporting fabric C, and provided at its

lower end with the strap E adapted to encircle the leg, and secure the attachment in position upon the knee.

592,551. INCANDESCENT-ELECTRIC-LIGHT SUPPORT. ROSS L. MASON, Duluth, Minn., assignor of one-half to Rudolph G. Wieland, same place. Filed July 17, 1896. Serial No. 599,557. (No model.)



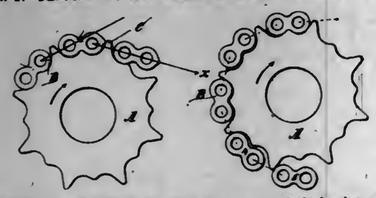
Claim.—1. In an electric-light support, the combination of a rod or arm, a collar rotatably mounted thereon, spring-clips carried by said collar, and an incandescent lamp supported in said spring-clips, substantially as set forth.

2. In an electric-light support, the combination of a supporting rod or arm, a collar movable lengthwise thereon and capable of rotation thereon, a set-screw for locking said collar, spring-clips secured to said collar, and an incandescent lamp held by said spring-clips, substantially as set forth.

3. In an electric-light support, the combination of a base, a rod or arm mounted on said base and capable of universal movement with respect to the same, a collar rotatably mounted on said rod or arm, spring-clips carried by said collar, and an incandescent lamp supported in said spring-clips, substantially as set forth.

4. In an electric-light support, the combination of a base, a rod or arm mounted on said base and capable of universal movement with respect to the same, a collar movable lengthwise on said rod or arm and capable of rotation thereon, a set-screw for locking said collar, spring-clips secured to said collar, and an incandescent lamp held by said spring-clips, substantially as set forth.

592,552. DRIVE-CHAIN. EVERETT P. MORSE, Trumansburg, N. Y. Filed Nov. 19, 1896. Serial No. 612,679. (No model.)



Claim.—1. In a sprocket-and-chain gear, a chain having a driving block or link provided with a projection which during strain engages the driven wheel at or above the line of strain thereby avoiding the tendency of the rear end of the block or link to lift off the driven wheel.

2. In a drive chain, a driving block or link provided with a projection on the end for engagement with the sprockets when the block is in position of rest upon the wheel, substantially as and for the purpose described.

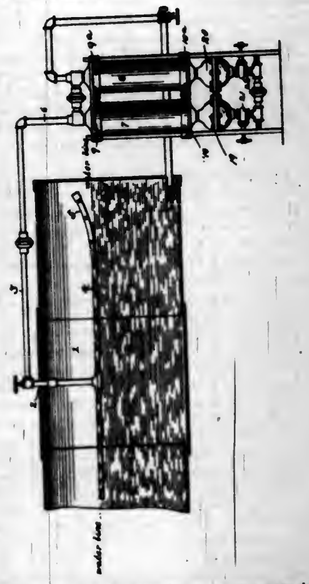
3. In a drive-chain, a central link or driving block whose body portion has curved ends and which has an extension on one end whose periphery is an arc of less radius than the curved ends of the body portion of the block.

592,553. AUTOMATIC BOILER-CLEANING APPARATUS. HENRY A. NEWCOMB, Chicago, Ill., assignor to Henry Boehmer, Barrington, Ill. Filed Apr. 1, 1897. Serial No. 630,333 (No model.)

Claim.—1. A boiler-cleaner comprising two connected precipitating-cylinders, a double cone-shaped deflector arranged in each cylinder, a pipe located over and inclosing a portion of one end of each deflector, a hood carried by each pipe and adapted to be moved thereon to adjust the hood with relation to the deflector, a mud-drum below each cylinder, an inlet-pipe connecting one of the cylinders with the boiler at the water-line, and an outlet-pipe connecting the other cylinder with the boiler below the water-line, substantially as described.

2. A boiler-cleaner comprising two connected precipitating-cylinders, a double cone-shaped deflector arranged in each cylinder, a pipe located over and inclosing a portion of one end of each deflector, a hood carried by each pipe and adapted to be moved thereon to adjust the hood with relation to the deflector, a mud-drum below each cylinder, an inlet-pipe connecting one of the cylinders with a skimmer at the water-line, and an outlet-pipe connecting the other cylinder with the boiler below the water-line, substantially as described.

3. A boiler-cleaner comprising two connected cylinders, telescopic pipes extending into the cylinders, a double cone-shaped deflector secured to each pipe, a hood on the pipes mounted for adjustable movement thereon, and mud-drums, provided with valves, in communication with the cylinders, substantially as described.



4. In an automatic boiler-cleaning apparatus, a precipitating-cylinder, an adjustable diamond-shaped deflector arranged therein, a funnel-shaped deflector inclosing the first-named deflector to its middle line, an inlet-pipe to which the second-named deflector is adjustably secured, the said pipe discharging upon the point of the diamond-shaped deflector, a second precipitating-cylinder connecting with the first cylinder near its top, and containing also, a diamond-shaped deflector inclosed by a funnel-shaped deflector, mud drums below and in communication with the cylinders, a pipe connecting the first cylinder and the boiler above the water-line, a pipe connecting the second cylinder and the boiler below the water-line, and suitable valves on the boiler connecting pipes and the mud-drums, substantially as described.

592,554. BROOM-HANDLE. GEORGE W. PARK, Quincy, Mass. Filed Apr. 26, 1897. Serial No. 633,926. (No model.)



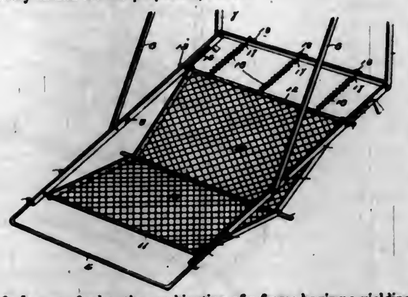
Claim.—1. A broom-handle composed of two sections having beveled or inclined faces which abut against each other, said sections being provided with means for preventing relative endwise movement of either section, and means for yieldingly connecting the portions on which said beveled faces are formed.

2. A broom-handle composed of two sections having beveled or inclined faces which abut against each other, each section having a pin projecting loosely into a socket or aperture in the other section, the two sections being yieldingly connected by resilient means which surround the portions on which said beveled faces are formed.

592,555. CAR-FENDER. ERNEST TORTOISEMELL, Paterson, N. J., assignor of one-half to James W. Jackson, same place. Filed Mar. 25, 1897. Serial No. 629,112. (No model.)

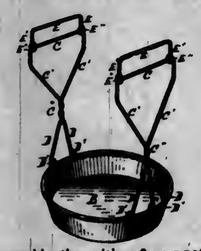
Claim.—1. In a car-fender, the combination of a jointed receiving-bed, with a rod or bar at the upper portion thereof having oppositely-projecting ends, a frame with slots therein through which the projecting ends of the rod or bar extend, and catches to engage the said projecting ends, substantially as and for the purposes specified.

2. In a car-fender, the combination of a jointed receiving-bed having a central rod with outwardly-projecting ends, and an upper rod also provided with projecting ends, a frame surrounding the receiving-bed with slots therein to receive the projecting ends of the rods, catches situated adjacent to and coacting with the projecting ends of the upper rod, and a series of adjustable springs attached to the upper rod of the receiving-bed and to an adjacent portion of the frame, substantially as and for the purposes specified.



3. In a car-fender, the combination of a frame having a yielding guard-rod at the front portion thereof and slots in the opposite side bars, a receiving-bed consisting of jointed sections of net or other suitable material and having a central rod with outwardly-projecting ends and an upper rod with similar ends, said projecting ends of the rod extending through the slots in the said side bars, catches situated adjacent to and coacting with the projecting ends of the upper rod and springs attached to the upper rod and adjustably connected to an adjacent portion of the frame, substantially as and for the purposes specified.

592,556. ATTACHMENT FOR FLOWER-POTS. CARL W. WERNER, Wakefield, Mass. Filed May 1, 1897. Serial No. 634,721. (No model.)



Claim.—1. In combination with a flower-pot and its saucer B; a pair of lifting attachments each comprising a frame secured at its lower end to the saucer and extending up therefrom to the upper edge or mouth of the flower-pot, and handles secured to the upper ends of said frames, substantially as described.

2. In combination with a flower-pot and its saucer B; a pair of lifting attachments each comprising a frame secured at its lower end to the saucer and extending up therefrom to the upper edge or mouth of the flower-pot, and handles pivotally secured to the upper ends of said frames and adapted to swing inward and over the upper edge of the pot, substantially as set forth.

3. In combination with a flower-pot and its saucer B; a pair of lifting attachments each comprising a wire lifting-frame consisting of the upper substantially horizontal portion C located at the upper edge of the flower-pot, legs bent down from said portions and secured at their lower ends to the saucer, and the wire handles each consisting of the central portion E and downwardly projecting portions E' the lower ends of the latter being hooked upon said portions C, substantially as described.

4. In combination with a flower-pot and its saucer B; the herein-described lifting attachments each comprising the wire lifting-frame consisting of the upper substantially horizontal portion C located at the upper edge of the flower-pot, the downwardly-extending legs each consisting of the pair of wires C' twisted around each other at C'' and spreading at their lower ends into the portions D which are secured to the saucer, and the wire handles E, E' swinging from said portions C and adapted to fold inward over the upper edge of the pot, substantially as described.

592,557. ANTIFRICTION-CLIP FOR REAPERS OR MOWERS. FRANK BARCLAY, Beatrice, Nebr. Filed May 6, 1897. Serial No. 635,266. (No model.)

Claim.—1. In a reaper or mower provided with ball-bearings for the rear edge of the sickle, a loose plate inserted between the balls and the rear edge of the sickle, substantially as and for the purpose set forth.



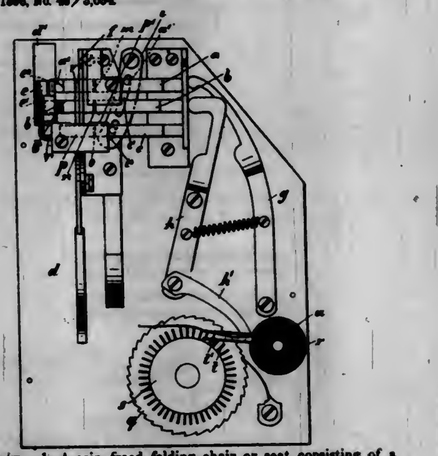
2. In a reaper or mower, in combination with the sickle, a clip provided with a pocket or recess containing antifriction-balls, and a loose plate inserted between the rear edge of the sickle and the balls, substantially as shown and described.

3. A clip for reapers and mowers, provided with a pocket or recess for the reception of antifriction-balls, and a groove i for holding a loose plate in place in front of the balls, substantially as described.

4. In combination with the cutter-bar A, finger-guards b, and bolts l l' for securing the finger-guards to said bar; clip B provided with detachable finger a, the clip and the finger being slotted substantially as shown; whereby the clip with its finger may be held by the same bolts that hold the finger-guards, without interfering with adjustment of the parts.

5. The clip B provided with the pocket or recess o, having its rear wall projected at the top sufficiently to prevent the escape of the balls, and having a groove t formed therein to enable the balls to be inserted or removed when desired, as specified.

592,558. COIN-CONTROLLED FOLDING STOOL. FELIX BEHLOW, Berlin, Germany. Filed Dec. 30, 1895. Serial No. 572,790. (No model.) Patented in Germany Aug. 2, 1895, No. 87,196; in France Nov. 15, 1895, No. 251,729; in England Nov. 16, 1895, No. 21,809, and in Austria July 20, 1896, No. 46/3,034.



Claim.—1. A coin-freed folding chair or seat consisting of a keeper secured to the seat and having slots c' and c^2 respectively engaging the bolt b and sliding plate a contained in the casing d a second sliding plate c linked to the sliding plate a by a pivoted arm i in such a way, that the second sliding plate has a longer travel than the first, registering slots m o and n in the plates a and c and bolt b respectively whereby they can be coupled together by an inserted coin and move conjointly when the keeper is withdrawn by reason of the obliquity of the slot c^2 in the keeper and projection a^2 on the sliding plate a, all parts being arranged to operate substantially as hereinbefore described and illustrated in the accompanying drawings and for the purpose stated

2. In coin-freed folding chairs or seats, a registering mechanism consisting of a ratchet-wheel g carrying a spiked roller s, operated by a pawl k' on the lever actuated by the retracting-bolt b of the coin-freed folding chair or seat, the spiked roller for pricking holes in and unwinding a strip of paper from a roll r, arranged substantially as and for the purpose hereinbefore described and illustrated in the accompanying drawings.

592,559. CARPET-BEATER. WILLIAM J. BENNETT, Fond du Lac, Wis. Filed Feb. 16, 1897. Serial No. 623,670. (No model.)

Claim.—1. As a new article of manufacture, a carpet-beater comprising a cylindrical conical handle 1, a series of flexible fingers 2 and 2', arranged in the same plane and having their enlarged con-

verging ends secured in said handle by a binding material 3, of lead or other suitable substance, in combination with a sliding guard 4, comprising the approximately parallel integral arms 5 5, the inner ends of said arms formed with eyes 6 6, and adapted to encompass and slide freely on the outer fingers 2' 2', the outer ends of said arms connected by an integral cross-brace 7, formed with an alined series of loop-eyes 8, said eyes receiving the fingers 2 and 2', notches 9 9 formed in the said outer fingers 2' 2' to engage with said removable slide, substantially as and for the purpose set forth.



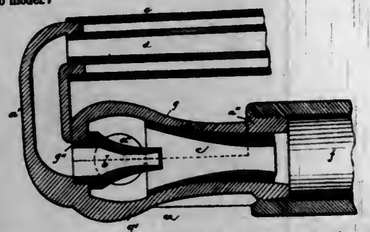
2. As a new article of manufacture, a carpet-beater comprising the tubular conical handle 1, diverging fingers 2 secured in said handle, in combination with a sliding guard 4, comprising the approximately parallel integral arms 5 5, their inner ends formed with eyes 6 6, adapted to encompass the outer fingers 2' 2', the outer ends of said arms connected by an integral cross-brace 7, the said cross-brace formed with a series of eyes 8, said eyes individually receiving the fingers 2 and 2' 2', substantially as shown and described.

592,560. FLAT-IRON CLEANER. ORRILLA S. BRADLEY, Saratoga Springs, N. Y. Filed Dec. 11, 1896. Serial No. 615,380. (No model.)



Claim.—In a flat-iron cleaner, the combination of the base-plate having a beveled edge and a wedge-shaped strip of wax secured to said beveled edge by means of a tightly-stretched fabric coating, and a plurality of sheets of soft material for cleaning irons, and a plurality of sheets of sandpaper for polishing them, these sheets being secured in series respectively to reverse sides of the base-plate, substantially as shown and described.

592,561. JET-PUMP FOR HYDRAULIC ELEVATION, &c. LEON A. CONORD, Elizabeth, N. J. Filed Feb. 27, 1897. Serial No. 625,329. (No model.)



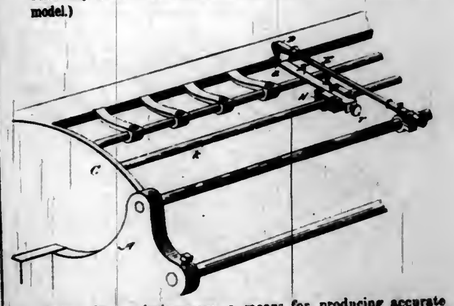
Claim.—1. The combination with the pump-body having at opposite sides funnel-like openings, and an interior nozzle and throat or lining and at its opposite ends having pipe extensions, the said pump-body being in sections, one section having the said extensions and the other being removable from the first and adapted to allow an easy removal of the throat or lining, a jacketed steam-pipe and a water-pipe arranged in connection with the said extensions, all substantially as set forth.

2. The combination with the parallel steam and water pipes, of a sectional pump-body having an inlet for the water to be pumped, said body being in longitudinal sections one of which has a threaded and turned pipe-receiving boss or extension to receive a steam-pipe and a jacket therefor, and at the opposite end another tubular boss or extension for the large water-pipe, and the other of which lies between said bosses, a throat-piece having a retaining-lug and adapted to be lifted from its seat in the pump-body and means for holding said parts together, substantially as set forth.

3. The combination with the pump-body section g', having integral extensions a', a'', suitably turned or formed to receive parallel steam and water pipes, a removable section g, arranged between said extensions, and independent thereof, a removable nozzle, and lining or throat-piece, a jacketed steam-pipe and a water-pipe parallel therewith, all said parts being arranged and combined, substantially as set forth.

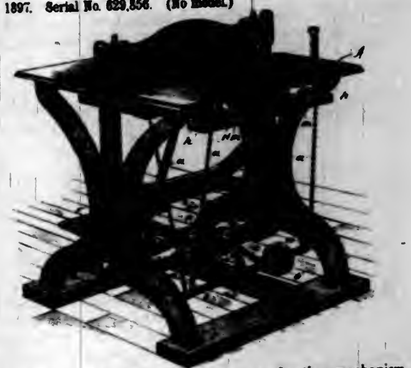
592,562. WITHDRAWN.

592,563. PRINTING-PRESS. ABNER GREENLEAF, Baltimore, Md. Filed July 8, 1895. Renewed Mar. 29, 1897. Serial No. 629,855. (No model.)



Claim.—In a printing-press, a means for producing accurate registration, the same consisting of an impression-cylinder provided with an abutting gage, fixed on the cylinder and movable with it, in combination with a guide above the paper for directing the edge of the paper to the gage, said guide being independent of and not movable with the cylinder, as set forth.

592,564. MACHINE FOR PERFORATING PAPER. ABNER GREENLEAF, Baltimore, Md. Filed July 8, 1895. Renewed Mar. 29, 1897. Serial No. 629,856. (No model.)



Claim.—1. The combination with a perforating mechanism of two or more stop-gages and means whereby each gage is brought successively into operation as the successive rows of perforations are made.

2. The combination of perforating mechanism, two or more stop-gages arranged in series and automatic means to successively and repeatedly bring the gages into operation as the perforations are made.

3. In a perforating-machine the combination of a series of adjustable gages adapted to be set according to the distances between the lines or perforations, means for making perforations and means operated through the perforating mechanism to successively bring the gages into operative position.

4. In a perforating-machine, the combination of a series of gages, movable and fixed, and means to automatically remove and render inoperative the movable gages one at a time and leave the next in order effective.

5. In a perforating-machine, the combination of perforating mechanism, with gaging mechanism, and means whereby the same operation which causes the perforating of one line, will make effective the gage for the next line, substantially as set forth.

6. In a perforating-machine, a movable frame, a series of adjustable gages fixed in said frame, and means to automatically render said gages consecutively effective, as set forth.

7. In a perforating-machine, a movable frame, having movable gages arranged therein, said gages being normally fixed, and the frame having an automatic action, by which the gages become successively effective and then inoperative in a continuous round, as set forth.

8. In a perforating-machine, a movable frame containing gages, means to support the frame in normal position, and means to withdraw the gages *seriatim* as the perforations are made, until all have operated, and means to return all the gages to normal position, as set forth.

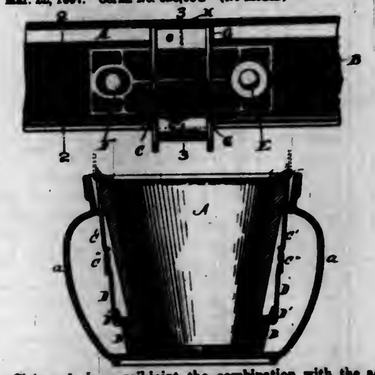
9. In a perforating-machine, a table provided with perforating mechanism, and a series of movable gages connected therewith, the gages being actuated by the operation of the machine and thereby rendered effective to gage the distance between the several lines of perforations, said gages being fixed in regard to the distance from the line of perforation, while in operation, but capable of adjustment to and from the same, as set forth.

10. In a perforating-machine, a series of adjustable gages, normally fixed in their relation to the line of perforation, the series being disposed progressively in the order of the work to be done, and each gage determining the location of a line of perforation, and each gage in the series being automatically withdrawn after it has performed its function, in the manner as set forth.

11. In a perforating-machine, the combination of perforating mechanism, with a table provided with suitable openings, a frame located beneath, adjustable gages normally fixed in said frame and projecting through the openings in said table, and means to cause the gages to disappear, in the manner described and for the purpose set forth.

12. In a perforating-machine, the combination of perforating mechanism, with a table provided with suitable openings, a frame located beneath and movable to and from the table, adjustable gages normally fixed in said frame, means to cause each gage to automatically disappear after performing its function, and means to restore all the gages to normal position, as and for the purpose set forth.

592,565. JOINT FOR THIRD RAILS FOR ELECTRIC RAILWAYS. PATRICK HALEY and PAUL P. THOMPSON, Chicago, Ill. Filed Mar. 22, 1897. Serial No. 626,684. (No model.)



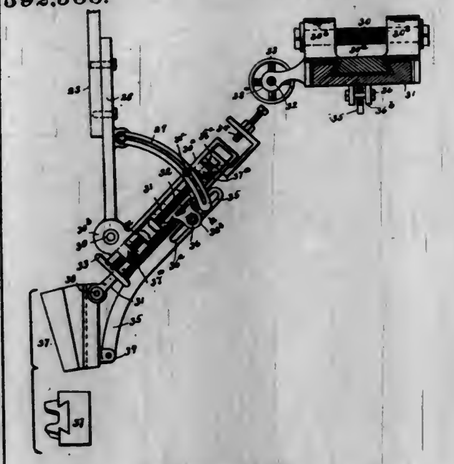
Claim.—1. In a rail joint, the combination with the adjacent ends of two rails, of plates adapted to close the bottom and sides of the joint, and a good conductor filled in between the ends of the rails and held therein by said plates; substantially as described.

2. In a rail-joint, the combination with the adjacent ends of two rails, of a sheeting closely fitting said rails at the joint, means for clamping said sheeting to the rails, and a plastic conductor between the ends of the rails, held therein by said sheeting; substantially as described.

3. In a rail-joint, the combination with the adjacent ends of two rails, of a sheeting fitted over the joint between said rails, a pair of fish-plates having vertical extensions adapted to hold said sheeting against the sides and bottoms of the rails, and a plastic conductor between the ends of the rails; substantially as described.

4. The combination with the rails, A, B, of the fish-plates, C, D, having the extensions, c, c', c^2, d, d', d^2, the sheeting, G, fitted to the rails and held against the same by the said fish plates, and a plastic conductor, H, between the ends of the rails; substantially as described.

592,566.



592,567. FIGURE TOY. RICHARD KLEINSCHEN, Brooklyn, N. Y. Filed Feb. 6, 1897. Serial No. 622,284. (No model.)



Claim.—1. As a toy, a figure or representation of a moving animal or person having a recess formed in the body thereof and a spur extended vertically from the upper wall of the said recess, said figure being weighted at its lowest extremities, substantially as shown and described.

2. As a toy, a representation of an animated human figure, cut from a thin plate of material, having one of its arms extending forwardly and one of its legs extending rearwardly, and a recess cut into the rear edge of the body portion thereof, said recess having a spur extended from the upper wall of the recess in the body of the figure downwardly for supporting the device, said spur adapted to support said figure in an oscillatory position, said figure also having weights attached to its lower extremities, substantially as shown and described.

3. In a toy, the representation of a figure having an extended and pivoted arm, said arm having a weighted projection rearwardly extended therefrom, the figure also having a rearwardly-extended leg, and a recess formed in its rearward edge a spur extended from upper edge of said recess in the body of the figure, said spur adapted to support said figure in balanced position, the lower extremities of the figure being weighted; with a means for supporting the figure, substantially as shown and described.

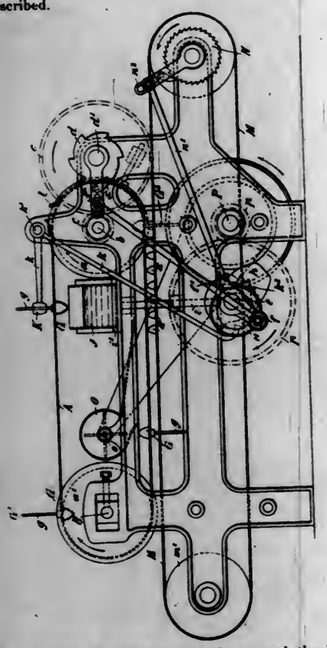
592,566. GEAR-MOLDING MACHINE. FERDINAND KEPP, Allegheny, Pa. Filed Nov. 1, 1894. Serial No. 527,615. (No model.)

Claim.—In combination with a machine of the character described for molding bevel-wheels, the adjustable inclined pivoted frame, the slide arranged in said frame and having an adjustable stop to limit the forward movement of said slide, a tooth-pattern pivoted to the forward end of said slide, means for actuating said slide, the bar pivoted to said pattern and having an adjustable connection with said slide and the pivoted link having a movable connection with said frame to permit the adjustment of the latter, as set forth.

592,568. MACHINE FOR COATING CONFECTIONERY OR THE LIKE. LOUIS B. LEHMANN, Dresden, Germany. Filed Mar. 2, 1897. Serial No. 626,770. (No model.)

Claim.—1. In a machine for coating confectionery, and the like, with chocolate or other material, the combination with the carrier, the supports for the confectionery mounted on said carrier, a tank containing the coating material, means for operating the carrier to bring the confectionery-supports intermittently over the tank and

means for raising the tank to immerse the confectionery; substantially as described.



2. In a machine for coating confectionery and the like with chocolate or other material, the combination with the endless bands, the pulleys upon which the bands are carried, means for intermittently operating said pulleys, the frame for holding the confectionery carried by said bands, the tank containing the coating material, means for elevating the tank to immerse the confectionery, and guides for holding the confectionery; substantially as described.

3. In a machine for coating confectionery and the like, the combination with the endless bands, the pulleys arranged in pairs, over which the bands are carried, means for intermittently operating the pulleys, frames carried by the bands, for receiving the confectionery, points down, a tank over which the frames are carried, means for intermittently raising the tank as the frames are brought over it, whereby the confectionery will be immersed, guides for holding the confectionery in the frames as they pass around the pulley, and a receiver for catching the confectionery as it drops from the frame; substantially as described.

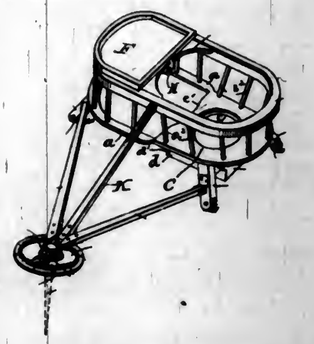
4. In a machine for coating confectionery and the like, the combination with the endless bands or carriers, the confectionery-frames mounted thereon, the immersing-tank, means for raising the tank for immersing the confectionery, and shaking devices for removing superfluous material from the confectionery; substantially as described.

5. In a machine for coating confectionery and the like, the combination with the endless bands, the pulleys over which the bands are carried, the gear-wheel on the pulley-shaft, a second gear-wheel meshing therewith, the ratchet-wheel on the shaft of the last-named wheel, the arm carried by said ratchet-wheel, the pawl on the arm, adapted to engage the teeth of the ratchet-wheel, the crank on the main shaft, and a connecting-rod secured at one end to the crank and at the other to the arm of the ratchet-wheel; substantially as described.

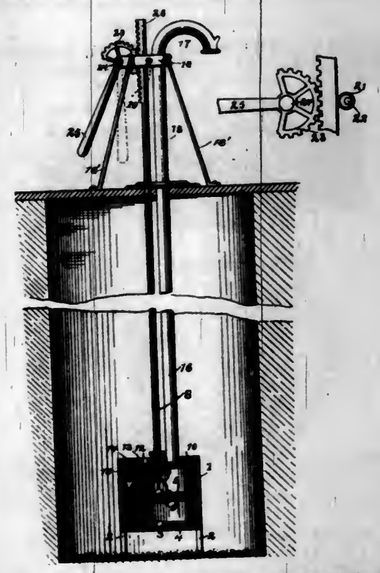
6. In a machine of the character described, the combination with the tank containing the coating material, the vertically-movable guided rods upon which the tank is supported, cams carried by the main shaft of the machine upon which the rods rest, whereby as the shaft revolves the tank will be intermittently raised; substantially as described.

592,569. BABY-WALKER. RICHARD LEHMANN, Brooklyn, N. Y., assignor of one-half to John A. Quell, same place. Filed Sept. 23, 1896. Serial No. 606,711. (No model.)

Claim.—In a device of the class described, the combination, with a turn-table or pivot-plate, of a chair or walker, and radial arms extending from the pivot-plate to the chair or walker, said connecting-arms being respectively secured to the base portion and to the top portion of the chair, whereby the latter is braced in upright position, substantially as and for the purpose set forth.



592,570. PUMP. JEREMIAH LOCKWOOD, Sullivan, Ind. Filed Mar. 22, 1897. Serial No. 628,723. (No model.)

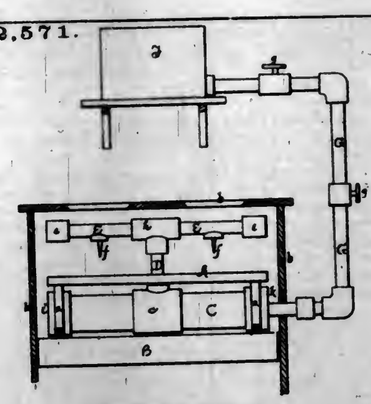


Claim.—A pump comprising the discharge-pipe 16, the cylinder 1 connected to the lower end thereof and provided with the inlet-valve 3 and the outlet-valve 12, the piston 5 provided with the valve 6, and the piston-rod 8 having its upper end terminating in the rack-bar 20, in combination with the bracket 18, the segmental gear-wheel 23 journaled in said bracket and in operative connection with said rack, and provided with the handle 25 and the friction-sleeve 21 eccentrically mounted in said bracket to form an adjustable bearing for the rack-bar, whereby the wear on the gear and rack may be taken up, as and for the purpose set forth.

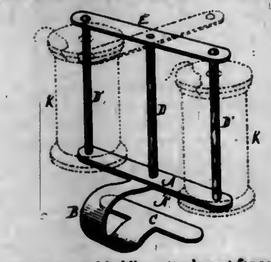
592,571. OIL-VAPORIZING ATTACHMENT FOR STOVES OR FURNACES. THOMAS P. MADDISON, Melrose, Mass., assignor to Herbert M. Sylvester, same place. Filed Jan. 25, 1897. Serial No. 620,636. (No model.)

Claim.—In an apparatus of the character specified, the combination of a receiving retort portion, a delivery retort portion located above said receiving portion and provided with a jet-orifice adapted to discharge toward the latter, and a protector and deflector situated between the two portions and contiguous to the receiving portion, the distance between the jet-orifice and the protector and deflector being such that the jet of vapor will discharge unbroken upon the latter, substantially as set forth.

592,571.



592,572. SPOOL-HOLDER. THOMAS J MURRAY, Boston, Mass. Filed Mar. 20, 1897. Serial No. 628,395. (No model.)



Claim.—1. In a spool-holding attachment for sewing-tables, the base-plate consisting of the two horizontal portions A, A', the latter being folded under and parallel with the former; the C-spring B extending from said base-plate and provided at its free end with the plate C; and spindles extending vertically from the upper fold of the base-plate for supporting the spools, substantially as set forth.

2. In a spool-holding attachment for sewing-tables, the base-plate consisting of the two horizontal portions A, A', the latter being folded under and parallel with the former; the C-spring B extending from said base-plate and provided at its free end with the plate C; the central spindle D extending up vertically from the upper fold of said base-plate; the spindles D' extending up vertically from said upper fold on opposite sides of said spindle D; and the spring-plate E secured to the upper end of the central spindle D and adapted to rotate horizontally thereon, said spring-plate being formed on its under side with recesses e for receiving the upper ends of the spindles D', substantially as described.

592,573. CHECKREIN-RETAINER. JOHN H. NICHOLS, Chattanooga, Tenn., assignor of one-half to Fred J. Linnell and Orlando J. Jones, same place. Filed Feb. 27, 1897. Serial No. 625,357. (No model.)

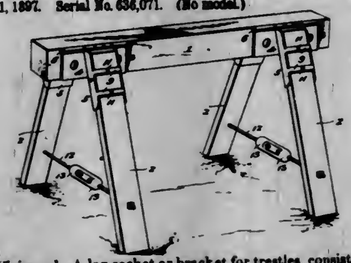


Claim.—1. In a checkrein-hook, the combination with the supporting-frame having a tubular portion, a catch-casing secured to said supporting-frame, and provided with a catch which projects upward within the tubular portion, a releasing-lever adapted to engage said catch, and a resetting-lever connected with said releasing-lever, substantially as set forth.

2. In a checkrein-hook, the combination with the supporting-frame having a tubular portion, a catch-casing secured to said supporting-frame, and provided with a catch which projects upward within the tubular portion, a releasing-lever adapted to engage said catch, a resetting-lever connected with said releasing-lever, and a plug adapted to be engaged by said catch, substantially as set forth.

3. In a checkrein-hook, the combination with a frame provided with a tubular portion, a catch-casing secured to said tubular portion and provided with a catch, the head of which projects upward into the tubular portion of the frame, said catch having a cam or inclined portion, a spring arranged beneath said catch to force the catch upward, a releasing-lever pivoted in the catch-casing, and having a shoulder adapted to engage the cam or inclined portion of the catch, a resetting-lever pivoted in advance of the catch, a connection between the resetting-lever and the releasing-lever, a conical plug, one end adapted to be attached to the checkrein and the other end adapted to be attached to one of the driving-lines, substantially as and for the purpose set forth.

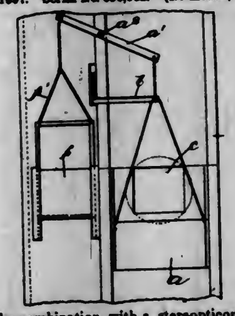
592,574. TRESTLE. FRANZ RIDS, Portland, Oreg. Filed May 11, 1897. Serial No. 636,071. (No model.)



Claim.—1. A leg socket or bracket for trestles, consisting of the attaching-plate, the box portion hinged at the upper edge thereof, and having its side flanges extending to the upper edge of the attaching-plate, and the cross-bars having the central bolt-holes, substantially as set forth.

2. The combination with the horizontal beam and diverging legs of a trestle, of brackets consisting of the attaching-plates secured to the horizontal beam and of a box pivoted to the attaching-plate, and having cross-bars with bolt-openings, bolts extending through the bars, the diverging legs, and the bottom of the box for securing the legs in position, and means connecting each set of legs at each end of the trestle for adjusting the legs of each set toward and away from each other, whereby the horizontal beam may be lowered or elevated, as occasion may require, substantially as set forth.

592,575. STEREOPTICON. WILLIAM S. SCALES, Everett, Mass., assignor to Edmund Hudson, Hartford, Conn. Filed May 21, 1895. Renewed Sept. 8, 1897. Serial No. 650,962. (No model.)



Claim.—1. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, a screen for said display-opening, and another screen for said auxiliary chamber, substantially as described.

2. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, provided with a colored-glass plate, a screen for said display-opening, and another screen for said auxiliary chamber, substantially as described.

3. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, an obliquely-arranged mirror contained in said auxiliary chamber, a

screen for said display-opening and another screen for said auxiliary chamber, substantially as described.

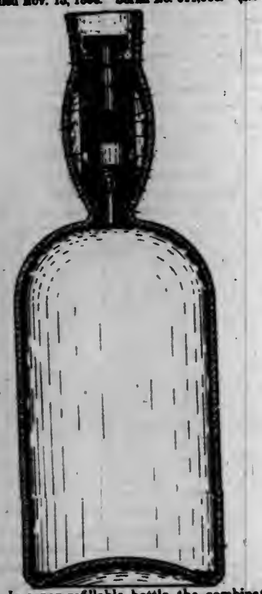
4. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, provided with a colored-glass plate, an obliquely-arranged mirror contained in said auxiliary chamber, a screen for said display-opening, and another screen for said auxiliary chamber, substantially as described.

5. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, a screen for said display-opening, and another screen for said auxiliary chamber, and means for moving said screens simultaneously in opposite ways, substantially as described.

6. The combination with a stereopticon, comprising a light and a lens back of a display opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, a screen for said display-opening, and another screen for said auxiliary chamber, and mechanism for moving said screens simultaneously in opposite ways, operated from a distant point at the will of the operator, substantially as described.

7. The combination with a stereopticon, comprising a light, and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, a walking-beam, a screen supported by one end thereof for said display-opening, and a screen supported by the other end thereof, for the auxiliary chamber, and mechanism for moving said screens, substantially as described.

592,576. NON-REFILLABLE BOTTLE. GEORGE E. SMITH, Boston, Mass. Filed Nov. 13, 1896. Serial No. 611,966. (No model.)



Claim.—1. In a non-refillable bottle, the combination with the neck of the bottle, of a tubular plug inserted in said neck and secured near its ends by packing-rings, whereby a closed annular space is provided between said plug and the neck of the bottle, a chamber in the lower portion of said plug provided with an inlet communicating with the interior of the bottle, a valve controlling said inlet, an outlet from said chamber communicating with the annular space around the plug, a second chamber within the plug provided with lateral inlets from said annular space, a valve controlling said inlets, and an outlet from said outer chamber, substantially as described.

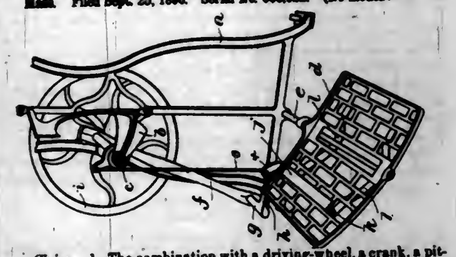
2. A device for preventing the refilling of bottles, consisting of a tubular plug containing lower and upper chambers separated from each other, packing-rings around said plug near the ends thereof to support the same in the neck of the bottle, and to provide a closed annular space around said plug, a vertical inlet to the lower chamber at the bottom thereof provided with an annular beveled valve-seat, a valve having an annular beveled face cooperating with said seat and having a feathered guide-stem extending downward through said opening, a lateral outlet from said lower chamber, a lateral inlet for the upper chamber, a valve controlling said lateral inlet consisting of a tubular slide longitudinally movable in said chamber, and lateral outlets from said upper chamber, substantially as described.

3. In a non-refillable bottle, a plug or stopper made of two substantially tubular members, a wall or partition of yielding material interposed between said parts and adapted to enter both, an inlet-opening at the lower end of the lower part, a valve-seat formed at the upper side of said opening, a valve cooperating with said seat, a lateral opening in said lower member, a lateral opening in the upper member, and packing-rings surrounding said parts respectively, whereby a closed annular space is provided within the neck of the bottle, substantially as described.

4. The combination with the bottle having a neck contracted near the top and bottom, of a plug or stopper provided with external shoulders near the ends thereof, packing-rings of yielding material surrounding said plug and interposed between said shoulders and the tapered inner walls of the said neck whereby said plug is supported and a closed annular space is afforded around the outside thereof, a chamber within said plug closed at the top, a tubular inlet-opening to said chamber, a valve-seat at the mouth of said inlet, a valve cooperating with said seat, a stem for said valve having a contracted neck, feathers below said neck extending toward the wall of the opening to guide the valve, lateral openings from said chamber communicating with the annular space around the same, and suitable outlets from said annular space, substantially as described.

5. The combination with the bottle having a neck contracted near the top and bottom thereof, the opening at the top being equal to or greater than that at the bottom; of a tubular plug inserted in said neck and provided near its ends with external shoulders; packing-rings of yielding material surrounding the said plug and interposed between said shoulders and the tapered walls of said neck, whereby said plug is wholly supported within said neck, and a closed annular space formed around the same; a chamber in the lower portion of said plug provided with an inlet communicating with the interior of the bottle; a valve controlling said inlet; outlets from said chamber communicating with the closed annular space aforesaid; and an outlet from said annular space through the upper portion of the plug, substantially as described.

592,577. TREADLE ATTACHMENT. JOHN F. WILKINSON, Ayer, Mass. Filed Sept. 25, 1896. Serial No. 606,922. (No model.)



Claim.—1. The combination with a driving-wheel, a crank, a pitman, and a main treadle, forming a treadle mechanism, of a clutch on the crank-shaft, a supplemental treadle connected to the said clutch and located over the forward or toe end of the main treadle, so that both treadles can be moved simultaneously by the same foot or feet, and a spring connection between the supplemental and main treadles, whereby the supplemental treadle is yieldingly raised and separated from the main treadle and permitted to move toward the latter by downward pressure of the operator's foot, while the main treadle is being operated, the yielding support of the supplemental treadle relieving the jar on the operator's feet.

2. The combination with a driving-wheel, a crank, a pitman, and a treadle, forming a treadle mechanism, of a clutch on the crank-shaft, and a supplemental treadle connected to the said clutch, said supplemental treadle consisting of a strip or bar extending across the main treadle, and springs located below the main treadle and connected with said bar.

3. The combination with a driving-wheel, a crank, a pitman, and a treadle, of a clutch on the crank-shaft, a link *o* connected with the clutch, and a supplemental treadle connected to the said link, said supplemental treadle comprising the strip *j* arranged above the face of the main treadle, springs *l l* each having one end secured to the under face of the main treadle, and pins *k k* connecting the said strip *j* with the free ends of the springs.

592,578. BELT AND SLAT FASTENER. MAURICE L. AKERS, Goosberry, Oreg., assignor of one-fourth to Roger Montgomery, Hardman, Oreg. Filed Mar. 27, 1897. Serial No. 629,595. (No model.)

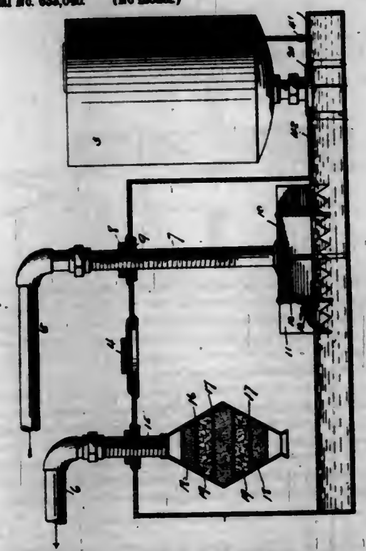


Claim.—1. In a carrier-belt, the combination with a belt and slat, of a metallic fastener secured to said belt and having a jaw extending upwardly on each edge of said slat to hold the same in clamped relation, each jaw terminating flush with the upper surface of said slat, substantially as described.

2. In a carrier-belt, the combination with the belt and slat transverse thereon, of a fastener comprising a flat rectangular body portion interposed between said belt and slat and provided at each corner with a depending prong adapted to pass through the belt and be bent over on the same and also provided with upwardly-extending jaws arranged to grasp the slat on each side to clamp the same in position, substantially as described.

3. A belt and slat fastener, comprising a body portion having oppositely-disposed prongs and jaws, bent at an angle to the plane of said body portion and extending therefrom in opposite directions, said jaws converging and being each provided with one or more interned barbs, substantially as described.

592,579. CARBURETER. HENRY G. BALKAM, Washington, D. C., assignor to William A. Easterday, same place. Filed Apr. 30, 1897. Serial No. 633,040. (No model.)



Claim.—1. In a gas-enricher, a gas-inlet pipe leading into the enricher, a deflector and pressure-regulator located at the lower end of said pipe, two of the opposite sides of said deflector being permanently secured to the deflector, each side having extending ends, the remaining opposite sides of the deflector being formed of hinged flaps, the ends of said flaps terminating in close proximity to the extended ends of the fixed sides of the deflector.

2. In a gas-enricher, an inlet-pipe leading into said enricher, a deflector attached to the lower end of said pipe, flaps hinged to said deflector and forming sides thereof, said flaps having suitable pockets adapted to receive weights.

3. In a gas-enricher, an inlet-pipe leading into the enricher, a deflector journaled to the lower end of said pipe, said deflector adapted to force the gas beneath the surface of the oil, the inlet-pipe being externally screw-threaded and passing through an externally-threaded collar at the point of entrance to the enricher, said pipe adapted to be brought in or out by being revolved, the perpendicular rods secured at their ends to the top and bottom of the enricher, said rods passing through suitable perforations in the top of the deflector, said rods adapted to prevent said deflector from revolving when the inlet-pipe is revolved.

4. In a gas-enricher having a suitable gas inlet and outlet, a horizontal extension protruding from the lower edge of the enricher, the top of the said extension being closed, a valve-casing located on the top of the extension and said casing adapted to be connected with the oil-outlet of a removable can.

5. In a gas-enricher having a suitable gas inlet and outlet, the horizontal extension protruding from the lower edge of the enricher, the top of said extension being closed, a valve-casing located in said top and adapted to be connected to the valve casing of a removable can, reinforcing-strips connecting the top and the bottom of the extension in the oil-inlet and adapted to prevent the top of the extension in the oil-inlet from concaving from the weight of the can and its contents.

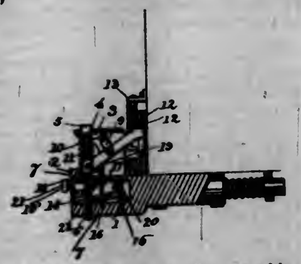
6. In a gas enricher having a suitable gas inlet and outlet, an extension protruding from the lower edge of the enricher, the top of said extension being closed, a valve-casing located in said top and adapted to be connected to the valve-casing of a removable can, the removable can having an air vent passing above the surface of the oil contained in the can, a valve connection located in the top of the extension, the last said extension adapted to be connected with the valve connection of the vent.

7. In a gas enricher having a suitable gas inlet and outlet, a valve-casing having a port leading into the enricher, a removable can having a valved oil-outlet adapted to be connected to the enricher valve-casing, said casing, when connected, adapted to open automatically and permit the oil in the can to pass through the said casings, a vent leading from the top of the can, an independent valve-casing located at the lower end of said vent, an independent valve-casing leading into the enricher, the valves in the said independent casings adapted to be automatically opened when the said casings are connected, the valves in all the casings adapted to automatically close when the can is disconnected from the enricher.

8. In a gas-enricher having a suitable gas-inlet and a gas-outlet, a removable can having an oil-outlet connected to the enricher, a vent leading from the top of the can and being connected to the enricher, the oil-inlet to the enricher and the vent-exit from the enricher being at substantially the same level, the flow of oil from the can adapted to be automatically stopped when the oil in the enricher assumes the height of the oil-inlet and the vent-outlet.

9. In a gas-enricher having a suitable gas-inlet and gas-outlet, a valved oil-outlet leading into the enricher, a valved vent leading from the enricher, a removable can having a valved outlet, and a valved vent, said vent leading above the surface, of the oil in the can, the valved outlet of the can adapted to be connected to the valved oil-inlet of the enricher, the valved vent of the can adapted to be connected to the valved vent of the enricher, said valves adapted to act in conjunction with each other, the valves of the can opening the valves in the enricher, and the valves in the enricher opening the valves in the can, said valves adapted to close automatically when the can is disconnected from the enricher.

592,580. AUTOMATIC CAR-COUPLING. ROBERT H. BATES, Spring Green, Wis. Filed July 15, 1897. Serial No. 644,092. (No model.)



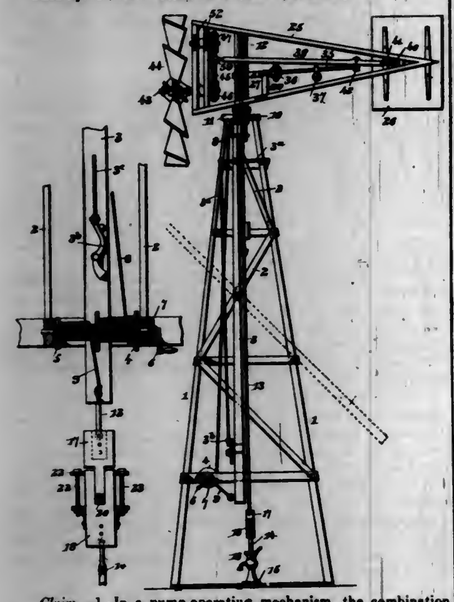
Claim.—1. An automatic car-coupling, comprising the tubular draw-bar 1, the vertical bracket 3, fixed thereto, the integral coupling bar and pin having a vertical movement in said draw-bar and bracket, the bifurcated lever 8 pivoted to said coupling-bar and fulcrumed in the parallel straps 9 9, pivoted in said bracket and having its rear end projecting into the path of the transversely-crossed levers 12 12, substantially as shown and described.

2. An automatic car-coupling, comprising the tubular draw-bar 1, the vertical bracket 3, fixed thereto, the integral coupling bar and pin having a vertical movement in said draw-bar and bracket, the bifurcated lever 8 pivoted to said coupling bar and fulcrumed in the

parallel straps 9 9, in combination with the follower 14, fulcrumed on the bolt 15, in said tubular draw-bar and its bifurcated forward end extending on each side of the coupling-pin, and connected to said bifurcated lever by a line 18 so as to move simultaneously with said bifurcated lever, substantially as shown and described.

3. An automatic car-coupling, comprising the tubular draw-bar 1, the vertical bracket 3, fixed thereto, the integral coupling bar and pin having a vertical movement in said draw-bar and bracket, the bifurcated lever 8 pivoted to said coupling-bar and fulcrumed in the parallel straps 9 9, pivoted in said bracket and having its rear end projecting into the path of the transversely-crossed levers 12 12, in combination with the follower 14, the V-shaped spring 16 engaging said follower, and the yoke 19, the horizontal plate 22, fixed thereto and spiral spring 11 encompassing the parallel arms of said yoke, substantially as shown and described.

592,581. PUMP-OPERATING MECHANISM. THOMAS J. BLAGG, Waverly, Nebr., assignor of one-fourth to J. S. Sturdevant, same place. Filed Apr. 17, 1897. Serial No. 632,656. (No model.)



Claim.—1. In a pump-operating mechanism, the combination with a pump-lever mounted to oscillate in a plane parallel with a pump-rod, of an oscillatory operating-lever connected with the pump-lever and capable of universal movement at its free end, and a carrier connected with the operating-lever and capable of continuous movement in a uniform direction to oscillate the operating-lever, substantially as specified.

2. In a pump-operating mechanism, the combination with a pump-lever adapted to oscillate in a plane parallel with the pump-rod, of an endless carrier adapted to receive continuous motion in a uniform direction, and an operating-lever actuated by the carrier and connected with one arm of the pump-lever, substantially as specified.

3. In a pump-operating mechanism, the combination of a pump-lever having a jointed arm adapted to swing in a plane transverse to that of the body portion of the lever, an endless carrier adapted to receive continuous motion in a uniform direction, and an operating-lever connected at a point remote from its fulcrum to said carrier to follow the path thereof and connected by a universal joint with the swinging arm of the pump-lever, substantially as specified.

4. In a pump-operating mechanism, the combination of a pump-lever having a jointed arm adapted to swing in a direction transverse to that of the body portion of the lever, a driving-shaft, an endless carrier operatively connected with the driving-shaft for continuous motion in a uniform direction, an operating-lever having a universal fulcrum and connected by a universal joint with the swinging arm of the pump-lever, and a connection between the operating-lever and a fixed point of the carrier, whereby the contiguous end of the operating-lever follows the path of the carrier, substantially as specified.

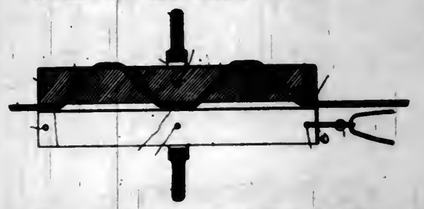
5. In a pump-operating mechanism, the combination with a pump-lever, of a driving-shaft, an endless carrier traversing a chain-wheel actuated by the driving-shaft, adjusting devices for varying the tension of the carrier, and an operating-lever having a swivel connection with a fixed point of the carrier and operatively connected with one arm of the pump-lever, substantially as specified.

6. In a pump-operating mechanism, the combination with a supporting-frame, of a bracket adjustably mounted upon said frame, a pump-lever having its body portion fulcrumed at an intermediate point upon said bracket, the fulcrum-point being adjustable to vary the relative lengths of the arms of the pump-lever, and the long arm of said lever being jointed to swing in a plane transverse to that of the body portion of the lever, an operating-lever of the second order having a universal fulcrum and connected at an intermediate point by a universal joint with the extremity of the long arm of the pump-lever, and means for communicating a continuous oscillatory movement in an endless path to the free end of the operating-lever, substantially as specified.

7. In a pump-operating mechanism, the combination of a pump-lever having its long arm jointed to swing in a plane transverse to the body portion of the lever and fitted with an adjustable counterbalancing-weight, an operating-lever of the second order having a universal fulcrum and connected at an intermediate point by a universal joint with the long arm of the pump-lever, and means for communicating continuous oscillatory movement to the operating-lever, to cause the contiguous end of the latter to operate in an endless path, substantially as specified.

8. In a pump-operating mechanism, the combination with a tower, of an intermediately-fulcrumed tilting beam, a hollow head carried by said beam, a pump-rod extending at its upper end into said head, operating mechanism including a pump-lever connected to the pump-rod, and means for tilting said beam, including a windlass having a double drum provided with actuating and locking devices, and cables connecting opposite extremities of the beam with the drum, substantially as specified.

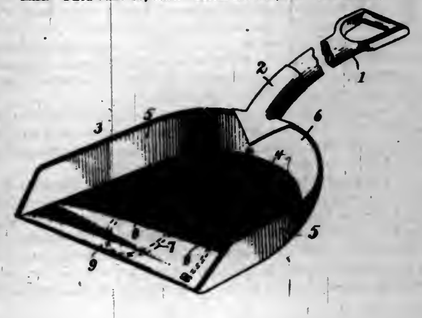
592,582. FIRE-ESCAPE. JOHN DEMPSTER, Knoxville, Tenn. Filed June 1, 1897. Serial No. 638,973. (No model.)



Claim.—1. A fire-escape comprising among its members, a yoke, a pair of blocks pivoted centrally side by side in said yoke, which forms the only connection between them, one only of said blocks being provided with rope-passages terminating at separated points on the inner side of said block and a supporting device secured to the other block, substantially as described.

2. A fire-escape comprising among its members a yoke having a handle at each end, a pair of blocks pivoted centrally side by side in said yoke, one only of said blocks being provided with rope-passages terminating at separated points on the inner side of said block, a detachable supporting device secured normally to the other block, both of said blocks being provided at each end with means for engaging the said supporting device, substantially as described.

592,583. SCREEN SCOOP OR SHOVEL. CHARLES R. HADS, Como, Miss. Filed June 26, 1897. Serial No. 642,508. (No model.)



Claim.—1. In a machine of the character specified, the combination of a reciprocating head carrying a plunger to apply the stoppers; a chute affixed to said head and arranged to deliver stoppers to said plunger by gravitation, the said chute reciprocating with the plunger; a stopper-reservoir communicating with said chute; and means for adjusting stoppers in the reservoir and feeding them to the chute.

2. A machine of the character specified comprising a hopper having a marginal stopper-receiving recess; a chute communicating with said recess; and a rotary feeding-flange projecting into the recess and provided with spacing projections formed and arranged to cause the entrance of the stoppers into said recess in a predetermined position.

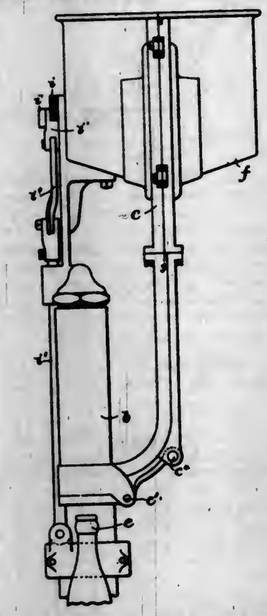
3. A machine of the character specified, comprising a hopper having a marginal stopper-receiving recess and flaring walls leading into the same; an annular rim fitting the interior of the hopper and having a flaring flange adapted to one of the flaring walls of the hopper and also provided beyond said flaring flange with a feeding-flange occupying the marginal recess and provided with spacing projections; a shaft journaled in the hopper and carrying the said rim, and a chute leading out of the marginal recess of the hopper.

4. A machine of the character specified, comprising a hopper having a marginal stopper-receiving recess, a chute communicating with said recess, a rotary feeding-flange projecting into the recess and provided with spacing projections, a rotary shaft journaled in the hopper, annular rims located at opposite sides of the said recess, one of said rims carrying the feeding-flange, and arms secured to the shaft and to said rims, the rims being separated by a throat or opening coinciding with the recess.

5. In combination, a casing and a plunger therein, a feeding-chute connected with the casing and adapted to convey the crown or cap to its position beneath the plunger, and a movable section of said chute jointed to the fixed part, extending under the case and provided with an opening for the bottle, and arranged when moved away from the fixed part to open the channel, all substantially as described.

Claim.—As an improved article of manufacture, a screen-scoop, formed with the reticulated bottom 4, the contiguous side and back flanges 5 6, the integral wire guard 7, extending above the reticulated bottom, and its diverging lower portion 8 8, extending longitudinally below said bottom and the sheet-metal protector 9, encompassing the forward edge of the bottom 4 and the contiguous portions of the guard 7 8 8 substantially as shown and described.

592,584. MACHINE FOR FEEDING CROWN BOTTLE-STOPPERS. KING C. GILLETTE, Newton, Mass. Filed Apr. 8, 1896. Serial No. 586,683. (No model.)



Claim.—1. In a machine of the character specified, the combination of a reciprocating head carrying a plunger to apply the stoppers; a chute affixed to said head and arranged to deliver stoppers to said plunger by gravitation, the said chute reciprocating with the plunger; a stopper-reservoir communicating with said chute; and means for adjusting stoppers in the reservoir and feeding them to the chute.

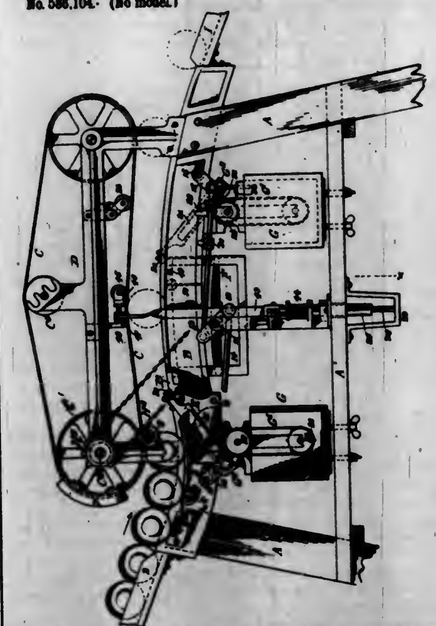
2. A machine of the character specified comprising a hopper having a marginal stopper-receiving recess; a chute communicating with said recess; and a rotary feeding-flange projecting into the recess and provided with spacing projections formed and arranged to cause the entrance of the stoppers into said recess in a predetermined position.

3. A machine of the character specified, comprising a hopper having a marginal stopper-receiving recess and flaring walls leading into the same; an annular rim fitting the interior of the hopper and having a flaring flange adapted to one of the flaring walls of the hopper and also provided beyond said flaring flange with a feeding-flange occupying the marginal recess and provided with spacing projections; a shaft journaled in the hopper and carrying the said rim, and a chute leading out of the marginal recess of the hopper.

4. A machine of the character specified, comprising a hopper having a marginal stopper-receiving recess, a chute communicating with said recess, a rotary feeding-flange projecting into the recess and provided with spacing projections, a rotary shaft journaled in the hopper, annular rims located at opposite sides of the said recess, one of said rims carrying the feeding-flange, and arms secured to the shaft and to said rims, the rims being separated by a throat or opening coinciding with the recess.

5. In combination, a casing and a plunger therein, a feeding-chute connected with the casing and adapted to convey the crown or cap to its position beneath the plunger, and a movable section of said chute jointed to the fixed part, extending under the case and provided with an opening for the bottle, and arranged when moved away from the fixed part to open the channel, all substantially as described.

592,585. CAN-LABELING MACHINE. HENRY S. GRACE and ARTHUR D. REYNOLDS, San Francisco, Cal. Filed Apr. 3, 1896. Serial No. 586,104. (No model.)



Claim.—1. In a can-labeling machine, and in combination, parallel guide-tracks; a movable belt for propelling cans along the guide-tracks; a label-bed between the guide-tracks; means operated by the passage of the can above the label-bed for moving said label-bed upwardly; a swinging cradle, having tangent contacts with the cans, for receiving said cans, truing them under pressure from the belt and delivering them directly upon the label-bed; paste-supply boxes having movable paste-belts; pasting-pads oscillating from opposite directions between the paste-belts and the label-bed, and connected mechanical devices for causing all of such devices to operate, substantially as described.

2. In a labeling-machine, the combination with a guideway, can-feeding devices, a propelling-belt, and a label-bed, of a swinging cradle intermediate between the can-feed and the label-bed, and shaped so as to have tangent contacts with the can, adapted to true the can under pressure from said belt, and to transfer it, so trued directly to the label-bed, substantially as described.

3. In a can-labeling machine, and in combination, a paste-belt having a ratchet mechanism for operating it intermittingly; a label-bed; an oscillating tapper-arm having a paste-pad; a rod connected to the driving shaft of the machine and to the tapper-arm, and adjustable collars on said rod for operating said ratchet mechanism, substantially as described.

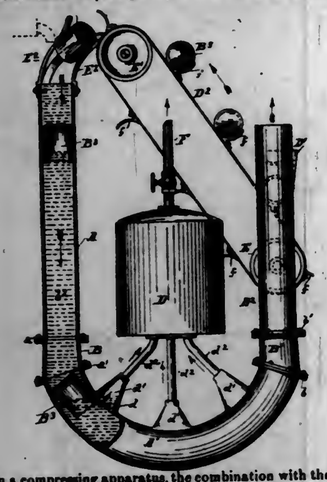
4. In a can-labeling machine, and in combination; a guideway for the cans; a flexible belt for propelling the cans along the same, a label-bed; a spring for forcing such label-bed upward; a self-setting brake for locking the label-bed, and a roller bearing on the propelling-belt and connected to said brake, whereby the pressure of the can under said roller releases the brake and allows the label-bed to move upwardly, substantially as described.

5. In combination with the guideway, the can-propelling belt and the label-bed, having a spring-pressed stem, a brake-lever and shoe, a spring for setting said shoe against the stem, a connecting-rod extending from the brake-lever above the propelling-belt, and a roller bearing on the belt and connected to said rod, substantially as described.

592,586. AIR-COMPRESSOR. FRANCIS M. GRAHAM, San José, Cal. Filed Jan. 13, 1897. Serial No. 619,066. (No model.)

Claim.—1. In a compressing apparatus, the combination with the vertical water-inlet pipe, of the vertical water-outlet pipe of less length than the inlet-pipe, the curved joint united to the lower ends of the inlet and outlet pipes, of air-escape openings formed in said joint, a receiver located above the said joint, air-pipe connection between the receiver and the escape-openings of the joint, and the cups

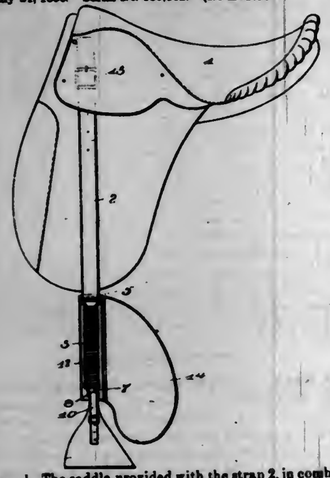
fitted to move within the passage-way formed by the pipes and curved joint.



2. In a compressing apparatus, the combination with the vertical water-inlet pipe, of the vertical water-outlet pipe of less length than the water-inlet pipe; the curved joint united to the lower ends of the inlet and outlet pipes, of air-escape openings formed in the curved joint, a receiver located above the said joint, air-pipe connection between the receiver and the escape-openings of the joint, the cups fitted to move within the passage-way formed by the pipes and the curved joint, and of the elevator or conveyer which receives the cups as discharged from the water-outlet pipe and delivers the same to the water-inlet pipe.

3. In a compressor, the combination with the vertical water-inlet pipe, of the vertical water-outlet pipe, the curved joint connecting the lower end of the pipe, the air-escape openings formed in the curved joint, air chambers with which said openings communicate, a receiver located above the curved joint, air-pipe connections between the receiver and the said air-chambers, the cups fitted to move within the passage-way formed by the water-inlet and water-outlet pipes and the curved joint, the open hopper secured to the upper end of the water-outlet pipe, an endless traveling carrier or conveyer arranged to receive the cups as discharged from the water-outlet pipe into the hopper and convey the same to the water-inlet pipe, and of the chute secured to the water-inlet pipe into which the cups are discharged from the endless carrier.

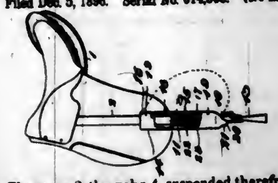
592,587. STIRRUP. WILLOABBY F. HOLLISTER, Cowen, W. Va. Filed July 21, 1896. Serial No. 600,002. (No model.)



Claim.—1. The saddle provided with the strap 2, in combination with the spring 3 formed at its upper end with the bar 5, having its free end turned downwardly through said spring and terminating in the hook 7 and the lower end of said spring formed with the bar 8 and the stirrup loop-strap 10 secured to said bar 8, substantially as and for the purpose set forth.

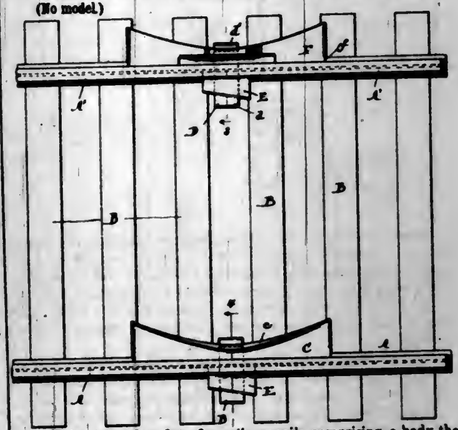
2. The combination with the saddle, the adjustable strap 2 secured thereto, the spring 3 secured at one end to said strap and secured at its other end to the stirrup of the fender 14, formed with an integral sleeve encompassing said spring, substantially as and for the purpose set forth.

592,588. SPRING-STIRRUP. WILLOABBY F. HOLLISTER, Cowen, W. Va. Filed Dec. 5, 1896. Serial No. 614,583. (No model.)



Claim.—The strap 2, the yoke 4, suspended therefrom, and having its parallel arms 5 5 terminating in hooks 6 6, the stirrup-strap 10 and the yoke 9 secured thereto and having its parallel arms 11 11 terminating in hooks 12 12, in combination with the alined springs 22 23 of different tension, having their inner contiguous ends abutting against each other, and their outer ends engaging the hooks 6 6, and 12 12, respectively, and the fender-leather 14, formed with an integral sleeve 15 encompassing said springs, and provided with an integral ear 20 fixed to the stirrup-strap 10, substantially as shown and described.

592,589. SAFETY-FROG FOR RAILWAY-TRACKS. JOHN W. HOOD, Portsmouth, Ohio. Filed May 29, 1896. Serial No. 593,554. (No model.)

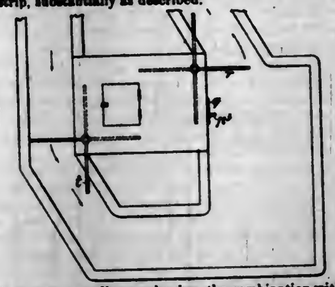


Claim.—A safety-frog for railway-rails comprising a body the upper face of which is provided with a bearing-surface and with a guide-flange, the inner or rail side of said frog being arranged to bear against the base-flange and head of the rail, and the base of said frog extending upon the level of the base of the rail and the outer face of said frog being provided at its base with an open space, a clamp-plate having an upturned end that enters the open space at the base of the outer face of the frog, the body of said plate extending across and beneath said frog and across the base of the rail and having an inclined upturned end and a wedge engaging the inclined end of the clamp-plate and bearing against the web of the rail, substantially as described.

592,590. VOTE-RECORDING APPARATUS. WALTER H. HOWE, London, England. Filed Apr. 11, 1896. Renewed July 9, 1897. Serial No. 644,030. (No model.) Patented in England May 10, 1894, No. 9,290.

Claim.—1. In a vote-recording apparatus the combination with a series of independent registering devices, of a separate registering device adapted to be operatively connected with each of said independent devices and to be operated by the operation of any one of the same, a movable recording-strip, and means for impressing the indicator-number of any of said independent registering devices and said separate registering device upon said recording-strip at each operation of the machine, substantially as described.

2. In a vote-recording mechanism, the combination with a series of independent registering devices in different vertical planes, a separate scrutiny-registering device out of line with said independent devices, means for moving said scrutiny-registering device laterally into positions corresponding relatively with the positions of said independent devices, devices connected with said scrutiny-registering device adapted to engage one of said independent devices, a recording-strip and means for moving said scrutiny-registering device and its connected independent registering device to print upon said recording-strip, substantially as described.



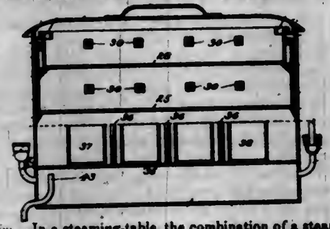
3. In a vote-recording mechanism, the combination with a series of independent registering and printing devices, a separate scrutiny-registering and printing device, a laterally-movable carriage carrying said scrutiny-registering device, an operating device on said carriage adapted to be brought into operative relation with any one of said series of independent registering devices, a movable recording-strip, means for simultaneously moving said operating device and the said scrutiny-registering device, to force the latter and one of said independent devices into printing contact with the recording-strip and operating devices for moving said carriage laterally, substantially as described.

4. In a vote-recording apparatus the combination with a series of independent registering devices and operating mechanism adapted to be placed in engagement with any one of said registering devices, means accessible to the voter for so moving said operating mechanism, of a turnstile in the path of the voter in leaving the apparatus operatively connected with and adapted to impart motion to said operating mechanism and a turnstile in the path of a voter in approaching the apparatus, operatively connected with said operating means to move it from engagement with one of said independent devices to another, whereby after one voter leaves the apparatus and registers his vote, the position of the mechanism is changed before another voter reaches the apparatus, substantially as described.

5. In a vote-recording apparatus the combination with a series of independent registering and printing devices, operating mechanism therefor adapted to be placed in engagement with any one of said devices, means accessible to the voter for moving said operating mechanism, a recording-strip, mechanism for feeding said strip, a turnstile operatively connected with and adapted to impart motion to said operating mechanism and a turnstile operatively connected with the feeding mechanism for the record-strip, substantially as described.

6. In apparatus for recording votes in which several sets of numbering apparatus corresponding with the number of candidates is employed and an additional set of apparatus for recording the number of votes for scrutiny purposes, the provision of means whereby either set of numbering apparatus may be engaged with an operating-handle outside the apparatus and whereby the scrutiny-number-printing apparatus shall print in different columns, substantially as described.

592,591. STEAM-TABLE. GEORGE W. KELLEY, Norfolk, Va. Filed Mar. 17, 1897. Serial No. 627,974. (No model.)



Claim.—In a steaming-table, the combination of a steam-supply chamber, a steaming-chamber above the steam-supply chamber, and a warming-chamber above the steaming-chamber, the bottom of the warming-chamber constituting the top of the steaming-chamber, and steam-supply tubes which provide communication between the steam-supply chamber and the steaming chamber, the steaming-chamber being provided with food-receptacles of such height as to leave a steam-space theresbove as shown and described.

592,592. THREAD-PACKAGE. ALFRED B. MORSE, Boston, Mass. Filed Apr. 19, 1897. Serial No. 632,736. (No model.)

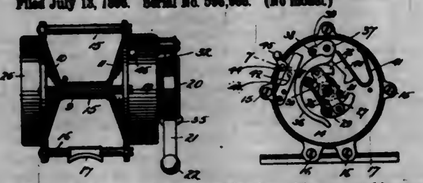


Claim.—1. The herein-described composite mass, comprising a plurality of complete and distinct bobbins wound coaxially side by side and compacted together in one coherent thread mass, substantially as described.

2. A composite thread-package, comprising a central, tubular foundation divided into a plurality of ring-like portions throughout its length, and a corresponding plurality of threads wound on said foundation and constituting a plurality of distinct bobbins one for each of said ring-like portions, said plurality of bobbins being compacted together concentrically with said tubular foundation to form one homogeneous thread mass, substantially as described.

3. A composite thread-package, comprising a plurality of bobbins wound side by side and integrally compacted together thereby, whereby they cling to each other as one mass, said bobbins being wound with different colors or kinds of threads, substantially as described.

592,593. FISHING-REEL. HERBERT MCNULTA, Chicago, Ill. Filed July 13, 1896. Serial No. 598,966. (No model.)



Claim.—1. In a reel, the combination with a rotatable spool adapted to receive the line, of a drum, a tape thereupon adapted to be drawn out to rotate said spool, and means in operative relation with respect to the spool for restraining said spool from reverse rotation while the tape is being rewound upon said drum, substantially as described.

2. In a reel, the combination with a frame, a shaft arranged therein, and a rotatable spool loosely mounted upon said shaft and adapted to receive the line, of a drum fixedly mounted upon said shaft, a tape thereupon adapted to be drawn out to rotate said shaft, pawl-and-ratchet mechanism for connecting said shaft and spool, and differential spring-actuated mechanism for automatically operating said pawl-and-ratchet mechanism to connect said shaft and spool when the tape is drawn out and disconnect said shaft and spool when the tape has been rewound, substantially as described.

3. In a reel, the combination with a frame, a shaft arranged therein, and a rotatable spool loosely mounted upon said shaft and adapted to receive the line, of a drum fixedly mounted upon said shaft, a tape thereupon adapted to be drawn out to rotate said shaft, pawl-and-ratchet mechanism for connecting said shaft and spool, mechanism for automatically operating said pawl-and-ratchet mechanism to connect said shaft and spool when the tape is drawn out, and means for locking said spool from reverse rotation while the tape is being rewound upon said drum, substantially as described.

4. In a reel, the combination with a frame, a shaft arranged therein, and a rotatable spool loosely mounted upon said shaft and adapted to receive the line, of a drum fixedly mounted upon said shaft, a tape thereupon adapted to be drawn out to rotate said shaft, pawl and-ratchet mechanism for connecting said shaft and spool, mechanism for automatically operating said pawl-and-ratchet mechanism to connect said shaft and spool when the tape is drawn out, and spring-actuated mechanism for automatically throwing said pawl-and-ratchet mechanism out of operative engagement when said tape has been rewound upon said drum, substantially as described.

5. In a reel, the combination with a frame, a shaft, and a sleeve loosely mounted upon said shaft, of a spool mounted on said sleeve, a ratchet-wheel carried by said sleeve, a drum mounted upon said shaft and keyed thereto, a tape adapted to be wound upon said drum and to be drawn out to rotate said shaft, means for automatically rewinding said tape upon said drum, means for connecting said shaft

and sleeve whereby said spool may be rotated by drawing out said tape, a dog adapted to engage said ratchet-wheel, and spring-actuated mechanism for automatically moving said dog into engagement with said ratchet-wheel when said tape is drawn out, substantially as described.

6. In a reel, the combination with a frame, a shaft, and a sleeve loosely mounted upon said shaft, of a spool mounted on said sleeve, a ratchet-wheel carried by said sleeve, a drum mounted upon said shaft and keyed thereto, a tape adapted to be wound upon said drum and to be drawn out to rotate said shaft, means for automatically rewinding said tape upon said drum, means for connecting said shaft and sleeve whereby said spool may be rotated by drawing out said tape, a dog adapted to engage said ratchet-wheel, means for automatically moving said dog into engagement with said ratchet-wheel when said tape is drawn out, and spring-actuated mechanism for automatically throwing said dog out of engagement with said ratchet-wheel when said tape has been rewound upon said drum, substantially as described.

7. In a reel, the combination with a frame, a shaft, and a sleeve loosely mounted upon said shaft, of a spool mounted on said sleeve, a ratchet-wheel carried by said sleeve, a drum mounted upon said shaft and keyed thereto, a tape adapted to be wound upon said drum and to be drawn out to rotate said shaft, means for automatically rewinding said tape upon said drum, means for connecting said shaft and sleeve whereby said spool may be rotated by drawing out said tape, a dog adapted to engage said ratchet-wheel, means for automatically moving said dog into engagement with said ratchet-wheel when said tape is drawn out, and means for automatically throwing said dog out of engagement with said ratchet-wheel when said tape has been rewound upon said drum and simultaneously disconnecting said sleeve and shaft, substantially as described.

8. The combination with a ratchet-wheel 26, of a cross-head 27, pawls 28 29 pivoted to said cross-head, and a link connecting said pawls whereby said pawls will act simultaneously to engage or disengage said ratchet-wheel, substantially as described.

9. The combination with a sleeve, and a ratchet-wheel mounted thereupon, of a shaft, a cross-head mounted thereupon, a pawl 28 pivoted to said cross-head, a device adapted to engage said pawl to move it out of mesh with said ratchet-wheel, means for moving said pawl into mesh with said ratchet-wheel, and a pawl pivoted to the opposite end of said cross-head and connected to said pawl, substantially as and for the purpose specified.

10. The combination with a sleeve, and a ratchet-wheel mounted thereupon, of a shaft, a cross-head mounted thereupon, a pawl 28 pivoted to said cross-head, means for moving said pawl into mesh with said ratchet-wheel, a pawl pivoted to the opposite end of said cross-head and connected to said pawl, a curved lever 36 adapted to engage said pawl to move it out of engagement with said ratchet-wheel, and means for operating said lever, substantially as described.

11. In a reel, the combination with a spool, a drum, and a tape adapted to be wound upon said drum and to be drawn out to rotate said spool, of a lever 32, a device carried by said tape and adapted to rock said lever, and mechanism operated by the rocking of said lever for disconnecting said drum and spool, substantially as described.

12. In a reel, the combination with a spool, a drum, and a tape adapted to be wound upon said drum and to be drawn out to rotate said spool, of a lever 32, a device carried by said tape and adapted to rock said lever, mechanism operated by the rocking of said lever for disconnecting said drum and spool, and a spring for returning said lever to its former position when said tape is drawn out, substantially as described.

13. In a reel, the combination with a spool, a drum, and a tape adapted to be wound upon said drum and to be drawn out to rotate said spool, of a lever 32, means carried by said tape for rocking said lever, a lever 36 coöperating with said lever 32, a sleeve connected to said spool, a ratchet-wheel mounted upon said sleeve, a shaft, a cross-head carried by said shaft, pawls carried by said cross-head and connected together, a dog 40 adapted to engage said ratchet-wheel, a spring 41 adapted to rock said dog and levers 32 and 36, and a spring 24 for winding said tape upon said drum substantially as described.

14. In a reel, the combination with a rotatable shaft, and a spool adapted to rotate independently of said shaft, of a tape adapted to be drawn out to rotate said shaft, and differential spring-actuated mechanism for automatically connecting said spool and shaft when said tape is drawn out and disconnecting them when the tape has been rewound, substantially as and for the purpose specified.

15. In a reel, the combination with a rotatable shaft, and a spool adapted to rotate independently thereof, of a tape adapted to be drawn out to rotate said shaft, means for automatically connecting said spool and shaft when said tape is drawn out, and means for preventing reverse rotation of said spool while the tape is being rewound, substantially as described.

16. In a reel, the combination with a rotatable shaft, and a spool adapted to rotate independently thereof, of a tape adapted to be drawn out to rotate said shaft, means for automatically connecting said spool and shaft when said tape is drawn out, and spring-actuated mechanism for automatically disconnecting said spool and shaft when said tape has been rewound, substantially as described.

17. In a reel, the combination with a rotatable shaft, and a spool supported loosely thereupon, of a tape adapted to be drawn out to rotate said shaft, mechanism for automatically rewinding said tape, mechanism for automatically connecting said spool and shaft when said tape is drawn out, and mechanism operated by said rewinding mechanism for automatically disconnecting said spool and shaft when the tape has been rewound, substantially as described.

18. In a reel, the combination with a rotatable spool adapted to receive the line, of a drum, a tape thereupon adapted to be drawn out to rotate said spool, means for restraining said spool from reverse rotation while the tape is being rewound upon said drum, and means for releasing said spool when the tape has been rewound, substantially as described.

19 In a reel, the combination with a rotatable spool adapted to receive the line, of a drum, a tape thereupon adapted to be drawn out to rotate said spool, a rewinding-spring, means for restraining said spool from reverse rotation while the tape is being rewound upon said drum, and mechanism operated by said rewinding-spring for releasing said spool when the tape has been rewound, substantially as described.

592,594. METHOD OF MANUFACTURING LEAD OXID.

CARL V. PETRAEUS, Joplin, Mo., assignor to Oliver H. Picher, same place. Filed Feb. 11, 1896. Serial No. 578,235. (No specimens.)



Claim.—1. The method of manufacturing lead oxid which consists in maintaining molten lead at a temperature above that at which litharge melts, exposing said molten lead to the action of a blast of air to oxidize the lead and partly volatilize the lead oxid, catching the volatilized lead oxid in screens and separating the fused oxid from the lead, all substantially as described and so as to give a double product of sublimated and fused litharge.

2. The method of manufacturing lead oxid which consists in maintaining molten lead at a temperature considerably above that at which litharge melts, exposing said molten lead to the action of a blast of air to oxidize the lead and partly volatilize the lead oxid, catching the volatilized lead oxid in screens and separating the fused oxid from the lead all substantially as described and so as to give a double product of sublimated and fused litharge.

3. The method of manufacturing lead oxid which consists in maintaining molten lead contained in a basic-lined furnace-basin at a temperature above that at which litharge melts, exposing said molten lead to the action of a blast of air to oxidize the lead and partly volatilize the lead oxid, catching the volatilized lead oxid in screens, separating the fused oxid from the lead and feeding fresh lead into the basin so as to maintain a practically constant level therein all substantially as described and so as to give a double product of sublimated and fused litharge.

4. The method of manufacturing lead oxid which consists in maintaining molten lead at a temperature corresponding to a white or approximately white heat, exposing said molten lead to the action of a blast of air to oxidize the lead and partly volatilize the lead oxid, catching the volatilized lead oxid in screens and separating the fused oxid from the lead all substantially as described and so as to give a double product of sublimated and fused litharge.

592,595. JOURNAL-BEARING.

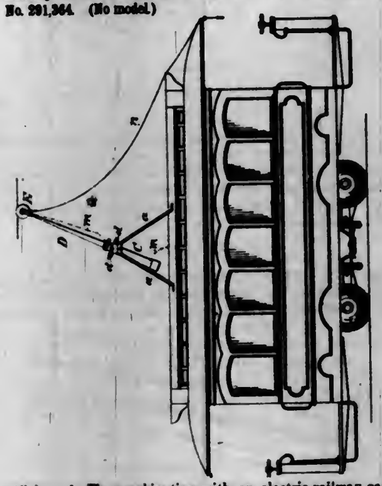
SPENCER H. PHELPS, Janesville, Wis. Filed Aug. 19, 1897. Serial No. 648,353. (No model.)



Claim.—In a roller-bearing, the combination with an outer casing, of a central shaft, a collar adjustably secured upon said shaft and provided with an annular ridge and ball-bearing surfaces on each side of said ridge, a series of balls bearing on said collar on each side of said ridge, the balls of each series being free from contact with each other but in contact with the balls of the opposite series, a bearing-ring adjustably secured to said casing, and a retaining-washer adapted to bear against said bearing-ring and adjustably secured to said casing, substantially as shown and described.

592,596. CONTACT DEVICE FOR ELECTRIC RAILWAYS.

EUGENE B. POSNER, New York, N. Y., assignor to the Sprague Electric Railway and Motor Company, same place. Filed Nov. 20, 1888. Serial No. 291,364. (No model.)



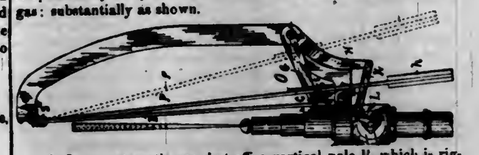
Claim.—1. The combination with an electric-railway car, of a support on the roof of the car, an arm attached to said support, bearings between said arm and support whereby said arm is permitted to rock on either side of a transverse axis, and also on either side of a longitudinal axis, and a contact device carried by said arm for making an underneath contact with a conductor, substantially as set forth.

2. The combination with an electric-railway car of a contact device for making contact with an overhead conductor, a support for said contact device pivoted on an axis longitudinal to the car and a support for said longitudinal axis pivoted to an axis transverse to the car, substantially as set forth.

592,597. AUTOMATIC GAS SHUT-OFF.

CHARLES E. SCHUSTER, Allegheny, and WILLIAM SCHUSTER, Pittsburg, Pa. Filed Jan. 22, 1897. Serial No. 620,291. (No model.)

Claim.—1. An automatic gas shut-off, consisting of a vertical pole B, which is rigidly connected to the burner and which forms a support for the other operating parts, and which is provided at its upper end with supporting-arms one of which carries a pivoted lever, an expansion-bar which is rigidly secured to one of the arms at its upper end, a second expansion-bar which is loosely connected at its upper end to the pivoted lever, and a cross-bar to which both of the expansion-bars are connected at their lower ends, combined with a swinging weighted lever, provided with a slot, and a pivoted lever which is operated by the swinging weighted lever, and a cock, which is operated by the pivoted lever, for turning on and shutting off the gas: substantially as shown.



2. In an automatic gas shut-off, a vertical pole B, which is rigidly connected to the burner and which is provided with outwardly-turned arms at its upper end, an expansion-bar which is rigidly connected at its upper end to one of the said arms, a second expansion-bar which is pivoted at its upper end to one end of a lever that is pivoted upon the other arm of the pole, and a swinging weighted lever that is pivoted to the opposite end of said lever, combined with a cross-beam that is pivoted upon a suitable support, and to the opposite ends of which the lower ends of the expansion-bars are connected, the pivoted spring-actuating lever that is connected to the cock for turning on and shutting off the gas, and which spring-actuated lever is operated by the movement of the pivoted swinging lever; and a suitable stop limiting the movement of the lever in one direction, substantially as described.

3. In an automatic gas shut-off, a vertical pole which is rigidly connected to the burner, and which is provided at its lower end with a stop for the lever which turns on and shuts off the gas, a spring, and an arm to which one end of the spring is connected, said pole being provided at its upper end with arms which are turned in opposite directions, an expansion-bar which is rigidly connected to one of the arms at its upper end, a lever that is pivoted upon the arm on the upper end of the pole, a second expansion-bar which is connected at its upper end to said lever, and a pivoted cross-beam to which the lower ends of the two expansion-bars are pivoted, a pivoted swinging lever that is weighted at its lower end and provided with a suitable slot, a spring-actuated lever pivoted upon the vertical pole and having one of its ends pass through the slot in the swinging lever, and having its other end pivoted to the cock by which the gas is turned on and shut off, substantially as set forth.

592,598. ANIMAL-TRAP.

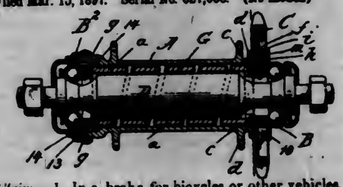
RUDOLPH VORAS, New York, N. Y. Filed June 24, 1897. Serial No. 642,021. (No model.)



Claim.—An animal trap comprising a body A, and a tubular wire structure extending through said body from end to end forming an open passage B, and having two trap-doors c, hinged at their outer ends and substantially meeting at their inner ends, said trap-doors being each provided with a counterweight within the body of the trap and exterior to the said passage B, substantially as set forth.

592,599. BICYCLE-BRAKE.

GEORGE T. WARWICK, Newark, N. J. Filed Mar. 15, 1897. Serial No. 627,606. (No model.)



Claim.—1. In a brake for bicycles or other vehicles, in combination, a hub and a member mounted on, and movable in unison with

the hub, and having an additional independent movement relative to the hub, a fixed support or axle, and an appliance which consists of a shell provided with a helical slot whereby a series of convolutions are provided having one portion thereof connected to the hub, and another to the said movable member, and adapted when said member has its independent movement to be constricted about the adjacent fixed part or axle.

2. In a brake for bicycles or other vehicles in combination, a hub, and a member mounted on and movable in unison with the hub, and having an additional independent movement relative to the hub, a fixed support or axle, and a shell constructed with a slot and capable of constriction under a twisting force, a series of convolutions, having one portion thereof connected to the hub, and another to the said backward and forwardly movable member, and a friction device having bearing against said sprocket-wheel, substantially as described.

3. In a brake for bicycles or other vehicles in combination, a hub, and a member mounted on and movable in unison with the hub, and having an additional independent movement relative thereto, an axle, and an appliance comprising a series of convolutions, having one portion thereof connected to the hub, and another to the said backward and forwardly movable member, the friction-ring *f* surrounding an end portion of the hub, and bearing on the face of the sprocket-wheel, and the nut *m* screwing into the end portion of the hub, against said friction-ring, all substantially as and for the purposes set forth.

4. In a brake for bicycles or other vehicles in combination, a hub having within its one end one or more grooves *g*, and a member mounted on and movable in unison with the hub, and having an additional independent movement relative to the hub, a fixed axle, and an appliance comprising a series of convolutions, having at one end thereof the one or more projections *b*, engaged in said grooves of the hub, and having its other end connected with said movable member, for the purpose set forth.

5. In a brake mechanism, in combination, a hub, having within its one end the internal longitudinal grooves *g g*, and a sprocket-wheel mounted on and adapted to be movable in unison with the hub, and having an additional independent movement relative to the hub, a fixed axle around which said hub rotates and an appliance located within the annular space between the hub and axle comprising a series of convolutions, and having at one end the projections *b* engaging in said hub grooves *g* and having at its other end an endwise-interlocking pin-and-socket engagement with said sprocket-wheel, substantially as and for the purpose set forth.

6. In a brake for bicycles or other vehicles, the combination with a hub having its end constructed with recesses 10 whereby the separated arc-formed members *h h* are produced, of the sprocket-wheel having the arc-formed recesses *i*, which are of somewhat greater extent than the widths of said projections *h*, the axle and the shell G having the convolutions *a a*, said shell having one end portion secured to the sprocket-wheel and another end portion thereof being engaged with the hub, substantially as described.

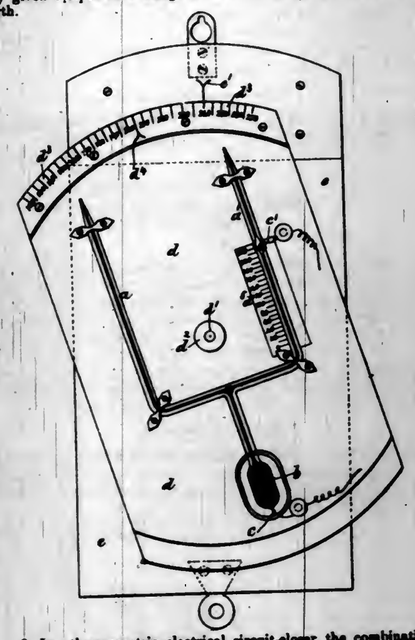
7. In a brake for bicycles the combination with the hub having its one end internally screw-threaded and also provided with the internal longitudinally-extended grooves *g g*, of the sprocket-wheel mounted on the hub to turn therewith and to have an independent movement, the axle extended through the hub, the shell G having the convolutions *a a*, and the external projections *b* entered in said grooves *g g*, and having its end which is adjacent the sprocket-wheel interlocked therewith, and the ball-case B² having a cylindrical screw-threaded portion, threading in the end of the hub, and covering the end of the said shell G, substantially as described.

8. In a brake for bicycles or other vehicles, in combination, a hub and a member mounted on and movable with the hub and having an independent movement relative to the hub, a fixed axle or support relative to which the hub rotates and the cylindrical shell having a helically-running slot which begins and terminates within the ends of said shell, one end of the shell being engaged with the hub, and the other with said backward and forwardly moving member, substantially as described.

592,600. THERMOMETRIC ELECTRICAL CIRCUIT-CLOSER. GILES H. ZEAL, London, England, assignor to James Joseph Hicks, same place. Filed May 10, 1897. Serial No. 635,877. (No model.)

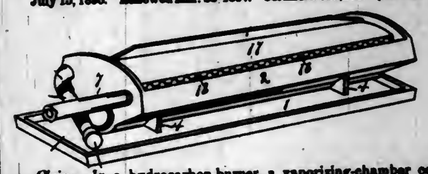
Claim.—1. A thermometric electrical circuit-closer, comprising a two-tube thermometer and circuit-terminals applied thereto, a mount carrying said thermometer, a fixed support or backboard to which the mount is pivoted and upon which it is adapted to be turned on its pivot, in a plane parallel with the plane of the tubes, to vary the heights of the mercury in the tubes, and thereby vary the distance between the mercurial column and one of the circuit-terminals, whereby the circuit may be closed at varying temperatures, substantially as described.

2. In a thermometric electrical circuit-closer, the combination of a two-tubed thermometer provided with electrical contacts, a mount carrying such thermometer and pivoted to a fixed support or backboard, a scale on one of such parts, an index on the other part, and means for clamping the thermometer-mount to the fixed support or backboard in the required position to close the electric circuit on any given temperature being attained, substantially as herein set forth.



3. In a thermometric electrical circuit-closer, the combination therewith of an electrical contact permanently in contact with the mercury, and a terminal extending in the bore of the tube of the thermometer, and provided therein with a glass coating surrounding said terminal to within a short distance of its end, substantially as and for the purpose described.

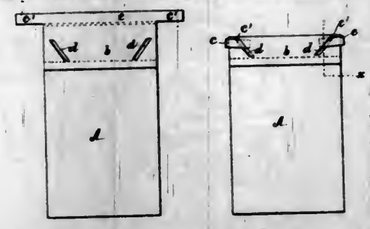
592,601. HYDROCARBON-BURNER. JOHN L. ARNOLD, Toledo, Ohio, assignor to the Standard Fuel Gas Company, of Illinois. Filed July 15, 1895. Renewed Mar. 26, 1897. Serial No. 629,263. (No model.)



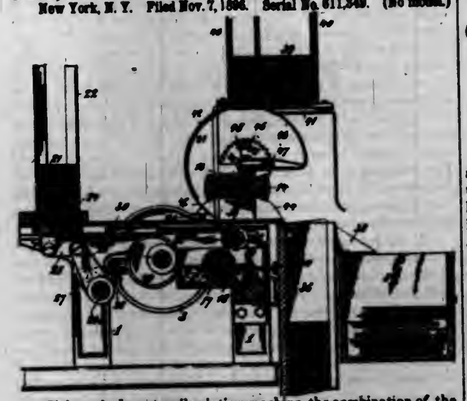
Claim.—In a hydrocarbon-burner, a vaporizing-chamber comprising parallel conduits, a web connecting the same upon the lower side, and a cap-plate resting upon the conduits, the inner walls of the conduits, connecting-web and cap-plate forming a mixing-chamber, an inlet-pipe for oil entering one conduit, and an exit-pipe for gas connecting with the opposite conduit and extending downward in line with the center of the mixing-chamber, and an inlet into the mixing-chamber comprising an integral casting to connecting-web leading to substantially midway of the mixing-chamber, substantially as described.

592,602. ENVELOP. WILLIAM H. BERGNER, Philadelphia, Pa., assignor of one-half to Alonzo De O. Rossiter, same place. Filed Jan. 7, 1897. Serial No. 618,290. (No model.)

Claim.—The combination with an envelop of the class recited, of a tongue secured to one side thereof near its open end and projecting beyond the said end, said tongue having slits or the like near its opposite lateral edges, and a thin pliable strip of metal secured in said tongue and having its free ends projecting laterally thereof and designed to be bent to engage said slits, said tongue being secured to the envelop at its marginal portion only, whereby a free space or pocket is provided between it and the side of the envelop for the reception of the said heat ends, substantially as described.



592,603. ADDRESS-PRINTING MACHINE. FRANK D. BELKNAP, New York, N. Y. Filed Nov. 7, 1896. Serial No. 611,349. (No model.)



Claim.—1. In a stencil printing-machine, the combination of the revolving ink-carrying roller, which has a portion of its face cut away, along its entire breadth, and has a full-faced portion along its entire breadth for the remainder of its circumference, the coacting roller which revolves at the same circumferential speed and means for feeding ink to the ink-carrying roller, substantially as described.

2. In a stencil printing-machine, the combination of the stencil-card, a revolving ink-carrying roller having its face cut away so as to leave one or more portions whose surface dimensions are less than those of the stencil-card, the coacting roller which revolves at the same circumferential speed as the ink-carrying roller, and means for feeding ink to the ink-carrying roller, substantially as described.

3. In a stencil printing-machine, the combination of the stencil-card, a revolving ink-carrying roller having its face cut away so as to leave one or more portions whose surface dimensions are less than those of the stencil-card, the coacting roller which revolves at the same circumferential speed as the ink-carrying roller, and means for feeding the ink to the ink-carrying roller, together with means for guiding the stencil card to the point of tangency of the two rollers, substantially as described.

4. In a stencil printing-machine the combination of the stencil-card, a revolving ink-carrying roller having its face cut away so as to leave one or more portions whose surface dimensions are less than those of the stencil-card, the coacting roller which revolves at the same circumferential speed as the ink-carrying roller, and means for feeding ink to the ink-carrying roller, together with means for guiding the object to be printed to the point of tangency of the two rollers, substantially as described.

5. In a stencil printing-machine, the combination of the stencil-card, a pair of revolving partly-cut-away rollers, one of which carries ink, a pair of parallel grooved guides which conduct the card to the point of tangency of the two rollers, the distance between the two guides being greater than the width of the roller-surfaces, substantially as described.

6. In a stencil printing-machine, the combination of the stencil-card, a pair of revolving partly-cut-away rollers, one of which carries ink, a pair of parallel grooved guides which conduct the card to the point of tangency of the two rollers, the distance between the two guides being greater than the width of the roller-surfaces, means for feeding the card along the guides, and means for feeding the object to be printed to the same point of tangency of the rollers, substantially as described.

7. In a stencil printing-machine the combination of the printing mechanism, the stencil-card magazine located at one side thereof, the straight guides from said magazine to the printing mechanism, the magazine of objects to be printed, located over the printing mechanism and the semicircular guides from said magazine to said mechanism, substantially as described.

8. In a stencil printing-machine the combination of the printing mechanism, the magazine of stencil-cards, the guides leading therefrom to the printing mechanism, the reciprocating dog which forces the bottom card from the magazine into the guides and the ejector which consists of an extension of said dog and discharges the card that has been used from, at the same time it feeds a fresh card to, the printing mechanism, substantially as described.

9. In a stencil printing-machine, the combination of the two coacting rollers, composing the printing mechanism, the guides for stencil cards and envelops leading thereto, the reciprocating ejector, and the cam on one of said rollers which lifts the ejector into operative position on the forward stroke but allows it to sink below the level of the card on the return stroke, substantially as described.

592,604. CAR-BRAKE. CORNELIUS BERNHARDT, Detroit, Mich. Filed Apr. 23, 1897. Serial No. 634,192. (No model.)



Claim.—1. In a car-brake, the combination with a rock-shaft and actuating means therefor, of a shoe mounted on the shaft so as to be held from vertical movement relative to the shaft and so as to have a lateral swinging movement, the shoe adapted to be moved into contact with the rail by the rocking of the shaft, substantially as described.

2. In a car-brake, the combination of a rock-shaft, a head secured to the rock-shaft and movable therewith and extending rearwardly therefrom, a brake-shoe pivoted to the head to have a laterally-swinging movement, and adapted to be lifted by the head from the rail, and means for normally holding the shoe in line with the rail, substantially as described.

3. In a car-brake, the combination with a rock-shaft, and means for actuating the same, of a head secured to the shaft and movable therewith, a brake-shoe pivoted in said head to have a laterally-swinging movement and held from vertical movement relative to the head, said shoe having a curved braking-surface, and the guide flange or flanges, substantially as described.

4. In a car-brake, the combination of a rock-shaft, means for operating the same, a head or arm secured rigidly to said shaft and rotatable therewith and a shoe mounted on said head or arm to have a lateral swing and held from vertical movement relative to the shaft, substantially as described.

592,605. GAS-GENERATOR. HENRY J. BURT, Liberty, Ind. Filed Aug. 19, 1896. Serial No. 603,260. (No model.)

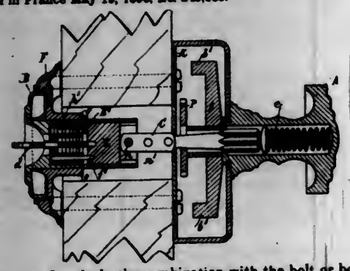


Claim.—1. In a gas-generator, the combination of vertical chambers formed by open brickwork walls, and a series of deflectors across such chambers at various points.

2. In a gas-generator, the combination of vertical chambers formed by cylindrical open brickwork walls, and a series of half-cones built first on one side and then on the other within the generator and across such vertical chambers.

3. In a gas-generator, an outer solid wall, a vertical wall built within such outer wall of open brickwork forming a central vertical chamber and also a chamber between the outer and inner wall, and a series of solid inclined deflecting-walls with their bases set in the outer wall and extending across the internal chamber, one of such inclined deflecting-walls being on one side and the succeeding one above and oppositely located and so on throughout the series.

592,606. LOCK. EDMOND DRAULLETTE and ERNEST CATOIR, Paris, France. Filed July 6, 1896. Serial No. 598,080. (No model.) Patented in France May 19, 1896, No. 243,885.



Claim.—1. In a lock, the combination with the bolt or bolts, of a reciprocating handle normally out of operative connection with the bolt or bolts, and means for automatically bringing the handle into operative connection with the bolt or bolts and forcing the handle outward to be grasped, upon the insertion of a suitable key, substantially as shown and described.

2. In a lock, an interior handle A, an exterior escutcheon F, a reciprocating handle B located in the escutcheon F, mechanism located in the interior of the handle B for locking the handle B in a retracted position in the rosette F, and means for releasing the handle B upon the insertion of a key having wards adapted to register with the wards of the locking mechanism so as to permit of the projection of the handle B, substantially as shown and described.

3. In a lock of the class described, a reciprocating handle B out of operative connection with the lock mechanism when in retracted position, means or mechanism for releasing such handle so as to permit of outward projection thereof upon the insertion of a suitable key in the handle B, and means for automatically projecting the handle and bringing the same into operative connection with the lock mechanism upon the insertion of the key, substantially as shown and described.

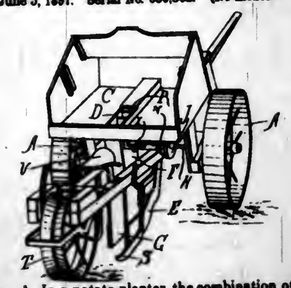
4. In a lock of the class described, the combination with the spring-bolt of the pivoted plate or part P, the double lever *b* having the studs or projections *b'*, and means for raising and lowering the part P, substantially as shown and described and for the purposes set forth.

5. In a lock, the combination with a lock-bolt and spring bolt or bolts, of a handle or handles for operating the bolts, and an oscillating plate P pivoted at one end upon the axis of the handle or handles, and suitable stops or recesses in one or more of the bolts to receive the forward end of the oscillating plate when the same is allowed to fall by gravity therein so as to lock such bolt or bolts in the outward or locked position, substantially as shown and described and for the purposes set forth.

6. In a lock, the combination with a lock bolt or bolts of the oscillating plate P pivoted loosely at one end in the axial operating-rod of the handle or handles of the lock so constructed as to be capable of being brought into and out of operative connection with such axial handle-rod, and means for raising and lowering the free end of the oscillating plate P and locking the same in such positions, the oscillating plate P having a hole S adapted to receive the eccentrically-mounted cam a^3, substantially as shown and described and for the purposes set forth.

7. In a lock of the class described, the combination with the lock bolt or bolts and the moving mechanism, of a handle *a*, a rod rotated by the handle *a*, a rectangular piece *a'* secured to the rod of the handle *a* and rotated thereby, a semicircular rod or piece a^4 eccentrically secured to the rectangular piece *a'*, and the cam a^3 eccentrically secured to the semicircular rod or piece a^4, substantially as shown and described and for the purposes set forth.

592,607. POTATO-PLANTER. THOMAS A. GALT, Sterling, Ill. Filed June 5, 1897. Serial No. 639,502. (No model.)



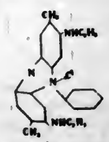
Claim.—1. In a potato-planter, the combination of the carrying and driving wheels A A, the seed-hopper C provided in its base with a longitudinal opening D, the furrow-opener E provided with a vertical seed-passage G at its rear end, the vertical seed-duct F communicating through the opening D of the seed-hopper C with the vertical seed-passage G aforesaid, wheels N and W seated on the frame of the machine in line, and in the same vertical plane with each other, and adapted to rotate in the line of movement of the machine with their upper carrying-surfaces moving toward the rear of the machine, wheel O seated beneath wheels N and W, but in the same vertical plane with the latter, chain P provided with wings R and carried on said wheels W, N, and O beneath said opening D and suitable means for progressing said chain in a direction contrary to the movement of the machine, substantially as shown and for the purpose described.

2. In a potato planter, the combination of a suitable frame, wheels A A supporting the latter, a hopper C provided in its base with longitudinal opening D, furrow-opener E provided in its rear end with the vertical seed-passage G, a vertical seed-duct F connecting said seed-passage G with said opening D, and having the upper part of its front wall removed, chain P adapted to be driven longitudinally of the machine and toward the rear thereof under the opening D, and provided with wings R adapted to pass loosely down the seed-duct F and carry the seed, in certain fixed relations, from the hopper C to the seed-passage G, axle H, driving sprocket-wheel J, seated thereon, rotating shaft K provided with sprocket-pinion L, chain M uniting the sprocket-wheel J to the sprocket-pinion L, and the sprocket-wheel N rigidly seated on shaft K and adapted to carry and drive the chain P contrary to the movement of the machine, substantially as shown and for the purpose described.

592,608. RED AZIN DYE. BERNHARD HEYMANN, Elberfeld, and RUDOLF REYHER, Frankfort-on-the-Main, Germany, assignors to the Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Filed Aug. 17, 1896. Serial No. 602,998. (No specimens.) Patented in England Feb. 9, 1895, No. 2,900; in France Mar. 8, 1895, No. 245,641, and in Italy Mar. 9, 1895, XXIX, 38,401, LXXV, 236.

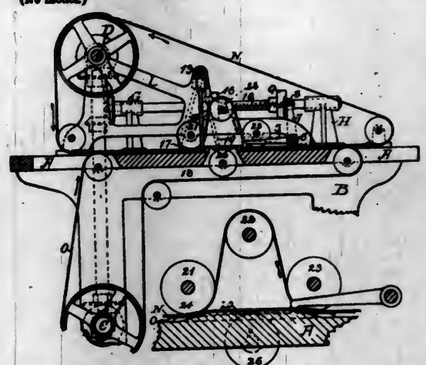
Claim.—1 The process for the production of azin dyes, which process consists in oxidizing first one molecular proportion of the hydrochlorate of paraamidomonoalkyl-orthotoluidin with one molecular proportion of monoalkyl-orthotoluidin and secondly oxidizing the resulting indamin compound with any primary amin of the aromatic series.

2. As a new article of manufacture the azin dyes obtainable from oxidizing paraamidomonoalkyl-orthotoluidin first with monoalkyl-orthotoluidin and then with anilin or another primary amin of the aromatic series having in case paraamidomonoethyl-orthotoluidin, monoethyl-orthotoluidin and anilin be used, probably the following formula:



forming, when pulverized, a brown powder, easily soluble in hot water with a splendid red color, soluble in alcohol with the same color, yielding a strong yellow fluorescence, almost insoluble in strong ammonia liquor, soluble in concentrated sulfuric acid (66° Baumé) with a green color, which turns into blue on the addition of a small quantity of ice-water to the sulfuric-acid solution and finally from violet to red on the addition of a very large quantity of water, being precipitated from its strong watery solution as thin brown crystals on adding diluted mineral acids, producing on mordanted cotton as well as on unmordanted cotton very clear red shades of great fastness to the action of alkali and light.

592,609. DEVICE FOR FEEDING SHEETS OF PAPER. CHARLES H. HEYWOOD, Milwaukee, Wis. Filed Aug. 16, 1896. Serial No. 602,879. (No model.)



Claim.—1. The combination with two or more pairs of upper and lower moving tapes or belts between which paper is carried, of a midway station on which a sheet of paper may stop during its passage and remain for a limited period out of contact with the tapes or belts.

2. The combination with upper and lower moving and alining tapes or belts arranged to carry sheets of paper, of a raised platform or station located between the entrance and exit of the tapes or belts and on which the sheet is moved and raised out of contact with the lower tapes or belts during its passage onto the platform.

3. The combination with one or more moving tapes or belts of means for stopping and starting a sheet of paper during its progress through the machine, stop-gages and adjusting-gages which move the paper into contact with the stop-gages after which the stop-gages are removed from the path of the sheet and the adjusting-gages push the sheet forward into contact with the tapes, substantially as shown.

4. The combination with one or more moving tapes or belts, means for stopping and starting a sheet of paper during its passage through the tapes or belts, on a stop-station around which the tapes or belts are guided out of contact with the sheet lying on the said station, substantially as shown.

5. The combination of upper and lower alining tapes, a raised station to receive the sheet, intermediate of the alining end sections of the tapes, guide-rolls to carry the upper line of tapes over and above the raised station, and means to stop and start the sheet at the station.

6. The combination of a raised platform or station, a pair of lower tapes to travel over the said station adjacent to the ends thereof, a pair of upper tapes moving in alinement with the lower set, rolls to hold and carry the upper tapes free from the station and lower tapes, and oppositely-disposed rolls adjacent to the station to depress the upper tapes.

7. The combination of two pairs of upper and lower moving tapes between which a sheet of paper may be carried, and a stationary raised frame or station located between the two pairs of tapes and whereon a sheet of paper may stop during its passage over the station and remain out of contact with the tapes, substantially as specified.

592,610. BADGE. WILLIAM HORNICK, Jr., Newark, N. J., assignor to the Whitehead & Hoag Company, of New Jersey. Filed Aug. 2, 1897. Serial No. 646,768. (No model.)



Claim.—1. In a badge, the combination, with an ornamental shell-like medallion having a chambered or recessed portion in the back thereof, of a ribbon having a part thereof arranged in said chambered or recessed medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having an outwardly-extending and raised annular rim, adapted to be arranged in said chambered or recessed portion of the shell and straightened out therein to bring it and said ribbon in holding contact with the inner portion of said chamber, substantially as and for the purposes set forth.

2. In a badge the combination, with an ornamental shell-like medallion having a chambered or recessed portion in the back thereof, and a flexible covering over said shell, bearing an inscription, design, emblem, or the like, of a ribbon having a part thereof arranged in said chambered or recessed portion of the medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having an outwardly-extending and raised annular rim, adapted to be arranged in said chambered or recessed portion of the shell and straightened out therein to bring it and said part of the ribbon in holding contact with the inner portion of said chamber, substantially as and for the purposes set forth.

3. In a badge, the combination, with an ornamental shell-like medallion having a chambered or recessed portion in the back thereof, of a ribbon having a part thereof arranged in said chambered or recessed portion of the medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having outwardly-extending and raised lugs or teeth c^3, adapted to be arranged in said chambered or recessed portion of the shell, and straightened out therein to bring said lugs or teeth and said part of the ribbon in holding contact with the inner portion of said chamber, substantially as and for the purposes set forth.

4. In a badge, the combination, with an ornamental shell-like medallion having a chambered or recessed portion in the back thereof, and a flexible covering over said shell, bearing an inscription, design, emblem, or the like, of a ribbon having a part thereof arranged in said chambered or recessed portion of the medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having outwardly-extending and raised lugs or teeth c^3, adapted to be arranged in said chambered portion of the shell, and straightened out therein to bring said lugs or teeth and said part of the ribbon in holding contact with the inner portion of said chamber, substantially as and for the purposes set forth.

5. In a badge, the combination, with an ornamental shell-like medallion having a chambered or recessed portion in the back thereof, of a ribbon having a part thereof arranged in said chambered or recessed portion of the medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having outwardly-extending and raised lugs or teeth c^3 having bent ends c^4 and the flattened surfaces c^4, adapted to be arranged in said chambered or recessed portion of the shell and straightened out therein to bring said ends of the lugs or teeth and said part of the ribbon in holding contact with the inner portion of said chamber, substantially as and for the purposes set forth.

6. In a badge, the combination, with an ornamental shell-like medallion having a chambered or recessed portion in the back thereof, and a flexible covering over said shell, bearing an inscription, design, emblem, or the like, of a ribbon having a part thereof arranged in said chambered or recessed portion of the medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having outwardly-extending and raised lugs or teeth c^3 having bent ends c^4 and the flattened surfaces c^4, adapted to be arranged in said chambered or recessed portion of the shell and straightened out therein to bring said ends of the lugs or teeth and said part of the ribbon in holding contact with the inner portion of said chamber, substantially as and for the purposes set forth.

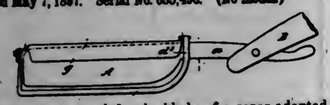
7. In a badge, the combination, with an ornamental shell-like medallion having a marginal rim or bead, forming a chambered or recessed portion in the back thereof, a flexible covering over said shell, bearing an inscription, design, emblem, or the like, and having its edges turned down over said marginal rim, and a ring in said shell placed over the edge of said covering to hold or secure the latter in position, of a ribbon having a part thereof arranged in said chambered or recessed part of the medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having an outwardly-extending and raised annular rim, adapted to be arranged in said chambered or recessed portion of the shell and straightened out beneath the rim or bead of the shell and its ring, to bring it and said part of the ribbon in holding contact with the inner annular surface of the rim or bead of the shell, substantially and as for the purposes set forth.

8 In a badge, the combination, with an ornamental shell-like medallion having a marginal rim or bead, forming a chambered or recessed portion in the back thereof, a flexible covering over said shell, bearing an inscription, design, emblem, or the like, and having its edges turned down over said marginal rim, and a ring in said shell placed over the edge of said covering to hold or secure the latter in position, of a ribbon having a part thereof arranged in said chambered or recessed part of the medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having outwardly-extending and raised lugs or teeth

c^9 adapted to be arranged in said chambered or recessed portion of the shell and straightened out beneath the rim or bead of the shell and its ring, to bring the ends of said lugs or teeth and said part of the ribbon in holding contact with the inner annular surface of the rim or bead of the shell, substantially as and for the purposes set forth.

9. In a badge, the combination, with an ornamental shell-like medallion having a marginal rim or bead, forming a chambered or recessed portion in the back thereof, a flexible covering over said shell, bearing an inscription, design, emblem, or the like, and having its edges turned down over said marginal rim, and a ring in said shell placed over the edge of said covering to hold or secure the latter in position, of a ribbon having a part thereof arranged in said chambered or recessed part of the medallion, and a plate for permanently securing said part of the ribbon in said chambered or recessed portion, said plate having outwardly-extending and raised lugs or teeth c^8 having bent ends c^8 and the flattened surfaces c^4, adapted to be arranged in said chambered or recessed portion of the shell and straightened out beneath said rim or bead of the shell and its ring, to bring said ends of the lugs or teeth and said part of the ribbon in holding contact with the inner annular surface of the said rim or bead of the shell, substantially as and for the purposes set forth.

592,611. SAFETY-GUARD FOR RAZORS. MORRIS S. JACOBSON, New York, N. Y., assignor of one-half to Russell Goldman, same place. Filed May 7, 1897. Serial No. 635,496. (No model.)



Claim.—1. A guard for the blade of a razor adapted to be detachably connected therewith and consisting of a rod or bar which extends longitudinally of the edge of the blade, and a clamp which is adapted to be connected with the back of the blade, said clamp being provided with side plates which are adapted to grasp the side of the blade, the outer end of said rod or bar being provided with an angular arm which extends into or through the outer end of said clamp, and is pivotally connected therewith, and the end of said rod or bar adjacent to the shank of the blade being also provided with an arm which is provided with a yoke or loop through which the said shank passes, said loop or yoke being pivotally connected with the back of the said clamp at the end thereof, substantially as shown and described.

2. A guard for the blade of a razor adapted to be detachably connected therewith and consisting of a rod or bar which extends longitudinally of the edge of the blade, and a clamp which is adapted to be connected with the back of the blade, said clamp being provided with side plates which are adapted to grasp the side of the blade, the outer end of said rod or bar being provided with an angular arm which extends into or through the outer end of said clamp, and is pivotally connected therewith, and the end of said rod or bar adjacent to the shank of the blade being also provided with an arm which is provided with a yoke or loop through which the said shank passes, said loop or yoke being pivotally connected with the back of the said clamp at the end thereof, and said rod or bar being also adjustable toward or from the edge of said blade, substantially as shown and described.

592,612. POCKET-KNIFE. HANS G. JOHNSON, Waukon, Iowa. Filed Oct. 16, 1896. Serial No. 609,124. (No model.)

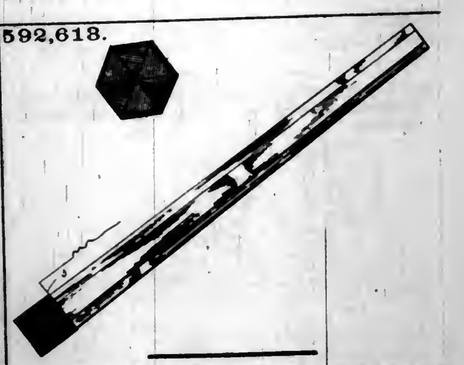


Claim.—The combination with a knife-handle, and blade having a notch therein, of a lever having a projection adapted to enter the notch and lock the blade, and spring bearing in the direction of the blade and lever and adapted to throw the blade open when an end of the lever is pressed inward.

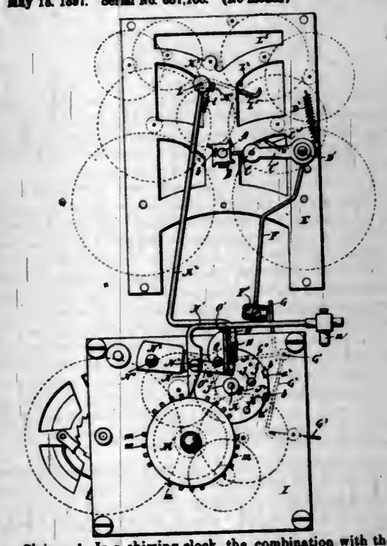
592,613. FISHING-ROD. JOHN M. KENYON, Toledo, Ohio. Filed Jan. 23, 1897. Serial No. 620,316. (No model.)

Claim.—A fishing-rod composed of longitudinally divided or split jointed sections, each section having its outer surface provided with a coat of varnish, and then continuously wrapped or wound with a suitable cord or thread over the varnish while it is in a plastic state, the wound covering being then varnished and finished to the required degree to protect the winding material and to render the same transparent.

592,618.



592,614. CHIMING CLOCK. WILSON R. PORTER, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed May 18, 1897. Serial No. 637,100. (No model.)



Claim.—1. In a chiming clock, the combination with the time-movement thereof, of an independently-organized chime-movement, means applied to the time-movement and actuated thereby for releasing the chime-movement train, a releasing-hook, a notched chime-wheel coacting with the said hook, a guard-cam coacting with the said hook, and provided with lugs corresponding to the notches of the chime-wheel, a starting-pin carried by the chime-wheel, and a starting-lever coacting with the said pin, and depending from the time-movement, and connected therein with the strike-train thereof for releasing the said train through the agency of the chime-movement.

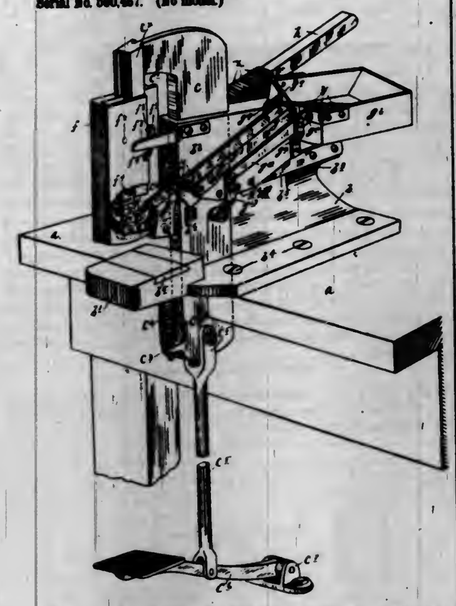
2. In a chime-movement, the combination with a releasing-hook and means for actuating the same, of a chime-wheel provided with notches to receive the said hook, an oscillating guard-cam furnished with lugs for coaction with the notches of the said wheel and projecting slightly beyond the periphery thereof, and a spring connected with the guard-cam for oscillating it, and shooting its lugs into full registration with its notches when the releasing-hook is lifted out of the same.

3. In a chime-movement, the combination with a releasing-hook and means for actuating the same, of a chime-wheel provided with notches to receive the said hook, a guard-cam mounted upon the hub of the chime-wheel so as to oscillate thereupon, and formed with lugs corresponding to the notches of the said wheel, and projecting slightly beyond the periphery of the same, means for limiting the oscillation of the guard-cam, and a spring coacting with the guard-cam to oscillate it so as to bring its lugs into complete registration with the said notches when the releasing-hook is lifted out of the same.

4. In a chime-movement, the combination with a chime-drum of

chime-levers the tails of which are engaged by pins in the drum, a chime-lever bracket carrying a stud upon which the said levers are mounted, and a buffer-frame connected with the chime-lever bracket, and supporting the chime-levers in their normal positions, and means connected with the said frame for providing for the independent action of the said levers by isolating them as to the communication of friction from one to the other.

592,615. NAILING AND STAPLING MACHINE. REINHOLD R. QUICKERT and KNUTE LARSON, Minneapolis, Minn. Filed May 6, 1896. Serial No. 590,467. (No model.)



Claim.—1. In a nailing and stapling machine, the combination with a driving device, of independent feeding and holding devices for the nails and the staples, respectively, whereby a nail and a staple may be driven at the same time or either can be driven alone, at the will of the operator, substantially as described.

2. In a nailing or stapling machine, the combination with holding and driving devices, of a three-section nail-feeding magazine, set on an incline, with the lowermost section stationary, the middle section subject to sidewise motion, at its delivery end, for coöperation with said fixed section to feed the nails, one at a time, with an escapement action, and the upper section of box-like form and subject to an up-and-down pivotal motion, for loading the nail-slot therein and feeding the nails to the middle section, substantially as described.

3. In a nailing-machine, the combination with the holding and driving devices, of nail-feeding devices comprising the fixed magazine section g, the sidewise-movable magazine-section g', and the cut-off or escapement devices g^7 and g^8 with the latter carried by the fixed magazine g, and the former carried by the sidewise-movable magazine g', and coöperating to effect the feed with an escapement action, substantially as described.

4. In a nailing-machine, the combination with the driving and the feeding devices, of the holding devices, comprising the head f, movable on the hammer c^3, the pivoted lever f^6 carried by the head f and subject to the spring f^7, the bifurcated holder f^5, working in a slot of the lever f^6 and pivoted thereto, so that gravity will tend to throw its bifurcated end uppermost, the V-notch f^9, in the lower end of the lever f^6, the lug c^8 on the hammer-head, coöperating with the lug f' on the holder, and the lug f^8 on the holder, coöperating with the stop-finger f^{10}, projecting from the frame-casting, all for coöperation, substantially as described.

5. In a stapling-machine, the combination with a driving device and an anvil, of staple-feeding devices comprising a staple-magazine, a plunger having a raised surface adapted to receive one staple at a time from said magazine and to carry the same into the path of said driving device, and a spring hook or detent adapted to engage said staple, when so moved, and to prevent the same from return movement with said plunger, substantially as described.

6. In a stapling-machine, the combination with a driving device and an anvil, of staple-feeding devices comprising a staple-magazine, positioned for gravity feed, a plunger having a raised profile-surface, shaped to be embraced by the staples, and adapted to receive the same from the magazine, one at a time, and holding devices carried by the driver, for receiving the staples from the said plunger and holding the same in driving position, substantially as described.

7. In a stapling-machine, the combination with a driving device and an anvil, of the feed-magazine in the form of the inclined rail h, turned downward and inward, at its lower end, the feed-plunger h', provided with the raised profile-surface h^9, shaped to be embraced by the staples and adapted to receive the same from said rail h, one at a time, and having the undercut cam-surface h^{12}, at its forward edge, and the holding devices, comprising the holder-head f movable on the hammer c^3, and provided with the spring-finger h^6 and the spring-hook h^7 having an inturned lip working through a slot, in the finger h^6, and coöperating with the surface h^{12} of the plunger h', to strip the staple from the plunger, and hold the same, in driving position, after the plunger is retracted, substantially as described.

8. The combination with the driver and the anvil, of the rail h, the plunger h', subject to the spring h^4, and having the finger-pull h^5, the raised profile-surface h^9, on the outer end of said plunger, shaped to be embraced by the staples tapering rearward and provided with the undercut cam-surface h^{12}, the lip h^{10} on said plunger, the holder-head f, provided with the guideway h^6, for the feed-plunger h', the finger h^6 on said head, projecting into the guideway h^6 and having the slot h^{11}, and the spring-hook h^7, provided with an inturned lip, working through the said slot h^{11} of the finger h^6, all for coöperation, substantially as described.

9. In a machine of the class described, the combination with a driving device and an anvil, of a staple-feeding device comprising a staple-magazine, a plunger or sliding part having a surface or device for receiving one staple at a time from said magazine and to carry the same into the path of said driving device, and a detent or catch adapted to engage said staple, when so moved, and to prevent the same from return movement with said plunger, substantially as described.

592,616. FURNACE. JAMES G. SANDERSON, Scranton, Pa. Filed Oct. 8, 1896. Serial No. 608,258. (No model.)



Claim.—1. A furnace comprising a conical grate, a base-ring having an opening over which the grate is located, a fire-pot mounted on the base ring, means for supporting the base-ring, means for rotating the base-ring, and means for raising and lowering the grate; substantially as described.

2. A furnace comprising a conical grate, a base-ring having an opening over which the grate is located, means for supporting the base-ring, means for rotating the base-ring, means for raising and lowering the grate, and a counterbalance-weight for supporting the grate at desired height with relation to the base-ring; substantially as described.

3. A furnace comprising a conical grate, a base-ring having an opening over which the grate is located, and a bevel-gear, brackets having rollers on which the base-ring is mounted, a bracket in which a shaft is mounted, a bevel pinion located on the shaft and meshing with the bevel-gear, and means for raising and lowering the grate, substantially as described.

4. A furnace comprising a conical grate, a base-ring having an opening over which the grate is located, a fire-pot consisting of toothed and ribbed segments mounted on the base-ring, means for supporting the base-ring, means for rotating the base-ring, and means for raising and lowering the grate, substantially as described.

5. A furnace comprising a conical grate, a base-ring having an opening over which the grate is located, a fire-pot mounted on the base-ring, means for supporting the base-ring, means for rotating the base-ring, means for raising and lowering the grate, and a downwardly-flaring magazine for feeding the fuel centrally onto the grate; substantially as described.

6. A furnace comprising a conical grate, a base-ring having an opening over which the grate is located, a lever for raising and lowering the grate provided with an adjustable counterbalance-weight for supporting the gate at desired height with reference to the base-ring; substantially as described.

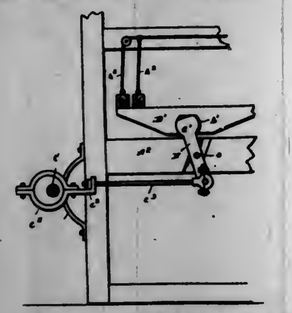
7. A furnace comprising a conical grate, having a tubular extension, a base-ring having an opening over which the edge of the grate projects slightly, a draft-flue telescoping with the tubular extension, a rod mounted axially in the grate and extending downward beyond the flue, a lever on which the rod is supported, and a weight adjustable on the lever for counterbalancing the weight of the grate and supporting it at desired height with reference to the base-ring, substantially as described.

8. A furnace comprising a conical grate, a base-ring having an opening over which the grate is located, a fire-pot consisting of an annular series of segments secured to the base-ring, having their side faces formed in planes radial with respect to the base-ring and provided with crests and lateral straight shoulders, and means for rotating the base-ring; substantially as described.

9. A furnace comprising a conical grate, a base-ring having an opening over which the grate is located and formed with bosses on its upper surface, a fire-pot consisting of an annular series of segments having recesses in the base thereof which receive the bosses, and means for rotating the base-ring; substantially as described.

10. A furnace comprising a conical grate, a base-ring formed with bosses on its upper surface, and having an opening over which the grate is located, a fire-pot mounted on the base-ring consisting of an annular series of segments having recesses in the base thereof which receive the bosses, means for supporting the base-ring, means for rotating the base-ring, and means for raising and lowering the grate; substantially as described.

592,617. SHAKING-BOLT. DELOS SEWELL, Hillsdale, Mich. Filed Nov. 20, 1896. Serial No. 612,827. (No model.)



Claim.—1. In an improved mechanism for shaking-bolts, the combination of a continuously-rotating driving-shaft, means connected with said shaft whereby rocking arms are caused to oscillate, rigid abutments against which said arms impinge at the extreme limit of their oscillations, a bolting-sieve and means permitting it to swing, and recesses in the frame of said bolting-sieve in which the end of the oscillating arm engages, each of said recesses being larger than the head of the oscillating arm, substantially as described.

2. In an improved mechanism for shaking-bolts, the combination of a continuously-rotating driving-shaft, means connected with said shaft whereby rocking arms are caused to oscillate, rigid abutments against which said arms impinge at the extreme limit of their oscillations, a bolting-sieve and means permitting it to swing, recesses in the frame of said bolting-sieve in which the end of the oscillating arm engages, each of said recesses being larger than the head of the oscillating arm, and an interior bolting-sieve arranged to be operated by the frame of the exterior bolting-sieve, substantially as described.

3. In mechanism for operating shaking-bolts, the combination of a shaft and crank thereon, a pitman, an oscillating arm connected with said pitman and oscillated thereby, abutments against which said oscillating arms may come in contact at the extremity of the oscillation, a sieve adapted to engage the outer extremity of the oscillating arm by a connection which permits the motion of the sieve to continue a short distance after the motion of the arm has stopped, and hangers permitting the sieve to oscillate, substantially as described.

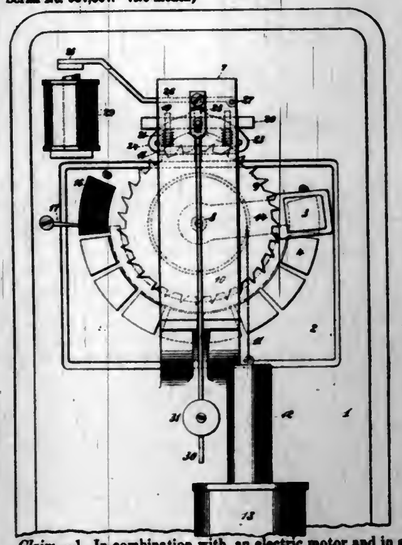
592,618. CORN-HARVESTER. JOHN A. STONE, Chicago, Ill., assignor to the Deering Harvester Company, same place. Filed Apr. 20, 1896. Serial No. 588,321. (No model.)



Claim.—1. In a corn-harvester a binder having a table upon which the stalks are prostrated to be bound, a stalk-passage, a stalk gathering and forwarding device acting upon the stalk in the stalk-passage and a prostrating-conveyer extending from the said stalk-passage toward the said binder, having its receiving end pivoted and its delivery end vertically adjustable, substantially as described.

2. In a corn-harvester a binder having a table upon which the stalks are prostrated to be bound, a stalk-passage, a stalk gathering and forwarding device acting upon the stalk in the stalk-passage, and a prostrating-conveyer extending from the said stalk-passage toward the said binder, having its receiving end pivoted and its delivery end vertically adjustable, bevel-gears for transmitting rotation from the sprocket-wheels of said gathering mechanism to the driving sprocket-wheel of said prostrating-conveyer, pivotal supports for said conveyer having their pivotal axes substantially coincident with the center of the intermeshing teeth of said bevel-gears, substantially as described.

592,619. ELECTRIC-MOTOR REGULATOR. FELIPE VIDAL Y VILARET and DAVID BELAIS, New York, N. Y. Filed May 24, 1897. Serial No. 637,867. (No model.)



Claim.—1. In combination with an electric motor and in series circuit with the field thereof a variable resistance, means for automatically and gradually reducing said resistance, and means for automatically breaking said circuit upon a definite increase in current strength thereof, substantially as described.

2. The combination with an electric motor and a mechanical controlling device for regulating the same rate of resistance variation under different volumes of current, of means for varying the resistance in the field-circuit of said motor, and an electromagnetic device included in series in said circuit and actuating said means, substantially as described.

3. The combination with an electric motor of a series of resistances, a movable contact-arm and an electromagnetic device actuating said arm the said resistances, arm and electromagnetic device being in series in the field-circuit of said motor, and an escapement mechanism regulating the rate of movement of said arm, substantially as described.

4. The combination in an electric-motor regulator of a series of resistances, a movable contact-arm coöperating with said resistances to cut one or more of them into or out of the circuit of said motor, an electromagnet actuating said arm in one direction and included in said circuit, a mechanism for regulating the rate of movement of said arm, and means actuated by a definite variation in the current on said circuit for releasing said arm from the control of said regulating mechanism, substantially as described.

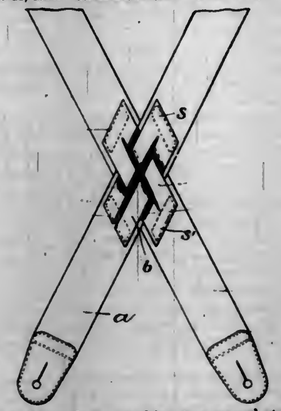
5. The combination in an electric-motor regulator of a series of resistances, a movable contact-arm coöperating therewith to cut one or more of them into or out of circuit an electromagnetic device actuating said arm and in circuit with said resistances, mechanism for regulating the movement of said arm, and a second electromagnetic device operating to release said arm from the control on said regulating mechanism upon definite current variation on the circuit, substantially as described.

6. The combination in an electric-motor regulator of a series of resistances, a movable contact-arm coöperating with said resistances to cut one or more of them into or out of circuit, an electromagnet actuating said arm, a pawl and toothed wheel, mechanism for regulating the rate of movement of said arm, and an electromagnet controlling said pawl to engage with said mechanism, substantially as described.

7. The combination in an electric-motor regulator of the solenoid 13, arm 14 controlled thereby, contact-plates as 3, 4 and interposed resistances 5 coöperating with said arm, the said contact-plates, resistances, arm and solenoid being in series circuit, and contact-plate 16, the aforesaid parts being constructed and arranged so that said arm after being carried by the action of said solenoid successively over contact-plates 3, 4, &c., to cut resistances out of the circuit, shall rest on contact-plate 16, substantially as described.

8. The combination in an electric-motor regulator of the solenoid 13, arm 14 controlled thereby, contact plates as 3, 4, and interposed resistances 5 coöperating with said arm, the said contact-plates, resistances, arm and solenoid being in series circuit, contact-plate 16, and catch 17; the aforesaid parts being constructed and arranged so that said arm after being carried by the action of said solenoid successively over contact-plates 3, 4, &c., to cut resistances out of circuit, shall upon certain definite increase in current strength overcome the mechanical resistance of catch 17 and pass upon contact-plate 16, substantially as described.

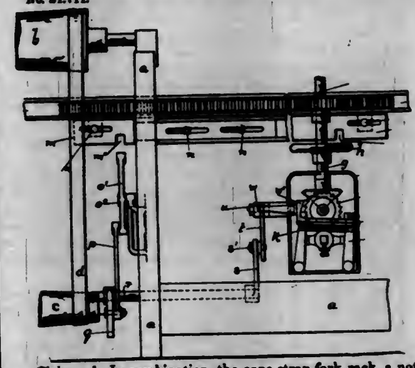
592,620. SUSPENDERS. CHARLES W. WOLFF, Shirley, Mass., assignor to the C. A. Edgarton Manufacturing Company, same place. Filed June 11, 1897. Serial No. 640,319. (No model.)



Claim.—1. Suspenders comprising two crossed strips free from direct connection with each other, a pair of strands attached at their ends to one strip, and a pair of strands attached at their ends to the other strip and interwoven with the first-mentioned pair, the line of the attaching means which unite each pair of strands to their strip being substantially parallel with the edges of the other pair of strands and strip, substantially as and for the purpose set forth.

2. Suspenders comprising two crossed strips free from direct connection with each other, and two crossed connecting-pieces each subdivided into a plurality of strands, the said pieces being attached at their ends to the strips and unattached and interwoven between their ends, the line of the attaching means which unite each connecting-piece to its strip being substantially parallel with the edges of the other connecting-piece and its strip, substantially as and for the purpose set forth.

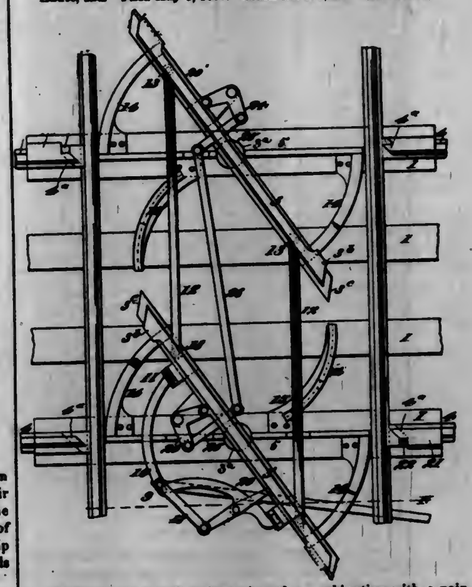
592,621. SLUBBING, INTERMEDIATE, AND ROVING FRAME. CHARLES F. AINSWORTH, Horwich, England. Filed Apr. 20, 1897. Serial No. 634,235. (No model.) Patented in England Oct. 1, 1896, No. 21,711.



Claim.—1. In combination, the cone strap-fork rack, a notched plate secured thereto adjustably, the bottom cone-drum, the lifting-handle therefor, and a projection secured to said lifting-handle, said projection being adapted to pass through the notches in the plate only at the commencement and finish of winding a set of bobbins, substantially as described.

2. In combination, with the cone strap-fork rack, a notched plate secured adjustably thereto, the bottom cone-drum-lifting gear, the handle therefor, a projection fixed on the handle and adapted to pass at times through the notches of the said adjustable plate, the catch-levers, and a lever coupling the catch-levers together while the bobbins are building and connections from the bottom cone-drum-lifting gear to operate the lever and release and recouple said catch-levers as the lifting-handle is turned, substantially as described.

592,622. RAILROAD-CROSSING. STEPHEN J. AUSTIN, Terre Haute, Ind. Filed May 5, 1897. Serial No. 635,163. (No model.)



Claim.—1. In a railroad-crossing, the combination with a pair of fixed rails forming a continuous track, of a second pair of broken fixed rails, a pair of rotatable rail-sections, and means for counterbalancing said rail-sections, substantially as and for the purpose set forth.

2. In a railroad-crossing, the combination with a pair of fixed rails forming a continuous track of a second pair of broken fixed rails, a pair of rotatable rail-sections, pivot-pins carried by said rail-

sections, springs on which said pins are seated, and means for actuating said rail-sections, substantially as described.

3. In a railroad-crossing, the combination with a pair of fixed rails forming a continuous track of a second pair of broken fixed rails, a pair of rotatable rail-sections, pivot-pins carried by said rail-sections, means whereby said rail-sections are loosely jointed or hinged to said pins, and means for actuating said rail-sections, substantially as described.

4. In a railroad-crossing, the combination with a pair of fixed rails forming a continuous track, of a second pair of broken fixed rails, a pair of rotatable rail-sections, pivot pins carried by said rail-sections, pins connecting said rail sections to said pivot-pins, and means for actuating said rail-sections, substantially as described.

5. In a railroad crossing, the combination with a pair of fixed rails forming a continuous track of a second pair of broken fixed rails, a pair of rotatable rail-sections recessed at their central portions, pivot-pins carried by said rail-sections, sleeves surrounding said pivot-pins and over which the recessed portions of said rail-sections are adapted to telescope, and means for actuating said rail-sections, substantially as described.

6. In a railroad-crossing, the combination with a pair of fixed rails forming a continuous track, of a second pair of broken fixed rails, a pair of rotatable vertically moving rail-sections provided at their ends with strengthening-lugs 3^a formed at their outer surfaces, and means for actuating said rail-sections, substantially as described.

7. In a railroad-crossing, the combination with a pair of fixed rails, forming a continuous track, of a second pair of broken fixed rails, a pair of rotatable vertically-moving rail-sections arranged to be brought into alinement with said pair of broken fixed rails, tongues on the ends of said broken pair of rails, tongues on said rail-sections adapted to engage the tongues of said broken rails, and means for actuating said rail-sections, substantially as described.

8. In a railroad-crossing, the combination with a pair of fixed rails forming a continuous track, of a second pair of broken fixed rails, a pair of rotatable vertically-moving rail-sections, and an operating-bar vertically hinged to said rail-sections, substantially as described.

9. In a railroad-crossing, the combination with a pair of fixed rails forming a continuous track, of a second pair of broken fixed rails, a pair of rotatable vertically-moving rail-sections, connecting-bars located above the base of said rail-sections, and provided with a pivotal connection in the web of said rail-sections, and means for actuating said rail-sections, substantially as described.

10. The combination of movable rail-sections mounted on pivots, and a means of operating same consisting of a lever, parallel-rule connection between said movable sections, connection between one of said movable sections and said lever, a locking-pin on the fixed rails, and a key on said movable section, and connection between said key and said lever, substantially as described.

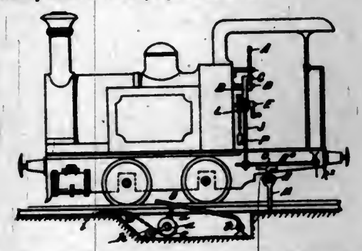
11. The combination of movable rail-sections pivotally mounted, connecting-bars pivoted to the sections, inclines upon which said sections ride to the level of their fixed rails, and a means adapted to prevent displacement thereof, consisting of fixed plates 15, provided with flanges, feet carried by the connecting-bars, said feet being adapted to engage under said flanges, substantially as described.

12. The combination of bed-plates, vertically-movable rail-sections pivotally mounted in said bed-plates, a means of locking said movable sections when coincident with their fixed rails, and a means of operating same whereby said lock is first released, and then said movable rail-sections are swung out of alinement, substantially as described.

13. The construction consisting of bed-plates, movable rail-sections pivoted in said bed-plates and adapted to rest below the level of their fixed rails when out of line therewith, inclines adapted to carry said movable rail-sections to the level of their fixed rails, means of operating same consisting of a hinged lever connection, and a means of locking same in line with the said fixed rails, consisting of spring-actuated lugs carried on the fixed rails, and a means of disengaging said lugs from engagement with the movable sections operated by the preliminary movement of the said lever connection, substantially as described.

592,623. MEANS FOR AUTOMATICALLY CONTROLLING THROTTLE-LEVERS OF LOCOMOTIVES. Auguste Becker, Stembert, and Alphonse Mignary, Pepinster, Belgium. Filed June 22, 1897. Serial No. 642,007. (No model.)

Claim.—1. The combination with the throttle-lever of a locomotive, and the shaft supporting the same, of a toothed disk loosely mounted on said shaft and provided with a projection adapted to engage the throttle-lever, a pinion engaging the teeth of said disk, a drum connected with and adapted to operate said pinion, a weighted chain on said drum, a fulcrumed pawl engaging one of the teeth in said disk, a rod pivotally connected with said pawl, a fulcrumed lever suitably connected at its free end with the rod, a shaft, a cam on said shaft and engaging said lever, an arm journaled on said shaft and downwardly projecting therefrom, and means arranged between the track for operating the downwardly-extending arm, all said parts, substantially as and for the purposes described.



2. The combination with the throttle-lever of a locomotive and the shaft supporting the same, of a toothed disk loosely mounted on said shaft and provided with a projection adapted to engage the throttle-lever, a pinion engaging the teeth of said disk, a drum connected with and adapted to operate said pinion, a weighted chain on said drum, a fulcrumed pawl engaging one of the teeth in said disk, a rod pivotally connected with said pawl, a fulcrumed lever suitably connected at its free end with the rod, a shaft, a cam mounted on said shaft and engaging said lever, an arm journaled on said shaft and downwardly projecting therefrom, a treadle-lever suitably fulcrumed between the track, a cam adapted to raise said treadle-lever, a shaft carrying said cam, a pulley on said shaft and adapted to operate the same, and a weighted chain on said pulley and connected with one or more signal-towers, all said parts, substantially as and for the purposes described.

3. The combination with the throttle-lever of a locomotive and the shaft supporting the same, of a toothed disk loosely mounted on said shaft and provided with a projection adapted to engage the throttle-lever, a pinion engaging the teeth of said disk, a drum connected with and adapted to operate said pinion, a weighted chain on said drum, a fulcrumed pawl engaging one of the teeth in said disk, a rod pivotally connected with said pawl, a fulcrumed lever suitably connected at its free end with the rod, a shaft, a cam mounted on said shaft and engaging said lever, an arm journaled on said shaft and downwardly projecting therefrom, a treadle-lever suitably fulcrumed between the track, a cam adapted to operate said treadle-lever, a shaft suitably supporting said cam and provided with a projecting arm, a pulley loosely arranged on said shaft and also provided with a projecting arm adapted to engage the projecting arm of said shaft, and a weighted chain on each of said pulleys, substantially as and for the purposes described.

4. The combination with the throttle-lever of a locomotive and the shaft carrying the same, and also with the shaft controlling the air-braking mechanism, of a toothed disk mounted on the shaft of the throttle-lever and provided with a projection adapted to engage said throttle-lever, a pinion meshing into the teeth of the disk, a drum connected with and adapted to operate said pinion, a weighted chain on said drum, a second chain connected with said weighted chain and passing over a drum arranged on the shaft controlling the air-breaking mechanism, a fulcrumed pawl in engagement with the disk, a rod pivotally connected with said pawl, a fulcrumed lever controlling said rod, a cam in engagement with said fulcrumed lever, a shaft carrying said cam, an arm journaled on said shaft, and means arranged between the tracks for operating said downwardly-extending arm, all said parts, substantially as and for the purposes described.

5. The combination with the throttle-lever of a locomotive and the shaft carrying the same, and also with the shaft controlling the air-braking mechanism, of a toothed disk mounted on the shaft of the throttle-lever and provided with a projection adapted to engage said throttle-lever, a pinion meshing into the teeth of the disk, a drum connected with and adapted to operate said pinion, a weighted chain on said drum, a second chain connected with said weighted chain and passing over a drum arranged on the shaft controlling the air-braking mechanism, a fulcrumed pawl in engagement with the disk, a rod pivotally connected with said pawl, a fulcrumed lever controlling said rod, a cam in engagement with said fulcrumed lever, a shaft carrying said cam, an arm journaled on said shaft, a treadle-lever suitably fulcrumed between the track, a cam adapted to raise said treadle-lever, a shaft carrying said cam, a pulley on said shaft and adapted to operate the same, and a weighted chain on said pulley and connected with one or more signal-towers, all said parts, substantially as and for the purposes described.

592,624. SHUTTER-FASTENER. Henry F. Bente, St. Louis, Mo. Filed Dec. 18, 1896. Serial No. 616,151. (No model.)



Claim.—In a locking device for window-blinds, a lower and upper window-sash, a swinging blind mounted adjacent to the upper sash, a locking-plate carried along the inner surface of the blind at approximately the medial portion thereof, an inwardly right-angled deflected portion forming a part of the plate, a recess cut at one end of said portion, a vertically-depending wall forming a part of the said portion, a lip forming an inner extension of said wall said lip being located opposite the recess and the free end thereof being curved inwardly and extending beyond the edge of said wall, a second plate carried along the lower rail or member of the upper sash, a recess formed at one end of the plate, a right-angled wall extending upwardly therefrom, a lip forming a part of said wall and located opposite the recess formed in the plate, the free end of the lip being curved outwardly and also extended beyond the edge of the wall, the parts operating substantially as and for the purpose set forth.

592,625. VALVE. Andrew G. Cassidy, Hartford, Conn. Filed Apr. 17, 1896. Serial No. 587,995. (No model.)



Claim.—1. The combination of a chambered casing exteriorly and interiorly threaded as described, of a bored, exteriorly-threaded plug having a valve-seat at its lower end; a headed plunger loosely mounted in said plug; a bored valve having a cup-shaped end extending over said plug; a packing in said end; and a spring sustaining said valve and adapted to press the same against the valve-seat on the plug.

2. The combination of a chambered valve-casing; a removable plug therein having a valve-seat and having a longitudinal bore; a loose plunger extending through said bore; a valve adapted to engage said seat and extending over said plug, and on which said plunger rests; and a spring intermediate said valve and the end wall of said casing.

3. The combination of a chambered valve-casing; a removable, bored plug therein having a valve-seat; a loosely-mounted bored valve having a chambered end extending over said seat and having a packing therein adapted to engage said seat; and a spring intermediate said valve and the end wall of said casing.

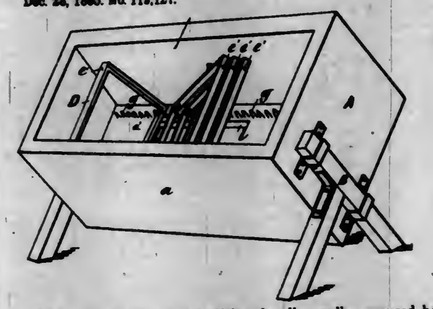
4. The combination of a chambered valve-casing; a removable plug therein having a valve-seat and having a longitudinal bore; a bored valve having a chambered or cup-shaped upper end having a disk-shaped packing therein adapted to engage the valve-seat, a plunger resting on said packing; and a spring intermediate said valve and the end wall of said casing.

5. The combination of a casing having an air-duct at one end, and having chambers of differential diameters, the inner wall of the larger chamber having screw-threads; a removable, exteriorly-threaded and longitudinally-bored plug engaging the interior threads of said chamber, and having a valve-seat extending into the smaller chamber; a packing intermediate the juncture-walls of said chambers and plug; a plunger extending through the bore of said plug; a valve in the smaller chamber having a chambered or cup-shaped end extending over said plug; a disk-shaped packing in said valve-chamber and adapted to engage the valve-seat, and upon which the plunger rests; and a spring intermediate said valve and one end of said casing.

6. The combination of a casing having an air-duct at one end, and having chambers of differential diameters, the wall of the larger chamber having exterior and interior screw-threads; a removable, exteriorly-threaded and longitudinally-bored plug engaging the interior threads of said chamber, and having a valve-seat extending into the smaller chamber; a packing intermediate the juncture-walls of said chambers and plug; a plunger extending through the bore of said plug; a valve in the smaller chamber having a chambered or cup-shaped end extending over said plug; a packing in said valve-chamber and adapted to engage the valve-seat, and upon which the plunger rests; a spring intermediate said valve and one end of said casing; and a removable exteriorly-threaded cap having an extension or stem on its outer face; a packing adjacent to its upper inner wall and a metal plate intermediate said packing and wall.

7. The combination of a chambered valve-casing; a removable plug therein having a conical lower end and provided with a longitudinal bore of differential diameters; a loose plunger having a head at one end fitted in said bore; a bored valve having a flared or cup-shaped end fitting over the conical end of said plug; packing mounted in said valve; and a spring intermediate said valve and the end of the casing.

592,626. BEEHIVE. Karel De Kesel, Brussels, Belgium. Filed Oct. 28, 1896. Serial No. 610,280. (No model.) Patented in Belgium Dec. 28, 1895. No. 119,127.



Claim.—1. A beehive comprising the diagonally-arranged box having an open side adapted to be closed by a lid, the sliding frames, the spacers carried by the lower rear wall of the box opposite the open side, the guides extending part way from said lower rear wall to the opposite side and the projections on the corners of the frames, the lower ones of which engage said guides and the upper ones resting on the plain wall above the guides, substantially as described

2. A beehive comprising the diagonally-arranged box having an open side, the spacers upon the lower rear wall, the guides upon the lower front wall extending from said lower rear wall part way to the open side, the sliding frames, projections on the corners of the frames, the lower ones of which engage said guides and the upper ones engaging the plain wall above the guides and lateral spaces carried by the front portions of the frames, substantially as described.

3. A beehive comprising the diagonally-arranged box having an open side, the lower front wall of said box having a plain rabbeted portion and having also transverse grooves extending from the rabbeted portion to the lower rear wall of the box, the sliding frames, projections on the corners of the frames, the lower ones of which engage said grooves while the upper ones rest upon said plain rabbeted portion, spacers carried by the lower rear wall of the box for engaging the frames, and lateral spacers carried by the front portions of the frames, substantially as described.

592,627. CIGAR-MOLD. Napoleon Du Brul, Cincinnati, Ohio. Filed Dec. 22, 1896. Serial No. 616,601. (Model.)



Claim.—1. An upper member for a cigar-mold consisting of a backing having two or more layers of wood intimately united throughout their contacting surfaces to form a solid integral structure so that one layer unites in strengthening the other layer or layers to prevent the swelling of the backing and a series of wooden cup-plungers secured to the inner layer and held in working position and from swelling by the formation of the backing; substantially as described.

2. An upper member for a cigar-mold comprising a backing having two or more layers of wood intimately united throughout their contacting surfaces so that one layer unites in strengthening the other layer or layers to prevent the swelling of the backing and a series of wooden cup-plungers secured to the inner layer with the grain of the wood on end, and held in working position and from swelling by the formation of the backing; substantially as described.

3. An upper member for a cigar-mold comprising a backing having two or more layers of wood intimately united throughout their contacting surfaces, with the grain of each layer at an angle to the grain of the other layer or layers, so that one layer unites in strengthening the other layer or layers to prevent the swelling of the backing, and a series of wooden cup-plungers secured to the inner layer and held in working position and from swelling by the formation of the backing; substantially as described.

4. An upper member for a cigar-mold comprising a backing having two or more layers of wood intimately united throughout their contacting surfaces, with the grain of each layer at an angle to the

grain of the other layer or layers, so that one layer unites in strengthening the other layer or layers to prevent the swelling of the backing, and a series of wooden cup-plungers secured to the inner layer, with the grain of the wood on end, and held in working position and from swelling by the formation of the backing; substantially as described.

5. An upper member for a cigar-mold comprising a backing having two or more layers of wood intimately united throughout their contacting surfaces, with the grain of the outer layer crossing the grain of the inner layer so that one layer unites in strengthening the other layer to prevent the swelling of the backing and a series of wooden cup-plungers secured to the inner layer and held in working position and from swelling by the formation of the backing; substantially as described.

6. An upper member for a cigar-mold comprising a backing having two layers of wood intimately united throughout their contacting surfaces, with the grain of the outer layer crossing the grain of the inner layer so that one layer unites in strengthening the other layer to prevent the swelling of the backing and a series of wooden cup-plungers secured to the inner layer with the grain of the wood on end and held in working position and from swelling by the formation of the backing; substantially as described.

7. An upper member for a cigar-mold comprising a backing having two layers of wood intimately united throughout their contacting surfaces, with the grain of the outer layer extending longitudinally of the mold, and the grain of the inner layer extending transversely of the mold, so that one layer unites in strengthening the other layer to prevent the swelling of the backing and a series of wooden cup-plungers secured to the inner layer with the grain of the wood on end and held in working position and from swelling by the formation of the backing; substantially as described.

8. An upper member for a cigar-mold comprising a backing having two layers of wood intimately united throughout their contacting surfaces by adhesive material with the grain of the outer layer extending longitudinally of the mold, and the grain of the inner layer extending transversely of the mold, so that one layer unites in strengthening the other layer to prevent the swelling of the backing and a series of wooden cup-plungers secured to the inner layer by adhesive material with the grain of the wood on end and held in working position and from swelling by the formation of the backing; substantially as described.

592,628. SLIDING GATE AND LATCH. Marshall P. Frantz, Salem, Va. Filed Feb. 13, 1897. Serial No. 623,296. (No model.)



Claim.—1. The combination of a gate, a supporting-frame having a track-bar extending beyond the side braces and the center of the gate to form a lever to tilt the gate and provided with a series of notches, and means for engaging said notches to support the gate in its several positions.

2. The combination of a supporting-frame, a gate mounted to slide thereon, a keeper on the supporting-frame and a vertical bolt secured to the gate to engage the keeper.

3. The combination of a supporting-frame, a gate mounted to slide thereon, a keeper provided with an inclined upper edge and rear end and secured to one of the inclined braces of the frame, a vertically-movable bolt engaging said keeper and a lever for raising the bolt.

592,629. SEED-DISTRIBUTER. Samuel Hardley, Christchurch, New Zealand. Filed Oct. 30, 1896. Serial No. 610,594. (No model.) Patented in New Zealand Aug. 10, 1896, No. 8,796; in New South Wales Sept. 21, 1896, No. 6,913; in Victoria Sept. 22, 1896, No. 13,519; in South Australia Sept. 24, 1896, No. 3,414; in England Oct. 20, 1896, No. 23,295, and in Canada Oct. 23, 1896, No. 54,002.



Claim.—1. A seed-distributer comprising the inner and outer cylinders fitting one within the other and having coinciding openings, means for adjusting one cylinder longitudinally within the other to vary the size of the openings, and means for preventing the independent rotation of the cylinders, substantially as described.

2. A seed-distributer comprising the supporting-shaft, the outer cylinder carried thereby, and having discharge-openings, the tube adjustably mounted on the shaft, and the inner cylinder carried by said tube and having discharge-openings corresponding to the openings in the outer cylinder, substantially as described.

3. A seed-distributer comprising the inner and outer cylinders having corresponding discharge-openings, means for adjusting said cylinders relative to each other to vary the size of the openings, and the deflectors carried by the inner cylinder between the openings, substantially as described.

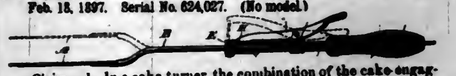
4. A seed-distributer comprising the inner and outer cylinders having corresponding openings, means for rotating said cylinders, means for adjusting said cylinders longitudinally of each other to vary the size of the openings, means for preventing the independent rotation of the cylinders, and the interior annular double-faced deflectors carried by the inner cylinder between the discharge-openings, substantially as described.

5. A seed-distributer comprising the shaft with means for rotating it, the tube mounted thereon, the inner perforated cylinder carried by said tube, the collar threaded upon the end of the tube, the outer perforated cylinder connected to the shaft at one end and supported by said collar at the other end, and means for turning said collar to adjust the cylinders longitudinally of each other, substantially as described.

6. In combination with the outer cylinder having discharge-openings, the inner cylinder adjustably held therein and having corresponding discharge-openings, and the inclined feed-cups adjacent to said openings, substantially as described.

7. In combination, the outer cylinder having discharge-openings, the inner cylinder longitudinally adjustable therein and having corresponding discharge-openings, means for adjusting said inner cylinder longitudinally, the scale carried by the outer cylinder, the pin carried by the inner cylinder and projecting through an opening in the outer cylinder, and the pointer carried by said pin, substantially as described.

592,630. CAKE-TURNER. Eric R. Helgren, Aurora, Ill. Filed Feb. 18, 1897. Serial No. 624,027. (No model.)



Claim.—1. In a cake-turner, the combination of the cake-engaging plate, the rod to which the same is attached, a support within which the rod is rotatably mounted, a lever, a cord or chain connecting the lever and rod, and a spring to rotate the rod in a direction opposite that in which it may be rotated by the lever, substantially as and for the purpose shown.

2. In a cake-turner, the combination of a cake-engaging plate, a rod attached to the same, a tube within which said rod is mounted, a collar on the rod, a lever connected to said collar, and a spring also connected to the same, substantially as and for the purpose set forth.

3. In a cake-turner, the combination of a cake-engaging plate, a rod attached to the same, a tube within which said rod is mounted, a collar on the rod, a lever pivoted to the tube, a cord or chain connecting the lever and collar, a coiled spring having one end engaging the collar, and a projection on the tube which the other end of the spring engages, substantially as and for the purpose shown.

592,631. APPARATUS FOR PRODUCING ILLUSIVE EFFECTS. Theodore Hollander, Middletown, Conn., assignor of forty-nine one-hundredths to Romaine A. Chapman, same place. Filed June 1, 1897. Serial No. 638,990. (No model.)

Claim.—1. A device of the class specified embodying a frame; a web mounted for movement and having a series of stripes obliquely formed relatively to the line of travel of the web; and a series of disconnected lenses situated between the web and the point of vision.



2. A device of the class specified embodying an open-backed frame; a continuous web mounted for movement and having a design thereon composed of oblique stripes; and a transparent medium situated between the web and the point of vision.

3. A device of the class specified embodying an open-backed frame and an endless web mounted for movement and having a series of colored stripes obliquely formed with relation to the line of movement of said web and arranged in sets, one of said sets being transverse to the other, and a transparent medium situated between the web and the point of vision.

4. A device of the class specified embodying a frame; a web mounted for movement and having a series of colored stripes obliquely formed relatively to the line of travel of the web; and a plurality of glass bars disposed between the web and the point of vision.

5. A device of the class specified embodying a frame; an endless web mounted for movement and having a series of colored stripes obliquely formed relatively to the line of travel of the web; and a plurality of glass bars disposed between the web and point of vision.

6. A device of the class specified embodying a frame; a movable web having a series of colored stripes obliquely disposed with relation to the line of movement of said web and arranged in sets, one of said sets being transverse to the other; and a plurality of glass rods or bars between the web and the point of vision.

7. A device of the class specified embodying a frame having a sight-opening; rolls carried by the frame; a web passed around said rolls and having colored stripes thereon; and a plurality of glass rods or bars carried by the frame between the design and the point of vision.

8. A device of the class specified embodying a frame; rolls carried by the frame; a web passed around said rolls and having colored stripes thereon; a motor for driving one of the rolls; a plurality of glass rods or bars supported by the frame between the design and the point of vision; and a series of strips secured to the frame, for holding said rods or bars in position.

9. A device of the class specified embodying a frame; a movable design having a series of colored stripes obliquely formed relatively to the line of travel of said design; and a plurality of separate or disconnected lenses located side by side and situated between the design and the point of vision.

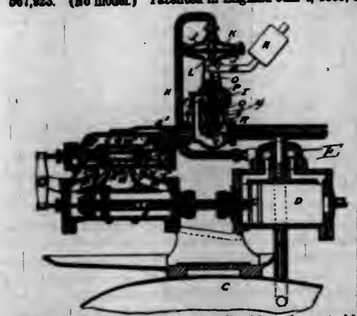
592,632. ANIMAL-TRAP. William T. Keeper, Bedford, Ind. Filed July 12, 1897. Serial No. 644,312. (No model.)



Claim.—1. An animal-trap comprising a suitable box having one end thereof open, a short partition extending across said opening, wings formed with spurs or teeth on their inner ends, secured to said partition, and extending at angles obliquely toward the rear of the box, means for securing the bait opposite the openings formed by the partition, doors located at the sides of the box through which the trap is baited, and a door or doors provided in the rear end, or in the sides of the box, for removing the animal from the trap, substantially as and for the purpose set forth.

2. An animal-trap comprising a suitable box having one end thereof open, a short partition extending across said opening, wings formed with spurs or teeth on their inner ends, secured to said partition and having their upper and lower edges approximating the upper and lower inner sides of the box, said wings extending obliquely toward the rear of the box, doors formed in the sides of the box, bait-cages opposite said doors, a door or doors for removing the animals from the trap, substantially as and for the purpose set forth.

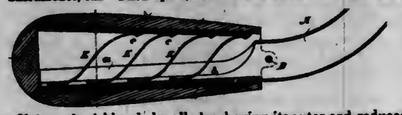
592,633. APPARATUS FOR PUMPING OR RAISING LIQUIDS. James Keith, London, England. Filed Nov. 4, 1895. Serial No. 567,923. (No model.) Patented in England Jan. 4, 1895, No. 200.



Claim.—1. In combination, the liquid tank or holder, the air-pressure pipe leading thereto, the compressor connected with said pipe, a motor for operating the air-compressor, a fluid-supply leading thereto, a main valve arranged to control said supply and to receive the pressure thereof on both its sides, a supplemental valve controlling the pressure on one side of the main valve, a diaphragm for controlling the supplemental valve with connections thereto and an air-pipe leading to the diaphragm and connecting with the liquid-tank, substantially as described.

2. In combination the liquid tank or holder, the air-pressure pipe leading thereto, the compressor connected with said pipe, a motor for operating the air-compressor, a fluid-supply leading thereto, a main valve arranged to control said supply and to receive the pressure thereof on both its sides, a supplemental valve controlling the pressure on one side of the main valve, a diaphragm for controlling the supplemental valve, with connections thereto consisting of the weighted lever and an air-pipe leading to the diaphragm and connecting with the liquid-tank, substantially as described.

592,634. BICYCLE HANDLE-BAR GRIP. William Lampert, Sacramento, Cal. Filed Apr. 6, 1897. Serial No. 630,947. (No model.)



Claim.—1. A bicycle handle-bar having its outer end reduced in diameter and provided with an interior channel, a hollow grip to receive the reduced end of the bar, and pivotally secured to said bar, and springs between the grip and the channel.

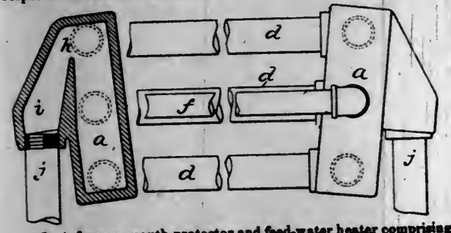
2. A handle-bar of a bicycle having the outer end slit and folded from above to form an interior channel, a sleeve having exterior grips fixed thereon, said sleeve having the inner end pivoted or fulcrumed to the handle-bar, and the outer end movable about said fulcrum, and springs fixed in the interior of the upper part of the sleeve and bearing upon the bottom of the cut-away portion of the handle-bar.

3. A bicycle handle-bar having the outer end split and folded with a floor or surface in the bottom thereof, a sleeve having grip-surfaces fixed upon its outside, said sleeve being pivoted at the inner end to the handle-bar, flat S-shaped springs having the upper ends fixed to the inner top periphery of the sleeve and the lower ends adapted to slide upon the floor or plate in the bottom of the handle-bar whereby the grip is movable about the handle-bar with an elastic return pressure.

592,635. PROTECTIVE ARCH-PLATE FOR MOUTHS OF BOILER-FURNACES. Ben B. Lamprey, Lynn, Mass., assignor of one-half to Burdette John White, Westfield, Mass. Filed Mar. 22, 1897. Serial No. 628,609. (No model.)

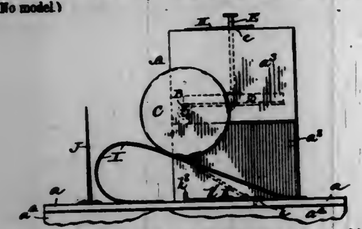
Claim.—1. A furnace-mouth protector and feed-water heater comprising in its construction the hollow side bases *a a'*, provided at their rear parts or ends with openings or ports *h*, side extensions provided with passages *i* communicating with the ports or openings *h*, and pipes connected with the said side extensions and communicating with the passages *i*.

2. A furnace-mouth protector and feed-water heater comprising in its construction the hollow side bases *a a'*, provided at their rear parts or ends with openings or ports *h*, side extensions provided with passages *i* communicating with the ports or openings *h*, and pipes connected with the said side extensions and communicating with the passages *i*, the said passages being formed on an incline or angle with respect to the hollow side bases.



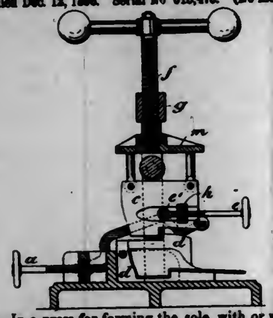
3. A furnace-mouth protector and feed-water heater comprising in its construction the hollow side bases *a a'* arranged on an incline with respect to the sides of the furnace-mouth and provided at their rear parts or ends with openings or ports *h*, side extensions provided with passages *i* arranged on an incline with respect to the hollow side bases, and communicating with the ports or openings *h*, and pipes communicating with the passages.

592,636. MACHINE FOR MEASURING CLOTH, &c. ROBERT E. L. J. LOVELL, Vadis, W. Va. Filed Apr. 24, 1897. Serial No. 633,722. (No model.)



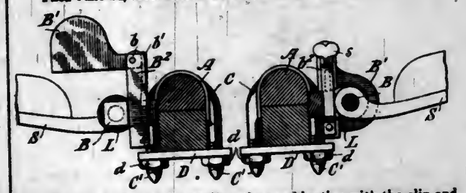
Claim.—The combination with a cloth-measuring machine, of a flat spring bent into the form of a loop being secured at its ends to the base of the machine beneath the cloth-holding wheel so as to come in contact with said wheel and a rope holding and guiding device comprising two hinged plates *l' l'*, the outer end of the plate *l'* having laterally extending arms l^3 provided with a recess l^3 to receive the flat spring and with a grooved plate l^4 in which the rope rests, substantially as described.

592,637. APPARATUS FOR MAKING BOOTS OR SHOES. PINCHUS I. MACHLIS, Kremenetzbug, Russia, assignor to Herman Hessen, same place. Filed Dec. 12, 1896. Serial No. 615,475. (No model.)



Claim.—In a press for forming the sole, with or without a heel-recess, and the quarter of a boot or shoe out of a single piece of leather, the combination of a bottom or counter die, an upper die adapted to enter into the bottom die, means for raising and lowering the upper die, such upper die being composed of two halves bearing against each other and adapted to roll the one upon the other with convex surfaces, of a nut embraced by such halves, of a screw engaging with such nut and entering into wedge-shaped grooves provided opposite each other in the adjacent convex surfaces of such halves, the top portions of which are adapted to slide along a bolt connecting them with the press-plate and means for actuating the screw operating the said halves of the upper die, substantially as described.

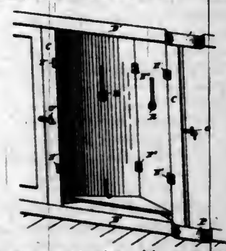
592,638. THILL-COUPLING. EDWARD I. MEAD, Mamaroneck, N. Y., assignor of one-half to De Witt H. Lyon, Port Chester, N. Y. Filed June 24, 1896. Serial No. 596,697. (No model.)



Claim.—1. In a thill-coupling, the combination with the clip and the apertured lugs, of the vertical arms, the blade pivoted thereto, the inwardly-extending plate secured to one of said arms, having an opening therein through which one of said lugs passes and the set-screw passing through said plate and bearing upon said lug, substantially as described.

2. As an improved article a device for holding in place the jack-bolts of thill-couplings, consisting of the parallel arms, the blade pivoted thereto, the plate secured to one of said arms, having an opening therein and the set-screw passing through said plate into the opening, substantially as described.

592,639. EXPRESS-CAR-PROTECTING DOOR. BENEDICT OPPENHEIMER, Trenton, Tenn. Filed Dec. 14, 1894. Serial No. 531,858. (No model.)

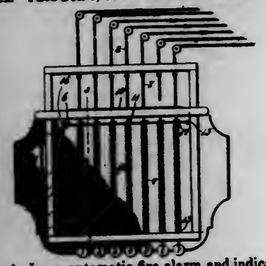

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carrying a xylophone and supported beneath said fingers, all substantially as set forth.

592,642. FLUX FOR WELDING METALS. PATRICK QUINN, Edwardsdale, Pa. Filed Aug. 23, 1897. Serial No. 649,257. (No specimens.)

Claim.—A flux for welding metals consisting of salammoniac, borax, copperas, rosin, lime, alum, salt, sand and wheat-flour in about the proportions specified.

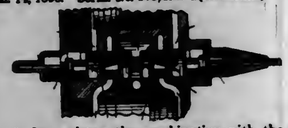
592,643. FIRE-ALARM. JOHN STAPLES and WILLIAM H. SPAKE, Ennis, Tex. Filed Dec. 5, 1896. Serial No. 614,636. (No model.)



Claim.—1. In an automatic fire alarm and indicator, the casing, a plurality of spring-retracted indicator-rods mounted vertically within the casing and carrying at their lower ends below the latter indicating plates or cards, said indicator-rods being provided with upper looped ends extending through openings formed in the top of the casing, and also formed with intermediate laterally-disposed depressing-hooks, horizontal stop-rods secured on top of the casing and extending through the looped upper ends of said indicator-rods to limit the downward movement thereof, suitably-arranged fire-cords having connections with the upper looped ends of said indicator-rods, an alarm-bell, trip mechanism for the bell having a pivotal bail, and a trip-cord for each row of indicator-rods, each trip-cord being connected at one end with said bail and at its other end to an oppositely-located point of attachment within the casing, substantially as set forth.

2. In an automatic fire alarm and indicator, the casing, a plurality of spring-retracted indicator-rods mounted vertically within the casing and carrying at their lower ends indicating plates or cards, said indicator rods being provided intermediate of their ends within the casing with lateral depressing-hooks, fire-cords having connections with the upper ends of said indicator-rods, an alarm-bell mounted at one end of the casing and having a spring-projected push-button extended into the casing, a spring-adjusted trip-bail pivotally mounted within the casing at one end thereof and provided at one of its terminals with an offstanding rock-arm working opposite and against said push-button, and a trip-cord arranged under the lateral hooks of each row of indicator-rods, each trip-cord being connected at one end with said trip mechanism and at its other end to a fixed point of attachment within the casing, substantially as set forth.

592,644. PISTON-VALVE. BENJAMIN F. WILSON, North Tonawanda, N. Y., assignor of one-half to Edward F. Wilson, same place. Filed Jan. 14, 1896. Serial No. 575,454. (No model.)



Claim.—1. In a piston, the combination with the body, of an annular row of radially-movable piston-sections guided on said body, and an adjustable stop mechanism connecting the body and the piston-sections, whereby the outward movement of the piston-sections may be adjusted, substantially as set forth.

2. In a piston, the combination with the body, of an annular row of radially movable piston-sections guided on said body, a spring whereby said sections are pressed outwardly and an adjustable stop mechanism connecting the body and the piston-sections, whereby the outward movement of the piston-sections may be adjusted, substantially as set forth.

3. The combination with the ring-sections each of which is provided with an incline, of an adjusting-ring provided with a conical face engaging with the inclines of said sections, and a spring engaging with the inner sides of said sections, substantially as set forth.

4. The combination with the ring-sections each of which is provided with an incline, of an adjusting-ring provided with a conical face engaging with the inclines of said sections, a spring pressing against the inner sides of said sections, and an adjusting-disk having a screw-thread connection with the adjusting-ring, substantially as set forth.

5. The combination with a supporting-sleeve provided at one end with an abutment-disk, of a sectional ring composed of two sets of sections, one of said sets bearing against the abutment-disk, springs engaging with the inner side of said sections, an adjusting-ring provided with a conical face bearing against inclines formed on said sections and a rotary adjusting-disk bearing against the other set of sections and having a screw-thread connection with said adjusting-ring, substantially as set forth.

6. The combination with a supporting-sleeve provided with a shoulder and with an abutment-disk having a radial groove, of a sectional ring composed of two sets of sections, one of said sets bearing against the abutment-disk and the divisions between one set of sections being arranged out of line with the divisions between the other set of sections, a pin whereby one of the sections of one of said sets is connected with one of the sections in the other set and which engages with said radial groove, springs engaging with the inner side of said sections, an adjusting-ring provided with a conical face bearing against inclined faces formed on said sections, a pin secured to the supporting-sleeve and engaging with a longitudinal groove in the adjusting-ring, an adjusting-sleeve mounted on the supporting-sleeve and bearing with one end against said shoulder, an adjusting-disk arranged on one end of the adjusting-sleeve and bearing against the other set of sections, an annular flange formed on the adjusting-disk and having a screw-thread connection with said adjusting-ring and a screw-nut arranged on a screw-threaded portion of the supporting-sleeve and bearing against the other end of the adjusting-sleeve, substantially as set forth.

7. The combination with a cylinder, a piston and a steam-chest provided with a central steam-chamber, two steam-ports opening into the ends of said cylinder, two inner valve-seat openings connecting said ports with the steam-chamber and two outer valve-seat openings connected with said ports, of a valve provided with two inner pistons controlling the inner valve-seat openings and two outer pistons controlling the outer valve-seat openings and having a diameter larger than the inner pistons, substantially as set forth.

8. In a vertical steam-engine, the combination with a cylinder, a piston and a steam-chest provided with a central steam-chamber, two steam-ports opening into the ends of said cylinder, two inner valve-seat openings connecting said ports with the steam-chamber and two outer valve-seat openings connected with said ports, of a valve provided with two inner pistons controlling the inner valve-seat openings and arranged one above the other, the upper one of said inner pistons being of larger diameter than the lower one and two outer pistons controlling the outer valve-seat openings and having a diameter larger than the inner pistons, substantially as set forth.

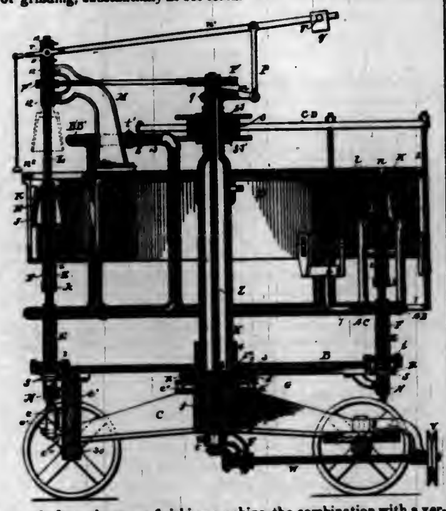
9. The combination with a high-pressure cylinder and its piston, a low-pressure cylinder and its piston, and a steam-chest provided with a central chamber, two high-pressure steam-ports opening into the ends of the high-pressure cylinder, two inner valve-seat openings connecting said ports with the steam-chamber, two outer valve-seat openings connected with said ports and two low-pressure steam-ports connecting the outer valve-seat openings with the ends of the low-pressure cylinder, of a valve provided with two inner pistons controlling the inner valve-seat openings and two outer pistons controlling the outer valve-seat openings, substantially as set forth.

10. The combination with the cylinder and the piston, of a steam-chest provided with a cylindrical valve seat, a steam-port leading from one end of the valve-seat to the cylinder and an exhaust-port leading from the opposite end of the valve-seat, a cylindrical valve movable axially in said seat, and wings arranged spirally on said valve and adapted to be turned together with the valve by the steam striking the wings in passing from the steam-port lengthwise through the valve-seat to the exhaust-port, substantially as set forth.

592,645. MACHINE FOR FINISHING TUMBLERS, &c. JOHN R. BRIDGE, Findlay, Ohio. Filed Dec. 6, 1895. Serial No. 571,300. (No model.)

Claim.—1. In a glassware-finishing machine, the combination with a spindle adapted to receive the article being operated upon on its end, of burners, and a flue in which the article is placed when it is operated upon, said flue having an outlet immediately above the spindle for the escape of the flame across the exposed adjacent end of the article whereby to smoothen and finish said end and save grinding, substantially as set forth.

2. In a glassware-finishing machine, the combination with means for supporting the article to be treated solely from the inside, and burners, of a flue having an outlet immediately above the exposed bottom of the article and of less size than that of the bottom whereby the escaping flame is caused to impinge against the edges of the article and round and polish said edges and thus obviate the necessity of grinding, substantially as set forth.



3. In a glassware-finishing machine, the combination with a vertically-movable upright spindle having a collar thereon, of a rotary pulley upon which the collar rests and by means of which motion is imparted to it by frictional contact therewith, and means for raising said spindle whereby the collar is elevated above the pulley, substantially as set forth.

4. In a glassware-finishing machine, the combination with a vertically-movable upright spindle having a bearing on its extreme lower end, of a removable step or support adapted to receive and sustain said end bearing and means for revolving the spindle, substantially as set forth.

5. In a glassware-finishing machine the combination with a vertically movable upright spindle having a collar thereon, of a rotary pulley upon which the collar normally rests and by means of which motion is imparted to the spindle by frictional contact therewith, and means for raising the spindle so that the collar is elevated from the pulley and means for applying rotary motion to the spindle from another source, substantially as set forth.

6. In a glassware-finishing machine, the combination with a spindle of means for applying rotary motion thereto from different points and at different speeds, substantially as set forth.

7. In a glassware-finishing machine, the combination with a revoluble spindle adapted to carry the article operated upon, of means for imparting a slow rotary motion to the spindle during the polishing process and means for giving an accelerated speed to the spindle after this polishing process, substantially as set forth.

8. In a glassware-finishing machine, the combination with a pipe, of a pair of rings capable of turning with respect to the pipe, burners connected with these rings, and a bolt passed through the rings and pipe for holding the rings and pipe together, substantially as set forth.

9. In a glassware-finishing machine, the combination with a spindle which travels in an orbit, of a pair of concentric gas pipes and burners leading therefrom on each side of the spindle, the spindle adapted to travel between said pipes and burners, substantially as set forth.

10. In a glassware-finishing machine, the combination with a series of spindles which travel in an orbit, of two gas-pipes, one located on each side of that orbit whereby the spindles travel between them, and burners leading in pairs from each pipe and disposed on each side of the spindles, substantially as set forth.

11. In a glassware-finishing machine, the combination with a central column having a threaded upper end, of several connected radial arms extending from this threaded portion pipes supported by these arms, and a nut on the threaded portion of the column above and below the arms for adjusting them up and down thereon, substantially as set forth.

12. In a glassware-finishing machine, the combination with a central column having a threaded upper end, of arms having a vertically-adjustable connection with the column, nuts on the threaded portion of the column to effect their adjustment two continuous circular and concentric pipes, a supply-pipe connecting them together and suspended from one of the arms, rods extending downward from the other arms and connected with these concentric pipes, and guides for these rods, substantially as set forth.

13. In a glassware-finishing machine, the combination with a spindle upon the upper end of which the article to be operated upon is placed and a step-bearing for the extreme lower end of the spindle, of a cup or former constructed to receive and inclose the article and communicate an accelerated rotary motion to it and the spindle supporting it, substantially as set forth.

14. In a glassware-finishing machine, the combination with a rotary cup or former, of a rotary device extending into and holding the material to be operated upon between it and the bottom of the cup or former, and means for rotating these parts whereby the glass is made to conform to the interior wall of the cup or former by virtue of the centrifugal action thereupon.

15. The combination with a traveling rotary spindle having a collar thereon, and a rotary pulley upon which the collar rests for communicating rotary motion to the spindle through frictional contact therewith, of a cam rocker or step upon which the spindle rises and turns when in one of its positions, substantially as set forth.

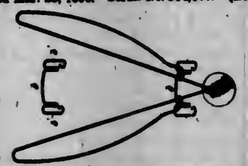
16. The combination with a plate capable of being turned and having a series of extended vertical bearings thereon, of spindles revolubly supported in the bearings, means for rotating the spindles, and a cam rocker or step upon which the spindles successively rise and turn, substantially as set forth.

17. The combination with a plate constructed to be revolved, and having a series of vertical bearings thereon, of spindles revolubly supported in each of these bearings said spindles carrying the article to be operated upon on their upper ends, and a cup or former adapted to descend and inclose and communicate rotary motion to each spindle as it comes into position beneath it, substantially as set forth.

18. The combination with a stationary column, a rotary shaft therein, and a gear-wheel secured to the shaft, of a plate capable of turning around the column and having a series of vertical bearings, spindles in these bearings having each a collar thereon, a pulley upon which each collar rests, a pulley surrounding the column and provided with internal teeth, a gear-wheel therein for communicating motion from the gear-wheel on the shaft to the pulley having the internal teeth, and an endless belt passing around this pulley and the several pulleys upon which the collars on the spindles rest, substantially as set forth.

19. The combination with a stationary column, a rotary shaft therein having a gear-wheel thereon of a plate capable of turning around the column and having a series of vertical bearings, spindles in these bearings, having each a collar thereon, a pulley upon which each collar rests, a pulley surrounding the column immediately beneath the turn plate or table, said pulley having internal gear-teeth, a gear-wheel for communicating motion from the gear on the shaft to this pulley, ball-bearings beneath the pulley a belt for imparting motion to each of the spindle-pulleys from this pulley with the internal teeth, a cam rocker or step to raise each spindle from its support upon the pulley, when the plate or turn-table is in a certain position, means for temporarily locking that plate or turn-table, and means for applying positive rotary motion to said raised spindle from the shaft, substantially as set forth.

592,646. HAT-FASTENER. CHARLES R. CAMPBELL, Portland, Oreg. Filed Mar. 25, 1896. Serial No. 584,877. (No model.)



Claim.—In a hat-holder, the combination of a pair of prongs, the inner sides of said prongs being secured to a button, and the outer sides bent or looped at their ends around said inner sides, and a holder secured to the hat having a central aperture through which pass said inner sides, and terminal apertures through which pass the outer sides, the central aperture being of such length as to cause said prongs to diverge when pushed into the hair, substantially as described.

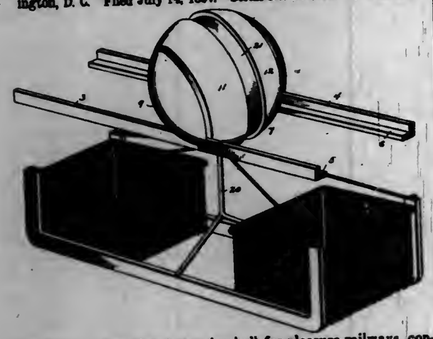
592,647. FLEXIBLE PIPE-COUPLING. JOHN C. DAVIS, Seneca Falls, N. Y. Filed Nov. 28, 1896. Serial No. 613,900. (No model.)

Claim.—A closet connection, comprising the flexible reinforced tube 3, having an internal annular ring, in combination with the

drawn sheet-metal sleeve 4 having a series of parallel annular grooves and a spun flange 5, and the clamp 7, substantially as and for the purpose set forth.



592,648. PLEASURE-RAILWAY. GEORGE W. DOWNEY, Washington, D. C. Filed July 14, 1897. Serial No. 644,582. (No model.)



Claim.—1. A sectional carrying-ball for pleasure-railways, consisting of the carrying-axle, the axially-bored, peripherally-grooved central disk provided with friction-rollers within its central bore, the axially-bored end sections provided with peripheral grooves to fit the track-rails of the railway-track and the threaded nut for securing the ball-sections upon the headed axle, substantially as specified.

2. The combination with the sectional carrying-ball, having the axially-bored grooved disk provided in its axial bore with friction-rollers, having end sections adapted to run on tracks and of the axle seated in the bore of the sectional ball, and the chair-hanger provided at its upper end with an eye or loop engaging the grooved periphery of the disk of said sectional ball, substantially as specified.

3. The combination with the headed axle having a securing-nut on its threaded end, of the peripherally-grooved disk provided with friction-balls in its axial bore surrounding the axle, concentric grooves in its ends or vertical faces, the semispherical end sections having concentric annular grooves in their vertical faces, friction-balls located in the alined concentric grooves of the sections of the carrying-ball, and a car or chair hanger having a loop engaging the grooved disk of the sectional carrying-ball, substantially as specified.

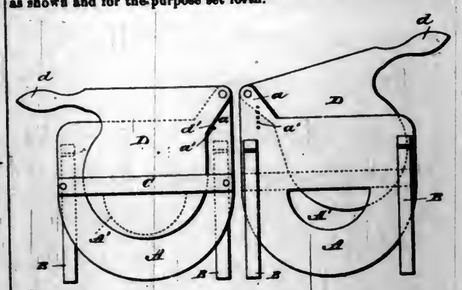
4. The combination with the inclined pleasure-railway track, of the peripherally-grooved sectional carrying-ball, and the chair or car hanger having an eye or loop at its upper end, engaging a peripherally-grooved disk in the carrying-ball, and a chair or car suspended from the lower end of said chair-hanger or car-hanger, substantially as specified.

5. The combination with the headed axle having a securing-nut on its threaded end, of the peripherally-grooved disk provided with friction-rollers in its axial bore surrounding the axle, concentric grooves in its ends or vertical faces, semispherical sections having peripheral track-grooves, and concentric grooves in their vertical faces, friction-balls located in the alined concentric grooves of the sections of said carrying-ball, and a car or chair hanger having an eye or loop adapted to surround the grooved disk and friction-balls interposed between the groove of the disk and the interior of the eye or loop of the car or chair hanger, substantially as specified.

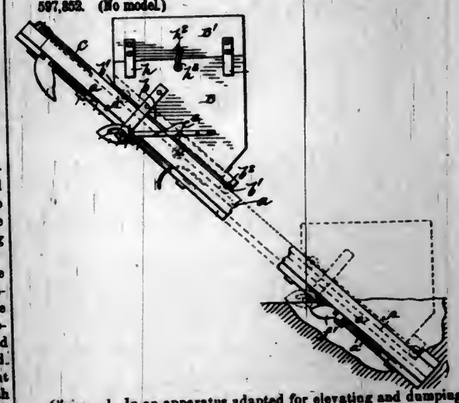
592,649. GATE FOR IRRIGATING-DITCHES. NATHAN F. GUTHRIE and WILLIAM H. GUITE, Tie Siding, Wyo.; said Guite assignor to said Guthrie. Filed Feb. 13, 1897. Serial No. 623,223. (No model.)

Claim.—1. In a gate for irrigating-ditches, a plate A having an opening A', supporting legs or braces B attached to one side of said plate, a cross-bar secured at its ends to the other side of said plate; together with a plate or cut-off D pivoted to the plate A and located between the cross-bar and said plate, substantially as shown and for the purpose set forth.

2. The combination in a gate for irrigating-ditches, of a plate A having an opening A' therein and a series of indentations or marks *a'*, a cross-bar C secured at its ends to one side of said plate, and a plate or cut-off D pivoted to the plate and located between the cross-bar C and said plate A, the said plate D having an edge which in conjunction with the indentations or marks *a'* indicate the amount or extent of the opening A' uncovered by the plate D, substantially as shown and for the purpose set forth.



592,650. APPARATUS FOR ELEVATING OR DUMPING GRAIN. WILLIAM F. KENDALL, La Verne, Minn. Filed July 2, 1896. Serial No. 597,852. (No model.)



Claim.—1. In an apparatus adapted for elevating and dumping grain into a barn without the car passing into the barn in dumping, the combination with an inclined frame having an inner and an outer track, an elevating car mounted upon the same and provided with a discharge-opening in its bottom, a door covering said opening and hinged at its lower end and free at its upper end, traction-rollers on the free end of said door for supporting it normally in a closed position by resting upon the inclined track, and an inclined portion of the inner track at the upper end of the same for permitting the rollers on the door to descend thereon, as the car travels up the incline independently of the car-body and without said door losing its supporting contact with the inner track, and allowing the door to open for the discharge of the contents of the car, without the body of the car descending below the inclined frame, the combination and construction being such that the car is adapted for use on an inclined plane and the car at all times, supported on wheels other than those which support the door, substantially as described.

2. In an apparatus for elevating and dumping grain, the combination with an inclined frame, an elevating-car mounted upon the same, a cam-brake mounted upon said car and adapted to normally engage a portion of the frame to prevent the car from sliding backward during its ascent, and a projection at the upper end of the frame for tripping the cam to throw it out of engagement with the frame and permit the car to descend, substantially as described.

3. In an apparatus for elevating and dumping grain the combination with an inclined frame, a car mounted upon the same and having an automatically-opening door in its bottom, and a cam-brake mounted upon said car and adapted to prevent its descent until after it has reached the top of the inclined frame and has delivered its load, substantially as described.

4. In an elevating and dumping apparatus, the combination with an inclined frame adapted to stand at different degrees of inclination, a car mounted upon the same, a detachable extension applied at the top of the car for increasing the capacity of the same, said extension being higher upon one side than upon the other and adjustable upon the car to correspond to the inclination of the frame for maintaining the upper edge of the car level on all sides, substantially as described.

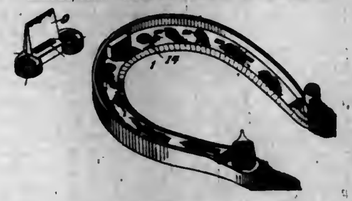
5. In an apparatus for elevating and dumping grain the combination with an inclined frame, a car mounted upon the same, a cam-brake mounted upon the car and comprising a cam having a longitudinal slot therein and so secured to the car that it may be pushed into or out of operative position, projections at the top and bottom of the inclined frame for forcing the cam into or out of operative position, substantially as described.

6. In an apparatus for elevating and dumping grain the combination with a frame, a car provided with traction-rollers and mounted thereon, a door for said car provided with traction-rollers also adapted to rest upon said frame, cam-brakes attached to the said car and adapted to engage the under side of the frame, and means for throwing said cam-brakes into or out of operative position at the opposite ends of the frame, substantially as described.

7. In an apparatus for elevating and dumping grain, the combination of an inclined frame composed of longitudinal timbers arranged in a stair-step manner, said timbers being secured together at intervals by transversely-arranged cross-braces, the construction and arrangement being such that two independent tracks are secured which prevent the car from running off laterally and the frame can be used as a ladder, and an elevating-car mounted upon the frame and provided with a discharge-opening in its bottom, a door covering said opening, and hinged at its lower end and free at its upper end, traction-rollers on the free end of said door for supporting it normally in a closed position by resting upon the inner track, and an inclined portion of the inner track at the upper end of the same for permitting the rollers on the door to descend thereon, as the car travels up the incline, independently of the car-body, and without said door losing its supporting contact with the inner track, and allowing the door to open for the discharge of the contents of the car without the body of the car descending below the inclined frame, the construction and arrangement being such that the car is adapted for use on an inclined plane and the car at all times supported on wheels other than those which support the door, substantially as described.

8. In an apparatus for elevating, dumping and evenly distributing grain into a barn without the car passing into the barn in dumping, a hopper, chutes beneath the hopper diverging therefrom to distribute the grain evenly, an inclined frame having an inner and an outer track, an elevating-car mounted upon the same and provided with a discharge-opening in its bottom, a door covering said opening and hinged at its lower end and free at its upper end, traction-rollers on the free end of said door for supporting it normally in a closed position by resting upon the inner track, and an inclined portion of the inner track at the upper end of the same for permitting the rollers on the door to descend thereon, as the car travels up the incline, independently of the car-body, and without said door losing its supporting contact with the inner track, and allowing the door to open for the discharge of the contents of the car without the body of the car descending below the inclined frame, the combination and construction being such that the car is adapted for use on an inclined plane and the car at all times supported on wheels other than those which support the door, substantially as described.

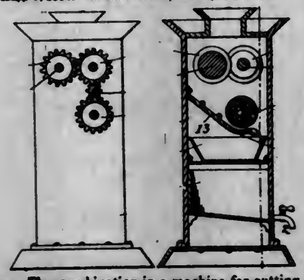
592,651. HORSESHOE. JOHN KARR, Menominee, Mich. Filed Mar. 26, 1897. Serial No. 629,420. (No model.)



Claim.—1. The herein-described horseshoe, consisting of the body; annular rims formed integrally with said body and located upon the inner and outer edge of the upper surface thereof, said body being farther provided with an integrally-formed downwardly-extending outer rim; a retaining-post for the toe-calk; threaded apertures upon either side of said post; a toe-calk consisting of a point and base-plate, the latter having a mortise to receive said post; retaining-screws passing through said base-plate and into said threaded apertures, and calk-seats formed integrally with the ends of the shoe designed to receive the threaded shanks of the heel-calks, substantially as described and for the purpose set forth.

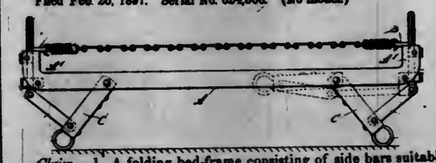
2. In a horseshoe, the combination with a body having an integral outer rim, and an integral retaining-post, of a toe-calk having a recess on its outer side to receive the outer rim of the shoe; and further provided with an aperture in the inner part of the base-plate to receive said post, substantially as set forth.

592,652. FRUIT-SQUEEZER. CHARLES LEIGH, Knottsville, Ky. Filed Aug. 5, 1897. Serial No. 647,180. (No model.)



Claim.—The combination in a machine for cutting and squeezing lemons or similar fruit, the concave and convex presser-rollers having cutter-disks, the disks of one roller adapted to revolve intermediate the disks of the other roller, a cushion-roller beneath the said two rollers, a mesh-board having a concaved perforated end extending underneath the cushion-roller, a seed-pan having a perforated bottom, and a juice-pan adapted to receive the liquid strained through the said perforated end and said perforated pan-bottom, substantially as and for the purpose set forth.

592,653. FOLDING BED-FRAME. JACOB LEVY, Brooklyn, N. Y. Filed Feb. 20, 1897. Serial No. 624,306. (No model.)



Claim.—1. A folding bed-frame consisting of side bars suitably connected to each other, supporting-legs pivoted to the side bars near their outer ends, a head-piece having guide-bars upon each side of the bed, eyes or guides surrounding said guide-bars and pivoted to the end of the side bars, hooks projecting from the ends of the frame above and in line with the eyes, and links connecting the lower parts of the head-piece and the legs, substantially as described.

2. A folding bed-frame, consisting of side bars of angle-iron, turned up at their ends, cross-bars of angle-iron fastened to the upturned ends of the side bars, a mattress-carrying web or springs connecting said cross-bars, and suitable supports therefor, consisting of angle-iron having the longitudinal web removed at its lower end, and the lateral web bent into an eye to form a foot for the support, substantially as described.

3. The combination of the side bars and end cross-bars forming a web-supporting frame, and having vertical guides for the head-pieces to slide in, with legs pivoted to the web-frame inwardly from its ends, a head-piece slidable in the guides upon the frame, and links connecting the head-pieces and the legs, substantially as described.

4. The combination of a frame supporting a web, and having pivoted guides for the head-pieces, with head-pieces slidable therein, legs pivoted to the frame, and links connecting the legs and head-pieces, substantially as described.

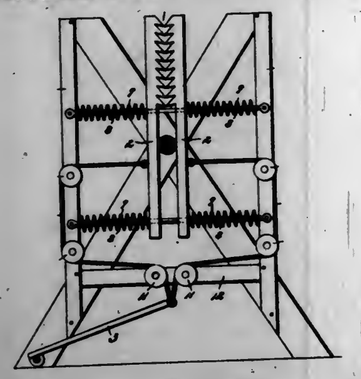
5. The combination of a frame supporting a web, and having vertical guides for the head-pieces, which are in two parts, the lower of which is pivoted to the frame, with head-pieces slidable therein, legs pivoted to the frame, and links connecting the legs and head-pieces, substantially as described.

6. The combination with a frame, of a head, pivoted guides in which said head is fitted to slide, the head being movable to project above the frame and to lie approximately horizontal at the under side of the frame, and keepers engaging the head to retain it in its upper position, substantially as specified.

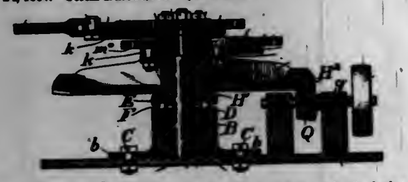
592,654. SAWBUCK. EDWARD LINDSAY, Patterson, Pa. Filed Nov. 17, 1896. Serial No. 612,445. (No model.)

Claim.—1. A sawbuck provided with transverse rods, clamping-jaws sliding upon said rods, springs for pressing said jaws toward each other, and a foot-lever connected with said jaws for moving them in opposition to said springs.

2. A sawbuck provided with uprights fastened to the legs thereof, transverse bars extending between said uprights, clamping-jaws mounted upon said transverse bars, springs upon said transverse bars and which serve to press the said jaws toward each other, cords connecting said clamping-jaws trained around guide-pulleys and connected with a movable foot lever.



592,655. PUMPING-RIGGING FOR OIL-WELLS. JOHN H. MAHER, Franklin, Pa., assignor to George Allen, same place. Filed Feb. 24, 1897. Serial No. 624,790. (No model.)

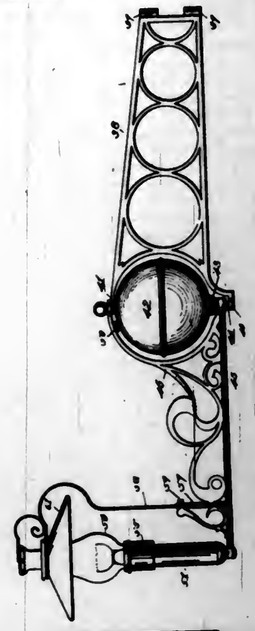


Claim.—In a pumping-rigging, the combination with a bed-plate, of a flanged pedestal rigidly secured thereto, a vertical axle rigidly mounted in said pedestal, a crown-wheel revolubly mounted on said axle above said pedestal, provided with a hub having horizontal extensions at its upper and lower ends, bearing rings and balls interposed between said pedestal and said hub, superimposed eccentrics rigidly secured directly to each other and to the hub of the crown-wheel, said eccentrics being so arranged with relation to the axle as to equalize the strain upon the latter and being also provided with horizontal flanges projecting beyond their faces, perforated rings resting on said flanges and engaging said eccentrics, and connecting-rods pivotally connected to said perforated rings, substantially as described.

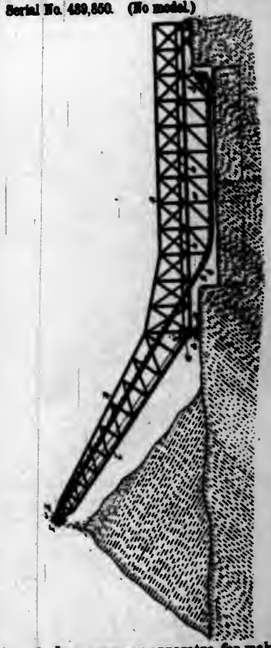
592,656. LAMP. PASCHAL MALLETT, East St. Louis, Ill., assignor of one-half to I. R. Young, same place. Filed Mar. 1, 1897. Serial No. 625,571. (No model.)

Claim.—1. In a device of the class described, a vertical tube, a rod adjustably mounted in said tube, the upper end of said rod being bent into a horizontal plane and into a loop, the ends of which are removably hooked together, said loop being designed to engage the shade, a second rod attached to the first-mentioned rod and having its upper end bent into a horizontal plane, a disk attached to the free end of said second rod, and arms projecting outwardly and downwardly from said disk to engage the lamp-chimney, substantially as specified.

2. In a device of the class described, the arm 38, the vertically-alined bearings 39 formed integral with one of the ends of said arm 38, said bearings being designed to receive a pin to hinge said arm to its support, the vertically-alined bearings 40 and 41 formed integral with the opposite end of said arm from the bearings 39, the spherical tank 42 mounted between said bearings 40 and 41, the block 43 fixed in the bottom of said tank and extending downwardly, the trunnion 44 formed upon the lower end of said block 43 and operating in the bearing 40, the pipe 45 having one of its ends screw-seated in said block 43, there being a passage through said block 43 leading from said pipe to the interior of said tank, the brace 46 attached to the pipe 45 and extending upwardly into vertical alinement with the bearing 41, the pin 47 inserted through the upper end of the brace 46, through the bearing 41 and screw-seated in the upper side of the tank 42, and a lamp fixed to the opposite end of the pipe 45 from the tank 42 and in horizontal alinement with said tank, substantially as specified.



592,657. CONVEYER FOR MAKING ARTIFICIAL EXCAVATIONS FOR WATER-COURSES. ARTHUR J. MASON, Kansas City, Mo., assignor of one-half to Frank K. Hoover, same place. Filed Nov. 2, 1896. Serial No. 589,850. (No model.)



Claim.—1. In a conveyer apparatus for making artificial excavations, the combination of the tracks situated on opposite sides of and substantially parallel to the axial line of an excavation, a truss which spans the excavation substantially at right angles to the axis thereof, the trucks adapted to said tracks and connected to the opposite ends of said truss to support the latter laterally adjacent to the sloping end face of the excavation, a motor or engine, independent connections between the motor and the two trucks for moving either truck independently of the other and advancing the truss in the general direction of the line of the excavation, and a non cutting conveyer suspended from the truss within the lines of an excavation and sustained thereby laterally adjacent to a sloping end face of said excavation, as and for the purposes described.

2. In a conveyer apparatus for making artificial excavations, the combination of independent trucks situated on opposite sides of an excavation, a truss which spans the excavation and has its respective ends connected to said trucks to be supported thereby laterally adjacent to the sloping end face of the excavation, an engine or motor carried by one truck, direct gear connections between one truck and the motor, a counter-shaft journaled longitudinally on the truss and geared to the motor and the other truck, and a non-cutting conveyer suspended from the truss within the lines of the excavation and supported laterally adjacent to the sloping end face thereof to intercept the material dislodged from the same, as and for the purposes described.

3. In a conveyer apparatus for making artificial excavations, the combination of a truss arranged substantially at right angles across the axial line of an excavation, the independent trucks arranged to sustain the respective ends of said truss, horizontal and vertical pivotal connections between said truss and the trucks, a motor having direct gear connections with one truck, a counter-shaft geared to said motor and the other truck, a non-cutting conveyer suspended from the truss within the lines of an excavation, laterally adjacent to, and arranged to intercept the material dislodged from, the sloping face of said excavation, as set forth.

4. In a conveyer apparatus for making artificial excavations, the combination of a truss mounted at its ends on movable trucks and arranged to span an excavation substantially at right angles to the axial line thereof and sustained by said trucks laterally adjacent to a sloping end face of the excavation, a continuous track suspended from said truss within and closely adjacent to the bed, side and sloping end face of the excavation, a non-cutting endless conveyer conforming to the track and sustained thereby laterally adjacent to the sloping end face of an excavation in position to intercept material dislodged from the same, and a power mechanism for impelling the conveyer in a path at right angles to the axial line of the excavation, as and for the purposes described.

5. In a conveyer apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm, mounted on movable trucks and arranged to span an excavation substantially at right angles to the axial line thereof and sustained by the trucks laterally adjacent to a sloping end face of the excavation, a continuous track having upper and lower parts for an endless conveyer, a certain length of said track being supported in a fixed relation on the truss and its cantaliver-arm and the remaining length of said track suspended from, and vertically adjustable with relation to, the truss, said suspended length of the track arranged within and closely adjacent to the bed, side and sloping end face of the excavation, means for positively raising or lowering the suspended length of said track, a non-cutting endless conveyer adapted to the continuous track and supported thereby laterally adjacent to the end slope of the excavation to intercept the material dislodged from the same, and mechanism for impelling the endless conveyer to travel in a path at right angles to the axial line of an excavation, as and for the purposes described.

6. In a conveyer apparatus for making artificial excavations, the combination of a truss supported at its ends by independent trucks and arranged to span an excavation substantially at right angles to the axial line thereof and sustained by the trucks laterally adjacent to the sloping end face of the excavation, a non-cutting endless conveyer suspended from one part of the truss and sustained thereby within the lines of an excavation laterally adjacent to the end slope of an excavation to intercept material dislodged from said end face, an engine, means driven by the engine for moving the trucks and thereby advancing the truss and conveyer laterally and in the direction of the line of an excavation, and means for impelling the conveyer in a path at right angles across the axial line of the excavation and in a general direction along the truss, substantially as and for the purposes described.

7. In a conveyer apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm and sustained at its ends by movable trucks across an excavation substantially at right angles to the axial line thereof and laterally adjacent to a sloping end face of the same, a continuous track having a certain length thereof sustained in fixed relation on the truss and its cantaliver-arm and the remaining length of said track suspended in a horizontal position from the truss and within the lines of an excavation and laterally adjacent to the end slope of the same, independent head-wheels at opposite ends of the fixed and suspended lengths of said continuous track, an endless non-cutting conveyer adapted to the continuous track and having its suspended length sustained by the suspended length of the track in a position laterally adjacent to the end slope of an excavation, to intercept material dislodged from the same, and means for impelling said conveyer in a path at right angles across the axial line of the excavation, substantially as and for the purposes described.

8. In a conveyer apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm and sustained at its ends by movable trucks across an excavation substantially at right angles to the axial line thereof and laterally adjacent to a sloping end face of the same, a continuous track having a certain length thereof supported fixedly on the truss and its cantaliver-arm and its remaining length suspended in a horizontal position from the truss, within the lines of an excavation and laterally adjacent to the end slope of the same, an endless conveyer having its upper and lower sides fitted to the upper and lower lengths of said track to which the conveyer conforms and is thereby sustained laterally adjacent to the end slope of an excavation to have its upper side intercept the material dislodged from said end slope, and means for impelling the conveyer in a path substantially at right angles to the axial line of an excavation, substantially as and for the purposes described.

9. In a conveyer apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm and sustained at its ends by trucks across an excavation substantially at right angles to the axial line thereof and laterally adjacent to a sloping end face of the same, the continuous track having a certain length thereof sustained fixedly on the truss and its cantaliver-arm and its remaining length suspended in a horizontal position from the truss, within the lines of an excavation and laterally adjacent to a sloping end face of the same, a non-cutting conveyer having the open pans and the wheeled axles which are adapted to travel on the upper and lower lengths of the horizontal and inclined parts of said track, a part of said conveyer being sustained by the suspended length of the track laterally adjacent to a sloping end face of the excavation, the independent head-wheels at the ends of the inclined and horizontal lengths of said track, and means for rotating the head wheel or wheels to impel the conveyer in a path substantially at right angles across the axial line of an excavation, as set forth.

10. In a conveyer apparatus for making artificial excavations, the combination with a truss supported on movable trucks, of a track pendent from said truss and provided with upper and lower bearing-surfaces, the power and idle wheels provided with friction-rolls at the peripheries thereof and arranged at the terminals of said track, and an endless conveyer having the connected cars and axles and fitted to said bearing-faces of the track and also fitted to the head-wheels to be sustained in proper relation by the friction-rolls, as and for the purposes described.

11. In a conveyer apparatus for making artificial excavations, the combination with a truss, of a track having upper and lower bearing-surfaces, an endless conveyer having the wheeled axles adapted to said bearing-surfaces and cars hinged to said axles and provided with longitudinal racks, an idler head-wheel at one end of the track, and a positively-driven head-wheel at the opposite end of the track, said head-wheel carrying a master-gear adapted to mesh with the racks of the cars as they approach said head-wheel, each wheel carrying a transverse series of friction-rolls to sustain the cars in proper position as they pass around the head-wheels, substantially as described.

12. In a conveyer apparatus for making artificial excavations, the combination of a truss arranged to span an excavation substantially at right angles to the axial line thereof and mounted on trucks adapted to travel in the general direction of the line of the excavation an engine, a longitudinal counter-shaft carried by said truss, a traveling conveyer suspended from said truss within the lines of an excavation and presented by the truss laterally adjacent to a sloping end face thereof, gearing between the engine and counter-shaft, means for connecting the counter-shaft with one of the trucks, a hoisting-drum carried by said counter shaft to rotate therewith, and arranged thereon over the conveyer and a cable connected to said hoisting-drum and provided with a grapple, as and for the purposes described.

13. In a conveyer apparatus for making artificial excavations, the combination with a truss, an engine, and a counter-shaft, of a traveling conveyer suspended from said truss within the lines of an excavation and presented by said truss laterally adjacent to an end face of said excavation; a series of hoisting-drums carried by said shaft over the conveyer and having means for making the same fast with said counter-shaft, a cable connected to each drum and provided with a grapple, and a brake mechanism for controlling each of said drums and its load when the drum is released from fixed engagement with said shaft as and for the purposes described.

14. In a conveyer apparatus for making artificial excavations, the combination of a truss sustained by movable trucks, a motor on one of said trucks, a track suspended from said truss, head-wheels situated at the terminals of the track, one of said wheels driven

from said motor, an endless conveyer fitted to the track and the head wheels, a longitudinal counter-shaft geared to the engine and hoisting mechanism operated by said counter-shaft and embodying friction-drums, cables, and means for controlling each drum, as and for the purposes described.

15. In a conveyer apparatus for making artificial excavations, a truss mounted on carriages and arranged to span an excavation substantially at right angles to the axial line thereof and presented laterally or sidewise to the sloping end face of said excavation, a track suspended from the truss within the lines of an excavation and presented laterally to the sloping end face of the excavation, a continuous shield arranged outside of the track to afford lateral protection to the same and having a flange which overhangs the side of the conveyer and its track adjacent to the end slope of said excavation, and a traveling conveyer fitted to the track and lying within the continuous shield, the upper receiving side of said conveyer being exposed for receiving the material which is dislodged from the end face of said excavation and deported over the continuous shield, substantially as and for the purposes described.

16. In a conveyer apparatus for making artificial excavations, the combination of a truss supported by movable trucks and arranged to span an excavation substantially at right angles to the axial line thereof, an endless conveyer suspended from the truss partly within the lines of an excavation and sustained thereby laterally or sidewise adjacent to the end face of said excavation, a series of independent hoisting mechanisms mounted at suitable intervals along the truss and above the conveyer, and manually-operative devices whereby each hoisting mechanism may be controlled to deposit its burden on said conveyer, as and for the purposes described.

17. In a conveyer apparatus for making artificial excavations, the combination of a truss supported by trucks to span an excavation, an endless conveyer supported by the truss within the lines of the excavation and arranged laterally adjacent to sloping end face thereof, a friction-drum mounted on the truss above the conveyer and having a hoisting-cable, means for rotating said friction-drum, and means for controlling the friction-drum to lower the burden of the hoisting-cable and deposit the same upon the conveyer, as and for the purposes described.

18. In a conveyer apparatus for making artificial excavations, the combination of a truss supported by trucks to span an excavation, an endless conveyer supported by said truss within the lines of the excavation, a friction-drum journaled on the truss above the conveyer, a shaft on which the friction-drum is mounted, a friction-clutch on the shaft, adapted to engage the drum, means for operating said clutch, a hoisting-cable, and a tag-rope, as and for the purposes described.

19. In a conveyer apparatus for making artificial excavations, the combination of a truss mounted on trucks to span an excavation, a conveyer suspended from said truss within the lines of the excavation, a friction-drum having associated therewith means for controlling the same, a hoisting-cable guided by sheaves or rollers to suspend its load immediately over said conveyer, and means combined with the hoisting-cable to steady the load against swaying, as and for the purposes described

20. In a conveyer apparatus for making artificial excavations, the combination of a truss supported on trucks to span an excavation, a conveyer suspended from said truss within the lines of the excavation and presented edgewise to the sloping end face of said excavation, a hoisting-drum, a cable attached to said drum and guided by sheaves or rollers to suspend its burden over said conveyer, a guy or tag rope connected to the hoisting-cable, and devices for rotating and controlling said hoisting-drum, as and for the purposes described.

21. In a conveyer apparatus for making artificial excavations, the combination of a truss carried on trucks to span an excavation, a conveyer suspended from said truss within the lines of the excavation and presented laterally to a sloping end face of the same, a friction-drum carried by the truss above the conveyer and having a hoisting-cable guided by sheaves or rollers to suspend its burden over the conveyer, another drum carried by the truss at one side of the conveyer, a guy-rope connected to the hoisting-cable and the independent drum, and a friction-clutch rotating with a shaft, as and for the purposes described.

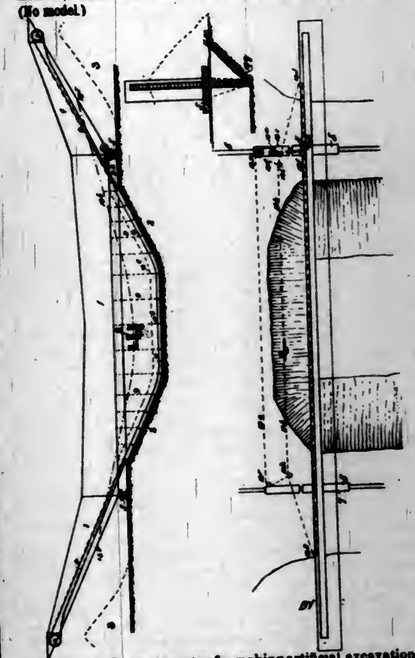
22. In a conveyer apparatus for making artificial excavations, the combination of a truss carried by trucks to span an excavation, a conveyer suspended from said truss within the lines of an excavation and presented laterally adjacent to the sloping end face of the same, a friction-drum carried by said truss and having a friction-clutch and a shaft whereby the drum may be rotated an independent drum also carried by the truss but situated at one side of the friction-drum, a hoisting-cable attached to the friction-drum and guided by sheaves to suspend its burden over the conveyer, another cable connected with the hoisting-cable and the independent drum, and a brake mechanism for controlling the drum, as and for the purposes described.

23. In a conveyer apparatus for making artificial excavations, the combination with a truss carried by trucks to span an excavation, a conveyer suspended from said truss within the lines of the excavation, a hoisting-drum, a shaft, a friction-clutch, a hoisting-cable, a tag-rope connected with the hoisting-cable, a counterweighted independent drum to which the tag-rope is connected, and a brake mechanism of the drum, as and for the purposes described.

24. In a conveyer apparatus for making artificial excavations, the combination with a truss, of a horizontal track suspended therefrom, a traveling conveyer fitted on said track, and props connected to said track and extending outwardly therefrom substantially at right angles to the length of the track, said props resting on the ground to hold the track and conveyer from swinging away from the end face or slope of an excavation, substantially as and for the purposes described.

25. In a conveyer apparatus for making artificial excavations, the combination of a truss carried by trucks at its ends to span an excavation and having a cantaliver-arm as an integral part thereof, a track having its horizontal part suspended from the truss and its inclined part fastened to the cantaliver-arm, an endless conveyer supported on said track and following the lines of its horizontal and inclined lengths, and guards carried by the track along the lines where its horizontal and inclined lengths join each other, said guards arranged in operative relation to the conveyer to overcome any tendency thereof to be lifted from the track, as and for the purposes described.

592,658. APPARATUS FOR MAKING ARTIFICIAL EXCAVATIONS FOR WATER-COURSES. ARTHUR J. MASON and FRANK K. HOOVER, Kansas City, Mo. Filed May 15, 1896. Serial No. 591,713. (No model.)



Claim.—1. In an apparatus for making artificial excavations, the combination of a truss provided with a cantaliver arm or arms, a continuous track partially suspended from the truss and partially attached in fixed relation to the truss and its cantaliver arm or arms, and a traveling conveyer supported by said continuous track, as and for the purposes described.

2. In an apparatus for making artificial excavations, the combination of cars carrying roller-supports, a truss resting on said roller-supports and pivotally attached to opposite ends of said cars, and a conveyer carried by said truss, as and for the purposes described.

3. In an apparatus for making artificial excavations, the conveyer having the articulated pans, the links or eyebars arranged in pairs on opposite sides of the pans, and wheeled axles connected with said pans and with the links or eyebars, combined with a sprocket-wheel having bearings for the axles or wheels of the conveyer, as and for the purposes described.

4. In an apparatus for making artificial excavations, the combination with a truss, of a conveyer-track suspended for a portion of its length from said truss and having its remaining portion attached, in fixed relation, to the truss and its cantaliver arm or arms; the suspended portion of the conveyer-track consisting of lengths of shield-plates and rails which are sustained by adjustable suspension devices, and a conveyer adapted to the rails of said conveyer-track, as and for the purposes described.

5. In an apparatus for making artificial excavations, the combination with a truss, of a conveyer and its track which conform to the lines of the excavation; the portion of the track outside of the lines of the excavation being sustained on the truss and its cantaliver arm or arms in fixed relation thereto, and the portion of said track within the lines of the excavation consisting of lengths of shield-plates and rails which are adjustable vertically by the employment of suspension devices attached to the truss; the rails on the fixed and adjustable portions of said track being slidably and telescopically joined at or near the side margins of the excavation, as and for the purposes described.

6. In an apparatus for making artuncal excavations, the combination with a truss, of a conveyer-track, yokes attached to the track on the landside of the conveyer-track, cables attached to the yokes and conveyer-track and to the truss, and a conveyer adapted to said track, as and for the purposes described.

7. In an apparatus for making artificial excavations, the combination with a truss, a conveyer-track suspended therefrom and carrying an endless conveyer, and a barricade carried above the conveyer-track at the side opposite thereof from the receiving or loading side of said conveyer, as and for the purposes described.

8. In an apparatus for making artificial excavations, the combination of a truss, its driving mechanism, a conveyer carried by said truss and adapted to be adjusted thereby adjacent to an end slope of an excavation, a plowing or excavating appliance, and power devices for moving said plowing or excavating appliances across the end slope, for the purpose described, substantially as set forth.

9. In an apparatus for making artificial excavations, the combination of a truss, a conveyer, a plowing or excavating appliance, power devices for moving said plowing or excavating appliances, and means for controlling the plowing and power devices to give the plowing appliances range over the entire end slope of an excavation, as and for the purposes described.

10. In an apparatus for making artificial excavations, the combination with a truss, a conveyer, and an engine or engines, of a set of guide devices certain of which are carried on the truss while other guides are movable toward or from said truss, a haulage-cable adapted to said guides, a plow connected to said haulage-cable, and means for changing the position of the adjustable guides relatively to the truss, as and for the purposes described.

11. In an apparatus for making artificial excavations, the combination with a truss and a conveyer, of an engine, guide-sheaves on the truss and substantially in line with the engine, other guide-sheaves supported on the truss beyond the first-named guide-sheaves, movable guides lying in advance of the truss and operatively connected with a controlling cable or line, a continuous haulage-cable operated by the engine and adapted to the truss-guides and the movable guides, and a plow adapted to be connected with the haulage-cable, as and for the purposes described.

12. In an apparatus for making artificial excavations, the reversible plow having the oppositely-facing shares and a landside common to both shares, as and for the purposes described.

13. In an apparatus for making artificial excavations, a reversible plow provided with lateral shoes adapted to ride against a furrow to assist in guiding the plow, as and for the purposes described.

14. In an apparatus for making artificial excavations, the combination with a haulage-cable, of a reversible plow having oppositely-facing shares to a common landside, the two sets of shoes, and steering-handles extending upwardly from the beam, as and for the purposes described.

15. In an apparatus for making artificial excavations, the combination of a truss adapted to span an excavation, a primary conveyer carried by said truss to be adjusted thereby adjacent to an end slope and adapted to be loaded by the deportation of material loosened from said end slope, an excavating appliance for removing the material at the foot of the slope to bring the latter down to the grade, and an auxiliary carrier for depositing the material on the primary carrier, as and for the purposes described.

16. In an apparatus for making artificial excavations, the combination with a truss and a primary conveyer, of a reversible plow, an auxiliary carrier movable with said plow, and a reversible drive-gear for driving said auxiliary carrier toward the primary conveyer, as and for the purposes described.

17. In an apparatus for making artificial excavations, the combination with a truss and a primary conveyer, of a reversible plow, an auxiliary carrier traveling with said plow, a relatively fixed cable, rope, or chain and a reversible drive-gear having a shaft connected with the said cable, rope or chain and another shaft geared to the carrier, for the purposes described, substantially as set forth.

18. In an apparatus for making artificial excavations, the combination with a truss and a primary conveyer, of a reversible plow, an auxiliary carrier having its frame pivotally attached to said plow, a trolley connected with the opposite end of said frame for the auxiliary carrier, a reversible drive-gear, and a rope or cable engaging with said drive-gear, as and for the purposes described.

19. In an apparatus for making artificial excavations, the combination with a truss, of a primary conveyer, suspending devices having yokes attached to the conveyer-track, a track-like cable or rail supported by the yokes, a plow, and an auxiliary carrier partly supported by said plow and having a trolley adapted to the track-like cable or rail, substantially as and for the purposes described.

20. In an apparatus for making artificial excavations, a conveyer consisting of a series of pans articulated together at their contiguous ends by transverse dirt-excluding joints, wheeled axles fitted in said joints of the pans and protected thereby from lodgment of dirt, and strands of connecting links or bars fitted in pairs on said axles and arranged on opposite sides of the wheels thereon, as and for the purposes described.

21. The combination with a track, a reversible conveyer sustained by said track to travel in either direction back and forth thereon and consisting of a series of pans articulated together by rolls interlocking by curvature in the same direction and forming dirt-excluding joints between the contiguous ends of said pans, and wheeled axles journaled in said dirt-excluding, articulated joints of the pans, as and for the purposes described.

22. The combination with a conveyer-track, of a reversible conveyer having a series of pans articulated together by hook-like rolls interlocking by curvature in the same direction and forming dirt-excluding joints between the contiguous edges of said pans, and wheeled axles passing through the hook-like rolls and fitted to said track, whereby the spaces between the pans are closed against the lodgment of dirt upon the edges of the pans and the axles of the conveyer, as and for the purposes described.

23. The combination with a track, of a reversible conveyer adapted to travel back and forth on said track and comprising a series of pans each wider at one end than at the other and with the bottom of said pan curved upon itself into the hook-like cylindrical rolls, said rolls at the ends of each pan interlocking with rolls curved in the same direction on the ends of adjacent pans and forming articulated joints which exclude lodgment of dirt between the edges of the pans, and wheeled axles for sustaining the conveyer on said track, as and for the purposes described.

24. In an apparatus for making artificial excavations, the combination of a truss carried on tracks to span an excavation, a conveyer-track having a certain length thereof suspended from the truss within the lines of the excavation and composed of suspended shield-plates and rails attached within said shield-plates, and an endless pan and wheeled conveyer arranged between said shield plates to expose its pans and having its wheels fitted to the tracks to be protected by the plates against lodgment of dirt, whereby the suspended length of the conveyer is arranged to intercept the material dislodged from the end slope of an excavation, as and for the purposes described.

25. In an apparatus for making artificial excavations, the combination of a truss carried at its ends by tracks and arranged to span an excavation, a conveyer-track having a certain section thereof composed of lengths of spaced, parallel shield-plates, which are suspended from said truss within the lines of the excavation, and lengths of rails fixed on the opposing faces of said shield-plates to be sustained thereby and protected against accumulation of dirt, and a pan-conveyer having wheels fitted to said rails on the suspended plates to sustain the conveyer in position for its pans to intercept the material dislodged from an end slope of the excavation, as and for the purposes described.

26. In an apparatus for making artificial excavations, the combination of a truss carried by tracks and arranged to span an excavation, a conveyer-track suspended for a part of its length from said truss within the lines of the excavation and consisting of a pair of parallel, continuous shield-plates which are joined together and are provided at their upper ends with the inwardly-extended guards and the track-rails fixed to the opposing faces of the shield-plates and arranged below the guards thereof, and a conveyer having wheeled axles adapted to the rails and shielded by the plates and the guards thereof from material to be loaded on the conveyer, as and for the purposes described.

27. In an apparatus for making artificial excavations, the combination of a truss supported by trucks and arranged to span an excavation, a conveyer partly carried by the truss and partly suspended therefrom within the lines of an excavation and presented thereby laterally adjacent to the sloping end face of the excavation, and a plow with operating means therefor to direct the plow across the slop-

ing end face of the excavation in a direction generally parallel to the truss and the conveyer, for the purposes described, substantially as set forth.

28. In an apparatus for making artificial excavations, the combination of a truss carried by trucks and arranged to span an excavation, a conveyer carried by said truss, with a certain length of said conveyer suspended within the lines of the excavation and presented laterally adjacent to the sloping end face of the same, a haulage-cable guided to travel over the end slope of an excavation in a general direction parallel to the truss and to the conveyer, and a reversible plow connected to said haulage-cable, as and for the purposes described.

29. In an apparatus for making artificial excavations, the combination with a haulage-cable, of a reversible plow connected to said cable and provided with oppositely-facing shares, a landside common to both shares, and shoes extending laterally from the landside of said plow to assist in guiding the same, as and for the purposes described.

30. In an apparatus for making artificial excavations, the combination with a haulage-cable, of a reversible plow connected to said cable and provided with vertical steering-bars which are fastened to the plow-beam and are adapted to be grasped by a man riding on said beam, for the purpose of steering the plow by rocking it in a plane across the line of the cut or furrow, as and for the purposes described.

31. In an apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm and supported on trucks to span an excavation, a primary conveyer carried by said truss and its cantaliver-arm and having a section or length thereof suspended from said truss within the lines of the excavation and adjacent to the sloping end face thereof, a plow guided to operate across said end of slope of the excavation in a general direction parallel to the line of the truss and said primary conveyer, and an auxiliary carrier between said plow and primary conveyer and arranged to travel with said plow in operative relation to the plow and primary conveyer, to deposit the material loosened by said plow upon the primary conveyer, as and for the purposes described.

32. In an apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm and supported on trucks to span an excavation, a primary conveyer carried by said truss and its cantaliver-arm and suspended for a part of its length within the lines of an excavation, an excavator appliance guided to travel in a direction generally parallel to the line of the truss and conveyer, and an auxiliary carrier coupled at one end to said excavator appliance and having traveling contact with said primary conveyer, for the purposes described, substantially as set forth.

33. In an apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm and supported on trucks to span an excavation, a primary conveyer carried for a part of its length by the truss and its cantaliver-arm and suspended for its remaining length from the truss within the lines of an excavation, a reversible plow guided to travel in a direction generally parallel to the line of said truss and primary conveyer, an auxiliary carrier pivotally connected with said plow and having traveling contact with devices on said truss or primary conveyer, and a reversible driving mechanism whereby the auxiliary carrier may be driven at all times toward the primary conveyer as the plow travels back and forth, as and for the purposes described.

34. In an apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm and supported on trucks to span an excavation, and an endless primary conveyer carried for a part of its length on said truss and its cantaliver-arm and suspended for the remaining portion of its length from the truss within the lines of an excavation, the length of said conveyer lying within the excavation being housed between and within lengths of shield-plates which are suspended from the truss and are arranged laterally adjacent to the end slope of the excavation, for the purposes described, substantially as set forth.

35. In an apparatus for making artificial excavations, the combination of a truss carried by trucks to span an excavation, an endless conveyer suspended from said truss within the lines of the excavation, a haulage-cable guided by devices to travel in a direction generally parallel to the line of the truss and conveyer, and a reversible or double-ended plow connected to said haulage-cable, for the purposes described, substantially as set forth.

36. In an apparatus for making artificial excavations, the combination of a truss having a cantaliver-arm and supported on trucks to span an excavation, a primary conveyer partly carried by the truss and its cantaliver-arm and partly suspended from said truss within the lines of the excavation, means for advancing said truss and conveyer laterally with respect to a sloping end face of the excavation, mechanism for impelling said conveyer in a direction at right angles across the line of the excavation and in the direction of the length of the excavation, and an auxiliary conveyer supported and operating in a plane substantially at right angles to the plane of movement of the primary conveyer, for the purposes described, substantially as set forth.

37. In an apparatus for making artificial excavations, the combination of a truss provided with a cantaliver-arm and supported on trucks to span an excavation, a primary conveyer carried for a part of its length on the truss and its cantaliver-arm and suspended for the remainder of its length from said truss within the lines of an excavation, an excavating appliance guided by means substantially as specified to travel in a direction generally parallel to the line of the truss and primary conveyer, and mechanism intermediate between the excavating appliance and said primary conveyer for depositing the excised material upon said conveyer, for the purposes described, substantially as set forth.

38. The combination of a truss carried by trucks to span an excavation and presented laterally to a sloping end face thereof, an engine or motor, a plowing appliance, a haulage-cable arranged across said end slope of the excavation substantially parallel to the line of the truss and adapted to be propelled by said engine to haul the plowing appliance across the end face of the excavation, and mechanism whereby the haulage-cable may be employed to move the truss laterally and in the general direction of the line of the excavation, as and for the purposes described.

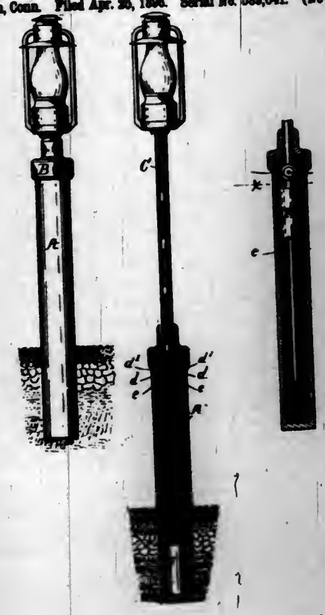
592,659. BOUGIE. ISAAC N. MILLER and JORAN B. MOSS, St. Joseph, Mo. Filed Aug. 27, 1896. Serial No. 604,104. (No model.)



Claim.—1. A bougie comprising a hollow body adapted to contain medicine and having apertures 5, for the outward passage of medicine and also having grooves 6, in its outer side; the said apertures 5, being countersunk and being also arranged in alinement with the grooves 6, the hollow, soft-rubber anchor for limiting the upward movement of the body in the rectum, and the flexible rubber shank connecting the body and the anchor, substantially as and for the purpose set forth.

2. A bougie comprising the hollow, foraminated body formed of two detachably-connected sections and closed at its opposite ends, absorbent material arranged in the body and adapted to be saturated with medicine and a spring also arranged in the body and interposed between one end of the same and the absorbent material and adapted to press the medicine out of the absorbent material and the body, substantially as specified.

592,660. TELESCOPING LAMP-POST. JAMES A. MILLER, New Haven, Conn. Filed Apr. 26, 1896. Serial No. 589,041. (No model.)

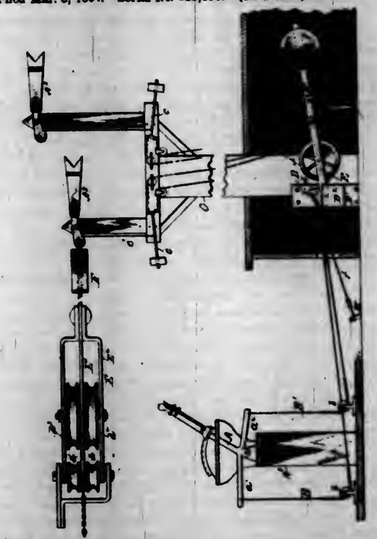


Claim.—1. In a telescoping lamp, the combination of a hollow base or tube, a cap or bearing fixed at the upper end thereof, a lamp-rod fitting and adapted to slide in said cap, a pair of pulleys pivoted within the base on opposite sides thereof and with their centers radial to the vertical axis of the base, flexible connections secured to the lamp-rod and passing over said pulleys in opposite directions, and a counterweight supported by the said chains, the weight being provided with a central space for the passage of the lamp rod and chains in the telescoping movement of the lamp-rod, substantially as specified.

2. In a telescoping lamp the combination of a tubular socket or post, a cap fitting and secured to the upper end of the socket, and provided with a central bearing, a pair of pulleys pivoted in said cap upon opposite sides of the bearing, the cap forming guards or housings over the said pulleys to confine running connections or cords thereon, a lamp-rod fitting the bearing, flexible connections attached to the lamp-rod and passing over the pulleys in opposite directions, a counterweight attached to the chains and adapted to travel within the socket, and means for securing the lamp-rod at any required height, substantially as and for the purpose specified.

3. In a telescoping or adjustable street-lamp post, the combination of a hollow base or tubular socket provided with a bearing at its upper end, a lamp rod or support fitting said bearing and adapted to be telescoped within the base, a pair of pulleys pivoted within the base on opposite sides of the lamp-rod, supporting-lines secured to the lamp-rod and passed over the said pulleys, and an annular counterweight attached to the lower end of the chains and adapted to travel within the base to lift or balance the lamp and lamp-rod, the latter passing through the said ring or annular weight in the movement of the parts, substantially in the manner and for the purpose specified.

592,661. RAILROAD-SIGNAL. LEANDER MURPHY, Manor, Pa. Filed Mar. 3, 1897. Serial No. 625,859. (No model.)



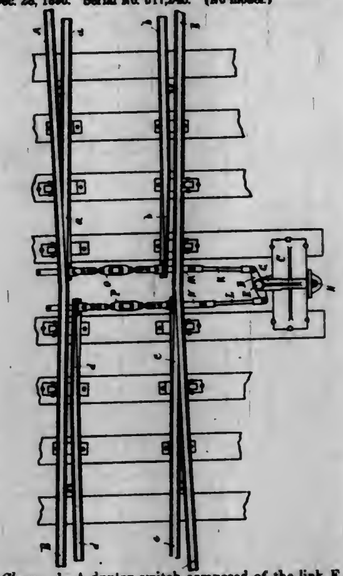
Claim.—1. In railroad-signals, the combination with the signal-operating lever A, the semaphore signal-blade A^1, the double flexible connections B B, through which the signal-blade is operated, the lever c mounted on the signal-post, the rod or wire c' leading therefrom to the signal-blade, of a compensator, consisting of a stationary support D having journaled thereto, pulley-wheels d d', over which said connections pass, and a weighted lever E carrying pulley-wheels d^2 d^3, under which said connections are carried, said connections being attached at their upper ends to the lever c, and at their other ends to the operating-lever, substantially as described.

2. In railroad-signals, the combination with the signal-operating lever, the signal-blade and the flexible connections through which the latter is operated, of a compensator-lever located between the ends of said connections, and a cushioning device constructed and arranged to retard the motion of the lever, substantially as described.

3. In railroad-signals, the combination with the signal-operating lever, signal-blade, and flexible blade-operating connections, of a compensating lever having attached thereto a governing device, substantially as described.

4. In railroad-signals, the combination with the signal-operating lever, the signal-post, the signal-blades, a double-armed lever on the signal-post, and a connection between the same and the blade, of double flexible connections leading from the operating-lever to said double-armed signal-post lever, and a compensator comprising a weighted lever, pulley-wheels mounted on stationary bearings, and twin pulleys mounted on movable bearings connected with said lever, the said flexible connections being passed partially around said pulleys and the parts being so arranged that as the flexible connections contract, one set of pulleys will be brought correspondingly closer to the other, and as the connections expand, the reverse movement will take place, substantially as described.

592,662. AUTOMATIC SWITCH. CHARLES PARTINGTON, Newport, Ky., assignor to The Weir Frog Company, Cincinnati, Ohio. Filed Dec. 28, 1896. Serial No. 617,240. (No model.)



Claim.—1. A duplex switch composed of the link F pivoted at one end to a movable cross-head of the switch-stand, and to a T-link which is pivoted to a fixed portion of the switch-stand, and having arms on each side of said pivot for the pivotal attachment of opposing connecting-rods, substantially as specified.

2. A duplex switch composed of the link F pivoted at one end to a movable cross-head having springs to hold it normally closed, and to a T-link which is pivoted to a fixed portion of the switch-stand, and having arms on each side of said pivot for the pivotal attachment of opposing connecting-rods, substantially as specified.

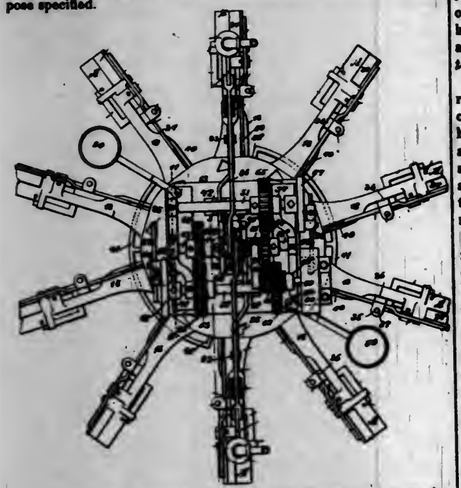
592,663. CAN-SOLDERING MACHINE. THEODORE B. PHELPS, Brewster, N. Y. Filed Sept. 14, 1896. Serial No. 605,751. (No model.)

Claim.—1. In a can-soldering machine, the combination, with a rotating support, and a mandrel attached to the said support and adapted to receive a can-body, of a driving mechanism, cams oscillated by the said driving mechanism, arms moving with the said cams, and soldering-irons supported by the said arms, adapted to travel from the inner to the outer end of the can-body to be soldered, as and for the purpose set forth.

2. In a can-soldering machine, the combination, with a rotating support and a mandrel attached to the said support and adapted to receive a can-body, of a driving mechanism, cams oscillated by the said driving mechanism, arms moving with the said cams, and soldering-irons supported by the said arms, adapted to travel from the inner to the outer end of the can-body to be soldered, the said arms being in two sections pivotally connected, the sections directly receiving the soldering-irons being capable of an upward movement on the main sections, having, however, a limited downward movement, as and for the purpose specified.

3. In a can-soldering machine, the combination, with a rotating table, a fixed table above the rotating table, and arms attached to the rotating table, each of the said arms being provided with a man-

drel adapted to receive a can-body, of driving-gearing located on the fixed table, cams having pivotal support and oscillated from the said driving-gearing, arms operated from the said cams and extending outwardly over the mandrel-carrying arms connected with the revolving table, soldering-irons carried by the cam-actuated arms, and lifting devices, time-operated from the driving-gearing and acting upon the supporting-arms for the soldering-irons, as and for the purpose specified.



4. In a can-soldering machine, the combination, with a rotating table, a fixed table above the rotating table, and arms attached to the rotating table, each of the said arms being provided with a mandrel adapted to receive a can-body, of driving-gearing located on the fixed table, cams having pivotal support and oscillated from the said driving-gearing, arms operated from the said cams and extending outwardly over the mandrel-carrying arms connected with the revolving table, soldering-irons carried by the cam-actuated arms, lifting devices, time-operated from the driving-gearing and acting upon the supporting-arms for the soldering-irons, clamping devices engaging with the mandrels and carried by the rotating arms, and cams actuating the clamping devices, as and for the purpose set forth.

5. In a can-soldering machine, the combination, with a rotating table, a fixed table above the rotating table, and arms attached to the rotating table, each of the said arms being provided with a mandrel adapted to receive a can-body, of driving-gearing located on the fixed table, cams having pivotal support and oscillated from the said driving-gearing, arms operated from the said cams and extending outwardly over the mandrel-carrying arms connected with the revolving table, soldering-irons carried by the cam-actuated arms, lifting devices, time-operated from the driving-gearing and acting upon the supporting-arms for the soldering-irons, clamping devices engaging with the mandrels and carried by the rotating arms, cams actuating the clamping devices, and shifting devices also carried by the mandrel-carrying arms and operating on the can-bodies when the clamping devices are raised, as and for the purpose set forth.

6. In a can-soldering machine, the combination, with a revolving table, a fixed table, arms attached to the revolving table, mandrels carried by the said arms, adapted to support can-bodies, a clamping and a shifting device carried by each of the said arms, and stationary cams from which the said devices are operated, the shifting devices being brought into action when the clamping devices are carried out of clamping engagement with the mandrels, of gearing located on the fixed table, soldering-irons located at predetermined points in the travel of the mandrel-carrying arms, and means for oscillating the supports for the said soldering-irons from the aforesaid driving-gearing, as and for the purpose specified.

7. In a can-soldering machine, the combination, with a revolving table, a fixed table, arms attached to the revolving table, mandrels carried by the said arms, adapted to support can-bodies, a clamping and a shifting device carried by each of the said arms, and stationary cams from which the said devices are operated, the shifting devices being brought into action when the clamping devices are carried out of clamping engagement with the mandrels, of gearing located on the fixed table, soldering-irons located at predetermined points in the travel of the mandrel-carrying arms, means for oscillating the supports for the said soldering-irons from the aforesaid driving-gearing, and lifting-levers, said levers being in sliding engagement with the supports for the soldering-irons, the said lifting-levers being operated by the aforesaid driving-gearing in a manner to raise the supports for the soldering-irons, when at the limit of their inward travel, dropping the said soldering-irons to an engagement with the mandrels beneath them as the mandrels are presented to the said irons, as and for the purpose set forth.

8. In a soldering-machine, the combination, with a mandrel, a rotary support for the same, a fixed table, and driving-gearing located on the said table, of arms oscillated by the said gearing, each arm having a pivotal extension capable of upward movement but restricted against downward movement, and soldering-irons located in the extensions of the said arms, substantially as shown and described.

9. In a soldering-machine, the combination, with a mandrel, a rotary support for the same, a fixed table, and driving-gearing located on the said table, of arms oscillated by the said gearing, each arm having a pivotal extension capable of upward movement but restricted against downward movement, soldering-irons located in the extensions of the said arms, means for vertically adjusting the said arms, and lift-levers likewise operated from the driving-gearing and acting to raise and lower the arms carrying the soldering-irons at predetermined periods, substantially as shown and described.

10. In a soldering-machine, the combination, with a mandrel, a rotary support for the same, a fixed table, and driving-gearing located on the said table, of arms oscillated by the said gearing, each arm having a pivotal extension, capable of upward movement but restricted against downward movement, soldering-irons located in the extensions of the said arms, means for vertically adjusting the said arms, lift-levers likewise operated from the driving-gearing and acting to raise and lower the arms carrying the soldering-irons at predetermined periods, and cushions carried by the reciprocating devices for the supporting-arms of the soldering-irons, the said cushions being adapted to contact when the reciprocating devices are brought together, the said devices having movements in opposite directions, as and for the purpose specified.

11. In a can-soldering machine, a rotating table, mandrels for the reception of the material to be soldered and carried by the said table, a fixed table, and driving-gearing carried by the said fixed table, of a lever-operated latch, the lever being fulcrumed upon the fixed table and operated from the gearing carried thereby at predetermined intervals, the latch being arranged to enter, at predetermined periods, openings in the revolving table, as and for the purpose specified.

12. In a can-soldering machine, a fixed table, a revolving table, the revolving table carrying mandrels for the reception of the material to be soldered, the said revolving table being provided with openings placed at predetermined intervals apart, disks actuated by the said driving-gearing, sleeves pivoted on the said disks, and dogs carried by the said sleeves, arranged to enter the openings in the revolving table for the purpose of revolving the same at desired intervals, as and for the purpose specified.

13. In a can-soldering machine, the combination with a stationary column, of two cams fixed on the column, a table loose on the column, a second table fixed on the column and located above the loose table, a can-mandrel carried by the loose table, a can-shifting device moving with the movable table and driven by one of the cams, a soldering-iron carried by the fixed table, gearing on the fixed table whereby the soldering-iron is operated, means for turning the loose table, said means being driven by the gearing of the fixed table, and a can-clamping device coacting with the mandrel and actuated by the remaining cam, substantially as described.

14. In a can-soldering machine, the combination with a column of two tables thereon, one table being loose and one table fixed on the column, two cams carried by the column, gearing on the fixed table, a soldering-iron operated by the gearing, a mandrel carried by the loose table, a shifting device also carried by the loose table and actuated by one of the cams, and a can-clamp serving to hold the can on the mandrel and operated by the remaining cam, substantially as described.

15. In a can-soldering machine, the combination of a revolvable table, a can-mandrel moving with the table and having longitudinal side grooves, a shifting-fork, the arms of which slide in the grooves, a rod connected to the shifting-fork, a stationary cam sliding the rod, a lever carried by the table, a clamp connected with the lever and coacting with the mandrel to hold the can, and a second stationary cam actuating the said lever, substantially as described.

16. In a can-soldering machine, the combination of a rotary table, an arm outwardly running from said table, a can-mandrel carried by the arm and having longitudinal side grooves, a fork, the arms of which run in the said grooves, a rod connected to the fork, a stationary cam around which the rod travels to actuate the shifting-fork, a bent lever fulcrumed on the arm, a portion of said lever running transversely to the arm, a clamp carried by the arm, a roller on the transverse portion of the lever, the axis of the roller being transverse to said transverse portion, and a stationary cam along which said roller runs, substantially as described.

17. In a can-soldering machine, the combination of a column, two cams fixed on the column, a table loose on the column, a second table fixed to the column, a plurality of arms running radially from the loose table, a can-mandrel carried by each arm, a lever fulcrumed on each arm, a clamp carried by each lever, a roller on each lever, the roller running around one of the cams whereby to actuate the levers, gearing on the stationary table, a soldering-iron operated by the gearing and coacting with the mandrels, and a shifting device actuated by the remaining cam, substantially as described.

18. The combination with a support, of a mandrel mounted to turn around said support, a stationary table on said support, a shaft revolubly mounted on the table, an eccentric disk fixed to the shaft, a pin projecting from the disk, an oscillating disk face to face with the first-named disk and having an eccentric groove receiving the pin of the said first-named disk whereby the oscillating disk is actuated, an arm pivoted to the oscillating disk, a soldering-tool carried by said arm, and a lever fulcrumed on the fixed table and actuated by the eccentric disk, substantially as described.

19. In a can-soldering machine, the combination of a supported mandrel, a table located adjacent to the mandrel, a rotary shaft on the table, an eccentric disk fixed to the shaft, a pin projecting from the shaft, an oscillating disk mounted on the table and having an eccentric groove receiving the pin of the eccentric disk, an arm pivoted to the oscillating disk, a soldering-tool carried by the arm, and a lever fulcrumed on the table and engaging the arm to lift the same, the lever being actuated by the eccentric disk, substantially as described.

20. In a can-soldering machine, the combination with a support, of a rotary shaft, an eccentric disk fixed to the shaft, a pin projecting from one face of the eccentric disk, an oscillating disk with an eccentric groove receiving the pin, an arm pivoted to the oscillating disk, a soldering-tool carried by the arm, and a lever fulcrumed on the support and engaging the arm to lift the same, the lever being actuated by the eccentric disk, substantially as described.

21. In a can-soldering machine, the combination with a support, of an eccentric disk revolubly mounted thereon, a pin projecting from the disk, a member mounted to oscillate on the support and having an eccentric groove on which the pin runs whereby to actuate said oscillating member, an arm pivoted to the oscillating member, a soldering-iron carried by the arm and a lever fulcrumed to the support and engaging the arm to raise the arm, the lever being actuated by the eccentric disk, substantially as described.

22. In a can-soldering machine, the combination with a support, of an eccentric and revolubly-mounted disk, an oscillating member on said support, said member being actuated by the revolving eccentric disk, an arm pivoted to said oscillating member, a soldering-iron carried by the arm and a lever fulcrumed on the support and engaging the arm to lift the same, the lever being actuated by the eccentric disk, substantially as described.

23 In a can-soldering machine, the combination with a support, of two eccentric disks revolubly mounted on the support, a pin projecting from each disk, two oscillating members carried by the table and located between the disks, each member having an eccentric groove respectively receiving the pins whereby said oscillating members are actuated, an arm pivoted to each oscillating member, a stop carried by each oscillating member and limiting the movement of said members, a soldering-iron carried by each arm, and two levers fulcrumed on the support, the levers respectively engaging the arms to lift the same, and being respectively actuated by the eccentric disks, substantially as described.

24. In a can-soldering machine, the combination with a support, of a revolable table on the support, a fixed table on the support, gearing on the fixed table, means for turning the loose table from said gearing, a lever fulcrumed on the fixed table and periodically actuated by the gearing, and a bolt connected to the lever and serving to periodically lock and release the movable table, substantially as described.

25. In a can-soldering machine, the combination with a support, of a movable table carried by the support, a fixed table carried by the support, means for moving the movable table, such means being carried on the fixed table, a lever fulcrumed to the fixed table, a bolt carried by the lever and serving to lock and release the movable table, a rotary shaft on the movable table, a wheel carried by said shaft, and a pin projecting from the wheel and actuating the lever, substantially as described.

26. In a can-soldering machine, the combination with a support, of a loose table on the support, a fixed table on the support, a rotary shaft on the fixed table, a wheel fixed to the shaft, a sleeve pivoted to the wheel and a hooked rod adjustably held in the sleeve and engaging the movable table to turn the same, substantially as described.

27. In a can-soldering machine, the combination with a support, of a fixed and a movable table, a rotary shaft on the fixed table, and a rod pivotally connected with the shaft and moved back and forth thereby, whereby to impart an intermittent movement to the movable table, substantially as described.

28. A can-soldering machine having a column, a movable table on the column, a fixed table on the column, a mandrel carried by the movable table, means for turning the movable table, and a soldering-iron carried by and operated from the fixed table, substantially as described.

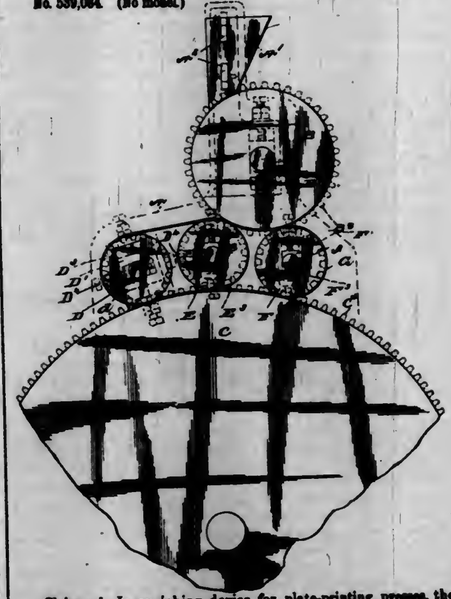
29. A can-soldering machine having a column, a table turning on the column, a mandrel carried by the table, a fixed table carried by the support, and a soldering-iron carried by and actuated from the fixed table, substantially as described.

30. A can-soldering machine having a column, a table turning on the column, a plurality of mandrels moving with said table, a fixed table carried by the column, two soldering-irons held by the fixed table, and means on the fixed table for moving said irons toward and from each other, and radially with reference to the axis to the moving table, substantially as described.

31. A can-soldering machine having a column, a table turning on the column, a table fixed to the column, two cams fixed to the column, a mandrel carried by the turning table, a clamp also carried by the turning table and coacting with the mandrel, the clamp being actuated by one of the cams, a shifting device carried by the table and operated by the remaining cams, a soldering-iron supported by the fixed table, and means for reciprocating said iron radially with reference to the axis of the moving table, substantially as described.

592,664. INKING DEVICE FOR PLATE-PRINTING PRESSES.

JUDAH T. ROBERTSON, New York, N. Y. Filed Feb. 20, 1895. Serial No. 539,084. (No model.)



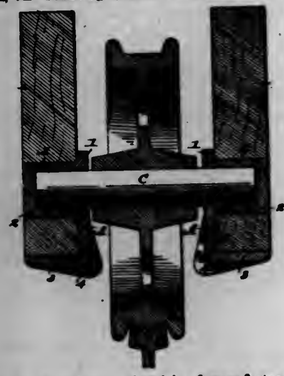
Claim.—1. In an inking device for plate-printing presses, the combination with a plate-carrier, an inking-belt, and means for inking the belt, of a series of pressure-rollers consisting of end rollers and one or more intermediate rollers all engaging said inking-belt and forcing the same against the plates supported by the carrier, substantially as set forth.

2. In an inking device for plate-printing presses, the combination with a fountain or ink-receiving roller, and a plate-carrier, of a series of pressure-rollers consisting of end rollers and one or more intermediate rollers all bearing against the plates supported by the carrier, and an endless inking-belt carried by said pressure-rollers and interposed between the same and the plate-carrier and receiving ink from the fountain-roller and transferring it to the plates, substantially as set forth.

3. In an inking device for plate-printing presses, the combination with a fountain or ink-receiving roller, and a plate-carrier, of a series of pressure-rollers consisting of end rollers and one or more intermediate rollers all bearing against the plates supported by the carrier, means for adjusting said pressure-rollers to or from the plate-carrier and the end rollers thereof to or from each other, and an endless inking-belt carried by said pressure-rollers and interposed between the same and the plate-carrier and fountain-roller and re-

ceiving ink from said fountain-roller and transferring it to the plates, substantially as set forth.

592,665. JOURNAL-BEARING FOR TRUCKS. JOHN R. ROGERS, Dendron, Va. Filed Aug. 4, 1897. Serial No. 647,136. (No model.)

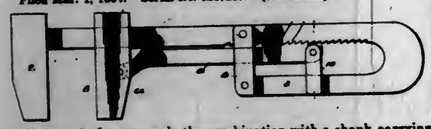


Claim.—1. As an improved article of manufacture, the detachable journal-bearing for trucks, which comprises a vertical face-plate, the lateral, tubular journal-socket, or box, 2, and the lip or flange 3, arranged beneath and parallel to said box, as shown and described.

2. The improved journal-bearing for trucks, which consists of the body, or face-plate, the cylindrical box projecting laterally from such body and having its outer end closed, and the broad base lip or flange, projecting laterally from the lower edge of said plate, parallel to the box, all constructed integrally of cast metal, as shown and described.

3. The combination with the opposite truck side beams, having transverse bores, and the wheel and axle as shown, of the journal-bearings having lateral boxes which fit in said bores and closed outer ends, and the broad horizontal flanges, which embrace or press against the under side of the beams, as shown and described.

592,666. MONKEY-WRENCH. ERBY B. SANKEY, Salem, Mo. Filed Mar. 1, 1897. Serial No. 625,440. (No model.)



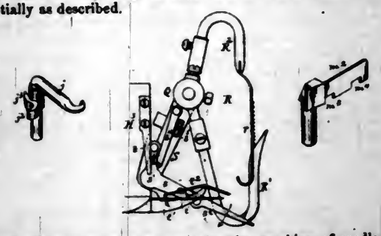
Claim.—1. In a wrench, the combination with a shank carrying a rigid jaw provided with rack-teeth and having a member parallel with the lower end thereof, opposite the teeth; together with a movable jaw in sliding engagement with the upper part of the shank, a lever or shank extending from said movable jaw and having teeth which engage the rack-teeth of the shank, and a dog or lock embracing the aforesaid member and engaging the lever or shank of the movable jaw, substantially as shown and for the purpose set forth.

2. In a wrench, the combination with the shank of the rigid jaw having rack-teeth, the lower end of said shank being turned up to present a member parallel therewith, straps or plates connecting the free end of the member with the body portion of the shank; together with the movable jaw in sliding engagement with the upper part of the shank and provided with a recess in its under side, a lever pivoted at its upper end within said recess and extending into the looped portion of the shank between the straps, teeth formed on the lower end of said lever to engage the teeth of the shank, and a swinging dog pivoted to the lever and having a cross-bar which presses against the member of the shank opposite the teeth thereon, substantially as shown and for the purpose set forth.

592,667. MACHINE FOR DRAWING IN WARP-THREADS. LEWIS P. SHERMAN, Biddeford, Me., assignor to George Moore, Berwick, Me. Filed Dec. 9, 1895. Serial No. 571,573. (No model.)

Claim.—1. The combination in a warp-drawing machine, of a needle for drawing the warp, heddle selecting mechanism, warp-thread-selecting mechanism, heddle-supports, a frame for the warp-threads consisting of the upper bar, comb thereon, and a roll around which the warp-threads pass, said roll being driven so as to keep the threads taut, substantially as described.

2. The combination in a warp-drawing machine, of a needle for drawing the warp, heddle-selecting mechanism, warp-thread-selecting mechanism, heddle-supports, a frame for the warp-threads consisting of the upper comb-bar and a roll around which the warp-threads pass, said roll being driven so as to keep the threads taut, with means for adjusting the upper bar in respect to the roll, substantially as described.



3. The combination in a warp-drawing machine, of needle mechanism, heddle-supports, thread and heddle-eye selecting mechanism, standards, studs on said standards, a frame B hung from said studs and supporting the warp-threads and mechanism for laterally moving the frame, substantially as described.

4. The combination in a warp drawing machine, needle mechanism, heddle-eye-selecting mechanism, heddle-supports, thread-selecting mechanism, a comb for separating the threads and means for holding the loose ends of the threads, substantially as described.

5. The combination in a warp-drawing machine, needle mechanism, heddle-eye selecting mechanism, heddle-supports, thread-selecting mechanism, a comb-bar for separating the warp-threads to be selected, the teeth of said bar being adjustable so that the spaces between the teeth can be increased or diminished, substantially as described.

6. The combination in a warp-drawing machine, needle mechanism, heddle-eye-selecting mechanism, heddle-supports, thread-selecting mechanism, a comb-bar, independent teeth forming the comb, a coiled spring within the bar, the teeth being adapted to the coils of the spring, said spring being secured to the bar at one end and to a slide at the opposite end and means for securing the slide in the adjusted position, substantially as described.

7. The combination in a warp-drawing machine, of the needle mechanism, heddle-eye-selecting mechanism, heddle-supports, thread-selecting mechanism, standards at the rear of the machine, pivots on said standard, a bar B hung from said pivots, clamps carried by the lower portion of the frame adapted to clamp the loose ends of the warp-threads to be selected, a comb-bar on the upper bars of the frame and means for adjusting the comb-bar in respect to the clamps, substantially as described.

8. The combination of the needle mechanism, heddle-eye-selecting mechanism, heddle-supports, thread-selecting mechanism, standards at the rear of the machine, bars suspended from said standards, a clamp for the loose ends of the warp-threads mounted on said bars, sliding bearings adapted to the bars, a cross-bar mounted on said bearings over which the warps pass, a shaft mounted on the sliding bearings, chain-wheels on said shaft, chains connected to the wheels and to the suspended bars and means for locking the bearings in the adjusted position, substantially as described.

9. The combination of needle mechanism, heddle-eye-selecting mechanism, heddle-supports, thread-selecting mechanism, the upper bar over which the warp-threads pass, a driven friction-roll and a pressing-roll adapted to confine the threads to the driven friction-roll and slotted bearings for said presser-roll, substantially as described.

10. The combination of needle mechanism, heddle-eye-selecting mechanism, heddle-supports, thread-selecting mechanism, the upper bar over which the warp-threads pass, a driven friction-roll and a pressing-roll geared to the driven friction-roll adapted to confine the threads to the driven friction-roll and slotted bearings for said presser-roll, substantially as described.

11. The combination of needle mechanism, heddle-eye-selecting mechanism, thread-selecting mechanism, an upper cross-bar b, a toothed cross-bar b^7 on said bar b, a roll B', a presser-roll B^3, mechanism for driving the said roll B' so that the thread is kept taut between the bar b^7 and the roll, substantially as described.

12. The combination in a warp-drawing machine, of needle mechanism, warp-frame, standards, upper and lower bars between which the heddle is stretched, arms depending from each side of the upper bar, teeth on said arms, with pawls on the lower bar engaging with said teeth, substantially as described.

13. The combination of needle mechanism, frames for holding the warps, heddle eye selecting mechanism and warp-selecting mechanism, standards on each side of the machine, upper and lower cross-bars in said standards, hooks on the upper cross-bars to receive the upper bar of the heddle and hooks on the lower bar to engage the lower bar of the heddle and toothed arms on one cross-bar and pawls on the other cross bar engaging the teeth of the arms, substantially as described.

14. The combination in a warp-drawing machine, of needle mechanism, warp supports, heddle-supports, heddle-eye-selecting mechanism and warp-thread-selecting mechanism, a cord or bar running through the heddle and means for reciprocating said cord or bar during the operation of the machine so as to separate the cords of the heddle, substantially as described.

15. The combination of needle mechanism, heddle-supports, warp-frame, heddle-eye-selecting mechanism, warp-thread-selecting mechanism, two cords or bars extending from one side to the other through the heddle, one cord or bar being above the eyes and the other cord or bar being below the eyes, a head connecting the two bars together, a lever connected to said head said lever having an arm, a shaft, a cam on said shaft engaging with said arm so as to reciprocate the cords or bars, substantially as described.

16. The combination in needle mechanism, heddle-supports, warp-frame, heddle-eye-selecting mechanism, warp-thread-selecting mechanism, with cords or bars extending through the heddles attached to one of the side frames of the machine through the medium of a spring and attached at the other end to the lever, and means for operating said lever so as to move the cords or bars within the heddles, substantially as described.

17. The combination in a warp-drawing machine, of the bed, the main shaft therein, the shaft D^3 extending toward the rear of the machine, heddle-supports, cords or bars E' extending through the heddles, levers E^2 pivoted to the standards and connected to the cords or bars, with cams on the shaft D^3 with which the levers E^2 engage so that as the shaft revolves reciprocating motion will be imparted to the bars, substantially as described.

18. The combination in a warp-drawing machine, of the bed, a carriage on which the needle mechanism, thread-selecting and heddle-eye-selecting mechanism are mounted; a driving-shaft D, a pulley shaft D' geared to the driving-shaft, a loose pulley on said shaft D', a friction clutch adapted to lock the pulley to the shaft, a lever on said friction-clutch, a shaft D^4 mounted on the bed, a handle adapted to travel with the carriage and slide upon the said shaft, an arm on said shaft connected to the arm of the friction-clutch so that the operator can throw the clutch into and out of engagement and thus start and stop the machine, substantially as described.

19. The combination in a warp-drawing machine, of selecting-hooks for the heddle-eyes mounted on each side of the heddle, and acting alternately, clamp-plates N N, for holding the eyes rigid in the direction of the travel of the needle, stop-arm l for limiting the movement of the selecting-eye, and a clamp-plate n^3 having openings m^3 and m^4, a pin h^2 on the head, a spring acting on said clamp-plate and a lever upon which the clamp-plate is mounted, with mechanism for operating the said parts, the whole combined and operated substantially as described.

20. The combination in a warp-drawing machine, of selecting-hooks for the heddles, and clamps for locking the heddle-eye in position, a post for supporting the heddle-selecting mechanism, a shaft passing through the post and having an arm on its lower end, a cam acting upon said arm, said shaft having an arm at its upper end above the selecting mechanism, a plate on the arm adapted to act in conjunction with the selecting-hooks to separate the selected eye from the mass, substantially as described.

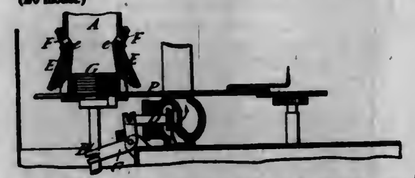
21. The combination in a warp-drawing machine, of the needle mechanism, heddle-supports, heddle-eye-selecting mechanism, a frame for holding the warp-threads, a vertical shaft S', an arm S secured to the upper end of said shaft, means for turning the shaft, a selecting-hook pivoted to the arm S, and an arm s^4 also pivoted to the arm S and resting against the selecting-hook, a weighted lever hung to the arm S and pressing against the arm s^4 so that sufficient pressure is given to the selecting-hook to engage with a single thread, substantially as described.

22. The combination in a warp-drawing machine, of the hooked needle, the warp-thread supports, the two arms R' and R^2, the arm R' being flared at its outer end and acting as an abutment for the thread to be selected, the arm R' having a spring-section against which the threads rest, a pivoted arm, means for reciprocating the arm, a selecting-hook pivoted to said arm, a weighted lever acting to force the hook against the thread to be selected, a stop to move the hook with the thread into the path of the hooked needle, substantially as described.

23. The combination in a warp-drawing machine, of the frame for the warp-threads, the carriage, the thread-selecting mechanism, the heddle-selecting mechanism and the needle mechanism, a pressure-roller pivoted to the carriage, cams acting on said pressure-roller so that the roller will rest against the warp-threads during the drawing of the threads by the needle mechanism, substantially as described.

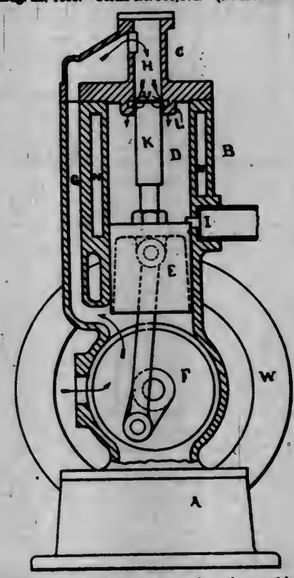
24. The combination in a warp-drawing machine, of the needle mechanism, the heddle-selecting mechanism, warp-thread selectors of the upper support for the warp-threads, with two driven friction-rollers adapted to engage the loose ends of the warp-threads and hold the said threads taut, with a pressure-roller adapted to travel with the selecting mechanism and rest against one of the said friction-rollers while the needle mechanism is drawing the thread, substantially as described.

592,668. COIN-FREED-METER APPARATUS. JOHN F. SIMMANCE, London, England, assignor to the Wright's Gas Meter Syndicate, Limited, same place. Filed Dec. 7, 1896. Serial No. 614,817. (No model.)



Claim.—For retaining the valve open while any coin remains in the coin-tube, a pair of stepped pawls pivoted within the tube on spring-urged links, substantially as described.

592,669. GAS-ENGINE. CLARK SIPES, Grand Rapids, Mich. Filed Aug. 22, 1895. Serial No. 560,181. (No model.)



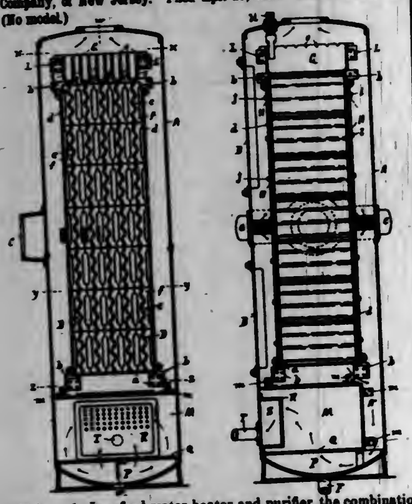
Claim.—1. In an explosive gas-engine, the combination of a cylinder having a crank-chamber provided with a valved inlet for explosive material, a firing-chamber having an inlet-port and an exhaust-port, a supplementary inlet-chamber adapted to communicate with the firing-chamber through said inlet-port, a passage leading from the crank-chamber to the inlet-chamber, a power-piston moving in the firing-chamber and adapted to directly control the exhaust-port, and a piston-valve carried by the said piston and adapted to control the inlet-port connecting the inlet-chamber and firing-chamber, substantially as described.

2. In an electric-spark-producing device for the explosion of the gas in gas-engines, the combination with the eccentric and eccentric-rod of a lever operated by said eccentric-rod, a pivoted arm carried by the said lever, a spring connecting the said pivoted arm to said lever, a rock-shaft, an arm rigid with the said rock-shaft at one end, a crank-arm on the said rock-shaft on the other arm adapted to come in contact with the spark-producing rod, a lever mounted on said rock-shaft adapted to engage with the pivoted arm on the lever attached to the eccentric-rod, a spring adapted to hold the tangent arm of the rock-shaft in contact with the sparking-point, and a spring upon

the lever which is supported by the said rock-shaft, adapted when said lever is released to quickly remove the tangent point between the arm and the spark-producing point, thereby producing a spark and exploding the gas within the engine, substantially as described.

3. In an electric-sparking device for gas-engines, the combination with the eccentric and eccentric-rod, a lever operated by said rod, an arm pivoted to said lever, and a spring for said arm, of a shaft provided with rigidly-attached arms on its opposite ends, a contact-rod with which one of said arms is adapted to make and break contact, a spring connected to the other arm of said shaft, and a lever loosely mounted on said shaft and having one end provided with a spring and its other end adapted to be acted on by the arm pivoted to the eccentric-operated lever, substantially as described.

592,670. FEED-WATER HEATER AND PURIFIER. EDWIN R. STILWELL, Dayton, Ohio, assignor to the Stilwell-Bierce & Smith-Vaile Company, of New Jersey. Filed Apr. 23, 1897. Serial No. 633,479. (No model.)



Claim.—1. In a feed-water heater and purifier, the combination with a casing having a steam-inlet, of a series of vertical partitions having irregular faces arranged in said casing, each partition comprising a plurality of sectional plates provided with bases adapted to be supported one upon the other, a series of overflow-boxes, one for each partition, each box being arranged directly above its respective partition and operating to supply water to both sides of the latter, a water-inlet for supplying water to said boxes, and a water-outlet leading from the bottom of the casing, substantially as described.

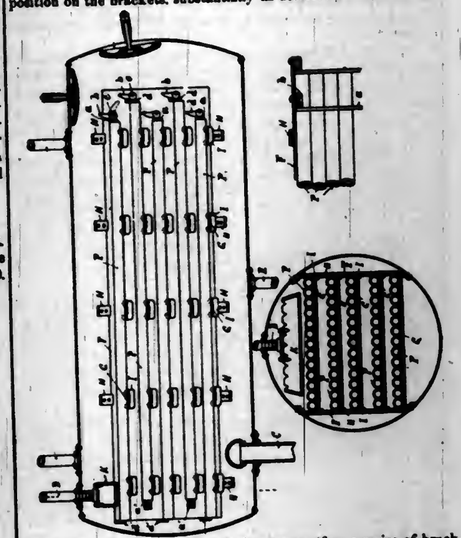
2. In a feed-water heater and purifier, the combination with a casing having a steam-inlet, of a vertical partition formed of sections D arranged in said casing, the lower section resting on a support in the lower portion of the casing and the succeeding sections resting one upon the other, attaching devices for detachably connecting said sections in position, means for supplying water in sheets or films to the opposite sides of the partition, and a water-outlet arranged in the lower end of the casing, substantially as specified.

3. In a feed-water heater and purifier, the combination with a casing having a steam-inlet and water-outlet, of substantially vertical partitions formed of sections D each section being provided with end flanges *f*, and said sections resting one upon another, means for detachably connecting the sections in position, an overflow-box for supplying sheets or films of water to the opposite sides of the partition, and a water-inlet for supplying water to said box, substantially as described.

592,671. FEED-WATER PURIFIER. EDWIN R. STILWELL, Dayton, Ohio, assignor to the Stilwell-Bierce & Smith-Vaile Company, of New Jersey. Filed Apr. 23, 1897. Serial No. 633,480. (No model.)

Claim.—1. A feed-water-purifier shelf, consisting of a plurality of cylindrical sections supported longitudinally side by side and in intimate contact with each other throughout their length, substantially as described.

2. In a feed-water purifier, vertically-arranged brackets secured to the inside of the purifier, shelves supported by said brackets and each consisting of a plurality of cylindrical sections arranged longitudinally side by side and in intimate contact with each other throughout their length, and means for detachably clamping said sections in position on the brackets, substantially as described.



3. In combination with a feed-water purifier, a series of brackets secured to the inside of the purifier, shelves composed of pipe-sections laid upon said brackets, and clamp-lever engaging with a slat extending laterally across said purifier and abutting the ends of the pipe-sections, whereby the said pipe-sections may be clamped in position by said lever, substantially as specified

592,672. DISCHARGER FOR PNEUMATIC STRAW-STACKERS. GEORGE C. TOWER and JOHN W. MCCOLLUM, West Indianapolis, Ind., assignors to The Indiana Manufacturing Company, Indianapolis, Ind. Filed Mar. 1, 1897. Serial No. 625,537. (No model.)



Claim.—1. The combination, in a discharger for pneumatic straw-stackers, of the fan-casing the eye whereof is to one side of the center, and a fan the axis whereof is to one side of the center of the fan-eye and arranged nearest the inner side of the mouth or discharge-opening where the peripheral wall of the fan-casing unites with the discharge-spout so that there is a continuously-increasing space between the ends of the fan-blades from next the discharge-opening of the fan-casing around to the opposite side of said opening, whereby the fan is continuously enabled to free itself during its revolution, substantially as shown and described.

2. The combination, in a discharger for pneumatic straw stackers, of the fan-casing having an inwardly-projecting flange surrounding the fan-eye, and the fan, substantially as set forth.

3. The combination, in a discharger for pneumatic straw-stackers, of a fan-casing having an eye-opening in one side thereof, a flange extending inwardly from said eye-opening, and a fan revolving below said eye-opening the ends of the fan-blades extending up somewhat behind said flange to a point above the lower edge thereof.

4. The combination, in a discharger for pneumatic straw-stackers, of a fan casing having its eye to one side of the center, a fan the axis whereof is to one side of the center of the fan-eye, and a flange surrounding said fan-eye and extending down within the casing toward the fan-blades, substantially as shown and described.

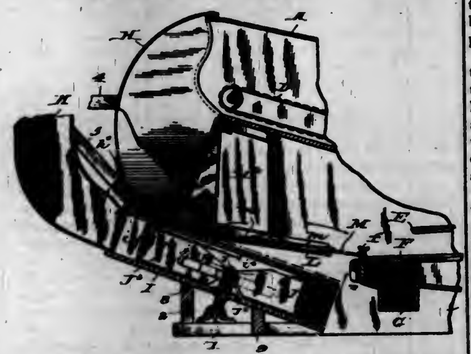
5. In a discharger for pneumatic straw-stackers, a fan-casing the eye-opening whereof is to one side of the center and which has an inwardly-projecting flange surrounding the same, said flange being flared and largest at its extreme lower end, substantially as shown and described.

6. The combination, in a discharger for pneumatic straw-stackers, of a fan-casing having an eye or ingress opening in one side with an inwardly-projecting flange surrounding said eye, and a fan located within the fan-casing and having the central portion of its blades cut away, the outer portions or ends of the fan-blades extending up behind said flange, substantially as shown and described.

7. A discharger for pneumatic straw-stackers, the fan-casing whereof has its eye to one side of its center, with a flange surrounding and extending inwardly from said fan-eye, and a rib leading from said flange to the beginning of the discharge-opening of the fan-casing, substantially as shown and described.

8. The combination, of a fan-casing having an eye on one side only and located to one side of the center thereof, a fan mounted in said casing with its axis to one side of the center of the fan-casing but less distant therefrom than the center of the fan-eye, whereby the ingress-opening is to one side of the fan-shaft while the space between the fan-blades and the periphery of the fan-casing is a continuously-increasing one from next the discharging-opening around to the opposite side of said discharging-opening in the direction of the rotation of the fan.

592,673. PNEUMATIC STRAW-STACKER. GEORGE C. TOWER and JOHN W. MCCOLLUM, West Indianapolis, Ind., assignors to The Indiana Manufacturing Company, Indianapolis, Ind. Filed Mar. 1, 1897. Serial No. 625,538. (No model.)



Claim.—1. The combination of a threshing-machine, a hopper-like chute attached to the rear end thereof, a fan or discharger casing wherein the ingress-opening is in one side and next the peripheral wall thereof into which said hopper-like chute is arranged to discharge, a fan within said casing, and a discharge-pipe leading from the periphery of said casing and positioned to one side of the ingress-opening in the side thereof, substantially as shown and described.

2. The combination, in a pneumatic straw-stacker, of a fan or discharger casing wherein the discharge-chute is located wholly to one side of the center and beyond a line passing through the fan-shaft parallel therewith, and said discharge-chute extending out substantially tangentially to the peripheral wall of said casing and having its inner side on a substantially radial line from said fan-shaft for a short distance and thence substantially parallel with the outer side thereof, substantially as shown and described.

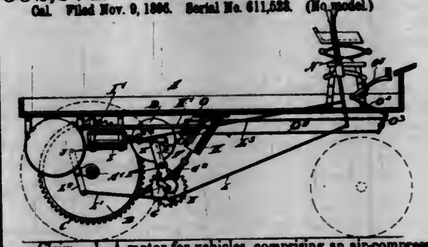
3. The combination, in a pneumatic straw-stacker, with a discharge-pipe, and a fan, of a fan-casing having its ingress-opening in one side thereof next the peripheral wall, and provided with an interior wall or plate (as i^3) leading from the point of juncture of the discharge-pipe inwardly toward the fan-shaft to a point close to the path of the ends of the fan-blades, substantially as shown and described.

4. The combination, in a pneumatic straw-stacker, of a fan casing having its ingress-opening in one side and next the peripheral wall, a tangential discharge-opening, a radially-arranged wall or plate extending from the beginning of said discharge-opening toward the fan-shaft, and a rib on the under side of the top of the fan-casing extending back from the termination of said rib to a point substantially opposite the fan-shaft, substantially as shown and described.

5. In a fan or discharger for pneumatic straw-stackers, a fan-casing having the ingress-opening in one side thereof next the periphery through which the straw enters and through which the supply of air normally enters, and provided also with a second opening having a cover i^3, whereby a supplemental supply of air is provided for when necessary, substantially as set forth.

6. The combination of a separator, a pneumatic straw-stacker, a hopper-like chute leading from the straw-discharging point of said separator to the ingress-opening of the discharger of the pneumatic stacker, a floor L positioned to receive the chaff and finer waste particles, and a structure composed of the plate M and fingers *m* carried by the frame of the shaking-screen structure, said several parts being arranged and operating substantially as shown and described.

592,674. MOTOR FOR VEHICLES. JAMES M. TROTTER, Alma, Cal. Filed Nov. 9, 1896. Serial No. 611,523. (No model.)



Claim.—1. A motor for vehicles, comprising an air-compressor, a reservoir for the compressed air, an air-motor connected with the said reservoir, swinging wheels adapted to be alternately thrown into engagement with wheels on the axle of the vehicle, a connection between one of the swinging wheels and reservoir, and a connection between the other wheel and the motor, substantially as and for the purpose set forth.

2. A vehicle-motor, comprising gear-wheels and friction-disks on the axle of the vehicle, gear-pinions and friction-disks adapted to be thrown in engagement with the said friction-disks and gear-wheels, levers carrying the shafts for the said friction-disks and gear-pinions, an air-compressor actuated from the friction-disks, a reservoir adapted to receive the compressed air from the compressor, and an air-motor connected with the shaft of the gear-pinions, substantially as shown and described.

3. A vehicle-motor, comprising gear-wheels and friction-disks on the axle of the vehicle, gear-pinions and friction-disks adapted to be thrown in engagement with the said friction-disks and gear-wheels, levers carrying the shafts for the said friction-disks and gear pinions, an air-compressor actuated from the friction-disks, a reservoir adapted to receive the compressed air from the compressor, an air-motor connected with the shaft of the gear-pinions, and means, substantially as described, for controlling the said levers, as set forth.

4. The combination with a vehicle provided with friction-disks and gear-wheels on its axle, of levers fulcrumed at about the center of their length, crank-shafts mounted in opposite ends of the levers, friction-disks on one of the shafts, pinions on the other shaft, an air compressor having its piston connected with the crank of the shaft carrying the friction-disks, a reservoir adapted to receive air from the compressor, and an air-motor connected with the crank of the shaft carrying the pinion and connected with the reservoir, substantially as described.

5. The combination with a vehicle having friction-disks and gear-wheels on its axle, of swinging friction-disks and pinions adapted to be alternately thrown into engagement with the disks and gear-wheels on the axle, an air-compressor having its piston connected with the swinging friction-disk to be operated thereby, a reservoir with which the compressor is connected, a motor having its piston connected with the swinging pinion, a pipe connecting the motor with the reservoir, and a valve in said pipe and under the control of the operator, substantially as described.

6. The combination with a vehicle having friction-disks and gear-wheels on its axle, of centrally-pivoted levers, crank-shafts mounted in the ends of the levers, disks on one shaft, pinions on the other shaft, a reservoir, a compressor connected with the reservoir and having its piston connected with the shaft of the disks, a motor connected with the reservoir and having its piston connected with the shaft of the pinions, the brake-lever, a link connecting one end of the lever with the said swinging lever, an operating-lever, and a link connecting the other end of the brake-lever with the operating-lever, substantially as described.

7. A motor for vehicles, comprising gear-wheels and friction-disks on the axle of the vehicle, pivoted levers, friction-wheels carried at one end of the levers, pinions at the other end of the said levers, a reservoir, an air-compressor connected with the shaft of the friction-wheels, an air-motor connected with the shaft of the pinions, a connection between the motor and reservoir, a valve in said connection, means for operating the valve, and means for swinging the levers carrying the friction-wheels and pinions, substantially as herein shown and described.

592,675. FILTER. GEORGE H. WARD, Brooklyn, N. Y. Filed May 4, 1897. Serial No. 635,074. (No model.)



Claim.—1. A feed-water filter consisting of a cylindrical body divided vertically by radial partitions one of which is complete and extends from top to bottom of the body, while the others form a series of chambers communicating with one another in succession alternately at top and bottom, an inlet and an outlet at opposite sides of said complete partition, a tray in each the inlet and the outlet chambers located above the inlet and outlet openings, and a filtering medium sustained by said trays.

2. A feed-water filter having a body portion divided into a series of chambers, substantially as described, a filtering medium in said chambers above which are left spaces for the separation of oil from the water, and a series of blow-offs leading from said spaces to a common waste-pipe for the purpose set forth.

3. In a feed-water filter, a series of successively-communicating chambers containing a filtering medium, and a series of zinc plates placed at the entrance of the first of said series of chambers, for the purpose set forth.

4. In a feed-water filter placed in the feed-water line next to the boiler, a compartment at the inlet to said filter, and zinc placed in said compartment for the purpose set forth.

5. The feed-water filter substantially as described, consisting of the body portion divided into the series of communicating chambers for the reception of a filtering medium, suitable cleaning-ports opening into said chambers, the blow-off pipes for oil collected in said chambers, a live-steam pipe connected to the blow-off pipes, waste-pipes at the bottom of the chambers, and means for cutting the filter out of the feed-water line while being cleaned.

6. In a feed-water filter, a series of chambers arranged in a group so that the first and last chambers of the series are side by side, valved inlet and outlet pipes placed side by side and communicating with said chambers, and a valved by-pass connecting said pipes, as and for the purpose set forth.

592,676. JAR-TOP. HARRY WEAVER, York Haven, Pa., assignor of one-half to Warren D. Cassel, Goldsborough, Pa. Filed June 23, 1897. Serial No. 641,947. (No model.)

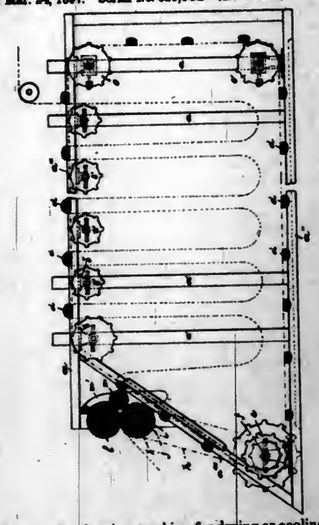


Claim.—1. The combination of the cap adapted to be applied to the neck or upper end of a jar or can and provided with a laterally-extending lip or flange to constitute a seat for the cover and a lip for the ends of a clamp to engage with, a cover adapted to rest upon the seat of the cap, a clamp adapted to engage the under side of the flange of the cap, and means for holding the clamp to said flange and the cover to its seat, substantially as and for the purposes described.

2. The combination of the screw-cap adapted to be applied to the neck of a jar or can and provided with a laterally-extending flange at its upper end, a cover provided with a lining of zinc and adapted to rest upon said flange of the cap, a clamp adapted to engage the under side of the flange to the cap, and a screw connecting the clamp and cover to hold the parts in place, substantially as and for the purposes described.

3. The combination of a screw-cap provided with a laterally-extending flange at its upper end having an inclined or beveled lower face, a cover adapted to rest upon said flange of the cap, a clamp having hook ends to engage the under beveled surface of the flange to the cap, and a screw connecting the clamp and cover, substantially as and for the purposes described.

592,677. LOOPING-MACHINE FOR WEB-DRIERS. LOUIS WIENER, Elizabeth, N. J., assignor, by direct and mesne assignments, of two-thirds to George W. Williamson and Thomas J. Fee, same place. Filed Mar. 24, 1897. Serial No. 629,044. (No model.)



Claim.—1. In a looping-machine for drying or cooling paper, oil-cloth &c., the combination with an endless chain or equivalent carrying medium having fixed transverse slats, of a retardation-roll to engage said slats and form new loops, substantially as set forth.

2. The combination in a looping-machine, of a slatted chain and feed-rolls arranged near the path of said chain and a retardation-roll adapted to be engaged by the slats covered by the paper to serve in starting new loops, and operating means, all arranged and operating, substantially as set forth.

3. The combination in a looping-machine, with a frame having an inclined forward brace to guide, the slatted chain, sprocket-wheels and feed-rolls, of a retardation-roll, arranged adjacent to said feed-roll and slatted chain, substantially as set forth.

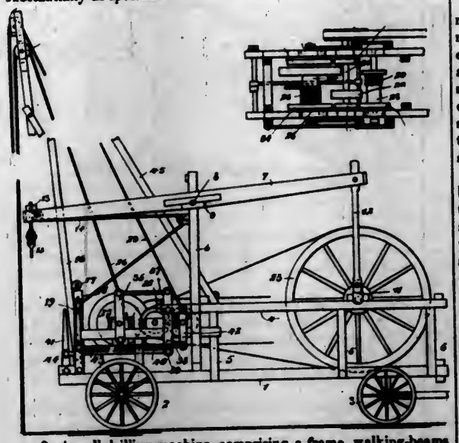
4. The improved machine for drying paper, &c., comprising a frame embracing a sill, uprights, and horizontal beams, a horizontal series of sprocket-wheels arranged on hangers attached to said beams, feed-rolls *k*, *l*, a roll adapted to engage with the slats to start the loops, an endless chain carrying a series of uniformly-separated slats and means for operating said parts, substantially as set forth.

5. The improved machine for drying paper, &c., comprising a frame having at its forward end an inclined guide or way for the slats, said frame having at its upper part a series of sprocket-wheels to support the endless chain, an endless chain arranged on said sprocket-wheels, means for operating said chain, feed-rolls and a gravity retardation-roll adapted to be engaged by the upwardly-moving slats substantially as set forth.

592,678. WELL-DRILLING MACHINE. FRANCIS R. YEARIAN, Rinard, Ill. Filed Feb. 24, 1897. Serial No. 624,764. (No model.)

Claim.—1. A well-drilling machine, comprising a frame mounted on wheels, two walking-beams fulcramed to uprights extending from said frame, a head-block connecting the ends of the walking-beams and having a series of openings for a rope, a crank-shaft having bearings in the frame, connecting-rods between the walking-beams and the cranks on said crank-shaft, a band-wheel on said crank-shaft, a driving-shaft having a band-wheel, a band connection between said band-wheel on said driving-shaft and the band-wheel on the crank-shaft, a derrick mounted on the frame, a drum having sliding bearings, a friction-wheel on the shaft of said drum adapted for engagement with a friction-wheel on the driving-shaft, and pivoted levers engaging with the shaft of the drum for moving said drum to cause an engagement between the friction-wheels, substantially as specified.

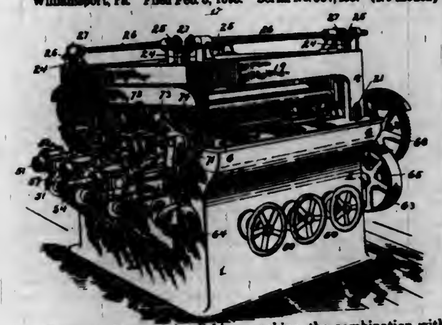
2. A well-drilling machine, comprising a frame, walking-beams fulcramed to uprights on said frame, a head-block connecting the ends of the walking-beams and having a series of openings for a rope, a crank-shaft, connecting-rods between the cranks of said crank-shaft and the walking-beams, a band-wheel on the crank-shaft, a driving-shaft having a band-wheel for operating the crank-shaft, drums mounted in sliding bearings at opposite sides of the driving-shaft, friction-gearing between the shafts of said drums and the driving-shaft, levers and rods operating in unison for moving the drums toward and from the driving-shaft, a derrick supported on the frame, and pulleys mounted in said derrick, over which ropes from the drums extend, substantially as specified.



3. A well-drilling machine, comprising a frame, walking-beams supported thereon, mechanism substantially as shown and described, for operating the walking-beams, a head-block supported on the said walking-beams and provided with a series of openings, a rope extended through said openings, and a tackle-block supported in the loop of said rope at the center of the head-block, substantially as specified.

4. A well-drilling machine, comprising a frame having uprights, walking-beams each consisting of two strips of material connected at their ends, removable pins supported by the uprights and on which the walking-beams are fulcrumed, driving mechanism, substantially such as described, for the walking-beams, a head-block connecting the ends of the walking-beams and provided with a series of openings, a rope rove through the openings, a block supported in the loop of the rope, and a derrick having its side members hinged to a transverse bar supported on posts extended upward from the frame, substantially as specified.

592,679. WOOD-POLISHING MACHINE. OLIVER H. YOUNG, Williamsport, Pa. Filed Feb. 5, 1896. Serial No. 537,403. (No model.)



Claim.—1. In a wood-polishing machine, the combination with a base 1, carrying polishing-rolls of upper feed-rolls mounted in a frame which is movable laterally with respect to said polishing-rolls, and tracks normally out of engagement with said upper feed rolls, but movable into such engagement, substantially as and for the purpose described.

2. In a wood-polishing machine, the combination with a base 1, carrying polishing-rolls of a frame 17, carrying upper feed-rolls, tracks mounted on said base, and mechanism for simultaneously moving said tracks toward or away from said upper feed-rolls, substantially as and for the purpose described.

3. In a wood-polishing machine, the combination of a base, sand-rolls mounted in said base in journals 31, standards 32 for said journals inclined at their lower ends, a shaft 38 screw-threaded at both ends and engaging with a wedge 37, supporting one of said standards and a screw-threaded sleeve engaging with the other end of said shaft and mounted within a wedge 35 for supporting the other of said standards, and a set-screw 44 extending through said wedge 35, and engaging with said sleeve 41, substantially as described.

4. In a wood-polishing machine, the combination of a base, sand-rolls mounted in said base in journals 31, standards 32 for said journals inclined at their lower ends, a shaft 38 screw-threaded at both ends and engaging with a wedge 37 supporting one of said standards and a screw-threaded sleeve engaging with the other end of said shaft and mounted within an inclined wedge 35 supporting the other of said standards, and a set-screw 44 engaging with one end of said sleeve 41, a collar at one end of said sleeve and a set-screw passing through said collar and said sleeve and engaging with the shaft, substantially as described.

5. An improved sand-roll for wood-polishing machines, having a longitudinal slot or opening in its periphery, and provided adjacent thereto at one side with a fastening device for one end of the paper, and at the other side with a fastening device for the other end of the paper, the two fastening devices being constructed and arranged to approach each other to take up slack in the paper substantially as described.

6. An improved sand-roll for wood-polishing machines having a longitudinal slot or opening in one side, a fastening device on one side of said slot or opening and a take-up movable toward and from said fastening device and provided with a fastening device for the opposite end or edge of the paper, substantially as described.

7. In an improved sand-roll for wood-polishing machines, the combination of the semicylindrical sections 77 and 78, carried on a shaft 83 and capable of moving thereon with respect to each other, and a gripping-jaw 85 on each section, substantially as described.

8. In an improved sand-roll for polishing-machines, the combination of the semicylindrical sections 77 and 78 mounted on a shaft 83, a gripping-jaw 85 on each section and mechanism for moving said sections 77 and 78 with respect to each other, substantially as described.

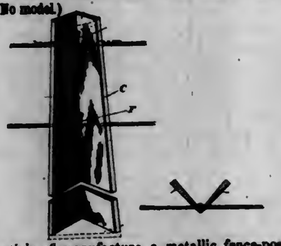
9. In an improved sand-roll for wood-polishing machines, the combination of the semicylindrical sections 77 and 78, webs 81 and 84 supporting said sections, hubs 82 and 98 connected with the said webs 81 and 84 respectively and a gripping-jaw on each section, substantially as described.

10. In an improved sand-roll for wood-polishing machines, the combination of the semicylindrical sections 77 and 78, a gripping-jaw 85 for each section, a lever 88 carrying each of said gripping-jaws and a cam 94 between said levers, substantially as described.

11. In an improved sand-roll for wood-polishing machines, the combination of the semicylindrical sections 77 and 78, the gripping-jaws 85, 85 the levers 88, 88 the spring 90, for normally keeping said gripping-jaws closed and a cam 94 for opening said gripping-jaws successively, substantially as described.

12. In an improved sand-roll for wood-polishing machines, the combination of the semicylindrical sections 77 and 78, the gripping-jaws 85, 85 the levers 88, 88 carrying said gripping-jaws, the spring 90 normally closing said gripping-jaws, the cam 94 for opening said gripping-jaws, successively, the lug 97 on one of said semicylindrical sections and the cam 96 connected with the cam 94 and adapted to engage with the said section 77, whereby the said semicylindrical sections will be moved with respect to each other substantially as described.

592,680. FENCE-POST. ELIJAH L. ALLEN, Girard, Ala., assignor of one-half to James H. Brown, Columbus, Ga. Filed June 11, 1897. Serial No. 640,297. (No model.)



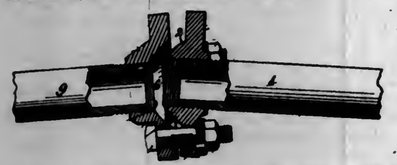
Claim.—1. As an article of manufacture, a metallic fence-post having two sides arranged at an angle to each other; said sides being comparatively thin at the point of union or junction thereof and tapering or gradually increasing in thickness from said point toward their outer edges, so as to provide a thin portion at the apex or junction of said sides; said thin portion being formed or provided with horizontally-arranged V-shaped openings to receive the fence-wires, substantially as described.

2. As an article of manufacture, a metallic fence-post having two sides arranged at an angle to each other; said sides being comparatively thin at the point of union or junction thereof and tapering or gradually increasing in thickness from said point toward their outer edges, so as to provide a thin portion at the apex or junction of said sides; said thin portion being formed or provided with horizontally-arranged V-shaped openings to receive the fence-wires, and with recesses between said openings to receive horizontal bars for the construction of a paling fence, substantially as described.

3. As an article of manufacture, a metallic fence-post composed of galvanized steel having two sides arranged at right angles to each other; said sides being comparatively thin at the point of union thereof and tapering or gradually increasing in thickness from said point toward their outer edges, so as to provide a thin portion of metal at the apex or junction of said sides; said thin portion being formed or provided with a series of horizontally-arranged V-shaped openings to receive the fence-wires, the ends of the posts being formed or provided with a suitable cap and base or bottom plate, substantially as described.

4. A wire fence comprising a series of metallic posts having tapered sides arranged at an angle to each other and comparatively thin at the point of union or junction of said sides and provided at said point with V-shaped notches or openings, in combination with the wires extending from post to post and having crimps or loops therein projected through said openings, and wedges inserted between the wires and the inside of the posts so as to engage said crimps and hold the wires taut, substantially as described.

592,681. PIPE-COUPLING. Frank Barnhart, Warren, Pa.
Filed Jan. 28, 1897. Serial No. 621,097. (No model.)



Claim.— 1. A pipe-coupling, consisting of two disks having bolt-holes, one disk formed integral with a central convex projection having a central screw-threaded opening into which the end of one pipe is screwed, and the other disk formed integral with a corresponding central concavity having a central screw-threaded opening into which the end of the other pipe is screwed, a metallic packing-ring arranged in the concavity and bearing against the convex projection, and clamping-bolts passing through the bolt-holes of said disks at points around the concavity and concave projection, for drawing the parts together and compressing the metallic packing-ring, substantially as and for the purposes described.

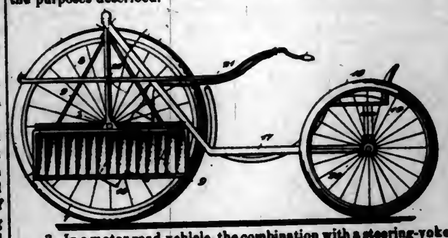
2. In a pipe coupling the combination with two disks one having a convex projection and a section of pipe entering an opening through said projection, and the other having a concave recess of greater diameter than the convex projection and provided with a similar section of pipe, a packing-ring of malleable cast-copper arranged between the concave and convex surfaces, bolts passing through openings in both disks, the openings around the threaded ends being surrounded by concentric concavities, washers having convex faces to seat in said concavities, and nuts turned on the bolts and against said washers, substantially as described.

3. In a pipe-coupling the combination with two sections of pipe of disks on the ends of said pipes, one of said disks having a convex projection and the other disk having a concave recess of greater diameter, a metallic packing-ring interposed between the concave and convex surfaces bolts inserted through openings in said disks, their angular heads lying close to flat faces in a projection on one disk to prevent turning, washers having convex faces seated in concentric concavities surrounding the openings that receive the threaded ends of the bolts, and nuts turned on the latter, substantially as described.

592,682. MOTOR-VEHICLE. Charles H. Barrows, New York, N. Y. Filed Mar. 10, 1897. Serial No. 626,789. (No model.)

Claim.— 1. In a motor road-vehicle, the combination with a yoke, of an axle mounted therein, a traction-wheel, and a motor supported directly on said axle and operatively connected by direct positive gearing to said traction-wheel, independently of the tire thereon, for the purposes described, substantially as set forth.

2. In a motor road-vehicle, the combination with a steering-yoke and means for controlling the same, of an axle mounted in said yoke, a traction wheel, and a motor carried directly on said axle and having its motor-shaft connected by direct positive gearing to the traction-wheel independently of the tire thereon, substantially as and for the purposes described.



3. In a motor road-vehicle, the combination with a steering-yoke, and an axle therein, of a traction-wheel, a motor carried directly on said axle and having its motor-shaft connected by positive gearing to said traction-wheel, a steering bar or lever independent of said motor and connected with said yoke, and motor-controlling devices carried by said steering bar or lever, substantially as and for the purposes described.

4. The combination with a steering-yoke, an axle, and a traction-wheel, of a power equipment independent of the steering devices and arranged to be carried entirely by said axle and embracing a motor the shaft of which is operatively connected by direct positive gearing with the traction-wheel, substantially as and for the purposes described.

5. The combination with a steering-yoke, an axle, and a traction-wheel, of a frame or frames supported directly by said axle, a power equipment carried by said frame or frames and embracing a motor the shaft of which is geared positively and directly to the traction-wheel, and a steering bar or lever independent of said power equipment and carrying the motor-controlling mechanism, substantially as and for the purposes described.

6. The combination with a yoke or frame, an axle, and a traction-wheel, of a gear attached to the traction-wheel, a frame supported by said axle, and a motor carried by the frame and having its motor-shaft provided with a pinion which meshes with the gear on said traction-wheel, as and for the purposes described.

7. The combination with a yoke or frame, an axle, and a traction-wheel, of a frame carried by the axle, an electric motor mounted in said frame and having its shaft geared positively by spur-gearing to the traction-wheel, and a battery also supported by said frame and arranged to balance the motor.

8. The combination with a yoke or frame, an axle, and a traction-wheel, of a power-equipment frame supported by said axle, an electric motor and a battery therefor carried by said frame to balance each other, and the shaft of said motor geared directly by positive spur-gearing to the traction-wheel independently of the tire thereon, a steering-bar, and motor-controlling devices carried by said steering-bar, for the purposes described, substantially as set forth.

9. The combination with a yoke or frame and an axle, of carrying-frames supported by said axle, a traction-wheel fitted loosely thereon, an electric power equipment having a battery carried by said frames and a motor geared to the traction-wheel by positive spur-gearing, and a steering bar or lever carrying a circuit-controller which is included in an electric circuit with said battery and motor of the electrical power equipment, substantially as and for the purposes described.

10. In a motor road-vehicle, the combination with a suitable vehicle or carriage, of a yoke or frame pivotally connected therewith and carrying a non-rotatable axle, a traction-wheel fitted on said axle, a power mechanism sustained by said axle and embracing a motor which has its shaft operatively connected by direct spur-gearing to said traction-wheel, a steering bar or lever, independent of the power equipment and connected to said yoke or frame, and motor-controlling devices carried by said steering bar or lever, as and for the purposes described.

592,683. TRACTION-WHEEL. William Bemberister, near Cameo, Mo. Filed Apr. 13, 1896. Serial No. 588,206. (No model.)



Claim.— A traction-wheel having a wide rim provided at its inner edge with a raised portion or flange presenting a flat surface above the plane of the major portion of said rim, transverse plates or cleats projecting from the flange or raised surface of the rim, and a second set of cleats projecting from the wider or depressed portion of the rim and extended over the raised portion between the cleats thereon, all the cleats being of the same height and the longer cleats beveled at their inner ends, as herein shown and described.

592,684. PRINTING-PRESS. Henry P. Bechman, Battle Creek, Mich., assignor to the Duplex Printing Press Company, same place. Filed Apr. 9, 1896. Renewed Apr. 22, 1897. Serial No. 633,375. (No model.)



Claim.—1. In a printing-press the combination of a locomotive-cylinder and a movable type-bed with mechanism whereby the bed is twice reciprocated during each reciprocation of the cylinder in a plane parallel with the plane of reciprocation of the cylinder but over distances not exceeding one-half that of the travel of the cylinder, substantially as and for the purpose described.

2. In a printing-press the combination of a reciprocating cylinder, a movable bed, and means for moving said bed endwise after but not during impressions, substantially as and for the purpose described.

3. In a printing-press the combination of a locomotive-cylinder and a movable type-bed; with mechanism whereby the bed is twice reciprocated during each reciprocation of the cylinder, substantially as described.

4. In a printing-press the combination of a locomotive-cylinder and a movable type-bed; with mechanism whereby the bed is twice reciprocated during each reciprocation of the cylinder and while the cylinder is not in contact with the type-forms, substantially as described.

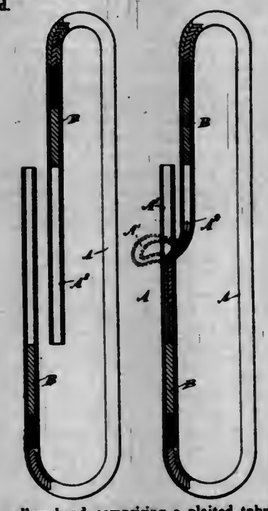
592,685. VEHICLE-SHAFT. François D. Berrier, Paris, France. Filed June 15, 1896. Serial No. 595,576. (No model.) Patented in France Jan. 28, 1896, No. 253,500.



Claim.—A draft-pole, comprising two pivotally-connected sections, a longitudinal reinforcing-spring secured to one of said sections, and means, such as a nut screwing on the end of the spring, for adjusting the tension of the latter, substantially as described.

592,686. ENDLESS BAND. Lehman Bers, Philadelphia, Pa. Filed July 30, 1896. Serial No. 601,016. (No model.)

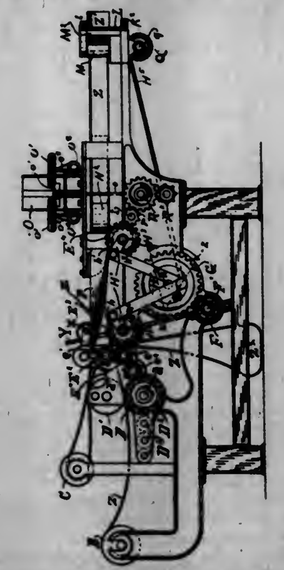
Claim.—1. An endless band, comprising a plaited tubular band, and a filling terminating at its ends a suitable distance from the ends of the band, to permit of uniting the said ends of the bands with each other without interfering with the said filling, substantially as shown and described.



2. An endless band, comprising a plaited tubular band, and a filling terminating at its ends a suitable distance from the ends of the band, to permit of interlacing the unfilled ends of the band, substantially as shown and described.

3. An endless band, comprising a plaited tubular band, and a filling terminating at its ends a suitable distance from the ends of the band, to permit of uniting the ends of the band by inserting each of the tubular ends bodily and longitudinally in reverse directions to each other and within that portion adjacent to the other end, substantially as shown and described.

592,687. BOX-MACHINE. Benona A. Blakeney, Grand Haven, Mich. Filed Oct. 2, 1896. Serial No. 607,669. (No model.)



Claim.—1. In a paper-box machine, a supporting-frame, a carrying-roll, a feed and printing roll, a second feed and score roll, an idler for guiding the stock to the forming-anvil, a tube to form the stock

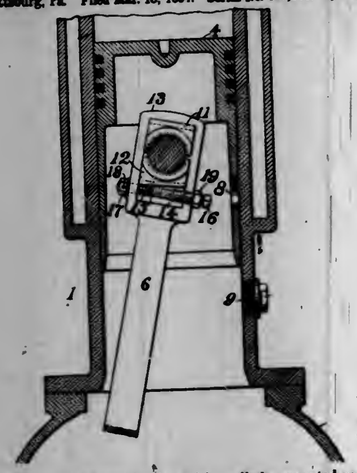
upon the anvil, an anvil depending from the frame in position to receive the stock and form the box and a stapling-machine for securing the edges of the box, substantially as and for the purpose set forth.

2. In a paper-box machine, a supporting-frame, a carrying-spool, a feed and printing roll, a second feed and score roll, an idler to support the bend of the stock, a forming-weight, a forming-tube, an oblong forming-anvil, a stapling-machine above said anvil, feed-rolls back of said anvil, and a shearing-knife for cutting the finished box from the formed stock, substantially as and for the purpose set forth.

3. In a paper-box machine, a supporting-frame, a carrying-spool, a set of feed-rolls fitted to print the stock, a set of feed-rolls fitted to score the stock, a set of gear-wheels for driving said feed-rolls, a ratchet and pawl for running said gear-wheels, a connecting-rod and crank-pin for operating said pawl, a second rod connected with said crank-pin, a pawl and ratchet operated by said rod and operating a train of gears a stapling-machine and a knife driven by said gears alternately with the feed-rolls, and a forming-tube and an anvil for forming and constructing the boxes, substantially as and for the purpose set forth.

4. In a paper-box machine, a supporting-frame, a carrying-spool, a set of feed-rolls fitted to print the stock, a set of feed-rolls fitted to score the stock, gear-wheels for driving said rolls, a pawl, ratchet-wheel and crank for driving said gear, a driving-gear G, a crank on the opposite end of the shaft that carries said gear-wheel, a connecting-rod connected at one end to said crank and at the other end to the arm b^4, a pawl and ratchet connected with said arm to actuate shaft q and through it the feed-rolls M simultaneously with the feed-rolls on the opposite end of the machine, a forming-anvil, a forming-tube arranged to fold the stock around said anvil, means for securing the edges of the stock over the anvil, a shearing-knife for cutting the boxes from the formed stock, and a train of gears and ratchet for operating the knife and the securing device alternately with the feed-rolls, substantially as and for the purpose set forth.

592,688. ENGINE, PUMP, OR COMPRESSOR. WILLIAM A. BOLE, Pittsburg, Pa. Filed Mar. 15, 1897. Serial No. 627,570. (No model.)

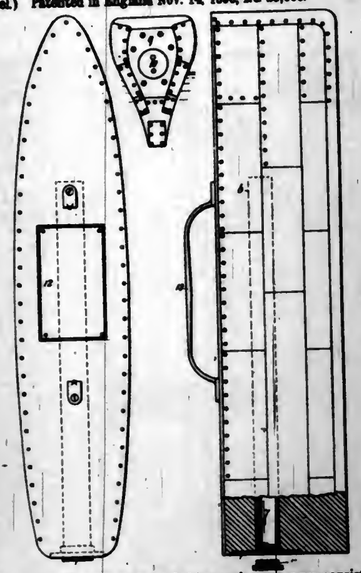


Claim.—1. The combination, with a cylinder mounted on a closed crank-case, of a piston in the cylinder, a connecting-rod having an adjustable connection with the piston, and a lateral opening in the cylinder, outside of the crank-case, whereby access to the connection is permitted without opening the crank-case, substantially as set forth.

2. The combination, with a cylinder mounted on a closed crank-case, of a piston in the cylinder, a connecting-rod having an adjustable connection with the piston, a lateral opening in the cylinder, outside of the crank-case, and an opening in the piston adapted to register with the opening in the cylinder and to permit direct access to the connection from the outside of the crank-case through the wall of the cylinder, substantially as set forth.

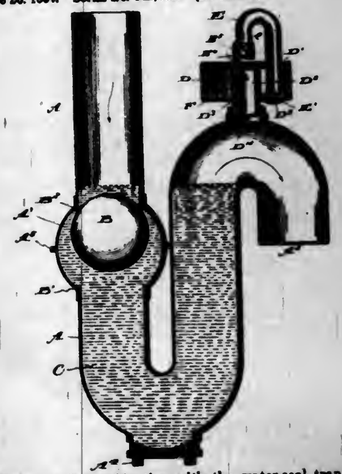
3. The combination, with a cylinder mounted on a closed crank-case, of a trunk-piston, a connecting-rod connected with the piston by an adjustable bearing, a lateral opening in the piston, and a normally-closed opening in the cylinder beyond the crank-case, with which the opening in the piston is adapted to register, whereby access to the connection may be permitted while the crank-case is closed, substantially as set forth.

592,689. SHIPWRECK-MESSENGER. MATTHEW H. BOWDEN, Eastbourne, England. Filed Feb. 1, 1897. Serial No. 621,560. (No model.) Patented in England Nov. 14, 1896, No. 25,068.



Claim.—The herein-described shipwreck-messenger consisting of a boat-shaped hull suitably ballasted and having a horizontal bore within its body extending from the stern end thereof to near the bow, a metallic tube secured within said bore, a cap or cover adapted to be screwed into the open end of said tube, and an exposed identification plate or tablet mounted upon the deck side of the messenger, substantially as described.

592,690. FLUID-SEAL TRAP. JOHN W. BRAGGER, Watertown, N. Y., assignor to the Hitchcock Lamp Company, same place. Filed June 26, 1897. Serial No. 642,403. (No model.)

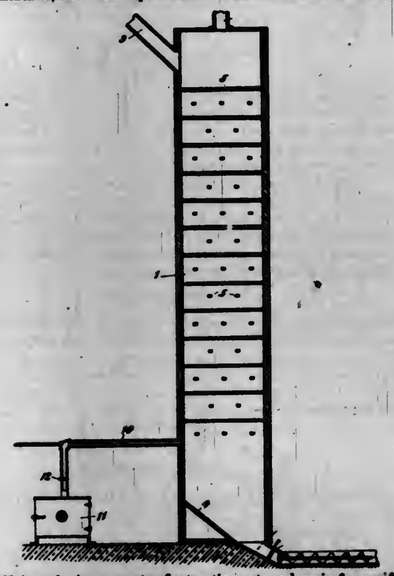


Claim.—1. In combination with the water-seal trap, and ball floating in an enlarged portion thereof, the shell or casing D containing mercury, a communicating passage-way between said shell and the water-trap, and the pipe E, passing through the wall of the said shell, and having its lower end beneath the surface of the mercury, substantially as shown and described.

2. In combination with the water-seal trap having a floating-ball valve therein, the tubing D^3, connected with the trap at its highest portion, the shell D mounted thereon, one portion of the bottom of said shell having a depression D^5 designed to hold mercury, the tube E having its upper end downwardly bent, the said tube passing through the upper wall of the shell and having air-tight connection therewith, and its lower end immersed in mercury, all substantially as and for the purposes set forth.

3. In combination with the water-seal trap, the tubing D^3 connected with the trap at its highest portion, the shell D mounted thereon, one portion of the bottom of the said shell having a depression D^5 designed to hold mercury, the tube E passing through the top of the shell and having its upper end enlarged and downwardly bent, its lower end dipping below the surface of the mercury, a ball-valve seated in said enlarged portion, and a stop to limit the upper throw of said valve, all substantially as shown and described.

592,691. GRAIN PURIFIER AND DRIER. EMILE F. CASALET, Kentland, Ind. Filed Apr. 20, 1897. Serial No. 633,093. (No model.)

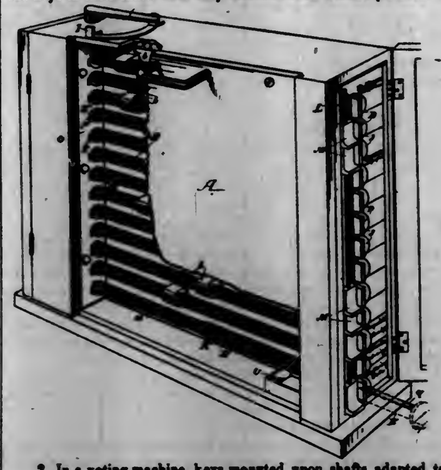


Claim.—1. An apparatus for treating oats and grain for purifying, sweeting and whitening the same, consisting of an upright casing having an inlet at its upper end and an outlet at its lower end, and provided at intervals in its length with bars for retarding the passage and agitating the grain, a pipe communicating with the lower portion of the casing and having connection with a furnace or other device for generating sulfurous fumes, and a steam-pipe communicating with the aforesaid pipe for creating a blast therethrough and positively circulating the fumes through the casing, substantially as and for the purpose set forth.

2. The herein-described apparatus for treating oats and grain, consisting of an upright casing having an inlet at its upper end and a spout at its lower end provided with a cut-off, an inclined board at the lower end of the casing and about in line with the lowest element of the spout, a trough provided with a conveyer in communication with the said spout, a ventilator at the upper end of the casing, two sets of bars alternately disposed at intervals in the length of the casing, a supply-pipe communicating with the lower portion of the casing and having a damper and in communication with a furnace for generating sulfurous fumes, and a steam-pipe communicating with the supply-pipe for creating a blast therethrough and causing the fumes to circulate positively through the casing, substantially in the manner set forth for the purpose specified.

592,692. VOTING-MACHINE. CHRIST CHRISTENSEN, East Oakland, Cal., assignor to the California Voting Machine Company, San Francisco, Cal. Filed May 7, 1897. Serial No. 635,491. (No model.)

Claim.—1. The combination in a voting-machine of segmental rotatable keys corresponding with each of the names to be voted for and turnable so as to indicate a vote for each turn, with means for locking the keys to prevent more than one turn, arms fixed upon the shafts with which the keys are connected and turnable, a vertical rotatable shaft journaled in proximity with the line of key-shafts having projecting pins corresponding with the arms upon each of the key-shafts and adapted to arrest said shafts at a certain point in their rotation, springs by which the arms are held in contact with the stop-pins, and a means for turning the pin-carrying shaft so as to release the arms and allow the springs to continue the rotation of the keys in their shafts until they arrive in their normal position.



2. In a voting-machine, keys mounted upon shafts adapted to be rotated when a vote is being cast, a vertically-slidable plate having holes made through it for the passage of each of the key-shafts, pins projecting from the key-shafts adapted to engage the interior periphery of the openings when the keys are turned whereby the turning of any key to cast a vote will lock the plate and prevent its being moved in the opposite direction.

3. In a voting-machine, keys mounted upon shafts adapted to be rotated when the vote is being cast, said keys corresponding in number with the number of candidates to be voted for whereby each candidate may be voted for independently, other keys with rotatable shafts, the turning of which allows the voter to vote the straight ticket by the use of one key, a movable plate having openings corresponding with all of the key-shafts which pass therethrough, pins passing through the key-shafts so as to engage the sides of their respective openings, the pins for the individual candidates operating to lock the keys which indicate a vote for the straight ticket, and the pins on the keys which indicate the straight tickets serving to lock the keys of the individual candidates.

4. In a voting-machine, keys mounted upon shafts turnable therewith, chambered sections slidable with relation to the shafts whereby they may be withdrawn so as to present the chamber's exterior to the closed face through which the shafts pass, whereby written tickets may be deposited in the chambers and returned to the interior of the case, and a means for completing the vote by turning the shaft and keys so as to discharge the ticket into a receptacle interior to the case.

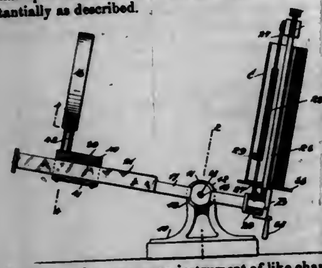
5. In a voting-machine, keys and shafts turnable in bearings, said keys having spring-retained chambered sections connected therewith adapted to be withdrawn when the keys stand in a certain position whereby a written vote may be deposited in the chambered sections and the sections returned to the interior of the case by the action of the springs, stops engaging the slidable sections to prevent their being again withdrawn after the keys have been turned.

6. In a voting-machine, keys mounted upon journal-shafts and turnable therewith, slidable chambered sections connecting the keys with the shafts and springs whereby said sections are normally retained within the casing, flanges having notched sections cut in them and locking-stops against which the flanges turn to prevent the chambered sections from being withdrawn until the notches are brought into line with the stops whereby a vote may be deposited in a chamber and allowed to return within the casing, said vote being deposited in a suitable receptacle by the completion of the rotation of the key and shaft, the key being locked by the flange and stop to prevent its being again withdrawn after the vote has been cast.

592,698. GRAPHOSCOPE. LAURADOR H. COHEN, New York, N. Y. Filed Jan. 25, 1897. Serial No. 620,641. (No model.)

Claim.—1. In a graphoscope or the like, a frame, rollers journaled therein and adapted to receive the pictures to be displayed,

means for revolving the rollers, a vertically-slidable auxiliary frame arranged between the rollers, and a lens arranged in front of the frame with a light-admitting clearance between them so that light will fall upon that side of the pictures which faces toward the lens, substantially as described.



2. In a graphoscope, or an instrument of like character, a frame, a base, an arm connected with the frame and with the base, the forward portion of the arm being of triangular formation in cross-section, a sleeve of corresponding cross-sectional shape held to slide upon the triangular portion of said arm, and a lens carried by said sleeve, said lens being provided with a shank shaped at its lower end to receive the apex of said sleeve, whereby the lens is centered with respect to the frame, substantially as shown and described.

3. In a graphoscope or an instrument of like character, a supporting-frame for pictures, a base, an extension from said frame being pivoted on the base, a sleeve of triangular shape mounted to slide on the extension from the frame, a pin extending from the contracted portion of the sleeve, a lens, and a hollow shank for the lens, receiving the said pin, the lower portion of the shank being provided with an angular groove so shaped that the wall of the groove will engage with the inclined surfaces at the tapering side portions of the sleeve, substantially as and for the purpose specified.

4. In a graphoscope or an instrument of like character, a support, a sleeve mounted to slide upon said support, having a tapering upper face and an extension from its upper face, a lens, and a tubular shank connected with said lens, adapted to receive the extension from the sleeve, the lower portion of the lens-shank being shaped to engage with the side surfaces of the sleeve, as and for the purpose specified.

5. In a graphoscope or an instrument of like character, a frame, rollers mounted to revolve in said frame, adapted for attachment to the ends of a belt of pictures, each roller being provided in its bottom with an opening polygonal at its inner end and conical at its outer end, spindles held to revolve in the frame, having their upper ends correspondingly shaped to the opening in the bottom of the rollers, and means for turning the said spindles, as and for the purpose specified.

6. In a graphoscope, or an instrument of like character, a roller adapted to receive pictures and provided with a flange at its bottom, and an opening in its bottom portion, said opening being polygonal at its inner end and conical at its outer end, as and for the purpose specified.

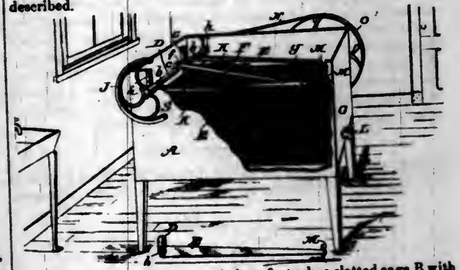
7. In a graphoscope or an instrument of like character, a frame, a spindle held to turn in the frame having a polygonal upper end and an enlarged section below the polygonal portion, tapering from the center in direction of the ends and a pivot-point above said spindle, and a roller engaged by the upper portion of the spindle and the aforesaid pivot-point, as and for the purpose specified.

8. In a graphoscope, or an instrument of like character, a frame, a spindle held to turn in the frame, having a polygonal upper end and an enlarged section below the polygonal portion, tapering from the center in direction of the ends, and a pivot-point above the said spindle, and a roller having a depression at its upper end adapted to receive the said pivot-point, the lower end of the roller being provided with an opening polygonal at its upper portion and conical at its lower portion, as and for the purpose specified.

592,694. WASHING-MACHINE. STEPHEN D. COLE, Wallace, Idaho. Filed May 28, 1897. Serial No. 638,523. (No model.)

Claim.—1. A washing-machine, comprising a tank or case, an open cage suspended within the tank for horizontal reciprocation and having vertically-slatted ends, a slatted follower of greater length than the cage adapted to rest upon the top of the clothes in the cage and having its slats protruding through the spaces between the end slats of the cage, and means for imparting an opposite reciprocation to the cage and its follower substantially as and for the purposes described.

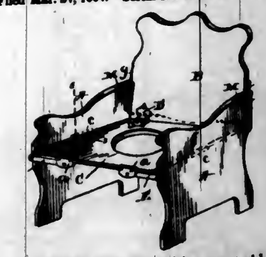
2. A washing-machine consisting of a tank, a suspended cage therein having vertical end slats with shoulders *d* near their lower ends, a slatted follower arranged within the cage and having its slats protruding between the end slats of the cage and adapted to rest, when the cage is empty, upon the shoulders *d*, and means for reciprocating the cage and follower substantially as and for the purpose described.



3. A washing-machine consisting of a tank, a slatted cage B with hangers G for suspending it within the tank, the slatted follower C, a crank-shaft D connected by pitmen to the cage and also to the follower for opposite reciprocation, and springs K and S for bringing back the said cage and follower after having been advanced by the pitmen substantially as and for the purpose described.

4. In a washing-machine, the combination with the tank and the suspended cage; of a crank-shaft arranged in the tank, a socket-plate M secured to the cage, and a detachable pitman E having a fork or slot at one end embracing the crank of the shaft and having its other end seated in the socket-plate, and a spring for returning the cage substantially as and for the purpose described.

592,695. FOLDING CHAIR. KITTIE M. COONROD, Port Jervis, N. Y. Filed Mar. 27, 1897. Serial No. 629,539. (No model.)



Claim.—1. A folding chair, comprising a seat, sides intermediately hinged at the sides of the seat, a back hinged to the seat and swinging above the same, the upper rear corners of the sides having open-ended horizontally-slotted plates, and the opposite sides of the back having projecting members adapted to engage the slots of said plates and unite the sides and back, substantially as described.

2. A folding chair comprising a seat, sides intermediately hinged to opposite sides of the seat, a back hinged to and swinging above the seat, the upper rear ends of the sides having upwardly-curved slotted plates with open inner ends, and the sides having interlocking members adapted to pass through the open ends of the slots of said plates and engage the side walls thereof for locking the sides and back in position for use, substantially as described.

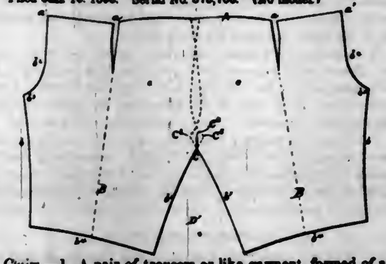
3. A folding chair comprising a seat, sides forming feet, horizontal links connecting the seat and sides, a back hinged to said seat, and interlocking members between the back and sides, substantially as described.

4. A folding chair comprising a seat, sides forming feet, horizontal links connecting the seat and sides, the links engaging and supporting the seat, a back, the back and seat having interlocking members, substantially as described.

5. A folding chair comprising a seat, sides therefor forming feet, links connecting the front edges of the seat and sides, the links being below and engaging the under side of the seat, links connecting the rear edges of the seat and sides, said rear links having inwardly-projecting members engaging the under side of the seat and supporting the same, a back movable in relation to the sides, the back and sides having interlocking members, substantially as described.

6. A folding chair comprising a seat, a back hinged thereto and adapted to fold inward, sides intermediately pivoted to the seats and forming feet, the pivotal points of one side portion situated to cause it to swing in a larger circle than the opposite side, whereby one side will fold inside of the other side in respect to the seat, and interlocking members for the sides and back, substantially as described.

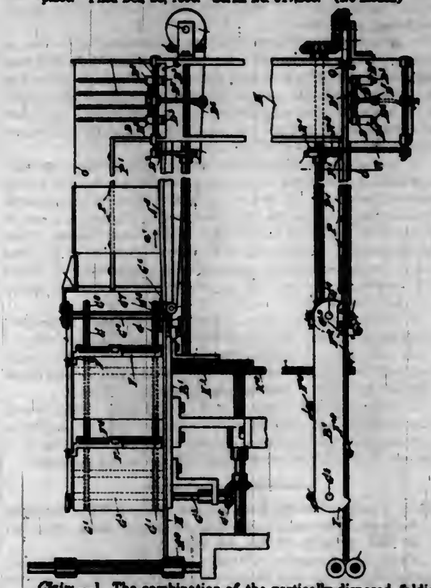
592,696. TROUSERS. MICHAEL M. COHEN, Rochester, N. Y. Filed Jan. 16, 1896. Serial No. 575,708. (No model.)



Claim.—1. A pair of trousers or like garment, formed of an integral piece of cloth, comprising a body portion and two leg portions B B; said piece of cloth being integral on the medial back line C D of the body portion and having the medial notch D′ separating said leg portions; the opposite outer edges *b b* of said piece of cloth being sewed to the inner edges *b′ b′* of said notch to form the legs of the garment; whereby a vertical seam is formed on the inner side of each leg and the garment is without the usual back seam in the body portion and without the usual outer side seam of the leg portion, substantially as described.

2. A pair of trousers or like garment, formed of an integral piece of cloth, comprising a body portion and two leg portions B B; said piece of cloth being integral on the medial back line C D of the body portion and having the medial notch D′ separating said leg portions; the opposite outer edges *b b* of said piece of cloth being sewed to the inner edges *b′ b′* of said notch to form the legs of the garment; whereby a vertical seam is formed on the inner side of each leg and the garment is without the usual back seam in the body portion and without the usual outer side seam of the leg portion; said cloth being slit along the lower end of said line C D to such an extent as to make the edges *b′ b′* and *b b* equal in length and the matching edges thus formed being sewed together; substantially as described and for the purposes set forth.

592,697. DELIVERY ATTACHMENT FOR PRINTING-PRESSES. MARK H. CORMACK, New York, N. Y., assignor to Louis Klopsch, same place. Filed Dec. 28, 1896. Serial No. 617,263. (No model.)



Claim.—1. The combination of the vertically-disposed folding-rolls, the sheet-support, and the vertically-disposed compressing mechanism arranged to engage the sheet at the fold and to feed it forward, substantially as described.

2. The combination of the vertically-disposed folding-rolls having end portions of increased diameter, the sheet-support below said rolls, and the grippers or compressing mechanism extending vertically the full length of the rollers to engage the sheet at the fold and feed it forward, substantially as described.

3. The combination of the vertically-disposed folder, the sheet-support, the vertically-disposed compressing mechanism arranged to engage the sheet at the fold and to feed it forward over said support, and the fly movable transversely of the direction in which the sheet is fed, substantially as described.

4. The combination of the vertically-disposed folder, the sheet-support, the vertically-disposed compressing mechanism arranged to engage the sheet at the fold and to feed it forward over said support, the traveling carrier adapted to receive the sheet when released from the compressing mechanism, and means for removing the sheet when it reaches the end of the carrier, substantially as described.

5. The combination of the vertically-disposed folder, the sheet-support, the vertically-disposed compressing mechanism arranged to engage the sheet at the fold and to feed it forward over said support, and the fly having vertically-disposed holders or fingers adapted to engage the sheet and to remove it, substantially as described.

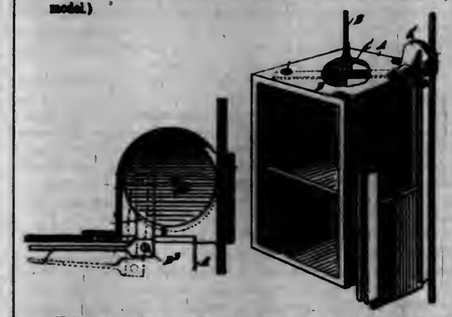
6. The combination of the vertically-disposed folder, the sheet-support, the vertically-disposed compressing mechanism arranged to engage the sheet at the fold and to feed it forward over said support, the carrier arranged in the continuation of said support and connected to travel at a higher rate of speed than the compressing mechanism, and means for removing the sheet when it reaches the end of the carrier.

7. The combination of the vertically-disposed folder, the delivery mechanism or removing appliance, the longitudinally-arched support arranged between the folder and the delivery mechanism, and means for feeding the paper over said support, substantially as described.

8. A sheet-delivery attachment for printing-presses, provided with a sheet-feeding mechanism adapted to receive the sheets from the last folding-rolls of the printing-press, a carrier adapted to receive the sheets from the said feeding mechanism and move the sheets forward in an upright position, the said carrier traveling at a higher rate of speed than the feed mechanism to bring and hold the sheets farther apart, and a pusher adapted to engage the outermost sheet and push it transversely off the said carrier, substantially as shown and described.

9. A sheet-delivery attachment for printing-presses, provided with a sheet-feeding mechanism adapted to receive the sheets from the last folding-rolls of the printing press, a carrier adapted to receive the sheets from the said feeding mechanism and move the sheets forward in an upright position, the said carrier traveling at a higher rate of speed than the feed mechanism, to bring and hold the sheets farther apart, and a pusher adapted to engage the outermost sheet and push it transversely off the said carrier, the said pusher operating in unison with the said carrier, substantially as shown and described.

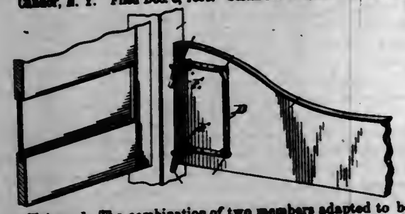
592,698. DUMB-WAITER SAFETY-CLUTCH. CHARLES B. COX, New York, N. Y. Filed Nov. 23, 1896. Serial No. 613,121. (No model.)



Claim.—1. A dumb-waiter safety-clutch, comprising a vertically-disposed rod fixed in the shaft, a casing held on the cage and forming a guide for the said rod, a clamping device journaled in the said casing and adapted to engage the said rod to clamp the latter in the casing, and a spring-plate secured at one end to the cage and connected at its other end with the said clamping device, the said plate being connected with the operating rope or cable for the cage, substantially as shown and described.

2. A dumb-waiter safety-clutch, comprising a vertically-disposed rod fixed in the shaft, a casing adapted to be secured on the cage and formed with a guideway for the said rod, a clamping device journaled in the said casing and adapted to engage the said rod and clamp the latter to the casing, a spring-plate connected with the said clamping device and attached to the cage, and a staple adjustably held on the said spring-plate and connected with the supporting rope or cable for the cage, substantially as shown and described.

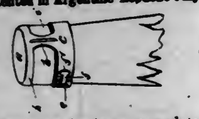
592,699. BEDSTEAD-FASTENER. WILLIAM H. FERRENDES, Candor, N. Y. Filed Dec. 8, 1896. Serial No. 614,949. (No model.)



Claim.—1. The combination of two members adapted to be detachably locked together, the inner face of the first member having the aligned rigid eyes projecting therefrom, the end of the second member abutting against the inner face of the first member beside said eyes, and the fastening bent from a single metal rod and rigidly secured against the inner side of the second member with its two free ends bent down and forming hooks not projecting beyond the end of said member, and deflected away from the inner side thereof to enter said two projecting eyes, so that cutting and recessing of the members is avoided, substantially as described.

2. The combination, of a bedstead end piece provided with the rigid eyes arranged one above the other and projecting from the inner side of a post of said end piece, a side rail with its end abutting against said post with said eyes at the inner face of the rail, and the metal rod bent U-shaped and rigidly secured to the inner face of the rail by staples C, embracing the horizontal legs of the U-shaped rod, the free ends of the rod arranged one above the other at the inner face of the rail and not projecting beyond the end thereof, and bent down forming hooks and deflected laterally to enter said eyes, as described and shown.

592,700. BOTTLE-CAP. BERNARDO FONTAN and CÁRLOS FONTAN, Buenos Ayres, Argentina. Filed May 15, 1897. Serial No. 636,646. (No model.) Patented in Argentine Republic July 3, 1896, No. 1,512.



Claim.—1. A bottle-cap having a top plate, arms at opposite sides of the top plate and projecting downward therefrom to lie alongside the bottle-neck, a band carried by the lower end of each arm, said bands being capable of embracing the bottle-neck, and each band having a flange running inward from its lower edge to engage a shoulder on the bottle-neck, and connecting devices for the contiguous ends of the bands, substantially as described.

2. A bottle-cap having a top plate with an annular side flange to completely inclose the mouth of the bottle, two arms located on opposite sides of the top plate and projecting downwardly therefrom, a separate band carried by each arm, said bands being adapted to embrace the neck of the bottle, and each band having a tongue at one end and an opening in the other end, said opening and tongues being oppositely located with reference to each other on their respective bands and arranged for engagement with each other, substantially as described.

3. A bottle-cap having two bands capable of embracing the neck of the bottle, each of said bands having at one end a trapezoidal opening, and each band having at the opposite end a tongue with a head at its outer end, the tongues being respectively capable of entering the openings to connect the bands with each other, substantially as described.

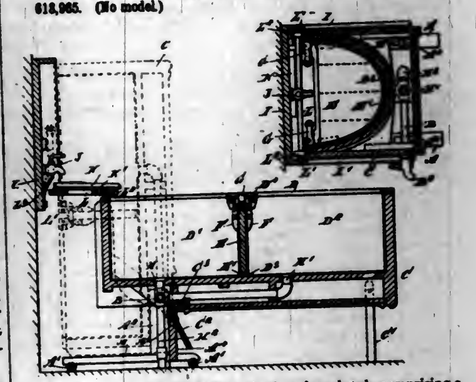
4. In a bottle-cap, comprising two members, and a connecting device for said members, said device consisting of a tongue carried by one member and having a head at its free end, and the other member having a trapezoidal opening formed therein and capable of receiving the tongue, substantially as described.

5. A bottle-cap having a top plate with downwardly-extending flanges adapted to completely inclose the neck of the bottle, two arms oppositely located and projecting downward from the top plate, a band carried at the lower portion of each arm, the bands being adapted to embrace the bottle-neck, and each band having at its lower edge an inwardly-extending flange capable of engaging a shoulder on the neck of the bottle, and each band also having at one end a headed tongue and at the opposite end a trapezoidal opening, said tongues and openings forming connecting devices for the contiguous ends of the bands, substantially as described.

6. A blank for forming bottle-caps, having a central circular plate, diametrically opposed arms projected from said plate, and a band extending from the end of each arm, said bands having a tongue at one end and an opening in the other end, the said tongues and openings being diagonally opposite, substantially as described.

7. A blank for forming bottle-caps, said blank having a central plate *a*, oppositely-projecting arms *b*, bands *c* respectively carried at the ends of the arms, and headed tongues *f* respectively carried by one end of the bands and respectively adapted to enter trapezoidal openings *e* in the other end of the bands, substantially as described.

592,701. COMBINED FOLDING BATH AND WASH TUB. HERMANN J. GIES, Peterborough, N. H. Filed Jan. 12, 1897. Serial No. 618,965. (No model.)



Claim.—1. A combined folding bath and wash tub, comprising a base, a casing pivoted to the base a short distance from one end, one of the pivots being tubular, a tub in the casing, a removable partition in the tub and dividing the same into two compartments, and a pipe leading from the bottom of each compartment to the tubular pivot, substantially as described.

2. A combined folding bath and wash tub, comprising a base, a casing containing a tub and having a chamber below the tub, said casing being pivoted to the base a short distance from its end, one of the pivots being tubular, a removable partition in the tub and dividing the same into two compartments, and a pipe leading from each compartment to the tubular pivot, one of said pipes being in the chamber of the casing, substantially as described.

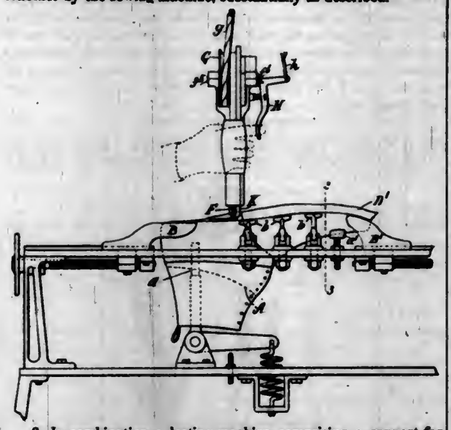
3. A combined folding bath and wash tub, comprising a base having standards at its front end, a casing containing a tub and having a chamber below the tub, said casing being pivoted to the standards a short distance from its end, one of the pivots being hollow, a removable partition in the tub and dividing it into compartments, a pipe leading from each compartment to the tubular pivot, one of the pipes being in the chamber of the casing, and a spring-pressed door hinged to the bottom of the tub at its pivoted end, substantially as herein shown and described.

4. The combination with a pivoted bath-tub and a water-back having faucets, a table pivoted on the said water-back and adapted to ride with its free end on the side rails of the said tub, and a trough pivoted on the table and adapted to carry water from the said faucet to the said bath-tub, substantially as shown and described.

5. The combination with a base, of a bath-tub casing pivoted on the said base and provided with a spring-pressed door, having its lower edge beveled to engage a correspondingly-beveled edge on a cross bar of the said base, substantially as shown and described.

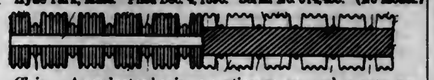
592,702. SEWING-MACHINE FOR LASTING BOOTS OR SHOES. NAPOLEON GOBOU and GEORGE GOBOU, Winchester, Mass. Filed July 27, 1895. Serial No. 557,236. (No model.)

Claim.—1. A machine for lasting by sewing, made up of a sewing-machine, and its work-holder composed of a last as the inner clamping member and a plurality of independent pressers on all sides of the last, as the outer clamping members, organized to hold the edge of the upper and a lip on the inner sole in position to be sewed together by the sewing-machine, substantially as described.



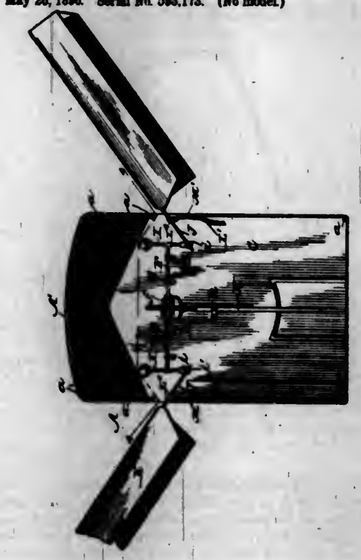
2. In combination a lasting-machine comprising a support for the last, and independent pressers to hold the upper in place on the last with the edge of the upper in position to be sewed to a lip on the inner sole; a sewing-machine; and means for supporting and actuating the sewing-machine which permit it to be moved into all the positions necessary to sew the upper to the lip on the inner sole while held in the lasting-machine by the last as the inner clamping member and the pressers as the outer clamping members; all organized to operate substantially as described.

592,703. ELECTRIC CONDUCTOR. GORHAM GRAY, Boston, Mass., assignor of one-half to Joseph M. Downey and William J. Downey, Hyde Park, Mass. Filed Dec. 4, 1896. Serial No. 614,455. (No model.)



Claim.—A conductor having a continuous core and an outer portion divided by longitudinally and annularly extending grooves, the core being of material harder than that of the outer portion, substantially as described.

592,704. AERIAL MACHINE. JACOB D. GRAYBILL, New Orleans, La., assignor of three-tenths to William W. Battle, same place. Filed May 26, 1896. Serial No. 593,173. (No model.)



Claim.—1. An aerial ship comprising a gas-holder, a car located within the framework of said gas-holder, an air or vacuum chamber protecting the car from gas on front, back and top substantially as shown and described.

2. In an aerial machine, the combination of the shaft, the wings, the arms J connected with the wings and universal joints between the said arms and the shaft and supporting devices for said arms J whereby the wings are caused to move similarly to an oar in rowing all substantially as set forth.

3. The combination of the wings, the cross-shaft movable longitudinally in its bearings, the lever by which to effect the said movement, the wings the arms connected with the wings and universal joints between said arms and the shaft substantially as set forth.

4. In an apparatus substantially as described the combination of the lever-lock consisting of the lever and the lock jointed thereto the wing having its arm held by said lock and the operating devices connected with said arm substantially as shown and described.

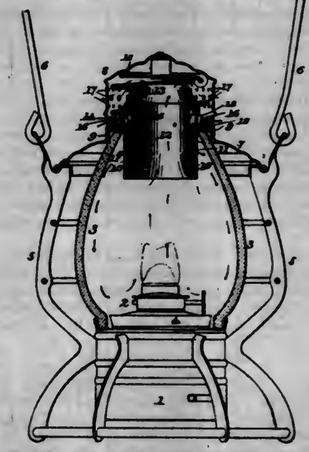
5. The combination of the pivoted lock-lever, means whereby said lever may be held in any desired adjustment, the lock jointed to said lever, the wing having its arm held in said lock and the operating devices connected with said arm substantially as shown and described.

6. The combination of the cross-shaft having crank-arms the wings having their arms connected with the cranks of said shaft and adjustable supports for said wing-arms substantially as shown and described.

7. The combination of the cross-shaft having cranks, the wings having their arms connected with said cranks the lever-locks supporting the opposite wing-arms and adjustable independently and means for holding said lever-locks in any desired adjustment.

8. In a machine substantially as described, a non-collapsible wing made approximately V shape in cross-section and arranged with the point or apex forward all substantially as and for the purpose shown and described.

592,705. LANTERN. WILLIAM S. HAHN, Chicago, Ill. Filed May 27, 1897. Serial No. 638,409. (No model.)

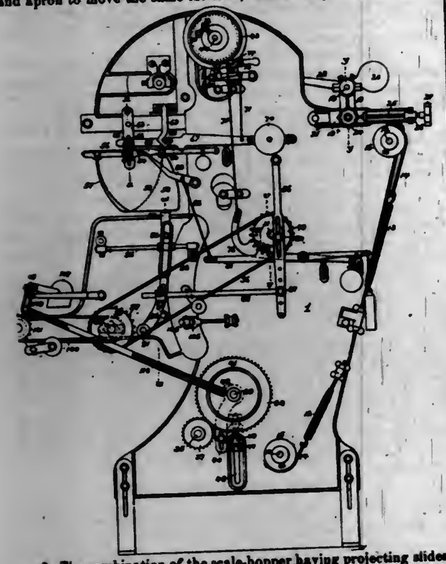


Claim.—1. In a lantern, the combination of a globe, a dome having perforations, a deflector consisting of a tube projecting within the top of the globe and partly within the dome, means for supporting the deflector on the dome, a frustum-shaped shield 13 surrounding the top of the tube 12, the said shield being open at the top and extending above the perforations in the dome, substantially as described.

2. In a lantern, the combination of a globe, a dome, a double-walled deflector consisting of concentric tubes joined below the perforations, the outer one of which is provided with perforations, said deflector being adapted to project within the top of the globe and partly within the dome, and a shield surrounding the top of the deflector and extending above and below its upper edge, said dome having perforations to admit fresh air and other perforations for the exit of heated air and products of combustion, substantially as set forth.

592,706. FEEDING MECHANISM FOR CARDING-MACHINES. ROBERT J. HILL, Camden, N. J., assignor to The James Smith Woolen Machinery Company, Philadelphia, Pa. Filed Jan. 23, 1896. Serial No. 576,591. (No model.)

Claim.—1. The combination of the stock-chest and the feed-apron, with means for pressing the stock toward said apron, said means comprising a presser-frame pivoted at the lower end, a flap or apron pivoted at the upper end and overlapping the upper free end of said presser-frame, and springs acting upon both the presser-frame and apron to move the same forward, substantially as specified.



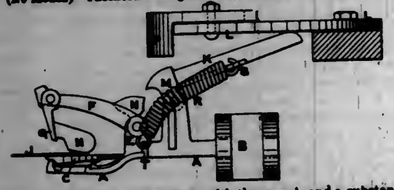
2. The combination of the scale-hopper having projecting slides, guides for said slides whereby the hopper is prevented from tipping forward or backward, the scale-beams, and hangers pivotally suspended upon said beams and carrying the hopper, substantially as specified.

3. The combination of the push-board, provision for reciprocating the same, yokes extending from the push-board up over the sides of the fixed frame of the machine, and external rods upon which said yokes are mounted and guided, substantially as specified.

4. The combination of the push-board having yokes extending from the push-board up over the sides of the fixed frame of the machine, external rods upon which said yokes are mounted and guided, and vibrated levers engaging with said yokes, substantially as specified.

5. The combination of the push-board having yokes extending up over the sides of the fixed frame of the machine, external rods upon which said yokes are mounted and guided, levers engaging with said yokes, a slotted lever connected to one of said yoke-actuating levers, and a wheel for engaging said slotted lever, substantially as specified.

592,707. CLIPS FOR TENTERING, STRETCHING, AND DRYING MACHINERY. JOSEPH HORTON and WILLIAM HORTON, West Vale, England, assignors of one-half to Charles Heap and William Tweedale Heap, Rochdale, England. Filed June 7, 1897. Serial No. 639,640. (No model.) Patented in England Aug. 25, 1896, No. 18,762.



Claim.—1. The combination, with the arm A, and a substantially horizontal plate C carried thereby and provided with slots; of arms F pivoted to the plate A and provided at their free ends with a grip-jaw and a gage H, said gage permitting the grip-jaw to engage with the cloth when the gage falls into the said slots; a heel N carried by the said arms near their pivot; and a spring-operated locking-arm pivoted to the arm A and normally holding the said arms F in their raised position, substantially as set forth.

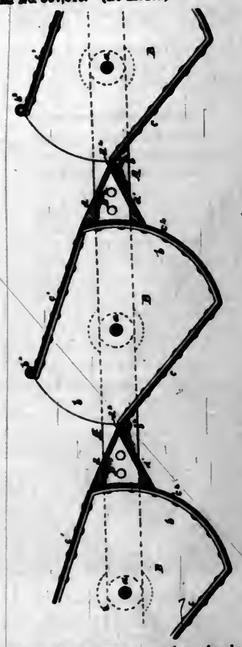
2. The combination, with the traveling arm A, a substantially horizontal plate C carried by it, arms F pivoted to the plate A and provided at their free ends with a grip-jaw and having a heel N near their pivot, and a spring-operated locking-arm pivoted to the arm A and normally holding the said arms F in their raised position; of stationary plates arranged in the path of the said locking-arm and the arms F, and operating first to depress the locking-arm and release the arms F and then to force the arms F downward, substantially as set forth.

592,708. EGG OR CAKE BEATER. EMMA J. HOWE, West Superior, Wis. Filed Aug. 27, 1896. Serial No. 604,097. (No model.)



Claim.—A combined egg and cake beater comprising the approximately circular casing A having parallel sides B B terminating in integral supporting-flanges E E, and having its upper rectangular edge formed with an angular seat-flange *a*, the hinged top 10 formed with a beaded edge 13 and provided with the conical funnel 14, the wire yoke 5, the vertical slide 2, removably secured in said yoke, and the bearing-orifice 3 formed in the opposite side of said casing and protected by the open-top hood 7, in combination with the shaft I provided with the crank-handle 4 and the integral, flexible, reticulated blade F centrally mounted on said shaft I, substantially as shown and described.

592,709. CONVEYER. HENRY HOWSON, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed June 30, 1896. Serial No. 597,619. (No model.)



Claim.—1. The combination of a carrier, a bucket pivoted thereto and having its mouth at one end, said bucket adapted to swing so that its mouth will be presented on either side of the carrier, a stop whereby the swing of the bucket is limited so that its mouth is always on the upper side of the carrier in the longitudinal runs of the same.

2. The combination of a carrier adapted to travel longitudinally, a bucket pivoted thereto, said bucket having a mouth on one side of the pivot at one end and having a preponderance of weight on the other side of the pivot so that the mouth end of the bucket will be normally uppermost, with a stop to limit the movement of the bucket on its pivot so that it can be dumped at any point throughout the run, substantially as described.

3. The combination of an endless carrier, a series of buckets pivoted thereto, each bucket having its mouth at one end and adapted to swing so that its mouth will be presented on either side of the carrier, and stops whereby the swing of each bucket is so limited that its mouth will be on the upper side of the carrier in either the lower or upper run thereof, substantially as described.

4. The combination of an endless carrier, buckets pivoted thereto, and each having its mouth at one end, and stops on the carrier whereby the lateral swing of the bucket is limited when the buckets are on the upright runs of the carrier so as to prevent the dumping of any of the contents of the buckets while traversing said upright run, substantially as described.

5. The combination in a conveyer, of a chain, a pivoted bucket, and a stop to limit the rotation of the bucket, said stop also acting as a chute for the material, substantially as described.

6. The combination in a conveyer, of the chain, pivoted buckets, a stop-plate on each section of the chain and a bucket pivoted to each chain section, the bucket in advance of the stop-plate forming therewith a chute, substantially as described.

7. The combination in a conveyer, of the chain, pivoted buckets, a stop-plate on each section of the chain and a bucket pivoted to each chain-section, the bucket in advance of the stop-plate overlapping the latter and forming therewith a chute, substantially as set forth.

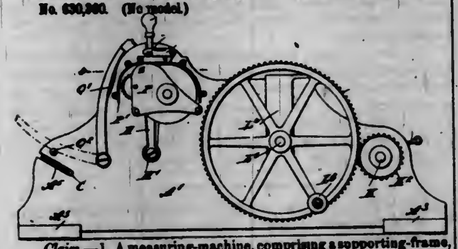
8. The combination in a conveyer, of a chain, buckets pivoted thereto, each bucket having its mouth at one end, and stops located in respect to the buckets whereby the loaded portion of the bucket will automatically swing below the pivotal axis when the bucket is on either longitudinal run or one of the vertical runs, but will permit the dumping of the bucket on the other vertical run, substantially as described.

9. The combination of a carrier, a chute thereon, a bucket pivoted to the carrier and having its mouth on one side of the pivot and its preponderance of weight on the other side of the pivot, and a stop to limit the movement of the bucket on its pivot so that its mouth can be presented on either side of the chute, substantially as described.

10. The combination in a conveyer, of a chain, with buckets pivoted thereto and plates serving as chutes forming a continuation of one side of the bucket on one run, and of the other side of the bucket on the other run, substantially as described.

11. The combination, in a conveyer, of a carrier, buckets having uniformly-converging sides pivoted thereto, each bucket being wider at the bottom than at the mouth, substantially as described.

592,710. MACHINE FOR MEASURING CLOTH, PAPER, &c. GEORGE W. HYDE, Richfield Springs, N. Y. Filed Apr. 2, 1897. Serial No. 630,260. (No model.)



Claim.—1. A measuring-machine, comprising a supporting-frame, a rod for carrying the roll of material, said rod having one end pivoted and its other end resting in a slot of the frame, a winding-up spindle detachably mounted in the frame at the end of the frame opposite the said rod, a measuring-roller in the frame between the said rod and spindle, a swinging lever in which one of the journals of the roller is mounted, a pinion on the journal of the roller mounted in the lever, a measuring device having a gear-wheel adapted to mesh with the said pinion, a catch for locking the lever in position, and a cutter movable into and out of contact with the measuring roller, substantially as described.

2. A measuring-machine, comprising a supporting-frame, a swinging rod for carrying the roll of material, a winding-up spindle detachably mounted in the frame, a measuring-roller mounted in the frame between the said rod and spindle, a lever pivoted at one end and in which one of the journals of the measuring-roller is mounted, a pinion on the said journal of the measuring-wheel, a shaft carrying a gear-wheel and pinion, the gear-wheel meshing with the pinion of the measuring-wheel, an indicating-wheel, a gear-wheel on the shaft of the indicating-wheel and meshing with the pinion of the said shaft, a handle for setting the indicating-wheel to zero, and means for locking the pivoted lever in position, substantially as described.

592,711. CONDUIT-RAILWAY TROLLEY. WILLIAM LUER, Chicago, Ill. Filed Jan. 4, 1896. Serial No. 574,364. (No model.)

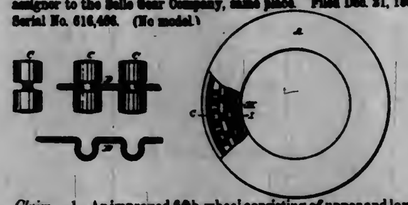


Claim.—1. The combination with an electric conductor and vehicle of a frame secured to the bottom of the vehicle, a series of rods carried by said frame, adjustable contact-blocks supported by said rods and means for regulating the contact between said blocks and the conductors substantially in the manner and for the purposes set forth.

2. The combination with an electric conductor and vehicle of a frame suspended from the bottom of the vehicle and adapted to swing thereunder, a series of rods carried by said frame, contact-blocks having link connections supported by said rods, spring connections between each pair of the series of said rods and means for regulating the tension of said springs substantially as set forth.

3. The combination with an electric conductor and vehicle of a frame suspended from the bottom of the vehicle, a series of rods carried by and revolving in said frame, contact-blocks arranged in pairs and adapted to allow lateral oscillatory movement, and supported by said rods so that they are normally in contact with said conductor, and means for regulating the contact between said blocks and said conductors substantially as and for the purposes set forth.

592,712. FIFTH-WHEEL. WILLIAM G. PARSONS, Akron, Ohio, assignor to the Selle Gear Company, same place. Filed Dec. 21, 1896. Serial No. 616,466. (No model.)



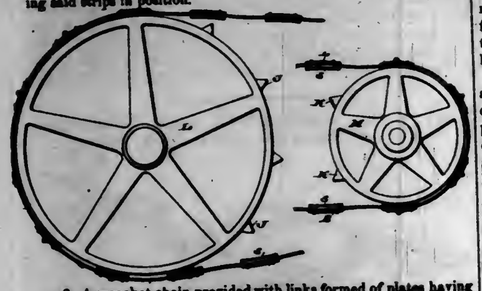
Claim.—1. An improved fifth-wheel consisting of upper and lower circles adapted to interlock and constitute together an annular hollow track; in combination with a series of rollers adapted to run in said track, each roller having a reduced central portion, and a flexible connection, adapted to encircle said reduced portions of said rollers and retain them at determinate intervals from each other, substantially as shown and described.

2. As an improved article of manufacture an antifriction device adapted to run in a hollow fifth-wheel, consisting of a series of rollers, each having a reduced central portion, and a flexible connection inclosing at intervals the reduced portions of said rollers, substantially as shown and described.

592,718. SPROCKET-CHAIN. JOHN B. POWELL, Philadelphia, Pa. Filed July 7, 1897. Serial No. 643,866. (No model.)

Claim.—1. A sprocket-chain having links formed of plates having openings therein, resilient strips which are adapted to be rigidly

secured between said plates and means on said plates to assist in holding said strips in position.

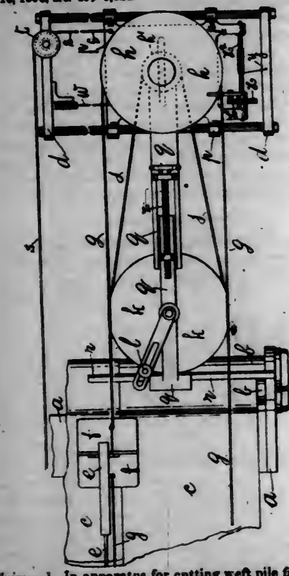


2. A sprocket-chain provided with links formed of plates having openings therein, means for securing said plates together, strips which are adapted to be secured between said plates and tongues and grooves common to said plates to assist in holding said strips in position.

3. A sprocket-chain having links formed of plates, openings therein, screws for securing said plates together, resilient strips through which the screws pass and hold the same between said plates and tongues and grooves on said plates adapted to engage said strips.

4. A sprocket-chain consisting of links formed of plates provided with openings therein, means for securing said plates together, strips which are adapted to be secured between said plates, tongues and grooves common to the latter to assist in holding said strips in position, and a strip of rubber or similar material suitably secured to that side of each plate nearest to the sprocket-wheel.

592,714. MACHINE FOR CUTTING PILE OF WEFT PILE FABRICS. GEORGE ROGER, Warrington, England. Filed Jan. 23, 1897. Serial No. 620,497. (No model.) Patented in England Oct. 16, 1895, No. 19,261; in France Feb. 11, 1896, No. 253,846; in Belgium Feb. 11, 1896, No. 119,736; in Germany Feb. 14, 1896, No. 88,931, and in Austria Dec. 16, 1896, No. 46/5,021.



Claim.—1. In apparatus for cutting weft pile fabrics, the combination of a traveling knife or knives supported solely by the cloth, a flexible cord or band carrying said knife or knives, and adapted to be moved to and fro to reciprocate the said knife or knives, substantially as and for the purposes hereinbefore set forth.

2. In apparatus for cutting weft pile fabrics, the combination of a traveling knife or knives, supported solely by the cloth, a flexible cord or band carrying said knives, and mechanism arranged at the opposite ends of said apparatus for supporting said cord or band, substantially as and for the purposes hereinbefore set forth.

3. In apparatus for cutting weft pile fabrics, the combination of a traveling knife or knives, a carrier or carriers therefor supported solely by the said cloth, a flexible cord or band, attached to said carrier or carriers, pulleys or drums located at opposite ends of the frame and supporting the said cord or band, and means for actuating the said cord or band, substantially as and for the purposes hereinbefore set forth.

4. In apparatus for cutting weft pile fabrics, the combination of a traveling knife or knives, supported solely by the cloth, a flexible cord or band, pulleys or drums arranged at opposite ends of the apparatus for supporting said cord or band, driving-pulleys *k'* and *k*, a cord or band *j* passing around said last-named pulleys and means for actuating said cord or band *j*, substantially as and for the purposes hereinbefore set forth.

5. In apparatus for cutting weft pile fabrics, the combination of a traveling knife or knives, supported solely by the cloth, a cord or band *g* carrying said knife or knives, pulleys or drums *h* and *m* arranged at opposite ends of the frame, a secondary driving-cord *j*, pulleys *k'* and *k* around which cord *j* passes, a tension device *z* adapted to regulate said cord or band *g*, substantially as and for the purposes hereinbefore set forth.

6. In apparatus for cutting weft pile fabrics, the combination of a traveling knife or knives, supported solely by the cloth, a cord or band connected to said knife or knives, pulleys or drums supporting said cord or band arranged at opposite ends of the frame, secondary pulleys or drums *k'* and *k*, connecting-cord *j* therefor, carrier-pulleys *t*, *u* and *v* on the frame of the apparatus, as set forth, slides *o*, *p*, carrying pulleys *h* and *m* and connecting cord or band *s* for moving the slides synchronically across the width of the cloth, substantially as and for the purposes hereinbefore set forth.

592,715. CULTIVATOR. EMANUEL H. SNYDER, Cedar Rapids, Iowa. Filed Aug. 28, 1896. Serial No. 604,231. (No model.)



Claim.—1. In a cultivator, the herein-described arch for four plows, consisting essentially of axles B B, standard portions B' B', horizontal bearing portions C C C C, arches E E, truss arch F and diagonal braces *f f f f*, substantially as and for the purpose set forth.

2. In a cultivator, the combination with the main arch, of plow-beams substantially as specified, a pair of tongues, adjustable, rearwardly-extending arms connecting with said tongues, notches in said arch to support the rear ends of said arms, springs connecting with the rear ends of said arms, and an adjustable connection of the other ends of said springs with the plow-beams, as described.

3. In a cultivator, the combination with a plow-beam, of a notched plate provided with a slot for a bolt, hook-bolts adapted to secure said plate to the beam, an angle-plate adjustable thereon, and an arch pivoted to said angle-plate, and having a limited tilt with respect thereto.

4. In a cultivator, the combination of a main arch, a pair of tongues attached thereto, and extending some distance back thereof, a pair of equalizers R R, pivoted to swing in a horizontal plane, and at some distance from their centers parallel bars S S, connecting-rods *r r r r*, singletrees connecting with the outer and shorter ends of the parallel bars, and a singletree connecting with the inner ends thereof by a chain and pulley, substantially as described.

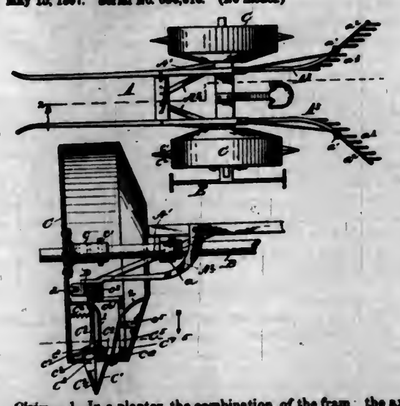
592,716. SHADE-SUPPORTER. WASHINGTON G. SCOTT and MORRIS H. MARCUS, Homestead, Pa. Filed Dec. 19, 1896. Serial No. 616,308. (No model.)



Claim.—1. A shade-supporter composed of wire and formed of two sections, said sections each having an elongated portion with rings at the end thereof engaging the elongated portion of the opposite section, said wire being bent beyond said elongated portion in such a manner as to form a hook-shaped portion, and then bent to form eyelets in line with said elongated portions through which the nails or other fastening devices pass to hold the supporter in position, and bearings at the ends of said sections to support the roller, said eyelets being located between said hook-shaped portions and said bearings substantially as set forth.

2. A shade-supporter composed of wire and formed of two sections, each of said sections having an elongated straight portion with rings at the end thereof engaging the elongated portion of the opposite section, said wire being bent beyond said elongated portion to form a hook-shaped portion and again bent on itself and drawn back and around the original bend from the elongated portion, and then bent to form eyelets through which the nails or other fastening devices pass to hold the supporter in position, and bearings at the ends of said sections to support the roller, said eyelets being located between the hook-shaped portions and said bearings, substantially as set forth.

592,717. PLANTER. TIMOTHY J. SULLIVAN, Rockport, Ky. Filed May 15, 1897. Serial No. 636,616. (No model.)



Claim.—1. In a planter, the combination, of the frame, the axle, the wheels formed with one closed side a closed periphery and the other side closed from the periphery into within a short distance of the axle by a plate which tapers from said periphery toward the center of the machine thus forming the seed-chamber within said wheel, droppers mounted in the rim of said wheel, mechanism for operating said droppers and carrying the seed from said chambers thereto, and mechanism for closing them when the operation is completed, substantially as set forth.

2. In a planter, the combination, of the frame, the axle, the wheels rigidly mounted on said axle and formed hollow to contain the seed with an opening around the axle on one side to admit the seed, droppers mounted at intervals on the rims of said wheels consisting of two parts one of which is pivoted, an arm extending inwardly from said pivoted part, a trip supported from the frame and located to contact said arm and operate said pivoted part, a frame provided with seed-carrying cups mounted to slide from said seed-chamber to the droppers, a lever connected at one end to said frame and at its other end connected by a link to the arm of said pivoted part of the dropper, whereby they are operated simultaneously, and a spring for returning the parts to their normal position, substantially as set forth.

3. In a planter, the combination, of the frame, the axle, the wheels rigidly mounted on the axle and formed to contain the seed, the droppers mounted at intervals on the rims of said wheels consisting of a stationary and a pivoted part, the pivoted part being provided with an arm which projects inward to contact with a trip D supported from the frame, the casing 1 surrounding said parts, the sliding plate having the seed-cups, the lever and link connecting the same to said arm, the casing 2 surrounding them, the brush C^7 mounted at the entrance to the dropper, the cross-bar C^9 pivoted within said droppers and provided with a finger for each of the seed-cups and arranged to drop into and force the seed from said cups when they enter said droppers, substantially as set forth.

4. In a planter, the combination, of the frame, the axle, the wheels formed with closed outer sides and with their inner sides open near the center, said inner sides being formed tapered from the rim inwardly, droppers mounted over apertures in the rims of each wheel one side of each of which is pivoted and provided with an inwardly-extending arm, a sliding plate carrying seed-cups connected by a pivoted lever and link to said arm, a trip for operating said arm, and means for returning it to its normal position, substantially as set forth.

5. In a planter, the combination, of the frame provided with boxes, the axle journaled in said boxes, the wheels provided with the seed-chambers mounted rigidly on said axle, the droppers one part of each of which is pivoted, the part carrying the seed-cups connected with said pivoted part, whereby it is operated to carry the seed from the seed-chamber to the dropper as said part is operated, the trip for operating the same, carried on arms secured to the frame and projecting within the wheel, said trip having antifriction-rollers on its back to contact with the back of the wheel, and means for returning the parts to their normal position, substantially as set forth.

6. In a planter, the combination, of the frame, the axle the wheels formed as seed-chambers, the seed-carrying plates with the cups, finger-bars C^9 having a finger adapted to enter each of said cups as the plate is operated, the droppers, and the operating mechanism, substantially as set forth.

7. In a planter, the combination, of the frame provided with boxes, the axle journaled therein, the wheels rigidly mounted on said axle and formed to contain the seed-chambers, the droppers, the mechanism for operating said droppers, and the covering-rakes connected to said frame and provided with adjustable jointed ends, substantially as set forth.

8. In a planter, the combination, of the frame, the axle, the wheels mounted on said axle, the droppers mounted at intervals around the peripheries of said wheels, the operating mechanism, the plates containing the seed-cups, said cups being formed therein separated one from another and each adapted to carry a single seed, the brush at the entrance to said droppers, and the fingers therein adapted to drop into said cups as they enter and force the seed therefrom, said fingers being mounted on a rocking bar and arranged separated thereon to correspond with the arrangement of the cups, substantially as set forth.

592,718. THILL-COUPLING. ALLEN I. THOMPSON, JESSE D. THOMPSON, and PHILANDER J. STEWART, Provo City, Utah; said Jesse D. Thompson and said Stewart assignors of their right and Allen I. Thompson assignor of part of his right to James W. Scott, C. H. Wood, Frank W. Wood, and F. J. Bonrey, same place. Filed Feb. 20, 1897. Serial No. 624,310. (No model.)



Claim.—1. A thill-coupling comprising a draw-head, provided with a transverse passage, and an L-shaped recess communicating therewith through the upper wall thereof, a thill-iron having a longitudinally-extended arm projecting from one edge thereof, a pin carried by said arm a short distance from its extremity, and a bar connecting said pin intermediate its ends with the end wall of the thill-iron thereby forming two parallel passages one of which is open so that when the parts are united, the pin takes the transverse passage of the coupling-head, while the connecting-bar engages the longitudinal passage, the portion of the arm of the thill-iron projecting beyond the point of connection of the pin, bearing against the side wall of the draw-head to strengthen the coupling, substantially as described.

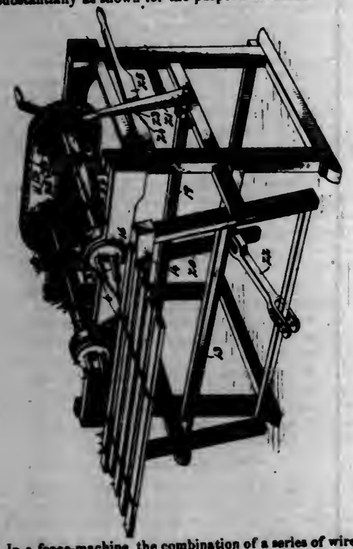
2. A thill-coupling comprising a draw-head having a transverse passage formed therein, and an L-shaped passage opening through the upper wall thereof and communicating with the transverse passage, a washer of flexible material having its ends slit, said washer adapted to be positioned in the transverse passage with the side portions formed by the slits engaging the inner periphery of the walls of the transverse passage and with the central portion resting on the bottom wall of the longitudinal passage, and a thill-iron having a longitudinally-extending arm, a pin carried by said arm, and a bar connecting said pin with the end wall of the iron, said iron adapted to be positioned in the head and rest upon said washer, substantially as described.

592,719. FENCING-MACHINE. HENRY C. ANDERSON, Clarksville, Tex., assignor of three-fourths to Thomas J. Fryar, William D Carrol, and Allen Talley, same place. Filed May 28, 1897. Serial No. 638,562. (No model.)

Claim.—1. In a fence-machine, the combination of wire-twisters having projecting guides, a movable frame having its top side in a plane corresponding to the space formed between the guides of the wire-twisters when disposed about in vertical relation, and pins applied to the movable frame to engage with one end and the rear edge of the pickets, substantially as and for the purpose set forth.

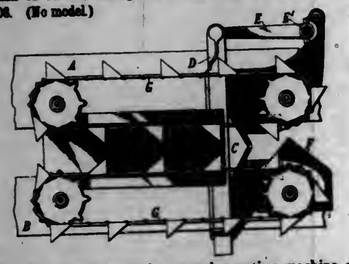
2. In a fence-machine, the combination of a series of wire-twisters, a frame pivoted between its top and bottom ends and forming a combined picket spacer and feeder, a rock-shaft having an arm, and a link adjustably connected at one end with the said arm and having

adjustable connection at its opposite end with a portion of the pivoted frame, substantially as shown for the purpose described.



3. In a fence-machine, the combination of a series of wire-twisters, a pivoted frame forming a combined picket support, spacer and feeder, a rock-shaft, a link adjustably connecting an arm of the rock-shaft with a portion of the pivoted frame, an operating-arm, a pivoted bar adapted to interlock with the operating-arm, and a spring for returning the parts to a normal position, substantially as set forth.

592,720. CUTTING MECHANISM FOR CORN-HARVESTERS. WILLIAM R. BAKER, Chicago, Ill. Filed Feb. 23, 1895. Serial No. 539,708. (No model.)



Claim.—1. In combination in a corn-harvesting machine, a stationary knife located in the stalk passage-way, a reciprocating knife moving across the stalk passage-way in the rear of the stationary knife, the cutting edge of the stationary knife being inclined in an outward, upward and rearward direction, and ending in practically the same plane as that in which the reciprocating knife moves.

2. In combination in a corn-harvesting machine, a stationary knife located in the stalk passage-way, a reciprocating knife moving across the stalk passage-way in the rear of the stationary knife, forwarding devices so located as to sweep the stalk passage-way over the stationary knife, the stationary knife having an outward, upward and rearward inclined cutting edge which ends in a plane practically the same as that of the reciprocating knife, whereby the stalks are carried to the rear across the cutting edge of the stationary knife and to the reciprocating knife, substantially as and for the purpose specified.

3. In combination in a corn-harvesting machine, a stationary knife positioned in the stalk passage-way and so located as to be swept by forwarding devices that move along it to the rear, a moving knife located to cut across the stalk passage-way and having its cutting edge rearward of the cutting edge of the stationary knife, whereby any stalks and trash that are carried past the stationary knife have an opening in which to be acted upon by the reciprocating knife which opening is wider than the opening in the stalk passage-way at the place where the stationary knife is located.

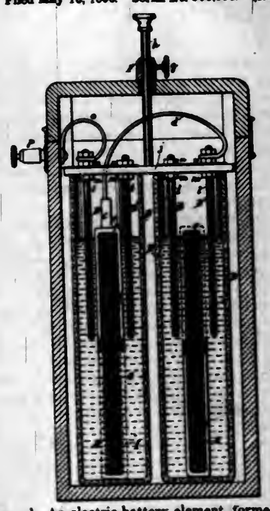
4. In a corn-harvesting machine in combination with the reciprocating knife, a stationary knife on one side of the stalk passage-way extending into the stalk passage-way and terminating before it reaches the path traversed by the reciprocating blade.

592,721. MILK-COOLER. JOHN BARNHART, DAVID A. BARNHART, and JAMES W. BARNHART, Williamson, Pa. Filed Apr. 27, 1897. Serial No. 634,147. (No model.)



Claim.—In a milk-cooler, the combination with the tank, series of transversely-arranged partitions B and E in pairs therein, each alternate partition E having a space intervening between its lower edge, and the bottom of the tank and having their upper edges in the same plane, of the trough F, and outlet F' leading therefrom, the upper surface of the said trough being in a plane coincident with the upper edges of said partitions B and below the upper edges of the partitions E, of the downwardly and outwardly inclined inlet passage-way, with dividing-block thereon, the lower end of said passage-way secured to and opening into the end of the tank, slightly beneath the top thereof, as set forth.

592,722. ELECTRIC BATTERY. FRANK M. BELL, New York, N. Y. Filed May 18, 1896. Serial No. 591,958. (No model.)

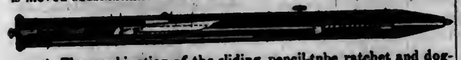


Claim.—1. An electric-battery element, formed of a lead negative plate provided with a body of peroxid of lead, one or more amalgamated zinc positive plates, a perforated sheet of insulating material extending over the upper end only of the negative plate and inserted between the positive and negative plates, an elastic band stretched over the perforated sheet and over the negative plate, and an electrolyte surrounding the positive and negative plates, substantially as specified

2. A negative plate for batteries, comprising a lead plate having its sides grooved transversely, a filling of peroxid of lead in said grooves, a perforated cover of insulating material extending over the upper end only of the plate, and means for securing the cover on the plate, substantially as described.

592,723. ADDING-PENCIL. WILLIAM W. BROWN, Macon, Ga. Filed Jan. 16, 1897. Serial No. 619,480. (No model.)

Claim.—1. The combination of a pencil-case with a sliding part carrying a ratchet-spring, a dog-spring and ratchet register-plate with a longitudinal sliding tongue which releases the register-plate by raising the contact of said springs with said plate when the slide is moved substantially as described.



2. The combination of the sliding pencil-tube ratchet and dog-spring with a slide provided with an inclined bearing edge whereby it is made to lift the springs when given a longitudinal movement substantially as described.

592,724. PROCESS OF ENAMELING. CHESTER CONOVER, Brooklyn, N. Y., assignor to the Ironclad Manufacturing Company, New York, N. Y. Filed Mar. 25, 1897. Serial No. 629,248. (Specimens.)

Claim.—1. The process which consists in applying to an article having a vitrifiable surface, a solution of metallic salt to produce a color in said surface, and then subjecting the surface so treated to heat to develop and fix the color.

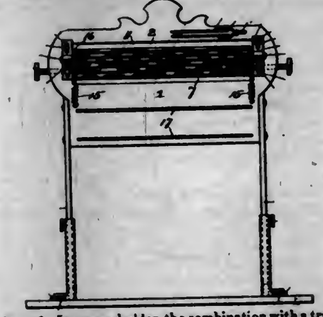
2. The process which consists in first coating a surface with enamel or analogous material, then applying to such surface a solution of metallic salt to produce a color in the enamel, and finally subjecting the surface so treated to heat to vitrify the coating and develop and fix the color.

3. The improvement in the art of enameling metal which consists in first coating the metal with enamel or analogous composition, then drying said coating and applying thereon a solution of metallic salt to produce a color in the enamel, and then subjecting the metal to heat to vitrify the coating and develop and fix the color.

4. An article of manufacture provided with a vitrified surface having fused in said surface a mottling material decomposed from a metallic salt applied in solution thereon to produce a color in the surface, and constituting, after fusion, the fixed ornamentation of the article.

5. Enameled ware with a coating of enamel vitrified thereon and having fused in the surface of said coating a mottling material decomposed from a metallic salt applied in solution thereon to produce a color in said coating, and constituting, after fusion, the fixed ornamentation of the ware.

592,725. COPY-HOLDER. JOHN S. DUDLEY and SCHILLER FOGLESON, Marion, Ohio, assignors to the Triumph Manufacturing Company, same place. Filed Feb. 21, 1896. Serial No. 580,232. (No model.)



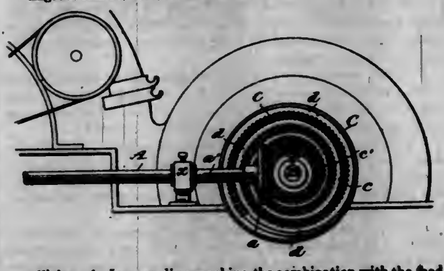
Claim.—1. In a copy-holder, the combination with a transversely-slotted vertical base-board, of a fixed and an adjustable roller located in the slot in said base-board, and springs connecting said adjustable roller to the base-board and tending to draw said roller into contact with said fixed roller, substantially as shown and described.

2. In a copy-holder, the combination with a transversely-slotted vertical base-board, a fixed rear roller mounted in said slot, a vertically-movable front roller also mounted in said slot a little above and in front of said rear roller, and springs engaging said movable roller with the base-board and tending to draw said roller into contact with the fixed roller, substantially as shown and described.

3. In a copy-holder, the combination with a transversely-slotted vertical base-board, a fixed rear roller mounted in said slot, a vertically-movable front roller also mounted in said slot a little above and in front of said rear roller, brackets carrying the axis of said movable roller, said brackets movably supported on the front of the base-board by screws passing through longitudinal slots in said brackets, and springs for normally retaining said brackets and the roller supported thereby, in their lowermost position, substantially as shown and described.

4. In a copy-holder, the combination with a vertical base-board having rollers adjustably mounted thereon to receive and feed copy, of telescopic standards supporting said base-board, the lower ends of said standards provided with feet formed at right angles thereto, said feet triangular in cross-section and having clips fitted thereto and provided with apertures for receiving means for securing said clips to a table, substantially as shown and described.

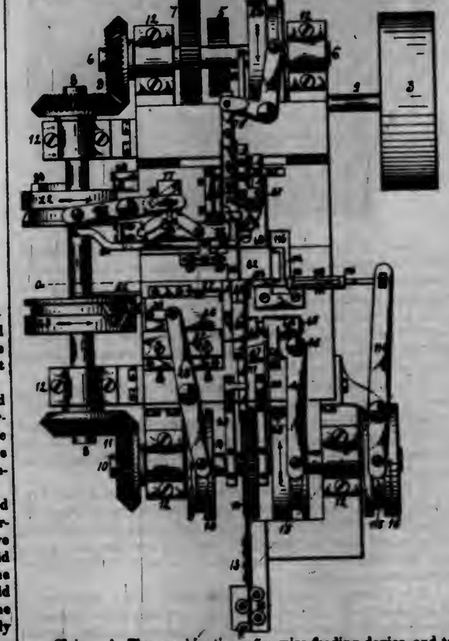
592,726. CARDING-ENGINE. JAMES ROSS, Gorton, England. Filed July 13, 1897. Serial No. 644,420. (No model.) Patented in England Jan. 29, 1895, No. 2,014.



Claim.—1. In a carding-machine the combination with the feeding mechanism, of means substantially as described, whereby the feed mechanism, when the machine starts, can be driven at a speed greater than normal, and the rate of speed of the same thereafter be automatically and gradually reduced until it reaches the normal rate, substantially as and for the purposes hereinbefore set forth.

2. In a carding-machine and in combination with the feed-shaft, the gear *a* rotating with said shaft and capable of movement in a direction lengthwise of the axis of the same, and the toothed scroll-wheel C driven by the doffer-shaft or other suitable moving part of the machine; and consisting of the beveled-tooth scroll *c* and circle *c'*, and backing *d*, the scroll and backing gradually decreasing in height as they approach the circular part *c'*, substantially as and for the purposes hereinbefore set forth.

592,727. WIRE-FENCE-STAY MACHINE. PETER FRANTZ, Mount Morris, Ill., assignor to the Chain Stay Fence Company, same place. Filed Mar. 16, 1897. Serial No. 628,214. (No model.)



Claim.—1. The combination of a wire-feeding device and two sets of dies, one set made bodily movable in and out of the line of feed.

2. The combination of a wire-feeding device, two sets of dies, and a knife, one set of dies and knife made bodily movable in and out of the line of feed.

3. The combination of a wire-feeding device and two sets of dies located at right angles to each other, one set made bodily movable in and out of the line of feed.

4. The combination of a wire-feeding device, two sets of dies, and a knife, one set of dies and knife made bodily movable in and out of the line of feed, and means holding the cut wire in position to be received by the movable set of dies.

5. The combination of a wire-feeding device, two sets of dies, one set made bodily movable in and out of the line of feed, and a guide for the wire for each set, both guides made vertically movable, and one having a yielding section.

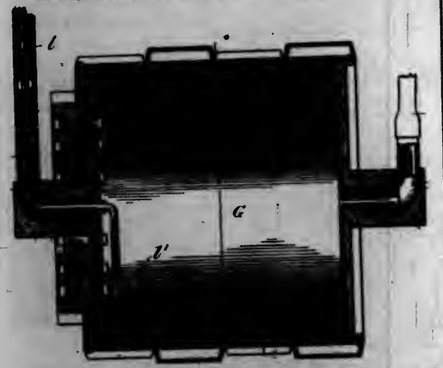
6. The combination of a set of dies consisting of a stationary portion, a plunger, and two movable sections having a sliding connection with each other to produce sequence of action, the faces of the stationary portion and movable section being grooved.

7. The combination of a set of dies consisting of a gripping-jaw, a stationary portion, a plunger, and two movable sections having a connection with each other, the plunger first movable then one section and finally both sections in unison, the faces of the jaw, stationary portion and sections being grooved.

8. The combination of a set of dies, consisting of a stationary portion, a plunger, and two movable sections, the plunger movable first, then one section and finally both sections in unison, the faces of the stationary portion and sections being grooved, and the groove of the first movable section being on an incline.

9. The combination of a set of dies consisting of a stationary portion, a plunger, and two movable sections, the plunger movable first, then one section, and finally both sections in unison, the faces of the stationary portion and sections being grooved, the groove of the first movable section being on an incline, and a movable bender.

592,728. LOGGING-MACHINE. GEORGE T. GLOVER, Chicago, Ill. Filed Aug. 10, 1896. Serial No. 602,242. (No model.)



Claim.—1. In a traction-engine, the combination of a suitable source for supplying heated condensable vapors; a traction-wheel constructed with a chamber which is connected for receiving such vapors and is adapted to serve as a means of condensing the same as a result of the travel of the wheel over snow or ice roads, and adapted also to hold the products of condensation; and means for withdrawing the matters thus condensed from the chamber of said wheel, substantially as set forth.

2. In a traction-engine, the combination of an engine utilizing steam in its operation; a hollow traction-wheel connected for receiving into its interior the spent steam issuing from the engine; and adapted for condensing the same and for holding the water of condensation; and means for withdrawing such water from the interior of the wheel, as set forth.

3. In a traction-engine, the combination of a steam-actuated exhausting-engine; a hollow traction-wheel connected for receiving into its interior the exhaust from the engine, and adapted for condensing the same, and also for holding the water of condensation; and a pump for withdrawing such water from the interior of the hollow traction-wheel, as set forth.

4. In a traction-engine, the combination with a steam-boiler and a steam-utilizing engine, of a hollow traction-wheel connected for receiving the spent steam from the engine, and adapted for condensing the same and for holding the water of condensation; and a pump or the like arranged for withdrawing the water from the interior of the traction-wheel, and connected in circulating series between such wheel and the boiler, substantially as set forth.

5. In a traction-engine, the combination of means for supplying heated condensable vapors; a chambered traction-wheel connected for receiving such vapors into its interior; means for withdrawing therefrom the products of condensation; and condensing means connected with the wheel for receiving therefrom a surplus of uncondensed vapors, substantially as set forth.

6. In a traction-engine, the combination with a boiler and a steam-actuated exhausting-engine, of a hollow traction-wheel connected for receiving the exhaust from the engine; a pump for withdrawing the water of condensation from the interior of the traction-wheel; a boiler-supply tank arranged to receive such water from the pump; and a supplemental condensing-tank arranged to receive uncondensed steam from the traction-wheel, and connected for feeding the same, when it is condensed into water, into the supply-tank, as set forth.

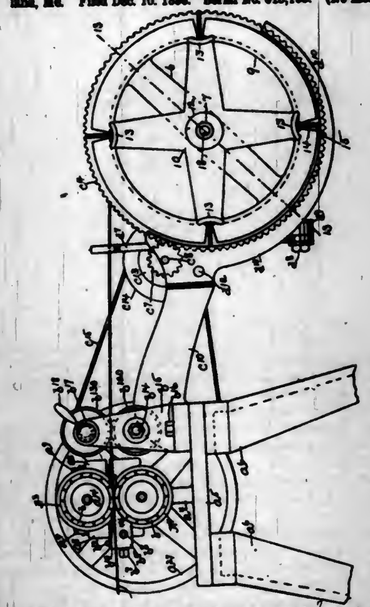
7. In a traction-engine, the combination of the hollow traction-wheel constructed with a tubular hub; and a couple of pipes extending to the interior of the wheel and arranged one within the other, whereof the outer one is fitted within the bore of the tubular hub, as set forth.

8. In a traction-engine, the combination with a liquid-containing traction wheel of a pump or the like connected for removing the liquid therefrom, as set forth.

9. The combination, in a tractor, of the traction-wheel supported in a tilting frame; and a pressure device arranged to exert a downward pressure on the tilting frame, the point of connection of the wheel and tilting frame being between the points of attachment of the tilting frame with the body of the tractor and with the pressure device, as set forth.

10. The combination, in a tractor, of a traction-wheel supported in a tilting frame; and a pressure-cylinder having its piston secured to the body of the tractor, and arranged to exert a downward pressure on the tilting frame by reason of the unyielding connection of the piston, the point of connection of the wheel and the tilting frame being between the points of attachment of the tilting frame with the body of the tractor and with the pressure device, as set forth.

592,729. NAIL-MAKING MACHINE. GEORGE GODDU, Winchester, Mass., assignor to the Goddu Sons Metal Fastening Company, Portland, Me. Filed Dec. 10, 1896. Serial No. 615,195. (No model.)



Claim.—1. In a machine of the character described, the combination of the following instrumentalities, viz: a rotatable cutting-disk provided on its periphery with a plurality of substantially triangular recesses having inclined and transverse cutting edges of unequal length and extended from the circumferential edge of one face of the disk toward the other face of the said disk to form cutting-dies, and a cooperating cutting edge upon which rests the material cut, substantially as described.

2. In a machine of the character described, the combination of the following instrumentalities, viz: a rotatable cutting-disk provided on its periphery with a plurality of substantially triangular recesses having inclined and transverse cutting edges extended from the circumferential edge of one face of the disk toward the other face of the said disk, and a cooperating cutting edge upon which rests the material cut, and a guide for the ribbon or band extended toward and in close proximity to that die of the disk which is cutting the ribbon or band, substantially as described.

4. In a machine of the character described, the combination of the following instrumentalities, viz: a strip-cutting mechanism, rotatable reels, a reciprocating traverse provided with two strip-guides cooperating with said reels, mechanism to rotate said reels and reciprocate said strip-guides, a tension mechanism controlling the rotation of said reels and the reciprocation of said traverse and its guides, and a straightening device intermediate of the strip-guides and cutting mechanism, substantially as described.

5. In a machine of the character described, the combination of the following instrumentalities, viz: a strip-cutting mechanism, a gear, reels secured to said gear to revolve therewith, a reciprocating strip-carrier cooperating with said reels, a main driving shaft, a counter-shaft, gearing actuated by the counter-shaft to rotate said reels and strip-guide, and frictional mechanism driven from the main shaft and controlling the rotation of the counter-shaft and the said reels, and the reciprocation of the strip-guide, substantially as described.

6. The combination with a rotatable cutting-disk provided on its periphery with a plurality of substantially triangular recesses having inclined and transverse cutting edges, of a cooperating rotatable cutting-disk overlapping the cutting edge of the first-mentioned disk and provided with substantially triangular recesses having inclined and transverse cutting edges extended in an opposite direction from the cuttings edge of the first-mentioned disk, means to rotate said disks, and an adjustable guide cooperating with said disks, substantially as described.

7. In a machine of the character described, the combination of the following instrumentalities, viz: a rotatable cutting-disk provided on its circumferential edge with dies, a cooperating cutting-disk having on its circumferential edge cooperating but reverse dies, shafts on which said disks are mounted, gears on said shafts in mesh with each other and longitudinally adjustable thereon, bearings for said shafts, one of which is adjustable radially with relation to the other, and a guide for the ribbon or band cooperating with the cutting-disks, substantially as described.

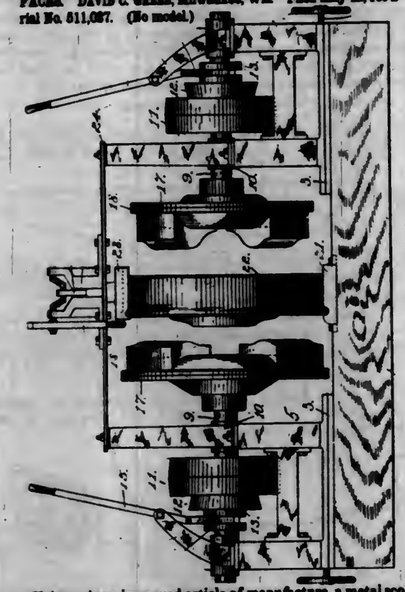
8. In a machine of the character described, the combination of the following instrumentalities, viz: a rotatable cutting-disk provided on its circumferential edge with dies, a cooperating cutting-disk having on its circumferential edge cooperating but reverse dies, shafts on which said disks are mounted, gears on said shafts in mesh with each other and longitudinally adjustable thereon, bearings for said shafts, one of which is adjustable radially with relation to the other, and an adjustable guide for the ribbon or band cooperating with the cutting-disks, substantially as described.

9. In a machine of the character described, the combination of the following instrumentalities, viz: the rotating circular cutting-disks A^3 A^4 having their peripheries substantially in contact and provided with the dies δ reversely arranged on the peripheries of said disks at the circumferential edges of the opposite sides of said disks and provided with substantially long inclined cutting edges δ' and substantially short transverse cutting edges δ^2, which cooperate to cut the metal ribbon, and the stationary guide δ^3 provided with a guideway of substantially the same area in cross-section as the ribbon or band to be cut and having a bottom upon which the ribbon or band rests and upright side walls which embrace the sides or edges of the ribbon or band, and which bottom and side walls are extended close up to the active cutting-dies of the disks A^3 A^4 to impart to the guide δ^3 the function of a support for the ribbon or band and thereby enable a narrow ribbon or band to be cut into duplicate string-nail strips, substantially as described.

10. In a machine of the character described, the combination of the following instrumentalities, viz: a strip-cutting mechanism, reels, upon which the said strips are wound, a reciprocating lever provided with two strip-guides cooperating with said reels, and a tension mechanism controlling the rotation of the said reels and the reciprocation of the said lever and attached guides, substantially as described.

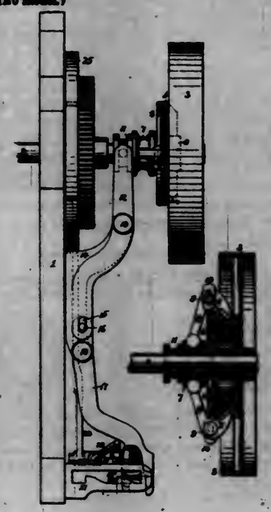
11. In a machine of the character described, the combination with disks having circumferential cutting-dies of uniform length, and with cutting edges reversely arranged, of means to rotate said disks in opposite directions, and an adjustable guide having adjustable fingers, substantially as described.

592,730. APPARATUS FOR CLEANING CAST-METAL SURFACES. DAVID C. GREEN, Milwaukee, Wis. Filed May 12, 1896. Serial No. 591,027. (No model.)



Claim.—As an improved article of manufacture, a metal scouring or cleaning brush, consisting of a plane-surfaced back, a disk secured thereto conformed to the shape of the surface to be cleaned, and the series or groups of wires secured to and projecting a substantially uniform distance from said disk, so as to form a brushing-surface of similar contour.

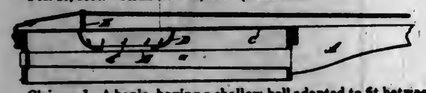
592,731. CLUTCH-AND-BRAKE MECHANISM FOR LOOMS. RICHARD INGRAHAM, Philadelphia, Pa., assignor of one-half to the Fairmount Machine Company, same place. Filed May 6, 1896. Serial No. 590,730. (No model.)



Claim.—1. The combination of the driving-shaft having a brake-disk and a clutch-disk thereon, the driving-pulley, a clutch for connecting the same to the disk, lever mechanism for operating said clutch, a shipper-arm engaging with said lever mechanism, a brake-lever independent of the clutch-lever mechanism, and swinging in a plane at right angles thereto, and lever-and-rod mechanism interposed between said brake-lever and the shipper-arm, whereby the brake-lever is caused to move in a plane at right angles to the movement of the shipper-arm, substantially as specified.

2. The combination of the clutching mechanism, the braking mechanism, the shipper-arm, interposed connections whereby the brake-lever is released in advance of the tightening of the clutch, and a retainer for the shipper-arm having two notches, one of which receives said shipper-arm when the latter is adjusted so as to release the brake, the other notch receiving the arm when the same is adjusted so as to tighten the clutch, substantially as specified.

592,782. BANJO-BELL. ALBERT H. JARVIS and WILLIAM J. MCLEAN, New York, N. Y.; said Jarvis assignor to said McLean. Filed Feb. 19, 1897. Serial No. 624,175. (No model.)



Claim.—1. A banjo, having a shallow bell adapted to fit between the head of the banjo and the continuation of the neck, and held in place by friction therebetween, substantially as described.

2. A banjo, having a shallow bell adapted to fit between the head of the banjo and the continuation of the neck beneath the head, and freely adjustable in position along said neck, substantially as described.

592,783. BUCKLE. EDWARD G. JAY, Philadelphia, Pa., assignor of one-half to Samuel S. Jay, Aberdeen, Md. Filed Dec. 15, 1896. Serial No. 615,744. (No model.)



Claim.—1. A buckle comprising two members hinged together, one of said members having a central opening bridged by a cross-piece, and having also a cylindrical lug having a cylindrical socket communicating with a vertically-arranged slotted opening having parallel sides extending at an angle of less than ninety degrees, with the plane of the buckle, and the other buckle member having a central opening and a cross-piece adapted to fit the socket in the other buckle member, whose cylindrical lug is so formed as to rotate freely about said cross-piece as an axis, and having also an end piece adapted to traverse the slot and adapted to be disconnected therefrom at only one position, and a cap to limit the movement of one buckle member relatively to the other.

2. A buckle comprising two members hinged together, one of said members having a rectangular frame with a central opening bridged by a cross-piece, and a loop on its rear side, and provided also with a lug having a central, vertically-arranged socket communicating at its rear face with a slotted opening having parallel sides, the other buckle member consisting of a rectangular frame having a side piece adapted to fit the socket of the other buckle member, and an end piece adapted to slide in the slotted opening therein, and having also a cap to limit the movement of one buckle member relatively to the other in combination with a strap attached to one buckle member and passing through the loop of the other buckle member, so as to close the slotted opening and prevent the parts from becoming disengaged.

592,784. SHADE-ROLLER. WILLIAM C. JOHNSON, Tye River, Va. Filed June 9, 1897. Serial No. 639,964. (No model.)



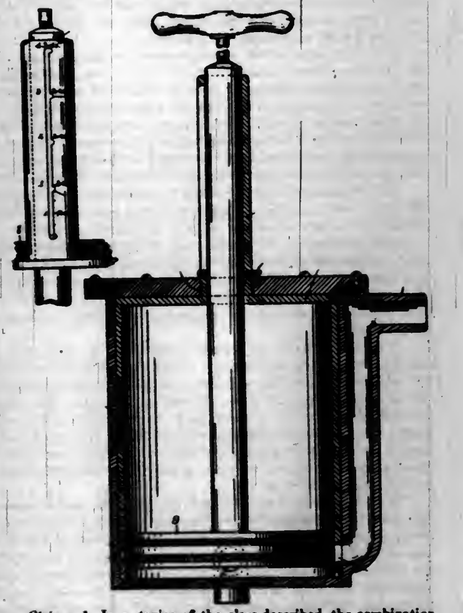
Claim.—The combination with a curtain-roller having a longitudinal groove, and end plates having a cut-out or cavity, of the curtain-keeper having ears pivoted to the roller ends and working in said plate-cavities, and a tongue adapted to hold the curtain in said groove, as set forth.

592,785. APPARATUS FOR ELECTRICALLY TREATING LIQUIDS. FERNANDO JONES, Chicago, Ill., assignor of one-half to John T. Appleberg, same place. Filed Feb. 23, 1897. Serial No. 624,549. (No model.)



Claim.—In an apparatus for electrically treating liquids, the combination with the equidistant sinusoidal electric conducting sides A, and A', of the non-electric conducting-bottom B, end pieces C, separating said sides, and an electric connection with each of the sides, substantially as described.

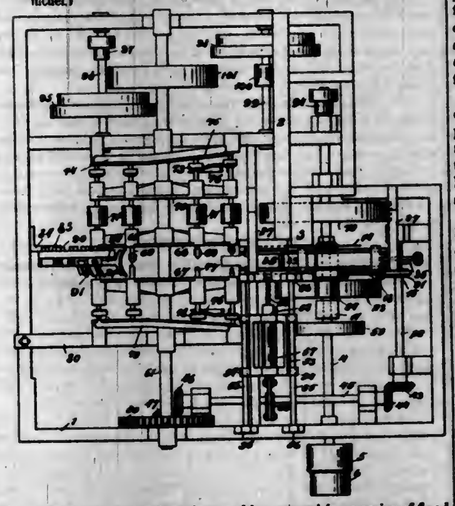
592,786. MEASURING-DEVICE. SAMUEL O. JONES, Stillwater, Minn., assignor of one-half to George H. Atwood, same place. Filed Mar. 9, 1896. Serial No. 582,376. (No model.)



Claim.—1. In a device of the class described, the combination of the outer cylinder having inlet and outlet ports, the second cylinder fitted within said first cylinder, and having a port adapted to register alternately with said outer cylinder-ports, the neck upon said inner cylinder projecting through the head of the outer cylinder, the piston in said inner cylinder with its rod working in said neck, and the pin on said piston-rod projecting through a longitudinal slot in said neck whereby by the turning of said piston-rod the inner cylinder is revolved, said pin also serving to indicate the amount of liquid in the cylinder.

2. In a device of the class described, the combination with the outer cylinder having inlet and outlet ports, the second cylinder rotatable within said first cylinder, and having a port adapted to be brought into registering position alternately with said outlet-ports, the neck upon said inner cylinder projecting through the head of the other cylinder, the piston in said inner cylinder provided with the rod working in said neck, and the interlocking connection between said rod and neck for locking the piston in suspended position to allow the inflow of a predetermined quantity of liquid into the cylinder, and for holding the piston in such suspended position while the inner cylinder is being turned to bring its port into registering position with the outlet-port of the outer cylinder.

592,787. WOOD-TURNING MACHINE. WILLIAM T. JONES, New Westminster, Canada. Filed Dec. 8, 1896. Serial No. 614,910. (No model.)



Claim.—1. A wood-turning machine, comprising a series of fixed cutters, a rotary block-carrier for moving blocks against said cutters, means for rotating the blocks relatively to the carrier, a saw for severing a block from the strip, means for imparting a back-and-forth motion to said saw, means for moving a block forward, a reciprocating frame for holding and operating a boring-tool, and knife-edged flanges for holding a block for the boring-tool, substantially as specified.

2. A wood-turning machine, comprising a main shaft, a saw-carrying frame mounted to swing relatively to said main shaft, a circular saw carried by said frame, means for rotating the saw from the main shaft, a carriage for moving a sawed block forward, a bit-carrying carriage movable at right angles to the block-moving carriage, means for operating both of said carriages, knife-flanges for holding the block for the boring-tool, a rotary carrier, chucks and spindles mounted in said carrier and adapted to rotate relatively thereto, and cutter blades arranged near the carriage, for engaging with and cutting or turning the blocks, the said cutter-blades being gradually placed with relation to the rotary carrier, substantially as specified.

3. A wood-turning machine, comprising a main shaft, a saw-carrying frame mounted on and adapted to rock with the frame, a pulley on the arbor of said saw, adapted for engagement with a band extended from a band-wheel on the main shaft, guide-rods arranged at one side of the saw, a carriage on said guide-rods, pushing-fingers on said carriage and adapted to swing relatively thereto, a fulcrumed lever having a link connection with the carriage, an eccentric for rocking said lever, a boring device forward of the saw, a block-carrier forward of the boring device, and cutter-blades, substantially as specified.

4. In a wood-turning machine, the combination with cutter-blades and a carrier for moving a block of wood against the same, of chucks and spindles mounted on said carrier and adapted to rotate relatively thereto, means for rotating the chucks relatively to the carrier, a bit-carrying frame movable transversely of the block-carrier, a fulcrumed lever having a link connection with said bit-carrying frame, an eccentric for rocking said lever, an elongated roller mounted in the bit-carrying frame and adapted to be engaged by a band extended from a band-wheel on the main shaft of the machine, knife-edged flanges for holding a block while boring, a rotary saw, and means for forcing a block forward to the saw, substantially as specified.

5. In a wood-turning machine, the combination with a saw, of guides extending along one side of said saw, knife-edged flanges on the opposite sides of said guides, means for pushing a block between said knife-edged flanges, a reciprocating bit-carrying frame, means for imparting motion thereto, a rotary block-carrier, and turning-knives arranged near said block-carrier, substantially as specified.

6. In a wood-turning machine, the combination with a carrier for blocks, of a segmental plate concentric with said carrier, guide-plates mounted to swing on said segmental plate, cutter-blade shanks adjustable longitudinally in said guide-plates, and means for securing them as adjusted, substantially as specified.

7. In a wood-turning machine, the combination with a saw, a block-carrier and cutting or turning blades, of a block-shifter comprising a carriage or frame, guide-rods on which said carriage or frame is movable, pushing-fingers mounted to swing vertically on said carriage, a pivoted lever having a link connection with the carriage, a shaft, an eccentric on said shaft engaging against the walls of an elongated opening in said lever, and another eccentric on said shaft for moving the saw to the work, substantially as specified.

8. In a wood-turning machine, the combination with a block-carrier, of a segmental plate concentric to the block-carrier, guide-plates having pivotal connection near their inner ends with said segmental plates, screw-threaded lugs on said guide-plates passing through arc slots in the segmental plate, set-nuts on said lugs, and knife-carrying shanks adjustable in said guide-plates, substantially as specified.

9. In a wood-turning machine, the combination with a saw, a boring device and a block-carrier, of a block-shifter comprising a reciprocating carriage, a fulcrumed lever having a link connection with said carriage, a shaft, a finger extended radially from said shaft, and pins arranged at opposite sides of a slot-opening in said lever and adapted to be engaged successively by the finger on the shaft, the pivotal point of said lever being forward of a vertical line through the axis of the shaft, substantially as specified.

592,788. RETAINING-WALL, BULKHEAD, &c. WILLIAM V. JUDSON, U. S. Army. Filed Feb. 2, 1897. Serial No. 621,650. (No model.)



Claim.—1. In a protective face for banks, moles and the like, the combination with a layer of concrete or cement, of a plurality of I-beams arranged parallel to each other and rigidly embedded in the said concrete, other I-beams in the rear of the said facing and stays securing the said I-beams to those embedded in the concrete, substantially as described.

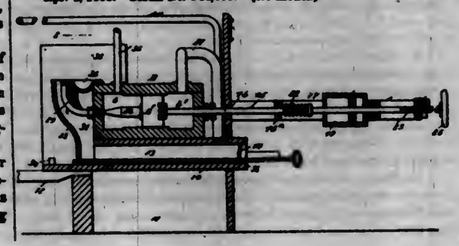
2. In a protective face for banks, moles and the like the combination with a wall of concrete or cement having planes of weakness, of a plurality of I-beams rigidly embedded therein, other I-beams in the rear of said wall and stays securing the said I-beams to those embedded in the wall, substantially as described.

3. In a protective face for banks, quays, lock and dock walls, moles, and the like, the combination with a layer of concrete, of vertical I-beams or other similar stiffeners embedded therein, and transverse I-beams or other stiffeners secured to the face of said I-beams, and stays attached to said transverse I-beams, substantially as and for the purposes described.

4. In a protective face for banks, beaches, and the like, the combination of a heavy retiring coping with an inclined or vertical facing of concrete, and I-beams or other similar stiffeners, substantially as and for the purposes described.

5. In a protective face for banks, quays, lock and dock walls, moles, and the like, the combination with a layer of concrete, of vertical I-beams or other similar stiffeners embedded therein, and transverse I-beams or other stiffeners secured to the face of said I-beams, and stays attached to said transverse I-beams or other similar stiffeners and to a similar wall or facing adapted to form the other side of a pier or mole, substantially as described.

592,789. HYDROCARBON-BURNER. WILLIAM C. KAVANAGH, New York, N. Y., assignor to Sophia D. Deenan, same place. Filed Apr. 1, 1895. Serial No. 544,095. (No model.)



Claim.—1. The furnace, combined with the dead-plate, located at the top of the ash-pit, and which has its inner end project over the front end of the grate-bars, and its front end extend beyond the front of the furnace; the air-chute, the damper in the chute, the burner-tubes, located above and in front of the rear edge of the plate, and means for supplying the burner-tubes with fuel, substantially as shown.

2. The furnace, the dead-plate located at the top of the ash-pit and which has its inner end project over the front end of the grate-bars and its front end extend beyond the front of the furnace, the air-chute, and a damper in the chute, combined with the burners placed in front of the rear edge of the plate, means for providing the burner-tubes with fuel, and the rear wall placed upon the top of the plate between its rear edge and the burner-tubes, substantially as described.

3. The furnace, the dead-plate located at the top of the ash-pit, and which has its inner end project over the front end of the grate-bars and its front end extend beyond the front of the furnace, the air-chute, and a damper in the chute, combined with the burner-tubes placed in front of the rear edge of the plate, means for providing the burner-tubes with fuel, an adjustable wall placed upon the rear portion of the plate between its rear edge and the burner-tubes, and means for adjusting the plate so as to regulate the supply of air to the burner-tubes, substantially as set forth.

4. The furnace, the dead-plate located at the top of the ash-pit, and having its inner end project over the front end of the grate-bars and its outer end extend beyond the front of the furnace and provided with stops at its inner end, the air-chute formed upon the top of the dead-plate, a damper placed in the chute, burner-tubes located above and in front of the rear edge of the plate, and means for supplying the burner-tubes with fuel, combined with a vertical adjustable wall placed upon the rear end of the plate, and an adjusting-rod connected to the wall and having its front end extend beyond the front end of the air-chute, substantially as specified.

5. An air-supply passage or duct, consisting of stationary front, bottom and side walls, and an adjustable rear wall, combined with the burner-tubes located at the top of the air-supply duct, an air-chute conducting air into the bottom of the air-supply duct, and means for adjusting the rear wall, substantially as shown.

6. An air-supply passage or duct consisting of stationary side, bottom, and front walls, combined with a movable rear wall, means for adjusting it, burner-tubes located at the top of the air-supply duct, a stationary hood also located at the top of the air-supply duct in front of the burner-tubes, an air-flue conducting air into the bottom of the air-supply duct, and means for controlling the passage of the air through the flue, substantially as described.

7. An air-supply passage or duct, having stationary front, side and bottom walls, a movable rear wall, and means for moving it, combined with burner-tubes placed at the top of the air-supply duct, an air-chute for admitting air into the bottom of the air-supply duct, and means in the chute for regulating the supply of air, the rear wall being curved so that the air-supply duct is smallest at the bottom and largest at the top, substantially as set forth.

8. In a hydrocarbon-burner, an air-supply passage or duct, provided with a vertical curved rear wall that is horizontally adjustable in relation to the burner-tubes, for the purpose of regulating the supply of air to the burner-tubes, combined with the burners placed in the top of the air-supply duct, an air-chute for regulating the supply of air to the bottom of the air-supply duct, and means placed in the chute for controlling the passage of the air through the chute, substantially as shown.

9. In an oil-burner, an oil-receiving chamber having outlets, means for controlling the same, and burner-tubes connected with the outlets, and an air-supply passage or duct formed around the said burner-tubes and open at the top, the said duct being contracted at top and bottom and having an air-supply at its lower end, one wall of said duct being movable to control the character of the flame, as and for the purpose set forth.

10. In an oil-burner, the combination with the burner-tubes thereof, of an air-supply passage or duct formed around the same, contracted at top and bottom and having one of its walls movable and adjustable, an air-chute connected with the air-supply passage or duct, and a damper controlling the admission of air into said chute, as and for the purpose set forth.

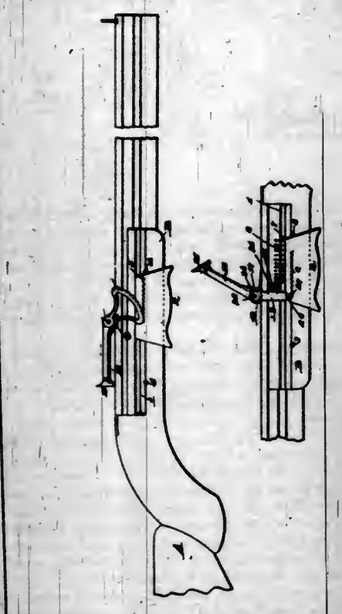
11. The combination of a curved burner-tube for combustible fuel, a chamber communicating with said burner-tube, a wall conforming to and situated adjacent to the burner-tube and forming with a wall of the chamber an air-passage to and coextensive with the burner-tube, a plate supported by the chamber and extending to near the end of the burner-tube, and means connected with the chamber for supplying steam and oil to the burner-tube, substantially as shown.

12. The combination with a chamber having connected therewith means for supplying steam and oil, a burner-tube communicating with said chamber and adapted to receive the steam and oil, an air-passage surrounding and coextensive with said burner-tube, and an air-chute lying below the chamber and adapted to supply air to the passage.

13. The combination with a chamber having connected therewith means for supplying steam and oil, a burner-tube communicating with said chamber and adapted to receive the steam and oil; an air-passage surrounding and coextensive with said burner-tube and provided with a movable wall and an air-chute lying below the chamber, and adapted to supply air to the passage.

14. The combination with a chamber having connected therewith means for supplying steam and oil, a piston placed in said chamber, and provided with means for closing the inner ends of the burner-tubes, with the burner-tubes communicating with said chamber and adapted to receive steam and oil therefrom; and an air-passage surrounding and coextensive with said burner-tubes, and an air-chute lying below the chamber and adapted to supply air to the passage, substantially as specified.

592,740. SIGHT FOR FIREARMS. JOHN A. KENNEDY, Chateau, Mont. Filed July 3, 1896. Serial No. 597,931. (No model.)



Claim.—1. In a firearm-sight, the combination with the firearm fore-stock, of a hand-slide movable on said fore-stock and provided with a rack having rounded teeth, a sight pivoted to the fore-stock and adapted to be raised and lowered, an operative connection between the sight and the hand-slide, whereby the movement of the latter actuates said sight, and an audible distance-indicator which consists of a guide secured to the fore-stock, and a spring-actuated ratchet-bolt having a pointed end adapted to fit in the notches of the rack and to ride on said rack when the hand-slide is moved to adjust the sight.

2. In a firearm-sight, the combination with the fore-stock of the firearm, of a hand-slide thereon, provided with a rack, an ear connected to the firearm and provided with a cylindrical bore, a lever-sight pivoted on said bore, a connection between said sight and the hand-slide whereby the same is actuated when the hand-slide is moved, a housing having a pocket adapted to receive said bore, and a spring-pressed ratchet-bolt adapted for movement in the housing and riding on the rack on the hand-slide, substantially as described.

3. In a firearm sight, the combination with a pivoted lever-sight and a sight-piece pivoted thereto, of a regulator-lever connected to the sight-piece and adapted for moving the same, and a hand-slide movable on the stock of the firearm and adapted for actuating the sight and regulator-lever simultaneously, substantially as described.

4. In a firearm-sight, the combination with a pivoted lever-sight and a sight-piece pivoted thereto, of an eccentric, a regulator-lever having one end adapted to turn on the eccentric and the other end pivoted to the sight-piece, and mechanism for actuating the lever-sight where the sight-piece is also moved, substantially as described.

592,741. MACHINE FOR FORMING AND COILING MATCH-SPLINTS. CHARLES F. SCAMMAN and CARROLL L. FARRAR, Dearing, and KELSEY C. FARRAR, Bath, Me. Filed Jan. 16, 1897. Serial No. 619,468. (No model.)

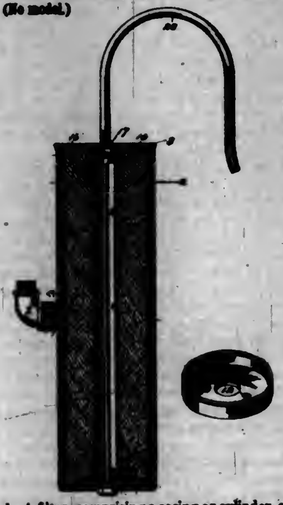


Claim.—1. In a machine for making and coiling match-splints, the combination of a fixed cutting-knife, feed-rolls for feeding a veneer strip over said cutting-knife, a cutting-block operated by reciprocating mechanism acting against the edge of said knife for separating the splints from the veneer strip, a splint-carrier movable beneath said knife having recesses to receive the splints, said splints being intermittently forced into said recesses by means operated by said reciprocating mechanism as fast as they are formed and a coiled belt connecting with said splint-carrier for coiling the splints.

2. In a machine for making and coiling match-splints, the combination of a fixed cutting-knife, feed-rolls for feeding a veneer strip over said cutting-knife, a splint-carrier movable beneath said knife having recesses to receive the splints, guides for conducting the splints from the edge of said knife to said carrier, a reciprocating cutting-block for forming the splints and forcing them intermittently into the recesses of said carrier and a coiling-belt connecting with said splint-carrier for coiling the splints.

3. In a machine for making and coiling match-splints, the combination of a fixed cutting-knife, feed-rolls for feeding a veneer strip over said cutting-knife, a splint-carrier movable beneath said knife having recesses to receive the splints, frictional guides adapted to hold the splints in suspension for conducting the same from the edge of the knife to said carrier, a reciprocating cutting-block for forming the splints and forcing them intermittently into the recesses of said carrier and a coiling-belt connecting with said splint-carrier for coiling the splints.

592,742. FILTER. ISAAC H. STONE, Kansas City, and HORACE G. MCLEAN, Racine, Mo., assignors, by direct and mesne assignments, to George A. Wells, St. Louis, Mo. Filed Oct. 26, 1896. Serial No. 567,041. (No model.)

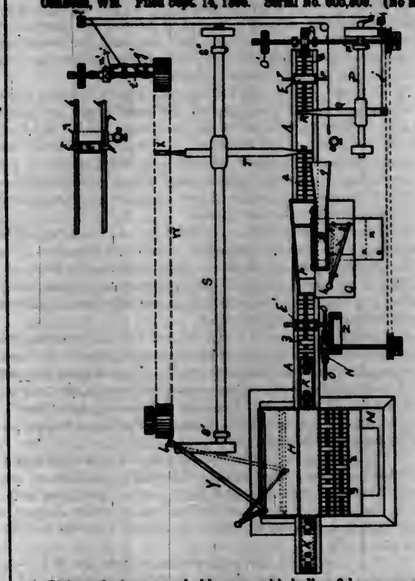


Claim.—1. A filter, comprising a casing or cylinder, open at both ends and provided with a perforation, a porous cylinder fitting loosely therein and provided with a central bore or passage, washers of yielding material at the ends of the porous cylinder, and provided with flanges which project into the space between the same and the casing or cylinder, end plates bearing against the outer sides of the said washers, a tie-rod connecting said end plates, and a clamping-nut engaging said tie-rod to secure the end plates and the washers in proper position relative to the porous cylinder, substantially as set forth.

2. A filter, comprising a casing or cylinder, open at both ends, flared at one end and flanged inwardly at the other, a porous cylinder within the same and provided with a central bore or passage, washers at the ends of the porous cylinder and provided with annular flanges which project into the space between the porous cylinder and the casing, end plates bearing against the outer sides of said washers, and one of them resting upon the flange of the casing, bosses projecting inwardly from said plates into the ends of said bore or passage, a rod connected at one end to one of said bosses and having its opposite screw-threaded end extending through the said parts, a clamping-nut engaging said end of the rod, a washer or packing-ring surrounding said rod and clamped against said boss, and a discharge-tube to convey the filtered liquid from the bore or channel, substantially as set forth.

3. A filter, comprising a casing or cylinder, open at both ends, flared at one end and flanged inwardly at the other, a porous cylinder within the same and provided with a central bore or passage, washers at the ends of the porous cylinder and provided with annular flanges which project into the space between the porous cylinder and the casing, end plates bearing against the outer sides of said washers, and one of them resting upon the flange of the casing, bosses projecting inwardly from said plates into the ends of said bore or passage, a rod extending axially of said bore and pivotally connected at one end upon a cross-pin of one of said bosses and having its opposite screw-threaded end projecting through the other boss, a clamping-nut engaging said threaded end, and a discharge-tube communicating with said bore or passage through the end plate having the tubular boss provided with said cross-pin, substantially as set forth.

592,748. TYPE-JUSTIFYING MACHINE. CHARLES W. BOWRON, Oshkosh, Wis. Filed Sept. 14, 1896. Serial No. 605,809. (No model.)



Claim.—1. A non-crushable removable hollow false space adapted to be temporarily placed between the words, in the process of assembling and justifying type, having a continuous aperture through it adapted to permit the passage of the true or permanent space-type into and through the false space.

2. A non-crushable removable hollow false space adapted to be temporarily placed between words, in the process of setting and justifying type, comprising side walls adapted to bear against abutting types and to permit of the inserting of a true space-type between them, the hollow space being for the purpose of keeping the words separated until the desired permanent space-type can be inserted.

3. In type-justifying devices, a hollow false space comprising sides plate at sufficient distance apart to admit of the passage of a space-type between them, said side plates being contracted or narrowed laterally in their lower portion and being secured together by edge plates above the contracted portions.

4. In type-justifying devices, a false space comprising a hollow body member and an ear or ears projecting laterally therefrom adapted for supporting the false space.

5. In a type-justifying device, a false space comprising a hollow body member, a laterally-projecting ear or ears and an outwardly-flaring top.

6. A removable hollow false space E, provided with ears F F, substantially as described.

7. In mechanism for the justification of type, the combination of a type-supporting device, a temporary non-crushable removable hollow false space adapted to receive a true space therein, and means for inserting the hollow false space between the words of types.

8. In mechanism for the justification of type, the combination of a type-supporting device, a removable hollow false space, means for inserting a true or permanent space-type in the hollow of the false space, and other means for withdrawing the false space.

9. In mechanism for justifying type, a hopper, into which the space-types necessary for the justification of a line of type are assembled, having an opening through which the space-types are pushed outwardly, said opening being covered by a plurality of flexible guards of unequal length which, by yielding to the pressure brought against each succeeding space-type, permit it to be pushed out of the hopper while retaining within the hopper all the other space-types.

10. In mechanism for justifying type, the combination, with a type-supporting device, of a hollow false space movable with abutting type in and along the type-supporting device, a hopper or reservoir holding a supply of space-types, and mechanism set in operation by the false space to discharge a true space-type into itself.

11. In a mechanism for justifying type, the combination of a type-supporting device, a removable hollow false space, means for inserting the hollow false space between the words of types, other means for inserting a true or permanent space-type in the hollow of the false space and still other means for withdrawing the false space.

12. The combination with a space-type hopper having a type-discharging aperture, of elastic guards in front of the aperture, a pusher adapted to force a space-type past the guards, an oscillating shaft having an arm contacting a pin on the pusher and another arm in the path of a movable actuating device.

13. The combination with a space-type hopper having a type-discharging aperture, of elastic guards of unequal length, an adjustable plate on the hopper to which the guards are secured and from which they project over the aperture, a reciprocable pusher to force the space-types past the guards, an oscillating shaft, an arm on the shaft contacting a pin on the pusher, another arm on the shaft projecting into the path of an ear on a type in a movable type-column, and a spring for retrieving the pusher.

14. The combination with a type-channel, of a revolving wheel at the head of the channel adapted to receive and force the types into the channel in upright position, a head R adapted to bear temporarily and removably against the front of the line of types, and a traveling slug K arranged to be at and secure the front of the line of types when the head is withdrawn.

15. The combination with a type-channel, a means for putting the type upright in the channel and forcing them along therein, of a head R bearing against and movable in front of the line of types adapted to hold them upright therein, a slug adapted to bear against the front end of the line of types when the head is removed, and a head V adapted when the unjustified line is completed to come behind the line of types and push it along.

16. The combination with a type-channel, of a type-shifting arm T mounted on a way reciprocatingly and tiltably alongside of and movable parallel with the type-channel, the way on which the reciprocating arm is mounted and an endless belt to which the arm is flexibly secured and by the movement of which it is caused to reciprocate and to tilt.

17. The combination with a type-supporting device, of a reciprocating arm having a head adapted to move an assembled line of movable types along a type-supporting device, means for reciprocally moving the arm, and a reciprocally-moving header R held yieldingly by counter-pressure against the forward end of the assembled line of movable types for the purpose of holding the line erect and compact.

18. In mechanism for the justification of type, the combination of a removable hollow false space having laterally-projecting ears, an endless belt having fingers or projections which catch the ears of the hollow false spaces and elevate them, and guideways disposed to receive the ears of the false spaces upon which the false spaces are discharged and assembled for repeated use.

19. The combination with a type-supporting device, a removable hollow false space having a laterally-projecting ear, an elevating-belt provided with fingers to catch the false spaces, a sheer to push the ears of the false spaces off the belt-fingers, and an inclined guideway disposed to catch the ears of the false spaces.

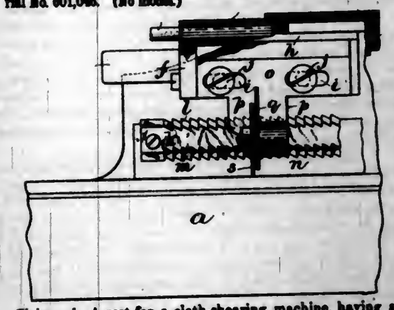
20. The combination with a type-supporting device, of a removable hollow false space, an elevating-belt provided with fingers to catch the false space, a sheer to push the false space off the belt-finger, an inclined guideway for false spaces, a stop on the guideway, and a kicker to raise the false spaces over the stop.

21. In a type-justifying device, a type-supporting channel comprising a bottom and two side walls beveled inwardly along their top lineal edges, in combination with a thereon-traveling hollow false space having flaring surfaces complementary to and bearing on the beveled edges of the type-supporting channel.

22. The combination with a type-channel and a laterally-extended table or galley at the extremity of the type-channel, of a laterally-movable slide to push the justified lines into the galley, an endless belt provided with a lug or flange, and a lever provided at one end with the pin movable in a slot in the slide and at the other end arranged to be moved by the lug on the belt.

23. The combination of type-channel A, removable hollow false spaces E E, wheel D, header R, reciprocating arm T, belt W, space-hopper B, elevating-belt D', guideways 6, stops 7, kicker 4, traveling slug K, slide H, all constructed and operating substantially as and for the purpose set forth.

592,744. YIELDING EXTENSIBLE CLOTH-REST FOR SHEARING-MACHINES. ADNA BROWN, Springfield, Vt., assignor to the Parks & Woolson Machine Company, same place. Filed July 30, 1896. Serial No. 601,046. (No model.)



Claim.—1. A rest for a cloth-shearing machine, having a portion over which the cloth passes, yielding to receive, and permit of the passage of, flocks or knots, combined with means for longitudinally stretching or contracting said rest automatically to leave unsheared the selvage at the edge of the cloth.

2. A rest for a cloth-shearing machine having a portion over which cloth passes, yielding to receive, and permit of the passage of, flocks or knots, a support for the rest relatively to which the rest may be extended or contracted, and means adapted to be acted upon by the cloth for automatically stretching or contracting the yielding rest to leave unsheared the selvage at the edge of the cloth.

3. A yielding rest for a cloth-shearing machine, extensible and contractile longitudinally in combination with means for stretching or contracting said rest.

4. A rest for a cloth-shearing machine, comprising a support, and an extensible rubber tube, in combination with means for automatically extending said tube or moving it relatively to its support to leave unsheared the selvage at the edge of the cloth.

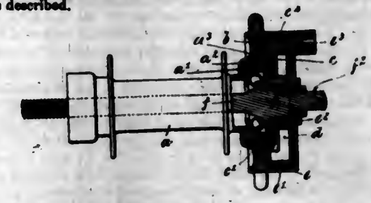
5. A rest for a cloth-shearing machine having a portion over which the cloth passes, of a yielding nature to receive and permit of the passage of flocks or knots, combined with a stationary support for the said yielding portion, and means for automatically stretching the ends of the rest longitudinally of the support to leave unsheared the selvage at the edge of the cloth.

6. A rest for a cloth-shearing machine having a portion over which the cloth passes yielding to receive and permit of the passage of flocks or knots, a support for the rest relatively to which the said rest may be moved longitudinally, and means adapted to be acted upon by the cloth for moving the rest in its support to leave unsheared the selvage at the edge of the cloth.

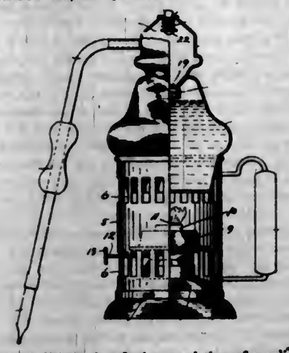
7. As a means for supporting cloth in proximity to the knives of a cloth-shearing machine, the combination with a stationary support of a rest constructed of yielding material to receive and permit of the passage of flocks or knots, said rest being movable longitudinally of said support for the purpose of leaving unsheared the selvage at the edge of the cloth.

592,745. BICYCLE-BRAKE. JAMES S. FOLEY, West Bromwich, England. Filed Feb. 13, 1897. Serial No. 623,258. (No model.) Patented in England July 8, 1897, No. 15,068.

Claim.—The combination of a hub *a* having a head a^2 provided with a collar or flange a^3 and an externally-screw-threaded portion a^4 at its outer end, a chain-wheel *b* loosely mounted on said hub, bearing against said collar or flange and having a lateral abutment b^2, a collar or ring *c* screwed upon the outer end of the hub-head to retain the chain-wheel in position thereupon and having a lateral abutment c^2, a fixed brake drum or casing *e* inclosing the collar or ring, and a spring brake-band following the contour of the drum or casing and having its ends engaged, respectively, with the said abutments on the collar or ring and chain-wheel, substantially as and for the purpose described.



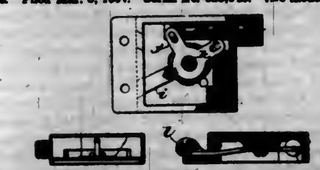
592,746. DISINFECTING DEVICE. SAMUEL SCHWARZ, New York, N. Y., assignor to Robert Schobel, same place. Filed May 11, 1897. Serial No. 635,978. (No model.)



Claim.—1. A disinfecting device consisting of a cylindrical casing provided with slots or openings in the upper and lower ends thereof, a lamp which is detachably connected with the lower end of said casing, and provided with a wick-adjusting shaft which projects through the side thereof, said casing being also provided with a reservoir or receptacle which is mounted in the upper end thereof, and which is provided at its upper end with a casing, the interior of which is in communication with the interior of said receptacle or reservoir, said casing being also provided with a safety-valve, and with a flexible tube, and said tube being provided with a nozzle and with a handle which is adapted to slide thereon, substantially as shown and described.

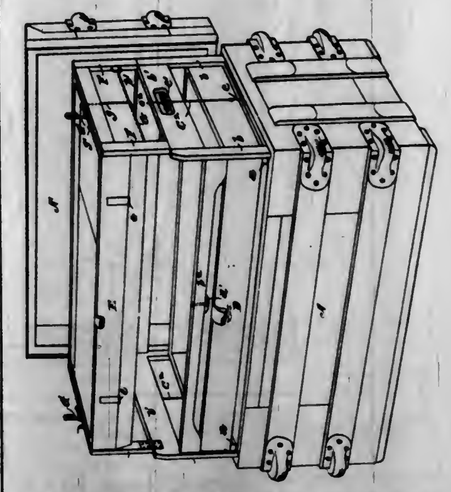
2. As an improved article of manufacture, a disinfecting device or insect-destroyer, consisting of a cylindrical casing provided with a handle and with slots or openings, and which is open at each end, a lamp adjustably connected with the lower end of said casing, and provided with a wick-adjusting shaft which projects through the side thereof, a reservoir or receptacle mounted in the upper end of said casing in the upper end of which is mounted a casing which is in communication with the interior of the said receptacle or reservoir, said last-named casing being provided at the top thereof with a safety-valve and at one side thereof with a flexible tube which is provided with a nozzle and which is also provided with a handle adapted to slide thereon, substantially as shown and described.

592,747. SASH-FASTENER. GEORGE H. STROUT, Waltham, Mass. Filed Mar. 5, 1897. Serial No. 625,946. (No model.)



Claim.—A sash-fastener comprising in its construction a base-plate adapted to be secured to the meeting-rail of one of the sashes; two bolts provided with pins supported in bearings in the base-plate, and each adapted to be moved at a right angle to the other; a swinging lever fulcrumed on the base-plate and having arms *j k* each having a slot to receive the said pins, the said slots extending substantially radially to the axis of the said lever, and the slot in the lever *k* being enlarged or having an angular extension at its outer end on a line practically concentric to the axis of the lever, whereby on moving the lever one bolt may be actuated to an appreciable extent before the other is moved.

592,748. THEATRICAL TRUNK. FRANK C. BEATTIE, Chicago, Ill. Filed May 14, 1897. Serial No. 636,454. (No model.)



Claim.—1. A trunk having a body storage-compartment and two trays in combination with a supporting-frame for said trays vertically adjustable and laterally guided, so as to prevent lateral displacement relatively to said body, whereby the lower tray may be supported above the trunk-body so that access may be had to the interior of said body and means for supporting the upper tray above the lower tray so as to provide an intermediate space to give access to the lower tray, said frame and trays being supported and adjusted within the planes of the side walls of the trunk-body and being adapted to be lowered and inclosed within the trunk-body, substantially as described.

2. The combination, with the trunk-body and trays and the tray-supporting frame vertically adjustable therein, of supports hinged to the ends of the frame, tray-supporting rods hinged to the supports and adapted to receive the upper tray, crank-levers mounted on the supports and flexibly connected with the supporting-rods to operate the same, and catches to lock the crank-lever, substantially as described.

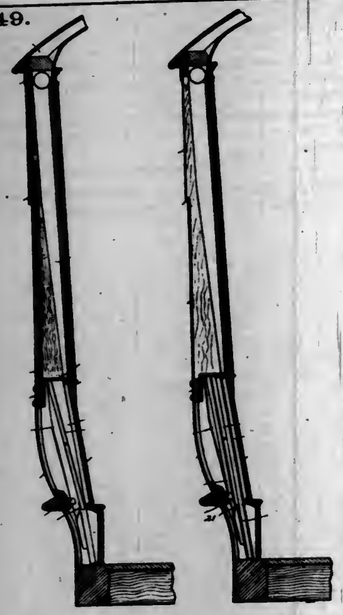
3. The combination with a trunk-body, of a tray-frame vertically adjustable within the planes of the side walls of the trunk-body having an intermediate fixed tray-support and a hinged tray-support whereby said frame may be raised to carry its intermediate tray above the top of the trunk and to support a second tray above the top of said frame, substantially as described.

4. The combination with a trunk-body, of a tray-supporting frame vertically adjustable therein, said frame having hinged cross-bars at its ends adapted to engage the top edge of the trunk-body, balls hinged thereto and means for operating said balls, whereby said cross-bars are adapted to engage by gravity and may be withdrawn by said balls and connections to permit the trunk to be lowered, substantially as described.

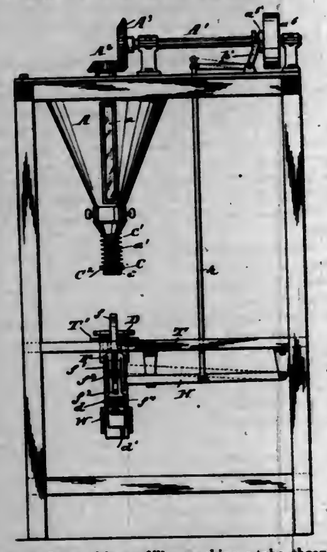
592,749. STREET-CAR. GEORGE F. BROWN, Chicago, Ill., assignor to the Pullman's Palace Car Company, same place. Filed Mar. 10, 1896. Serial No. 582,560. (No model.)

Claim.—In a car of the class described, the combination with posts, inner and outer sheathing applied to said posts above the floor, a lower and an upper sash arranged to slide between the posts, the lower sash being of greater height than the upper, and a gate pivoted in the sash compartment and adapted to guide the sash to place and to support them therein, substantially as described.

592,749.



592,750. PACKING-MACHINE. JOHN H. DAY, Cincinnati, Ohio. Filed Dec. 1, 1888. Serial No. 292,412. (No model.)



Claim.—1. In a packing or filling machine, a tube, through which the material to be filled or packed passes, having around the outside of its lower end or mouth a ring or packing of felt or other soft pliable material, in combination with a movable ring having attached to its under side felt or other soft or pliable material, said ring fitting around the tube and sliding up and down on the same, and having a spring to press said ring down onto the top of the box or package to be filled, substantially as described.

2. In a packing or filling machine, a tube through which the material to be filled or packed passes, a ring surrounding the tube, through which the material passes, and movable thereon, the ring being provided with a padding of felt or other soft and pliable material fastened to the under part of said ring to fit down onto the top of the box to be packed, to prevent dust from escaping, and provided with a spring to press said padding down on the top of the box during the filling process, substantially as and for the purposes specified.

3. In a packing or filling machine, the combination of the following elements: a hopper and filling-tube, a packing-auger within the same driven by a shaft and connecting gearing, a clutch for said shaft, a vertically-moving platform beneath said filling-tube, the lever F provided with a lug f', and having adjustably secured thereto the bearing-piece F', the lever H, connected to the clutch by means of the link h and bell-crank h' and provided with a projection h^3 engaging the lug f', the tappet d', upon the lower end of the vertically-moving platform, and the weight W, for giving upward motion to said platform, whereby at the completion of the downstroke of the platform the lever F is shifted to disengage the lever H to throw the clutch out of engagement and thereby stop the machine, and whereby upon the completion of the upward stroke of the platform the tappet d' engages the lever H and shifts the same to cause it to be reëngaged by the lever F and reëngage the clutch to start the machine, substantially as and for the purposes specified.

4. In a packing or filling machine, the combination of the lever F, provided with the adjustable extension F', and lug f', the vertically-moving package-support, carried by the supporting-stem d, the pulley E', the strap E passed over said pulley and connected at one end to the lower end of the stem d and provided at its opposite end with the weight W, the tappet d' upon the lower end of the stem d extending out so as to strike the lower end of the inwardly-projecting end f^4 of the lever, when the tappet d' uplifts, and the clutch-shifting lever H, substantially as and for the purposes specified.

5. In a packing or filling machine, the combination of the tube d', felt layer d^3 secured to the bottom of said tube, collar C surrounding said tube loosely and sliding thereon, and elastic means for pressing the collar toward the free end of said tube d', felt layer C^3 located on the under side of the collar, hopper A connected to the tube d' and fitting thereinto, substantially as and for the purposes specified.

6. In a packing or filling machine, the combination of the hopper A, delivery-tube d' connected thereto, felt layer d^3 at the lower end and outer edge of tube d', collar C loosely surrounding tube d' and sliding thereon, felt layer C^3 secured to the under side of the collar, vertically-moving platform located oppositely to tube d', stem d supporting said platform, tappet d' attached to said stem d, and tappet h^3 attached to lever H, strap E and pulley E' for strap E, weight W connected to said strap, and latching device consisting of the pivoted lever F, bearing-piece F' connected thereto, lug f' located above bearing-piece F', substantially as and for the purposes specified.

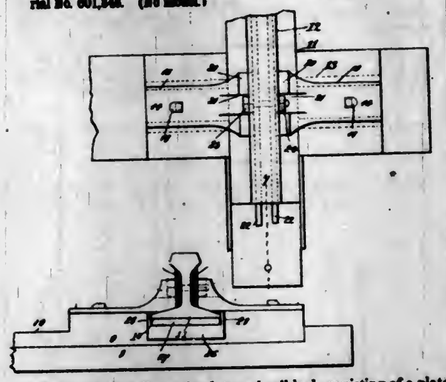
7. In a filling or packing machine, the combination of the hopper A and delivery-tube d' at the delivery end of said hopper, package-support beneath said tube and mounted upon the reciprocatory stem d, provided at its lower portion with the tappet d' having a flat surface above and a latch beveled portion below, auger located within the hopper and rotated by appropriate gear driven by a suitable shaft containing a clutch, and a lever for directly operating said clutch, the lever H connected to said clutch substantially as described, a portion, viz: tappet h^3 of the lever being in the line of movement of the tappet d' and provided with a flat side below and a beveled side above, and the pivoted lever F having the handle-piece and the lug f' adapted to be moved outwardly by the beveled face of the tappet h^3 and to positively engage the under side of the tappet h^3, and the part F' of the lever F having the shoulder inclined downward and toward the stem d for the purpose of enabling the tappet d' to operate thereon in the descent of the latter and having a lower end abutment to positively engage with the upper side of the tappet d' when the latter is fully depressed, substantially as and for the purposes specified.

8. In a filling or packing machine, the combination of the hopper A and delivery-tube d' at the delivery end of said hopper, package-support beneath said tube and mounted upon the reciprocatory stem d, provided at its lower portion with the tappet d' having a flat surface above and a latch beveled portion below, auger located within the hopper and rotated by appropriate gear driven by a suitable shaft containing a clutch, and a lever for directly operating said clutch, the lever H connected to said clutch substantially as described, a portion, viz: tappet h^3 of the lever being in the line of movement of the tappet d' and provided with a flat side below and a beveled side above, and the pivoted lever F having the handle piece and the leg f' adapted to be moved outwardly by the beveled face of the tappet h^3 and to positively engage the under side of the tappet h^3, and the part F' of the lever F having the shoulder inclined downward and toward the stem d for the purpose of enabling the tappet d' to operate thereon in the descent of the latter and having a lower end abutment to positively engage with the upper side of the tappet d' when the latter is fully depressed, portion F' being slotted and secured to the lever F by set-screw f^3 for enabling the part F' to be adjustable upon lever F, substantially as and for the purposes specified.

9. In a filling or packing machine, the combination of the hopper A, tube d', platform, stem d, carrying tappet d', lever H, clutch a^2, and mechanism for connecting same with said lever H for the purpose of starting and stopping the packing shaft or auger in the hopper, lever F carrying lug f', and adapted to engage the tappet h^3 on lever H, and the bearing-piece F', adjustably secured to the lever F and provided with shoulder f^4, substantially as and for the purposes specified.

10. In a filling or packing machine, the combination of the hopper A and the spout or tube d' connected to the delivery end of the hopper, collar C surrounding said tube and sliding loosely thereon, spring C' abutting against a projection above and collar C below for the purpose of elastically advancing the collar and a supporting device located oppositely to the collar C for holding the can or package to be filled, and a stem d for upholding the supporting device, substantially as and for the purposes specified.

592,751. TIE-PLATE AND COUPLING DEVICE FOR RAILWAY-RAILS. FREDERIK LEDEBOER, Lutcher, La. Filed Aug. 6, 1896. Serial No. 601,846. (No model.)

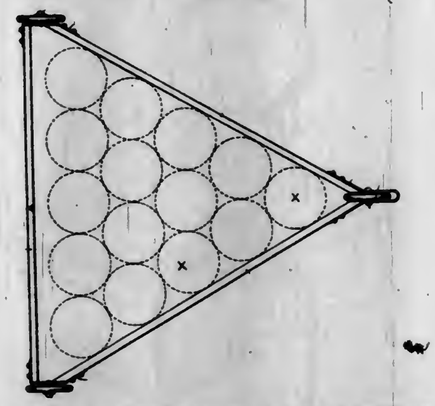


Claim.—1. A railway tie-plate and rail-lock, consisting of a plate which is adapted to be secured to the tie, and provided with a transverse groove adapted to receive the base of the rail, the ends of the tie-plate being each provided in its upper side with a longitudinal groove, of the form used in tongue-and-groove couplings, and key-blocks which are adapted to be inserted into said grooves, and which are provided with longitudinal projections or heads which overlap the base-flanges of the rail, said key-blocks being secured in place by spikes or other devices which pass therethrough, and through the tie-plate, and said key blocks or the heads thereof, which overlap the base flanges of the rail, being provided with upwardly-directed shoulders or projections, in which are formed transverse notches or recesses, through which are passed the bolts which hold the fish-plates in position, substantially as shown and described.

2. A railway tie-plate and rail-lock, consisting of a plate which is adapted to be secured to the tie, and provided with a transverse groove adapted to receive the base of the rail, the ends of the tie-plate being each provided in its upper side with a longitudinal groove, of the form used in tongue-and-groove couplings, and key-blocks which are adapted to be inserted into said grooves, and which are provided with longitudinal projections or heads which overlap the base-flanges of the rail, said key-blocks being secured in place by spikes or other devices which pass therethrough, and through the tie-plate, and said key-blocks or the heads thereof, which overlap the base-flanges of the rail, being provided with upwardly-directed shoulders or projections, in which are formed transverse notches or recesses, through which are passed the bolts which hold the fish-plates in position, and said tie-plate being also provided at the side thereof, and below the base-flange of the rail with a cut-away portion, and a coupling-plate provided at each end with an extension which is adapted to enter said cut-away portion, and at the sides with vertical flanges or projections between which the ends of abutting rails are placed, substantially as shown and described.

3. A railway tie-plate and rail-lock, consisting of a plate which is adapted to be secured to the tie, and provided with a transverse groove adapted to receive the base of the rail, the ends of the tie-plate being each provided in its upper side with a longitudinal groove, of the form used in tongue-and-groove couplings, and key-blocks which are adapted to be inserted into said grooves, and which are provided with longitudinal projections or heads which overlap the base-flanges of the rail, said key-blocks being secured in place by spikes or other devices which pass therethrough and through the tie-plate, and means connected therewith for coupling the abutting ends of separate rails, substantially as shown and described.

592,752. POOL-TRIANGLE. WILLIAM D. POWELL, Rochester, New York. Filed Jan. 12, 1897. Serial No. 618,980. (No model.)



Claim.—1. A pool-triangle having roller mechanism for supporting the same and journaled, axially, parallel to the base of the triangle.

2. A pool-triangle, in combination with supporting-roller mechanism having roller-surfaces of equal diameter and journaled, axially, parallel to the base of the triangle.

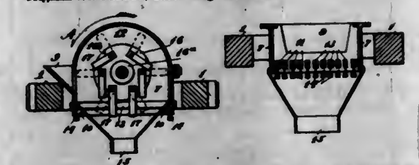
3. A pool-triangle, in combination with supporting-rollers at the base and at another point thereof journaled to said triangle and having axes parallel with the base of said triangle.

4. A pool-triangle, in combination with supporting-rollers equal in diameter and journaled to the triangle axially parallel with the base thereof, and a roller at the apex of the triangle having an axis parallel to the base thereof.

5. A pool-triangle having supporting-roller mechanism adapted to guide said triangle in a line at right angles to its base.

REISSUES.

11,684. DISINTEGRATOR OR CRUSHER. MILTON F. WILLIAMS, St. Louis, Mo., assignor to the Williams Patent Crusher and Pulverizer Company, same place. Filed Mar. 27, 1897. Serial No. 629,636. Original No. 544,236, dated Aug. 13, 1895.



Claim.—1. The improved disintegrator or crusher, comprising a suitable frame, a plurality of annular series of rotary hammers supported by said frame and each series spaced a distance apart, a rectangular metallic box 7 supported by said frame and having at its lower edges an inwardly-projecting flange or lip 10, the opposite walls of said box at points adjacent said lower edges having formed in them a series of rectangular slots 11, a suitable cover and hopper for said box, a series of metallic bars or slats 13 extending across said box and having their ends loosely mounted in said slots, and screw-bolts 14 passed upwardly through said flange or lip into engagement with said bars or slats, substantially as specified.

2. In a crusher, the combination with a casing having a discharge-opening and slots adjacent thereto, of a set of bars mounted in said slots and laterally adjustable therein across said discharge-opening, means to fasten said bars in their adjusted position, and rotary hammers mounted in said casing adapted to coact with said bars in crushing the material delivered to the casing

DESIGNS.

27,775. HAND-BAG. LOUIS SANDERS, Brooklyn, N. Y. Filed Sept. 14, 1897. Serial No. 651,653. Term of patent 3½ years.



Claim.—The design for a hand-bag herein shown and described.

27,776. MATCH-SAFE. MATTHIAS T. LA ROCHE and FRANK S. BAKER, Utica, N. Y. Filed Mar. 23, 1897. Serial No. 628,783. Term of patent 3½ years.



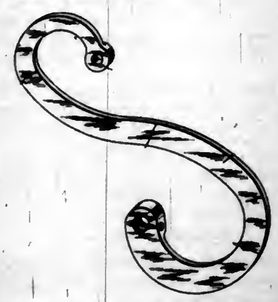
Claim.—The design of a match-safe substantially as herein shown and described.

27,777. UMBRELLA-RUNNER. WILLIAM C. B. SPARRY, New York, N. Y. Filed Sept. 11, 1897. Serial No. 651,386. Term of patent 7 years.



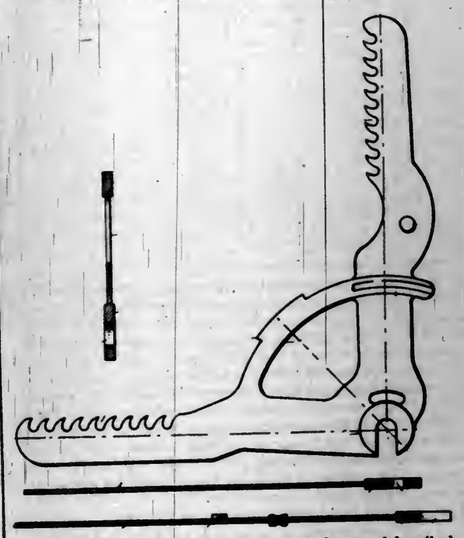
Claim.—The design for umbrella-runners and the like, substantially as set forth and shown in the accompanying drawing.

27,778. PEDAL-ARM FOR BICYCLES. SAMUEL J. ANDERSON and JOSEPH TOTTRAS, Providence, R. I. Filed June 22, 1897. Serial No. 641,838. Term of patent 7 years.



Claim.—The design for a pedal-arm for bicycles herein shown and described.

27,779. JACK-LEVER. GEORGE OLDHAM, Philadelphia, Pa. Filed July 23, 1897. Serial No. 646,270. Term of patent 7 years.



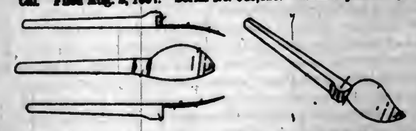
Claim.—The design for a jack-lever herein shown and described.

27,780. WOODEN STOPPER. WEBSTER G. BEERS, Brooklyn, N. Y. Filed July 27, 1897. Serial No. 646,150. Term of patent 14 years.



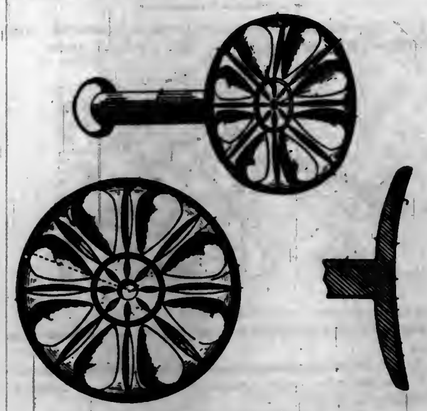
Claim.—The design for a wooden stopper, substantially as shown and described.

27,781. CAN-OPENER BLADE. JOHN JACOB GALLMAN, Fullerton, Cal. Filed Aug. 2, 1897. Serial No. 646,825. Term of patent 7 years.



Claim.—The design for a can-opener blade substantially as shown and described.

27,782. BUTTER-MOLD STAMP. JOSEPH L. DICKINSON, Garden Hill, Ala., assignor of one-half to Alvin R. Smith, same place. Filed Sept. 14, 1897. Serial No. 651,635. Term of patent 7 years.



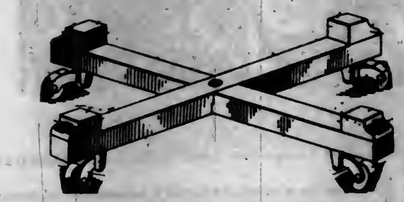
Claim.—The design for a butter-mold stamp herein shown and described.

27,783. STOVE-DOOR. EDWARD G. GREENE, Erie, Pa. Filed July 12, 1897. Serial No. 644,240. Term of patent 7 years.



Claim.—The design for a stove door or panel, substantially as shown and described.

27,784. FLOUR-BIN STAND. ARNOLD GARDES, St. Louis, Mo. Filed Mar. 12, 1897. Serial No. 627,200. Term of patent 7 years.



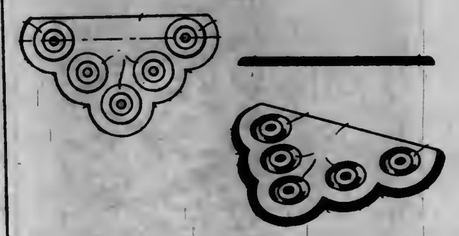
Claim.—A design for a flour-bin stand substantially as set forth.

27,785. DISPLAY-STAND. THOMAS P. MCHUGH, St. Louis, Mo. Filed July 12, 1897. Serial No. 644,242. Term of patent 3½ years.



Claim.—The design for a display-stand substantially as herein shown and described.

27,786. FRAME FOR TOWEL-RACKS. ISAAC OSGOOD, Amesbury, Mass. Filed Aug. 11, 1897. Serial No. 647,926. Term of patent 14 years.



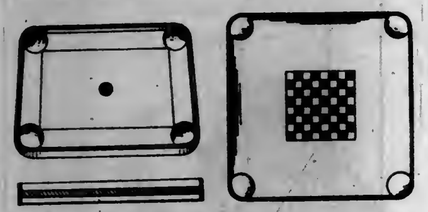
Claim.—The design for a frame for towel-racks and the like, as herein shown and described.

27,787. FLYING TARGET. ALBERT BARTON, Findlay, Ohio, assignor to the Cleveland Target Company, Cleveland, Ohio. Filed Aug. 20, 1897. Serial No. 648,961. Term of patent 14 years.



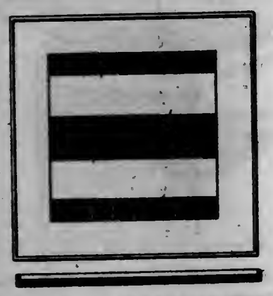
Claim.—The design for a frangible flying target, substantially as herein shown and described.

27,788. GAME-BOARD. HENRY L. HASKELL, Ludington, Mich. Filed Mar. 8, 1897. Serial No. 626,555. Term of patent 7 years.



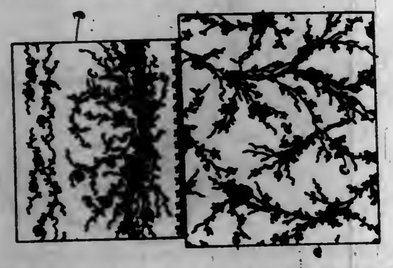
Claim.—The design for a game-board as herein described and illustrated.

27,789. GAME-BOARD. CHARLES WILSHIRE WOOD, Fairmount, N. J. Filed July 20, 1897. Serial No. 646,230. Term of patent 14 years.



Claim.—The design for game-boards herein shown and described.

27,790. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y. Filed Sept. 15, 1897. Serial No. 651,781. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. In design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,791. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y. Filed Sept. 15, 1897. Serial No. 651,782. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,792. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y. Filed Sept. 15, 1897. Serial No. 651,783. Term of patent 3½ years.

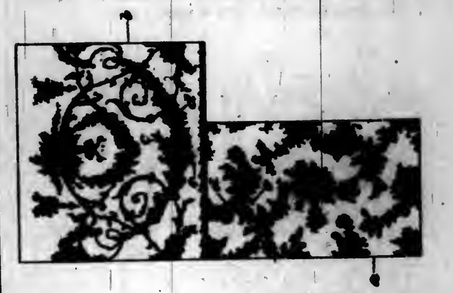


Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,793. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y. Filed Sept. 15, 1897. Serial No. 651,784. Term of patent 3½ years.

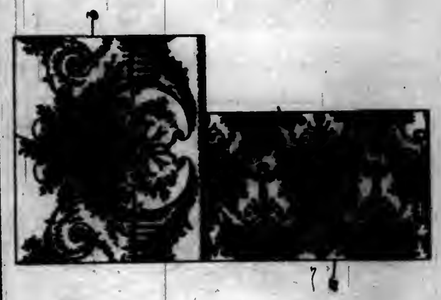


Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,794. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y. Filed Sept. 15, 1897. Serial No. 651,785. Term of patent 3½ years.

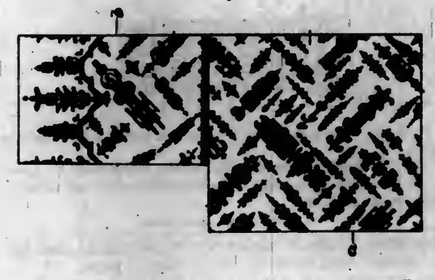


Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,795. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y. Filed Sept. 15, 1897. Serial No. 651,786. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,796. CARPET. ANNA K. MAY, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,788. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,797. CARPET. ANNA K. MAY, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,789. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,798. CARPET. ANNA K. MAY, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,790. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,799. CARPET. ANNA K. MAY, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,791. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,800. CARPET. ANNA K. MAY, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,792. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,801. CARPET. ANNA K. MAY, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,793. Term of patent 3½ years.

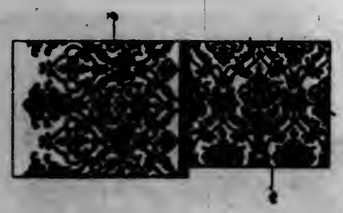


Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,802. CARPET. Anna K. May, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,794. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,803. CARPET. Anna K. May, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,795. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,804. CARPET. Anna K. May, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,796. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,805. CARPET. Anna K. May, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,797. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,806. CARPET. Anna K. May, Philadelphia, Pa. Filed Sept. 15, 1897. Serial No. 651,798. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

TRADE-MARKS

REGISTERED OCTOBER 26, 1897.

30,729. WATCHES. Otto Young & Co., Chicago, Ill. Filed Sept. 15, 1897.

ACME

Essential feature.—The word "Acme." Used since September 1, 1897.

30,730. WATCHES. Otto Young & Co., Chicago, Ill. Filed Sept. 15, 1897.

ACME WATCH CO.

Essential feature.—The words and abbreviation "Acme Watch Co." Used since September 1, 1897.

30,781. TURN-DOWN COLLARS. Earl & Wilson, New York, N. Y. Filed Oct. 4, 1897.

LOCK FRONT

Essential feature.—The words "Lock Front." Used since September 1, 1897.

30,782. CORSETS AND PARTS THEREOF. Kops Bros., New York, N. Y. Filed July 24, 1897.



Essential feature.—The compound word "Self-Reducing." Used since July 1, 1897.

30,783. SKIRT-PROTECTORS. Harry Fisher, New York, N. Y. Filed Aug. 20, 1897.

POMPADOUR

Essential feature.—The word "Pompadour." Used since July 30, 1897.

30,784. CIGARS. Rosenstein, Cohn Cigar Company, Los Angeles, Cal. Filed Sept. 25, 1897.



Essential feature.—A representation of a peach, a nude female figure sitting thereon, and the word "Peacherено." Used since September 1, 1897.

30,785. CIGARS AND ALL-TOBACCO CIGARETTES. The H. Sondheimer, Stumpf, & Company, New York, N. Y. Filed Sept. 9, 1897.

BUFFO

Essential feature.—The word "Buffo." Used since May 1, 1896.

30,786. WINES. Charles Bellows, New York, N. Y. Filed Sept. 20, 1897.



Essential feature.—An escutcheon or shield-like figure and a representation of an arm pouring water into a basin. Used since January 1, 1893.

80,737. LAGER-BEER. THE LIEBY BREWING COMPANY, Peoria, Ill. Filed Aug. 10, 1896.



Essential feature.—The combination of a Maltese cross, a centrally-located ring, the letter "L," a dot located just below the letter "L," barley-stalks and hop-leaves, and the words "AGE, PURITY, STRENGTH." Used since March 1, 1893.

80,738. LAGER-BEER AND MALT EXTRACT. ADOLPH G. HUPFEL, New York, N. Y. Filed Sept. 18, 1897.



Essential feature.—A representation of the capital letter "H," formed by the stumps of two trees connected by a limb, a picture of a setter-dog, all within a figure formed by the intersection of two arcs of about two hundred degrees and an inscribed circle. Used since January 1, 1897.

80,739. MALT EXTRACT. TENNESSEE BREWING COMPANY, Memphis, Tenn. Filed Sept. 18, 1897.

SCHORR'S

Malt-Vitonic

Essential feature.—The word "SCHORR'S" in block letters and the compound word "MALT-VITONIC" in characteristic script letters. Used since June 15, 1897.

80,740. MIXTURE OF COMMINUTED INGREDIENTS FOR USE IN THE MAKING OF BEVERAGES. C. F. BLANKE TEA AND COFFEE COMPANY, St. Louis, Mo. Filed Aug. 2, 1897.

KOFEKO

Essential feature.—The word "KOFEKO." Used since July 29 1897.

80,741. PURE DISTILLED WATER AND MINERAL AND OTHER CARBONATED WATERS. THE CRYSTAL WATER COMPANY, Buffalo, N. Y. Filed Aug. 21, 1897.

Essential feature.—The word "VARTRAY." Used since August 1, 1897.

Vartray.

Essential feature.—The word "VARTRAY." Used since August 1, 1897.

80,742. PREPARED FOOD FOR INFANTS, INVALIDS, AND DYSPEPTICS. THOMAS WILLIAM HOBBS, Honolulu, Hawaii, St. Joseph, Mich., and San Francisco, Cal. Filed June 30, 1897.

TAROENA

Essential feature.—The word "TAROENA." Used since December, 1896.

80,743. PREPARED FOOD FOR INFANTS, INVALIDS, AND DYSPEPTICS. ANTON PETER FRIEDRICH KUPKE, Bergedorf, Germany. Filed Sept. 7, 1897.



Essential feature.—A representation of an infant in a cradle, nursed by a young woman with the aid of a bottle, and the inscription "R. KUPKE'S KINDERMEHL." Used since 1884.

80,744. WHEAT-FLOUR. MOSELEY & MOTLEY MILLING COMPANY, Rochester, N. Y. Filed Aug. 21, 1897.

WHITE SPONCE



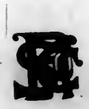
Essential feature.—The words "WHITE SPONCE" and a representation of a pair of scales. Used since March, 1892.

80,745. FLOUR. RETAIL MERCHANTS ASSOCIATION OF NEW JERSEY, Paterson, N. J. Filed Aug. 6, 1897.

UTOPIA

Essential feature.—The word "UTOPIA." Used since May 1, 1896.

80,746. MECHANICAL AND SURGICAL INSTRUMENTS AND APPLIANCES. JACOB PFEIFFER, Akron, Ohio. Filed Sept. 10, 1897.



Essential feature.—The letters and abbreviation "S R Co." Used since July 1, 1897.

80,747. CATHARTICS. WILLIAM C. SHIELDS, St. Louis, Mo. Filed Sept. 23, 1897.

Sennarets

Essential feature.—The word "SENNARETS." Used since July 10, 1896.

80,748. VEGETABLE REMEDY IN TABLET FORM. TRITON REMEDY CO., Chicago, Ill., and Crawfordsville, Ind. Filed Sept. 20, 1897.

TRITON

Essential feature.—The word "TRITON." Used since August, 1894.

80,749. BLOOD-PURIFYING REMEDIES. J. H. DAVIS & CO., Hot Springs, Ark. Filed Sept. 8, 1897.



Essential feature.—A representation of a bottle and hands pointing toward the same. Used since August 3, 1897.

80,750. MEDICAL PREPARATION FOR STRENGTHENING THE BLOOD. GUSTAV ERNST DOLLS, Bremen, Germany. Filed July 9, 1897.

AROMATIN.

Essential feature.—The word "AROMATIN." Used since April 15, 1897.

80,751. PREPARATION FOR STRENGTHENING THE BLOOD. GUSTAV ERNST DOLLS, Bremen, Germany. Filed July 9, 1897.



Essential feature.—A representation of a hand grasping a key and the name "ERNST DOLLS." Used since April 15, 1897.

80,752. MEDICINES FOR PURIFYING THE BLOOD. WILLIAM H. WALS, Hot Springs, Ark. Filed Aug. 3, 1897.

HERO

Essential feature.—The word "HERO." Used since April 30, 1896.

80,753. REMEDIES FOR COUGHS, COLDS, AND HEADACHES. FARIS MEDICINE COMPANY, St. Louis, Mo. Filed June 16, 1897.

LAXATIVE

BROMO QUININE

LBQ

Essential feature.—The word "LAXATIVE," printed in black, the words "BROMO-QUININE," printed in red, and the letters "LBQ." Used since February 1, 1893.

80,754. REMEDY FOR ASTHMA, BRONCHITIS, AND CATARRH. S. KUTNOW & CO., London, England. Filed Mar. 22, 1894.



Essential feature.—A representation of a volcano inclosed by a circular band. Used since November 19, 1891.

80,755. REMEDIES FOR BRONCHITIS AND ASTHMA. THE WALLACE ASTHMA CURE CO., Philadelphia, Pa. Filed Sept. 27, 1897.

Stop that Wheeze.

Essential feature.—The words "STOP THAT WHEEZE." Used since July, 1896.

80,756. MEDICINE FOR THE TREATMENT OF BACTERIOLOGICAL DISEASES. JOSEPH R. WITHE, Philadelphia, Pa. Filed Sept. 20, 1897.

SERUMINE

Essential feature.—The word "SERUMINE." Used since September 14, 1892.

80,757. HAIR RESTORATIVES. MARY R. TUCKER, Bristol, Md. Filed Apr. 13, 1897.

CAPILLARIA

Essential feature.—The word "CAPILLARIA." Used since February 22, 1897.

80,758. DENTIFRICE. F. A. SARG'S SOHN & Co., K. K. LANDESPRIV. MILLY, KERZEN, SEIFEN, UND GLYCERIN FABRIK, Vienna and Liesing, Austria-Hungary. Filed June 15, 1897.



Essential feature.—A representation of the head of a smiling woman looking over her shoulder and wearing a broad-brimmed hat, the strings of which hang down in front. Used since 1890.

80,759. CERTAIN NAMED MEDICINAL PREPARATIONS AND SOAPS. EDWARD B. SMITH and CATHERINE SMITH, Chicago, Ill. Filed Sept. 25, 1897.

KICKER

Essential feature.—The word "KICKER." Used since August, 1897.

80,760. LIQUID TOILET SOAP. VERNON L. TENNEY, New York, N. Y. Filed Sept. 24, 1897.

Olivena

Essential feature.—The word "OLIVENA." Used since July 1, 1897.

80,761. SCOURING-SOAP. STANLEY L. GERNEY, East Orange, N. J. Filed Aug. 23, 1897.

SOAPO

Essential feature.—The word "SOAPO" in large, prominent, and distinguishing letters. Used since May 1, 1897.

80,762. SOAP FOR CLEANSING AND DYEING. THE MAYPOLE COMPANY, LIMITED, London, England. Filed Mar. 29, 1897.

RAINBOW

Essential feature.—The word "RAINBOW." Used since January 20, 1897.

80,768. LAUNDRY SOAP. WILLIAM A. GRANT, West Orange, N. J. Filed Sept. 15, 1897.

NEW ERA SOLVENT

Essential feature.—The words "NEW ERA SOLVENT." Used since April 15, 1897.

80,764. LAUNDRY STARCH. GILBERT & GRAVES, Buffalo, N. Y. Filed Sept. 27, 1897.

WHEAT SUBSTITUTE

W S

Essential feature.—A representation of a diamond background in solid color upon which are the letters "W. S.," which are left white, and the words "WHEAT SUBSTITUTE." Used since January 1, 1897.

80,765. TOILET-PAPER. THE CLARK-SAWYER COMPANY, Worcester, Mass. Filed Aug. 6, 1897.

RED LION

Essential feature.—The words "RED LION" or the conventional representation of a red lion. Used since May 1, 1897.

80,766. FRICTION-MATCHES. NATIONAL SAFETY MATCH COMPANY, Chicago, Ill. Filed July 28, 1897.

PROTECTO

Essential feature.—The word "PROTECTO." Used since July, 1896.

80,767. INCANDESCENT GAS-MANTLES. ADAMS NOMATCH LIGHT COMPANY, Jersey City, N. J., and New York, N. Y. Filed Sept. 27, 1897.

NOMATCH.

Essential feature.—The word "NOMATCH." Used since August 18, 1897.

80,768. LAMP-CHIMNEYS. PEERLESS LEAD GLASS WORKS, Hillwood City, Pa. Filed Sept. 20, 1897.



Essential feature.—A representation of the head of a tiger. Used since November 20, 1896.

80,769. PORTLAND CEMENT. THE HAINNER SOCIETY, Tournai, Belgium. Filed June 16, 1897.

VULTUR

Essential feature.—The word "VULTUR." Used since March 1, 1896.

80,770. PAVING MATERIALS. THE SICILIAN ASPHALT PAVING COMPANY, New York, N. Y. Filed July 16, 1897.

THE SICILIAN ASPHALT PAVING CO.

Essential feature.—The letter "S" and the words "THE SICILIAN ASPHALT PAVING COMPANY." Used since November 13, 1894.

80,771. HARNESS-DRESSINGS, OILS FOR LEATHER GOODS, BLACKING, LEATHER-GREASE, AND OTHER DRESSINGS. F. TANNER & Co., Frauenfeld, Switzerland. Filed July 24, 1897.

F.T&C.

Essential feature.—The letters and character "F. T. & C." Used since July 24, 1896.

80,772. OILS, LUBRICANTS, VARNISHES, ENAMELS, AND PIGMENTS OR PAINTS. MATTHEW H. GOOLD, Liverpool, England. Filed Aug. 19, 1897.

M.H.GOOLD&Co

Essential feature.—A facsimile of the signature "M. H. GOOLD & Co." Used since March, 1897.

80,773. COMPOUND FOR PRECIPITATING MINERAL SUBSTANCES CONTAINED IN BOILER-WATER. THEODOR B. BREYER, Peoria, Ill. Filed Aug. 21, 1897.

SCALICIDE

Essential feature.—The word "SCALICIDE." Used since May 1, 1897.

80,774. PACKING MATERIALS FOR JOINING STEAM, WATER, AND GAS PIPES. THE FIRM OF INS. C. CARBONI, Milan, Italy. Filed Apr. 2, 1897.

MANGANESITE

Essential feature.—A pictorial representation of piping shaped at one end into the form of the letter "M" and inclosing the letters "ANGANESITE," so that these letters in connection with the M-shaped end of the piping read "MANGANESITE." Used since March 15, 1896.

80,775. BOILERS FOR STEAM AND WATER HEATING SYSTEMS. KEWANEE BOILER COMPANY, Kewanee, Ill. Filed Sept. 25, 1897.

GREAT NORTHERN

Essential feature.—The words "GREAT NORTHERN." Used since April, 1897.

80,776. BOILERS FOR STEAM AND WATER HEATING SYSTEMS. KEWANEE BOILER COMPAY, Kewanee, Ill. Filed Sept. 25, 1897.

HAXTUN

Essential feature.—The word "HAXTUN." Used since 1875.

80,777. BOILERS FOR STEAM AND WATER HEATING SYSTEMS. KEWANEE BOILER COMPANY, Kewanee, Ill. Filed Sept. 25, 1897.

DEFENDER

Essential feature.—The word "DEFENDER." Used since December, 1895.

80,778. WATER OR STEAM HEATERS. KEWANEE BOILER COMPANY, Kewanee, Ill. Filed Sept. 25, 1897.

TABASCO

Essential feature.—The word "TABASCO." Used since September, 1894.

30,779. BOX-NAILING MACHINES. WILLIAM S. DOIG, Brooklyn, N. Y. Filed Aug. 5, 1897.



Essential feature.—A representation of two rectangular figures each represented by three parallel lines broken at intervals by nails crossing them, the whole resembling bars of music, and the words "BEFORE BEING CLINCHED" being placed opposite and to the right of the upper rectangular figure and the words "AFTER BEING CLINCHED" being placed opposite and to the right of the lower rectangular figure. Used since July 16, 1897.

30,780. BATH-TUBS. STANDARD MANUFACTURING COMPANY, Allegheny, Pa. Filed Aug. 21, 1897.

PERFECTO

Essential feature.—The word "PERFECTO." Used since October 1, 1895.

30,781. BURIAL-CASKETS. THE DETROIT CASKET COMPANY, Detroit, Mich. Filed Sept. 27, 1897.

SHRINE

Essential feature.—The word "SHRINE." Used since June, 1883.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF SECRETARY OF THE INTERIOR.

IN RE NASH.

Decided September 14, 1897.

1. PAYMENT OF FEES—DISHONORED DRAFT.
Where a draft presented in payment of the fee in an application for patent is dishonored because of the failure of the bank by which it was issued, *Held* that it did not constitute payment of the fee.

2. SAME—RULE 223.
Such draft was not a compliance with Rule 223, specifying the manner in which money shall be paid, since the money was never received by any officer of the United States.

Mr. Richard H. Manning for the appellant.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., September 14, 1897.

SIR: Your letter has been received submitting a report upon the appeal of Ira A. Nash from the action of your Office in deciding that a draft for fifteen dollars in favor of the Commissioner of Patents, issued by the Missouri National Bank of Kansas City, and which was dishonored because of failure of said bank, did not constitute payment of a fee in his application, No. 614,028, for a patent for improvement in an alining device for sewing-machine-shuttle races. Upon its receipt it was referred to the Assistant Attorney-General for this Department for an opinion upon the question therein involved. I transmit herewith for your information a copy of an opinion in the premises rendered by that officer, in whose conclusions I concur.

The appeal is accordingly dismissed, and you will please advise the attorney of the appellant, Richard H. Manning, of Kansas City, Mo., of the action in the premises.

Very respectfully,

C. N. BLISS,
Secretary.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF ASSISTANT ATTORNEY-GENERAL,
Washington, D. C.

The Honorable the Secretary of the Interior:

SIR: On April 19, 1897, Assistant Secretary Reynolds referred to me the papers in the matter of the appeal of Ira A. Nash from the decision of the Commissioner of Patents, holding the fee of fifteen dollars on his application, No. 614,028, for a patent had not been paid, with a request for an opinion upon the question presented.

Nash filed his application and with it presented a draft for fifteen dollars issued by the Missouri National Bank of Kansas City on the National City Bank of New York in favor of the Commissioner of Patents. The receipt of these papers was acknowledged as follows:

I have to acknowledge the receipt of your petition, specification, oath, and drawing of your alleged improvement in alining device for sewing-machine-shuttle races, with fifteen dollars as the first fee payable thereon.

The draft was forwarded for collection, but was dishonored because of the failure of the Missouri Bank and was returned to the Patent Office. Nash was December 2, 1896, informed of this and requested to remit the amount of the first fee and the costs of protest to protect the application. He failed to comply with this request, and on December 23, 1896, he was notified that the application had been withdrawn from the Examiner and that to reinstate the same it would be necessary to remit $16.30.

In the appeal in behalf of Nash it is said:

The rules of the United States Patent Office expressly direct in what manner money shall be sent in payment of fees, and these rules state that fees may be paid to any of the depositaries "national banks," payable to the Commissioner of Patents. The rules have been to the effect that every draft shall be made direct to the Commissioner of Patents.

Appellant has complied with the direction of the Office as to remitting his fees to the letter, and the question now presents itself, has Nash paid the fee and discharged his liability under the law.

The mode of payment of patent fees is prescribed in section 4935, Revised Statutes, which reads as follows:

Patent fees may be paid to the Commissioner of Patents, or to the Treasurer, or any of the Assistant Treasurers of the United States, or to any of the designated depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose; and such officer shall give the depositor a receipt or certificate of deposit therefor. All money received at the Patent Office for any purpose, or from any source whatever, shall be paid into the Treasury as received, without any deduction whatever.

The Rules of Practice in force at the time this payment was made, (Revision of April 1, 1892,) so far as they relate to payment of fees, are as follows:

221. The money required for Office fees may be paid to the Commissioner, or to the Treasurer, or any of the Assistant Treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor, which shall be transmitted to the Patent Office. When this cannot be done without much inconvenience, the money may be remitted by mail, and in every such case the letter should state the exact amount inclosed. Letters containing money may be registered. Post-office money-orders afford a safe and convenient mode of transmitting fees. All such orders should be made payable to the "Commissioner of Patents."

* * * * * * *

223. All money sent by mail, either to or from the Patent Office, will be at the risk of the sender. In no case should money be sent with the models. All payments to the Office must be made

in specie, Treasury notes, national-bank notes, certificates of deposit, post-office money-orders, postal notes, or certified checks.

The applicant did not pay the money to the Treasurer or any Assistant Treasurer of the United States, nor did he pay it to any depositary, national bank, or receiver of public money designated by the Secretary of the Treasury for that purpose, taking therefor a certificate of deposit. He attempted to pay the fee to the Commissioner of Patents, but failed to comply with the instructions contained in the last sentence of Rule 223, quoted above, as to the manner of making such payments. His contention that he—

complied with the directions of the Office as to remitting his fees to the letter—

is not sustained by the facts.

In his report of March 27, 1897, upon this matter the Commissioner of Patents said:

When a fee is paid by check or draft the amount of fee is credited on the books of this Office, subject to the payment of the check or draft, and it is not considered that *money* is paid into the Patent Office, under section 4935 of the Revised Statutes and Rule 221 of the Patent Office, until the check or draft is paid. When the paper is returned unpaid, the credit is taken off the books and it is not considered that the fee is paid.

It would seem to be the better practice to notify the applicant of this fact in the letter acknowledging the receipt of the application, instead of to simply acknowledge the receipt of the fee, as was done.

The fact still remains, however, that the money for this fee has never been received by any officer of the United States and that the attempt to pay the same was not made as required by the law and regulations.

In my opinion, and I so advise you, the action of the Commissioner of Patents should be approved.

No question has been raised as to your jurisdiction in this case, none has been considered, and no opinion is now expressed upon that subject.

The papers submitted are herewith returned.

Very respectfully,

WILLIS VAN DEVANTER,
Assistant Attorney-General.

Department of the Interior, September 3, 1897.

Approved:

C. N. BLISS,
Secretary.

IN RE BORTON.

Decided September 14, 1897.

REPAYMENT OF MONEY—ACTUAL MISTAKE.

Where an appeal is regularly taken and the fee therefor paid, but thereafter the appellant changes his purpose and concludes not to prosecute the appeal, *Held* that there was no such mistake in the payment as would warrant the return of the appeal fee.

Messrs. Pollok & Mauro for the appellant.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., September 14, 1897.

SIR: Your letter has been received submitting a report upon the appeal of Stockton Borton from your action in refusing to refund money paid upon the filing of an appeal in application for patent No. 558,848. Upon its receipt it was referred to the Assistant Attorney-General for the Interior Department for an opinion upon the question therein involved. I transmit herewith for your information a copy of an opinion in the premises rendered by that officer, in whose conclusions I concur.

The appeal is accordingly dismissed, and you will please so advise Messrs. Pollok & Mauro, the attorneys for appellant.

The papers belonging to the files of your Office are herewith returned.

Very respectfully,

C. N. BLISS,
Secretary.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF ASSISTANT ATTORNEY-GENERAL,
Washington, D. C.

The Honorable the Secretary of the Interior:

SIR: On April 29, 1897, Assistant Secretary Reynolds referred to me the papers in the matter of an appeal in behalf of Stockton Barton from a decision of the Commissioner of Patents refusing to refund money paid upon filing an appeal in application for a patent No. 588,848, with request for an opinion upon the question presented.

The Examiners-in-Chief rendered a decision adverse to Barton, whereupon, on October 1, 1896, he took an appeal to the Commissioner of Patents, and at the same time paid the fee of twenty dollars required by the rules to be paid upon the filing of such an appeal. On the next day the attorney for Barton withdrew the appeal, and requested repayment of the fee, which was refused.

In his decision the Commissioner of Patents used the following language:

In but few cases are patent fees considered to be in payment for any particular service rendered. The law establishes certain payments to be made upon filing certain papers or taking certain actions, and this irrespective of what may follow or what becomes of the case or whether the case is further prosecuted or not.

Section 4934 of the revised Statutes provides:

The following shall be the rates for patent fees:

* * * * * * *

On every appeal from the Examiners-in-Chief to the Commissioner twenty dollars.

* * * * * * *

Section 4936 of the Revised Statutes refers to repayment, and reads as follows:

The Treasurer of the United States is authorized to pay back any sum or sums of money to any person who has through mistake paid the same into the Treasury, or to any receiver or depositary, to the credit of the Treasury, as for fees accruing at the Patent Office, upon a certificate thereof being made to the Treasurer by the Commissioner of Patents.

The Rules of Practice in force at the time this payment was made indicate the construction placed upon the provision as to repayment and indicate the class of cases or mistakes contemplated thereby. Rule 224 reads as follows:

Money paid by actual mistake, such as a payment in excess, or when not required by law, or by neglect or misinformation on the part of the Office, will be refunded; but a mere change of purpose after the payment of the money, as when a party desires to withdraw his application for a patent or for the registration of a trade-mark, or to withdraw an appeal, will not entitle a party to demand such a return.

This case does not seem to be of the class thus indicated. The money was properly paid when

the appeal was taken. Such an appeal could have been prosecuted, whether successfully or not is entirely immaterial to the question under consideration. The mistake, if any was made, was not in the payment of the money, but in the filing of the appeal. After the appeal was taken it was concluded that the applicant's interests would be better protected by another course, whereupon the appeal was abandoned and the other course adopted. This is not the character of mistake indicated in the Rules of Practice then in force as one that would justify repayment.

There is nothing in the decision under review or in the report of the Commissioner of Patents showing that the appeal to the Commissioner was taken inadvertently and without any intention to *take* an appeal, so it is not necessary to consider any argument based on that state of facts.

The action of the Commissioner of Patents in refusing the request for repayment in this case is in accord with the Rules of Practice and should, in my opinion, be affirmed.

Your jurisdiction in this case has not been considered, because it has not been questioned by anything appearing in the record of papers.

The papers submitted to me are herewith returned.

Very respectfully,

WILLIS VAN DEVANTER,
Assistant Attorney-General.

Department of the Interior, September 3, 1897.

Approved:

C. N. BLISS,
Secretary.

COMMISSIONER'S DECISIONS.

EX PARTE YALE & TOWNE MANUFACTURING COMPANY.

Decided October 1, 1897.

1. TRADE-MARKS—"YALE"—LOCKS.
   The word "Yale" refused registration as a trade-mark for locks on the ground that it is public property, being descriptive of a lock of a certain kind.
2. SAME—SAME—SAME—PATENTED DEVICE.
   No one has the right to the exclusive use of the word "Yale" as a trade-mark for locks, as any one who makes a lock disclosed by any one of the expired patents taken out by the Yales has a right to designate such lock as a "Yale lock," and it would be the proper and true name of such lock.
3. SAME—PATENTED DEVICE.
   It is well settled by all the authorities that when an inventor obtains a patent on a device and said patented device is known by a certain name the name becomes public property at the expiration of the patent.

ON petition.

TRADE-MARK FOR LOCKS AND BUILDERS' HARDWARE.

Application filed December 21, 1896, No. 52,689.

Messrs. Knight Brothers for the applicant.

BUTTERWORTH, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Yale" as a trade-mark for locks. Registration is refused on the ground that the word is public property, being descriptive of a lock of a certain kind.

The records of this Office show that more than forty years ago one Linus Yale obtained several patents on locks. These patents are No. 3,630, granted June 13, 1834; No. 6,111, February 13, 1849; No. 10,144, October 18, 1853; No. 10,584, February 28, 1854; No. 12,932, May 22, 1855. In 1861 Linus Yale, Jr., improved these locks and obtained Patent No. 31,278. Hermann and Taylor recognized this style of lock as the "Yale lock," and so stated in their Patent No. 113,295, of April 4, 1871. They say of their invention:

The nature of the invention is such as to make it applicable to many kinds and forms of locks, although in the accompanying drawing it is shown as applied to the well-known Yale pin-lock. * * * The construction of the Yale pin-lock being well known, a brief description of it here will be sufficient.

Other inventors also recognize and call this lock the "Yale lock." The Taylor patent, No. 234,213, of November 9, 1880, states that the object of the invention—

is to form, in a cheap and simple manner, a key hub or cylinder with an angular, curved, or sinuous slot, such as is used in connection with a longitudinally-grooved or corrugated sheet-metal key, having side bits or serrations like the well-known "security" Yale-lock key.

Another patent to Taylor, No. 302,796, of July 29, 1884, says:

My object is particularly to improve the construction of what have become extensively known and are familiar to purchasers and users of locks generally in the United States as "Yale cabinet-locks."

Sykora, in his Patent No. 421,205, of February 11, 1890, speaking of his invention, says:

This invention relates to locks of the "Yale" pattern, in which the latch or bolt is operated by a rotary barrel, which is normally locked against movement by tumbler-pins, and can be turned only when said tumbler-pins are operated by an appropriate key.

Still further, showing that the term "Yale" as applied to a lock has been long recognized as describing a lock of a certain definite construction, reference may be made to volume 14 *Encyclopædia Britannica*, ninth edition, where, on page 751, there is illustrated by Figure 25 a pin-tumbler lock which is termed the "Yale lock." On page 553 of *Knight's Mechanical Dictionary*, supplement, a pin-tumbler lock is also shown and it is termed a "Yale lock." On page 554 of the same publication appears a list of locks of different classes or kinds, "Yale lock" being in this list as a lock of a specific and well-known class. The different dictionaries also refer to the term "Yale lock" as descriptive of a certain kind of lock. The *Century Dictionary* says:

Yale lock, a safety-lock in which is used, in place of wards, a special form of pin-tumbler admitting of a great variety of combinations, so that the chance of opening the lock except with the right key is rendered very small. The key is flat or corrugated in longitudinal lines, and the key-opening in the lock is very small, to guard against the use of false keys or the blowing in of powder for exploding the lock.

The *Standard Dictionary* says:

Yale lock, a tumbler-lock having a flat key with an undulating edge, unlocked by pressing spring pin-tumblers to such distances as to permit rotation of the barrel of the lock by the key.

From this review of the literature of the subject I am convinced that this term or name has become well known and is descriptive of a certain class or kind of lock and cannot be appropriated by any one person, even the patentee himself or his successors or assigns, to designate a lock or locks made by him or them.

Appellant, however, argues that the name

"Yale" is not only applied to the pin-tumbler lock invented by Yale, but to other locks invented and patented by Yale and others; that the word was ever intended to designate only a peculiar form of lock is negatived by the fact that when the pin-tumbler lock of Linus Yale, Jr., was put upon the market it was marked like other locks of his invention, "Linus Yale, Jr., Patent," and while pin-tumbler locks were being put on the market thus marked the name "Yale" gained a reputation as a lock which did not have pin-tumblers; that so far from the name "Yale locks" being synonymous with "pin-tumbler locks," the contrary is established by the fact that Yale's first invention related entirely to bank-locks, which were known years before he made the pin-tumbler locks, and such bank-locks were known as "Yale locks." Granting that all this is true, it is no reason for registering the mark; but, on the other hand, it is under the decisions a good reason why it should not be registered. It matters not whether the locks invented and patented by the Yales were pin-tumbler locks, bank-locks, or other kind of locks, they were patented and known as "*Yale locks*" or "*Yale patented locks.*"

It is well settled by all the authorities that when an inventor obtains a patent on a device and said patented device is known by a certain name the name becomes public property at the expiration of the patent.

The *American and English Encyclopedia of Law*, volume 26, page 316, says on this subject:

Name of Patented Article after Expiration of Patent.—When a new thing is created, such as an invention, and is patented under the patent law, and goes into use to such an extent as to be given a name, either by the inventor or the public, that name is the property of the patentee during the life of the patent. But the patent law is based upon a principle which grants a monopoly of an invention to a patentee for a limited period, on condition that the inventor will disclose the whole invention, and after the expiration of the patent the public shall have the free and unrestricted use of the invention. To permit any extension of the monopoly, by protecting the name of the patented article as a trade-mark after the expiration of the patent, would be a violation of this principle, and hence it is that the courts of the United States have uniformly held that where the public have acquired the right, by the expiration of the patent, to use the invention, they are equally entitled to use all names, forms, packages, labels or other indicia which have been used by the inventor during the lifetime of the patent, to indicate the identity of the patented article. This applies to the inventor's name, it being held that if the inventor himself continues to manufacture the article after the expiration of the patent, and desires to protect his own personal reputation, he must adopt a new and arbitrary trade-mark and build up his right of ownership therein exactly as if he were a stranger.

A few of the cases on this point are reviewed here. In the case of *Wheeler & Wilson Co.* v. *Shakespeare*, (39 L. J., ch. 36,) where an injunction was sought to restrain the use of the words "Wheeler & Wilson" as applied to sewing-machines, James, V. C., said:

It seems to me that the name "Wheeler & Wilson" machine has come to signify the thing manufactured according to the principle of the patent. That being so, I cannot restrain anybody, after the expiration of the patent, from representing his article as being the article which was so patented. A man cannot prolong his monopoly by saying "I have got a trade-mark in the name of a thing which was the subject of the patent."

In the case of *Richardson* (C. D., 1873, 32) application was made for the registration of the words "A. Richardson's Patent Union Leather-Splitting Machine." Registration was refused on the ground that the name having been applied to a patented article during the existence of a patent, it had become descriptive of the article and open to the use of the public on the expiration of the patent.

In the case of the *Tucker Mfg. Co.* v. *Boyington* (9 O. G., 455) the plaintiffs were manufacturing the Tucker spring-bed under an expired patent, and registered a trade-mark consisting of a picture of the bed, the monogram "T. M. Co.," and the words "Tucker Spring-Bed." The defendants, who were manufacturing a similar bed, labeled it with the words "Tucker Spring-Bed." A motion for injunction to restrain the defendants from infringing the plaintiffs' mark was refused on the ground that the right to use the name and represent the bed had become public property on the expiration of the patent and that the mark registered by the plaintiffs had not been used by the defendants except as to such elements as were common property.

In *Cheavin* v. *Walker* (5 Ch. D., 854) the plaintiff, who manufactured filters under a patent, placed thereon the words "G. Cheavin's Improved Patent Gold Medal Self-Cleaning Rapid Water Filter." The defendants manufactured on the principle of the same patent and placed thereon the words "S. Cheavin's Patent Prize Medal Self-Cleaning Rapid Water Filter." On appeal it was held by Jessel, M. R.:

You may state in so many words, or by implication, that the article is manufactured in accordance with a patent which has expired. But if you suggest that it is protected by an existing patent, you cannot obtain the protection of that representation as a trade-mark. Protection only extends to the time allowed by the statute for the patent, and if the court were afterwards to protect the use of the word as a trade-mark, it would be in fact extending the time for protection given by the statute. It is, therefore, impossible to allow a man who has once had the protection of a patent to obtain a further protection by using the name of his patent as a trade-mark.

In *in re Consolidated Fruit Jar Company* (14 O. G., 269) registration was asked for the trade-mark "Mason" as applied to fruit-jars. One of the reasons for refusing registration was that the name was not such a lawful trade-mark, since it was the name of the inventor of a patented article attached to that article; that while the applicant had the sole right to make and designate the article by its name until the expiration of the patent, yet he ceased to have that exclusive right at the expiration of the patent, as all makers of the article would be entitled to describe it by the appropriate descriptive name.

The latest authority on this subject is the Supreme Court case of the *Singer Co.* v. *June Co.*, (75 O. G., 1708.) In that case the Singer Machine Company was manufacturing machines of the type disclosed by expired patents to Singer. The Singer Company brought suit to restrain the June Company from using on machines built by the latter the word "Singer," which the Singer Company claimed was the trade-mark of said Singer Company. It was said:

It is self-evident that on the expiration of a patent the monopoly created by it ceases to exist, and the right to make the thing formerly covered by the patent becomes public property. It is upon this condition that the patent is granted. * * * It follows from the cessation of the monopoly and the failing of the patented device into the domain of things public, that along with the public ownership of the device there must also necessarily pass to the public the generic designation of the thing which has arisen during the monopoly, in consequence of the designation having been acquiesced in by the owner, either tacitly, by accepting the benefits of the monopoly, or expressly by his having so connected the name with the machine as to lend countenance to the resulting dedication. * * *

The public having the right on the expiration of the patent to make the patented article and to use its generic name, to restrict this use, either by preventing its being placed upon the articles when manufactured, * * * would be to admit the right and at the same time destroy it. It follows, then, that the right to use the name in every form passes to the public with the dedication resulting from the expiration of the patent.

Nor is this right governed by different principles where the name which has become generic, instead of being an arbitrary one, is the surname of the patentee or original manufacturer.

After reviewing numerous authorities in the American, English, and French cases, the Court said:

The result, then, of the American, the English, and the French doctrine universally upheld is this, that where, during the life of a monopoly created by a patent, a name, whether it be arbitrary or be that of the inventor, has become, by his consent, either express or tacit, the identifying and generic name of the thing patented, this name passes to the public with the cessation of the monopoly which the patent created.

I am clear that the case at bar falls squarely within the doctrine laid down by these authorities and that the Yale Company has no more right to the term "Yale" as a trade-mark for locks invented by the Yales and manufactured by appellant, whether the well-known Yale pin-tumbler lock, or the Yale bank-lock, or other locks, than the Singer Company had to the word "Singer." On the other hand, any one who makes a lock of the type disclosed by any one of the expired patents of the Yales has a right to designate such a lock as a "Yale lock," and it would be the proper and true name of such lock.

The decision of the Examiner of Trade-Marks is affirmed.

EX PARTE SELLERS *et al.*

Decided October 1 1897.

PRACTICE—EXAMINERS REFERRING QUESTIONS OF PRACTICE TO THE COMMISSIONER.

The Commissioner should not be called upon to instruct an Examiner as to how he should act upon an application or pass upon questions arising during the prosecution of a case until the case is properly before the Commissioner by petition or appeal. It is the Examiner's duty to act on applications as they come before him, using his best judgment in deciding any question that may arise in the consideration of the case. If exception is taken to his ruling, there is relief by petition or appeal.

ON reference.

HYDRAULIC PRESSES.

Application filed July 11, 1895, No. 555,662.

Mr. Wm. Sellers and *Mr. Geo. J. Harding* for the applicants.

BUTTERWORTH, *Commissioner:*

This case is before me on reference by the Primary Examiner for instructions, first, as to whether he should reopen the case to consider two proposed claims as claims 3 and 4, as substitutes for claim 3, allowed by the Examiners-in-Chief, and, second, whether he should allow two claims, 1 and 2, which the Commissioner authorized to be substituted in place of claim 2, appealed to him, in view of an additional reference discovered by the Primary Examiner since the Commissioner's decision remanding the application to him for the admission and consideration of said claims 1 and 2, and also in view of the possibility of the operation of a patent of record.

It is the Examiner's duty to act on applications as they come before him, using his best judgment in deciding any question that may arise in the consideration of the case. If exception is taken to his ruling, there is relief by petition or appeal. The Commissioner should not be called upon to instruct an Examiner as to how he should act upon an application or pass upon questions arising during the prosecution of a case until the case is properly before the Commissioner by petition or appeal. For these reasons this application might properly be remanded to the Examiner with instructions to carry out the advice herein expressed, but as the application is before me at this time I have decided, in order to save delay in its prosecution, to pass upon the question submitted.

The Examiner states that the proposed claims 3 and 4 are apparently allowable upon the same grounds as the claim 3 appealed and held allowable by the Examiners-in-Chief. Upon this state of facts it seems clear to me that the claims should be admitted and allowed.

As to the other question, the decision of the Commissioner in allowing claims 1 and 2 to be substituted for claim 2, on appeal, clearly stated that the new claims were to be submitted to the Examiner for consideration. The patentability of these claims was not passed upon by the Commissioner, except incidentally in connection with the question of their admission into the case, and surely not in connection with the reference never before the Commissioner.

There is no other course open to the Examiner except to reject the new claims 1 and 2, if in his opinion the additional reference anticipates these claims. He should also refuse the claims on the apparent new grounds which have come to his notice in connection with the patent of record. To do otherwise would be to pass to issue claims which, in the opinion of the only tribunal before which said claims have been pending for the consideration of the patentability thereof, are anticipated by a reference or references.

EX PARTE PEERLESS CARBON BLACK COMPANY, LIMITED.

Decided October 1, 1897.

TRADE-MARKS—WORD "PEERLESS"—DESCRIPTIVE OF QUALITY OF GOODS.

The word "peerless" being an adjective meaning "unequaled, unmatched, matchless, unsurpassed," etc., registration as a trade-mark refused on the ground that it is descriptive of the quality of the goods to which it is applied. To give to one person the exclusive right to its use as a trade-mark would be to deprive the public of its lawful use in language.

ON petition.

TRADE-MARK FOR CARBON-BLACKS.

Application for registration filed May 15, 1897, No. 53,646.

Messrs. W. H. Doolittle & Son for the applicant.

BUTTERWORTH, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word

"peerless" as a trade-mark for carbon-black. The refusal is on the ground that no one has a right to monopolize as a trade-mark a word descriptive of the goods to which it is applied.

The word "peerless" is defined by the dictionary as "unequaled, unmatched, matchless, unsurpassed." "Peerless" black therefore means a black of superior quality—a matchless black, a superlative black, a black better than any other black. These adjectives are not fanciful words—that is, words which when used as trade-marks are obviously meaningless to ordinary people. The word "peerless" is such a word as is ordinarily used by merchants in a laudatory sense to extol their goods. If appellant's black is of a superior quality, it is proper to so state. Any person, however, who thinks his black is superlative or unsurpassed or peerless has as much right as appellant to so designate his goods. To give to one person the exclusive right to such a word as a trade-mark would be to deprive the public of its lawful use in language.

This word falls within that class of words, such as "incomparable," "sterling," "standard," "wonderful," "superior," "most excellent" "famous," "splendid," "unrivaled," etc., which have been properly refused registration. This word "peerless," in fact, has also been refused registration (*ex parte Butler*, 54 MS. Dec., 130) on the ground that it is a word in common use describing quality. Any word which is descriptive of the quality of the goods to which it is applied should not be registered in this Office as a trade-mark for such goods.

To appellant's argument that it had been the practice of the Office prior to the Butler decision to register the word "*peerless*," and that it is still the practice of the Office to register equivalent words, it may be said that because an error is committed in registration it is not to be followed as a precedent. I have carefully considered the authorities cited by the appellant, but for the reasons stated here I consider that the word "peerless" is not a valid trade-mark and should not be registered.

The decision of the Examiner of Trade-Marks is affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. District Court—Southern District of New York.

UNITED STATES *v.* ONE CASE CHEMICAL COMPOUND, (TWO CASES.) IN RE SOCIÉTÉ FABRIQUES DE PRODUITS CHIMIQUES DE THANN ET DE MULHOUSE, (TWO CASES.)

Decided May 12, 1897.

CUSTOMS DUTIES—FORFEITURE PROCEEDINGS—INTERVENTION BY PATENT OWNER.

A patent owner who is suing an importer for infringement by the importation of infringing goods which have been detained by the customs officials and libeled for forfeiture because of fraudulent undervaluation may for the protection of his interests be permitted to intervene in the forfeiture proceedings on giving proper security.

LIBEL for forfeiture. Intervention.

On petitions by Société Fabriques de Produits Chimiques de Thann et de Mulhouse, owner of United States Letters Patent, for leave to intervene in forfeiture proceedings for its interest in the *res*, the following facts appeared:

These proceedings were begun by the Government for the forfeiture of two cases of chemical compounds for fraudulent undervaluation. The petitioner herein claimed that the said compound was trinitrobutylxylin, or artificial musk, an article covered by United States Letters Patent to Albert Baur, No. 451,847, dated May 5, 1891. The owner of the patent (the petitioner herein) had brought suit in the United States circuit court against one Sander, the consignee of the goods, for infringement of the patent, and being unable to learn the whereabouts of said Sander and ascertaining that he was acting through the firm of Messrs. Hatch & Wickes, who represented him as proctors in the forfeiture proceedings, made Messrs. Hatch & Wickes parties to the infringement suit. Service could not be effected on Sander. The other parties appeared.

The bill of complaint prayed for the usual injunction, and that the defendants be enjoined from obtaining possession of the shipments of artificial musk before mentioned. There was also a prayer that the goods be delivered up to be destroyed.

A preliminary injunction was granted by his honor Judge Lacombe against Messrs. Hatch, Wickes, and Clute, composing the firm of Hatch & Wickes, from acting as attorneys in fact of the defendant Sander to obtain the possession or control of said merchandise. It was expressly provided that the writ was not to operate in restraint of their "appearing and acting for said Sander as attorneys-at-law, counselors, or proctors in the forfeiture proceedings now pending" in this court.

Mr. B. F. Lee for the petitioner.

That it is not necessary to show a claim enforceable in admiralty to entitle a petitioner to intervene in a proceeding *in rem* for his interest in the *res*. (*The Two Marys*, 10 Fed. Rep., 919, p. 925; 12 Fed. Rep., 152, and 16 Fed. Rep., 697.)

That the court may order an article made in infringement of a patent-right to be delivered up to be destroyed. (*Frearson v. Loe*, 9 Ch. Div., 48, 67; *Birdsell v. Shaltol*, 112 U. S., p. 487; 5 Sup. Ct., 244.)

Mr. James R. Ely, assistant United States attorney.

Messrs. Hatch & Wickes (*Mr. Walter C. Low*, of counsel) for the claimant.

BROWN, *J.*:

The petitioner has a sufficient interest to justify his intervention on giving security. The other parties should then answer the petition unless they admit the facts stated in it. If its statements are denied and any issues are presented not appropriate for trial in this court, they can be sent to the appropriate court and the proceedings here stayed in the meantime.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 5. TUESDAY, NOVEMBER 2, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
ATTORNEYS	805
PREPARATION OF SPECIFICATIONS, ENTRY OF AMENDMENTS, ETC	805
ORDER IN RELATION TO DRAWINGS AND BLUE-PRINTS	805
PRICE OF PRINTED COPIES OF PATENTS	805
WITHDRAWAL OF CASES FROM ISSUE	806
ISSUE OF NOVEMBER 2, 1897	806
APPLICATIONS UNDER EXAMINATION	806
PATENTS GRANTED	807
REISSUES	961
DESIGNS	962
TRADE-MARKS	965
PRINTS	None.
LABELS	None.
COMMISSIONER'S DECISIONS—	
Ex parte Weaver	967
Ex parte Smith	969
DECISIONS OF THE U. S. COURTS—	
Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company	969
Saxlehner *v.* Graef *et al.*	972

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., October 25, 1897.

SIR: I am directed by the Secretary of the Interior to inform you that Department order of June 22, 1895, disbarring John W. Martin and Oswell L. Martin, doing business as J. W. & O. L. Martin, of Zanesville, Ohio, from practice before the Department and its Bureaus, has this day been revoked.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Order in Relation to Drawings and Blue-Prints.

Erasures and alterations in drawings forming part of applications will not be permitted, except as herein provided.

No alteration will be permitted in a drawing forming any part of an application by an applicant, or any person acting for him, except where a blue-print or other photographic copy has been filed in the case. When, however, the Examiner makes a requirement for a change in the original drawing and no blue-print or other copy has been furnished by the applicant, the Office will make such copy without charge, and thereupon the required alteration may be made by the applicant, under the direction of the Examiner, subject to his approval; or, upon request, it will be made by the Office at the expense of the applicant.

Requirements of the Office for alterations in original drawings will be made in writing, and the applicant's response must also be in writing. The copy of the drawing, the requirement to alter, and the applicant's response will form part of the record in the case.

Alterations in drawings cannot be made in the Attorneys' Room, except upon written permission of the Examiner in charge of the application.

Action on the merits by the Office will not be suspended pending the change of a drawing, if the invention claimed may be understood by the Examiner.

Applicants are requested to furnish with their originals a blue-print or other photographic copy of all drawings forming part of an application, and when this is done such copy shall be made a permanent part of the record in the case; or, upon the request of applicants, the Office will make blue-prints for five cents a sheet.

In appeal cases and upon the declaration of an interference, a blue-print or other copy of the drawings will be sent forward with the files, the Examiner retaining the original drawings until the day of hearing.

Applicants may inspect their drawings in the Attorneys' Room before blue-prints are filed.

Violation of the requirements and provisions of this order will be considered ground for disbarment.

Orders No. 966, of January 25, 1894, and No. 1,134, of June 5, 1897, are hereby revoked.

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Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Issue of November 2, 1897.

Patents	431	No. 592,753 to No 593,183, inclusive.
Designs	10	No. 27,807 to No. 27,816, inclusive.
Trade-Marks	14	No. 30,782 to No. 30,795, inclusive.
Labels	None.	
Prints	None.	
Reissues	1	No. 11,635.
Total issue	456	

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Connecticut	9	1	North Dakota	3	
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Maine	5	2	Washington	1	
Maryland	24	3	West Virginia	3	
Massachusetts	17		Wisconsin	7	
Michigan	5		Wyoming		
Minnesota	1		U. S. Army	1	
Mississippi	18		U. S. Navy		
Missouri			Total to citizens of the United States	406	12
Montana	5				
Nebraska					
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Australia			Netherlands	1	
Austria-Hungary			Newfoundland		
Barbadoes			New South Wales	1	
Belgium	1		New Zealand		
Bermuda			Norway		
Brazil			Portugal		
Canada	6		Queensland		
Cape Colony			Roumania		
Chile, Republic of			Russia	2	
China			Scotland	1	
Colombia			South African Republic		
Cuba			South Australia		
Denmark			Sweden	1	
Egypt			Switzerland		
England	6	2	Venezuela		
Finland			West Australia		
France	4		Windward Islands	1	
Germany	11		Total to citizens of foreign countries	35	2
Hawaii					
Ireland					
Italy					

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business October 26, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Sept. 27	Sept. 30	159
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Sept. 27	Sept. 27	142
	Between one and two months.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Sept. 3	Oct. 13	221
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Sept. 7	Oct. 6	163
215	XVII. Paper Manufactures and Printing.	Aug. 27	Sept. 27	182
105	II. Farm Stock, Products, etc.	Aug. 27	Sept. 27	376
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Sept. 1	Sept. 21	236
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Aug. 26	Sept. 20	324
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Aug. 27	Sept. 11	249
	Between two and three months.			
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Aug. 21	Oct. 5	133
265	XII. Mechanical Engineering, Store-Service, etc.	Aug. 9	Oct. 5	200
93	XXI. Textiles, etc.	Aug. 7	Oct. 4	227
250	VIII. Furniture, Beds, Store Furniture, etc.	Aug. 24	Oct. 2	388
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Aug. 9	Oct. 1	417
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 23	Sept. 20	253
108	XIX. Stoves and Furnaces	July 30	Sept. 29	328
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Aug. 20	Sept. 25	278
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Aug. 5	Sept. 13	318
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 9	Sept. 3	542
246	I. Tillage and Fences	Aug. 7	Aug. 21	320
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	July 14	Oct. 18	528
248	XVIII. Steam-Engineering, etc.	July 14	Oct. 8	332
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 20	Oct. 7	307
122	XXIV. Sewing-Machines, Apparel, and Toilet.	July 20	Oct. 1	233
120	IX. Hydraulics, Fire-Extinguishers, etc.	July 12	Sept. 30	228
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	July 16	Sept. 18	186
85	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	June 28	Sept. 18	464
253	X. Carriages and Wagons	July 23	Sept. 7	467
240	VII. Velocipedes	July 10	Aug. 10	1426
	Between four and five months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Sept. 11	170
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	Aug. 26	318
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	July 31	363
	Between five and six months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 20	Sept. 27	620
	Total number of applications awaiting action			11,091
	Under one month.			
	Trade-Marks	Oct. 7	Oct. 22	59
	Designs	Sept. 27	Oct. 4	315

PATENTS

GRANTED NOVEMBER 2, 1897.

592,753. NON-REFILLABLE BOTTLE. RALPH R. ALFRED, Weston W. Va., assignor of one-half to J. I. Warder, same place. Filed Feb. 12, 1897. Serial No. 623,149. (No model.)



Claim.—1. In a non-refillable bottle, the combination with a bottle provided on the exterior of its neck with a shoulder, and having a weakened portion adjacent to the same, of a seal forming a sectional cap to receive the neck of the bottle and composed of several sections, hinged together and adapted to swing apart and to close and rigidly engage the said shoulder, whereby the seal is retained on the neck, and means for locking the sections in their engagement with the bottle whereby the seal must be destroyed or the bottle broken before access can be had to the contents of the latter, substantially as described.

2. In a non-refillable bottle, the combination with a bottle, of a seal forming a sectional cap for the bottle and composed of movable sections or jaws adapted to open and close and rigidly engage the neck of the bottle, and means for holding the sections or jaws in engagement with the bottle, whereby the seal has to be destroyed or the bottle broken before access can be had to the contents of the latter, substantially as described.

3. In a non-refillable bottle, the combination with a bottle, of a seal forming a cap for the same and composed of hinged sections or jaws engaging and interlocked with the neck of the bottle and provided with perforations registering when the jaws or sections are in engagement with the bottle, a screw passing through the registering perforations and engaging the cork of the bottle, and a locking device engaging the screw, substantially as and for the purpose described.

4. In a non-refillable bottle, the combination of a seal forming a cap for a bottle and composed of two curved jaws or sections hinged at their adjacent ends, and provided at their upper edges with inwardly-extending portions having registering perforations, a screw passing through the registering perforations and provided with a groove, and a locking-plate arranged within the cap and engaging the groove, whereby the screw is swiveled to the cap, substantially as described.

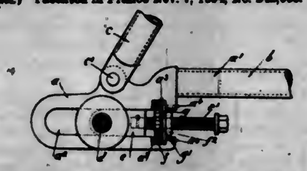
5. In a non-refillable bottle, the combination of a seal forming a cap and composed of two jaws or sections adapted to engage a bottle and provided with perforations arranged to register when the jaws or sections are in engagement with a bottle, a screw passing through the perforations and provided with a groove, and a locking-plate arranged within the cap and consisting of a body portion having a perforation to receive the screw, and wings folded inward on the lower face of the body portion and having their adjacent edges arranged at the perforation of the body portion in position for engaging the groove of the screw, substantially as described.

592,754. NON-REFILLABLE BOTTLE. RALPH R. ALFRED, Weston, W. Va., assignor of one-half to J. I. Warder, same place. Filed Mar. 17, 1897. Serial No. 627,955. (No model.)

Claim.—In a non-refillable bottle, the combination with a bottle provided with a flangible enlargement or flange, of a sealing-cap fitting within the same and provided at opposite sides of its lower face with lugs or ears, the substantially U-shaped spring consisting of a loop portion and integral outwardly-extending arms guided by the lugs or ears and interlocking with the enlargement or flange, and a lug or tongue formed integral with the cap and located at a point between the ears or lugs and loosely supporting the spring at the center thereof, substantially as described.



592,755. BICYCLE-FRAME. PIERRE ARMAND COMTE DE SPARRE, Paris, France. Filed Dec. 13, 1894. Serial No. 531,627. (No model.) Patented in France Nov. 7, 1894, No. 242,663.

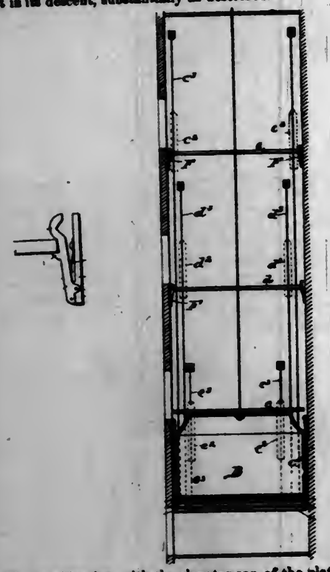


Claim.—1. In a bicycle, the combination with a recessed fork; of a shoe carrying the axle of the propelling-wheel and adjusted to slide in said fork, a threaded stem for actuating said shoe, a notched nut as *f* in engagement with said stem and adapted to partly embrace the arms of the fork to permit assembling of the parts, and a locking device adjusted to be inserted in the recessed portion of the fork, and engaging therewith and adapted to lock the free ends of the fork, substantially as set forth.

2. In a bicycle, the combination with a recessed fork, of a shoe carrying the axle of the propelling-wheel and adjusted to slide in said fork, a threaded stem for actuating said shoe, a notched nut as *f* in engagement with said stem and adapted to partly embrace the arms of the fork to permit assembling of the parts and a locking-ring, as *g*, adjusted to be inserted in the recessed portion of the fork and provided with securing-pins adapted to engage the free ends of the fork, substantially as set forth.

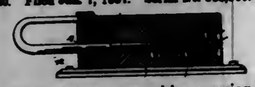
592,756. ELEVATOR ATTACHMENT. LEONARD ANDERSON, Detroit, Mich., assignor, by mesne assignments, to the Anderson Safety Elevator Company, Limited, of Michigan. Filed Sept. 11, 1893. Renewed Feb. 13, 1897. Serial No. 623,316. (No model.)

Claim.—1. The combination with the elevator-car, of the platforms below the same and supporting devices for one of said platforms at each floor, each of said devices comprising a pivoted catch, said catch having a rounded portion with which the car is adapted to contact in its descent, substantially as described.



2. The combination, with the elevator-car, of the platforms carried by the elevator-car, and supporting devices for one of said platforms at each floor, each of said supporting devices comprising a pivoted catch.

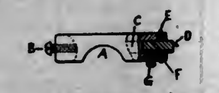
592,757. TRACE-FASTENER. THOMAS S. BALLARD, Glenwood Springs, Colo. Filed Jan. 7, 1897. Serial No. 618,269. (No model.)



Claim.—1. A trace-fastener comprising a casing having a flat-sided longitudinal bore reduced at one end to form a shoulder, a hook having its shank slidingly mounted in said casing, a flat-sided nut threaded upon said shank and sliding in the flat-sided portion of the bore, and a spring interposed between said nut and shoulder, substantially as described.

2. A trace-fastener comprising a casing having a longitudinal flat-sided bore reduced at one end to form an internal shoulder, a hook having its shank slidingly mounted in said bore, a flat-sided nut fitted upon said shank and adapted to slide in the squared portion of the bore, and a spring surrounding said shank and interposed between said shoulder and nut, the arrangement being such that the hook may be turned so as to extend outside of the casing upon one side thereby enabling the hook to be moved back for withdrawing the nut from the bore, substantially as described.

592,758. ATTACHMENT FOR GRAPHOPHONES. EDWARD R. BARDSLEY, Philadelphia, Pa. Filed Mar. 5, 1897. Serial No. 626,173. (No model.)



Claim.—In a shaving attachment for graphophones, a body or clutch A, with a clamp-screw B, and a cutter D, with grooved and threaded shank, an adjusting-nut E, a guide screw or pin G, to operate substantially as heretofore set forth and described.

592,759. APPARATUS FOR GENERATING ACETYLENE GAS. CHARLES H. BELLAMY, South Hadley Falls, Mass. Filed Jan. 27, 1897. Serial No. 620,869. (No model.)

Claim.—1. In an apparatus for generating and burning acetylene gas, a closed receiver-generator chamber, a water-receptacle and a subreceptacle, having a piston or plunger therein, the subreceptacle being connected with the main water-receptacle to receive water therein under the piston, and said piston having a passage, opening at its under side to the subchamber, which passage is continued in a suitable hollow stem or pipe of the piston, into the generator-chamber, and a diaphragm or wall located in the generator-chamber and adapted to be movably controlled by the gas-pressure in the generator and connected with the said passaged piston to correspondingly move it, all whereby the lowering of the pressure in the generator will permit the piston to descend displacing the water in the subreceptacle through the piston, into the generator, and a gas-pipe leading from the generator, substantially as described.



2. In an apparatus for generating and burning acetylene gas, a closed receiver-generator chamber, a water-receptacle and a subreceptacle, having a piston or plunger therein, the subreceptacle being connected with the main water-receptacle to receive water therein under the piston, and said piston having a passage, opening at its under side to the subchamber, which passage is continued in a suitable hollow stem or pipe of the piston, into the generator-chamber, a valve which, at pleasure may be operated to close the said passage in the piston against the passage of water from the subchamber therethrough, and a diaphragm or wall located in the generator-chamber and adapted to be movably controlled by the gas-pressure in the generator and connected with the said passaged piston to correspondingly move it, all whereby the lowering of the pressure in the generator will permit the piston to descend, displacing the water in the subreceptacle through the piston into the generator, and the gas-pipe leading from the generator, substantially as described.

3. In an apparatus for generating and burning acetylene gas, a closed receiver-generator chamber, a water-receptacle and a subreceptacle, having a piston or plunger therein, the subreceptacle being connected with the main water-receptacle to receive water therein under the piston, and said piston having a passage opening at its under side to the subchamber, which passage is continued in a suitable hollow stem or pipe of the piston, into the generator-chamber, and a collapsible chamber having a movable diaphragm or wall located in the generator-chamber and said diaphragm adapted to be movably controlled by the gas-pressure in the generator, and connected with the said passaged piston to correspondingly move it, all whereby the lowering of the pressure in the generator will permit the piston to descend, displacing the water in the subreceptacle through the piston into the generator, an elastic sack located outside of the generator and connected with said chamber having the movable or collapsible diaphragm-wall, and a gas-pipe leading from the generator, substantially as described.

4. In an apparatus for generating and burning acetylene gas, a closed generator-chamber, a water-receptacle and a subreceptacle, having a piston or plunger therein, a passage having a check-valve therein, which connects the subreceptacle with the main water-receptacle and said piston having a passage opening at its under side to the subchamber, which passage is continued in a suitable hollow stem or pipe of the piston, into the generator-chamber, a downwardly-opening check-valve in said piston-stem passage and a diaphragm or wall located in the generator-chamber and adapted to be movably controlled by the gas-pressure in the generator and connected with the said passaged piston to correspondingly move it, all whereby the lowering of the pressure in the generator will permit the piston to descend, displacing the water in the subreceptacle through the piston into the generator, and the gas-pipe leading from the generator, substantially as described.

592,760. GALVANIC BATTERY. HORATIO J. BREWER, New York, N. Y. Filed Apr. 15, 1896. Serial No. 470,532. (No model.)

Claim.—1. The combination of a battery-cover having a cup formed thereon, with a battery element passing into said cup and supported therein, and an elastic connection interposed between the head of the cup and the battery element, substantially as described.

2. The combination of the cover C, the cup K formed thereon and screw-threaded within, the carbon element D, and the spring J interposed between said cup and carbon element, substantially as described.

3. The combination of the cup K formed thereon and screw-threaded within, the cover C, the carbon element D, the metallic conductor A, and the spring J between said cup and conductor, substantially as described.

4. The combination of the zincs B, B, provided with flanges M, M, and the battery-cover C, provided with the flange G on its under side engaging with said flanges M, M, to prevent rotation of the zincs, substantially as stated.

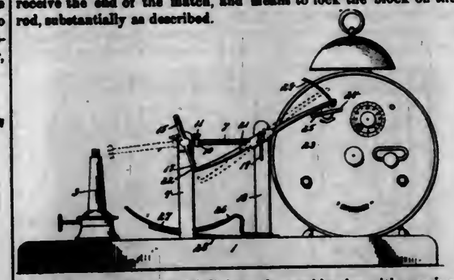
5. A zinc for galvanic batteries, composed of two similar parts provided with a connector and with flanges for securing same to the battery-cover, and formed with the greatest body of metal at the bottom and edges tapering toward the top, for presenting the maximum metal surface at the point of greatest corrosion, substantially as described.

6. The combination of a carbon battery element having a screw-thread formed thereon integral therewith, a battery connection or cup screwed upon said carbon, a threaded aperture in said cup containing a screw L, a cap *h* upon said carbon, and a spring interposed between the screw and said cap, substantially as described.

592,761. TIME LAMPLIGHTER. JAMES F. BREWSTER, D'Arbonne, La., assignor of one-third to R. M. Gill, same place. Filed Feb. 20, 1897. Serial No. 624,205. (No model.)

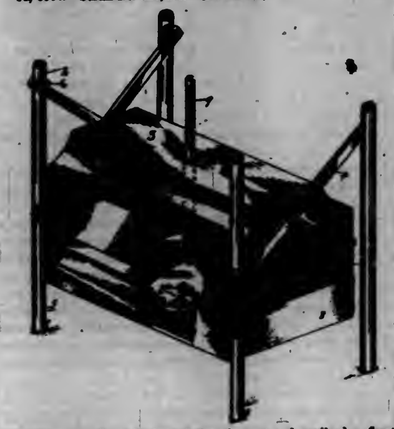
Claim.—1. In an automatic wick-lighter, the combination with spaced standards, a spring-actuated shaft journaled in said standards and a match-holder rigidly connected to the shaft and adapted to swing in close proximity to a wick, of a tripping-lever pivotally supported intermediate its length, one end of said lever having a trigger-engaging surface and its other end extending across the path of travel of the key of an alarm mechanism, a trigger-rod secured intermediate its ends to one end of said shaft, one end of the rod being adapted to engage one end of said lever to hold the match-holder at one extremity of its path of travel, and the other end bent and adapted to engage one of said standards to hold the match-holder at the other extremity of its path of travel, and a spring having an abrasive surface arranged to ignite a match carried by the holder during the movement of the latter, substantially as described.

2. In an automatic wick-lighter, a spring-actuated match-holder consisting of a shaft journaled in spaced standards, an actuating-spring connected to the shaft and its support to turn the former in its bearings, a rod projecting from the shaft, a plate at the free end of the rod provided with a notch to receive the body of the match, a block slidably mounted on the rod and provided with a recess in its face to receive the end of the match, and means to lock the block on the rod, substantially as described.



3. In an automatic wick-lighter, the combination with a spring-actuated match holder, a trigger connected to the shaft of the match-holder, and the winding-key of an alarm mechanism, of a standard provided with an elongated opening, a pivot-pin adjustably supported in the said opening, and a lever pivoted intermediate its ends on said pin, one end of the lever adapted to interlock with said trigger, and its other end extending across the point of travel of said winding-key, substantially as described.

592,762. MEANS FOR STORING POWER DERIVED FROM AGITATED WATER. AARON A. BROWN, Roland Park, Md. Filed Mar. 11, 1897. Serial No. 627,096. (No model.)



Claim.—1. In a device of the character described, a float, arms pivoted thereto, a collapsible tank carried by the arms and so arranged that the tank will be pressed against the float as it is elevated, substantially as described.

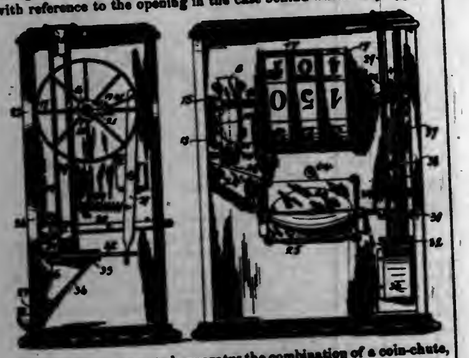
2. In a device of the character described, a float, arms pivoted thereto, a collapsible tank connected to the arms, said arms being so arranged that the float in its upward movement, will carry the tank at a greater speed, substantially as described.

3. In a device of the character described, a body adapted to ride on the water, arms connected with the body, and a tank connected with the arms and so arranged that the fluid is pressed therefrom, substantially as described.

592,763. COIN-OPERATED GAME AND DISCOUNT APPARATUS. LEO GANDA, Cincinnati, Ohio. Filed Jan. 30, 1897. Serial No. 619,993. (No model.)

Claim.—1. A case for coin-operated mechanism, having in its front side a coin-receiving slot and a check-receiving and a check-discharging opening, a suitable receiver projecting below the latter opening from the case, a check-receptacle within the latter and a number of circular frames supported side by side therein, with their edges or faces toward the front of the case and having numbers or characters on said faces, an opening in the front of the case behind

which these characters appear and which opening is of a size to expose only one character on a frame at a time, a cut-off device which controls the discharge of checks from the check-receptacle one by one, mechanism which acts in a manner to operate simultaneously the aforesaid cut-off device and the circular frames, and accessible means projecting from the case whereby this mechanism in conjunction with an inserted coin may be actuated in the manner stated, so that a check is discharged from the case and the circular frames change the position of their faces with reference to each other and with reference to the opening in the case behind which they appear.



2. In a coin-operated apparatus the combination of a coin-chute, two levers one supported at each side thereof, part of one of the flat sides of the coin-chute being removed to provide an opening large enough to permit exit of a coin flatwise, such opening being held normally closed by the end of one of the above-mentioned levers, while the end of the other lever is adapted to enter and traverse the coin-chute through another opening opposite the opening first mentioned and opposite to the end of the other lever closing the same, such end being shaped however by being cut out, bifurcated, or otherwise in a manner to permit the end of the entering lever to pass by it, the interior of the coin-chute being shaped to arrest the progress of the deposited coin at a point opposite the lateral exit-opening in it and between the opposing ends of the levers so that the action of one of them is, by reason of the intervening coin, transferred to the other one.

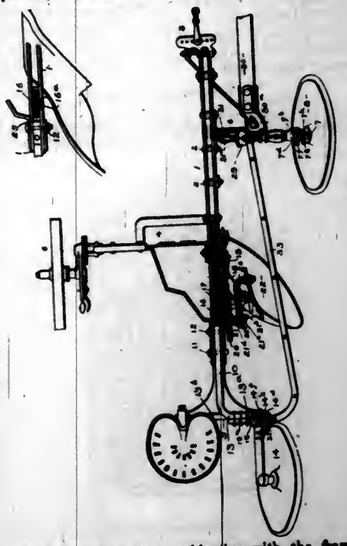
3. In a coin-operated apparatus, the combination of a coin-chute, mechanism adapted for operation in conjunction with a deposited coin and when the same has arrived at a certain point within the coin-chute, the latter being contracted lengthwise to arrest a coin of a certain size, which, becoming engaged edgewise, is held in proper position to be accessible to the mechanism above mentioned and by which it is pushed out of the coin-chute, and a screw mounted in one of the long sides of the coin-chute and adapted to be moved to project with its head into the latter to form a contraction to stop smaller or thinner coins in case such are used, the screw being so located within the coin-chute as to hold a coin therein in proper position to be accessible to the mechanism first mentioned, the same as if it had been arrested by the contracted portion of the coin chute.

4. In a coin-operated apparatus, the combination of a shaft 16, circular frames 17 supported thereon and bearing numbers or other characters designating values on their faces, mechanism, which, when rendered operative by the insertion of a coin, causes a change in the position of such frames and their numbers or characters with reference to an opening in the case of the apparatus behind which they appear, a check-receptacle 29, a cut-off slide for it operating in a manner to discharge one of the checks at a time, a lever 37 connected to the cut-off slide for operating it in the manner described, a spring to hold the slide normally closed and a pliable connection between lever 37 and shaft 16 which, by winding upon the latter during its rotation, actuates lever 37, in a manner to open the cut-off slide.

592,764. WHEEL-PLOW. WILLIAM I. CASADAY, South Bend, Ind. Filed Mar. 15, 1897. Serial No. 627,582. (No model.)

Claim.—1. In a wheel-plow, the combination with the frame having a longitudinal beam, a landside-frame, a landside-wheel, a plow-standard adapted to receive interchangeably a plowshare and a disk, a forward furrow-wheel supported upon an arm projecting laterally from the frame, a rear abutment secured to the beam, an adjustable bearing-block adapted to be secured to the said abutment, a rear furrow-wheel and an axle carried upon said laterally-adjustable bearing-block, substantially as described.

2. In a wheel-plow, the combination with a frame carrying the plow-standard of the land-wheel of laterally-projecting arms, respectively at the front and rear ends of the frame, journal-bearings thereon at right angles to the frame, forward and rear furrow-wheels each supported upon crank-axles having vertical shafts supported and adjusted in said bearings, the collars and set-bolts fitted upon said shafts above and below the bearings to hold the spindles in their adjusted positions, substantially as described.



3. In a wheel-plow, the combination with the frame of the standard adapted to be adjusted vertically thereon, a plow-bottom having a socket adapted to fit said standard, transverse bolts fitted in said socket to bear against the side of the standard, a wedge block adjustable vertically in the walls of the sleeve and standard and set-screws fitted upon said sleeve to be adjusted against said standard opposite the wedge-block, substantially as described.

4. In a disk plow, the combination with the frame of the supporting-wheels, the vertically-adjustable standard, the disk journal-box having a ledge upon one side thereof, a bracket-arm having laterally-adjustable footing upon said ledge, an inner scraper adjustable radially upon the end of said arm, and adjustable toward or from the face of the disk by means of the adjustable bracket-footing, substantially as described.

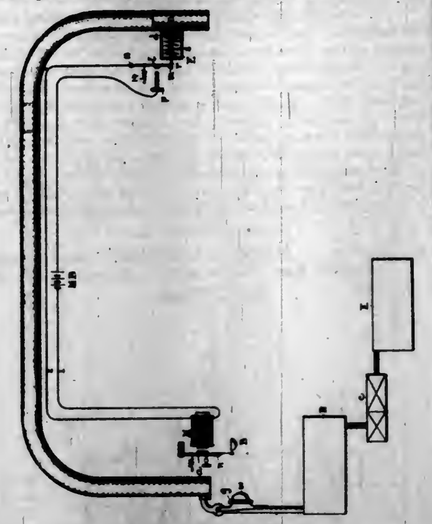
5. In a wheel-plow, the combination with a frame carrying the plow, a land-wheel, a rear furrow-wheel and axle and a front wheel and axle journaled upon the frame, a lever secured to the spindle of the rear axle, a tongue, an adjustable latch-lever and latch-plate connecting the tongue and spindle of the forward furrow-wheel and a coupling-rod pivotally connected to the lever of the rear axle having a slot at its forward end and connected adjustably to the latch-lever to admit of the adjustment of the latter, substantially as described.

592,765. PNEUMATIC-DESPATCH TUBE. THOMAS A. CASEY, New York, N. Y., assignor to Francis W. Jones, same place. Filed Jan. 20, 1897. Serial No. 619,905. (No model.)

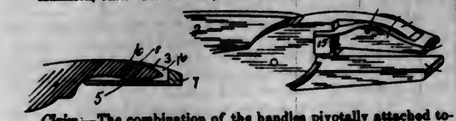
Claim.—1. The combination of a pneumatic tube, an opening in the wall of the tube at or near one station, an exterior chamber inclosing said opening, a valve in said chamber, a spring holding said valve in position to close said opening, a contact-point, a movable contact-point, a spring tending to draw the movable contact into engagement with the first-named contact, a mechanical connection between the valve and movable contact, means for cutting off the propulsive air-current at a separated or distant point, an electromagnet controlling such means, and an electric circuit including said contact-points and magnet, substantially as described.

2. The combination of a pneumatic tube, an opening in the wall of the tube at or near one station, an exterior chamber inclosing said opening, a valve in said chamber, contact-points controlled by said valve, means for controlling the propulsive air-current, an electromagnet controlling such means, and an electric circuit including said contact-points and magnet, substantially as described.

3. The combination of a pneumatic tube, an opening in the wall of the tube at or near one station, an exterior chamber inclosing said opening, a valve in said chamber, contact-points controlled by said valve, a device for controlling an entrance to said tube, an electromagnet operating said device and an electric circuit including said contact-points and magnet, substantially as described.

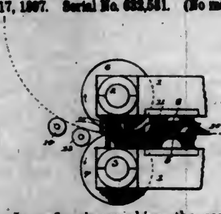


592,766. PLIERS. AUGUST BUTTNER, Canton, and JOHAN CLOTA, Massillon, Ohio. Filed Feb. 8, 1897. Serial No. 622,413. (No model.)



Claim.—The combination of the handles pivotally attached together and extended to form jaws, one of said jaws provided with the rounded rib 5, said rib projected from the inner face of said jaw to form the arc of a circle, a rocking shoe provided with a straight edge or face throughout its entire length, said straight edge or face resting upon the rounded rib 5, said rocking shoe pivotally connected to the jaw and provided with the overlapping extensions or flanges 15, extended rearward and overlapping the side faces of the jaw to which the shoe is pivotally attached, all arranged substantially as shown and described and for the purpose specified.

592,767. FLANGING-MACHINE. EMIL RIEFFLIN, Davenport, Iowa, assignor to the Bettendorf Metal Wheel Company, of Iowa. Filed Apr. 17, 1897. Serial No. 632,561. (No model.)

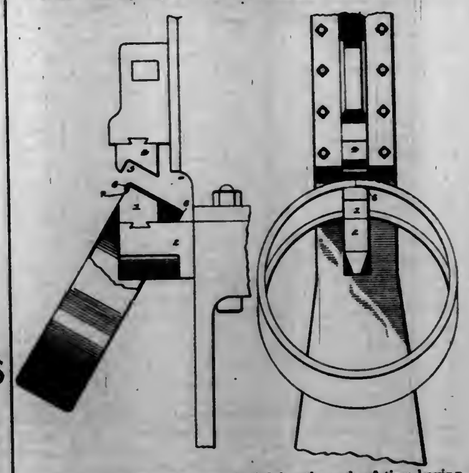


Claim.—1. In a flanging-machine, the combination with the frame, of a single pair of driving-rolls mounted therein and adapted to draw the sheet between them, upper and lower guides at the entrance of the rolls adapted to sustain the sheet throughout its width and expose its edges, flanged rollers mounted in the frame at the side of the guides on vertical axes, and finishing-rollers mounted in the frame at the side of the driving-rolls on vertical axes.

2. In a flanging-machine the combination with the frame, of a single pair of driving-rolls mounted therein and adapted to draw the sheet between them, upper and lower guides at the entrance of the rolls adapted to sustain the sheet throughout its width and expose its edges, flanging devices at the side of the guides, finishing devices at the sides of the rollers, and bending devices at the exit of the rolls by which the flanged sheet is bent into circular form.

3. In a flanging-machine the combination with the frame, of the two horizontal driving-rolls adapted to draw the sheet between them, upper and lower horizontal guiding devices at the entrance of the rolls adapted to sustain the sheet through its width and expose its edges, flanging-rollers mounted in the frame on opposite sides of the guiding devices on vertical axes, finishing-rollers mounted in the frame on opposite sides of the driving-rolls on vertical axes, and horizontal bending-rollers at the exit of the driving-rolls in position to be encountered by the flanged sheet as it issues from the rolls; whereby the flanged sheet will be bent by the bending-rollers into circular form.

592,768. APPARATUS FOR WELDING. EMIL RIEFFLIN, Davenport, Iowa, assignor to the Bettendorf Metal Wheel Company, of Iowa. Filed Apr. 17, 1897. Serial No. 632,562. (No model.)



Claim.—1. In an apparatus for joining the ends of tires having flanged edges, the combination with a supporting-anvil having one face inclined in one direction and curved to correspond to the curvature of the tire and adapted to give support to a portion of the tread and having its other face inclined in the opposite direction and adapted to give support to the overlapped flanges at one side of the tire, of a recessed coacting pressure-head adapted to contact with the sustained parts and subject the same to pressure.

2. In an apparatus for welding the overlapped ends of tires having angular flanges on their edges, the combination with an anvil having one face inclined in one direction to support a portion of the tread and curved to correspond to the curvature of the tire and its other face inclined in the opposite direction and recessed to receive the underlapping flange, of a coacting pressure-head provided with a recess to receive the supported parts of the tire and subject the same to pressure.

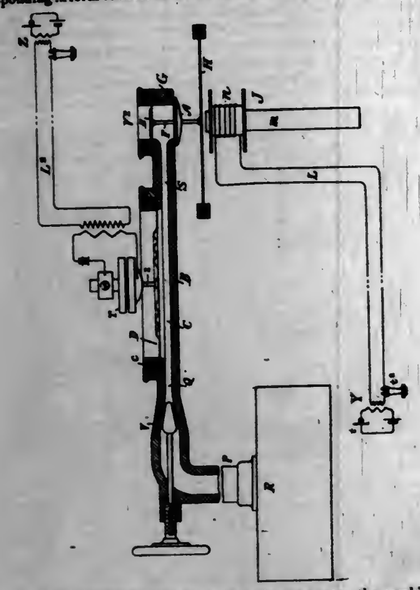
592,769. METHOD OF AND APPARATUS FOR RELAYING TELEPHONIC MESSAGES. ALBERT W. REDMAN, Milburn, N. J., assignor to the American Telephone and Telegraph Company, of New York. Filed July 6, 1897. Serial No. 643,571. (No model.)

Claim.—1. The method of repeating or relaying the electrical transmission of speech between two circuits, which consists in transforming the electrical undulations of the voice-currents in the transmitting-circuit into similar mechanical vibrations; in causing these to correspondingly vary the flow and thereby the pressure of a current of air or gas; and in causing the said air-pressure vibrations to correspondingly vary the resistance, and thereby the current, of the receiving-circuit, substantially as described.

2. An improvement in the art of electrically transmitting speech, which consists in transferring the sonorous electrical vibrations of one telephonic circuit to another, through the intermediation of a current of air whose rate of flow and pressure is controlled by the transmitting circuit, and controls the receiving-circuit, substantially as described.

3. The hereinbefore-described improvement in the art of transmitting speech electrically, and in repeating telephonic messages from one circuit to another, which consists in transforming the undulatory voice-currents of one telephone-line into similar mechanical vibrations; causing these to correspondingly vary the velocity or amount of flow and thereby the pressure of an air or seriform current; caus-

ing the said air-pressure variations to reproduce the said mechanical vibrations in greater amplitude but identical in form; and causing these last-named vibrations to act upon the current of a second telephone-line, and thereby to produce therein electrical vibrations corresponding in form to those of the first line; substantially as described.



4. In a telephone relaying or repeating apparatus, the combination of an air chamber or channel; a diaphragm or its equivalent forming a flexible or movable wall or side of said chamber; means for establishing a current of air or aeriform fluid through said chamber or channel; a valve for said chamber controlling the flow of the said aeriform current, and thereby the pressure exercised by it on the said diaphragm; a telephone-receiver associated with one telephonic circuit, and having a diaphragm or armature attached to the said valve and adapted for the operation and control thereof; and a current or resistance varying medium mounted upon the air-chamber diaphragm, and actuated thereby, to serve as the transmitter of a second telephonic circuit; substantially as described, and for the purposes specified.

5. In a telephone relaying or repeating apparatus, the combination of an air chamber or channel with ingress and egress openings, a diaphragm or its equivalent forming a flexible or movable wall or side thereof; an air or gas supply system connected by a pipe with the ingress-opening of the said chamber; a reducing-valve in the said pipe to regulate the amount and normal pressure of supply; a balanced valve controlling the egress opening of said chamber and thereby the flow and internal pressure of said air or other gas; a telephone-receiver in one telephonic circuit having its diaphragm or armature attached to the said valve and adapted to actuate and control the same; and the variable-resistance medium of a telephone-transmitter in another telephonic circuit mounted upon or associated with the said air-chamber diaphragm; substantially as and for the purposes specified.

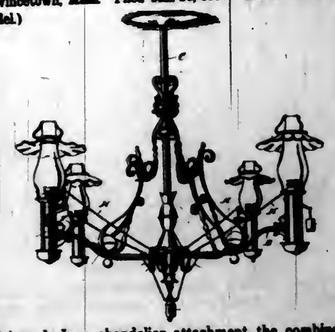
592,770. HAIR-CLIPPER. PASQUALE FARACCHIO, Philadelphia, Pa. Filed Dec. 12, 1896. Serial No. 615,457. (No model.)



Claim.—1. In a device of the character described, a frame, a handle formed therewith, a hollow post formed with and extending upward from the frame, the forward portion of said frame terminating in a blade having tapering teeth formed on the front edge, lugs formed on the upper face of the blade, a movable cutter having slots in which said lugs are adapted to slide, a movable handle pivoted around the post, a nose formed on the handle projecting into engagement with a notch in the movable cutter, a spring fitting in an opening in the stationary handle and bearing against the movable handle, and a nut threaded in the outer end of the opening to vary the pressure of said spring, substantially as described.

2. In combination, a frame, a handle formed therewith, a hollow post formed with the frame and extending upward therefrom, the forward portion of the frame terminating in a blade having tapering teeth on the front edge, a movable cutter having teeth corresponding to the first-named teeth adapted to slide transversely across the stationary blade, a movable handle pivoted around the post, a nose formed on the handle, projecting into engagement with a notch in the movable cutter, a square rod extending downward through the hollow post, a plate provided on the lower end of the rod, a pin passed through a series of holes, in the rod above the post, and a series of guard-fingers provided on the front edge of the plate and projecting upward in front of the cutting-teeth, substantially as described.

592,771. CHANDELIER ATTACHMENT. FREDERICK FISHER, Provincetown, Mass. Filed Jan. 30, 1897. Serial No. 619,923. (No model.)



Claim.—1. In a chandelier attachment, the combination with the wick-spindle, of the elbow-lever attached thereto, the weight attached to one arm of the lever, the chain attached to the opposite arm, the pull-rod and the stop-loops for limiting the movement of the chain, substantially as shown and described.

2. In a chandelier attachment, the combination with the wick-spindle, of the elbow-lever mounted thereon, and the thumb-nut for securing the said lever rigid, the weight suspended from one of the arms of the lever, the operating-chain, the guide-pulleys, the pull-rod and adjusting-collar, all arranged and adapted to operate, substantially as shown and described.

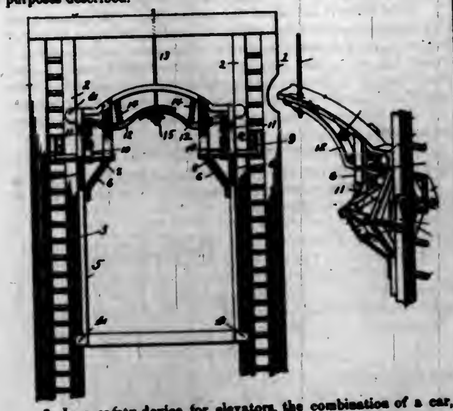
3. In a chandelier attachment, the combination with the wick-spindle, the elbow-lever mounted thereon, and means for rigidly securing the said elbow-lever, the weight suspended from one arm of the lever, the chain connected to the opposite arm of the lever, the guide-pulley over which the chain passes, the pull-rod having an adjustable collar, the handle mounted upon the end of the pull-rod, and the disk having the depending lugs to which the chain is attached, and the stop-loops attached to the chain, substantially as shown and described.

4. The combination with the chandelier and lamps, of the elbow-levers mounted upon the ends of the lamp-wick spindles, the pull-rod sliding in the central tube of the chandelier, the chains connected with the pull-rod and with the upper ends of the elbow-levers, and the weights mounted upon the lower ends of the elbow-levers, substantially as shown and described.

592,772. SAFETY-CATCH FOR ELEVATORS. MOSES FOGOR, Wilkes-Barré, Pa. Filed July 10, 1897. Serial No. 644,790. (No model.)

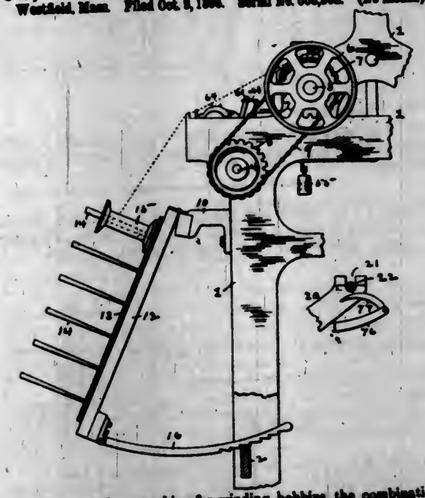
Claim.—1. In a safety device for elevators the combination of a car, a hoisting-rope, guides for the car, rock-shafts carried by the car on each side of the guides, said shafts being in the same horizontal plane, hooks carried by the rock-shafts at each side of the guides, a series of rigid stops, and means connecting the rock-shafts to the hoisting-rope whereby when said rope becomes slack the hooks will simultaneously engage the rigid stops from both sides of the guide-timbers and the points of support will be in the same horizontal plane, substantially as described.

2. In a safety device for elevators the combination of a car, guides therefor, a pair of rock-shafts carried by the car on each side of the guides, a pair of operating-levers carried by the car, said levers being substantially parallel with the rock-shafts their inner ends overlapping at the center of the car, said inner ends being slotted, a hoisting-rope passing through said slots, a stop on said rope below the slotted levers, safety devices carried by the rock-shafts and being adapted to engage an adjacent part of the guides, means for depressing the inner ends of the operating-levers whenever the hoisting-rope becomes slack, means connecting the outer ends of the operating-levers to the rock-shafts whereby when the hoisting-rope becomes slack the safety devices will be simultaneously operated, substantially as and for the purposes described.



3. In a safety device for elevators, the combination of a car, guides therefor, a rock-shaft on each side of the guides, all of said shafts being in the same horizontal plane, hooks carried by the said shafts, a series of rigid stops adjacent each guide, the stops of one series being in horizontal line with the corresponding stops in the opposite series, a pair of operating-levers carried by the car substantially parallel with the rock-shaft, their inner ends overlapping and being slotted, hoisting-rope passing through the slotted ends of the operating-levers, a stop on said rope below the levers, means for depressing the inner ends of said levers whenever the hoisting-rope remains slack, means connecting the outer ends of said levers to the rock-shafts, whereby said shafts will be operated, to throw inward the safety-hooks when the hoisting-rope becomes slack, substantially as described.

592,773. MACHINE FOR WINDING BOBBINS. JOHN W. FOSTER, Westfield, Mass. Filed Oct. 9, 1896. Serial No. 608,262. (No model.)



Claim.—1. In a machine for winding bobbins, the combination with a suitable frame having mounted thereon bobbin holding and revolving means and means for guiding a thread or threads to the bobbin, of a bed pivotally connected at its upper end to said frame and having projecting therefrom one or more posts to receive the supply spool or spools, each of said posts having a decreasing diameter from its outer to its inner end, and means for adjusting said bed to any desired angle to said frame, substantially as and for the purpose described.

2. In a machine for winding bobbins, a bobbin-holding yoke comprising two parallel arms, one of which has connected thereto at or near its outer end, by a pivot which is perpendicular to said arm, a block which carries a spindle tangentially disposed relatively to the pivotal center of said block, and the other of which arms is provided with means for operatively engaging the free end of said spindle to lock it in its operative position, substantially as described.

3. In a machine for winding bobbins, a rotatable drum which has its central portion of less diameter than its ends and is provided with a spiral groove in said central portion, in combination with a friction-roll adapted to engage the end portions of said drum, a bobbin-support for holding a bobbin in contact with said roll, and a traveling thread-guide actuated by the groove in said drum, substantially as set forth.

4. In a machine for winding bobbins, a rotatable drum, a friction-roll driven directly by said drum, a bobbin-support for holding a bobbin against said friction-roll, a stop-motion mechanism connected with said bobbin-support for automatically disengaging the bobbin from said roll when the former reaches a predetermined diameter, and means, actuated by said stop-motion mechanism, for automatically disconnecting the friction-roll from the drum, combined and operating substantially as described.

5. In a machine for winding bobbins, a rotatable drum, a friction-roll driven by said drum, a lever carrying a bobbin-support for holding a bobbin in contact with said friction-roll, a longitudinally-movable bar connected to said lever and carrying at its lower side a cam projection composed of two oppositely-inclined surfaces, and a fixed incline located in the path of movement of said projection on said bar, combined and operating substantially as and for the purpose described.

6. In a machine for winding bobbins, a friction driving-roll and means for revolving the same, a lever carrying a bobbin-support for normally holding a bobbin in contact with said roll, a longitudinally-movable bar connected to said lever and carrying a cam projection composed of two oppositely-inclined surfaces, a fixed incline located in the path of movement of the projection on said bar at such point that the apex of said projection will arrive at the upper end of the incline when the bobbin reaches a predetermined diameter, means for guiding a thread from a supply-spool to the bobbin held by said support, and means, dependent upon the breaking of the thread, for automatically moving said bar to carry the apex of its cam projection to the upper end of said fixed incline, combined and operating substantially as set forth.

7. In a machine for winding bobbins, a friction driving-roll and means for revolving the same, an elbow-lever carrying a bobbin-support for normally holding a bobbin in contact with said roll, a bar pivotally connected to said lever at its opposite end, said bar carrying at its lower side a projection composed of two oppositely-inclined surfaces of unequal length, a fixed incline which affords vertical support to said bar by engaging the longer of its inclined surfaces, said fixed incline being of less length than said longer inclined surface, and means, as a weight adjustably connected to said bar, for varying the frictional resistance between it and said fixed incline, combined and operating substantially as described.

8. In a machine for winding bobbins, a rotatable drum, a friction-roll which normally makes contact with said drum, a bobbin-support which normally holds a bobbin in contact with said roll, a longitudinally-movable bar connected with said bobbin-support and adapted by its forward movement to actuate the latter to disengage the bobbin from the roll, a pivotally-supported table located in front of said drum, means projecting from said table to engage the journals of the friction-roll, in the forward movement of the table, and move said roll out of contact with the drum, and intermediate connections substantially as described between said bar and said table whereby the forward movement of the former will cause a forward movement of the latter, combined and operating substantially as described.

9. In a winding machine, the combination with a rotatable drum, a gravity-actuated friction-roll resting upon said drum, and means for supporting a bobbin in contact with said roll, of a stop-motion mechanism for stopping and starting the winding movement of the bobbin, a pivotally-supported table located in front of said drum and roll and supporting, at its upper edge, the winding thread led to the bobbin, said table being provided with rearwardly-extending arms carrying at their outer ends curved fingers which are adapted to engage the journals of said roll, in the forward movement of the table, and raise the roll out of engagement with the drum, and intermediate connections substantially as described between said table and said stop-motion mechanism, whereby the former is actuated by the latter in one direction and the latter is actuated by the former in the reverse direction, substantially as set forth.

10. In a machine for winding bobbins, the combination with means for holding and revolving a bobbin and for guiding a thread from a supply-spool to said bobbin, of a pivotally-supported hub carrying a drop-wire which engages the thread between said supply-

spool and the bobbin and is normally retained by the same in a substantially horizontal position, said hub also carrying a weighted arm which projects upwardly therefrom at an obtuse angle to said drop-wire and, in the normal position of said drop-wire, occupies a position adjacent to but at the opposite side of a vertical line passing through the center of the hub, whereby it is adapted to be carried across said line by the descent of the drop-wire when the thread breaks and to then accelerate the descent of said wire, and a stop-motion mechanism actuated by the descent of said drop-wire to stop the revolving movement of the bobbin, arranged and operating substantially as set forth.

11. In a machine for winding bobbins, the combination with a friction-roll and means for revolving the same, of a lever, as 30, carrying at one end a bobbin-supporting yoke, bar 42 connected to said lever at its opposite end and carrying the plate 44 having the double incline 49 50 at its lower side, means for securing an adjustment of said plate longitudinally of the bar, and the stationary incline 51, arranged and operating substantially as set forth.

12. In a machine for winding bobbins, the combination with bar 42 operatively connected at its rear end to the means for supporting the bobbin and carrying the double incline 49 50, of drop-lever 67 pivoted to said bar and provided at its front end with the toe 69, pivoted hub 58 carrying drop-wire 59 and shoe 60, and shaft 4 carrying toothed wheel 19, arranged and operating substantially as described.

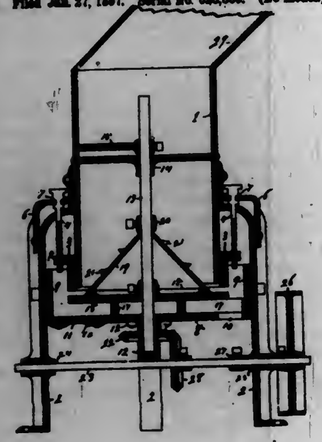
13. The combination with drum 17 and friction-roll 23, of lever 30 carrying a bobbin-supporting yoke, bar 42 connected to said lever, pivotally-supported table 71 carrying the arms 76 and fingers 77, lever 74 connected at its upper end to said table, and means on said bar 42 for engaging the opposite end of said lever in the forward movement of the bar, substantially as and for the purpose described.

14. The combination with drum 17 and friction-roll 23, of lever 30 carrying at one end the bobbin-supporting yoke 28, bar 42 connected at its rear end to said lever, said bar carrying between its ends the double incline 49 50 which engages the stationary incline 51, drop-lever 67 pivoted to said bar and provided at its front end with the horizontally-disposed bar 68 and downwardly-projecting toe 69, a series of drop-wires 59 each having a shoe 60 which normally engages the bar 68 on said drop-lever, and shaft 4 carrying the toothed wheel 19, arranged and operating substantially as described.

15. In a winding-machine, the combination with a plurality of drop-wires normally supported by the winding threads and operatively connected with a stop-motion mechanism for stopping the winding operation whenever one of said wires is released by the breaking of a thread, of a finger-lever, as 64, carrying a rod or wire 65 which passes adjacent to all of said wires, whereby the wires can be simultaneously returned to their normal position by movement of said lever, substantially as and for the purpose described.

16. In a machine for winding bobbins, the combination with drum 17 and friction-roll 23 actuated by said drum, of the non-revolvible arbor 22 carrying said roll, said arbor being provided with the circumferential recess 24, midway between its ends, the longitudinal groove 25, extending from a point near one end thereof nearly to its opposite end, and the two branch grooves 26, leading laterally from said groove 25 at points near the ends of the latter, substantially as and for the purposes described.

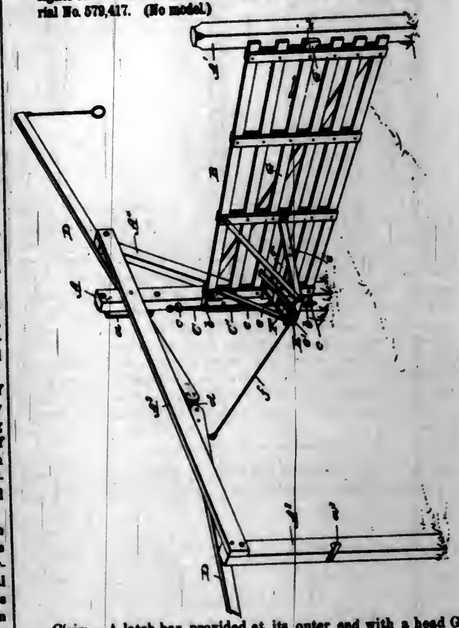
592,774. FEEDER AND MIXER. JAMES FRAHER, Hamilton, Ohio. Filed Jan. 27, 1897. Serial No. 620,869. (No model.)



Claim.—1. In a feeder and mixer, the combination, with legs, of a hopper secured thereto, a shaft journaled vertically within the hopper, a disk upon the shaft, the upper surface of which is provided with a concentric ridge, a cone upon the ridge, the apex of which surrounds the shaft, and a vertically-adjustable sleeve encircling the lower end of the hopper adjacent to the disk, substantially as set forth.

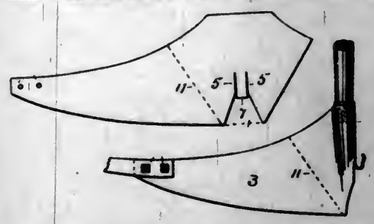
2. In a feeder and mixer, the combination, with legs, of a hopper secured thereto, a disk below the hopper, the upper surface of which is provided with a concentric ridge and the lower surface of which is provided with sweepers, the ends of which extend beyond the periphery of the disk, an adjustable sleeve encircling the lower end of the hopper adjacent to the disk, and a bottom below the disk provided with openings and means for closing the same, substantially as set forth.

592,775. GATE. PETER F. GLASBRENNER, Franklin, Ind., assignor to William R. White, Bloomington, Ill. Filed Feb. 15, 1896. Serial No. 579,417. (No model.)



Claim.—A latch-bar provided at its outer end with a head G' having vertical projections *g*, *g*, substantially as and for the purpose described.

592,776. SHOE FOR GRAIN-DRILLS. ORLANDO T. GRATTAN, Hilton, S. D., assignor of one-half to Charles R. Webber, Minneapolis, Minn. Filed June 25, 1897. Serial No. 642,234. (No model.)



Claim.—1. A shoe for a grain-drill or like machine, comprising body and socket portions, the latter being screw-threaded for attaching it to a grain-spout, substantially as set forth.

2. A shoe for a grain-drill or like machine, formed of a continuous body of metal bent at the rear end to constitute a socket and having a tongue cut from the rear side of the socket to form a hook for a drag-chain, substantially as set forth.

3. As an article of manufacture, a grain-drill shoe composed of a continuous piece of metal having its rear portion bent to form a socket for detachably connecting it to a spout and its forward portion arranged to be detachably connected to drag-irons, substantially as set forth.

4. A shoe, for a grain-drill or like machine, consisting of a body of metal having its rear portion bent to form a socket for detachably but operatively connecting it to a spout, and its forward portion adapted to be detachably connected to drag-irons, substantially as set forth.

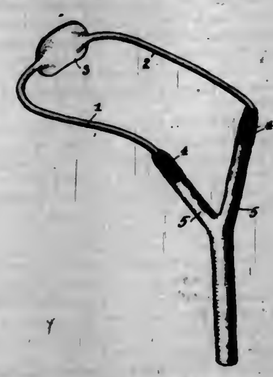
5. A shoe, for a grain-drill or like machine, consisting of a plate of metal adapted to have its forward end connected to drag-bars, and having its rear portion suitably cut away and bent upon itself to form a socket open at both ends for attaching it to a grain-spout and providing the outlet for the grain at the rear of the shoe, substantially as set forth.

6. A shoe, for a grain-drill or like machine, consisting of a metal body having a tubular socket formed by bending its rear portion, or portions, for operatively connecting it to a grain-spout and providing a channel for the discharge of grain, substantially as set forth.

7. In a grain-drill or like machine, the combination with drag-bars and a grain-spout, of a shoe formed of a body of metal having its rear portion bent to form a socket whereby it is detachably connected to the grain-spout, and having its forward end detachably secured to the drag-bars, substantially as set forth.

8. A shoe, for a grain-drill or like machine, comprising body and socket portions, the latter being provided with flanges for clamping the shoe detachably to a grain-spout, substantially as set forth.

592,777. TOY CATAPULT. DAVID S. GREEN, Chicago, Ill. Filed Jan. 29, 1897. Serial No. 621,145. (No model.)



Claim.—1. As a new and useful article of manufacture a device for the purpose described having in combination a pair of elastics, a missile-pocket attached thereto, and a socket detachably secured to the outer end of each elastic and adapted to receive a stick or fork, substantially as set forth.

2. As a new and useful article of manufacture a device for the purpose described having in combination a pair of round elastics, a missile-pocket secured thereto, and a socket at the outer end of each of said elastics and on which said elastics are rotatably secured, substantially as set forth.

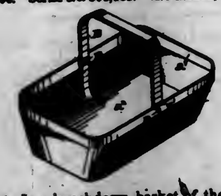
3. As a new and useful article of manufacture a device for the purpose described having in combination a pair of elastics, a missile-pocket secured thereto, a socket having a contracted end through which said elastics are passed and knotted, said sockets being adapted to receive a fork, substantially as set forth.

4. As a new and useful article of manufacture a device for the purpose described having in combination a pair of elastics, a missile-pocket secured thereto, a socket consisting of a coil-spring secured around the end of each of said elastics, said elastics being knotted within said springs, substantially as set forth.

5. As a new and useful article of manufacture a device for the purpose described having in combination a pair of round elastics, a missile-pocket secured thereto, a fork, a spring coiled around each branch of said fork and each of said elastics and said elastics being knotted within said spring, substantially as set forth.

6. As a new and useful article of manufacture a device for the purpose described having in combination a pair of elastics, a missile-pocket secured thereto, a socket having a reduced or contracted opening through which said elastics are passed, and a perforated knob or knot formed on the inserted end of each of said elastics, substantially as and for the purpose set forth.

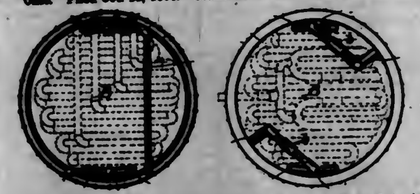
592,778. BASKET. EDWARD H. HARGRAVE, Cincinnati, Ohio, assignor to the Cincinnati Folding Basket Company, of Ohio. Filed May 4, 1896. Serial No. 590,105. (No model.)



Claim.—1. In a knockdown basket of the character indicated, the combination of a pivot plate or clip having a recess at one edge attached to the rim, and a corresponding pivot-plate having a tongue turned outward at one edge attached to the bail, substantially as and for the purpose specified.

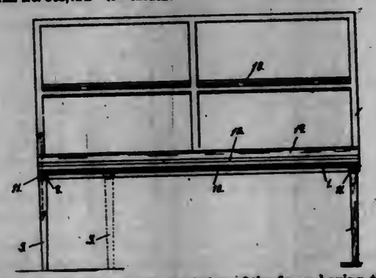
2. A knockdown basket, embodying a body portion consisting of a rim and bottom connected by a flexible cover, in combination with its terminals extended into struts to rest against the bottom and distend the body, said bail having a vertical movement upon the pivot and a locking-tongue upon or in relation to the bail, engaging a locking-recess upon or in relation to the rim by said vertical movement, substantially as set forth.

592,779. STEAM-BOILER. GEORGE F. HAWKOTTE, Cincinnati, Ohio. Filed Oct. 15, 1896. Serial No. 609,019. (No model.)



Claim.—In a vertical boiler of the character indicated, in combination with the central body of tubes connecting with the circulating-pump, one or more tube-manifolds connected above and below to the water-jacket independently of the pump, and occupying the space or spaces between the central body of tubes and the inner shell of the boiler, substantially as set forth.

592,780. BOOK-REST. WILLIAM H. HEATH, Buffalo, N. Y., assignor to Kate Adams Heath, same place. Filed Sept. 26, 1895. Serial No. 563,734. (No model.)



Claim.—1. A book-rest consisting of the frame having the side pieces 1, 1, the end pieces 2, 2, the hinged legs 3, 3, adapted to collapse inwardly, the adjustable book-rest 13 hinged to the frame and provided with the hinged rail 14 for holding the book upon the rest, and the brace 15 hinged to the book-rest 13 and adapted for adjustable engagement with the notches 16 upon the upper edges of the end pieces 2, 2, all combined and operating substantially as stated.

2. A book-rest consisting of the frame having the side pieces 1, 1, provided with the outer longitudinal grooves 10, 10, the end pieces 2, 2, the cross-bars 4, 4, the legs 3, 3 hinged to the outer ends of the cross-bars 4, 4, and adapted to collapse inwardly, the flanged metal plates 6, 7, rigidly secured to the cross-bars 4, 4, and in sliding engagement with one of the grooves 10, and the flanged metal plates 8, 9, with their tightening-screws 11 for loose and tight engagement with the cross-bars 4, 4, and for sliding engagement with the opposite groove 10, the adjustable book-rest 13 hinged to the frame and provided with the hinged rail 14 for holding the book upon the rest

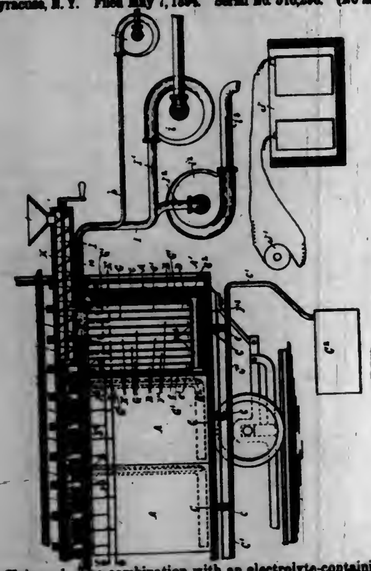
and the brace 15 hinged to the book-rest 13 and adapted for adjustable engagement with the notches 16 upon the upper edges of the side pieces 2, 2, all combined and operating substantially as stated.

592,781. LIQUID-COOLER. MAX HERTWIG, Hoboken, N. J. Filed Feb. 19, 1897. Serial No. 624,226. (No model.)



Claim.—A liquid-cooler composed of a shell, an inclosed basket, a bulged sectional lid having a divided annular base-plate, a packing secured thereto, a hook pivoted to one cover-section, a pin on the other cover-section adapted to be engaged thereby, a second hook pivoted to the body of the first hook, and a pin on the shell adapted to be engaged by said second hook, substantially as specified.

592,782. CHEMICAL-ELECTRIC GENERATOR. HENRY K. HIMS, Syracuse, N. Y. Filed May 7, 1894. Serial No. 510,206. (No model.)



Claim.—1. The combination with an electrolyte-containing casing or shell, and a series of negative electrodes arranged within the casing or shell; of a series of positive electrodes interposed between the negative electrodes and each comprising an electrical conductor and an active material, inclosing supports for the positive electrodes interposed between the negative electrodes, and a conduit provided with a series of branch passages communicating with the inner chambers of the inclosing supports for discharging the active material therein, substantially as and for the purpose described.

2. The combination with an electrolyte-containing casing or shell, and a series of positive electrodes arranged within the casing or shell: of a series of negative electrodes interposed between the positive electrodes and each comprising a body of active material and an electrical conductor provided with an inner chamber for receiving the body of active material, said electrical conductors being formed with pores leading from their exterior faces to their inner chambers, and a conduit provided with a series of branch passages communicating with the inner chambers of the electrical conductors for conveying the active material into said chambers, substantially as and for the purpose specified.

3. The combination with an electrolyte-containing casing or shell, a series of positive electrodes arranged within the casing or shell and each comprising an electrical conductor and a metal amalgam, inclosing supports for the positive electrodes, and a conduit provided with a series of branch passages communicating with the inner chambers of the inclosing supports for discharging the metal amalgam therein; of a series of negative electrodes interposed between the inclosing supports of the positive electrodes and each comprising a body of active material, and an electrical conductor provided with an inner chamber for receiving the body of active material, said electrical conductors of the negative electrodes being formed with pores leading from their exterior faces to their inner chambers, and a conduit provided with a series of branch passages communicating with the inner chambers of the latter electrodes for conveying the active material into said chambers, substantially as and for the purpose set forth.

4. The combination with an electrolyte-containing casing or shell, and a series of positive electrodes arranged within the casing or shell; of a series of negative electrodes interposed between the positive electrodes and each comprising a body of active material and an electrical conductor provided with an inner chamber for receiving the body of active material, said electrical conductors being formed with pores leading from their exterior faces to their inner chambers, and a conduit having a portion thereof extending crosswise of the electrodes within the casing or shell, and provided with a series of branch passages communicating with the bases of said inner chambers of the negative electrodes, substantially as and for the purpose specified.

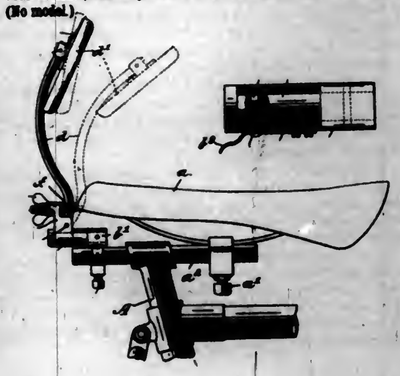
5. The combination with a positive electrode consisting of an electrical conductor and a metal amalgam; of an inclosing support for said metal amalgam provided with an inlet-opening for permitting the entrance of the metal amalgam, a conduit for conducting the metal amalgam to said inlet-opening, and a feeding device arranged within the conduit and movable therein, substantially as and for the purpose described.

6. The combination with a positive electrode, a non-electric-conducting inclosing support for the electrode, said support being provided with a perforated wall, and a non-electric-conducting filling for the perforations of said wall; of a negative electrode provided with a porous wall and an inner chamber, and active material arranged within said chamber, substantially as and for the purpose specified.

7. The combination with a positive electrode, and an inclosing support for the electrode; of a negative electrode consisting of an electrical conductor provided with an inner inclosed chamber and pores leading from its exterior face to the inner chamber, active material arranged within said chamber, and an insulating-piece between said support and said electrical conductor open at its lower portion, substantially as and for the purpose set forth.

8. The combination with a positive electrode consisting of an electrical conductor and a metal amalgam; of an inclosing support for the positive electrode, a negative electrode consisting of an electrical conductor provided with an inner chamber and pores leading from its exterior face to the inner chamber, a filling of an oxid of a metal arranged within said chamber, and an insulating-piece between said support and electrical conductor open at its lower portion, substantially as and for the purpose described.

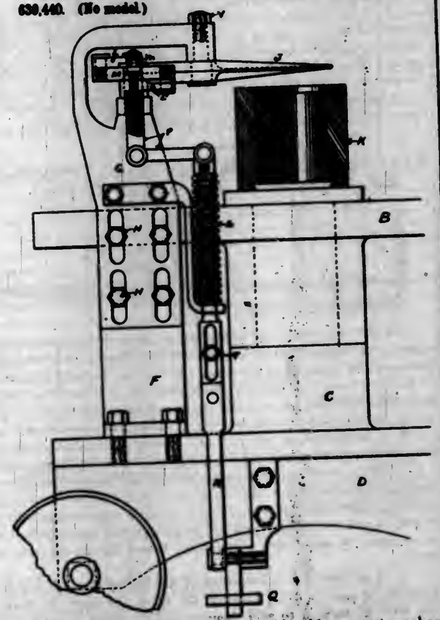
592,788. ADJUSTABLE BACK-REST FOR BICYCLE-SEATS. JOHN M. HIMS, Philadelphia, Pa. Filed Sept. 1, 1896. Serial No. 604,511. (No model.)



Claim.—1. In a back-rest for bicycles or the like, a supporting-arm for the saddle, a bracket adapted to be secured to said arm, a sleeve adapted to rotate in said bracket and provided with a projection or ear, a curved standard pivoted at one end to said projection or ear, a rest-pad pivoted to the free end of said standard, and an eyebolt adapted to be advanced and retracted in said ear, said standard passing through the eye of said bolt, substantially as and for the purposes described.

2. In a back-rest for bicycles or the like, a supporting-arm for the saddle, a bracket adapted to be secured to said arm, a standard pivoted in said bracket and adapted to be rotated in connection therewith, and an eyebolt surrounding the lower end of said standard and adapted to be adjusted longitudinally in said bracket, substantially as and for the purposes described.

592,784. APPARATUS FOR MANUFACTURING GLASS OBJECTS. BENJAMIN B. HOUSE, Millville, N. J., assignor of one-half to Boaz Valentine Thomas, same place. Filed June 4, 1897. Serial No. 639,440. (No model.)



Claim.—1. In combination with a mold and its support, mechanically-operated shears supported directly above the said mold, a pedal and mechanical connections for closing the said shears, a spring or weight for opening the said shears, means for adjusting the height of the said shears and securing them when adjusted and means for adjusting the mechanical connections between the said pedal and the said shears to correspond to the adjustment of the shears, substantially as set forth.

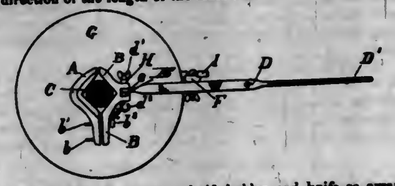
2. In combination with a mold and its support, mechanically-operated shears in fixed relation to the said mold and its support when the said mold is in position, means for adjusting and fixing the height of the said shears, and a pedal and mechanical connections for operating said shears, substantially as set forth.

3. In combination with a mold, a horizontally or laterally adjustable support upon which the said mold is mounted, mechanically-operated shears supported in fixed relation to the path of motion of the said mold, so that by the adjustment or movement of the said support the mold may be brought directly beneath the said shears, and means for operating the said shears, substantially as set forth.

592,785. DISK-SHARPENER. PETER H. HOWE, Malta, Ill. Filed Apr. 19, 1897. Serial No. 632,751. (No model.)

Claim.—1. In a disk-sharpener adapted to be attached to a disk-axle, a knife-holder and knife so arranged that said knife may be adjusted in its distance from the disk-axle and rotated upon the longitudinal axis of the knife-shank, substantially as described.

2. In a disk-sharpener, a knife-holder and knife, so arranged that said knife is adjustable by rotation upon the longitudinal axis of the shank thereof, and also by rotation in a plane parallel to a plane which is approximately determined by the axis of the disk-axle and the direction of the length of the main bar.



3. In a disk-sharpener, a knife-holder and knife so arranged that said knife is adjustable in three different ways, namely; by rotation upon the longitudinal axis of the shank thereof; by rotation in a plane parallel to a plane which is approximately determined by the axis of the disk-axle and the direction of the length of the main bar; and also, longitudinally of the main bar.

4. In a disk-sharpener, the combination of a main bar attachable by suitable means to an axle bearing two or more disks, said main bar being movable in a plane at right angles to the length of said axle, and a knife located on said main bar and adjustable in such manner that the sharpening edge of said knife can be brought to bear upon the edge of two adjacent disks without detaching the knife from its holder.

5. In a disk-sharpener, the combination of a main bar substantially as described, attachable by suitable means to an axle bearing two or more disks, said main bar being movable in a plane at right angles to the length of said disk-axle, and a knife located on said main bar, and adjustable in such manner that the sharpening edge of such knife can be brought to bear upon the edge of either of two adjacent disks, without detaching said disk-sharpener from the said disk-axle, and without detaching said knife from its holder.

6. A disk-sharpener, having a slotted main bar attached by any suitable means to the axle of the disk; a knife-holder having an aperture therein to receive a hook-bolt, and a rounded recess in said knife-holder to receive the shank, or rounded portion of the knife; in combination with a knife having a rounded shank and a blade, or blades, projecting therefrom, and a hook-bolt whereby said knife-holder is secured in the slot of the main bar and the shank of said knife secured in the recess on said knife-holder, substantially as described.

7. A disk-sharpener having a main bar with a knife and knife-holder arranged thereon, said main bar being attached to the disk-axle by means of a split collar with lugs thereon, and a retaining-rod through said lugs forming a hinge for said main bar, substantially as described.

8. A disk-sharpener having a main bar with a knife and knife-holder arranged thereon, said main bar being attached to the disk-axle by means of a split collar with lugs thereon, and a hook-rod through said lugs forming a hinge for said main bar, said hook-bolt having thereon a hook to which the main bar may be attached by an eye in the inner extremity thereof, substantially as described.

9. In a disk-sharpener, the combination of a main bar attachable by suitable means to the disk-axle, and a knife having a cylindrical or substantially cylindrical shank, with one or more blades thereon; said blade or blades being so arranged as to act upon the disk or disks without removing such disk or disks from the disk-axle of the harrow to which the same belong.

10. In a disk-sharpener, a knife having a rounded shank and one or more blades attached thereto, said blade or blades having two sides parallel and two sides hollow-ground, substantially as described.

11. In a disk-sharpener, a knife having an intermediate, substantially cylindrical, shank portion, by means of which the knife is secured to its support, and one or more cutting-blades on either side of said intermediate shank portion in right line therewith.

12. In a disk-sharpener, a knife-holder composed of a block having an aperture therein, and a rounded recess in the face thereof to receive the shank of the knife, a hook-bolt passing through said aperture and through a slot on the main bar, whereby said block is clamped to the said bar; said hook-bolt being adapted to fit over said recess in said knife-holder; in combination with a knife having a rounded shank, adapted to fit into said recess, and to be held in said block by said hook-bolt, all substantially as described.

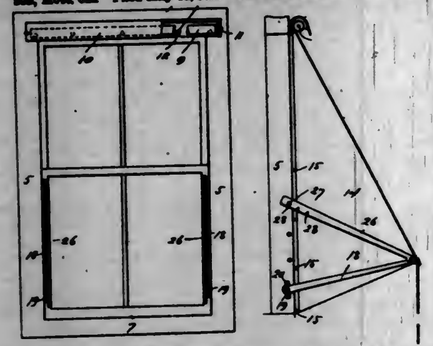
13. A disk-sharpener, having a main bar attached to the axle of the disk by any suitable means; a knife-holder adjustably attached to said main bar, and adapted to receive and hold the rounded shank of a knife; in combination with a knife having a rounded shank, and a projecting blade or blades attached thereto, and means for holding said knife upon said knife-holder in such manner that said knife may be adjusted in three different directions, substantially as described.

14. The combination of the main bar D having the slot *d* therein,

and eye *c* at the inner extremity thereof, the split collar composed of the parts A and B, said part B carrying lugs through which passes the hook-rod *d* carrying the hook d^2, the distancer E, the knife-holder F, formed and arranged, as described, the hook-bolt F', and the knife I, having the blades I^2 and the rounded shank *k*, all substantially as described.

15. A disk-sharpener, having a main bar so attachable to the disk-axle of the harrow that the main bar can be moved in a plane perpendicular to the length of the axle without rotating any part of the device upon said axle, and said sharpener operated without detaching the disk from the axle of the harrow, substantially as described.

592,786. SUPPORT FOR WINDOW-AWNINGS. WILLIAM JOHNSON, Mott, Cal. Filed May 11, 1897. Serial No. 636,051. (No model.)



Claim.—1. An awning attachment for windows, consisting of a shield or casing which is adapted to be secured to the frame of the window at the top thereof, said shield or casing being open at its lower side, and being provided with a spring-roller which is mounted therein, an awning connected with said spring-roller, and devices connected with the lower end of said awning for holding the same in position when in use, said devices consisting of spring-operated arms which are connected with the lower end of the awning, and with the sides of the window-frame, and brace-rods connected with the outer ends of said arms and adapted to be connected with pins or projections secured to the side of the window-frame, substantially as shown and described.

2. An awning attachment for windows consisting of a shield or casing which is adapted to be secured to the frame of the window at the top thereof, said shield or casing being open at its lower side, and being provided with a spring-roller which is mounted therein, an awning connected with said spring-roller, and devices connected with the lower end of said awning for holding the same in position when in use, said devices consisting of spring-operated arms which are connected with the lower end of the awning, and with the sides of the window-frame, and brace-rods connected with the outer ends of said arms and adapted to be connected with pins or projections secured to the side of said window-frame, said awning being also provided with side pieces which are adapted to be detachably connected with the sides of the window-frame, substantially as shown and described.

592,787. WIRE-TIGHTENER AND FENCE-RATCHET. WILLIAM R. JUST and JOHN ROSEBUD, near Greenville, Ohio. Filed July 6, 1897. Serial No. 643,612. (No model.)

Claim.—1. A metallic wire-tightener or ratchet with wrench or key, having a disk with a projecting rim B B, made into ratchet-teeth C C, and having a hub D D, projecting within the rim; the hub having slots E E, with notches F F, in the sides of the slot; all substantially as set forth.

2. In a metallic wire-tightener or ratchet with wrench or key, having a disk with a projecting rim, the combination of a hub D D, projecting within the rim, having slots E E, and having notches F F, on the sides of the slots, and grooves G G, extending from the notches around the hub toward the disk; all substantially as set forth.

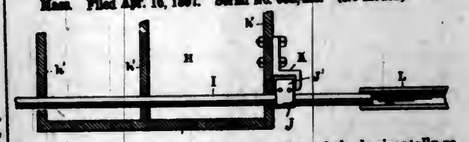
592,788. ROTARY MOTOR. VICTOR KARAVODIN, St. Petersburg, Russia. Filed Feb. 12, 1895. Serial No. 538,125. (No model.)



Claim.—1. In a thermic motor, the combination of a cylinder, a piston rotating therein, provided with continuous grooves in its ends, and suitable passages for a liquid lubricant extending from the exterior of the cylinder into the piston and from the interior of the piston to said grooves and to the portion of its surfaces adapted to move in approximate contact with the peripheral walls of the cylinder, substantially as set forth.

2. In a thermic motor, the combination with a cylinder, of a piston adjusted to rotate therein, a revolving partition mounted within the cylinder independent of the piston and adapted to be held against said piston and provided with a grooved contact-surface, adapted to alternately pass over the surfaces of the casing surrounding it and of the piston and means for supplying liquid lubricant to the groove in said contact-surface, substantially as set forth.

592,789. DAMPER FOR OVENS. ALONZO A. KNIGHTS, Melrose, Mass. Filed Apr. 16, 1897. Serial No. 632,432. (No model.)

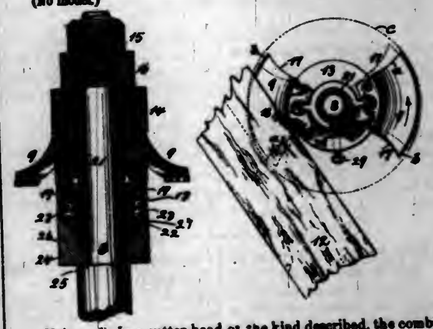


Claim.—1. In an oven, the combination of the horizontally-reciprocative damper comprising the vertical plate having the base-plate and the ribs joining the same, a hole being formed in said ribs in the direction of the damper's movement, and a damper-rod easily movable in said hole and having a finger projecting therefrom at right angles thereto, said damper being adapted to be engaged by said finger by a partial turn of said rod, and then by a subsequent longitudinal force applied to said rod, the damper moved or closed as desired.

2. In an oven, the combination with the sliding damper having the longitudinal hole through the same, of the damper rod passing freely through said hole, the collar fixed upon said rod and having finger, J', and the catch, K, secured to said damper and adapted to be engaged by said finger, substantially as and for the purpose set forth.

3. In an oven, the combination of the sliding damper and the damper-rod passing freely through the same, the catch, K, having side wall, K', secured to said damper, and the collar, J, having finger, J', fixed upon said rod, substantially as and for the purpose set forth.

592,790. CUTTER-HEAD WITH SELF-CLEARING BIT. JOHN KUEHELS, Cincinnati, Ohio. Filed Aug. 19, 1896. Serial No. 603,198. (No model.)



Claim.—1. In a cutter-head or the kind described, the combination of the bits, center pins 19 on which they are pivotally supported, a sleeve 21 which carries the center pins and washers above and below these parts to clamp them in position and a screw-connected sleeve 22 carried by one of the washers and the end of which forms a part

of the clamping-face thereof and particularly that part which supports sleeve 21, while the other part supports the bits, such two parts of the clamping-face of said washer being independently adjustable on each other, so that the bits and their supports may be held with a clamping-pressure different from each other.

2. In a cutter-head of the kind described, the combination of the bits, a bit-center support on which they are pivotally held, a washer 13 on which the bits rest, a washer 14 above them and a sleeve 22 between which the bit-center support is held firmly in position, said sleeve 22 being independently adjustable between the washers permitting clamping of the bit-center support independently of the bits.

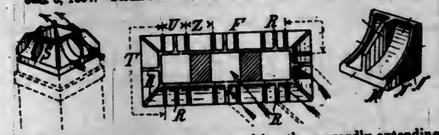
3. In a cutter-head of the kind described, the combination of an internally-threaded washer 13, an externally-threaded sleeve 22 inside of it, the two supported on the driving-spindle which passes through the sleeve, a bit-center support resting on the upper end of sleeve 22, bits resting on washer 13 and pivotally held on the bit-center support, and a top washer which holds the latter down on sleeve 22.

4. In a cutter-head of the kind described, the combination of an internally-threaded washer 13, an externally-threaded sleeve 22 inside of it, the two supported on the driving-spindle which passes through the sleeve, means to lock this washer to sleeve 22, a bit-center support resting on the upper end of sleeve 22, bits resting on washer 13 and pivotally held on the bit-center support, and a top washer which holds the latter down on sleeve 22.

5. In a cutter-head of the kind described, the combination of an internally-threaded washer 13, an externally-threaded sleeve 22 inside of it, the two supported on the driving-spindle which passes through the sleeve, a bit-center support resting on the upper end of sleeve 22, bits resting on washer 13 and pivotally held on the bit-center support, a collar 24 whereby sleeve 22 may be adjusted and a top washer which holds the parts in position after adjustment.

6. In a cutter-head having automatically-reversing bits, the combination of a spindle, bits and center supports for them, on which they are pivotally held, washers above and below these bits and their supports between which these parts are clamped in position on the spindle, one washer being independently adjustable thereon so as to permit a variation and adjustment in the clamping action with which the washers engage respectively the bits and their supports for the purpose of holding these latter rigid, but permitting the former to swing thereon.

592,791. COWL. ALBIN KÜHN, Heidelberg, Germany. Filed Jan. 6, 1897. Serial No. 618,172. (No model.)



Claim.—1. A chimney-cowl comprising the upwardly-extending walls having concaved outer surfaces inclined to the cowl-opening and the leading-ribs dividing said concave surfaces, substantially as described.

2. A cowl comprising a series of sections, each section having concaved outer surfaces inclining upwardly to the cowl-opening and having also the leading-ribs, substantially as described.

3. A cowl comprising the sections having the outer concaved surfaces inclining upwardly to the cowl-opening and having the joint-ribs A and leading-ribs, substantially as described.

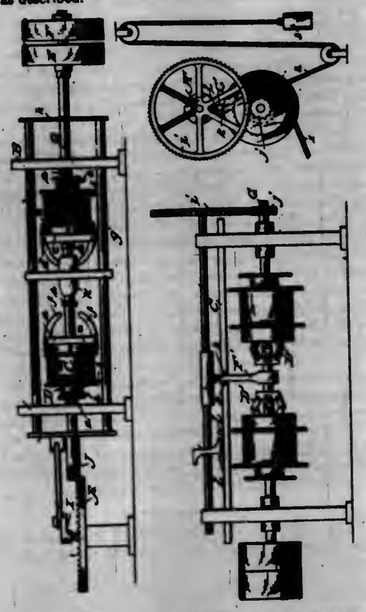
4. A cowl comprising the sections having the joint-ribs A and the grooves N, said grooves being between the meeting faces of the sections, substantially as described.

5. A cowl of rectangular form having corner-sections and side sections, said sections having concaved outer sides and the leading-ribs, substantially as described.

592,792. HOISTING APPARATUS. WILLIAM H. LAFAMME, Boston, Mass., assignor of two-thirds to Henry F. Hephen and Hubert H. Waldron, same place. Filed May 6, 1897. Serial No. 635,408. (No model.)

Claim.—1. A hoisting apparatus comprising a main driving-shaft, the hoisting ropes or chains, the return-weights, drums supported on said shaft and adapted to receive the hoisting ropes or chains, supplemental spools or drums connected with the main drum and adapted to be connected with said return-weights, clutch mechanism for engaging or disengaging the hoisting-drums with the driving-shaft and reciprocating means for throwing said clutch mechanism into or out of engagement, substantially as described.

2. In a hoisting apparatus, a main driving-shaft, hoisting-drums loose on the shaft, return-weights for said drums, clutch mechanism for engaging said drums with the shaft and means for operating the clutch mechanism alternately comprising a reciprocating device and operating connection from the main shaft to said device, substantially as described.



3. In combination, the main driving-shaft, the standards forming bearings therefor, the drums loosely mounted on said shaft, the clutch mechanisms interposed between the drums, the operating member extending between said clutch mechanisms, and means operated from the driving-shaft for reciprocating said operating member to engage first one clutch mechanism with its drum and then the other, substantially as described.

4. In combination, the main driving-shaft, the standards forming bearings therefor, the drums loosely mounted on said shaft, clutch mechanism interposed between the drums, a reciprocating frame guided in said standards for operating said clutch mechanism and the means for reciprocating said frame.

592,798. NECK-YOKE. GUSTAF A. LARSSON, Anderson, Ind. Filed Mar. 10, 1897. Serial No. 626,870. (No model.)



Claim.—1. In a neck-yoke center the combination of a plate provided with a pole-aperture and formed with a flange around its edge, a semicylindrical socket formed at the upper edge of said plate said socket being formed with an aperture, a suitable filling secured to said plate, and held from sidewise movement by the flange thereof, said filling being formed with a pole-aperture, a bar in the socket, an arm on said bar, said arm extending through the aperture in the socket, and a neck-yoke-engaging means secured to said bar, substantially as described.

2. A metal shell for a neck-yoke center comprising a plate formed with a flange around its edge, a transverse semicylindrical socket formed at its upper end, said socket being apertured for the passage of the neck-yoke-engaging means, substantially as described.

3. The combination of a metal shell for a neck-yoke center comprising a plate provided with a pole-receiving aperture and formed with a flange around its edge adapted to retain a leather filling, and a transverse socket formed on the upper end of said plate, said socket being open at its under side, and a two-part bar adapted to be passed

into said socket in a separate condition and then assembled to form the complete bar, and a neck-yoke-engaging means adapted to be secured to said bar, substantially as described.

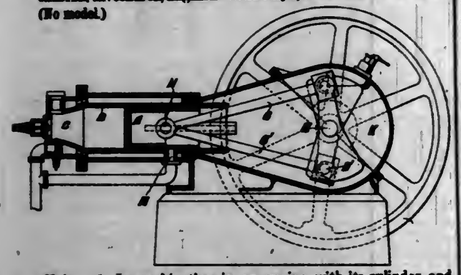
4. In a neck-yoke center the combination of a shell formed with a flange around its edge, a transverse socket apertured at its upper end to receive a neck-yoke-engaging means, a filling of suitable material fitting within the flange of the shell, the inner edge of the transverse socket being adapted to engage the upper edge of said filling and hold it in its place, and a neck-yoke-engaging means secured to the shell, substantially as described.

5. A shell for a neck-yoke center comprising a plate provided with a pole-receiving aperture, a flange formed around the edge of said plate, a semicylindrical transverse socket at the upper edge of said plate, said socket being provided with a central aperture, and a depending rearwardly-extending hook formed on the flange at the lower end of the plate, substantially as described.

6. In a neck-yoke center the combination of a plate, a flange formed around its edge, a transverse socket at its upper edge, a filling of suitable material secured to the plate and held from sidewise movement thereon by the flange of said plate, the upper edge of said filling fitting within the transverse socket, a bar within said socket, an arm on said bar extending through an aperture in said socket, a sleeve 11, lugs 10 formed thereon, lugs 9 formed on said lugs 10 and adapted to enter an aperture in the arm of the bar in the socket, and means for securing them therein, substantially as described.

7. A metal shell for a neck-yoke center comprising a plate formed with a flange around its edge, a transverse semicylindrical socket formed at its upper edge, said socket being apertured for the passage of a neck-yoke-engaging means, and a transverse lip on said socket, said lip being adapted to be bent inwardly toward the plate, substantially as described, and for the purpose set forth.

592,794. GAS OR OIL MOTOR ENGINE. FREDERICK W. LANCHESTER, Alvechurch, England. Filed July 8, 1896. Serial No. 598,420. (No model.)



Claim.—1. In combination in an engine with its cylinder and piston, a pair of crank-shafts arranged end to end in line with each other, the cranks thereon arranged side by side, a pair of piston-rods connecting directly with the cranks and with the piston, substantially as described.

2. In combination in an engine, with its cylinder and piston, a pair of crank-shafts arranged end to end and in line with each other, the cranks thereon arranged side by side, a pair of piston-rods connected pivotally and directly to both the piston and the cranks and counterbalance-weights on the cranks, substantially as described.

3. In combination in an engine, with its cylinder and piston, a pair of crank-shafts arranged end to end, a pair of cranks thereon, piston-rods connected pivotally and directly with both the piston and the cranks and a pair of oppositely-moving fly-wheels on the crank-shafts, substantially as described.

4. In combination with the cylinder and piston, the crank-shaft, the chamber inclosing the same and the front end of the cylinder and means for introducing a charge into the crank-chamber and for igniting it, said parts having a suitable exhaust controlled by the movement of the piston.

5. In combination in a gas-engine, a cylinder with its piston, a vaporizer, a gas-valve an air-passage and a piston on the stem of the gas-valve to close or partially close the air-passage when the valve is operated to thereby cause the whole of the charge to be drawn through the vaporizer.

592,795. CURTAIN-RING. JAMES W. LESLIE, Melrose, Mass. Filed Sept. 12, 1896. Serial No. 606,191. (No model.)

Claim.—1. A curtain-ring having a roller-receiving opening, and a roller mounted therein having two separated annular tread portions extended beyond the surface of the ring at one side thereof, and within the said surface at the other side, combined with a curtain-pole having a single track convex in cross-section raised above the surface of the pole, upon which the roller rotates in two separated linear paths, the ends of the ring at each side of the track cooperating therewith to prevent undue lateral movement of said ring, substantially as described.



2. A non-continuous curtain-ring, disk-like roller-supports secured to the adjacent ends of the ring and extended outwardly beyond the periphery thereof, and a roller rotatably mounted in the extended portions of said supports, the axis of the roller being exterior to the median line of the ring, with the periphery of the roller between the ends of the ring outside of or beyond the inner circumference of the ring, substantially as described.

3. A curtain-ring having a roller-receiving opening, combined with supports having eccentric hubs and apertures, said hubs being respectively secured within the sides of the roller-receiving opening of the ring, a journal mounted in the aperture and a roller carried by the journal, substantially as described.

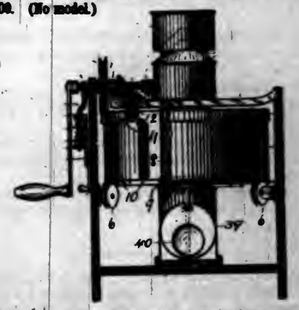
4. A curtain-ring having a roller-receiving opening, combined with disk-like supports of greater area than the cross-section of the ring and having eccentrically-located hubs thereon, said hubs being respectively secured to the sides of the roller-receiving opening of the ring, a journal mounted in the supports eccentric to the median line of the ring, a sleeve on the journal between the supports, and a roller mounted on the sleeve, substantially as described.

5. A curtain-ring having a roller-receiving opening, combined with disk-like supports secured to the sides of said opening and extended beyond the surface of the ring, and a roller journaled in the extended portions of said supports, substantially as described.

6. In combination with the opposing ends of a curtain-ring, supports having perforations in their upper portions and having eccentric hubs in their lower portions, said hubs being respectively secured within said opposing ends of the ring, an axle mounted in said perforations, said axle being extended at either end beyond said perforations, and having its said ends secured to the curtain-ring, and a roller mounted on said axle between said supports, substantially as described.

592,796. WITHDRAWN.

592,797. MACHINE FOR KNEADING DOUGH. AUGUST W. LINTON, Minneapolis, Minn., assignor of two-thirds to John A. Smith and Simeon Schneeweiss, same place. Filed Apr. 18, 1897. Serial No. 632,809. (No model.)



Claim.—1. In a dough-kneader, a main frame, a cylinder revolubly supported thereby, beaters in the cylinder, an upper frame hinged to the main frame, a shaft journaled in boxes on said hinged frame, gearing connecting the shaft with the cylinder and beaters for revolving them simultaneously, and an adjustable yielding support for the shaft, substantially as set forth.

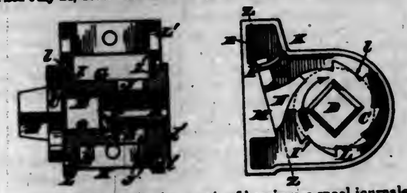
2. In a dough-kneader, the combination, with the revoluble cylinder and beaters and means for operating them, of the superposed water-tank having the perforated discharge-pipe, and the flour-sifter mounted above the tank and arranged to be revolved by the movement of the cylinders, substantially as set forth.

3. The combination, with the dough-kneading cylinder and means for revolving it, of the water-tank mounted above it and having a perforated pipe for spraying water in the cylinder, substantially as set forth.

4. The combination, with the dough-kneading cylinder and the revoluble concentric inner cylinder, of the dough-discharging devices comprising a casing, a discharge-outlet, a piston, an eccentric track on the bottom of the cylinder, and suitable connections between the piston and track, whereby the revolutions of the cylinder cause the piston to reciprocate and discharge the dough intermittently, substantially as set forth.

5. The combination, with the kneading-cylinder and shaft for operating it, of a flour-receptacle mounted above the cylinder, a beater therein, and a connection between the shaft and beater for operating the latter, substantially as set forth.

592,798. FENCE-WIRE RATCHET. WILLIAM H. LINTON, New Richmond, Ohio, assignor to O. P. Schriver & Co., Cincinnati, Ohio. Filed July 21, 1897. Serial No. 645,263. (No model.)



Claim.—1. A frame, having a pair of bearings, a spool journaled in said bearings, and provided with a bore or socket, a ratchet having a shank inserted in said bore or socket, and a fastener that unites said spool and ratchet, in the manner described.

2. A frame, having a pair of bearings, a spool journaled in said bearings, and provided with a non-circular bore or socket, a ratchet having a non-circular shank inserted within said bore or socket, and a fastener that unites said spool and ratchet, in the manner described.

3. A frame having a pair of bearings *l*, *l'*, a spool G, journaled in said bearings, and provided with heads I I', collar *i'*, longitudinal bore H A, and cavity *h'*, and a ratchet C, having a shank E *e*, and pin F, said shank being inserted within said bore and secured therein by driving said pin into said cavity, for the purpose described.

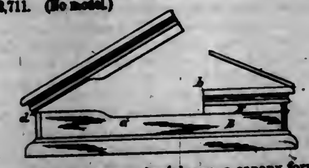
4. A fence-wire ratchet-frame including a side plate L, having an opening *k'*, and an integral guide *k*, in front of said opening, in combination with a gravitating pawl N, having an outwardly-projecting lifter *n*, above said guide, for the purpose described.

5. A fence-wire spool G, having integral heads I, I', of greater diameter than said spool, and an integral collar *i'*, adjacent to, and of greater diameter than one of said heads, for the purpose described.

6. A frame having a pair of side plates, a spool journaled in said frame, and provided with a pair of annular heads, and a stop-collar, which latter bears against one of said plates, and a ratchet which bears against the other side plate and is rigidly united to said spool, for the purpose stated.

7. A fence ratchet-frame, having an inclined integral bearing M, and guide *k*, and a gravitating pawl N, that rests against said bearing, and has its upper portion confined within said guide, for the purpose described.

592,799. CASKET. HARRY T. LOOMIS, Oneida, N.Y., assignor to the National Casket Company, same place. Filed Aug. 14, 1896. Serial No. 602,711. (No model.)



Claim.—1. In a casket or burial-case, a canopy formed of the lid of the casket, a movable support for the canopy formed from a portion of the casket-body, said lid being hinged to the portion of the casket-body and adapted to be folded to close the casket, as set forth.

2. A casket or burial-case divided in sections said sections being suitably connected together, one of said sections being adapted to be raised to a vertical position to support the lid in a horizontal position on its upper end over the lower section of the casket, as and for the purpose described.

3. In a casket or burial-case, a lower horizontal section, an upper horizontal section hinged to the lower section at one end and adapted to be raised to a vertical position, means to support said section in the vertical position, and the lid hinged to the upper end of the movable section and adapted to be raised to bear with its opposite side on the upper end of the movable section, as and for the purpose described.

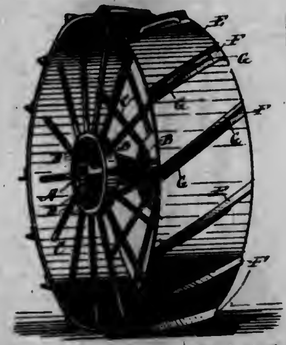
4. In a casket or burial-case, a lower horizontal section, an upper horizontal section divided into two parts, each part being hinged to the opposite ends of the lower section to allow said parts to be raised, a part of the lid hinged to one of the movable parts, and means to support said movable part in an upright position and the lid hinged thereto in a horizontal position to form a canopy over the head end of the lower section, as set forth.

5. In a casket or burial-case, the combination of a lower horizontal section, an upper horizontal section divided intermediate its length into two parts, said parts being hinged to opposite ends of the lower section, means to secure said parts in a vertical position, a divided lid a part of which is hinged to each of the inner ends of the movable parts, said parts of the lid being adapted to lie in a horizontal position supported on the upper ends of the movable parts when they are raised, and extend toward each other over the lower section of the casket, as set forth.

6. In a casket or burial-case, a canopy-top over each end of the casket, formed of the body of the casket, and the lid, and adapted to be folded to complete and close the casket, substantially as described and shown.

7. In a casket or burial-case, a canopy above the case, formed from a part of the lid, and a support for said canopy mounted on the case, as set forth.

592,800. HARVESTER-WHEEL. JAMES MACPHAIL, Chicago, Ill., assignor to the Piano Manufacturing Company, same place. Filed Jan. 18, 1897. Serial No. 619,556. (No model.)



Claim.—A wheel having two rows of holes in the rim; a series of angle-irons, one member of each angle-iron being provided with two holes; and U-shaped spokes, the ends of which pass through the holes in the angle-iron and in the rim; the ends of the spokes being secured to the central portion of the wheel, while the central portion of the U-shaped spokes rest upon one member of the angle-iron to secure it to the wheel and against the other member of the angle-iron to brace it and hold it in its vertical position.

592,801. ATTACHMENT FOR BICYCLE-PEDALS. WENDELL MACY, Nantucket, Mass., assignor of one-half to Millard F. Freeborn, same place. Filed May 8, 1897. Serial No. 635,708. (No model.)



Claim.—1. A pedal for bicycles or similar vehicles, provided centrally with the usual tubular sleeve, and a clamp which is mounted on said sleeve, and provided with a rod which passes vertically therethrough, said rod being provided with a knob or head at its lower end, and the upper end being screw-threaded, substantially as shown and described.

2. A pedal for bicycles and similar vehicles, provided centrally with the usual tubular sleeve, and a clamp which is mounted on said sleeve, and provided with a rod which passes vertically therethrough,

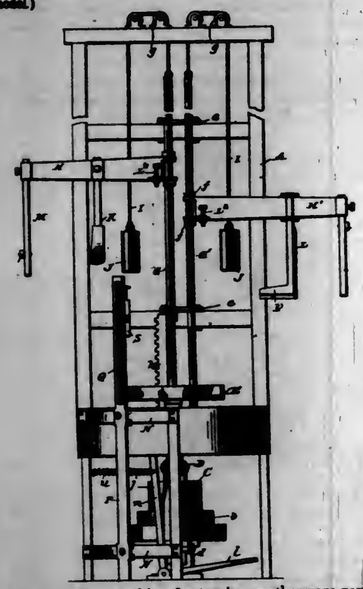
said rod being provided with a knob or head at its lower end, and the upper end being screw-threaded, and said rod being also provided with a collar, substantially as shown and described.

3. A pedal for bicycles and similar vehicles provided with the usual tubular sleeve through which the arm or shaft of the pedal-crank passes, and a yoke-shaped clamp, which is mounted on said sleeve, said clamp being provided with a rod which passes vertically through the sides thereof at one side of said sleeve, said rod being provided with a collar, and at the upper end thereof, with a screw-thread, and a knob or weight which is connected with the lower end of said rod, substantially as shown and described.

592,802. **ELECTRIC DIAPHRAGM.** NICOLAS MARCHAL, Diedse, Germany, assignor to the Anciennes Salines Domaniales de l'Est, Actien-Gesellschaft, same place. Filed Jan. 13, 1896. Serial No. 575,280. (No specimens.) Patented in Germany Aug. 28, 1894, No. 82,832.

Claim.—An electrolytic diaphragm in the form of a plate cut from limestone or equivalent integral natural alkaline-earth carbonate substantially as described.

592,808. **LARGE-WARE JOLLIE-MACHINE.** GAYLORD W. MARTIN, Fort Scott, Kans. Filed Mar. 29, 1897. Serial No. 629,846. (No model.)



Claim.—1. In a machine for turning earthenware vessels, the combination of a main frame, a rotary jollie, an upright adjustable horizontally with respect to the former and provided with a vertical guide and also provided with a keeper, means for adjustably fixing said upright, an arm movable vertically and laterally in the main frame and provided with means for engaging the guide of the upright, a turning implement carried by said arm, a second arm movable vertically and laterally in the main frame and provided with a latch for engaging the keeper on the upright, and a turning implement carried by said arm, substantially as specified.

2. In a machine for turning earthenware vessels, the combination of a main frame, a rotary jollie, an upright, adjustable horizontally with respect to the jollie and provided with a vertical guide, means for adjustably fixing said upright, an arm movable vertically and laterally in the main frame and provided with means for engaging the guide of the upright, and a turning implement carried by said arm, substantially as specified.

3. In a machine for turning earthenware vessels, the combination of a main frame, a rotary mold or jollie, an upright adjustable with respect to the mold and provided with a keeper, means for adjustably fixing said upright, an arm movable vertically and laterally in the main frame and provided with a latch for engaging the keeper on the upright and a turning implement carried by said arm, substantially as specified.

4. In a machine for turning earthenware vessels, the combination of a main frame, a rotary jollie, an upright adjustable with respect to the jollie and provided with a guide, means for adjustably fixing said upright, an arm movable vertically and laterally in the main frame and provided with means for engaging the guide of the upright, a turning implement carried by said arm, and mechanism for connecting the rotary jollie-shaft with the arm so as to transmit motion from the former to the latter and thereby raise the said arm, substantially as specified.

5. In a machine for turning earthenware vessels, the combination of a main frame, a rotary mold or jollie mounted on a drive-shaft, a vertically-movable arm carrying a turning implement, and mechanism intermediate of the drive-shaft and arm for gradually raising the latter, substantially as specified.

6. In a machine for turning earthenware vessels, the combination of a main frame, a rotary jollie-shaft provided with a worm-gear, a vertically-movable arm carrying a turning implement, a vertical rack connected with said arm, a lever, a shaft journaled in said lever and carrying a pinion for engaging the rack of the arm and a worm-pinion for engaging the worm-gear, and a spring for normally holding the shaft away from the rack and worm-gear, substantially as specified.

7. In a machine for turning earthenware vessels, the combination of a main frame, a rotary jollie, an upright adjustable horizontally with respect to the jollie, means for adjustably fixing said upright, an arm movable laterally in the main frame and provided with means for engaging and holding it to the upright, and a turning implement carried by said arm, substantially as specified.

592,804. **SHUTTER-FASTENER.** RANDOLPH H. MANTZ, Frederick, Md. Filed July 15, 1897. Serial No. 644,708. (No model.)



Claim.—1. The combination with a holding-rod, of a sill-plate having a keeper, and a double catch arranged to engage with said sill-plate and with the keeper, such double locking engagement of the double catch with the keeper being effected without the intervention of the holding-rod with the keeper and said catch, as and for the purposes described.

2. The combination of a sill-plate having a keeper, of a gravity-catch having a lug to have locking engagement with the keeper and a head to have locking engagement with the sill-plate, and a holding-rod adapted to be connected with the sill-plate but independent of the gravity-catch at all points of its adjustment, as and for the purposes described.

3. A sill plate provided with spaced studs or posts and with a keeper, combined with a gravity-catch formed with a head to have locking engagement with the posts and with a shoulder to have locking engagement with the keeper, and a holding-rod apertured at one end to fit either of the posts of the sill-plate, as and for the purposes described.

4. A sill-plate having a plurality of spaced studs or posts on a common base and a keeper projecting laterally from one side of the base, combined with a gravity-catch to engage with the keeper and provided with a head to engage with certain of the studs of the sill-plate, and a holding-rod, as and for the purposes described.

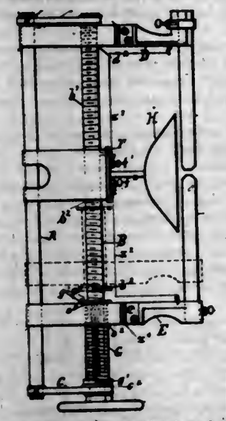
5. A sill-plate having a plurality of posts and a bevel-faced keeper extending laterally from one side of said plate, combined with a gravity-catch having a beveled face to ride upon the keeper and provided with a head to engage with certain of the posts; said catch arranged to be coupled automatically to, and to have double locking engagement with the sill-plate when the shutter is closed, and a holding-rod apertured to engage with the studded sill-plate independently of the gravity-catch, as and for the purposes described.

6. A gravity-catch provided on its lower side with a beveled and shouldered lug and with a branched head which projects beyond said lug, combined with a sill-plate having a beveled keeper in the path of said beveled lug on the catch and also provided with a plurality of posts to be engaged by the head of the catch, and a holding-rod to engage with the studded plate independently of the gravity-catch, whereby said catch may have double locking engagement with the sill-plate without adjusting the holding-rod to engage with the catch, as and for the purposes described.

7. The combination of a sill-plate provided with a plurality of studs or posts which project upwardly from and are spaced at suitable intervals on a common base, a holding-rod with an eye-formed

end to engage either of said posts, and a catch, as and for the purposes described.

592,805. **ELECTRIC-LIGHT FIXTURE.** FRANCIS B. MASON, Brooklyn, N. Y., assignor to J. B. Colt & Co., New York, N. Y. Filed Mar. 19, 1895. Serial No. 542,431. (No model.)



Claim.—1. In an arc-lamp the combination of a pair of carbon holders or brackets with a shaft provided with right and left hand screw-threads, a sleeve screw-threaded on the interior to fit said screw-shaft, and also screw-threaded on its exterior with a thread of a different pitch, to fit a screw-thread in one of the brackets, means to secure said sleeve to either the bracket in which it fits or to the shaft, said brackets being mounted on said screws and operated thereby substantially as and for the purposes described.

2. In an arc-lamp the combination of a pair of carbon holders or brackets with a shaft provided with right and left hand screw-threads, a sleeve, screw-threaded on the interior to fit said screw-shaft, and also screw-threaded on its exterior with a thread of a different pitch, (the relative pitch of the screws of the shaft and that on the outside of the sleeve being such as to compensate for the consumption of the carbons when a direct current is employed) the said threads of a different pitch fitting a screw-thread in one of the brackets, means to secure said sleeve to either the bracket in which it fits or to the shaft, said brackets being mounted on said screws and operated thereby substantially as and for the purposes described.

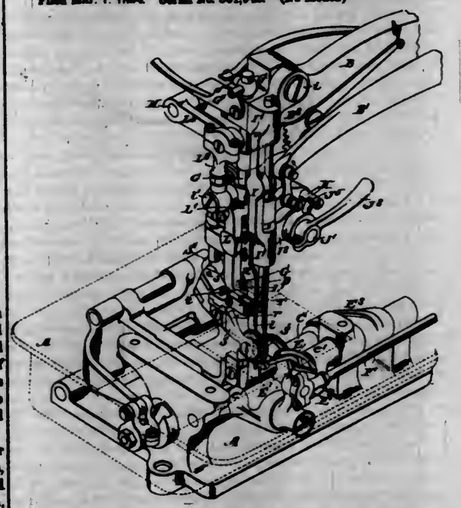
3. In an arc-lamp the combination of a frame carrying two adjustable brackets for the carbons, and a screw-shaft having a right and left hand screw-thread, a sleeve screw-threaded on the interior to fit the screw of the shaft, and on the exterior with a thread of a different pitch and means to secure said sleeve either to the bracket or the shaft, one of said brackets having a screw-threaded hole to receive the screw-shaft, and the other a screw-threaded hole to receive the sleeve substantially as described.

4. In an arc-lamp the combination of a frame carrying two adjustable brackets for the carbons, and a screw-shaft having right and left screw-threads, a sleeve screw-threaded on the interior to fit one screw of the shaft, and on the exterior with a thread of a different pitch adapted to cooperate with the screw-thread of the shaft to compensate for the consumption of the carbons under other conditions and means to secure said sleeve either to the bracket or the shaft, one of said brackets having a screw-threaded hole to receive the screw-shaft, and the other a screw-threaded hole to receive the sleeve substantially as described.

5. In an arc-lamp in which both carbons are simultaneously fed forward into the arc, in the focus of a stationary reflector, a screw-shaft provided with right and left hand screw-threads of even pitch, a sleeve provided with a screw-thread on the inside thereof, to fit the thread of the screw-shaft, and also provided on the outside with a screw-thread of a different pitch, two carbon-holders suitably mounted, one provided with a screw-threaded hole to receive the screw-shaft, and the other with a screw-threaded hole to receive the sleeve, two set-screws one adapted to secure said sleeve to the bracket, and the other to secure the sleeve to the screw-shaft, and means to operate the screw-shaft substantially as described.

6. In an arc-lamp in which both carbons are simultaneously fed forward into the arc, in the focus of a stationary reflector, a screw-shaft provided with right and left hand screw-threads of even pitch, a sleeve provided with a screw-thread on the inside thereof, to fit the thread of the screw-shaft, and also provided on the outside with a screw-thread of a different pitch, the relative pitch of the screws of the shaft and that on the outside of the sleeve being such as to compensate for the consumption of the carbons when a direct current is employed, two carbon-holders suitably mounted, one provided with a screw-threaded hole to receive the screw-shaft, and the other with a screw-threaded hole to receive the sleeve, and means to secure said sleeve to either the bracket or the screw-shaft, and to operate the shaft substantially as described.

592,806. **SEWING-MACHINE.** LORENZ MUTHER, Oak Park, ELIAS G. HOLLAND, Austin, and RUSSEL G. WOODWARD, Waukegan, Ill., assignors to The Union Special Sewing Machine Company, Chicago, Ill. Filed Mar. 1, 1894. Serial No. 501,942. (No model.)



Claim.—1. In a sewing-machine, the combination with a stationary arm, of a pivoted adjustable needle-bar head supported by the stationary arm, a needle-bar guided in the needle-bar head and adjustable therewith, power devices to impart movement to the needle-bar in the needle-bar head, a looper-needle pivoted on a horizontal axis and movable in a vertical plane, a trimmer having its cutting edges arranged transversely to the plane of reciprocation of the looper-needle, and devices for rocking the needle-bar head on its pivoted connection to adjust its lower end in a plane parallel with the plane of the looper-needle and transversely to the plane of the trimmer-blades and to maintain it in such adjusted position.

2. In a sewing and trimming machine, the combination with a trimmer, of a swinging needle-bar head provided with an arm extension, an adjusting-cam acting upon said arm extension to adjust the head and maintain it in adjusted position, adjustable stops to limit the throw of said cam, and the needle-bar and its needle guided in said swinging head.

3. In a sewing and trimming machine, the combination of the overhanging arm, the trimmer, a swinging head pivoted to the overhanging arm and provided with an arm extension, the needle-bar and its needle guided in said swinging head, and means to adjust the swinging head and maintain it in adjusted position, consisting of a cam J acting on the arm extension of the swinging head, carried by a stud J^7 journaled in the head of the overhanging arm of the machine.

4. In a sewing and trimming machine, the combination of the overhanging arm, the trimmer, a swinging head pivoted to the overhanging arm and provided with an arm extension, the needle-bar and its needle guided in said swinging head, and means to move the swinging head, consisting of a cam J acting on the arm extension of the swinging head, carried by a stud J^7 journaled in the head of the overhanging arm of the machine, the spring J^9 between the rear end of the stud and the overhanging arm, and the fastening-nut J^4.

5. In a sewing and trimming machine, the combination of the overhanging arm, the trimmer, the swinging head pivoted to the overhanging arm and provided with an arm extension, the cam J acting on the arm extension to move the swinging head on its fulcrum provided with a projection J^8, the eccentric stops K, K, located on each side of the projection J^8 to limit the throw of the cam in either direction, and the needle-bar and needle guided in the swinging head.

6. In a sewing and trimming machine, the combination with the needle-bar and needle of a trimmer, a rocking frame, a slide carried

by the rocking frame and movable thereon to and from the fulcrum of the frame, and power-transmitting connections between the movable slide and the trimmer, whereby the movements of the slide upon the frame to and from the fulcrum thereof will control the movements of the trimmer, and an operating-lever P connected with said slide.

7. In a sewing and trimming machine, the combination with the needle-bar and needle, of a trimmer, a rocking frame, a slide carried by the rocking frame and movable thereon to and from the fulcrum of the frame, power-transmitting connections between the movable slide and the trimmer, whereby the movement of the slide upon the frame to and from the fulcrum thereof will control the movements of the trimmer, an operating-lever P connected with said slide, and means to lock said lever in its two extreme positions.

8. In a sewing and trimming machine, the combination with the needle-bar and needle, of a trimmer, a rocking frame, a slide carried by the rocking frame and movable thereon to and from the fulcrum of the frame, power-transmitting connections between the movable slide and the trimmer, whereby the movement of the slide upon the frame to and from the fulcrum thereof will control the movements of the trimmer, a lever P connected with said slide, and handpiece P^2 for operating the lever P.

9. In a sewing and trimming machine, the combination with the needle-bar and needle, of a trimmer, a rocking frame, a slide carried by the rocking frame and movable thereon to and from the fulcrum of the frame, power-transmitting connections between the movable slide and the trimmer, whereby the movement of the slide upon the frame to and from the fulcrum thereof will control the movements of the trimmer, a lever P connected with said slide, handpiece P^2 for operating the lever P, provided with catches g, g, and a spring Q adapted to engage either of said catches and thus lock the lever P in its extreme positions.

10. In a sewing and trimming machine, the combination with the needle bar and needle, of a trimmer, a rocking frame O' fulcrumed as at o, a slide N' carried by the frame O' and movable thereon to and from the fulcrum, and connections between the slide N' and the trimmer.

11. In a sewing and trimming machine, the combination with the needle-bar and needle, of a trimmer, a power-actuated part, a slide carried by said power-actuated part and movable thereon to and from the center of movement thereof whereby the extent of movement imparted to said slide by the power-actuated part may be increased or diminished as the slide is moved from or to the said center of movement, and power-transmitting connections between said slide and the trimmer.

12. In a sewing and trimming machine, the combination with the needle-bar and its needle, of a trimmer, a rock-shaft M, connections between the rock-shaft M and the trimmer, a power-actuated part, a slide operated by said power-actuated part and movable to and from the center of movement thereof, whereby the extent of movement imparted to said slide by the power-actuated part may be increased or diminished as the slide is moved from or to said center of movement, and connections between said slide and rock-shaft M, whereby the movements of the trimmer are controlled by the movements of the slide.

13. In a sewing-machine, the combination with a needle-bar frame and the needle-bar and its needle guided therein, of the presser-bar, a presser-foot carried by the presser-bar on a hinged connection and provided with a catch-frame, and a catch on the needle-bar frame adapted to engage the catch-frame of the presser-foot when the presser-bar is lowered and hold it locked until the presser-bar is elevated.

14. In a sewing-machine, the combination with a needle-bar frame and the needle-bar and its needle guided therein, of the presser-bar, a presser foot carried by the presser-bar on a hinged connection and provided with a catch-frame, and a catch on the needle-bar frame adapted to enter the catch-frame of the presser-foot when the presser-bar is lowered and hold it locked until the presser-bar is elevated, the catch-frame carried by the presser-foot being susceptible of lateral adjustment.

15. In a sewing-machine, the combination with the needle-bar frame and the needle-bar and its needle guided therein, of the presser-bar, the presser-foot frame S hinged to the presser-bar, the presser-foot carried by the presser-foot frame, the notched catch-frame T carried by the frame S, and the catch R carried by the needle-bar frame and having the upturned end r adapted to enter the notch of the catch-frame T when the presser-bar is lowered and lock the presser-foot frame against lateral movement.

16. In a sewing-machine, the combination with a trimmer, of a pivoted needle-bar head provided with an arm extension, means to act upon said arm extension to adjust the head and maintain it in such adjusted position, adjustable stops to limit the swing of said needle-bar head, and the needle-bar and its needle guided in said pivoted needle-bar head.

17. In a sewing-machine, the combination with a trimmer, a pivoted needle-bar head, the needle-bar and its needle guided therein, a presser-foot, and means connecting the presser-foot and needle-bar head whereby they may be moved to and from the trimmer.

18. In a sewing-machine, the combination with a trimmer, a pivoted needle-bar head, the needle-bar and its needle guided therein, of a presser-foot removably secured to said needle-bar head and means for moving the needle-bar head and presser-foot to and from the trimmer.

19. In a sewing-machine, the combination of a pivoted needle-bar head, the needle-bar and its needle guided therein, a presser-foot frame removably connected with the pivoted needle-bar head and means to adjust the presser-foot frame and presser-foot to and from the needle.

20. In a sewing-machine, the combination with a trimmer, a pivoted needle-bar head, the needle-bar and its needle guided in the needle-bar head, of a presser-foot, and presser-foot frame removably connected with the pivoted needle-bar head, and means to adjust the presser-foot frame and presser-foot to and from the trimmer.

21. In a sewing-machine the combination with a trimmer, a pivoted needle-bar head, the needle bar and its needle guided therein, of a presser-bar, a presser-foot carried by the presser-bar on a hinged connection and removably secured to said pivoted needle-bar head and means for moving the presser-foot and needle to and from the trimmer.

22. In a sewing-machine, the combination with a trimmer, a pivoted needle-bar head, the needle-bar and its needle guided therein, of a presser-bar, a presser-foot frame carried by the presser-bar on a hinged connection and provided with a catch-frame, and a catch on the pivoted needle-bar head adapted to enter the catch-frame of the presser-foot frame when the presser-bar is lowered and hold it locked till the presser-bar is raised, and means for moving the needle and presser-foot to and from the trimmer.

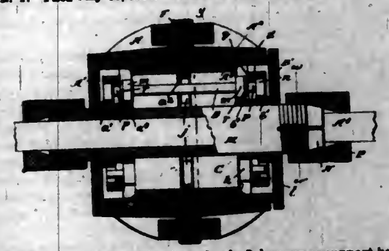
23. In a sewing-machine, the combination with the movable presser-bar, of a presser-foot connected therewith by a hinged connection, a locking device carried by the frame of the presser-foot, and a catch device carried by a portion of the machine and adapted to engage the locking device of the presser-foot frame and hold the presser-foot frame against independent movement on its hinged connection when the presser-foot is lowered by the presser-bar into position to act upon the cloth and to be disengaged therefrom when the presser-foot is moved out of action.

24. In a sewing-machine, the combination with a trimmer, of an adjustable needle-bar head, a presser-foot frame provided with a locking device, and a catch carried by the adjustable needle bar head in a position to engage the locking device of the presser-foot frame when the presser-foot is lowered into operative position and to be disengaged therefrom when the presser-foot is moved out of action.

25. In a sewing-machine, the combination of a trimmer, means connected with the trimmer for imparting motion thereto when said means are actuated, a power-actuated driving part, and intermediate connections between the power-actuated driving part and the means, connected with the trimmer, having provision for adjustment to vary the extent of movement imparted to said means connected with the trimmer, whereby the extent of movement of the trimmer may be varied by the adjustment of said intermediate connections.

26. In a sewing-machine, the combination with the rock-shaft M, and mechanism operated thereby, of a power-actuated driving part and intermediate connections between the rock-shaft M and the power-actuated driving part having provision for adjustment to vary the extent of movement imparted to the rock-shaft and the mechanism operated thereby.

592,807. BOX FOR SHAFTING JAMES D. MATTHEWS, New York, N. Y. Filed July 19, 1897. Serial No. 645,067. (No model.)



Claim.—1. The combination of a shaft hanger or support having an aperture, the yoke bearing upon the hanger or support and having the pivot journaled and secured in the aperture thereof and also having bearing-notches in its arms and threaded sockets in the upper

ends of the arms at opposite sides of the notches, a journal-box having trunnions journaled in said bearing-notches of the yoke, removable cap-blocks arranged in the bearing-notches upon the trunnions and having flanges at their upper ends, and screws taking through said flanges into the sockets in the arms of the support, substantially as specified.

2. In a journal-bearing, the combination of the box with heads at its ends having the inwardly-directed annular flanges provided with the inner reduced portions a^4, b^4, the main bearing-rollers having the reduced portions k, surrounding the said inner reduced portions a^4, b^4, rollers arranged intermediate of the main bearing-rollers and having the reduced intermediate portions and the enlarged portions adjacent to their ends, the latter engaging the portions k of the main bearing-rollers, and also having end portions bearing on the inwardly-directed flanges of the box-heads, and movable rings surrounding and engaging the intermediate rollers, substantially as specified.

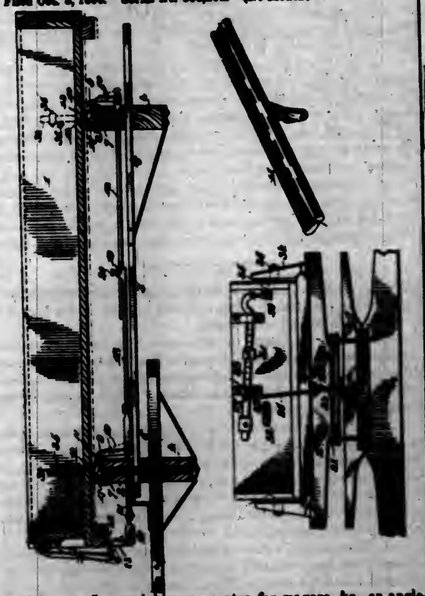
3. In a journal-bearing, the combination of a box with heads at its ends having inwardly-directed annular flanges provided with the inner reduced portions a^4, b^4, main bearing rollers having the reduced portions k, surrounding the said inner reduced portions a^4, b^4, and rollers arranged intermediate of and engaging the main bearing-rollers on the unreduced portions of the flanges on the box-heads, substantially as specified.

592,808. SAD-IRON. CHARLES C. MEEKER, Newark, N. J., assignor of one-half to the Mees & Drake, same place. Filed May 19, 1897. Serial No. 637,171. (No model.)



Claim.—For detachable-handle sad-irons, the body A in one integral cast piece and having at its center the cavity J and cross-bar L, said cavity having the downwardly and outwardly inclined walls K, and said cross-bar being integral with said body and uniting therewith on the curved lines a, b, the latter extending downward and outward to merge into the lower portion of said outwardly inclined walls K, whereby the outer ends of said cross-bar are thickened in vertical direction and the lower surfaces of said outer ends at their extremities are carried outward beyond the ends of the upper surfaces of said cross-bar; substantially as and for the purposes set forth.

592,809. WAGON-SCALE. SAMUEL A. MILLER, Gardner, Kans. Filed Oct. 8, 1896. Serial No. 608,202. (No model.)



Claim.—1. In a weighing apparatus for wagons, &c., an angle-lever fulcrumed on the front bolster, its horizontal arm extending transversely entirely across the wagon-body to support the front end thereof, a second and similar lever fulcrumed on the rear bolster to support the rear end of the wagon-body, a horizontally-disposed rod connecting the vertical arms of said levers for simultaneously moving them, a scale-beam fulcrumed on the end of the wagon-body, an elbow-lever pivoted on the end of the wagon-body and connected at one end to the said rod, and a rod connected at one end to the other end of the elbow-lever and detachably connected at its other end to the scale-beam, substantially as described.

2. The combination with a wagon truck and body, of fulcrum-plates secured to the tops of the bolsters and having upwardly-projecting knife-edges, auxiliary bolsters supported on said plates at one side of the knife-edges, angle-levers fulcrumed on the knife-edges, the horizontal arms of said levers extending entirely across and being arranged to support the wagon-body clear of said auxiliary bolsters or to allow it to be lowered so as to rest directly thereon, a rod connecting the vertical arms of said levers, a scale-beam fulcrumed on the wagon-body, and devices to detachably connect said rod with the scale-beam, substantially as and for the purpose described.

3. The combination with a wagon truck and body, of fulcrum-plates secured to the top of the bolsters and having upwardly-projecting knife-edges, auxiliary bolsters supported on said plates at one side of the knife-edges, angle-levers fulcrumed on the knife-edges, the horizontal arms of said levers extending entirely across and being arranged to support the wagon-body clear of said auxiliary bolsters or to allow it to be lowered so as to rest directly thereon, each of said horizontal arms having a recess in its bottom face to fit over the knife-edge of its support, and also recesses at its ends above the bottom recess, keepers secured to the bolsters and adapted to loosely engage in said end recesses to prevent the accidental displacement of the levers, a rod connecting the vertical arms of said levers, a scale-beam fulcrumed on the wagon-body, and connections between said beam and rod, substantially as and for the purpose described.

4. The combination with a wagon truck and body, of levers fulcrumed on the front and rear bolsters and adapted to support the wagon-body, a connecting-rod interposed between said levers, a ring or annulus attached to said rod and extending around the king-bolt, a scale-beam fulcrumed on the wagon-body at its front end, and connections between said beam and ring, substantially as described.

5. The combination with a wagon truck and body, of levers fulcrumed on the front and rear bolsters, a connecting-rod interposed between said levers, a ring or annulus attached to said rod and surrounding the king-bolt, an elbow-lever fulcrumed at the front end of the wagon-body and having a link connection with said ring, a scale-beam on the front end of the wagon-body, and a rod or bar interposed between said elbow-lever and the scale-beam, substantially as described.

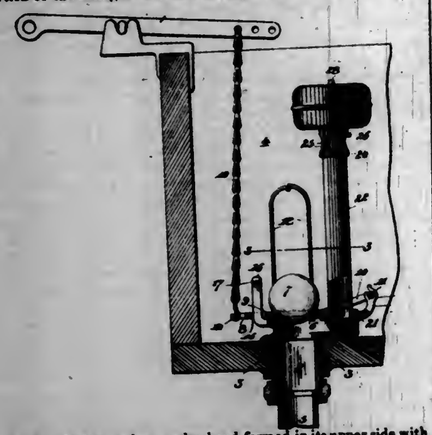
6. The combination with a wagon truck and body, of levers fulcrumed on the front and rear bolsters and adapted to support the wagon-body, a connecting-rod interposed between said levers, a ring or annulus attached to said rod and surrounding the king-bolt, an elbow-lever fulcrumed on the front end of the wagon-body and connected at one end to the said rod, and a rod connected at one end to the other end of the elbow-lever and detachably connected at its other end to the scale-beam, substantially as described.

592,810. FLUSHING-VALVE. RICHARD R. MITCHELL, Montreal, Canada. Filed Feb. 26, 1897. Serial No. 625,147. (No model.)

Claim.—1. In a flushing-valve, a valve-head provided with a pendent discharge-neck, a valve-seat opening at the upper end of said neck, an upwardly-disposed guide arranged at one side of the valve-seat opening and having a stop at its upper end, and a short supporting-arm at the opposite side of the valve-seat opening and having a bearing-eye, a ball-valve arranged above the valve-seat opening, an integrally-formed lifting-frame having a ring portion arranged concentric with the valve-seat opening and of a less diameter than the ball-valve, and oppositely-located arms, one of said arms being hinged in the eye of the supporting-arm of the valve-head, and the other of said arms loosely working over said guide, and a valve-cage rigidly fitted to the lifting-frame and extended above the ring portion thereof, substantially as set forth.

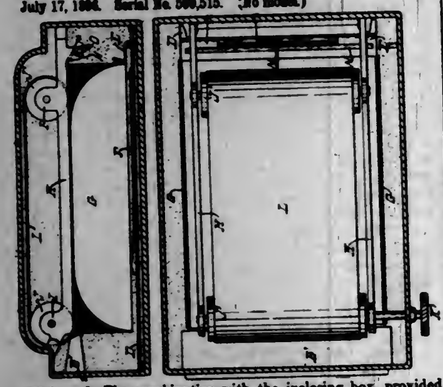
2. In a flushing-valve, a valve-head provided with a pendent discharge-neck and a valve-seat opening at the upper end of said neck, a hollow ball-valve arranged above the valve-seat opening, an integrally-formed lifting-frame hinged at one end to the valve-head and provided intermediate its ends with a ring portion arranged concentric with the valve-seat opening and of a less diameter than the ball-valve, said lifting-frame normally lying directly on top of the valve-head and having an operating connection with its unhinged extrem-

ity, and a valve-cage extended above and rigidly secured to the ring portion of the lifting-frame, substantially as set forth.



3. In a flushing-valve, a valve-head formed in its upper side with a valve-seat opening, and in a plane below such opening with a lateral hollow extension, a ball-valve working over and in said valve-seat opening, a vertical overflow-pipe fitted at its lower end in said extension of the valve-head, a float arranged over the upper end of the overflow-pipe and having at its lower side a sleeve loosely embracing the upper end of the overflow-pipe and provided in its side with a plurality of ports, a valve-disk fitted within the upper end of the sleeve, and a vertical vent-tube fitted in the float and providing communication between the outer air and the interior of the overflow-pipe, substantially as set forth.

592,811. TOILET-PAPER HOLDER. JOHN H. MOREN, Milwaukee Wis., assignor of one-half to Lucas D. Dorschell, Chilton, Wis. Filed July 17, 1896. Serial No. 599,515. (No model.)

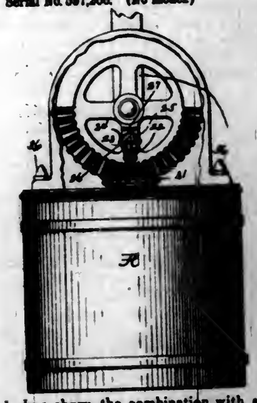


Claim.—1. The combination with the inclosing box, provided with a discharge-slot in one end and a door in the side thereof; a sliding plate adapted to be inserted in said box through the door; a paper-supporting plate, hinged at one end of said sliding plate and provided with upwardly-projecting side flanges; a spring interposed between the sliding and hinged plates; a conical post projecting upwardly from the rear end of the hinged plate, provided with a narrow vertical slot therein; a friction-belt supported upon rollers above said sliding and hinged plates, and an exterior knob connected with the axis of one of said rollers, and adapted to actuate the belt, substantially as described.

2. The combination with the inclosing box, having a discharge-slot and an interiorly-converging guide leading thereto; a friction-belt supported on rollers in said box; a paper-supporting spring-actuated plate, adapted to hold the paper forcibly against said belt, and an upwardly-projecting conical post attached to the rear end of said paper-supporting plate, and provided with a narrow vertical slit, adapted to receive and retain a thin strip or fastening for holding the paper in place, substantially as described.

3. A toilet-paper holder, consisting in the combination with the inclosing box provided with a discharge-slot in one end and a door in the side thereof, a sliding plate adapted to be inserted in said box through the door, a paper-supporting plate hinged at one end to said sliding plate, and provided with upwardly-projecting side flanges, a spring interposed between the sliding and hinged plates, and a friction-belt supported upon rollers above said hinged plates, and adapted to feed the sheets of paper singly through the discharge-slot, substantially as described.

592,812. CHURN. SIDNEY T. MUFFLY, Roanoke, Va. Filed June 27, 1896. Serial No. 597,200. (No model.)



Claim.—1. In a churn, the combination with a churn body or receptacle, of a dasher comprising radial blades and obliquely-disposed disks both of which are connected to a rotary shaft, and means for driving said shaft, substantially as described.

2. In a churn, the combination with a churn body or receptacle, of twin dashers each comprising radial blades and obliquely-disposed disks both of which are connected to a rotary shaft, said dashers being adapted to revolve in opposite directions, and means for rotating the dashers, substantially as described.

3. In a churn, the combination with a churn body or receptacle, of rotary dashers each comprising radial blades and obliquely-disposed disks, the disks of each dasher slanting in the same direction, and means for rotating said dashers in opposite directions.

4. In a churn, the combination with a churn body or receptacle, of dashers each comprising radial blades and obliquely-disposed disks, and means for imparting opposite rotary reciprocating motion to said dashers, substantially as described.

5. In a churn, the combination with a churn body or receptacle, of rotary shafts provided with air-inlet openings communicating with the interior of the churn, and dashers carried by said shafts, of fan-blades carried by the respective shafts, being adapted for drawing air in through one shaft and expelling the gases evolved during the churning process out through the other shaft, when said shafts are rotated, substantially as described.

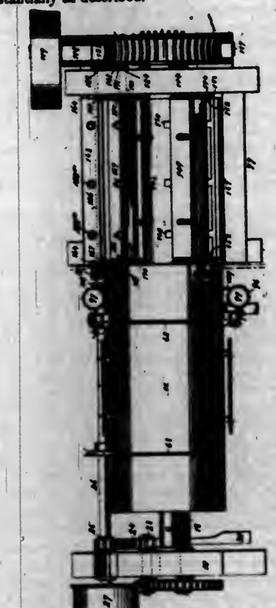
6. The herein-described churn-dasher, comprising a shaft, a plurality of inclined separated disks secured thereto, and a flat blade provided with an opening in its center which receives the disks and which blade extends in substantially diametric relation to the same.

592,818. CURVED-STEREOTYPE-PLATE-FINISHING MACHINE. CHARLES T. MURRAY, Kansas City, Mo. Filed Jan. 16, 1897. Serial No. 619,473. (No model.)

Claim.—1. In a machine of the character described, the combination of a rotating cylinder, indicator-pins to determine the position of a curved stereotype-plate upon said cylinder, means to clamp said plate firmly upon the cylinder, and knives to trim its ends during the revolution of the cylinder.

2. In a machine of the character described, the combination of a stationary shaft suitably journaled, a cylinder mounted to rotate around said shaft, means to clamp a stereotype-plate firmly upon said cylinder, gearing to rotate said cylinder, means to trim the ends of said plate while the cylinder is revolving, and means to automatically bring said cylinder to a state of rest at the moment one revolution has been completed.

3. In a machine of the character described, the combination of a stationary shaft suitably supported, a cylinder surrounding and adapted to rotate around said shaft, means for clamping a stereotype-plate upon the cylinder, a rotating shaft, a pinion mounted loosely thereon, an internal ring of said cylinder geared to said pinion, means for imparting movement from said rotating shaft to said pinion, means for trimming or beveling the ends of the stereotype-plate as the cylinder revolves, and means for stopping the rotation of said pinion and consequently of the cylinder when the latter completes one revolution, substantially as described.



4. In a machine of the character described, the combination of a stationary shaft suitably supported, a cylinder surrounding and adapted to rotate around said shaft, means for clamping a stereotype-plate upon the cylinder, a rotating shaft, a pinion mounted loosely thereon, an internal ring for said cylinder geared to said pinion, means for imparting movement from said rotating shaft to said pinion, means for trimming or beveling the ends of the stereotype-plate as the cylinder revolves, and a pin projecting inwardly from the cylinder and adapted to throw said rotating shaft and pinion out of gear, and bring the cylinder to a state of rest when it completes one revolution, substantially as described.

5. In a machine of the character described, the combination of a cylinder suitably journaled, means for clamping a stereotype-plate thereon, means for trimming the ends of the stereotype-plate during the revolution of the cylinder, a rotating shaft, a clutch-section mounted to slide and rotate with said shaft, an internal gear secured to the cylinder, a pinion engaging the same, mounted loosely upon said shaft and provided with a clutch member, means to throw the first-named clutch member into engagement with the last-named clutch member to cause the rotation of the cylinder, and means to return said clutch member to its original position automatically at the completion of one revolution of the cylinder, substantially as described.

6. In a machine of the character described, the combination of a cylinder suitably journaled, means for clamping a stereotype-plate thereon, means for trimming the ends of the stereotype-plate during the revolution of the cylinder, a rotating shaft, a clutch-section mounted to slide upon and rotate with said shaft, an internal gear secured to the cylinder, a pinion engaging the same, mounted loosely upon said shaft and provided with a clutch member, a fork embracing said last-named clutch member so as to slide it in one direction or the other without interfering with its rotatable movement, and provided with a cam or beveled shoulder, means to advance said fork and consequently said clutch member into engagement with its companion clutch member, and a pin projecting internally of the cylinder to engage the cam or beveled shoulder of said fork and thereby disengage said clutch member and bring the cylinder to a state of rest, substantially as described.

7. In a machine of the character described, the combination of a cylinder suitably journaled, means for clamping a stereotype-plate thereon, means for trimming the ends of the stereotype-plate during the revolution of the cylinder, a rotating shaft, a clutch member mounted to slide upon and rotate with said shaft, an internal gear secured to the cylinder, a pinion engaging the same, mounted loosely upon said shaft and provided with a clutch member, a fork embracing said last-named clutch member so as to slide it in one direction or the other without interfering with its rotatable movement, and provided with a cam or beveled shoulder, a foot-lever connected to advance said fork and consequently said clutch member into engagement with its companion clutch member, and a pin projecting internally of the cylinder to engage the cam or beveled shoulder of said fork and thereby disengage said clutch member and bring the cylinder to a state of rest, substantially as described.

8. In a machine of the character described, the combination of a cylinder suitably journaled, means for clamping a stereotype-plate thereon, a rotating shaft, intermediate gearing between said shaft and the cylinder to cause the latter to make one complete revolution, and knives mounted rigidly upon said shaft and adapted to trim the ends of the stereotype-plate to a bevel as the cylinder turns, substantially as described.

9. In a machine of the character described, the combination of a cylinder suitably journaled, indicator-pins for determining the position of a curved stereotype-plate upon the cylinder, means to clamp said plate upon the cylinder, a rotating shaft, intermediate gearing between said shaft and the cylinder to cause the latter to make one complete revolution, and knives mounted rigidly upon said shaft and adapted to trim the ends of the stereotype-plate to a bevel as the cylinder turns, substantially as described.

10. In a machine of the character described, the combination of a stationary shaft suitably journaled, a cylinder concentrically surrounding the same and suitable journaled, and adapted to receive externally a curved stereotype-plate, a short shaft journaled in the cylinder parallel with its axis, eccentrics upon the same, clamping devices to engage the opposite sides of the curved stereotype-plate and engaging and adapted to be actuated by said eccentrics, gearing between said stationary shaft and said short shaft, whereby the latter is caused to make a half-revolution and apply the clamps to the stereotype-plate, and then a second half-revolution to disengage said clamp from the stereotype-plate as the revolution of the cylinder is completed, for the purpose set forth.

11. In a machine of the character described, the combination of a stationary shaft, a cylinder mounted to rotate around the same, and to receive externally a curved stereotype-plate, a cog-segment depending rigidly from said stationary shaft, a short shaft journaled in the cylinder parallel with its axis, a pinion thereon, eccentrics thereon, quadrant-shaped clamping devices pivoted externally of and carried by the cylinder, and provided with forks which peripherally embrace said eccentrics, and means to rotate said cylinder and consequently cause said pinion to engage and be operated by said segment, for the purpose set forth.

12. In a machine of the character described, the combination of a stationary shaft, a cylinder concentrically surrounding said shaft, indicator-pins for positioning a curved stereotype-plate upon the cylinder, means to clamp the stereotype-plate in position upon the cylinder at the beginning of the cylinder's movement and to release said plate at the end of such movement automatically, means to rotate said cylinder a distance of one revolution only, and means for trimming to a bevel the ends of said stereotype-plate during the revolution of the cylinder, substantially as described.

13. In a machine of the character described, the combination of a cylinder, and devices for positioning a curved stereotype-plate thereon, consisting of a tube at each side of the cylinder, having openings at their upper inner sides, blocks in the upper ends of said tubes and provided with inwardly-projecting indicator-pins, and with downwardly and outwardly extending grooves, a spring for holding said blocks and pins normally retracted, and means for overcoming the resistance of said spring and advancing said pins to position the plate upon the cylinder, substantially as described.

14. In a machine of the character described, the combination of a cylinder, and devices for positioning a curved stereotype-plate thereon, consisting of a tube at each side of the cylinder, having openings at their upper inner sides, blocks in the upper ends of said tubes and provided with inwardly-projecting indicator-pins, and with downwardly and outwardly extending grooves, rods extending longitudinally of said tubes, and provided with heads at their upper ends having pins projecting laterally into the grooves of said blocks, springs surrounding said rods and interposed between said heads and the bottom of said tubes to hold the blocks retracted, collars upon said rods to limit their upward movement, and a lever pivotally connected to operate said rods and simultaneously advance said indicator-pins, substantially as described.

15. In a machine of the character described, the combination of a cylinder constructed to receive a curved stereotype-plate, means to slide said stereotype-plate forwardly upon said cylinder, and means to trim or bevel the side margins of said plate during its advance movement, substantially as described.

16. In a machine of the character described, the combination of a cylinder, means to slide forwardly a curved stereotype-plate resting

upon said cylinder, means to trim the side margins of said plate to a bevel, and means to engage frictionally said stereotype-plate, and, by contact with the folio and heading thereof, to adjust said cutting or trimming mechanism outwardly, that said folio and heading may be left intact, substantially as described.

17. In a machine of the character described, the combination of a cylinder constructed to receive a curved stereotype-plate, means to slide said stereotype-plate forwardly upon said cylinder, and rotating beveled knives to engage and trim the side margins of said stereotype-plate to a bevel during its advance movement, substantially as described.

18. In a machine of the character described, the combination of a cylinder constructed to receive a curved stereotype-plate, means to slide said plate forwardly upon said cylinder, rotating knives in the path of and adapted to trim the side margins of said plate to a bevel, and trip-rollers surmounting said knives, and adapted, by contact with the folio and heading of the stereotype-plate to rotate and to adjust said knives outwardly, that said folio and heading may be left intact, substantially as described.

19. In a machine of the character described, the combination of a cylinder, constructed to receive a curved stereotype-plate, brackets pivotally mounted at the front end and opposite sides of said cylinder, shafts journaled thereon, rotary cutters upon the upper ends of said shafts, trip-rollers surmounting said cutters, means to impart continuous rotary movement to said shafts, and hold the cutters and trip-rollers yieldingly inward, and means to slide said stereotype-plate forwardly into contact with said rotary cutters and said trip-rollers, substantially as described.

20. In a machine of the character described, the combination of a cylinder, constructed to receive a curved stereotype-plate, brackets pivotally mounted at the front end and opposite sides of said cylinder, shafts journaled therein, rotary cutters upon the upper ends of said shafts, trip-rollers surmounting said cutters, a continuously-rotating shaft, gearing between the same and said cutter-shafts to continuously rotate the latter and hold them yieldingly inward, and means to slide said plate forwardly against said rotary cutters and trip-rollers, substantially as described.

21. In a machine of the character described, the combination of a cylinder, constructed to receive a curved stereotype-plate, brackets pivotally mounted at the front end and opposite sides of said cylinder, shafts journaled therein, rotary cutters upon the upper ends of said shafts, trip-rollers surmounting said cutters, belt-wheels upon said cutter-shafts, an inclined guide-palley, a continuously-rotating shaft, a pulley thereon, an endless belt connecting the same with the belt-pulleys of the cutter-shaft and engaging said guide-pelley, and means to move the stereotype-plate forwardly against said rotating cutters and trip-rollers, substantially as described.

22. In a machine of the character described, the combination of a stationary cylinder provided with longitudinal slots, a rotatable cylinder provided with longitudinal slots, devices for positioning a stereotype-plate upon said cylinder so that it overlaps the slots thereof, means for clamping said plate in such position, means for rotating said cylinder, means for trimming to a bevel its ends during such rotation, and means to automatically bring the cylinder to a state of rest as one revolution is completed, with its slots in alinement with the slots of the stationary cylinder, substantially as described.

23. In a machine of the character described, the combination of a stationary cylinder provided with longitudinal slots and with a hub, a bearing-standard, a stationary shaft mounted at its opposite ends in said hub and said standard, a rotatable cylinder of the same diameter as the stationary cylinder and suitably journaled to rotate around said shaft, and provided with longitudinal slots which register with the slots of the stationary cylinder, a pair of sprocket-wheels arranged in longitudinal alinement at each side of the stationary shaft and in the plane of said slots, endless chains connecting them, and push-arms projecting from said chains and adapted to project at first through the slots of the rotatable cylinder and, engaging the rear end of a stereotype-plate mounted upon said cylinder, slide the same forwardly upon and beyond the stationary cylinder, for the purpose set forth.

24. In a machine of the character described, the combination of a stationary cylinder provided with a hub, with longitudinal slots at opposite sides, and with an external groove at its rear end, a bearing-standard to the rear of said cylinder, a stationary shaft mounted in said bearing-standard and said hub, a rotatable cylinder journaled upon said shaft and at its front end in the groove of the stationary cylinder, and provided with longitudinal slots which register with the slots of the stationary cylinder when the rotatable cylinder is in a state of rest, a pair of sprocket-wheels in longitudinal alinement at each side of the shaft and in the plane of said slots, push-arms projecting from said chains and adapted to project through said slots and slide the stereotype-plate from its position upon the rotatable cylinder forwardly until it clears the front end of the stationary cylinder, substantially as described.

25. In a machine of the character described, the combination of a stationary cylinder slotted at opposite sides and in the same horizontal plane, a stationary shaft extending axially thereof and projecting to the rear, a cylinder mounted rotatably upon said shaft and of the same diameter as the stationary cylinder, and provided with longitudinal slots adapted, when in a state of rest, to register with the slots of the stationary cylinder, a pair of sprocket-wheels suitably journaled in longitudinal alinement and at opposite sides of said stationary shaft, sprocket-chains connecting the same and provided with push-arms, a rotating shaft, means for rotating the rotatable cylinder, and means actuated by the same, just previous to the completion of a revolution, to place said rotating shaft in gear with and operate said endless chain and thereby cause said push-arms to project through the slots of the rotatable cylinder (now in a state of rest), and, engaging the rear end of said stereotype-plate, push it forwardly beyond the front end of the said stationary cylinder, substantially as described.

26. In a machine of the character described, the combination of a stationary cylinder slotted at its opposite sides and in the same horizontal plane, a stationary shaft extending axially thereof and projecting to the rear, a cylinder mounted rotatably upon said shaft and of the same diameter as the stationary cylinder, and provided with longitudinal slots adapted, when in a state of rest, to register with the slots of the stationary cylinder, a pair of sprocket-wheels suitably journaled in alinement with and at opposite sides of said stationary shaft, sprocket-chains connecting the same and provided with push-arms, a rotating shaft, means for rotating the rotatable cylinder, means actuated by the same, just previous to the completion of a revolution to place said rotating shaft in gear with and operate said endless chain and thereby cause said push-arms to project through the slots of the rotatable cylinder (now in a state of rest), and means, actuated by one of said chains, to throw the same out of gear with said rotating shaft and bring them to a state of rest.

27. In a machine of the character described, the combination of a stationary cylinder slotted at opposite sides and in the same horizontal plane, a stationary shaft extending axially thereof and projecting to the rear, a cylinder mounted rotatably upon said shaft and of the same diameter as the stationary cylinder, and provided with longitudinal slots adapted when in a state of rest to register with the slots of the stationary cylinder, a pair of sprocket-wheels suitably journaled in longitudinal alinement at each side of said stationary shaft, sprocket-chains connecting each pair and provided with push-arms, a rotating shaft, means for rotating the rotatable cylinder, means actuated by the same just previous to the completion of a revolution to place said rotating shaft in gear with and operate said endless chains and thereby cause said push-arms to project through the slots of the rotatable cylinder (now in a state of rest), and a lever projecting into the path of one of said push-arms, and adapted, under the action of the latter, to bring the chains to a state of rest.

28. In a machine of the character described, the combination of a stationary cylinder longitudinally slotted, a standard, a shaft mounted rigidly in the same and in the cylinder, a cylinder journaled upon the stationary cylinder and said shaft, and of the same diameter as the former, a rotating shaft, a rotatable shaft, a clutch member loosely mounted upon the rotatable shaft and geared to the rotating shaft, a second clutch member mounted to slide upon and rotate with said rotatable shaft, a lever connected to slide the latter, but not to interfere with its rotation, and provided with a cam and projecting up into the stationary cylinder, sprocket-wheels journaled at opposite sides of the stationary shaft contiguous to the last-named lever and in the plane of the slots of the stationary cylinder, sprocket-wheels in longitudinal alinement with the same, near the front end and within the stationary cylinder, shafts journaled in said cylinder and carrying said sprocket-wheels, and geared to the said rotatable shaft, chains connecting each pair of alined sprocket-wheels, push-arms projecting horizontally therefrom, means for rotating said rotatable cylinder, a pin projecting from the same whereby, just before, its revolution is completed, the said cam is engaged and its lever operated to throw the rotating and rotatable shafts into gear and consequently to set said chains in operation, and a lever linked to the said cam-carrying lever and adapted to be engaged by one of the rearwardly-moving push-arms, whereby the latter are instrumental in throwing said shafts out of gear and bringing said chains to a state of rest, substantially as described.

29. In a machine of the character described, the combination of a rotatable cylinder, provided with annular grooves in its external surface, means to position a curved stereotype-plate upon said cylinder with reference to said grooves, means for rotating said cylinder, means for clamping said plate as such rotation begins and for releasing it as such rotation ends, and rotary knives or trimmers arranged to operate in such annular grooves and to trim the front end of the plate to a bevel and sever and trim it coincidently with the other or rearmost groove, substantially as described.

30. In a machine of the character described, the combination of a stationary cylinder, a cylinder of the same diameter abutting against its rear end, constructed to receive a stereotype-plate, a cylindrical frame of the same diameter and in advance of the stationary cylinder, and means to slide said stereotype-plate forwardly until it clears the front end of the stationary cylinder and rests entirely upon said cylindrical frame, substantially as described.

31. In a machine of the character described, the combination of a shaft suitably journaled, a cylindrical frame or carrier mounted rigidly upon said shaft, and adapted to receive a grooved stereotype-plate, a rotating shaft, instrumentalities for throwing said rotating shaft and the frame or carrier in gear, and instrumentalities at the end of a revolution and a half of said frame or carrier for throwing the latter out of gear with said shaft, substantially as described.

32. In a machine of the character described, the combination of a shaft suitably journaled, a cylindrical frame or carrier mounted upon said shaft and adapted to receive a stereotype-plate, a segmental shaving-box vertically below, concentrically of and of slightly-greater diameter than said frame or carrier, a rotating shaft, instrumentalities for throwing the same in gear with the frame or carrier to permit the latter in one half-revolution to deposit the stereotype-plate within the shaving-box, a knife upon the frame or carrier, which shaves or trims the concave surface of the stereotype-plate during the second half-revolution of the frame or carrier, a block for engaging the rear end of the stereotype-plate (with respect to its rotatable action or direction of travel) to push it upwardly out of the shaving-box during the third half-revolution of the frame or carrier, and means, actuated by the rotatable movement of the carrier for throwing it out of gear as it completes such third half-revolution, with said rotating shaft, substantially as described.

33. In a machine of the character described, the combination of a rotatable shaft, a frame or carrier mounted thereon, and adapted to receive a curved stereotype-plate, a shaving-box of segmental form arranged concentrically with, of slightly-greater diameter than and below said carrier, a sliding block projected from said carrier at the lower and rear end (with respect to the movement of the carrier), and means for rotating said carrier and depositing said plate in the shaving-box.

34. In a machine of the character described, the combination of a rotatable shaft, a rotary frame or carrier thereon, a segmental shaving-box arranged concentrically of, of slightly-greater diameter than, and below said carrier, means on the carrier for placing a curved stereotype-plate within said box and adjacent to the periphery of the segmental carrier, a slide-plate, and means for adjusting the same into the advance path of said stereotype plate, substantially as described.

35. In a machine of the character described, the combination of a rotatable shaft, a rotary frame or carrier thereon, a segmental shaving-box arranged concentrically of, of slightly-greater diameter than, and below said carrier, means on the carrier for placing a curved stereotype-plate within said box and adjacent to the periphery of the segmental carrier, a stop plate, means for adjusting the same into the advance path of said stereotype-plate, and a knife mounted upon the carrier and adapted to shave the concave surface of said plate, substantially as described.

36. In a machine of the character described, the combination of a rotatable shaft, a rotary frame or carrier thereon, a segmental shaving-box arranged concentrically of, of slightly-greater diameter than, and below said carrier, means on the carrier for placing a curved stereotype-plate within said box and adjacent to the periphery of the segmental carrier, a stop-plate, means for adjusting the same into the advance path of said stereotype-plate, a knife mounted upon the carrier and adapted to shave the concave surface of said plate, and means for moving said stop-plate out of the path of said stereotype-plate immediately the knife has passed, substantially as described.

37. In a machine of the character described, the combination of a rotatable shaft, a frame or carrier thereon, a segmental shaving-box arranged concentrically of, of slightly-greater diameter than, and below said carrier, that it may receive snugly a curved stereotype-plate, a sliding block upon the carrier, and means actuated by the latter to advance said sliding block and cause it to engage the rear end of and push the stereotype-plate up and out of the shaving-box and upon the carrier, substantially as described.

38. In a machine of the character described, the combination of a rotatable shaft, a rotary frame or carrier thereon, a segmental shaving-box arranged concentrically of, of slightly-greater diameter than, and below said carrier, means on the carrier for placing a curved stereotype-plate within said box and adjacent to the periphery of the segmental carrier, a stop-plate, means for adjusting the same into the advance path of said stereotype-plate, a knife mounted upon the carrier and adapted to shave the concave surface of said plate, means for moving said stop-plate out of the path of said stereotype-plate immediately the knife has passed, and means for projecting a sliding block outwardly to cause it to engage the rear end of the stereotype-plate and push it up and out of the shaving-box and upon the rotary carrier, substantially as described.

39. In a machine of the character described, the combination of a rotatable shaft, a circular frame or carrier mounted thereon, a segmental shaving-box arranged concentrically of, vertically below, and of greater diameter than said carrier, pins projecting from the carrier at diametrically opposite points, adjustable knives in advance of said pins, adjustable blocks in advance of said knives (with respect to the direction of rotation), registering grooves in the ends of said carrier, said knives and said blocks, a sliding stop-plate at one side of the shaving-box, levers pivotally linked to said plate and provided with inwardly-projecting studs, rotatable shafts, eccentrics thereon, pivotally connected also to said stop-plate, and a triangular cam upon one of said shafts, adapted to be operated one step by a pin with each half-revolution of the carrier and thereby adjust said stop-plate and said sliding blocks, substantially as and for the purpose set forth.

40. In a machine of the character described the combination of a rotatable shaft, a circular frame or carrier mounted thereon, a segmental shaving-box arranged concentrically of, vertically below and of greater diameter, than said carrier, pins projecting from the carrier at diametrically opposite points, adjustable knives in advance of said pins, adjustable blocks in advance of said knives (with respect to their direction of rotation), registering grooves in the ends of said arms, said knives and said blocks, a sliding stop-plate at one side of the shaving-box, levers pivotally linked to said plate and provided with inwardly-projecting studs, rotatable shafts, eccentrics thereon, pivotally connected also to said stop-plate, a triangular cam upon one of said shafts, a cam upon one of the shafts, a rotating shaft, a clutch member mounted loosely thereon and geared to the rotatable shaft of the carrier, a second clutch member mounted to slide upon and rotate with said shaft, and a lever connected to slide said clutch member without interfering with its rotatable action, and provided with a pin which is engaged by the last-mentioned cam once in each revolution and a half of the carrier, so as to throw said clutch members out of gear and bring the carrier to a state of rest, substantially as described.

41. In a machine of the character described, the combination of a rotary carrier, a shaving-box below, a stop-plate thereon, and instrumentalities operated by the rotating carrier for reciprocating the stop-plate, substantially as described.

42. In a machine of the character described, the combination of a shaving-box to receive curved stereotype-plates, a rotary carrier therein, reciprocatory blocks mounted on the carrier, and instrumentalities actuated by the rotary carrier for adjusting the said blocks inward or outward with relation to the axis of the carrier, substantially as described.

43. In a machine of the character described, the combination of a shaving-box to receive a curved stereotype-plate, a carrier rotating therein, knives upon said carrier, blocks also upon the carrier, and instrumentalities actuated by the rotating carrier, for adjusting one of said blocks inward and exposing the corresponding knife to permit it to engage and shave said stereotype-plate, substantially as described.

44. In a machine of the character described, the combination of a shaving-box, a carrier rotating therein, blocks upon the carrier, a sliding stop-plate upon the shaving-box, and instrumentalities actuated by the rotating carrier for moving the stop-plate out of the path of a curved stereotype-plate in the shaving-box, and for advancing or adjusting outwardly the block of the carrier to the rear of said stereotype-plate, with respect to the motion of the carrier, substantially as described.

45. In a machine of the character described, the combination of a rotating shaft, a rotating carrier in gear therewith, a shaft provided with a pair of cams, one of them triangular in form, pins projecting from said carrier and successively engaging said triangular cam and rotating the cam-shaft with a step-like movement, and instrumentalities, as the cam-shaft completes one revolution, which are actuated by the other cam and throw the rotating carrier out of gear, substantially as described.

592,814. CHECK-VALVE FOR SEWERS. ANDREW MCCANN, Chicago, Ill. Filed Sept. 14, 1896. Serial No. 605,712. (No model.)

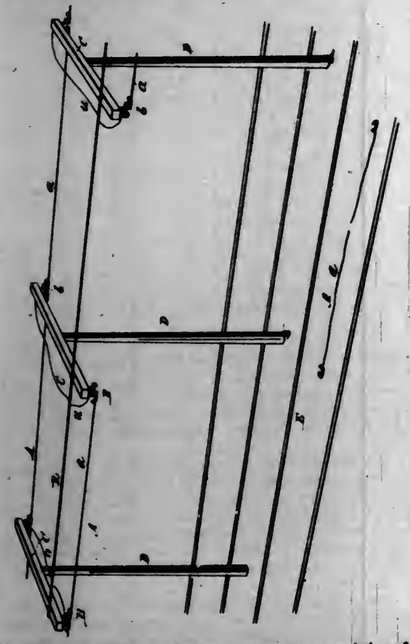


Claim.—1. In a backflow check-valve for sewers and the like, the combination with a tubular valve-body provided with an annular flange adapted to support the valve-body vertically within a

drain-pipe and a grating covering the upper end of said valve-body, of a combined removable valve-seat ring and cage comprising a ring of non-corrodible material removably secured upon the lower end of the tubular valve-body and a cage secured to said ring and arranged to depend below the latter, whereby both valve-seat ring and cage are removable together, and a float-ball confined within the cage and adapted to cooperate with the valve-seat ring to close the passage through the valve-body, the length of the valve-body being sufficient to prevent any part of the ball from rising above the upper end thereof.

2. In a check-valve for drain-pipes and the like, the combination of a tubular valve-body provided with a radially-outturned flange, a supporting-ring with which said flange is adapted to be removably connected, a removable valve-seat ring composed of non-corrosive material mounted upon the lower end of the valve-body, a buoyant valve-ball and a cage within which said ball is confined, secured to and depending from said valve-seat ring, the interior of the supporting-ring being such size as to permit the valve-body and connected valve-seat ring and cage to be withdrawn therethrough.

592,815. ELECTRIC CONDUCTOR AND CONNECTION AND SUPPORT THEREFOR. WILLIAM MCELROY, Brooklyn, N. Y., assignor, by mesne assignments, to George H. Fraser, same place. Filed Apr. 30, 1892. Serial No. 431,294. (No model.)



Claim.—1. A support for electric conductors consisting of the supporting-piece G having cam projection *g*, in combination with the terminal piece F pivotally connected to said supporting-piece, adapted normally to be supported thereby, and having arm *j* adapted to engage with said cam projection upon the tilting of the terminal piece, and thereby to disconnect the latter from said supporting-piece.

2. In a support for trolley-wires, the combination with the trolley-wire, a supporting-piece therefor, a terminal piece connected to said wire and supported by said supporting-piece, a supporting-wire over said trolley-wire adapted to sustain the weight thereof, and means for connecting said terminal piece to said supporting-piece connected to the ends of said supporting-wire and actuated under the tension thereof to maintain said terminal and supporting pieces in engagement, and constructed upon the impairment of said trolley-wire to react against said supporting-wire and disengage said supporting and terminal pieces, substantially as and for the purpose set forth.

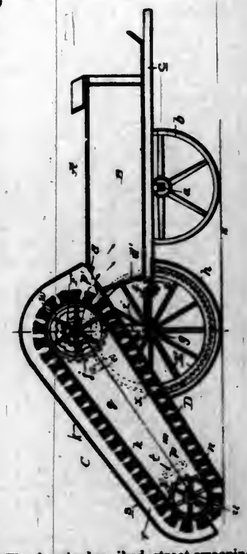
3. In a supporting device for overhead electric conductors, a support or hanger of conducting material having a straight lower edge to cooperate with the trolley-wheel, and a supporting coupling member formed integral with said hanger, combined with a supported coupling member adapted to be connected with the conductor or trolley-wire and to be coupled to and uncoupled from the said supporting member as described, said supporting and supported members overlapping one another and being reduced in thickness in the overlapping portions, whereby the overlapping portions afford a path for the trolley-wheel of substantially uniform thickness with the remainder of the path of the trolley-wheel.

4. In a support for overhead conductors, a supporting member combined with a supported coupling member adapted to be connected with the conductor and to be coupled to and uncoupled from said supporting member as described, said members overlapping and one being reduced in thickness at its overlapping part, whereby a relatively narrow path for a trolley-wheel is afforded by the support where the members overlap, and said coupling member separably connected to said supporting member and entirely unsupported when uncoupled therefrom.

5. In a support for overhead conductors, a supporting member combined with a supported member separably coupled thereto and adapted to be connected with a conductor or trolley-wire, one of said members having a recess and the other having a projection entering said recess, said members overlapping near said recess and projection, and there furnishing a path for the trolley-wheel, and said coupling member separably connected to said supporting member and entirely unsupported when uncoupled therefrom.

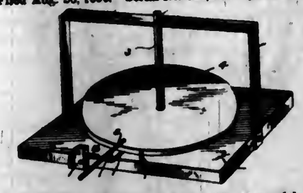
6. In a support for overhead conductors, a supporting member and a supported member, the latter adapted to be connected to a conductor for a trolley-wheel and separably coupled to the supporting member, said members overlapping having reciprocal coupling provisions connecting them together, and having reciprocal bottom faces substantially coinciding and constituting a substantially uniform path across the support for the trolley-wheel, and said coupling member separably connected to said supporting member and entirely unsupported when uncoupled therefrom.

592,816. STREET-SWEEPER. JOHN MCKENNEIE and EDWARD W. SMITH, Winnipeg, Canada. Filed Dec. 4, 1896. Serial No. 614,454. (No model.)



Claim.—The herein-described street-sweeping machine consisting essentially of the axle, traveling and supporting wheels mounted on said axle, a gear-wheel fixed with respect to one of said traveling and supporting wheels, the transverse shaft *j*, journaled in standards or supports rising from the axle, the lower casing-section *m*, having the inclined bottom or floor *n*, bearing at its rear end upon the ground and extending in advance of the axle, and the side walls *p*, extending from a point adjacent to the ground to a point in advance of the axle, the upper casing-section *q*, having the side walls extending to a point adjacent to the ground and provided at their upper ends with the depending portions *p'*, bearing against the upper ends of the side walls *p*, of section *m*, and the transverse top wall provided with the depending portion at its upper end serving in conjunction with the upper end of wall *n*, to form a downwardly-disposed opening and also having the depending portion at its lower end serving in conjunction with the lower end of wall *n*, to form an opening, the straps *t*, connecting the casing-sections *m*, and *q*, the shaft *u*, journaled in the side walls of the casing adjacent to the lower end thereof, sprocket-wheels mounted on the shaft *j*, and *u*, belts taking around said wheels, transverse brushes connected to said belts, and a pinion fixed on the shaft *j*, and meshing with the gear-wheel connected to one of the traveling or supporting wheels, all as and for the purpose set forth.

592,817. CHEESE-CUTTER. EDSON D. MCLAUGHLIN, Pentitge, Wis. Filed Aug. 28, 1896. Serial No. 604,247. (No model.)

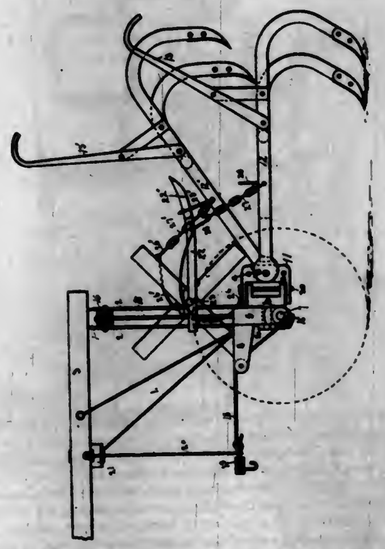


Claim.—1. In a cheese-cutter, the combination with a movable table, of a grip comprising a movable arm, and a lever pivoted to the said arm and having a portion extending over and adapted to grip the table between it and the movable arm, substantially in the manner and for the purpose set forth.

2. The combination with a rotary table, of a pivoted arm, and a lever having pivotal connection between its ends with the arm and having an end portion extending over and adapted to grip an edge portion of the table between it and the pivoted arm, substantially in the manner and for the purpose set forth.

3. In a device for cutting cheese or like product into pieces of required size, the combination of a base, a table for supporting the product to be subdivided rotatably mounted upon the base, a grip for turning the table to move the product into position to be cut pivotally connected with the base, a fixed stop applied to the base for limiting the return stroke of the grip, an upright secured to the base and having a threaded opening, and a set-screw mounted in the threaded opening of the upright and having its outer portion graduated, and adapted to be turned to bring the required graduation in coincident relation with the front edge of the upright to limit the forward movement of the grip, substantially in the manner set forth for the purpose described.

592,818. INTERCHANGEABLE CULTIVATOR. JAMES C. NELSON, Omaha, Nebr. Filed Dec. 29, 1896. Serial No. 617,430. (No model.)



Claim.—1. The combination in a cultivator of an inverted-U-shaped hollow frame a tongue extending centrally from said frame slotted stub-axles extending laterally below said frame a T-shaped block adjustably held within each of said slotted stub-axles a clip movably secured to said blocks provided with a series of pin-openings a pin within said openings a cultivator secured to each of said clips by means of said pins a spring secured to each of said clips a chain secured to each of said cultivators said springs being used in pairs and adapted to removably and adjustably engage said chains to hold said cultivator-frames in tension all substantially as and for the purpose set forth.

2. The combination in a cultivator of an inverted-U-shaped hollow frame a tongue extending centrally from said frame slotted stub-axles extending laterally below said frame a T-shaped block adjustably held within each of said slotted stub-axles a clip movably secured to said blocks provided with a series of pin-openings a pin within said openings a cultivator secured to each of said clips by means of said pins a spring secured to said clip a chain secured to each of said cultivators said springs being used in pairs and adapted to removably and adjustably engage said chains to hold said cultivators in tension and the sheaves 9, 14, 15, 16, used in pairs and secured to said cultivators and adapted to receive the strand 18 provided with the singletrees 19 all substantially as and for the purpose set forth.

592,819. SHOE-PULL. EMIL HOPPEL, Philadelphia, Pa. Filed Sept. 4, 1896. Serial No. 604,630. (No model.)



Claim.—1. A shoe-pull consisting of a horn, a lever pivoted to said horn, a handle on said lever extending rearwardly, a jaw on said lever, a grip extending rearwardly from said horn and toward which said handle is adapted to move, and a leg depending from said lever below said grip and provided with a foot adapted to extend beneath the heel of a shoe.

2. A shoe-pull consisting of a horn, an ear on said horn, a lever pivoted to said ear, a handle on said lever, a jaw on said lever, a grip pivoted to said ear and extending rearwardly therefrom, a spring against the lever and grip and adapted to separate the same, a leg depending from said lever below said jaw and a foot on said leg adapted to extend beneath the heel of a shoe.

592,820. PIPE-COUPLING. JOHN F. HORNOYLE, New York, N. Y., assignor of one-half to Henry J. Baack, same place. Filed Mar. 31, 1897. Serial No. 630,084. (No model.)

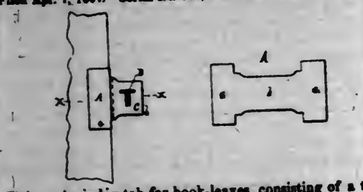


Claim.—1. The coupling-sleeve A having the end screw-threads *a* and inwardly-beveled shoulder *b* whose inner annular edge joins the inner surface of said sleeve, combined with the washer C against said shoulder and having a central opening corresponding with the bore of said sleeve, and the threaded pipe D having the beveled end *c* for contact with said washer and corresponding with the bevel of said shoulder *b*, the said pipe having a uniform bore corresponding with the bore of said sleeve and said bevel *c* extending entirely across the end edges of said pipe from the inner to the outer surfaces thereof; the whole being substantially as shown and described.

2. The coupling-sleeve A having the end screw-threads *a*, *a*, recesses *f*, *f*, and inwardly-beveled shoulders *b*, *b*, said shoulders extending from the outer edges of said recesses to the surface of the bore of said sleeve, combined with the soft-metal washers C in said recesses and against said shoulders and having central openings correspond-

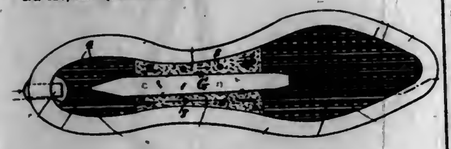
ing with the bore of said sleeve, and the threaded pipe D having the beveled end *e* for contact with said washer and corresponding with the bevel of said shoulders *b*, said bevel *e* extending entirely across the end edges of said pipe from the inner to the outer surfaces thereof, the whole being substantially as shown and described.

592,821. INDEX-TAB. GEORGE H. OSBUN, Cleveland, Ohio. Filed Apr. 7, 1897. Serial No. 631,099. (No model.)



Claim.—An index-tab for book-leaves, consisting of a tab A, of suitable material and upon which the characters or letters are printed or otherwise affixed, a transparent projecting and stiffening shield C, over the projecting portion of said tab, and a retaining-band D, at the edge of the leaf, substantially as and for the purpose described.

592,822. VENTILATING-CUSHION FOR SHOES, &c. HENRY F. PARKER, Brooklyn, N. Y., assignor, by mesne assignments, to the James-Beam Company, New York, N. Y. Filed Mar. 6, 1897. Serial No. 626,243. (No model.)



Claim.—1. As an article of manufacture, a sheet of elastic material having corrugations on one side running at angles to corrugations on the other side and having perforations at the intersections of the grooves.

2. As an article of manufacture, an elastic ventilating-sheet of rubber having a series of corrugations on each surface, the one series extending in a direction at right angles or substantially so to the other, and having perforations at the crossings of the grooves between the corrugations, so adapted that when the sheet is interposed between contiguous surfaces, each groove running in one direction will communicate with grooves running in the other direction, forming universally-communicating ducts.

3. In a shoe, the combination with a sole, insole, welt, and upper, of a ventilating-cushion composed of elastic material interposed between the sole and insole and having series of corrugations extending in different directions on its respective surfaces, and provided with perforations whereby the ducts formed by said corrugations adjacent to the sole and insole communicate with one another.

4. In a shoe, the combination with a sole, insole, welt, and upper, of a ventilating-cushion interposed between the sole and insole and having series of corrugations extending in different directions on its respective surfaces, and perforated as described; said cushion extending from the inner edge of the welt on one side of the shoe fully across to the inner edge of the opposite welt, substantially as shown.

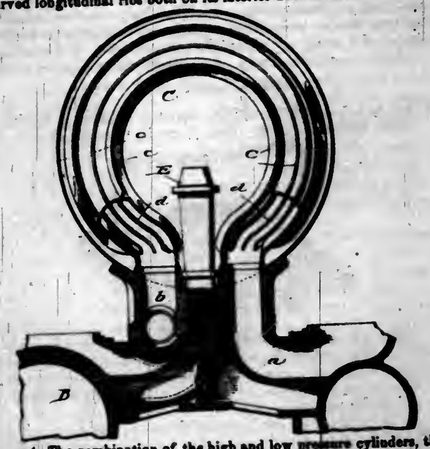
5. In a shoe, the combination with the sole, of a ventilating rubber cushion having longitudinal corrugations adjacent to the sole, and having closely-arranged transverse corrugations on its upper surface and perforated as described, and a felt insole resting on said upper surface of the cushion, adapted as described.

592,823. COMPOUND ENGINE. ALBERT J. PITKIN, Schenectady, N. Y. Filed Feb. 15, 1897. Serial No. 623,302. (No model.)

Claim.—1. The combination with the high and low pressure cylinders of a compound locomotive-engine, of the smoke-box and the curved receiver-pipe for conveying exhaust-steam from the high-pressure to the low-pressure cylinder, provided with projections both on the inside and outside to convey the high temperature of the gases in the smoke-box to the interior of the receiver-pipe and cause the evaporation of steam condensed in the high-pressure cylinder.

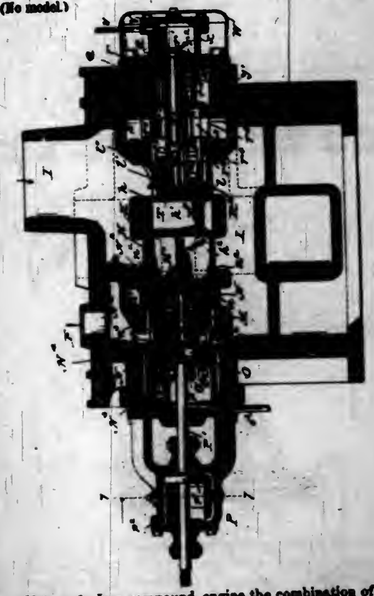
2. The combination of the high and low pressure cylinders, the smoke-box, and the curved receiver-pipe formed with a series of curved longitudinal ribs on its interior.

3. The combination of the high and low pressure cylinders, the smoke-box, and the curved receiver-pipe formed with a series of curved longitudinal ribs both on its interior and exterior.



4. The combination of the high and low pressure cylinders, the smoke-box, the curved receiver-pipe, and a series of curved ribs arranged longitudinally on the interior of the receiver-pipe and also on the exterior thereof, whereby the steam condensed in the high-pressure cylinder is made to impinge upon the surfaces of the ribs and to be rapidly evaporated thereby.

592,824. COMPOUND ENGINE. ALBERT J. PITKIN and JAMES R. SAGUE, Schenectady, N. Y. Filed May 21, 1897. Serial No. 637,592. (No model.)



Claim.—1. In a compound engine the combination of the high and low pressure cylinders, a receiver-pipe connecting them, an intercepting-valve interposed between the two cylinders, a reducing-valve within the intercepting-valve, an auxiliary exhaust-valve composed of two independently-movable parts, and means for actuating one part to partially open the auxiliary exhaust-passage, and for subsequently actuating the other part to further open said passage.

2. In a compound engine, the combination of the high and low pressure cylinders, the receiver-pipe connecting them, a chambered intercepting-valve interposed between the two cylinders and formed with ports for the entrance and exit of live steam and provided with a removable end piece having a chambered boss for guiding a reducing-valve, a reducing-valve within the chambered intercepting-valve,

an abutment within said chamber for the reducing-valve, an annular flange with which the larger end of the reducing-valve at times registers, a dash-pot, its piston, a feather-and-groove connection between the piston-head and the dash-pot casing, a tapered joint between the piston-rod and the removable end of the intercepting-valve, a key for attaching the rod to the end of the intercepting-valve, packings to prevent the passage of steam, drip-apertures and escape-pipes, and an auxiliary exhaust-valve for the exhaust from the high-pressure cylinder.

3. In a compound engine, the combination of the high and low pressure cylinders, a receiver-pipe connecting them, an intercepting-valve, means for operating it automatically, and an auxiliary exhaust-valve consisting of two independently-movable parts, the smaller one of which is adapted to be opened before the larger, to reduce the receiver-pressure gradually and avoid a violent exhaust, substantially as described.

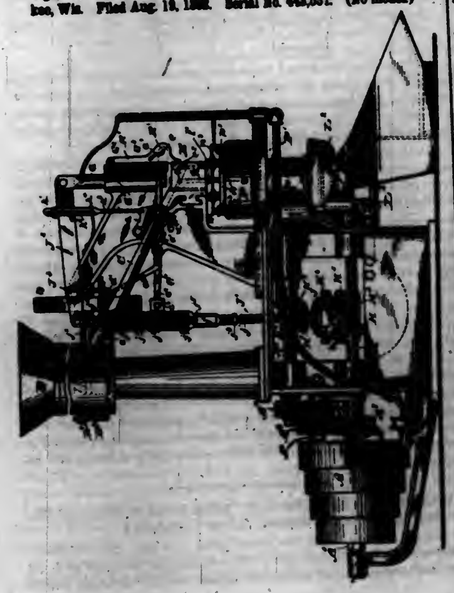
4. The combination of the intercepting-valve, and the auxiliary exhaust-valve comprising the larger member having a hollow stem, the smaller member having a stem moving within the hollow stem of the larger member, a piston-head to which the stem of the smaller member is connected, and a spring for closing both members.

5. The combination of the cage of the auxiliary exhaust, the larger member of the exhaust-valve, its hollow stem having a rear opening and one or more lateral openings, the smaller member having a stem arranged within the hollow stem of the larger member, a piston-head secured to the stem of the smaller member, and a spring under pressure interposed between the piston-head and the cage and a port for the admission of fluid-pressure to the front end of the piston.

6. In a compound engine the combination of the high and low pressure cylinders, a receiver-pipe connecting them, an intercepting-valve interposed between the high and low pressure cylinders, a flange *l* projecting forwardly from the intercepting-valve and having an edge of reduced area fitting a closed or steam-tight seat *l*[11], said flange being also provided with a lateral opening through which steam passes from the receiver to an auxiliary exhaust, and having a closed portion closing a passage between the receiver and the low-pressure cylinder.

7. In a compound engine, the combination of the intercepting-valve, the cage for the auxiliary exhaust-valve provided with front and back chambers, the larger member of the auxiliary valve having a hollow stem and provided with guide-wings sliding in the back chamber of the cage, the smaller member of the auxiliary exhaust-valve having a stem arranged within the hollow stem of the larger member, a piston-head secured to the stem of the smaller member and arranged in the front chamber of the cage and a spring for closing both members of the valve.

592,825. NUT-TAPPING MACHINE. JAMES A. PLOPPER, Chicago, Ill., assignor, by mesne assignments, to Albert F. Stern, Milwaukee, Wis. Filed Aug. 19, 1893. Serial No. 442,531. (No model.)



Claim.—1. The chuck herein described consisting of a horizontally-revolving main stem carrying two sets of horizontally-oscillating jaws the outer edges of said jaws having one portion concentric to the center of the shaft and another portion eccentric to the center of the shaft, and mechanism surrounding said stem adapted to bear on the outer edge of each jaw and thus act to alternately open and close each set substantially as described.

2. In a nut-tapping machine the tap-holding chuck consisting of a stem carrying two sets of horizontally-oscillating jaws, and an outer revolving shell having a different speed from that of the stem and adapted to alternately open and close the jaws, substantially as described.

3. In a nut-tapping machine the tap-holding chuck consisting of a main stem or shaft carrying two sets of horizontally-oscillating jaws, and an outer revolving shell having a different speed from that of the shaft or stem, said shell provided with pins which bear upon the edges of the jaws and act to alternately open and close them, substantially as described.

4. In a nut-tapping machine the tap-holding chuck consisting of a main shaft or stem carrying two sets of horizontally-oscillating jaws, a portion of the outer edge of each jaw being concentric to the center of the shaft while another portion is eccentric to the center of the shaft, and an outer revolving shell having a different speed from the stem and bearing upon the outer edges of the jaws, whereby said shell acts to alternately open and close the jaws, substantially as described.

5. In a nut-tapping machine the combination with two shafts having different speeds, of the tap-holding chuck consisting of a main shaft or stem engaged to the shaft having the faster speed, a shell surrounding the head of the chuck engaged to the shaft having the slower speed, and pivoted jaws on the stem adapted to be opened and closed by bearing on the shell as they pass the shell in their revolution, substantially as described.

6. In a nut-tapping machine the combination with two shafts having different speeds, of the tap-holding chuck consisting of a stem carrying two sets of horizontally-oscillating jaws, said stem engaged to the shaft having the faster speed, and an outer surrounding shell engaged to the shaft having the slower speed against which the outer edges of the jaws bear as they pass said shell in their revolution whereby the jaws are alternately opened and closed, substantially as described.

7. In a chuck for a nut-tapping machine the combination with the shaft or stem carrying two sets of horizontally-oscillating jaws, of a set of horizontally-oscillating guard-plates engaged to one set of jaws and moving therewith, said plates pivoted on vertical pivots, substantially as described.

8. In a chuck for a nut-tapping machine the combination with a shaft or stem carrying two sets of horizontally-oscillating jaws, one set located above the other, of a set of horizontally-oscillating guard-plates engaged to the same vertical pivots as the lower set of jaws and moving therewith, substantially as described.

9. In the herein-described chuck the combination with the shaft or stem and the outer surrounding shell revolving at a different speed from the shaft or stem, of a clearing-knife engaged to the shell and moving adjacent to the head of the stem and on the interior of the same, substantially as described.

10. In the herein-described chuck the combination with the shaft or stem and the outer surrounding shell supported thereby, of the flange on the shell which bears on the flange on the stem, one of said flanges provided with a groove and an opening leading therefrom whereby foreign particles may work out from the bearing between the shell and stem, substantially as described.

11. In a nut-tapping machine the combination with the hopper and the tap, of a trough or conduit leading from the hopper to the tap, said conduit being a V shape in cross-section at its upper end and gradually changing its shape in cross-section from a V shape, first to a cross-section with upright sides where the sides and bottom form three angles, then to a substantially V shape with the sides and bottom forming four angles, and lastly to a U shape with the sides and bottom forming two angles, substantially as described.

12. In a nut-tapping machine the combination with the hopper and the tap, of a conduit leading from the hopper to the tap, said conduit provided with side linings adjustable at the lower end whereby the diameter of the lower end of the conduit may be varied, substantially as described.

13. The combination with the conduit of side linings for varying the diameter of the lower end, consisting of strips of metal engaged at one end to the sides of the conduit the opposite ends being engaged by adjusting mechanism whereby they may be moved toward or from each other, substantially as described.

14. The combination with the trough or conduit, of adjustable linings therefor, said linings pivoted at their upper ends to the sides of the conduit, the lower ends of the linings being engaged by angular arms, and the latter being engaged to a right and left hand screw,

whereby the ends of the linings may be adjusted toward or from each other, substantially as described.

15. In a nut-tapping machine the combination with the tap and the plunger for forcing the blanks thereon, of means for giving said plunger a reciprocating motion, consisting of a lever pivoted to the plunger and fulcrumed on the frame of the machine, the opposite end of said lever connected with a vertically-reciprocating shell engaged in a cam-groove of a horizontally-revolving pulley, substantially as described.

16. In a nut-tapping machine the combination with the tap and the plunger for forcing the nuts thereon, of means for giving said plunger reciprocating motion, consisting of two horizontal shafts revolving at different speeds, a horizontal pulley connected by gears to one shaft and a vertical reciprocating shell connected by gears to the other shaft, said shell shaped to engage in a cam-groove in the horizontally-revolving pulley, substantially as described.

17. In a nut-tapping machine the combination with the shafts A A⁶ of the pulley I1⁵ provided with a cam-groove A and connected by beveled gears with the shaft A⁶ and the shell H⁶ provided with rollers A' which engage the cam-groove A said shell engaged by beveled gears with the shaft A⁶, substantially as described.

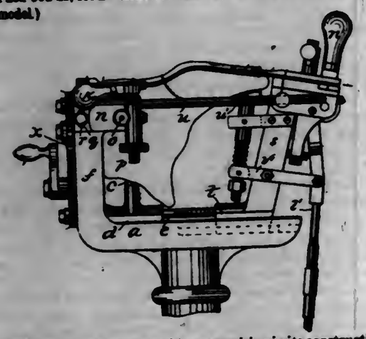
18. In a nut-tapping machine the combination with the tap, and the plunger for forcing the blanks thereon, of a hollow block in the center within which the tap revolves, said block having loose or yielding connection with the frame of the machine, substantially as described.

19. In a nut-tapping machine the combination with the tap, of a hollow block within which it revolves, said block engaged to the frame of the machine by a loose dovetail engagement, substantially as described.

20. In a nut-tapping machine the combination with the conduit and the reciprocating-plunger mechanism, of a lever *k* pivoted adjacent to the conduit, one end provided with a pin adapted to engage the foremost blank in the conduit and hold it against further movement, said lever connected with the reciprocating-plunger mechanism, substantially as described.

21. In a nut-tapping machine the combination with the conduit and the lever J³, of a lever *k* pivoted adjacent to the conduit, one end provided with a pin adapted to engage the blanks in the conduit, said lever connected by the rod *k*³ with the lever J³, substantially as described.

592,826. LASTING-MACHINE. ALBERT F. PRESTON, Winthrop, Mass., assignor, by mesne assignments, to the Preston Lasting Company. Filed Oct. 25, 1894. Renewed Mar. 10, 1897. Serial No. 626,894. (No model.)



Claim.—1. A lasting-machine comprising in its construction three wiping-plates consisting of a center plate and two side plates, constructed and related to present and maintain a continuous wiping edge as described, means connected with the center plate for engaging the side plates to move the same to and fro in unison with the former, and inclined guides with which the side plates are connected to cause the same to move inward toward the center plate while being advanced by the latter.

2. A lasting-machine comprising in its construction three wiping-plates consisting of a center plate and two side plates, the same having their operative edges rounded, and the inner points of the rounded edges of the side plates being adapted to fit and move inward upon the rounded edge of the center plate without forming an angle at the points of juncture or meeting of the said edges, thereby presenting and maintaining a continuous wiping edge.

3. The combination of the longitudinally-movable center wiper-plate, with the side wiper-plates, means connected with the center plate for moving the side plates in unison therewith, slide-pieces connected with the side pieces in inclined position with respect to the line of movement of the center plate, and inclined guideways in which the said slide-pieces are adapted to move, the forward ends of the said plates being constructed and related to present and maintain a continuous edge to the material acted upon.

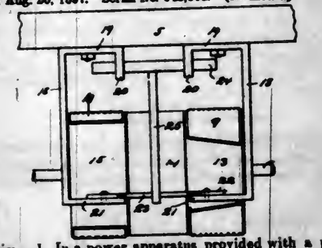
4. A lasting-machine comprising in its construction a center wiping-plate and two side wiping-plates, the three constructed and related to present and maintain a continuous wiping edge, inclined guideways with which the side wiping-plates are operatively connected, connecting devices between the center and side wiping-plates whereby by the movement of the former the latter will be moved, a rack connected with the center plate, a toothed gear arranged to engage the said rack, and means as set forth, for rotating the said gear in opposite directions.

5. A lasting-machine comprising in its construction wiper-plates adapted to be moved longitudinally on the last and to close inwardly thereon, said wiper-plates presenting and maintaining a continuous wiping edge, in combination with means for adjusting said plates as to position to suit varying sizes of last without changing the position of the plates with respect to each other, and a scale to gage the position of adjustment or size at which the machine is set.

6. A lasting-machine comprising in its construction a center wiping-plate and two side wiping-plates, means for moving all of the plates longitudinally and also for moving the side plates at the same time in an inclined direction inwardly, devices for adjusting the plates longitudinally as well as inwardly to suit lasts of different sizes, whereby when the wipers are advanced to wipe down the upper on varying-sized lasts they will meet the upper simultaneously at all points, and a scale and indicator to gage and determine the position of adjustment.

7. The combination with the support for the heel-wipers consisting of two curved plates pivoted at their rear ends on said support, of two disks eccentrically pivoted upon the latter and having pivoted connection with said wipers, handles connected with said disks for operating the same, shoulders or offsets formed on said wiper-plates, and stop-pins connected with said disks adapted to cooperate with the said shoulders or offsets to limit the movement of the wiper-plates.

592,827. BELT-GOVERNOR. JOSEPH GOLDE, Brooklyn, N. Y. Filed Aug. 20, 1897. Serial No. 648,961. (No model.)



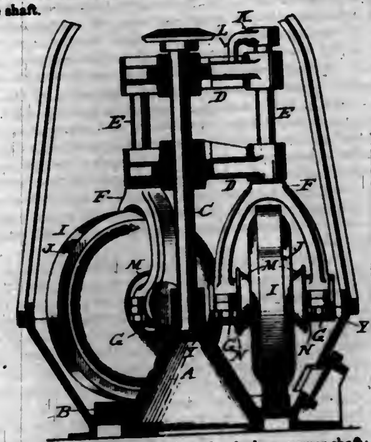
Claim.—1. In a power apparatus provided with a plurality of movable belts which are adapted to be shifted from one pulley to another, a governor consisting of a frame, the sides of which inclose said belts, and a transversely-movable rod or bar which projects between said belts, substantially as shown and described.

2. In a power apparatus, a suitably-supported power-shaft, a power wheel or pulley mounted thereon, a power-transmitting shaft, three pulleys mounted thereon, the central pulley being rigidly secured to said power-transmitting shaft, and the others being adapted to revolve thereon, two belts connected with said power wheel or pulley and adapted to be connected with either of the pulleys on the power-transmitting shaft, and a governor consisting of side bars which inclose said belts, and a transversely-movable rod or bar which projects downwardly between said belts, substantially as shown and described.

3. A power apparatus consisting of a shaft, a power wheel or pulley mounted thereon, a suitably-supported power-transmitting shaft, three pulleys mounted thereon, the central one of which is rigidly keyed thereto, and two belts mounted on said power wheel or pulley and adapted to be connected with the pulleys on the power-transmitting shaft, and a governor suitably supported provided with side bars which inclose said belts and a transversely-movable rod or bar which projects between said belts, substantially as shown and described.

592,828. GRINDING-MILL. REUBEN REYNOLDS, Milwaukee, Wis. Filed Apr. 27, 1897. Serial No. 634,136. (No model.)

Claim.—1. In a mill, the combination of a bed; a power-shaft; a roll traveling upon said bed; and a connection between said roll and shaft whereby said roll is free to rise and fall vertically and to swing in a horizontal plane irrespective of the movement imparted by the shaft.



2. In a mill, the combination of a bed; a power-shaft; a roll traveling upon the bed; a horizontal axis for the roll; and a connection between the axis and the shaft whereby said roll is free to rise and fall vertically and to swing in a horizontal plane.

3. In a mill, the combination of a power-shaft; an arm secured thereto; a vertically-disposed spindle or shaft rotatably secured in said arm; and a roll journaled to said spindle upon a horizontal axis in rear of the vertical axis of the spindle.

4. In a mill, the combination of a power-shaft; an arm secured thereto; a vertically-disposed spindle or shaft mounted in said arm, and free to rotate and to rise and fall therein; and a roll journaled upon a horizontal axis in the lower end of said spindle in rear of the vertical axis thereof.

5. In a mill, the combination of a power-shaft; a frame secured thereto provided with a series of radiating arms; a series of spindles or shafts rotatably mounted in said arms; and rolls journaled in the lower ends of said spindles, the axis of rotation of said rolls being in rear of vertical axis of the spindles, substantially as described.

6. In a mill, the combination of a power-shaft; two frames secured thereto one above the other, and provided with a series of radiating arms; spindles or shafts rotatably mounted in said arms and rolls journaled in the lower ends of said spindles, the axis of rotation of said rolls being in rear of the vertical axis of the spindles.

7. In a mill, the combination of a power-shaft; an arm secured thereto; a spindle rotatably mounted in said arm, and provided at its lower end with an inclined fork; and a roll journaled in said fork.

8. In a mill, the combination of a power-shaft; an arm radiating therefrom; a spindle rotatably mounted in said arm, and carrying a roll at its lower end mounted upon a horizontal axis and free to turn thereon; and a stop secured to the upper end of the spindle designed to limit its rotation.

9. In a mill, the combination of a power-shaft; an arm radiating therefrom; a spindle rotatably mounted therein, and carrying a roller at its lower end; a collar upon the upper end of the spindle; and fingers extending down from said collar and designed to come into contact with the arm substantially as and for the purpose described.

10. In combination with a roll and its axle, a flaring collar upon the end of said roll; a support for the axle; and an inclined lip as N carried by the support and extending in under the collar at its upper end.

11. In combination with a roll and its axle; a flaring collar upon the end of said roll; a support for said axle extending into said collar; and an inclined face formed upon said support extending from a point at its upper side within the collar to a point at its lower side outside the collar.

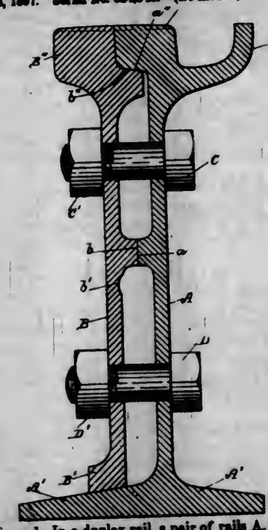
12. In combination with a roll and its axle; a journal-bearing for said axle; a wheel secured upon and rotating with the axle, and provided with a groove in its side face; and an inclined lip as T extending into said groove at the upper side of the axle.

13. In combination with a roll and its axle; a journal-bearing for said axle; a chamber formed in the lower part of said bearing; a wheel secured upon and rotating with the axle, and provided with a groove in its side face; an inclined lip extending into said groove at the upper side of the axle; and means for deflecting the oil from said wheel upon the lip.

14. In combination with a roll and its axle; a journal-bearing for said axle; a wheel provided with a groove in its side face, secured upon and rotating with the axle; an inclined lip extending into the groove at the upper side of the axle; a runner as V mounted upon the upper side of the wheel; and stops to limit the movement of the runner.

15. In combination with a roll and its axle; a journal-bearing for said axle; a wheel provided with a groove in its side face, secured upon and rotating with the axle; an inclined lip extending into the groove at the upper side of the axle; a runner as V mounted upon the upper side of the wheel, and provided with a beveled face W; and stops to limit the movement of the runner.

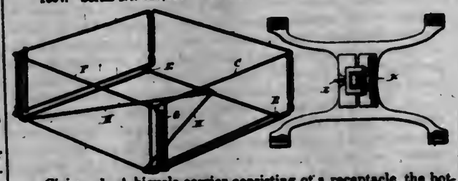
592,829. RAILWAY-RAIL. JOHN P. RICHARDSON, Cambridge, Mass., assignor of one-half to James R. Trust, Boston, Mass. Filed Feb. 20, 1897. Serial No. 624,548. (No model.)



Claim.—1. In a duplex rail, a pair of rails A, B, one of said rails having a base or foot inclined on its upper side and having a head at its upper end and an inclined surface below said head, and the other rail having a head at its upper end an inclined rib adapted to fit against the inclined surface of the opposite rail and having an inclined surface at its lower end adapted to fit against the inclined portion of the foot or base, means for fastening said rails together, and abutment-ribs on the interior surfaces of said rails substantially as and for the purpose set forth.

2. In a duplex rail a pair of rails, one of which having inclines adapted to fit against inclines on the opposite rail, means for clamping and securing said rails together, stop-ridges or fulcra on the interior of said rails and a weakening or reduced portion on one of the rails below said stop-ridges substantially as and for the purpose set forth.

592,880. COLLAPSIBLE CARRIER FOR BICYCLES. ROBERT M. RILEY and ULYSSES S. G. BROWN, New York, N. Y. Filed Feb. 4, 1897. Serial No. 621,930. (No model.)

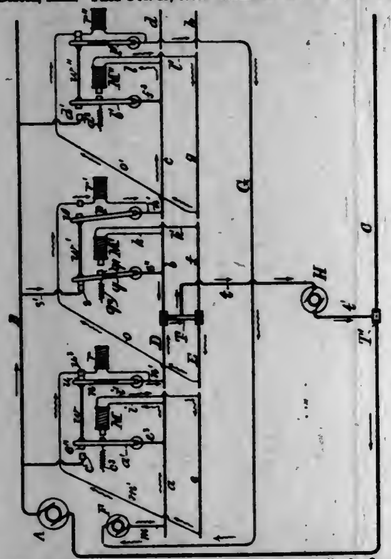


Claim.—1. A bicycle-carrier consisting of a receptacle, the bottom, sides and ends of which are formed of wire frames, the sides being hinged to the rear frame to fold inwardly, the front frame and side frames having their ends hooked so that they may be easily engaged or disengaged to hold the receptacle extended or allow it to be collapsed, the bottom being hinged to the front and rear frames to fold upwardly, and a clamp for securing the receptacle to a bicycle, substantially as described.

2. A bicycle-carrier consisting of a receptacle, the bottom, sides and ends of which are formed of wire frames, the end bars of the

side and rear frame being so coiled about each other as to allow the parts to fold inwardly, the front part of the sides being hooked to engage the front frame to hold the receptacle in its extended position, the lower portion of the rear frame being bent up to form a space in which the sides may be folded, a bottom hinged to the front and rear frames to fold upwardly, and a clamp, four arms formed on the clamp, and hooks on the ends of the arms to engage the top and bottom bars of the rear frame, as and for the purpose described.

592,881. ELECTRIC-RAILWAY SYSTEM. WILLIAM ROBINSON, Boston, Mass. Filed Feb. 15, 1895. Serial No. 538,468. (No model.)



Claim.—1. The combination, substantially as described, of a continuously-closed electric circuit, a plurality of electromagnets connected in series and included in said circuit, said magnets being operated without opening the circuits thereof, a source of electric supply furnishing current to said circuit, two lines of contact-conductors made in parallel sections normally included in said continuously-closed circuit, the source of electric supply being connected to one end of each set, or parallel pair, of sections of contact-conductors and the respective magnets to the opposite ends of the said respective sets of parallel sections of contact-conductors, and means for demagnetizing each of said magnets in succession, independently of the others, by making short-circuiting connection between said parallel sets of sectional contact-conductors in succession.

2. The combination, substantially as described, of a continuously-closed electric circuit, a plurality of electromagnets connected in series and included in said circuit, said magnets being operated without opening the circuits thereof, a source of electric supply furnishing current to said circuit, two lines of contact-conductors made in parallel sections normally included in said continuously-closed circuit, the source of electric supply being connected to one end of each set or parallel pair of sections of contact-conductors and the respective magnets to the opposite ends of the said respective sets of parallel sections of contact-conductors, and a traveling short-circuiting device arranged to demagnetize each of said magnets in succession, independently of the others, by making short-circuiting connection between said parallel sets of sectional contact-conductors in succession.

3. The combination, substantially as described, of a continuously-closed electric circuit, a plurality of electromagnets connected in series and included in said circuit, said magnets being operated without opening the circuits thereof, a source of electric supply furnishing current to said circuit, two lines of contact-conductors made in parallel sections normally included in said continuously-closed circuit, the source of electric supply being connected to one end of each set or pair of parallel sections of contact-conductors and the respective magnets to the opposite ends of the said respective sets of parallel sections of contact-conductors, and a traveling short-circuiting device arranged to keep each of said magnets in succession under short-circuit while said short-circuiting device is traveling a specified distance in contact with the parallel sections of conductors forming a part of the circuit adjacent to said magnets respectively.

4. The combination, substantially as described, of a continuously-closed electric circuit, a plurality of electromagnets connected in series and included in said circuit, said magnets being operated without opening the circuits thereof, a source of electric supply furnishing current to said circuit, two lines of contact-conductors made in parallel sections normally included in said continuously-closed circuit, the source of electric supply being connected to one end of each set, or parallel pair of sections, of contact-conductors, and the respective magnets to the opposite ends of the said respective sets of parallel sections of contact-conductors, a traveling short-circuiting device arranged to demagnetize each of said magnets in succession, and independently of each other, by making short-circuiting contact between said parallel sets of contact-conductors, and an additional circuit including translating devices, said additional circuit being operated and controlled by the said magnets, in succession, included in said first-named circuit.

5. The combination, substantially as described, of a continuously-closed electric circuit, a plurality of electromagnets connected in series and included in said circuit, said magnets being operated without opening the circuits thereof, a source of electric supply furnishing current to said circuit, two lines of contact-conductors made in parallel sections normally included in said continuously-closed circuit, the source of electric supply being connected to one end of each set of parallel sections of contact-conductors and the respective magnets to the opposite ends of the said respective sets of parallel sections of contact-conductors, a car-propelling motor included in an independent circuit, the circuit of said motor being controlled at successive stages by said magnets in succession, and means for operating or controlling said magnets without actually opening the circuit thereof.

6. The combination, substantially as described, of a continuously-closed electric circuit, a plurality of electromagnets connected in series and included in said circuit, said magnets being operated without opening the circuits thereof, a source of electric supply furnishing current to said circuit, two lines of contact-conductors made in parallel sections normally included in said continuously-closed circuit, the source of electric supply being connected to one end of each set or pair of parallel sections of contact-conductors and the respective magnets to the opposite ends of the said respective sets of parallel sections of contact-conductors, a traveling motor included in an independent circuit, the circuit of said motor being made operative through the demagnetization of said magnets, and means for demagnetizing said magnets in succession by short-circuiting.

7. In an electric-railway system, the combination, substantially as described, of a feed-wire, the working conductor formed in successive sections normally disconnected from said feed-wire, a motor traveling in electrical connection with said working conductor, a continuously-closed circuit including a plurality of electromagnets connected in series, said magnets being operated or controlled without opening the circuit thereof, the actuation of each of said respective magnets operating to connect one of said sections of working conductor to the feed-wire and to disconnect the same therefrom.

8. In an electric-railway system, the combination, substantially as described, of a feed-wire, the working conductor formed in successive sections normally disconnected from said feed-wire, a motor traveling in electrical connection with said working conductor, a continuously-closed circuit including a plurality of electromagnets connected in series, said magnets being operated or controlled without opening the circuit thereof, the actuation of each of said respective magnets operating to connect one of said sections of working conductor to the feed-wire and to disconnect the same therefrom, and means for demagnetizing said magnets in succession by short-circuiting.

9. In an electric-railway system, the combination, substantially as described, of a feed-wire, the working conductor formed in successive sections normally disconnected from said feed-wire, a car-propelling motor receiving current from said feed-wire through said sections of working conductor, a continuously-closed circuit including a plurality of switch-magnets connected in series, said switch-magnets controlling the circuit of said motor, and a traveling short-circuiting device arranged to keep said switch-magnets successively under short circuit while said device is traveling in contact with specific portions of the circuit including said switch-magnets.

10. The combination, substantially as described, of a feed-wire, the working conductor formed in sections normally disconnected from said feed-wire, a traveling motor arranged to receive current from said feed-wire through said sections of working conductor, a continuously-closed circuit including a plurality of switch-magnets connected in series, the demagnetization of either of said magnets operating to connect the feed-wire to one of the sections of working conductor, and means for demagnetizing said magnets by short-circuiting.

11. In an electric-railway system, the combination, substantially as described, of the line or feed wire, the return conductor, the working conductor formed in successive electrically-disconnected sections, said sections being normally disconnected from said feed-wire, and a plurality of switch-magnets connected in series and included in a continuously-closed circuit, said magnets being operated or controlled without opening the circuit of the same, the operation of said magnets respectively, controlling and determining the positions of the respective sections of said working conductor relatively to their connection with or disconnection from, said line or feed wire.

12. In an electric-railway system, the combination, substantially as described, of the line or feed wire, the return-conductor, the working conductor formed in electrically-disconnected sections, said sections being normally disconnected from said feed-wire, and a plurality of switch-magnets connected in series and included in a continuously-closed circuit, said magnets being operated or controlled without opening the circuit of the same, the magnetization of said magnets, respectively, disconnecting the respective sections of working conductor from said line or feed wire.

13. The combination, substantially as described, of a continuously-closed electric circuit, a plurality of electromagnets connected in series and included in said circuit, said magnets being operated without opening the circuits thereof, a source of electric supply furnishing current to said circuit, two lines of contact-conductors made in parallel sections normally included in said continuously-closed circuit, the source of electric supply being connected to one end of each set or pair of parallel sections of contact-conductors and the respective magnets to the opposite ends of the said respective sets of parallel sections of contact-conductors, a traveling short-circuiting device arranged to demagnetize said magnets in succession by making short-circuiting contact successively between said parallel sets of sections of contact-conductors, a feed-wire, working conductor, and a motor deriving current therefrom, said magnets in succession operating to control the transmission of working current to said motor.

14. In an electric-railway system, the combination, substantially as described, of a plurality of electromagnets connected in series and included in a continuously-closed circuit formed in part of successive disconnected contact-sections, said magnets being operated or controlled without actually opening the circuit thereof, and said magnets, respectively, being electrically connected to the respective sections of said conductor, means for demagnetizing said magnets in succession by short-circuiting, an additional or working circuit, consisting essentially of the line or feed wire, the return conductor, the working conductor formed in successive sections normally disconnected from the line or feed wire, a car-propelling motor included in the working circuit, the operation of said magnets successively connecting the respective sections of said working conductor to said line conductor and disconnecting said sections from said conductor.

15. In an electric-railway system, the combination, substantially as described, of the line or feed wire, the return-conductor, the working conductor formed in successive sections, magnets included in a constant circuit formed in part of said sections of the working conductor, an electric generator furnishing current to said magnets, said magnets being connected in series but operating independently of each other, the magnetization of said magnets, respectively, disconnecting the respective sections of working conductor from said line or feed wire.

16. In an electric-railway system, the combination, substantially as described, of the line or feed wire, the return-conductor, the working conductor formed in successive sections disconnected or insulated from each other, a plurality of electromagnets connected in series and included in a constant circuit formed in part of the respective sections of said working conductor and in part of independent sectional conductors, said magnets operating independently of each other and being actuated or controlled without opening the circuits of the same, and an electric generator furnishing current to said magnets, the operation of said magnets respectively, controlling and determining the status of the respective sections of said working conductor relatively to their connection with or disconnection from said line or feed wire.

17. In combination, substantially as described, an electric circuit, an electromagnet included therein, a source of electric supply furnishing current to said circuit, an armature operated or controlled by said magnet and a resistance under control of said armature, the cutting out or demagnetization of said magnet releasing said armature and bringing said resistance into circuit, and the magnetization of said magnet reversing the operation and cutting said resistance out of circuit, thus preserving, approximately, the normal resistance of said circuit.

18. In an electric system, the combination, substantially as described, of a series of electromagnets arranged to be operated and controlled independently of each other, said magnets receiving current from a common source of electric supply, and a series of resistances connected with said magnets respectively and under control of the same, the magnetization of any of said magnets operating to shunt the resistance connected therewith out of the main circuit by short-circuiting said resistance, and the cutting out or demagnetization of said magnet operating to restore said resistance to the main circuit by opening said short circuit.

19. In a railway system, the combination substantially as described, of a series of electromagnets under control of a passing vehicle and arranged to be operated independently of each other, and a series of resistances connected with said magnets respectively, said resistances being shunted out of the main circuit when said magnets are magnetized, the cutting out or demagnetization of any of said magnets operating to throw an equivalent resistance into said circuit, thus preserving the normal resistance of said circuit.

20. In a railway system, the combination substantially as described, of a plurality of electromagnets connected in series and under control of a passing vehicle, said magnets being arranged to be operated independently of each other, and a series of resistances connected with said magnets respectively, and under control of the same, said resistances being cut out of the main circuit when said magnets are magnetized, the cutting out or demagnetization of any of said magnets operating to throw an approximately equivalent resistance into said circuit, for the purpose of preserving the normal resistance in said circuit.

21. The combination, substantially as described, of the magnet M, its armature-lever a', the resistance r, the shunt-lever n and the rod w connecting said levers a' and n together, the movement of the armature-lever a' operating to shunt the resistance r into or out of circuit.

22. In combination, the magnet M, its armature b^3, the armature bearing or support, and the sheet of mica or other insulating material, c^3, secured to said armature-bearing and inserted between said armature and the poles of said magnet, substantially as and for the purpose specified.

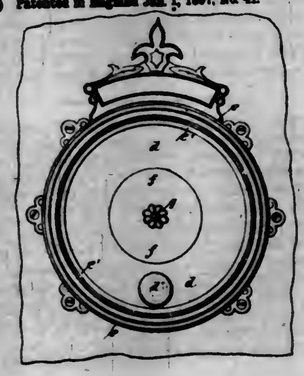
23. In an electric-railway system, a trolley or contact carriage consisting, essentially, of two independent sections or parts in direct metallic connection with each other and adjustably connected together, said sections or parts being arranged to make short-circuiting connection between two independent conductors insulated from each other, means for automatically spreading said sections adjustably apart, and a third contact-section insulated from the others and arranged to make connection with a third independent conductor, substantially as described.

24. In an electric-railway system, the combination of two lines of contact-conductors, each made in successive detached sections, and a traveling trolley or contact carriage provided with two overlapping contact devices, one for contact with each of said conductors, one of said contact devices extending beyond the other at both ends, whereby the sections of one of said conductors will be brought into circuit earlier and retained in circuit longer than the sections of the other conductor, substantially as and for the purpose specified.

25. The trolley-carriage N, consisting, essentially, of the contact-sections d^3, e^3 insulated from each other and arranged to complete the working circuit between the conductors D, C and the traveling motor P, the section e^3 of said trolley-carriage being provided with contact devices arranged to make short-circuiting connection between the conductors D and E, substantially as described.

26. In combination, the trolley-carriage N, the supporting-bar w^2 extending from the car-truck R, said bar supporting said trolley-carriage flexibly, and the spring w^3 arranged to limit and steady the rocking movement between said bar and said trolley-carriage, substantially as described.

592,832. WINDING DEVICE FOR MUSICAL BOXES. CARL A. ROSPEK, Manchester, England, assignor of one-half to Rospek & Co., Limited, same place. Filed Jan. 18, 1897. Serial No. 619,667. (No model.) Patented in England Jan. 1, 1897, No. 41.

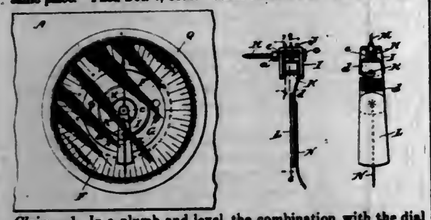


Claim.—1. A winding device for music-boxes consisting of a disk *d*, the shaft *a*, the rings *c*, *c'*, secured over the disk, and means including the disk *b'* for holding the disk in frictional contact with the shaft to allow the disk to slip when the device is wound, substantially as described.

2. A winding device for music-boxes consisting of a disk *d*, the shaft, the flange *b'*, and the friction-clamp for connecting the disk with the shaft, with means for rotating the disk, substantially as described.

3. A winding device comprising the shaft, the flange *b'* connected thereto, the plate *f* with means for adjusting said plate, and the friction-disk clamped between the plate and flange, substantially as described.

592,888. PLUMB-LEVEL. WILLIAM O. SANDERS, Omaha, Nebr., assignor of two-thirds to Samuel H. Walker and Frank Chittenden, same place. Filed Dec. 7, 1896. Serial No. 614,695. (No model.)



Claim.—1. In a plumb and level, the combination, with the dial F and the central post H, of the frame I having the openings *b* through which said post passes and provided with the adjustable screws J resting at their lower ends upon the upper side of said post, by which screws the frame I is supported upon said post, the pendulum L hung in the frame I, and the pointer M carried by the pendulum and cooperating with the dial, substantially as described.

2. In a plumb and level, the combination, with the dial F, and the post H provided with the collar or enlargement *a* and with a threaded outer end, of the frame I provided with the openings *b* through which the post H passes, and with the adjustable screws J passed through the horizontal upper side of the frame I and resting at their lower ends upon the post H, the nut *c* screwed upon the outer end of the post and confining the frame I thereon between said nut and the collar *a*, the pendulum L hung in the frame I, and the pointer M carried by the pendulum and coöperating with the dial, substantially as described.

3. In a plumb and level, the combination, with the dial F and the central post H, of the frame I supported upon said post by the screws J and provided with the knife-edge bearing K, the pendulum L hung upon said bearing K, and the pointer M carried by the pendulum and coöperating with the dial, substantially as described.

4. In a plumb and level, the combination of the stock A provided with the circular recess C, the dish-shaped dial F secured to the bottom or rear wall of said recess, a pointer pivotally mounted in a swinging frame hung in front of the dial upon a central post projecting therefrom at the center of the dial and coöperating at its outer end with the graduations around the periphery of the dial, and the protecting-glass O mounted in the removable frame Q fitted in the outer end of the recess C, substantially as described.

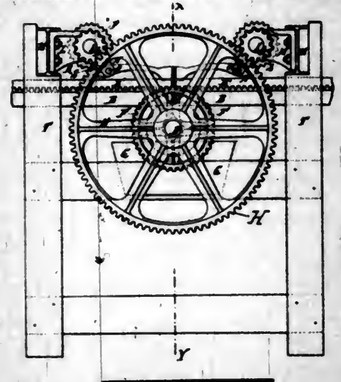
5. In a plumb and level, the combination of the stock A having the circular recess C, the plate D fixed in the bottom or rear wall of said recess, the dish-shaped dial F adjustably secured to the plate D by the screws G G passing through slots in the dial and entering the plate D, a pointer pivotally mounted at the center of the dial and cooperating at its outer end with the graduations on the dial, and the protecting-glass O mounted in the frame Q fitted in the outer end of the recess C, substantially as and for the purpose described.

592,884. APPARATUS FOR PRINTING AND DYEING FABRICS. FRANÇOIS SCHREURS, Brussels, Belgium. Filed Aug. 20, 1896. Serial No. 603,410. (No model.) Patented in Belgium June 18, 1892, No. 100,158, and July 18, 1894, No. 111,041; in France June 18, 1892, No. 222,450; in Germany June 22, 1892, No. 70,423; in England Oct. 24, 1892, No. 19,073, and in Italy June 30, 1893, No. 67.

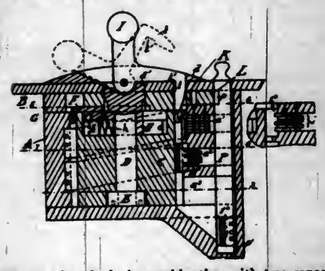
Claim.—1. The combination of a stencil, a base of absorbent material for said stencil, means adapted to strike the fabrics upon the stencil when in contact with said absorbent material.

2. The combination of a stencil, a layer of absorbent material under said stencil, blades adapted to strike the fabric upon the said stencils and means adapted to move said stencil and the fabric over the surface of said absorbent material.

3. The combination of a stencil, a rotary cylinder, an absorbent material surrounding the same, means adapted to strike the fabric upon said stencil, racks adapted to move said stencil and the fabric over the periphery of said cylinder, gears for operating said racks.



592,885. LOCK. WILLIAM M. S. SELWYN, Philadelphia, Pa. Filed Sept. 5, 1896. Serial No. 604,973. (No model.)



Claim.—1. In a lock, in combination with two separate and independent keys, provided with suitable projections or indentations, tumblers engaging with the projections or indentations, and mechanism whereby the simultaneous use of both keys is required to unlock the lock, substantially as described.

2. In a lock, the combination of two or more keys normally stored in the lock, and mechanism whereby, on operating the lock, one of the keys is fed to the user of the same, substantially as described.

3. In a lock, the combination of two or more keys normally stored in the lock, mechanism whereby the simultaneous use of two of the keys is required to unlock the lock, and mechanism whereby, on operating the lock, one of the keys is fed to the user of the same, substantially as described.

4. In a lock, in combination with two or more keys normally stored in the lock, mechanism for feeding one of the keys to the user of the lock and for placing another key into operating position in the lock, and mechanism whereby the simultaneous use of both these keys is required to unlock the lock, substantially as described.

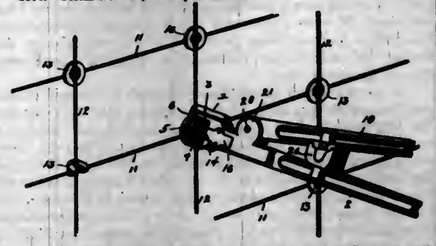
5. In a lock, in combination with two or more keys normally stored in the lock, mechanism whereby on the successive use of the lock another and different key is fed to the user of the same, and another and different key is placed into operative position in the lock, and mechanism whereby the simultaneous use of both keys is required to unlock the lock, substantially as described.

6. In a lock, in combination with two or more keys normally stored in the lock, mechanism whereby on its successive use another and different key is fed to the user of the same, and another and different key is placed into operative position in the lock, mechanism whereby the simultaneous operation of both keys is required to unlock the lock, and means for automatically removing the previously-used keys out of operative position, substantially as described.

7. In a lock, in combination with two or more keys normally stored in the lock, mechanism for feeding one of the keys to the user of the lock and for placing another one of the keys into operative position in the lock; mechanism whereby the simultaneous operation of both these keys is required to unlock the lock; a slot for the reception of the key fed to the user, and means for preventing the removal of the key from the slot, after the motion to unlock the lock has once been commenced, for the purpose specified.

8. In a lock, the combination with a locking-bolt of two sets of tumblers located in such a manner that on unlocking the lock they engage with each other, and a separate key for each set of tumblers, the simultaneous operation of both keys being required to set the tumblers in position to allow the lock to be unlocked, substantially as described.

592,836. WIRE-FENCE TOOL. GEORGE P. SMITH, Jerseyville, Ill., assignor of one-half to W. H. Powell, same place. Filed Dec. 26, 1896. Serial No. 616,787. (No model.)



Claim.—1. A fence-building tool having as coacting parts an anvil and a plunger, one of which is adapted to be moved toward the plane of the other, and which are provided with flat annular bearing-faces, of which the central portions are cut away to form registering sockets or depressions adapted to be arranged in alinement with the point of contact of intersecting wires, and means for communicating motion to the movable part to force the contiguous portions of intersecting wires into a common plane and cause a simultaneous crimping or bowing thereof at the intersection, substantially as specified.

2. A fence-building tool having a head provided with a laterally open recess, an anvil arranged at one side of said recess, a reciprocable plunger arranged within the recess to coact with the anvil, and having a stem fitted in a guide in the head, a cam adapted to bear against the extremity of the plunger-stem, a loose connection between the plunger-stem and the cam, consisting of a link having a slotted connection with one of said parts, whereby the face of the cam may be arranged in contact with the stem to relieve the link of strain, and means for operating the cam, substantially as specified.

3. A fence-building tool having a head carrying a fixed anvil and provided with an open-sided guide fitted with a removable side plate, a plunger arranged to coact with said anvil and having its stem mounted in said guide and accessible by the removal of the side plate, a cam arranged to bear against the extremity of the plunger-stem, and a link connecting the cam and the plunger-stem to enable the plunger to be retracted by means of the cam, and means for operating the cam, substantially as specified.

4. A fence-building tool having a head provided with a fixed anvil and extended to form a fence rein or handle, a reciprocable plunger adapted to coöperate with said anvil and combining therewith to form a crimping device, the contiguous faces of the anvil and plunger being provided with registering depressions, a movable rein or handle operatively connected with the plunger, and male and female forming-dies carried by the reins or handles, respectively, and having interlocking devices adapted to bend a fence-lock to form seats for the reception of intersecting wires, substantially as specified.

592,887. VAPOR-BURNER. HARPER F. SMITH, Philadelphia, Pa. Filed May 26, 1897. Serial No. 638,207. (No model.)



Claim.—1. A vapor-burner consisting of a shell having therein a vapor-chamber with an inlet and an outlet, a controlling-valve for said outlet, a gas-passage open to the atmosphere directly over said vapor-chamber outlet and in line therewith and a superheating-passage adjacent and over said vapor-inlet passage and provided with an air-inlet and communicating directly with said gas-passage, and a tip connected with said shell.

2. A vapor burner consisting of a shell having the vapor-chamber C with the needle-valve D therein and provided with the inlet A and communicating passage B, the gas-passage F open at its base directly over the vapor-chamber outlet to the atmosphere, said gas-passage being in line with said vapor-chamber, the superheating-tube H adjacent to and above said inlet and communicating directly with said gas-passage, and a tip secured to said shell.

3. A vapor-burner consisting of a shell having the chamber C with the valve D therein, the inlet A, the passage B, the gas-tube F, the superheating-tube H, adjacent to and over said inlet and communicating directly with said gas tube, a tip on said shell, the arms K and guards M.

592,888. BRUSH-HOLDER. LARS L. SOLEM, Minneapolis, Minn. Filed Apr. 16, 1897. Serial No. 632,481. (No model.)



Claim.—In a brush-holder the combination of a tubular casting, having its portion B provided with internal screw-threads for the reception of a handle, and its portion D cut away at *b*, the sides of the said cut away bent out and notches in the said sides, the relation of these notches being such to each other that when the brush is placed therein it is held at an angle with the holder, a clamping-jaw hinged in the said cut-away portion, and means for clamping the jaw and casting, substantially as shown and described.

592,889. DEVICE FOR HOLDING AND DIPPING PILLS OR TABLETS. GEORGE STORIE and JULIAN MOSS, Detroit, Mich. Filed Oct. 20, 1896. Serial No. 609,441. (No model.)

Claim.—1. In a device for coating pills, the combination of the nipple-carrying plates, the movable nipples seated in said plates, and means for applying said nipples to the pills substantially as set forth.

2. In a device for coating pills, the combination of the nipple-supporting plates, the movable nipples seated in said plates, said nipples carrying an adhesive substance at the ends thereof.

3. In a device for coating pills, the combination of the nipple-carrying plates, the movable nipples seated in said plates, the adhesive plugs in the ends of said nipples, the coiled springs engaging said nipples, and means for applying said nipples to the pills.

4. In a device for coating pills, the combination of the bed-plate carrying the hinged bolts, the nipple-carrying frame, the series of spring-actuated nipples therein, the perforated stripping-plate adapted to pass over said nipples, the nipple-carrying frame having projections adapted to be engaged by said hinged bolts to bind said parts together.

592,840. PIANO MECHANISM. LEOPOLD STÖRWASS, Moscow, Russia. Filed June 22, 1897. Serial No. 641,804. (No model.)

Claim.—1. In a repeating mechanism for grand pianos the combination of the jack *a* with the repeater-lever *g* mounted on the jack and having a raised shoulder g^5 and an orifice *f'* before said shoulder, and a fly-jack *e* mounted on the jack *a*, the said fly-jack passing through the orifice *f'* of the lever *g* and having its upper edge widened to the width of the knob *b'* of the hammer-stem, substantially as described.

2. In a repeating mechanism for grand pianos the combination of the jack *a* the repeater-lever *g* with slot *f'* and shoulder g^5 and the fly-jack *e* having a widened upper edge, with the stop *f* disengaging the fly-jack in its upward movement and the stop *i* screwed in the repeater-lever *g*, the stop *i* limiting the backward movement of the fly-jack, substantially as described.

592,841. BLACKBOARD. ANDREW S. TEATE, Oakland, Md. Filed Jan. 20, 1897. Serial No. 619,912. (No model.)

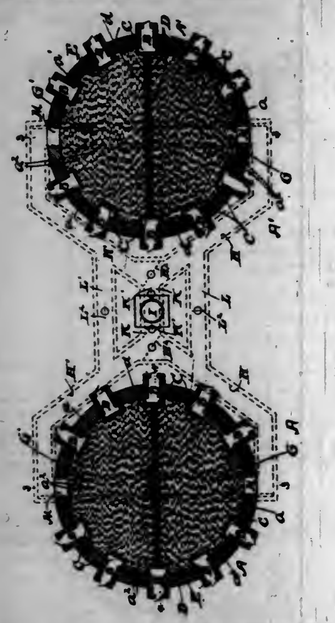


Claim.—1. A combined chalk-holder and blackboard-eraser support, consisting of a plate having a trough on the front side thereof, occupying a portion of the length of said plate, and pointed prongs or teeth on the front surface of the remaining portion of said plate.

2. A combined chalk-holder and blackboard-eraser support, consisting of a plate having a trough secured to the front surface thereof, provided with a rounded bottom piece with perforations therein and imperforate end pieces, and pointed prongs or teeth formed upon the front of said plate.

3. A blackboard-eraser support, consisting of a plate of sheet metal adapted to be secured at a suitable point adjacent to a blackboard, and provided with pointed teeth or projections on the front surface thereof, the said teeth being stamped from the metal of which the plate is made.

592,842. KILN FOR BURNING BRICK. HANNAH THOMAS, Canal Dover, Ohio, administratrix of William J. Thomas, deceased. Filed Mar. 30, 1896. Serial No. 585,378. (No model.)



Claim.—1. A circular kiln having two chambers *a a'* in open relation with each other at the top; fires or furnaces arranged radially at intervals entirely around the kiln; upright flues in open relation with the furnaces' combustion-chambers and discharging into the kiln; a transversely-arranged wall D for dividing the chambers *a a'*; flues E arranged parallel with said wall and communicating with said chambers *a a'* by means of holes or perforations in the kiln-floor; two flues G G' located below said flues E, each of said flues G G' communicating with the flues E by means of holes in its top wall; said flues G G' being arranged at opposite sides and at right angles to the wall D; a chimney; two flues H H' leading from the flues G G', respectively, and connected with the chimney, and means for interrupting communication between either one of said flues H H' and the chimney without interfering with the communication between the other of said flues and the chimney, substantially as described and for the purpose specified.

2. Two circular kilns arranged a suitable distance apart, and each comprising fires or furnaces B arranged at intervals entirely around the kiln; upright flues in open relation with the furnaces' combustion-chambers and discharging into the kiln; a transversely-arranged wall D for dividing the chambers *a a'*; flues E arranged below the floors of the kiln-chambers parallel with said wall D and in open relation by means of perforations in the kiln-floor with the kiln-chamber above; two flues G G' located below said flues E each flue G G' communicating with flues E below the floor of the different kiln-chambers by means of holes in its top wall, and each flue G G' being arranged at opposite sides and at right angles to said wall D; a chimney; the two flues H H' leading from the different flues G G' respectively, in combination with a chimney located between the two kilns, said flues H H' converging toward said chimney and communicating therewith, a duct connecting the flues H H' with the chimney, and dampers for controlling the passage of the products of combustion through the several flues.

3. A circular kiln having fires or furnaces B arranged at suitable intervals entirely around the kiln; upright flues C in open relation with the combustion-chambers of said furnaces, and discharging into the kiln; a transversely-arranged wall for dividing the chambers *a a'*, said wall being provided at intervals with ducts *d* arranged alternately at opposite sides of the wall; flues E arranged below the floor of each kiln-chamber and in open relation at different points with the respective kiln-chamber by means of holes or perforations in the kiln-floor; two flues G G' arranged in under flues E and in open relation with said flues E, at different points by means of holes in the top of each flue G G'; flues H H' leading from the outer ends of the different flues G G', respectively, to and converging toward and connected with the chimney, and a damper H^3 arranged at the meeting ends of said flues H H' and capable of interrupting communication between either one of said flues and the chimney without interrupting communication between the other of said flues and the chimney, substantially as set forth and described.

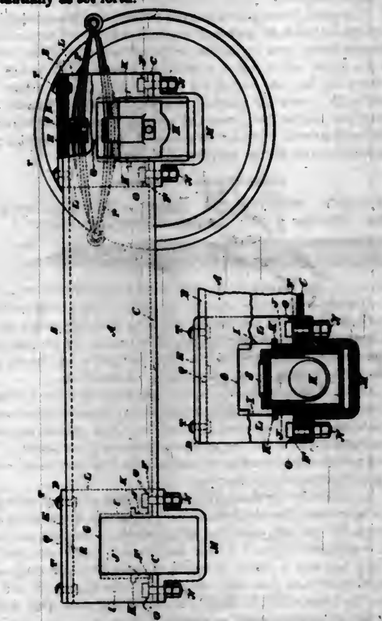
4. Two circular kilns arranged a suitable distance apart, and each of said kilns provided with the following elements: fires or furnaces B; upright flues in open relation with the furnaces' combustion-chambers and discharging into the kiln; two chambers *a a'* in open relation with each other at the top; a transversely-arranged wall D for dividing said chambers *a a'*; flues E located parallel with said wall below the kiln-floor and communicating through holes in the floor with the chambers *a a'*; two flues G G' arranged below the flues E and at right angles to both the walls D and said flues E, and communicating with the latter by means of holes in the top wall of each flue G G'; in combination with a chimney arranged centrally between the two kilns; two flues H H' leading from the different flues G G' of each kiln to and converging toward said chimney; a short duct K connecting the flues of each pair of converging flues H H' with the chimney, and provided with a damper K'; a damper H^3 arranged at the meeting ends of each pair of converging flues H H' and capable of interrupting communication between either one of said converging flues and the chimney without interrupting communication between the other of said flues and the chimney; the flue L connecting together the flues H H of the different kilns and provided with a damper L^3, and the flue L' connecting together the flues H' H' of the different kilns and provided with a damper L^3 all arranged and operating substantially as shown, for the purpose specified.

592,843. CAR-TRUCK. BENJAMIN W. TUCKER, Newark, N. J. Filed July 19, 1897. Serial No. 645,125. (No model.)

Claim.—1. In a car-truck, the side frames having upper and lower flanges and provided with the pedestal-recesses at their ends, and the flanged end sections applied to the ends of said side frames and having recesses in line with the aforesaid recesses, said end sections being projected at their upper vertical longitudinal portions in a direction from said side frames to form, with said side frames, receiving-spaces for springs, combined with the pedestal-straps below said recesses, the axle-boxes held in said recesses and strap, and springs above said boxes and housed within said spaces; substantially as set forth.

2. In a car-truck, the side frames having upper and lower flanges and provided with the pedestal-recesses at their ends, and the flanged end sections applied to the ends of said side frames and having recesses in line with the aforesaid recesses, said end sections being projected at their upper vertical longitudinal portions in a direction from said side frames to form, with said side frames, receiving-spaces for springs, and formed integral with vertical rubbing-flanges for the axle-boxes, combined with the pedestal-straps below said recesses, the axle-boxes held in said recesses and strap, and springs above said boxes and housed within said spaces; substantially as set forth.

3. In a car-truck, the side frames having the upper and lower flanges and provided with the pedestal-recesses at their ends, and the flanged end sections connecting the flanges of said side frames and having recesses in line with the said recesses in said side frames, said end sections being projected at their upper vertical longitudinal portions in a direction from said side frames to form, with said side frames, receiving-spaces for springs, combined with the pedestal-straps below said recesses, the axle-boxes held in said recesses and strap, and springs above said boxes and housed within said spaces: substantially as set forth.



4. In a car-truck, the side frames provided with the pedestal-recesses and having the upper and lower edge flanges projecting from one side thereof a distance substantially corresponding with the width required for the rubbing-surfaces of the axle-boxes, and the end sections having the edge flanges to engage the flanges of said side frames and having also the pedestal-recesses in line with the pedestal recesses in said side frames, combined with the pedestal-straps below said recesses and completing the pedestal-spaces, the axle-boxes in said spaces, the rubbing-surfaces for the axle-boxes at one side of said side frames and above the lower flanges of the latter, and the springs substantially centrally over the axle-boxes and their rubbing-surfaces and housed at one side of the side frame between the latter and the vertical longitudinal portions of said end sections; substantially as set forth.

5. A car-truck frame comprising the side frames having the upper and lower edge flanges and provided at each end with the recess G, and the end sections D having the edge flanges engaging the upper and lower flanges of the side frame, said sections D being formed with the recess I and rubbing-flanges J, combined with the straps M forming the lower part of the pedestals, the axle-boxes, and the spring for said boxes and between the side frame A and the said sections D; substantially as set forth.

6. In a car-truck, the side frame A having the flanges at its upper and lower edges and formed at its ends with the recesses G, and the end sections D having the flanges E, F, vertical rubbing-flanges J, horizontal flanges K and recesses I, the latter being in alinement with the said recesses G, combined with the pedestal-straps M secured to the side frame and completing the pedestals for the axle-boxes, and a spring over each axle-box; substantially as set forth.

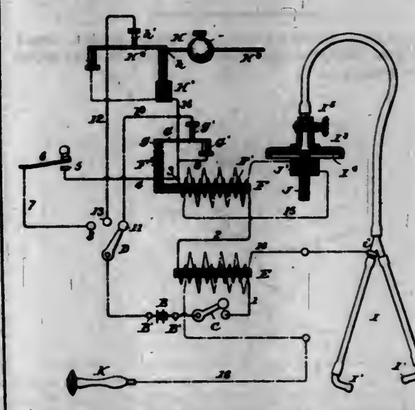
7. In a car-truck, the side frames having the upper and lower edge flanges and formed at their ends with the recesses G, and the end sections D having the edge flanges and recesses in line with the said recesses G, said sections D being formed integral with the rubbing-flanges J and horizontal flanges K, combined with the pedestal-straps M below said recesses and having their ends bent outward from one another, the bolts passing through the lower flanges of said inner section D, the flanges C of the said frames A, and said ends of said straps, and the springs above the axle-boxes; substantially as set forth.

8. In a car-truck, the side beams or frames A having the upper and lower flanges, and the sections D having the upper and lower flanges and provided with recesses I, the upper portion of said sections D being projected from the side frames, combined with the rubbing-flanges for the axle-boxes, the springs over said boxes and housed between said side beams A and said sections D, and the pedestal-straps M receiving the lower portion of the axle-boxes, the ends of said side beams A having the recesses G in line with said rubbing-flanges J and pedestal-straps M; substantially as set forth.

9. In a car-truck, the side beams A having the upper and lower flanges and provided with the end recesses G, combined with the end sections D having the upper and lower flanges and recesses I greater in width at their upper portion than said recesses G, the rubbing-flanges for the axle-boxes between said side beams A and end sections D and in line with the edges of said recesses G, the straps M receiving the lower portion of the axle-boxes and having their inner vertical sides in line with said rubbing-flanges, and the springs above said axle-boxes; substantially as set forth.

10. In a car-truck, the side frames A having the upper and lower flanges and provided with the recesses Q and end recesses G, and the end sections D having the upper and lower flanges and provided with the recesses in line with said recesses G, combined with the pedestal-straps below said recesses and completing the pedestal-spaces, the rubbing-flanges in line with the inner vertical sides of said straps, the axle-boxes within said spaces and having the flanges S upon their upper ends, and the spring P interposed between the said beam A and inner end section D and having the projection R to enter said recess Q and having its lower band adapted to enter the space outlined by said flanges S; substantially as set forth.

592,844. APPARATUS FOR ELECTRICALLY TREATING DISEASES. HENRY R. WAITE, New York, N. Y. Filed Aug. 11, 1897. Serial No. 647,866. (No model.)



Claim.—1. In an apparatus for treating disease, the combination with an air-impulse device, of an electric-impulse device arranged so that the air and electrical impulses shall be simultaneous, substantially as described.

2. In an apparatus for treating disease, the combination with an air-impulse device and a faradic-current device, of electrical connections for producing the air and electrical impulses, and a single circuit including an interrupter so that the air and electrical impulses shall be simultaneous, substantially as described.

3. In an apparatus for treating disease, the combination with an air-impulse device, of a magnet and a secondary winding for operating it, a faradic-impulse device, a single primary for operating both devices, and an interrupter included in the circuit of the primary, substantially as described.

4. In an apparatus for treating disease, the combination with an air-impulse device comprising a diaphragm, a tube and earpiece, of a magnet for operating the diaphragm, two inductoriums, the secondary of one of which is connected with the magnet and the secondary of the other of which is connected with the earpiece, and a single primary including an interrupter, substantially as described.

5. In an apparatus for treating disease, the combination with an air-impulse device comprising a diaphragm tube and earpiece, of a valve arranged in the tube to control the strength of the impulses, substantially as described.

6. The combination with an air-impulse device, of a magnet for operating it, a secondary circuit connected with the air-impulse device, two inductoriums for producing air-impulses and faradic currents, and a single primary including an interrupter, substantially as described.

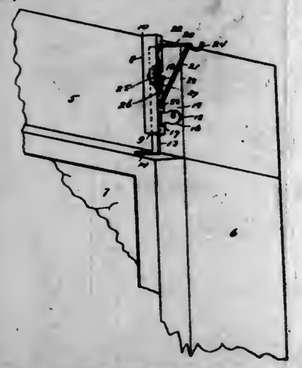
592,845. NUT-LOCK. MERRITT T. WALLACE, New Lexington, and ALEXANDER H. REYNOLDS, Moxahala, Ohio. Filed Mar. 23, 1897. Serial No. 628,790. (No model.)



Claim.—1. A nut-lock made out of a wire rod and comprising a straight bar forming a body portion, lateral loops formed by making a return-bend at both ends of the body portion, then bending the ends outwardly and approximately in a circular direction to intersection at the first bend, and after the bolt and nut are in position, bending the ends up alongside of and thence across the top of the nut, substantially as described and specified.

2. In a nut-lock made out of a metal rod of suitable diameter, the body portion E, terminating at each end with the lateral loops F, on opposite sides of the body part, the said loops being flattened as shown to provide a seat for the nuts and the ends G projected beyond the intersection of the loops and adapted to be bent up and over the nut for the purposes specified.

592,846. WINDOW CURTAIN AND SHADE HOLDER. JOHN H. WARNER, Portsmouth, Ohio. Filed Feb. 26, 1897. Serial No. 624,960. (No model.)



Claim.—1. The herein-described window curtain and shade holder, the same consisting of an oblong hollow keeper, which is open at one end and in which is mounted a longitudinal movable rack-bar, said keeper and said rack-bar being each provided with an arm by which the holder may be secured to a window-frame, said keeper being also provided in its outer side with a slot, and with a pawl which is connected therewith and operates in connection with said rack-bar, and said keeper being also provided with supports for a curtain-pole and for a shade-roller, substantially as shown and described.

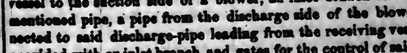
2. The herein-described holder for curtains and shades, the same consisting of an oblong keeper in which is mounted a longitudinally-movable rack-bar, means connected with said keeper and operating in connection with said rack-bar for holding it in any desired position, and curtain and shade supports connected with said keeper, said keeper and said bar being also provided with arms having teeth or projections formed thereon, substantially as shown and described.

3. The herein-described window curtain and shade holder, the same comprising an oblong keeper having a projection at one end which is provided with a depending tooth, a bar slidably mounted in said keeper; said bar being provided with a projection having a tooth, and with a rack-bar, said keeper being slotted adjacent to said rack-bar, and provided with a spring-pawl adapted to engage said rack-bar, said keeper being also provided with a bracket, substantially as and for the purpose set forth.

4. The herein-described shade-holder, comprising a keeper 8, having an arm 10, which is provided with a tooth 11; said keeper being provided with an open end 9, and a slot 12; a bar 13 having an arm 14 which is provided with a tooth 15; a lug 16, having a slot 19; a bracket 20, a pawl 27, and said bar 13, being provided with ratchet-teeth 25, substantially as shown and described and for the purpose set forth.

5. In a window curtain and shade holder, a hollow keeper provided at one end with an angular arm which is provided with a tooth, said keeper being open at the free end and being provided with a slot at the lower end of which is mounted a pawl-detent which projects upwardly and into said slot, a bar mounted in said keeper and provided with a rack-bar adapted to engage said pawl-detent, said bar being provided at the lower end with an angular arm which is provided with a tooth, and a holder mounted upon said hollow keeper, substantially as and for the purpose set forth.

592,847. FOUNTAIN-PEN. ARTHUR A. WATERMAN, Arlington, Mass. Filed Jan. 6, 1897. Serial No. 618,105. (No model.)



Claim.—1. An ink-feeder for fountain-pens, consisting of a bar having a single longitudinal duct of relatively large cross-sectional area through which the pen supply of ink is fed by gravity, and a longitudinal separated communicating subchamber in the bar, and closed at its outer end, to store ink when the pen is not in use and maintain the feed-duct moist, substantially as described.

2. An ink-feeder for fountain-pens, consisting of a bar having a single longitudinal feed-duct of relatively large cross-sectional area, a separate longitudinal ink-storage chamber, within the bar, its outer end terminating within the bar, and minute connections between the feed-duct and storage-chamber, to maintain the feed-duct moist when not in use, substantially as described.

3. An ink-feeder for fountain-pens, consisting of a bar having a single longitudinal, gravity feed-duct, of relatively large cross-sectional area, for the pen supply of ink, a separate longitudinal ink-storage subchamber formed in the bar, its outer end terminating within the bar, and a series of capillary passages connecting said storage-chamber and feed-duct, throughout the length of and to maintain the latter moist, to thereby facilitate the initial feed movement of the ink, substantially as described.

4. An ink-feeder for fountain-pens, consisting of a bar having a longitudinal, gravity feed-duct of relatively large cross-sectional area for the pen supply of ink, and a plurality of longitudinal separated ink-storage chambers formed within the bar and connected at intervals with said feed-duct, the outer end of the said chambers terminating within the bar, substantially as and for the purpose set forth.

5. An ink-feeder for fountain-pens, consisting of a bar having a partially-opened, longitudinal duct of relatively large cross-sectional area through which the pen supply of ink is fed by gravity when the pen is in use, a longitudinal storage-chamber in said bar, substantially parallel to the feed-duct and closed at its outer end, and minute connecting-passages between said chamber and feed-duct, whereby the latter is maintained moist when not in use, substantially as described.

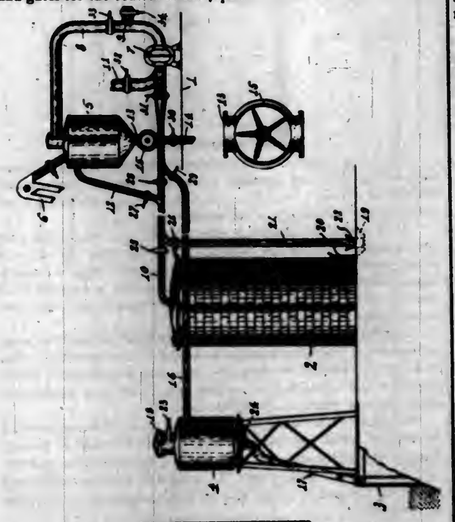
592,848. PNEUMATIC GRAIN-MOVING APPARATUS. FREDERICK J. WEBER, Connersville, Ind., assignor to the Steel Storage and Elevator Construction Company, same place. Filed June 21, 1897. Serial No. 641,562. (No model.)

Claim.—1. The combination, substantially as set forth, of an elevated loading-tank having a top opening, a gate at each top opening, a loading-pipe connected with the base of the tank, a gate in such pipe, a blast-pipe connected with the upper portion of the tank, and air-forcing and grain-supplying devices connected with said blast-pipe.

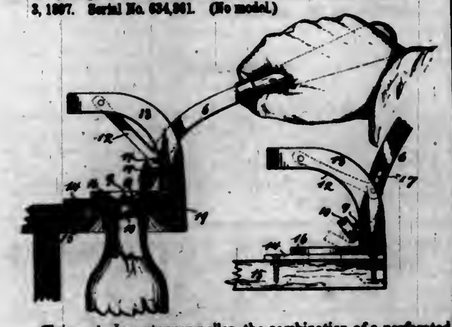
2. The combination, substantially as set forth, of an air-tight receiving vessel, a pipe connected to the upper portion thereof for the delivery of grain thereto, a pipe from the base of the receiving vessel for the discharge of grain, a pipe from the top of the receiving vessel to the suction side of a blower, an inlet branch to said last-mentioned pipe, a pipe from the discharge side of the blower connected to said discharge-pipe leading from the receiving vessel and provided with an inlet branch, and gates for the control of said pipes.

3. The combination, substantially as set forth, of a receiving vessel, a blower, a suction-pipe connecting the receiving vessel with the blower and having an inlet branch, a discharge-pipe from the blower to a point of delivery for grain, a pipe to the upper portion of the receiver from said discharge-pipe between the blower and the delivery end of the discharge-pipe, a second discharge-pipe connected with the first-mentioned discharge-pipe between the blower and its delivery end, a pipe connecting the base of the receiving vessel with the first-mentioned discharge-pipe, and gates for the control of the pipes

4. The combination, substantially as set forth, of a receiving vessel, a blower, a pipe from the top of the receiving vessel to the blower and having an inlet branch, a discharge-pipe from the blower to a point of grain delivery, a feeding-pipe from the base of the receiving vessel to said discharge-pipe, an air-outlet pipe connected to the discharge-pipe between the blower and said feeding-pipe, a pipe to the upper portion of the receiving vessel from said discharge-pipe between said feeding-pipe and the delivery end of the discharge-pipe, and gates for the control of the pipes.



592,849. STOPPER-PULLER. WILLIAM T. WEBB, Middleport, Ohio, assignor of one-half to Curtis B. Smith, same place. Filed May 3, 1897. Serial No. 634,961. (No model.)



Claim.—1. In a stopper-puller, the combination of a perforated base 14, standard 13, link 12 loosely depending therefrom, an extracting-lever 6 shaped as shown and supported on the lower end of said link and having its outwardly-extending portion formed into an operating-handle.

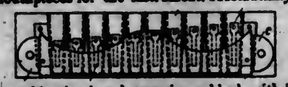
2. In a stopper-puller, the combination of a perforated base, a lever 6, shaped as shown, a support for the pivot of said lever and a slot in the lever which receives the pivot.

3. In a stopper-puller, the combination of a perforated base 14, standard 13, link 12 supported thereon, a lever 6 shaped as shown, a pivot for the lever supported in the free end of link 12 and a slot in the lever which receives said pivot.

4. In a stopper-puller, the combination of the perforated base 14, a lever 6 supported above it and a flanged plate 21 also perforated and to which base 14 is connected with the perforations of the two registering, the connection being such as to permit a rotary adjustment of base 14 on plate 21.

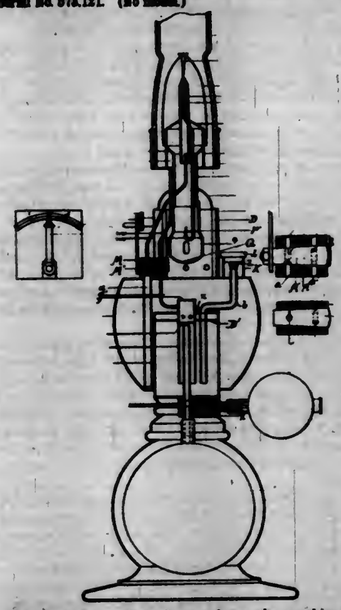
592,850. HARMONICA. CHRISTIAN WEISS, Jr., Trautenau, Germany. Filed Apr. 30, 1896. Serial No. 590,705. (No model.)

Claim.—1. In combination in a harmonica, the block, a series of substantially arch-shaped caps over the reeds having sound-emission openings and plates for holding the caps in place, said plates forming mouthpieces for the instrument, substantially as described.



2. In combination in a harmonica, a block with its reeds and a series of independent caps with plates for securing them over the reeds, said caps having sound-emission openings, said plates forming mouthpieces for the instrument, substantially as described.

592,851. INCANDESCENT LAMP. MAXIMILIAN WEINDORF, Frankfort-on-the-Main, Germany, assignor of two-thirds to Albert Meyenberg and Siegmund Heniein, same place. Filed Dec. 23, 1895. Serial No. 573,121. (No model.)



Claim.—1. In an incandescent lamp the combination with a burner-head, of an evaporator contained therein, of a vapor-pipe communicating with the evaporator and having its discharge-opening under the burner-head, and a separate conduit connected with said burner-head and having a discharge-opening under the burner-head thereby providing an auxiliary burner for heating the evaporator, substantially as described.

2. In an incandescent lamp, the combination with two tanks for a burning and an igniting fluid, of pipes leading to the burner-head, and means to shut or open both pipes or either of them, substantially as described.

3. In an incandescent lamp, the combination of two tanks for a burning and an igniting fluid, of pipes leading from them to the burner-head, and of means to open the igniting-pipe, open the lighting-pipe and close the igniting-pipe consecutively by one handle, substantially as described.

4. In an incandescent lamp, the combination with two tanks for the burning and the igniting fluid, of means to set both tanks under atmospheric pressure, and of means to store up the compressed air and delivering it, substantially as described.

5. In an incandescent lamp, the combination with a burner-head and means for feeding the same, of auxiliary means for feeding, from a tank independent of the main tank or reservoir, an easily-evaporating fluid, as benzin or alcohol, means for forcing air through the fluid in said independent tank to the burner-head, substantially as described.

6. In an incandescent lamp, the combination of a burner-head, of an igniting device consisting of a tank independent of the main tank or reservoir containing cotton or the like, and an easily-evaporable fluid, an air-pump communicating with said independent tank, an air-pipe opening at the bottom of the tank, and a discharge-pipe at the cover of the tank, substantially as described.

7. In an incandescent lamp, the combination with a hollow

burner of two basins or tanks for a burning and an igniting fluid, of means to set both tanks under pressure, of pipes extending from the said tanks and communicating with the inner space of the burner, and of means to open or close the said pipes together alternatively substantially as described.

8. In an incandescent lamp, the combination with an oil-tank, of a benzin-tank, of pipes extending from the tanks to the burner, of a rubber ball, a pipe extending from the rubber ball and communicating with the said tanks, means to fill the said ball with compressed air, and means to open or close the said tank-pipes, substantially as described.

9. A burner for an incandescent lamp consisting of an open pipe ending in an enlarged perforated burner-head, an evaporator placed at the top of the burner and heated thereby, a pipe leading to the evaporator, a second pipe leading from the top of the evaporator downward and ending in an upward-turned nozzle, a pipe for the supply of the ingiting agent, and means to discharge the igniting agent within said burner-head, substantially as described.

10. In an incandescent lamp the combination with an oil-tank of a benzin-tank, a hollow foot, a rubber ball placed inside the hollow foot, means to inflate the ball, communicating passages between the ball and the said tanks, a double-passage cock at the top of the oil-tank, a burner supported by the said tank, pipes connecting the cock with the tanks and the burner, and a scale for indicating the position of the cock, substantially as described.

11. In an incandescent lamp the combination with an oil-tank and a benzin-tank, of a mouthpiece in the oil-tank, a filling-pipe of the benzin-tank extending into the said mouthpiece, and means to close the mouthpiece substantially as described.

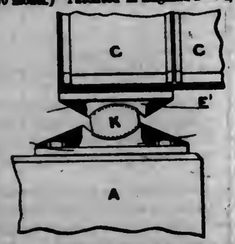
12. In an incandescent lamp the combination with a burner-head, of an oil-tank, a pipe opening near the bottom of said tank and communicating with the burner-head, filtering-filling in the pipe, an independent pipe also communicating with the burner-head and a single cock controlling the communication of said pipes with the burner-head, substantially as described.

13. In an incandescent lamp the combination with an oil-tank of a benzin-tank placed in it, a cotton filling in the benzin-tank, a false perforated plate under the cover of the latter tank, a pipe extending from the top of the tank to the burner, a pipe communicating with a compression air-reservoir and extending upward in the benzin-tank, a larger pipe closed at the top and open at the bottom and surrounding the said pipe, and a pipe extending from the benzin-tank into the oil-tank and opening near the top of it, substantially as described.

14. In an oil-lamp, the combination of an expansible reservoir, means auxiliary thereof for supplying pressure thereto, an oil-tank and benzin-tank in communication with said expansible reservoir, a burner connected by suitable pipes to said oil and benzin tank and means to regulate the flow of igniting and burning fluid to said burner.

15. In an oil-lamp, the combination of a single burner-head and means for supplying the said burner-head, first with an igniting fluid from one tank and then with a burning fluid from a second tank.

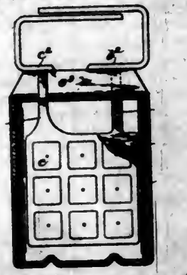
592,852. MEANS FOR SUPPORTING ENDS OF GIRDERS, &c. ALFRED WHITWOOD, Tipton, England. Filed July 10, 1896. Serial No. 598,713. (No model.) Patented in England Dec. 4, 1895, No. 22,212.



Claim.—1. A support for girders and the like to provide for expansion and contraction comprising upper and lower bearing parts having curved bearing-surfaces, and an oval block between said bearing-surfaces, its shorter diameter approximately vertical, and its longer diameter approximately horizontal, whereby the said block has a circular movement and a sliding movement.

2. A support for girders and the like to provide for expansion and contraction comprising an upper and a lower bearing part having curved bearing-surfaces, and an oval block between said bearing-surfaces, its shorter diameter approximately vertical, and its longer diameter approximately horizontal, whereby the said block has a circular movement and a sliding movement, said bearing parts having extended surfaces.

592,853. ELECTRIC BATTERY. ALDEN D. WHEELER, Hyde Park, Mass. Filed Jan. 22, 1897. Serial No. 620,198. (No model.)



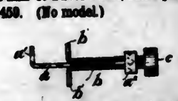
Claim.—1. In an electric battery, a cover consisting of two plates, each having elongated openings extending inwardly from one end, and placed one upon the other, with their openings extending in opposite ways, substantially as described.

2. In an electric battery, a cover consisting of two plates, each having elongated openings extending inwardly from one end, and placed one upon the other, with their openings extending in opposite ways, and vertical flanges or ribs formed on the uppermost plate which serve as supports upon which the elements or electrodes rest, substantially as described.

3. In an electric battery, a cover for the jar composed of separable plates of insulating material formed to present openings for the necks of the elements or electrodes when put together and placed on the jar and having flanges or ribs upon which said elements or electrodes rest, substantially as described.

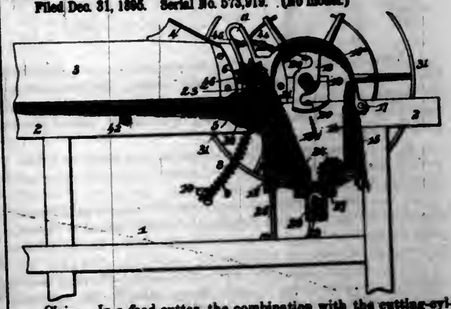
4. In an electric battery, a two-part cover of insulating material, the parts of which rest one upon the other and formed to present, when so disposed, openings for the necks of the electrodes, and vertical flanges or ribs formed upon the uppermost part upon which said electrodes rest and by which they are solely supported, substantially as described.

592,854. DOOR-SECURER. CHARLES S. WHIPPLE, Boston, Mass., assignor of one-half to David Hunt, same place. Filed Mar. 15, 1897. Serial No. 627,459. (No model.)



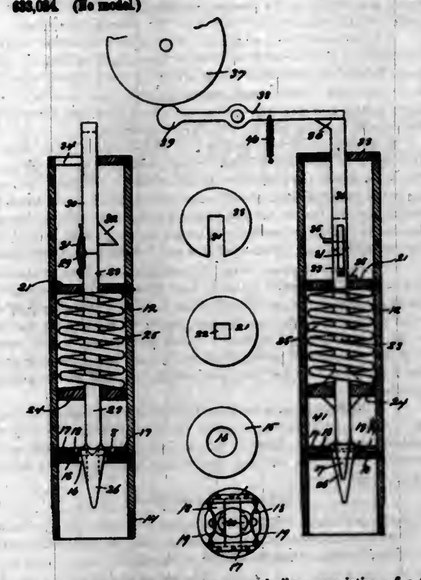
Claim.—The detachable door-fastening herein described consisting of the strip *a* having a right-angular portion *a'* at one end, a block a^3 at the opposite end and a slot a^2, the bent plate *b* astriding and moving along on said strip *a* having lateral projections *b'*, *b'*, and a thumb-screw *c* passing through said block and working in said slot a^2 against said bent plate *b*.

592,855. FEED-CUTTER. CYRUS B. WHITE, Orangeville, Pa. Filed Dec. 31, 1895. Serial No. 573,919. (No model.)



Claim.—In a feed-cutter, the combination with the cutting-cylinder, its actuating mechanism, and the pivoted hood covering said cylinder, of a trough or hopper underlying said cylinder, a pair of positively-driven toothed crushing-rolls journaled in the bottom of said trough or hopper, an adjustable concave located beneath said rolls, provision for throwing said rolls out of operation and a removable front wall to said hopper the same consisting of a board sliding vertically in grooves in the opposite sides of the machine-frame, substantially as described.

592,856. BOILER-PRESSURE-INDICATING ALARM. JOHN J. WHITTLESEY, Ann Arbor, Mich. Filed Apr. 20, 1897. Serial No. 633,034. (No model.)

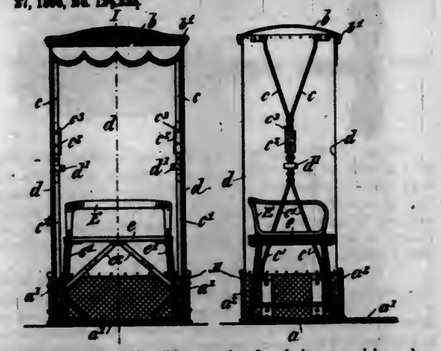


Claim.—1. A safety-alarm for steam-boilers, consisting of a tubular casing which is adapted to be connected with a boiler, or steam-pipe communicating therewith, said tubular casing being provided near its lower end with a partition-plate in which is formed a circular opening, a piston mounted in said casing, above said partition-plate, a piston-shaft which passes through said piston, and is provided at its lower end with a conical head which is adapted to pass through the central opening in said partition-plate, and another partition-plate mounted in said casing and through which said piston-shaft passes, and between which and said piston, is a spiral spring and means connected with the upper end of said piston-shaft for sounding an alarm, substantially as shown and described.

2. A safety-alarm for steam-boilers consisting of a tubular casing which is adapted to be connected with a boiler, or a steam-pipe connected therewith, said tubular casing being provided near its lower end with a partition-plate in which is formed a circular opening, a piston mounted in said casing, above said partition-plate, a piston-shaft which passes through said piston, and is provided at its lower end with a conical head which is adapted to pass through the central opening in the said partition-plate, and another partition-plate mounted in said casing, and through which said piston-shaft passes, and between which and said piston, is a spiral spring and means connected with the upper end of said piston-shaft for sounding an alarm, consisting of an extension which is hinged to said shaft at one side thereof, and which projects through a slot or opening formed in the upper end plate of said casing, said extension being provided at one side with a shoulder or projection, and said shaft with a spring which bears upon the opposite side of said extension, and a pivoted lever in connection with which said extension operates, said lever being provided at one end with a ball or head which is adapted to operate in connection with a bell or gong, substantially as shown and described.

3. An automatic alarm for steam-boilers, consisting of a tubular casing 12, a partition-plate as 17, which is mounted therein, near one end thereof, and provided with a central opening, and spring-operated valves which are mounted on the upper side thereof, and adapted to close said opening, a piston mounted in said casing, and provided with a shaft which passes therethrough, and the lower end of which is provided with a conical head 26, which is adapted to pass through the circular opening in said partition-plate, and between said valves, said casing being also provided with another partition-plate through which the piston-shaft passes, and between which and the piston is a spiral spring 25, said casing being also provided with an end or cap plate 33, in which is formed a slot or opening and said piston-shaft being provided with a hinged spring-operated extension 30, a spring-operated lever 38, pivotally mounted above said casing 12 adapted to operate in connection with a bell or gong, and to be operated by the said extension of said piston-shaft, substantially as shown and described.

592,857. BEACH-SEAT. EDUARD EIBEN, Homburg, Germany, assignor of one-half to Hermann Leonhardt, same place. Filed Mar. 23, 1897. Serial No. 628,572. (No model.) Patented in Belgium Oct. 27, 1896, No. 124,228.



Claim.—1. A collapsible covering for chairs comprising a box-like base, a cover or canopy fitting the top of said base, and supporting-rods hinged together centrally and to said base and canopy to fold inwardly onto the base between it and the canopy, for the purpose set forth.

2. A collapsible inclosure for chairs comprising a box-like base, a cover or canopy fitting onto the open upper end of said base, supporting rods hinged together centrally and to said base and canopy to fold inwardly onto the box, and a fabric secured to said rods and to the base, and canopy to inclose the same on three sides, and adapted to fold with said rods between the base and canopy, for the purpose set forth.

3. A collapsible covering for chairs comprising a box-like base, a cover or canopy fitting the top of said base, and supporting-rods hinged together centrally and to said base and canopy to fold inwardly onto the base between it and the canopy, in combination with a chair provided with legs adapted to fold under the seat, said chair when folded fitting into the base, for the purpose set forth.

4. In a collapsible covering for chairs, the combination with a box-like base having a solid bottom for the chair, and a solid side wall hinged to said bottom operating as a foot-rest when turned down, and adapted to be locked in position when turned up; of a covering or canopy fitting onto the open upper end of the base, supporting-rods hinged together and to said canopy and base to fold inwardly upon said base between it and the canopy, for the purpose set forth.

5. A collapsible beach-seat or like protective structure comprising a suitable bottom box *a a'* having a hinged front wall *a''*, a hood *b*, folding supports *c c'* connecting the bottom box *a a'* with the hood *b*, a fabric covering *d'* and a suitable folding chair E, substantially as specified.

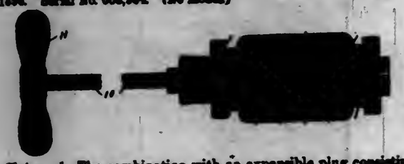
592,858. PLOW-POINT. CHARLES ANDERSON, South Bend, Ind., assignor to the South Bend Iron Works, same place. Filed Mar. 13, 1897. Serial No. 627,267. (No model.)



Claim.—1. A plow-point constructed with a smooth flat lower surface and provided on its upper surface with parallel strengthening-ribs, the cutting edge being made thin and its extreme forward edge made practically straight and without serrations and indentations, and the upper surface of the cutting edge of the point being chilled, substantially as set forth.

2. A plow-point constructed with a smooth flat lower surface and provided with a comparatively wide thin cutting edge having parallel strengthening-ribs on its upper surface, said ribs being gradually diminished in thickness at their opposite ends, the point having its cutting edge chilled through and through, substantially as set forth.

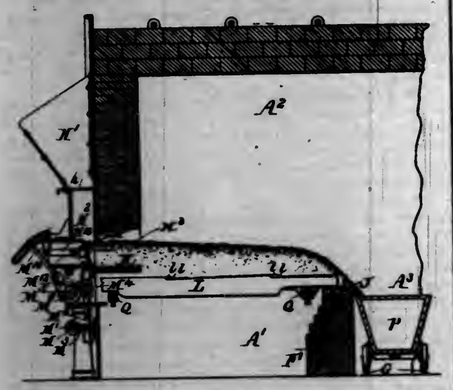
592,859. BICYCLE-TOOL. JOHN R. BARKER, Jacksonville, Fla., assignor of one-half to Charles S. Adams, same place. Filed Oct. 15, 1896. Serial No. 608,964. (No model.)



Claim.—1. The combination with an expansible plug consisting of a plurality of longitudinal sections forming in conjunction with each other a cylindrical body, a conical screw-threaded opening through said plug, and a spring for holding said sections of the plug normally in contact with each other to form a cylindrical body, of a conical screw-threaded nut situated within said plug and provided with a flexible connecting-piece and a handle.

2. The combination with an expansible plug consisting of sections having grooves near the ends thereof, springs within said grooves, a conical screw-threaded opening in said plug, of an expanding-nut situated within said plug and having a headed pin secured to one end thereof, and a connecting-piece secured to the other end thereof and provided with a handle, substantially as described.

592,860. METHOD OF AND APPARATUS FOR MAKING SUBLIMED METALLIC PIGMENTS. RAYNE O. BARTLETT, Joplin, Mo. Filed Dec. 20, 1893. Serial No. 494,189. (No model.)



Claim.—1. In the method of making a sublimed metal pigment by treating shallow charges of mixed ore and fuel in a furnace and securing the resultant fume, the improvement which consists in constantly charging fresh ore or fuel onto the front end of the grate of such furnace, moving the ignited charge progressively from the front to the rear of the grate, supplying a substantially uniform air-blast to the charge, maintaining thereby a substantially uniform furnace temperature, maintaining the charge composition within the furnace as a substantially constant factor, and obtaining a resultant fume product of substantial uniformity, substantially as and for the purpose set forth.

2. The method of making a sublimed metallic pigment which consists in mixing ore or other metal-bearing substance with bituminous coal, subjecting said mixture to the heat of a furnace to drive off coal-gas, then feeding said mixture to one end of a grate-surface and igniting it thereon, causing the ignited fuel to move with regulated speed over the face of the grate, dumping the scoria over the end of the grate and catching the sublimed metallic compound driven off in screens, substantially as and for the purposes described.

3. The method of making a sublimed metallic pigment which consists in mixing ore or other zinc-bearing substance with bituminous coal, subjecting said mixture to the heat of a furnace to drive off coal-gas, then feeding said mixture to one end of a grate-surface, and igniting it thereon, causing the ignited fuel to move with regulated speed over the face of the grate, dumping the scoria over the end of the grate and catching the zinc oxid driven off in screens, substantially as and for the purposes described.

4. The method of making a sublimed metallic pigment which consists in mixing the ore or other metal-bearing substance with bituminous coal, gradually feeding said mixture to a shelf situated within the furnace to drive off carbonaceous gases, then feeding the mixture to a grate igniting it thereon and causing the ignited charge to move with regulated speed over the surface of the grate to remove ash and scoria and screening the gaseous products of the furnace to save the metallic fume, substantially as and for the purposes described.

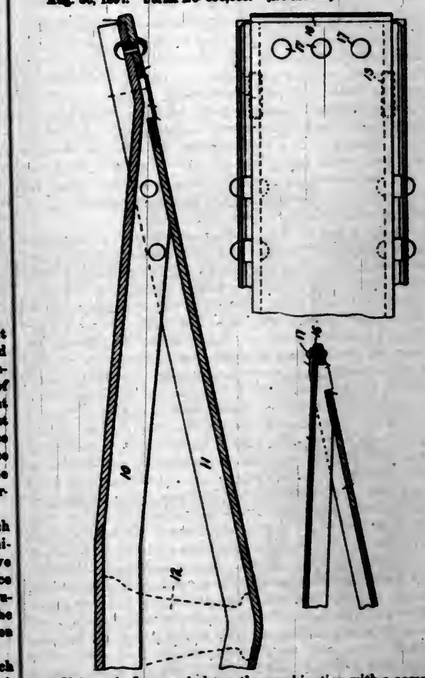
5. A pigment-furnace having in combination a bottom made up of a series of perforated plates or bars, means for supplying air to the under side of the perforated plates or bars, means for feeding ore and fuel to one end of said bottom, means for giving said bars an up-and-down motion and means for giving said bars a back-and-forward motion substantially as and for the purpose specified.

6. A pigment-furnace having in combination a bottom made up of a series of perforated plates or bars, means for supplying air to the under side of the perforated plates or bars, a chamber for dumping scoria situated back of and below the furnace-bottom, means for feeding ore and fuel to one end of said bottom, means for giving said bars an up-and-down motion, and means for giving said bars a back-and-forward motion, substantially as and for the purpose specified.

7. A pigment-furnace having in combination a bottom made up of a series of perforated plates or bars, means for supplying air to the under side of the perforated plates or bars, a charging-shelf situated in front of the furnace-bottom, means for feeding ore and fuel to the charging-shelf and thence to one end of said bottom, means for giving said bars an up-and-down motion and means for giving said bars a back-and-forward motion substantially as and for the purpose specified.

8. A pigment-furnace having a perforated floor, means for charging it with ore and fuel and means for moving its charge over the furnace-bottom in combination with a screen system for catching the metallic fume driven off from the furnace, substantially as and for the purposes described.

592,861. CAR-BOLSTER. CARL H. BAUER, Chicago, Ill., assignor to the Simplex Railway Appliance Company, same place. Filed Aug. 30, 1897. Serial No. 650,053. (No model.)

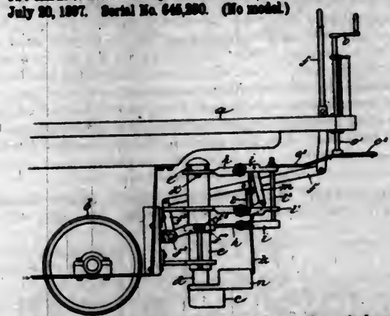


Claim.—1. In a car-bolster, the combination with a compression member, tension member, and middle support; of a joint for uniting said compression and tension members at each end of the bolster, comprising one or more openings in one of said members, and one or more projections formed on the other of said members, and adapted to engage said openings, substantially as shown and described.

2. In a car-bolster, the combination with a compression member, tension member, and middle support; of a joint for uniting said compression and tension members at each end of the bolster, comprising one or more openings in one of said members, and one or more projections formed on the other of said members, the ends of said compression and tension members being brought together with said projections passing through said openings and riveted on the outer side, substantially as described.

3. In a car-bolster, the combination with a channel-iron compression member having openings cut in its web of a channel-iron tension member having its flanges cut at the ends to form projections adapted to engage the said openings, substantially as described.

592,862. SWITCH-OPERATING ATTACHMENT FOR STREET-RAILWAY CARS. EDWARD L. BULLOCK, Hartford, Conn., assignor of two-thirds to Horace H. Lyman and Elijah Pember, same place. Filed July 20, 1897. Serial No. 645,280. (No model.)



Claim.—1. In combination, the wheeled car, the switch-operating tongue, the vertical shaft carrying said tongue and bearing the cam-lugs, the cam-topped sleeve adapted for vertical reciprocation, the hand-lever for giving said vertical reciprocation of said sleeve, and suitable intermediate means for communicating motion from said hand-lever to said sleeve, all substantially as described and for the purposes set forth.

2. In combination, the wheeled car, the switch-operating tongue, the vertical shaft bearing said tongue, the sleeve carrying said shaft and adapted for vertical reciprocation, the laterally-reciprocating links pivotally hung from said sleeve, the tongue-lever pivotally hung on one of said links, the bent lever pivotally hung on a suitable support, and the connecting-rod for operating said bent lever, all substantially as described and for the purposes set forth.

592,863. SPOOL-HOLDER. JOHN G. BENFIELD, Woburn, Mass. Filed Nov. 26, 1896. Serial No. 613,795. (No model.)



Claim.—A spool and scissors holder consisting of a plate provided on its rear face with a pin, having its lower edge bent, and having an opening, a frame consisting of a piece of wire pivoted to said plate by having an upper straight portion held within the bent lower edge of the plate, eyes at the end of said straight portion, downward extensions depending from said eyes, an arm at the lower end of one of said extensions, a hook at the lower end of the other of said extensions to engage the free end of said arm, and a bail having its ends secured within said eyes and being of sufficient size to surround said frame and provided at its lower end with a hook.

592,864. BILL-FILE. JAMES M. BOTSFORD, Denver, Colo. Filed Feb. 8, 1897. Serial No. 622,497. (No model.)



Claim.—The combination with a suitable base, of a device comprising a base-loop 5, a forward extension 7 terminating in a brad, a transverse part 9 connecting the parts 5 and 7, an upwardly-projecting torsion-held thumb-loop 6, a forward extension 8 terminating in an eye through which the brad passes, a transverse part 10 connecting the parts 6 and 8, and a suitable clasp applied to the parts 9, 10 and 12, said clasp terminating in flanges bent downward and passed through the base and clenched on the under side.

592,865. RAIL-JOINT. JOHN W. OLSEN, Chicago, Ill. Filed Jan. 27, 1896. Serial No. 576,907. (No model.)



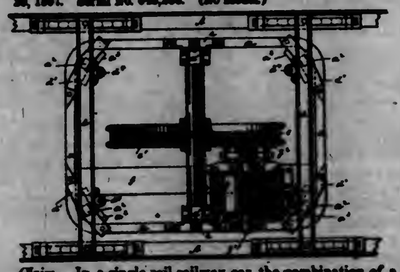
Claim.—1. A rail-joint having in combination a base-plate adapted to lie beneath the abutted rail ends and to be supported and secured at each end on adjacent ties, said base-plate having a narrow central portion b', shoulders b^2 and inwardly and upwardly extending bevels b^3, with joint-plates C C adapted to fit and engage between the shoulders b^2 of the base-plate, to engage beneath said base-plates in bevels b^3 and upon the rail-base and to receive the bolts which pass through the rail-web, and bolts D passing through the rail-web and the upper parts of the joint-plates.

2. A rail-joint having in combination a base-plate adapted to lie beneath the abutted rail ends and to be supported and secured at each end on adjacent ties said base-plate having a narrow central portion b', downwardly-turned flanges b^4 b^5 and shoulders b^2, with joint-plates C C adapted to fit between the shoulders b^2 of the base-plate and to engage beneath the flanges b^4 of said base-plates upon the rail-base and to receive the bolts which pass through the rail-web, bolts D passing through the rail-web and the upper parts of the joint-plates and bolts D' passing through the flanges b^4 and the lower parts of the joint-plates.

3. A rail-joint having in combination a base-plate adapted to lie beneath the abutted rail ends with joint-plates C having flanges c^4 adapted to fit beneath the base-plate, flanges c adapted to receive the bolts which pass through the vertical webs of the rails and a flange c' adapted to lie upon the rail-base said flange being made thin at or near its junction with the flange c and bolts D adapted to pass through the webs of the rails and through flanges c.

4. A rail-joint having in combination a base-plate adapted to lie beneath the abutted rail ends with joint-plates C having flanges c^4 adapted to fit beneath the base-plate, flanges c adapted to receive the bolts which pass through the vertical webs of the rails and a flange c' adapted to lie upon the rail-base the contacting face c^5 of said flange being rounded and the flange made thin at or near the junction of the flange c and bolts D adapted to pass through the rail-webs and through the flanges c of the joint-plates.

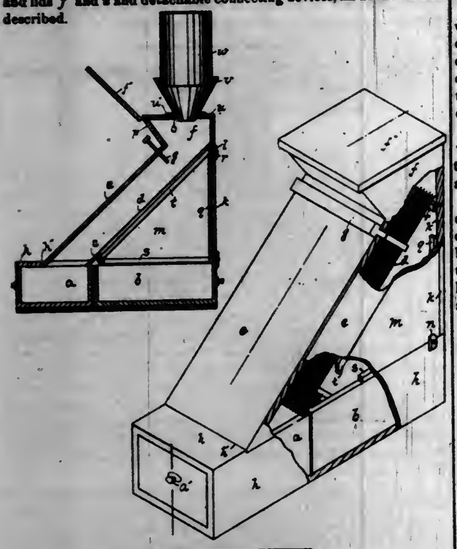
592,866. SINGLE-RAIL-RAILWAY CAR. FREDERICK W. DUNTON, Ballston, N. Y., assignor to Emily M. Dunton, same place. Filed July 20, 1897. Serial No. 646,203. (No model.)



Claim.—In a single-rail-railway car the combination of a traction-wheel having an internal gear with an electric motor having a pinion that engages such wheel, a supporting-frame, and with a fifth-wheel within which the traction-wheel is centered, substantially as specified.

592,867. ASH-SIFTER. ANDREW FISHER, Elizabeth, N. J. Filed Sept. 8, 1896. Serial No. 605,209. (No model.)

Claim.—In an ash-sifter, the case *h*, having shoulder *h'*, the detachable triangular side pieces *m*, the detachable back *k*, the detachable section *e*, consisting of the top and sides *e e e*, screen *d*, hopper *f* and lids *f'* and *u* and detachable connecting devices, all as shown and described.



592,868. DEFLECTOR MECHANISM FOR THRESHING-CYLINDERS. DANIEL S. GEISER, Waynesborough, Pa. Filed Aug. 11, 1896. Serial No. 602,405. (No model.)



Claim.—1. In combination with a threshing-cylinder, a concave having a deflector portion, consisting of a series of flat bars extending rearwardly at right angles from the cylinder, and set edgewise, the flat sides of such bars being held vertically inclined, substantially as shown and described.

2. In combination with a threshing-cylinder, a deflector mechanism comprising a grate-like body, formed of a series of parallel bars set edgewise, having flat upper sides, and held inclined at an angle, the upper end of one bar overlapping the lower end of the adjacent bar, whereby a series of inclined longitudinal grain-passages are provided as specified.

3. In combination with a threshing-cylinder, a deflector consisting of a grate-like body, consisting of a series of parallel bars having a smooth widened upper surface held at a vertical angle to the cylinder, an inwardly-projecting bottom flange and a series of vertical cleats, arranged to form the under face with a series of pockets substantially as shown and described.

4. A deflector mechanism for threshing-cylinders, consisting of a grate-like body formed of a series of longitudinal bars, held at a vertical angle to the cylinder whereby flat impact-faces are presented to receive the straw from the cylinder and having a series of cleats adapted to form pockets on the under side, to receive the grain as it is thrown back from the said flat faces as set forth.

5. The combination with the cylinder and the concave, of a socket or receiving bar held transversely at the discharge end of the concave, a series of longitudinally rearwardly extending grate-bars, secured at one end to the socket or receiving bar and having their body portions inclined vertically and held overlapping each other and means for securing such bars substantially as and for the purposes described.

6. The combination with the cylinder, and the concave, of a series of parallel longitudinal rearwardly-extending grate-bars set edgewise, said series being centrally divided and having the bars at one side inclined from a vertical plane in one direction and the bars at the other side inclined in an opposite direction substantially as shown and for the purposes described.

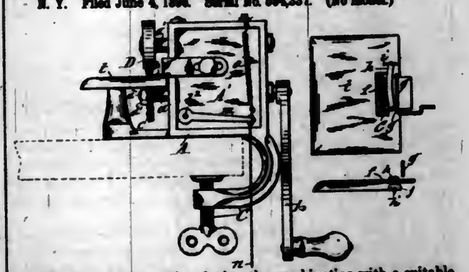
7. The combination of the cylinder and the concave, of separating and deflecting devices forming a continuation of the concave, having longitudinal openings for the discharge of the separated grain, provided with smooth impact or straw-receiving faces, and retarding or pocket portions adapted to receive and temporarily hold the grain as it is separated from the straw by contact with the said smooth faces as set forth.

8. The combination with the cylinder, and the concave of a transverse socket-bar, held at the discharge end of the concave, a series of longitudinally-extending bars having shank portions at their inner ends adapted to fit the socket-bar, said longitudinal bars having their outer ends free and their body portions held inclined toward the center of the cylinder all substantially as shown and for the purposes described.

9. The combination in a mechanism for the purposes described, with the socket-bar E and the bars D, having shank members fitting the socket-bar, of the divided lock-blocks, and the tapering lock-pin all arranged substantially as shown and for the purposes described.

10. A threshing-cylinder concave, having a deflector portion, consisting of a series of parallelly-disposed longitudinal bars held inclined vertically and overlapping, and having smooth upper faces, said bars curving longitudinally upward from the cylinder end, whereby to produce a concave section having inclined grain-passages, the lower portions of which are covered by the upper ends of the bars, as specified.

592,869. ROTARY CUTTER. HENRY A. HARRUB, Cassadaga, N. Y. Filed June 4, 1896. Serial No. 594,257. (No model.)



Claim.—1. In a cutting device, the combination with a suitable casing, of two vertically-movable shafts mounted in the same, a circular anvil mounted on one of said shafts, a circular cutter mounted on the other shaft, a lateral shaft journaled in said casing, an eccentric mounted on said shaft and adapted to engage the lower cutter-shaft to raise and lower the same, a lever mounted on the lateral shaft, a spring connecting said lever to the casing to hold it normally up, and means connected to said lever for depressing it to cause the eccentric to raise the cutter-shaft, substantially as described.

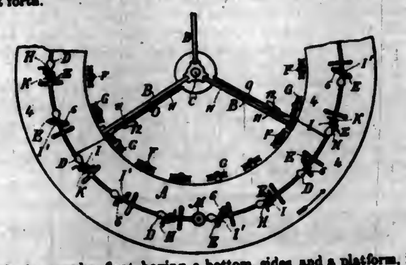
2. In a cutting device, the combination with a suitable casing, of a supporting-table provided with a longitudinal and a segmental slot, vertically-movable shafts mounted in said casing, a circular anvil mounted on one of said shafts, a circular cutter mounted on the other shaft and adapted to project through the longitudinal slot in the table, a pivoted guard mounted on said table having a screw-threaded stud projecting through the segmental slot and an adjusting-nut on the lower end of said stud for clamping said guard-lever in the desired position over the longitudinal slot, substantially as described.

3. In a cutting device, the combination with a suitable casing, of vertically-movable shafts mounted in the same and each provided with an annular groove, bearing-blocks lying in the grooves of said shafts respectively, a screw for adjusting the upper bearing-block, a lateral shaft mounted in the casing, an eccentric mounted on said shaft and engaging the lower bearing-block, means for rotating the lateral shaft, an eccentric to raise or lower the lower shaft, an anvil mounted on one of said vertically-movable shafts, and a cutter mounted on the other, substantially as described.

4. In a cutting device, the combination with a suitable casing, of a yoke-clamp provided with a thumb-screw for securing said casing to a table or other article, two vertically-movable shafts mounted in said casing, a crank mounted on the end of one of said shafts, a circular anvil mounted on one of said shafts, a circular cutter mounted on the other shaft, a bearing-block engaging the lower shaft, an eccentric mounted in the casing and adapted to engage said bearing-block to raise or lower the same, and means for operating said eccentric, substantially as described.

592,870. CAROUSEL. THOMAS D. HOLCOMB, Brooklyn, N. Y. Filed July 17, 1897. Serial No. 644,877. (No model.)

Claim.—1. In a carousel, a hollow annular float, arms and a central pivot, in combination with propelling-wheels and their shafts upon the float, seats and pedals to be acted upon by the feet and connections from the pedals to the shafts of the propellers, substantially as set forth.



2. An annular float having a bottom, sides and a platform, in combination with propelling-wheels and their shafts supported on such annular float, seats, pedals to be acted upon by the feet, crank-shafts carrying the pedals and connections from such crank-shafts to the shafts of the propelling wheels, substantially as set forth.

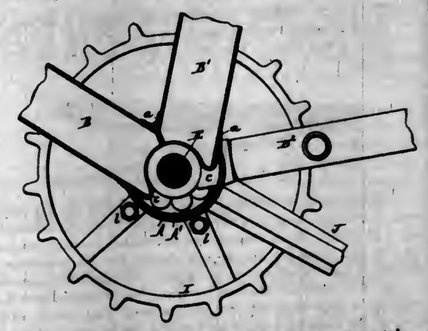
3. An annular float having a bottom, sides and a platform, in combination with propelling-wheels and their shafts supported on such annular float, seats, pedals to be acted upon by the feet, crank-shafts carrying the pedals, sprocket wheels and chains connecting the crank-shaft of the pedals with the shafts of the propelling-wheels, substantially as set forth.

4. The hollow annular float, arms and a central pivot, in combination with wheels for propelling the float, seats and pedals acted upon by the persons occupying the seats, connections between the pedals and the shafts of the propelling-wheels, and brakes for the shafts of the propelling-wheels, and mechanism for actuating such brakes, substantially as set forth.

5. The combination with the annular float, arms and a central pivot, of mechanism for propelling the float, brake-boards and means for raising and lowering the same to cause such brake-boards to act upon the water in stopping the movement of the annular float, substantially as set forth.

6. The combination with the annular float, arms and a central pivot, of mechanism for propelling the float, brake-boards and means for raising and lowering the same to cause such brake-boards to act upon the water in stopping the movement of the annular float, and volute tubes upon the brake-boards for projecting jets of water during the movement of the float, substantially as set forth.

592,871. VELOCIPEDE. ERNST G. LATTA, Friendship, N. Y. Filed Apr. 9, 1896. Serial No. 586,765. (No model.)

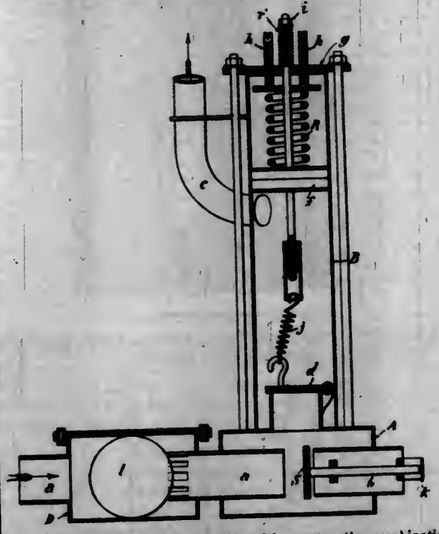


Claim.—1. A crank-shaft bracket comprising an outer tube or cylinder having openings for the passage of the frame members and an inner contiguous tube or cylinder forming with the outer tube a double-walled bracket, and provided opposite the openings of the outer tube with depressed seats or sockets which receive the ends of the frame members, substantially as set forth.

2. A crank-shaft bracket comprising an outer tubular part, having an outwardly-projecting socket or thimble, and an inner tubular part having a depressed or inwardly-extending seat or socket registering with the socket or thimble of the outer part, said coinciding thimble and socket being adapted to receive a frame member, substantially as set forth.

3. The combination with a crank-shaft having an angular end and a screw-threaded portion adjacent thereto, of an internally-screw-threaded sprocket-wheel hub or collar engaging with said screw-threaded portion, a crank having its bore interlocked with the angular end of the shaft and constructed to surround the same and capable of removal from the shaft independently of the sprocket-wheel, and bolts connecting the crank with said sprocket-wheel hub or collar, substantially as set forth.

592,872. APPARATUS FOR RAISING WATER. PIERRE LORMANT, Paris, France. Filed Nov. 14, 1896. Serial No. 612,093. (No model.) Patented in France Oct. 8, 1896, No. 260,288.



Claim.—1. In an apparatus for raising water, the combination of a chamber or box A having an inlet and a waste-outlet, a valve for the latter, a cylinder rising from said box, a valve between the box and cylinder, a piston for said cylinder and connected to the last-mentioned valve, and a rising pipe communicating with the cylinder between the piston and valve, whereby the weight of water in the rising pipe aids in opening the valve admitting water to the cylinder, substantially as described.

2. In an apparatus for raising water, the combination of a chamber or box A having an inlet and a waste-outlet, a valve for the latter, a cylinder rising from said box, a valve between the box and cylinder, a piston for said cylinder and connected to the last-mentioned valve, a spring adapted to resist movement of the piston away from the valve, and a rising pipe communicating with the cylinder between the piston and valve, whereby the weight of water in the rising pipe aids in opening the valve admitting water to the cylinder, substantially as described.

3. In an apparatus for raising water, the combination of a chamber or box A having an inlet and a waste-outlet, a valve for the latter, a cylinder rising from said box, a valve between the box and cylinder, a piston for said cylinder and connected through a spring to the last-mentioned valve, and a rising pipe communicating with the cylinder between the piston and valve at a point nearer the piston than to the valve, substantially as described.

4. The combination of box A, having an inlet and a waste-outlet, a valve for the latter, a cylinder rising from said box, a valve between the box and cylinder, a piston for said cylinder, and connecting through a spring to the last-mentioned valve, means for adjusting said spring, a rising pipe communicating with the cylinder between the piston and valve, and an adjustable spring above the piston, substantially as described.

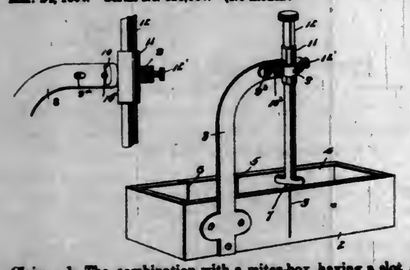
592,873. COMBINED SASH HOLDER AND FASTENER. ROBERT B. MASTERS, Sacramento, Cal. Filed Feb. 25, 1897. Serial No. 625,009. (No model.)

Claim.—As a new article of manufacture, a sash-holder comprising a spring-loop with arms of unequal length all struck up of a single piece of sheet spring metal, the short arm having side extensions at its end bent in opposite directions, and the long arm having a lateral projection near its end, the loop and short arm being adapted to be supported in a deep recess in the window-sash and the long arm to be seated in a shallow recess leading from the deep recess, and to either frictionally engage the guide-strip or to positivaly engage a fixed stop thereon, substantially as described.

592,873.



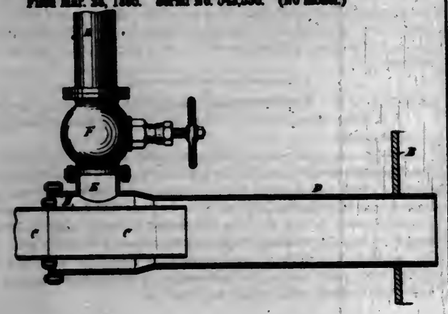
592,874. MITER-BOX. JAMES A. MAXSON, McCune, Kans. Filed Mar. 24, 1897. Serial No. 628,967. (No model.)



Claim.—1. The combination with a miter-box having a slot at one side thereof and a series of slots at the other side, a guide-bar being divided at its lower extremity to receive the saw, and a split collar provided with an opening to receive said guide-bar, of a clamp engaging said collar, and having openings, and screws adapted to pass through said openings, and openings in a bracket secured to the side of the miter-box, substantially as described.

2. A miter-box, having a vertical slot at one side thereof, the edges of which are beveled, and a slot arranged upon the opposite side in a direct line therewith, and slots arranged at each side thereof, and a bracket arranged upon one side of the miter-box the upper end of which is provided with a curved and elongated opening, the former having an offset, combined with a bar divided at its lower extremity, the latter being provided with shoes, a split collar to guide said bar, a clamp surrounding said collar and provided with openings, screws adapted to fit said openings and pass through the openings in the bracket, tightening-nuts arranged upon said screws, and a screw engaging a threaded opening in the clamp, substantially as described.

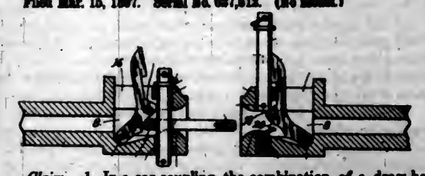
592,875. DIGESTER. ROBERT MEHARG, Palmer Falls, N. Y. Filed Mar. 26, 1895. Serial No. 543,536. (No model.)



Claim.—1. In combination with the blow-off pipe of a pulp-digester, a water-inlet communicating with the blow-off pipe at a point intermediate of its connection with the digester and its discharge end, whereby a supply of water is furnished to be mingled with the contents of the digester in their passage through the blow-off pipe, substantially as and for the purpose set forth.

2. In combination with a pulp-digester a blow-off pipe, consisting of two sections arranged concentrically with an annular space between them, and a water-inlet connected to the outer section of the blow-off pipe at a point intermediate of the free end of the inner section thereof and its connection with the digester, substantially as and for the purpose set forth.

592,876. CAR-COUPLING. HARRY I. MILLER, Warren, Wis. Filed Mar. 15, 1897. Serial No. 627,612. (No model.)



Claim.—1. In a car-coupling, the combination, of a draw-head provided with a longitudinal opening or mouth, and having an opening intersecting said longitudinal opening or mouth vertically, a coupling-pin fitting in said vertical opening, a pivoted dog adapted to swing forwardly as the coupling-pin is lifted and to engage the pin and hold said pin in elevated position, a coupling-link insertible in the draw-head, and through which the coupling-pin is adapted to extend, when said pin is in its lowered position, a pivoted dog adapted to bear against the link, and a transverse rock-bar provided with a projecting arm adapted to bear against the upper end of the dog, and the outer extremity of said arm being connected with the coupling-pin, for the purpose of operating said pin as the rock-bar is turned.

2. In a car-coupling, the combination, of a coupler-head provided with a longitudinal opening or mouth and having an opening intersecting said longitudinal opening or mouth vertically, a coupling-pin fitting in said vertical opening, a pivoted dog adapted to swing forwardly as the coupling-pin is lifted and to engage the pin and hold said pin in elevated position, a coupling-link insertible in the draw-head, and through which the coupling-pin is adapted to extend, when said pin is in its lowered position, a pivoted dog adapted to bear against the link, and a transverse rock-bar provided with a projecting arm adapted to bear against the upper end of the dog.

592,877. MIRROR CONSTRUCTION. HERMAN R. MILLER, Newark, N. J., assignor to The Celluloid Company, New York, N. Y., a Corporation of New Jersey. Filed June 16, 1897. Serial No. 641,207. (No model.)



Claim.—1. In an article of the class described, the combination with a suitable backing, of a rim projecting down in front of the backing, a plate held within the rim, and a resilient abutment interposed between said plate and the exposed edge of the rim, said abutment bearing on the exposed surface of the plate, substantially as described.

2. In an article of the class described, the combination with the backing, a circumferential rim thereon projecting downwardly in front of the backing, a plate held within the backing and the rim, and an abutment formed by turning in the exposed edge of the rim, said turned-in portion bearing against the plate and lying between said edge and plate, substantially as described.

3. In an article of the class described, the combination with the backing, a circumferential rim thereon extending downwardly in front of the backing, a plate held within the backing and the rim, and a resilient abutment bearing on the edge of the plate, said abutment being coextensive with said plate, and formed by turning the outer or exposed edge of the rim in between said exposed edge and the backing, substantially as described.

4. As a new article of manufacture, a frame or the like comprising a backing, an annular rim formed on the periphery thereof, and an extension from said rim turned inwardly between the periphery of the rim and the backing, all the parts being integral, substantially as described.

5. The combination in an article of the class described, of the backing, the rim formed thereon, the plate within the rim, and the longitudinally-disposed elastic disk interposed between the plate and backing at the rear of said plate, said disk having a circumferential bearing against the rear of the plate pressing the plate outwardly against the rim, substantially as described.

6. The combination in article of the class described, of the flexible backing, the rim formed integrally on the periphery of the backing and coextensive therewith, an extension of said rim formed on the edge thereof and extending inwardly between the backing and said rim, a plate abutting against said extension, and an elastic disk interposed between said plate and backing, substantially as described.

7. The combination in an article of the class described, of the backing, the annular rim formed on the periphery thereof, a plate within said rim, and a convex and springy disk interposed between the plate and backing, said disk having a peripheral bearing against the plate on one side, its convex portion distending the backing, substantially as described.

8. The combination in a backing, of the interposed metallic disk, the hinge-plate having a hinging-eye extending outwardly from between its ends, the backing, disk, and plate, being secured together by rivets passing through the pivot-plate between its ends and said eye and entirely through said disk and backing, and legs extending from said hinging-eye, substantially as described.

9. The combination with the flexible backing, the rim thereon, the plate in said rim, the dish-shaped and springy disk interposed between the rear of said plate and said backing, the dished portion of said disk abutting against the backing and having a peripheral bearing against said plate, and means for firmly securing the disk in said position, substantially as described.

10. The combination in a frame, of the backing, the annular rim formed thereon, an abutment comprising the inwardly-extending convex extension of the rim, and a plate within the rim abutting against the convex surface of said extension, substantially as described.

11. A frame composed of thin resilient material, said frame comprising a backing continuous within its periphery, and an annular and reëntrant and resilient rim integral with the backing, combined with a plate held in said rim against said reëntrant portion, substantially as described.

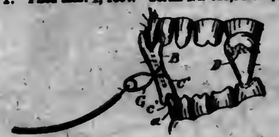
12. A frame having a backing of resilient material, and an annular rim integral with the backing, the free edge of which rim is circular and reëntrant and constitutes a continuation of the backing, and a plate held in said rim and bearing against the circular portion thereof, substantially as described.

13. The combination in a frame, of a backing, the annular rim formed thereon, an abutment comprising the inwardly-extending curved extension of the rim, a plate within the rim abutting against the curved face of said extension, and a resilient lining interposed between the plate and backing, substantially as described.

14. The combination in a frame, of a backing composed of thin flexible material, an integral annular rim formed on the periphery of the backing, an integral and resilient abutment consisting of the inwardly-extending curved extension of the rim, a plate within the rim bearing against the abutment, and a convex disk interposed between the plate and backing its edge alining with said abutment, substantially as described.

15. As a new article of manufacture, a frame for a mirror or the like, said frame being composed of a thin and flexible sheet of celluloid, or like material, and comprising a backing substantially continuous within its periphery, an integral rim overlapping the periphery of the backing to form an annular recess, and an integral and reëntrant extension of the rim lying between said rim and backing, substantially as and for the purposes described.

592,878. DENTAL ELECTRODE. FRANCIS L. MORRARD, New York, N. Y. Filed Mar. 1, 1897. Serial No. 625,542. (No model.)



Claim.—1. In a dental electrode, the combination, with a conductor having a pocket to hold the anesthetic, of a non-conducting shank adapted for contact with the opposite jaw or tooth.

2. In a dental electrode, the combination, with a conductor having a pocket to hold the anesthetic in contact with a tooth upon one jaw, of a non-conducting shank formed at the end opposite the conductor to engage one of the opposite teeth.

3. In a dental electrode, the combination, with a conducting-pocket to hold the anesthetic in contact with a tooth upon one jaw, of a non-conducting shank adapted to contact with the opposite tooth or jaw, and a conducting-core extended from the pocket within the shank, and means for connecting an electric conductor detachably to such core.

4. In a dental electrode, the combination, with a non-conducting shank having cleft at one end and angular jaws at the opposite end, of a metallic lining fitted to such jaws and means for connecting an electric conductor detachably to such lining.

5. In a dental electrode, the combination, with a non-conducting shank having jaws with a metallic lining forming a conducting-pocket as set forth, of a metallic core extended from such lining within the shank, and a perforation in the side of the shank to admit a detachable conductor to such core.

6. In a dental electrode, the combination, with a non-conducting shank having jaws with a metallic lining forming a conducting-pocket as set forth, of a metallic core extended from such lining within the shank, coincident perforations in the core and in the shank, and a spring-contact adapted to fit within such perforation to connect an electric conductor detachably with the core, substantially as herein set forth.

7. In a dental electrode, the combination, with a non-conducting shank having jaws with a metallic lining forming a conducting-pocket as set forth, of a metallic core extended from such lining within the shank, coincident perforations in the core and in the shank with chamber in the shank adjacent to the perforation in the core, and spring-arms having teeth at the ends adapted, when placed within the perforation, to expand into the chamber to retain the arms therein, substantially as herein set forth.

8. An electrode for adaptation for cataphoresis in dentistry, comprising a metallic pocket to retain the anesthetic, with a metallic core extended from the bottom of the same, and a body of insulating material inclosing the entire core, outer walls, and edges of such metallic pocket and forming a shank for contact with the tooth or jaw, the conducting parts being thus wholly surrounded and guarded by the insulating material, as and for the purpose set forth.

592,879. STOPPER FOR BOTTLES. CHARLES NEUHAUS, Baltimore, Md. Filed Mar. 6, 1897. Serial No. 626,848. (No model.)



Claim.—1. In a stopper, the combination with a hollow stopper proper, of a core portion adapted to be applied into the same and comprising a locking-disk having a sharp periphery, a shank connected to the center of said disk, an annular shoulder connected to the upper end of said shank and adapted to lie in the upper edge of said stopper, and a handle mounted on said shank, substantially as described.

2. In a stopper, the combination with a suitable hollow stopper proper, a core portion adapted to be applied in the same and comprising a disk having a sharp periphery and bevel sides, a shank connected to the center of said disk, an annular shoulder mounted on the upper end of said shank and adapted to lie within the upper edge of the hollow stopper, and a handle mounted on said shank, substantially as described.

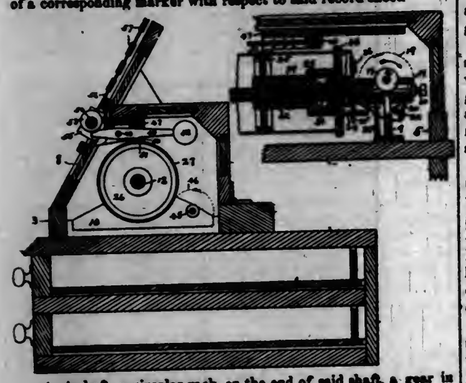
3. In a stopper, the combination with a hollow stopper proper, of a core adapted to be applied in the same and comprising a disk having a sharp periphery, a shank rising from the center of said disk, a circular cap applied on the upper end of said shank and adapted to rest upon the top of the stopper proper, an annular shoulder formed on the under side of said cap and adapted to lie within the upper edge of the stopper, and a handle mounted on the upper end of said cap, substantially as described.

592,880. WORKMAN'S TIME-RECORDER. ABRAHAM NEWMAN, Chicago, Ill. Filed Mar. 16, 1895. Serial No. 542,243. (No model.)

Claim.—1. In combination with a record-carrying cylinder, devices for rotating it and devices for giving it an intermittent axial movement, of a shaft above said cylinder, a series of markers mounted on said shaft, an independent weight on each marker for keeping it in contact with said cylinder, a second shaft located near the first-mentioned shaft, a series of cams mounted loosely on said second shaft, a numbered key connected to each cam, and means whereby the raising and lowering of a key will move its cam to control the position of the corresponding marker with respect to the said cylinder.

2. In combination with a shaft and a record-carrying cylinder loosely mounted thereon, of a sleeve feathered to said shaft and axially movable thereon, means for connecting said sleeve to said cylinder to turn the latter, a spring for holding said sleeve and cylinder in contact and a flange on said sleeve for permitting said cylinder to be disconnected from said sleeve.

3. In combination with a record-sheet and devices for moving it, of a shaft located above said sheet, a series of markers mounted on said shaft, an independent weight on each marker for keeping it in contact with said sheet, a second shaft having a series of independent cams mounted loosely thereon and adjacent to said markers, a numbered key connected to each cam, and means whereby the raising and lowering of a key will move its cam to control the position of a corresponding marker with respect to said record-sheet.



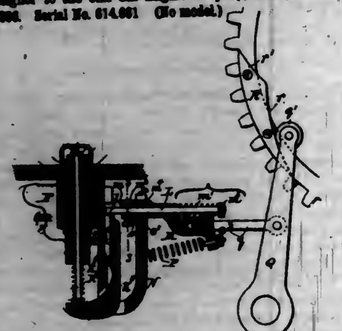
4. A shaft, a circular rack on the end of said shaft, a gear in mesh with said rack, a spring arranged to move said shaft axially so as to rotate said gear, a ratchet-wheel connected to said gear, a pawl in engagement with said ratchet-wheel to prevent the revolution of said gear, means for rotating said shaft, and a device carried by said shaft for releasing said pawl so as to permit said spring to move said shaft axially.

5. A record-sheet-carrying device, a clock mechanism for moving it in a forward direction, a spring for moving it laterally, a gear and ratchet-wheel adapted to be rotated by such lateral movement, a plate carrying pawls adapted to engage said ratchet-wheel to hold it, and means for vibrating said plate so as to release said pawls alternately and permit said spring to rotate said ratchet-wheel.

6. A record-carrying device and means for moving it, a shaft, supporting a series of independent markers adapted to come into contact with said record-carrying device, guides for said markers, a case inclosing all of said parts and provided with an opening through which the ends of said markers extend, a second shaft adjacent to said opening, a series of independent cams mounted on said second shaft, a numbered key connected to each cam, and means whereby the movement of a key will control the action of a corresponding marker.

7. A ratchet-wheel under tension to revolve, a plate supporting two pawls, one of which is in engagement with said wheel to prevent revolution and the other of which is free therefrom, a projection on said plate, a revolving shaft, a lug carried by said shaft, and means whereby said lug shall engage said projection once during each revolution of said shaft to cause the release of one pawl and the engagement of the other to permit a limited rotation of said ratchet-wheel.

592,881. IGNITER FOR GAS-ENGINES. FRED C. OLIN, Buffalo, N. Y., assignor to the Otis Gas Engine Company, same place. Filed Dec. 7, 1896. Serial No. 614,661. (No model.)



Claim.—1. In an igniter, the combination with the stationary contact and the movable contact, of a lever whereby the movable contact is moved toward the stationary contact, a carrier having a back-and-forth and also a lateral movement, and a catch adapted to engage with said lever and yieldingly connected with said carrier, substantially as set forth.

2. In an igniter, the combination with the support carrying a stationary contact, and the sliding rod guided in said support and provided with a movable contact, of a lever having one of its arms engaging with said sliding rod, and a carrier having a back-and-forth and a lateral movement and provided with a catch adapted to engage with the other arm of the lever, substantially as set forth.

3. In an igniter, the combination with the support carrying a stationary contact, and a sliding rod guided on said support and provided with a movable contact, of a lever having one of its arms engaging with said sliding rod, a carrier having a back-and-forth and a lateral movement, and a catch yieldingly connected with said carrier and adapted to engage with the other arm of said lever, substantially as set forth.

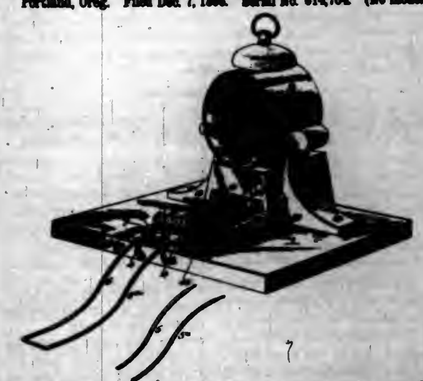
4. In an igniter, the combination with the support carrying a stationary contact, and a sliding rod guided on said support and provided with a movable contact, of a lever having one of its arms engaging with said sliding rod, a carrier having a back-and-forth and a lateral movement, a movable catch-rod guided in said carrier and provided with a hook adapted to engage with the other arm of said lever, a spring whereby the catch-rod is normally moved forwardly on the carrier, and a stop whereby the forward movement of the catch-rod on the carrier is limited, substantially as set forth.

5. In an igniter, the combination with the support carrying a stationary contact, and a sliding rod guided on said support and provided with a movable contact, of a lever having one of its arms engaging with said sliding rod, a carrier having a back-and-forth and a lateral movement, a movable catch-rod guided in said carrier and provided with a hook adapted to engage with the other arm of said lever, a spring whereby the catch-rod is normally moved forward on the carrier, a flat-sided stop-collar arranged on the catch-rod and adapted to engage with the carrier to limit its forward movement on the carrier, and a lip or projection arranged on the carrier and engaging with the flat side of the stop-collar, substantially as set forth.

6. In an igniter, the combination with a support provided with a stationary contact, and a sliding rod guided on said support and provided with a movable contact, of a lever having one of its arms engaging with said sliding rod, a carrier having a reciprocating movement and provided with a catch engaging with the other arm of said lever, and an incline formed on said carrier and engaging with an incline on said support, substantially as set forth.

7. In an igniter, the combination with a support carrying a stationary contact and a sliding rod guided on said support and provided with a movable contact, of an elbow-lever having one of its arms engaging with said sliding rod, a carrier having a reciprocating movement and provided with a catch engaging with the other arm of the elbow-lever, a rock-lever connected with said carrier, a cam and spring whereby said rock-lever and connecting parts are moved forwardly and backwardly, and cooperating inclines formed on the carrier and the support and adapted to move the carrier and connecting parts laterally, substantially as set forth.

592,882. AUTOMATIC FIRE-LIGHTER. WILLIAM S. OVERLIN, Portland, Oreg. Filed Dec. 7, 1896. Serial No. 614,704. (No model.)



Claim.—1. An automatic fire-lighter, comprising a base, a guide or trackway adapted to be projected under the fuel, an igniting-carriage held to slide on such trackway, a sliding match-holder, means for igniting the matches as the holder is moved out, and mechanism for successively moving, first the match-holder into contact with the igniting-carriage and subsequently moving the igniting-carriage out on its trackway as specified.

2. An automatic fire-lighter, comprising a base for holding the operating mechanism, said base having a trackway provided with a downwardly-curved extension, an igniting-carriage held to slide on such trackway, a fixed friction-surface, a sliding match-holder having matches adapted to engage such friction-surface, and means for first moving the match-holder into position to light the igniting-carriage and then to force such carriage forward as specified.

3. An automatic fire-lighter, comprising a base having a trackway with a forwardly-extending member, an igniting-carriage held to slide thereon, a spring-actuated plunger held to slide on such trackway and adapted to engage the igniting-carriage, detent devices for holding the plunger under spring-tension, fixed friction-surfaces, a spring-actuated sliding match-carrier, detent devices for holding it to its set position, a clock mechanism and devices governed by the clock mechanism for successively operating the match-carrier and the plunger substantially in the manner shown and for the purposes described.

4. An automatic fire-lighter, comprising a base, an alarm-clock mechanism held thereon, a trackway having a forward extension, an igniting-carriage slidable thereon, a stop for limiting the inward movement of such carriage, a second trackway, having a stop adjacent the igniting-carriage stop, a match-holding carriage having matches and movable on the second trackway, a plunger movable on the igniting-carriage trackway, spring devices for forcing the said plunger and match-holder forward, detents for holding the plunger and match-holder under spring-tension, fixed friction-surfaces which engage with the match ends and trip devices connected with and released by the movement of the clock mechanism as specified.

5. In an automatic fire-lighter, the combination with the match-lighting mechanism and means for moving the lighted match carried by such mechanism into position, of a trackway having a detachable extension, and an igniter-carriage held to slide thereon, substantially as shown.

6. In a clock-operated fire-lighting mechanism, the combination with the base, the trackways 7 and 3 held thereon, the igniter-carriage 20 movable on the trackways 3, and the fixed strike-surfaces, 19, of the match-holder 8 held to slide on the trackways 7, and having spring-clamps 10 to receive the matches, the plunger 24, the springs 15 and 29, the detents 16 and 30 for holding the match-holder and plunger to their set position, the cylinder, 33, having projections 38 and 39 said cylinder being spring-rotated in one direction, flexible connections joining the said clock mechanism, all being arranged as shown and described.

592,888. KNITTING-MACHINE. HARRY PARKER, Jr., EDWARD SCANLIN, HENRY H. SERVINGTON, and WILLIAM I. WHITEHEAD, Philadelphia, Pa. Filed Feb. 16, 1897. Serial No. 623,756. (No model.)



Claim.—1. In a knitting-machine, the combination of a needle-cylinder, needles and a cam-cylinder, of a vertical slide having a cam-shaped projection extending into the cam-cylinder and adapted to raise needles out of action, a spring tending to hold the slide in depressed position, a transfer-cam c^9 and a lever c^{10} adapted to lift a needle with which it comes into contact onto the transfer-cam, substantially as and for the purposes set forth.

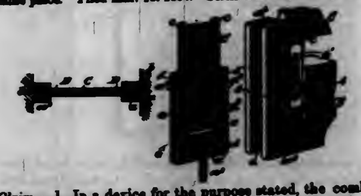
2. In a knitting-machine, the combination of a needle-cylinder, needles, and a cam-cylinder, of a vertical slide having a cam-shaped projection extending into the cam-cylinder when raised to render needles out of action, a trip pivoted to the outside of the cam-cylinder to hold the said slide in operative position, a spring tending to depress the said slide and cam-shaped projection, a transfer-cam c^9, and a lever c^{10} adapted to lift a needle with which it comes into contact onto the transfer-cam, substantially as and for the purposes set forth.

3. In a knitting-machine, the combination of a needle-cylinder, needles, and a cam-cylinder having stitch-forming cams a, a', a^3 and side cams a^4, of levers i, i', sleeves i^3, stems i^4, said levers having their free ends extending into the cam-cylinder, springs acting on said sleeves and adapted to hold the free ends of the levers inside the cam-cylinder, and springs tending to force the free ends of the levers upward, substantially as and for the purposes set forth.

4. In a knitting-machine, the combination of a needle-cylinder, needles, and a cam-cylinder having stitch-forming cams a, a', a^3 and side cams a^4, of levers i, i', sleeves i^3, stems i^4, said levers having their free ends extending into the cam-cylinder, springs acting on said sleeves adapted to hold the free ends of the levers inside the cam-cylinder, springs tending to force the free ends of the levers upward and a plate slidingly mounted on the outside of the cam-cylinder and adapted to hold the free ends of the levers i, i' depressed, substantially as and for the purposes set forth.

5. In a knitting-machine, the combination of a needle-cylinder, needles, and a cam-cylinder having stitch-forming cams a, a', a^3 and side cams a^4, of levers i, i', sleeves i^3, adjustable stems i^4, said levers having their free ends extending into the cam-cylinder, springs acting on said sleeves adapted to hold the free ends of the levers inside the cam-cylinder, springs tending to force the free ends of the said levers upward, of levers c, c' hinged on brackets attached to the outside of the cam-cylinder, said levers c, c' having their free ends extending into the cam cylinder, a spring on each of said levers adapted to hold the same in depressed position and means for holding the levers i and i' out of operation and levers c and c' in operation, said means comprising an adjustable plate p held in guides attached to the outside of the cam-cylinder, substantially as and for the purposes set forth.

592,884. LACE HOLDER AND UNWINDER. CHARLES W. PULLOCK and WILLIAM KURTH, Casselton, N. D., assignors to Paul Henning, same place. Filed Mar. 18, 1897. Serial No. 628,172. (No model.)



Claim.—1. In a device for the purpose stated, the combination with the partitions B having guides or tongues, and the counter having apertures in its tops, of a body member A having a forwardly-projecting handle adapted to fit the apertures in the counter, and grooves in its edges adapted to fit the partition-tongues b, and the paddle or blade held to revolve on the body member A, substantially as shown and described, whereby when the said blade is turned in a plane with the body, the blade device can be slid within the partitions B or supported with its handle engaging one of the apertures of the counter, substantially as shown and described.

2. The combination with the body portion A having a forwardly-projecting handle and rearwardly-extending bifurcated arms, and a blade held to turn between such arms, having projecting portions at the ends, said body portion having oppositely-disposed recesses, of the sliding plates and means for holding them to their adjusted position as specified.

3. The combination with the body having cut-out portion, and handle, and the revolving blade arranged as shown, said body having recesses at one edge, of the plates G G', the single bolt J, the springs H H', and the thumb-nuts all being arranged substantially as shown and described.

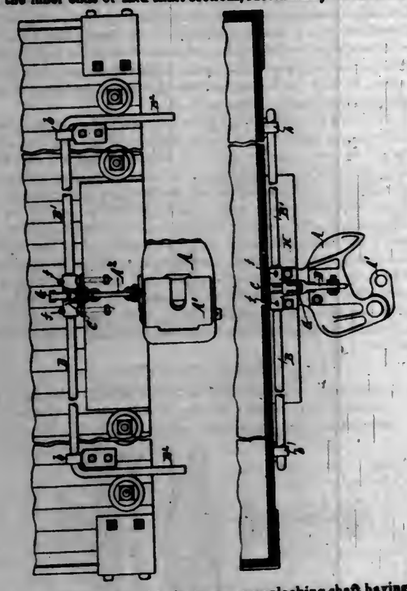
4. The combination with the partitions B having tongues b, and the counter having apertures in its top of the body member A having a forwardly-projecting handle adapted to fit the apertures in the counter, and having bifurcated arms, and grooves in its edges, adapted to fit the tongues b, the paddle or blade held to revolve between the bifurcated arms, and adjustable detents for holding the blade for revolving, all being arranged substantially as shown and described.

592,885. UNLOCKING DEVICE FOR CAR-COUPLINGS. WILLARD P. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Dec. 17, 1896. Serial No. 615,963. (No model.)

Claim.—1. The combination with the transverse unlocking-shaft having an actuating-arm at its outer end, of a standard adapted to be secured to the end of the car adjacent to the inner end of said shaft, and a separate lifting-arm adapted to be connected with the lock of a car-coupling and pivoted to said standard by a horizontal pin and having at its inner end a transverse socket which receives the inner end of said shaft, substantially as set forth.

2. The combination with the transverse unlocking-shaft composed of separate sections terminating at or near the sides of the car and each provided at its outer end with an actuating-arm, of a standard adapted to be secured centrally to the end of the car, and a separate lock-lifting arm having a bifurcated rear portion which straddles said

standard and is pivoted thereto by a horizontal pin, the jaws of said bifurcated portion being provided with transverse sockets which receive the inner ends of said shaft-sections, substantially as set forth.



3. The combination with the transverse unlocking-shaft having a forwardly-projecting lifting-arm adapted to be connected with the lock of a car-coupling and having also an actuating-arm which swings lengthwise of the car in turning the unlocking-shaft, of a frictional retaining device which resists the turning movement of said shaft and holds the same in any position within the range of its movement, substantially as set forth.

4. The combination with the unlocking-shaft having a lifting-arm adapted to be connected with the lock of a car-coupling, of a fixed segment, and a retaining shoe or catch carried by said lifting-arm and engaging against said segment, substantially as set forth.

5. The combination with the transverse unlocking-shaft having an actuating-arm, of a fixed upright segment, a bifurcated lifting-arm secured to said shaft and straddling said segment, and a yielding retaining-shoe arranged between the jaws of said bifurcated arm and bearing against said segment, substantially as set forth.

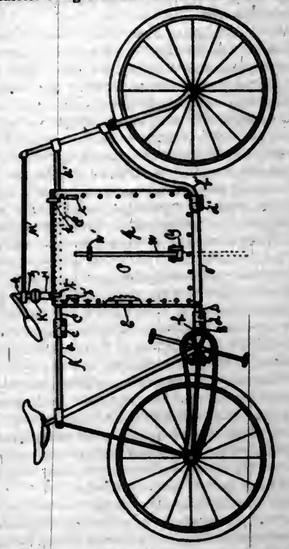
6. The combination with the transverse unlocking-shaft having an actuating-arm, of a fixed upright segment, a bifurcated lifting-arm secured to said shaft and having a longitudinal socket in rear of its bifurcated portion, a retaining-shoe arranged between the jaws of said bifurcated arm and bearing against said segment, and a spring arranged in the longitudinal socket of the lifting-arm and tending to force said shoe against said segment, substantially as set forth.

592,886. CONVERTIBLE PACKAGE-CARRYING BICYCLE. IRA B. SANDERS, Fort Worth, Tex. Filed Jan. 22, 1897. Serial No. 620,208. (No model.)

Claim.—1. A bicycle provided with means for carrying packages consisting of the upper and lower tubular bars, said bars having detachable joints and tubular carrier-bars to be inserted between the sections of said bars, a brace between said carrier-bars, and a rectangular box resting on said lower bar, the upper carrier-bar running through said box.

2. A bicycle adapted to carry packages having the upper and lower bars provided with detachable joints, tubular carrier-bars inserted between and clamped to said bars, a brace between said carrier-bars, a rectangular box resting on the lower carrier-bar, the upper carrier-bar passing through said box, said box having bars attached to the bottom thereof one on each side of said lower bar adapted to prevent lateral motion of said box on said lower bar.

3. A bicycle adapted to carry packages having the upper and lower tubular bars provided with detachable joints and tubular carrier-bars inserted between and clamped to the sections of said first-named bars, a detachable brace between said carrier-bars, a box resting on the lower carrier-bar, bars one on each side of the lower carrier-bar attached to said box, said box being constructed in two sections hinged together, and means for locking said sections together, the upper carrier being inclosed between said sections.



4. A package-carrier for bicycles consisting of a box constructed in two sections hinged together in the bottom, two bars attached to said bottom, one bar being attached to each section, means for supporting said box consisting of the upper and lower tubular carrier-bars, said box resting on the lower bar, the sections of said box coming together and inclosing said upper bar, and means for clamping said sections together, the upper and lower tubular frame-pieces of the bicycle being provided with detachable joints whereby said carrier-bars are inserted and clamped between the sections of said frame-pieces.

5. A bicycle provided with means for carrying packages between the front and rear wheels, said means consisting of upper and lower tubular bars, a brace between said bars, a carrier resting on said lower bar, bars attached to said carrier and adapted to hold said carrier on said lower bar, means for attaching said carrier to said upper bar, and means for supporting said bars consisting of the upper and lower frame-pieces of the bicycle, said frame-pieces being provided with detachable joints whereby said carrier-bars are inserted and clamped between the sections of said frame-pieces.

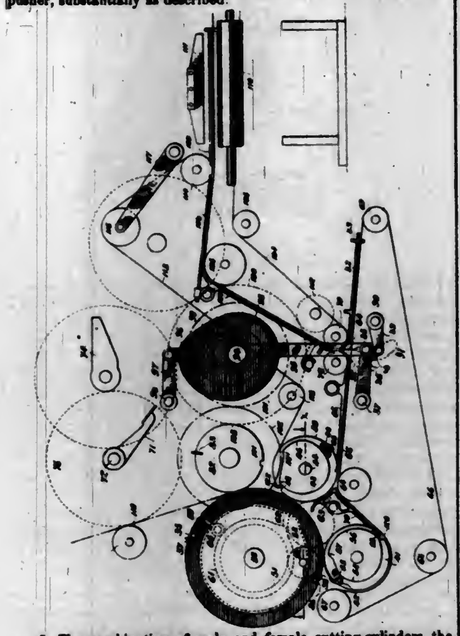
592,887. PRINTING AND FOLDING MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Nov. 23, 1891. Serial No. 412,714. (No model.)

Claim.—1. The combination of male and female cutting-cylinders, sheet-retainers on one of said cylinders, two take-off cylinders provided with grippers and coacting with that cutting-cylinder having the retainers to alternately take sheets therefrom, and pusher mechanism on said last-mentioned cutting-cylinder for accelerating the speed of the tails of the sheets, whereby the said grippers can act, substantially as described.

2. The combination of male and female cutting-cylinders, the female cylinder having sheet-retainers, two take-off cylinders contiguous said female cylinder and having grippers, one cylinder taking alternate sheets therefrom, the other taking the other alternate sheets therefrom, and a movable pusher for accelerating the speed of the rear ends of the sheets taken by the second take-off cylinder to open a space between them and the leading edges of the following sheets (or web) to permit the grippers of the first take-off cylinder to open, to take sheets, substantially as described.

3. The combination of male and female cutting-cylinders, the female cylinder having sheet-retainers, two take-off cylinders contiguous said female cylinder and having grippers, one cylinder taking alternate sheets therefrom, the other taking the other alternate sheets therefrom, a movable pusher for accelerating the speed of the rear ends of the sheets taken by the second take-off cylinder to open a space between them and the leading edges of the following sheets (or web) to permit the grippers of the first take-off cylinder to open to take sheets, and means collecting said sheets two by two, substantially as described.

4. The combination of male and female cutting-cylinders, the female cylinder having sheet-retainers, two take-off cylinders contiguous to said female cylinder and having grippers, one cylinder taking alternate sheets therefrom, the other taking the other alternate sheets therefrom, a movable pusher on the female cylinder for accelerating the speed of the rear ends of the sheets taken by the second take-off cylinder to open a space between them and the leading edges of the following sheets (or web) to permit the grippers of the first take-off cylinder to open to take sheets, and a cam for operating said pusher, substantially as described.



5. The combination of male and female cutting-cylinders, the female cylinder having sheet-retainers, two take-off cylinders contiguous said female cylinder and having grippers, one cylinder taking alternate sheets therefrom, the other taking the other alternate sheets therefrom, a movable pusher for accelerating the speed of the rear ends of the sheets taken by the second take-off cylinder to open a space between them and the leading edges of the following sheets (or web) to permit the grippers of the first take-off cylinder to open to take sheets, a cam for operating said pusher, and means collecting the said sheets two by two, substantially as described.

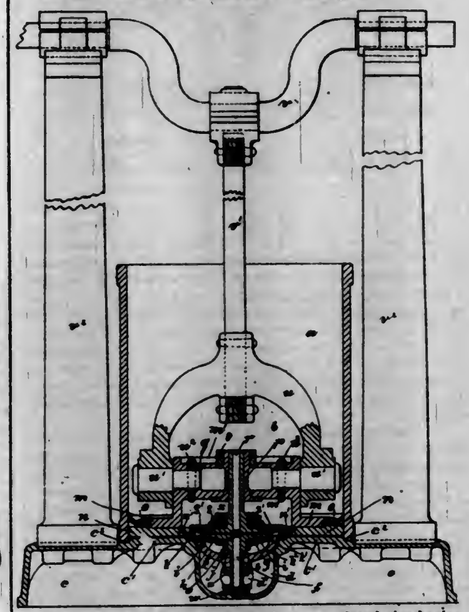
6. The combination of two folding-rollers, means for feeding sheets in a direction at right angles to the axes thereof, a creaser, a rocking shaft carrying said creaser, rocking arms pivoted at one side of said shaft and in which said shaft is journaled, a rocking arm pivoted at the other side, and pivotally connected to an arm of said shaft, and mechanism for moving said shaft and arms, whereby the creaser has a vibrating motion, and a compound motion as it carries sheets toward the same, substantially as and for the purposes described.

7. The combination of two folding-rollers, means for feeding sheets in a direction at right angles to the axes thereof, a creaser, a rocking shaft carrying said creaser, rocking arms pivoted at one side of said shaft and in which said shaft is journaled, a rocking arm pivoted at the other side, and pivotally connected to an arm of said shaft, a rod for moving said shaft and carrying-arms, and a cam for moving said rod, whereby the creaser has a vibrating motion, and a compound motion as it carries sheets toward the rollers, substantially as and for the purposes described.

8. The combination of two folding-rollers, means for feeding sheets in a direction at right angles to the axes thereof, a creaser, a rocking shaft carrying said creaser, rocking arms pivoted at one side of said shaft and in which said shaft is journaled, a rocking arm pivoted at the other side, and pivotally connected to an arm of said shaft, a rod for moving said shaft and carrying-arms, a pivoted arm to which said rod is connected at its other end, and a cam for moving said rod, whereby the creaser has a vibrating motion, and a compound motion as it carries sheets toward the rollers, substantially as and for the purposes described.

9. The combination of two rollers for guiding a web on one side thereof, a paste-fountain, and a paste-blade for applying paste to the other side of the web on a line parallel to and but slightly removed from the line of tangency of the web with one of the rollers, substantially as described.

592,888. VACUUM OR SUCTION PUMP. ALEXANDER SEIBEL, Glasgow, Scotland. Filed Feb. 3, 1896. Serial No. 577,861. (No model.) Patented in England Feb. 25, 1895, No. 3,979.



Claim.—1. In combination in an air-pump, a foundation having a depressed cavity or duct, with a bracket mounted on the foundation, the bucket having a cylindrical portion with a flange *m* extending laterally around its lower part, the ring *n* secured to the flange and holding interposed packing, the ring *n'* also held by the said ring *n* and the bucket and projecting inwardly therefrom, the valve guided within the bucket and resting on the inwardly-projecting ring *n'* and means for operating the bucket, substantially as described.

2. In combination, the foundation with its valve, the bucket of cylindrical form having a flange projecting laterally about its lower portion, the valve within the bucket and the ring fitting against the lower part of the bucket, and the removable packing and valve-seat ring, one projecting outwardly and the other projecting inwardly from the bucket, both of said parts being held by the said ring *n*, substantially as described.

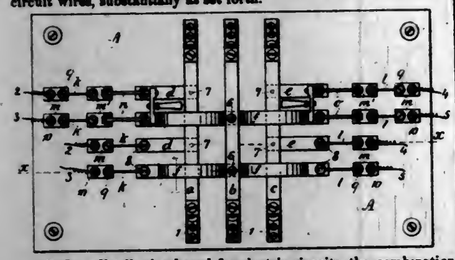
3. In combination, the barrel, the foundation with its valve, the bucket having the reduced cylindrical extension with the ring about the lower edge thereof projecting annularly about the cylindrical extension and having an inwardly-projecting valve-seat rim, said cylindrical extension also having a cross-bar and laterally and outwardly extending pivot-pins, the valve seated on the inwardly-projecting rim and having an upwardly-extending stem guided in the cross-bar and the driving-yoke engaging the pivot-pins on the outside of the reduced extension, substantially as described.

592,889. DISTRIBUTION-BOARD FOR ELECTRIC CURRENTS. HAROLD W. BROWNARD, New York, N. Y., assignor to J. Jones & Son, same place. Filed Nov. 17, 1896. Serial No. 612,402. (No model.)

Claim.—1. In a distribution-board for electric circuits, the combination with the parallel main-circuit bars, of branch-circuit bars composed of flexible comparatively thin strips of metal each passing beneath and connected at one point to one of the main-circuit bars and arched upward by bending to extend above and cross over the adjacent main-circuit bar, and connections therefor directly to the foundation of the board, and electric connections therefrom to the main and branch circuit wires, substantially as specified.

2. The combination with the insulating slab foundation, of the

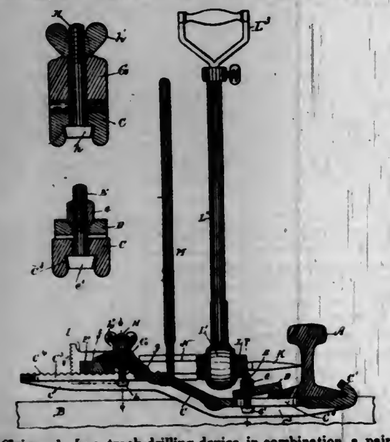
parallel main-circuit bars *a*, *b*, *c*, the branch-circuit bars *d*, *e*, upon the slab foundation and the screws 7 for securing the same and the main-circuit bars *a* and *c* together and to the foundation, the branch-circuit bars *f*, upon the slab foundation, the screws 6 for securing the same and the main-circuit bar *b* together and to the foundation, said bars *f* being arched at each side of the bar *b* to extend above and cross over the bars *a* and *c*, the screws 8 passing through the foundation and securing the free ends of the bars *d*, *e*, and *f* to the foundation, and means for making electric contact with the main and branch circuit wires, substantially as set forth.



3. In a distribution-board for electric circuits, the combination with the parallel main-circuit bars, of branch-circuit bars composed of flexible comparatively thin strips of metal each passing beneath and connected at one point to one of the main-circuit bars and arched upward by beading to extend above and cross over the adjacent main-circuit bar, and connections therefor directly to the foundation of the board, and arched circuit-bars a^3 b^3 from the main-circuit bars for changing the direction of the main current, and electric connections therefrom to the main and branch circuit wires, substantially as specified.

4. The combination with the insulating slab foundation, of the parallel main-circuit bars *a*, *b*, *c*, the branch-circuit bars *d*, *e*, upon the slab foundation and the screws 7 for securing the same and the main-circuit bars *a* and *c* together and to the foundation, the branch-circuit bars *f*, upon the slab foundation, the screws 6 for securing the same and the main-circuit bar *b* together and to the foundation, said bars *f* being arched at each side of the bar *b* to extend above and cross over the bars *a* and *c*, the screws 8 passing through the foundation and securing the free ends of the bars *d*, *e*, and *f*, to the foundation, the terminal plates *m*, screws 9 for securing the same to the slab foundation and the fuses *k*, *l*, substantially as set forth.

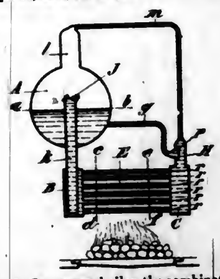
592,890. TRACK-DRILLING DEVICE. BENJAMIN F. SMITH, Somerville, Mass. Filed June 7, 1897. Serial No. 639,673. (No model.)



Claim.—1. In a track-drilling device in combination, a pair of hooked bars adapted to be secured to the rail and having slots C^2, adjustable clamps D, clamping-bolts E each of which being provided with a nut *e* and having a beveled head *d'* adjustable in a dovetailed groove C^3, on the under side of the respective bars C, C, substantially as and for the purpose set forth.

2. In a track-drilling device in combination, a pair of hooked bars adapted to be secured to the rail, an adjustable rest-bar grooved on its under side and adapted to intermesh with a correspondingly-corrugated surface on the hooked bars, an adjustable clamping device corrugated on its under side adapted to interlock with the corrugated portion of the hooked bar and a clamping-bolt and nut, said bolt having a beveled head fitting in a correspondingly-shaped groove on the under side of the hooked bar substantially as and for the purpose set forth.

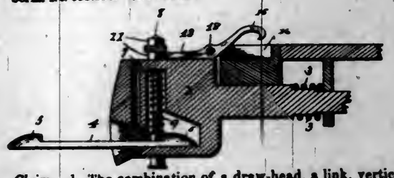
592,891. STEAM-BOILER. LOUIS E. SOLIGNAC, Paris, France. Filed Dec. 21, 1896. Serial No. 616,432. (No model.) Patented in France Apr. 16, 1896, No. 255,009.



Claim.—1. In a steam-boiler, the combination of a series of steam-generating tubes, each provided at its front end with a constructed opening for the purpose of retarding the flow of water in the reverse direction to that of the normal circulation and also to assist in directing the flow through the circulation-pipes, a receiver for the fluid which has traversed the generating-tubes, and a pipe independent of the circulating-pipes and of smaller diameter than the generating-tubes leading from the feed of the generating-pipes to the steam-chamber and connecting with a dome on the reservoir, all as hereinbefore described and for the purpose specified.

2. In a steam-boiler, the combination of a series of steam-generating tubes, circulating-pipes connected with said generating-tubes and with a reservoir, a balance-valve in the path of said circulating-pipes, said valve being adapted to close when fluid passes in one direction through said circulating-pipes and to open when the fluid passes in an opposite direction, and a relief-pipe in communication with the chamber of the valve and with the reservoir, substantially as described and for the purposes specified.

592,892. CAR-COUPLING. WILLIAM STENGER, Germano, Ohio, assignor of one-half to W. E. Roberts, same place. Filed May 4, 1897. Serial No. 635,054. (No model.)

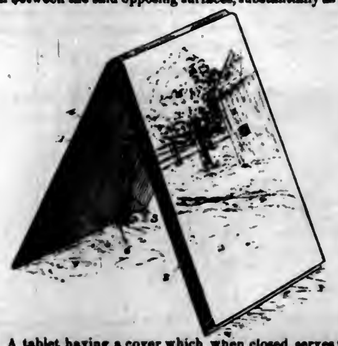


Claim.—1. The combination of a draw-head, a link, vertically-movable rods extending through the top and bottom of the draw-head and provided with shoulders located at the bottom of the draw-head, the transverse bar mounted in the draw-head on the rods and engaging the link, said transverse bar being capable of vertical movement independent of the rods and adapted to be engaged by the shoulders thereof, springs disposed on the rods and interposed between the top of the draw-head and the transverse bar, and means for lifting the rods, substantially as and for the purpose described.

2. The combination with a car having a projecting end sill provided in its upper face with a slot or opening 16 disposed longitudinally of the car, a draw-head mounted thereon, vertical guide-rods passing through the draw-head, a transverse bar arranged on the guides and adapted to engage a link, a cross-piece connecting the upper ends of the rods, a rock-shaft journaled on the end sill of a car and provided with an outwardly-extending arm loosely engaging the lower face of the cross-piece, and the inwardly-extending arm rigid with the rock-shaft, arranged over the slot or opening 16, and adapted to be depressed into the same by the foot, substantially as described.

592,893. STENOGRAPHER'S NOTE-BOOK. BENJAMIN F. STUART, Waco, Tex. Filed June 25, 1897. Serial No. 642,290. (No model.)

Claim.—1. A tablet having a cover which, when closed, serves to protect the face of the tablet, and when opened back serves as an easel-support, a flexible connection between the back of the tablet and said cover, and a guide on the cover through which said connection extends, the guide having opposing surfaces to bear frictionally upon opposite sides of the connection to resist movement of the same therethrough, one side of the guide being movable to vary the interval between the said opposing surfaces, substantially as specified.

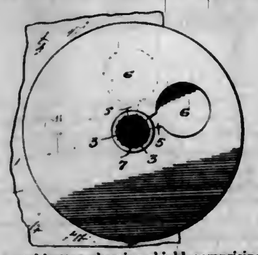


2. A tablet having a cover which, when closed, serves to protect the face of the tablet, and when opened back serves as an easel-support a flexible connection between the back of the tablet and said cover, and a guide on the cover through which said connection extends, the guide including a clip having a transverse portion arranged contiguous to a fixed surface, and movable toward and from the plane of said surface to vary the pressure of said transverse portion and the fixed surface against opposite sides of the connection, substantially as specified.

3. A tablet having a cover which, when closed, serves to protect the face of the tablet, and when opened back serves as an easel-support, a flexible connection between the back of the tablet and said cover, and a guide on the cover through which said connection extends, the guide including a keeper or clip terminally engaging the material of the cover and clenched or bent laterally to bear against the inner surface thereof, substantially as specified.

4. A tablet having hingedly-connected front and rear covers adapted when folded to protect the faces of the interposed leaves, and when opened serve as easel-supports, guides including keepers or clips engaged respectively with the front and rear covers at intermediate points, and having their extremities turned down upon the inner surfaces thereof, and adapted to be bent to a greater or less extent to vary the pressure of the exterior portions thereof toward the planes of the covers, and a terminally-enlarged flexible connection extending through said guides, and held thereby in frictional contact with the contiguous surfaces of the covers, substantially as specified.

592,894. METAL-BUTTON-CLEANING SHIELD. WILLIAM A. VALENTINE, New York, N. Y. Filed Jan. 29, 1897. Serial No. 621,900. (No model.)



Claim.—A metal-button-cleaning shield, comprising two disks of substantially equal diameter, each formed with a central opening having a flaring lateral passage terminating in an enlarged slot, and a metal eyelet passed through the said central openings in the disks and pivotally connecting the said disks together and provided with a flaring lateral opening in communication with the flaring lateral passage in one disk and adapted to be brought into communication with the similar passage in the other disk, the said eyelet serving both to pivot the disks and receive the shank of the button to be cleaned, substantially as described.

592,895. GUNPOWDER. CARL W. VOLNEY, New York, N. Y. Filed Mar. 3, 1897. Serial No. 626,880. (No specimens.)

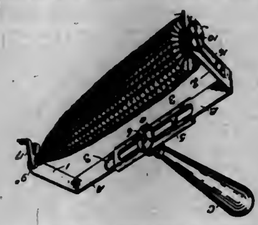
Claim.—A gunpowder, consisting of nitrocellulose and basic rosanilin and trinitrobenzene, as herein described.

592,896. NUT-LOCK. MONROE WHITE, Vancouver, Canada, assignor of one-half to Robert B. Ellis and Guy Macgowan, same place. Filed Feb. 13, 1897. Serial No. 623,275. (No model.)



Claim.—A nut-lock, comprising a plate consisting of a flat central portion, the ends of which are curved inwardly as at *a*, and deflected from the flat portion of the plate, said curved ends having a resiliency greater than that of the flat portion of the plate; whereby when the end is screwed home against the flat part of the lock-plate the biting edges of the curved resilient ends will securely engage the body against which it is held, whereby exterior swells are produced by a bulging out of such resilient ends, which extend out over the inner edge of the nut, substantially as shown and described.

592,897. FORK FOR HOLDING EARS OF CORN. WILLIAM H. WHITE, Harrold, S. D. Filed June 29, 1896. Serial No. 597,429. (No model.)

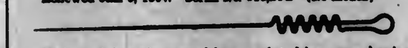


Claim.—1. A corn-fork, comprising in combination a handle, sections adjustably connected thereto, a centering-pin connected to one of the sections and adapted to enter an ear of corn, rotatable clutch mechanism adapted for engagement with the corn and connected to the other section, and catch mechanism for holding the clutch locked, substantially as described.

2. A corn-fork, comprising in combination, sections having arms, a centering-pin connected to one of said arms, a spindle journaled in the other arm and provided with a clutch, a thumb-nut carried by said spindle which is provided with a series of holes, and a spring having a free end adapted for reception in said hole whereby the clutch can be locked.

3. A corn-fork, comprising in combination, sections having arms, both of said sections being provided with elongated slots, one of said sections being slidable in lips projecting from the other section, a handle having a screw-threaded stem which passes through the slots in the sections, a clamping-nut on said stem, and clutch mechanism carried by the arms which is adapted for engagement with an ear of corn.

592,898. HAT-PIN. THOMAS G. WILLIS, Paterson, N. J., assignor of one-fourth to William McIlwaine, same place. Filed May 14, 1896. Renewed Jan. 6, 1897. Serial No. 618,214. (No model.)



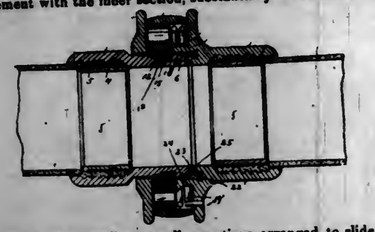
Claim.—A hat-pin comprising a pointed long arm having a coil in its body portion, and a pointed short arm projecting in the same direction as the long arm and extending within said coil, substantially as described.

592,899. HOSE-COUPLING. GOTTFRIED H. WILSON, New York, N. Y. Filed Jan. 27, 1897. Serial No. 620,952. (No model.)

Claim.—1. In a hose-coupling, two coupling-sections adapted to telescope one within the other, one of said sections being provided with one or more pivoted clutches and the other section with notches to receive said clutches, and a spring surrounding one of said sections and connected with said clutches so as to maintain the same in engagement with the opposing section, substantially as described.

2. In a hose-coupling, two coupling-sections arranged to telescope one within the other, spaced circumferential flanges on one

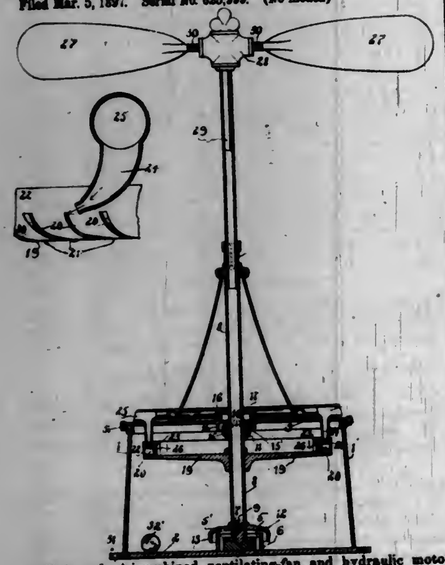
section, pivoted clutches mounted between said flanges and adapted to engage notches in the opposing section, an operating-ring arranged outside of said clutches and between said flanges, and a spring surrounding the inner end of the outer section and engaging said ring for causing the same to act upon the clutches and force the same into engagement with the inner section, substantially as described.



3. In a hose-coupling, coupling-sections arranged to slide one within the other, the other section comprising spaced circumferential flanges, pivoted clutches arranged between said flanges, an annular web connecting said flanges and provided with apertures through which the clutches work so as to engage notches in the inner section of the coupling, an operating-ring extending around the coupling-sections and arranged between said flanges and also provided with inward projections which engage said clutches, and a spring surrounding one of the coupling-sections and engaging said ring for giving the same a normal tendency, substantially as and for the purpose described.

4. In a hose-coupling, two coupling-sections arranged to slide one within the other, spaced circumferential flanges on the outer section, a clip connecting said flanges and provided with openings, pivoted clutches arranged between said flanges and working through said openings and engaging notches in the inner section, a diametrically-divided operating-ring arranged between said flanges and outside of the clutches and engaging the latter, said ring being provided at its meeting points with thickened portions bored and threaded to receive connecting-screws, stops on said web cooperating with said thickened portions of the ring for limiting the movement of the latter, and a spring surrounding one of the coupling-sections and connected to said ring for giving the same a normal tendency, substantially as described.

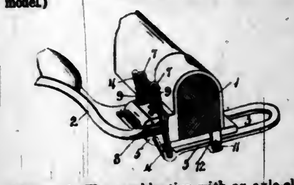
592,900. AUTOMATIC FAN. CHRISTIAN ZEH, Philadelphia, Pa. Filed Mar. 5, 1897. Serial No. 625,999. (No model.)



Claim.—1. A combined ventilating-fan and hydraulic motor, embracing a fluid-tight case, having bearings adapted to support an arbor, rims and caps and oil-chambers arranged to submerge the bearings in a liquid lubricant, as described; a water-motor wheel having concave buckets and rims surrounding said buckets, jet-tubes arranged to supply water thereto, a discharge-pipe, a tubular shaft arranged to convey lubricants to the lower bearing thereof and an extensible upper shaft, and air-valves, substantially as set forth.

2. In a combined water-motor and ventilating-fan, a supporting-case, a tubular extensible arbor having an oil-conduit in its lower section, a bearing submerged in a lubricant-step at the bottom of said arbor, an upper bearing and a cap surrounding said bearing to hold a lubricant in which said bearing is submerged, combined with cups provided with rims arranged to exclude water and dirt from said bearings, substantially as set forth.

592,901. ANTIRATTLING THILL-COUPLING. HENRY D. BLUNAGEN, Danville, Ohio. Filed Feb. 20, 1897. Serial No. 624,321. (No model.)



Claim.—1. The combination with an axle-clip having forwardly and upwardly extending projections adapted to receive the thill-bolt, of a lever pivoted on said projection, a loop pivotally mounted on said lever, an antirattling-block, and springs connecting said loop and block, whereby the latter is held down under spring tension, substantially as described.

2. The combination with an axle-clip having a forwardly and upwardly extending projection adapted to receive the thill-bolt, of a lever pivoted on said projection, a loop pivotally mounted on said lever, and an antirattling-block connected to said loop and comprising a block proper, guide-loops mounted thereon and springs surrounding said loops and bearing against the block and the pivoted loop respectively, substantially as described.

592,902. WAGON ATTACHMENT. ANDREW BODEN, WILLIAM BODEN, and GEORGE I. LEWIS, Akron, Iowa. Filed Nov. 27, 1896. Serial No. 613,597. (No model.)



Claim.—1. The combination with the axle of a wheeled vehicle provided with lateral shoulders, of a body mounted thereon and provided with depending guides between which the axle is situated, and upright operating-rods connected with said axle and engaging a nut carried by said body.

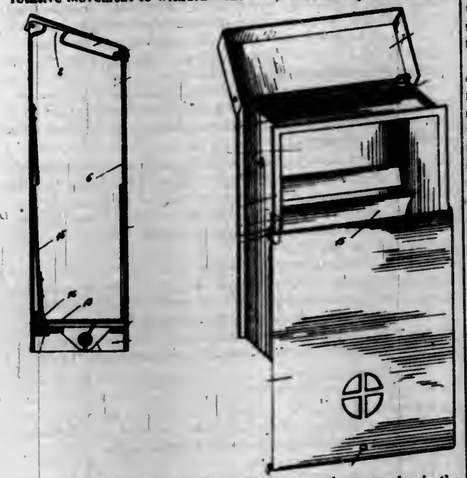
2. The combination with the axle of a wheeled vehicle having curved lateral shoulders, of a body portion provided with depending guides between which the said axle is situated, and means for moving said body with relation to the axle.

592,903. MAIL-BOX. ALBERT C. BEUHAU, Memphis, Tenn. Filed Feb. 20, 1897. Serial No. 624,023. (No model.)

Claim.—1. A mail-box having a slot and hinged cover at its upper end, a groove around said slot having an opening at its lowest point, an opening in the front side of the box, and a slide and locking devices.

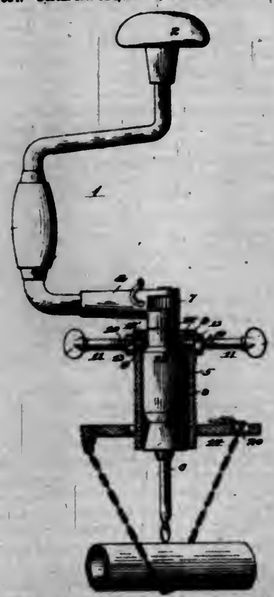
2. A mail-box having a slot at its upper end, an opening in the front side thereof, a slide secured to the front side of the box, a pivoted plate seated within said box and having an arm extending into the chamber below the box, a spring engaging said arm, a movable bolt engaging said spring, and an opening in the slide to receive said bolt, substantially as described.

3. A mail-box having a slot at its upper end, an opening in the front side thereof, a slide secured to the front side of said box, a pivoted plate seated within said box and having an arm extending into the chamber below the box, a movable bolt engaging said spring, a rock-shaft engaging said bolt and means to lock said shaft against rotative movement to withdraw the bolt, substantially as described.



4. A mail-box having a slot at its upper end, an opening in the front side thereof, a slide secured to the front side of the box, a pivoted plate seated within said box and having an arm extending into the chamber below the box, a movable bolt engaging said spring, a slotted rock-shaft engaging said bolt and being provided with a pivotal latch, adapted to engage a depression to prevent rotative movement of the rock-shaft, and a sleeve or collar arranged upon the rock-shaft provided with a key-opening, and projections located therein, substantially as described.

592,904. DRILL. CHARLES D. CUTTS, Fort Fairfield, Me. Filed Feb. 20, 1897. Serial No. 624,260. (No model.)

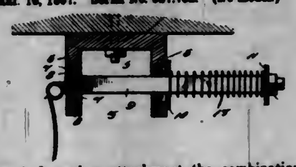


Claim.—1. In a drill of the character described, the combination with an externally-screw-threaded sleeve, of adjustable sleeve-retaining mechanism, designed to retain the sleeve upon a bit-stock, a traveling nut carried by the sleeve, and a chain adjustably carried by the traveling nut, substantially as specified.

2. In a drill of the character described, the combination with an externally-screw-threaded sleeve, of abutment-screws carried thereby, designed to secure the sleeve upon a bit-stock, locking-nuts upon said screws, a traveling chain-nut carried by the sleeve, a chain secured to one side of the traveling nut, and a chain-clamp upon the opposite side of said nut designed to adjustably secure the chain, substantially as specified.

3. In a drill of the character described, the combination with a cylindrical sleeve externally screw-threaded and provided with a plurality of threaded holes near one extremity, of threaded abutment-screws piercing said holes and provided with rounded ends, lock-nuts upon said abutment-screws, a traveling chain-nut provided with an internally-threaded bore designed to receive the sleeve, and with oppositely-extending chain-clamps, a chain secured to one of said clamps, and a T-shaped slot the other of said clamps being provided with and designed to adjustably retain the free end of the chain, substantially as specified.

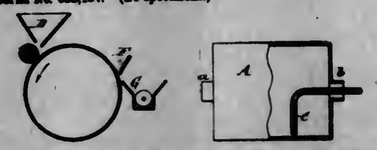
592,905. PLOW ATTACHMENT. MICHAEL H. DAVIS, Albion, Ill. Filed Mar. 16, 1897. Serial No. 627,768. (No model.)



Claim.—1. In a plow attachment, the combination of a frame with opposite slotted heads having rollers mounted therein, a spring-actuated bar adjustably engaging said rollers, and a resilient arm carried by one end of said bar, which curves downwardly over an adjacent portion of the plow-shaft, substantially as described.

2. In a plow attachment of the character set forth, the combination with a plow-beam, of a frame having opposite heads with slots formed therein, antifrictional rollers located in said slots, a spring-actuated bar movably mounted between said rollers, a collar or washer engaging one of said heads, and a yielding arm connected to one end of said bar and extending downwardly over an adjacent portion of the plow-shaft, said arm having a coil in the body thereof, substantially as described.

592,906. PUMPKIN POWDER. WILLIAM R. GERE, Syracuse, N. Y., assignor to the Merrell-Soule Company, same place. Filed Feb. 6, 1897. Serial No. 622,157. (No specimens.)



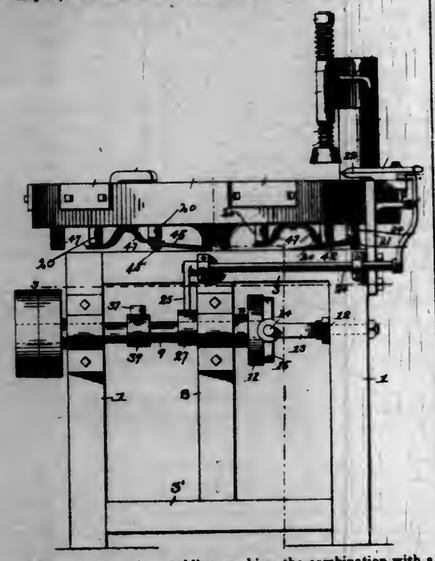
Claim.—The herein-described pumpkin powder which readily absorbs moisture and forms therewith at once a mushy or jelly-like mixture without previous soaking and which is in the proper condition for immediate use, said powder consisting of the cooked or steamed edible substance of the pumpkin, combined with starch, the cells of which have been opened by moisture and heat, substantially as set forth.

592,907. RAILROAD-TIE. ELIJAH B. GILPIN, Davis, W. Va. Filed Dec. 5, 1896. Serial No. 614,632. (No model.)



Claim.—The combination with a railway-sleeper having a horizontal plate provided with elongated slots, and a vertical web formed on the under side of said plate, of rail-clamps each provided with a head at each end and adapted to be passed through the elongated slots and given a square turn to lock them in contact with said plate and the flange of the rail, and loop-springs having concave portions and adapted to be applied in the elongated slots to prevent the rail-clamps from turning, the concave portions of said springs engaging the walls of the slot to hold said springs in position, substantially as described.

592,908. MACHINE FOR MOLDING PLASTIC MATERIALS. JAS. GRAHAM, Muncie, Ind., assignor, by direct and mesne assignments, of two-thirds to Albert E. Count and Albert A. Ault, same place. Filed May 26, 1897. Serial No. 638,233. (No model.)



Claim.—1. In a glass-molding machine, the combination with a supporting-frame, of a rotatable table supported on the frame carrying the mold, shears supported on the frame above the table, a plunger on the frame adapted to be passed into the mold and means for alternately rotating the table with the movement of the shears and plunger, substantially as described.

2. In a glass-molding machine, the combination with a supporting-frame, of a rotatable table supported on the frame carrying the mold, shears above the table, a plunger adapted to be passed into the mold, and means for intermittently rotating the table, and simultaneously actuating the shears and plunger, the movement of the table alternating with the movement of the shears and plunger, substantially as described.

3. In a glass-molding machine, the combination with a supporting-frame, of a rotatable table supported on the frame carrying the mold, shears above the table, a plunger adapted to be passed into the mold, a power-shaft journaled on the frame, and means connecting the power-shaft with the rotatable table and the power-shaft with the shears and with the plunger, whereby when the power-shaft is actuated the table will be rotated alternately with the movement of the shears and plunger, substantially as described.

4. In a glass-molding machine, the combination with a supporting-frame, of a rotatable table supported on the frame carrying the mold, shears above the table, a plunger adapted to be passed into the mold, a power-shaft journaled on the frame, mechanism connecting the power-shaft with the table, cams on the shaft, and mechanisms arranged in the path of the cams connected to the shears and plunger for actuating the shears and plunger alternately with the movement of the table, substantially as described.

5. In a glass-molding machine, the combination with a supporting-frame, of a shaft on the frame, a table on the shaft carrying the mold, a ratchet on the shaft, shears above the table, a plunger adapted to be passed into the mold, a power-shaft journaled on the frame, a pawl connecting the power-shaft with the ratchet for rotating the table, and mechanism connecting the power-shaft with the shears and plunger for actuating the shears and plunger alternately with the movement of the table, substantially as described.

6. In a glass-molding machine, the combination with a supporting-frame, of a rotatable shaft on the frame, a table on the shaft carrying the mold, a ratchet on the shaft, shears above the table, a plunger adapted to be passed into the mold, a power-shaft journaled on the frame, a disk on the shaft, a pawl engaging the ratchet and provided with a slotted enlargement, a pin on the disk passing through the enlargement, a yoke pivoted to the frame and connected slidingly to the pawl, and mechanism connecting the power-shaft with the shears and plunger for actuating the shears and plunger alternately with the movement of the table, substantially as described.

7. In a glass-molding machine, the combination with a supporting-frame, of a rotatable table supported on the frame carrying the mold, shears above the table, a plunger adapted to be passed into the mold, a power-shaft journaled on the frame, mechanism connecting the mold, a power-shaft journaled on the frame, mechanism connecting the power-shaft with the rotatable table and the power-shaft with the shears and plunger, whereby when the power-shaft is actuated the table will be rotated alternately with the movement of the shears and plunger, and means for locking the movement of the table, when the shears and plunger are being actuated, substantially as described.

8. In a glass-molding machine, the combination with a supporting-frame, of a rotatable table supported on the frame carrying the mold, shears supported on the frame above the table, a plunger on the frame adapted to be passed into the mold, mechanism for alternately rotating the table with the movement of the shears and plunger, and means for vertically adjusting the table on the frame, substantially as described.

9. In a glass-molding machine, the combination with a movable table carrying the mold and plunger adapted to be passed into the mold, of an ejector forming the base of the mold, and means for raising the ejector after the plunger has been withdrawn and upon the movement of the table for ejecting the finished article from the mold, substantially as described.

10. In a glass-molding machine, the combination with a movable table carrying the mold and plunger adapted to be passed into the mold, of an ejector forming the base of the mold, a device for vertically adjusting the ejector in the mold, and means for raising the ejector after the plunger has been withdrawn and upon the movement of the table for ejecting the finished article, substantially as described.

11. In a glass-molding machine, the combination with a movable table carrying a two-part mold forming a recess with an enlargement in the recess, of an ejector forming the base of the mold, a shoulder on the ejector within the enlargement of the recess, and a set-screw bearing against the shoulder for vertically adjusting the ejector in the mold, substantially as described.

12. In a glass-molding machine, the combination with a supporting-frame, of a movable table supported on the frame carrying the mold, a plunger adapted to be passed into the mold, an ejector forming the base of the mold and projecting below the table, and a projection on the table in the path of the ejector for raising the ejector after the plunger has been withdrawn and upon the movement of the table, substantially as described.

13. In a glass-molding machine, the combination with a supporting-frame, of a movable table supported on the frame carrying the mold, shears supported above the table, a movable base for the mold extending below the table and a projection on the frame in the path of the base for raising the base of the mold when the mold is beneath the shears, substantially as described.

14. In a glass-molding machine the combination with a supporting-frame, of a movable table supported on the frame carrying the mold, shears supported above the table, a movable base for the mold extending below the table and adjustable means on the frame in the path of the base for raising the base of the mold when the mold is beneath the shears, substantially as described.

15. In a glass-molding machine, the combination with a supporting-frame, of a movable table supported on the frame carrying the mold, an ejector in the mold forming the base and extending below the table, a flexible friction-plate carried by the table against which the lower end of the ejector bears, and an inclined guideway on the frame arranged in the path of the ejector for raising the ejector when the table is moved, substantially as described.

16. In a glass-molding machine, the combination with a supporting-frame, of a rotatable table supported on the frame, a series of molds on the table, a plunger above the table, shears above the table, the molds so positioned on the table that one mold will be under the shears and one under the plunger, an ejector forming a movable base for the molds, and a projection on the frame in the path of the ejector for raising the same after the plunger has been withdrawn from the mold and upon the movement of the table, substantially as described.

17. In a glass-molding machine, the combination with a supporting-frame, of a rotatable table supported on the frame, a series of molds on the table, a plunger above the table, shears above the table, the molds so positioned on the table that one mold will be under the shears and one under the plunger, an ejector forming a movable base for the molds, a stationary table adjacent the rotatable table, an arm extending from the stationary table over the rotatable table, and projections on the frame adjacent the shears and arm and arranged in the path of the ejector for raising the same when the molds are beneath the shears and before reaching the arm, substantially as described.

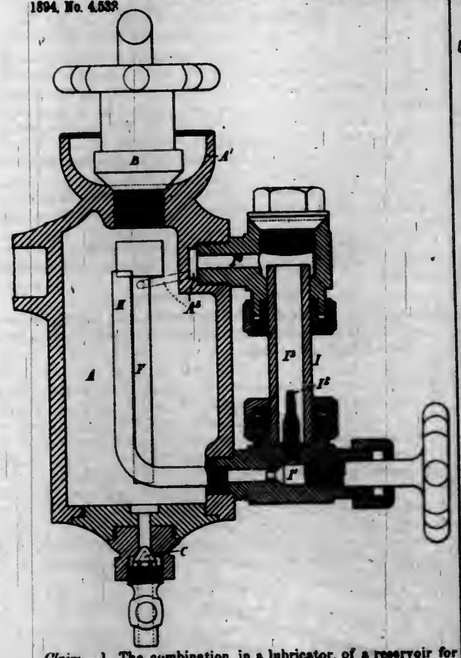
18. In a glass-molding machine, the combination with a supporting-frame, of a movable table supported on the frame carrying the mold, means for separating the molten material from the gather when placed in the mold, a plunger on the frame adapted to be passed into the mold and means for alternately moving the table with the movement of the separating means and plunger, substantially as described.

19. In a glass-molding machine, the combination with a movable table carrying the mold, a standard, a plunger supported on the standard and adapted to be passed into the mold, a cover for the end of the plunger adapted to rest on the top of the table when the plunger is forced into the mold, a spring having one end bearing against the cover and the opposite end bearing against the standard for returning the cover to its normal position when the plunger is withdrawn, and a spring bearing against a projection on the top of the plunger and the standard for withdrawing the plunger from the mold, substantially as described.

20. In a glass-molding machine, the combination with a movable table carrying the mold, of a plunger adapted to be forced into the mold, a two-part standard for supporting the plunger, and means for adjusting the upper portion of the standard to properly aline the plunger in relation to the mold, substantially as described.

21. In a glass-molding machine, the combination with a supporting-frame, of a rotatable shaft on the frame, a table on the shaft, a series of molds on the table, a plunger above the table, shears above the table, the molds so positioned on the table that one mold will be under the shears and one under the plunger, a ratchet on the shaft having a number of teeth corresponding to the number of molds, a power-shaft on the frame, a pawl connecting the power-shaft with the ratchet, and mechanism connecting the shears with the power-shaft and the plunger with the power-shaft for alternately actuating the shears and plunger and actuating the ratchet, substantially as described.

592,909. LUBRICATOR. WALTER GRIMES, London, England, assignor to the Vacuum Oil Company, Rochester, N. Y. Filed Feb. 24, 1896. Serial No. 580,605. (No model.) Patented in England Mar. 3, 1894, No. 4,538.

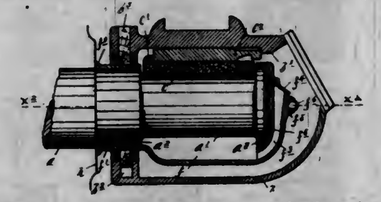


Claim.—1. The combination, in a lubricator, of a reservoir for lubricant and water, a steam-inlet consisting in part of a pipe in said reservoir leading from above the lubricant-level to the lower part of said reservoir for conducting live steam thereto without passage through a condenser, a lubricant-outlet, a lubricant-duct determining the lubricant-level in said reservoir and leading from the upper part of said reservoir to and through an upward-flow sight-feed device, a duct substantially on a level with the upper end of the lubricant-duct in said reservoir leading from the upper end of said sight-feed device to a second lubricant-duct, a cock-plug having separate ports governing said steam-inlet and said second lubricant-duct, a duct in said cock-plug connecting said two ports, and a passage in said cock-plug connecting said last-mentioned duct with said lubricant-outlet, said ports, said last-mentioned duct, and said passage constituting a positively-acting ejector for lifting its contents from the reservoir and for ejecting them into the lubricant-outlet.

2. The combination, in a lubricator, of a reservoir for lubricant and water, a steam-inlet consisting in part, of a pipe within the reservoir leading from above the lubricant-level to the lower part of said reservoir for conducting live steam thereto without passage through a condenser, a lubricant-outlet, a lubricant-duct determining the lubricant-level and leading downward from the upper part of said reservoir to and through a sight-feed device and to the level of the upper end of said duct within the reservoir, a cock-plug having separate ports governing said steam-inlet and said lubricant-duct, a duct in said cock-plug having two ports, one of which has direct connection with the steam-supply at full pressure and the other of which connects with said lubricant-duct, a duct in said cock-plug connecting said two ports and a passage in said cock-plug connecting said last-mentioned duct with said lubricant-outlet.

3. The combination, in a lubricator, of a reservoir A for lubricant and water, a steam-inlet consisting of a duct D′ and a pipe F situated in said reservoir and connecting said duct with the lower part of said reservoir for conducting live steam therethrough without passage through a condenser, a lubricant-outlet J, a lubricant-pipe H in said reservoir determining the lubricant-level therein and leading from the upper part thereof downward and to and through an upward-flow sight-feed device I, a second lubricant-duct A^2 leading from the upper end of said sight-feed device and from substantially the level of the upper end of said pipe H downward to a continuation D^2 thereof, a cock-plug E having a port E′ governing the steam-inlet, a port E^2 governing the lubricant-duct in said cock-plug, an inclined duct E^4 in said cock-plug connecting said port E′ with said port E^2 and a duct E^3 in said cock-plug connecting said ducts E′, E^4 and E^2 with the lubricant-outlet J, the said ducts in said cock-plug constituting a positively-acting ejector for lifting its contents from the reservoir and for ejecting them into the lubricant-outlet.

592,910. CAR-AXLE LUBRICATOR. WINFIELD S. HAINES, Gladstone, Mich. Filed Jan. 20, 1897. Serial No. 619,838. (No model.)



Claim.—1. The combination with a journal and a main outside box, of an oil-well box, mounted directly on said journal, within said main box, and provided with a top slot, and a "bearing-brass," working through said slot and serving, in addition to its ordinary function, to complete said well-box and keep the same from turning with said axle, substantially as described.

2. The combination with a journal and a main outside box, of the oil-well f with top slot f^3 and neck portion f', which neck portion is mounted directly on said journal, and the bearing-brass c working through said slot f^3 and serving, in addition to its ordinary function, to complete the oil-well, to keep the same from turning with said axle and to hold the same against excessive endwise movement, substantially as described.

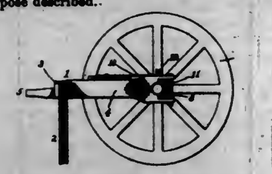
3. The combination with a journal, of an oil-well for the same carried thereby and having a top slot for the bearing-brass, and a spring-action clamping device applied to hold the well in working position, substantially as described.

4. The combination with the car-axle-box journal, of the oil-well f f' carried by the journal-flanges and having the top slot f^3 and the covered supply-duct f^2, the spring f^6 connected to the main box and operating to yieldingly hold the oil-well in working position, the bearing-brass c c' filling the slot f^3, the main box b, the dust-guard b^3, and the lock-chip c^3 cooperating with the brass to lock the oil-well to the main box and hold the same from rotary movement, all substantially as and for the purposes set forth.

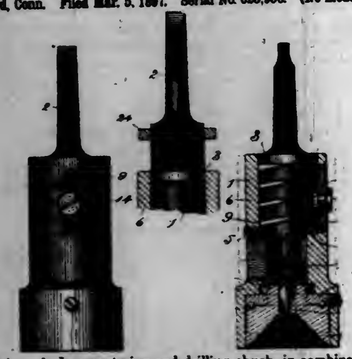
592,911. MEASURING INSTRUMENT. LEWIS E. HOWLAND, Chicago, Ill. Filed July 15, 1896. Serial No. 599,215. (No model.)

Claim.—The herein-described land-measuring instrument, consisting of a frame made up of a pair of uprights constituting legs, and a pair of beams extending outwardly therefrom formed with handles upon their rear ends and with recesses at their forward ends, with inwardly-extending V-shaped teeth or projections leading from the upper and lower sides of said recesses, a measuring-wheel mounted

upon a suitable shaft which is adapted to fit within the said recesses, a lug upon the hub of said wheel, a spring secured to the upper surface of one of said beams whose free end is adapted to engage said lug, removable blocks having V-shaped notches in their upper and lower ends adapted to fit within said recesses, and pins for holding said blocks in place, the forward ends of said beams and the rear ends of said blocks both being cut away forming bearings for the shaft upon which said measuring-wheel is mounted, substantially as and for the purpose described.



592,912. CENTERING DRILL-CHUCK. MORGAN JOHNSON, Hartford, Conn. Filed Mar. 5, 1897. Serial No. 625,938. (No model.)



Claim.—1. In a centering and drilling chuck, in combination, a drill-holding body adapted to receive a drill, a shell outside of the body, a spring thrusting between a part of the body and a part of the shell, a block with a central tapering recess rotatably mounted within the shell, and friction-reducing parts placed between the shell and the block, substantially as specified.

2. In a centering and drilling chuck, in combination, a drill-holding body adapted to receive a drill, a shell outside of the body, a spring thrusting between a part of the body and a part of the shell, a ball-plate located within the shell, a block with a central tapering recess rotatably mounted within the shell, and antifriction-balls placed between the ball-plate and the block, substantially as specified.

3. In a centering and drilling chuck, in combination, a drill-holding body adapted to receive a drill, a shell outside of the body, a spring thrusting between a part of the body and a part of the shell, a ball plate located within the shell, a block with a central tapering recess rotatably mounted within the shell, means for retaining the block within the shell, antifriction-balls placed between the ball-plate and the block, and means for preventing the spring from separating the shell and the drill-holding body, substantially as specified.

4. In a centering and drilling chuck, in combination, a drill-holding body adapted to receive a drill, a shell outside of the body, a spring thrusting between a part of the body and a part of the shell, a ball-plate located within the shell, a block with a central tapering recess rotatably mounted within the shell, a hub projecting from the block through the ball-plate, a collar attached to the hub back of the ball-plate, and antifriction-balls placed between the ball-plate and the block, substantially as specified.

5. In a centering and drilling chuck, in combination, a drill-holding body adapted to receive a drill, a shell outside of the body, a spring thrusting between a part of the body and a part of the shell, a block with a central tapering recess rotatably mounted within the shell, antifriction-balls placed between the shell and the block, and an adjustable stop for limiting the relative movement of the drill-holding body and the shell, substantially as specified.

6. In a centering and drilling chuck, in combination, a drill-holding body adapted to receive a drill and having a shank adapted to be connected to a supporting-spindle, with a collar between the body and shank, a shell outside of the body, a spring thrusting between the collar on the drill-holder and the shell, a drill-holding screw, a ball-plate located within the shell, a block with a central tapering recess rotatably mounted within the shell, antifriction-balls placed between the ball-plate and the block, means for retaining the block in position, and adjustable devices for limiting the relative movement of the shell and drill-holding body, substantially as specified.

592,913. PLUMB-BOB. ALBERT B. KILBOURNE, West Pike, Pa. Filed Oct. 9, 1896. Serial No. 608,372. (No model.)



Claim.—A plumb-bob consisting of a weight having parallel plates upon its upper end provided at their upper ends with a cord-aperture, a spring-actuated drum mounted between said plates, and a brake for said drum consisting of a transverse shank mounted between said plates; having a head situated adjacent one side of said drum, and a spring for holding said head against said drum.

592,914. SOLDERING COMPOUND. WILLIAM J. KNOX, Pittsburg, Pa., assignor, by mesne assignments, to the Highland Electro-Chemical Manufacturing Company, Connellsville, Pa. Filed Dec. 10, 1896. Serial No. 615,222. (No specimens.)

Claim.—1. A soldering compound consisting of a mixture of a finely-divided flux and a waterproof or non-absorbent carrier adapted to form an envelop around the particles or atoms of flux, and capable of being rendered fluid by heat, so as to permit of the flux being brought into contact with the surfaces to be soldered, substantially as set forth.

2. A soldering compound consisting of a mixture of a finely-divided flux, and a waterproof or non-absorbent and non-conducting carrier adapted to form an envelop around the particles or atoms of flux, and capable of being rendered fluid by heat, so as to permit of the flux being brought into contact with the surfaces to be soldered, substantially as set forth.

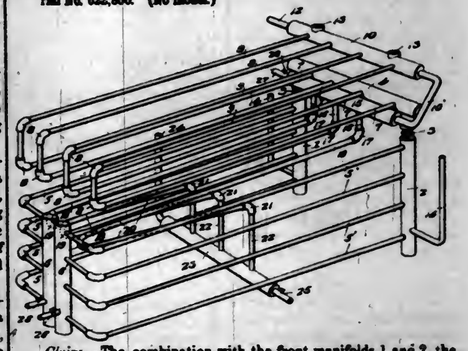
3. A soldering compound consisting of a mixture of a finely-divided flux and vaseline, substantially as set forth.

4. A soldering compound consisting of a finely-divided flux, vaseline and paraffin, substantially as set forth.

5. A soldering compound consisting of a mixture of a finely-divided flux, and a hydrocarbon wax or paste, substantially as set forth.

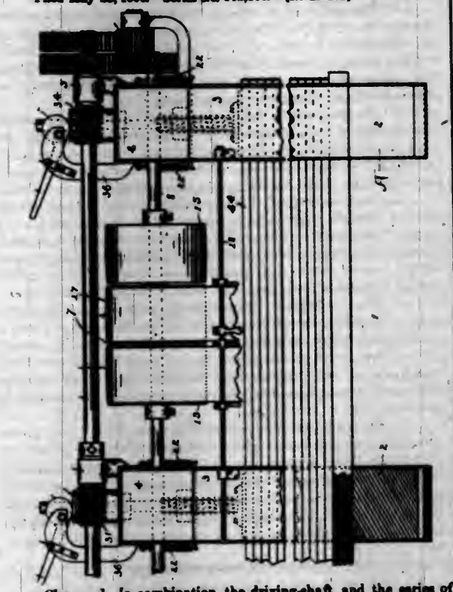
6. A soldering compound consisting of a mixture of a finely-divided chlorid of zinc and a hydrocarbon paste or wax, substantially as set forth.

592,915. COMBINED WATER-HEATER AND STEAM-GENERATOR. CHARLES R. MERRY, Norwalk, Ohio. Filed Feb. 10, 1897. Serial No. 622,860. (No model.)



Claim.—The combination with the front manifolds 1 and 2, the rear manifolds 6 6', their horizontal connecting-pipes 5 5' extending on each side of the combustion-chamber, the manifold 4 connected to the upper ends of the front manifolds 1 and 2 by the short pipes 3 3, in combination with the manifold 23 provided with the expansion-pipe 24, the vertical connecting-pipes 22, the pipes 20 leading upwardly and rearwardly therefrom, the pipes 18 extending forwardly from said pipes 20, and terminating in the manifold 15, the outflow-manifold 10 connected thereto by the elbow 10', and the series of horizontal pipes 7 connecting the manifolds 10 and 4, substantially as shown and described.

592,916. GLUING-PRESS. WALTER MUNCH, St. Paul, Minn. Filed May 28, 1896. Serial No. 593,202. (No model.)



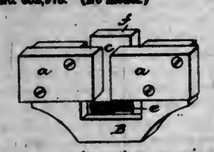
Claim.—1. In combination, the driving-shaft, and the series of screws, the means for independently connecting each of said screws with said shaft to drive said screws, and the means for automatically releasing all of said screws when a predetermined working strain upon the same is obtained.

2. The combination with the continuously-running shaft, of the screw, the mechanical means for throwing said screw into driven engagement with said shaft when the same is running in one direction, automatic means for disengaging the same actuated by a predetermined working strain upon said screw, automatic means for throwing said screw into driven engagement with said shaft, when the latter is running in the opposite direction, and the automatic means for disengaging the same, actuated by a predetermined reverse travel of said screw.

3. In an apparatus of the class described, in combination the driven shaft, the series of screws, the means for independently and operatively engaging each of said screws with said shaft to drive said screws, the automatic means for independently disengaging each of said screws from said shaft, when a predetermined strain upon said screw is attained, and the means for automatically and simultaneously throwing all of said screws into engagement with said shaft when it is oppositely rotated so as to reverse said screws.

4. In combination with the continuously-running driving-shaft and the series of adjacent screws, the clutch interposed between each screw and shaft, adapted to be mechanically set to throw the same into operative engagement with said shaft, and to be automatically disengaged by a predetermined working strain, and to automatically connect said screw with said shaft by the reverse rotation of said shaft, and the means for automatically disconnecting said screw and shaft after a predetermined reverse travel of said screw.

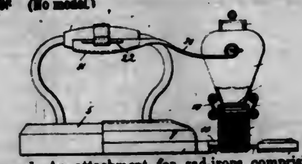
592,917. MAGNET-ARMATURE. HENRY M. PAINE, Amherst, Mass., assignor to William Ap. Rees, New York, N. Y. Filed Apr. 20, 1897. Serial No. 633,975. (No model.)



Claim.—1. An armature in sections or separated parts in combination with a lap joining the sections, substantially as described.

2. A non-magnetic frame or backing B, holding the sections *a*, *a*, free from contact in combination with a movable lap *f*, substantially as described.

592,918. SAD-IRON ATTACHMENT FOR PRESSING SEAMS. MARGARET R. RICE, Hillsborough, Tex. Filed Dec. 16, 1896. Serial No. 615,996. (No model.)

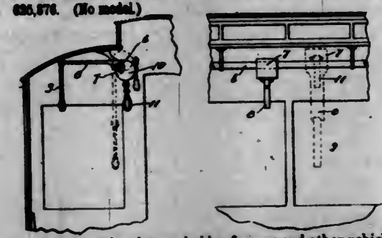


Claim.—1. An attachment for sad-irons comprising a yoke-shaped device which is adapted to be connected with the iron, said yoke-shaped device being pointed at its forward end and provided with a forwardly-directed support, a receptacle connected with said support and open at its lower end, and a triangular block or head connected with said receptacle, in front thereof, and in line with the bottom of the iron, said receptacle being provided with a sponge, and with means for feeding water thereinto, substantially as shown and described.

2. An attachment for sad-irons comprising a yoke-shaped device which is adapted to be connected with the iron, said yoke-shaped device being pointed at its forward end and provided with a forwardly-directed support, a receptacle connected with said support, and open at its lower end, and a triangular block or head connected with said receptacle, in front thereof, and in line with the bottom of the iron, said receptacle being provided with a sponge, and with means for feeding water thereinto, consisting of a vessel connected with the top thereof, and provided with a perforated bottom, substantially as shown and described.

3. An attachment for sad-irons comprising a yoke-shaped device which is adapted to be connected with the iron, said yoke-shaped device being pointed at its forward end and provided with a forwardly-directed support, a receptacle connected with said support and open at its lower end, and a triangular block or head connected with said receptacle, in front thereof, and in line with the bottom of the iron, said receptacle being provided with a sponge, and with means for feeding water thereinto, consisting of a vessel connected with the top thereof, and provided with a perforated bottom, said vessel being also provided with a bail which is adapted to be secured to the handle of the sad-iron, substantially as shown and described.

592,919. HAND-STRAP FOR CARS. JAMES S. SAVAGE, Jr., and GEORGE R. TAYLOR, Buffalo, N. Y. Filed Mar. 3, 1897. Serial No. 625,676. (No model.)



Claim.—1. A hand-strap holder for cars and other vehicles, said holder being provided with a head through which a rod or bar connected with the car or vehicle is passed, and said holder being adapted to turn on said rod or bar, and being provided with an arm which is normally held in a horizontal position, and with which the strap is connected, substantially as shown and described.

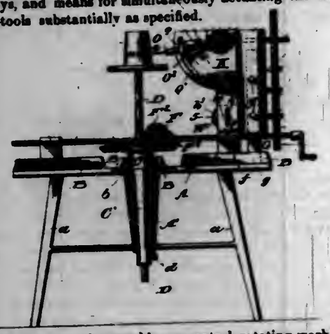
2. The herein-described hand-strap holder for cars or similar vehicles, said holder consisting of a head through which is passed a rod or bar which is supported within the car, and said head being provided with an arm to which is attached a strap, and means connected with said head for holding said arm in a horizontal position, substantially as shown and described.

3. The herein-described hand-strap holder for cars or similar vehicles, said holder consisting of a head through which is passed a rod or bar, which is supported within the car, and said head being provided with an arm to which is attached a strap, and means connected with said head for holding said arm in a horizontal position, and said head being also provided with a supplemental hand-strap, substantially as shown and described.

592,920. ENGRAVING-MACHINE. HENRY C. SCHRADER, Stauffer, Pa. Filed Jan. 30, 1897. Serial No. 621,346. (No model.)

Claim.—1. In an engraving-machine, a central rotating work-holder, a table provided with a plurality of guideways extending ra-

dially from said holder, a plurality of tool-holders supported in said guideways, and means for simultaneously actuating the several engraving-tools substantially as specified.



2. In an engraving-machine, a central rotating work-holder, a table provided with a plurality of guideways, tool-holders slidably supported in said guideways, and means for simultaneously actuating said work-holder and the several tool-holders, substantially as specified.

3. In an engraving-machine, a central rotating work-holder, a table provided with radial guideways, a series of tool-holders located in said guideways, a centrally-disposed pinion, and shafts geared to each other and to said pinion to simultaneously operate a series of tools supported in said guideways, substantially as specified.

4. In an engraving-machine, a table having radially-disposed guideways, a central work-holder, shafts mounted in bearings on said table and disposed at right angles to each other, and meshing gears on said shafts adjacent to their point of intersection, substantially as described.

5. In an engraving-machine, a table having radially-disposed guideways and shafts mounted in bearings on the table and disposed at right angles to each other, a centrally-disposed pinion mounted in the table, a pinion on one of said shafts engaging therewith and means to drive one of said shafts by the movement of the other; substantially as described.

6. In an engraving-machine, a table having radially-disposed guideways, a centrally-disposed, depending, tubular portion, a pinion having a tubular shaft mounted in the tubular pinion, and a shaft extended within the shaft of the portion, and carrying a support for the article to be operated upon; substantially as described.

7. In an engraving-machine, a table having radially-disposed guideways, a centrally-disposed, depending, tubular portion, a pinion having a tubular shaft mounted in the tubular portion, a shaft extended within the shaft of the pinion and carrying a support for the article to be operated upon, and means for actuating said pinion and the engraving-needle; substantially as described.

8. The combination with a post or holder and a movable head secured thereto, of a plate pivotally mounted on said head to oscillate in a vertical plane, means for swinging said plate in a vertical plane upon its pivot, a needle-holding frame supported from said plate, and gearing movable with the head for actuating said needle, substantially as specified.

9. The combination with a post or holder and a head secured thereto, of a plate pivotally mounted on said head to oscillate in a vertical plane, means for oscillating said head, a needle-holding frame supported from said plate, and means operatively connected to rotate said needle simultaneously with the oscillation of said plate, substantially as specified.

10. The combination with a post or holder and a vertically-adjustable head thereon, of a plate pivotally mounted on said head to travel in a vertical plane, an engraving-needle supported on said plate, needle-operating mechanism, and means acting upon the lower portion of said plate to swing the same in a vertical plane, substantially as specified.

11. The combination with a post or holder and a vertically-adjustable head thereon, of a plate pivotally mounted on said head to travel in a vertical plane, an engraving-needle supported on said plate, needle-operating mechanism, means acting upon the lower portion of said plate to swing the same in a vertical plane, and a revoluble plate or work-holder for supporting the article to be operated upon, substantially as specified.

12. The combination with a post or holder and a vertically-adjustable head thereon, of a plate pivotally mounted on said head to travel in a vertical plane, an engraving-needle supported on said plate, needle-operating mechanism, means acting upon the lower portion of said plate to swing the same in a vertical plane, a revoluble plate or work-holder for supporting the article to be operated upon, and means for operatively connecting the rotating plate with the needle-operating mechanism, substantially as specified.

13. The combination with a post or holder and a head secured thereto, of a plate pivotally mounted to oscillate upon said head and provided with a vertical slot in the lower portion thereof, a needle-holding frame supported from said plate, means to rotate said needle, and an eccentric provided with a pin located in said slot to oscillate said plate, substantially as specified.

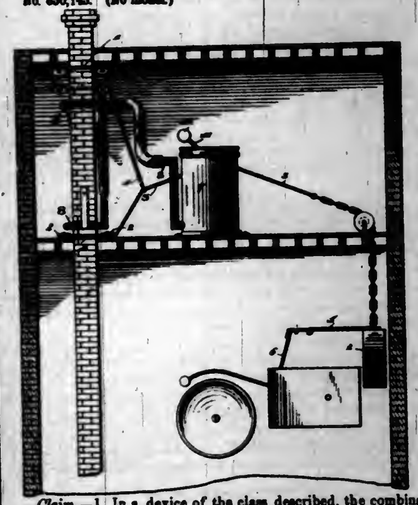
14 The combination with a post or holder and a head secured thereto, of a plate pivotally mounted on said head to travel in a vertical plane and provided with a vertical slot therein, an eccentric having a pin working in said slot, and needle-operating mechanism operatively connected with said eccentric, substantially as specified.

15. The combination with a post or holder and a head secured thereto, of a plate pivotally mounted on said head to travel in a vertical plane and provided with a vertical slot therein, an eccentric having a pin working in said slot, needle-operating mechanism operatively connected with said eccentric, and means for adjusting the needle in an arc of a circle on said plate, substantially as specified.

16. The combination with a table provided with radial guideways, of a post or holder having a foot adjustable in said guideways, a head adjustable on said post or holder, a plate pivotally mounted on said head to swing in a vertical plane, a train of gears carried by said head, a needle-support upon said plate, and beveled pinions connected with said gears for operating the needle, substantially as specified.

17. The combination with a table provided with radial guideways, of a post or holder having a foot adjustable in said guideways, a head adjustable on said post or holder, a plate pivotally mounted on said head to swing in a vertical plane, a train of gears carried by said head, a needle-support upon said plate, beveled pinions connected with said gears for operating the needle, and means for moving the lower end of the plate to and from the head, substantially as specified.

592,921. FIRE ALARM AND EXTINGUISHING MECHANISM. JESSE Y. SHALLENBERGER, Strasburg, Ill. Filed Mar. 31, 1897. Serial No. 630,143. (No model.)

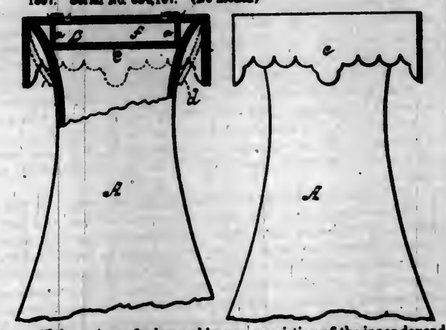


Claim.—1. In a device of the class described, the combination with alarm mechanism, a reservoir for a fire-extinguishing medium in communication with perforated distributing-tubes, and a tilting receptacle arranged to discharge its contents into the reservoir for chemical action with the contents of the reservoir, of a fusible or combustible runner, an operating cord or wire controlling said alarm mechanism and provided with a weight whereby it is held under a constant tension, said cord or wire having the runner connected thereto at an intermediate point to deflect the cord or wire from a direct line between its points of support, whereby both the runner and the cord or wire are held under tension by the same means, a yieldingly-actuated operating-lever connected to said receptacle of the reservoir, a yieldingly-actuated catch normally held in the path of said operating-lever, and a detachable connection between an arm of the catch and the operating cord or wire, whereby the extinguishing mechanism may be disconnected from the alarm mechanism, substantially as specified.

2. In a device of the class described, the combination with alarm mechanism, a reservoir for a fire-extinguishing medium in communication with perforated distributing-tubes, and a tilting receptacle arranged to discharge its contents into the reservoir for chemical action with the contents of the reservoir, of a fusible or combustible runner, an operating cord or wire controlling said alarm mechanism and provided with a weight whereby it is held under a constant tension, said cord or wire having the runner connected thereto at an intermediate point to deflect the cord or wire from a direct line between its points of support, whereby both the runner and the cord or wire are held under tension by the same means, a yieldingly-actuated operating-lever connected to said receptacle of the reservoir, a yieldingly-actuated catch normally held in the path of said operating-lever, and a detachable connection between an arm of the catch and the operating cord or wire, the same consisting of an elongated link 14 in the operating cord or wire removably fitted upon an arm of the catch, whereby the extinguishing medium may be disconnected from the alarm mechanism, substantially as specified.

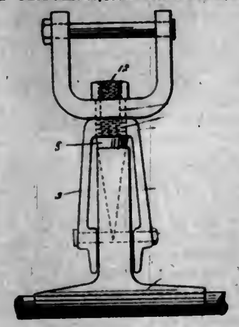
3. In a device of the class described, the combination with an operating cord or wire provided with a weight whereby it is held under a constant tension, a reservoir for a fire-extinguishing medium in communication with distributing-tubes, and a fusible or combustible runner connected with an intermediate point of the operating cord or wire to deflect the latter between its points of support, whereby both the runner and the cord are held under tension by the same means, of a tilting cage having its spindle mounted in the side wall of the reservoir and having a weighted arm, said cage being adapted to receive a receptacle for chemicals to be discharged into the reservoir, a spring-actuated catch 13 having its nose normally held by spring action in the path of the weighted arm of said spindle, and a link carried by said operating cord or wire removably fitted upon an arm of the catch, substantially as specified.

592,922. DETACHABLE SAFETY-CAP FOR LAMP CHIMNEYS OR GLOBES. WILLIAM H. STEPHENSON, Bluffton, Ind. Filed Feb. 19, 1897. Serial No. 624,167. (No model.)



Claim.— A cap for lamp-chimneys consisting of the inner depending plate provided with one or more openings therein and upwardly-extended arms in combination with the cap having the perforations and flange and holding-fingers and slots adapted to receive the arms of the lower plate whereby the two parts are attached together, substantially as described.

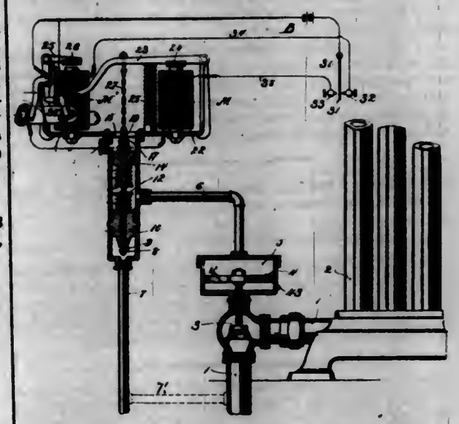
592,928. TROLLEY-WIRE HANGER. NAPOLEON J. ST. HILAIRE, Gardner, Mass. Filed June 23, 1897. Serial No. 642,652. (No model.)



Claim.—1. In a trolley-wire hanger, the combination with a frame, of jaws fulcrumed in said frame having upwardly-extending ends and provided at their lower ends with recesses shaped to grip a trolley-wire, a wedge having a screw-threaded portion passing through a screw-threaded opening in the upper part of said frame, and means to rotate said wedge and force said jaws to clamp a trolley-wire, substantially as described.

2. In a trolley-wire hanger, the combination with a frame, of jaws fulcrumed in said frame having upwardly-extending ends and provided at their lower ends with recesses shaped to grip a trolley-wire, a wedge having a screw-threaded portion passing through a screw-threaded opening in the upper part of said frame, a handle carried upon said screw threaded portion adapted to rotate said wedge and provided with a downwardly-bent end adapted to drop between the portions of the frame and form a lock, and a lock-nut carried upon said screw-threaded portion, substantially as described.

592,924. AUTOMATIC HEAT-REGULATING SYSTEM. JOHN V. STOUT, Easton, Pa. Filed June 6, 1896. Serial No. 551,919. (No model.)



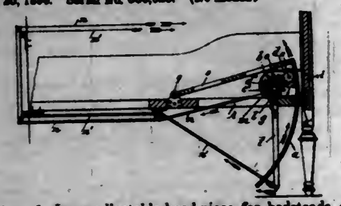
Claim.—1. In combination with a heating plant or system, a main valve for controlling the delivery of the heating agent; a motor for actuating said valve; a source of fluid-pressure; a pipe connecting the motor and the source of fluid-pressure; an auxiliary valve interposed between the motor and its source of supply for controlling delivery to said motor; an electric motor for actuating the auxiliary valve; and an actuating-stem for said valve, connected with the electric motor, passing through a tube or plug of the valve-containing-shell, and provided with disks adapted to bear alternately upon opposite ends of the plug or tube and to seal the same when the actuating-stem reaches its highest or its lowest position.

2. In combination with a heating plant, a main valve for controlling delivery of the heating agent; a motor for actuating said valve; a source of fluid-pressure; a pipe connecting the motor with the source of fluid-pressure; an auxiliary valve for controlling the pressure on the motor; an electric motor for actuating the auxiliary valve; and two valves operatively connected with the auxiliary valve and with the electric motor, and serving to seal the shell or casing containing the auxiliary valve substantially as described and shown.

3. In a heat-regulating apparatus the combination of a main valve for controlling the delivery of the heating agent; a fluid-pressure motor for actuating said valve; an auxiliary valve for controlling the delivery of fluid to said motor; an electric motor for actuating the auxiliary valve; and a device for preventing escape or waste of the actuating fluid, comprising two valves located between the auxiliary valve and the electric motor and in operative connection or relation with both; whereby one or the other valve is caused to seal the containing-shell of the auxiliary valve as said valve is moved to either of its extreme positions.

4. The combination of a valve-body, an inlet-valve therein, a valve-stem, an unpacked operating and guiding stem extending through the valve-body and in position to move the valve, and two disks or devices on the unpacked stem, one in position to close the space around the unpacked stem when it is moved in one direction, and the other in position to close said space when the stem is moved in the opposite direction for preventing waste of fluid and allowing the stem to move easily.

592,925. MEANS FOR ADJUSTING HEAD-PIECES OF BEDSTEADS, &c. FRIEDRICH R. J. REUER, Hamburg, Germany. Filed Feb. 26, 1896. Serial No. 580,635. (No model.)



Claim.—1. In an adjustable head-piece for bedsteads, couches, sofas or the like the combination with a hinged or pivoted flap such as *o* of a toothed rack such as *a* attached to said flap, a hinged lever such as *t* laterally arranged with respect to said rack *a*, a pawl operated by said lever, a ratchet engaged by the pawl, a toothed wheel such as *c* connected with the ratchet and rack, means to impart motion from said wheel *c* to said rack *a* to raise and lower the flap *o*, a guide or pulley at or near the foot of the couch, and a cord extending from the lever over said guide, and back toward the head of the couch, substantially as described.

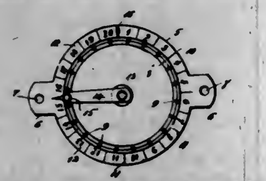
2. In an adjustable head-piece for bedsteads and other purposes, the combination of a hinged flap, a rack supporting the same, gearing engaging the rack, a ratchet and pawl holding said gearing from backward rotation, a lever, a pawl on the same also connected with the gearing, a cord connected with the lever, and a cord connected with both of said pawls, substantially as described.

592,926. NEEDLE. EMIL GAMAR, Long Island City, N. Y. Filed June 14, 1897. Serial No. 640,743. (Model.)



Claim.—As an improved article of manufacture, a needle provided at one end with a slotted extension, the sides of which are bent inwardly adjacent to the end and connected by a wedge-shaped portion whereby an eye is formed having a reduced extension at the outer end, substantially as and for the purpose described.

592,927. GAME-COUNTER. FRANK CARSON and WILLIAM GLENN, Houlton, Me. Filed Apr. 23, 1897. Serial No. 633,443. (No model.)



Claim.—1. In a game-counter of the character described, an annular bead stamped in the base-plate and projecting upwardly, a boss stamped in said base at the central point thereof, a pointer pivotally mounted upon said boss, said bead being provided on the upper surface thereof with a plurality of notches or recesses, and said pointer being provided with a depending arm adapted to engage successively said notches or recesses, substantially as and for the purpose described.

2. The herein-described game-counter comprising a circular plate 5 provided with arms or projections 6 which are perforated, said plate being also provided concentrically of its upper surface with an upwardly-directed bead 8 which is triangular in form in cross-section and provided with a plurality of notches or recesses 9, a circular space 10 adjacent to said bead and divided by radial lines 11 into a plurality of spaces each of which is designated by a numeral, the notches in said bead being at a central point of the said spaces, said plate 5 being also provided with a lug or projection 13, a pointer 14 pivotally mounted thereon and provided with a knob or handle 15 and with a tooth or projection 16, substantially as and for the purpose described.

592,928. TROLLEY FOR ELECTRIC CARS. ELWOOD G. DAVIS, New York, N. Y. Filed May 26, 1897. Serial No. 637,901. (No model.)

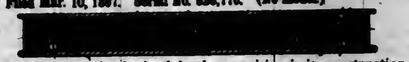
Claim.—1. A trolley-arm for trolley-cars, said trolley-arm being provided with a swiveled attachment which is provided with spring-arms which project parallel, and in the same direction as the trolley-arm, said spring-arms being provided at their outer ends with a shaft on which a trolley-wheel is mounted, substantially as shown and described.



2. A trolley-arm for trolley-cars, said trolley-arm being provided with a swiveled attachment which is provided with spring-arms which project parallel, and in the same direction as the trolley-arm, said spring-arms being provided at their outer ends with a shaft on which a trolley-wheel is mounted, and said attachment being also provided between the inner ends of said spring-arms with a supplemental trolley-wheel, substantially as shown and described.

3. A trolley-arm for trolley-cars, said trolley-arm being provided with a swiveled attachment which is provided with spring-arms which project parallel, and in the same direction as the trolley-arm, said spring-arms being provided at their outer ends with a shaft on which a trolley-wheel is mounted, and said attachment being also provided between the inner ends of said spring-arms with a supplemental trolley-wheel, and said spring-arms being composed of central rods on which are wound a plurality of coils of spring-wire, substantially as shown and described.

592,929. CHECK-BOOK. MARCUS P. EVLINE, Waxahachie, Tex. Filed Mar. 10, 1897. Serial No. 626,776. (No model.)



Claim.—1. A bank-check book comprising in its construction an outer cover consisting of upper and lower lids secured together by a flexible back, spring split stems provided with upwardly-tapering heads and secured to said lower lid at points to one side of the flexible back, and sheets of checks provided with stubs permanently bound together by means of a back provided with open tubes having indentations, the spring-stems being adapted to be inserted into the tubes, and the heads thereof engaging the indentations of the tubes, substantially as described.

2. A bank-check book comprising in its construction an outer cover consisting of upper and lower lids secured together by a flexible back, spring split stems provided with upwardly-tapering rounded heads secured to a metallic strip which extends the entire width of the book and is bent over and around the outer edges of the lower lid, said strip being concealed by the binding-leather of the cover, and sheets of checks provided with stubs permanently bound together by means of a back provided with open tubes having a series of rows of indentations, the spring-stems adapted to be inserted into the tubes and the heads engage the indentations of the tubes, substantially as described.

3. A bank-check book comprising in its construction an outer cover consisting of upper and lower lids secured together by a flexible back, spring split stems provided with upwardly-tapering rounded heads and secured to the said lower lid at points to one side of the flexible back, and sheets of checks provided with stubs permanently bound together by means of a metallic back and open tubes having indentations, the spring-stems being adapted to be inserted into the tubes and the heads thereof engage the indentations, the said tubes being held in position by means of heads or flanges formed on one end and by riveting on the other end, substantially as described.

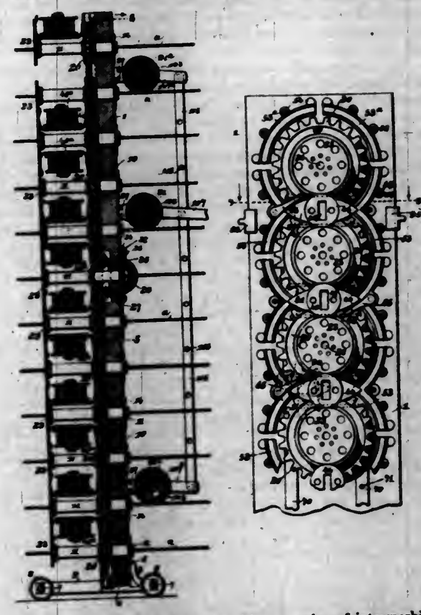
592,930. INSULATING-COUPLING. CHARLES F. HUBNER, Brooklyn, N. Y. Filed Mar. 22, 1897. Serial No. 628,670. (No model.)



Claim.—1. A pipe joint or coupling, consisting of two similar coupling-heads, each of which is conical in form, and provided with a screw-threaded central bore at the inner end of which is an inwardly-directed annular flange, an insulating plate or disk placed between said coupling-heads, an insulating-casing mounted on each of said coupling-heads, and two sleeves fitted respectively upon said coupling-heads over said insulating-casings, and one of said sleeves being provided with an annular rim which is screw-threaded and adapted to engage with a corresponding thread formed on the other sleeve, substantially as shown and described.

2. A pipe joint or coupling, consisting of two similar coupling-heads, each of which is conical in form, and the smaller ends of which are directed outwardly, each coupling-head being also provided with a screw-threaded bore at the inner ends of which are formed inwardly-directed annular flanges, an insulating plate or disk mounted between said coupling-heads, conical insulating-casings mounted upon each of said heads, and two sleeves fitted respectively upon said coupling-heads, and one of said sleeves being provided with an annular screw-threaded rim which is adapted to engage with a corresponding thread formed on the other sleeve, substantially as shown and described.

592,931. WIRE-FABRIC MACHINE. ALVA L. KITSELMAN, Ridgeville, Ind. Filed July 22, 1896. Serial No. 600,149. (No model.)



Claim.—1. In a wire-fabric machine, a series of intermeshing cogged twister-wheels provided at diametrically opposite points with peripheral notches, each notch being formed by the space between a pair of cogs, spool-carriers engaging with the notches of said wheels, stationary circular guides arranged concentric with and adjacent to the peripheries of the wheels in the vertical plane thereof to hold the spool-carriers in engagement therewith, and automatically-operating switches for transferring the spool-carriers from one twister-wheel to the adjacent wheels, substantially as set forth.

2. In a wire-fabric machine, an alined series of cogged twister-wheels provided at diametrically opposite points with peripheral notches, each notch being formed by the space between a pair of cogs, spool-carriers adapted to engage with the peripheral notches of said wheels, stationary circular guides arranged concentric with and adjacent to the peripheries of the wheels to hold the spool-carriers in engagement therewith, and means for automatically deflecting the spool-carriers from the guides of one wheel to the guides of an adjacent wheel, substantially as set forth.

3. In a wire-fabric machine, a series of alined intermeshing cogged twister wheels provided with diametrically opposite peripheral notches, each notch being formed by the space between a pair of cogs, spool-carriers adapted to engage with said notches, and automatically-operated diagonally opposite switch-points for transferring the spool-carriers from one twister-wheel to the adjacent wheels for rotation with the latter, substantially as set forth.

4. In a wire-fabric machine, a series of intermeshing cogged twister-wheels provided at diametrically opposite points with peripheral notches, spool-carriers engaging with the notches of said wheels, circular guides arranged adjacent to the peripheries of the wheels, switch points or fingers arranged at diagonally opposite points and at opposite sides of each twister-wheel, and means for automatically adjusting said switch-points to deflect the spool-carriers from the guides of one wheel to the guides of the adjacent wheels, substantially as set forth.

5. In a wire-fabric machine, an upright frame-board provided with a series of vertically-alined openings, hollow stationary spindles detachably clamped at one end in the openings of the frame-board, a series of intermeshing cogged twister-wheels loosely mounted on said stationary spindles at one side of the frame-board, spool-carriers mounted on the wheels, and transferring mechanism for the spool-carriers, substantially as set forth.

6. In a wire-fabric machine, the combination of an upright frame-board provided with a series of vertically-alined openings, hollow stationary spindles fitted at one end in said openings and provided in opposite sides near one end with diametrically opposite notches, open locking-keys wedged into said notches to detachably fasten the spindles in place, a series of intermeshing cogged twister-wheels mounted on said spindles, spool-carriers mounted on the wheels, and transferring mechanism for the spool-carriers, substantially as set forth.

7. In a wire-fabric machine, an upright frame-board provided with a series of vertically-alined openings, hollow stationary spindles fitted at one end in said openings and provided in opposite sides near one end with diametrically opposite notches, said spindles being further provided intermediate of their ends at one side of the frame-board with annular bearing-shoulders, detachable bearing-bushings loosely fitted on said spindles at one side of said bearing-shoulders and provided at their ends opposite the bearing-shoulders with annular bearing-flanges resting flat against one side of the frame-board, a series of intermeshing cogged twister-wheels having cylindrical flanged hubs loosely turning on said bearing-bushings, and a trifle shorter in length than the distance between the flanges of said bushings and the shoulders of the spindles, wedge locking-keys adapted to fit over one end of the spindles and provided with opposite parallel portions engaging in the opposite side notches of the spindles, the spool-carriers, and transferring mechanism for the carriers, substantially as set forth.

8. In a wire-fabric machine, an upright frame-board, a series of hollow vertically-alined spindles fitted at one end in said board, combined guide and supporting disks loosely mounted on the outer end of said spindles, a series of intermeshing cogged twister-wheels mounted on the spindles and having diametrically opposite peripheral notches, spool-carriers having neck-pieces engaging in the notches of said wheels and at their ends opposite the neck-pieces with circular bearing-heads having a peripheral contact with said combined guide and supporting disks at the outer ends of the spindles, and suitable transferring mechanism for the spool-carriers, substantially as set forth.

9. In a wire-fabric machine, the upright frame-board, a series of hollow vertically-alined spindles fitted at one end in said board, combined guide and supporting disks having central bearing-collars having an interlocking connection with the outer ends of the spindles and loosely turning thereon, said disks being open at the center for the passage of the warp or line wires, a series of intermeshing cogged twister-wheels mounted on the spindles directly adjacent to one side of the frame-board, spool-carriers provided at one end with neck-pieces registering with the notches of the twister-wheels and at their opposite ends with circular bearing-heads provided with a series of wire-guide openings and having a peripheral contact with said combined guide and supporting disks and spool-carrier transferring mechanism, substantially as set forth.

10. In a wire-fabric machine, an upright frame-board, a series of hollow vertically-alined spindles fitted at one end in said board, combined guide and supporting disks mounted to loosely rotate on the outer ends of said spindles, a series of intermeshing cogged twister-wheels mounted on the spindles directly adjacent to one side of the frame-board, spool-carriers engaging with the twister-wheels at one end and provided at their opposite ends with circular bearing-heads peripherally contacting with said combined guide and supporting disks and having a plurality of separate guide-openings for the weft or mesh wire wound on the spools of the carrier, and suitable shifting mechanism for the carriers, substantially as set forth.

11. In a wire-fabric machine, an upright frame-board, a series of hollow vertically-alined spindles fitted at one end in said boards, combined guide and supporting disks mounted for a loose rotation on the outer ends of said spindles, a series of intermeshing cogged twister-wheels mounted on the spindles directly adjacent to one side of the frame-board, spool-carriers essentially comprising a substantially U-shaped frame-arm provided at a point intermediate of its ends with an offstanding spool-axle, with a neck-piece at one end for engagement with the twister-wheels, and at its opposite end with a circular bearing-head having a plurality of wire-guide openings and working on the periphery of the combined guide and supporting disks, wire-spools loosely mounted on the axles of the spool carriers, combined tension and locking springs detachably fitted on said axles and bearing against one side of the spools, and suitable transferring mechanism for the spool-carriers, substantially as set forth.

12. A spool-carrier, for machines of the character described, essentially comprising a frame-arm having an offstanding spool-axle

provided at one end with a squared locking-head and short locking-studs projected from diametrically opposite sides of said head, a wire-spool arranged to turn on said axle, and a longitudinally-bowed spring-tension and locking plate adapted to bear at its ends against one of the heads of the wire-spool and provided intermediate of its ends with a central squared opening and guide-notches communicating with the opening at opposite side edges thereof, said plate being adapted to be turned to a position to bring said guide-notches in and out of alinement with said locking-studs, said squared opening engaging with the locking-head when said notches are turned at right angles to the locking-studs, substantially as set forth.

13. In a wire-fabric machine, a series of intermeshing cogged twister-wheels provided at diametrically opposite points with peripheral notches, circular guides arranged adjacent to the peripheries of the wheels, spool-carriers provided at one end with a pair of spaced retaining-plates receiving therebetween the cogged peripheries of the wheels and said circular guides, and means for shifting the spool-carriers from the guides of one wheel to the guides of the adjacent wheels, substantially as set forth.

14. In a wire-fabric machine, a series of intermeshing cogged twister-wheels provided at diametrically opposite points with peripheral notches, circular guides arranged adjacent to the peripheries of the wheels, spool-carriers provided at one end with short neck-pieces engaging said notches and with a pair of spaced retaining-plates respectively disposed at opposite sides of the cogged peripheries of the wheels and said circular guides, and means for shifting the spool-carriers from the guides of one wheel to the guides of the adjacent wheels, substantially as set forth.

15. In a wire-fabric machine, a series of intermeshing cogged twister-wheels provided at diametrically opposite points with peripheral notches, circular guides arranged adjacent to the peripheries of the wheels, spool-carriers provided at one end with a pair of parallel elliptical retaining-plates respectively disposed at opposite sides of the peripheries of the wheels and said circular guides, and with a short rounded neck-piece connecting said retaining-plates and registering in the notches of the twister-wheels, and means for deflecting the elliptical retaining-plates of the spool-carriers from the guides of one wheel to the guides of the adjacent wheels, substantially as set forth.

16. In a wire-fabric machine, a series of intermeshing cogged twister-wheels, V-shaped guide plates or castings arranged at opposite sides of the series of wheels with their apices or points projected into the reëntrant spaces between the meshing faces of the wheels, said V-shaped guide plates or castings having segmental side portions arranged in the same circular plane as the segmental side portions of the adjacent guide plates or castings, spool-carriers provided at one end with a pair of spaced elliptical retaining-plates respectively disposed at opposite sides of the peripheries of the wheels and said circular guide plates or castings, and means for deflecting the elliptical retaining-plates of the spool-carriers from the guides of one wheel to the guides of the adjacent wheel, substantially as set forth.

17. In a wire-fabric machine, a series of intermeshing vertically-alined cogged twister-wheels provided with diametrically opposite peripheral notches, V-shaped guide plates or castings arranged at opposite sides of the series of wheels and projecting into the spaces between the meshing faces of the wheels, said V-shaped guide plates or castings having segmental side portions and essentially comprising an outer base-flange and a main guide-flange projected from the inner side of the base-flange intermediate of its edges and at right angles thereto, said main guide-flanges being provided with a flat bearing-surface arranged parallel with the main base-flange, spool-carriers provided at one end with a pair of parallel elliptical retaining-plates respectively disposed at opposite sides of the main guide-flanges of said guide plates or castings, the outer edges of the elliptical plates riding in contact with the outer base-flanges at opposite sides of said main guide-flanges, said spool-carriers being further provided with short neck-pieces connecting the retaining-plates, registering in the notches of the twister-wheels, and riding in contact with the flat bearing-surfaces at the inner edges of the main guide-flanges, and means for deflecting the elliptical retaining-plates of the spool-carriers from the guides of one wheel to the guides of the adjacent wheels, substantially as set forth.

18. In a wire-fabric machine, a series of intermeshing vertically-alined cogged twister-wheels provided with diametrically opposite peripheral notches, V-shaped guide plates or castings arranged at the opposite sides of the series of wheels and projecting into the spaces between the meshing faces of the wheels, spool-carriers provided at one end with a pair of parallel elliptical retaining-plates respectively disposed at the opposite sides of the peripheries of the wheels and said guide plates or castings, and with a short rounded neck-piece connecting said retaining-plates and registering in the notches of the twister-wheels, switch points or fingers arranged at diagonally opposite sides of each twister-wheel, and means for adjusting said switch-points to deflect the elliptical retaining-plates of the spool-carriers from the guides of one wheel to the guides of the adjacent wheels, substantially as set forth.

19. In a wire-fabric machine, a series of intermeshing vertically-alined cogged twister-wheels provided with diametrically opposite peripheral notches and on their front sides with circular guide-flanges, circularly-alined guides arranged adjacent to the peripheries of the wheels, and projecting into the spaces between the meshing faces thereof, spool-carriers provided at one end with a pair of elliptical retaining-plates respectively disposed at opposite sides of said guides, and with a short rounded neck-piece connecting said retaining-plates and registering in the notches of the twister-wheels, oscillatory switch points or fingers arranged at diagonally opposite sides of each twister-wheel, and means for adjusting the free ends of the switch-points against the circular guide-flanges of the twister to deflect the elliptical retaining-plates of the spool-carriers from the guides of one wheel to the guides of the adjacent wheels, substantially as set forth.

20. In a wire-fabric machine, a series of intermeshing vertically-alined cogged twister-wheels provided with diametrically opposite peripheral notches and front circular guide-flanges, V-shaped guide plates or castings arranged at opposite sides of the series of wheels and projecting into the spaces between the meshing faces thereof, said V-shaped guide plates or castings having segmental side portions arranged in the same circular plane as the corresponding portions of the adjacent guide plates or castings, spool-carriers provided at one end with neck-pieces engaging the notches of the wheels and with a pair of elliptical retaining-plates respectively disposed at opposite sides of the guide plates or castings, oscillatory switch points or fingers pivotally mounted at one end on every alternate guide plate or casting, in each vertical row of such plates or castings, so as to dispose a pair of switch points or fingers at diagonally opposite sides of each twister-wheel, a pair of vertically-reciprocating operating-bars respectively connecting with all of the switch points or fingers in each vertical row, a link connection between adjacent ends of said operating-bars to provide for a simultaneous movement thereof in opposite directions, and a cam device actuated by one of the twister-wheels and engaging with one of the operating-bars to provide for the simultaneous operation of all of the switch points or fingers, substantially as set forth.

21. In a wire fabric machine, a series of intermeshing cogged twister-wheels one of which wheels carries adjusting-pins, circular guides arranged adjacent to the peripheries of the wheels, spool-carriers engaging with the wheels and having at one end a pair of retaining-plates respectively disposed at opposite sides of the circular guides, inwardly-projecting switch points or fingers pivotally mounted at their outer ends beyond diagonally opposite sides of each twister-wheel, a pair of vertically-reciprocating operating-bars respectively having a pin connection with all of the switch points or fingers in each vertical row, an oscillating-link connection between the adjacent ends of said oscillating bars to provide for a simultaneous movement thereof in opposite directions, a rectangular yoke fitted on one of the operating-bars, and a toothed cam-wheel engaged by the adjusting-pins of one of the twister-wheels and carrying at one side a cam projection working within said yoke to provide for the adjustment of said operating-bars simultaneously in opposite directions, substantially as set forth.

22. In a wire-fabric machine, an upright frame-board, a series of intermeshing cogged twister-wheels, one of which wheels carries on its inner side a pair of spaced adjusting-pins, circular guides arranged adjacent to the peripheries of the wheels, spool-carriers engaging with the wheels and having at one end a pair of retaining-plates respectively disposed at opposite sides of the circular guides, inwardly-projecting switch points or fingers pivotally supported at their outer ends beyond diagonally opposite sides of each twister-wheel and working over the reëntrant portions of the guides between the meshing faces of the wheels, a pair of vertically-reciprocating operating-bars respectively connected with all of the switch points or fingers in each vertical row thereof, an oscillating-link connection between the adjacent ends of said bars, a rectangular yoke fitted on the inner side of one of the operating-bars and provided with straight upper and lower sides and opposite curved end portions, a short stub-shaft mounted in the frame-board and carrying at its inner end a toothed cam-wheel engaged by the adjusting-pins of one of the twister-wheels and carrying at one side a cam projection having a single eccentrically-disposed contact-point and a curved bearing portion concentric with the cam-wheel, a dial-plate mounted on one side of the frame-board, a pointer fitted on the outer end of the stub-shaft and working over the dial-plate, and a spring arranged at the inner side of said cam-wheel, substantially as set forth.

23. In a wire-fabric machine, the combination of a series of intermeshing cogged twister-wheels, spool-carriers engaging with the twister-wheels, circular guides for retaining the carriers in engagement with the wheels, a series of movable switch points or fingers working between the wheels to deflect the carriers from the guides of one wheel to the guides of the adjacent wheels, a single operating-bar connecting said switch points or fingers and carrying a rectangular yoke, an automatically-rotated cam-wheel carrying at one side a cam projection working in said yoke and providing for the intermediate elevation and depression thereof, substantially as set forth.

24. In a wire-fabric machine, the combination with the wheeled upright frame carrying weaving mechanism, of a propelling device having a suitably-rotated drum receiving on its periphery a tight wrap of a warp or line wire of the fabric, and a clamp carrying said drum and adjustably fitted to the frame to provide for the vertical adjustment of the former, substantially as set forth.

25. In a wire-fabric machine, the combination with the wheeled upright frame carrying weaving mechanism, of a propelling device suitably connected with the frame and having a rotatable drum frictionally engaging with a warp orline wire of the fabric, and a device for regulating the limit of movement of the drum to provide for a corresponding regulation of the length of mesh of the fabric, substantially as set forth.

26. In a wire-fabric machine, the combination with the wheeled upright frame carrying weaving mechanism, of a propelling device comprising a pair of angled clamp-plates adjustably embracing opposite side edges of the upright frame, a rotating drum journaled between said clamp-plates and having a peripheral wire-groove adapted to receive a tight wrap of a warp or line wire of the fabric, a device for regulating the limit of movement of said drum, and lever-operated ratchet mechanism for positively rotating the drum in one direction, substantially as set forth.

27. In a wire-fabric machine, the combination with the wheeled upright frame carrying weaving mechanism, of a propelling device comprising a pair of angled clamp-plates adjustably embracing opposite side edges of the frame, a rotating drum provided with oppositely-disposed spindle projections journaled in said clamped plates, and opposite internally-toothed ratchet-flanges, said drum being adapted to receive a tight wrap of a warp or line wire of the fabric, fixedly-positioned check-dogs arranged at one side of the drum and engaging with the teeth of one of the ratchet-flanges thereof, and a lever pivotally supported on one of the spindle projections and carrying a pair of adjusting-dogs arranged at the opposite side of the drum and engaging with the teeth of the other ratchet-flange thereof, substantially as set forth.

28. In a wire-fabric machine, the combination with the upright frame carrying weaving mechanism, of a propelling device comprising a pair of angled clamp-plates adjustably embracing opposite side edges of the frame, a rotating drum provided with oppositely-disposed spindle projections journaled in said clamp-plates and opposite internally-toothed ratchet-flanges, said drum being adapted to receive a tight wrap of the warp or line wire of the fabric, a pair of fixedly-positioned check-dogs mounted at the inner side of one of the clamp-plates for engagement with the teeth of one of the ratchet-flanges of the drum, and a hand-lever carrying at one end a movable cap-plate turning on one of the spindle projections of the drum and provided with oppositely-located segmental slots, a pair of adjusting-dogs pivotally mounted at the inner side of said movable cap-plate and adapted to engage with the teeth of the other ratchet-flange of the drum, said adjusting-dogs being provided at one side of their pivotal support with finger-pins projecting through said segmental slots, substantially as set forth.

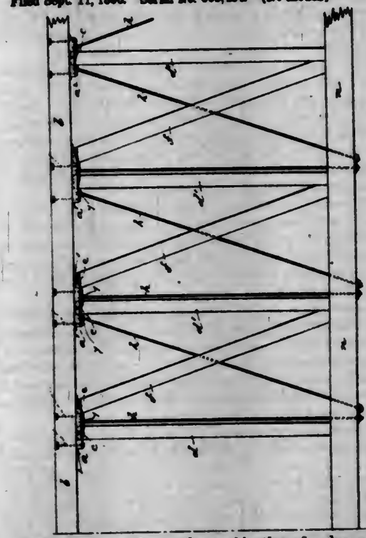
29. In a wire-fabric machine, the combination with the upright frame carrying weaving mechanism, of a propelling device comprising a pair of angled clamp-plates embracing opposite side edges of the frame, one of said clamp-plates being provided with vertically-alined diametrically opposite limiting-pins and a circular series of pin openings, an adjustable stop-pin adapted to be fitted in any of the series of pin-openings, a rotating drum provided with oppositely-disposed spindle projections journaled in said clamp-plates and an internally-toothed ratchet-flange, and a hand-lever pivotally supported on one of the spindle projections and carrying a pair of adjusting-dogs engaging the teeth of said ratchet-flange to provide for the rotation of said drum, said lever being provided at one side adjacent to its pivotal support with a web or lug adapted to engage said adjustable stop-pin and also said limiting-pins, substantially as set forth.

30. In a wire-fabric machine, the combination with the upright frame carrying weaving mechanism; of a plurality of independently vertically adjustable propelling devices clamped onto the frame at different points, and a single operating connection between said propelling devices to provide for the simultaneous operation thereof, said propelling devices having a frictional engagement with the warp or line wires of the fabric being woven, substantially as set forth.

31. In a wire-fabric machine, the combination with the upright frame carrying weaving mechanism; a plurality of duplicate propelling devices adjustably clamped on the frame at different points, said propelling devices having ratchet-rotated drums receiving a tight wrap of the warp or line wires and operating-levers for turning said drums, the operating-lever of one of the propelling devices being elongated to provide a hand-grasp, and a single continuous connecting-bar pivotally connecting the operating-levers of said propelling devices, substantially as set forth.

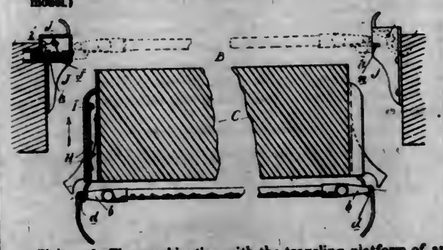
32. In a wire-fabric machine, the combination with the upright frame carrying weaving mechanism, of a propelling device suitably connected with the frame and having a single rotatable drum adapted to receive on its periphery a complete convolution or wrap of the line-wire whereby the wire has a frictional bearing on the entire circumference or periphery of the drum to provide the necessary frictional grip between the drum and the wire, substantially set forth.

592,982. RAILROAD-CAR. JAMES G. LAWLER, St. Charles, Mo.
Filed Sept. 11, 1896. Serial No. 605,494. (No model.)



Claim.—In a car-frame, the combination of a shoe attached to the top beam or plate, and having a pocket or seating for the post-end, and brace end respectively, a tie-rod connected to the shoe and to the sill, and means for tightening the tie-rod, substantially as described and for the purpose set forth.

592,988. AUTOMATIC DEVICE FOR OPERATING HATCH-COVERS FOR ELEVATORS. HUGO MATTULLATH, Detroit, Mich., assignor to the Anderson Safety Elevator Company, Limited, same place.
Filed June 22, 1896. Renewed Feb. 13, 1897. Serial No. 623,310. (No model.)



Claim.—1. The combination with the traveling platform of an elevator and a hatch-cover carried beneath the same, of two sets of movable supports for said cover, said two sets operating one upon the other in the movement of the platform to release the cover from one set while engaging with the other.

2. The combination with the traveling platform and a hatch-cover carried by the same, of a set of movable supports for the cover carried by the platform and adapted to automatically engage with and carry said cover with the platform and a set of movable supports in the hatchway actuated by the movement of the platform to engage with and support said cover in the hatchway, said second set actuating the first set to disengage them from the cover.

3. The combination with the traveling platform and a hatch-

cover carried beneath the same, of two sets of movable supports for said cover, one supporting it from the platform and composed of pivoted hangers and the other supporting it in a hatch-opening and composed of slidable bolts operated by the movement of the platform, said hangers and slidable bolts operating one upon the other in the movement of the platform, substantially as described.

4. The combination with the traveling platform of a hatch-cover carried beneath the same, pivoted hangers adapted to automatically engage with and carry said cover, slidable bolts in the hatch-opening to support the cover therein and adapted to disengage the hangers from the cover and devices operated by the movement of the platform to actuate the slidable bolts.

5. The combination with the traveling platform of a hatch-cover beneath said platform, pivoted hangers from said platform adapted to automatically engage with and carry said cover, slidable bolts in the hatch-opening adapted to support the cover therein and to disengage the hangers from the cover and devices to reciprocatingly operate the slidable bolts by the movement of the platform.

6. The combination with the traveling platform, of a hatch-cover beneath said platform, pivoted hangers therefrom adapted to automatically engage with and carry said cover, slidable bolts in the hatch-opening adapted to support the cover therein and to disengage the hangers from the cover and devices to operate the bolts composed of a shaft connected by gearing with the slidable bolts and carrying a double cam, and a wiper carried by the platform and adapted to reciprocatingly rotate the cam.

7. The combination with the traveling platform and a hatch-cover carried beneath the same, of devices for supporting the same in the hatch-opening, each comprising a slidable bolt, a shaft geared therewith, a double cam on the shaft, and a wiper on the platform adapted to impart to the bolt a reciprocating rotary movement in the travel of the platform.

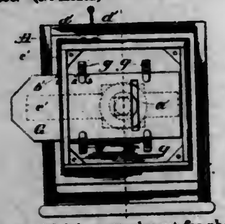
8. The combination with the traveling platform and a hatch-cover beneath the same, of pivoted hangers adapted to automatically engage therewith and carry the same under the platform and devices in the hatch-opening for automatically disengaging said hangers from the cover, each comprising a slidable bolt reciprocatingly operated by the movement of the platform, said slidable bolts constituting supports for the cover in the hatch-opening.

9. The combination with the traveling platform and a hatch-cover beneath the same of pivoted hangers adapted to automatically engage therewith and carry the same under the platform, and slidable bolts in the hatch-opening operated by the movement of the platform, said slidable bolts operating in the path of the hangers to disengage them from the cover and constituting supports for the same in the hatch-opening.

10. The combination with the traveling platform of an elevator, of pivoted hangers therefrom provided with outwardly-projecting shoulders and beveled lower ends, a hatch-cover provided with suitable projections for supporting it upon the shoulders of the hangers and with which the hangers are adapted to automatically engage to carry the cover underneath the platform, and means for releasing the hangers from the cover in the hatch-opening and supporting it therein.

11. The combination with the traveling platform of an elevator, of pivoted hangers therefrom having outwardly-projecting shoulders and beveled lower ends, a hatch-cover provided with projections with which the hangers are adapted to automatically engage, supporting devices for the cover in the hatch-opening, each comprising a slidable bolt, a shaft geared therewith and a double cam on the shaft, and wipers on the platform for operating said supporting devices by the movement of the platform, and indirectly move the hangers on the platform to release them from the cover, substantially as described.

592,934. MULTIPLYING ATTACHMENT FOR PHOTOGRAPHIC CAMERAS. GEORGE L. MIDOTT, Gardner, Mass. Filed July 23, 1896. Serial No. 600,236. (No model.)



Claim.—1. In a multiplying attachment for photographic cameras, the combination with the lens-tube of a movable shield or shutter G formed with a cut-away portion provided with a transverse slot combined with an independent auxiliary shield to control the extent or area of said slot, and stops to positively limit or fix the degree of movements of the shield or shutter at exactly predetermined points, whereby portions of the field of view may be exposed successively and the several exposures caused to overlap at their adjacent edges without indicating lines of connection or joinder, as set forth.

2. In a multiplying attachment for photographic cameras, the combination, with the lens-tube, of a movable shield or shutter G formed with a cut-away portion consisting of a transverse slot and provided with a series of notches along one edge, means to engage the said notches to constitute positive stops in the movement of the shield or shutter, and an auxiliary shield e' to control the extent or area of the said slot in the shield or shutter G, whereby portions of the field of view may be exposed successively and the several exposures be caused to overlap at their adjacent edges without indicating lines of connection or joinder, as set forth.

3. A multiplying attachment for photographic cameras comprising a movable slide or shield G formed with a cut-away portion consisting of a transverse slot, and provided with a series of notches along one edge; a pawl engaging said notches, and an independently-movable auxiliary slide e', substantially as described.

4. A multiplying attachment for photographic cameras comprising a movable slide or shield G formed with a cut-away portion consisting of a transverse slot, and provided with a series of notches along one edge, a pawl engaging said notches, and an independently-movable auxiliary slide e', also having notches formed along one edge thereof, and a pawl engaging said last-mentioned notches, substantially as described.

5. A multiplying attachment for photographic cameras comprising a movable slide or shield formed with a cut-away portion consisting of a transverse slot, having notches b' b' along one edge thereof, and a pawl e' engaging said notches, substantially as described.

592,935. BALL-BEARING VEHICLE-AXLE. EDGAR D. MEEKER and GEORGE A. WRIGHTMAN, Brantford, Canada. Filed Dec. 14, 1895. Renewed Apr. 15, 1897. Serial No. 632,342. (No model.)



Claim.—1. The combination, with an axle having right and left hand threads, of an axle-box having at its right-hand end an enlarged shell, said shell being so formed on its inner face as to hold one concavo-convex cup, said shell threaded internally in its outer end to securely hold an externally-threaded concave cup, a left-hand internally-threaded cone screwed on threaded end of axle, a right-hand internally-threaded jam-nut screwed on and bearing against said cone, said left-hand threads on axle where cone bears being slightly larger in diameter than right-hand threads where jam-nut is placed so as to allow cone being removed without interfering with jam-nut threads, said cups and cone forming raceways for balls, and said balls, all said parts combined substantially as described.

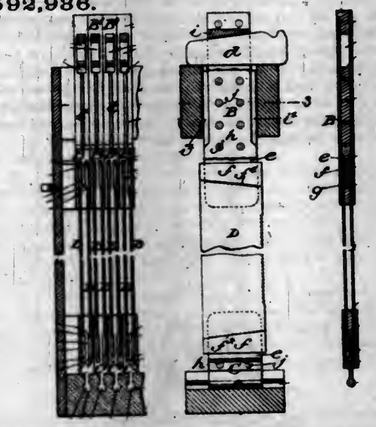
2. The combination, with an axle and a pin therein, of an axle-box having at its left-hand end an enlarged shell, said shell being so formed on its inner face as to hold one concavo-convex cup, said shell threaded internally in its outer end to securely hold an externally-threaded concave cup, a cone being bored out smooth internally large enough to slip on raised parallel bearing-surface on axle, said cone also provided at its outer end with a series of notches, said notches in connection with said pin being to prevent said cone from revolving around the axle, said cups and cones forming raceways for balls, and said balls, all said parts combined substantially as described.

592,936. GANG-SAW. PAUL PFEIFFER, New York, N. Y. Filed Feb. 5, 1897. Serial No. 622,140. (No model.)

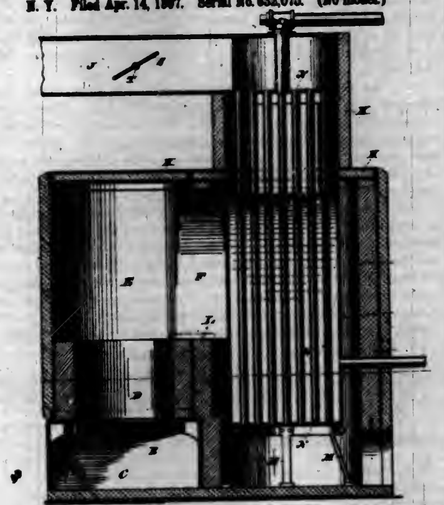
Claim.—1. In combination, a gang-saw holder for a plurality of saws, containing inclined shoulders, and saws fitted to said holder and provided with wedge-shaped lateral projections adapted to said shoulders whereby each of the saws in the one holder may be separately tightened, substantially as herein described.

2. In combination, a gang-saw gate, a holder for a plurality of saws adapted to said gate and containing inclined shoulders, a key adapted to the said holder and gate for tightening at one time the several saws in the holder, and saws fitted to said holder and provided with lateral projections of wedge form adapted to said shoulders for the tightening separately of each of the saws in the holder, substantially as herein described.

592,936.



592,937. STEAM-GENERATOR. JAMES REILLY, New York, N. Y. Filed Apr. 14, 1897. Serial No. 633,075. (No model.)

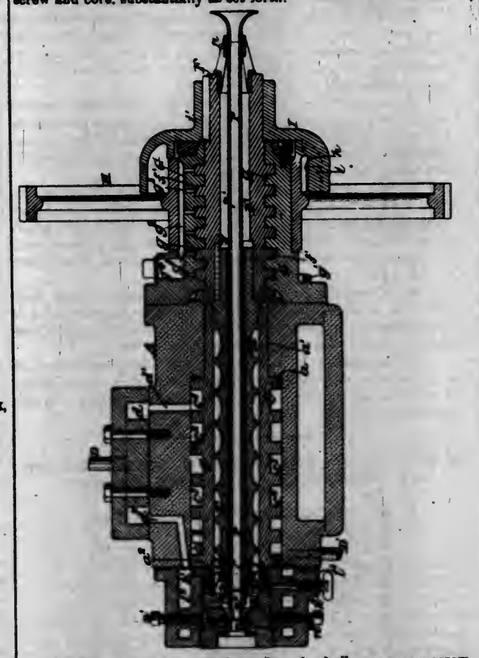


Claim.—1. The furnace having the fire-box, the combustion-chamber above said fire-box, and the door in the side of said chamber for the introduction of fuel to said fire-box, combined with the additional chamber opening at one side into said combustion-chamber and entirely closed at its top and sides except at its said side which opens into said combustion-chamber, the vertical boiler within and separated from the walls of said additional chamber, the distributing-pipe for steam leading from the upper end of said boiler, and the tubes in said boiler leading from the lower part of said additional chamber to the exit-pipe, whereby the products of combustion from said combustion-chamber are compelled to pass entirely around and down the sides of said boiler to said tubes; substantially as set forth.

2. The furnace having the fire-box, the combustion-chamber above said fire-box, and the door in the side of said chamber for the introduction of fuel to said fire-box, combined with the additional chamber opening at one side into said combustion-chamber and entirely closed at its top and sides except at its said side which opens into said combustion-chamber, and the vertical tubular boiler within said additional chamber and extending above the same to the exit-flue whereby a space is left within the upper end of the boiler above the water-line, and the distributing-pipe connected with the upper end of said boiler; substantially as set forth.

592,938. TUBING AND WIRE COVERING MACHINE. VERNON ROYLE, Paterson, N. J. Filed Apr. 30, 1896. Serial No. 547,617. (No model.)

Claim.—1. The combination with the casing, the hollow pressure-screw therein and means for operating the screw, of a core extending along the interior of the screw and provided with an exterior screw-thread to work out any material that may get between the screw and core, substantially as set forth.



2. The combination with the casing, the hollow pressure-screw and means for operating the screw, of a tubular core extending along the interior of the screw and provided with an exterior screw-thread spaced from the interior of the screw, substantially as set forth.

3. The combination with the casing, the pressure-head, the hollow pressure-screw and means for operating the screw, of a tubular core extending along the interior of the screw and a tube at one end of the screw within the pressure-head having a core or hub, the end of said tubular core being fixed within the core or hub of said tube, substantially as set forth.

4. The combination with the casing, the pressure-screw and means for operating the screw, of the die and a tube interposed between the end of the screw and the die and provided with winding passages forming continuations of the passage-ways between the pressure-screw and interior of the casing, substantially as set forth.

5. The combination with the casing, the pressure-head, the die and the pressure-screw, of a tube K interposed between the end of the pressure-screw and die and means for adjusting the said tube toward and away from the screw, substantially as set forth.

6. The combination with the casing, the pressure-screw and means for operating the screw, of a bushing interposed between the screw and the interior of the casing and provided with spaced ribs on its exterior forming together with the casing passages for the heating fluid around the screw, substantially as set forth.

7. The combination with the casing, the pressure-head, the die and the pressure-screw, of a tube interposed between the end of the pressure-screw and die, the interior of the pressure-head and the exterior of the said tube being provided with screw-threads for adjusting the said tube toward and away from the screw, substantially as set forth.

8. The combination with the casing, the pressure-head and the pressure-screw, of a tube located at the end of the pressure-screw for receiving the material from the screw and a ring or packing interposed between the said tube and the end of the screw, substantially as set forth.

9. The combination with the casing and the pressure-screw, of a thrust-piece connected with the screw and provided with a series of annular spaced ribs on its exterior, a fixed thrust-bearing provided on its interior with a series of annular ribs corresponding to the grooves on the thrust-piece, and means for applying power to the screw, substantially as set forth.

10. In combination, a casing, a pressure-screw within the casing, a thrust-piece attached to the screw and provided with a series of

annular ribs, a two-part thrust-bearing provided with a series of annular ribs corresponding to the grooves on the thrust-piece, a drive-wheel mounted on the thrust-bearing and a cap-piece adapted to lock the drive-wheel to the screw, substantially as set forth.

11. In combination, the pedestal, drive-shaft bearings fixed thereto at an angle to one another, a drive-shaft mounted in one of the bearings, a pressure-screw, a delivery belt or apron, and means for transmitting power from the drive-shaft to the screw and belt or apron, substantially as set forth.

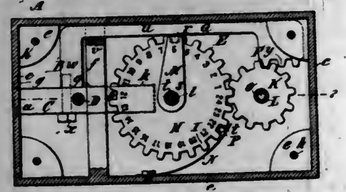
12. In a machine of the class described, a head portion provided with a die in which there are combined a central pin for forming the bore of a tube and an outer encircling wall for regulating the diameter of the tube, and means for adjusting the parts with relation to each other, substantially as described.

13. In a machine of the class described, a head portion carrying a die in which there are combined a spider having threaded engagement with the head portion, a central pin on such spider, a die proper screw-threaded in the head portion and encircling the pin, and means for changing the relation of the pin to the die proper, substantially as described.

14. In combination, the pedestal, drive-shaft bearings fixed thereto at an angle to one another, a drive-shaft mounted in one of the bearings, a pressure-screw and means for transmitting power from the drive-shaft to the screw, substantially as set forth.

15. The combination with the casing and the pressure-screw, of a thrust-piece connected with the screw, a two-part thrust-bearing fixed to the casing and means for applying power to the screw, substantially as set forth.

592,939. PERMUTATION-LOCK. JOHN A. SALVÁ, Brooklyn, N. Y. Filed Nov. 15, 1895. Serial No. 569,045. (No model.)



Claim.—1. A movable bolt, having a tail movable in a predetermined path, in combination with a movable member consisting of two separately-movable parts, each having on one side of its edge gear-teeth, and on the other side reduced bolt-faces, said parts placed side by side with their bolt-faces adjacent, behind and in the path of movement of the tail of the bolt, and controlling movement of said bolt, and with their toothed portions at their remote sides and out of the path of movement of the tail of the bolt, and a rotative and axially-movable pinion of less width than the space between the toothed portions of said parts, gearing with the teeth of said parts alternately when shifted from the teeth of one to those of the other, and disengaged from both said parts when moved axially to an intermediate position between the teeth thereof.

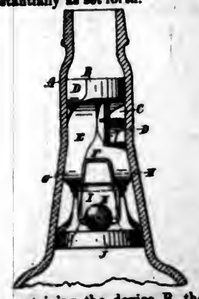
2. In locks and the like, a bolt, a permutation member having peripheral gear-teeth, and a pinion engaging the teeth of and operating the latter at one time and passive relatively thereto at another time, in combination with a rack gearing with said pinion when it is passive relatively to said member, and then moved by said pinion, and a connection between said rack and the bolt, moving the latter when said rack is moved by said pinion.

3. In locks and the like, a bolt C, and disks H having separated gear-teeth, in combination with operating-gear, meshing with the teeth of said disks for moving the latter, active relatively to one at one time and to the other at another time, and passive relatively to both at another time, and a rack connected to said bolt for moving it, engaged and operated by said operating-gear when the latter is passive relatively to both said disks.

592,940. NON-REFILLABLE BOTTLE. ERNESTO SASSERNOFF, New York, N. Y., assignor to the Eclipse Nonrefilling Bottle Company, Newark, N. J. Filed Sept. 25, 1896. Serial No. 606,912. (No model.) Patented in England Nov. 10, 1896, No. 25,255; in Belgium Nov. 16, 1896, No. 124,603, and in Canada Nov. 17, 1896, No. 54,066.

Claim.—1. The bottle containing the device B for preventing the refilling, which device contains the grooves C, D, the chamber E to which said grooves lead, the hood F at the lower portion of said chamber, the hinged gate or valve I below said hood and arranged to close or open the aperture L, and the ball K arranged to close the said gate or valve; substantially as set forth.

2. The bottle containing the device B, the latter being provided with the grooves C, D, which extend downward and thence turn laterally and thence downwardly and thence laterally and thence upwardly to their terminus, the chamber E in which said grooves terminate, the hood F at the lower portion of said chamber, the hinged gate or valve I below said hood, the base at the front of said valve, the ball adapted to close the valve, the passages for the liquid at the sides of said hood, and the aperture L adapted to be closed by said gate or valve; substantially as set forth.

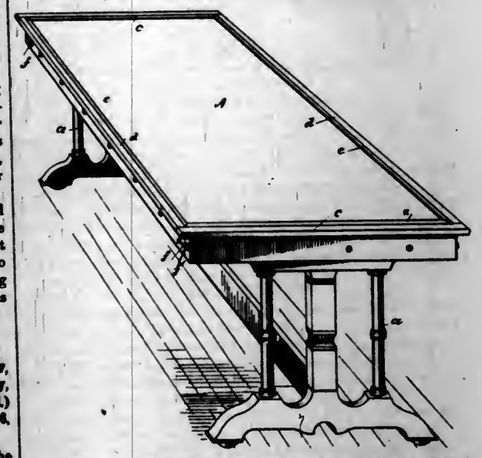


3. The bottle containing the device B, the latter having the chamber M and aperture L adjacent to its lower portion, the substantially vertical gate or valve I adapted to close said aperture and hinged at its upper end, the base at the front of said valve, the ball adapted to close said valve, and an irregular groove extending from the upper end of said device to a point adjacent to said valve; substantially as set forth.

4. The bottle containing the device B, the latter having the chamber M at its lower end, the transverse aperture L communicating with said chamber, the hinged gate or valve adapted to close said aperture, the base J at the front of said gate or valve, the ball on said base, the chamber or space above said gate or valve, and an irregular groove extending from the upper end of said device into said space or chamber; substantially as set forth.

5. The bottle containing the device B, which device contains in a substantially vertical partition at its lower end the aperture L, the substantially vertical gate or valve I adapted to close said aperture and hinged at its upper end, the base J in front of said gate or valve, the hood F over said base and said gate or valve, the ball within the space between said hood and base and adapted to close said gate or valve, and an irregular groove extending from the upper end of said device to a point adjacent to said valve; substantially as set forth.

592,941. COMBINED BILLIARD AND DINING TABLE. CHARLES STAHL, New York, N. Y. Filed Oct. 22, 1896. Serial No. 609,730. (No model.)



Claim.—1. A billiard, pool or combination table having its bed provided with transverse sockets near two opposite sides, combined with two rails provided with studs adapted to enter said sockets, two plain rails adapted to the other two sides of the table, and locking devices at the corners of the rails, substantially as described.

2. A billiard, pool or combination table having its rails provided with means for detachably connecting the same to the bed, combined with brackets secured beneath the bed and provided with hangers adapted to receive the side rails laterally, substantially as described.

3. A billiard, pool or combination table having its rails provided with means for detachably securing the same to the bed, and brackets secured to and extending across the bed-supporting stringers and adapted for the reception of the end rails between the stringers, and provided with laterally-projecting hangers adapted to receive the side rails laterally, substantially as described.

4. A billiard, pool or combination table having its bed provided with transverse sockets near two opposite sides, combined with two rails provided with studs adapted to enter said sockets, two plain rails adapted to the other two sides of the table, locking devices at the corners of the rails, and brackets located beneath the bed and provided with hangers adapted to receive the side rails laterally, substantially as described.

5. A billiard, pool or combination table provided with detachable end and side rails and with brackets secured beneath the bed and provided with hangers adapted to receive the side rails laterally, so that when the rails are stored beneath the bed, the billiard-table will answer as an ordinary table, substantially as described.

592,942. UNIVERSAL FIRING-PIN. FRANCIS H. TIGHENOR, Peoria, Ill. Filed Mar. 22, 1897. Serial No. 628,050. (No model.)



Claim.—1. The combination with the breech block or mechanism of a breech-loading gun, of a two-part universal firing-pin mechanism comprising a part mounted to rotate in said breech block or mechanism means for holding the same from movement toward and from the gun-barrel, a firing-pin mounted loosely in said part to reciprocate therein, said first-mentioned part being adapted to be rotated to bring the firing-pin either concentrically or eccentrically to the bore of the gun-barrel and an independently-reciprocating plunger in said block adapted to communicate the blow of the hammer to said firing-pin in any of its positions.

2. The combination with the breech block or mechanism of a breech loading gun, of a two-part universal firing-pin mechanism comprising a rotatable disk mounted in the forward end of said block or mechanism and eccentrically to the bore of the gun-barrel, means for preventing movement thereof toward and from said gun-barrel, a firing-pin mounted eccentrically in said disk and having free reciprocatory movement therein toward and from said barrel and a plunger mounted behind said firing-pin and adapted to communicate the blow of said hammer to the said pin.

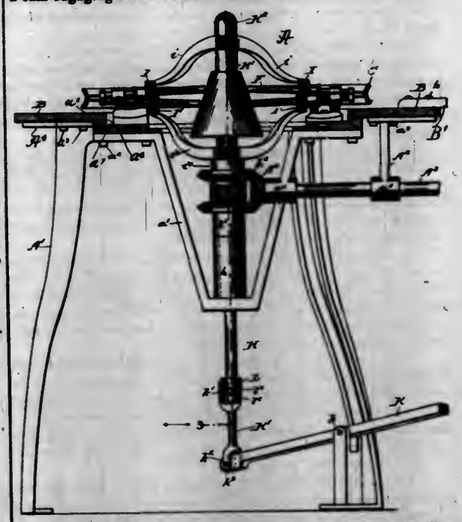
3. The combination with a breech block or mechanism of a breech-loading gun provided in its front face with an annular recess, of a two-part universal firing-pin mechanism comprising a rotatable disk mounted in said recess eccentrically to the bore of the gun-barrel, said disk being provided with a reciprocating firing-pin mounted eccentrically therein and an independently-reciprocating plunger mounted in said block and adapted to communicate the blow of the hammer to said firing-pin.

4. The combination with the breech block or mechanism of a breech-loading gun, provided in its front face with an annular recess, of a two-part universal firing-pin mechanism comprising a rotatable disk, a firing-pin loosely mounted therein and eccentric to said disk and means for communicating the blow of the gun-hammer to said firing-pin, said disk being provided with a peripheral groove which is engaged by a screw-threaded bolt which is inserted through the adjacent wall of the block or mechanism to hold said disk in place at any point in its rotation.

5. The combination with the breech block or mechanism of a breech-loading gun, of a two-part universal firing-pin mechanism comprising a rotatable disk mounted in the front face of the block and eccentric to the bore of the gun-barrel, provided with a firing-pin mounted eccentrically thereto, and to reciprocate in said disk, means for holding said disk in place, a plunger mounted in said block and adapted to communicate the blow of the hammer to the firing-pin and means for holding said plunger in place and limiting its movement in the block.

592,948. MULTIPLE DRILL. JOHN I. WARMAN, Chicago, Ill. Filed June 26, 1896. Serial No. 596,944. (No model.)

Claim.—1. A multiple drilling-machine comprising a frame, a plurality of movable chucks thereon, means for actuating the chucks to engage and center the work, a plurality of adjustable drill-carrying spindles mounted on said frame, means for actuating said spindles and means for moving the spindles toward the work comprising a cam engaging the free ends of the same.



2. A multiple drilling-machine comprising a frame, a plurality of movable chucks mounted thereon, means for actuating the said chucks to engage and center the work, a plurality of drill-carrying spindles mounted in adjustable brackets secured on said frame whereby the angle of the drill-carrying spindles may be adjusted as desired, means for actuating said drill-spindles and means for moving the same outwardly toward the work comprising a cam engaging the free ends thereof.

3. A multiple drilling-machine comprising a horizontal table provided with movable work-holding chucks, means for simultaneously actuating the chucks to engage and center the work, a plurality of adjustable drill-carrying spindles mounted on said table, carrying drills on their outer ends, means for actuating the drill-carrying spindles and means for simultaneously feeding the drills to their work comprising a cam engaging the free ends of said spindles.

4. A multiple drilling-machine comprising a horizontal table provided with movable work-holding chucks, means for simultaneously actuating the chucks to engage and center the work, a plurality of adjustable drill-spindles mounted on said table carrying drills on their outer ends, means for actuating the drill-carrying spindles and means for feeding the drills to their work comprising a vertically-movable cam engaging the inner ends of the drill-carrying spindles.

5. A multiple drill comprising a substantially horizontal table provided with movable chucks, means for simultaneously actuating the chucks to engage and center the work, a plurality of drill-carrying spindles, brackets for said spindles adjustably secured to the table whereby the drill-carrying spindles may be adjusted in a desired direction, means for simultaneously actuating the drill-carrying spindles, and means for simultaneously feeding the drills outwardly to their work, comprising a vertically-movable cone engaging the inner ends of the drill-carrying spindles, substantially as described.

6. A multiple drilling-machine having a table provided with a T slot or recess in its face and a plurality of drill-carrying-spindle brackets mounted on said table each consisting of a base and a spindle-support provided with a bolt-aperture therethrough and means for securing said parts adjustably together and to the table comprising a bolt engaging said slot and passing through the bolt-aperture of said bracket.

7. In a multiple drill, the combination with a table, of a composed drill-carrying-spindle bracket, the upper member of which is provided with bearings for the said spindles, an elongated slot extending through said upper member, a bolt-aperture extending through the lower member, the adjacent faces of the two members being tongued and grooved and the one being convexed and the other concaved, and a bolt engaging the machine-table extending through the said bolt-aperture and through the said elongated slot, a lock-nut on the free end of said bolt, and a head upon the other end of said bolt engaging the table, substantially as and for the purpose described.

8. In a multiple drill, the combination with the table of the machine, of a two-part drill-carrying bracket, a concentric or annular inverted-T slot in the table, a headed bolt engaging the said slot and extending through a suitable aperture in the bracket, a lock-nut on the free end of the said bolt, the under side of the lower part of the bracket being provided with a transversely-arranged rib adapted to engage the narrow portion of the inverted-T slot, substantially as described.

9. A multiple drilling-machine comprising a horizontal frame, two sets of radially-arranged drill-carrying spindles mounted thereon, each provided with a pinion, the spindles of each set rotating in different planes, means for rotating each set of spindles, and means engaging the inner ends of said spindles for simultaneously feeding said drills to their work.

10. A multiple drilling machine comprising a horizontal frame, two sets of radially-arranged drill-carrying spindles mounted thereon, each provided with a pinion, the spindles of each set rotating in different planes, means for rotating each set of spindles, and a cam engaging the inner ends of said spindles for simultaneously feeding said drills to their work.

11. A multiple drilling machine comprising a horizontal frame, two sets of drill-carrying spindles mounted thereon, each provided with a pinion, the pinions of the respective sets rotating in different planes, a separate driving-wheel for each set of pinions, means for actuating said wheels, and a cam engaging the inner ends of the spindles for feeding said drills to their work.

12. In a multiple drilling-machine comprising two sets of drill-carrying spindles each provided with a pinion, the pinions of the respective sets rotating in different planes, upper and lower circular racks engaging said pinions, the upper rack being connected to a shaft, and the lower rack being connected to a sleeve surrounding said shaft, means for imparting rotary motion both to said sleeve and said shaft, substantially as described.

13. In a multiple drill, the combination with a table provided with means for securing the work thereon, of drill-carrying brackets adjustably secured on said table arranged to present the drills to the work at different angles, two sets of drill-carrying spindles having their rear ends in different planes, driving-pinions on each drill-carrying spindle, an upper and a lower circular rack adapted to engage the driving-pinions on said sets of spindles, the upper rack being secured to a suitable shaft provided with a miter-wheel, the lower rack being secured to a suitable sleeve surrounding said shaft, and also provided with a miter-wheel, a power-shaft, and a driving-wheel thereon, engaging said miter-wheels, substantially as set forth.

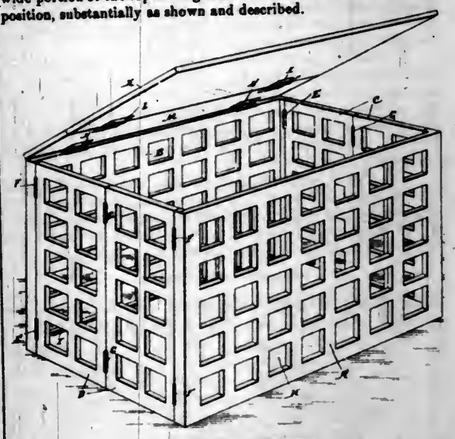
14. A multiple drilling-machine comprising two sets of drill-carrying spindles each provided with a pinion, the pinions of the respective sets rotating in different planes, upper and lower circular racks engaging said pinions, the upper rack being connected to a shaft, and the lower rack being connected to a sleeve surrounding said shaft, means for imparting rotary motion both to said sleeve and said shaft, and means for simultaneously feeding the drills comprising a cone longitudinally movable upon said shaft and having its outer surface in sliding engagement with the inner or free ends of the drill-carrying spindles, a central aperture in said shaft, an elongated slot extending through said shaft and communicating with said aperture, a pin or finger secured to said feed-bar passing through the slot in said shaft and engaging the lower side of said cone, and means for telescoping the feed-bar within the shaft as desired, whereby the cone may be moved along said shaft and the drills be fed to their work, substantially as described.

15. An annular multiple drilling-machine comprising a horizontal frame, a plurality of work-holding chucks mounted thereon, means for simultaneously actuating said chucks to engage and center the work, two sets of radially-arranged, drill-carrying spindles adjustably mounted on said frame each provided with a driving-pinion and each set arranged to act at a different angle, means for rotating said spindles simultaneously and means for simultaneously moving said spindles toward the work comprising a cam engaging the inner ends thereof.

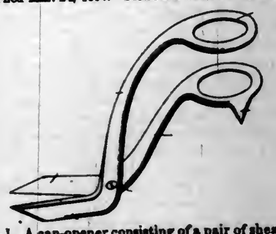
16. An annular multiple drilling-machine comprising a horizontal frame, a plurality of work-holding chucks mounted on said frame, means for simultaneously actuating said chucks to engage and center the work, two sets of radially-arranged drill-carrying spindles adjustably mounted on said frame each provided with pinions, the pinions of each set rotating in different planes, driving-gears engaging each set of said pinions to rotate the same, and means for moving said pinions outwardly toward the work comprising a movable cam engaging the inner ends thereof.

592,944. COLLAPSIBLE CRATE. WILLIAM P. WILSON, Mount Vernon, N. Y. Filed Sept. 5, 1896. Serial No. 604,963. (No model.)

Claim.—In a crate, the sides A B provided with inwardly-turned offsets at their ends, end pieces C D each made in two parts, and which are hinged together at their centers, and hinged to the sides at their outer edges; the bottom H hinged at I to the side B, and the cleats J carried by said pieces C D by which the bottom is supported in position, combined with a top K that is composed of a wide and a narrow section that are hinged together, the narrow section being just the width of the crate when it is folded together and the wide portion of the top serving as a lock to hold the parts in a folded position, substantially as shown and described.



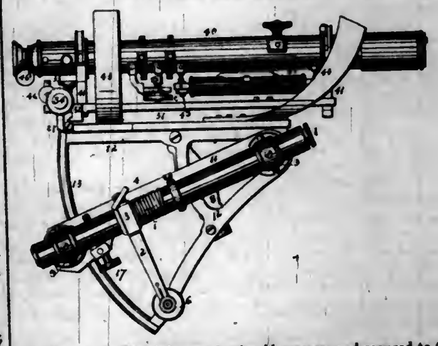
592,945. CAN-OPENER. JOHN R. YOUNGBLOOD, Union City, Wash. Filed Mar. 24, 1897. Serial No. 628,993. (No model.)



Claim.—1. A can-opener consisting of a pair of shears, the blades of which are disposed at such an angle to the handles that the handles in operation will be located above the plane in which the blades operate, one of the handles being provided with a depending pointed punch or cutter which also forms a finger-guard, substantially as described.

2. A can-opener, consisting of a pair of shears, one of the handles of which is provided with a depending pointed punch or cutter which also forms a finger-guard, substantially as described.

592,946. TELESCOPIC GUN-SIGHT. EDWARD L. ZALINSKI, U. S. Army. Filed May 10, 1889. Serial No. 310,232. (No model.)



Claim.—1. The sight-seat having V-grooves, and secured to the gun, said seat having adjusting means substantially as described whereby the grooves may be brought in exact alinement with the bore of the gun, the sight-bar constructed to enter said grooves, and the telescopic sight connected to said bar and adjustable relatively thereto, all in combination substantially as described.

2. In a telescopic sight for ordnance, the sight-bar, and means for clamping it to the gun parallel with the bore of said gun, a collar which may be turned on or be clamped to said sight-bar, an arm attached to said collar, and the sight supported by said arm, and means for adjusting the sight relatively to the bar, all combined substantially as described.

3. The combination with the notched sight-seat, the sight-bar resting therein, a collar surrounding said bar, an arm connected to the collar, and a spring connected to the bar and acting on the collar and arm with a tendency to revolve the collar about the bar, all substantially as described.

4. The combination of the sight-bar and sight connected thereto, the arm connected to said bar and extending downward therefrom, and the set-screw connected to said arm and having a bearing on the sight-support, substantially as described.

5. In a telescopic sight, the combination of the sight-bar parallel with the axis of the gun, the sight-plate supported at one side thereof, the vertical sector, and the horizontal limb supporting the telescope above said sector.

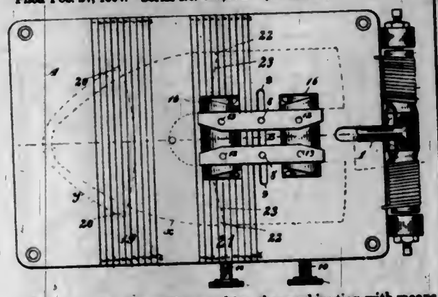
6. In a telescopic sight, the combination of the sight-plate, the telescope supported above said plate, and the guards covering said telescope at such distance as to permit adjustment of the telescope within the guard, substantially as described.

7. The combination of the sight-bar parallel with the axis of the gun, the telescope mounted thereon and, adjustable with relation to said bar, and a level mounted on the telescope in proximity to the eyepiece so as to be visible within the tube of the telescope, substantially as described.

8. In a telescopic sight, the sight-seat attached to the gun and provided with V-grooves in which the sight-bar may rest, and spring-clasps connected therewith for clasping said sight-bar, substantially as described.

9. A sight-seat having a ring or plate for attachment to the gun, a supporting-plate slightly adjustable in vertical direction, and a sight-support adjustable in horizontal direction, and securing devices substantially as described for holding said sight-seat when adjusted.

592,947. TIP-SETTING APPARATUS. WILLIAM T. BENJAMIN, Newark, N. J., assignor of one-half to John W. Denny, same place. Filed Feb. 27, 1897. Serial No. 625,374. (No model.)



Claim.—1. In a tip-setting machine the combination with means for centering the upper or vamp, of a gage, an arm carrying the same whereby the gage may be brought down in line over the vamp, and means for holding the gage out of contact with the vamp to permit the tip to be centered beneath the guide.

2. In a tip-setting machine the combination with means for centering the upper or vamp, of a central gage, an arm carrying the gage whereby the latter may be brought down in line over the vamp, and a marker acting also to hold the front portion of the gage centrally over and slightly above the vamp to allow of the tip being placed and centered beneath the gage.

3. In a tip-setting machine the combination with means for centering the upper or vamp, of a central gage for setting the tip and a table provided with a scale for setting the outer corners of the tip.

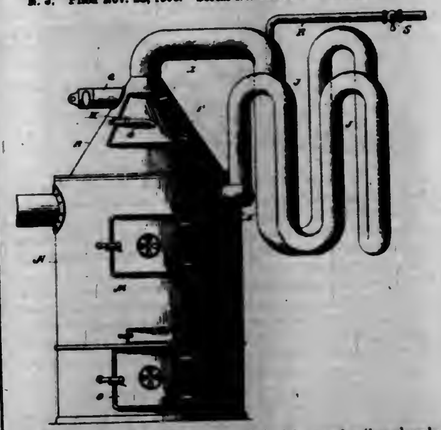
4. In a tip-setting machine the combination, with means for centering the upper or vamp, and a central gage for setting the tip and adapted to mark the vamp, of a table having on each side of the center a graduated scale consisting of a series of transverse lines for setting the rear corners of the vamp.

5. In a tip-setting machine the combination of two laterally-adjustable guides for the upper or vamp, a mechanism connected with the front ends of said guides for adjusting said ends laterally, a second mechanism independent of the first-mentioned mechanism connected with the rear ends of the guides for laterally adjusting said rear ends, and independent operating means for said mechanisms.

6. In a tip setting machine the combination of two laterally-adjustable guides for the foxing or vamp, a cam mounted on an axis transverse to said guides and having two oppositely-inclined grooves connected respectively with said guides, and means for rotating the cam.

7. In a tip-setting machine, the combination with a table or support, of a vamp-centering device comprising a guide consisting of two separate bars or portions, a transverse rotary cam connected with the front ends of said portions, an independent rotary cam connected with the rear ends of said portions, and means for separately operating said cams.

592,948. GARBAGE-CREMATORY. CLIFTON R. BODINE, Camden, N. J. Filed Nov. 25, 1896. Serial No. 613,380. (No model.)



Claim.—In a refuse-burner provided with a combustion-chamber, a retort suspended within the combustion-chamber, a conical top for the retort, a gas-pipe leading from the conical top and discharging into the combustion-chamber against the sides of the retort, said pipe being formed with compound curves vertically disposed, and a pipe, having a damper for supplying cool air to the gas-pipe to condense the gases therein.

592,949. WIRE-CLAMP. WILLIAM H. BRODIE, Brooklyn, N. Y. Filed May 3, 1896. Serial No. 590,709. (No model.)



Claim.—1. In a wire-clamp, the combination of two pivotally-connected sections adapted to clamp the wire and means comprising a screw-threaded part connected to the sections and a wedging-block having screw-threads engaging with said screw-threaded part, said means being arranged for moving said sections into clamping engagement with the wire, substantially as set forth.

2. In a wire-clamp, the combination of two pivotally-connected sections adapted to clamp the wire, a screw-threaded wedging-block movable between the sections for forcing the sections into clamping engagement with the wire, and a screw-threaded part engaging the screw-threads of said wedging-block to move the same, substantially as set forth.

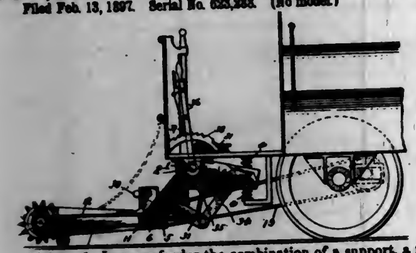
3. In a wire-clamp, the combination of two parts or sections to clamp the wire, a hinging-pin pivotally connecting the sections, a screw-threaded wedging-block movable between the parts or sections for forcing the same into clamping engagement with the wire, and a screw engaging said wedging-block to move the same, substantially as set forth.

4. In a wire-clamp, the combination of two parts or sections pivotally connected and arranged to clamp the wire, a screw connected to the sections and an expanding nut screwing on the screw between the sections and provided with an integral conical portion arranged to engage the sections and force them into clamping engagement with the wire, substantially as set forth.

5. In a wire-clamp, the combination of two parts or sections pivotally connected and arranged to clamp the wire, a screw connected with the sections, and an expanding nut having a wedge-shaped portion arranged to engage the sections and force them into clamping engagement with the wire, said nut being provided with a passage in which are formed two sets of screw-threads, one to be engaged by the screw to move the nut relatively thereto when the nut is turned, and the other to be engaged by a supporting-bolt, substantially as set forth.

592,950. CAR-FENDER. THOMAS H. CAMPBELL, Beaver, Pa.

Filed Feb. 13, 1897. Serial No. 623,288. (No model.)



Claim.—1. In a car-fender the combination of a support, a fender-frame carried thereby, a rotating buffer at the forward end of said frame, means for rotating said buffer, means for moving the fender-frame with respect to its support, and means whereby this movement will connect or disconnect the buffer-rotating mechanism, substantially as described.

2. In a car-fender the combination of a pair of supporting-brackets, a fender-frame carried thereby, a rotating buffer at the forward end of said frame, means for rotating said buffer, means for moving the rear end of said frame horizontally backward and forward, and means whereby this movement will disconnect or connect the buffer-rotating mechanism, substantially as described.

3. In a car-fender the combination of a pair of supporting-brackets, a fender-frame carried thereby, a rotating buffer at its forward end, means for folding the fender-frame against the car, means for securing it at any desired point in its travel, and means for rotating the buffer, substantially as described.

4. In a car-fender the combination of a pair of supports, a shaft journaled in the lower ends thereof, a fender-frame loosely mounted thereon at its rear end, a rotating buffer mounted in the foward end of said frame, means for rotating the shaft, means connected to said shaft for rotating the buffer toward the car, a rock-shaft, levers connected to said shaft and operated thereby to fold the fender-frame against the car, and means for operating the rock-shaft, substantially as described.

5. In a car-fender the combination of a pair of supports, a fender-frame mounted in the lower ends thereof, a rock-shaft, an arm thereon, a link connected thereto, a rocking lever suitably supported, said link being connected to the upper end thereof, a link connected to the lower end of this rocking lever, said link being connected to the rear end of the fender-frame, a rotating buffer, and means for operating it, substantially as described.

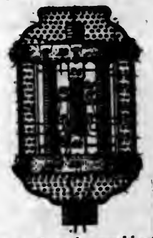
6. In a car-fender the combination of a pair of supports, a fender-frame mounted thereon and capable of a slight longitudinal movement, a rotatable buffer carried at the forward end of the frame, a rock-shaft, an arm thereon, a link connected thereto, a rocking lever connected to said link, a link connecting said rocking lever to the rear end of the fender, a lever for rocking the rock-shaft, a spring-pawl carried thereby, a notched segment adapted to be engaged by said pawl, a pair of levers mounted on the car-platform and connected by suitable levers to the fender-frame, and adapted to move said frame backward or forward, and means connected to said pair of levers for releasing the pawl of the operating-lever from the notched segment, substantially as described.

7. In a car-fender the combination of a support, a fender-frame pivoted thereon, means for folding the frame up against the car, locking mechanism for securing it at any desired point in its pivotal movement, a buffer at the forward end of the frame, means for rotating the buffer, means for moving the fender-frame bodily with respect to its support, means whereby this movement will connect or disconnect the buffer-rotating mechanism, said means automatically disconnecting the locking mechanism, substantially as described.

592,951. REGULATING-SOCKET FOR ELECTRIC LAMPS.

CLARENCE A. CRUTE, East Liverpool, Ohio, assignor to the G. F. Brunt Porcelain Works, same place. Filed June 14, 1897. Serial No. 640,613. (No model.)

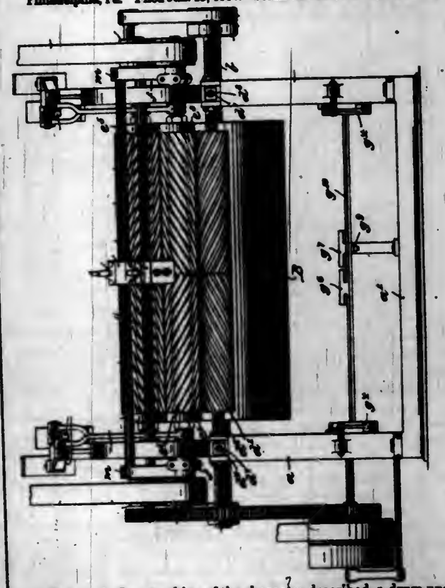
Claim.—1. In a regulating-socket, the combination of a rheostat having a plurality of terminals, a switchboard constructed to support said terminals, a switch adapted to encounter said terminals successively, lamp-contacts, one of said lamp-cohtacts being connected with the switch, short circuits connecting said terminals, and cut-outs arranged to make or break said short circuits, substantially as described.



2. In a regulating-socket, the combination of a rheostat having a plurality of spools and terminals, a switchboard constructed to support said terminals, said terminals extending through said switchboard, a switch adapted to encounter said terminal successively upon the front of said switchboard, lamp-contacts, one of said lamp-contacts being connected with said switch, short circuits connecting said terminals upon the rear surface of said switchboard, and cut-outs arranged to make or break said short circuits, substantially as described.

3. In a regulating-socket, the combination of a rheostat having a plurality of spools and terminals, a switchboard constructed to support said terminals, said terminals extending through said switchboard a switch adapted to encounter said terminals successively upon the front of said switchboard, lamp-contacts, one of said lamp-contacts being connected with said switch, short circuits connecting said terminals upon the rear surface of said switchboard, a removable perforated casing, and cut-outs arranged to make or break said short circuits, said cut-outs being inaccessible from without the casing, substantially as described.

592,952. HIDE AND SKIN MACHINERY. WILLIAM EVANS, Philadelphia, Pa. Filed Jan. 13, 1897. Serial No. 619,040. (No model.)



Claim.—1. In a machine of the character described, a drum upon which the hide or skin is supported, two finishing rolls or cylinders, means for depressing one of said rolls or cylinders and elevating the other, whereby each roll or cylinder may be brought alternately into operative position with respect to the hide or skin on said drum and two gripping and feeding rollers between which said rolls or cylinders are adapted to rotate, said rollers being normally pressed against the drum, substantially as and for the purposes described.

2. In a machine of the character described, a drum upon which the hide or skin is supported, two finishing rolls or cylinders, and a treadle mechanism adapted to raise and depress said rolls or cylinders and arranged so that upon the alternate elevation of each, the other of said rolls or cylinders will be depressed with respect to said drum, substantially as and for the purposes described.

3. In a machine of the character described, two finishing rolls or cylinders each carried by a shaft, two brackets each of which forms the bearings for either end of the shafts, each bracket being pivotally supported at the end of the machine; and means for oscillating each bracket on its support, whereby one of said rolls or cylinders may be depressed and the other simultaneously elevated, substantially as and for the purposes described.

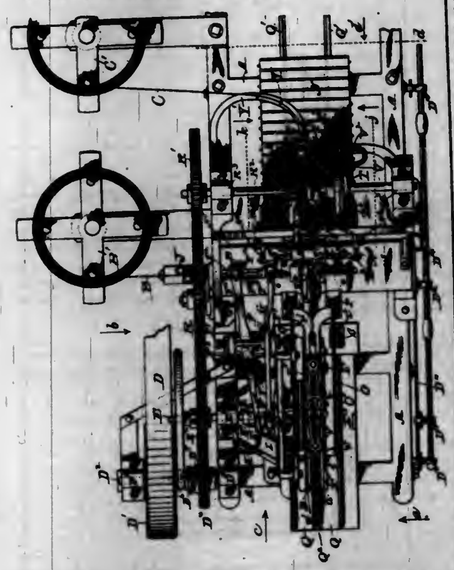
4. In a machine of the character described, a drum, two finishing-rolls each carried by a shaft, a bracket pivoted at one end of the machine and carrying the shafts of the rolls or cylinders, and a treadle mechanism adapted to oscillate said bracket and thereby bring one roll into operative position and the other roll simultaneously into inoperative position with respect to the drum, substantially as and for the purposes described.

5. In a machine of the character described, two finishing-rolls, brackets supporting said rolls, means for oscillating said brackets, cross-rods carried by said brackets, a carriage adapted to slide on said cross-bars, two grinding-blocks carried by said carriage, each adapted to traverse the periphery of one roll, and means for feeding said blocks toward or away from said rolls, said blocks being maintained by said cross-rods in fixed relationship with respect to said rolls, substantially as and for the purposes described.

6. In a machine of the character described, two finishing-rolls, pivoted brackets forming the bearings for said rolls, an idle-pulley carried by one of said brackets on one side of its pivotal support, pulleys adapted to drive said rolls and located on the other side of the pivotal support of said brackets, and a driving-belt passed around the driving and idle pulleys, substantially as and for the purposes described.

7. In a machine of the character described, a drum and two fleshing, shaving or finishing rolls or cylinders, each of said cylinders being provided with blades terminating at either end in a collar having a smooth periphery flush or substantially flush with the upper edges of the blades of said rolls or cylinders, substantially as and for the purposes described.

592,953. MACHINE FOR MAKING WINDOW-BLINDS. ROBERT S. GRIFFIN and JOHN W. COPELAND, Worcester, Mass. Filed Jan. 2, 1896. Serial No. 574,094. (No model.)



Claim.—1. The wire-grip device F^{14}, consisting of the slide-block F^{10}, fitted to slide in bed A; the vertical bolt, F^{12}, passing through the end of pivoted lever F and fastened to slide-block F^{10}, and block F^{13}, fitted over said bolt between lever F and slide-block F^{10}, in combination with bed A, pivoted lever F and means for operating said lever both vertically and laterally, substantially as and for the purpose set forth.

2. The combination of rotary shaft E, fitted to turn in suitable bearings, and cam E^5 secured thereon, having the peripheral cam-surface E^6 adapted to act on the end G^3 of lever G, with said lever G pivoted to a shaft G', and having a wire-gripping device at its opposite end G^3, consisting of the plates G^4 G^5, between which the wire B passes, the guide-plate G^7, the slide-block G^8, fitted in the guideway F^{11} of bed A, and holding-plate G^9 and its screws G^{10} for fastening the plate G^4 and slide-block G^8 together, substantially as and for the purpose set forth.

3. The combination of rotary shaft E fitted to turn in suitable bearings, and eccentric L secured thereon, with frame L' in which said eccentric turns, frame L^2 L^3, fitted to slide longitudinally in a suitable, longitudinal guideway in bed A, spring-catch L^4, mounted on said frame, and whose catch s^3 is adapted to engage with slide-bar K^4; said slide-bar K^4, provided with notches r r in its top surface, with which said catch s^3 is adapted to engage, the adjustable, stationary, lifting-fingers t adapted to also engage with said catch s^3, slide-plate K^3 attached to the forward end of said slide-bar K^4, and fitted to slide in a suitable guideway, cutter K secured to the front end of said slide-plate K^3, and adapted to act in conjunction with the stationary cutter K', to sever the piece of wire from which the staple is formed from the main strand, and said stationary cutter K' having a suitable opening therein for the passage of wire B, substantially as and for the purpose set forth.

4. The combination of slide-bar K^4 provided with notches r r in its top surface with which the catch s^3 of the spring-catch L^4 may engage to operate the same, with slide-plate K^3 attached to the forward end of said slide-bar K^4, and fitted to slide in a suitable guideway, also provided with the bevels w^3 w^3 at its front end, cutter K secured to the front end of said slide-plate K^3, and adapted to act in conjunction with the stationary cutter K' to sever the piece of wire from which the staple is formed from the main strand, said stationary cutter K' having a suitable opening therein for the passage of wire B, and the movable vertical bar or staple-former, w^4, around which the severed piece of wire is bent by the bevels on slide-plate K^3, to form the staple, substantially as and for the purpose set forth.

5. The combination of bed A and stationary bearing w^6, formed or secured thereon, with swing-lever w^7, pivoted at one end at w^6 to said bearing, vertical bar or staple-former w^4 arranged to move up and down in bearing w^6 and having a stud or projection w^9 against which the lever w^7 may impinge to lift said bar or former w^4, when the lever is raised, the spring w^5 adapted to press downward on the bar or former w^4 and the staple-driver M having the raised, beveled portion M^2, adapted to engage with the rounded end w^{10} of said lever w^7 opposite from its pivoted end, to elevate the same, and also having means connected therewith for imparting intermittent, longitudinal movements thereto, substantially as and for the purpose set forth.

6. The combination of the spring, catch device L^4, mounted on the longitudinally-reciprocating frame or carriage L^2 L^3, with the longitudinal slide-bar M', fitted to slide in a suitable guideway and having notches r', r' in its top edge for the catch s^4 of said catch device L^4 to engage with the lever w^7; the staple-driver M attached to the front end of said slide-bar M' and over the top edge of which said lever w^7 is adapted to slide, when said driver is moved back and forth longitudinally, the driver also being fitted to slide in a suitable guideway and to engage with the staple previously formed and drive it into the edge of one of the slats N, substantially as and for the purpose set forth.

7. The combination of the slide-bar M', having means connected therewith for imparting intermittent longitudinal movements thereto, with the staple-driver M, attached to the forward end of said slide-bar, fitted to slide in a suitable guideway and adapted to engage with the staple previously formed, and drive it into the edge of one of the slats N, the lever w^7, pivoted at one end w^6 to a stationary bearing w^6, and whose opposite free end is adapted to slide over the top edge of said staple-driver M, the vertical bar or former w^4, arranged in bearing w^6 and having the laterally-projecting stud, w^9 for the lever w^7 to engage with, between its pivoted end and its free end, which rests on the staple-driver, and the spring w^5 also arranged in said bearing w^6, and adapted to exert a downward, yielding pressure on the bar or former w^4, substantially as and for the purpose set forth.

8. The combination of the slide-bar M' having means connected therewith for imparting intermittent, longitudinal movements thereto, with the staple-driver M fitted to slide in a suitable guideway, and adapted to engage with the staple previously formed, and drive it into the edge of one of the slats N, said staple-driver also being provided with a notch w^{14}; the lock-lever w^{13}, pivoted to a stationary bearing and adapted to engage with said notch w^{14}; the fixed finger w^{12} on slide-plate K^2, for engaging the end of lever w^{13} with the staple-driver notch, and the fixed finger w^{11}, also on said slide-plate K^2

for disengaging said lever w^{14} from the notch w^{15}, substantially as and for the purpose set forth.

9. The combination of the longitudinally-reciprocating frame or carriage L^3 L^3, with the bifurcated frame P', adjustably secured to the front end thereof, the horizontal longitudinal pusher-plates P P formed upon or secured to said frame P', and adapted to engage with the edge of one of the slats N to push it forward, the longitudinally-sliding slat-conveyer O, suitable spring-pawl devices attached to said pusher-plates P P and adapted to engage with said conveyer, and bed A having suitable supports and guideways for said conveyer, substantially as and for the purpose set forth.

10. The combination of the longitudinally-reciprocating frame or carriage L^3 L^3 and bed A, with the bifurcated frame P', adjustably secured to the front end thereof; the horizontal, longitudinal pusher-plates P P formed upon or secured to said frame P', and adapted to engage with the edge of one of the slats N to push it forward, suitable spring-pawl devices mounted on said pusher-plates and adapted to engage with the slat-conveyer O, said slat-conveyer fitted to slide longitudinally in frame A, and made in a series of separable sections, each section consisting of the side pieces x x, the cross connecting-rod x' and plate x^6, the hooks x^7 x^8, adapted to be hooked over the cross rod x' of the next preceding conveyer-section, the springs x^4 x^4 for exerting a pressure on said hooks to keep them in engagement with said cross-rod x', and the longitudinal rod N' attached at one end by spurs x^5 to the cross-plate x^6 and its other end adapted to rest in a longitudinal groove in bed A, substantially as and for the purpose set forth.

11. The mechanism for feeding the wire C into the machine, consisting of the cam T, on rotary shaft R^3, lever V, pivoted at V' to a trunnion-bearing, and whose upper end is adapted to engage with the periphery of said cam T, and with the side cam-surface T^4 of cam T; trunnion-bearing V', mounted in stationary bearings; and grip device V^6 with which the lower end of lever V engages; in combination with the mechanism for clamping and holding said wire C during the operation of cutting the staple-blanks from the main strand, and while said blanks are being bent to form the staples, consisting of the cam T, also on rotary shaft R^3, lever W pivoted at W' to the same stationary bearing as lever V, and whose upper end is adapted to engage with the lateral cam-surface T^5 of cam T, and wire-clamping block W^3 with which the lower end of lever W engages, substantially as and for the purpose set forth.

12. The combination of transverse rotary shaft R fitted to turn in stationary bearings and eccentric T^2 secured on said shaft, with frame X fitted to slide vertically in stationary frame X', spring-catch devices L^6 L^7 mounted on said carriage and adapted to engage with the vertical, slide-bar X^2, said slide-bar X^2 fitted to slide up and down in a suitable guideway and provided with notches y for said catch devices to engage with and also with the notch y^6 at its upper end, the stationary spring-catch y^5 adapted to engage with said notch y^6 on the slide-bar and provided with the projection y^9, the projection y^8 on catch device L^6 adapted to engage with said projection y^9, slide-plate X^5 attached to the bottom of slide-bar X^2 and fitted to slide vertically in slide-frame X^7 also provided with the end bevels X^{12} X^{13}, cutter X^{10}, secured to the bottom of slide-plate X^5, stationary cutter X^{11} adapted to act in conjunction with the movable cutter X^{10} to sever the pieces of wire from which the staples are formed from the main strand C, and the movable, horizontal bar or staple-former X^{14} over which the severed piece of wire is bent by the bevels X^{12} X^{13} to produce the finished staple, substantially as and for the purpose set forth.

13. The combination of the intermittently-reciprocating, vertical slide-bar X^2, with the slide-plate X^5, attached to the bottom of said slide-bar X^2, and fitted to slide up and down in the slide-frame X^7, and also provided with the end bevels X^{12} X^{13}, cutter X^{10}, secured to the bottom end of said slide-plate X^5, stationary cutter X^{11}, adapted to act in conjunction with the movable cutter X^{10} to sever the pieces of wire from which the staples are formed from the main strand C, slide-frame X^7 fitted to slide vertically in stationary frame X^9, and provided with the bearing X^{36} at its upper end, said stationary frame X^9 and the staple-driver X^{15} adapted to engage at its upper end X^{34}, with said bearing X^{36} on the slide-frame X^7, substantially as and for the purpose set forth.

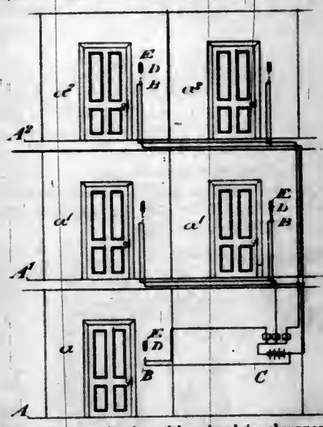
14. The combination of the vertically-reciprocating frame X and spring-catches L^6 L^6, mounted thereon, and adapted to engage with the vertical slide-bar X^2, with said slide-bar X^2 having suitable notches y' for said spring-catches to engage with, the vertical connecting-bar X^{16} attached to the bottom end of said slide-bar X^2, the staple-driver X^{15} in turn secured to the bottom end of said connecting-bar X^{16}, and fitted to slide in a suitable guideway in the slide-plate X^5 and slide-plate X^7, and adapted to engage with the slat-rod staple, and drive said staple into the rod, substantially as and for the purpose set forth.

15. The combination of stationary frame X^9 and vertical, slide-frame X^7 fitted to slide therein, with the vertical, intermittently-reciprocating, attached, slide-bar X^2, connecting-bar X^{16} and staple-driver X^{15} having some portion thereof adapted to engage with said vertical slide-frame X^7 to lift the latter, substantially as and for the purpose set forth.

16. The combination of mechanism for holding the slats N in place, consisting of the cam T^3 motuted on rotary shaft R^3, rock-lever S^2 pivoted to a stationary bearing and engaging at its inner end with said cam T^3, the vertical slat-holding bar S fitted to slide in suitable bearings and engaging with the outer end of rock-lever S^2 and means for exerting a downward pressure thereon, with mechanism for driving the staples into said slats N, consisting of the longitudinally-reciprocating carriage L^3, L^3, spring-catch device L^5, mounted thereon, longitudinal, notched, slide-bar M' fitted to slide in a suitable guideway and with which said catch device L^5 is adapted to engage, lever w^7, staple-driver M attached to the front end of said slide-bar M' and over the top of which said lever w^7 is adapted to slide when said driver is moved forward and back longitudinally, the driver also being fitted to slide in a suitable guideway and to engage with the staples to drive them into the slats, substantially as and for the purpose set forth.

17. The combination of stationary frame X' and vertical bar X^2 fitted to slide therein, and having the notches y formed in the same, with the vertically-reciprocating frame X and spring-catch L^7, the latter consisting of the casing s, the screw-head s' having a longitudinal opening therein, the catch s^2 fitted in said casing at the opposite end from said screw-head and whose outer end is provided with the square part s^4 and rounded part s^3, the spring s^5, fitted in the casing between the screw-head and catch s^2, and the central rod s^6 extending through the screw-head and into said catch s^2, substantially as and for the purpose set forth.

592,954. SIGNALING APPARATUS. PHILIP G. HUBERT, New York, N. Y. Filed June 4, 1897. Serial No. 639,414. (No model.)



Claim.—The combination with a visual signal supported to swing into operative position under the influence of gravity, of a spring-actuated lever for holding the said visual signal concealed, a plunger for operating said lever, a push-button for operating the plunger, a signal located at a distance from the said visual signal and means under the control of the push-button for operating said distance-signal simultaneously with the operation of the said plunger, substantially as set forth.

592,955. DARNING APPARATUS. ELLWOOD C HUNT, Dalting Hollow, N. Y. Filed Mar. 2, 1897. Serial No. 625,777. (No model.)



Claim.—1. In darning apparatus, a warp-carrier having hooks from the warp side of which warp-threads can be stretched to form a warp, and having bearings at the warp side of said hooks, in combination with a warp-shifter carried by and oscillating in said bearings on an axis at the warp side of said hooks, and having a trough-shaped body crossing said carrier at the warp side of said hooks, for passing below all such warp-threads, having upwardly-moving teeth on its opposite edges rising close to said hooks for lifting alternate threads to form successive sheds, and movable below the plane of said hooks for permitting application of the warp-threads, whereby the warp-threads can be applied to such hooks above said shifter, and without removing the latter.

2. In darning apparatus, a warp-carrier having hooks from the warp side of which warp-threads can be stretched to form a warp, and having bearings for a warp-shifter at the warp side of said hooks, in combination with an oscillating warp-shifter, having two series of teeth, projecting from its edges, on one side, and smooth on its other side, the teeth of one series alternated relatively to those of the other series for catching alternate warp-threads, and the teeth of one series projecting angularly to those of the other series, and said shifter mounted in said bearings and crossing said carrier adjacent to and at the warp side of said hooks, for passing below all the warp-threads, whereby the shifter can be turned with its toothed side down and then the warp-threads can be arranged on such hooks over the shifter without interference from the latter, and then the shifter can be turned up and oscillated to form successive sheds.

3. In darning apparatus and the like, the combination of a warp-carrier consisting of a frame for resting on the fabric to be darned, having warp-hooks from which warp-threads can be stretched, and having bearings at the warp side of said hooks, and an irremovable and axially-immovable oscillating warp-shifter permanently mounted in said bearings on an axis at the warp side of said hooks, having a body over which warp-threads can be stretched, crossing said carrier at the warp side of and parallel with said hooks, and having a series of alternate notches and teeth for shifting the warp-threads to form the shed and means for moving said teeth below said hooks, whereby the threads can be applied to said hooks over said shifter, substantially as and for the purpose set forth.

4. In darning apparatus and the like, a warp-carrier A, for resting on the fabric to be darned, having two opposed sets of hooks a between which warp-threads can be stretched in a plane above such fabric, and bearings f between said hooks, in combination with an irremovable warp-shifter C, having a rod q pivoted in said bearings, on an axis between said hooks and adjacent to one set of the opposed hooks, and having a plate p crossing said carrier, having on its opposite edges teeth r and intermediate notches s, said teeth on one edge projecting angularly to those on the other edge, said shifter oscillating with its teeth close to said hooks for shifting alternate warp-threads to form successive sheds, whereby the threads are held by one set of teeth until caught in the notches between the other set.

5. In darning apparatus and the like, the combination of a warp-carrier A, consisting of a frame having two series of hooks a, and having bearings f between and adjacent to one series of said hooks, and downwardly-extending clamping portions, a warp-shifter carried by said frame, mounted in said bearings and oscillating below said hooks, and a stretcher fitting within said frame below said hooks and shifter, having a top bearing-face near the plane of said hooks for sustaining the work to be darned, and having a transverse recess in said face opposite said shifter for permitting oscillation thereof and said shifter oscillating in said recess below said bearing-face and between said stretcher and said hooks, whereby the shifter is between the warp-threads and said work and the latter is supported at the side of the shifter.

6. In darning apparatus, a warp-carrier having two separated series of hooks between which threads can be stretched in a horizontal plane, and a warp-shifter for such threads, in combination with a stretcher fitting said warp-carrier, and having a top bearing-face below said hooks for supporting the work to be darned, and an auxiliary stretcher for such work, movable relatively to said first stretcher, and having a top bearing-face movable upwardly from and above that of said first stretcher for raising such work above the latter.

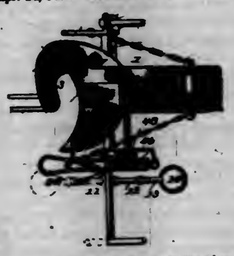
7. In darning apparatus and the like, a warp-carrier having hooks for carrying warp-threads, and a warp-shifter for such threads, in combination with a stretcher fitting said carrier and having an aperture beneath the plane of said hooks, and an auxiliary stretcher movable toward and from such plane and movably mounted in said aperture.

8. In darning apparatus, a warp-carrier and warp-shifter, in combination with a stretcher for said carrier, having an aperture through which the work to be darned can be passed, and an auxiliary stretcher, for entering the work to be darned, movable through said aperture toward and from said carrier for holding the work in position, and removable bodily from such aperture whereby the auxiliary stretcher can be placed within such work and passed therewith through such aperture to hold the work in position opposite the carrier.

592,956. COMPOSITION FOR RENOVATING BLACK FABRICS. WILLARD E. SMAN, Geneva, Ohio. Filed July 9, 1896. Serial No. 598,543. (No specimens.)

Claim.—A liquid prepared for use, consisting of the composition or combination of olive-oil, (known as "sweet-oil,") naphtha and lampblack, in the proportions by weight of two ounces of olive-oil, half an ounce of naphtha and two grains of lampblack, adapted to be applied to articles by saturating cloth or other porous substance and rubbing the article therewith, as and for the purposes set forth in the specification.

592,957. CAR-COUPLING. GUSTAV H. LIPPMANN, Milwaukee, Wis. Filed Apr. 24, 1897. Serial No. 633,754. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-bar and draw-head, of a knuckle horizontally swinging in said draw-head, a latch, a rock-shaft through said draw-head on which said latch vertically swings, a lever carried at the end of said rock-shaft, an arm swinging on the end of said lever, and a weight carried at the end of said arm, substantially as described.

2. In a car-coupling, the combination, with a draw-bar and draw-head, of a knuckle horizontally swinging in said draw-head, a latch, a rock-shaft through said draw-head, on which said latch swings vertically to lock the opposite knuckle, a lever carried at the end of said rock-shaft, an arm swinging on the end of said lever and around said lever as an axis, and a weight carried at the end of said arm, substantially as described.

3. In a car-coupling, the combination, with the draw-bar and draw-head, of a knuckle horizontally swinging in the draw-head, a latch for the knuckle of the opposing coupling, a rock-shaft through said draw-head on which said latch swings vertically, and a spring-actuated bolt, arranged to move behind said latch, to hold the same in its locking position, the upper surface of the draw-head being apertured to permit the insertion of means for withdrawing said bolt from its operative position, substantially as described.

4. In a car-coupling, the combination, with the draw-bar and draw-head, of a knuckle horizontally swinging in the draw-head, a latch for locking a similar knuckle in the opposing coupling, a rock-shaft through the draw-head on which said latch swings vertically, a spring-actuated bolt arranged to move behind said latch and secure the same in its locking position, a key for withdrawing said bolt from its operative position, and a ward in the interior of the draw-head coöperating with said key, the upper surface of the draw-head being suitably apertured to permit the insertion of said key, substantially as described.

5. In a car-coupling, the combination, with the draw-bar and the draw-head of a knuckle horizontally swinging on the draw-head, a latch, a rock-shaft on which said latch swings vertically, a slide in the draw-head, a spring-actuated bolt moving on said slide, said bolt being arranged to move behind said latch to hold the same in its operative position, and a key for withdrawing said bolt, the surface of the draw-head having a suitable aperture to permit the insertion of said key, substantially as described.

6. In a car-coupling, the combination, with the draw-bar and draw-head, of a knuckle horizontally swinging in the draw-head, a latch and rock-shaft on which said latch swings vertically, a slide arranged in the draw-head, a ward on said slide, a bolt moving on said slide, and arranged to hold the latch in its operative position, and a key for withdrawing said bolt, said key being conformed to said ward, the surface of the draw-head being suitably apertured to permit of the insertion of said key, substantially as described.

7. In a car-coupling, the combination, with the draw-bar and draw-head, of a knuckle horizontally swinging in the draw-head, a latch and horizontal rock-shaft therefor, a bolt for holding said latch in its operative position, means for withdrawing said bolt from the interior of the draw-head, and means, on the tongue of said knuckle, for momentarily withdrawing said bolt when the knuckle enters the draw-head, substantially as described.

8. In a car-coupling, the combination, with a draw-bar and draw-head and the knuckle pivoted in the draw-head, of a bar arranged to be independently secured to the draw-bar, chains suspended from the ends of said bar, a link on the end of one chain, and a corresponding hook on the other end of the chain, whereby said cars may

be coupled independently of the automatic coupling, substantially as described.

9. In a car-coupling, the combination, with the draw-bar, draw-head and horizontally swinging knuckle therein, of a latch and rock-shaft through the draw-head on which said latch swings vertically, a bar secured to the draw-bar, chains suspended from the ends of said bar, a link at the end of one chain and a hook at the end of the other chain, said chains being supported at or near their free ends upon said rock-shaft, substantially as described.

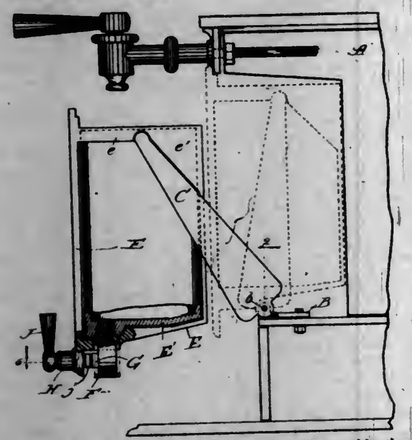
10. In a car-coupling, the combination, with the draw-bar, draw-head and knuckle of the Janney type pivoted therein, said knuckle having a recess centrally of its outer arm, vertically perforated above and below said recess, of a pin inserted through said perforations, said pin having a U-bend and the upper perforation being slotted to permit the passage of said bend, and a link carried in the bend of said pin, substantially as described.

11. In a car-coupling, the combination, with the draw-head, of a rock-shaft therethrough, a hook mounted on one end of said shaft, a link mounted on the other end, and operative connections between the shaft and the hook and link, whereby said hook is moved downward and said link simultaneously moved upward by the rocking of said shaft, substantially as described.

12. In a car-coupling, the combination, with the draw-head, of a rock-shaft therethrough, a link mounted on the shaft, a gear-wheel on the shaft, a second gear-wheel meshing with the former and connections between the said second gear-wheel and the link whereby an oscillation of the rock-shaft will cause a vertical vibration of the link, substantially as described.

13. In a car coupling, the combination, with the draw-head, of a rock-shaft therethrough, a hook on the draw-head, an arm engaging said hook to vibrate the same, a ratchet-lever on said arm and a notched standard engaging said ratchet-lever, substantially as described.

592,958. SYRUP-DISPENSING APPARATUS FOR AERATED WATERS. HARVEY S. PARK, Chicago, Ill. Filed Sept. 25, 1896. Serial No. 606,929. (No model.)



Claim.—1. In a syrup-dispensing apparatus, the combination of a casing and a can or jar pivotally mounted in the casing and adapted to swing in and out therefrom, such can being supported substantially above its middle at only one point or axial line.

2. In a syrup-dispensing apparatus, the combination of a casing, a can or jar pivotally mounted therein to swing outward from the casing and supported above its middle, such can being freely mounted and adapted to swing downward as it swings outward.

3. In a syrup-dispensing apparatus, the combination of a casing, a member mounted on the casing and adapted to oscillate into and from the casing and a can or jar loosely pivoted upon such member and having a movement independent thereof.

4. In a syrup-dispensing apparatus, the combination of a casing, a can or jar, a frame adapted to receive the can and an oscillating device upon which the frame is supported, such frame being freely mounted above its middle upon the oscillating device and having a movement independent thereof.

5. In a syrup-dispensing apparatus, the combination of a casing, a can or jar and arms pivoted below the can and adapted to carry the same and oscillate it into or from the casing, such can or jar being mounted to swing upon such arms.

6. In a syrup-dispensing apparatus, the combination of a casing, a can or jar, arms oscillatorily mounted in the casing and a can-frame freely suspended upon the ends of such arms and having two movements, one with the arms and the other independent thereof.

7. In syrup-dispensing apparatus, the combination of a casing having a can-chamber, a can or jar, upwardly-extending arms oscillatorily mounted upon the bottom of the can-chamber, and a can-frame freely mounted to swing upon such arms and adapted to swing downward.

8. In syrup-dispensing apparatus, the combination of a casing, an oscillating frame mounted therein, a can-frame mounted to swing upon the oscillating frame and having a movement independent thereof, means for limiting the movement of the oscillating frame with respect to the casing and means for limiting the movement of the can-frame with respect to the oscillating frame.

9. In syrup-dispensing apparatus, the combination of a casing, a can-frame, arms mounted upon the casing, a can-frame suspended on the arms and a stop device on the can-frame engaged by the arms for limiting the outward movement of the frame.

10. In syrup-dispensing apparatus, the combination of a casing, a can-frame slightly widened at its upper portion, arms carrying the can-frame and causing it to oscillate when moved, such arms being adapted to abut the widened portion of the can-frame in its outward movement to limit the same.

11. In syrup-dispensing apparatus, the combination of a casing, a pair of oscillating arms mounted therein, a can-frame arranged on the outer ends of the arms, a substantially triangular strip located upon the side faces of the casing and having its side adjacent to the arms of the same inclination as the arms when the frame has cleared the front of the casing whereby in the outward movement of the can-frame the strip will press flatly against an arm to arrest the further movement of the frame with respect to the arms.

12. In syrup-dispensing apparatus, the combination of a casing, a pair of substantially upright arms oscillatorily mounted in the casing and having a limited outward and downward movement and a can-frame mounted to swing on the outer ends of the arms.

13. In syrup-dispensing apparatus, the combination of a casing, arms pivoted to the casing, a can or jar frame adapted to receive the cans or jars and mounted upon the arms, means for limiting the movement of the arms with respect to the casing and means for limiting the movement of the can-frame with respect to the arms.

14. In syrup-dispensing apparatus, the combination of a casing, oscillating arms, and a syrup-can frame vertically mounted on such arms and maintaining its vertical position at all times by virtue of its own gravity.

15. In syrup-dispensing apparatus, the combination of a casing, oscillating arms mounted thereon and a can-frame swinging independently upon the arms and removable therefrom.

16. In syrup-dispensing apparatus, the combination of a casing, oscillating arms, a can or jar and a can-frame mounted on the arms to swing therefrom and adapted to hold the can or jar, such can-frame being removable from the arms and the can or jar being removable from the frame.

17. In syrup-dispensing apparatus, the combination of a casing, a can or jar therein, a cock or valve at the bottom thereof, a key therefor, a wrench device having a stem or handle and adapted to engage the key and a spiral spring around the stem adapted to permit the stem and the wrench device to move radially in order to compensate for possible varying positions of the key.

18. In syrup-dispensing apparatus, the combination of a casing, a substantially U-shaped frame oscillatorily mounted in the casing, and a can frame suspended in such oscillating frame.

19. In syrup-dispensing apparatus the combination of a casing, a can or jar frame and a substantially U-shaped frame holding the can-frame suspended therein in an oscillatory manner and oscillatorily mounted at a point below the can-frame.

20. In syrup-dispensing apparatus the combination of a casing, a can or jar frame, and a substantially U-shaped frame oscillatorily mounted in the casing at a point below the can-frame and engaging the can-frame near its top edge whereby such can-frame is suspended in the U-shaped frame and is movable therein.

21. In syrup-dispensing apparatus, a series of can or jar frames each adapted to hold one or more syrup cans or jars, substantially U-shaped frames holding the can-frames oscillatorily in the casing and mounted at a point below the can-frame and means for limiting the movement of the U-shaped frames.

22. In a soda-water apparatus, the combination of a casing, a can or jar, an oscillating frame mounted on the casing, and a can-frame freely suspended above its central axis upon the oscillating frame.

23. In soda-water apparatus the combination of a casing A having a can-chamber, a pair of arms C, D, a bearing B arranged upon the bottom of the can-chamber and upon which the arms are oscillatorily mounted and a can or jar frame E adapted to hold one or more cans or jars and mounted to swing upon the outer ends of the oscillating arms.

24. In soda-water apparatus the combination of a syrup can or jar, a can-frame E adapted to receive the can, a valve-plug *f* substantially at the bottom of the can, a key G upon the plug, a handle J mounted on the can-frame, wrench device *j* located upon the handle and adapted to engage the key such wrench device having a radial movement, and a spiral spring K surrounding the handle and permitting play or compensation for possible variations in the position of the key when the can is inserted or removed.

592,959. MUCILAGE-POT. HENRY W. SCATTERGOOD, Philadelphia, Pa. Filed Dec. 31, 1896. Serial No. 617,564. (No model.)



Claim.—1. A vessel, having an external neck, combined with an internal neck of less diameter and of greater height than the external neck, supported upon the bottom of the vessel and communicating with the vessel, and adapted to receive the waste or surplus from the brush and return it to the vessel from the space between itself and the external neck, substantially as described.

2. A vessel, having an external neck, and an internal neck of less diameter, normally projecting above the external neck, and supported by immediate contact with the vessel, open at both ends, and centered within the external neck by lateral projections made on the internal neck of the vessel, thereby to return the waste or surplus from the brush from outside of the said internal neck, substantially as described.

3. A vessel, having an external neck, combined with an internal neck, normally projecting above the external neck, and supported by direct contact with the vessel, open at both ends and provided with teats projected laterally into touch with the external neck, and communicating with the vessel both internally and externally, substantially as described.

4. A vessel, having an external neck, and an internal neck made as a tube resting upon the bottom of the vessel and projecting above the external neck, and having lateral projections or teats which come into contact with the inner surface of the external neck and afford passages into the vessel between the two necks, substantially as described.

5. A vessel, having an external neck, an internal neck made as a tube resting upon the bottom of the vessel and projecting above the external neck, and having lateral projections or teats which come into contact with the inner surface of the external neck and afford passages into the vessel between the two necks, an external horizontal shoulder on the vessel, and a cover resting thereon and inclosing the necks, substantially as described.

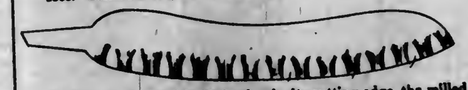
592,960. STABLE-FLOOR. HENRY H. BRION, Liberty, Pa. Filed May 15, 1896. Serial No. 592,344. (No model.)



Claim.—1. In a floor for stalls and the like, the combination of a main floor having one end lower than the other, a false floor consisting of a grating or the like, and a series of wedge-shaped sleepers between the main floor and the false floor, adapted to bring the false floor up to a level, said sleepers being fixed alternately to the main floor and to the false floor at an interval apart, substantially as described.

2. A floor for stalls and the like, consisting of a main floor having its rear end lower than its forward end, a false floor made up of longitudinal planks suitably fixed to cross-pieces, wedge-shaped longitudinal sleepers fixed to the under side of alternate planks of the false floor, with the thick end to the rear, and similar longitudinal sleepers fixed to the main floor, with the thick end to the rear and alternate with respect to the sleepers fixed to the false floor, substantially as described.

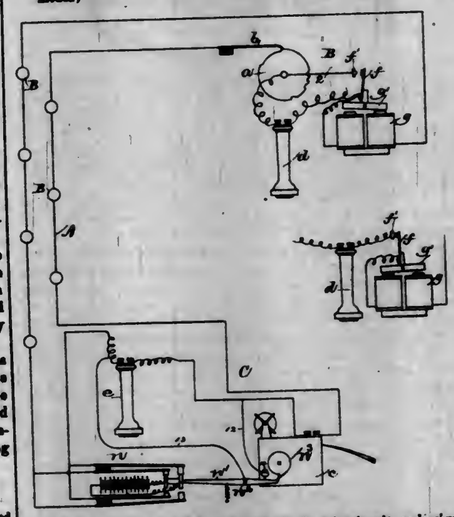
592,961. KNIFE. CHAPIN C. BROOKS, Wayne, Mo. Filed Jan. 16, 1896. Serial No. 575,055. (No model.)



Claim.—1. A bread-knife having in its cutting edge the milled recesses 3, alternately disposed upon opposite sides of the said knife.

2. A bread-knife having in its cutting edge a series of recesses 3, alternately disposed upon opposite sides of the blade as set forth, each recess having a cutting edge beveled from the opposite side of the knife, substantially as described.

592,962. ELECTRIC SIGNAL APPARATUS. FREDERICK W. COLE, Newton, Mass. Filed Mar. 10, 1896. Serial No. 582,530. (No model.)



Claim.—1. The combination with an electric circuit, code-signal and telephonic transmitters therein, for sending two different classes of signals over said circuit, viz: code-signals and telephonic messages, code-signal and telephonic receivers responsive respectively to said transmitters, and automatic switches for said telephonic transmitters operated by any one of said code-signal transmitters in the circuit, substantially as described.

2. The combination with an electric circuit, code-signal and telephonic transmitters therein, for sending two different classes of signals over said circuit, viz: code-signals and telephonic messages, code-signal and telephonic receivers responsive respectively to said transmitters, and automatic switches for excluding said telephone-transmitters, and a device set in operation by any one of said code-signal transmitters for operating said switches, substantially as described.

3. The combination with an electric circuit, code-signal and telephonic transmitters therein for sending two different classes of signals over said circuit, viz: code-signals and telephonic messages, code-signal and telephonic receivers responsive respectively to said transmitters, and switches for excluding said telephonic transmitters, polarized electromagnets for operating them, a pole-changing device connected with the circuit, and means operated by the code-signal receiver for operating said pole-changing device to thereby automatically exclude the telephonic transmitters while said code-signal receiver is operating, substantially as described.

592,968. VEHICLE ATTACHMENT FOR BICYCLES. CHARLES CRETORS, Chicago, Ill. Filed July 27, 1896. Serial No. 600,728. (No model.)

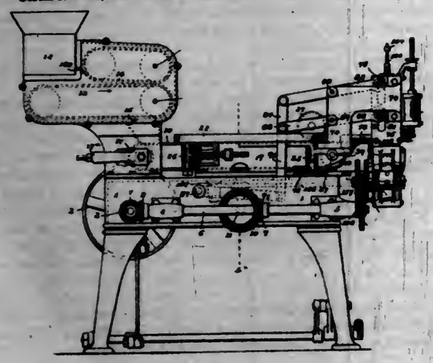


Claim.—1. A vehicle attachment for bicycles, comprising a vehicle-body, a frame supporting the same and having a lateral axle, a wheel secured on the outer end of the axle, a vertically-arranged hanger, attached at its lower end to the inner end of the carrying-frame, and at its upper end to the upper part of the king-post, and means for securing the forward end of said frame to the forward portion of the bicycle-frame, substantially as set forth.

2. A vehicle attachment for bicycles, comprising a vehicle-body, a frame supporting the same, of a substantially triangular form, and having a lateral axle, a wheel secured to the outer end of said axle, a yoke or stirrup attached to the inner end of said axle, and adapted to engage one of the rear forks of a bicycle, a vertically-arranged hanger attached at its lower end to the inner end of the carrying-frame, and at its upper end to the upper part of the king-post, and means for securing the forward end of said frame, to the forward portion of the bicycle-frame, substantially as set forth.

3. A vehicle attachment for bicycles, comprising a vehicle-body, a frame supporting the same, and having a lateral axle, a wheel secured to the outer end of the axle, means for securing the inner end of the axle to the bicycle-frame, the forward portion of the supporting-frame having a looped portion, the free end of the loop being provided with an eye for the passage of the attaching-bolt by which the same is secured to the crank-axle hanger of the bicycle, substantially as set forth.

592,964. CIGARETTE-MACHINE. JACOB S. DETRICK, Baltimore, Md., assignor, by mesne assignments, to the Detrick Cigarette Machine Company of Baltimore City, of Maryland. Filed Mar. 28, 1894. Serial No. 505,371. (No model.)



Claim.—1. In a cigarette-machine the combination of a rod-filler-forming mechanism, a cutter for severing a portion of said rod suitable for making a cigarette, a wrapper-cutter adapted to cut the wrapper into the shape desired and deliver it directly upon the rolling-apron, and means for delivering the section of rod filler upon the wrapper upon the rolling-apron and a rolling-apron, substantially as described.

2. In a cigarette-machine the combination of a rolling-apron, a wrapper-cutting mechanism adapted to cut a wrapper of suitable shape from a leaf and deliver it upon the rolling-apron by one operation, a rod-filler-forming mechanism and means for cutting a section of said rod for forming the filler of the cigarette and delivering it upon the wrapper upon the rolling-apron, and a rolling-apron.

3. In a cigarette-machine the combination of a rod-filler-forming mechanism, a cutter and holder for cutting off a portion of the rod suitable for making a cigarette and holding the same, a wrapper-cutter adapted to cut from a leaf a wrapper of the desired shape and deliver it upon a rolling-apron directly, and means for delivering the section of filler upon the wrapper on the rolling-apron directly, and a rolling-apron, roller and table adapted to roll the wrapper upon the filler, substantially as described.

4. In a cigarette-machine the combination of a rod-filler-forming mechanism, a cutter for severing a suitable section thereof to make the filler of a single cigarette, a carrier for holding the severed section and delivering it upon a rolling-apron, a wrapper-cutter adapted to cut a wrapper of a suitable size and shape from a leaf of tobacco and deliver it upon the rolling-apron directly, the filler-carrier mechanism adapted to deliver its filler upon the wrapper upon the rolling-apron a rolling-apron and a gummer for gumming the edge of the wrapper, substantially as described.

5. In a cigarette-machine the combination of a rod-filler-forming mechanism, a cutter for severing a suitable section thereof to make the filler of a single cigarette, a carrier for holding the severed section and delivering it upon a rolling-apron, a wrapper-cutter adapted to cut a wrapper of a suitable size and shape from a leaf of tobacco and deliver it upon the rolling-apron directly, the filler-carrier mechanism adapted to deliver its filler upon the wrapper upon the rolling-apron, a rolling-apron and a gummer cooperating with the wrapper-cutter for gumming the edge of the wrapper by the same operation by which the wrapper is laid upon the rolling-apron, substantially as described.

6. In a cigarette-machine the combination of a rod-filler-forming mechanism, a wrapper-cutter adapted to cut the wrapper from a leaf of tobacco and deliver it upon a rolling-apron, a cutter and carrier adapted to sever a section of the rod filler and deliver it upon the wrapper upon the rolling-apron, a rolling-apron, roller and table adapted to roll the wrapper upon the filler, and mechanism for trimming the ends of the cigarette when finished, substantially as described.

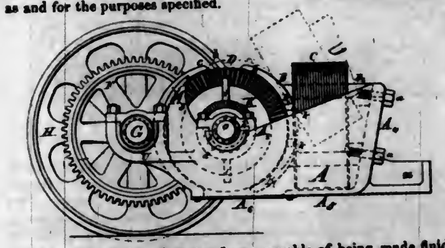
7. In a cigarette-machine the combination of a rod-filler-forming mechanism, a wrapper-cutter adapted to cut the wrapper from a leaf of tobacco and deliver it upon a rolling-apron, a cutter and carrier adapted to sever a section of the rod filler and deliver it upon the wrapper upon the rolling-apron, a rolling-apron adapted to roll the wrapper upon the filler, and mechanism for trimming the cigarette consisting of a carrier adapted to receive cigarettes and hold them firmly, their ends projecting beyond the carrier, and a pair of knives cooperating with the carrier to sever the projecting ends of the cigarettes, substantially as described.

8. In a cigarette-machine the combination of a rod-filler-forming mechanism, a wrapper-cutter adapted to cut a cigarette-wrapper from a leaf of tobacco of suitable shape and deliver it upon a rolling-apron, a cutter and carrier for the rod filler adapted to cut a section of filler from the rod and deliver it upon the wrapper upon the apron, a rolling-apron and a gummer for gumming the edge of the wrapper located inside of the wrapper-cutter, substantially as described.

9. In a cigarette-machine the combination of a rod-filler-forming mechanism, a wrapper-cutter adapted to cut a cigarette-wrapper from a leaf of tobacco of suitable shape and deliver it upon a rolling-apron, a cutter and carrier for the rod filler adapted to cut a section of filler from the rod and deliver it upon the wrapper upon the apron, a rolling-apron, a gummer for gumming the edge of the wrapper located inside of the wrapper-cutter and supplied with gum from a cylinder, and means for feeding said gum actuated by the motion of the wrapper-cutter and attached mechanisms, substantially as described.

592,965. ELECTRIC MOTOR FOR STREET-CARS. CHARLES E. EMERY, Brooklyn, N. Y. Filed Oct. 15, 1892. Serial No. 448,936. (No model.)

Claim.—1. An electric-motor frame in the general form of a cup or cradle, capable of being made fluid-tight, with the ends raised above the center to receive pole-pieces and with the sides forming the field-yokes cut down at the armature-shaft bearings, substantially as and for the purposes specified.



2. A trough-shaped motor-frame capable of being made fluid-tight, with the ends raised above the center to receive pole-pieces and with the sides forming the field-yokes cut down at the armature-shaft bearings in combination with a removable pole-piece, brush-holding device and bearing-caps constructed, arranged and operating so that the armature with its connections may be removed at will from the top of the trough-shaped frame, substantially as and for the purposes specified.

3. A cradle-shaped electric-motor frame in combination with a removable magnet-core secured therein on an angular bearing-surface and provided with an exciting-coil, all constructed and arranged so that such core and coil may be removed from and replaced in the frame as a unit when the armature is in place, substantially as specified.

4. A cradle-shaped electric-motor frame with an end opening in combination with a removable plate closing such end and provided with a bearing-surface to connect to a magnet and pole-piece supported inside the cradle-shaped frame, substantially as and for the purposes specified.

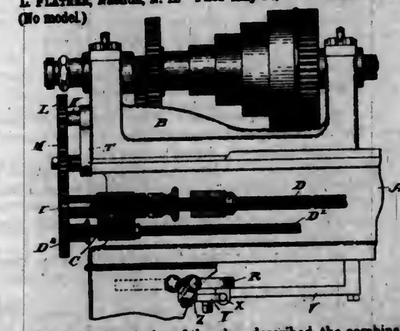
5. In combination with the frame of an electric motor provided with pole-pieces arranged horizontally and with an opening in the bottom of the frame opposite one of the pole-pieces, a plate of non-magnetic material secured to close such opening and exclude dust and fluids, without magnetically short-circuiting the pole-pieces, substantially as and for the purposes specified.

6. In the construction of electric motors in combination with a yoke-frame inclosing one of the pole-pieces and provided with an opening opposite a horn of such pole-piece, a plate of non-magnetic material secured tightly over such opening to exclude dust and fluids and prevent magnetic leakage, substantially as and for the purposes specified.

7. In the construction of electromagnetic apparatus, in combination with an axle or shaft of magnetizable material and an adjacent magnetized part of such apparatus kept in definite relation to the axle by suitable bearings, a hook of magnetic material attached to such magnetic portion and partially inclosing the axle, to aid in neutralizing the lateral attraction between the magnetized portion and the axle and tending to reduce the load on the bearings supporting such magnetized portion, substantially as described.

8. In combination with a cradle-shaped frame provided at one end with a curved pole-piece and with sides hollowed to receive the bearings of an armature and in combination with the bearing brasses and caps of such armature-bearings, revoluble half-bushings, *f*, *f*, arranged and operating substantially in the manner herein described.

592,966. FEED MECHANISM FOR ENGINE-LATHES. HERBERT L. FLATHER, Nashua, N. H. Filed May 24, 1897. Serial No. 637,961. (No model.)



Claim.—1. In a lathe of the class described, the combination of a series of interchangeable gears driven from the live-spindle of the lathe, a shaft driven by said interchangeable gears, a pinion mounted to turn with and slide thereon, an intermediate gear meshing with said pinion, a series of differential gears arranged step-like on a second shaft and adapted to enmesh with said intermediate gear, a second series of interchangeable gears driven by said second shaft, and the feed-screw driven by said second series of interchangeable gears, substantially as described.

2. In a lathe of the class described, the combination of a series of interchangeable gears with a shaft driven by said interchangeable gears, a pinion mounted to turn with and slide on said shaft, an intermediate gear in mesh with and driven by said pinion, a series of differential gears arranged step-like on a second shaft, means for engaging said intermediate gear with any one of the said series of differential gears, a second series of interchangeable gears, a feed-screw driven by same, and a feed-rod driven by the said feed-screw, substantially as described.

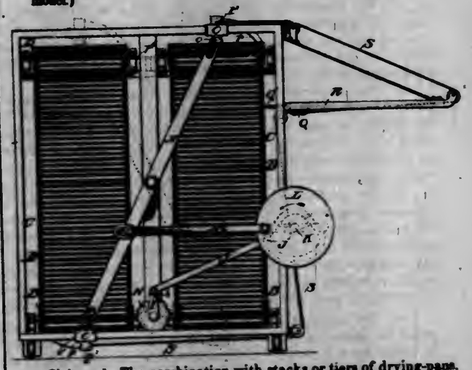
3. The combination in a lathe, of a live-spindle with a series of differential gears, arranged step-like, connected by a series of interchangeable gears; a second series of interchangeable gears connecting said cone of differential gears with a feed-screw, substantially as described.

4. The combination in a lathe, of a bed having a rectangular recess in one end, bearings in the walls of said recess, two shafts adapted to rotate in said bearings, a pinion mounted to turn with and slide on one of said shafts, a jointed lever fulcrumed on said shaft, an intermediate gear mounted on said lever, a second shaft and a series of differential gears arranged step-like mounted thereon, means for meshing any one of said series of differential gears with the said intermediate gear, a feed-screw, and a series of gears connecting same with said second shaft, substantially as described.

5. The combination of a shaft, a pinion mounted thereon to turn with and slide on said shaft, a jointed lever loosely fulcrumed on said shaft, an intermediate gear mounted on the fulcrum joining the parts of said lever, a series of differential gears mounted step-like on a second shaft adapted to enmesh with said intermediate gear, a guide-bar supporting the outer end of said lever, a pin in said lever adapted to fit in any one of a series of holes drilled in said guide-bar, a locking-pin attached to said lever and adapted to retain said lever in position, substantially as described.

6. The combination of the shaft O, the pinion P, member Q of lever R, intermediate gear U, fulcrum S, series of differential gears F, lever R, pin Z^3, guide-bar V, provided with series of holes W, locking-pin X, lever Y, screw Z, and the spring *y'*, substantially as shown and described.

592,967. DRIER FOR PRINTED SHEETS OF PAPER. RUFUS A. FREEMAN, St. Louis, Mo. Filed Aug. 7, 1896. Serial No. 601,975. (No model.)



Claim.—1. The combination with stacks or tiers of drying-pans, of independent carriers moving vertically in opposite directions and means for transferring the pans, at top and bottom, from one carrier to the other; substantially as described.

2. The combination with traveling stacks or tiers of drying-pans, of means for causing the simultaneous upward movement of one stack and downward movement of the other, and means for automatically exchanging the pans of said stacks simultaneously at top and bottom respectively; substantially as described.

3. The combination, with the traveling stack of drying-pans, of a withdrawing and returning carriage for withdrawing and returning a pan from, and to, said stack; substantially as described.

4. The combination, with a traveling stack of drying-pans, of a withdrawing and returning carriage for withdrawing a pan from the stack intermediate its top and bottom, said carriages, also returning the pan to its proper place in the stack; substantially as described.

5. The combination, with traveling stacks of drying-pans, of mechanism for transferring said pans from one stack to another, and a withdrawing and returning carriage connected to and operated by the transferring mechanism for withdrawing a pan from one of said stacks and returning said pan to its proper place; substantially as described.

6. The combination with a suitable framework, of pairs of slatted belts arranged therein, the slats of one pair of belts being arranged on a line with, or end to end to, the slats of the other pair of belts, drying-pans supported by the slats of said belts, and means for transferring said pans from between the slats of one pair of belts to between the slats of the other pair of belts; substantially as described.

7. The combination with suitable framework, of pairs of slatted belts capable of traveling in opposite directions, the slats of said pairs of belts being in line with each other, drying-pans supported by said slats, and transfer-carriages cooperating with drying-pans on the slats at the ends of said belts, for transferring the pans from one pair of belts to another, substantially as described.

8. The combination with traveling belts, of drying-pans supported thereby, means for effecting the travel of said belts, said means also operating transfer-carriages to transfer the drying-pans from one pair of belts to another, and a withdrawing and returning carriage connected to and operated by the transfer-carriages for withdrawing a pan from the belts to be loaded, and then returning said pan to the belts; substantially as described.

9. The combination with pairs of slatted belts, of beveled gears for causing the travel of said belts, a gear which is common to both of said gears and in mesh therewith, a ratchet-wheel fixed to the shaft of said common gear, a rock-arm carrying a pawl in engagement with the ratchet-wheel, a link, and a cam for operating said link; substantially as described.

10. The combination with pairs of slatted belts, drying-pans supported thereby, a cam-disk, mechanism which is operated by said cam-disk for causing the travel of said belts in opposite directions, a slotted link connected to said cam-disk, a lever which is operated by said slotted link, and transfer-carriages which are operated by the ends of said lever; substantially as described.

11. The combination with a suitable framework, of traveling belts, drying-pans supported thereby, transfer-carriages mounted on the framework, yielding arms on the carriages for engaging the pans and moving them at right angles to the direction of travel of the belts, and means for operating said carriages; substantially as described.

12. The combination with a suitable framework, of traveling belts, drying-pans supported thereby, said drying-pans being formed with T-shaped slots in their edges, and a withdrawing and returning carriage having projections in the paths of said slots, whereby, said carriage engages the pans; substantially as described.

13. The combination with traveling stacks of drying-pans, of means for imparting a step-by-step movement thereto, and a reciprocating carriage which engages the pans in their movement, and withdraws and returns said pans while the stacks are stationary; substantially as described.

14. The combination with traveling stacks of drying-pans, of means for imparting a step-by-step movement thereto, mechanism for transferring the pans from one stack to another, and a reciprocating carriage for withdrawing and returning the pans while the stacks are at rest, said reciprocating carriage being connected to, and operated by, the transferring mechanism; substantially as described.

15. The combination with traveling stacks of drying-pans, of means for imparting a step-by-step movement thereto, transfer-carriages arranged at the ends of the stacks and including said stacks in their travel, said carriages being provided with means, whereby, they engage a pan at the ends of the stacks, said carriages transporting the pans from one stack to another and releasing the pans when in line with the stack to which it is carried; substantially as described.

16. The combination with traveling stacks of drying-pans and means for imparting a step-by-step movement thereto, and transfer-carriages for cooperating with the drying-pans at both ends of the stacks; substantially as described.

17. The combination with traveling stacks of drying-pans, of transfer-carriages which cooperate with pans at the ends of the stacks, flexible straps connected to said transfer-carriages, and a withdrawing and returning carriage adjustably attached to said straps for cooperating with pans intermediate the ends of a stack; substantially as described.

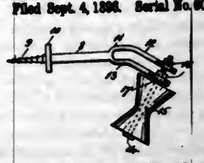
592,968. PAPER-WEIGHT. EMANUEL C. GIPE, Freeport, Ill. Filed Nov. 27, 1896. Serial No. 613,560. (No model.)

Claim.—1. The combination of the shell, A, having the upright grooves, a^3, in the edges, depressions, a^4, to form shoulders in the grooves, the block, B, lying within said shell, and the flexible clasp, E, having a middle portion, c, bearing upward against the bottom of the block, the upturned portions, c', resting in the grooves, a^3, and the hooked ends, c^3, engaging the shoulders in said grooves; substantially as described.



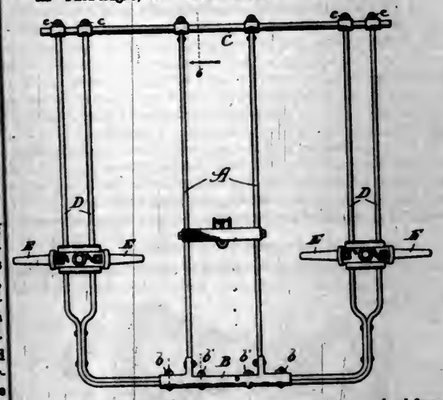
2. The combination with the shell, A, having the upright grooves, a^3, in its edges said grooves being extended horizontally at the top to form shoulders and at the bottom across the lower margin of the shell, of the block, B, within said shell and the flexible clasp having the upwardly-convex middle portion, c, bearing upward against the bottom, the upturned portions, c', resting in the grooves, a^3, and held therein against lateral movement, and the hooked ends, c^3, engaging the upper horizontal extensions of the grooves and holding the parts together; substantially as described.

592,969. CLOTHES-LINE SUPPORT. WILLIAM R. HARRITY, Newburg, N. Y. Filed Sept. 4, 1896. Serial No. 604,869. (No model.)



Claim.—A support for lines, consisting of a bar provided near one end with a shoulder or collar, the extremity of said bar beyond the collar being pointed and screw-threaded, the opposite end of said bar being bifurcated and bent at an angle thereto, a rod 14 having at one end a head and having its other end screw-threaded and passed through perforations in the forks of the bar 8, said rod 14 extending at right angles to said forks, nuts screwing on the threaded portion of the rod in position to bear on each fork and a grooved roller mounted on the projecting end of the rod 14 between the head thereof and one of the forks, substantially as shown and described.

592,970. CORN-PLANTER FRAME. ROSSELO K. HAYES, Galva, Ill. Filed Aug. 5, 1897. Serial No. 647,144. (No model.)



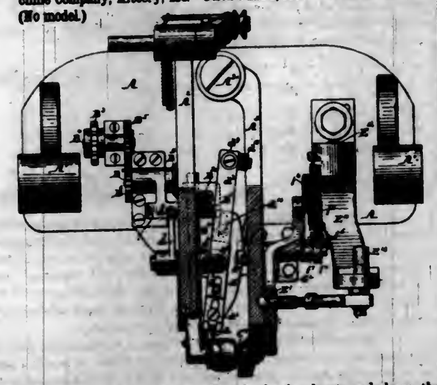
Claim.—1. The combination of a center frame, wheel-frames separate from each other, and means for holding the wheel-frames in desired positions of adjustment toward or from each other.

2. The combination of a center frame, a sleeve arranged at its rear end transversely thereon, a bar arranged transversely in its front end, wheel-frames embracing the bar at their front ends and entering the sleeve at their rear ends, and means for holding the wheel-frames in desired positions of adjustment.

3. The combination of a center frame, two supporting wheel-frames bifurcated to form a support for the wheel-axles and bent inwardly toward each other in rear of the wheel-axles.

4. The combination of a center frame, two supporting wheel-frames bifurcated to form a support for the wheel-axles and to permit the runner-standards to work between the bifurcations, and bent inwardly toward each other in rear of the wheel-axles.

592,971. SEWING-MACHINE FOR LASTING BOOTS OR SHOES. THOMAS K. KEITH, Boston, Mass., assignor to the Keith Lasting Machine Company, Kittery, Me. Filed June 8, 1896. Serial No. 594,769. (No model.)



Claim.—1. In a sewing-machine for lasting boots and shoes, the following instrumentalities, viz: stitch-forming mechanism, including a hooked needle and a looper, a segment, a curved awl attached thereto, a pivoted horizontal swinging standard having a stud to serve as a center of motion of said awl-segment, a shaft having its bearings in said swinging frame, connections between it and said awl-segment, a cam and means intermediate it and said shaft to rock the latter, means to swing the said frame while the awl is in the material, and a continuously-rotating rubbing-surface to act on the upper at the side of the last and stretch and feed the same to the last both preparatory to and during the stitching and feeding operation and a guide to present a welt to the upper, that it may be stitched thereto and to the sole, substantially as described.

2. In a machine of the class described, the combination with a hooked needle, of a looper, a lever to which it is attached, a second lever pivotally mounted on a rock-shaft, means to oscillate said rock-shaft and means to vibrate said lever on its pivot on said rock-shaft, and means to slide the lever to which the looper is attached on the said second lever, whereby the looper is given an irregular movement in presenting its thread to the needle, substantially as described.

3. In a machine of the class described, a hooked needle, means to operate it, a channel guide and foot having at one side a projection, combined with a needle-steadying device and a spring to move it, the said projection determining the descent of the said needle-steadying device, substantially as described.

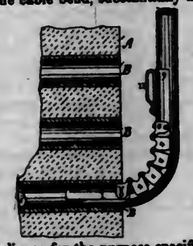
4. In a sewing-machine for lasting boots and shoes, an awl-segment provided with an awl, a pivoted horizontally-swinging standard, a stud mounted in said standard and serving as the center of motion for said awl-segment, a short shaft also mounted in said standard, means between said short shaft and said segment to operate the same, a cam and devices actuated thereby to rock said short shaft, and devices connected to said standard to vibrate the same about its pivot, while the awl is in the work, substantially as described.

5. In a machine for lasting boots and shoes, a circularly-movable curved hooked needle, of means to actuate it, a constantly-rotating rubbing device to act against and stretch the upper over the side of the last, and a welt-guide carrier comprising an arm mounted to turn about the axis of motion of the said needle, said arm being provided between the welt-guide and its center of motion with an inclined portion or shoulder, combined with a lever, means to move said lever away from said welt-guide, and a spring to move the said lever against said welt guide, said lever when acted upon by the spring pushing the welt-guide against the upper, and locking it firmly in position, substantially as described.

592,972. CABLE-BENDING APPLIANCE. FRANK R. LEONARD, Chicago, Ill., assignor to the American Bell Telephone Company, Boston, Mass. Filed Apr. 20, 1897. Serial No. 633,090. (No model.)

Claim.—1. An appliance to regulate and control the bending of lead-covered electric cables, consisting of a plurality of jointed or articulated sections grooved or hollowed on one side to embrace the cable, one end section having a longitudinal extension thereon adapted to enter the cable-conduit and whereby it is adapted to be held tightly against the cable and serve as a fulcrum in the bending operation, and limiting-stops on the several sections for determining the extreme arc or curve of the cable bend, substantially as described.

2. In an appliance for the purpose specified, the combination of a plurality of jointed or articulated sections grooved or hollowed on one side to embrace the cable, one end section having a longitudinal extension thereon adapted to enter the cable-conduit and be held tightly against the cable and whereby it serves as a fulcrum in the bending operation, an extension on the other end section provided with a handle, and limiting-stops on the several sections for determining the arc or curve of the cable bend, substantially as described.



3. In an appliance for the purpose specified, the combination of a plurality of jointed or articulated sections grooved or hollowed on one side to embrace the cable, one end section being elongated to enter the cable-conduit and thereby to be tightly held against the cable and serve as a fulcrum in the bending operation, and the ends of the several sections abutting against each other and preventing bending of the appliance in one direction, and limiting-stops on the several sections for determining the extreme arc or curve of the cable bend, substantially as described.

592,978. ELECTROLYTIC APPARATUS. EMANUEL MOTT, Brewer Mine, S. C., assignor of one-half to Henry F. Welch, Charleston, S. C. Filed June 26, 1897. Serial No. 642,634. (No model.)



Claim.—1. In an electrolytic apparatus, the combination with a trough or sluice, of a series of curved communicating passages, each passage being tapering from its inlet to its outlet end and the opposing walls of each passage being formed by cathode and anode plates respectively, substantially as set forth.

2. In an electrolytic apparatus, the combination with a trough or sluice, of an undulatory passage extending from one end to the other of said trough or sluice and having its opposing walls made of cathode and anode plates respectively, said undulatory passage being subdivided into a series of smaller communicating passages, each being tapering longitudinally from the inlet to the outlet end thereof, substantially as set forth.

3. In an electrolytic apparatus, the combination with a frame

and a series of convex cathode-plates in the bottom thereof, of inclined anode-plates disposed above the cathode-plates and having concave under faces so as to form a series of communicating passages tapering from their inlet to their outlet ends, substantially as set forth.

4. In an electrolytic apparatus, the combination with a frame or sluice and convex blocks disposed in the bottom of said frame or sluice, of a series of convex cathode-plates disposed on said blocks, strips disposed within said frame or sluice and having curved upper edges and anode-plates supported on said curved upper edges and conforming thereto so as to have convex under faces, said anode and cathode plates being so disposed relatively to each other as to form a series of curved communicating tapering passages, and means for including said anode and cathode plates in circuit with an electric generator, substantially as set forth.

5. In an electrolytic apparatus, the combination with a sluice composed of insulated sections, of a series of curved communicating passages in each section, each passage having opposing walls composed of anode and cathode plates, the adjacent passages of the respective sections being in communication with each other, substantially as set forth.

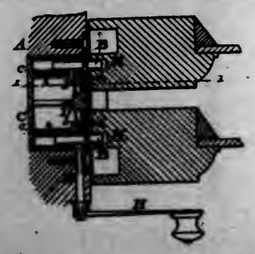
6. In an electrolytic apparatus, the combination with a frame or sluice, and a series of convex blocks located therein, of a series of convex cathode-plates located on said blocks and spaced apart, mercury-connectors between the adjacent edges of said plates, a bar electrically connected with one of said mercury-connectors, a conductor attached to said bar, anode-plates disposed over the cathode-plates and means for including the anode-plates in an electric circuit, substantially as set forth.

7. In an electrolytic apparatus, the combination with a frame or sluice, of a series of convex cathode-plates located in the bottom of said frame or sluice, a series of anode-plates having curved under faces and disposed above said cathode-plates, blocks secured to the anode-plates and supported in the frame or sluice, each block having a recess in its upper edge, a series of conductors connected with said anode-plates and terminating in said recesses in the blocks, a conducting-rod disposed in said recesses on the first-mentioned conductors and having a notch therein, a cross-bar passing through said notch, a conductor with which said cross-bar is electrically connected, locking devices for securing the cross-bar to the frame or sluice, and a conductor connected with the cathode-plates, substantially as set forth.

8. In an electrolytic apparatus, a frame or sluice composed of a series of sections, the abutting ends of the sides and bottoms of the sections having grooves, packing material in said grooves, and a series of cathode-plates and a series of coöperating anode-plates in each section, said anode and cathode plates being so disposed relatively to each other as to form a series of tapering communicating passages, substantially as set forth.

9. In an electrolytic apparatus, the combination with a frame or sluice, of several sets of anode-plates and several sets of cathode-plates in said frame or sluice, means for including each set of anode and cathode plates in an electric circuit and mercury-wells between the respective sets of cathode-plates and out of electrical connection therewith, substantially as set forth.

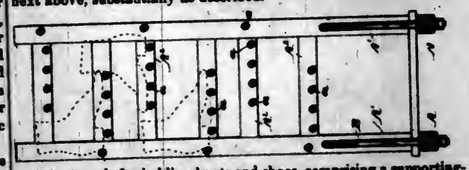
592,974. SASH-FASTENER. ALEXANDER W. PENNINGTON, Cleveland, Ohio. Filed Aug. 12, 1896. Serial No. 602,529. (No model.)



Claim.—In a sash-lock, the combination with the casing A provided with the pins *c c*, of the bolts B B, having the lugs *b b* provided with holes and movably supported on said pins, springs *s s* on said pins for pressing and holding the bolts outward and in engagement with rack-bars K K on the window-frame, and means for pushing said bolts inward, substantially as and for the purpose specified.

592,975. SHELF-RACK FOR HOLDING BOOTS OR SHOES. SAMUEL L. SAUNDERS, Lynn, Mass. Filed July 1, 1897. Serial No. 643,142. (No model.)

Claim.—1. A rack for holding boots or shoes, comprising a supporting-frame and a series of longitudinally-extended shelves mounted thereon, the inner edge of one shelf extending beyond or overlapping the inner edge of the next adjacent shelf, whereby a boot or shoe on one shelf may be held in position by the inner edge of the shelf next above, substantially as described.



2. A rack for holding boots and shoes, comprising a supporting-frame, a series of longitudinally-extended shelves, and an outer guard for and elevated above each shelf, the inner edge of one shelf overlapping the inner edge of the next shelf below and forming a stop for boots and shoes supported on the latter, whereby parts of two adjacent shelves coöperate to retain the boots or shoes against accidental lateral displacement, substantially as described.

3. The combination with the end frames, of superposed boot or shoe holding shelves and coöperating stops or ridges, to enable a boot or shoe on one shelf to be arranged with its toe portion opposite the ankle portion of a boot or shoe on the next adjacent shelf, substantially as and for the purpose described.

592,976. FURNACE-DOOR. HENRY C. TALBOT, Cleveland, Ohio. Filed June 14, 1897. Serial No. 640,694. (No model.)



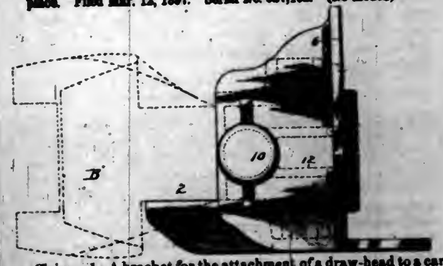
Claim.—1. A furnace-door provided with a hollow gate pivoted thereon, openings in said gate controlling the amount of air passing into the furnace, means to swing and lock said gate, and a shield on the inner side of said door to protect the same from the heat, substantially as described.

2. A furnace-door and an opening in said door, a hollow gate open at each end and pivoted in said opening, means to swing and lock said gate to control the amount of air admitted by said gate, and an inner heat-protecting shield for said door, substantially as described.

3. A furnace-door, an opening in said door, a hollow gate open at each end and pivoted in said opening, perforations in the inner side of said gate, means to swing and lock said gate to control the amount of air admitted through the openings in said gate and door, and a perforated shield on the inner side of said door forming a cooling-chamber above and behind said gate to prevent the burning out of said door, substantially as described.

4. A furnace-door having an inner perforated shield and an opening for the passage of air into the furnace, in combination with a gate hung at its top in said opening in front of said shield and having an inlet for air along its top and an outlet at its bottom, and means to hold said gate in different positions of adjustment, substantially as described.

592,977. CAR-COUPLING. JAMES TIBBS, Columbus, Ohio, assignor to the Buckeye Malleable Iron and Coupler Company, same place. Filed Mar. 12, 1897. Serial No. 627,162. (No model.)

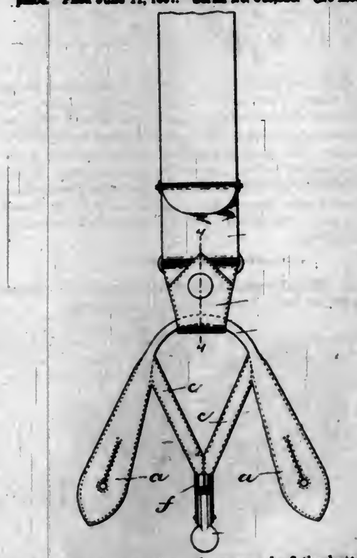


Claim.—1. A bracket for the attachment of a draw-head to a car, comprising a vertical back plate, horizontal top and bottom plates vertical side plates and the horizontal ribs extending around the inner walls of the vertical side and back plates.

2. A bracket for the attachment of a draw-head to a car, comprising a vertical and horizontal plate, ribs beneath the latter, and an offset formed in the vertical plate adapted to be sunk into the sill of the car.

3. The combination with a draw-head having a shank of a bracket in which the shank is pivoted, and springs bearing between the shank and the inner side walls of the bracket to yieldingly center the draw-head.

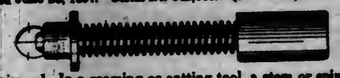
592,978. SUSPENDER-END. CHARLES W. WOLFF, Shirley, Mass., assignor to the C. A. Edgarton Manufacturing Company, same place. Filed June 11, 1897. Serial No. 640,280. (No model.)



Claim.—1. A suspender-end composed of the buttonhole-tabs, the neck connecting the said tabs and made integral therewith, two clasp-supporting straps integral with the tabs and neck, and a clasp or fastening device secured to and uniting the lower ends of the straps, the two clasp-supporting straps extending from the main part at points each side of the center of the neck and at an angle thereto.

2. The combination of a suspender-strip, a suspender-end-supporting loop thereon adapted to be opened, a suspender-end comprising buttonhole-tabs, a neck connecting said tabs and made integral therewith, said neck being formed to engage the loop, two clasp-supporting straps integral with the tabs and neck, and a clasp secured to and uniting the lower ends of the straps, said clasp and the suspender-end being attachable and detachable to and from the suspender-strip and as one part, the two clasp-supporting straps extending from the main part at points each side of the center of the neck and at an angle thereto.

592,979. REAMING OR CUTTING TOOL. ABA A. BARTLETT, Cincinnati, Ohio, assignor to the Cincinnati Coffin Company, same place. Filed June 26, 1897. Serial No. 643,035. (No model.)



Claim.—1. In a reaming or cutting tool, a stem or spindle, cutting-blades mounted on and freely movable radially thereof during the operation of the device, substantially as described.

2. In a reaming or cutting tool, a stem, cutting-blades mounted on and freely movable radially thereof during the operation of the device, and means for controlling such action, substantially as described.

3. In a reaming or cutting tool, a stem, cutting-blades mounted on and freely movable radially thereof during the operation of the device, and means actuated by the feed of the work for controlling such motion substantially as described.

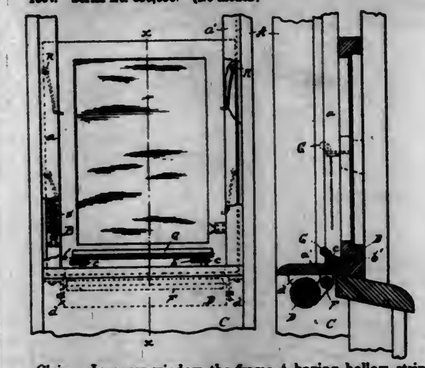
4. In a reaming or cutting tool, a stem, cutting-blades mounted on and freely movable radially thereof during the operation of the device, and automatic means for returning the blades to their normal position, substantially as described.

5. In a reaming or cutting tool, a slotted stem, cutting-blades freely pivoted in said slot, whereby as the stem is rotated the blades move radially thereof, substantially as described.

6. In a reaming or cutting tool, a slotted stem, cutting-blades freely pivoted in said slot, and a sleeve sliding on said stem, whereby the blades may be released from and also returned to normal position, substantially as described.

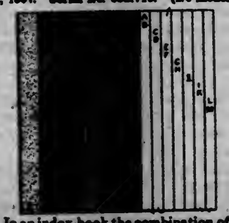
7. In a reaming or cutting tool, a slotted stem, cutting-blades freely pivoted in said slot, and a spring-actuated sleeve sliding on said stem, whereby the blades may be released from and also returned to normal position.

592,980. CAR-WINDOW. SOLOMON H. BOLEY, Reading, Pa., assignor of one-half to Jonathan I. Sloat, same place. Filed June 2, 1897. Serial No. 639,099. (No model.)



Claim.—In a car-window the frame A having hollow strips *a'* at either side thereof in which are secured coiled springs *a*, the sash traveling in said frame, having said springs attached to the lower end thereof and adapted to be raised by said springs, a roller D secured in the casing below said window, on which is wound a screen, and a supplemental roller F arranged on a vertical line with the opening *a'* in the sill, a pair of engaging arms *c* connected by an operating-rod G, secured to the top of said screen and adapted to enter grooves *b'* in the lower end of said sash, said sash having friction-rollers R mounted on wire springs and embedded in the edges thereof and adapted to bear against the frame in the ways in which said sash travels, all substantially as and for the purpose set forth.

592,981. INDEX-BOOK. ALPHONSO V. BOWKER, Athol, Mass. Filed Apr. 19, 1897. Serial No. 632,719. (No model.)



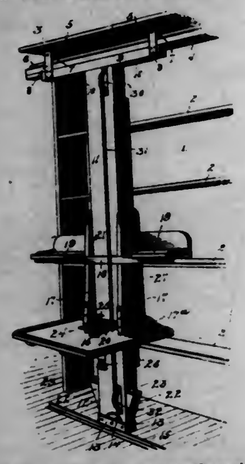
Claim.—1. In an index-book the combination of a series of leaves of uniform widths composed of cardboard or other suitable comparatively thick and stiff material; a corresponding series of stubs of similar material and thickness, but of different widths; a hinge of thin flexible but durable material connecting each of said leaves with one of said stubs; and suitable through-and-through fastenings securing all of said stubs together with their outer edges all in the same plane.

2. In an index-book the combination of a series of leaves of uniform widths composed of cardboard or other suitable comparatively thick and stiff material; a corresponding series of stubs of similar material and thickness but of different widths; a hinge of thin flexible but durable material connecting each of said leaves with one of said stubs; one or more leaves of thin flexible paper interposed between said thicker leaves and having a width slightly less than the aggregate width of the thicker leaf and its stub next preceding it; and extending to the outer or back edge of said stubs; and fastening devices passing through all of said stubs and said thinner leaves.

3. In an index-book the combination of a series of leaves of uniform widths composed of cardboard or other suitable comparatively

thick and stiff material; a corresponding series of stubs of similar material and thickness but of varying widths; a hinge of thin flexible but durable material connecting each of said leaves with one of said stubs; a stiff covering-leaf having a width equal to the aggregate width of one of said leaves and the widest of said stubs, the outer edges of all of said stubs and one edge of said covering-leaf being in the same plane; fastenings passing through all of said stubs and cover; a second stiff covering-leaf having a width somewhat less than the aggregate width of one of said leaves and the narrowest stub; a hinge of thin flexible and durable material connecting said second covering-leaf to said narrowest stub; and a suitable back extending across the edges of said stubs and covering-leaves and secured to the outer surfaces of said covering-leaves.

592,982. **ELEVATOR.** ALFRED W. CASSADY, Lamar, Mo. Filed Apr. 5, 1897. Serial No. 630,898. (No model.)



Claim.—1. The combination with suitable tracks, of a single, hollow column or upright adapted to travel on said tracks, a platform constructed to embrace said column on three of its sides, but leaving the rear side thereof free and unobstructed, a counterbalance mounted in said column, suitable guides near the extremities of said column, and a single continuous cable attached at its ends to the platform and the counterbalance, respectively, and passing over said guides on the column, substantially as and for the purposes described.

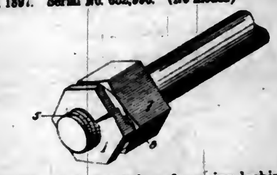
2. The combination of a single hollow column provided with suitable guide and carrying rollers overhead and floor rails or tracks to which said rollers are fitted, a counterpoise-weight slidably mounted in said hollow column, a platform mounted on said single column to slide freely thereon, a single continuous cable passing over guides at top and bottom of the column and having its ends attached respectively to the platform and to the counterpoise-weight, and bumpers carried by the column and arranged to sustain the platform when lowered, substantially as specified.

3. The combination of a hollow column, a platform mounted to slide vertically thereon and having the upright bars 17 at the sides of the column, guide-sheaves journaled in the column above and below the limits of the travel of said platform on the column, a counterpoise-weight slidable within the hollow column, and a single continuous cable branched at one end, carried through the bars 17 and attached to the platform, said table being carried over the guide-sheaves and attached to the counterpoise-weight, substantially as described, for the purposes set forth.

4. A recessed platform provided with upright side bars 17, the horizontal cross-bars 18, 19, the shelves attached to the cross-bars 18, and rollers 20, 21, journaled in the side bars 17, combined with a single column fitted between the bars and in the recessed platform for the rollers to ride against the several sides thereof, a counterpoise-weight, and a continuous cable attached to the platform and the counterpoise-weight, substantially as described, for the purposes set forth.

5. The combination with suitable tracks, and a hollow upright or column, of a vertically-movable platform having a guide-frame which embraces said column, a guide-roller 32 at the base of the column, other guide-rollers 30, 34 near the upper end of said column, a continuous cable having branches at one end which are attached to the guide-frame and the platform, and from thence passing around the sheaves 30, 32 and 34, and a counterbalance to which the other end of said cable is fastened, as and for the purposes described.

592,983. **NUT-LOCK.** HASKELL W. GRIFFIN, De Witt, Mo. Filed Apr. 20, 1897. Serial No. 632,996. (No model.)



Claim.—A nut-lock consisting of a spring locking-plate having a bolt-opening and provided with a thread, said spring plate being split at one side and having its thread normally out of pitch with that of the bolt to which the locking-plate is to be applied, the end of the locking-plate nearer the nut of the bolt being provided with a projection or toe arranged to bear against the nut, and offset the said end from the nut to permit a tool or device to be applied to the locking-plate for holding the ends thereof together to bring the thread of the plate in pitch with that of the bolt, substantially as and for the purpose described.

592,984. **TURBINE WATER-WHEEL.** JAMES A. DAVIS, Atlanta, Ga. Filed Oct. 23, 1895. Serial No. 567,167. (No model.)

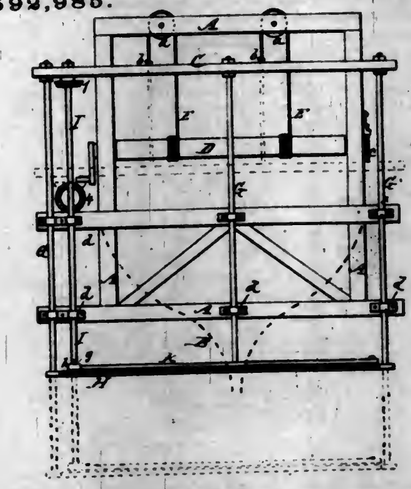


Claim.—In turbines, the combination of the casing comprising a bottom plate a^2 having a discharge-opening, a top plate a^4, and a scroll-like shell or surrounding wall B provided at its ends with the lateral flanges a^3, a wheel mounted on a shaft having bearing in said casing, a gate-housing N open at its inner side and one end and provided with the surrounding side flange O and end flange o^3 and vertical wall o' at its opposite side leading from said open end to a point about midway thereof and provided with the inwardly-extending flange o^2 forming the gate-chamber o^4, an attaching and division plate O' bolted to the flanges a^3, O, and provided at one end with an opening for passage of the water from the gate-housing into the casing and at the opposite end with a lateral flange p, a gate Q inclosed in the gate-chamber o^3 and adapted to be moved to close the water-passage, and a plate, q, detachably connected with the flanges o^2, p, at the open end of the gate-housing, whereby access may be had to the gate-chamber by simply detaching said plate, substantially as described.

592,985. **APPARATUS FOR CUTTING WEEDS AND GRASS UNDER WATER.** JOSEPH C. FARMER, Rochester, N. Y. Filed Sept. 10, 1896. Serial No. 605,446. (No model.)

Claim.—The combination with a boat of a frame attached to one end, a windlass in the frame, a cross-bar extending across the frame, cords connecting the cross-bar with the windlass whereby the cross-bar can be raised and lowered, rods attached to the cross-bar extending downward, a cutting apparatus attached to the ends of the rods, a rotating shaft also attached to the cross-bar and movable with it; provided at its lower end with a crank that gives motion to a pitman operating the knife-bar, and a gear on the shaft that engages with a driving-gear when the apparatus is lowered, as herein shown and described.

592,985.



592,986. **VALVE.** GEORGE W. FOSTER, Mowequa, Ill., assignor to Rheem R. Wetzel, same place. Filed Apr. 27, 1897. Serial No. 634,128. (No model.)



Claim.—1. The combination of a valve-casing having a lateral outlet provided with a removable closure, a valve-disk seated in the casing and provided with an axial extension, a guide-arm having a guide-opening to receive said extension and with a flat blade seated in a transverse groove in the casing, the other end of said guide-arm being fitted in and engaged by a socket in said closure, substantially as specified.

2. The combination of a valve-casing having a lateral opening, and provided in its wall opposite said opening with a transverse groove 13, a removable closure fitted in said opening and provided with a round socket 15, a valve-disk seated within the casing at one side of said lateral opening, and having a stem 9 extending axially of the casing to a point midway of the lateral opening, and a guide-arm having a flat blade fitted terminally in the groove 13, arranged transversely in the casing, and provided at its opposite end with a radially-winged head 14 fitting snugly in the socket of the closure, said guide-arm being provided with a central guide-opening to receive the valve-stem, and both guide-arm and the valve being removable through said lateral opening when the closure is displaced, substantially as specified.

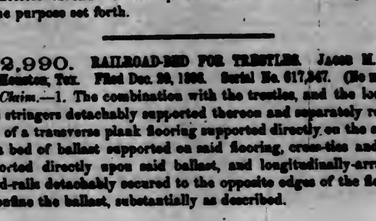
592,987. **BICYCLE-GUARD.** AMOS N. HENNINGER, Plymouth, Ind. Filed Apr. 1, 1897. Serial No. 630,314. (No model.)



Claim.—1. The herein-described attachment for bicycles consisting of the upper and lower members designed to provide a housing for the sprockets and chain therefor, the end walls of each member being extended and provided with corrugations for engagement with each other and means, substantially as described, for locking said sections in an adjusted position, as set forth.

2. The herein-described adjustable guard for bicycles consisting of the upper and lower members designed to provide a housing for the sprocket-wheels and chain therefor, each member being provided with curved end extensions having corrugations and designed to overlap and engage each other; a hook formed upon the end of one of said corrugated extensions and apertures designed to receive said hook formed in a contiguous part of the opposite extension; a perforated plate secured to the upper member, and means substantially as described, for anchoring said members in their operative position upon the bicycle-frame, substantially as specified and for the purpose set forth.

592,988. **HAND-BAG.** HERBERT F. JONAS, Oshkosh, Wis., assignor of one-half to Gustav M. Lindemann and Arthur C. Smith, same place. Filed Feb. 10, 1897. Serial No. 622,833. (No model.)



Claim.—1. As an improved article of manufacture, a hand-bag consisting of a body portion of suitable flexible material, a lining therein, an inlay-strip stitched to the edges of said flexible material and lining, frames having flanges to embrace the inlay-strips and the materials stitched thereto to cover the stitching, the said strips being riveted between the said flanges, substantially as described.

2. As an improved article of manufacture, a hand-bag consisting of a body portion of suitable flexible material, an inlay-strip stitched to the edges of said flexible material, frames having parallel flanges adapted to receive the inlay-strips between them, depending flanges also formed on said frames and adapted to extend interiorly of the bag and means for securing the inlay-strips between said parallel flanges, substantially as described.

592,989. **MEANS FOR SECURING SPROCKET-WHEELS TO BICYCLES.** OWEN R. KENNEY, Toledo, Ohio, assignor to Joseph L. Yost, same place. Filed Nov. 12, 1895. Serial No. 568,705. (No model.)



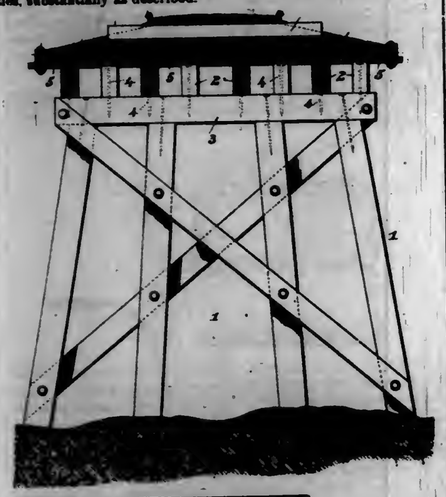
Claim.—1. In combination with the crank B adapted to fit over the end of crank-shaft A, to be removably secured thereto, and formed with the exterior thread a, the sprocket C interiorly threaded to fit the thread a, the crank-shaft A with thread J, and ball-race nut E, the latter constituting a ball-race and jam-nut, substantially as shown and described.

2. The combination and arrangement of the sprocket-wheel C interiorly threaded at a and secured by such thread to the crank B, and exteriorly threaded at d, the ball-race cup F, cone nut E, and shaft A inclosed within the yoke D, and the dust-cap H secured to the exterior thread d on the sprocket-wheel C, substantially as and for the purpose set forth.

592,990. **RAILROAD-BED FOR TRESTLES.** JAMES M. LEE, Houston, Tex. Filed Dec. 30, 1896. Serial No. 617,947. (No model.)

Claim.—1. The combination with the trestles, and the longitudinal stringers detachably supported thereon and separately removable, of a transverse plank flooring supported directly on the stringers, a bed of ballast supported on said flooring, cross-ties and rails supported directly upon said ballast, and longitudinally-arranged guard-rails detachably secured to the opposite edges of the flooring to confine the ballast, substantially as described.

2. The combination with the trestles and the longitudinal stringers supported thereon and separately removable and of uniform size, of a transverse plank flooring supported directly on the stringers, a bed of ballast supported on said flooring, cross-ties and rails supported directly upon said ballast, the ballast being extended above the ties to cover them between the track-rails, the latter serving as guards to confine that part of the ballast in place, and longitudinally-arranged guard-rails of uniform size detachably secured to the opposite edges of the flooring to confine in place the ballast below the ties, substantially as described.



592,991. METHOD OF AND MEANS FOR JOINING SOFT-METAL PIPES. JOHN C. LEWIS, St. Louis, Mo. Filed Mar. 8, 1897. Serial No. 626,496. (No model.)



Claim.—1. The method of joining soft-metal pipes herein described, consisting in inserting a tube in the channels of abutting sections of pipe, then applying to the exterior of said abutting sections a longitudinally-divided fusing-sleeve, and then applying heat to said sleeve to fuse and cause the pipe-sections to unite, substantially as set forth.

2. The method of joining soft-metal pipes herein described, consisting in taking the abutting sections of pipe, reaming out the ends of the channels thereof, fitting a connecting-tube therein, then applying a longitudinally-divided fusing-sleeve to the exterior of said abutting sections, and then applying heat to said sleeve to fuse and cause the pipe-sections to unite; substantially as set forth.

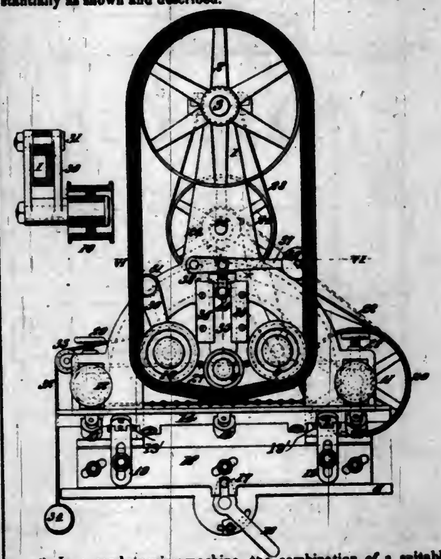
3. The means for joining soft-metal pipes, comprising a tube inserted in the channels of abutting sections of pipe, and a sectional fusing-sleeve applied to the exterior of said pipe, to which heat is applied for the purpose of fusing said pipe, substantially as set forth.

4. The means for joining soft-metal pipes, comprising a tube inserted in the channels of abutting sections of pipe, and a sectional fusing-sleeve having a sight-opening and applied to the exterior of said pipe, to which heat is applied for the purpose of fusing said pipe; substantially as set forth.

592,992. SANDPAPERING-MACHINE. JOHN B. LOWRY and JOHN OLSENDORPH, St. Louis, Mo. Filed Feb. 2, 1897. Serial No. 621,720. (No model.)

Claim.—1. In a sandpapering-machine, the combination of a suitable frame, a tilting and adjustable table for the article to be sandpapered carried by said frame, and a sandpapering means also carried by said frame and yieldingly held against the article on the table, substantially as shown and described.

2. In a sandpapering-machine, the combination of a suitable frame, a tilting and adjustable table on which the articles to be sandpapered are supported carried by said frame, a belt passing over pulleys and idlers journaled in said frame and having one of its faces conformed to the surface of the article to be sandpapered, suitable means carried by the frame for yieldingly holding the belt on the article, and suitable means for feeding the article under the belt, substantially as shown and described.



3. In a sandpapering-machine, the combination of a suitable frame, a tilting and adjustable table carried by said frame, a main guide wheel or pulley and an idler journaled in said frame, a second idler carried on an arm pivoted to said frame, a vertically-sliding pressure-roller also carried by said frame, and a belt passing around said guide wheel or pulley, idlers and pressure-roller and provided on one of its faces with a sand covering, substantially as shown and described.

592,993. VEHICLE-BRAKE. JAMES W. MOOR, Morgantown, N. C. Filed Apr. 29, 1897. Serial No. 634,207. (No model.)



Claim.—1. In a vehicle-brake, the combination with a running-gear, of a brake-beam having shoes to engage the wheels, a lever mounted on the tongue and adapted to be swung by the movement of the vehicle toward the horses, when on a downgrade, a connection between the lever and the brake-beam, a bracket mounted on the tongue and provided at its front with an upwardly-extending arm and having a similarly-disposed spring at its back, a pin passing through the tongue and adapted to engage the connection between the lever and the brake-beam to lock the same against movement, and a lever fulcrumed between its ends on said arm, connected at its front end to said pin and having its rear end arranged to be engaged by the spring, whereby the pin is held elevated, substantially as described.

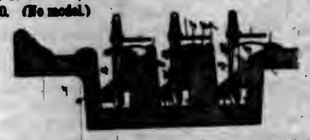
2. In a vehicle-brake, the combination with a running-gear, of a brake-beam mounted thereon and provided with brake-shoes, operating mechanism extending along the tongue and connected with the brake-beam, a pin mounted on the tongue and arranged to engage the operating mechanism, a bracket secured to the tongue and provided at its front with an integral upwardly-extending arm and having at its back an integral similarly-disposed spring curved at its upper end to form a shoulder, and a lever fulcrumed between its ends on said arm, connected at its front end to the pin and provided at its rear end with a dog adapted to engage the curved portion of the spring, substantially as described.

592,994. REIN-HOLDER. WILLIAM C. WILSON, Santa Rosa, Cal. Filed Apr. 13, 1897. Serial No. 631,904. (No model.)

Claim.—A rein-holder made up of two plates of metal, one of which is bent to present a looped portion, and an open-ended frame adjoining the same, the terminal of the portion forming the frame being turned outward adjoining the opening while the intermediate portion of the plate forms an inclined surface which leads to said opening; the other plate forming a pivoted gravity-dog located within the frame to one side of the opening and engaging the lower end of the forward part of said frame; the looped portion of the device having bolt-holes while in opposite sides of the frame are formed bearing openings or recesses for the gravity-dog, the parts being constructed and organized as herein shown and described.



592,995. STRINGING DEVICE FOR MUSICAL INSTRUMENTS. ELMER P. NEWMAN, Denver, Colo. Filed July 22, 1896. Serial No. 600,140. (No model.)



Claim.—1. A musical instrument having open-sided wrest-pin seats provided with opposite walls converging in the direction of the strain applied by a string to the wrest-pin arranged therein, substantially as specified.

2. A musical instrument having open-sided wrest-pin seats provided with opposite walls converging in the direction of the strain applied by a string to the wrest-pin and forming approximately opposite bearing-points for the wrest-pin, and a rest closing the seat at its inner end to form a terminal bearing for the wrest-pin, substantially as specified.

3. A musical instrument having open-sided wrest-pin seats provided with intermediate bearing-points adapted to form a fulcrum for a wrest-pin mounted therein, and a terminal wrest to receive the pressure of the wrest-pin in the opposite direction to that applied to said intermediate bearing-points, substantially as specified.

4. A musical instrument having wrest-pin seats provided with opposite walls arranged respectively parallel with and inclined to the direction of strain applied by a string to the wrest-pin fitted therein, whereby said walls converge in the direction of strain to arrange the bearing-point of the pin upon said inclined wall approximately in the plane of the string, substantially as specified.

5. A musical instrument having wrest-pin seats provided with opposite walls arranged respectively parallel with and inclined to the direction of strain applied by a string to the wrest-pin arranged in the seat, said inclined wall being longitudinally convexed to provide a single intermediate bearing-point for contact with the wrest-pin, substantially as specified.

6. A musical instrument having a plate provided with a seat which is open at its front side, and a grip-bar for wrest-pins fitted in the seat in contact with opposite walls thereof and adapted to be inserted and removed through said open front side, said grip-bar being held in place solely by friction due to the tension of the strings which are attached to the pins, and being released for removal by relieving said tension, substantially as specified.

7. In a stringed instrument, the combination of a plate having a seat disposed transversely to the strings and provided with opposite inner and outer abrupt walls and having an open front side, and a wrest-pin-supporting grip-bar fitted in said seat and being cross-sectionally elongated in a direction perpendicular to the plane of the strings to provide front and rear points of bearing against said opposite walls, the strain applied to the wrest-pins by the strings causing frictional contact of the grip-bar with the walls of the seat at said front and rear bearing-points, substantially as specified.

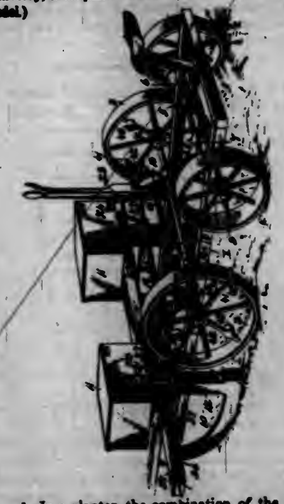
8. A musical instrument having a plate provided with a plurality of seats corresponding in number with the unison-strings and having open front sides, and wrest-pin-supporting grip-bars fitted in said seats and adapted to be removed through the open front sides, the cross-sectional area of the portions of grip-bars which are fitted in the seats being of less width than the width of the said open front sides of the seats, and said grip-bars being held in place in the seats by frictional contact with the opposite walls thereof due to the strain of the strings attached to the wrest-pins supported by the grip-bars, substantially as specified.

9. A musical instrument having a piano-plate provided with grip-bar seats, and grip-bars removably fitted in said seats and provided with open-sided wrest-pin seats, said bars having toe portions to bear against one wall of the grip-bar seats and forming rests for the ends of the pins, substantially as specified.

10. A musical instrument having a piano-plate provided with grip-bar seats having opposite abrupt walls, and grip-bars removably fitted in said seats in contact with one wall thereof and provided with projecting toe portions to bear against the opposite wall, said grip-bars being provided with wrest-pin seats, substantially as specified.

11. A musical instrument having a piano-plate provided with grip-bar seats having approximately parallel upper and lower walls and beveled shoulders contiguous to the lower walls, and grip-bars removably fitted in said seats in contact with the lower walls thereof and provided with depending lips to engage said beveled shoulders, and upwardly-extending toe portions to bear against said upper walls, the grip-bars being provided with open-sided wrest-pin seats, substantially as specified.

592,996. CORN-PLANTER. MARION E. RICHARDS, Sedalia, Mo., assignor, by direct and mesne assignments, of one-third to Hezzaphe S. Lusenberry, same place. Filed Apr. 13, 1897. Serial No. 631,982. (No model.)



Claim.—1. In a planter, the combination of the seed-dropping mechanism, a marking mechanism, and a series of folding indicating-fingers normally projecting laterally from the side thereof for determining the relative position of the last hill of a row prior to recrossing the field, so that the seed-dropping mechanism may be properly positioned to drop the grain in check-rows, substantially as set forth.

2. In a planter, the combination of the seed-dropping mechanism, a ground-wheel provided with tappets for actuating the seed-dropping mechanism, with markers for determining the hills, and having indicating numerals or characters imprinted thereon, and a series of indicating-fingers provided with indicating-characters corresponding with those of the ground-wheel to enable the attendant determining the relative position of the last hill of a row prior to recrossing the field, whereby the ground-wheel may be turned to bring the character determined by the indicating finger opposite the actuator of the seed-dropping mechanism to sow the grain in check-rows, substantially as specified.

3. In a planter, the combination of a connected series of pivoted fingers projecting laterally therefrom and adapted to yield so as to pass by an obstruction, a spring for returning the fingers to and maintaining them in a normal position, and a stop to limit the forward movement of the said fingers, substantially as set forth.

4. In a planter, the combination of a series of fingers pivoted at their inner ends and extending laterally in parallel relation, a bar having pivotal connection with the fingers about intermediate of their ends, a spring having direct connection with the bar for holding the pivoted fingers in a normal position, and a stop for engaging with one of the fingers to limit the forward movement thereof, substantially as set forth.

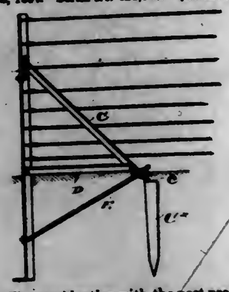
5. In a planter, the combination of a seed-dropping mechanism comprising a rock-shaft having a rearwardly-extending arm, a ground-wheel provided with markers and with tappets to engage with the said arm of the rock-shaft, said ground-wheel having designating numerals or characters applied thereto, and a series of fingers projecting laterally from the planter and marked to correspond with the designating-characters of the ground-wheel to enable an attendant to move the ground-wheel to bring the character thereon corresponding with that determined by the indicating-finger in position so that

the tappets will be properly positioned with respect to the arm of the rock-shaft to drop the grain in check-rows, substantially as and for the purpose set forth.

6. In a planter, the combination of a hopper having a discharge-opening in its bottom, a seed-dropping plate operating over the bottom of the hopper, a seed-slide operating below the bottom of the hopper, and actuating mechanism for simultaneously operating the seed-slide and dropping-plate in opposite directions, whereby the discharge-opening in the bottom of the hopper is alternately opened and closed by the said plate and slide, substantially as and for the purpose set forth

7. In a planter, the combination of a hopper having a discharge-opening in its bottom, a grain-spout in communication with the said discharge-opening, a flap-valve at the lower end of the grain-spout, a seed-dropping plate operting over the hopper-bottom, a seed-slide intermediate of the grain-spout and hopper-bottom and below the latter, and actuating mechanism for simultaneously operating the several parts, and moving the seeding plate and slide in opposite directions at the same time, substantially as in the manner set forth for the purpose specified.

592,997. FENCE-POST. RICHARD B. ROBBINS, Adrian, Mich. Filed Mar. 22, 1897. Serial No. 628,575. (No model.)



Claim.—1. The combination with the post proper, of an inclined brace-bar connected to said post adjacent to the upper end thereof and having its lower end supported adjacent to the ground, a horizontal bar connected to said post and to said brace-bar adjacent to the ground, a truss-rod connected to the post adjacent to its lower end and below the surface of the ground, and connected also to said brace-bar and means for adjusting said brace-bar to move the upper portion of said post in line with the fence-wires, to tighten or loosen said wires, substantially as described.

2. The combination with the post proper, of an inclined brace-bar, connected to said post adjacent to the upper end thereof, and having its foot supported adjacent to the ground, a horizontal bar connected to said post and inclined brace-bar adjacent to the ground-line, a truss-rod connected to said post adjacent to its lower end and to said inclined brace-bar, and an adjusting device interposed between the upper end of said inclined brace-bar and the post, whereby the upper part of said post can be moved in line with the fence-wires to straighten said post and to tighten or loosen the fence-wires, substantially as described.

3. The combination with the post proper, of an inclined brace-bar connected to said post adjacent to the upper end thereof and having its foot supported adjacent to the ground, a horizontal bar secured to the post and to said brace-bar, a truss-rod connected at its lower end to the post adjacent to its lower end, and its upper end adjustably secured to said brace-bar, and an adjusting device interposed between said post and the upper end of said brace-bar, substantially as described.

4. The combination with the post proper, provided adjacent to its upper end with an adjusting-bolt having a vertically-disposed portion, an inclined brace-bar having its upper end engaging said bolt and its lower end supported adjacent to the ground, the horizontal bar connected to said post and brace-bar adjacent to the ground and the truss-rod secured to the post adjacent to the lower end thereof and adjustably secured to said brace-bar adjacent to its connection with said horizontal bar, substantially as described.

5. The combination with the post proper, of a pair of inclined brace-bars connected to said post adjacent to its upper end lying in vertical planes at right angles to each other and having their lower ends supported adjacent to the ground, horizontal bars connecting said post and said inclined brace-bars adjacent to the ground-line, truss rods connected to said post adjacent to its lower end, each of said truss-rods being connected to one of said brace-bars adjacent to the ground-line and means for adjusting said brace-bars to move said post, substantially as described.

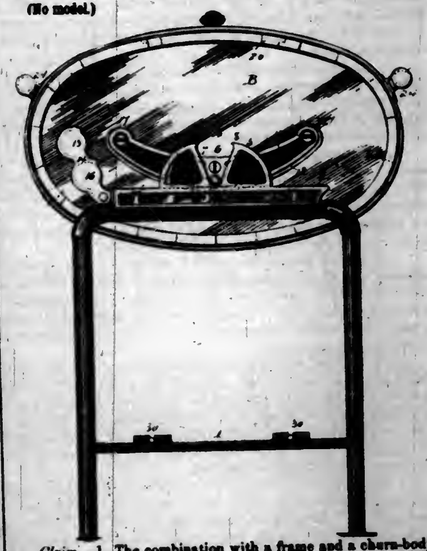
6. The combination with the post proper, of an inclined brace-bar connected to said post adjacent to the upper end thereof and having its foot supported adjacent to the ground, a truss-rod connected at its lower end to the post adjacent to the lower end of the same and its upper end adjustably secured to said brace-bar and an adjusting device interposed between said post and the upper end of said brace-bar, substantially as described.

592,998. HORSESHOE. JOHN A. ROTH, Hannibal, Ohio. Filed Apr. 13, 1896. Serial No. 587,261. (No model.)



Claim.—As a new article of manufacture, a horseshoe having its ends separated at the heel, and provided at the toe with a segmental calk and at each heel end with a calk extending transversely of said end and diagonally with relation to the toe-calk, said toe and heel calks each comprising a comparatively thin vertical web provided on its inner face with a series of vertical ribs broad at the base and tapering gradually therefrom to a point in line with the lower edge of the web, said web and ribs being formed integrally with the shoe in the process of manufactering the latter, substantially as described.

592,999. CHURN. JOHN J. RYAN, Louisville, Ky., assignor to Susan L. Ryan, same place. Filed Mar. 23, 1897. Serial No. 628,854. (No model.)



Claim.—1. The combination with a frame and a churn-body, of rockers secured to the churn-body and adapted to rock on said frame, vertical plates having slots with cycloidal walls, guide-pins on the churn-body to ride on the cycloidal walls, arms pivotally connected with the framework, links connecting said pivotal arms with the ends of the rockers, treadles and rods connecting said pivoted arms with the treadles, substantially as set forth.

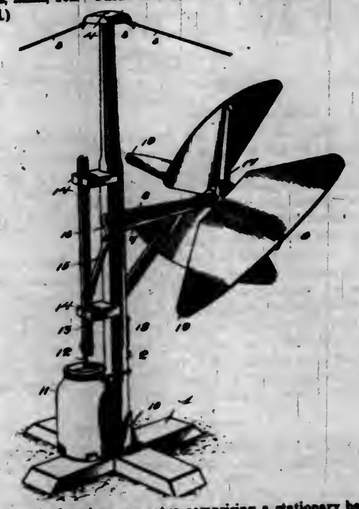
2. The combination with a frame, and a churn-body adapted to rock on said frame, arms pivoted to the frame, treadles connected with the pivoted arms, and links connecting said arms with the churn-body, substantially as set forth.

3. The combination with a frame, of a churn-body adapted to rock on the frame, and a pivoted arm or key having two sockets whereby to hold the churn-body in different positions, substantially as set forth.

4. The combination with a frame and a churn-body, of curved rocker-bars secured to the side faces of the churn-body, each curved rocker-bar having a pin at its center, said bars being so disposed that the pins will be below the center of the churn-body and below the ends of said rocker-bars, arms pivoted to the frame, treadles, rods connecting said treadles with said arms, and links connecting said arms with the ends of the rocker-bars on the churn-body, substantially as set forth.

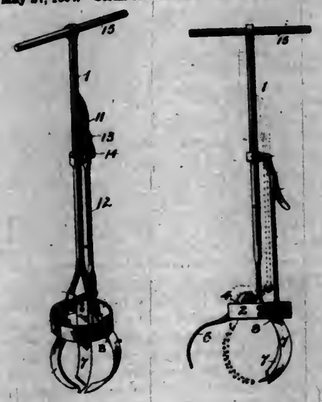
5. The combination with a frame and a churn-body, of bars or castings on the frame and having trackways, rockers secured to the churn-body and bearing on said trackways, vertical plates on said bars or castings, said vertical plates having slots with cycloidal walls, guide-pins on said rockers to ride on said cycloidal walls, arms pivotally connected with the framework, links connecting said pivoted arms with the ends of the rockers, treadles and rods connecting said pivoted arms with the treadles, substantially as set forth.

598,000. CHURN-MOTOR. JOHN STAPLES and WILLIAM H. SPAKE, Ennis, Tex. Filed June 29, 1896. Serial No. 597,326. (No model.)



Claim.—A churning apparatus comprising a stationary base, a stationary bearing-cap arranged above the base, a vertical rotatable standard swiveled at its extremities respectively in said base and cap, said standard being provided at its lower end with a laterally-extending support or platform movable therewith and adapted to support a churn-receptacle, and at a point intermediate its ends with an offstanding bracket-arm arranged at the side of the standard opposite said support or platform, a shaft journaled on said bracket-arm, a vaneless wind-wheel mounted on the outer extremity of said shaft and having one or more of its blades provided with a perforation, dasher-operating mechanism mounted on the standard and having a connection with the inner end of said shaft, and a hook mounted on the standard and adapted to engage with the perforation in the contiguous wheel-blade, substantially as set forth.

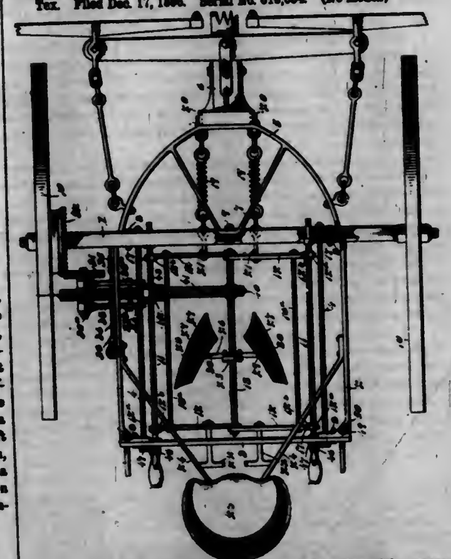
598,001. EARTH-AUGER. MARTIN J. STOFFER, Capac, Mich. Filed May 27, 1897. Serial No. 638,414. (No model.)



Claim.—1. An earth-auger having a shank bifurcated at its lower end and attached to a head having a plurality of stationary blades, a movable blade pivotally mounted upon the head to cooperate with the stationary blades, and provided with an inwardly-extending diametrical arm projecting through the bifurcation of the shank and terminating at a point at the opposite side of said shank from the pivot of the movable blade, an operating-lever pivotally mounted upon the shank at the opposite side thereof from the pivotal point of the movable blade, to swing in the plane of the arm of said blade, and a connecting-rod between the extremity of said arm and an intermediate point of the operating-lever contiguous to its pivot, the upward-swinging movement of the operating-lever being limited by contact with the shank, and the point of connection of said rod with the lever being deflected toward the shank to form a lock for the movable blade when the lever is in its normal position, substantially as specified.

2. An earth-auger having a shank, a band or ring comprising a metallic strip or plate having contiguous inturned extremities, stationary blades bolted at intervals to the band, a movable blade pivotally mounted between the inturned extremities of the band and mounted upon a bolt by which the extremities of the band are connected, said movable blade being provided with an inwardly-extending arm, and operating devices mounted upon the shank for actuating the movable blade, substantially as specified.

598,002. COTTON-CHOPPER. WILLIAM H. TAYLOR, Temple, Tex. Filed Dec. 17, 1896. Serial No. 616,034. (No model.)



Claim.—1. In a cotton-chopper, the combination with a supporting-frame, of a folding hoe frame having pivotally-connected side bars, crank-hangers supporting the side bars, and means for turning the hangers to elevate the side bars, a hoe-shaft mounted in the hoe-frame, and means for communicating rotary motion to the shaft, substantially as specified.

2. In a cotton-chopper, the combination with a supporting-frame, of a folding hoe-frame having downwardly-convergent side bars pivotally connected at their lower extremities, crank-hangers upon which the upper extremities of the side bars are fulcrumed, means for turning the crank-hangers to elevate the side bars, a hoe-shaft mounted coaxially with the pivotal point of connection of the lower extremity of the side bars, and means for communicating rotary motion to the hoe-shaft, substantially as specified.

3. In a cotton-chopper, the combination with a supporting-frame, of a folding hoe-frame having downwardly-convergent side bars pivotally connected at their lower extremities, crank-hangers mounted in the supporting-frame and having the upper extremities of the side bars of the hoe-frame fulcrumed thereon, means for varying the vertical adjustment of the side bars with relation to the crank-hangers, means for turning the crank-hangers to fold and elevate the hoe-frame, a hoe-shaft supported by the hoe-frame, and means for communicating rotary motion to the hoe-shaft, substantially as specified.

4. In a cotton-chopper, the combination with a supporting-frame, of parallel crank-hangers, side bars fulcrumed contiguous to their

upper ends upon the crank-hangers, and having downwardly-convergent portions pivotally connected together at their lower extremities, said side bars being provided with fixed and movable sections provided with registering half-bearings to engage the journal portions of the crank-hangers, and means for securing the movable section in its operative position, a hoe-shaft mounted upon the hoe-frame, and means for communicating rotary motion to the hoe-shaft, substantially as specified.

5. In a cotton-chopper, the combination with a supporting-frame, of a folding hoe-frame having crank-hangers, side bars fulcrumed upon the crank-hangers and provided with downwardly-convergent portions pivotally connected at their lower extremities, a hoe-shaft mounted upon the hoe-frame, means for communicating rotary motion to the hoe-shaft, levers attached to the extremities of the crank-hangers, and means for securing said levers in their adjusted positions, substantially as specified.

6. In a cotton-chopper, the combination with a supporting-frame, of a hoe-frame having crank-hangers mounted for lateral swinging movement, means for varying the lateral position of the hoe-frame by the angular adjustment of the hangers, locking devices for the same, a hoe-shaft mounted upon the hoe-frame, and means for communicating rotary motion to said shaft, substantially as specified.

7. In a cotton-chopper, the combination with a supporting-frame, of a hoe-shaft and means for communicating rotary motion thereto, and hoe-blades carried by stems attached to the hoe-shaft and arranged angularly with relation to said shaft, said blades being provided with terminal diagonal divergent edges, substantially as specified.

8. In a cotton-chopper, the combination with a supporting-frame, of a hoe-shaft and means for communicating rotary motion thereto, hoe-stems carried by the shaft and provided with terminal transversely-disposed securing-plates, hoe-blades pivotally mounted at the extremities of the hoe-stems upon said plates, and means for securing said plates at the desired angular adjustment, substantially as specified.

9. In a cotton-chopper, the combination with a main frame having a transverse beam bearing ground-wheels, side bars, and a cross-bar parallel with the said beam, tie-rods connecting said transverse bar and beam, a hoe-frame supported by the main frame, a carrier mounted to slide upon the main frame, a hoe-shaft, a driven shaft operatively geared with the hoe-shaft, said driven shaft being provided with a gear to mesh with a gear on a contiguous ground-wheel, yielding means for normally holding said carrier in its operative position, and a locking device for holding the carrier in its inoperative position against the tension of said spring, substantially as specified.

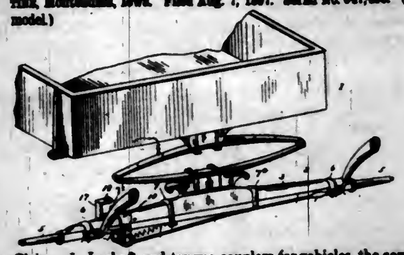
10. In a cotton-chopper, the combination of a main frame having a transverse beam, side bars, and a connecting cross-bar, tie-rods connecting said cross-bar and beam, a hoe-frame mounted within the main frame and carrying chopping mechanism, standards arranged contiguous to the extremities of the cross-bar, and draft mechanism and means for attaching the same interchangeably to the beam and cross-bar, substantially as specified.

598,003. PAPER-BAG CABINET. JOSEPH J. UHRONER and GREGORY UHRONER, Alvord, Iowa. Filed Oct. 6, 1896. Serial No. 608,049. (No model.)



Claim.—A cabinet for piles of different-sized paper bags having an open front and a removable back, and subdivided by horizontal partitions into a series of horizontal compartments, the front ends of the horizontal partitions falling short of a plane touching the front edges of the sides of the cabinet, deflectors extending across the front or open ends of the horizontal compartments and inclining from the perpendicular outwardly toward their lower ends to retain a pile of bags in the respective compartments and cause the bags of the several piles to assume an echelon form, the lower ends of the deflectors extending beyond the plane of the bottoms of their respective compartments and having a space between them and the front ends of the said bottoms, and having notches to admit of the bags being reached one at a time and deflected and withdrawn through the said spaces, and weighted followers for the horizontal compartments to hold the pile of bags in proper position, substantially as set forth.

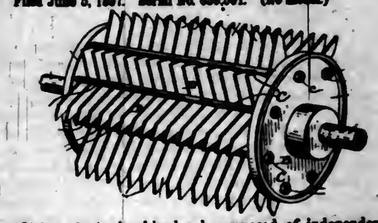
598,004. SHAFT OR TONGUE COUPLING. NATHAN M. VALENTINE, Montezuma, Iowa. Filed Aug. 7, 1897. Serial No. 647,469. (No model.)



Claim.—1. In shaft and tongue couplers for vehicles, the combination with the fore axle and tongue or shafts, a clip on said axle provided with a bottom clamping-plate formed with spindles, a substantially U-shaped lever having its side arms pivotally mounted on said spindles and provided with a depressible foot-piece, and bolts connected with said lever and adapted to couple the shafts or tongue and axle, substantially as described.

2. In shaft and tongue couplers for vehicles, the combination with the fore axle and tongue or shafts, a clip on said axle adjacent one end thereof provided with a bottom clamping-plate having its ends reduced to form spindles, a substantially U-shaped lever having its side arms pivotally mounted on said spindles and one of said arms provided with a foot-piece, bolts connecting with the opposite arm of said lever and adapted to engage and unite coupling members on the axle and shafts or tongue, and a spring normally holding said bolts projected, substantially as described.

598,005. FODDER-SHREDDER. JOHN E. WILDER, Monroe, Mich. Filed June 5, 1897. Serial No. 639,591. (No model.)



Claim.—1. A shredder-head composed of independent teeth, spacing-washers interposed between said teeth, means for holding the said teeth in position by side pressure, bolts arranged longitudinally of the shredder-head between the said teeth and engaging their edges to hold them in place, the said washers being entirely within the said bolts but not engaging them, the said bolts also engaging the said holding means for binding the parts together, substantially as described.

2. A shredder-head composed of independent teeth mounted upon a central shaft, means for holding the said teeth in position by side pressure and bolts passing between the teeth for holding them at the proper angle with relation to each other and adapted to engage said side holding means for binding the parts together, substantially as described.

3. A shredder-head composed of independent removable teeth, washers for holding the teeth in place by end pressure, bolts adapted to pass between the teeth and engage the edges thereof for holding them in proper place, said bolts also engaging the end washers for binding the parts together, substantially as described.

4. A shredder-head composed of independent teeth, spacing-washers interposed between said teeth, means for binding said teeth and washers together for forming the said shredder-head, and bolts adapted to pass between the teeth and engage the edges thereof for holding them in proper place, substantially as described.

5. A shredder-head comprising independent teeth, said teeth being adapted to be mounted upon a shaft, binding-washers at the opposite ends of the head, bolts arranged longitudinally of the head for drawing the binding-washers together and engaging the edges of the teeth between the same for holding the said teeth in proper position, and means for securing the washers to the shaft to prevent the same from being turned thereon, substantially as described.

6. A shredder head composed of teeth provided with central apertures adapted to engage a suitable shaft, said teeth being arranged alternately at different angles, washers for inclosing said teeth upon each end of the head, bolts passing between said teeth and engaging their edges for holding them at the desired angles, the said bolts also engaging the binding-washers for holding the parts together, substantially as described.

7. In a shredder-head, the combination with a suitable shaft, of independent cutting-teeth provided with apertures for engaging said shaft, the said teeth being arranged at different angles alternately, washers for inclosing the said teeth upon said shaft, bolts passing between the edges of the teeth and adapted to hold the same at the proper angle, said bolts being threaded at their ends and adapted to pass through apertures in the said washers, nuts for engaging the ends of the bolts to draw the washers toward each other and spacing-washers interposed between the teeth, substantially as described.

598,006. GRATE. JACOB W. WOLFE, Nashville, Tenn. Filed Apr. 13, 1897. Serial No. 632,093. (No model.)



Claim.—1. In a grate for heating adjoining rooms, the combination with the movable heater, of a cowl pivoted at its upper end centrally above the heater and having positive connection at its lower end with the heater and movable therewith so as to be swung from the perpendicular when moving the heater to one side or the other of a normal position, substantially as set forth.

2. In a grate for heating adjoining rooms, the combination of a movable heater, a cowl, pivoted at its upper end centrally above the heater and a pin-and-slot connection between the sides of the cowl at their lower ends and the sides of the heater, substantially as shown for the purpose set forth.

3. The combination with a movable heater, of a cowl pivoted at its upper end centrally above the heater and having its upper portion contracted, forming a neck for the purpose described, and having positive connection at its lower end with the heater to move therewith, substantially as set forth.

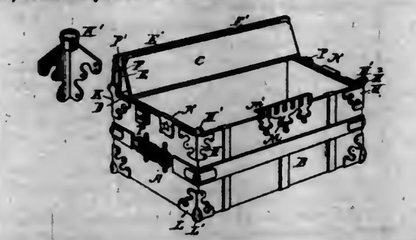
4. The combination with a movable heater, of a cowl pivoted at its upper end centrally above the heater and having its upper portion contracted, forming a neck, and having an approximately circular head cut away on its top side, and having positive connection at its lower end with the heater to move therewith, substantially as set forth for the purpose described.

5. The combination with a movable heater, of a cowl pivoted at its upper end centrally above the heater and having positive connection at its lower end with the heater to move therewith, and a pendent diaphragm located within the cowl, substantially in the manner set forth for the purpose described.

6. A heater for adjoining rooms, movable from a normal position into either, comprising a base mounted upon rolling supports and provided with a sectional grate or fire-basket, a cowl pivoted at its upper end centrally above the heater and having a pin-and-slot connection at its lower end between its sides and the sides of the base, and having an approximately circular head cut away on its top side and a neck portion between the head and body of the cowl, and a vertical diaphragm pendently supported within the cowl, substantially as and for the purpose set forth.

598,007. TRUNK. EDWARD D. BEAN, Arlington, Mass., assignor of one-half to Edward P. White, same place. Filed Dec. 9, 1896. Serial No. 615,015. (No model.)

Claim.—1. In a trunk or similar receptacle, a cover consisting of a rear member F, hinged to the back of the trunk, a folding member E, hinged to the said rear member, a sliding member D, hinged to the said folding member and holding it, overhanging clips N N, adapted to engage with and hold the said sliding member, a front folding member C, hinged to the said sliding member, and an overhanging clip M, adapted to engage with and hold the said front member, substantially as and for the purpose set forth.



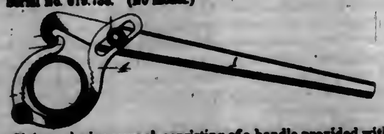
2. In a trunk or similar receptacle, a cover consisting of a rear member F, hinged to the back of the trunk, a folding member E, hinged to the said rear member, lock-hasps P' P' attached to said folding member, locks P P, a sliding member D, hinged to the said folding member and holding it, overhanging clips N N, adapted to engage with and hold the said sliding member, a front folding member C, hinged to the said sliding member, and an overhanging clip M, adapted to engage with and hold the said front member, substantially as and for the purpose set forth.

3. In a trunk or similar receptacle, a cover consisting of a rear member F, hinged to the back of the trunk, a folding member E, hinged to the said rear member, a sliding member D, hinged to the said folding member and holding it, clips R and S respectively attached to the sliding member and to the walls of the trunk whereby the said sliding member is held yet free to slide, overhanging clips N N, adapted to engage with and hold the said sliding member, a front folding member C, hinged to the said sliding member, and an overhanging clip M, adapted to engage with and hold the said front member, substantially as and for the purpose set forth.

4. In a trunk or similar receptacle, a cover consisting of a rear member F, hinged to the back of the trunk, a folding member E, hinged to the said rear member, spring-hinges connecting the rear and folding members, a sliding member D, hinged to the said folding member and holding it, overhanging clips N N, adapted to engage with and hold the said sliding member, a front folding member C, hinged to the said sliding member, and an overhanging clip M, adapted to engage with and hold the said front member, substantially as and for the purpose set forth.

5. In the cover of a trunk or similar receptacle, in combination, a rear member hinged to the back of the trunk, a folding member hinged to said rear member, a sliding member hinged to said folding member, a front folding member hinged to said sliding member, mechanism adapted to prevent the sliding member from lifting from the trunk but to allow it to slide laterally, and suitable locks and fastenings for securing the folding members when the cover is closed, substantially as and for the purpose set forth.

598,008. PIPE-WRENCH. JOHN BIEMILLER, Wahoo, Nebr., assignor of one-half to James A. Lister, same place. Filed Jan. 19, 1897. Serial No. 619,738. (No model.)



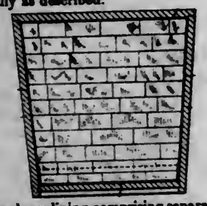
Claim.—A pipe-wrench consisting of a handle provided with projections near one end thereof, a jaw provided with end slots receiving said projections, a jaw pivoted to said sliding jaw, a device for fastening the ends of said jaw to the end of said handle.

598,009. PAIL OR PACKAGE LINING. JOHN V. BEAN, Chicago, Ill., assignor to Taylor B. Brown, same place. Filed Feb. 18, 1897. Serial No. 623,502. (No model.)

Claim.—1. A pail or package lining comprising separate bottom and side sections, the bottom section consisting of a flat portion of substantially the same shape and size as the bottom of the pail or package and a slitted marginal flange which extends upward between the side section of the lining and the body of the pail or package, substantially as described.

2. A pail or package lining comprising separate bottom and side sections, the bottom sections consisting of a flat portion of substantially the same shape and size as the bottom of the pail or package and

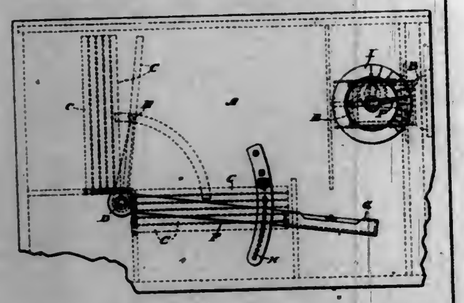
a slitted marginal flange which extends upward between the side section of the lining and the body of the pail or package and the side section of said lining consisting of a continuous strip which extends from the bottom to the top of the pail and the meeting edges of which overlap, substantially as described.



3. A pail or package lining comprising separate bottom and side sections, the bottom section consisting of a flat portion of substantially the same shape and size as the bottom of the pail or package and a slitted marginal flange, which extends upward between the side section of the lining and the body of the pail or package and the side section of said lining consisting of a continuous strip which extends from the bottom to the top of the said pail or package, the meeting edges of which overlap and are pasted or otherwise secured together, substantially as described.

4. A pail or package lining comprising separate bottom and side sections, the bottom section consisting of a flat portion of substantially the same shape and size as the bottom of the pail or package and a marginal flange which extends upward between the side section of the lining and the body of the pail, said flange being formed from a lateral extension of the flat portion of said bottom section, which is turned or folded up to form the same, being first slit to facilitate said folding, substantially as described.

598,010. PHOTOGRAPHIC CAMERA. ALBERT H. BROMLEY, Jr., Philadelphia, Pa. Filed Oct. 10, 1896. Serial No. 608,432. (No model.)



Claim.—1. The combination with the swing-back or swinging plate of a closed photographic camera, of an arm carried by and moving with the swing-back or swinging plate-holder and projecting outward through the closed back, and a level carried by said arm, substantially as and for the purposes set forth.

2. The combination in a closed-back camera, of a swing-back or swinging plate-holder, a pivot or shaft upon which or around which said swing-back or plate-holder can turn, a level and means for attaching said level to said pivot and at right angles to said plate-holder or swing-back.

3. The combination in a closed-back photographic camera, of an adjustable lens, plate-holders adapted to be swung backward or forward, means for indicating upon the outside of said camera the position of the plate-holders, and devices connecting said plate-holder and the lens whereby the latter will be automatically focused for the several positions of the plate-holder.

4. The combination in a closed back photographic camera, of swinging plate-holders, an arm outside the camera adapted to be attached at right angles to and to move with said plate-holder, a level carried by said arm, an adjustable lens, means for moving said lens in or out in order to focus it, a pointer connected with said focusing means, a rod connecting said level-carrying arm and said pointer, and means whereby said arm may be adjustably attached to said pointer.

5. The combination in a closed photographic camera of swinging plate-holders pivoted at their lower ends, a shaft about which said plate-holders may be revolved, an arm or arms within the camera carried by said shaft adapted to engage and move said plate-holders around their pivots one at a time, an arm outside said camera attached to said shaft and at right angles to said first arm, a level carried by said latter arm, a graduated scale showing the movement of said latter arm, an adjustable lens, a pointer moving with said lens, and a graduated scale, corresponding to said first scale, along which said pointer sweeps, substantially as and for the purposes set forth.

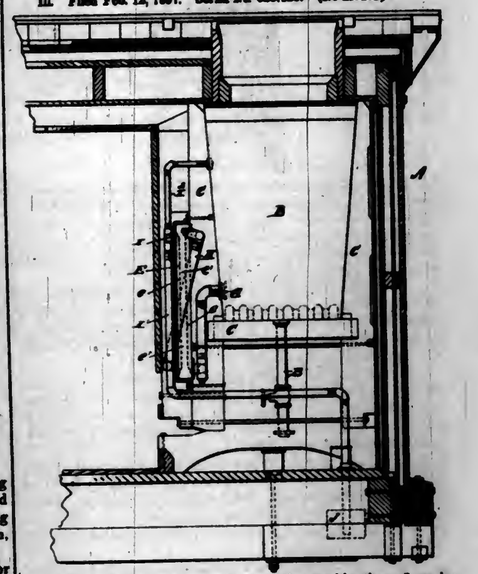
598,011. PROCESS OF MANUFACTURING PAPER. NOAH BRYANT, Otsego, Mich. Filed Sept. 5, 1896. Serial No. 605,067. (No specimens.)

Claim.—1. In the manufacture of paper from waste paper, the process consisting of first washing and soaking the paper to reduce it to a coarse pulp, next screening the same by forcing it through a suitable pulp-screen of coarse mesh, then grinding and beating the same and then passing it to the paper-machine where the pulp is again screened and made into paper as specified.

2. In the manufacture of paper from waste paper, the process consisting in washing and soaking the paper until it is reduced to a coarse pulp and then screening the pulp by forcing it through a coarse screen to remove foreign insoluble substances therefrom and then passing the pulp to the beaters as specified.

3. In the process of manufacturing paper from waste paper, the reduction of the material to a coarse pulp by soaking and washing and the screening of the coarse pulp by forcing the same through a suitable pulp-screen to remove foreign substances as specified.

598,012. REFRIGERATOR-CAR. JAMES H. CRAWFORD, Chicago, Ill. Filed Feb. 12, 1897. Serial No. 623,125. (No model.)

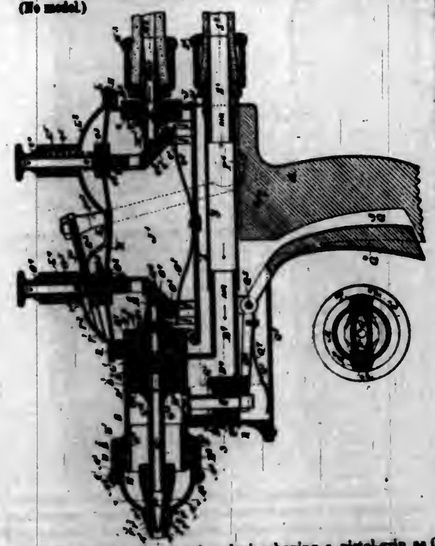


Claim.—1. In a refrigerator-car, the combination of an ice-bunker, an auxiliary cooling-chamber having dividing-walls therein forming channels for the passage of water, and an air-space between the same, pipes connecting the ice-bunker with the cooling-chamber, means to afford communication from one side of the cooling-chamber to the other, and pipes for conducting the water to a point of discharge, substantially as described.

2. In a refrigerator-car, the combination of an ice-bunker, an auxiliary cooling-chamber having dividing-walls therein forming channels for water, said channels separated so as to form an air-space between the same, pipes connecting the ice-bunker with the cooling-chamber, means to afford communication from one side of said cooling-chamber to the other, pipes for carrying off the water from the cooling-chamber, and a trap located on the line of said pipes near the point of discharge substantially as described.

3. In a refrigerator-car, the combination of an ice-bunker, an auxiliary cooling-chamber having dividing-walls therein forming channels for the passage of water, and an air-space between the same, pipes connecting the ice-bunker with the cooling-chamber and vent-pipe I^3 leading to said auxiliary chamber, and a pipe K located near the bottom of the cooling-chamber whereby the same may be cleaned, substantially as described.

598,013. APPARATUS FOR PNEUMATIC PAINTING. ABEL FISHER, Wellsville, Ohio. Filed Sept. 2, 1896. Serial No. 604,634. (No model.)



Claim.—1. A paint-spraying device having a pistol-grip as Q, valves as O^2 and R' controlling the flow of paint and impelling fluid to the spraying-nozzle and trigger-valve-actuating devices as Q^4 and P^4 one lying in reach of the fingers and the other within reach of the thumb when the grip Q is held in the hand.

2. A paint-spraying device having a pistol-grip as Q, valves as O^2 and R' controlling the flow of paint and impelling fluid to the spraying-nozzle and trigger-valve-actuating devices for opening said valves, one as Q^4 lying in front of grip Q and the others P^4 P^4 extending on each side of grip Q to position within easy reach of the thumb of the operator.

3. A paint-spraying nozzle having supported upon a handle as Q a paint-reservoir J' and a narrow diverging paint-conduit as B^4 S and having also nozzle jet-forming devices as A and F in combination with valves as R' and O^2, controlling the flow of air and paint to the nozzle and a pressure-reducing valve as o^7 controlling the flow of paint to the reservoir J'.

4. In a paint-spraying device the combination with a handle and a tube as B secured thereto, of an oil-nozzle as F attached by a screw-union to the rear end of the said tube an elastic gasket D', against which said screw-union rests, an air-nozzle as A secured by screw-union upon the outer end of tube B and an elastic gasket D, against which said last-mentioned union rests, said nozzles F and A being when in operative position locked together as described and so that turning nozzle A will also turn nozzle F.

5. In a paint-spraying device a narrow diverging paint-nozzle as F in combination with narrow diverging nozzles formed on each side thereof, a series of diverging fan-like webs as F' situated in the air-nozzles and serving to spread the jets and an enlargement as F^3 between the outer ends of the webs and the extreme end of the air-jets.

6. In a paint-spraying device the paint-nozzle F having converging side walls formed with fan-like webs F', grooves F^3 and smooth ends F^5 said nozzle having straight lateral edges F^4 in combination with the air-nozzle A having converging side walls A' and lateral grooves as A^4 adapted to receive the lateral edges F^4 of the paint-nozzle.

7. In a paint-spraying device adapted to be held in the hand and having an oil-reservoir as J' the combination with said reservoir of a paint-delivery pipe as B^3 having an oblique end B^4 in the reservoir, an obliquely-set valve O^2 adapted to close said pipe end and a valve-stem O set substantially at right angles to pipe B^3 and extending outside of the reservoir.

8. In a paint-spraying device adapted to be held in the hand and having an oil-reservoir as J' the combination with said reservoir of a paint-delivery pipe as B^3 having an oblique end B^4 in the reservoir, a paint-receiving pipe as M having also an oblique end M' in the reservoir, obliquely-set valves O^2 and o^7 arranged to close the pipe ends B^4 and M', valve-stems as O and o extending through the walls of the reservoir, a spring or springs as O^6 o^8 acting to close valves O^2 o^7 and adjustable springs as O^5 o^9 acting against springs O^6 o^8 as described.

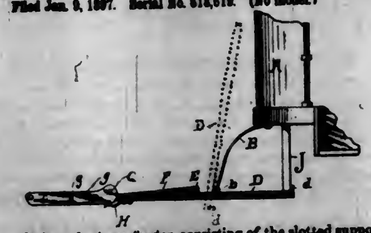
9. In a paint-spraying device substantially as described the paint-reservoir J' having a flexible top as K in combination with pipes B^3 and M_2 valves adapted to close said pipes and valve-stems secured thereto said stems passing through and being clamped to the flexible top K.

10. In a paint-spraying device substantially as described the paint-reservoir J' having a flexible top as K and metallic cover L in combination with pipes B^3 and M, valves adapted to close said pipes and valve-stems secured thereto said stems passing through and being clamped to the flexible top K, springs as O^5 o^9 arranged to press down on the valve-stems and adjusting-screws as O^4 o^4 for regulating the tension of said springs.

11. In combination with a hand paint-spraying device having flexible supply-pipes M^2 and S^2 a portable reservoir T having a pipe U^2 connecting with the reservoir at top and bottom, a receiving connection as U^3, valves as V and V' situated below and above connection U^3, an escape-opening as U^7 situated above valve V', a valve V^2 controlling the escape-opening, a connection U^9 for flexible pipe S^2 situated between valves V and V', and a connection U^{10} for pipe M^2.

12. In combination with a hand paint-spraying device having flexible supply-pipes M^2 and S^2, a portable reservoir T having a pipe U^2 connecting with the reservoir at top and bottom, a receiving connection as U^3, a pressure-reducing valve U^7 situated therein, valves as V and V' situated below and above connection U^3 an escape-opening as U^7 situated above valve V' a valve V^2 controlling the escape-opening, a connection U^9 for flexible pipe S^2 situated between valves V and V' and a connection U^{10} for pipe M^2.

598,014. CAR-FENDER. WILLIAM R. FORBES, Pittsburg, Pa. Filed Jan. 9, 1897. Serial No. 618,619. (No model.)

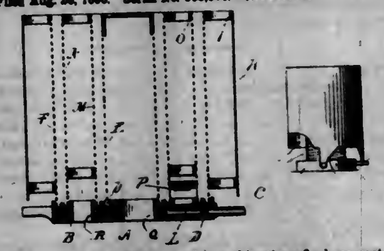


Claim.—1. A car-fender, consisting of the slotted supporting-rod provided with lugs *d*, braces carrying T-shaped studs adapted to operate in said slots, standards located underneath the platform of the car, lugs on rear of said supporting-rods engaging said standards, a frame pivotally attached to the forward end of the supporting-rods, spring-catch holding said frame in operative position, and tension-springs connecting the supporting-rod and frame, substantially as shown and described.

2. In a car-fender the combination of the supporting-rods D, D, braces B, B, carrying studs *b*, *b*, sliding in slots C, C, in the supporting-rods, standards or supports attached to the under side of the platform, lugs *d*, *d*, engaging said standard, pivoted frame G, spring-catch H, and springs F, F, connecting said frame and supporting-rods, all arranged and operated, substantially as shown and described.

3. In a car-fender, the combination of supporting-rods D, D, provided with slots C, C, eyes E, E, on said supporting-rods, frame G, pivoted to the supporting-rods, springs F, F, connecting said frame and lugs, brace B, B, carrying T-shaped studs adapted to operate in said slots, and standards or supports J, J, all arranged and operating, substantially as shown and described.

598,015. VAPOR-BURNER. FRANK P. GLASIER, Chelsea, Mich. Filed Aug. 26, 1896. Serial No. 603,971. (No model.)

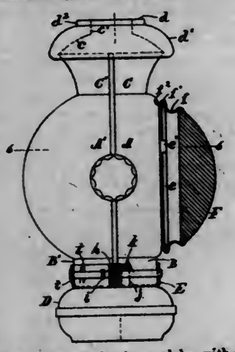


Claim.—1. In an oil-burner, the combination of a base cast with the central opening, an annular channel, supply-duct therefor, and

laterally-extending arms K, a non-combustible wick in said channel, a stationary perforated extension of the inner wall of said channel, a movable perforated extension of the outer wall of said channel, an inclosing imperforate casing secured to the outer-wall extension and having downwardly-extending cams engaging said radial arms, substantially as described.

2. An oil-burner comprising the base having concentric oil-channels formed therein and lateral oil-feed connection therewith, a non-combustible wick in each of said channels, perforated casings extending above said channels and a flame-passage between and connecting the perforated casings substantially as described.

598,016. BICYCLE-LAMP. GEORGE HAVELL, Newark, N. J., assignor to the Havell Manufacturing Company, same place. Filed May 23, 1896. Serial No. 593,645. (No model.)



Claim.—1. A bicycle-lamp having a globe, with funnel upon the top and oil-cup upon the bottom, and divided vertically upon the center line, with the two parts formed of sheet metal and united by a vertical standing seam projected radially from the exterior of the joint, and the seam notched transversely at the opposite sides of the collar to engage a lock upon the oil-cup, as and for the purpose set forth.

2. In a bicycle-lamp, the combination, with the globe A, A', and the collar B, B' provided with the notched ribs *a* at the opposite sides, of the oil-cup D carrying the socket E to fit the collar and provided with notched loops E' to fit over said ribs, and a sliding catch movable upon the socket in the notches of the loops to engage the notches in the ribs, as and for the purpose set forth.

3. In a bicycle-lamp, the combination of a collar at the bottom provided with notched ribs at opposite sides, an oil-cup having a socket to fit the collar and provided with notched loops to fit over the said ribs, and an annular band fitted to rotate in the notches of the said loops and provided with corresponding loops, and with means for rotating the band to lock the socket upon the collar, substantially as herein set forth.

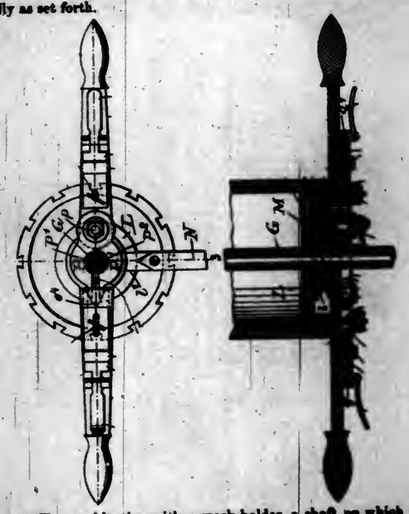
4. In a bicycle-lamp, the combination, with the globe A, A', and collar B B' provided with the notched ribs *a* at opposite sides, of the oil-cup D having the annular socket E' formed with flange D' and secured thereby upon the top of the oil-cup, the socket being provided with the notched loops E' to fit over the said ribs, and a sliding catch movable upon the socket in the notches of the loops to engage the notches of the ribs, as and for the purpose set forth.

5. In a bicycle-lamp, the combination, with the globular body and the upwardly-flaring funnel having the integral top C' curved inwardly and provided with the central tube *c'*, of the cap having the flat seat *d* fitted to the top of such tube and provided with the bell *d'* extended downward over the cover, and the cap and cover being perforated, as and for the purpose set forth.

598,017. CLAMPING DEVICE FOR ROUTING-MACHINES. LEVIN HERRICK, New Haven, Conn., assignor to the Lovejoy Company, New York, N. Y. Filed Nov. 13, 1896. Serial No. 611,811. (No model.)

Claim.—1. The combination with a work-holder and a shaft forming a support for the work-holder, of a disk held against rotary movement, a sliding bar fixed to move with the work-support, a friction device carried by the sliding bar in position to move into and out of engagement with the disk and means for operating the bar at pleasure to lock the work-holder to the disk and release it therefrom, substantially as set forth.

2. The combination with a work-holder and a shaft on which the work-holder is mounted, of a sliding bar fixed to move with the work-holder, a clamp under the control of the sliding bar to lock the work-holder to the shaft and means for operating the sliding bar, substantially as set forth.



3. The combination with a work-holder, a shaft on which the work-holder is mounted, the said shaft being free to rotate together with the work-holder, of a disk held against a rotary movement, sliding bars fixed to move with the work-holder, a clamp fixed to move with the work-holder and in position to engage the shaft, a friction device fixed to move with the work-holder and in position to engage the said disk and independent means for operating the sliding bars to throw the clamp into engagement with the shaft or the friction device into engagement with the disk to lock the cylinder to the shaft, or to the disk, or both, at pleasure, substantially as set forth.

598,018. UMBRELLA OR FLAG HOLDER FOR BICYCLES. WILLIAM H. HOBBS, Jr., New York, N. Y. Filed Nov. 28, 1896. Serial No. 613,216. (No model.)

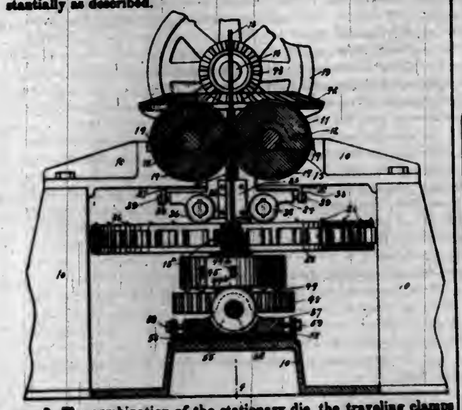


Claim.—The herein-described attachment, comprising a tubular socket-piece, a bolt projecting laterally therefrom and rigid thereon, said bolt being provided at its junction with the socket-piece with flat-sided enlargements, a flexible strip having its central portion looped to form a contractible loop adapted to embrace one of the bars of a bicycle and having its end portions reinforced and provided with alined openings for the passage of said bolt one of said openings being flat-sided to receive said enlargement, and a thumb-nut on said bolt, substantially as and for the purpose specified.

598,019. WIRE-NAIL MACHINE. WILLIAM F. HUTCHINSON, Bound Brook, N. J., assignor to himself and the Oliver Wire Company, of Pennsylvania. Filed Nov. 5, 1896. Serial No. 611,066. (No model.)

Claim.—1. A nail-machine comprising oppositely-arranged dieing-rolls constructed to form a portion of a nail-point, finishing-dies to form the remainder of the nail-point, a series of clamping devices to successively engage the nail-blanks and carry them through said finishing-dies, and a heading device acting while the nails are in the clamps, substantially as described.

2. A nail-machine comprising oppositely-arranged dieing-rolls constructed to form a portion of a nail-blank between them, a stationary die lying essentially parallel with the blanks as they are discharged from the dieing-rolls, a series of clamps to receive the blanks, a series of traveling finishing-dies movable with the clamps and adapted to pass through the stationary die to finish the nail-points, and reciprocating heading devices movable opposite the clamps, substantially as described.



3. The combination of the stationary die, the traveling clamps opposite the die, the movable dies arranged in series with the clamps and adapted to force the nail-blanks through the stationary die, and a heading device adapted to successively strike the nail-blanks as they are caught by the clamps, substantially as described.

4. The combination with the stationary die, of the rotating table movable opposite the end of the die, the nail-clamps carried by the table, the dies carried by the table and arranged in series with the clamps, said table dies being adapted to pass through the stationary die, and a heading device to strike a nail-blank when engaged by the clamps, substantially as described

5. The combination of the stationary die, the rotating table, the clamps on the table, the dies on the table arranged to move through the stationary die, the heading device to strike a nail-blank when engaged by the clamps, and bearing devices arranged on the table opposite the heading device to take the thrust, substantially as described.

6. The combination with the rotating table having a continuous guide-slot therein, of the jaws arranged at intervals on opposite sides of said guide-slot and adapted to close upon blanks held in the slot, substantially as described.

598,020. WIRE-NAIL MACHINE. WILLIAM F. HUTCHINSON, Bound Brook, N. J., assignor to himself and the Oliver Wire Company, of Pennsylvania. Filed Nov. 5, 1896. Serial No. 611,068. (No model.)

Claim.—1. In a nail-machine, the combination of the oppositely-arranged cutter-rolls, each roll having on its face oscillating knives shaped and actuated so as to cut two sides of a nail-point, substantially as described.

2. In a nail-machine, the combination of the oppositely-arranged cutter-rolls having recessed faces with oscillating knives in the said recesses, the knives being arranged in pairs and the opposite pairs being shaped and actuated so as to cut the four sides of a nail-point, substantially as described.

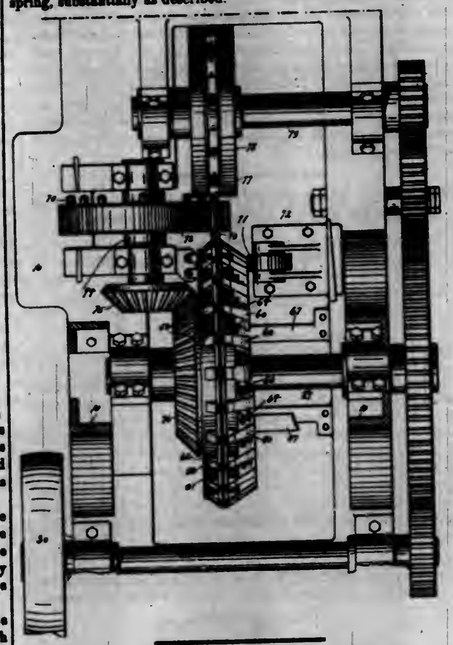
3. In a nail-machine, the wire-clutch comprising oppositely-arranged parts movable in relation to each other and arranged to permit the passage of a wire between them, a guide entering the ends of the opposite parts to make them register, and movable abutments adapted intermittently to strike one of said parts, substantially as described.

4. In a nail-machine, the combination with a cutter-roll and the oscillating knives having shoulders on their outer edges, of the abutments in the paths of such shoulders, substantially as described.

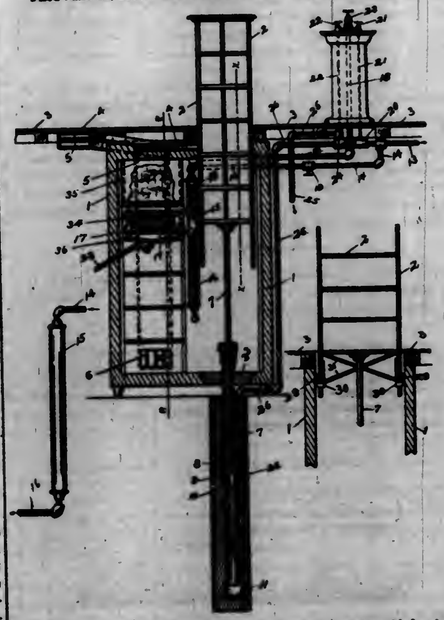
5. In a nail-machine, the combination of the oppositely-arranged cutter-rolls, and the oscillating knives mounted in pairs on the rolls, means for closing said knives gradually on a wire between the rolls and upon the same as the wire is passed, substantially as described.

6. In a nail-machine, the nail-blank carrier comprising a rotary wheel having opening and closing spring-actuated jaws on its face and a peripheral guide-slot extending between the open jaws, an abutment to move the jaws against the tension of the spring, and a presser-plate arranged opposite the jaws and adapted to press nail-blanks between the jaws, substantially as described.

7. In a nail-machine, the combination with the rotary carrier, of the jaws arranged in pairs on its face, one jaw of each pair being fixed and the other slidable in relation to the fixed jaw, a spring closure for the slidable jaw, and means, as the segmental guide and the lip on the jaw, to move the latter against the tension of the spring, substantially as described.



598,021. REFRIGERATOR. JOHN HYDE, Jr., Pawtucket, R. I. Filed June 12, 1896. Serial No. 595,267. (No model.)

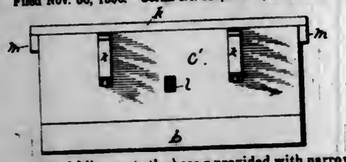


Claim.—1. The combination of an elevator, a casing 10, having an open top, a hydraulic cylinder 8, situated in and of less diameter than the casing, a piston 7 situated within the hydraulic cylinder and connected with the elevator, a chamber 11 situated at the bottom of the cylinder, a water-supply pipe extending downward within

the casing, and communicating with the chamber 11, and a body of cement surrounding the cylinder, chamber and water-supply pipe, substantially as described.

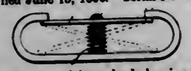
2. A refrigerator having an opening in its top, and an opening through its bottom, an elevator, and its rod 7 connected to its lower end, combined with a hydraulic cylinder which extends up through the bottom of the refrigerator, a water-supply pipe alongside of the cylinder, the chamber 11 forming the lower portion of the cylinder and with which the water-supply pipe connects, an inclosing case around the cylinder, chamber and water-pipe and a filling of cement between the casing and the cylinder-chamber and water-pipe, substantially as described.

593,022. FOLDING CRATE. William Kalchthaler, Pittsburg, Pa. Filed Nov. 30, 1896. Serial No. 613,913. (No model.)



Claim.—In a folding crate the base *a* provided with narrow strips *d*, at its ends, and the strips *b* along its sides, and which strips *b* are wider than those *d*; the central partition *c'*, which is hinged to the bottom *a*; the end pieces *c* which are hinged to the end strips *d*, the side pieces *c* and *c'*, the side piece *c* being provided with a staple to engage with the hasp connected to the cover, and the side piece *c'* being provided with an opening *l*, through which the staple passes when the parts are closed together; the cover *h*, and the double bar-hinges *k*, by which the cover is connected to the side *c'*, substantially, as shown.

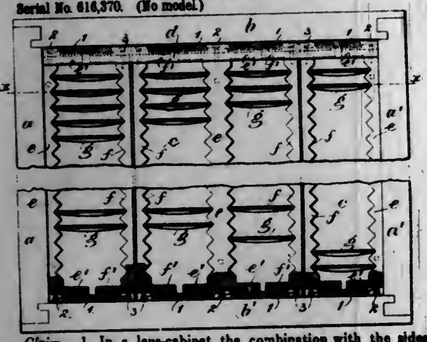
593,023. SNAP-HOOK. William G. Kelly, Niagara Falls Center, Canada. Filed June 15, 1896. Serial No. 595,541. (No model.)



Claim.—1. A snap comprising a body having hooks on both ends, a tongue provided with a slot, a post having a head and engaging said slot and secured in said body, and a spring engaging with said tongue to hold it normally in engagement with both hooks, and forming its only support, whereby either hook can be opened separately or both can be opened simultaneously.

2. A snap-hook comprising a body consisting of a flat piece of metal without flanges, having its ends bent over inwardly toward each other into a plane, parallel with that of the central portion of said body, a tongue consisting of a flat piece of metal having its extremities underlapping the ends of said body, and provided with a central longitudinal slot, a post having a head erected upon said body and passing freely through said slot, and a spring around said post and engaging with and forming the sole means of support of said tongue, holding it normally against said body ends.

593,024. LENS-CABINET. Ernest U. Kinney, New York, N. Y., assignor to Edward J. Irwin, Englewood, N. J. Filed Dec. 21, 1896. Serial No. 616,370. (No model.)



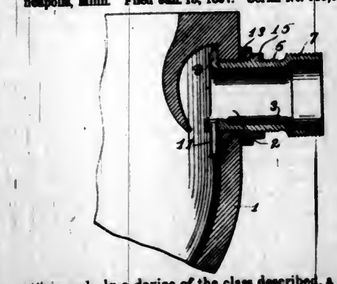
Claim.—1. In a lens-cabinet, the combination with the sides, ends and bottom, of strips at the ends forming slideways, grooved division-pieces with cross or right-angled pieces at their opposite ends movable in said slideways, and springs for actuating said grooved division-pieces to apply a tension to hold the lenses inserted between said division-pieces, substantially as set forth.

2. In a lens-cabinet, the combination with the sides, ends and bottom, of strips at the ends between which and the bottom of the cabinet are formed slideways, the movable grooved division-pieces having right-angled pieces at their ends received in said slideways and longitudinally channeled, and helical springs in said channels and pins in the division-pieces to which the respective ends of the helical springs are fastened, said springs acting to draw the division-pieces toward each other, and upon the insertion of the lenses to exert a pressure to hold the same in place, substantially as set forth.

3. In a lens-cabinet, the combination with the sides, ends and bottom, of the strips *d*, *d'* upon the respective ends and between which and the bottom of the cabinet are formed slideways, the stationary grooved division-pieces *e*, the movable grooved division-pieces *f*, the right-angled pieces *e'*, *f'* at the respective ends thereof, said pieces being received in the slideways and being channeled longitudinally, the helical springs within said longitudinal channels and the pins 2 and 3, to which the respective ends of the helical springs are fastened, substantially as and for the purposes set forth.

4. In a lens-cabinet, the combination with the sides, ends and bottom, of strips at the ends forming slideways, grooved division-pieces extending across the cabinet and movable in said slideways, and springs acting on said grooved division-pieces to apply a tension to hold the lenses inserted between said division-pieces, substantially as set forth.

593,025. WATER-CLOSET REPAIR. John T. Morrison, Minneapolis, Minn. Filed Jan. 13, 1897. Serial No. 619,004. (No model.)



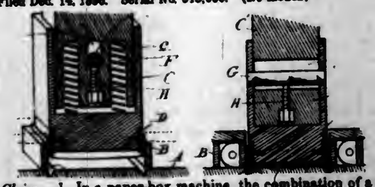
Claim.—1. In a device of the class described, a pipe connection having on its outer end means for tightening the pipe in the closet, and having on its inner end an extension, in combination with a movable part provided on said extension, and laterally movable after said extension is in position, substantially as described.

2. The combination, with the pipe section or coupling, of a transversely-slidable pin or lug arranged on the inner end thereof, and a fixed transverse lug also provided on the inner end of said coupling, substantially as described.

3. The combination, with a pipe section or coupling, having a laterally-projecting fixed lug, of a laterally-movable lug arranged substantially opposite said fixed lug, and adapted to be projected, after the coupling is in position for use, beyond the outer wall of the coupling, substantially as described.

4. The herein-described pipe section or coupling, formed integrally, and provided with a screw-threaded outer surface, and with a separate lug 11, and means for securing said lug upon said section at one end thereof and permitting it to be moved laterally, for the purpose set forth.

593,026. PAPER-BOX MACHINE. Henry Mott, Detroit, Mich. Filed Dec. 14, 1896. Serial No. 615,680. (No model.)



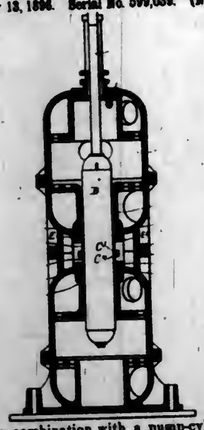
Claim.—1. In a paper-box machine, the combination of a series of laterally-movable molds, a bed below said molds provided with a groove adapted to register with the movable molds, and a plunger having acute-angle forming edges adapted to pass through the molds and enter the groove in the bed.

2. In a paper-box machine, the combination of a bed, a panel movable in a recess therein and forming with the walls of said recess a groove in the surface of the bed, means adapted to prevent the panel projecting beyond the surface of the bed, a plunger having acute-angle forming edges adapted to be forced into said groove, and a series of molds movable between the plunger and the bed, and through which the plunger passes.

3. In a box-machine, the combination of a bed having a groove formed therein, a plunger comprising a head with acute-angle forming edges adapted to enter the groove in the bed, a shank having a limited sliding engagement with the head, and buffer-springs between the head and shank, and a mold-chain movable between the bed and the plunger.

4. A plunger comprising a head, a shank with which said head has a sliding engagement provided with longitudinal recesses and a transverse slot, springs seated in said recesses and engaging the head, a pin or rod passing through said slot and secured to the head, and an adjustable stop carried by said shank and engaging said rod or pin, substantially as described.

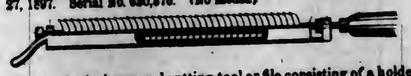
593,027. PUMP-CYLINDER PACKING. Charles L. Newcomb, Holyoke, Mass., assignor to the Deane Steam Pump Company, same place. Filed July 13, 1896. Serial No. 599,039. (No model.)



Claim.—1. The combination with a pump-cylinder comprising sections with an intervening space between said sections, and a reciprocating plunger, of a metallic bushing inclosing the central section of said plunger with its ends entering said cylinder-sections, said bushing being made in separable parts united at their ends, one of said parts being capable of sliding into one of said cylinder-sections, substantially as described.

2. The combination with a pump-cylinder comprising sections with an intervening space between said sections and a reciprocating plunger, of a metallic bushing made in parts, one of said parts having a flange by which it is united to one of said cylinder-sections, and a movable gland carried on the other part of said bushing and adapted to enter a stuffing-box in the other cylinder-section, substantially as described.

593,028. FILE OR RASP. Otto Olson, Redding, Cal. Filed Jan. 27, 1897. Serial No. 620,576. (No model.)



Claim.—1. An improved cutting-tool or file consisting of a holder having at its opposite ends upturned threaded lugs, and having upturned sides provided with inwardly-turned edges, a series of bits or cutters fitted within the holder and having grooves or channels to receive the inturned edges of the holder, said bits or cutters being of curved form in cross-section and having beveled edges, and a screw at each end of the holder adjustably fitted to the upturned lugs thereof and abutting against the cutters to secure them firmly in place.

2. The combination with an abrading or cutting tool having a series of independent bits or cutters placed face to face, of means for facilitating the sharpening of the bits or cutters consisting of wedges placed between the bases of the bits or cutters to bring their opposite faces in the same plane.

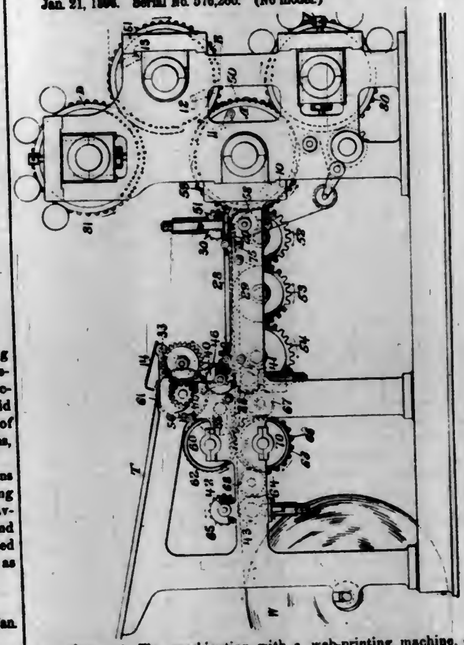
593,029. WHIFFLETREE-EYE. Chamberlayne Phelps, Bucks Bridge, N. Y. Filed May 27, 1897. Serial No. 638,486. (No model.)

Claim.—1. A whiffletree-eye, comprising a rod or bar which has its inner end inserted into the end of the singletree, and its outer end formed into a curved loop which extends outwardly in a line with the singletree, and which loop receives the end of the trace upon its inner elastic end, substantially as shown.



2. A whiffletree-eye formed from a single elastic rod or bar of metal which has its inner end inserted into the end of the singletree, and its outer end formed into an elastic whiffletree-eye, which is bent upon itself so as to form the arm *c*, the bend or curve *d*, and the elastic bearing-arm *e*, which receives the trace, substantially as described.

593,030. SHEET-FEEDING MECHANISM FOR PRINTING-MACHINES. George F. Read, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Jan. 21, 1896. Serial No. 576,260. (No model.)



Claim.—1. The combination with a web-printing machine, of two sheet-feeding mechanisms, one consisting of suitable feeding-rollers, cutting-cylinders and breaking-rollers, and the other of a feeding-cylinder provided with sheet-carrying devices, forwarding-rolls and a conveying-chute leading to the sheet-pathway of the first-named mechanism, substantially as described.

2. The combination with the impression-cylinder of a printing-machine and sheet-controlling rollers running at like speed therewith, one of which has an interrupted surface or non-feeding portion, of a sheet-feeding cylinder delivering sheets to said controlling-rollers, and a coacting stop to temporarily arrest the sheet, straighten the same and then release it, substantially as described.

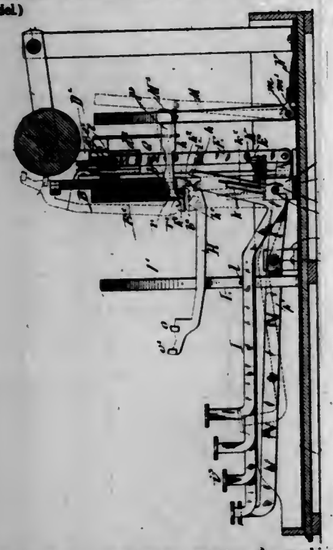
3. The combination with sheet-feeding rollers 40, 41, sheet-controlling rollers 30, 31, and an interposed guideway, said roller 30 being recessed to provide it with a non-feeding portion, of vibrating sheet-stops 20 coöperating with said rollers 30, 31, and a sheet-carrying impression-cylinder A, substantially as described.

4. The combination with the cylinder F and its grippers 15, pinion 4 and segment 2 having a projection 1 and stud 2, of a cam as 16 and bearing-disk 9 and means for laterally moving said disk into and out of range of said projection 1, substantially as described.

5. The combination with the cylinder F, its grippers 15, pinion 4 and segment 3 having the projection 1, of a collar 9 carried by a sliding sleeve, a lever for moving said sleeve, a cam for operating said lever and gearing connecting the shaft of the cam with that of the cylinder in proportion of two to one, so that the said grippers shall be locked open during the alternate revolutions of said feeding-cylinder, substantially as described.

6. The combination with the feeding-rollers 40, 41, 30, 31 and the feeding-cylinder F with its sheet-carrying devices, of the switch 88, substantially as described.

593,031. TYPE-WRITING MACHINE. CHARLES F. ROSENBAUCH, New York, N. Y. Filed Feb. 27, 1897. Serial No. 625,280. (No model.)



Claim.—1. In a type-writing machine, the combination of a frame, a carriage, a platen on the carriage, a series of type-bars, each carrying a pair of types or characters, the printing-faces of the types or characters being inclined inwardly toward each other, key-levers, and means for imparting an oscillatory movement to the platen, substantially as set forth.

2. In a type-writing machine, the combination of a frame, a carriage, a platen journaled in the carriage provided with a laterally-oscillating roller, a vertically-movable frame provided with a top rail, means for guiding said movable frame, said carriage being guided and suitably supported on said top rail, a vertical plate in front of said movable frame and forming a part of the frame of the machine, a series of type-bars pivoted to said vertical plate, and each carrying a pair of types, key-levers, and means for imparting a vertical oscillating movement to the carriage and platen through the medium of said movable frame, substantially as set forth.

3. In a type-writing machine, the combination, with an oscillatory platen, and means for oscillating said platen, of a series of type-bars, and means for actuating the same, said type-bars being provided with a pair of types or characters, which are inclined relatively with respect to each other, substantially as set forth.

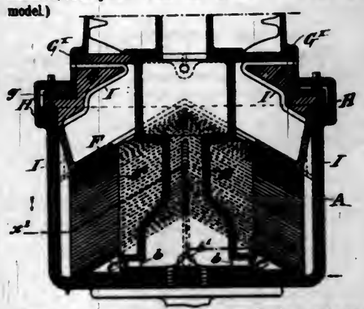
4. In a type-writing machine, the combination, with the segmental supporting-plate provided with means of support for the type-bars, of the type-bars fulcrumed to said support and provided with shoulders and lateral pins, and the key-levers provided with pins extending in opposite direction to the pins on the type-bars for engaging the shoulders on the latter, and with upwardly-extending fingers arranged to the rear of their pins for engaging the pins on the type-bars, substantially as set forth.

5. In a type-writing machine, the combination, with the type-bars, and key-levers for actuating the same, of tension-springs, the ends of which are adapted to take into a series of notches in the short arms of the key-levers, and flat springs for holding said tension-springs in position, substantially as set forth.

6. In a type writing machine, the combination, with the type-bars, and the key-levers for actuating the same, said type-bars being provided with two cavities and a nose between the cavities, of the type-bar-returning slides guided in a part of the frame of the machine, and provided with two lobes engaging in the cavities of the type-bars, a guide for supporting said slides, and a spring-actuated device for returning the slides and the type-bars to normal position, substantially as set forth.

7. The combination, with the key-levers, and the type-bars actuated by said levers, of a series of semicircularly-arranged type-bar-returning slides, normally engaging the type-bars, means for guiding the said slides, and a rocking and spring-actuated device provided at its upper part with an arc-shaped or semicircular portion engaging the rear ends of the semicircularly-arranged series of type-bar-returning slides, substantially as set forth.

593,032. CENTRIFUGAL CREAM-SEPARATOR. ERIK G. H. SALMSON, Kriftriket, Albano, Sweden, assignor to the Aktiebolaget Radiator, same place. Filed June 18, 1897. Serial No. 640,975. (No model.)

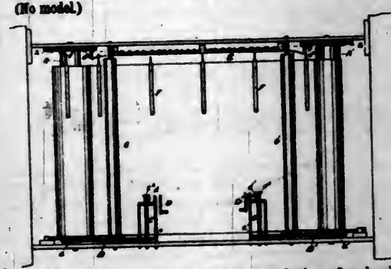


Claim.—1. A centrifugal apparatus having superposed in its drum a series of annular partitions D, bent angularly along one diameter only, said partitions being situated substantially concentric with the axis of the drum and separated to permit the heavier liquid to pass outwardly between them.

2. A centrifugal apparatus having a drum, an upright cylinder at the center of said drum to form an inlet and receiving chamber for the liquid to be separated, said chamber having oppositely-arranged radial outlets at its bottom, and said apparatus having in its drum concentrically arranged and superposed partitions, D, of annular form bent along one diameter only, as set forth, said partitions being separated to form spaces or passages for the outward flow of the heavier, separated liquid.

3. In a centrifugal apparatus, the combination with the drum A, having in it the cylinder B, provided with a rib or ribs and liquid-outlets, *b* and *b'*, of the annular partition-support C, the series of superposed, annular partitions D, bent along one diameter only, as described, and the cover G, shaped to fit and bearing on the superposed partitions, substantially as set forth.

593,088. DISPLAY APPARATUS FOR CARPETS, &c. STEWART SHILLITO, Cincinnati, Ohio. Filed July 13, 1897. Serial No. 644,334. (No model.)

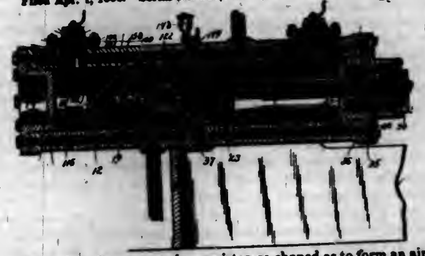


Claim.—1. The combination, in a display device, of reels adapted to receive and deliver strips of carpeting or other material; supporting-rods adapted to be attached to the strips and carrying at their free ends, spheres or spheroids; one or more slotted guides adapted to receive the free ends of the supporting-rods and form a track for the spheres, and means for rotating the reels, substantially as and for the purpose set forth.

2. The combination, in a display device, of reels adapted to receive and deliver strips of carpeting or other material; supporting-rods adapted to be attached to the strips and carrying at their free ends spheres or spheroids pivotally mounted on their vertical axes; one or more slotted guides adapted to receive the free ends of the supporting-rods and form a track for the spheres; and means for rotating the reels, substantially as and for the purpose set forth.

3. The combination, in a display device, of reels adapted to receive and deliver strips of carpeting or other material; supporting-rods adapted to be attached to the strips and carrying at their free ends spheres or spheroids; one or more slotted guides adapted to receive the free ends of the supporting-rods and form a track for the spheres; guide-wires adapted to direct the spheres into the slotted guides; and means for rotating the reels, substantially as and for the purpose set forth.

593,034. GAS-ENGINE. FRED W. SPARKS, Indianapolis, Ind. Filed Apr. 7, 1896. Serial No. 586,572. (No model.)



Claim.—1. In a gas-engine, a piston so shaped as to form an air-chamber between a portion of said piston and the walls of the cylinder, the said air-chamber having no direct communication with the combustion-chamber of the cylinder, an air-inlet leading into said chamber from the exterior of the cylinder, an air-outlet leading from said chamber, and intermediate valved connections between said air-outlet and the combustion-chamber of the cylinder, as and for the purpose set forth.

2. In a gas-engine, the combination with a cylinder, of a piston mounted therein and so shaped as to form an air-chamber, having no immediate connection with the interior of the cylinder, between the middle portion thereof and the cylinder, an air-inlet leading into said chamber from the exterior of the cylinder, an air-outlet leading from said chamber, a mixing-chamber adapted to receive the air from said outlet, a port leading into the cylinder near one end thereof, a valve-box secured to the cylinder over said port, the said valve-box being provided with a chamber which communicates with said port, an admission-chamber and an exhaust-chamber formed in said box and each communicating with said first-mentioned chamber, an admission-valve and an exhaust-valve mounted in said box, a communication formed between the mixing-chamber and the admission-chamber, a gas-inlet valve mounted in the mixing-chamber, means for operating the admission-valve and the exhaust-valve, means carried by the admission-valve for operating the gas-inlet valve, and means for exploding the gas in the cylinder, substantially as set forth.

3. In a gas-engine, the combination with the cylinder, of a piston mounted therein and so shaped as to form an air-chamber, having no immediate connection with the interior of the cylinder, between the middle portion thereof and the cylinder, an air-inlet leading into said chamber from the exterior of the cylinder, an air-outlet leading from said chamber into a mixing-chamber, a port leading into each end of the cylinder, a valve-box secured to the cylinder over each port, each of said boxes being provided with a chamber which communicates with one of the ports and being also provided with an admission-chamber and an exhaust-chamber, an admission-valve and an exhaust-valve mounted in each valve-box and leading from their respective chambers to the first-mentioned chamber, a gas-inlet valve mounted in the mixing-chamber near each end thereof a passage forming a communication between each admission-chamber and the mixing-chamber, means for operating the admission and exhaust valves, means carried by each admission-valve for operating one of the gas-inlet valves, and means for causing an explosion in each end of the cylinder.

4. In a gas-engine, a piston therefor having formed in the end thereof a chamber, a plate secured to the end of said piston but partially closing the open end of said chamber, as and for the purpose set forth.

5. In an engine, the combination with a double-ended cylinder and an exhaust-valve mounted at each end thereof, of two pipes leading one from each of said exhaust-valves and joined together at an acute angle to each other, as and for the purpose set forth.

6. In an engine, the combination with a double-ended cylinder and an exhaust-valve mounted at each end thereof, of an exhaust-drum, two pipes leading one from each of said exhaust-valves and joined together at an acute angle to each other by means of a coupling which leads into the exhaust-drum, as and for the purpose set forth.

7. In a gas-engine, the combination with a cylinder having a uniform bore, of a piston mounted therein, a port opening into the cylinder near each end thereof, a pair of valve-boxes secured to the cylinder, one over each port, each of said boxes being provided with a chamber which communicates with one of the ports, and being also provided with an admission-chamber and an exhaust-chamber, each of said chambers being connected with the first-mentioned chamber and the openings therebetween being closed by suitable admission and exhaust valves, a mixing-chamber mounted between and connecting the admission-chambers of both valve-boxes, a gas-inlet valve mounted near each end of the mixing-chamber, a lever pivoted near the stem of each valve and each having one of its ends in connection with one of said valve-stems, a shaft mounted in suitable bearings on the engine-frame, a series of cams carried by said shaft, one of each of said cams being adapted to engage the opposite end of one of each of the levers, a lever carried by each of the gas-inlet valves and projecting through the casing of the mixing-chamber, a pin carried by each of the admission-valves and each adapted to engage the end of one of said levers, and means for exploding the gas in each end of the cylinder, all substantially as set forth.

8. In a gas-engine, the combination with a cylinder, of a piston mounted therein, a port opening into the cylinder near each end thereof, a pair of valve-boxes secured to the cylinder one over each port, each of said boxes being provided with a chamber which communicates with one of the ports, and being also provided with an admission-chamber and an exhaust-chamber, each of said chambers being connected with the first-mentioned chamber, and the openings therebetween being closed by suitable admission and exhaust valves, a mixing-chamber mounted between and connecting the admission-chambers of both valve-boxes, a gas-inlet valve mounted near each end of the mixing-chamber, a lever pivoted near the stem of each admission and exhaust valve and each having one of its ends in connection with one of said valve-stems, a shaft mounted in suitable bearings on the engine-frame, a series of cams carried by said shaft, one of each of said cams being adapted to engage the opposite end of one of each of the levers, a lever carried by each of the gas-inlet valves and projecting through the casing of the mixing-chamber, a pin carried by each of the admission-valves and each adapted to engage the end of one of said levers, a pair of contact-pieces each insulated from the piston and extending one into each end of the cylinder, means for connecting each of said contacts with one pole of a suitable battery, a pair of contact-pieces secured to the piston and carried thereby, the said second pair of contacts being adapted to be brought alternately into engagement with the first pair of contacts by the movement of the piston, a pair of contact-pieces carried by the before-mentioned shaft, a contact-piece projecting into the path of said last-mentioned contacts and adapted to be engaged thereby, and means for connecting said last-mentioned contact with the opposite pole of a battery, all combined and arranged to cooperate substantially as and for the purpose set forth.

9. In a gas-engine, the combination with the piston, of an arm projecting from the end thereof, a standard carried by said arm and longitudinally adjustable thereon, the said standard forming one of the terminals of an electric circuit.

10. In a gas-engine, the combination with the piston, of a pair of parallel guides projecting from the end thereof the opposed edges of said guides being oppositely beveled, a nut adapted to slide between and supported by said beveled edges, a screw-threaded standard adapted to engage said nut, and a collar carried by said standard and arranged to engage said guides in opposition to said nut, whereby, the standard may be adjustably secured in position along said guides.

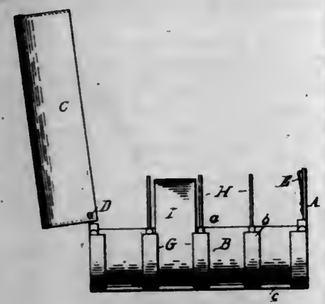
11. In a gas-engine, the combination with a cylinder-head and a piston-rod extending therethrough, of a hollow shield projecting from the inner end of said head into the cylinder and surrounding the piston-rod but out of contact therewith and forming no part of the bearing thereof, substantially as and for the purpose set forth.

12. In a gas-engine, the combination with a cylinder having the middle portion thereof of smaller diameter than the ends thereof, of an oil-bridge carried by said piston and extending from end to end thereof and provided in its upper surface with a groove extending longitudinally thereof, and means for introducing oil into said groove, substantially as set forth.

593,085. TICKET-CASE. NELSON E. SPRINGSTEEN, Royal Oak, Mich. Filed Aug. 4, 1897. Serial No. 647,076. (No model.)

Claim.—1. The combination in a ticket-case and fare-register, of a casing formed of two semicylindrical sections, a body-section and a cover-section hinged thereto, leaving a slot between at one edge, of a series of guides on the exterior of the body-section extending from the slot the length of a ticket, and a cross-bar or knife-bar extending across the top of the guides at the end as and for the purpose described.

2. The combination in a ticket-case, of a body composed of circular ends and a semicylindrical section secured thereto, a semicylindrical cover hinged to one end leaving a slot F between the meeting edges of the two sections, a series of guide-ribs *a* and the guide-plates *b* extending on the stationary section from the slot a distance equal to the length of the ticket, the knife-edge bar crossing the top of the ends of the plate *b*, and the partitions in the casing, substantially as described.



598,086. PHOTOGRAPHIC MOUNT. PAUL J. STUPARICH, San Francisco, Cal. Filed Oct. 13, 1896. Serial No. 608,756. (No model.)



Claim.—As an article of manufacture, a mount designed for the reception of a photograph, said mount having an embossed conventional central panel and embossed words or characters and having remaining portions tinted, the embossing of the panel and of the words or characters being done simultaneously with each other and with the application of the tint to said remaining portions whereby the embossed portions retain the original color of the mount and are displayed prominently upon a field of a contrasting color.

598,087. AUTOMATIC GUIDE FOR FELTS OR WIRES. JAMES R. WETHERBEE, Sandy Hill, N. Y. Filed July 8, 1897. Serial No. 643,906. (No model.)

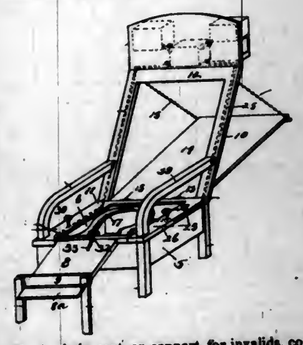


Claim.—1. The combination of a fixed rack, a block supported to slide longitudinally of the rack, a roll having one of its bearings swiveled on said block, a felt or wire-cloth supported by and movable over said roll, a shaft journaled in said block, a gear-wheel on one end of the shaft meshing with the said rack, a ratchet-wheel on the other end of said shaft, a plate pivoted intermediate its ends on the shaft outside the ratchet-wheel and having a flange at its upper end projecting over the ratchet-wheel, a pin on the end of the roll-shaft eccentric thereto, reversely-arranged pawls pivotally mounted on said pin and normally engaging said flange, and devices connected to the lower end of said plate and operated by the lateral movement of the felt or wire-cloth to rock the plate on its pivot and permit one of the pawls to engage the ratchet-wheel, substantially as and for the purpose specified.

2. The combination of a fixed plate having a dovetail tongue, a sliding block having a dovetail recess to receive said tongue, a fixed rack on the plate parallel to said block, a roll having one of its bearings swiveled on said block, a felt or wire-cloth supported by and movable over said roll, a shaft journaled in said block, a gear-wheel on one end of the shaft meshing with the said rack, a ratchet-wheel on the other end of said shaft, a plate pivoted intermediate its ends on the shaft outside the ratchet-wheel and having a flange at its upper end projecting over the ratchet-wheel, a pin on the roll-shaft eccentric thereto, reversely-arranged pawls pivotally mounted on said pin and normally engaging said flange, an elbow-lever pivoted on a fixed support, a rod connecting one arm of said lever to the lower end of the pivoted plate, a vertical rod at the outer end of the other arm of said lever, a bar extending transversely of the felt below it and pivotally connected at one end of said vertical rod and at its other end to the machine-frame, and guides secured to the bar and engaging the edges of the felt or wire-cloth, substantially as described and for the purpose specified.

3. The combination of a fixed rack, a block supported to slide longitudinally of the rack, a felt-supporting roll having one of its bearings swiveled on said block, a shaft journaled in said block, a gear-wheel on one end of the shaft engaging said rack, a ratchet-wheel on the other end of the shaft, reversely-arranged pawls eccentrically pivoted on the roll-shaft over the ratchet-wheel, and mechanism operated by the lateral movement of the felt to bring one of the pawls into engagement with the ratchet-wheel and operate the latter to move the sliding block, substantially as described.

598,088. CHAIR. JOSEPH B. WHITE, Chicora, Miss. Filed June 1, 1897. Serial No. 639,045. (No model.)



Claim.—1. A chair, seat or support for invalids, comprising a base, provided with an opening in the top thereof, and a hinged cover which is adapted to serve as a foot-rest, said chair being also provided with a back which comprises a frame, and a central portion which is hinged to the base and which is adapted to be lowered, a hollow circular or curved cushion supported in said base, a water-tank connected with the frame of the back, and water-pipes connected with said tank, one of said pipes being in communication with said cushion, and the other being provided with a flexible tube, substantially as shown and described.

2. A chair, seat or support for invalids, comprising a base, provided with an opening in the top thereof, and a hinged cover which is adapted to serve as a foot-rest, said chair being also provided with a back which comprises a frame, and a central portion which is hinged to the base, and which is adapted to be lowered, a hollow circular or curved cushion supported in said base, a water-tank connected with the frame of the back, and water-pipes connected with said tank, one of said pipes being in communication with said cushion, and the other being provided with a flexible tube, and means for heating the water, substantially as shown and described.

3. A chair, seat or support for invalids, comprising a base, provided with an opening in the top thereof, and a hinged cover which is adapted to serve as a foot-rest, said chair being also provided with a back which comprises a frame, and a central portion which is

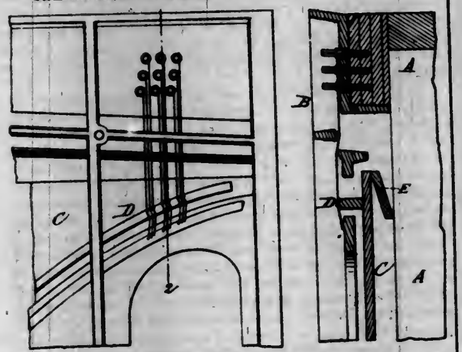
hinged to the base, and which is adapted to be lowered, a hollow circular or curved cushion supported in said base, a water-tank connected with the frame of the back, and water pipes connected with said tank, one of said pipes being in communication with said cushion, and the other being provided with a flexible tube, and means for heating the water, and said base being also provided with a removable drawer or receptacle, substantially as shown and described.

4. A chair, seat or support for invalids, comprising a base, provided with a top plate in which is formed an opening, a cover for said opening which is hinged to the front of the base, and which is adapted to serve as a foot-rest, a back comprising a frame, secured to the base, and a central portion which is hinged thereto, said central portion being adapted to be lowered, and said frame being provided at the top thereof with water-tanks, which are in communication, and said base being provided with a circular hollow cushion which is supported therein, and two pipes which are in communication with one of said water-tanks, one of said pipes being in communication with said hollow cushion, and the other being provided with a flexible tube, with which is connected a nozzle, substantially as shown and described.

5. A chair, seat or support for invalids, comprising a base, provided with a top plate in which is formed an opening, a cover for said opening, which is hinged to the front of the base, and which is adapted to serve as a foot-rest, a back comprising a frame secured to the base, and a central portion which is hinged thereto, said central portion being adapted to be lowered, and said frame being provided at the top thereof with water-tanks, which are in communication, and said base being provided with a circular hollow cushion which is supported therein, and two pipes which are in communication with one of said water-tanks, one of said pipes being in communication with said hollow cushion and the other being provided with a flexible tube with which is connected a nozzle, and said base being also provided with a removable drawer or receptacle, and means connected with one of the water-tanks for heating the water therein, substantially as shown and described.

6. A chair, seat or support for invalids, comprising a base, which is provided with a central opening, and means for closing the same, said seat or chair being also provided with a support for the back, a hollow circular or curved cushion supported in said base below the opening formed therein, and a water-tank connected with the back-support, and pipes connected with said tank one of said pipes being in communication with said cushion, and the other being provided with a flexible tube and said back-support being also provided with means for heating the water, substantially as shown and described.

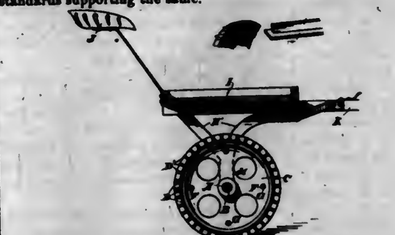
598,089. SOUNDING-BOARD SUPPORT FOR PIANOS. HENRY ZIEGLER, New York, N. Y. Filed Dec. 9, 1896. Renewed Aug. 18, 1897. Serial No. 643,731. (No model.)



Claim.—As an improvement in pianos, the combination, with the main frame of a piano, of a sounding-board and a bracket-support for the edge of the same, said bracket-support extending inwardly from the edge of the sounding-board to the main frame, substantially as set forth.

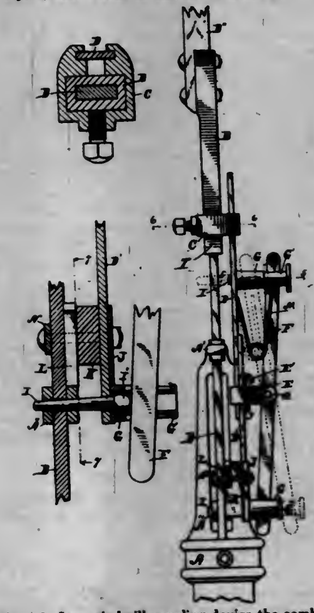
598,040. CLOD-PULVERIZER. WILBER T. ADEL and SAMUEL F. LEIB, San José, Cal.; said Leib assignor to said Adel. Filed July 1, 1897. Serial No. 643,108. (No model.)

Claim.—1. A clod-crusher consisting of a plurality of rollers mounted and turnable upon a single shaft, said rollers being composed of heads having central hubs for the shaft and having continuous annular channels made in them near their peripheries, bars fitted between said heads, having a central rib made shorter than the bars so as to leave projecting ends on said bars adapted to enter said channels or grooves, bolts extending through from one head to the other of each roller and nuts whereby they may be drawn up to lock a continuous series of bars into place to form the closed periphery of the rollers, with projecting crushing-ribs, a weight-box and forked standards supporting the same.



2. A clod crushing and pulverizing roller consisting of steel T-bars, the projecting lug of each of which is shorter than the transverse head portion, circular heads or disks having grooves or channels made around their inner faces near the outer periphery adapted to receive the projecting ends of the T-bars whereby the central rib abuts against the outer portion of the heads and projects radially beyond them, bolts extending from one head to the other of each of the rollers with nuts whereby the heads are drawn and locked firmly against the ends of a series of T-bars which form a continuous periphery for the roller with outwardly-projecting ribs, hubs projecting centrally from the ends of the heads of the disks, a shaft passing loosely through said heads so that one or more of the rollers are turnable upon the shaft, oil-supply holes extending inwardly from the periphery of the disks to the hub-openings, and having screw-plugs closing the outer ends, standards at the ends and intermediate the rollers through which the shaft passes, in the outer ones of which it is fixed, said standards being forked at the upper end adapted to support a weight-carrying box and driver's seat, a pole and team attachments secured and projecting forwardly from the box whereby the machine is propelled over the ground.

598,041. WINDMILL-COUPLING. MARK BEADLE, Climax, Mich. Filed Sept. 5, 1896. Serial No. 605,086. (No model.)



Claim.—1. In a windmill coupling device the combination with the pump-rod B, and the windmill pump-rod B", with slide B', thereon fitted to slide together in the usual way; of a collar C, on said slide having a guideway therein; a bar made up of sections D, D', adjustably secured together fitted to said guideway; and secured to the

pump-rod B; a tubular guide G, secured to each section D, D′; a thimble G′, within each guide G; a lever F pivoted at *a*, to the bar B, B′, and extending through the thimble G′, at each end; pins I, in the thimbles G′, retained in place by said lever F, being fitted therethrough; a spring M, between the end of the lever F, and section D, to hold the upper end normally out; a block K, in the lower slide extended to form a guide and recessed on one side; and a key or lock L, to drop in front of the lower pin when withdrawn to hold it out all coacting as described for the purpose specified.

2. In a coupling device for windmills the combination with the pump-rod and the windmill pump-rod positioned to slide together in the usual way; a bar secured to said pump-rod; a collar on said windmill pump-rod with a guide thereon to receive said bar; a lever supported on said bar with a coupling-pin at each end the upper of which is to couple the pump-rod and the windmill-rod together and the lower of which is to couple the pump-rod and the handle together for the purpose specified.

3. In a coupling device for windmills, the combination of a pump and windmill the pump-rod and windmill pump-rod of which are positioned to slide together in the usual way; a bar secured to one of the said parts; a collar on the opposite part with a guide through which the said bar slides; a lever carried by said bar; coupling-pins on each end of said lever the upper of which serves to couple the pump-rod and windmill pump-rod and the lower of which serves to couple the handle of the pump to its rod as specified.

4. In a coupling device for windmills the combination of a pump and windmill the pump-rod and windmill pump-rod of which are positioned to strike together in the usual way; a bar secured to one of said parts and sliding on the other; a lever carried by said bar; a spring connected to said lever to throw the top of it away from said bar; coupling-pins on said lever one toward the top to couple the windmill and one toward the bottom to couple the pump-handle; a movable lock positioned in front of the lower pin when the upper pin is engaged; and the handle of the pump positioned to force the lock to one side and permit the lower pin to couple it with the pump-rod by the action of the spring which withdraws the upper pin as specified.

5. In a coupling device for windmills the combination of a pump and windmill the pump-rod and windmill pump-rod of which are positioned to slide together; a bar made up of sections D, D′, adjustably secured together and supported on one of said parts and positioned to slide on the other; a lever carried by said bar; and coupling-pins at each end of said lever adjustable along the same as specified.

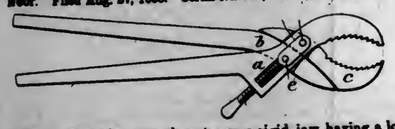
6. In a coupling device for windmills the combination of a pump and windmill the pump-rod and windmill pump-rod of which are positioned to slide together; a bar made up of sections D, D′, adjustably secured together and supported on one of said parts and positioned to slide on the other; a guide G, on each section of said bar; a thimble G′, in each guide G, having slots therethrough; coupling-pins I′, with heads I, supported in said thimbles; and a lever F, supported by said bar and extending through the slots in said thimbles to retain the pins as specified.

7. In a coupling device for windmills the combination of a pump and windmill the pump-rod and windmill pump-rod of which are positioned to slide together in the usual way; a bar supported on one of said parts and positioned to slide on the other; a guide G, on each section of said bar; a thimble G′, in each guide G, having slots therethrough; coupling-pins I, with heads I′, supported in said thimbles; and a lever F, supported by said bar and extending through the slots in said thimbles to retain the pins as specified.

8. In a coupling device for windmills the combination of a pump and windmill the pump-rod and windmill pump-rod of which are positioned to slide together; a lever carried by one of said parts; coupling-pins on said lever the upper of which is to couple the windmill and the lower of which is to couple the pump-handle as specified.

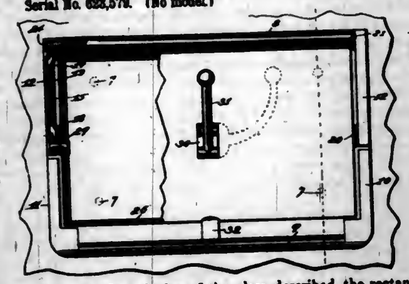
9. In a coupling device for windmills the combination of a pump and windmill the pump-rod and windmill pump-rod which slide together; a pair of coupling-pins carried by one of said parts one of which is to couple the windmill and the other the pump-handle; and a connection between the pins coacting as specified.

593,042. GAS-PIPE AND ROD TONGS. AMOS J. BURTON, Ceryl, Nebr. Filed Aug. 27, 1895. Serial No. 560,718. (No model.)



Claim.—In a pipe wrench or tongs, a rigid jaw having a longitudinal slot, a second jaw having a governor bearing against its rear face, the said jaw and governor connected by a link or links, and having pivot-pins extending into the slot, an adjusting-screw bearing against the pivot-pin of the governor in the slot, and handles for actuating the rigid jaw and governor as set forth.

593,043. MIRROR ATTACHMENT FOR CHAIRS. RICHARD L. COCHRAN and ANITA M. BAKER, St. Louis, Mo. Filed Feb. 15, 1897. Serial No. 623,579. (No model.)



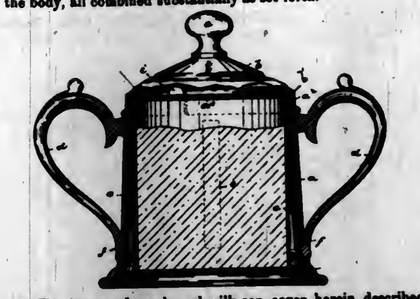
Claim.—1. In a device of the class described, the rectangular plate 6, the flange 8 projecting from the upper edge of said plate, the flange 9 projecting from the lower edge of said plate and having the ends 10 and 11 extending approximately one-half the length of the end edges of said plate 6, the swinging arms 12 in the form of channel-bars at their centers and in the form of I-beams at their ends pivotally connected to the ends of the flange 8, the swinging plate 25 pivotally connected to the lower ends of said swinging arms 12, the leaf-springs 13 consisting of the central portions 14, which portions are placed within the channel-bar portions of the swinging arms 12 and secured in position by the screws 15, and consisting of the end portions 18 having the slot 20, which end portions are placed against the ends of the swinging plate 25, and consisting of the end portions 19, which end portions are placed against the ends of the flange 8, substantially as specified.

2. In a device of the class described, a suitable plate having a flange projecting backwardly from its upper edge, the swinging arms 12 in the form of channel-bars at their centers and in the form of I-beams at their ends pivotally connected to the ends of the flange 8, the swinging plate 25 pivotally connected to the lower ends of said swinging arms 12, the leaf-springs 13 consisting of the central portions 14, which portions are placed within the channel-bar portions of the swinging arms 12 and secured in position by the screws 15, and consisting of the end portions 18 having the slot 20, which end portions are placed against the ends of the swinging plate 25, and consisting of the end portions 19, which end portions are placed against the ends of the flange 8, the perforated ear 30 projecting from the center of the plate 25, and the handle 31 having one of its ends bifurcated and pivotally attached to said ear, substantially as specified.

3. In a device of the class described, the rectangular plate 6, the flange 8 projecting from the upper edge of said plate, the flange 9 projecting from the lower edge of said plate and having the ends 10 and 11 extending approximately one-half the length of the end edges of said plate 6, the swinging arms 12 in the form of channel-bars at their centers and in the form of I-beams at their ends pivotally connected to the ends of the flange 8, the swinging plate 25 pivotally connected to the lower ends of said swinging arms 12, the leaf-springs 13 consisting of the central portions 14 which portions are placed within the channel-bar portions of the swinging arms 12 and secured in position by the screws 15, and consisting of the end portions 18 having the slot 20, which end portions are placed against the ends of the swinging plate 25, and consisting of the end portions 19, which end portions are placed against the ends of the flange 8, and a leaf-spring 32 attached to the inner face of the flange 9 and approximately at its center and projecting upwardly to engage the edge of the swinging plate 25, substantially as specified.

593,044. CAN-HOLDER FOR CONDENSED-MILK CANS, &c. WILLIAM H. S. CRANE, Bayonne, N. J. Filed Sept. 25, 1893. Renewed Sept. 25, 1897. Serial No. 653,023. (No model.)

Claim.—1. The improved condensed-milk-can cover for table use herein described comprising a flaring sheet-metal body *a*, open both top and bottom, and having handles *d*, at the sides, the upper end of the body projecting up above said handles and forming a continuous or unbroken peripheral bearing for a cover-flange, and having its upper edge bent inward and forming a curtain and stop projection, bowed springs fastened at their lower ends within said body and at their free upper ends terminating beneath said curtain and pressing against the inner wall of said body, and a lid closing the upper opening and adapted to conceal the open end of the milk-can, the said lid being provided with a depending flange to fit the peripheral bearings of the body, all combined substantially as set forth.



2. The improved condensed-milk-can cover herein described, comprising the body *a*, open top and bottom, the top being provided with an inwardly and downwardly bent stop and scraping flange a^4, a lid for closing the top opening and bowed springs fastened on the interior of the body and adapted to hold the can within said body by frictional engagement against the sides of said can, said parts being combined, substantially as set forth.

3. The improved condensed milk-can cover, comprising a flaring and handled body, open top and bottom and at the top providing an inwardly-extending scraping-flange and a lid and bowed springs entirely concealed within said body, the lower ends being fastened against the inner walls at the lower flaring end of the body and the upper ends lying at the upper end of said body concealed beneath said flange and sliding on the inner walls of the body when the bowed spring is flexed by the pressure of the inserted can.

593,045. LIGHT-TRANSMITTER. GEORGE K. CUMMINGS, Chicago, Ill. Filed May 28, 1897. Serial No. 638,502. (No model.)



Claim.—1. As a new article of manufacture, a pane or light made of a single piece of translucent material and provided on one side with a series of parallel triangular prismatic ribs or projections and on the other side with a series of parallel convex projections, the convex surface of each projection being bounded by an arc of a circle, the arc of each projection joining or intersecting the arcs of the adjacent projections, and the convex projections being parallel with the triangular projections, substantially as set forth.

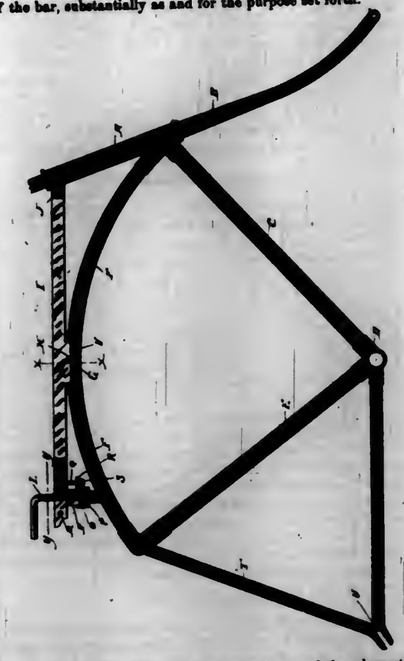
2. As a new article of manufacture, a pane or light made of a single piece of translucent material and provided on one side with a series of parallel triangular prismatic ribs or projections, and on the other side with a series of parallel convex projections, the convex surface of each projection being bounded by an arc of a circle, the arc of each projection joining or intersecting the arcs of the adjacent projections, and the convex projections being parallel with the triangular projections and being placed opposite thereto, substantially as set forth.

593,046. BICYCLE-FRAME. NIEL DAHL, Denver, Colo. Filed Oct. 21, 1896. Serial No. 609,534. (No model.)

Claim.—1. In combination with a bicycle-frame, a spring saddle-bar pivoted to the head, a lug formed with the bar and fitting in a slot of the upper brace and a cushion interposed between the lug and the bottom of the slot, as and for the purpose described.

2. A bicycle-frame consisting of a head, an upper curved brace, a saddle-bar attached to said head and resting upon said brace, and means for guiding and limiting the movements of the rear end of the bar, as specified.

3. The herein-described bicycle-frame consisting of the braces C and E, head A, curved brace F having a central section G which is slotted, a spring saddle-bar attached at one end to the head, a lug H formed upon said bar for engagement with the grooved section G, and means for guiding and limiting the movements of the rear end of the bar, substantially as and for the purpose set forth.



4. In combination with a bicycle-frame of the character described, a saddle-bar I composed of resilient material and attached at J to the head of the frame, a lug H carried by said brace and arranged to enter a slot formed upon the frame, a socket carried by the rear portion of the frame, and adapted to guide the rear end of the bar, substantially as and for the purpose set forth.

5. The herein-described combination of the head A, braces C and E, curved brace F, slotted section G forming a part of the last-named brace, a spring-bar I attached at J to the head, a lug H formed with said bar, and fitted within a slotted section, a cushion interposed between said lug and the bottom of the slot, a lug N formed with the rear portion of the bar, a socket O projecting upward from the brace F and arranged to guide the lug N, a cushion P against which the lug N is adapted to strike, a bolt Q projecting downward from the rod I, an ear R through which said bolt passes for the limiting of the movements of the bar I, substantially as and for the purpose set forth.

6. In a bicycle-frame, a curved upper brace having a solid intermediate portion with a slot therein, a spring saddle-bar attached at one end to the head and a lug formed on said head and fitting in the slotted section, and a cushion placed in the bottom of said slot, substantially as described.

593,047. DEVICE FOR HEATING WATER. ALBERT G. DORSEY, Cliffy, Ind. Filed Apr. 6, 1897. Serial No. 630,930. (No model.)



Claim.—1. The herein-described device for heating water, comprising a casing, a drum or header therein forming an inner flue,

inlet and outlet pipes connected to said drum or header, a burner located in said flue, and a cylindrical member adapted to fit within said flue and surround said burner, substantially as set forth.

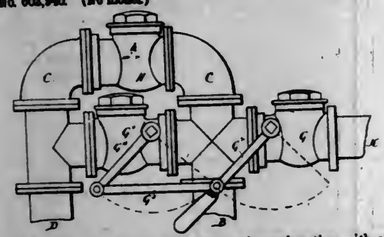
2. The herein-described device for heating water, comprising a casing, a burner in the bottom of the casing, a cylindrical drum or header mounted within said casing a short distance above the burner and presenting a flue, inlet and outlet pipes communicating with the drum or header, and a cylindrical member having a looped handle extending upward therefrom, said member being adapted to connect the flue directly with the burner, substantially as shown and for the purpose set forth.

593,048. CHECKREIN-HOLDER. WILLIAM GABO and JAMES S. STIMMEL, Springfield, Ohio. Filed Mar. 17, 1897. Serial No. 627,960. (No model.)



Claim.—In a checkrein-holder, a base-plate, forward ears, one at each side of the plate, rear posts, one at each side of the plate and back of each ear, a retaining member consisting of a lever pivoted between said ears and extending beyond the post in both directions, the space between said forward ears and rear posts being adapted to receive a checkrein, and said ears to hold the rein under tension, and said posts to prevent the rein, when slackened while in use, from working back on the retaining member, and the lower projection of the retaining member downward from the pivot being adapted to partially disengage the checkrein from the ears.

593,049. APPARATUS FOR COMPRESSING AIR OR GAS. REMSEN HILL, South Norwalk, Conn. Filed Aug. 17, 1896. Serial No. 602,940. (No model.)



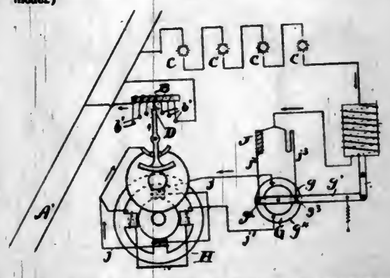
Claim.—1. A charging-stand for use in conjunction with an apparatus for charging tanks, &c., with compressed air or gas, the said stand being adapted to be connected with an air-compressor, and also with one or more similar charging-stands, and containing two independent valved passage-ways, one of which has a check-valve and the other two manual-valves between which the check-valve is interposed.

2. An apparatus for charging tanks, &c., with compressed air or gas, having two or more air-compressors, individual charging-stands connected with the respective air-compressors, and a charging-stand coupling-pipe connected with all of the charging-stands which are adapted to have locomotives connected with them, the valves for the charging-stands being constructed and arranged to permit the compressed air brought to them by their respective compressors to be concentrated upon the particular locomotives connected with them, or diverted into the system, according to the conditions of pressure therein.

3. An apparatus for charging tanks, &c., with compressed air or gas, having two or more air-compressors, individual charging-stands connected with the respective air-compressors, a charging-stand coupling-pipe connected with all of the charging-stands which are adapted to have locomotives connected with them, and an air-reservoir connected with the said charging-stand coupling-pipe, and accumulating compressed air when the same is not taken by the locomotives attached to the stands.

4. An apparatus for charging tanks, &c., with compressed air or gas, having two or more air-compressors, individual charging-stands connected with the respective compressors, and a charging-stand coupling-pipe connected with all of the charging-stands which are adapted to have locomotives connected with them, the valves of each charging-stand being constructed and arranged to concentrate the pressure of its air-compressor upon the locomotive attached to it or to divert such pressure from it to the other stands.

593,050. ALTERNATING-CURRENT REGULATOR. DANIEL O. HULL, Clyde, Ohio. Filed Oct. 17, 1895. Serial No. 565,947. (No model.)



Claim.—1. In an apparatus for maintaining a constant current in a circuit fed from alternating-current constant-potential mains, in combination, an auto-converter connected across said mains, a row of contact-pieces connected with the windings of said auto-converter, a movable brush adapted to contact with any of said contact-pieces, the circuit to be controlled connected at one terminal with one of the mains and at the other with said brush, an induction-motor, and a solenoid, both connected in said circuit, a reversing motor-switch connected in the circuit between the solenoid and motor, mechanism connecting the movable part of said switch with the armature of said solenoid, and mechanism for transmitting motion from the motor to the converter-brush, substantially as and for the purpose specified.

2. In an apparatus for maintaining a constant current in a circuit fed from alternating-current constant-potential mains, in combination, an auto-converter connected across said mains, a series of contact-pieces arranged in a circular arc and connected with the windings of said converter, a gear-wheel mounted concentrically with said series of contact-pieces, a brush carried thereby and adapted to contact with any of said contact-pieces, the circuit to be controlled connected at one terminal to said brush and at the other with one of the mains, an induction-motor, and a solenoid, both connected in the circuit to be regulated, a train of gears connecting said motor with the brush-carrying gear and a reversing motor-switch operated by the solenoid, substantially as and for the purpose specified.

3. The combination of a series of contacts, a movable brush-carrier, two or more parallel bars pivoted thereto, a bar pivoted to all of said bars and lying parallel to a plane passing through said pivots, a brush carried by said bar, a series of pins adapted to engage with one of the parallel bars, and a spring for returning said parallel bars in the described normal position, substantially as and for the purpose specified.

4. The combination of a series of contact-pieces arranged in a circular arc, a wheel pivoted at the center of said arc, a ring fixed outside of said contact-pieces and having an overhanging flange, and a series of pins depending from said flange, with two or more parallel bars pivoted to and projecting out from said wheel, a bar pivoted to the ends of said bars and lying parallel to a plane passing through the pivots of said parallel bars, a brush secured to the said bar, and a spring for returning said parallel bars to their normal position, substantially as and for the purpose specified.

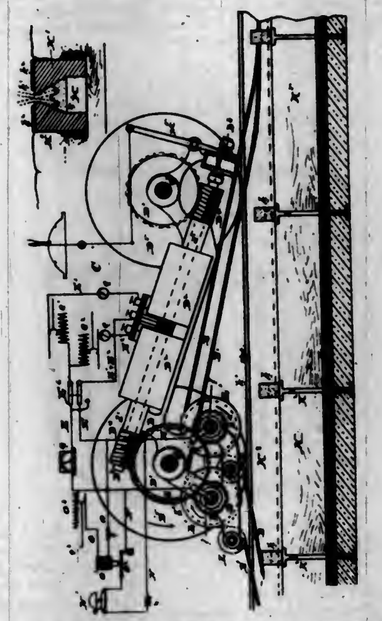
593,051. ELECTRIC RAILWAY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to The Electric Car Company of America, same place. Filed Sept. 23, 1896. Serial No. 214,909. (No model.)

Claim.—1. In an electric railway, the combination of a slotted conduit, a flexible conductor within the conduit, a traveling car, stationary insulating-supports within the conduit for said conductor and a grooved current-collecting device making a running contact with the conductor and arranged adjacent to the plane of the slot of the conduit.

2. In an electric railway, the combination of a slotted conduit arranged along the railway, a conductor loosely supported within the conduit upon transverse insulating-supports, a traveling car, and a positively-rotated current-collecting contact making an underrunning contact with the conductor.

3. In an electric railway a slotted conduit, a continuous conductor housed within the conduit but exposed upon all sides except that portion in contact with the collector, in combination with a car, and a positively-rotated collector device for making an underrunning contact with the conductor.

4. In an electric railway, a slotted conduit in combination with insulated supports upon its interior, and one or more loose conductors supported thereon and capable of being withdrawn through the slot.



5. In an electric railway, a suspended working conductor, a traveling vehicle, a motor on said vehicle, an electrical connection between the motor and said conductor, and positive feeding devices to feed the conductor past the vehicle with a speed commensurate with the travel of the vehicle.

6. In an electric railway, a suspended working conductor, a traveling vehicle, a motor on said vehicle, an electrical connection between the motor and said conductor, positive feeding devices to feed the conductor past the vehicle with a speed commensurate with the travel of the vehicle, and a connection between the feeding devices and axle.

7. In an electric railway, a suspended working conductor, a traveling vehicle, a motor on said vehicle, an electrical connection between the motor and said conductor, a rotating collecting and feed wheel over which the conductor travels and connecting gearing between said feed-wheel and axle whereby the surface speeds of the feed-wheel and vehicle-wheels will be the same.

8. In an electric railway, a suspended working conductor, a traveling vehicle, a motor on said vehicle, an electrical connection between the motor and said conductor, a rotating collecting and feed wheel over which the conductor travels, connecting gearing between said feed-wheel and axle whereby the surface speeds of the feed-wheel and vehicle-wheels will be the same, a slotted conduit for said suspended conductor having insulated side walls to enable the conductor to pass up through the slot and over the collector and feed wheels.

9. In an electric railway, the combination of two flexible suspended working conductors, a slotted conduit in which they are normally located, a traveling vehicle, an electric motor on said vehicle, two collecting and feed wheels carried by the vehicle and located one in advance of the other and over which the conductors pass whereby only one conductor is raised through the slot in the same place at one time so as to avoid short-circuiting the working circuit.

10. In an electric railway, the combination of a slotted conduit having the edge adjacent to the slot formed of insulating material, an electrically-propelled vehicle provided with a current-collector, and flexible conductors extending from within the conduit up through the slot to the collectors and back through the slot to a position within the conduit again.

11. In an electric railway, the combination of a loose conductor extending along the railway, a traveling vehicle, an electric motor to rotate the axle of the vehicle, a rotary current-collecting device over which the conductor passes, and a power-transmitting mechanism between the electric motor and the rotary current-collector.

12. In an electric railway, the combination of a loose conductor extending along the railway, a traveling vehicle, an electric motor to rotate the axle of the vehicle, a rotary current-collecting device around which the conductor passes, a power-transmitting mechanism between the electric motor and the rotary current-collector, power-transmitting devices between the motor and axle, in which the power-transmitting devices between the motor and axle and the collector are such that the surface speed of the collector along the conductor is equal to the surface speed of the vehicle-wheels along the rails.

13. In an electric railway, the combination of the electric conductor extending along the railway, an electrically-propelled vehicle, and a positively-rotated current-collecting device carried by the vehicle and making a traveling contact with the conductor.

14. In an electric railway, the combination of a conductor extending along the railway, a support for the conductor between the rails, an electrically-propelled vehicle, and a rotating contact-wheel traveling against the under surface of the conductor carried by the vehicle at an elevation above the rails of the railway.

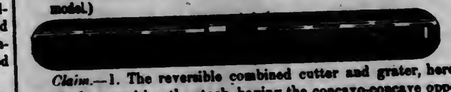
15. In an electric railway, the combination of a suspended conductor extending along the railway and having its under surface exposed for contact with the current-collector, an electrically-propelled vehicle having its body supported on the axles by springs, an electric motor to propel the car, and a current-collecting device supported upon the axles of the car independently of the car-body and making an underrunning contact with the conductor.

16. In an electric railway, the combination of a suspended conductor extending along the railway and having its under surface exposed for contact with the current-collector, an electrically-propelled vehicle having its body supported on the axles by springs, an electric motor to propel the car and a current-collecting device supported upon the axles of the car independently of the car-body and making an underrunning contact with the conductor, said collector consisting of a grooved contact-wheel arranged above the level of the track-rails and beneath the car-body.

17. The combination in a railway-car of a body supported upon springs, field-magnets supported by the axle independent of the car-body, a rotating armature rotating within the field-magnets and mechanically geared or connected with the axle, a lighting-circuit on the car-body containing lamps in parallel, flexible circuits connecting the lighting-circuits with the armature and field-magnets, a reversing-switch to reverse the armature relatively to the field, a secondary battery carried on the car-body, and switches for connecting or disconnecting the battery electrically with the armature-circuit.

18. The combination in a railway-car of secondary batteries supported by the axles upon springs, field-magnets supported by the axle independent of the car-body and batteries, a rotating armature rotating within the field-magnets and mechanically geared or connected with the axle, positive and negative contact-brushes in contact with the commutator of the armature, a lighting-circuit on the car-body connecting with the terminals of the secondary batteries, flexible circuits electrically connecting the secondary batteries with the two brushes of the armature, and a switch device for connecting or disconnecting the batteries electrically with the armature interposed in the circuit between the armature-brushes and batteries whereby the batteries maintain electrical connection with the lighting-circuit while electrically connected or disconnected with the armature.

593,052. CUTTER AND GRATER COMBINED. EMANUEL H. KELLER, York, Pa. Filed July 17, 1897. Serial No. 644,880. (No model.)



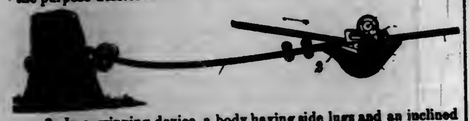
Claim.—1. The reversible combined cutter and grater, herein described, comprising the stock having the concavo-concave opposing faces extending throughout the length of the stock, the centrally-disposed transverse throat formed in the same, and the cutter-blade seated transversely of the throat of the stock and having the concave cutting-knife and the toothed grater arranged transversely of the throat of the stock, as set forth.

2. A reversible combined cutter and grater for vegetables, comprising a stock-piece having a throat and concavo-concave guiding-surfaces, of a concavo-concave cutter and grater removably seated in the throat of the stock, substantially as set forth.

593,053. CABLE GRIP AND TAKE-UP. CARL L. KLEITZ, Sigourney, Iowa. Filed Apr. 28, 1897. Serial No. 634,243. (No model.)

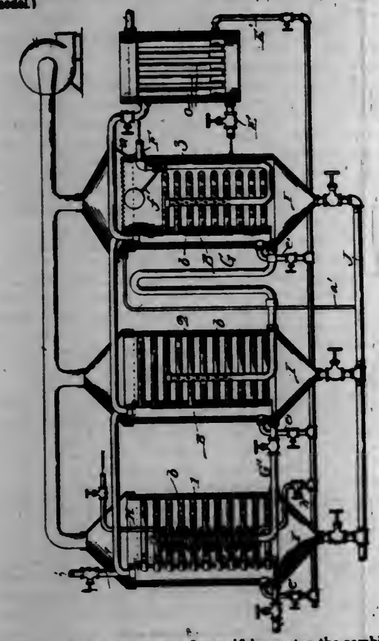
Claim.—1. A gripping device consisting of a body having its upper edge inclined, in combination with a wedge riding thereon, and another wedge operating in conjunction with the first named, as and for the purpose described.

2. In a gripping device, a body having an inclined upper edge, a wedge riding thereon, links pivoted to the sides of the body and having slots formed therein, lugs formed on the wedge and riding in the slots, a second wedge operating in conjunction with the first, and a connection for the links for engaging the upper wedge, as and for the purpose described.



3. In a gripping device, a body having side lugs and an inclined upper face, links pivoted to the lugs and having slots, a wedge riding on the inclined face and having lugs riding in the slots of the links, a connection for the ends of the links and a wedge engaged by the connection, as and for the purpose described.

593,054. APPARATUS FOR PURIFYING WATER. GEORGE F. LIDY, Chicago, Ill. Filed Sept. 23, 1896. Serial No. 606,722. (No model.)

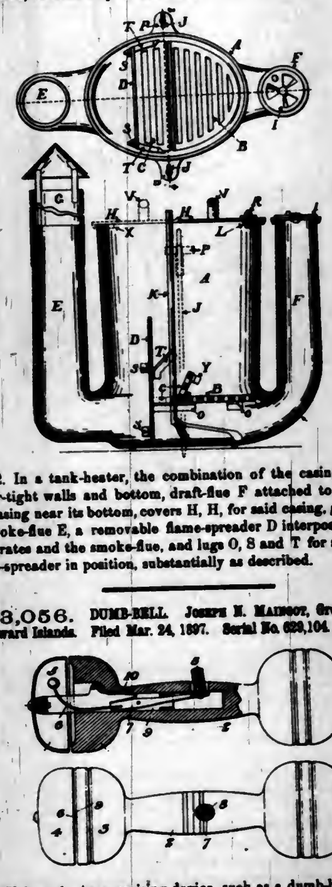


Claim.—1. In an apparatus for purifying water, the combination of a series of purifying-tanks, headers arranged in such tanks, pipes connecting the headers in each of the tanks, an inlet-pipe for supplying exhaust-steam to one of the headers in the first of the series of purifying-tanks and through the connecting-pipes to the other header, a pipe connecting the header into which the exhaust-steam is admitted through the connecting-pipes with one of the headers in the next purifying-tank, and so on throughout the series of purifying-tanks, and means for introducing water into the last of the series of purifying-tanks and from each to the next.

2. In an apparatus for purifying water, the combination of a series of purifying-tanks, headers arranged in such tanks, pipes connecting the headers in each of the tanks, an inlet-pipe for supplying exhaust-steam to one of the headers in the first of the series of purifying-tanks and through the connecting-pipes to the other header, a pipe connecting the header into which the exhaust-steam is admitted through the connecting-pipes with one of the headers in the next purifying-tank, and so on throughout the series of purifying-tanks, means for introducing water into the last of the series of purifying-tanks and from each to the next, and means for drawing off gases and vapors generated in the purifying-tanks.

593,055. TANK-HEATER. GEORGE S. LOSS, Hinckley, Ill. Filed Feb. 3, 1897. Serial No. 621,800. (No model.)

Claim.—1. In a tank-heater, the combination of the casing A having water-tight walls and bottom, covers H, H, for said casing, provided with a stationary lug X and an adjustable lug L, draft-flue F provided with damper I attached to the wall of the casing near the bottom, grates B and C, lugs O for supporting said grates, smoke-flue E, and flame-spreader D interposed between the grates and the smoke-flue, substantially as described.



2. In a tank-heater, the combination of the casing A having water-tight walls and bottom, draft-flue F attached to the wall of the casing near its bottom, covers H, H, for said casing, grates B and C, smoke-flue E, a removable flame-spreader D interposed between the grates and the smoke-flue, and lugs O, S and T for securing the flame-spreader in position, substantially as described.

593,056. DUMB-BELL. JOSEPH M. MAIGOT, Grenada, Windward Islands. Filed Mar. 24, 1897. Serial No. 629,104. (No model.)

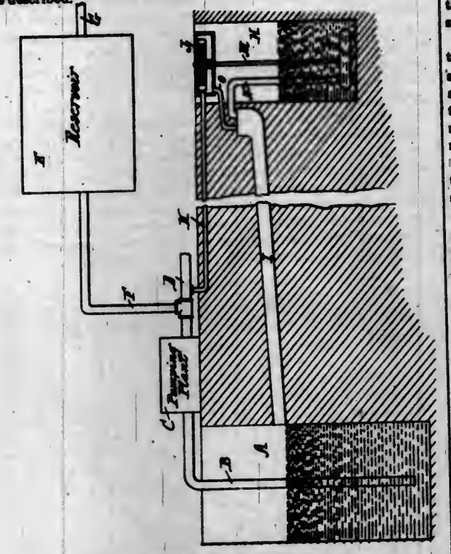
Claim.—1. An exercising device, such as a dumb-bell, having a bell thereon, a knob or handle supported upon the device, and an operative connection between said handle and the hammer of the bell.

2. A dumb-bell having a bell secured thereto, and a projecting knob connected to and arranged to actuate the hammer of the bell, substantially as described.

593,057. SYSTEM OF FLUID DISTRIBUTION. DARBY H. MAURY, Jr., Peoria, Ill. Filed Nov. 25, 1895. Serial No. 570,014. (No model.)

Claim.—1. In a fluid-supply system, the combination with a main source of supply and a pumping plant, of one or more supplemental sources of supply connected by pipes or passages with the main source of supply; a pump operated by fluid under pressure from said plant and adapted to deliver the fluid of the supplemental source of supply into a passage leading back to the main source of supply, and a conduit for returning to the main source of supply the fluid by which the pump is operated, substantially as described.

2. In a fluid-supply system, the combination with a main well, a pumping plant connected therewith, a force-main, one or more supplemental wells, an inclined pipe leading from the supplemental well to the main well, a pump in the supplemental well adapted to deliver fluid into said pipe, a motor to operate said pump, a pipe leading from the force-main to the motor to deliver fluid thereto, and a pipe leading from the motor to the pipe communicating with the main wall to deliver therein the fluid from the motor, substantially as described.



593,058. BOTTLE. PATRICK GUINN, Jr., and ROBERT C. GUINN, St. Louis, Mo. Filed Mar. 16, 1897. Serial No. 627,720. (No model.)



Claim.—1. In a bottle, a neck portion having projecting breakable beads thereon located below the end of the neck, and bands looped through the beads.

2. In a bottle, a neck portion having elongated hollow beads thereon and wires threaded through the beads.

3. A bottle having recesses in its neck portion and beads located in the recesses, and wires or the like threaded through the beads, substantially as described.

4. In a bottle, a neck portion having breakable loops thereon located substantially on a plane with the surface of the neck and bands threaded through the loops.

5. In a bottle, a neck portion having indented or recessed sides, attaching projections located in the recesses their outer ends being substantially on the plane of the surface of the neck, and bands attached to the projections, substantially as set forth.

593,059. REVOLVING CHAIR. GEORGE D. SHERIFFS and CHARLES J. TRAVERS, Milwaukee, Wis. Filed Jan. 6, 1897. Serial No. 618,163. (No model.)



Claim.—1. In a revolving chair, the combination, of a hub, a screw-threaded spindle extending therein, an interiorly-threaded slitted sleeve through which the screw-spindle extends, a clutch-collar engaging the slitted sleeve and adapted normally to automatically hold said sleeve to rotation with the spindle, and means for holding the sleeve against rotation to permit independent rotation of the spindle.

2. In a revolving chair, the combination, of a hub, a screw-threaded spindle extending therein, an interiorly-threaded slitted sleeve within the hub, and through which the screw-spindle extends, a clutch-collar seated within the hub and adapted to engage the slitted sleeve, and to hold said sleeve to rotation with the spindle, and means for holding the sleeve against rotation to permit independent rotation of the sleeve.

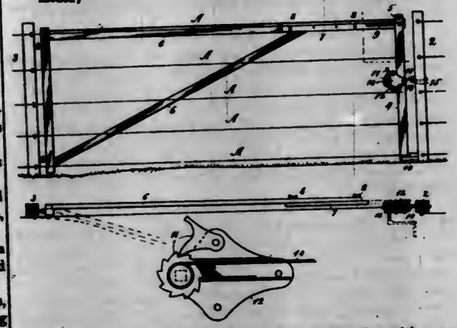
3. In a revolving chair, the combination, of a hub, a screw-threaded spindle extending therein, an interiorly-threaded slitted sleeve through which the screw-spindle extends, said sleeve provided with a beveled portion, a clutch-collar also provided with a beveled portion registering with and engaging the bevel of the sleeve, and means for holding the sleeve against rotation to permit independent rotation of the spindle.

4. In a revolving chair, the combination, of a hub, an interiorly-threaded sleeve, a screw-threaded spindle engaging the threads of the sleeve, means for locking the sleeve to the spindle to provide for the rotation of the sleeve and the spindle together, a pin entering an opening in the hub, and a spring having one end engaging the pin to normally hold said pin out of engagement with the sleeve, said pin when pressed inwardly adapted to engage the sleeve to hold said sleeve against rotation with the spindle.

5. In a revolving chair, the combination, of a hub, an interiorly-threaded sleeve, a screw-threaded spindle engaging the threads of the sleeve, means for locking the sleeve to the spindle to provide for the rotation of the sleeve and spindle together, a headed pin entering an opening in the hub, a spring having its free end bifurcated, the furcate parts straddling the pin and engaging opposite flat sides of the pin, said pin adapted to be normally held out by the spring.

6. In a revolving chair, the combination, of a hub, a screw-threaded spindle extending therein, an interiorly-threaded slitted sleeve through which the screw-spindle extends, said sleeve provided with a beveled portion, a clutch-collar also provided with a beveled portion registering with and engaging the bevel of the sleeve, a pin entering an opening in the hub, and a spring having one end engaging the pin to normally hold the pin out, said pin when pressed inwardly against the action of the spring adapted to engage the sleeve to hold said sleeve against rotation with the spindle, and to permit independent rotation of said spindle.

593,060. GATE. MARION T. STAUFFER and JACOB L. TOLSON, Barry, Ill., assignors of one-half to Edward Pierce and Leo Glutz, West Burlington, Iowa. Filed June 7, 1897. Serial No. 639,723. (No model.)

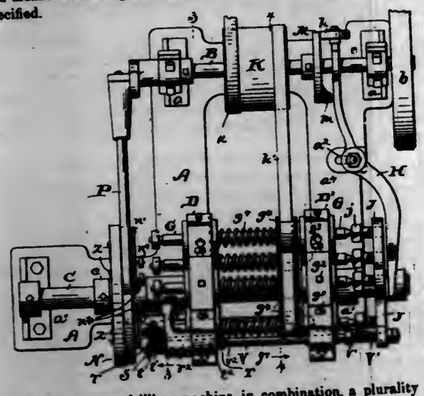


Claim.—In a gate for wire fences, the combination with a section of severed wires A, of the herein-described swinging crane provided with an adjustable extension, the depending front stile of the gate laterally adjustable in a slot in the outer extremity of said extension, the pawl and ratchet attached to the said front stile and adapted to regulate the tension of the wires A and the looped latch 14, all constructed and arranged substantially as and for the purposes herein specified.

593,061. BUTTON-DRILLING MACHINE. JOSEPH S. TARR, Cleveland, Ohio, assignor to William S. Clark, Erie, Pa. Filed Feb. 11, 1897. Serial No. 623,006. (No model.)

Claim.—1. In a button-drilling machine, in combination, a rotatable chuck-carrying disk, mechanism for moving the same intermittently, a series of self-closing chucks supported at regular intervals on one face of said disk, mechanism for opening said chucks sequen-

tially, a series of longitudinally-movable drill-shafts, springs for moving said shafts independently away from the work, a button-feeding device consisting of a sleeve which is parallel with the drills and in line with the open chuck, and has an opening for the introduction of button-blanks, means for moving the same toward and from said chuck, a plunger movable in said sleeve, a spring for moving it toward the disk, a plate J for simultaneously governing the movements of the drill-shafts, feed-sleeve and plunger toward and from the disks, and means for moving said plate, substantially as and for the purpose specified.



2. In a button-drilling machine, in combination, a plurality of longitudinally-movable drill-shafts, means for holding button-blanks in line therewith, springs for independently moving said shafts from the work, a movable plate which simultaneously moves all of said drill-shafts toward the work, adjustable bolts carried by said plate and engaging with the ends of the drill-shaft, a lever for moving said plate, an adjustable fulcrum for said lever, and a cam for operating said lever, substantially as and for the purpose specified.

3. In a button-drilling device, in combination, the disk N carrying on one face a plurality of equally-spaced self-closing chucks, mechanism for moving said disk intermittently, a plurality of longitudinally-movable drill-shafts, springs for independently moving said shafts from the work, means for sequentially opening the chucks, a longitudinally-movable sleeve T, a vertical tube S which discharges button-blanks singly into the sleeve T, a plunger in sleeve T, the plate J, through which the rear end of the plunger passes, a nut on said end, a spring V', the adjustable bolts *j*, a shaft B, and mechanism operated by said shaft for moving disk N and plate J, substantially as and for the purpose specified.

4. In a button-drilling machine, the combination of a plurality of button-holding chucks, and mechanism for sequentially opening them and presenting the open chuck to the button-feeding mechanism, with button-feeding mechanism consisting of a longitudinally-movable sleeve, an approximately vertical tube secured upon and discharging into said sleeve, a plunger in the sleeve and mechanism for moving the sleeve and plunger toward the open chuck to guide the button in the sleeve and force it into the open chuck and then withdraw said sleeve and plunger, substantially as and for the purpose specified.

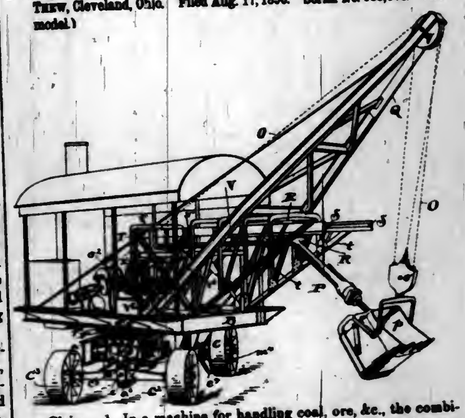
5. In a button-drilling machine, the combination of a plurality of button-holding chucks, and mechanism for sequentially opening them and presenting the open chuck to the button-feeding mechanism, with button-feeding mechanism consisting of a longitudinally-movable sleeve, an approximately vertical tube secured upon and communicating with the interior of said sleeve, a plunger in the sleeve, a spring exerting its force to move the sleeve toward the open chuck, a pin on the plunger projecting into a longitudinal slot in the sleeve, a spring exerting its force to move the plunger forward, and means for retracting said plunger, substantially as and for the purpose specified.

6. In a button-drilling machine, in combination, a rotatable disk carrying a plurality of button-holding chucks each consisting of a fixed jaw, a movable jaw, a spring for closing said movable jaw, and a projection n^{11} on said jaw, and the friction-roller n^9, a plurality of longitudinally-movable drill-shafts, their operating mechanism, a longitudinally-movable button-feeding sleeve, an arm r in which said sleeve is supported, a cam-flange R on said arm for engaging with the friction-roller n^9, a spring for moving the sleeve toward the open chuck, a spring-actuated plunger for forcing a button from the sleeve into said open chuck, and means for retracting said sleeve and plunger, substantially as and for the purpose specified.

7. In a button-drilling machine, the combination of an intermittently-moving rotating disk, a plurality of button-holding chucks carried thereby, a plurality of longitudinally-movable drill-shafts and their operating mechanism, a pair of bearing-boxes *g* in which each of said drill-shafts is mounted, said boxes being capable of adjustment in four directions transversely of the drill-shafts, whereby said shafts may be moved transversely in any direction, and means for locking said boxes in place, substantially as and for the purpose specified.

8. In a button-drilling machine, the combination of an intermittently-moving rotating disk, a plurality of button-holding chucks carried thereby, a plurality of longitudinally-movable drill-shafts and their operating mechanism, the plates D and D' having holes *d* through them by which they surround said drill-shafts, bearing-boxes *g* within said holes and embracing said drill-shafts and set-screws projecting through said plates into said holes *d* and engaging with said bearing-boxes, whereby said bearing-boxes may be adjusted in any transverse direction, substantially as and for the purpose specified.

593,062. MACHINE FOR HANDLING COAL, ORE, &c. RICHARD TREW, Cleveland, Ohio. Filed Aug. 17, 1896. Serial No. 603,071. (No model.)



Claim.—1. In a machine for handling coal, ore, &c., the combination of a traction-carriage, a rotatable platform mounted thereon, upright track-frames secured to said platform and supporting elevated tracks, a trolley movable thereon, a depending sweep-arm pivoted to the trolley, and a feed-screw rigidly fixed to said trolley, with a nut on said feed-screw having sprocket-teeth on its periphery, fixed shoulders engaging on both sides of said nut preventing its longitudinal movement, a driven sprocket-wheel, and a chain running over said sprocket-wheel and nut transmitting motion from the one to the other, substantially as and for the purpose specified.

2. In a machine for handling coal, ore, &c., the combination of a wheel-truck, a revoluble platform pivoted thereon, two upright frames secured on said platform, united at their upper ends, and having each a cantaliver extension, tracks mounted on said frames, a trolley movable upon said tracks, a depending sweep-arm pivoted to said trolley, a derrick-arm fixed to the platform and overhanging said cantaliver extensions, a winding-drum on the platform, a sheave on said derrick-arm, an operating-cable connected with said sweep-arm and winding-drum and passing over said sheave, platform-turning mechanism and trolley-actuating mechanism, substantially as and for the purpose specified.

3. In a machine for handling coal, ore, &c., the combination of a truck consisting of side-bars, and a casting lying between and secured to said side-bars, an annular casting secured on said truck having an endless ball-groove in its top side, a platform having an annular ball-groove on its under side, balls in said grooves between said platform and annular casting, a sleeve passing through the truck-casting having an annular flange which rests upon and is bolted to said truck-casting, and extends up through a hole in the platform, a shaft mounted in and passing through said sleeve, and serving as the means for transmitting motion for mechanism on the platform to mechanism suspended from the truck, substantially as and for the purpose specified.

4. In a machine for handling coal, ore, &c., the combination of a wheel-truck, and a king-bolt for connecting the front axle to the truck, mechanism for turning the axle upon said king-bolt, a revoluble platform mounted on the truck, a sleeve passing axially through the platform and truck and secured to one of them, a hollow shaft mounted in and extending through said sleeve, a shaft mounted in and extending through said hollow shaft, and mechanism connecting said inner shaft with the mechanism for turning the axle upon the king-bolt, substantially as and for the purpose specified.

5. In a machine for handling coal, ore, &c., the combination of a wheel-truck, a revoluble platform mounted thereon, a sleeve passing through both parts named and secured to one of them, a hollow shaft mounted in and passing through said sleeve, a gear on the lower end of said shaft, a shaft mounted in brackets suspended from the truck, a gear secured thereto in mesh with the gear last named, mechanism transmitting motion from said last-named shaft to the rear driving-wheels, a vertical shaft passing through said hollow shaft, a drum-shaft, drums thereon, the front axle, a king-bolt connecting the front axle with the truck, chains connecting said axle with the drum-shaft, and mechanism intermediate of said vertical shaft and drum-shaft, substantially as and for the purpose specified.

6. In a machine for handling coal, ore, &c., the combination of a wheel-truck, a revoluble platform mounted thereon, the front axle, a king-bolt connecting the same with the truck, a vertical shaft passing through the platform and truck at the axis of the platform, a worm on the lower end of said shaft, a worm-wheel mounted below the truck receiving motion from said worm, a drum-shaft receiving motion from said worm-wheel, two drums thereon, and two chains wound in opposite directions upon said drums and connected with said front axle, substantially as and for the purpose specified.

7. In a machine of the character described, the combination of a wheel-truck, a revoluble platform mounted thereon, a vertical shaft extending axially through said platform and through said truck for transmitting motion from mechanism on the platform to mechanism suspended from the truck, two independent shafts M M' mounted in the same axial line in brackets suspended from the truck, two bevel-gears secured respectively to said shafts, a wheel G mounted between said bevel-gears in the same axial line, a bevel-gear mounted on said wheel in mesh with said two bevel-gears, its axis being radial with respect to said wheel, two independent driving-wheels, sprocket-wheels fixed to said driving-wheels and shafts M M' respectively, and two sprocket-chains, and mechanism connecting said wheel G and vertical shaft, substantially as and for the purpose specified.

593,063. JOURNAL-BOX JACK. JAMES F. WHITNEY, Hartford, Conn. Filed Nov. 4, 1896. Serial No. 611,015. (No model.)

Claim.—1. In a journal-box jack, the combination of a carrier and oppositely-disposed journal-box-holding clamping-screws working in said carrier, at least one of said clamping-screws having polygonal sides adapted to be engaged by a wrench.

2. In a journal-box jack, the combination of a carrier having a hook, and oppositely-disposed journal-box-holding clamping-screws working in said carrier, at least one of said clamping-screws having polygonal sides adapted to be engaged by a wrench.

3. In a journal-box jack, the combination of a carrier and oppositely-disposed journal-box-holding clamping-screws working in said carrier and disposed transversely to said hook, at least one of said clamping-screws having polygonal sides adapted to be engaged by a wrench.

4. In a journal-box jack, the combination of a carrier and oppositely-disposed journal-box-holding clamping-screws working in said carrier, at least one of said clamping-screws having polygonal sides adapted to be engaged by a wrench, said screws having capped ends for engaging the walls of the journal-box.

593,064. SUSPENSION DEVICE FOR PORTABLE MACHINES. CHESTER R. ALLEN, Allegheny, Pa. Filed Mar. 31, 1897. Serial No. 630,096. (No model.)

Claim.—1. The combination with a machine having a moving tool, of a bail formed in the arc of a circle whose center is substantially the center of gravity of the machine, said bail being pivotally connected to the machine on an axis passing through substantially the said center of gravity, whereby the machine may be turned in one direction on the said axis and in the other direction by varying its point of suspension on the bail, and equilibrium may be maintained in such changed position.

2. The combination with a portable machine, of a swinging bail pivotally connected thereto, the axial line of the pivot extending substantially through the center of gravity of the machine and the circle of the bail being struck from the center of gravity of the machine, and an antifriction device upon which the bail is supported.

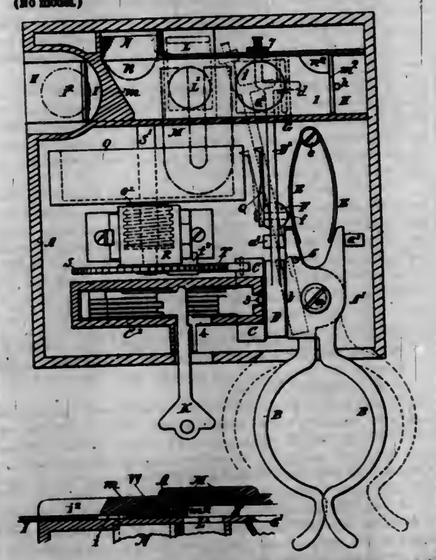
3. The combination with a portable machine, of a swinging bail having its ends pivoted thereto, the axial line of the pivots extending substantially through the center of gravity of the machine and the bail being struck on a circle whose center is the center of gravity of the machine, and a swivel-hanger having a roller upon which the bail is supported.

4. The combination with a portable machine, of a bail pivotally connected thereto, said bail being a movable section in its length.

5. The combination with a portable machine, of a bail pivotally connected thereto at the center of gravity of the machine, said bail lying in the arc of a circle struck from the center of gravity of the machine and having a swinging intermediate section.

6. The combination with a machine having a moving tool, of a bail formed in the arc of a circle whose center is substantially the center of gravity of the machine, whereby the machine may be turned by varying its point of suspension on the bail and equilibrium may be maintained in such changed position.

593,065. COIN-CONTROLLED KEY-LOCKING KEEPER. WALTER R. ALLEN, Boston, Mass. Filed Mar. 17, 1897. Serial No. 627,954. (No model.)



Claim.—1. The jaws or gripping-fingers adapted for receiving and embracing the rim and tire of a bicycle-wheel, in combination

with a key-operated locking mechanism for holding said jaws closed, and a coin-controlled locking and releasing dog that normally confines said parts and is primarily releasable for permitting operation of the lock by the key, substantially as set forth.

2. In combination with holding-jaws, grip-fingers or keepers adapted for retaining a cycle-wheel or other article; a key-operated lock that locks and unlocks said jaws, grip-fingers or keepers, a dog-block that automatically locks said jaws when the key-operated lock is retracted and also prevents action of said key-lock, and means for releasing said dog-block controlled by introduction of a proper coin.

3. The lock mechanism operated by a removable key, said key removable when the lock-bar is at locked position; in combination with the pivoted holding-jaws adapted to be secured by said lock-bar, an intervening coin-controlled device that engages and arrests movement of both said lock and jaws, and means actuated by the drop of a coin thereon, whereby said device is raised from intervention with said locked parts.

4. In mechanism for the purposes set forth, the combination of the key-operated lock-bar, the pivoted holding-jaws, the jaw-retracting springs, and opposing stops, and a coin-controlled dog-block fitted to enter between the lock-bar and jaw-heads.

5. In combination, the grip-fingers or jaws pivoted upon the bed, their pivot-heads fitted with stop-faces, the key-operated lock fixed on said bed, its lock-bar adapted to shoot against said stop-faces, the guide-pins respectively fixed on said lock-bar and the outer jaw-head, the tilting lever carrying a dog-block that corresponds to the space traversed by the lock-bar head, and having the coin-intercepting tongue, the swivel-post supporting the fulcrum of said lever, and the coin drop-chute having a slot for the entrance and movement of said intercepting-tongue, substantially as set forth.

6. In combination with the keeper-jaws and the key-operated lock-bar; the dog-block and tiltable dog-block lever fulcrumed in the swiveling post, said lever having a tongue for intercepting the coin, and provided with adjustable counterpoise devices, for the purpose set forth.

7. In a coin-controlled mechanism, the combination with the gate race or way by which the coin is introduced, and a sliding gate therefor, of a side exit-passage and an overhead magnet located between the point of entrance and the coin drop-opening, and means for clearing off the under surface of said magnet, brought into action by the movement of said sliding gate, for the purpose set forth.

8. The combination with the coin gate-race, of the side exit-passage and waste-chute N, the overlying magnet, the front stop-shoulder m, and the sliding gate provided with a lip or flange m^2 at its inner end, substantially as set forth.

9. The combination, with the gravity-actuated lever that releases the locked mechanism, having a tongue that intercepts the fall of the coin; of the gate-race provided with the side exit n, the small coin-pass L' and the regular drop-opening G' arranged in the order shown, the drop-chute leading to the main receptacle and having a slot for the lever-tongue, the chute L for small coins, the overlying magnet M, the waste-chute N, the laterally-inclined shoulder m, and the slide-gate I having the opening i and the upwardly-projecting transverse lip m^3, for the purposes set forth.

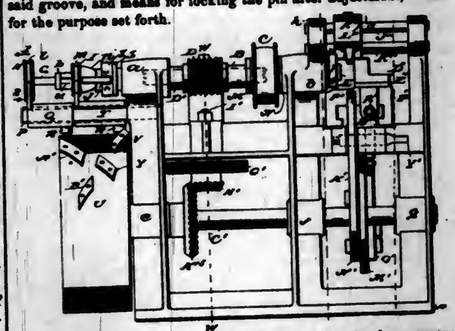
10. The combination with the jaws, the key-operated lock, the dog-block and its lever adapted to have lateral movement; of the register wheel or drum adapted for supporting a paper strip, its shaft and ratchet-wheel, the pawl connected with the lock mechanism, and the marking point or finger operating in conjunction with said register-drum, for the purpose set forth.

11. The register-drum having a screw-threaded hub or surface, a supporting-bearing engaging said screw-thread, the splined drum-shaft, the actuating-ratchet therefor, and its pawl operating in conjunction with the lock-bar, and the marking point or finger mounted on the dog-block-lever support; in combination with the locking-bar, the coin-controlled dog-block lever and parts secured thereby, substantially as set forth.

598,066. AUTOMATIC LATHE. CHARLES P. BALL, DWIGHT H. SWEETSER, and GEORGE H. BALL, Enfield, Conn.; said Sweetser and said George H. Ball assignors to said Charles P. Ball. Filed Dec. 5, 1896. Serial No. 614,625. (No model.)

Claim.—1. The worm-wheel D having an annular oil-reservoir in its body and holes leading therefrom outward to its teeth and to the interior of its hub; combined with a cover removably closing said reservoir, a rectangular hollow boss thereon, channels connecting its interior with the reservoir, and a nipple carried by the boss for receiving the oil-cup, as and for the purpose set forth.

2. In a lathe, the combination with the carriage having a screw; of the frame on which the carriage moves, a pin in the frame at right angles to the length of said screw, such pin having an inclined surface contacting with the point of the screw and a groove around its outer end, a collar-screw parallel with the pin with its collar entering said groove, and means for locking the pin after adjustment, as and for the purpose set forth.



3. In a lathe, the combination with the carriage having a screw; of the frame, a pin in the frame having two differently-inclined surfaces at angles to each other adapted to contact with the point of said screw and two longitudinal grooves parallel with said surfaces, means for adjusting the pin longitudinally, and a locking set-screw adapted to engage one of said grooves, as and for the purpose set forth.

4. In a lathe, the combination with the carriage having a screw; of the frame, a pin in the frame having two inclined surfaces at different angles to the axis of the pin and at angles to each other adapted to contact with the point of the screw, means for adjusting the pin longitudinally and axially, and a locking set-screw adapted to engage the pin after its adjustment, as and for the purpose set forth.

5. The combination of the frame, the tool-carriage with the screw having two longitudinal grooves, and the locking set-screw adjusted in the carriage at right angles to and in contact with the said screw, the inner end of the locking set-screw being adapted to fit said grooves, as and for the purpose set forth.

6. In a lathe, the combination with the frame having an adjustable pin; of the carriage moving on the frame and having a lug, a set-screw through the latter at right angles to said pin and having the face of its contacting end beveled, means for adjusting said set-screw longitudinally, and a locking set-screw for holding it in adjusted position, as and for the purpose set forth.

7. In a lathe, the combination with the frame having an adjustable pin with an inclined inner end; of the carriage, a set-screw therein at right angles to said pin, means for adjusting said screw, and a locking set-screw for holding it in adjusted position, as and for the purpose set forth.

8. In a lathe, the combination with the frame, and the carriage moving thereon; of a longitudinally-adjustable pin in one member having a beveled surface, and a longitudinally-adjustable set-screw in the other member at right angles to the length of said pin and having the face of its contacting portion beveled at the same inclination as that of the pin, as and for the purpose set forth.

9. In a lathe, the combination with the frame, and the carriage; of a longitudinally-adjustable pin in one member having a beveled surface, and a longitudinally and axially adjustable set-screw in the other member at right angles to the length of said pin and having the face of its contacting portion beveled, as and for the purpose set forth.

10. In a lathe, the combination with the frame, and the carriage; of a longitudinally-adjustable pin in one member having two differently-beveled surfaces, and a longitudinally-adjustable set-screw in the other member having the face of its contacting portion beveled, as and for the purpose set forth.

11. In a lathe, the combination with the frame, and the carriage; of a longitudinally-adjustable pin in one member having two differently-beveled surfaces, a longitudinally and axially adjustable set-screw in the other member having the face of its contacting portion beveled, and means for locking this set-screw against movement after adjustment, as and for the purpose set forth.

12. In a lathe, the combination with the base-plate having a hole and a segment of threads in its face around the hole; of the tool-holder mounted on the plate and pivoted in said hole, the lower face of the holder having a recess with concentric reduced end extensions, and a screw fitting said recess and engaging the threads in the base-plate and having axial projections turning in said extensions, as and for the purpose set forth.

13. In a lathe, the combination with the base-plate having a hole through its body and a concentric enlarged recess at the upper end thereof; of the tool-holder mounted on the base-plate and having an upright hole, a boss depending from the holder concentric with said hole therein and journaled in the recess in the base-plate, and a pivotal bolt through the alined holes, as and for the purpose set forth.

14. A tool-holder having an upright flange with a transverse hole for the tool-shank, and an upright hole enlarged at one point to form a recess opening into one side of the transverse hole; combined with a cylindrical plug fitting said recess and having a cut-away portion projecting slightly into the transverse hole, said plug also having an upright hole of the size of that in the flange, and a bolt through said registering holes, as and for the purpose set forth.

15. A tool-holder having a flange with a transverse hole for the tool-shank and an upright hole enlarged at one point to form a recess opening into the transverse hole; combined with a cylindrical plug fitting said recess and having a portion projecting slightly into the transverse hole, said plug also having an upright hole of the size of that in the flange, a base-plate, a pivotal and tightening bolt passing through the alined holes in plug and flange and through the base-plate, and means for adjusting the remote end of the tool-holder on the base-plate around said bolt, as and for the purpose set forth.

16. In a lathe, the combination with the carriage having a T-shaped slot, and the base-plate having a projection entering said slot; of the tool-holder resting on the plate, a pivotal bolt passing through the holder and plate with its head engaged in said slot in the carriage, means for turning the holder around said pivot, and a clamping-bolt also passing through the holder and plate with its head in said slot, as and for the purpose set forth.

17. In a lathe, the combination with the carriage having a T-shaped slot, and the base-plate having a projection entering said slot; of the tool-holder resting on the plate and having an upright flange with a transverse hole for the tool and an upright hole for the pivotal bolt having a recess merging into the tool-hole, a plug within the recess bearing against the tool-shank, a pivotal bolt passing through the plug, holder, and plate with its head engaged in said slot in the carriage, and a clamping-bolt also passing through the holder and base-plate, as and for the purpose set forth.

18. The combination of the back-rest rods J", and K", fastened at their respective ends to the lugs h, and i of the frame A, and the back-rest holder L", adjusted on the rods J", and K", over the tool-carriage P', all constructed substantially as and for the purpose set forth.

19. The combination of the back-rest holder L", and the back-rest bars M", and N", each independently adjusted in the back-rest holder L", and the collar-screws O", O", with their collars x' x'', made to fit the grooves v', and w', in the back-rest bars M", and N" respectively, all constructed substantially as and for the purpose set forth.

20. The combination with the back-rest rods, and the holder adjustable thereon and having a rectangular aperture; of the substantially square back-rest bars passing through and filling said aperture and having their operative surfaces at right angles to each other, and means for adjusting these bars longitudinally and independently, as and for the purpose set forth.

21. The combination with a cam; of a pivoted lever, a spring attached near its ends thereto and curving around and remote from the end of the lever which is struck by the cam, and a screw through the lever against the under side of the spring, as and for the purpose set forth.

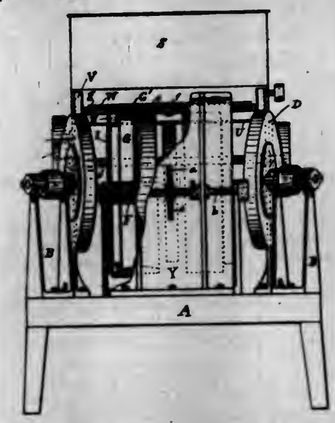
22. The combination with a cam; of a lever having a scale marked thereon, a spring attached at one end to the lever and adapted to receive the impulse from the cam, means for adjusting the distance of the spring from the lever, and an indicator pivoted to the lever with one end moving over the scale and the other end having a pin resting under the spring, substantially as hereinbefore described.

23. The combination of the lever Q", with its scale y'', the spring R", held by screws to the lever Q", the set-screw V", adjusted to regulate the tension of the spring R", and the indicating-lever W", pivoted by the pin X", so as to swing on the side of the lever Q"; all constructed substantially as and for the purpose set forth.

598,067. SKEWER-MACHINE. WILLIAM A. GOWER, Portland, Me., assignor of one-half to Alvin S. Wilcox, Deering, Me. Filed July 23, 1896. Serial No. 600,190. (No model.)

Claim.—1. In a skewer-machine, in combination, a rotating disk having an abrasive periphery, said disk being set at an angle inclined to the length of the skewer-blank, drums rotating in a direction opposite to that of said disk, a conveyer adapted to carry blanks over said drums and to engage the abrasive periphery of said disks, said drums being adapted to bear against the blanks in the conveyer and means for causing said drums and conveyer to rotate, substantially as and for the purposes set forth.

2. In a skewer-machine, in combination, a rotating disk having an abrasive periphery, said disk being set at an angle inclined to the length of the blank, drums adapted to rotate in a direction opposite to that of said disk, a hopper, a conveyer adapted to convey blanks from said hopper over said drums to said abrasive disks, a curved shield concentric with and extending over said drums whereby the blank in the conveyer by being forced by said revolving drums against the shield is caused to be rotated on its own axis and means for imparting motion to said drums and conveyer, substantially as and for the purposes set forth.



598,068. ROCKING-CHAIR. EDWIN M. HULSE, Columbus, Ohio, assignor to the Hulse-Anderson Company, of Ohio. Filed May 14, 1897. Serial No. 636,472. (No model.)

Claim.—1. A rocking-chair comprising a seat-frame, a base, and but three pairs or sets of V-shaped springs, the apexes of each pair arranged toward each other, and one pair of said springs located centrally under the seat-frame and the other two pairs one each at the sides thereof and the said springs also arranged in planes transverse to the front and back of the chair, substantially as shown and described.

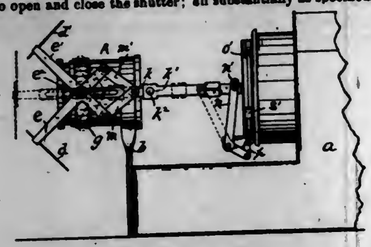
2. A rocking-chair comprising a seat-frame and a base, said seat-frame and base having cross-bars 2 2' and 4 4' parallel with the front and back of the seat, and but three pairs of V-shaped springs of flat metal, the apexes of each pair arranged toward each other and one pair of said springs located centrally under the seat-frame and the other two pairs one each at the sides thereof, and the said springs also arranged in planes transverse to the front and back of the chair, the ends 5' of the springs being bent outward to fit and be secured upon the faces of the bars 2 2' and 4 4', substantially as shown and described.

598,069. AUTOMATIC CUT-OFF FOR MAGIC LANTERNS. JOB H. JAMES, Rockville, and CHARLES D. BARROWS, Glastonbury, Conn.; said Barrows assignor to said James. Filed Feb. 27, 1897. Serial No. 625,409. (No model.)

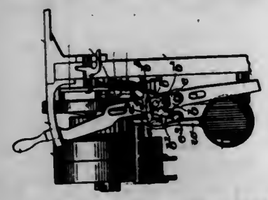
Claim.—1. In combination with a magic lantern and screen, a semiopaque shutter interposed between the objective lens and screen, and shutter-operating mechanism, located in part in the path of the slide, for automatically actuating the shutter, all substantially as specified.

2. In combination with a magic lantern and screen, a two-part semiopaque shutter, and supports for the same consisting of oppo-

sitely-bent levers that are hinged together, as set forth, and connections, located in part in the path of the slides, for actuating said levers to open and close the shutter; all substantially as specified.



593,070. BRAKE MECHANISM FOR LOOMS. JAMES H NORTHROP, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 22, 1897. Serial No. 637,669. (No model.)



Claim.—1. In a loom, a brake, an actuator therefor, a shipper-lever cooperating with said actuator whereby stopping movement of the shipper-lever automatically releases the actuator to apply the brake, and a controlling member for said actuator, mounted on the shipper-lever, said controlling member being adapted to be moved by the operator independently of the shipper-lever, to release the brake while the loom is stopped, substantially as described.

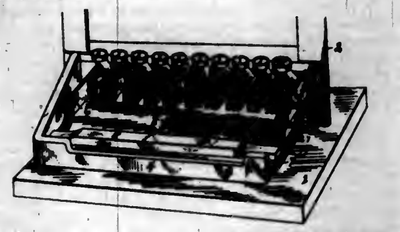
2. In a loom, a brake, an actuator therefor, a shipper-lever cooperating with said actuator whereby stopping movement of the shipper-lever automatically releases the actuator to apply the brake, and a controlling member for the actuator, pivoted on the shipper-lever and adapted to be moved by the operator over its dead-center to release the brake while the loom is stopped, movement of the shipper-lever to running position disengaging the brake-actuator and controlling member, and permitting the latter to return to normal position, substantially as described.

3. In a loom, a brake, an actuator therefor, a shipper-lever cooperating with said actuator whereby stopping movement of the shipper-lever automatically releases the actuator to apply the brake, and a controlling member for the actuator, pivotally mounted in alinement with the shipper-lever fulcrum, and adapted to be moved by the operator to release the brake while the loom is stopped, movement of the shipper-lever to running position releasing said controlling member and reëngaging the brake-actuator, substantially as described.

4. In a loom, a brake, an actuator therefor, a shipper-lever having a projection to cooperate therewith, whereby stopping movement of the shipper-lever automatically releases the actuator to apply the brake, and a finger forming a part of the actuator, a hand-controller having a cam portion adapted to be moved by the operator to engage said finger, and thereby release the brake while the loom is stopped, movement of the shipper-lever to running position bringing the projection thereon into engagement with the brake-actuator, and disengaging the actuator-finger and the hand-controller, the latter returning to normal position by gravity, substantially as described.

593,071. WORD-REGISTER FOR TYPE-WRITERS. WALDEMAR H. SPANIER, Devil's Lake, N. D., assignor of one-half to William Hope, same place. Filed July 14, 1897. Serial No. 644,484. (No model.)

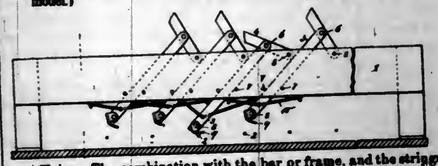
Claim.—1. In a word-register adapted to be operated in connection with a type-writing machine, the combination of a containing-case having a means for securing it to the table beneath the type-writer keyboard, a trip-lever pivotally attached to the case, said trip-lever comprising an upper hinge end 14, a body 13 and a dog 15 pivotally attached to the lower end of the body portion 13, a ratchet-wheel 16 and the toothed disks 17, 18 and 19 having integral projecting hubs 20 revolubly mounted upon projecting axles 21 within said case, said wheel and disks having the indicator-fingers 24 and dogs 25 and 25' as shown, the dials 22 fixedly mounted on the outer ends of the axles with the friction-springs 26 adapted to bear against said projecting hubs 20, all substantially as set forth.



2. The combination in a word-register for type-writing machines having a containing-case provided with a means for securing it in position beneath the keyboard, of a trip-lever pivotally attached to the case having its upper end hinged, and having a dog pivotally attached to its lower end, a ratchet-wheel and a series of toothed disks having integral projecting hubs revolubly mounted upon projecting axles within said case, said wheel and disks having the indicator-fingers and dogs as shown, the dials fixedly mounted on the outer ends of the axles with the friction-springs adapted to bear against the projecting hubs, all arranged substantially as and for the purposes shown and described.

3. In combination in a word-register of the class described, the case 9 having the transparent front 10, and the projecting plate 11, carrying a set-screw 12; the lever 13 pivotally attached in the case 9, having the hinged upper end 14 and the dog 15 pivotally attached to the lower end; the wheel 16 having the teeth 23, the integral projecting hub 20, and carrying the dog 25 and the inwardly-projecting finger 24; the toothed disks 17, 18 and 19 each having integral projecting hubs 20 and carrying outwardly-projecting dogs 25 and 25' and indicator-fingers 24; the axles 21 secured to the rear wall of the case and carrying the wheel 16 and the disks 17, 18 and 19; the dials 22, fixedly mounted upon the outer ends of the axles 21, and the friction-springs 26 secured to the bottom of the case 9 and adapted to bear against the hubs 20, all substantially as set forth.

593,072. PICK FOR MUSICAL INSTRUMENTS. HERMANN ACKERMANN, Marysville, Kans., assignor to the C. F. Zimmermann Company, Dolgeville, N. Y. Filed Jan. 29, 1897. Serial No. 621,177. (No model.)



Claim.—The combination with the bar or frame, and the strings, of a stringed musical instrument, of a plurality of pick-bars extending in inclined planes in the bar or frame, picking-fingers pivoted to the lower ends of the pick-bars, finger-levers extending in inclined planes the reverse of the pick-bars, and pivoted to the bar or frame and to the pick-bars, and springs acting to elevate the pick-bars after they have been depressed by swinging the finger-levers, substantially as and for the purposes described.

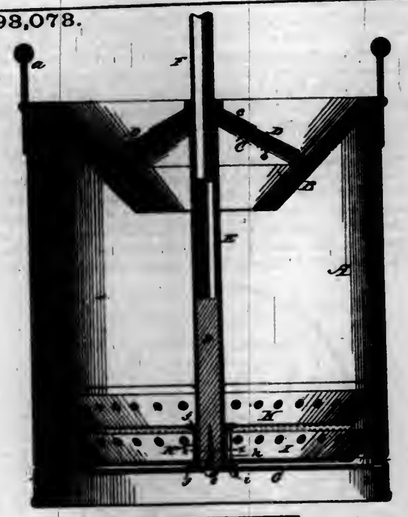
593,073. CLOTHES-POUNDER. WILLIAM R. ALLEN, Denton, Tex. Filed July 7, 1897. Serial No. 643,686. (No model.)

Claim.—1. A clothes-pounder consisting of a suitable cylinder provided with a perforated bottom, a circular perforated valve-plate secured to the interior of the cylinder, and a vertically and horizontally movable perforated valve adapted to close up against the valve-plate, substantially as and for the purpose set forth.

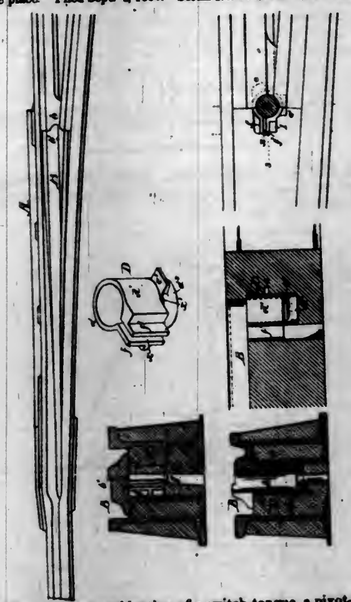
2. A clothes-pounder consisting of a suitable cylinder, a stationary perforated valve-plate, a vertically and horizontally movable perforated valve operating in connection therewith, a closed top to the cylinder having openings, and adjustable flexible valves over the openings, substantially as and for the purpose described.

3. A clothes-pounder provided with a detachable perforated bottom, a central tube to which said bottom is connected, a flanged sleeve adapted to turn on its axis, a vertically and horizontally movable perforated valve connecting with the sleeve, a perforated valve-plate secured around the interior of the cylinder, a closed top to said cylinder having openings and adjustable valves, substantially as and for the purpose specified.

593,078.



593,074. RAILROAD-SWITCH. VICTOR ASCHERL, Philadelphia, Pa., assignor to The William Wharton, Jr., & Company, Incorporated, same place. Filed Sept. 4, 1897. Serial No. 650,634. (No model.)



Claim.—1. The combination of a switch-tongue, a pivot-pin projecting therefrom, a switch structure, and a socket therein having one section movable, with means for adjusting the socket to take up the wear of the pin, substantially as described.

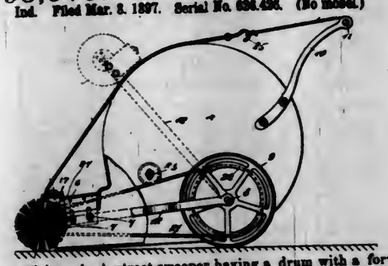
2. The combination of a switch-tongue, a pivot therefor, a switch structure, and a split socket therein, one portion of the socket being securely held in the structure, with means for adjusting the other portion of the split socket to take up the wear of the pin, substantially as described.

3. A socket for a pivot-pin consisting of a single casting split vertically part way down and split horizontally part way across, forming a movable section and a fixed side and base section, substantially as described.

4. The combination of a switch-tongue having a pivot-pin, a switch structure formed of rails secured together by cast metal, a socket having transverse wings and secured in position by the cast metal, vertical flanges projecting from the two side members of the socket, and a wedge mounted between one of the flanges and the cast-metal structure, substantially as described.

5. The combination of a switch structure having a split bearing, a switch-tongue having a pivot adapted to the bearing, and a wedge for adjusting the bearing, said switch-tongue having a hole directly over the wedge so that a tool can be inserted in the hole to drive the wedge without removing the tongue, substantially as described.

593,075. STREET-SWEEPER. JOHN H. BARTH, Indianapolis, Ind. Filed Mar. 8, 1897. Serial No. 626,426. (No model.)



Claim.—1. A street-sweeper having a drum with a forwardly-extending chute, wheels whereon the drum is mounted, a brush mounted to swing on the drum and normally located in front of the chute, a cover-plate closing the top of the chute and adjustable vertically thereon, a plate in connection and moving with the brush, means for driving the brush, and a supporting-plate fixed to the cover-plate and engaged by the under side of the plate which is in connection with the brush, substantially as described.

2. A street-sweeper having a drum with a forwardly-extending chute, a shaft passing through the drum, wheels carried by the shaft and upon which the drum is mounted, an arm fixed to each end of the shaft, a brush revolubly mounted in the free ends of the arms and normally located in front of the chute, a cover-plate located above the chute and adjustable vertically thereon, the cover-plate having a forwardly-projecting plate secured thereto, and a plate in rigid connection with the arms and holding the brush in place, the last-named plate having its lower side engaging the plate on the cover-plate of the chute to hold the brush in position, substantially as described.

3. A street-sweeper, having a drum with a forwardly-extending chute, a shaft passing through the drum, wheels mounted on the shaft, an arm pivoted to each end of the shaft and projecting forwardly, a brush carried by the arms and normally located at the front of the chute, a cover-plate carried by the chute and adjustable vertically thereon, means for holding the brush in connection with the arms, and a supporting-plate carried by the cover-plate and engaging said means for holding the brush whereby to support the brush, substantially as described.

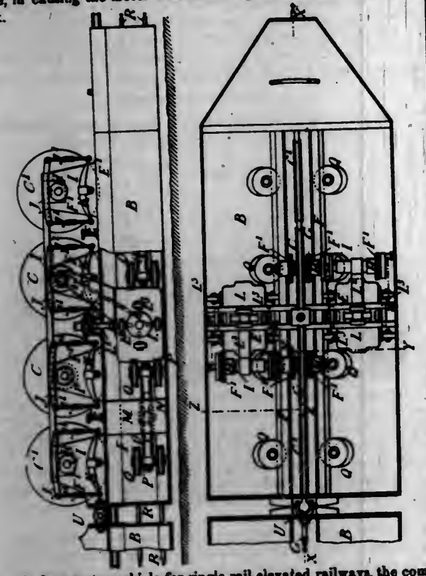
4. A street-sweeper having a drum with a forwardly-extending chute, the chute having perpendicular sides, a cover-plate for the chute with downwardly-extended end portions adjustable vertically on the sides of the chute, a shaft extending through the drum, wheels mounted on the shaft, an arm pivoted to each end of the shaft, the arms extending forwardly to the front of the chute, a brush revolubly mounted in the arms, a belt driving the brush from one of the wheels, a plate extending transversely between the arms and having vertically-extending portions respectively secured to the arms, the plate being connected with the brush to hold the same in place, and a supporting-plate carried by the cover-plate and engaging the plate that is connected to the arms whereby to support the brush, substantially as described.

593,076. MOTOR-VEHICLE FOR SINGLE-RAIL ELEVATED RAILWAYS. PETER R. BEES, London, England. Filed May 26, 1897. Serial No. 638,576. (No model.) Patented in England Dec. 3, 1896, No. 27,549.

Claim.—1. The combination in motor-vehicles for single-rail elevated railways, of two separate bodies A and B, of which the lower body B is suspended from the axles of the driving and running wheels by springs K and rods T and is supported against lateral motion by means of guide-wheels Q, mounted on each end of a sway-beam O, and running on lateral guide-rails, while the upper body A is carried upon the lower body B by means of springs S the ends of which are pivoted to longitudinal bars T fixed to the lower body.

2. In a motor-vehicle, the combination of the two separate bodies A and B, two motors L centrally in the lower body, and suspended by pivoted links L' from the top girders thereof while the casings of the motors are connected by rigid arms L^2 respectively to the crank-axle to which the motor is coupled, so that on the occurrence of a

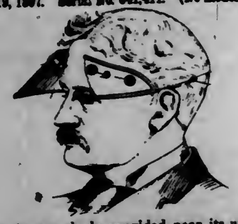
slight vertical motion of the axles relatively to the body B, the arms will always maintain the same distance between the motor-shaft and axle, in causing the motor to oscillate slightly upon its suspending-link.



3. In a motor-vehicle for single-rail elevated railways, the combination with a series of vertical blades or wings mounted on vertical pivots, of pockets or recesses at the back of said blades, and mechanism for causing said blades or wings to project outward beyond the sides of the carriage and uncover said pockets to present surfaces for the impinging of air with such force as to retard the forward motion of the carriage, substantially as specified.

4. In a motor-vehicle for single-rail elevated railways, the combination of a lower body B suspended from the running wheels by springs K and rods T, guide-wheels Q mounted on the ends of sway-beams O carried in a yielding manner by the said body and adapted to run on lateral guide-rails, saddle or bridge shaped connections O' connecting the opposite sway-beams with each other and an upper body A carried on the lower body B by means of springs S pivotally connected to the lower body, substantially as described.

593,077. EYE-SHADE. WILLIAM S. BEVAN, Brooklyn, N. Y. Filed June 19, 1897. Serial No. 641,411. (No model.)

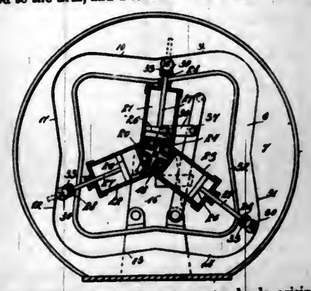


Claim.—1. An eye-shade provided near its upper edge with a series of inwardly-projecting soft, non-absorbent pads, designed to rest against the forehead of the wearer and hold the shade from contact therewith.

2. The combination, with an eye-shade, of combined supporting and spacing devices, extending from the inner face of the shade, each device consisting of two tubes held to slide one upon the other, the outer end of the inner tube being provided with a head and the corresponding end of the other tube having a flange, the inner end of the inner tube being open, and arranged for capping engagement with the inner end of the outer tube, and a cushion-block carried by the inner tube at its inner end, as and for the purpose specified.

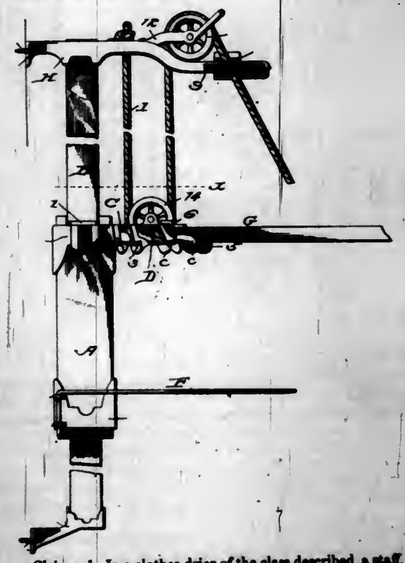
593,078. ROTARY ENGINE. MATTHEW H. BEYER, Orange, N. J., assignor of one-half to Joseph C. Beyer, same place. Filed Mar. 11, 1897. Serial No. 626,997. (No model.)

Claim.—1. The combination with a base, two standards mounted on the base, a drum having two hollow trunnions, the trunnions being mounted in the standards and the drum having feed and exhaust ports respectively communicating with the trunnions, a boxing mounted to turn on the drum, a plurality of cylinders radiating from and rigidly secured to the boxing, the boxing having ports for the cylinders, such ports moving successively over the ports of the drum, a piston within each cylinder, a rod attached to each piston, the rods working through the outer heads of the cylinders, a cross-head attached to the outer end of each rod, two rollers carried by each cross-head, an interior cam surrounding the cylinders and having one roller of each cross-head working against the cam, a rim running concentrically with the cam and engaged by the remaining roller of each cross-head, an arm attached to one of the trunnions of the drum, a link pivoted to the arm, and a lever to which the link is also pivoted.



2. The combination of a base, two standards arising from the base, a drum having two hollow trunnions, the hollow trunnions being respectively mounted in the standards, the drum having inlet and outlet ports respectively communicating with the hollow trunnions, a boxing turning around the drum, cylinders carried by the boxing, pistons carried in the cylinders, an endless interior cam surrounding the pistons and from which the cylinders are driven, an arm attached to one of the trunnions, a link pivoted to the arm, and a lever fulcrumed on one of the standards and pivoted to the link.

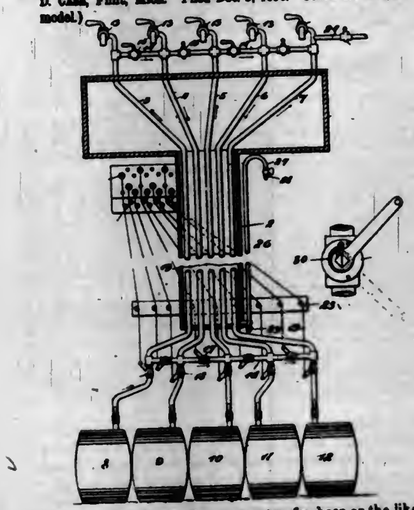
593,079. CLOTHES-DRIER. JOSEPH J. BEHL, Philadelphia, Pa., assignor of one-half to Joseph Hancock, same place. Filed Aug. 7, 1896. Serial No. 601,936. (No model.)



Claim.—1. In a clothes-drier of the class described, a staff, a carriage movable thereon, an arm-carrying bench secured to the carriage, said bench comprising a semicircular plate having a series of radial fingers projecting therefrom, the outer ends of which are curved to a plane below the plate, twisted, and perforated vertically through the twisted portions, and a wire arm-supporting rail passed horizontally through the perforations in the fingers, and a series of clothes-arms pivotally supported on said rail.

2. In a clothes-drier of the class described, an arm-supporting bench comprising a semicircular plate having a series of radial fingers projecting therefrom, the outer ends of which are curved to a plane below the plate, an arm-supporting rail carried by the fingers, and a series of cuneal ribs on the under side of the plate in line with the fingers, in combination with a series of clothes-arms gradually tapered in the direction of their forward ends, said arms being pivotally secured to the rail near their rear ends, combined and operating substantially as described.

593,080. DISTRIBUTING APPARATUS FOR BEER. EDWARD D. CASE, Flint, Mich. Filed Dec. 5, 1896. Serial No. 614,537. (No model.)



Claim.—1. A distributing apparatus for beer or the like, comprising an ice-chest, a water-container extended downward therefrom, a series of pipes extended through said ice-chest, a water-cooler, valve-controlled connections between the several pipes above the ice-chest, valve-controlled connections between the several pipes at their lower portions, a valve in each pipe below the said valves at the lower portions of the pipes, and opening lines or wires extended from these several lower valves to a keyboard located adjacent to the ice-chest, substantially as specified.

2. A distributing apparatus for beer or the like, comprising an ice-chest, a water holder or container extended downward therefrom, a pipe leading from the lower end of said water holder or chamber and extended upward to near its top where it is provided with an outlet, a series of pipes extended through the ice-chest and also through the water holder or container and adapted for connection at their lower ends with barrels, each of said pipes having a faucet at its upper end, valve-controlled connections between the several pipes above the ice-chamber, valve controlled connections below the several pipes below the water holder or container, cords or wires extended from these last-named valves to a point adjacent to the ice-chest, valves in the pipes below the last-named valves and having cords or wires extended upward to a point adjacent to the ice-chest, and a valve-controlled water-pipe leading into one of the distributing-pipes, substantially as specified.

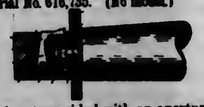
3. A distributing apparatus for beer and the like, comprising a series of pipes, a refrigerating means through which such pipes extend, connections between said pipes above the refrigerating means, connections between the pipes below said refrigerating means dispensing devices means for connection with the barrels or other source of supply and independent valves controlling the connections between the pipes whereby the pipes may be made independent and may be connected for circulation, substantially as described.

4. In a distributing apparatus, the combination with a chamber or cooler, of a plurality of pipes extending through the same, valve-controlled connections between the said pipes on opposite sides of said chamber or cooler, whereby the liquid may be caused to circulate back and forth through the said chamber or cooler, individual connections for each of such pipes with the sources of supply and individual dispensing devices for such pipes, substantially as described.

5. A distributing apparatus for beer or the like, comprising a cooler, a series of pipes extending through said cooler, pipe connections between said pipes above the cooler, pipe connections between the pipes below the cooler, a keyboard connections between the same and the said lower connections and independent valves controlling the pipe connections whereby the pipe may be made independent and may be connected for circulation, supply and dispensing connections, substantially as described.

6. A liquid-distributing apparatus, comprising a series of dispensing-pipes adapted for connection, each with a separate supply vessel, a plurality of cross connections between the pipes, and independent valves controlling the cross connections between the pipes whereby liquid may be drawn from either one or several of the supply vessels through either of the pipes, or may be caused to circulate back and forth between the cross connections, substantially as specified.

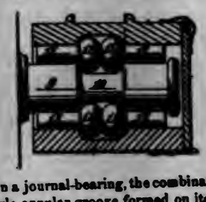
593,081. NUT-LOCK. OSCAR W. CREDER, Lee, N. D. Filed Dec. 23, 1896. Serial No. 616,735. (No model.)



Claim.—1. A nut provided with an aperture in one side, in combination with a catch fulcrumed at one end within the nut on a pin crossing the bore of the nut and having an elbow extension working adjacent to one side of the nut and in a recess therein, a lip projecting inward from the free end of said extension for engagement with a socket in the article embraced by the nut, a spring for holding said catch in its operative position, and an external projection on the catch for facilitating the rocking thereof, substantially as described.

2. A nut provided with an aperture in one side, in combination with an elbow-shaped catch having one arm working in said aperture, and its other arm extending inward, and fulcrumed within the nut, and a leaf-spring for holding said catch in its operative position, an external projection on said catch for facilitating the rocking thereof, and a lip projecting inward from the free end of said catch and adapted to engage a socket in the article embraced by the nut, substantially as described.

593,082. JOURNAL-BEARING. JAMES B. CHRISTOPHER, Peru, Ill., assignor of one-half to Harry Bickhoff, same place. Filed Aug. 26, 1897. Serial No. 649,595. (No model.)



Claim.—1. In a journal-bearing, the combination with a journal-box having a single annular groove formed on its interior, of a journal arranged in the box and having a single circumferential groove intermediate its ends corresponding to and registering with the groove in the journal-box, and a plurality of integral double balls disposed in said grooves, each pair of balls being in contact with the adjacent balls on each side but normally out of contact with the journal and journal-box and each ball of every pair provided with an axially-projecting roller disposed between the journal and the journal-box, the rollers of each set of balls being unconnected with the rollers of the other balls, substantially as described.

2. In a journal-bearing, the combination with a journal-box having a single annular groove substantially U-shaped in cross-section formed on its interior, of a journal arranged in the box and having a single circumferential groove intermediate its ends corresponding to and registering with the groove in the journal-box, and a plurality of integral double balls disposed in said grooves, each pair of balls being in contact with the adjacent balls on each side, and each ball of every pair being provided with an axially-projecting roller, said rollers projecting in opposite directions between the journal and journal-box and the rollers of each pair of balls being unconnected with the rollers of the other balls, the diameters of the balls being slightly less than the distance between the bottoms or opposite faces of the said grooves whereby the balls are normally out of contact with the journal and journal-box, substantially as described.

593,083. ADJUSTABLE AND REMOVABLE CENTER FOR ARCHES. THOMAS M. CLANCY, New York, N. Y. Filed Dec. 14, 1896. Serial No. 615,542. (No model.)

Claim.—1. A temporary center for forming arches, comprising a sheet capable of being formed into arch shape, fixed angular lugs on one end of the sheet for hanging it upon the base of one of the floor-beams, and a removable support loosely engaging the other end of the sheet and adapted to rest on the base of the other floor-beam, substantially as shown and described.



2. A temporaay center for forming arches, comprising a sheet capable of being formed into arch form, fixed angular lugs on one end of the sheet for hanging it upon the base of one of the floor-beams, a removable support loosely engaging the other end of the sheet and adapted to rest on the base of the other floor-beam, and means for holding the said support in position from the said sheet, substantially as shown and described.

3. A temporary center for forming arches, provided with a flexible sheet adapted to be bent to the shape of the intended arch, and adapted to rest with its ends loosely on the under side of the floor-beams, stiffening-ribs attached to the sheet and projecting at one end to form upturned lugs for engaging one of the floor-beams, and rods suspended from the sheet and adapted to pass through openings or slots in the sheet to engage and rest on the other floor-beam, substantially as shown and described.

593,084. ATTACHING DEVICE. LEVIN C. DILLON, Brooklyn, N. Y. Filed May 6, 1897. Serial No. 636,577. (No model.)



Claim.—1. An attaching device, comprising a container for liquid, a wedge-shaped cap thereon having a slot along its apex, the walls of said slot forming a seat for a valve, a plug-valve having tapered sides and movable through the slot, and a spring for holding the plug-valve yieldingly in its seat, substantially as specified.

2. An attaching device, comprising a container for liquid, a cap removably connected thereto, and having a slot along the apex, a wedge-shaped valve movable longitudinally through said slot, a conical coiled spring engaging at its upper portion with a lug extended downward from the bottom of the valve, and a support for the lower end of said spring, substantially as specified.

3. An attaching device, comprising a receptacle for liquid made in the form of a bottle, a tapered cap having a screw-threaded portion to engage a screw-thread on the neck of the container, the tapering walls of said cap terminating in a slot, a wedge-shaped valve movable in said slot, and a spiral spring engaging at its upper end with a lug on the valve and having its lower end engaged with the end of the neck of the container, substantially as specified.

593,085. BOTTLE. WILLIAM S. DRESBACK, Columbus, Ohio. Filed June 17, 1896. Renewed Apr. 17, 1897. Serial No. 632,606. (No model.)

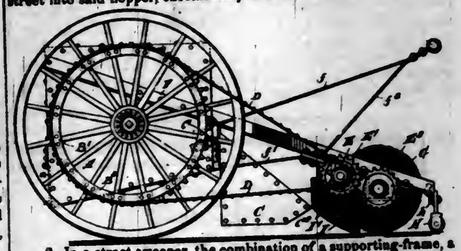


Claim.—1. An improved bottle comprising a body portion, a filling-neck depending into the bottle-body from its top end, a closed emptying-neck raised from the same end of the bottle-body at a point adjacent the filling-neck, and a seal or stopper for the filling-neck, substantially as shown and described.

2. An improved bottle comprising a body portion, a filling-neck depending into the body of the bottle, a closed emptying-neck provided with a fragile seal, said neck being raised from the top of the bottle-body at a point adjacent the filling-neck and of less diameter than the filling-neck, and the stopper adapted to be inserted through the filling-neck and brought to position in the inner end of the emptying-neck, for the purpose substantially as herein shown and described.

593,086. STREET-SWEEPER. PATRICK F. DUGGAN, Long Island City, N. Y. Filed Dec. 7, 1896. Serial No. 614,757. (No model.)

Claim.—1. In a street-sweeper, the combination of a sweepings-receptacle having the upper half of one end and an adjacent portion of the top open, a hopper pivoted at the bottom of said opening and adapted when turned up to entirely close said opening, with a supporting-frame and a rotatable brush adapted to sweep dirt from the street into said hopper, substantially as described.



2. In a street-sweeper, the combination of a supporting-frame, a sweepings-receptacle having the upper half of one end and an adjacent portion of the top open, a hopper pivoted at the bottom of said opening and adapted when turned up to entirely close said opening, and means for sweeping dirt from the street into said hopper when in its lower position, substantially as described.

3. In a street-sweeper, the combination of a sweepings-receptacle having the upper half of one end and an adjacent portion of the top open, a hopper pivoted at the bottom of said opening and adapted when turned up to entirely close said opening, with a supporting-frame, a rotatable brush, and a sloping guide-chute projecting under the brush and discharging into the hopper when in its lowered position, substantially as described.

4. In a street-sweeper, the combination of a supporting frame, a receptacle having an opening in one side, a hopper pivoted thereto near the lower edge of said opening, and having a projecting plate adapted to swing into said opening when the hopper is turned up, so as to cover the space between the two before the material is dumped, and means for sweeping dirt into said hopper, substantially as described.

5. In a street-sweeper, the combination of a supporting-frame, a sweepings-receptacle having an opening in one side, wheels for carrying the same, with a hopper pivoted at the lower edge of the opening in the receptacle and adapted to be swung up into said hole to dump its contents, a rotatable brush turned by gearing from the supporting-wheels, and a pivoted guide extending under the brush and conducting the sweepings into the hopper, substantially as described.

6. In a street-sweeper, the combination with supporting-wheels, and a receptacle mounted on the axle thereof and having an opening in its rear portion, of a frame secured to the receptacle and projecting rearwardly, a wheel for supporting the rear end of the frame, a brush mounted in the frame, means for operating the brush from one of the said wheels, a scoop secured to the frame in front of the brush, and a pivoted hopper for receiving the sweepings from the scoop, said hopper being adapted to be swung to discharge its contents into the receptacle, substantially as described.

7. In a street sweeper, the combination with supporting-wheels, and a receptacle mounted on the axle thereof, and having an opening in its upper rear corner, of a frame secured to the receptacle and extending rearwardly, an adjustable wheel supporting the rear end of the frame, a brush mounted in the frame, means for operating the brush from one of the said wheels, a scoop pivoted to the frame in front of the brush, and a hopper pivoted to the receptacle and adapted to be swung to discharge its contents into the receptacle and when so swung to close the receptacle, substantially as herein shown and described.

593,087. FERTILIZER-DISTRIBUTER OR SEED-PLANTER. ALONZO B. KINSER, Magnolia, Ark. Filed May 27, 1897. Serial No. 638,423. (No model.)

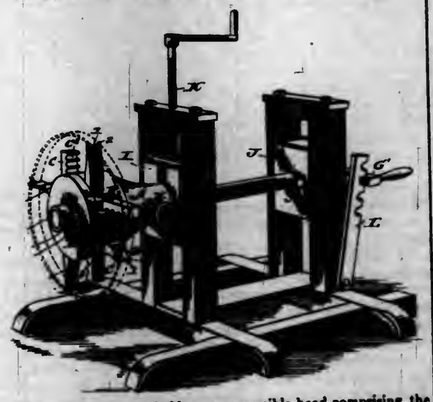


Claim.—1. In a fertilizer-distributer or seed-planter, the combination with the frame and a stationary axle secured therein, of a wheel mounted to revolve on the axle, a hopper secured to one side of the wheel and provided with discharge-holes in its periphery, agitating-wires secured to the axle within the hopper and extending downwardly in substantially a vertical plane in close proximity to the inner face of the hopper, rods secured at one end to the axle and projecting therefrom in a substantially horizontal plane, and strips of flexible material secured to the free ends of the rods with their forward edges in close proximity to the discharge-holes in the hopper, substantially as and for the purpose specified.

2. In a fertilizer-distributer or seed-planter, the combination with the frame and a stationary axle secured therein, of a wheel consisting of a wooden disk mounted to revolve on the axle and having a metal tire, a cylinder having a flange at one end secured to the wheel-disk, and provided with a series of holes in its periphery, a wooden head secured in the other end of the cylinder, a sleeve fitted over the cylinder to turn thereon and provided with a series of holes adapted to register with those in the cylinder, spaced lugs secured on the wooden head, an arm secured to the sleeve to work between the lugs, a pointer on the sleeve, and a scale on the wooden head, substantially as and for the purpose specified.

3. In a fertilizer-distributer, or seed-planter, the combination with the frame and a stationary axle secured therein, of a wheel consisting of a wooden disk mounted to revolve on the axle and having a metal tire, a hopper consisting of a tapering cylinder having a flange at one end secured to the wheel-disk and provided with a series of holes in its periphery, and a wooden head secured in the other end of the cylinder, the wheel-disk having an opening communicating with the hopper, a hinged door to close the said opening, a tapering sleeve fitted over the cylinder to turn thereon, and provided with a series of holes adapted to register with those in the cylinder, metal strips secured to the wooden head to engage the outer end of the sleeve, and means to turn the sleeve on the cylinder and limit its movement in either direction, substantially as described.

593,088. TIRE-HOLDER FOR FORGES. JAMES B. FARRAR, Wilmington, N. C. Filed May 1, 1897. Serial No. 634,784. (No model.)



Claim.—1. In a tire-holder, an expansible head comprising the body having ways for the arms, one set of such ways being deeper than the other, the arms sliding in said ways means for operating said arms and the cap fitted over said ways and having lugs projecting into the deeper ways, substantially as described.

2. In a tire-holder the combination of a holder having a body and movable arms, a shaft which may be turned in said body to operate the arms and a screw by which to positively lock the body to the shaft substantially as described.

3. A tire-holder comprising the expansible holder having arms, the shaft carrying said holder and having a pinion meshed with said arms whereby to expand and contract the holder, and an adjustable support for said shaft whereby it may be set up and down, substantially as described.

4. The tire-holder herein described consisting of the frame, having movable boxes, means for adjusting one of the boxes, a clamp for locking the other box, the shaft turning in said boxes and having a crank-handle and a rack-wheel, the lock-bar pivoted to the frame and arranged to engage the crank-handle, and the head supported on the shaft and having arms provided with teeth meshed by and arranged to be operated by the pinion of the shaft substantially as described.

5. A tire-holder comprising the body, the arms movable in and out therein, the shaft which may be turned in said body to operate the arms, the frame and the bearings for said shaft adjustable vertically in said frame whereby the shaft may be set higher or lower according to the size of the tire substantially as shown and described.

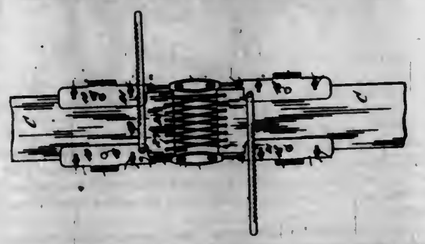
6. A tire-holder comprising the holder having a body and arms movable in and out therein, the shaft supporting said body and which may be turned therein to operate the arms, means by which the shaft may be locked from turning in said body, the frame having bearings for the shaft in which the latter may turn and devices by which the shaft may be held from turning in such bearings substantially as shown and described.

7. A tire-holder for forges comprising the frame, having vertically-adjustable bearings, the shaft supported in said bearings whereby it may be set up and down and the head supported on said shaft and expansible substantially as shown and described.

593,089. INSECTICIDE. CYRUS FISHER, Pittsburg, Pa. Filed July 29, 1897. Serial No. 646,316. (No specimens.)

Claim.—The compound for destroying insect life composed of soar milk, gasolene and asafetida, in or about the proportions specified.

593,090. BELT-TIGHTENER. SOLOMON R. FORBESS, Randolph, Tenn. Filed Jan. 7, 1897. Serial No. 618,234. (No model.)



Claim.—1. A belt-tightener, comprising clasps arranged in pairs, and each consisting of two members hinged together and provided with fastening devices, a bolt engaging the members of each clasp, and turnbuckles engaging the bolts of corresponding clasps, substantially as described.

2. A belt-tightener, comprising clasps arranged in pairs, a bolt secured to one end of each clasp, turnbuckles engaging the bolts of corresponding clasps, a toothed brace-bar hinged to one clasp of each pair, and a lug on the opposite clasp of each pair and with which the teeth of the brace-bar engages, substantially as described.

3. A belt-tightener, comprising clasps arranged in pairs and each consisting of two members hinged together and provided with fastening devices, a bolt engaging the members of each clasp, turnbuckles engaging the bolts of corresponding clasps, a toothed brace-bar hinged to one member of each clasp, and a lug on one member of the opposite clasp, and with which the teeth of the brace-bar engage, substantially as described.

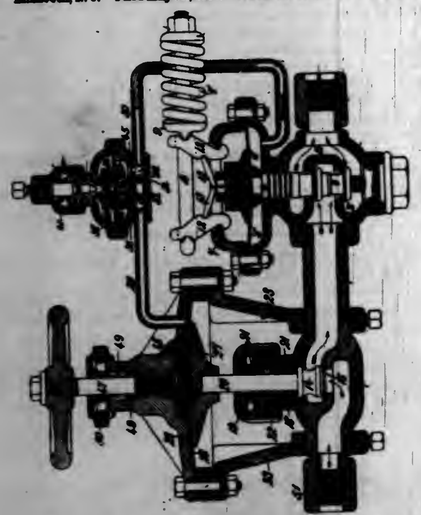
4. A belt-tightener, comprising clasps arranged in pairs and each consisting of two members hinged together and provided with fastening devices, the members of each clasp being provided at one end with alining apertures, bolts provided with oppositely-projecting lugs entering the said apertures, turnbuckles engaging the bolts of corresponding clasps, and means for connecting the clasps of each pair together substantially as described.

5. A belt-tightener consisting of pairs of clasps, each clasp consisting of two members having a hinged connection, their inner faces being roughened, and tightening-bolts adapted to be passed through the two members, for the purpose of drawing them together, and a tension device connecting corresponding clasps of each pair, a brace-bar carried by a clasp of each pair, and keepers located on the opposite clasp of each pair, the brace-bar having recesses for the reception of the said keeper, as and for the purpose specified.

6. A belt-tightener consisting of clasps arranged in pairs, each clasp comprising two hinge-connected members and tightening devices passed through both members, and turnbuckles connecting corresponding clasps of each pair, the body portion of said turnbuckles being in adjustable sections, as and for the purpose specified.

7. A belt-tightener, consisting of clasps arranged in pairs, and each consisting of two members hinged together and provided with fastening devices, the members of each clasp being provided at one end with alining apertures, bolts provided with oppositely-projecting lugs entering the said apertures, turnbuckles engaging the bolts of corresponding clasps, and a toothed bar hinged to one clasp of each pair and engaging a lug on the other clasp of the pair, substantially as described.

598,091. FLUID-PRESSURE REGULATOR. JOHN M. FOSTER, Elizabeth, N. J. Filed May 22, 1897. Serial No. 637,751. (No model.)



Claim.—1. In a pressure-regulator, the combination with a pressure-reducing valve, of an automatic stop-valve held normally open by the fluid-pressure thereon, and means for causing an excess of pressure on the outlet side of the reducing-valve to act upon and close the said stop-valve against a high initial pressure, substantially as described.

2. In a pressure-regulator, the combination with a reducing-valve, of an automatic stop-valve, and an auxiliary by-pass-valve mechanism for controlling automatic operation of said stop-valve, against high initial pressures, from a predetermined excess of delivery pressure at the said reducing-valve, substantially as described.

3. In a pressure-regulator, the combination with a pressure-reducing valve, of an automatic stop-valve held normally open by the fluid-pressure thereon and having a diaphragm subjected to the action of an excess of delivery pressure on the outlet side of said reducing-valve, to control the operation of the said stop-valve against a high initial pressure, substantially as described.

4. In a pressure-regulator, the combination with a reducing-valve, of an automatic stop-valve provided with a diaphragm, and pipe connections for conducting to said diaphragm an excess of delivery pressure from the reducing-valve to act on the stop-valve diaphragm and automatically control the said stop-valve against high initial pressure, substantially as described.

5. In a pressure-regulator, the combination with a reducing-valve having a diaphragm adapted to be subjected to delivery pressure, of an automatic stop-valve provided with a diaphragm, and means for causing an excess of delivery pressure in the diaphragm-chamber of the reducing-valve to act on the diaphragm of the stop-valve and automatically control said stop-valve against high initial pressure, substantially as described.

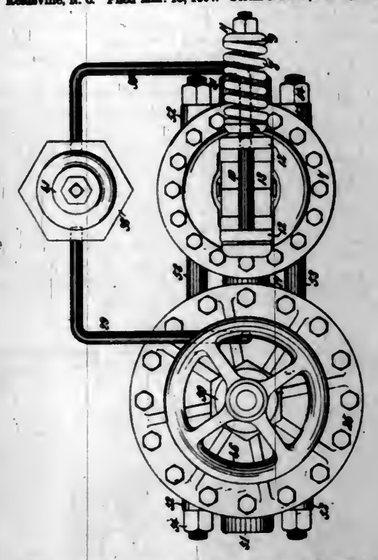
6. In a pressure-regulator, the combination with a reducing-valve and an automatic stop-valve, each provided with a diaphragm, of automatic valve-controlled connections between the diaphragm-chambers of the said reducing-valve and stop-valve to control the action of an excess of delivery pressure at the reducing-valve on the diaphragm of the stop-valve for automatically controlling the said stop-valve against high initial pressure, substantially as described.

7. In a pressure-regulator, the combination with a reducing-valve having a diaphragm adapted to be subjected to the action of the delivery pressure, and an adjustable counteracting spring for said valve and diaphragm, of an automatic stop-valve, and by-pass-valve mechanism for controlling an excess of delivery pressure at the reducing-valve to act upon and automatically control the stop-valve against high delivery pressure, substantially as described.

8. In a pressure-regulator, the combination with a reducing-valve, and an automatic stop-valve, each provided with a diaphragm and diaphragm-chamber, of by-pass and relief mechanism connecting the said diaphragm-chambers and comprising a valve-casing provided with inlet and exit ports and a relief-port, an adjustable needle valve and a by-pass valve in said casing, the said by-pass valve and its seat being provided with passages controlled by the by-pass valve and needle-valve, alternately, a diaphragm carried by the by-pass valve, and an adjustable spring to normally seat said valve against the pressure in the diaphragm-chamber of the reducing-valve and permit unseating of the by-pass valve for passage of a predetermined excess of delivery pressure from the reducing-valve to the diaphragm-chamber of the automatic stop-valve and control the operation of said stop-valve against high initial pressure, substantially as described.

9. In a pressure-regulator, the combination with a reducing-valve of an automatic stop-valve provided with a diaphragm adapted to be subjected to the action of delivery pressure from the said reducing-valve to automatically control the said stop-valve against high initial pressure, and hand-operated mechanism for mechanically closing the said stop-valve, substantially as described.

598,092. CLOVER-FLOW PLANTER. WILLIAM A. PRETWELL, Reidsville, N. C. Filed Mar. 13, 1897. Serial No. 627,317. (No model.)



Claim.—1. A cultivator-foot having a downwardly and forwardly inclined toe, and a triangular forwardly and upwardly inclined cutting portion as A' above the toe, substantially as and for the purpose described.

2. The herein-described foot for cultivators &c., having a downwardly and forwardly inclined toe on its lower end for the attachment of a tongue, or shovel, and an enlarged thickened portion A' above the toe having a front forwardly and upwardly inclined cutting edge, and a passage or channel in its rear portion leading to the toe, for the purpose and substantially as described.

3. The combination of an upwardly and forwardly inclined portion A' above the toe and the foot having toe *a*, with the removable cutting-blade J triangular in cross-section, detachably fitted on portion A', substantially as and for the purpose described.

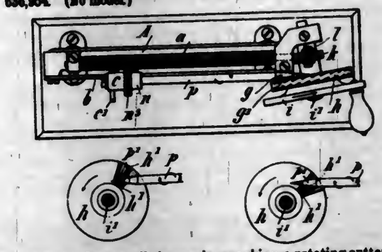
4. The herein-described foot for cultivators &c., having a downwardly and forwardly inclined toe on its lower end for the attachment of a tongue, or shovel, and an enlarged portion A' above the toe having a front forwardly and upwardly inclined cutting edge, and a passage or channel in its rear portion leading to the toe; with the removable blade J fitted over the said inclined cutting edge of the foot, substantially as and for the purpose described.

5. The combination of the foot having forwardly-inclined enlarged cutting portion A', and lugs C, *c*, substantially as described, with the bifurcated beam, the wheel, the hopper, and means for operating the hopper dropping mechanism from the wheel, substantially as and for the purpose set forth.

6. The combination of the beam, the foot A having toe *a* and enlarged cutting portion A' having a groove *a'* in its rear; with the cutter-wheel E, the hopper H, and the shaft G, and jigger-rod *g'*, and means, substantially as described, for operating shaft G from the cutter-wheel, all substantially as and for the purpose set forth.

7. The combination with the plow having an eye as N on its rear edge, with the vertically-adjustable furrow gage and closer M having perforated parallel bars *m* adapted to embrace the edge, and the bolt *n* transfixing said bars and eye, all substantially as and for the purpose described.

598,098. APPARATUS FOR SHARPENING PENCILS. HEINRICH A. H. GUHL, Hamburg, Germany. Filed May 17, 1897. Serial No. 636,954. (No model.)



Claim.—1. In a pencil-sharpening machine, a rotating cutter-disk having cutter-teeth radiating from its axis of rotation, a pencil-holder for one end of the pencil adapted to move toward and from said cutter-disk and to present the other end of the pencil tangentially to the cutting-face of said disk, a fixed guide for the last-named end of the pencil having a longitudinal wedge-shaped slot facing said cutting-face of the cutter-disk, and means for rotating the pencil in the fixed guide or holder, controlled by the rotation of the cutter-disk, for the purpose set forth.

2. In a pencil-sharpening machine, the combination with a cutter-disk having cutter-teeth radiating from its axis of rotation, and having a spindle, of a toothed shaft geared to said spindle, a holder for one end of the pencil geared to said shaft, said holder being journaled to its support, a guide on said support having motion toward and from the cutter-disk, and a guide for the end of the pencil to be sharpened, said parts arranged to present such end tangentially to the cutting-face of said disk, for the purpose set forth.

3. In a pencil sharpening machine, the combination with the cutter-disk having cutter-teeth radiating from its axis of rotation, its spindle, and the toothed shaft *a* geared to said spindle; of the support *c*, the chuck *n* journaled thereto and geared to said shaft *a*, said chuck being provided with an inwardly-tapering axial cavity having radially-projecting teeth and a fixed guide or holder for the end of the pencil to be sharpened for the purpose set forth.

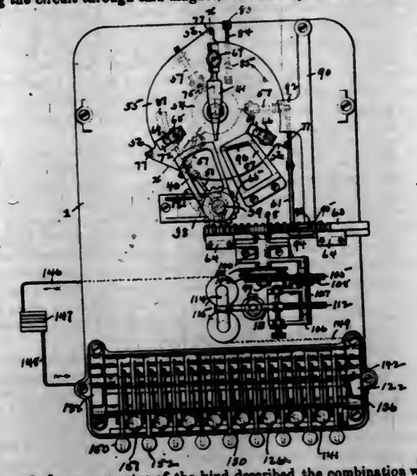
4. In a pencil-sharpening machine, the combination with a cutter-disk having cutter-teeth radiating from its axis of rotation, its spindle, and the toothed shaft *a* geared to said spindle to revolve at a lower rate of speed; of a holder for one end of the pencil geared to said shaft *a*, a support for said holder adapted to move toward and from the cutter-disk so as to present the end of the pencil to be sharpened tangentially to the cutting-face of said disk, and a guide for said pencil end, for the purpose set forth.

5. The herein-described pencil-sharpening machine, consisting of a main frame A, a spindle *i'* journaled therein, a cutter-disk fixed on said spindle, a toothed shaft *a* journaled in said main frame at an angle to and in gear with said spindle, a guide-rod, a support adapted to slide thereon, a chuck journaled in said support and in gear with said shaft, and a slotted guide or holder mounted tangentially to the cutter-disk, for the purpose set forth.

6. The herein-described pencil-sharpening machine, consisting of a main frame A, a spindle *i'* journaled therein, a disk *i* fixed on said spindle, a two-faced reversible cutter *h* mounted on said disk, a toothed shaft *a* journaled in said main frame at an angle to and in gear with said spindle, a guide-rod parallel with said shaft, a support adapted to slide thereon, a chuck adapted to receive one end of a pencil, journaled in said support and in gear with said shaft, and a conical guide or holder *g* provided with a wedge-shaped slot *g'* in which slot the end of the pencil to be sharpened is presented tangentially to the cutter-disk, substantially as described.

598,094. TYPE-WRITING TELEGRAPH. LEO R. HAMMOND, New Haven, Conn. Filed May 18, 1896. Renewed Sept. 15, 1897. Serial No. 651,776. (No model.)

Claim.—1. In an apparatus of the kind specified, the combination with a revoluble type wheel or segment bearing the character to be printed, and a carriage for supporting the paper adjacent to said type-wheel, of a pivoted impression-hammer, a revoluble selector-disk carrying radially-movable tappets which are adapted in one of their positions to actuate said hammer, a selector-lever for imparting radial movement to said tappets upon said disk, a rack-bar operatively connected with said selector-lever for moving the latter, a shaft having gear connection with said rack-bar and carrying a pulley, a cord and weight for revolving it in one direction, an escapement mechanism governing the movement of said shaft, an electromagnet and armature for operating said escapement mechanism, a series of keys bearing characters corresponding to those on said type-wheel, and a series of circuit-closers, operated by said keys, for closing the circuit through said magnet, substantially as described.



2. In an apparatus of the kind described, the combination with a type wheel or segment and an impression-hammer, of a driving-shaft, a selector-disk carrying radially-movable tappets which are adapted to actuate said hammer in one of their positions, a clutch device for connecting said disk to said driving-shaft, a shaft driven by a weight, intermediate connections between said latter shaft and said clutch device whereby the former operates the latter to connect said disk to the driving-shaft, an escapement mechanism governing the movement of said weight-driven shaft, an electromagnet and armature for operating said escapement mechanism, a series of keys, and a series of circuit-closers, operated by said keys, for closing the circuit through said magnet, substantially as set forth.

3. In a machine of the kind described, the combination with a revoluble type wheel or segment bearing upon the face thereof a plurality of rows of characters to be printed, and an impression-hammer, of lever mechanisms for imparting vertical movement to said type-wheel and for actuating said hammer, a revoluble selector-disk carrying devices for engaging and actuating said lever mechanisms, a driving-shaft having clutch connection with said disk, a series of keys bearing characters corresponding to those on said type-wheel, and intermediate connections between said keys and the clutch connecting said driving-shaft and disk, whereby the depression of any one of the keys will actuate said clutch to lock the disk to the shaft, substantially as set forth.

4. The combination with the type-wheel and impression-hammer, of the selector-disk carrying a plurality of radially-adjustable tappets, the selector-lever for causing movement of said tappets toward the center of said disk, and a stationary cam for moving said tappets in the opposite direction, substantially as described.

5. The combination with the type-wheel and the impression-hammer of the selector disk carrying tappets as described, the driving-shaft having clutch connection with said disk, means for actuating said clutch connection to lock the disk to said shaft, and means for automatically disconnecting the disk from the shaft when the former has made a one-third revolution, substantially as described.

6. The combination with a vertically-disposed shaft carrying a type wheel or segment at or near its upper end and a gear at or near its lower end, of a rack-bar engaging the teeth of said gear, an impression-hammer, a selector-disk carrying engaging means for actuating said hammer, a driving-shaft, clutch mechanism for connecting said shaft to said disk, a clutch-operating lever engaging a projection on said rack-bar, whereby the latter at the commencement of its movement will actuate said clutch mechanism to lock the disk to the shaft, means for automatically disconnecting the disk from the shaft when the former has made a partial revolution, a series of keys, intermediate connections whereby each of said keys, when depressed, will cause movement of said rack-bar, and means for automatically returning the rack-bar to its normal position after each of said movements, substantially as set forth.

7. The combination with a vertically-disposed and vertically-movable shaft carrying a type wheel or segment and also a spur-gear, of a rack-bar engaging the teeth of said gear, a lever mechanism for imparting vertical movement to said type-wheel shaft, an impression-hammer, a lever mechanism for actuating said hammer, a driving-shaft, a selector-disk carrying radially-adjustable engaging means for

actuating said lever mechanisms respectively, a clutch mechanism for connecting said disk to said driving-shaft, a selector-lever for securing radial adjustment of said engaging means on said disk, intermediate connections between said clutch mechanism and selector-lever and said rack-bar whereby the former are operated by the latter, a series of keys, intermediate connections between each of said keys and said rack-bar whereby the depression of a key will cause movement of the rack-bar in one direction, and means for returning the rack-bar to its normal position after each of said movements, substantially as described.

8. The combination with a type wheel or segment and an impression-hammer, of a rack-bar, intermediate connections between said rack-bar and said type-wheel and hammer whereby movement of the former in one direction will cause a partial revolution of the type-wheel and a striking movement of the hammer, a shaft carrying a spur-gear which engages said rack-bar and also a cord and weight for revolving it in one direction, an escapement mechanism operatively connected with said shaft for governing the movement thereof, an electromagnet and armature for operating said escapement mechanism, a battery connected in circuit with said magnet, a series of keys, and means whereby said keys are caused to close said circuit when depressed, substantially as described.

9. The combination with a type wheel or segment, of a paper-holding carriage carrying a rack, a sprag-actuated gear engaging said rack for moving said carriage in one direction, a pivotally-mounted impression-hammer carrying a double pawl which engages a ratchet-bar on said carriage, a driving-shaft carrying a worm, a two-armed lever having one arm thereof connected to said carriage and having its other arm connected with a slide-block carrying a spring-actuated pin to engage the worm on said shaft, a detent on said block normally retaining said pin out of engagement with said worm, and means for automatically actuating said detent to release said pin when said lever reaches the end of its movement in one direction, substantially as described.

10. The combination with the type wheel or segment and the pivotally-mounted impression-hammer, of the revoluble selector-disk carrying a radially-adjustable tappet which projects below the surface of the disk, a lever having mounted thereon a shoe which is adapted to be engaged by the lower end of said tappet in one position of adjustment of the latter, intermediate connections between said lever and said hammer whereby depression of the former will cause a striking movement of the latter, the selector-lever adapted to engage said tappet to move the latter toward the center of said disk, said lever having a pivotal support at one end and having at its opposite end an angular slot as described, the rack bar provided with a pin which enters the slot in said selector-lever, and means substantially as described for imparting a step-by-step movement to said rack-bar in one direction, substantially as described.

11. The combination with the type wheel or segment and the impression-hammer, of the driving-shaft carrying a fixed clutch-collar, the loosely-mounted selector-disk carrying tappets as described and provided on its under side with a plurality of spring-actuated bolts to engage the clutch-collar on said shaft and with pivoted detents to engage said bolts and hold them out of engagement with said collar, a lever having one end thereof in engagement with the free end of one of said detents in each position of rest of said disk, a rack-bar provided with a cam projection adapted to engage the opposite end of said lever, a stationary cam for withdrawing the acting bolt on said disk from said clutch-collar when the disk completes a one-third revolution, and means for causing longitudinal movement of said rack-bar, substantially as set forth.

12. The combination with the carriage 4 and means for imparting thereto a step-by-step movement in one direction, of shaft 13 carrying worm 16, block 22 vertically movable on the ways 23, said block carrying the spring-pressed pin 26 and the detent 29 adapted to normally hold said pin out of engagement with said worm, stop 30 at the lower end of one of said ways 23, and lever 18, 20, having one arm thereof connected to said carriage and its other arm connected to said block 22, substantially as set forth.

13. The combination with hammer 41 provided with a projection, as 81, of lever 82 engaging said projection at one end, lever 84 carrying the shoe 85, rod 83 connecting said lever with lever 82, selector-disk 55 carrying the radially-adjustable tappets 66, 67, 68, and means for imparting a partial revolution to said disk, substantially as described.

14. The combination with hammer 41, of lever 84 operatively connected with said hammer and carrying shoe 85, disk 55 carrying the radially-adjustable tappets 66, 67, 68, selector-lever 90 having the projection 92 adapted to engage said tappets and provided at its free end with the angular slot 94, 95, rack-bar 63 carrying a pin which projects into the slot in said selector-lever, the stationary cam 96 for moving the tappets on said disk to their outermost position, means for imparting a partial revolution to said disk, and means for moving said rack-bar in opposite directions, substantially as described.

15. The combination with the shaft 13 provided with the fixed clutch-collar 54, of the loosely-mounted disk 55 carrying on its under side the spring-pressed bolts 57 to engage said clutch-collar and detents 59 to normally retain said bolts out of engagement with said collar, lever 61, rack-bar 63 provided with the cam projection 62, stationary cam 75, and means for moving said rack-bar in opposite directions, substantially as described.

16. The combination with the shaft 39 carrying the type-wheel 40 and gear 65, of the lever 51 having a swivel connection with said shaft at its lower end and carrying shoe 87 provided with the steps 88, 89, selector-disk 55 carrying the radially-adjustable tappets 66, 67, 68, selector-lever 90, rack-bar 63 meshing with said gear 65 and having a pin-and-slot connection with said selector-lever, and means for moving said rack-bar in opposite directions, substantially as described

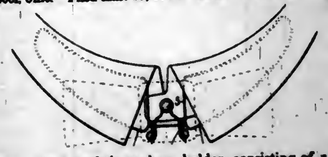
17. The combination with the shaft 39 carrying type-wheel 40 and gear 65, of rack-bar 63 meshing with said gear, shaft 99 carrying gear 98 which meshes with a second set of teeth on said rack-bar, said shaft also carrying the grooved wheel 101 and gear 102, weight 103 having its cord 104 passed about said wheel 101, shaft 106 carrying pinion 110 and gear 112, gear 105 loosely mounted on said shaft and carrying the pawl 108 which engages said pinion 110, escapement-lever 113 engaging said gear 112 at one end and at its opposite end carrying the armature 114, magnet 115, battery connections for establishing a circuit through said magnet, and means for opening and closing said circuit, substantially as described.

18. The combination with a type-printing mechanism and means for operating the same, of an escapement for governing the movement of said operating means, the electromagnet 115 and its armature 114 for operating said escapement mechanism, a battery, as 147, a series of circuit-closers located in the circuit between said battery and said magnet, a series of loosely-mounted wheels, as 126, each of which wheels has repeated upon each quarter of its periphery means for actuating one of said circuit-closers a predetermined number of times and has projecting from the side thereof four equidistant engaging devices, as the pins 129, and the series of pivotally-supported keys 130 each of which is provided with a pivoted depending arm 132 to engage successively the engaging devices on one of said wheels and impart a quarter-revolution thereto at each downward movement of the key, substantially as described.

19. The combination with a loosely-mounted wheel 126 having projecting from one side thereof the hub 127 provided with four equidistant recesses 128 and from the opposite side thereof four pins 129, of a key 130 provided with the pivoted depending arms 132, 133 and with the rigid depending arm 134, the pivotally-mounted stop-pawl 136 provided with the projection 138 and the fingers 137, 139, and springs 135, 140, arranged and operating substantially as and for the purpose described.

20. The combination with the shaft 39 carrying the type-wheel 40 and gear 65 and having projecting therefrom the arm 121, of the selector-disk 55 having upon its periphery the cam projections 56, rack-bar 63 engaging the teeth of said gear 65, means for imparting to said rack-bar a step-by-step movement in one direction, and means dependent upon the movement of said rack-bar, for imparting a partial revolution to said disk, substantially as described.

593,095. NECKTIE-HOLDER. WILFRED J. HERBERT, East Liverpool, Ohio. Filed Mar. 25, 1897. Serial No. 629,263. (No model.)

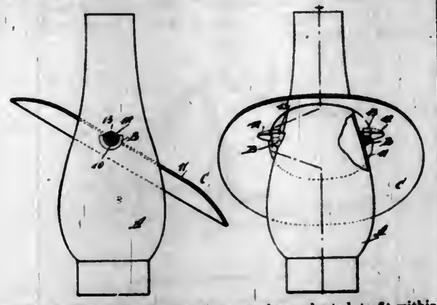


Claim.—1. A necktie or bow holder, consisting of a length of wire bent to form upwardly-curved side wings and a central loop, the two free ends of said wire being turned loosely over the loop and provided with eyes, and a button-loop of metal having swinging connection with said eyes, substantially as specified.

2. A necktie-holder, consisting of a length of wire bent to form upwardly-curved side wings and a central substantially rectangular loop, the two free ends of said wire being turned loosely over the horizontal portions of the loop and provided with eyes, and a button-loop having swinging connection with said eyes, the said button-loop having a central contracted portion to engage over the top and against the sides of the shank of a button, substantially as specified.

593,096. CHIMNEY AND REFLECTOR THEREFOR. OTTO HERRMANN, Memphis, Tenn. Filed Mar. 19, 1897. Serial No. 628,336. (No model.)

Claim.—1. A lamp-chimney having two bearings attached thereto, the bearings having angular seats designed to receive angular trunnions so that the trunnions may be held at various axial positions within the bearings.



2. A reflector having angular trunnions adapted to fit within angular bearings so that the reflector may be held at various positions by the engagement of said angular trunnions with the bearings.

3. The combination of a chimney and a reflector, the reflector being mounted on the chimney by means of angular bearings and trunnions whereby the reflector may be held at various positions on the chimney by the engagement between said angular bearings and trunnions.

593,097. DRAFT-BEAM ATTACHMENT FOR RAILWAY-CARS. MICHAEL J. HOEY, Columbus, Ohio. Filed May 3, 1897. Serial No. 635,440. (No model.)



Claim.—1. A draft-beam consisting of two parallel draft-irons, follower guide-straps arranged beneath the draft-irons, stirrup-castings projecting beyond the opposite sides of the draft-sills, stirrup-bolts extending through said stirrup-straps and through the draft-irons and follower guide-straps, in combination with followers arranged between the follower guide-straps and the tops of the draft-irons, and coiled springs disposed between said followers, substantially as described.

2. A stirrup-casting for draft-beams, consisting of a rectangular plate having slots in its opposite ends for the reception of bolts, and recesses or cavities formed in the upper sides of said slotted ends forming seats for the bolt-heads, substantially as described.

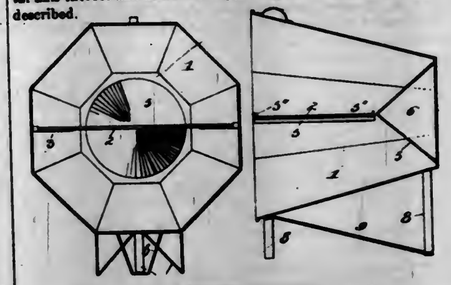
3. A draft-beam comprising two parallel draft-irons each consisting of a central web 5, and upper and lower lateral flanges 6, follower guide-straps 21 arranged beneath the lower flanges 6 of the draft-irons, stirrup-castings projecting beyond the opposite sides of the draft-sills, stirrup-bolts extending through said stirrup-straps and through the draft-irons and follower guide-straps, followers 22 arranged between the said guide-straps and the upper webs 6 and provided with teats or bosses 23, and coiled springs 24 fitted at their opposite ends over said teats or bosses, substantially as described.

4. The draft-beam consisting of two parallel draft-irons bolted to the draft-sills and having supported between them followers inclosing coiled springs, laterally-extending lugs formed on the opposite sides of the rear ends of said draft-irons, bolts extending through the draft-irons and through the draft-sills, and strap-bolts extending through the said lugs and bolted to the subsills of the car, the construction being such that the draft-irons can be interchanged one for the other, substantially as described.

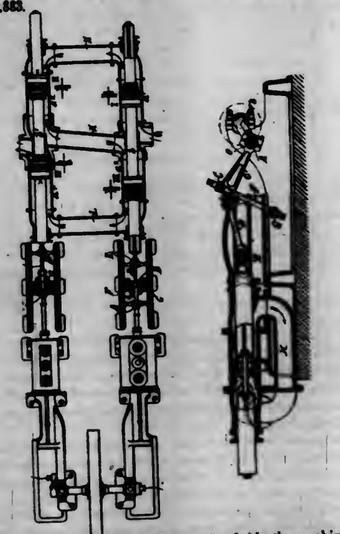
5. A stirrup-casting for draft-beams, consisting of a rectangular plate having slots in its opposite ends for the reception of bolts and recesses or cavities formed in the upper sides of said slotted ends forming seats for the bolt-heads, lugs formed on the under sides of said plate for engaging the opposite sides of the sill, and longitudinal ribs formed on the upper and under sides of the plate, substantially as described.

593,098. OVEN. DANIEL P. HOLLAND, Edgewood, Ga. Filed Feb. 7, 1896. Serial No. 578,430. (No model.)

Claim.—In an oven of the character described, the combination with a casing in the form of a hollow truncated pyramid, the interior walls of said casing being polygonal in cross-section, of a plate closing the smaller end of said casing, a hollow metal cone projecting from the closed end of said casing into the interior thereof, forming an air-space between the sides of said cone and the plate which closes the end of said casing, a support for the article to be cooked mounted inside of said casing and coinciding approximately with the horizontal axis thereof and means for supporting said oven, substantially as described.



593,099. PUMP AND MECHANISM FOR OPERATING SAME. CONSTANTYN P. HOLST, Amsterdam, Netherlands. Filed Nov. 30, 1895. Serial No. 569,534. (No model.) Patented in England Sept. 30, 1894, No. 17,863.



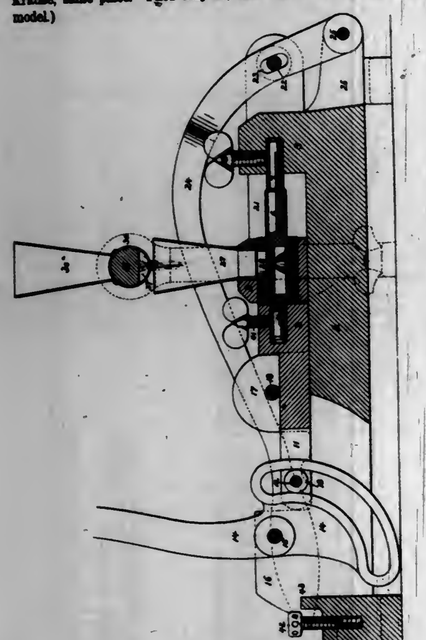
Claim.—1. In an apparatus for pumping fluids, the combination of pump-cylinders arranged in a continuous series, reciprocating valved pistons or buckets therein, interconnected cranks for driving said buckets, and intermediate equalizing mechanism between each of said cranks and the corresponding bucket or buckets, comprising a triangular lever one point of which moves through an arc of a circle, another point being connected to the corresponding crank, while its third point is connected to the pump-rod or plunger-rod, and whereby each bucket in turn is caused to move at a constant or uniform maximum velocity during the whole of the effective portion of its stroke, substantially as, and for the purposes, hereinafter described.

2. The combination of the pump-cylinders arranged in a continuous series, reciprocating valved pistons or buckets therein, interconnected cranks for driving said buckets, and triangular links each having one of its angular points connected with the corresponding crank, and another of such points connected with the corresponding bucket, and a swinging or rocking bar mounted on a fixed pivot and coupled at its free end to the third angular point of said triangular link, substantially as, and for the purposes, above specified.

3. The combination of pump-cylinders arranged in a continuous series, reciprocating buckets therein having enlarged plungers and annular valves with cylindrical guide-sleeves, and having their valve-openings approximately equal in cross-sectional area to the annular spaces between said enlarged plungers and the pump-cylinders, interconnected cranks for driving said buckets, and intermediate speed-equalizing mechanism between each of said cranks and the corre-

sponding bucket or buckets, substantially as, and for the purposes, hereinbefore described.

598,100. MACHINE FOR COMPRESSING POWDERED OR GRANULAR SUBSTANCES. GEORGE W. HUBER, Philadelphia, Pa., assignor, by mesne assignments, to Horace A. Ehrig and Thaddeus S. Krause, same place. Filed May 25, 1896. Serial No. 592,968. (No model.)



Claim.—1. A tablet-machine in which are combined a base or bed plate, a fixed plunger secured thereto, a sliding mold-head, a mold carried thereby and guided upon said fixed plunger, a sliding plunger-head, and a pair of hand-levers, one for reciprocating the mold-head and the other for reciprocating the plunger-head, substantially as specified.

2. A tablet-machine in which are combined a base or bed plate, a fixed plunger detachably secured thereto, a tubular mold adapted to slide on said plunger, a mold-head carrying the said mold and having projecting arms, an operating-lever and a pin through the medium of which the said lever is caused to act upon the arms of the mold-head, whereby the latter can on the release of the fixed plunger be swung upward away from the base or bed plate, substantially as described.

3. A tablet-machine in which are combined a base or bed plate, a fixed plunger, a tubular mold guided thereon, a mold-head carrying said mold and having projecting arms, a hand-lever engaging therewith and serving to impart movement to said mold-head, a plunger-head guided on said base-plate and carrying a plunger, and a hand-lever having a cam which acts on said plunger-head and serves to reciprocate the same, substantially as specified.

4. A tablet-machine in which are combined a base-plate, a plunger-head supported thereon, side guides which do not vertically confine the plunger-head, a cam-lever acting on said plunger-head to project the same, and a transverse roller, bearing on said head and serving to prevent the same from being lifted as it is projected, said roller being removable from its bearings in order to free the plunger-head, substantially as specified.

5. The combination in a feeding device for tablet-machines, of a receptacle having a tubular casing, a spindle adapted to rotate in said casing and recessed at one side, and a slide adapted to said recessed portion of the spindle and adjustable longitudinally thereon and combined with means for securing it in position after adjustment, substantially as specified.

598,101. BICYCLE. MYER JOSEPH, Arlington, Mass. Filed Dec. 17, 1896. Serial No. 616,051. (No model.)

Claim.—In a bicycle, the combination with the driving-wheel, of ratchet-wheels, pedal-levers fulcrumed on the machine-frame, means for causing said levers to move laterally in opposite directions, toothed segments pivotally connected to said levers and meshing with said ratchet-wheels, and bumpers of rubber, or similar material, projecting from the inactive surfaces of the teeth on the segment, substantially as described.



598,102. AUTOHARP. JOHN J. JOYCE, Dolgeville, N. Y., assignor to the C. F. Zimmermann Company, same place. Filed Apr. 15, 1897. Serial No. 632,275. (No model.)



Claim.—1. A stringed musical instrument provided with a bar or manual (one or more) and a toggle-joint support for said manual substantially as described.

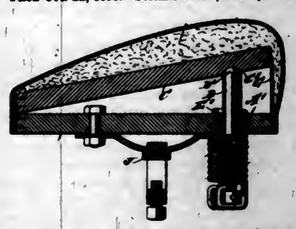
2. A stringed musical instrument provided with a bar or manual (one or more), toggle-joint supports for the manual, and a connecting-link for the joints substantially as described.

3. A stringed musical instrument provided with a support, links jointed to the support, a bar or manual (one or more) and links jointed to the manual, said links being jointed together and having a rod or connection for the link-connecting joints substantially as described.

4. A stringed musical instrument provided with a bar or manual (one or more), toggle-joint supports for the manual, a connecting-link for the joints, and a guide for securing rectilinear motion of the manual substantially as described.

5. A stringed musical instrument provided with a bar or manual (one or more), toggle-joint supports for the manual, a connection for the joints, and an actuating-handle for the manual, said connection being slotted to allow the passage of the handle and to allow longitudinal motion of the connection substantially as described.

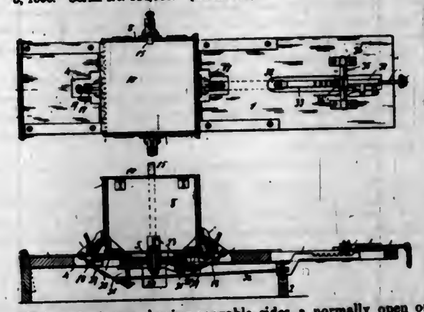
598,103. BICYCLE-SADDLE. WILLIAM H. KELLY, New York, N. Y. Filed Oct. 22, 1896. Serial No. 609,678. (No model.)



Claim.—1. A saddle having a body-plate, a top plate hinged thereto at the forward portion of the saddle, a pin engaging the under side of the top plate and extending through an opening in the body-plate, a retractile coil-spring passing through the opening and connected with the upper side of the body-plate, the spring surrounding the lower portion of the pin and being connected thereto, and means for limiting the upward movement of the top plate, substantially as described.

2. A bicycle-saddle having a body-plate, a top plate hinged to the body-plate at the front portion thereof, a band secured to the edges of the two plates and limiting the upward movement of the top plate, a pin passing through the body-plate and engaging the under side of the top plate, and a retractile coil-spring secured to the body-plate and surrounding the lower portion of the pin and pressing the pin upward whereby to yieldingly support the top plate, substantially as described.

598,104. TRAP. JEREMIAH J. KING, New York, N. Y. Filed Dec. 5, 1896. Serial No. 614,618. (No model.)



Claim.—1. A trap having movable sides, a normally open or spring-actuated cover or closure jointed to one of the sides, mechanism substantially as described for closing the sides while leaving the cover open, and a catch for holding the cover closed substantially as described.

2. A trap having movable sides provided with lugs, slides made to engage the lugs, and an actuator or cam for actuating the slides substantially as described.

3. A trap having movable sides provided with lugs, set-screws for the legs, slides made to engage the lugs, and an actuator or cam for actuating the slides substantially as described.

4. A trap having movable sides provided with lugs, hinged or swinging portions on said lugs, set-screws made to act upon said hinged portions, slides made to engage said hinged portions, and a cam or actuator for moving the slides substantially as described.

5. A trap having movable sides provided with lugs, slides made to engage the lugs, an actuator or cam for the slides, and chains or connections between the lugs and slides substantially as described.

6. A trap having movable sides provided with lugs, slides made to engage the lugs, an actuator or cam for the slides, and an actuating-spring and detent for the cam substantially as described.

7. A trap having movable sides provided with lugs, slides made to engage the lugs, an actuator or cam for the slides, an actuating-spring and detent for the cam, a withdrawing chain or release for the detent, and a returning chain or connection for moving or setting the cam against the action of the actuating-spring substantially as described.

8. A trap having movable sides provided with lugs, slides made to engage the lugs, an actuator or cam for the slides, a starter or flap, and a slide or rack actuated by the cam for moving the flap substantially as described.

9. A trap having movable sides provided with lugs, slides made to engage the lugs, an actuator or cam for the slides and an actuating-spring and detent for the cam, said cam having a projecting arm for setting or moving the cam against the action of the spring substantially as described.

10. A trap-foundation of a box or trough shape, a base or plate jointed or hinged at one end to said foundation, movable trap portions located on the upper side of the base, and actuating mechanism substantially as described on the under side of the base for opening and closing the trap substantially as described.

598,105. CYCLE-STAND AND HOME TRAINER. HARRY T. KINGSBURY, Keene, N. H. Filed Jan. 5, 1897. Serial No. 618,017. (No model.)



Claim.—1. A bicycle-support comprising front and rear axle-supporting standards each formed of a pair of transversely-alined uprights pivoted together near their lower ends to swing toward each other at their upper ends, and spaced apart above said pivots to receive the bicycle-wheels and permit them to rotate, substantially as described.

2. A bicycle-support comprising the front and rear axle-supporting standards, each formed of a pair of transversely-alined uprights pivoted together near their bases, spaced apart above their pivots to receive the bicycle-wheels and provided at their upper ends with recesses or sockets for the nuts on the ends of the axles, substantially as described.

3. In a bicycle-support, a standard comprising a pair of uprights pivoted together near their lower ends, spaced apart thereabove to receive the bicycle-wheel and recessed or socketed at their upper ends for the ends of the wheel-axle, and a clamp mounted on the end of each upright to hold the axle down in the recesses or sockets, substantially as described.

4. In a bicycle-support, a standard comprising two uprights spaced apart for the bicycle-wheel and adapted to support the ends of the axle upon their upper ends, and angular clamping-levers pivoted at their angles to the upper ends of the uprights with their horizontal arms overhanging said upper ends and their depending arms extending down alongside the uprights and provided with transverse operating-screws, substantially as described.

5. In a bicycle-support, a standard comprising two uprights spaced to receive the wheel between them and adapted at their upper ends to support the ends of the wheel-axle, and angle-clamps pivoted to the upper ends of the uprights with one member projecting thereover and the other extending downwardly and provided with a screw bearing against the upright, the depending clamp members being apertured opposite the axle ends to receive the bicycle-step, substantially as described.

6. The combination with the front and rear standards, each comprising uprights pivoted together near their bases, spaced apart to receive the bicycle-wheels and adapted at their upper ends to swing toward each other and support the ends of the wheel-axles, and parallel rods connecting said standards at opposite sides of their pivots, of rollers having supporting hangers or brackets mounted adjustably on said rods and means for transmitting motion from one of said pulleys to the other, substantially as described.

598,106. GAS-INCANDESCENT. OSKAR KNÖPLER, Charlottenburg, Germany. Filed Aug. 12, 1895. Serial No. 559,070. (No model.)

Claim.—1. The process of obtaining threads of collodion for incandescent lighting, consisting in making a nitrocellulose or gun-cotton solution, adding thereto rare metal earth, and eliminating the solvent of the solution by an alkaline agent substantially as described.

2. The herein-described method of producing gas-incandescents, which consists in fixing the threads by water to which has been added a substance, preferably an alkali, producing with the salts contained in the threads, an insoluble compound, and thereby at the same time strengthening the threads, substantially as described.

3. The herein-described method of producing gas-incandescents, which consists in mixing a solution containing collodion with appropriate substances to produce incandescent refractory bodies, and then fixing the product obtained by passing it through a liquid such as benzin, benzol or the like, which is a solvent for alcohol and ether, but will not dissolve the salts or substances which are to form the refractory mantle, substantially as described.

4. The herein-described method of producing gas-incandescents, which consists in mixing a solution containing collodion with appropriate substances to produce incandescent refractory bodies, and then fixing the product thus obtained in a liquid consisting of a solvent for alcohol and ether, and a reducing agent for denitrating the product, substantially as described.

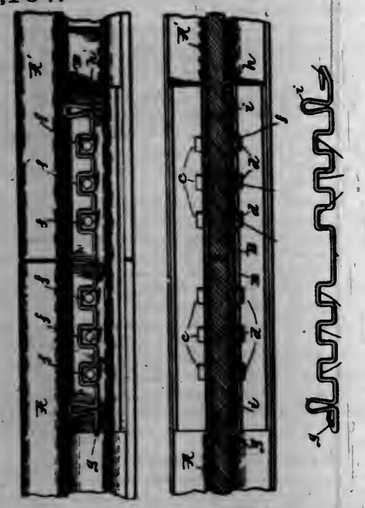
5. In a process of manufacturing gas-incandescents from a solution containing collodion mixed with suitable salts adapted to be converted into refractory oxids, the herein-described process of denitrating a solid body obtained from the said mixture, which consists in treating the said product with an alkaline-reducing agent such as sulfureted ammonium, substantially as described.

598,107. NUT-LOCK. ALBERT H. LAWFER, Duncansville, Pa. Filed Jan. 20, 1897. Serial No. 619,851. (No model.)

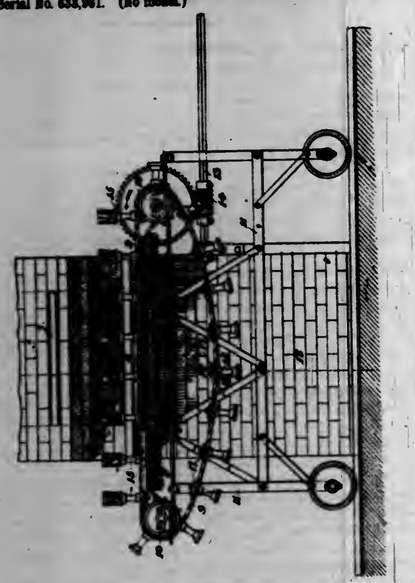
Claim.—1. A nut-lock, comprising a bar or wire formed with a plurality of nut-receiving loops or openings, a laterally-projecting hook at each end, and a vertical impinging piece adjoining one of said hooks, substantially as described.

2. The combination with rails, fish-plates at the adjoining ends thereof, bolts connecting said rails and fish-plates and nuts on the ends of the bolts, of a nut-lock bar provided with a series of nut-receiving loops, the central sides of which hang upon said nuts, and having end hooks clamped between said fish-plates and rails, and a spring impinging piece adapted to impinge against the under side of the rail-head and thereby press the bar down against the nuts, substantially as described.

598,107.



598,108. APPARATUS FOR REHEATING GLASSWARE. ALBERT R. LASURE and JAMES J. DENNING, Gas City, Ind., assignors to the United States Glass Company, Pittsburg, Pa. Filed June 1, 1897. Serial No. 638,961. (No model.)



Claim.—1. In apparatus for reheating glassware, a heating-chamber having a straight transverse opening extending through its floor and having an outlet at the side for the products of combustion, a carrier traveling along the chamber for carrying the glass articles, and mechanism adapted to rotate the glass articles as they travel through the chamber.

2. In apparatus for reheating glassware, a heating-chamber having a transverse opening, a carrier having supports extending into the chamber and carrying the glass articles, said chamber being open on one side to the flame and having at the lower part of the other side an outlet-passage for the products of combustion, whereby the gases are caused to encircle the article to be heated, and mechanism adapted to rotate the supports.

3. In apparatus for reheating glassware, a heating-chamber open on one side to the flame and having at the lower part of the other side an outlet-passage for the products of combustion, whereby the gases are caused to encircle the articles to be heated.

4. Apparatus for reheating glassware, having a heating-chamber, a frame movable into and out of the chamber, a carrier mounted on said frame and adapted to move and carry glass articles while the frame itself is stationary, and driving-gear for the carrier.

5. In apparatus for reheating glassware, a heating-chamber having a transverse opening, a carrier having supports extending into the chamber for carrying the glass articles, and a frame on which said carrier is mounted, said frame being movable into and out of position below said chamber.

6. In apparatus for reheating glassware, a heating-chamber, and a carrier having supports on which the glass articles are carried through the chamber in an upright position, exposed on all sides to the gases, said supports being adapted to make contact with the article only on the bottom surface, whereby the article is heated throughout and is not marred by contact with metal.

598,109. MILK-PAIL. JAMES A. LEAR, Lauderdale, La. Filed Dec. 11, 1896. Serial No. 615,308. (No model.)



Claim.—1. The combination with a pail, of a top or receiver therefor having a filling-opening extending therethrough, a normally open valve controlling said opening, a movable member separate from the valve itself for closing said valve, thrown into operation by the tilting of said pail on its side, and a housing for said movable member, substantially as described.

2. The combination with a pail of a top or receiver therefor having a filling-opening extending therethrough, a normally open valve controlling said opening, a ball adapted to engage the under side of said valve for closing the latter when the pail is tilted over upon one side, and a housing for said ball, substantially as and for the purpose described.

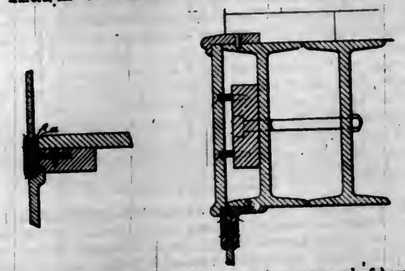
3. The combination with a pail, of a top or receiver therefor having a filling-opening extending therethrough, a normally open valve controlling said opening, a funnel upon the under side of said receiver beneath said opening, and a ball fitting within said funnel partially closing the opening in the lower end thereof and adapted to engage the under side of said valve for closing the latter when the pail is tilted over upon one side, substantially as and for the purpose described.

4. The combination with a pail, of a top or receiver therefor having a filling-opening extending therethrough, a normally open valve controlling said opening, a funnel upon the under side of said receiver beneath said opening, a strip of metal partially closing the lower end of said funnel, a ball fitting within said funnel and resting upon said strip, said ball being adapted to engage the under side of said valve for closing the latter when said pail is turned over upon one side, substantially as and for the purpose described.

5. The combination with a pail, of a receiver or top therefor having a filling-opening therein, means for securing said receiver to the upper end of said pail, a valve pivoted to the under side of said receiver for controlling the opening therein, a metallic ring secured to the under side of said valve, a funnel removably secured to the under side of said receiver beneath said valve, a strip partially covering the opening in the lower end of said funnel, and a ball fitting loosely within said funnel normally resting upon the strip at the lower end thereof and adapted to engage the under side of said valve for closing the opening in said receiver when said pail is tipped over upon one side, substantially as and for the purpose described.

6. The combination with a pail having an internal annular ledge near the upper end thereof, and a rubber gasket resting upon said ledge, of a top or receiver removably secured to the upper end of said pail and resting upon the gasket on said ledge and provided with a filling opening located centrally of the bottom thereof and a vent-hole adjacent to said filling-opening, an inwardly-extending ring or strip of metal secured to the upper edges of the sides of said top or receiver, a valve pivoted to the under side of said receiver for controlling said central opening and said vent-hole, a funnel removably secured to the under side of said receiver beneath said valve, a strip partially closing the opening in the lower end of said funnel, and a ball fitting loosely within said funnel and adapted to engage the under side of said valve for closing the latter when said pail is tipped over upon one side.

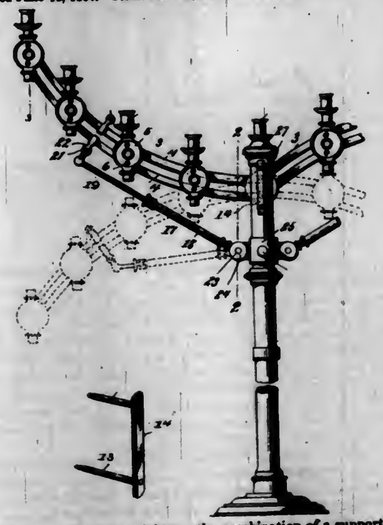
598,110. PLATE-GLASS SETTING. JOY LOVE and JOHN P. LOVE, Aurora, Ill. Filed Mar. 26, 1897. Serial No. 629,232. (No model.)



Claim.—1. A metal frame for plate glass composed of bars to which other bars of less width are fastened to form rabbets for the reception of the edges of the glass, glass-securing bars fastened to the former, a strip of lead on which the plate of glass rests, and a yielding packing placed at the side and top edges of the plate, substantially as and for the purpose specified.

2. A metal frame for plate-glass having grooves or rabbets for the reception of the edges of the glass, the groove for the bottom edge of the glass having lead within it for the glass to rest on, and the grooves for the side and top edges having leather to engage the glass, substantially as and for the purpose specified.

598,111. CANDELABRUM. JOHN MARKOWSKY, Philadelphia, Pa. Filed June 16, 1897. Serial No. 641,336. (No model.)



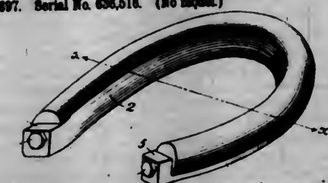
Claim.—1. In a candelabrum, the combination of a supporting-standard, and curved arms supported thereon and detachable therefrom to adapt the arms to curve in different directions as desired, each arm consisting of two parallel curved bars pivotally connected together by plates, said plates having means at both top and bottom adapted to support candle sockets or holders and adapted to always maintain said sockets or holders in a vertical position, substantially as and for the purposes described.

2. In a candelabrum, the combination of a supporting-standard, adjustable and reversible arms secured thereto, each arm consisting of two parallel curved bars pivotally connected together by plates adapted to support candle sockets or holders from either the concave or the convex face of the arm, and a telescoping brace for each arm hinged at one end to a part of the supporting-standard and provided at the opposite end with means admitting of the brace being hinged to either the concave or the convex side of the curved arm according to the side that may be turned down, substantially as and for the purposes described.

3. In a candelabrum, the combination of a supporting-standard, adjustable arms secured thereto and consisting each of two parallel curved bars pivotally connected together by plates adapted to support candle holders or sockets, means for detachably securing said arms to the standard to permit them to be inverted, a telescopic supporting-brace for each arm, and an adjustable sleeve on the supporting-standard to which the inner ends of the telescoping braces are hinged, substantially as and for the purposes described.

4. In a candelabrum, the combination of a supporting-standard, adjustable arms pivotally attached at one end to suitable plates, and a locking device consisting of a plate provided with two pins extending through the supporting-standard and the plates to which the arms are pivoted, substantially as and for the purposes described.

598,112. YIELDING-TREAD HORSESHOE. JOHN W. MONARCH and CHARLES VER TREESE POLLOCK, Des Moines, Iowa. Filed May 14, 1897. Serial No. 636,516. (No model.)



Claim.—1. A horseshoe comprising a base, a yielding tread, means extending longitudinally of the tread for securing it to the base, and adjusting devices for tightening said longitudinal securing means, substantially as described.

2. A horseshoe comprising a base having a continuous flange at its inner edge, the outer face of which is inwardly and upwardly inclined, a yielding tread, means extending longitudinally of the tread for securing it against the flange, and adjusting devices for tightening said longitudinal securing means, substantially as described.

3. A horseshoe, comprising a base having a flange and provided at its ends with perforated lugs, of a tread, a flexible metallic securing rod or plate connected to the tread provided with threaded ends adapted to engage the perforations of the lugs, and nuts for engaging the threaded ends for securing the tread upon the base, substantially as described.

4. A horseshoe, comprising a base, a yielding tread, threaded metallic portions connected to the tread, and nuts for engaging said portions to secure the tread upon the base, substantially as described.

5. A horseshoe, comprising a curved base having a flange at its inner edge and perforated lugs at its ends, a yielding tread provided with a longitudinal flexible metallic rod having projecting threaded ends adapted to engage the perforations of the lugs, and securing-nuts for engaging the threaded ends, substantially as described.

6. A horseshoe, comprising a curved base having perforated lugs at its ends, and a flange at its inner edge, the outer face of which is upwardly and inwardly inclined, a yielding tread provided near its base with a longitudinal flexible metallic rod having projecting threaded ends adapted to engage the perforations of the lugs, and securing-nuts for engaging the threaded ends, substantially as described.

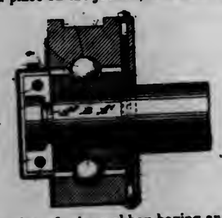
7. A horseshoe, comprising a curved base having a flange at its inner edge and lugs at its ends provided with conical perforations, a yielding tread provided with a longitudinal flexible metallic rod having projecting threaded ends adapted to engage the perforations of the lugs, and conical nuts for engaging the threaded ends of the rod, substantially as described.

8. A horseshoe, comprising a base, a sectional yielding tread having solid wearing portions intermediate the sections of the tread, and a rod extending through the sections and wearing portions of the tread for securing the tread to the base, substantially as described.

9. A horseshoe, comprising a base, a yielding tread, threaded metallic portions connected to the tread, and nuts countersunk in the base for securing the tread upon the base, substantially as described.

593,113. BALL-BEARING. JAMES NAESMITH, Kearney, Nebr. Filed Jan. 21, 1897. Serial No. 620,046. (No model.)

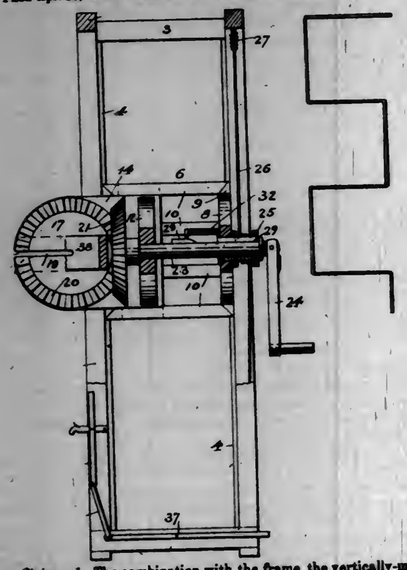
Claim.—1. A ball-bearing, comprising a box adapted to slide in truck-jaws and arranged for engagement by the equalizing-bar of the truck, a sleeve secured to the axle-journal and extending loosely within the said box, balls interposed between the said box and sleeve in a race formed by an external recess on the said sleeve and an internal recess on the said box, the race being wider than the diameter of the balls, and a collar made in sections and formed with an annular flange engaging a recess in the journal, the collar serving to clamp the sleeve in place on the journal, substantially as shown and described.



2. The combination of a journal-box having an annular groove on its interior wall, a journal projected in the journal-box and having an annular groove, a sleeve carried on the journal and having an annular groove adjacent to the annual groove in the wall of the box, a series of antifriction-balls mounted within the grooves in the sleeve and journal-box, and a sectional collar having projected portions running in the annular groove in the journal, the sectional collar serving to hold the sleeve in place, substantially as described.

3. A bearing having a journal-box with an annular groove running around the interior wall thereof, a journal projected into the box, one end of the journal having an annular groove, a sleeve mounted on the journal directly inward from the annular groove in the end thereof, the sleeve having an annular groove matching with the annular groove in the journal-box, a series of antifriction-balls carried in the annular grooves in the journal-box and sleeve, a collar formed in sections clamped on the journal and having portions running in the annular groove thereof, whereby to hold the sleeve in place, and a cap fastened over the outer face of the journal-box and inclosing the collar and the end of the journal, substantially as described.

593,114. WIRE-FENCE MACHINE. FREDERICK C. NOLAND, Covington, Ind., assignor of one-half to Thomas M. Henderson, same place. Filed Apr. 28, 1897. Serial No. 634,262. (No model.)



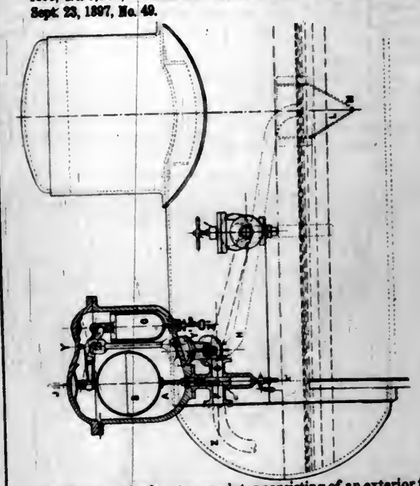
Claim.—1. The combination with the frame, the vertically-movable carriage, and the horizontally-movable carriage carried thereby, of the driving-shaft, the plate carried by said horizontally-movable carriage, having a circular opening, an annular interior flange, and a peripheral slot, the twister having a radial slot, a peripheral groove with which said interior flange engages, the bevel gear teeth on said twister, the intermeshing bevel-gear on the shaft, and the forks, substantially as described.

2. The combination with the frame, the vertically and horizontally movable carriages, the laterally movable and rotatable driving-shaft, and the twister and means for operating the same, of the rib on said shaft, the loose pulleys having a slot with which said rib engages, and the wire wound around said pulley and connected with said frame, substantially as described.

3. The combination with the frame, the vertically and horizontally movable carriages, the laterally movable and rotatable driving-shaft, the twister and means for operating the same, of the loose-flanged pulley one of the flanges of which is formed with a notch, the slide adapted to engage with said notch, and the wire wound around said pulley and connected with said frame, substantially as described.

4. In a fence-machine of the character described, the combination with the frame, the vertically and horizontally movable carriages, and the laterally movable and rotatable driving-shaft, the pivoted crank, the rib on said shaft, the loose flanged pulley having a slot with which said rib engages, the slide engaging with a notch in one of the flanges of said pulley, the wire wound around said pulley and connected with the frame, the coiled spring connected with said wire, the twister, the hooked arms pivoted to the said frame, the bar connected therewith, and the lever and connecting-link, substantially as described.

593,115. FEED-WATER DEVICE FOR STEAM-GENERATORS. JACQUES A. NORMAND, FRANCOISE E. NORMAND, MARIE E. NORMAND, and PIERRE SIGAUDY, Havre, France. Filed Sept. 12, 1896. Serial No. 605,661. (No model.) Patented in Belgium Aug. 4, 1896, No. 122,862; in England Aug. 5, 1896, No. 17,909; in Austria Aug. 30, 1896, No. 3,247; in Denmark May 22, 1897, No. 1,096, and in Italy Sept. 23, 1897, No. 49.

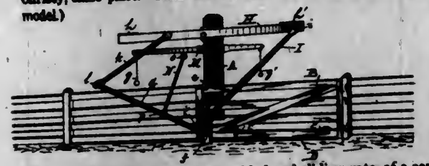


Claim.—1. A feed-water regulator consisting of an exterior float-chamber having a small outlet at the top, a pipe communicating with the lower part of said float-chamber and inclined from the latter to the discharge end which is within the boiler and at, or near, the normal water-level, a valve chamber communicating with the float-chamber and boiler, a valve arranged in said valve-chamber and provided with a small passage to equalize the pressure beneath the valve and in the float-chamber, a feed-water pipe communicating with the boiler through said valve-chamber, a float arranged in the float-chamber and connected to the valve-stem, and a counterbalance for said float, substantially as described.

2. In a feed-water regulator, the combination with a boiler of an exterior float-chamber having a small outlet-cock at top to discharge into a space having a less pressure than that in the chamber, a valve-chamber entering the lower part of the float-chamber, a feed-water pipe communicating with said valve-chamber and with the boiler, a valve in said valve-chamber having a small channel to equalize the pressure beneath the valve and in said float-chamber, a counterbalanced float in said float-chamber connected to the valve-stem, and a pipe communicating with the float-chamber and with the interior of the boiler, its lower end being at or near the normal water-level, substantially as described.

3. In a feed-water regulator, the combination with a boiler of an exterior float-chamber having a small outlet at top, a valve-chamber communicating with the lower part of said chamber, a feed-water pipe communicating with the boiler through the valve-chamber, a pipe communicating with the float-chamber and having its discharge end at or near the normal water-level and within a space inclosed upon all sides except a contracted orifice at the bottom, a valve in the valve-chamber to regulate the area of the feed-water inlet to the boiler, said valve having a small channel for the passage of water, or steam, a float in the float-chamber connected to the stem of said valve, and a counterbalancing-weight for said float having a rod which is packed through the lower wall of the chamber and provided upon its exterior end with means for operating the float and its connected valve manually, substantially as described.

593,116. OPERATING MECHANISM FOR SLIDING GATES. ABRAHAM R. OLIVER, Warren, Ind., assignor of one-half to James R. Christy, same place. Filed Mar. 12, 1897. Serial No. 627,197. (No model.)



Claim.—The combination in a guided and sliding gate of a centrally-pivoted gate-lever, a rod connecting the front end of the gate-lever and the lower rear corner of the gate, the lever G pivoted in front of the gate-post, a rod and pivots connecting the outer end of the aforesaid lever G and the centrally-pivoted gate-lever, an operating-lever centrally pivoted at right angles to the gate-lever, depending handles at each end of the operating-lever, and a rod connecting the said lever and the rearwardly-projecting lever G, substantially as and for the purpose set forth.

593,117. NON-REFILLABLE BOTTLE. ALEXANDER B. PETERSON, New York, N. Y. Filed Aug. 27, 1897. Serial No. 649,712. (No model.)

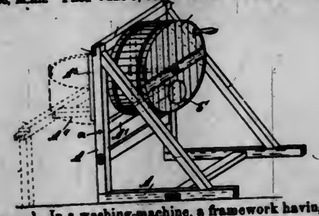


Claim.—1. In a non-refillable bottle, the combination of a perforated disk with an upwardly-extending liquid-discharge tube, and a downwardly-extending air-tube placed side by side, and with a pair of coacting valves that control such tubes, substantially as specified.

2. In a non-refillable bottle, the combination of a perforated disk with an upwardly-extending liquid-discharge tube, and a downwardly-extending air-tube placed side by side, a valve d', having a stem d^2, for closing the liquid-tube, a valve e', for closing the air-tube and connected to the stem d^2, and a perforated cap which incloses the valves, substantially as specified.

3. In a non-refillable bottle, the combination of a perforated disk with an upwardly-extending liquid-discharge tube having a reëntrant angle and exterior guideways, a valve d', having a stem d^2, engaging the same, an air-tube depending from the disk, a valve e', for closing the same and connected to stem d^2, and a perforated cap which incloses the valves, substantially as specified.

593,118. WASHING-MACHINE. FRED R. C. PFEILER, Lester Prairie, Minn. Filed June 3, 1897. Serial No. 638,941. (No model.)

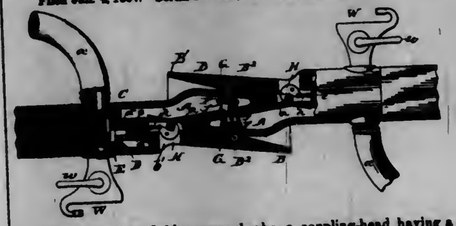


Claim.—1. In a washing-machine, a framework having uprights or posts, a normally vertical section formed of two cross-bars and a central bar connecting said cross-bars, said section having one of said bars pivotally mounted between said posts, whereby it may be swung down to a horizontal position, legs pivotally attached to said section and by which it may be supported in such horizontal position, said legs folding up against said posts or uprights when the said section is vertically placed, a shaft attached to said central bar and run out at right angles thereto, and a clothes-holding washing-chamber mounted to rotate upon said shaft, as and for the purpose set forth.

2. A washing-machine, comprising a cylinder divided into two water-tight sections, one of which forms the washing-chamber and is provided with ribs upon its inner periphery and ribs upon its heads and radiating from the center thereof, a shaft upon which said cylinder is mounted to revolve, said shaft being capable of being swung to both a horizontal and a vertical position, and gearing in the other section, as and for the purpose set forth.

3. A washing-machine, comprising a cylinder divided between its heads into two water-tight sections, one of which forms the washing-chamber, a shaft upon which said cylinder is mounted to revolve, a sleeve surrounding said shaft and provided with flexible beaters, a handle attached to the outer head of said cylinder, and gearing in the other section of said cylinder and by which the sleeve is rotated in an opposite direction from said cylinder when the latter is turned by means of said handle, as and for the purpose set forth.

593,119. AUTOMATIC STEAM AND AIR BRAKE COUPLING. WILLIAM J. PUSH, Muscatine, Iowa, assignor of two-thirds to William H. Wallace, J. H. Vail, C. B. Vail, and Walter L. Johnson, same place. Filed Jan. 4, 1897. Serial No. 617,943. (No model.)



Claim.—1. In a fluid-pressure brake, a coupling-head having a hollow conical male portion A, a laterally-movable plug F thereis, and a valve E at the base of the male portion having a stem projecting into the female portion adapted to be unseated by the entering male portion of an opposed coupling, for the purpose and substantially as described.

2. In an automatic coupling for fluid-pressure brakes the combination of a pair of opposite hollow heads provided with spring-controlled jointing-plugs as F, adapted to be pressed tightly together by and during the interlocking of the heads; and a main valve at rear of the heads having a stem projecting forwardly into the female portion adapted to be unseated by the entering end of an opposite head, for the purpose and substantially as described.

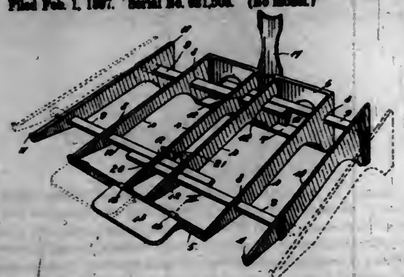
3. The combination of a pair of opposite coupling-heads each having a hollow male portion A having an eye a on its end, and a female portion as B; a valve E in each head having a stem e projecting into portion B and a pivoted lever H connected to rod e by link h; and a jointing-plug as F in each part A, all substantially as and for the purpose described.

4. The herein-described coupler-head for automatic couplings for fluid-pressure brakes, comprising a hollow shank C, a male portion A, and female portion B; with a plug D screwed into the shank hav-

ing a hollow portion *d*; a valve E seated on said plug having a stem *e* extending through part *d* into portion B; the jointing-plug F in part A, its spring *f*, and the coacting device *b'* in part B, all substantially as and for the purpose described.

593,120. BOOK-REST. GEORGE K. PUTNAM, Montpelier, Vt.

Filed Feb. 1, 1897. Serial No. 621,508. (No model.)



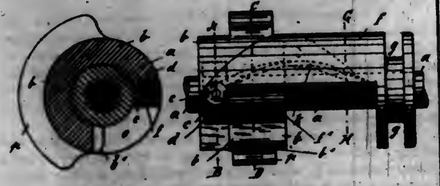
Claim.—1. A book-rest having a stationary frame portion provided with four longitudinal plates joined at their front and rear ends by transverse plates, the forward of the transverse plates having its upper edge extending above the longitudinal plates to form a ledge against which the book may bear, two plates respectively at the side of the stationary frame portion and means for slidably mounting said side plates so that they may move toward and from the stationary frame portion, the front end of each side plate having an upwardly-extending lug matching with the forward transverse plate, substantially as described.

2. A book-rest having a stationary frame portion provided with longitudinally-extending plates joined by transverse plates at their front and rear ends, two pairs of parallel bars sliding transversely in the longitudinal frame-plates, the bars passing through individual openings in the outer of the longitudinal plates, and the pairs of bars respectively passing through joint openings in the inner of the longitudinal bars, a plate carried by each bar to limit the outward movement thereof, and a side plate secured to one bar of each pair and slidable with the bars toward and from the stationary frame portion, substantially as described.

3. The combination with a support, of two plates arranged with adjacent edges and the plates being in the same plane with each other, each plate having a groove formed in the edge adjacent to the companion plate, and each plate carrying a rigid projection, the projection of each plate being slidable within the groove of the companion plate and the projections being capable of engagement with each other to prevent the separation of the plates.

4. A book-rest having a frame with longitudinal plates joined to each other at their front and rear ends by transverse plates, the forward of the transverse plates having its upper edge located above the longitudinal plate to form a ledge for supporting the book, two plates slidable transversely in the longitudinal plates of the frame, and a side plate carried at the outer end of each of the sliding plates, the forward ends of the side plates being upturned to coact with the upper edge of the front transverse plate.

593,121. ADJUSTABLE CAM. IGNATZ GUHR, Cologne, Germany. Filed Dec. 1, 1896. Serial No. 613,514. (No model.) Patented in Germany July 21, 1893, No. 73,754; in France Aug. 26, 1893, No. 232,461; in England Aug. 26, 1893, No. 16,290; in Belgium Sept. 2, 1893, No. 103,210; in Switzerland Mar. 7, 1894, No. 8,069; in Austria June 21, 1894, No. 44/4,348, and in Hungary June 21, 1894, No. 53,372/93.



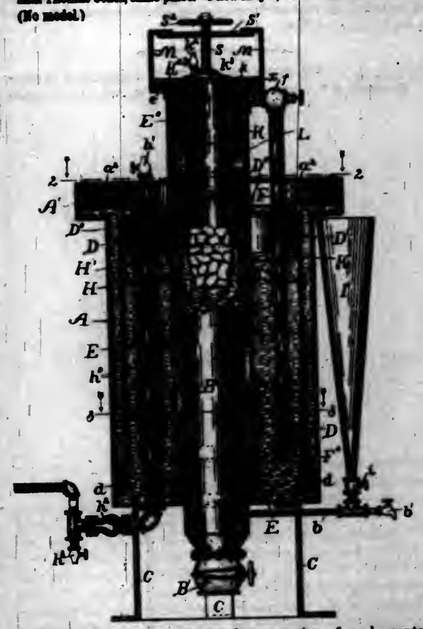
Claim.—1. An adjustable cam consisting of a sleeve fast on the driving-shaft, a cam-surface *b'* to said sleeve as specified, the sleeve being depressed to form said cam-surface, the opposite edge of said depression being formed to a spirally-wound sliding surface, and a second sleeve to slide loosely on the driving-shaft and adapted to overgrip the depressed part of the first sleeve, a cam-surface *f'* to said second sleeve parallel to the driving-shaft and opposite to the said cam-surface *b'*, said cam-surface forming the edge on the overgripping part of the second sleeve, the opposite edge of said latter part being curved and means for adjusting the curved surfaces of said sleeves with regard to each other substantially as described.

2. An adjustable cam consisting of a part *b* having cam edge *b'* parallel to the axis of the shaft, said part being fast on said shaft, and being cut away to form said cam edge and an opposing spirally-wound sliding surface *h*, and a slide *f* revolubly mounted and longitudinally movable on the said shaft between the cam edge *b'* and the sliding surface *h* said slide *f* having a cam-surface *f'* opposite to the cam-surface *b'* and means for guiding said slide on said cam part and for adjusting its position on the same longitudinally.

3. In a cam, the combination of a part *b* having a cam edge *b'* and a spirally-wound edge *h* opposite thereto, said part being depressed between the two edges, a slide *f* arranged in said depression and having cam edge *f'*, there being a groove *k* in part *b* and a projection on said slide to engage said groove, said parts affording means for adjusting the cam edges *b' f'* with regard to each other, the said part *b* being fast on the shaft and the part *f* being loose on the same, in the manner and for the purpose substantially as described.

4. In a cam the combination of the part *b* having cam edge *b'* and spirally-wound guide edge *h*, said part being fast on the shaft and being depressed between the cam and guide edges, and a slide *f* mounted on the shaft to slide between the said edges of the part *b*, said slide having a guide edge to fit the guide edge *h* and being guided along said edge by means of a groove and projection in the manner and for the purpose substantially as described.

593,122. ACETYLENE-GAS GENERATOR. JOHN M. RAYMOND and LOUIS E. LESLEY, New Orleans, La., assignors of one-third to William Thomas Costa, same place. Filed May 6, 1897. Serial No. 636,414. (No model.)



Claim.—1. In an apparatus for the generation of gas by contact of a liquid with a solid material, the combination with an outer tank; a gas-holder within said outer tank; a liquid-reservoir in the center of said outer tank, and a leading-in pipe for supplying liquid to said reservoir; a cylinder entering the top of said outer tank concentric with said reservoir, and inclosing the latter; a perforated receptacle for the gas-generating material mounted in said cylinder and extending downward into said reservoir; a pipe leading from the upper portion of said cylinder into the lower portion of the gas-holder; a supply-pipe leading from said gas-holder; and a removable cover for said cylinder and receptacle, substantially as described.

2. In an apparatus for generating gas by contact of a liquid with a solid material, the combination with an outer tank; a gas-holder within said outer tank; a liquid-reservoir entering the bottom of said tank, and provided with a pipe leading thereto; a generator-cylinder entering the top of said tank concentric with said reservoir, and inclosing the latter; a receptacle for the gas-producing material mounted in said generator-cylinder and extending into said reservoir; a gas-chamber in the upper portion of said generator-cylinder; a removable cover therefor; a pipe leading from said chamber to the gas-holder; and a supply-pipe leading from said gas-holder, substantially as described.

3. In an apparatus for generating gas by contact of a liquid with a solid material, the combination with an outer tank; a gas-holder within said outer tank; a liquid-reservoir entering the bottom of said tank, and provided with a supply-pipe for liquid; a generator-cylinder entering the top of said tank concentric with said reservoir and inclosing the latter; a perforated receptacle for the gas-producing material mounted in said generator-cylinder and extending into said reservoir; a gas-chamber in the upper portion of said generator-cylinder; a removable cover therefor; a pipe leading from said gas-chamber to the gas-holder; a supply-pipe leading from said gas-holder; and a perforated casing inclosing the end of said supply-pipe and packed with filter material around said pipe, substantially as described.

4. In an apparatus for the generation of gas by contact of a liquid with a solid material, the combination with an outer water-tight tank having an enlarged upper portion forming an overflowing for the water from the gas-holder; a cover for said tank partially fitted with wire-gauze; a liquid-reservoir entering the bottom of said tank, and provided with a pipe leading thereto; a generator-cylinder entering the top of said tank and inclosing said reservoir; a receptacle for the gas-producing material mounted in said generator-cylinder and extending into said reservoir; a filter in said generator-cylinder; a gas-chamber above said filter; a removable cover for said generator-cylinder; a pipe leading from said gas-chamber therein to the bottom of the gas-holder; a supply-pipe leading from said gas-holder; and a perforated casing inclosing the end of said supply-pipe and packed with filter material around said pipe, substantially as described.

5. In an apparatus for generating gas by contact of a liquid with a solid material, the combination with an outer tank; a gas-holder within said outer tank; a liquid-reservoir entering the bottom of said tank, and provided with a valve for discharging sediment therefrom; a liquid-pipe entering said reservoir; a generator-cylinder entering the top of said tank and inclosing said reservoir; a receptacle for the gas-producing material mounted in said generator-cylinder and extending into said reservoir; a gas-chamber in the upper portion of said generator-cylinder; a removable cover therefor; an exhaust-cock in said cover; a pipe leading from said gas-chamber to the gas-holder; a supply-pipe leading from said gas-holder; a perforated casing inclosing the end of said supply-pipe and extending through the top of said tank; filter material interposed between said supply-pipe and said perforated casing; and an exhaust-cock at the top of said perforated casing, substantially as described.

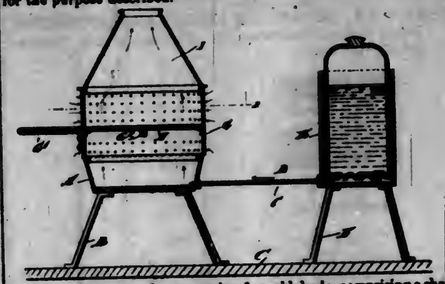
6. In an apparatus for generating gas by contact of a liquid with a solid material, the combination with an outer water-tight tank; a gas-holder within said outer tank; a liquid-reservoir entering the bottom of said outer tank; a valve for discharging sediment therefrom; a generator inclosing the upper end of said reservoir; a receptacle for the gas-producing material mounted in said generator-cylinder and projecting into said reservoir; a gas-chamber in the upper portion of said generator-cylinder; a pipe leading from said chamber into the lower portion of the gas-holder; a hollow perforated ring connected to said pipe; a supply-pipe leading from the upper portion of said gas-holder; and a filter surrounding the inner end of said supply-pipe, substantially as described.

7. In an apparatus for generating gas by contact of a liquid with a solid material, the combination with an outer tank; a gas-holder within said outer tank; a liquid-reservoir in said outer tank; a draining-valve therein; an exterior liquid-reservoir; a pipe connecting the two said reservoirs; a valve in said pipe; a generator-cylinder entering the top of said tank and inclosing said liquid-reservoir therein; a receptacle for the gas-producing material mounted in said generator-cylinder and extending into said liquid-reservoir; a filter in said generator-cylinder, and a gas-chamber above said filter; a pipe leading from said gas-chamber to the lower portion of the gas-holder; and a supply-pipe leading from the upper portion of said gas-holder, and having a flap-valve therein, substantially as described.

593,123. FORMALDEHYDE-GENERATOR. FRANKLIN C. ROBINSON, Brunswick, Me. Filed Nov. 3, 1896. Serial No. 610,910. (No model.)

Claim.—1. An apparatus for generating formaldehyde, comprising a shallow pan, an automatic feed device for supplying and maintaining a thin film of wood-spirit in the pan, an oxidizing-chamber

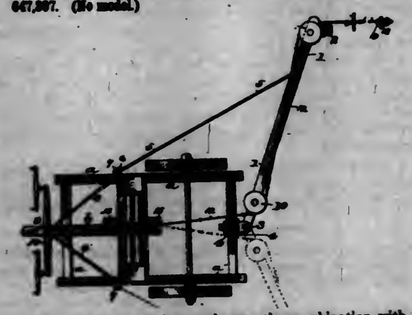
arranged above the pan, and a pervious catalytic diaphragm arranged in the oxidizing-chamber directly above the pan, substantially as and for the purpose described.



2. An apparatus for generating formaldehyde, comprising a shallow pan, an automatic feed device for supplying and maintaining a thin film of wood-spirit in the pan, a perforated detachable shell forming an oxidizing-chamber arranged above the pan, a pervious catalytic diaphragm arranged in the oxidizing-chamber directly above the pan with a free open space between it and the pan, substantially as and for the purpose described.

3. An apparatus for generating formaldehyde, comprising a shallow pan, an automatic feed device for supplying and maintaining a thin film of wood-spirit in the pan, a perforated detachable shell forming an oxidizing-chamber arranged above the pan, a pervious catalytic diaphragm arranged in the oxidizing-chamber immediately above the pan, and a detachable conical top piece for the oxidizing-chamber, substantially as and for the purpose described.

593,124. CHECK-ROW PLANTER. EDWARD S. ROSENBERY and WILLIAM H. FICKEN, Hurdland, Mo. Filed Aug. 7, 1897. Serial No. 647,207. (No model.)



Claim.—1. In a check-row planter, the combination with the suspended wire-carrying pulleys, arranged beneath it, of the guide bar or arm which is swiveled to the rear end of the planter-frame, a caster-wheel supporting the free end of said bar, pulleys arranged on its upper side, and the shiftable brace and tension rod, all arranged as shown and described to operate as specified.

2. In a check-row planter, the combination of the wire and devices for anchoring it and securing it close to the ground, the planter having wire-carrying pulleys beneath it, the swiveled guide-bar attached to the rear of the frame, the caster-wheel supporting the free end of said bar, wire-guide pulleys on the upper side of the latter, and the brace and tension rod, made detachable at its forward end, all as shown and described.

3. In a check-row planter, the combination with the planter-frame, tongue and doubletree, tension-wires attached to the latter and extending diagonally rearward and having loops at their rear ends, the shiftable guide-bar swiveled to said frame, and provided with a supporting-wheel and wire-carrying pulleys, and the brace and tension rod pivoted to said bar and adapted for detachable connection with the said tension-wires, as shown and described.

4. In a check-row planter, the combination with the planter proper, of the wire-guide bar, swiveled to the rear end of the former, and having a supporting caster-wheel attached to its rear end, on the under side of the same, as shown and described.

5. In a check-row planter, the frame having two pendent wire-guide pulleys supported beneath the same, a bracket pendent from the rear end of said frame, the rear guide-bar which is swiveled to to such bracket and thus attached at a point below the frame proper, and pulleys arranged on said bar, for receiving and guiding the wire

as it passes rearward and beneath the frame, from the first-mentioned pulleys, as shown and described.

593,125. MILEAGE-BOOK AND COUPON-TICKET PROTECTOR.

ADOLPH ROSENDALE, Tallahassee, Fla. Filed June 20, 1896. Serial No. 596,226. (No model.)



Claim.—1. The combination with the identification-card of a railway, or other passage, ticket; of a thin flat hollow metallic jacket adapted to be slipped over said identification-card, and to conceal and protect the same; and a seal for preventing the removal of said jacket without breaking said seal, substantially as described.

2. The combination with the back or cover A' of a railway mileage or coupon ticket, of the thin hollow metallic jacket B open at one end and having perforations b^3 therethrough; the cord or wire C passing through said perforations and through said back or cover A', and the seal D uniting the ends of said cord or wire, substantially as described.

3. A ticket comprising an identification portion, and a permanently-formed pocket or cover in which said identification portion may be sealed; and fastening devices by which to effect such sealing.

593,126. AUTOHARP.

THEODORE H. ROTH and JOHN J. JOYCE, Dolgeville, N. Y., assignors to the C. F. Zimmermann Company, same place. Filed Apr. 15, 1897. Serial No. 632,280. (No model.)



Claim.—1. A stringed musical instrument provided with a link-support and with a bar or manual (one or more), and a link jointed to the support and to the manual, said link when the manual is at rest being made to extend or incline upward from the support-joint to the manual-joint substantially as described.

2. A stringed musical instrument provided with a link-support and with a bar or manual (one or more), and a link jointed to said support and to the top of the bar or manual, said link when the manual is at rest or out of action being made to incline from the supporting-joint upward to the bar-joint substantially as described.

3. A stringed musical instrument provided with a link-support and with a bar or manual (one or more), and a link jointed to said support and to the top of the bar, said bar or manual being provided with a joint-supporting block or elevation to incline the link from the support-joint upwardly to the manual-joint when the manual is at rest substantially as described.

4. A stringed musical instrument provided with an action or shifting support and with a bar or manual (one or more), and a link jointed to the action and to the manual, said link when the manual is at rest being made to extend or incline upward from the action to the manual substantially as described.

593,127. KETTLE.

BELLE C. SABIN, Harvey, Ill. Filed Nov. 5, 1896. Serial No. 611,140. (No model.)



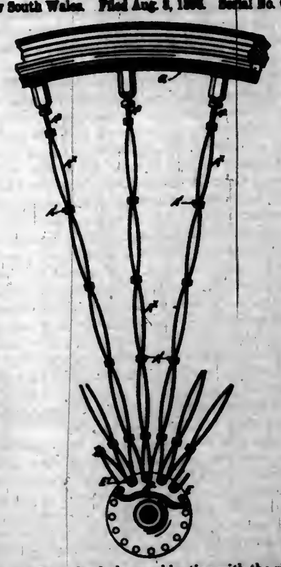
Claim.—1. In a culinary vessel having a side spout opening on a level with the top of the vessel, the combination with said vessel and spout a rotatable lid having a projecting lip to cover said spout and a hinged section, and bail-ears attached to the vessel and having inward projections to lock either the main body of the lid, or its hinged section, substantially as and for the purpose set forth.

2. In a culinary vessel having an opening in the side, and having communication with the vessel through said opening and one of the fastening-rivets projecting inward below said opening in combination with inner flanges at the side of said opening and a strainer-plate held by said flanges and wedging over said inner projecting rivet substantially as set forth.

3. In a culinary vessel having an opening in the side near the bottom, said opening covered by a spout, made separate from the body of the vessel, extending from the bottom to the top of said vessel and secured through flanges by rivets to the body of the vessel, and having communication with the vessel through said opening and one of the fastening-rivets projecting inward below said opening, and a strainer-plate held by said flanges and wedging over said inner projecting rivet, substantially as set forth.

593,128. WHEEL FOR VEHICLES.

FREDERICK W. SCHROEDER, Newtown, New South Wales, assignor, by direct and mesne assignments, to Schroeder's Spectacle Spoke Wheel Company, Limited, Sydney, New South Wales. Filed Aug. 8, 1896. Serial No. 602,184. (No model.)



Claim.—1. In a wheel, the combination with the rim and the hub consisting of a disk having a grooved or slotted periphery and pins passing through the said slotted periphery, of a series of spokes attached at their outer ends to said rim, each spoke consisting of a single piece of doubled metal bent to form a series of loops or eyes, and straps or clips embracing the two parts of the spokes between said loops or eyes, the inner end loop of each spoke being in engagement with one of the said pins, substantially as described.

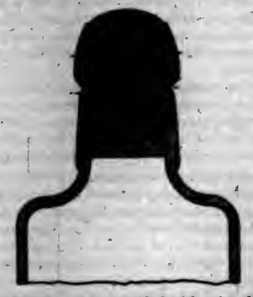
2. In a wheel, the combination with the rim and hub, of a series of spokes attached at their opposite ends to said rim and hub, each spoke consisting of a single piece of metal semicircular in cross-section and bent or doubled to form a series of loops or eyes with the flat faces adjacent to each other, and straps or clips embracing the two parts of the spokes between said loops or eyes, substantially as described.

3. In a wheel, the combination with the rim and the spokes attached to said rim at their outer ends and provided at their inner ends with loops or eyes, of the hub consisting of a disk having a grooved or slotted periphery provided with orifices between which the loops or eyes on the inner ends of the spokes are arranged, and pins having reduced central portions, said pins passing through said orifices and the loops or eyes, substantially as described.

4. In a wheel, the combination with the hub and the bifurcated spokes attached thereto at their inner ends, the rim, the hollow thimbles rotatively mounted in said arm, the exteriorly-threaded nipples screwed into said thimbles and in which the ends of the spokes are disposed and wedges arranged between the ends of the spokes and operating to jam the spokes in the nipples, substantially as described.

593,129. NON-REFILLABLE BOTTLE.

ISAAC SHULTIS, Martin, Mich. Filed Feb. 27, 1897. Serial No. 625,378. (No model.)

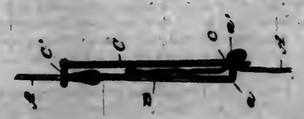


Claim.—1. A bottle or jar provided with a breaking-groove in the neck thereof, a stopper below said groove and a removable partition above it, said removable partition provided with a plurality of interior concentric grooves and intermediate ribs or projections, and a non-frangible stopper having a smooth sealing-surface near its upper end, a tapering lower end provided with a series of concentric grooves and intermediate ribs which gradually decrease in size toward the lower end of the stopper, and a plastic compound between the two stoppers and filling the grooves in the upper stopper and removable portion, substantially as described.

2. A bottle or jar having a breaking-groove in the neck thereof, a stopper below it and an internally-grooved portion above it, in combination with a stopper having a tapering lower end provided with a series of grooves of gradually-decreasing size, and intermediate ribs, and an upwardly-curved spring passing through an aperture in the lower end of said stopper to engage at its opposite ends one of the grooves in the neck of the bottle or jar, substantially as described.

593,130. HOSE-SUPPORTER.

AMELIA S. SMITH, Central Falls, R. I. Filed May 14, 1897. Serial No. 636,503. (No model.)

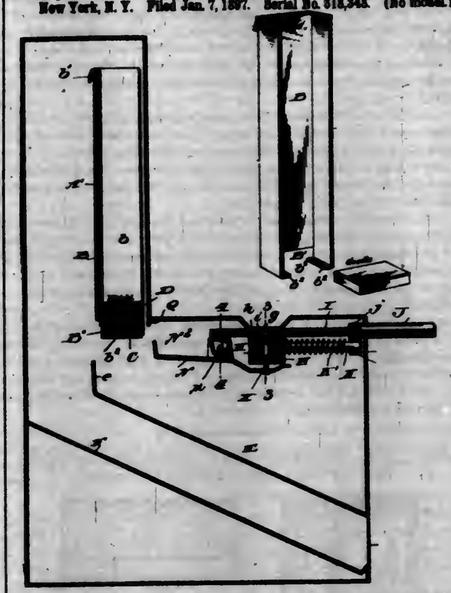


Claim.—1. As an improved article of manufacture, the hose-supporting fasteners, consisting of the plate C having at its upper end a right-angled portion integral therewith and transversely slotted, the lower end of the said plate transversely slotted in a plane at right angles to the upper slot, combined with the clasp or plate B having a strap fastened to its upper end, which strap passes through the slot at the upper end of the plate C, the lower free end of the said plate B having an angled shoulder, and designed to engage in the slot at the lower end of the plate C to support a hose therein, substantially as shown and described.

2. As an improved article of manufacture a hose-fastening, comprising in combination the plate or clasp C with a hinged portion at its upper end which is transversely slotted and designed to receive a supporting-strap, the clasp B, to the upper end of which the strap is fastened, the lower free end of the clasp B being bent at right angles in two directions, forming a shoulder and designed to engage in a slot at the lower end of the clasp C and to hold a hose therein, substantially as shown and described.

593,131. COIN-CONTROLLED APPARATUS.

CHARLES SPIES, New York, N. Y. Filed Jan. 7, 1897. Serial No. 618,343. (No model.)



Claim.—1. The combination with the case and the coin-guide therein, of a delivery-slide having a slot normally coincident with that of the guide and with the coin-slot of the case, and a delivery-lever pivotally mounted on the inner end of said slide to project beneath the coin-guide and support a coin in said guide and adapted to travel from beneath the coin to release the same; substantially as described.

2. The combination with the case and the coin-guide therein, of a delivery-slide having a slot normally coincident with that of the guide and with the coin-slot of the case, and a depending delivery-lever pivotally mounted on the inner end of said slide, and having a turned-up inner end and having its outer end projected beneath the coin-guide to support a coin in said guide and adapted to travel from beneath the coin to release the same; substantially as described.

3. The combination with the case and the coin-guide therein, of a delivery-slide having a slot normally coincident with that of the guide and with the coin-slot of the case, and a delivery-lever pivotally mounted on the inner end of said slide projecting across the coin-guide, and having in front of its pivot a transverse coin-slot and a cam portion; substantially as described.

4. In a vending-machine, the combination with the case and the coin-guide, of a delivery-slide, a plunger connected therewith, a depending delivery-lever pivotally supported from the slide and projecting beneath the coin-guide to support a coin in said guide and adapted to travel from beneath the coin to release the same, and a spring between the guide and plunger for returning the latter to its normal position; substantially as described.

5. In a vending-machine, the combination with the case and the coin-guide, of a delivery-slide, a plunger connected therewith, a depending delivery-lever pivotally supported from the slide and projecting beneath the coin-guide to support a coin in said guide and adapted to travel from beneath the coin to release the same, a spring between the guide and plunger for returning the latter to its normal position, and a guide-pin connected with the coin-guide and around which said spring is arranged; substantially as described.

6. In a vending-machine of the character described, a delivery-lever having a coin-slot of less diameter than the coin adapted for use with the machine and formed in a depression having inclined walls; substantially as described.

7. In a vending-machine of the character described, a delivery-lever having a coin-slot formed in a depression having inclined walls, and a cam portion adjacent to said slot; substantially as described.

8. In a vending-machine, the combination with the delivery-slide having depending ears and lateral stops, of a delivery-lever having ears with their upper ends notched to receive and be engaged by said stops; substantially as described.

9. In a vending-machine of the character described, a coin-guide extending transversely of the cash-box and comprising two parallel strips arranged with a space between them to receive the coin and

joined by transverse pins serving to prevent lateral displacement of the coin in said slot; substantially as described.

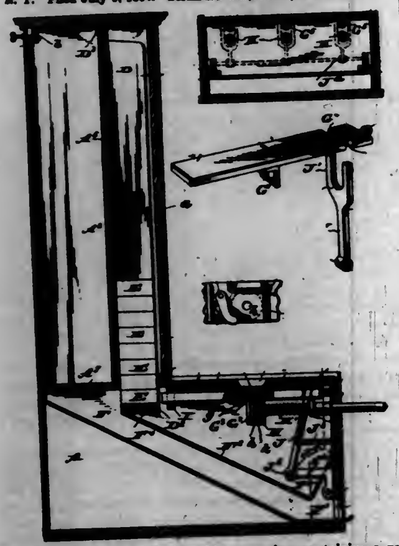
10. The combination with the case having goods-box compartments and depending stops in front thereof, of a reciprocatory delivery-slide, and a pivoted delivery-lever mounted thereon and adapted to be drawn into engagement with said stop by the introduction of a coin of greater than the prescribed diameter; substantially as described.

11. The combination with the case and the coin-guide, of the reciprocatory delivery-slide, the plunger connected therewith, and a depending delivery-lever pivotally supported from the slide and projected beneath the coin-guide and adapted to travel beneath the coin to prevent dropping of the coin until after the goods have been delivered; substantially as described.

12. The combination with the case and the coin-guide therein, of the delivery-slide mounted to reciprocate between the coin-guide and the upper wall of the case, and a delivery-lever pivotally supported from the inner end of the slide, and having a transverse coin-slot, and a cam portion in proximity thereto; substantially as described.

13. The combination with the case and the coin-guide therein, of the delivery-slide mounted to reciprocate between the coin-guide and the upper wall of the case, and a delivery-lever pivotally supported from the inner end of the slide, and having a transverse coin-slot, and a cam portion in proximity thereto, the walls of said slot being beveled; substantially as described.

598,182. VENDING-MACHINE. CHARLES SPIES, New York, N. Y. Filed July 9, 1897. Serial No. 643,906. (No model.)



Claim.—1. In a vending-machine, a casing containing a goods-receptacle, and a pivoted casing having supported upon its inner surface coin-controlled operating mechanism adapted to operate in connection with said goods-receptacle, substantially as specified.

2. In a vending-machine, a main casing, a casing pivoted thereto and carrying operating mechanism, and a slidable front section of said main casing adapted to engage with and retain said pivoted casing in operative position, substantially as specified.

3. In a vending-machine, a casing containing a goods-receptacle, a delivery-chute extending from said goods-receptacle to an opening in the casing, and a pivoted casing carrying upon its inner face operative mechanism adapted to be moved into operative relation with said goods-receptacle, substantially as specified.

4. In a vending-machine, an inclosing casing provided with a goods-receptacle, a casing carrying operating mechanism and pivoted at the front of said inclosing casing, a projection on said pivoted casing, and a slidable front section adapted to engage with said projection and hold said pivoted casing in position, substantially as specified.

5. In a vending-machine, an inclosing casing provided with a goods-receptacle compartment and a reserve compartment at the rear thereof, a chute extending from the rear of said goods-receptacle compartment to an opening in the casing, a top or cover carrying a slidable front section, a pivoted casing having a projection thereon adapted to be engaged by said slidable front section, substantially as specified.

6. In a vending-machine, the combination with the delivery-slide, of a slidable pusher to move said slide during its initial movement, and a lever pivoted to a fixed part and connected with said slide so as to extend into the path of the pusher in its movement and be engaged thereby to accelerate the movement of the slide, substantially as specified.

7. In a vending-machine, the combination with the delivery-slide, of a slidable pusher, and a lever pivoted to a fixed part and actuated by said slide to move therewith during its initial movement and to be moved at a different speed by engagement with said pusher during the inward movement thereof, substantially as specified.

8. In a vending-machine, the combination with the delivery-slide, of a slidable pusher, a lug depending from said slide, a lever pivoted below said slide and engaging the same, and a projection carried by said pusher to engage said lever during a portion of the movement of the pusher, substantially as specified.

9. In a vending-machine, the combination with a supporting-casing, of a delivery-slide carried thereby, a depending coin-holder carried by said casing, a lug depending from said slide, a pivoted lever engaging said slide, a slidable pusher constructed and arranged to actuate said slide through said lug in its initial movement and to engage with and move said lever during its continued movement, substantially as specified.

10. In a vending-machine, the combination with a delivery-slide, of a slidable pusher for actuating the same, and a lever pivoted to a fixed part and engaging said slide and normally out of contact with said pusher so as to be moved by said slide into engagement with said pusher in the movement thereof, substantially as specified.

11. In a vending-machine, the combination with a delivery-slide, of a slidable pusher for actuating the same, a lever pivoted to a fixed part and engaging said slide and normally out of contact with said pusher so as to be moved by said slide into engagement with said pusher in the movement thereof, and means for retracting said lever to a position out of engagement with said pusher, substantially as specified.

12. In a vending-machine, the combination with a delivery-slide, of a slidable pusher for actuating the same, a lever pivoted to a fixed part and engaging said slide and normally out of contact with said pusher so as to be moved by said slide into engagement with said pusher in the movement thereof, means for retracting said lever to a position out of engagement with said pusher, and means carried by said slide to limit the outward movement of the slide and lever, substantially as specified.

13. In a vending-machine, the combination with the casing provided with a depending coin-holder having an aperture therethrough, of a slidable pusher operating in said aperture, a delivery-slide supported by said casing and having a depending lug opposite said coin-holder, a pivoted lever having its upper end in engagement with said slide, and a projection carried by said pusher to engage said lever after its initial movement by the slide, substantially as specified.

14. In a vending-machine, the combination with a slidable pusher, of a coin-holder provided with an aperture therethrough and having a rigid wall, a spring-pressed finger to constitute a yielding wall, and a stop to limit the movement of the finger, substantially as specified.

15. In a vending-machine, the combination with a casing, of a delivery-slide, a depending lug from said slide having a circular aperture of greater diameter than the coin and provided with a series of projections extending inward to describe a circle of less diameter than the aperture, a depending coin-holder from said casing, and a pivoted actuated lever connected to said slide and adapted to be engaged by said pusher, substantially as specified.

16. In a vending-machine, a delivery-slide having a coin-aperture therein, a depending lug thereon, and means provided at the outer end of said slide to engage an operating-lever, substantially as specified.

17. In a vending-machine, a delivery-slide having therein a coin-slot, and oppositely-located recesses at its outer end, a bifurcated lever operating in said recesses, a slidable pusher provided with a flange to engage said lever, and an adjusting-screw located upon the outer end of the slide to limit its outward movement, substantially as specified.

18. In a vending-machine, the combination with the casing, of a delivery-slide, a slidable pusher provided with a projection thereon, a depending lug from said slide, a depending coin-holder from said casing, and an actuating-lever pivotally supported by the casing whereby the slide is first moved by the pressure of the coin against said lug and later moved at an increased speed by the contact of said projection with said lever, substantially as specified.

19. In a vending-machine, the combination with the casing, of a delivery-slide, a slidable pusher provided with a projection thereon, a depending lug from said slide, a depending coin-holder from the casing, brackets extending inward from said casing, and an actuating-lever pivotally mounted in said brackets and engaging said slide, substantially as specified.

20. In a vending-machine, the combination with the casing, of a delivery-slide, a slidable pusher provided with a projection thereon, a depending lug from said slide, a depending coin-holder from said casing, and a pivoted actuating-lever having a bifurcated upper end to embrace a portion of said slide, substantially as specified.

21. In a vending-machine, the combination with the casing, of a delivery-slide, a slidable pusher provided with a collar thereon, a depending lug from said slide, a depending coin-holder from said casing, an actuating-lever pivotally supported by said casing and having a bifurcated upper end to embrace a portion of said slide, and a spring from said lever to said casing, substantially as specified.

22. In a vending-machine, the combination with the casing, of a delivery-slide, a pivoted actuating-lever supported by said casing, a slidable pusher provided with a collar thereon to limit its outward movement, and a projection upon said pusher intermediate of its ends adapted to engage said lever during a portion of the movement of the pusher, substantially as specified.

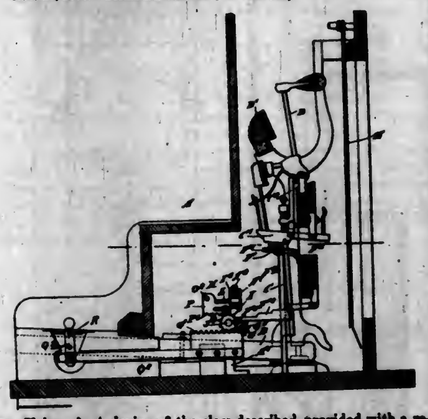
23. In a vending-machine, the combination with the casing, of a delivery-slide, a pivoted actuating-lever supported by said casing, a slidable pusher provided with a collar thereon to limit its outward movement, a projection upon said pusher intermediate of its ends adapted to temporarily engage said lever, and retracting means for said pusher, substantially as specified.

24. In a vending machine, the combination with a pivoted actuating-lever, of a slidable pusher having thereon a collar to limit its outward movement, and a projecting flange upon said collar adapted to engage said lever during a portion of its inward movement, substantially as specified.

25. In a vending-machine, the combination with the casing, of a delivery-chute extending from a goods-receptacle to a discharge-opening in the casing, the upper front wall of which is provided with slots and a pivoted casing provided with brackets lying within said slots, substantially as specified.

26. In a vending-machine, the combination with the casing, of a delivery-chute extending from a goods-receptacle to a discharge-opening in the casing, the upper wall of which chute constitutes a cash-box, and a pivoted casing carrying operating mechanism adapted to lie over and form the front and top walls to close said cash-box, substantially as specified.

598,183. TOUCH AND TECHNIC STOP FOR PIANOS. ALFRED B. STOREZ, Brooklyn, and WILLIAM L. GEBLER, Hempstead, N. Y. Filed Nov. 16, 1896. Serial No. 612,205. (No model.)



Claim.—1. A device of the class described, provided with a resistance comprising rods fitted to slide, and adapted to rest on the keys, and springs pressing on the said rods, substantially as shown and described.

2. A device of the class described, provided with a resistance comprising rods fitted to slide, and adapted to rest on the keys, springs pressing on the said rods, and means, substantially as described, for increasing or decreasing the tension of the said springs, as set forth.

3. A device of the class described, provided with a resistance comprising rods fitted to slide and adapted to rest on the keys, springs pressing on the said rods, and means, substantially as described, for limiting the swinging motion of the said springs, as set forth.

4. A device of the class described, provided with a resistance comprising rods fitted to slide and adapted to rest on the keys, and springs pressing on the said rods, each of the said springs being provided at its free end with a block or weight adapted to swing between two plates, one of which is adjustable, substantially as shown and described.

5. A device of the class described, provided with a resistance, comprising a frame mounted to swing, and under the control of the operator, rods fitted to slide in the said frame and adapted to rest on the keys, and springs held on the said frame and engaging the said rods, each of the springs being provided with a block or weight at its free end, substantially as shown and described.

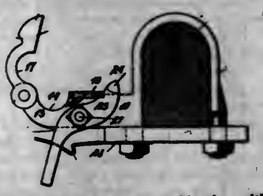
6. A device of the class described, provided with a resistance, comprising a frame mounted to swing, and under the control of the operator, rods fitted to slide in the said frame and adapted to rest on the keys, springs held on the said frame and engaging the said rods, each of the springs being provided with a block or weight at its free end, and a bar adjustably held over the said springs for regulating the tension of the springs, substantially as shown and described.

7. A device of the class described, provided with a resistance, comprising a frame mounted to swing, and under the control of the operator, rods fitted to slide in the said frame and adapted to rest on the keys, springs held on the said frame and engaging the said rods, each of the springs being provided with a block or weight at its free end, a bar adjustably held over said springs for regulating the tension of the springs, and means, substantially as described, for adjusting said bar over the said springs, as set forth.

8. A device of the class described, provided with a resistance comprising a frame, rods fitted to slide in the said frame, springs pressing on the said rods, a bar adjustably held over the said springs, means for shifting the said bar, and a device for indicating the position of the bar relatively to the springs, as set forth.

9 A device of the class described, provided with a rock-shaft under the control of the operator and carrying arms, posts fitted to slide vertically and provided with feet engaging the said arms, hinged arms connected with the said posts, and a rail carried by the said hinged arms and adapted to engage jack-levers, substantially as shown and described.

598,184. THILL-COUPLING. FRANK V. STEVENS, Sr., Brooklyn, N. Y. Filed June 11, 1897. Serial No. 640,373. (No model.)



Claim.—1. In a thill coupling, the combination, with a fixed member and a hinged member, and a cushion upon which the free end of the hinged member is adapted to rest, the free end of the said hinged member having its upper surface inclined from its free end in direction of its hinged end and provided with a recess at the higher portion of said inclined surface, of a loop-clasp pivoted on the fixed member and provided with an upper cross-bar and a lower handle-bar, the upper cross-bar being arranged to travel over the inclined surface of the hinged member of the coupling and enter the recess therein.

2. In a thill-coupling, the combination, with a fixed member and a hinged member, the hinged member being provided with a flat under surface at its free end, an inclined upper surface and a recess at one end of the inclined surface, and an elastic cushion carried by the fixed member, adapted for engagement with the flat portion of the hinged member, of a loop-clasp through which the fixed member passes, the loop-clasp being pivoted to the fixed member, having a handle-section extending below the fixed member and a bar-section extending over the fixed member, the bar-section being adapted to travel up the inclined surface of the hinged member and enter the recess therein.

3. In a thill-coupling, the combination, with a fixed member and a hinged member, the hinged member being provided with a flat under surface at its free end, an inclined upper surface and a recess at one end of the inclined surface, and an elastic cushion carried by the fixed member, adapted for engagement with the flat portion of the hinged member, of a loop-clasp through which the fixed member passes, the loop-clasp being pivoted to the fixed member, having a handle-section extending below the fixed member and a bar-section extending over the fixed member, the bar-section being adapted to travel up the inclined surface of the hinged member and enter the recess therein, said loop-clasp being shaped substantially as the letter S, and a latch for said clasp, all arranged for operation substantially as described.

598,185. HAND FIRE-EXTINGUISHER. SAMUEL M. STEVENS, Manchester, N. H. Filed Apr. 17, 1896. Renewed Aug. 23, 1897. Serial No. 649,871. (No model.)



Claim.—1. A hand fire-extinguisher tube, having a tapered nozzle terminating in rigid projections at the discharge-opening to spray the liquid, in combination with a sealing-cap detachably arranged on the exterior of the nozzle extending above and over and out of contact with said projections and sealed to the exterior of the nozzle, substantially as described.

2. A hand fire-extinguisher having a detachable sealing-cap closing its discharge, a tube-supporting hanger connected therewith, and tube-sustaining means extending from the tube to the hanger in the line of strain and formed to detach itself from the hanger under sufficient force exerted longitudinally at the tube, substantially as described.

3. A hand fire-extinguisher having a discharge-nozzle, a weight-sustaining rod from the tube hooked at its upper end beside the nozzle, a hanger for the tube passing beneath said hooked end, and to one side thereof, provided with a detachable nozzle-sealing device.

4. A hand fire-extinguisher formed of an elongated tube at one end having a tapered nozzle terminating in a discharge-opening, in combination with an exterior sealing-cap in the form of an inverted cup, open only at the lower end, and of a size to completely envelop the end of the nozzle with its lower annular edge engaging the exterior of the nozzle at a distance below said opening, and sealed thereto only at or about said edge annularly around the nozzle by fragile sealing means to form a tight joint and prevent the escape of liquid from or air into the cap, and a hanger so connected with the cap as to cause a complete separation of the tube from the cap under sufficient downstrain, substantially as described.

5. A hand fire-extinguisher formed of an elongated tube having a reduced nozzle at one end terminating in a discharge-opening, in combination with an exterior closed cap inclosing the end of the nozzle and formed of thin metal, a metal ring around which the lower edge of said cap is turned and at which the cap is sealed to the exterior of the nozzle at a distance below the discharge-opening by fragile sealing means to form a tight joint, and a support connected with said ring so that under sufficient downstrain on the tube the ring will strip the cap from the end of the nozzle, substantially as described.

6. A hand fire-extinguisher formed of a tube having a reduced nozzle terminating in a discharge-opening, the nozzle formed with projections at its end edge in said opening, a detachable exterior sealing-cap in the form of an inverted cup having a hanger connected therewith, said cap arranged on the end of the nozzle over said opening and around its lower portion united to the exterior of the nozzle below said opening by fragile sealing means, substantially as described.

7. A hand fire-extinguisher tube having a tapered discharge-nozzle terminating in an opening, a sealing-cap fitted over the exterior of the end of the nozzle and united to the exterior of the nozzle at a point below the opening by fragile sealing material, said cup having the filling-opening in its top end above and registering with said nozzle-opening, and means for permanently closing said filling-opening, substantially as described.

8. A hand fire-extinguisher comprising the tube having a discharge-opening at one end, a detachable sealing-cap closing said opening by fitting onto the exterior of said end and at its lower edge united to the exterior of the end by fragile sealing material, a tube-hanger connected with said cap, and a detachable tube sustaining connection between the hanger and body of the tube arranged to become disengaged from the hanger under downstrain sufficient to detach the cap, substantially as described.

9. A hand fire-extinguisher comprising an elongated tube closed at one end with a discharge-opening at the opposite end, a closure for said opening detachable therefrom under downpull of the tube, a hanger connected with said closure to detach the same and having an independent tube sustaining connection to the body of the tube arranged to normally remove the downstrain from the closure, but under abnormal downpull to transfer the strain to the closure, substantially as described.

10. A hand fire-extinguisher comprising the elongated tube having a discharge-opening, a closure for said opening detachable therefrom under downpull of the tube, a hanger or support directly secured to the closure, and a tube sustaining connection directly secured to the body of the tube and extending to the hanger in the line of strain from the tube to the hanger and detachably connected with the hanger, substantially as described.

11. A hand fire-extinguisher having a tapered nozzle terminating in an opening, a sealing-cap on the nozzle and detachably secured thereto, a ring in the lower edge of the cap having a hanger extending outwardly and upwardly therefrom, and a detachable connection from the body of the tube to the hanger, substantially as described.

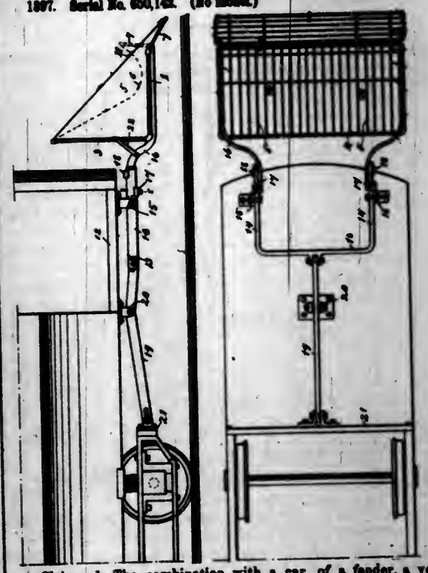
598,186. BURGLAR-ALARM. THOMAS H. STORTS, Van Buren, Ind. Filed Aug. 16, 1897. Serial No. 648,411. (No model.)



Claim.—1. In a burglar-alarm, the combination with the base, the vertically-movable platform, the hinged flanges and the coiled springs, of the rotatable wheel, the wires connected therewith and with said flanges and the wire connected with said wheel and adapted to be connected with an alarm, substantially as described.

2. In a burglar-alarm, the combination with the base, the frame, the platform, the coiled springs, the guide-rods, the inclined flanges and the spring-hinges, of the rotatable wheel, the arms thereof, the wires connected with said arms and flanges, and the wire connected with said wheel and adapted to be connected with an alarm, substantially as described.

598,187. CAR-FENDER. RONALD A. STUART, New York, N. Y., assignor of one-half to Everett G. Kaufman, same place. Filed Aug. 31, 1897. Serial No. 650,142. (No model.)

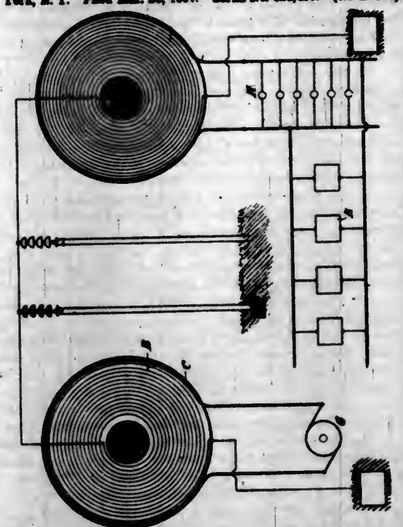


Claim.—1. The combination with a car, of a fender, a yoke mounted to swing a lever pivoted to the bottom of the car-body, one end of said lever being pivoted to the yoke, and the other end of said lever having pivotal connection with a portion of the car fixed as to vertical movement relatively to the car-body, and means for removably connecting the fender to the yoke, substantially as specified.

2. The combination with a car, of a yoke mounted to swing on the bottom of the car-body, a lever having pivotal connection at one end with the yoke and pivotal connection at the other end with the truck-frame, and a fender having arms removably connected to the yoke, substantially as specified.

3. The combination with a car, of a swinging yoke thereon, a fender, arms extended rearward from the fender, the said arms having plates to engage around the upper and lower sides of the yoke-arms, and a set-screw extended through one of said plates and engaging with the yoke-arms, substantially as specified.

598,188. ELECTRICAL TRANSFORMER. NIKOLA TESLA, New York, N. Y. Filed Mar. 20, 1897. Serial No. 628,453. (No model.)



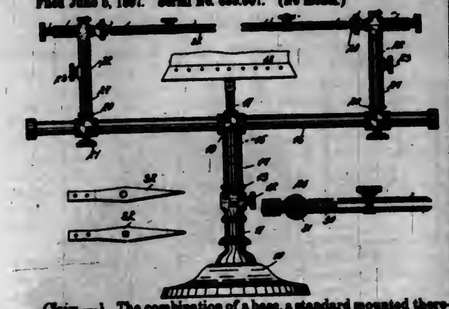
Claim.—1. A transformer for developing or converting currents of high potential, comprising a primary and secondary coil, one terminal of the secondary being electrically connected with the primary, and with earth when the transformer is in use, as set forth.

2. A transformer for developing or converting currents of high potential, comprising a primary and secondary wound in the form of a flat spiral, the end of the secondary adjacent to the primary being electrically connected therewith and with earth when the transformer is in use, as set forth.

3. A transformer for developing or converting currents of high potential comprising a primary and secondary wound in the form of a spiral, the secondary being inside of, and surrounded by, the convolutions of the primary and having its adjacent terminal electrically connected therewith and with earth when the transformer is in use, as set forth.

4. In a system for the conversion and transmission of electrical energy, the combination of two transformers, one for raising, the other for lowering, the potential of the currents, the said transformers having one terminal of the longer or fine-wire coils connected to line, and the other terminals adjacent to the shorter coils electrically connected therewith and to the earth, as set forth.

598,189. JEWELER'S CLAMP. FRED J. THOMAS, Cairo, Ill. Filed June 5, 1897. Serial No. 639,007. (No model.)



Claim.—1. The combination of a base, a standard mounted thereon, a post pivotally connected to the standard, a sleeve adjustable axially on the post, a beam carried by the sleeve, a standard adjustable on each end of the beam, a sleeve turning on each of said last-named standards, a work-holder held by each of said last-named sleeves, and a heating apparatus held by the first-named sleeve.

2. The combination of a base, a pin pivotally mounted thereon and having a centrally-disposed orifice, a sleeve embracing the pin, a beam carried by the sleeve, means on the beam for holding work, and a charcoal-pan having a stem, the stem being run through the upper portion of the sleeve into the opening in the pin.

3. A jeweler's clamp having a base, a beam supported on the base, a charcoal-pan supported above the middle portion of the beam, a standard carried by each outer portion of the beam, a sleeve or tube adjustable axially on each standard, each sleeve or tube having a head at its upper portion, a rod mounted in each head, each rod having a bifurcated inner end, two blocks each having a disk formed thereon, the disks being respectively held between the bifurcated portions of the rods, means for clamping said bifurcated portions of the rods against the disks, and clamping members carried by the blocks.

4. The combination of a base, a standard rising therefrom, a pin adjustably carried by the standard and having a central recess, a sleeve embracing the pin, a beam passed horizontally through the upper portion of the sleeve, and a stem run transversely through the beam and into the recess of the pin.

598,140. PASTEURIZING BOTTLED LIQUIDS. PETER VAN DE WEYENBERG, Alexandria, Va., assignor to himself, Percy McKnight Baldwin, John T. Sweeney, John T. Johnson, and Emanuel F. Downham, same place. Filed May 4, 1897. Serial No. 635,081. (No model.)



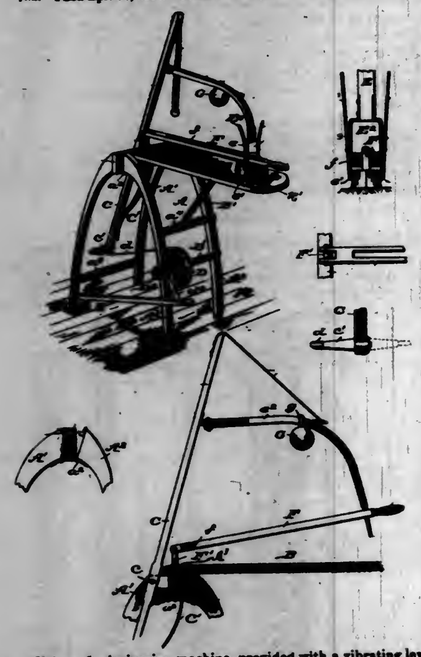
Claim.—1. The combination, in an apparatus for pasteurizing bottled liquids, of a water-tank having means for supporting the bottles therein, means for heating and subsequently cooling the water, a plurality of helical blades, one extending in a spiral path the reverse of another, and means for driving the helical blades, substantially as described.

2. The combination, in an apparatus for pasteurizing bottled liquids, of a water-tank, means for heating the water in a tank, a shaft having helical blades rotating in the water and one extending in a spiral path the reverse of another, and means for driving the shaft, substantially as described.

3. The combination, in an apparatus for pasteurizing beer in bottles, of a water-tank in which gangs of beer-bottles are supported along the opposite sides thereof, a shaft extending centrally the full length of the tank between the gangs of beer-bottles and having a helical water-agitator running substantially the full length thereof, and means for rotating the shaft from the exterior of the tank, substantially as described.

4. The combination, in an apparatus for pasteurizing beer in bottles, of a water-tank in which gangs of beer-bottles are supported along the opposite sides thereof, a perforated tubular shaft extending the full length of the tank between the gangs of bottles and having a helical water-agitator thereupon which runs substantially the full length of the shaft, means for introducing water into said shaft, and means for rotating the shaft, substantially as described.

593,141. IRONING-MACHINE. GEORGE P. WALTER, Brownwood, Tex. Filed Apr. 20, 1897. Serial No. 634,525. (No model.)



Claim.—1. An ironing machine, provided with a vibrating lever arranged to carry a sad-iron, a shifting-lever pivoted to swing in both a horizontal and a vertical plane about a fixed axis and arranged for sliding connection with the sad-iron, and means for operating said vibrating lever independently of said shifting-lever as set forth

2. The combination with the ironing-table and its support, of a vibrating lever arranged to carry a sad-iron, a shifting-lever mounted to swing about a fixed point on said support and in both a horizontal and a vertical plane, a connection between said vibrating lever and shifting-lever and by which said vibrating lever may be reciprocated independently of said shifting-lever, and means for operating said vibrating lever, as set forth.

3. The combination with the ironing-table, a vibrating lever, and means for operating said lever, of an arm pivoted to said lever, said arm extending over the table and carrying at its free end a sad-iron, and a shifting-lever pivoted to move in both a horizontal and a vertical plane about a fixed axis, being arranged to move independently of said vibrating lever and guiding said arm in its reciprocating movement, as and for the purpose set forth.

4. The combination with an ironing-table a lever provided with an operating mechanism and having a pivoted arm extending over the table and provided at its free end with means for engaging a sad-iron, of a horizontally-swinging shifting-lever pivoted at the rear end of the table and extending forwardly past the free end of said pivoted arm and adapted to shift said arm laterally while it is being reciprocated, substantially as set forth.

5. The combination with an ironing-table a reciprocating horizontally-swinging arm extending thereover and provided with a clamp or holder for the sad-iron, and means for reciprocating said arm, of a horizontally-swinging shifting-lever beneath the said arm and in sliding connection with the free end of the iron-holding arm to shift the same laterally while being reciprocated, substantially as set forth.

6. The combination with an ironing-table, a reciprocating horizontally-swinging arm provided at its free end with a clamp or holder for the sad-iron and means for reciprocating said arm, of a horizontally-swinging longitudinally-slotted shifting-lever below said arm and extending through said clamp or holder, the sad-iron handle being adapted to work freely in said slot, substantially as and for the purpose set forth.

7. The combination in an ironing-machine, with the reciprocating lever, and the arm pivoted thereto, of the spring clamp or holder for the iron, the same comprising spring-arms *c* having their lower ends inwardly turned to engage apertures in the sides of the iron, and spring-arms E^3 secured to the arms *c* and by which the latter may be withdrawn from engagement with the iron, as and for the purpose set forth.

8. The combination with the ironing-table, and the vertically-extending vibrating lever provided with an operating mechanism, of an arm pivoted to the said lever and extending forwardly over the table, a sad-iron holder or clamp at the free end of said arm, and a longitudinally-slotted horizontally-swinging shifting-lever pivoted at the rear end of the table and extending forwardly through the said clamp or holder, substantially as set forth.

9. The combination with the ironing-table and the vertically-extending vibrating lever having an operating mechanism, of an arm pivoted at its rear end to said lever to swing laterally and vertically and having a clamp or holder at its free end for a sad-iron, and a longitudinally-slotted vertically and horizontally swinging shifting-lever extending through said clamp or holder for the purpose set forth.

10. The combination with the table, of a treadle and shaft therebelow, pulleys on said shaft, a strap connecting one of said pulleys with the treadle, a vertically-extending spring-pressed vibrating lever, a strap connecting the other pulley with the lower end of said lever to move it against the action of its spring when the treadle is depressed, an arm extending forwardly from the lever over the table and provided at its forward free end with a sad-iron clamp or holder and means for shifting the said arm laterally substantially as set forth.

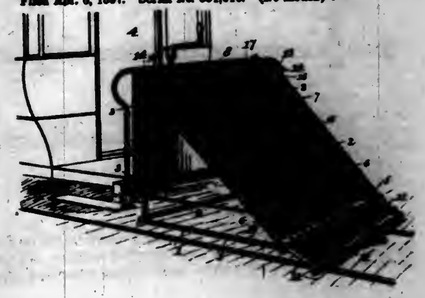
11. The combination with the four legs and the cross-piece to which they are hinged, of the ironing-table hinged to said cross-piece, a vibrating lever C pivotally connected to said cross-piece and carrying a sad-iron arranged to be moved over said table, a spring C' attached to said cross-piece and having its free end bear against the forward side of the lower end of the vibrating lever, whereby the upper end of the same is thrown forwardly, and a treadle having a strap-and-pulley connection with the lower end of said lever and by which it is moved against the action of said spring, as and for the purpose set forth.

12. An ironing-machine, comprising the combination with the four legs and the cross-piece to which they are hinged near their upper ends so as to fold together, of a table hinged to said cross-piece, a hinged brace to hold the table in its horizontal position, a vertically-extending vibrating lever pivoted between its ends to said cross-piece, a treadle operatively connected with the lower end of the said lever, an arm pivoted to the lever and provided at its free end with a clamp or holder for a sad-iron, and a shifting-lever for moving said arm laterally substantially as set forth.

13. In an ironing-machine, the frame comprising the four legs, the cross-piece to which said legs are hinged near their upper extremities so as to fold toward each other, dowel-pins and apertures for connecting the legs to said cross-piece above the hinges, a table hinged at its rear edge to said cross-piece to fold down, and a hinged brace or arm to hold the table horizontal, substantially as set forth.

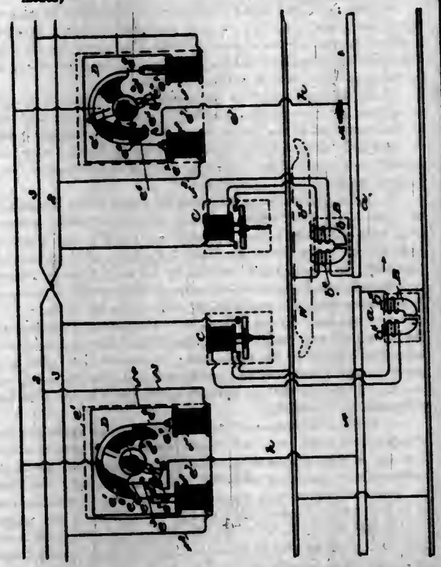
14. An ironing-machine, provided with a vibrating lever arranged to carry a sad-iron, a shifting-lever pivoted to rotate about a fixed axis and provided with a longitudinal slot and a handle at its free end, the handle of the iron being inserted in said slot and free to reciprocate therein, and means for operating said vibrating lever, as set forth.

598,142. CAR-FENDER. HENRY W. WEBB, Quakertown, Pa. Filed Apr. 6, 1897. Serial No. 631,016. (No model.)



Claim.—In a car-fender, the combination of a supporting-frame having an inclined front, the netting connected to the inclined front portion of the supporting-frame, the hinged leaf or section connected to the supporting-frame at the front thereof and adapted to swing upward and downward, said leaf or section being provided with forwardly-projecting portions, an elastic shoe connecting the said projecting portions, a rock-shaft disposed transversely of the supporting-frame and journaled in suitable bearings at the top thereof, said rock-shaft being provided with arms located at the sides of the car-fender, connecting-rods extending from the arms to the hinged leaf or section, and means for turning the rock-shaft, whereby the hinged leaf or section is raised and lowered, substantially as described.

598,143. ELECTRIC-RAILWAY SYSTEM. HARLAN P. WELLMAN, Ashland, Ky. Filed May 26, 1897. Serial No. 638,204. (No model.)



Claim.—1. An electric-railway system comprising a sectional conductor, a feed-in switch for each section for controlling the electric current thereto, a transformer or converter initially partially charged by the alternating current of one section of said conductor, and having its magnetic circuit normally incomplete or interrupted, and means for temporarily completing said magnetic circuit, whereby said transformer will operate the same feed-in switches, substantially as set forth.

2. An electric-railway system, comprising a sectional conductor, a feed-in switch for each section for controlling the electric current thereto, a transformer or converter having its magnetic circuit normally incomplete or interrupted, a primary coil thereof initially charged by an alternating current from one section of said conductor, a secondary coil in line of circuit with said feed-in switch, and means for completing the magnetic circuit of said transformer, thereby charging said secondary coil by induction, whereby the electric current will be cut into and out of said conductor, substantially as set forth.

3. An electric-railway system comprising a track, a sectional conductor, a feeder-wire, a feed-in switch in line of circuit between the latter and said conductor, and a transformer or converter having a normally incomplete magnetic circuit and a primary coil in circuit with said conductor and track, and a secondary coil in line of circuit with said feed-in switch and track, and means for temporarily completing the magnetic circuit of said transformer, whereby said feed-in switch will cut the current into and out of said conductor, substantially as set forth.

4. An electric-railway system comprising a track, a sectional conductor, a main feeder-wire, a feed-in switch in line of circuit between the latter and said conductor, connection between said feed-in switch and track, sectional wires, a transformer or converter having one coil in line of circuit with said feeder-wire, whereby it will be initially charged by an alternating current, a second coil in line of circuit with said feed-in switch, said transformer having a normally incomplete magnetic circuit, and an inductor, or the like, for temporarily completing said magnetic circuit, whereby said feed-in switch will be operated, substantially as set forth.

5. An electric-railway system comprising a sectional conductor, a feed-in switch for each section, a transformer or converter having a primary coil initially charged by one section of said conductor, a secondary coil, a short-circuiting switch in line of circuit between said secondary coil and said feed-in switch, and means for charging said transformer and closing said short-circuiting switch, substantially as set forth.

6. An electric-railway system comprising a sectional conductor, a main feeder-wire, a feed-in switch in line of circuit between the latter and said conductor, sectional wires in circuit with said feed-in switch, a transformer having a primary coil in circuit with said conductor and track-returns and designed to be initially charged by an alternating current, a secondary coil, a short-circuiting switch in line of circuit between said secondary coil and said sectional wires and feed-in switch, and forming, when closed, a ground connection for one of said sectional wires, substantially as set forth.

7. In an electric-railway system, a transformer or converter normally having an incomplete magnetic circuit, and means carried by a motor-car for temporarily completing said magnetic circuit, substantially as set forth.

8. In an electric-railway system, a transformer or converter normally having an incomplete magnetic circuit, and an inductor carried by a motor-car for engaging said transformer and temporarily completing said magnetic circuit, substantially as set forth.

9. In an electric-railway system, a transformer or converter normally having an incomplete magnetic circuit, a primary coil initially charged by an alternating current, a secondary coil, and means carried by a motor-car for contacting with said transformer and temporarily completing its magnetic circuit and charging said secondary coil by induction, substantially as set forth.

10. In an electric-railway system, a transformer having cores which are disconnected at their ends, the sectional area between two of the opposed ends of said cores being regulated to control the passage of the magnetic lines of force, and means carried by a motor-car for temporarily completing the magnetic circuit between said cores, substantially as set forth.

11. In an electric-railway system, a transformer having cores which are disconnected at their ends, means for regulating the sectional area between two of the opposite ends of said cores, and means carried by a motor-car for temporarily completing the magnetic circuit between said cores, substantially as set forth.

12. In an electric-railway system, a transformer having two cores, on which are wound primary and secondary coils, said cores being disconnected at their ends, and having means for increasing and diminishing the sectional area between two of the opposed ends of said cores, and an inductor, or the like, carried by a motor-car for temporarily completing the magnetic circuit between said cores by contacting with the other disconnected ends thereof, substantially as set forth.

13. In an electric-railway system, a transformer having two cores provided with opposite grooves in their opposed ends, plugs for fitting in said grooves, and an inductor, or the like, for contacting with the other ends of said cores, substantially as set forth.

14. In an electric-railway system, a main feeder-wire, a sectional conductor, a feed-in switch between the latter and said wire, sectional wires in circuit with said feed-in switch, a short-circuiting switch in line of circuit between said sectional wires and the ground-return, said switch comprising a solenoid, an armature movable therein, and a circuit-closer carried by said armature, whereby when said solenoid is charged the circuit between said feed-in switch and ground-return will be closed, substantially as set forth.

15. In an electric-railway system, a feed-in switch comprising a rotatable circuit-closer weighted above its pivot-bearing, two solenoids having armatures depending from said circuit-closer, whereby as either solenoid is charged said circuit-closer will be moved on its bearing, its weight serving to impel movement thereof, as set forth.

16. In an electric-railway system, a feed-in switch comprising a rotatable circuit-closer weighted above its pivot-bearing, two solenoids, vertically-disposed armatures movable therein, and a band, or the like passed over the upper portion of said circuit-closer, and to the ends of which said armatures are connected, substantially as set forth.

17. In an electric-railway system, a feed-in switch comprising a pivoted circuit-closer having an upper weighted curved portion concentric to its pivot-bearing, two solenoids, armatures movable therein, and a band, or the like, encircling said curved portion and having said armatures secured to its ends, said weighted portion of said closer being above its pivot-bearing, substantially as set forth.

18. In an electric-railway system having a conductor, a main feeder-wire, a wire leading from the latter to said conductor having contact-terminals, a feed-in switch comprising a circuit-closer pivot-

ally mounted, and a contact end designed to engage said terminals, two solenoids, vertically-disposed armatures movable therein, and a connection between said armatures engaging said circuit-closer above its bearing, and means for charging said solenoids, whereby the electric current will be cut into and out of said conductor, substantially as set forth.

19. An electric-railway system comprising track-rails, sectional conductors, a main feeder-wire, uninsulated sectional wires paralleling said feeder-wire, a feed-in switch for each conductor-section having opposite solenoids connected to said sectional wires, whereby upon the current being grounded between any two adjacent feed-in switches, the current circulating in the opposite solenoids will, through said feed-in switches, cause the current to be cut into the sectional conductor in advance of, and out of the sectional conductor passed over by, the motor-car, a transformer, or the like, in line of circuit between said conductor and track with said feed-in switch, and having its magnetic circuit normally incomplete and an inductor, or the like, carried by the motor-car for temporarily completing said magnetic circuit, substantially as set forth.

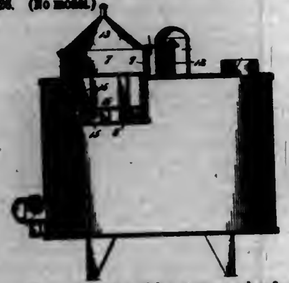
20. In an electric-railway system having a sectional conductor, a main feeder-wire, a feed-in switch between the latter and said conductor, sectional wires paralleling said sectional conductor, a motor-car having a portable contact device comprising a rod or pole having a contact-terminal at one end designed to be engaged with one of said sectional wires, a dynamo on said motor-car to which said contact-terminal is connected, and a crank-shaft for operating said dynamo, substantially as set forth.

21. In an electric-railway system, a transformer or converter located to one side of the track-rails and having its cores elongated and extended between the track-rails, and caps on the ends thereof, and an inductor, or the like, carried by a motor-car, designed to engage said caps, substantially as set forth.

22. In an electric-railway system, a transformer or converter located to one side of the track-rails and having its cores elongated and extended between the track-rails, and caps on the ends thereof, and an inductor, or the like, carried by a motor-car, designed to engage said caps, said cores being made up of laminated plates or wires, substantially as set forth.

23. In an electric-railway system, a transformer having its magnetic circuit normally incomplete, the cores thereof being in line of passage of a car-inductor, a sectional conductor, feeder-wires, a short-circuiting switch, and a box or casing in close juxtaposition to the track inclosing said transformer and switch, substantially as set forth.

598,144. STOVE. THOMAS T. WEST, Springdale, Ark., assignor of one-half to Millard Berry, same place. Filed Apr. 9, 1897. Serial No. 631,426. (No model.)



Claim.—1. The combination with a stove or other form of heater having an opening in its top surrounded by a vertical rim, and a pot removably suspended within the rim, of a tubular guide secured to the stove-top adjacent to the rim and having a transverse slot in its side, a pin or stud located within the tubular guide, and a cover having a tang mounted upon the said pin or stud and operating in the slot of the tubular guide, substantially as shown for the purpose set forth.

2. In a stove or heater having an opening in its top surrounded by a vertical rim, the combination of a pot removably suspended within the said rim, a tubular guide closed at its upper end and secured at its lower end to the stove-top adjacent to the vertical rim, and having a transverse slot in its side, a headed pin or stud secured centrally within the tubular guide, and a cover having a tang mounted upon the headed pin or stud and operating in the transverse slot of the tubular guide, substantially in the manner set forth for the purpose described.

3. In a stove or heater, the combination with a heating-pot, of a series of racks or shelves each constructed of sheet metal comprising radiating arms which are bent intermediate of their ends, forming supports and a rest, the latter having depressions around its edge corresponding to the spaces between the said supports and formed by bending the aforesaid arms at an intermediate point, the said depressions receiving the supports of the upper shelf, whereby the series of shelves are supported upon the bottom of the heater, substantially as set forth.

598,145. CAR-TRUCK. HENRY WESTON, Buffalo, N. Y., assignor of one-half to John S. Rockwell, same place. Filed July 20, 1897. Serial No. 646,201. (No model.)



Claim.—1. A side frame for a car-truck, consisting of upper and lower beams and arch-bars between the beams, the said bars being arranged to cross one another at each side of the center of said frame, the arch-bars being also flattened and secured together where they cross one another, for the purpose set forth.

2. In the construction of car-trucks, a side frame consisting of an upper and a lower beam, and arched bars secured to the said beams at their ends and at the center, the arched bars crossing one another at each side of the center of the frame, being twisted where they connect with one another, and secured by fastening devices, for the purpose set forth.

3. In the construction of car-trucks, a side frame consisting of an upper and a lower beam, arch-bars secured to the said beams at their ends and at the center, the arch-bars crossing one another at each side of the center of the frame, being twisted where they contact with one another and secured by fastening devices, transoms connecting the side frames of the truck at their central portions, and braces connecting said transoms, for the purpose set forth.

4. A car-truck having top and bottom members of side bars projecting at each end and journal-box guides each having a vertical leg formed as a guide for the boxes, and a horizontal leg projecting toward the center and forming a spring-seat, and bolts passing through the vertical leg and the top and bottom members of the said bars, substantially as described.

5. In the construction of the side frames of car-trucks, the combination, with upper and lower beams and arch-bars secured at their ends and at their centers to said beams, one arch-bar being attached at its ends to the upper beam and at its center to the lower beam, the other arch-beam being secured at its ends to the lower beam and at its center to the upper beam, said arch-bars crossing one another at each side of the center of the side frame, being flattened where they contact and secured together at their flattened surfaces, of transoms connecting the side frames of the truck, and journal-box guides constructed in sections, each section comprising a vertical and a horizontal leg, and fastening devices whereby the sections of the said guides are secured independently to the side frames, for the purpose set forth.

598,146. GATE. WILLIAM R. WHITE, Bloomington, Ill. Filed Oct. 16, 1896. Serial No. 609,151. (No model.)

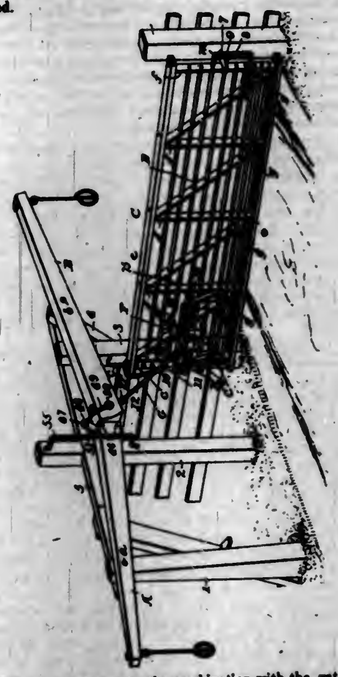
Claim.—1. In a swinging gate, the combination with pivoted operating-levers therefor, of a connection between the adjacent ends of the levers comprising a fixed upwardly-extending lifting-arm on one lever and a movable link on the other lever, the said arm and link being movably connected at a point above the levers, substantially as described.

2. In a swinging gate, the combination with pivoted operating-levers therefor, of a connection between the adjacent ends of the levers comprising a fixed lifting-arm on one lever, inclined forward with respect thereto, a pivoted link on the other lever also inclined relative to its lever, the link and arm being movably connected, and rivets or pins for securing said arm and link to the levers, substantially as described.

3. In a swinging gate, the combination with pivoted operating-levers therefor, of a connection between the adjacent ends of the levers comprising a lifting-arm on one lever, inclined forward with respect thereto, and a pivoted link on the other lever also inclined relative to its lever, the said arm and link being movably joined together at a point above the said levers, substantially as described.

4. In a swinging gate, the combination with pivoted operating-levers therefor, of a connection between the adjacent ends of the levers comprising a lifting-arm on one lever, and a movable link on the other, the said arm and link being movably joined together, and the said link being constructed to embrace the sides of its lever and constructed at the point of its connection with said arm, substantially as shown and for the purpose described.

5. In a swinging gate, the combination with the gate and pivoted operating-levers therefor, of a longitudinally-movable latch-bar, a laterally-projecting fixed arm or frame on one side of the gate, a horizontally-movable lever supported on said lateral frame and being in direct movable connection with the latch-bar, and the connecting-bar in movable connection with the outer end of said lever and in similar connection with one of the operating-levers, substantially as described.



6. In a swinging gate, the combination with the gate and pivoted operating-levers therefor, of a longitudinally-movable latch-bar constructed at its forward end to engage catches on the posts therefor, and also provided at near its inner end with an eye, a laterally-projecting frame on one side of the gate, a pivoted horizontally-oscillating lever supported on said frame and having one of its ends entering the eye of the latch-bar, and a connecting-bar pivotally united with the outer end of said lever, and in similar connection with one of the operating-levers, substantially as described.

7. In a swinging gate, the combination with the gate and pivoted operating-levers therefor, of a movable latch-bar, a laterally-projecting frame on the gate, a horizontally-movable lever supported by the frame and in movable connection with the latch-bar and provided with a vertically-disposed lug or projection, and a connecting-bar suspended from one of the operating-levers and in pivotal connection with said lug or projection, substantially as described.

8. In a swinging gate, the combination with the gate and pivoted operating-levers therefor, of a movable latch-bar, a laterally-projecting frame on the gate, an auxiliary frame connected to said lateral frame, an oscillating lever in direct movable connection with said latch-bar and guided in a slot in the auxiliary frame, and means for operating said lever from the pivoted hand-levers, substantially as described.

9. In a swinging gate, the combination with the gate and pivoted operating-levers therefor, of a movable latch-bar normally in a retracted position when the gate is closed, a laterally-projecting frame on the gate, an auxiliary frame connected to said lateral frame, an oscillating lever pivoted on the laterally-projecting frame and guided in its movement by the auxiliary frame, and a connecting-bar between the said lever and operating-levers for the gate, substantially as described.

10. In a swinging gate, the combination with the gate and hand operating-levers therefor, of a movable latch-bar, a main and an auxiliary laterally-projecting frame on the gate, the latter having a longitudinal slot therein, an oscillating lever pivoted to the main frame and connected with the latch-bar, and provided with a tongue moving in the slot of the auxiliary frame, and a connecting-bar between the hand-levers and the said oscillating lever, substantially as shown and described.

11. In a swinging gate the combination with the gate and hand operating-levers therefor, of a movable latch-bar, a main and an auxiliary laterally-projecting frame on the gate, the latter having a longitudinal slot therein, an oscillating lever pivoted to the main frame and movably connected with the latch-bar, and being provided with a projection reaching to near the top of the gate as well as with a tongue moving in the slot of the auxiliary frame, and a connecting-bar pivotally connected with one of the hand operating-levers at one end and similarly connected at its other end with the projection on said oscillating lever, substantially as shown and for the purpose described.

12. In a swinging gate, the combination with the gate and a movable latch-bar thereon, of the main laterally-projecting frame, the oscillating lever pivoted thereon in movable connection with the latch-bar, the auxiliary frame having a longitudinal slot receiving the end of said lever, and provided with a key or wedge for regulating the movement of said lever, and means for operating the said lever, substantially as shown and described.

13. The combination with the gate and operating-levers therefor, of a latch, a horizontally-oscillating lever connected to operate the latch, and in direct movable connection therewith and connected to be operated by the operating-levers, substantially as described.

14. The combination with the gate, of the movable latch-bar provided with a nut for adjusting the same, substantially as described.

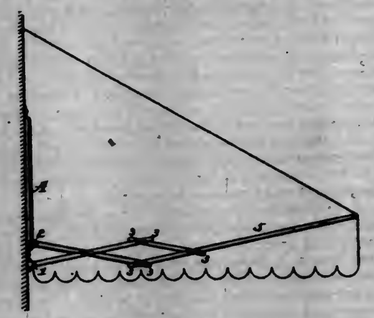
15. In a swinging gate, the combination of a movable latch-bar normally in a retracted position when the gate is closed, operating hand-levers for the gate, and means or connections between the inner ends of said hand-levers and the latch-bar, whereby as the levers are operated to open the gate the said latch-bar is advanced or moved forward, substantially as shown and for the purpose described.

16. The combination with the gate, and the operating hand-levers therefor, of a movable latch-bar normally in retracted position when the gate is closed, a catch engaging the bar in this position, a connecting-bar pivotally attached to one of the operating-levers, and connections between the lower end of said bar and the latch-bar, whereby the said latch-bar is moved forward and released upon operating the hand-levers, substantially as described.

17. The combination with the gate, and the operating hand-levers therefor, of a movable latch-bar normally in retracted position when the gate is closed, and in an advanced position when the gate is opened, catches for engaging the gate in each of its positions, and connections between the said latch-bar and the operating-levers whereby the latch-bar is operated, substantially in the manner and for the purpose described.

18. The combination with the gate, and the operating hand-levers therefor, of a movable latch-bar normally in retracted position when the gate is closed, and constructed at its forward end to be engaged by a catch, a pivoted oscillating lever in movable connection with said latch-bar at or near the inner end thereof, and a swinging connecting-bar between said oscillating lever and the inner end of one of the hand-levers, substantially as described.

598,147. AWNING. MARTIN F. WIEDEMANN, Burlington, Iowa. Filed Apr. 28, 1897. Serial No. 634,263. (No model.)



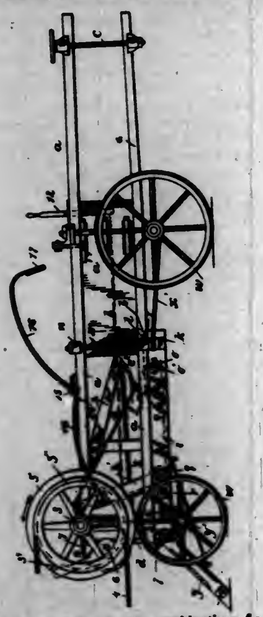
Claim.—1. In an awning, the combination with guide-rods, of lazy-tongs having a stationary pivot below the guide-rods and a sliding connection with the guide-rods.

2. In an awning the combination with guide-rods, of lazy-tongs each having a stationary pivot below its guide-rod and a sliding connection with its guide-rod, the outer upwardly-extending bars of the

lazy-tongs being of greater length than any of the other bars, substantially as and for the purpose set forth.

3. In an awning, the combination with vertical guide-rods, and a slide mounted to move up and down thereon, said slide provided with an antifriction-roller to lessen or prevent friction, of lazy-tongs, one end of which is pivoted to the slide and another at a point below the guide whereby the weight of the tongs is taken advantage of to cause the awning to lower and spread.

598,148. BALING-PRESS. NORMAN B. WILDER, Prophetstown, Ill., assignor of one-half to H. R. Paddock and W. F. Milliken, same place. Filed Mar. 26, 1897. Serial No. 630,403. (No model.)



Claim.—1. In a baling-press, the combination of a frame, a baling-chamber, a reciprocating presser-head, bed-beams longitudinally secured to and beneath the frame, a presser-head-operating toggle, a bearing-block on which the outer end of the toggle is mounted, said block removably secured to and between the bed-beams so that the toggle and presser-head can be easily removed from the machine, and operating mechanism for the toggle, substantially as described.

2. The combination of a baling-press frame, a reciprocating presser-head, an operating-toggle therefor, bed-beams secured together and to the under side of the frame, and having a longitudinally-slotted portion or seat therein, a bearing-block on which the outer end of the toggle is mounted to swing, said block removably sliding in said seat or slotted portion, means to removably lock the block therein, and toggle-operating mechanism, substantially as described.

3. In a baling-press, the combination of a frame, a reciprocating rebounding presser-head and its operating mechanism, a track or way on which the head travels terminating in stops to limit the rebound of the head, springs extending beside the stops, the head having curved surfaces to engage said springs to force them aside before the head engages the stops, substantially as described.

4. A baling-press, in combination with a press-operating cable, a cable swinging and releasing mechanism on the press and comprising a trip-shaft by which the cable is wound and unwound and having a lateral trip-arm, a continuously-rotating driving-shaft having a projection moving in a circular path to engage the trip and rotate the trip-shaft and then release the trip, a cross-head on the trip-shaft, a hand-operated mechanism at a convenient point on the press, connections from opposite ends of the cross-head to said hand-operated mechanism, each connection having an interposed spring, for the purposes stated.

5. In a baling-press, the combination of a baling-chamber, a frame extending forwardly therefrom having an end head, a rebounding presser-head, an operating-toggle, an actuating-cable for the toggle, a winding-shaft horizontally mounted on said head and having a sheave to which said cable is attached, a trip-arm rigid with one end of said shaft extended beyond the end head, a continuously-rotating drive-shaft mounted on the frame in a plane above and in rear of said winding-shaft and having an end wheel beyond and beside said trip-arm, and a projection rigid with and extending in from said wheel and having an antifriction-roll thereon, said roll of the projection arranged to engage said trip-arm and swing it partially around and slip past the end thereof, as and for the purposes stated.

6. In a baling-press, the combination of a frame, a baling-chamber, a reciprocating presser-head and its operating mechanism, said head having a lower rearward extension, a bottom track on which the head travels terminating at the front in rigid stop-shoulders to engage said bottom extension of the head and limit its rebound, and cushioning devices arranged in the path of said extension at said shoulders and engaging said extension just before the same strikes the shoulders, substantially as described.

7. In a baling-press, the combination of a frame, a baling-chamber having a top opening, a presser-head and its operating mechanism, an operating power therefor mounted at the front end of the frame and comprising a rotary member having a projection moving in a circular path, and a feeder for forcing the material through said top opening of the baling-chamber, said feeder arranged above the baling-chamber and swinging at an intermediate point and having the forwardly-extending portion with a curved end arranged in the path of said projection, and operating substantially as described, the feeder disconnected from said projection and arranged to normally hold its feeding end elevated from the baling-chamber, substantially as described.

8. In a baling-press, the combination of a frame, a presser-head, an operating-toggle therefor, a toggle-operating cable, the pair of parallel bed-beams secured to and longitudinal of the frame, said beams having the central opening between them with the socket or slotted portion between the beams and at the front end of said opening and having the rearwardly-facing shoulders, the bearing-block between said beams and in said socket and having shoulders against said shoulders of the beams, the toggle having its front end between the beams and journaled to said block, substantially as described.

9. In a baling-press, the combination of a baling-chamber, the frame of the press extending forwardly of said chamber, a pair of parallel bed-beams arranged longitudinal of the frame of the press and beneath the same and extending from the baling-chamber to the front end of said frame, said bed-beams rigidly secured to the frame of the press at their front and rear ends and also secured together with the central space between them, their end portions being clamped directly together, a rebounding presser-head reciprocating in a plane above said bed-beams, an operating-toggle for said head with its front end mounted between said beams in rear of the front ends of said beams and at the front end of said space between the beams, and an operating-cable connected to the front portions of said beams in advance of the front end of the toggle and passing up over the joint of the toggle and downwardly and rearwardly for connection with a power, substantially as described.

10. In a baling-press, the combination of a baling-chamber, the press-frame extending forwardly of said chamber, a pair of parallel bed-beams arranged longitudinally beneath the front portion of said frame, said beams at their front ends secured to the front end of the press-frame, the front supporting-axle beneath the front ends of said bed-beams, a clamp securing the rear ends of said bed-beams together and to the press-frame, the rear axle beneath the press-frame, tie-rods extending from the rear axle and coupled to said bed-beams, a rebounding presser-head, an operating-toggle therefor mounted to and between said bed-beams, and an actuating-cable for the toggle, substantially as described.

11. In a baling-press, the combination of a baling-press frame, a baling-chamber, a reciprocating presser-head, a part rigid with the frame having a seat or recess terminating in rearwardly-facing rigid shoulders, a bearing-block in said seat or recess abutting forwardly against said shoulders, a presser-head-operating toggle at its lower forward end mounted on said bearing-block so that the forward thrust of the toggle on said block is resisted by said rigid shoulders, and toggle-operating means, substantially as described.

12. In a baling-press, the combination of a frame, a baling-chamber, a reciprocating presser-head, a member rigid with the frame and having the projecting side journal-bosses, a presser-head-operating toggle comprising the link pivoted to the head and at the opposite end having the projecting side journal-bosses, the other link of the toggle made up of the two plates having the end bearings on said bosses, respectively, means confining the ends of said plates loosely on said bosses, and toggle-actuating means, substantially as described.

13. In a baling-press, the combination of a frame, a baling-chamber carried thereby, a reciprocating presser-head, a pair of parallel bed-beams arranged longitudinal of the frame and at their front ends secured to the front end of said frame and at their rear ends secured to the frame at the front portion of the baling-chamber, bolts passing transversely through said bed-beams and securing them together at their end portions, said beams having an open space between their intermediate portions, the head-operating toggle joined to said beams in rear of their front ends, and toggle-actuating means, substantially as described.

14. In a baling-press, the combination of a baling-chamber, the press-frame extending in advance of said chamber and provided with the vertical front-end head rigid therewith, a pair of bed-beams arranged longitudinal of and beneath said press-frame and at their front ends arranged on opposite sides of and rigidly secured to the lower end of said front-end head, a clamp embracing the rear portions of said bed-beams and locking them together and secured to the press-frame at the baling-chamber, a reciprocating presser-head, an operating-toggle therefor at its front end mounted between said bed-beams in rear of their front ends, and a toggle-actuating cable secured to the bed-beams, substantially as described.

15. In a baling-press, the combination of a baling-chamber, the press-frame extending forwardly from the baling-chamber, the pair of parallel bed-beams at the under side and longitudinal of the press-frame and rigidly secured thereto, said beams secured together with their end portions against each other and with the open space between their intermediate portions, a clevis secured to said beams in advance of said space, a bearing-block secured between said beams at the front end of said opening, a pulley between the rear portions of the beams, a reciprocating presser-head, an operating-toggle therefor having a pulley in its joint and having its outer end mounted on said block, an actuating-cable secured to said clevis and passing upwardly over said pulley in the joint of the toggle and downwardly and rearwardly between said beams and over the pulley between the same, substantially as described.

16. In a baling-press, the combination of a baling-chamber, a press-frame extending in advance thereof, a pair of parallel bed-beams secured to the under side of the frame and together and having the open space between their intermediate portions, a bearing-block in said open space and secured between the bed-beams and having the projecting lateral journal-bosses on its opposite sides, a reciprocating presser-head, an operating-toggle therefor having its front-end link composed of two parallel plates having bearing-openings loosely receiving said bosses so that the lower ends of said plates are confined between the inner sides of the bed-beams and the sides of the bearing-block to turn on said bosses, and toggle-actuating means, substantially as described.

17. In a baling-press, the combination of a baling-chamber, the press-frame extending forwardly from the baling-chamber and provided with the vertical front-end head, the pair of parallel bed-beams extending longitudinal of and beneath the front portion of the press-frame and secured together and to the press-frame, a bolt clamping the front ends of said beams together and to and on opposite sides of the lower portion of said front-end head, a leg extending downwardly and forwardly from the front end of the press to the ground and having its upper end mounted on said bolt and arranged between the front ends of the bed-beams and said front-end head, a reciprocating presser-head, and actuating means therefor mounted on the bed-beams, substantially as described.

18. In a baling-press, the combination of a baling-chamber, a press frame extending forwardly therefrom and having a rear wheeled axle, a pair of parallel bed-beams arranged longitudinal of and beneath said frame and rigidly secured thereto and together, the front axle beneath the front ends of said bed-beams, the king-bolt arranged and secured between the front ends of said beams and extending below the same and loosely resting in the front axle and having the head above the same, means loosely confining the axle to said bolt, and a presser-head and its actuating means, substantially as described

19. In a baling-press, the combination of the press-frame having a rear axle and wheels, bed-beams longitudinally beneath the front portion of the frame, a king-bolt secured therein and extending below the same and having the rounded lower end with an enlarged annular head above the said end with a rounded upper surface, the front axle having a socket in which said end loosely rests with said head on the axle, and plates secured to the axle and extending over the rounded upper surface of said head, substantially as described.

20. In a baling-press, the combination of a baling-chamber, a press-frame extending forwardly therefrom, the parallel bed-beams secured longitudinally of and beneath the front portion of said frame with the open space between their intermediate portions, the reciprocating presser-head, the operating-toggle thereof having its front end mounted between said bed beams at the front end of said space between the same and in a horizontal plane below the path of travel of the presser-head, the actuating-cable at its front end secured to said bed-beams in advance of the front end of the toggle and from thence passing up over the joint of the toggle and then rearwardly and downwardly and down through the rear portions of the bed-beams at a point in rear of the limit of rearward movement of the joint of the toggle, a pulley at the rear portions of the bed-beams around which the cable passes, and a cable winding and releasing mechanism, substantially as described.

21. In a baling-press, the combination of a baling-chamber, the press-frame extending forwardly in advance of said chamber, a horizontal winding and releasing shaft mounted at the front end of said frame, a horizontal driving-shaft also mounted on the front end of said frame and actuating said winding-shaft, the reciprocating presser-head, the operating-toggle at its front end pivoted in rear of the front end of the frame in a plane below the path of the presser-head, an actuating-cable secured in advance of the front end of the toggle and passing up over the joint of the toggle and downwardly and rearwardly therefrom, a pulley in rear of the limit of rearward movement of the joint of the toggle around which said cable passes and from which it passes forwardly beneath the frame, a pulley at the front portion of the frame around which said cable passes up to the winding-shaft, substantially as described.

22. In a baling-press, the combination of a baling-chamber, a press-frame extending forwardly from the baling-chamber, a rebounding presser-head, an operating-toggle therefor comprising a long link joined to the head and a short link journaled at its front end in rear of the front end of the frame and in a plane below the horizontal path of movement of the head, the toggle-actuating cable at its front end secured at a point in front of and above the plane of the front end of the toggle and extending upwardly and loosely around the toggle at its joint and from thence rearwardly and downwardly to a point below and in rear of the limit of rearward movement of the joint of the toggle, a pulley at said point around which said cable passes, and cable winding and releasing mechanism to which the cable extends, substantially as described.

23. In a baling-press, the combination of a baling-chamber, a press-frame provided with a rear axle and extending forwardly from the baling-chamber and provided with a front-end head, paralleled bed-beams arranged at the under side of said frame from the baling-chamber to said front-end head, a clamp securing the rear ends of said beams together and to the press-frame at the front end of the baling chamber, the front ends of the beams secured together and to said front-end head, the front axle beneath the front ends of said beams, a king-bolt secured to the front ends of the beams and on which the front axle is mounted, the rear axle tied to the rear portions of the bed-beams, a reciprocating presser-head, an operating-toggle connected to the bed-beams, and an actuating-cable therefor secured to the bed-beams so that the end thrust of the toggle is received by and longitudinal of said beams, substantially as described.

24. In a baling-press, the combination of a baling-chamber, a press-frame extending forwardly therefrom, a rebounding presser-head, an operating-toggle therefor, the toggle-actuating cable, a cable winding and releasing shaft horizontally mounted at the front end of the frame and having a sheave on which the cable is wound and at one end a laterally-extending trip-arm rigid with the shaft, a continuously-rotating drive-shaft mounted horizontally at the front portion of the frame and provided with a wheel rigid therewith and provided with a projection moving in a fixed circular path and arranged to engage the end portion of said trip-arm and swing said arm around and move toward its inner end and then move toward its outer end and slip past the same and permit release of the winding-shaft and rebound of the plunger, substantially as described.

25. A frame, and an actuating-cable, in combination with a cable winding and releasing shaft, to which said cable is secured, provided with a rigid lateral trip-arm, a drive-shaft arranged to revolve continuously in one direction and provided with a projection eccentric to the drive-shaft and moving in a fixed circular path, said trip-arm so arranged in relation to said projection that the projection when moving around first engages said arm near its outer end and swings the same around as the projection travels thereon toward its inner end and then travels toward its outer end and slips past the same and permits unwinding of the winding-shaft and return of the trip-arm, and whereby the greatest force is exerted on the winding-shaft at the beginning and ending of the stroke when the projection is in engagement with the outer end portion of the arm, substantially as described.

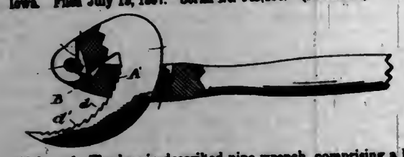
26. In combination, a rebounding presser-head, its operating-toggle, the toggle actuating cable, a frame, a cable-winding shaft to which said cable is secured having a laterally-extending trip-arm rigid with one end thereof, a continuously-rotating drive-shaft parallel with and adjacent to the winding-shaft and provided with a wheel rigid with one end, and at the outer side of said trip-arm and so that the axis of the winding-shaft is within the circle of the circumference of said wheel, said wheel having a projection extending inwardly from a point near its circumference to engage said arm and swing the same so that its free end moves around from a point on one side of the drive-shaft to a point approximately diametrically opposite where the projection slips past the end of said arm and releases the same, substantially as described.

27. The combination of a frame, a driving-shaft arranged to rotate continuously in one direction and provided with a projection

eccentric to the axis of the shaft and moving in a fixed circular path, a winding and releasing shaft arranged parallel with and adjacent to said driving-shaft so that the axis of the winding-shaft is arranged within the circle in which said projection moves, and a trip-arm rigid with and extending laterally from the winding-shaft and arranged so that the end of said arm normally extends into the path of said projection and can be swung inwardly out of said path and toward the driving-shaft to throw the winding-shaft out of gear with the driving-shaft, and so that at its limit of winding swing said arm swings inwardly toward the driving-shaft and out of the path of said projection permitting the projection to slip past the end of the arm and the arm to return to its said normal position to be again engaged by the projection, substantially as described.

28. In combination, a frame, a driving-shaft having a projection eccentric to the axis of the shaft and moving in a fixed circular path, an actuating-cable, a cable winding and releasing shaft to which said cable is secured and by which it is wound to apply the power, means to unwind the cable from said shaft, the axis of said winding-shaft extending within the circle of said path of the projection, a trip-arm rigid with said winding-shaft and extending laterally therefrom so as to swing within the path of said projection, said trip-arm being so arranged in relation to said projection that at its limit of winding stroke it moves in toward the driving-shaft and out of the path of said projection to permit the projection slipping past the end of and releasing the trip-arm which then swings back with its free end in the path of said projection, and a yielding or spring device normally holding the end of the trip-arm in the path of said projection at its limit of releasing or unwinding movement, substantially as described.

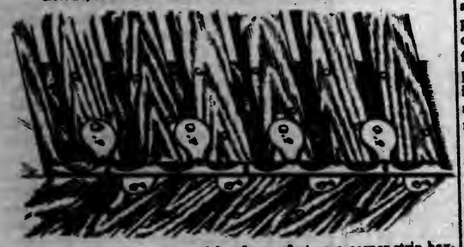
598,149. PIPE-WRENCH. LAWRENCE WILLIAMS, Columbus City, Iowa. Filed July 19, 1897. Serial No. 645,139. (No model.)



Claim.—1. The herein-described pipe-wrench, comprising a bar having a curved head portion formed with a slot or mortise therethrough, and a jaw having its heel portion pivoted in the end of said head and formed with a reversely-curved portion which projects backwardly through the said slot or mortise and whose inner curved surface forms an acute angle with the inner face of the heel portion and is provided with teeth or serrations, said curved surface and inner face forming two sides of a closed triangular opening or seat the third side of which is formed by the adjacent face of the said head portion substantially as specified.

2. The herein-described pipe-wrench, comprising a bar having a curved head portion at one end formed with a slot or mortise therethrough, and a curved jaw pivoted in the end portion of said head, and consisting of a heel portion and a reversely-curved body portion which projects back through the said slot or mortise, and whose inner curved face forms an acute angle with the inner face of said heel portion and is provided with transverse teeth or serrations, said curved surface and inner face forming two sides of a closed triangular opening or seat the third side of which is formed by the adjacent face of the said head portion, together with a spring coiled around the pivot of said jaw and having a bearing at one end portion in the jaw and at its opposite end portion a bearing in the head, substantially as specified.

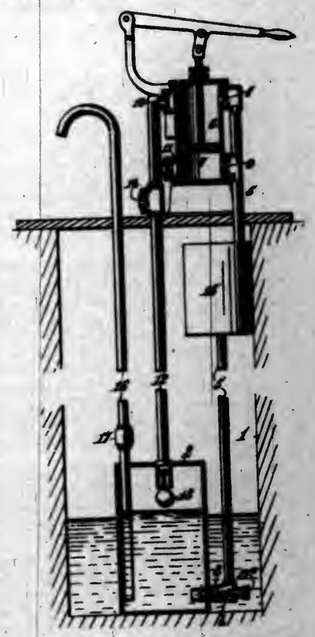
598,150. CORNER-STRIP FOR BUILDINGS. FRANKLIN WOODS, Philadelphia, Pa., assignor to Alvord R. Allen, Wyckoff, N. J. Filed Nov. 20, 1896. Serial No. 612,896. (No model.)



Claim.—1. As a new article of manufacture a corner-strip having a rib with wings projecting therefrom, one set of wings being bent to one side and the other set of wings being bent to the opposite side, said wings being so arranged as to form interlocking spaces for the plaster, substantially as described.

2. As a new article of manufacture, a corner-strip having a rib *a*, wings *b*, *b'* projecting therefrom at intervals, the wings *b* bent at an angle to the rib *a*, and the wings *b'* alternating with the wings *b* and bent at an opposite angle to the wings *b*, said wings being bent at a point some distance from the rib so as to form interlocking spaces for the plaster in the projecting portion of the corner-strip, substantially as described.

598,151. COMPRESSED-AIR LIQUID ELEVATOR AND CONVEYER. LUDWIG A. ZIER, Syracuse, N. Y. Filed Apr. 21, 1897. Serial No. 633,196. (No model.)



Claim.—1. The combination with a closed vessel having a discharge-pipe, and an injector connected with said vessel and having an induction-pipe leading from the liquid to be conveyed, of an air-compressor for delivering compressed air to said injector, a return air-pipe leading from the upper part of the vessel to the suction side of the air-compressor, and means controlled by the height of the water in said vessel for regulating the passage of the compressed air from the vessel to the air-compressor, substantially as described.

2. The combination with a closed vessel having a discharge-pipe and an injector connected with said vessel and having an induction-pipe leading from the liquid to be conveyed, of an air-compressor for delivering compressed air to said injector, a return air-pipe leading from the upper end of said vessel to the inlet side of the air-compressor, and a float-valve arranged in said vessel and adapted to seat against and close said return-pipe, substantially as described.

3. The combination with a closed vessel having a discharge-pipe and an injector connected with said vessel and having an induction-pipe leading from the liquid to be conveyed, of an air-compressor for delivering compressed air to said injector, a return air-pipe leading from the upper end of said vessel to the inlet side of the air-compressor, an inwardly-opening valve arranged in said pipe and operating when open to admit atmospheric air thereto, and a float-valve arranged in said vessel and adapted to seat against and close said return-pipe, substantially as described.

4. The combination with a closed vessel having a discharge-pipe and an injector connected with said vessel and having an induction-pipe leading from the liquid to be conveyed, of an air-compressor for delivering compressed air to said injector, a return air-pipe leading from the upper end of said vessel to the inlet side of the air-compressor, an inwardly-opening valve arranged in said pipe and operating when open to admit atmospheric air thereto, a check-valve arranged in the lower end of the discharge-pipe, and a float-valve arranged in said vessel and adapted to seat against and close the said return-pipe, substantially as described.

5. The combination with a closed vessel having an air-chamber in its lower end of a plurality of injectors projecting from said air-chamber into said vessel, induction-pipes leading from said injectors to the liquid to be conveyed, an air-compressor for forcing air into said air-chamber, a discharge-pipe leading from the vessel, an independent injector leading into the vessel above the air-chamber, and a valved return air-pipe leading from the said vessel to the air-compressor, substantially as described.

6. The combination with a closed vessel having an air-chamber in its lower end, of a plurality of injectors projecting from said air-chamber into said vessel, induction-pipes leading from said injectors and connected with a manifold for supplying water to all of said injectors, a compressed-air reservoir, a valved pipe leading from said reservoir to said air-chamber, and an independent injector projecting into said vessel and connected to the said manifold and air-reservoir, substantially as described.

7. The combination with a closed vessel having an air-chamber in its lower end, of a plurality of injectors projecting from said air-chamber into the said vessel, induction-pipes leading from the injectors and connected with a manifold for supplying water to all of the injectors, a valve for cutting off the water-supply to said injectors, a compressed-air reservoir, a pipe leading from the reservoir to the air-chamber, an independent injector leading into the vessel above the air-chamber, means for cutting out of operation said independent injector, and an air-compressor for supplying air to the reservoir, substantially as described.

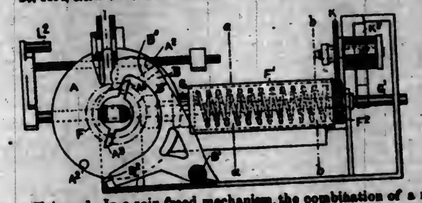
8. The combination with a closed vessel having an air-chamber in its lower end, of a plurality of injectors projecting from said air-chamber into the said vessel, induction-pipes leading from the injectors and connected with a manifold for supplying water to all of the injectors, a valve in said manifold for cutting off the supply of water to said injectors, an independent injector projecting into the vessel above said air-chamber, an air-reservoir and valved pipes connecting said air-reservoir and vessel, substantially as described.

9. The combination with a closed vessel having an air-chamber at its lower end of a plurality of injectors projecting from said air-chamber into said vessel, induction-pipes leading from the injectors and connected with a manifold for supplying water to said injectors, an independent injector projecting into the vessel above said air-chamber, an air-reservoir, valved pipes leading from the air-reservoir to the injectors, an air-compressor having a high and low pressure pump, pipes leading from said pumps to the air-reservoir, means for cutting out the high-pressure pump, and a valved air-return pipe leading from the vessel to the low-pressure pump, substantially as described.

10. The combination with a closed vessel and an injector connected with said vessel and having an induction-pipe leading from the liquid to be conveyed, of an air-compressor for delivering air to said injector, an air-washer and an air-drier interposed between the said vessel and compressor, pipes connecting said washer and drier to the vessel and compressor and to each other, and means controlled by the height of water in the vessel for regulating the passage of the compressed air from the vessel through the washer and drier to the compressor, substantially as described.

11. The combination with a closed vessel, and an injector connected with said vessel and having an induction-pipe leading from the liquid to be conveyed, of an air-compressor for delivering compressed air to said injector, an air-heater interposed between said vessel and compressor, a return air-pipe leading from the vessel to the heater and from the heater to the compressor, and means controlled by the height of water in the vessel for regulating the passage of the compressed air from the vessel through the heater to the compressor, substantially as described.

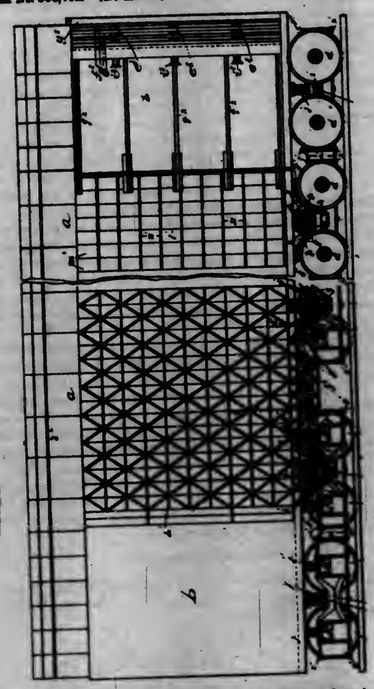
598,152. COIN-ACTUATED APPARATUS. WILLIAM ALEXANDER, Birkenhead, and WILLIAM R. THOMPSON, Liverpool, England. Filed Apr. 26, 1895. Serial No. 589,453. (No model.) Patented in England Oct. 26, 1894, No. 20,675, and Nov. 17, 1894, Nos. 22,217 and 22,217*.



Claim.—1. In a coin-freed mechanism, the combination of a rotatable coin-carrying disk having a coin-receiving slot and a notched periphery, an escapement-wheel, a pawl engaging said wheel and having a portion located underneath the notch of the coin-disk and gearing whereby the rotation of the escapement-wheel releases the supply mechanism, the construction and operation being such that the escapement-wheel is released from the pawl when the coin-disk is in such a position that said portion of the pawl can enter the notch, substantially as described.

2. In a coin-freed apparatus, the combination of coin-released devices, a spiral rotated by the said coin devices, and a slotted cylinder operated by the meter mechanism, a projection engaging in the coils of the spiral and locking with the slotted cylinder whereby when the latter is rotated the projection is moved along the axis of the spiral or helix a given distance in one direction and when the slotted cylinder is rotated such projection is moved back again along the spiral path, substantially as described.

598,153. APPARATUS FOR TRANSPORTING SHIPS BY RAILWAY. AXEL R ANDERSON, Brooklyn, N. Y. Filed July 11, 1896. Serial No. 598,792. (No model.)



Claim.—1. In apparatus for transporting ships afloat in a tank, the combination with the tank, of a system of trucks comprising two lines of main trucks placed side by side on parallel tracks, and end trucks placed centrally under the tank, and on the inner rails of the main-truck tracks, substantially as described.

2. In apparatus for transporting ships afloat in a tank, the combination with the tank, of a system of trucks comprising two lines of main trucks placed side by side on parallel tracks, consisting of outside rails for flanged wheels and intermediate bearing-rails, said trucks having outside flanged wheels, and intermediate bearing-wheels on each and all the axles substantially as described.

3. In apparatus for transporting ships afloat in a tank, the combination with the tank, of a system of trucks comprising two lines of main trucks placed side by side on parallel tracks consisting of outside rails for flanged wheels and intermediate bearing-rails, said trucks having outside flanged wheels and intermediate bearing-wheels, and end trucks placed centrally under the tank and on the inner rails for the main trucks substantially as described.

4. In apparatus for transporting ships afloat in a tank, the combination with the tank, of a system of trucks comprising two lines of main trucks placed side by side on parallel tracks consisting of outside rails for flanged wheels and intermediate bearing rails, said trucks having outside flanged wheels and intermediate bearing-wheels, and also having intermediate side frames, and axle-boxes supporting said intermediate frames substantially as described.

5. In apparatus for transporting ships afloat in a tank, the combination with the tank, of a system of trucks comprising two lines of main trucks placed side by side on parallel tracks, a bearing-plate supported on the middle of the truck-frames transversely, a series of supporting-springs placed side by side along said bearing-plate, a plate carried on the springs, a king bolt located at the middle of said plates and trussed tank-supporting bolsters extending the entire width of the tank and resting on said rollers of both lines of tracks, the trussed bolsters over the middle of the trucks also resting on the king-bolts substantially as described.

6. In apparatus for transporting ships afloat in a tank, the combination with the tank, of a system of trucks comprising two lines of main trucks placed side by side on parallel tracks, a bearing-plate supported on the middle of the truck-frames transversely, a series of supporting-springs placed side by side along said bearing-plate, a plate carried on the springs, a king-bolt located at the middle of the plates, bearing-rollers at the extremities of the upper plate whereon, and on the king-bolt the tank is carried, the series of guide-standards of the bearing-plate, embracing the edges of the upper plate and the series of guide-brackets of the upper plate intermediate of the standards of the bearing-plate controlling said upper plate against lengthwise and lateral play substantially as described.

7. In apparatus for transporting ships afloat in a tank, the combination with the tank, of a system of trucks comprising two lines of main trucks placed side by side on parallel tracks, a bearing plate supported on the middle of the truck-frames transversely, a series of supporting-springs placed side by side along said bearing-plate, a plate carried on the springs, a king-bolt located at the middle of the plates, bearing-rollers at the extremities of the upper plate, springs located on the axle-boxes, and rollers carried on the said springs whereon and on the rollers and king-bolt carried by the bearing-plates, the tank is carried substantially as described.

8. In apparatus for transporting ships afloat in a tank, the combination with the tank, of trucks for carrying the tank, a system of braces for the outsides of the tank, cantaliver-supports for said braces, and counter-braces for the cantalivers having support against the bottom of the tank, and against thrust-bars suspended under the truck-frames between the wheels, and others suspended behind the trucks substantially as described.

9. The combination with the gate-hinges, of the intermeshing ribs and grooves for packing the hinge-joints substantially as described.

10. The combination with the gates, of the meeting-edge plates having coincident grooves and intermediate abutting ribs, of the key pivoted in one of said plates and having flanges intermeshing with the grooves of the two plates when the gates are closed substantially as described.

11. The combination with the gates, of the locking-plates, the studs on one of said plates, and the hooks and the lock-actuating bar on the other plate, said hooks having the eccentric connection with the actuating-bar substantially as described.

593,154. CURRENT-COLLECTOR FOR ELECTRIC RAILWAYS.

FREDERICK A. ANDERSON, Washington, D. C. Filed Oct. 12, 1897. Serial No. 654,904. (No model.)



Claim.—1. In a current-collector, a standard comprising a plurality of frame-bars, conducting-bars arranged between the frame-bars and insulated therefrom, terminals arranged at the top of the standard, fuse-blocks arranged in the upper portion of the standard and having recesses in which the upper ends of the conducting-bars and the lower ends of the terminals are housed, whereby to insulate these parts from each other, fuses arranged exteriorly of the sides of the fuse-blocks and on opposite sides of the standard, and means to permit the ready removal and replacement of the fuses, substantially as described.

2. In a current-collector, a standard comprising a plurality of frame-bars, conducting-bars arranged between the frame-bars and insulated therefrom, terminals arranged at the top of the standard, fuse-blocks arranged in the upper portion of the standard and having recesses in which the upper ends of the conducting-bars and the lower ends of the terminals are housed, whereby to insulate these parts from each other, fuses arranged exteriorly of the fuse-blocks and on diagonally opposite sides of the standard, and means to permit the ready removal and replacement of the fuses, substantially as described.

3. In a current-collector, a standard comprising a plurality of frame-bars, conducting-bars arranged between the frame-bars and insulated therefrom, wear-plates secured intermediate of the ends of the frame-bars and insulated therefrom, and operating to protect the frame-bars, and, also, to prevent short-circuiting between the conducting-bars and the slot-rails, insulating-plates secured below the wear-plates, brackets rigidly secured against the insulating-plates, contact-shoes supported from the brackets, and electrical connections between the shoes and the conducting-bars, substantially as described.

4. In a current-collector, a standard comprising a plurality of frame-bars, conducting-bars arranged between and insulated from the frame-bars, fuse-blocks in which one end of the terminals and the conducting-bars are housed, and a switch on each of the fuse-blocks between the terminal and the conducting-bar, substantially as described.

5. In a current-collector, a standard comprising a plurality of frame-bars, conducting-bars arranged between and insulated from the frame-bars, fuse-blocks in which one end of the terminals and the conducting-bars are housed, and a knife-edge switch on each of the fuse-blocks between the terminal and the conducting bar, substantially as described.

6. In a current-collector, a standard comprising a plurality of frame-bars, conducting-bars arranged between and insulated from the frame-bars, fuse-blocks in which one end of the terminals and the conducting-bars are housed, a surface of insulating material on each fuse-block, a fuse held in place against each surface of insulating material, and a switch on each fuse-block between the terminals and the conducting-bar, substantially as described.

7. A current-collector having a knife-edge switch between each terminal and its corresponding shoe, the handle of the switch being disposed downward, substantially as described.

8. A current-collector having wear-plates, and lubricating devices for supplying a lubricant to the plates at the points where they contact with the slot-rails, substantially as described.

9. A current-collector comprising a standard and a shoe carried thereby, the shoe being mounted for movement about shifting axes lying in planes at right angles to each other, whereby the contact-face of the shoe will always occupy a position normal to that of the conductor, irrespective of any inclination of the shoe-standard, substantially as described.

10. A current-collector comprising a standard and a spring-pressed shoe carried thereby, the shoe being mounted for movement about shifting axes lying in planes at right angles to each other, whereby the contact-face of the shoe will always occupy a position normal to that of the conductor, irrespective of any inclination of the shoe-standard, substantially as described.

11. In an electric railway employing a flat conductor, a shoe mounted for movement about shifting axes lying in planes at right angles to each other, whereby the contact-face of the shoe will always occupy a position normal to that of the conductor, irrespective of any inclination of the shoe-standard, substantially as described.

12. In an electric railway employing a flat conductor, a spring-pressed shoe mounted for movement about shifting axes lying in planes at right angles to each other, whereby the contact face of the shoe will always occupy a position normal to that of the conductor, irrespective of any inclination of the shoe-standard, substantially as described.

13. In a current-collector, a standard comprising a plurality of frame-bars, conducting-bars arranged between and insulated from the frame-bars, insulating material covering both sides of the lower portion of the standard, brackets rigidly secured against the insulating material, shoes supported from the brackets, and connections between the shoes and the conducting-bars, substantially as described.

14. A current-collector comprising a standard carrying two sets of brackets provided with slots, bolts passing through the slots and through insulating blocks mounted between the brackets, shoes carried by the blocks, and springs interposed between the standard and the insulating-blocks, substantially as described.

15. In a current-collector, a standard having pairs of brackets secured on each side of its lower portion, each pair being provided with slots disposed in vertical alinement, insulating-blocks working between the brackets, bolts passing through the slots and through the insulating-blocks, shoes carried by the blocks, and springs interposed between the blocks and the standard, substantially as described.

16. A current-collector having the lower portion of its sides covered by sheets of insulating material, brackets secured against this insulating material, said brackets being provided with slots disposed in vertical alinement, insulating-blocks working between the brackets, bolts passing through the slots and through the insulating-blocks, and shoes carried by the blocks, substantially as described.

17. In a current-collector, a standard comprising a plurality of frame-bars, conducting-bars arranged between the frame-bars and insulated therefrom, each conducting-bar having its lower portion provided with an outturned toe, face-plates secured on each side of the standard, and holding the frame-bars and conducting-bars assembled, wear-plates secured to the said bars, an insulating-plate secured on each side of the lower portion of the standard, and provided, each, with an opening, through which extends the toe of a conducting-bar, conducting-blocks secured to the plow below these toes, insulating material arranged above the toes, whereby to prevent short-circuiting between the toes and the standard, transversely-slotted brackets secured on each side of the lower portion of the plow against the insulating-plates, blocks mounted between the brackets and held in place by bolts passing through the slots in the brackets, shoes carried by the blocks, and electrical connections between the shoes and the conducting-bars, substantially as described.

18. A current-collector comprising a standard composed of a plurality of frame-bars, conducting-bars arranged between the frame-bars and insulated therefrom, each conducting-bar having its lower portion provided with an outturned toe, face-plates secured on each side of the standard and holding the frame-bars and conducting-bars assembled, wear-plates secured to the said bars, an insulating-plate secured on each side of the lower portion of the standard and provided, each, with an opening through which extends the toe of a conducting-bar, conducting-blocks secured to the standard below these toes, insulating material arranged above the toes, whereby to prevent short-circuiting between the toes and the plow, transversely-slotted brackets secured on each side of the lower portion of the standard against the insulating-plates, blocks mounted between the brackets and held in place by bolts passing through the slots in the brackets, shoes carried by the blocks, electrical connections between the shoes and the conducting-bars, fuse-blocks carried by the upper portion of the standard, fuses held in place against the blocks and connecting the terminals and the conducting-bars electrically, and a switch between each terminal and its corresponding shoe, substantially as described.

19. In a current-collector, a standard carrying shoes, fuse-blocks arranged in the upper portion of the standard and provided with recesses, terminals having their lower ends housed in the fuse-blocks, conducting-bars having their upper ends housed in the fuse-blocks and their lower ends in electrical connection with the shoes and a switch on each of the fuse-blocks between the terminal and the conducting-bar, substantially as described.

593,155. BROOM-HANDLE ATTACHMENT OR POLE ATTACHMENT CONSISTING OF PICTURE-HANGER, DUST-RAG HOLDER, AND SUSPENDING DEVICE.

SARAH R. G. BUCHANAN, Newport, Ky. Filed June 14, 1897. Serial No. 640,653. (No model.)



Claim.—1. A combined picture-hanger, dust-rag holder and suspension device comprising two side plates or arms, both provided with openings and one having an upwardly-projecting hook and an attaching means projecting from the base of the device, substantially as described.

2. A combined picture-hanger, dust-rag holder and suspension device, consisting of a piece of sheet metal bent at the base or lower end thereof to form two parallel side plates or arms each provided with an opening and one having an upwardly-projecting hook, and a fastening device, such as a screw, passed through or projecting from the said base, substantially as described.

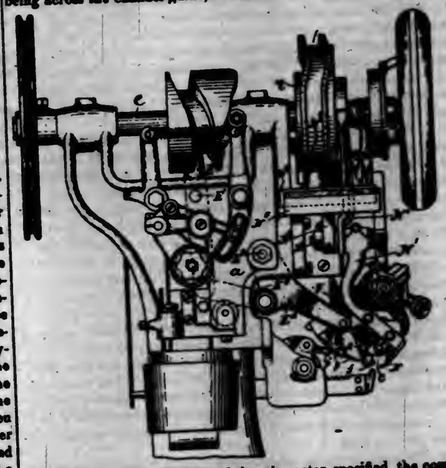
593,156. MACHINE FOR SEWING SHOES.

ANDREW BUTLER, Jr., Boston, Mass. Filed Apr. 30, 1897. Serial No. 634,694. (No model.)

Claim.—1. In a sewing-machine of the character specified, the combination of a channel-guide, an awl located at the opposite side of the material from the channel-guide and having a lateral movement relatively to and across the channel-guide to feed the work without aid from the needle, a curved needle located on the same side with the awl the awl being arranged to coincide with the path of the needle when the said awl reaches the end of its feed movement, and suitable complemental parts coöperating with said awl, needle, and channel-guide.

2. A sewing-machine of the character specified, comprising an awl, a needle, and a back gage located at one side of the material, and a channel-guide and looper located at the opposite side of the material, the awl being movable independently of the needle and arranged to feed the work while the needle is retracted.

3. A sewing-machine of the character specified, comprising a curved needle moving in an unvarying path, an awl having a lateral work feeding movement, a back gage movable laterally with the awl to support the work while it is being fed, said parts being located at one side of the work, and a channel-guide located at the opposite side of the work, the lateral movement of the awl and back gage being across the channel-guide, or from side to side thereof.



4. In a sewing-machine of the character specified, the combination with suitable complemental stitch-forming parts, including a curved needle, of a looper, a slide movable horizontally toward and from the front of the machine and provided with a stud or trundle-roll, a lever mounted to oscillate on said slide in a plane at right angles to the path of movement of the slide, and having an arm projecting below the slide and provided with a looper, and an arm projecting above the slide and provided with a stud or trundle-roll, and a cam disk or plate having a cam-groove engaged with the stud on the slide and another cam-groove engaged with the stud on the lever, whereby the slide is reciprocated and the lever oscillated, all of said movements being positive.

593,157. RATCHET MECHANISM.

RAMSEY T. FURBUSH, Philadelphia, Pa., assignor to the North Brothers Manufacturing Company, same place. Filed Aug. 3, 1897. Serial No. 646,967. (No model.)



Claim.—1. The combination of a ratchet-wheel, a pawl pivoted transversely to the longitudinal line of the wheel and extending longitudinally over the wheel and an abutment at one side of the axial line of the wheel and also extending longitudinally over said wheel, so that when the wheel engages the pawl the abutment will, through the medium of said pawl, directly oppose the thrust of the wheel, substantially as described.

2. The combination of a ratchet-wheel, a pawl pivoted transversely to the longitudinal line of the wheel and extending longitudinally over said wheel, and an abutment for the pawl also projecting longitudinally over the wheel close to the toothed periphery of the same, said abutment being located at one side of the axial line of the wheel and projecting below the top tooth of the wheel, substantially as specified.

3. The combination of a ratchet-wheel, an abutment extending over the ratchet-wheel close thereto, and at an angle in respect to a line drawn through the face of the engaging tooth, and a transversely-pivoted pawl extending longitudinally over the wheel adapted to rest between the abutment and a tooth of the ratchet-wheel so that the abutment will receive the direct thrust of the wheel through the pawl, substantially as described.

4. The combination of a square-toothed ratchet-wheel, a beveled abutment extending over the wheel and a square pawl resting against the abutment and adapted to the space between a tooth of the wheel

and the abutment when the wheel is turned in one direction, and so arranged as to be elevated by a tooth of the wheel when turned in an opposite direction, substantially as described.

5. The combination of a casing, having an abutment and an open transverse slot, a spindle adapted to the casing, a ratchet-wheel on the said spindle, and a pawl having trunnions formed integral therewith and adapted to the open transverse slot, said pawl extending alongside the abutment of the casing and engaging one of the teeth of the ratchet-wheel so that it will prevent the wheel and its spindle from turning in one direction when in engagement therewith, substantially as described.

6. The combination of a casing slotted to form an abutment and having an open transverse slot, a spindle, a ratchet-wheel thereon, said wheel and spindle adapted to the casing, a pawl having trunnions at each side formed integral therewith and adapted to rest in the transverse slot and extending alongside the abutment and over the ratchet-wheel, the trunnions of the pawl bearing at the forward end only of the slot so as to form a tail-section, with means for pressing upon this tail section to tilt the pawl, substantially as described.

7. The combination in ratchet mechanism, of a casing having two abutments, a ratchet-wheel, two pawls, one pawl pivoted at one end of the ratchet-wheel and resting against one abutment, and the other pawl pivoted at the other end of the ratchet-wheel and resting against the other abutment, both pawls being transversely pivoted to the axial line of the wheel, the arrangement of the pawls being such that the rotation of the wheel in one direction is blocked by one pawl and the rotation of the wheel in the opposite direction is blocked by the other pawl, with means for acting on the pawls to throw one of them out of engagement with the ratchet-wheel, substantially as and for the purpose set forth.

8. The combination in ratchet mechanism, of the casing slotted to form two abutments and having a transverse slot at each end extending past the abutment and forming the bearing for the pawls, a spindle, a ratchet-wheel thereon, two pawls transversely pivoted, said pawls having integral trunnions, the trunnions of one pawl being adapted to one transverse slot and the trunnions of the other pawl being adapted to the other transverse slot, and one pawl having a finger extending alongside one abutment, the other pawl having a finger extending alongside the other abutment, both pawls extending over the ratchet-wheel, with means for acting upon the pawls to throw them into or out of engagement with the ratchet-wheel, substantially as described.

9. A pawl for ratchet mechanism consisting of the body d, trunnions d^3 and a finger d' extending from one end of the body, said parts being integral, substantially as described.

10. A pawl for ratchet mechanism consisting of the body d, having trunnions d^3 at the rear end, said trunnions and body-piece being beveled on the under side at the rear end and a finger projecting from the opposite end of the body, substantially as described.

11. The combination of a slotted casing forming two abutments b b', a spindle, a ratchet-wheel on the spindle within the casing, pawls D, D', one pawl resting against one abutment and the other pawl resting against the opposite abutment, said pawls being transversely pivoted on a longitudinal line through the spindle, with a longitudinal sliding spring adapted to be moved past the pivot-points of the pawls so that they can be thrown into and out of engagement with the ratchet-wheel, substantially as described.

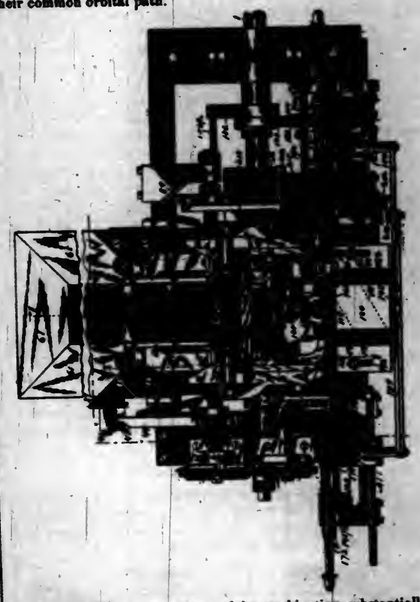
12. A pawl for ratchet mechanism consisting of a body having parallel sides with a finger extending from one end of the body and located at one side of the center thereof, substantially as described.

13. The combination in a ratchet mechanism, of the casing B having abutments b b', a spindle having a ratchet-wheel, transversely-pivoted pawls D D', the pawl D resting against the abutment b and the pawl D' resting against the abutment b', one pawl being pivoted in the casing at one end of the ratchet-wheel and the other pawl being pivoted in the casing at the opposite end of the ratchet-wheel, each pawl having a tail extending beyond its pivot-point, with an elongated flat spring having a projection, a shell having an elongated slot through which the projection extends so that on moving the said spring longitudinally one or other of the pawls will be thrown out of engagement with the ratchet-wheel, substantially as described.

14. The combination in ratchet mechanism, of a casing open at one end and longitudinally slotted to form an abutment, a pawl adapted to the slotted portion of the casing, an abutment-plate within the casing and a perforated plug adapted to be inserted in the open end of the casing, a spindle confined longitudinally by the abutment-plate and perforated plug and having a reduced portion extending through the perforated plug said spindle having teeth with which the pawl engages, substantially as described.

598,158. CIGARETTE-MACHINE. GEORGE GEBE, Richmond, Va., assignor of one-half to Charles H. Buck, same place. Filed Oct. 25, 1895. Serial No. 566,695. (No model.)

Claim.—1. In a cigarette-machine, and in combination substantially as described, a circular series of molds each having an open side, means for revolving said molds, means for intermittingly arresting their revolving motion, a vertically-reciprocating frame, a frame hinged to said reciprocating frame so that it can swing forwardly, a cam-shaft having cams for reciprocating said frame, and others for swinging said swinging frame, a cutter-blade fixed to said swinging frame whereby the cutter-blade is moved vertically to sever the charges of tobacco stock and swung forwardly to force said charges successionally to the molds, mechanism for placing the wrappers on the charges which have been previously formed in the molds, and an ejector for discharging the completed cigarettes from the molds, all acting with the molds in the order recited and at different places in their common orbital path.



2. In a cigarette-machine, and in combination substantially as described, a circular series of molds, each having an open side, means for revolving said molds, means for intermittingly arresting the motion of said molds, means for opening said molds, a frame which is movable vertically, means for reciprocating said frame, a swinging frame hinged to said reciprocating frame, carrying a cutter-blade which moves vertically with the swinging frame to sever the material, and swings forwardly therewith to force the material into the molds successionally, means for swinging said frame and cutter-blade, a mold-opener, means for closing said molds, mechanism for placing the wrappers on the charges while in the molds and which have been previously formed in the molds, and an ejector for discharging the completed cigarettes from the molds, all acting on each mold in the order recited and at different places in their common orbital path, except the swinging frame or feeder and mold-opener, which act on the molds at the same place in their common orbital path.

3. In a cigarette-machine, and in combination substantially as described, a rotating head, a charge-forming mold comprising two substantially radial jaws with confronting grooves, one of which jaws is hinged to the rotating head in such manner that said jaws may be closed to form the mold in which the charges are given form, and may be opened to admit the unformed charges of stock, or for other purposes, and a diaphragm, fixed to one of said jaws, and a recess in the confronting jaw in which said diaphragm slides back and forth as the jaws are opened and closed respectively.

4. In a cigarette-machine, and in combination substantially as described, a series of revolving molds each having a slotted or open side, an intermitting feeding mechanism which carries a regulated sheet of tobacco stock, a reciprocating cutter with a swinging cutter-blade hinged thereto and forming a part thereof, for severing said stock into regulated quantities for each charge, means for reciprocating said cutter, and means for swinging said cutter-blade forwardly to force the severed stock into the mold.

5. In a cigarette-machine and in combination substantially as described, a revolving series of molds, a reciprocating frame with pendent side arms, a cam-shaft with a cam which acts on said arms to force the frame downwardly, a cutter-blade frame hinged to said armed frame and forced downwardly and upwardly thereby for severing charges of tobacco from a regulated sheet, cams on said cam-shaft which cams act on arms pendent from said cutter-frame and swing it forwardly to feed each charge into a mold, and a mold-opener comprising a pendent arm with a catch, a shaft which carries it, an arm projecting from said shaft radially, and a cam mounted on said cam-shaft.

6. In a cigarette-machine, and in combination substantially as described, a revolving series of molds each having an open side, a reciprocating cutter-frame with pendent side arms, a cam-shaft with a cam which acts on said arms to force the cutter downwardly for severing charges of tobacco from a regulated sheet thereof, a swinging cutter-blade-carrying frame hinged to said reciprocating frame, cams on said cam-shaft which force the cutter-blade and swinging frame forwardly, to feed such charges into a mold, a mold-opener, comprising a pendent arm with a catch, a shaft which carries it, an arm projecting from such shaft radially, and a cam mounted on said cam-shaft.

7. In a cigarette-machine and in combination substantially as described, a series of revolving molds each with a slotted or open side, an intermitting feeding mechanism which carries a regulated sheet of tobacco stock, a reciprocating frame, another frame which moves vertically with said reciprocating frame which is hinged thereto and carries a cutter-blade for severing said stock into regulated quantities for each charge, means for reciprocating said cutter, and means for swinging said cutter-blade forwardly to force the severed tobacco stock into the molds.

8. In a cigarette-machine and in combination substantially as described, a revolving series of molds, a reciprocating cutter-frame with pendent side arms, a swinging frame hinged to said cutter-frame and carrying a cutter-blade, cams on a cam-shaft which act on said side arms to move said cutter-frame downwardly, means for moving said cutter-frame in an opposite direction, cams on said cam-shaft for swinging the cutter-blade and swinging frame forwardly to force said charges into the mold, means for returning said swinging blade and swinging frame to their normal positions, a clutch mechanism mounted on said cam-shaft, and a main drive-shaft from which said cam-shaft receives motion.

9. In a cigarette-machine, and in combination substantially as described, a revolving series of molds, a reciprocating cutter-frame with pendent side arms, a swinging frame hinged to said cutter-frame and carrying a cutter-blade, cams on a cam-shaft which act on said pendent side arms to move the cutter-frame downwardly, springs for moving said cutter-frame upwardly, cams on said cam-shaft for swinging the cutter-blade and swinging frame forwardly, to force said charges into the mold, other springs for returning said blade to its normal position, a mold-opener, a cam on said cam-shaft for moving said mold-opener in one direction to open a mold, and a spring for moving the mold-opener in an opposite direction to release the mold from said opener to permit of closing the mold.

10. In a cigarette-machine, and in combination substantially as described, a revolving series of molds, each of which molds has a hinged jaw, a spring for closing said jaws or molds, a lug or pin projecting from each hinged jaw, and a mold-opener comprising an arm with a catch which engages with said lug or pin for opening the mold.

11. In a cigarette-machine and in combination substantially as described, a revolving series of molds, each of which has a hinged jaw, a spring for closing said jaws or molds, a lug or pin projecting from each hinged jaw, a mold-opener comprising an arm with a catch which engages with said lug or pin, a shaft with a cam for operating said arm in one direction, and a spring for moving it in a reverse direction.

12. In combination, a series of intermittingly-revolving molds, compacting-arms, one at each open end of one of said molds while at rest, a reciprocating cutter-blade having lugs which force the compacting-arms outwardly in its descent, and springs which force the compacting-arms inwardly toward the mold, substantially as described.

13. In combination, a series of intermittingly-revolving molds, compacting-arms, one at each open end of one of said molds while at rest, a reciprocating cutter-blade having lugs which force the compacting-arms outwardly in its descent, springs which force the compacting-arms inwardly toward the mold, and trough-shaped guards which hold the tobacco projecting from the ends of the mold, from falling until it is acted on by the compacting-arms, substantially as described.

14. In combination with a series of revolving molds, a reciprocating cutter-blade hinged to swing as a force feeder of a charge of stock to each mold, an intermittently-moving feeder-belt, compressor-rolls, a compressor-block having pendent arms, and a cam-shaft having cams which act on said arms to raise the presser-block, substantially as described.

15. In a cigarette-machine, and in combination substantially as described, a series of revolving molds, a reciprocating frame with pendent arms, a cutter-blade frame hinged to said main frame and having pendent arms, a compressor-block also having pendent arms, a mold-opener fixed to a rock-shaft which carries a radial arm, and a cam-shaft having cams for forcing said reciprocating frame and cutter-blade downwardly, cams for swinging said cutter-blade and frame, cams for elevating the compressor-block and a cam for actuating said mold-opener.

16. In a cigarette-machine, and in combination substantially as described, a series of revolving molds, a reciprocating frame with pendent arms, a cutter-blade frame carrying a cutter and hinged to said reciprocating frame and provided with pendent arms, a compressor-block also having pendent arms, a mold-opener fixed to a rock-shaft which carries a radial arm, a cam-shaft having cams for forcing said reciprocating frame and cutter-blade downwardly, cams for swinging said cutter-blade and frame, cams for elevating the compressor-block, and a cam for actuating said mold-opener, a clutch mounted on said cam-shaft and geared with a clutch mechanism mounted on the mold-shaft whereby said cam-shaft is given as many intermittent rotations by each rotation of the mold-shaft as there are molds carried by said shaft.

17. In a cigarette-machine, and in combination substantially as described, a series of revolving molds, a reciprocating frame with pendent arms, a cutter-blade frame carrying a cutter and hinged to said reciprocating frame and provided with pendent arms, a compressor-block also having pendent arms, a mold-opener fixed to a rock-shaft which carries a radial arm, feed-rollers, a ratchet-wheel fixed to one of the belt feed-rollers, a crank-arm loosely mounted on the end of said roller-shaft, a spring-actuated pawl, pivoted to said crank-arm, a link-rod, a cam-shaft having cams for forcing said reciprocating frame and cutter-blade downwardly, cams for swinging said cutter-blade and frame, cams for elevating the compressor-block, a cam for actuating said mold-opener, a feed-belt, and a cam for acting on said link-rod to give an intermittent forward motion to the feed-belt.

18. In a cigarette-machine, the combination comprising a feed-belt passing between rollers, pinions for gearing said rollers to each other, a ratchet-wheel fixed to the shaft of one of said rollers, a crank-arm loosely mounted on said shaft and provided with a pawl engaging said ratchet-wheel, a link-rod, a cam on a rotating shaft for drawing said crank-arm in one direction, and a spring for returning it in an opposite direction, and a catch hinged to said link-rod and adapted to engage with a shaft or rod for holding the link-rod out of contact with the cam on the cam-shaft whereby the movement of the feed-belt is arrested, substantially as described.

19. In a cigarette-machine, the combination comprising a continuously-rotating drive-shaft, a mold-carrying shaft in gear with said drive-shaft, a friction-clutch on said mold-carrying shaft consisting of a pinion loosely mounted on said shaft and a disk fixed on said shaft and provided with radial lugs, a cam-shaft with a clutch thereon consisting of a ratchet-faced pinion loosely mounted on said shaft and in gear with the drive-shaft and a disk fixed thereon which disk carries a spring-pawl, and a trip mechanism actuated by said radial lugs to throw the clutch on the cam-shaft into engagement, substantially as described.

20. In a cigarette-machine, and in combination, a continuously-rotating drive-shaft, a mold-carrying shaft in gear therewith, a clutch on said mold-carrying shaft, a cam-shaft, a clutch on said cam-shaft, and a trip actuated by the clutch on the mold-shaft, for throwing the clutch into engagement on the cam-shaft, substantially as described.

21. In a cigarette-machine, the combination, a rotating shaft carrying a series of molds, a rock-shaft, a detent fixed to said rock-shaft, an oscillatory treadle and pawl, a ratchet-wheel actuated by said pawl, and a pawl fixed to the detent-carrying shaft at one end and at its other end in contact with said ratchet-wheel, whereby it is oscillated to swing the detent into and out of the orbital paths of the molds, substantially as described.

22. In a cigarette-machine, and in combination, a rotating shaft carrying a series of molds, a rock-shaft, a detent fixed to said rock-shaft, an oscillatory treadle, means whereby said treadle intermittingly swings the detent into and out of the orbital path of the molds, a drive-shaft, and a friction-clutch on the mold-shaft, which slips to throw the mold-shaft out of gear with the drive-shaft when the detent engages a mold, and engages by friction to throw the mold-shaft into gear with the drive-shaft when the detent is disengaged with any of the molds, substantially as described.

23. In a cigarette-machine, and in combination, an intermittingly-rotating shaft carrying a series of molds, a rock-shaft, a detent fixed to said rock-shaft, an oscillatory treadle, means whereby said treadle intermittingly swings the detent into and out of the orbital paths of the molds, a drive-shaft, a friction-clutch on the mold-shaft whereby said shaft is thrown out of gear with the drive-shaft when the detent engages a mold, and in gear with said shaft when the de-

tent is disengaged from a mold, a cam-shaft, a clutch on said cam-shaft, and a trip actuated by the mold-shaft for operating said clutch whereby said cam-shaft is intermittingly rotated by the drive-shaft to impart movement to the feed-belt, the cutter, the presser-block and the compacting-arms during the intervals of rest of the molds, substantially as described.

24. The combination in a cigarette-machine, of a drive-shaft, a mold-carrying shaft, a detent for intermittingly arresting the revolving motion of the molds, treadle 26, pawls 28 and 32, spring 33, ratchet-wheel 31, and a friction-clutch on said mold-shaft, by which it is geared with the drive-shaft, substantially as described.

25. In a cigarette-machine, in combination, a mold with a series of holes through one side thereof, a charge-transfixing fork with a series of prongs corresponding with the holes in the mold, a rock-shaft with a radial arm with which said transfixing-fork is connected, an oscillating treadle, and means for transmitting motion from said treadle to said rock-shaft and transfixing-fork, substantially as described.

26. In a cigarette-machine, in combination, a mold with a series of holes through one side thereof, a charge-transfixing fork with a corresponding series of prongs, and means for thrusting said prongs through said holes and through the charge of tobacco stock contained in the mold, substantially as described.

27. In a cigarette-machine, the combination comprising an intermittingly-rotating series of molds, each mold having a series of holes through one side of the wall thereof, a transfixing-fork hinged to a bar projecting from a rock-shaft, a second radial bar fixed to said rock-shaft, a treadle, a bar projecting from said treadle, means connected with said radius-bar and bar projecting from the treadle whereby said treadle thrusts the transfixing-fork prongs through said series of openings, and a spring for giving the transfixing-fork a reverse movement and withdrawing its prongs from the series of holes, substantially as described.

28. In a cigarette-machine, and in combination, a mold with a series of holes or openings through one side thereof, gripping-forks having a reciprocating and rotary movement, which enter the ends of the mold and the charge for rotating the charge, a charge-transfixing fork with a series of prongs, and means for thrusting said prongs through said openings or holes and through the charge in the mold, and retaining them there until the gripping-forks are inserted in the charge and then withdrawing the transfixing-fork prongs, substantially as described.

29. In a cigarette-machine, in combination substantially as described, a mold with a series of openings or holes through one side thereof, a transfixing-fork having a reciprocating movement to thrust its prongs through said openings or holes and withdraw them, and gripping-forks having a reciprocating and a rotary motion, substantially as described.

30. In a cigarette-machine, and in combination, a series of intermittingly-revolving molds, a charge-transfixing fork, gripping-forks, and means for both reciprocating and rotating said gripping-forks, substantially as described.

31. In a cigarette-machine, and in combination, a series of intermittingly-revolving molds, a charge-transfixing fork and means for operating it, gripping-forks reciprocated by sliding blocks, connecting-rods, an oscillating pinion, a rock-shaft, a radius-arm, a treadle, and a link-rod connecting said treadle and radius-arm, substantially as described.

32. In a cigarette-machine, and in combination substantially as described, a series of intermittingly-revolving molds, gripping-forks, a detent for arresting the revolving motion of the molds, and a treadle which operates said detent and reciprocates the gripping-forks.

33. In a cigarette-machine, and in combination substantially as described, a series of intermittingly-revolving molds, a charge-transfixing fork, gripping-forks, a detent for arresting the revolving motion of the molds, and a treadle which operates said detent and the charge-transfixing fork and reciprocates the gripping-forks.

34. In a cigarette-machine, and in combination substantially as described, a series of intermittingly-revolving molds, a cutter-blade and means for swinging said blade to force a charge of stock severed by the cutter-blade through the open side of a mold, a detent for arresting the revolving motion of the molds, gripping-forks, and a treadle which operates the detent and reciprocates the gripping-forks, all of which are so timed in their movements in relation to each other that the cutter-blade is acting as a feeder to one mold while the gripping-forks are operating on another mold.

35. In a cigarette-machine, and in combination substantially as described, a series of intermittingly-revolving molds, a cutter-blade and means for swinging said blade to force a charge of stock severed by the cutter-blade through the open side of a mold, a detent for arresting the revolving motion of the molds, gripping-forks, a charge-transfixing fork, and a treadle which operates the detent and the transfixing-fork and reciprocates the gripping-forks, all of which are so timed in their movements in relation to each other that the cutter-blade is acting as a feeder to one mold while the transfixing-fork and gripping-forks are operating on another mold.

36. The combination comprising, a mold, a charge-transfixing fork, gripping-forks having both rotary and reciprocating motion, and means for aligning the gripping-forks with the transfixing-fork, substantially as described.

37. The combination in a cigarette-machine, comprising a mold with an open side, means for rotating the charge of tobacco therein, a wrapper feed-table, and a roller journaled in bearings at the side of said table which confronts the open side of the mold, substantially as described.

38. In a cigarette-machine, and in combination, substantially as described, a mold with an open side, means for rotating a charge of tobacco therein, an adjustable wrapper feed-table, a roller, a swinging frame in which said roller is journaled, and a spring and stop which hold said frame and thereby hold the roller with a yielding force in substantially the position described, with reference to the open side of the mold.

39. In a cigarette-machine, and in combination substantially as described, a mold with an open side, means for rotating a charge of tobacco therein, an adjustable wrapper feed-table, and a roller journaled in yielding bearings at the side of the wrapper-table confronting the open side of the mold.

40. In a cigarette-machine, and in combination substantially as described, a mold, a wrapper feed-table, a side tucker adapted to feed the forward edge of the wrappers into the open side of said mold and onto the periphery of the charge contained therein while the charge is in the mold, and gripping-forks for then rotating the charge and coiling the wrapper thereon.

41. In combination in a cigarette-machine, substantially as described, a revolving series of molds, a feed-table, a yielding roller located between said feed-table and said mold with its periphery in the open side of said mold and slightly pressed into the charge, and a reciprocating tucker for forcing the forward edge of the wrapper between said roller and the charge.

42. In a cigarette-machine, and in combination substantially as described, a mold with an open side, an adjustable wrapper feed-table, a yielding roller journaled in bearings at that side of said table which confronts the open side of said mold, a side tucker for forcing the edge of the wrapper between the roller and charge in said mold, and forks which are rotatable to rotate the charge and thereby further draw the wrapper into the mold to encircle the charge and complete the cigarette.

43. In a cigarette-machine and in combination, substantially as described, a mold with an open side, a wrapper feed-table, a roller journaled in bearings at that side of said table which confronts the open side of the mold, a side tucker for forcing the edge of the wrapper between the roller and charge in said mold, and forks which are rotatable to rotate the charge and thereby further draw the wrapper into the mold to encircle the charge and complete the cigarette.

44. In a cigarette-machine, and in combination with intermittingly-revolving molds, reciprocating shafts carrying charge-gripping forks, one member of a clutch fixed to the outer end of each fork-shaft, another tubular member thereof for each fork-shaft, journaled each in a support, and one of said shafts journaled in each of said tubes or sleeves, and a shaft carrying a pinion on each of its ends, one of which pinions gears with a pinion on each of said tubes or sleeves for simultaneously rotating said fork-shafts.

45. In a cigarette-machine, and in combination with intermittingly-revolving molds, reciprocating shafts carrying charge-gripping forks, one member of a clutch fixed to the outer end of each fork-shaft, another tubular member thereof for each fork-shaft, journaled each in a support, and one of said shafts journaled in each of said tubes or sleeves, a shaft carrying a pinion on each of its ends, one of which pinions gears with a pinion on each of said tubes or sleeves for simultaneously rotating said fork-shafts, a pinion on one of said sleeves, a disk carrying a ratchet engaging with said pinion, a pinion fixed to the side of said disk, a larger pinion geared therewith, a small pinion fixed to said larger pinion, and a treadle with a sector-gear for oscillating said pinions and the rock-shafts.

46. In a cigarette-machine, and in combination substantially as described, an intermittingly-revolving series of molds with a slot or opening in one side of each mold, means for forcing a charge of stock into each of said molds, shafts, each carrying a gripper-fork, rotating sleeves, one for rotating each shaft, said shafts having endlong movement in said sleeves respectively, and means for rotating said sleeves intermittingly.

47. In a cigarette-machine, and in combination, substantially as described, an intermittingly-revolving series of molds each having an open side, an ejector, slidably mounted on guides and projecting through said open side into a mold while the molds are at rest and the ejector in operation, and means for reciprocating the ejector on said guide rods or ways.

48. In a cigarette-machine, and in combination, substantially as described, an intermittingly-revolving series of molds each having an open side, an ejector slidably mounted on guides and projecting through said opening and into a mold while the molds are at rest and the ejector in operation, and means gearing the ejector with the same treadle which operates the gripper-forks and transfixing-fork.

49. In a cigarette-machine, and in combination substantially as described, an intermittingly-revolving series of molds, each mold formed of jaws with confronting grooves and one of which jaws is hinged to open the mold, a reciprocating ejector, and a mold-opener operated by the initial movement of the ejector to open the mold slightly and free the cigarette immediately before the ejector acts on the cigarette.

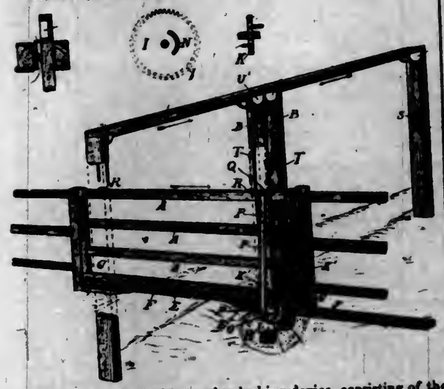
50. In a cigarette-machine, and in combination substantially as described, an intermittingly revolving series of molds, each mold formed of jaws with confronting grooves and one of which jaws is hinged to open the mold, a reciprocating ejector, and means for actuating the ejector, and a mold-opener comprising a swinging frame, a spring-arm having a sloping head and catch fixed to said swinging frame, a bar fixed to said frame, with a recess at one end, a roller journaled in the head of the ejector, a lug or pin projecting from the hinge-jaw of the mold, and means for operating the ejector which ejector operates the mold-opener immediately before it enters the mold.

51. In a cigarette-machine, and in combination substantially as described, an intermittingly-revolving series of molds, an ejector for pushing the completed cigarette endlong from a mold during its interval of rest, a trough shaped receiver for the cigarette with one side of its outer half removed, a tilting table with its lower side turned up to form a ledge for retaining the cigarette on the outer part of said trough, means for tripping or tilting said table to lower said ledge for the escape of the cigarette, and an inclined table for receiving the cigarette and carrying it to any suitable receiver.

52. In a cigarette-machine, a combination comprising an open-side mold, an ejector, a trough constructed substantially as described, a tilting table with a ledge at its lower side and a cam at its opposite side or end, a tappet fixed to one of the arms or blocks which reciprocate the gripping-forks, whereby said table will be tilted to doff a cigarette as said forks are withdrawn from the mold, and a spring for restoring said table to its normal position.

53. In a cigarette-machine and in combination substantially as described, a revolving series of molds each open at one side, a reciprocating frame with pendent side arms, means for reciprocating said frame, a swinging arm pivotally connected with the upper part of said frame and other swinging arms or links pivotally connected with its lower end for alining its movements, a swinging frame carrying a cutter-blade, hinged to said reciprocating frame to swing forwardly, and means for swinging said swinging frame, substantially as described.

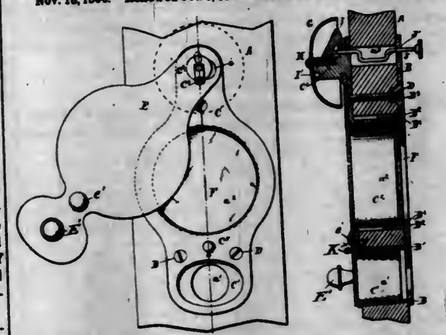
598,159. GATE OPERATING AND LOCKING DEVICE. CHAUNCEY B. JOHNSON, Los Angeles, Cal. Filed Apr. 21, 1896. Serial No. 588,530. (No model.)



Claim.—1. The locking and unlocking device, consisting of the sprocket-wheel, the studs on opposite sides of the sprocket-wheel, the quadrant slot in the toothed pinion, with which one of the studs in the sprocket-wheel engages, the rod suspended from the latch, with which the other stud in the sprocket-wheel engages to lift the latch at the time of opening the gate, the latch attached to the gate-post and the inclined stop, all operating together in the manner and for the purposes, substantially as set forth.

2. The combination of the gate, the toothed rack thereon, the toothed pinion engaging with the toothed rack, the rail, the antifriction-rollers rotating on the rail, the duplex gate-posts, the sprocket-wheel, the sprocket-chain, the ropes extending from the sprocket-chain, the pulleys from which the ropes pass, the weights at the outer end of the ropes, the horizontal beams, to which the pulleys carrying the ropes are attached, the latch pivoted to the upper rail of the gate, the rod suspended from the latch and formed with a notch on its lower end, the stud on the sprocket-wheel, with which said notch engages, and the stop on the upper bar or rail of the gate, all operating together in the manner and for the purposes substantially as set forth.

598,160. SUBDOOR. WHITFIELD R. JOHNS, Brooklyn, N. Y. Filed Nov. 18, 1896. Renewed Oct. 8, 1897. Serial No. 654,579. (No model.)



Claim.—1. In a subdoor, the outer or front plate B, and inner plate C having the registering apertures presenting an opening, plate-fastening means; in combination with a bell carried by the inner plate, a hammer therefor, and hammer-actuating means extending through the outer plate to be operable at the front, substantially as herein specified.

2. In a subdoor, the outer or front plate B and inner plate C having the registering apertures presenting an opening, a glass panel guarding said opening, plate-fastening means; in combination with a plate movable on the inner plate to cover the opening and a bell also on said inner plate, a hammer for the bell and actuating means extending through the outer plate to be operable at the front, substantially as herein specified.

3. In a subdoor, the outer or front plate B, and inner plate C, having the registering pairs of apertures presenting two openings, a glass panel guarding one of said openings, and a plate E movable on the inner plate to cover both openings and having a spring engagement with said inner plate to be positively held in position, in combination with means for fastening said plates to bring their apertures coincident substantially as herein specified.

4. In a subdoor, the outer or front plate B, and inner plate C, having the registering pairs of apertures presenting two openings, a glass panel guarding one of said openings, a plate E, movable on the inner plate to cover both openings, means for fastening said plates to bring their apertures coincident; in combination with an audible alarm operable from the front plate substantially as herein specified.

5. In a subdoor, the outer or front plate B, and inner plate C, having the registering pairs of apertures presenting two openings the front plate having the lip B', and shouldered lip B^2, while the inner plate has the lips C', C^2 sliding within the other lips, a glass panel held between the shouldered lip B^2 and the lip C^2, and a movable plate E on the inner plate to cover both openings, means for fastening both plates to bring their apertures coincident, in combination with an alarm operable from the front plate, substantially as herein specified.

6. In a subdoor, the outer or front plate B, and inner plate C, having the registering pairs of apertures presenting two openings, the plate C, having an inner rear boss C^3, a glass panel guarding one of said openings, a plate E pivotally hung on the boss to cover both openings, means for fastening said plates, in combination with a bell also mounted on the boss and a hammer therefor together with hammer-operating means extending to and operable at the front plate, substantially as herein specified.

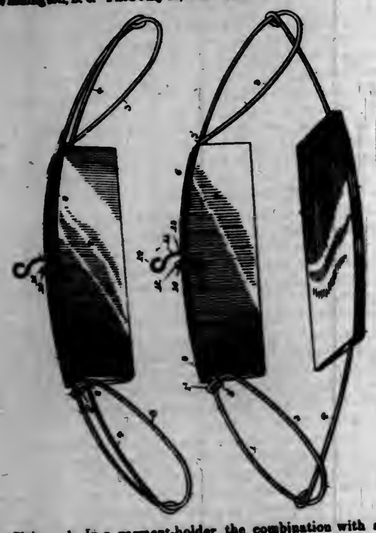
7. In a subdoor, the outer or front plate B having apertures guarded by lips B' and B^2, in combination with the inner or rear plate C having coinciding apertures and lips C' and C^2, matching telescopically within the others, the glass F guarding one of such apertures, the swinging plate E arranged to cover both apertures by a single movement, said plate being held in the closed position by a catch comprising a projection C^2 on the one part engaging in the recess e' on

the other part, adapted to be liberated by the elastic yielding of one of the parts, and the arm C^4, a bell supported thereby and a hammer pivoted thereon; said arm C^4 confining or locking the swinging plate E adapted to serve substantially as herein specified.

8. The main door A apertured as described, in combination with subdoor-plates B, C, correspondingly apertured and lipped and with the swinging plate E locked on the rear plate by the arm C^4 and with the bell C and hammer I, the latter operated by a push-pin and gravity and with provisions as the offsets J' for locking the push-pin in the said plates to prevent withdrawal but with liberty for the proper movements, all substantially as herein specified.

9. In a subdoor, the outer or front plate B and inner plate C, having the registering pairs of apertures presenting two openings, a glass panel guarding one of said openings, and a plate E movable on the inner plate to cover both openings, and having a recess e' to cooperate with the projection C^3 on the inner plate to constitute a lock, in combination with means for fastening said plates to bring their apertures coincident, substantially as herein specified.

598,161. GARMENT FORM AND PRESS. LOUIS M. MARBLE, Washington, D. C. Filed July 30, 1897. Serial No. 646,527. (No model.)

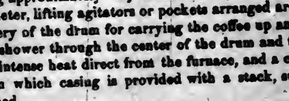


Claim.—1. In a garment-holder, the combination with a body portion formed of wire having its ends bent back upon itself so as to form loops, said loops being sharply inclined downward at the wide end of said loops and gradually sloped upward as they near their point of attachment with the body portion, of a bail pivotally secured to said body portion at the bends of the loops thereof, said bail being adapted to swing into and out of line with said body portion with an oscillatory arc-like motion, being parallel to the body portion, and having its ends attached to the loops in such a manner as to prevent slipping thereon, substantially as described.

2. In a garment-holder, the combination with a body portion formed of wire having its ends bent back upon itself so as to form loops, said loops being sharply inclined downward at the wide end of said loops and gradually sloped upward as they near their point of attachment with the body portion, of a bail pivotally secured to said body portion at the bends of the loops thereof, said bail being adapted to swing into and out of line with said body portion with an oscillatory arc-like motion, being parallel to the body portion, and having its ends attached to the loops in such a manner as to prevent slipping thereon, and boxings having parallel meeting surfaces attached to said bail and said body portion, substantially as described.

598,162. HANDLE FOR CYLES. LOUIS M. MULLIN, Philadelphia, Pa., assignor of one-half to James Howard Lumis, West Chester, Pa. Filed Aug. 28, 1896. Serial No. 604,157. (No model.)

Claim.—1. As a new article of manufacture, a pneumatic handle for bicycles, &c., the same comprising an elastic tubular member having formed therein a series of longitudinal radial cells the inner ends of which are closed while the outer ends terminate in a common passage, an air-valve on the outer extremity of said member having communication with said common passage, and a hood or shield embracing and protecting such extremity, whereby when air is injected into said common passage, by way of the valve, the outer portion of said member is expanded and the inner portion thereof is clamped upon the handle-bar to which the pneumatic handle is applied, substantially as described.



2. In a handle for cycles, &c., the combination, with an inflatable tubular member, of an air-valve on the outer extremity thereof, and a cap on said valve provided with a hood or shield that embraces and protects the end of such tubular member, substantially as described.

598,163. APPARATUS FOR ROASTING COFFEE. JOHN R. O'NEIL, Philadelphia, Pa. Filed Feb. 24, 1897. Serial No. 624,900. (No model.)

Claim.—1. In a coffee-roaster, the combination of a furnace having a combustion-chamber immediately adjoining the roasting-drum of said roaster, a cylindrical, revoluble roasting-drum having a flaring mouth opening directly into the interior of the drum and communicating directly with the interior of the combustion-chamber of the furnace, said drum being approximately very shallow in depth but of a relatively large diameter, lifting agitators or pockets arranged within the drum for carrying the coffee up to a considerable height and allowing it to fall in a shower through the center of the drum and through the flames and heat direct from the furnace, substantially as described.

2. In a coffee-roaster, the combination of a furnace having a combustion-chamber immediately adjoining the roasting-drum of said roaster, a cylindrical, revoluble roasting-drum having a mouth opening directly into the interior of the drum and communicating with the interior of the combustion-chamber of the furnace, said drum being approximately very shallow in depth but of a relatively large diameter, lifting agitators or pockets arranged around the inner periphery of the drum for carrying the coffee up and causing it to fall in a shower through the center of the drum and through the flames and intense heat direct from the furnace, and a casing inclosing the drum which casing is provided with a stack, substantially as described.

3. In a coffee-roaster, the combination of a furnace having a combustion-chamber of unusually large size immediately adjoining the roasting-drum of said roaster, a cylindrical, revoluble roasting-drum having a flaring mouth opening directly into the interior of the drum and communicating directly with the interior of the combustion-chamber of the furnace, said drum being approximately very shallow in depth but of a relatively large diameter, lifting agitators or pockets arranged around the inner periphery of the drum for carrying the coffee up to and causing it to fall in a shower through the center of the drum and through the flames and intense heat direct from the furnace, additional agitators for deflecting the coffee as it falls from the lifting agitators or pockets, and a casing inclosing the drum, which casing is provided with a stack, and a damper or gate located between the furnace and the drum for cutting off communication between the same, substantially as described.

4. In a coffee-roaster, the combination of a furnace having a combustion-chamber of unusually large size, a revoluble roasting-drum closed to the atmosphere but open at one end for the admission of flames and heat directly from the furnace and agitating lifters or pockets arranged around the inner periphery of the drum for carrying the coffee up, a series of agitators extending across the lifting agitators in a spiral direction combining with said latter agitators to cause the coffee to fall in a shower through the center of the drum, and a casing inclosing the drum which is provided with a stack, the construction and arrangement being such that all flames and heat pass directly from the furnace into the drum and through the falling coffee before passing out the stack in the casing, substantially as described.

5. In a coffee-roaster, the combination of a furnace, having a combustion-chamber of unusually large size, a revoluble roasting-drum closed to the atmosphere but open at one end for the admission of flames and heat directly from the furnace, a series of agitating lifters or pockets arranged around the inner periphery of the drum for carrying the coffee up, a second series of agitators extending across the lifting-agitators in a spiral direction and a third series of agitators extending across the lifting agitators or pockets but in an opposite direction to the second series, the spirally-arranged agitators combining with the lifting-agitators to cause the coffee to fall in a shower through the center of the drum, and a casing inclosing the drum which is provided with a stack, the construction and arrangement being such that all the flame and heat pass directly from the furnace into the drum and through the falling coffee before passing out at the stack in the casing, substantially as described.

6. In a coffee roaster, the combination of a revoluble drum, means for admitting hot air to one end of the said drum, means for charging said drum with coffee at the other end, discharge-openings in the periphery of said drum and doors for controlling the said discharge-openings, levers mounted upon one end of the drum for opening said doors, and means for actuating the said levers, substantially as described.

7. In a coffee-roaster, the combination of a revoluble drum, means for revolving the same, means for heating the drum, agitators for lifting the coffee, arranged around the inner side of the periphery of the drum and forming pockets, a second series of agitators extending spirally across the first set of lifting-agitators for deflecting the coffee as it falls, substantially as described.

8. In a coffee-roaster, the combination of a revoluble drum, means for heating the same, a series of agitators on the inner side of the periphery of the drum, a second series of agitators spirally arranged across the first set of agitators, and a third set of agitators spirally arranged across the second set of agitators, but in an opposite direction to said second set, substantially as described.

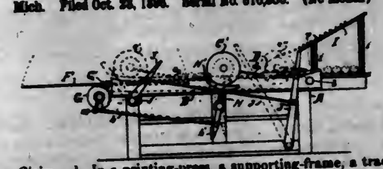
9. In a coffee-roaster, the combination of a revoluble drum provided with annular bearing-rings, a casing for entirely inclosing the drum from the atmosphere and provided with a stack, rollers exterior to said casing for supporting said bearing-rings and gearing secured to the end of said drum, means for revolving the same, lifting agitators or pockets arranged around the inner periphery of the drum, a second series of agitators spirally arranged across the lifting agitators or pockets, and a third series of agitators spirally arranged across the second series of agitators but in an opposite direction to said second series, a furnace arranged at one end of the drum for throwing flames and heat directly into the interior of the drum, and a damper interposed between the furnace and the drum for regulating the supply of heat to the drum, the construction and arrangement being such that the heat and flames pass directly from the furnace into the drum through the falling coffee and out at the stack in the casing, substantially as described.

10. In a coffee-roaster, the combination of a furnace having a combustion-chamber immediately adjoining the roasting-drum of said roaster, a cylindrical, revoluble roasting-drum having a flaring mouth opening directly into the interior of the drum and communicating directly with the interior of the combustion-chamber of the furnace, said drum being approximately very shallow in depth but of a relatively large diameter, and said drum also provided with discharge-openings in its periphery, doors for closing said openings, levers for operating the doors while the drum is revolving, and means for operating the levers while the drum is revolving, a casing entirely inclosing the drum from the atmosphere provided with a stack and formed with lower converging sides leading to a suitable discharge-opening, a tray in said casing arranged over said discharge-opening, lifting agitators or pockets arranged within the drum for carrying coffee up to a considerable height and allowing it to fall in a shower through the center of the drum and through the flames and heat from the furnace, substantially as described.

11. In a coffee-roaster, the combination of a revoluble drum, means for supplying coffee to the same, a furnace for supplying heat to said drum, and a connecting heat-chute having diverging sides leading to a discharge-opening, whereby any grains of coffee thrown from the drum may be collected and prevented from entering the furnace, substantially as described.

12. In a coffee-roaster, the combination of a furnace having a combustion-chamber immediately adjoining the roasting-drum of said roaster, a cylindrical, revoluble roasting-drum having a mouth opening directly into the interior of the drum and communicating directly with the interior of the combustion-chamber of the furnace, said drum being approximately very shallow in depth but of a relatively large diameter, and coffee-agitators arranged within the drum, substantially as described.

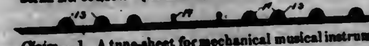
598,164. PRINTING-PRESS. FRANK A. PULSIFER, Hopkins Station, Mich., assignor of one-half to Lucius D. Harris, Grand Rapids, Mich. Filed Oct. 28, 1896. Serial No. 610,356. (No model.)



Claim.—1. In a printing-press, a supporting-frame, a track pivoted at one end to one end of each side of the supporting-frame, a shaft having an eccentric at each end in position to actuate the free end of the tracks vertically, a lever attached to said shaft in position to be actuated by the cylinder, a lever at the other end of the machine connected with said lever and in position to be similarly actuated by the cylinder but in the opposite direction, a lever pivoted to the side of the frame, a T-arm across the top of said lever in position to be actuated by the flange of the cylinder in either direction, a connecting-rod passing from said lever to a gear-wheel at the foot of the press, a small gear meshing with said gear, a fly secured to the shaft supporting said small gear so that the motion of the lever is utilized to actuate the fly to and from the cylinder, a cylinder arranged to actuate the several levers, to receive, print and discharge papers and inking appliances connected to act with said cylinder, substantially as and for the purpose set forth.

2. The combination, with a frame, an impression-cylinder, a form and adjustable carrying-tracks; of a fly pivoted at one end of the frame, a gear and rack attached to actuate said fly, and a lever centrally pivoted to the frame, a T at its upper end in position to receive the moving cylinder and transmit its motion to the lower end in a reverse direction and thence, by means of a connecting-rod to actuate the fly gear and rack, substantially as and for the purpose set forth.

598,165. TUNE-SHEET FOR MECHANICAL MUSICAL INSTRUMENTS. JOHN R. SANDERS, Indianapolis, Ind. Filed Aug. 27, 1896. Serial No. 604,107. (No model.)



Claim.—1. A tune-sheet for mechanical musical instruments, consisting of a sheet of non-metallic, plastic material, such as celluloid, a series of lugs formed integral with one surface thereof, and a series of metallic strips embedded in said sheet and having a portion thereof projecting into said lugs, substantially as and for the purpose set forth.

2. A tune-sheet for mechanical musical instruments, consisting of a sheet formed of non-metallic, plastic material, and a series of metallic strips, each of said strips having a head portion embedded in said sheet and each of said strips having a portion projecting from one surface of said sheet, substantially as and for the purpose set forth.

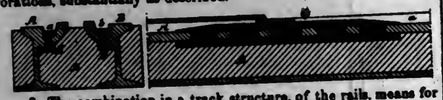
3. The combination in a mechanical musical instrument, of a tune-sheet therefor consisting of a non-metallic plastic material having lugs formed integral with one surface thereof, and a picker-wheel adapted to cooperate therewith, said picker-wheel consisting of a metallic portion adapted to engage with the teeth of the comb and a non-metallic portion adapted to be engaged by the lugs of the tune-sheet, substantially as described.

4. In a mechanical musical instrument, a picker-wheel therefor consisting of a metallic portion adapted to engage with the teeth of the comb and a non-metallic portion adapted to be engaged by the tune-sheet, substantially as described.

598,166. RAILROAD-TRACK STRUCTURE. WILLIAM SELFRIDGE, Philadelphia, Pa., executor of Edward Samuel, deceased. Filed Nov. 21, 1896. Serial No. 613,094. (No model.)

Claim.—1. The combination in a track structure, of a rail having a series of perforations with the riser or wearing-plate resting upon the rail and having a series of lugs extending into the perforations of the rail and acting to hold the riser in position, substantially as described.

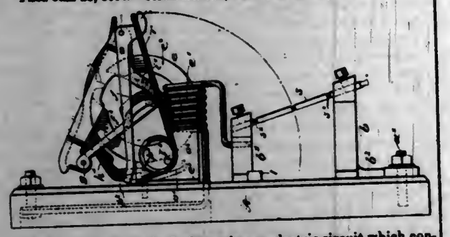
2. The combination of a rail, perforated side flange thereof, with a cast-metal riser or wearing-plate having two sections, one above and one below the flange united by portions passing through the perforations, substantially as described.



3. The combination in a track structure, of the rails, means for securing them together, the flanges of the rails having perforations, with a riser or wearing-plate at the junction of the two rails, the metal of the riser extending into the perforations, substantially as described.

4. The combination in a track structure, of the rails perforated at the point where a riser is to be formed, with cast metal binding the rails together, said metal extending through the perforations and forming the riser, substantially as described.

598,167. ELECTROMAGNETIC-CIRCUIT BREAKER. DANIEL C. SPELLANCE, Philadelphia, Pa., and MONTGOMERY WADDELL, New York, N. Y., assignors to the Sentinel Electric Company, Wilmington, Del. Filed Jan. 26, 1897. Serial No. 620,532. (No model.)



Claim.—1. The method of opening an electric circuit which consists in mechanically breaking out by a hammer-blow a section of the circuit from between two terminals, and simultaneously breaking the removed section into a plurality of parts.

2. In an electric-circuit breaker, the combination of a breakable bar forming a section of the circuit and a hammer adapted to strike and break said bar, substantially as described.

3. In an electric-circuit breaker, the combination of a breakable bar forming a section of the circuit, a hammer adapted to strike and break said bar and an electromagnet controlling said hammer, substantially as described.

4. In an electric-circuit breaker, the combination of a breakable bar forming a section of a circuit, a hammer adapted to strike and break said bar, a latch supporting said hammer in position to strike, a trigger for releasing the latch and an electromagnet whose armature is adapted to operate the trigger, substantially as described.

5. In an electromagnetic-circuit breaker the combination of the breakable bar forming a section of the circuit, a hammer adapted to strike and break said bar, a latch supporting said hammer in position to strike, a trigger adapted to hold the latch in its operative position and to release the same, a detent for the latch adapted to hold it in its inoperative position, and an electromagnet whose armature operates the trigger, for the purpose set forth.

6. In an electromagnetic-circuit breaker, the combination of a breakable bar forming a section of a circuit, a hammer adapted to strike and break said bar, a latch supporting said hammer in position to strike, a trigger provided with two detents, one adapted to sustain the latch in its operative position and the other to sustain it in its inoperative position and an electromagnet whose armature operates the trigger.

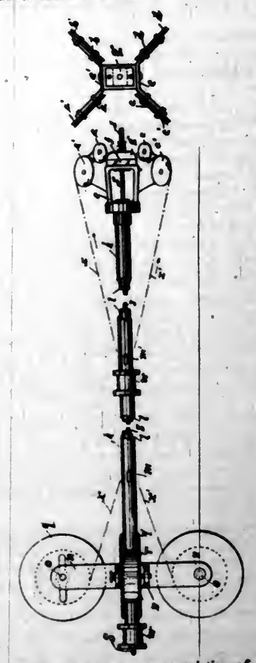
7. In a circuit-breaker an electromagnet having a ring, or other closed-shaped core whose armature-space is formed by removing a segment thereof, an armature for said magnet normally located within said ring, a trigger projecting into the armature-space and adapted to be moved by the armature, a latch controlled by the trigger and a circuit-controlling device held in operative position by the latch, substantially as described.

8. In an electromagnetic-circuit breaker, an electromagnet having a ring or other closed-shaped core, a segment of which is removed to form the armature-space, in combination with an armature normally wholly within the figure of the core and out of the armature-space and adapted to move bodily into the armature-space, for the purpose set forth.

9. In an electromagnetic-circuit breaker an electromagnet having a ring or other shaped core, a segment of which is removed to form the armature-space, an armature located within said ring, a pivoted arm normally supporting the armature and a ratchet sustaining said arm and along which it is adjustable, substantially as and for the purpose described.

10. In a circuit-breaker, a breakable bar forming a section of the circuit, a spring-operated hammer in the form of a yoke, the crosspiece of which is adapted to strike and fracture the said strip.

598,168. MACHINE FOR MAKING WIRE COILS FOR FLEXIBLE SHAFTING. ADOLPH STEINER, Berlin, Germany. Filed Mar. 1, 1897. Serial No. 625,643. (No model.)



Claim.—1. A coiling apparatus consisting of a hollow mandrel adapted to be rotated and provided at one end with a spool-carrying frame, said spools consisting of pairs of disks mounted upon pins, said disks being further provided with suitable means for fixing them together, said mandrel terminating at the other extremity in a frame carrying rollers adapted to facilitate the feeding of the wires; said mandrel being furthermore provided with two series of slots arranged opposite to the spools and adapted to afford to the wire an entrance into and an exit from the hollow mandrel aforesaid; and suitable mechanism arranged within the said mandrel and adapted to extend beyond the roller end of the apparatus, substantially as described.

2. The herein-described spool consisting of a central boss, two disks, one of which is secured on each end of the boss, and a spring band or ring loosely placed around the boss and between the disks, one end of said ring having a groove, and the other end having a pin to engage in said groove when the ends are overlapped, rendering the ring self-adjusting as to size, all substantially as set forth.

3. The combination with the head *c* of the hollow shaft, of the bracket-arms *c'* mounted thereon and projecting diagonally therefrom, the rolls *a*, *a'*, *b*, *b'*, *c*, *c'*, and *d*, *d'*, reversibly mounted on said arms, and the guide *f* for receiving the rollers, having guideways leading to the central opening, all substantially as set forth.

4. A coiling apparatus consisting of a suitable hollow mandrel suitably supported and adapted to be rotated, said mandrel being provided with suitable interior mechanism whereby there are formed internal grooves for the entrance and the exit of the wire into and from said mandrel, said internal mechanism extending beyond the end of the mandrel and being provided with suitable mechanism adapted to fix the wires; and a frame mounted upon said mandrel and carrying a series of rollers arranged in pairs and adapted to convey the wires from the exit-grooves to the fixed mechanism aforesaid, substantially as described.

598,169. PRINTING-PRESS. SVEND H. SVENDSEN, Brooklyn, N. Y. Filed Feb. 20, 1896. Serial No. 580,014. (No model.)

Claim.—1. The combination of a type-bed and a curved rocking platen over the type-bed, said type-bed and platen adapted to be separated for allowing the paper to pass between them and for inking the type, and means for feeding a continuously-moving paper web between the type-bed and platen and causing it to dwell relatively to the platen while making the impression substantially as described.



2. The combination in a printing-press, of a rising-and-falling type-bed, a curved rocking platen over the type-bed, and means for feeding a continuously-moving paper web between the type-bed and platen and causing it to rest or dwell relatively to the platen while making the impression substantially as described.

3. The combination in a printing-press, of two rising-and-falling type-beds, and a curved rocking platen over each bed located at a distance apart along a paper-web-feeding course and moving toward and from each other alternately, means for feeding a paper web between the type-beds and platens and causing it to rest or dwell relatively to the platens while making the impressions and means for reversing the paper web intermediately of the two beds and platens said platens being actuated reversely to each other corresponding to the reverse movements of the paper web substantially as described.

4. The combination in a printing-press, of two rising-and-falling type-beds and a curved rocking platen over each bed located at a distance apart along a paper-web-feeding course and moving toward and from each other alternately, means for feeding a paper web between the type-beds and platens and causing it to dwell or rest relatively to the platens while making the impressions, and means for reversing the paper web intermediately of the two beds and platens, part of said means for so feeding the paper consisting of the guide-rolls for the paper located on the reversely-operating platens whereby the paper let off from one platen while making the impression, is taken up by the other platen substantially as described.

5. The combination in a printing-press, of two rising-and-falling type-beds, and a curved rocking platen over each bed, located at a distance apart along a paper-web-feeding course, means for feeding the paper web to the first platen thence to a reversing-roll and thence to the second platen, means to actuate said platens simultaneously in reverse directions and means to deliver the paper from an intermediate position relatively to the platens, substantially as described.

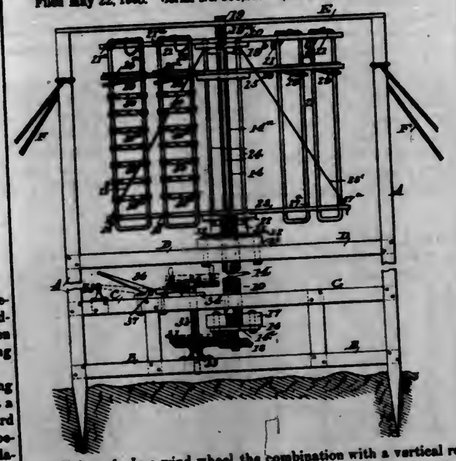
6. The combination in a printing-press, of two rising-and-falling type-beds, and a curved rocking platen over each bed located at a distance apart along a paper-web-feeding course and moving toward and from each other alternately, means for feeding the paper web to the stock of the first platen at a point above its axis of motion, and near its middle plane, thence in a reverse direction to one edge of the platen, under said platen to the other edge and to an opposite point on the stock corresponding to the first position of the web thereon, thence to and around the reversing-roll and around the second platen in like manner and to the delivering-rolls whereby the paper web having continuous movement on the feeding and delivery rolls, is caused to dwell on the type-beds for receiving the impressions, substantially as described.

7. The combination in a printing-press, of two rising-and-falling type-beds and a curved rocking platen over each bed located at a distance apart along a paper-web-feeding course and operating reversely to each other, means for feeding the paper web to the first platen over a roll on the vibrating stock of said platen, thence to a reversing-roll, and thence to the second platen over a roll on its vibrating stock, a tension-roll intermediate of the feeding mechanism and the first platen, means for feeding the paper strip from the second platen and a tension roll intermediate of said second platen and said means for feeding the paper web therefrom substantially as described.

8. The combination with the rocking platens, of the rocking posts pivoted to the frame in the axis of the rocking motion, and guide-boxes of the platens said posts arranged in the guide-boxes substantially as described.

9. The combination with the rocking platens, of the rocking posts pivoted to the frame in the axis of the rocking motion and guide-boxes of the platens, and the springs to press the platens down said posts arranged in the guide-boxes substantially as described.

598,170. WIND-WHEEL. MONROE WHITE, Vancouver, Canada. Filed May 22, 1895. Serial No. 550,235. (No model.)



Claim.—1. In a wind-wheel, the combination with a vertical revolving cylinder of sails carried thereby, a threaded shaft passing through the said cylinder and revolubly supported therein, connections between said threaded shaft and the sails, and means for communicating a rotary motion to the threaded shaft independent of the motion of the cylinder whereby the sails may be raised and lowered, substantially as described.

2. In a wind-wheel, the combination with a vertical revolving cylinder of sails supported thereby, a plate 16 secured to the said cylinder, a shaft 14 having its upper portion threaded, supported by said plate 16, a flange 11 secured on and near the upper end of the said cylinder and resting upon a supporting-base 13, and connections between the said sails and the shaft 14 whereby the sails may be raised and lowered, substantially as specified.

3. In a wind-wheel, the combination with a vertical revolving cylinder 10 of a plate 22 attached thereto, a plate 20 supported by and above said plate 22, a vertical threaded shaft 14 supported in the cylinder 10 and passing through an aperture in the plate 22, sail-supporting arms attached to plates 20 and 22, a plate 25 engaging the threaded shaft 14 between the plates 20 and 22 and movable along said shaft and connections between the sails and said plate 25 whereby the sails may be raised and lowered, substantially as described.

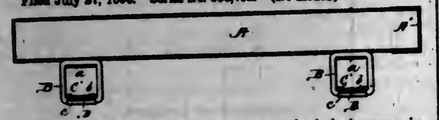
4. In a wind-wheel the combination of a vertical revolving cylinder 10, a plate 22 carried thereon, vertical rods 24 supported by the plate 22 and supporting the plate 20, sail-arms attached to said plates 20 and 22, a hub or gudgeon 19 attached to the upper side of the plate 20 and supported in suitable bearings, a plate 19^a attached to the under side of plate 20, a vertical threaded shaft 14 supported in a cylinder 10 and journaled at its upper end in the plate 19^a, a plate 25 engaging the threaded shaft 14 between plates 20 and 22 and connections between the said plate 25 and the sails whereby the latter may be raised and lowered, substantially as described.

5. In a wind-wheel the combination of the radial arms 21 and

23, the projections 21ª and 23ª thereon, canvas-carrying frames pivoted in the said projections, arms 26 supported between the arms 21 and 23 and vertically movable therebetween, projections 26ª upon said arms 26, brackets 29 upon the said projections 26ª and connections between said brackets and the canvas sails, substantially as described.

6. In wind-wheels, the combination with the radial sail-supporting arms 21 and 23 of the rectangular sail-frames 27, pivoted thereto, canvas-hangers 30 slidably supported upon the vertical sides of the said frames, arms 26 supported between the arms 21 and 23 and vertically movable therebetween, and sail-supporting brackets attached to the said arms 26, substantially as described.

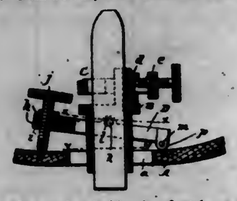
598,171. PARCEL-CARRIER. GLOVER ARKINS, Vermont, Ill. Filed July 27, 1896. Serial No. 600,732. (No model.)



Claim.—1. In a combined parcel-carrier and scholar's companion, the combination with the hollow handle A provided with the cap A' at one end, of the extensions B, B' secured thereto provided with central openings, the plate C, formed with clips c' purposed to retain a strap and permit of its moving back and forth therein, all substantially as described and shown.

2. In a combined parcel-carrier and scholar's companion, the combination with the hollow handle A having a cap A' at one end, and the extensions B, B' provided with central openings and secured to the handle by means of the clasps a, of the plate C connecting and securing together their lower extremities, the said plate provided with clips C' through which a strap is passed and held in such a manner as to permit the moving of the strap back and forth therein, all substantially as described and shown.

598,172. CARBON-HOLDER FOR ARC-LAMPS. CLIFFORD C. BAILEY, Woonsocket, R. I., assignor of one-half to Levi C. Lincoln, same place. Filed Feb. 28, 1897. Serial No. 625,120. (No model.)

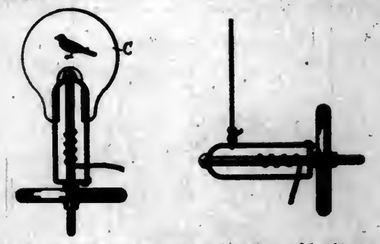


Claim.—1. In a carbon-holder for electric-arc lamps, the combination of an apertured carrier, carbon-holding jaws adjustably connected together; one of said jaws extending loosely through the aperture of the carrier and adapted to bear against the under side of the same, a yoke-lever comprising two members resting on opposite sides of said jaw and pivotally and detachably connected to the same and adapted to bear at one end upon the carrier and having coincident threaded apertures at their opposite ends, and the adjusting-screw taking through said apertures and impinging upon the upper side of the carrier and serving also as a hinge-pintle for the yoke members, substantially as specified.

2. In the carbon-holder for electric-arc lamps, the combination of an apertured carrier, a tubular carbon-holding jaw extending loosely through the aperture of the carrier and having an enlargement bearing against the under side of the same and also having the diametrically opposite apertures *l*, at an intermediate point in its length, a second jaw connected with the tubular jaw and adapted to clamp a carbon in the same, and the yoke-lever D comprising the members *g* having inwardly-directed, lateral trunnions at an intermediate point of their length bearing in the apertures *l*, of the tubular jaw and also having the coincident threaded apertures adjacent to one end, and the adjusting-screw taking through said apertures and impinging upon the upper side of the carrier, and serving also as a hinge-pintle for the yoke members, substantially as specified.

598,173. SPINNING-TOP. ISRAEL D. BOYER and EDITH E. L. BOYER, Dayton, Ohio, assignors to Clark & Boyer, same place. Filed Dec. 7, 1896. Serial No. 614,894. (No model.)

Claim.—1. In a top-handle, a curved slot to hold a card, said slot having two bearing points or edges *a* and *b* on one side and a single bearing point or edge *c* on the opposite side and about midway between *a* and *b*, the three points *a*, *b* and *c* being so arranged that the distance of *c* from the line joining *a* and *b* is not greater than the thickness of the thinnest card to be held, substantially as and for the purpose specified.



2. In a spinning-top the combination of a card having an open-ended slot in its lower edge to enable it to pass astride the spindle, and a handle loosely mounted on the spindle and having holding devices on its sides to hold the card, substantially as described.

3. In a spinning-top an open handle loosely mounted on the spindle of the top and free to turn thereon; means to prevent said handle from leaving the spindle; means for attaching a string to said spindle within the handle; means for attaching cards to the handle; all in combination substantially in the manner and for the purpose specified.

598,174. LOCOMOTIVE TOY. ISRAEL D. BOYER and EDITH E. L. BOYER, Dayton, Ohio, assignors to Clark & Boyer, same place. Filed Dec. 11, 1896. Serial No. 615,422. (No model.)



Claim.—1. In a toy vehicle; the combination of one or more axles each having a pair of running-wheels located near its outer ends and having a shoulder back of each running-wheel to prevent it from moving inwardly on the axle; a frame to pass outside of the running-wheels and having notches on its under side to pass over the projecting ends of the axles and form bearings therefor; a rod passing longitudinally along the vehicle, between the wheels and under the axles, and having its ends supported on the transverse members of the frame; means to prevent said rod from becoming accidentally displaced; the whole construction being such that the rod prevents the frame from lifting off of the axles, while the frame confines both wheels and axles against endwise motion; substantially as specified.

2. In a toy vehicle, one or more axles with their running-wheels, a frame having notches on its under side to fit over the axles and form bearings therefor, a rod passing longitudinally along the vehicle between the wheels and under the axles and having its ends supported by the frame, means to prevent said rod from being accidentally displaced, all in combination substantially in the manner and for the purpose specified.

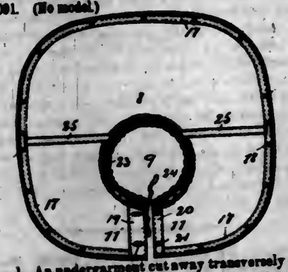
3. In a toy wagon, two pairs of wheels with their axles; a frame having on the under side thereof four notches to fit over the axles and form bearings therefor; a rod passing longitudinally along the wagon, below the wheels and under the axles and over the transverse members of the frame at either end of the wagon; notches in said transverse end pieces of the frame to receive the said rod and prevent it from moving laterally; the ends of the rod bent downwardly; all in combination substantially in the manner and for the purpose specified.

4. In a toy wagon, two axles each having a pair of wheels thereon; a frame having on its under side four notches to fit over the axles and form bearings therefor; a rod passing longitudinally along the wagon, between the wheels and under the axles, the two ends of the rod resting on the transverse members of the frame at either end of the wagon; means to prevent said rod from accidentally coming out of place; all in combination substantially in the manner and for the purpose specified.

5. In a locomotive toy, four running-wheels arranged in two pairs near together and in such manner that the adjacent wheels form an angle in which a shaft may lie; an inertia-wheel fixed to a shaft, said shaft lying in the angle formed by the adjacent pairs of running-wheels; the whole in combination and arranged to operate substantially in the manner and for the purpose specified.

6. A locomotive toy consisting of a vehicle having four running-wheels arranged in two pairs near together and in such manner that the adjacent wheels form an angle in which a shaft may lie; an inertia-wheel fixed to a shaft and independent of the vehicle; on the shaft of the inertia-wheel a handle loosely mounted to enable the wheel to be held in the hand while velocity is imparted thereto and also to enable the live wheel to be placed upon the vehicle with its shaft resting in the angle formed by the four running-wheels, the inertia-wheel then acting as a motor and causing the vehicle to move ahead substantially as specified.

598,175. UNDERWEAR. JULIUS M. HEYMAN, New York, N. Y., assignor to John J. Perton, same place. Filed Apr. 14, 1897. Serial No. 632,091. (No model.)



Claim.—1. An undergarment cut away transversely at the upper portion to form a low-necked garment, in combination with a cape having a neck-opening and a separation from one edge to the neck-opening, and means for detachably securing the cape to the edges of said cut-away portion, substantially as described.

2. An undergarment cut away transversely at the upper portion to form a low-necked garment, in combination with a cape detachably secured to the edges of said cut-away portion, and having a neck-opening and a separation between one of its edges and said neck-opening, and a stay secured to the cape in line with the neck-opening and extending to the shoulder portion of the garment, substantially as described.

3. As a new article of manufacture, a cape, having the neck-opening 9, the breast-flaps 11 formed by separating the fabric of the cape between one edge and the neck-opening, a circumferential stay 17, a cross-stay 25 in line with the neck-opening, and a contractible edge formed on the neck-opening, substantially as described.

4. An undergarment cut away transversely at the upper portion to form a low-necked garment, as at 1, stays 12 secured to the edges of said cut-away portion and extending from front to rear, the stays 13 secured to the garment at the front and rear central portions of the cut-away portion, the intermitted sections 16, 16 of the same fabric as the body of the garment, in combination with a cape having a neck-opening and a transverse separation, and means on the cape for securing it to said stays, substantially as described.

5. An undergarment cut away transversely at the upper portion to form a low-necked garment, in combination with a cape having a neck-opening, a contractible edging formed on the neck-opening, the cape being separated from one edge to the neck-opening, means for detachably securing such separation, and further means for detachably securing the edges of the cape to those of said cut-away portion, substantially as described.

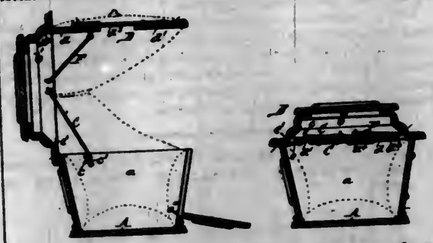
6. An undergarment cut away, transversely at the upper portion to form a low-necked garment, in combination with a cape having a neck-opening and a separation from one edge to the neck-opening, a circumferential stay on the cape, and means for detachably securing said cape at the stay to the edges of said cut-away portion, substantially as described.

7. As a new article of manufacture, an undergarment cut away transversely at the upper portion to form a low-necked garment, as at 1, stays 12, 12, of less elastic material than the body of the garment secured to the edges of said cut-away portion and extending from front to rear, the intermitted sections 16, 16 of the same fabric as the body of the garment lying between the ends of the stays 12, 12, and a contractible edge formed on said cut-away portion, substantially as described.

8. In an undergarment, the combination with the sleeve-stub 4ª on the shoulder portion of the garment, the sleeve 4ª having an end opening of sufficient width to overlap the sleeve-stub 4ª, and means on the sleeve and stub and covered by the overlapping of the sleeve for detachably securing one to the other, comprising the tabs 4ª on the sleeve-stub and strings 4ª on the inside of the sleeve end 4ª, substantially as described.

598,176. BURIAL-CASKET. JOSEPH JAIKES and EDWARD HARRY, Buffalo, N. Y. Filed Jan. 6, 1897. Serial No. 618,118. (No model.)

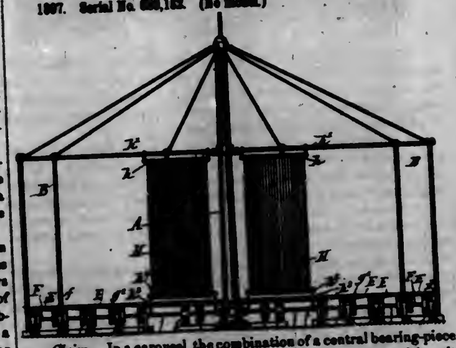
Claim.—1. The combination with a casket-body and a cover hinged to the same, of a movable canopy arranged on the under side of the cover and adapted to project forwardly over the body when the cover has been placed in an upright position, substantially as set forth.



2. The combination with a casket body and its cover, of a canopy movably connected with said cover and composed of sections which can be separated for extending the canopy, substantially as set forth.

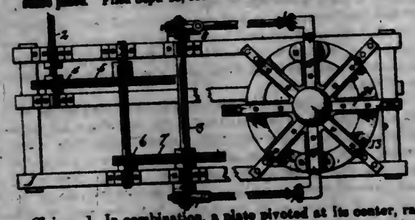
3. The combination with a casket-body and its cover, of a canopy composed of a section which is hinged to the cover and a section which has a sliding connection with the hinged section, substantially as set forth.

598,177. CAROUSEL. ADOLPH KOEHLER, Ticonderoga, N. Y., assignor of one-half to John Schumm, same place. Filed Mar. 26, 1897. Serial No. 629,162. (No model.)



Claim.—In a carousel, the combination of a central bearing-piece, drive-shafts radiating from said bearing-piece and supported in suitable bearings; intermeshing bevel gear-wheels arranged upon the inner ends of the drive-shafts, driving means for said shafts, driving-rollers mounted upon said shafts, the driving-rollers of alternate shafts being arranged in one circle, while those of the next shafts are arranged in another concentric circle, counter-shafts provided with supporting-rollers and arranged adjacent to and supported in suitable bearings gear the drive-shafts, the supporting-rollers of the alternate counter-shafts being arranged in one circle, while the supporting-rollers of the next counter-shafts are arranged in another and concentric circle, and a series of circular concentric platforms supported upon the driving-rollers and the supporting-rollers, substantially as set forth.

598,178. PUMPING MECHANISM. JOSEPH W. LEHR and HENRY F. MOSER, Fremont, Ohio, assignors to the Lehr Agricultural Company, same place. Filed Sept. 15, 1896. Serial No. 605,998. (No model.)

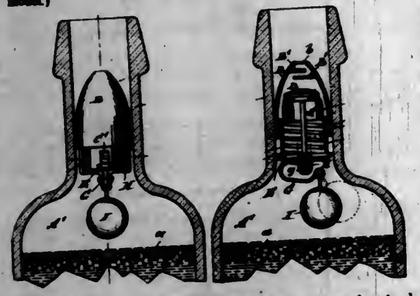


Claim.—1. In combination, a plate pivoted at its center, radial arms extending from the plate in opposite directions, right-angular extensions on the end of the arms having hemispherical sockets in

their ends arranged vertically, pitmen having balls at one end operating the sockets, plates confining the balls in the sockets, blocks pivoted to the other ends of the pitmen to allow a lateral movement of said pitmen, cranks to which the blocks are pivoted to swing vertically, a shaft on which the cranks are secured and means for driving the shaft, substantially as described.

2. In combination, suitable gearing, means for driving the gearing, a plate suitably pivoted, radial arms having sockets in their ends, pitmen having balls on one end operating in the sockets, plates for holding the balls in the sockets, means for adjusting the length of the pitmen and pivotal pins for supporting the pitmen and allowing a transverse swing, substantially as described.

593,179. BOW-REFILLING STOPPER FOR VESSELS. PETER LEDUC, New York, N. Y. Filed Jan. 2, 1897. Serial No. 617,774. (No model.)



Claim.—1. A closure for vessels, comprising a spring-closed valve provided with a valve-stem extending from its inner side, a yoke on the stem and having guided movement, a pivoted lever adapted to engage said yoke to force the valve from its seat, and a float attached to said lever, substantially as described.

2. A closure for vessels, comprising a spring-closed valve provided with a valve-stem, baffle-plates outside said valve, a yoke on the end of the stem, guides for said yoke, a pivoted lever adapted to engage said yoke, and a float connected with said lever and adapted by its buoyancy when in a liquid to move the said lever to engage the yoke and open the valve when the vessel is inverted, substantially as described.

3. A closure for vessels, comprising a hollow plug having an opening at its outer end, a valve-seat within the said plug, a valve adapted to rest upon the said seat, a yoke having guided movement and connected with the said valve, and a float adapted by its buoyancy to move the yoke to open the valve, substantially as described.

4. A closure for vessels, comprising a hollow plug consisting of an outer cone-shaped member having its larger end adapted to fit closely in the neck of a vessel, the outer end or point of the cone being provided with an opening, and an inner member secured to the cone-shaped member and forming a valve-seat, a valve resting on said seat, a stem extending from said valve, and a guide-yoke attached to the said stem and having guided movement in the said inner member, and a float adapted by its buoyancy to move the said yoke to open the valve, substantially as described.

5. A closure for vessels, comprising a hollow plug consisting of an outer cone-shaped member having its inner or larger end adapted to fit closely in the neck of a vessel, the outer end or point of the cone having an opening formed therein, and baffle-plates located within the cone and projecting from opposite sides thereof, and an inner member forming a valve-seat and a casing, a valve resting on said seat and provided with an inwardly-extending stem, a spring located within the said casing and serving to hold the said valve on its seat, a yoke on the end of the said stem, guide-slots for the end of said yoke formed in the said casing, a pivoted lever adapted when moved to engage the yoke to compress the spring and open the valve, and a float attached to the said lever and adapted by its buoyancy to move the said lever when the vessel's mouth is turned down, substantially as described.

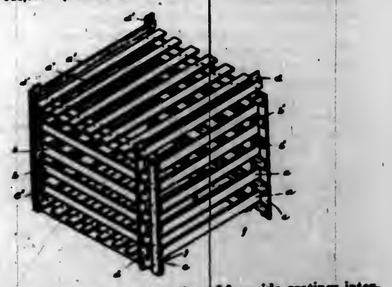
6. A closure for vessels, comprising a hollow plug having an opening at its outer end, a valve-seat within the said plug, a valve adapted to be seated on said seat and opening outward therefrom, a stem extending from the inner side of said valve, a yoke on the end of the said stem and having guided movement, a spring surrounding the said stem and pressing on the said yoke to hold the valve to its seat, and a float adapted by its buoyancy to move the yoke to compress the said spring and open the valve, substantially as described.

7. A closure for vessels, comprising a hollow plug adapted to fit the orifice of the vessel and having an opening in its outer end, a valve-seat within the said plug, a valve resting upon the said seat and opening outwardly therefrom, a yoke having guided movement and connected with the said valve, a pivoted lever adapted to engage the said yoke to move the valve from its seat, and a float attached to the said lever and adapted by its buoyancy when in a liquid to move said lever to open the valve when the vessel's mouth is turned down, substantially as described.

8. A closure for vessels, comprising a spring-held valve in the orifice of the vessel and opening outward, baffle-plates outside said valve, a stem upon the inner side of said valve, a yoke on the stem, guides for said yoke, a pivoted lever adapted to engage said yoke to force the valve from its seat, and a float attached to said lever and adapted by its buoyancy in a liquid to open said valve when the vessel's mouth is turned down, substantially as described.

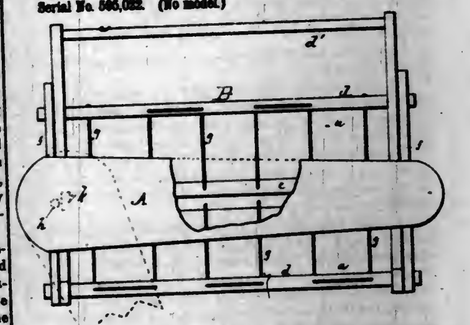
9. A closure for vessels, consisting of a hollow stopper adapted to fit the orifice of the vessel, said stopper having a hole in its outer end, and baffle-plates within the stopper overlapping each other and adapted to prevent access to the valve by any tool, a valve ring or seat fitting within said hollow stopper, a valve opening outward from said ring or toward the opening in the stopper, a stem and guide-yoke attached to the valve and lying inwardly therefrom, a guide for said yoke, and a pivoted lever having a float on one end and engaging the yoke by the other end, and adapted by its buoyancy when in a liquid to open said valve when the vessel's mouth is turned down, substantially as specified.

593,180. PACKING OR SHIPPING CRATE. COLFAX D. HARAMON, Watrousville, Mich., assignor of two-thirds to Charles Montague, Caro, Mich., and Charles Montague, trustee. Filed Jan. 9, 1897. Serial No. 618,573. (No model.)



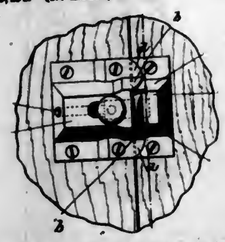
Claim.—In a crate, the combination of four side gratings interlocking as described, a bottom grating having longitudinal slats *e*, *e*, and cross-slats *f*, *f*, cut flush with the edge of the slats *e*, *e*, and adapted to engage within the gratings which form the sides, a top grating having longitudinal slats projecting beyond the cross-slats, and ends *g*, *g*, of the cross-slats projecting beyond the slats *h*, *h*, and adapted to engage closely under the upper slats of the side gratings when the cross-bars engage closely over the top slats of the end gratings, substantially as described.

593,181. IRONING-TABLE. JAMES RESSEY, Charlotte, N. Y., assignor of one-half to Luke Marvin, same place. Filed June 10, 1896. Serial No. 595,022. (No model.)



Claim.—The combination of the receptacle B made in halves pivoted together, the cross-bars *f f* pivoted on one side of the receptacle and connected detachably with the other, the skirt-board A resting on the bars, the elongated pivot *h* at one end attaching the board to the cross-bar, and the lug *k* for holding the board elevated when turned to one side, as herein shown and described.

593,182. LATCH. JOSEPH D. WOODBURY, Springfield, Mass., assignor of one-half to Orrin L. Cowles, same place. Filed Dec. 12, 1896. Serial No. 615,451. (No model.)



Claim.—In a fastening device for doors, the latch-case, provided with cam-surfaces *b* which project over the inner end of the casing, and are inclined inwardly toward each other, combined with a keeper, over the opposite edges of which the cam-surfaces catch when the door is closed and prevent the door from sagging, substantially as shown.

593,183. CAR-COUPLING. JOHN J. MALLOY, Portland, Oreg., assignor to the Pacific Car Coupling Company, same place. Filed Feb. 1, 1897. Serial No. 621,535. (No model.)



Claim.—1. In a car-coupler, in combination with the draw-head and the knuckle, the pivoted hook *f*, the vertical aperture *j*, an inclined approach to said aperture for automatically lifting the hook *f* when coupling until it drops into such aperture, and means for lifting the hook out of the aperture again when uncoupling the draw-head, all substantially as described.

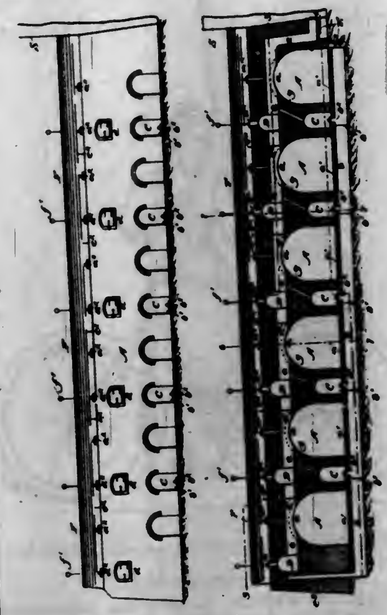
2. In a car-coupler, the combination of a draw-head, provided with an aperture extending vertically therethrough, a knuckle pivoted in said draw-head having a rearwardly-extending arm, a hook vertically pivoted on said arm, means for automatically lifting the hook when coupling to drop it into said aperture, and a push-rod extending upward into said vertical aperture for raising the hook therefrom to uncouple the draw-head, substantially as described.

REISSUES.

11,685. BRICK-KILN. CHARLES KLOSE, Doniphan, Nebr., and ALOIS KLOSE, Robesonia, Pa. Filed Sept. 7, 1897. Serial No. 650,851. Original No. 576,318, dated Feb. 2, 1897.

Claim.—1. A brick-kiln comprising a series of main kiln-chambers each having an opening in its crown, longitudinal caloriducts above said chambers and communicating with the crown-openings thereof, a transverse combustion-chamber between each pair of main kiln-chambers and to be successively fired, each of said combustion-chambers receiving the highly-heated gases of a preceding main kiln-chamber and having means which enables each combustion-chamber to connect with the smoke-flue whereby it serves as a draft-passage for a corresponding preceding combustion-chamber in which fuel is being burned.

2. A brick-kiln comprising a series of main kiln-chambers having top openings, a fireplace or combustion-chamber for the initial chamber, a caloriduct extending longitudinally above the said kiln-chambers and receiving the heated gases therefrom, and a series of supplemental transverse combustion-chambers communicating with the caloriduct and adapted to be successively fired whereby the highly-heated gases of a main chamber in which the last charge of bricks has been burned, enter the adjacent combustion-chamber and are reheated therein previous to their downward passage through a succeeding main chamber, each of said transverse combustion-chambers having a damper-controlled opening whereby it serves as a draft-passage for a corresponding preceding combustion-chamber in which fuel is being burned.



3. The combination of a series of arched chambers, each chamber being provided with crown-openings and floor-openings, longitudinal bottom flues connecting the floor-openings of the different chambers, longitudinal caloriducts extending above the crowns of said chambers and communicating therewith through said crown-openings, register-vaults between said chambers provided with fuel-openings at the bottom for use in bottom firing, said openings establishing communication with the longitudinal bottom flues, transverse firing-chambers located above the register-vaults, a main smoke-flue extending along the rear ends of the transverse firing-chambers, and dampers connecting said transverse firing-chambers with the main smoke-flue, substantially as set forth.

4. The combination of a series of chambers, provided with crown-openings and rows of floor-openings, register-vaults located between said chambers, and provided with fuel openings and registers alongside of said fuel-openings, longitudinal caloriducts extending above the crowns of said chambers, registers in said caloriducts, transverse firing-chambers located above the register-vaults and provided with fuel-openings, and ash-chutes extending from the caloriducts into the register-vaults, substantially as set forth.

5. The combination of a series of chambers, having crown-openings and rows of floor-openings, longitudinal bottom flues connecting the floors of the chambers, register-vaults between said chambers, longitudinal caloriducts extending above the crowns of the chambers, transverse firing-chambers located above said register-vaults, the bottom flues and the transverse firing-chambers being provided with fuel-openings for permitting the starting of top and bottom fires, substantially as set forth.

6. The combination of a series of kiln-chambers, having crown-openings and rows of floor-openings, fireplaces arranged at one end of the kiln series, longitudinal caloriducts connected with said fireplaces and extending over the crowns of said chambers, registers in said caloriducts, a series of successive transverse firing-chambers arranged intermediately between the crowns of the chambers and provided with top fuel-openings, the register-vaults having fuel-openings in the floors, longitudinal bottom flues below the floors of the chambers, registers in said bottom flues, a smoke-flue extending along one end of the transverse firing-chambers, and dampers for opening or closing the openings connecting the firing-chambers with the smoke-flue, substantially as set forth.

DESIGNS.

27,807. CALENDAR. CARL FRESEN, Brooklyn, N. Y. Filed Aug. 30, 1897. Serial No. 649,893. Term of patent 3½ years.



Claim.—The design for a calendar, substantially as herein shown and described.

27,808. TOY GUN-STOCK. EDWARD R. IVES, Bridgeport, Conn. Filed June 15, 1897. Serial No. 640,921. Term of patent 3½ years.



Claim.—The design for a toy gun-stock, substantially as herein shown and described.

27,809. STUD. GEORGE H. PERLEY, Newton, Mass., assignor to the George Frost Company, Boston, Mass. Filed Feb. 16, 1897. Serial No. 624,043. Term of patent 14 years.



Claim.—The design for a stud or button for garment-supporters, substantially as herein shown and described.

27,810. COLLAR AND BACK SHIELD. VIRGIL GUMMESON, New York, N. Y., assignor to the I. B. Kleinert Rubber Company, same place. Filed June 30, 1897. Serial No. 643,093. Term of patent 14 years.



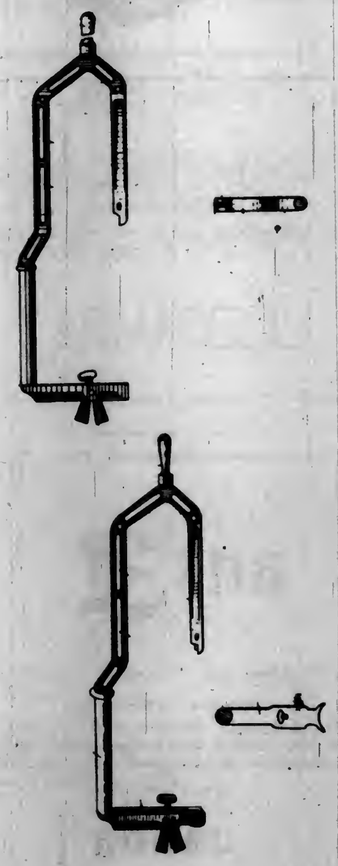
Claim.—The design for a combined collar and back shield substantially as herein shown and described.

27,811. CHECK-REIN-HOLDER. HERRMAN J. BUSSWORTH, Zanesville, Ohio. Filed Sept. 14, 1897. Serial No. 651,662. Term of patent 7 years.



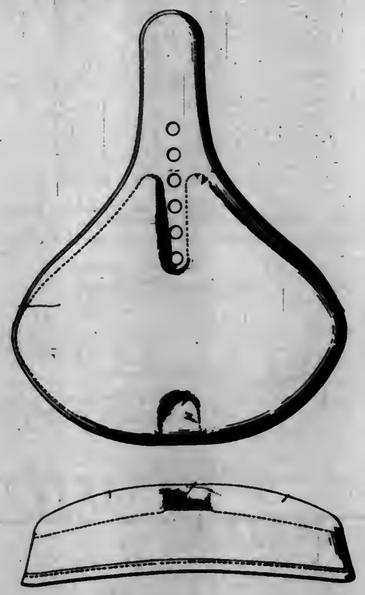
Claim.—The design for a rein-holder substantially as shown and herein described.

27,812. CARRIAGE-JACK. JAMES B. FOOTE, Fredericktown, Ohio. Filed July 17, 1897. Serial No. 644,901. Term of patent 3½ years.



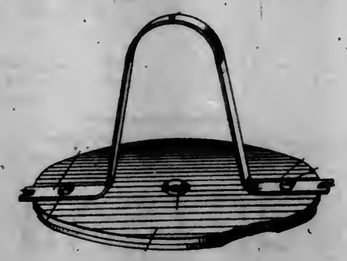
Claim.—The design for a carriage-jack, as herein shown and described.

27,818. BICYCLE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Aug. 21, 1897. Serial No. 649,063. Term of patent 7 years.



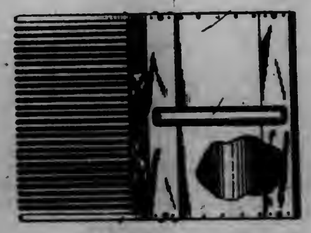
Claim.—The design for a bicycle-saddle, substantially as shown and described.

27,814. CHURN-LID. EDWARD D. BENNINGHOFF, Creston, Iowa. Filed Sept. 8, 1897. Serial No. 650,902. Term of patent 7 years.

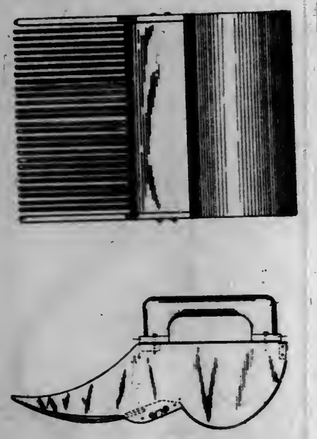


Claim.—The design for a churn-lid as herein shown and described.

27,815. CRANBERRY-SCOOP. WILLIAM T. MAKEPEACE, Barnstable, Mass. Filed Aug. 14, 1897. Serial No. 648,332. Term of patent 14 years.

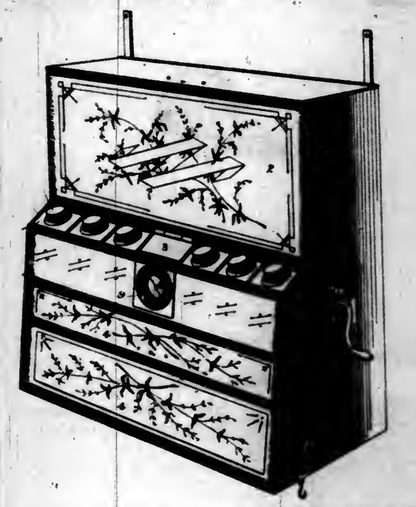


27,815.



Claim.—The design for a cranberry-scoop, as herein shown and described.

27,816. KITCHEN-SAFE. JESSE M. CURTICE, Kansas City, Mo. Filed Mar. 31, 1897. Serial No. 630,181. Term of patent 14 years.



Claim.—The design for a kitchen-safe herein shown and described.

TRADE-MARKS

REGISTERED NOVEMBER 2, 1897.

30,782. GARMENTS FOR THE NECK AND CHEST. WAY MANUFACTURING COMPANY, Philadelphia, Pa. Filed Oct. 4, 1897.

MUFFLET

Essential feature.—The word "MUFFLET." Used since September 13, 1897.

30,788. BICYCLE SKIRTS OR HABITS. HERBERT LUEY, Brooklyn, N. Y. Filed July 12, 1897.

"THE LUEY" "BLUE RIBBON"

Essential feature.—The words "THE LUEY" and "BLUE RIBBON." Used since July 2, 1897.

30,784. ENAMEL OR VARNISH PREPARATION. GRIFFITHS BROS. & CO., London, England. Filed Oct. 6, 1897.

ARMACELL

Essential feature.—The word "ARMACELL." Used since June 12, 1897.

30,785. PAINT. MCCLINTOCK & IRVINE, Allegheny, Pa. Filed Aug. 26, 1897.

Etna

Essential feature.—The word "ETNA." Used since September, 1890.

30,786. SOAPS, POWDERS, DETERGENTS, GLYCERIN, MATCHES, TAPERS, STARCH, BLUE, CANDLES, SODA, AND DISINFECTANTS. LEVER BROTHERS, LIMITED, Port Sunlight, England. Filed July 28, 1897.

CORAL

Essential feature.—The word "CORAL." Used since September 9, 1893.

30,787. GASTRO-INTESTINAL ANTISEPTIC. BURROUGH BROTHERS MANUFACTURING COMPANY, Baltimore, Md. Filed Aug. 12, 1897.

RESOR-BISNOL

Essential feature.—The compound word "RESOR-BISNOL." Used since January 1, 1897.

30,788. SALVE FOR WOUNDS OR SORES. VLAKFANTINE TOILET CO., Riverdale, Ill. Filed Oct. 5, 1897.

VLAKFANTINE SALVE



Essential feature.—The words "VLAKFANTINE SALVE" and a representation of a boy applying salve on his bare arm. Used since January 2, 1897.

30,789. SPECIFIC FOR DANDRUFF. FARBENFABRIKEN OF ELBERFELD COMPANY, New York, N. Y. Filed Oct. 7, 1897.

CAPTOL

Essential feature.—The word "CAPTOL." Used since July 1, 1897.

30,790. POWDER FOR THE CURE OF HEADACHE, NEURALGIA, LA GRIPPE, COLDS, AND FOR THE PREVENTION OF PNEUMONIA AND RHEUMATISM. WILLIAM F. GREENE and FREDERICK P. JAQUES, Boston, Mass. Filed July 20, 1897.



Essential feature.—A representation of a four-leaf clover the leaves of which bear the letters "W F G P H G," with the letter "D" in the center thereof. Used since December 24, 1890.

30,791. REMEDY FOR CATARRH, HAY-FEVER, TONSILLITIS, SORE THROAT, QUINSY, AND COLD IN THE HEAD. THE KARE-MILLER DRUG COMPANY, Baltimore, Md. Filed Sept. 2, 1897.

K-TAR

Essential feature.—The letters "K TAR," with a hyphen located between the "K" and "T." Used since February, 1894.

30,792. REMEDY FOR COLDS. GEORGE W. LEWIS, New Haven, Conn. Filed Sept. 20, 1897.

OUNCE OF PREVENTION
THE GREAT COLD REMEDY.

Essential feature.—A representation of a tablet with the words "OUNCE OF PREVENTION THE GREAT COLD REMEDY." Used since August 1, 1897.

30,798. BICYCLES. JOHN WANAMAKER, Philadelphia, Pa. Filed July 23, 1897.

JOHN WANAMAKER
RODMAN
PHILADELPHIA

Essential feature.—The word "RODMAN" with the name "JOHN WANAMAKER" above and the word "PHILADELPHIA" below said word "RODMAN" on a convex and concave line, respectively. Used since April 1, 1897.

30,794. PNEUMATIC OR SOLID-RUBBER TIRES. L. C. CHASE & Co., Boston, Mass. Filed Oct. 6, 1897.

CHASE

Essential feature.—A pictorial representation of a fox in connection with the word "CHASE." Used since August 13, 1897.

30,795. SHINGLES, LATHS, CLAPBOARDS, AND OTHER MANUFACTURED LUMBER. FRED H. MERRIFIELD, Boston, Mass. Filed Aug. 17, 1897.

OLD HOMESTEAD

Essential feature.—The words "OLD HOMESTEAD." Used since January 1, 1897.

THE NORRIS PETERS CO.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE WEAVER.

Decided August 17, 1897.

1. TRANSFERRING APPLICATIONS—CONDUCT OF EXAMINERS.

An application will not be transferred from one division to another on the ground that it is not receiving proper treatment by the Examiner in charge of it. Other relief will be applied when it is clear that an Examiner is not performing his duties as he should.

2. INTERFERENCE—PATENTABILITY OF THE ISSUE.

Before an interference is declared the subject-matter of the issue must be decided to be patentable. To declare an interference and put a party to the trouble of conducting it and then when he succeeded reject his claims on the same reason urged prior to the declaration of the interference is unwise and unjust.

3. BREADTH OF CLAIMS—"MEANS."

An applicant should be allowed to claim his invention as broadly as possible in view of the state of the art. The use of the term "means," with the proper qualifying words, is not prohibited by any decision of the Office or courts.

4. SAME—CLEARNESS OF STATEMENT.

Where the idea is clearly stated and the combination or relation of parts to produce a desired end is plainly expressed, the breadth of the statement of the claim is no reason for objecting to it. (*Ex parte Knudsen*, 73 O. G., 589.)

ON petition.

WHIST-TABLES.

Application of Henry M. Weaver filed July 2, 1896, No. 597,884.

Mr. H. A. Seymour for the applicant.

BUTTERWORTH, *Commissioner:*

This is a petition submitting that the above-entitled application—

has not received the treatment which under the law and the Rules of Practice it is entitled to receive, and it being obvious that it cannot receive such treatment by the Examiner now in charge of it, applicant asks that it be transferred to some other division for further action, or that some other remedy be applied to insure that such proper action be taken.

The statement of facts presented by the petition is admitted to be correct by the Primary Examiner and is substantially as follows: The petitioner filed two applications covering duplicate-whist tables. The earlier application shows, describes, and claims a duplicate-whist table comprising a top and radial card-receptacles mounted to move below such top, so as to successively register the receptacles with openings adjacent to the four sides of the table. The second application shows, describes, and claims all the features of the earlier application, and in addition thereto shows and describes mechanical means for positively ejecting the cards through the four openings, and the claims include such ejecting means as an element. The early application was involved in an interference with an application of one Hutches on the following issue:

A duplicate-whist table comprising a top, radial card-receptacles mounted to move below said top, said receptacles adapted to register successively with openings adjacent to the four sides of the table.

This interference was terminated by a concession of priority from Weaver to Hutches.

The second application, the one under consideration, was rejected August 10, 1896, for the reasons shown by the following letter:

The claims in this case are each rejected for want of distinction over applicant's pending case now involved in an interference. The claims are also indefinite, the term "means" not being sufficient to distinguish the claims when the other elements mentioned are old. Upon this point see Commissioners's decision, *ex parte Pucholder*, (51 O. G., 295.)

Upon request for reconsideration the Primary Examiner in his next letter stated:

The objections made in last Office letter are still sustained. If the matter aside from the devices for extracting and replacing the cards was considered patentable through applicant's prior application, the claims upon said devices might be sufficient as presented, but under present circumstances they are not so considered.

Upon request by applicant for final action the Primary Examiner informed him that—

on further consideration of this case it is held again that the claims are not patentably differentiated from the issue of the interference in which another application of the same applicant is involved. "Means for doing something" is not alone a way to patentably distinguish a claim from the prior art. Further action on the claims in their present form is refused until the determination of the interference referred to. If applicant will limit the "means" by reference to the structure or mode of operation the claims may receive action.

On petition to the Commissioner the Examiner was instructed to proceed with the examination of the case, as shown by the following-quoted decision:

This case is remanded to the Examiner with instructions to proceed with the examination of the case irrespective of questions of form, until it is brought into condition for final allowance or rejection. If the Examiner should find that the invention herein claimed as an improvement over that involved in the interference is patentable to applicant in case he prevails in the interference, there would seem to be no reason for suspending action. He should also consider whether Hutches would be entitled to claims covering this invention, in case he prevails. If not, there would seem to be no reason for suspending action in this case. The reasons assigned in the official letters are considered insufficient to warrant the postponement of further consideration by the Office.

After this decision of the Commissioner the Examiner declared an interference with an application of one Black on the following issue, which is petitioner's first claim:

A duplicate-whist table comprising a top, radial card-receptacles mounted to move below said top, means for moving said receptacles so as to successively register them with openings adjacent to the four sides of the table, and means for pushing the cards in the receptacles through said openings.

The interference proceeded to the taking of testimony by the petitioner, and after this testimony

Black conceded priority. After the termination of the interference the Primary Examiner informed Weaver that as it was proved in the interference between Hutches and Weaver (this petitioner) that Weaver was not the first inventor of the issue in that interference said issue must be regarded as being a part of the art which existed at the time Weaver filed his second application and that as there was nothing in any of the claims of the application which was patentable over the matter of such issue Weaver must be refused the claim which formed the subject of the interference with Black.

From this review of the case it is seen that the ground for refusing the petitioner a patent is that he has failed to distinguish in the case under consideration subject-matter patentably different from that claimed in the first application involved in the interference with Hutches and in which priority was awarded to Hutches. The question is one of merits and, under the practice, should be reviewed by the Examiners-in-Chief on appeal in the first instance; but in view of what seems to me to be an unusual action on the part of the Examiner it is deemed best to indicate to the Examiner what would have been the proper course for him to have pursued.

The Examiner in his answer to the petition states that the claims in the present case might have been allowed had Weaver prevailed in the interference with Hutches, but as Hutches was successful the claims cannot be allowed. In other words, he considered the issue between Weaver and Black patentable to Weaver on the contingency of Weaver prevailing in the interference with Hutches. It seems to me that it is an immaterial matter whether Hutches or Weaver was successful in the interference. The subject-matter of the claims in issue in the present case is patentable regardless of whether Weaver or Hutches made the claims. It is not seen on what ground the Examiner has based his contention. If the Examiner's contention that the claim of the first interference is a part of the prior art is correct, it is as much such a part if said claim is patentable to one of these applicants, Hutches or Weaver, as to the other.

The case of *Hopkinson* v. *Hunter* (74 O. G., 653) is not on all fours with this case, as the Examiner seems to think. There is no such contingency that could arise in this case as did in the *Hopkinson* v. *Hunter* case. Further, the rule requires that before an interference is declared the subject-matter of the issue must be decided to be patentable, and under this rule the interference should not have been declared until it was so decided. If the Examiner before he declared the interference was of the opinion that the claim or claims involved in the interference with Black were not patentable, he should have rejected the claims on whatever grounds he thought proper and have given applicant an opportunity to appeal to a higher tribunal. If the claim of the issue on which he declared the interference between Weaver and Black were substantially the same as the issue of the interference between Hutches and Weaver, the Primary Examiner might have suspended said interference and put Weaver's second case and Black's case in the first interference. The Examiner by his action in declaring the interference between Weaver and Black presumptively waived his rejection against Weaver's claims and decided that the subject-matter of this interference was patentable and that whichever party prevailed in the interference would be entitled to the claims involved unless some other bar than that raised and waived appeared. To declare the interference and put the petitioner to the trouble of conducting it and then when he succeeded reject his claims on the same reason urged prior to the declaration of the interference seems to me to be unwise and unjust. The Examiner's treatment of the case seems to have arisen through his misunderstanding as to the use of the term "means" in a claim. He took the ground, as his action above quoted shows, that the terms "means for pushing the cards in the receptacles" as an element of the claim render the claim indefinite, and said terms are—

> not alone a way to patentably distinguish a claim from the prior art.

The use of the term "means," with the proper qualifying words, as in petitioner's case, is not prohibited by any decision of the Office or courts, so far as I can ascertain. Commissioner Mitchell, in the case of *ex parte Pacholder*, (51 O. G., 295,) relied upon by the Examiner as supporting his objection to these terms, in referring to the *Morley Sewing Machine Company* v. *Lancaster*, (47 O. G., 267,) quoted the claims involved in that suit, the first being in these words:

> 1. The combination, in a machine for sewing shank-buttons to fabrics, of button-feeding mechanism, appliances for passing a thread through the eye of the buttons and locking the loop to the fabric, and feeding mechanism, substantially as set forth,

and then said—

> If the abundant use of the words "means," "mechanism," and "appliances" in claims can invalidate them, in view of the statute which requires the applicant to "particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery," it will be conceded that the claims of Morley were void for indefiniteness. But the court nowhere intimates that such is the case, and proceeds in a learned opinion to show that the Lancaster machine, although differing essentially in matters of construction from the Morley machine, nevertheless employed equivalent mechanisms and appliances for accomplishing the same results, and therefore was an infringement. It is impossible to avoid the conclusion that if Morley had been held to the doctrine that the words "means," "mechanism," and "appliances" may not be used in claims, when suitably qualified, he would have been unable to hold as an infringer one who appropriated the principle disguised in an organization different from that which he showed in his patent in every other respect.

He then laid down this very good rule:

> In the case * * * of patents which represent the infancy of an art or the stage of its earliest practical development, this Office is equally solicitous that the inventor should be accorded a breadth of claim which is commensurate with the extent and importance of the invention which he desires and is entitled to protect.

In the case of *ex parte Halfpenny* (73 O. G., 1135) it was stated:

> The objection of "indefiniteness" or "vagueness" commonly urged against claims, when such objection is based on the fact that the claims include as elements "means" or "mechanism," limited only by the function which such means or mechanism performs, is inaccurate. Those terms do not, under such circumstances, render the claims indefinite or vague. It would be more accurate to say of those terms, when only limited in the manner above stated, that they render the claims too broad—an objection which goes to the merits of the claims and which calls for a rejection.

Where the idea is clearly stated and the combination or relation of parts to produce a desired end is plainly expressed, the breadth of the statement of the claim is no reason for objecting to it. (*Ex parte Knudsen*, 72 O. G., 580.)

The language of petitioner's claim objected to by the Examiner seems to me to be definite, and the only objection to be urged against it is that it is too broad in view of the art.

It is the well-settled policy of this Office, however, to allow applicants to claim their invention as broadly as possible in view of the state of the art. Following this policy the Examiner should have allowed the petitioner to draw the claim in as broad language as it is expressed or else shown in the art "means for pushing the cards in the receptacles through said openings," combined with the other elements of the claim.

While by the action of the Office the petitioner has been put to unnecessary expense and hardship, yet the relief prayed for will not be granted in any case. When it is clear that an Examiner is not performing his duties as he should, other relief will be applied than transferring work from the division in which he is in charge to some other class of the Office.

The petition is denied.

EX PARTE SMITH.

Decided October 11, 1897.

DESIGN—MOVABLE PARTS.

A design as a whole should be of unchanging character and should not include movable parts, since the shape or configuration of a device is varied by varied positions of its elements.

ON petition.

DESIGN FOR ATOMIZERS.

Application of De Wane B. Smith filed January 23, 1897, No. 620,471.

Messrs. Risley, Robinson & Love for the applicant.

GREELEY, *Acting Commissioner:*

This is a petition asking—

> * * * that the application and drawings be examined and that the Examiner be instructed that the claim is not "for an apparatus" and that the case be proceeded with in view of such instruction.

In the brief accompanying the petition occurs the following:

> The form which the Examiner has given his action would at first sight lead to the impression that a petition was not proper; that an appeal should be taken. However, upon an examination it will be found that it is a question of form which is involved, to wit: whether applicant is to be restricted in his drawings and specifications to "a casing for an atomizer" or whether he can show and describe the article as a whole.

The Examiner in his statement makes this observation with reference to the propriety of this petition:

> Inasmuch, however, as applicant has impugned the pertinency of the rejection on the ground that his machine, embracing all its operative parts, is a proper subject for a design patent, the Examiner is without option in sending the petition forward accompanied by a brief statement of his grounds for rejecting the claim for such alleged design upon the ground that a machine does not fall within the province of the design act.

While it is not certain that this petition is proper, yet in view of the statements quoted above I have decided to consider it.

The grounds of rejection were two—namely, anticipation and that the subject-matter of the application is not proper subject-matter for a design patent, being for an apparatus. The Examiner quotes *ex parte Harris*, (38 O. G., 104.) It is clear that both of these are proper grounds for rejection and for appeal to the Examiners-in-Chief, yet for reasons indicated above and for the other reason that the petition now presents a different phase it has seemed best to entertain the petition.

In his supplemental brief the applicant states the issue to be—

> * * * whether the parts 5 and 6 shown in the drawings of this application can or cannot be shown in a design patent in connection with the remainder.

This does not agree with the objects stated in the petition to be sought; but the question for consideration is narrowed considerably by this statement.

The specification closes with the statement:

> The instrument is also provided with a handle 5 on the end of the rod 6 which may be more or less withdrawn or forced into the body of the atomizer and to this extent will vary the appearance of the instrument.

This has caused the Examiner to refer to the device as "a highly-organized machine." The applicant, however, in his brief calls attention to four design patents which show movable parts.

The claim is:

> The design of atomizer herein shown and described.

It is obvious that the shape or configuration of the device as a whole would be varied by varied positions of the rod. It is also evident that the real merit of the design, if any, consists in the shape of the syringe provided with a flaring mouthpiece. As, in my opinion, notwithstanding this and notwithstanding the design patents to which applicant has referred, the elements of any design should be of an unchanging character, since any change in these changes the shape or configuration of the whole, and thereby changes the identity of the design as such, the movable handle in this case should not be made an element of the design.

This being, according to the applicant, the sole question raised by the petition, the petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Massachusetts.

THOMSON-HOUSTON ELECTRIC COMPANY *v.* ATHOL AND ORANGE STREET RAILWAY COMPANY.

Decided September 27, 1897.

1. BLACKWELL—RAILWAY-MOTOR—VOID.

   Letters Patent No. 470,817, dated March 15, 1892, to Francis O. Blackwell, for improvements in railway-motors, *Held* to cover nothing of a patentable nature.

2. RICE—MOTOR-SUSPENSION FOR RAILWAY-WORK—INFRINGEMENT.

   Letters Patent No. 448,260, dated March 17, 1891, to Edwin Wilbur Rice, for improvements in motor-suspension for railway-work, examined and *Held* not infringed.

3. MECHANICAL SKILL—ELASTIC SUSPENSION.

   The matter of elastic suspension by springs and of otherwise giving either entire or partial support is so common in the arts that the presumption is against the patentability of any such mere form of suspension. The selection of a form of support is in the common field of mechanical construction.

Messrs. Fish, Richardson & Storrow for the complainant.

Messrs. Mitchell, Bartlett & Brownell for the defendant.

PUTNAM, *J.*:

This bill is brought on two patents which it is claimed by the complainant are capable of joint use and which were, in fact, so used by the respondent. One patent is that issued to Francis O. Blackwell March 15, 1892, No. 470,817. As to this the complainant says that the claims in issue relate wholly to such an organization and construction of a railway-motor that the armature and other parts which need frequent attention can be readily inspected or removed and that when in operation the less delicate parts of the motor protect those more delicate. The court was impressed at the hearing with the view that there is nothing covered by this of a patentable nature, and its subsequent examination of the record and briefs has not changed this impression. This patent seems to fall within the principles of *Priest* v. *Coates Clipper Manufacturing Company*, (81 Fed. Rep., 615.)

The other patent issued to Edwin Wilbur Rice, Jr., March 17, 1891, No. 448,260. Its preamble claims the invention of a certain new and useful motor-suspension for railway-work. As to this patent the court must confess that the results which it feels compelled to reach are not without doubt. The court especially finds itself not free from embarrassment arising from the multiplicity of claims on which the complainant relies and the difficulty of analyzing them with relation to each other.

A fundamental question in the case is whether the claims in issue are to be construed as covering a broad invention or whether they are limited to mere mechanical details. Though some of them are doubtful of construction, yet many are clearly of a broad character, and the court finds itself bound to hold that the invention as submitted to it is of that nature. The complainant's device, so far as concerns the case in issue, is described in the specification practically as follows:

> The frame being supported at one end by the car-axle is elastically supported at its other end by some portion of the truck-frame. The opposite end of the field-magnet may be supported in any desired manner. I prefer to support it elastically from the car-body or from the truck-frame—as, for instance, by means of an elastic support, or by a flexible ball-and-socket joint. It will be observed that by means of this support for the motor, independent of the frame carrying the bearings therefor, said frame is relieved of the weight of the motor and the weight is transferred to a support independent of such frame, while the rigid motor-frame around the motor preserves an accurate alinement of the armature-shaft and the driven axle of the vehicle. The particular manner of supporting the yoke end of the field-magnet elastically or flexibly does not form any part of my present invention, and other means besides those shown may be employed in connection with the particular means hereinafter described for supporting the opposite end of the motor. Other special devices may be employed instead of those shown for supporting the end of the motor independently of the motor-frame.

The function claimed by the specification arising from this method of construction is stated therein as follows:

> By my construction of supporting-frame and mounting of the parts, hereinbefore described, I not only secure stiffness and rigidity when the apparatus is subjected to strain, but also an adaptation of the mechanism to vibrations, jars, or movements of the car and supporting parts, which will maintain the mechanism in unchanged relation during all conditions of working.

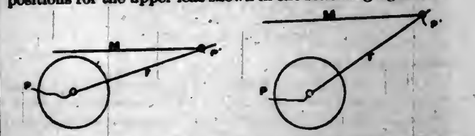
The different directions of the lines of force tending to produce vibrations and jars, and the serious evils resulting therefrom, were clearly pointed out at the hearing. No function additional to that stated in the extract we have made from the specification has been brought to our attention by the complainant, although devices contained in the patent, and referred to in claims not submitted to the court, cover others.

The complainant at the hearing described the alleged invention in issue as follows:

> The fact is, the exigencies of the street-railway art demanded two inconsistent things. One was the fixed relation which must be preserved between the motor gear-wheel and the axle gear-wheel, and the other was the capacity of the motor to be perfectly unconfined and free to "float" with relation to this same car-axle.
>
> The construction of the Rice patent in suit we think will be made clear by the following figure:



> In this figure, F represents the frame and M the motor. The frame F is journaled to the driven car-axle P, so that this car-axle serves as a pivot for the frame; the motor M is in turn hinged to the frame at the point P'.
>
> It will be seen that by this construction Rice has introduced and made use of a double hinge, and, as a result of the compound motion thus obtained, the upper leaf of this hinge can do more than simply rotate: it is enabled to move bodily upward in space without the necessity of any rotation, as illustrated by the two positions for the upper leaf shown in the following figures:



> The mere conception of a double hinge would not have accomplished the long-desired end in the street-railway art of maintaining a fixed relation between the motor-gears and the gears of the driven axle, if Rice had not, in making his double hinge, utilized as the leaves for his hinge the motor-frame and the motor-armature. For his first pivot, Rice utilized the driven axle of the car, and for the second pivot he utilized the armature-shaft, cutting the motor free from its frame, and thus permitting the motor to turn upon a part of itself, namely, the armature-shaft.
>
> It will now be seen that the motor M of the Rice patent can for the first time in the art float bodily up or down with relation to the driven axle of the car, and, in spite of this freedom of the motor to move bodily up and down with relation to the car-axle, the fixed relation or mesh between the motor gear-wheel and the axle gear-wheel is absolutely maintained, as illustrated in the preceding sketches.

The complainant emphasizes the advantages of its construction as follows:

> In the Rice motor neither the motor as a whole nor any part of it is compelled to "jump" with the car-axle.

And it points out the essential elements of its device as follows:

> The essential characteristics of this construction consist not merely in the introduction of the double hinge, but in utilizing the motor-frame for one leaf of the double hinge and the motor itself for the other leaf of the hinge. Furthermore, it is essential to the Rice construction that the first leaf should be journaled upon the driven axle, so that the car-axle constitutes the pivot for the first leaf of the hinge, while the armature-axis serves as the pivot for the other leaf of the hinge. Finally, there must be combined with the above mechanism, arranged and pivoted as we have described, a pair of spring-supports, one of which at least must be independent of the frame.

The element of sleeving the frame on the car-axle makes it practicable that the gear-wheel mounted on the armature-axis, or receiving its motion from that axis, shall always mesh with the gear-wheel mounted on the car-axle, whatever position the motor may take by reason of the elastic support described. The principle underlying this seems very simple when once stated. It is involved in the fact that, if the frame is thus sleeved, the circumference of the gear-wheel receiving its motion from the motor must always be in the circumference of the gear-wheel mounted on the car-axle. The element of the so-called "double hinge," which coöperates with the devices for elasticity, we find clearly new in this particular connection and no doubt useful. The other element is the spring or other elastic support. Thus there are three elements—namely, the contrivance for keeping the gears in mesh and the double hinge, combined with the springs in such way that the complainant maintains that there results a capacity on the part of the motor to float bodily up and down with relation to the car-axle. This means only that the motor is entirely held up or supported by springs, so that no part of it rests on a fixed basis incapable of elasticity.

The first-named element is shown in almost every prior device discussed before us, and that it is common in the arts, so far as this case is concerned, is settled by the opinion of Judge Sanborn, speaking for the Court of Appeals for the Eighth Circuit, in *Adams Electric Railway Company* v. *Lindell Railway Company*, (77 Fed. Rep., 432, 443, 447.) Therefore, in making use of this element, the respondent borrowed nothing from the complainant. What it did beyond this was as follows: The motor used by the complainant, and shown in its patent, is styled by the respondent to be of the "double-reduction form." This admits of such a location of the armature-axis, shown in the complainant's illustrations which we have already reproduced, as permits the motor, with the parts putting it in relation with the armature-axis, to assume normally the form and functions of one leaf of a hinge, as also represented by the complainant. On the other hand, the respondent's motor, as used in its manufactures, is what it styles the "symmetrical form of single-reduction motor." This normally shows the armature-axis as the axis of a motor of a cylindrical form, with the weight distributed in every direction from it. Therefore the respondent's motor and armature, with the parts putting them in mutual relation, do not normally take the form of the leaf of a hinge nor normally perform its functions, although in the case at bar we are satisfied it does perform them, and we would be holden to determine the suit for the complainant if this were the only issue. This last observation is also true as to respondent's claim that its motor supports the armature-axis instead of being supported by it, and as to its claim that its motor is lifted on springs instead of depending from them, and also that its peculiar arrangement relieves the car-axle by a larger proportion than the complainant's. Details of this character cannot be pressed successfully on the attention of the court in connection with an alleged invention so broad as that claimed by the complainant. It is plain that everything urged by the respondent with reference to the brushes is equally irrelevant.

The simplest way of solving this case is to return to a consideration of what the respondent has in fact done, and, bearing in mind that the device by which, in combinations of this class, the gears are kept in mesh is a matter of common right, to inquire at once whether whatever in addition thereto the respondent has availed itself of is not also within the like right. In many patent causes this is a much simpler and safer method of solving the questions at issue than to inquire first as to patentability and second as to infringement. In answering this question it is to be borne in mind that the matter of elastic suspension by springs and of otherwise giving either entire or partial independent support is so common in the arts and has taken on such innumerable forms that it cannot easily be perceived that any method not heretofore used remains. The presumption is therefore against patentability in any mere form of elastic suspension, unless under exceptional circumstances. We do not understand that the complainant holds otherwise, as we think nothing patentable is claimed for the mere method of adjusting or attaching or locating the springs or for anything relating to them independently of the peculiar double hinge which the patent describes. Also, it cannot be denied that the respondent was within its right in using its peculiar motor, which normally locates its armature at its axis, and, as a necessary element to the operation of its motor, in using its armature-shaft as a pivot. All this is in the common field of mechanical construction. What would remain would be the question of holding the motor in position. This would in ordinary course be by support either at its center or at its radial poles, and, in either case, rigidly or elastically. In the normal work of construction the mechanical engineer must select, and in an art of so common a character as that of so suspending heavy working parts elastically as to minimize the shock he might rightfully select either. This is all which has been done by the respondent. Therefore if complainant's patent is so broad as to cover respondent's device it is too broad to be sustained.

The case undoubtedly shows difficulties in the way of adjusting and disposing of the weight of an electric motor so as to relieve the superstructure and the car from the effects of shock and to minimize the consequently increased cost of maintenance; but it does not show that electrical engineers had been endeavoring to overcome them, except incidentally, or that they considered that there was involved anything more than the usual problem of easing the shock common to all road-vehicles. The state of the art as proven by the complainant's expert covers the history of this matter. The prior efforts shown by him and explained by the complainant were looking especially toward finding a method of attaching the motor to the car-axle instead of to the car-body, and also to increasing the tractive power of the wheels. Moreover, we have not been referred to proofs that the complainant's device actually overcame in practice the difficulty described or minimized it to any con-

siderable degree. The evidence in these respects falls far short of that class of proof sometimes accepted as overcoming a presumption that what was accomplished was within the scope of ordinary mechanical work. On the whole we must conclude that the complainant fails to maintain its suit.

Let a decree be entered as provided in Rule 21 of this court, dismissing the bill, with costs.

U. S. Circuit Court—Southern District of New York.

SAXLEHNER *v.* GRAEF *et al.*

Decided June 17, 1897.

1. TRADE-MARK—DISCONTINUING USE—PRELIMINARY INJUNCTION REFUSED.

The defendants having discontinued the sale of the articles for the complainant and having also discontinued the use of the trade-mark, which had been applied thereto, a preliminary injunction is refused.

2. INDIVIDUAL TRADE-MARK—UNFAIR COMPETITION.

Defendants having been the exclusive importers of the Hunyadi Janos waters and having pasted their own individual mark on each bottle sold by them, in addition to the mark of the complainant, and having discontinued the sale of such waters, *Held* that they cannot be restrained from placing the same individual mark on the water which they thereafter handle on the ground of unfair competition, since the complainant has no title to such individual mark.

3. PRELIMINARY INJUNCTION—QUESTIONS FOR FINAL HEARING.

The question as to whether laches or inaction has in any way impaired the complainant's right to an injunction and whether the continued use of the word "Hunyadi" after sale of complainant's water was discontinued or was not proper may appropriately be left for final hearing where it appears that this word is not now being used.

STATEMENT OF THE CASE.

This was a suit in equity by Emilie Saxlehner against Harry C. Graef and another, agents of the Apollinaris Company, to enjoin the use by the latter of certain alleged infringing labels and trademarks in the sale of mineral waters. The cause was heard on motion for a preliminary injunction.

Messrs. Briesen & Knauth for the motion.

Mr. Edmund Wetmore and *Mr. Henry Melville* opposed.

LACOMBE, *J.:*

Most of the questions which have been presented and argued on this motion may be best reserved for final hearing. It will not be necessary to express any opinion as to whether laches or inaction has in any way impaired complainant's right to enjoin imitations of the unattractive, but peculiarly distinctive, label of dark blue and red, with the vignette of John Huniades, which has been the well-recognized livery in this country of the original Hunyadi Janos water for many years. For the purpose of this motion it will be assumed that complainant's right to prevent the sale of other bitter waters in a dress calculated to deceive the public as to their identity with the Hunyadi Janos is entirely unimpaired. It appears that many years ago the markets of this country were flooded with dark blue and red labels lettered with variations of the name Hunyadi and calculated to deceive the public. At that time the Apollinaris Company was the sole consignee of complainant's predecessor, Andreas Saxlehner, in the United States. Said company urged Saxlehner to unite with it in suit to stop such infringements, but he peremptorily refused. Thereupon the Apollinaris Company adopted a distinctive badge of its own—to wit, a red diamond on a yellow ground, with the inscription:

The diamond is the trade-mark of the Apollinaris Company, Limited, and is meant only to indicate that mineral waters so marked are sold by the Apollinaris Company, Limited.

And so long as it continued to sell Saxlehner's Hunyadi Janos water it pasted its individual mark upon each bottle. It no longer sells Saxlehner's Hunyadi Janos water, and it now affixes its individual red diamond label on another natural Hungarian aperient water which it now sells. Complainant has no right to this red diamond label, and her application for an injunction could be sustained only on the theory of unfair competition. Of course, having handled the original Hunyadi Janos water so long and become well known as the exclusive importers of it into this country, the Apollinaris Company when it took up another variety of water was bound in good faith to the public to offer the new water in a dress so different as to challenge the attention of the purchaser to the fact that it is some other mineral water to which the red diamond label is now affixed. This has been done. The label of the "Apenta" water now sold by the Apollinaris Company is totally unlike the old Hunyadi Janos label. It fully sustains the proposition repeatedly laid down in this court that when there is an honest effort to accentuate differences in labels and wrappers there need be no confusion as to the identity of competing goods. Comparison is made with the later form of defendant's label, which no longer contains the words "Bottled at the Uj Hunyadi Springs." Whether the continued use of the word "Hunyadi" after the sale of complainant's water was discontinued was or was not proper may appropriately be left for final hearing. Promptly upon the decision in the Hungarian tribunal that word disappeared from defendant's labels, and when it is a question whether preliminary injunction shall issue it is always appropriate to consider what it is which defendant threatens to do if unrestrained. Should defendant hereafter and before final hearing resume the use of the word "Hunyadi," the question can then be presented by a renewal of the motion. Meanwhile the motion for preliminary injunction is denied.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 6. TUESDAY, NOVEMBER 9, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
FILE-WRAPPERS—ENTRIES ON	973
APPLICATIONS BY EMPLOYEES OF THE PATENT OFFICE	973
CHANGES IN CLASSIFICATION	973
ATTORNEYS	973
PRINT	974
LABEL	974
ISSUE OF NOVEMBER 9, 1897	974
APPLICATIONS UNDER EXAMINATION	974
PATENTS GRANTED	975
REISSUES	1101
DESIGNS	1103
TRADE-MARKS	1107
DECISIONS OF THE U. S. COURTS—	
Gaskill *et al. v.* Myers	1111
Forgie *v.* Duff Manufacturing Company	1113
Bates *v.* Keith	1115

File-Wrappers—Entries On.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 9-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

Applications by Employees of the Patent Office.

All applications for patents now pending before the Office filed by employees of the Patent Office during the period of their service, either complete or incomplete, or completed after they had separated themselves from the service, are ordered to be stricken from the files and the fees returned.

The views of the Commissioner upon section 480 of the Revised Statutes are expressed in his decision in the case of *ex parte John H. McElroy*, (80 O. G., 1123.)

Changes in Classification.

(ORDER No. 1,157.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 1, 1897.

The following changes in classification are hereby directed:

In Division XII subclasses are established as follows:

Class 237, Fire-Escapes:

34. Fire-escapes—
Automatic speed-governors—
Centrifugal.

Class 238, Ladders:

30. Ladders—
Trolley.

In Division XIV, Class 113, Sheet-Metal Ware, Making, the subclass Tubing—14, Grooving and seaming, is abolished and the following subclasses are established:

Tubing—
Straight. Making—
50. Lock-seaming,
51. Transverse seaming.

[In Division XXVI the following subclasses are established in Class 171, Electricity, Generation:

Meters—
264. Alternating-motor,
265. Direct-motor,
266. Electrolytic,
267. Escapement,
268. Multiple-rate,
269. Recording,
Thermal—
270. Fluid-expansion,
271. Hot-wire,
272. Time,
273. Variable-radius.

The following subclasses are abolished in Class 173, Electricity, Motive-Power:

Motors—
Alternating—
234. Distorted-field,
235. Rotary-field,
236. Starters.

The following subclasses are established in the same class:

Motors—
Alternating—
274. Regulators,
275. Single-phase—
276. Direct-current type,
277. Distorted-field,
278. Shifting-field,
279. Starters,
280. Polyphase.
Transmission of power—
281. Frequency-changers.
Steering and Propulsion—
282. Automatic control,
283. Cable control.

A. P. GREELEY,
Acting Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., October 1, 1897.

SIR: The Secretary of the Interior has ordered that John Wedderburn, of Washington, D. C., either individually or under the fanciful title of John Wedderburn & Company, be not recognised after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

(ORDER No. 1,158.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 1, 1897.

With the approval of the Secretary of the Interior, John Wedderburn and John Wedderburn & Co., of Washington, D. C., are hereby disbarred from practice before the United States Patent Office, pursuant to section 487 of the Revised Statutes.

BENJ. BUTTERWORTH,
Commissioner.

Print.

57.—Title: "THE BOSS OF THE FIELD." (Machines and Devices for Butchers.) *The Cincinnati Butchers' Supply Company*, Cincinnati, Ohio. Application filed September 9, 1897.

Label.

6,560.—Title: "MELLIN'S FOOD FOR INFANTS AND INVALIDS." *Dolber-Goodale Company*, Portland, Me., and Boston, Mass. Application filed September 8, 1897.

Issue of November 9, 1897.

Patents	373—No.	593,184 to No. 593,555, inclusive.
Designs	29—No.	27,817 to No. 27,845, inclusive.
Trade-Marks	40—No.	30,796 to No. 30,835, inclusive.
Labels	1—No.	6,560.
Prints	1—No.	57.
Reissues	2—No.	11,636 to No. 11,637, inclusive.
Total issue	445	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.
Alabama		
Arizona Territory		
Arkansas	2	
California	6	4
Colorado	3	
Connecticut	14	1
Delaware		1
District of Columbia	3	1
Florida		
Georgia	1	
Idaho	1	
Illinois	44	4
Indian Territory		
Indiana	10	1
Iowa	6	1
Kansas	3	
Kentucky	2	
Louisiana	1	
Maine	2	2
Maryland	2	
Massachusetts	33	1
Michigan	10	
Minnesota	8	
Mississippi		
Missouri	7	2
Montana	1	
Nebraska		
Nevada	2	
New Hampshire	4	
New Jersey	16	
New Mexico Territ'y		
New York	67	10
North Carolina		
North Dakota		
Ohio	19	5
Oklahoma Territory		
Oregon	3	
Pennsylvania	47	6
Rhode Island	8	
South Carolina		
South Dakota		
Tennessee	2	
Texas	6	1
Utah		
Vermont	2	
Virginia	7	
Washington	3	
West Virginia		
Wisconsin	7	1
Wyoming		
U. S. Army		
U. S. Navy		
Total to citizens of the United States	351	41

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina		
Australia		
Austria-Hungary	1	
Barbadoes		
Belgium	1	
Bermuda		
Brazil		
Canada	6	
Cape Colony		
Chile, Republic of		
China		
Colombia		
Cuba		
Denmark		
Egypt		
England	30	1
Finland		
France	5	
Germany	12	
India	1	
Ireland		
Italy		
Mexico		
Natal	1	
Netherlands		
Newfoundland		
New South Wales		
New Zealand		
Norway		
Portugal		
Queensland		
Roumania	1	
Russia	1	
Scotland		
South African Republic		
South Australia		
Sweden	1	
Switzerland		
Venezuela		
Victoria		
Total to citizens of foreign countries	50	1

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business November 2, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 2	Oct. 2	111
	Between one and two months.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Sept. 9	Oct. 19	153
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Sept. 11	Oct. 18	229
215	XVII. Paper Manufactures and Printing.	Sept. 2	Oct. 7	208
268	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Sept. 2	Oct. 1	321
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Sept. 20	Sept. 30	180
105	II. Farm Stock, Products, etc.	Sept. 8	Sept. 27	246
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Sept. 3	Sept. 18	200
	Between two and three months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 3	Oct. 19	193
236	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 23	Oct. 11	255
103	XIX. Stoves and Furnaces	Aug. 9	Oct. 11	237
93	XXI. Textiles, etc	Aug. 9	Oct. 11	208
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Sept. 1	Oct. 6	240
250	VIII. Furniture, Beds, Store Furniture, etc.	Aug. 31	Oct. 6	422
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 1	Oct. 5	134
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Aug. 17	Oct. 5	414
255	XII. Mechanical Engineering, Store-Service, etc.	Aug. 9	Oct. 5	185
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Sept. 1	Sept. 24	244
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Aug. 11	Sept. 23	220
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 9	Sept. 3	558
246	I. Tillage and Fences	Aug. 10	Aug. 26	340
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	July 17	Oct. 18	572
248	XVIII. Steam-Engineering, etc.	July 26	Oct. 14	311
120	IX. Hydraulics, Fire-Extinguishers, etc.	July 7	Oct. 13	268
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	July 21	Oct. 12	301
122	XXIV. Sewing-Machines, Apparel, and Toilet.	July 27	Oct. 1	254
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	July 2	Sept. 21	458
253	X. Carriages and Wagons	July 24	Sept. 13	444
240	VII. Velocipedes	July 17	Aug. 17	1385
	Between four and five months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Sept. 11	181
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	Aug. 26	302
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	July 31	412
	Between five and six months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 22	Oct. 15	624

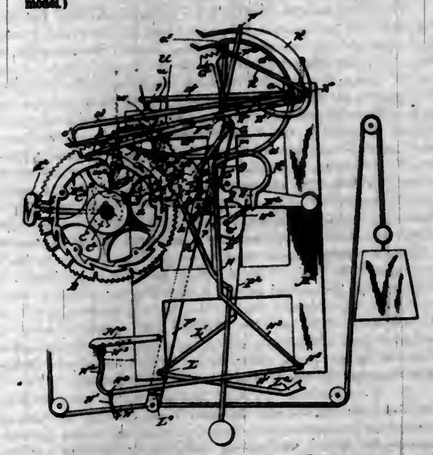
Total number of applications awaiting action 11,220

Under one month.			
Trade-Marks	Oct. 20	Oct. 30	30
Between one and three months.			
Designs	Sept. 27	Oct. 7	220

PATENTS

GRANTED NOVEMBER 9, 1897.

593,184. CLOCK REPEATING MECHANISM. GEORGE W. ARDERSON, Buffalo, Kans. Filed Apr. 6, 1896. Serial No. 586,206. (No model.)



Claim.—1. In combination in a striking clock the bell-hammer, the count-wheel adapted to be rotated rearwardly having deep notches to regulate the hour-strike and the toothed wheel rigidly attached thereto with means for engaging the same for controlling the rearward rotation of said count-wheel, substantially as described.

2. In combination in a striking clock, the bell-hammer, the lever F and the mechanism operated thereby for actuating said hammer to strike the hours in one position of the lever and for striking the fractions of an hour in the reversed position thereof, substantially as described.

3. In combination, in a striking clock the bell-hammer, the lever F, the mechanism operated thereby to strike the fractions of an hour in the first movement of said lever and to strike the hour on the final movement thereof, substantially as described.

4. In combination, in a striking clock the bell-hammer, the count-wheel with means for rotating the same forwardly, the mechanism regulated thereby for striking the hour, and the means for automatically rotating said wheel rearwardly for the repeat of said hour-strike, substantially as described.

5. In combination, in a striking clock, the bell-hammer the count-wheel with means for rotating the same forwardly, and the means regulated thereby for operating said bell-hammer and the means for automatically rotating said wheel rearwardly frictionally connected therewith, substantially as described.

6. In combination in a striking clock, the bell-hammer, the count-wheel with means for rotating the same forwardly, the means regulated thereby for striking the hours, and the weight frictionally connected therewith for automatically rotating the same rearwardly, substantially as described.

7. In combination in a striking clock, the bell-hammer, the count-wheel with means for rotating the same forwardly, means regulated thereby for striking the hours, and the weight frictionally connected therewith for automatically rotating the same rearwardly, and means for limiting said rearward rotation, substantially as described.

8. In combination, in a striking-clock, the bell-hammer the count-wheel with means for rotating the same forwardly, the means regulated thereby for striking the hours, and the weight frictionally connected therewith for rotating the same rearwardly, and means for limiting said rearward rotation, said means comprising a freely-pivoted pawl and a toothed wheel rigidly connected to said count-wheel, substantially as described.

9. In combination in a striking clock, the bell-hammer, the count-wheel the disk carrying means for rotating said wheel step by step during the hour-strike, means for holding said wheel at each forward step, and the means for locking said holding means out of engagement with said wheel during the quarter-strike whereby said count-wheel will be returned after each forward step.

10. In combination in a striking clock the bell-hammer, the disk carrying means for operating the same, the locking means for said disk, the pivoted rod operated through the minute-hand spindle for releasing said disk, and the means adapted to positively operate said rod for returning the same to normal position, substantially as described.

11. In combination, in a striking clock, the bell-hammer, the disk for operating the same, the arm engaging said disk to lock the same against rotation, the pin carried by said arm, the pivoted rod having a looped end, and the means for bringing said loop into engagement with said pin to raise said arm and release the said disk, substantially as described.

12. In combination, in a clock for repeating the hour and fractional-hour strike, the bell-hammer, the disk for operating the same, the count-wheel for controlling the hour-strike, the cam carried by the minute-hand spindle, the pivoted lever operated thereby the pivoted arm and the segmental racks controlled by said arm for regulating the minute-strike, substantially as described.

13. In combination, in a clock for repeating the hour and minute strike, the bell-hammer, the disk-spindle carrying means for operating said hammer, the count-wheel for regulating the hour-strike, the cam carried by the minute-hand spindle, the pivoted arm operated thereby, the oppositely-arranged segmental racks controlled by said arm and the pins carried by said disks fixed to the spindle for rotating said count-wheel and for engaging one of said racks and the means controlled by the opposite rack for stopping the minute-strike, substantially as described.

14. In combination, in a clock for repeating the hour and minute strike, the hammer, the count-wheel for regulating the hour-strike, the disk for rotating the same, the locking means therefor, the releasing means, the cam carried by the minute-spindle, the pivoted arm operated thereby, having a graduated end, the shaft G having the arms carrying segmental racks extending therefrom in opposite directions, the supplemental arm fixed to the shaft G for engaging the graduated end of said arm for positioning said racks, the pin fixed to a second disk for engaging the lower racks, and moving said racks step by step to determine the minute-strike, and the pawl for engaging the upper rack to hold said racks after each forward step, substantially as described.

15. In combination, in a clock for repeating the hour and minute strike, the bell-hammer, the count-wheel for regulating the hour-strike, the disk for rotating the same, the locking means therefor, the releasing means, the cam carried by the minute-spindle, the pivoted arm operated thereby, having a graduated end, the shaft G having the arms carrying segmental racks, extending therefrom in opposite directions, the supplemental arm fixed to the shaft G for engaging the graduated end of said arm for positioning said racks, the pins fixed to a second disk for engaging the lower racks, and moving said racks step by step to determine the minute-strike, and the pawl for engaging the upper rack to hold said racks after each forward step, and means for releasing said pawl, substantially as described.

16. In combination in a striking clock, the bell-hammer, the count-wheel, the disk for operating the same, the means for locking said disk, the pivoted rod for engaging and releasing said locking means, the means carried by the minute-spindle for holding said rod out of engagement with said locking means, and the supplemental means for holding said rod out of engagement with the locking means after the completion of the automatic hour-strike when released by the minute-hand spindle, substantially as described.

17. In combination in a striking clock, the bell-hammer, the count-wheel, the disk for operating the same, the means for locking said disk, the pivoted rod having a horizontal extension, said rod being adapted to engage and release said locking means, the finger carried by the minute-hand spindle for holding said rod out of engagement with the locking means, and a pivoted latch for engaging said horizontal extension to hold said rod in normal position when disengaged from said finger after the automatic strike of the hour, substantially as described.

18. In combination, in a striking clock, the bell-hammer, the count-wheel, the disk for rotating the same, the means for locking said disk, the releasing-rod therefor, the finger carried by the minute-spindle for holding said rod in normal position, the horizontal extension of said rod having a laterally-bent end, and the supplemental means for holding said rod comprising a freely-pivoted latch having an inclined plate carrying a hooked end, said laterally-bent end being adapted to be lifted above said plate by said finger, and to drop down upon the outside of said plate on the release of said rod by said finger, said hooked end engaging said lateral end of the extension on the return of said rod after the hour-strike, substantially as described.

19. In combination, in a clock for repeating the hour and minute strike, the bell-hammer, the count-wheel for controlling the same, the disk for operating said wheel, the locking means therefor, the means for automatically releasing said disk, and the means for manually releasing the same, comprising a pivoted lever, the mechanism operated thereby, and the means for locking said lever on the approach of the automatic strike, substantially as described.

20. In combination, in a clock for repeating the hour and minute strike, the bell-hammer, the count-wheel, the disk for operating said hammer, and wheel, the means for locking said disk, automatic releasing means therefor, and the manual releasing means comprising a pivoted lever with mechanism operated thereby, a projection on said lever, and a pivoted bell-crank lever having the end of one of its arms recessed and means for bringing said recessed end in the path of said projection to lock said lever on the approach of the automatic strike, substantially as described.

21. In combination in a clock for repeating the hour and minute strike, the bell-hammer, the count-wheel, the disk for operating said hammer and wheel, the means for locking said disks, automatic releasing means therefor, and the manual releasing means comprising a pivoted lever with mechanism operated thereby, a projection on said lever, and a pivoted bell-crank lever having the end of one of its arms recessed, the pivoted arm, the snail-cam for the minute-spindle for automatically controlling said arm, and the connection between said arm and the said bell-crank lever, for bringing said recessed end in the path of said projection on the operating-lever, substantially as described.

22. In combination, in a clock for repeating the strike of the hours and minutes, the bell-hammer, the count-wheel the disk for rotating the same and actuating said hammer, the locking means for said disk, the automatic releasing means, the pawl for holding said count-wheel after each forward step, the racks with means for automatically adjusting the same to regulate the minute-strike, the pivoted levers, the means for freeing and returning the count-wheel and for operating the minute-strike on the first movement of said pivoted lever, and the means for operating the hour-strike on the return movement thereof, substantially as described.

23. In combination, in a clock for repeating the strike of the hour, and minutes, the bell-hammer, the count-wheel, the disks for rotating the same and actuating said hammer, locking means therefor automatic releasing means, the pawl for holding said count-wheel, against rearward rotation, the racks for regulating the minute-strike with means for automatically adjusting the same, the pivoted lever, the means for releasing the count-wheel and operating the minute-strike through the release of said disks on the first movement of said lever, means for returning the count-wheel when released, and the means for checking the same on the return, substantially as described.

24. In combination, in a clock for repeating the strike of the hour, and minutes, the bell-hammer, the count-wheel, the disks for rotating the same and actuating said hammer, locking means therefor, automatic releasing means, the pawl for holding said count-wheel against rearward rotation, the racks for regulating the minute-strike with means for automatically adjusting the same, the pivoted lever, the means for releasing the count-wheel and operating the minute-strike through the release of said disks on the first movement of said lever, means for returning the count-wheel when released, the disk carried by the same, having teeth corresponding to the deep notches therein, and the freely-pivoted pawl for engaging said teeth to check said count-wheel on its return movement, substantially as described.

25. In combination in a clock for striking the repeat of the minute and hour, the bell-hammer, the count-wheel, the disks for rotating the same and actuating said hammer, the arm engaging and locking said disks, the automatic release for said arm, the segmental racks with means for controlling the same, the pivoted lever, the shaft carrying said locking-arm, the supplemental arm carried by said shaft, the pawl for engaging the count-wheel also carried by said shaft, and the branch of said lever, for lifting said supplemental arm to release said pawl and locking-arm, substantially as described.

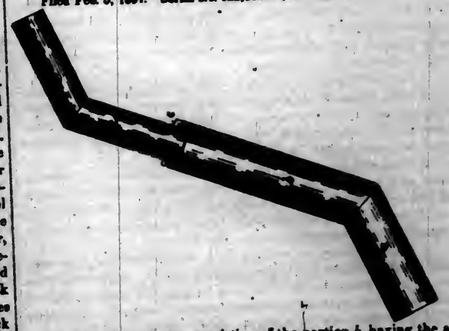
26. In combination, in a clock for repeating the minute and hour strike, the bell-hammer, the count-wheel, the disks for rotating said wheel and actuating said hammer, the segmental racks with means for controlling the same, the arm engaging and locking said disks, the automatic release therefor, the fan-spindle, the pawls engaging the count-wheel, the arm engaging the fan-spindle, the pawl engaging one of said racks, the arm A^3, the arm a^4, the branches carried by said lever for lifting the arms A^3, a^4 on the first movement of said lever, said arms being adapted to drop at the end of the first movement of said lever, whereby the fan-spindle the count-wheel, the racks and the disk will be locked on the completion of the minute-strike, the arm a^4 being adapted to be again raised on the return movement of said lever to raise the locking-arms of the disk and fan-spindle, substantially as described.

27. In combination, in a clock for repeating the hour and minute strike, the bell-hammer, the count-wheel, the disks for operating said wheel and hammer, the locking-arm therefor the automatic release, the shaft a carrying said arm, the fan-spindle carrying a projection, the pawl for engaging the teeth in said count-wheel, the pawl for engaging the notches therein, the segmental racks, the pawl engaging therewith, the arm a^3 for engaging the fan-spindle, the arm A^3 having a reduced part, the arm a^4 having an inclined offset corresponding therewith, the pivoted lever F, the branches extending therefrom for raising said arms A^3 a^4 on the first movement of said levers, to release said count-wheel to permit the return of the same, disengage the pawl A^4 from the rack G^2 to permit of the positioning of the rack G' and to release the disk to strike the minutes, said arm A^3 being adapted to drop by disengaging itself from the raising branch when said branch reaches the reduced portion whereby the pawls for engaging the teeth of the segmental rack and count-wheel will drop into engagement, and the arm a^4 when the raising branch therefor reaches the offset will drop to lock the fan spindle and disk on the completion of the minute-strike, said arm a^4 being adapted to be again raised on the return movement of said lever, to release the hour-striking mechanism, and the arm A^3 being adapted to be sprung aside to permit the return passage of its raising branch.

28. In combination, in a clock for repeating the hour and minute strike, the bell-hammer, the count-wheel, the disk the locking means therefor, the automatic releasing means, and means operated manually for holding said locking means out of operation and supplemental means controlling the return of said locking means when released, substantially as described.

29. In combination, in a clock for repeating the hour and minute strike, the bell-hammer, the count-wheel, the disks, the locking-arm therefor the automatic means for lifting said arm, the arm a^3 fixed to the shaft of the locking-arm, the pivoted lever carrying means for lifting the arm a^3 for releasing the disks on the first movement of said lever, means whereby said arm will drop on the return movement of the lever a pivoted arm for supporting said arm a^3 to prevent the return of the same when released and means for removing said support, substantially as described.

598,185. CONDUCTOR-PIPE. WARREN W. RAIRD, Pittsburg, Pa. Filed Feb. 5, 1897. Serial No. 622,102. (No model.)



Claim.—A conductor consisting of the portion b, having the angle a, attached thereto, said portion b, carrying at its opposite end an inwardly-extending flange c, the portion c, adapted to operate within the portion b, and having on its engaging end an outwardly-extending flange engaging the inner face of the portion d, all arranged, as and for the purpose set forth.

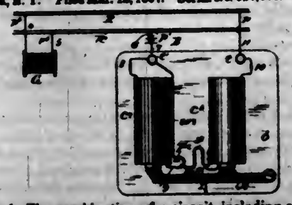
598,186. CLOTHES-DRIER. CHARLIE B. BAKER, Saltillo, Ind. Filed Apr. 20, 1896. Serial No. 588,569. (No model.)



Claim.—1. In a clothes-drier, the combination of a supporting-frame composed of crossed bars centrally connected, pulleys 9 arranged at the ends of the crossed bars, a pair of pulleys 10 centrally mounted on the supporting-frame, a drier-frame, supporting ropes extending upward from the drier-frame, passing over the pulleys 9 and extending to the center of the supporting-frame and passing around and between the pair of pulleys 10, the inner portions of said supporting-ropes extending from the pulleys 10 in the same direction, the pulley 18 mounted on the supporting-frame and extending beneath the inner portions of said ropes, the pulley 13 designed to be mounted on a wall in the same plane as the other pulley, a rope 12 passing over the pulley 13 and having its upper end connected with each of the supporting-ropes and provided at its lower end with a pulley, a rope 14 passing over the latter and having one end permanently secured to a suitable support and adapted to have its other end detachably connected with the same, and means for mounting the supporting frame at the ceiling of the room, substantially as described.

2. In a clothes-drier, the combination of a supporting-frame composed of crossed bars, the L-shaped hangers designed to be secured permanently to and depend from a ceiling and having their horizontal portions receiving and supporting the crossed bars, and the pivoted locking devices mounted on the crossed bars and engaging the vertical portions of the hangers, and adapted to be turned out of such engagement to permit the removal of the supporting-frame, substantially as described.

598,187. ELECTRICAL INSTRUMENT. WILLIAM C. RANDS, New York, N. Y. Filed Mar. 12, 1897. Serial No. 627,076. (No model.)



Claim.—1. The combination of a circuit, including a resistance, a generator, an electromagnetic circuit-breaker, the latter two of which are always in circuit a second resistance and a short circuit about it, all arranged substantially as set forth, whereby the removal of the first resistance will operate the circuit-breaker to open the short circuit about the second resistance and constitute its circuit a part of the only complete circuit through the generator.

2. The combination of a closed circuit including a resistance, a generator, an electromagnetic circuit-breaker, the latter two of which are always in circuit a second resistance and a short circuit about it, all arranged substantially as set forth, whereby the removal of the first resistance will operate the circuit-breaker to open the short circuit about the second resistance and constitute its circuit a part of the only complete circuit through the generator.

3. The combination of a circuit including a first resistance, a generator and an electromagnetic circuit-breaker the latter two of which are always in circuit the armature of the magnet of which circuit-breaker when the first resistance is in unobstructed circuit, is held by a force greater than the force of the electromagnet, but less than the force of said electromagnet when a short circuit is established around said first resistance, a second resistance, and a short circuit about it, all arranged as described, whereby when the force of said circuit-breaker magnet is augmented as described it will open the short circuit about the second resistance and constitute the circuit of said second resistance a part of the only complete circuit through the generator.

4. The combination of a circuit including a relay and a generator, of an electromagnet whose coil is continuously a part of the generator-circuit, a second resistance, a circuit including said second resistance and said electromagnet, circuit connections from said electromagnet to said generator not including said second resistance, two contact-points, at least one of which is in that circuit which excludes the second resistance, and one of which is sustained upon a yielding support, an armature to said electromagnet adapted as described to force back said point on that yielding support and break the circuit, which excludes the second resistance, when a short circuit is established about the relay, all substantially as set forth.

5. An electrical instrument, composed of an electromagnet provided with an armature, two terminals one connected to one end of the magnet-coil, a resistance one end in circuit with the second end of the magnet-coil, the other end connected to the second terminal, two contact points adapted to break and make contact with each other, one connected to an end of the magnet-coil, other than that which is connected to the first terminal, a short circuit, not including the resistance electrically connecting the second terminal and the second contact-point, one of which contact-points is mounted upon a yielding support in the line of movement of the magnet-armature, whereby a sufficient excitation of said electromagnet will cause its armature to force and hold the contact-points apart and break and hold open the short circuit, thus making the only complete circuit from terminal to terminal include the resistance, and will yet leave the magnet-coil in the said circuit from terminal to terminal, substantially as set forth.

6. An electrical instrument, composed of an electromagnet provided with an armature, two terminals one connected to one end of the magnet-coil, a resistance, arranged substantially as described, with its core constituting a pole of an electromagnet whose armature is the same as that of the electromagnet proper, said resistance having one end in circuit with the second end of the magnet-coil, the other end connected to the second terminal, two contact-points adapted to break and make contact with each other, one connected to an end of the magnet-coil, other than that which is connected to the first terminal, a short circuit, not including the resistance electrically connecting the second terminal and the second contact-point, one of which contact-points is mounted upon a yielding support in the line of movement of the magnet-armature, whereby a sufficient excitation of said electromagnet will cause its armature to force and hold the contact-points apart and break and hold open the short circuit, thus making the only complete circuit from terminal to terminal include the resistance, and will yet leave the magnet-coil in the said circuit from terminal to terminal, substantially as set forth.

7. An electrical instrument, composed of an electromagnet provided with an armature, two terminals one connected to one end of the magnet-coil, a resistance one end in circuit with the second end of the magnet-coil, the other end connected to the second terminal, two contact-points adapted to break and make contact with each other, one connected to an end of the magnet-coil, other than that which is connected to the first terminal, a short circuit, not including the resistance electrically connecting the second terminal and the second contact-point, one of which contact-points is mounted upon a yielding support in line of movement of the magnet-armature, a spring whose strem is opposed to that attractive force of the electromagnet operating upon its armature whereby a sufficient excitation of said electromagnet will cause its armature to force and hold the contact-points apart and break and hold open the short circuit, thus making the only complete circuit from terminal to terminal include the resistance, and will yet leave the magnet-coil in the said circuit from terminal to terminal, but upon a diminution of said magnetic force said contact-points will be again brought together and the short circuit about the resistance automatically reëstablished, all substantially as set forth.

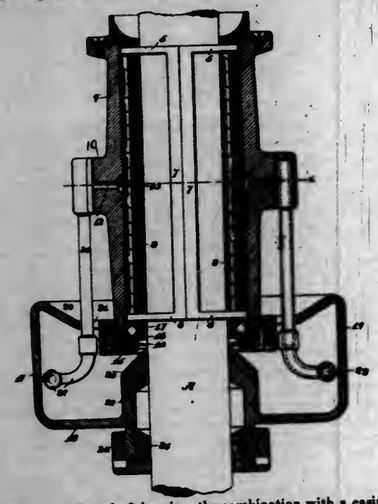
8. An electrical instrument composed of an electromagnet provided with an armature, two terminals, one connected to one end of the magnet-coil, a resistance-coil wound upon the same core with the coil of the electromagnet, one end in circuit with the second end of the magnet-coil and the other end in circuit with the second terminal, two contact-points adapted to break and make contact with each other one connected to one end of the magnet-coil other than that connected to the first terminal, a short circuit not including the resistance-coil, electrically connecting the second point and the second terminal, one of which points is mounted on a yielding support in the line of movement of the magnet-armature, all substantially as set forth.

9. An electrical instrument composed of a two-coil electromagnet, each double wound, two terminals one connected to one end of

one coil, the other connected to an end of the other similar coil, connections between the respective ends of the first coils which are not directly connected to the terminals and the adjacent respective ends of the second coils, a connection between the respective opposite ends of said second coils, two contact-points, one or both carried on yielding supports and connected respectively to those ends of the first coils which are not directly connected to the terminals, and an armature to the so-constituted electromaguet supported and adapted to move in line with the yielding support of at least one contact-point, all substantially as set forth.

10. An electrical instrument composed of a two-coil electromagnet, each double wound, two terminals one connected to one end of one coil, the other connected to an end of the other similar coil, connections between the respective ends of the first coils which are not directly connected to the terminals and the adjacent respective ends of the second coils, two spring contact-pieces, connected respectively to those ends of the first coils which are not directly connected to the terminals, and having faces inclined toward their mutual point of contact, and an armature to the so-constituted electromagnet carrying a finger adapted as described to force said spring-contacts apart and means substantially as set forth, for normally holding said finger from separating said contact-pieces, all substantially as set forth.

598,188. SHAFT-BEARING. MELVILL H. BARKER, Boston, Mass. Filed May 10, 1897. Serial No. 635,762. (No model.)



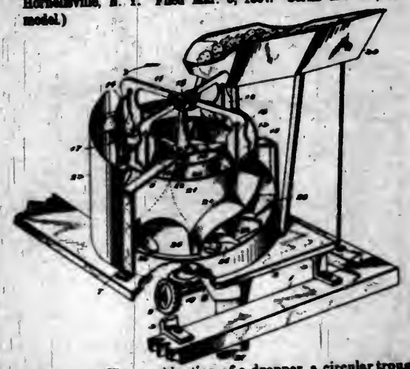
Claim.—1. In a shaft-bearing, the combination with a casing, an upwardly-facing raceway seated therein, a series of balls on the raceway, and an inverted raceway resting on the balls and independent of the shaft, of a cage supported by the inverted raceway, and a series of rolls contained within the cage and bearing on the inner surface of the casing.

2. In a shaft-bearing the combination with a casing having a circumferentially-extending recess in its inner surface and a channel connecting the recess with the outer surface of the casing, a roller-bearing contained within the casing, and an independent antifriction-bearing for supporting the roller bearing, of a shaft journaled in the bearing, a reservoir embracing the shaft and fixed thereto, and a supply-pipe connected with the channel in the casing, and extending into the reservoir.

3. In a shaft-bearing, the combination with a shaft, and a casing having a channel extending through its wall, of a reservoir having a stuffing-box embracing the shaft, a peripheral wall, and a dished deflector extending inward from said wall toward the casing, and a supply-pipe connected with the channel in the casing and extending downward between the casing and the edge of the deflector, and then outwardly toward the wall of the reservoir, and having a curved fitting open in a direction opposite to that of the rotation of the shaft, and means for securing the reservoir to the shaft.

4. The combination with the casing 9, the bore of which is enlarged at its lower end, the raceway 14 seated in this enlargement, the flange 15 secured to the lower end of the casing and supporting the raceway, balls 16 working on the raceway and the inverted raceway 17 mounted on said balls, a cage supported on the raceway 17, and antifriction devices carried by the cage.

598,189. POTATO CUTTER AND DROPPER. FREDERICK D. BELL, Hornellsville, N. Y. Filed Mar. 3, 1897. Serial No. 625,875. (No model.)



Claim.—1. The combination of a dropper, a circular trough discharging into the dropper, and a series of hands rotatably mounted and adapted to sweep the trough.

2. The combination of a circular trough having a discharge-opening therein, a radially-arranged series of rotating chutes or pockets, and a series of hands secured to the divisions between the series of chutes, adapted to sweep the trough.

3. The combination of the circular trough having a discharge-opening therein, a radially-arranged series of chutes or pockets, the division-walls of which extend downwardly and are inclined rearwardly, and a series of hands secured to the division-walls, adapted to sweep the trough.

4. The combination of a circular trough having a discharge-opening therein, an inner and an outer series of rotating schutes or pockets, disposed above the trough, both the inner and outer series of pockets discharging into said trough, and means for sweeping the trough.

5. The combination of a circular trough, an inner and outer series of pockets rotatingly mounted and disposed above the trough, the inner series of pockets discharging vertically and outwardly into the trough, and the outer series of pockets discharging vertically and rearwardly into the trough, and means for sweeping the trough.

6. The combination of a segmental feed-trough, a series of rotating hands adapted to sweep said trough, and means for discharging or dropping the potato or other seed fed into said trough.

7. The combination of a feed-trough, a series of hands adapted to traverse said trough, and a knife located at the discharge end of the trough.

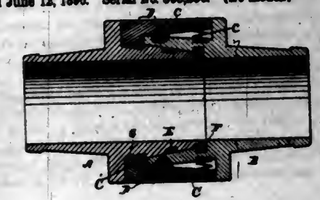
8. The combination of a segmental trough, a series of rotative arms adapted to traverse said trough, a vertical knife secured to the discharge end of the trough, and a vertical apron secured to the rear edge of the knife.

9. The combination of a feed-trough, a series of hands adapted to traverse said trough, a vertical knife secured to the discharge end of the trough, each of the hands being vertically slitted to straddle or pass over the knife.

10. The combination of a segmental trough, a series of rotative arms adapted to sweep said trough, a series of chutes rotatively mounted below said segmental trough, a circular trough disposed below the chutes, and having a discharge-opening, and a series of hands moving with the chutes, and adapted to sweep the circular trough.

11. The combination of a segmental trough, a stationary knife, a series of rotative arms adapted to sweep said trough, a series of chutes or pockets below the segmental trough, a circular trough having a discharge-opening, a series of hands adapted to sweep the circular trough, the hands of the feed-trough, the hands of the circular trough and the series of chutes all being mounted for rotation in unison.

598,190. HOSE-COUPLING. FRANK J. BERNHARDT, Wausau, Wis. Filed June 12, 1896. Serial No. 595,206. (No model.)



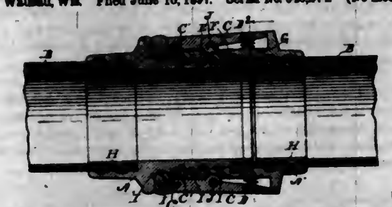
Claim.—1. In a hose-coupling, the combination of the male coupling A, with an annulus G, to the inner end thereof and a gasket E, around the body of the same; the female coupling B, joined to the male coupling by a tapering joint having a gasket to the inner end thereof; levers C, with hook portions C', thereon in suitable recesses to the outside of the female coupling B; pivots D, for carrying said levers C, located at a greater distance from the center of the holes than the engaging point for the hooks and springs c, for forcing the ends of the levers outward to cause the hook portion C', to engage the annulus G, on the male coupling and crowding the parts together all coacting together substantially as described for the purpose specified.

2. In a hose-coupling, the combination of a male coupling A, with an annulus G, thereon the female coupling B, joined thereto by a tapering joint; levers C, in suitable recesses to the outside of the female coupling and beyond the diameter of the annulus G having inwardly-projecting square-faced hook portions to engage the annulus on the male coupling; and springs to hold the said levers normally in the engagement position to draw the couplings together and so that the coupling can be locked or unlocked by grasping the levers to the outside of the coupling as specified.

3. In a hose-coupler, the combination of a male coupling A, with an annulus G, thereon; the female coupling B; levers C, to the outside of the female coupling, and beyond the diameter of the annulus having inwardly projecting hook portions to engage the annulus on the male coupling; and springs to hold the said levers normally in the engaging position so that the coupling can be locked or unlocked by grasping the levers to the outside of the coupling as specified.

4. In a hose-coupling, the combination of a male coupling A, with an annulus G, thereon; the female coupling B, joined thereto by a tapering joint; gasket F, to the inner end of the female coupling; levers C, in suitable recesses to the outside of the female coupling and beyond the diameter of the annulus having inwardly-projecting hook portions to engage the annulus on the male coupling; and springs to hold the said levers normally in the engaging position so that the coupling can be locked or unlocked by grasping the levers to the outside of the coupling as specified.

598,191. HOSE OR PIPE COUPLING. FRANK J. BERNHARDT, Wausau, Wis. Filed June 10, 1897. Serial No. 640,274. (No model.)



Claim.—1. In a coupling for pipes or hose, the combination of a male member A, containing packing-grooves and a shoulder at its inner end for receiving a packing, and a groove C' toward its outer end for engagement with dogs on the female member and containing sand-grooves formed between the remaining grooves and at its outer end next the shoulder; a female coupling A' fitted to said male coupling with a groove and internal collar at its inner end containing perforations G; a U-shaped packing F between the shoulders of the female coupling and the shoulder at the end of the male coupling with the opening side toward the female coupling so that any fluid in the pipe will enter between the limbs of the U-shaped packing; levers C pivoted to the outside thereof with dogs C' pivoted toward their outer end and fitted through mortises toward the center and positioned to engage the groove C' of the male coupling; and springs D under the outer ends of said levers C to hold them normally in the engaging position; all coacting together as described for the purpose specified.

2. In a coupling for pipes or hose, the combination of a male member having a shoulder at its inner end to receive a packing; the female member to fit the same having a shoulder at its inner end also to receive a packing, the said shoulder containing a suitable connecting-channel as perforations G; a packing-ring U-shaped in cross-section adapted to fit between the shoulders of said members with its open side toward the female member so that fluid can be admitted through the said connecting channel or perforations to press the packing into place to form a tight joint and suitable engaging means for locking the members of the coupling together, as specified.

3. In a coupling for pipes or hose, the combination of a male member containing suitable packing-grooves, and a groove with a shoulder on its side toward the outer end for engagement by suitable dogs on the female member; a female member adapted to fit the male member of said coupling; levers pivoted to the outside of said female coupling; dogs pivoted on the ends of said levers toward the outer end of the female coupling adapted to pass through suitable mortises toward the outer end and engage the male coupling within and springs to throw said levers normally into the engaging position, coacting as specified.

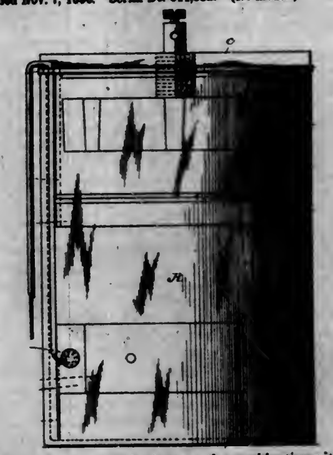
4. In a coupling for pipes or hose, the combination of a male member; a female member; levers pivoted to the outside of said female member having suitable dogs thereon toward the outer end of the female member passing through suitable mortises toward the outer end of the female member to engage the male member within and retain it by the dogs engaging the sides of the mortises, as specified.

598,192. PROCESS OF DYEING. VICTOR G. BLOEDE, Catonsville, Md. Filed Jan. 22, 1894. Serial No. 497,698. (No specimens.)

Claim.—1. The process herein described for development or modification of colors by diazotization, which consists in subjecting the fibers or fabrics treated with such colors or color-producting compounds to the action of nitrous acid in gaseous form, substantially as herein set forth.

2. The process herein described for the development or modification of colors by diazotization, which consists in subjecting the fibers or fabrics treated with such colors or coloring compounds to the action of nitrous acid in gaseous form combined with air, substantially as herein set forth.

598,193. BATTERY-CUP. JAMES A. BRITTON, Phillipsburg, N. J. Filed Nov. 7, 1896. Serial No. 611,352. (No model.)



Claim.—1. In a gravity-battery, the combination with a jar, copper and zinc, of a cup comprising a rigid cylinder open at the top and bottom and provided with suitable supports adapted to rest upon the top of the jar, and a removable textile bottom secured over the lower end of said cylinder so as to permit the free passage of the liquids in the jar but prevent the decomposed portions of the zinc from dropping to the bottom of the jar and encrusting the copper, substantially as described.

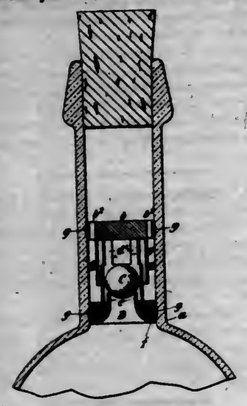
2. In a gravity-battery the combination with a jar, copper and zinc, of a cup provided with an open bottom covered by a textile material and having a supporting-flange about its upper edge and adapted to rest upon the upper edge of the jar, substantially as described.

3. In a gravity-battery the combination with a jar, copper and zinc, of a cup provided with a supporting-flange adapted to rest upon the upper edge of the jar, and an annular groove about its lower open end, and a bottom of textile material applied over the open lower end of the cup with its ends secured within the annular groove, substantially as described.

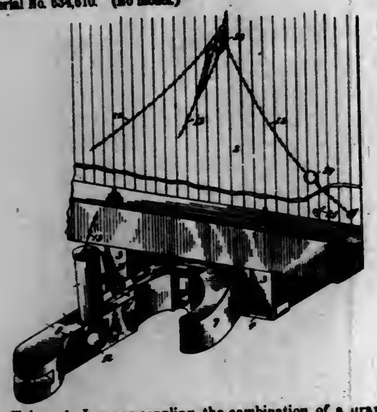
598,194. DEVICE FOR PREVENTING REFILLING OF BOTTLES. WILLIAM J. BRYAN, Chicago, Ill. Filed Jan. 29, 1897. Serial No. 621,130. (No model.)

Claim.—In a bottle-neck, the combination of two cylinders of different diameters, the smaller one surrounded for a portion of its length by the larger, a ball normally seated upon an annular seat inside of said smaller cylinder, lateral outlets near the upper end of said smaller cylinder, an outlet at the lower end of said larger cylinder, a head closing the upper end of said larger cylinder and pro-

vided with slots opening into the space outside of the periphery of the said larger cylinder, together with means for preventing the displacement of the said cylinders; substantially as and for the purposes described.



598,195. CAR-COUPLING. WILLIAM H. CAVNER, Helena, Ark., assignor of one-half to William McCoy, same place. Filed Apr. 30, 1897. Serial No. 634,610. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head provided at one side with a concavity and having a housing located above the same, a ball fitting within the housing and adapted to engage the concavities of two draw-heads, a slide mounted on the draw-head and projecting into the housing and adapted to support the ball in an elevated position, and means for automatically reciprocating the slide when two cars come together for coupling to cause the ball to drop and for reciprocating the slide in the opposite direction when the ball is raised in uncoupling, substantially as described.

2. In a car-coupling, the combination of a draw-head provided at one side with a concavity, a casing arranged over the concavity, a ball fitting within the casing and adapted to engage the concavities of the two draw-heads, a slide mounted on the draw-head, projecting into the casing and supporting the ball in an elevated position, said slide being arranged to be engaged by a draw-head to release the ball, and a lever connected with the slide and arranged to be engaged by the ball when the latter is lifted, whereby the slide is thrown forward or outward, substantially as described.

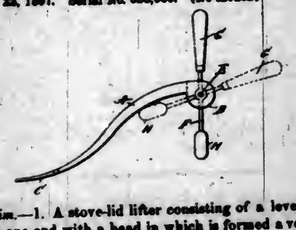
3. In a car-coupling, the combination of a draw-head provided at one side with a concavity and having a housing located above the same, a ball fitting within the housing and adapted to engage the concavities of two draw-heads, a movable support arranged to receive the ball and hold the same in an elevated position, and a device connecting the ball with the support, whereby when the ball is elevated the support will be carried beneath the same, substantially as described.

4. In a car-coupling, the combination of a draw-head provided with a concavity, a casing, a slide mounted on the draw-head and arranged to project into the casing to form a support, a lever fulcrumed between its ends on the casing, connected at its lower end to the slide and provided at its upper end with an arm extending into the casing and arranged in an inclined position when the slide is withdrawn, and the ball arranged within the casing, adapted to be supported by the slide and capable of engaging the inclined arm of the lever, whereby the slide is thrown forward when the ball is lifted, substantially as described.

5. In a car-coupling, the combination of a draw-head provided at one side with a concavity, a casing mounted over the same, a ball arranged within the casing, a reciprocating slide mounted on the draw-head and adapted to extend across the casing to form a support for the ball, said slide being provided with a laterally-disposed L-shaped arm, a lever fulcrumed on the casing, connected at its lower end to the slide and provided at its upper end with an L-shaped arm extending into the casing, and operating mechanism connected with the ball, substantially as described.

6. In a car-coupling, the combination of a draw-head, a locking device, a chain extending upward from the locking device and designed to be connected with the top of a car and provided between its ends with a pulley 23 mounted on and carried by the said chain, and side chains connected with the said chain at a point below the pulley, passing over the same and extending therefrom in opposite directions to enable the locking device to be operated from the sides of a car, substantially as described.

598,196. STOVE-LID LIFTER. ALBERT DE CAMP COLES, Howark, N. J., assignor of one-fourth to John Lewis Hay, Clinton, N. J. Filed Mar. 22, 1897. Serial No. 628,069. (No model.)



Claim.—1. A stove-lid lifter consisting of a lever which is provided at one end with a head in which is formed a vertical slot, and a rod which is pivoted in said slot, and provided at one end with a handle, and at the other with a cross-head which is adapted to bear on said lever, substantially as shown and described.

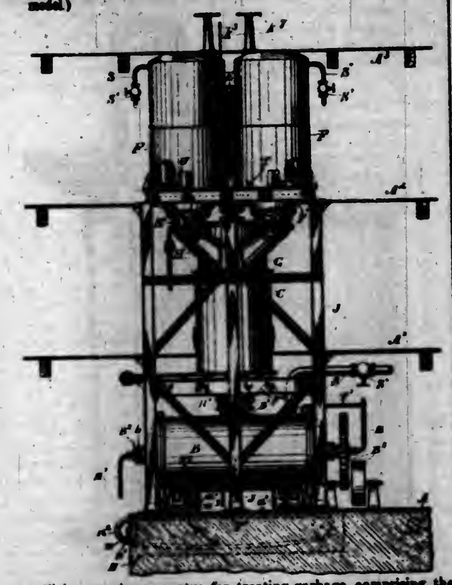
2. In a stove-lid lifter, the combination with a curved lever as A, which is provided at one end with a head as B, in which is formed a vertical slot as D, of a rod as F, which is pivoted in said slot, and which is provided at one end with a handle as G, and at the other with a head which is adapted to bear on the under side of said lever, substantially as shown and described.

598,197. FENCE. JOHN D. CURE, Brookville, Ohio. Filed May 27, 1897. Serial No. 638,369. (No model.)



Claim.—In a fence, the combination of runners, intersecting cross-sectionally half-round stays, arranged with their flat sides in contact with the runners, and provided with transverse grooves forming runner-seats of less depth than the diameters of the runners, each stay being provided, respectively above and below the plane of each runner-seat and contiguous to its lateral edges, with perforations perpendicular to the plane of said flat side, and a separate tie for securing the stays at each intersection with the runners, said tie consisting of a single looped strand of wire, having its legs engaged respectively with said perforations in the stay, and its looped portion spanning the runner-seat in contact with the seated runner, the legs of the tie extending toward each other, in contact with the rounded outer side of the stay, in parallel horizontal planes respectively above and below the plane of the runner, and having its extremities coiled in opposite directions around the runner contiguous to the side edges of the stay, substantially as specified.

598,198. APPARATUS FOR TREATING GARBAGE. CYRUS C. CURRIER, Summit, N. J. Filed Dec. 11, 1896. Serial No. 615,258. (No model.)



Claim.—1. An apparatus for treating garbage, comprising the press-curb C having perforated walls and an outlet at the bottom for the pressed material, the tight jacket C' surrounding the same, with pipe to discharge the expressed fluid therefrom, the piston fitted to the curb with piston-rod extended upwardly therefrom, the cylindrical air-tight hood secured to the top of the curb with inlets upon its sides, and having on the top a stuffing-box fitted to the piston-rod, the hood being adapted to admit the piston above such inlets when retracted from the curb, means for reciprocating the piston, the series of rendering-tanks arranged above the hood, with funnel upon the bottom of each, and a valved outlet from the bottom of the funnel with pipe H connecting such outlet tightly with the inlet upon the side of the hood, the whole being adapted to charge the press-curb successively from the several rendering-tanks without opening the press-curb, or discharging any of the noxious gases, substantially as herein set forth.

2. An apparatus for treating garbage, comprising the press-curb C having perforated walls and an outlet at the bottom for the pressed material, the tight jacket C' surrounding the same, with pipe to discharge the expressed fluid therefrom, the piston fitted to the curb with piston-rod extended upwardly therefrom, the cylindrical air-tight hood secured to the top of the curb with inlets upon its sides and top having stuffing-box fitted to the piston-rod, the hood being adapted to admit the piston above such inlets when retracted from the curb, means for reciprocating the piston, the series of rendering-tanks arranged above the hood with funnel upon the bottom of each, a valved outlet from the bottom of the funnel with pipe H connecting such outlet tightly with the inlet upon the side of the hood, the tops of the rendering-tanks being provided with filling-inlets, and a floor arranged at the tops of such tanks to support the material when filling the same, a valve fitted to open inwardly upon each tank-inlet, and a movable hand-wheel supported above the floor with connections for opening and closing each of said valves, as and for the purpose set forth.

3. In a rendering tank having a filling-inlet with valve, the combination, with the valve-seat F, of the valve K hinged to pivot k at one side of the seat, and provided with an operating-arm, the vertical box k^2 upon the top of the tank adjacent to such pivot, a screw fitted within the box, and links connected with the arm upon the valve and actuated by the screw to open and close the valve, substantially as herein set forth.

4. In a rendering-tank having a filling-inlet in the top, the combination, with the valve-seat F, of the valve K hinged to pivot k at one side of the seat and provided with the link or links l with arm k^4 jointed thereon, the vertical box k^2 upon the top of the tank with stuffing-box k^3 at its upper end, a screw fitted within the box and journaled in the stuffing-box k^3, the plunger k' threaded upon the screw, and the links k^5 jointed to the arm k^4, the screw being provided with means for turning the same and thus reciprocating the plunger and opening and closing the valve, substantially as herein set forth.

5. An apparatus for pressing garbage, comprising the press-curb C having perforated walls with air-tight jacket C' surrounding the same, and provided with pipe U' to withdraw the expressed fluid, a cylindrical hood fitted air-tight to the top of the curb, and provided upon the side with inlet having air-tight pipe and valve to receive the material, and having its entire bottom open to discharge the compressed material, a piston fitted to the curb with piston-rod projected upward through the hood, and adapted to retract the piston within the hood above the inlet, and a gate for closing the entire bottom of the curb during the pressing operation, and afterward opening the entire bottom of the curb to discharge the pressed material, substantially as herein set forth.

6. In an apparatus for treating garbage, the combination, with a press-curb having perforated walls, of an air-tight jacket surrounding the same and having a pipe to withdraw the fluid, a hood fitted air-tight to the top of the curb with pipe and valve to receive the material, a piston with rod projected upward through the hood, a funnel below the curb, and a gate fitted to the bottom of the curb above the funnel, and adapted when retracted to open the entire bottom of the curb, as and for the purpose set forth.

7. In an apparatus for treating garbage, the combination, with a press-curb having perforated walls, of an air-tight jacket surrounding the same and having a pipe to withdraw the fluid, a hood fitted air-tight to the top of the curb with pipe and valve to receive the material, a piston with rod projected upward through the hood, an air-tight gate-chamber attached to the bottom of the curb, and projected at one side of the same, a funnel connected with the bottom of the gate-chamber, and a gate fitted to the bottom of the curb, and adapted when retracted to open the entire bottom of the curb, as and for the purpose set forth.

8. In an apparatus for treating garbage, the combination, with a cylindrical press-curb having perforated walls, of an air-tight jacket surrounding the same, with pipe to discharge the fluid, the rectangular plate c attached to the bottom of the curb with the plate c' connected thereto by rectangular frame c^3, the openings through the plates in line with the bore of the curb, the rectangular gate c^3 fitted movably between the plates and provided with bearing-rolls c^4, a screw or screws c^5 journaled in the frame c^3, with nut or nuts to move the gate, and means for rotating the screw or screws to retract the gate, as and for the purpose set forth.

9. In an apparatus for treating garbage, the combination, with a cylindrical press-curb having perforated walls, of an air-tight jacket surrounding the same, with pipe to discharge the fluid, the rectangular plate c attached to the bottom of the curb with the plate c' connected thereto by rectangular frame c^3, the openings through the plates in line with the bore of the curb, the inclined seat s at one edge of the curb, the rectangular gate c^3 fitted movably between the plates and provided with bearing-rolls c^4, and with inclined leg s' to fit the seat s, and means, as the screw or screws c^5, to reciprocate the gate, as and for the purpose set forth.

10. In an apparatus for treating garbage, the combination, with a drying-cylinder having filling-inlet in the top and means for stirring the material, of the funnel F^2 attached to the inlet, the valve H^2 at the bottom of the funnel, and gate-chamber H' attached to the top of the funnel, the press-curb attached to the top of the gate-chamber, with gate movable in the chamber and adapted when retracted to open the entire bottom of the curb in discharging the material to the drier, the gate-chamber and funnel being air-tight to transfer the material without the escape of gas and vapor, substantially as herein set forth.

11. In an apparatus for treating garbage, and comprising a drying-cylinder with press-curb mounted upon the top of the same and connected therewith, the combination, with the drying-cylinder having means for stirring the material, and outlet a from the bottom of the cylinder, of the manhole-cover a' hinged at the sides of said outlet, worm-gearing connected with said cover, to close it from the side of the drier, and a carrier movable beneath the outlet, to carry away the material when discharged from the outlet, as and for the purpose set forth.

12. In an apparatus for treating garbage, the combination, with a single press-curb and a piston movable therein, of an air-tight casing fitted to the top of the curb, a hydraulic cylinder sustained above the hood with piston-rod extended through the top of the same to the piston P of the press-curb, a series of rendering-tanks arranged about such hydraulic cylinder above the hood, and separately connected therewith by air-tight pipes and valves, a floor arranged at the tops of the rendering-tanks to support the material when filling the tanks, a valve fitted within each rendering-tank to close the inlet, the vertical boxes k^2 projected from the tops of a tank upon the contiguous quarters of the same and provided with means for actuating the valves and a valve-box with valve and pipes for controlling the movement of the fluid in the hydraulic cylinder, with a handle

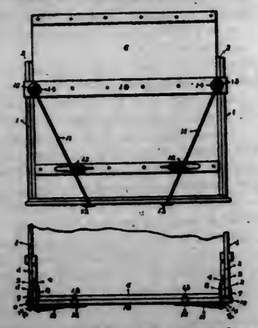
g' extended adjacent to the vertical boxes A^2, so as to be actuated by the same operator, substantially as shown and described.

13. In an apparatus for treating garbage, the combination, with the rendering-tank or press-curb having a funnel at the bottom, of the valve-casing H' having the mouthpiece fitted to such funnel, the base-plate h' attached to the bottom of such casing, and provided with outlet h^3 below such mouthpiece, the wedge-shaped valve H^3 with screw to move it upon such base-plate, and a valve-seat inclined to the base-plate, the valve being thus supported upon the base-plate throughout its entire range of movement, as and for the purpose set forth

14. An apparatus for treating garbage, comprising a tight conveyer-box, a series of air-tight rendering-tanks above the same with tight pipes and valves connecting them separately to the conveyer-box, a series of air-tight press-curbs connected with the conveyer-box by suitable air-tight pipes and valves, and a conveyer within the conveyer-box for transporting the material from any of said tanks at pleasure to any of said press-curbs, substantially as herein set forth.

15. In an apparatus for treating garbage, the combination, with a press-curb having a gate at the bottom adapted to sustain the material when pressing the same, of a drier with air-tight pipe and valve connecting it to the outlet of the press-curb, means for tightly closing the press-curb when charged, and vacuum-pipes for connecting the press-curb and drying-cylinder separately with a condenser to draw off the vapors, substantially as herein set forth.

593,199. SHOVELING-BOARD FOR WAGON-BOXES. JOSEPH DAIN, Jr., Carrollton, Mo. Filed Apr. 6, 1896. Serial No. 586,209. (No model.)



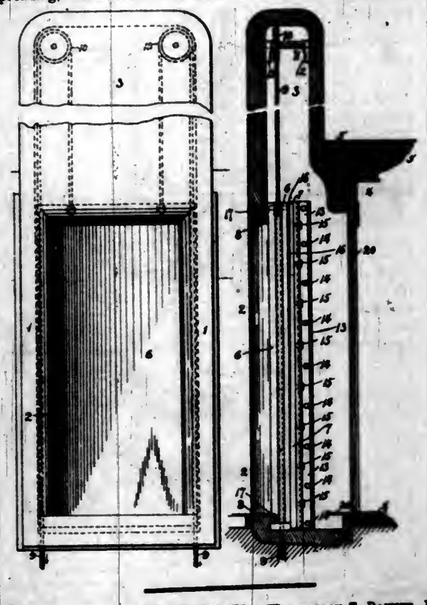
Claim.—1. The combination with a wagon-box provided with suitable grooves, rails arranged to slide in said grooves provided with slots near their lower ends, arms on said rails near their upper ends, and brackets on said arms arranged to engage the ends of the wagon-box sides, of a shoveling-board, pintles on said board arranged to engage and operate in said slots, a cross-bar on said board provided with openings near its ends for the passage of said arms on said rails, rods connected with said arms, hooks on said rods arranged to engage the bottom of the wagon-box when said board is raised up, and adjustable keepers on said board arranged to engage said rods to retain the same in engagement with the bottom of the wagon-box; substantially as set forth.

2. The combination with a wagon-box provided with suitable grooves, rails 4 arranged to slide in said grooves and provided with slots 5 near their lower ends, arms 8 on said rails near their upper ends, and brackets 9 on said arms arranged to engage the ends of the wagon-box sides, of a shoveling-board 6, pintles 7 on said board arranged to engage and operate in said slots, a cross-bar 10 on said board provided with openings near its ends for the passage of said arms on said rails, rods 11 connected with said arms, hooks 13 on said rods arranged to engage the bottom of the wagon-box when said board is raised up, and adjustable keepers 12 on said board arranged to engage said rods to retain the same in engagement with the bottom of the wagon-box; substantially as set forth.

593,200. SAFE OR VAULT. GEORGE L. DAMON, Boston, Mass. Filed Nov. 13, 1895. Serial No. 568,329. (No model.)

Claim.—1. In a burglar-proof vault or safe, the combination of the housing or vestibule 1, having formed therein a doorway 2, the burglar-proof pocket 3 mounted upon said housing or vestibule, a door mounted between wedging ways or guides and forming an explosive-tight closure, and means for operating the door, as explained.

2. A burglar-proof vault or safe constructed with a vestibule and a pocket 3 securely attached to the vestibule, a door for closing the doorway of the vestibule, sliding between wedging bearings, and wedging shoulders formed on the door and on the door-jambs, whereby said parts engage laterally, and the door-jambs are secured against spreading, and means for operating the door, as herein explained.



593,201. CARPET-FASTENER. WASHINGTON T. DANNER, Burlington, Iowa. Filed Apr. 8, 1897. Serial No. 631,199. (No model.)



Claim.—1. In a carpet-fastener, the combination with a stationary member adapted to underlie the edge of the carpet and provided with teeth on its upper side, of a sliding member mounted on an upward extension of the stationary member and provided with teeth on its under side, and a dog carried by the sliding member and adapted for engagement with the stationary member whereby the parts are held in their adjusted positions, substantially as described.

2. In a carpet-fastener, the combination with a stationary member provided with teeth on its upper side and having an upright portion provided with beveled edges, of a sliding member having a dovetailed portion with undercut edges for engaging the upright portion of the stationary member, and means for holding the sliding member in its adjusted position, substantially as described.

3. In a carpet-fastener, a stationary member, in combination with a sliding member mounted thereon and provided with openings or slots, and a toothed strip provided at its end with a lip for engagement with one of said openings or slots, substantially as described.

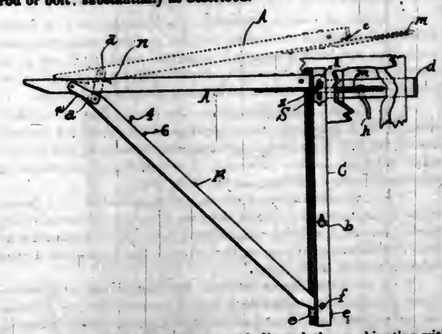
4. In a carpet-fastener, a strip of sheet metal provided along its longitudinal edges with depending teeth and having its end portions upturned, substantially as and for the purpose described.

5. In a carpet-fastener, a metal strip having a concavo-convex shape in cross-section and provided along its longitudinal edges with depending teeth or spurs, the ends of said strip being upturned to form engaging lips, substantially as described.

6. In a carpet-fastener, a stationary member adapted to underlie the edge of the carpet, a sliding member movable up and down upon an extension of the stationary member and adapted to overlie the edge of the carpet, and a dog carried by the sliding member and having its free end adapted to engage notches in the stationary member, substantially as described.

593,202. FOLDING BRACKET FOR BUILDERS' USE. CLAYTON M. DEARBORN, Lynn, Mass. Filed Nov. 4, 1896. Renewed Sept. 16, 1895. Serial No. 562,720. (No model.)

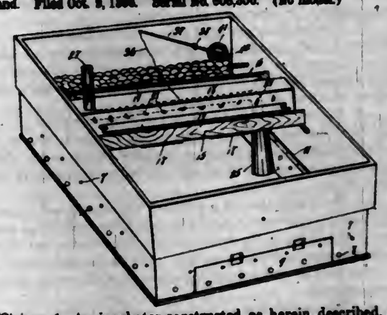
Claim.—1. A bracket comprising a base member, a rod or bolt upon said base member, an intermediate member, a supporting member having a notch opening upon the end and one side of said supporting member, a plate carrying an engaging member secured upon said supporting member and extending over the opening upon the side of said member, thus forming a slot adapted to receive said rod or bolt, and means for clamping said supporting member upon said rod or bolt; substantially as described.



2. In a bracket of the character indicated, the combination with the base member C, supporting member A and middle or intermediate member, B, of bar, *d*, and brackets, *k*, *b*, for detachably holding the bar, *d*, substantially as described.

3. A bracket comprising a base member, having a slot therein, an intermediate member, a supporting member, said intermediate and supporting members being adapted to lie in the slot in the base member, a bracket *b* upon said base member, an adjustable bracket upon said base member, and means for simultaneously contracting the sides of said slot and firmly securing said adjustable bracket; substantially as described.

593,203. INCUBATOR. SAMUEL DOCKERING, Ramsgate, England. Filed Oct. 9, 1896. Serial No. 608,356. (No model.)



Claim.—1. An incubator constructed as herein described, and provided with a main transverse heating-chamber which is rectangular in cross-section and composed of sheet metal or similar material, the side walls of said heating-chamber being provided with semicircular openings, part of which are arranged horizontally and others in an inclined and vertical position, and said openings being provided with wings or projecting blades of the same shape as said openings, substantially as shown and described.

2. An incubator having a casing, a perforated tray therein, a heating-chamber suitably supported above said tray, and being provided with semicircular openings therein, said semicircular openings being provided with tongues which project outwardly, part of said openings being formed horizontally, part vertically and the rest at different angles thereto, a pipe in connection with said heating-chamber, a flue passing therethrough, and also through said chamber, and means for automatically equalizing the degree of temperature in said casing, all of said parts being combined substantially as described.

3. An incubator, having a casing, a perforated tray therein, a heating-chamber secured above said tray, means for passing heat therethrough, a door hinged to the top of said casing and adapted to open inwardly, a spring operating on said door to keep the same closed, a depending arm on said door, a circular receptacle secured to one side of said casing, a corrugated head secured therein, a lever pivotally secured to said head, a weight on the under side of said lever and a cord in connection with the upper end of said lever and said depending arm, said parts being combined substantially as described.

593,204. DAMPER MECHANISM FOR MUSICAL INSTRUMENTS. WILLIAM GERNER, Hoboken, N. J., assignor of one-half to Robert Gensitz, same place. Filed June 7, 1897. Serial No. 638,673. (No model.)

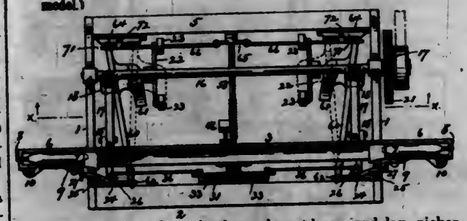


Claim.—1. In a musical instrument, a vibratory reed having at its free end an extension whereby a shoulder or projection is formed, a shaft mounted adjacent to the free end of said reed and above the same, a striker-wheel mounted on said shaft and provided with teeth or projections, a spring-damper which is supported beneath the free end of said reed, and which projects upward adjacent to said extension, said damper being provided with an outwardly and downwardly directed arm which is adapted to strike said shoulder or projection, and at the upper end thereof, with a lateral extension which in the normal position of the parts is above the free end of the reed or tongue and projects thereover, said reed being adapted to be vibrated by one of the teeth or projections on said wheel, and the said lateral projection on the damper being adapted to be struck by the next succeeding tooth or projection, substantially as shown and described.

2. In a damper mechanism for musical instruments, a shaft, striker-wheels mounted thereon, and provided with teeth or projections, reed-plates mounted adjacent to each side of said shaft, and provided with reeds or tongues which project in the direction thereof, the tongues or reeds on one of said plates being directed over said shaft, and on the other beneath said shaft, and each of said tongues or reeds being provided at its free end with an extension whereby a shoulder or projection is formed, dampers for the upper reeds or tongues which are supported below said shaft, and which project upward adjacent to said wheels, said dampers being also provided at their upper ends with extensions, and with loops or bends which project in the direction of said wheels, and spring-dampers for the lower reeds or tongues which are supported below said shaft, and which project upward adjacent to the extensions of said reeds or tongues, said dampers being provided at their upper ends with lateral projections which extend over the extensions of said reeds or tongues, and with downwardly and outwardly directed arms which are adapted to strike the shoulders formed thereon, substantially as shown and described.

3. A spring-damper for musical instruments comprising a spring-standard, an outwardly and downwardly directed arm supported thereby and a laterally-extending projection presenting upwardly a curved surface, substantially as described.

593,205. STOP MECHANISM FOR LOOMS. FRANCOIS M. J. GERNIER, Providence, R. I. Filed June 22, 1896. Serial No. 596,496. (No model.)

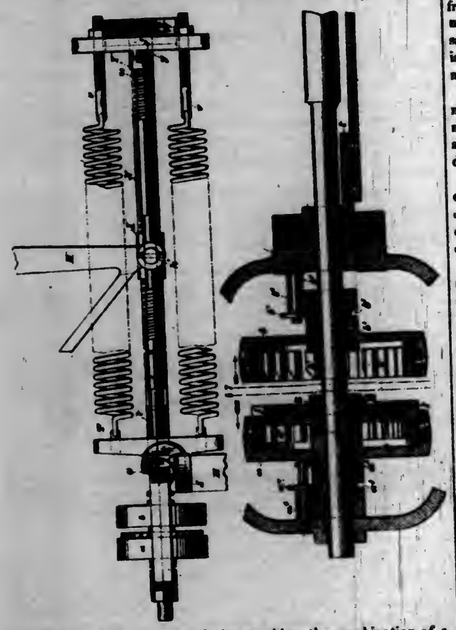


Claim.—1. In a loom having a breast-beam and lay, picker-sticks, picker-arms, swift-sticks, shuttle boxes and shuttle-binders, the combination of a shaft rotatable by power and provided with cross-arms having rollers at the ends thereof, shoe-shafts having cam-shoes and loosely mounted at their front ends, sliding blocks movable in ways and adapted to support the rear ends of said shoe-shafts, a cross-shaft mounted in suitable supports and surrounded by a spiral spring adapted to turn the same, an arm upon said cross-shaft, a rod connection between the arm last aforesaid and said sliding blocks and a holding device engageable with said cross-shaft and arranged to be set in operation by the simultaneous outward movement of the shuttle-binders in two opposite shuttle-boxes on the race of the lay, and means intermediate between said shuttle-binders and holding device, substantially as described.

2. The improved stop mechanism for looms herein described, consisting of the breast-beam 2, the bent levers 25, 25, mounted on

the breast-beam near the ends thereof and having each a finger-rod 27, the lay 3 and the shuttle-boxes 6 on the lay, the shuttle-binders 9 mounted on said shuttle-boxes, the catch 47 centrally projecting from the lay, the central bracket 28 on the breast-beam, the lever-support 31 upon said bracket, the levers 33, 33, mounted on said support 31, provided with feet at their inner ends, the spiral spring 37 connecting the outer ends of the levers 33, 33, wires 36, 36, connecting the bent levers 25 to the outer ends of the central levers 33, respectively, the bracket 30, the arm 38 pivoted at the rear end of said bracket and having an upright post 40, whose upper end abuts the feet of the central levers 33, 33, an arm 45 having a weight 46 and connected with the arm 38, a swinging latch 43 pivoted to the arm 38 and having its portion below said pivot slotted, the standard 49, the lever 50 mounted on the standard 49, the link 52, pivotally connected at one end with the top of the lever 50 and having at its other end a stud adjustably mounted in the slot of the latch 43, a shaft 55 mounted in the standard 49 and in the frame of the loom and surrounded by a spiral spring 59, an arm 56 on the shaft 55 and engageable with the lower end of the lever 50, grooved supports 64, 64, suitably mounted, sliding blocks 63, 63, movable in the supports 64, 64, shoe-shafts 60, 60 having cam-shoes 61, 61 and loosely mounted at their front ends in suitable bearings and loosely mounted at their rear ends in said sliding blocks 63, 63, a cross-arm 65 on said shaft 55, the rods 66, 66, pivotally connected at their inner ends to said cross-arm 65 and at their outer ends with said sliding blocks 63, 63, respectively, and provided each with a projecting cam edge 68, an arm 69 pivotally mounted on said supports 64, 64, and each having a beveled end adapted to receive the pressure of the cam 68, a curved arm 71 pivotally connected with each arm 69 and having a pin 72, passing into a hole in the supports 64, all arranged and operating substantially as shown and for the purpose specified.

593,206. EMBROIDERING-MACHINE. JOSEPH A. GROSSLI, New York, N. Y., assignor to the Kursheedt Manufacturing Company, same place. Filed Nov. 10, 1896. Serial No. 611,588. (No model.)



Claim.—1. In an embroidering-machine, the combination of a fabric-frame combined with means for suspending the same, comprising a plurality of suspension-levers, and a longitudinal connecting-link between the levers for effecting the simultaneous equal movement thereof.

2. In an embroidering-machine, the combination of a fabric-frame, a suspension device therefor comprising a parallel-motion device, a spring counterbalancing device for the parallel-motion device and frame, and a compensating mechanism for automatically controlling the tension of the counterbalancing-spring, as and for the purposes set forth

3. In an embroidering-machine, the combination of a fabric-frame, counterbalanced supporting devices, vertical links pivoted at both ends suspending the frame from the supporting devices and means for transmitting motion from one supporting device to the other.

4. In an embroidering-machine, the combination of a fabric-frame and a parallel-motion supporting mechanism therefor, having all its parts positively connected together, substantially as described.

5. In an embroidering-machine, the combination of a fabric-frame and suspension mechanism therefor, a spring counterbalancing mechanism for the said frame and suspension mechanism, and an automatic compensating device for compensating for the irregular tension of the spring mechanism at different periods of its stress.

6. In an embroidering-machine, the combination of a fabric-frame, a suspension mechanism, a spring counterbalancing mechanism for the fabric-frame and the suspension mechanism, and an automatic clutch mechanism connected to the spring counterbalancing mechanism during different periods of its stress.

7. In an embroidering-machine, the combination of a fabric-frame, a suspension mechanism therefor, a spring counterbalancing mechanism and a rotating compensating device for compensating for the irregularities of the spring counterbalancing mechanism during different periods of its stress.

8. In an embroidering-machine, the combination of a fabric-frame, a suspension mechanism, a spring counterbalancing mechanism and a compensating mechanism for the spring counterbalancing mechanism comprising a plurality of clutch members and a clutching member cooperating with the said clutch members, substantially as described.

9. In an embroidering-machine, the combination of a fabric-frame and suspension device therefor, and a spring counterbalancing mechanism having an automatic spring compensating mechanism therefor, the said spring counterbalancing mechanism and its compensating mechanism being pivotally connected to the frame of the embroidering-machine, substantially as described.

10. In an embroidering-machine, the combination of a fabric-frame, a suspension mechanism therefor, a spring counterbalancing mechanism and an automatic compensating mechanism therefor, the said spring counterbalancing mechanism and compensating mechanism being connected to the embroidering-machine frame so as to move together, substantially as described.

11. The combination of a spring counterbalancing or tension member, a shaft against which the said spring exerts its tension, a nut or bearing upon the said shaft, and means for rotating the said shaft whereby the differences of tension of the spring under different degrees of stress may be compensated for.

12. The combination of springs, a shaft against which the springs exert their tension, a shiftable connection on the said shaft for receiving the thrust of the springs, a clutch device, and a clutching device mounted upon the shaft and adapted for engagement with the clutch device.

13. The combination of a spring or tension member, a longitudinally-movable shaft receiving the thrust of the said tension member, a movable bearing on the shaft receiving the thrust of the shaft, and means for rotating the said shaft to move the bearing thereon so as to compensate for inequalities in the tension of the spring during distension thereof.

14. The combination of a spring member, a shaft, a bearing or nut X carried upon the said shaft, a rotating clutch member hung upon the shaft, and a clutching member mounted upon the shaft and adapted for engagement with the clutch member whereby the variations of the tension of the springs during longitudinal movements of the shaft may be compensated for.

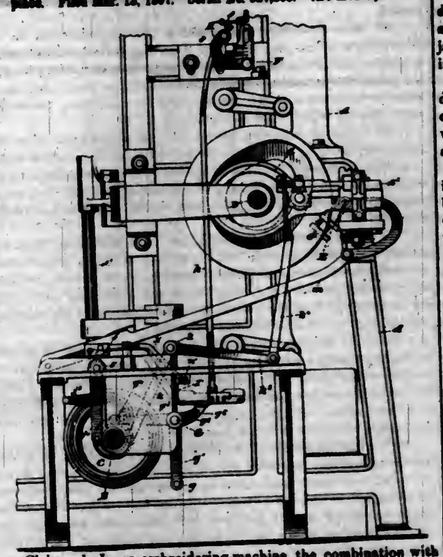
15. The combination with tension mechanism and a shaft, of a plurality of oppositely-placed clutch members provided with teeth, and a clutching device provided peripherally with projecting teeth adapted for engagement with the teeth of the clutch members, the faces of the teeth of the clutch members being oppositely beveled and the teeth of the clutching member being pointed, substantially as described.

16. A parallel-motion device for fabric-frame of an embroidering-machine, consisting of a plurality of elbow-levers, a longitudinal link connecting the levers for effecting the simultaneous movement thereof, and suspension-links connecting the free arms of the elbow-levers to the fabric-frame.

17. A parallel-motion device, fabric-frame of an embroidering-machine and suspension-links pivoted at both ends for connecting the fabric-frame to the parallel-motion device.

18. A parallel-motion device for fabric-frame of embroidering-machine, consisting of a plurality of elbow-levers, a longitudinal link for connecting said levers for effecting their simultaneous movement and means for connecting the free arms of the elbow-levers to the fabric-frame.

593,207. EMBROIDERING-MACHINE. JOSEPH A. GROSSLI, New York, N. Y., assignor to the Kursheedt Manufacturing Company, same place. Filed Mar. 13, 1897. Serial No. 627,206. (No model.)



Claim.—1. In an embroidering-machine, the combination with sewing mechanism of a bore-point for piercing the fabric, a bore-point mover and moving mechanism therefor and means for actuating the moving mechanism to cause the bore-point to make a long forward movement into the fabric and a short oscillating movement back and forth while in the fabric, followed by another long retractive movement, substantially as and for the purposes set forth.

2. In an embroidering-machine, the combination with sewing mechanism of a bore-point, a moving mechanism therefor and means for causing the said mechanism to drive the bore-point into the fabric, oscillate the same in the fabric a distance less than the ordinary stroke of the bore-point to enter the same into the fabric and to thereupon withdraw the said bore-point from the fabric.

3. In an embroidering-machine, the combination of bore-points, a connection A for oscillating the said bore-points, an oscillating arm for moving the said connection, an independent means for adjusting the said connection along the said arm and means for engaging the said connection with the oscillating arm or with the adjusting device.

4. In an embroidering-machine, the combination of bore point-operating mechanism comprising in its structure a means for oscillating the bore-points, a means for altering the adjustment of the said bore-point-operating mechanism and a jacquard connection for controlling the means for altering the adjustment.

5. In an embroidering-machine, an organism of mechanism for controlling the movement of the bore-points, the same comprising in its structure an oscillating rod A, a swinging actuator g^3 therefor, an adjuster I for adjusting the rod A and means for engaging the rod alternately with either of the elements I or g^3, substantially as set forth.

6. In an embroidering-machine an organism of mechanism for controlling bore-points, the same comprising in its structure an oscillating rod A and actuator g^3 therefor, a reciprocating adjuster I for the oscillating rod A and jacquard mechanism for engaging the rod A with its actuator or its adjuster *ad libitum*.

7. In an embroidering-machine, the combination of the following instrumentalities in operative combination, to wit: a driving mechanism and bore-point mechanism of suitable construction, combined with adjusting means comprising an adjuster I, a laterally-movable oscillating rod A combined with an actuator therefor and jacquard mechanism controlling the oscillations of the oscillating rod and its engagement with the adjuster.

8. In an embroidering-machine, the combination with needle-operating mechanism of two-throw cam mechanism adjunctive thereto and arranged to impart varying throws, a bowl-controlling mechanism for effecting functions in the operation of the embroidering-machine other than the needle-operating functions and adapted to be engaged with different portions of the two-throw cam at different times so as to receive throws of different characters according to its position on the cam, a shifting mechanism for the said bowl for engaging the said bowl with different portions of the said cam and jacquard mechanism for controlling the shifting mechanism for the bowls.

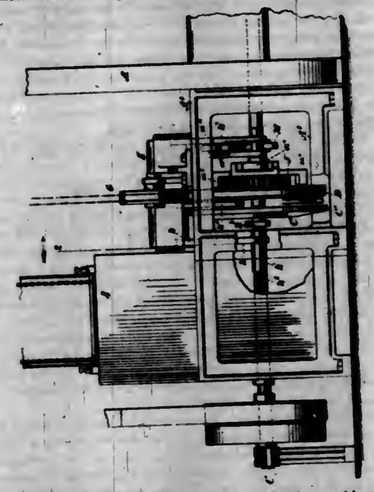
9. In an embroidering-machine, the combination of a shuttle-driver operable by cams of different throws, a two-throw cam mechanism, a jacquard device and mechanism intervening between the jacquard device and the two-throw cam for bringing a movable part into engagement with either part of the two-throw cam.

10. In an embroidering-machine, the combination of a shuttle-driving mechanism and a changer therefor, comprising double-throw cam mechanism and an oscillatory cam-engaging device l^5 combined with means for moving the cam-engaging device and jacquard mechanism engaging the cam-engaging device with the two-throw cam.

11. In an embroidering-machine, the combination of an actuating device adapted to govern the secondary take-up bar of the embroidering-machine, combined with means for varying the amplitudes of the movement of the said actuating device and jacquard connection for controlling the amplitude-varying means.

12. In an embroidering-machine, the combination of bore-point-regulating mechanism, tension-adjusting mechanism, shuttle-driving mechanism and cam mechanism for operating the same from a common source and jacquard connections for regulating the engagement of the said mechanisms with the cam mechanism.

593,208. EMBROIDERING-MACHINE. JOSEPH A. GROSSLI, New York, N. Y., assignor to the Kursheedt Manufacturing Company, same place. Filed Mar. 19, 1897. Serial No. 628,338. (No model.)



Claim.—1. In an embroidering mechanism, the combination of an embroidering-machine and a jacquard-controlling mechanism therefor operated from a common source of power, and disconnecting mechanism intervening between the source of power and the embroidering-machine for disconnecting the embroidering-machine from the source of power without disconnecting the jacquard.

2. In an embroidering mechanism, the combination of an embroidering-machine and a jacquard-controlling mechanism therefor operated from a common source of power, disconnecting mechanism for disconnecting the embroidering-machine from its source of power without disconnecting the jacquard mechanism therefrom, and a connection intervening between the jacquard mechanism and the disconnecting mechanism for effecting the disconnection.

3. In an embroidering mechanism, the combination of an embroidering-machine having driving mechanism, a prime mover or moving mechanism for the driving mechanism and disconnecting mechanism intervening between the prime mover and the driving mechanism and means for bringing the driving mechanism and embroidering-machine gradually to rest.

4. In an embroidering mechanism, the combination of an embroidering-machine having driving mechanism, a prime mover or moving mechanism for the driving mechanism and disconnecting mechanism intervening between the prime mover and the driving mechanism and means driven by the prime mover for bringing the driving mechanism and embroidering-machine gradually to rest.

5. In an embroidering mechanism, the combination of an embroidering-machine having a driving mechanism, a prime mover or moving mechanism for the said driving mechanism, jacquard-operated disconnecting mechanism intervening between the prime mover

and the driving mechanism and means for bringing the embroidering-machine gradually to rest.

6. In an embroidering mechanism, the combination of an embroidering-machine and a jacquard-controlling mechanism therefor operated from a common source of power, and disconnecting mechanism intervening between the embroidering-machine and its source of power for disconnecting the said embroidering-machine from its source of power without disconnecting the jacquard mechanism, and means for moving the said disconnecting mechanism from the source of power.

7. In an embroidering mechanism, the combination of an embroidering-machine, a jacquard-controlling mechanism therefor, a common source of power for driving both the embroidering-machine and the jacquard mechanism, and disconnecting mechanism disconnecting the embroidering-machine from the common source of power without disconnecting the jacquard mechanism therefrom, and means for automatically operating the said disconnecting mechanism.

8. In an embroidering mechanism, the combination of an embroidering-machine-driving mechanism, and a prime mover or moving mechanism for driving the said driving mechanism, and disconnecting mechanism intervening between the prime mover and the embroidering mechanism, together with independently-moving jacquard mechanism controlling the disconnecting mechanism, and itself unaffected by the disconnected mechanism.

9. In an embroidering mechanism, the combination of an embroidering-machine and a jacquard mechanism, a common source of power for driving both the embroidering-machine and the jacquard mechanism, comprising in its structure a prime mover C and a driving-wheel D for driving the embroidering-machine only, a movable connection intervening between the prime mover and the driving-wheel, and automatic means for operating the said connection to disconnect the driving-wheel from the prime mover, whereby the connection may be operated to disconnect the driving-wheel from the prime mover so as to stop the embroidering-machine without affecting the movement of the jacquard mechanism.

10. In an embroidering mechanism, the combination of an embroidering-machine and a jacquard mechanism, a common source of power for driving both the embroidering machine and the jacquard mechanism, comprising in its structure a prime mover C and a driving-wheel D for driving the embroidering-machine only, a movable connection intervening between the prime mover and the driving-wheel, and a jacquard-operated connection for moving the said movable connection to disconnect the driving-wheel from the prime mover, whereby the connection may be operated to disconnect the driving-wheel from the prime mover so as to stop the embroidering-machine without affecting the movement of the jacquard mechanism.

11. In an embroidering mechanism, the combination of a source of power, an embroidering-machine and a jacquard mechanism independently connected to the same, and means for disconnecting the embroidering-machine from the source of power by the action of the jacquard mechanism.

12. In an embroidering mechanism, the combination of a source of power, an embroidering-machine driven therefrom, a jacquard mechanism for effecting functions in the operation of the embroidering-machine and likewise connected to the source of power, and means for disconnecting the embroidering-machine from the source of power without disconnecting the jacquard mechanism therefrom, whereby the embroidering operations of the embroidering-machine may be suspended and the jacquard mechanism will still be effective to effect functions and operations of the embroidering-machine other than making stitches.

13. In an embroidering mechanism, the combination of an embroidering-machine, a driving-wheel D driving the embroidering-machine, a prime mover, a connection between the prime mover and the driving-wheel, means for automatically connecting and disconnecting the said driving-wheel and prime mover and means operated by the prime mover for controlling the motion of the driving-wheel when disconnected.

14. In an embroidering mechanism, the combination of an embroidering-machine, a driving-wheel D, a prime mover, a connection between the prime mover and the driving-wheel, means for automatically connecting and disconnecting the said driving-wheel and prime mover and means for controlling the motion of the driving-wheel when disconnected, and for starting the said driving-wheel, substantially as described.

15. In an embroidering mechanism, the combination of an embroidering-machine, a driving-wheel D, a prime mover, a connection between the prime mover and the driving-wheel, means for automatically connecting and disconnecting the said driving-wheel and prime mover and means for controlling the motion of the driving-wheel when disconnected and for starting and moving the same at gradually-increasing speed as and for the purposes set forth.

16. In an embroidering mechanism, the combination of an embroidering-machine provided with a driving device, a prime mover or moving mechanism and connecting mechanism intervening between the prime mover and the driving device and a gear and rack mechanism for controlling the motion of the driving-wheel when disconnected.

17. In an embroidering mechanism, the combination of an embroidering-machine provided with a driving device, a prime mover or moving mechanism and connecting mechanism intervening between the prime mover and the driving device and a gear and rack mechanism under control of the prime mover for controlling the motion of the driving-wheel when disconnected.

18. In an embroidering mechanism, the combination of an embroidering-machine provided with a driving device, a prime mover or moving mechanism and connecting mechanism intervening between the prime mover and the driving device and a gear and rack mechanism for controlling the stopping and starting of the embroidering-machine.

19. In an embroidering mechanism, the combination of an embroidering-machine provided with a driving device, a prime mover or moving mechanism and connecting mechanism intervening between the prime mover and the driving device and a gear and rack mechanism actuated from the prime mover for controlling the stopping and starting of the embroidering-machine.

20. In an embroidering mechanism, the combination of an embroidering-machine provided with a driving device, a prime mover or moving mechanism and connecting mechanism intervening between the prime mover and the driving device and a gear and a shiftable rack mechanism, combined with means for shifting the said rack mechanism to engage different parts thereof with the gear.

21 In an embroidering mechanism, the combination of an embroidering-machine provided with a driving device, a prime mover or moving mechanism and connecting mechanism intervening between the prime mover and the driving device and a lever moved from the prime mover and moving gear and rack mechanism under the control of the prime mover for controlling the motion of the driving-wheel when disconnected.

22. In an embroidering mechanism, the combination of an embroidering-machine provided with a driving device, a prime mover or moving mechanism and connecting mechanism intervening between the prime mover and the driving device, a lever moved from the prime mover and moving gear and rack mechanism under the control of the prime mover for controlling the motion of the driving-wheel when disconnected, combined with rack-shifting mechanism for changing the meshing of the racks with the gear.

23. In an embroidering mechanism, the combination of an embroidering-machine provided with a driving device, a prime mover or moving mechanism and connecting mechanism intervening between the prime mover and the driving device, a lever moved from the prime mover, and moving gear and rack mechanism under the control of the prime mover for controlling the motion of the driving-wheel when disconnected and rack-shifting mechanism under the control of the prime mover for shifting the racks to regulate the meshing thereof with the gear.

24. An embroidering-machine combined with a driving-wheel and a prime mover therefor, a connection intervening between the prime mover and the driving-wheel, a cam driven by the prime mover, an arm cooperating with the connection between the driving-wheel and the prime mover and jacquard mechanism for controlling the movement of the arm, whereby the said arm may throw the connecting mechanism to disconnect the prime mover and the driving-wheel.

25. In an embroidering mechanism, the combination of a prime mover comprising a cam, a driving-wheel for the embroidering-machine, a coupling between the prime mover and the driving-wheel, an arm for throwing the coupling and jacquard mechanism for operatively engaging the arm with the cam so as to move the said arm to throw the coupling.

26. In an embroidering-machine, the combination of embroidering devices and a driving-wheel, a prime mover, a coupling between the prime mover and the driving-wheel, an arm for throwing the coupling and a locking device for locking the arm in two positions.

27. In an embroidering-machine the combination of a prime mover and a driven mechanism, a connection between them for transmitting motion, means for operating the connection, a secondary mechanism operated by the prime mover, at times, for moving and controlling the movement of the driven mechanism when the connection is inoperative, substantially as described.

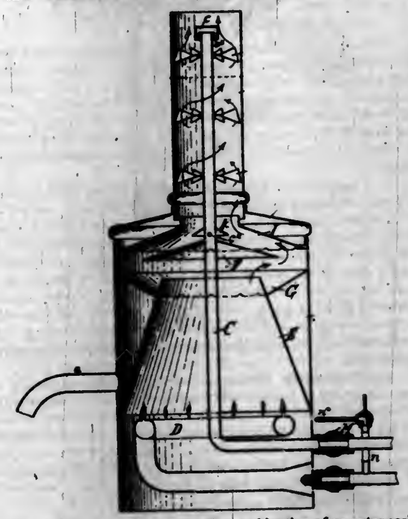
28. In an embroidering-machine the combination of a prime mover and a driven mechanism, a coupling between them for transmitting motion, means for connecting or disconnecting the coupling, a cam on the prime mover operating a secondary driving mechanism for controlling the movement of the driven mechanism at the time when the coupling is disconnected, substantially as described.

29. The combination in an embroidering-machine of a prime mover and a driven mechanism, a coupling between them for transmitting motion, means for connecting and disconnecting the coupling, a cam on the prime mover and a gear on the driven mechanism and connections between the cam and the gear, all arranged so, that the cam will control the movement of the gear at times, when the coupling is disconnected, substantially as described.

30. The combination of a prime mover and a driven mechanism and a coupling between them for transmitting motion, a cam on the prime mover, a gear on the driven mechanism, a double rack adapted to mesh with one or the other side of said gear, a connection between the cam and the double rack to control its longitudinal motion, mechanism for moving it laterally to mesh it with the gear, and means for connecting the cam with the double rack to move the same longitudinally at desired times and mechanism to disconnect the coupling at such times, substantially as described.

31. The combination of a prime mover and a driven mechanism and a connection between them for transmitting motion, a cam on the prime mover, a gear-wheel on the driven mechanism, a double rack adapted to mesh with the gear wheel, movable longitudinally to control the rotation of the gear-wheel and laterally to determine the direction of rotation, a lever provided with an adjustable bowl or crescent adapted to engage with the cam and connected to the double rack, so that the cam may control the movement of the double rack, a cam and connections for shifting the rack laterally, means for engaging the bowl with the cam and means for operating the connection between the prime mover and the driven mechanism, all arranged so that at times the cam may control the motion of the driven mechanism, substantially as described.

593,209. WATER-HEATER. HERMANN HAESELIN, Cleveland, Ohio. Filed Jan. 9, 1897. Serial No. 618,531. (No model.)



Claim.—1. In a water-heater the combination of an outer casing or shell, a water-conduit extending longitudinally through said shell and having attached thereto a spiral diaphragm, said conduit being provided with discharge-openings adapted to discharge water upon said diaphragm, and means for heating the water discharged upon said diaphragm, substantially as described.

2. In a water-heater the combination of an outer casing or shell, a flue of less diameter forming an extension of said shell, a water-conduit extending longitudinally through said shell and flue and having attached thereto spiral diaphragms, said conduit being provided with outlets adapted to discharge water upon the diaphragms, and means for heating the water discharged upon said diaphragms, substantially as described.

3. In a water-heater the combination of an outer casing or shell, a flue of smaller diameter forming an extension of said shell, a water-pipe extending longitudinally through said shell and flue and having attached thereto spiral diaphragms which extend into proximity to the inner wall of said flue, said pipe being provided with outlets adapted to discharge water upon the diaphragms, and means for heating the water discharged upon said diaphragms, substantially as described.

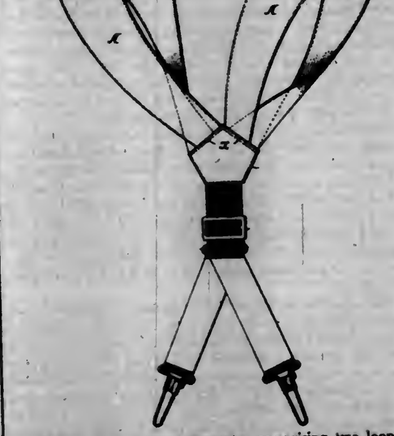
4. In a water-heater the combination of an outer casing or shell having a combustion-chamber, a water-conduit extending longitudinally through said shell and having attached thereto a spiral diaphragm, said conduit being provided with discharge-openings adapted to discharge water upon the diaphragm, means for heating the water discharged upon said diaphragm, and means situated below the diaphragm for preventing the water distributed therefrom from entering the combustion-chamber, substantially as described.

5. In a water-heater the combination of an outer casing or shell, having a combustion-chamber, a flue of less diameter forming an extension of said shell, a water-conduit extending longitudinally through said shell and flue and having attached thereto spiral diaphragms, said conduit being provided with discharge-openings adapted to discharge water upon the diaphragms, means for heating the water discharged upon said diaphragms, and means situated below the diaphragms for preventing the water distributed therefrom from entering the combustion-chamber, substantially as described.

6. In a water-heater the combination of an outer casing or shell, a water-conduit extending longitudinally through said shell and having attached thereto spiral diaphragms, said conduit being provided with discharge-openings adapted to discharge water upon said diaphragms and with additional discharge-openings above a downward-inclined apron attached to said conduit, and means for heating the water discharged upon said diaphragms and apron, substantially as described.

7. In a water-heater the combination of an outer casing or shell having a combustion-chamber, a water-conduit extending longitudinally through said shell and having attached thereto a spiral diaphragm and a downward-inclined apron above the combustion-chamber, said conduit being provided with discharge-openings adapted to discharge water upon the diaphragm and with additional openings below the diaphragm adapted to discharge water upon the apron, means for heating the water discharged from said conduit, and means situated below the diaphragm for preventing the water distributed therefrom from entering the combustion-chamber, substantially as described.

593,210. GARMENT-SUPPORTER. IDA L. HAIGHT, Yonkers, N. Y. Filed Dec. 5, 1896. Serial No. 614,580. (No model.)



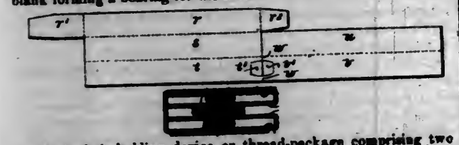
Claim.—1. A garment-supporter comprising two loops, a connecting-piece from which said loops diverge, a strap connected to and depending from the connecting-piece, additional straps diverging from the connecting-piece, and securing devices carried at the ends of the diverging straps, substantially as described.

2. A garment-supporter comprising two twisted loops, the opposite ends of which are superposed and secured at the same point to a connecting-piece, an elastic strap connected to and depending from the connecting-piece, additional straps diverging from the elastic strap, and securing devices carried upon the diverging straps, substantially as described.

593,211. THREAD-PACKAGE. FRED R. HALL, Philadelphia, Pa. Filed Sept. 18, 1896. Serial No. 606,208. (No model.)

Claim.—1. A skein-holding device or thread-package comprising two blanks, each blank being folded upon itself to inclose a portion

of the skein, the end of one or more of the folded portions of each blank forming a bearing for the skein.



2. A skein-holding device or thread-package comprising two blanks united transversely, the line of union being of less length than the width of either blank, each blank being folded upon itself laterally to inclose a portion of the skein, and the blanks doubled upon each other at the line of union whereby when the blanks are doubled in one direction the skein has a bearing upon the point of union, and when doubled in the other direction, upon the end of one or more of the folded portions of each blank.

3. A skein-holding device or thread-package comprising two blanks united transversely, the line of union being of less length than the width of either blank, one of said blanks being of greater width than the other, each blank being folded upon itself to inclose a portion of the skein, and one fold of the wider blank overlying both folded blanks, the blanks being doubled upon each other at the line of union, whereby when the blanks are doubled in one direction the skein has a bearing upon the point of union, and when doubled in the other direction, upon the end of one or more of the folded portions of each blank.

4. A skein-holding device or thread-package comprising two blanks united transversely, the line of union being of less length than the width of either blank, each blank being folded upon itself longitudinally to inclose a portion of the skein, and doubled upon each other at the line of union, and one or more of said folds having projecting portions bent laterally to form bearing-surface for the thread.

5. A skein-holding device or thread-package comprising two blanks united transversely, the line of union being of less length than the width of either blank, one of said blanks being of greater width than the other, each blank being folded upon itself longitudinally to inclose a portion of the thread, and one fold of the wider blank overlying the folded blanks, the blanks being doubled upon each other at the line of union, and one or more of said folds having projecting portions bent laterally to form bearing-surface for the thread.

6. A skein-holding device or thread-package comprising two blanks united transversely, the line of union being of less length than the width of either blank, each blank being folded upon itself longitudinally to inclose a portion of the skein, one blank having a greater number of folds than the other and one of the folds of the latter blank overlying the former blank, the blanks being doubled upon each other at the line of union and the ends of one or more of the folded portions of each blank forming a bearing for the skein.

7. A skein-holding device or thread-package, comprising two blanks united transversely, the line of union being of less length than the width of either blank, each blank being folded upon itself longitudinally to inclose a portion of the skein, and the blanks doubled upon each other at the line of union, and the ends of one or more of the folded portions of each blank forming a bearing for the skein the uncovered end of the thread being adapted to be inserted between the two blanks or the folds thereof, and a projecting portion connected with one of the blanks adapted to be bent to cover the open ends of the blanks.

8. A skein-holding device or thread-package comprising two blanks united transversely, each blank being folded upon itself longitudinally to incloae a portion of the skein, and doubled upon each other at the line of union, and one or more of said folds having projecting portions bent laterally to form bearing-surface for the thread.

9. A skein-holding device or thread-package comprising two blanks united transversely and folded one upon the other, a ring or skein of thread longitudinally encircling or surrounding said folded blanks, each blank being also folded upon itself longitudinally to inclose a portion of the skein, the contiguous end of one or more of the folded portions of each blank forming a bearing for the skein.

10. A skein-holding device or thread-package comprising two blanks united transversely and folded one upon the other, a ring or skein of thread longitudinally encircling or surrounding said folded blanks, each blank being also folded upon itself longitudinally to inclose a portion of the skein.

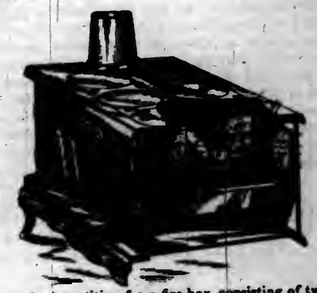
593,212. STAIR-CARPET FASTENER. MINERVA B. HALL, Toronto, Canada. Filed June 11, 1896. Serial No. 595,158. (No model.)

Claim.—The combination in a stair-carpet securer made of a single piece of wire formed of a base with open coils for the screws to secure to the step, and with a cone-shaped coil extending at a right angle to the base, all as and for the purposes set forth.

593,212.



593,213. ADJUSTABLE FIRE-BOX PARTITION. WILLIAM G. HAMILTON, Colorado Springs, Colo.; Frances May Hamilton, executrix of said William G. Hamilton, deceased, assignor of one-half to Carleton Gilbert, New York, N. Y. Filed Feb. 17, 1897. Serial No. 623,873. (No model.)



Claim.—1. A partition for a fire-box, consisting of two overlapping sections adjustably connected together and having a series of draft-openings at their lower ends, and a series of rods detachably connected to the sections near their upper and lower ends and projecting therefrom in substantially a horizontal plane to engage one of the end walls of the fire-box, the rod at the upper end of said sections serving also to connect the two sections together, substantially as described.

2. A partition for fire-boxes, consisting of two sections, one of said sections having an elongated opening in its upper end portion, and a series of perforations in its lower end portion, a device adapted to pass through either of said perforations and engage the other section to lock the lower ends of the sections together, a threaded rod passing through the said elongated opening and an opening in the other section, and projecting from the partition in substantially a horizontal plane to engage one end of the fire-box and support the partitions vertically, and nuts on the threaded rod to engage opposite faces of the two sections and clamp them together, substantially as described.

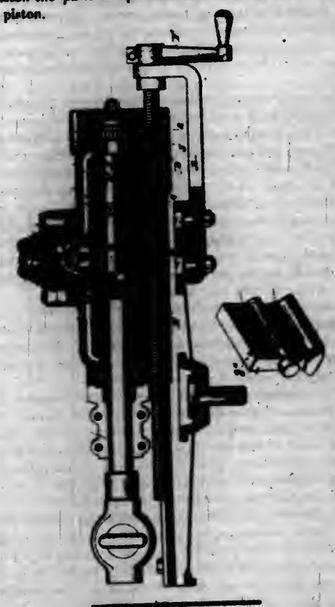
3. A partition for fire-boxes consisting of two overlapping sections one having an inclined side whereby its upper end is wider than its lower end, and the other having parallel sides, and means to adjust the two sections relatively to each other and lock them together to form the partition either of equal or unequal width at top and bottom, whereby the partition may be adjusted to fit fire-boxes having vertical front and rear walls or having one vertical and one inclined wall, substantially as described.

593,214. ROCK-DRILL. JOHN M. HANCE, Philadelphia, Pa., assignor to John M. Rogers, Wilmington, Del. Filed Mar. 31, 1897. Serial No. 630,040. (No model.)

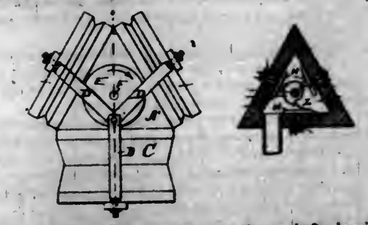
Claim.—1. In an automatic engine, in combination, a cylinder, a piston having a cut-away portion, a valve-casing having two chambers one directly in connection with the source of pressure supply and exhaust, the other having two passages leading to the cylinder, a valve in one chamber and a valve-piston in the other, and passages leading from the valve-chamber to the valve-piston chamber on opposite sides of the valve-piston, and passages leading from the valve-chamber to opposite ends of the piston-chamber.

2. In a rock-drill, in combination, a cylinder, a piston in said cylinder, and pressure and exhaust passages for controlling the reciprocation of said piston, a spindle upon which said piston is adapted to reciprocate and with which it is adapted to rotate, a ratchet mounted upon said spindle, a ring provided with a bearing upon which it is adapted to rotate concentric with the piston rotation, and connection between said ring and the spindle whereby when the ring is moved in one direction the spindle is rotated, a secondary piston connected with said ring, a piston-chamber for said piston and connection between opposite sides of said piston and the main cylinder adjacent to the pressure and exhaust passages.

3. In a rock-drill, in combination, a cylinder, a piston in said cylinder and pressure and exhaust passages for controlling the reciprocation of said piston, a spindle upon which said piston is adapted to reciprocate and with which it is adapted to rotate, a ratchet mounted upon said spindle, a ring provided with a bearing upon which it is adapted to rotate concentric with the piston rotation, a pawl connected with said ring adapted to coact with said ratchet, a secondary piston connected with said ring, a piston-chamber for said piston and connection between opposite sides of said piston and the main cylinder adjacent to the pressure and exhaust passages whereby when in the operation of the main piston pressure is admitted to one side of the secondary piston the pawl is moved into operative position, and when pressure is admitted to the opposite side of said secondary piston the pawl is operated to turn the ratchet and with it the main piston.



593,215. WIND-MOTOR FOR MUSICAL INSTRUMENTS. FREDERICK W. HEDGELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed Jan. 23, 1897. Serial No. 620,490. (No model.)



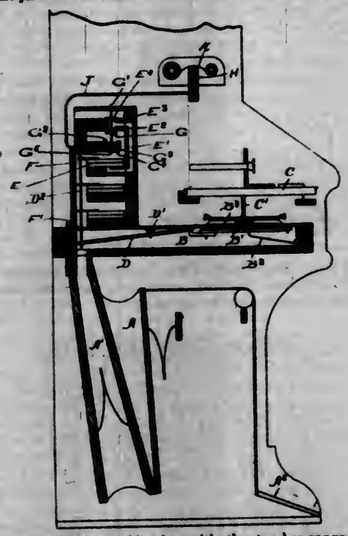
Claim.—1. The wind-motor for actuating a shaft wherein are contained a series of pneumatics arranged on different sides of and with their longitudinal axes parallel with the shaft and having their movable sides connected to a crank upon it, an air-chamber connecting with the wind-producing apparatus, air-passages connecting the pneumatics with said air-chamber and also with the outside air, and valves controlling said passages and adapted to open instantly to their full capacity, substantially as specified.

2. The wind-motor for actuating a shaft wherein are combined a series of pneumatics arranged around and with their longitudinal axes parallel to the shaft having their movable sides connected to a crank upon the shaft, an air-chamber connecting with the wind-producing apparatus, air passages connecting the pneumatics with said air-chamber and also with the outside air, valves controlling said passages and adapted to open instantly to their full capacity and a cam on the shaft for actuating said valves, substantially as specified.

3. The wind-motor for actuating a shaft wherein are combined a series of pneumatics arranged around and with their longitudinal axes parallel with the shaft and having their movable sides connected to a crank upon the shaft, an air-chamber connecting with the wind-producing apparatus, air-passages connecting the pneumatics with said air-chamber and also with the outside air by opposite openings, valves controlling said openings, and a cam upon the driven shaft for actuating the valves, substantially as specified.

4. In a pneumatic motor, the combination with the series of pneumatics arranged around and with their longitudinal axes parallel with the driven shaft, and a series of valves controlling said pneumatics, said valves being also arranged around said shaft and in the same plane, of a single cam upon the shaft for operating said valves, substantially as specified.

593,216. SELF-PLAYING INSTRUMENT. FREDERICK W. HEDGELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed Jan. 23, 1897. Serial No. 620,491. (No model.)



Claim.—1. The combination with the tracker-range and the reed-valves of a self-playing instrument, of an exhaust action-chest F located below the range and above the reed-valve chamber, a series of pneumatics arranged in horizontal rows in the lower part of said chest, mechanical connections between the pneumatics and the reed-valves passing through the opening whereby the chest is exhausted valves for controlling said pneumatics located in the upper part of said chest and above the pneumatics, membrane-motors for operating said valves, and ducts leading from the tracker-range to said motors, substantially as specified.

2. The combination with the exhaust-bellows and reed-valve chamber B, of a pneumatic-action chest or box F, communicating with said chamber by an opening F', and connections for carrying power from the operating-pneumatics in the chest to the reed-valves in the chamber, such connections passing through said opening F', substantially as specified.

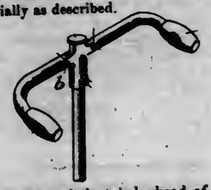
3. In a self-playing action for instruments, the valves G and the stems G', the membrane-motors located below the valves, the board supporting said motors being made narrower than the chest, so as to leave a side air-passage extending throughout the chest, in combination with the exhaust-producing apparatus and an inclosing chest having a bottom communication throughout its length with the exhaust, and also having a clear way for the air from said side passage to the exhaust, substantially as specified.

593,217. BICYCLE HANDLE-BAR. JOHN P. HERRITY, Warren, Pa. Filed Nov. 20, 1895. Serial No. 570,208. (No model.)

Claim.—1. The combination with the tubular head, of a vertically-adjustable post within the same, and the pivoted handle-bars having inwardly-extending arms engaging said post, substantially as described.

2. The combination with the tubular head of a vertically-adjustable post within the same, having recesses adjacent to its upper end, and the pivoted handle-bars, having inwardly-extending arms, engaging the recesses in said post, substantially as described.

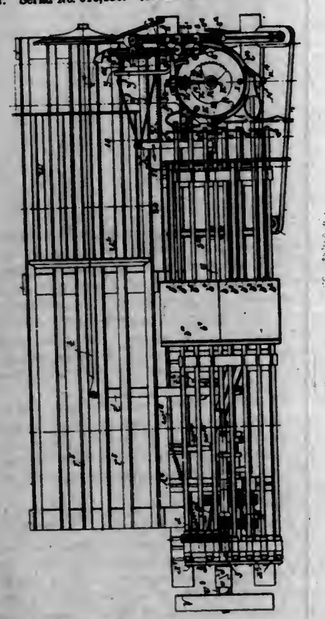
3. The combination with the tubular head, of a vertically-adjustable post within the same having a slotted portion, the pivoted handle-bars having inwardly-extending arms engaging said post, the securing-block and the securing-bolt for clamping said block and post together, substantially as described.



4. The combination with the tubular head, of a vertically-adjustable post within the same, having a slotted portion, the pivoted handle bars having inwardly-extending portions operatively engaging said post, the securing-block within said head, the securing-bolt passing through the said head, block and post and having threaded portions engaging said block for moving it into and out of engagement with said post, substantially as described.

5. The combination with the tubular head, of the head-casing, the vertically-adjustable post within said head and casing and having a reduced serrated portion provided with a vertical slot, the handle-bars pivotally connected with said casing, the securing-block having a serrated face for engaging the reduced serrated portion of the post, the securing-bolt passing through said head, casing, block and post, and having threaded portions engaging said block to move it into and out of engagement with said post, and means exterior to said head, for turning said bolt, substantially as described.

593,218. LOOPING-MACHINE. CARLOS HOLLY, Lockport, N. Y., assignor to Joseph A. Ward and John McLean, same place. Filed Jan. 11, 1897. Serial No. 618,850. (No model.)



Claim.—1. In a blank-looping machine, the combination with a rotating drum provided on its periphery with blank-holding jaws, of perforating and looping mechanism, substantially as set forth.

2. In a blank-looping machine, the combination with an upright rotating drum provided on its periphery with blank-holding jaws, of perforating and looping mechanism arranged below said drum, substantially as set forth.

3. In a blank-looping machine, the combination with an upright rotating drum provided on its periphery with blank-holding jaws, of a feed-trough opening against the peripheral face of said drum, means whereby the blanks are successively fed from said trough against the drum, and perforating and looping mechanism arranged below said drum, substantially as set forth.

4. In a blank-looping machine, the combination with an upright rotating drum provided on its periphery with blank-holding jaws, of a feed-trough opening against the peripheral face of said drum on one side thereof, means whereby the blanks are successively fed from said trough against the drum, a discharge mechanism arranged on the opposite side of the drum, and perforating and looping mechanism arranged below the drum and between the feed-trough and the discharge mechanism, substantially as set forth.

5. The combination with a blank-carrying drum, of a feed-trough having oblique sides and opening adjacent to the peripheral face of the drum, and means whereby the blanks are successively delivered from the trough against the drum, whereby the blanks are arranged on the drum obliquely, substantially as set forth.

6. The combination with a blank-carrier, of a feed-trough composed of longitudinal rotating shafts, substantially as set forth.

7. The combination with a blank-carrier, of a feed-trough composed of two sets of longitudinal rotating shafts, and means whereby the two sets of shafts are rotated in opposite directions, substantially as set forth.

8. The combination with the two sets of shafts of the feed-trough and the driving-shaft provided with a crank, of a yoke connected with said crank, cranks secured to one set of said shafts and connected with said yoke, a counter-shaft provided with a crank which is connected with said yoke, and gear-wheels connecting said counter-shaft with the other set of said shafts and rotating the same in the opposite direction, substantially as set forth.

9. The combination with an open trough in which the pile or stack of blanks is arranged, of a follower extending outwardly beyond the inner faces of said trough, and longitudinal actuating-bars arranged outside of the inner faces of said trough and detachably connected with said follower, substantially as set forth.

10. The combination with the shafts of the feed-trough, of a follower arranged in said trough and having extensions which project beyond the inner faces thereof, and longitudinal actuating-bars arranged outside of the inner faces of said trough-shafts and connected with said follower, substantially as set forth.

11. The combination with a feed-trough which contains the stack or pile of blanks, of a feeding-finger which has a rotary motion in the plane of the blanks and across the feed-trough, whereby said finger enters edgewise between the blanks, and which has a subsequent motion at right angles to the plane of the blank and lengthwise of the feed-trough whereby the blank in front of the finger is moved forward in the feed-trough, substantially as set forth.

12. The combination with a feed-trough which contains the stack or pile of blanks, of a separating-finger which enters the trough and engages with one of the blanks and moves the same forwardly and, a conveyer-screw against which the blank is moved by said finger and which continues the movement of the blank, substantially as set forth.

13. The combination with a feed-trough which contains the stack or pile of blanks, of a separating-finger which enters the trough and engages with one of the blanks and moves the same forwardly, a conveyer-screw against which the blank is moved by said finger and which continues the movement of the blank and clamping-jaws whereby the blanks are pressed against the conveyer-screw, substantially as set forth.

14. The combination with the feed-trough containing the stack or pile of blanks, of a conveyer-screw, clamping-jaws, and a telescopic actuating-shaft upon the parts of which said screw and jaws are respectively mounted, substantially as set forth.

15. The combination with a feed-trough containing the stack or pile of blanks, of a separating-finger engaging one of the blanks and moving the same forwardly in the trough, a conveyer-screw whereby the forward movement of such blank is continued, and a series of rotary separating blades which continue and complete the separation of the blanks, substantially as set forth.

16. The combination with a feed-trough composed of longitudinal rotary shafts, of separating-blades mounted on said shafts, substantially as set forth.

17. The combination with the blank-carrying drum, of a feed-trough facing the peripheral portion of the drum, means whereby the blanks are successively fed against the peripheral portion of the drum, and a wrapping device whereby the projecting portion of the blanks is laid against the peripheral portion of the drum, substantially as set forth.

18. The combination with a blank-carrying drum and means whereby the blanks are successively fed against the peripheral face of the drum, of a wrapping-screw having a concave or conoidal face corresponding with the peripheral face of the drum, whereby the projecting portion of the blank is laid against the face of the drum and the blank is guided in moving with the drum along the concave face of said screw, substantially as set forth.

19. The combination with the rotating blank-carrying drum and mechanism whereby the blanks are fed successively and obliquely against the peripheral face of said drum, of a perforator arranged below said drum and adapted to perforate the exposed corner of the blank carried on the drum, substantially as set forth.

20. The combination with the rotating blank-carrying drum and mechanism whereby the blanks are fed successively and obliquely against the peripheral face of said drum, of a threading mechanism arranged below said drum and adapted to draw the twine through the perforation in the exposed corner of the blank carried on the drum, substantially as set forth.

21. The combination with the rotating blank-carrying drum and mechanism whereby the blanks are fed successively and obliquely against the peripheral face of said drum, of a perforator arranged below said drum and adapted to perforate the exposed corner of the blank carried on the drum, and a threading mechanism arranged below said drum and in rear of said perforator, substantially as set forth.

22. The combination with the blank-carrier and the threading-needle, of twine-feeding disks arranged at an angle to each other, substantially as set forth.

23. The combination with the blank-carrier and the threading-needle, of twine-feeding disks which are arranged at an angle to each other and one of which is provided with a peripheral guard-flange in the space between the disks, substantially as set forth.

24. The combination with the blank-carrier and the threading-needle, of twine-feeding disks arranged at an angle to each other and provided with a gap into which the needle enters and across which the twine extends, substantially as set forth.

25. The combination with the blank-carrier, of a threading-needle, twine-feeding disks arranged at an angle to each other, a driving-shaft connected with one of said disks, and coupling-pins whereby the other disk is driven from the disk on said shaft, substantially as set forth.

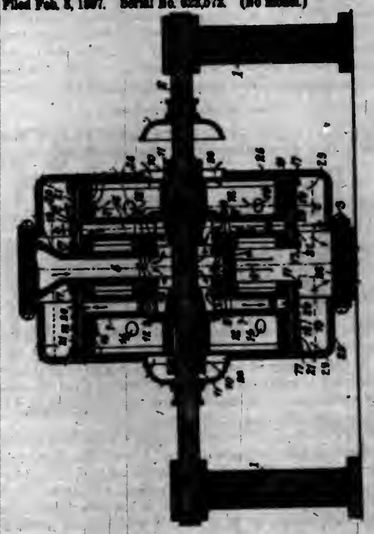
26. The combination with the blank-carrier and a twine-feeding device, of a threading-needle, mechanism whereby a reciprocating rotating movement is imparted to the needle, and mechanism whereby the needle is given a partial turn backwardly after it has seized the twine, substantially as set forth.

27. The combination with a moving blank-carrier, of a threading mechanism whereby the twine is drawn through the perforation of the blank, a knotting-hook arranged in rear of the threading-needle and past which the twine, drawn through the perforation of the blank, is carried by the movement of the blank-carrier, jaws which are arranged between the needle and hook and mechanism whereby the jaws are caused to impinge upon the twine while the hook is tying the knot, and afterward caused to cut the twine, substantially as set forth.

28. The combination with the knotter-hook, of a pusher-rod whereby the twine is pushed into the bight of the hook, substantially as set forth.

29. The combination with the knotter-hook having a hollow stem, of a pusher-rod arranged within said stem, substantially as set forth.

593,219. ROTARY ENGINE. JAMES A. HOUSE, Bridgeport, Conn. Filed Feb. 8, 1897. Serial No. 622,573. (No model.)



Claim.—1 In a rotary engine, the combination of a rotary wheel provided with interior closed passages and revolving in a vertical plane, means for supplying live steam within said passages, angularly-directed outlets to such passages, and additional openings in said wheel having no communication with said passages but located in advance of said outlets and communicating with the exhaust-steam that has been discharged and has effected its function, whereby a current of exhaust-steam will be induced through said openings by the discharge of the live steam, substantially as set forth.

2. In a rotary engine, the combination of the rotary wheel provided with interior closed passages, means for supplying steam within said passages, nozzles angularly disposed with respect to radii of the wheel and into which said passages lead, air-ports communicating with the outside atmosphere and opening in proximity to the extremities of said nozzles whereby the steam from the latter will create and maintain an induced current of air through said openings, substantially as set forth.

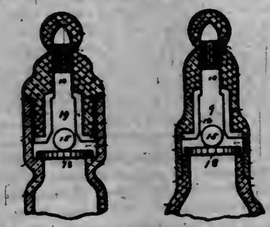
3. In a rotary engine, the combination of the rotary wheel provided with interior closed passages into and through which steam is admitted and directed, said wheel being also provided with air-chamber communicating with the outside air and with openings leading from said chamber in close proximity to the outer ends of said passages, and angularly disposed nozzles into which said passages lead and through which the steam is expelled in close proximity to said air-openings whereby a current of air is induced, substantially as set forth.

4. In a rotary engine, the combination of the rotary wheel having an annular recess at its hub and provided with ports which extend radially from said recess out through the rim of the wheel, said wheel having an air-chamber and openings leading therefrom through the rim of the wheel, pockets formed in said rim and into which said ports and openings lead, the partition and cover plates carried by said wheel whereby said pockets are divided into two compartments into which said ports and openings respectively lead and whereby tangentially-disposed nozzles are formed, and means for supplying steam within said recess, substantially as set forth.

5. In a rotary engine, the combination of the rotary wheel provided with interior closed passages, means for supplying steam within said passages, nozzles angularly directed with respect to radii of the wheel and into which said passages lead, air-passages within the wheel communicating with the outside air and terminating in angularly directed nozzles in close proximity to the steam-nozzles whereby the steam from the latter will induce a current through the former, substantially as set forth.

6. In a rotary engine, the combination of the rotary wheel provided with interior passages opening through the rim of the wheel, means for supplying steam within said passages, perforations extending through the rim of the wheel and having at their inner ends communication with the outside air, and tangentially-directed discharge-nozzles for said passages and perforations, the extremities of said nozzles being in close proximity to each other whereby the discharge of the steam will induce a current of air through said perforations, substantially as set forth.

593,220. NON-REFILLABLE BOTTLE. LEON J. HOUSE, Hartford City, Ind. Filed Mar. 30, 1897. Serial No. 629,433. (No model.)



Claim.—1. The combination of a vessel provided with a neck adapted to form a seat for a disk valve; a closure provided with a base corresponding to said valve-seat, a break off ball at its upper end, the tube of the closure being of less diameter at or near its upper end, and the ball provided with a coinciding tube extending into but not through it, the closure and ball also being restricted at their place of juncture to form a thin wall; vertical ribs on the interior of the tube of the closure forming grooves extending from its lower end up to its narrower part; horizontal ribs coinciding with the vertical ribs on the base of the closure forming grooves; a disk valve for the valve-seat of the neck; means to attach the closure to the neck permanently and to provide a chamber for the disk valve adapted to permit a limited movement of the disk valve; sliding weights within the closure, adapted to be guided by its vertical ribs,

and a cork placed in the upper end of the closure and extending into the tube part of the break-off ball.

2. The combination of a vessel provided with a neck adapted to form a seat for the disk valve; a closure provided with a base corresponding to said valve-seat, and provided with a break-off cap or ball at its upper end, the closure and ball being restricted at their place of juncture to form a thin wall for breakage: ribs on the interior of the closure forming grooves for the passage of the liquid from the valve-chamber; a disk valve for the valve-seat of the neck; means to attach the closure to the neck permanently and to provide a valve-chamber for the disk valve; a sliding weight or ball within the closure adapted to be guided by its vertical ribs, and means to prevent the removal of the sliding weight or ball through the upper end of the closure.

3. In a non-refillable bottle or vessel, a neck adapted to form a seat for a disk valve; a disk valve for said seat; a glass closure-cap provided with a base corresponding to said valve-seat; a break-off cap-piece or ball on its upper end connected by a thin wall, the tube of the closure provided with means to retain a sliding weight; and also with ribs forming grooves for the passage of the liquid from the valve-chamber; a weight or ball adapted to slide within the closure; means to attach the closure-cap to the neck inseparably and to provide a valve-chamber for the disk valve.

4. The combination of a bottle or vessel provided with a neck adapted to form a seat for the disk valve; a disk valve for said valve-seat; a closure-cap provided with a base corresponding to said valve-seat; also with a break-off cap-piece or ball on its upper end connected by a thin wall, and also provided with a tube of larger diameter at its lower end and of smaller diameter at the upper end of the closure, and also provided with ribs on its base extending into the interior of the larger tube, forming grooves for the passage of liquid and guides for a sliding weight or ball; a sliding weight or ball adapted to move in the larger tube, and be retained therein by the contracted walls of the smaller tube in the upper end of the closure; a cylindrical extension integrally formed on the lower end of the closure adapted to inclose the neck and hold the base of the closure a short distance above the disk valve to form a valve-chamber; and means to inseparably attach the cylindrical extension to the neck of the bottle or vessel.

593,221. UPHOLSTERER'S TOOL AND APPLIANCE. George H. Howell and John Kiley, Sioux City, Iowa; said Kiley assignor to said Howell. Filed Oct. 12, 1894. Serial No. 525,734. (No model.)

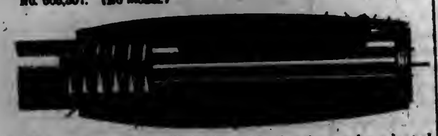


Claim.—1. In appliances of the class described, the head B with the perforation 2, and its points 3, 3, 3, 3, bent inward as shown, forming a grip or clutch substantially as above described, and for the purposes specified.

2. In appliances of the class described, the head B with perforation 2, and one or more points 3, bent inward as shown, forming a grip or clutch as above described, and for the purposes specified.

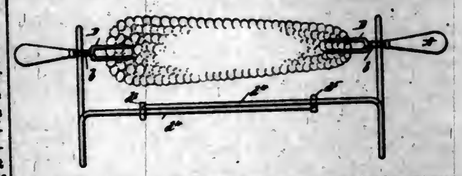
3. In appliances of the class described, the combination with a pin having an elongated shank provided with notches, barbs or corrugations, of the head B with its perforation 2 and one or more points, 3, bent inward as shown forming a grip or clutch substantially as above described, and for the purposes specified.

593,222. MATCH OR OTHER BOX FOR BICYCLES. Harry J. Humphrey, Philadelphia, Pa., assignor, by direct and mesne assignments, to the Ridley & Company, Limited. Filed Aug. 20, 1896. Serial No. 603,357. (No model.)



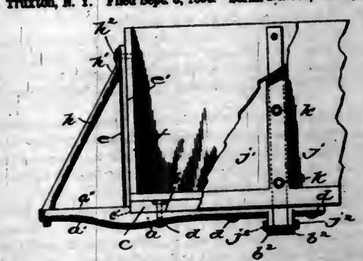
Claim.—A bicycle-handle having a box therein, a spring adapted to press outwardly against said box, and a dog for holding the box in its inclosed position, said box having an opening in its side adapted to permit access to the contents of the same, and also to receive the nose of said dog when the box moves outwardly, whereby the rear wall of said opening forms a stop for limiting the outward motion of the box.

598,223. TABLE IMPLEMENT. William Ibbotson, Brooklyn, N. Y. Filed Feb. 21, 1896. Serial No. 580,190. (No model.)



Claim.—As a new article of manufacture a table implement consisting of two end pieces each having two standards, a depending loop or cross-piece engaging the said standards at their upper ends, a foot secured to one of said standards and integral therewith, an upwardly, then horizontally directed projection secured to the other of said standards and a hook formed on the end of said projection or horizontal portion and adapted to respectively engage one with the other, all of said parts being combined substantially as described.

593,224. CORNER-IRON FOR WAGONS. Orrin L. Kebler, Truxton, N. Y. Filed Sept. 5, 1896. Serial No. 604,979. (No model.)



Claim.—1. In a corner-iron for wagons, the combination of a longitudinally-mortised body portion *a*, adapted to extend under and receive the wagon-box, with an outward extension *a'*, a standard *c*, and a brace A, between the extension and the standard, substantially as described.

2. In a corner-iron for wagons, a body portion flattened at the top to receive an end sill and provided with an extension such as *a'*, in combination with an integral standard having its inner surface arranged to intersect the top surface of the body portion at a point below the top of said extension, and a brace connected at its opposite ends with the top of the standard and the outer end of the extension, substantially as described.

3. In a corner-iron for wagons, the combination with a body portion attachable to the under side of the box and provided with a hinge-recess in its side, of a hinge-connecting device located on the body portion below the recess, an integral extension adapted to project beyond the wagon-body, a standard rising from the end of the body portion, and a diagonal brace connecting the end of the extension with the upper portion of the standard, substantially as described.

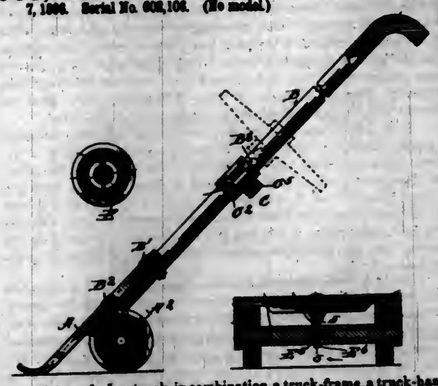
593,225. PIPE-CLEANING APPARATUS. Athol B. Macklin, New York, N. Y. Filed Feb. 1, 1897. Serial No. 621,444. (No model.)



Claim.—1. A pipe-cleaning apparatus embodying a rigid frame having at one end, a device for covering a drain-pipe, and at the other, a flexible stopper or pad adapted to conform to the shape of and to close the overflow-openings, and a tube adapted to connect with a faucet at one end, and at the other opening into the device which covers the drain-pipe, for the purposes set forth.

2. A pipe-cleaning apparatus embodying a rigid frame provided with a hand-rest, and having at one end a device for covering the drain-pipe, and at the other, a flexible device adapted to conform to the shape of and to close the overflow-openings, and a tube adapted to connect with a faucet at one end, and at the other opening into the device which covers the drain-pipe, for the purposes set forth.

598,226. TRUCK. James MacNeall, Blue Island, Ill. Filed Aug. 7, 1896. Serial No. 602,102. (No model.)



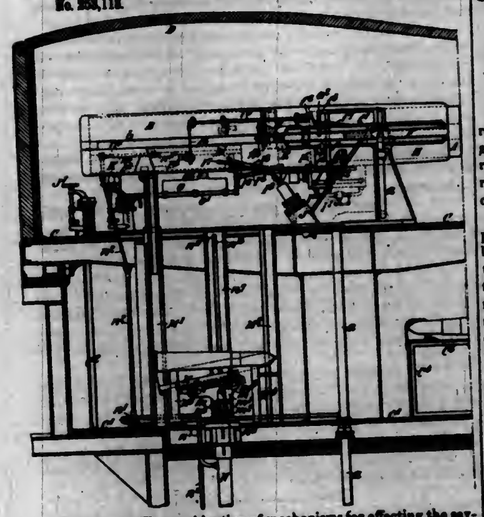
Claim.—1. In a truck, in combination, a truck-frame, a truck-handle secured thereto, and a reversible truck-frame extension adapted to be slid along, and secured to, the truck-handle, substantially as and for the purpose specified.

2. In a truck, in combination, a truck-frame, supporting-wheels therefor, a truck-handle for the frame, a truck-frame extension capable of being slid along the truck-handle, and means for fixing the frame extension with relation to the truck-handle, substantially as and for the purpose specified.

3. In a truck, in combination, a truck-frame, a handle secured thereto, a reversible truck-frame extension, capable of being slid lengthwise of the truck-handle, which extension has a curving face and a flat face, and means for fixing the extension with relation to the truck-handle, substantially as and for the purpose specified.

4. In a truck, in combination, a truck-frame, provided with downwardly-projecting axle-lugs, an axle fixed in the axle-lugs, wheels mounted loosely on the axle, a sleeve for separating the wheels rigidly secured to the axle, a truck-handle secured to the truck-frame, a truck-frame extension capable of turning upon the handle and of being slid lengthwise thereof, which extension has a curving face and a flat face, and means for fixing the extension with relation to the truck-handle, substantially as and for the purpose specified.

598,227. AUTOMATIC LOADING MECHANISM FOR QUICK-FIRING ORDNANCE. Hiram S. Maxim, London, England, assignor to The Maxim-Nordenfelt Guns and Ammunition Company, Limited, same place. Filed Feb. 8, 1896. Serial No. 578,468. (No model.) Patented in England Jan. 17, 1895, No. 1,168, and in France Jan. 10, 1896, No. 253,118.



Claim.—1. The combination of mechanisms for effecting the several operations necessary for reloading a gun, means for independently impelling the mechanisms, and means actuated by a predetermined movement of each mechanism for applying an impelling means to the next mechanism, whereby the performance of the functions of the several mechanisms is effected automatically in a given order.

2. The combination of mechanisms for effecting the several operations necessary for reloading a gun, a source of power for independently impelling the mechanisms, and means operated by a predetermined movement of each of the mechanisms for applying the source of power to the next mechanism, whereby the performance of the functions of the several mechanisms is effected automatically in a given order.

3. In a gun-mounting, the combination with a brake cylinder and piston for receiving the force of recoil, of a passage between the two parts of the cylinder on opposite sides of the piston, a relief-valve therein for controlling the flow of fluid through the same, passages for the entrance and exit of fluid under pressure to and from the said brake-cylinder, and means for controlling the same, adapted to be actuated or controlled by hand or by a part of the gun mechanism movable under the force of recoil, as and for the purpose set forth.

4. In a gun-mounting, the combination with a brake-cylinder provided with an external passage joining its two ends, a relief-valve therein, and means, operated either by hand or by the recoil of the gun, for controlling the entrance and exit of fluid under pressure to and from the cylinder, of hydraulic cylinders and pistons for unlocking and locking the breech-block, for moving the same away from and toward the breech, and for bringing a cartridge into position for insertion into the breech, and valve mechanism controlling the application of fluid-pressure in said cylinders, the valve mechanism for one cylinder being operated or controlled by the mechanism actuated by another cylinder in a given order, as set forth.

5. In a gun-mounting the combination with the breech-block, of two hydraulic cylinders one movable with the breech-block and acting to turn the said block to unlock it from the gun as the latter recoils and the other fixed and acting to withdraw the said block after it has been unlocked substantially as described.

6. In a gun-mounting, the combination with breech mechanism actuated or set in operation by the force of recoil, of a cartridge-carrier operated by hydraulic power, to raise a cartridge from the hold or magazine into position for insertion into the breech, and valve mechanism for regulating the application of the power to the carrier, operated or controlled by the movement of the breech mechanism, as set forth.

7. In a gun-mounting the combination with the gun-frame having inclined surfaces thereon, of a cartridge-elevating mechanism, a cartridge-carrier pivoted near one of its ends to the same, and provided with projections which come in contact with the inclined surfaces on the framing as the carrier ascends, whereby the carrier is adjusted to bring the cartridge thereon into line with the bore of the gun whatever may be the angle of elevation of the gun, as set forth.

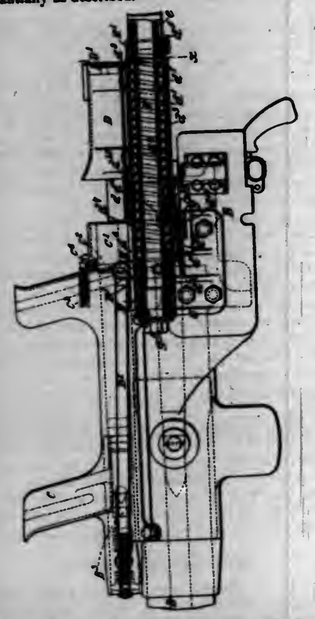
598,228. AUTOMATIC GUN. Hiram S. Maxim, London, England, assignor to The Maxim-Nordenfelt Guns and Ammunition Company, Limited, same place. Filed Nov. 14, 1896. Serial No. 612,132. (No model.) Patented in England Dec. 10, 1895, No. 23,689; in France Oct. 15, 1896, No. 260,463; in Belgium Oct. 16, 1896, No. 124,023; in Italy Oct. 23, 1896, No. 32/42,859; in Spain Nov. 21, 1896, No. 19,826, and in Austria Jan. 14, 1897, No. 14/135.

Claim.—1. In a recoil-operated gun the combination with a non-recoiling part thereof, of a cartridge-carrier, a spring that is energized by the recoil movement of the barrel, a catch for temporarily retaining the said spring in its energized condition, and means for releasing the catch to permit the said spring to react and throw the cartridge from the carrier into the cartridge-chamber of the gun.

2. In a recoil operated gun the combination with a non-recoiling part thereof, of a cartridge-carrier, a carrier-spring that is energized by the recoil movement of the barrel, a magazine having a plunger which is actuated by the recoil movement of the barrel and adapted to perform a short sudden movement to throw a cartridge from the magazine into the carrier, a catch for temporarily retaining the carrier-spring in its energized condition, and means for releasing the catch to permit the said spring to react and throw the cartridge from the carrier into the cartridge-chamber of the gun.

3. In a recoil-operated gun the combination with the crutch-rod, of an oscillatory cartridge-carrier which when empty occupies a position to receive a cartridge as the latter is projected from the magazine, a recoil-spring surrounding the said crutch-rod and inclosed in a suitable casing, a catch carried by the said casing and adapted to retain the recoil-spring in its compressed condition, and a projection moving with the carrier which as the latter performs its oscillatory movement to bring the cartridge opposite the cartridge-chamber, releases the said catch and thereby permits the carrier-spring to react and throw the cartridge into the cartridge-chamber substantially as described.

4. In a recoil-operated gun, the combination with the clutch-rod and the spring mounted thereon, of a rectilinear reciprocating cylindrical casing inclosing the said spring, an oscillatory cartridge-carrier having a sleeve by which it is loosely connected to the said casing so as to oscillate thereon, a catch on the said cylindrical casing for engaging with a notch on a stationary part of the gun when the carrier retires to compress the spring under the action of the recoiling barrel, a lateral projection on the carrier-sleeve for releasing said catch as the carrier turns downwardly with the cartridge it contains, a cam-like projection on the barrel for supporting said lateral projection and preventing the carrier from turning downwardly until the barrel regains its firing position, a stop against which the aforesaid cylindrical casing strikes and is thereby suddenly stopped as it advances with the carrier under the reaction of the spring, whereby the cartridge in the carrier is forcibly thrown therefrom into the cartridge-chamber, and means whereby the empty carrier is caused to ascend and regain its normal position ready to receive a fresh cartridge substantially as described.



5. In a recoil-operated gun the combination with the cartridge-throwing carrier, of a magazine provided with means for throwing successive cartridges therefrom into the cartridge-throwing carrier, the said means consisting of a spring-plunger located at the front end of the magazine with its head directed inwardly to come against the nose of the lowermost cartridge in the magazine, an arm on said plunger, a lug on the recoiling barrel, a connecting-rod for coupling the aforesaid arm to the said lug, so that on recoil of the barrel the said plunger receives a short sudden movement to throw a cartridge rearwardly from the magazine into the carrier, the amplitude of such movement being less than the length of the cartridge thrown.

6. In a recoil-operated gun, the combination with the cartridge-throwing carrier and the cartridge-throwing magazine of a spring-plunger in the magazine, a lug on the recoiling barrel, a connecting-rod coupling the lug with the spring-plunger, and a projection on the sliding casing that incloses the carrier-spring, the said projection being situated immediately in rear of the aforesaid lug so that simultaneously with the throwing of the cartridge from the magazine into the carrier, the carrier-spring will be compressed substantially as described.

7. In a recoil-operated gun the combination with the cartridge-throwing carrier and the cartridge-throwing magazine of means for preventing the accidental discharge of a cartridge in the magazine by the projectile of a cartridge in the carrier striking against its cap, the said means consisting of a pivoted flap at the exit-opening of the magazine, the said flap giving way to the cartridge as it is thrown from the magazine into the carrier, but normally acting as a cover to protect the rear end of the lowermost cartridge in the magazine substantially as described.

8. In a recoil-operated gun the combination with the oscillatory cartridge-throwing carrier and the carrier-spring carried by the crutch-rod, of a piston working within the carrier and connected with the said spring, a catch for engaging with the said piston when it occupies its rearward position, means for releasing said catch as the carrier arrives opposite the cartridge chamber of the gun, and a stop against which the said piston strikes as it advances with the cartridge, whereby the said cartridge is forcibly thrown from the carrier into the cartridge-chamber substantially as described.

9. In a recoil operated gun the combination with the oscillatory cartridge-throwing carrier and its spring-operated piston of a pivoted spring-controlled catch f^{10} having a shoulder f^{9} for the piston to engage with when in its retracted position and also having a curved piece f^{14} which is adapted to be acted upon by a cam-piece f^{13} on the carrier as the latter assumes its depressed position, whereby the said spring-piston is released and throws the cartridge from the carrier into the cartridge-chamber of the gun substantially as described.

10. In a recoil-operated gun the combination with a magazine and means for projecting the cartridges therefrom into the carrier, of a cartridge-carrier for receiving the cartridges, a spring for actuating the carrier to eject the cartridges into the breech-chamber and a retaining-catch situated near the rearward end of the carrier and adapted to engage with the rim of a cartridge as it completes its movement into the carrier, so as to retain the cartridge therein when the gun is depressed, as set forth.

11. In a recoil-operated gun provided with a cartridge-throwing carrier the combination with the cartridge-retaining catch, of means for operating it so as to release the cartridge when the cartridge-throwing carrier reaches its position opposite the cartridge-chamber, the said means consisting of a spindle L^4 on the carrier, a crank L^5 carried at one end of said spindle and engaging with the cartridge-retaining catch to operate it, and an arm L^6 also carried by said spindle, this arm being operated by striking against the pivoted catch d^7 as the carrier assumes its lowered position substantially as described.

12. In a recoil-operated gun the combination with the breech mechanism of a cartridge-carrier into which the cartridges are forcibly projected or thrown, the said carrier having a series of holes in its walls gradually diminishing in size toward the rear to permit a proper amount of air to be retained in the rear of the carrier and compressed therein by the cartridge as it enters, so as to act as a cushion to bring the cartridge gradually to rest, substantially as described.

13. In a recoil-operated gun the combination with the breech mechanism of a cartridge-carrier into which the cartridges are forcibly projected, of an adjustable air-valve at the rear of said carrier by means of which the escape of air confined by the cartridge as it enters may be regulated, substantially as described.

14. In a recoil-operated gun the combination with the cartridge-throwing carrier of telescopic rods diagonally located and connected respectively to the carrier and to the sleeve of said carrier, and a spiral spring surrounding the rods and normally tending to keep them extended when the carrier is in either of its extreme oscillatory positions so that the said carrier will tend to remain in one or other of such positions until shifted substantially as described.

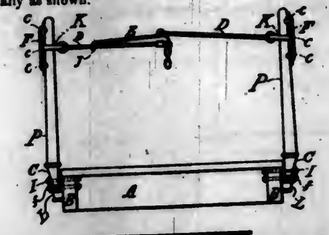
15. In a recoil-operated gun the combination with the oscillatory cartridge-throwing carrier of means for preventing it from rocking until after the breech of the gun is fully opened or closed, the said means consisting of a pivoted two-armed lever one arm of which engages with a vertical groove in the breech-block and the other arm of which is capable of supporting the carrier in its raised position when the breech is closed, the said vertical groove being of such a length that the said lever is only operated thereby at the completion of an opening or a closing movement of the block substantially as described.

16. In a recoil-operated gun the combination with the oscillatory cartridge-throwing carrier mounted on the crutch-rod, of a piston likewise mounted on the crutch-rod and adapted to slide longitudinally thereon by the action of a carrier-spring located on a fixed rod below the crutch-rod, of a cylindrical casing inclosing this spring, and having a spring-catch for engagement with a fixed abutment when the carrier-spring is compressed by the recoil of the barrel, and of a coupling device for connecting the cylindrical casing with the piston so that the said casing can slide as well as oscillate, substantially as described.

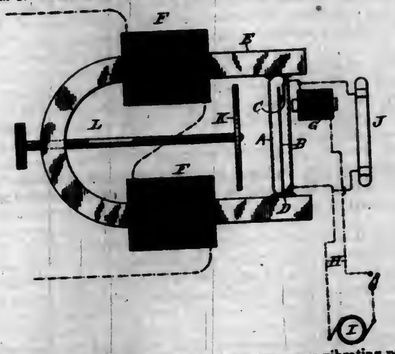
17. In an automatic gun the combination with the cartridge-throwing magazine of a pivoted spring-controlled pawl c^3 provided with a tooth c^4 projecting through a slot c^5 in the magazine, and of a projection B^4 on the connecting-rod B^3, which projection normally keeps said pawl in its disengaged position but enables it on recoil of the barrel to occupy its engaged position substantially as described and for the purpose specified.

598,229. CAR-STAKE. JOHN S. MILLER, Truro, Canada. Filed June 5, 1896. Renewed May 18, 1897. Serial No. 637,122. (No model.)

Claim.—In a car-stake, a frame L, secured to the side of the car, a pivotal pin which passes through the frame, and a car-stake, slotted at its lower end, and having both a vertical and a pivoted movement upon the pin, combined with the keepers F secured to the upper end of the stakes, the binding-rods D, the lock-lever E, and the rings K, substantially as shown.



598,230. MAGNETIC-CIRCUIT BREAKER. DANIEL M. MOORE, Newark, N. J., assignor to the Moore Electrical Company, New York, N. Y. Filed June 24, 1896. Serial No. 596,679. (No model.)



Claim.—1. A circuit-breaker having a tongue or vibrating part in magnetic equipoise, and means for intermittently moving it from equipoise for the purpose set forth.

2. A circuit-breaker consisting of a fixed contact, the latter being normally in stable equilibrium in a magnetic field, and means for intermittently moving it from said field for the purpose set forth.

3. A circuit-breaker consisting of a vibrating tongue engaging with a fixed contact and both inclosed in an exhausted receiver, the tongue being located in stable equilibrium in a magnetic field, and means for intermittently moving the tongue out of equilibrium, as and for the purpose specified.

4. In a circuit-breaker, the combination with a magnet, of a vibrating tongue placed in equipose in the field of said magnet, an exhausted receiver inclosing said tongue and its cooperating contact, and means for magnetically moving said tongue from the position of equipoise for the purpose set forth.

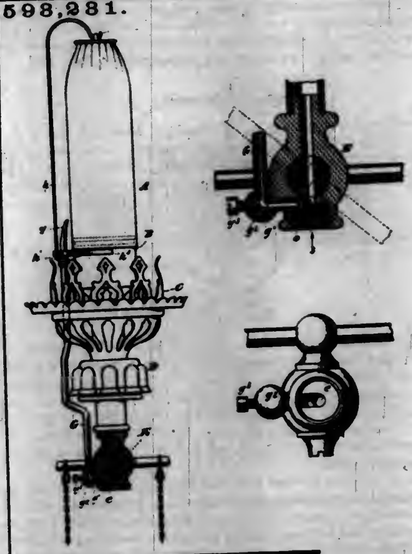
5. The combination with a maguet, of a vibrating circuit-interrupter *in vacuo* so located that the vibrating tongue is normally in stable equilibrium in the field of the maguet, and a magnet for disturbing this equilibrium, substantially as set forth.

598,231. INCANDESCENT LAMP-BURNER. THEODORE H. MILLAR, New York, N. Y. Filed Feb. 11, 1897. Serial No. 622,955. (No model.)

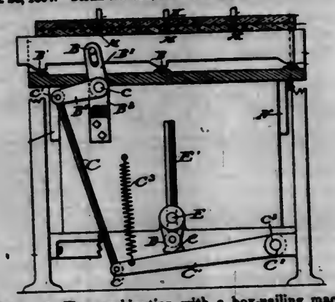
Claim.—1. In an incandescent gas-burner having a mantle, the combination with the said mantle of a suspension device therefor consisting of a suspension wire or support A, a means at the lower end thereof for engaging a part of the gas-burner temporarily and removably, and clips A^3 carried by the suspension-wire and secured thereto and adapted to engage a fixed part of the gas-burner removably, so as to hold the suspension-wire steady, whereby the mantle may be supported by the gas-burner and be freely removable therefrom.

2. A mantle-support comprising the wire A terminating at its upper end in a mantle-suspending device and at its lower end in a coil A' adapted to embrace an auxiliary burner, and having rigidly secured to said suspension-wire A a plurality of clips A^3 adapted to embrace a fixed part of the burner whereby the said mantle-supporting device may be removably secured to an incandescent gas-burner, substantially as described and for the purposes set forth.

598,281.



598,282. CLENCHING DEVICE FOR BOX-NAILING MACHINES. JOHN MCALLISTER, Kings County, and WILLIAM H. HAYES, Queens County, N. Y., assignors to John Joseph Hayes, Flushing, N. Y. Filed Jan. 28, 1897. Serial No. 621,056. (No model.)



Claim.—1. The combination with a box-nailing machine of a clenching device, consisting of a bed and a deflecting pressure-bar, fitted to slide therein, in a plane parallel to the face of the nailing-machine, of a carrier-pin thereon a bell-crank, with one of its arms slotted to engage with the carrier-pin, to cause with the rolls and inclined-plane support an upward and lateral motion to the deflecting pressure-bar; a lever pivoted to the side of the nailing-machine, a connecting-rod, connecting said lever to bell-crank, a cam or wiper on crank of the nailing-machine fitted to the main shaft of the nailing-machine so as to engage with the lever at each revolution of said main shaft substantially as specified.

2. The combination with a box-nailing machine of nail-punches, with a deflecting pressure-bar, and mechanism for causing an angular upward motion to the deflecting pressure-bar, timed with the downward motion of the nail-punches, so that the deflecting pressure-bar shall deflect the points of the nails as they are forced through the material, substantially as specified.

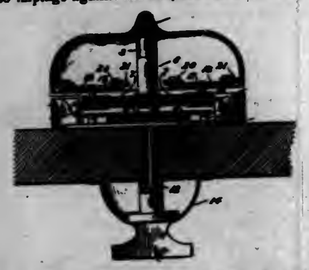
3. In a clenching device the combination of a bed and bar with roller and inclined-plane support, the inclined plane on the one and the rollers on the other, substantially as specified.

598,283. DOOR-BELL. WALTER R. MCARTHUR, Fort Madison, Iowa. Filed June 16, 1896. Serial No. 595,706. (No model.)

Claim.—1. In an alarm device, a stationary rim or rack 15, a movable table in operative connection with the rack, a gong supported over the rack and table, and a striking device carried by the table and operated by the rack, substantially as described.

2. The combination with a suitable base, of a stationary toothed rim, a post located centrally of said rim, an arm mounted to revolve

about said post, means for rotating said arm, a pinion journaled in said arm and meshing with the toothed rim, and one or more hammers or strikers connected loosely to the spindle of said pinion and adapted to impinge against the bell, substantially as described.

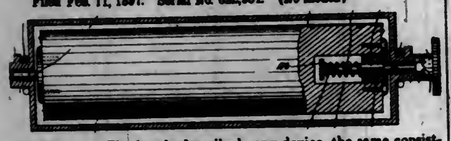


3. The combination with a suitable base, and a bell thereon, of a stationary toothed rim, a post located centrally of said rim, a pair of arms rotating about said post, means for rotating said arms, pinions journaled in said arms and meshing with the toothed rim, rotating disks fast on the spindles of said pinions, and hammers or strikers mounted on said disks, those on one disk being located at different points from those on the other disk, substantially as and for the purpose described.

4. In a bell, a pivoted arm, and actuating means therefor, in combination with a stationary device having an extended curved surface described in the arc of a circle of which the axis of said arm is the center, and a striker rotatably mounted on said arm and operatively associated with the curved surface of said stationary device, whereby a positive rotation is given to the striker during a considerable portion of the sweep of said arm, substantially as described.

5. In a bell, the combination with a revolving arm, and means for imparting motion thereto, of a stationary rim or annulus concentric to the axis of said arm, a striker rotatably mounted on said arm, and suitable gearing interposed between said striker and rim, whereby the striker is rotated independently of said carrying-arm, substantially as described.

593,234. COPY DEVICE. JOHN H. MCBRIDE, Topeka, Kans. Filed Feb. 11, 1897. Serial No. 622,931. (No model.)



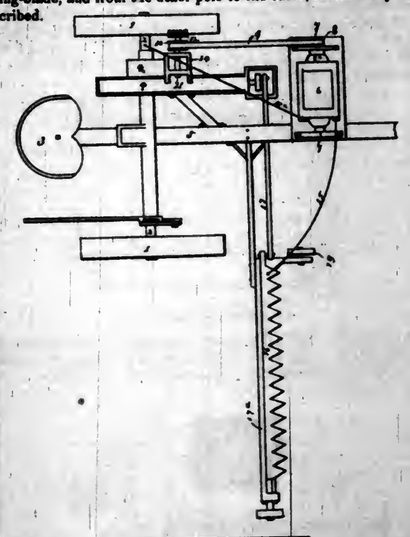
Claim.—1. The herein-described copy device, the same consisting of a cylindrical casing, which is composed of two similar longitudinal parts, said casing being provided at one end with a central tubular bearing which projects therefrom, and a cylinder mounted in said casing and revoluble therein, said cylinder being provided at one end with a spring-operated longitudinally-movable shaft, which passes through said tubular bearing, and means connected with said shaft, and said bearing for adjusting the cylinder and locking it in any desired position, substantially as shown and described.

2. The herein-described copy device, the same consisting of a cylindrical casing, which is composed of two similar longitudinal parts, said casing being provided at one end with a central tubular bearing which projects therefrom, and a cylinder mounted in said casing and revoluble therein, said cylinder being provided at one end with a spring-operated longitudinally-movable shaft, which passes through said tubular bearing, and means connected with said shaft and said bearing for adjusting the cylinder and locking it in any desired position, said cylinder being provided with means for securing a sheet of paper thereon, substantially as shown and described.

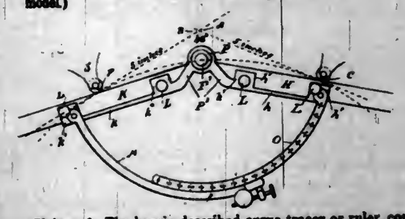
593,235. WEED-EXTERMINATOR. SAMUEL H. MCBRIDE, Oak Cliff, Tex. Filed Sept. 8, 1896. Serial No. 605,135. (No model.)

Claim.—1. The combination with a traveling machine having an electrically-insulated cutting-blade for mowing grass, of a dynamo, means for operating the dynamo, and connections from one pole of the dynamo to the cutting-blade and from the other pole to the earth, substantially as described.

2. The combination, with a traveling machine having an electrically-insulated cutting-blade for mowing grass, of a dynamo, an operative connection with one of the wheels of the machine for driving the dynamo, and connections from one pole of the dynamo to the cutting-blade, and from the other pole to the earth, substantially as described.



593,236. RULER AND TRACER FOR ARCS OF CIRCLES. ELLIS B. HOYM, Portsmouth, Va. Filed Feb. 15, 1896. Serial No. 579,349. (No model.)



Claim.—1. The herein-described curve tracer or ruler comprising two straight rulers which are adjustably supported in frames which are pivotally connected at their inner ends, said frames being each provided at its outer end with a curved or segmental arm, one of which is provided with a scale, and the arrangement of said parts being such that when the rulers are held in a straight line the segmental arms form the half of a circle, to the center of which the inner ends of the rulers point, said segmental arms being connected by means of a clamp and tangent, and the inner ends of the frames which support said rulers being connected by means of a circular hinge through which is formed a hole for the introduction of a tracing-pencil, substantially as shown and described.

2. The herein-described curve tracer or ruler, comprising two straight rulers which are adjustably supported in frames which are pivotally connected at their inner ends, said frames being each provided at its outer end with a curved or segmental arm, one of which is provided with a scale, and the arrangement of said parts being such that when the rulers are held in a straight line the segmental arms form the half of a circle, to the center of which the inner ends of the rulers point, said segmental arms being connected by means of a clamp and tangent, and the inner ends of the frames which support said rulers being connected by means of a circular hinge through which is formed a hole for the introduction of a tracing-pencil, and means to compel the tracing-point thereof to trace a predetermined arc, substantially as shown and described.

3. The herein-described curve tracer or ruler, comprising two straight rulers which are adjustably supported in frames which are pivotally connected at their inner ends, said frames being each provided at its outer end with a curved or segmental arm, one of which is provided with a scale, and the arrangement of said parts being such that when the rulers are held in a straight line the segmental arms form the half of a circle, to the center of which the inner ends of the rulers point, said segmental arms being connected by means of a clamp and tangent, and the inner ends of the frames which support said rulers being connected by means of a circular hinge through which is formed a hole for the introduction of a tracing-pencil, and means to compel the tracing-point thereof to trace a predetermined arc, consisting of weights comprising a body portion having projecting heads composed of jaws between which is horizontally mounted a wheel, said jaws being also provided with a pointer, substantially as and for the purpose set forth.

593,237. ELECTRIC SWITCH FOR CHANDELIERS OR BRACKETS. JOSEPH W. PARKER, Philadelphia, Pa. Filed Jan. 26, 1897. Serial No. 620,731. (No model.)



Claim.—1. An electric switch for chandeliers, &c., a casing having openings in its sides, a cap covering an opening in said casing, a rotatable stem in said casing, a non-conducting plug through which said stem passes, contact-points carried by said plug, conductors connected with said contact-points, contact devices mounted on and insulated from said stem, adapted to contact with said points, and a groove in the under side of said plug adapted to sustain the conductor, whereby said plug is prevented from turning.

2. An electric switch for chandeliers, &c., a casing having openings in its sides, a cap covering an opening in said casing, a rotatable stem in said casing and in said cap, means connected with said stem for holding said cap in place, a non-conducting plug through which said stem passes, contact-plates on said plug, contact-points connected with said plates, conductors connected with said contact-points, contact devices mounted on and insulated from said stem, adapted to contact with said plates and a groove in the under side of said plug adapted to sustain the conductor, whereby said plug is prevented from turning.

3. An electric switch for chandeliers, consisting of the casing A, having the base B, and provided with the openings G' and cap P, the rotatable stem C journaled in said base and cap and provided with the handle C, the stationary non-conducting plug D, having the recess F and provided with recesses on its upper face forming shoulders, the conducting-plates J on said face, binding-posts H in said plug communicating with said plates, conductors connected with binding-posts, and the contact device M mounted on but insulated from said stem and having the elastic wings N, riding on said plug.

4. An electric switch for chandeliers, &c., a casing having an opening in its sides, a cap covering an opening in said casing, a rotatable stem journaled in said casing and having a polygonal portion a non-conducting plug through which said stem passes, means for preventing said plug from turning, contact-points on said plug, conductors connected with said points, and a contact device having a polygonal opening mounted on said stem, but insulated therefrom and adapted to contact with said points.

593,238. TOP. CHARLES C. PARTRIDGE, Hyde Park, Mass. Filed Dec. 17, 1896. Serial No. 615,950. (No model.)



Claim.—The combination of a top comprising a recessed body, and a removable cover or cap having a recess therein; with a string and button normally retained, respectively within the recesses of the top and cover, and means within the top for maintaining the string in a wound or coiled condition, said means consisting of a spool mounted on a spindle journaled therein, and means for forcing said spool upward in the top, substantially as shown and described.

593,239. COFFIN-HANDLE. ELISHA A. POST, Gobleville, Mich. Filed Mar. 2, 1896. Serial No. 581,433. (No model.)

Claim.—1. In a detachable handle for burial-cases the combination of the plate B, with an opening into the under side to form a dovetail; a detachable plate C, for insertion into the opening of the plate B; the hanger D, pivoted thereto with a stop *a*, above, and a projecting point *c*, below to serve as a detaining device for the handle when not in use, all coacting as specified.



2. In a detachable handle for burial-cases the plate B, on the side of the case with a wedge-shaped opening in the under side slightly reduced at the bottom; a wedge-shaped plate for insertion into said opening slightly enlarged near the bottom and a suitable hanger on said plate for the purpose specified.

593,240. FORGE-TWYER. JOHN W. RATCLIFF and MORTON G. WATSON, Webbville, Ky. Filed Sept. 13, 1897. Serial No. 651,531. (No model.)



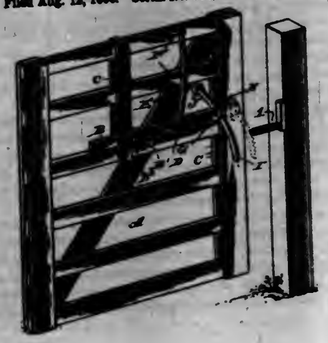
Claim.—1. In a twyer, the combination with a cylindrical casing having a blast-receiving opening in its side and a cinder-discharge opening in its lower portion, of a shaft journaled in the ends of the casing, and a semicylindrical plate-valve carried by the said shaft to work in close contact with the interior of the casing and of sufficient area to close both of said openings, substantially as described.

2. In a twyer, the combination with a cylindrical casing having a blast-receiving opening in its side, and a cinder-discharge opening in its lower end, of a shaft journaled in the ends of the casing, segmental supports secured to the shaft, and a semicylindrical plate-valve secured to said supports to work in close contact with the interior of the casing, and of sufficient area to close both of said openings simultaneously, substantially as described.

3. In a twyer, the combination with a cylindrical casing having a blast-receiving opening in its side, and a cinder-discharge opening in its lower portion, of a shaft journaled in the ends of the casing, a semicylindrical plate-valve carried by said shaft to work in close contact with the interior of the casing, and of sufficient area to close both of said openings simultaneously, a pointer on the shaft exterior to the casing, and a scale with which said pointer operates to indicate the position of the said plate-valve, substantially as described.

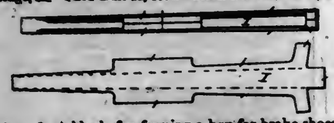
4. In a twyer, the combination with a cylindrical casing having a blast-receiving opening in its side, a cinder-discharge opening in its lower portion, and a rectangular extension at its upper end, of a cover-plate having a central circular opening supported on said extension, a globular valve supported in said extension to control the opening in the cover-plate, a shaft journaled in the ends of the cylindrical casing, and a semicylindrical plate-valve carried by said shaft to work in close contact with the interior of the casing, and of sufficient area to close both the blast-receiving opening and the cinder-discharge opening simultaneously, substantially as described.

593,241. GATE-LATCH. WILLIE J. REYNOLDS, Fall Creek Depot, Va. Filed Aug. 12, 1896. Serial No. 602,469. (No model.)



Claim.—The combination with a swinging gate having a longitudinally-movable latch, a projection upon said latch to engage a part of the gate to limit the rearward movement of said latch, a handle upon said latch, a notch in the upper edge of said latch, a spring connected with said latch and with the gate for moving said latch, a transverse pivoted lever H situated adjacent to said latch and having a weighted upper end and a curved lower end portion, of a gate-post provided with a stop or projection situated in the path of said curved lower end of the lever H.

593,242. KEY FOR BRAKE-SHOES. WILLIAM D. SARGENT, Chicago, Ill. Filed Mar. 11, 1897. Serial No. 626,946. (No model.)



Claim.—1. A blank for forming a key for brake-shoes, consisting of sheet metal tapering from end to end and provided at or about its middle with side extensions adapted to form a flat bearing-surface on the back of the key when the key is bent up into finished form, substantially as described.

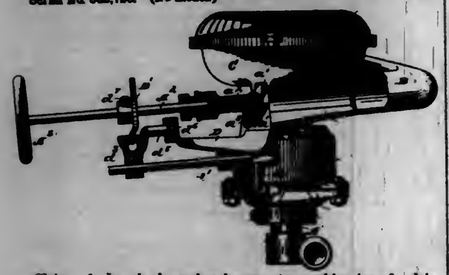
2. A blank for forming a key for brake-shoes, consisting of sheet metal tapering from end to end and provided at the wider end thereof with ears to form the head of the key, and at or about its middle with side extensions adapted to form a broad, flat bearing-surface on the back of the finished key, substantially as described.

3. A key for brake-shoes, composed of sheet metal bent to form a body portion with laterally-extending sides, said sides being provided with extensions at or about their middle projecting inwardly to form a flat bearing-surface on the back of the key, substantially as described.

4. A key for brake-shoes, composed of sheet metal bent to form a body portion with wedge-shaped sides extending laterally from the body portion and having a broad, flat bearing-surface on its back and at or about its middle, substantially as described.

5. A key for brake-shoes, consisting of sheet metal bent laterally and longitudinally, the sides of the key tapering from the point to the head of the same and provided at one end with ears forming the head, and at or about its middle with side extensions forming a broad, flat bearing-surface on the back of the finished key, substantially as described.

593,243. HYDROCARBON-BURNER. PAUL SCHNEIDER, HENRY TRENKAMP, and BERNARD A. GROSSEK, Cleveland, Ohio, assignors to the Schneider & Trenkamp Company, same place. Filed Mar. 11, 1896. Serial No. 582,720. (No model.)

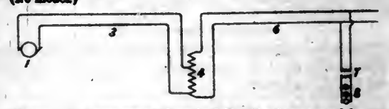


Claim.—1. In a hydrocarbon-burner, the combination of a drip-cup, a jet-nozzle, a drip-gage beneath said nozzle and formed with a nozzle delivering into said drip-cup, a valve for the jet-nozzle, a valve for the gage cup nozzle, and mechanism connected to said valves and constructed to close the gage-nozzle valve when the jet-nozzle valve is opened and vice versa, substantially as set forth.

2. In a hydrocarbon-burner, the combination of a drip-cup, a jet-nozzle, a drip-gage provided with a drip-nozzle, a needle-valve for the jet-nozzle, a sliding valve controlling the drip-nozzle, a forked block upon the stem of the drip-nozzle valve, and a cam-disk upon the needle-valve stem and formed with a cam-bulge, said cam-disk engaging the forked block, substantially as set forth.

3. In a hydrocarbon-burner, the combination of a drip-cup, a jet-nozzle, a drip-gage provided with a drip-nozzle, a needle-valve for the jet-nozzle, a sliding valve controlling the drip-nozzle, a forked block adjustably secured upon the drip-valve stem, and a cam-disk adjustably secured upon the needle-valve stem and formed with a cam-bulge, said cam-disk engaging the forked block, substantially as set forth.

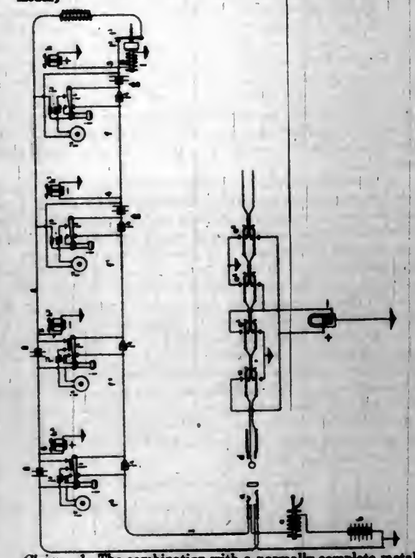
593,244. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES F. SCOTT, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Jan. 12, 1895. Serial No. 534,640. (No model.)



Claim.—1. A system of electrical distribution comprising an alternating-current generator, its circuit, and translating devices fed thereby, and a step-up transformer interposed in the circuit approximately midway between the generator and translating devices for raising the electromotive force to substantially the maximum limit allowable at the generator, substantially as described.

2. A system of electrical distribution comprising a source of high-tension electrical energy, a transmission-circuit in two or more sections, a step-up transformer between each two adjacent sections for raising the electromotive force to the maximum limit allowable at the generator, and translating devices at the end of the circuit, substantially as described.

593,245. APPARATUS FOR PARTY TELEPHONE-LINES. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Mar. 16, 1897. Serial No. 627,260. (No model.)



Claim.—1. The combination with a normally complete metallic-line circuit, of appliances included serially in the circuit at different stations, means in the line-circuit for exciting the said instruments through the agency of current in the complete circuit, other appliances connected with each of the line conductors, a relay at one extremity of the circuit adapted to sever the connection between the line conductors there, means at the other terminal of the circuit for applying current to either line conductor to determine the operation of the said appliance connected therewith, and means controlled from the same terminal for exciting the said relay to break the connection between the line conductors; whereby the appliances in the line conductors may be excited by current in the complete circuit, or either line conductor may be isolated from the other to permit the operation of the appliance connected therewith, substantially as described.

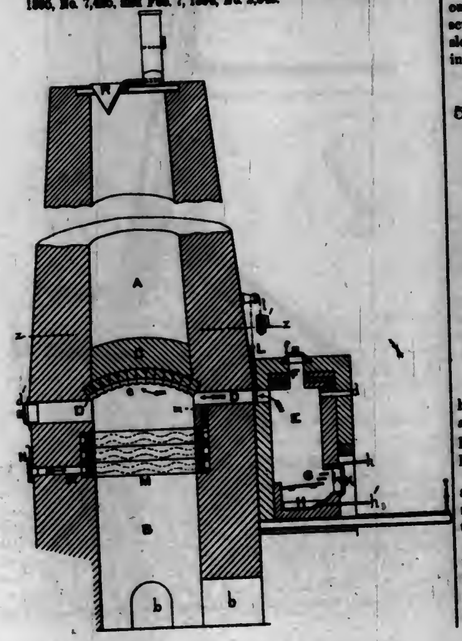
2. The combination with a line-circuit of two normally-united conductors, appliances serially in the said circuit and means for producing current in the line for exciting said appliances, a return-circuit, and a signal connected between the return-circuit and each of said line conductors, a relay adapted to sever the connection between the said line conductors, means for applying current to either of said line conductors and the return-circuit to operate one of the signals, and means for controlling the said relay to sever the connection between the line conductors at the same time, as described.

3. The combination with two line conductors and a return-circuit extending to different stations, a local storage battery in each of said line conductors, a conductor uniting said line conductors at one end, and a source of charging-current included therein, a conductor uniting said line conductors at their distant terminals, and a relay controlling the continuity of said last-mentioned conductor, a signal-bell connected between each of said line conductors and the return-circuit, a battery-circuit normally closed through the said relay to maintain the continuity of the line-circuit, a switch adapted to break the relay-controlling circuit, and means for breaking the line-circuit through said source of current and applying to either line conductor current for operating the corresponding bell, as described.

4. The combination with a closed telephone-circuit extending from a central office to different substations, of a source of charging-current in the line-circuit at the central station, and a local storage battery in the line-circuit at each substation, a return-conductor, a signal-bell in a branch from each line conductor to said return-conductor, an electromagnetic switch and circuit connections of the magnet thereof with the line-circuit adapted to permit the excitement of the magnet by the charging-current or a shunted portion thereof, the switch-contacts of said electromagnetic switch being interposed in the line-circuit beyond the last station, means at the central station for making connection with the line, and for applying calling-current to either of said line conductors and the return-conductor to operate a bell, and a switch adapted to break the circuit through said source of charging-current to control the electromagnetic switch, substantially as described.

5. The combination with two line conductors and a return-conductor extending from a central station to different substations, of a grounded source of current connected with one of the line conductors at the central station, and a ground connection to the other of said line conductors, local storage batteries serially in the line conductors at the different stations, signal-bells in ground branches from the line conductors at the different stations, a relay in a ground branch from that line conductor with which the charging-battery is connected beyond the last station, said relay being constructed to respond to continuous current only, a conductor uniting the line conductors beyond the last station, said conductor being controlled by the switch-contacts of the relay, a spring-jack for the line and a plug therefor, said spring-jack being adapted to break the connection of the line conductors with the ground branch and the battery at the central office, and keys associated with the plug, each adapted to connect a source of calling-current with one of the line conductors and the return-circuit to operate a corresponding bell, substantially as described.

593,246. KILN OR FURNACE FOR BURNING LIME. HENRY SIEMENS, Caine, and JOHN DELANEY, Horton, England. Filed Jan. 21, 1896. Serial No. 576,242. (No model.) Patented in England Apr. 11, 1895, No. 7,495, and Feb. 7, 1896, No. 2,843.



Claim.—1. In a kiln for burning limestone by gaseous fuel the combination with the combustion-chamber A, arch C therein, chamber *c* beneath the arch and gas-fuel inlets D, the gas-producer E in which the gaseous fuel is generated connected to the combustion-chamber A by the fuel-inlets D, of the solid-fuel inlets D the sinuous air-passages M, the aperture *m* from the same into the inlets D to supply air to promote combustion before entering the kiln, the regulating-door N at the mouth of the air-passage M, and the sight-hole *d* in the producer, as described and shown.

2. In a kiln for burning limestone by means of gaseous fuel the combination with the combustion-chamber A, the arch C thrown across it, the chamber *c* formed beneath the arch, the gas-fuel inlets D leading from the gas-producer and opening into the chamber *c*, the sinuous air-passages M opening into the inlets D to supply heated air to promote combustion before entering the kiln and the regulating-door N at the mouth of the air-passage M of the gas-producer E connected to the kiln by means of the inlets D, a grate G to receive the coke, an ash-pan H in which water is evaporated to supply vapor to the coke, the water-supply pipe *h* and overflow-pipe *h'* connected to the ash-pan and the orifice F for charging the apparatus with coke substantially as described.

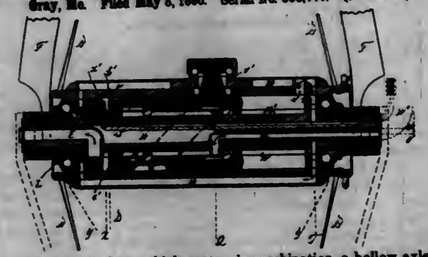
593,247. HUB-ATTACHING DEVICE. BENJAMIN F. SMITH, HENRY M. CRIPPEN, and MILTON J. CHARLTON, Stewart, Ohio. Filed Dec. 21, 1896. Serial No. 616,554. (No model.)



Claim.—1. The combination with an axle having a lateral aperture formed in its end, of a wheel mounted on said axle, a locking-nut adapted to be applied on the end of said axle and provided with a plurality of pin-apertures arranged in pairs, said pairs being at varying distances from the inner end of the nut, and a pin adapted to be passed through the apertures of the nut and axle and provided with a segmental spring adapted to spring over the outer portion of the nut to hold said pin firmly in position, substantially as described.

2. The combination with an axle, of a wheel mounted on said axle and having a screw-threaded hub, a nut for securing said hub on said axle, a cap adapted to screw over said hub and comprising a screw-threaded sleeve, and a screw-threaded plug mounted on said sleeve and adapted to be forced forward to force the oil contained in said cap into the journal, substantially as described.

593,248. CARRIAGE OR CYCLE MOTOR. WILLIAM C. SMITH, Gray, Me. Filed May 6, 1896. Serial No. 590,777. (No model.)



Claim.—1. In a vehicle-motor, in combination, a hollow axle, a hub, an annular piston adapted to reciprocate between said hub and axle, a cam-path in said piston, a cam-roll adapted to travel in said path and means for operating said piston, substantially as and for the purposes set forth.

2. In a vehicle-motor, in combination, an axle, a hub, a piston adapted to operate between said axle and hub and mechanism connecting said hub and piston whereby the hub is caused to rotate by the operation of the piston.

3. In a vehicle-motor, in combination, a hollow axle, a hub, a water-jacket surrounding the same, ports communicating between the hollow axle and the space between the hub and water-jacket, and means for supplying water thereto, substantially as and for the purposes set forth.

4. In a vehicle-motor, in combination, an axle, a hub, a piston adapted to reciprocate in the space between said hub and axle, longitudinal grooves in the axle or hub, and longitudinal grooves in the piston adapted to register therewith, and antifriction-bearings in said grooves, substantially as and for the purposes set forth.

5. In a vehicle-motor, in combination, an axle, a hub, a piston mounted and adapted to reciprocate between said hub and axle, an irregular groove extending diagonally back and forth around said piston, that part of the groove which receives the first impulse of the explosion bearing a comparatively acute angle to the length of the piston whereby the piston travels a considerable distance with a comparatively small rotation of the hub, substantially as and for the purposes set forth.

6. In a vehicle-motor, in combination, an axle, a hub, a piston mounted in the space between the axle and hub and adapted to reciprocate therein, and an open space between the axle and piston and means for converting a spray of oil into vapor in said space thereby producing a cooling effect, substantially as and for the purposes set forth.

7. In a vehicle-motor, in combination, a hub, a hollow axle, an annular piston surrounding said axle, ball-grooves in the axle and in the piston, adapted to register with each other, antifriction-bearings in said grooves, a zigzag cam-path extending around said piston and a cam-roll in said hub adapted to travel in said cam-path, substantially as and for the purposes set forth.

8. In a vehicle-motor, an axle, hub, and a piston surrounding the axle, a cam-roll in the hub and a cam-path in the piston, that part of said groove through which the roll travels immediately after the explosion being nearly parallel with the length of the piston, substantially as and for the purposes set forth.

593,249. BILLIARD-CUSHION. GEORGE H. STEVENS, Toledo, Ohio. Filed Jan. 9, 1896. Serial No. 574,803. (No model.)



Claim.—1. As a new article of manufacture, a billiard-cushion, having a fabric strip permanently secured thereto upon one side only, the strip being of greater width than the width of the side of the cushion to which it is attached, thereby providing loose flaps extending at each side of the cushion, whereby in attaching the cushion to the rail, there are provided three points of attachment, the rear of the cushion and the two flaps, one upon each side of the cushion.

2. As a new article of manufacture, a billiard-cushion provided with a fabric backing, having an adhesive flap, and a stiffening-strip having adhesive flaps.

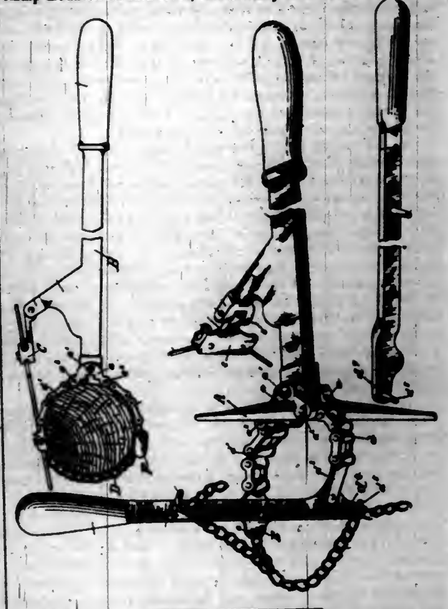
593,250. WIRE-STRETCHER. ALBERT J. STIRK, Boston, Mass. Filed Jan. 9, 1897. Serial No. 618,563. (No model.)

Claim.—1. The combination with a supporting-frame, of post-chains mounted thereon, a lever mounted on said chains for tightening them about said post, a pivoted lever also mounted on said frame, and a wire-clamp mounted on said latter lever, substantially as described.

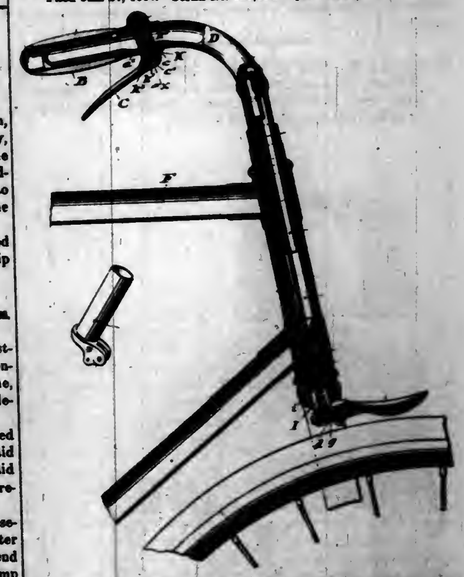
2. The combination with a supporting-frame, of chains mounted thereon for connecting it to a post, a pivoted lever mounted on said chains for tightening the same, a wire-clamp also mounted on said chains, a pivoted operating-lever mounted on said frame, and a wire-clamp mounted in said latter lever, substantially as described.

3. The combination with a supporting-frame, of chains for securing the same to a post, a lever pivotally connected to the outer end of one of said chains, a wire-clamp connected to the outer end of the other chain, an attaching-chain connected to said wire-clamp and adapted to engage the pivoted lever, an operating-lever mounted on said frame, and a wire-clamp mounted on said latter lever, substantially as described.

4. The combination with a supporting-frame, of attaching-chains connected thereto, a pivoted lever mounted at the outer end of one of said chains and provided with lateral chain-receiving projections upon opposite sides of its pivot-point, and wire-clamps mounted on the outer end of the opposite chain, an attaching-chain connected to said wire-clamp and adapted to be hooked over the pins of the pivoted lever, an operating-lever mounted on said frame, and a wire-clamp mounted on said lever, substantially as described.



593,251. HAND-BRAKE FOR BICYCLES. LEWIS H. TAYLOR, Jr., Philadelphia, Pa., assignor to Percival Chrystie, High Bridge, N. J. Filed Jan. 27, 1897. Serial No. 620,854. (No model.)



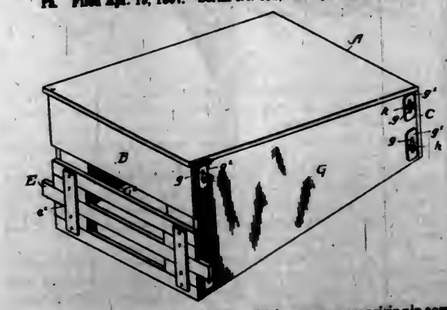
Claim.—1. The combination to form a bicycle hand brake, of the following elements:—a hollow handle bar, a hand lever pivoted to said handle bar, one end of which passes through an opening in said bar in adjacency to one of its hand grips and the other end of which is adapted to be moved toward and from said handle grip,—a flexible brake-operating connection within the handle bar so connected with the hand lever that the movement of the outer end of said lever toward the handle bar will exert traction upon said connection,—and a clamping device applied to the hand lever and accessible from the exterior of the handle bar for locking or positively attaching said connection to said lever in any desired position of adjustment of said flexible connection with respect to said lever and handle bar,—substantially as set forth.

2. The combination to form a bicycle hand brake, of the following elements:—a hollow handle bar,—a hand lever pivoted to said handle bar, one end of which passes through an opening in said bar in adjacency to one of its hand grips and the other end of which is adapted to be moved toward and from said handle grip,—a flexible brake-operating connection within the handle bar so connected with the hand lever that the movement of the outer end of said lever toward the handle bar will exert traction upon said connection,—and having its end portion concealed within the hollow interior of said handle bar,—and a clamping device applied to said hand lever and accessible from the exterior of the handle bar for locking or positively attaching said connection to said lever in any desired position of adjustment of said flexible connection with respect to said lever and handle bar,—substantially as set forth.

3. The combination, in a bicycle hand brake, with a hollow handle bar having a hollow bar stem, of a flexible connection extending through the hollow interior of both the handle bar and stem, and a flanged segment pivoted at the intersection of said handle bar and stem over which the flexible connection passes and is also circumferentially movable,—substantially as set forth.

4. The combination to form a bicycle hand brake, of the following elements:—a hollow handle bar,—a hand lever pivoted to said handle bar, one end of which passes through an opening in said bar in adjacency to one of its hand grips and the other end of which is adapted to be moved toward and from said handle grip,—a flexible brake-operating connection within the handle bar so connected with the hand lever that the movement of the outer end of said lever toward the handle bar will exert traction upon said connection,—a clamping device applied to the hand lever and accessible from the exterior of the handle bar for locking or positively attaching said connection to said lever in any desired position of adjustment of said flexible connection with respect to said lever and handle bar,—a brake acting upon the steering wheel and operated by said flexible connection,—a clamping device upon said brake for detachably securing said connection to said brake, which consists of a longitudinally grooved clamping block provided with a notch, which is seated in a vertically-disposed opening through the rear arm of the brake, and of a locking screw adapted to a threaded aperture formed in said rear arm of the brake and terminating in said opening, which is adapted to force the block into contact with the flexible connection,—substantially as set forth.

593,252. CHICKEN-COOP. WILLIAM H. THOMAS, Carversville, Pa. Filed Apr. 19, 1897. Serial No. 632,757. (No model.)



Claim.—1. A bottomless folding chicken-coop, comprising in combination, top and end sections, hinges connecting said sections, oppositely-disposed removable side sections having slots at their opposite ends, and headed pins or screws carried by the end sections and adapted to pass through the slots of the side sections to confine the latter in position, substantially as specified.

2. A bottomless folding chicken-coop, comprising in combination, the hinged top and end sections, one of such sections, B, being provided with a series of bars or slats, *c*, spaced for the admission of air to the interior of the coop, a removable bar, E, held in said section, headed pins or screws, A, extending laterally from the end section, and removable side sections, G, G' having slots, *g*, at or near each end for the reception of said pins or screws, substantially as specified.

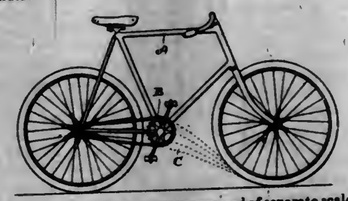
3. A folding chicken-coop comprising in combination, a top section, A, having inner bracing-bars, *a*, a slatted front section, B, having bracing-bars, *b*, a rear section, C, having bracing-bars, *c*, hinges, *d*, connecting the section, A, to the sections, B and C, headed pins or screws, A, extending laterally from the bracing-bars, *b* and *c*, removable side sections, G, G', having slots, *g*, guard-plates, *f* for said slots, the heads of the pins or screws, *h*, being adapted to pass through said slots and then turn at a right angle to the length of the slots to confine the side sections in position, substantially as specified.

593,253. HOISTING APPARATUS. WILLIAM H. THOMPSON, Cleveland, Ohio. Filed Feb. 16, 1894. Serial No. 500,355. (No model.)



Claim.—In a hoisting machine, the combination of a suitable frame or mounting, a power-shaft having bearing in said frame or mounting, a load bearing or hoisting member mounted directly upon and in frictional contact with the power-shaft, to one side of the bearing of said shaft in the frame or mounting, and back gearing substantially as described making turning connection between the hoisting member and the power-shaft so as to cause said load bearing or hoisting member to be turned by the power-shaft in either direction, but to cause said hoisting member to automatically bind the power-shaft against rotation and thereby lock itself against retrograde movement under influence of a load, as explained.

593,254. CHAIN-PROTECTOR FOR BICYCLES. DAVID P. THOMSON, Schenectady, N. Y. Filed Nov. 2, 1895. Serial No. 567,691. (No model.)



Claim.—1. A chain-protector composed of separate scales or protecting devices applied to each link of the chain and traveling with it.

2. A chain-protector comprising scales or protecting devices applied to each link of the chain, each of the scales having a narrow or body portion covering the link, and a broader or enlarged portion lapping over the next scale.

3. As a new article of manufacture, a scale to be applied to a sprocket-chain, composed of sheet metal, having an enlarged portion and a narrower or body portion.

593,255. TELEPHONE-TRANSMITTER. JAMES W. THOMSON, Bedford, Ind. Filed Mar. 1, 1897. Serial No. 625,681. (No model.)



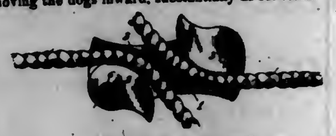
Claim.—A telephone-transmitter provided with a diaphragm carrying a cell containing resistance-varying material and two electrodes, one fixed in relation to the diaphragm, the other loosely suspended in the midst of the granules.

593,256. CLOTHES-LINE FASTENER. GEORGE S. VEEIE, Newburg, N. Y., assignor of one-half to Charles S. Brundage, same place. Filed May 5, 1897. Serial No. 635,508. (No model.)

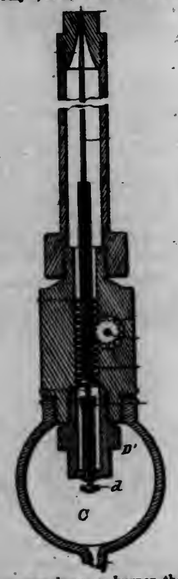
Claim.—1. A line-fastening comprising a body, a web extending diagonally with reference to the body, and dogs located upon opposite sides of the web and pivoted to the body at diagonally opposite points, substantially as shown for the purpose specified.

2. In a line-fastening, the combination of a body comprising parallel side pieces and an intermediate diagonally disposed web of

ogee form, dogs located upon opposite sides of the web and pivoted to the side pieces at diagonally opposite points, and springs for normally moving the dogs inward, substantially as set forth.



593,257. VAPOR-LAMP. GEORGE WASHINGTON, Brussels, Belgium, assignor to the George Washington Lighting Company, Jersey City, N. J. Filed July 7, 1897. Serial No. 643,693. (No model.)



Claim.—1. In a vapor lamp or burner the combination with a needle-valve for controlling the discharge of vapor and means for positively opening and closing said valve, of a valve for controlling the admission of oil to the vaporizer, a spring for closing the oil-valve, and a stem connected to the oil-valve arranged and adapted to be actuated by the holder of the needle-valve when the latter is opened and thereby open the oil-valve, substantially as set forth.

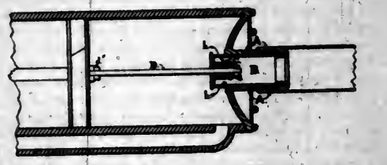
2. In a vapor lamp or burner, the combination with a needle-valve provided with a holder, and means for positively actuating the valve and its holder in both directions, of an oil-supply-regulating valve provided with a valve-stem, arranged and adapted to be engaged and moved in one direction by the needle-valve holder, a spring encircling the valve-stem for closing the oil-valve, and means for adjusting the tension of the spring, substantially as set forth.

3. In a vapor lamp or burner, the combination with an oil-supply and vaporizer, a coupling connecting the two, and a needle-valve provided with a holder, a pinion meshing with teeth on the valve-holder and adapted to positively move it in both directions, of an oil-supply valve provided with a stem arranged and adapted to be engaged and actuated by the needle-valve when moved to open the needle-valve and a spring encircling said valve-stem and adapted to close the oil-supply valve, substantially as set forth.

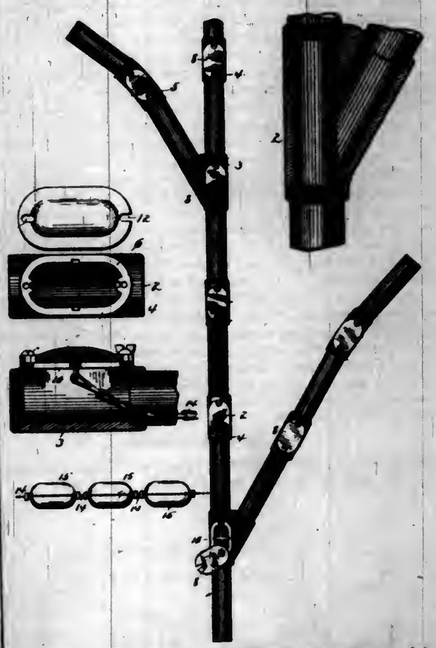
4. In a vapor lamp or burner the combination with an oil-supply and vaporizer, a coupling connecting the two, and a valve-seat detachably secured to the coupling, of an oil-supply valve provided with a stem which extends through the valve-seat, and a spring encircling the stem and adapted to close the oil-supply valve, of a needle-valve provided with a holder, a pinion mounted in the coupling and meshing with teeth on the holder, said holder being arranged to engage and actuate the valve-stem and open the oil-supply valve when the needle-valve is opened, and to allow the spring to close the oil-supply valve when the needle-valve is closed, substantially as set forth.

593,258. VALVE. RICHARD D. WATSON, Toledo, Ohio. Filed May 3, 1897. Serial No. 634,969. (No model.)

Claim.—The combination in an engine or pump having a cylinder, or shell, and head having a seat and stuffing-box therein containing a valve B having a stuffing-box through which operates a sliding rod D having means at both its ends for adjustment to operate in combination with the piston, or plunger, substantially as set forth.



593,259. MEANS FOR SUPPLYING FOOD AND AIR TO ENTOMBED MINERS. LOUIS WELKER, Williamsport, Pa. Filed Feb. 1, 1897. Serial No. 621,511. (No model.)



Claim.—1. The means herein described comprising a conduit or series of connected conduits leading from a mine or chamber each conduit having couplings provided with removable covers and a conveyer adapted to be operated through any portion of any one of said conduits, substantially as set forth.

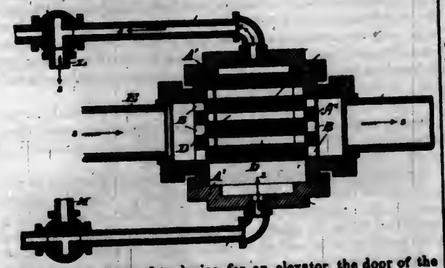
2. The combination with a conduit comprising a series of pipes and interposed couplings or connections, the latter having removable covers, of a flexible conveyer permanently located within said conduit, substantially as set forth.

3. The combination with a conduit comprising a series of pipes and interposed couplings or connections the latter having removable covers, of a flexible conveyer permanently located within the conduit and receptacles attached to said conveyer.

4. The combination with a conduit comprising a series of pipes and interposed couplings and connections, removable covers pivotally attached to said couplings or connections and a screw for locking each cover to its coupling or connection of a flexible conveyer passing through said conduit to the shaft or to a point outside the mine, substantially as described.

5. The herein-described means comprising connected conduits leading from the various headings or drifts of a mine to the mine-shaft or point outside of the mine, couplings or connections interposed at various points throughout said conduits, the said couplings or connections having movable tops, and means for communicating from one coupling to another in the event of a cave-in between said couplings.

593,260. SAFETY DEVICE FOR ELEVATORS. JAMES L. WILSE, Philadelphia, Pa., assignor of two-thirds to William P. Thompson and John S. L. Alexander, same place. Filed Apr. 1, 1896. Serial No. 585,775. (No model.)



Claim.—1. In a safety device for an elevator, the door of the elevator-shaft, a casing provided with ports, a valve in said casing adapted to be placed into and out of communication with said ports, pipes connected with said casing leading respectively from a pressure-tank and to the cylinder of an elevating apparatus on opposite sides of said valve, and pipes connected with the said casing and leading to said pressure-tank and mechanism for alternately opening and closing valves in said last-mentioned pipes, said mechanism being adapted to be operated by the opening and closing of said door of the elevator-shaft.

2. In a safety device for elevators, a casing with inlet and outlet ports, diaphragms in said casing having ports, a sliding valve with ports registering with the ports in said diaphragms, pipes leading from a pressure-tank to opposite sides of said valve, and provided with valves, and mechanism for opening and closing said pipe-valves alternately.

3. In elevating apparatus a casing having inlet and outlet ports on opposite sides thereof, with a valve controlling said ports, pipes leading from a power-supply for alternately operating said valve, valves in said pipes, mechanism for alternately opening and closing the same, and a movable door for actuating said opening and closing mechanism.

593,261. PEA-HARVESTER. GEORGE WESTLAWER, Stratford, Canada. Filed May 13, 1896. Serial No. 591,434. (No model.)



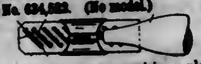
Claim.—1. The combination, with a finger-bar, and its cutter-guards B; of bars D having their rear parts secured to the finger-bar, extending over the cutter-guards, engaging with their points, and having projecting front end portions *b*; and teeth C provided with trough-shaped jaws fitting over the said bars D and pivoted to their middle portions, the front portions of the said teeth being supported by the end portions *b* and their rear portions extending upwardly over the rear parts of the bars D, substantially as set forth.

2. The combination, with a finger-bar, and its outside guard S, of a shoe G provided with a slot and serrations, a longitudinally-adjustable upright *g* provided with serrations engaging with the serrations on the shoe, and having a vertical slot and serrations on its side, a serrated block *l* secured to the guard S and engaging with the said serrations on the side of the upright *g*, an upright *h* secured to the shoe G and provided with a vertical slot and serrations on its side, a block *n'* provided with a hole engaging with the point of the guard S and serrations engaging with the serrations on the upright *h*, and bolts securing the block *l* to the upright *g*, the block *n'* to the upright *h*, and the upright *g* to the shoe G, substantially as set forth.

3. The combination, with a finger-bar, and its inside guard T; of a shoe-plate *p* secured under the guard T, a shoe H secured under the said shoe-plate and provided with an upwardly-curved front end having a serrated boss, an arm *r* for supporting the ground-wheel and also provided with a serrated boss, and a bolt *s* adjustably connecting the said bosses, substantially as set forth.

4. The combination, with a finger-bar, and its outside guard S, of a shoe G, a longitudinally-adjustable upright *g* secured to the shoe G, a vertically-adjustable block *l* secured to the guard S, an upright *h* secured to the shoe G, and a vertically adjustable block *n'* secured to the upright *h* and provided with a hole engaging with the point of the guard S, substantially as set forth.

593,262. WICK-TRIMMER. ROBERT H. WHITE, Providence, R. I., assignor of one-half to Henry A. Church, same place. Filed Apr. 30, 1897. Serial No. 634,082. (No model.)

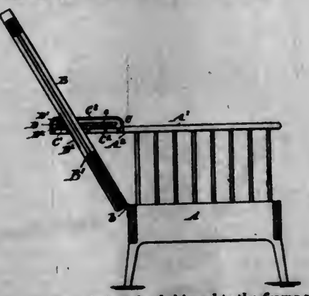


Claim.—1. A wick-trimmer comprising a plate provided with one or more scrapers and one or more adjustable guides for guiding said plate, substantially as described.

2. A wick-trimmer comprising a plate provided with one or more scrapers and a guide consisting of a series of flexible fingers, substantially as described.

3. A wick-trimmer comprising a disk provided with a series of lips bent from said disk to form scrapers, and a series of flexible fingers projecting from said disk, substantially as described.

593,263. CHAIR. HENRY M. WILLIS, East Williston, N. Y. Filed Feb. 16, 1897. Serial No. 623,605. (No model.)



Claim.—1. In a chair, a back hinged to the frame so that its inclination may be varied, in combination with a loose rod extending transversely of the back in rear thereof, a pinion on the rod meshing into a rack carried by the frame, the said rod adapted to support the back at the desired angle and held against rotation by its contact therewith, all substantially as herein specified.

2. In a chair, a back hinged to the frame so that its inclination may be varied, in combination with a loose rod extending transversely of the back in rear thereof, pinions on the rod meshing into racks carried by rearwardly-extending portions of the frame, and a surface on said rod adapted to engage with a corresponding surface on the chair-back, to support the latter and hold it at the desired angle relatively to the frame, all substantially as herein specified.

3. In a chair, a back hinged to the frame so that its inclination may be varied, in combination with a loose rod extending transversely of the back in rear thereof, pinions on the rod meshing into racks carried by rearwardly-extending portions of the frame, and a surface on said rod adapted to engage frictionally with a corresponding surface on the chair-back, to support the latter and hold it at the desired angle relatively to the frame, and means for preventing the rise of said pinions out of mesh with said racks, all substantially as herein specified.

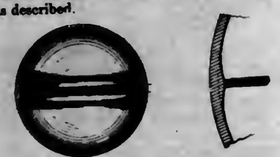
4. In a chair, a back hinged to the frame so that its inclination may be varied, in combination with a loose rod extending transversely of the back in rear thereof, rearwardly-extending frame portions adjacent to the back at the sides, yokes on said frame portions, having slots receiving the ends of the rods, racks on said yokes, pinions fixed on the said rod meshing with the racks, and plane-faced blocks fixed on said rod and adapted by engaging corresponding plane surfaces on the chair-back, to hold the rod against rotation, all substantially as herein specified.

5. In a chair, a back hinged to the frame at *b*, and rearward extensions A^2 adjacent to the back at the sides, in combination with the yokes C having the slots *c*, racks C' and flanges C^3 on the yokes, the rod D, the pinions D', blocks D^2 and hand-wheels D^3 thereon, and the plates B^2 on said back to receive the blocks, all substantially as herein specified.

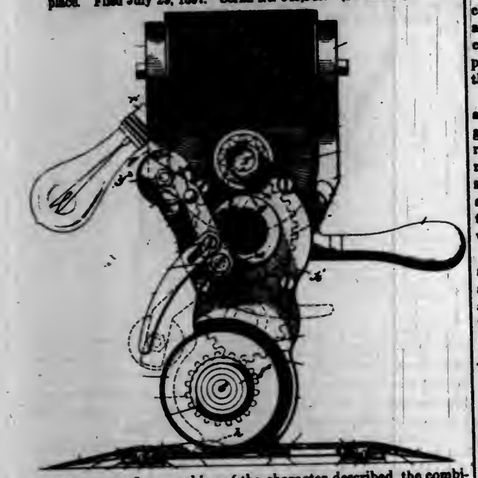
593,264. SOFT-RUBBER BALL. HENRY G. WOLCOTT, Fishkill-on-the-Hudson, N. Y., assignor of one-half to John P. Rider, same place. Original application filed July 13, 1895, Serial No. 555,908. Divided and this application filed Oct. 7, 1895. Renewed Sept. 23, 1897. Serial No. 652,630. (No model.)

Claim.—A ball or similar article formed of soft rubber with an internal chamber, the sections of stock forming the article having their edges abutted and upset or thickened uniformly on the inner side forming a butt-weld upset seam, and a uniform supporting-rib or thickened portion gradually diminishing in thickness on each side of

the seam whereby greater rigidity and quicker and more uniform recovery when compressed are secured and the union of the sections of the stock in the manufacture of the article is facilitated; substantially as described.



593,265. CLOTH-CUTTING MACHINE. JOHN WOLF, JR., Cincinnati, Ohio, assignor to the Wolf Electrical Promoting Company, same place. Filed July 29, 1897. Serial No. 646,346. (No model.)



Claim.—1. In a machine of the character described, the combination of a foot-plate having supports for one or more shafts and angular openings in its upper side, shafts engaging said supports, rollers on said shafts and occupying the openings in the foot-plate, roller-bearings interposed between the shafts and the rollers, and retainers for said roller-bearings extending into the openings in the foot-plate and confined by the walls thereof.

2. In a machine of the character described, a foot-plate having grooved lugs on the under side and shoulders confronting the outer ends of said lugs, a shaft occupying the grooves of the said lugs with its ends behind the said shoulders, means for retaining the shaft in such position, and rollers on the shaft.

3. In a machine of the character described, a foot-plate having grooved lugs on the under side, and shoulders confronting the outer ends of said lugs, a shaft occupying the grooves of said lugs with its ends behind the said shoulders, means for retaining the shaft in such position, and rollers on the shaft between the lugs and the shoulders.

4. In a machine of the character described, a foot-plate having grooved lugs on the under side and shoulders confronting the outer ends of said lugs, a shaft occupying the grooves of the said lugs with its ends behind the said shoulders, means for retaining the shaft in such position, rollers on the shaft between the lugs and the shoulders, and roller-bearings interposed between the rollers and the shaft.

5. In a machine of the character described, a foot-plate having grooved lugs on the under side and shoulders confronting the outer ends of said lugs, a shaft occupying the grooves of the said lugs with its ends behind the said shoulders, means for retaining the shaft in such position, rollers on the shaft between the lugs and the shoulders, and balls and retaining-rings interposed between the rollers and the shaft.

6. In a machine of the character described, a foot-plate having a roller-equipped shaft and a gravitating cloth-lifter pivotally engaged with and supported by said shaft.

7. In a machine of the character described, a foot-plate having a roller-equipped shaft, a gravitating cloth-lifter pivotally engaged with said shaft, and a shaft-confining and cloth-lifter-movement-limiting piece fastened to a suitable part of the foot-plate and adapted to engage the shaft and the cloth-lifter, for the purpose described.

8. In a machine of the character described, a foot-plate having a roller-equipped shaft, a gravitating cloth-lifter pivotally engaged with said shaft, and a shaft-confining and cloth-lifter-movement-limiting piece fastened to a suitable part of the foot-plate and extending under the shaft and cloth-lifter.

9. In a machine of the character described, the combination of a substantially rectangular foot-plate with sloping sides, and gravitating cloth-lifters pivoted to the ends of the foot-plate and inclined at their sides to correspond with the sloping sides of the foot-plate, the cloth-lifters extending entirely across the foot-plate and presenting therewith a practically continuous sloping marginal portion, substantially as described.

10. In a machine of the character described, a foot-plate having pivotally connected therewith at each end a gravitating cloth-lifter extending entirely across it, and means for limiting downward movement of the same when the foot-plate is raised.

11. In a machine of the character described, a foot-plate having on its under side grooved lugs and a centrally-located lug, a shaft occupying the grooves of the lugs, rollers on said shaft, a gravitating cloth-lifter fitting up against the end of the foot-plate and having arms which pivot on said shaft, and an angular piece fastened to the centrally-located lug and extending under the shaft to confine it in place and under the cloth-lifter to limit its downward movement when the foot-plate is raised.

12. In a machine of the character described, the combination of a foot-plate, a standard rising therefrom and recessed for a train of gearing and formed with a curved flange along the lower part of its rear edge, gears in the recesses, a knife associated with the lowermost gear with its back edge guarded by said curved flange of the standard, a gear-covering fastened to the standard over its recesses above the knife, the lower edge of the said covering forming a continuation of the knife-guarding flange, and a suitable motor in gear with said train of gearing.

13. In a machine of the character described, the combination of a foot-plate, a standard rigidly attached thereto and rising therefrom and recessed for a train of gearing, gears journaled on said standard and occupying said recesses, a circular knife fastened to the lowermost gear, a motor associated with the uppermost gear, and a gear-covering fastened to the standard and having formed with it and projecting above the standard a bearing for one end of the motor-shaft.

14. In a machine of the character described, the combination with a standard and a knife thereon, of a knife-sharpener comprising an arm carrying a grinder and pivoted to the standard to swing substantially in the plane of the knife into and out of position for grinding, said arm also laterally movable to carry the grinder into and out of contact with the knife.

15. In a machine of the character described, the combination with a standard and a knife thereon, of a knife-sharpener comprising an arm carrying a grinder and pivoted to the standard to swing substantially in the plane of the knife into and out of position for grinding, said arm also arranged to rock laterally on its pivot to carry the grinder into and out of contact with the knife, and a spring to hold the arm in a central position.

16. In a machine of the character described, the combination with a standard and a knife thereon, of a knife-sharpener comprising an arm pivoted to swing in a plane parallel with the knife and also laterally movable, and a pair of obliquely-set rotary grinders on said arm.

17. In a machine of the character described, the combination with a standard and a knife thereon of a knife-sharpener comprising an arm pivoted to swing toward and from the knife and a grinder carried by said arm; and a knife-guard fastened to the grinder-arm and projecting therefrom whereby it is adapted to extend in front of the knife when the grinder arm is moved away from the knife.

18. In a machine of the character described, the combination of a foot-plate, a standard rising therefrom, a train of gearing supported by said standard, a disk-knife secured to the lowermost gear, an electric motor whose pole-pieces are secured to the standard on one side thereof, said pole-pieces having extensions overhanging the opposite side of the standard, an armature-shaft in gear with the said train of gearing and carrying its armature on one side of the standard, a field-coil between the pole-piece extensions on the opposite side of the standard, and suitable electrical connections, substantially as described.

19. In a machine of the character described, the combination of a standard having a lug in one side and a pivot-pin fastened in said lug, a knife mounted on said standard, an arm loosely mounted on the said pivot-pin so as to be capable of rotary movement in substantially the plane of the knife and also of lateral movement substantially at right angles thereto, opposite edges of the lug affording fulcra for said arm in its lateral movements; a spring pressing the arm against the lug, and grinding means carried by the arm for acting against the knife, substantially as described.

20. In a machine of the character described, the combination of a standard having a lug on one side, a knife mounted on said standard, a pivot-pin fastened in said lug and having a recessed head, an arm pivotally mounted on said pin with provisions for lateral play, a spiral spring surrounding the pin between its recessed head and the arm and pressing the latter against the lug, and one or more obliquely-set grinding-disks on said arm and adapted to be alternately brought in contact with the knife, substantially as described.

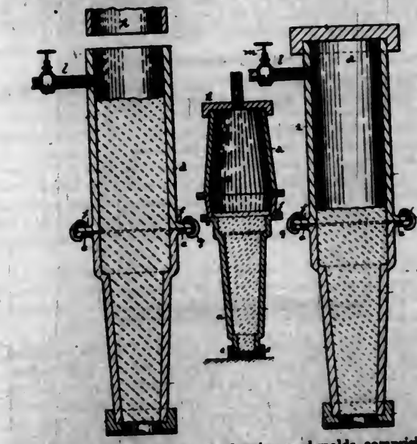
21. In a machine of the character described, the combination of a foot-plate, a gravitating cloth-lifter pivoted thereto, and a stop-piece fastened to the foot-plate and extending under the cloth-lifter to limit downward movement thereof, substantially as described.

593,266. GRAIN-DOOR FOR FREIGHT-CARS. JOSEPH WRIGHT, Lancaster, Wis. Filed Mar. 10, 1897. Serial No. 626,796. (No model.)



Claim.—The combination with a freight-car having door-openings on opposite sides, of grooved ways extending up the sides of the door-openings and across the roof of the car, said ways being continuous from the floor on one side of the car to the floor on the opposite side and wider at the corners or bends than in the straight portions, and a grain-door for each door-opening, each door consisting of a series of independently-movable sections supported to slide in said ways, and the several sections of each door being independently movable from one door-opening to the other, whereby a part of one of the grain-doors may be used on one side of the car and the other part moved over to the other side to cooperate with the other grain-door, substantially as described.

593,267. APPARATUS FOR FORMING SAND MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Nov. 23, 1891. Serial No. 412,859. (No model.)



Claim.—1. An apparatus for forming sand molds, comprising a flask, means for applying fluid-pressure directly to the upper surface of the sand, and openings at the base of the flask, substantially as set forth.

2. In apparatus for forming sand molds, the combination of a flask having openings at or near the base of its sand-receiving cavity, a sand-holder communicating directly with the flask and means for applying fluid-pressure directly to the upper surface of the sand so as to act upon the sand and force it into the flask, substantially as set forth.

3. In apparatus for forming sand molds, the combination of a flask having openings at or near the base of its sand-receiving cavity, a sand-holder communicating directly with the flask and valve-controlled means leading from a suitable pressure apparatus for applying fluid-pressure directly to the upper surface of the sand so as to act upon the sand and force it into the flask, substantially as set forth.

4. In apparatus for forming sand molds, the combination of a flask having openings at or near the base of its sand-receiving cavity, a sand-holder communicating directly therewith, said holder being downwardly flaring, and fluid-compressing mechanism communicating with the holder above the sand therein, substantially as and for the purposes set forth.

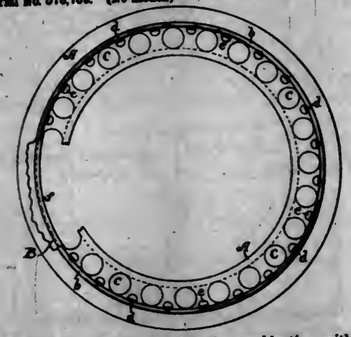
593,268. VEHICLE-WHEEL RIM. CHRISTIAN ANDERSEN, Indianapolis, Ind. Filed Oct. 11, 1895. Serial No. 565,385. (No model.)



Claim.—1. A wheel-rim composed of portions joined by having their ends cut to fit together, the cuts consisting of a central cut extending through the rim in a plane substantially parallel to the face of the wheel, and two side cuts extending to each side of the rim from said central cut and at an angle thereto, the planes of said cuts being at an acute angle to the plane of the central cut, substantially as set forth.

2. A wheel-rim composed of portions joined together by having their ends cut to fit together, the cuts consisting of a central cut extending through the rim in a plane substantially parallel with the face of the wheel, and two side cuts extending to each side of the rim from said central cut at an angle therewith and also at an angle with the face of the wheel, or "cut-under," the planes of said side cuts being at an acute angle to the plane of the central cut, substantially as set forth.

593,269. PIPE-THIMBLE. JOHN R. BOSTWICK, Clifton Springs, N. Y., assignor to Stowell & Bostwick, same place. Filed Feb. 10, 1896. Serial No. 578,738. (No model.)



Claim.—In a stovepipe-thimble, the combination, with annular heads, each of which is provided with an annular bead, a series of lips adjacent thereto, and ventilating-holes intermediate the bead and the inner edge of the head, and a body, the ends of which are each provided with a bead and a flange the bead of the body fitting within the bead of the head, and the flange being secured by the lips, substantially as set forth.

593,270. DRAG-SCRAPER. MORTON G. BUSHELL, Chicago, Ill., assignor to Frederick C. Austin, same place. Filed Mar. 11, 1897. Serial No. 626,958. (No model.)



Claim.—1. A drag-scraper comprising a scoop having a rocker-shaped wear-plate secured to its under side and provided with longi-

tudinally-arranged blades adapted to penetrate the soil and permit the wear and rocker plate to rest thereon, substantially as described.

2. A drag-scraper comprising a scoop having a rocker-shaped wear-plate secured to its under side and provided with longitudinally-arranged blades, which taper in width toward their forward ends, and which are adapted to penetrate the soil and permit the wear and rocker plate to rest thereon, substantially as described.

3. A drag-scraper comprising a scoop having a rocker-shaped wear-plate secured to its under side and provided with longitudinally-arranged blades integral with said plate and made to taper toward their forward ends, the blades being adapted to penetrate the soil and permit the wear and rocker plate to rest thereon, substantially as described.

4. A drag-scraper comprising a sheet-metal scoop, and a cast-metal wear and rocker plate secured to the under side of the scoop and cast with longitudinally-arranged blades adapted to penetrate the soil and permit the wear and rocker plate to rest thereon, substantially as described.

593,271. CLOTHES-DRAINER FOR WASHBOILERS. LOIS COOKE, Stoughton, Mass. Filed Mar. 19, 1897. Serial No. 628,267. (No model.)



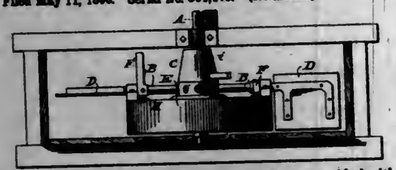
Claim.—A clothes-drainer basket having a perforated bottom, projections a^3 on one side thereof, spring B on the opposite side provided with a finger b passing through a perforation in the side of the basket so as to be operated from the outside thereof, and an interior rack C provided with a grooved metal piece c with which the spring engages to prevent displacement of the rack, substantially as shown and described.

593,272. FASTENING FOR BOOTS OR SHOES. JOHN W. DENNO, Boston, Mass., assignor to Frank P. Cox, Malden, Mass. Original application filed Jan. 18, 1896, Serial No. 576,005. Divided and this application filed Dec. 3, 1896. Serial No. 614,358. (No model.)



Claim.—An improvement in the fastenings for boots, shoes, gaiters, &c., the same consisting of the combination of an article having fillets, beads or piping-cord guides on opposite sides of the opening, a series of transverse clips each of which is composed of a simple bar having two perforations and provided with bifurcated ends said ends forming clasps for grasping the fillets and a strap or tongue to which each clip is sewed or riveted at two points near the edges of the tongue, the series being fastened at definite intervals along the tongue.

593,273. WATER-WHEEL. JOHN EBERSOLE, Chambersburg, Pa. Filed May 11, 1896. Serial No. 591,170. (No model.)

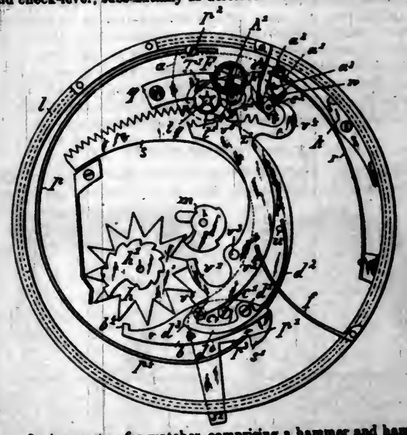


Claim.—1. In a water-wheel, a rotatable drum provided with an upwardly-extending hub, a plurality of bearings upon the upper side of said drum near the periphery thereof, a plurality of shafts mounted in said bearings and in said hub, blades or buckets upon said shafts outside of said drum, stops upon said shafts, cushions upon said drum situated in the path of said stops, and a spring situated in the path of said stops.

2. In a water-wheel, a rotatable drum having an upwardly-extending hub, bearings upon the upper face of said drum and near the periphery thereof, shafts mounted in said bearings and in bearings in said hub and provided with blades or buckets, adjustable stops mounted upon said shafts inwardly of said bearings, and a spring situated in the path of said stops.

593,274. REPEATING MECHANISM FOR WATCHES. CARL HAHLWEG, Stettin, Germany. Filed Aug. 4, 1896. Serial No. 601,581. (No model.)

Claim.—1. In a repeater for watches, the combination of the hammer mechanism, the hour rack and lever, a double-armed lever pivoted thereto to have a limited oscillating movement thereon, an hour-cam to engage said lever, a check-lever pivoted to said double-armed lever and a quarter-hour check-lever to be engaged by the said check-lever, substantially as described.

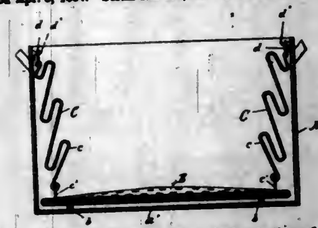


2. A repeater for watches comprising a hammer and hammer-actuating lever, a step-wheel h, an hour rack and lever, a step-wheel m, a quarter-hour rack and lever having a curved arm v^4, projecting from the heel end of the said rack, a nose v^5 and an arm v' branching from the short end of said lever, and a check-lever d, substantially as described.

3. In a repeating-watch regulator for the speed of the striking mechanism, comprising two oppositely-disposed plates, pivoted together and having cross-slots in the rims thereof, and a fly-brake provided with a pivot supported in said cross-slots, substantially as described.

4. In a repeating-watch, a regulator for the speed of the striking mechanism, comprising two oppositely-disposed plates, pivoted together and having cross-slots in the rims thereof, a fly-brake provided with a pivot supported in said cross-slots, and an adjusting-screw to hold the pivot-supporting plates in proper position to regulate the fly-brake, substantially as described.

593,275. WASHBOILER. DORILA MARCIL, Terrebonne, Mina. Filed Apr. 5, 1897. Serial No. 630,673. (No model.)

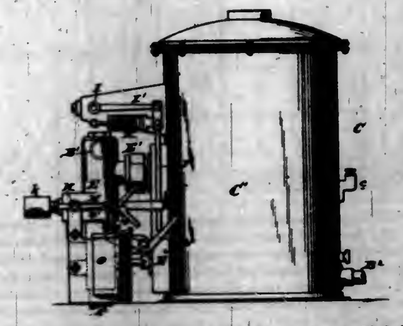


Claim.—The combination, with a clothes-boiler, of a perforated support provided with staples d' projecting from its upper surface, plates C hinged to the said staples and provided with series of loops c for engaging with the edge of the boiler and supporting the said support at various levels, projections d' secured to the boiler, and rings pivoted to the ends of the plates C and engaging with the projections d', substantially as set forth.

593,276. GAS AND AIR MIXER. EDWARD MEREDITH, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Company, of Pennsylvania. Filed Feb. 27, 1897. Serial No. 625,402. (No model.)

Claim.—1. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, and a reciprocating spring-actuated tripping-cam continuously in contact with the arm and operated by the movable holder to quickly and positively open or close the valves at the extreme movements of the holder.

2. In a vapor and air mixer the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, a dash-pot or cushioning device to prevent too sudden closing of the valves, directly operating upon the rock-shaft and a reciprocating spring-actuated tripping-cam continuously in contact with the arm and operated by the movable holder to quickly and positively open or close the valves at the extreme movements of the holder.



3. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, a counterbalanced arm secured to the rock-shaft, a stationary liquid-cylinder, a piston loosely fitting said cylinder and connected to said counterbalanced arm, and a reciprocating spring-actuated tripping-cam making a continuous movement in contact with the arm of the rock-shaft and actuated by the movable holder to quickly open or close the valves at the extreme movements of the holder.

4. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, an adjustable dash-pot or cushioning device acting upon the rock-shaft to prevent too sudden closing of the valves, and a reciprocating angular tripping-cam operated by the movable holder and a spring to force the cam toward the arm of the rock-shaft to quickly open or close the valves at the extreme movements of the holder.

5. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, and a reciprocating spring-actuated tripping-cam actuated by the movable holder to quickly open or close the valves at the extreme movements of the holder consisting of a V-shaped cam, an oscillating arm actuated by the holder, a hinged bar carried by the oscillating arm and to which the cam is secured, and a spring for pressing the cam toward the arm secured to the rock-shaft.

6. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, a reciprocating spring-actuated tripping-cam actuated by the movable holder to quickly open or close the valves at the extreme movements of the holder, and a weighted lever acting upon the tripping-cam to cause it to press toward the rock-shaft arm to open the valves.

7. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, a reciprocating spring-actuated tripping-cam operated by the movable holder to quickly open or close the valves at the extreme movements of the holder consisting of a V-shaped cam, an oscillating arm actuated by the holder, a spring device for pressing the cam toward the arm secured to the rock-shaft, and a weighted lever acting upon the tripping-cam to cause it to press toward the rock-shaft arm to open the valves.

8. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, a reciprocating angular-shaped tripping-cam actuated by the movable holder, and a weighted lever acting upon the tripping-cam to cause it to open the valves through the rock-shaft and arm at the extreme movement of the holder.

9. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft to move the valves, an arm secured to the rock-shaft, a reciprocating angular tripping-cam actuated by the movable holder, a weighted lever acting upon the tripping-cam to cause it to open the valves through the rock-shaft and arm at the extreme movement of the holder, and a dash-pot or cushioning device to prevent too sudden closing of the valves.

10. In a vapor and air mixer, the combination of a movable holder, air and vapor supply pipes, valves for controlling the supply of air and vapor, a trip device for actuating the valves operated by the holder, and a dash-pot or retarding device for retarding the closing of the valves consisting of a stationary cylinder containing a fluid, and a loose piston moving in the cylinder and having downwardly-extending flanges, several passages in the piston at a distance from its center to permit the flow of liquid from below upward, a cup-shaped disk moving with the piston to simultaneously inclose all of the passages to a greater or less extent, and means extending above the liquid to adjust said cup-shaped disk.

11. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft actuated by the holder, an arm secured to the rock-shaft, a bar hinged to the arm and carrying the V-shaped cam, a spring device K to move the bar in one direction, a rock-shaft to move the valves, and an arm M secured to the rock-shaft having roller m acted upon by the cam.

12. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft actuated by the holder, an arm secured to the rock-shaft, a bar hinged to the arm and carrying the V-shaped cam, a spring device K to move the bar in one direction, a rock-shaft to move the valves, an arm M secured to the rock-shaft having roller m acted upon by the cam, and a dash-pot or retarding device to prevent too sudden closing of the valves acting upon the rock-shaft.

13. In a vapor and air mixer, the combination of a movable holder for receiving and discharging the mixed air and vapor, a passage-way leading to the holder, a pipe leading from the holder to the burners or place of consumption, vapor and air pipes opening into the passage-way, valves to control the flow of vapor and air from the said pipes, a rock-shaft actuated by the holder, an arm secured to the rock-shaft, a bar hinged to the arm and carrying the V-shaped cam, a spring device K to move the bar in one direction, a rock-shaft to move the valves, an arm M secured to the rock-shaft having roller m acted upon by the cam, and a pivoted counterweighted lever N adapted to force the cam toward the roller m at its lowest position.

593,277. COFFEE-POT. HERBERT L. MITCHELL, Pittsburg, Pa., assignor of three-fourths to Howard L. Myers and Geo. W. Schilling, same place. Filed Sept. 4, 1896. Serial No. 604,912. (No model.)

Claim.—An apparatus for brewing coffee, consisting of the water-chamber A, coffee-chamber B, provided with a perforated bottom E, perforated lid H, tube D, provided with holes F, and post G, the said apparatus to be used in an ordinary coffee-pot with top and bottom of equal size constructed, arranged, and operating substantially as herein described and for the purpose set forth.

598,277.



598,278. SKATE. EDWARD C. MOULTON, San José, Cal. Filed June 20, 1896. Serial No. 596,322. (No model.)



Claim.—1. In a skate, the combination with a foot-plate having means for securing the same to the foot, of depending supports for the wheels adjacent to the toe and heel supports of the plate, each support consisting of a U-shaped fork secured to the under side of the foot-plate, the prongs of which are provided at their lower ends with suitable bearings for the axle of the wheel, and a brace of substantially U shape secured at its looped end to the loop of the said U-shaped fork and the arms of said brace diverging downwardly on opposite sides of the wheel and secured to the forked prongs, substantially as described.

2. In a skate, the combination with the foot-plate having means for securing the same to the foot, of depending supports for the wheels adjacent to the toe and heel portions of the plate, each support consisting of a U-shaped fork secured to the under side of the foot-plate, side pieces removably connected to the prongs of the fork and extended below them, the lower ends of said side pieces being perforated to receive the ends of the axle, and a brace of substantially U shape secured at its loop end to the loop of the said U-shaped fork and the arms of said brace diverging downwardly on opposite sides of the wheel and secured to the fork-prongs, substantially as described.

3. In a skate, the combination with the foot-plate and depending fork secured thereto, of an axle mounted in said fork and a wheel journaled thereon, the hub of said wheel being formed separately from the wheel and made in two sections having a threaded engagement with each other and provided with circumferential flanges between which the wheel is clamped, ball-cups at the ends of the hub-sections, and the ball-cones and balls all arranged for joint operation substantially as described.

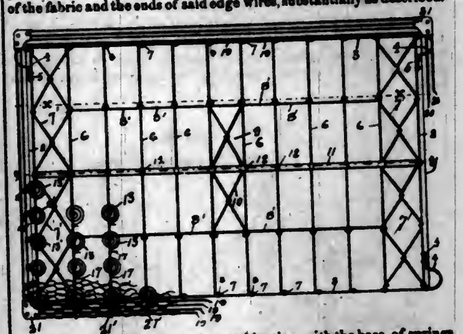
4. The combination with the foot-plate of a skate, of ankle-braces pivotally connected at their lower ends to the foot-plate, each brace consisting of two sections hinged together at a point to bring the joint in the brace opposite the ankle-joint, whereby the braces may move in either direction to correspond to the natural movements between the leg, ankle and foot, and a strap to securely hold said braces to the leg above the ankle, substantially as described.

5. The combination with the foot-plate of a skate, of ankle-braces pivotally connected at their lower ends to the foot-plate, each brace consisting of two sections hinged at a point opposite the ankle-joint, whereby the braces may move in either direction to correspond to the natural movements between the leg, ankle and foot, ankle-pads secured upon the inner faces of the braces above said joint, curved plates or stays at the upper ends of the brace for partially embracing the leg above the ankle, and one or more securing-straps secured to one of the braces, substantially as and for the purpose described.

598,279. SPRING-MATTRESS. GEORGE W. MURRAY, Minneapolis, Minn. Filed Nov. 11, 1895. Serial No. 568,545. (No model.)

Claim.—1. In a spring-mattress, the combination, of the base, comprising a series of thin metal bars arranged on edge, as described, with springs arranged upon said base, said springs having their lower ends fastened upon the sides of said bars and having their lower turns or coils resting upon the upper edges of said bars, the upper ends of said springs terminating in loops having vertical crimps, a top of wire fabric into the meshes of which said loops are pressed, and the wires passing transversely through and beneath the crimped portions of said loops, whereby the fabric and loops or tops of the springs are secured, substantially as described.

2. In a spring-mattress, the combination, with a suitable base, of springs arranged thereon, a mattress-top composing a wire fabric, several wires arranged longitudinally in the edge coils of said fabric, a suitable finish for the raw edges of said fabric, and finishing-plates provided upon the corners of the fabric covering the ends of the wires of the fabric and the ends of said edge wires, substantially as described.



3. In a spring-mattress, the combination, with the base, of springs arranged thereon, the top of flexible wire fabric arranged upon the tops of said springs, means for finishing the corners of said fabric, transverse wires arranged in the ends of the fabric, said fabric flattened at the ends and the outer wires thereof being carried about the ends concealed between said transverse wires, as and for the purpose specified.

4. In a spring-mattress, the combination, with the base, of springs arranged thereon, the top of flexible wire fabric arranged upon the tops of said springs, transverse wires arranged in the ends of the fabric, said fabric flattened at the ends and the outer wires thereof being carried about the ends concealed between said transverse wires, and upper and lower plates provided at each corner of the fabric, and means securing the same, whereby the ends of said transverse wires and the corners of the fabric are finished and concealed, substantially as described.

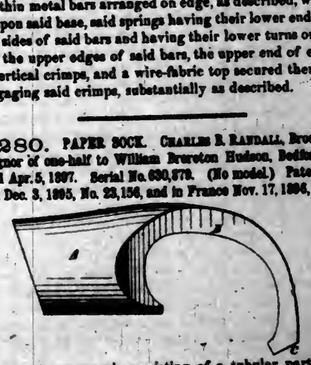
5. A finish for the raw edge of a woven-wire fabric, comprising wires or rods arranged transversely in the edge of the fabric, the edge of the fabric being flattened and the ends of the wires being carried around said transverse wires or rods, the ends of the fabric wires being protected between said transverse wires or rods, substantially as described.

6. A base for a spring-mattress, comprising a frame of longitudinal and transverse flat iron bars arranged on edge, in combination, with braces arranged between the transverse bars, and a horizontally-arranged flat metal bar 11 having vertical crimps 12 embracing the several transverse bars, and whereby wrecking of the frame is prevented, substantially as described.

7. A base for spring-mattresses, comprising longitudinal side bars and transverse bars, said side bars being continued beyond the ends of the frame to form the buffers described, and all of said bars being of flat iron arranged upon edge, substantially as described.

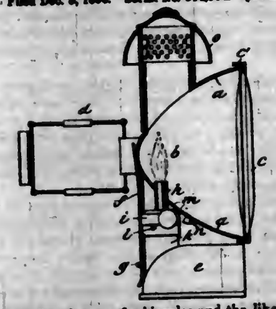
8. The combination, in a spring-mattress, of a base comprising a series of thin metal bars arranged on edge, as described, with springs erected upon said base, said springs having their lower ends anchored upon the sides of said bars and having their lower turns or coils resting upon the upper edges of said bars, the upper end of each spring having vertical crimps, and a wire-fabric top secured thereto by tie-wires engaging said crimps, substantially as described.

598,280. PAPER SOCK. CHARLES B. RANDALL, Brooklyn, N. Y., assignor of one-half to William Brereton Hudson, Bedford, England. Filed Apr. 5, 1897. Serial No. 630,879. (No model.) Patented in England Dec. 3, 1895, No. 23,156, and in France Nov. 17, 1896, No. 261,256.



Claim.—A paper sock consisting of a tubular part A open at both ends and adapted to envelop the fore part of the foot leaving the toes free and a strap B extending from one side of the rear end of the tube and means for the attachment of the end C of the strap to the part A.

598,281. BICYCLE-LANTERN. OSCAR SCHWARZ, Munich, Germany. Filed Dec. 5, 1896. Serial No. 614,564. (No model.)



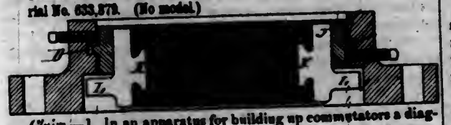
Claim.—1. In a lantern for bicycles and the like, the combination, with a reflector provided with a sleeve, of a lamp provided with a wick-tube arranged to engage the sleeve, and means for detachably locking the lamp to the reflector.

2. In lanterns for bicycles and other purposes, a concave reflector provided with a sleeve at its bottom and a spring-tongue in combination with a lamp provided with a stud for engaging the spring-tongue, the wick-tube of said lamp engaging the sleeve in the reflector.

3. In a lantern for bicycles and the like, the combination, with a reflector provided with a sleeve, of a lamp-burner having a wick-tube arranged to enter said sleeve, an oil-receptacle detachably connected to the burner, and means for detachably holding the oil-receptacle to the reflector, substantially as set forth.

4. In a lantern for bicycles and the like, the combination with a free and uncovered reflector provided with a chimney at its upper portion, and a sleeve at its lower portion, of means for supporting said reflector, a removable hood arranged to slide onto the chimney, a lamp provided with a wick-tube arranged to enter said sleeve, and means for detachably locking the lamp to the reflector, substantially as set forth.

598,282. APPARATUS FOR ASSEMBLING COMMUTATOR-BARS. SIDNEY H. SHORT, Cleveland, Ohio. Filed Apr. 26, 1897. Serial No. 633,579. (No model.)



Claim.—1. In an apparatus for building up commutators a diagonally-split and compressible spring strap or hoop in which the commutator-bars are assembled radially, a casting arranged to receive said split ring, and means for contracting said strap or hoop within said casting, as and for the purpose set forth.

2. In an apparatus for building up commutators, a diagonally-split ring in which the commutator-bars are assembled to form the commutators, a circular casting adapted to receive said split ring, and a plurality of suitably-spaced set-screws tapped through said casting and arranged to impinge upon said split ring whereby the ends formed by diagonally splitting said ring may be gradually brought together thereby gradually contracting the diameter of said ring within said casting, as and for the purpose set forth.

3. In an apparatus of the class described a split ring having a peripheral flange, and in which the commutator-bars are adapted to be assembled, and a casting adapted to receive said ring and having a groove adapted to receive said flange, and set-screws tapped through said casting and adapted when turned up to contract the diameter of said split ring, as and for the purpose set forth.

4. In an apparatus of the class described a split ring in which the commutator-bars are adapted to be assembled, in combination with a sectional casting adapted to receive said split ring, means for securing the sections of said casting together and means for gradually contracting the diameter of said split ring, as and for the purpose set forth.

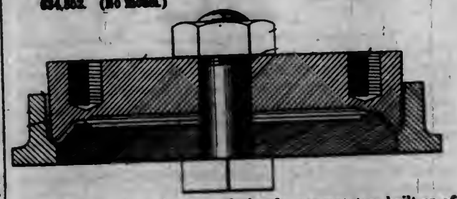
5. In an apparatus of the class described, a split ring in which the commutator bars are adapted to be assembled, in combination with a circular casting having a rabbet, said casting adapted to receive said split ring, the heads of the commutator-bars arranged to project into said rabbet, and means for contracting the diameter of said split ring, as and for the purpose set forth.

6. In an apparatus of the class described a split ring having a peripheral flange and in which the commutator-bars are adapted to be assembled, in combination with a circular casting in which said ring is adapted to be received, said casting provided with a groove to receive the flange on said split ring, and means for compressing said split ring, as and for the purpose set forth.

7. In an apparatus of the class described, a split ring in which the commutator-bars are adapted to be received and assembled, in combination with a circular casting made in half-sections adapted to be bolted together, said casting adapted to receive said ring, and set-screws tapped through said casting and adapted to impinge on said ring, as and for the purpose set forth.

8. In an apparatus of the class described, a split ring in which the commutator-bars are adapted to be assembled, in combination with a casting or encircling ring adapted to receive said split ring, and set-screws tapped through said encircling ring, and impinged against the exterior surface of said split ring, the whole adapted to be subjected to heat whereby during the heating thereof the set-screws may be turned up successively, thereby gradually contracting the diameter of said split ring, and compressing or squeezing the commutator-bars and the interposed insulation into a solid cylindrical ring, as and for the purpose set forth.

598,283. CONSTRUCTION OF END RINGS FOR COMMUTATORS. SIDNEY H. SHORT, Cleveland, Ohio. Filed May 3, 1897. Serial No. 634,862. (No model.)



Claim.—1. A continuous end ring for commutators built up of strips of insulation, each strip successively shaped to conform to the commutator-bars, and the whole set to proper shape, as and for the purpose set forth.

2. An end ring for commutators built up of layers of strips of suitable insulation, each strip of each layer separately shaped to conform to the groove or channel of the commutator-bars, the whole compressed to retain the desired shape, as and for the purpose set forth.

3. An end ring for commutators built up of overlapping thin strips or laminations of insulating material, each strip being separately bent to the required shape and the whole compressed to retain the shape to which the strips are bent, as and for the purpose set forth.

4. An end ring for commutators built up of thin sheets or strips of insulating material, said sheets or strips being lap-jointed, and individually and separately bent to the required shape, as and for the purpose set forth.

5. An end ring for commutators built up of successive layers of overlapping thin strips of insulating material, the individual strips being separately shaped to conform to the outline of the commutator-bars, and means whereby said strips are set to the required shape, as and for the purpose set forth.

6. The combination of a commutator having a channel or groove, of a continuous integral ring of insulating material shaped to conform to the outline of said groove, but not bottoming therewith, and heads for clamping said rings in place, as and for the purpose set forth.

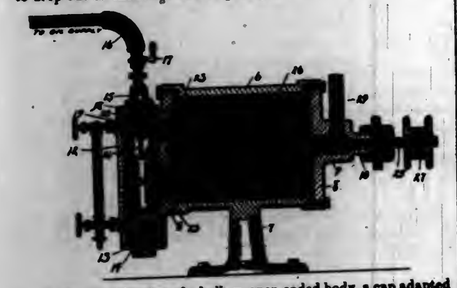
7. The combination of a commutator having a channel or groove, of an end ring having a bend adapted to be received in but not bottoming with said groove or channel, and means for clamping said end ring in place, as and for the purpose set forth.

598,284. CARBURETER. FRED W. SPACKE, Indianapolis, Ind. Filed Apr. 7, 1896. Serial No. 586,571. (No model.)

Claim.—1. In a carbureter, having means for agitating the carbureting fluid, the combination with the hollow chamber having an oil-supply pipe leading thereto, a float mounted in said chamber, a valve-seat formed in the upper end of said chamber at the mouth of the oil-pipe and provided with a downwardly-extending guide, a valve-pin mounted so as to move in said guide, the upper end of said pin formed to fit into the valve-seat and the lower end of said pin resting loosely upon the upper end of the float, and means for preventing said pin from dropping out of the guide, substantially as described.

2. In a carbureter, having means for agitating the carbureting fluid, the combination with the hollow chamber 12, a cap 11 for the upper end thereof, said cap being connected with an oil-supply pipe which leads into the chamber, a plug 18 carried by said cap at the

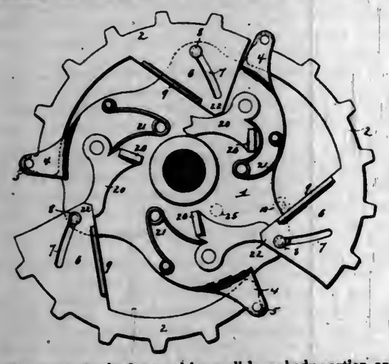
mouth of the supply-pipe, a passage 19 formed through said plug and provided with a valve-seat 20, a float mounted in the chamber below the plug, a valve-pin mounted so as to move in the lower end of passage 19, the upper end of said pin formed so as to fit into seat 20 and the lower end of said pin adapted to rest loosely upon the float, and means mounted below the float for engaging said float, whereby the said float cannot drop low enough to allow the valve-pin to drop out of the lower end of passage 19.



3. The combination of a hollow, open-ended body, a cap adapted to close one end thereof and provided with a bearing for a shaft, a shaft mounted therein, a brush mounted on said shaft and adapted to be rotated in said hollow body, a cap for the opposite end of said body, a chamber carried by said cap, a passage forming a communication between said chamber and the interior of said hollow body, an oil-supply pipe leading into said chamber, means mounted in said chamber for controlling the supply of oil, an air-inlet leading into the interior of the hollow body, and an air-outlet leading therefrom, substantially as described.

4. In a carbureter, the combination of the hollow body, a cap 8 for one end thereof, a cap 11 for the other end thereof, a hollow boss carried by cap 8, a bearing carried by the outer end of said boss, a bearing formed in cap 11, a shaft mounted in said bearings and extending through the first-mentioned bearing, a brush mounted on said shaft inside the hollow body, a chamber carried by cap 11, a series of passages forming a communication between said chamber and the interior of the hollow body, an oil-supply pipe leading into the upper end of said chamber, a plug secured at the mouth of said pipe and having a passage formed therethrough, a valve-seat formed near the upper end of said passage, a float mounted in said chamber, a valve-pin mounted in the lower end of the passage in the plug, the upper end of said pin formed so as to fit into the valve-seat and the lower end of said pin resting upon the upper end of the float, all combined and arranged to cooperate substantially as and for the purpose specified.

598,285. SPEED-CHANGING APPLIANCE. HENRY R. VAN ETEN, Zealand, Mich. Filed Apr. 8, 1896. Serial No. 586,753. (No model.)



Claim.—1. A wheel comprising a disk or body portion and a series of sections composing the periphery of the wheel, each section having several teeth and being pivoted at one end to said disk or body portion, substantially as set forth.

2. A wheel comprising a disk or body portion, a series of sections composing the periphery of the wheel, each section having several teeth and being pivoted at one end to the disk or body portion, and means for locking said sections in their distended positions, substantially as set forth.

3. The combination with a disk or body portion and a series of sections composing the periphery of a wheel, each section having several teeth and being pivoted at one end to said disk or body portion, means for moving the free ends of said sections outwardly and means for locking the sections when thus moved, substantially as set forth.

4. The combination with a disk or body portion, of a series of sections constituting the periphery of a wheel, each section having several teeth and being pivotally connected at one end to said disk or body portion, a plate or flange projecting from the free end of each section and having an elongated slot and pins or screws secured to the disk or body portion and projecting through the slots in said plates or flanges, substantially as set forth.

5. The combination with a disk or body portion, of a series of sections constituting the periphery of a wheel, each section having several teeth and being pivotally connected at one end to the disk or body portion, a lateral flange on each section and normally disposed in an inclined position, and a device adapted to be moved into the path of said lateral flanges whereby to cause the free ends of the sections to be moved outwardly, substantially as set forth.

6. The combination with a wheel comprising a body portion and a sectional periphery, each section having several teeth and being pivoted at one end to the disk or body portion, of a plate projecting from the free end of each section, a lateral inclined flange projecting from each plate and a bar adapted to be moved into the path of said lateral inclined flanges whereby to cause the free ends of the sections to be moved outwardly, substantially as set forth.

7. The combination with a wheel comprising a disk or body portion and a sectional periphery, each section having several teeth and being pivoted at one end to the disk or body portion, of inclined lateral flanges on said sections, an operating-shaft, an arm or cross-head on said operating-shaft, and a movable bar connected with said arm or cross-head, whereby when the operating-shaft is turned said bar will be projected into the path of said lateral flanges on the sections, substantially as and for the purpose set forth.

8. The combination with a frame and a driving-wheel mounted thereon, said driving-wheel comprising a disk or body portion and a series of peripheral sections pivoted at one end to said disk or body portion, of a lateral inclined flange on each section, an operating-shaft, a handle attached to said shaft, a spring for maintaining the shaft in a normal position, a cross-head or arm at the end of said operating-shaft and a bar connected with said cross-head or arm, whereby when the operating-shaft is turned the bar will be projected into the path of the lateral inclined flanges, substantially as and for the purpose set forth.

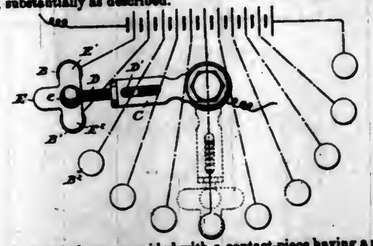
9. The combination with a frame and a driving-wheel mounted thereon, said wheel comprising a disk or body portion and a series of peripheral sections pivoted at one end to said disk or body portion, of a plate or projection at the free end of each section, means for moving the free ends of the sections outwardly, spring-actuated catches for locking the sections in their outward positions, a lateral lug on each catch, a shaft mounted in bearings on the frame, a handle attached to said shaft, an arm at the other end of said shaft and a bar attached to said arm, whereby when the shaft is turned the bar will be projected into the path of the lugs on the catches whereby to move said catches to release the pivoted peripheral sections, substantially as set forth.

10. The combination with a frame and a driving-wheel mounted thereon, said wheel comprising a disk or body portion and a series of peripheral sections pivoted at one end to said disk or body portion, of a projection at the free end of each section, a flange on each projection, pivoted, spring-actuated catches to engage said projections when the free ends of the sections shall have been moved outwardly, a lug on each catch, an operating-shaft, a handle attached to one end of said shaft, a cross-head at the other end of said shaft, two bars connected respectively with the ends of said cross-head and a spring for maintaining said bars laterally removed from the face of the driving-wheel, one of said bars being adapted, when the shaft is moved in one direction to be disposed in the path of the flanges on the sections of the wheel and the other bar being, when the shaft is turned in the other direction, disposed in the path of the lugs on the catches, substantially as set forth.

11. In a bicycle, the combination with a frame, the rear sprocket-wheel, an expansible driving sprocket-wheel and a drive-chain passing over said sprocket-wheels, of a bracket secured to the rear portion of the frame, a vertically-sliding bar in said bracket, a wheel of soft material mounted at the lower end of said sliding bar and adapted to bear against the drive-chain, teeth in said sliding bar and a pivoted dog to engage said teeth whereby to retain said wheel against the drive-chain, substantially as and for the purpose set forth.

598,286. ELECTRIC SWITCH. HENRY R. WAITE, New York, N. Y. Filed May 28, 1897. Serial No. 638,644. (No model.)

Claim.—1. A switch-arm provided with a contact-piece having one contact of a width less than the distance between two adjacent coöperating contacts, and having another contact-piece of a width sufficient to bridge the two adjacent coöperating contacts, and means whereby either of the contacts may be brought into operative position, substantially as described.



2. A switch-arm provided with a contact-piece having a narrow and a broad contact, means connecting said contact-piece with the switch-arm, and a spring controlling the normal position of said contact-piece with relation to the switch-arm, substantially as described.

3. A switch-arm provided with a movable contact-piece having narrow and wide contacts, a handle for moving the same, and a spring for holding the contact-piece in normal position, substantially as described.

598,287. HOLLOW GRATE-BAR. WILLIAM W. WILE and GOMER L. CALKIN, Auburn, Ind. Filed Feb. 20, 1897. Serial No. 624,377. (No model.)



Claim.—1. A grate-body 1 provided with opposite pendent draft-inducing sides 2, and having in its top or fuel-surface a series of natural-draft and blast openings; in combination with a hollow blast-bar 4 elliptical in cross-section and rigidly fixed in said body 1, adapted to brace the said grate-bar against warping as described, the said bar having upon its upper surface a series of blast-openings coincident with and in close proximity to a corresponding number of blast-openings in said body 1, the said bar 4 having its upper and lateral faces separated from the adjacent faces of the body 1 by an intervening air-space, for the purpose specified; and means for rigidly but detachably mounting said blast-bar 4 in said body 1, all substantially as described.

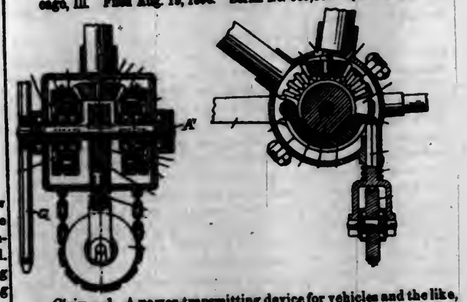
2. The combination of a grate-bar body 1 having the pendent draft-inducing sides 2, the cross-webs 3 and 5, and having its top provided with a series of draft-openings 6; and the hollow blast-bar 4 elliptical in cross-section, and rigidly fixed in said body 1 by holding-bolts as shown, and adapted to brace the said body against warping, as described, the said bar having its upper surface provided with blast-openings coincident with and in close proximity to corresponding blast-openings 6 in said body 1, the said bar 4 having its upper and lateral faces separated from the adjacent faces of the body 1 by an intervening air-space, whereby said openings 6 are adapted for both the natural draft and the solid blast, all substantially as described.

598,288. DRAW-BAR ATTACHMENT FOR CAR-COUPLINGS. HENRY C. WILLIAMSON and HERMAN PEISE, Michigan City, Ind. Filed June 26, 1897. Serial No. 642,748. (No model.)



Claim.—In a device of the kind specified, the combination with guide-castings secured to the inner faces of the draft-beams and provided at their outer ends with recessed portions or pockets projecting outwardly and fitting within gains in the draft-beams, and at their inner ends with inwardly-projecting shoulders, and having flanges on their upper and lower edges, of a draw-bar attachment comprising a loop secured to the end of the draw-bar, followers mounted within said loop, and a cushion between said followers, said follower nearest the end of the car being the wider and adapted to move in said pockets in said guide-castings and be limited in its movements thereby, and the innermost of said followers moving between said shoulders and being limited in its inward movement thereby, whereby the compression of said cushion is limited in shunting and unlimited in drawing, substantially as described.

598,289. BICYCLE GEARING AND BRAKE. CARL YOUNG, Chicago, Ill. Filed Aug. 19, 1896. Serial No. 603,187. (No model.)



Claim.—1. A power-transmitting device for vehicles and the like, comprising a driven shaft, two bevel-gears rotatably mounted upon said shaft, each bevel-gear provided with a clutching mechanism adapted to connect it with the shaft when moved in one direction, but allowing it to move in an opposite direction free from said shaft, a pinion connecting said bevel-gears so that a movement of one causes an opposite movement of the other and a lever adapted to be operated by the foot, directly connected with each of said bevel-gears whereby the shaft is driven when the levers are alternately operated.

2. A power-transmitting device for vehicles and the like, comprising a driven shaft, two hollow bevel-gears rotatably mounted upon said shaft, a clutch mechanism located within the hollow of said gears and adapted to connect said gears with the shaft when moved in one direction but allowing them to move free from the shaft in an opposite direction, a pinion connecting the bevel-gears together, so that a movement of one causes an opposite movement of the other, and a foot-operated lever directly connected to each of said bevel-gears.

3. A power transmitting device for vehicles and the like, comprising a driven shaft, two bevel gears rotatably mounted upon said shaft, each bevel-gear provided with a clutching mechanism adapted to connect it with the shaft when moved in one direction, but allowing it to move in an opposite direction free from said shaft, a movable pinion connecting said bevel-gears so that a movement of one causes an opposite movement of the other and a lever adapted to be rotated by the foot, directly connected with each of said bevel-gears, a braking-surface connected with said shaft, a brake-shoe opposed to said braking-surface, a longitudinally-movable rod in proximity to said brake-shoe, a spring associated with said rod and normally holding it away from said brake-shoe and a connection between said rod and said levers whereby the rod is moved so as to apply the brake-shoes when the levers are simultaneously pressed.

4. A power-transmitting mechanism comprising a driven shaft, mounted in suitable bearings, two hollow bevel-gears rotatably mounted upon said shaft intermediate between said bearing, a pinion connecting said bevel-gears so that a movement of one causes an opposite movement of the other, a clutch mechanism contained within the hollow of said gears and adapted to connect them with the shaft when the gears are moved in one direction, said gears being free from the shaft when moved in an opposite direction, a cap or cover adapted to be connected with said gears, so as to completely inclose said clutch mechanism, a lever associated with each of said gears and adapted to be operated by the foot, said levers being integral with said gears.

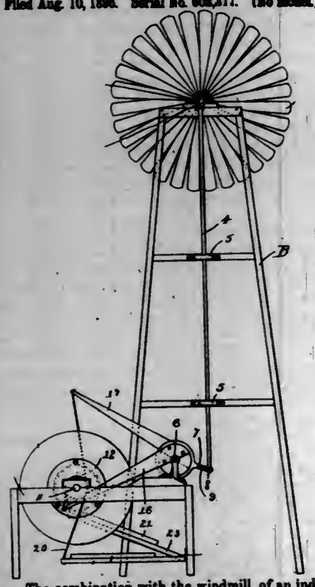
5. A power-transmitting mechanism comprising a driven shaft mounted in suitable bearings, two hollow bevel-gears rotatably mounted upon said shaft intermediate between said bearings, a disk within the hollow of each of said gears and keyed to said shaft, each disk provided with recesses of varying depth, spring-pressed rollers contained within said recesses and adapted to lock the disks and gears together when in the shallow part of the recesses, the said gears and disks being free to move relatively when the said rollers are in the deep parts of said recesses, a pinion connecting said bevel-gears so that a movement of one causes an opposite movement of the other, a lever integral with each of said bevel-gears and said levers provided at their ends with pedals substantially as described.

6. The combination in a bicycle of a driven shaft, two pedal-levers associated with said shaft and provided with clutches, said clutches so constructed that the pedal-levers are connected with the

shaft when moved in one direction, but are free from said shaft when moved in an opposite direction, a braking-surface connected with said shaft, a brake-shoe pivotally connected to some stationary part of the bicycle and opposed to said braking-surface, a longitudinally-movable rod mounted in a part of the frame of the bicycle and in proximity to one end of said brake-shoe, a spring associated with said rod and normally holding it away from said brake-shoe, a pulley connected with said rod and a chain or the like passing over said pulley, the ends being respectively connected to said pedal-levers substantially as described.

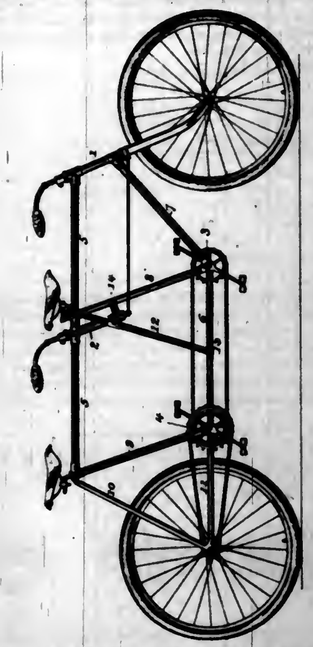
7. The combination in a bicycle of a driven shaft, two bevel-gears rotatably mounted upon said driven shaft, a clutch associated with each of said bevel-gears and adapted to connect them with the shaft when the gears are moved in one direction, said gears being free from said shaft when moved in an opposite direction, a pinion connecting said gears together so that a movement of one causes an opposite movement of the other, said pinion connected with the shaft engaging a slot in a stationary part of the bicycle-frame, the part so constructed that the pinion is free to move with relation to said frame, a pedal-lever connected with each of said gears, a brake-wheel on said shaft, a brake shoe associated with said brake-wheel, a longitudinally-movable rod adapted to engage said brake-shoe and force it into contact with said brake-wheel, a spring normally holding said rod away from said brake-shoe and a connection between said rod and each of said pedals whereby when the pedals are simultaneously pressed, the brake is applied substantially as described.

598,290. MOTION-CONVERTER FOR WINDMILLS. JOSEPH S. BENNETT, St. Paul, Minn., assignor of one-half to Andrew Rankin, same place. Filed Aug. 10, 1896. Serial No. 602,317. (No model.)



Claim.—The combination with the windmill, of an independent, portable frame adapted to be positioned adjacent thereto, a driving rock-shaft journaled in said frame, and having means for detachably, operatively connecting it to the crank-shaft, or pump-rod of the windmill, the power-transmitting, parallel driven shaft journaled in said frame, the internal ratchets upon the ends of said driven shaft, the driven rock-shaft arranged axially with the driven shaft at each end thereof, and journaled in said frame and projecting within the adjacent ratchet, the plurality of gravity-pawls carried by each of said rock-shafts and adapted to drop into engagement with said ratchet with the rocking of their shaft, the pair of radial arms carried by said main rock-shaft, and projecting one above one of said driven rock-shafts, and the other below the other rock-shaft, the cables oppositely wound upon each of said driven rock-shafts, one being connected to the adjacent radial arm, and the other carrying a counter-weight, whereby with the rocking of the main rock-shaft power is transmitted through said radial arms, and connected cables to said driven rock-shafts, so as to alternately and oppositely rock the same, and by means of the pawl-and-ratchet connection continuously operate said driven shaft.

598,291. TANDEM. WILLIAM H. REMS, Chicago, Ill. Filed Aug. 10, 1896. Serial No. 602,349. (No model.)



Claim.—1. In a tandem-bicycle frame, the combination with the front seat-post standard 8, and the horizontal members 6, 6, that connect the front and rear hangers of the frame together, of a pair of diagonal brace members 12, 12, secured at their upper ends to the upper end of the seat-post standard, and at their lower ends to the horizontal frame-connecting members 6, 6, intermediate of their length, substantially as set forth.

2. In a tandem-bicycle frame, the combination with the front seat-post standard 8, and the horizontal members 6, 6, that connect the front and rear hangers of the frame together, of a pair of diagonal brace members 12, 12, secured at their upper ends to the upper end of the seat-post standard, and at their lower ends to the horizontal frame-connecting members 6, 6, intermediate of their length, by means of cross-stay 13, attached to the members 6, 6, with the ends of such stay projecting outside the members 6, 6, to receive the lower ends of said diagonal members, substantially as set forth.

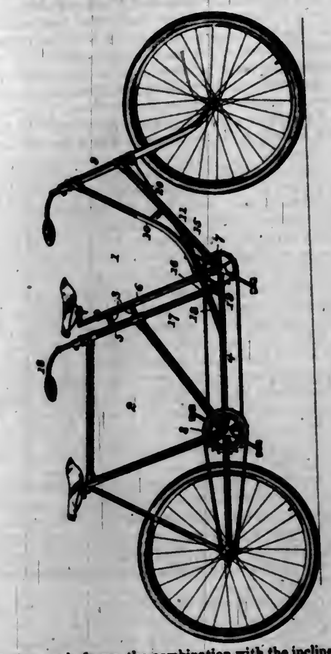
3. In a tandem-bicycle frame, the combination with the front seat-post standard 8, rear steering-head 2, and the horizontal members 6, 6, that connect the front and rear hangers of the frame together, of a pair of diagonal brace members 12, 12, secured at their upper ends to the upper end of the seat-post standard, intermediate of their length to the rear steering-head, and at their lower ends to the horizontal frame-connecting members 6, 6, intermediate of their length, substantially as set forth.

4. In a tandem-bicycle frame, the combination with the front seat-post standard 8, rear steering-head 2, and the horizontal members 6, 6, that connect the front and rear hangers of the frame together, of a pair of diagonal brace members 12, 12, secured at their upper ends to the upper ends of the seat-post standard, intermediate of their length to the rear steering-head, and at their lower ends to the horizontal frame-connecting members 6, 6, intermediate of their length, by means of cross-stay 13, attached to the members 6, 6, with the ends of such stay projecting outside the members 6, 6, to receive the lower ends of said diagonal members, substantially as set forth.

598,292. TANDEM. WILLIAM H. REMS, Chicago, Ill. Filed Aug. 10, 1896. Serial No. 602,350. (No model.)

Claim.—1. In a tandem-bicycle frame, the combination of the front and rear portions 1 and 2, and a pair of horizontal members 4, that connect the pedal-shaft barrels of the tandem frame together, such members 4, being bowed outwardly in a horizontal plane, with the greatest distance between such members near the mid-length of the same, substantially as set forth.

2. In a tandem-bicycle frame, the combination of the front and rear frame portions 1 and 2, a pair of horizontal members 4, that connect the pedal-shaft barrels of the tandem frame together, such members 4, being bowed outwardly in a horizontal plane, with the greatest distance between such members near the mid-length of the same, and a transverse stay member 12, arranged between the members 4, near the mid-length of the same, substantially as set forth.



3. In a cycle-frame, the combination with the inclined front connecting members 10 and 11, horizontal rear members 4, bowed outwardly in a horizontal plane, with the greatest distance between such members near the mid-length of the same, and hanger-shell 7, connecting said front and rear members together, of a pair of brace or tie members 13, that are secured at their front ends to the members 10 and 11, intermediate the length of the same, and at their rear ends to the outwardly-bowed portion of the same, said tie members extending across the hanger-shell 7, some distance above the same, substantially as set forth.

4. In a cycle-frame, the combination with the inclined front connecting members 10 and 11, horizontal rear members 4, bowed outwardly in a horizontal plane with the greatest distance between such members near the mid-length of the same, the standard or seat-post 6, and hanger-shell 7, connecting the said frame members together, of a pair of brace or tie members 13, attached midway their length to the seat-post 6, a distance above the hanger-shell 7, at their front ends to the members 10 and 11, intermediate the length of the same, and at their rear ends to the outwardly-bowed portions 4 of the frame, substantially as set forth.

5. In a tandem-bicycle frame, the combination with the inclined front connecting members 10 and 11, horizontal rear members 4, hanger-shell 7, and pair of brace or tie members 13, secured to said frame members intermediate the length of the same, and extending across the hanger-shell 7, some distance above the same, of the bearing-head 16, attached to said brace member 13, and the stem of the rear steering-handles journaled in said bearing-head, substantially as set forth.

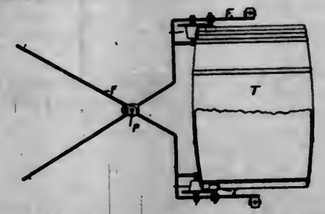
598,293. TIRE-TIGHTENER. CHAUNCEY H. BROCKHART, Crossville, Tenn. Filed Apr. 1, 1897. Serial No. 630,316. (No model.)

Claim.—1. In a combined device of the character set forth, the combination with felly ends beveled to form opposite conical openings, of a pair of wedges mounted in said openings, and a bolt having right and left screw-threads thereon and adapted to be operated to draw the wedges toward each other and spread the said felly, substantially as and for the purposes specified.

2. In a combined device of the character set forth, the combination with beveled felly ends forming oppositely-disposed conical recesses or openings, a bolt having an enlarged and reduced portion with opposite screw-threads thereon, and wedges engaging the different screw-threaded parts of said bolt and adapted to be drawn simultaneously inward, or moved outward, and a clip for covering the said devices, substantially as and for the purposes specified.



598,294. DEVICE FOR ROLLING BARRELS, &c. WILLIAM P. CHERRINGTON, Boston, Mass. Filed Aug. 31, 1896. Serial No. 604,477. (No model.)



Claim.—1. In a device for rolling barrels, the combination of a pair of levers hinged together to form tongs, rolls to engage both inside and outside of chimes on opposite ends of the barrel; said rolls journaled on bearings fastened respectively to each lever, to move the barrel in any direction, substantially as described.

2. In a device for rolling barrels, the combination of a pair of levers hinged together to form tongs, and a pair of rolls journaled on studs fastened to each lever, respectively opposite each other, one roll on each lever engaging with the outside of the chime, and the other on each lever engaging with the inside of the chime on opposite ends of the barrel, to move the barrel in any direction, substantially as described.

3. In a device for rolling barrels, the combination of a pair of levers hinged together to form tongs, rolls to engage both inside and outside of chimes on opposite ends of the barrel, said rolls journaled on bearings fastened respectively to each lever, to move the barrel in any direction, and means for adjusting the rolls on their bearings lengthwise, substantially as described.

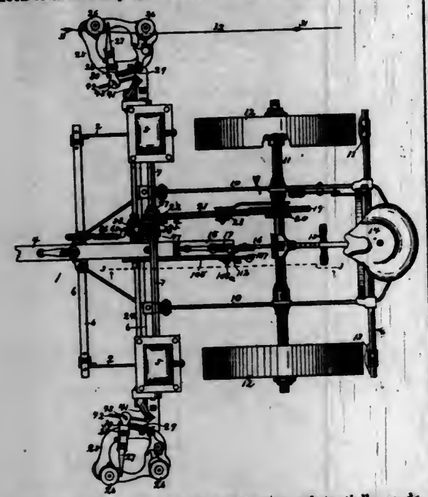
4. In a device for rolling barrels, the combination of a pair of levers hinged together to form tongs, and a pair of rolls journaled on studs fastened to each lever, respectively opposite each other, one roll on each lever engaging with the outside of the chime, and the other on each lever engaging with the inside of the chime on opposite ends of the barrel, to move the barrel in any direction, and means for adjusting the distance between the pairs of rolls journaled on each lever, substantially as described.

5. In a device for rolling barrels, the combination of a pair of levers hinged together to form tongs, and a pair of rolls journaled on studs fastened to each lever, respectively opposite each other, one roll on each lever engaging with the outside of the chime, and the other on each lever engaging with the inside of the chime on opposite ends of the barrel, to move the barrel in any direction, and means for adjusting the rolls lengthwise on their bearings, and for adjusting the distance between the rolls journaled on each lever.

6. In a device for rolling barrels, the combination of a pair of levers hinged together to form tongs, and a pair of rolls journaled on studs fastened to each lever, respectively opposite each other, one roll on each lever engaging with the outside of the chime, and the other on each lever engaging with the inside of the chime on opposite ends of the barrel, to move the barrel in any direction, and supports from each lever to points on the plane on which the barrel rolls, at or near the vertical axis of the barrel-heads, whereby the direction of the rolling of the barrel may be changed.

598,295. COMBINED CHECK-ROW AND DRILL CORN-PLANTER. CLARENCE H. DOOLEY, Bushnell, Ill. Filed Mar. 16, 1897. Serial No. 627,785. (No model.)

Claim.—1. In a corn-planter, and in combination, substantially as described, a seed-cup wheel having an annular rim projecting upwardly from its outer side or periphery, and a central cap-plate located within said rim, whereby the narrow space or groove between the rim and cap-plate one side or wall of which is formed by said rim with which the grains of seed come in contact serves as a feeder to conduct and deliver grains of seed on edge from the supply in the seedbox to the underlying seed-cups in said seed-cup wheel.



2. In a corn-planter, and in combination substantially as described, a seed-cup wheel having an annular rim projecting upwardly from its outer side, seed-agitating lugs projecting from the upper side of said rim, and a central cap-plate located within said rim and at such distance therefrom as to leave a narrow groove or seed-feedway between them which will only admit grain edgewise, and which serves to feed grains or kernels of corn edgewise to the underlying seed-cups in the seed-cup plate.

3. In a corn-planter, and in combination substantially as described, a seed-cup wheel having seed-cups elongated circumferentially of said wheel and contracted or narrow radially thereof, and having an annular rim projecting upwardly from its outer side, and a central cap-plate located within said rim and at such distance therefrom as to leave a narrow groove or feedway between them which will only admit grains edgewise, and which serves to feed grains or kernels of corn edgewise to the underlying narrow seed-cups in the seed-cup plates.

4. In a corn-planter, and in combination substantially as described, a seed cup wheel having seed-cups elongated circumferentially of said wheel, and contracted or narrow radially of said wheel, and a narrow groove in the parts above the series of seed-cups which will only admit grains edgewise, and by and through which grooves the grains or kernels are fed edgewise to the underlying seed-cups.

5. In a seed measuring and delivering mechanism, the combination of a seed-cup wheel or plate, and an overlying narrow seed-receiving groove or feedway, wherein the grains of corn, by its narrow construction can only be admitted thereto edgewise, and are discharged therefrom edgewise to the seed-cups of said seed-cup wheel or plate, substantially as described.

6. A seed-cup wheel for corn-planters, having a horizontal part with narrow seed-cups elongated circumferentially of the wheel, and a rim or flange projecting upwardly from the periphery of the horizontal part and provided with seed stirring or agitating lugs, substantially as described.

7. A seed-cup wheel for corn-planters, having seed-cups elongated circumferentially of the wheel, and with lateral enlargements substantially such as hereinbefore described.

8. In a corn-planter, and in combination substantially as described, a cut-off, a seed-cup wheel having seed-cups elongated circumferentially of said wheel, narrow radially thereof and provided with lateral enlargements substantially such as described, and a single-grain-feeding groove in or between the parts overlying the seed-cup wheel, which groove in its main part is substantially the same width as the seed-cups less their lateral enlargements, and at its end next the cut-off is enlarged laterally to admit large round grains and other abnormally-shaped grains.

9. In a corn-planter, and in combination substantially as described, a cut-off, a seed-cup wheel having seed-cups elongated circumferentially of said wheel, narrow radially thereof and provided with lateral enlargements substantially such as described, an annular flange or rim projecting upwardly from the periphery of said wheel and provided with seed-agitating lugs, and a central cap-plate between which and said rim is an annular channel or groove which will only admit grains edgewise, and which is enlarged laterally in front of the cut-off by a recessed part of said cap-plate.

10. In a corn-planter, and in combination substantially as described, a cut-off, a seed-cup wheel having seed-cups elongated circumferentially of said wheel, narrow radially thereof and provided with lateral enlargements substantially such as described, an annular flange or rim projecting upwardly from the periphery of said wheel, and a central cap-plate between which and said rim is an annular channel or groove which will only admit grains edgewise, and which is enlarged laterally in front of the cut-off by a recessed part of said cap-plate.

11. In a corn-planter, and in combination, substantially as described, a seed-cup wheel having seed-cups, a series of sweeps pendent from said seed-cup wheel and arranged alternately with said seed-cups, and a seedbox-bottom or underlying plate with an annular groove which said sweeps traverse as the seed-cup wheel is revolved.

12. In a corn-planter, and in combination substantially as described, a seed-cup wheel having seed-cups, and an underlying plate or seedbox-bottom with an annular groove coincident with the series of seed-cups and of such narrow width that it will only receive the grains of corn edgewise which project downwardly through the seed-cups, and will retain them in substantially upright positions.

13. In a corn-planter, and in combination substantially as described, a seed-cup wheel having seed-cups, a narrow grain-feeding groove in or between the parts overlying the seed-cup wheel, and a plate or seedbox-bottom underlying the seed-cup wheel and having a groove coincident with the series of seed-cups, adapted to sustain grains of seed lying edgewise and projecting below the seed-cups in substantially vertical positions.

14. In a corn-planter, and in combination substantially as described, a seed-cup wheel having seed-cups and an annular rim or flange projecting upwardly from its periphery with grain-agitating lugs thereon, a narrow grain-feeding groove in or between the parts overlying the seed-cup wheel, and a plate or seedbox-bottom underlying the seed-cup wheel and having a groove coincident with the series of seed-cups.

15. In a corn-planter, and in combination substantially as described, a seed-cup wheel having seed-cups elongated circumferentially of said wheel, an annular rim or flange projecting upwardly from its periphery, and lugs pendent from its lower side, a cap-plate arranged relatively to said annular rim to form a narrow groove between them, a seedbox-bottom with an annular groove which said pendent lugs traverse, an annulus shaped cog-wheel operatively and removably connected with the seed-cup wheel, a binding-screw for operatively connecting said parts, and a false bottom overlying the annulus-shaped cog-wheel.

16. In a corn-planter, and in combination substantially as described, a seed-cup wheel having seed-cups elongated circumferentially of said wheel, an annular rim or flange projecting upwardly from its periphery, lugs on the upper edge of said rim, lugs or sweeps pendent from the lower side of the seed-cup wheel, a cap-plate arranged relatively to said annular rim to form a narrow groove between them, a seedbox-bottom with an annular groove which said pendent lugs or sweeps traverse, an annulus-shaped bevel gear-wheel operatively and removably connected with the seed-cup wheel, and provided with larger and smaller interspaces between its teeth substantially as described, and a rotary shaft carrying a bevel gear-wheel with a series of teeth, one larger than the others.

17. In a corn-planter, and in combination substantially as described, a cut-off, a grain-discharger, a seed-cup wheel having seed-cups elongated circumferentially of said wheel, narrowed radially thereof and provided with lateral enlargements substantially such as described, an annular flange or rim projecting upwardly from the periphery of said wheel and provided with seed-agitators, a central cap-plate between which and said rim is an annular channel or groove which will only admit grains edgewise and which is enlarged laterally in front of the cut-off by a recessed part of said cap-plate, and a seedbox-bottom with a part projecting beneath the path of the lateral enlargements of the seed-cups, except over the throat to the seed-duct in the seed-tube.

18. In a corn-planter, and in combination substantially as described, a seed-cup wheel with seed-cups elongated circumferentially of said wheel and having lateral side enlargements, and a central cap-plate which extends over the lateral enlargements at the inner side of the seed-cups.

19. In a corn-planter, and in combination substantially as described, a cap-plate, a seed-cup wheel having an upwardly-projecting annular rim on its periphery which revolves with said wheel, and which is so located with reference to the main part of the cap-plate that the space between the two forms a narrow groove or channel, which will only admit grains of corn edgewise, whereby said groove or channel has a revolving wall on one side thereof and a fixed wall on its other side.

20. In combination with a seed-cup plate or wheel, an overlying groove or channel, one wall of which is a fixed plate and the other wall a revolable annulus-shaped plate, substantially as and for the purpose described.

21. In combination with a seed-cup plate or wheel, an overlying groove or channel, one wall of which is a fixed plate and the other wall a revolable annulus-shaped plate with seed-agitating lugs projecting from its upper side, substantially as and for the purpose described.

22. In a corn-planter, in combination substantially as described, a tractive wheel or wheels, seedboxes, seed measuring and delivering mechanism in said seedboxes, a rotary shaft extending across the planter between said seedboxes and geared with said seeding mechanism, a gear-wheel loosely mounted on said rotary shaft, gear connection between said gear-wheel and the traction wheel or wheels, a rock-shaft adjacent to said rotary shaft and provided with forked levers, a check-row line, means for actuating said rock-shaft by the tappets on the check-row line, a clutch on said rotary shaft, one member of which is fixed to said gear-wheel, and a detent on the rock-shaft adapted to be tripped out of gear with said clutch by the check-row line, whereby the rotary shaft is tripped into gear with the traction wheel or wheels for actuating said seeding mechanism, and means for tripping said detent into gear with the clutch for arresting the rotation of said rotary shaft.

23. In a corn-planter, and in combination substantially as described, seed measuring and delivering mechanism in the seedboxes, a rotary shaft actuated by traction wheel or wheels, a rock-shaft actuated by tappets on a check-row line, a clutch mechanism mounted on said rotary shaft, comprising a disk with an internally-notched rim loosely mounted on the rotary shaft and connected with the sprocket-wheel also loosely mounted on said rotary shaft and geared with the traction wheel or wheels, an arm 50 fixed to the rotary shaft and provided with a notch 51 and cam-face 52, a dog 53 eccentrically pivoted to the arm 50 and provided with a roller 55, a detent mounted on said rock-shaft, actuated by the check-row line, and adapted to contact with the cam-face 52, whereby it is forced backwardly until opposite the notch 51 into which it enters and forces the dog 53 back to release its roller 55 from the notches 51.

24. In a corn-planter, and in combination substantially as described, seed measuring and delivering plates or wheels, in the seedboxes, a rotary shaft geared with the planter-wheels, extending across the planter substantially in line with the seedboxes and geared with said seed measuring and delivering mechanism therein, a rock-shaft having forked levers on its ends, a check-row line with tappets, means for operatively connecting said check-row line and rock-shaft, a clutch mounted on said rotary shaft, and a detent mounted on the rock-shaft, whereby the tappets on the check-row line shall alone control the movements of said seed measuring and delivering mechanism, and whereby said seeding mechanism shall operate for an invariable predetermined interval after one tappet has acted on the rock-shaft and before the next succeeding tappet acts thereon.

25. In a combined check-row and drill planter, and in combination, substantially as described, seed measuring and delivering plates or wheels in the seedboxes, seed-discharging valve or valves in the seed-tube, a rotary shaft geared with the planter wheel or wheels, extending across the planter substantially in line with the seedboxes, and geared with said seed measuring and delivering mechanism therein, a rock-shaft, an arm fixed to said rock-shaft at one end and operatively connected at its other end with the valve or valves in the seed-tube, a check-row line with tappets, means for operatively connecting said check-row line and rock-shaft, a clutch mounted on said rotary shaft, and a detent mounted on the rock-shaft, whereby the tappets on the check-row line shall alone actuate the lower valve or valves, and shall alone control the movements of the seed measuring and delivering mechanism in the seedbox, and whereby said last-named mechanism shall operate for an invariable predetermined interval after one tappet has acted on the rock-shaft and before the next succeeding tappet acts thereon.

26. In a corn-planter, and in combination substantially as described, a seed-tube having its lower end part and rear side terminated by a curved part substantially as described, a curved valve, and a removable cap-plate with grooves which form ways in which said valve slides to cover and to uncover the lower end of the seed-duct in the seed-tube.

27. In a corn-planter, and in combination substantially as described, a seed-tube having its lower end part and rear side terminated by a curved part, substantially as described, a curved valve, and a cap plate with grooves which form ways in which said valve slides, a rock-shaft, an arm extending from said rock-shaft, a link pivotally connected with said valve, and another link adjustably connected with the first-named link, and also with said arm.

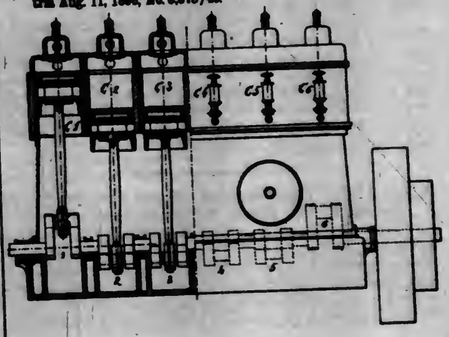
28. In a combined check-row and drill planter, and in combination substantially as described, seed measuring and delivering plates or wheels in the seedboxes, a rotary shaft geared with to be actuated by the planter-wheels and also geared with said seed measuring and delivering mechanism, a clutch mechanism mounted on said rotary shaft, a rock-shaft, a detent mounted on said rock-shaft, a spring for holding the detent in engagement with said clutch, a lower valve in the seed-tube, means for connecting said lower valve with an arm connected with said rock-shaft, another arm mounted on said rock-shaft, a lever pivotally mounted on the planter-frame, a link pivotally connected with said lever and removably connected with said last-named arm, whereby the driver may by operating said lever thereby actuate the lower valve in the seed-tube and control the operation of the seeding mechanism in the seedboxes for check-row planting.

29. In a combined check-row and drill planter, and in combination, substantially as described, seed measuring and delivering plates or wheels in the seedboxes, a rotary shaft geared with to be actuated by the planter-wheels and also geared with said seed measuring and delivering mechanism, a clutch mechanism mounted on said rotary shaft, a rock-shaft, a detent mounted to have limited angular movement on said rock-shaft and operated by the tappets on the check-row line acting on the rock-shaft, a spring for holding the detent in engagement with said clutch, a lower valve in the seed-tube, means for connecting said lower valve with an arm connected with said rock-shaft, another arm mounted on the rock-shaft, a lever pivotally mounted on the planter-frame, a link pivotally connected at one end with said lever and removably connected with said last-named arm, whereby said lever may be adjusted to hold the detent out of engagement with the clutch and the lower valve in its open position for drill-planting, and a dog engaging with said lever and locking it to hold the detent in the position described.

30. In a combined check-row and drill planter, and in combination substantially as described, seed measuring and delivering plates or wheels in the seedboxes, a rotary shaft geared with to be actuated by the planter-wheels and also geared with said seed measuring and delivering mechanism, a clutch mechanism mounted on said rotary shaft, a rock-shaft, a detent mounted on said rock-shaft, a spring for holding the detent in engagement with said clutch, a lower valve in the seed-tube, means for connecting said lower valve with an arm connected with said rock-shaft, another arm mounted on said rock-shaft, a lever pivotally mounted on the planter-frame, a link pivotally connected with said lever and removably connected with said last-named arm, whereby the driver may by operating said lever thereby actuate the lower valve in the seed-tube and control the operation of the seeding mechanism in the seedboxes for check-row planting, and arms connected with and actuated by the check-row line and mounted on the rock-shaft to have limited angular movement thereon, whereby the check-row levers and said arms will remain at rest while the rock-shaft is manually operated.

31. In a corn-planter, and in combination substantially as described, forked levers, a check-row line with tappets, a rock-shaft, arms on said rock-shaft, an eyebolt pivotally connected with each forked lever, and a link pivotally connected at one end with one of said arms and adjustably connected at its other end with one of said eyebolts.

598,296. OIL AND GAS ENGINE. JEAN J. HEILMANN, Paris, France. Filed Feb. 17, 1897. Serial No. 623,887. (No model.) Patented in France Dec. 26, 1896, No. 262,743; in Belgium July 6, 1896, No. 123,264; in England July 9, 1896, No. 15,197; in Switzerland July 11, 1896, No. 12,687; in Hungary Aug. 11, 1896, No. 6,709, and in Austria Aug. 11, 1896, No. 3,373/46.



Claim.—1. An explosive-engine of the four-cycle type, comprising a crank-shaft having six cranks arranged symmetrically two and two on either side of the middle of said shaft, a cylinder for each crank, and valve-gear arranged to give a succession of six explosions at regular intervals, the first three during one revolution and the next three during the next revolution, occurring in the reverse order of those of the first set, substantially as described.

2. In an explosive-engine, the combination with six cylinders, of two sets of cranks set one hundred and twenty degrees apart, and a valve-shaft geared to rotate at one-half of the speed of the crank-shaft and carrying six eccentrics set sixty degrees apart said eccentrics being arranged to cause the six cylinders to give the crank-shaft six impulses in succession during the revolutions, the last three impulses being in the reverse order of the first three, substantially as described.

3. In an explosive-engine, the combination with six cylinders, of two sets of cranks, set one hundred and twenty degrees apart, a valve-shaft geared to rotate at one-half the speed of the crank-shaft and carrying six eccentrics set sixty degrees apart and admitting the charges to the six cylinders in a given order during two revolutions of the crank shaft, an electrical contact rotating with the eccentric-shaft, six fixed contacts cooperating with the rotating contact and each connected with the ignition-chamber of one of said cylinders, and an induction-coil whose secondary is in multiple circuit with all of said chambers and fixed contacts, substantially as described.

593,297. BOILER. WESTER C. HIGGINS, Norwich, Conn. Filed Jan. 26, 1897. Serial No. 620,808. (No model.)



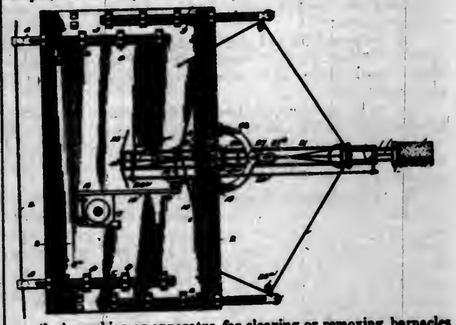
Claim.—1. A boiler, having a dome, a water-column depending into the combustion-chamber from said dome and having its top in open communication with the lower end of said dome, a water-jacket surrounding said combustion-chamber and having an open top in direct communication with the lower edge of said dome, and a series of radiating pipes connecting the lower portion only of said water-column with said jacket, all of said pipes opening into said water-jacket considerably above the bottom and below the top thereof, substantially as shown and described.

2. In a boiler, in combination, a water-jacket inclosing the sides and top of the combustion-chamber, a water-column depending centrally from the dome of said boiler, and a multiple of downwardly-inclined radial pipes connecting the lower end of said central column with the water-space around the combustion-chamber; the cross-sectional area of the central column being approximately equal to the sum of the areas of the several radial connecting-pipes.

3. In a boiler, the combination of the dome, the water-jacket encircling the combustion-chamber and opening directly into the lower edge of the dome, a water-column depending from said dome, a smoke-exit extending through said jacket, and a pipe connecting said water-jacket and water-column together, said pipe being broadened toward its outer end and providing a deflecting-plate for the products of combustion and a thin chamber for conducting water to said column, substantially as described.

593,298. VESSEL-CLEANER. CHARLES F. HOLLAND, Elko, Nev. Filed Apr. 10, 1897. Serial No. 631,544. (No model.)

Claim.—1. A machine or apparatus for cleaning or removing barnacles or other accumulations from the bottom of a vessel while afloat, comprising a scow or boat having adjustable attachments to limit the distance between the said scow or boat and the vessel to be cleaned, an adjustable ladder carried by said scow and capable of moving up and down, a rotating brush or scraper located at one end of the said ladder and capable of reaching all parts of the bottom of the vessel, and means to give rotation to the said brush or scraper, substantially as described.



2. A machine or apparatus for cleaning or removing barnacles or other accumulations from the bottom of a vessel, and comprising a scow or boat, an adjustable ladder having a brush located at one end thereof and carried by said scow or boat, sliding arms arranged at each side of the scow or boat, each being provided with a rack, pinions to engage with and move said racks back or forth to regulate the distance between the vessel and the scow, ropes engaging said arms and the end of the ladder to steady it, and means to rotate the said brush, substantially as described.

3. A machine or apparatus for cleaning or removing barnacles or other accumulations from the bottom of a vessel while afloat, comprising a boat or scow, a capstan located on said scow or boat, adapted to engage with a rope or cable connected to each end of the vessel to move the scow or boat along the side thereof, an adjustable ladder moving between guide-rollers located upon the scow, a revolving brush or scraper arranged upon a frame pivotally swung upon one end of the said ladder, bevel-gears carried by said frame and adapted to give rotation to the brush or scraper, and means to operate said gears and turn the capstan, substantially as described.

4. A machine or apparatus for removing barnacles or other accumulations from the bottom of a vessel, comprising a scow or boat having sliding arms arranged thereon, each of which is provided with racks, pinions to engage said racks and give movement to the arms, rollers located upon the end of the arms arranged at one side of the scow or boat and adapted to bear upon the side of the vessel, sheaves or pulleys pivotally arranged upon said arms, a rope engaging the said pulleys of the arms at one side of the scow or boat, the ends of which are connected to the ends of the vessel or to the dock, an adjustable ladder carried by said scow or boat having a swinging frame arranged upon one end thereof, bevel-gears carried between said swinging frame and adapted to give rotation to the brush or scraper supported by said swinging frame, and rollers located upon said swinging frame, and adapted to bear upon the side of the vessel while being scraped or cleaned, and means to rotate the brush, substantially as described.

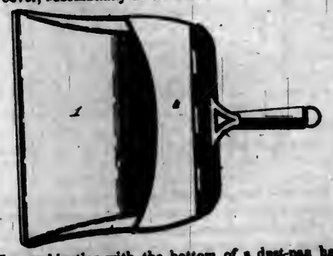
5. A machine or apparatus for the purposes described, comprising a scow or boat having a capstan thereon, a worm-gear secured to said capstan and meshing with a worm located upon the shaft arranged upon the deck, pulleys arranged upon said shaft, a belt engaging one of said pulleys and the pulley of an engine, a sliding ladder having an adjustable rotatively-arranged brush or scraper at one end thereof, bevel-gears adapted to give rotation to the said brush or scraper, pulleys arranged upon the ends of the ladder, one of which is secured to the shaft carrying one of the bevel-gears, and a chain adapted to pass over said pulleys, idler-pulleys arranged upon the deck, and the pulley secured to the worm-shaft, substantially as described.

593,299. DUST-PAN. JOHN JERLIN, Spokane, Wash. Filed Feb. 6, 1897. Serial No. 622,322. (No model.)

Claim.—1. A dust-pan having a discharge-opening at its rear end, in combination with a lid or cover attached to the handle of the pan and movably connected to the dust-pan to open or close said opening, and a locking device to hold the lid in its closed position, substantially as described.

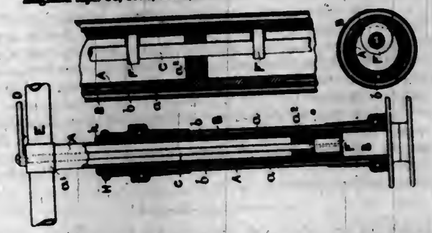
2. A dust-pan having its bottom and sides curved inwardly at their rear ends to form a contracted funnel-shaped discharge-opening at the rear of the pan, a hood secured to the upper edges of the sides at their rear ends, and a cover or lid attached to the handle of the pan and movably connected to the pan to close the discharge-opening, and a locking device to hold the lid in its closed position, substantially as described.

3. The combination with the bottom of a dust-pan having its side edges inwardly curved at their rear ends, side pieces inwardly bent at their rear ends and having their rear edges curved outwardly and downwardly, a hood secured to the upper edges of the side pieces, a lid or cover hinged to the rear edge of the hood and curved to fit over the curved rear edges of the sides, and a spring-catch secured to the bottom with its free end adapted to engage the free edge of the lid or cover, substantially as described.



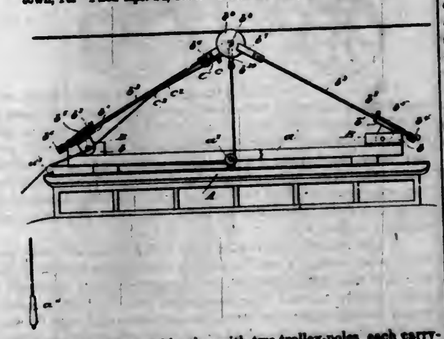
4. The combination with the bottom of a dust-pan having its side edges inwardly curved at their rear ends, side pieces inwardly bent at their rear ends and having their rear edges curved outwardly and downwardly, a hood secured to the upper edges of the side pieces, a lid or cover hinged to the rear edge of the hood and bent to fit over the curved rear edges of the sides, a spring-catch secured to the bottom with its free end adapted to engage the free edge of the lid or cover, and a handle attached to the hinged cover, substantially as described.

593,300. VELOCIPEDE. JOHN H. KNIGHT, London, England. Filed Dec. 28, 1896. Serial No. 617,134. (No model.) Patented in England Apr. 30, 1896, No. 9,134.



Claim.—The combination, with the tubular stem of a steering-wheel fork, of a longitudinally-slidable pillar A splined in the said stem and forming a support for the handle-bar, the lower end portion of the said pillar being provided with longitudinal slots and an oval socket having its minor axis at right angles to the said slots, a rod C journaled in bearings in the pillar A and prevented from sliding longitudinally of the said pillar, an oval-shaped cam secured on the lower end portion of the said rod inside the said socket, and means for partially revolving the said rod secured to its upper end portion, substantially as set forth.

593,301. TROLLEY. EDWIN LANE and JACOB A. SNYDER, Johnstown, Pa. Filed Apr. 24, 1897. Serial No. 633,731. (No model.)



Claim.—1. The combination with two trolley-poles, each carrying a yoke and a trolley-wheel journaled between said yokes, of means for shifting the trolley-wheel laterally independent of the trolley-pole, substantially as described.

2. The combination of a car, of two pivoted heads, each provided with a longitudinal bore, a cross-piece on each head, a trolley-pole mounted in each of the bores and having at its lower end a cross-piece, springs connecting the two cross-pieces, a yoke at the free end of the trolley-pole, a shaft connecting the yokes, a trolley on the shaft and means for shifting the trolley laterally, and for depressing the same, substantially as described.

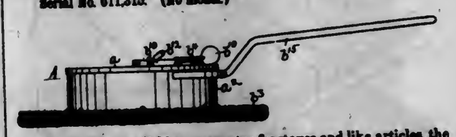
3. The combination in a trolley-support provided with a pivoted head having a cross-bar and guide-aperture through which the trolley-pole passes, of a trolley-pole provided at its lower end with a cross-bar, and springs for connecting the cross-bars to each other, substantially as shown.

4. A pair of trolley-poles mounted on pivoted supports having apertures through which the poles pass, springs for projecting said poles connected to the lower ends of the same and to the upper portion of the supports; together with yokes which are carried by the upper ends of the poles, said yokes being pivotally connected with each other, and a trolley-wheel mounted upon the connecting means between the yokes, substantially as shown.

5. In combination with a trolley-pole having at its upper end a yoke, a shaft carried by the yoke, a trolley-wheel mounted on said shaft so as to be movable laterally thereon; together with levers pivoted upon the yoke and means for moving the levers in engagement with the trolley-wheel to adjust the same on its shaft, substantially as shown and for the purpose set forth.

6. In a trolley, the combination with a pair of continuous trolley-poles mounted on pivoted supports through which the lower ends of the poles pass, of springs connected to the trolley-poles and to the supports, yokes carried by the upper ends of the poles, a shaft pivotally connecting the yokes, a laterally-movable trolley-wheel mounted on said shaft; together with means for moving the trolley-wheel laterally, and means for lowering the poles, substantially as shown and for the purpose set forth.

593,302. POLISHING APPARATUS. JOHN R. LEAVITT, Melrose, Mass., assignor to Helen I. Young, Boston, Mass. Filed Nov. 7, 1896. Serial No. 611,315. (No model.)



Claim.—In a polishing apparatus for stoves and like articles, the combination of the following instrumentalities, viz: a liquid-receptacle A provided with an inlet and with an outlet and with a depending flange a^3, a base upon which the said receptacle is mounted having a raised portion b' over which the flange a^3 is fitted, the said raised portion having an outlet-passage adapted to communicate with the interior of the said receptacle, means to fasten the flange a^3 to the said raised portion of the base, a polishing-surface of lambs' wool secured to the said base, and overlapping the upper sides of the same to cover the edges of the said base, and a valve cooperating with the outlet-port for the liquid-receptacle, substantially as described

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593,303. CHIMNEY. ADOLPH LEMER, Minneapolis, Minn. Filed Mar. 29, 1897. Serial No. 629,653. (No model.)

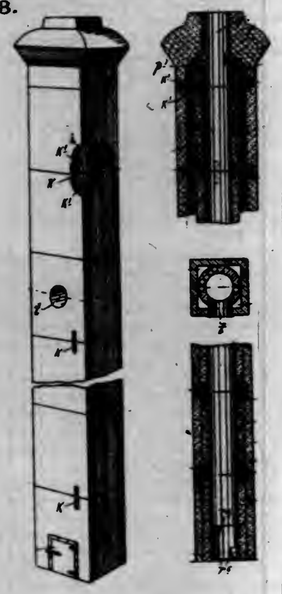
Claim.—1. A fireproof chimney or stack, made up of inside and outside members or sections, one class of which is round and the other class of which is square or polygonal in cross-section, which sections are built up one class inside of the other, with contact at certain points and vertical air-passages between the same, substantially as described.

2. In a double stack or chimney having airways between the two, an ash bucket or receptacle at the bottom of the inside stack and openings through the two stacks for access to said bucket, substantially as described.

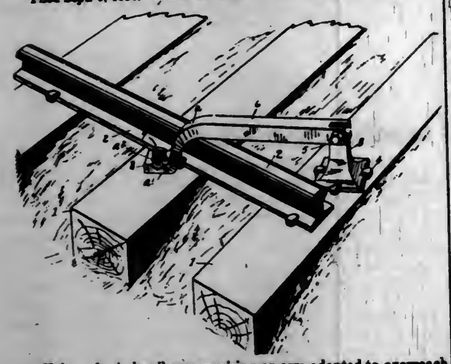
3. In a double chimney or stack, having airways between the two, an ash bucket or receptacle in the base-section of the inside stack having valves covering radial passages leading to said air-passages, and coincident openings in the base-sections of both stacks, for affording access to said ash-bucket, and a door controlling said opening, all substantially as described.

4. A fireproof chimney or stack made up of inside and outside hollow members or sections, formed with different cross-sections, at least one of which class of sections are polygonal in cross-section, said two classes of sections being built up, one inside of the other, and so related that they have contact at certain points, but leave vertical air passages between the same, substantially as described.

598,808.



598,804. DERAILER. CHARLES R. LINDSAY, Terrace Park, Ohio. Filed Sept. 9, 1897. Serial No. 651,084. (No model.)



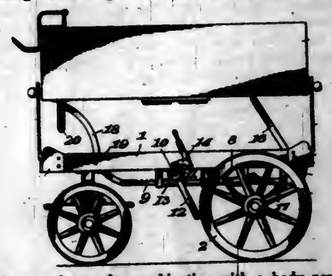
Claim.—1. A derailer, comprising an arm adapted to overreach a track-rail and be secured, at its opposite ends, to the fixed track structure, on opposite sides of said rail at an acute angle to the rail in the direction of the car's approach, substantially as described.

2. A derailer, comprising a pedestal or stand, an arm pivoted to said stand, and adapted to overreach the rail, and a locking device for the free end of said arm, with said stand and said locking device secured to the track structure on opposite sides of the rail, in position to permit the arm to stand at an acute angle to the rail, on the side of the approaching car, when in working position, substantially as described.

3. The derailer comprising the stand 3 and the eyebolt 7, made fast to the track structure on opposite sides of the rail, the arm 6 pivoted to the stand 3, at its inner end, adapted to overreach the rail, and having a downturned outer end with slot adapted to engage over the head of said eyebolt, and be secured thereto by the pin 8, with the arm at an acute angle, to the rail in the direction of the car's approach, substantially as described.

598,805. COAL-CART. FRIEDRICH D. F. MÜLLER, New York, N. Y. Filed June 10, 1897. Serial No. 640,213. (No model.)

Claim.—1. In a coal-cart, the combination with a body portion, of a frame, a guide supported upon said frame, a carriage held upon said guide, rack-bars held upon said carriage, rods connecting the ends of said rack-bars and said body portion, levers connecting the opposite ends of said rack-bars with said body portion, and means for actuating said carriage and holding the same in position.



2. In a coal-cart, the combination with a body portion, of a frame, guides supported upon said frame, a carriage held to move longitudinally of said frame upon said guides, rack-bars held upon said carriage, levers fulcrumed upon said frame, rods connecting said levers to said rack-bars, rods connecting said rack-bars to said body portion, a transverse shaft extending across said frame provided with gears adapted to mesh with said rack-bars, means for rotating said shaft and actuating said rack-bars, and means for holding said shaft when so rotated, substantially as described.

3. In a coal-cart, the combination with a body portion, of a frame, guides supported upon said frame, a carriage held to move longitudinally of said frame upon said guides, rack-bars held upon said carriage, levers fulcrumed upon said frame, rods connecting said levers to said rack-bars, rods connecting said rack-bars to said body portion, a lever carried upon a shaft adapted to rotate the same, a ratchet held upon said shaft, and a pawl held upon said frame adapted to coact with said ratchet, substantially as described.

4. In a coal-cart, the combination with a body portion, of a frame, guides supported upon said frame, a carriage held to move longitudinally of said frame upon said guides, rack-bars held upon said carriage, levers fulcrumed upon said frame, rods connecting said levers to said rack-bars, rods connecting said rack-bars to said body portion, a lever carried upon a shaft adapted to rotate the same, a ratchet held upon said shaft, a pawl held upon said frame adapted to coact with said ratchet, and guides adapted to direct and limit the upward motion of said body portion, and guides upon said frame adapted to receive said body portion when the same is depressed, substantially as described.

598,806. COAL-CART. FRIEDRICH D. F. MÜLLER, New York, N. Y. Filed June 10, 1897. Serial No. 640,214. (No model.)



Claim.—1. In a coal-cart, the combination with a frame, of a body portion carried thereon, a shaft extending transversely thereof, a gear held upon said shaft, a pair of rocker-arms held upon said shaft, a lever pivotally mounted upon said frame provided with a portion having the segment of a gear thereon adapted to mesh with the first-mentioned gear, levers connecting said lever with said body portion, rods connecting said rocker-arms with said lever, means for rotating said shaft, and means for holding the same in position, substantially as described.

2. In a coal-cart, the combination with a frame, of a body portion carried thereon, a shaft extending transversely thereof, a gear held upon said shaft, a pair of rocker-arms held upon said shaft, a lever pivotally mounted upon said frame provided with a portion having the segment of a gear thereon adapted to mesh with the first-mentioned gear, levers connecting said lever with said body portion, rods connecting said rocker-arms with said lever, a lever held upon the end of said shaft, a ratchet formed upon said shaft, and a pawl carried on said frame adapted to coact with said ratchet, substantially as described.

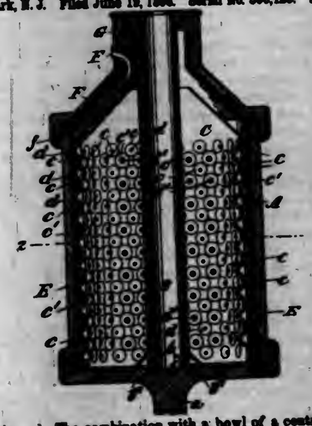
3. In a coal-cart, the combination with a frame, of a body portion carried thereon, a shaft extending transversely thereof, a gear held upon said shaft, a pair of rocker-arms held upon said shaft, a lever pivotally mounted upon said frame provided with a portion having the segment of a gear thereon adapted to mesh with the first-mentioned gear, levers connecting said lever with said body portion, rods connecting said rocker-arms with said lever, a lever held upon the end of said shaft, a ratchet formed upon said shaft, a pawl carried upon said frame adapted to coact with said ratchet, and a pair of toggle-joint levers carried upon said frame and said body portion provided with stops and adapted to hold said body portion in a raised position, substantially as described.

4. In a coal-cart, the combination with a frame, of a body portion carried thereon, a shaft extending transversely thereof, rocker-arms carried upon said shaft, levers fulcrumed upon said frame having their ends bearing against the body portion of said cart, slides formed upon said body portion adapted to receive the ends of said levers, rods connecting said rocker-arms with the free ends of said levers, a lever carried upon said shaft adapted to rotate the same, a ratchet formed upon said shaft, and a pawl held upon said frame adapted to coact with said ratchet, substantially as described.

5. In a coal-cart, the combination with a frame, of a body portion carried thereon, a shaft extending transversely thereof, rocker-arms carried upon said shaft, levers fulcrumed upon said frame having their ends bearing against the body portion of said cart, slides formed upon said body portion adapted to receive the ends of said levers, rods connecting said rocker-arms with the free ends of said levers, a lever carried upon said shaft adapted to rotate the same, a ratchet formed upon said shaft, a pawl carried upon said frame adapted to coact with said ratchet, hooked bars attached to said rocker-arms, and eyes held upon said frame adapted to receive the end of said hooked bars, substantially as described.

6. In a coal-cart, the combination with a frame, of a longitudinally-divided body portion having end-gates for said divisions, of a shaft extending transversely of said frame, a gear carried upon said shaft, rocker-arms held upon said shaft, a ratchet held thereon, a lever held at the end thereof, a pawl held upon said frame adapted to coact with said ratchet, a lever pivotally attached to said frame provided with a segmental gear upon one portion thereof, said gear being adapted to mesh with the aforesaid gear, levers connecting said lever to said body portion, rods connecting said levers to said rocker-arms, toggle-jointed levers provided with suitable stops connected to said body and said frame, a second transverse shaft provided with a pair of double-ended rocker-arms, a ratchet held upon said second transverse shaft, a lever held thereon, a pawl held upon said frame adapted to coact with said ratchet upon levers fulcrumed upon said frame having their free ends resting against the body portion of said cart, guides adapted to receive the ends of said levers, rods connecting the opposite ends of said levers with the lower ends of said rocker-arms, hooked bars held upon the upper ends of said rocker-arms, and staple-eyes held upon said frame adapted to receive the hooks upon the ends of said bars, substantially as described.

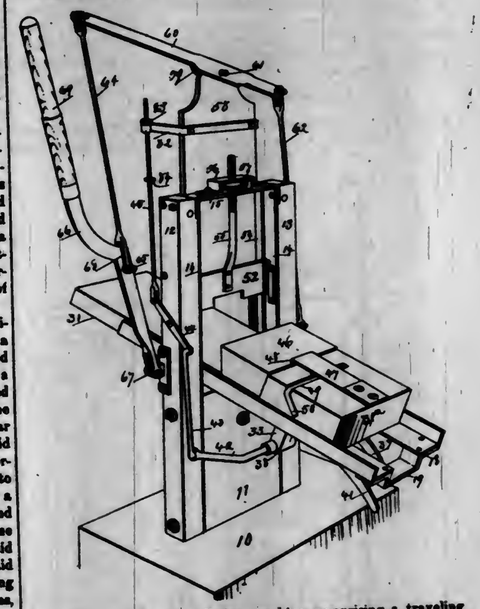
598,807. CENTRIFUGAL CREAM-SEPARATOR. OLOF OHLSSON, Newark, N. J. Filed June 19, 1896. Serial No. 596,123. (No model.)



Claim.—1. The combination with a bowl of a centrifugal separator, having a supply-pipe for the whole milk and discharge-pipes for the blue milk and the cream, of a partition having on its outer surface truncated cones provided with openings for the outward escape of the blue milk, and having on its inner surface truncated cones having openings for the escape inward of the cream, substantially as set forth.

2. The combination with the bowl of a centrifugal separator having a supply-pipe for the whole milk and discharge-pipes for the blue milk and the cream, of a cylindrical partition C having on its outer surface a series of truncated cones *c c* provided with openings for the outward escape of the blue milk and having on its inner surface truncated cones *c' c'* having openings for the escape inward of the cream, substantially as set forth.

598,808. MACHINE FOR MAKING WOODEN WEDGES. BURTON H. OSTERHOUDT, Bloomfield, Iowa. Filed June 5, 1896. Serial No. 594,453. (No model.)



Claim.—1. A wedge-splitting machine, comprising a traveling timber-support, means for feeding said support and timber, a large knife mounted for vertical reciprocation in the plane of the travel of said support short splitting-blades at right angles to the large knife and secured thereto and a hinged separator depending parallel with the knife and arranged to be swung outwardly thereby for removing the wedges from the face of the knife.

2. The combination of a track arranged for adjustment relative to the horizontal, a cutting-block mounted for travel on said track, means for holding a section of wedge-timber on said cutting-block, a large knife mounted for vertical reciprocation in the path of travel of the cutting-block, short splitting-blades at right angles to the large knife and secured thereto means for reciprocating said knife, adjustable connections between the knife and cutting-block whereby the cutting-block is advanced in the reciprocation of the knife, a hinged separator depending parallel with the large knife and arranged to be swung outwardly thereby to separate the wedges from the severed section and arms 73 arranged in contact with the face of the knife for removing the severed sections from the knife.

3. In a wedge-splitting machine, a cutting-block arranged to receive a section of wedge-timber, a leaf-spring engaging one end of said wedge-timber, a rock-shaft 49 having a lip 51 arranged to engage and lift the said leaf-spring and a slidingly-mounted plate adjustably arranged to engage the opposite end portion of the wedge-timber.

4. In a wedge-splitting machine, a track, a cutting-block arranged for travel on said track, a ratchet-bar on said block, a pawl mounted on the track and engaging said ratchet-bar, a bell-crank lever mounted on said track, a pawl mounted on said bell-crank lever and arranged for travel to and fro beneath the track to engage and move the cutting-block by the ratchet-bar thereon, a connecting-rod joining said bell-crank lever to an oscillating lever, an actuating-rod connected to the opposite end of the oscillating lever, a knife mounted for vertical

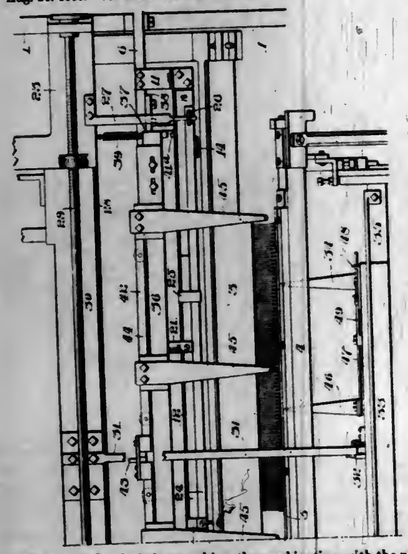
reciprocation and adjustable connections between said knife and the actuating-rod whereby the travel of the cutting block is established and determined.

5. In a machine of the class described, vertical guideways, a knife mounted therein and arranged to sever successive sections from a wooden block, splitting-blades at right angles to said knife, a knife-slide, a separator pivoted at its upper end to a stationary support and arranged to engage sections of wood severed and elevated by the said knife, a link connecting said separator and knife-slide, and stop-bars rigidly mounted independent of the knife and arranged to remove chips from the said knife.

6. In a machine of the class described, a vertically-moving knife, splitting-blades above the cutting edge of said knife and at right angles thereto, a separator arranged in close proximity to the path of travel of the knife, and a rod loosely connected with the knife mechanism and hinged to the separator whereby said separator is oscillated near the end of travel of the upward movement of the knife.

7. In a wedge-splitting machine employed to cut sections from a wooden block obliquely across the grain thereof a knife, cutting-blades above the cutting edge of said knife and at right angles thereto, and a separator intermittently operated to engage and split wedges from the severed sections.

593,809. STRAIGHT-KNITTING MACHINE. FREEMAN RAVEN, Philadelphia, Pa., assignor to James R. Kendrick, same place. Filed Aug. 20, 1896. Serial No. 603,292. (No model.)



Claim.—1. In a knitting-machine, the combination, with the needles, the reciprocative weft-carrier, and its supporting and operating parts, of the longitudinally-arranged stationary bar adjacent to the path traversed by said carrier, a bar hingedly connected with said stationary bar, means for temporarily closing said hinged bar and means for opening the same at predetermined intervals, substantially as described.

2. In a knitting-machine, the combination, with the needles, the reciprocative weft-carrier, and its supporting and operating parts, of the longitudinally-arranged bar adjacent to the path traversed by said carrier, a bar hingedly connected with said former bar, means for temporarily closing said hinged bar, an adjustable projection thereon, and means on the carrier coacting with said projection, to open the hinged bar at predetermined intervals, substantially as described.

3. In a knitting-machine, the combination, with the needles, the reciprocative weft-carrier, and its supporting and operating parts, of the longitudinally-arranged bar adjacent to the path traversed by said carrier, a bar hingedly connected with said former bar, means for temporarily closing said hinged bar, a projection adjustable lengthwise of said latter bar, means for adjusting said projection, and means on the carrier coacting with said projection to open the hinged bar at predetermined intervals, substantially as described.

4. In a knitting-machine, the combination, with the needles, the reciprocative weft-carrier, and its supporting and operating parts, of the longitudinally-arranged bar adjacent to the path traversed by said carrier, a bar hingedly connected with said former bar, means for temporarily closing said hinged bar, longitudinally-movable strips on said latter bar provided with projections or abutments, and means on the carrier coacting with said projections or abutments to open the hinged bar at predetermined intervals, substantially as described.

5. In a knitting-machine, the combination, with the needles, the jack-frame, and its jacks, of the weft clamping and releasing bars, means whereby the same are closed by the jack-frame in its forward movement, means for temporarily maintaining said bars closed, and means for opening said bars during the stroke of the carrier, substantially as described.

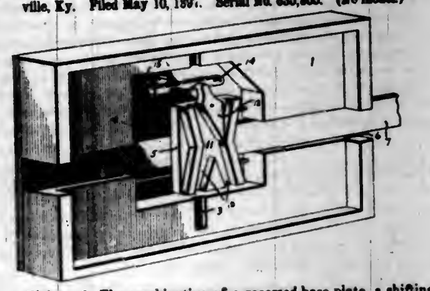
6 In a knitting-machine, the combination, with the needles, the reciprocative weft and thread carriers, and means for varying the strokes of the thread-carrier, of the weft clamping and releasing bars, one of the members thereof being fixed and the other movable, means for temporarily closing the movable bar, adjustable projections or abutments on said latter bar, devices carrying said projections or abutments, connections between said devices and the said means for varying the strokes of the thread-carrier, and means on the weft-carrier coacting with said projections or abutments to open the movable bar at predetermined intervals, substantially as described.

7. In a knitting-machine, the combination, with the needles, the jacks, the points, and the thread-carrier, of the supplemental weft-carrier, the movable supporting-bar therefor, and means for raising and lowering said bar, together with the supplemental thread-guide, and means for attaching it to the thread-carrier, substantially as described.

8. The combination with the thread-carrier, of a supplemental thread-guide mounted thereon and provided with a rack-bar, and a dog on said carrier adapted to engage the teeth in said bar and thereby hold the supplemental thread-guide in positions of adjustment, substantially as described.

9. In a knitting-machine, the combination, with the needles, the jacks, and the supplemental weft and thread carriers, of the point-bearing bar, and the pivoted points thereon, substantially as described.

593,810. OSCILLATORY MECHANISM. JOHN J. REAGAN, Louisville, Ky. Filed May 10, 1897. Serial No. 635,805. (No model.)



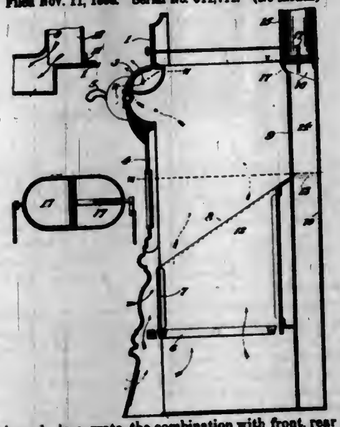
Claim.—1. The combination of a recessed base-plate, a shifting plate movable in said recess, said shifting plate provided with V-shaped grooves, a lever or segment pivoted to the shifting plate and controlling the grooves, a dog or lever pivoted to the base-plate and engaging the segment, and a means carried by a car engaging the grooves of the shifting plate and effecting the movement of the plate and segment, substantially as shown and described.

2. The combination of a base-plate having a recess formed therein, tracks in said recess, a shifting plate movable upon said tracks, the shifting plate provided with V-shaped grooves connected at their points, the central portion of one of said V's removed, a V-shaped segment pivoted in the V-shaped recess, opening or closing communication between the grooves, a notched lever engaging the opposite end of the segment, a spring for holding the notched lever in engagement with the segment, and a means carried by a car for engaging the grooves of the shifting plate and operating the same and the segment, substantially as shown and described.

3. The combination of a base-plate provided with a recess, a shifting plate movable in said recess, an operating-arm carried by the shifting plate, the said shifting plate provided with a V-shaped groove and a V-shaped recess communicating with each other, a V-shaped segment or lever pivoted in the V-shaped recess and adapted to open and close communication between the said recess and the V-shaped groove, a depending lug on the opposite end of the lever, a notched lever engaging the depending lug, a spring for holding the notched lever in engagement with the segment, a cover for the base-plate provided with a slot extending transverse the movement of the shifting plate, and a lever carried by a car adapted to be depressed and extend into the slot of the top plate and engage the grooves of the shifting plate for oscillating the same and moving the segment, substantially as shown and described.

4. The combination of a base-plate provided with a recess, a shifting plate movable in said recess, a drain for said plate, operating-arms carried by the shifting plate, the shifting plate provided with a V-shaped segment and a V-shaped recess communicating with each other, a segment pivoted in the V-shaped recess and adapted to alternately open and close communication between the recess and one of the grooves of the V, a notched lever engaging the opposite end of the segment and effecting its movement, a top plate provided with the slot extending transverse the line of the movement of the shifting plate, inclines at the ends of said slot, and an operating-lever carried by a car adapted to be depressed into the slot and engage one of the grooves of the shifting plate for operating the shifting plate and the segment, the said lever adapted to mount the incline when the end of the groove is reached, substantially as shown and described.

593,811. HEATING-GRATE. WILLIAM P. SAVAGE, Germantown, Md. Filed Nov. 11, 1896. Serial No. 611,711. (No model.)



Claim.—1. In a grate, the combination with front, rear and side walls, of dampers in the front of the grate, a heating-chamber on the rear and sides communicating with the dampers, transverse partitions subdividing the heating-chamber, and a vertical partition separating each of the two subdivided chambers, substantially as set forth.

2. In a grate, the combination with front, rear and side walls, of a heating-chamber around the rear and sides of the same, a vertical partition in the rear, dividing the chamber, and transverse partitions dividing the sides of the chambers, and partially dividing the rear of each of the chambers, respectively, substantially as set forth.

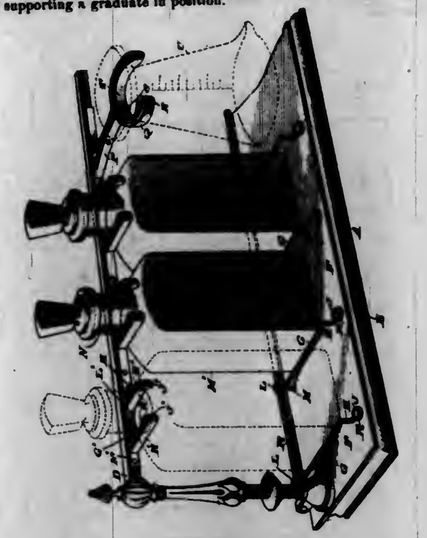
3. In a grate, the combination with front, side and rear walls, of a heating-chamber surrounding the side and rear walls, a vertical partition separating the chamber, and oblique transverse partitions dividing the sides of each chamber and extending toward, but not touching the vertical partition, respectively, substantially as set forth.

4. In a grate, the combination with front, side and rear walls, and a vertically and horizontally subdivided heating-chamber, of a divided flue communicating with the heat-chamber above the vertical partition that divides it, independent dampers for each passage of the flue, and a passage across the top of the vertical partition, substantially as and for the purpose specified.

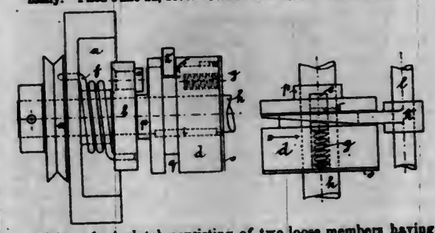
593,812. RACK FOR BOTTLES AND GRADUATES. HARRY SCHAMBERG and MONROE P. LEID, Philadelphia, Pa. Filed May 12, 1897. Serial No. 636,132. (No model.)

Claim.—1. In a rack for bottles, a plurality of standards, a bed upon which the same are supported, a rod connecting the lower portion of said standards, wires arranged in transverse order, an eye on the front extremity of said wires, whereby the latter are secured to said bed, and an eye in the rear portion of said wires, said latter eye engaging said rod and having an extension engaging said bed, in combination with a bar extending between the upper portions of said standards, and a clamping device or clip attached to said bar and adapted to engage the neck of a bottle.

2. In a rack for bottles, a bed, a plurality of standards, supported thereupon, a rod connecting the lower portion of said standards, and transverse wires arranged in substantially parallel order and secured at one end to the upper face of said bed and at their other end to said rod, said wires being adapted to hold in position the base of a bottle, in combination with a bar connecting the upper portion of said standards, said bar having a strip attached thereto, said strip being bent or doubled upon itself so as to form clips or clamping devices to engage the necks of said bottles, and a clip for the purpose of supporting a graduate in position.



593,818. CLUTCH. CLARENCE B. SCHULER, Charlottenburg, Germany. Filed June 22, 1896. Serial No. 596,563. (No model.)



Claim.—1. A clutch consisting of two loose members having a spiral-spring connection, one of said members being of much less weight than the other member and provided with a catch, a fast member having a peripheral groove and provided with a collar and carrying a longitudinally-spring-pressed bolt having a notch therein, and a latch having a wedge-shaped nose riding in said groove and adapted to be engaged by said bolt, said bolt engaging said catch and moving on the slanting portion of said latch and on the shaft to which said fast member is connected.

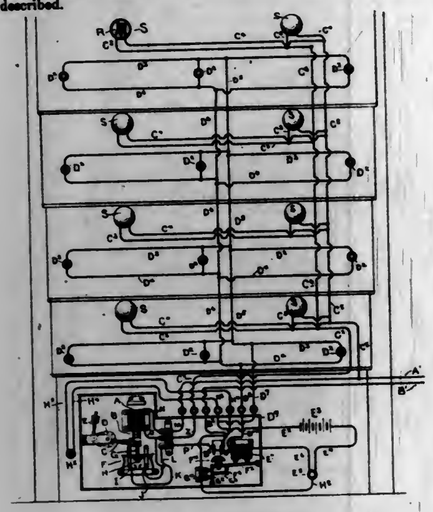
2. A clutch consisting of the loose member *a*, the loose member *b* of less weight than said member *a*, and provided with the catch *c*, the coiled spring *f* connecting said members *a* and *b*, the fast member *d* having the peripheral groove *g*, the collar *p* between said parts *b* and *d*, the wedge-shaped latch *k* with nose riding in said groove, and the bolt *e* sliding on the shaft on which said member *d* is keyed, and the inclined portion of said latch and engaging said catch.

593,814. SIGNALING SYSTEM. CHARLES R. STERLING, New York, N. Y. Filed Feb. 25, 1897. Serial No. 624,936. (No model.)

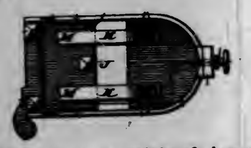
Claim.—1. In a signaling system, supply-conductors, a circuit-closer an electromagnet and an automatically-operating circuit maker and breaker controlled by said magnet, all included in the supply-circuit, and a branch circuit including said circuit maker and breaker and a plurality of alarms, in combination with means for moving the circuit-closer into position, a lock or latch for holding it in said position, and means for freeing the same, substantially as and for the purpose described.

2. In a signaling system, supply-conductors, a circuit-closer, an electromagnet and an automatically-operating circuit maker and breaker controlled by said magnet, all included in the supply-circuit, and a branch circuit including said circuit maker and breaker and

a plurality of alarms, in combination with an electromagnet for moving the circuit-closer into position, a lock or latch for holding it in said position, one or more circuit-closers for closing a circuit through the electromagnet, and means for moving the lock or latch to release the first-named circuit-closer, substantially as and for the purpose described.

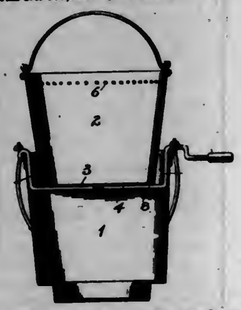


593,315. SAFETY ICE-CREEPER. ERNST L. WAGNER and ANNA F. WAGNER, Philadelphia, Pa. Filed May 14, 1897. Serial No. 636,566. (No model.)



Claim.—A safety ice-creeper consisting of a base with a rim having the recess P therein, a pivoted plate mounted in said rim and having a finger-piece adapted to enter said recess, springs secured to said base and bearing against said plate, spurs on said plate, and means connected with said rim for securing the same to a boot or shoe heel, said plate having a depressed portion adapted to abut against the under side of said base.

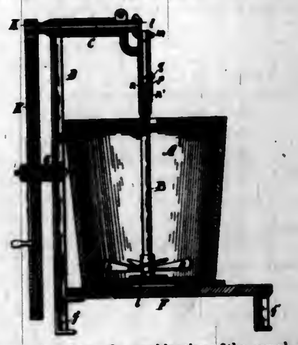
593,316. CULINARY VESSEL. JOHN C. WOODMAN, Digby, Canada, assignor of one-half to Clarence Jamison, same place. Filed Apr. 22, 1897. Serial No. 633,396. (No model.)



Claim.—1. A device of the class described comprising a horizontal base adapted to receive and support a receptacle, and the substantially vertical hook-shaped portions extending from the base and adapted to engage over the upper edge of a pot or kettle and arranged to form supporting-legs when the device is inverted, substantially as described.

2. In a kettle-support, a base comprising a pair of bars arranged at right angles to each other, the terminals of said bars being bent at right angles thereto and formed with hooks at their ends adapted to engage the upper edge of a pot or kettle and arranged to support the device when inverted, substantially as described.

593,317. CHURN. FRANK W. ALDEN, Cincinnati, Ohio, assignor to the Queen Butter Maker Company, same place. Filed Sept. 17, 1896. Renewed Oct. 13, 1897. Serial No. 655,079. (No model.)



Claim.—1. In a churn, the combination of the vessel, A, to contain the cream, the shaft, B, therein, consisting of separable parts which are joined together by means of tenons, *n*, *n'* on one end of each of said parts of such size and shape as to closely fit into the corresponding holes or mortises, *o*, *o'*, in the other, a key *p*, to hold said parts in that locked position, and the blades, A rigidly attached to the lower portion of said shaft and means for giving said shaft rotary motion, substantially as shown and described.

2. In a churn, the combination of the vessel A, the shaft B therein, consisting of separable parts removably joined together by means of tenons, *n*, *n'* on one end of each of said parts of such size and shape as to closely fit into the corresponding holes or mortises, *o*, *o'* in the other, a key to hold said parts in that locked position, the blades, A, the gear-wheels, *m*, *l* and K, the shaft, C, the wheel, E, the axle, G, the vertical portion of the frame, D, supporting the whole mechanism for operating the agitator, the base, F supporting the vessel, A, and the indented step, *i*, all substantially as shown and described.

593,318. RECTAL APPLICATOR. JAMES D. BACON, Boston, Mass. Filed May 20, 1897. Serial No. 637,315. (No model.)

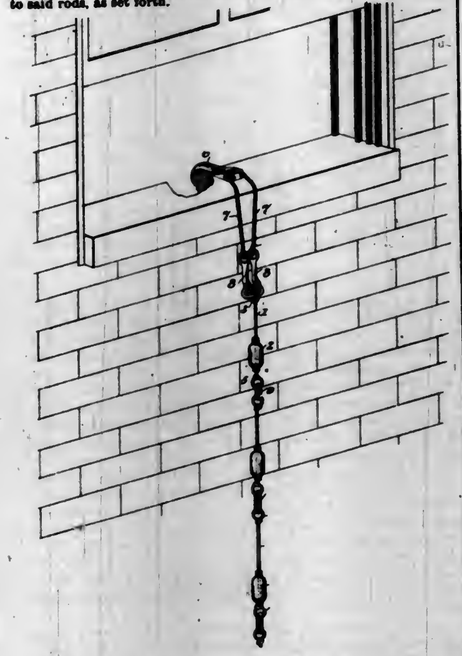


Claim.—1. A rectal applicator, comprising a rigid tube closed and imperforate at its entering end and open at its opposite end, said tube being formed with an annular groove near its closed end and having radial perforations in said groove connecting with the interior of the tube; and a plunger or piston adapted to fit into said tube and force a lubricant radially or laterally through said perforations, substantially as described.

2. A rectal applicator, comprising a rigid tube closed and imperforate at its entering end and open at its opposite end, said tube being formed near its closed end with an annular groove provided with substantially radial perforations connecting with the interior of the tube, formed with the annular depression *a* near its open end, and having the entrance to the passage therein flared at *b*; the annular flange C rigid on the tube next said depression; and a plunger or piston adapted to fit into said tube and force a lubricant through said perforations, substantially as set forth.

593,319. FIRE-ESCAPE. JOHN H. GATES, Wilkes-Barré, Pa. Filed Dec. 18, 1896. Serial No. 616,233. (No model.)

Claim.—In a fire-escape, the combination of a series of wire rods each turned at both ends to form loops, handles running freely upon said rods between the loops, links connecting the loops of adjacent rods, a sill-hook, a flexible connection between the sill-hook and the uppermost rod, and means for detachably securing said connection to said rods, as set forth.



593,320. RECORDING WEIGH-BEAM FOR SCALES. SAMUEL T. BRALEY, Rutland, Vt., assignor to The Howe Scale Company of 1896, same place. Filed Mar. 13, 1896. Serial No. 583,096. (No model.)

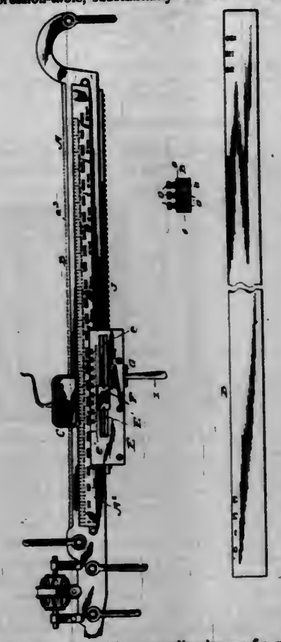
Claim.—1. The combination of a recording weigh-beam carrying a type-surface, which beam is provided with a way or guide, a main poise, an auxiliary poise, a type-bar movable with the auxiliary poise adjustable and securable within the main poise and fitted to move in the way or guide on the main beam, and a suitable impression mechanism operating opposite to the two type-surfaces for the main beam and the auxiliary poise, substantially as and for the purposes described.

2. The combination of a recording weight-beam having a removable type surface, a main poise, an auxiliary poise, a suitable recording mechanism carried by the main poise, and a type-bar movable with the auxiliary poise and adjustably securable in the main poise and arranged to be backed or reinforced by the main beam against the pressure of the recording mechanism, substantially as and for the purposes described.

3. The combination of a recording weigh-beam provided on its upper edge with a series of notches, and with duplex tracks or ways, a main poise, and trucks fitted to said duplex tracks or ways and connected with the main poise to support the same on the beam and permit the poise to travel freely thereon without contact with the notched part of said weigh-beam, an adjustable auxiliary poise within the main poise, sliding in a guideway on the main beam, a removable type-surface secured to the under side of the beam, and mechanism attached to said main poise for taking impressions from said type-surface, substantially as and for the purposes described.

4. The combination with a recording weigh-beam, and a main poise fitted thereon, of a face-plate carried by the main beam and having the longitudinal slot E', the lower face or edge of which is smooth and its upper edge is notched, an auxiliary poise fitted in the slot E' to ride on the smooth edge thereof and carrying a latch to engage with the notched edge of the slot, type-bars on the main beam and the auxiliary poise, and an impression or stamp table, substantially as and for the purposes described.

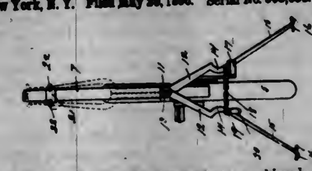
5. The combination with a recording weigh-beam having the type-surface on its lower side, a main poise, a face-plate carried by the main poise and having the notched slot E', an auxiliary poise fitted in the slot E' of said face-plate, a spring-pressed latch mounted within the auxiliary poise and normally held in engagement with the notched edge of said slot E', a movable type-bar rigid with the auxiliary poise, and an impression-table, substantially as and for the purposes described.



6. The combination with a recording-beam of a guideway thereon, a main poise and an auxiliary poise adjustably secured to the beam, reinforced by and moving in said guideway, a slotted face-plate carried by the main poise, mechanism projecting through said face-plate to operate the auxiliary poise and to limit the play of the same, said face-plate having slots therein for the insertion of and printing on tickets the gross and tare weights of a load, removably-secured type on said beam and on the auxiliary poise, impression mechanism carried on said main poise, opposite the type-surfaces and below said slots, and means to operate the same, substantially as described and set forth.

7. The combination of a recording weigh-beam, a guideway thereon, a main poise, an auxiliary poise carried by the main poise and reinforced by and adjustable in said guideway, suitable recording mechanism on the main poise, a removable type-surface on the auxiliary poise, a series of removable numerals on the main and auxiliary poises, one set being arranged to designate a decimal part of the other and both together the load weighed, graduations on the main beam and on the main poise corresponding to said numerals, readily visible to the operator, indicator-points on the main beam and auxiliary poises, a face-plate on the main poise having slots in the face thereof, marked "Gross" and "Tare," for the insertion of and printing on tickets the gross and tare weights respectively of a load, the whole being so arranged that the weights indicated by the indicator-points on said graduations will correspond to the weights impressed or printed by said recording mechanism on said tickets, substantially as described and set forth.

593,321. SUPPORT FOR BICYCLES. AUGUST H. CROSMEYER, New York, N. Y. Filed May 20, 1896. Serial No. 593,053. (No model.)



Claim.—As a new article of manufacture, a bicycle-support, consisting of a clamp 11, which is mounted on the bar 7 near the lower end, two legs 12 pivotally connected therewith in the manner of a

pair of shears as shown at 13, said legs being inwardly curved at 14 and then carried outwardly and downwardly and each being provided with prongs 16, a loop 17, a chain 18 secured thereto which is adapted to be connected with a similar loop 19 on the opposite leg, and locked thereto by a padlock, a clamp 21, on the rod 7 provided with hooks 22 which are composed of spring metal and which are adapted to engage said legs 12, which are adapted to be turned upwardly, and the chain 18 being adapted to be passed around the upright rod 7 when said legs are in said position, all substantially as shown and described and for the purpose set forth.

593,822. ICE-CREAM CARRIER. LORENZ A. DEUTHER, Buffalo, N. Y. Filed Nov. 11, 1895. Serial No. 568,588. (No model.)



Claim.—1. A cover formed of waterproofed paper, and composed of a series of flat layers separated from each other at or near their centers by separating-strips, each of said strips being larger than its adjacent preceding strips from the bottom upward, and fastening devices for securing the said cover portions together, as set forth.

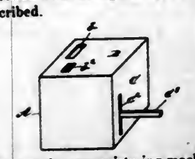
2. In an ice-cream carrier, the combination with the cream-holding compartment hung pendent from one end of the cylinder protecting-case, and provided with an open mouth, of a cover comprising an outer flat portion larger than the said mouth, and a series of flat portions separated from each other by separating-strips and of a size and shape adapted to fit tightly in said mouth, and thereby form confined air-spaces between the outer flat portion and the interior of the cream-holding compartment when the said cover is seated in said mouth, as set forth.

3. An ice-cream carrier, comprising an outer protecting-case formed of two cylinders, one slightly larger and within the other, circular separating-rings interposed between the said cylinders at the top and bottom thereof, end pieces composed of two portions fitting closely in the bottom and top of the said inner cylinder of the protecting-case, an opening in the bottom end piece, a stopper for closing the same, an opening in the top end piece, an ice-cream holder provided with an open top end and hung pendent in the protecting-case, the edge of the upper end of the cream-holder being secured to the edge surrounding the opening in the top end of the protecting-case, a cover composed of flat portions separated from each other by interposed strips, said flat portions fitting closely in the open top end of the cream-holder, an outer top portion larger than the separated flat portions and projecting over the surrounding edge of the said open top end, a fastening device passing through the said top portion, the separated flat portions and the interposed strips, and metallic slips having one end secured between the two parts of the top end of the protecting-case and the other bent over the outer top portion of the cover to secure it in place, as set forth.

4. A portable ice-cream carrier, consisting of a cylindrical box provided at one end with a square opening through which is introduced and rigidly secured a rectangular ice-cream receptacle adapted to receive a hard frozen brick of ice-cream of substantially the same form and shape as the said receptacle, a cover consisting of flat portions separated from each other at or near their centers by separating-strips, a fastening device for securing them together, metallic slips for fastening the said cover in its place, an opening at the opposite end of the said cylindrical box, for the introduction of refrigerating material and a stopper for the same, the rectangular receptacle being so arranged in the cylindrical box that the refrigerating material can be placed equally on all sides thereof except the top and as the top cover is formed of several separated layers and projects down a short distance into the ice-cream receptacle, all portions of the cream are kept at the same equal temperature, as set forth.

593,828. VOTE-REGISTERING MACHINE. SAMUEL N. GIFFORD, Livermore Falls, Me., assignor of one-third to Frank A. Millett, same place. Filed Sept. 3, 1896. Serial No. 604,744. (No model.)

Claim.—1. In a ballot counting or registering machine, the combination with a suitable casing, which is provided with a slot in the top thereof, through which the ballots are passed, and another slot through which the counting or registering mechanism may be seen, of a pivoted chute which is supported below the slot, through which the ballots are passed, a sliding plate which is adapted to close said slot, a pivoted plate below said chute, onto which the ballots are dropped, and which is arranged adjacent to the slot in the box or casing, and devices connected with said chute, and said plate for operating the same, and for operating said registering and counting mechanism each time that a ballot is deposited, consisting of a lever pivotally supported in the box or casing, and projecting through a slot in the side thereof, and operative devices connected therewith, and with said sliding plate, and said chute by which the latter are operated each time that a ballot is deposited, said lever being also in operative connection with the registering mechanism, substantially as shown and described.



2. In a ballot counting or registering machine, the combination with a suitable box or casing, of a registering or counting device, consisting of a plurality of registry or counting wheels, mounted on a suitable shaft, each of which is provided with ten surfaces or spaces, which are designated as herein described, and each of which is provided with sprocket-hubs, having ten sprockets formed thereon, said sprocket-wheels, mounted adjacent to and adapted to operate in connection with the sprocket-hubs on the registering or counting wheels, and each sprocket-wheel being provided with a pawl, by which the hub on the adjacent wheel is operated, and a pivoted lever, connected with a crank, which is mounted on the shaft on which the registry-wheels are mounted, and which is provided with a sprocket-wheel, having ten sprockets formed thereon, and which is adapted to operate the adjacent registry-wheel, by means of a pivoted pawl connected therewith, said lever being adapted to be operated each time that a ballot is deposited, and said box or casing being provided with a slot, through which the ballots are passed, below which is placed a sliding plate, which is in operative connection with said lever, substantially as shown and described.

3. In a ballot counting or registering machine, the combination with a suitable box or casing, of a registering or counting device, consisting of a plurality of registry or counting wheels, mounted on a suitable shaft, each of which is provided with ten surfaces or spaces which are designated as herein described, and each of which is provided with sprocket-hubs, having ten sprockets formed thereon, suitable sprocket-wheels adapted to operate in connection with the sprocket-hubs on the registering or counting wheels, and each sprocket-wheel being provided with a pawl, by which the hub on the adjacent wheel is adapted to be operated, and a pivoted lever connected with a crank, which is mounted on the shaft on which the registry-wheels are mounted, and which is provided with a sprocket-wheel having ten sprockets formed thereon, and which is adapted to operate the adjacent registry-wheel, by means of a pivoted pawl connected therewith, said lever being adapted to be operated each time that a ballot is deposited, and said box or casing being provided with a slot, through which the ballots are passed below which is placed a sliding plate, which is in operative connection with said lever, and said box or casing being also provided with a pivotally-supported chute, which extends from said slot, and below which is a pivoted plate, onto which the ballots drop when deposited, said plate being provided with an arm or lever, on which is mounted a screw-threaded nut, said lever being adapted to engage with a sliding bar in connection with which the lever which operates the registering mechanism operates, substantially as shown and described.

4. In a ballot counting or registering machine the combination with a suitable box or casing provided with a slot in the top through which the ballots are passed and with another slot through which the counting or registering mechanism may be seen, of a lever pivotally secured near the back of said casing and extending transversely across the same and projecting through the slot C^2 of the spring secured near the pivoted end of said lever, and which projects forwardly and secured on the upper side thereof and the top to depress the same, said lever being provided with a longitudinal slot through which passes one end of a crank-lever which is revolubly mounted, and secured to the bottom of the box or casing for the purpose set forth, of a chute pivotally supported below said slide through which the ballots are passed the bottom of the casing being provided with a slot below said chute, said slot through which the ballots are passed being provided with a sliding plate or cover and means connecting said lever with said plate and said chute for operating said plate and for swinging the lower end of the chute, and devices connected with said lever and the registering or counting mechanism by which the latter is operated, substantially as shown and described.

5. In a ballot counting or registering machine, the combination of a suitable box or casing, provided with a slot in the top through which ballots are passed and provided with another slot through which counting or registering mechanism may be seen, of a lever pivotally secured near the back of said casing and extending transversely across the same of a front side C in which is formed a vertical slot C^2, through which said lever passes and a spring which is secured near the pivoted end of the said lever and which projects forwardly on the upper side thereof and is adapted to depress the same, a chute pivotally supported below the slot through which the ballots are passed the bottom of the casing being provided with a slot below said chute, said slot through which ballots are passed being provided with a sliding plate or cover, the means connected with said lever and with said plate, and said chute for operating said plate, and for swinging the lower end of said chute and a device connected with said lever and the registering or counting mechanism consisting of a plurality of wheels which are provided with ten spaces which are numbered as herein described, and which are adapted to be operated for the purpose set forth.

593,824. GATE. THOMAS C. GREENE, Tremont, Ill. Filed July 2, 1896. Serial No. 597,949. (No model.)



Claim.—1. The combination with a post, and a gate, of a rod or shaft connected with the post and to which the gate is hinged, said rod or shaft having a segment thereon, a spring for locking the segment, and wings or cams connected with the gate for throwing the spring out of engagement with the segment, substantially as set forth.

2. The combination with a post, and gate hinged thereto, of a rod or shaft connected with the post and to which the gate is hinged, a segment secured on the rod or shaft, said segment having notches therein, the outer notches being open notches, a spring adapted to enter these notches for locking the segment in position, and means for automatically removing the spring from the segment, substantially as set forth.

3. A gate-latch composed of two members adapted to straddle the outer end of the gate, said latch having an open slot or hook formed at its inner end whereby it is detachably connected with the gate, substantially as set forth.

4. The combination with a gate, of a latch straddling a portion of the gate and detachably hooked to its pivot, substantially as set forth.

5. The combination with a gate, of a latch detachably pivoted at one end on the gate and adapted to rest freely at the other end on a portion of the gate, and a spring extending from the latch to the gate and adapted to hold the latch yieldingly downward upon the pivot and in its latch.

6. The combination with a post, and a gate hinged thereto, of a frame pivoted to the post and extending approximately at right angles to the gate when in its normal position, said frame having keepers on its outer ends in position to receive the latch of the gate, substantially as set forth.

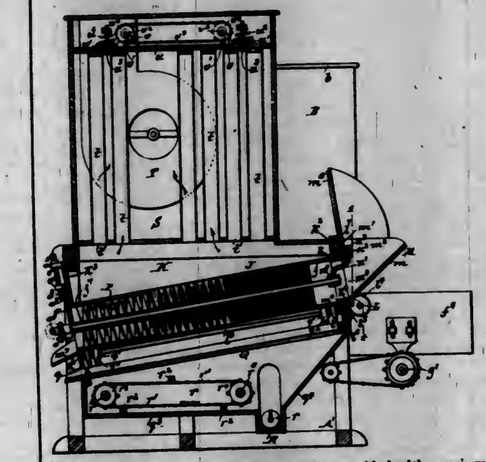
7. The combination with a post, and a gate hinged thereto, of a gate-operating frame pivoted to the post and carrying keepers at its outer ends, substantially as set forth.

8. The combination with a post, and a gate hinged thereto, of a frame pivoted to the post, arms extending outward from the ends of the frame, and a tread constructed and adapted to operate in connection with the arm to operate the gate, substantially as set forth.

9. The combination with a post, and a gate, of a frame pivoted to the gate, an arm detachably connected with each outer end of the frame, and a trip operating in connection with each of said arms, substantially as set forth.

10. The combination with a post, and a gate hinged thereto, of a frame pivoted to the post, an arm connected with the outer ends of the frame, L shaped shoes hinged to said arms, and hinged trips adapted to operate in connection with the arms or shoes to swing the gate, substantially as set forth.

593,825. CONFECTIONER'S FILLING AND SEPARATING MACHINE. AUGUST HEINE and GEORGE S. MACK, Silver Creek, N. Y.; said Mack assignor to said Heine. Filed Apr. 13, 1897. Serial No. 631,941. (No model.)



Claim.—1. The combination with a bin provided with openings on opposite sides above its bottom, of a conveyer-casing arranged below said bottom and communicating with said openings and provided with an outlet, and an endless conveyer passing through said openings of the bin and over the bottoms of the bin and conveyer-casing, substantially as set forth.

2. The combination with the starch-bin, of a conveyer whereby the starch is removed from the bottom of said bin, a feed-spout to which the starch is delivered by said conveyer, and a disintegrator arranged in said feed-spout, substantially as set forth.

3. The combination with the starch-bin, of a conveyer whereby the starch is removed from the bottom of said bin, a feed-spout arranged below said conveyer and to which the starch is delivered by said conveyer and a tray-feeder arranged below said feed-spout, substantially as set forth.

4. The combination with the starch-bin, of a conveyer whereby the starch is removed from the bottom of said bin, a feed-spout to which the starch is delivered by said conveyer, a disintegrator arranged in said feed-spout, and a tray-feeder arranged below said feed-spout, substantially as set forth.

5. The combination with the starch-bin, of a conveyer whereby the starch is removed from the bottom of said bin, a feed-spout to which the starch is delivered by said conveyer, and a disintegrator arranged in said feed-spout and consisting of a horizontal shaft, disks secured thereto and rods connecting said disks, substantially as set forth.

6. The combination with the feed-spout and the tray-guides arranged below the same, of feed-rollers adapted to engage against op-

posite sides of the trays and operating to move the same underneath the feed-spout, substantially as set forth.

7. The combination with the feed-spout and the tray-guides arranged below the same, of elastic feed-rollers adapted to engage against opposite sides of the trays and operating to move the same underneath the feed-spout, substantially as set forth.

8. The combination with the feed spout and the tray-guides arranged below the same, of a triangular striker arranged in rear of the feed-spout, and capable of vertical yielding movement, vertical guides in which the rear portion of the striker is guided, and a retaining band whereby the front portion of the striker is held against downward displacement, substantially as set forth.

9. The combination with the separating-chamber provided in its front and rear ends with circular openings, of a rotary screen provided at its receiving and delivery ends with supporting-rings which turn in said openings, substantially as set forth.

10. The combination with the separating chamber, and the front and rear supporting-plates provided with circular openings, of a rotary screen provided at its receiving and delivery ends with supporting-rings which turn respectively in the openings of the front and rear plates, and an annular flange arranged on the front supporting-ring and bearing against the front side of the front supporting-plate, substantially as set forth.

11. The combination with the separating-chamber, and the front and rear supporting-plates provided with circular openings, of a rotary screen provided at its receiving and delivery ends with supporting-rings which turn respectively in the openings of the front and rear plates, and an annular flange arranged on the front supporting-ring and bearing against the front side of the front supporting-plate, the diameter of the screen and its supporting-rings being no larger than the diameter of the opening in the front supporting-plate so as to permit the screen and rings to be withdrawn through the front opening, substantially as set forth.

12. The combination with the separating-chamber, and the front and rear supporting-plates provided with circular openings, of a rotary screen provided at its receiving and delivery ends with supporting-rings which turn respectively in the openings of the front and rear plates, an annular flange formed on the front ring and provided with a gear-rim, a spur gear wheel meshing with the gear-rim and provided with a bevel gear-wheel and a driving-shaft provided with a bevel-gear which meshes with the bevel gear-wheel on the spur gear-wheel, substantially as set forth.

13. The combination with a rotary screen, of longitudinal shafts provided with rollers which support said screen, a vertically-shaking screen arranged below the rotary screen, and cams arranged on said shafts and actuating the vertically-shaking screen, substantially as set forth.

14. The combination with the separating-chamber provided with circular openings in its front and rear ends, of a rotary screen provided at its receiving and delivery ends with supporting-rings which turn in said openings, a feed-hopper provided with a discharge-opening which registers with the receiving end of the screen, and an annular flange secured to the hopper around the discharge-opening thereof and fitting against the inner side of the front supportieg-ring, substantially as set forth.

15. The combination with the rotary screen and the feed-hopper which opens into the receiving end of the screen, of a rotary brush arranged in the screen and mounted on a shaft which does not project beyond the front end of said screen, and a hanger which is secured with its upper end to said hopper and provided at its lower end with a bearing in which the brush-shaft is journaled and which projects rearwardly into the screen, so as to clear the lower portion of the feed-hopper, substantially as set forth.

16. The combination with a screen, of an imperforate fibrous wiper moving with the screen and forming a continuation thereof, substantially as set forth.

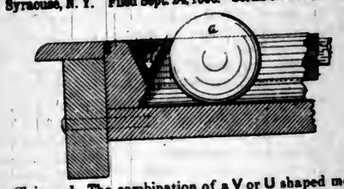
17. The combination with a rotary screen, of an imperforate fibrous wiper rotating with the screen and provided with a slot or gap which is provided with a perforate covering, substantially as set forth.

18. The combination with a rotary screen, of an imperforate fibrous wiper rotating with the screen and provided with a slot or gap which is provided with a perforate covering, a rotary brush engaging with the inner side of the screen and a rotary brush engaging with said wiper, substantially as set forth.

598,326. WOOD FABRIC FOR TAPESTRIES, CARPETS, FURNITURE, &c. FERDINAND A. JUNRAU, Lyons, France. Filed Feb. 16, 1897. Serial No. 623,694. (No specimens.) Patented in France June 13, 1896, No. 257,186.

Claim.—A material fitted for furniture, panels, screens, wainscoting or other woodwork, made of a woven-cloth lining on which is pasted a thin sheet of veneer, through which, incisions are made without cutting the cloth.

598,327. BILLIARD-TABLE CUSHION. THOMAS W. MEACHEN, Syracuse, N. Y. Filed Sept. 24, 1896. Serial No. 606,852. (No model.)



Claim.—1. The combination of a V or U shaped metallic spring and a rubber cushion completely inclosing the spring, as set forth.

2. The combination of a V or U shaped metallic spring and a triangular rubber cushion completely inclosing the spring, as set forth.

3. The combination of a V or U shaped metallic spring, a rubber cushion completely inclosing the spring, and a fabric cemented to the rubber on the interior walls of the cushion, as set forth.

4. The combination of a V or U shaped metallic spring, a rubber cushion shaped triangular in cross-section, entirely surrounding the spring, and cloth between the rubber and the spring, as set forth.

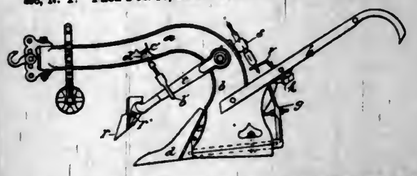
5. The combination of a V or U shaped metallic spring, an angular rubber cushion completely inclosing the spring, cloth secured to the interior of the cushion and cloth completely inclosing the cushion, as set forth.

6. The combination of a V or U shaped metallic spring, an angular rubber cushion completely inclosing the spring, cloth secured to the inner walls of the cushion, and stiffening-strips at one or more of the angles of the cushion embedded in the rubber substantially as described and shown.

7. The combination of a V or U shaped metallic spring having its edges bent inward, and an angular rubber cushion completely inclosing the spring, as set forth.

8. The combination of a V or U shaped metallic spring, an angular rubber cushion completely inclosing the spring, cloth secured to the inner walls of the cushion, and a cushion-rail surrounding a billiard-table to support the cushion, substantially as described and shown.

598,328. REVERSIBLE PLOW. WILLIAM A. MILNE, Poughkeepsie, N. Y. Filed Feb. 19, 1895. Serial No. 539,033. (No model.)



Claim.—1. In combination the plow-beam *a*, the jointer rotarily adjustable within the standard and the standard *i* radially adjustable on the beam, substantially as described and shown.

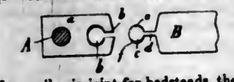
2. In combination, the support-piece *i*, the hand-lever base *n*, the vibratory catch-bar *j*, and the bolt *o*, round where it traverses the support-piece, and squared each side thereof, all substantially as described and for the purposes set forth.

598,329. ARTIFICIAL FLOWER. JAMES J. MCLAUGHLIN, Boston, Mass. Filed May 20, 1897. Serial No. 637,327. (No model.)



Claim.—In an artificial flower, the bulb or receptacle A formed with the central well C extending down into the interior of the bulb and with the perforations B; the neck A' extending down from the bulb; and artificial petals secured to said neck and extending up around the bulb, substantially as described.

598,330. RAIL GRIP-JOINT FOR BEDSTEADS. LOUIS C. NEVT, Brooklyn, N. Y. Filed Mar. 6, 1897. Serial No. 626,356. (No model.)



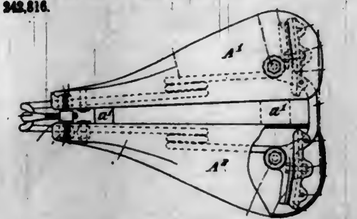
Claim.—1. In a rail grip-joint for bedsteads, the member *a* provided with a socket *b* of gradually-diminishing dimensions, and a slot *b'*, in combination with a side rail provided with a web *d* and a head *e* having a plurality of nubs situated alternately on opposite sides thereof, substantially as specified.

2. In a rail grip-joint for bedsteads, the member *a* having a socket *b* with an inclined wall and perpendicular guide-walls, a slot *b'*, a member B having a web *d* and a head *e* having nubs *e*, *f*, and *g*, situated alternately on opposite sides thereof, substantially as specified.

3. In a rail grip-joint for bedsteads, the member *a* having a socket *b* of gradually-diminishing dimensions, and a slot *b'*, a side rail provided with a head *c* having nubs *e*, *f* and *g* situated alternately on opposite sides thereof, and a web connection *d* between said head and the side rail of the bedstead, substantially as specified.

4. In a rail grip-joint for bedsteads, the member *a* having a socket *b* with an inclined side wall and perpendicular guide-walls, a head *c* having a wall vertical at the junction of the neck or web, and nubs *e*, *f* and *g* situated alternately on opposite sides thereof, and a web connection *d* between said head and the side rail of the bedstead, substantially as specified.

598,331. VELOCIPEDE-SADDLE. JUAN E. NOURIT, Walmail, England. Filed July 28, 1896. Serial No. 600,807. (No model.) Patented in England June 27, 1894, No. 12,460, and in France Nov. 12, 1894, No. 242,816.



Claim.—1. In combination in a cycle-saddle, the two parts having sockets at their front ends, the cross-screw having right and left hand threads for adjusting the parts, the saddle-spring and the adjustable connection between the cross-screw and the front end of the spring whereby the cross-screw may be adjusted longitudinally of the saddle, substantially as described.

2. In combination, the two parts of the saddle, the saddle-spring, the cross-screw for adjusting the two parts of the saddle and the tension-screw *J* connecting the cross-screw with the spring said screw having its shank threaded into a portion of the cross-screw, substantially as described.

3. In combination in a saddle, the two parts, the runners secured to the back parts thereof and the saddle spring or springs with adjustable connections between the springs and the runners, said runners being slidable laterally to increase or decrease the width of the saddle at the rear, substantially as described.

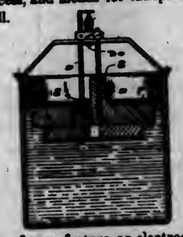
4. In combination, in a cycle-saddle, the two top parts having the threaded sockets at their front ends with the right and left hand screw-threaded rod, the tension-screw connected therewith and with the springs, said screw being adapted for adjusting the tension and for adjusting the front ends of the two parts, and the adjustable slides or runners fixed to the rear ends of the two top parts with means for supporting the same adjustably, substantially as described.

5. In combination with the two top parts of the saddle, the overlapping runners adapted to be adjusted one upon the other by sliding one part longitudinally upon the other and the supporting spring or springs, substantially as described.

598,332. BATTERY-ZINC. DORA OGDEN, Columbus, Ind. Filed Dec. 24, 1896. Serial No. 616,635. (No model.)

Claim.—1. The combination of an electrode, means carried thereby for interlocking with a similar electrode, and means by which two such electrodes may be independently held in a cell, the arrangement being such that one electrode will lie immediately beneath the other.

2. As an article of manufacture, an electrode having a lug formed on one surface thereof, to one side of the center and a recess or opening formed in said electrode on the opposite side of the center, the arrangement being such that the lug of a similar electrode may be received in said recess, and means for independently mounting each electrode in the cell.



3. As an article of manufacture, an electrode having a lug formed on one surface thereof on one side of the center, an opening formed through said electrode on the opposite side of the center, the arrangement being such that the lug of a similar electrode may be received in said opening, and a connecting-rod, of material other than the material of the electrode passing down through said lug and through the electrode and being secured thereto, the arrangement being such that each electrode may be independently suspended by means of said rod.

4. As an article of manufacture, an electrode having a lug formed on one surface thereof on one side of the center, an opening formed through said electrode on the opposite side of the center, the arrangement being such that the lug of a similar electrode may be received in said opening, and a connecting-rod, secured to said lug, the arrangement being such that each electrode may be independently suspended by means of said rod.

5. The combination of a pair of electrodes each provided with means for engaging a similar electrode and each provided with a connecting-rod, a saddle adapted to extend across the mouth of a cell, an adjustable block carried by said saddle, means carried by said block for engaging the connecting-rod of each electrode, and a binding-post carried by said block, substantially as described.

6. The combination of a pair of electrodes each provided with means for engaging a similar electrode and each provided with a connecting-rod, a saddle adapted to extend across the mouth of a cell, and means carried by said saddle for engaging each of said connecting-rods, substantially as and for the purpose set forth.

7. The combination with a pair of electrodes each provided with means for engaging a similar electrode and each provided with a connecting-rod, of means engaging each of said rods and thereby independently suspending each electrode in the cell.

8. The combination with a pair of electrodes each provided with means for suspending it in the cell, one of said suspending means passing through the other electrode, of means for engaging said suspending means and thereby holding the electrodes independently in the cell one above the other.

598,333. DEVICE FOR SEPARATING LIQUIDS OF DIFFERENT SPECIFIC GRAVITY. RUFUS H. PARK, Chicago, Ill., assignor of one-half to Jacob Feinberg, same place. Filed Jan. 22, 1897. Serial No. 620,270. (No model.)



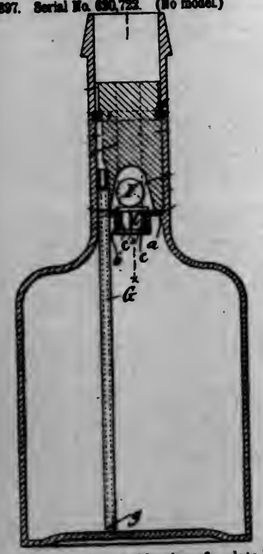
Claim.—1. A liquid-separator comprising a vessel having a removable cover at one of its ends and a suitable closure at its other end, a flat apertured movable disk located within the vessel between said cover and closure, a flat shut-off pivotally secured on the disk, and means to turn said shut-off and to move the disk.

2 The combination with a vessel having a closure at one of its ends, of a removable cover having an opening therethrough at its other end, an apertured movable disk between said cover and closure, a shut-off pivotally secured on the disk and a removable operating-stem adapted to pass through the opening in the cover and to engage and move the disk and turn the shut-off, substantially as described.

3. The combination with a vessel having a closure at one of its ends, of a removable cover having an opening therethrough and a washer around said opening at its other end, an apertured movable disk between said closure and cover provided with a cushioning-ring at its periphery, a horizontally rotary shut-off secured on the disk, and a removable operating-stem adapted to pass through the openings in the washer and cover and to engage and move the disk and turn the shut-off, substantially as described.

4 The combination with the vessel A, provided at one of its ends with the bottom L, and having at its other end the projections *a*, of the removable cover B, provided with the central opening *b'*, washer b^2, and annular flange or rim b^3, having the inclined recesses *b*, an apertured movable disk located between said bottom and cover, a shut-off pivotally secured on the disk and an operating-stem adapted to pass through the openings in the washer and cover and to engage and move the disk and turn the shut-off, substantially as described.

598,884. BOTTLE. FREDERIC H. PERRY, Pawtucket, R. I. Filed Jan. 26, 1897. Serial No. 620,722. (No model.)



Claim.—In a bottle, the combination of a plate having an aperture therethrough and a segmental projection on the upper surface, a valve seated thereon and a plug resting upon the said plate, said plug having a recess in the lower end thereof and a ball adapted to rest upon the said valve for maintaining it in a closed position, the plug having a zigzag channel leading vertically therethrough which communicates with the said recess, a split ring for locking the said plug within the neck of the bottle; and a tubular vent leading through the body of the bottle to a groove extended vertically upon the side of the plug, whereby the bottle is emptied, substantially as shown and described.

598,885. LOCK-CIRCUIT CLOSER. CHARLES B. PIERCE, New York, N. Y. Filed July 2, 1896. Serial No. 597,838. (No model.)



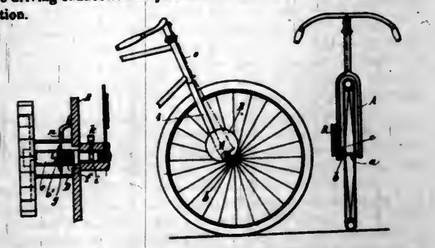
Claim.—1. The combination with a bolt and its keeper, of a lever fulcrumed on the keeper and engaged by the side of the bolt as the bolt moves laterally upon the forcing of the door, and two contacts carried by the support and normally disconnected with each other, the contacts being engaged and connected by the movement of the lever, substantially as described.

2. A circuit-closing device for electrical burglar-alarms, the device having a support, a lever fulcrumed on the support and adapted to be engaged by the side of the bolt of a lock as the bolt moves laterally upon the forcing of the door, and two contacts carried by the support and normally disconnected from each other, the contacts being engaged and connected by the lever as the lever swings, substantially as described.

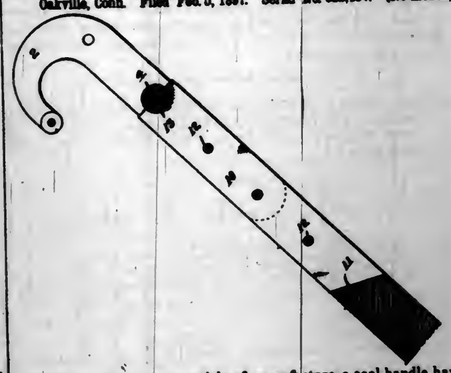
3. An alarm for locks, the alarm having a support, a member pivoted on the support and adapted to be engaged by the bolt of a lock as the bolt moves laterally upon the forcing of the door, and two contacts carried by the support and adapted to be engaged by said pivoted member whereby to operate the alarm, substantially as described.

598,886. BICYCLE-ALARM. CARL SCHELANK, Hamburg, Germany. Filed Aug. 26, 1896. Serial No. 603,899. (No model.)

Claim.—In a cycle, the combination with one of the wheels thereof, of a mechanical musical instrument mounted adjacent thereto, a toothed wheel on the axle of the cycle-wheel and another toothed wheel on the instrument, in engagement therewith and means whereby the driving connection may be thrown into and out of operative condition.



598,887. HANDLE FOR TREE-PRUNERS. WILLIAM H. SMITH, Oakville, Conn. Filed Feb. 5, 1897. Serial No. 622,137. (No model.)

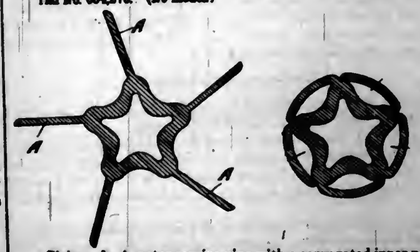


Claim.—1. As a new article of manufacture, a tool-handle having a central slot formed therein the lower end of which is cut upon an angle forming a straight shoulder and sloping to the back, a flat metal strip adapted to fit into said slot and having a bevel end to fit against the shoulder aforesaid rivets passing through said handle and strip, substantially as described.

2. As a new article of manufacture, a handle having a slot formed therein the lower end of which is cut upon an angle sloping to the back and forming a shoulder, a flat metal strip fitted into said slot and having a bevel end to fit against the shoulder aforesaid, a semicircular recess in the upper end of said strip, a head adapted to fit upon the end of said handle and having means for engaging the recess of the strip aforesaid, rivets for securing said head and strip to the handle, substantially as described.

3. In a tool of the class described, consisting of a handle provided with a metallic strengthening-strip, the back edge of which is extended upon the back edge of said handle, a semicircular recess in the upper end of said strip to be engaged by the lug upon the head of said tool, means for securing said strip in said position, substantially as described.

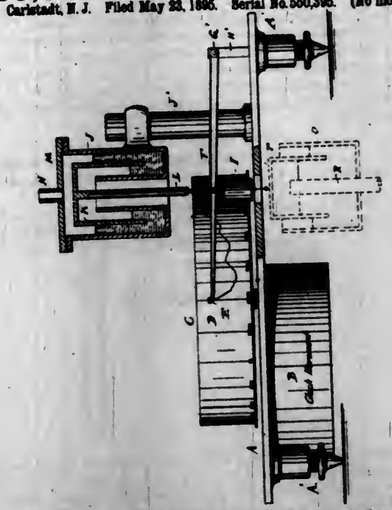
598,888. WATER SERVICE-PIPE. WILLIAM SHELDROVE and RICHARD F. GOUGH, Birmingham, England. Filed Apr. 23, 1897. Serial No. 634,273. (No model.)



Claim.—1. A water service-pipe with a corrugated inner portion in combination with an outer casing or cover and with air-spaces between such inner and outer portions, the said casing forming a series of compartments between itself and the corrugations, as set forth.

2. A water service-pipe with a corrugated body or inner portion in combination with externally-projecting strips as A bent or closed onto such body or inner portion, as set forth.

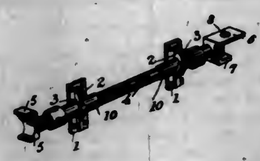
598,889. RECORDING INSTRUMENT. ALFRED STEINHART, Carlstadt, N. J. Filed May 23, 1895. Serial No. 550,395. (No model.)



Claim.—1. In an instrument for recording the variations in the tension of gases, the combination with a vessel closed at the top and having an upwardly-projecting neck at its bottom which neck is open at the top, a liquid-seal plunger in said vessel, a rod extending from said plunger through the bottom neck of the vessel and a tracer connected with said rod and a movable support for paper on which the tracer can trace substantially as herein shown and described.

2. In an instrument for recording the variations in the tension of gases, of a vessel closed at the top and having an upwardly-extending neck in its bottom which neck is open at its top, a tube connected with the upper part of the vessel and serving for conveying the gas of which the variations in tension are to be recorded, into said vessel a bell-shaped liquid-seal plunger in said vessel, a rod extending from said seal-plunger down through the neck in the vessel, a tracer on said rod and a movable support for a sheet on which a record is to be traced by said tracer, substantially as herein shown and described.

598,840. PUSH-BAR FOR TROLLEY-CARS. WILLIAM H. THOMAS, Lahaska, Pa. Filed June 24, 1897. Serial No. 642,181. (No model.)

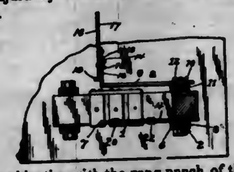


Claim.—1. A car provided with the fixed brackets 1 1, provided with the pivoted pawls 2 2, in combination with the push-bar 4, provided with the elastic sleeves 10 10, substantially as shown and described.

2. As a new article of manufacture, an attachment for trolley-cars comprising a push-bar 4, provided with the forked ears 5 and 5, and the rectangular parallel ears 6 and 7, provided with the orifice 8, and the removable coupling-pin 9, substantially as shown and described.

598,841. GAGE FOR GANG-PUNCHES. WILLIAM H. THOMAS, Lahaska, Pa. Filed July 15, 1897. Serial No. 644,717. (No model.)

Claim.—1. The combination with a gang-punch, provided with the link 3, having the projecting lug 6 and the alined thumb-screw 2, of the horizontal adjustable gage-plate 1, provided with a longitudinal slot 4, adjustably secured to said link 3, substantially as shown and described.



2. The combination with the gang-punch, of the horizontal gage-plate 8, provided with a longitudinal slot 9, and right-angular arm 13, of the gage-bar 16, provided with a longitudinal slot 17, and a right-angular toe 19, and adjustably secured to said arm by means of the thumb-screw 18, substantially as shown and described.

598,842. GAS-BURNER. ASHER R. VOGLER, Hoboken, N. J., and CHARLES G. RICHARDSON, New Brighton, N. Y. Filed Apr. 20, 1897. Serial No. 633,056. (No model.)



Claim.—1. The combination with the shell A burner-tip B and burner-head J, of the vertically-adjustable tube F movable in said shell A and adapted to seat on said tip B and constitute a valve for regulating the air-supply, rack-teeth thereon, and a pinion engaging said teeth, substantially as described.

2. The combination of a shell provided with a burner-tip connecting with a gas-supply pipe, air-inlets communicating with the upper part of said shell, a regulating tube movable in said shell and adapted to seat on said burner-tip and constitute an air-regulating valve in said shell, a pinion for reciprocating said tube, a combined burner-head and mixing-chamber communicating with said regulating-tube, a diaphragm in said head, and outlets for mixed gas and air in said burner-head, substantially as described.

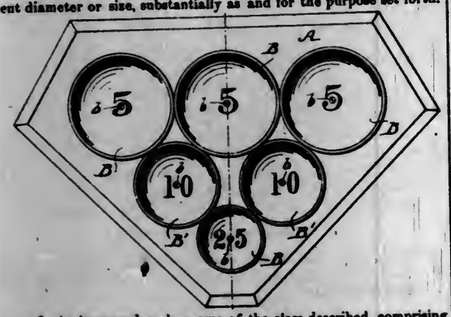
3. The combination of a shell provided with a burner-tip connecting with a gas-supply pipe, air-inlets communicating with the upper part of said shell, a regulating-tube movable in said shell and adapted to seat on said burner-tip and constitute an air-regulating valve in said shell, a pinion for reciprocating said regulating-tube, a combined burner-head and mixing-chamber communicating with said regulating-tube, outlets for mixed air and gas in said burner-head, a mantle-supporting rod, a socket, and a set-screw for said rod outside the burner-head, substantially as described.

4. The combination of a shell A provided with a burner-tip B connecting with a gas-supply pipe and with inlets for air, a regulating-tube movable in said shell A and adapted to seat on said burner-tip B and constitute an air-regulating valve, a pinion for reciprocating said tube, a combined mixing-chamber and burner head communicating with said tube, an insulating-ring in the wall of said burner-head, and a cap on said ring provided with outlets for mixed gas and air, substantially as described.

598,848. GAME APPARATUS. ARTHUR W. WHITNEY, Lowell, Mass. Filed Nov. 10, 1896. Serial No. 611,606. (No model.)

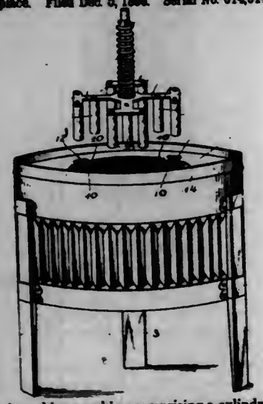
Claim.—1. An improved parlor game of the class described, com-

prising the base-board or platform carrying upon its top surface a triple set of bells or concave receptacles arranged in different relative series, the bells of each series being of corresponding diameter or size and tone, and the bells of the different series being of different diameter or size, substantially as and for the purpose set forth.



2. An improved parlor game of the class described, comprising a base-board or platform having supports therefor carrying upon its top surface transverse relatively-arranged series of concave bells, the bells of each respective transverse series being of corresponding diameter or size and tone, the bells of each series bearing the same number, and the bells of the different series being of different size and tone, substantially as and for the purpose set forth.

593,844. WASHING-MACHINE. SAMUEL M. WINDHILLER and LEE HOLFORD, Nobo, Ill.; said Holford assignor to Ganey F. Windhiller, same place. Filed Dec. 5, 1896. Serial No. 614,614. (No model.)



Claim.—A washing-machine comprising a cylindrical tub having a corrugated wall, a detachable cover therefor, an agitator comprising a shaft the outer end of which is round and fitted in a corresponding opening in the cover, and the lower end is squared, an agitator-head fitted to said shaft and consisting of a sheet-metal support having a central square aperture for the shaft, radial arms, extending therefrom, and cross-bars at the outer ends of said arms, apertures in the arms and cross-bars, spindles mounted to revolve in the apertures, and a spring surrounding the shaft and bearing upon the head or support, substantially as described.

593,845. RAIL-JOINT AND METHOD OF FORMING SAME. WILLIAM J. AUSTIN, Milwaukee, Wis., assignor to the Milwaukee Rail Joint and Welding Company, same place. Filed Feb. 1, 1897. Serial No. 621,403. (No model.)



Claim.—1. An improved rail-joint comprising a cast-metal sleeve or support shaped on its interior to conform to and closely embrace a pair of rail ends and provided with an interior recess or cavity upon each side, a pair of rail ends fitting within said sleeve or support and provided with apertures in their webs and a filling of cast metal flowed into said cavity or recess and through said apertures.

2. A method of joining rail ends consisting in adjusting upon a pair of alined rail ends a cast sleeve or support conforming to the contour of said rail ends and having a cavity or recess upon its interior and upon each side of the rail ends and pouring molten metal into said cavity, and uniting the same to the webs of said rail ends by fusion.

3. A method of joining rail ends consisting in adjusting upon a pair of alined, and perforated or apertured ends a cast sleeve or support shaped upon its interior to conform to the contour of the rail ends and provided upon its interior with a cavity or recess, pouring molten metal into said cavity and through the perforations in the rail ends and fusing the partitions between said perforations to said cast-metal filling.

593,846. MOTH-PROOF CLOTHES-BAG. FREDERICK W. BAKER, New York, N. Y. Filed Dec. 28, 1896. Serial No. 617,290. (No model.)



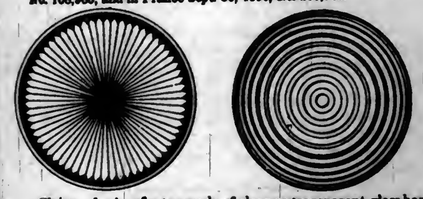
Claim.—The combination with a bag, of stiffeners applied to the edge of said bag, studs secured to one of said stiffeners, and having slots or notches and adapted to enter holes in the opposing stiffener and latches pivoted upon said opposing stiffener to engage said notches, each of said latches having upon its inner surface a lug to press the last-named stiffener toward the first-named stiffener, substantially as shown and described.

593,847. VIOLET DISAZO DYE. FRITZ BENDER, Mühlheim, Germany, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., same place. Filed Aug. 19, 1896. Serial No. 603,243. (Specimens.) Patented in England May 29, 1895, No. 10,069, and in France Mar. 19, 1896, No. 254,915.

Claim.—1. The new disazo dyes herein described derived from 2 amido 5 naphthol 7 sulfo-acid and forming, when dried, dark powders of metallic luster, being soluble in water with a red to violet color, dyeing cotton without mordant, yielding beautiful red to violet shades, and the solution in concentrated sulfuric acid having a greenish to bluish shade.

2. The specific violet disazo dye produced from alpha-naphthylamin 4.7 disulfo-acid, alpha-naphthylamin and 2 ethylamido 5 naphthol 7 sulfo-acid, substantially as described, forming, when dried, a dark powder of metallic luster being soluble in water with a violet color dissolving in concentrated sulfuric acid with a greenish to bluish color and yielding on unmordanted cotton bright violet shades.

593,848. REFLECTOR. ANDRÉ BLONDEL and SPIRIDION PHAROSDAKI, Paris France, assignors to Louis H. Bruner. Original application filed Mar. 30, 1895, Serial No. 543,921. Divided and this application filed May 29, 1896. Serial No. 593,653. (No model.) Patented in Germany Mar. 16, 1893, No. 73,866; in England Oct. 12, 1893, No. 19,185; in Austria-Hungary Jan. 6, 1894, No. 43,966; in Belgium Mar. 13, 1894, No. 106,965, and in France Sept. 30, 1896, No. 253,140.



Claim.—1. A reflector made of clear or transparent glass having flutings on its opposite faces, the flutings on one face being arranged at about right angles to the flutings on the other face and the profiles of said flutings being triangular.

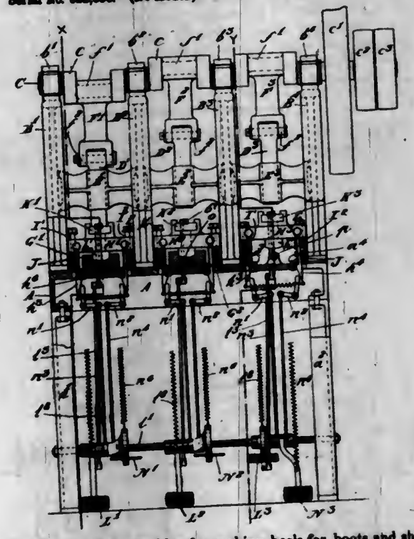
2. A reflector made of clear or transparent glass, a portion of which is provided on its exterior with horizontal flutings, the profiles of which are triangular and the interior surface of which is provided with a series of vertical flutings, the profiles of which are triangular.

3. A reflector made of clear or transparent glass which is convex on one side and concave on the other, and having flutings on its concave and convex surfaces, said flutings being arranged at about right angles to one another, the profiles of said flutings being triangular.

4. A reflector made of clear or transparent glass concave on one side and convex on the other, having triangular concentric prisms upon its convex surface, and having flutings upon its concave surface which radiate from the center of the circles of the exterior prisms.

5. A reflector made of clear or transparent glass, being concave upon one side and convex upon the other, having triangular concentric prisms of uniform shape on its convex surfaces, and having on its concave surface a series of triangular prisms which radiate from the center of the circles of the exterior prisms.

593,849. MACHINE FOR MAKING HEELS FOR BOOTS OR SHOES. JOHN V. COLLIER, Northampton, England. Filed Feb. 10, 1897. Serial No. 622,890. (No model.)



Claim.—1. In a machine for making heels for boots and shoes comprising a heel-mold adapted to slide to and fro on the bed of the machine, the pressure-block guided for vertical movement above the said mold, catches for maintaining the pressure-block in its lowest position, springs or like means for raising the said pressure-block, a plunger and means for moving the plunger up and down above the pressure-block, and a distance-block with means for inserting the same between the plunger and the pressure-block to cause the plunger to depress the pressure-block and compress the heel in the mold, all substantially as hereinbefore described.

2. In a boot and shoe heel making machine, the combination with the heel-mold of the pressure-block such as H', for compressing the heel, catches A^3 A^4 secured thereto for holding the pressure-block in its lowest position, treadle and connections for releasing the said catches, and the springs for causing the pressure-block to rise out of the mold, all substantially as hereinbefore described.

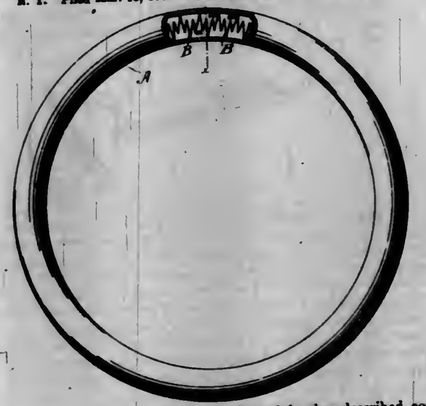
593,850. FLOUR BIN AND SIFTER. BYRON D. COOK, Homer, Mich., assignor to P. C. Mitchell, same place. Filed Apr. 13, 1896. Serial No. 587,307. (No model.)

Claim.—1. In a combined flour bin and sifter, the combination of the hollow base A, with the door E, to the front thereof; the main bin B, above; a curved screen E, between the upper main portion and the base; a reel supported above the curved sieve consisting of strips of molding *a*, held between suitable metal end plates *n*, with a crank and shaft F, having an offset portion to support and jar the same all coacting together for the purpose specified.

2. In a flour or meal sifter the combination of the curved sieve *e*; the reel supported within said sieve consisting of the metal end plates *n*; strips of molding *a*, nailed between the two, and a crank-rod forming a crank F, extending through the end plates *n*, and offset to engage the bars of molding *a* to rotate and jar the same, as specified.



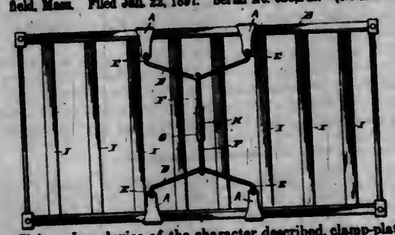
593,851. BICYCLE-TIRE. FREDERICK COYKENDALL, New York, N. Y. Filed Mar. 15, 1897. Serial No. 627,457. (No model.)



Claim.—1. An improved bicycle-tire of the class described, comprising the inclosing tubular tire or shoe, and the double alternately-coiled spring embodying the central series of smaller coils intermediately between which are arranged the larger coils projecting alternately in opposite directions, all the coils being in transverse relation with respect to the inclosing tube, substantially as and for the purpose set forth.

2. An improved bicycle-tire of the class described, comprising the elliptical inclosing tire or shoe, and the double alternately-coiled spring embodying the central series of smaller coils intermediately between which are arranged larger coils projecting alternately in opposite directions, all the coils being in transverse relation with respect to the inclosing tube and the intermediate oppositely-projecting larger coils being in a tread line or plane with relation to the tread of the elliptical inclosing tube, substantially as and for the purpose set forth.

593,852. CLAMP FOR BEDSTEADS. JAMES F. DUNNIGAN, Greenfield, Mass. Filed Jan. 22, 1897. Serial No. 620,242. (No model.)



Claim.—In a device of the character described, clamp-plates A, having teeth to engage the side rails of a bed, yokes D provided with hooked ends engaging the shanks of the clamps, rods F connected to the yokes and a turnbuckle G threaded on the rods, F, substantially as described.

593,853. MATCH-SAFE. HERBERT FLANDERS and CHARLES H. STEARNS, Manchester, N. H. Filed Feb. 20, 1897. Serial No. 624,416. (No model.)



Claim.—1. In a match-safe having a sliding bottom provided with a match-groove, the front and rear walls each with an opening for the passage of the slide, said front wall having its foot curved toward the interior of the safe and provided with a thin edge to obviate packing of the matches, substantially as described.

2. In a match-safe, the slotted front and rear walls and a sliding bottom having a match-groove, the bottom being cut away at the end of the groove to facilitate grasping it and an igniting-surface in the groove, substantially as described.

3. In a match-safe, the slotted front and rear walls, the grooved sliding bottom, the retracting-spring and the spring-catch all in combination, substantially as described.

593,854. ADJUSTABLE WRENCH. MARK M. FUNK, Mercersburg, Pa., assignor to James W. Carson, same place. Filed July 3, 1897. Serial No. 643,396. (No model.)



Claim.—1. The combination in an adjustable pipe and nut wrench, of a shank portion, a fixed jaw mounted upon or formed integrally at one end of said shank portion, a sliding jaw mounted upon the shank portion, ratchet-teeth formed upon one of the inner surfaces of said sliding jaw, ratchet-teeth formed upon one of the lateral surfaces of the shank portion, a spring-plate extended rearwardly from said sliding jaw, a pawl formed at the end of said spring-plate adapted to be engaged by the ratchet-teeth upon said shank portion, and laterally-projected portions formed upon said spring-plate adjacent to the end thereof for lifting said pawl out of engagement with said ratchet-teeth.

2. The combination in an adjustable pipe and nut wrench, of a shank portion, a fixed jaw upon the end thereof, one end of said jaw forming a right angle with the shank portion, and the other portion of the jaw inclined outwardly, ratchet-teeth formed upon the lateral surface of said shank, a sliding jaw provided with an aperture adapted to receive said shank, ratchet-teeth formed upon one of the rearwardly-inclined surfaces of the said sliding jaw, a spring-plate projected rearwardly from one of the lateral surfaces of said sliding jaw, a pawl formed upon the end of said spring-plate adapted to engage with the ratchet-teeth formed upon said shank, and laterally-projected portions formed upon said spring-plate for lifting said pawl out of engagement with said ratchet-teeth.

3. An improved combination pipe and nut wrench, consisting of a shank, a fixed jaw upon one end of said shank, ratchet-teeth formed upon one of the lateral surfaces of said shank, adjacent to its longitudinal center, a sliding jaw provided with a rectangular aperture for the passage of said shank, a spring-plate projected rearwardly from one of the lateral surfaces of said sliding jaw, a pawl formed upon the end of said spring-plate adapted to be engaged by said ratchet-teeth upon the shank, projected portions on said spring-plate adjacent to the end thereof for lifting said pawl out of engagement with said ratchet-teeth, and other ratchet-teeth formed upon one of the inclined inner surfaces of the sliding jaw so as to form in conjunction with the oppositely-inclined surfaces of the fixed jaw a pipe-wrench, the other opposite meeting surfaces of the fixed and sliding jaw forming a nut-wrench, the whole constructed, arranged and adapted for operation, substantially as and for the purpose herein set forth.

593,855. SHAFT OR POLE FASTENER. HENRY R. HARRIS, Reelfoot, Tenn. Filed Jan. 12, 1897. Serial No. 618,927. (No model.)

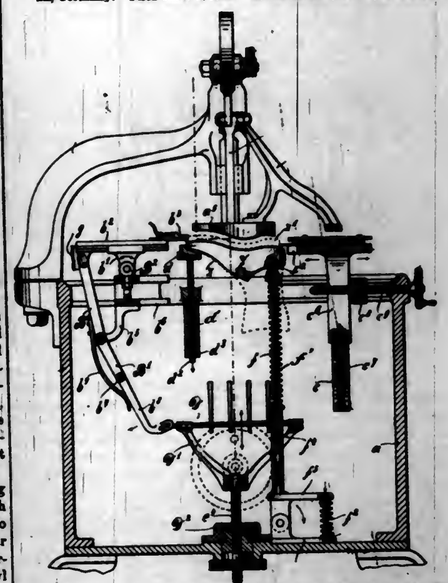
Claim.—1. In a fastening device for securing the poles or shafts of vehicles, the combination with similar members having their ends hooked or bent back as described and one of said members having its inner end threaded while the other member has its inner end annularly grooved, of a turnbuckle having a threaded opening in one end to engage the threaded member and a smooth opening in its opposite end to receive the grooved member, and a dog for engaging said grooved member, substantially as described.



2. In a fastening device for securing the shafts or poles of vehicles, a pair of substantially similar members having their opposite ends bent back to form hooks as described, one of said members having its inner end threaded and the other member provided at its inner end with a plurality of annular grooves, in combination with a turnbuckle provided at one end with a threaded opening to receive the threaded member and a smooth opening at its opposite end to receive the grooved member, and a spring-actuated dog connected to the turnbuckle and adapted to engage one of the grooves of the last-named member, substantially as described.

3. In a fastening device for securing the shafts or poles of vehicles, the combination with substantially similar members having their opposite ends hooked as described and provided one with a threaded inner end and the other with a series of notches at its inner end and on opposite sides, of a turnbuckle having a threaded opening at one end to receive the threaded member and having a smooth opening at its opposite end to receive the notched member, and oppositely-located, spring-actuated dogs mounted in recesses in said turnbuckle and engaging the notched member, substantially as described.

593,856. LASTING-MACHINE. HERMANN VON KALISOWSKI, Berlin, Germany. Filed June 5, 1896. Serial No. 594,430. (No model.)



Claim.—1. In a lasting-machine having its pincers secured to slides adapted to be displaced, as well as to swing, in the direction to the last, the combination with said slides, of an equally great number of levers connected each with lost motion to one of said slides; springs tending to keep each lever in gear with its respective slide, and means for operating said levers all at a time, for the purpose as described.

2. In a lasting-machine having its pincers secured to slides adapted to be displaced, as well as to swing, in the direction to the last, the combination with said slides, of an equally great number of levers connected each to one of said slides; means for operating said levers all at a time, and springs adapted to cooperate with the levers in transmitting the driving power to the slides, for the purpose as described.

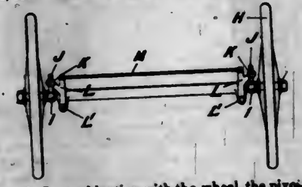
3. In a lasting-machine having its pincers secured to slides adapted to be displaced, as well as to swing, in the direction to the last, the combination with said slides, of an equally great number of double-armed levers connected each to one of said slides; one arm of each lever consisting of two parts hinged together; a spring adapted to transmit the movements of one part to the other part of the lever, and means for operating said levers all at a time, for the purpose as described.

4. In a lasting-machine having its pincers secured to slides adapted to be displaced, as well as to swing, in the direction to the last, the combination with said slides, of an equally great number of levers connected each with dead-play to one of said slides, and having each one arm composed of two parts hinged together; springs secured each to one of said parts, and adapted to transmit the movements of the latter to the other parts of the levers; other springs tending to keep each lever in gear with its respective slide, and means for operating the said levers all at a time, for the purpose as described.

5. In a lasting-machine having its side pincers secured to slides adapted to be displaced, as well as to swing, in the direction to the last, the combination with said slides, of an equally great number of levers connected each to one of said slides, and means for operating said levers all at a time; a special toe-pincers consisting of two vertical jaws arranged one in front of the other, and being each curved according to the configuration of the toe part of the last; the jaw situated nearest to the last being hinged to the other jaw, and both jaws being yieldable in a vertical direction; means for pressing the hinged jaw against the other one, for the purpose as described.

6. In a lasting-machine having its side pincers secured to slides adapted to be displaced, as well as to swing, in the direction to the last, the combination with said slides, of an equally great number of levers connected each to one of said slides, and means for operating said levers all at a time; a special toe-pincers consisting of two vertical jaws arranged one in front of the other, and being each curved according to the configuration of the toe part of the last; the jaw situated nearest to the last being hinged to the other jaw, and the latter being secured to an automatically-displaceable vertical rod; a spring tending to draw said rod upward; a cam held by the said rod, and a lever secured to the hinged jaw, and gearing with said eccentric, for the purpose as described.

593,857. STEERING MECHANISM FOR POWER-PROPELLED VEHICLES. FREDERICK W. LANCHESTER, Alvechurch, England. Filed Mar. 12, 1897. Serial No. 627,180. (No model.)



Claim.—1. In combination with the wheel, the pivoted journals, the levers L pivoted independently of the said journals to one side of the pivots thereof, and the connections between the said levers and their respective journals with means connecting the said levers to move simultaneously, substantially as described.

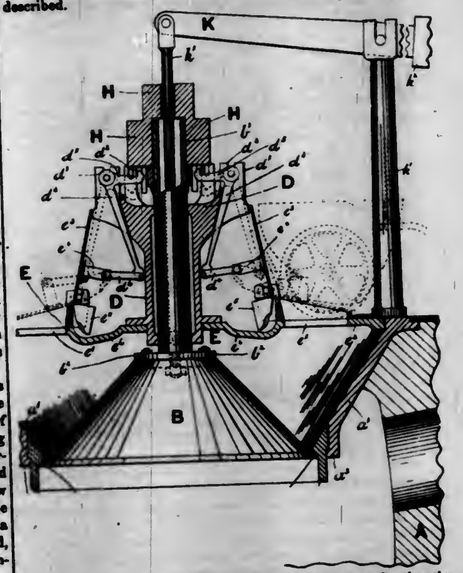
2. In combination in a steering-gear with the steering-wheels, the tiller-bar Q having a joint at P, the link T extending therefrom to connect with the steering means the said tiller having a slotted extension R' with a fixed pin engaging the same, substantially as described.

593,858. BLAST-FURNACE AND MEANS FOR CHARGING SAME. THOMAS LEWIS, Friars Loe, England. Filed Jan. 6, 1897. Serial No. 618,147. (No model.) Patented in England May 13, 1896, No. 10,061.

Claim.—1. In combination, the furnace, the bell, the cover at the top of the furnace, charging-door therein, the plunger extending up from the bell with means for operating the same, the means for opening the charging-door when the bell and plunger are up, and the weight H sliding loosely on the plunger with connections between said weight and the charging-door to receive said weight and close the door as the bell opens, substantially as described.

2. In combination, the furnace, the bell with its plunger, the cover for the furnace above the bell, the charging-door in the cover with the counterbalance-weight for opening it, the weight sliding loosely on the plunger and the lever connections between the weight and the door to receive said weight and thus operate the door to close the top of the furnace as the bell opens, substantially as described.

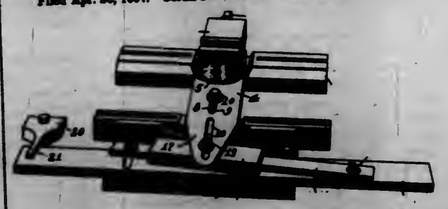
3. In combination, the furnace, the vertically-movable bell for closing and opening the same, the cover over the bell, the charging-door in the cover to close the furnace when the bell is open and means controlled by the vertical movement of the bell for opening and closing the charging-door as the bell is closed and opened, said means being in direct engagement with the bell-plunger, substantially as described.



4. In combination with a blast-furnace, the cover, the charging-door in the cover and a charging apparatus consisting of a barrow having a movable bottom with releasing means therefor arranged to contact with the charging-door when the said door is in its open or upright position and thus release the bottom of the barrow to discharge its load into the furnace-top said releasing means extending forwardly from the barrow.

5. In combination with a furnace and its charging-opening, a cover, a charging door in said cover, a charging device consisting of a barrow having a movable bottom, a catch-bolt j^6, and a lever j^5 for operating the same through contact with the open door when the barrow arrives over the furnace-opening, the said lever j^5 projecting forwardly from the barrow to contact directly with the uplifted door, substantially as described.

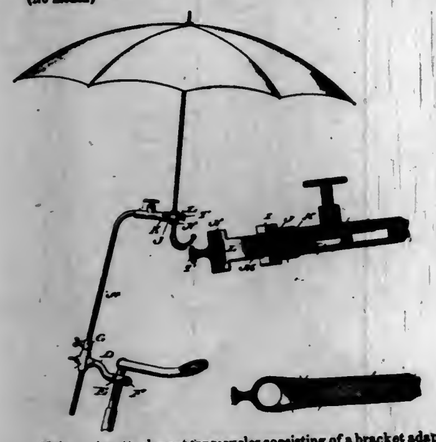
593,859. TAPER-LATHE. WILLIAM LODGE, Cincinnati, Ohio, assignor to the Lodge & Shipley Machine Tool Company, same place. Filed Apr. 26, 1897. Serial No. 633,890. (No model.)



Claim.—1. In a taper-lathe, the combination, substantially as set forth, with a lathe-carriage, a cross-feed screw mounted therein and held against endwise motion, a sliding tool-block, a compound rest carried thereon, an angularly-adjustable guide-bar at the back of the carriage and a slipper thereon, of a screw on said slipper engaging a slot in a rearward extension of said tool-block and serving in temporarily uniting the tool-block to said slipper, a nut on said cross-feed screw, and a screw engaging said nut and a slot in the tool-block and serving in temporarily uniting the tool-block to the cross-feed screw.

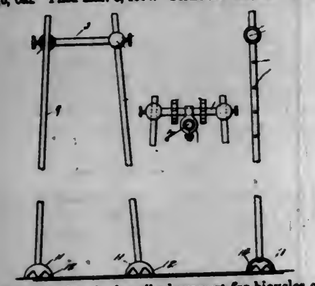
2. In a taper-lathe, the combination, substantially as set forth, with a lathe-carriage, tool-block, guide-bar, guide-bar slipper, and means for uniting the tool-block to the slipper, of a bracket-plate rigidly supported by the lathe-carriage, a slide-bar supported on a guideway on said bracket-plate and in turn supporting said guide-bar, said slide-bar having a forwardly-open slot, and a clamp adapted to be attached to the lathe-bed and having a tail projecting rearwardly therefrom into engagement with said slot in the slide-bar, and substantially to the medial line thereof.

593,360. PARASOL-HOLDER FOR BICYCLES. THOMAS LOFTHOUSE, Ludington, Mich. Filed July 16, 1897. Serial No. 644,866. (No model.)



Claim.—An attachment for bicycles consisting of a bracket adapted to be secured around the steering-head of a bicycle, a standard adjustably supported by said bracket and having its upper end formed into a horizontal tube provided with recesses in its end and horizontal guide-walls in one side, a slide having a stem fitting in the tube, an offset engaging the horizontal guide-walls and a hook at its extremity adapted to coact with the recesses in the end of the tube, and means for adjustably securing the slide in the tube.

593,361. SUPPORT FOR BICYCLES. MARTHA H. MASON, San Diego, Cal. Filed Mar. 8, 1897. Serial No. 626,483. (No model.)



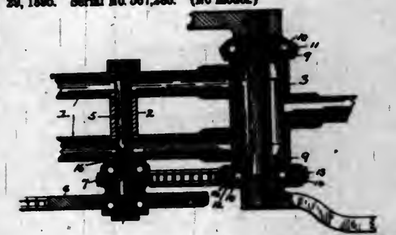
Claim.—The herein-described support for bicycles comprising a bar mounted transversely of the horizontal tube of the frame, a vertical tube adjustably mounted at each end of the said bar, said vertical tubes being each provided at the lower end thereof with cup-shaped feet, a ratchet-wheel mounted on said transverse bar, a spring provided with a ratchet-tooth mounted on said horizontal bar of the frame and adapted to engage said ratchet-wheel, substantially as and for the purpose described.

593,362. DOUBLETREE-FASTENER. CALVIN J. MINTON, Miles Point, Mo. Filed Apr. 6, 1897. Serial No. 630,997. (No model.)



Claim.—The combination with the pole and doubletree of a vehicle, of the forward brace extending upwardly and provided with a head having a central opening and a recess therein, and further formed with a downwardly-projecting portion provided with an upwardly-extending conical boss, a clip secured to the doubletree and having two parallel arms, each of which is formed with two curved stops, and one of which is formed with a recess to receive the upwardly-extending boss of the brace, and the other of which is provided with an upwardly-extending boss having a central screw-threaded aperture, a rear brace secured to the pole and provided with a head having a downwardly-extending boss adapted to the recess in the head of the forward brace, and also provided with a pin to engage the curved slot in the upper member of the clip, a screw passed through the heads of said braces and into the screw-threaded aperture of the clip, and a bolt passed through the slot in the lower member of said clip, substantially as set forth.

593,363. BICYCLE. LEONIDAS I. MOE, Denver, Colo. Filed Oct. 29, 1895. Serial No. 567,283. (No model.)



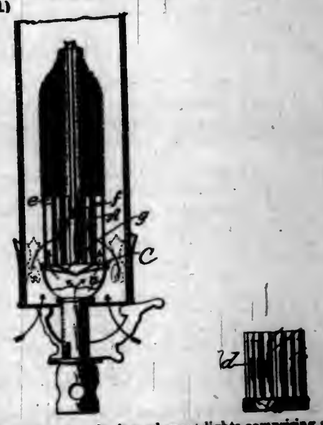
Claim.—In a bicycle, a bolt carrying an intermediate wheel passing through slots in and connecting the lower rods of the frame, provided with a head at one end having notches corresponding to notches in the frame, and a nut at the other end to secure said bolt, and a sleeve between said lower rods, substantially as described.

593,364. INCANDESCENT GAS-BURNER. SILAS H. MOORE, New York, N. Y. Filed Feb. 9, 1897. Serial No. 622,622. (No model.)



Claim.—In an incandescent gas-burner, the combination with the slotted Bunsen tube having an exterior screw-thread extending around it opposite the slots, of the sleeve threaded to fit the tube and adapted to cover and close the slots, the hood rigid on the sleeve and surrounding the tube, and the screened air-holes in the hood-bottom substantially as described.

593,365. INCANDESCENT-LIGHT BURNER. EMIL H. C. OHLMANN, Berlin, Germany. Filed May 4, 1896. Serial No. 590,209. (No model.)



Claim.—A burner for incandescent lights comprising a series of tubes or channels adapted to produce an intense quiet flame, each of said channels having a partition or resistance near its exit by which each tube may be made sufficiently wide to avoid obstructions and to provide an intense flame, said partition extending for a short distance within the discharge end of the tube and vertically in the plane of the axis thereof substantially as described.

593,366. BELT-PULLEY. HOREA B. TILLSON, Boston, Mass. Filed June 23, 1896. Serial No. 596,586. (No model.)



Claim.—1. A belt-pulley, having its belt-surface provided with one or more spiral grooves, each groove extending one or more times around the pulley, substantially as described.

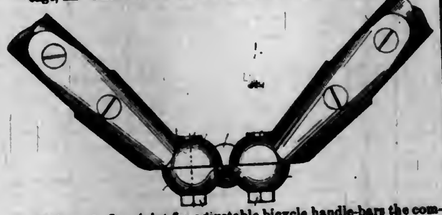
2. A belt-pulley, having its belt-surface provided with right and left spiral grooves, each groove extending one or more times around the pulley, substantially as described.

3. A belt-pulley, having its belt-surface provided with one or more spiral grooves, and air-exit openings from said grooves extending into the pulley at its middle, said openings having lateral branches leading from their lower ends to the outside, substantially as described.

4. A belt-pulley, having its belt-surface provided with belt-centering grooves each extending spirally with low pitch from the middle outward toward the end of said pulley, and one or more times about the pulley, substantially as described.

5. A belt-pulley, having its belt-surface provided with a spiral groove of low pitch, said groove being approximately parallel with the direction of movement of the belt, diverging therefrom only slightly, whereby the said groove in a fast-running pulley tends to move the belt laterally on the pulley, substantially as described.

593,367. BICYCLE HANDLE-BAR. ORRIN A. WHEELER, Chicago, Ill. Filed Dec. 21, 1896. Serial No. 616,402. (No model.)



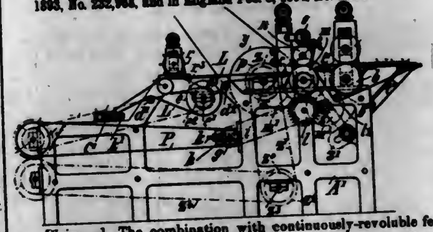
Claim.—1. In a joint for adjustable bicycle handle-bars the combination with a plate fixed to the bicycle-stem and having a contact-face, a plate fixed to the handle-bar and having a contact-face, a block adapted to be interposed between the contact-faces of the plates, and a screw-bolt for locking said three members together, and to serve as a pivot when its tension is released, of radially-arranged ribs upon the contact-faces of the plates the two sets thereof differing in number, and notches upon the contacting faces of the block, such two sets of notches differing in number.

2. In a spherical joint for adjustable handle-bars, the combination with two semispherical parts having their meeting faces concaved and provided with meridianally-disposed ribs, of a locking-block adapted to fit within the sphere and having two sets of radially-arranged notches differing in number for coöperating with the ribs and a bolt for locking the members of the joint together.

3. In a spherical joint for adjustable handle-bars, the combination with two semispherical parts having their meeting faces concaved and provided with meridianally-disposed ribs, the number of ribs in one part being odd and in the other part even, of a locking-block adapted to enter the sphere and having two radially-arranged sets of notches for coöperating with the ribs, the number of notches in one set being one less than that in the other set, and a bolt for binding the several members of the joint together.

4. In adjustable handle-bars for bicycles comprising a pair of bars each having an independent jointed connection with the bicycle steering-stem, the combination with a steering-stem, a pair of semispherical concave attaching-lugs fixed to the steering-stem and having radially-disposed ribs on their concave faces, and a semispherical concave attaching-plate at the inner end of each handle-bar and having radially-disposed ribs on its concave face, the number of ribs on coöperating lugs and plates differing by an odd number, of a block adapted to fit within the concave faces of each pair of coöperating lugs and plates, and having on opposite faces notches for receiving the ribs, the number of notches on one face being even and upon the other face being odd, and a screw-bolt for binding together each set of coöperating lugs, plates and blocks, substantially as described and for the purpose specified.

593,368. DOUGH-OPERATING MACHINE. JOHANN ABDERTEN, Hamburg, Germany. Filed May 22, 1897. Serial No. 637,746. (No model.) Patented in Germany Mar. 19, 1893, No. 73,404; in Austria-Hungary Sept. 11, 1893, No. 21,994 and No. 35,103; in France Sept. 21, 1893, No. 232,963, and in England Feb. 5, 1894, No. 2,530.



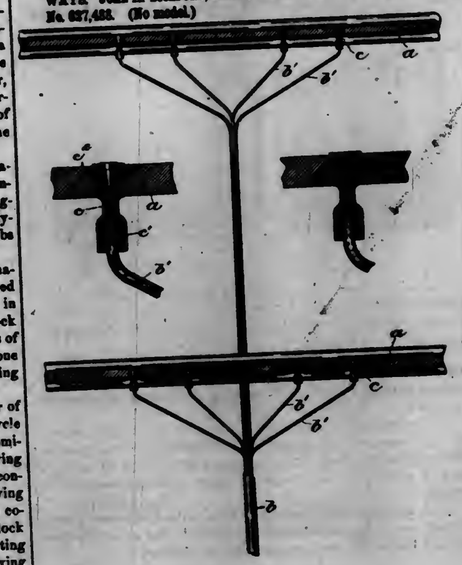
Claim.—1. The combination with continuously-revoluble feed-rolls, continuously-revoluble bed, and molding, and cutting rolls, and a continuously-movable receiving-apron arranged to travel in a horizontal plane away from the molding-rolls and then in a downwardly-inclined plane; of a continuously-movable delivery-apron arranged to travel in a reversely-inclined plane below said receiving-apron, for the purpose set forth.

2. The combination with continuously-revoluble feed-rolls, continuously-revoluble cooperating bed and molding rolls, suitable delivery-aprons and means for spreading grease on the molding-roll and for stripping dough scraps from said roll and from its bed-roll, for the purpose set forth.

3. The combination with continuously-revoluble feed-rolls, and a continuously-movable feed-apron, of continuously-revoluble bed and molding rolls, a receiving-table, a cutting-table, a belt adapted to continuously travel from the bed and molding roll over said table, and a continuously-revolubie cutter having knives parallel with its axis of rotation, cooperating with the apron and table, for the purpose set forth.

4. The combination with continuously-revoluble feed-rolls, continuously-revoluble and cooperating bed and molding rolls, a continuously-movable delivery-apron, a like receiving apron arranged to take the molded dough and deliver the same onto the delivery-apron, and speed-changing appliances for changing the relative speed of said aprons or the speed of one or both aprons relatively to the speed of the feed and molding appliances, substantially as and for the purpose set forth.

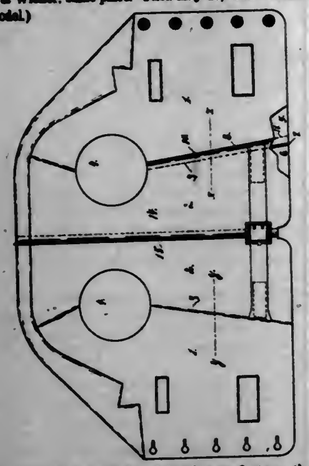
593,369. RETURN-WIRE CONNECTION FOR ELECTRIC RAILWAYS. JOHN H. BUCKFORD, Salem, Mass. Filed Mar. 15, 1897. Serial No. 627,423. (No model.)



Claim.—1. The stranded cable *b*, connectors for connecting the ends of the strands *b'* of said cable directly to a rail, consisting of short pieces of wire, rods or bars *c*, connected at one end with the strands *b'* of said cable, and connected at the other end to the rail, substantially as described.

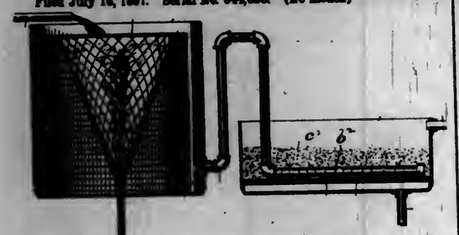
2. The stranded cable *b*, separated and having several strands *b'*, leading to each rail *a* and solid ends or connectors substantially as described, by which the ends of said strands are connected to said rails, substantially as described.

593,370. VEST. HENRY J. BROCK, Buffalo, N. Y., assignor to Brock & Wiener, same place. Filed May 18, 1895. Serial No. 549,752. (No model.)



Claim.—As an improved article of manufacture, the herein-described ready-made vest at whose lower edge the outer and inner front sections of thicker cloth 1 and 5 lie flat upon each other, the outer and inner back sections of thinner cloth 2 and 6 are stitched at their edges at 3 and 7 to the edges of the front sections along the seam-lines and are then formed into plaits 8 and 9 which extend over and lie upon the exposed faces of the thicker cloth-sections, and the outer folds 10 and 11 of said plaits are connected by stitching or felling 12 and 13 with the thicker sections 1 and 5 respectively and on lines remote from said seam-lines, all as and for the purposes hereinbefore set forth.

593,371. METHOD OF AND APPARATUS FOR PURIFYING LIQUIDS. EDWARD J. COOK and WILLIAM MCEWEN, Cleveland, Ohio. Filed July 16, 1897. Serial No. 644,628. (No model.)



Claim.—1. The method of purifying liquids which consists essentially in subjecting the same to agitation in the presence of a suitable fiber, and separating the fiber by straining or filtering, substantially as specified.

2. The method of purifying liquids which consists essentially in subjecting the same to agitation in the presence of asbestos fiber and removing the fiber therefrom by straining or filtering, substantially as specified.

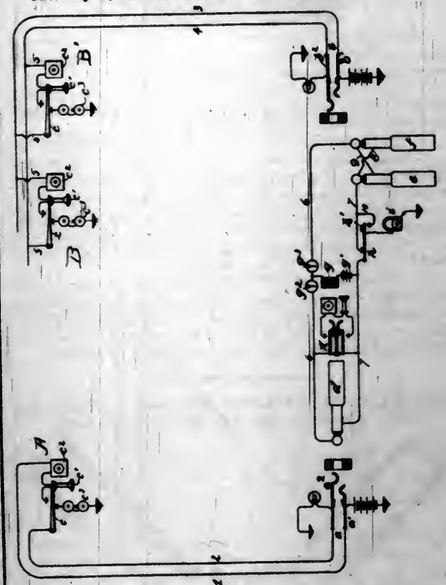
3. The method of separating oil or similar substances from water which consists in introducing into said mixture of oil and water a suitable fiber contained within a screen, and agitating the same by means of a jet of air introduced into said screen, substantially as specified.

4. In an apparatus for purifying water, a tank, a screen within said tank, an air-jet introduced into said tank, and a suitable fiber contained within said tank, substantially as specified.

5. The combination with the tank, a cylindrical screen therein, an inner conical screen within said cylindrical screen, asbestos fiber within said conical screen, an air-pipe extending into said conical screen, and inlet and outlet pipes from said tank, substantially as and for the purpose specified.

6. The combination with a tank having a screen as described, a suitable fiber within said screen, and an air-blast introduced into said tank so as to agitate the water and fiber therein, outlet and inlet pipes for said tank, and a filter connected to the outlet-pipe, substantially as specified.

593,372. TELEPHONE SYSTEM. WILLIAM W. DEAN, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed July 12, 1897. Serial No. 644,238. (No model.)



Claim.—1. In a telephone-exchange system, the combination with a telephone-line and a party telephone-line extending from the exchange, of a cord-circuit for forming a continuation of the first-aforesaid telephone-line, a plurality of connecting-plugs, each severally adapted to connect the cord-circuit and the first-aforesaid telephone-line with the party telephone-line, signal-bells at the subscribers' stations of the party-line, and a source of signaling-current connected or adapted to be connected with each connecting-plug, each connecting-plug corresponding to a subscriber's station of the party-line and adapted to include signaling-current in circuit with the signal-bell thereat, the bells at the remaining station or stations being irresponsive to the signaling-current thus included in circuit with the bell at the selected station, substantially as described.

2. In a telephone-exchange system, the combination with a telephone-line and a party telephone-line extending from the exchange, of a cord-circuit for forming a continuation of the first-aforesaid telephone-line, a plurality of connecting-plugs, each severally adapted to connect the cord-circuit and the first-aforesaid telephone-line with the party telephone-line, signal-bells at the subscribers' stations of the party-line, a source of signaling-current connected or adapted to be connected with each connecting-plug, each connecting-plug corresponding to a subscriber's station of the party-line and adapted to include signaling-current in circuit with the signal-bell thereat, the bells at the remaining station or stations being irresponsive to the signaling-current thus included in circuit with the bell at the selected station, and switching mechanism for connecting the source of calling-current with or disconnecting it from the connecting-plugs, substantially as described.

3. In a telephone-exchange system, the combination with a metallic party telephone-line circuit connected at the central office with a line or spring jack switch having two substations connected therewith, each limb of the line having a signal-bell connected in circuit therewith at each subscriber's station, a source of calling-current, a cord-circuit for connecting subscribers for conversation having two strands, and connecting-plugs forming a part thereof, each connecting-plug being provided with two dissimilar contact portions as a tip and a sleeve and adapted for insertion in said spring-jack switch, the tip and sleeve of one plug being connected respectively with the sleeve and tip of the other plug, each of said plugs corresponding to one substation and adapted to direct current in circuit with the signal-bell thereat, said plugs being connected or adapted to be connected with the aforesaid source of calling-current, substantially as described.

4. In a telephone-exchange system, the combination with a telephone-line and a party telephone-line extending from the exchange, of a cord-circuit, an answering-plug and a plurality of connecting-plugs connected therewith, the answering-plug being provided for connecting the cord-circuit with the first-aforesaid telephone-line, while each of said connecting-plugs is provided for connecting the party-line with the cord-circuit and the other telephone-line, signal-bells at the subscribers' stations of the party-line, and a source of signaling-current connected or adapted to be connected with each connecting-plug, each connecting-plug corresponding to a subscriber's station of the party-line and adapted to include signaling-current in circuit with the signal-bell thereat, the bells at the remaining station or stations being irresponsive to the signaling-current thus included in circuit with the bell at the selected station, substantially as described.

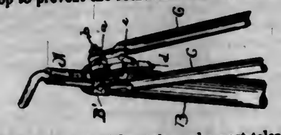
5. In a telephone-exchange system, the combination with a metallic party telephone-line circuit connected at the central office with a line or spring jack and having two substations connected therewith, each limb of the line having a signal-bell connected in circuit therewith at each subscriber's station, a source of calling-current, a cord-circuit for connecting subscribers for conversation having two strands, two connecting-plugs forming a part thereof, each of said plugs corresponding to one substation and adapted to direct current in circuit with the signal-bell thereat, said plugs being connected or adapted to be connected with the aforesaid source of calling-current, an electromagnetic circuit-controlling device having a ringing-key *h* controlled thereby and adapted to connect the source of calling-current with said plugs, means for closing circuit through said circuit-controlling device whereby said key is operated, a portion *q* interposed in the path of said key whereby the key is limited in its motion and brought into contact with a terminal of the source of calling current, and a magnet *r* controlled by the apparatus at the called subscriber's station adapted to remove said portion *q* from the path of the ringing-key whereby the source of calling-current is removed from line, substantially as described.

6. In a multiple-switchboard system, the combination with two or more switchboards at the central office, of a telephone-line, and a party telephone-line, each connected with line-jacks at all of said switchboards, a cord-circuit for forming a continuation of the first-aforesaid telephone-line, a plurality of connecting-plugs, each severally being adapted to connect the telephone-line and cord-circuit with the party telephone-line, signal-bells at the subscribers' stations of the party-line, a source of signaling-current connected or adapted to be connected with each connecting-plug, each connecting-plug corresponding to a subscriber's station of the party-line and adapted to include signaling-current in circuit with the signal-bell thereat, the bells at the remaining station or stations being irresponsive to the signaling-current thus included in circuit with the bell at the selected station, a test portion as a thimble associated with each line-jack connected with the party telephone-line, a portion of a test-circuit connected or adapted to be connected with each of said test portions, and test portions upon each of said connecting-plugs, the remaining portion of said test-circuit being connected with one of the test portions of a connecting-plug, the test portions of the connecting-plugs being or adapted to be electrically connected, substantially as described.

7. In a telephone-exchange system, the combination with a telephone-line and a party telephone-line extending in two limbs from the exchange to two substations, of a grounded branch from each limb of the party-line, one branch being located at each substation, signal-bells included in the grounded branches, a cord-circuit for forming a continuation of the first-aforesaid telephone-line, two connecting-plugs, each, severally, adapted to connect the cord circuit and the first-aforesaid telephone-line with the party telephone-line, and a grounded source of calling-current connected or adapted to be connected with each connecting-plug, one connecting-plug being adapted to direct the calling-current over one limb of the party-line to operate the signal-bell at one station, while the other connecting-plug is adapted to direct calling-current over the other limb of the party-line to operate the signal-bell at the other station, whereby the signal-bell at either station may be selected and alone operated, substantially as described.

593,373. SADDLE-POST AND HANDLE-BAR ADJUSTING MECHANISM. SAMUEL F. BUTELL, Chicago, Ill. Filed Nov. 6, 1896. Serial No. 611,268. (No model.)

Claim.—1. The combination with a tube and a post telescopically entering the tube, of an eccentric rotatably mounted to bear against the post to prevent its movement in one direction, and an adjustable stop to prevent the rotation of the eccentric in the opposite direction.



2. The combination with a tube and a post telescopically entering the tube, of an eccentric rotatably mounted to bear against the post to prevent its movement in one direction, a hand-lever projecting from the eccentric, a set-screw passing transversely through the lever and adapted to be turned forwardly so as to bear upon a fixed part when the eccentric is in engagement with the post.

3. In a post-adjusting mechanism for saddle or handle-bar, the combination with the tube, post and clamping mechanism, of a cam-lever and a spring for actuating said cam-lever, all substantially as and for the purpose set forth.

4. The combination of post A, tube B and bolt *b*, with cam *a*, screw *c*, and spring *d*, substantially as and for the purpose specified.

593,374. EYE-SHADE. JAMES GIBSON, Kansas City, Mo. Filed Aug. 14, 1896. Serial No. 602,790. (No model.)



Claim.—The combination with a covering for the head and buttons upon each side of said covering having an eye, and suitable lugs opposite in position upon the inner side of said button of an eye-shade, and longitudinally-extended wires upon opposite sides of said head-covering each wire having one end connected with said eye-shade and the other end extending between said lugs and pivotally connected with the eye of said button and also bent at an angle to the wire between said lugs and the eye of said button as and for the purpose described.

593,375. ROTARY STEAM-ENGINE. ERIK S. HASEN, Chicago, Ill., assignor of one-half to Claus P. Roberg, same place. Filed Jan. 23, 1897. Serial No. 620,171. (No model.)



Claim.—1. The combination with a fixed casing having apertured ends, of a rotatable laterally-movable shaft projected loosely through such apertures, a disk within the casing and fixed upon such shaft and having radial impact-faces oblique to the direction of movement, packing-plates mounted upon the shaft and having steam-tight connection therewith and being in sliding contact with the inner faces of the walls of the casing and covering the apertures therein, a steam-duct entering the casing and being directed toward the impact-faces, and an exhaust-passage leading from the casing.

2. The combination with a casing having its end walls apertured, a rotatable jointed shaft passing loosely through such apertures and being in some of its parts flexible, a disk within the casing and fixed upon the shaft and having radial impact-faces, an induction-passage directed toward the faces, and an exhaust-port, of packing-plates mounted upon the shaft and being in sliding contact with the inner faces of the walls of the casing and closing its apertures, and having steam-tight connection with the shaft, substantially as described and for the purpose specified.

3. The combination with a fixed casing having apertured ends, a rigid rotatable shaft, 16, located loosely within such apertures, a shaft, 16^a, journaled in fixed bearings and having a universal-joint connection with the shaft, 16, a flexible shaft, 29, secured in a hanger at the opposite end of the casing and being jointed to the end of the shaft, 16, a disk within the casing and fixed upon the shaft, 16, and having radial impact-faces, an induction-duct directed toward the impact faces, and an exhaust-port, of packing-plates interposed between the disk and the walls of the casing and having steam-tight connection with the shaft, 16, and sliding contact with the inner surfaces of the casing-walls, substantially as described and for the purpose specified.

4. The combination with a rotative shaft-section, journal-boxes for holding such shaft-section against lateral vibration, a rigid shaft-section, 16, connected with such first-mentioned shaft-section by a universal joint, a flexible stud-shaft and means for supporting the same, a journal-box mounted upon the outer end of the stud-shaft for receiving the end of the shaft-section, 16, and means for applying power to such last-mentioned shaft-section to rotate it.

5. The combination with a fixed casing having induction and discharge ports, and apertured ends of rotative disks within the case, and having radial concave blades oblique to the direction of rotation, partitions crossing the interior of the casing so as to provide a separate compartment for each disk and having apertures in alinement with the apertures of the ends of the casing, steam-passages through such partitions so disposed as to discharge upon the concave faces of the blades, a shaft, 16, for carrying the disks and in fixed relation thereto, and passing loosely through the casing, packing-plates fixed upon the shaft and in sliding contact with the walls and partitions of the casing to cover the apertures thereof, a fixed flexible stud-shaft having a journal-box at its free end for receiving one end of the shaft, 16, a power-transmitting shaft, 16^a, journaled in fixed boxes, and a universal joint connecting abutting ends of shafts 16 and 16^a.

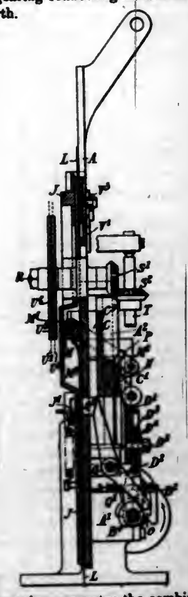
593,876. KINETOGRAPHIC CAMERA. HORATIO J. HEINEK, London, England. Filed Nov. 17, 1896. Serial No. 612,509. (No model.)

Claim.—1. In a film-exposing apparatus, the combination with the support, of a main shaft, a film-feeding device, a rod operatively connecting the main shaft with the feeding device, a film-guide, grippers on the feeding device adapted to intermittently grip the film between them and that device, and gearing operatively connecting the grippers and the main shaft; substantially as described.

2. In a film-exposing apparatus, the combination with the support, the main shaft, the reciprocating film-feeding device, the yielding rod operatively connecting the main shaft with the feeding device, a film-guide, grippers on the feeding device adapted to grip the film between them and that device in its descent, cam-controlled gear operatively connecting the grippers and the main shaft, and the spring carried by the film-feeding device adapted to keep the grippers away from the film during the return movement of the feeding device; substantially as described.

3. In a film-exposing apparatus the combination with a support A, of a main shaft, a reciprocating film-feeding device, a yielding rod operatively connecting the main shaft with the feeding device, adjustable stops in the path of the feeding device, a film-guide, film-grippers supported on the feeding device and adapted to intermittently grip the film between them and that device elastic extension on the grippers, an arm in operative connection with the film-grippers a pivoted bar whereon the arm slides, a cam in operative connection with the pivoted slide-bar, a brake in the film-guide operatively connected with the main shaft by mechanism adapted to operate intermittently, a perforated rotatable shutter, gearing connecting the shutter and main shaft, and an adjustable shutter V' substantially as set forth.

4. In a film-exposing apparatus the combination with a support A, of a main shaft, a reciprocating film-feeding device, a yielding rod operatively connecting the main shaft with the feeding device, adjustable stops in the path of the feeding device, a film, guide, film-grippers supported on the feeding device and adapted to intermittently grip the film between them and that device, an arm in operative connection with the film-grippers, a pivoted bar whereon the arm slides, a cam in operative connection with the pivoted slide-bar, a brake in the film-guide operatively connected with the main shaft by mechanism adapted to operate intermittently, a perforated rotatable shutter, and gearing connecting the shutter and main shaft substantially as set forth.



5. In a film-exposing apparatus the combination with a support A, of a main shaft, a reciprocating film-feeding device, a yielding rod operatively connecting the main shaft with the feeding device, and adjustable stops in the path of the feeding device, substantially as set forth.

6. In a film-exposing apparatus the combination with a support A, of a main shaft, a reciprocating film-feeding device, a yielding rod operatively connecting the main shaft with the feeding device, adjustable stops in the path of the feeding device, a film-guide, grippers on the feeding device adapted to intermittently grip the film between them and that device and cam-controlled gear operatively connecting the grippers and the main shaft substantially as set forth.

7. In a film-exposing apparatus the combination with a support A, of a main shaft, a reciprocating film-feeding device, a yielding rod operatively connecting the main shaft with the feeding device, adjustable stops in the path of the feeding device, a film-guide, film-grippers supported on the feeding device and adapted to intermittently grip the film between them and that device, a brake in the film-guide and cam-controlled gear operatively connecting the grippers and brake with the main shaft, substantially as set forth.

8. In a film-exposing apparatus the combination with a reciprocating film-feeding device, of film-grippers supported on that device and adapted to intermittently press the film against the said device, an arm in operative connection with the film-grippers, a cam in operative connection with the arm and main shaft whereon that cam is fixed, substantially as set forth.

9. In a film-exposing apparatus the combination with a reciprocating film-feeding device, of film-grippers supported on that device and adapted to intermittently press the film against said device, elastic extensions on the grippers, an arm in operative connection with the film-grippers, a cam in operative connection with the arm and a main shaft whereon that cam is fixed, substantially as set forth.

10. In a film-exposing apparatus the combination with a reciprocating film-feeding device of film-grippers supported on that device and adapted to intermittently press the film against said device, an arm in operative connection with the film-grippers, a pivoted bar whereon the arm slides, a cam in operative connection with the pivoted bar and a main shaft whereon the cam is fixed, substantially as set forth.

11. In a film-exposing device a yielding connecting-rod comprising two parts D' D^2 adapted to slide one upon the other, a block D^2 extending from one part through a slot in the other, a nut D^3 and spring D^5, substantially as set forth.

12. In a film-exposing apparatus the combination with a reciprocating film-feeding device E of pivoted stops E' E^2 and adjusting-cam G to adjust the two stops simultaneously, substantially as set forth.

13. In a film-exposing apparatus the combination with a main shaft of a shutter-shaft R and a shutter U comprising layers N' U^3 of perforated material adjustable relatively to each other in the shutter, substantially as set forth.

14. In a film-exposing apparatus the combination with a reciprocating film-feeding device C and grippers M' of electromagnetic apparatus W M^4 N^4 N^5 for controlling the grippers, substantially as set forth.

15. In a film-exposing apparatus the combination with a support A having an exposure-opening, of a lever V^3 spring V^5 and frame V' substantially as set forth.

16. In a film-exposing apparatus the combination with a support A of friction feeding-rollers I I' a retarding device M and a rotating frame s carrying a roller p whose distance from the axis of rotation is adjustable by cam-operated mechanism substantially as set forth.

17. In a film-box the combination with the wall formed in two parts, h', g', hinged together as shown, the lips h h formed on the part h', the lip g formed on the part g', and the spring for pressing the portion g' of the wall inward; substantially as described.

598,877. CAN-OPENER. JOHN R. JOHNSON, New Britain, Conn., assignor of one-half to Charles J. Robertson, same place. Filed June 14, 1897. Serial No. 640,662. (No model.)



Claim.—The herein-described can-opener having a handle, a fulcrum-rest, a shank depending from and below the said rest, a blade of a hooked form in continuation of said shank and having an upwardly-projecting cutting end substantially parallel to said shank with the longitudinal space S inside of said hooked blade between the said cutting end and the said fulcrum-rest and shank, substantially as described.

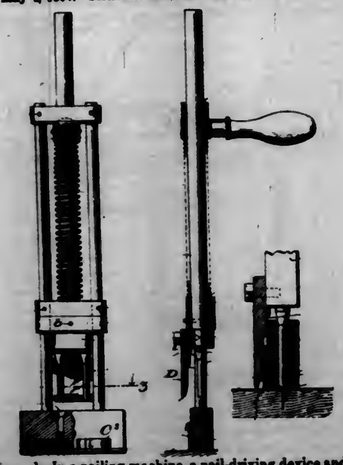
598,878. APPARATUS FOR PREVENTING BOILER INCRUSTATION. THOMAS H. JOHN, Chicago, Ill., assignor of one-half to Maurice Von Platen, same place. Filed Dec. 23, 1895. Renewed Oct. 4, 1897. Serial No. 654,033. (No model.)



Claim.—1. In an apparatus for preventing incrustation in steam-boilers, the combination with a boiler and heater, of mercury and zinc, located in said apparatus between the water source of supply and the boiler, in contact with said water and over which said water must pass from said heater or source of supply to said boiler, substantially as set forth.

2. In an apparatus for preventing boiler incrustation in steam-boilers, the combination of free mercury, zinc plates or castings, and plates or castings formed of zinc and mercury, in contact with, and over which the heated feed-water is made to pass in its course from the heater or source of supply to the boiler, substantially as set forth.

598,879. NAILING-MACHINE. JOHN M. KLINE, Allentown, Pa. Filed May 4, 1897. Serial No. 635,089. (No model.)



Claim.—1. In a nailing-machine, a nail-driving device and means actuated thereby for attaching a roofing-cleat to the roof-sheathing, substantially as specified.

2. In a nailing-machine, a nailing device, and means carried thereby for attaching a roofing-cleat to the roof-sheathing simultaneously with the driving of the nail, substantially as specified.

3. In a nailing-machine, a reciprocating nail-driving device, and a bender-plate carried thereby, substantially as specified.

4. A nailing-machine comprising a base, a reciprocating nail-driver passing through the same, and a bender carried by said nail-driver and traveling in a vertical line parallel with said base, substantially as specified.

5. A nailing-machine comprising a base, a reciprocating nail-driver, and a bender-plate carried by said driver and provided with a recessed portion upon its face next to the base, substantially as specified.

6. A nailing-machine comprising a base, a nail-driver operating in connection therewith, and a bender-plate reciprocating parallel to said base and provided with means to engage said base and limit the downward movement of the plate, substantially as specified.

7. A nailing-machine comprising a base, a nail-driver operating in connection therewith and provided with a head, and a bender-plate formed with a recessed upper portion to engage said head to hold said plate against vertical movement on the head, substantially as specified.

8. A nailing-machine comprising a base, a nail-driver operating in connection therewith, and a bender-plate adapted to travel parallel with said base and provided at its lower end with an inclined face adjacent to said base, substantially as specified.

9. A nailing-machine comprising a base, vertical standards extending therefrom, a reciprocating plunger provided with nail-drivers and moving in cross-heads carried by said standards, a collar provided with an operating-handle and attached to said plunger, a retracting-spring surrounding said plunger and extending between said collar and one of said cross-heads, and a bender-plate carried by said plunger to reciprocate therewith, substantially as specified.

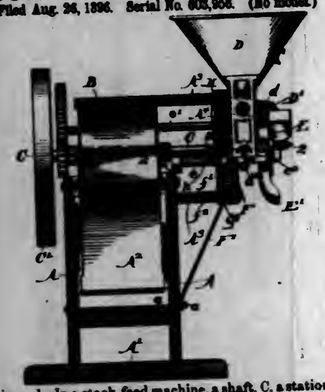
10. A nailing-machine comprising a base, vertical standards extending therefrom, a reciprocating plunger provided with nail-drivers and moving in cross-heads carried by said standards, a collar provided with an operating-handle and attached to said plunger, a retracting-spring surrounding said plunger and extending between said collar and one of said cross-heads, a bender-plate carried by said plunger to reciprocate therewith, and a nail-holder located in said base to support a nail so that the same will be driven simultaneously with the action of the bender-plate, substantially as specified.

11. A nailing-machine comprising a base having an angular lower portion and provided with nail-passages therethrough, a reciprocat-

ing nail-driver operating in connection with said base, and a bender-plate carried by said driver and provided with a recess in its face next to said base, substantially as specified.

12. A nailing-machine comprising a base having a vertical side wall and provided with nail-passages therethrough, a reciprocating nail-driver operating in connection with said base, and a bender-plate carried by said driver and adapted to travel parallel with the vertical face on said base, substantially as specified.

593,880. STOCK-FEED MACHINE. LE GRAND KNIFFEN, Chicago, Ill. Filed Aug. 26, 1896. Serial No. 603,956. (No model.)



Claim.—1. In a stock-feed machine, a shaft, C, a stationary grinding-bur, c', a rotatable bur, c, formed with the socket, g^4, and lugs, g^5, and a socketed thimble, g, adapted to be slipped endwise upon the shaft and formed with lugs, g^3, upon its outer end adapted to engage the lugs upon the bur, c, said shaft and thimble being formed with engaging devices adapted to prevent the rotation of one upon the other.

2. In a stock-feed machine, a main driving-shaft, C, formed with a key-seat upon its end, a stationary bur, c', a rotatable bur, c, formed with the lugs, g^3, and a socketed thimble, g, adapted to be slipped endwise upon said shaft and formed with lugs, g^3, upon its outer end adapted to engage the lugs upon the rotatable bur, and formed with the key, g', in its socket adapted to be seated in the key-seat in the shaft; substantially as described.

3. In a device of the class described, the combination with a feed-cutter having a suitable receiving and discharge chute and the laterally-extending frame A^3, A^4, A^5, a grinding-mill having the standards D', and the shaft C, adapted to carry suitable cutters in the feed-cutter and engaging one of the grinding-burs in the feed-grinder, of a bracket F, having the ears f, f', secured to the laterally-extending frame, and the brace F', connecting the bracket with the frame of the feed-cutter, the standard D', being secured to the bracket and supported thereby; substantially as described.

4. The combination with a grinding-mill comprising a hopper, vibrating chute d, a stationary grinding-bur and a rotatable bur, a discharge-chute and standards D', having bifurcated flanges d', of means for connecting the same with a feed-cutter of the class described whereby both may be operated by a common driving-shaft, said means consisting substantially of a thimble keyed upon the end of the shaft and formed with ears d^3, adapted to engage corresponding ears upon the rotatable grinding-bur, a bracket F, secured to the feed-cutter and supported thereby and adapted to support the feed-grinder; substantially as described.

593,881. INSULATING-JOINT. WILLY H. LAU and PAUL A. BARNEWOLD, Chicago, Ill. Filed Feb. 12, 1897. Serial No. 623,107. (No model.)



Claim.—In an insulating-joint for gas-piping, the combination of an outer shell having internal screw-threads and an internal inwardly-flaring shoulder, with parts fitting into the shell, one of such parts having an external screw-thread fitting into the screw-threads on the shell and the other of such parts having a shoulder corresponding with the shoulder in the shell, both of such parts having at adjacent ends radial grooves, a layer of non-conducting material interposed between the shoulder in the shell and the adjacent shoulder on one of the inner parts, a layer of non-conducting material interposed on the radial grooves between the ends of the inner parts, and a washer which is both gas-tight and non-conducting as described, when under pressure, interposed between the ends of the inner parts, peripheral ribs on the screw-threaded one of the inner parts, and the outer shell forced into the grooves formed by the peripheral ribs, substantially as described.

593,882. ORGAN-PROTECTOR. SAMUEL R. OLIVER, Martindale, Tex. Filed Jan. 18, 1897. Serial No. 619,635. (No model.)



Claim.—1. An organ attachment having a slotted guard covering the slot through which knee-swell pins operate, and slides mounted upon said guard and provided with perforations to receive the knee-swell pins, whereby the slides are carried by the pins and permanently cover the slots in the guard, substantially as specified.

2. An organ attachment consisting of a guard provided with a rib to fit in a slot in an organ-keyboard through which the knee-swell pins operate, said guard being provided with slots approximately equal in width with said pins and corresponding in length with the throw thereof, and slides adapted to be carried respectively by the knee-swell pins and of greater length than said slots in the guard to permanently cover the same, substantially as specified.

593,883. BALING-PRESS. ELMER J. SHIRLEY, El Modena, Cal. Filed Dec. 16, 1896. Serial No. 615,944. (No model.)

Claim.—1. The combination of a rotary endless-worm cylinder; a plunger having a path toward and from the cylinder parallel with or in line with the extended axis of the cylinder; a traveler driven by the worm; a connecting-beam connecting the plunger and the traveler; and guides for the plunger and traveler.

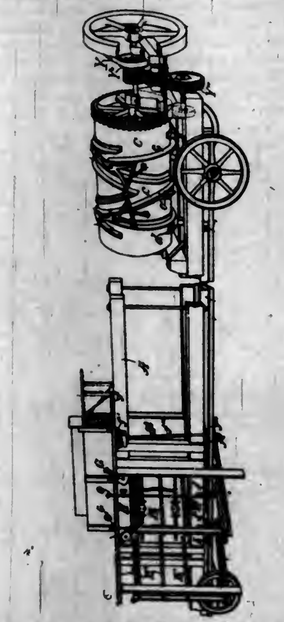
2. The combination of the press-frame having a chamber arranged lengthwise thereof, a plunger in the chamber; an endless-worm cylinder mounted lengthwise the press-frame at one end thereof; and a beam connecting the traveler and the plunger.

3. In a baling-press, the combination of a hay-condenser; a rack connected with the condenser to drive the same; a cog-wheel to drive the rack; a pinion connecting with the cog-wheel; and a rack connected with the plunger of the press and arranged to drive the pinion during a portion of the plunger-stroke.

4. In a baling-press, the combination of the hay-condenser; a rack connected with the condenser to drive the same; a cog-wheel to drive said rack; a pinion connected with the cog-wheel; two racks connected with the plunger of the press and arranged facing in opposite directions with a space between them, to respectively engage the pinion at opposite sides thereof at the extremes of the stroke of the plunger.

5. The combination of a baling-press frame; a plunger working in the chamber thereof; a needle mounted at one side of the chamber and arranged to play across the chamber; a rack connected with the plunger to move therewith; a cog-wheel arranged to be rotated by such rack; a rack connected with said needle to operate the same; a cog-wheel to operate the rack; and means to connect the two cog-wheels with each other.

6. The combination of the baling-press frame; the plunger arranged to work in the chamber thereof; a rack connected with such plunger; a cog-wheel meshing with said rack; needles arranged to move across the baling-chamber; a rack connected with such needles; a cog-wheel meshing with such rack; a clutch to connect the two cog-wheels; and means for throwing the clutch into and out of gear.



7. The combination of the baling-press frame; a plunger in the chamber thereof; mechanism on one side of the chamber for gripping and knotting baling-wires; means operatively connected with the plunger for operating said mechanism; needles for the baling-wires mounted at the opposite ends of the chamber and having a path across the chamber; a rack at right angles to the plunger and connected with the needles at one end of the chamber; a cog-wheel meshing with such rack; a pinion for driving such cog-wheel; a rack at right angles with the plunger and connected with the needles at the other end of the chamber; a cog-wheel meshing with such rack; a pinion for driving such cog-wheel; and a rack on the plunger for operating the pinions.

8. The combination of the rotary twister-hook mounted to rotate and to move axially; a clamp arranged at one side of the path of the twister-hook for holding one end of a wire; a wire-support on the opposite side of the twister-hook; means for moving the twister-hook axially to draw the wire into a loop from between the wire-clamp and the wire-support; and means for rotating the twister-hook.

9. The combination of a rotary twister-hook mounted to move axially; a wire-clamp and a wire-support arranged on opposite sides of the path of the hook; the hook being normally free to turn and located on one side of a right line drawn between the wire-clamp and the wire-support; a needle arranged to carry a wire past the support and into the clamp; means to move the hook from the needle to draw the wire into a loop; and means for rotating the hook.

10. The combination of the wire-support; the twister-hook normally free to turn and mounted to move axially, and being normally on one side of a right line drawn between the support and a wire-clamp; such clamp pivoted to tilt; a needle arranged to tilt the clamp and to carry a wire past the wire-support and into the clamp; means to return the clamp to an upright position to receive the wire; means for operating the clamp to clamp the wire; means for moving the twister-hook axially to draw the wire into a loop from between the wire clamp and support; and means for rotating the hook.

11. The combination of a slide; a wire-clamp pivotally mounted on the slide to tilt in one direction; a needle arranged to tilt the wire-clamp and provided with means for carrying a wire over such clamp and also provided with a recess to allow the clamp to return to an upright position; a spring provided to throw the clamp toward an upright position; a shoulder being provided on the needle to engage the clamp to force it to the upright position at the return movement of the needle, and beveled to slide the clamp out of the way.

12. The combination of a clamp-jaw pivoted to a base to tilt thereon; a guideway arranged oblique the axis of such jaw; a jaw pivoted to the tilting jaw; and an arm fixed to such pivoted jaw and extending into the oblique guideway, so that when the clamp formed of the two jaws is tilted, the arm will operate the pivoted jaw.

13. The clamp comprising a main body pivoted to tilt and provided with a wire-holding post and a wire-snip jaw with a space between them; a clamp and snip jaw pivoted to such body and arranged to move toward and from the space between the post and snip-jaw, and provided with a cutting edge to snip the wire and with a clamping-face to clamp a wire on the wire-holding jaw, and means for operating the clamp and snip jaw.

14. The combination of the wire-support; the tilting wire-clamp; the twister-hook arranged to normally stand between the wire-support and the tilting clamp at one side of a right line drawn between the support and clamp and arranged to move axially and having a path transverse to the line drawn between the wire-support and tilting clamp; a needle for carrying a wire past the support and over the jaws of the clamp and provided with a recess to allow the clamp to return to an upright position; means for returning the clamp toward an upright position, a shoulder being provided on the needle to engage the clamp at the return of the needle to move the clamp and the slide sidewise out of the path of the needle.

15. The combination of the rotary twister-hook; a slide carrying such hook; a needle; and a lever having one arm arranged to move the slide, and the other arm arranged in the path of the needle; and means for returning the slide to its normal position.

16. The combination of the press-frame; a plunger-carrying beam; a wire-carrying needle mounted on one side of the chamber of the frame and arranged to move across such chamber; a wire-support and a tilting wire-clamp arranged on the opposite side of the chamber; a twister-hook arranged to normally stand between the wire support and clamp; a slide carrying such hook; means arranged to be operated by the needle to move such slide away from the path of the needle; means operatively connected with the plunger to rotate the twister when thrown to one side; and means to return the twister-slide to normal position.

17. The combination of the rotary twister-hook; the plunger of the press; a rack to move with said plunger; a cog-wheel to mesh with said rack; means for holding a wire in the path of the hook; means for throwing the hook to draw the wire into a loop; and a clutch for operatively connecting the twister-hook with the said cog-wheel to rotate the hook.

18. The combination of the rack connected with the plunger to move therewith; a cog-wheel meshing with said rack; the twister-hook for twisting the wire of the bale; means for rotating the twister-hook; and a ratchet connection connecting the said means with said cog-wheel.

19. The combination of the wire-holder; the wire-clamp; the twister-hook journaled on a slide arranged to play in a path between the wire-holder and the clamp; a needle for carrying the wire into the clamp; and a lever, one of the arms of which is in the path of the needle to be operated thereby and the other arm of which engages the slide to operate the same.

20. The pinion provided with the flat face and the two oppositely-facing racks and the guide moving together to rotate the pinion in opposite directions at opposite ends of the stroke and to hold the pinion stationary at the middle of the stroke.

21. The combination of the plunger-beam; two racks arranged at a distance apart on the plunger-beam and facing in opposite directions on opposite sides of a path for a pinion; a pinion arranged in said pinion-path to be alternately engaged on its opposite sides by the said racks respectively as the plunger-beam moves to and fro, said pinion being provided with a flat face at one end to be engaged by a guide for the purpose of holding the pinion stationary; and such guide arranged extending between the racks to engage the said flat face to hold the pinion in position to engage the racks.

22. The combination of the plunger-beam; two racks arranged at a distance apart on the plunger-beam and facing in opposite directions on opposite sides of a path for a pinion; a pinion arranged in said pinion-path to be alternatively engaged on its opposite sides by the said racks respectively as the plunger-beam moves to and fro, said pinion being provided with a flat face at one end to be engaged by a guide for the purpose of holding the pinion stationary; such guide arranged extending between the racks; the condenser provided with a rack to operate the same; a cog-wheel meshing with the condenser-rack; and a shaft connecting the cog-wheel with the pinion.

23. The combined wire clamp and snip comprising a body member provided with a post and a snip-jaw; and a clamp and snip jaw pivoted to the body member and arranged to enter the space between the post and snip-jaw.

24. The combination of the body member of the clamp provided with the post and the snip-jaw; the clamp and snip jaw pivoted to the body member and arranged to enter the space between the post and the snip-jaw; and means for operating the clamp and snip jaw.

25. The combination of the endless-worm cylinder; the plunger-

beam provided with a traveler arranged to be engaged by the endless worm; the plunger on such beam; the knotter arranged on one side of the baling-frame; a needle arranged on the other side of the baling-frame; means connecting the plunger with the needle to operate the needle to and fro across the baling-chamber; and means connecting the plunger with the knotter mechanism to operate the same.

26. The twister-hook composed of a stem terminating in a cross-head composed of a counterweight-butt projecting at one side of the stem and a tapering point projecting at the opposite side of the stem, and extending beyond the end of the stem.

27. The twister-hook composed of a stem terminating in a cross-head composed of a cylindrical counterweight-butt projecting at one side of the stem and a tapering point projecting at the opposite side of the stem and extending beyond the end of the stem and the axis of which point is closer to the end of the stem than the axis of the cylindrical butt; a guide-groove being provided beginning at the inner side of the base of the point and extending in an oblique line around the stem toward the outer side of the butt.

593,384. COMBINED POTATO AND BEET DIGGER. HIRAM F. TRESCOTT, Springville, Cal. Filed Nov. 16, 1896. Serial No. 612,342. (No model.)



Claim.—1. A potato-digger provided with a series of inclined fingers; a series of practically horizontal fingers, one secured to each of the inclined fingers, and arranged below the upper ends or tops of such fingers, whereby potatoes and dirt passing over the top of the inclined fingers will fall upon the horizontal fingers.

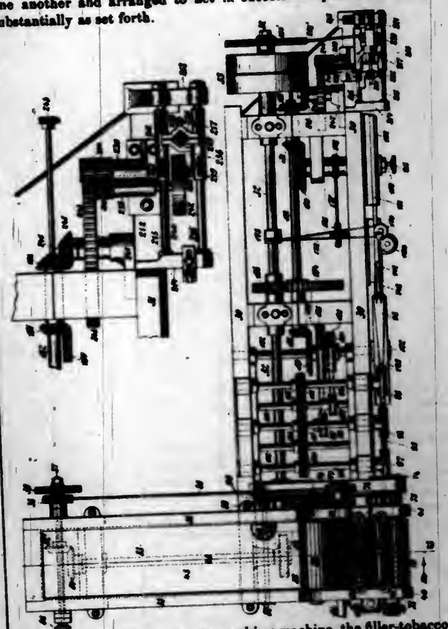
2. In a potato-digger, the combination set forth of a share; rearwardly-projecting fingers secured to the share and comprising two series, the front being upwardly inclined toward the rear, and the rear series being secured to the under faces of the inclined fingers and arranged at a distance below the tops of such fingers.

3. In a potato-digger, the combination set forth of a right and left hand share arranged in V shape; upwardly-inclined fingers secured to each share and projecting toward the rear; rearwardly-projecting horizontally-arranged fingers, one secured to the under face of each inclined finger at a distance below its upper or rear end; a beam secured to each share; and means connecting the beams with each other.

4. In a digger, the combination set forth of the right and left hand shares arranged in V shape; a beam secured to the landside of each share, curved inward toward the front; a main beam arranged at the front ends of the two beams and provided with the adjusting-plates adapted to receive between them the ends of the share-beams; bolts passing through the adjusting-plates and through the front ends of the beams; and an adjustable bracket connecting the rear portions of the beams with each other.

593,385. CIGARETTE-MAKING MACHINE. JAMES H. VENNERS, Brooklyn, N. Y. Filed Mar. 5, 1896. Serial No. 581,963. (No model.)

Claim.—1. In a continuous-cigarette-making machine, the means for feeding the filler-tobacco, combined with the endless belt receiving such tobacco from the said feeding means, the series of alined rollers grooved on their peripheries and over which the said belt travels and is rendered trough-shaped, the pressure-roller having a flat edge and arranged to act upon the width of said tobacco within said belt for the purpose of pressing and flattening the same, the adjacent pressure-roller having a flat edge less in width than the first-mentioned pressure-roller for pressing upon the longitudinal center of the said tobacco while within the said belt and after the same leaves said wider pressure-roller, the grooved pressure-roller of greater width at its edge than said narrow pressure-roller to act upon the width of said tobacco within said belt after the same leaves said narrow pressure-roller, means for receiving and wrapping the rod of tobacco after it leaves said grooved rollers, belt and pressure-rollers, and means for severing the wrapped rod of tobacco into appropriate lengths, said pressure-rollers being in alinement with one another and arranged to act in succession upon the tobacco; substantially as set forth.



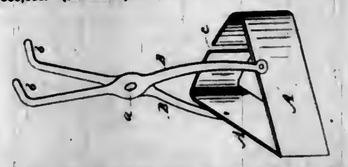
2. In a continuous-cigarette-making machine, the filler-tobacco-receiving trough, and the endless feeder-apron arranged to travel over the bottom of the said trough and being of flexible material, combined with the endless belt of flexible material supported above the inner end of said feeder-apron and adapted for contact with the upper surface of the layer of tobacco after the latter has been spread upon the said feeder-apron, the rollers at the inner and outer ends of said upper endless belt to support the same, the independent roller directly in front of the said feeder-apron and directly below the inner roller of the said upper endless belt, the picker-roller arranged in close relation to said independent roller, the chute directly below said picker-roller, and means for conveying the tobacco to the filler-forming mechanism; substantially as set forth.

3. In a cigarette-making machine, the filler-tobacco-receiving trough, and the endless feeder-apron, arranged to travel over the bottom of said trough, combined with the endless belt of flexible material supported above the inner portion of said feeder-apron and adapted for contact with the upper surface of the layer of tobacco after the latter has been spread upon the said feeder-apron and carried inward thereby, the independent roller 66 directly in front of the said feeder-apron and directly below the front roller of the said endless belt, the picker-roller 72 arranged in close relation to said independent roller 66, gearing for turning said picker-roller downward toward said roller 66, the chute directly below said picker-roller, the endless belt at the lower end of said chute, and means for forming, wrapping and severing the filler-rod of tobacco; substantially as set forth.

4. In a continuous-cigarette-making machine, means for feeding the filler-tobacco, and the belt receiving and feeding onward the tobacco from the said feeding means and being trough-shaped along its upper portion, means for maintaining said trough-shaped form in the belt, the comparatively wide pressure-roller for flattening and compressing the width of the filler-tobacco, in said belt, the succeeding narrow-edged pressure-roller for acting on the longitudinal center of the mass of tobacco fed on said belt and turning the longitudinal edges of said mass upward and inward toward each other, and the succeeding grooved pressure-roller of greater width than said narrow-edged pressure-roller for acting upon said tobacco in said belt and pressing the inwardly and upwardly turned edges of same inward and downward to complete the formation of the filler-rod preparatory to its being subjected to the wrapping and cutting mechanism; substantially as set forth.

5. In a continuous-cigarette-making machine, the means for feeding the filler-tobacco, means for forming said tobacco into the continuous filler-rod, and the wrapping-tube having the trough-shaped inlet, the guides for the paper on opposite sides of said inlet, the removable cover-section having at one end the stud 155 and at its other end the lugs 154, the recessed bail on the trough to engage said stud, the slotted clips 150, 151, on the trough to engage said lugs, the longitudinal opening exposing one edge of the paper to receive the paste, the edge for folding the pasted edge of the paper upon the other edge thereof, and the substantially-closed portion holding the pasted edge of the paper down, combined with means for moving the wrapped rod of tobacco through said tube, and means for severing the wrapped rod into appropriate lengths; substantially as set forth.

593,386. DEVICE FOR REMOVING BUTTER, &c., FROM PACKAGES. JOHN H. WILLIAMS, Albion, N. Y. Filed Jan. 23, 1895. Serial No. 535,889. (No model.)

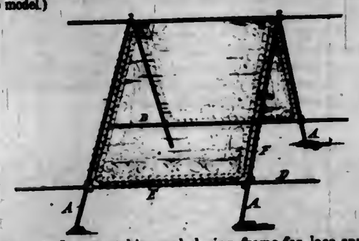


Claim.—1. In a device for removing butter from packages, the combination of a pair of vertical blades, each bent at an angle and together forming a box open at top and bottom, said blades having two pairs of meeting edges, one pair of said edges, in closing the blades together, meeting before the other pair, and handles for operating said blades, substantially as and for the purposes described.

2. In a device for removing butter from packages, the combination of a pair of vertical blades, together forming a box open at top and bottom of non-cylindrical form, said blades having two pairs of meeting edges, one pair of said edges, in closing said blades together, meeting before the other pair, and handles for operating said blades, substantially as and for the purposes described.

3. In a device for removing butter from packages, the combination of a pair of vertical blades each substantially V-shaped and having one long and one short member and together forming a box open at top and bottom, said blades having two pairs of meeting edges, one pair of edges, inclosing said blades, meeting before the other pair, and handles for operating said blades, substantially as and for the purposes described.

593,387. DRYING-FRAME FOR LACE CURTAINS. FRANK BAYERDORFFER, Brooklyn, N. Y. Filed Apr. 1, 1897. Serial No. 630,235. (No model.)



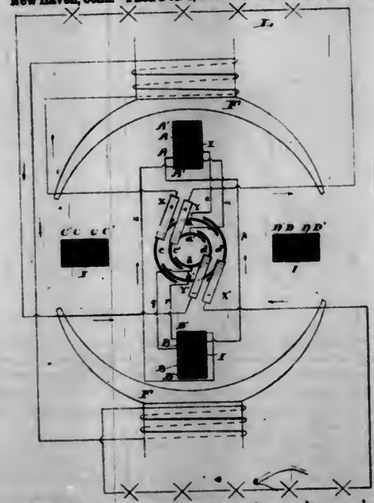
Claim.—1. In a stretching and drying frame for lace curtains, the combination of main tubes, V-shaped connecting-pieces for said main tubes, a top rod connecting said V-shaped pieces, stretching-rods, adjustable T-pieces applied to the main tubes for retaining the lower stretching-rods, and shiftable stretching-pins applied to the inclined main tubes and lower stretching-rods so as to engage the edges of the sides and ends of the curtains as they are stretched over the top rods, substantially as set forth.

2. In a stretching and drying frame for lace curtains, the combination of inclined main tubes with a V shaped connecting-piece having pins extending into the upper ends of said main tubes, a sleeve arranged in the upper part of said V-shaped connecting-piece, a top stretching-rod passing through said sleeve, and a set-screw for holding the top rod in position in the sleeve, substantially as set forth.

3. In a stretching and drying frame for lace curtains, the combination of inclined main tubes, of adjustable T-pieces provided with sleeves and set-screws, and a lower stretching-rod adapted to be retained in position by said T-piece being applied either above or below the shank of the same, substantially as set forth.

4. In a stretching and drying frame for lace curtains, the combination of inclined main tubes, of adjustable T-pieces having sleeves and set-screws, of a lower stretching-rod provided with a collar and set-screw for adjustment to said T-piece, said stretching-rod being either supported on the shank of said T-piece or below the shank of the same, substantially as set forth.

593,388. CONSTANT-CURRENT DYNAMO. CHARLES H. BLACK, New Haven, Conn. Filed Feb 1, 1897. Serial No. 621,397. (No model.)



Claim.—1. An open-coil, constant-current dynamo, having the terminals of its individual bobbins or sets of connected bobbins connected to segments of different commutator-rings.

2. An open-coil, constant-current dynamo, having the complementary segments of each pair of its commutator-rings arranged without angular displacement with respect to each other, and also having its brushes arranged substantially without angular displacement so far as the brushes bearing upon the complementary segments of any two pairs of commutator-rings are concerned.

3. An open-coil, constant-current arc-dynamo, having the terminals of its individual bobbins or sets of connected bobbins connected to opposite segments of different and distinct commutator-rings, the complementary segments of which have no angular displacement with respect to each other.

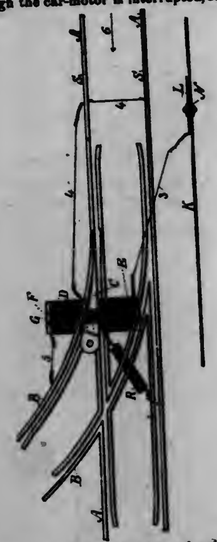
4. An open-coil, constant-current arc-dynamo, having two or more generating-bobbins or sets of bobbins, and having its internal connections arranged for the interposition of lamp and field circuits between the brushes bearing upon the segments of the same ring.

5. An open-coil, constant-current arc-dynamo having the terminals of its individual bobbins or sets of connected bobbins connected to opposite segments of different and distinct commutator-rings, and its lamp-circuits connected between brushes bearing on sections of the same ring.

6. A method of connecting two or more lamp-circuits with an open-coil constant-current dynamo, the said method consisting in interposing the several bobbins or sets of bobbins between separate and distinct commutator-rings, and in interposing the lamp and field circuits between brushes bearing on segments of the same ring, whereby increase in lamp capacity is secured without any necessary increase in voltage between any two points in the system.

593,389. ELECTRICALLY-ACTUATED SWITCH MECHANISM. WALRAN S. BROWER, Brooklyn, N. Y. Filed June 3, 1897. Serial No. 638,854. (No model.)

Claim.—1. The combination with the track-switch, of two electromagnets for moving such switch into line with the main track or with a branch or turnout, an insulated rail and circuit connections for directing the current passing through the motor of the car to one of the electromagnets for moving the switch in one direction, an insulated contact and circuit connections to the other electromagnet for closing the electric circuit from the conductor through the trolley wheel or brush for moving the switch in the other direction when the current through the car-motor is interrupted, substantially as set forth.



2. The combination with the tracks and switch, of two helices surrounding a tube of brass or other non-magnetic material, a core adapted to sliding freely endwise within such tube according to which of the helices may be energized, a stud attached to the core and passing through a slot in the surrounding tube and connected with the switch, substantially as set forth.

3. The combination with the tracks and switch, of two helices surrounding a tube of brass or other non-magnetic material, a core adapted to sliding freely endwise within such tube according to which of the helices may be energized, a stud attached to the core and passing through a slot in the surrounding tube and connected with the switch, and a shield around the stud and covering the slot in the tube, substantially as set forth.

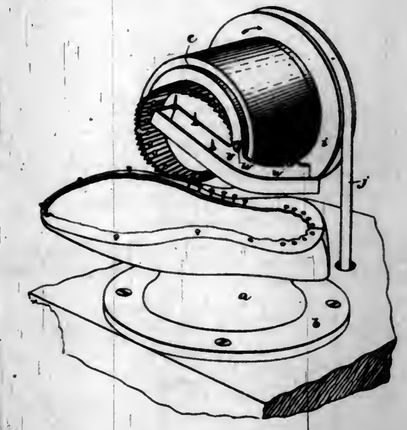
4. The combination in an electric switch apparatus and with the track-switch, of two electromagnets acting in opposite directions for moving the switch, a circuit connection for one of the electromagnets passing through the motor of the car, a circuit connection for the other of the electromagnets passing from the main conductor through the trolley wheel or brush, and a resistance in such circuit so that the magnet is of less energy than the one in the circuit containing the motor of the car, so that the second magnet ordinarily will not move the switch, but such switch will be moved by the second magnet when the current passing through the car-motor is interrupted, substantially as set forth.

598,890. BAKING-PAN. GEORGE J. CAVE, Elizabeth, N. J. Filed Feb. 18, 1897. Serial No. 624,006. (No model.)



Claim.—The improved baking-pan herein described, comprising a body, vertically disposed, and a cover therefor, said cover being provided with a deep depending flange, freely perforated and having a form in cross-section corresponding to that of the body, the cover being adapted to slide telescopically on the body, thereby permitting the free rising of the loaf during the baking operation and holding the loaf in uniform shape from end to end, substantially as set forth.

598,891. TACK-PULLING MACHINE. JOHN W. COOPER, Brockton, Mass. Filed Aug. 19, 1896. Serial No. 603,174. (No model.)



Claim.—1. A machine for withdrawing tacks having a series of pairs of independently-movable teeth and means for causing each pair of teeth to engage the tacks and withdraw them from the last.

2. A machine for withdrawing tacks having a series of teeth, means for revolving said teeth about a common center, and means for moving said teeth to cause two of them to engage a tack on both sides to withdraw it.

3. A machine for withdrawing tacks having two or more tack-engaging teeth, and means for bodily moving said teeth to cause two of them to engage and withdraw each tack.

4. A tack-withdrawing machine having two or more teeth, means for bodily moving said teeth forward to engage the tack on each side thereof, and means for moving said teeth bodily upward to carry with them the tack, thereby withdrawing it from the last.

5. A machine for withdrawing tacks, having a series of teeth arranged axially around a common center, means for revolving said teeth about the said common center, and means for moving them longitudinally in one direction during a portion of their revolution and moving them in the other direction during the remainder of their revolution.

6. A machine for withdrawing tacks comprising in its construction a standard having a bearing, a revoluble wheel arranged in the bearing, and movable teeth supported by said wheel and arranged to move longitudinally independent of said wheel whereby they are moved into and out of engagement with the tacks.

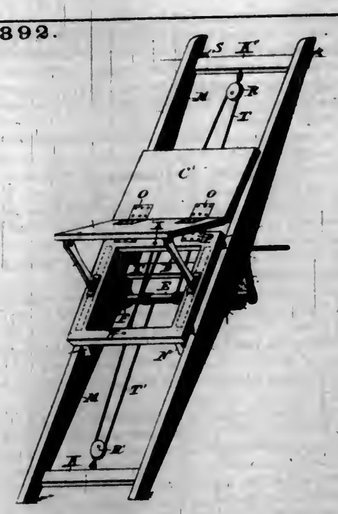
7. A machine for withdrawing tacks, having a standard, a bearing on said standard with an internal cam-track, a wheel in said bearing having axially-arranged guides in its periphery, and sail engaging and withdrawing teeth arranged in the guides in said wheel and each having a finger extending into the cam-track.

598,892. PORTABLE ELEVATOR. WILLIAM H. PITCH, Philadelphia, Pa. Filed Apr. 16, 1897. Serial No. 632,623. (No model.)

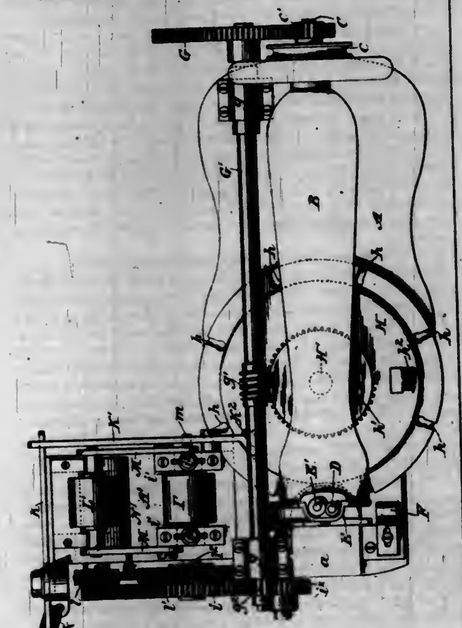
Claim.—1. In a portable elevator, a supporting-frame, a slidable frame mounted thereon, a carrying-platform the sections of which are hinged together, and means for adjusting said platform relatively to the slidable frame, substantially as described.

2. In a portable elevator, a supporting-frame, a slidable frame mounted thereon, a carrying-platform the sections of which are hinged together, means for adjusting said platform relatively to the slidable frame, and means for moving the slidable frame and carrying-platform toward the ends of the supporting-frame, substantially as described.

598,892.



598,893. MACHINE FOR MAKING WAISTBANDS, &c. HERMAN GREEN, New York, N. Y. Filed Feb. 24, 1897. Serial No. 624,330. (No model.)

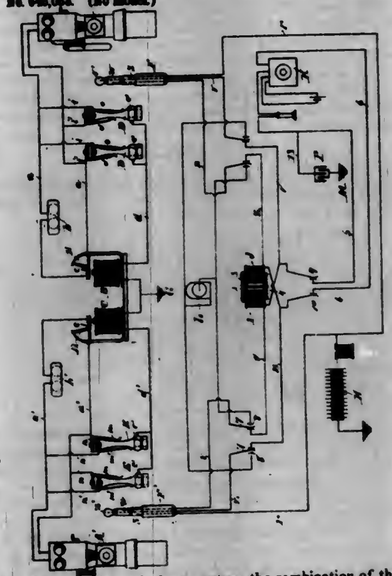


Claim.—1. In a machine for making waistbands, the combination with a stitching mechanism having a presser-foot and a needle-bar, and a shaft G' operated with the stitching mechanism and having a worm g' and a pinion g^2, of a shaft H' supported upon the base of the stitching mechanism and having a worm-wheel A' to engage said worm g', a disk or wheel H having a series of notches about its periphery to receive tabs or loops and supported in proximity to the presser-foot and clear of the base of the stitching mechanism, a feed-roll I and presser-roll I' in rear of the stitching mechanism, and gears intermediate said pinion g^2 and said feed-roll I to drive the latter with said disk or wheel H, substantially as shown and described.

2. In a machine for making waistbands, the combination with a stitching mechanism having a presser-foot and a needle-bar, a disk or wheel having a series of notches about its periphery to receive tabs or loops and supported in proximity to the presser-foot and means to drive said disk or wheel, of a cutter-blade K in rear of said stitching mechanism, a spring to move said cutter-blade in one direction and a lever operated by a cam on said disk or wheel to move said cutter-blade in the opposite direction, substantially as shown and described.

3. In a machine for making waistbands, the combination with a stitching mechanism having a presser-foot and a needle-bar, a disk or wheel H having a series of notches about its periphery to receive tabs or loops and supported in proximity to the presser-foot and means to drive said disk or wheel, of a cutter-blade K in rear of said stitching mechanism, a spring k to move said cutter-blade in one direction, a lever K' operated by a cam on said disk or wheel H to move said cutter-blade in the opposite direction, a feed-roll between said stitching mechanism and said cutter-blade, and a movable frame in which said feed-roll is mounted, said frame having a projection in the path of said lever K' to be operated thereby to lift said feed-roll, substantially as shown and described.

598,894. MULTIPLE-SWITCHBOARD SYSTEM. FRED C. HUGHES and GEORGE W. KELLEY, Detroit, Mich.; said Kelley assignor to said Hughes. Filed Feb. 1, 1892. Renewed July 26, 1897. Serial No. 646,093. (No model.)

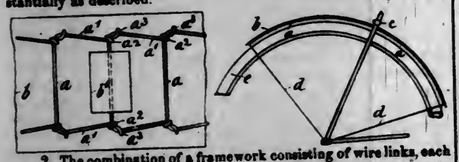


Claim.—1. In a telephone system, the combination of the line-circuits having two limbs, one of which contains an annunciator, the spring-jacks connected with said limbs, the electromagnets in circuit with their respective jacks through auxiliary lines, said magnets controlling a circuit-breaker in the respective limbs of the line-circuits, a set of plugs connected by three cords, two of said cords having each a magnetic coil therein that actuate the clearing-out drop, and which form a part of the talking-circuit, the third cord having a battery or source of electricity thereon, said plugs being adapted to be inserted in their respective "jacks" to connect the subscribers, and at the same time energizing the magnets in the auxiliary line, to break the annunciator-circuits, substantially as set forth.

2. In a telephone system, the combination of the line-circuit having two limbs one of which contains an annunciator, the spring-jack connected with said limbs, the electromagnet in circuit with said jack, said magnet controlling a circuit-breaker in said limbs, a set of plugs connected by cords having a magnetic coil therein that actuates the clearing-out drop and which forms a part of the talking-circuit, a cord having a source of electricity thereon connected with said plugs, which, being inserted in their respective jacks connect the subscribers and at the same time energize the magnets in the auxiliary line to break the annunciator-circuits.

598,895. MUD-GUARD FOR WHEELS. JOHN G. A. KITCHEN, Manchester, England, assignor to the Manchester Cycle Components, Limited, same place. Filed Mar. 1, 1897. Serial No. 625,618. (No model.)

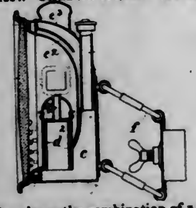
Claim.—1. In a mud-guard for wheels of velocipedes and road-carriages the combination of a framework formed of wire links, each link being formed of one piece of wire and having three sides, the two ends thereof being each curled first around the middle side and then bent sidewise to support a side of the next link, and of a cover of flexible material attached to the framework in any suitable way, substantially as described.



2. The combination of a framework consisting of wire links, each link of which is formed of one piece of wire and connected to the next link so that it can be folded upon it in one direction and is prevented from being so folded in the other direction, a cover of flexible material attached to the said framework, clips attached to said framework and adapted for attachment to the frame of a vehicle, and ties attached to the free ends of the said framework for bending the same to the curvature of a wheel and securing it in this form.

3. A mud-guard for wheels of velocipedes and other road-carriages composed of a chain consisting of wire links, each link being formed of one piece of wire and having three sides, the two ends thereof being each curved first around the middle side of the next link and then bent sidewise to support a side of the next link; a flexible cover attached to the said chain, clips attached to said chain and adapted for attachment to the frame of the vehicle, and ties attached to the free ends of the chain, substantially as described.

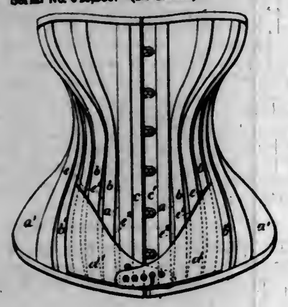
598,896. LAMP. JOHN G. A. KITCHEN, Manchester, England, assignor to the Manchester Cycle Components, Limited, same place. Filed Apr. 3, 1897. Serial No. 631,220. (No model.)



Claim.—1. In a lamp the combination of a concave reflector distant from the back of the lamp-case, an oil-reservoir between the lower part of the said reflector and case, a slotted metal tube in front of the reflector in open communication with said reservoir and carrying a wick-tube and adjusting device, and a glass fixed liquid-tight in said metal tube.

2. In a lamp the combination of a concave reflector, an oil-reservoir composed of a receptacle extending behind the lower part of the reflector and a glass tube in front of the same, incased in a slotted metal tube, a cap with wick-tube and adjusting device on the top of said tube, a pipe rising from the top of the oil-reservoir through the case and closed by a cap, air-holes round the lower edge of the case and reflector, outlet-holes in the top of the reflector and case with a shield between them, and a spring-carrier attached to the back of the lamp.

598,897. CORSET. DANIEL KOHN, New York, N. Y. Filed June 11, 1897. Serial No. 640,289. (No model.)



Claim.—1. A corset having a fabric body and bone-pocket strips upon the surface thereof, and a series of open-fold plaits in the fabric body at the lower front portions of the corset, beginning at about the lower edge of the waist-line and extending to approximately the bottom edge of the corset and located between the bone-pocket strips, substantially as set forth.

2. A corset having a fabric body and bone-pocket strips upon the surface thereof and a series of open-fold plaits in the fabric body at the lower front portions of the corset beginning at about the lower edge of the waist-line and extending to approximately the bottom edge of the corset, said plaits beginning at their upper pointed ends and increasing as they extend downward to a maximum width and then decreasing to their lower pointed ends adjacent to the bottom edge of the corset and located between the bone-pocket strips, substantially as set forth.

3. A corset having a single-ply fabric body with open-fold plaits in said single-ply fabric body at the front portions of the corset beginning at about the lower edge of the waist-line and extending to approximately the bottom edge of the corset and having bone-pocket strips located between the lines of plaits, said bone-pocket strips having edge flaps that extend over the plaits, substantially as and for the purposes set forth.

4. In a corset, the combination with the single-ply fabric body and the bone-pockets having edge flaps, of series of open-fold plaits in the single-ply fabric body coming between the bone-pockets and tapering straps secured along an upright edge to the lower front portion of the corset near the sides and hips and having eyelets, and a downward-pointing hook near the lower edge of one of the corset-steels to which said tapering straps may be connected, substantially as and for the purposes set forth.

5. The combination in a corset with the fabric body, the bone-pocket strips and the steels, of a downward-pointing hook upon the lower end of the stud-steel, straps secured along an upright edge to the lower front portion of the corset near the sides and hips and whose upper edges taper downward and whose lower edges correspond with the lower edges of the corset, and having eyelets in their tapering ends adapted to receive the hook and thus connect them to the lower edge of the corset, whereby one strap extends over the hook-steel to press the same inward and prevent the unhooking of the steels in use, substantially as and for the purposes set forth.

6. A corset having a single-ply fabric body and bone-pockets formed of strips of fabric folded along the respective edges and then folded over to bring the first folded edges almost in contact at the central part of the strip, the same being sewed upon the surface of the single-ply fabric body by lines of sewing which form pockets for the reception of the bones or steels, and at the same time form flaps along the respective edges of said bone-pocket strips, substantially as set forth.

7. In a corset, the combination with the single ply fabric body and the bone-pockets having edge flaps and sewed to the single-ply fabric body, of series of open-fold plaits in the single-ply fabric body coming between the bone-pockets, said open-fold plaits being located at the lower front portions of the corset beginning at their upper pointed ends at about the lower edge of the waist-line and increasing as they extend downward to a maximum width and then decreasing to their lower pointed ends adjacent to the bottom edge of the corset, and tapering straps secured along an upright edge to the lower front portion of the corset near the sides and hips and having eyelets and a downward-pointing hook near the lower edge of one of the corset-steels to which said tapering straps may be connected, substantially as and for the purposes set forth.

8. In a corset, the combination with the single-ply fabric body and the bone-pockets having edge flaps and sewed to the single-ply fabric body, of series of open-fold plaits in the single-ply fabric body coming between the bone-pockets, said open-fold plaits being located at the lower front portions of the corset beginning at their upper pointed ends at about the lower edge of the waist-line and increasing as they extend downward to a maximum width, and then decreasing to their lower pointed ends at approximately the bottom edge of the corset, substantially as and for the purposes set forth.

9. A corset having a single-ply fabric body and bone-pockets formed of strips of fabric folded along the respective edges and then folded over to bring the first folded edges almost in contact at the central part of the strip, the same being sewed upon the surface of the single-ply fabric body by lines of sewing which form pockets for the reception of the bones or steels, and at the same time form flaps along the respective edges of said bone-pocket strips, and series of open-fold plaits in the single-ply fabric body coming between the bone-pockets, said open-fold plaits being located at the lower front portions of the corset, beginning at their upper pointed ends at about the lower edge of the waist-line and increasing as they extend downward to a maximum width and then decreasing to their lower pointed ends at approximately the bottom edge of the corset, said flaps extending over and covering said plaits when the corset is not in use, substantially as and for the purposes set forth.

598,898. SPLIT PULLEY. JOSEPH P. LAVIGNE, New Haven, Conn., assignor of one-half to Wilbur P. Day, same place. Filed Dec. 17, 1896. Serial No. 616,063. (No model.)



Claim.—1. In a split pulley, the combination with a two-part hub formed with integral flanges, with plates secured thereto, of a sectional rim formed with an inwardly-extending web by means of which the rim is secured to the plates, the web of the rim and the plates being constructed the one with a groove and the other with ribs to take into each other for the location of the web between the plates.

2. In a split pulley, the combination with a two-part hub, formed with flanges, of plates secured thereto, and formed with inwardly-extending ribs concentric with the hub, and a sectional rim constructed with an inwardly-extending web by means of which the rim is attached to the plates, and which is formed with grooves to receive the ribs of the plates.

3. In a split pulley, the combination with a two-part hub, each part of which is constructed with two flanges and with two lugs, of adjusting-screws applied to the said lugs for holding the two parts of the hub together on the shaft, plates secured to the outer faces of the said flanges of the parts of the hub and formed with inwardly-extending concentric ribs, and a sectional rim having a centrally-arranged, inwardly-extending web adapted to be inserted between the outer edges of the plates, and formed with concentric grooves to receive the ribs on the plates, substantially as described.

598,899. THERMOSTATIC VALVE. MEREDITH LEITCH, Richmond, Va., assignor to the Warren Webster and Company, of New Jersey. Filed Jan. 5, 1897. Serial No. 618,023. (No model.)



Claim.—1. A thermostatic valve, embracing a body provided with a valve-seat, a valve-piece adapted when actuated to close upon the valve-seat, a valve-operating piece consisting of a compound metallic expanding piece arranged in the form of a spiral and carrying the valve-piece at one end, and a core-piece supported by the body and supporting the spiral expanding piece at the opposite end to that which carries the valve-piece and extending through the spiral piece and in substantial contact with it, so as to support said spiral piece and prevent the same from bending.

2. A valve-operating piece for a thermostatic valve embracing a central metallic core, a compound metallic expanding piece arranged in the form of a spiral about the core and supported thereby at one end, and a valve-piece carried by the other end of the spiral expanding piece and located immediately adjacent to the end of the central core.

3. In a thermostatic valve, the combination of a body provided with a valve-seat, a valve-piece adapted to close upon the valve-seat, an expanding piece carrying the valve-piece at one end, and an adjusting-piece carried by the body and supporting the other end of the expanding piece and having an extension immediately adjacent to the valve-piece and adapted to abut against it so as to limit the inward adjustment of the adjusting and expanding pieces, when the valve-piece reaches its seat.

4. In a thermostatic valve the combination of an outer valve-body a core-piece adjustably carried by the valve-body, an expansible piece supported by the core-piece at one end, and a valve-piece carried by the other end of the expansible piece and located immediately adjacent to the end of the core-piece, whereby the inward adjustment of the core-piece will be limited by the valve-piece when the valve-piece reaches the valve-seat.

598,400. HAT-FASTENER. ELISABETH LEWIS, Prattsville, N. Y. Filed Dec. 1, 1896. Serial No. 614,078. (No model.)

Claim.—1. A hat-fastener comprising a strip provided at one end with laterally-projecting tines, a diamond-shaped pin or keeper at the opposite end thereof, and a pivotal link interposed between and connecting said parts, substantially as and for the purpose described.



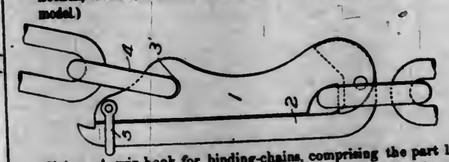
2. A hat-fastener comprising a strip having at one end laterally-projecting tines, and a diamond-shaped keeper, having the opposite end of said strip pivotally connected to its proximal center, substantially as and for the purpose described.

598,401. BOTTLE-STOPPER. JOHN LINES, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed July 20, 1896. Serial No. 599,814. (No model.)



Claim.—A stopper or plug for hot-water bottles and the like, comprising a sheet-metal body of uniform thickness except where threaded, having its middle or waist portion set outward from its interior to form a wide outwardly-projecting rib or band the outer face of which is threaded, having its upper end closed and folded upon itself to form an overhanging annular flange which is separated from the upper edge of the said rib, and having its lower end open and extending below the lower edge of the said rib, substantially as described.

598,402. GRIP-HOOK FOR BINDING-CHAINS. JACOB E. LOUKUS, Weeden, Wis. Filed Mar. 27, 1896. Serial No. 585,104. (No model.)



Claim.—A grip-hook for binding-chains, comprising the part 1 having a notch or recess to receive the link of the binding-chain, a part 2 pivotally connected to said part 1, the latter being pivotally connected to said chain, means for locking the free end of said part 2, and said part 2 being provided with a shoulder or hook to engage said link and force the same out of said notch or recess without increasing the tension upon said chain, for the purpose set forth.

598,408. CONSTRUCTION OF STAIRWAYS. ANDREW H. PETERSEN, Brooklyn, N. Y. Filed July 14, 1897. Serial No. 644,519. (No model.)



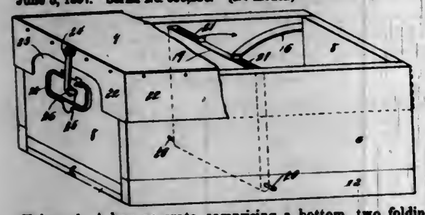
Claim.—1. A stairway such as is usually built around shafts or wells, said stairway being provided at the corners with corner-posts which are circular in cross-section, and the concave sides of which are directed outwardly, substantially as shown and described.

2. A stairway composed of separate sections or parts which are arranged at an angle to each other, and vertical corner-posts which are secured in the angles thus formed, said posts being circular or segmental in cross-section and a railing composed of separate sections which are placed between said posts, substantially as shown and described.

3. A stairway composed of separate sections or parts which are arranged at an angle to each other and vertical corner-posts which

are secured in the angles thus formed, said posts being circular or segmental in cross-section and a railing composed of separate sections which are placed between said posts, and said stairway being provided with a hand-rail which is secured in position over said panels and said posts, substantially as shown and described.

593,404. EGG-CASE. CHARLES A. FRESCHEL, Abbott, Tex. Filed June 3, 1897. Serial No. 639,253. (No model.)

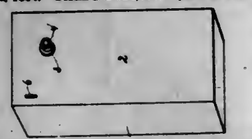


Claim.—1. A box or crate, comprising a bottom, two folding sides, and two folding ends, said bottom being provided at each end with a transverse strip to which the ends are hinged, and at each side with a longitudinal strip, to which the sides are hinged, one of said strips being wider than the other, and said sides being also provided with circular or segmental grooves, and with locking-plates at the outer ends thereof, and said ends being provided with headed pins which move in said grooves, and the heads of which operate in connection with said plates for locking the sides and ends together.

2. A box or crate, comprising a bottom, two folding sides, and two folding ends, said bottom being provided at each end with a transverse strip to which the ends are hinged, and at each side with a longitudinal strip, to which the sides are hinged, one of said strips being wider than the other, and said sides being also provided with circular or segmental grooves, and with locking-plates at the outer ends thereof, and said ends being provided with headed pins which move in said grooves, and the heads of which operate in connection with said plates for locking the sides and ends together, and said box or crate being also provided with a partition-plate which is pivotally connected therewith near the bottom thereof, and which is adapted to be folded adjacent to the bottom and to be raised and locked into an upright position, substantially as shown and described.

3. A box or crate, comprising a bottom, two folding sides, and two folding ends, said bottom being provided at each end with a transverse strip to which the ends are hinged, and at each side with a longitudinal strip to which the sides are hinged, one of said strips being wider than the other, and said sides being also provided with circular or segmental grooves, and with locking-plates at the outer ends thereof, and said ends being provided with headed pins which move in said grooves, and the heads of which operate in connection with said plates for locking the sides and ends together, and said box or crate being also provided with a cover which is provided with depending side and end flanges or plates, said cover being adapted to inclose the top of the box or crate, and to be locked thereto, substantially as shown and described.

593,405. KALEIDOSCOPE. WILLIAM SERVIS, New Haven, Conn. Filed Feb. 24, 1897. Serial No. 624,798. (No model.)



Claim.—1. In a kaleidoscope, the combination with a stationary tube provided with reflecting-surfaces on its interior faces; of a vertical rotary disk having hollow sections for carrying translucent substances, adapted to come successively within range of said tube, upon the rotation of said disk, substantially as described.

2. In a kaleidoscope, the combination with a stationary tube provided with reflecting-surfaces on its interior faces; of a rotary disk constructed of two plates and a series of sections fitting between said plates to form hollow cells for translucent substances, said cells being adapted to come successively within range of said tube upon the rotation of said disk, substantially as described.

3. In a kaleidoscope, the combination with a stationary tube provided with reflecting-surfaces on its interior faces; of a rotary disk having hollow sections for carrying translucent substances; and mechanism for rotating said disk so that said sections will come successively within range of said tube, substantially as described.

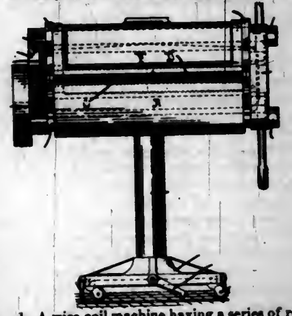
4. In a kaleidoscope, the combination with a stationary tube provided with reflecting-surfaces on its interior faces; of a rotary disk having hollow sections for carrying translucent substances; and adapted to come successively within range of said tube upon the rotation of said disk; clock mechanism for rotating said disk; means for checking said clock mechanism; a coin-controlled lever adapted to disengage said checking means from said clock mechanism upon the fall of the coin in a chute; and a trip adapted to retain said checking means from reengaging with said clock mechanism until the rotation of said disk is completed, substantially as described.

5. In a kaleidoscope, the combination with a casing having an aperture at one side, and a window on another side; of a tube the axis of which is on a line between said aperture and window, and which is provided with reflecting-surfaces on its interior faces; a rotary disk for carrying translucent substances between one end of said tube and said window, the axis of said tube meeting said disk at a point between the center and circumference and mechanism for rotating said disk, substantially as described.

6. In a kaleidoscope, the combination with a casing having an aperture at one side and a window on another side; a tube, the axis of which is on a line between said aperture and window, and which is provided with reflecting-surfaces on its interior faces; a disk between one end of said tube and said window formed of hollow sections for holding translucent substances and adapted upon the rotation of said disk to come successively within range of said tube; clock mechanism for rotating said disk; means for engaging with and checking said clock mechanism, and disengaged therefrom upon the fall of the coin in a chute, and held from reëngagement during the rotation of said disk; an electric light, the light from which is adapted to be received through said window, and the electric connection for which forms a continuous circuit when said checking means is held from engagement with said clock mechanism, substantially as described.

7. In a kaleidoscope, the combination with skeleton supports of a stationary tube provided with reflecting-surfaces on its interior faces, mounted on said supports; a plate pivoted to one support and adapted to engage with another having bearings for a rotary axle; and a removable disk mounted on said axle and formed of sections for carrying translucent substances adapted to come successively into range with said tube, substantially as described.

593,406. WIRE-COIL MACHINE. JOSEPH H. TEMPLIN, Birdsborough, Pa., assignor to the Diamond Drill and Machine Company, same place. Filed May 4, 1897. Serial No. 635,007. (No model.)



Claim.—1. A wire-coil machine having a series of rolls arranged to close upon and rotate an interposed wire coil, clamping-jaws operating in connection therewith, and separate mechanisms for independently opening and closing said rolls and jaws, substantially as set forth.

2. In a wire-coil machine having a series of rolls arranged to close upon and rotate an interposed wire coil, clamping-jaws operating in connection therewith, and two levers each adapted to partially open or close said jaws and jointly to completely open or close the same, substantially as set forth.

3. In a wire-coil machine having a series of rolls arranged to close upon and rotate an interposed wire coil, clamping-jaws in front of said rolls having a movable member pivoted at the rear thereof, and mechanism for operating said movable member, substantially as set forth.

4. In a wire-coil machine having a series of rolls arranged to close upon and rotate an interposed wire coil, clamping-jaws in front of said rolls having a movable member pivoted at the rear thereof, and a mechanism for operating said member and mounted on links pivoted to the frame of the machine, substantially as set forth.

5. In a wire-coil machine having a series of rolls arranged to close upon and rotate an interposed wire coil, clamping-jaws in front of said rolls having a movable member pivoted at the rear thereof, a mechanism for operating said member mounted on links pivoted to the frame of the machine, and mechanism for operating said links to further move the jaws, substantially as set forth.

6. In a wire-coil machine having a series of rolls arranged to close upon and rotate an interposed wire coil, clamping-jaws in front of said rolls having a movable member, and a mechanism for operating said member mounted on links pivoted to the frame of the machine, substantially as set forth.

7. In a wire-coil machine having a series of rolls arranged to close upon and rotate an interposed wire coil, clamping-jaws in front of said rolls having a movable member, a mechanism for operating said member mounted on links pivoted to the frame of the machine, and a mechanism for operating said links to further move the jaws, substantially as set forth.

8. In a wire-coil machine having a series of rolls arranged to close upon and rotate an interposed wire coil, clamping-jaws in front of said rolls having a movable member pivoted at the rear thereof, an eccentric shaft for operating said member, and links carrying said shaft and riding upon a second eccentric shaft mounted in the frame of the machine, substantially as set forth.

593,407. EAVES-TROUGH HANGER. CHARLES F. THROM, Toledo, Ohio. Filed Apr. 21, 1897. Serial No. 633,131. (No model.)



Claim.—In an eaves-trough hanger, a hanger-bar formed with an end bifurcated to form a central tongue to receive one edge of the eaves-trough and an opposite end curved in coincidence with the opposite rolled side of the eaves-trough, a hanger secured to the bar by a rivet, and a safety-strip secured to the bar by the same means of a length to envelop the trough and encircle the rolled edge thereof.

593,408. EJECTING MECHANISM FOR DROP-DOWN GUNS. DANIEL M. WIRAMS, Binghamton, N. Y., assignor to The Charles Parker Company, Meriden, Conn. Filed Mar. 22, 1897. Serial No. 628,570. (No model.)



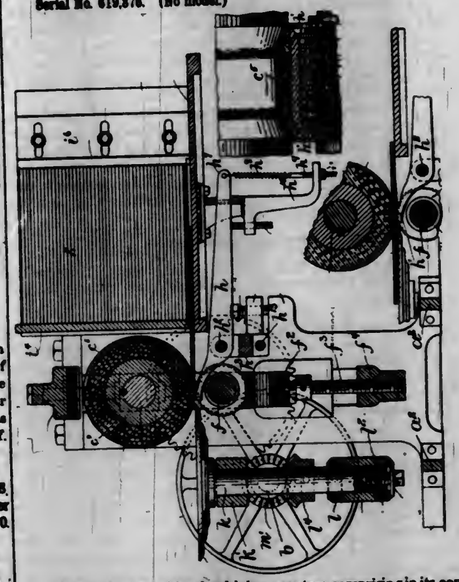
Claim.—1. In a breech-loading firearm, the combination of the two barrels, the separate extractors for the two barrels, the single extractor-pin adapted to coöperate with both extractors, and means adapted to operate the extractor-pin in the opening movement of the arm, and a cam projection on the forward end of the extractor-stem, an ejector-spring, and a cam-surface on the end of the said spring acting upon the cam-surface of the extractor-stem to eject the extracted shell, all substantially as described and for the purposes set forth.

2. In a breech-loading firearm, the combination of a gun-frame, a barrel pivotally attached to said frame, a hammer for exploding the cartridge, the extractor borne on the reciprocatory extractor-stem, a cam-surface on the forward end of the said extractor-stem, the ejector-spring having an inclined cam-surface acting on the said cam-surface on the forward end of the extractor-stem to eject the extracted shell, and means intermediate of said spring and hammer adapted to hold said spring from operation while the hammer is cocked, all substantially as described and for the purposes set forth.

3. In a breech-loading firearm, the combination of a gun-frame, a barrel pivotally attached to said frame, a hammer for exploding the cartridge, the extractor, means for giving the extractor positive extracting movement in the opening of the arm, the reciprocatory extractor-stem provided with a cam, the pawl pivotally attached to the hammer, the piston adapted to be actuated by said pawl, the hammer-spring, the ejector-spring and the rod extending from said piston and adapted to operate on said ejector-spring, all substantially as described and for the purposes set forth.

4. In a breech-loading firearm, the combination of a gun-frame, a barrel pivotally attached to said frame, a hammer for exploding the cartridge, the extractor, means adapted for giving the extractor positive extracting movement in the opening of the arm, the reciprocatory extractor-stem provided with its cam, the mortise *t* the reciprocatory two-leaved ejector-spring provided with its cam and with its tenon taking into the mortise *t*, the pawl pivotally attached to the hammer, the piston adapted to be actuated by said pawl, the hammer-spring, and the rod extending from said piston and adapted to operate on said ejector-spring, all substantially as described and for the purposes set forth.

593,409. MACHINE FOR SKIVING COUNTERS. ALBERT E. AYER, Boston, Mass., assignor of two-thirds to Welcome B. Johnson, same place, and Bernard J. Mulligan, Salem, Mass. Filed Jan. 20, 1897. Serial No. 619,576. (No model.)



Claim.—1. A machine for skiving counters comprising in its construction a matrix having a depression in the periphery thereof, means for holding the body of the blank in the said depression, and a revoluble disk-like knife arranged in front of the matrix, and in a plane tangential thereto to shear off the projecting edges of the blank in the matrix.

2. A counter-skiving machine comprising a revoluble matrix having a depression, means for pressing each blank into the depression, a revoluble disk-like knife arranged in a plane tangential to the matrix, and means for adjusting said knife in any direction relatively to said matrix.

3. A counter-skiving machine, comprising a revoluble matrix having a depression, a vertical shaft having a disk-like cutter arranged tangentially to the matrix and directly in front thereof, a horizontally-arranged driving-shaft, power-transmitting means connecting the said shafts, and means for adjusting said vertical shaft and cutter relatively to the horizontal shaft and the matrix.

4. A counter-skiving machine comprising a revoluble matrix having a depression, a vertical shaft having a disk-like cutter arranged in a plane tangential to the matrix and directly in front thereof, means for driving said shaft, a bearing for said shaft mounted adjustably in the frame and means for adjusting the shaft relatively to the bearing.

5. A counter-skiving machine comprising a revoluble matrix having a depression, a disk-like cutter arranged tangentially to the matrix, an adjustable shaft for supporting and driving the same, a bearing-bracket for said shaft adjustable longitudinally of the shaft and transversely thereof, a main driving-shaft, and means for imparting power from the main driving-shaft to the cutter-shaft, said means comprising an adjustable shaft geared to the cutter-shaft and supported by the said bearing-bracket, and arranged substantially in alinement with the driving-shaft, and a coupling for connecting the adjustable shaft with the said driving-shaft.

6. A counter-skiving machine comprising a revolable matrix having a depression, a disk-like cutter arranged tangentially to the ma-

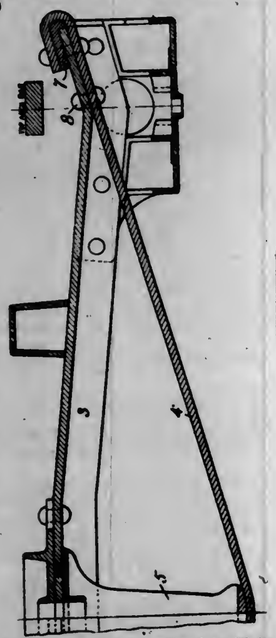
trix, an adjustable vertical shaft for supporting and driving said cutter, a bearing-bracket for said shaft adjustable both longitudinally and transversely of said shaft, a main driving-shaft, a shaft journaled in said bearing-bracket and having a bevel-wheel intermeshing with and driving a bevel-wheel on the cutter-shaft, and a coupling connecting the said bevel-wheel shaft with the driving-shaft, comprising two disks connected with said shafts respectively, and a loose disk having tongues on its faces which are at right angles to each other, and which tongues fit in grooves in the faces of the first-mentioned disks.

7. A counter-skiving machine comprising a revoluble matrix having a depression, a cutter arranged in front of said matrix, means coacting with the matrix for feeding each blank to the action of the cutter, and means for feeding each blank to the matrix, consisting of a feed-slide, a bell-crank lever connected therewith, and a crank on the matrix-shaft connected to said bell-crank lever.

8. A counter-skiving machine comprising a revoluble matrix having a depression, a cutter arranged in front of said matrix, means coacting with the matrix for feeding each blank to the action of the cutter, and means for centering and feeding each blank to the matrix, said means consisting of a feeding-finger and a lever adapted to bear intermittingly on the front end of the blank.

9. A counter-skiving machine comprising a revoluble matrix having a depression, a cutter arranged in front of said matrix, means coacting with the matrix for feeding each blank to the action of the cutter, and means for centering and feeding each blank to the matrix, said means comprising a feeding-finger, a lever, adapted to bear against the counter, and means for holding the lever away from the blanks except at predetermined times.

598,410. BOLSTER. CARL E. BAUER, Chicago, Ill., assignor to William V. Kelly, same place. Filed July 21, 1897. Serial No. 645,270. (No model.)



Claim.—1. In a bolster, the combination with its compression member, tension member, and middle support; of a strengthening-piece around which the end of the tension member is bent, substantially as described.

2. In a bolster, the combination with its compression member, tension member, and middle support; of a strengthening-piece placed between the end of said compression member and the bent-up portion of the tension member, substantially as described.

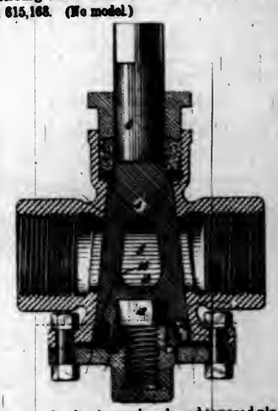
3. In a bolster, the combination with its compression member, tension member, and middle support; of a strengthening-piece arranged between the end of the compression member and the bent-up portion of the tension member, and having its ends projecting out over the flanges of said compression member, substantially as described.

4. In a bolster, the combination with its compression member, tension member, and middle support; of a strengthening-piece placed at the end of said compression member, and at its outer edge overlapping the web of the same, substantially as described.

5. In a bolster, the combination with its compression member, tension member, and middle support; of a strengthening-piece having its outer edge rounded, and the bent portion of said tension member engaging said rounded edge, substantially as described.

6. In a bolster, the combination with the middle support; of a compression member, and a tension member, the said compression member being bent upward near its ends in a line with said tension member, and the tension member being straight at its ends to the end of the compression member, substantially as described.

598,411. VALVE. ROBERT C. BROMLEY, Pittsburg, Pa., assignor to The Pittsburg Valve and Machine Co., Limited. Filed Dec. 10, 1896. Serial No. 615,168. (No model.)



Claim.—1. A valve having a chambered tapered plug, a threaded screw mounted in a part of the valve-casing, and in engagement with the plug whereby rotation of the plug will rotate the screw and advance it toward or from the plug in line with its axial center, substantially as set forth.

2. A valve having a chambered tapered plug, a polygonally-headed screw mounted in a part of the valve-casing, and a similarly-shaped polygonal cavity in the plug for engagement with the head of the screw, substantially as set forth.

3. A valve comprising a casing having a tapered seat, a correspondingly-tapered plug, a polygonal cavity in the base of the plug, an extended sleeve beyond such cavity, and a polygonally-headed screw-threaded bolt mounted in a part of the valve-casing and adapted to be engaged by the cavity of the plug, substantially as set forth.

4. A valve comprising a casing having a tapered seat, a correspondingly-tapered plug, a polygonal cavity in the base of the plug, an extended sleeve beyond such cavity, a flanged head comprising a part of the valve-casing provided with clearance-space for the extended sleeve, and a threaded socket, and a packing-ring surrounding the extended sleeve, substantially as set forth.

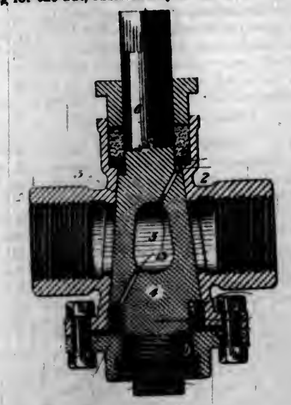
5. A valve comprising a casing having a tapered seat, a correspondingly-tapered plug, a polygonal cavity in the base of the plug, an extended sleeve beyond such cavity, a flanged head comprising a part of the valve-casing provided with clearance-space for the extended sleeve, and a threaded socket, a packing-ring surrounding the extended sleeve, and pressure-surfaces and chambers at each end of the plug with ports leading thereto from the central opening, substantially as set forth.

598,412. VALVE. ROBERT C. BROMLEY, Pittsburg, Pa., assignor to The Pittsburg Valve and Machine Co., Limited. Filed Dec. 10, 1896. Serial No. 615,169. (No model.)

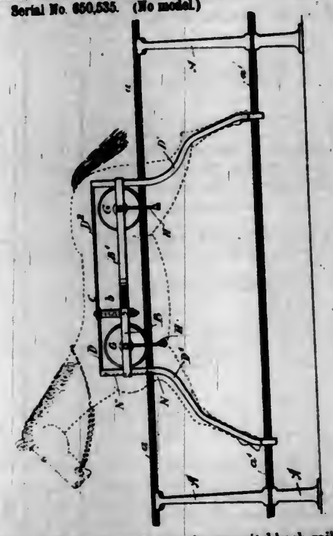
Claim.—1. A valve having a chambered tapered plug, provided with a valve-stem and an externally-threaded extended teat on the opposite end of the plug, a nut engaging the threaded teat, and an adjustable backing for the nut, substantially as set forth.

2. A valve having a chambered tapered plug, provided with a valve-stem and an externally-threaded extended teat on the opposite end of the plug, a polygonal nut engaging the threaded teat, a surrounding holder for the nut to prevent its rotation, and an adjustable follower mounted in the surrounding holder and forming a backing for the nut, substantially as set forth.

3. A valve having a chambered tapered plug, provided with a valve-stem and an externally-threaded extended teat on the opposite end of the plug, a polygonal nut engaging the threaded teat, a surrounding holder for the nut to prevent its rotation, and a follower, screw-threaded into an extension of the surrounding holder and forming a backing for the nut, substantially as set forth.



598,413. CARRIAGE FOR GRAVITY-RAILWAYS. JOHN W. CAWDERY, London, England. Filed Aug. 3, 1896. Renewed Sept. 3, 1897. Serial No. 650,535. (No model.)



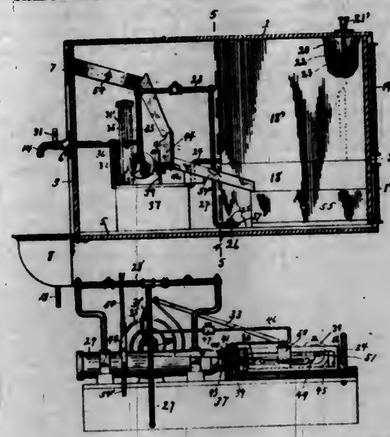
Claim.—1. In carriages for gravity or switchback railways, the combination with separate front and rear frames, running-wheels carried by each frame and extensions bearing against the lower guiding-rails, of a vertical pivot connecting the two frames together, substantially as and for the purposes specified.

2. In carriages for gravity or switchback railways, the combination with a front and rear frame, a vertical frame or extension on the former and a loop at the front of the latter, of a vertical pivot-pin carried by the vertical extension and passing through the loop, top bars secured by the pin, and legs at each end to which the bars are connected, substantially as and for the purposes specified.

3. In a carriage for gravity or switchback railways made in the form of a horse divided transversely, the combination with a front and rear frame within the body of the horse connected together by a central pivot-pin, of a protecting-plate fixed at each side to the body of the horse, and adapted to cover the gap formed on the carriage moving round a curve, substantially as described and shown and for the purposes specified.

4. In a carriage for gravity or switchback railways made in the form of a horse, stirrups carried by a stirrup-rod, pivoted at its upper end to a hinged plate, which is suspended from the fixed plate, the stirrup-rod having a number of notches or grooves by means of which the stirrup is connected, a pin passing through the sheath or tube on the stirrup and engaging with one of the notches, substantially as described and shown, and for the purposes specified.

598,414. LIQUID-VENDING MACHINE. SAMUEL W. COLLINS, Indianapolis, Ind., assignor of three-fourths to Parkhurst Brothers & Co., same place, and John T. Collins, Kokomo, Ind. Filed May 14, 1897. Serial No. 636,451. (No model.)



Claim.—1. A liquid-vending machine of the class described, having a case provided with a false bottom 5, upon which the mechanism is mounted; a water and ice tank provided with a filling-funnel, mounted upon a tank for other liquids; a pump-operating device consisting of levers 31, and 31', mounted upon a pipe 28', which encircles the discharge-pipe 14, a coil-spring 35, and a link 33, operatively connected with the pump 29, whereby the liquid is drawn through the pipes 27, and 28, from the tank 18; a pump controlling and regulating device, consisting of a pivotally-mounted bar 43, having a coin-receiver 44, upon one end, and a double rack-bar 45, upon the other, adjustable contact bars 49, a spur 51, and balancing-rod 46, carrying a weight 47, and a liquid-saving drip-pan having a raised rim and a partition to separate the water from the other liquid; a receptacle to receive and hold the drippings of the liquid being sold, and a water-pipe to carry off the waste water, all substantially as shown and described.

2. A liquid-vending machine of the class described, comprising a case having a removable rear end and false bottom to which the mechanism is attached; a lid having tank-filling cups, one of said cups having a discharge-pipe with its end upturned, and a drain-opening in said upturned end; a front end carrying a faucet-plate, discharge-pipe bearing and coin-receiving plate; a drip-pan formed in two compartments, one of which receives and retains the drippings from the discharge-pipe 14, and the other receiving and carrying off through the drain-pipe 13, the drippings from the faucet 11; a pump-operating mechanism consisting of levers 31, and 31', secured upon the pipe 28', which surrounds the discharge-pipe 14, a link 33, connecting the lever 31', and with the slide-block 34, of the piston 30, and a coil-spring 35, attached to the outer end of the lever 31', at one end, and to the bearing 32, at the other; a pump controlling and regulating mechanism consisting of the bar 43, pivotally mounted between the supports 39, by pivot-screws 40, which are secured by set-nuts 41, said bar having the coin-receiver 44, attached to one end and the double rack-bar 45, to the other end; a curved spring 50, carrying adjustable contact-bars 49, secured to one of said bars, a balance-rod 46, having the weight 47, secured to the pivot-journal 42; a spur 51, secured to the slide-block and adapted to engage the rack-teeth 45; a double-acting pump 29, adapted to draw the liquid from the tank 18; a tank 18, upon the bottom 5, and having the outlet 24', provided with the stop-cock 25, and having the filling-funnel 20, extending up through the tank 18', immediately below the discharge-pipe 22, of the filling-cup 21'; a tank 18', mounted upon the tank 18, and adapted to receive ice and water whereby the liquid within the lower tank may be kept cool; gages 19, to indicate the quantity of liquid in either tank; coin-chutes 54, and 54', and a coin-tray 55, all substantially as shown and described.

3. In a liquid-vending machine, having a tank for ice-water and a tank for other liquids, the combination of the case having the hinged lid 1, provided with the filling-cups 21, and 21', the removable rear end 3', the false bottom 5, and the front end 3, with the

pump-operating devices consisting of the levers 31, and 31′, the coil-spring 35, the revoluble pipe 28′, the link 33, and the slide-block 34; and the pump controlling and regulating devices, consisting of the pivotally-mounted bar 43, carrying the coin-receiver 44, upon one end, and the double rack-bar 45, upon the other, a weighted balance-rod 46, upon the pivot-journal 42, and a spur 51, mounted upon the slide-block 34, and adapted to alternately mesh with the teeth of the upper and lower rack-bars, substantially as set forth.

4. In a liquid-vending machine having a double-acting pump, the combination of the case having the hinged lid 1, provided with the filling-cups 21, and 21′, the removable rear end 3′, the false bottom 5, and the front end 3, with the pump-operating devices consisting of the levers 31, and 31′, the coil-spring 35, the revoluble pipe 28′, the link 33, and the slide-block 34; and the pump controlling and regulating devices, consisting of the pivotally-mounted bar 43, carrying the coin-receiver 44, upon one end, and the double rack-bar 45, upon the other, a weighted balance-rod 46, upon the pivot-journal 42, and a spur 51, mounted upon the slide-block 34, and adapted to alternately mesh with the teeth of the upper and lower rack-bars, substantially as set forth.

5. In a coin-controlled liquid-vending machine, having tanks for storing liquids; a double-acting pump to draw liquid from one of said tanks; and a means for preserving the drippings of one of said liquids without admixture with the other, the combination of the pump-operating mechanism, consisting of the pipe 28′, revolubly mounted upon the discharge-pipe 14, and having the levers 31, and 31′, securely mounted thereon, the lever 31′, being connected with the slide-block 34, by the pump-link 33, and the coil-spring 35, secured at one end to the outer end of the lever 31′, and at the other to the bearing 32, with the pump controlling and regulating devices consisting of the set-screw 56, the spur 51, the bar 43, mounted between the supports 39, and having the coin-receiver 44, upon one end, and the double rack-bar 45, carrying the adjustable contact-bars 49, yieldingly secured thereto by a curved spring 50, and adapted to hold the spur 51, in contact with the teeth of said rack-bars; and the balance-rod 40, mounted upon the pivot-journal 42, said rod having the sliding weight 47, all as shown and described.

6. A liquid-vending machine, combining a means for filling the liquid-holding tanks 18, and 18′, while the case containing said tanks remains closed, and a means for preventing the removal of liquid from the tank 18′, except through the discharge-pipe 14; a means for drawing a predetermined quantity of liquid from the tank 18′, when a certain coin is deposited in the slot 7; a means for regulating the amount of liquid to be delivered for a certain coin; a means for regulating the pump-controlling device whereby it may be actuated by coins of different weights; a means for operating the pump 29, and a means for saving the waste from the discharge-pipe 14, separate from the water from the faucet 11, all as shown and described.

7. In a coin-controlled liquid-vending machine, the combination of the outer casing having a false sliding bottom 5, resting upon the fixed bottom 4, liquid-tanks 18, and 18′, adapted to be filled while the casing is closed, a pumping mechanism 29, for drawing the liquid from the tank 18′, a means consisting of a lever 31, a spring 35, and a link 33, for actuating said pumping mechanism, with the pump regulating and controlling mechanism adapted to be thrown into operative position by means of a coin, said mechanism consisting of a pivotally-mounted bar 43, a coin-receiver 44, upon one end thereof, and a double rack-bar 45, upon the other end, adjustable contact-bars 49, yieldingly secured between said rack-bars 45, by means of a curved spring 50; a spur 51, secured to the slide-block 34, and adapted to engage the rack-teeth 45, and a balance-rod 46, secured to the pivot-journal 42, carrying a weight 47, all substantially as set forth.

593,415. METHOD OF TREATING SULFID ORES AS LEAD-ZINC ORES. SOLOMON GANELIN, Philadelphia, Pa. Filed May 7, 1897. Serial No. 635,585. (No specimens.)

Claim.—1. The process of treating ores containing lead sulfid which consists in preparing a mass or bath of a fused halogen salt, capable of being decomposed by said sulfid, and introducing said sulfid ore into said fused bath and thereby effecting double decomposition between the lead sulfid of the ore and halogen salt of the bath whereby conversion of the lead sulfid of the ore into a halogen salt of lead and of the base of the halogen salt of the bath into a sulfid, are effected, substantially as described.

2. The process of treating lead-zinc-sulfid ores for the separation of lead compounds and zinc compounds which consists in introducing the lead-zinc-sulfid ore into a mass or bath of fused chlorids capable of being decomposed by said sulfid and thereby effecting double decomposition between the lead sulfid of the ore and chlorids of the bath and converting the lead sulfid of the ore into chlorid of lead and the chlorids of the fused bath or mass into sulfids and permitting the zinc sulfid of the sulfid ore to remain in the fused bath or mass, substantially as described.

3. The method of treating ores in which galena is present which consists in introducing the ore into a fused mass or bath containing zinc chlorid and thereby converting the galena into chlorid of lead and form a sulfid of zinc, and then reducing the formed lead chlorid to the metallic state by the introduction of metallic zinc into the fused bath or mass, substantially as described.

4. The process of forming sulfids of metals from such of their halogen compounds as are capable when fused of being decomposed by galena which consists in introducing galena into a fused bath of the halogen compounds of the metals and separating the halogen compound of the lead formed in the reaction from the formed metal sulfid.

593,416. METHOD OF TREATING SULFID ORES. SOLOMON GANELIN, Philadelphia, Pa. Original application filed May 7, 1897, Serial No. 635,585. Divided and this application filed Oct. 5, 1897. Serial No. 654,158. (No specimens.)

Claim.—1. The method of treating sulfid ores in which silver sulfid is present which consists in preparing a mass or bath of a fused halogen salt capable of being decomposed by said sulfid and introducing said ore into said fused bath or mass and thereby effecting double decomposition between the silver sulfid of the ore and the salt of the bath, whereby conversion is effected of the silver sulfid into silver chlorid and of the base of the halogen salt of the bath into a sulfid, substantially as described.

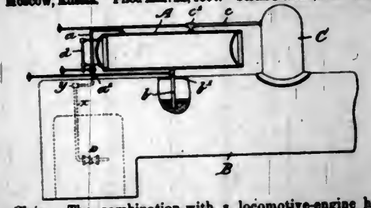
2. The method of treating ores in which silver sulfid is present which consists in introducing the ore into a fused mass or bath containing zinc chlorid, and thereby converting the silver sulfid into silver chlorid and forming sulfid of zinc, and then reducing the formed silver chlorid to the metallic state by the introduction of a metal more basic than silver into the fused bath or mass, substantially as described.

593,417. EXTENSION SHADE-BRACKET. NEALS HANNER, Orange, N. J. Filed July 19, 1897. Serial No. 645,030. (No model.)



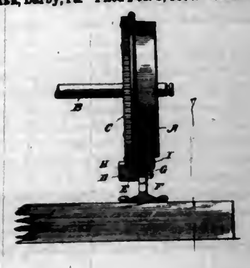
Claim.—In an extension-bracket, the combination of a slotted casing, a spring-actuated bolt moving freely therein and a shade-roller bracket carried by the bolt.

593,418. HOT-WATER ACCUMULATOR. WASILIY KOURENKOFF, Moscow, Russia. Filed Mar. 22, 1897. Serial No. 628,650. (No model.)



Claim.—The combination with a locomotive-engine having a boiler, a dome and an injector, of an accumulator or reservoir A, and pipes *a*, *b* and *c*, provided with stop-cocks, the pipe *b*, from said accumulator being connected with said boiler below the water-level therein, the pipe *c*, from said accumulator being connected with said dome or steam-space of said boiler and the pipe *a*, from said accumulator being connected by means of a pipe *x*, with said injector, substantially as and for the purposes described.

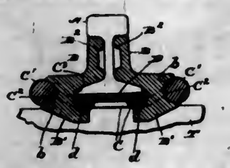
593,419. CAR-WHEEL AND TRACK THEREFOR. CHARLES LACHENMAIER, Darby, Pa. Filed Feb. 5, 1897. Serial No. 622,231. (No model.)



Claim.—1. In combination with a railway-rail, a rack-bar having an offset formed therewith, shanks projecting from said offset through openings in the rail, notches formed in said opening for the reception of the shanks, and means for securing the shanks in any adjustment, substantially as shown and described.

2. In a device of the character described, a wheel, a gear-wheel carried thereby in combination with a rack-bar, shanks on said rack-bar and a rail having notched openings in which the shanks fit, as and for the purpose described.

593,420. RAIL-JOINT OR RAIL-COUPLING. JAMES G. MILLER, Youngstown, Ohio. Filed Apr. 5, 1897. Serial No. 630,713. (No model.)



Claim.—1. A rail-coupling consisting of a horizontally-arranged plate C having two bearings C′ C′ formed upon opposite side edges, respectively of the plate, and said plate, between said bearings, being depressed and having a transverse slot C^3; two jaws B B arranged to bite or engage opposite sides, respectively, of the rails and journaled upon the aforesaid bearings, and each of said jaws being extended through the aforesaid slot and provided with a flange or lever projecting inwardly and downwardly below its axis, and a block D resting upon the free ends of both flanges or levers and arranged to be engaged by the base of the rails, substantially as and for the purpose set forth.

2. A rail-coupling consisting of four pieces, namely, a horizontally-arranged plate C provided with two bearing-forming lugs C′ C′ at opposite side edges, respectively, and said plate, between said bearings, being depressed and having the transverse slot C^3; two jaws B B journaled upon the different bearings, respectively, and arranged to engage opposite sides, respectively, of the rails to be coupled or joined together, and each of said jaws being extended through the aforesaid slot, and below its axis having a downwardly and inwardly extending flange or lever B′, and the block D arranged within the slot in the plate and below the jaws' axes and provided, upon its under side, with two lugs arranged to rest upon the different flanges or levers, respectively, substantially as and for the purpose set forth.

3. The combination with the meeting ends of two rails and a suitably-supported horizontally-arranged plate below said ends and said plate being provided with two lugs or bearings C′ C′ at opposite sides, respectively, of said ends, and being depressed and having the transverse slot C^3 between said bearings; of the two jaws B B arranged to engage opposite sides, respectively, of the rail and journaled upon the different bearings, respectively, and said jaws extending downwardly through the aforesaid slot and provided with flanges or levers extending inwardly and downwardly from the jaws' axes, and the block D interposed between the base of the rail and the free ends of said levers within the aforesaid slot, substantially as and for the purpose set forth.

4. The combination with the meeting ends of two rails and a suitably-supported horizontally-arranged plate below said ends and said plate being provided with two lugs or bearings C′ C′ at opposite sides, respectively, of said ends, and being depressed and having the transverse slot C^3 between said bearings; of the two jaws B B recessed upon their inner sides and arranged to engage opposite sides, respectively, of the rail and journaled upon the different bearings, respectively, and said jaws being extended downwardly through the aforesaid slot and provided with flanges or levers extending inwardly and downwardly from the jaws' axes, and the block D interposed between the base of the rail and the free ends of said levers within the aforesaid slot, and the engaging or opposing surfaces between said block and levers being arc-shaped, substantially as and for the purpose set forth.

5. The combination with the meeting ends of two rails having recesses in the edges of their base, and a suitably-supported horizontally-arranged plate below said ends, and said plate being provided with two lugs or bearings C′ C′ at opposite sides, respectively, of said ends, and being depressed and having the transverse slot C^3, between said bearings, and having the lugs or projections C^5 upon its upper side: of the two jaws B B arranged to engage opposite sides, respectively, of the rail and journaled upon the different bearings, respectively, and said jaws being extended downwardly through the aforesaid slot and provided with flanges or levers extending inwardly and downwardly from the jaws' axes, and the block D interposed between the base of the rail and the free ends of said levers, within the aforesaid slot, all arranged and operating substantially as and for the purpose set forth.

593,421. GAME-BOARD. WILHELM MUMBRAUER, New York, N. Y. Filed June 24, 1897. Serial No. 642,015. (No model.)



Claim.—1. In a game-board the combination of a table with a disk revoluble thereon and having a convolute ball-race, and an opening from the raceway to the table, substantially as specified.

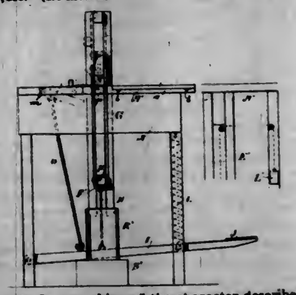
2. In a game-board the combination of a table having a head, and a contracted section to form an alley, with a disk revolubly secured to the head and having a convolute ball-race, substantially as specified.

3. In a game-board the combination of a table having a head, a contracted section or alley, and gutters at the sides of the head, with a surrounding cushion, and with a disk revolubly secured to the head and having a convolute ball-race, substantially as specified.

4. In a game-board the combination of a table having a head, a contracted section or alley and gutters at the side of the head, with sunk partitions transversing the gutters and forming pockets, and with a disk revolubly secured to the head and having a convolute ball-race, substantially as specified.

5. In a game-board the combination of a table having a foot a^2, alley a', head a^3, gutters e, and pockets e', with a revoluble disk b, having a convolute ball-race, a ball h, and pins g, substantially as specified.

593,422. MACHINE FOR CUTTING AND TRIMMING FISH. CHARLES P. OVERTON, San Francisco, Cal. Filed May 7, 1897. Serial No. 635,483. (No model.)



Claim.—1. In a machine of the character described, a horizontal table and bed piece, a cutter having diagonally-disposed suspending-links whereby it may be correspondingly moved into or out of contact with the bed-piece, vertical guides between which the cutter is movable, said guides extending below the table, a bar guided and

vertically movable between said guides, diagonal links connecting said bar with the cutter, said links standing at an angle opposite to those by which the cutter is suspended, a treadle connecting with the movable bar whereby it and the cutter may be depressed, and a spring or weight to return the parts to their normal position.

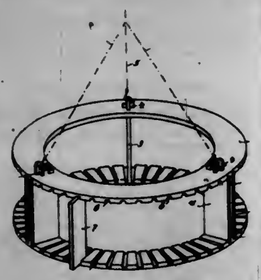
2. In a machine of the character described, a cutter fixed in a cutter-bar, vertical guides between which said bar is movable, a table and independent bed-piece upon which the cutter-blade is adapted to descend, parallel inclined links connecting with the cutter-bar and suspending it from above, a transverse bar guided to slide vertically beneath the table, links connecting said bar with the cutter-bar and standing diagonally at an angle opposite to those by which the cutter-bar is suspended, a treadle and connections with the bar whereby the latter is depressed and the cutter-bar is given a diagonal movement with relation to its bed-piece, weights or springs by which the bar and cutter are returned to their normal position upon release of the treadle and a gage for regulating the length of the section cut.

3. In a machine of the character described, a horizontal table and independent reversible bed-piece, a cutter suspended above said bed-piece movable in guides transversely and diagonally, a hinged extension behind the cutter in the horizontal plane of the fixed table and bed-piece, a gage, mechanism by which the cutter is reciprocated and connections between the hinged table and said mechanism whereby the hinged portion is tilted at the instant a cut is made, to discharge the severed portion.

4. In a machine of the character described, a cutter movable in guides, and mechanism whereby said cutter is given a longitudinally-diagonal movement in a vertical plane, a fixed table and an independent reversible bed-piece in the plane of the table upon which the cutter acts, a section hinged behind the knife and normally in the plane with the upper portion of the fixed table and bed-piece, a gage against which the material to be cut is pressed, mechanism by which the cutter is forced down and springs or weights by which it is returned to its normal position, a connection between the hinged section of the table and the actuating mechanism of the cutter whereby the hinged section is depressed simultaneously with the movement of the cutter to discharge the severed portion, and returned to its normal position coincidently therewith, a double incline having its apex approximately central beneath the center of the knife and discharging outwardly whereby the trimmings cut at one end of the knife, are received upon one side of the incline, and the other portions cut beneath the opposite end of the knife are discharged upon the opposite side of the incline, and the squared pieces and the trimmings are thereby separated.

5. In a machine of the character described, a suspended diagonally-movable knife with vertical guides between which it moves, a horizontal table in front and a hinged depressible section behind the plane of travel of the knife, and an interposed reversible bed-piece to receive the edge of the knife, with holding-clamps at the ends.

598,423. CENTRIFUGAL MACHINE. JULIUS SCHRODER, Göding, Austria-Hungary. Filed Jan. 23, 1897. Serial No. 620,423. (No model.)

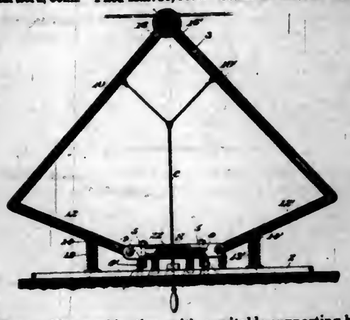


Claim.—1. In combination, the drum, the upper and lower grooved rings, the partitions between the rings, the standards extending from the lower rings up through the upper rings and the keys for locking the upper ring to the standards, substantially as described.

2. In combination, the drum, the upper and lower rings, the standards extending from the lower ring up through the upper ring, means for locking the upper ring in place, the upper ends of said standards having seats to receive the suspending means, substantially as described.

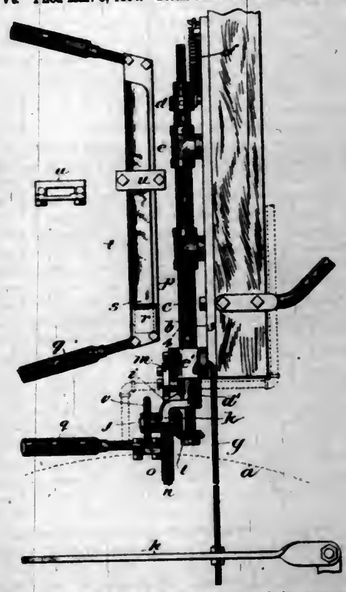
3. In combination the drum, the upper and lower rings having grooves, the partitions fitting in said grooves and the removable plates l l extending between the rings to permit the sugar and partitions to be removed, substantially as described.

598,424. TROLLEY POLE AND STAND. FREDERIC A. SEAVER, Hartford, Conn. Filed Mar. 29, 1897. Serial No. 630,700. (No model.)



Claim.—The combination, with a suitable supporting-base, of a long trolley-stand pivoted thereto for transverse rocking movement and held against turning in the direction of its longitudinal axis; expansile springs between said stand and base at opposite sides of the longitudinal axis of the trolley-stand; a trolley-pole having two pairs of connected toggle-arms, one pair supporting the trolley, the other two toggle-arms being connected with the toggle-arms of the first pair and pivotally secured to the trolley-stand at points remote from each other and near the ends of the stand for oscillation in the longitudinal plane of said stand and adapted to form therewith a long firm support for the trolley-pole; and springs connected to the lower toggle-arms between the ends thereof and also connected to the base at points beyond the ends of the trolley-stand, for normally raising the trolley-pole.

593,425. GRINDING-MACHINE. EDWARD D. WOODS, Manchester, Vt. Filed Mar. 5, 1897. Serial No. 625,945. (No model.)



Claim.—1. A grinding-machine comprising in its construction the grinding-wheel, a holding device, a presser and feed wheel adapted to bear upon the holder and gearing and operative connections to positively rotate the said feed-wheel, and means for pressing the feed-wheel with greater or less force on the holder.

2. In a grinding-machine the combination, with the holder, of the presser and feed wheel adapted to bear upon the holder and gearing and operative connections to positively rotate the said feed-wheel, and rollers or rotary sleeves against which the holder may bear at its rear side.

3. In a grinding-machine the combination, with the holder, of the presser and feed wheel adapted to bear upon the holder and to be rotated in opposite directions, means for supporting the feed-wheel and adapted to be raised and depressed, and rollers or rotary sleeves, against which the holder may bear at its rear side, connected with the feed-wheel-supporting means.

4. The combination, with the longitudinally-movable sleeve c and its bearings and supports, of the shaft b within the sleeve and longitudinally movable with it but adapted to be rotated independent thereof, and the presser and feed wheel v operatively connected with the shaft.

5. A bearing for the rear side or edge of a holder in a grinding-machine, consisting of the rotary sleeves or rollers e, one extending down on each side of the grinding-wheel, as set forth.

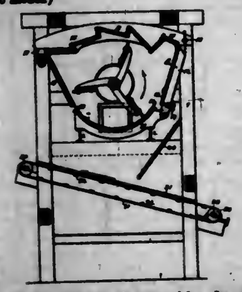
6. The combination, with the depressible sleeve, and the rotary shaft therein and its connections, of the bracket m connected with the sleeve, and the depending rotary sleeves connected with the bracket, as set forth.

7. A blade-holder for grinding-machines, comprising in its construction the bar and its handles, means for holding the blade at one end, and the strap u adapted to embrace the bar and blade and to move longitudinally along the same.

8. The combination, with the blade-holding bar, of the strap u embracing and longitudinally movable along the same, as set forth.

9. The combination, with the bar p, of the spring-clip r and the embracing-strap u, as set forth.

598,426. MACHINE FOR SHELLING PEAS OR BEANS. HARRY H. BRAKELEY, Bordentown, N. J. Filed Mar. 23, 1896. Serial No. 584,473. (No model.)



Claim.—1. The combination in a machine for shelling peas or beans, of a working-chamber inclosure having end plates, front and rear boards, a bottom plate and a top plate, a rotating shaft having a series of blades thereon which do not approach closely to the working-chamber inclosure at any point, and provision for introducing the vines at one end of the working chamber and delivering them from the other end, the front board of the inclosure flaring outwardly toward the top and a front discharge-opening being formed through which the shelled peas can pass after they have left the bottom plate, whereby, as the vines are lifted by the rotating blades, they can open out so as to discharge the shelled peas and permit the latter to fall through said front discharge-opening, substantially as specified.

2. The combination in a machine for shelling peas or beans, of a working-chamber inclosure having end plates, front and rear boards, a segmental bottom plate and a top plate, a rotating shaft having a series of blades thereon which do not approach closely to the working-chamber inclosure at any point, and provision for introducing the vines at one end of the working chamber and delivering them from the other end, the front board of the inclosure flaring outwardly toward the top and a front discharge-opening being formed through which the shelled peas can pass after they have left the segmental bottom plate, whereby, as the vines are lifted by the rotating blades, they can open out so as to discharge the shelled peas and permit the latter to fall through the said front discharge-opening, substantially as specified.

3. The combination in a machine for shelling peas or beans, of a working-chamber inclosure having end plates, front and rear boards, an imperforate segmental bottom plate and a top plate, a rotating shaft having a series of blades thereon which do not approach closely to the working-chamber inclosure at any point, and provision for introducing the vines at one end of the working chamber and delivering them from the other end, the front board of the inclosure flaring outwardly toward the top and a front discharge-opening being formed through which the peas can pass after they have left the segmental bottom plate, whereby, as the vines are lifted by the rotating blades, they can open out so as to discharge the shelled peas and permit the latter to fall through the said front discharge-opening, substantially as specified.

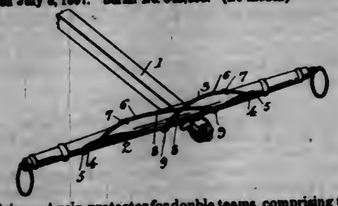
4. The combination in a machine for shelling peas or beans, of a working-chamber inclosure having end plates, front and rear boards, a bottom plate and a top plate, a rotating shaft having a series of blades thereon which do not approach closely to the working-chamber inclosure at any point, and provision for introducing the vines at one end of the working chamber and delivering them from the other end, the front board of the inclosure flaring outwardly toward the top and a front discharge-opening being formed through which the shelled peas can pass after the vines have left the bottom plate and have been lifted and opened out by the rotating blades, the top plate having abrupt shoulders in the path of the material carried around by the rotating blades, substantially as specified.

5. The combination in a machine for shelling peas or beans, of a working-chamber inclosure having end plates, front and rear boards, a bottom plate and a top plate, a rotating shaft having a series of blades thereon which do not approach closely to the working-chamber inclosure at any point, fingers projecting outwardly from said blades, and provision for introducing the vines at one end of the working chamber and delivering them from the other end, the front board of the inclosure flaring outwardly toward the top and a front discharge-opening being formed through which the shelled peas can pass after the vines have left the bottom plate, and have been lifted and opened out by the rotating blades, substantially as specified.

6. The combination in a machine for shelling peas or beans, of a working-chamber inclosure having end plates, front and rear boards, a bottom plate and a top plate, a rotating shaft having a series of blades thereon which do not approach closely to the working-chamber inclosure at any point, and provision for introducing the vines at one end of the working chamber and delivering them from the other end, the front board of the inclosure flaring outwardly toward the top and being separated from the front edge of the bottom plate at its lower end so as to provide an opening through which the shelled peas can drop, but being provided at said lower end with a pivoted and adjustable flap whereby the width of said discharge-opening can be varied, substantially as specified.

7. The combination in a machine for shelling peas or beans, of a working-chamber inclosure having end plates, front and rear boards, a bottom plate and a top plate, and a rotating shaft having a series of blades thereon and having at each end a short drum adapted to an opening in the end plate of the working-chamber inclosure, whereby access of the vines to the shaft beyond said end plates is prevented, the front board of the inclosure flaring outwardly toward the top, and a front discharge-opening being formed through which the shelled peas can pass after the vines have left the bottom plate and have been lifted and opened out by the rotating blades, substantially as specified.

598,427. REIN-GUARD FOR NECK-YOKES. REVLY A. FISHER, Hamilton, Mont., assignor of one-half to George D. Shupe, same place. Filed July 8, 1897. Serial No. 643,936. (No model.)



Claim.—A rein-protector for double teams, comprising the breast-yoke 2, in combination with the curved bracket 3, provided with the eyes 4 4, arms 6 6, and crossed braces 8 8, the outer ends of which encompass said bracket, and the whole made of a single piece of wire and permanently fixed to said yoke, substantially as shown and described.

598,428. MEANS FOR MOUNTING SNAP-HOOKS. JAMES HAND, Philadelphia, Pa., assignor to William Ayres & Sons, same place. Filed Feb. 16, 1897. Serial No. 623,691. (No model.)



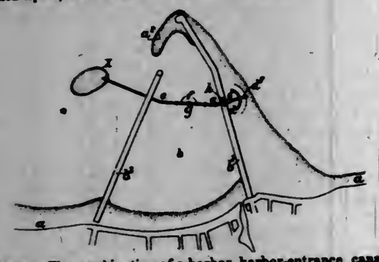
Claim.—The combination of a blanket or the like, with a shield rigidly secured upon the same, and a snap-hook having a fulcrum-bar confined by a loop to said shield, said hook having a portion projecting rearwardly beyond the loop, and bearing upon the shield in the rear of the fulcrum-bar, whereby the forwardly-projecting portion of the hook is prevented from swinging outwardly, substantially as specified.

593,429. MILK-CAN. OSCAR MARTE, Berlin, Germany. Filed May 4, 1896. Serial No. 590,122. (No model.) Patented in Belgium Sept. 30, 1895, No. 117,253; in Austria Dec. 24, 1895, No. 45/5,113; in Germany Jan. 1, 1896, No. 85,936, and in Hungary Jan. 12, 1896, No. 153.



Claim.—A milk-can and a closure therefor, comprising a ring *c*, a movable bottom *i*, buckles *g* and *h* and a slide for holding the buckles together, substantially as described.

593,430. MEANS FOR PREVENTING ACCUMULATION OF SAND IN HARBORS, &c. PATRICK O'MEARA, Pietermaritzburg, Natal. Filed Apr. 3, 1897. Serial No. 630,617. (No model.)



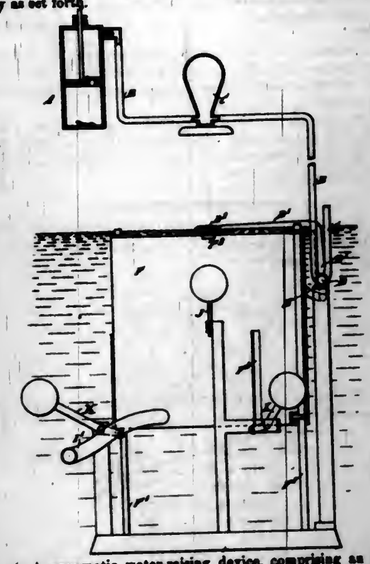
Claim.—The combination of a harbor, harbor-entrance, canal or other such place with means for intercepting and preventing accumulation of sand or detritus there, said means including a stationary forcing or pumping apparatus and a suction pipe or pipes at a point to intercept the volume of sand or detritus on its way to the harbor, &c., and a pipe or conduit through which such intercepted material may be forced to a suitable point of discharge, all substantially as described.

593,431. PNEUMATIC WATER-RAISING DEVICE. EDMUND PITCHER, Keene, and EDMUND H. SARGENT, Sunapee, N. H. Filed Oct. 1, 1896. Serial No. 607,518. (No model.)

Claim.—1. A pneumatic water-raising device, comprising a frame, a tank having vertical movement in said frame, the said tank being provided with a water-inlet and a water-discharge, an air-supply pipe connecting the said tank with a source of compressed air, a valve contained in the said pipe and automatically shifted by the movement of the said tank to connect the pipe with the tank to admit the compressed air to the latter, or to connect the tank with the outer air to discharge the air from the tank, weighted levers arranged to engage the top of the tank for temporarily locking the tank in the lowermost position, and similar weighted levers arranged to engage the bottom of the tank for temporarily locking the tank in the uppermost position, substantially as set forth.

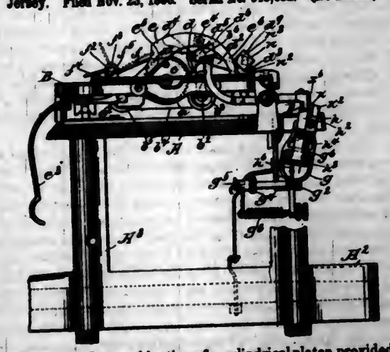
2. A pneumatic water-raising device, comprising an air-compressor adapted to be driven from the motor, a frame, a tank adapted to be submerged in water and fitted to slide vertically in the said frame, a compressed-air-supply pipe connecting the said tank with the said air-compressor, a valve contained in the said pipe, the stem of the said valve being provided with an arm engaging at its free end a loop at the top of the tank, whereby the said valve is automatically operated by the movement of the said tank in one direction to connect the said air-supply pipe and tank, and by the movement of the tank in the opposite direction to cut off the air-supply pipe and connect the tank with an air-discharge pipe, and weighted levers fulcrumed on the frame and adapted to engage the tank to temporarily lock the same in an uppermost or lowermost position, substantially as set forth.

3. A pneumatic water-raising device, comprising an air-compressor adapted to be driven from the motor, a tank constructed to be submerged in the water and fitted to slide vertically, a compressed-air-supply pipe connecting the said tank with the said air-compressor, a valve contained in the said pipe and controlled from the said tank, to cut off the supply-pipe and tank, and to connect the latter with an air-discharge, weighted levers arranged to engage the top of the tank for temporarily locking the tank in the lowermost position until the buoyancy of the tank overcomes the weight of the levers, and similar weighted levers arranged to engage the bottom of the tank for locking the tank in the uppermost position until it has sufficiently filled with water to overbalance the said weighted levers, substantially as set forth.



4. A pneumatic water-raising device, comprising an air-compressor adapted to be driven from the motor, a tank adapted to be submerged in the water, a frame on which said tank is fitted to slide vertically a compressed-air-supply pipe connecting the said tank with the air-compressor, a valve contained in the said pipe and controlled from the said tank to cut off the supply-pipe and tank, and to connect the latter with an air-discharge, weighted levers fulcrumed on the frame and adapted to swing over the tank to engage the top thereof and hold the same in the lowermost position, and weighted levers fulcrumed on the frame and adapted to swing downward and engage the under side or bottom of the tank when the latter is in an uppermost position, whereby the tank is temporarily locked in an uppermost or lowermost position, as set forth.

593,432. TYPE-WRITING MACHINE. JOHN B. PRICE, Wollaston, Mass., assignor to the Manhattan Typewriter Company, of New Jersey. Filed Nov. 23, 1896. Serial No. 613,052. (No model.)



Claim.—1. The combination of a cylindrical platen provided with a ratchet, of a pawl-carrier pivoted in the rear of said platen, a pawl

pivoted in the free end of said pawl-carrier and normally disengaged from the ratchet, and the actuating-lever pivoted in front of the platen and having an arm extending over and into operative position with relation to the pawl, and adapted to engage the said pawl and depress it into engagement with the ratchet, substantially as described.

2. The combination of a cylindrical platen provided with a ratchet, of a pawl-carrier pivoted in the rear of said platen, a pawl pivoted in the free end of said pawl-carrier and normally disengaged from the ratchet, and the actuating-lever pivoted in front of the platen and having an arm extending over and into operative position with relation to the pawl, the said pawl being provided with a finger and said pawl-carrier with a seat, both of which are adapted to be engaged by the said actuating-lever to cause the pawl to engage the ratchet, substantially as described.

3. The combination of a cylindrical platen provided with a ratchet, of a pawl-carrier pivoted in the rear of said platen, a pawl pivoted in the free end of said pawl-carrier and normally disengaged from the ratchet, and the actuating-lever pivoted in front of the platen and having an arm extending over and into operative position with relation to the pawl, said pawl being provided with a finger and said pawl-carrier with a seat, and the actuating-lever with a projection c^4 to engage the said finger and seat, and the pawl-carrier and pawl being further provided with a stop adapted to engage the ratchet and limit the rotation thereof, substantially as described.

4. The combination of a cylindrical platen provided with a ratchet, of a pawl-carrier pivoted in the rear of said platen, a pawl pivoted in the free end of said pawl-carrier and normally disengaged from the ratchet, and the actuating-lever pivoted in front of the platen and having an arm extending over and into operative position with relation to the pawl, and a variable stop, as *n*, cooperating with a shoulder or the pawl-carrier to determine the range of movement of said pawl-carrier under the operation of the actuating-lever, substantially as described.

5. The cylindrical platen provided with the ratchet, combined with a pawl-carrier and pawl pivoted therein, normally yieldingly held out of engagement with said ratchet, a stop limiting by its engagement with said ratchet the rotation thereof produced by said pawl-carrier and pawl, and a lock whereby said pawl-carrier may be retained with its pawl and stop locked in engagement with the teeth of the ratchet, substantially as described.

6. The combination with the cylindrical platen, with a paper-roll mounted on a shaft provided with pulleys and elastic bands extending from said pulleys around a portion of the periphery of the platen, with pivotally-supported bearings for said paper-roll shaft, one at each end thereof, and arms extending from said bearings, and a cross-bar connected with said arms whereby said feed-roll may be moved against the stress of the elastic bands out of contact with said platen, substantially as and for the purpose described.

7. The combination of the ratchet-toothed feed-rack, with a vibrating dog-carrier having a dog fixed thereon, a hanger pivotally connected with said dog-carrier, and a dog pivoted on said hanger, substantially as described.

8. The combination of the ratchet-toothed feed-rack, with a vibrating dog-carrier having a dog fixed thereon, a hanger pivotally connected with said dog-carrier, and a dog pivoted on said hanger, and an adjustable stop for limiting the movement of said dog with relation to said hanger, substantially as described.

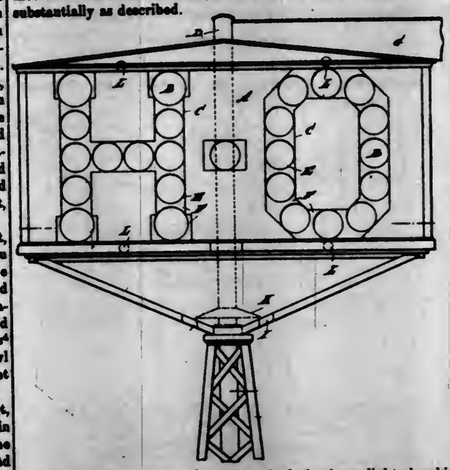
9. The combination of the ratchet-toothed feed-rack, with a vibrating dog-carrier having a dog fixed thereon, a hanger pivotally connected with said dog-carrier, a dog pivoted on said hanger, and an adjustable stop for said pivoted dog composed of a pin mounted to rotate in a socket in the dog-support, said pin having an eccentric portion engaging with said dog and constituting a stop therefor, and means for fastening said pin against rotation when adjusted, substantially as described.

10. The combination of the feed-rack with a vibrating dog-carrier and a dog fixed thereon, a hanger pivotally connected with the said dog-carrier, and a stop limiting the movement thereof in one direction, and a spring to hold said hanger against said stop, and a dog pivoted on the said hanger and movable with relation thereto, said dog and hanger being also movable on the pivot of the latter with relation to the dog-carrier, substantially as described.

11. The combination with the cylindrical platen provided with a ratchet, of a yielding platen-holding latch, as f, cooperating with said ratchet, and a latch-operating device comprising a cam f^3 having a handle f^4, substantially as and for the purpose described.

593,433. SIGN. WILLIAM W. REYNOLDS, New York, N. Y. Filed Feb. 15, 1897. Serial No. 623,210. (No model.)

Claim.—1. A sign, consisting of a hollow body having a light-absorbing outer face with the sign-characters outlined thereon by a light-reflecting material and having a series of closely-adjacent holes through the outer face of the body of each character, and the front face of the rear wall of the sign being of a light-reflecting character, substantially as described.



2. A sign, consisting of a hollow body having a light-absorbing outer face with the sign-characters outlined thereon by a light-reflecting material and having a series of closely-adjacent holes through the outer face of the body of each character, and the front face of the rear wall of the sign being of a light-reflecting character, and means for illuminating the interior of the sign, substantially as described.

3. A sign, consisting of a hollow body having a central longitudinal partition, the sides of which are provided with a light-reflecting surface, the outer face of the body or case having a light-absorbing surface with the sign-characters outlined thereon by a light-reflecting material and having a series of contiguous holes through the outer walls within the characters, and means for illuminating the interior of the sign by night whereby the characters appear with a solid body by day and are outlined by the perforations at night, substantially as described.

4. A sign, consisting of a hollow body mounted to turn upon a vertical pivot, a vane attached thereto to control its position, said body or case having a central longitudinal partition, the sides of which are provided with a light-reflecting surface, the outer face of the body or case having a light-absorbing surface with the sign-characters outlined thereon by a light-reflecting material and having a series of contiguous holes through the outer walls within the characters, and means for illuminating the interior of the sign by night whereby the characters appear with a solid body by day and are outlined by the perforations by night, substantially as described.

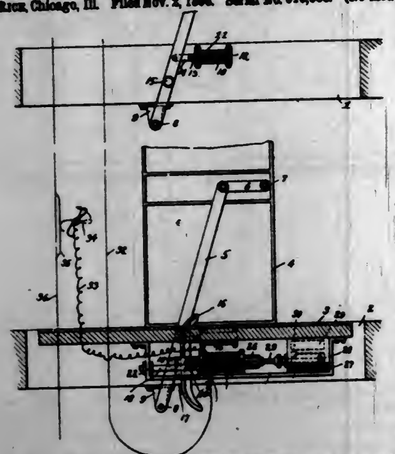
5. A sign, consisting of a hollow body mounted to turn upon a vertical pivot, a vane attached thereto to control its position, said body or case having a bottom sloping toward the pivot and provided with drainage-outlets and deflecting-strips which prevent water from entering the pivot, having also a central longitudinal partition, the sides of which are provided with a light-reflecting surface, the outer face of the body or case having a light-absorbing surface and with the sign-characters outlined thereon by a light-reflecting material and having a series of adjacent holes through the outer walls within the characters, and means for illuminating the interior of the sign, substantially as described.

6. A sign consisting of a hollow body, a case having a central longitudinal partition, the sides of which are provided with a light-reflecting surface, the outer face of the body or case having a light-absorbing surface with the sign-characters outlined thereon by a light-reflecting material and having a series of holes through the outer walls and within the characters, means for illuminating the interior of the sign at night, a vertical pivot for supporting said case, a vane attached to the case to control its position, a bottom for said case sloping toward the pivot and provided with drainage-outlets and deflecting-strips for carrying off water and a hood attached to the pivot-post above the bottom of the case and protecting the pivot-bearing, substantially as described.

7. A sign consisting of a hollow body which provides a chamber, the front of the body having letters or other characters delineated thereon and orificed, the orifices being disposed in correspondence with the delineated letters, the back of the chamber having a surface in consonance with the lettered front, the said surface appearing through the apertures and presenting with the front surface practically continuous letters, the chamber of the body, in front of its back

surface having lamps serving to illuminate the chamber at night so that the apertures form illuminated letters, substantially as described.

593,484. DEVICE FOR OPENING ELEVATOR-DOORS. JOSEPH RICE, Chicago, Ill. Filed Nov. 2, 1896. Serial No. 610,908. (No model.)



Claim.—1. The combination with the elevator-shaft door and the car, of an electric motor on the car, a movable projection and a shoe cooperating with each other to effect the movement of the door, said projection and shoe being operatively connected the one with the door and the other with the motor, an electric contact fixed with relation to the car and connected to a source of electricity, means carried by the car for connecting with said contact and being connected with one pole of the motor, and means for completing the circuit through the other pole of the motor and said contact, substantially as set forth.

2. The combination with the elevator-shaft door and the car, of an electric motor on said car, a movable projection and a vertically-elongated shoe cooperating with each other to effect the movement of the door, the said projection and shoe being operatively connected the one with the door and the other with the motor, a vertically-elongated contact fixed with relation to the car, an electric terminal connected with one pole of the motor and a circuit-closing device carried by the car and connected with the other pole of the motor and being adapted to engage with said elongated contact when the car reaches a certain elevation, substantially as set forth.

3. The combination with the elevator-shaft door and the car, of a motor carried by the car, a movable projection and an elongated shoe cooperating with each other to effect the movement of said door, the said projection and shoe being operatively connected the one with the motor and the other with the door, an electric conductor connected with one pole of the motor, a movable switch carried by the car and connected with the other pole of the motor, and an electric conductor having a vertically-elongated contact fixed with relation to the car and adapted to be struck and engaged by said switch when the switch is turned on, substantially as set forth.

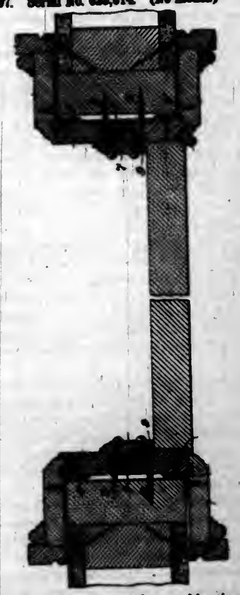
4. The combination with the elevator-shaft door and the car, of a motor carried by the car, a pivoted lever operatively connected with the door and fixed with relation to the car, a stud or projection on said lever, a shoe operatively connected with said motor and adapted to engage said stud for moving the door in one direction, and means for moving the door in the other direction, substantially as set forth.

5. The combination with the elevator-shaft door and the car, of a motor carried by the car, a movable projection having operative connection with the door, a shoe adapted to engage with said projection for oscillating said lever, a track or way upon which said shoe slides, a lever pivoted to the car and loosely connected with said shoe and being also connected with said motor, whereby the door is moved in one direction, and means for moving the door in the opposite direction, substantially as set forth.

6. The combination with the elevator-shaft door and the car, of a movable projection operatively connected with the door, a motor carried by the car, means whereby said motor moves said projection for forcing the door in one direction, means for moving the door in the opposite direction, and a dash-pot having operative connection with said motor for preventing the door from slamming, substantially as set forth.

7. The combination with the elevator-shaft door and the car, of a motor carried by the car, means whereby the operation of said motor moves the door in one direction, means for moving the door in the opposite direction, a piston connected with said motor, a cylinder in which said piston is arranged, a chamber having a communicating passage with said cylinder, and a valve partly closing said passage and adapted to be forced open by the movement of the piston, substantially as set forth.

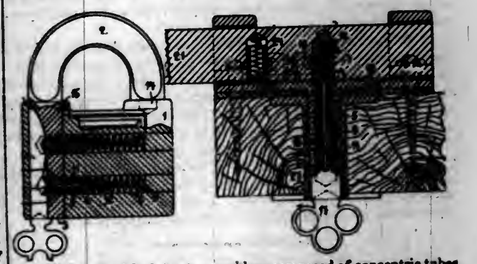
598,485. DOOR-FRAME. CHARLES ROSER, Bucyrus, Ohio. Filed Feb. 16, 1897. Serial No. 623,614. (No model.)



Claim.—1. In a door-frame, the combination of a jamb formed in two longitudinal sections, a strip interlocking as by a tongue and groove with one of the jamb-sections, so as to form a door-stop in said section and lapping onto the other section sufficiently to permit the adjustment of the sections and to permit of the strip being secured to the other section, and facings secured to the outer edges of the jamb-sections, substantially as set forth.

2. In a door-frame, the combination of a jamb formed in two longitudinal sections, facings secured to the outer edges of the jamb-sections, and jaws or shoes on the facings beveled or inclined to form gripping edges and projecting within the planes of the inner surfaces of the facings, and adapted to grip the wall and hold the frame in position, substantially as set forth.

598,486. LOCK. THORSTEN A. T. RYDBERG, Stockholm, Sweden. Filed June 29, 1897. Serial No. 642,802. (No model.)



Claim.—1. A lock having tumblers composed of concentric tubes each in parts placed end to end, substantially as described.

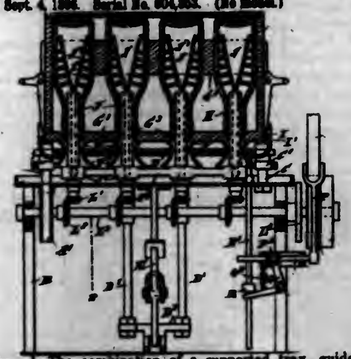
2. A lock having tumblers composed of concentric tubes, each in parts placed end to end, and springs adapted to press upon the tubes as and for the purpose set forth.

3. A lock having a tumbler composed of a spring-actuated tube

in two parts end to end and a central pin, also in two parts, and a spring within the tube to actuate the pin, substantially as described.

4. A lock having a series of concentric tumblers each composed of spring-actuated tubes in two parts, end to end, a central pin also in two parts within the central tube and a spring to actuate the pin, substantially as described.

598,487. BOTTLE-WASHER. JOHN SCHUTZ, New York, N. Y., assignor to John Schutz, Theodore Hachler, and Paul Leid, same place. Filed Sept. 4, 1896. Serial No. 604,863. (No model.)



Claim.—1. The combination of a supported tray, guide-rods arising from the tray, a platform sliding vertically on the guide-rods and moving toward and from the tray, rods in connection with the platform and movable through the tray whereby the platform is actuated, an additional rod in connection with the platform and moving therewith, a belt-shifter, and a spring-actuated bell-crank lever in connection with the belt-shifter and operated by the said additional rod as it moves with the platform, substantially as described.

2. In a bottle-cleaning machine, the combination of a supported tray, a platform moving vertically toward and from the tray, guides on which the platform slides, a rod connected to the platform, a treadle connected to the rod, an additional rod also connected to the platform, a bell-crank lever actuated by the rod when moving with the platform, and a belt-shifter in connection with the bell-crank lever, substantially as described.

3. A bottle-washing machine, having a mounted tray, cleaning devices carried on the tray, a platform mounted to move toward and from the tray, a box supported on the platform, two catches carried by the platform and engaging the box to hold the same in position on the platform, and a lever for each catch, the levers being fulcrumed on the box engaging the catches and being capable of disconnecting the catches and box upon the movement of the levers, substantially as described.

4. The combination of a platform, a box movable thereon, catches holding the box immovable on the platform, and levers fulcrumed on the box and forming handles by which the box may be moved, the levers engaging the respective catches and being capable of releasing the catches as the levers are grasped to move the box, substantially as described.

5. The combination of a supported tray, a platform slidably mounted to move toward and from the tray, a rod in connection with the platform and moving therewith, a belt-shifter, and a spring-actuated bell-crank lever in connection with the belt-shifter and operated by said additional rod as it moves with the platform, substantially as described.

6. The combination of two parts having relative movement, a catch carried on one part and a projection on the other part and capable of holding the two parts in proximity to each other, and a handle pivotally carried on the latter part and engaging the catch and capable upon having pressure applied thereto of moving the catch to release the said parts and permit the relative movement thereof.

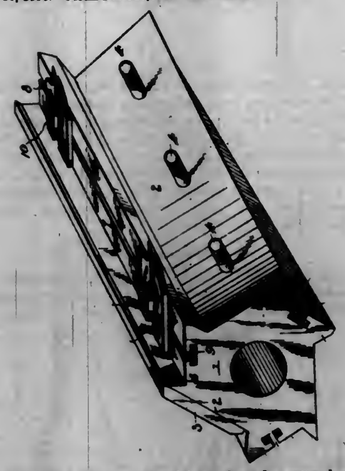
7. A bottle-washing machine having a mounted tray, a platform slidably mounted on the tray and moving toward and from the same, a box mounted on the platform, means for removably holding the box on the platform, the box having an orifice therein and being capable of carrying a bottle, a nozzle projecting through the platform and registering with the orifice in the box, a tube standing on the tray and in position to be received within the nozzle of the platform and within the orifice of the box as the platform moves toward the tray, an operated brush the shank of which runs through the tube, and means for feeding liquid to the tube, substantially as described.

598,488. NECKTIE-FASTENER. GUSTAVE BELOWSKY, New York, N. Y. Filed Mar. 13, 1897. Serial No. 627,374. (No model.)

Claim.—The combination with the hook and eye straps of the connecting device having at one end a loop embracing the hook-strap, and at its other end a hook to engage the eye of the eye-strap and provided between its ends with seats for the hook of the hook-strap substantially as shown and described.



593,439. CUTTER-HEAD. SAMUEL J. SHIMER, Milton, Pa. Filed Dec. 16, 1896. Serial No. 616,173. (No model.)



Claim.—1. As an improved article, a triangular cutter-head having a number of faces inclined transversely to enable a knife bolted thereto to engage with the work at a great angle and inclined longitudinally and convexed longitudinally on the arc of a symmetrically-disposed ellipse to enable the knife to make a draw cut, and a number of alternate flat faces to receive beading-knives equidistant at all points from the center of the head, substantially as described.

2. The combination with a triangular cutter-head having a number of faces inclined transversely to enable a knife bolted thereto, to engage with the work at a great angle, and inclined longitudinally and convexed longitudinally on the arc of a symmetrically-disposed ellipse, to enable the knife to make a draw cut, and a number of flat faces equidistant at all points from the center of the head, to receive beading-knives, of the flat knives sprung down and bolted to said convex faces and the adjustable beading-knives secured to said flat faces, substantially as described.

3. As an improved article, a triangular cutter-head having a number of faces inclined transversely to enable a knife bolted thereto to engage with the work at a great angle and inclined longitudinally and convexed longitudinally on the arc of a symmetrically-disposed ellipse, to enable the knife to make a draw cut, and a number of alternate flat faces depressed below the front edges of said inclined and convexed faces, to receive beading-knives, substantially as described.

598,440. PROCESS OF TREATING METAL STRUCTURES. FRANK SHUMAN, Philadelphia, Pa. Filed Sept. 17, 1896. Serial No. 606,154. (No specimens.)

Claim.—1. The process herein described of treating structural metal-work to prevent corrosion, said process consisting in first filling the cracks or crevices with paraffin or equivalent material, removing the surplus paraffin, coating the work with copper in an alkaline solution, dusting the exposed paraffin with plumbago and finally plating the entire surface in an acid copper solution, substantially as described.

2. The process herein described of treating structural metal-work to prevent corrosion, said process consisting in first filling the crev-

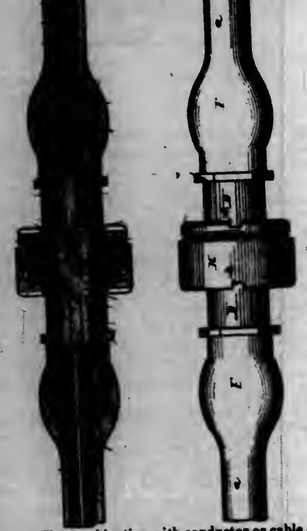
ices or cracks with paraffin or equivalent material, removing the surplus paraffin and preparing the surface of the metal by sand-blast, coating the work with copper in an alkaline solution, dusting the exposed paraffin with plumbago and finally plating the entire surface in an acid copper solution, substantially as described.

593,441. SHADE-HANGER. FERDINAND H. STANLEY, Carpenter, Ill. Filed Apr. 7, 1897. Serial No. 631,140. (No model.)



Claim.—The combination of a bar, a plate attached to each end of the bar, each plate having a vertically-elongated portion running transversely to the bar, two rollers mounted in said portion, the rollers being respectively above and below the bar and parallel therewith, one of the rollers being a curtain-roller, a flexible strip wound over the remaining roller and adapted for attachment to the window-frame, a cord wound over the said remaining roller oppositely to the said flexible strip, and a guide for the cord, the guide being located at the top of the window-frame.

593,442. JOINT OR COUPLING FOR ELECTRIC CABLES. GEORGE TAILLEUR, Chicago, Ill., assignor to the Chicago Edison Company, same place. Filed July 31, 1897. Serial No. 646,667. (No model.)



Claim.—1. The combination with conductor or cable ends, of interlocking terminals, insulating-sleeves connected to said conductors and having opposing flanged ends and a two-part coupling engaging the flanged ends of said sleeves and serving to hold the terminals and the sleeves together.

2. The combination with the conductor or cable ends, of interlocking terminals, sleeves inclosing said terminals, a gasket or packing interposed between the ends of the sleeves and a two-part coupling engaging the ends of the sleeves and serving to draw them firmly against said gasket or packing.

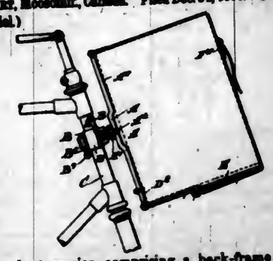
3. The combination with the conductor or cable ends, of interlocking terminals, insulating-sleeves covering said terminals and extending approximately to the ends thereof and a revoluble two-part threaded coupling mounted upon said sleeves and serving to hold the ends of said sleeves together.

4. The combination with the conductor or cable ends, of interlocking terminals, insulating-sleeves having bores within which said terminals fit and a coupling for uniting said sleeves comprising interiorly and exteriorly threaded cylindrical parts adapted to be secured together.

5. The combination with the conductor or cable ends and with their terminals, of the insulating-sleeves flanged at their outer ends and each provided with one section of a two-part coupling and screw-threaded at their inner ends, a metallic threaded collar engaging the inner ends of the insulating-sleeves and joined to the covering of the conductors or cables.

6. The combination with the conductor or cable ends and with their terminals, of the insulating-sleeves flanged at their outer ends and each provided with one section of a two-part coupling and screw-threaded at their inner ends, a metallic threaded collar engaging the inner ends of the insulating-sleeves and provided with a tubular extension, said extension being connected by a wipe-joint with the covering of a corresponding conductor or cable.

593,443. DETACHABLE CARRIER FOR BICYCLES. WILLIAM M. TEBART, Moncmir, Canada. Filed Dec. 31, 1896. Serial No. 617,670. (No model.)



Claim.—1. A carrier, comprising a back-frame adapted to be clamped to the steering-head of a bicycle, and a supporting-bracket or bottom frame formed of two sections having a hinged and sliding connection with each other, the inner section being hinged to the back-frame, substantially as described.

2. A carrier, comprising a frame-back adapted to be clamped to the steering-head of a bicycle, a supporting bracket or bottom hinged to the lower end of the said back and adapted to extend approximately at right angles to the back, and arranged to fold upon the same, and an extension held to slide on the said bottom to vary the capacity of the carrier and adapted to swing upwardly, substantially as shown and described.

3. A carrier, comprising a back-frame adapted to be secured to the steering-head of a bicycle, a supporting-bracket hinged to the back-frame, and an extension having its middle portion loosely engaging the middle portion of the bracket and its outer portions pivoted to slide on the outer portions of the bracket, substantially as described.

4. A carrier, comprising a back-frame provided with a cross-bar intermediate of its ends and having eyes in the lower ends of its side bars, a supporting-bracket having its ends passed through the eyes of the side bars and formed with hooks to engage said side bars, and an extension having a hinged and sliding connection with the bracket, substantially as described.

5. A carrier for bicycles, provided with a clamp comprising two hinged halves, a loop pivoted on the free end of one half, a rigid lug engaged by the loop and held on the free end of the other half, and a screw screwing in the said loop and adapted to engage the said lug, substantially as shown and described.

6. In a carrier, the combination with a frame-back, of a cross-bar held vertically adjustable on the sides of the frame-back and forming a part of said frame, and a clamp secured to the said cross-bar at about its center, substantially as described.

7. A carrier, provided with a frame-back having sides provided with rearwardly-projecting offset portions, eyes surrounding the said portions, and a cross-bar carrying the said eyes at its ends, substantially as shown and described.

8. A carrier, comprising a back provided with an adjustable cross-bar, a clamp secured to the cross-bar for clamping the carrier to a bicycle, a supporting-bracket hinged to the lower end of the back-frame, and an extension having a hinged and sliding connection with the bracket, substantially as described.

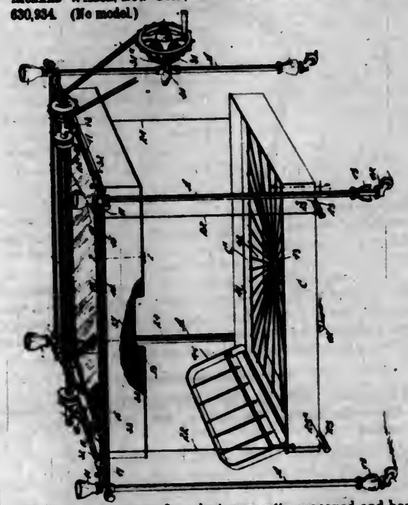
593,444. BEDSTEAD-FASTENING. EDWIN F. TILLEY, New York, N. Y. Filed June 15, 1897. Serial No. 640,853. (No model.)

Claim.—1. In a bed, the combination of a mattress-frame having two end and two side rails forming a rectangular figure, and a fastening device for each corner of the mattress-frame, each fastening device having a body portion fitted between the contiguous ends of the end and side rails, and rigidly and permanently secured thereto by bolts respectively passing through the said body portions and through the said end and side rails, and each fastening device also having a block slidably connected with the corresponding fastening body portion, and the blocks being capable of connection with the posts of the bed.



2. In a bed, the combination of a mattress-frame having two end and two side rails, each formed of an angle-iron, and the end rails being laid upon the side rails to form a rectangular figure, a fastening body portion for each corner of the mattress-frame, the fastening body portions each having a side wall, a top wall, and a front wall, the side and top walls lying over the corresponding side rails, and the front walls lying at the respective ends of the side rails, bolts passing through the top wall of each fastening body portion and through the adjacent side and end rails to rigidly and permanently secure the side and end rails and the fastening body portions together, and a block for each fastening body portion, each block having sliding connection with the front wall of the corresponding fastening body portion and each block being capable of connection with the posts of the bed.

593,445. INSECT-GUARD FOR BEDS. DAVID D. TOAL and RICHARD WILSON, New York, N. Y. Filed Apr. 6, 1897. Serial No. 630,934. (No model.)



Claim.—1. A canopy for a bed, upwardly concaved and having hollow vertically-disposed boundary-walls communicating with the interior by slots at the bottom of the inner walls thereof, substantially as described.

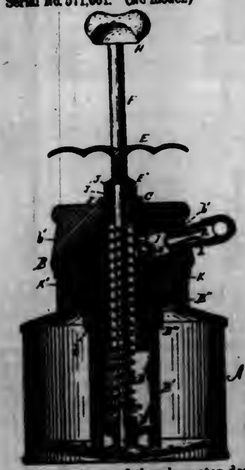
2. A canopy for a bed, upwardly concaved, having hollow vertically-disposed boundary-walls communicating with the interior by slots at the bottom of the inner walls thereof, and having a reticulated or imperforate bottom, substantially as described.

3. A canopy for a bed, upwardly concaved and having hollow vertically-disposed boundary-walls communicating with the interior by slots at the bottom of the inner walls thereof, one of said walls being transparent, substantially as described.

4. In a supporting-frame for beds or like articles, means for protecting the bed from the encroachments of insects, consisting of a second frame suspended from the main frame, comprising side and end pieces, a reticulated bottom for the suspended frame, and transparent panes supported between the upper portion of the suspended frame and its bottom, a space being provided between the transparent panes and the sides and the ends of the suspended frame, a space being likewise provided between the transparent panes and the reticulated bottom, as and for the purpose specified.

5. The combination, with the supporting-frame of a bed, of a frame suspended therefrom, adapted to protect a bed from the encroachment of insects from above, the said suspended frame consisting of side and end sections, each of which is provided with an inwardly and downwardly extending flange at the top, an auxiliary reticulated or perforated frame constituting the bottom of the suspended frame and provided with brackets extending upward therefrom substantially in alinement with the downwardly-extending portion of the flange of the suspended frame, and glass panes held by the flange of the suspended frame and the brackets of the perforated or reticulated frame, the glass panes being so supported as to form a space between them and the suspended frame and between their upper edges and the perforated or reticulated frame, as and for the purpose specified.

593,446. OIL-CAN. DAVID TRUE, Amesbury, Mass. Filed Dec. 10, 1896. Serial No. 571,661. (No model.)



Claim.—1. In an oil-can of the character described, the combination of the plug B provided with the inclined passage I and ball-valve N, and the metallic disk P set within said passage and provided with the hole P' located below the center of said disk, whereby said disk constitutes a tight seat for the ball-valve, substantially as described.

2. In an oil-can of the character described, the combination with the plug B provided with an inclined passage I and ball-valve N, of the perforated metallic disk P P' provided with the peripheral prong P'', whereby said disk may be readily inserted in the passage and retained in position therein, substantially as set forth.

593,447. APPARATUS FOR DESULFURIZING MATTE OR OTHER FURNACE PRODUCTS. JAMES L. WELLS, El Paso, Tex. Filed Dec. 8, 1896. Serial No. 614,982. (No model.)



Claim.—1. A twyer consisting of a shell, a plug made in longitudinal grooved sections set in said shell, and a transverse pin extending in said sections to fasten them together, substantially as described.

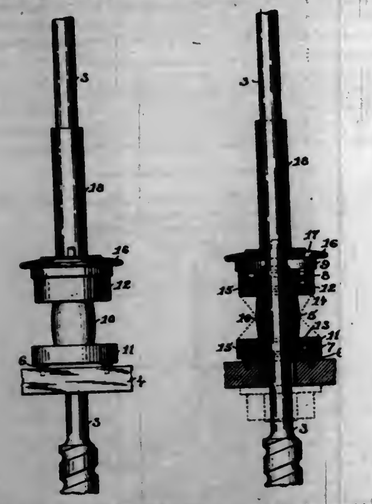
2. A twyer consisting of a shell, a plug made in longitudinal grooved sections set in said shell, and a key engaging both sections and the shell, to hold the plug in place in the shell, substantially as described.

3. The combination of the tubular twyer-shell and the longitudinally-bored plug set in said shell and provided with a projection engaging a corresponding recess of the shell to prevent the plug from turning relatively to the shell, substantially as described.

4. The combination of the tubular twyer-shell and the longitudinally-divided plug having recesses in its sections to form a longitudinal bore, the sections also having abutting projections engaging a corresponding recess of the shell to prevent the plug from turning therein, substantially as described.

598,448. SPINNING AND TWISTING MACHINE SPINDLE.

EDWARD S. WHITAKER and JOHN CHADWICK, Providence, R. I. Filed Nov. 6, 1896. Serial No. 611,210. (No model.)



Claim.—1. In a cap-spinning-machine spindle, the combination with the dead-spindle, of a bolster-tube provided with a base adapted to be rigidly secured to the reciprocating rail, ball-races secured to and supported by the bolster-tube and its base, a band-pulley provided with enlargements above and below the band, ball-bearings of larger diameter than the band-pulley, and a bobbin-support connected with the upper enlargement of the band-pulley unsupported by the spindle, whereby the bobbin is rotated and supported against lateral vibration, as described.

2. In a spindle for cap-spinning machines, the combination with the dead-spindle 3, the bolster-rail 4, and the bolster 5 in sliding contact with the spindle, of a bobbin-support consisting of the whirl 10, the enlarged ends 11 and 12 of the whirl, ball-bearings within the enlarged ends of greater diameter than the whirl, the base 16 secured to the enlarged end 12, and the tube 18, the said bobbin-support revolving around the bolster-tube 5 and the dead-spindle 3 but not in contact with the same, whereby the bobbin is supported above the band-pull on bearings of larger diameter than the driving-surface of the whirl, as described.

3. In a spindle for cap-spinning machines, the combination with the dead-spindle 3 and the bolster-rail 4, of the bolster 5 in sliding contact with the spindle, the cup 6 supported on the bolster-rail and forming the base-support for the bolster-tube, the race 7 in the cup 6, and the race-disk 8 adjustably secured to the bolster-tube forming the stationary races for the ball-bearings, and a bobbin-support consisting of the tube 18, the base 16, the driving-whirl 10, the enlarged ends 11 and 12, the races 13 and 14, and the balls 15 15, said bobbin-support revolving but not in contact with the bolster-tube and spindle, whereby the bobbin is rotated and supported against lateral vibration, as described.

598,449. REAPING-MACHINE.

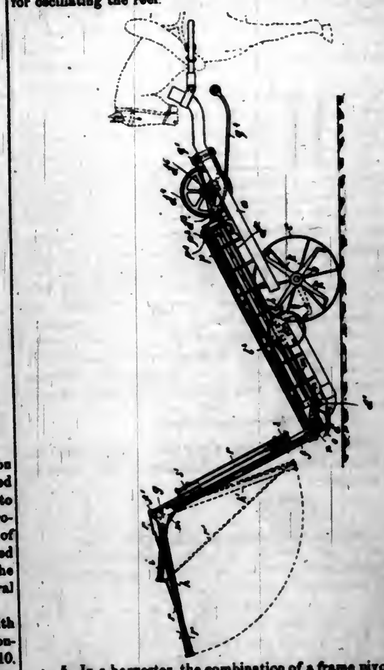
MIHAIL ALEXANDRESCU, Bucharest, Roumania. Filed Sept. 1, 1896. Serial No. 604,553. (No model.)

Claim.—1. The herein-described means for pressing down grain or the like to be cut, consisting of the struts *f*, arms *i*, shaft *g*, carrying the arms A, wheel *l'* rocked by the arms *i* in connection between the wheel *l'* and the arms A, for rocking the latter, a flexible strand connected with the arms *i*, and passing across between the arms A, and weights *s* acting on said strand, all in combination, substantially as described.

2. In apparatus for pressing grain or the like downward, the combination of a frame mounted to rock, a flexible strand extending across the frame, means for rocking the frame, and means for shifting the strand outward and inward on the frame, substantially as described.

3. In apparatus for pressing grain or the like downward to be cut, the combination of a frame mounted to rock, a pulley or reel, a flexible connection leading from said frame to the pulley or reel, means for imparting motion to the said pulley or reel, and a weight acting on the rocking frame in opposition to the movement imparted from the said pulley or reel, substantially as described.

4. The combination with a harvester, of rigidly-supported struts running outward therefrom, a frame pivoted to swing between the struts, flexible connections respectively attached to the struts and run over the frame, weights for the flexible connections whereby to raise the frame, a second flexible connection in connection with the frame, a reel to which the second flexible connection is attached, and means for oscillating the reel.

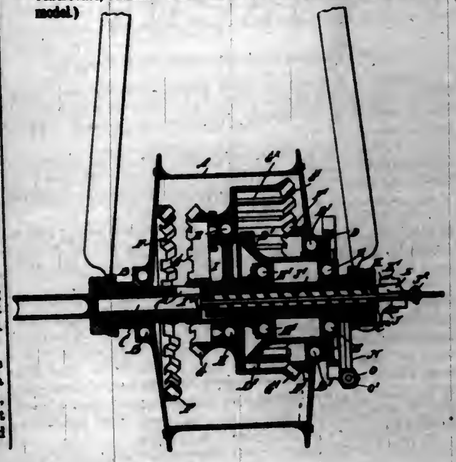


5. In a harvester, the combination of a frame pivoted to the harvester and capable of swinging back and forth in a regular arc from a point above the grain to a point adjacent to the cutting apparatus, and means for operating the frame, such means being carried on the harvester and driven by the mechanism thereof.

6. The combination with a harvester, of a frame engaging the grain and pressing the same toward the cutting apparatus, a flexible connection attached to the frame, means for alternately drawing and releasing the flexible connection, and a weight having connection with the frame and serving to oppose the said flexible connection.

598,450. DIFFERENTIAL BICYCLE-GEAR.

GUY R. BALLOCH, Centreville, Canada. Filed June 23, 1897. Serial No. 641,914. (No model.)



Claim.—1. A differential bicycle-gear, comprising a hollow drive-wheel hub provided with differential gear-wheels, a double gear-wheel laterally slidable for meshing with either of the said hub gear-wheels, and a driven sprocket-wheel in gear with the said double gear-wheel, for rotating the latter within the hub and permitting lateral movement of the same, substantially as shown and described.

2. A differential bicycle-gear, comprising a hollow drive-wheel hub provided with differential gear-wheels, a double gear-wheel laterally slidable for meshing with either of the said hub gear-wheels, a driven sprocket-wheel in gear with the said double gear-wheel, for rotating the latter within the hub and permitting lateral movement of the same, and means, substantially as described, for shifting the said double gear-wheel laterally in the said hub, as set forth.

3. A differential bicycle-gear, comprising an axle, a slidable gear-wheel mounted eccentrically on the said axle, and formed with two gear-wheels of different diameters, means for rotating the said slidable gear-wheel from the driven sprocket-wheel, and gear-wheels on the hub of the drive-wheel, adapted to be engaged by the gear-wheels of the said slidable gear-wheel, substantially as shown and described.

4. A differential bicycle-gear, comprising an axle, a slidable gear-wheel mounted eccentrically on the said axle, and formed with two gear-wheels, means for rotating the said slidable gear-wheel from the driven sprocket-wheel, gear-wheels on the hub of the drive-wheel, and adapted to be engaged by the gear-wheels of the said slidable gear-wheel, a disk slidably held on the said axle and carrying a bearing for the said slidable gear-wheel, and a spring-pressed rod connected with the said disk and extending within the said hollow axle, substantially as shown and described.

5. A differential bicycle-gear, comprising an axle, a slidable gear-wheel mounted eccentrically on the said axle, and formed with two gear-wheels, means for rotating the said slidable gear-wheel from the driven sprocket-wheel, gear-wheels on the hub of the drive-wheel, and adapted to be engaged by the gear-wheels of the said slidable gear, a disk slidably held on the said axle and carrying a bearing for the said slidable gear-wheel, a spring-pressed rod connected with the said disk and extending within the said hollow axle, and means, substantially as described, for imparting movement to the said rod in one direction from the handle-bar of the bicycle, as set forth.

6. A differential bicycle-gear, comprising a hollow axle, a hollow drive-wheel hub concentric to the said axle, gear-wheels secured to the inside of the said hub at the sides thereof, a double beveled gear-wheel fitted to slide laterally in the said hub, and adapted to mesh with either of the said hub gear-wheels, a disk fitted to slide on the said axle, and carrying the said double beveled gear-wheel, and a sprocket-wheel mounted to turn on the said axle, and having a gear-wheel in mesh with an internal gear-wheel formed on the said double beveled gear-wheel, substantially as shown and described.

7. A differential bicycle-gear, comprising a hollow axle, a hollow drive-wheel hub concentric to the said axle, gear-wheels secured to the inside of the said hub at the sides thereof, a double beveled gear-wheel fitted to slide laterally in the said hub, and adapted to mesh with either of the said hub gear-wheels, a disk fitted to slide on the said axle, and carrying the said double beveled gear-wheel, a sprocket-wheel mounted to turn on the said axle, and having a gear-wheel in mesh with an internal gear-wheel formed on the said double beveled gear-wheel, and means, substantially as described, for moving the said disk laterally on the said axle, as set forth.

598,451. TOUCH-REGULATOR FOR KEYBOARDS OF MUSICAL INSTRUMENTS.

FELIX BARBOUR, Paris, France. Filed June 26, 1897. Serial No. 643,771. (No model.) Patented in Belgium Mar. 17, 1897, No. 127,011, and in England Mar. 23, 1897, No. 7,502.



Claim.—1. An apparatus to regulate the hardness of the keyboard of musical instruments comprising the combination of a sliding movable bar independent of the keyboard, placed transversely to and above the keys; with loading-pieces jointed to the said bar and supported thereby, equal in number to the keys; the said loading-pieces, of constant weight, sliding or rolling on the keys so as to come in contact therewith in greater or less proximity to their axes of oscillation and to only exert their weight thereon when the key is struck, substantially as described and shown.

2. In a hardening apparatus for keyboards the loading-pieces or pulsators *a* formed of a disk or of a ring *b* in the center of which is arranged a washer *c* and provided with a lug *d* serving to join the said pulsator at the top or bottom of a movable bar *g* transverse to the keys; this lug being provided with a space-screw *f* limiting the fall of the said loading-pieces on the keys A substantially as described and shown and for the purpose specified.

598,452. BOILER-STAY.

THOMAS BARROW, Chicago, Ill., assignor to the Fraser & Chalmers, same place. Filed Mar. 30, 1897. Serial No. 630,734. (No model.)

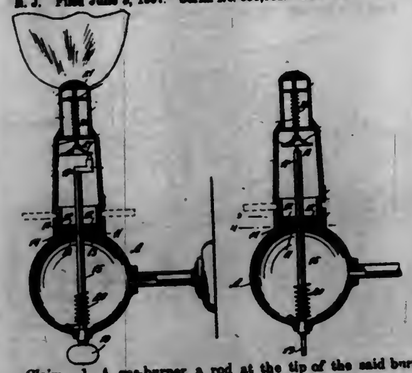


Claim.—1. The within-described boiler-stay consisting of a folded shank terminating at one end in a flat body adapted to be secured to a boiler-shell, said shank terminating at its opposite end in a web having a foot with rivet-holes for securing the same to the boiler-head, the sides of the shank spreading at the web and being connected with the ends of the foot, substantially as described.

3. A boiler-stay consisting of a shank having one end flattened and adapted to be secured to a boiler-shell, said shank terminating at its opposite end in a web having a foot for securing the same to the boiler-head, the sides of the shank spreading out at the web and being integrally connected with the web and the ends of the foot, substantially as described.

598,453. GAS-BURNER.

HORACE W. BILLINGTON, Jersey City, N. J. Filed June 9, 1897. Serial No. 639,962. (No model.)



Claim.—1. A gas-burner, a rod at the tip of the said burner, capable of expansion and contraction, the said rod being within the burner and ranging longitudinally therein, a key regulating the supply of gas to the tip, and a locking device carried by said rod and arranged for engagement with the said key.

2. In a gas-burner, a key controlling the outlet of gas, the key having a part extending into and ranging longitudinally with the burner and an expansion device in advance of the said part and adapted to expand into engagement therewith.

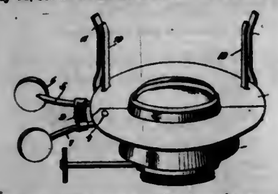
3. In a gas-burner, a tension-controlled key, arranged to regulate the supply of gas to the tip of the burner, the said key being provided with a crank-arm at its upper or inner end, a thermostatic rod located in the tip of the burner, a spring assisting the movement of the thermostatic rod in one direction, and a locking-disk carried by the said thermostatic rod, having apertures arranged to receive the crank-arm of the said key, for the purpose described.

4. The combination, with a gas-burner provided with an apertured stationary disk, a rotating disk facing the stationary disk and correspondingly apertured, and a tension-controlled key attached to the rotating disk, of a thermostat located at the tip of the burner, terminating in a locking member adapted to receive a portion of the said key.

5. The combination, with a gas-burner, a stationary apertured disk located within the burner, a rotatable disk placed adjacent to the stationary disk, being correspondingly apertured, and a tension-controlled key attached to the rotatable disk, and provided with a pointed upper or inner end, of a thermostat located at the tip of the burner, guides for the same, and a locking device carried by the thermostat, having a series of openings arranged to receive the upper or inner end of the said key.

6. The combination, with a gas-burner provided with a stationary and a revoluble disk closely associated, and having corresponding apertures for the admission of gas from the body of the burner to the tip, and a tension-controlled key attached to the revoluble disk, one of said disks being provided with a spring-lock and the opposing disk with a recess to receive the said lock, of a thermostat located at the tip of the burner, and an apertured locking-disk carried by the thermostat, and arranged to receive the upper or inner end of said key.

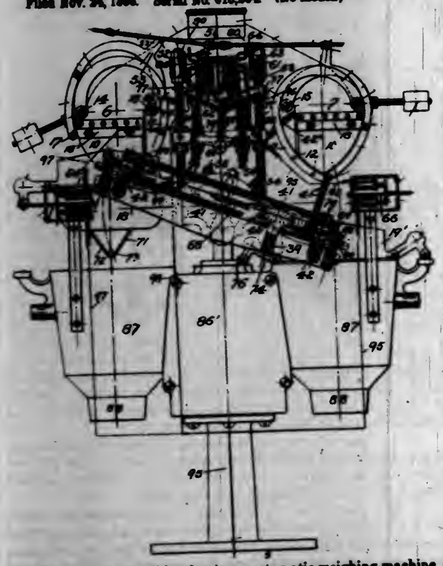
598,454. LAMP-BURNER. GEORGE A. BODEN, New York, N. Y. Filed July 31, 1897. Serial No. 646,607. (No model.)



Claim.—1. The combination with a lamp-burner, of a chimney-gallery comprising a fixed section, a horizontally-swinging section, arms extended from the sections, and a spring for holding the swinging section yieldingly in its closed position, substantially as specified.

2. The combination with a lamp-burner, of a chimney-gallery having a base consisting of a fixed section and a swinging section, arms extended from the sections, a spring connecting the sections, and chimney-holding fingers on the fixed section, substantially as specified.

598,455. AUTOMATIC WEIGHING-MACHINE. WILLIAM P. BRAUN, Chicago, Ill., assignor to John R. Searles, New York, N. Y. Filed Nov. 24, 1896. Serial No. 613,294. (No model.)



Claim.—1. In combination in an automatic weighing-machine, a scale-beam adapted to have free and unobstructed movement to its balanced position having a pan or receptacle thereon, feeding means for the same, means actuated by a power outside of the impetus of the beam for destroying the equilibrium of the same when it reaches a balanced position, and means also actuated by an outside power for shutting off the feed at the moment the balance of the beam is reached, said destroying action taking place independent of any movement of the beam from its balanced position or of any displacement of the pan or its contents relative to the beam, the said outside power and actuating means being controlled entirely independent of the impetus of the beam and without requiring the expenditure of any power on the part of the beam, substantially as described.

2. In combination in an automatic weighing-machine, a scale-beam adapted to have free and unobstructed movement to its balanced position having a rolling weight thereon, a pan or receptacle also on the scale-beam, feeding means for the same, means actuated by a power outside of the impetus of the beam for coacting with the weight to destroy the equilibrium of the beam when it reaches a balanced position, and means also actuated by an outside power for shutting off the feed at the moment the balance of the beam is reached, said destroying action taking place independently of any displacement of the pan or its contents relative to the beam, the said outside power and actuating means being controlled entirely independent of the impetus of the beam and without requiring the expenditure of any power on the part of the beam, substantially as described.

3. In combination in an automatic weighing-machine a scale-beam, a non-tilting pan carried by the beam, an electric device for destroying the balance of the beam when it reaches a state of equilibrium independent of the displacement of the pan or its contents relative to the beam, a source of supply, an electric device for cutting off the same at the instant the equilibrium of the beam is reached, and the electric contact on the beam for controlling both actions and making them simultaneous, the said beam having free and unobstructed movement to its balanced position whereby the contact will be made only when the weighing is completed, substantially as described.

4. In combination in a double-acting weighing-machine, a beam, a rolling weight thereon, the scale-pan at each end of the beam, the electric devices one at each end of the beam for coacting with the weight to destroy the balance of the beam and to cause the weight to roll to the opposite end of the beam, a source of supply, and an electric device to cut off the supply at the instant the beam reaches its balanced position, and an electric contact carried by the beam to control the electric devices and to insure their simultaneous operation, said contact acting when the weighing is completed, substantially as described.

5. In combination in an automatic weighing-machine, a beam, a receptacle carried thereby, a source of supply, a device for cutting off the supply, a catch for holding said device partially closed, means independent of the beam for releasing the catch to control the complete operation of the shut-off device, said means being arranged to act when the beam reaches a predetermined position, substantially as described.

6. In combination in an automatic weighing apparatus, a beam, a receptacle carried thereby, a source of supply, a feeding device controlling the same, mechanical means controlled by the beam for controlling the partial closing of the feeding device as said beam approaches a predetermined position, catches for holding the feeding device in partially-closed position and an electric device for operating the catches and controlling the complete closing of the feeding device, said electric device being in turn controlled by the movement of the beam, substantially as described.

7. In combination in an automatic weighing-machine, a beam, a receptacle carried thereby, a source of supply, a feeding device controlling the same, mechanical means carried by the beam for mechanically controlling the partial closing of the feeding device, an electric device controlling the complete closing of the feeding device and an electric device for destroying the equilibrium of the beam, said beam carrying a contact to close an electric circuit when the beam reaches a predetermined position, substantially as described.

8. In combination, the beam the receptacle carried thereby, the feeding device consisting of a movable gate, means moving with the beam for opening said gate and for controlling the partial closing of the gate, a catch for holding the gate in its partially-closed position and means for controlling the said catch comprising an electromagnet and armature with connections to the catch and a circuit closer controlled by the movement of the beam, substantially as described.

9. In combination, the beam, the receptacle carried thereby, the movable gate for controlling the feed, said gate having an arm connected therewith, a standard on the beam for opening and controlling the partial closing of the said feed-gate as the beam approaches a horizontal position, a catch for holding the gate in its partially-closed position, a pivoted arm carrying said catch, an electromagnet and its armature, means connected with said armature for operating the pivoted arm and a circuit-closer controlled by the movement of the beam, substantially as described.

10. In combination, the beam, the receptacle carried thereby and a feeding device comprising a pair of pivoted gates arranged to close by gravity, the connection between them consisting of the segments meshing with each other, one of said segments having an arm connected therewith, and means carried by the scale-beam for holding the said arm against the closing tendency of the gates, substantially as described.

11. In combination with a weighing or like machine, a receptacle, and a feeding device comprising a gate having a series of sliding fingers extending from side to side thereof at the point of discharge, substantially as described.

12. In combination in a weighing or like machine, a receptacle, and a feeding device comprising a pair of gates one of which has a rigid jaw or plate and the other of which has a series of sliding fingers, substantially as described.

13. In combination in a weighing or like machine, a receptacle and a feeding device comprising a pair of gates converging toward each other at their lower ends, the curved arms carrying said gates extending past each other and pivoted to the frame, and means for operating the gates, said gates having a lifting movement in opening, substantially as described.

14. In combination in a weighing or like machine, a receptacle and feeding means comprising a pair of feeding-gates connected to move in unison, a weight connected to said gates for counterbalance, a scale-beam having means for opening said gate and controlling the partial closing of the same, and a catch adapted to hold the gates in their partially-closed position with means for operating the same to control the complete closing of the gates, substantially as described.

15. In combination in a weighing-machine, a scale-beam and a pivot-bearing therefor comprising a bearing part on the beam a block having a plurality of bearing-points, and a socket on the frame for receiving one of said points while the other one acts as the bearing for the beam, said block being symmetrical and reversible.

16. In combination in a weighing-machine, a scale-beam and a pivot-bearing therefor consisting of the reversible star-shaped piece, and a socket for holding said piece removably by receiving one of its points while the other point acts as the bearing, substantially as described.

17. In a weighing-machine, pivot-bearings for the movable parts, having a conical point and socket forming the bearing on one side of the beam and the knife-edge and notched piece forming the bearing on the other.

18. In combination, in a double-acting weighing-machine, a scale-beam having a receptacle at each end, a feeding device for each receptacle, means for each end of the beam for destroying the balance of the beam and means controlling the action of said feeding devices and balance-destroying means arranged to make those for one end of the beam act alternately with those for the other end, substantially as described.

19. In combination, in a double-acting weighing-machine, a scale-beam having a receptacle at each end, a weight arranged to shift from one side of the center of gravity to the other, the electromagnets with their armatures located at the opposite ends of the beam for giving the weight an impetus toward the other end of the beam when it reaches a balanced position, a feeding device for each receptacle of the beam and the electric device for closing the said feeding device, substantially as described.

20. In combination, in a double-acting weighing-machine, a scale-beam, a receptacle at each end thereof, carried thereby, a feeding device for each receptacle, means carried at each end of the beam for opening the feeding devices alternately, a catch for each feeding device to hold the same partly open, and the electric device for operating the catches when the beam reaches a balanced position in either direction to allow said feeding devices to close alternately, substantially as described.

21. In combination, the beam with its receptacles, the pair of feeding devices, the catches controlling the closing of the same, the pivoted rods carrying the catches, the electromagnet, the armature thereof having connection with the pivoted rods and means for closing the circuit when the beam reaches a predetermined position, substantially as described.

22. In combination, the beam with its receptacles, the feeding devices, one for each end of the scale-beam, the electrical devices for controlling the feeding devices and means for closing the circuit thereto alternately, comprising the contacts on the scale-beam, and the shifting contact-piece having contacts to be engaged by the contacts on the beam to close the circuit and to be shifted to its opposite position.

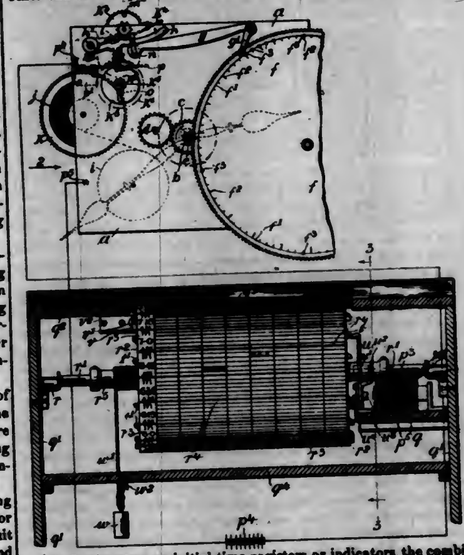
23. In combination with the scale-beam having a receptacle at each end, with electrical devices arranged to act alternately at opposite ends of the beam, the contacts on the beam and the shifting contact-piece having points to close the circuit and adapted to be shifted by the movement of the beam.

24. In combination, the scale-beam, the shifting weight having projections at each end, the kicking devices at the ends of the beam and the adjustable bushings through which the projections pass, said bushings acting as stops for the weight-carriage.

25. In combination, the hoppers, the scale-beam, the receptacle pivoted thereon and adapted to fit the hopper, and the flange on the receptacle for closing the hopper, substantially as described.

598,456. WORKMAN'S TIME-RECORDER. FRANK BROOK, Huddersfield, England. Filed Aug. 31, 1896. Serial No. 604,285. (No model.)

Claim.—1. In mechanism for registering or indicating the times at which employees affix their signatures or initials on a time-sheet, the combination, with the hour-wheel arbor of an eight-day clock, of a pinion fast thereon, a toothed discharge-wheel mounted on a stud secured to the clock-frame and meshing with said pinions, studs or pins inserted at equal radii into holes in the face of said discharge-wheel at desired intervals apart, a motor mechanism, a connection adapted to be actuated or tripped by the said pins or studs as they are successively brought into engagement therewith and to release the motor mechanism intermittently, an electric circuit between the clock and a generating-battery, an electromagnet in said circuit, located in the upper compartment of a lock-up box or case inclosing the indicator mechanism, a switch-tongue or cam fast on a shaft of the motor mechanism to which one complete revolution is imparted each time the said mechanism is released and put in motion, a contact-piece, insulated from the clock and connected to the electromagnet, adapted to be engaged by the switch-tongue during a part of its revolution and complete the circuit, a cylinder, mounted on a shaft journaled in bearings in the upper compartment of the lock-up box or case, having teeth at given distances apart on each end thereof and on its periphery a time-sheet divided horizontally or lengthwise of the cylinder into equal sections each lettered or marked to denote the given times at which they are to be presented in an accessible position, a slot or opening in the lid of the lock-up box or case to expose one at a time the sections of the time sheet to receive signatures or initials, a double pallet in said box adapted when in a normal position to engage successively with the teeth on one side of the cylinder to hold said cylinder during each period of rest and to be actuated by the electromagnet on a circuit being completed and broken to release the cylinder, the means described for rotating the cylinder, and a detent adapted to engage in succession with the teeth on the other end of the cylinder, substantially as described.



2. In signature or initial time registers or indicators, the combination, with the hour-wheel arbor of an eight-day clock, of a pinion fast on said arbor, a toothed discharge-wheel in mesh with the pinion, the number of teeth on the former being in the proportion of twenty-four to one on the latter which in every twenty-four revolutions will rotate the discharge-wheel one revolution, an annular index-line on said discharge-wheel marked off into a scale representing divisions of time, pins or studs inserted into holes in said discharge-wheel at any division or intermediate of any division on said scale, a lever-arm connected to the releasing-levers of a motor mechanism and adapted to be engaged or tripped successively by the pins on the discharge-wheel to release the motor mechanism, the several parts comprising said motor mechanism, and forming part of the clock, a switch tongue or cam coacting with the motor mechanism and making one complete revolution each time the mechanism is actuated, a contact-piece insulated from the clock and adapted to be engaged by the switch-tongue during a part of each revolution thereof and complete an electro circuit, a metallic connection between the clock and one pole of an electric battery, an electromagnet having connection at one end of the coil with the opposite pole of said battery and at the other end of the coil with a terminal on the contact-piece and being located in the upper compartment of a lock-up case or box, a cylinder journaled in said compartment, having teeth at equal radii on each end thereof and spaced to correspond with the sections on the time-sheet, a time-sheet secured around said cylinder, divided into equal sections each marked or lettered to denote the time at which each section will be exposed and accessible, a slot or opening in the lid or desk-top of the lock-up case or box the length of the cylinder and as wide as the sections on the time-sheet and having the under side hollowed out to receive the upper portion of the cylinder whose periphery is level or nearly level with the face of said lid and presents thereupon one section of the time-sheet on which to affix signatures or initials, a double pallet for hold-

ing and releasing said cylinder adapted to be actuated by the magnetized core of the electromagnet when the current flows through the coil on a circuit being completed, a detent adapted to engage successively with teeth on one end of the cylinder to prevent said cylinder being moved in the wrong direction and free to ride over said teeth when the cylinder is rotated in a forward direction, and a weight suspended from a cord attached at one end to a fixed stud or eyelet and at the opposite end to a barrel on the cylinder around which it is coiled a few times, for rotating the cylinder, substantially as described.

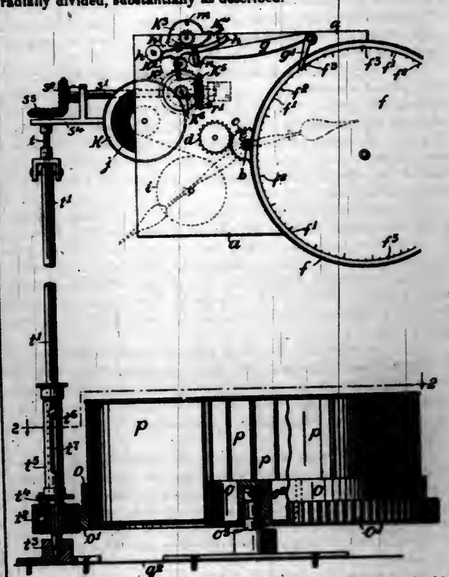
3. In signature or initial time registers or indicators, the combination, with the hour-wheel arbor of an eight-day clock, of a pinion *e*, a discharge-wheel *f* in mesh with said pinion and rotated thereby once in every twenty-four hours, a graduated time scale or index on said discharge-wheel by which the required positions of pins or studs can be accurately set off, pins or studs f^3 secured to the discharge-wheel at the same radii and at given intervals apart as will accord with the times at which the indicator is to be actuated to withdraw one section of the time-sheet from its exposed and accessible position and introduce a succeeding section in its place, a lever-arm *g'*, the motor mechanism comprising levers *g*, *h*, and *h'*, spring-barrel *i*, fusee *j*, train of wheels *k*, *k'*, k^2, k^3, snail k^4, studs *l*, *m* on wheels k^2 and k^3 respectively, and projection *n* on the back side of lever *g*, all coacting when released by a pin on the discharge-wheel *f* as set forth; a switch-tongue *o* fast on a one-revolution shaft or arbor of the motor mechanism, an insulated contact-piece *p* adapted to be engaged by the switch-tongue at every revolution thereof, an electric circuit in which the clock is placed, an electromagnet in said circuit, a double pallet adapted to be withdrawn from its normal position by said magnet and to release the cylinder r^2, said cylinder located in the upper compartment of a lock-up box or case, a slot or opening q^3 in the lid of the box or case, a time-sheet divided into equal sections each bearing on one side or margin letters or figures denoting the time they will be respectively exposed opposite the slot q^3, the means for securing the time-sheet on the cylinder, and a gravity-weight *w* suspended from a cord *w'* wound around a barrel on the cylinder for rotating said cylinder, substantially as described.

4. In signature or initial time registers or indicators, the combination with clockwork mechanism consisting of an eight-day clock and a motor mechanism, a toothed wheel operated from the hour-wheel arbor of the clock and having pins or studs thereon for releasing the motor mechanism at given periods of time, an electric circuit in which the clock is placed and means as described for opening and closing the circuit at each release and actuation of the motor mechanism, of a cylinder located in the upper compartment of a lock-up box or case and having a time-sheet thereon, a slot or recess in the periphery of the cylinder to receive the overlapping ends or edges of the time-sheet, spikes or pins attached to a lath secured within the cylinder under said recess and projecting into same to penetrate or pierce through the overlapping ends of the paper, a slide adapted to be inserted into the recess and engaged with each end of the cylinder to secure same therein, slots in said slide to accommodate the spikes, a series of teeth on each end of the cylinder arranged in the same radial line and at given distances apart corresponding to the sectional divisions of the time-sheet, a double pallet adapted to engage with one of said series of teeth successively for arresting the cylinder, a loose toe-piece carried by said pallet and having a leg thereon adapted to slide freely within limits in ways on the face of the pallet and to engage first with the faces of the teeth and then temporarily with the backs of said teeth, as set forth, an electromagnet for withdrawing the pallet, said magnet being placed in circuit with the clock by which the opening and closing of the circuit are controlled, a detent for preventing backward movement of the cylinder, and the means for rotating said cylinder each time it is released, substantially as described.

5. The combination, with a supporting-shaft, a cylinder journaled thereon and provided with a barrel at one end and a series of teeth *t*, and a weighted cord wound on the said barrel and operating to revolve the cylinder; of a pivoted double pallet *u* provided with a tooth at its upper end and a loose toe-piece at its lower end, said toe piece being slidable circumferentially of the supporting-shaft and normally engaging with the teeth *t* by gravity, an electromagnet for retracting the lower end portion of the said pallet, and a time-controlled circuit-maker operating to permit the electromagnet to be energized periodically, substantially as set forth.

598,457. WORKMAN'S TIME-CHECK. FRANK BROOK, Huddersfield, England. Filed Aug. 31, 1896. Serial No. 604,386. (No model.) Patented in England Sept. 5, 1896. No. 16,062.

Claim.—1. In time registering or checking mechanism for receiving the checks or tallies of employees on entering or leaving the business premises, the combination, with the hour-hand arbor of an eight-day clock, of a pinion mounted thereon, a discharge-wheel mounted on a stud secured to the clock-frame and having teeth thereon meshing with the teeth of said pinion which, in every twenty-four revolutions, gives one complete revolution to the discharge-wheel, and provided on its face with a scale representing equal divisions or periods or units of time, studs or pins secured in holes drilled or bored in the discharge-wheel at any division on the scale or intermediate of any division thereon, a lever-arm adapted to be engaged by pins or studs on the discharge-wheel, means comprising the motor mechanism of a thirty-hour clock coacting with said lever-arm, a bevel-wheel mounted on the snail-shaft of the said motor mechanism and rotated thereby to the extent of one revolution when released by a pin on the discharge-wheel, a horizontal shaft supported in brackets secured to the clock-frame and carrying bevel toothed wheels meshing respectively with the beveled toothed wheel on the snail-shaft and with a beveled toothed wheel on a short square-ended spindle, a vertical shaft adapted to be engaged and rotated by and with said square-ended spindle, a pinion mounted in bearings in a foot-step and receiving motion from the vertical shaft, and a drum or frame mounted on a ball-bearing and having thereon a spur-wheel which meshes with the said pinion and is rotated thereby at each revolution communicated to it from the motor mechanism, to the extent of one check-receiving box or section into which the drum is radially divided, substantially as described.

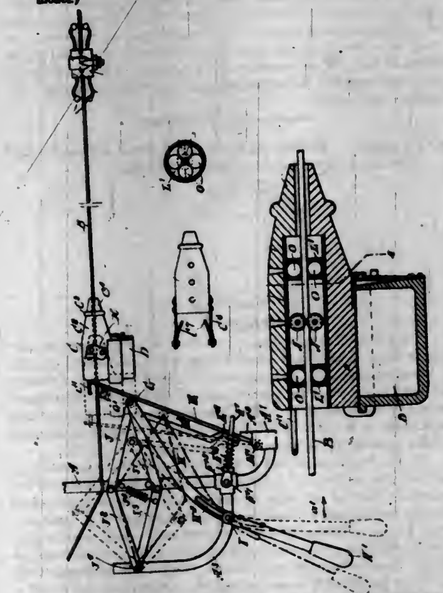


2. In mechanism for receiving the checks or tallies deposited by employees on entering or leaving business premises and checking or registering the time of such deposit, the combination, with the hour-hand arbor of an eight-day clock, of a pinion *e*, a discharge-wheel *f* in mesh with said pinion, having on its face a graduated time scale or index by which the positions of pins or studs can be accurately set off, pins or studs f^3 secured to the discharge-wheel at the same radii and at such intervals apart as will accord with the times at which the checking mechanism is to be actuated to remove one check-receiving box from under the deposit-chute and place the next succeeding box thereunder and the periods of time each box shall remain under the chute, a lever-arm *g'*, motor mechanism comprising levers *g*, *h*, and *h'*, spring-barrel *i*, fusee *j*, train of wheels *k*, *k'*, k^2, k^3, pinion *r*, studs *l*, *m*, on wheels k^2 and k^3 respectively, and projection *n* on rear side of lever *g*, all coacting, when released by a pin on the discharge-plate *f*, as set forth, a beveled toothed wheel *r'* mounted on the snail-shaft k^4, a beveled toothed wheel *o* in mesh therewith mounted on one end of a short shaft *o'* having a second beveled toothed wheel o^2 mounted on its opposite end, a beveled toothed wheel o^3 meshing with the beveled toothed wheel o^2, a spindle *t* carrying said beveled toothed wheel o^3 and adapted to engage with and rotate a vertical shaft *t'* fitting loosely at its lower end into a recess in the face of the pinion t^2, a hollow sleeve or tube t^3 secured by set-screw t^4 on the shaft *t'* so as to rotate therewith, and having a flange at its base through which is a hole or opening corresponding to a pin or stud t^5 secured to the face of the pinion t^2 which is adapted to enter and engage same to communicate motion to the pinion t^2, a slot t^7 in said sleeve through which the set-screw t^4 is passed to allow for

the endwise movement of the sleeve to place it out of engagement with the stud t^5 and disengage the checker from the clockwork mechanism, a pinion t^2, a drum or frame *o* divided radially into sections corresponding to the number of boxes to be employed and having a spur-wheel *o'* thereon with the same number of teeth in or between each section as there are teeth on the pinion t^2, and check-receiving boxes *p* adapted to fit loosely into the sectional divisions of the drum or frame *o*, substantially as described.

3. In mechanism for registering or checking the precise time of deposit of employees' checks or tokens, the combination with an eight-day clock, motor mechanism comprising the striking mechanism of a thirty-hour clock, a discharge-wheel deriving motion from the hour-wheel arbor of the clock, pins or studs secured to said discharge-wheel at predetermined intervals apart and forming the means for determining and controlling the actuation of the motor mechanism and through said mechanism the operation of the checker or register, a lever-arm connected with the motor mechanism and adapted to be engaged by the pins on the discharge-wheel, and means coacting with said mechanism to transmit motion therefrom to the checking or registering mechanism, of a shaft *t'*, sleeve t^3 secured to said shaft so as to rotate therewith and having a slot t^7 by which it is movable endwise to disengage the clockwork mechanism from the registering drum or frame, a pinion t^2 having a stud thereon with which said sleeve is adapted to be engaged to rotate the pinion, a drum or frame *o*, a spur-wheel *o'* on said drum adapted to mesh with and be driven by the pinion at each revolution thereof to the extent of a section of the drum, or one check-receiving box, check-receiving boxes *p* fitting loosely into each section of the drum *o* and bearing on their outer sides letters or figures denoting the times they are to be brought into position, for receiving the employees' checks or tokens, a hopper or chute *q* to guide the checks or tallies into the box under same, slots *q'* cut in the outer case or box inclosing the checker, through which the checks or tallies are introduced by the employees, and an opening q^3 to exhibit at the front of the case the figures or letters on the check-receiving box brought into position under the chute, substantially as described.

598,458. STORE-SERVICE APPARATUS. WILLIAM H. BRUNDAGE, Hudson, N. Y. Filed Dec. 10, 1896. Serial No. 615,079. (No model.)



Claim.—1. A store-service apparatus, provided with a pivoted and spring-pressed picker-stick, and means for drawing the picker-stick rearwardly to compress its spring and to then suddenly release the said stick, substantially as and for the purpose set forth.

2. A store-service apparatus, comprising a pivoted and spring-pressed picker-stick, and a lever mechanism for drawing the picker-stick rearwardly to compress its spring and to then suddenly release the said stick, substantially as described.

3. A store-service apparatus, comprising a pivoted and spring-pressed picker-stick, a guide-arm on said picker-stick, a lever adapted to engage the guide-arm of the picker-stick to draw the stick rearward to compress its spring, and means for releasing the lever from the said arm after the stick has been drawn rearward, substantially as described.

4. A store-service apparatus, comprising a pivoted and spring-pressed picker-stick, a guide-arm on the picker-stick, a lever adapted to engage the guide-arm of the picker-stick to move the picker-stick rearward to compress its spring, and a toggle-lever connected with the lever, substantially as described.

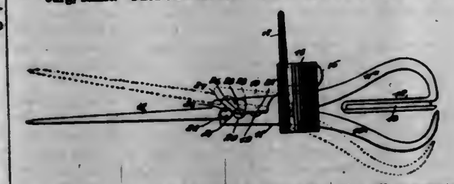
5. A store-service apparatus, comprising a pivoted and spring-pressed picker-stick for propelling the carriage over the line, a guide-arm on the said picker-stick, a lever mounted to swing and to slide and carrying a friction-roller for engagement with the said guide-arm, and a toggle-lever connected with the said lever, as set forth.

6. A store-service apparatus, comprising a support, a pivoted picker-stick, a transverse bar secured to the pivoted end of the said stick, a guide-arm secured to the said bar, rods fulcrumed on the support and projecting through openings in the transverse bars, coiled springs on the rods between shoulders thereon and the transverse bar, and means for swinging the picker-stick on its pivot to compress the said springs and then to suddenly release the stick, substantially as described.

7. A store-service apparatus, comprising a support, a picker-stick pivoted to the support, a transverse bar secured to the picker-stick, a guide-arm secured to the said bar, rods pivoted to the support and projecting through openings in the transverse bar, springs on the rods, a pivoted and sliding lever, the upper end of the lever being adapted to engage the guide-arm, and a toggle connected with the upper end of the said lever, substantially as herein shown and described.

8. In a store-service apparatus, a carriage having a central longitudinal bore, ball-bearings, and oppositely-disposed grooved wheels, said bearings and wheels being arranged adjacent to said longitudinal bore, substantially as shown and described.

598,459. TOOL FOR MINERS' USE. JOHN D CAMPBELL, Lowsburg, Idaho. Filed Nov. 24, 1896. Serial No. 613,318. (No model.)



Claim.—1. A tool for miners' use, comprising pivotally-connected jaws provided with handles, the handle of one jaw being provided with a slotted arm returned between the two handles, and a knife-blade pivoted in the slotted portion of the return arm, the said jaws being equipped for treating a fuse, as and for the purpose set forth.

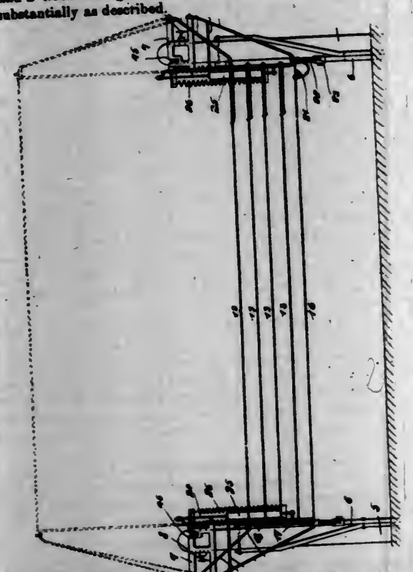
2. A tool for miners' use, consisting of pivotally-connected jaws provided with handles, one of said handles having a slotted arm extending inward between the handles, a knife-blade pivoted in the said slotted arm, the said jaws being equipped for treating a fuse, and one of said jaws having a sharp extension from its forward end adapted to enter a support substantially as specified.

3. A tool for miners' use, comprising pivotally-connected jaws provided with handles, the handle of one jaw being provided with a slotted arm returned between the two handles, and a knife-blade pivoted in the slotted portion of the return arm, the said jaws being equipped for treating a fuse, the said tool being provided with a socket adapted to receive a candle, and means for securing the tool to a support, substantially as shown and described.

598,460. RACE-STARTING MACHINE. VICTOR CARANDINI, Calcutta, India. Filed Oct. 7, 1896. Serial No. 608,158. (No model.)

Claim.—In a race-starting machine, the combination of a barrier having two bars and a flexible connection between the bars, a spring tending to raise each bar, a lever fulcrumed on one of the bars, a spring-actuated sliding arm normally holding the lever, a rigid arm, an orificed arm fulcrumed to the rigid arm and normally engaging the lever, whereby the bar to which the lever is fulcrumed is restrained, a second rigid arm, a hook sliding on the said second rigid arm, a link pivoted to the said second rigid arm and normally held by the hook, an orificed arm pivoted to the remaining bar and normally receiving the link, a flexible connection attached to the said sliding arm and serving to hold the same normally engaged with the lever, and a link attached to the connection and normally connected with the second-named rigid arm, and disengaged from the said arm upon the sliding of the hook, substantially as described.

2. In a race-starting machine, the combination of a spring-actuated barrier, an orificed arm pivoted to the barrier, a stationary arm, a link pivoted to the stationary arm and normally holding the orificed arm, and a hook sliding on the stationary arm and restraining the link, substantially as described.



3. In a race-starting machine, the combination of a spring-actuated barrier, an orificed arm pivoted to the barrier, a stationary arm, a link pivoted to the stationary arm, a hook having a sliding connection with a slot in the stationary arm, a slidable rod connected to the hook, and a spring acting to draw the hook toward the link, substantially as described.

4. In a race-starting machine, the combination of a spring-actuated barrier having a slotted bar, a spring-actuated arm movable through the slot in the bar, a lever fulcramed to the bar, and normally restrained by the lever, a stationary arm, an orificed arm pivoted to the stationary arm and normally connected with the lever, and means for normally holding the sliding arm in connection with the lever, substantially as described.

5. A race-starting apparatus having a barrier formed of two bars with flexible connections and slight independent movement, a restraining device for each bar, means tending to lift each bar, and a flexible connection attached to the one bar and to the restraining device for the second bar, the flexible connection being capable of tripping the restraining device for the said second bar when the said first bar moves upon being released by the restraining device for the said first bar, substantially as described.

6. A race-starting apparatus having a barrier with two sections capable of slight independent movement, means tending to lift each section, a restraining device for each section, and a connection attached to the one section and to the restraining device of the second section, the said connection being capable of tripping the restraining device for the said second section as the said first section moves upon being released by the restraining device therefor, substantially as described.

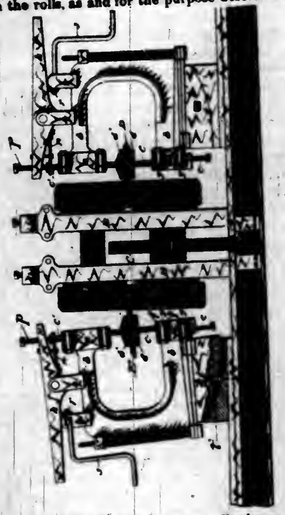
598,461. RIPPING AND STITCH-PICKING TOOL. JAMES DARMODY, New York, N. Y. Filed Mar. 30, 1897. Serial No. 629,909. (No model.)



Claim.—A ripping and stitch-picking tool, comprising a body portion having a longitudinally-curved cutting edge at one end and also a transverse cutting edge at the same end, and a stitch-picking hook at its opposite end, substantially as specified.

598,462. DISHING-MACHINE. JOHN H. FUCHS, Elliott, Pa. Filed Dec. 31, 1896. Serial No. 617,566. (No model.)

Claim.—1. In a device of the character described, a suitable supporting-base, rolls therein, a stand having a concave upper surface, a yoke having a correspondingly-convexed bottom face to fit that of the stand and means on said yoke for holding a harrow-disk in contact with the rolls, as and for the purpose described.



2. In a dishing-machine a base, rolls thereon, a stand having a concaved upper face to fit that of the stand, means for adjustably holding the yoke on the stand, disks having stems in the sockets in the yokes, means for forcing said disks in engagement with the harrow-disk and for holding it in contact with the rolls, substantially as described.

3. In a dishing-machine a base, rolls thereon, a yoke adjustably supported on the base, disks having stems through the sockets in the yokes, supplementary stems resting in cup-shaped depressions in the stems, set-screws for adjusting the stems, a lever pivoted on the upper portion of the yoke, an arm secured to the lever, said arm having a forked end engaging the supplementary stem of the upper disk, substantially as described.

598,463. WHEEL-TIRE. ALFRED A. FÜRST, London, England. Filed Jan. 4, 1897. Serial No. 617,902. (No model.)

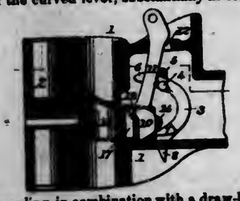


Claim.—1. A tire for wheels, consisting of a rigid, main, tubular ring or hoop, circular in cross-section and made of celluloid, xylonite or other suitable hard material more or less yielding, of a smaller inflatable bag or chamber in direct contact with such ring and adapted when inflated to conform itself to the contour of such ring and also to conform to the contour of the groove of the wheel-rim, and of a flexible covering inclosing such ring and bag.

2. The combination with a wheel-rim, of a tire composed of a tubular ring or hoop of celluloid, xylonite or equivalent hard but somewhat resilient material, of an inflatable annular bag located directly beneath and in contact with such hoop, and of an outer covering serving to inclose both the tube and bag in such relative positions, and thus to protect the bag from damage or puncture, and yet permit the cover to adapt itself thereto, the inflation serving to force the lower part of such cover against the wheel-rim.

598,464. CAR-COUPLING. HENRY GALLAGER, Savannah, Ga., assignor of three-fourths to John J. McDonough and M. A. O'Byrne, same place. Filed Aug. 25, 1897. Serial No. 649,533. (No model.)

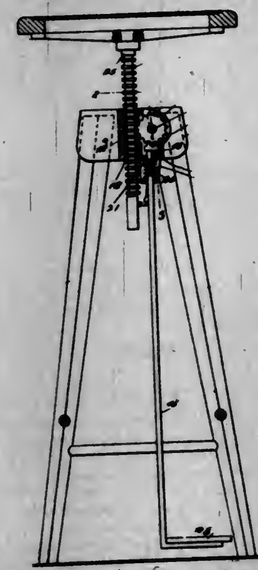
Claim.—1. In a car-coupling, in combination with a draw-head, a pivoted knuckle having a curved tailpiece, the said tailpiece having a projection on its end, a locking-block having a stud on its rear side, and a curved lever pivoted behind the locking-block, the arrangement being such, that when the parts are locked, the locking-block will be prevented from moving forward by the projection on the tailpiece, and from moving backward by the stud abutting against the lower edge of the curved lever, substantially as set forth.



2. In a car-coupling, in combination with a draw-head a knuckle pivoted thereto, a locking-block, and a lever pivoted in slots in the sides of the draw-head, the said lever, which has a foot-piece on its lower end being so curved that when swung forward and supported by the foot-piece, the said lower end will be substantially horizontal and support the locking-block, and when swung back, it will assume an inclined position and direct the locking-block forward into engagement with the knuckle, substantially as set forth.

3. In a car-coupling, in combination with a draw-head, a pivoted knuckle provided with a curved tailpiece, the latter having a beveled surface and a projection on its end, a locking-block having a lip on its front side and a stud on its rear side, and a curved lever pivoted in slots in the draw-head to allow of a vertical movement, and adapted to swing under the locking-block when the latter is raised, and to be pushed back by the tailpiece in the act of coupling, to permit the locking-block to fall between the end of the said tailpiece and the draw-head, whereby the knuckle may be locked in its closed position, and the locking-block held against forward or backward movement by the projection on the tailpiece and the stud on the locking-block striking the end of the curved lever, substantially as set forth.

598,465. ADJUSTING DEVICE FOR STOOLS. THOMAS W. GILBERT, Boston, Mass. Filed Feb. 10, 1897. Serial No. 623,771. (No model.)



Claim.—1. A seat-support provided with peripheral teeth, a plain socket for said support, a pinion engaging with the teeth of the support, extending within said socket, a locking device capable of lateral movement and of vertical movement engaging with said pinion, a seat for said locking device, said locking device being removable from said seat by the rotation of said pinion, and means, substantially as described, for operating the locking device to and from the pinion, as and for the purpose specified.

2. A seat-support provided with peripheral teeth extending circumferentially thereof, a plain socket in which said support is contained, a pinion entering said socket and engaging with the peripheral teeth of the support, a seat located below said pinion, a tension-controlled locking-head having teeth for engagement with the pinion, said locking-head normally resting upon said seat, and means for drawing the locking-head from engagement with the pinion after said locking-head has been removed from its seat, as and for the purpose specified.

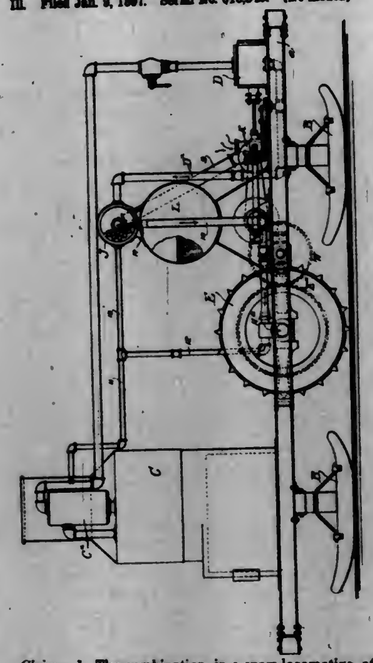
3. The combination with a frame, of a rod sliding therein, a movably-mounted member engaging the rod to hold the same at various positions, and a locking device for said movably-mounted member, the locking device being movable toward and from the said movable member to engage and disengage the same, and also being movable laterally to engage with the frame and to hold the locking device from movement toward and from the said movable member.

4. The combination with a frame, of a rod having teeth, a gear-wheel meshed with the teeth, and a locking device movable toward and from the gear-wheel to engage the teeth thereof, and to hold the same from turning, the locking device being also movable laterally to engage with the frame whereby to prevent the locking device from being disengaged from the gear-wheel.

5. The combination with a frame having a shoulder, a rod sliding in the frame, a gear-wheel meshed with the rod, and a locking device movable toward and from the gear-wheel and capable of meshing with the teeth thereof to prevent the gear-wheel from turning, the locking device being capable of lateral movement to engage the shoulder of the frame whereby to hold the locking device in engagement with the gear.

6. The combination with a frame, of a rod sliding in the frame and having teeth, a gear-wheel revolubly mounted in the frame and meshing with the teeth to hold the rod at various adjustments, a notched block movable toward and from the gear-wheel to engage and lock the same, the block being also movable laterally to engage the frame whereby to prevent the block from being disengaged from the gear-wheel, and an operating-rod attached to the block.

598,466. SNOW-LOCOMOTIVE. BYRON F. GLOVER, Chicago, Ill. Filed Jan. 9, 1897. Serial No. 618,549. (No model.)



Claim.—1. The combination, in a snow-locomotive, of a hollow traction-wheel, and means for supplying heated air connected with the traction-wheel so as to communicate with the interior thereof, as set forth.

2. The combination, in a snow-locomotive, of a hollow traction-wheel, means for supplying heated air connected therewith, means for inducing a circulation of the heated air through the hollow wheel, and a furnace or the like which is connected with the traction-wheel so as to receive the air issuing from the latter, as set forth.

3. In a snow-locomotive, the combination of a hollow traction-wheel; means for supplying heated air connected therewith; and means for inducing a circulation of the heated air through the hollow traction-wheel.

4. The combination with the hollow traction-wheel in a snow-locomotive, of an air-heater connected therewith, and a driving fan or blower connected with the air-heater, as set forth.

5. The combination with the furnace and boiler, the engine, and the hollow traction-wheel in a snow-locomotive, of an air-heater which is provided with an air connection adapted to communicate with the interior of the traction-wheel and is connected with the engine so as to receive the exhaust therefrom, and with the furnace so as to increase the draft therein, as set forth.

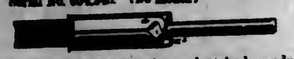
6. In a snow-locomotive, the combination of a hollow traction-wheel; means for supplying heated air connected therewith; and means for inducing a circulation of the heated air through the hollow wheel, comprising pressure-increasing and pressure-reducing devices connected respectively to opposite sides of the wheel.

7. A traction-wheel comprising a plurality of annular sections detachably secured together and respectively provided with a series of circumferentially-arranged and transversely-extending teeth-seats depressed below the wheel-periphery and arranged out of register with one another in adjacent sections, and a series of removable teeth adapted to fit upon the depressed teeth-seats, and adapted also to be held upon their seats by the adjacent annular wheel-sections, and to be removed therefrom only when such annular sections are detached from one another, as set forth.

8. The traction-wheel provided with peripheral seats having inwardly-inclined longitudinal faces rising therefrom, and provided with removable teeth constructed with three longitudinal sides which are substantially equal in width and which are adapted to fit upon said seats between the inclined faces thereof, as set forth.

9. In a snow-locomotive, the combination with the furnace, the boiler and the engine, of an air-heater connected with both the engine and the furnace, whereby the exhaust from the engine is utilized for heating the air and also for increasing the draft of the furnace; a hollow traction-wheel having its interior in communication with the air-chamber of the air-heater, and also with the furnace so as to increase the draft of the latter; and means for inducing a circulation of air through the air-heater, and the traction-wheel, and into the furnace, substantially as set forth.

598,467. TIP FOR TELEPHONE-CORDS. JOHN W. GOTTSCHALK, Philadelphia, Pa., assignor to Alfred F. Moore, same place. Filed Oct. 6, 1897. Serial No. 654,245. (No model.)



Claim.—1. The combination of an electrical conductor, a pin and a clamp having a perforated end slipped over the pin, with means for holding the clamp onto the electrical conductor, substantially as described.

2. The combination of a tip made in three sections, one section having a pin with a segmental shank, another section being segmental in form and having a perforated extension adapted to pass over the pin, with a perforated shell adapted to be passed over the extension securing the two clamps to a conductor, substantially as described.

3. The combination of a flexible conductor covered with fabric, a clamp-section having one portion in the form of a pin and the other portion in the form of a segment, a tooth on the said segmental portion engaging the fabric, said section being secured to the conductor by solder, a second segmental section with a bent and perforated end adapted to slip over the pin of the first-mentioned section and having teeth engaging the fabric, and a shell for holding the segmental sections in place, substantially as described.

4. As a new article of manufacture, a terminal for flexible electrical conductors consisting of a struck-up piece of metal having a pin formed on one end and a toothed segment formed on the opposite end, substantially as described.

5. The combination of a covered electric conductor, a section having one portion in the form of a pin and another portion in the form of a segment, said section being secured to the wire, with a shell having an opening at one end through which the pin portion of the section passes, the said shell clamping the section to the fabric covering of the wire, substantially as described.

598,468. MUSICAL INSTRUMENT. GEORGE H. GRAHAM, Seabright, N. J. Filed Nov. 17, 1896. Serial No. 612,446. (No model.)

Claim.—1. A musical instrument, provided with a revoluble shaft adapted to be moved laterally, a hair-covered wheel on each shaft, and adapted to engage a corresponding string, and a traveling belt adapted to be engaged by the said shaft to rotate the latter at the time the hairs of the wheel are in engagement with the said string, substantially as shown and described.

2. A musical instrument, comprising a sounding-board carrying strings, shafts mounted to turn and to swing laterally, a hair-covered wheel on each of the said shafts and adapted to engage a corresponding string, levers connected with the said shafts and adapted to be actuated by keys to move the said shafts laterally, a traveling belt, and pulleys on the said shafts and adapted to engage the said traveling belt to rotate the shafts, substantially as shown and described.



3. In a musical instrument, the combination with the strings, of shafts pivoted at one end to swing toward and from the strings, wheels on the shafts for engaging the strings, levers pivoted at one end adjacent to the pivoted ends of the shafts and having their free ends connected to the free ends of the said shafts, means for swinging the said levers on their pivots and means for rotating the shafts when swung upon their pivots to bring the wheels in contact with the strings, substantially as described.

4. In a musical instrument, the combination with the strings and keys, of shafts pivoted at their lower ends to swing toward and from the strings, and provided with wheels, levers pivoted at their lower ends adjacent to the shafts and having a link connection at their upper ends with the upper ends of the shafts, means for swinging the levers on their pivots from the keys and means for rotating the shafts when swung upon their pivots to bring the wheels in contact with the strings, substantially as described.

5. In a musical instrument, the combination with the keys, the strings and an endless traveling belt, of pivoted shafts provided with grooved wheels at their upper ends for engaging the endless belt, wheels on the shafts for engaging the strings, pivoted levers, links connecting the upper ends of the levers and shafts and jacks connected with the levers and operated by the keys, substantially as herein shown and described.

598,469. COIN-CONTROLLED ATHLETIC PUNCHING-BAG. LUTHER D. HASKELL, Jr., Salem, Mass. Filed Feb. 23, 1897. Serial No. 624,536. (No model.)



Claim.—1. In an athletic punching device an inclosing case, or frame and a yielding spring-pressed door pivoted thereto and having a pad or cushion on its outside, combined with a slit and coin-conductor attached to said door, a pivoted lever normally holding the door locked and connections to coöperate with a coin in the conductor for lifting said lever, substantially as described.

2. In an athletic punching device, an inclosing case or frame, and a yielding spring-pressed door pivoted thereto and having a pad or cushion on its outside, combined with a stop device for preventing the door from being moved too far forward when released, a slit and coin-conductor attached to said door, a stop on the inside of the door, a pivoted stopping-lever engageable with said stop for preventing the door from being pushed inwardly until a coin is dropped into the slit, and coin-conductor, substantially as described.

3. In an athletic punching device an inclosing case or frame, and a yielding spring-pressed door pivoted thereto combined with a graduated scale, a vertically-adjustable weight, provided with an index-pointer having a strap or cord attached to it and to a rotary drum actuated by the inward movement of the door, and a brake and releasing device, substantially as described.

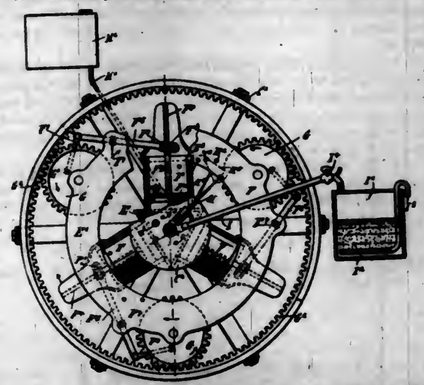
4. In an athletic punching-machine the combination of a movable part having a pad or cushion supported thereon, an indicating mechanism actuated by the movement of said part, a movable stopping member normally holding said part against movement, a coin-conductor and connections actuated by movement of said part and a coin in said conductor for moving the stopping member to release the said movable part, substantially as described.

5. In an athletic punching-machine the combination of a movable part having a pad or cushion supported thereon, an indicating mechanism actuated by the movement of said part, a movable stopping member adapted to stop the said movable part, a coin-conductor on the movable part and connections put in action by movement of said part to coöperate with a coin in said conductor for moving the stop member to release the said movable part, substantially as described.

6. An athletic punching-machine, having a movable part with a blow-receiving pad mounted thereon, an indicating mechanism put in operation by the movement of said part, and a stop mechanism normally in the path of movement of the movable part, and permitting limited movement thereof, combined with a coin-conductor and connections actuated by a blow upon the pad of said movable part and a coin in said conductor for moving the stop member to give way for extended movement of the movable part, substantially as described.

7. An athletic punching-machine, having a movable part with a blow-receiving pad or cushion mounted thereon, and an indicating mechanism actuated by movement of said part and a lever pivoted in alinement with the path of movement of said movable part and normally arresting the movement of said part, combined with a coin-conductor and connections, the same to be actuated by a blow upon the pad of said movable part and a coin in said conductor for moving the lever to give way for the movable part, substantially as described.

598,470. MOTOR-VEHICLE. HENRY W. HEATON, Cheyville, R. I. Filed May 5, 1896. Serial No. 590,294. (No model.)



Claim.—1. A motor-vehicle, comprising a vehicle-body mounted on a front axle carrying front wheels and on a rear axle carrying rear wheels, a motor held on the vehicle-body and comprising a revoluble combustion-chamber, a main driving-shaft on which the combustion-chamber is fastened, a transmitting device between the said main driving-shaft and the rear axle, cylinders opening into the said combustion-chamber, a fixed internal gear-wheel, a series of gear-wheels in mesh with the said fixed gear-wheel, and an intermediate mechanism between the said pistons and the said series of gear-wheels, to rotate the latter, substantially as shown and described.

2. A motor-vehicle provided with a motor comprising a revoluble combustion-chamber, a series of cylinders opening into the said combustion-chamber, a fixed internal gear-wheel, a series of gear-wheels in mesh with the said fixed gear-wheel, and intermediate mechanism between the pistons of the said cylinders and the said series of gear-wheels, to rotate the latter, substantially as shown and described.

3. A motor-vehicle provided with a motor comprising a revoluble combustion-chamber, a series of cylinders opening into the said combustion-chamber, a fixed internal gear-wheel, a series of gear-wheels in mesh with the said fixed gear-wheel, intermediate mechanism between the pistons of the said cylinders and the said series of gear-wheels, to rotate the latter, and a support held on the said cylinders and carrying the said series of gear-wheels, substantially as shown and described.

4. A motor comprising a revoluble combustion-chamber, cylinders opening into the combustion-chamber, pistons in the cylinders, a fixed internal gear-wheel, gear-wheels meshing with the fixed wheels and provided with crank-pins, pivoted levers having one end connected to the piston-rods, and links connecting the other ends of the levers with the crank-pins of the said gear-wheels, substantially as described.

5. A motor comprising a revoluble combustion-chamber, cylinders opening into the said chamber, pistons in the cylinders, a fixed internal gear-wheel, wheels meshing with the internal gear-wheel and provided with crank-pins, levers fulcrumed between their ends and having their inner ends loosely connected with the piston-rods, and links connecting the outer ends of the levers with the crank-pins of the gear-wheels, substantially as described.

6. A motor-vehicle provided with a motor comprising a revoluble combustion-chamber, a series of cylinders opening into the said combustion-chamber, a fixed gear-wheel, a series of gear-wheels in mesh with the said fixed gear-wheel, intermediate mechanism between the pistons of the said cylinders and the said series of gear-wheels, to rotate the latter, and a fixed plate having inlet-ports and exhaust-ports adapted to register with ports in one end of the said combustion-chamber, substantially as shown and described.

7. A motor-vehicle provided with a motor comprising a revoluble combustion-chamber, a series of cylinders opening into the said combustion-chamber, a fixed gear-wheel, a series of gear-wheels in mesh with the said fixed gear-wheel, intermediate mechanism between the pistons of the said cylinders and the said series of gear-wheels, to rotate the latter, a fixed plate having inlet-ports and exhaust-ports adapted to register with ports in one end of the said combustion-chamber, and an oil-pump connected with the said inlet-port and adapted to be actuated from the said revolving combustion-chamber, substantially as shown and described.

8. A motor-vehicle provided with a motor comprising a main driving-shaft, a combustion-chamber secured on said shaft and provided with a series of ports in one end, a fixed plate having inlet and exhaust ports adapted to register with ports in the ends of the combustion-chamber, the inlet-port being connected with a suitable source of supply of the motive agent, a series of cylinders opening into the said combustion-chamber, pistons operating in the said cylinders, levers connected with the piston-rod of the pistons, gear-wheels having crank-pins connected with the said levers, and an internal fixed gear-wheel in mesh with the said gear-wheels, substantially as shown and described.

9. A motor-vehicle provided with a motor comprising a main driving-shaft, a combustion-chamber secured on said shaft and provided with a series of ports in one end, a fixed plate having inlet and exhaust ports adapted to register with ports in the ends of the combustion-chamber, the inlet-port being connected with a suitable source of supply of the motive agent, a series of cylinders opening into the said combustion-chamber, pistons operating in the said cylinders, levers connected with the piston-rod of the pistons, gear-wheels having crank-pins connected with the said levers, an internal fixed gear-wheel in mesh with the said gear-wheels, the said gear-wheels being supported on a ring fastened to the said cylinders, and an electric igniting device in the said combustion-chamber and adapted to be actuated when the combustion-chamber is rotating, substantially as shown and described.

10. A motor-vehicle provided with an electric igniting device comprising fixed insulated pins connected with one end of a battery, a star-wheel adapted to engage the said pins, a contact-wheel secured on the shaft of the said star-wheel and extending within the combustion-chamber, and a fixed contact-plate adapted to be engaged at its free end by the points of the said contact-wheel, substantially as shown and described.

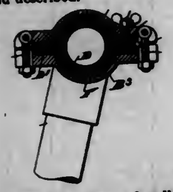
11. A motor-vehicle provided with an electric igniting device comprising fixed insulating-pins connected with one end of a battery, a star-wheel adapted to engage the said pins, a contact-wheel secured on the shaft of the said star-wheel and extending within the combustion-chamber, a fixed contact plate adapted to be engaged at its free end by the points of the said contact-wheel, and a combustion-chamber mounted to turn and carrying the shaft for the said wheels, so that the combustion-chamber, in rotating, causes the star-wheel to make contact with the pins and to be rotated by the latter, substantially as shown and described.

598,471. HANDLE-BAR. HENRY W. HEATON, Cheyville, R. I. Filed Nov. 17, 1896. Serial No. 612,491. (No model.)

Claim.—1. A handle-bar, comprising a bar, a clamp for engaging the said bar, a handle-bar stem having a head inclosing the said clamp, and an elastic material between the said head and clamp, substantially as shown and described.

2. A handle-bar, comprising a bar, a clamp for engaging the said bar and having projecting ends, a handle-bar stem having a head inclosing the said clamp and made in sections, and an elastic material between the said clamp and head, substantially as shown and described.

3. A handle-bar, comprising a bar, a clamp for engaging the said bar and having projecting ends, a handle-bar stem having a head inclosing the said clamp and made in sections, an elastic material between the said clamp and head, and means for drawing the head-sections together and clamping the several parts firmly in place, substantially as shown and described.

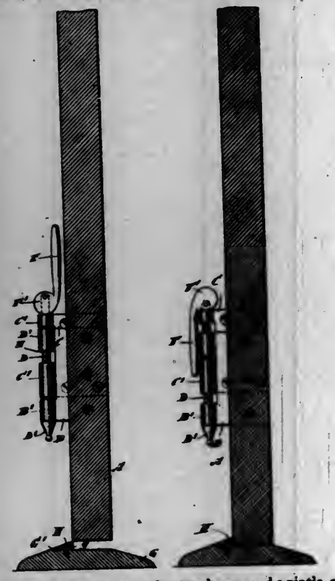


4. A handle-bar, comp sing a bar, a handle-bar stem having a head formed of two sections, means for securing the sections together, a split collar or sleeve on the handle-bar within the head and having at one side a lug extending between the projecting members of the said sections, means for clamping the said collar or sleeve to the handle-bar, and an elastic material between the collar or sleeve and the sections of the head, substantially as described.

5. A handle-bar, comprising a bar having spaced shoulders, a handle-bar stem having a head formed of two sections, the length of which is equal to the distance apart of the shoulders of the bar, a clamp engaging the bar midway between the shoulders thereof and provided at one side with a lug extending between the projecting members of the said sections, and an elastic material between the head and the handle-bar and clamp, substantially as described.

6. The combination with a handle-bar provided with shoulders, of a collar or ring surrounding the handle-bar midway between the shoulders thereof and provided with a lug at one side and two lugs at the opposite side, elastic material surrounding the collar or ring and handle-bar between its shoulders, a head formed of two sections, means for clamping the sections of the head together, and a bolt extending through the two lugs of the collar or ring and one of the sections of the head and having a nut on its end, substantially as herein shown and described.

593,472. HINGE. VESPASIAN V. HUDSON, Coffeyville, Kans. Filed Oct. 6, 1896. Serial No. 607,966. (No model.)

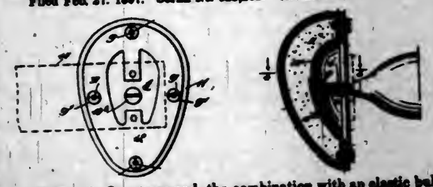


Claim.—1. A hinge, comprising two leaves and a pintle, and having the swinging leaf movable axially the pintle and relative to the other, an adjustable suspension-support for the swinging leaf consisting of a cam-lever pivoted to the upper end of the pintle and bearing upon an eye of the fixed leaf, and a head upon the lower end of the pintle supporting the swinging leaf, said swinging leaf being free to swing in either position, substantially as described.

2. A hinge having two leaves and a pivot pin or pintle, one of said leaves being adapted to have a longitudinal movement with respect to the other on their pivot-pin, the edges of the eyes of the leaves having smooth bearing surfaces and the pin having a head on its lower end engaging the swinging leaf, and a lever and cam attached to the upper end of the pin and engaging the fixed leaf, substantially as described.

3. The combination of a door and its supporting-hinges, the latter having means by which the door may be dropped below its normal swinging position, with a threshold having a ledge or raised strip which is cleared by the door when in its raised position and behind which the door may be dropped when in its closed position, substantially as described.

593,473. TRUSS-PAD. GEORGE V. HOUSE, Mount Vernon, N. Y. Filed Feb. 27, 1897. Serial No. 625,292. (No model.)



Claim.—1. In a truss-pad, the combination with an elastic bulb-shell, having an inwardly-extended marginal flange, a concaved base-plate having a flat margin which seats on the inner side of the bulb-shell flange, and a clamping-plate secured to the base-plate, and compressing the flange of the bulb-shell between it and said base-plate, of a tubular stem projecting from the concavity of the base-plate, and a spring-plate valve covering the bore of the stem in the base-plate, substantially as described.

2. In a truss-pad of the character described, the concaved base-plate, the tubular stem extending therefrom, the plate-spring valve covering the bore of the stem through the base-plate, and the screw-cap closing the free end of the tubular stem, substantially as described.

3. In a truss-pad, the combination with an elastic bulb-shell having a marginal flange, of a base-plate secured to the interior side of said flange, a tubular stem projecting from the outer side of the base-plate, and a plate-spring valve secured by one end on the interior side of the base-plate and normally closing the bore of the tubular stem at its inner end, substantially as described.

4. The combination of the pad having a curved wall and an inflating-opening therein, and a plate-spring located within the pad along said curved wall and carrying a valve adapted to close said opening, substantially as described.

593,474. TRUSS. GEORGE V. HOUSE, Mount Vernon, N. Y. Filed May 5, 1897. Serial No. 635,108. (No model.)



Claim.—1. The combination with a perforated truss-band, a pad-bulb, a hollow stem projecting from the bulb toward and into the perforation in the band, and a self-closing valve in said bulb controlling the opening in the stem, of a clamping-plate for the pad-bulb, adjustably held on the band, and means for clamping the plate upon the truss-band, substantially as described.

2. The combination with a perforated truss-band, a pad-bulb thereon, and a tubular stem extended from the base-plate of the pad-bulb toward the perforation in the truss-band, of a clamping-plate having teeth depending from its side edges, said plate being also longitudinally slotted between said edges, the slot intersecting an aperture in said clamping-plate, a flanged sleeve-nut passing loosely through the aperture in the clamping-plate and contacting its flange with the plate, a perforated holder-plate on the pad-bulb, with which plate said sleeve-nut has engagement, a fixed headed stud on one end of the clamping-plate, a slidable clamping-bar on the clamping-plate, having teeth at its ends adapted to interlock with the teeth on the clamping-plate, and a stud projected from the clamping-bar through the slot in the clamping-plate, substantially as described.

3. In a truss, the combination with a pad-bulb, a perforated truss-band, and a pad-clamping plate having a longitudinal slot therein, of a clamping-bar engaging with and adjustable on the clamping-plate and carrying a headed stud, the body of said stud being slidable in the slot of the clamping-plate, and means for securing the pad-clamping plate upon the truss-band, substantially as described.

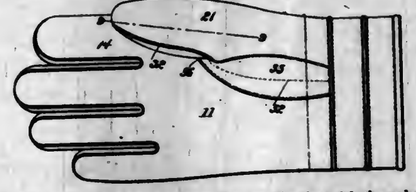
4. The combination with a perforated truss-band, of an inflatable pad-bulb, a hollow stem projecting from said bulb toward the perforation in the band, a sealing-cap on said stem, a perforated clamping-plate, and a flanged sleeve-nut extending through the clamping-plate and the perforation in the truss-band, said sleeve-nut having a threaded engagement with a fixed plate on the pad-bulb and receiving the sealing-cap of the hollow stem, substantially as described.

5. In a truss, the combination with a perforated truss-band, of an inflatable pad-bulb, a tubular stem projecting from the bulb, communicating with a chamber in the pad-bulb and extending toward the perforation in the truss-band, a sealing cap on the outer end of the tubular stem, a clamping-plate seated on the truss-band and having a perforation, and a flanged sleeve-nut passing loosely through the perforation in the clamping-plate and through the truss-band, concentrically to the cap on the tubular stem, said sleeve-nut having threaded engagement with a threaded perforation in a fixed plate on the pad-bulb, substantially as described.

6. In a truss, the combination with a truss-band, of an elastic pad-bulb, inflatable through a tubular stem that projects from a base-plate of the pad-bulb toward the truss-band, a sealing-cap on the said tubular stem, an elongated toothed plate seated on the truss-band oppositely from the pad-bulb, means for clamping the bulb and plate upon the truss-band through a perforation therein, said toothed plate being perforated and longitudinally slotted, the perforation permitting access to the sealing-cap for its adjustment, a transverse clamping-bar engaging its ends with the teeth on the clamping-plate, and a headed stud projecting from said clamping-bar through the longitudinal slot in the toothed plate and movable therein, substantially as described.

7. In a truss of the character described, a clamping-plate for the pad-bulb, consisting of an elongated blank having series of depending teeth on its side edges, and a central longitudinal slot intersecting an aperture at one end of said slot, a fixed headed stud near one end of the clamping-plate, a transversely-disposed clamping-bar having teeth on each end that may interlock with the teeth on the clamping-plate, and a headed stud on said clamping-bar which projects through the slot in the clamping-plate, substantially as described.

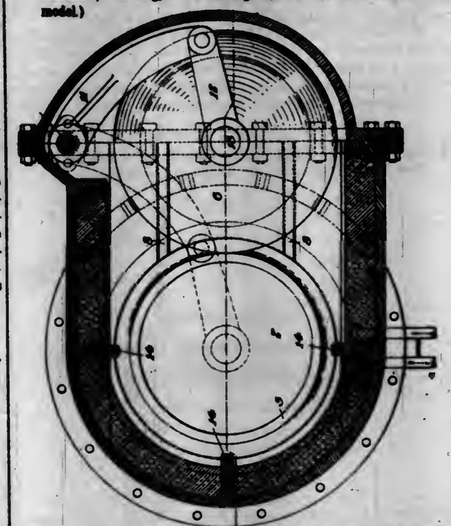
593,475. GLOVE. FELIX H. HUMIOKE, St. Louis, Mo. Filed Nov. 2, 1896. Serial No. 610,880. (No model.)



Claim.—1. In a glove or mitten, the combination with the palm-section 11, the back portion 12 and the thumb portion 19; all formed integral of a single piece of material by cutting the slit 15 from the wrist edge 16 upon the dotted line 13 and the slit 17 parallel with said slit 15, its inner end 18 being turned toward the inner end of the slit 15, and the free end of the section 19 thus formed being rounded; of the thumb-section 21; having its edges stitched to the edge 25 of the back portion 12, to the edge 29 of the thumb portion 19, to the edge 31 of the thumb portion 19 and to the edge 27 of the palm-section 11, the wrist edge 23 of said section 21 being in alinement with the wrist edges 16 of the back portion 12 and the palm-section 11; the reinforcing-strip 33 stitched in position to cover the seam between said thumb-section 21 and said palm-section 11 and to cover the seam between said thumb-section 21 and said back portion 12; said reinforcing-strip extending from the wrist edge of said palm-section 11 in front of the thumb and around between the thumb and forefinger and backwardly to the wrist edge of said back portion 12; and a wristband attached to the wrist edges of said palm-section 11, of said thumb-section 21 and of said back portion 12 and to the wrist ends of said reinforcing-strip 33, substantially as specified.

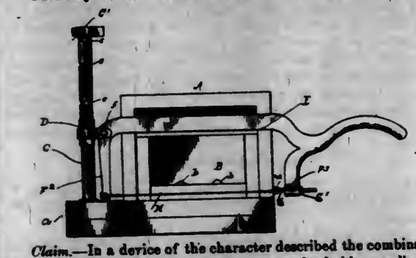
2. In a glove or mitten, the combination with the palm-section 11, the back portion 12 and the thumb portion 19; all formed integral of a single piece of material by cutting the slit 15 from the wrist edge 16 upon the dotted line 13 and the slit 17 parallel with said slit 15, its inner end 18 being turned toward the inner end of the slit 15, and the free end of the section 19 thus formed being rounded; of the thumb-section 21; having its edges stitched to the edge 25 of the back portion 12, to the edge 29 of the thumb portion 19, to the edge 31 of the thumb portion 19 and to the edge 27 of the palm-section 11, the wrist edge 23 of said section 21 being in alinement with the wrist edges 16 of the back portion 12 and the palm-section 11; the reinforcing-strip 33 stitched in position to cover the seam between said thumb-section 21 and said palm-section 11 and to cover the seam between said thumb-section 21 and said back portion 12; said reinforcing-strip extending from the wrist edge of said palm-section 11 in front of the thumb and around between the thumb and forefinger and backwardly to the wrist edge of said back portion 12; and a wristband attached to the wrist edges of said palm-section 11, of said thumb-section 21 and of said back portion 12 and to the wrist ends of said reinforcing-strip 33; said reinforcing-strip 33 consisting of the central portion 36 which comes directly between the forefinger and the thumb, the end portion 37 which is slightly wider than the portion 36 and covers the seam between the section 21 and the front section, which is in the rear of the thumb and in front of the forefinger, and the end 38 which is considerably wider than the end 37 and covers the seam between the section 21 and the palm-section, which is in front of the thumb, or substantially in the palm of the hand, substantially as specified.

593,476. FURNACE-VALVE FOR HOT-BLAST STOVES. JULIAN KENNEDY, Pittsburg, Pa. Filed Aug. 15, 1896. Serial No. 602,838. (No model.)



Claim.—In a furnace-valve, the combination with a sliding valve and valve-casing, of a rotatory operating-shaft extending through a stuffing-box into the casing, a crank-arm having a link connection contained within the casing and serving to transmit motion from the shaft to the valve, and a removable cap for said casing, the division-line between the cap and casing extending through the stuffing-box; substantially as described.

593,477. CUTTING DEVICE. ADRIAN J. KERR, Bellevue, Ohio. Filed May 19, 1897. Serial No. 637,218. (No model.)

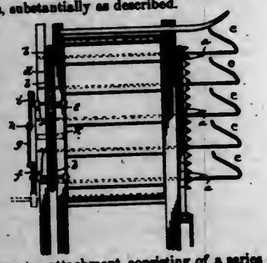


Claim.—In a device of the character described the combination of a standard C, having grooves c thereon and a holder or clip C' at the top thereof, with an adjustable collar D, a bracket E pivoted thereto, and an adjustable wire knife secured in said bracket, as set forth.

593,478. HARVESTER ATTACHMENT. ALVY M. LARUE, Downey, Iowa. Filed Apr. 1, 1897. Serial No. 630,292. (No model.)

Claim.—1. A harvester attachment consisting of a series of rock-shafts projecting in front of the cutter-bar and provided with lateral

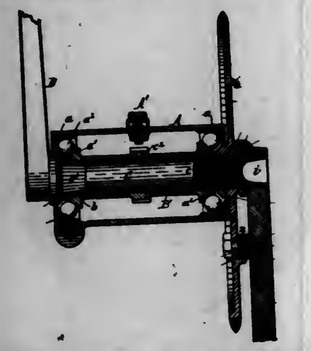
arms to engage under and throw up fallen grain, and means for driving said shafts, substantially as described.



2. A harvester attachment consisting of a series of rock-shafts carried by the harvester-frame and projecting in front of the cutter-bars and there provided with lateral agitator-arms adapted to pass under and throw up the fallen grain, and means for simultaneously rocking said shafts back and forth, substantially as described.

3. The combination with a harvester, of a series of agitators projecting in front of the cutter-bars, a sprocket-wheel on each of the agitators, an endless sprocket-chain engaging said sprocket-wheels, a rocking driving-sprocket engaging said chain, and means for rocking said sprocket, substantially as described.

598,479. VELOCIPEDE. ERNST G. LATTA, Friendship, N. Y. Filed Nov. 30, 1896. Serial No. 613,851. (No model.)



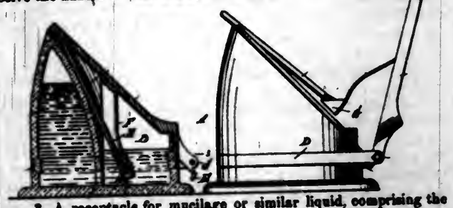
Claim.—1. The combination with an externally-screw-threaded crank-shaft having an angular end portion, of a sprocket-wheel hub having a screw-threaded bore engaging with the screw-thread of the shaft, and provided on its outer side with an outwardly-projecting flange, and a crank having its hub provided with an angular opening receiving the end portion of the shaft and an undercut socket or recess arranged on the inner side of the crank and receiving the flange of the sprocket-wheel hub, and having an opening in one side thereof for admitting the flange of the sprocket-wheel hub, substantially as set forth.

2. The combination with a hanger, of a crank-shaft journaled in the hanger and having a permanent crank and a tapering collar or enlargement at one end thereof, a detachable crank at its opposite end and an external screw-thread adjacent to the detachable crank and a sleeve surrounding the shaft, carrying a bearing-cone at each end and provided at one end with an internal screw-thread engaging with the screw-thread of the shaft and having the opposite end of its bore tapered to fit the tapering collar of the shaft, substantially as set forth.

598,480. COVER FOR MUCILAGE-RESERVOIRS. TRUMAN S. LEWIS, Waterbury, Conn. Filed June 1, 1897. Serial No. 638,908. (No model.)

Claim.—1. A reservoir for mucilage or similar liquid, comprising the body provided with a separating-wall forming a reservoir and well, and a cover hinged to said body and carrying a bucket which is immersed in the liquid when the cover is down and raised above the same when the cover is raised, said bucket being adapted to receive a brush and the separating-wall being formed with a groove arranged to receive the handle of the brush to guide the same out of the body when the cover is raised, as set forth.

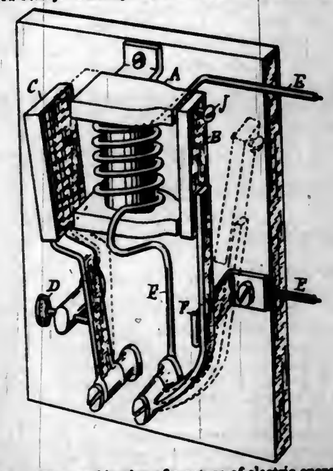
2. A receptacle for mucilage or similar liquid, comprising the body divided into a reservoir and well, and a cover pivoted to said body and carrying a device which is lowered into the liquid in the wall and raised therefrom by the movement of said cover and adapted to hold a brush, the body being formed with a guide arranged to receive the handle of said brush, as set forth.



3. A receptacle for mucilage or similar liquid, comprising the body provided with a wall forming it into a reservoir and well, said wall being formed with a longitudinal groove, and a cover pivoted to said body and carrying a bucket adapted to hold a brush, said brush being inclosed in the body and immersed in the liquid when the cover is down and having its handle received in the said longitudinal groove, whereby it will be guided to extend above the body when the cover is raised, as set forth.

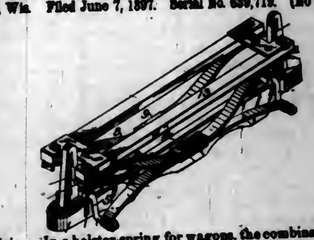
4. A receptacle for mucilage or similar liquid, comprising the body provided with a vacuum-reservoir and a cup or well connected to the bottom thereof, a band surrounding said body, a cover pivoted to said band, and a bucket attached to said cover and adapted to receive a brush to immerse the latter in the liquid, there being provided a groove to guide the said brush, as set forth.

598,481. AUTOMATIC CIRCUIT-BREAKER. WILLIAM C. LOWRIE, Newark, N. J., assignor to the Crocker-Wheeler Electric Company, of New Jersey. Filed Apr. 24, 1897. Serial No. 633,641. (No model.)



Claim.—The combination of a source of electric energy, a magnetic field created thereby, a circuit breaker controlled by the magnetic field, and means for short-circuiting the field and breaking the circuit when the current exceeds a certain strength, substantially as described.

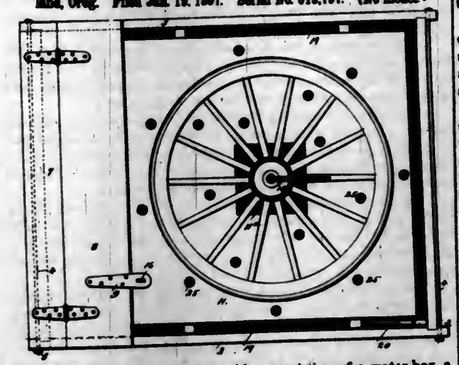
598,482. WAGON BOLSTER-SPRING. TABOR C. MANDY, Stoughton, Wis. Filed June 7, 1897. Serial No. 639,719. (No model.)



Claim.—In a bolster-spring for wagons, the combination with the boxes or bearings, the horizontal connecting-plate, the swinging

shackles journaled in said bearings and the lower upwardly curved or bowed plates connected with said shackles, of the upper oppositely-curved plates secured centrally to said lower springs, the clips in which the ends of said springs slide, the spring-bars to which said clips are secured and the connecting-plates, substantially as described.

598,488. TIRE-COOLING DEVICE. SALOMON M. MATHISEN, Portland, Oreg. Filed Jan. 19, 1897. Serial No. 619,797. (No model.)

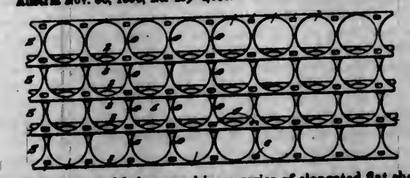


Claim.—1. A tire-cooling machine, consisting of a water-box, a platform of less width than the box, link connections joining the platform to the bottom of the box, adapted when adjusted in one position, to form vertical supports for the platform and when adjusted to the other position to swing the platform diagonally downward in a horizontal plane, an operating-lever projected into the box between the platform and the edge thereof, detachably secured to the link connections and a cover member laterally hinged on the top of the box to be turned up and back to allow the platform to descend, or to be turned down to cover the water-box and laterally engage the platform to hold it raised, substantially as shown and for the purposes described.

2. The combination with the water-box having a hinged trap member at one end, and the supporting-bars 15 hinged to the bottom of the box to swing down flat thereon, one of such bars 15 having a projecting member 22 at one end of the platform 10, of a width less than the width of the box whereby side spaces 19 are formed, a lever-handle adapted to pass through one of such spaces 19, to engage the member 22, said platform having pendent members hinged to the upper ends of the bars 15, the strap-plate 9 and the staple 6 all being arranged substantially in the manner shown and for the purposes described.

3. A tire-cooling machine, consisting of a water-box, a platform consisting of a top plank and a series of cross-bars and a pair of cross-bars 14, a pair of supporting cross-bars 15 hinged to the bottom of the box to fold flat thereon, and having a hinged connection with the bars 14, said bars 15 and the platform being so arranged that when the bars 15 are raised to a vertical position the top of the platform will be in a plane with the top of the box, lever devices for swinging the bars 15 to their adjusted positions and a swinging top member hinged to the top of the box adapted to form a rest to hold the platform from swinging forward and downward all being arranged substantially as shown and described.

598,484. METALLIC FABRIC FOR FENCING. ALFONS MAURER, Schramberg, Germany. Filed May 5, 1897. Serial No. 635,126. (No model.) Patented in Belgium Nov. 11, 1896, No. 124,715; in France Nov. 11, 1896, No. 261,174; in England Nov. 11, 1896, No. 25,873, and in Austria Nov. 30, 1896, No. 46/4,706.



Claim.—1. A fabric comprising a series of elongated flat sheet-metal open-work strips secured together with their adjacent side edges in longitudinal parallelism and in overlapping relation.

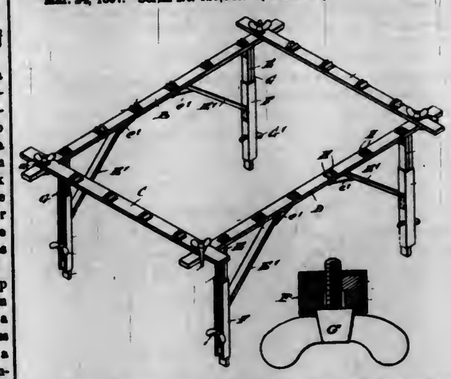
2. An elongated sheet-metal fabric strip comprising two side portions connected together by relatively remote transverse portions of corresponding thickness, and one side portion having a series of transverse slots and the other side portion having a series of projections, which slots and projections constitute attaching means whereby a series of similar strips may be secured together.

3. A fence fabric comprising a series of elongated sheet-metal strips secured together and having straight longitudinal side edges, the lower edge of each strip being parallel to and overlapping the upper edge of the next adjacent strip, and each strip having a series of transverse openings therethrough located substantially midway of the width thereof.

4. A fabric comprising a multiplicity of elongated sheet-metal open-work strips having their adjacent side portions in parallelism and in overlapping relation, and each strip having a series of laterally-projecting prongs which extend through openings in the next adjacent strip.

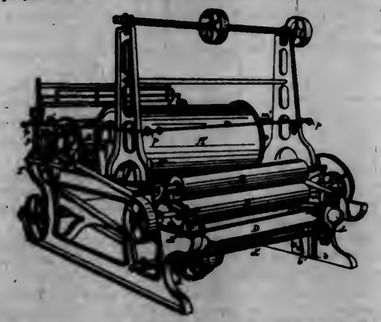
5. A fabric comprising a series of elongated resilient sheet-metal sections each section of which comprises two side portions connected together by remotely-disposed transverse webs of thicknesses corresponding to the thicknesses of the side portions, and each section also having in one side wall thereof a series of slots and in the opposite side wall thereof a series of prongs, and the prongs of one section extending through the slots of another section whereby said sections are secured together.

598,485. QUILTING-FRAME. NIRA MORE, Cutting, N. Y. Filed Mar. 24, 1897. Serial No. 629,041. (No model.)



Claim.—The combination of a rail, a leg pivoted to the rail and having a slot run longitudinally through the leg, an extension-leg also having a slot, the extension-leg being laid alongside of the main leg, a channel iron having inturned edge flanges, the channel-iron embracing the main and extension legs to permit the movement of the extension-leg on the main leg, a fastening device carried by the channel-iron and extending through the slots in the main and extension legs whereby to hold the extension-leg in rigid connection with the main leg, and a brace hinged to the channel-iron and capable of connection with the rails.

598,486. WARP-DRESSING MACHINE. HAMILTON I. MOULTON, Philadelphia, Pa., assignor to The James Smith Woolen Machinery Company, same place. Filed Jan. 27, 1896. Serial No. 577,062. (No model.)



Claim.—1. A warp-dressing machine in which are combined the hollow drying-cylinders, a pipe for supplying steam thereto, a valve for controlling the flow of steam through said pipe, a rod structure extending around the machine and having connection with said

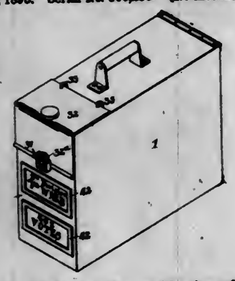
valve, a belt shipper-arm, a lever controlling a clutch forming part of the driving mechanism of the machine, and means for connecting said rod structure to said shipper-arm and clutch-lever, substantially as specified.

2. The combination of the sizing-rolls, the vertically-adjustable size-trough having a chambered bottom, a fixed steam-pipe, a branch pipe communicating with said hollow bottom, and a pair of connecting-pipes having a swinging joint where they meet, one of said pipes being likewise jointed to the fixed steam-pipe and the other to the branch pipe of the sizing-trough, substantially as specified.

3. The combination of the fast and slow speed pulleys of the machine, a slow-speed mechanism having a clutch and clutch-lever, a shipper for moving the belt from one pulley to the other, and connections between said belt-shipper and the clutch-lever, said slow-speed pulley being of such width that movement of the belt in excess of that necessary to clear the fast-speed pulley is permitted, whereby the clutch can be thrown out of engagement without removing the belt from the slow-speed pulley, substantially as specified.

4. The combination of the fast and slow speed pulleys of the machine, a slow-speed mechanism having a clutch, a clutch-operating lever, a belt-shipper, and connections between the belt-shipper and clutch-lever whereby the clutch is thrown into action on shifting the belt from the fast-speed pulley to the slow-speed pulley, said slow-speed pulley being of such width that movement of the belt in excess of that necessary to clear the fast-speed pulley is permitted, whereby the clutch can be thrown out of engagement without removing the belt from the slow-speed pulley, substantially as specified.

598,487. BALLOT-BOX. GEORGE J. MURPHY, Philadelphia, Pa. Filed Oct. 19, 1895. Serial No. 566,230. (No model.)



Claim.—1. In a ballot-box, the combination of the receptacle for receiving the ballots, a gripping device for depositing the ballots in said receptacle, and means for traversing said gripping device to and fro in the box.

2. In a ballot-box, the combination of the receptacle for receiving the ballots, a gripping device for depositing the ballots in said receptacle, said gripping device having portions adapted to ways in the walls of the ballot-box, and means for traversing said gripping device so as to draw the ballots into the box.

3. In a ballot-box, the combination of the receptacle for receiving the ballots, a gripping device for depositing the ballots in said receptacle, said gripping device having portions adapted to ways in the walls of the box, and a rod connected to said gripping device whereby it may be drawn into the ballot-box.

4. The combination in a ballot-box, of the receptacle for receiving the ballots, a sliding gripping device adapted to carry the ballot so that it may be deposited in said receptacle and a flexible partition dividing the receptacle for the ballots from the device for depositing the same.

5. The combination in a ballot-box of a receptacle for the ballots, means for depositing the ballots, a flexible partition dividing the depositing mechanism from the receptacle for holding the ballots, a compartment for holding the flexible partition, and ways upon which said partition may be traversed.

6. The combination in a ballot-box, of the receptacle for the ballots, the gripping device comprising jaws mounted so as to be free to move back and forth in the box, and means for opening and closing the jaws to receive and grip the ballots.

7. The combination in a ballot-box, of the gripping device for carrying the ballot into the box, and a spring-controlled pin for separating the jaws of the gripper so that it may engage the ballot.

8. The combination in a ballot-box, of the receptacle for the ballots, a gripping device for depositing the ballots in said receptacle, ways in the sides of the box upon which the gripping device may be traversed, and a cam or lug in the rear of the box adjacent to said ways, for separating the jaws of the ballot-gripper so that the ballot may drop into the box.

9. The combination in a ballot-box of the receptacle for the ballots, a gripping device movable to and fro in the box, and serving to draw in and deposit the ballots, means for operating the gripping device at the forward end of its travel so as to cause it to grip the ballot, and provision for opening the gripping device at the inner termination of its travel in order to release the ballot.

10. The combination in a ballot-box of the receptacle for receiving the ballots, a gripping device for depositing said ballots, means for operating the jaws of the gripping device, and a canceling-stamp connected to such jaw-operating device.

11. The combination in a ballot-box of the receptacle for the ballots, a gripping device movable to and fro in the box and serving to deposit the ballots therein, and mechanism operated by said movable gripper for registering the deposit of the ballots.

12. The combination in a ballot-box, of the receptacle for the ballots, a movable gripping device for depositing the ballots therein, registering mechanism, a lever for operating said mechanism, and a slotted arm carried by the gripping device and adapted to engage with said lever and operate the registering mechanism.

13. The combination in a ballot-box, of the receptacle for the ballots, a gripping device for depositing the ballots therein, a registering device adapted to be operated by said gripping device, and a gong for announcing the deposit of the ballots, operated by the ballot-gripper as it is retracted to receive a new ballot.

14. In a ballot-box of the character described, a gripping device for effecting the deposit of the ballots in the box consisting of a pair of pivoted jaws connected together by a suitable pin, and adapted to be drawn into the box to deposit the ballot by any suitable means, said jaws being normally held in engagement with each other by a weight mounted on the lower jaw.

15. In a ballot-box of the character described, a gripping device for effecting a deposit of the ballots, consisting of a pair of pivoted jaws suitably connected together and adapted to be traversed in the box so as to deposit the ballot, said jaws being faced with rubber or other suitable substance in order that the ballot may be securely held while being drawn into the box, the jaws being held in engagement with each other by a suitable weight carried by the lower jaw.

16. The combination with a ballot-box of the character described, having an aperture in the front of said box through which the ballots may be entered, of a ballot-gripping device movable to and fro in the box, and means for closing said aperture after the ballot has been drawn through the same.

17. The combination with a ballot-box of the character described, having an aperture in the box through which the ballots may be entered, of a ballot-gripping device movable to and fro in the box, and a pivoted weighted door for closing said aperture, said door being adapted to be raised to open the aperture by the ballot-gripper, when the same is presented at the front of the box for a new ballot.

18. The combination with a ballot-box of the character described, having an aperture in the box through which the ballots may be entered, of a ballot-gripping device movable to and fro in the box, a pivoted weighted door for closing said aperture, and a cam on said door whereby the same may be raised when the ballot-gripper is presented at the front of the box for a new ballot.

19. The combination of a ballot-box having a series of compartments, with a hinged top plate and a hinged bottom plate, and a flexible partition for dividing the said compartments.

20. The combination with a ballot-box having a series of compartments, of a flexible partition for separating said compartments, said partition consisting of a series of slats or strips mounted upon flexible belts.

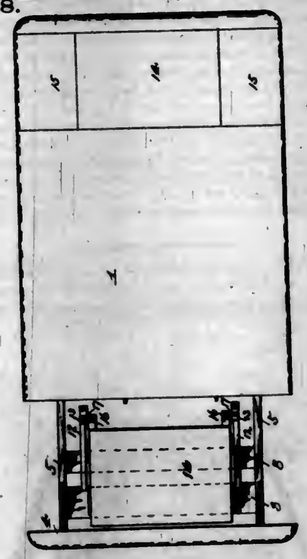
21. In a ballot-box of the character described, a gripping device adapted to traverse within the box so as to effect the deposit of the ballots therein, said gripping device consisting of a pair of jaws pivotally connected together, and means for holding said jaws in engagement with each other.

22. The combination in a ballot-box, of the receptacle for the ballots, the gripping device by which said ballots may be deposited in the box, ways upon which said gripping device may be traversed, said ways being adapted to hold the jaws of the gripping device in contact with each other so that the ballot will be carried into the box, and means for opening said jaws.

598,488. EXTENSION-TABLE. FRANK P. MOSHER, Beaver Falls, Pa. Filed June 28, 1897. Serial No. 642,688. (No model.)

Claim.—In an extension-table, the combination with the top, the depending side rails, of the slides, the transverse connecting-bars, the rim secured thereto, the boards secured to said slides, and the horizontal rails having notches at the inner ends, of the extension-leaves consisting of the central section and the leaves hinged to the ends thereof, the lugs on the said central section and the pivots or studs secured thereto, substantially as described.

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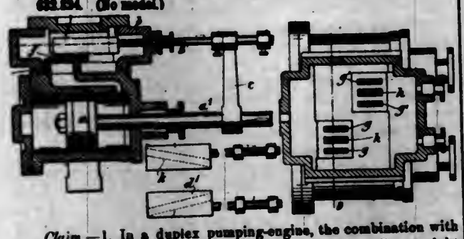


598,489. FOLDING BOX. JOHN NOLAND, Pittsburg, Pa. Filed Feb. 27, 1897. Serial No. 625,344. (No model.)



Claim.—In a box having folding sides and ends, flaps carried at each end of each side, said flaps and ends provided with slots adapted to meet at a common center, straps secured on the inside of each end and passing through said slots to the outside of the box and thence over the top of the same and suitably fastened, substantially as described.

598,490. DUPLEX PUMPING-ENGINE. PHILIP F. ODDIE and GUSTAV HEBER, London, England. Filed Apr. 19, 1897. Serial No. 633,894. (No model.)



Claim.—1. In a duplex pumping-engine, the combination with the two cylinders each having its steam-passages in a line at right angles to the line of travel of the pistons and each provided with a main valve, the steam-chest and an expansion-valve carried by each main valve, of sliding inclined-faced blocks each engaged with a correspondingly-inclined part of an expansion-valve and actuated from a piston-rod of the engine, so as to cause each expansion-valve to control the admission of steam to the main valve of the opposite cylinder, substantially as set forth.

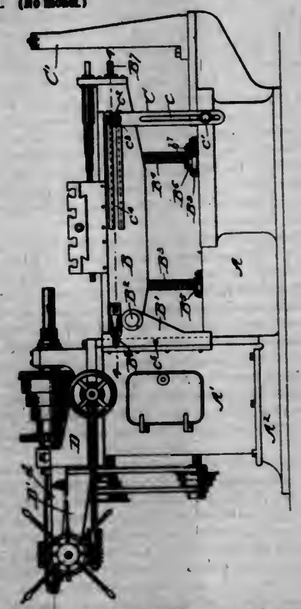
2. In a duplex pumping-engine, the combination with the steam-chest and the two cylinders each having its steam-passages in a line at right angles to the line of travel of the pistons and each provided with a main valve, of expansion-valves carried by said main valves and each provided with an inclined guide part, sliding blocks having inclined slots engaged with the inclined guide parts of said expansion-valve, the slot of one block being inclined to the right and the other to the left, and means for actuating said sliding blocks from the piston-rods of the engine, whereby each expansion-valve will control the admission of steam to the main valve of the opposite cylinder, substantially as set forth.

3. In a duplex pumping-engine, the combination with the two cylinders each having its steam-passages in a line at right angles to the line of travel of the pistons, a steam-chest, the main valves, and expansion-valves carried by the main valves and each provided with an inclined guide part, the guide part of one expansion-valve being inclined to the right and the other to the left, of sliding blocks having inclined slots engaged with the inclined guide parts of said expansion-valves, and means for imparting to said blocks in a reduced degree the motion of the engine piston-rods, substantially as set forth.

4. In a duplex pumping-engine, the combination with the cylinders each having its steam-passages in a line at right angles to the line of travel of the pistons, a steam-chest, and a combined main valve and expansion-valve for each cylinder, of sliding blocks each having an inclined face engaging a correspondingly-inclined part of an expansion-valve, and means for actuating said sliding blocks to an adjustably-regulated extent from the piston-rods of the engine, to cause each expansion-valve to control the admission of steam to the main valve of the opposite cylinder, substantially as set forth.

5. In a duplex pumping-engine, the combination of the cylinders each having its steam-passages in a line at right angles to the line of travel of its piston, a steam-chest, the main valves, the expansion-valves carried on said main valves and each provided with an inclined guide part, one of said expansion-valves being provided with outside cut-off edges and the other with inside cut-off edges, sliding blocks each having an inclined face engaged with an inclined guide part of one expansion-valve, means for actuating said blocks from the piston-rods of the engine, and adjusting mechanism to regulate the extent of throw for each block to cause each expansion-valve to control the admission of steam to the main valve of the opposite cylinder, substantially as set forth.

598,491. HORIZONTAL DRILLING AND BORING MACHINE. WALTER B. PEARSON, Chicago, Ill. Filed Dec. 29, 1896. Serial No. 617,371. (No model.)



Claim.—1. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table pivoted thereto and means for raising and lowering the ends of said table independently of each other, substantially as described.

2. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table pivoted thereto, means for raising and lowering the ends of said table independently of each other and means for raising and lowering said table bodily substantially as described.

3. In a horizontal drilling and boring machine, or the like, the

combination of a slide, a table one end of which is pivoted to said slide and means for adjusting said table pivotally, substantially as described.

4. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table one end of which is pivoted to said slide, means for adjusting said table pivotally and means for raising and lowering said table and slide bodily, substantially as described.

5. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table one end of which is pivoted to said slide, screws beneath said table, one adjacent to each end thereof, the upper ends of which are revolubly secured in said table and the lower ends of which are threaded to nuts secured in the bed of the machine, one or both of said nuts being adjustable and means to rotate said screws together to raise or lower the table bodily, substantially as described.

6. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table one end of which is pivoted to said slide, screws beneath said table, one adjacent to each end thereof, the upper ends of said screws being revolubly secured in said table and the lower ends thereof being threaded to nuts secured in the bed of the machine, one or both of said nuts being adjustable, a shaft carried in the table, gears on which engage with gears secured to said screws and means to rotate said shaft, substantially as described.

7. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table one end of which is pivoted to said slide, screws beneath said table, one adjacent to each end thereof, the upper ends of said screws being revolubly secured in said table and the lower ends thereof being threaded to nuts secured in the bed of the machine, one or both of said nuts being revolubie in bushings secured in the bed, binding-screws which pass through circular slots in said nuts and are threaded into said bushing or bushings, a shaft carried in the table, gears on which engage with gears secured to said shaft, substantially as described.

8. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table one end of which is pivoted to said slide, screws beneath said table, one adjacent to each end thereof, the upper ends of said screws being revolubly secured in said table and the lower ends thereof being threaded to nuts secured in the bed of the machine, gears secured to the upper ends of said screws which engage gears secured to a shaft carried in the table, means to rotate said shaft, openings in said table through which said gearing is accessible and caps to close said openings, substantially as described.

9. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table connected thereto, screws beneath said table, one adjacent to each end thereof, the upper ends of said screws being revolubly secured in said table and the lower ends thereof being threaded to nuts secured in the bed, a longitudinal shaft carried in the table gears on which engage gears secured to said screws, a transverse shaft revolubly mounted in said table adjacent to the end thereof connected to the slide, a gear on said transverse shaft which engages the gear on the longitudinal shaft at the corresponding end of the table, the gear on said transverse shaft being small enough to clear the gear on the screw and means to rotate said transverse shaft, substantially as described.

10. In a horizontal drilling and boring machine, or the like, the combination of a slide, a table one end of which is pivoted to said slide, screws beneath said table, one adjacent to each end thereof, the upper ends of said screws being revolubly secured in said table and the lower ends thereof being threaded to nuts secured in the bed, a longitudinal shaft carried in the table gears on which engage gears secured to said screws, a transverse shaft revolubiy mounted in said table adjacent to the pivoted end thereof and which projects at the side of the table, a gear thereon which engages the gear on the longitudinal shaft at the corresponding end of the table, the gear on said transverse shaft being small enough to clear the gear on the screw and means to rotate said transverse shaft, substantially as described.

11. In a horizontal drilling and boring machine, the combination with the table of arms secured to the outer end thereof which do not extend above the top of said table and means to clamp the lower ends of said arms to the bed of the machine, substantially as described.

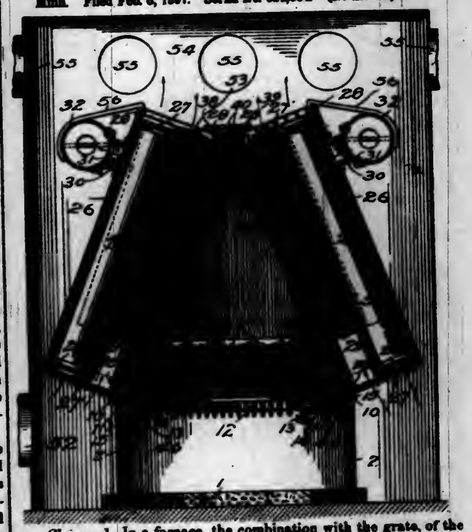
12. In a horizontal drilling and boring machine, or the like, the combination with the table of arms pivoted to each side thereof adjacent to its outer end, and in such position that they will not extend above the top of said table, slots formed in said arms through which pass binding-screws threaded into the bed of the machine, substantially as described.

13. In a horizontal drilling and boring machine, or the like, the combination with the table of arms pivoted thereto adjacent to its outer end, slots formed in said arms through which pass binding-screws threaded into the bed of the machine, and a bearing for the outer end of a boring-bar formed in a standard or column, which rests upon the bed beyond the end of the table, substantially as described.

14. A thrust-bearing for the feed mechanism of a horizontal drilling and boring machine, formed at the end of a rearward extension of the head-stock of said machine, said rearward extension of the head-stock being formed integral with said head-stock and comprising webs which extend up even with the middle of the spindle on both sides thereof in such manner that they will sustain a tensile strain from the operation of the feed mechanism, substantially as described.

15. In a horizontal drilling and boring machine, the combination of a bed of substantially uniform depth or thickness throughout its entire length, a separate column rigidly secured to an extension formed around one end of the bed adjacent to the bottom thereof, the end of the bed being inclosed by said column and the front wall or side of the column being cut away to receive said bed, substantially as described.

593,492. HEATING-FURNACE. FRANCIS PETERLER, Minneapolis, Minn. Filed Feb. 3, 1897. Serial No. 621,894. (No model.)



Claim.—1. In a furnace, the combination with the grate, of the drums arranged above the same, each drum comprising heads and a series of air-tubes connecting the same, and being open on one side to permit the products of combustion to pass around said tubes, spirally-coiled wires within said air-tubes, and smoke-outlets provided in the walls of said drums, for the purpose set forth.

2. In a furnace, the combination, with the grate, of the inclined drums above the same, each drum comprising a head and a series of tubes connecting the same, smoke inlets and outlets provided in the walls of said drums and coiled wires suspended within said tubes and resting against the inner walls of the same, for the purpose set forth.

3. The combination, in a furnace, with the base-plate, of the inclined drums supported thereon, triangular plates secured to said base-plate and said drums, and forming with the same the inner casing of the furnace, said drums comprising a series of tubes and being open on the side next to the fire, to permit the products of combustion to pass around said tubes, and the smoke-outlets provided in the walls of said drums, for the purpose set forth.

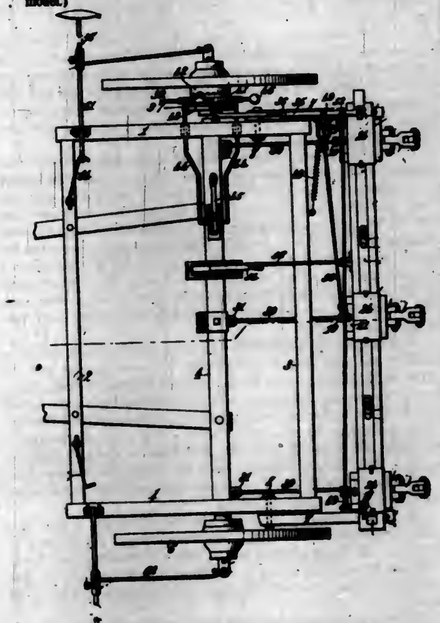
4. In a furnace, the combination, with the base-plate and the side and rear walls of the ash-pit supporting the same, of the converging drums supported upon said base-plate and comprising a series of tubes and heads therefor, the grate and fire-pot also supported by said base-plate, said drums being open upon one side to permit the products of combustion to pass freely around said tubes, and outlet-openings provided in the outer walls of said drums.

5. A furnace, comprising an inner and outer casing, a grate and fire-pot, drums within said inner casing, comprising heads and a series of tubes connecting the same, wires coiled within said tubes and inlet and outlet openings in the walls of said drums, for the purpose set forth.

6. In a furnace, the combination, of the base-plate forming the top of the ash-pit, the grate supported thereby, the drums above said grate, said drums being provided with a series of air-tubes and being open on their inner sides, and the holes provided in said base-plate beneath said air-tubes and means for covering the same, for the purpose set forth.

7. The combination in a furnace, of the grate, the fire-pot, the drums above said fire-pot, said drums comprising a series of air-tubes, the heads and the casing inclosing three sides of said drums, said tubes being open at each end to permit the free passage of air through the same, the intake-pipes for discharging cold air into said furnace beneath said drums, and the return-pipe leading into the furnace-casing beneath one of said drums, for the purpose set forth.

593,493. PLANTING AND SEEDING MACHINE. LORENZO W. POWELL, Kirtland, Ohio. Filed Feb. 25, 1897. Serial No. 624,063. (No model.)



Claim.—1. In a planting or seeding machine, the combination of the forward main-frame section, an adjustable rear-frame section comprising side bars pivotally attached to the rear of the main frame and a removable transversely-arranged hopper-bar carried on the rear ends of said side-bars, a series of laterally-adjustable seed-hoppers and connected drill-tubes carried on said hopper-bar, a reciprocating seed-valve for controlling discharge from all the seed-hoppers, vertically-movable hill-markers carried in guides depending from the side bars of the rear frame, an operating-lever having connections with the seed-valve and hill-markers, a disk adapted to be clutched to the hub of a machine-wheel and provided with radial arms to engage and actuate the said lever for operating the seed-valve and hill-markers, a lifting-lever mounted on the main frame section, and a rod connecting said lever with the adjustable rear-frame section to lift the seeding mechanism and hill-markers from the ground, substantially as described.

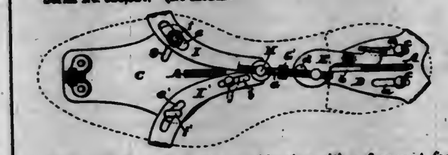
2. In a planting or seeding machine, the combination of the forward main-frame section, the adjustable rear-frame section provided with a removable transversely-arranged hopper-bar having therein a longitudinal groove and a series of seed-openings in said groove, a reciprocating seed-valve extended throughout said groove and provided with a corresponding number of seed-openings, laterally-adjustable slide-blocks mounted to fit around the said hopper-bar and valve and provided with seed openings or passages, seed-hoppers on said slide-blocks, forwardly-curved drill-standards having jointed connection with said laterally-adjustable blocks, drill-tubes carried by said standards, flexible tubes connecting the drills with the openings in said blocks, hill-markers carried by the rear adjustable frame, and mechanism for actuating the seed-valve and hill-markers from the forward movement of the machine, substantially as described.

3. In a planting or seeding machine, the combination of the forward main frame, the hinged rear frame, the detachable hopper-supporting bar carried by said rear frame and provided with a longitudinal groove having therein a series of seed-openings, a reciprocating seed-valve extended throughout said groove and having a series of adjustably-regulated seed-openings, a number of laterally-adjustable slide-blocks fitted around said bar and valve and provided with seed passages or openings, seed-hoppers detachably mounted on said slide-blocks, the drill-tubes supported from the slide-blocks, a valve-actuating lever having one end attached to the seed-valve and its other end provided with a cam projection extended above the hub of a machine-wheel, a disk clutched to the hub of said wheel and provided with radial arms to actuate the valve-lever by bearing against said cam projection, and a spring for returning said valve-lever, substantially as described.

4. In a planting or seeding machine, the combination of the forward main-frame section, an adjustable rear-frame section having a detachable transverse hopper-bar, seed-hoppers and drill-tubes laterally adjustable on said bar, a reciprocating seed-valve to control discharge from all the hoppers, a valve-actuating lever having one end attached to the seed-valve and its other end provided with a cam projection extended above the hub of a machine-wheel, a loosely-mounted disk adapted to be clutched to the hub of said wheel and provided with radial arms to actuate the valve-lever through engagement with the cam projection thereon, a weight on one of said arms, a clutch-lever, hill-markers carried by the rear-frame section and operated from the valve-actuating lever, and a spring for said lever, substantially as described.

5. In a planting or seeding machine, the combination of a wheeled frame, the hopper-bar having a series of seed-openings, a reciprocating seed-valve extended along said bar and having a series of seed-openings adapted by the movement of said valve to register with the seed-openings of said bar, a number of laterally-adjustable seed-hoppers carried on the hopper-bar, drill-standards having jointed connections with the hopper-supports, springs for said jointed connections, drill-tubes carried by the said standards, flexible conducting-tubes connecting the drill-tubes with the hoppers, row-markers carried by adjustable stems that are pivotally connected with the machine-frame, one on each side, and hooks to hold either of said row-markers elevated when not in use, substantially as described.

593,494. SKATE. GEORGE W. PROUTY, Medford, Mass., assignor of one-half to Richard O. Harding, Boston, Mass. Filed Jan. 26, 1897. Serial No. 620,527. (No model.)



Claim.—1. In a skate, the combination with a fore-part foot-plate secured to the skate-runner, of a pair of laterally and longitudinally movable fore-part-clamping jaw-levers pivoted together at their rear ends, and each provided with a cam-slot near its forward end; a guiding-stud passing through the cam-slot in one of said jaw-levers and firmly clamped to said foot-plate; and a guiding-stud passing through the cam-slot in the other jaw-lever, and adjustably clamped directly to said foot-plate at a greater or less distance from the skate runner.

2. In a skate, the combination of a pair of laterally and longitudinally movable fore-part-clamping jaw-levers pivoted together at their rear ends, and each provided with a cam-slot near its forward end; a fore-part foot-plate secured to the skate-runner and provided with a slot directly above, and extending transversely of the cam-slot in one of said clamping jaw-levers; and a guiding-stud extending through the slot in said foot-plate and the slot in said jaw-lever and firmly clamped directly to said foot-plate, normally in a fixed position, but adjustable in the slot in said foot-plate, to a greater or less distance from the skate-runner.

3. In a skate the combination of the fore-part foot-plate C secured to the skate-runner A and provided with the slot *g*; the fore-part-clamping jaw-levers I and I' pivoted together at their rear ends and provided with the cam-slots *e* and *e'* respectively and the lever I' with the slot *i*; the studs *f'* and *j* set in fixed positions in said foot-plate and engaging the slots *e'* and *e* respectively; and the stud *f* adjustably secured in the slot *g* in the foot-plate and projecting through the slot *e* in the clamping-lever I.

4. In a skate the combination of the fore-part foot-plate C provided with the slot *g*; the longitudinally and laterally movable clamping jaw-lever I, provided near its forward end with the slot *e*; the headed stud or bolt *f* provided with the flat-sided section f^3 to enter the slot *g*; the nut A provided with the cylindrical section *k'* to enter the slot *e*, and bear upon the foot-plate C on each side of the slot *g*, whereby said stud *f* may be adjusted to any desired position in said slot *g* and be firmly clamped to said foot-plate in said adjusted position.

5. In a skate the combination of a fore-part foot-plate provided

with a slot near one edge thereof; a pair of longitudinally and laterally movable fore-part-clamping jaw-levers each provided with a cam-slot near its forward end, and pivoted together at their rear ends; a guiding-stud firmly secured to said foot-plate in a fixed position and engaging the slot in one of said jaw-levers; and a second guiding-stud adjustably clamped to said foot-plate within the slot formed therein and engaging the slot in the other jaw-lever; and means for moving said jaw-lever in the direction of the length of the skate.

593,495. SNAP-HOOK. CHARLES T. REDFIELD, Glen Haven, N. Y. Filed Mar. 25, 1897. Serial No. 629,250. (No model.)



Claim.—1. A snap-hook having its shank provided with a seat, and its hook formed with a longitudinal and lateral tension and arranged at its point to be sprung into and out of interlocked engagement with the shank-seat substantially as described.

2. A snap-hook having its shank provided with a seat and the point of its hook adapted to interlock with said seat and having a tension in the direction of the length of the shank whereby it is held in such engagement and a lateral tension whereby it is spread or opened when released substantially as described

3. A snap-hook having its hook proper given a longitudinal and lateral tension and arranged at its point to interlock with the shank, substantially as described.

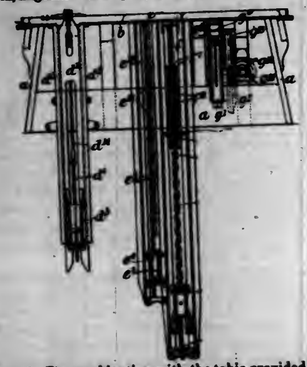
4. A snap-hook having its shank provided with a seat and its hook formed with longitudinal and lateral tension and arranged at its point to interlock with such seat such hook being provided with a comparatively straight portion coinciding in the interlocked position of the hook with the shank of the hook substantially as described.

5. The snap-hook herein described, having a shank provided with a seat, the hook proper having longitudinal and lateral tension and its point provided with a re-turned portion and beveled at its extremity and arranged to be sprung into interlocked engagement with the seat of the shank, substantially as described.

6. A snap-hook having a shank or body and a spring hook whose point interlocks with said shank or body when pressed to closed position, such hook spreading or throwing itself wide open when its point is released from said interlocking engagement substantially as described.

7. A snap-hook having a shank provided with a seat and its hook proper formed with a longitudinal and lateral tension with its point provided with a re-turned portion springing into interlocked engagement with said seat substantially as described.

593,496. CHEESE-CUTTING APPARATUS. ALFRED SAUNDERS, Brighton, England. Filed Apr. 2, 1897. Serial No. 630,410. (No model.)



Claim.—1. The combination with the table provided with a slot, and a laterally-movable spring-actuated plate adapted normally to overlie said slot, of a vertically-movable cutter adapted to pass through said slot and means for operating said cutter, substantially as described.

2. The combination with the table provided with a slot, a pair of laterally-movable plates having meeting portions normally overlying said slot, and springs for holding said plates in engagement with each other, of a vertically movable cutter and operating means therefor, substantially as described.

3. The combination with the table provided with a slot, of a vertically-movable slide, a cutting device having one end secured to said side, and adapted to pass through said slot to a position beneath the table, and a spring for elevating said cutting device above the table, substantially as described.

4. The combination with the table provided with a slot, of the vertically-movable slide, a cutter secured to the upper end of said slide and adapted to pass through said slot and to lie beneath the table, a catch for holding the cutter beneath the table and a spring for elevating the cutter above the table, substantially as described.

5. The combination with the table, of the vertically-movable slide, the cutter having one end secured to said slide, a pivoted arm having its movable end secured to the other end of the cutter and connections between said slide and said pivoted arm, for positively operating both ends of the cutter, substantially as described.

6. The combination with the table, of a vertically-movable slide, a cutter having one end secured to said slide, a pivoted arm having its movable end connected to the other end of said cutter, an operating-lever having one end connected to said pivoted arm and provided at its other end with friction-rolls, a stationary cam-grade engaging said rollers and a connection between said operating-lever and said slide, substantially as described.

7. The combination with the table, of a vertically-movable slide, a cutter having one end secured to said slide, a pivoted arm having its movable end connected to the other end of said cutter, said arm being provided with a slotted portion, an operating-lever provided with friction-rolls at one end and having a projection at its other end engaging the slot in said pivoted arm, a stationary cam-grade engaging said operating-lever, a radius-arm pivoted at one end to a stationary part and at the other end to said operating-lever, for forcing the projection thereof to travel in the slot, in said pivoted arm, and a connection between said operating-lever and said slide, substantially as described.

8. The combination with the table provided with a slot, of a vertically-movable slide, a cutter adapted to pass through said slot and to lie beneath the table having one end secured to said slide, a pivoted arm having its movable end connected with the other end of said knife, an operating-lever provided at one end with friction-rollers and having its other end connected with said pivoted arm, a stationary cam-grade for operating said lever, a spring lifting-arm engaging said lever, connections between said lever and the slide, and a catch for holding said parts in position with the cutter below the table, substantially as described.

9. The combination with the table provided with a slot, of a vertically-movable slide, a cutting-wire having one end secured to said slide, and adapted to pass through the slot and below said table, a support for the wire below the table, spring lifting-arms on said support for lifting the wire through said slot, substantially as described.

10. The combination with the table provided with a slot, of a vertically-movable slide, a cutting-wire having one end secured to said slide, a support for the wire below said slot, spring lifting-arms for lifting the wire through the slot, and a catch for holding said slide in its lowest position with the wire beneath the table, substantially as described.

11. The combination with the table, of the vertically-movable slide, a cutting-wire having one end connected to said slide, a pivoted arm having its movable end connected to the other end of said wire, and operative connections between said pivoted arm and said slide, permitting lost motion whereby the slide can be moved a definite distance before operating said pivoted arm, substantially as described.

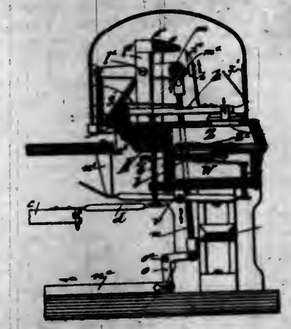
593,497. SHEET-ADJUSTING DEVICE FOR PRINTING-PRESSES. GUY W. SMALL, Buffalo Lake, Minn., assignor of one-half to John C. Risbo, same place. Filed May 11, 1897. Serial No. 636,070. (No model.)



Claim.—1. The combination with the platen and side arm of a printing-press, of a vertical post secured to said arm and movable therewith, a track-bar supported intermediate its ends on the post to turn horizontally thereon, said bar being arranged above the arm and obliquely thereto with its inner end nearest to the platen, means to lock the bar on the post, a spring-actuated sliding rod supported on the front edge of the platen with its outer end engaging the track-bar, and a gaging-finger carried by the sliding rod and resting on the surface of the tympan, substantially as and for the purpose specified.

2. The combination with the platen and side arm of a printing-press, of a vertical post secured to said arm and movable therewith, a track-bar supported intermediate its ends on the post to turn horizontally thereon, said bar being arranged above the arm and obliquely thereto with its inner end nearest to the platen, means to lock the bar on the post, a spring-actuated sliding rod supported on the front edge of the platen with its outer end engaging the track-bar, said rod having a joint near the end which engages the track-bar, to open in one direction only for the purpose specified, and a gaging-finger carried by the sliding rod and resting on the surface of the tympan, substantially as described.

593,498. REED-ORGAN. OTTO SPARTER, Gera, Germany. Filed Apr. 13, 1897. Serial No. 632,011. (No model.)

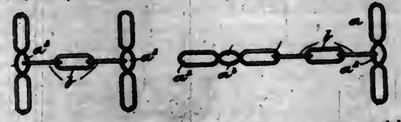


Claim.—1. In a reed-organ, the combination with valve-levers provided with valves controlling the sound-orifices of the reed-chest, and spring-jacks carried by said valve-levers and provided with offset or shoulder portions, of mechanism for engaging the latter for lifting one or more of the jacks, together with the valves simultaneously, and means for engaging the said jack or jacks and releasing the same from the said lifting mechanism, substantially as set forth.

2. In a reed-organ, valve-levers provided with valves, and spring-jacks extending from said valves and provided with offset portions or shoulders, in combination with an oscillating rod provided with a lip adapted to engage with said shoulders of the jack, devices for oscillating said rod, and means for disengaging the jacks, from said rod, substantially as set forth.

3. In a reed-organ, the combination of valve-levers, spring-jacks extending from said levers and provided with shoulders or offset portions, a fulcrumed lever provided with a rod having a lip adapted to engage said shoulder or offset portion, means for oscillating said lever, an oscillating throw-off bar adapted to engage said jacks and disengage the same from said lip, and means for oscillating said throw-off bar, substantially as set forth.

593,499. FASTENING DEVICE FOR CUFFS, &c. THOMAS H. STAGEBOOM, Philadelphia, Pa., assignor, by direct and mesne assignments, to Clifford S. Fox, same place. Filed Mar. 13, 1897. Serial No. 627,262. (No model.)



Claim.—1. In a fastening device for cuffs and analogous articles, a button having two or more loops or folds and a connecting link or bar adapted to slide in said loops or folds and to be held in one of said loops or folds when the button is in operative position, substantially as and for the purposes described.

2. In a fastening device for cuffs and analogous articles, a button having a spring-retaining eye and an end loop, and a connecting link or bar adapted to slide in the end loop and to be held in said eye when the button is in operative position, substantially as and for the purposes described.

3. In a fastening device for cuffs and analogous articles, a button formed of a single metallic strip or wire bent into substantially this form and having an end loop and a spring-retaining eye, substantially as and for the purposes described.

593,500. CUTTER-HEAD. HOSEA B. TILLSON, Boston, Mass., assignor to The S. A. Woods Machine Company, same place. Filed Feb. 17, 1897. Serial No. 623,709. (No model.)

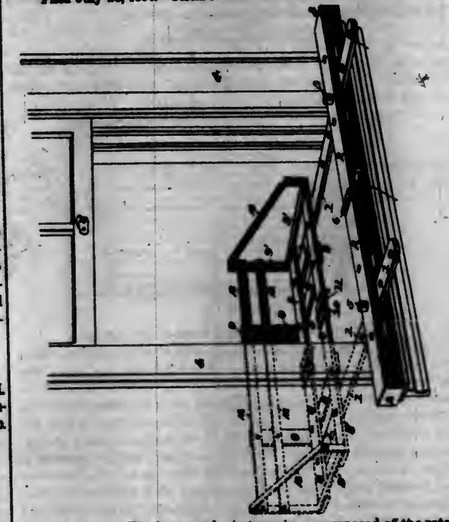


Claim.—1. In a cutter-head, having a removable blade, a rear abutment for the blade, a fastening-screw operating in said head endwise against the side of said blade, said screw being deflected from a perpendicular thereto so as to bear on the blade with a tendency downward away from the edge of the blade when being set up, substantially as described.

2. The combination with a cutter-head provided with a plurality of rests to receive the blades, said rests being in one and the same circle coaxcentric with said head, and a plurality of removable blades extending at the same angle to the center, of means to maintain unvarying the cutting circle of the cutter-head notwithstanding the sharpening of the blades, said means comprising a plurality of adjustable stops carried by the inner edge of each blade, and an unvarying gage to which each blade may be fitted by the adjustment of its said stops before being placed in the head, whereby when the blades are dropped into their several positions the stops will engage said rests and the cutting edges will all fall in one and the same circle, the same as previously occupied, substantially as described.

3. A gage for the purpose set forth, said gage being substantially U-shaped, and having one wide side and an opposite narrow side parallel thereto, said two sides being rigidly maintained in fixed position relatively to each other, with an uninterrupted free space between them to receive a blade, said gage being adapted to receive the blade against its intermediate or bottom portion of the U between said two sides thereof, substantially as described.

593,501. WINDOW-CHAIR. WILLIAM TIERNS, Pittsburg, Pa. Filed July 28, 1897. Serial No. 646,197. (No model.)



Claim.—1. The improved window-chair, composed of the retaining-bar formed of two sections, hinged together, and a device for holding them in rigid alinement, the two parallel bars 1, and the transverse bottom bars 8, attached to said bars 1 and formed of hinged foldable sections having locking devices, as shown and described.

2. The improved window-chair comprising the retaining-bar formed of two parts whose inner ends are hinged together, the chair-frame proper formed of bottom bars that are similarly composed of parts hinged together endwise, one or more flexible guard-strips, and rigid transverse bars connecting the hinged bottom bars, and supporting the said strips, and parallel chair-supporting bars that are attached to the retaining-bar, substantially as shown and described.

3. The combination, with the chair proper, comprising two rigid frame parts which are hinged together, and flexible guard-strips arranged at the front of the chair and connecting such hinged parts of parallel supporting-bars, a two-part foldable retaining-bar, and slid-

able bolts applied opposite the hinges to hold the parts in due alinement when in use, as shown and described.

4. The improved window-chair composed of the chair-frame proper, having bottom bars composed of bars connected endwise by hinges that fold downward, and flexible guard-strips extending across the outer side of the frame, the parallel supporting-bars, and the retaining-bar whose two parts are connected by hinges folding downward, as shown and described.

598,502. PLOW. LOUIS B. WELLS, Granger, Tex., assignor of one-half to W. M. HILL, same place. Filed June 10, 1897. Serial No. 640,243. (No model.)



Claim.—The combination with a plow-stock having a forwardly-projecting part at its lower end, of a standard composed of similar parts embracing the opposite sides of the stock and having pivotal connection at their lower ends with the forwardly-projecting part thereof, and having their upper ends deflected rearwardly, fastenings for drawing the upper deflected ends of the parts comprising the standard together and clamping them in an adjusted position against the sides of the stock, and a fastening-bolt operating in the space formed between the lower portions of the said parts for connecting a shovel or plow thereto, substantially as specified.

598,503. AUTOMATICALLY-RECORDING THERMOMETER. MELVILLE I. WILKINSON, Los Angeles, Cal. Filed Jan. 2, 1897. Serial No. 617,853. (No model.)

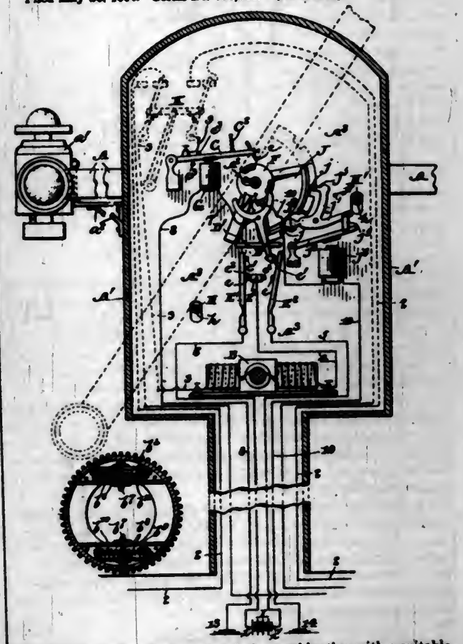


Claim.—1. The automatically-recording thermometer consisting of a box or case containing a series of parallel bars moving, or sliding longitudinally and always parallel to one another, fastened together at their ends only and alternately made of substances having different expansibilities, such as German silver and hard rubber, one end of the series of bars being fixed to the casing inclosing the apparatus, and the other end of the series of bars being supported on rollers so as to leave the entire series of bars free to move backward and forward longitudinally, corresponding with variations in temperature to which the series of bars is subjected, the said bars being always maintained and moving in parallel and sliding contact with each other, the movable end of the series of bars being connected to lever mechanism carrying a pencil-point whereby the ultimate motions of the series of bars corresponding to the variations in temperature, are inscribed upon a sheet of slowly-moving diagram-paper, actuated by clockwork, all operating together in the manner and for the purposes substantially as set forth.

2. The combination of the series of bars formed alternately of materials having different expansibilities, always maintained and moving longitudinally in parallel and sliding contact according to the variations in temperature, the bar forming one end of the series being fixed to the casing of the instrument, while all the other bars are free to move from said fixed point longitudinally and parallel, thereby imparting their sliding movement to all the succeeding bars of the series, the net sum of the motions of any preceding bars of the series so imparted to any succeeding bar or bars of the series being such that the longitudinal parallel movement of the last bar of the series so moved, is equal to the net sum of the longitudinal movements of itself and all the other preceding bars of the series so moved less the difference in longitudinal movement of the sum of the other bars of the series having least expansibility, said alternate bars of different expansibility being connected together at their ends substantially as set forth.

3. The combination of the series of bars connected together at their ends, and formed alternately of materials having different expansibilities, the rollers, the connecting-piece, the lever to which the connecting-piece from the last bar imparts the movement of the series of longitudinally-moving parallel bars, the spiral spring, the lever on the shaft to which the pencil-carrying lever is attached, the cylinders or drums carrying the diagram-paper, the clock-driving gear and the drum whereby the diagram-paper is unwound, all operating together in the manner and for the purposes substantially as set forth.

598,504. AUTOMATIC BLOCK-SIGNAL. JAMES M. WILLIAMS and THOMAS P. KINNEY, Danville, and HARRY W. KINNEY, Lynchburg, Va., assignors of one-fourth to James A. Henderson, Danville, Va. Filed May 28, 1897. Serial No. 638,600. (No model.)



Claim.—1. In an electric signal, the combination with a suitable housing, of a signal-arm mounted thereon, a reversible motor in said housing, means for connecting the said motor with the said arm whereby the motor is adapted to impart a positive movement thereto, both to raise and to lower the same, track instruments for closing a circuit through the said motor, means for reversing the circuit through the motor and means operated by the moving parts of the signal-operating means, separate from said track instruments, for cutting them out of circuit after they have been operated by a train passing upon a block and means for placing the said track instruments into circuit again when the train passes from the block, substantially as described.

2. The combination with a member adapted to be raised or lowered, of a motor connected therewith, means for completing a circuit through the said motor, a pole-changing device for changing the direction of the current through the said motor, a commutator secured to the shaft of the member, a brush adapted to engage and disengage said commutator and preserve the current for a predetermined period of time, a switch comprising independent levers, means for causing the said levers to operate simultaneously, and means connected with the said connecting means adapted to be struck by a projection upon the signal-operating means whereby the switch may be caused to shift quickly from one position to another to cut out the desired track instruments, substantially as described.

3. In an electric signal, the combination with a suitable housing, of a signal-arm mounted thereon, an electric motor in the said housing, means for mechanically connecting the motor with the signal and means for controlling the electric circuit passing through the said motor, a locking means secured to the shaft of the signal consisting of a segment rigid upon the said shaft and provided with notches in its peripheral edge, a pivoted catch adapted to engage said notches consisting of a forked lever, a weight upon one end of said lever, a catch upon the upper arm of said lever and a link securing the other arm of said lever to an armature pivotally mounted in the said casing, an electromagnet for operating it in one direction, the construction being such that the magnet is adapted to retract the catch from the said notches and the weight is adapted to bring the catch into engagement with the said notches, substantially as described.

4. In an electric signal, the combination with a housing, of a signal mounted thereon, an electric motor connected with the said signal, means for completing a circuit through the said motor, means for preserving the said circuit for a predetermined period, means for breaking the circuit at the proper time and means for limiting the movement of the signal consisting of spring-buffers mounted interiorly of said housing and extending outside of the same in the path of the signal-arm, the said buffers being adapted to set the signal-operating mechanism in proper position for the next operation of the signal, substantially as described.

5. In a signal, the combination with a suitable housing, of a signal-arm mounted thereon, an electric motor for operating the said signal-arm, means for closing a circuit through the said motor, means for preserving the said circuit for a predetermined period, of time, means for limiting the movement of the signal-arm consisting of buffer-bars pivotally mounted in the said housing and projecting therefrom so as to intercept the movement of the said signal-arm, and springs for holding the said buffers normally against action of the said signal-arm, substantially as described.

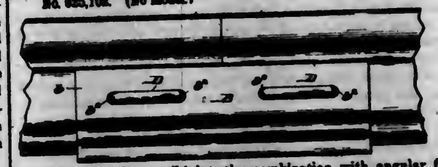
6. In a signal, the combination with a suitable housing, of a signal-arm mounted thereon, an electric motor for operating the said signal-arm, means for closing a circuit through the said motor, means for preserving the said circuit for a predetermined period, of time, means for limiting the movement of the signal-arm consisting of buffer-bars pivotally mounted in the said housing and projecting therefrom so as to intercept the movement of the said signal-arm, and springs for holding the said buffers normally against the action of the said signal-arm, shields secured to said bars adapted to cover the openings through which the said bars project whereby the snow and ice and other foreign substances are prevented from entering the housing at that point, substantially as described.

7. In a signal, the combination with a suitable housing, of a signal-arm mounted thereon, a motor for operating the said arm, gearing for connecting the said motor with the said arm, a gear-wheel of the said gearing being loose upon its shaft, arms rigidly secured to the said shaft, spring-controlled stops loosely mounted upon said loosely-mounted gear-wheel adapted to engage the arms for imparting movement to the said shaft, the construction being such that the motor is enabled to attain a degree of velocity before it actuates the said arm and means for electrically controlling the said motor, substantially as described.

8. In a signal the combination with an arm adapted to be raised or lowered, of a motor connected therewith, means for completing a circuit through the said motor, a pole-changing device for changing the direction of the current through the said motor, a commutator secured to the shaft of the signal, a brush adapted to engage and disengage said commutator and preserve the current for a predetermined period of time, a switch for connecting the circuit-closing means with the said motor, and means for shifting the said switch according to the movement of the signal, comprising a lever secured to the switch at one end and adapted to extend into the path of a projection on the gear-wheel of the arm-operating mechanism, whereby the switch is caused to be moved back and forth, substantially as described.

9. In a signal, the combination with an electric motor connected therewith, an electric generator in circuit with the motor, track instruments in the circuit controlling the motor-circuit, a magnet and an armature controlling a circuit-closing brush, a commutator cooperating with said brush and arranged to move with the shaft of the signal, the commutator holding the motor-circuit closed during the movement of the signal-shaft, springs connected with the poles of the motor-circuit, a lever operated by the commutator-shaft and adapted to engage the springs alternately for changing the direction of the electric current, catches for holding said lever in its alternate positions and means for releasing the lever from the catches when desired, a switch for connecting the circuit-closing means with the motor and a means for immediately shifting the said switch according to the movement of the signal comprising a lever secured to the switch at one end and adapted to extend out at its other end into the path of a projection on the gear-wheel of the arm-operating mechanism whereby the switch is caused to be moved back and forth, substantially as described.

598,505. RAIL JOINT, SPLICE, OR TRUSS. GEORGE W. ZERR and MYRON H. MILBURN, Good Hope, Ill. Filed Feb. 26, 1897. Serial No. 625,102. (No model.)



Claim.—1. In a rail-joint, the combination with angular fish-plates adapted to be applied upon the sides and partly under the rails, and formed upon their inner sides with notches, of a base-plate provided with a plurality of projections adapted to engage with the notches in the fish plates and adapted to rest under the rails, and means for securing the fish-plates together from the opposite sides of the rails, substantially as described.

2. In a rail-joint, the combination with rails having elongated slots formed in their ends, of fish-plates adapted to be applied upon the opposite sides of the rails, and provided with elongated slots, and a base-plate having projections adapted to coöperate with notches in the fish-plates, of loop screw-bolts, each adapted to be passed through two of the elongated slots of the fish-plates and rails and locking-nuts adapted to be applied upon the opposite ends of said screw-bolts substantially as described.

3. In a rail-joint, the combination with fish-plates adapted to be applied upon the sides and partly under the rail and provided with bolt-apertures in said sides and notches in the base portions, of loop screw-bolts each adapted to be passed through two of the apertures in the fish-plates and the apertures in the rail, locking-nuts adapted to be applied on said bolts, and a base-plate applied under the rails and provided with projections adapted to enter the notches in the fish-plates whereby the latter are held from moving longitudinally independent of each other, substantially as described.

4. In a rail-joint, the combination with fish-plates adapted to be applied upon the respective opposite sides of the rails and provided with bolt apertures and a base-plate having projections engaging notches in the fish-plates of loop screw-bolts each adapted to pass through two of said apertures in the fish-plates and the apertures in the rails and each comprising two screw portions, suitably connected, said screw portions being of different diameters and the threads upon said portions being respectively cut in opposite directions, and locking-nuts adapted to be applied upon the oppositely-inclined threads of the respective sections of each bolt, substantially as described.

598,506. BALING-PRESS. ALFRED BARRETT, Puyallup, Wash., assignor of one-half to Albert Bennett and George Edgerton, same place. Filed Feb. 4, 1897. Serial No. 621,906. (No model.)

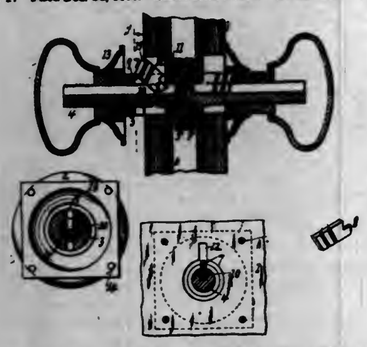


Claim.—1. In a baling-press, the combination with a rebounding plunger, of an operating-wheel and means for communicating contin-

cous rotary motion in a uniform direction thereto, a swinging arm mounted coaxially with said wheel, a pitman connecting the plunger with said swinging arm and fulcrumed at an intermediate point to the latter, to form a short rear arm carrying a lateral pin or stud which is adapted to move toward the axis of the arm as the plunger is advanced, and a radially-disposed cam on said wheel for engaging the pin or stud, and terminating at a distance from the axis of the wheel in excess of the distance between said pin and the axis of the wheel when the plunger is in its fully-advanced position, substantially as specified.

2 In a baling-press, the combination with a rebounding plunger, of spaced coaxial operating-wheels and means for communicating continuous motion in a uniform direction thereto, opposite radially-disposed cams on the inner faces of the operating-wheels, said cams terminating at their inner ends at an interval from the axis of said wheels, a counterbalanced lever fulcrumed between and coaxially with the operating-wheels, and a pitman connected at one end to the plunger and fulcrumed at an intermediate point to said lever, whereby it projects rearwardly beyond its fulcrum to form a short arm carrying alined lateral pins arranged in the paths of said cams, the distance between the axis of the lever and the pins being reduced as the plunger advances, to carry them, at the limit of the forward stroke of the plunger, beyond the inner ends of the cams, and thereby release the plunger, substantially as specified.

598,507. KNOB ATTACHMENT. CHRISTIAN BAYER, New York, N. Y. Filed Dec. 31, 1896. Serial No. 617,630. (No model.)



Claim.—1. A knob and follower, combined with a spindle adapted to screw to the knob and follower, and a key, said knob, follower and spindle being slotted for the engagement of the key substantially as described.

2. The combination with a knob and follower, of a spindle screwed to the knob and follower, a key, said knob, follower and spindle being slotted for the engagement of the key, and a rose slidably mounted over said spindle and key and operating to hold said key in the slots of the knob and spindle and operating when moved away from the follower to uncover said slots and permit the removal of the key, substantially as described.

3. A knob and follower, combined with a spindle adapted to screw to the knob and follower, said knob, follower and spindle being slotted for the engagement of a key, and a slidable rose adapted to cover and uncover the grooves or slots of the knob and spindle, said key being notched or sectioned for shortening or breaking off substantially as described.

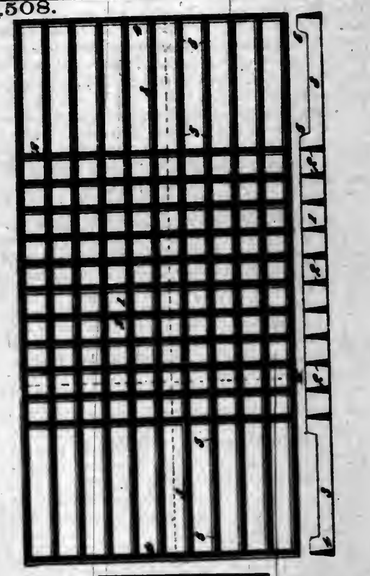
4. A knob and follower, combined with a spindle adapted to screw to the knob and follower, said knob, follower and spindle being slotted for the engagement of a key, a rose or plate for covering the slots of the knob and spindle, and a key, the slots of the knob and spindle being made to open outwardly and the slot of the follower being made to open inwardly, said key having a contracted portion adapted to engage or enter the follower-slot substantially as described.

598,508. DOOR-MAT. JOHN C. A. BUSCHOFF, St. Louis, Mo., assignor of one-half to Ferdinand G. Uhlich, same place. Filed Mar. 20, 1897. Serial No. 628,360. (No model.)

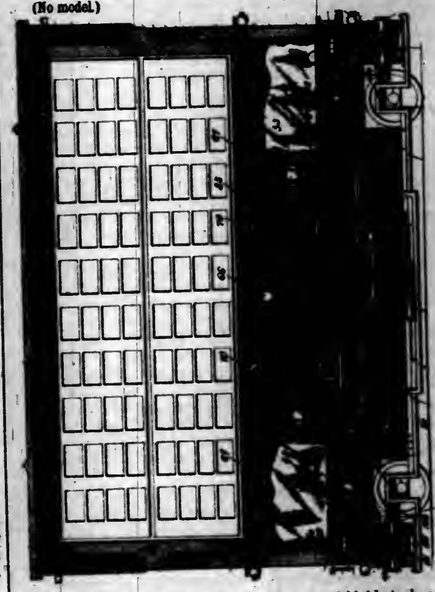
Claim.—1. A door-mat, consisting of a checkered body part composed of longitudinal and transverse bars, and an end part composed of notched longitudinal bars, substantially as set forth.

2. A door-mat, consisting of a checkered body part composed of longitudinal and transverse bars thinner at their upper than at their lower edges, and end parts composed of longitudinal notched bars, substantially as set forth.

598,508.



598,509. REFRIGERATOR FOR STORING AND TRANSPORTING EGGS, MEATS, FRUITS, AND OTHER PERISHABLE FOOD SUPPLIES. JOSEPH H. BOWLEY, Marengo, Ill., assignor of one-half to John W. Stockwell, same place. Filed Aug. 17, 1896. Serial No. 552,633. (No model.)



Claim.—1. In a shipping and storage case, a foldable body comprising a bottom, side and end walls connected in a hinged manner with the bottom so as to enable them to fold inwardly upon the same and having flexibly-connected sections, top sections flexibly connected to the upper sections of the side walls and adapted to rest upon the end walls, the transverse partition-walls connected in a hinged manner with the bottom, and the longitudinal partition-walls connected in a hinged manner with the side walls, and adapted to rest on the transverse partition-walls; the said foldable walls, when properly connected, being adapted to form a plurality of air-tight chambers in the body, substantially as and for the purpose specified.

2. In a shipping and storage case, a foldable body comprising a bottom, end walls having lower sections fixedly connected to the bottom, upper sections flexibly connected together and to the lower fixed sections and means for normally holding said sections against flexing; the lower fixed section of one end wall being of a greater height than the corresponding section of the other end wall, side walls having lower sections of greater height than the corresponding sections of the end walls, upper sections flexibly connected together and to the lower fixed sections, and means for normally holding said sections against flexing; the lower fixed section of one side wall being of a greater height than the corresponding section of the other side wall, top walls flexibly connected to the upper sections of the side walls and adapted to rest upon the end walls, the transverse partition-walls connected in a hinged manner with the bottom and the longitudinal partition-walls connected in a hinged manner with the side walls and adapted to rest on the transverse partition-walls; the said foldable walls, when properly connected, being adapted to form a plurality of chambers in the body, substantially as described and for the purpose set forth.

3. A shipping and storing case for perishable food products having a chamber for the reception of such products, the combination therewith of an outwardly-opening check-valve controlling communication between said chamber and the outer air, a refrigerating-chamber, an inwardly-opening check-valve connecting said chamber with the outer air, and a check-valve intermediate the refrigerating-chamber and the storage-chamber adapted to permit air to pass from the former to the latter and check its return, substantially as described and for the purpose set forth.

4. A shipping and storing case for perishable food products having a chamber for the reception of such products, the combination therewith of an outwardly-opening, pressure-regulated, check-valve controlling communication between said chamber and the outer air, a refrigerating-chamber, a check-valve intermediate of the refrigerating-chamber and the storage-chamber adapted to permit air to pass from the former to the latter and check its return, an air-compressing pump and a connection between said pump and the refrigerating-chamber, substantially as specified.

5. A shipping and storing case, having a storage-chamber, and separated electrodes arranged in communication with said storage-chamber; the said electrodes being connected to conductors adapted to be electrically connected with an electric machine, substantially as and for the purpose set forth.

6. In a shipping and storage case, the combination of the body and the truck having buffers arranged beneath the body and respectively comprising the upper section, the lower section arranged on rollers on the truck-frame, a coiled spring interposed between said upper and lower sections, an annulus surrounding the sections and having a stem inserted in the truck-frame, and a spring surrounding the stem and interposed between the annulus and truck-frame, substantially as and for the purpose set forth.

7. A truck comprising frame-sections adjustably connected together and adapted to be moved toward each other to reduce the length of the truck and telescopic axles carrying wheels and connected with and supporting the frame-sections whereby the truck may be reduced in width, substantially as specified.

598,510. ELECTRIC-CIRCUIT CONTROLLER. JOSEPH H. BOWLEY, Washington, D. C., assignor of one-half to John W. Stockwell, Marengo, Ill. Filed Feb. 24, 1897. Serial No. 624,807. (No model.)



Claim.—1. An automatic regulator for electric circuits, consisting of a receptacle having a base and neck portion, said neck having an upper and lower compartment: a float mounted in the lower compartment of the neck; a standard erected upon said float and in said neck and having fingers designed to engage the ends of the wires forming the circuit substantially as specified and for the purpose set forth.

2. The herein-described electric-circuit opener and closer, consisting of the mercury-receptacle having a base and neck portion, said neck portion being divided into two communicating chambers, the lower one being slightly larger; a float mounted in said lower chamber of the neck; a rod erected upon said float and extending upward through the upper neck-chamber, said rod carrying cross-bars or fingers designed to connect the adjacent ends of the wires forming the circuit as said rod is raised or lowered by the action of said float, all operatively combined in the manner and for the purpose set forth.

3. A switching device for electrical energy consisting of a cylindrical coil of insulated wire; a series of contact-points in electrical contact with said wire; a supporting-axle for rotatably mounting said cylindrical coil and having electrical connection therewith, and a support or seat designed to receive part of said cylinder, said seat being provided with a series of transversely-disposed contact-plates for cooperating with the points on said cylinder, each of said plates being connected with the source of electrical energy, substantially as described and for the purpose set forth.

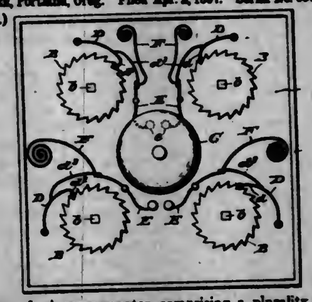
4. The herein-described switchboard, consisting of an outer casing; a series of rotatable disk sections mounted therein, each of said disks having a series of segmental compartments; and an open section; electric batteries mounted in said compartments; an individual contact point or brush for each battery, attached to the periphery of said disk; a contact-plate for cooperating with said brush, located upon the inner face of the outer casing; and a series of contact-plates located in a concave seat upon the table, each having wire connection with the plates on the casing, as and for the purpose set forth.

5. As an improvement in differentiating mechanism for electric energy, the combination with a series of batteries having an individual plate for each cell thereof, each plate being transversely disposed in a concave seat, of a cylinder formed of insulated wire and provided with a series of spirally-disposed contact-points upon its surface designed to successively engage said plates; a supporting-axle in electrical union with said wire and points, designed to rotatably hold said cylinder in said seat, and means for rotating and locking said cylinder in an adjusted position, as set forth.

6. As an improvement in electric switches, the combination with a series of batteries and graduated plates having electrical union, of a rotatably-mounted cylinder formed of insulated wire having contact-points spirally disposed on the surface thereof; a supporting-axle, having suitable bearings, in electrical union with said contact-points and with the transmitting-wire and a concave seat designed to receive said plates and cylinder and permit the contact-points thereon to successively engage the plates, substantially as described and for the purpose set forth.

7. The herein-described valve designed to permit liquid to pass through it in either direction, consisting of two contiguous drums, said drums having perforations in their contacting faces, one of said drums being stationary and having a plurality of pipe connections, while the other drum is rotatably mounted and provided with a single pipe connection, all of said parts being arranged in the manner and for the purpose set forth.

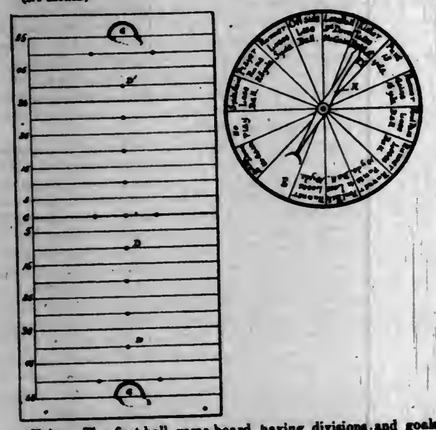
598,511. GAME-COUNTER. TIMOTHY BROOKER and TILLMON O. TRAYER, Portland, Oreg. Filed Apr. 2, 1897. Serial No. 630,416. (No model.)



Claim.—1. A game-counter, comprising a plurality of ratchet-wheels, each carrying an indicating-hand adapted to traverse a dial, a gong, bell-hammers pivoted adjacent to the gong, levers carrying pawls, the free ends of said levers being arranged to contact with the bell-hammers when the ratchet-wheels are turned, and springs for forcing the levers into engagement with the bell-hammers, substantially as described.

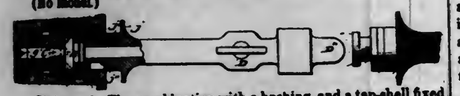
2. A game counter, comprising a casing having a board arranged therein, provided with a plurality of dials, ratchet-wheels arranged on the rear side of the board, and having their stems or shafts projecting through to the front side of the board, and carrying indicating-hands adapted to traverse the dials, a gong arranged equidistant from the ratchet-wheels, hammers pivoted adjacent to the gong, those arranged above the gong striking the inner side thereof, and those arranged below the gong striking the outer side thereof, levers carrying pawls adapted to engage the teeth of the ratchet-wheel, the free ends of said levers being arranged to contact with the hammers, and springs for forcing the levers into engagement with the hammers, substantially as described.

593,512. TOY FOOT-BALL GAME-BOARD. MICHAEL A. CAHALANE, Charlestown, N. H. Filed Dec. 23, 1896. Serial No. 616,719. (No model.)



Claim.—1. The foot-ball game-board having divisions and goals marked thereon, and having a series of holes in its face, the base-piece having a pin to enter any of said holes and support said base thereby, the lever connected to said base and actuated by a spring to project a ball from a rest on said base-piece, and the indicator having arbitrary directions marked thereon, and having a rotary indicating-needle, all combined for operation substantially as described.

593,513. COMBINED TAP AND FAUCET. GEORGE CHAMPOUX, Salmon Falls, N. H., assignor of two-thirds to Herbert E. Hamilton and Napoleon Boisvert, same place. Filed Oct. 23, 1896. Serial No. 609,782. (No model.)



Claim.—1. The combination with a bushing, and a tap-shell fixed therein, of a cam-formed rotatable valve-adjuster fitted in said tap-shell, and a valve provided with means which engage with the valve-adjuster and also with the tap-shell in a manner to insure endwise movement of said valve by the partial rotation of the valve-adjuster and to limit the valve to sliding movement by its connection with the tap-shell, as and for the purposes described.

2. A bushing provided at its inner end with a perforated head A', combined with a fixed tap-shell within said bushing, a slidable valve engaging with the tap shell to be limited to endwise movement therein and toward or from said perforated head of the bushing, a compressible plug carried by the valve and arranged to be forced thereby against the head of the bushing to close the perforations therein, and a cam-formed rotatable adjuster engaging with said valve to move the latter, as and for the purposes described.

3. A bushing provided at its inner end with a head having a row of perforations and a central lug, combined with a tap-shell fixed in said bushing and provided with slots or guideways, a centrally-perforated valve having projections which fit in said slots or guideways of the tap-shell, a centrally-perforated plug attached to said valve and adapted to be pressed against the head of the bushing and receive the lug thereon, and a valve-adjuster having cam-slots which receive the projections of the valve, as and for the purposes described.

4. The combination with a bushing, of a tap-shell having a keyway formed in a partition thereof and provided with straight guideways, a valve-adjuster provided with a keyway and with cam-slots, a valve fitted in said valve adjuster and having radial pins which pass through the cam-slots of said adjuster and fit in the straight guideways of the tap-shell, and a faucet carrying a key which fits in the keyway of the valve-adjuster and is adapted to engage with the partition in the tap-shell, substantially as described.

5. The combination with a bushing, of a tap-shell provided with a partition having a keyway and with an annular shoulder in advance of said partition, a faucet having a shouldered stem and a cam-formed key fitted in said tap-shell for the key to ride against the partition, a gasket confined between the shoulder of the faucet-stem and the shoulder of the tap-shell, a valve-adjuster, and a valve, as and for the purposes described.

6. The combination with a bushing, and a tap-shell having the parallel slots, of a valve provided with studs or pins fitted in said slots and limited thereby to endwise movement within the bushing, a rotary cam-formed adjuster fitted in the tap-shell and engaging with the studs or pins of the valve, and a faucet adapted to be connected with said valve-adjuster, as and for the purposes described.

7. The combination of a bushing having ingress-ports and a stud in the head thereof, a tap-shell fixed in said bushing and provided with straight slots and with a partition having a keyway, a cylindrical cam-formed adjuster fitted in said tap-shell in rear of its partition and provided with a keyway adapted to coincide with the keyway in the tap-shell, an endwise-movable valve having studs or pins fitted in the slotted tap-shell and in the cams of said adjuster, and carrying a centrally-perforated compressible plug, and a faucet provided with a key to pass through the keyway in the tap-shell and engage with the keyway in the valve-adjuster, as and for the purposes described.

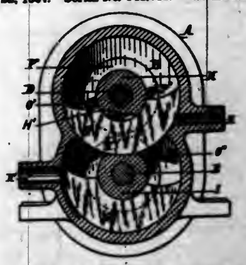
8. The combination with a bushing and a tap-shell, of a valve limited to sliding movement within said bushing, a valve-adjuster limited to rotary movement and connected positively by coacting cam devices with said valve to move the latter endwise, and means for rotating said valve-adjuster, as and for the purposes described.

9. The combination with a bushing having a valve-seat, of a valve limited to sliding movement in said bushing and toward or from said seat, and a valve-adjuster limited to axially-turning movement in said bushing, said valve and the adjuster being arranged in alinement with each other longitudinally of the bushing and coupled directly by coacting cam devices which convert the turning movement of the adjuster into sliding movement applied to the valve, as and for the purposes described.

10. The combination with a bushing having a valve-seat, and a tap-shell in said bushing, of a valve having slidable connections with the tap-shell to limit the valve to endwise movement, an axially-turning valve-adjuster limited to rotary movement within said tap-shell, said valve and adjuster being connected directly together by positive coacting cam devices that serve to adjust the valve endwise when the adjuster is turned axially, and means adapted to engage with said adjuster to turn the latter, as set forth.

11. The combination with a bushing having a valve-seat, of a tap-shell having an apertured partition, a valve having slidable connections with said tap-shell, a cam-formed adjuster connected directly and positively with said valve to impel the latter endwise and fitted in said tap-shell to be limited to axially-turning movement therein, and a faucet having a cam-formed key adapted to engage the valve-adjuster and to have its cam-faces ride against the partition in the tap-shell, substantially as and for the purposes described.

598,514. ROTARY MOTOR. HENRI CHAUDUN, Paris, France. Filed June 22, 1897. Serial No. 641,782. (No model.)



Claim.—1. A rotary motor in which explosive charges are introduced, compressed and ignited, comprising a casing, oppositely-rotatable intersecting sectors therein forming with the casing two cylinders, one of said cylinders constituting a charging and compressing cylinder having an inlet-passage for the explosive charge, an intermediate chamber communicating with the cylinders and adapted to receive the compressed charge from the charging and compressing cylinder, and an exhaust-passage for the other cylinder, the said sectors being constructed to cover and uncover the passages formed in the charging and compressing cylinder to effect the drawing in, compression and ignition of the charge and exhaust of the spent gases.

2. A rotary motor in which explosive charges are introduced, compressed and ignited, comprising a casing, rotatable sectors F, G, arranged therein as described and being geared together to rotate at equal speeds and forming with the casing two cylinders B, C, a flange P on sector F and having a recess P', an intermediate explosion-chamber having passages O' O'' placing said intermediate chamber in communication with the cylinders B, C, and said casing having inlet and exhaust passages, all arranged for cooperation substantially as described for the purposes specified.

3. The combination with a casing having inlet and exhaust ports, of two rotatable sectors arranged in said casing, the paths of which intersect as described and forming cylinders with the casing, parallel supporting axles or shafts, sleeves upon the shafts around which sleeves the sectors rotate, said sleeves being cut away or recessed at points opposite each other and with the circular walls of which recesses the circumferential walls of the sectors are adapted to make contact as described, and an intermediate or explosive chamber communicating with the cylinders, all cooperating in the manner for the purposes specified.

593,515. NUT-LOCK. JOHN W. B. COOK, Camden, Ark. Filed Apr. 9, 1897. Serial No. 631,443. (No model.)

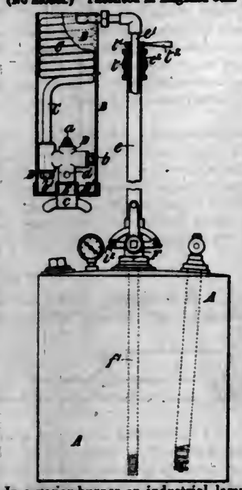


Claim.—1. A nut-lock comprising a plate provided with an opening for the passage of a bolt, and a second opening a short distance therefrom; the said plate being slit longitudinally from one opening to the other, and slit transversely from one edge thereof to said longitudinal slit; and the portion of said plate adjacent to one side of said transverse slit being bent outwardly therefrom, substantially as described.

2. A nut-lock comprising a plate provided with an opening for the passage of a bolt, and a second opening a short distance therefrom; the said plate being slit longitudinally from one opening to the other, and slit transversely from one edge thereof to said longitudinal slit; and the portions of said plate adjacent to said transverse slit being bent outwardly therefrom, substantially as described.

3. The herein-described washer and nut-lock, comprising the plate A of resilient metal, provided with an opening B for the passage of a bolt; and a second opening B' a short distance therefrom; and said plate having longitudinal slit D extending from one opening to the other, and transverse slit C extending from the side edge of said plate to said longitudinal slit; the portion b' adjacent to the bolt-opening B and said transverse slit being bent outwardly to form a spring-washer, and the portion b adjacent to said second opening B' being bent outwardly to form a spring-stop to prevent the backward turning of the nut when screwed up, substantially as described.

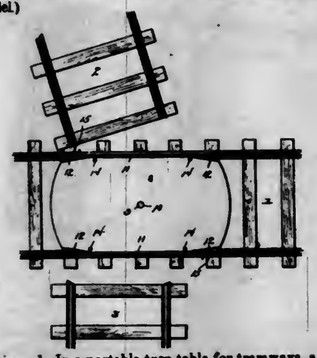
593,516. APPARATUS FOR VAPORIZING HYDROCARBONS, &c. ALFRED H. CROCKFORD, London, England. Filed Sept. 5, 1896. Serial No. 604,975. (No model.) Patented in England Jan. 4, 1894, No. 235.



Claim.—1. In a vapor-burner or industrial lamp, the combination, with a mixing-chamber having one end thereof closed, of a vapor jet or nozzle located centrally therein, a vaporizing-coil in said chamber extended downward at its lower end, a casting or tube connecting said coil with said nozzle, and a hollow or tubular stem extending rearwardly from said casting or tube through the closed end of said chamber and opening laterally into said chamber between said closed end thereof and said casting or tube, substantially as and for the purposes, hereinbefore described.

2. In a vapor-burner or industrial lamp, the combination, with a mixing-chamber having one end thereof closed, of a vapor jet or nozzle located centrally therein, a vaporizing-coil in said chamber extended downward at its lower end, a casting or tube connecting said coil with said nozzle, and a removable tubular strainer containing filtering material and inserted in said casting or tube, said strainer having perforations opposite the nozzle and opposite the end of said coil, substantially as, and for the purposes, hereinbefore described.

593,517. PORTABLE TURN-TABLE FOR TRAMWAYS. THOMAS M. DARNEY, Aspen, Colo. Filed Mar. 17, 1897. Serial No. 627,268. (No model.)



Claim.—1. In a portable turn-table for tramways, a support removably fitted between the rails of the main track, said support consisting of a base-plate and a disk and segmental plates secured thereto with their upper surfaces level with the tops of the rails, and a pin projecting upwardly from the center of the disk, combined with a table pivoted on said pin and slidably supported on the disk and segmental plates, and guide-rails on the table adapted to register with the rails of the main and branch tracks, substantially as described.

2. The combination with the rails of a main track and the rails of a branch track the latter being in a higher plane than the former, of a portable turn-table consisting of a base-plate removably fitted between the rails of the main track, a disk and segmental plates, concentric with the disk, secured to the base-plate with their upper surfaces level with the main-track rails, a pin projecting upwardly from the center of the disk, a table pivoted on said pin and slidably supported on the disk and segmental plates, guide-rails on the plate adapted to register with the rails of the main or branch tracks, the construction being such that the table will be level with the flanges of wheels on the rails of the branch track, substantially as described.

3. The combination with the rails of a main track and the rails of a branch track, the latter being in a higher plane than the former, of a portable turn-table for tramways, consisting of a base-plate removably fitted between the rails of the main track, a disk and segmental plates, concentric with the disk, secured to the base-plate with their upper surfaces level with the tops of the main-track rails, spaces being left between the ends of the segmental plates and the rails, a pin projecting upwardly from the center of the disk, a table pivoted on the said pin and slidably supported on the disk and segmental plates, guide-rails on the table adapted to register with the rails of the main or branch tracks, said table being provided with beveled recesses at its ends close to the inner faces of the guide-rails, and means to lock the table in position, the construction being such that the table will be level with the flanges of wheels on the rails of the branch track, substantially as described.

593,518. INSECT-TRAP. GEORGE F. DAVIDSON, Chicago, Ill. Filed Dec. 23, 1896. Serial No. 616,804. (No model.)



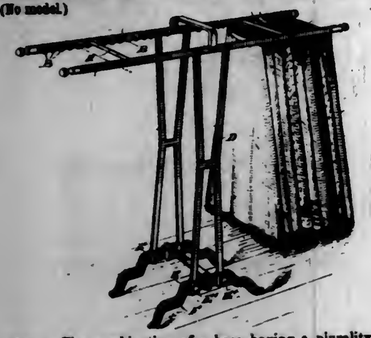
Claim.—1. In an insect-trap, a box having its bottom covered with adhesive substance on the inside, and a lid for the box provided with one or more slots adapted to form crevice-openings.

2. In an insect-trap, a box having its bottom covered with adhesive substance; a lid for the box provided with one or more narrow

slots; and strips over and near the slots adapted to form a crevice-entrance thereto.

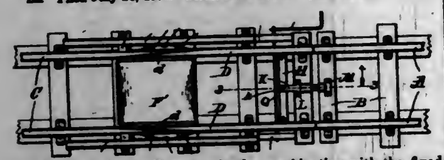
3. In an insect-trap, a box having its bottom covered with adhesive substance; a lid for the box provided with one or more narrow slots; strips placed over and near the slots adapted to form a crevice-entrance thereto; and decoy-bridges placed within the box transversely to the slots.

593,519. SKIRT-RACK. CYRUS H. DEVLIN and NORMAN H. COWLES, Bay City, Mich. Filed Dec. 26, 1896. Serial No. 617,047. (No model.)



Claim.—The combination of a base having a plurality of upwardly-opening sockets, two standards each having downwardly-extending portions respectively carried in the sockets, two rods running parallel with each other and respectively supported in horizontal positions by the standards, two stay-rods extending transversely between the first-named rods and rigidly connecting the two, the said rods being respectively located on the sides of the standards, a bridge-piece extending transversely between the rods at the standards and rigidly connecting the two, and fastening devices carried at the inner sides of the rods and capable of supporting articles of apparel upon the fastening devices and between the rods, substantially as described.

593,520. RAILWAY-TRACK. JOHN W. DOWDEN, Lake Charles, La. Filed July 23, 1897. Serial No. 646,242. (No model.)



Claim.—1 In a railway-track, the combination with the fixed rails, of a pair of sliding rails, means for keeping said sliding rails in engagement with said fixed rails, racks carried by said sliding rails, pinions engaging said rails, and means for rotating said pinions, substantially as described.

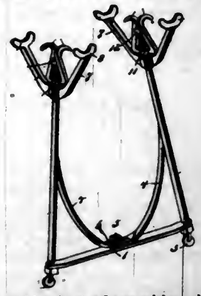
2. In a railway-track, the combination with the fixed rails, of a pair of sliding rails, spring-braces for keeping said sliding rails in engagement with said fixed rails, racks carried by said sliding rails, pinions engaging said racks, a shaft carrying said pinions and a crank for rotating said shaft, substantially as described.

3. In a device of the character described, the combination with a fixed track and a track adapted to be carried by a movable support, of a pair of sliding rails, means for keeping said sliding rails in engagement with said fixed rails, racks carried by said sliding rails, pinions engaging said racks, means for rotating said pinions and a locking device, whereby the said track upon the movable support may be locked in line with the sliding rails, substantially as described.

4. In a device of the character described, the combination with a fixed track and a track adapted to be carried by a movable support, of a pair of sliding rails, spring-braces adapted to keep said sliding rails in engagement with said fixed rails, racks carried by said sliding rails, pinions engaging said racks, a shaft carrying said pinions, a crank for rotating said shaft and a locking device operated by the said rack-and-pinion mechanism, whereby the track upon the movable support may be locked in line with the sliding rails, substantially as described.

5. In a railway-track of the character described, the combination with a fixed track and a track adapted to be carried by a movable support, of a pair of sliding rails, spring-braces adapted to keep said sliding rails in engagement with said fixed rails, racks carried by sliding rails, pinions engaging said racks, a shaft carrying said pinions and means for rotating the same, a tie-bar carried by said sliding rails, a lock-bolt carried by said tie-bar, a bracket carried by the track on the movable support and adapted to engage said lock-bolt, and guard-rails alongside the fixed and sliding rails, substantially as described.

593,521. BICYCLE-STAND. EUGENE FOWLER, Wadsworth, Nev. Filed Feb. 26, 1897. Serial No. 625,140. (No model.)



Claim.—1. A bicycle-stand comprising a base-bar, uprights having connection at their lower ends with the base-bar, braces having their upper ends rigidly secured to the uprights and having their lower ends overlapping, means for adjustably connecting the overlapping ends of the braces to each other and to the base-bar, whereby the uprights can be separated or brought together at their upper ends, and means for connecting the upper ends of the uprights to the frame-bars of the bicycle, substantially as set forth.

2. In a bicycle-stand, a support comprising arms terminating in rests to receive a frame-bar of the machine, and a holder to cooperate with the support and comprising oppositely-disposed hooks to engage with the frame-bar from opposite sides, substantially as set forth.

3. In a bicycle-stand, an upright, arms loosely mounted upon the upright and terminating in rests, a holder mounted upon the upright so as to turn and move thereon, and comprising oppositely-disposed hooks, and means for moving the holder to positively secure a frame-bar of a bicycle between the hooks of the holder and the rests of the said arms, substantially as set forth.

4. In a bicycle-stand, an upright having a reduced end portion threaded for a short distance from its extremity, diverging arms terminating in rests and springing from a sleeve, the latter being loosely mounted upon the reduced end of the upright, a holder mounted upon the upright and comprising oppositely-disposed hooks, and a nut mounted upon the threaded portion of the upright to move the holder toward the supporting-arms, substantially as and for the purpose set forth.

5. The herein-described bicycle-stand, comprising a base-bar having its terminal portions apertured, uprights having their lower ends fitted in the apertured ends of the base-bar, rolling supports, braces secured to the uprights and having their lower ends overlapping and slotted, a fastening for securing the overlapping ends of the braces to each other and to the base-bar, and supports and holders at the upper ends of the uprights, substantially as and for the purpose set forth.

593,522. IRON-SHAPER. JOHN A. GIDDINGS, Grand Rapids, Mich. Filed Jan. 29, 1895. Serial No. 536,573. (No model.)



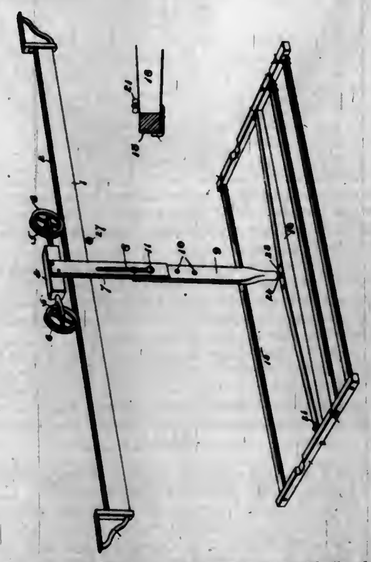
Claim.—1. In a vertical feed for shapers, a vertical feed-screw, a nut mounted to mesh centrally with said screw and having a bevel-gear on its outer surface, a horizontal shaft in the ram of the shaper at right angles with the feed-screw and provided at one end with a bevel-gear to mesh with the bevel-gear on the nut and at the other end with a bevel-gear to mesh with a bevel-gear on a lateral shaft, a lateral shaft mounted in the ram and having a bevel-gear at one end to mesh with the bevel-gear on the before-mentioned horizontal shaft and a pawl, a ratchet and an arm on the opposite end, a second lateral shaft mounted in the ram back of the first and carrying a cam, an arm on said cam connected by a rod with the arm on the first-mentioned lateral shaft said cam adjusted to travel upon the bed of the shaper to produce sufficient friction to actuate the pawl and ratchet and through them the feed-screw of the shaper, substantially as and for the purpose set forth.

2. In a vertical feed for shapers, a vertical feed-screw, a nut mounted to mesh centrally with said screw and having a bevel-gear on its outer surface, a horizontal shaft mounted in the ram of the shaper and a bevel-gear at one end to mesh with the bevel-gear on the nut and a bevel-gear on the other end to mesh with a corresponding gear on a lateral shaft, a lateral shaft mounted in the ram of the shaper, a bevel-gear on one end to mesh with the gear on the horizontal shaft and an actuating-arm carrying a pawl, and a ratchet on the other end, a second lateral shaft mounted in the ram, a friction-cam mounted on said shaft and actuated by friction upon the bed of the shaper, an arm upon said cam connected by a rod with the arm that supports the pawl, a pinion on the cam-shaft and a rack on the bed of the shaper to assist the cam in actuating the feed mechanism, substantially as and for the purpose set forth.

3. In a vertical feed for shapers, a vertical feed-screw, a nut mounted to mesh centrally on said screw and provided with a bevel-gear on its surface, a horizontal shaft mounted in the ram of the shaper and having a bevel-gear at one end to mesh with the nut-gear and a bevel-gear at the other end to mesh with a corresponding gear on a lateral shaft, a lateral shaft mounted in the ram at right angles with the horizontal shaft, a bevel-gear at one end of said shaft, an arm loosely fitted on the other end of said shaft, a pawl pivoted to said arm and a ratchet on the shaft in position to be actuated by said pawl, a second lateral shaft mounted in the ram back of the first, a cam fitted to work on one end of said shaft, an arm on said cam, a rod connecting said arm with the arm that supports the pawl, said cam adjusted to bear upon the bed of the shaper with force to produce sufficient friction to actuate the feed-screw, a stop on each end of the cam, and a gear and rack auxiliary to said cam, substantially as and for the purpose set forth.

4. In a vertical feed for shapers, a bevel-gear threaded to mesh with the feed-screw, a longitudinal shaft within the ram, a bevel-gear on one end of said shaft to actuate the feed-gear and a bevel-gear on the other end to mesh with a corresponding gear on a cross-shaft to actuate said longitudinal shaft, a cross-shaft supported in the ram, a friction-cam loosely supported on one end of said shaft, a pawl upon said cam, a ratchet on the shaft in position to engage said pawl, a bevel-gear connected with said ratchet in position to mesh with the gear on the longitudinal shaft and actuate the shaft, a gear-wheel on the cross-shaft to assist in actuating the cam, and a rack on the shaper-frame to actuate the gear-wheel, substantially as, and for the purpose set forth.

593,523. QUILTING-FRAME FOR SEWING-MACHINES. EDWIN W. HEACKER, Ida, Tex. Filed Jan. 29, 1897. Serial No. 621,182. (No model.)



Claim.—In a quilting-frame, the combination with the frame proper, and means for suspending said frame from an overhead support, of a brace interposed between and abutting at its ends against the end bars of the quilting-frame, hooked clamping-bolts slidingly fitted in openings in the ends of the brace and embracing the end bars of the quilting-frame upon three sides, whereby the quilting-frame may be shifted, and thumb-nuts for tightening said bolts substantially as described.

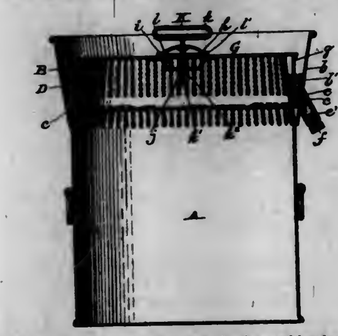
593,524. NAIL AND CORN TRIMMER. ERNST R. HELKE, New York, N. Y. Filed Feb. 11, 1897. Serial No. 622,932. (No model.)



Claim.—1. A combined nail and corn trimmer consisting of a body portion having at one end a segmental slot with its curved edge beveled and sharpened and an inclined tapered portion at the opposite end, said tapered portion being provided with an elongated slot having beveled and sharpened edges, substantially as set forth.

2. A combined nail and corn trimmer consisting of a body portion having at one end a segmental slot, the curved edge of which is sharpened and provided with a deep bevel on one side and a shallow bevel on the other side and an inclined tapered portion at the opposite end, said tapered portion being provided with an elongated slot having beveled and sharpened edges, substantially as set forth.

593,525. GARBAGE-RECEPTACLE. LEONIDAS R. HOUCHENS, Washington, D. C. Filed Mar. 3, 1897. Serial No. 626,847. (No model.)



Claim.—1. In a garbage-receptacle, the combination with a can, of a lid, C, having a central vent-opening, a valve *i*, which normally rests upon the lid and closes the vent-opening, a handle K, having a stem *j*, to which said valve is attached, a nut or shoulder *k'*, on the lower end of said valve-stem, a yoke *i*, through which said valve-stem loosely passes, and against which said nut or shoulder *k'*, abuts when the handle K is raised, substantially as shown and described.

2. In a garbage-receptacle, the combination with the body portion A, and a top portion B, having a water-trough D, of a cover C, provided with a valve and a handle attached thereto, whereby said valve is opened by the lifting of the handle in raising the cover, substantially as described.

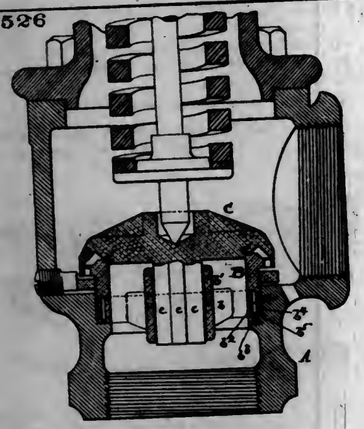
3. In a garbage-receptacle, the combination, with the body of the receptacle, of a cover and valve device and handle, substantially as shown, whereby the valve will be automatically opened by the lifting of the handle of the cover and held in an open position till the cover is lowered.

593,526. SAFETY-VALVE. JOHN HUGHES, Somerville, Mass., assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed May 14, 1896. Serial No. 591,567. (No model.)

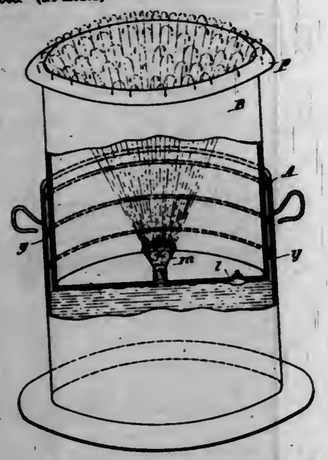
Claim.—1. The combination of the valve-casing, of one metal, and the valve-seat, B, of brass, the latter having the channel, b^3, in its main portion, as set forth.

2. The combination of the valve-casing, of one metal, and the valve-seat, B, of brass, the latter having the channel, b^3, in its main portion, with the wire, b^3, located in the channel, b^3, as set forth.

593,526



593,527. ABDOMINAL DOUCHE-BATH. MAX KÜSTNER and HERMANN LADENBUX, Leipsic, Germany. Filed June 5, 1897. Serial No. 639,503. (No model.)



Claim.—1. The combination of a receptacle A having mounted to slide therein a hollow plunger B having its upper end open and a spraying device mounted in the bottom of said plunger substantially as described.

2. The combination of a receptacle A having packing-rings as specified, a hollow plunger B to fit said receptacle and slide therein said plunger having an open top, with rim bent around and a spraying device mounted at the bottom of said plunger and a valve also mounted therein as specified.

593,528. INDEX. VERNON A. LAUE and MATHEW M. PIERCE, Cross Fork, Pa. Filed Apr. 13, 1897. Serial No. 631,979. (No model.)

Claim.—1. In an index, the combination of a series of tablet-holders having a vertical sliding movement, a series of pivoted angle-levers the long arms of which are connected by links to the tablet-holders, a series of horizontal levers pivoted at one end in the casing and connected at their opposite ends to the short arms of the angle-lever, and a series of keys to operate the horizontal levers, substantially as described.

2. In an index, the combination of a casing, a horizontal partition supported in said casing and provided with elongated slots in its middle portion and slitting slots at its ends, grooved plates secured to the inner faces of the sides of the casing above the horizontal partition, the grooves in said plates being in alinement with the end slots in the horizontal plate, a series of tablet-holders slidably supported in the grooves in said plates, said holders having downward extensions which project through the slots in said horizontal partition, a lever-and-link mechanism to elevate said tablet-holders, and a series of keys to operate said mechanism, substantially as described.



3. In an index, the combination of a casing, a series of tablet-holders supported to have vertical movement in said casing, a link-and-lever mechanism mounted within said casing and connected to the tablets, a forward extension of the casing having an inclined top plate, a series of keys the stems of which extend through openings in said inclined plate and are connected with the said lever-and-link mechanism, each of said stems having a shoulder formed thereon and adapted to engage the under face of the inclined plate when the keys are depressed to their fullest extent, substantially as described.

593,529. MEANS FOR CLOSING TIRE-PUNCTURES. RUDOLPH W. O. REHMENKLAU, Minneapolis, Minn. Filed Mar. 10, 1896. Serial No. 582,587. (No model.)



Claim.—1. A pneumatic tire containing a multiplicity of loose spherical particles of light material, adapted to automatically close punctures in said tire, under the action of the fluid-pressure therein, substantially as described.

2. A pneumatic tire, containing a multiplicity of loose particles, certain of which are relatively large and others of which are relatively small, as compared with each other, said particles being adapted to automatically close punctures in said tire, under the action of the fluid-pressure therein, substantially as described.

3. A pneumatic tire, containing a multiplicity of loose particles, certain of which are relatively small and of irregular form, and others of which are relatively small and of irregular form, said particles being adapted to automatically close punctures in said tire, under the action of the fluid-pressure therein, substantially as described.

593,530. ICE-CREEPER. ARMI R. BRADEEN, Seattle, Wash. Filed Jan. 12, 1896. Serial No. 575,315. (No model.)

Claim.—1. In an ice-creeper, the combination with two plates having upturned lips for engaging the sides of the shoe-sole and arms upon their inner edges curved or hooked so that they may lap by each other in the same plane, and downwardly-projecting spurs attached to said plates, of a locking-lever pivoted to the extremities of the curved arms so that the pivot-centers may be carried beyond the line of strain, substantially as shown and described.

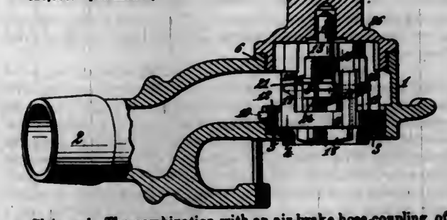
2. In an ice-creeper, the combination with two plates having arms upon their inner edges so curved or hooked that they may pass by each other in the same plane, of a lever pivoted to the extremities of these curved arms so that the pivot-centers may in locking pass beyond the line of strain, substantially as shown and described.



3. In an ice-creeper, the combination with two plates having upwardly-projecting lips engaging the sides of the shoe-sole, and downwardly-projecting spurs, of curved or hook-shaped arms projecting inwardly from the body of the plates and forming recesses between said arms and the body of the plates which are each adapted to receive the outer portion of the hooked arm of the opposite plate, and a locking-lever pivoted to the extremities of said hooked arms, the whole being so proportioned that in locking the pivot-centers will pass beyond the line of strain, substantially as shown and described.

4. In an ice-creeper, the combination of two plates having upwardly-projecting lips engaging the sides of the shoe-sole, and downwardly-projecting spurs removably attached thereto, curved or hook-shaped arms projecting inwardly from the body of the plates and forming recesses between said arms and the body of the plates which are each adapted to receive the body portion of the hooked arm of the other plate, with a locking-lever pivoted to the extremities of said hooked arms so that in locking the pivot-centers will pass by the line of strain, and a catch attached to one of the plates to hold said locking-lever against a return, substantially as shown and described.

593,531. AIR-BRAKE HOSE-COUPLING. JAMES R. BRAGG and JAMES M. MOYERS, Richmond, Va. Filed Jan. 26, 1897. Serial No. 620,631. (No model.)



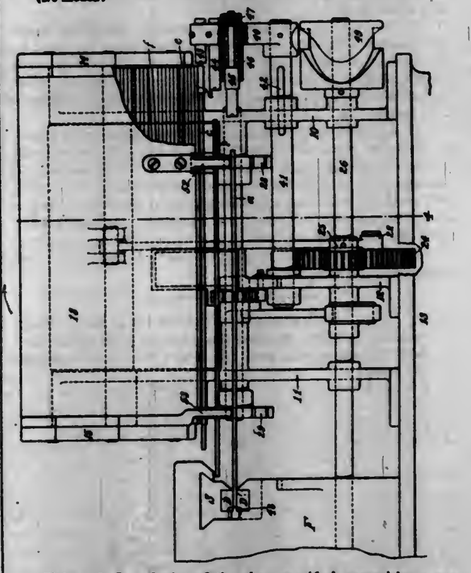
Claim.—1. The combination with an air-brake hose-coupling, of a spring-seated valve, said valve being mounted in a guide-frame, one end of which is formed with an annulus formed with a lug to be locked in a corresponding recess of the coupling-head to prevent its turning and adapted to control an air-passage in said coupling and provided with a vent-opening through the valve-body and having wings or projections to take the pressure of similar wings on the corresponding valve of another coupling part or head whereby the valves are held open while the two coupling-heads are in connection with each other but will close or seat on disconnection of the coupling-heads, whereupon the vent-opening in the valve will permit a gradual loss of air sufficient to cause the brakes to be applied in the detached portion of the air-brake system without shock, while the pressure may be maintained in the main portion of the system by the action of the pump, substantially as described.

2. The combination, in the coupling-head of an air-brake system, of a valve adapted to control an air-passage in said coupling, the said valve being provided with a vent-opening and having a locking projection on the periphery of the body of the valve, a valve guide-frame having a recess on the inner side of one of the guide-ribs to engage the said locking projection when the valve is unseated and partly turned, and a spring to seat the valve when unlocked, the valves of two connected coupling-heads being adapted to exert a pressure on each other that will hold said valves open while the said coupling-heads are connected, and the said valves being forced to their seats under action of their springs and the air-pressure in the main pipe, on disconnection of the coupling-heads, whereupon the vent-opening in the valve will permit only a gradual loss of air sufficient to cause the brakes to be applied in the detached portion of the air-brake system without shock or injury, substantially as described.

3. The combination of the coupling-head 1 provided with openings 3 and 6, the gasket 4 having a flange or valve-seat 5, the guide-frame 7 having an annulus 9 at one end and a disk 13 at the other end and comprising ribs 17 one of which is provided with a recess 21, the valve 8 having the vent-opening 19 and provided with stem 14 and wings 18 and locking projection 20 to engage the recess 21, the valve-spring 15 and the cap 26, substantially as described.

4. The combination of the coupling-head 1 provided with openings 3 and 6 and having an internal flange 12 provided with recess 11, the valve guide-frame 7 having a lug 10 to engage the recess 11 to prevent said frame from turning, the said frame being provided with a recess 21 and a spring-arm 24, the valve 8 having a vent-opening 19 and provided with a locking projection 20 with a notch 23 therein, the valve-spring 15, and the cap 26, substantially as described.

593,532. ROD SEPARATING AND FEEDING DEVICE. ANDREW C. CAMPBELL, Waterbury, Conn., assignor to the H. J. Manville Machine Company, of Connecticut. Filed Feb. 1, 1897. Serial No. 621,437. (No model.)



Claim.—1. In a device of the class specified, comprising a passage-way for the rods, an arranger forming a portion of one side wall of the passage-way, and having a reciprocating movement in its own plane.

2. In a device of the class specified, combination with a supply reservoir or hopper, provided with a passage-way for the rods, a reciprocating arranger forming a portion of one of the walls of the passage-way.

3. A rod-feeding device provided with a passage for the rods of a width greater than the thickness of a single one of those rods, and substantially less than twice that thickness, provided with a reciprocating arranger forming a portion of one of the side walls of the passage.

4. A rod-feeding device, consisting of a reservoir or hopper for the rods, provided with a passage-way therefrom and having an inclined side or sides to enable the rods to gravitate toward the opening of the passage-way, and of a reciprocating arranger, arranged adjacent to, and forming a portion of, one of the side walls of the passage-way

5. A rod-feeding device, consisting of a reservoir or hopper for the rods, having one or more inclined sides leading to a passage-way of substantially the length and width of the rods, and of a reciprocating arranger having an inclined upper portion substantially corresponding to and forming a portion of one of the inclined sides of the hopper, and having a downwardly-extending member forming a portion of one of the side walls of the passage for the rods.

6. A feeding device, consisting of a hopper or reservoir for the objects to be fed, provided with a passage therefrom of a width suitable for maintaining the objects in single file, and a reciprocating arranger forming a portion of one of the side walls of the passage, and extending by its reciprocations into the hopper-space, for the purpose specified.

7. In a rod arranging and separating device, having a passage-way of a width suitable for maintaining the rods in single file, a reciprocating arranger forming a portion of one of the walls of the passage-way, with means for separating and feeding single rods from the lower or discharging end of the passage-way.

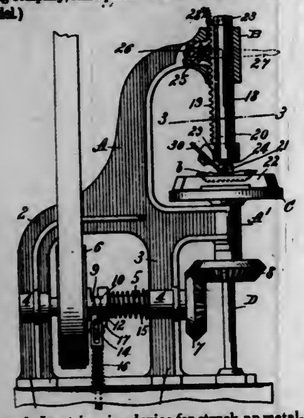
8. A rod arranging and separating device, consisting of a hopper or reservoir for the rods, having a passage leading therefrom of a width suitable for maintaining the rods in single file, the reciprocating arranger 19 forming a portion of one of the side walls of the passage, and of the hopper, and an intermittently-rotating separator located beneath and moving transversely to the passage-way provided with a series of recesses each suitable for receiving one of the rods, with means for rotating the separators so as to bring the recesses successively into coincidence with the passage.

9. In combination with means for separating rods and for moving them transversely, means for moving the separated rods longitudinally consisting of a series of pushers arranged in a stepped relation to each other and movable only in a direction longitudinally of the rods, with means for thus moving the series of pushers whereby each succeeding transversely-moving rod is moved longitudinally by each of the pushers.

10. In combination with an intermittently-rotating rod separator or carrier, means for moving the rods longitudinally, consisting of a series of pushers arranged substantially in line with the respective stopping positions of the rods, with means for actuating the pushers against their respective rods at each intermission in the rotation of their carrier.

11. In combination with an intermittently-rotating rod separator or carrier, means for moving the succeeding rods longitudinally toward and against a gage, consisting of a series of pushers arranged substantially in line with the respective stopping positions of the rods, with means for actuating the pushers against their respective rods at each intermission of the rotation of that carrier, the pusher which brings the rod against the fixed gage being resiliently mounted so as to adapt it to yield to the varying lengths in the succeeding rods, substantially as described.

593,533. TRIMMING DEVICE FOR STRUCK-UP METAL-WORK. SUMNER B. CAMPBELL, Westfield, Mass., assignor to the Textile Manufacturing Company, same place. Filed Feb. 9, 1897. Serial No. 622,691. (No model.)



Claim.—1. In a trimming device for struck up metal-work, a vertically-movable plunger comprising a non-rotatable sleeve and a rotatable shaft in said sleeve, a die-block, and a rotatable support therefor, a die secured to the lower extremity of said rotatable shaft, a knife whose edge is in proximity to the upper surface of said die-block and fixed to said non-rotatable sleeve, and means for moving said plunger vertically and for rotating said die-block support, substantially as described.

2. In a trimming device for struck-up metal-work, a rotatable die-block, a die therefor rotatable therewith, a shaft to one end of which said die is secured, a non-rotatable vertically-moving sleeve engaging and inclosing said shaft, a knife secured to said sleeve and means for moving said sleeve vertically, and for rotating said die-block, substantially as described.

593,534. METHOD OF AND APPARATUS FOR WELDING METALS. JOSEPH W. COMLEY, Braddock, Pa., assignor of eleven-twentieths to James Shivy Bodell, William Smith Frye, James Payne Beam, and William Wilbur Payne, Jefferson, Leon James Long and John C. Werner, Pittsburg, and Arch. Hamilton Rowand, Jr., Verona, Pa. Filed Apr. 7, 1896. Serial No. 586,576. (No model.)

Claim.—1. The method of welding two metals which are fusible at different temperatures, which consists in liquefying the more fusible metal and causing the less fusible metal to contact therewith, and then raising the temperature of both metals while thus in contact to a temperature considerably greater than the fusing temperature of the more fusible metal, and almost to the fusing-point of the less fusible metal, whereby a homogeneous union of the metals may be effected, substantially as described.



2. The method of welding two metals which are fusible at different temperatures, which consists in liquefying the more fusible metal and bringing the same into contact with the surface of the less fusible metal, raising the temperature of both metals while thus in contact to a temperature above the fusing-point of the more fusible metal but below the fusing-point of the less fusible, agitating the molten metal so as to drive off the impurities, and finally solidifying the molten metal while in contact with the metal to be welded thereto, whereby the molten metal may be purified and a homogeneous union secured between the metals, substantially as described.

3. The method of welding copper and iron or copper and steel, which consists in forming a liquefied layer of the desired thickness of copper in contact with the surface or surfaces of the iron or steel, then raising the temperature of both metals while thus in contact to a degree above the fusing-point of the copper and almost to the fusing-point of the iron or steel, and finally solidifying the copper while in contact with the iron or steel, whereby a homogeneous union of the metals may be secured, substantially as described.

4. The method of welding copper and iron or copper and steel, which consists in forming a liquefied layer of the desired thickness of copper in contact with the surface or surfaces of the iron or steel, then raising the temperature of both metals while thus in contact to a high degree of heat above the fusing-point of the copper, but below the fusing-point of the iron or steel, eliminating the impurities from the copper by agitating or teasing the molten metal, and finally solidifying the copper while in contact with the iron or steel, whereby a homogeneous union may be secured between the metals, substantially as described.

5. The method of welding copper and iron or copper and steel, which consists in forming a layer or layers of copper in contact with the surface or surfaces of the iron or steel, then gradually raising the temperature of both metals while thus in contact to a degree of heat considerably above the fusing-point of the copper but below the fusing-point of the iron or steel, agitating the molten copper so as to remove or drive off the impurities contained therein, and finally gradually cooling the metals so as to solidify the copper while in contact with the iron or steel, whereby the copper may be purified and a homogeneous union secured between the metals, substantially as described.

6. The method of welding copper and iron or copper and steel, substantially as hereinbefore described, which consists in producing a layer or layers of molten copper in contact with the previously-cleaned surface or surfaces of the iron or steel, then raising the temperature of the metals to the boiling-point of the copper and approximating the fusing-point of the iron or steel, agitating the molten copper to eliminate impurities, then covering the metals thus treated while still highly heated with a heat-retaining medium and permitting the metals to gradually cool, substantially as described.

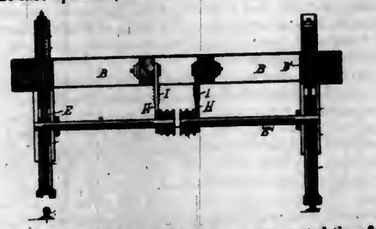
7. A crucible for welding copper and iron or copper and steel, comprising a body portion provided with vents or port-holes therein, means for supporting an iron or steel plate so as to provide a space for the copper between the inner surface of said body portion and the surface of the plate, and a lid adapted to fit over the body portion and inclose the metals within the same, substantially as described.

8. A crucible for welding copper and iron and copper and steel, comprising a body portion provided with vents or port-holes in the sides thereof, non-fusible means for supporting the iron or steel plate above the bottom of the body portion so as to provide a space for the copper, and a lid for inclosing the plate within said body portion, substantially as described.

593,535. BRAKE FOR CARS. WILLIAM M. DILLS, Kansas City, Mo. Filed Jan. 21, 1897. Serial No. 620,115. (No model.)

Claim.—1. A brake for a car, comprising a shaft carrying a grip and mounted for rotary movement in a horizontal plane and also upon a vertically-disposed pivot, substantially as described.

2. The combination with a car, of a pedestal depending therefrom, a brake shoe or grip mounted for rotary movement, a horizontally-disposed rotatable shaft, an eccentric thereon for operating the brake-shoe, and a pivotal support for said shoe, whereby the initial movement of the shaft depresses the shoe and continued movement moves the shoe up on its pivot.



3. The combination with a car, of a hanger supported therefrom for pivotal movement, and a shaft carrying a grip mounted in said hanger for rotary movement in a horizontal plane and constructed and arranged to be thrown in an angular line across the rail, substantially as described.

4. The combination with a car, and a hanger supported therefrom, of a shaft carrying a grip and supported from said hanger for rotary movement in a horizontal plane and for movement angularly to the lines of travel of the car, substantially as described.

5. The combination with the pedestal and the brake-shoe carried thereby and mounted for vertical and rotary movement, of a slotted arm, a shaft passed therethrough, an eccentric on said shaft constructed to operate upon the brake shoe to depress it, and means for rotating said shaft and moving it angularly to the line of track, substantially as described.

6. The combination with the pedestal and the brake-shoe carried thereby and mounted for vertical and rotary movement, of a slotted arm, a shaft passed therethrough, an eccentric on said shaft constructed to operate upon the brake-shoe to depress it, and means for rotating said shaft and moving it angularly to the line of track, and means for returning the parts to their normal position automatically, substantially as described.

593,536. FIRE-ALARM. ESEL BEILER, Henrico County, Va. Filed Mar. 13, 1897. Serial No. 627,269. (No model.)

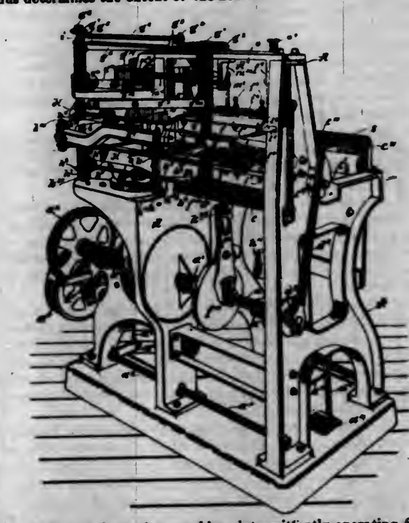


Claim.—1. In a fire-alarm, the combination of a fusible cord running through a house, by means of and through a metal pipe formed as described by connecting sections of screw-threaded pipes together with screw-threaded T-couplings, the fusible cord being connected with a torpedo or cartridge made of powder or dynamite, and placed on the outside of the house, the fusible cord being also connected with other fusible cords whose ends project through the apertures in the T-couplings, to the outside of the pipe so as to be exposed to the flames, all substantially as described, and designed and adapted to give an alarm in case of a fire in a building by the explosion of the cartridge.

2. The combination of a metal pipe with apertures at frequent intervals, passing through the interior of a building, and through the wall to the outside of the building, a fusible cord passing through the pipe its entire length, a bomb or cartridge attached to the fusible cord on the outside of the building, short fuses connected with the main fuse and exposed to the flames through the apertures in the pipe, all substantially as described, and intended and adapted to sound an alarm by the explosion of the bomb.

593,537. MACHINE FOR CUTTING BOOT OR SHOE SOLES, &c., FROM SHEET MATERIAL. CHARLES S. GOODING, Brookline, and VICTOR BRAUNSDORF, Boston, Mass., assignors to Robert D. Evans and John S. Lockwood, Boston, Mass. Filed Feb. 12, 1897. Serial No. 623,230. (No model.)

Claim.—1. In a sole-cutting machine, intermittently-acting feeding mechanism; a device to control and regulate the extent of each of each actions upon the material being fed; intermediate mechanism operatively connected with said controlling device, and adapted to be acted upon by irregularities on said material; a series of projections upon the material, each of which, through said intermediate mechanism, sets the controlling device during one feeding action and thus determines the extent of the next.



2. In a sole-cutting machine, intermittently-operating feeding mechanism, the limit of whose forward movements is always at the same point, a regulating device to determine the beginning of each of said movements, projections upon the material which is being fed, mechanism connected with said regulating device, which is adapted to be acted upon by said projections, through which mechanism each advancing projection will set the regulating device and determine the beginning of the next succeeding feeding movement.

3. In a sole-cutting machine the combination of a feed-roll, mechanism to intermittently engage and turn said roll, a device to regulate the period of engagement between the feed-roll and its actuating mechanism, projections upon the material which is fed, a pendent finger in the path of movement of such projections and adapted to be operated thereby, intermediate connections between said finger and regulating device, to produce correspondence in time and extent of their movement, and a clamp to hold the regulating device in a fixed position while the feed-actuating mechanism is controlled thereby.

4. In a sole-cutting machine the combination of a feed-roll, a pendent finger, with its free end normally near the surface of the material, and in its path of movement, mechanism to intermittently engage and turn the feed-roll an automatically-predetermined distance, a pendent arm connected at its lower end with a device to regulate the extent of each intermittent engagement and operation of the feeding mechanism, projections upon the material which is being fed, to strike and swing the free end of the pendent finger, a rocking shaft to which, both the pendent finger and the pendent arm are attached, whereby the movement of the finger by the projections will set the regulating device and determine each successive movement of the feed-rolls.

5. In a sole-cutting machine, the combination of intermittent feeding mechanism, a device to regulate the extent of each intermittent movement thereof, a series of projections upon the material being fed, a pivoted arm, operatively connected with said regulating device, and located in the path of movement of said projections and adapted to be acted upon thereby, and means to remove said arm out of the path of movement of said projections, at the beginning of each intermittent feeding operation.

6. In a sole-cutting machine, intermittently-operating feeding mechanism, a device to regulate the beginning of each of such operations, a pendent finger operatively connected with the regulating device, and located in the path of movement of the material which is being fed, projections upon the said material adapted to swing forward the free end of said finger and set the regulating device, and a spring to return the finger to its normal position when released from each projection.

7. In a machine for cutting articles of curvilinear outline from sheet material, the combination of a feed-roll, a ratchet connected therewith, mechanism to intermittently rotate the ratchet, an adjustable shield which covers a portion of said ratchet to regulate the operation thereon of the rotating mechanism, projections upon the

material which is being fed, and devices to adjust the position of said shield in relation to the ratchet, which devices are adapted to be actuated by said projections when the material is advanced.

8. In a machine for cutting articles of curvilinear outline from sheet material, upon which ornamental or designating figures are regularly located, a roll to feed the material, mechanism to intermittently engage said roll and rotate it through a limited arc, a device to regulate the point at which the rotating mechanism shall engage said roll and means to automatically adjust the said regulating device according to the distances between successive figures on the material, which means are actuated by projections correspondingly located on the material which is being fed.

9. In a machine for cutting articles from strips of sheet material, a reciprocating guide or strip-adjuster, adapted to engage the strip and move it a prescribed distance transversely thereof at each movement of the guide in the same direction.

10. In a machine for cutting articles from strips of sheet material, a hinged arm carrying a friction-roll at its free end which is arranged to engage a perpendicular edge of said strip, a pivoted support for the hinged end of said arm, means to move it forward a prescribed distance against said strip and a spring to draw it backward to its normal position.

11. In a machine for cutting articles from strips of sheet material, a feed-roll and a bearing-roll adapted to be raised from contact therewith, a device to adjust the strip of material to a prescribed position in the machine, mechanism connected with said bearing-roll, to cause said adjusting device to act upon the material when the bearing-roll is raised and a spring to withdraw it from action when the bearing-roll is lowered.

12. In a sole-cutting machine, organized with a lower feeding-roll and an upper bearing-roll between which the material is fed, a guide or strip-adjuster consisting of an arm, one end of which is pivoted to a spring-controlled swinging support, the outer end of which arm is arranged to bear against a perpendicular edge of the material, pivoted supports for said bearing-roll, which supports act upon said guide-arm and move it transversely of the strip of material when the bearing-roll is raised, and release the arm and permit it to be drawn back by its controlling-spring when the bearing-roll is lowered.

13. In a machine for cutting articles by pattern from sheet material, a pattern to support the blank, a clamp of similar outline to hold the blank firmly upon the pattern, automatic intermittently-acting mechanism to force together and to separate the clamp and pattern, driving mechanism to rotate them simultaneously, a trimming-knife supported by an independent swiveling carrier provided with a pair of antifriction-bearings which make contact with the edge of the clamp and a spring to force said bearings against the clamp during the cutting operation and automatically adjust the knife with the plane of its cutting-blade tangent to the varying curves of the clamp, as said bearings pass over those curves, when the clamp and pattern are revolved to force the material against its cutting edge.

14. In a machine for cutting articles by pattern from sheet material, a support for the material and a clamp to hold the material firmly thereon, which clamp is provided with a laterally and downwardly projecting bearing edge, beveled upon its upper side at an angle corresponding to that desired for the bevel of the edge of the article to be cut.

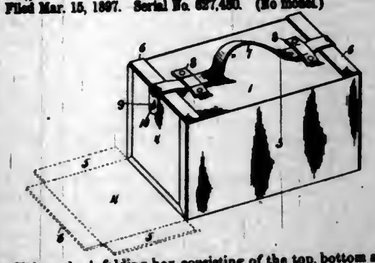
15. In a machine for cutting articles by pattern from sheet material, a pair of intermittently-rotating blank-holding patterns supported in a pivoted frame, mechanism to swing said frame to and fro upon its pivot, a swiveling knife-carrier supported by an arm, which gives it limited movement toward and from the cutting-shears and to and fro longitudinal thereof, a spring-pressed sliding knife-adjusting plate having antifrictional-bearings upon opposite sides of the knife-carrier swivel, when in contact with the pattern, and a trimming-knife attached to said carrier with the middle of its cutting-blade in the axial line of the carrier-swivel, and the plane of the shank thereof at right angles to the line of sliding movement of the adjusting-plate.

16. In a machine for cutting articles by pattern from sheet material, rotating blank-holding patterns, a cutter held in a carrier pivoted to the free end of a swinging arm having in addition, limited longitudinal reciprocation, mechanism to hold the carrier in contact with the clamping-pattern with yielding pressure, self-adjusting devices to automatically present the cutter to the pattern with the plane of the blade always tangent to the successively-approaching curves thereof when cutting an article, and antifriction-bearings between the said carrier and pattern and between the said carrier and its support upon said arm.

17. In a machine for cuting articles by pattern from sheet material upon which are formed at intervals, ornamental or designating figures, intermittently-operating feeding mechanism, devices to regulate the extent of each intermittent feeding movement, projections carried by the material, each of which acts upon the regulating devices and sets them to give the next succeeding feeding operation an extent of movement equal to the distance between such projection and the one preceding, a rotating blank-holding support upon which the material is fed and a rotating clamping-pattern according to which the article is cut, blank-cutting shears and independently-supported cutting mechanism adapted to trim the material to the shape of said clamping pattern.

18. In a machine for cutting articles by pattern from sheet material, having intermittently-operating feeding mechanism, blank-cutting shears and trimming-knife, a pair of blank-holding patterns, mechanism to force them together and thereby hold the blank while the article is being cut and to separate them while the article is being removed, means to periodically reciprocate the patterns between the cutting-shears and trimming-knife, and pattern-clearing devices, adapted to be moved into contact with the article which has been cut when the patterns are separated and are moved toward the shears, thereby clearing the lower pattern, and to be moved out of the path of the patterns when they are together and are carried from the shears.

593,538. LUNCH-BOX. HARRY HIRE, Jr., Washington, D. C. Filed Mar. 15, 1897. Serial No. 627,490. (No model.)



Claim.—1. A folding box consisting of the top, bottom and side pieces, said side pieces each permanently and flexibly connected with the adjacent edges of both the top and bottom pieces whereby said top, bottom and side pieces can be folded flat upon each other, an end piece flexibly connected with each end of said bottom piece and flaps flexibly connected to the edges of each of said end pieces, a flexible strip or handle passing through loops provided on the top piece, and means to attach it to the outer face of each end piece so as to hold them in a secure position while in use, substantially as described.

2. A folding box consisting of the top, bottom and side pieces, said side pieces each permanently and flexibly connected with the adjacent edges of both the top and bottom pieces whereby said top, bottom and side pieces can be folded flat upon each other, an end piece flexibly connected with each end of said bottom piece and flaps flexibly connected to the edges of each of said end pieces, a flexible strip or handle passing through loops provided on the top piece, and means to attach it to the outer face of each end piece so as to hold them in a secure position while in use, and a band 11 fastened to one of the end pieces and adapted to fold around the box when folded, substantially as described.

593,539. STOVE OR FURNACE GRATE. CHARLES D. HOWARD, Syracuse, N. Y. Filed Apr. 5, 1897. Serial No. 630,700. (No model.)



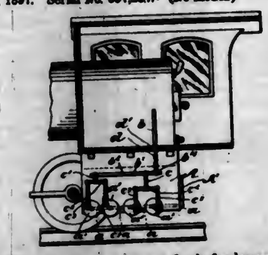
Claim.—1. A grate-bar substantially triangular in cross-section and comprising three serpentine or sinuous wings merging into one another along one of their edges, producing a core having an undulatory or wavy surface between the wings.

2. A grate-bar substantially triangular in cross-section and comprising three serpentine or sinuous wings suitably perforated, said wings merging into one another along one of their edges, producing an undulatory or wavy core.

3. A grate consisting of a suitable frame, a series of grate-bars journaled in half-bearings formed therein, said bars substantially triangular in cross-section and comprising three serpentine or sinuous wings merging into one another along one of their edges, producing an undulatory or wavy core, in combination with the fire-pot which projects over the rear journals to hold them in their bearing in the rear bearing-bar.

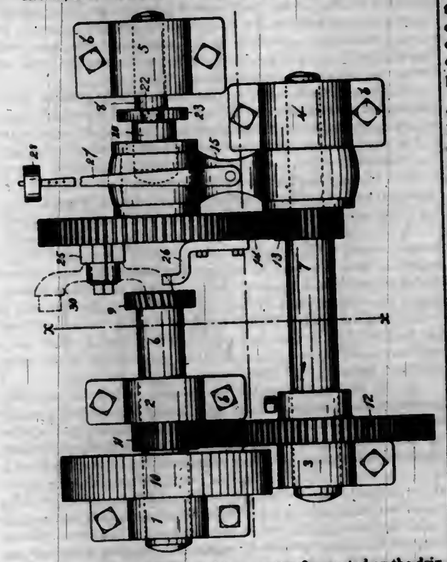
4. In a removable grate-frame, the combination of a rear bearing-bar, a front bearing-bar consisting of two inclined faced bars with cooperating bearings, said bars disposed one above the other and out of alinement with each other, gear-wheels situated between said bars and having an irregular surface adapted to cooperate with the bearing *b'* and with the irregular surface on said gear-wheels, said bars being adapted to be withdrawn from the gear-wheels when their rear ends are raised.

593,540. ASH-PIT. CAMPBELL JACKSON, Abingdon, Va. Filed May 19, 1897. Serial No. 637,237. (No model.)



Claim.—The combination, in an ash-pit for locomotive steam-engines and the like, of the outer shell or casing A, the bottom plates *a* pivotally mounted in the side of said shell, the operating-wheels *a'* securely mounted on the pivotal projections on one side of the plates *a*, the cleat a^3 employed to normally hold the plates *a* in place, the levers *b* and *b'* employed in conjunction with the rods and levers, *c*, *c'*, c^2 and c^3 and the wheels *a'* to operate the bottom plates, and the ratchet *d* in the lever *b* engaging with the lug and tooth *d'* in floor of cab and employed to regulate and keep open the aforesaid plates *a*, substantially as shown and described.

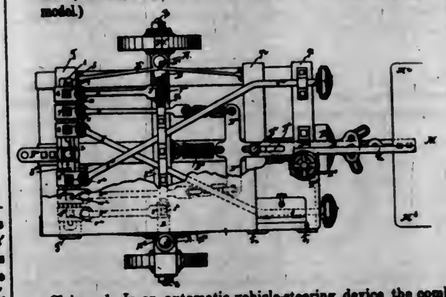
593,541. MILLING-MACHINE. IRVIN D. LEMBEL, Reading, Pa., assignor of one-half to the Packer Cycle Company, same place. Filed Mar. 10, 1897. Serial No. 626,758. (No model.)



Claim.—1. In a milling-machine, a cutter 9 mounted on the driving-spindle, a train of gears for giving rotary motion to the work-carrying wheel 14, a link loosely mounted on a shaft 7 and carrying said wheel 14, said wheel formed with a shaft which passes through and revolves in said link and having an irregular form 20 mounted therein, an expansible bushing on the face of said wheel for securing the work to be milled, a gage for setting said work, a guide-wheel against which the form bears, said wheel located on the same center as the cutter, the form causing the work-carrying wheel to rise and fall thus presenting an irregular surface of the work to the cutting-surface of the cutter, substantially as set forth.

2. In a milling-machine the driving spindle 6 mounted in bearings 1 and 2 having a circular cutter 9 on its end and carrying a pinion 11, the shaft 7 mounted in bearings 3 and 4 and carrying a gear-wheel 12 and a pinion 13 and having a link 15 loosely mounted thereon, a work-carrying wheel 14 mounted in said link, meshing with said pinion 13, adapted to carry the piece to be operated upon and having a shaft passing through and revolving in said link to the end of which shaft is secured a form, a bearing 5 in which is mounted a shaft 8 carrying a guide-wheel 23 on which the said form bears, and a weighted lever 27 secured to said link, all substantially as and for the purpose set forth.

593,542. AUTOMATIC VEHICLE-STEERING DEVICE. OSCAR OLSEN, Gervais, Oreg. Filed July 15, 1896. Serial No. 599,314. (No model.)



Claim.—1. In an automatic vehicle-steering device the combination with the framework, of the two side buffers connected by means of lever-arms and connections to the bracket-axles of the supporting ground-wheels, substantially as described.

2. An automatic vehicle-steering device having the sliding draw-bar with its cross-piece whereto the lever-arms are chained, which lever-arms are clamped onto the general lever-bar 1, which again connects with the bracket-axles of the ground-wheels, substantially as set forth.

3. The combination in an automatic vehicle-steering device of the bracket-axles supporting the ground-wheels, which are journaled onto said bracket-axles, the upright standards A pivoted to the sides of the vehicle and the arched hangers and braces, securing the pivoted standards to the frame of the vehicle or tank, all for the purpose set forth and specified.

4. The combination in an automatic vehicle-steering device of the sliding draw-bar, the side buffers connected with the general lever-bar at the rear end of the vehicle, the lever-bar 1 having the slots for the set-screws, fastening the clamps of the lever-arms, to pass in, and the lever-arms connecting the bracket-axles with the lever-bars, all substantially as specified.

5. The combination in an automatic vehicle-steering device of the sliding draw-bar having a slot, and moving on a stationary bolt, the spring at the end of the draw-bar, the cross-piece of the draw-bar having lever-arms chained to its ends, and the guide-bar supporting the tank and being connected with the platform of the traction-engine all substantially as set forth.

6. The combination in an automatic vehicle-steering device of the movable middle bumper having one edge provided with cams and the standard-staff having the hand and spur wheel connected with said cams to move the bumper forward and backward, all substantially as set forth and for the purpose specified.

593,543. SPANNER-WRENCH. HERBERT B. ROSE, Buffalo, N. Y., assignor to the Forsyth Manufacturing Company, same place. Filed July 24, 1896. Serial No. 600,245. (No model.)



Claim.—1. An adjustable spanner-wrench, consisting of two arms pivoted to each other at one end, and provided at the other with pins projecting from one side thereof, the said arms when closed together curving slightly outward and then inward from their pivoting-point, across each other and slightly inward again, so that pressure against their edges below their crossing-point will close them and pressure against their edges above their crossing-point will open them, as set forth.

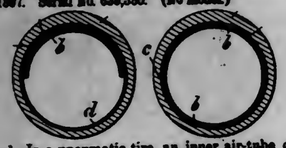
2. An adjustable spanner-wrench, consisting of two curved arms, pivoted together at one end and provided at the other with project-

ing pins or points, said pins or points extending from the faces of the said pins at approximately right angles, and adapted to fit the depressions in bicycle bearing-cases, the said arms being adapted to be moved toward or from each other by inward pressure against their edges, and thus adjusted to fit different bearing-cases, as set forth.

3. An adjustable spanner-wrench, consisting of the arms, 1, and 2, the pivot-pin, 3, and wrench-pins, 5, and 6, the said arms curving slightly outward and then inward from their pivoting-point, crossing each other at the point, 7, and then curving toward each other again, substantially as described.

4. As a new article of manufacture, an adjusting-tool, consisting of two arms loosely pivoted to each other at one end, and provided at the other with wrench-pins, and adapted to be adjusted to or from each other by inward pressure on their edges below their pivotal point, so that the said tool can be arranged to adjust different bearing cases or cones on a bicycle, in which the adjusting depressions are at different distances from each other, as set forth.

598,544. PNEUMATIC TIRE. ALBERT R. SHAW, Medford, Mass., assignor to the Self-Sealing Bicycle Tire Company, Portland, Me. Filed June 4, 1897. Serial No. 638,385. (No model.)



Claim.—1. In a pneumatic tire, an inner air-tube comprising a layer of absorbent material, saturated with an absorbable sticky preparation to seal any punctures made therein for the purpose set forth.

2. In a pneumatic tire, an inner air-tube having a layer of absorbent material saturated with a puncture-sealing preparation to seal any punctures made therein for the purpose set forth.

3. In a pneumatic tire, an inner air-tube having a layer of absorbent material permanently attached to said tube and saturated with a puncture-sealing preparation, to seal any punctures made therein for the purpose set forth.

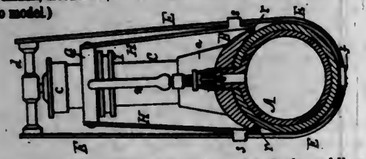
4. In a pneumatic tire, an inner air-tube having a layer of absorbent fibrous material saturated with a puncture-sealing preparation, to seal any punctures made therein for the purpose set forth.

5. In a pneumatic tire, an inner air-tube composed of a layer of stretched rubber, a layer of spent rubber, and a layer of absorbent material saturated with a puncture-sealing preparation, for the purpose set forth.

6. A pneumatic tire, having a permanently-attached inner air-tube, and a layer of absorbent material saturated with a sticky sealing preparation, to seal any punctures made therein for the purpose set forth.

7. In combination with a pneumatic tire a layer of absorbent material permanently attached to the inner wall thereof, said absorbent layer saturated with a puncture-closing preparation to seal any punctures made therein for the purpose set forth.

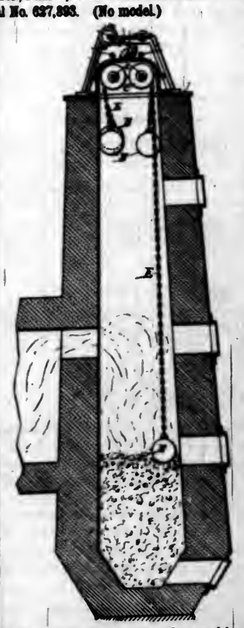
598,545. PUMP FOR INFLATING PNEUMATIC TIRES. CHAS. H. ALLEN, Rochester, N. Y. Filed Mar. 12, 1896. Serial No. 582,911. (No model.)



Claim.—1. The combination of the piston C, the saddle *a*, resting against the wheel-rim, the stirrup consisting of the head G, provided with legs *e e*, that enter slots in the sides of the cylinder, and arms H, H, provided with claws *p p* for hooking under the edges of the wheel-rim, and the nut I resting on the cylinder under the head G; the whole so arranged as to clamp the pump to the wheel-rim by reverse action of the saddle *a*, and the claws *r*, *r*, as herein shown and described.

2. The combination of the cylinder C, the saddle *a*, resting against the wheel-rim, the stirrup consisting of the head G and arms H H, provided with claws hooking under the edges of the wheel-rim, the nut I for tightening the stirrup, the rod D provided with a piston *b* playing in the cylinder, the spring *k* for forcing the piston downward, and the yoke consisting of the cross-head *d*, and stiff arms E, E extending downward and encircling the tire, the whole arranged to operate in the manner and for the purpose specified.

598,546. MECHANICAL POKER FOR GAS-FURNACES. LEVART ARMSON, Buffalo, N. Y. Filed June 27, 1895. Renewed Mar. 16, 1897. Serial No. 627,893. (No model.)



Claim.—1. In a mechanical poker, the combination with a main driving-shaft, of a rotary drum, a chain or cable wound thereon and carrying a poker or weight, a detent for holding the drum against backward rotation, an automatic releasing device operating upon said detent and actuated from the main driving-shaft, and automatic reversing mechanism controlled by the rotation of the drum-shaft whereby the drum is turned forwardly for winding up the chain and raising said weight, substantially as set forth.

2. The combination with a rotary drum, a chain or cable wound thereon and a weight suspended from the chain, of a detent for holding the drum against backward rotation, a releasing device whereby said detent is disengaged from the drum, a driving-wheel rotating in the direction in which the drum turns in winding the chain thereon, a clutch whereby the drum-shaft is thrown into gear with said driving-wheel, and an automatic shifting device actuated from the rotating drum, whereby said clutch is operated, substantially as set forth.

3. The combination with a rotary drum having an externally-screw-threaded shaft, a chain or cable wound thereon and a weight suspended from the chain, of a detent for holding the drum against backward rotation, a releasing device whereby said detent is disengaged from the drum, a driving wheel rotating in the direction in which the drum turns in winding the chain thereon, a clutch whereby the drum-shaft is thrown into gear with said driving-wheel, and a screw-nut or follower engaging with the screw-thread of the drum-shaft and operating said clutch, substantially as set forth.

4. The combination with a rotary drum having an externally-screw-threaded shaft, a chain or cable wound thereon and a weight suspended from the chain, of a detent for holding the drum against backward rotation, a releasing device whereby said detent is disengaged from the drum, a driving-wheel rotating in the direction in which the drum turns in winding the chain thereon, a clutch whereby the drum-shaft is thrown into gear with said driving-wheel, a shifting frame connected with the actuating-collar of said clutch, and a screw-nut or follower engaging with the screw-thread of the drum-shaft and adapted to operate alternately against said shifting frame and the actuating-collar of the clutch, substantially as set forth.

5. The combination with a rotary drum having an externally-screw-threaded shaft, a chain or cable wound thereon and a weight suspended from the chain, of a detent for holding the drum against backward rotation, a releasing device whereby said detent is disengaged from the drum, a driving-wheel rotating in the direction in which the drum turns in winding the chain thereon, a clutch whereby the drum-shaft is thrown into gear with said driving-wheel, a shifting frame connected with the actuating-collar of said clutch, a screw-nut or follower engaging with the screw-thread of the drum-shaft and adapted to operate alternately against said shifting frame and the

actuating-collar of the clutch, and cushioning-springs interposed between said follower and the shifting frame and clutch-collar, substantially as set forth.

6. The combination with a rotary drum, a chain or cable wound thereon, and a weight suspended from the chain, of a detent for holding the drum against backward rotation, an intermittently-rotating releasing-shaft having a cam adapted to operate against said detent, a driving-wheel rotating in the direction in which the drum turns in winding the chain thereon, a clutch whereby the drum-shaft is thrown into gear with said driving-wheel, and an automatic shifting device actuated from the drum whereby said clutch is operated, substantially as set forth.

7. The combination with a rotary drum, a chain or cable wound thereon, and a weight suspended from the chain, of a detent for holding the drum against backward rotation, a releasing-shaft having a toothed actuating-wheel and a cam adapted to engage against said detent, a counter-shaft having a tappet engaging with the toothed wheel of the releasing-shaft, a ratchet device whereby said counter-shaft is intermittently rotated, a driving-wheel rotating in the direction in which the drum turns in winding the chain thereon, a clutch for throwing the drum-shaft into gear with said driving-wheel, and an automatic shifting device actuated from the drum and operating said clutch, substantially as set forth.

598,547. FIREPROOF FLOOR AND CEILING. CHARLES A. RALPH, Pittsburg, Pa., and ELMIRA P. S. WRIGHT, New York, N. Y. Filed Aug. 12, 1896. Serial No. 602,490. (No model.)



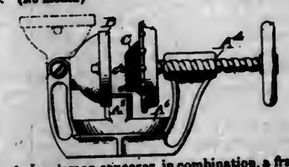
Claim.—1. The method of constructing fireproof floors and ceilings of concrete, consisting in first forming the ceiling and leaving an opening therein, erecting a centering on said ceiling, forming the floor thereon, removing said centering through said opening, and covering said opening, substantially as set forth.

2. In fireproof floors and ceilings formed of concrete, the combination with the ceiling having an opening therein, of a removable floor-centering erected thereon, and a slab for covering said opening, substantially as set forth.

3. In fireproof floors and ceilings formed of concrete, the combination with the ceiling having a dovetailed opening formed therein, of a removable floor-centering erected thereon, and a dovetailed slab adapted to fit said opening, substantially as set forth.

4. In fireproof floors and ceilings formed of concrete, the combination with the ceiling having an opening therein, of a floor-centering resting thereon consisting of cross-strips, beams resting on said cross-strips, and boards resting on said beams, substantially as set forth.

598,548. LEMON-SQUEEZER. ALBERT RAUBGARTEN and MATHIAS REDLINGER, Jr., Freeport, Ill. Filed June 15, 1897. Serial No. 640,913. (No model.)



Claim.—1. In a lemon-squeezer, in combination, a frame, a holder pivot-jointed thereto, a retaining-spring within the holder, a rotatable follower adapted to enter the holder, and a screw mounted in the frame for driving the follower into the holder, substantially as and for the purpose specified.

2. In a lemon-squeezer, in combination, a frame consisting of a base portion and two upwardly-projecting arms integral therewith, a holder pivot-jointed to the free end of one of the upwardly-projecting arms, a rotatable follower in form of a truncated cone and adapted to enter the holder, a screw, mounted in an interiorly-threaded bearing in the free end of the remaining upwardly-projecting arm, for driving the follower into the holder, substantially as and for the purpose specified.

3. In a lemon-squeezer, in combination, a frame consisting of a base portion and two upwardly-projecting arms integral therewith, a holder pivot-jointed to the free end of one of the upwardly-projecting arms, a curved flat retaining-spring lying within the holder and projecting therefrom at opposite sides thereof, a rotatable follower, in form of a truncated cone and adapted to enter the holder, a screw, mounted in an interiorly-threaded bearing in the free end of the remaining upwardly-projectiag arm, for driving the follower into the holder, substantially as and for the purpose specified.

4. In a lemon-squeezer, in combination, a frame consisting of a base portion and two upwardly-projecting arms integral therewith, a hollow conoid-shaped holder pivot-jointed by its apex to the free end of one of the upwardly-projecting arms, a rotatable follower, in form of a truncated cone and adapted to enter the holder, a screw fast by one end to the base of the follower and mounted in an interiorly-threaded bearing in the free end of the remaining upwardly-projecting arm, a hand-wheel fast to the outer end of the screw, substantially as and for the purpose specified.

5. In a lemon-squeezer, in combination, a frame consisting of a base portion and two upwardly-projecting arms, a hollow conoid-shaped holder pivot-jointed by its apex to the free end of one of the upwardly-projecting arms, a rotatable follower, in form of a truncated cone—having an annular flange thereon provided with a series of auxiliary driving-knobs—and adapted to enter the holder, a screw fast by one end to the base of the follower, and mounted in an interiorly-threaded bearing in the free end of the remaining upwardly-projecting arm, a hand-wheel fast to the outer end of the screw and the receptacle for receiving the lemon-juice after the same has been expressed by the squeezer, substantially as and for the purpose specified.

6. In a lemon-squeezer, in combination, a frame, a cup-shaped holder thereon adapted to receive a half lemon, a rotatable cone-shaped follower adapted to enter the holder and substantially conform to the interior thereof which follower has a bur-like surface and a receptacle at its forward end for receiving the lemon-seeds, and a screw mounted in the frame for driving the follower into the holder, substantially as and for the purpose specified.

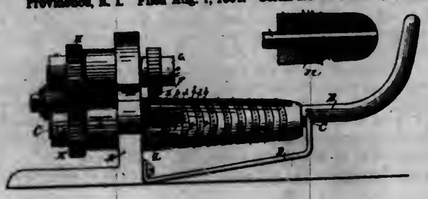
598,549. DRAWERS. GRACE CUTTS, New York, N. Y. Filed June 2, 1897. Serial No. 638,198. (No model.)



Claim.—1. The herein-described drawers comprising the leg portions each terminating at the upper end in a body portion, said body portions being cut away at both front and back at their inner edges on concaved curved lines and being united at the crotch portions by a narrow strip and provided at their upper edges with fastening devices to engage with the outer garment, substantially as described.

2. The herein-described drawers comprising two separate leg portions each terminating at the upper end in a body portion, said body portions being cut away at both front and back at their inner edges on similar-concave curved lines and being united at the crotch by a narrow strip an end of which is permanently fastened to one leg of the drawers and the free end of the strip being provided with devices for attachment to the other leg of the drawers, and said body portions being provided at their upper edges with reinforcements and devices thereon for attachment to the outer garment, substantially as described.

598,550. CLOTH-GUIDING MACHINE. JOSEPH J. SCHOLFIELD, Providence, R. I. Filed Aug. 7, 1891. Serial No. 402,068. (Model.)

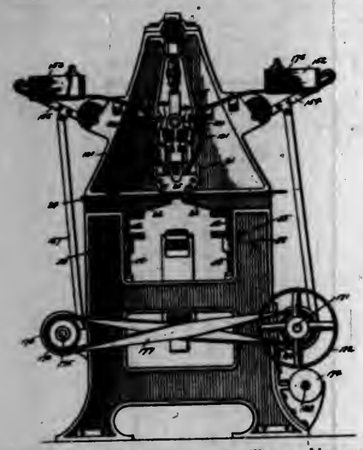


Claim.—1. The combination of the supporting-spindle, and a stop for limiting the rotary movement of the same, and a guide-roller supported upon the spindle at an angle with the axis of the spindle, with the detector geared with the spindle so that the angular movement of the detector in one direction, will impart a corresponding movement to the spindle in the same direction, substantially as described.

2. The combination with an angularly-set guide-roller, the supporting-spindle therefor, and the spring for actuating the supporting-spindle in one direction, of the detector arranged in positive connection with the supporting-spindle, whereby the movement of the detector by the engagement of the edge of the web therewith, will serve to impart a positive movement to the supporting-spindle against the resilience of the spring, substantially as described.

3. The combination of the supporting-spindle, and a stop for limiting the rotary movement of the same, and a guide-roller supported upon the spindle at an angle with the axis of the spindle, with the detector geared with the spindle, so that the angular movement of the detector in one direction will serve to impart a corresponding movement to the spindle in the same direction, and the antifriction-roller interposed between the adjacent surfaces of the spindle and the detector, substantially as described.

593,551. BOX CUTTING AND NAILING MACHINE. THOMAS B. ABERNATHY, Chicago, Ill., assignor to himself and Hugh H. Abernathy, same place. Filed Feb. 16, 1897. Serial No. 622,606. (No model.)



Claim.—1. A combined scoring and nailing machine comprising means for supporting a board, cutting mechanism adapted to form transverse grooves in the board, and nailing mechanism for securing strengthening-strips upon the board over such grooves, substantially as described.

2. The combination with supporting devices adapted to support a board, of cutting mechanism adapted to cut a groove in said board, and nailing mechanism, adapted to drive nails into said board at each side of said groove, substantially as described.

3. The combination with supporting devices adapted to support a board, of cutting mechanism adapted to cut a groove in the under side of said board, and nailing mechanism, adapted to drive nails into the upper side of said board at each side of said groove, substantially as described.

4. The combination with supporting devices adapted to support a board, of cutting mechanism adapted to cut a groove in said board, and nailing mechanism for driving independent nails into said board at each side of said groove, substantially as described.

5. The combination with supporting devices adapted to support a board, of cutting mechanism adapted to cut a groove in the under side of said board, and nailing mechanism above said cutting mechanism, said nailing mechanism being adapted to drive nails into the upper side of said board at each side of said groove, whereby a strengthening-strip may be secured upon the board over said groove without moving said board, substantially as described.

6. The combination with supporting devices adapted to support a board, of cutting mechanism adapted to cut a transverse groove in the under side of said board, and nail-driving devices arranged above said board longitudinally of said groove and at each side thereof, whereby strengthening-strips may be nailed upon said board over and longitudinally of said groove, substantially as described.

7. The combination with nail-driving mechanism, of a nail-receptacle, a nail-tube leading to the driving mechanism, flexible guide-strips adapted to conduct nails from said receptacle to said nail-tube, and means for agitating said receptacle, substantially as described.

8. The combination with nail-driving mechanism, of a nail-receptacle, flexible guides adapted to conduct nails from said receptacle to said driving mechanism, said guides consisting of flexible strips spaced a distance apart and connected to and forming the bottom of said nail-receptacle, and means for agitating said receptacle, substantially as described.

9. The combination with nail-driving mechanism, and a series of nail-tubes adapted to conduct nails thereto, of a receptacle 152, strips 158 adapted to conduct nails from said receptacle to said nail-tubes, said strips forming the bottom of the receptacle 152, a pivoted plate 176 in said receptacle, said plate having a series of notches in its lower edge, said notches registering with the spaces between said strips 158, and means for rocking said receptacle 152 and said plate, substantially as described.

10. The combination with nail-driving mechanism, and nail-tubes adapted to conduct nails thereto, and flexible guides for the nails, of supporting devices adapted to receive nails singly from said flexible guides and support them at the upper ends of said nail-tubes, means for delivering nails singly to said supporting devices, and means for delivering the nails to the nail-tubes from the supporting devices singly and without clogging, substantially as described.

11. The combination with nail-driving mechanism, and tubes adapted to conduct nails thereto, of strips 158, plates 178, 179 adapted to supply nails singly from said strips to said tubes, a dog 197 carried by said plates, cross bar 159 supported under the lower end of said strips 158, said bar having tongues 162 which bear against the under side of said strips, mallets 189, 190 adapted to engage the under side of said bar 159, springs 192, 193, a tappet 196 adapted to throw said mallets out of contact with said bar 159 and to be engaged by said dog, and means for reciprocating said plates 178, 179, substantially as described.

12. The combination with a scoring device and nail-feeding devices, of reciprocating plungers 102, supporting devices for said plungers, a crank-shaft arranged over said supporting devices, pitmen connecting said supporting devices to said crank-shaft, whereby by the rotation of said crank-shaft said supporting devices will be reciprocated, means for rotating said crank-shaft, and devices for automatically throwing said crank-shaft out of operation after each complete rotation thereof, substantially as described.

13. The combination with a clamp, as 25, said clamp having a vertically-arranged passage 98 and a nail-passage 100, of a plate 204 carried by said clamp, said plate having a perforation to permit of the passage of a nail, laterally-movable blocks supported upon said plate under said passage 98, the adjacent edges of said blocks being beveled, and vertically-movable blocks for normally holding said laterally-movable blocks in contact with each other centrally over said perforation, substantially as described.

14. The combination with a clamp, as 25, having a vertical passage 98 and a nail-passage 100 opening into said passage 98, of a plate 204 at the under side of said clamp, said plate having a perforation 205, blocks 206, 207 resting upon said plate, said blocks having inclined outer and inner edges, vertically-movable blocks 208, 209 adapted to engage the outer edges of said blocks 206, 207 respectively, and springs exerting a downward pressure upon said blocks 208, 209, substantially as and for the purpose specified.

15. The combination with a supporting-table, of a series of clamps 25 adapted to clamp a board upon said table and each provided with a nail-passage, rods connecting said clamps, means for vertically moving the clamps to release the board from the table, perforated plates at the under sides of said clamps, laterally-movable blocks supported upon said plates, and vertically-movable blocks for normally holding the said laterally-movable blocks in contact with each other centrally over the perforations in said plates, substantially as described.

16. The combination with a supporting-table having a longitudinal slot, of a cutter, mechanism for moving said cutter longitudinally in one direction, means for automatically throwing said mechanism out of operation when the end of the cut is reached, and a counterpoise for moving said cutter in the opposite direction, and nailing mechanism for driving nails at the opposite sides of the groove formed by said cutter, substantially as described.

17. The combination with a supporting-frame, and horizontal guides carried thereby, said guides being vertically adjustable, of a supporting-frame movable in said guides, a cutter carried by said frame, mechanism for moving said frame in a forward direction, nailing mechanism for driving nails at the opposite sides of the groove formed by said cutter, and means for moving said cutter back to the rear of the machine, substantially as described.

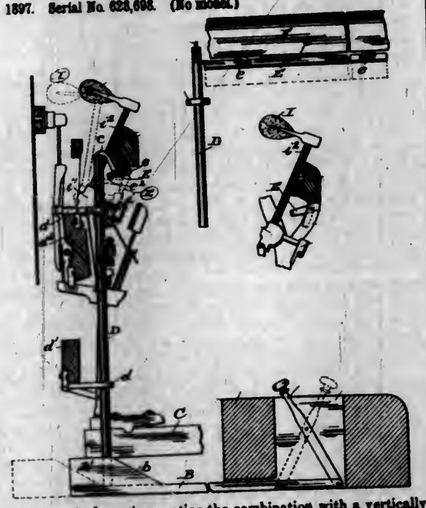
18. The combination with guides, a frame movable therein, and a cutter carried by said frame, of devices for moving said frame in said guides, a lever 77 for throwing said moving devices into operation, a rack adapted to engage said lever to hold said moving devices in operation, devices adapted to be engaged by the cutter-supporting frame when it reaches the front of the machine to throw said lever out of engagement with said rack, and thereby permit the return of said frame to the rear of the machine, and devices for returning said frame, substantially as described.

19. The combination with guides, a frame 51, and a rotating cutter mounted therein, of a strap 57 connected to said frame 51, a drum to which is connected the other end of said strap, said drum being mounted upon a shaft 62, friction-pulleys 63, 64, said pulley 64 being mounted on a shaft 65 journaled eccentrically in disks 66, 67, means for rotating said disks 66, 67 to throw said friction-pulleys into contact with each other, a rack adapted to be engaged by said lever to hold said friction-pulleys in contact with each other, devices operated by said frame 51 for throwing said lever out of engagement with said rack, means for returning the frame 51 to the rear of the machine, and means for rotating said cutter, substantially as described.

20. The combination with nail-tubes, guides, and devices for separating the lowermost nail carried by each of said guides from the others, of a plate over said nail-tubes, said plate being adapted to receive the nails and to support them over the nail-tubes, and means for operating said plate to cause the nails to drop into the nail-tubes, substantially as described.

21 The combination with nail-tubes, guides 158, and devices for delivering nails singly from said guides, of a plate 217 having slots 218 registering with the guide-spaces, and means for operating said plate to cause the nails carried by it to drop into the nail-tubes, substantially as described.

593,552. PIANO-ACTION. JAMES H. BUTLER, Columbia Heights, Ill., assignor to Joseph G. Ebersole, Cincinnati, Ohio. Filed Mar. 22, 1897. Serial No. 628,698. (No model.)



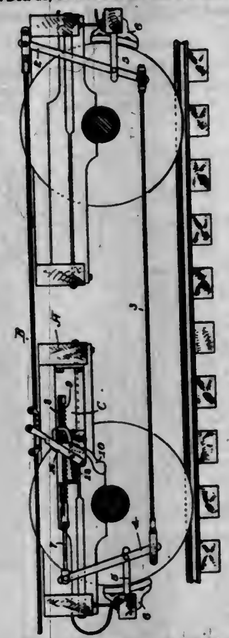
Claim.—1. In a piano-action the combination with a vertically-movable controlling-rod, having means to lift and lower the same, of a hammer-rail, a check-rail hinged to the hammer-rail and a catch on said check-rail engaging the upper part of the controlling-rod, substantially as described.

2. In a piano-action the combination with a vertically-movable rod, having means to lift and lower the same, of a hammer-rail, a check-rail hinged to the hammer-rail, a catch on said check-rail engaging the upper part of the controlling-rod, and a spring secured to the hammer-rail and check-rail and adapted to force and hold the latter-named rail in a lowered position, substantially as described.

3. In a piano-action the combination of a vertically-movable controlling-rod, with a hammer-rail, a spring-actuated check-rail hinged to the hammer-rail, a catch on the check-rail engaging the upper portion of the controlling-rod, a sliding bar having an inclined and enlarged portion to contact with the lower end of the controlling-rod, and a hand-lever suitably fulcrumed and connected to the outer end of the sliding bar, substantially as described.

4. In a piano-action the combination with a vertically-movable controlling-rod, having means to lift and lower the same, a check-rail pivotally secured and supported at a point to restrict, when in a lowered position, the movement of the back-catcher, and a catch on said check-rail engaging the upper part of the controlling-rod, substantially as described.

593,553. AUTOMATIC SLACK-ADJUSTER FOR RAILWAY-BRAKES. THOMAS R. NICHOLSON and WILLIAM DE FREMERY, St. Paul, Minn. Filed Dec. 11, 1896. Serial No. 615,365. (No model.)



Claim.—1. In combination with the brake rod and shoes, the mechanism actuated by the brake-rod to take up any slack, and the means actuated from said brake-rod for releasing the slack-take-up mechanism to give more slack.

2. The combination with the brake rod and shoes, and the slack-take-up mechanism connected with said shoes and operated from the brake-rod, of the means actuated from said brake-rod when the brake-shoes are too tight to release said slack-take-up mechanism and give a predetermined amount of slack.

3. A device of the class described, comprising a toothed bar sliding in suitable bearings, and adjustably connected with the dead brake-lever, the lever controlled from the brake-rod, and adapted to actuate said bar to take up any existing slack, and also adapted to be actuated from the brake-rod when the brake-shoes are too tight to release the bar and give a predetermined amount of slack.

4. An apparatus of the class described, comprising a toothed bar sliding in suitable bearings, and connected with the brake-levers, a lever controlled from the brake-rod, and adapted to actuate said bar as the brake shoes are set to take up slack, and the means actuated by said lever to release said bar and let out slack when the brake-shoes are too tight.

5. The combination with a toothed bar sliding in suitable bearings and connected with the brake-levers, the dog engaging said bar and holding it in position, and the lever actuated from the brake-rod to cause travel of the bar to take up any existing slack, of the means actuated by said lever when the same is moved a predetermined distance to release the rack from its controlling-dog, and allow travel in the opposite direction.

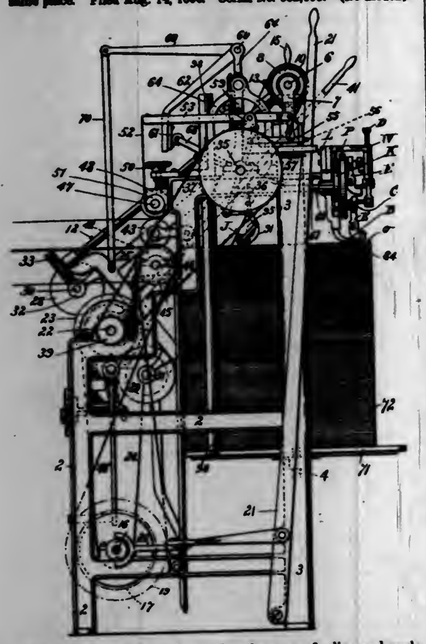
6. In combination, the rack slidable in suitable supports and connected with the brake-levers, the dog for holding the rack in position, the lever actuated from the brake-rod and adapted when moved beyond a certain limit to engage and cause the travel of the rack in one direction, and the means actuated by said lever when the same is moved through a predetermined limit to release said rack, and allow it to travel in the opposite direction.

7. In a coupling of the class described, the combination of the member connected to the rod, and having a transverse gudgeon or pivot for the lever, the member having lateral lugs engaging corresponding notches in the first member, and turning in the same as a hinge, and having means for connecting its free end to the adjacent end of the other member, to lock them together, and secure said lever on said gudgeon.

8. In a coupling of the class described, the combination with the connecting-rod and brake-lever, of the coupling members, the one having lateral lugs and the other notches to be engaged by said lugs

to form a detachable hinge connection, the means for adjustably securing the rod to one member, the transverse gudgeon or pivot for the brake-lever carried by one member and adapted to enter a socket in the other when they are closed together, and their interlocking connection.

598,554. PAPER-FEEDING MACHINE. ANOS D. ROWE, Holyoke, Mass., assignor of two-thirds to Peter J. Westphal and James G. Keough, same place. Filed Aug. 14, 1896. Serial No. 602,695. (No model.)



Claim.—1. Sheet-separating devices for paper-feeding and analogous machines comprising a yielding substance for direct frictional action against a sheet of paper, a support for said substance consisting of a lever holding said substance in operative position against said paper, a revoluble carrier on which said lever is pivoted, a spring-actuated roller bearing against said lever whereby said substance is yieldingly pressed against a sheet of paper, combined with means for rotating said carrier, substantially as set forth.

2. Sheet-separating devices for paper-feeding and analogous machines, comprising a revoluble lever carrier, a lever pivotally hung on said carrier, a paper-engaging roller of resilient material supported on an arm having a pivotal connection with said lever for direct frictional engagement with a sheet of paper, a roller hung to bear on said lever, a spring acting to force said last-named roller against said lever on said carrier, combined with means for rotating said carrier, substantially as set forth.

3. Sheet-separating devices for paper-feeding and analogous machines comprising a revoluble lever-carrier, a frame in which said carrier is supported, means for rotating said carrier, one or more paper-feeding levers pivotally hung on said carrier, a paper-engaging roller of resilient material supported on an arm having a pivotal connection with each of said levers, a resilient substance inserted in said lever opposite said roller for frictional engagement therewith, a shoe fixed in said frame against which said paper-engaging roller is carried after each paper-feeding movement thereof, whereby said roller is revolubly moved and a different part of its periphery is alternately carried against said paper, combined and operating substantially as set forth.

4. Sheet-separating devices for paper-feeding and analogous machines, comprising a revoluble lever-carrier, a frame in which said carrier is supported, combined with means for rotating said carrier, one or more paper-feeding levers pivotally hung on said carrier, a paper-engaging roller of resilient material supported on an arm having a pivotal connection with each of said levers, a depending tubular branch 85, fixed on said frame, an arm 88, secured on said branch, an arm 86, pivoted on said last-named arm, a roller *e*, hung to rotate in the free end of said arm 86, a spring held in said tubular branch engaging said pivoted arm 86, and a screw acting against said spring, whereby the force thereof against said last-named arm and through the latter against said paper-feeding levers, is made variable, substantially as set forth.

5. Sheet-separating devices for paper-feeding and analogous machines, comprising a frame, a revoluble lever-carrier supported in said frame, a cam fixed on one face of said carrier, one or more sheet-separating levers pivoted on the opposite face of said carrier, combined with means for rotating said carrier and cam, a vibratory lever pivoted on said frame having one arm engaging with said cam, combined with a paper-pressing post A, adjustably connected to said lever, substantially as set forth.

6. Sheet-separating devices for paper-feeding and analogous machines, comprising a frame, a revoluble lever-carrier supported in said frame, a cam fixed on one face of said carrier, one or more sheet-separating levers pivoted on the opposite face of said carrier, combined with means for rotating said carrier and cam, a vibratory lever pivoted on said frame having one arm engaging with said cam, combined with a paper-pressing post A, adjustably connected to said lever, and a paper-pressing foot B, having a guiding-post support in said frame and engaging with said cam whereby said foot is moved against the paper, substantially as set forth.

7. In a paper-feeding machine, in combination with the frame of the paper-separating devices, a paper-guiding pin 84, supported by and having a free vertical movement in said frame, and in contact with the side of the paper pile 72, whereby the sheets are held in uniform position, substantially as set forth

8. In combination, the paper-pressing foot B, having a guiding-post thereon, the frame-section L, in which said post is supported, combined with the paper-guiding pin 84, supported on the base of said post for a free vertical motion, substantially as set forth.

9. The frame composed of the sections L and W, the lever 77, pivoted for vibratory motion in said frame, the post A, connected to said lever, a spring H, acting against one arm of said lever to raise its longer arm, and said post, combined with the slotted bar 80, to one end of which said post is attached, a bolt 81, uniting said lever and bar and having a nut 82, thereon, and a washer on said bolt between said bar and lever, substantially as set forth.

10. In combination, the revoluble lever-carrier P, the lever E pivoted on said carrier, a roll *e*, pivoted on said lever, the lever-retracting spring *w*, engaging said lever and carrier, and means for applying a controlled pressure on said roll, substantially as set forth.

11. In paper-feeding machines, a sheet-feeding lever 91, having a block *k*, of resilient substance fixed thereon, an arm 95, pivoted on said lever, a roller J, of resilient material hung on said arm 95 for engagement with a sheet of paper, and having a frictional engagement with said block *k*, while so engaged, and free to be subsequently moved from said block by the independent movement of said paper, whereby said roll is disengaged from the latter, a radial arm 89, extending from a suitable hub, having an arm 90, thereon, a connection-rod 92, pivoted on said lever 91, and having a sliding engagement with said arm 90, means on said connection-rod for varying the pressure of said roller against a sheet of paper, combined with a revoluble shaft, means for securing said arm 90 on said shaft, and for rotating said shaft, substantially as set forth.

12. In combination, the gear and shaft holding box 58, having circular bosses on its opposite ends, a fork-shaped yoke engaging said bosses and having a connection with a fixed part of the machine thereabove, whereby said box is supported in operative position and is permitted to rock coincidently with the varying heights of the top of the pile of paper, means whereby the movements of the paper-holding table are controlled consisting of the arm 68, secured to the box 58, the lever 62, the lever 69, the lever 70, the latter being secured to the free end of the swinging frame 25, suitable connections between said swinging frame and the supports of said paper-holding table and means for rocking the box 58 consisting of the shaft 56 engaging with said box, a cam K, secured on said shaft, the presser-foot B, one end of which is in contact with said cam and the opposite end of which rests on said pile of paper, substantially as set forth.

13. In a paper-feeding machine, means for operating the upward feed of the paper-holding table thereof comprising an auxiliary frame pivoted by one end on the main frame of the machine, whose opposite end has a limited vertically-swinging movement, a friction-disk hung on a suitable shaft on said frame, combined with the driven shaft 22, having suitable engagement with said friction-disk, whereby the latter is rotated, the paper-carrying table, the screw-rods connected with said table whereby feeding movements are imparted thereto, and mechanism intermediate of said friction-disk and the upper extremities of said rods for rotating the same, substantially as set forth.

14. In a paper-feeding machine, means for operating the upward feed of the paper-holding table thereof comprising an auxiliary frame pivoted by one end on the main frame of the machine, whose opposite end has a limited vertically-swinging movement, a friction-disk hung on a suitable shaft on said frame, combined with the driven shaft 22, having suitable engagement with said friction-disk, whereby the latter is rotated, the paper-carrying table, the screw-rods connected with said table whereby feeding movements are imparted thereto, a shaft 6, hung on frame 2, gear connections between said shaft 6, and said screw-rods, a shaft 12, hung to rotate on said frame, having engagement with the shaft 30, and said shaft 6, substantially as set forth.

15. In a paper-feeding machine, means for stopping the machine when an excess of thickness of paper, or other matter, is inadvertently passed between the two rolls thereof which convey the separated sheets of paper from the machine, comprising an upper feed-roll having a rotary and a free vertical movement actuated by the passage thereunder of a sheet or sheets of paper, a normally non-rotating drum supported on a shaft in proximity to said roll, which, together with its said supporting-shaft, is revoluble by contact with said feed-roll, combined with the main shipper-lever of the machine, a spring for moving said lever to stop the machine, and mechanism interposed between said drum-carrying shaft and said shipper-lever, whereby a revoluble movement of said drum and its shaft effects a release of said shipper-lever, and permits said spring to act, substantially as set forth.

16. In a paper-feeding machine, means for stopping the machine when an excess of thickness of paper, or other matter, is inadvertently passed between the two rolls thereof which convey the separated sheets of paper from the machine, comprising an upper feed-roll having a rotary and a free vertical movement actuated by the passage thereunder of a sheet or sheets of paper, a normally non-rotating drum supported on a shaft in proximity to said roll, which, together with its said supporting-shaft is revoluble by contact with said feed-roll, combined with the main shipper-lever of the machine, a spring for moving said lever to stop the machine, a latch engaging said shipper-lever and means actuated by the revoluble movement of said drum whereby said latch is disengaged from said lever, substantially as set forth.

17. In a paper-feeding machine, means for stopping the machine when an excess of thickness of paper, or other matter, is inadvertently passed between the two rolls thereof which convey the separated sheets of paper from the machine, comprising an upper feed-roll having a rotary and a free vertical movement actuated by the passage thereunder of a sheet or sheets of paper, a normally non-rotating drum supported on a shaft in proximity to said roll, which, together with its said supporting-shaft, is revoluble by contact with said feed-roll, combined with the main shipper-lever of the machine, a spring for moving said lever to stop the machine, a latch engaging said shipper-lever, a pivoted lever 53, having one arm thereof connected to said latch, and a connection between the opposite arm thereof and said drum-carrying shaft, whereby a revoluble movement of said drum and its shaft vibrates said lever and permits said spring to act, substantially as set forth.

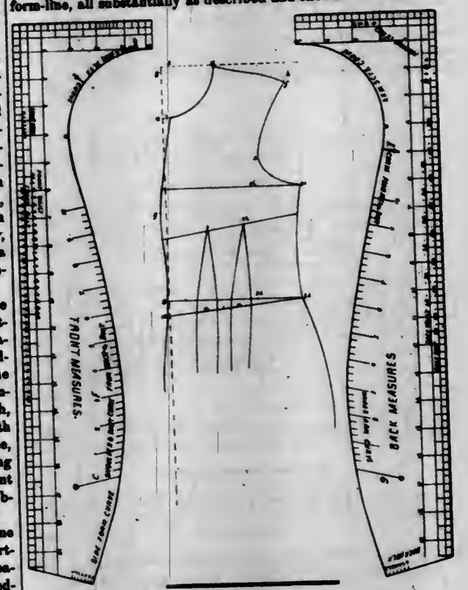
18. In a paper-feeding machine, the paper-table having a pile of paper thereon, means for arresting the undue upward movement thereof consisting of the auxiliary frame, means intermediate of said table and said auxiliary frame, a rock-shaft 60, connections between said shaft and the free end of said frame, the gear-containing box 58, a supporting-rod 67, extending through said box, the sheet-separating devices secured on the extremity of said supporting-rod over said pile of paper, combined with a plate 61, fixed on arms extending from said rock-shaft, and an arm fixed on said box whose extremity bears against said plate, whereby a vibratory movement of said box imparts a swinging motion to the free end of said frame thereby disconnecting the said sheet-elevating devices thereon, substantially as set forth.

19. In a paper-feeding machine, in combination, the feeding-table, feed-screws, the auxiliary frame, the driving-pulley, and means for rocking said auxiliary frame, the shafts 6 and 31, hung respectively in the main frame of the machine and in the auxiliary frame thereof, a driving-belt connecting said shafts, a shipping-gear 14, on said shaft 6, and means for sliding the same thereon, and means for rotating said last-named shaft by a hand-crank whereby the screw-rods 4, are rotated and the paper-holding table is adjusted to operative position, substantially as described.

20. The combination in a paper-feeding machine, of a paper-holding table, the auxiliary frame 25, means between said frame and said table whereby the movements of the latter are controlled by said frame, the lever 106, adapted for engagement of one end thereof when said table is moving downward and having its upper end movable to different positions under said frame, substantially as set forth.

598,555. DRESSMAKER'S MEASURE. ANNA M. VAN DERWORP, Detroit, Mich. Filed Feb. 17, 1896. Serial No. 579,662. (No model.)

Claim.—A tailor's measure, having square sides A, and B, a curve side composed of a quarter-circle projected into a parabolic curve with an elevation of about one-tenth its length, an oblique side, running from B, to *d*, at an angle of about one hundred and two degrees, the opening *c*, placed between the first-mentioned sides, so as to enable the operator to place the line G, on the measure, over and coincident with a line on the pattern, so as to be able to project a desired form-line, all substantially as described and shown.



REISSUES.

11,686. BRAKE-SHOE CONNECTION. JOHN J. KINNER, Jr., Pittsburg, Pa., assignor to the Kinner & Jones Manufacturing Company, same place. Filed July 6, 1897. Serial No. 643,684. Original No. 565,004, dated Aug. 4, 1896.



Claim.—1. The combination of a brake-shoe or brake-shoe carrier, a block movably connected to the shoe or carrier and provided with means for attachment to the brake-beam and hanger and a spring interposed between the block and shoe or carrier, substantially as set forth.

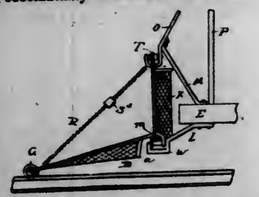
2. The combination of a brake shoe or brake-shoe carrier provided with shoulders or ribs, a block movably and detachably connected to the shoe or carrier and provided with means for connection to the brake-beam and hanger, and a spring interposed between the block and shoe or hanger and between the ribs or shoulders on the shoe or carrier, substantially as set forth.

3. A brake-shoe or brake-shoe carrier provided at its ends with bearing-shoulders and with slotted lugs intermediate of the bearing-shoulders, whereby the shoe or shoe-carrier may be connected with a freedom of movement to the brake-beam or brake-beam connection substantially as set forth.

11,687. CAR-FENDER. CHARLES F. MANSON, Philadelphia, Pa. Filed Mar. 13, 1897. Serial No. 628,236. Original No. 571,779, dated Nov. 24, 1896.

Claim.—1. The combination with a car of a main fender-frame projecting forwardly thereof and having rollers adapted to travel on the rails of a track of a supplemental frame pivotally connected with the main frame and supported at the front of the car to move laterally thereof on rollers.

2. The combination with a car, of a supplemental fender-frame supported in rollers in front thereof, and a main fender-frame, the rear end of which is pivotally connected with the lower side of said supplemental frame, said main frame being projected forward and provided with rollers which are adapted to travel on the rails of the track, and said supporting-rollers of the supplemental frame being supported by braces connected with the platform of the car, and with the dashboard, substantially as shown and described.



3. The combination with a car, of a supplemental fender-frame supported in rollers in front thereof, and a main fender-frame, the rear end of which is pivotally connected with the lower side of said supplemental frame, said main frame being projected forward and provided with rollers which are adapted to travel on the rails of the track, and said supporting-rollers of the supplemental frame being supported by braces connected with the platform of the car, and with the dashboard, and the forward end of the main fender-frame being connected with the upper portion of the supplemental frame, by means of side chains, substantially as shown and described.

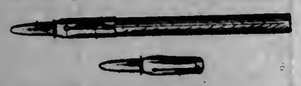
DESIGNS.

27,817. BADGE. CHARLES C. DARLING, Providence, R. I. Filed Sept. 17, 1897. Serial No. 652,078. Term of patent 7 years.



Claim.—The design for a badge, button, or charm, substantially as herein shown and described.

27,818. PENCIL-POINT PROTECTOR. HERBERT SMITH, New York, N. Y. Filed Aug. 24, 1897. Serial No. 649,396. Term of patent 7 years.



Claim.—The design for a pencil-point protector substantially as herein described and as shown in the accompanying drawings.

27,819. BOTTLE OR JAR. HERMAN KRAUTH, Meriden, Conn. Filed Aug. 19, 1897. Serial No. 648,835. Term of patent 7 years.



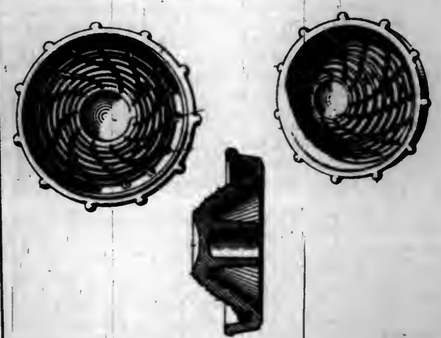
Claim.—The design for necks and handles for bottles, jars, &c., substantially as herein shown and described.

27,820. PIE-FORK. EDWARD J. BIRTCHERD, Genoa, Wis. Filed Sept. 1, 1897. Serial No. 650,304. Term of patent 14 years.



Claim.—The design for a pie-fork substantially as herein shown and described.

27,821. CONE FOR LEMON-SQUEEZERS. ALBERT BAUMGARTEN and MATHIAS REDLINGER, Jr., Freeport, Ill. Filed June 15, 1897. Serial No. 640,924. Term of patent 14 years.



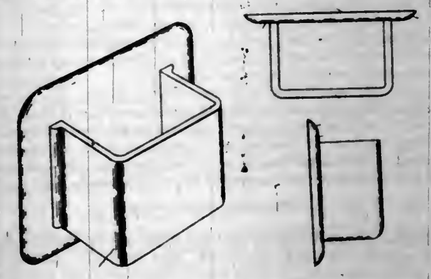
Claim.—The design for cones or followers for lemon-squeezers herein shown and described.

27,822. SNAP-SEAL SHACKLE. EDWARD J. BROOKS, East Orange, N. J. Filed Nov. 27, 1894. Serial No. 530,135. Term of patent 7 years.



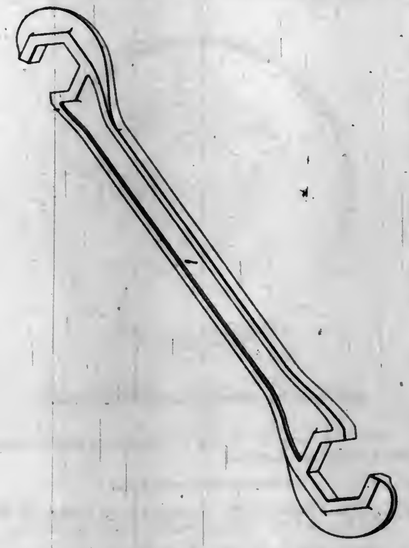
Claim.—The design for a snap-seal shackle, substantially as shown and described.

27,823. WATER-CLOSET TANK. DAVID D. BUICK, Detroit, Mich. Filed Aug. 2, 1897. Serial No. 646,823. Term of patent 14 years.



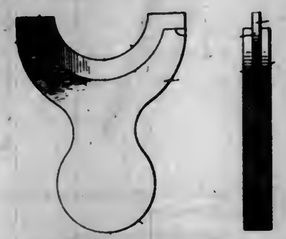
Claim.—The design for a water-closet tank as herein described and shown.

27,824. PUMP-WRENCH. OSCAR P. TRAHERN, Rockford, Ill. Filed Sept. 17, 1897. Serial No. 652,081. Term of patent 3½ years.



Claim.—The design for a pump-wrench herein shown and described.

27,825. SCRAPING-TOOL. SARAH M. CUSHING, Salem, and WARD O. PERKINS, Boston, Mass. Filed Apr. 23, 1897. Serial No. 633,540. Term of patent 7 years.



Claim.—The design for a scraping-tool herein shown and described.

27,826. MACHINE-STANDARD. GEORGE A. HOLMES, Boston, Mass. Filed Feb. 15, 1897. Serial No. 623,576. Term of patent 14 years.



Claim.—The design for a machine-standard herein shown and described.

27,827. GUIDE-SUPPORTING BEAM FOR ELEVATORS. RICHARD T. CRANE, Chicago, Ill. Filed Jan. 28, 1897. Serial No. 621,111. Term of patent 14 years.



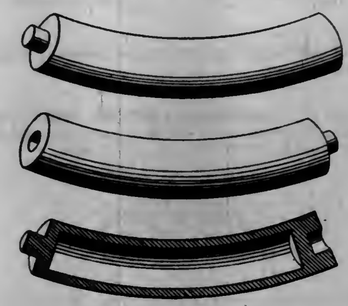
Claim.—The design for a guide supporting beam for elevators, substantially as herein shown and described.

27,828. GUIDE-SUPPORTING BEAM FOR ELEVATORS. RICHARD T. CRANE, Chicago, Ill. Filed Feb. 19, 1897. Serial No. 624,283. Term of patent 14 years.



Claim.—The design for a guide-supporting beam for elevators, substantially as herein shown and described.

27,829. MOLDED TIRE-SECTION. JACOB A. LEWIS and WILLIAM S. SPRIGGS, New York, N. Y. Filed Sept. 22, 1897. Serial No. 652,661. Term of patent 7 years.



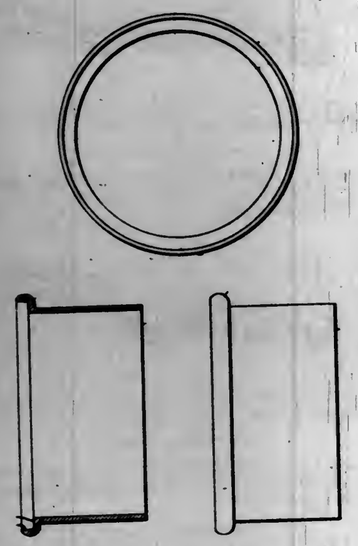
Claim.—The design for a molded tire-section herein shown and described.

27,830. TIRE. CHARLES P. KELLY, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed June 25, 1897. Serial No. 642,548. Term of patent 14 years.



Claim.—The design for an elastic tire, substantially as herein shown and described.

27,831. WHEEL-HUB BAND. WILLIAM F. MORRIS, New Haven, Conn. Filed Sept. 14, 1897. Serial No. 651,661. Term of patent 14 years.



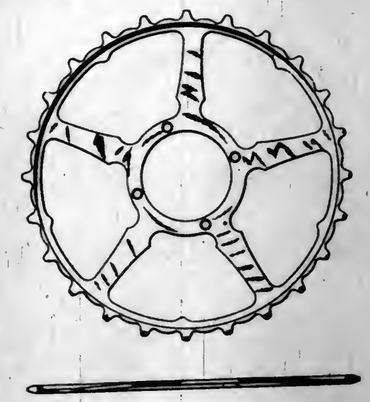
Claim.—The design for a wheel-hub band substantially as herein shown and described.

27,832. CHAIN-GUARD FOR BICYCLES. ARTHUR W. RIVETT, Chicago, Ill., assignor to J. J. Ryan & Co., same place. Filed Apr. 22, 1897. Serial No. 633,409. Term of patent 3½ years.



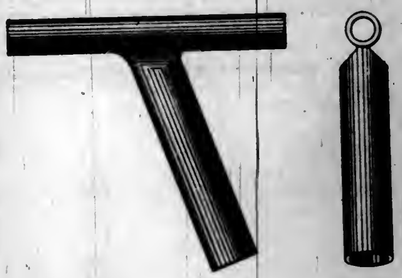
Claim.—The design for a chain and sprocket-wheel guard for bicycles substantially as herein shown and described.

27,833. SPROCKET-WHEEL FOR VELOCIPEDES. WILLIAM H. PARKER, Chicago, Ill. Filed Sept. 18, 1897. Serial No. 652,200. Term of patent 3½ years.



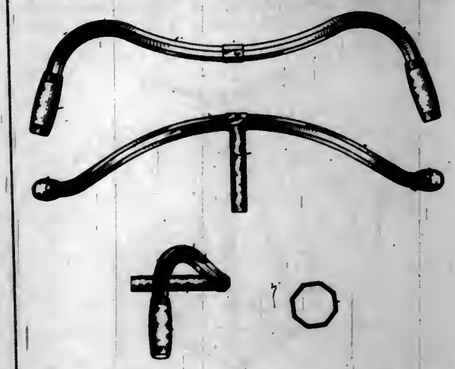
Claim.—A design for sprocket-wheels for velocipedes, substantially as shown and described.

27,834. SADDLE-POST. JONATHAN A. HUNT, Westborough, Mass. Filed Sept. 25, 1897. Serial No. 653,050. Term of patent 7 years.



Claim.—The design for a bicycle saddle post and cross-piece, substantially as shown and described.

27,835. BICYCLE HANDLE-BAR. FREDERICK H. SCHIESSER, Chicago, Ill., assignor to the Chicago Handle-Bar Company, same place. Filed Sept. 20, 1897. Serial No. 652,389. Term of patent 3½ years.



Claim.—The design for a bicycle handle-bar substantially as herein shown and described.

27,836. STOVE. HENRY C. COLE, Council Bluffs, Iowa. Filed May 11, 1897. Serial No. 636,169. Term of patent 7 years.



Claim.—1. The design for a stove substantially as shown and described.

2. In a design for a stove, the design for the top substantially as shown.

3. In a design for a stove, the design for the base substantially as shown and described.

4. In a design for a stove the design for the legs substantially as shown.

5. In a design for a stove the design for the brackets substantially as shown.

6. In a design for a stove the design for the ash-door substantially as shown.

7. In a design for a stove the design for the draft-plate substantially as shown.

27,837. STOVE. GEORGE W. CORE, Detroit, Mich., assignor to the Eclipse Stove Company, Mansfield, Ohio. Filed June 7, 1897. Serial No. 639,763. Term of patent 7 years.



Claim.—1. The design for a stove substantially as shown and described.

2. The design for a top portion of a stove substantially as shown and described.

3. The design for the front side or panel of a stove substantially as shown and described.

4. The design for the front feed-door of the stove substantially as shown and described.

5. The design for the stove-register substantially as shown and described.

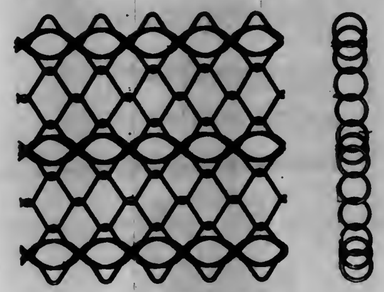
6. The design for the side rails substantially as shown and described.

7. The design for the base portion of the stove substantially as shown and described.

8. The design for the ash-pit door substantially as shown and described.

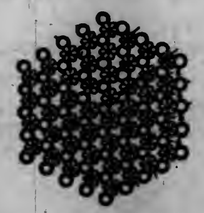
9. The design for the stove-legs substantially as shown and described.

27,838. PATTERN FOR WIRE FABRIC. JAMES B. RYAN, New York, N. Y. Filed Aug. 6, 1897. Serial No. 647,375. Term of patent 7 years.



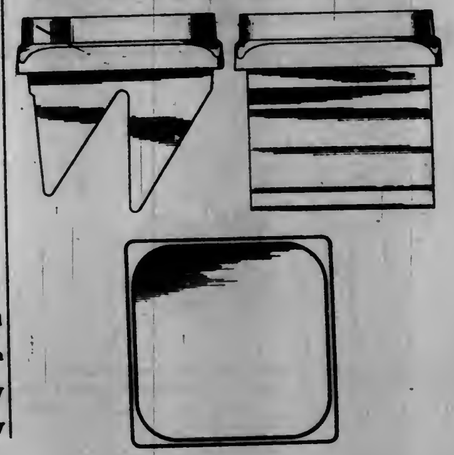
Claim.—The design for a pattern for a woven-wire fabric herein described and set forth.

27,839. METAL FABRIC. JOSEPH VIB. CHERRY, Newark, N. J. Filed Apr. 7, 1897. Serial No. 631,178. Term of patent 3½ years.



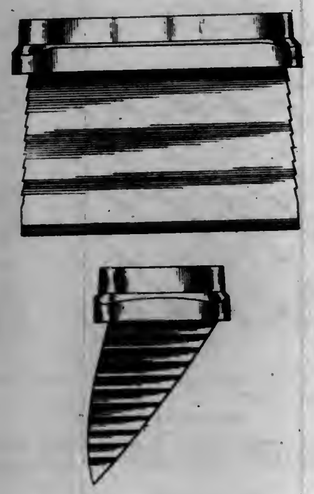
Claim.—The design for a metal fabric, substantially as herein shown and described.

27,840. VAULT-LIGHT. WILLIAM S. MACHARG, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Sept. 11, 1897. Serial No. 651,304. Term of patent 14 years.



Claim.—A design for a vault-light substantially as shown and described comprising a body portion provided on one side with a downwardly-projecting prism part, the other side of said body portion provided with an upwardly-projecting substantially rectangular part, having rounded or curved corners.

27,841. VAULT-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Sept. 27, 1897. Serial No. 653,261. Term of patent 14 years.



Claim.—The design for a vault-light as herein shown and described.

27,842. TILE. HARRY HAUGH, Anderson, Ind. Filed Apr. 23, 1897. Serial No. 633,557. Term of patent 14 years.



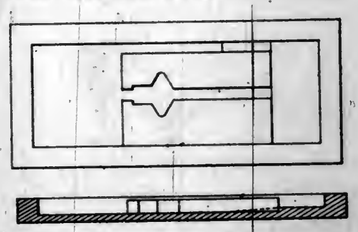
Claim.—The design for an encaustic tile, substantially as herein described and shown.

27,843. COFFIN-PLATE. GEORGE HARE FORD, New Haven, Conn. Filed Sept. 10, 1897. Serial No. 651,258. Term of patent 7 years.



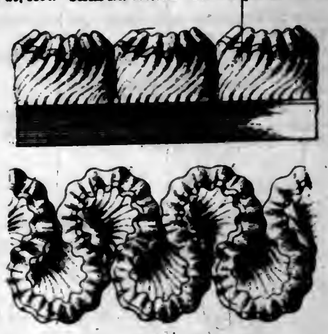
Claim.—The design for coffin-plates and similar articles substantially as herein shown and described.

27,844. GAME-BOARD. GEORGE H. CHANDLER, Taunton, and FREDERIC W. PARSONS, Newburyport, Mass. Filed June 18, 1897. Serial No. 641,363. Term of patent 3½ years.



Claim.—The design for a game-board as herein shown and described.

27,845. TRIMMING. GEORGE H. TAYLOR, New York, N. Y., assignor to the Kurzboodt Manufacturing Company, same place. Filed May 29, 1897. Serial No. 638,814. Term of patent 7 years.



Claim.—The design for trimming, substantially as shown.

TRADE-MARKS

REGISTERED NOVEMBER 9, 1897.

30,796. DRESS AND CORSET STAYS. JULIUS JANOWITZ, New York, N. Y. Filed Sept. 25, 1897.

AMERICAN QUEEN

Essential feature.—The words "AMERICAN QUEEN" no matter how arranged or printed. Used since June, 1897.

30,797. DRESS-SHIELDS. THE CANFIELD RUBBER COMPANY, Bridgeport, Conn., and New York, N. Y. Filed Oct. 1, 1897.

CANFIELD SHIELD

Essential feature.—The words "CANFIELD SHIELD." Used since July 1, 1883.

30,798. DRESS-PROTECTORS. HARRY FEDER, New York, N. Y. Filed Aug. 20, 1897.

MOSS

Essential feature.—The word-symbol "MOSS." Used since July 23, 1897.

30,799. KNIT UNDERWEAR. THE LITTLE FALLS KNITTING MILL COMPANY, Little Falls, N. Y. Filed Sept. 23, 1897.

KLONDIKE

Essential feature.—The word "KLONDIKE." Used since September 18, 1897.

30,800. YARNS AND THREADS AND KNITTED AND CROCHETED GARMENTS AND ARTICLES. THE KIBBE THREAD COMPANY, Fall River, Mass., and New York, N. Y. Filed Oct. 11, 1897.

SILKATEEN,

Essential feature.—The word "SILKATEEN." Used since July 20, 1897.

30,801. RUSSIA LEATHER. HERMAN SÖHRLANT LEATHER COMPANY, Milwaukee, Wis., and Boston, Mass. Filed Sept. 13, 1897.



Essential feature.—The words "ATLAS RUSSIA" and the representation of Atlas. Used since November, 1896.

30,802. CLEANING OR SCRUBBING BRUSHES. THE PALMETTO FIBRE COMPANY, Chicago, Ill. Filed Apr. 26, 1897.

HUB 

Essential feature.—The word "HUB" or the representation of a hub. Used since April 1, 1894.

30,803. LAMP-CHIMNEYS. PEERLESS LEAD GLASS WORKS, Ellwood City, Pa. Filed Sept. 20, 1897.

AURORA

Essential feature.—The word "AURORA." Used since September 16, 1896.

30,804. TOY BANK. CHARLES SMITH, Dayton, Ohio. Filed Sept. 27, 1897.

THE X-RAY

Essential feature.—The word "X-RAY." Used since August, 1896.

30,805. IMITATION GAME-BALLS. JACOB S. HECKER, Philadelphia, Pa. Filed May 6, 1897.



Essential feature.—The caricature of a ball-player batting a ball and being struck by a ball. Used since April 15, 1897.

30,806. JEWELRY AND SILVER-PLATED WARE. H. G. WEBSTER & SON, Brooklyn, N. Y. Filed Feb. 24, 1897.



Essential feature.—The combination of the letter "W," a star, and a spider's web, substantially as shown. Used since September, 1896.

30,807. POWDER FOR THE SKIN. GEORGE WM. HEYER, Houston, Tex. Filed Sept. 17, 1897.



Essential feature.—The representation of a banner arranged within a circular field and the hyphenated words "PRICKLY-HEAT," arranged obliquely on the banner. Used since April 1, 1888.

30,808. COMPLEXION-BEAUTIFIER. THEODORE AUGUST METZ, New York, N. Y. Filed Oct. 16, 1897.

Complexine

Essential feature.—The word "COMPLEXINE." Used since September 26, 1896.

30,809. POWDER FOR USE ON PLANTS AND VINES. DANFORTH CHEMICAL COMPANY, Saco, Me., and Leominster, Mass. Filed July 16, 1897.



Essential feature.—The words "BUG DEATH." Used since May 4, 1896.

30,810. SMOKING AND CHEWING TOBACCOS AND CIGARETTES. LIGGETT & MYERS TOBACCO COMPANY, St. Louis, Mo. Filed Jan. 28, 1897.



Essential feature.—The symbol sledge, whether indicated by the word "SLEDGE" or by a representation of a sledge of the character shown in the facsimile. Used since October 10, 1896.

30,811. LAGER-BEER AND MALT EXTRACTS. M. K. GOETZ BREWING COMPANY, St. Joseph, Mo. Filed Oct. 15, 1896.



Essential feature.—The letter "G" and the representation of a hand behind the letter and appearing through the open space therein, which hand grasps a bunch of barley-stalks, so disposed that their heads appear just above the upper member of the letter, constituting a sort of crown thereto, and the whole being surrounded by one or more circles. Used since July 8, 1895.

30,812. BEER, ALE, PORTER, STOUT, AND MALT EXTRACT. JOHN SMITH'S SONS, Youngstown, Ohio. Filed Sept. 20, 1895.

Standard Gold

Essential feature.—The words "STANDARD GOLD." Used since September 1, 1895.

30,813. WINES. CHARLES A. BALDWIN, Cupertino, Cal. Filed June 12, 1897.

Beaulieu

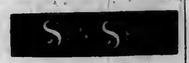
Essential feature.—The word-symbol "BEAULIEU." Used since August, 1895.

30,814. WHISKY. CARSTAIRS, MCCALL & CO., Philadelphia, Pa. Filed May 25, 1897.

AMERICAN CLUB

Essential feature.—The words "AMERICAN CLUB." Used since December 15, 1885.

30,815. CHEWING-GUM. T. B. DUNN COMPANY, Rochester, N. Y. Filed Sept. 3, 1897.



Essential feature.—The word "SEN-SEN." Used since March, 1897.

30,816. SEEDED MUSCAT RAISINS. FORSYTH SEEDED RAISIN COMPANY, Fresno, Cal. Filed Sept. 15, 1897.



Essential feature.—The words "OWL BRAND" and the representation of an owl with a medallion and monogram of the letters "F S R Co." Used since August 1, 1896.

30,817. ROLLED OATS AND OATMEAL. MUSCATINE OAT MEAL COMPANY, Muscatine, Iowa. Filed Aug. 19, 1897.



Essential feature.—The hyphenated letters "S-S." Used since August 1, 1897.

30,818. STARCH FOR FOOD AND LAUNDRY PURPOSES. THE NATIONAL STARCH MANUFACTURING COMPANY, Covington, Ky., and New York, N. Y. Filed Jan. 11, 1894.



Essential feature.—A representation of the head of an Indian. Used since 1873.

30,819. CERTAIN NAMED CANNED GOODS OR ARTICLES. SPRAGUE, WARNER & COMPANY, Chicago, Ill. Filed Dec. 11, 1896.

RICHELIEU

Essential feature.—The word "RICHELIEU." Used since February 20, 1896.

30,820. CANNED SALMON. ALASKA PACKERS ASSOCIATION, San Francisco, Cal. Filed Sept. 2, 1897.

CANOE

Essential feature.—The word-symbol "CANOE." Used since January 1, 1868.

30,821. CANNED SALMON. ALASKA PACKERS ASSOCIATION, San Francisco, Cal. Filed Sept. 2, 1897.

CRUISER

Essential feature.—The word-symbol "CRUISER." Used since January 1, 1895.

30,822. OYSTERS, MEATS, FRUITS, VEGETABLES, AND CEREALS IN GLASS, EARTHENWARE, AND CANS HERMETICALLY SEALED. ASBAU, RAINES COMPANY, Cheswold, Del., and Baltimore, Md. Filed Sept. 16, 1897.

NARRAGANSETT.

Essential feature.—The words "NARRAGANSETT BRAND." Used since December 2, 1896.

30,823. WOVEN-WIRE BEDS AND BED-BOTTOMS. EDWARD B. STURPE, Washington, D. C. Filed Sept. 11, 1897.

SILVER AND GOLD.

Essential feature.—The word-symbol "SILVER AND GOLD." Used since August 15, 1897.

30,824. TIN-PLATE OR TERNE-PLATE, BEING SHEET-IRON COATED WITH TIN OR LEAD OR BY A MIXTURE OF BOTH. UNITED STATES IRON AND TIN PLATE MANUFACTURING COMPANY, McKeesport, Pa. Filed Sept. 18, 1897.

U. S. GRANT.

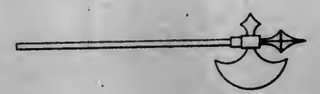
Essential feature.—The word "GRANT," in connection with the initials "U. S." Used since March 20, 1894.

30,825. TIN-PLATE OR TERNE-PLATE, BEING SHEET-IRON COATED WITH TIN OR LEAD OR A MIXTURE OF BOTH. UNITED STATES IRON AND TIN PLATE MANUFACTURING COMPANY, McKeesport, Pa. Filed Sept. 18, 1897.

U. S. MONONGAHELA.

Essential feature.—The word "MONONGAHELA," in connection with the initials "U. S." Used since April, 1892.

30,826. HOOPS, BANDS, STRIPS, TIES, AND BLADES. EXPORT IRON AND STEEL COMPANY, Pittsburg, Pa. Filed Sept. 21, 1897.



Essential feature.—The representation of an ax. Used since August 1, 1897.

30,827. BICYCLES. THE THOMSEN COMPANY, Chicago, Ill. Filed July 3, 1897.

WABASH

Essential feature.—The word "WABASH." Used since May, 1893.

30,828. BICYCLES. THE THOMSEN COMPANY, Chicago, Ill. Filed Sept. 10, 1897.

KENMORE

Essential feature.—The word "KENMORE." Used since January 1, 1895.

30,829. BICYCLES. CHARLES R. WALBRIDGE and HARRY WALBRIDGE, Buffalo, N. Y. Filed Jan. 27, 1897.

Huron

Essential feature.—The word "HURON." Used since January 15, 1897.

30,880. VELOCIPEDES. R. H. Wolff & Company, Limited, New York, N. Y. Filed Aug. 26, 1897.

WOLFF-AMERICAN

Essential feature.—The words "Wolff-American." Used since June 2, 1894.

30,881. BICYCLE-LAMPS. The H. P. Bergmeridge Company, Toledo, Ohio. Filed Aug. 13, 1897.

KLONDYKE

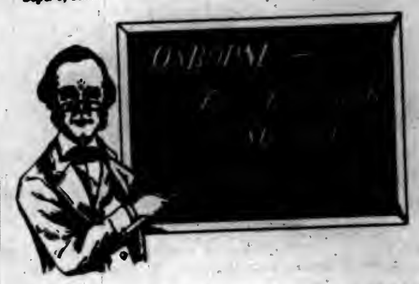
Essential feature.—The word "Klondyke." Used since August 1, 1897.

30,882. BICYCLES, HUBS, PEDALS, HANDLE-BARS, FRAMES, AND CYCLE PARTS. The Shell Cycle Fittings Company, Toledo, Ohio. Filed Oct. 14, 1897.

Shell

Essential feature.—The word "Shell." Used since January, 1896.

30,883. HARVESTERS, BINDERS, MOWERS, RAKES, HARROWS, CULTIVATORS, AND SIMILAR MACHINES AND THEIR SEVERAL PARTS. D. M. Osborne & Company, Auburn, N. Y. Filed Sept. 9, 1897.



Essential feature.—The representation of a man holding in his right hand a pointer pointing to a sign-board upon which is the sentence "Osborne farm implements succeed where others fail." Used since September 1, 1897.

30,884. CUTLERY AND EDGE TOOLS. The Firm of Henry Taylor, Sheffield, England. Filed May 13, 1897.



Essential feature.—The representation of an acorn. Used since 1858.

30,885. AXES. Kelly Axe Manufacturing Company, Alexandria, Ind., and New York, N. Y. Filed Aug. 16, 1897.

FLINT EDGE

Essential feature.—The arbitrarily-selected words "Flint Edge." Used since July, 1895.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Ninth Circuit.

GASKILL *et al. v.* MYERS.

Decided July 1, 1897.

1. MYERS—STOVE FOR HEATING AND LIGHTING PURPOSES—VALIDITY.

Reissue Letters Patent No. 11,383, granted November 7, 1893, to John F. Myers, for a stove for heating and lighting purposes, *Held* to be valid, although the claims of the original patent had been broadened by the omission of certain unpatentable elements and although a patent for substantially the same thing had been granted to another party who had merely substituted a base-ring of the Myers original patent and added a heat-deflecting ring on the top of Myers's device.

2. REISSUE—DEFECTIVE CLAIM—OMITTING ELEMENTS.

A claim which made what was no part of the invention one of the elements was defective, which defect was properly cured by omitting the improper element from the reissue.

3. MYERS—DESIGN FOR A LAMP-STOVE—VALIDITY.

Design Letters Patent No. 22,911, granted November 14, 1893, to John F. Myers, for a design for a lamp-stove, shows sufficient originality and invention to sustain its validity. (Gilbert, judge, dissenting.)

IN error to the Circuit Court of the United States for the Northern District of California.

Before GILBERT, ROSS, and HAWLEY, Judges.

Mr. G. R. Lukens for the plaintiffs in error.

Mr. John L. Boone for the defendant in error.

ROSS, *J.*:

This was an action at law to recover damages for an alleged infringement of two certain Letters Patent issued to the defendant in error by the United States—one, No. 11,383, which was a reissue, and the other a design patent, No. 22,911. The validity of both patents is challenged by the plaintiffs in error. In respect to a reissued patent the settled law is, as recently declared by the Supreme Court in the case of *Topliff* v. *Topliff*, (57 O. G., 1257; 145 U. S., 156, 170; 12 Sup. Ct., 825, 831:)

That the power to reissue may be exercised when the patent is inoperative by reason of the fact that the specification as originally drawn was defective or insufficient, or the claims were narrower than the actual invention of the patentee, provided the error has arisen from inadvertence or mistake, and the patentee is guilty of no fraud or deception, but that such reissues are subject to the following qualifications: first, that it shall be for the same invention as the original patent, as such invention appears from the specification and claims of such original; second, that due diligence must be exercised in discovering the mistake in the original patent, and that, if it be sought for the purpose of enlarging the claim, the lapse of two years will ordinarily, though not always, be treated as evidence of an abandonment of the new matter to the public, to the same extent that a failure by the inventor to apply for a patent within two years from the public use or sale of his invention is regarded by the statute as conclusive evidence of an abandonment of the patent to the public; third, that this Court will not review the decision of the Commissioner upon the question of inadvertence, accident, or mistake, unless the matter is manifest from the record, but that the question whether the application was made within a reasonable time is, in most if not in all such cases, a question of law for the court.

In the case cited the Court proceeded to say:

To hold that a patent can never be reissued for an enlarged claim would be not only to override the obvious intent of the statute, but would operate in many cases with great hardship upon the patentee. The specification and claims of a patent, particularly if the invention be at all complicated, constitute one of the most difficult legal instruments to draw with accuracy; and, in view of the fact that valuable inventions are often placed in the hands of inexperienced persons to prepare such specifications and claims, it is no matter of surprise that the latter frequently fail to describe with requisite certainty the exact invention of the patentee, and err either in claiming that which the patentee had not in fact invented, or in omitting some element which was a valuable or essential part of his actual invention. Under such circumstances, it would be manifestly unjust to deny him the benefit of a reissue to secure to him his actual invention, provided it is evident that there has been a mistake, and he has been guilty of no want of reasonable diligence in discovering it, and no third persons have in the meantime acquired the right to manufacture or sell what he had failed to claim. The object of the patent law is to secure to inventors a monopoly of what they have actually invented or discovered, and it ought not to be defeated by a too strict and technical adherence to the letter of the statute, or by the application of artificial rules of interpretation.

The statute upon the subject, and thus construed by the Supreme Court, is as follows:

Whenever any patent is inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the Commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a new patent for the same invention, and in accordance with the corrected specification, to be issued to the patentee, or, in the case of his death or of an assignment of the whole or any undivided part of the original patent, then to his executors, administrators, or assigns, for the unexpired part of the term of the original patent. Such surrender shall take effect upon the issue of the amended patent. The Commissioner may, in his discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant, and upon payment of the required fee for a reissue for each of such reissued Letters Patent. The specifications and claim in every such case shall be subject to revision and restriction in the same manner as original applications are. Every patent so reissued, together with the corrected specification, shall have the same effect and operation in law, on the trial of all actions for causes thereafter arising, as if the same had been originally filed in such corrected form; but no new matter shall be introduced into the specification, nor in case of a machine patent shall the model or drawings be amended, except each by the other; but when there is neither model nor drawing, amendments may be made upon proof satisfactory to the Commissioner that such new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake, as aforesaid. (Rev. Stats., sec. 4916.)

From the statute and from the decisions of the Supreme Court it is clear that it is essential to the validity of a reissued patent that it be for the same invention as the original patent, as such invention appears from the specification and claims of such original.

Turning now to the patent to the defendant in error, in lieu of which his Patent No. 11,383 was issued, we find the object of his invention therein described declared as follows:

The object of my invention is to provide a device whereby I am enabled to use an ordinary coal-oil lamp within a grate or

fireplace and by the employment of a peculiarly-constructed inclosing casing to prevent the flame of the lamp from being affected by the usual strong draft of the chimney-flue.

It also has for its object a means for providing a proper circulation of air about the lower part of the lamp and oil-chamber without subjecting it to the chimney-draft, a means for concentrating the heat and projecting it into the room, and a means for opening communication with the chimney in order to discharge the odors arising when the lamp is extinguished and prevent their escaping into the room. A valve or damper is so arranged that the top may also be used for cooking purposes.

The specification followed, making reference to annexed drawings for illustration, describing a casing A of a segmental or parabolic form in horizontal section, the axis being in a vertical line, and a corrugated or other reflecting-surface B fitted around the inner surface. The exterior form of the back the inventor declared—

is adapted to fit into the fireplace after the basket and ash-pan have been removed; but the casing may be made in other forms without altering the character of my invention.

The bottom of the casing B′ is described as having a large opening through the center, into which the oil-reservoir of the lamp C is fitted. The reservoir is of large size and has certain described handles D upon each side, by which it may be conveniently taken out or replaced when necessary. The burner, the inventor declared, may be of any well-known or suitable construction and has a glass chimney E extending up into the upper portion of the apparatus. The bottom B is described as supported upon a base F, which has the rear portion approximating in shape to the rear of the curved body A. The base is described as being of considerable depth, so as to allow the lamp-reservoir to be suspended within it without touching the surface upon which the apparatus stands, and the inventor adds:

I have shown the base mounted upon small wheels or rollers G, which allow it to be easily drawn out or pushed back into place.

The specification proceeds:

Through the front and top of this base are made a number of holes H, and through the top, in which the lamp-reservoir is suspended, the holes are made, so that air may readily draw through the openings in the base and thence up through these holes around the exterior of the lamp, thus producing a circulation of air within the body of the stove and around the reservoir and lamp to keep the parts cool, and especially to prevent overheating the reservoir by reason of its confinement within the casing. The cap or upper portion J is inclosed, as shown, and has a horizontal closed top K, with a number of small holes K′ in the front to allow the heat which rises into the upper portion of the casing from the lamp to pass out through these openings into the room.

This device is adapted to be fitted into the fireplace or opening for any grate by simply removing the basket and ash-pan therefrom, and it may be rolled into place upon the rollers G, so that any odors which may arise from the lamp when it is extinguished will escape through the valve or register L, which is partially opened for the purpose. The heat will be thrown out by direct radiation, and by the action of the reflector behind the lamp, and the room will at the same time be lighted sufficiently for all ordinary purposes.

By the use of the casing closed behind and at the top the lamp is protected from the strong draft of the fireplace-chimney. The open or perforated front and bottom supply air to keep the lamp cool. The closed top with perforations in front and the open front with reflector behind concentrate the heat and throw it out into the room, and at the same time protect the lamp from drafts, which would break the chimney or prevent perfect combustion.

If it is desired to use the stove for cooking purposes, it is made available by the use of the damper or register L, which turns in a frame, M, so as to close the openings in said frame or open them like the ordinary rotary register. The frame M has upwardly-projecting points N, which serve to support any vessel containing material which it is desired to heat or cook at this point.

When the device is to be used for cooking in this manner, it is simply drawn out from the fireplace sufficiently to expose the top and the register, which is opened for the purpose of cooking, as before described. When used for heating purposes, it is preferably allowed to stand within the fireplace, and by reason of the peculiar construction a great amount of heat is developed from it.

Below the register is suspended a concave or cup-shaped guard O, which, diverging above the lamp-chimney, will prevent any liquids spilled or boiled over the top of the cooking vessel from falling upon and breaking the chimney. By means of the register in the top I am also enabled to regulate the amount of heat without turning the lamp-wick down or extinguishing it entirely, for by opening the register much of the heat will be allowed to escape up the chimney. If the lamp is turned low, any odors arising from imperfect combustion will escape through the register and into the chimney.

Having thus described his invention, the inventor added what he claimed as new and desired to secure by Letters Patent, as follows:

1. A stove consisting of the body having a base and wheels or rollers upon which said body is supported, openings around the front of the base for the admission of air, a floor forming the top of said base with a central opening, a lamp-reservoir having handles and fitting said opening, perforations made in the floor surrounding the lamp to allow circulation of air through the base and floor, a top with openings and register, and a curved back adapted to fit the fireplace and extending downward below the level of the top of the lamp-chimney, with perforations for the escape of heat, substantially as herein described.

2. A stove consisting of the segmental body-section with a correspondingly-shaped reflector fitted around its inner surface and adapted to fit the fireplace, a base and floor having openings for the circulation of air, a central opening, a removable lamp, the reservoir of which is adapted to fit said opening and is provided with handles, an upper closed portion or cap into which the chimney of the lamp extends, a register-frame having openings and upwardly-projecting points to support a utensil for cooking purposes, and a valve by which the openings in said register may be exposed or closed, substantially as herein described.

3. A fireplace-stove consisting of a lamp, a casing closed at the top, back, and sides, within which the lamp is suspended, a base perforated to allow air to circulate, an open front and a reflector at the rear of the lamp, a closed top into which the top of the chimney extends, and openings in front for the escape of heat, substantially as herein described.

4. A fireplace-stove consisting of a lamp, a casing closed at the top, back, and sides, within which the lamp is suspended, a closed base perforated to allow air to circulate, an open front, an inclosure above into which the top of the lamp-chimney extends, a register in the top and a support for a cooking vessel, and a cup-shaped shield by which the lamp-chimney is protected from liquids, substantially as herein described.

5. A stove consisting of a horizontal bottom supported above the floor-level to allow a free circulation of air beneath and having a central opening in the bottom, a removable lamp-reservoir suspended in the opening and projecting below the bottom, perforations in the bottom around the rear of the lamp, and an inclosed and perforated top, substantially as herein described.

Although it is quite evident from the specification and claims of this original patent that the construction claimed and thereby patented was a stove for use in and in connection with an open fireplace or grate, it does not follow that the thing invented may not be used elsewhere. That there is no essential change in the specification contained in the reissued patent is conceded by the plaintiffs in error. The claims of the reissue are undoubtedly broader than those of the original. They omit all reference to a fireplace and grate; but neither a fireplace nor a grate constituted any part of the invention. The claims of the reissued patent also omitted certain elements which were embraced in the claims of the original patent, but which really constituted no part of the invention—that is to say, the first claim of the original patent made the "wheels or rollers" upon which the stove is supported one of the elements of the claim; but there is no invention in putting rollers under a stove or other thing to make it movable, as was held by the Supreme Court in *Hendy* v. *Iron Works*, (43 O. G., 1117; 127 U. S., 370; 8 Sup. Ct., 1275.) A claim which made what was no part of the invention one of its elements, and consequently essential to its infringement, was therefore clearly defective, which defect was properly cured by omitting the improper element from the reissue. For the same reason the handles of the reservoir, which were made an element of the second claim of the original patent, but which, being attached only for the purpose of the more con-

veniently removing the reservoir, constituted no part of the invention, were properly omitted from the claims of the reissue, thereby correcting that defect of the second claim of the original patent. The same may be affirmed in respect to the length of the lamp-chimney described in the third claim of the original patent and in respect to the cup-shaped shield by which the lamp-chimney is protected from liquids. We are of opinion that the reissued patent did not go beyond the real invention, as shown by the specification and claims of the original patent.

Nor does the fact that intermediate the issuance of the original patent and the application for the reissue a patent was granted to F. E. Browne for an "appliance for heating, illuminating, or culinary purposes" defeat the reissue. That Browne was aware of the complainant's original patent is manifest from this statement in his specification:

Heretofore heating appliances have been constructed with a lamp-sustaining base having a lamp seated within a central opening. My invention is to be distinguished from appliances of such character in that the base of such prior appliances have been made of material having high heat-conducting qualities, and, in order to prevent the heating of the oil-receptacle of the lamp, such bases have been perforated around the lamp-seat to admit an upward draft of cold air around the lamp, so that the air discharged from the heat-emitting opening, E, has been heated by convection and radiation, and there has been an ascending draft of air all about the lamp exterior to the chimney, which draft carried off the heat to the upper part of the room, thus impairing the effective heating qualities of the appliance. In my heating appliance the draft of air around the lamp-chimney is practically done away with, and the heated air which passes from the appliance consists simply of that which has been heated with direct contact of the flame in inducing combustion, and nearly the entire amount of heat is by radiation directed outward at right angles from the lamp-chimney and the lamp-containing heat-deflector, D, instead of ascending to the upper part of the room through the medium of the heated and expanded air which surrounds the lamp-chimney, and which in said appliance, as heretofore constructed, rises rapidly, and carries the heat to the upper part of the room, instead of allowing it to pass outward. By making the base-ring of non-heating and non-heat-absorbing material, substantially, such as wood or other suitable material, all danger of heating the oil is avoided. The heat-deflecting wall is perpendicular to the base-ring, so that the heat is directed outward horizontally, and not downward upon the base. The upper heat-deflector and radiating-drum, H, serves also with great efficiency and economy as a heat-radiator, detaining and distributing, by convection, a large portion of the heat which otherwise would pass upward into the upper part of the room, and thereby cease to be effective to heat the lower part of the room, where the heat is required.

His claims are:

1. The appliance for heating, illuminating, and culinary purposes, consisting of the combination of the imperforate non-heat-conducting base-ring mounted upon suitable supports, and arranged to receive within its circle a suitable lamp, and having a wall-seat arranged at a distance from its inner circle to leave suitable space between the heat-deflector wall when in place upon such seat and a lamp when seated in such seat, a lamp provided with an interior central draft-flue, the heat-deflector wall having a heat-emitting side opening, a suitable spider-supporting breast arranged upon such wall, an open spider mounted upon such breast, and a removable heat-deflecting drum arranged to fit upon such breast around such spider.

2. The appliance set forth, consisting of the combination of an imperforate non-heat-conducting base-ring mounted upon suitable supports, and arranged to receive within its circle a suitable lamp, a lamp provided with an interior central draft-flue, the heat-deflector wall having a heat-emitting opening, the heat-deflecting drum mounted upon such wall, and a register arranged in the top of the drum.

Browne thus substituted for the metal base-ring of the Myers stove a base-ring of wood or other non-heat-conducting material and added a heat-deflecting drum on top. With these exceptions the first claim of the complainant's original patent, which is the same as the fifth claim of the reissue, covered the construction for which Browne's patent was issued.

In respect to the design patent we are not prepared to say that it does not show originality and the exercise of the inventive faculty. None of the stoves relied on to defeat this patent show a semicylindrical body or case. Form and shape are elements of a design. In *Hammond* v. *Agricultural Works*, (17 C. C. A., 356; 70 Fed. Rep., 716,) cited by the plaintiffs in error, what the plaintiff there did, and all that he did, was to substitute for the platform which had been previously used on the rear end of certain existing street-cars an open compartment precisely similar to the open compartment which was in use at the front end of those cars, which we held was nothing more than the exercise of the imitative faculty.

The judgment is affirmed.

GILBERT, *J.*, (dissenting:)

I concur with the majority of the court in arriving at the conclusion that the judgment of the circuit court should be affirmed, but I am unable to assent to that portion of the opinion which sustains the validity of the design patent of the defendant in error. The claim of that patent is for a—

design for a lamp-stove consisting of a semicylindrical body with an open front, a cylindrical top surmounting the semicylindrical body, and an ornamental top piece, all as herein shown and combined.

It appears from the record that five years before the date when the defendant in error applied for his patent an application for a patent had been filed by Landon Ketchum for a gas-stove, with drawings showing a stove with a semicylindrical body and an open front surmounted by a cylindrical top and an ornamental top piece, containing all the specified features of the patented design of the defendant in error. The plaintiffs in error have constructed a gas-stove which likewise contains these general features, but otherwise no more resembles the design of the defendant in error than it does that of the Ketchum patent. It does not appear, however, that on the trial of the cause the plaintiffs in error requested the court to instruct the jury specially upon that branch of the case, or that they excepted to the submission of both causes of action to the jury, or that they otherwise took steps to segregate the action on the design patent from the case or to protect their rights as against that patent.

I find no error, therefore, for which the judgment should be reversed.

U. S. Circuit Court of Appeals—Third Circuit.

FORGIE *v.* DUFF MANUFACTURING COMPANY.

Decided July 19, 1897.

BARRETT—LIFTING-JACK—VALID—BROAD CONSTRUCTION—INFRINGED.

Claims 1 and 6 of Letters Patent No. 455,998, granted July 7, 1891, to Josiah Barrett, for a lifting-jack, *Held* to be valid and entitled to have such a broad construction put upon them as would enable him to obtain the benefit of the full scope of his invention. As thus construed they are *Held* to be infringed.

APPEAL from the Circuit Court of the United States for the Western District of Pennsylvania.

Before DALLAS, BUTLER, and KIRKPATRICK, Judges.

Mr. William L. Pierce for the appellant.
Mr. James I. Kay for the appellee.

KIRKPATRICK, *J.*:

This matter comes before the court on an appeal from a decree of the Circuit Court for the Western District of Pennsylvania, (78 Fed. Rep., 626) granting to the complainants a preliminary injunction based upon two patents, No. 455,993, dated July 7, 1891, and No. 527,102, dated October 9, 1894, issued to Josiah Barrett and assigned to the Duff Manufacturing Company. The claims involved are 1 and 6 of Patent No. 455,993 and claim 19 of Patent No. 527,102; but inasmuch as the defendant in his answer consents that decree be made against him as to claim 19, Patent No. 527,102, the court is only concerned with the consideration of the claims 1 and 6 of Patent No. 455,993, which are in the following words:

1. In a jack, the combination of a bar having teeth on one side thereof, a pivotal lever, two pawls pivoted to said lever and having fingers rigid therewith, and a yielding tripping-plate having lugs thereon adapted to engage with said fingers and through the same draw the pawls from engagement with the toothed bar, substantially as and for the purposes set forth.

6. In a jack, the combination of a bar having teeth on one side thereof, a pivotal lever, a pawl pivoted to said lever and having a finger rigid therewith, and a yielding tripping-plate mounted on the frame, and having a lug adapted to contact with said finger and through the same draw the pawl from engagement with the toothed bar, substantially as and for the purposes set forth.

In a former suit brought in this circuit, entitled *Manufacturing Co.* v. *Forgie*, (57 Fed. Rep., 748,) upon full consideration, the court held this patent, No. 455,993, to be valid and decided that the complainant was entitled to have such a broad construction put upon his claims as would enable him to obtain the benefit of the full scope of his invention. The validity of the patent having been so sustained the only question now before us for consideration is one of infringement, and in determining it the court should be guided by the rules of construction laid down in the case above referred to, and which are in conformity with the decision in *Western Electric Co.* v. *La Rue*, (53 O. G., 57; 139 U. S., 601; 11 Sup. Ct., 670.)

In the opinion which has been filed in this cause, and which forms the basis of the decree appealed from, the learned judge sets forth clearly and fully the state of the art before and at the time application was made by Barrett for his Patent No. 455,993 and the need which existed for further improvement in the then existing mechanism to adapt the lifting-jack of Barrett manufactured under Patent No. 312,316 to the requirements of an "oil-well jack." This mechanism had been provided with a rigid tripping-plate, and in order to provide for the withdrawals of the pawls during the reversing operation there were pivoted to said pawls spring-actuated fingers, which when the lever was operated moved in contact with the tripping-plate in such a way as to draw the pawls away from the teeth of the rack. In applying this mechanism to the purposes of an "oil-well jack" it was found that when the joint was tightly coupled together and the wrenches still applied thereto the wrenches exerted a very strong pressure against the carriage and the fixed post on the rack-bar, and the operation to remove the wrenches from the drill-rod, so as to permit the latter to be used, was found to be very difficult. To overcome this difficulty was the object of the yielding tripping-plate provided for in the claims of Patent No. 455,993, above set forth. By the substitution of the yielding tripping-plate having a lug or lugs thereon adapted to engage with said fingers and through the same draw the pawls from the toothed bar—

for the device described in Patent No. 312,316, Barrett gained for his new machine simplicity and strength—simplicity in that the parts were reduced in number by the removal of the levers and one of the springs, and strength by his ability to increase the size of the pawls and relieve them from the strain of carrying the reversing mechanism.

In Patent No. 455,993 we find the following elements in combination: a rack-bar having teeth upon one side, a frame for pivoted lever, a lever pivoted on a frame and provided with a long and short pawl pivoted thereto, fingers rigidly connected with the pawl, and a yielding tripping-plate having lugs which when the plate is in a given position will engage the rigid fingers on the pawl, the construction specified to produce—

power mechanism in which a step-by-step movement back and forth is obtained, said movement being actively operated in one direction to move a load, and passively operated in the other direction to control the movements of a load.

In so far as the rack-bar, the pivoted levers, the pawls having fingers, and the tripping-plate in general combination are concerned they are the same in Patents Nos. 312,316 and 455,993, but the constructions differ in that in the prior patent the fingers are pivoted on the pawls and the springs which accumulate and apply the power to withdraw the pawls from engagement with the rack-bar are also mounted on the pawls, while the tripping-plate is rigid during its operation. In the patent in suit the fingers are made rigid on the pawls and the spring which accumulates the power and applies it to withdraw the pawls from engagement with the rack-bar is transferred to the tripping-plate, constituting one element, which is called the "yielding tripping-plate," the claims of the patent being for the combination of rack-bar, pivotal levers, and pawls of fingers, a tripping-plate, and springs for applying power to the pawls through the fingers when the finger is rigidly connected with the pawl and the storage-spring with the tripping-plate.

The claims of the Patent No. 455,993 which are under consideration cover, broadly, the idea of the yielding plate, without limitation as to the position or form of the plate, the only requisite being that it shall yield in such a way as to accomplish its purposes—viz., the withdrawal of the pawls from engagement with the toothed bar. This will be apparent by reference to page 2, line 10, of the specification of the patent:

The tripping-plate is mounted in any suitable way upon the jack-frame, being shown in the drawings as pivoted to the same, though it is evident that it may be mounted to slide therein.

The device was wholly new. Nothing in anticipation thereof has been brought to the attention of the court nor cited by way of reference in the Patent Office. If we turn to the Forgie machine, marked "Exhibit Forgie Jack," and which is claimed to be an infringement, we find a rack-bar with teeth on one side, a pivoted lever, and two pawls with rigid fingers pivoted to said lever. These are the same elements found in the Barrett

patent, needing only in combination the "yielding tripping-plate" to make it similar throughout.

To perform the functions of the complainant's yielding tripping-plate, the defendant has adopted an ingenious device. Instead of pivoting the tripping-plate to the jack-frame and placing a spring under the same by which the whole body of the tripping-plate is pressed upwardly against the rigid fingers of the pawl he has devised a plate which slides in the frame, and secured within the plate and projecting up therefrom in position to be engaged by the rigid fingers of the pawls are the spring-fingers, so that while the plate as a whole is rigid, yet with the yielding fingers placed thereon the same result is obtained in practically the same manner as in the patent in suit. The yielding of the plate within itself is the clear equivalent of the bodily yielding of the plate, while the spring-fingers form lugs which store the power and give a movement the same in principle as that of the complainant's jack. To convert a plate yielding bodily to effect a tripping by the receding of a lug when it comes in contact with the object to be tripped into a plate having yielding lugs performing the same functions requires no exercise of the inventive genius. The latter seems to us but the equivalent of the former.

The defendant's machine being similar in its other elements, to which reference has been made, and the tripping mechanism being but the equivalent of the complainant's tripping-plate, we are of the opinion that the infringement of claims 1 and 6 of complainant's patent No. 455,993 is clearly shown and that the decree of the circuit court should be affirmed.

U. S. Circuit Court—District of Massachusetts.

BATES v. KEITH.

Decided July 20, 1897.

BATES—WELT-GUIDE FOR SEWING-MACHINES—PATENTABILITY—INFRINGEMENT.

Letters Patent No. 419,239, granted January 14, 1890, to George A. Bates, for a welt-guide for sewing-machines, construed and *Held* that if the patent covers anything which is patentable any claimed construction of it which would bar the respondent from using the guide especially devised by him would be too unreasonable to be sustained.

Mr. James E. Maynadier for the complainant.
Mr. William Quinby for the defendant.

PUTNAM, *J.*:

This is a bill alleging infringement of a patent issued for a welt-guide to be used in connection with sewing-machines for sewing welts on cork-sole shoes. The welts for which these guides are adapted differ from the usual welts in that the usual welt constitutes the core for them, which core is in part enveloped in a casing, so that the welt and the casing make a compound welt, which is described by counsel as a "cork welt." Prior to the device in suit this cork welt, or the core and its casing, had always been guided by hand in the process of machine sewing, and it is claimed that the complainant's guide very materially reduces the cost of the shoe.

The entire pith of the device presented to the court, so far as it contains anything which can be claimed to be essentially new, lies in the fact that partly around the guide-passage intended for the core, and which is admitted by the specification to be in all respects like the welt-guide in common use, there lies another passage, concentric and elongated, intended to guide the casing, so that, as the core and the casing emerge from the guide, the casing will take exterior concentric shape around at least one edge and one surface of the core.

The specification of the claim describes various details, among which are edge-guides and the rib intended to enter the ordinary groove in the welt, but all these incidentals are necessary elements which will be found in every welt-guide, so that it is maintained by the complainant that the single essential feature is that the device has two passages, one for the core and the other for the casing, arranged substantially as we have described. Therefore the complainant further maintains that not only is his device a tool as distinguished from a mere combination, but that also the detailed elements stated in his claim are not essential in connection with the consideration of alleged infringements.

The court need not stop to consider what the complainant means by characterizing his device as a "tool," or whether such a distinction has any foundation, nor whether the complainant's proposition as to the construction of his claim, assuming it to cover a combination, is correct, or whether, on the other hand, under the circumstances of the case, the claim is not to be construed strictly, and all the elements enumerated therein to be held essential, on the rules stated in *Reece Company* v. *Globe Company*, (67 O. G., 1720; 61 Fed. Rep., 958, 961,) and in *Wright* v. *Yuengling*, (69 O. G., 639; 155 U. S., 47, 52.) So far as these propositions are concerned, we, for the purposes of this case, yield to the complainant the benefit of his entire invention, and assume that his claim is such as to cover the whole of it. Nevertheless, with reference to the extent of his invention, we must regard the state of the art and we must also, with due allowance for exceptional cases, regard the rule laid down by the Court of Appeals for this circuit in *Long* v. *Pope Manufacturing Company*, (77 O. G., 1428; 75 Fed. Rep., 835, 839,) and restated in *The Boston and Revere Railway Company* v. *The Bemis Company*, (80 Fed. Rep., 287, 290,) as follows:

It is plain, nevertheless, on all rules, that so much of the mere form given in the specification, drawings, and claim is essential, and must be retained, as is necessary in order to accomplish all the functions expressly enumerated therein.

Therefore the whole case comes down to the questions, first, whether there is a patentable invention in making a double guide of the general character which we have described, and, second, whether, if there is anything patentable in such a device, the invention which it covers can be regarded as of so broad a nature that the device of the respondent can be held to infringe.

We refer again to that part of the specification which says that the device is connected to the lever of a welt-sewing machine too well known to require a description; that it is connected to this lever by a tang in the usual way; that, like the welt-guide in common use, it has a guide-passage for the single welt constituting the core of the compound welt; that this passage is the same as that in common use, with some changes which are clearly mere matters of detail, and that the edges of the walls of the guide are slotted and curved, "being," as the specification says, "in this respect the same as the cover in general use."

The specification further proceeds that, in operation, one end of the core is placed in its proper passage and one end of the casing in its proper passage; that a lasted shoe is then presented to the machine, the awl passing through the core and the casing and also through the upper and a part of the inner sole, precisely as in sewing on the ordinary welt; that, after the core and its casing are thus sewed to the upper and inner sole, the product is the same as if they had been sewed on by hand, and that—

> the other operations to complete the shoe are in all respects the same as usual in making this kind of shoe.

This makes it entirely clear that the only novelty is the superimposing on the usual passage for a welt the concentric overlapping passage to which we have referred, also intended for the casing.

The specification also shows clearly that the patentee had in contemplation, so far as his device was concerned, nothing beyond that subdivision of the art of sewing welts which concerns welts of the compound character which we have described. A proposition of this kind does not necessarily limit the rights of a patentee, because the law has been stated over and over again that this fact alone would not prevent the inventor from reaping the advantage of any function which could be found to be within the claim as properly construed, available without a modification of the machine which involves the use of further inventive faculty, although known to him and omitted in the specification without fraud or not known to him. (*Long* v. *Pope Manufacturing Company*, *ubi supra*, at page 837.) The proposition, however, becomes important in connection with other facts to which we will call attention.

The respondent constructed his device in accordance with a patent held by him, so that, perhaps, on the ordinary rule, so far as any presumptions arising from the issue of a patent are concerned, the parties stand *in equilibrio*. The purpose intended to be accomplished by the respondent, and shown by the device actually used by him, was plainly in accordance with the statement of the specification of his patent, as follows:

> The object of my invention is to provide a shoe-sewing machine with a guide capable of properly presenting to the action of the awl and needle an imitation cork-sole welt, as well as the usual welt, and supporting these welts firmly against any lateral motion or "creeping" out of their proper path of movement.

Thus he commences with the compound welt as a completed element, and so it happens that, instead of the ordinary guide-passage for the core, with the overlapping concentric passage for the casing, the passages of his guide are adapted to pass the completed cork-sole welt through one passage with the usual welt through the other and are in no essential respect like the complainant's guide, as shown in his specification and drawings, except in the fact that it contains two guide-passages. The respondent's device is therefore incapable of performing the essential and only function had in contemplation by the complainant's specification. This fact, in connection with the rule stated in *Long* v. *Pope Manufacturing Company*, *ubi supra*, that so much is essential as is necessary to accomplish all the functions expressly enumerated in the patent, is sufficient to dispose of this case; but we can take a somewhat broader view of it.

Guides used in connection with sewing-machines and for innumerable other purposes have been so common in the arts and have been used from time immemorial for so many purposes that it would be an unreasonable state of the law which would deny as a common right to every artisan and manufacturer freedom to procure or frame guides suited for his art or for his particular subdivision of any art. In this respect it is impossible to draw any essential distinction between the common right and privilege of every person to adapt guides to his own peculiar necessities and the like right to shape gouges or plane-irons or combine them of different shapes, according to the changing necessities or desires of carpentry, or to devise, subdivide, and change the forms of boxes or other packing-cases according to the necessities of each particular trade. It may be that for any established art or any subdivision of any special art there would be invention in so adapting or shaping guides, gouges, packing-boxes, or any other common tools and means as to adapt them to the special art or to the special subdivision; but whoever does this cannot, where the field is so common, encroach on any other person's special art or subdivision. Therefore in this case, with reference to so common a device as a guide, even if the complainant could successfully maintain that there is invention in devising one suitable for the particular purpose which he had in mind—that is, for directing the two elements of a compound welt in the manner pointed out in his specification—yet he could not prevent the respondent from adapting and freely using a guide which would be suitable for his own special subdivision, although in the same general art. Therefore if the patent covers anything which is patentable, which may well be doubted, any claimed construction of it which would bar the respondent from using the guide especially devised by him would, in view of the considerations we have stated, be too unreasonable to be sustained.

In view of our conclusions in other respects the mercantile considerations urged by the complainant have no application to this case. (*Consolidated Electric Manufacturing Company* v. *Holtzer*, 67 Fed. Rep., 907.)

Let the respondent, on or before the 2d day of August next, file a draft decree dismissing the bill, with costs, and complainant, on or before the 5th day of August next, file corrections thereof.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 7. TUESDAY, NOVEMBER 16, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
REGISTRATION OF ATTORNEYS	1117
INDEXES TO PATENTS ON ELECTRICITY	1117
COMMUNICATIONS TO THE PATENT OFFICE	1118
ISSUE OF NOVEMBER 16, 1897	1118
APPLICATIONS UNDER EXAMINATION	1118
PATENTS GRANTED	1119
REISSUES	1267
DESIGNS	1267
TRADE-MARKS	1273
LABELS	None.
PRINTS	None.
DECISIONS OF THE U. S. COURTS—	
Kansas City Hay-Press Company *v.* Devol *et al*	1277
COMMISSIONER'S DECISIONS—	
Ex parte Hampden Watch Company	1289

Registration of Attorneys.

RULE 17. * * * A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of persons in the following classes will, upon their written request, be entered upon this register:

(*a*) Any person who at the date of the approval of the present Rules of Practice, June 18, 1897, was engaged as attorney or agent in the active prosecution of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(*b*) Any attorney-at-law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of such clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(*c*) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*d*) Any person not an attorney-at-law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*e*) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(*f*) Any firm not entitled to registration under the preceding sections which shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

After January 1, 1898, no person not registered in accordance with this rule will be permitted to prosecute applications before the Patent Office.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

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RULE 2. * * * All letters and other communications intended for the Office must be addressed to "The Commissioner of Patents." If addressed to any of the other officers, they will ordinarily be returned.

RULE 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Issue of November 16, 1897.

Patents	431—No. 598,556 to No. 598,976, inclusive.
Designs	36—No. 27,846 to No. 27,881, inclusive.
Trade-Marks	35—No. 30,836 to No. 30,870, inclusive.
Labels	None.
Prints	None.
Reissues	1—No. 11,638.
Total issue	498

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Montana	4	----	Total to citizens of the United States	427	31
Nebraska	----	----			
Nevada	----	----			

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Egypt	----	----	Sweden	1	----
England	8	1	Switzerland	----	----
Finland	----	----	Venezuela	----	----
France	3	----	Victoria	----	----
Germany	7	9			
India	----	----			
Ireland	1	----	Total to citizens of foreign countries	30	4
Italy	----	----			

APPLICATIONS UNDER EXAMINATION.

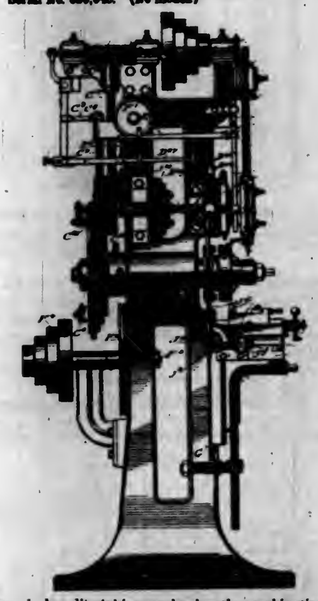
Condition at Close of Business November 9, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Oct. 19	Oct. 13	171
	Between one and two months.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Sept. 18	Oct. 27	167
96	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Sept. 20	Oct. 25	233
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 2	Oct. 15	165
215	XVII. Paper Manufactures and Printing.	Sept. 9	Oct. 14	186
261	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 9	Oct. 7	160
268	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Sept. 14	Oct. 4	373
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Sept. 10	Sept. 25	266
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Sept. 9	Sept. 24	257
	Between two and three months.			
102	XIX. Stoves and Furnaces	Aug. 18	Oct. 23	308
98	XXI. Textiles, etc	Aug. 23	Oct. 16	224
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Sept. 8	Oct. 13	217
120	IX. Hydraulics, Fire-Extinguishers, etc.	Aug. 10	Oct. 18	242
250	VIII. Furniture, Beds, Store Furniture, etc.	Sept. 8	Oct. 12	430
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 23	Oct. 12	263
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Aug. 25	Oct. 11	392
265	XII. Mechanical Engineering, Store-Service, etc.	Aug. 9	Oct. 5	187
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Aug. 14	Oct. 2	219
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Aug. 25	Oct. 1	321
263	X. Carriages and Wagons	Aug. 14	Oct. 1	394
106	II. Farm Stock, Products, etc.	Sept. 8	Sept. 27	379
89	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 17	Sept. 3	578
246	I. Tillage and Fences	Aug. 10	Aug. 31	397
	Between three and four months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 3	Oct. 26	317
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	July 17	Oct. 26	526
248	XVIII. Steam-Engineering, etc.	July 26	Oct. 19	295
311	XV. Plastics, Paper-Making, Fawing, Glass, Fuel, Bread-Making, etc.	July 26	Oct. 19	313
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	July 13	Sept. 21	491
240	VII. Velocipedes	July 24	Sept. 1	1298
	Between four and five months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Sept. 11	190
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	July 31	431
	Between five and six months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	May 25	Oct. 30	633
221	XXIII. Instruments of Precision, Acoustics, etc.	June 8	Aug. 26	331
	Total number of applications awaiting action			11,151
	Under one month.			
	Designs	Oct. 9	Oct. 9	308
	Trade-Marks	Nov. 5	Nov. 3	49

PATENTS

GRANTED NOVEMBER 16, 1897.

598,556. ENGRAVING-MACHINE. BENJAMIN J. ABBOTT, Chicago, Ill., assignor to Charles H. Durphy, same place. Filed Mar. 20, 1897. Serial No. 630,645. (No model.)



Claim.—1. In a die-sinking mechanism the combination of a continuously-rotating milling-tool holder, means for rotating the same, means for feeding said holder down at stated intervals at each traverse of the work, regulable means for reversing the direction of motion of the gearing which moves the work under the tool at each traverse of the work, together with means for connecting a removable oscillatory work-holder to said reversible driving-gearing, and a horizontally-moving to-and-fro traversing chuck and means for connecting the mechanism of said chuck to said reversible driving-gearing, substantially as specified.

2. The universal die-sinking machine adapted to work on either plane or cylindrical surfaces, in which is combined a main driving-shaft continuously rotating in one direction, an automatic shifting clutch and driving-gearing for changing the direction of the motion received from said driving-shaft, an adjustable automatic clutch-shifting device, a removable, oscillatory reversibly-traversing work-holder shaft, adapted to be connected to said reversible gearing, means for so connecting the same, and a horizontally-moving, to-and-fro traversing chuck also connected to said reversible driving-gear, substantially as specified.

3. The combination with the oscillatory reversibly-traversing removable work-holder shaft, of the reversing-wheel carrying the adjustable clutch-actuating stops and mounted on a sleeve fitted to receive the end of said work-holder shaft and oscillate the same, substantially as specified.

4 The combination with the main driving-shaft, of two loose opposing beveled pinions mounted thereon, the sliding friction-clutch interposed between said pinions, the clutch-actuating rod working in a cavity in the shaft and connected to said clutch, the lever connected to said rod, said lever being operated to move in opposite directions by stop-arms on a reversing-wheel, said reversing wheel and its adjustable stop-arms, the bevel-gear meshing with the two pinions, its shaft, the worm carried thereby, the screw-gear on an intermediate shaft, and the series of graded gears to mesh therewith on the reversing-wheel, the whole constituting a mechanism for automatically converting the continuous rotation of the driving-shaft to an oscillatory movement, substantially as specified.

5. In a milling-machine, the work-holder shaft splined to the driving-gear so that it shall be free to move endwise, a spring for holding said shaft in one direction, a pattern mounted on a box in which said shaft oscillates, a feeling-finger mounted on and oscillating with said shaft, and means for moving the box bodily in and out carrying the shaft and its attachments therewith, substantially as specified.

6. In a milling-machine, the work-holder shaft splined to the driving-gear so that it shall be free to move endwise, a spring for holding said shaft in one direction, a pattern mounted on a box in which said shaft oscillates, a feeling-finger mounted on and oscillating with said shaft, and means for moving the box bodily in and out carrying the shaft and its attachments therewith, said means consisting of a rack on the box and a pinion on the frame of the machine, substantially as specified.

7. The combination in a die-sinking machine of a milling-tool holder consisting of a shaft splined to its driving-gear and mounted in a sliding head, held down by a spring interposed between said head and an adjustable sliding carriage, and means for feeding said carriage down toward the work, substantially as specified.

8. The combination in a die-sinking machine of a milling-tool holder consisting of a shaft splined to its driving-gear and mounted in a sliding head, held down by a spring interposed between said head and an adjustable sliding carriage, and means for feeding said carriage down toward the work, said means consisting of a pinion and shaft mounted on the frame of the machine and a rack affixed to the carriage, substantially as specified.

9. The combination with the sliding and spring-depressed and adjustable tool-carrying head, provided with a downwardly-extending feeling-finger, of an oscillating work-holder shaft carrying the pattern for guiding the tool in its up and down movements for contour, and said pattern mounted on the shaft and moved therewith, substantially as specified.

10. The combination of the automatically-operated reversing clutch-lever for reversing the driving-gear, of a connecting-rod connected to said lever and carrying a fork at its other end, resting on a rock-shaft carrying two ratchets geared to a counter-shaft which in turn is geared to the head carrying the milling-tool for feeding said milling-tool down to the work, and a stop-rod carrying an adjustable stop-arm arranged to come in contact with a lifting-lever connected to said beforementioned connecting-rod for lifting said connecting-rod out of contact with the rock-shaft, all combined and arranged substantially as specified and constituting an automatic feed mechanism for feeding the milling-tool down a specified distance at each reverse of the driving-gear and for stopping said feed automatically when a certain depth has been reached, substantially as set forth.

11. The chuck comprising in combination the supporting bracket or base, the lower bed-plate fitted to the slide thereon, a screw-shaft carrying a screw for giving motion to said lower bed-plate and carrying a pinion for giving motion to a circular rack, said circular rack having teeth on both faces, a second pinion meshing in said circular rack and mounted on a screw-shaft for giving motion to an upper bed-plate, said upper bed-plate, and means thereon for holding work, substantially as specified.

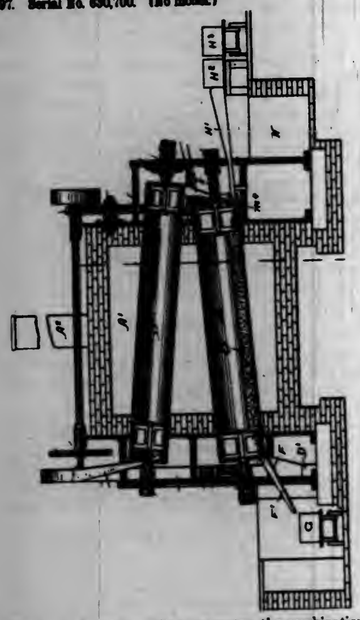
12. The means for imparting motion from one screw-shaft to another screw-shaft in a chuck having two sliding bed-plates consisting in the combination of the two bed-plates, the bevel-pinions mounted on the two screw-shafts, said two screw-shafts, and an interposed circular rack having teeth on both faces, substantially as specified.

13. The universal horizontal movement chuck, consisting of a

lower bed-plate mounted to be moved in slideways on its support or base by means of a driving-screw, an intermediate pivoted bed-plate adapted to rotate on said lower bed-plate, and an upper bed-plate adapted to slide on said pivoted intermediate and be moved thereon by means of a screw-shaft, said two screw-shafts, a bevel-pinion on each of said shafts and a circular rack having teeth on both faces and meshing with said pinion, together with means for locking together the lower bed-plate and the pivoted intermediate, the upper bed-plate and the pivoted intermediate, and the circular rack and the pivoted intermediate, substantially as specified.

14. The combination with the screw-actuated lower bed-plate, of the bed-plate pivoted thereto, the circular rack, and means for locking said rack, the screw-shaft for driving the lower bed-plate and the pinion thereon meshing with the circular rack, substantially as specified.

598,557. ANNEALING-FURNACE. BENJAMIN J. ABBOTT, Chicago, Ill., assignor to Charles H. Durphy, same place. Filed Apr. 5, 1897. Serial No. 630,700. (No model.)



Claim.—1. In an annealing apparatus, the combination with a furnace of an inclined rotating annealing chamber or cylinder for passing or conveying sand and the articles to be annealed through or across the furnace, and means for returning the sand again and again to said rotating annealing chamber or cylinder, substantially as specified.

2. In an annealing apparatus, the combination with a furnace of an inclined rotating annealing chamber or cylinder for passing or conveying sand and the articles to be annealed through or across the furnace, means for returning the sand again and again to said rotating annealing chamber or cylinder, and means for reheating the sand as it is being returned to said annealing chamber or cylinder, substantially as specified.

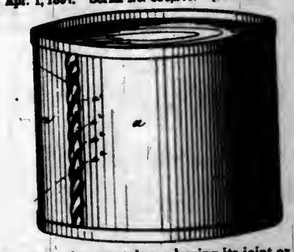
3. In an annealing apparatus, the combination with a furnace of an inclined rotating annealing chamber or cylinder, an oppositely-inclined rotating sand-reheating chamber or cylinder, a screen for separating the sand from the articles being annealed, and an elevator or conveyer for delivering the sand into said reheating chamber or cylinder, substantially as specified.

4. In an annealing apparatus, the combination with a furnace of an inclined rotating annealing chamber or cylinder, an oppositely-inclined rotating sand-reheating chamber or cylinder, a screen for separating the sand from the articles being annealed, an elevator or conveyer for delivering the sand into said reheating chamber or cylinder, and a chute or spout for returning the sand from said reheating chamber or cylinder to said annealing chamber or cylinder, substantially as specified.

5. In an annealing apparatus, the combination with a furnace of an inclined rotating annealing chamber or cylinder, an oppositely-inclined rotating sand-reheating chamber or cylinder, a screen for separating the sand from the articles being annealed, an elevator or conveyer for delivering the sand into said reheating chamber or cylinder, a chute or spout for returning the sand from said reheating chamber or cylinder to said annealing chamber or cylinder, a discharge-chute for the annealed articles and a delivery-chute for the same, substantially as specified.

6. In an annealing apparatus, the combination with a furnace of a rotating annealing-chamber extending across the heating-chamber of the furnace, and means for causing sand to be repeatedly returned to and passed through said chamber with the articles to be annealed, substantially as specified.

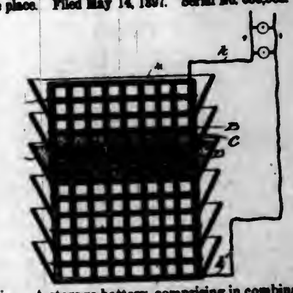
598,558. SHEET-METAL CAN. MAX ABB, New York, N. Y. Filed Apr. 1, 1897. Serial No. 630,273. (No model.)



Claim.—1. A sheet-metal can, having its joint or seam provided with a series of inclined transverse corrugations or creases extending from one end of the joint or seam to the other, substantially as described.

2. A sheet-metal can having a joint or seam, composed of four thicknesses of metal, and which joint or seam projects beyond the outer circumference of the can, and is provided with a series of transverse inclined corrugations or creases which extend from one end of the seam or joint to the other, substantially as specified.

598,559. STORAGE BATTERY. EDWARD A. BARBER, Watertown, N. Y., assignor of one-half to the Hitchcock Lamp Company, same place. Filed May 14, 1897. Serial No. 636,582. (No model.)

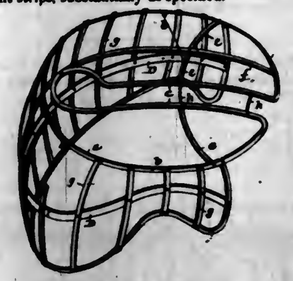


Claim.—A storage battery, comprising in combination a stack of trays, each of which has on opposite sides of its bottom portion an integral compartment-plate, the compartments in which contain the active material, insulating-strips on the upper edges of the outer and central dividing-walls of the compartment-plates, the asbestos sheets resting on the said strips, the lower surface of each plate resting on an asbestos sheet, and superimposed in the manner described, the positive and negative plates at the top and bottom of the trays respectively, and electrical connections therewith, substantially as shown and described.

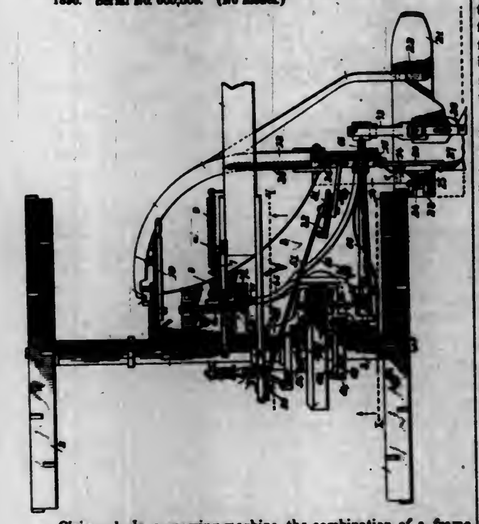
593,560. WIG-FRAME. ADDISON D. BARRETT, Norfolk, Va. Filed Sept. 8, 1897. Serial No. 650,959. (No model.)

Claim.—1. The wig-frame formed of soft and pliable metal and comprising a crown-strip describing an oval loop, the base-strip having the upwardly-extending branches at its ends connected to the crown-strip adjacent to the front of the frame, and the upright strips connecting the base and crown strips, in combination with the spring connected at its ends to the upwardly-extending branches of the base-strip and at intervals in its length to the upright strips, whereby when the frame is expanded the pressure of the spring against the head is diminished, while, when said frame is contracted or reduced in size, the pressure of the spring against the head is increased, substantially as specified.

2. A wig-frame formed of soft and pliable metal and comprising the crown-strip describing the oval loop and the narrow elongated loop within the oval loop, suitable means for connecting the portions of the crown-strip forming the opposite sides of the elongated loop, the base-strip having the upwardly-extending branches at its ends connected to the crown-strip adjacent to the front of the frame, and the upwardly-extending branches of the base-strip and at intervals to the upright strips, substantially as specified.



598,561. MOWER. FRED BOWER, Dancy, Wis. Filed Sept. 11, 1896. Serial No. 605,509. (No model.)



Claim.—1. In a mowing-machine, the combination of a frame loosely mounted at one end and adapted to rise and fall at its free end, a second frame pivoted to the free end of the loosely-mounted frame and having a rearward extension, means for relatively adjusting the two frames and holding them in an adjusted position, a shoe carried by the pivoted frame, a cutting apparatus having pivotal connection with the pivoted frame so as to fold, and actuating mechanism for the cutting apparatus supported by the loosely-mounted frame, substantially as set forth.

2. In a mowing-machine, the combination of a loosely-mounted frame, a second frame having pivotal connection with the loosely-mounted frame and having independent adjustment, a cutting apparatus having pivotal connection with the pivoted frame so as to fold, actuating mechanism for the cutting apparatus carried by the loosely-mounted frame, a shoe having pivotal connection at one end with the pivoted frame, and means for vertically adjustably connecting the other end of the shoe with the said pivoted frame, substantially as set forth.

3. In a mowing-machine, the combination of a frame inclining forwardly and downwardly, a second frame comprising front and rear arms, a rearwardly-curving arm, and a pendent bracket at the outer end of the rear arm and having said bracket pivotally connected with the lower front end of the inclined frame, means for independently adjusting the pivoted frame with reference to the inclined frame, a cutting apparatus having pivotal connection with the front arm and pendent bracket of the pivoted frame, actuating mechanism carried by the inclined frame for operating the cutting apparatus, a shoe having pivotal connection at its forward end with the front arm of the pivoted frame, and means for vertically adjustably connecting the rear end of the shoe with the said pendent bracket, substantially as set forth.

4. In a mowing-machine, the combination of a loosely-mounted frame having a notched segment formed in one side with an undercut or L-shaped slot, a second frame having pivotal connection with the first frame and having a rearwardly-extending arm formed with an L-shaped end to move in the L-slot to guide the arm in its vertical movements and hold it in place, a folding cutting apparatus and a shoe carried by the second frame, a lever pivoted to the notched segment and having a loose connection with the second frame, and means for holding the lever in an adjusted position, substantially as set forth.

5. In a mowing-machine, the combination with a frame bearing the cutting apparatus, and a shoe having pivotal connection at one end therewith, of a plate having pivotal connection at its lower end with the opposite end of the shoe, a second plate having pivotal connection with the frame, and means for vertically adjustably connecting the two plates, substantially as and for the purpose set forth.

6. In a mowing-machine, the combination of a power-driven axle, a frame mounted thereon, a folding cutting apparatus having pivotal connection with the frame, means for transmitting motion from the power-driven axle to the cutting apparatus, a clutch mechanism for throwing the cutting apparatus into and out of gear, a slidingly-mounted shipper-bar having connection with the movable clutch member, a spring for normally maintaining the parts of the clutch in engagement, a wedge operating in connection with the shipper-bar to separate the clutch members, a bell-crank lever fulcrumed to the frame and having the wedge connected therewith, an operating-lever for folding the cutting apparatus, and a bar connecting the operating-lever with the bell-crank lever and having a limited play to admit of the cutting apparatus being nearly folded before unshipping the clutch mechanism, substantially as set forth.

7. In combination, a frame having rearwardly-extending ears, a folding cutting apparatus supported by the frame, a clutch mechanism for throwing the cutting apparatus into and out of gear, a power-driven axle supporting the clutch mechanism, a slotted shipper-bar slidingly mounted in the aforesaid ears and having connection with a clutch member, a spring mounted upon the shipper-bar for normally holding the clutch members in gear, a wedge operating through the slot of the shipper-bar, a bell-crank lever mounted upon the said frame and having connection with the wedge, an operating-lever for folding the cutting apparatus, and a bar having connection with the operating-lever and having a limited movement prior to positively actuating the bell-crank lever to admit of the cutting apparatus being nearly folded prior to throwing the clutch mechanism out of gear, substantially as specified.

8. In combination, a power-driven axle, a frame loosely mounted thereon and having ears, a second frame pivotally connected with the first frame, a folding cutting apparatus carried by the second frame, a clutch mechanism for throwing the cutting apparatus into and out of gear, a shipper-bar slidingly mounted in the aforesaid ears, a spring for normally holding the clutch in gear, a wedge cooperating with the shipper-bar, a bell-crank lever having connection with the wedge, an operating-lever mounted upon the first-mentioned frame and having connection with the cutting apparatus, and provided with means for holding it in an adjusted position, and a bar having connection with the operating-lever and a limited movement with respect to the bell-crank lever, whereby a final movement of the operating-lever will simultaneously fold the cutting apparatus and throw the clutch mechanism out of gear, substantially as set forth.

9. In combination, a folding cutting apparatus, a clutch mechanism, a clutch-operating lever, a shipper-bar in connection with the movable member of the clutch mechanism, a wedge cooperating with the shipper-bar and in connection with the clutch-lever, a hand-lever for folding the cutting apparatus, and a bar having connection with the hand-lever and having a notched portion to operate in the keeper of the clutch-lever, substantially as and for the purpose set forth.

10. In combination, a power-driven axle, a disk loosely mounted thereon, keepers applied to a side of the disk, a plate loosely mounted upon the axle and having projections operating through the aforesaid keepers, other projections applied to the loosely-mounted disk, springs interposed between corresponding projections, and a second plate mounted to turn with the axle and having a movement thereon toward and from the disk and provided with means to interlock with the first-mentioned plate, substantially as set forth for the purpose described.

11. In a mowing-machine, the combination of the main frame mounted to turn upon the axle, a second frame having pivotal connection with the main frame and carrying the cutting apparatus, a pole or tongue having pivotal connection with the main frame, means for relatively adjusting the two frames, a foot-lever fulcrumed to the pole, a link connecting the foot-lever a distance from its fulcrum with the main frame and having a limited play to admit of said frame

adapting itself to the surface condition of the ground, and a spring connected at one end with the pole and at its opposite end with the foot lever at a point between its fulcrum and the point of connection therewith of the link, substantially as described for the purpose set forth.

12. In a mowing-machine, the combination of a main frame mounted to turn upon the axle, a second frame having a sliding pivotal connection with the main frame, means for adjusting the pivoted frame with reference to the main frame and directing it in its movements, a pole having pivotal connection with the main frame, a foot-lever fulcrumed to the pole, a spring connecting the foot-lever with the pole, and a link having pivotal connection with the main frame and sliding connection with the foot-lever at a point between its fulcrum and the point of connection therewith of the spring, substantially as set forth for the purpose specified.

13. The herein-described means for imparting a reciprocating movement to the cutting apparatus of mowing-machines, consisting of a rotatable rim, a ring, cooperating cogs between the rim and ring, a power-driven annulus or part, and links connecting the annulus or power-driven part with the ring, substantially as specified for the purpose described.

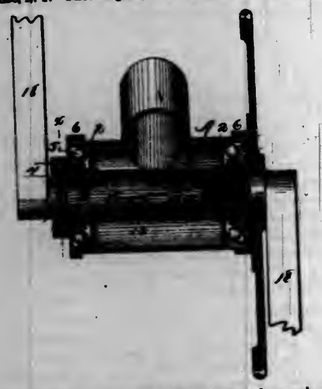
14. In combination, a frame having projecting portions, a rotatable rim, a ring, cooperating cogs between the rim and ring constructed to ride past one another, an annulus, links connecting the annulus with the ring, and other links connecting the annulus with the projections of the frame, substantially as set forth for the purpose described.

15. In combination, a vibrating arm, a lever having pivotal connection with the vibrating arm and adapted to oscillate therewith, means for imparting an oscillatory movement to the said lever, and a vibrating guide for causing the oscillating lever to move in a plane at right angles to the movement of the vibrating arm, substantially in the manner set forth for the purpose described.

16. In combination, a power-driven axle, a frame mounted thereon, an arm having pivotal connection with the frame and adapted to vibrate in a plane approximately parallel therewith, a lever having pivotal connection with the arm so as to vibrate therewith and adapted to have an independent oscillatory movement at right angles to the plane of movement of the said arm, a ring or like part positively actuated by means of the power-driven axle, a journal extending laterally from the said lever and making connection with the ring, and a vibrating guide for controlling the movement of the lever, substantially in the manner set forth for the purpose specified.

17. In combination, a vibrating ring, an oscillating lever, a laterally-extending journal between the ring and lever and having a ball-and-socket connection with the said ring, and a vibrating guide cooperating with the oscillating lever, substantially as and for the purpose set forth.

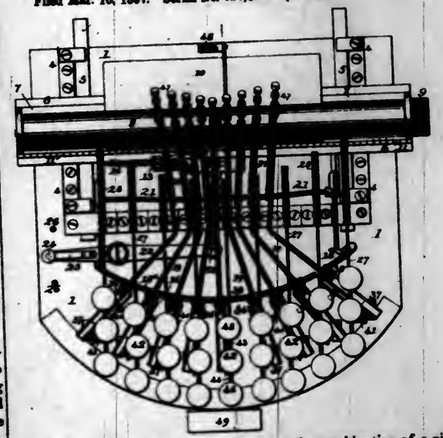
593,562. CRANK-SHAFT HANGER. PATRICK H BRENNAN, Syracuse, N. Y. Filed Aug. 26, 1896. Serial No. 604,001. (No model.)



Claim.—1. The combination with a sleeve, of a crank-shaft comprising two sections, each provided upon its inner end with a scarf and an angular undercut creating a point on each to enter the angle upon the other, one section being held in said sleeve against longitudinal movement in said sleeve, and the second section being adapted to be entered into said sleeve and to be thereafter shifted longitudinally by the rotation of said sleeve, to bring said scarf and angle-joint members into full engagement to lock said sections together, or to separate and disengage them.

2. The combination with a sleeve, of a crank-shaft comprising two sections each provided upon its inner end with a joint member comprising a point created by cutting a scarf and a face in angularly-intersecting planes, and an undercut plane intersecting said face and creating an entering angle, one of said sections being rotatable in said sleeve but not longitudinally movable therein, and the other being threaded exteriorly and adapted to be screwed into said sleeve to bring the joint members into full engagement, or unscrewed therefrom to disengage said joint members, all by the rotation of said sleeve around both shaft-sections.

593,563. TYPE-WRITING MACHINE. LEE S. BURRIDGE, New York, N. Y., assignor to the Century Machine Company, same place. Filed Mar. 10, 1897. Serial No. 626,673. (No model.)



Claim.—1. In a type-writing machine, the combination of a pivoted type-bar capable of longitudinal movement and of oscillation about its pivot-axis, and bearing a plurality of printing-characters; and an actuating-lever arranged to act directly upon and to swing said type-bar, said lever being provided with a plurality of finger-keys, each arranged to control the movements of the type-bar and to bring one or another of its printing-characters to the printing-point.

2. In a type-writing machine, the combination of a type-bar bearing a plurality of type; a movable support in which said bar is pivoted; and a lever provided with a plurality of finger-keys and connected with the type-bar and with its movable support, said finger-keys serving to determine the movements of the type-bar and thus to determine which of its several characters shall print.

3. In combination with standard or support 37 provided with a projection 41; type-bar 39 pivotally supported in said standard, and provided with a plurality of printing-characters, and with a projecting pin 40; lever 27 provided with slotted arm 36 and with slots 33, 34, 35; gates or switches 43, 44, carried by the lever 27 and provided with buttons 45 and 46; and button 42 applied to lever 27, all substantially as described and shown.

4. In combination with a longitudinally-movable type-bar bearing a plurality of printing-characters and having a pivotal axis at or near one end; a key-lever adapted and arranged both to move said bar longitudinally and to swing it about its pivotal axis; and a plurality of finger-keys carried by said lever and adapted to control the movements of the bar.

5. In a type-writing machine, the combination of a longitudinally-movable type-bar provided with a plurality of printing characters and having a pivotal axis at or near one end; a key-lever connected with said type-bar and serving to swing it about its pivotal axis; a series of divergent guides in one of said parts adapted to receive a projection from the other of said parts; and a switch carried by the key-lever and serving to determine into which of the guides the projection shall enter; whereby the position of the pivotal axis of the type-bar at the moment of printing is determined.

6. In combination with a longitudinally-movable type-bar provided with a plurality of printing-characters and with a pivot pin or axle at or near one end; a key-lever adapted to press against the type-bar and to swing it about its pivot pin or axle; a plurality of divergent slots in said key-lever each adapted to receive the pivot pin or axle of the type-bar; a finger-key applied directly to the key-lever and serving to move the same in line with one of its slots; and a separate finger-key movably supported upon said key-lever and carrying a switch or gate to direct the pivot pin or axle into a different slot of the key-lever.

7. In combination with the main frame of a type-writing machine, a platen or paper-support; a standard pivotally supported in the main frame and adapted to swing toward and from the platen; a type-bar pivotally supported upon said standard and provided with a plurality of type; a key-lever movable in a plane parallel with that in which the type-bar swings and having a loose connection with said type-bar; a plurality of divergent slots or ways in said key-lever; a projection extending from the swinging standard into or through the key-lever at the point of convergence of the slots; and a plurality of finger-keys carried by said lever and serving to direct said projection into one or another of the slots according as one or another key is pressed, substantially as and for the purpose set forth.

8. In combination with a swinging type-bar bearing a plurality of printing-characters; a movable support to which said bar is pivoted, provided with a lateral projection; a key-lever having a slot in alinement with said projection and other slots divergent therefrom; a finger-key carried by said lever and serving to move the same in alinement with the first-mentioned slot; and separate finger-keys bearing gates or switches each adapted to close the first-mentioned slot and to direct the projection of the standard into one or another of the divergent slots.

9. In a type-writing machine, the combination of a paper-support; a movable type-bar support; a type-bar pivotally connected with said support and provided with a plurality of type; a key-lever having a loose connection with and serving to swing said type-bar, and serving also to lock the movable support or to move the same toward or from the platen; and a plurality of finger-keys carried by said lever and arranged to determine the locking or the movement of the type bar or support according as one or another is pressed, substantially as set forth.

10. In a type-writing machine, the combination of a type-bar having a pivot pin or axle at or near one end; a type-bar support; a key-lever provided with a plurality of divergent slots each adapted to receive a pin or projection of the type-bar support, and to hold the same against movement or to move it forward or backward; and a loose connection between said key-lever and type-bar at a point at one side of its pivot-axis, whereby said key-lever is adapted to both swing the type-bar about its pivot and move the same longitudinally, or to hold the same against longitudinal movement but swing it about its axis, substantially as set forth.

11. In a type-writing machine, a type-bar capable of longitudinal and of swinging movement; a key-lever loosely connected with said type-bar and adapted to effect both the longitudinal and the swinging movement or to produce the swinging movement alone; a plurality of finger keys or buttons carried by said key-lever; and intermediate devices between the finger-keys and the type-bar, whereby the movements of said bar are determined and are made either simple or compound as one or another finger-key is pressed.

12. In a type-writing machine, the combination of a longitudinally-movable type-bar provided with a pivot or axle at or near one end, and with a plurality of types at its other end; a type-bar support; a key-lever having a loose connection with the type-bar and capable of movement in a plane substantially parallel with that in which the type-bar moves; a key-plate carried by said lever and serving to move the same; guides carried by the key-plate and adapted to receive a pin or projection of the type-bar support; switches carried by said key-plate and serving to direct the pin or projection into one or another of said guides; and finger-keys also carried by said key-plate and adapted, when pressed, to actuate said switches and also to move the key-lever and type-bar, substantially as set forth.

13. In a type-writing machine, the combination of a type-bar provided with a plurality of type and adapted both to move longitudinally and to swing about an axis; a key-lever adapted both to move the type-bar longitudinally and to swing it about its axis or merely to swing it; and a plurality of keys each serving to move the key-lever and to cause or prevent a longitudinal movement of the type-bar.

14. In a type-writer, the combination of a pivoted arm or standard provided with a lateral projection; a type-bar having its fulcrum in the free or swinging end of said standard; a key-lever having a plurality of finger-keys; and switches controlled by said finger-keys and adapted to be thrown to one or the other side of the projection of the standard to cause said standard to be moved forward or backward.

15. In combination with the bail or universal bar of a type-writing machine; a series of swinging type-bars each provided with a plurality of printing-characters; movable supports to which said type-bars are pivoted; a series of key-levers each provided with an arm to bear upon the universal bar or bail and with a plurality of slots to receive a projection upon the type-bar support; and a plurality of finger-keys carried by each of said levers and serving both to depress the same and to determine into which of the several slots the projection shall pass.

593,564. OVERBOOT FOR HORSES. WILLIAM CAIE, Perth, Canada. Filed Oct. 8, 1896. Serial No. 608,233. (No model.)



Claim.—1. An improved horse-boot for containing a liquid medicament, comprising the boot proper molded or formed of an indurated fibrous composition or other adapted material and embodying the bottom portion conforming approximately in contour or shape to the foot and ankle of the animal and the extended top portion conforming to the leg of the animal, said conforming bottom portion and extended top portion being both seamless, the boot being provided with devices for securing it in position and with the flat inside and outside soles at the bottom, substantially as and for the purpose set forth.

2. An improved horse-boot for containing a liquid medicament, comprising the boot proper molded or formed of an indurated fibrous composition or other adapted material and embodying the bottom portion *a* conforming approximately in contour or shape to the foot and ankle of the animal and the extended top portion *a'* conforming to the leg of the animal, both said bottom portion and said extended top portion being seamless and the extended seamless top portion being provided at the top with the vertically-projecting straps *d d* carrying the horizontally-arranged circular strap *d'*, and the bottom portion *a* having the inside and outside soles *s'* and *s*, substantially as and for the purpose set forth.

3. An improved horse-boot for containing a liquid medicament, comprising the boot proper molded or formed of an indurated fibrous composition or other adapted material and embodying the bottom portion approximately conforming to the foot and ankle of the animal and the extended top portion conforming to the leg of the animal, the bottom portion being provided with the inside and outside supplementary friction plates or soles, substantially as and for the purpose set forth.

4. An improved horse-boot for containing a liquid medicament, comprising a bottom portion conforming approximately to the foot and ankle of the animal and a top portion conforming to the leg of the animal, molded in one seamless piece of an indurated fibrous composition or other adapted material and provided with the flat bottom sole or soles and with means for securing it upon the leg of the animal, substantially as and for the purpose set forth.

5. An improved horse-boot, for containing a liquid medicament, comprising a bottom portion conforming approximately to the foot and ankle of the animal and an extended top leg portion, molded in its entirety in one imperforate or seamless piece of an indurated fibrous composition or other suitable material and provided with means for securing it in position, substantially as and for the purpose set forth.

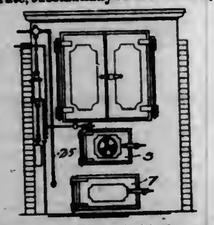
6. As an improved article of manufacture, a horse-boot for containing a liquid medicament and retaining the same in contact with the hoof and ankle, comprising a bottom portion and an extended top portion respectively conforming to the hoof and leg parts which they are adapted to surround, both the bottom and extended top portions being imperforate or seamless and the whole being molded or formed of an indurated fibrous composition or other adapted material, substantially as and for the purpose set forth.

7. As an improved article of manufacture, a horse-boot for containing a liquid medicament and retaining the same in contact with the hoof and ankle, comprising a bottom portion and an extended top portion respectively conforming to the hoof and leg parts which they are adapted to surround, said bottom portion having the flat friction-plates or supplementary soles, and the imperforate extended top portion carrying projecting top devices for securing the boot in position, both the bottom portion and extended top portion being molded or formed in a single imperforate piece of an indurated fibrous composition or other adapted material, substantially as and for the purpose set forth.

593,565. AUTOMATIC SMOKE-PREVENTER. RALPH W. CAVENAUGH, St. Paul, Minn. Filed Aug. 18, 1896. Serial No. 602,141. (No model.)

Claim.—1. The combination, with a suitable furnace, of a series of tiles arranged along the wall of the furnace and extended above and below the furnace-grate, said tiles formed with transversely-extending openings above and below the grate and having formed in their rear faces vertically-extending openings connecting at top and bottom with the transversely-extending openings, substantially as and for the purposes described.

2. The combination, with a suitable furnace, of a series of tiles along the wall thereof provided with openings above and below the grate connected by channels and having a laterally-extending channel across the openings at the top, a steam-pipe lying in said lateral channel and provided with steam-jets arranged to inject into the openings above the grate, substantially as and for the purposes described.



3. The combination, with a suitable furnace, of a series of tiles along the wall thereof provided with openings above and below the grate connected by channels and having a laterally-extending channel across the openings at the top, a steam-pipe lying in said lateral channel and arranged to inject into the openings above the grate, and a superheating steam-coil connected to said steam-pipe, substantially as and for the purposes described.

4. The combination, with a suitable furnace, of tiles arranged along the side walls thereof, and provided with openings 19 and 21, arranged respectively above and below the furnace-grate, channels 15 connecting said openings, the transverse channel 17 arranged opposite said openings 19, the steam-pipe 27 extending through said channel 17 and provided with a series of steam-jets 29 projecting into said openings 19, for the purpose specified.

5. In a furnace smoke-preventer, the combination of a pipe for supplying steam to the fire-box, a valve in said pipe to control the passage of the steam, a water-cylinder containing a piston, and having the piston-rod arranged to operate on said steam-valve, a water-supply pipe communicating with the water-cylinder on one side of the piston therein, a valve in said water-pipe, a rocking shaft connected with said valve to positively move it in both directions as shown and having a member arranged in the path of movement of the furnace-door so as to turn on the water to the cylinder when the door is opened, and means for regulating the escape of water from the cylinder, substantially as and for the purposes described.

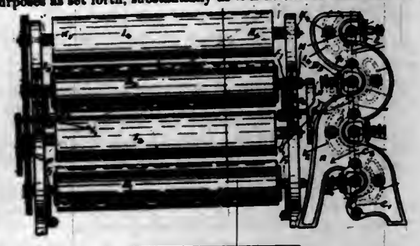
6. In a furnace smoke-preventer, the combination of a pipe for supplying steam to the fire-box, a valve in said pipe, a cylinder provided with a piston and having a piston-rod extending through opposite ends of the cylinder and having one end arranged to actuate said steam-valve and the opposite end weighted outside of the cylinder, a pipe connecting with the interior of said cylinder for supplying a pressure-applying agent to act on said piston, a valve controlling the supply of said agent to the cylinder, means connecting said valve operatively with the furnace-door to open the valve when the furnace-door is opened, and means for the escape of the pressure agent from the cylinder when the steam is to be shut off from the fire-box, substantially as and for the purposes described.

7. In a furnace smoke-preventer, the combination of a pipe for supplying steam to the fire-box, a valve in said pipe, a water-cylinder containing a piston and having the piston-rod arranged in line with the stem of said steam-valve, a weight applied to the piston-rod outside of the water-cylinder, a water-supply pipe communicating with the interior of said cylinder, a valve in said water-pipe, means operatively connecting said valve with the furnace-door so that when said door is opened the water will be turned into the cylinder and when closed the supply of water will be cut off, and means for controlling the escape of water from the cylinder, substantially as and for the purposes described.

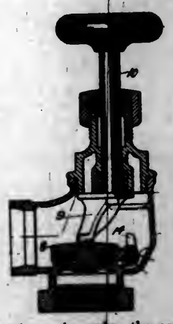
8. The combination, with the steam-supply pipe, provided with the valve 39 having the valve-stem 41, with the adjustable sleeve 67 arranged thereon, of the cylinder 47 having a piston arranged therein, the piston-rod 43 connected to said valve-stem 41 and adapted to engage said sleeve 67, the weight connected to the lower end of said piston-rod, the drip-valve permitting the water to escape from said cylinder, and means for supplying water to said cylinder each time that the furnace-door is opened, for the purpose set forth.

593,566. IRONING-MACHINE. JOHN W. CRAW, New York, N. Y. Filed Feb. 2, 1897. Serial No. 621,665. (No model.)

Claim.—In a machine of the character set forth, a series of rollers arranged vertically according to a center line through their individual centers, each operating in combination with a heated reservoir or steam-chest, a pair of levers having bearings, pivoted in the side frames, supporting the journals of each of said rollers, a loose sleeve having a cam projection pivoted to each bearing, a cap bolted to the side frame adjacent to each of the said bearings, a box, sliding in said cap, having a pin, an externally-screw-cut nut, fitting into a similarly-screw-cut aperture in the cap lying loose around the pin, a spring compressed between the bottom of said box and the nut screwed into the cap, and, surrounding the pin, the aforesaid sleeve with a cam projection having an arm, said arm pivoted to one of a series of links, one of said links, on each side of the machine, pivoted by an intermediate link to a crank secured to a rod pivoted between the two side frames, said rod operated by two hand-wheels, for the purposes as set forth, substantially as it is illustrated and described.



593,567. QUICK-OPENING VALVE. RICHARD T. CRANE, Chicago, and GEORGE W. HAYDEN, Oak Park, Ill., assignors to the Crane Company, Chicago, Ill. Filed May 20, 1897. Serial No. 638,223. (No model.)



Claim.—In a quick-opening valve, the combination of a casing having a port within the same, a valve controlling said port, a rotating cam constructed with its plane of rotation parallel to the plane of the valve-seat and adapted to bear against the top of said valve to close it, and a projection, or tail, connected to said valve and constructed to open the same by engagement of the rotating cam therewith, substantially as shown and described.

593,568. BLASTING-POWDER. HANS R. VON DAHMEN, Breslau, Germany. Filed Oct. 5, 1896. Serial No. 607,906. (No specimens.) Patented in Germany Feb. 17, 1895, No. 89,571; in Belgium Mar. 25, 1895, No. 114,943; in England Mar. 27, 1895, No. 6,237; in Norway Aug. 5, 1895, No. 4,586; in Spain Sept. 10, 1895, No. 17,564; in France Oct. 5, 1895, No. 250,754; in Hungary Dec. 9, 1895, No. 4,217, and in Austria Dec. 12, 1896, No. 46/4,948.

Claim.—A blasting composition composed of ammonium nitrate, phenanthrene, and potassium bichromate, in the proportions set forth.

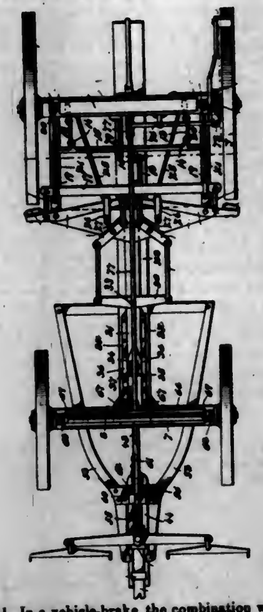
593,569. SKIRT-ADJUSTER. AUGUSTA E. DEAN, Boston, Mass. Filed May 13, 1896. Serial No. 591,381. (No model.)



Claim.—1. As an article of manufacture, a skirt-adjuster, composed of two members freely hinged together, said members being constructed to be stitched to the skirt at intervals at and along their perimeters, and having transverse interlocking portions at their free ends opposite and substantially parallel to the hinge, whereby the two members, carrying the skirt with them, may be pinched together and thereby automatically locked, thereby securing the skirt in its shortened adjustment, substantially as described.

2. As an article of manufacture, a skirt-adjuster, composed of two members freely hinged together, each of said members being formed of one piece of wire bent in substantially U shape, one member having its middle portion inwardly crimped to constitute a lip, and the other member having its corresponding middle portion extending in substantial alinement with said lip when the members are being closed against each other, said lip springing or wedging against said corresponding middle portion, thereby interlocking therewith to enable the two members to be removably locked together, substantially as described.

593,570. AUTOMATIC WAGON-BRAKE. HARRY H. EMERY, Lamartine, Ohio. Filed Jan. 23, 1897. Serial No. 620,416. (No model.)



Claim.—1. In a vehicle-brake, the combination with a running-gear, of brake-levers fulcrumed thereon and arranged to engage the hind wheels, an oscillating support mounted on the running-gear and adapted to receive and be actuated by a wagon-body or load, and mechanism mounted on the running-gear and connected directly to the oscillating support and to the brake-levers, whereby the brake will be applied when the wagon-body or a load shifts forward, substantially as described.

2. In a vehicle-brake, the combination with a running-gear, of an oscillating support located above the rear axle and provided with arms or links suspended from the rear standards, said support being adapted to receive a wagon-body or load, brake mechanism arranged to engage the hind wheels, and mechanism mounted on the running-gear and connected directly to the oscillating support and to the brake mechanism, substantially as described.

3. In a vehicle-brake, the combination with a running-gear, of an oscillating support located above the rear axle and provided with links suspended from the rear standards, a transverse rock-shaft journaled on the running-gear, links connected to the oscillating support and to the rock-shaft and a sliding bar mounted on the running-gear and connected with the rock-shaft, substantially as described.

4. In a vehicle-brake, the combination with a running-gear, of an oscillating support mounted on the running-gear above the rear axle and provided with links suspended from the rear standards, a transverse rock-shaft journaled on the running-gear and provided with arms connected with the oscillating support, said rock-shaft being also provided with a centrally-arranged arm, a sliding bar arranged transversely of the running-gear in suitable guides and connected with the central arm of the rock-shaft, and brake-levers fulcrumed on the running-gear and connected with the sliding bar, substantially as described.

5. In a vehicle-brake, the combination with a running-gear, of a pair of brake-levers fulcrumed between their ends on the running-gear and arranged to engage the hind wheels, a sliding bar disposed transversely of the running-gear in suitable guides thereof and connected with the brake-levers, a transverse rock-shaft journaled on the running-gear and connected with the sliding bar, and means for connecting the rock-shaft with a wagon-body or a load, whereby when the wagon-body moves forward on the running-gear, the brake mechanism will be operated, substantially as described.

6. In a vehicle-brake, the combination with a running-gear, of a lever fulcrumed at one side of the running-gear adjacent to one of the hind wheels, and extending rearward, a brake-shoe or similar device carried by the lever and arranged to engage the hind wheel at the back thereof, and a pawl connected with the lever and adapted to engage the hind wheel, whereby the brake is applied, substantially as described.

7. In a vehicle-brake, the combination with a running-gear, of a brake-lever disposed longitudinally of the running-gear at the inner face of one of the hind wheels and arranged to engage the same at the back thereof, said lever being located above the center of the wheel, a pivoted pawl connected with the lever and arranged to engage the hub of the wheel whereby when the latter rotates rearward the lever will be carried into engagement with it, and means for holding the pivoted pawl normally out of engagement with the hub of the wheel, substantially as described.

8. In a vehicle-brake, the combination with a running-gear, of a ratchet arranged on the hub of one of the hind wheels, a bell-crank lever arranged at the inner face of the hind wheel and located above the center thereof, said lever being fulcrumed at its angle, a brake-shoe located at the rear end of the lever and arranged to engage the back of the hind wheel, a pawl pivoted to the front end of the lever and adapted to swing downward into engagement with the ratchet, and means for holding the pawl out of engagement with the ratchet, substantially as described.

9. In a vehicle-brake, the combination with a running-gear, of a lever fulcrumed on the same at the inner face of one of the hind wheels and extending rearward from the rear axle, said lever having its rear end arranged to engage the back of the hind wheel, a spring-rod mounted on the running-gear and holding the lever normally elevated out of engagement with the hind wheel, said spring-rod being adapted to be readily depressed when the brake is applied, and a pawl connected with the lever and arranged to engage the hind wheel, substantially as and for the purpose described.

10. In a vehicle-brake, the combination with a running-gear, of a lever fulcrumed thereon and located adjacent to the inner face of one of the hind wheels, the rear end of the lever being arranged to engage the back of the wheel, a pawl carried by the lever and arranged to engage the wheel, a transverse lever fulcrumed on the running-gear and holding the pawl normally out of engagement with the wheel, a longitudinal connecting-rod extending forward from the transverse lever, an operating-lever and a bell-crank lever connected with the said rod and with the operating-lever, substantially as described.

11. In a vehicle-brake, the combination with a running-gear provided at its reach with suitable longitudinal ways, a reciprocating slide mounted in the ways and provided with a rack, guides arranged at opposite sides of the slide, an adjustable plate engaging the rack and having lugs fitting in the said guides, whereby the reciprocation of the slide is limited, brake mechanism connected with and operated by the slide, and a tongue connected with the slide, substantially as described.

12. In a vehicle-brake, the combination with a running-gear provided with suitable ways, a slide mounted in the ways, a plate adjustably secured to the slide and provided with laterally-extending lugs, guides located at opposite sides of the slide and receiving the said lugs, and brake mechanism connected with and actuated by the slide, substantially as described.

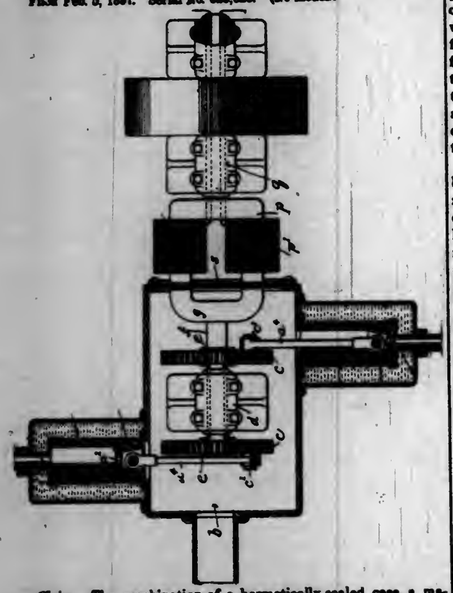
13. In a vehicle-brake, the combination with a running-gear provided with suitable ways, of a slide mounted therein and provided with a rack, an adjustable plate arranged on the slide, provided with longitudinal slots and engaging the rack, fastening devices passing through the slots of the plate and clamping the latter to the slide, lugs projecting laterally from the plate, guides arranged at opposite sides of the slide and receiving the lugs, brake-levers, and a cross-bar adjustably mounted on the slide and connected with the brake-levers, substantially as described.

14. In a vehicle-brake, the combination with a running-gear, of a slide mounted between the front hounds and bifurcated at its front end, a tongue pivoted in the bifurcation of the slide, a vertically-disposed spring-actuated bolt arranged to engage the slide to lock the same against movement, and brake mechanism connected with the slide, substantially as described.

15. In a vehicle-brake, the combination with a running-gear, of a slide mounted between the front hounds and provided with recesses, a spring-actuated bolt arranged to engage the recesses, a hand-lever connected with the bolt and fulcrumed on the running-gear, and brake mechanism connected with the slide, substantially as described.

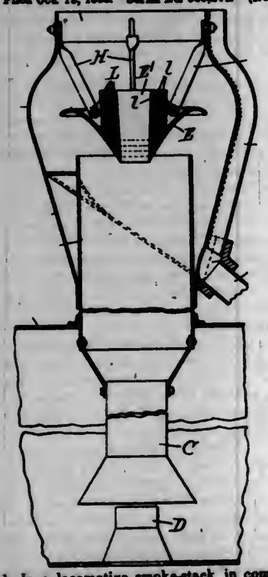
16 In a vehicle-brake, an adjusting device comprising two sections, one of the sections being provided with loops and the other section having a series of openings, and a plate engaging the openings of one of the sections and mounted on the other, substantially as and for the purpose described.

593,571. MAGNETIC CLUTCH. THOMAS J. FAY, Brooklyn, N. Y., assignor to the American Electric Cold Supply Company, of Maine. Filed Feb. 5, 1897. Serial No. 623,029. (No model.)



Claim.—The combination of a hermetically-sealed case, a machine therein having a main rotating shaft to be driven, a driving-motor and its rotating shaft located outside of said casing, an electromagnetic clutch having its two members mounted respectively on the two rotating shafts, one member being inside the casing and the other outside thereof, an unperforated wall of the casing composed of dielectric material being interposed between the two members of the clutch, and through which the clutching and unclutching of the two rotating shafts is effected.

593,572. LOCOMOTIVE SMOKE-STACK. ROBERT FORSYTH, Chicago, Ill. Filed Oct. 19, 1896. Serial No. 609,271. (No model.)

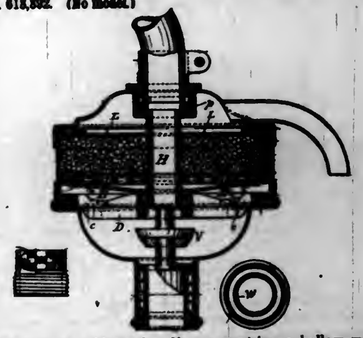


Claim.—1. In a locomotive smoke-stack, in combination with the smoke-box; the uptake pipe or barrel leading therefrom, and the steam-nozzle discharging into the same under the lower open end thereof; a conical deflector overhanging the margin of the uptake-pipe and having a relatively large axial aperture, and being at its outer marginal portion downwardly concave; and an expanded head which encompasses the upper end of the uptake-pipe and such deflector leaving a free annular passage around the margin of the deflector; whereby a large central portion of the ascending column in the uptake-pipe obtains unobstructed and direct exit without deflection through the center of the deflector, and simultaneously the outer annular portion of said column, which in its ascent encounters the deflector, is deflected to precipitate solid matter therefrom outside the uptake-pipe.

2. In a locomotive smoke-stack, in combination with the smoke-box, the uptake pipe or barrel leading therefrom, and the steam-nozzle discharging into the same under the lower open end thereof; a conical deflector which overhangs the margin of the uptake-pipe and has a large central unobstructed opening through it and its outer marginal portion downwardly concave; an expanded head joined to the uptake-pipe below its upper end, and inclosing a pocket around the upper portion of the uptake-pipe and an annular space around the margin of the deflector, and a discharge-pipe leading from the pocket, whereby, simultaneously, the central steam-core of the ascending column in the uptake-pipe obtains direct unobstructed egress without deflection through the deflector, and the outer annular smoke-containing portion of said column is deflected to precipitate solid matter therefrom outside the uptake-pipe, and such precipitated matter is conducted off by the discharge-pipe from the pocket.

3. In a locomotive smoke-stack, in combination with the uptake pipe or barrel and an expanded discharge-head within which said uptake-pipe discharges; an annular conical deflector within the expanded head concentric with the uptake-pipe and having a central apertare for the escape without deflection of the core of the ascending column in the uptake-pipe; removable annular bushings in said central opening in the same deflector, whereby the diameter of said opening may be varied step by step at will.

593,573. SELF-CLEANING FILTER. CHARLES F. H. FRANKE and FREDERICK BUCHHORN, Chicago, Ill. Filed Jan. 11, 1897. Serial No. 618,892. (No model.)



Claim.—1. A self-cleaning filter comprising a hollow metallic case containing a filtering medium, a tube leading from the water-supply to a chamber below said filtering medium, a tube for filtered water leading from said case above said filtering medium, a tubular opening leading from said case below said filtering medium, a valve having a hollow cylindrical extension projecting through said tubular opening, and a spiral spring surrounding said cylindrical extension and holding the valve normally open but allowing it to close when subjected to water-pressure, substantially as described.

2. In a filter, a metallic case and a filtering medium contained therein, a tube leading from the water-supply to a chamber below said filtering medium, an outlet leading from a chamber above said filtering medium, an outlet leading from the lower chamber, and a valve for closing said lower outlet, a thumb-ring carried on a downwardly-extending projection from said valve and a spiral spring surrounding said extension and serving to open said valve when released from water-pressure in the filter, substantially as described.

3. In combination with a filter a slotted sleeve adapted to clamp the end of a water pipe or faucet slightly above its extremity, a screw-thread on the lower portion of said sleeve, a tube having an inner screw-threaded portion to engage such sleeve and having a shoulder just below said screw-threaded portion, and a ring washer resting in said shoulder and adapted to be clamped against the end of the nozzle when the tube is screwed onto the sleeve.

4. In a filter, a metallic case, a filtering medium consisting of a mass of raw cotton contained therein, a centrally-disposed tube leading from the water-supply through said filtering medium to a chamber below, two washers of silk cloth surrounding said tube, one on each side of said filtering medium, a screen of wire-gauze for holding each of said silk washers against said filtering medium, a tube leading from the chamber above said filtering medium, an outlet leading from the chamber below said filtering medium, and a valve for closing said lower outlet while under water-pressure, but adapted to open when said pressure ceases whereby the water and residue in the lower chamber are automatically drawn off after each use of the filter, substantially as described.

593,574. SAW-SET. CARPUS FRENCH, Oshawa, Canada. Filed Apr. 20, 1896. Serial No. 588,290. (No model.)



Claim.—A saw-set comprising a body having a shoulder, an inclined side below said shoulder, said side having a recess therein, extending at an obtuse angle thereto and designed to form a non-vibratory means for bending the tooth over the lower angle of the recess, a block adapted to abut said shoulder having its inner wall adapted to closely fit said inclined side and to entirely cover said recess, said inner wall having a V-shaped notch therein at its lower edge, the upper edge of which extends within said recess and into close juxtaposition to the lower wall thereof, substantially as described.

593,575. GRAIN ADJUSTER OR BUTTER FOR BINDERS. WILLIAM GAYER, Mulberry, Mo. Filed Sept. 12, 1896. Serial No. 605,884. (No model.)



Claim.—1. A butter for grain-harvesters, comprising a series of rollers having flat surfaces, rotating in the same direction at the front end of the grain side of a harvester, and guide-bars interposed between said rollers, substantially as described.

2. In combination with a harvesting-machine, a grain-butter, comprising a pair of bars, shafts journaled therein, and geared together, rollers having flat surfaces, mounted rigidly on said shafts, bars interposed between said rollers and connecting the first-named bars, and means for rotating said rollers, substantially as shown and described.

593,576. SHOE. WILLIAM D. HALL, Beloit, Wis., assignor to John Foster & Co., same place. Filed Jan. 4, 1897. Serial No. 617,881. (No model.)

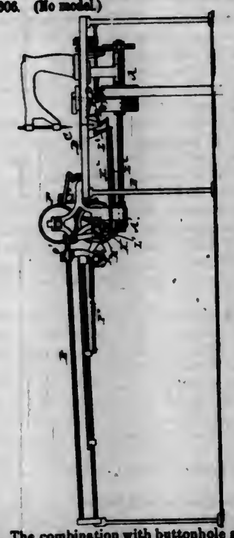


Claim.—1. As a new article of manufacture, a high-top shoe having the top thereof made adjustable as to tightness or looseness and having an independent supporter attached thereto, said supporter adapted to receive the limb of the wearer and thereby support the said high top, as and for the purpose set forth.

2. As a new article of manufacture, a high-top bicycle or golf shoe or boot having an independent supporter attached to the upper edge thereof only at one point, said supporter arranged to receive the limb of the wearer at a point above the calf and to thereby support the high-top boot or shoe from a point above the top edge, as and for the purpose set forth.

3. As a new article of manufacture a high-top bicycle or golf shoe or boot having an independent supporter attached to the rear portion of the upper edge thereof, and extending freely upwardly and forwardly from said point of attachment, said supporter adapted to receive the limb of the wearer at a point above the calf and to thereby support the top of the shoe or boot from a point above its top edge, as and for the purpose set forth.

593,577. SEWING-MACHINE. HERBERT R. HAWES, Brooklyn, N. Y., assignor to Colby & Co., same place. Filed Aug. 25, 1894. Serial No. 521,206. (No model.)



Claim.—1. The combination with buttonhole stitching and feeding mechanisms, of strip-drawing, strip-slacking, thread parting, strip-dividing, strip-marking and strip-discharging mechanisms.

2. The combination of a buttonhole-stitching machine including its work-clamp, coöperating mechanism to draw a continuous strip of fabric intermittently through the work-clamp, coöperating mechanism to close the work-clamp and start the buttonhole-stitching mechanism after each drawing, and coöperating mechanisms to, after the stitching of each buttonhole, stop the stitching mechanism, sever the thread from the work, open the work-clamp and repeat the drawing.

3. The combination, of a buttonhole-stitching machine, including its work-clamp, coöperating mechanism to draw a continuous strip of fabric intermittently through the work-clamp, coöperating mechanism to close the work-clamp and start the buttonhole-stitching mechanism after each drawing, and coöperating mechanisms to, after the stitching of each buttonhole, stop the stitching mechanism, sever the thread from the work, clamp the severed end of the thread, open the work-clamp and repeat the drawing.

4. The combination, with a buttonhole-stitching machine, including its work-clamp, a cam operating with the machine, a cam-follower and connections whereby said cam opens the work-clamp after the stitching of each button-hole, of a thread-cutter and a thread-clamp, and operating connections whereby the thread-cutter and thread-clamp are also actuated by the said work-clamp-operating cam-follower.

5. The combination, with the movable clamp-plate of a sewing-machine, having an operating-arm B^2, of a thread-cutter and thread-clamp pivoted on the said clamp-plate and having an operating-arm M^6, a lever L^5 pivoted on the clamp-plate arm and carrying a stop L^9 to engage the arm B^6, a rod M^7 connecting the arm M^6 and the lever L^5, and means to operate the lever L^5.

6. A work-clamp for a buttonhole-stitching machine provided with a thread cutting and clamping piece pivoted to the upper work-clamp plate to swing between it and a cutting-plate rigidly attached to the said upper clamp-plate and with means for operating the thread cutting and clamping piece.

7. A work-clamp for a buttonhole-stitching machine provided with a thread cutting and clamping piece pivoted to the upper clamp-plate to swing between it and a cutting-plate fixed across the outer extremity of the buttonhole-slot in the said clamp-plate and with means for operating the thread cutting and clamping piece.

8. A work clamp for a buttonhole-stitching machine provided with a thread-cutting blade pivoted to an upper member of the work-clamp so as to swing across the buttonhole-slot therein from a position substantially parallel to the said slot to one substantially transverse thereto.

9. The combination, with a buttonhole-stitching machine, including its work-clamp, and a wheel to draw a continuous strip through the work-clamp, of a clutch-rim connected to said drawing-wheel, a clutch-shoe to frictionally engage the clutch-rim, and mechanism cooperating with the buttonhole-stitching machine to cause the clutch-shoe to move the wheel after the stitching of each buttonhole and to arrest the movement of the clutch-shoe during the stitching of the next buttonhole.

10. The combination, with the buttonhole-stitching machine and the strip-drawing mechanism, provided with an operating-rim, of a clutch-shoe to frictionally engage said rim, a clutch-shoe-carrying arm, and a clutch-shoe-operating lever pivoted on said arm and reciprocating connections between said shoe-operating lever and the buttonhole-stitching machine.

11. The combination, with the buttonhole-stitching machine and the strip-drawing mechanism provided with an operating-rim, of clutch-shoes to frictionally engage said rim and a toggle device to operate said clutch-shoes and reciprocating connections between said toggle device and the buttonhole-stitching machine.

12. The combination, with the buttonhole-stitching machine, and the strip-drawing mechanism and its operating-rim, of a pivotal arm, toggle-levers pivoted thereon, rim-engaging clutch-shoes on said toggle-levers, a cam and connections to reciprocate one of said toggle-levers and cam-driving mechanism connected with the buttonhole-stitching machine.

13. The combination, with the buttonhole-stitching machine, and the strip-drawing mechanism, its operating-rim, and a clutch for intermittently operating said rim, of rim-engaging clutch-shoes to hold said rim against a return movement, and toggle-levers carrying said return stopping clutch-shoes and reciprocating connections between said operating-clutch and the buttonhole-stitching machine.

14. The combination with the sewing-machine and the cooperating drawing mechanism operated by a primary cam provided with an adjustable part, of a secondary cam mounted to revolve on said primary cam and having a series of slopes to control said adjustable part.

15. The combination, with the sewing-machine and the cooperating drawing mechanism operated by a primary cam, provided with an adjustable part, of a secondary cam revolving on the primary cam in harmony therewith, to control said adjustable part automatically.

16. The combination with the sewing-machine and the cooperating drawing mechanism operated by a primary cam provided with an adjustable part, of a secondary cam mounted to revolve on the primary cam to control said adjustable part, a ratchet-wheel carried on the primary cam to operate said secondary cam, and a pawl to actuate said ratchet-wheel in harmony with the primary cam.

17. The combination, with the sewing-machine and the cooperating drawing mechanism operated by a primary cam having an adjustable part, of a disk mounted to turn on said primary cam, and secondary adjusting-cams mounted adjustably on said disk.

18. The combination, with the sewing-machine, the drawing mechanism, its operating-rim, and the clutch to engage said rim, of the clutch-operating lever having a longitudinal slot, and a clutch-operating rod held adjustably in said slot and reciprocating connections between said lever and the sewing-machine.

19. The combination, with the sewing-machine and a strip-drawing mechanism operating in harmony therewith, of a strip-slacking mechanism between the drawing mechanisms and the sewing-machine and operating connections between the strip-slacking mechanism and the sewing-machine, whereby the slack of the strip is automatically controlled by the sewing-machine.

20. The combination, with a sewing-machine, and a strip-drawing mechanism operating in harmony therewith, of a strip-slacking mechanism controlled by a cam operating in harmony with the strip-drawing mechanism.

21. The combination, with a sewing-machine and a strip-drawing mechanism operating in harmony therewith, of a pair of adjustable guides for the strip between the sewing mechanism and the drawing mechanism, and operating connections between said adjustable guides and the drawing mechanism.

22. The combination, with a sewing-machine, an adjustable strip-drawing mechanism, a strip-dividing mechanism and means for adjusting the strip dividing mechanism to and from the drawing mechanism to accord with the variable advance of the said adjustable drawing mechanism.

23. The combination, with a strip-drawing mechanism, of a depending strip-blade, a strip-guiding table carrying a strip-shearing edge to cooperate with said blade, and means for raising said table to divide the strip and at the same time displace the several strip-sections from the line of feed.

24. The combination with the depending strip-blade, of the strip-guiding table carrying a shearing edge to cooperate with said blade and pivoted to tilt laterally to divide the strip.

25. The combination, with the depending strip-blade and the strip-guiding table carrying a shearing edge to cooperate with said blade, of a cam to raise said table and divide the strip.

26. The combination, with the movable strip-table and the strip-marking device, of mechanism whereby the movable strip-table operates the strip-marking device.

27. The combination with the movable strip-table and the marker pivotally mounted thereon, and having a catch-shoulder, of a catch to temporarily engage said shoulder and operate the marker.

28. The combination, with the strip-table, of the marker pivoted thereon, and the inking-pad pivoted on said table to swing over the marker and be pressed aside thereby.

29. The combination, with a buttonhole-stitching machine and a fabric-strip-drawing mechanism operating intermittently with the buttonhole-stitching mechanism, of strip dividing and discharging mechanisms, and connecting mechanism whereby the strip-dividing and strip-discharging mechanisms are operated only after a predetermined series of successive buttonhole stitching and drawing operations.

30. The combination with a fabric-strip-drawing mechanism and a strip-dividing mechanism, of a pivotal strip-guiding table, beyond the dividing mechanism, and mechanism for tilting the strip-guiding table and discharging the severed strip-section after each strip drawing and dividing operation.

31. The combination, with a depending strip-dividing blade, of a strip-guiding table carrying a strip-dividing blade and means for tilting said table to divide the strip and discharge the strip-section.

32. The combination, with a sewing-machine, a strip-drawing mechanism and a strip-dividing mechanism, of a strip-section receiving and discharging table and mechanisms for tilting said table including a cam operating in harmony with the sewing-machine.

33. The combination, with a strip-drawing mechanism, a strip-dividing blade, and a strip dividing and discharging table, of strip-dividing and strip-discharging cams operating said table progressively.

34. The combination, with the depending strip-dividing blade, of the strip-table pivoted to tilt laterally and carrying a strip-dividing blade and cam-followers on opposite sides, and strip-dividing and strip-discharging cams respectively engaging said followers.

35. The combination, with a buttonhole-stitching machine, including a work-clamp and buttonhole-feeding mechanism, of a strip-drawing mechanism operating intermittently therewith, a thread-cutter in juxtaposition to the work-clamp of the machine, and mechanism for operating the thread-cutter between the completion of each buttonhole and the succeeding drawing.

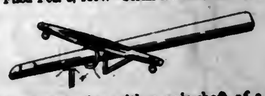
36. The combination, with a buttonhole-stitching machine, including buttonhole-feeding mechanism, of a fabric-strip-drawing mechanism, a thread-cutting mechanism, and a fabric-strip-dividing mechanism.

37. The combination, with a buttonhole-stitching machine, including buttonhole-feeding mechanism, of a fabric-strip-drawing mechanism, a thread-cutting mechanism, and a strip-marking mechanism.

38. The combination, with a buttonhole-stitching machine, including buttonhole-feeding mechanism, of a fabric-strip-drawing mechanism, a thread-cutting mechanism, a strip-dividing mechanism and a strip-discharging mechanism.

39. The combination, with a buttonhole-stitching machine, including buttonhole-feeding mechanism, of a fabric-strip-drawing mechanism, a thread-cutting mechanism, a strip-dividing mechanism and a strip-marking mechanism.

598,578. NECK-YOKE COUPLING. CHARLES H. HEINLICH, Venice, Ohio. Filed Feb. 6, 1897. Serial No. 622,941. (No model.)



Claim.—The combination with a pole-shaft of a vehicle, of a screw eye attached to the under portion thereof, and a bell-crank catch mounted in said eye and comprising an extension adapted to engage the under side of the pole and a weighted finger normally gravitating in a vertical plane, and a neck-yoke having a ring, substantially as and for the purposes specified.

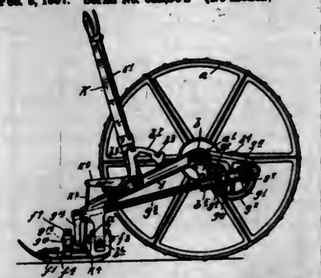
598,579. MEANS FOR PROTECTING SMALL TREES, PLANTS, FLOWERS, &c. JAMES W. HILTON, Brooklyn, N. Y. Filed Nov. 16, 1896. Serial No. 612,232. (No model.)

Claim.—1. The herein-described means for protecting small trees, comprising a tripod placed over the tree, and a rope of straw composed of a longitudinal cord or string, a plurality of short transverse cords or strings secured thereto and a body portion of straw which is tied to the longitudinal cord or string by said transverse cords or strings, said rope being wrapped around said tripod in continuous coils from the base to the apex thereof and completely inclosing said tree, all substantially as shown and for the purpose set forth.



2. The herein-described means for forming a rope of straw or similar material for the protection of small trees, shrubs, and plants, consisting of an oblong box or case open at the top, and provided with transverse notches or recesses in its opposite sides, and a longitudinal string or cord to which is secured a plurality of transverse strings or cords, substantially as shown and described.

598,580. MOWER. JEREMIAH G. HOPKINS, Green Isle, Minn. Filed Feb. 8, 1897. Serial No. 622,564. (No model.)



Claim.—1. In a harvesting-machine, the combination with the sickle, of a drive for the same involving, a rotary crank-shaft, and a rock-shaft arranged approximately at a right angle thereto and provided with a crank-head with longitudinally-extended bearing-surface, subject to the action of the crank portion of said crank-shaft, substantially as described.

2. In a harvesting-machine, the combination with the sickle, of a drive for the same involving, a rotary crank-shaft, and a rock-shaft arranged approximately at a right angle thereto and provided with a crank-head with longitudinal parallel bearing-bars, between which the crank portion of said crank-shaft works, substantially as described.

3. In a harvesting-machine, the combination with the sickle, of a drive for the same involving, a rotary crank-shaft, a rock-shaft arranged approximately at a right angle thereto and provided with a crank-head with longitudinally-extended and laterally-adjustable parallel bearing-bars, between which the crank portion of said crank-shaft works, substantially as described.

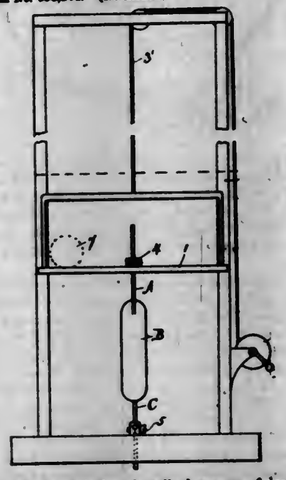
4. In a harvesting-machine, the combination with the sickle, of a drive for the same, involving the crank-shaft $g\,g$ with fly-wheel g^8, and the rock-shaft g^6 with crank-arms g^9, split at their free ends and provided with the parallel longitudinally-extended bearing-rods g^{10}, embracing the crank portion g of said crank-shaft $g\,g$ and adjustable by means of the bolts g^{11}, substantially as described.

5. In a harvesting-machine, the combination with the sickle, provided with a head formed by projecting parallel sections, of a sickle-drive involving, a rotary crank-shaft, a rock-shaft arranged approximately at a right angle to said crank-shaft and provided with a crank-head with longitudinal parallel bearing-bars, between which the crank portion of said crank-shaft works, and a crank-arm on said rock-shaft, provided, at its free end, with a bearing-box which works between the parallel sections of said sickle-head, substantially as described.

6. In a harvesting-machine, the combination with a frame or frame-section, pivoted on the truck-axle, of a pole pivotally secured to said frame, in close proximity to the axle-center, a support for the rider carried by said pole, a finger-bar pivoted to said frame, and a lifting-lever pivoted on said frame, rigidly securable thereto, at will, and connected to said finger-bar, whereby the rider may use said lever, at will, either to fold said finger-bar on said frame, or to raise said frame, together with said finger-bar, substantially as described.

7. In a harvesting-machine, the combination with a frame or frame-section, pivoted on the truck-axle, of a pole pivotally secured to said frame, in close proximity to the axle-center, a support for the rider carried by said pole, a finger-bar pivoted to said frame, a lifting-lever pivoted to said frame, rigidly securable thereto and connected to said finger-bar, and a foot-released spring latch or lock for temporarily locking said frame to said pole, when said frame is raised, substantially as described.

598,581. PROCESS OF AND APPARATUS FOR DRAWING GLASS TUBING. ARTHUR A. HOUGHTON, Corning, N. Y. Filed May 26, 1897. Serial No. 638,271. (No model.)



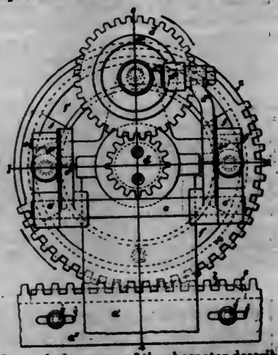
Claim.—1. The hereinbefore-described process of drawing glass tubes, which consists in forming a hollow blank and drawing out the said blank in a vertical direction, at a controllable speed, whereby the blank is drawn out into a uniform tube, substantially as described.

2. The hereinbefore-described process of forming glass tubes, which consists in forming a hollow blank upon the end of a blow-pipe; securing the pipe against twisting, attaching the free end of the blank to a pontil-iron held against twisting, and separating the pontil and blowpipe vertically, substantially as described.

3. In a device for drawing glass tubes, from hollow blanks, the combination with vertical guides, of a cross-head, a frame moving in the guides, the cross-head and frame being adapted to be secured to the opposite ends of the blank, and means for moving the frame away from the cross-head, substantially as described.

4. In a device for drawing glass tubes, from hollow blanks, the combination with a frame and a cross-head to hold the opposite ends of a blank, the one located above the other, of means for moving the frame vertically and away from the cross-head, substantially as described.

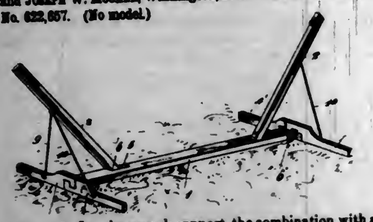
598,582. PRINTING-PRESS. BERTHOLD HUBER and WILLIS K. HOSEMAN, Taunton, Mass., assignors to the Huber Printing Press Company, same place. Filed Jan. 18, 1897. Serial No. 619,586. (No model.)



Claim.—In a printing-press of the character described—the registering-gear, two sliding studs as c^4 with slides as f mounted on the inner ends thereof to engage the registering-gear substantially as

shown and a cam as d^3 all connected to operate substantially as described for the purpose specified.

593,583. PORTABLE HAMMOCK-SUPPORT. RICHARD JEFFARES and JOSEPH W. MCCANN, Washington, D. C. Filed Feb. 9, 1897. Serial No. 622,657. (No model.)



Claim.—1. In a hammock support, the combination with a base-sill, and foldable uprights, of sectional bases having their members hinged to the base-sill and each base having its members provided with jaws which interlock with each other when the parts are adjusted for service and brace the parts against vertical strain, and means for locking the parts against collapsing, substantially as described.

2. In a hammock-support, the combination with a base-sill, and foldable uprights, of the sectional bases each having its members pivotally attached to the base-sill at the ends thereof and provided with jaws arranged to overlap the end faces of the sills and to interlock with each other, and means to lock the base-sections and said uprights in their operative positions, substantially as described.

3. In a hammock-support, the combination with a base-sill, and foldable uprights, of the sectional bases hinged to the side of the base-sill, at the ends of the latter, and provided with the interlocking hook-shaped jaws which overlap the end faces of said base-sill, the meeting edges of said hook-shaped jaws being provided at certain line or lines with bevels, and brace-rods attached to the uprights and adapted to be detachably connected to the sections of the bases, substantially as described.

593,584. PORTABLE VEHICLE-COVER. CHARLES T. JEWETT, New York, N. Y. Filed July 23, 1897. Serial No. 645,670. (No model.)



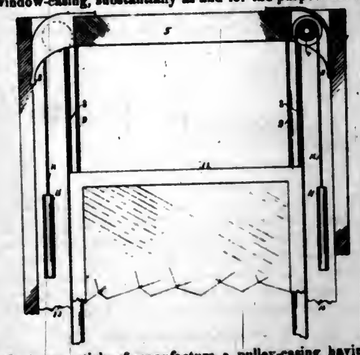
Claim.—1. A portable carriage awning or cover, comprising a folding roof of pliable material and a framework composed of end sections secured to said roof and centrally-located uprights supporting said framework, said uprights adapted for engagement with sockets secured to the carriage-body, and means for bracing the said framework, substantially as shown and described.

2. As a portable carriage-awning, the combination of a roof or covering secured upon two segmental end sections, a telescopical brace extended centrally and longitudinally between said sections and connected thereto, and telescopical uprights supporting the end sections, said uprights adapted for engagement with sockets centrally secured to a carriage-body, substantially as shown and described.

3. As an awning for vehicles, the combination of a flexible cover and two end sections or frames secured thereto, and telescopical braces extended longitudinally between said sections, the braces comprising tubes and rods, and means for maintaining them in extended position, substantially, and centrally-located uprights engaging with the end sections, said uprights comprising respectively a tube and a rod, and means for maintaining the said parts in extended position, said tubes having threads on their lower ends for engagement with sockets adapted to be secured to the body of the vehicle, substantially as shown and described.

593,585. WINDOW-CASING AND PULLEY-SUPPORT. ANDREW JOHNS and HENRY HARIG, Cincinnati, Ohio. Filed Oct. 28, 1896. Serial No. 610,362. (No model.)

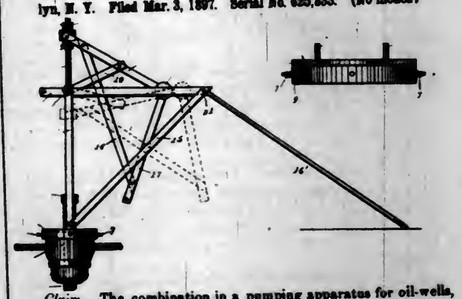
Claim.—1. As an article of manufacture a pulley-casing having a projecting lip adapted to rest upon the upper rail of a window-casing and an end adapted to rest in a socket carried by the upright of the window-casing, substantially as and for the purpose set forth.



2. As an article of manufacture a pulley-casing having a projecting lip adapted to rest upon the upper rail of a window-casing, an end adapted to rest in a socket carried by the upright of the window-casing and a curved rear portion between the ends, substantially as and for the purpose set forth.

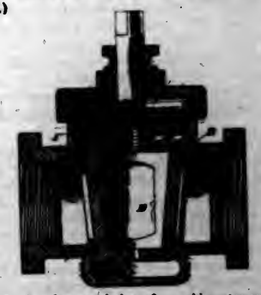
3. The combination with a window-casing having recesses cut in the ends of the upper rail of a pulley-support provided with a lip adapted to take over the upper rail, an end adapted to rest in a recess carried by the uprights of the casing and a curved rear portion between the lip and end substantially as and for the purpose set forth.

593,586. PUMPING APPARATUS FOR OIL-WELLS. FRANK M. KENNEDY, Celina, Ohio, assignor of one-half to Jane W. Stone, Brooklyn, N. Y. Filed Mar. 3, 1897. Serial No. 625,833. (No model.)



Claim.—The combination in a pumping apparatus for oil-wells, of an upright supporting-frame; a bell-crank lever pivotally fulcrumed on said frame having one end thereof operatively connected with the polish-rod and provided with a horizontal reciprocating fulcrum; a pair of compensating-lever arms pivotally connecting the said bell-crank lever with the supporting-frame as described: and means for pivotally connecting the bell-crank lever with the vertically-movable pump-rod all substantially as described.

593,587. STRAIGHTWAY VALVE. HARRY B. KEYES and WILLIAM SLOCK, Homestead, Pa. Filed Oct. 22, 1896. Serial No. 609,772. (No model.)



Claim.—1. A valve consisting of a casing, a tapered seat formed therein, a plug adapted to said seat, a stem for revolving said plug, a nut also revolved by said stem, and screws passing through said nut, whereby, when the latter is revolved in the proper direction, the lower ends of said screws will be brought in firm contact with the plug, substantially as and for the purpose set forth.

2. In combination with a casing, a tapered seat formed therein, a plug adapted to said seat, a boss formed upon the top of said plug, a stem having a head which embraces said boss, a nut arranged to be revolved by the stem, the threads of said nut engaging threads formed in the casing, and screws passed through the nut so as to bear upon the plug when the nut is properly manipulated, as specified.

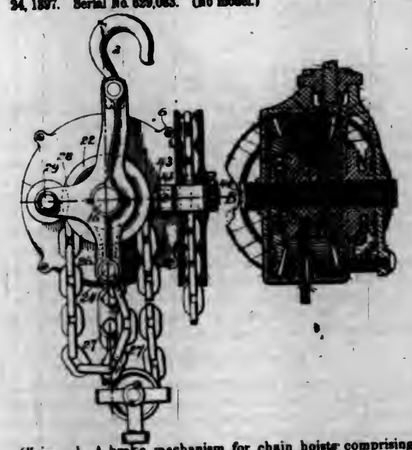
3. The herein-described combination of a casing, a tapered seat formed therein, a plug adapted to said seat, a boss formed upon the top of said plug, a stem having a head embracing said boss, a nut surrounding the head so as to be revolved thereby, the threads of said nut engaging with suitable threads formed in the casing, so as to raise and lower the nut when revolved, screws passing through the nut and adapted to be brought into contact with the upper surface of the plug, and means for preventing a back pressure in the drip-chamber, substantially as and for the purpose set forth.

4. In combination with a valve of the character described, a plug, a boss, on the plug, a stem, a head on the stem embracing the boss, a nut surrounding the head, and screws run through the nut, as and for the purpose described.

5. A valve consisting of a casing, a plug fitting therein, a stem for revolving the plug, a head on the stem, a nut surrounding the head threaded in the casing and screws run through the nut, as and for the purpose described.

6. A valve consisting of a casing, a plug fitted therein, a stem for revolving the plug, a head formed on the stem, a nut surrounding the head and threaded in the casing and means for varying the amount of pressure of the nut on the plug, substantially as set forth.

593,588. CHAIN HOIST. JOSEPH W. KINCAID, Reading, Pa., assignor to the Reading Crane and Hoist Works, same place. Filed Mar. 24, 1897. Serial No. 629,063. (No model.)



Claim.—1. A brake mechanism for chain hoists comprising a brake-wheel, a pawl pivoted on the side of the wheel, a spring secured in the hub of the wheel to control the pawl, a brake-shoe, and means attached to the hoisting-chain and engaging the shoe to connect the brake-wheel with the hoist-chain, as set forth.

2. A driving mechanism for chain hoists comprising two bevel gear-wheels loosely mounted upon a shaft, a lift chain-wheel carried by one of the bevel-gears, and a transverse pinion adapted to be revolved in mesh with and between the said two wheels, and a suitable hand-wheel on said transverse shaft, as set forth.

3. A driving mechanism for chain hoists comprising two beveled gears loosely mounted upon a shaft, the hub of one of said gears forming a lift chain-wheel, a transverse shaft adapted to be revolved at right angles to the said gear-shaft, a suitable hand chain-wheel on said transverse shaft, and a pinion secured to the transverse shaft and meshing with said gears, as set forth.

4. The combination with the driving mechanism, and the shell or casing, of the bracket contained in the shell and having a central shaft-bearing, and a shaft-bearing in the bracket at right angles to the said central shaft-bearing, as set forth.

5. The combination with the driving mechanism, the brake mechanism, shafts upon which both mechanisms are mounted, one of said shafts being transverse to the other, of a shell or casing inclosing the brake mechanism and a portion of the driving mechanism, and a cap or cover containing the other portion of said driving mechanism and having an arm to which the other of said shafts is fixed, as set forth.

6. The combination with the shell or casing, the shell-cover, a shaft extending centrally through the casing and cover and secured to the latter, a transverse shaft extending from the inside of the casing through its periphery and provided with a hand-wheel, a beveled gear in the casing loosely mounted on the central shaft and having internal ratchet-teeth, a beveled gear loose on the same shaft, a lift chain-wheel formed by the hub of one of the said gears and extending through the said cover, the brake-wheel having its bearing upon the hub of the other of said gears, the spring-controlled pawl pivoted in the brake-wheel and engaging the ratchet-teeth, and the pinion fixed to the transverse shaft intermediate the said two gears, as set forth.

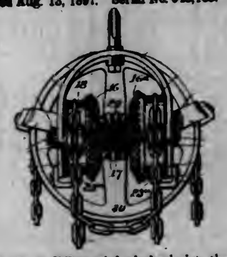
7. The combination with the casing having ribs or lugs on its inner side, two shafts in the casing one at right angles to the other, of the bracket having a bearing for each of the said shafts, and arms engaging the said ribs, as set forth.

8. The combination with a chain hoist, of a casing having a projection, a main shaft, a cover having a like projection, and a hook swiveled to and between the said projections, of an arm integral with the cover and the said cover projection, to which the main shaft of the hoist is secured, a chain-guide and a wing at right angles to and integral with the said arm and adapted to hold the chain-guide, as set forth.

9. The combination with a chain hoist of the character described, having a casing containing the driving and brake mechanism, a brake-wheel having a flange, and a brake-shoe having projections, of the bracket having an arm extending between the projections to hold the shoe against displacement, and means connected to the hoist-chain and engaging the shoe to give the latter frictional bearing on the brake-wheel, as set forth.

10. The combination with the fixed shaft, the gears loosely mounted on the shaft, one of said gears having ratchet-teeth, and a pinion in mesh with the gears, of a brake-wheel loosely mounted on said shaft, and a pawl carried by the brake-wheel and adapted to engage said ratchet-teeth to lock the brake-wheel and the said gears together, as set forth.

593,589. DIFFERENTIAL CHAIN HOIST. JOSEPH W. KINCAID, Reading, Pa., assignor to the Reading Crane and Hoist Works, same place. Filed Aug. 13, 1897. Serial No. 648,183. (No model.)



Claim.—1. In a differential chain hoist, the combination with two beveled gears loosely mounted upon a fixed shaft, the hubs of said gears having lift-sheaves, of a transverse shaft, a pinion upon one end of the transverse shaft in mesh with the said beveled gears, and a hand chain-wheel upon the other end of said transverse shaft, as set forth.

2. In a differential chain hoist, the combination with two beveled gears loosely mounted on the same fixed shaft, and the hoist-chain sheaves integral with the beveled gears, of a pinion adapted to be revolved transversely between and in mesh with the said two gears, and a hand chain-wheel on the shaft of the said pinion, as set forth.

3. In a differential hoist, the combination with a fixed shaft, and a pinion adapted to be revolved transversely to the said shaft, of the beveled gears of equal size loosely mounted on the fixed shaft, said wheels having hubs which meet in the center of said shaft, a chain-sheave on one of said gears, and a sheave of greater diameter on the other of said gears for the same chain, as set forth.

4. A chain-hoist frame comprising a link-shaped front portion, a bowed top portion, and lateral wings forming the terminal ends of said bowed top, as set forth.

5. A chain hoist frame comprising a link-shaped front portion the ends thereof being out of the horizontal plane with the center of the link, a portion bowed upward from one arm of the link to form the top of the frame, and lateral wings forming the terminal ends of said top portion, as set forth.

6 A chain-hoist frame comprising a link-shaped front portion

the ends thereof being out of the horizontal plane with the center of the link, a portion bowed upward from one arm of the link to form the top of the frame, lateral wings forming the terminal ends of said top portion, arms projecting from the wings and plates depending from the wings, as set forth.

7. The combination with the pinion, pinion-shaft, the fixed shaft, the beveled gears having lift-chain sheaves, and the hand chain-wheel, of a frame comprising a link portion in which the hand chain-wheel is revolved, and having a bearing for the pinion-shaft, a bowed portion having a swiveled hook-bearing, and lateral wings carrying the said fixed shaft, as set forth.

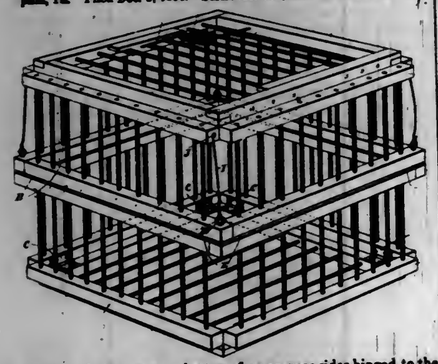
8. The combination with the chain-guide link, of a chain-shoe having a slot to fit the end of the link, and an inclined guard having a groove for the chain, as set forth.

9. The combination with the sheaved chain-gears, and the frame having lateral wings, arms, and depending flanges integral with the wings, of means for separating and keeping the chain engaged with the sheaves comprising U-shaped plates secured to the said flanges and extending into the grooves of the said sheaves, a rod secured in the said arms, the grooved rollers loosely mounted on the rod, and the sleeve separating the rollers, as set forth.

10. In a differential chain hoist, the combination with the bevel-gears loosely mounted on one and the same fixed bearing, and the sheaves carried by the gears and working upon the said bearing, of the pinion in mesh with the said wheels, and a hand chain-wheel connected to the pinion, as set forth.

11. In a differential chain hoist, the combination with the bevel-gears mounted upon one and the same fixed bearing, and the sheaves upon the same bearing and adapted to turn with the said gears, one of said sheaves or gears being of increased diameter, of a pinion in mesh with the gears, and a hand chain-wheel connected to the pinion, as set forth.

593,590. COLLAPSIBLE CRATE. SAMUEL T. LEWIS, Philadelphia, Pa. Filed Dec. 5, 1896. Serial No. 614,623. (No model.)



Claim.—1. In a crate, a bottom, four or more sides hinged to the bottom, each of said sides being formed in a top and bottom section hinged to fold outwardly but not inwardly, a top hinged to the sides and means for securing said box in its extended position, substantially as described.

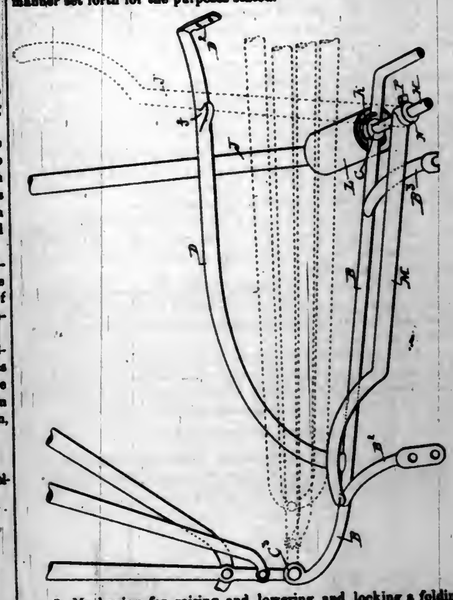
2. In a crate, a bottom consisting of a frame, wires extending across the frame, sides hinged to the strips of the frame, said sides being formed in a top and bottom section, the adjacent rails of the sides overlapping at the ends, a top hinged to the sides, and pins passed through the overlapping rails of the side section, substantially as described.

3. The combination of top and bottom members, four or more sides hinged to said members said sides being hinged at their centers to fold outwardly, pins run through the overlapping ends of the top and bottom rails of the side sections, as and for the purpose described.

4. In a crate, sides formed in two sections, hinged to fold outwardly but not inwardly, said sections consisting of top and bottom rails with wire extending from one rail to the other, the adjacent rails overlapping at the ends, a top hinged to the top sections, and pins adapted to pass through the overlapping ends of the rails, substantially as described.

593,591. ATTACHMENT FOR RAISING OR LOWERING BUGGY-TOPS. ROBERT W. LINDLE, Gilbert Station, Iowa. Filed Mar. 26, 1897. Serial No. 629,222. (No model.)

Claim.—1. In a device for raising and lowering a folding buggy-top, a frame consisting of a straight bar that has integral lateral extensions fixed to the end of a buggy-seat and provided with a shaft-bearing at its rear end portion and an integral curved brace and fender extending upward and rearward from its front portion and fixed to the seat at its rear end and a lateral projection on said fender adapted to engage a hand-lever, a shaft in said shaft-bearing and a hand-lever connected with said shaft, arranged and combined to operate in the manner set forth for the purposes stated.



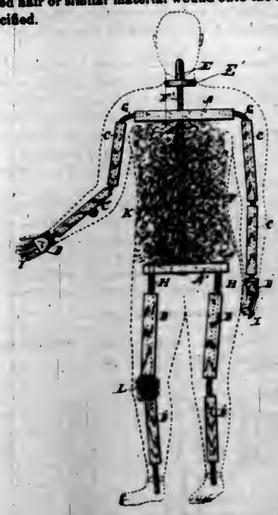
2. Mechanism for raising and lowering and locking a folding buggy or carriage top, comprising two mating frames composed of straight bars having lateral extensions fixed to the ends of the vehicle-seat and provided with shaft-bearings at their rear end portions and eyes at their front ends for pivotally connecting bows therewith, and a brace and fender extending upward and rearward from the front end portions of said bars and fixed to the back of the seat and one of said fenders having a lateral projection to engage and lock a lever, a rock-shaft in said bearings, a lever fixed to the shaft, jointed top-props connected with the ends of the shaft and coiled springs placed on the end portions of the shaft and their outer ends connected with the top-props and their inner ends connected with the fixed frames at the ends of the seat, all arranged and combined in the manner set forth for the purposes stated.

593,592. FORM FOR DISPLAYING CLOTHING. HUGH LYON, Lansing, Mich. Filed Sept. 14, 1896. Serial No. 605,602. (No model.)

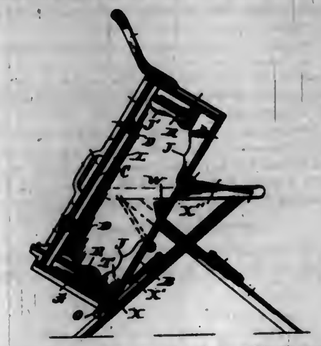
Claim.—1. In a form for display purposes the combination of the backbone portion F, made up of a bundle of flexible metallic wires; the cross-piece A, at the top thereof forming the framework of the shoulders; flexible metallic arm portions G, extending out from the cross-piece A, with rigid portions C, C', secured thereto to form the rigid portions of the arms and hands secured to the ends the various parts being a little separated from each other on the flexible supports to form a convenient joint; hands secured to the ends of said flexible arm-supports and a little separated from the block portions C'; the neck portion F', being a continuation of the back portion F, carrying block E, to carry the head of the form; cross-piece A', to the bottom forming the framework for the hips; leg portions H, consisting of flexible metallic wires twisted together having rigid portions B, B, for the thighs and the rigid portions B', B', for the legs and carrying weighted feet at the bottom all a little separated on the central support the whole being suitably packed with hair or excelsior or other similar fibrous material to fill out the figure substantially as described for the purpose specified.

2. In a display-form the combination in a joint of a rigid portion to each side; connections between the same of flexible metallic wires; and a suitable padding to fill out the joint to form a flexible connection as specified.

3. In a display-form the body portion consisting of rigid cross-pieces at top and bottom and a central backbone connecting the cross-pieces together made up of metallic flexible wires, and a suitable packing of curled hair or similar material wound onto the flexible connection as specified.



593,593. WASHING-MACHINE. WILLIAM MARTENPFEL, St. Paul, Minn. Filed Oct. 6, 1896. Serial No. 608,083. (No model.)



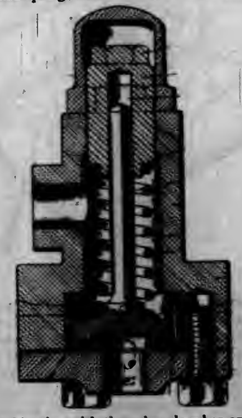
Claim.—1. In a washing-machine, the combination with a rectangular body, a supporting-framework, and hangers pivoted in said framework with their bodies pivoted at their lowest points beneath said body; of a fixed cover-piece at each end of the top of the body, a downwardly-projecting transverse strip secured beneath the inner edge of each piece, a removable cover-piece between each fixed pieces, a cleat secured transversely across and rising from the center of the bottom, and at each end of the body on its interior an imperforate upright transverse strip extending from near the bottom to near the top and standing slightly remote from the end of the body to form an air-space open at upper and lower ends, as and for the purpose set forth.

2. In a washing-machine, the combination with a rectangular body, and means for giving it a swinging motion from suspended pivots; of a series of longitudinal triangular ribs standing on edge in each lower corner of the body, an imperforate upright strip carried by the body slightly remote from each end and standing at right angles to and extending from the upper edges of said ribs nearly to the cover, and on the under side of the cover near each end a depending strip with that face nearest the ribs beveled, all as and for the purpose set forth.

593,594. VALVE. MICHAEL MAHER and THOMAS COSGROVE, Garrett, Ind. Filed Sept. 16, 1896. Serial No. 606,019. (No model.)

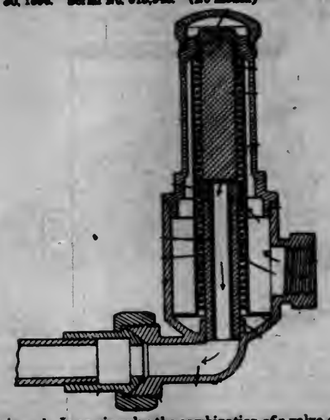
Claim.—1. The combination with the valve-chamber having a bushing with vertical groove, of a valve mounted to move in said chamber and having a stem, and a central boss, a cap on the upper end of the chamber, and a spring around the stem of the valve acting upon the upper face of the latter; all substantially as herein shown and described.

2. The combination with the valve-chamber and a bushing having vertical passages, of a piston mounted to move within the bushing, and a spring acting upon said piston and means for regulating the tension of said spring; substantially as described.



3. The combination with the valve-chamber and a bushing having vertical passages with a piston mounted to reciprocate therein, a cap, an adjusting-screw having a bore to guide the upper end of the piston-stem, and a spring between said adjusting-screw and the piston; substantially as described.

593,595. AIR-VALVE. JAMES P. MARSH, Chicago, Ill. Filed Nov. 30, 1896. Serial No. 613,940. (No model.)



Claim.—1. In an air-valve the combination of a valve-casing with supply and discharge passage-ways, and an expansion valve-controlling device, the expansion device consisting of two parts adapted to expand toward each other so that the effects are concentrated upon a single valve-opening.

2. In an air-valve the combination of a valve-body with supply and discharge passage-ways and two expansion parts contained within said valve-body, one acting as valve the other as seat, to control the flow of fluid through the valve.

3. In an air-valve the combination of a valve-body with inlet and outlet passage-ways, a cylindrical expansion part contained within said valve-body with a valve-seat at one end thereof, and a second expansion part within said valve-body carrying a valve end exposed to such seat.

4. In an air-valve the combination of a valve-body with inlet and outlet passage-ways, a cylindrical expansion part with a valve-seat at one end thereof, and a second expansion part carrying a valve end exposed to such seat, said cylindrical part composed of non-metallic material and provided with a metallic lining.

5. In an air-valve the combination of a valve-body with upwardly-projecting parts therein through which the passage through the valve partly passes, a surrounding perforated shield for such upper parts and a lower sediment-receiving collar on the lower end of such shield and adapted normally to rest at the bottom of the valve-body.

593,596. WASHING-MACHINE. WILLIAM H. MEYER, Afton, Minn. Filed Dec. 29, 1896. Serial No. 617,256. (No model.)



Claim.— In a washing-machine, the combination with a tub-body ribbed on its interior and notched at the upper edges of its ends, a shaft standing within said notches, an upright handle secured to said shaft, and segments pendent from the shaft and having connecting ribs parallel with those of the body; of levers pivoted to the tub-body at one side of the notches therein, bearings in the outer ends of the levers supporting the extremities of the shaft, a handle connecting the inner ends of the levers and leading over the body, brackets secured to the ends of the latter at the opposite side of its notches, and V-shaped springs each secured at one end to one of the brackets and having its other end sustaining the outer end of one lever and hence one extremity of the shaft, substantially as described.

593,597. FOOT-PROPELLED VEHICLE. GEORGE G. J. MILLAR, Groveport, Ohio, assignor of one-half to Luke G. Byrne, Columbus, Ohio. Filed Feb. 3, 1896. Serial No. 577,869. (No model.)



Claim.— 1. In a foot-propelled vehicle, the framework comprising a pair of twin parallel side frames having upper and lower bars extending the entire length of the vehicle and joined together at their front and rear terminals, a plurality of cross-bars connecting the side frames, and an upright front head-tube arising from the foremost cross-bars and having a brace connection with the front end of one side frame, thereby providing the framework at one side of the head-tube with an open front space for the free passage of the operator, a foot-rest covering embracing the foremost cross-bars at the base of the head-tube, a centrally-disposed crank-hanger having oppositely-extended arms joined respectively to two intermediate cross-bars, a seat-post extended upward from one of said intermediate cross-bars, and suitable driving mechanism having a crank-shaft journaled in the crank-hanger, substantially as set forth.

2. In a foot-propelled vehicle, the combination with a pedal, of a toe-clip adjustably secured to the front of said pedal and curved to embrace the front portion of the foot and extended backward in proximal relation to the instep, the said clip being forked at the instep to embrace the foot and having the fork ends connected to the pedal, substantially as described.

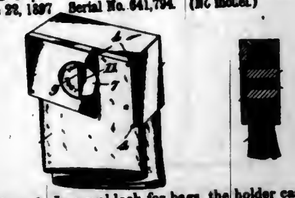
3. In a foot-propelled vehicle, the combination with a pedal, of a toe-clip shaped to embrace the front portion of the foot and provided adjacent to the instep with a fork the arms of which extend downwardly so as to embrace the foot and are connected adjustably to the pedal, substantially as and for the purpose specified.

4. A toe-clip having its body portion bent so as to embrace the toe and provided at the front with a depending perforated extension for attachment to a pedal, said clip being further provided adjacent to the instep with a fork, the arms of which are bent downward and made divergent so as to extend upon opposite sides of the foot, said arms being also perforated for attachment to a pedal, substantially as described.

5. The combination with a handle-bar stem having its upper end squared and provided at opposite sides with tapering recesses, and opposing spring-catches permanently secured to said stem and adapted to be deflected into said recesses, of a handle-bar provided at its center with a squared aperture adapting the handle-bar to be removably fitted upon the stem, the catches being extended sufficiently to pass through the aperture in the handle-bar and to engage the top of the latter, substantially as described.

6. The combination with a handle-bar having an irregular aperture therein, of a stem having its end formed to fit said aperture and also provided with recesses in opposite sides, and a pair of spring-catches carried by the stem and adapted to recede into said recesses, the said catches being adapted to automatically engage the handle-bar and lock the same to the stem, substantially as described.

593,598. SEAL-LOCK. ROBERT A. MILLS, Orlando, Fla. Filed June 22, 1897. Serial No. 641,794. (No model.)

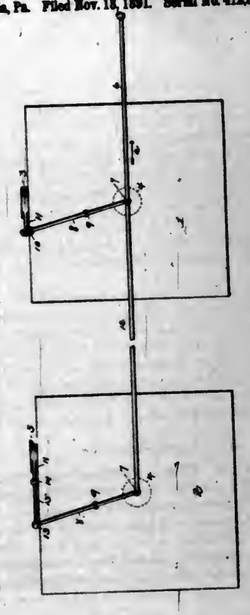


Claim.—1. In a seal-lock for bags, the holder case or box open at one side and provided with a removable lid or cover, in combination with an internally-screw-threaded sleeve, and a headed screw engaging said sleeve, substantially as described.

2. In a seal-lock for bags, the holder box or case for the mouth of the bag, an internally-screw-threaded sleeve or cylinder in said case for engaging the bag, a headed screw engaging said cylinder, and a lead seal applied to the cover and the headed end of said screw, substantially as described.

3. The combination in a seal-lock, of the holder box or case, the internally-screw threaded cylinder therein for engaging eyelets in the open end of the bag, a headed screw for engaging said sleeve provided with a beveled and countersunk washer, and a lead seal applied to said screw-head and washer, substantially as described.

593,599. BOGIE-TRUCK MOTOR-CAR. JAMES F. MCLAUGHLIN, Philadelphia, Pa. Filed Nov. 13, 1891. Serial No. 412,307. (No model.)



Claim.—1. The combination of a bogie-truck car, with a clutch for applying power on each truck, and operating mechanism for the same, pivoted at or near the pivots of the trucks and terminating at a single point, whereby it is unaffected by the tursing of the trucks, substantially as described.

2. The combination of a bogie-truck car, with a clutch or clutches for applying power to the driving axle or axles, and operating mechanism swiveled at or near the pivots of the trucks whereby it is unaffected by the tursing of the said trucks, substantially as described.

3. The combination of a bogie-truck car, with a clutch for applying power to a driving-axle, and operating mechanism for the clutch pivoted concentric with the truck when the clutch is on, and a universal joint between the said mechanism and an operating-lever under the control of an operator, substantially as described.

4. In a bogie-truck car, the combination with a clutch for applying power to the driving-axle, of operating mechanism therefor consisting of a lever connected at one end to the clutch and a link connected to the said lever and extending to a lever under the control of an operator, the connected ends of the link and clutch-lever moving to a point concentric with the truck-pivot when the clutch is applied, substantially as described.

5. In a bogie-truck car, the combination with a clutch for applying power to the driving-axle, of operating mechanism therefor consisting of a lever pivoted to the truck, a link connecting the outer end thereof with the clutch, and another link connecting the inner end of the clutch-lever with an operating-lever under the control of an operator, the said inner end of the clutch-lever moving to a point concentric with the truck-pivot when the clutch is applied, substantially as described.

6. In a bogie-truck car, the combination with two clutches, one for each truck, for applying power to the driving-axles, of operating mechanism therefor consisting of a lever for each clutch and having its outer end connected thereto, a link connecting the inner ends of the clutch-levers, and a link connecting the inner end of one clutch-lever to an operating-lever under the control of an operator, the inner end of each clutch-lever moving to points concentric with the truck-pivots when the clutches are applied, substantially as described.

593,600. VEHICLE-WHEEL. ROBERT K. MCLELLAN, Rochester, N. Y. Filed Jan. 8, 1896. Serial No. 574,573. (No model.)



Claim.—1. A bearing for cycles and the like, comprising a tubular hub or sleeve, an axle, a cap secured to the end of the hub or sleeve; and through which the end of the axle projects, an annular recess in the outer face of the cap around the axle-opening, and an annular flange carried upon the axle and fitting into and closing the recess, said flange being inclined on its outer side so as to direct the dust away from the recess, and being concaved on the side toward the recess; substantially as described.

2. In a bicycle or other like vehicle, the frame; a tubular hub or sleeve having an interiorly-threaded end; an axle having a collar or flange within said hub, and having a threaded projecting end, and adjacent to it, an unthreaded portion of less diameter than said threaded end; a cap screwed into the threaded end of the hub or sleeve and cooperating with the collar or flange on the axle to form a bearing or race for antifriction-balls; and a nut normally screwed upon the threaded end of the axle to secure the frame to the axle, and adapted when unscrewed from the said threaded end to turn upon said unthreaded portion and to interlock with the end cap whereby said cap may be adjusted; substantially as described.

3. A bearing for the wheels of cycles and the like, comprising a hub, an axle, a cap secured to the end of the hub and through which the axle projects, an annular recess in the outer face of the cap around the axle-opening, an adjustable nut on the axle having an inclined flange fitting into and closing the recess, and a rim around the recess overlapping the flange on the nut, whereby the dust is directed upon the inclined portion of the flange of the nut; substantially as described.

4. A bearing for the wheels of cycles and the like, comprising a hub, an axle, a cap secured to the end of the hub and through which the axle projects, an annular recess in the outer face of the cap around the axle-opening, an adjustable nut on the axle having a flange fitting into and closing the recess, and a flange attached to the hub and extending around and overlapping the flange on the nut, whereby the dust is directed outside the flange of the nut; substantially as described.

593,601. FLAGSTAFF-HOLDER. GEORGE P. NEELY, Allegheny, Pa., assignor of three-fourths to Joseph Blattner, Cecil R. Anderson, and Lewis K. Koontz, same place. Filed Mar. 5, 1897. Serial No. 626,160. (No model.)



Claim.—1. A holder of the character described consisting of a socket having oppositely-extended pointed arms designed to fit between and engage parallel surfaces, as set forth.

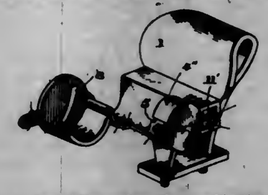
2. A holder of the character stated consisting of a socket having at one end a plate formed with pointed arms extended in opposite directions, substantially as set forth.

3. A holder of the character stated consisting of a socket in which a pole or shaft is designed to be held, and a plate at one end of said socket having upper and lower arms extended in opposite directions, the ends of said arms being pointed, substantially as set forth.

4. A holder of the character stated consisting of a socket, means for securing a pole or staff in such socket and a plate at one end of said socket having pointed or reduced ends, as and for the purpose set forth.

5. A holder of the character stated consisting of a socket, a screw in one end thereof, and an C-shaped plate at its other end having pointed or reduced ends, substantially as set forth.

593,602. THILL-COUPLING. WINFIELD S. OSBORN, Remington, Ind. Filed Nov. 10, 1896. Serial No. 611,629. (No model.)



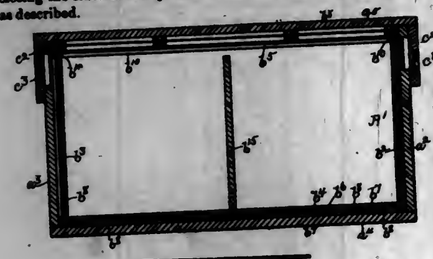
Claim.—1. In a thill-coupling, the combination with a bracket adapted to be secured to the vehicle-axle, of a thill, a band secured to the bracket and in which the thill is journaled, which band has steps adapted to engage with the thill, and a safety-cap pivoted to the bracket which, when closed, abuts on the thill and holds the same out of engagement with the steps.

2. In a thill-coupling, the combination with a bracket adapted for connection to the vehicle-axle and provided with a loop or bend having steps constituting catches, of a safety-cap hinged to said loop and having a portion overhanging the same, a locking-cap hinged to the other end of the bracket, a presser-spring secured to the locking-cap, and a thill-iron having a trunnion journaled in the curved portion of the bracket, in the locking-cap, and in the loop or bend, and having its shank adapted to move in the cut-away portion, the said spring pressing against said trunnion and urging the same laterally so that the shank abuts on the overhanging portion of the safety-cap, and said parts being so disposed and related that when the safety-cap is opened the shank of the thill-iron is released and the spring urges the same into engagement with the steps.

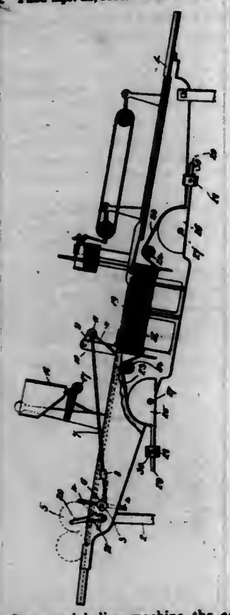
593,603. SHIPPING-CASE. FRANKIN W. PARSONS, Osterville, Mass. Filed Mar. 26, 1896. Serial No. 584,959. (No model.)

Claim.—As an improved article of manufacture, a shipping-case consisting of an outer box A provided with a cover a^3, an inner box A' fastened to the outer box and provided with a cover b^3, bars b^4 within the outer box to support and separate the inner box from the outer box by an air-space, partitions b^7 subdividing the said air-space into compartments, a closing-strip b^{10} for the air-space between the side and end walls of the inner and outer boxes, and side strips b^{12}

closing the sides of the space between the covers a^3 b^3, substantially as described.



598,604. CAN-LABELING MACHINE. HENRY W. PEASE, Milwaukee, Wis., assignor, by mesne assignments, to L. C. Parks, San Francisco, Cal. Filed Apr. 22, 1893. Serial No. 471,464. (No model.)



Claim.—1. In a can-labeling machine, the combination with a runway and label-applying mechanism, of a rotary stop-wheel having a number of arms or spokes adapted to project into the path of the cans, a device for locking said stop-wheel against rotation, and a trip arranged in the path of and adapted to be struck by the cans for automatically releasing said locking device, substantially as set forth.

2. In a can-labeling machine, the combination with a runway and label-applying mechanism, of a rotary stop-wheel having a number of arms or spokes adapted to project into the path of the cans and being provided with a toothed wheel, a bolt or latch arranged to engage the teeth of said wheel, and a trip arranged to be operated by the cans for automatically withdrawing said bolt or latch and releasing said stop-wheel, substantially as set forth.

3. In a can-labeling machine, the combination with a runway and label-applying mechanism, of a rotary stop-wheel having a number of arms or spokes adapted to project into the path of the cans and being provided with a toothed wheel, a bolt or latch arranged to engage with the teeth of said wheel and a pivoted arm arranged in the path of the cans and connected to said latch for withdrawing the latter from engagement with said toothed wheel, substantially as set forth.

4. In a can-labeling machine, the combination with the runway and label-applying mechanism, of a horizontal shaft having a number of radial arms or spokes projecting upward from the runway, a ratchet-wheel on said shaft, a sliding bolt or latch arranged to engage with said ratchet-wheel, connected arms pivoted above the runway and having connection with said bolt or latch, projections on said arms extending transversely of the runway and means for forcing said latch into engagement with the ratchet-wheel, substantially as set forth.

5. In a can-labeling machine, the combination with a runway and label-applying mechanism, of a rotary stop-wheel having a number of arms or spokes adapted to project into the path of the cans, a ratchet-wheel on the axis of said stop-wheel having teeth corresponding in number and arrangement with said arms or spokes, a device for locking said stop-wheel against rotation, a trip arranged in the path of and adapted to be struck by the cans for automatically releasing said locking device, and a permanent stop-lever having a tooth and being pivoted so as to swing into engagement with the teeth of said ratchet-wheel, substantially as set forth.

6. In a can labeling machine, the combination with a body portion, of can-delivering means, a paste-applying device, a label-carrying table, a stop-detent for the delivering means, and a lever carried on the body portion, and adapted to be engaged by the can said lever being connected to and controlling the stop and detent, substantially as set forth.

7. In a can-labeling machine, an inclined table or way over which the can rolls, a wheel located in the can-path and controlling the feed of the cans, a locking device for the wheel and means also located in the can-path and actuated by the passing cans for releasing the locking device, substantially as set forth.

8. In a can-labeling machine, radial arms forming receptacles into which the cans are received at the upper end of the table, a pawl-and-ratchet mechanism by which the holding-arms are retained in position, a roller at the lower end of the apparatus adapted to be raised by the passage of the cans beneath it and a connection between said roller and the pawl which holds the ratchet at the upper end, whereby the pawl is withdrawn and the cans delivered upon the table, substantially as set forth.

598,605. BUMPER FOR RAILWAY-CARS. WILLIAM H. PEARSON, Boston, Mass. Filed June 19, 1897. Serial No. 641,443. (No model.)



Claim.—1. In a bumper for cars, the combination with a base having a stop thereon, of a standard projecting upwardly from said base, a brace secured to the upper end of said standard and extending rearward to the stop on the base, and a spring-buffer at the front portions of the standard and the brace.

2. In a bumper, the combination with a base, a standard, and a buffer, of a brace extending in a vertically-straight rearward direction from the buffer, and a supplemental brace extending from the brace to the base.

3. In a bumper the combination with a base composed of railroad-rails, of a standard composed of railroad-rails, terminating at its upper end in a position to receive the end of a car, rails secured to said standard and stops or shoulders on the base to receive the rear ends of said last-mentioned rails or angle irons.

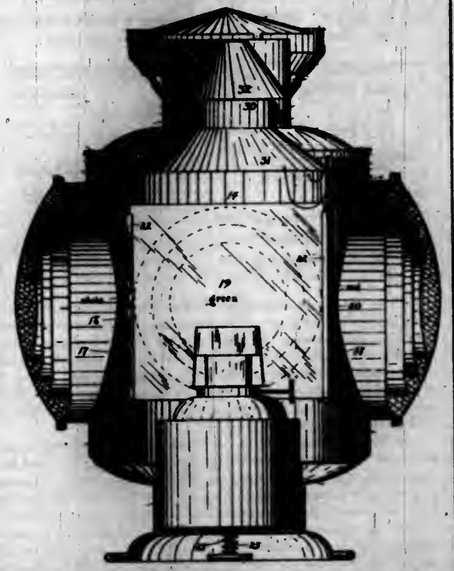
4. The combination with parallel railroad-rails terminating at one end in a V-shaped base, of a standard extending upwardly from said base and a brace secured at one end to the standard and at the other end to the apex of the V-shaped brace.

5. In a bumper for cars, the combination with two iron rails bent to form anchors at one end, the other ends of said rails being bent to form a V-shaped base, of a standard extending upwardly from said base, and a brace extending from the upper end of said standard to the apex of the V-shaped base, substantially as set forth.

6. In a bumper for railroad-cars, the combination with a base composed of two rails bent at one end to form anchors and at the other end bent to form a V-shaped base having its ends bent upward to form a stop, of a standard composed of the rails of the track bent upward and together, a brace extending from said standard to the stop on the base and a spring-buffer at the front of said standard.

7. In a bumper the combination with a base composed of two inverted rails bent at one end to form anchors and at their other ends bent together to form a V-shaped base and upward to form a stop, a standard composed of the rails of a track disposed parallel with and secured to the base-rails and bent upwardly and together in a semicircle at their free ends, a brace extending from the upper ends of said standard to the stop on the base, a spring-buffer on the front of the standard and the brace, and a supplemental brace secured to the base, the standard and the first-mentioned brace, substantially as set forth.

598,606. SIGNAL-LANTERN. ADOLPH F. PRAHL, Indianapolis, Ind. Filed Nov. 25, 1895. Serial No. 570,026. (No model.)



Claim.—1. In a signal-lantern, the combination with the lantern-casing having formed in the bottom thereof a downwardly-extending recess, and having a drip-cup secured on the inside near the top of said casing, of a revoluble screen-carrier mounted in said casing, the upper end of said carrier fitting into the opening formed by the inner wall of the drip-cup, and the lower end of said carrier fitting into the recess formed in the lantern-casing, and means secured to the lower end of the screen-carrier for causing a rotative movement thereof, as and for the purpose described.

2. In a signal-lantern, the combination with a lantern-casing provided with a light-aperture and having formed in the bottom thereof a downwardly-extending recess, of a drip-cup secured to the inside of said casing near the top thereof and provided on the inner wall thereof with a series of notches, a revoluble screen-carrier mounted in said casing, the upper end of said carrier fitting into the opening formed by the inner wall of the drip cup, and the lower end of said carrier fitting into the recess formed in the lantern-casing, a lug secured to the upper end of the carrier and adapted to engage in any one of the notches formed in the inner wall of the drip-cup, and means secured to the lower end of the screen-carrier for lifting said carrier and causing a rotative movement thereof, substantially as described.

3. In a signal-lantern, the combination with a lantern-casing having a downwardly-extending recess formed in the bottom thereof, of a drip-cup secured to the inside of said casing near the top thereof, a series of notches formed in the inner wall of said drip-cup, a revoluble screen-carrier mounted in said casing, the upper end of said carrier fitting into the opening formed by the inner wall of the drip-cup, and the lower end of said carrier provided with a hollow, downward extension adapted to fit into the recess formed in the bottom of the casing and also adapted to receive the body of a lamp, a pin secured to the bottom of the screen-carrier and passing through an opening formed in the bottom of the lantern-casing, a knob secured to said pin below said casing, and a spring mounted between the knob and the casing, all combined and arranged to coöperate as and for the purpose set forth.

4. In a lantern, the combination with the unventilated main casing adapted to carry a lamp, of a cover for said casing forming a flue leading therefrom and provided with a series of ventilating-openings leading downward into the top of the casing, a drip-cup mounted below said openings and arranged to intercept the downward current of air which passes through said openings and deflect the said air into the casing, substantially as described.

5. In a lantern, the combination with the unventilated main casing adapted to carry a lamp, of a cover for said casing provided with a series of ventilating-openings leading down into the casing, a drip-cup mounted below said openings and adapted to deflect the air upward and into the casing, together with a cone-shaped flue secured to said cover and extending below the upper edge of the drip-cup, substantially as set forth.

6. In a lantern, the combination with the unventilated main casing adapted to carry a lamp, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward and into the casing, a main flue secured to the cover, a cone-shaped flue extending below the upper edge of the drip-cup, and of smaller diameter than said drip-cup, and secured at its upper end to the interior of the main flue by means of a partition provided with a series of openings communicating with the interior of the main flue, substantially as described.

7. In a ventilating-jack, the combination with the main flue, of a ring of larger diameter than said flue secured thereto by means allowing a free passage of air between said ring and flue, a cap, of larger diameter than said flue and of smaller diameter than said ring mounted above the flue with its lower edge below the upper edge of the ring, and an upwardly-extending cone secured to the inside of the flue near the top thereof, the arrangement being such that communication between the upper and the lower end of the flue can only be had through the upper end of the cone, as set forth.

8. In a lantern, the combination with the main casing adapted to carry a lamp, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward, a main flue secured to said cover, a cone-shaped flue extending below the upper edge of the drip-cup and secured at its upper end to the interior of the main flue by means of a partition provided with a series of openings communicating with the interior of the main flue, a ring of larger diameter than the main flue secured thereto by means allowing a free passage of air between said ring and flue, and a cap, of larger diameter than the flue and of smaller diameter than the ring, mounted above the flue with its lower edge below the upper edge of the ring, substantially as set forth.

9. In a lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward, a main flue secured to said cover, a cone-shaped flue extending below the upper edge of the drip-cup and secured at its upper end to the interior of the main flue by means of a partition provided with a series of openings communicating with the interior of the main flue, a second cone mounted above said partition and secured to the interior of the main flue near the top thereof, a ring of larger diameter than the main flue and secured thereto by means allowing a free passage of air between said ring and flue, and a cap, of larger diameter than the flue and of smaller diameter than the ring, mounted above the flue with its lower edge below the upper edge of the ring, substantially as described.

10. In a signal-lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the air upward, a revoluble screen-carrier mounted in said casing, the upper end of said carrier fitting in the opening formed by the inner wall of the drip-cup, a cone-shaped flue secured to the cover and extending down into said screen-carrier and below the upper edge of the drip-cup, and means secured to the lower end of the screen-carrier for causing a rotative movement thereof, all combined and arranged to coöperate substantially as and for the purpose set forth.

11. In a signal-lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the air upward, a revoluble screen-carrier mounted in said casing, the upper end of said carrier fitting into the opening formed by the inner wall of the drip-cup, and the lower end of said carrier being provided with a downward extension adapted to fit into a recess formed in the bottom of the main casing, a cone-shaped flue secured to the cover and extending down into the screen-carrier, and means secured to the lower portion of the screen-carrier for causing a rotative movement thereof, all combined and arranged to coöperate substantially as and for the purpose set forth.

12. In a signal-lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward, a revoluble screen-carrier mounted in said casing, the upper end of said carrier fitting in the opening formed by the inner wall of the drip-cup, a cone-shaped flue secured to the cover and extending down

into said screen-carrier, and means secured to the lower portion of the screen-carrier for causing a rotative movement thereof, all combined and arranged to coöperate substantially as set forth.

13. In a signal-lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward, a revoluble screen-carrier mounted in said casing, the upper end of said carrier fitting in the opening formed by the inner wall of the drip-cup, a cone-shaped flue secured to the cover and extending down into said screen-carrier, a downward extension formed on the lower end of the screen-carrier and adapted to fit into a recess formed in the bottom of the main casing, a pin secured to the bottom of said downward extension and passing through an opening formed in the bottom of the main casing, and a knob secured to said pin below said casing, all substantially as set forth.

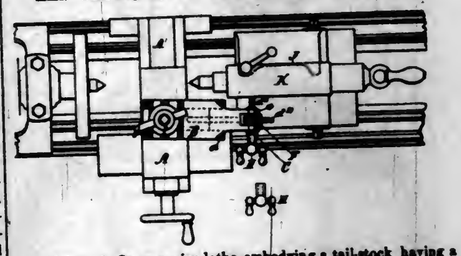
14. In a signal-lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward, a revoluble screen-carrier mounted in the casing, the upper end of said carrier fitting in the opening formed by the inner wall of the drip-cup, a main flue secured to the cover and extending upward therefrom, a cone-shaped flue extending down into the screen-carrier and secured at its upper end to the interior of the main flue by means of a partition provided with a series of openings communicating with the interior of the flue, substantially as set forth.

15. In a signal-lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward, a revoluble screen carrier mounted in the casing, the upper end of said carrier fitting in the opening formed by the inner wall of the drip-cup, means secured to the lower portion of said screen-carrier for causing a rotative movement thereof, a main flue secured to the cover and extending upward therefrom, a cone-shaped flue extending down into the screen-carrier and secured at its upper end to the interior of the main flue by means of a partition provided with a series of openings communicating with the interior of the flue, a ring of larger diameter than the main flue secured thereto by means allowing a free passage of air between said ring and flue, and a cap, of larger diameter than the flue and of smaller diameter than the ring, mounted above the flue with its lower edge below the upper edge of the ring, substantially as and for the purpose set forth.

16. In a signal-lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward, a revoluble screen-carrier mounted in the casing, the upper end of said carrier fitting in the opening formed by the inner wall of the drip-cup, means secured to the lower portion of said screen-carrier for causing a rotative movement thereof, a main flue secured to the cover and extending upward therefrom, a cone-shaped flue extending down into the screen-carrier and secured at its upper end to the interior of the main flue by means of a partition provided with a series of openings communicating with the interior of the flue, a second cone mounted above said partition, in the main flue and near the top thereof, a ring of larger diameter than the main flue and secured thereto by means allowing a free passage of air between the said ring and flue, and a cap, of larger diameter than the flue and of smaller diameter than the ring, mounted above the flue with its lower edge below the upper edge of the ring, all combined to coöperate substantially as and for the purpose set forth.

17. In a signal-lantern, the combination with the main casing, of a cover for said casing provided with a series of ventilating-openings leading down into the top of the casing, a drip-cup mounted below said openings and adapted to deflect the incoming air upward, a series of notches formed in the upper edge of the inner wall of the drip-cup, a revoluble screen-carrier mounted in the casing, the upper end of said carrier fitting in the opening formed by the inner wall of the drip-cup, a hollow, downward extension formed on the lower end of the screen-carrier and adapted to fit into a recess formed in the bottom of the main casing and also adapted to receive a lamp, a pin mounted on the bottom of said extension and passed through an opening formed in the bottom of the main casing, a knob secured to said pin below the casing, a spring mounted between said knob and casing, a lug secured to the upper end of the carrier and adapted to engage in any one of the series of notches formed in the inner wall of the drip-cup, a main flue secured to the cover and extending upward therefrom, a cone-shaped flue extending down into the screen-carrier and secured at its upper end to the interior of the main flue by means of a partition provided with a series of openings communicating with the interior of the flue, a second cone mounted above said partition, in the main flue and near the top thereof, a ring, of larger diameter than the main flue and secured thereto by means allowing a free passage of air between said ring and flue, and a cap, of larger diameter than the flue and of smaller diameter than the ring, mounted above the flue with its lower edge below the upper edge of the ring, all combined and arranged to coöperate substantially as and for the purpose set forth.

593,607. ENGINE-LATHE. ALBERT F. PRESTON, Worcester, Mass. Filed May 12, 1897. Serial No. 636,161. (No model.)



Claim.—1. In an engine-lathe embodying a tail-stock having a rearwardly-offset standard, and a compound tool-rest provided with a pivotally-adjustable swing-plate and top shoe carrying the tool-rest; the combination, with the feed-screw for said shoe, of a lateral screw-operating arbor carried upon said spring-plate, and having its end fitted for receiving the removable handle-piece that fits the feed-screw end, and spiral connecting-gears arranged on said arbor and feed-screw, substantially as set forth.

2. The combination, of the tool-post-supporting slide having the narrowed rear end, and provided with the under bearing *b* and lateral top bearings *e e*, the swinging guide-plate, the feed-screw threaded longitudinally in said guide-plate and arranged through the bearing *b*, the transverse arbor mounted in the bearings *e* on said slide-plate, and having oppositely-projecting ends adapted for receiving a removable handle-piece, the collars *m* and *n* arranged on said arbor at the ends of the bearings, and the pair of similar spiral-toothed gears respectively fixed on said arbor and on the neck of said feed-screw, for the purposes set forth.

3. In a compound tool-rest for engine-lathes, the combination of the top shoe provided at its outer end with lateral bearings and a housing-shell thereon, a transversely-disposed arbor mounted in said bearings, the feed-screw journaled in a bearing at the under side of said top shoe, the pair of gears connecting said arbor and feed-screw, the ends of said arbor and feed-screw respectively projecting and similarly formed with splines, and the handpiece provided with a socket adapted for interchangeably fitting said screw and arbor ends, for the purpose set forth.

593,608. COMBINATION-RULE. WILLIAM ROSENKRANS, New York, N. Y. Filed July 9, 1897. Serial No. 643,904. (No model.)

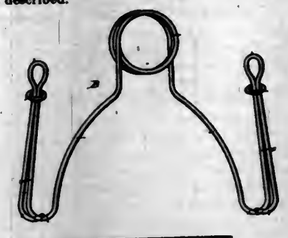


Claim.—As an improved article of manufacture a rule comprising two parts 5 and 6 provided with scales, said parts being hinged together at one end by jaws 7, a shaft or bolt 8 mounted thereon, a thumb nut 9 mounted on one end thereof, a toothed wheel 10 mounted between said jaws and adapted to revolve on said shaft, a longitudinal plate 11 mounted in the outer end of each of said parts 5 and 6, each of which is provided with a longitudinal slot 13 and a longitudinal chamber 14, a pin 15 mounted in each of said chambers and provided with a screw 16 having a thumb-nut 17, and a spirit-level 18 countersunk in one of said parts, substantially as and for the purpose described.

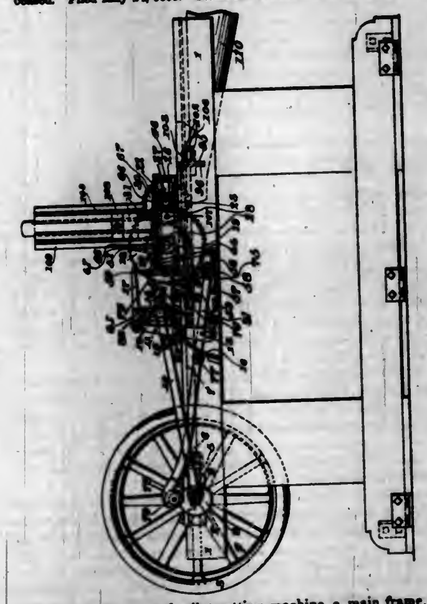
593,609. TROUSERS-STRETCHER. FRANK L. SAMPSON, Baldwinsville, N. Y., assignor to the Wire Goods Company, Worcester, Mass. Filed Nov. 4, 1896. Serial No. 611,059. (No model.)

Claim.—1. A trousers-stretcher comprising a single piece of wire formed into a spring-coil, spring-loops pendent from said coil, spring-eyes at the tops of said loops, and pendent spring-arms having inwardly-turned lower ends and lying normally beside said loops and connected to the eyes formed at the upper ends of the same, and rings mounted on said pendent loops and arms respectively, for drawing the same together to clamp the trousers-legs between them, substantially as described.

2. A trousers-stretcher, comprising a single piece of wire formed into a spring-coil, spring-loops pendent from said coil, pendent spring-arms lying normally beside said loops and connected thereto at their upper ends, and rings embracing said loops and said arms for drawing the same together to clamp the trousers-legs between them, substantially as described.



593,610. APPARATUS FOR CUTTING WOOD SPLINTS. CATHARINA SCHAFER, Philadelphia, Pa., executrix of Konrad H. Schafer, deceased. Filed May 24, 1895. Serial No. 550,502. (No model.)



Claim.—1. In a wood-splint-cutting machine, a main frame, a casing secured thereon, a movable frame within said casing having feed-rollers mounted on the sides thereof, spring-supports for said movable frame, and rocking shafts journaled in said casing and having projections for said movable frame.

2. In a wood-splint-cutting machine, a main frame, a casing secured thereon, a movable frame within said casing having feed-rollers mounted in the sides thereof, spring-supports for said movable frame, connected rocking shafts with projections bearing against said movable frame, springs secured to said casing and bearing against one of the sides of said movable frame, a rotatable shaft mounted in the ends of said casing, and a gear-wheel on said shaft engaging projections on one of the sides of said movable frame.

3. In a wood-splint-cutting machine, the frame with the casing secured thereon, the frame in said casing having feed rollers journaled in its sides, the springs secured to said casing and bearing against said frame, the heads on one side of said frame, the toothed wheel engaging said heads, and mechanism substantially as described for intermittently rotating said wheel.

4. In a wood-splint-cutting machine, the frame 1 with the casing 46 secured thereon, the frame 22 in said casing having feed-rollers journaled therein, the springs 63 bearing against said casing 46 and frame 22, the rotatable toothed wheel 68 bearing against heads on said frame 22, the springs 34 secured to said frame 22 and extending below the same and the dogs 36.

5. In a wood-splint-cutting machine, a main frame, a driving-shaft journaled thereon, a casing on said frame, a movable frame in said casing, having feed-rollers journaled thereon, mechanism connected with said shaft for operating said feed-rollers, a sliding head guided on said main frame having blades connected therewith, springs on said casing forcing said movable frame in a direction transverse to the direction of travel of said sliding head, mechanism operated by contact with a cam on said shaft for forcing said movable frame in an opposite direction from that caused by the action of said springs, and mechanism for operating said movable frame to and from the plane of travel of said sliding head.

6. In a wood-splint-cutting machine, a frame, a casing thereon with the shaft 19 journaled therein, the ratchet-wheel 18 mounted on said shaft, the pawl 17 engaging said ratchet-wheel with operative mechanism, the operating horizontal pivoted lever 80, the vertical lever 84 having a beveled upper end engaging said pawl, and the wire 87 connecting said levers.

7. In a wood splint-cutting machine, a frame, the ratchet-wheels 18 and 74 supported thereon at angles to each other, the pawls 17 and 75 with operative mechanism for said ratchet-wheels, the levers 80 and 84 with connecting-wire 87, one end of said lever 80 engaging said pawl 74, and a beveled end of said lever 84 engaging said pawl 17.

8. A casing 46, shafts 51 and 52 journaled therein, lugs 53 on said shafts, and means for actuating the latter, springs 63 attached to said casing, the frame 22 adapted to be placed between the latter, and having one of its sides contacting with said springs 63, the cog-wheels 67 suitably journaled and in contact with the other side of said frame, means for actuating said wheels, the rolls 28 journaled in the frame 22, means for rotating the same, the dog 36, the springs 44, the reciprocating head and the cutters secured therein.

9. In a machine of the character described, the main shaft 2, the reciprocating head, rollers for holding blocks, the ratchet-wheels 18 and 74, the pawls 17 and 75, engaging said ratchet-wheels, mechanism actuated by said wheels for moving said blocks, vertically and transversely in respect to said cutter-head and means for simultaneously moving said pawls out of engagement with the ratchet-wheels without stopping the reciprocating head.

10. In a machine of the character described, a main shaft, means for actuating the same, rollers between which the blocks are held, said rollers being journaled in the sides of a suitable frame, springs on which said frame rests, rock-shafts and lugs thereon adapted to contact at intervals with said frame and thus impart a vertical movement thereto, means for rotating said rollers and for giving a lateral movement thereto, a reciprocating head, cutters fastened therein, and means for actuating said head.

11. In a machine of the character described, a main shaft, means for actuating the same, rollers between which the raw material is held, a frame in which said rollers are journaled, springs on which said frame rests, rock-shafts having lugs adapted to contact at intervals with said frame, and thus impart a vertical movement thereto, means for actuating said rock-shafts, means for rotating said rollers and for imparting a lateral movement thereto, dogs 36 for holding the raw material in position, cutters, means for actuating the same, and a stop with which said cutters contact at the end of their stroke.

12. A main shaft, rollers between which the material is held, a spring-supported frame in which said rollers are journaled, means for giving said rollers a vertical and rotary movement, a shaft carrying a cog-wheel adjacent said frame adapted to move the frame laterally, means for rotating said shaft and actuating said cog-wheel, means for imparting a vertical movement to said frame, a head carrying cutters and a plane, and means for actuating said head.

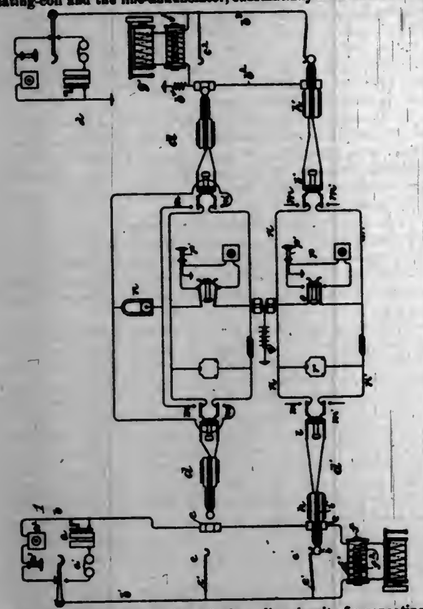
13. In a wood-splint-cutting machine, the frame 1 with the casing 46 secured thereon, the frame 22 in said casing having feed-rollers therein, the rocking shafts 51 journaled in said casing and having lugs 53 thereon, the springs 63 secured to said casing and bearing against said frame 22, the rotatable toothed wheel 68 bearing against said frame 22, the springs 34 secured to said frame and extending below the same, the dogs 36 and the sliding head 93 with blades thereon.

14. In a wood-splint-cutting machine, a main frame, a frame with feed-rollers mounted therein, a sliding head with cutters, mechanism for imparting a motion to said feed-roller frame to and from the plane of travel of said cutter-head, and mechanism for imparting a movement to said feed-roller frame transversely to the direction of travel of said cutter-head, the cutters in said head being of different widths, those of the same width being in alinement with each other, the cutters of the least width being in advance of the others.

593,611. MULTIPLE-SWITCHBOARD SYSTEM FOR TELEPHONE-EXCHANGES. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed May 13, 1892. Serial No. 432,896. (No model.)

Claim.—1. The combination with a telephone-line and spring-

jacks connected therewith in a switchboard, a repeating-coil and a line-annunciator, a bridge of the line-circuit including one helix of the repeating-coil, and a local circuit including the other helix of the repeating-coil and the line-annunciator, substantially as described.



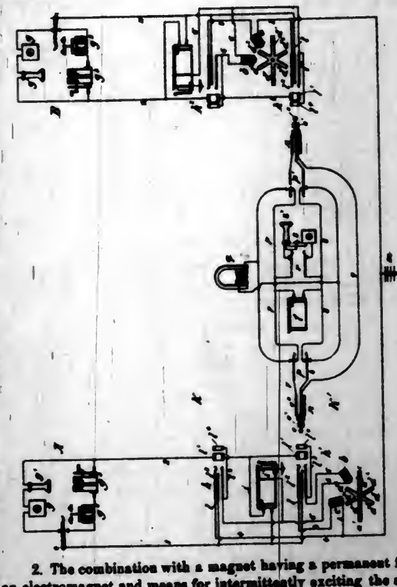
2. The combination with a telephone-line circuit of a repeating-coil, one of whose coils is included permanently in the line-circuit and the other of whose coils is included in a local circuit with an individual annunciator, and means for shunting the first-mentioned coil of the repeating-coil when connection is established with the line, substantially as described.

3. The combination with a telephone-line extending from a substation to an exchange of spring-jack switches at the exchange each having two contact-pieces connected to the different sides of the line-circuit respectively, a repeating-coil having one of its windings included in a permanently-closed loop of the line-circuit, an individual annunciator included in a local circuit with the remaining coil of said repeating-coil, a loop-plug adapted for insertion into any one of the spring-jacks, and a retardation-coil in a branch between the different contact-pieces of the loop-plug, the resistance of the permanently-closed loop of the line-circuit containing the winding of the repeating-coil, and the resistance of said retardation-coil being so adjusted with relation to each other as to cause current insufficient to operate said annunciator to flow in said local circuit when a call-signal is sent in the line-circuit, when the loop-plug is inserted in a spring-jack of the line, substantially as described.

4. The combination with a line-circuit extending from a substation to an exchange, spring-jacks at the exchange, a repeating-coil having two helices one included in a permanently-closed loop of the line-circuit, and the other included in a local circuit with an individual annunciator, a loop-plug adapted for insertion into any spring-jack, a resistance in circuit between the different contact-pieces of the loop-plug, the resistance of the helix of the repeating-coil included in the line-circuit being so adjusted with relation to the resistance included in circuit between the contact-pieces of the loop-plug, and the mutual induction between the two helices of the repeating-coil being so adjusted that alternating current call-signals sent upon the unconnected line-circuit shall operate said annunciator, but that such current shall fail to operate said annunciator when said repeating-coil is shunted by the resistance, substantially as described.

598,612. TOLL-COUNTER FOR TELEPHONE-LINES. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Sept. 10, 1894. Serial No. 522,603. (No model.)

Claim.—1. The combination with a permanent magnet of an armature therefor having projections adapted to come successively into the field of the magnet, an electromagnet and means for intermittently exciting the same, and an armature for the electromagnet connected with the armature of the permanent magnet, the poles and armature of the electromagnet being so adjusted with relation to the poles and armature of the permanent magnet that the attraction of its armature by the electromagnet brings a new projection of the armature of the permanent magnet into the field of the latter, substantially as described.



2. The combination with a magnet having a permanent field, of an electromagnet and means for intermittently exciting the same, a common star-shaped revolving armature adapted to bring its arms successively into the permanent field, the electromagnet being adapted when excited to attract one of the said projections into such position that a new projection of the armature is within the permanent field, substantially as described.

3. The combination with a rotating star-shaped armature-controlling registering mechanism, of a permanent magnet adapted to attract an arm or projection of the armature to hold it in a stable position, and an electromagnet adapted to attract another arm of the armature, the said electromagnet being placed in position to bring a new arm of the armature into range of the permanent magnet, substantially as described.

4. The combination with a telephone-line and two appliances involved in making connection therewith adapted for successive operation, of registering or counting mechanism associated with the line and two electromagnets acting thereon, one adapted to cause it to register and the other adapted to return the registering mechanism to its prior position, circuits including the different magnets and switches controlling the circuits connected with the said appliances and operated in conjunction therewith, as described.

5. In combination, a magnet having a permanent field, two electromagnets and means for intermittently exciting them independently of each other, an armature having projections adapted to come successively into the permanent field, the said electromagnets being adapted when successively excited to bring a new projection into the permanent field, substantially as described.

6. The combination with a telephone-line, of two appliances, each adapted for making connection between the said line and another line, of a connection-counter associated with the said line, and mechanism actuated in the use of one only of said appliances controlling the operation of the counter; whereby connection may be made with the line without operating the counter thereof, as described.

7. The combination with a telephone-line, of two separate devices for making connection therewith, one designed for use in making connection from the line and the other for use in making connection to the line, toll counting or registering mechanism in connection with one of said devices, preferably the former, and means for determining the actuation of said mechanism when connection is made with the line, as described.

8. The combination with two telephone-lines, two sockets for each of the lines, and link conductors for uniting sockets of the different lines, of a connection-counter for each of the lines and actuating-circuits adapted to be closed through the counter of one line through the agency of the plug and one of the sockets of the same line; whereby the counter of one only of two connected lines is made operative during connection between lines.

9. The combination with two telephone-lines and means for uniting the lines in a through-circuit, of a connection-counter associated with one of the lines, actuated by an electromagnet, a circuit including the electromagnet, and means for completing it in the act of establishing a through connection between the two lines, an electromagnet adapted to return the connection-counter to its prior position, and means for exciting said last-mentioned electromagnet at will, as described.

10. The combination with two telephone-lines of a connection-counter comprising a registering device and means for actuating the same, an electromagnet adapted when excited to prevent the actuation of said registering device, and another electromagnet adapted when alone excited to cause its actuation, circuit connections and a switch adapted to permit the passage of current through both electromagnets when connection is made with one of the lines, and other circuit connections and a switch adapted to deprive said first-mentioned electromagnet of current when connection is completed with the other line, substantially as described.

11. The combination with a telephone-line, of an automatic switch adapted to be operated in the act of making connection with the line, a toll-counter comprising two electromagnets included in a local circuit controlled by the switch and registering mechanism controlled by them, said electromagnets being adapted when simultaneously excited to prevent the operation of the recording mechanism of the toll-counter, but one of them being adapted to actuate said mechanism when alone excited, and means for demagnetizing the other magnet to cause the instrument to register, substantially as described.

12. The combination with two telephone-lines terminating in a telephone-switchboard, of an answering-jack connected with one of the lines, a toll-counter in a normally open local circuit, said toll-counter comprising two electromagnets and recording mechanism controlled thereby adapted to be actuated only when one of the magnets is excited but not when both are simultaneously excited, switch-contacts for closing the circuit through both electromagnets when connection is made with the answering-jack, and switch-contacts actuated in establishing connection with the other line controlling the circuit of one of the magnets to deprive the magnet of current when such connection is made, substantially as described.

13. The combination with two telephone-lines and appliances for uniting them, said appliances being adapted for successive operation in the process of uniting the lines, of a connection-counter associated with one of the lines, devices actuated in the movement of said appliances and mechanism for operating the counter brought into action through the operation of said devices in a particular succession, substantially as described.

14. The combination with two telephone-lines connected to form a compound circuit extending between two substations through a central station; of a registering device associated with each; and means, substantially as indicated, for actuating the said registering device of the initiatory line, and for maintaining quiescent that of the called line.

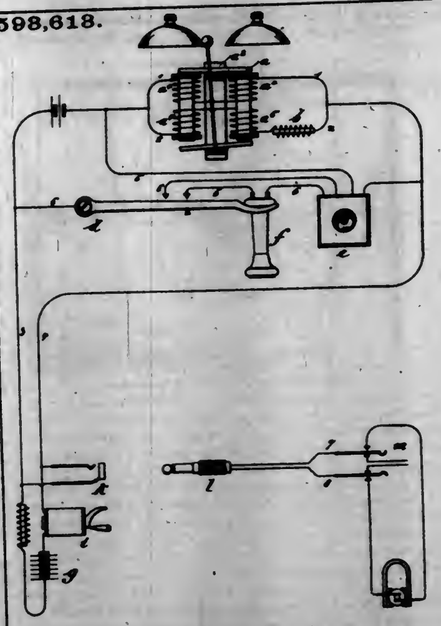
15. The combination with two telephone-lines and link conductors for uniting the lines into a continuous telephonic circuit, of an electromagnetic connection-counter for one of the lines, and actuating-circuits including the electromagnet of said counter closed in switch-contacts at two points, one at the point of connection of each line with the said link-conductors; whereby the counter is made operative only when connection between the lines is completed.

16. The combination with telephone-lines, an answering-jack and a line-jack for each line, and plugs and a plug-circuit for making connection between the answering-jack of one line and the line-jack of the other, of an electromagnetic connection-counter for one of the lines, and a local battery-circuit including the magnet of said counter closed through registering contact-pieces of each spring-jack and the plug therein and a conductor uniting the plug-contacts, as described.

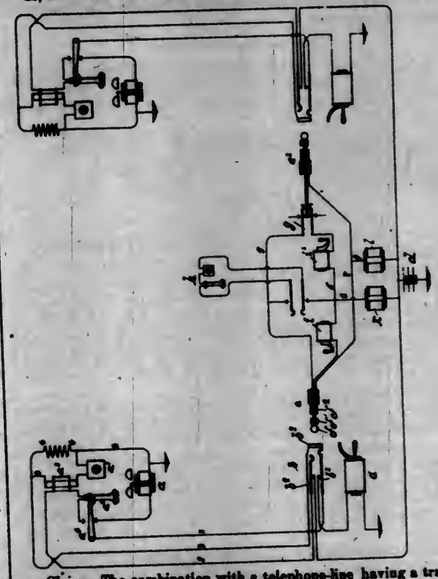
598,618. POLARIZED SIGNAL-BELL. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 25, 1895. Serial No. 570,059. (No model.)

Claim.—The combination with a telephone-line including a local storage battery in the line at a substation and a charging-battery therefor, and provided with means for producing alternating currents in the line, of an electric bell whose electromagnet is provided with two differential windings in different parallel branches of the line-circuit, one of which branches is constructed to have high impedance, whereby the bell remains neutral to the charging-current but may be operated by alternating current, substantially as described.

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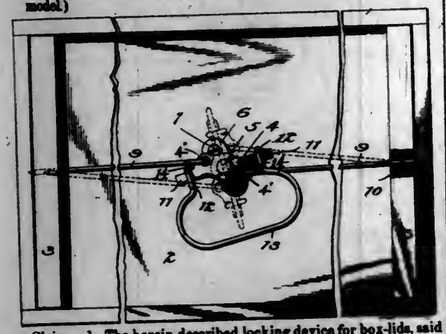


598,614. TELEPHONE SYSTEM. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Sept. 25, 1896. Serial No. 606,995. (No model.)



Claim.—The combination with a telephone-line having a transmitting-telephone and an induction-coil at its substation, and terminating in an appliance for establishing connection with another telephone at a central station, of a supply-circuit distinct from the line permanently including the said transmitting-telephone and the primary winding of the induction-coil at the substation, and terminating in a separate contact-piece of said appliance, a source of current at the central station, a switch-contact forming the terminal thereof, and means for applying said switch-contact to the contact-terminal of said supply-circuit in the act of making connection with the line, substantially as described.

598,615. BOX-FASTENER. HENRY M. SHERR and SANFORD C. PITNEY, Quincy, Ill. Filed Jan. 4, 1897. Serial No. 617,965. (No model.)

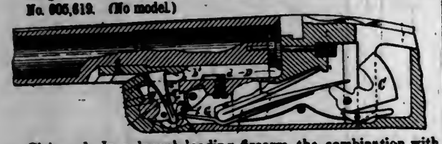


Claim.—1. The herein-described locking device for box-lids, said device consisting in the combination of a centrally-pivoted, horizontal lever having a vertical axis and provided with holes, a pair of longitudinally-movable locking-rods secured in the holes and out of alinement with each other, a pair of lugs projecting from the opposite extremities of the lever, and a handle secured to said lugs and adapted to fall down on the top of the lid, substantially as described.

2. In a box-lid fastener, the combination with a lid, of a stud or fulcrum centrally disposed thereon and projecting upwardly therefrom, a horizontally-movable locking-lever having trunnions on its opposite ends and provided with abutting shoulders, a bail having loops fitted over and pivoted on the trunnions so as to swing up and down, and a pair of rods pivotally attached to the lever at points between the axis and free ends, the contiguous ends of the rods being arranged to come in contact with the abutting shoulders on the lever when the latter is turned into locking adjustment, substantially as described.

3. The combination with a lid, of the locking-rods 9, the perpendicular stud or pivot 5 on the lid, the lever 4 parallel with the face of the lid and the U-shaped handle 13 hinged on the lever, substantially as described.

598,616. EJECTOR MECHANISM FOR BREECH-LOADING FIREARMS. LEROY H. SMITH and FREDERICK L. CRAIG, Ithaca, N. Y., assignors to Ithaca Gun Co., same place. Filed Sept. 12, 1896. Serial No. 605,612. (No model.)



Claim.—1. In a breech-loading firearm, the combination with a barrel and a frame, each having an engaging shoulder or face, and a movable extractor; of an ejector having separated spring-arms for engaging said shoulders or faces, one of the arms being movable from engagement with its corresponding shoulder or face for actuating the extractor to discharge the shell, and means for preventing the ejector from actuating the extractor, substantially as and for the purpose described.

2. In a breech-loading firearm, the combination with a barrel, a frame, and a movable extractor; of an ejector consisting of a spring supported by the barrel and arranged to be compressed by the dropping of the barrel and to actuate the extractor to discharge the shell, said spring-ejector being provided with an engaging shoulder, and a pivoted detent supported by the barrel and movable into engagement with the shoulder of the spring-ejector for preventing the ejector from actuating the extractor, substantially as and for the purpose set forth.

3. In a breech-loading firearm, the combination with a barrel and a frame, each having an engaging shoulder or face, and a movable extractor; of an ejector provided with an engaging shoulder and having separated spring-arms for engaging said shoulders or faces on the barrel and frame, one of the arms being movable from engagement with its corresponding shoulder or face for actuating the extractor to discharge the shell, and a detent for engaging the shoulder of the ejector and preventing the ejector from actuating the extractor, substantially as and for the purpose described.

4. In a breech-loading firearm, the combination with a barrel and a frame, each having an engaging shoulder or face, and a movable extractor; of an ejector supported by the barrel and provided with an engaging shoulder, said ejector having separated spring-arms for engaging the shoulders or faces of the frame and barrel, and one of said arms being movable from engagement with its corresponding shoulder or face for actuating the extractor to discharge the shell, and a detent supported by the barrel and movable into engagement with the shoulder of the ejector for preventing the ejector from actuating the extractor, substantially as and for the purpose specified.

5. In a breech-loading firearm, the combination with a barrel and a frame, each having an engaging shoulder or face, and a movable extractor; of an ejector having separated spring-arms at its upper end for engaging said shoulders or faces, one of the arms being movable from engagement with its corresponding shoulder or face for actuating the extractor to discharge the shell, and an arm or projection supported by the barrel beneath the lower end of the ejector for preventing undue movement of the ejector, substantially as and for the purpose described.

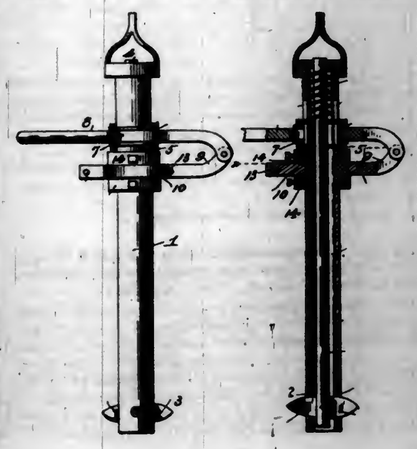
6. In a breech-loading firearm, the combination with a barrel, a frame, and a movable extractor; of an ejector consisting of a spring arranged to be compressed by the dropping of the barrel and to actuate the extractor to discharge the shell, means for preventing the ejector from actuating the extractor, and a trip for forcing said means from operative position, substantially as and for the purpose specified.

7. In a breech-loading firearm, the combination with a barrel and a frame, each having an engaging shoulder or face, and a movable extractor; of an ejector having separated spring-arms for engaging said shoulder or faces, one of the arms being movable from engagement with its corresponding shoulder or face for actuating the extractor to discharge the shell, means for preventing the ejector from actuating the extractor, and a trip for forcing said means from operative position, substantially as and for the purpose set forth.

8. In a breech-loading firearm, the combination with a barrel and a frame, each having an engaging shoulder or face, and a movable extractor; of an ejector provided with an engaging shoulder and having separated spring-arms for engaging said shoulders or faces of the barrel and frame, one of said arms being movable from engagement with its corresponding shoulder or face for actuating the extractor to discharge the shell, a detent for engaging the shoulder of the ejector and preventing said ejector from actuating the extractor, and a rocking trip having its front end movable into engagement with the detent for forcing the same from its operative position, substantially as and for the purpose described.

9. In a breech-loading firearm, the combination with a barrel and a frame, each having an engaging shoulder or face, and a movable extractor, of an ejector supported by the barrel and provided with an engaging shoulder, said ejector having separated spring-arms for engaging the shoulders or faces of the barrel and frame, and one of said arms being movable from engagement with its corresponding shoulder or face for actuating the extractor to discharge the shell, a pivoted detent supported by the barrel and movable into engagement with the shoulder of the ejector for preventing the operation of said ejector, a spring for forcing the detent into operative position, and a rocking trip having its front end movable into engagement with the detent for forcing the same from its operative position, substantially as and for the purpose specified.

598,617. MINER'S EXPANDING DRILL. HONORAT M. SOULOS, Odin, Ill. Filed Mar. 13, 1897. Serial No. 627,319. (No model.)



Claim.—The combination with the tube having diametric slots at its upper and lower ends, of the vertically-movable rod, the reamers pivoted thereto near the lower end and projecting through the slots in the lower end of the tube, the pins projecting through the slots in the upper end of said tube, the coiled spring, the washers confined between said pins, the lever formed with a central ring encircling said tube between the washers and the arm secured to the tube to which said lever is pivoted, substantially as described.

598,618. BIB. LEWIS R. STACKHOUSE, Philadelphia, Pa., assignor of one-half to Henry Strunz, same place. Filed July 9, 1896. Serial No. 598,606. (No model.)



Claim.—A child's bib consisting of a fabric portion, a sheet of material impervious to moisture, and a pad of absorbent material, said sheet of impervious material being at the rear of the absorbent pad, and the fabric portion of the bib forming a pocket, whereby said pad is maintained in contact with the impervious sheet, all of the parts being separable from each other so as to be independently cleaned and dried, substantially as described.

598,619. MULTIPLE GAS-BURNER. DAVID P. STIRK, Indianapolis, Ind. Filed Apr. 13, 1896. Serial No. 587,389. (No model.)

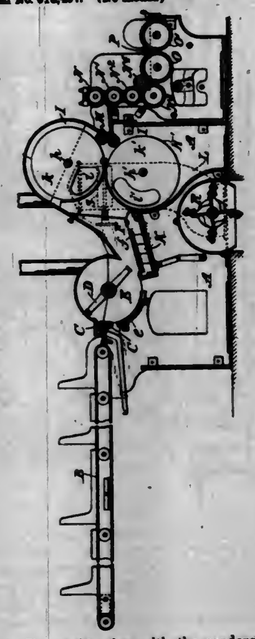


Claim.—1. In a gas-burner for cooking-stoves, the combination of a tube divided longitudinally into a plurality of compartments, two of said compartments being situated in the upper part of said tube, and the remaining compartment or compartments being located in the lower part of said tube, said lower compartment or compartments provided with burner-orifices on opposite sides, and all of said compartments having their ends closed, an auxiliary burner communicating with each of said upper compartments, and means whereby the gaseous fuel is supplied to each compartment independently, substantially as and for the purpose set forth.

2. In a gas-burner for cooking-stoves, the combination of a tube divided longitudinally into a plurality of compartments, two of said compartments being situated in the upper part of said tube, and the remaining compartment or compartments being located in the lower part of said tube, said lower compartment or compartments being provided with burner-orifices on opposite sides, and all of said compartments having their ends closed, longitudinally-extending flanges projecting over said burner-orifices, an auxiliary burner communicating with each of said upper compartments, and means whereby the gaseous fuel is supplied to each compartment independently, substantially as and for the purpose set forth.

3. In a gas-burner for cooking-stoves, comprising a main burner subdivided into four longitudinally-extending compartments, each of the upper compartments of which is connected directly to an independent gas-burner, a bulbous air and gas mixing chamber detachably secured to the end of said burner, a gas-chamber integral with said gas-mixing chamber, and suitable independently-operated valves connected to said gas-chamber whereby the gas is discharged through said mixing-chamber into said burner-compartments, substantially as and for the purpose set forth.

598,620. PICKER. ALBERT A. SUMNER, Fall River, Mass., assignor to the A. T. Atherton Machine Company, Pawtucket, R. I. Filed Jan. 5, 1897. Serial No. 618,497. (No model.)



Claim.—1. The combination, with the condensing cylinders or cages of a picker, and the means whereby inward drafts of air may be superinduced, of devices arranged in connection therewith whereby such drafts of air through the surface of one of said cylinders or cages may be controlled and regulated, without affecting the drafts of air passing through the other, substantially as described.

2. The combination, with the condensing cylinders or cages of a picker, means through which currents of air are superinduced through their peripheral surfaces, and a beater, of air-ducts leading from the ends of these cylinders or cages, and dampers arranged in such ducts opposite the space between the said cylinders or cages, whereby the currents of air passing through the surface of the upper said cylinders or cages may be controlled and regulated, without affecting the currents passing through the surface of the lower of such cylinders, substantially as described.

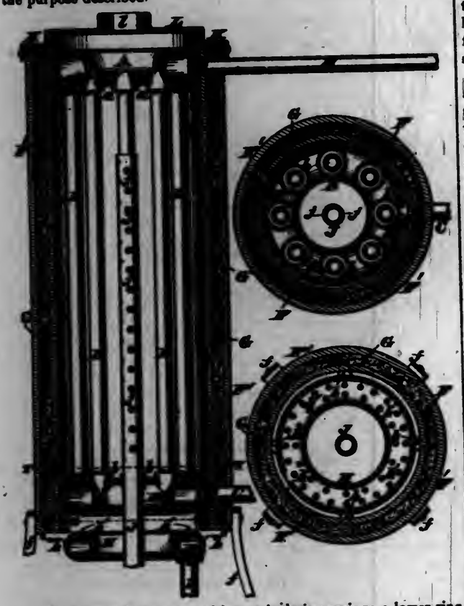
3. The combination, with the condensing cylinders or cages of a picker, and an exhaust-fan, of ducts leading from the ends of such cylinders or cages to the fan, of a damper arranged in said duct opposite the space between the cylinders or cages, whereby to regulate and control the currents of air superinduced through the surface of the upper cylinder or cage without affecting the currents superinduced through the surface of the lower cylinder or cage, substantially as described.

4. The combination, with the condensing cylinders or cages of a picker, and an exhaust-fan, of air-ducts leading from the opposite ends of such cylinders or cages to said fan, and a damper arranged in each of said ducts opposite the space between the cylinders or cages, whereby to control and regulate the currents of air superinduced through the peripheral surface of the upper of such cylinders or cages by the fan without affecting the currents superinduced through the surface of the other cylinder or cage, substantially as described.

598,621. WATER-HEATER. GEORGE TAUSALD, Cincinnati, Ohio. Filed July 12, 1897. Serial No. 644,393. (No model.)

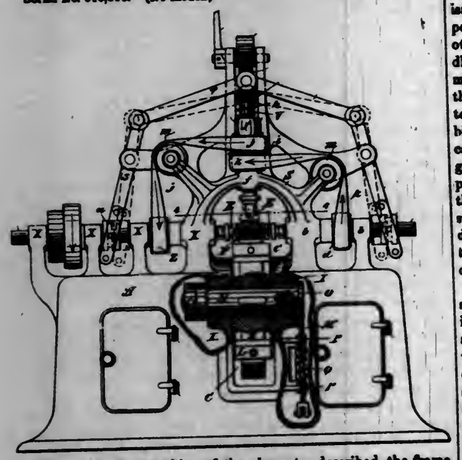
Claim.—1. A water-heater comprising an inclosing casing; a lower receiving-chamber, provided with an inlet; an upper discharging-chamber, provided with an outlet; a series of pipes connecting said chambers; a base-burner below said receiving-chamber; and an extra burner arranged longitudinally of and within the heater, and having

ventages that discharge against the sides of said connecting-pipes, for the purpose described.



2. A water-heater comprising an inclosing casing; a lower ring B fitted therein, and provided with an inlet; an upper ring A, provided with an outlet; a series of pipes D, connecting said rings; an annular burner H, at the base of the heater, and provided with openings *k*; and a longitudinal burner-pipe J, provided with openings *j*, discharging against said pipes D, all as herein described, and for the purpose stated.

593,622. MACHINE FOR DRILLING AND TAPPING METAL CASTINGS. JUAN DE D. TEJADA, New York, N. Y. Filed Dec. 26, 1896. Serial No. 616,906. (No model.)



Claim.—1. In a machine of the character described, the frame for holding the casting to be acted upon, combined with the two horizontal shafts or spindles in alinement with one another, a third shaft or spindle intermediate said horizontal spindles and at right angles thereto, the tools carried at the converging ends of said shafts or spindles, means for imparting revoluble motion to one of said shafts and means directly connecting said power-shaft with the other two shafts so that motion will be communicated directly from the said power-shaft to the other two shafts, combined with the series of jointed levers connecting said shafts or spindles, means for manually moving one of said shafts so that the motion thereof will be communicated through said jointed levers to the other two shafts to cause the reciprocation of the latter, and means for imparting through said levers an opposite reciprocating motion to said shafts or spindles from that caused by said manually-operated means; substantially as set forth.

2. In a machine of the character described, the two horizontal shafts or spindles in alinement with one another, the third shaft or spindle intermediate said two horizontal shafts or spindles and extending at right angles to the latter, the drilling-tools carried at the converging ends of said shafts or spindles, the frame for holding the casting to be acted upon by said tools, means for applying power to one of said shafts or spindles, means directly connecting said three shafts or spindles in order that power from the driven shaft or spindle may be directly communicated to the other two shafts or spindles, the series of levers connecting said shafts for imparting reciprocating motion from one of said shafts to the other two shafts, and means for manually moving one of said shafts and thereby through said connecting-levers, the other two shafts, combined with the spring acting to move said shafts in the opposite direction to that imparted to them by said manually-operated means; substantially as set forth.

3. In a machine of the character described, the frame for holding the casting to be acted upon, the two horizontal shafts or spindles in alinement with one another and with said casting, the tools carried by the facing ends of said shafts or spindles, a belt-wheel directly applied to one of said shafts, driving mechanism directly connecting said two shafts so that power may be transmitted from the driven shaft to the other shaft, and the series of levers connecting said shafts, combined with the cam and lever mechanism acting on said levers to impart to said shafts a simultaneous motion toward the casting, and the spring acting on said levers to impart to said shafts a simultaneous motion from said casting; substantially as set forth.

4. In a machine of the character described, the movable frame holding the castings to be acted on, the two horizontal shafts in alinement with one another and with the casting, and the tools carried by the facing ends of said shafts, combined with the power-wheel directly applied upon one of said shafts, driving mechanism connecting said shafts so that the driven shaft may impart motion to the other shaft, the series of levers connecting said shafts, the lever and cam mechanism to be operated manually for actuating said levers to move said shafts inward toward the casting without interfering with their revoluble motion, the spring for acting on said levers to move said shafts outward from said casting, and means for locking said frame carrying the castings in position to insure the retention of said casting in line with said tools, substantially as described.

5. In a machine of the character described, the three shafts or spindles carrying at their converging ends the drilling-tools, the driving-wheel applied to one of said shafts or spindles, driving mechanism directly connecting said three shafts or spindles in order that the power of the driven shaft or spindle may be communicated to the other two spindles, the series of levers connecting said shafts or spindles for imparting simultaneous reciprocating motion to the same, means acting on said levers at a given point to move them and through them said shafts or spindles, the movable frame carrying the castings to be acted upon, and means for locking said frame in position, combined with the three additional shafts or spindles, the tapping-tools carried at the converging ends of said additional shafts or spindles, gearing connecting said additional shafts or spindles in order that power from one of them may be communicated to the other two of them, the power-wheel applied to one of said additional shafts or spindles, the series of levers connecting said additional shafts or spindles, and means for acting on said series of levers from a given point to actuate them to effect the reciprocation of said additional shafts or spindles; substantially as set forth.

6. In a machine of the character described, the three converging shafts or spindles having at their ends the drilling-tools, means for imparting a simultaneous rotating motion to said shafts or spindles, and means for reciprocating said shafts or spindles toward and from the casting to be acted upon, combined with the frame holding the castings to be acted upon, the three additional converging shafts or spindles, the tapping-tools at the converging ends of said additional shafts or spindles, a power-wheel applied to one of said additional shafts or spindles, gearing directly connecting said three additional shafts or spindles in order that the driven shaft may communicate motion to the other two shafts or spindles, the series of jointed levers connecting said additional three shafts or spindles, and means for acting on said jointed levers from a given point to impart simultaneous reciprocating motion to said three additional shafts or spindles toward and from the casting to be acted upon by the tapping-tools; substantially as set forth.

7. In a machine of the character described, the three converging shafts or spindles having at their ends the drilling-tools, means for imparting a simultaneous rotating motion to said shafts or spindles, and means for reciprocating said shafts or spindles toward and from the casting to be acted upon, combined with the movable frame for holding the castings to be acted upon, means for locking said frame, the three additional shafts or spindles, the tapping-tools at the converging ends of said additional shafts or spindles, the series of levers connecting said additional shafts or spindles for imparting simultaneous reciprocatory movement to them, means for applying power to one of said additional shafts or spindles, and the gear-wheels substantially as described directly connecting said three additional shafts or spindles for imparting motion to two of said shafts or spindles from the driven shaft or spindle; substantially as set forth.

593,623. GAS-STOVE BURNER. MARTIN A. THIEL, Milwaukee, Wis. Filed Feb. 4, 1897. Serial No. 621,913. (No model.)



Claim.—1. In a gas-burner, the combination, of a chamber provided with a top opening, a cap fitted in, but of less width than, said opening, so as to leave uninterrupted inner and outer passages for the exit of the gas, said cap provided with depending legs extending to and adapted to be supported by the bottom of the chamber, and means for preventing lateral or sidewise movement of the legs or cap.

2. In a gas-burner, the combination, with a chamber provided in its bottom with a groove or grooves and having an opening in its top, of a cap supported in, but of less width than, said opening so as to leave uninterrupted inner and outer passages for the exit of the gas, said cap provided with depending legs adapted to fit the groove or grooves in the bottom of the chamber.

593,624. RAILWAY-SWITCH. SOLOMON T. THOMPSON, Starnes, Miss. Filed Aug. 7, 1897. Serial No. 647,457. (No model.)



Claim.—1. In railway-switches, the combination of the fixed main-line rails, the fixed auxiliary-line rails, the two fixed switch-rails, a switch-point located at the point of intersection of the main and auxiliary line rails and adapted to be brought in line with either of said fixed switch-rails, the movable switch-rails, mechanism for shifting said switch-point and movable switch-rails simultaneously, and pivot connections between the fixed rails, switch-point and switch-rails, comprising a plate 37 bolted to the fixed rail and provided at its outer end with a semicylindrical cup-socket 39 having a transverse slot 40, and a plate 42 bolted to the movable rail and provided at its outer end with a shank 43 projecting through said slot and carrying a spherical head 44 inclosed within said socket, substantially as described.

2. In railway-switches, the combination of the fixed main-line rails, the fixed auxiliary-line rails, the two fixed switch-rails, a switch-point located at the point of intersection of the main and auxiliary line rails and adapted to be brought in line with either of said fixed switch-rails, the movable switch-rails, shifting-bars connecting with the switch-point and movable switch-rails, a pair of bell-crank levers each having an arm connected with one of said levers, a stand or housing located between said bell-crank levers and provided in its top with a longitudinal slot and at each end thereof with a transverse locking-rib, a rod extending through said housing and connecting the other arms of the bell-crank levers, a pivoted switch-lever connected with said rod and operating in said slot, and locking-plates attached to said lever and adapted to engage said locking-ribs, substantially as described.

3. In railway-switches, the combination of the main-line rails 1 2, the auxiliary-line rails 3 4, the said rails 1 3 converging to a point, the fixed rail-section 5 in line with the rail 1 and the diagonally-arranged fixed rail-section 6 in line with the rail 3, a bearing-plate 7 interposed at the point between the said rails 1 3 and 5 6 and provided at each side with an integral longitudinal guide-flange and between the same with a transverse slot, a switch-point 12 pivoted to said rails 1 3 and adapted to be brought in line with the rails 5 6, a shifting bar or plate 15 provided with a clamp projecting through said slot and engaging the said switch-point, the switch-rails 16 17 pivoted to the rail-sections 5 6, pivot connections between the fixed rails, switch-point and switch-rails, comprising a plate 37 bolted to the fixed rail and provided at its outer end with a semicylindrical cup-socket 39 having a transverse slot 40, and a plate 42 bolted to the movable rail and provided at its outer end with a shank 43 projecting through said slot and carrying a spherical head 44 inclosed within said socket, a shifting bar or plate 18 connected with said switch-rails, a pair of bell-crank levers each having an arm connected with the laterally-projecting ends of said switch-bars 15 18, a stand or housing located between said bell-crank levers and provided in its top with a longitudinal slot and at each end thereof a transverse locking-rib, a rod extending through said housing and connecting the other arms of the bell-crank levers, a pivoted switch-lever connected with said rod and operating in said slot, and locking-plates attached to said lever and adapted to engage said locking-ribs, substantially as described.

593,625. INSULATED HANGER. ERNEST P. WARNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Mar. 3, 1897. Serial No. 626,501. (No model.)

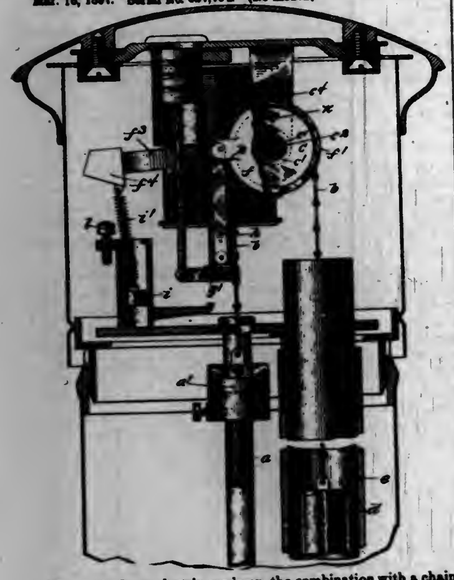


Claim.—1. In an insulated hanger, the combination with a metallic hood, of lugs formed upon the interior thereof, a metallic ring supported by said lugs, a glass insulator retained in position within the hood by said ring, a hook, the shank whereof passes through said insulator and a disk secured to the end of said shank and supported by said insulator, said disk being of such diameter that it cannot pass through the ring, substantially as and for the purpose described.

2. In an insulated hanger, the combination with a metallic hood, of a glass or porcelain insulator, a ring supported upon the inside of said hood upon which said glass insulator rests, and a hook, the shank whereof passes through said insulator, and having a retaining-piece upon its upper end resting upon the glass insulator, the retaining-piece being of such size that it cannot pass through the ring, substantially as and for the purpose described.

3. In an insulated hanger, the combination with a metallic hood, of a glass or porcelain insulator supported upon a ring within said hood, a hook, the shank whereof passes through said insulator, a retaining-piece upon the upper end of said shank and resting on said insulator, said retaining-piece being of such size that it cannot pass through the ring, and insulating material introduced while in a liquid or plastic state into the spaces between the hood and the parts, and permitted to solidify, substantially as described.

593,626. ELECTRIC-ARC LAMP. ERNEST P. WARNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Mar. 16, 1897. Serial No. 627,794. (No model.)



Claim.—1. In an electric-arc lamp, the combination with a chain or ribbon supporting the carbon, of a controlling-wheel over which said chain or ribbon is passed, two rotatable clutching members mounted one at either side of said controlling-wheel, link connections between said clutching members, whereby independent rotation of one of said members with relation to the other varies the distance between them, causing engagement or release of said controlling-wheel, and electromagnetic means for causing such independent rotation, thereby to effect the regulation of the lamp, substantially as described.

2. In a friction-clutch, the combination with a movable element, of clutching members rotatably mounted one at either side thereof, and link connections between said members, whereby independent rotation of one of said members varies the distance between them, causing engagement or release of said movable element according to the direction of such rotation, substantially as described.

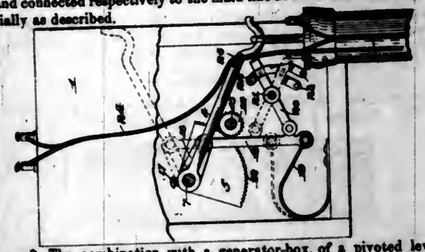
3. The combination with a wheel whose rotation is to be controlled, of clutching-disks *f f'* operatively mounted one on either side of said wheel and coaxially therewith, and link connections between said disks at approximately diametrically opposite points whereby independent rotation of the disk *f* with relation to the disk *f'* varies the distance between them, causing them to engage the sides of the wheel and prevent its relative movement, or relax such engagement, according to the direction of rotation of said disk *f*, substantially as described.

4. The combination with a wheel whose rotation is to be controlled, of clutching-disks *f f'* operatively mounted one on either side of said wheel and coaxially therewith, a retarding element *f*⁴ associated with the disk *f*, and link connections between said disks at approximately diametrically opposite points, whereby independent rotation of the disk *f* with relation to the disk *f'* varies the distance between them, causing them to engage the sides of the wheel and prevent its relative movement, or relax such engagement, according to the direction of rotation of said disk *f*, substantially as described.

593,627. TELEPHONE. JOHN WELL, Mansfield, Ohio. Filed Feb. 26, 1897. Serial No. 624,889. (No model.)

Claim.—1. The combination with a generator-box, of a shaft mounted therein, a lever pivotally mounted on said shaft and formed at its free end with a receiver-hook, a crank mounted on said shaft, a rod pivotally connected to the end of said crank, a bow-spring having one end secured to the casing of the box and the other pivotally mounted upon the lower end of the rod so as to normally force the same upward, a pivoted switch-lever connected to said rod, and contacting points connected with the bell and main-line circuits and adapted to be engaged by said switch-lever, substantially as described.

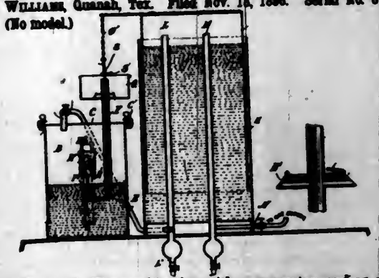
2. The combination with a generator-box, of a shaft pivoted thereon, a lever mounted on said shaft and having a receiver-hook at its free end, a segmental rack also mounted on said shaft and adapted to engage and operate the generating mechanism, a crank mounted on said shaft, a rod pivotally connected to said shaft, a spring connecting the lower end of said rod with the casing of the box, whereby the rod is normally forced upward, a pivoted switch-lever connected to said rod, and contact-plates adapted to be engaged by said lever and connected respectively to the main-line and bell circuits, substantially as described.



3. The combination with a generator-box, of a pivoted lever mounted therein and provided at one end with a receiver-hook, a clamping-arm rigidly mounted on said lever and adapted to clamp the receiver-cord rigidly between it and the said lever so as to support the receiver independently of the hook, means connecting said lever with the generator for operating the same, and a switch also connected to said lever and adapted to shift the circuits upon the movement of the latter, substantially as described.

4. The combination with a generator-box, of a shaft journaled therein, a segmental rack having an apertured sleeve loosely mounted upon said shaft, a screw mounted in said sleeve for securing said rack to said shaft, a lever provided with a sleeve also loosely mounted upon said shaft, a screw mounted in said latter sleeve and adapted to secure it to the shaft, a lever mounted upon said shaft and provided at one end with a receiver-hook, a generator adapted to be operated by the segmental rack, and a switch connected to said shaft adapted to be operated upon its rotation, and a switch connected to the lever adjustably mounted upon the shaft so as to be operated upon the rotation of said shaft; the construction being such that the relative arrangement of the segmental rack and the adjustable lever may be changed at will by loosening the screws and turning the respective sleeves upon the shaft, substantially as described.

593,628. GENERATOR FOR ACETYLENE GAS. BENJAMIN F. WILLIAMS, Quanah, Tex. Filed Nov. 13, 1896. Serial No. 612,583. (No model.)



Claim.—1. The combination with a generator, and an overflow leading therefrom, of a supporting-rod projecting through the overflow, a carbid-holder on the lower end of the rod, and means for limiting the movement of the rod in the overflow, substantially as described.

2. In a generator for acetylene gas comprising a chamber, an overflow-pipe leading out of the chamber and provided at its upper end with a catch-basin, a supporting-rod projecting through the overflow-pipe, a carbid-holder on the lower end of the rod, and means for limiting the downward movement of the rod in the overflow-pipe, substantially as set forth.

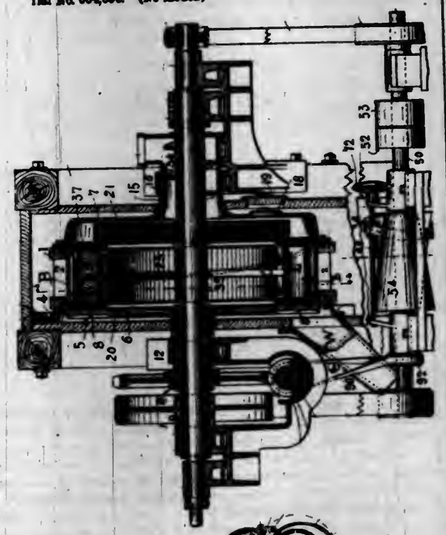
3. In a generator for acetylene gas, the combination with a chamber, of an overflow-pipe leading out of the chamber, and provided with a valved outlet, and a catch-basin on the overflow-pipe and into which the overflow-pipe discharges, substantially as shown and described.

4. The combination with the generator, of the overflow or discharge pipe leading therefrom, the catch-basin or receptacle mounted upon the said overflow or discharge pipe, the supporting-rod and carbid-holder all arranged and adapted to operate substantially as shown and described.

5. The combination with the generator constructed as described, of the overflow or discharge pipe leading therefrom, the catch-basin or receptacle, said overflow or discharge pipe being provided with laterally-projecting spouts or nozzles having beveled ends provided with flap-valves substantially as shown and described.

6. The combination with the generator, constructed as described, of the overflow or discharge pipe leading therefrom, the catch-basin or receptacle arranged upon the upper end of said pipe, the laterally-projecting spouts or nozzles having their flap-valves, as described, the supporting-rod and adjustable collar, the carbid-holder, the movable section of the reservoir or gasometer, the chain connecting the supporting-rod to the arm carried by the said movable section and the inlet and outlet pipes, and connecting-pipes all arranged and adapted to operate substantially as shown and described.

593,629. MACHINE FOR SIFTING GRANULAR MATERIAL. FRIEDRICH G. WINKLER, Jersey City, N. J. Filed Aug. 26, 1896. Serial No. 604,038. (No model.)



Claim.—1. In a sifting-machine, the combination with a rotary sieve and a rotary pulsator arranged within the sieve and producing blast and suction effects during its rotation, of a constant-speed driving mechanism whereby said sieve is rotated and a variable-speed driving mechanism whereby said pulsator is actuated, substantially as set forth.

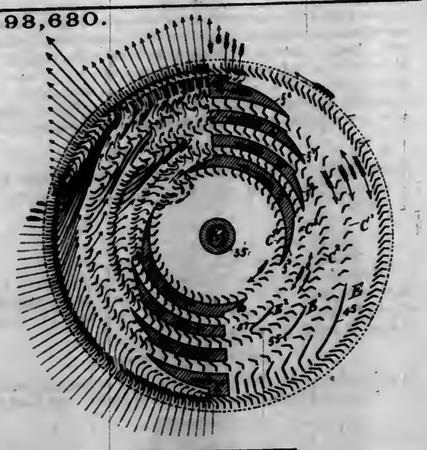
2. In a sifting-machine, the combination with a sieve, a rotary grating and a rotary pulsator arranged within the sieve, of means whereby said grating is rotated independently of said pulsator, and a variable-speed driving mechanism whereby said pulsator is actuated, substantially as set forth.

3. In a sifting-machine, the combination with a rotary sieve, and a rotary grating and a rotary pulsator both arranged within said sieve, of a constant-speed driving mechanism whereby said sieve and said grating are rotated, and a variable-speed driving mechanism whereby said pulsator is actuated, substantially as set forth.

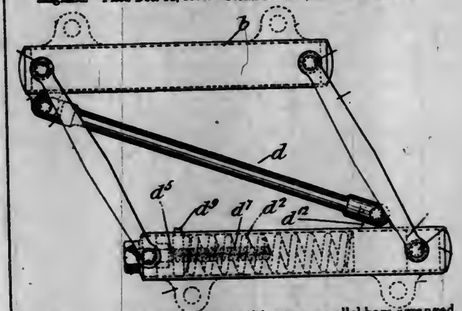
593,630. PROCESS OF SIFTING GRANULAR MATERIAL. FRIEDRICH G. WINKLER, Jersey City, N. J. Filed Aug. 14, 1896. Renewed Apr. 15, 1897. Serial No. 632,345. (No specimens.)

Claim.—The process of sifting granular materials hereinbefore described, consisting in first clearing the sieve by long and strong inward currents of air of large volume, then propelling a part of this air in a strong, swift and sudden blast outward through the sieve, whereby the finer particles of the material are sifted through the sieve, and following this blast with a long and strong outward aftercurrent of the remainder of the air whereby the sifted particles are blown far from the sieve and out of reach of the next inward current, and causing said several currents to travel successively over all parts of the sieve.

593,630.

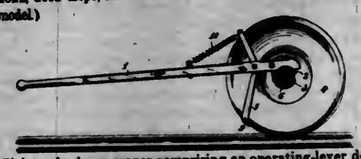


593,631. SEAT-SPRING. JOHN S. WOOD, Walton-upon-Thames, England. Filed Dec. 11, 1896. Serial No. 615,319. (No model.)



Claim.—A spring-support comprising two parallel bars arranged one above the other, and pivotally connected by links arranged at an angle to the bars, the device assuming approximately the figure of a diamond, a bar arranged diagonally within the diamond, and at one end flexibly connected with the extremity of one of the parallel bars, a piston inclosed within the other parallel bar, and flexibly connected with the diagonal bar, a coiled spring for acting upon the piston so that the force of the spring tends to bring the links to a vertical position, and to resist the elongation of the diamond, a movable abutment for the spring, a screw-threaded aperture in the abutment, and a screw engaging such thread and on the exterior of the bar or tube provided with a square or other means for turning the screw and regulating the spring substantially as herein shown and described and for the purpose stated.

593,632. CAR-MOVER. GEORGE W. ZERR and MYRON H. MILHONE, Good Hope, Ill. Filed May 17, 1897. Serial No. 636,962. (No model.)

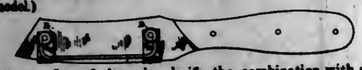


Claim.—1. A car-mover comprising an operating-lever designed to be fulcrumed on an axle, a pivoted hook mounted on the operating-lever and arranged to engage the axle at the opposite side thereof, and a spring-actuated hook carried by the operating-lever and arranged to engage the rim of the wheel, substantially as described.

2. A car-mover comprising an operating-lever adapted to be fulcrumed on an axle, a wheel-engaging lever pivoted between its ends to the operating-lever and provided at one end with a hook for engaging the flange of a car-wheel, and a spiral spring connected with the other end of the same and with the operating-lever whereby the hook is held in engagement with a wheel, substantially as described.

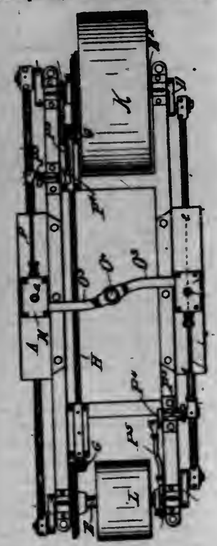
3. A car-mover comprising an operating-lever provided at one end with a curved bearing-plate, a hook pivoted to the operating-lever, a keeper receiving the shank of the hook and limiting the swing of the latter, a wheel-engaging lever pivoted between its ends on the operating-lever and having its arms arranged at an angle, one of the arms being provided with a hook and a spring connected with the other arm and with the operating-lever, substantially as described.

593,688. FRUIT-PARING ATTACHMENT FOR KNIVES. BYRON C. ALLEN, Saratoga, Cal. Filed Dec. 7, 1896. Serial No. 614,732. (No model.)



Claim.—In a fruit-paring knife, the combination with a knife-blade, of a gage-rod having curved ends and metal spring-plates riveted thereto bent at right angles, to engage with the knife-blade at separate points, as described.

593,684. STEAM-ENGINE. CHARLES D. ARMSTRONG, Jeffersonville, Ind. Filed Sept. 16, 1896. Serial No. 606,004. (No model.)

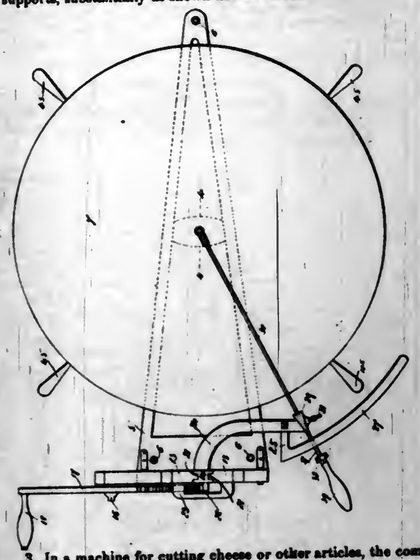


Claim.—The herein-described steam-engine comprising the combination with a suitable frame of two parallel cylinders mounted thereon and a main shaft at each end thereof, a piston-rod mounted in each of said cylinders, said piston-rods being connected with cranks secured to the opposite ends of the adjacent main shaft, and the pistons in the other ends of said cylinders being provided with piston-rods which are connected with cranks secured to the opposite ends of the other main shaft, and each of said main shafts being provided with a beveled gear-wheel, and a rod mounted longitudinally of the frame and provided at its opposite ends with a beveled gear whereby the main shafts revolve together, and each of said cylinders being provided with a steam-chest arranged centrally thereof, and with means for admitting steam thereinto and into the cylinders, said means consisting of a valve, one of which is in operative connection with one of the main shafts, and the other with the other main shaft, substantially as and for the purpose set forth.

593,685. MACHINE FOR CUTTING CHEESE. ALVERDO BALL, Hill's Grove, R. I. Filed Aug. 3, 1897. Serial No. 646,894. (No model.)

Claim.—1. A machine for cutting cheese, and other articles, consisting of a base plate or frame, a table or board pivotally mounted and adapted to turn thereon, an upright or uprights mounted at one end of said base plate or frame, a vertically-movable rack-bar connected therewith, an arm connected with said rack-bar, and a blade connected with said arm and projecting radially of said pivoted plate or board, and means for operating said rack-bar, said blade being adapted to be turned laterally in its supports, substantially as shown and described.

2. A machine for cutting cheese and other articles, consisting of a base plate or frame, a circular plate or board pivotally mounted thereon, and adapted to turn thereon, an upright at one end of said base plate or frame, a rack-bar connected therewith, a crank-wheel for operating said rack-bar, an arm connected with said rack-bar, a plate connected with said arm and projecting radially of said pivoted plate or board, and a cutting-blade mounted below said plate and supported thereby, said cutting-blade being adapted to be turned in its supports, substantially as shown and described.



3. In a machine for cutting cheese or other articles, the combination with a plate or frame, a revoluble plate or board pivotally mounted thereon, and standards mounted on said plate or frame, of a vertically-movable bar supported and guided by said standards, means for elevating and lowering said bar, an arm attached to said bar, a plate supported by said arm, a swivel thereon, a guide 27, a cutting-blade pivotally attached to said swivel and moving laterally in said guide and means whereby said blade may be turned on its supports substantially as described.

4. In a machine for cutting cheese or other articles, the combination with a plate or frame, a revoluble plate or board pivotally mounted thereon, and standards mounted on said plate or frame, of a vertically-movable bar supported and guided by said standards, means for elevating and lowering said bar, an arm attached to said bar, a vertical cross-head thereon, a plate supported by said cross-head, a swivel thereon, a guide 27, a cutting-blade pivotally attached to said swivel and movable laterally in said guide, a laterally-extending lug, a vertically-movable spring-actuated bolt mounted therein, an abutment thereon adapted to come in contact with the cutting-blade and means whereby said blade may be turned on its supports, substantially as described.

593,686. CABINET. ELIAS RAMBERGER, Freeport, Ill. Filed Nov. 21, 1896. Serial No. 612,917. (No model.)

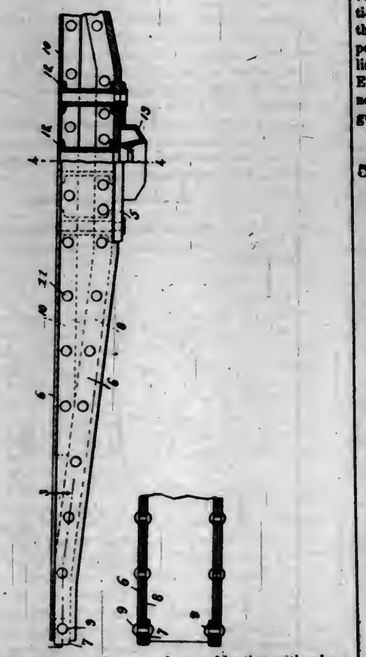


Claim.—1. A cabinet having a set of drawers pivoted in the front of the cabinet and adapted to be swung without the cabinet, and a second set of drawers hinged to the framework of the cabinet and conforming to and occupying the space formed between the first-named drawers and an angle of the cabinet, each of said second-named drawers being adapted to be swung away from said space only when the drawer in the same plane is partially turned from its normal position.

2. In a cabinet the combination with a frame, drawers adapted to swing in said frame, and a shaft extending through all of said drawers, and forming a pivot therefor, of the pivot-plates, E, F, secured to the drawers and frame, respectively, and formed with openings through which the shaft may pass, the plate, E, being formed with the vertically-extending wings, *e*, adapted to be secured to the front of the drawer, and a plate, F, formed with wings, *f*, adapted to be secured to the frame of the cabinet; substantially as described.

3. In a cabinet the combination with a frame, drawers swinging in said frame, partitions, d^3, extending across said drawers, and a shaft passing through all of the drawers and forming pivots therefor, of the pivot-plates, E, F, formed with openings through which the shaft may pass, the plate, E, being formed with wings, *e*, *e'*, adapted to be secured to the front of the drawers and partitions, respectively, and the plate, F, formed with wings, *f*, adapted to be secured to the frame; substantially as described.

593,687. BOLSTER FOR CARS. CARL H. BAUER, Chicago, Ill., assignor to the Simplex Railway Appliance Company, same place. Filed Sept. 3, 1897. Serial No. 650,550. (No model.)



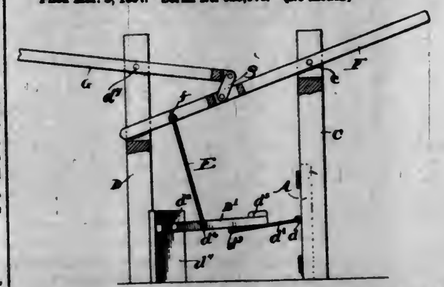
Claim.—1. In a bolster for cars, the combination with a bow-shaped compression member, of a combined tension member and middle support, comprising two commercial rolled strips attached to the side edges of said compression member in a manner substantially as shown and described.

2. In a bolster for cars, the combination with a bow-shaped compression member, of a combined tension member and middle support, comprising two commercial rolled strips having tongues formed on their ends, said tongues being bent around the ends of said compression member, substantially as described.

3. In a bolster for cars, the combination with a bow-shaped compression member having flanges turned toward the inside of the bow, of a combined tension member and middle support, comprising two strips attached to the side edges of said compression member, and having tongues on ther ends bent around the flanges of said compression member, substantially as described.

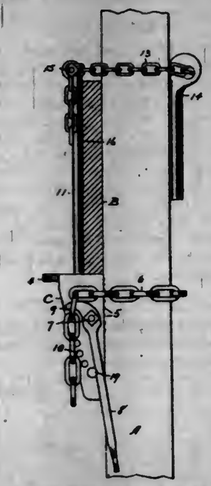
4. In a bolster for cars, the combination with a bow-shaped compression member, having flanges turned toward the inside of the bow, of a combined tension member and middle support, comprising two commercial rolled strips attached to said flanges, said strips being cut to conform to the bend of the bow of the compression member, and having tongues on their ends bent around the compression-member flanges, substantially as described.

593,688. FARM-GATE. HARRISON W. BOLENDER, Freeport, Ill. Filed Mar. 5, 1897. Serial No. 626,979. (No model.)



Claim.—The combination with the post, C, and gate, A, hinged thereto, of the link, *d'*, pivoted to the gate and adapted to swing vertically thereupon, the lever, D', pivoted to the link and to a stationary support at one side of the gate and arranged to swing about the latter point substantially in a vertical plane passing through the point at which the link is pivoted when the gate is closed, a second link pivoted to the lever, D', and the levers, F, G, pivoted to the link, E, said levers being pivoted to the posts, C, D, respectively and connected between the same by the link, S, and one of the levers being guided vertically in the opposite post; substantially as described.

593,689. LEDGER-BOARD SUPPORT FOR SCAFFOLDS. WILLIAM S. BRADLEY, New Britain, Conn. Filed Apr. 24, 1897. Serial No. 633,681. (No model.)



Claim.—1. A ledger-board support consisting of the bracket, the chain secured by one end to said bracket and adapted to encircle a post, and the hooked lever mounted on the said bracket and adapted to receive the opposite end of said chain for securing and binding the chain in place substantially as described.

2. The combination of a supporting-bracket adapted to be secured to a post, with the holder 11 having its lower end fitted to engage said bracket, and the chain and lever-cam for securing the upper end of said holder substantially as described.

593,640. PURSE. EVALYN CALDWELL, St. Paul, Minn. Filed Jan. 15, 1897. Serial No. 619,238. (No model.)

Claim.—1. A purse having a transverse rod or bar connected thereto at a point adjacent to the crease between the closing-flap of said purse and the purse proper, a ring or loop embracing said rod or bar and passing through eyelets in the material of which said

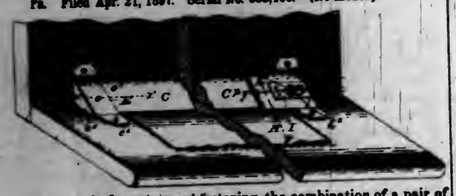
purse is made and a chain connected at its ends to said ring, substantially as and for the purpose described.



2. A purse having a transverse rod or bar connected thereto at a point adjacent to the crease between the closing-flap of said purse and the purse proper and located between the upper layer of material of which said purse is made and the lining thereof, a ring or loop embracing said rod or bar and passing through eyelets in the material of which said purse is made, and a chain connected at its ends to said ring, substantially as and for the purpose described.

3. A purse having a transverse rod or bar connected thereto at a point adjacent to the crease between the closing-flap of said purse and the purse proper and located between the outer layer of material of which said purse is made and the lining thereof, a ring or loop embracing said rod or bar and passing through eyelets in the material of which said purse is made, and a chain connected at its ends to said ring and provided with snap-hooks by means of which it may be readily attached to or disconnected from said ring.

598,641. STAIR-ROD FASTENER. EDWARD R. CLARK, Milton, Pa. Filed Apr. 21, 1897. Serial No. 633,169. (No model.)

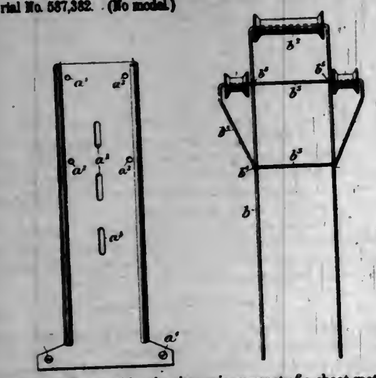


Claim.—1. In a stair-rod fastening, the combination of a pair of brackets adapted to be permanently secured to the stairs, one of said brackets having a projecting pin, of a rod having one end adapted to enter one of the brackets and having a plate on the opposite end provided with an elongated opening for engagement with the pin, the walls of said opening being higher at one end than at the other, whereby raised shoulders are formed at the sides of the opening to engage the head of the pin, substantially as described.

2. A stair-rod fastening consisting of brackets adapted to be permanently secured to the stairs, one of said brackets having a pin, in combination with a rod, a plate permanently connected with one end of the rod and provided with an opening for engagement with the pin, and a spring connected with said plate and arranged to cover the opening therein, substantially as described.

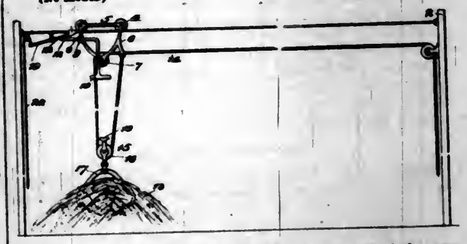
3. The fastening devices for stair-rods consisting of a plate or bracket having a headed pin projecting therefrom, a second plate having an elongated opening, the walls of the opening at one end being depressed below the walls of the opening at the other end, and a plate-spring attached to said plate and arranged to cover the opening and retain the head of the pin in the depressed portion thereof, substantially as described.

598,642. PROTECTOR AND SUPPORTER FOR HARNESS-REINS. ROSA A. CONCORAN, Slaughter, La. Filed Apr. 13, 1896. Serial No. 587,382. (No model.)



Claim.—The combination in a rein-support of a sheet metal base having its side edges turned over upon the body to form tubes, a supporting-frame consisting of a piece of wire bent to form parallel vertical legs adjustably supported in said tube, said legs connected together at the top by a cross-wire, a spool or roller mounted on said cross-wire, a second wire mounted upon the legs at right angles thereto at a point below the top, the ends of said second wire bent downwardly to form braces and attached to the legs, and two spools or rollers mounted upon the horizontal portion of this wire one at each end thereof, between the legs and the downwardly-bent portion, substantially as described.

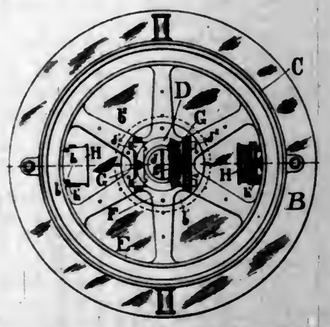
598,643. ELEVATED CARRIER FOR STACKING HAY. EDWARD DIGMAN, St. Benedict, Kans. Filed Jan. 9, 1897. Serial No. 618,637. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a cable, of an adjustable stop thereon, a carriage provided with a latch-lever, a trip-lever adjustably carried by the cable and in operative relation with the latch-lever, and a flexible piece or cord secured to said lever designed to actuate the same, substantially as specified.

2. In an attachment of the character described, the combination with a cable and stop, of an adjustable trip-lever, an adjustable guide-pulley, and a flexible piece secured to the trip-lever and passing around the guide-pulley, substantially as specified.

598,644. APPARATUS FOR FORMING PULLEY-MOLDS. JOHN R. DONOVAN, Cincinnati, Ohio. Filed Apr. 17, 1895. Serial No. 546,161. (No model.)

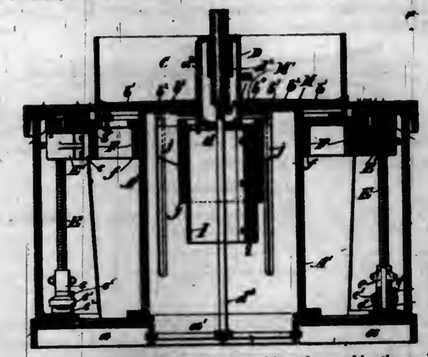


Claim.—1. In apparatus for forming pulley-molds, the combination, substantially as set forth, of a hub-pattern having at each side a pair of projecting lug portions with upwardly open horizontal core-seats, cruciform cores with their vertical members disposed between the two lug portions of the pairs and with their horizontal members resting in said core-seats, and draw-backs disposed over said lug portions and engaging over the horizontal members of said cores.

2. In apparatus for forming pulley-molds, the combination, substantially as set forth, of a core having cavities to form a pair of rim-lugs and having a perforation extending through the walls of said cavities, a core the shape of a bolt separably disposed in said perforation and crossing said cavities, rods removably disposed in perforations in said first-mentioned core at right angles to the axis of said bolt-shaped core, and a follower-board supporting said first-mentioned core and having apertures engaged by said rods.

3. The combination, substantially as set forth, of a supporting-board, a pulley-rim pattern projecting above the same, rim-lug cores supported on said board against the inner surface of said rim-pattern, projections detachably uniting said cores to said board and holding said cores in position against said rim-pattern, a hub-pattern projecting upwardly from said board, and cores resting on said board and detachably held against said hub-pattern by portions of the latter engaging outside said cores.

598,645. PULLEY-MOLDING MACHINE. JOHN R. DONOVAN, Cincinnati, Ohio. Filed Apr. 17, 1895. Serial No. 546,162. (No model.)



Claim.—1. In a pulley-molding machine, the combination, substantially as set forth, of a frame, an annular outer table-rim rigidly supported thereby and forming the margin of the follower-board, follower-board sections disposed within and on the plane of said table-rim, a rim-pattern arranged to slide vertically in the follower-board, a rim-carrier secured to the lower part of the rim-pattern below the follower-board, nuts secured to said carrier and projecting outwardly under said table-rim, vertical screw-shafts journaled in fixed bearings in the frame under said table-rim and engaging said nuts, pinions fast on the upper ends of said screw-shafts under said table-rim, an annular rack mounted in a bearing under said table-rim and engaging said pinions, and gearing mounted on the frame and engaging said annular rack and serving in turning said rack by hand.

2. In a pulley-molding machine, the combination, substantially as set forth, of a frame, an annular outer table-rim rigidly supported thereby and forming the margin of the follower-board, follower-board sections disposed within and on the plane of said table-rim, a rim-pattern arranged to slide vertically in the follower-board, a rim-carrier secured to the lower part of the rim-pattern below the follower-board, nuts secured to said carrier and projecting outwardly under said table-rim, vertical screw-shafts journaled in fixed bearings in the frame under said table-rim and engaging said nuts, pinions fast on the upper ends of said screw-shafts under said table-rim, an annular rack mounted in a bearing under said table-rim and engaging said pinions, gearing mounted on the frame and engaging said annular rack and serving in turning said rack by hand, a hub or cylinder disposed centrally below the follower-board and rigidly united with said rim-carrier, a hub-carrier arranged to slide vertically in said hub or cylinder, a hub-pattern carried by said hub-carrier and projecting upwardly through the follower-board, and means for vertically adjusting said hub-carrier in said hub or cylinder.

3. In a pulley-molding machine, the combination, substantially as set forth, of a frame, an annular outer table-rim rigidly supported thereby and forming the margin of the follower-board, follower-board sections disposed within and on the plane of said table-rim, a rim-pattern arranged to slide vertically in the follower-board, a rim-carrier secured to the lower part of the rim-pattern below the follower-board, nuts secured to said carrier and projecting outwardly under said table-rim, vertical screw-shafts journaled in fixed bearings in the frame under said table-rim and engaging said nuts, pinions fast on the upper ends of said screw-shafts under said table-rim, an annular rack mounted in a bearing under said table-rim and engaging said pinions, gearing mounted on the frame and engaging said annular rack and serving in turning said rack by hand, a slotted cylindrical column disposed below the follower-board and forming a vertical guide for said rim-carrier and a support for sections of the follower-board, a hub or cylinder disposed within said column and having arms projecting outwardly through the slots thereof into rigid engagement with said rim-carrier, a hub-carrier fitted to slide vertically in said hub or cylinder, means for adjusting and locking said hub-carrier in said hub or cylinder, a hub-pattern carried by said hub-carrier and projecting upwardly through said follower-board, and removable follower-board sections supported by said column and encircling said hub-pattern.

4. The combination of the frame, the sectional follower-board through which the hub and rim patterns slide, a central support for the inner sections of the follower-board, the rim-pattern carrier, a guide for the hub-pattern carrier secured to the carrier for the rim-pattern, said guide and rim-carrier being provided with shaft-bearings, the transverse shaft fitted to revolve in said bearings, a pinion secured upon the inner end of said shaft, the hub-pattern carrier fitted within said central guide, a rack secured to the said carrier to mesh with the pinion upon the transverse shaft, a hand-wheel upon the end of the shaft to revolve the same for the purpose of actuating the hub-pattern carrier independently of the rim carrier, and means such as shown to lock the hub-carrier, its guide and the rim-carrier together, substantially as shown and described.

5. In a pulley-molding machine, the combination, substantially as set forth, of a frame, a sectional follower-board supported thereon, rim and hub patterns adapted to slide through said sectional follower-board, carriers for said patterns rigidly connected together below said follower-board, vertical screw-shafts disposed below said follower-board and journaled at their upper ends in bearings in the top of said frame and at their lower ends in antifriction-bearings at the base of said frame, nuts engaging said screw-shafts and rigidly connected with said carriers, pinions fast upon the upper ends of said screw-shafts, an annular rack engaging said pinions and journaled in an annular bearing supported by said frame, and gearing connected with said annular rack to serve in turning said rack by hand.

6. In a pulley-molding machine, the combination, substantially as set forth, of a sectional follower-board, arm-patterns of an intermediate section thereof, a hub-pattern sliding through the central portion of the follower-board, an arm-root pattern secured to said central section of the follower-board around the hub and common to all of the arm-patterns, and a removable fillet-pattern ring fitting around the exterior of the hub-pattern and within the interior of said arm-root pattern and supported directly by said central follower-board section.

7. The hub-pattern, consisting of a hollow cylinder, and a removable cap therefor having a downwardly-extending central tube to receive a core for forming the bore of the hub, substantially as shown and described.

8. The combination, in a pulley-molding machine, of the sectional follower-board, the hub and rim patterns adapted to slide therethrough, followers for the said hub and rim patterns, means for elevating and lowering said followers with their patterns secured thereon, the hub-pattern having a central tabular portion to receive a core for forming the bore of the hub, and the central support passing through the base of the hub pattern and follower to support said core, substantially as shown and described.

598,646. SPLIT PULLEY. JOHN R. DONOVAN, Cincinnati, Ohio. Original application filed Apr. 17, 1895, Serial No. 546,161. Divided and this application filed Apr. 26, 1897. Serial No. 633,940. (No model.)



Claim.—1. In a split pulley, the combination, substantially as set forth, of a divided rim and hub with the uniting pulley-arms forming two pulley-halves, lugs and bolts uniting said pulley-halves, and a pair of ribs projecting inwardly from the rim at each joint-crack therein, the inner faces of said ribs being angularly disposed with reference to each other to form a V-shaped groove whose root is at the inner surface of the pulley-rim at the joint-crack, said rim having normal thickness at the roots of said grooves.

2. In a split pulley, the combination, substantially as set forth, of a divided rim and hub having the rim united to the hub by arms, lugs and bolts at the hub for clamping the hub-halves together, a pair of separated lugs projecting inwardly from the rim at each edge thereof near the ends of the joint-cracks in the rim, the separations between the two lugs of each pair straddling the joint-cracks of the rim, and the two pairs of lugs at each joint-crack being disconnected from each other, the rim having full normal thickness between the two pairs of lugs at each joint-crack, perforated bosses projecting inwardly from the inner faces of said lugs into contact with each other, and clamp-bolts passing through said lugs and perforated bosses.

3. In a split pulley, the combination, substantially as set forth, of a rim, a hub, arms uniting the hub and rim and uniting with each other by a web at the root of the arms, there being longitudinal grooves at opposite sides of the hub and extending as apertures through said web at the root of the arms, portions of said web forming outer walls for said apertures, and bolts and lugs for uniting the pulley-halves when the pulley is broken in two.

4. In a split pulley, the combination, substantially as set forth, of a rim, a hub, and arms uniting said hub, said hub being provided

with longitudinal grooves at opposite sides and extending from end to end of the hub, the central portion of said grooves being deepened to form slots extending through the wall of the hub and into the bored hub-hole of the pulley, said grooves being shallower at the ends of the hub, and lugs and bolts at the rim and hub for uniting the pulley-halves after the pulley is broken in two.

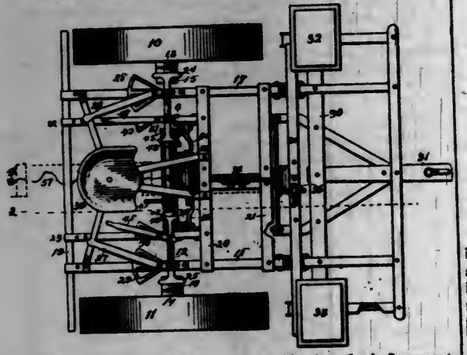
5. In a split pulley, the combination, substantially as set forth, of a divided rim and divided cylindrically-bored hub, lugs and bolts for uniting the pulley-halves, and a bored bushing having a cylindrical body smaller than the bore of said hub and having at each end a flange concentric with the bore of the bushing and fitting within the bore of the pulley.

6. In a split pulley, the combination, substantially as set forth, of a divided rim and divided cylindrically-bored hub provided with apertures in its wall, lugs and bolts for uniting the pulley-halves, a bored bushing having its exterior cylindrical to fit the bore of the hub, and trunnions extending from the periphery of the bushing into engagement with the said apertures in the bore of the pulley.

7. In a split pulley, the combination, substantially as set forth, of a divided rim and hub, lugs and bolts for uniting the pulley-halves, and a bored bushing having exterior portions fitting the bore of the pulley and provided with longitudinal slots extending nearly from end to end of the bushing and through the wall of the bushing, the wall of the bushing being continuous at the unslotted ends thereof.

8. In a pulley, the combination, substantially as set forth, of a rim, a hub provided with a bore concentric with said rim and provided at each end with a chamber eccentric to said bore, and a roller disposed longitudinally within each of said chambers and adapted to engage between a shaft and the walls of said chambers.

598,647. AUTOMATIC CHECK-ROW CORN-PLANTER. LANE GRAY, Lake City, Iowa, assignor of one-half to George L. Brower, Chicago, Ill. Filed May 11, 1897. Serial No. 636,114. (No model.)



Claim.—1. In a corn-planter the combination of a shaft, supporting traction-wheels mounted on said shaft, clutch mechanism between said shaft and wheels, a sleeve mounted on said shaft, clutch mechanism between said sleeve and shaft, a rock-shaft, a dropping-bar arranged for reciprocation, a crank connecting said rock-shaft and dropping-bar, a cross-head on the rock-shaft, actuating-arms on the sleeve arranged for alternate engagement with opposite ends of the cross-head, a fork on the sleeve, a short wire, a stake whereby one end of said short wire is stationarily fixed and a bar forming a connection between the opposite end of said short wire and the sleeve.

2. In a corn-planter, a dropping mechanism, a rock-shaft actuating said dropping mechanism, traction mechanism, a tripping mechanism between the traction mechanism and rock-shaft, which tripping mechanism is actuated by a short wire fixed at one end and loosely connected therewith at the other end.

3. In a corn-planter, a rotating shaft, a sleeve thereon, a clutch member arranged for engagement with said sleeve, a tripping-lever arranged to throw said clutch member into engagement with said sleeve, an arm on said sleeve arranged for engagement with the tripping-lever, and a short wire fixed at one end and loosely connected to the sleeve at the other end whereby said sleeve is actuated in the advance of the machine and cause the arms to engage the tripping-lever and throw the clutch of the shaft into engagement with the sleeve, whereby the actuation of the sleeve is continued.

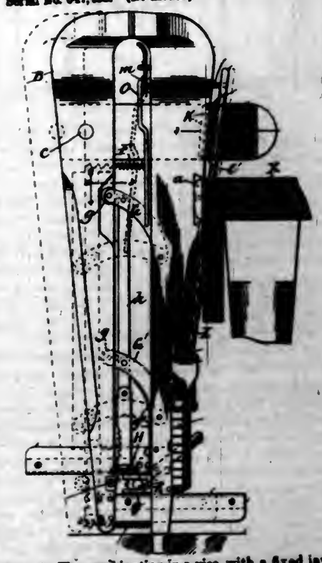
598,648. GUN-CLEANER. SOLOMON GLASS, Burlington, Iowa, assignor to Charles F. Ebner, same place. Filed Apr. 10, 1897. Serial No. 631,490. (No model.)

Claim.—1. In a gun-cleaner, a central stem, in combination with a pair of concaved elongated spring-plates pivoted to the middle of the rod so as to rock loosely and having outwardly-flaring ends, substantially as described.



2. In a gun-cleaner, the combination with a central stem having screws at both ends, of a pair of elongated spring-plates provided with widened flaring ends, and centrally pivoted to loosely rock on the stem substantially as described.

598,649. VISE. JOSEPH GOODRICH, Chicago, Ill. Filed Aug. 7, 1897. Serial No. 647,482. (No model.)



Claim.—1. The combination in a vise, with a fixed jaw, a clamping-jaw, a transverse bar in sliding engagement with the fixed jaw and in pivotal relation with the clamping-jaw, and a clutch for locking the fixed jaw and the bar together, of pedal-actuated means for releasing the clutch and moving the clamping-jaw away from the fixed jaw.

2. The combination in a vise, with a fixed jaw, a clamping-jaw, a transverse bar in sliding engagement with the fixed jaw and in pivotal relation with the clamping-jaw, and a clutch for locking the fixed jaw and bar together, of swinging arms pivoted to the fixed jaw and adapted to bear against the clamping-jaw, clutch-releasing mechanism connected with the arms, and a pedal connected with the arms whereby they may be swung to release the clutch and move the clamping-jaw away from the fixed jaw.

3. The combination, in a vise with a fixed jaw, a clamping-jaw, a transverse bar pivoted to the clamping-jaw and in sliding engagement with the fixed jaw, of means for sliding the bar to separate the jaws, and springs for drawing the jaws together.

4. The combination, in a vise, with a fixed jaw, a transverse bar in sliding engagement with the fixed jaw, a clamping-jaw pivoted to the bar, and clutch mechanism for locking the bar and fixed jaw together, of swinging arms pivoted to the fixed jaw and adapted to bear against the clamping-jaw, clutch-releasing mechanism operatively connected with the swinging arms, a pedal for swinging the arms to release the clutch mechanism and separate the jaws, springs acting upon the jaws in opposition to the separating-arms, and means for rocking the clamping-jaw on its pivot.

5. The combination, in a vise, with a fixed jaw, a clamping-jaw pivoted to in sliding engagement with the fixed jaw, a clamping-jaw pivoted to the bar, and clutch mechanism for locking the bar and fixed jaw together, of swinging arms pivoted to the fixed jaw and adapted to bear against the clamping-jaw, clutch-releasing mechanism operatively connected with the swinging arms, a pedal for swinging the arms to release the clutch mechanism and separate the jaws, and means for rocking the clamping-jaw on its pivot.

6. The combination, in a vise, with a fixed jaw, a transverse bar

in sliding engagement with the fixed jaw, a clamping-jaw pivoted to the bar and means for locking the bar in an adjusted position, of spreading mechanism reacting between the lower ends of the two jaws for rocking the clamping jaw on its pivot when the slide-bar is in any position to which it may be adjusted.

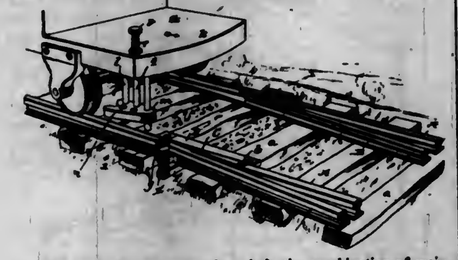
7. The combination, in a vise, with a fixed jaw, a transverse bar in sliding engagement with the fixed jaw, a clamping-jaw pivoted to the bar and means for locking the bar in an adjusted position, a pair of parallel rack-bars fixed one to each of the jaws, a mutilated gear coöperating with the two rack-bars, and a pedal actuated crank-arm for oscillating the gear.

8. The combination, in a vise, with a fixed jaw, a transverse bar in sliding engagement with the fixed jaw, a clamping-jaw pivoted to the bar and means for locking the bar in an adjusted position, a pair of parallel rack-bars fixed one to each of the jaws, a mutilated gear coöperating with the two rack-bars, a pedal-actuated crank-arm for oscillating the gear, and a spring for normally holding the crank-arm in such position that the teeth of the gear are out of engagement with the rack attached to the clamping-jaw.

9. In a vise having spreading parallel jaws and means for spreading the jaws, the combination with such parts of a pivot for one of the jaws, parallel rack-bars fixed one to each jaw, a mutilated gear interposed between and coöperating with the racks, a crank for controlling the gear, and a spring for throwing such crank to such a position as to bring the toothless portion of the gear into juxtaposition with one of the racks.

10. In a vise, the combination with a fixed jaw, a bar adapted to slide in a transverse aperture in such jaw, a movable jaw pivoted to such bar, and levers for forcing the movable jaw away from the fixed jaw, of clutch mechanism for locking the slide-bar to the fixed jaw in any adjusted position, mechanism for releasing the clutch mechanism and being operatively connected with the jaw-moving levers, and means for disengaging the releasing mechanism from the clutch mechanism independently of the approach of the movable to the fixed jaw.

598,650. AUTOMATIC RAILROAD-SWITCH. ADOLPHE GROSSMAN, New Orleans, La. Filed Sept. 7, 1897. Serial No. 650,787. (No model.)



Claim.—1. In an automatic switch, the combination of main-track rails, siding or turnout rails, the fixed cover-plate having the notch in one of its edges and the apertured lug depending from its opposite edge, the pivoted switch-point disposed above the cover-plate and having the depending stud arranged in the notch of said plate, the slidable rod disposed below the cover-plate and connected to the depending stud of the switch point and extending loosely through the lug of the said plate, a coiled spring surrounding said rod and interposed between the lug and an enlargement of the rod, the upright lever fulcrumed at an intermediate point of its length and having its lower end connected with the slidable rod and its upper end provided with the antifriction wheel, a car, and a cam-shoe connected with the car and adapted to engage the antifriction-wheel of the switch-lever, substantially as specified.

2. In an automatic switch, the combination of main-track rails, siding or turnout rails, a movable switch-point, an upright lever fulcrumed at an intermediate point of its length and having its lower end connected with the switch-point and its upper end provided with an antifriction-wheel, a car, and a cam-shoe connected with the car and adapted to engage the antifriction-wheel of the switch-lever, substantially as specified.

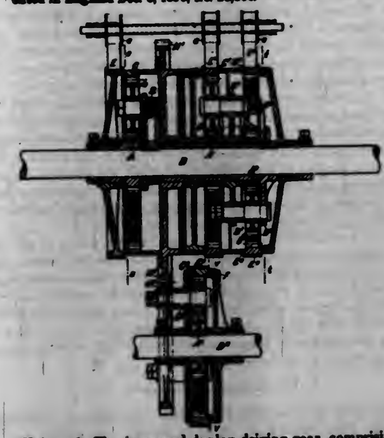
3. The combination of a car, guide-rods connected to and depending from the body of the car, a shoe loosely mounted on said guide-rods, a plunger connected to the shoe and extending through a guide in the car-body and having an enlargement above said body, a coiled spring surrounding the said rod and interposed between the enlargement thereof and the car-body, and a sleeve also surrounding the plunger-rod and interposed between the shoe and the car-body, substantially as specified.

598,651. HINGED SOCKET-PIECE. CLAYTON M. HAMILTON, Boston, Mass., assignor of one-half to Henry Hunt, same place. Filed Feb. 23, 1897. Serial No. 624,721. (No model.)



Claim.—In a hinged socket-joint, a socket-piece attached to the article to be supported having a recess for receiving the end of the staff, a set-screw for fastening the said staff and having ears between which a slotted wing attached to the head of the said staff is pivoted, and said staff and slotted wing, substantially as and for the purpose set forth.

598,652. DIFFERENTIAL SPEED AND REVERSING GEAR FOR MOTOR-CARS, TRAM-CARS, &c. GEORGE G. M. HARDINGHAM, London, England. Filed May 24, 1897. Serial No. 637,984. (No model.) Patented in England Dec. 8, 1896, No. 28,100.

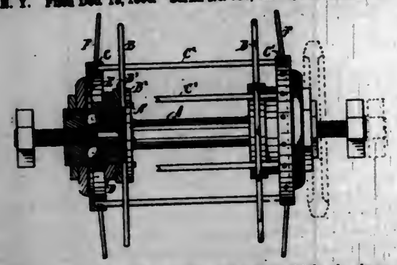


Claim.—1. The improved duplex driving-gear, comprising two gear-trains, each consisting of three elements, namely, a central pinion, an intermediate wheel or set of intermediate wheels carried on an axially-mounted body, and a surrounding internally-toothed wheel, the intermediate wheel-carrier pertaining to each gear being connected with the driven part, the central pinion of the one gear and the outer wheel of the other gear being connected with the driving part, and holding devices for the outer wheel of the one gear and the central pinion of the other gear, whereby either the one gear or the other gear may be rendered operative or inoperative, substantially as herein described.

2. The improved triplex (duplex and reverse) driving-gear, comprising three gear-trains, each consisting of three elements, namely, a central pinion, an intermediate wheel or set of intermediate wheels carried on an axially-mounted body, and a surrounding internally-toothed wheel, the intermediate wheel-carriers of the first (high) and second (low) speed-gears being connected with the driven part, the outer wheel of the one gear and the central pinion of the other gear being connected with the driving part, and holding devices for the central pinion of the one gear and the outer wheel of the other gear, in combination with a gear having its elements connected in the same manner as the low-speed gear, the intermediate wheels of the third gear being duplicated and meshing with the central pinion and the outer wheel respectively and with one another, so as to reverse the direction of rotation, substantially as herein described.

3. The combination, with a change-gear mechanism, of speed-reducing gear comprising a motor or driving shaft D, a central pinion A^3, connected with the said shaft, a sleeve D' in which the said shaft rotates and whereon the change-gear trains are mounted, an axially-mounted body B^2 keyed on said sleeve, an intermediate wheel or set of intermediate wheels carried on the said body and a surrounding internally-toothed wheel C^2 capable of being held stationary, the intermediate wheel or wheels meshing with the central pinion and with the surrounding internally-toothed wheel, substantially as herein described.

598,653. WHEEL FOR BICYCLES. GEORGE HAYES, New York, N. Y. Filed Dec. 19, 1896. Serial No. 616,301. (No model.)



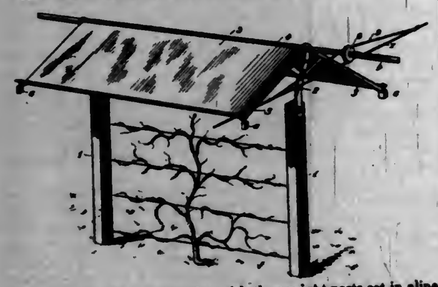
Claim.—1. A wheel for bicycles and other vehicles, having a central axle-hub within the hollow of a special spoke-nave, the two connected together resiliently by two sets of arc suspensory springs, one set to each end of the axle-hub, both sets externally arranged, the springs standing out from the axle-hub transversely thereto, and each set constituting a congeries of arcs parallel to the plane of the wheel, essentially as set forth.

2. In a wheel for bicycles and other vehicles, a skeleton spoke-nave engaging the rigid spokes of the wheel, and formed as two rings connected together rigidly by cross rods or bars, and encircling the axle-hub of the wheel connected thereto by two sets of arc suspensory springs, externally located and arranged, essentially as set forth.

3. In a wheel for bicycles and other vehicles, two sets of arc suspensory springs, secured to and arranged around the axle-hub, one set at each end thereof, the springs extending outwardly therefrom parallel to the plane of the wheel and transversely to the axle-hub, the springs also secured to a spoke-nave encircling the axle-hub and not otherwise connected therewith, but held in tension rigidly by a set of rigid tensional spokes, secured thereto and to the rim of the wheel, essentially as set forth.

4. In a wheel for bicycles and other vehicles, a ring of arc suspensory springs externally arranged upon the axle-hub, each spring having ends held rigidly between two annular plates secured upon the axle-hub by nuts, whereby they are adapted for removal connectedly, the springs also connected to a rigidly-held spoke-nave and in conjunction with a corresponding set at the other end of the hub holding the axle-hub in suspension within the hollow of the spoke-nave, essentially as set forth.

598,654. AWNING FOR VINES. REBA HEADLEY, Bloomfield, Ohio. Filed Jan. 20, 1897. Serial No. 619,867. (No model.)



Claim.—1. The combination with the upright posts set in alinement with each other and provided at their upper ends with inclined arms 3, of a shaft mounted in bearings at the upper end of said arms 3, awnings upon said shafts above said arms and provided at their outer ends with weights, and devices for turning said shaft in opposite directions.

2. The combination with the upright posts provided at their upper ends with brackets bearing the inclined arms 3, of a shaft mounted in bearings at the upper end of said arms and provided with awnings over said arms, weights at the outer ends of said awnings, and devices for turning said shaft in opposite directions.

598,655. PNEUMATIC-MOTOR. FREDERICK W. HEDGELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed May 10, 1897. Serial No. 636,853. (No model.)

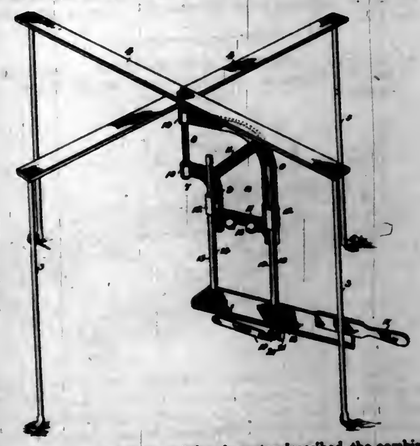
Claim.—1. The pneumatic-motor, consisting of a series of pneumatics, an exhaust-chamber common to all the pneumatics and around which they are arranged, a pulley driven by the pneumatics and supported upon an axis parallel with the axes of the pneumatics, a series of valves the stems whereof are parallel with the axes of the pneumatics, and a cam on the face of the pulley directly actuating the valve-stems, substantially as specified.



2. The pneumatic-motor, consisting of a series of pneumatics, an exhaust-chamber common to all the pneumatics and around which they are arranged, a pulley driven by the pneumatics, a single cam on the side face of the pulley, and a series of valves controlling said pneumatics and actuated by said cam, substantially as specified.

3. The pneumatic-motor, consisting of a series of pneumatics, an exhaust-chamber common to all the pneumatics and around which they are arranged, a pulley driven by the pneumatics and supported upon an axis parallel with the axes of the pneumatics, a cam on the face of the pulley, and a series of valves actuated by the cam and controlling the pneumatics, substantially as specified.

598,656. CHEESE-CUTTER. LOUIS H. HEER, Lyons, Ind. Filed Feb. 20, 1897. Serial No. 624,208. (No model.)



Claim.—1. In a device of the character described, the combination with a suitable support, of a swiveled knife-supporting frame, a pair of vertically-movable knife-supporting rods, a knife pivotally connected to each of said rods and independent means for adjustably securing said rods, substantially as specified.

2. In a device of the character described, the combination with a suitable support, of a knife-supporting frame, a pair of knife-supporting rods carried by the knife-supporting frame and provided with ratchet-teeth, a knife pivoted to each of said rods and pawls designed to engage the teeth upon the knife-supporting rods substantially as specified.

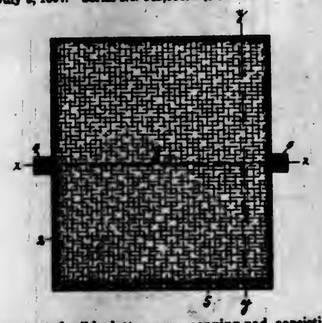
3. In a device of the character described, the combination with a swiveled knife-supporting frame, of a pair of independent knife-supporting rods adjustably carried by the knife-supporting frame, a knife pivotally connected to each of said rods, and gage mechanism, substantially as specified.

4. In a device of the character described, the combination with a swiveled supporting frame, of a pair of knife-supporting rods carried thereby, a knife pivoted to said rods and having its extremity in line with the axis of the pivot of the swiveled supporting-frame, pawls in engagement with the teeth upon the knife-supporting rods, a curved gage-rod carried by the knife and a gage-plate adjustable upon the gage-rod, substantially as specified.

5. In a device of the character described, the combination with a swiveled knife-supporting frame, a knife adjustably carried thereby, and an adjustable gage carried by said knife, of a plurality of supporting-standards, horizontal strips carried by the standards and provided with apertures for the reception of the swivel-bolt of the knife-supporting frame, substantially as specified.

6. In a device of the character described, the combination with a swiveled knife-supporting frame, of a knife adjustably mounted thereon and provided with a folding handle, and independently-adjustable means for pivotally supporting the opposite ends of the knife, substantially as specified.

598,657. COPYING-PAD. EDWARD R. HODGES, Indianapolis, Ind. Filed July 6, 1897. Serial No. 643,555. (No model.)

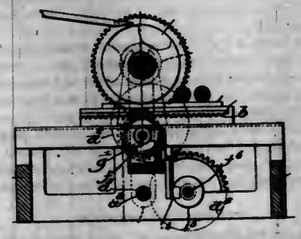


Claim.—1. A flexible letter-press copying-pad consisting of an absorbent moisture-retaining sheet 2, having a fabric facing 1 on both sides thereof, secured in the manner shown, for the purpose of checking the flow of moisture from the sheet 2, when under pressure, retarding evaporation and protecting it in handling, said facing having the tapes 4, upon opposite sides thereof secured between said facings, whereby the pads may be lifted, substantially as set forth.

2. As an article of manufacture, the flexible copying-pad consisting of the absorbent moisture-retaining pad 2 loosely incased between the facings 1: the facings 1 on either side of said pad, formed from muslin fabric with the raw edges turned inwardly to prevent their fraying and having lifting-tapes 4 secured between opposite edges of said facings, all as shown and described.

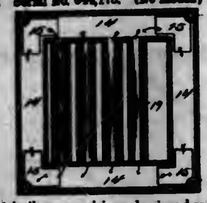
3. As a flexible letter-copying pad, the combination with the absorbent moisture-retaining pad 2, of the loosely-secured facings 1, having their raw edges secured together by stitching and turned inwardly to prevent fraying, and having the projecting lifting-tapes 4 secured between said facings at opposite edges, all as and for the purposes shown and described.

598,658. REGISTERING APPARATUS FOR PRINTING-PRESSES. WILLIS K. HOSEMAN, Taunton, Mass., assignor to the Huber Printing Press Company, same place. Filed Apr. 21, 1897. Serial No. 632,101. (No model.)



Claim.—In a printing-press having a continuously-rotating cylinder and a reciprocating bed, a registering apparatus comprehending the following instrumentalities, viz: a registering-gear carried by said cylinder, a registering-rack carried by said bed, an intermediate rotatable shaft provided with two gears, one of which is always in mesh with the registering-gear or the registering-rack, and means to move said shaft to cause the other gear carried thereby to intermittingly engage and then be put out of mesh with either said registering-rack or said registering-gear, whereby during only the printing period the said registering apparatus becomes an auxiliary controlling means operating in connection with the regular bed and cylinder moving devices to insure the movement of the bed and cylinder in absolute registration, substantially as described.

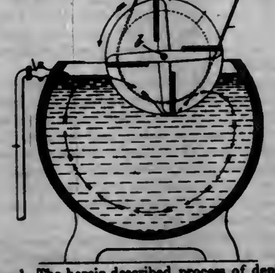
598,659. HEATER. ROBERT G. HOLMOUR, Oswego, N. Y. Filed July 12, 1897. Serial No. 644,175. (No model.)



Claim.—1. A boiler comprising a base and sections erected thereon and upon each other and all connected at their corners by openings creating continuous vertical flues and having internal water-chambers connected to each other and to said flues and connected vertically by said continuous flues and in the lower part of the boiler constituting sectional water-leg walls around the fire-box, the water-chambers in the upper sections being also connected horizontally by transverse flues whereby free lateral, vertical and transverse circulation through and between said sections is created.

2. A boiler comprising a base and hollow sections erected thereon and upon each other, each provided with a continuous water-chamber around it, and having multiple internal openings in vertical alinement creating multiple continuous sectional vertical flues connecting said water-chambers to each other and to the adjoining section or sections, the lower sections creating sectional and connected water-legs around the fire-box, and the upper sections being also provided with transverse horizontal flues connecting water-chambers on opposite sides, whereby free vertical, lateral and transverse circulation is created in or through said sections and from one said section to another.

598,660. PROCESS OF DEPILATING HIDES OR SKINS. HENRY HOLLIS, Philadelphia, Pa., assignor of one-half to William Evans, same place. Filed Dec. 22, 1896. Serial No. 616,578. (No specimens.)



Claim.—1. The herein-described process of depilating hides or skins, which consists in subjecting the hides or skins to a bath, consisting of a solution of sulfid of sodium of required strength, then agitating the hides or skins and the solution for a relatively short interval of time, then subjecting the hides or skins to the action of the solution for a comparatively long period of time and without agitation, then reagitating the hides or skins and the solution and finally gradually weakening the strength of the solution by dilution during this reagitation, substantially as and for the purposes described.

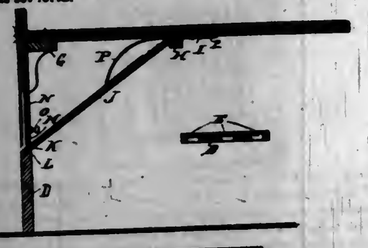
2. The herein-described process of depilating hides or skins, which consists in subjecting the hides or skins to a bath consisting of a solution of sulfid of sodium of required strength, then agitating the hides or skins and the solution, then again subjecting the hides or skins to the action of the solution but without agitation, then reagitating the hides or skins and the solution and at the same time gradually weakening the strength of said solution and finally permitting during the entire operation the free escape of gases generated in the solution, substantially as and for the purposes described.

598,661. IRONING-BOARD. DUANE B. HOOK, Germany, Pa. Filed July 31, 1896. Serial No. 601,240. (No model.)

Claim.—1. The combination with the board having shelf, openings, and a rod extended across the upper edge of said openings upon the rear face of said board and on a higher plane than said shelf, and a recess with a spring-pressed plate, of the board having hooks, and a brace hinged to the under side of the board and having a notch to engage the plate in the recess, as set forth.

2. The combination with the board having shelf and openings and a recess with a spring-pressed plate therein, of the ironing-board

having hooks, a hinged brace having a notch, constructed to enter said recess and be engaged by said plate and a spring acting on said brace, as set forth.



598,662. PRINTING-PRESS. BERTHOLD HUBER, Taunton, Mass., assignor to the Huber Printing Press Company, same place. Filed Apr. 19, 1897. Serial No. 632,756. (No model.)



Claim.—1. In a printing-press, the following instrumentalities, viz: a cylinder, a crank, means to rotate said cylinder and crank continuously in one direction, a bed having an attached rack, a second stationary parallel rack, a pinion engaging both of said racks and having an eccentric stud, and connections between the crank-pin of said crank and the eccentric stud of said pinion, whereby said pinion is enabled to reciprocate said bed at a surface speed substantially in unison with the surface speed of the said continuously-rotating cylinder, substantially as described.

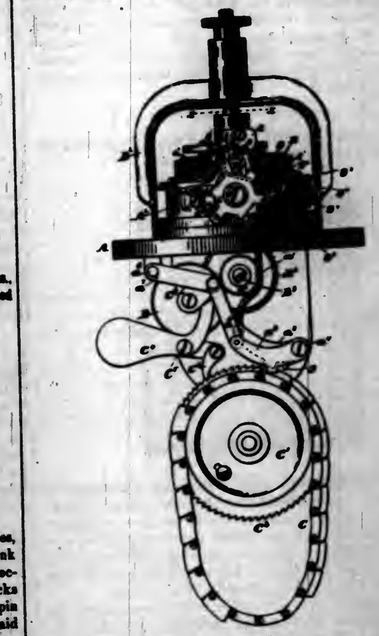
2. In a printing-press, the following instrumentalities, viz: a cylinder, a crank, means to rotate said cylinder and crank continuously in one direction, a bed having an attached rack, a second stationary parallel rack, a pinion engaging both of said racks, and having an eccentric stud, and connections between the crank-pin of said crank and the eccentric stud of said pinion, the throw of said crank and the diameter of said pinion being such as to effect nearly a full rotation of said pinion during both the forward and the back stroke of said crank, substantially as described.

3. In a printing-press, a cylinder, a crank, means to positively rotate said cylinder and crank continuously in one direction, a cross-head having a groove entered by a crank-pin of said crank, a bed having a rack, a second stationary parallel rack, a traveling pinion engaging both of said racks and having an attached eccentric stud, and connections between said cross-head and the eccentric stud of said pinion whereby the said traveling pinion is engagement with the said racks, will, when moved, reciprocate said bed for the greater period of its stroke at a substantially uniform speed with relation to said cylinder, substantially as described.

598,663. CIRCULAR-KNITTING MACHINE. LEON C. HUNT, Laconia, N. H. Filed Oct. 26, 1896. Serial No. 610,062. (No model.)

Claim.—1. In a circular-knitting machine, a cam-cylinder, a main-thread guide to supply the usual needles of the machine with a main running thread, a rest, a clamp cooperating therewith for a reinforcing-thread on its way to the main-thread guide, a wheel having arms of different lengths and provided with a cam to act on and open the clamp to free the reinforcing-thread, a pin, a pattern-surface to move said pin and put it into position to turn the said wheel and cause its cam to move the clamp to release the running thread, and a second pin to meet an arm of the said wheel during one and the same rotation of the cam-cylinder to turn said wheel and its cam, and permit the clamp to be closed, and part the reinforcing-thread, leaving it only in a part of the knitted course in which it was introduced, substantially as described.

2. In a knitting-machine, a thread-clamp, means to move it to alternately release and then clamp a reinforcing-thread as the said thread is to be presented to the needles or stopped, combined with a pull-off, composed of an arm attached to a pivoted disk provided with a toe, a pin, and a pattern-surface to control the position of the pin to actuate said pull-off in advance of moving the said clamp to release the reinforcing-thread, whereby slack thread may be put into the reinforcing-thread near the said clamp, substantially as described.



3. In a knitting-machine, a thread-clamp, means to move it to alternately release and then clamp a reinforcing-thread as the said thread is to be presented to the needles or stopped, combined with a pull off, means to adjust said pull-off to pull off more or less thread, and means to actuate it in advance of moving the said clamp to release the reinforcing-thread, whereby slack thread may be put into the reinforcing-thread near the said clamp, substantially as described.

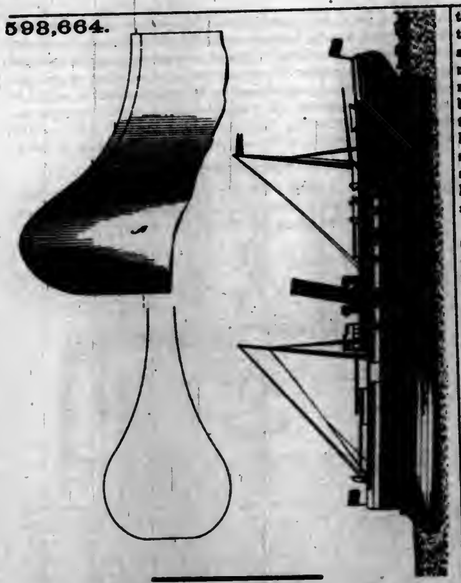
4. In a circular-knitting machine, the following instrumentalities, viz: a cam-cylinder, having the usual drawing-down cam provided with a pin as *a* projected through the cylinder and exposed at the outer side thereof, a main-thread guide to supply the usual needles of the machine with a main or running thread, a rest, a clamp cooperating therewith to control a reinforcing-thread on its way to the main-thread guide, a wheel having arms of different lengths, and provided with a series of cam-faces to act on and open the clamp to free the reinforcing-thread, a lever interposed between the said cam, and the pin on the drawing-down cam, a pin as *a'*, a pattern-surface to move said pin and put it into position to turn the said wheel and cause its cam to move the clamp to release the clamping-thread and at the same time depress the drawing-down cam to lengthen the stitch, and a second pin to meet an arm of the said wheel during one and the same rotation of the cam-cylinder to turn said wheel again and permit the clamp to be closed onto and to part the reinforcing-thread, and allow the drawing-down cam to rise, such operation leaving said reinforcing-thread only in a part of the knitted course in which it was first introduced, the stitches in which the reinforcing-thread is introduced being thereby made longer, substantially as described.

598,664. ICE-BREAKING BOAT. BYRON B. INMAN, Duluth, Minn., assignor to Hiram Gere Inman, same place. Filed Feb. 13, 1897. Serial No. 623,262. (No model.)

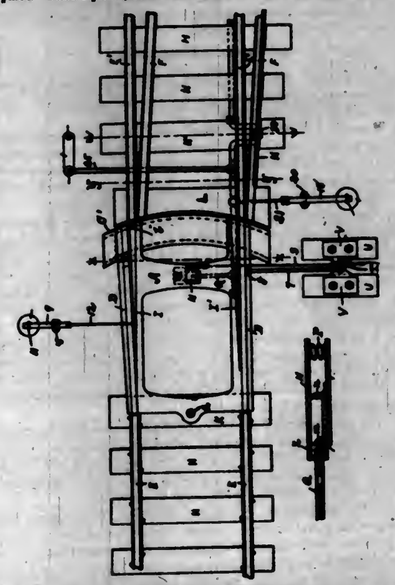
Claim.—1. An ice-breaking boat, the prow of which is projected or enlarged forward and on both sides below the water-line so that it approximates an oval form in front elevation whereby with the progress of the vessel the ice is forced upward from beneath and turned over upon the solid ice, out of the channel.

2. A propeller vessel made with a ram-nose projected under water and swelling rounded or bulb-like in front, while sharper and smaller back of such bulb with plow-moldboard-like curves to shoulders B, wider than the vessel amidships, adapted to lift and break the ice from below and to turn the sheets over to the sides out of the way substantially as set forth.

598,664.



598,665. RAILWAY-SWITCH. WILLIAM H. JACKSON, Indianapolis, Ind., assignor, by direct and mesne assignments, of two-thirds to John T. Figg, Frank M. Brunthover, and Willis F. Martin, same place. Filed Apr. 20, 1897. Serial No. 633,090. (No model.)



Claim.—1. A railway safety-switch, comprising a pivoted table provided with rigid rails and a pivoted rail, means for holding said pivoted rail in position, a lock underneath said table and secured thereto, an operating-lever provided with means for releasing the lock and throwing said table in position for the side-track and means as shown to automatically return the switch to the main line after the train has passed the switch, substantially as described and for the purposes set forth.

2. A railway safety-switch comprising a pivoted table, provided with a track, an inner rigid rail and a pivoted inner rail mounted on said table, said inner rails converging toward a point connecting the rails of a main track, means for pressing said pivoted rail against the outer rail, a spring-lock underneath the pivoted table and secured thereto, a crank-shaft underneath the track and parallel thereto, an operating-lever provided with rods and levers operatively connected to said switch-table and lock to throw said switch from the main line to the side-track, a weight connected to the crank-shaft by means of rods and levers, a pivoted lever attached to the rail of the side-track and parallel thereto, and connected to the crank-shaft by means of a vertical rod, said lever when depressed to actuate said shaft and lift the weight to engage said lock, said weight to throw said table to main track after the train has passed over said pivoted lever, and means for operating a signal automatically, substantially as shown and described.

3. A railway safety-switch, comprising in combination a table suitably supported and secured at one end by a pivot-bolt, and its opposite end forming a segment of a circle, the rigid and pivoted rails mounted thereon, said pivoted rail and the inner rigid rails converging toward a point connecting the rails of a main track, and means for pressing said pivoted rail against the outer rail, the spring-lock underneath said table and rigidly attached thereto, the crank-shaft underneath said table and track, the lever connecting said crank-shaft with said lock, the operating-lever with attachments to release said lock and throw said table to the side-track, the weight and levers connected to said crank-shaft, the lever pivoted to the rail of the side-track and connected to said crank-shaft to lift said weight and engage said lock when depressed and means to automatically throw said table back to the main line after the train has passed over said pivoted lever, substantially as shown and described.

598,666. FILTER. OMAR H. JEWELL and WILLIAM M. JEWELL, Chicago, Ill., assignors to the O. H. Jewell Filter Company, same place. Filed May 16, 1896. Serial No. 591,813. (No model.)



Claim.—1. In a filter, the combination with an external tank, of an internal filter-tank arranged therein and adapted to contain the filter-bed, means for causing a flow of water upward through said filter-tank and over the edges thereof, and means for directing the overflowing water away from the sides of said tank, substantially as described.

2. In a filter, the combination with an external tank having a concave bottom, of an internal filter-tank arranged therein and adapted to contain the filter-bed, means for causing a flow of water upward through said filter-tank and over the edges thereof, and means for directing the overflowing water away from the sides of said tank, substantially as described.

3. In a filter, the combination with an external tank having a concave bottom, of an internal filter-tank arranged therein and supported above the bottom thereof, said internal tank being arranged to contain the filter-bed, means for causing a flow of water upward through said filter-tank and over the edges thereof, and means for directing the overflowing water away from the sides of said internal tank, substantially as described.

4. In a filter, the combination with a horizontal, cylindrical external tank, of an internal tank arranged therein and supported above the bottom thereof, said filter-tank being adapted to contain the filter-bed, means for causing a flow of water upward through said filter-tank and over the edges thereof, and means for directing the overflowing water away from the sides of said internal tank and against the sides of the external tank, substantially as described.

5. In a filter, the combination with a filter-tank, of a manifold therein, branch pipes connected to said manifold, an air-pipe in said manifold and having branches extending into said branch pipes, discharge-orifices in said branch pipes, and means for supplying gas under pressure to said air-pipe, substantially as described.

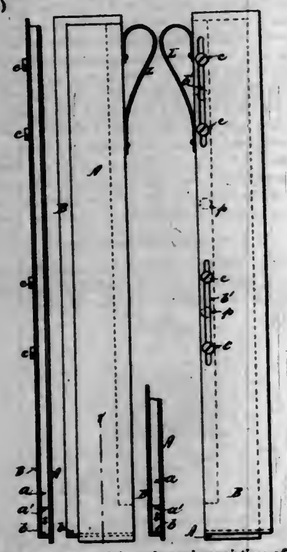
6. In a filter, the combination with an external tank, and an internal tank arranged therein, of one or more overflow wash-pipes opening into said filter-tank below the upper edges thereof, and means for closing said overflow pipe or pipes to cause the wash-water to overflow the internal tank, substantially as described.

7. In a filter, the combination with a cylindrical tank, of a filter-tank arranged therein and adapted to contain the filter-bed, means for directing the flow of water upward through said filter-tank and over the edges thereof for washing the external tank, and one or

more deflectors carried by said filter-tank for discharging the wash-water against the wall or walls of said cylindrical tank, substantially as described.

8. In a filter, the combination with a filter-tank adapted to contain a filter-bed, of pipes having a series of discharge-orifices under said filter-bed for introducing water under pressure into the lower part of said filter-bed, and a series of jet-openings arranged in said pipes coincident with said discharge-orifice for injecting gaseous blasts through the orifices, substantially as described.

598,667. TYPE-CONTAINING CHANNEL. LOUIS K. JOHNSON and ABBOT A. LOW, Brooklyn, N. Y., assignors to The Alden Type Machine Company, New York, N. Y. Filed Mar. 20, 1896. Serial No. 585,407. (No model.)



Claim.—1. A type-containing channel consisting of a plate, a spine ending above the lower end of said plate, and of a second plate formed with a type-support upon its lower end, said plates being secured together by means which permit of their adjustment with relation to each other, substantially in the manner and for the purpose described.

2. A type-containing channel consisting of the plate A, formed with the spine *a*, ending above the lower end of said plate, the plate B, formed with the type-support *b*, and with the longitudinal slot *b'*, and the set-screws *c*, *c*, the whole arranged and operating substantially in the manner and for the purpose described.

3. The combination with the two side walls A, B, of the spine *a*, provided with the adjustable bearing-screws *p*, and the screws *c*, *c*, for binding the plate B, against the spine or against the inner ends of the said adjustable screws *p*, for the purpose and substantially in the manner described.

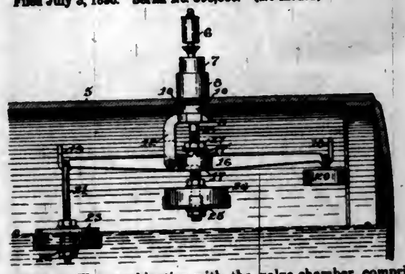
598,668. TYPE-CONTAINING CHANNEL. LOUIS K. JOHNSON and ABBOT A. LOW, Brooklyn, N. Y., assignors to The Alden Type Machine Company, New York, N. Y. Filed Sept. 17, 1896. Serial No. 606,078. (No model.)



Claim.—1. The combination of a spine A, integral with the walls *a*, *a'*, said walls *a*, *a'*, one of which *a'* is shorter than the other, the type-platform T formed with the rectangular extension *t*, coinciding with the side wall *a'*, of the channel above and by which the platform T is pivotally connected to the spine of the channel, and the spring-bolt mounted on said rectangular extension *t*, of the platform T, and engaging with the spine of the channel, substantially in the manner and for the purpose described.

2. The combination of the spine A, integral with the walls *a*, *a'*, and formed with the slot *s*, said walls *a*, *a'*, one of which is shorter than the spine A, the type-platform T pivoted to the spine of the channel below the slot *s*, and formed with the rectangular extension coinciding with the side wall *a'*, above, and the spring-bolt S, mounted on the extension *t* under the type-platform T and engaging with the spine of the channel, whereby when the type-platform is locked in position, said spring-bolt will be inclosed and protected by the extension *t* on one side and by the lower end of the side wall *a*, on the other side, substantially in the manner and for the purpose set forth.

598,669. ALARM. WILLIAM LANCASTER, Saylesville, R. I.; Margaret A. Lancaster administratrix of said William Lancaster, deceased. Filed July 3, 1896. Serial No. 598,000. (No model.)



Claim.—The combination with the valve-chamber, comprising the inverted cup 7, the casing 8, the bushing member 9 having the shoulder 10, the rim 11 to which the casing 8 is secured and the arm 12, the valve-seat 14 secured in the rim 11, and the valve 15 mounted to move vertically in a perforation of the seat, of the lever 16 pivoted in the lower part of the arm 12 and having the ring 17, the weight 20 at one end of the lever, the rod 21 depending from the opposite end of the lever and provided with the frame 22 and float 23, the frame 25 adjustable on the rod 24 secured to the valve and extending through the ring 17 adjustable at the lower end of the rod, the float 26 carried thereby, and the nut 27 adjustable on the valve-stem above the ring 17, as described.

598,670. PAINT. CHARLES F. LAWTON, ARTHUR W. LAWTON, and ALBERT L. LAWTON, Washington, D. C. Filed Aug. 4, 1896. Serial No. 482,361. (No specimens.)

Claim.—1. The herein-described paint composition consisting of insoluble metallic oxid or salt mixed with a neutral or non-alkaline solution of silica, said composition being capable of application without admixture with other substances, by means of a brush, to the surface to be painted.

2. The herein-described paint composition consisting of insoluble metallic oxid or salt, part of which is in a condition of a hydroxid or hydrate, mixed with a neutral or non-alkaline solution of silica, said composition being capable of application without admixture with other substances, by means of a brush, to the surface to be painted.

3. The herein-described setting compound consisting of an alkaline-silicate solution containing zinc oxid and ammonia.

4. A paint comprising two compounds designed to act chemically one upon the other, the first compound consisting of insoluble metallic oxid or salt mixed with a neutral non-alkaline solution of silica; and the second consisting of a zinc-sodium-ammonium-silicate solution all substantially as described.

5. The process for producing a painted surface which consists in combining with metallic oxid or salt when in suspension in water, a non-alkaline solution of silica in water, and applying to this composition after application, another compound comprising a zinc-sodium-ammonium-silicate solution substantially as described.

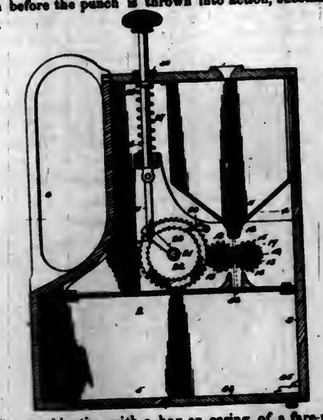
6. In the manufacture of mineral paint free from organic matter, the process of decomposing sodium chlorid in a neutral water solution of silica, which consists in bringing it into contact with a lead oxid, substantially as set forth.

598,671. FARE-BOX REGISTER. OSCAR LEBRUN, North Bay, Canada. Filed Mar. 24, 1897. Serial No. 628,971. (No model.)

Claim.—1. The combination with a receptacle for fares, of a pair of rollers rotating in opposite directions, one of said rollers being provided with one or more punches, and the other roller having recesses to receive said punches, substantially as described

2. The combination with a receptacle for fares, of a pair of rollers one of which is provided with one or more recesses, and one or more spring-actuated punches carried by the opposing roller, substantially as and for the purpose described.

3. The combination with a receptacle for receiving fares, of a pair of rollers one of which is provided with one or more recesses, a plunger carried by the other roller and adapted to enter said recess, and means for simultaneously rotating said rollers in opposite directions, the punch being so arranged that said rollers will nearly complete one revolution before the punch is thrown into action, substantially as described.



4. The combination with a box or casing, of a fare-receptacle therein, punching-rollers arranged at the discharge end of said receptacle, gear-wheels mounted on said rollers and meshing with each other, a spur gear-wheel meshing with one of said gears, a ratchet-wheel rigidly connected to said spur-gear, an arm fulcrumed on the axis of said spur-gear, a plunger, a pivotal link interposed between said plunger and arm, a pawl carried by said arm and engaging the ratchet-disk, and a spring-actuated detent for preventing retrograde movement of said ratchet-disk, all arranged for joint operation, substantially as described.

598,672. MIMEOGRAPH. MARK H. LUDLEY and LESLIE I. COGGINS, San Francisco, Cal.; said Ludley assignor to said Coggins. Filed Jan. 11, 1896. Renewed Apr. 19, 1897. Serial No. 632,998. (No model.)



Claim.—1. In a mimeograph the combination of a well for holding paper in sheets, with a movable bottom for said well, a stencil-frame to fall over said well, and raising and lowering mechanism for said movable bottom adapted to be operated by the said stencil-frame, substantially as described.

2. In a mimeograph the combination of a well for holding paper in sheets, with a movable bottom for said well, a stencil-frame to fall over said well, a screw extended into said well and adapted to be rotated by the said frame, and intermediate connections between the said bottom and screw to raise the said bottom as the screw is rotated, substantially as described.

3. In a mimeograph the combination of a well for holding paper in sheets, with a movable bottom having inclined surfaces secured to the under side, wedge-shaped movable frame to receive the said movable bottom, a screw engaging the said wedge-shaped frame and provided with a ratchet, and a plunger extended into the path of the said stencil-frame and provided with a pawl to engage the said ratchet to operate the said screw, substantially as described.

598,673. ROD FOR FLUE-CLEANERS. JUDSON L. MARVIN, Manston, Wis. Filed Mar. 12, 1897. Serial No. 627,210. (No model.)



Claim.—1. In a flue-cleaner, the combination of a sectional staff having its members attached pivotally together, and a locking tube or sheath fitted slidably on said sectional staff and adjustable longitudinally thereon by hand, said locking tube or sheath serving to hold in rigid relation to each other all the members of the staff inclosed thereby and permitting the staff members projected beyond said tube to assume an upright position at an angle to the length of the staff and enable said upright sections to carry a cleaner-head, as and for the purposes described.

2. In a flue-cleaner, the sectional staff having its members pivoted together by butt-joints arranged to permit the sections to turn in one direction and to limit the turning movement thereof in the opposite direction to positions where the sections are in alinement, combined with a locking tube or sheath slidably fitted on the horizontal length of said staff and serving to hold in rigid relation to each other all the members of the staff inclosed thereby, and a cleaner-head carried by a section at one end of the staff, as and for the purposes described.

3. In a flue-cleaner, the sectional staff having its members pivoted together and adapted to carry at one end a cleaner-head which may be turned with one or more sections at right angles to the major part of the length of said staff, combined with a locking sleeve or sheath which embraces said sectional staff and is provided with a notch-like seat adapted to receive the upright part of the staff and restrain the latter against sidewise movement, as set forth.

598,674. FURNITURE-CAR. ALONZO C. MATHER, Chicago, Ill. Filed Dec. 6, 1895. Serial No. 571,819. (No model.)



Claim.—1. In a furniture-car, a padding attached to the inside framework of the car in sections, in combination with a removable set of padding sliding upon rods passing through the upper portion of said car, all substantially as described and set forth.

2. In a furniture-car, the combination with padding attached to the inside of the car, of transverse pad-sections adjustably connected with the interior of the car and movable relatively to each other for interposition between articles of furniture packed or stored in the car, substantially as described.

3. In a furniture-car, the combination with padding attached to the inside of the car, of transverse pad-sections suspended from the top portion of the car and adjustable relatively to one another for interposition between articles of furniture packed or stored in the car, substantially as described.

4. In a furniture-car, an inside padding arranged in such a manner that the outer edge of each section or series of sections may be attached to the upright posts of said car, said sections being of such length that they may be attached to the top and bottom framework of the car, respectively, in combination with a series of pads movably attached to rods extending longitudinally across the upper portion of said car, and pads movably attached to cover the doors, all substantially as described and set forth.

5. In a furniture-car, a series of swiveled pads movably attached to rods extending longitudinally across the upper portion of said car, all substantially as described and set forth.

6. In a furniture-car, a padding attached to the inside of the car, in combination with transverse adjustable sections of padding, arranged to be interposed between articles of furniture stored therein, substantially as described and set forth.

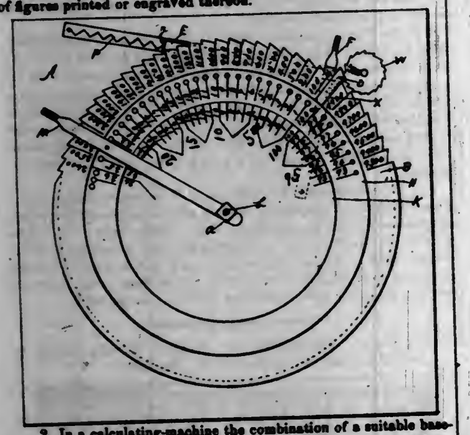
7. In a furniture-car, an inside padding arranged in such a manner that the outer edge of each section or series of sections may be removably attached to the sides of the car, and having a section or sections to be hung upon ways, hooks or rods at the doors, substantially as shown and described.

8. In a railway furniture-car a padding attached to the inner sides and ends of the car, and having a section or sections to be hung upon ways, hooks or rods at the doors substantially as shown and described.

598,675. CALCULATING-MACHINE. HENRY M. MINER, Wylie, Tex., assignor of one-half to Tom O. Staples, same place. Filed Nov. 20, 1896. Serial No. 613,004. (No model.)

Claim.—1. A calculating-machine having a suitable base-board, a socket provided with a series of annular shoulders thereon, three disks mounted on said socket and said shoulders, a pivot-bolt in said socket, an arm pivoted on said bolt and provided with a pin adapted to operate the middle one of said disks, a nut for clamping the top

disk, the bottom disk having teeth on the outer edge, a lever pivoted on said board, a bar pivoted on said lever, said bar having a projection adapted to engage said teeth, and a spring adapted to draw said bar in place, said disks being arranged in tiers leaving the outer portion of each disk below exposed, said exposed portions having rows of figures printed or engraved thereon.



2. In a calculating-machine the combination of a suitable base-board, a bearing-socket in said board provided with a series of annular shoulders, a plurality of disks arranged in concentric tiers mounted on said socket, the outer edge of each disk having a circle of figures printed or engraved thereon, a pivot-bolt mounted in said socket, an arm pivoted on said bolt and provided with a pin adapted to operate the middle one of said disks, the bottom disks having teeth on the edge, a lever pivoted on said board, a spring-actuated bar pivoted on said lever provided with a projection adapted to engage said teeth, another disk bearing larger numbers than said first-named disks provided with a rack on its rim, and an arm mounted on the bottom of one of said former disks adapted to engage said rack.

3. A calculating-machine having a suitable base-board, a socket provided with a series of annular shoulders thereon, three disks mounted on said socket and said shoulders, a pivot-bolt in said socket, an arm pivoted on said bolt and provided with a pin adapted to operate the middle one of said disks, a nut for clamping the top disk, the bottom disk having teeth on the outer edge, a lever pivoted on said board, a bar pivoted on said lever, said bar having a projection adapted to engage said teeth, a spring adapted to draw said bar in place, said disk being arranged in tiers leaving the outer portion of each disk below exposed, said exposed portions having rows of figures printed or engraved thereon, another disk bearing larger numbers than said first-named disks, mounted on said board adjacent to said bottom disk, and an arm mounted on said bottom disk adapted to rotate said disk.

598,676. PLATFORM-TRUSS FOR RAILROAD-CARS. THOMAS L. MCKEEN, New York, N. Y., assignor to the Trojan Car Coupler Company, Troy, N. Y. Filed Feb. 20, 1897. Serial No. 624,209. (No model.)

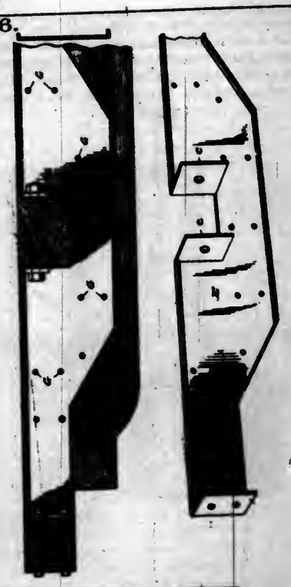
Claim.—1. A truss-plate for strengthening the end and longitudinal sills of railroad-cars consisting of a single plate of wrought-iron or steel having end wings to contact with the platform end sill, and wings or flanges intermediate of its ends to embrace the end sill of the car, and adapted to be secured in place to constitute a brace, substantially in the manner described.

2. In a railroad-car the combination with the platform end sill, the end sill of the car and the longitudinal sills, of a truss-plate composed of a single piece of wrought-iron or steel having a wing at its front end bearing against the end sill of the platform, and wings intermediate of its ends embracing and bearing against the two sides of the end sill of the car, the said truss-plate being secured in position substantially as described.

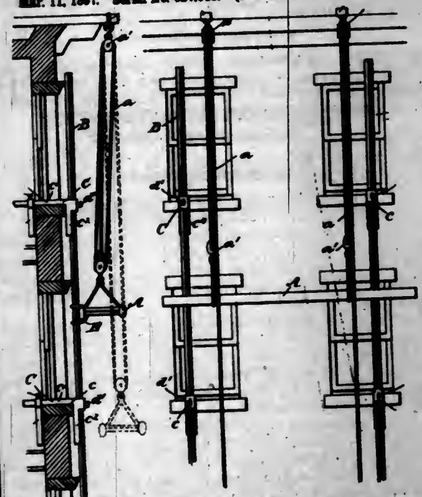
3. In combination with the end sills of the platform and car, and the truss-plate formed with wings as described, washers interposed between the wings of the truss-plate and securing bolts and nuts, and having one edge bearing against the body of the truss-plate and the interior face against the wing, substantially as and for the purpose set forth.

4. In combination with the end sills of the platform and car, and winged truss-plate provided with flanged edge or edges, flat plates or washers interposed between the wings of the truss-plate, and securing bolts and nuts, substantially as and for the purpose set forth.

598,676.



598,677. PAINTER'S SCAFFOLDING. HENRY HEDDERMANN, New York, N. Y., assignor to Bertha Hedderman, same place. Filed Mar. 11, 1897. Serial No. 627,013. (No model.)



Claim.—1. In a scaffolding of the class described, the combination, with the ladder or platform suspended upon ropes, of the vertical guide-rods mounted with relation to the front of the building or other surface, the supporting-brackets carrying said guide-rods and embodying the right-angular main portion having the top arm and downwardly-projecting outer arm and the downwardly-extending inner arm adjustably mounted upon the top arm, and means for connecting the suspended ladder or platform with the guide-rods, substantially as and for the purpose set forth.

2. An improved scaffolding of the class described, comprising the supporting-brackets adapted to be secured upon the sills of the window-openings of a building and embodying a right-angular main portion having the inwardly-projecting top arm and the downwardly-extending outer arm and the downwardly-extending inner arm adjustably mounted upon said top arm, and vertical guide-rods mounted with relation to the front of the building and adjustably connected with the outer portion of the supporting-brackets, in combination with a suspended ladder or platform having a vertical adjustment

with relation to said guide-rods, and means for connecting the platform and rods, substantially as and for the purpose set forth.

3. An improved scaffolding of the class described, comprising the supporting-brackets adapted to be secured to the sills of the window-openings of a building and embodying the right-angular main portion having the inwardly-extending top arm and downwardly-projecting outer arm and the downwardly-extending inner arm having a sliding connection upon the top arm and provided with the adjusting set-screw, the outer portion of said bracket having a vertical opening, and vertical guide-rods mounted with relation to the front of the building and passing through the openings in said brackets and adjustable in the latter by means of a set-screw, in combination with a suspended ladder or platform having a vertical movement with relation to said vertical guide-rods, and means for connecting the platform and rods, substantially as and for the purpose set forth.

598,678. COASTING FOOT-REST FOR BICYCLES. FRED A. NEINER, Augusta, Ky. Filed Sept. 21, 1896. Serial No. 606,534. (No model.)



Claim.—1. As a new article of manufacture, the spring-metal clip-bar formed to embrace the lower bar of the bicycle-frame, and having downwardly-projecting perforated lugs, the foot-rest bar centrally screw-threaded to pass through said lugs and tightening-nuts engaging said screw-threaded portion to clamp the device upon said frame-bar, substantially as set forth.

2. The hereinbefore-described coasting foot-rest for bicycles, comprising a spring-metal clip having its web cut away to form bands upon each side of it and perforated lugs to pass the foot-rest bar, the foot-rest bar adapted to pass through said lugs and having its central portion screw-threaded, and tightening-nuts to engage the screw-threads upon said bar and clamp or release the clip from the lower frame-bar, substantially as shown and described.

598,679. HAIR-CRIMPER. JOHN B. NICHOLSON, Schenectady, N. Y. Filed Apr. 12, 1897. Serial No. 631,831. (No model.)

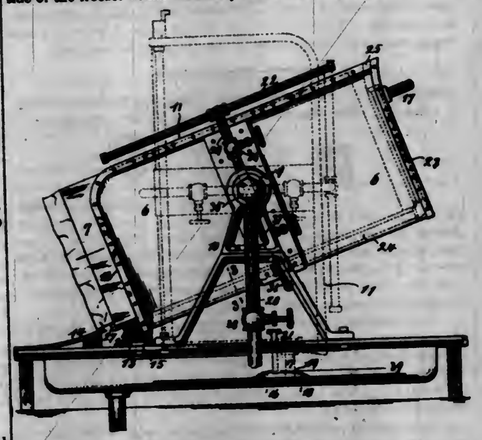


Claim.—An improved device of the class described, comprising the body having a cylindrical member formed with a catch device at its outer end and a concave leaf in hinged connection with said cylindrical member provided at its free end with spring-clamping walls or projections and a projecting nib or point, in combination with a spring-loop hinged to said body portion and adapted to be sprung into engagement with the catch devices at the outer end of the cylindrical member, substantially as and for the purpose set forth.

598,680. ICE-DUMP. WILLIAM F. NIEBLING, Cincinnati, Ohio. Filed Mar. 10, 1897. Serial No. 626,281. (No model.)

Claim.—1. In an ice-dump, the combination of a body 6 open in a manner to be capable of discharging and receiving a freezer vessel and pivotally supported to permit it of being swung into the necessary position for either purpose, and a heat-conveying pipe 24 being below the freezer vessel and discharging against the under side of it when the parts are in position for dumping.

2. In an ice-dump, the combination of a body 6, open in a manner to be capable of discharging and receiving a freezer vessel and pivotally supported to permit it of being swung into the necessary position for either purpose, timbers 25 upon which the vessel is deposited when put into the dump and timbers 26 which support it while in dumping position and heat-conveying pipes 23 and 24 between the timbers, discharging respectively against its back and under side of the freezer vessel while in position for dumping.



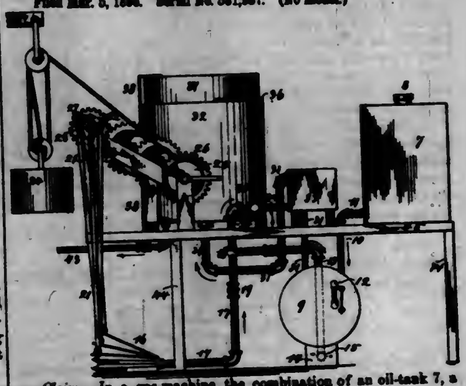
598,681. CHUCK. WILLIAM C. OBERHEIDEN, Hamilton, Ohio. Filed June 1, 1897. Serial No. 638,944. (No model.)



Claim.—1. In a chuck, the combination, with a plate or table, of a jaw movably connected therewith, said jaw being provided with gaps or bearings on its respective opposite sides or ends, said gaps being parallel with each other and slanting downwardly and rearwardly from the face of the jaw, a supplementary jaw provided with rearwardly and downwardly projecting wings adapted to slide in said gaps, whereby the supplementary jaw is movable simultaneously toward the chuck-jaw and the base-plate, means for limiting the movement of the supplementary jaw, and a spring between the said jaws, substantially as shown and for the purpose specified.

2. The combination with a base, a stationary jaw pivotally adjustable thereon, a jaw movably connected with the stationary jaw, and automatically adjustable to different horizontal angles therewith, and means to actuate the movable jaw, of supplementary jaws movably attached to the respective stationary and movable jaws and constructed and arranged to exert simultaneously a downward and clamping pressure on an article placed between them.

598,682. GAS-MACHINE. JAMES C. OLIVER, Lexington, Ky. Filed Mar. 5, 1896. Serial No. 581,987. (No model.)



Claim.—In a gas-machine, the combination of an oil-tank 7, a carbureter 9, connected thereto, a series of air-compressors to supply

air under pressure to the carbureter to which they connect by pipes, a reservoir 32 which receives the ready gas from the latter having the cover 37 adapted to rise with the influx of such gas, a shaft operatively connected to the air-compressors for the purpose of their actuation, mechanism whereby said shaft is rotated, a ratchet-wheel 41 mounted on it, a sliding pawl 39 normally out of engagement with said ratchet-wheel, a projecting arm connected to the movable cover and traveling in line with the pawl 39 and adapted to bring it into engagement with ratchet-wheel 41 for the purpose described.

593,683. PAPER-FASTENER. RICHARD M. PASCOAST, Jr., Camden, N. J. Filed May 25, 1896. Serial No. 592,932. (No model.)



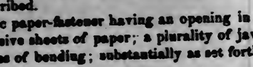
Claim.—1. A paper-fastener consisting of a thin plate of metal cut to shape, said plate being provided with an opening in the body thereof for the reception of assembled sheets of paper; an upper jaw; a lower jaw; and a score struck up from the metal on the lines separating the jaws; the upper jaw being adapted to be bent down upon the lower jaw and to grip the paper without perforating or mutilating the same; substantially as described.

2. A metallic paper-fastener having an opening in the body thereof to receive assembled sheets of paper; a tongue adapted to be bent down upon the sheets of paper inserted in the opening and without puncturing the same; a score struck up from the body of the metal on the line of bending; and upper and lower jaws; substantially as described.

3. A metallic paper-fastener having an opening in the body of the metal to receive assembled sheets of paper; an upper jaw; a lower jaw; and a tongue integral with the body and adapted to be bent down upon the sheets of paper inserted in the opening and without puncturing the same, the extreme end of the tongue when turned down occupying a position adjacent and in line with a score struck up in the metal, whereby when the jaws are bent the paper will be forced by the tongue into the score and securely held, substantially as described.

4. A metallic paper-fastener having an opening in the body of the metal to receive sheets of paper; a plurality of jaws; and two scores on the lines of bending; substantially as set forth.

593,684. CHAIN FOR MORTISING-MACHINES. DENIS PARRY, London, England, assignor to John Magrath Kelly, same place. Filed Mar. 10, 1897. Serial No. 626,800. (No model.)

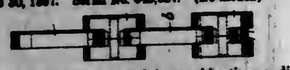


Claim.—1. In a chain for chain-mortising machines, a link composed of parts each part having a stud at either end, formed out of the metal of the part, and projecting inwardly, recesses or gaps around same, and a hole for a pin or rivet through the main or body portion, the parts being so formed that when put together the studs of one part abut against the studs of the other as do also the main parts forming the body portion, substantially as described.

2. In a chain for chain-mortising machines, a link composed of parts each part having a curved or humped face and a stud at either end at right angles to the face, said stud being formed out of the metal of the parts and projecting inwardly, recesses or gaps around same and a hole for a pin or rivet through the main or body portion, the studs and body portion of one part being adapted to abut against those of the other, and a link provided with a cutter on its face with which link the studs of the divided link are adapted to engage, the curved face of the latter acting as a fence or guard for the cutter, substantially as described.

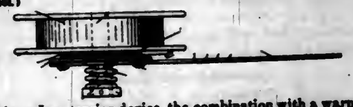
3. In a chain for chain-mortising machines, a T-shaped cutter-link composed of two pieces of metal having flanges at right angles sharpened to form the cutters, the body portions of said pieces abutting and having holes at either end for connecting the link up in the chain, a central hole, and a pin or rivet secured in same to hold the two parts firmly together, substantially as described.

593,685. DRIVE-CHAIN. DENIS PARRY, London, England. Filed June 30, 1897. Serial No. 643,027. (No model.)



Claim.—In a driving-chain and in combination, a divided link composed of parts, each part having a stud at either end formed out of the solid metal and projecting inwardly and a recessed portion entirely around each stud, a hole for a pin through the body portions, the latter and the ends of the studs being flush so that they are adapted to abut against the corresponding portions of the other part when the two are secured together, and a solid link having a hole at either end adapted to receive a stud of each part of the divided link, substantially as described.

593,686. TENSION-REGULATOR FOR WARP-BEAMS. FRANCIS F. FARNUM, Paterson, N. J., assignor to Alfred Schiffer and Herman Schiffer, same place. Filed Jan. 6, 1897. Serial No. 618,163. (No model.)



Claim.—In a tension device, the combination with a warp-beam, having a conical surface and a screw-threaded projection extending from one of its flanges, a friction-disk having a conical surface which coöperates with the said conical surface of the beam, a spring acting on the said disk, a split nut fitting the screw-cut projection of the warp-beam, a stop-ring inclosing said split nut and securing it to the screw-cut projection aforesaid, two pins attached to aforesaid friction-disk, a brake-lever one end of which is semicircular-shaped and furnished with means for attaching it to above pins, the other end of the brake-lever being fitted with notches, and a weight applied to any of said notches, all for the purposes and with the intents as set forth, substantially as it is illustrated and described.

593,687. FAN ATTACHMENT FOR BABY-CARRIAGES. CHAS. C. PENICK and ROBERT L. NASH, Richmond, Va. Filed July 3, 1897. Serial No. 643,406. (No model.)



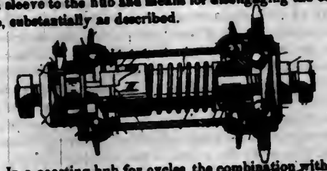
Claim.—1. The combination with a baby-carriage or other carriage, of a yoke extending across the front thereof, and pivotally connected to the front axle, a shaft mounted in bearings in said yoke, and extending transversely of said yoke, a laterally-adjustable collar on said shaft, adapted to secure the fans, a pulley attached to one end of the shaft, outside of the yoke, a band-wheel secured to one of the wheels of the carriage, a band connecting said wheel with the wheel upon the transverse shaft, a bar pivotally secured to one side of the yoke and provided with an elongated slot near its rear end, and a set-screw passing through said slot into one of the handles of the carriage, substantially as and for the purpose set forth.

2. The combination with a baby-carriage or other carriage, of a yoke extending across the front thereof, and pivotally connected to the front axle, a shaft mounted in bearings in said yoke, and extending transversely of the yoke, a laterally-adjustable collar on the shaft within the yoke, and provided with radially-extending openings for the reception of the fan-handles, and set-screws for retaining the handles in the collar, a pulley attached to one end of the shaft outside the yoke, a band-wheel secured to one of the wheels of the carriage, and a band connecting said wheel with the wheel upon the transverse shaft, whereby the shaft is turned and the fans rotated when the carriage is moved, substantially as and for the purpose set forth.

593,688. COASTING-HUB FOR CYCLES. JAMES RENSHAW, New Castle, Ind. Filed May 10, 1897. Serial No. 636,918. (No model.)

Claim.—1. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably and independently supported on the shaft, a hub rotatably and independently supported on the sprocket-sleeve, and means for clutching the sprocket-sleeve to the hub, substantially as described.

2. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably and independently supported on the shaft, a hub rotatably and independently supported on the sprocket-sleeve, a clutch carried by the sprocket-sleeve for clutching the said sleeve to the hub and means for disengaging the clutch from the hub, substantially as described.



3. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably and independently supported on the shaft, a hub rotatably and independently supported on the sprocket-sleeve, a clutch carried by the sprocket-sleeve and normally engaging the hub, a sliding member on the supporting-shaft for disengaging the clutch from the hub and means for actuating the sliding member, substantially as described.

4. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably supported on the shaft, a hub rotatably supported on the sprocket-sleeve, a spring-actuated clutch carried by the sprocket-sleeve and normally engaging the hub, a sliding member on the supporting-shaft having one end engaging the clutch, a lever, an eccentric-pin on the lever engaging the opposite end of the sliding member, and means for rotating the lever to slide the member and release the hub against the tension of the spring, substantially as described.

5. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably supported on the shaft, a hub rotatably supported on the sprocket-sleeve, a clutch normally locking the sprocket-sleeve to the hub, a hollow cone-nut supporting one end of the hub, a sliding member within the nut engaging the clutch and a lever passing through the nut for sliding the member to disengage the clutch from the hub, substantially as described.

6. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably supported on the shaft, a hub rotatably supported on the sprocket-sleeve, a clutch normally locking the sprocket-sleeve to the hub, a hollow cone-nut supporting one end of the hub and provided with an aperture in its upper portion, a sliding member within the nut engaging the clutch, a lever passing through the aperture in the nut, a nut engaging the aperture for securing the lever in place, an eccentric-pin on the lever engaging the sliding member, and means for rotating the lever to slide the member and release the hub, substantially as described.

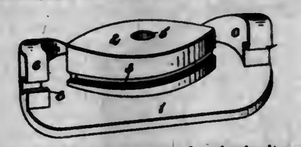
7. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably supported on the shaft, a hollow cone-nut on one end of the shaft, a hub having one end rotatably supported on the sprocket-sleeve and its opposite end supported on the cone-nut and surrounding the inner end of the nut, a clutch normally locking the sprocket-sleeve to the hub, a sliding member within the cone-nut engaging the clutch and means extending to the outside of the cone-nut for sliding the member to disengage the clutch from the hub, substantially as described.

8. In a coasting-hub for cycles, the combination with a supporting-shaft, of a cone-nut screwed on the shaft, a sprocket-sleeve, a nut on the sprocket-sleeve carrying the sprocket, and provided with an exterior and interior ball-race, balls interposed between the interior ball-race and the cone-nut on the shaft, a hollow cone-nut on the opposite end of the shaft, a hub having one end rotatably supported on the hollow cone-nut, balls interposed between the opposite end of the hub and the exterior ball-race on the sprocket-nut, a clutch normally locking the sprocket-sleeve to the hub, a sliding member within the hollow cone-nut and means for sliding the member to disengage the clutch from the hub, substantially as described.

9. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably supported on the shaft, a hub rotatably supported on the sprocket-sleeve, a pin on the sprocket-sleeve, a sliding clutch on the sleeve provided with a slot engaging the pin, a tongue extending from the clutch adapted to engage the hub, a spring for normally holding the tongue in engagement with the hub, and means engaging the end of the tongue for disengaging the tongue from the hub, substantially as described.

10. In a coasting-hub for cycles, the combination with a supporting-shaft, of a sprocket-sleeve rotatably supported on the shaft and provided with a slot on its inner end, a pin on the sprocket-sleeve, a sliding clutch on the sleeve provided with a slot engaging the pin, a tongue extending from the clutch engaging the slot in the sprocket-sleeve and adapted to engage the hub, a spring for normally holding the tongue in engagement with the hub, and means engaging the end of the tongue for disengaging the tongue from the hub against the tension of the spring, substantially as described.

593,689. INSULATOR. LOUIS F. RIEBER, Haverstraw, N. Y. Filed Mar. 17, 1897. Serial No. 627,945. (No model.)



Claim.—An insulator comprising a base having its ends rounded, a head raised from the center of the base, said head being formed with a spiral groove, lugs raised from the base on opposite sides of the head and formed of the same contour as the head, said lugs having their upper edges inclined rearwardly and downwardly, hooks formed in the lugs, a projection raised from the base adjacent the hook of one of the lugs, and means for attaching the insulator to a support, substantially as set forth.

593,690. CORNET. FRANCIS J. RICHARD, San Francisco, Cal. Filed June 29, 1896. Serial No. 597,265. (No model.)



Claim.—1. In a cornet, or other similar wind instrument, the combination of a valve-case having inlet-apertures 1 on one side, rows of apertures 2 3 4 on the opposite side, pistons separating the apertures on one side from those on the other side of said case, passages in said pistons connecting the apertures 2 3 and 4 with the apertures 1 in different positions of the valves, keys for moving said pistons in one direction and springs for returning the pistons to normal position when the keys are released, and curved tubes joined to the valve-case at the apertures and connecting the inlet-aperture 1 of one valve with the mouthpiece of the instrument and the outlet-apertures on the opposite side of the same valve with the inlet-aperture of another valve of the same set.

2. A valve for cornets and similar wind instruments, composed of a case, a set of piston-valves with flattened sides, apertures in said case located on opposite sides of the valve-case and separated by the pistons passages in said pistons adapted to connect said apertures in the case together through the valves in different order or relation according to the position assumed by the valves, a key to move each valve and a spring to return the valve to normal position when its key is released.

3. The combination, with the valve-case A' having apertures 1 in one side and apertures 2 in the opposite side, of the curved tubes C' C^2 C^3 connecting the shank or tube C of the instrument with its bell through the valve-case, each of said tubes having a water-valve at the lowest part of its curve, the upwardly-inclined loops or extensions D connected with the apertures 3 and 4 of the valve-case and draining into the said curved tubes through the valve-case, and the pistons movable in said case and provided with inclined passages, substantially as described, for operation as set forth.

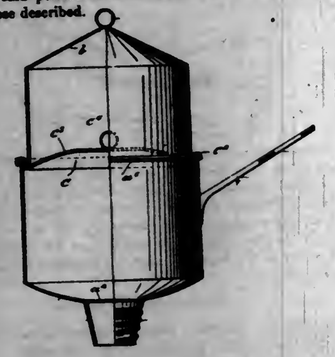
4. In a cornet or similar wind instrument, the combination, with the fixed tube or mouthpiece end of the instrument, of the telescoping section G composed of the concentrically-set tubes fitted together to take the stationary tube C between them and to slide upon said tube and having the locking-slots A A and the locking-pin I, constructed for operation as set forth.

5. In a cornet or similar wind instrument, a mouthpiece composed of a shank, a cup having an orifice at the bottom, the shell M' having a flat rim and a turned-in flange covering the rim of the cup and setting into the mouth thereof, a coil-spring between the cup and the shell, and tongues on the shell extending down on the inside of the cup to the orifice at the bottom thereof.

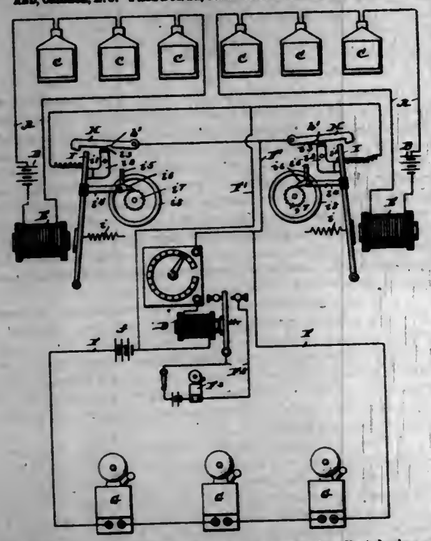
593,691. STEAM COOKING UTENSIL. SARA T. ROBERTSON, Canton, N. Y. Filed Apr. 22, 1897. Serial No. 633,436. (No model.)

Claim.—The herein-described steam cooking utensil, consisting of a bottom and top part A and B, respectively, the bottom part being provided with a downwardly-curved bottom which is perforated centrally thereof and provided with a depending tubular extension, a perforated cover mounted on said bottom part, the same being so proportioned that the perimeter thereof is adapted to fit within said bottom part and provided with hooks by which it is secured to the top thereof, and the top portion being open at the bottom, and being

adapted to slidably fit in said bottom part and being supported thereon by means of said perforated cover and hooks, substantially as and for the purpose described.



593,692. ELECTRIC SIGNALING MECHANISM. LEWIS G. ROWLAND, Camden, N. J. Filed Dec. 22, 1896. Serial No. 616,673. (No model.)



Claim.—1. In combination, a main circuit, signaling devices on said circuit, a second circuit, receiving devices on said circuit, a switch device consisting of two members, controlling said second device, the first member of which is moved in one direction by said electric device when energized, and means to return said member to its initial position, when said electric device is deënergized, and a device adapted to hold said second switch member out of electric connection with said first switch member in its movement under the action of the electric device.

2. In combination, a main circuit, signaling devices on said circuit, a second circuit, receiving devices on said circuit, a switch device consisting of two members controlling said second device, the first member of which is moved in one direction by said electric device when energized, and means to return said member to its initial position when said electric device is deënergized, and a device adapted to hold said second switch member out of electric connection with said first switch member in its movement under the action of the electric device, and means to retard the return movement of said first switch member when said electric device is deënergized.

3. In combination, a main circuit, signaling devices on said circuit, a second circuit, receiving devices upon said circuit, an electromagnet upon said main circuit, said magnet having a pivoted armature, means to hold the armature of said magnet in its retracted position and move it toward that position when the main-line circuit is broken, the second circuit including the said armature, and a pivoted arm in alinement with the armature, the armature being free from said arm at its extreme position in either direction, the armature in its movement under the influence of the retractile device making electrical connection with said pivoted arm.

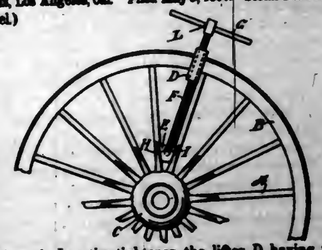
4. In combination, a main circuit, signaling devices on said circuit, a second circuit, receiving devices upon said circuit, an electromagnet upon said main circuit, said magnet having a pivoted armature, means to hold the armature of said magnet in its retracted position and move it toward that position when the main-line circuit is broken, the second circuit including the said armature and the pivoted arm in alinement with the armature, the armature being free from said arm at its extreme position in either direction, the armature in its movement under the influence of the retractile device making electrical connection with said pivoted arm, and a retarding device connected with the armature and acting during the movement of the armature under the action of the retractile device.

5. In combination, a main circuit, signaling devices upon said circuit, a second circuit, receiving devices in said circuit, an electromagnet in said circuit of high resistance, a shunt about said high-resistance magnet, said shunt being normally open, a switch device consisting of two members controlling said shunt, the first member of which is moved in one direction by said electromagnet when said electromagnet is energized, and means to return said member to its initial position, when said electromagnet is deënergized, and a device adapted to hold said second switch member out of electric connection with said first switch member in its movement under the action of the electromagnet.

6. In combination, a main circuit, signaling devices upon said circuit, a second circuit, receiving devices in said circuit, an electromagnet in said circuit of high resistance, a shunt about said high-resistance magnet, said shunt being normally open, a switch device consisting of two members controlling said shunt, the first member of which is moved in one direction by said electromagnet, when said electromagnet is energized, and means to return said member to its initial position when said electromagnet is deënergized, and a device adapted to hold said second switch member out of electric connection with said first switch member in its movement under the action of the electromagnet, and means to retard the return movement of said first switch member when said electromagnet is deënergized.

7. In combination, a normally-closed circuit, a magnet upon said circuit, a second circuit having a signal or signals thereon, a switch comprising two members one of which is moved by the magnet in one direction, and means independent of the magnet to move it in the other direction, and means to hold the second member of said switch out of alinement with the first-mentioned switch member, when moving under the action of the magnet.

593,693. TIRE-TIGHTENER. MYRON H. SAGER and JOSEPH M. ALVIS, Los Angeles, Cal. Filed May 5, 1897. Serial No. 635,226. (No model.)

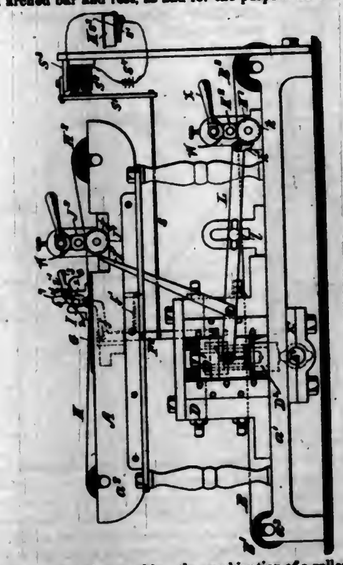


Claim.—1. In a tire-tightener, the lifter D having two projections which extend one above the tire and the other below the felly in combination with a threaded shank adapted to move the lifter up or down when rotated; the shank having at one end a foot-piece adapted to fit between the spokes and flattened at the other end, whereby the rotation of the shank will cause the fellies to recede from the hub and tighten the tire and the rotation in an opposite direction will draw the foot-piece from its seat between the spokes.

2. In a tire-tightener, a lifter, adapted to move longitudinally on a threaded shank, the shank having a foot-piece adapted to wedge between the spokes next to the hub; the lifter having jaws adapted to extend above and below the rim of the wheel, whereby the rotation of the shank in one direction will seat the foot-piece between the spokes and press the felly from the spokes and against the tire and the rotation in the other direction will cause the foot-piece to recede from its seat between the spokes and become loosened thereby.

593,694. MACHINE FOR PERFORATING PAPER. HAROLD W. SHOEMARD and GEORGE H. DAVIS, New York, N. Y., assignors to the Aeolian Company, same place. Filed Jan. 23, 1896. Serial No. 576,894. (No model.)

Claim.—1. In a perforating-machine, the combination of means for feeding an imperforated sheet, punch-blocks arranged below the sheet and mounted to reciprocate in guides upon either side of the machine-frame, a rotary shaft journaled in bearings below the punch-blocks, cams on said shaft adapted to act upon the under side of the punch-block mountings to reciprocate the same, a stationary support above the punch-blocks, a series of punches loosely mounted in said support, a series of locking-bars arranged to move freely back and forth in guides above said support, a plurality of elbow-levers fulcrumed upon a common rod and each having its lower end connected to one of the locking-bars and its upper portion bent forward horizontally and terminating in a vertically-projecting arm or point, a table or rest G, up through which the points of the levers project, an arched bar I, arranged above the rest and hinged at one end to the machine-frame, and a perforated sheet arranged to travel between the said arched bar and rest, as and for the purpose described.



2. In a perforating-machine, the combination of a roller for feeding an imperforated sheet, punch-blocks and punches for perforating the same, the reciprocating notched bars and their connected elbow-levers, a roller for feeding a perforated sheet, ratchet-wheels on said rollers, pawls coacting with the ratchet-wheels, and a lever for operating the said pawls, substantially as described.

3. In a perforating-machine, the combination of a roller for feeding an imperforated sheet, punch-blocks and punches for perforating the same, the reciprocating notched bars and their connected elbow-levers, a roller for feeding a perforated sheet, ratchet-wheels on said rollers, pawls coacting with the ratchet-wheels, and a lever for operating the pawls, said lever being actuated by the relative movement between the punches and the punch-blocks, substantially as described.

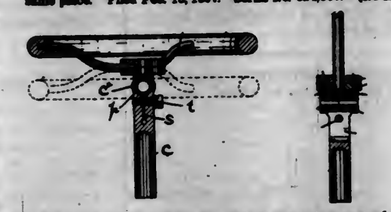
593,695. STEP-BOX. HOWARD H. SNYDER, Bonnerstown, Pa. Filed Dec. 12, 1896. Serial No. 615,812. (No model.)



Claim.—1. In a step-box, the combination with a supporting-frame, of a socketed step-box proper mounted therein and provided with a centrally-located stud in its bottom, antifriction-balls of a greater diameter than the height of the stud and applied in said step-box about said stud, and a shaft having a lower conical end adapted to engage said balls to force them out away from the stud, substantially as described.

2. In a step-box, the combination with a suitable supporting-frame, of a socketed step-box mounted therein and provided with a peripheral vertical groove, a supporting-ring also mounted in said frame above said step-box and provided with a similar peripheral groove, a key for locking said ring and box firmly together, antifriction-balls mounted in said box, and a shaft adapted to have its lower ends supported by said balls, substantially as described.

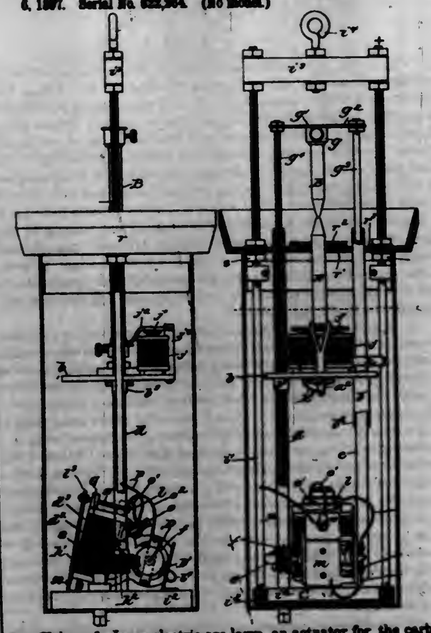
593,696. STEERING MECHANISM FOR BICYCLES. HOWARD L. STANTON, Norwich, Conn., assignor of one-half to Lester S. Wesley, same place. Filed Feb. 18, 1897. Serial No. 624,067. (No model.)



Claim.—1. The combination with the steering-post of a bicycle, a stem, the upper end of which is provided with a transverse perforation, a lug adjustably secured in each end of the perforation, a steering-wheel provided with a two-part hub, and means for securing said parts of the hubs together and for securing them to the lugs, substantially as set forth.

2. In combination with a steering-post of a bicycle, a stem therein the upper end of which is perforated transversely, lugs adjustably secured in the stem, a two-part centrally-perforated hub secured to the lugs, the adjacent faces of the parts of the hubs being provided with radial grooves, spokes secured in the grooves and means for securing the parts of the hubs together and to the lugs, substantially as set forth.

593,697. ELECTRIC-ARC LAMP. CLARENCE C. STERLING, Hartford, Conn., assignor to Edmund Hudson, Templeton, Mass. Filed Feb. 6, 1897. Serial No. 622,964. (No model.)



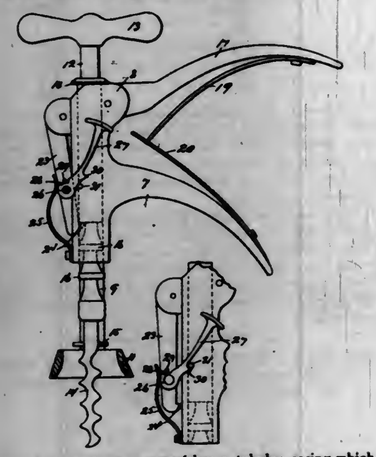
Claim.—1. In an electric-arc lamp, an actuator for the carbon-feeding mechanism consisting of a motor comprising a field-magnet in series with the carbons having two pairs of poles, a rotary armature between the poles of one pair, a normally open branch circuit

therefor, a circuit-closer for said branch circuit, a supplemental armature for operating said circuit-closer, located opposite the poles of the other pair responsive to variations produced by the varying resistance of the arc, substantially as described.

2. In an electric-arc lamp, feeding mechanism for the carbons comprising a feeding-screw for each carbon, one of which is made hollow and internally screw-threaded to receive the other, means for turning said hollow screw-shaft by hand, and an actuator consisting of a motor comprising a field-magnet, and a rotary armature, the latter being operatively connected with said hollow screw-shaft, substantially as described.

3. In an electric-arc lamp, the combination with actuating mechanism, of feeding mechanism for the carbons comprising a hollow shaft externally and internally screw-threaded, the internal threads having one-half the pitch of the external threads, said shaft receiving upon it the lower-carbon support, and receiving within it a screw-threaded rod which is connected with the upper-carbon support, substantially as described.

593,698. CORKSCREW. LOUIS C. STOLL, Brooklyn, N. Y. Filed Apr. 30, 1897. Serial No. 634,523. (No model.)

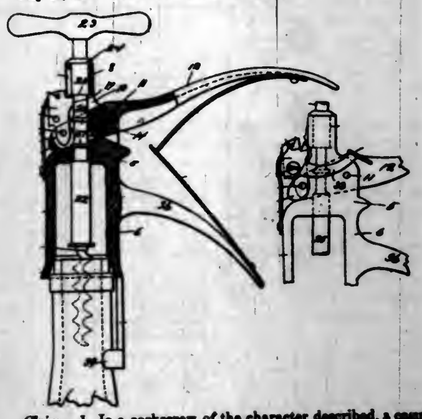


Claim.—1. A corkscrew comprising a tubular casing which is provided at one side with a downwardly-directed arm, and at the opposite side with a longitudinal slot, said casing being provided at its upper end with side jaws, and at its lower end with downwardly-directed arms, a collar connected with the lower ends of said arms, a lever pivotally mounted between said jaws, and projecting in the same plane as said outwardly-directed arm, said lever being adapted to swing in a vertical plane, a dog pivotally connected with the end of said lever, the lower end of which is adapted to enter said slot, a spring secured to the lower end of said casing and bearing on the lower end of said dog, and a shaft passing vertically through said casing, and provided at its lower end with a screw which projects in line therewith, said shaft being also provided with circular shoulders or projections in connection with which said dog operates, substantially as shown and described.

2. A corkscrew comprising a tubular casing which is provided at one side with a downwardly-directed arm, and at the opposite side with a longitudinal slot, said casing being provided at its upper end with side jaws, and at its lower end with downwardly-directed arms, a collar connected with the lower ends of said arms, a lever pivotally mounted between said jaws, and projecting in the same plane as said outwardly-directed arm, said lever being adapted to swing in a vertical plane, a dog pivotally connected with the end of said lever, the lower end of which is adapted to enter said slot, a spring secured to the lower end of said casing and bearing on the lower end of said dog, and a shaft passing vertically through said casing, and provided at its lower end with a screw which projects in line therewith, said shaft being also provided with circular shoulders or projections in connection with which said dog operates, said shaft being provided at its upper end with a handle, and said outwardly-directed arm and said lever being each provided with a spring, substantially as shown and described.

3. A corkscrew comprising a tubular casing which is provided at one side with a downwardly-directed arm and at the opposite side with a longitudinal slot, said casing being provided at its upper end with side jaws, and at its lower end with downwardly-directed arms, a collar connected with the lower ends of said arms, a lever pivotally mounted between said jaws, and projecting in the same plane as said outwardly-directed arm, said lever being adapted to swing in a vertical plane, a dog pivotally connected with the end of said lever, the lower end of which is adapted to enter said slot, a spring secured to the lower end of said casing and bearing on the lower end of said dog, and a shaft passing vertically through said casing, and provided at its lower end with a screw which projects in line therewith, said shaft being also provided with circular shoulders or projections in connection with which said dog operates, said shaft being provided at its upper end with a handle, and said outwardly-directed arm and said lever being each provided with a spring, and said dog being also provided with a lever which projects at one side of said casing, and in the direction of said outwardly-directed arm, substantially as shown and described.

593,699. CORKSCREW. LOUIS C. STOLL, Brooklyn, N. Y. Filed July 10, 1897. Serial No. 644,138. (No model.)

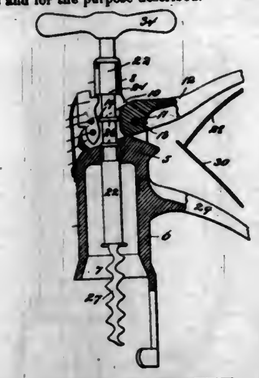


Claim.—1. In a corkscrew of the character described, a casing, a vertically-movable shaft mounted therein and provided with a plurality of shoulders, a corkscrew secured to the lower end thereof, an operating-lever mounted on said casing, a dog pivotally mounted on the outer end of said lever and provided with a lug adapted to engage said shoulders on the corkscrew-shaft, a cam-plate pivotally connected with said dog, an arm secured to said cam-plate and provided at the outer end with a thumb-piece, a spring secured to said casing and adapted to normally hold said dog in engagement with one of said collars, said cam-plate being provided with a lug adapted to engage a projection on said casing when the arm connected therewith is depressed and a pin on said dog adapted to limit the movement of said cam-plate whereby the dog is held out of engagement with the shoulders formed on said shaft, substantially as and for the purpose described.

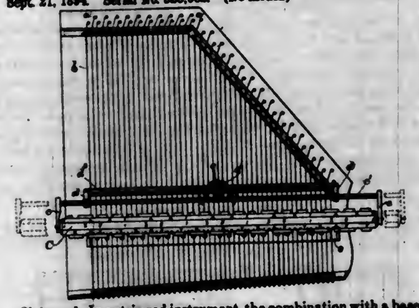
2. A corkscrew comprising a frame composed of a head, and provided with downwardly-directed side arms or extensions at the lower end of which is a ring or collar, said frame being also provided with an upwardly-directed tubular extension, and the head thereof being provided with a transverse opening, a lever the head of which is pivoted in said transverse opening, and provided with a vertical passage, a shaft passing vertically through the head of the frame and through the head of said lever, and said tubular extension of the frame, a spring-operated dog pivoted in the head of said lever and provided at its upper end with forwardly-directed lug or projection, said shaft being also provided with annular collars or projections and at the lower end thereof with a corkscrew, and said frame being also provided with an arm which is formed thereon, and extends in the same direction as said lever, and said arm and said lever being provided with springs and means for operating said dog, consisting of a cam-plate pivotally connected therewith, and provided at its upper end with two projections between which passes a pin secured to said dog, and said cam-plate being also provided with an arm which projects transversely of the head of the frame, and in line with said lever, substantially as shown and described.

593,700. CORKSCREW. LOUIS C. STOLL, Brooklyn, N. Y. Filed July 29, 1897. Serial No. 646,306. (No model.)

Claim.—In a corkscrew of the character described, a casing, a vertically-movable shaft mounted therein, a corkscrew secured to the lower end thereof, collars on said shaft, a lever pivotally mounted in a transverse opening of said casing, a dog pivotally mounted in one end of said lever and provided with a shoulder adapted to engage successively the collars on said shaft, a spring secured to said casing and adapted to engage the said dog whereby the same is actuated to successively engage said collars, a spring against the action of which said lever is operated, said dog being provided with a pin and said lever being provided with a shoulder or projection adapted to engage said pin when the said lever is in the normal position whereby the said dog is held out of engagement with the collars on said shaft, substantially as and for the purpose described.



593,701. AUTOHARP. SIDNEY G. STUART, Boston, Mass. Filed Sept. 21, 1894. Serial No. 523,683. (No model.)



Claim.—1. In a stringed instrument, the combination with a base; and a series of strings stretched thereon, of a rotatable carrier traversing said strings, arranged to move toward and from said strings, and a plurality of damping-pads on said carrier and adapted to be brought into operative position by rotation thereof, substantially as described.

2. In a stringed instrument, the combination with a base, and a series of strings stretched thereon, of a rotatable carrier traversing said strings, a spring to normally raise said carrier out of contact with said strings, and a plurality of damping-pads on said carrier, substantially as described.

3. In a stringed instrument, the combination with a base, and a series of strings stretched thereon; of a rotatable and longitudinally-movable carrier traversing said strings, arranged to move toward and from said strings and a plurality of damping-pads on said carrier, to operate, substantially as described.

4. In a stringed instrument, the combination with a base, and a series of strings stretched thereon, of a rotatable polygonal carrier, and supports therefor, a series of damping-pads on a plurality of the faces thereof, and indicating-characters on the corresponding opposite faces, substantially as described.

5. A stringed musical instrument provided with a sounding-board, a set of strings, and a rotatable multifaced carrier having a plurality of damping pads arranged thereon in series on successive faces, adapted to be brought into operative contact with the strings, substantially as described.

6. A stringed musical instrument provided with a sounding-board, a set of strings, and a rotatable and vertically-movable and longitudinally-adjustable carrier having a plurality of damping-pads thereon, substantially as described.

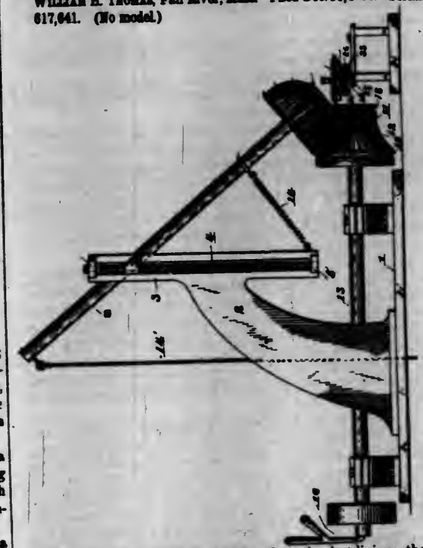
7. A musical instrument provided with a sounding-board, a set of strings, and a rotatable multifaced carrier having a plurality of damping-pads thereon, arranged to cover three or more of said successive faces, and having intervening spaces therein, as desired, substantially as described.

8. A stringed musical instrument provided with a sounding-board, a set of strings, a fixed rod extending transversely thereof, a second rod pivoted to rotate parallel with and adjacent to said fixed rod in fixed bearings adjacent the ends of said fixed rod, fixed arms extending from either end of said pivoted rod, a carrier supported by the free ends of said arms and having a plurality of damping-pads arranged thereon, and a spring centrally fixed on said pivoted rod and arranged to engage said fixed rod whereby said carrier is normally raised from said strings, substantially as described.

9. A stringed musical instrument provided with a sounding-board, a set of strings, a fixed rod extending transversely thereof, a second rod pivoted to rotate parallel with and adjacent to said fixed rod in fixed bearings adjacent the ends of said fixed rod, said rod being also movable longitudinally in said bearings, fixed arms extending from either end of said pivoted rod, a carrier supported by the free ends of said arms and having a plurality of damping-pads arranged thereon, a spring centrally fixed on said pivoted rod, and arranged to engage said fixed rod, whereby said carrier is normally raised from said strings, and a friction-roller engaging said fixed rod and having bearings at either end respectively on said spring and in said pivoted rod, substantially as described.

10. A stringed musical instrument provided with a sounding-board, a set of strings and a rotatable carrier having a plurality of longitudinal series of damping pads arranged thereon, adapted to be brought into operative contact with the strings, substantially as described.

593,702. MACHINE FOR MANUFACTURING HAT-LININGS. WILLIAM H. THOMAS, Fall River, Mass. Filed Dec. 31, 1896. Serial No. 617,641. (No model.)



Claim.—1. In a machine for manufacturing hat-linings, the combination of a pair of rolls the meeting surfaces of which are curved from end to end and milled, one roll have a convex and the other roll a concave working surface, and means for actuating said rolls, substantially as described.

2. In a machine for manufacturing hat-linings, a pair of rolls milled upon their outer engaging surface for crimping the margin of the lining, said rolls having their meeting surfaces inversely curved from end to end in combination with means for actuating one of said rolls, and provision whereby one of said rolls may be heated and the proper temperature maintained during the operation of the machine, substantially as described.

3. In a machine for manufacturing hat-linings, the combination of a pair of crimping-rolls having their crimping-surfaces correspondingly curved from end to end, said surfaces being provided with matching corrugations for forming substantially radial crimps, and matching beads and crimps, substantially as and for the purpose described.

4. In a machine for manufacturing hat-linings, the combination with a pair of fluted rolls for the crimping of the margin of the lin-

ing material, of a shaft on which one of said rolls is mounted, and means for adjusting the angle of said shaft, substantially as and for the purpose described.

5. In a machine for manufacturing hat-linings, the combination with a bed-plate, of a double standard comprising space members having vertical guideways, a vertically-adjustable cross-head slidingly mounted therein, and means for adjusting said cross-head, a pair of crimping-rolls, one of which is mounted on a substantially horizontal shaft and the other on an inclined shaft, said inclined shaft being journaled in said cross-head whereby it is adjustable to its angle, substantially as and for the purpose described.

6. In a machine for manufacturing hat-linings, the combination with a bed-plate, and a standard thereon, of a pair of crimping-rolls mounted on shafts extending at an angle to each other, one of said shafts being journaled in an adjustable cross-head movable up and down relatively to said standard, and a spring interposed between said shaft and standard for maintaining the engagement between the crimping-rolls, substantially as described.

7. In a machine for manufacturing hat-linings, the combination with a bed-plate, and a standard thereon, of a cross-head adjustable in said standard, a pair of crimping-rolls mounted on shafts extending at an angle to each other, one of said shafts being journaled in a cross-head and provided intermediate its ends with an annular groove, a collar fitting loosely in said groove, and a contractile spring interposed between said collar and standard, substantially as and for the purpose described.

8. In a machine for manufacturing hat-linings, the combination with a bed-plate, and a double standard comprising spaced members having substantially vertical grooves, of a cross-head having its ends slidingly fitted in said grooves, threaded rods engaging the opposite ends of said cross-head for moving the latter longitudinally of the slots, and a pair of crimping-rolls mounted upon shafts extending at an angle to each other, one of said shafts being journaled in the cross-head, substantially as described.

9. In a machine for manufacturing hat-linings, the combination with a bed-plate, and a standard thereon, of a pair of crimping-rolls mounted upon shafts extending at an angle to each other and means whereby one of said shafts may be vibrated for moving the crimping-rolls apart, substantially as described.

10. In a machine for manufacturing hat-linings, the combination with a pair of crimping-rolls, and actuating means therefor, of an elliptical support for the lining material, a bearing-head secured to the under side of said support and provided with a slot, a stationary disk on which said bearing-head rests and a pin or stud projecting from the face of said disk and entering the slot in the bearing-head, whereby an eccentric motion is given to the lining-support, substantially as and for the purpose described.

11. In a machine for manufacturing hat-linings, a revoluble support for the lining material, and means for securing said material thereon, in combination with a bearing-head secured to said support and provided with spaced flanges and also with a slot extending transversely to said flanges, a stationary disk upon which said bearing-head is mounted and lying between said flanges, a pin or stud projecting from the face of the disk and working in the slot in the bearing-head, and provision whereby said pin or stud may be adjusted, substantially as and for the purpose described.

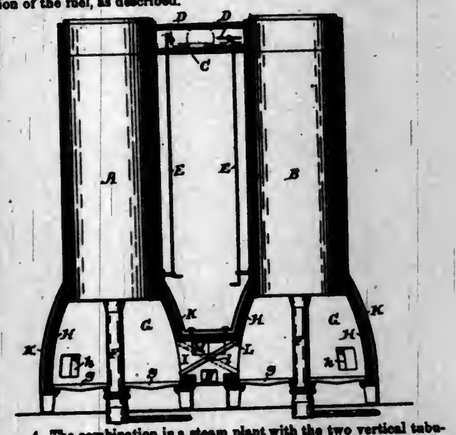
12. In a machine for manufacturing hat-linings, in combination, a support for the lining material, a bearing-head secured thereto and provided with spaced flanges and a slot extending transversely to said flanges, a stationary disk provided with a radial slot and having the bearing-head mounted revolubly thereon, an adjustable slide-bar and securing means therefor, and a pin or stud carried by said bar and projecting through the slot in the disk and working in the slot in the bearing-head, whereby an eccentric motion is imparted to said support, substantially as described.

598,708. STEAM PLANT. DAVID M. THOMPSON, Providence, R. I. Filed Mar. 30, 1897. Serial No. 629,708. (No model.)

Claim.—1. In a steam plant, the combination with two steam-boilers, of two furnaces connected by a horizontal passage and a grate in said passage, whereby, at the firing of one furnace, the products of combustion may be passed through the connecting-passage, ignited by fuel burning on the grate, and through the other furnace so as to consume the carbon in the products of one furnace and avoid smoke, substantially as described.

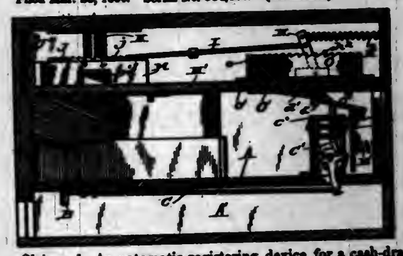
2. The combination of the following instrumentalities, viz: two vertical tubular steam-boilers, flues connecting the boilers with a chimney, dampers in the flues, two furnaces having inclined curved sides, a passage connecting the lower half of the two furnaces, and a grate, pivotally supported in the passage, whereby the products of combustion of one furnace may be passed through the connecting-passage into the other furnace to secure the more perfect combustion of the fuel, as described.

3. In combination with two vertical tubular boilers, flues connecting the boilers with the chimney, and dampers in these flues for controlling the draft, of two furnaces, one under each boiler, said furnaces having each a grate of larger diameter than the boiler and inclosed by a fire-brick lining having inclined curved sides, a fire-brick passage connecting the two furnaces, a grate pivotally supported in the said passage and openings for supplying fuel to the furnaces and the grate in the connecting-passage, whereby the products of combustion of one furnace may be carried through the passage, the other furnace and boiler by the draft to secure the more perfect combustion of the fuel, as described.



4. The combination in a steam plant with the two vertical tubular boilers A and B, having the flue C and the dampers D D for controlling the draft and the central column F F at the lower ends of the boilers, of the furnaces G G, one under each boiler, the grates *g g* and firing-doors *h h* and M, the inwardly-curved fire-brick linings H H, the passage I forming a connecting-flue between the lower part of the two furnaces, the upper part forming disconnected dome shaped chambers, the grate L and the cellular casing K inclosing the lining of the furnaces and the passage; whereby the boilers may be alternately fired and the fuel more perfectly consumed, as described.

598,704. CASH-DRAWER. ALBERT R. TOMLIN, Fort Collins, Colo. Filed Mar. 30, 1896. Serial No. 584,077. (No model.)

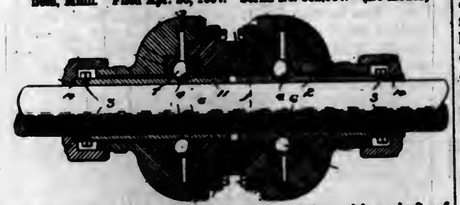


Claim.—1. An automatic registering device for a cash-drawer, comprising a notched disk, a bell-crank lever disposed above the drawer and mounted for actuation by the movement of the latter, a rod connected with said bell-crank lever and having a portion adapted to engage the notches on said disk, and an independent disk movable with the first-mentioned one and bearing numerals upon its face, a pivoted frame, and a lug on the first-mentioned disk adapted to actuate said frame, and a right-angled connection between said frame and the second disk, and two independent alarms of distinguishable sound, one of which is mounted for actuation by the withdrawal of the drawer, substantially as described.

2. The combination with a cash-drawer, of a locking mechanism, two independent alarms, each distinguishable from the other, and a registering mechanism, all actuated by the movement of the drawer, substantially as described.

3. An automatic registering device for a cash-drawer, comprising a notched disk, a bell-crank lever disposed above the drawer and mounted for actuation by the movement of the latter, a rod connected with said bell-crank lever and having a portion adapted to engage the notches of said disk, and an independent disk movable with the first-mentioned one and bearing numerals upon its face, and two independent alarms of distinguishable sound, one of which is mounted for actuation by the withdrawal of the drawer, substantially as described.

598,705. SHAFT-BEARING. FREDERICK A. TOURTELLOTTE, Northfield, Minn. Filed Apr. 20, 1897. Serial No. 633,967. (No model.)



Claim.—In a shaft-bearing, the combination with a shaft, of sleeves surrounding the same having grooves therein, a main hub mounted over said sleeves, hub-collars engaging the said main hub at opposite sides and locked in connection therewith, rings carried by the said main hub and hub-collars, antifrictional balls mounted between the said rings and sleeves, center bolts attached to opposite sides of the main hub to permit the entire bearing to oscillate, and opposite end collars engaging the hub-collars and inclosing a winding or packing against the outer ends of the sleeves on the shaft, substantially as and for the purposes specified.

598,706. SASH-FASTENER. FRANK TUTTS, Mosardville, Tex., assignor of one-half to Henry Vander Stucken, same place. Filed Apr. 23, 1897. Serial No. 633,243. (No model.)



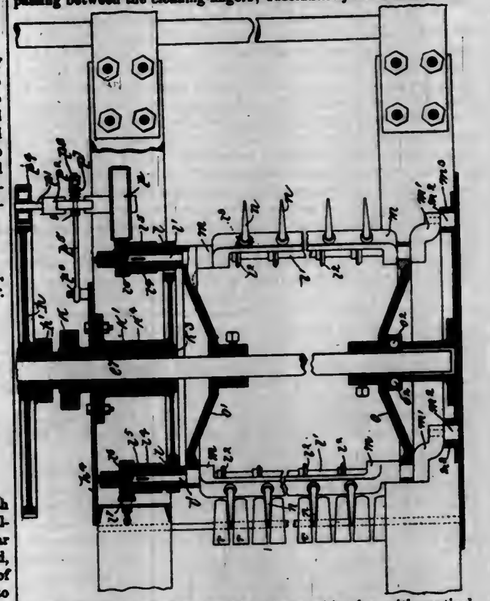
Claim.—1. A reversible sash-holder for use in connection with fixed stops, the same having a spring-shank, for arrangement parallel with the path of a sash, a transverse arm arranged perpendicular to the path of the sash and terminating at one end in a finger-hold, and an inclined integral connecting portion between the other end of said arm and the shank, and meeting said arm at an acute angle to form a nose for engagement with said fixed stops, substantially as specified.

2. The combination with a window-frame having an attached rack, and a sliding sash mounted for movement parallel with the rack, of relatively-reversed catches mounted upon the sash for engagement with the rack, each catch having a spring-shank, disposed approximately parallel with the rack, and a transverse arm connected at one end with the shank by an interposed inclined portion to form an acute angle to engage the rack-teeth, and terminating at the other end in a finger-hold, and said catches being disposed with their transverse arms contiguous to each other, substantially as specified.

598,707. COTTON-PICKING MACHINE. WILLIAM A. TURNER, Chicago, Ill., assignor to the Chicago Cotton Picker Company, same place. Filed Feb. 13, 1896. Serial No. 578,131. (No model.)

Claim.—1. In a cotton-picking machine, the combination with vertical supports of rotating circular end plates in which said supports are journaled, a vertical shaft carried by each of said supports, axially-rotating picking-fingers mounted upon said supports and geared to the said vertical shafts, a loosely-mounted pinion provided upon the upper end of each of said shafts, a clutch-collar provided upon each of said shafts and adapted in one position to engage said pinion to lock the same to the shaft and in another position to release the pinion to permit the same to rotate loosely upon the shaft, a gear-wheel engaging the pinions of all the shafts, means for rotating said gear-wheel in a direction opposite to the direction of travel of the supports, means for moving the collars into engagement with the pinions as the aforesaid picker-fingers enter the plants, means for moving the collars out of engagement with the pinions when said picking-fingers are withdrawn from the plants, means for axially rotating the supports as the fingers are passed into and withdrawn from the plants, and cleaning-fingers between which the picking-fingers are passed longitudinally to remove the cotton therefrom, substantially as described.

2. In a cotton-picking machine, the combination with a series of supports mounted to travel in a circular path, said supports being rotatably journaled at the ends, of picking-fingers mounted upon each of said supports with their axes perpendicular to the axis of the support, the picking-fingers of adjacent supports lying in alternate horizontal planes, means for rotating said picking-fingers on their individual axes, means for rotating said supports individually as the fingers enter and leave the plants to cause the fingers to enter and leave the plants while moving in a longitudinal direction, cleaning or stripping fingers between the edges of which the picking-fingers are adapted to be moved to strip the cotton therefrom, means for rotating said supports to pass the picking-fingers through the cleaning-fingers while moving in a longitudinal direction, and means for bringing the picking-fingers to rest as regards axial rotation while passing between the cleaning-fingers; substantially as described.



3. In a cotton-picking machine, the combination with vertical supports arranged to move in a circular path and rotatably mounted at the ends, of picking-fingers mounted upon said supports, the picking-fingers of adjacent supports lying in alternate horizontal planes, means for rotating said supports as the fingers pass into and leave the plants to cause the same to travel in a longitudinal direction in entering and leaving the plants, and cleaning or stripping fingers between the edges of which said picking-fingers are adapted to be passed while moving in a longitudinal direction; substantially as described.

4. In a cotton-picking machine, the combination with vertical supports arranged to move in a circular path and rotatably mounted at the ends, of axially-rotating picking-fingers mounted upon said supports, a vertical shaft carried upon each of said supports, a series of bevel-gears mounted upon each of said shafts, a bevel-pinion engaging each of said bevel-gears and mounted upon the end of a picking-finger, the picking-fingers of adjacent supports being situated in alternate horizontal planes—that is, a picking-finger of one support lying between two picking-fingers of an adjacent support—casings for said supports inclosing said gears and pinions, said casings being provided with depressions at positions between the bevel-gears, the picking-finger of an adjacent support being adapted to lie within said depression when the supports are rotated; whereby the picking-fingers of any support may be brought close to the axis of an adjacent support and the insertion of the picking-fingers into the plants and the removal therefrom may be accomplished while the picking-fingers are traveling in a longitudinal direction; substantially as described.

5. A cotton-picking finger, comprising a shank formed of solid metal tapering from the butt toward the tip, said shank being provided with a slot extending in a longitudinal direction, one edge of said slot being cut away transversely to form a series of teeth, the opposite wall of the slot serving as a guard; substantially as described.

6. A cotton-picking finger, comprising a shank formed of solid metal tapering from the butt toward the tip, said shank being provided with diametrically-situated longitudinally-extending slots, a

series of teeth being formed upon one wall of each of said slots, the opposite wall serving as a guard which, as the picking-finger rotates, moves in advance of the series of teeth; substantially as described.

7. In a cotton-picking machine, the combination with vertical supports, of cotton-picking fingers mounted thereon and extending perpendicularly thereto, each of said picking-fingers tapering from the butt toward the tip, of a series of cleaning or stripping fingers supported at one end and arranged at a distance apart to permit the passage of the picking-fingers between the edges thereof, the edges of the cleaning-fingers tapering from the butts toward the tips of the cleaning-fingers; whereby, as the tapering picking-fingers pass between the cleaning-fingers, the continuously-diminishing distance between the edges of the cleaning-fingers conforms to the continuously-decreasing dimension of the picking-finger lying between the edges of the cleaning-fingers; substantially as described.

8. In a cotton-picking machine, the combination with a rotating shaft, of a series of vertical supports mounted to move therewith, a shaft carried upon each of said supports, a series of picking-fingers mounted upon each of said supports and geared to said shaft, a loosely-mounted pinion provided upon the upper end of each of said shafts, a clutch-collar splined to each of said shafts and adapted in one position to engage said pinion to lock the same to the shaft and in another position to release the pinion and to permit the same to rotate loosely upon the shaft, a gear-wheel engaging the pinions of all of the shafts and continuously rotating the same, means for rotating said gear-wheel independently of said supports, means for moving the collars into engagement with the pinions at one point in the travel of the supports, and means for moving the collars out of engagement with the pinions at another point of the travel of the supports; whereby the picking-fingers are alternately rotated and brought to rest; substantially as described.

9. In a cotton-picking machine, the combination with the shaft e^7, of the end plates o o' mounted thereon, the vertical supports m m rotatably mounted in said end plates, the shaft l' provided upon each of said supports and geared to the picking-fingers, the pinion l, collar l^4, spring l^5, and nuts l^6 mounted upon each of said shafts, the shoe l^7 adapted to engage the peripheries of the nuts l^6, the rotating wheel p adapted to engage the peripheries of said nuts l^6, and the gear-wheel k^2 meshing with the pinions l and traveling in a direction opposite to the direction of travel of the shaft e^7; substantially as described.

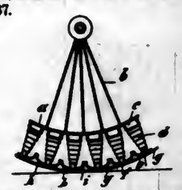
10. In a cotton-picking machine, the combination with the two front wheels, each independently mounted upon a fork journaled to rotate about a vertical axis, of a connection between said forks, whereby the same are caused to rotate in unison, a pair of shafts connected to each of said forks, singletrees disposed between the members of each pair of shafts and a rope connecting said singletrees passing over pulley mechanism, whereby the pull of the two horses is equalized; substantially as described.

11. In a cotton-picking machine, the combination with a rotating shaft, of a series of vertical supports mounted to move therewith, a shaft carried upon each of said supports, a series of picking-fingers mounted upon each of said supports and geared to said shaft, a loosely-mounted pinion connected with each of said shafts, a clutch associated with each shaft and adapted in one position to engage said pinion to lock the same in engagement with the shaft and in another position to release the pinion and to permit the same to rotate independently of the shaft, a gear-wheel engaging the pinions of all of the shafts and continuously rotating the same, means for rotating said gear independently of said vertical supports, means for actuating said clutches at one point in the travel of the supports to bring the gear-wheels into fixed relative positions with their shafts whereby rotary motion imparted to the gear-wheels is imparted to said shafts, and means for actuating said clutches at another point in the travel of the supports to free the supports from the influence of the gear-wheels; whereby the picking-fingers are alternately rotated and brought to rest, substantially as described.

12. In a cotton-picking machine, the combination with a series of vertical supports, of a shaft carried upon each of said supports, a series of picking-fingers arranged to be rotated by said shaft, a pinion in connection with each shaft, means for controlling the operative relation of said pinions with said shafts, a gear-wheel engaging and continuously rotating all of said pinions, mechanism for operating said gear-wheel independently of the supports, means for operating the aforesaid means at one point in the travel of the supports to bring the said pinions into active engagement with said shafts, whereby said shafts and picker-fingers are rotated, and means for actuating the first aforesaid means to remove said pinions from active engagement with said shafts at another point in the travel of the supports, whereby said shafts and the picker-fingers associated therewith are brought to rest, the picking-fingers being thus alternately rotated and brought to rest, substantially as described.

13 A cotton-picking finger, comprising a shank formed of solid metal, said shank being provided with a slot exteading lengthwise thereof, one edge of said slot being cut away transversely to form a series of teeth, the opposite wall of the slot serving as a guard, substantially as described.

598,708. WHEEL FOR VEHICLES. ROBERT VIDMART, Paris, France, assignor to Jules Emile Sletchal, same place. Filed July 16, 1896. Serial No. 599,338. (No model.) Patented in France Aug. 11, 1893, No. 232,127; in England Aug. 11, 1893, No. 13,514, and Sept. 9, 1893, No. 13,518; in Belgium Nov. 24, 1893, No. 107,335; in Germany Nov. 30, 1893, No. 77,458, and in Austria-Hungary Dec. 24, 1894, No. 63,043 and No. 61,337.

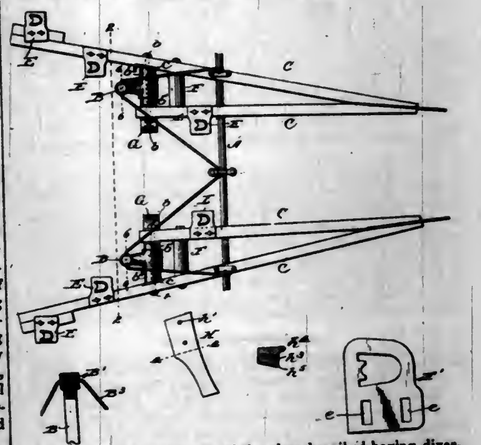


Claim.—1. A wheel comprising two concentric rims, springs interposed between the rims to form a support for the outer rim, the said outer rim being entirely disconnected from the inner rim and the springs, whereby a free and independent movement of the outer rim may be had, substantially as and for the purpose specified

2. A wheel comprising an inner rigid rim, springs carried by said rim, flexible connections between the outer ends of said springs and the outer flexible ring supported upon said springs but independent thereof and of the other parts of the wheel, whereby an independent movement of the outer rim may be had.

3. In a wheel having two concentric rims, the outer independent rim g being flexible, springs d having shoes f on the outer ends thereof, the outer ends of the springs d being held at equal distances apart by strips of thin sheet-steel h attached to the shoes f, the said shoes forming a direct support for the outer rim g which is independent of and movable independently of said shoes, substantially as described.

598,709. CULTIVATOR. LEE WARD, Wrightsborough, Tex. Filed May 26, 1897. Serial No. 638,211. (No model.)



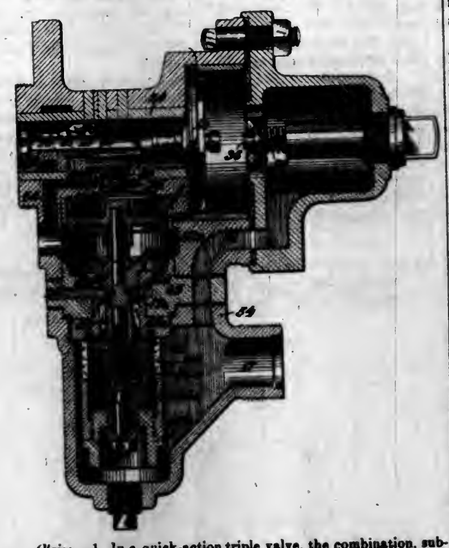
Claim.—1. In a cultivator of the class described having diverging or triangular beams, the combination of the spreaders F interposed between the diverging members of the beams forward of the upright standards, the upright standards pivoted between the rear ends of said beams by a pivot-bolt having washers b b', and the stirrups secured to the beam inside of or between said standards.

2. In a cultivator of the class described the combination with the cultivator-standards and the beams, of a metal plate E' provided with slots e e running crosswise of said beams and provided with suitable bolts and jam-nuts whereby said standards are adjustable laterally substantially as described.

3. In a cultivator the combination with the cultivator-standards of the sleeve H provided with slots h^3, and having a projecting side h^4 beveled inwardly and a straight or flat side h^5, substantially as and for the purposes described.

4. In a cultivator of the class described, the combination of the cultivator-standard having its sides bent together at its lower end, and the sleeve H, provided with openings which register with the lower end of the standard, and means for securing said sleeve and standard together, substantially as described.

598,710. QUICK-ACTION TRIPLE VALVE. GEORGE WESTINGHOUSE, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, same place. Filed Mar. 12, 1897. Serial No. 627,166. (No model.)



Claim.—1. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, an emergency or train-pipe release-valve, actuated, as to opening movement, by a supplemental emergency-piston, a spring acting in direction to close said valve, and an emergency-piston actuated in direction to impart opening movement to the emergency-valve by pressure from an auxiliary reservoir admitted to its chamber by the traverse of the triple-valve piston, and actuated in the opposite direction by the closing-spring of the emergency-valve, independently of the return traverse of said piston.

2. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, an emergency-piston working in the casing thereof and actuated by pressure from an auxiliary reservoir, a valve device for admitting air from the auxiliary reservoir to the piston, an emergency or train-pipe release-valve, actuated, as to opening movement, by said piston, a spring acting in direction to close said valve, and means for quickly releasing auxiliary-reservoir air from the chamber of the emergency-piston directly to the brake-cylinder, by the final movement of the emergency-piston.

3. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, an emergency-piston working in a chamber in the casing thereof, and actuated by pressure from an auxiliary reservoir, a supplemental casing-section provided with a train-pipe connection and connected to the main casing of the triple valve, a partition or division plate interposed between the main and supplemental casings and provided with an atmospheric discharge-passage, an emergency-valve seated in the supplemental casing and controlling communication between said casing and the discharge-passage, a stem through which opening movement is imparted to the emergency-valve from the emergency-piston, and a spring acting on the emergency-valve in direction to impart closing movement thereto.

4. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, an emergency-piston working in a chamber in the casing thereof and actuated by pressure from an auxiliary reservoir, a supplemental casing-section provided with a train-pipe connection and connected to the main casing of the triple valve, a partition or division plate interposed between the main and supplemental casings and closing the chamber of the emergency-piston, an atmospheric discharge-passage in said division-plate, an emergency valve seated in the supplemental casing and controlling communication between said casing and the discharge-passage, a stem passing through the division-plate and adapted to impart opening movement to the emergency-valve from the emergency-piston, a valve on said stem which is normally seated in the discharge-passage and closes the joint between the stem and the division-plate, a spring acting to impart closing movement to said valve, and a spring acting on the emergency-valve in direction to impart closing movement thereto.

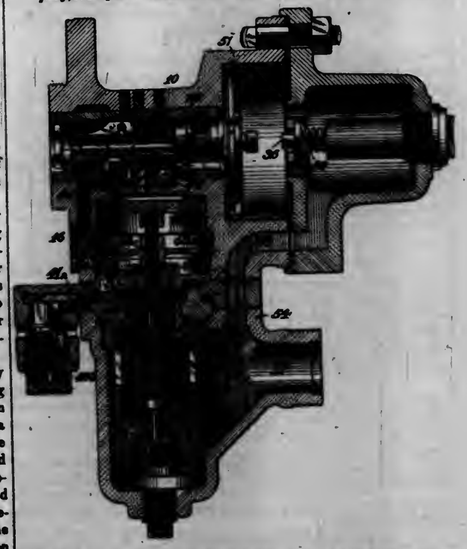
5. The combination, with a triple valve proper, of an emergency-piston which is actuated by pressure from an auxiliary reservoir, an emergency or train-pipe release valve operated in one direction by movement of the piston and in the other direction by a spring, and means whereby the emergency-piston acts as a valve in its final movement, to open a communication between the auxiliary reservoir and the brake-cylinder, substantially as set forth.

6. The combination, with a triple-valve device of a supplemental piston which is actuated by auxiliary-reservoir pressure admitted thereto in applying the brakes, a train-pipe release-valve actuated by the movement of the supplemental piston and controlling a passage to the atmosphere, and means whereby movement of the supplemental piston connects the auxiliary reservoir with the brake-cylinder, substantially as set forth.

7. The combination, with a triple valve proper, of a supplemental chamber formed in a casing and normally disconnected from the auxiliary reservoir and from the train-pipe, but communicating with the brake-cylinder, a piston in the chamber, a release-passage from the train-pipe to the atmosphere, and a valve actuated by the piston, and controlling the release-passage, substantially as set forth.

8. The combination, with a triple valve proper, of a supplemental chamber, a piston in the chamber, normally exposed to atmospheric pressure on its opposite sides, means for admitting fluid under pressure to the piston in emergency applications, a release-passage outside of and separated from the supplemental chamber and connecting the train-pipe with the atmosphere, a valve controlling the release-passage, and means whereby the movement of the piston releases fluid under pressure from the auxiliary reservoir to the brake-cylinder, and from the train-pipe to the atmosphere, substantially as set forth.

598,711. QUICK-ACTION TRIPLE VALVE. GEORGE WESTINGHOUSE, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, same place. Filed Mar. 12, 1897. Serial No. 627,167. (No model.)



Claim.—1. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, a supplemental emergency-piston, an emergency or train-pipe release-valve, actuated, as to opening movement, by said piston, a spring acting in direction to close said valve, a check-valve controlling communication between said emergency-valve and a brake-cylinder passage, and a check-valve subject continuously to closing pressure and controlling communication between said emergency-valve and an atmospheric discharge-passage.

2. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, an emergency-valve controlling communication between a train-pipe connection and a discharge-passage, an emergency-piston imparting opening movement to the emergency-valve, a spring acting in direction to close said valve, a check-valve controlling communication between the discharge-passage and

a brake-cylinder passage, a check-valve controlling communication between the discharge-passage and the atmosphere, and a closing-spring bearing continuously on said last-named check-valve

3. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, a supplemental emergency-piston, an emergency or train-pipe release-valve actuated, as to opening movement, by said piston, a valve-controlled communication between said emergency-valve and a brake-cylinder passage, a valve-controlled communication between said emergency-valve and the atmosphere, and means for imposing an independent regulated resistance to the opening of said last-named communication.

4. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, an emergency-piston, working in a chamber in the casing thereof, a supplemental casing-section provided with a train-pipe connection and connected to the main casing of the triple valve, a partition or division plate interposed between the main and supplemental casings and provided with a discharge-passage, an emergency-valve seated in the supplemental casing and controlling communication between said casing and the discharge-passage, a stem through which opening movement is imparted to the emergency-valve from the emergency-piston, a spring acting on the emergency-valve in direction to impart closing movement thereto, a check-valve controlling communication between the discharge-passage and a brake-cylinder passage, a check-valve controlling communication between the discharge-passage and the atmosphere, and a spring continuously imparting closing pressure to said last-named check-valve.

5. In a quick-action triple valve, the combination, substantially as set forth, of a triple valve proper, a supplemental emergency-piston, an emergency or train-pipe release-valve actuated, as to opening movement, by said piston, a valve-controlled communication between said emergency-valve and a brake-cylinder passage, a valve-controlled communication between said emergency-valve and the atmosphere, said independently-movable valve devices controlling the said communications.

598,712. QUEEN AND DRONE TRAP. GEORGE W. WILLIAMS, Humansville, Mo. Filed Apr. 15, 1897. Serial No. 632,312. (No model.)



Claim.—1. An attachment for beehives consisting of an open frame adapted to be suspended on the end of a hive and provided with a screen in its front side at the lower end, a horizontal partition just above said screen carrying cones with open apices, and a movable screen-guard in rear of said partition to control the passage of the bees from the frame, substantially as described.

2. An appliance for beehives, comprising a cage or trap having perforations or openings at the front for the passage of the worker bees, and constructed of an upper and lower compartment, a slide for opening and closing the upper compartment at the inner side, a partition separating the compartments and provided with openings for the passage of the queen bee, open-ended cones at said openings and a slide for controlling said openings, substantially as described.

3. An appliance for beehives, comprising a trap or cage having openings or perforations at the front for the passage of the worker bees, and constructed of an upper and lower compartment, a horizontal partition separating the compartments and provided with openings for the passage of the queen bee, open-ended cones at said openings, a slide having corresponding openings and working in guides on the partition, and a longitudinally-movable slide for opening and closing the upper compartment at the inner side of the cage, substantially as described.

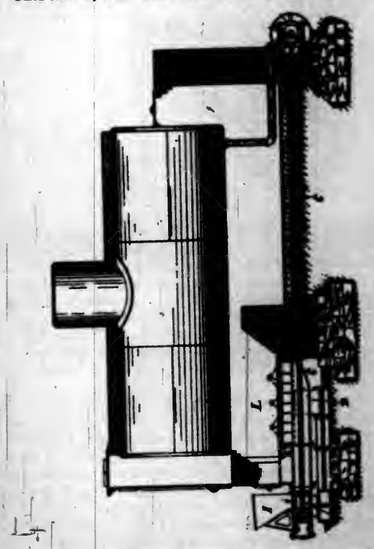
4. An appliance for beehives, comprising a cage or trap having openings at the front for the passage of the bees, and constructed of an upper and lower compartment, the former of which is provided at one end with an opening closed by a slide, a partition separating the compartments and provided with openings for the passage of the queen bee, open-ended cones at said openings, a slide for opening and closing the upper compartment at the inner side of the cage, and a slide having openings corresponding to those in the partition, and working in suitable guides, substantially as described.

5. An appliance for beehives comprising a reversible or invertible trap having openings in the front for the passage of the worker bees, and constructed of an upper and lower compartment, a partition separating said compartments, and provided with openings for the passage of the queen bee, open-ended gauze cones surrounding said latter openings in the upper compartment, a slide also having corresponding openings and working on the under side of the partition, and a slide for opening and closing at will the inner side of said upper compartment, substantially as described.

6. An appliance for beehives comprising a reversible or invertible trap having openings in the front for the passage of the worker bees and constructed with an upper and lower compartment, a partition separating the compartments and having enlarged openings for the passage of the queen bee, open-ended gauze cones surrounding said openings, a slide on the partition having corresponding openings, a strip at the inner side of the cage and a perforated plate closing the space between said strip and the inner edge of the partition, and a slide for opening and closing the upper compartment at the inner side thereof, substantially as described.

7. An appliance for beehives comprising a reversible or invertible cage or trap having openings in the front for the passage of the worker bees, and constructed of an upper and lower compartment, a slide for opening and closing the upper compartment at the inner side of the trap, a partition separating the compartments and having enlarged openings for the passage of the queen bee, perforated and open-ended cones surrounding said openings located in the upper compartment, and a slide on the partition having corresponding openings, substantially as shown and described.

598,718. SELF-FEEDING FURNACE. HOWARD WORTHINGTON, Cincinnati, Ohio, assignor of one-half to Jacob Haglin, same place. Filed Nov. 14, 1896. Serial No. 612,078. (No model.)



Claim.—1. A furnace substantially as described, provided with a suitable receptacle for the reception of coal from beneath and a chamber surrounding the same with a reciprocating cylindrical plunger for forcing the fuel into said receptacle, the forward end of said cylindrical plunger being open and provided with serrated edges, substantially as and for the purpose described.

2. A furnace substantially as described, provided with a fire-chamber arranged to receive its supply of fuel from beneath and with side doors opening downward, as and for the purpose described.

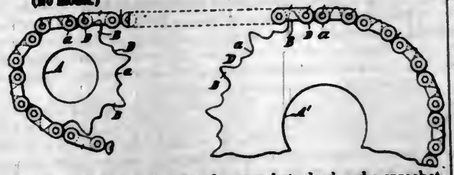
3. In a furnace provided with a fire-chamber arranged to receive the fuel from beneath, a reciprocating plunger or stoker consisting of a hollow cylinder open at one end and provided with serrated edges, substantially as and for the purpose described.

4. In a furnace provided with a fire-chamber, arranged to receive the fuel from beneath, a reciprocating plunger or stoker, consisting of a hollow cylinder open at the forward end and having serrated edges and means for adjusting its throw or movement for regulating the amount of fuel admitted, substantially as and for the purpose described.

5. A furnace substantially as described, provided with a fire-chamber arranged to receive its supply of fuel from beneath and with side doors opening downward, said doors controlled from the outside and provided with pawl and ratchet for holding them in any desired position, substantially as and for the purpose described.

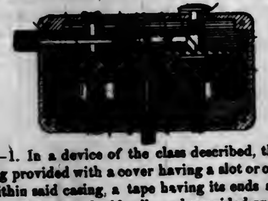
6. A furnace provided with a combustion-chamber adapted to receive a supply of fuel from beneath without grate-bars and provided with twyer-irons *a*, *a*, and the downwardly-opening doors K, substantially as shown and described.

598,714. SPROCKET-AND-CHAIN GEARING. FREDERIC E. BALDWIN, New Brighton, N. Y. Filed Jan. 11, 1897. Serial No. 618,908. (No model.)



Claim.—The combination of a sprocket-wheel and a sprocket-chain composed of open and solid links, the solid links entering between the teeth and the wheel being formed or provided between each two teeth with a supporting-surface immediately in the rear of or adjacent to the working face of one tooth for one end of the solid link, which surface inclines from the said tooth outwardly or away from the center of the wheel, and with the remaining parts of the periphery between the teeth cut away or relatively lower than the said supporting-surface for the reception of the other end of the solid link without affording fulcrum-support for the same.

598,715. ADDING-REGISTER. CHARLES H. BIGELOW, Litchfield, Minn. Filed Oct. 12, 1896. Serial No. 565,511. (No model.)



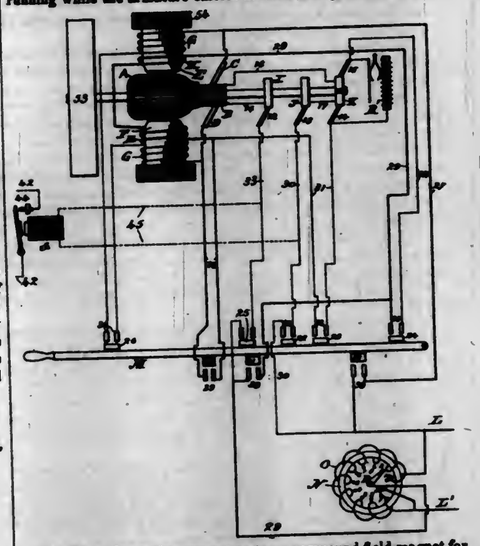
Claim.—1. In a device of the class described, the combination with a casing provided with a cover having a slot or opening, of rolls arranged within said casing, a tape having its ends secured respectively to the peripheries of said rolls, and provided upon its face with a series of numbers, each being a multiple of the lowest number of the series, a ratchet provided on the face of one of said rolls, a sliding dog having one end in engagement with the teeth of the ratchet and its opposite end extending through said casing, a spring for holding said dog in engagement with said ratchet and forming also a guide for the same, means preventing the backward movement of the ratchet during the process of adding, means extending without said casing for releasing said ratchet from said dog and detent to permit the backward movement thereof, and a spring for revolving said ratchet and its roll backward, and rewinding the tape upon the opposite roll, substantially as described.

2. In a device of the class described, the combination, with the casing, of the rolls arranged therein, the tape, the ratchet upon the face of one of said rolls, the sliding dog, the spring for holding said dog in engagement with the teeth of the ratchet, said spring having a slot to receive the shank of the dog forming a guide therefor, a second spring having an offset portion to engage the teeth of the ratchet to prevent backward movement thereof, means extending without said casing for simultaneously disengaging said dog and said offset portion from the teeth of the ratchet, a spring for revolving said rolls backward to rewind said tape, and means for limiting the speed of the backward movement of said rolls, substantially as described.

3. In a device of the class described, the combination, with the casing, of the rolls arranged therein, the tape, the ratchet upon the face of one of said rolls, the sliding dog, the spring for holding said dog in engagement with the teeth of the ratchet, said spring having a slot to receive the shank of the dog and forming a guide therefor, a second spring having an offset portion to engage the teeth of the ratchet to prevent backward movement thereof, and means extending without said casing for simultaneously disengaging said dog and said offset portion from the teeth of the ratchet, substantially as described and for the purpose set forth.

598,716. ALTERNATING-CURRENT MOTOR. ALEXANDER J. CHURCHWARD, Brooklyn, N. Y. Filed July 1, 1896. Serial No. 597,663. (No model.)

Claim.—1. In an alternating-current motor, the combination with the starting-winding and armature wound with any suitable direct-current generator or motor winding to adapt the machine for self-starting operations, of a rectifying commutator and switch, and connections whereby said winding may be included in series with the armature and carry a continuous or direct current for synchronous running while the armature carries an alternating current.



2. In an alternating-current motor, a compound field-magnet for synchronous operation excited in part by continuous current taken directly from a direct or continuous current winding of the armature adapted for self starting and in part by current passing through the armature and rectified.

3. An alternating-current motor having the ordinary direct-current armature and commutator and series field-winding for non-synchronous operation or starting, in combination with a switch, a rectifying-commutator in circuit with said series winding between the same and the armature, and connections whereby the same armature-winding may be run in series with said field-winding for synchronous operation.

4. An alternating-current motor having a series field-coil and a distributed or direct-current armature-winding and commutator, in combination with a switch and rectifying-commutator, whereby the machine may be run as a non-synchronous machine for starting with field and armature circuits both alternating, and in series or as a synchronous motor with the same field and armature circuit in series, the armature alternating but the field of constant polarity.

5. The method of operating an electric motor upon an alternating circuit which consists in passing the current through the armature and field winding in series as an alternating current in both and afterward through the same armature-winding as an alternating current and through the field-winding in series therewith as a rectified current.

6. In a self-starting alternating-current motor, a direct-current exciting-coil for synchronous operation wound to increase in strength with the increase of load, in combination with means for placing said coil in series circuit with the armature and with a suitable rectifying-commutator between said armature and field when the machine attains synchronism.

7. A single-phase alternating-current motor wound with a series coil connected into series circuit with the armature during non-synchronous or starting condition and carrying an alternating current, in combination with means for placing it in series circuit with the armature during synchronous condition and rectifying the current so as to cause the current which flows in the armature-coils as an alternating current to flow through the field as a continuous current.

8. The combination with an alternating-current motor, of a hand-switch for changing the circuits from condition of starting or non-synchronous working to condition of synchronous working, and means for automatically releasing said switch when or about when the motor has reached synchronous speed.

9. The combination, substantially as described, in an alternating-current motor, of a switch for changing the circuits of the motor from starting condition to synchronous working condition, a catch normally holding said switch in starting position, and means responsive to an increase in speed of the motor to or near synchronous speed for releasing said switch.

10. The combination with the controlling-switch for throwing an alternating-current motor from non-synchronous or starting condition to synchronous working condition, of means for automatically throwing said switch away from position for synchronous working when the speed falls below the synchronous speed and opening the main circuit of the machine.

11. The combination with the controlling-switch which establishes the circuits for synchronous working condition in an alternating-current motor, of means for holding the switch normally closed and automatically releasing the same to open the circuit when the speed drops below synchronous speed and independent means for placing the motor in starting or non-synchronous working condition.

12. In an alternating-current motor, the combination of the field-coil, an alternating-current-supply main, and a rectifying-commutator for rectifying the alternating currents before they reach said coil, of a self-inductive shunt around said field-coil, as and for the purpose described.

13. In an alternating-current motor, the combination with starting and synchronous coils wound on poles of said motor, of means for disconnecting said synchronous coils from one another during non-synchronous or "starting" operation whereby the transformer effects are reduced.

14. A single-phase self-starting alternating-current motor having its field excited, when running as a synchronous motor, by two coils one of which provides a constant field excitation, while the other carries current increasing with the load and obtained from a commutator located, as described, between armature and field, so as to cause the alternating current supplied to the motor and flowing in coils of the armature as an alternating current to flow through the field as a continuous current.

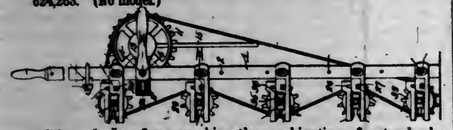
15. The combination with an alternating-current motor, of a switch for changing the circuits from non-synchronous or starting condition to synchronous working condition, and mechanism for adjusting the commutating devices simultaneously with the change of circuits by the switch.

16. The combination with an alternating-current motor, of a switch for changing the circuits from non-synchronous or starting condition to synchronous working condition, and mechanism having lost motion for adjusting the commutating devices, as and for the purpose described.

17. In an alternating-current motor, the combination with a starting-winding in series with an armature, the said armature being wound with any standard distributed or direct-current winding and connected to a commutator so that the machine will be self-exciting for starting, of a rectifying-commutator, and switch and connections whereby said winding may be included in series with the armature and carry a continuous current in proportion to the load when the motor is running in synchronism.

18. In a self-starting alternating-current motor, a compound field-magnet for synchronous operation excited in part by a continuous current taken directly from the starting-commutator, the winding on the armature being a distributed winding connected in the ordinary way to a commutator to adapt the motor for self-starting operation, and to supply current to excite the shunt or high-resistance fields when running in synchronism, and in part by current rectified by an auxiliary commutator and passing through the armature, said auxiliary commutator and a field-winding in series.

593,717. FENCE-MACHINE. MARION L. CURL, Cherryvale, Kans., assignor of three-fourths to Samuel G. Watson, Thomas E. Curl, and Samuel H. Sandefur, same place. Filed Feb. 19, 1897. Serial No. 624,263. (No model.)



Claim.—1. In a fence-machine, the combination of a standard, a bolt extending therethrough, an arm mounted upon said bolt and clamped against the standard, a rotary twister journaled upon said arm, a horizontal finger below the axis of said twister and provided with a vertical slot through which said bolt projects, a clamping-nut engaging said bolt and said arm, a bolt carried by said finger, a second finger arranged above the axis of the twister and provided with a slotted portion adjustably mounted upon the last-named bolt, substantially as described.

2. In a fence-machine, the combination of a standard, an arm carried thereby, a twister rotatively mounted on said arm, and provided with an annular chamber containing lubricating material, and diametrically opposite slots communicating with said chamber, substantially as described.

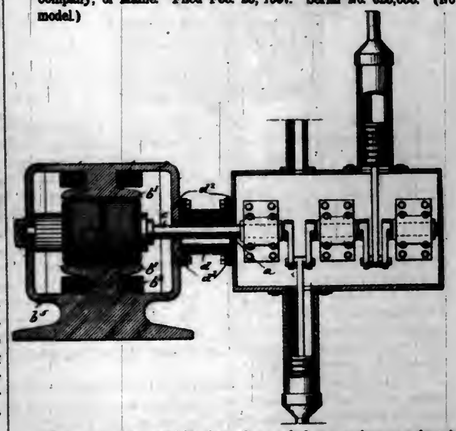
3. In a fence-machine, the combination of a standard, an arm carried thereby and terminating in a ring, a twister rotatively mounted in said arm and provided with diametrically opposite radial slots and an internal annular chamber containing lubricating material, and an adjustable wire-spreader, provided with notches in its opposite ends, substantially as described.

4. In a fence machine, the combination of a standard, an arm carried thereby, a twister rotatively mounted or journaled in said arm and diametrically slotted at opposite points, a bolt extending through said twister, an elongated spreader fitting non-rotatively upon said bolt, and a clamping-nut holding said twister and said spreader reliably together, substantially as described.

5. In a fence-machine, the combination of a standard, a series of rotary twisters provided with teeth peripherally, a drive sprocket-wheel, an arm carrying the same rotatively, and provided with a longitudinal slot and vertical teeth, a similarly-toothed washer mounted upon the standard and engaging the teeth of said arm, a clamping-bolt extending through said arm, washer and standard, to maintain the sprocket-wheel in the position to which it is adjusted, a chain connecting said sprocket-wheel and said twisters, and means to rotate said sprocket-wheel, substantially as described.

6. In combination with a wire-twisting machine, a tension device comprising a casting having lugs for engagement with the wire, a shaft or drum journaled in its opposite end and provided with a square and toothed head, a dog pivotally mounted in the tension device and engaging one of said teeth, and provided with a lug at the end of its pivot to prevent accidental disconnection from the tension device, substantially as described.

593,718. ELECTRICALLY-DRIVEN GAS-MACHINE. THOMAS J. FAY, Brooklyn, N. Y., assignor to the American Electric Cold Supply Company, of Maine. Filed Feb. 25, 1897. Serial No. 625,053. (No model.)



Claim.—1. The combination of a sealed gas-casing, an electric motor located outside thereof and whose field-magnet system itself forms a sealed casing, and a sealed gas-passage connecting the motor and casing together and through which the armature-shaft leads, substantially as described.

2. The combination of a sealed gas-casing, an electric motor located outside thereof and whose field-magnet system itself forms a sealed casing and a sealed tube or sleeve connecting the motor and casing together and through which the armature-shaft leads, substantially as described.

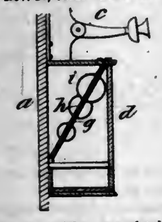
593,719. BRACKET FOR FAN-MOTORS. JOHN R. FULLER, Brooklyn, N. Y., assignor to C. Coles Dusenbury, Lake Mahopac, N. Y. Filed May 28, 1896. Serial No. 593,267. (No model.)



Claim.—1. The combination with the back plate *a*, of a vertical pivoted removable support *b* thereto, a shelf *c* and a pivotal connection therefrom to the support *b*, and a projection 5 on the under side of said shelf and a thumb-screw *d* passing through the projection 5 and bearing upon the support *b* for sustaining said shelf in a horizontal or inclined position, substantially as set forth.

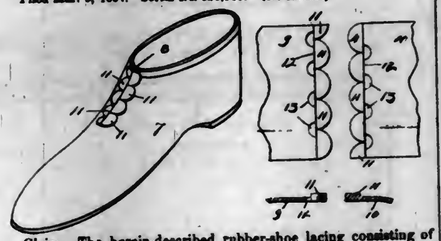
2. The back plate *a* having projections a' a^2, the thumb-screw 2 and set-screw 3 in combination with the vertical pivoted support *b* having a mortise, the shelf *c* having a tenon secured in said mortise and a projection 5 and a thumb-screw *d* passing through the projection and bearing upon the support *b* for sustaining the shelf, substantially as set forth.

593,720. TELEPHONE TOLL-STATION. WILLIAM GRAY, Hartford, Conn., assignor to the Gray Telephone Pay Station Company, same place. Filed Nov. 17, 1893. Serial No. 491,190. (No model.)



Claim.—In combination with a set of telephone instruments, a signal-box containing a channel-board, a signal device located in the path of the falling coin, openings through the wall of the box for the reception of a coin, the channel-board secured in firm contact with a wall of the signal-box, the transmitter, and the transmitter-support secured in firm contact with that part of the signal-box to which the channel-board is secured, all substantially as described.

593,721. FASTENING. CHARLES V. HOFFMAN, Sidney, N. J. Filed Mar. 9, 1897. Serial No. 626,565. (No model.)



Claim.—The herein-described rubber-shoe lacing consisting of semicircular heads 11, secured to the flaps of the shoe by means of necks 12 between each of which is formed a semicircular space 13, and the said heads 11 being thicker than the material of the sides of the shoe whereby shoulders are formed on the said heads adjacent to the necks 11, and the semicircular space 13 being smaller than the said semicircular heads, substantially as and for the purpose described.

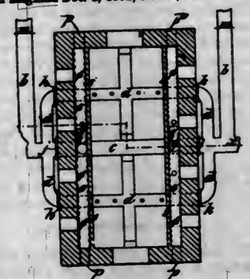
593,722. METAL LOCKER FOR MARINE PURPOSES. RICHARD W. JEFFERIS, Camden, N. J. Filed Jan. 15, 1897. Serial No. 619,394. (No model.)



Claim.—1. In combination, a series of lockers composed of corrugated sheet-metal walls, doors fitted to each locker so as to slide vertically, hasps secured upon the interned edge of one of the sides, a staple with which the hasp enters into engagement, and a pin projecting inward from each hasp and adapted to lock the doors in their closed positions, as specified.

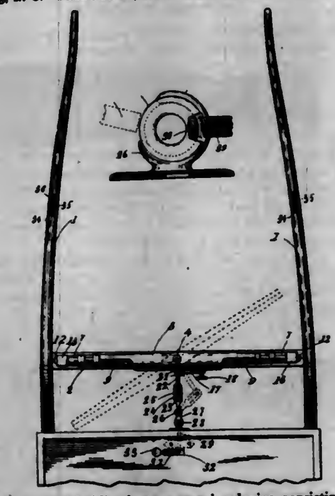
2. In combination with a locker of the character described, two doors adapted to slide vertically past each other, a hasp secured to the edge of the locker, a staple with which said hasp enters into conjunction, a lock for securing the hasp in place, and a pin carried by the hasp and projecting inwardly so as to enter into engagement and hold the two doors in their locked positions, substantially as and for the purpose set forth.

593,723. KILN FOR BURNING CLAY GOODS. EDWIN P. LEE, Cardiff, England. Filed Mar. 11, 1896. Serial No. 582,706. (No model.) Patented in England Dec. 1, 1892, No. 21,945.



Claim.—The combination with a series of kilns, arranged in parallel groups and having the bag-walls *s*, of the stack, the main flue *a* delivering to the same, and extending between and connecting with the kilns of both groups through damper-controlled branch flues *b*, *b*, dampers *m*, *m*, for the latter and dampers *n*, *n*, for the main flue, together with traversing flues *c*, *d*, *d*, arranged as shown and having direct and independently-controlled damper communication at both sides of the kiln with the stack, the flues *c*, *d*, *d*, communicating through the bottom of the kiln with the interior thereof, the arrangement being such that fluid circulation may be reversed from the rear of the bag-walls through the bottom and any kiln of either group may be placed in direct communication with one or more kilns of its own or of the other group, to supply or be supplied with heated air or gases, substantially as herein specified.

593,724. HORSE-DETACHING DEVICE. HENRY MICHAEL, Hamburg, N. Y. Filed Feb. 20, 1897. Serial No. 624,475. (No model.)



Claim.—1. A holdback-strap-securing device, consisting of a base portion provided with means for attachment to the thills, a circular supporting portion having a portion cut away and a grooved rubber disk provided with an opening on one side, and adapted to be sprung into and out of engagement with the circular supporting portion, as set forth.

2. A holdback-strap-securing device, consisting of a base portion adapted to be rigidly fastened to the thills of the vehicle, an upward-extending circular portion extending up from one side of said base and slightly beyond the center thereof, and a short portion extending upward from the opposite side, and a circular disk or ring of rubber adapted to be sprung into said arms and provided with a depression to receive the loop of the strap, as set forth.

3. In a horse-detaching device, the combination with the vehicle, its running-gear, thills, cross-bar, singletree and trace-holding pins at each end of said singletree, of an operating-arm pivoted at or near the center to the singletree, two rods pivotally fastened at their inner ends to opposite sides of the said operating-arm, devices at the outer

ends of said rods for locking or releasing the traces to or from the holding-pins, a rod extending from the operating-arm to within convenient reach of the driver's foot, and joints in said arm to allow for the turning of the singletree, substantially as described.

4. In a horse-detaching device, the combination with the vehicle, its running-gear, thills, cross-bar, singletree and trace-holding pins at each end of said singletree, of an operating-arm pivoted at or near the center to the singletree, two rods pivotally fastened at their inner ends to opposite sides of the said operating-arm, devices at the outer ends of said rods for locking or releasing the traces to or from the holding-pins, a rod extending from the operating-arm to within convenient reach of the driver's foot, joints in said arm to allow for the turning of the singletree, and springs for holding the device in its closed position and for returning it to said closed position after the traces have been released, substantially as described.

598,725. LANTERN. JOSEPH W. MILLER and JOHN M. SHAFFNER, Harrisburg, Pa. Filed Feb. 17, 1896. Serial No. 579,573. (No model.)



Claim.—1. The combination with the base of a lantern of the wires 2 and 3, connected thereto and having portions bent slanting at the top of and engaging with the chimney to hold it in place, the said wires crossing above the chimney; and the spring-handle 1 as set forth and described.

2. The bent-wire spring-handle 1 in combination with the wires 2 and 3, having portions bent slanting at the top of and engaging with the chimney, crossing above the chimney one of said wires engaging with a coil in the other wire the said wires being connected to said handle 1 and base 4 as substantially set forth and described.

598,726. TUBING. MARK M. NICHOLLS, New York, N. Y. Filed Feb. 5, 1897. Serial No. 622,128. (No model.)



Claim.—1. As a new and improved article of manufacture, a tubing comprising a wire coil coated with a moisture-repellant material so as to leave the interstices between the convolutions of the coil free from coating material, a textile sheath free from oil next to and surrounding the said coated coil, and a layer of a compound of glue and glycerin surrounding said textile sheath.

2. As a new and improved article of manufacture a tubing comprising a wire coil coated with linseed-oil, a textile sheath next to and surrounding said coated coil and a layer of a compound of glue and glycerin next to and surrounding said textile sheath.

598,727. DEVICE FOR PREVENTING PICKING OF POCKETS. MARTINO PERAGLIE, New York, N. Y. Filed Nov. 28, 1896. Serial No. 613,731. (No model.)

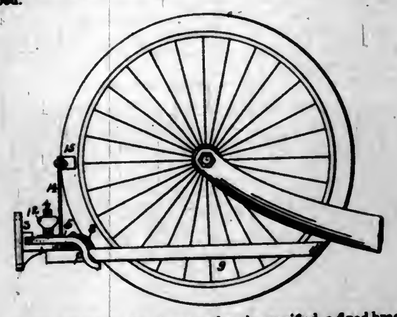


Claim.—The herein-described device for preventing the picking of pockets, the same being formed from a single sheet-metal blank provided with loops or rings for the attachment of a chain, watch, &c., and also with barbs which are bent and made divergent, one of said loops or rings being split to admit of the introduction and removal of one of said articles, substantially in the manner and for the purpose described.

598,728. BICYCLE-HANGER. ABRAHAM R. PRUDEN and CHARLES M. WATERBURY, Brooklyn, N. Y., assignors to Benjamin Blum, New York, N. Y. Filed June 27, 1896. Serial No. 597,123. (No model.)

Claim.—1. A bicycle-hanger, in which is comprised a horizontal fixed bracket mounted upon a vertical support; a plate movable in a horizontal plane mounted upon said bracket, and a folding wheel-receiver in the form of a loop carried in slots in said movable plate, and adapted to support a bicycle in a half-inverted position, substantially as shown and described.

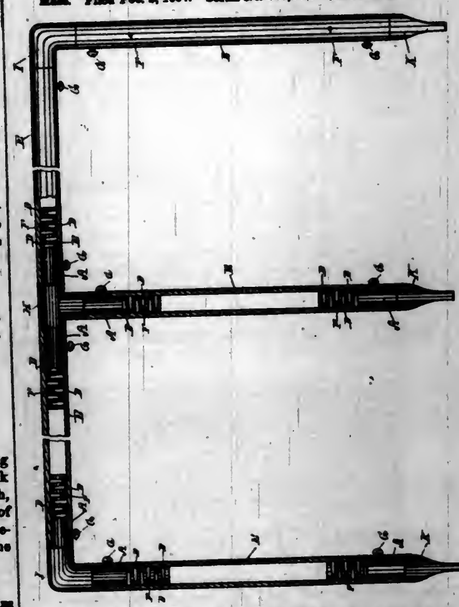
2. In a device of the character herein specified, a fixed horizontal bracket, mounted upon a vertical support, in combination with a plate movable in a horizontal plane provided with a wheel-receiver in the form of a loop, carried in slots in said plate, and adapted to support a bicycle in a half-inverted position, substantially as shown and described.



3. In a device of the character herein specified, a fixed bracket, in combination with a plate movable in a horizontal plane and adjustably mounted thereon, said plate having a slotted depending edge, and a wheel-receiver in the form of a loop movably held in said slots and adapted and arranged to depend vertically, or be held horizontally, the inner extremities passing beneath the fixed bracket, substantially as shown and described.

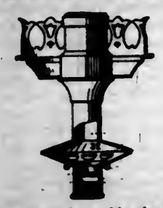
4. In a device of the character herein specified, a plate located upon a bracket, said plate having a slotted, depending edge, in combination with a wheel-receiver in the form of a loop, movably located in said slots, and adapted and arranged to depend vertically, or be held horizontally, the inner extremities passing beneath the fixed bracket, substantially as shown and described.

598,729. AWNING-FRAME. GEORGE SKINNER, Cambridge Mass. Filed Feb. 2, 1897. Serial No. 621,671. (No model.)



Claim.—The herein-described adjustable joint or pipe connection consisting in combination a cylindrical shank A having a bifurcated end provided with a longitudinal slit C and one or more lateral recesses D D in the bifurcated portion and an external tube E adapted to fit and incloso the shank A and its bifurcated end, and a transverse pin F secured to the tube E and adapted to be introduced in the slit C and to be locked in the lateral recesses D, D, substantially as and for the purpose set forth.

598,730. GAS-BURNER. SAMUEL G. STODDARD, Bridgeport, Conn., assignor to The Bridgeport Brass Company, same place. Filed July 16, 1897. Serial No. 644,856. (No model.)



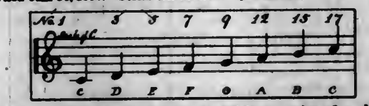
Claim.—1. In a gas-burner in combination a burner-base, a chamber above said base, an aperture or gas-passage, one or more, from said base to said chamber, a registering plate in said chamber and an aperture having one of its diameters greater than another diagonally disposed in said plate and adapted to be turned into and out of register with said first-named aperture, substantially as described.

2. In a gas-burner in combination a burner-base, a chamber above said base, a shell forming part of said chamber having an aperture, one or more, for the passage of gas, a registering plate having an aperture, one or more, adapted to be turned into and out of register with said first-named aperture, the central portions of said shell and said plate surrounding said apertures being dished or depressed to fit one into the other, substantially as described.

3. In a gas-burner in combination a burner-base, a chamber above said base, a shell forming part of said chamber, having an aperture, one or more, for the passage of gas, slots in said shell exterior to said burner-base, a registering plate having an aperture, one or more, adapted to be turned into and out of register with said first-named aperture and lugs on said plate passing through said slots and bent or formed to engage with the outer surface of said shell and to hold said plate in contact therewith, substantially as described.

4. In a gas-burner in combination a burner-base, a chamber above said base, a shell forming part of said chamber having a depressed pierced central portion within said burner-base and slots exterior to said base, a registering plate having a depressed pierced central portion adapted to fit within said shell and lugs on said plate passing through said slots and bent or formed to engage with the outer surface of said shell and to hold said plate in rotary contact therewith, substantially as described.

598,731. GAME APPARATUS. JOSUA ADLER, Salem, Oreg. Filed Jan. 20, 1897. Serial No. 621,307. (No model.)



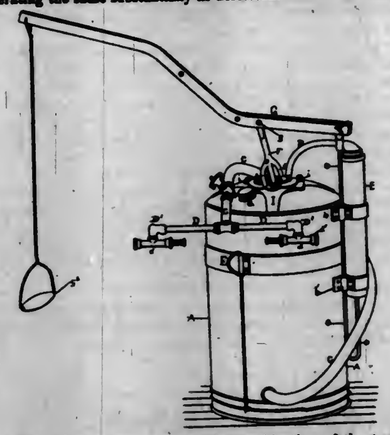
Claim.—1. A game apparatus comprising a series of cards having formed thereon different musical scales, each card being provided with a number and with numerals indicating the notes of the scale, and sets of blocks to be placed above or below said cards, one set having the beginning of the scale and a number corresponding to the number of one of the cards; the other set of blocks having a portion of the scale with a single note and a numeral corresponding to one of the numerals on the card, substantially as shown and described.

2. A game apparatus comprising a series of cards having formed thereon different musical scales, each card being provided with a number and with numerals indicating the notes of the scale, and sets of blocks to be placed above or below said cards, one set having the beginning of the scale and a number corresponding to the number of one of the cards; the other set of blocks having a portion of the scale with a single note and a numeral corresponding to one of the numerals on the card, and an extra set of "Wyhoo" blocks, substantially as shown and described.

3. A game apparatus, comprising a game of cards having thereon different musical scales, each card being provided with an identifying-character and with a numeral above each note of the scale except the first or key note, each note being identified by its numeral, and sets of blocks to be placed above or below said cards, one set of such blocks containing a character corresponding to the identifying-character of one of the cards, the signature of the scale on such card, and the first note of such scale, and the other set of blocks containing a single note and its corresponding numeral, as set forth.

598,732. SPRAYING APPARATUS. JOHN H. BUNCH, North Hoosick, N. Y. Filed Sept. 19, 1896. Serial No. 606,393. (No model.)

Claim.—1. In a spraying apparatus, the combination of the tank, the air-pump, the laterally-vibrating agitator and mechanism for operating the same substantially as described.



2. In a spraying apparatus, the combination of the tank, the air-pump, the agitator and the lever for working the pump and agitator, the agitator-support forming the fulcrum upon which the lever works substantially as described.

3. In a spraying apparatus, the combination of the tank, the air-pump alongside of the tank, the looped piston-rod, the pump-operating lever hinged to the outer branch of said looped rod, and the laterally-vibrating fulcrum for said lever, hinged to the tank, substantially as described.

4 In a spraying apparatus, the combination of the tank and the flexible central part of its top, the air-pump alongside of said tank, the pump-operating lever hinged to the looped piston-rod of said pump, with the fulcrum for the lever hinged to the tank by means of lateral arms, and a central arm connected to the flexible part of the cover of the tank, and an agitator pendent from the central arm substantially as described.

5. In a spraying apparatus, the combination of the tank and the flexible central part of its top, the air-pump alongside of the tank, the pump-operating lever hinged to the piston-rod of the pump, with the fulcrum for the lever hinged to the tank by means of side arms, and a central arm rigidly connected to the fulcrum, and said central arm connected to the flexible part of the top of the cover, said flexible part constituting a packing or gasket to render the opening air-tight, substantially as described.

6. In a spraying apparatus, the combination of a vertical tank and its flexible top, a vibrating paddle having its spindle connection passing through said flexible top, said paddle being located within the tank, with its lower edge just over the discharge-pipe, with mechanism for actuating the paddle substantially as and for the purpose described.

7. In a spraying apparatus, the combination and arrangement of the air-tight tank, an air-pump located on the outside of said tank, a lever one arm of which is connected with the piston of the pump, the other arm is connected with the power to work the lever, and a fulcrum, hinged to the tank, and to which fulcrum is attached and actuated a vibrating paddle or agitator, substantially as described.

8. In a spraying apparatus, the combination of a flexible discharge-pipe, and the nozzle having inlet 21 about half-way of its length, the connecting-pipe D and the elbow D', the latter being threaded internally at both ends, the opening at one end being conical, the inlet 21 having thereon a check-nut having a conical top substantially as described.

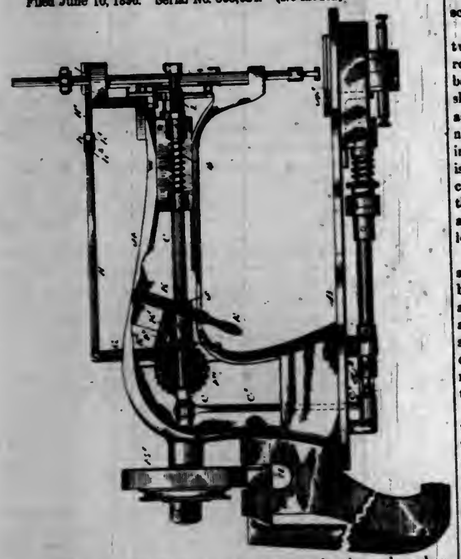
9. In a spraying apparatus, a nozzle connected to the discharge-pipe, consisting of a hollow cylinder, in which works a spindle on which is rigidly fixed a collar, in which is cut a spiral groove on its perimeter, said collar located near the outer or discharge end of the spindle and which fits into and moves snugly in said cylinder in the form of a piston, said spindle furnished with a spring at the end opposite the discharge end; the cylinder furnished with an inclosing cap at one end perforated to allow the discharge of the liquid; an inclosing cap perforated to receive the spindle, a solid portion also perforated to receive the spindle and to form a bearing therefor at the other end; substantially as described.

10. In a spraying apparatus, the combination of a flexible discharge-pipe and its nozzle having inlet 21 about half-way of its length, the connecting-pipe D, and the elbow D' having a screw-threaded and

conical opening at one end, with a check-nut, having a conical top and mounted upon the inlet 21, the nozzle having also a screw-cap at each end, packing in each screw-cap, a headed rod within the nozzle and a spring between one of the screw-caps and the head of said rod, substantially as described.

11. In a spraying apparatus, a nozzle connected to the discharge-pipe, consisting of a hollow cylinder in which works a spindle on which is rigidly attached a collar, in which is cut a spiral groove on its perimeter, said collar located at a point on the spindle near the outer or discharge end of the cylinder, and which fits into and moves snugly in said cylinder in the form of a piston, said spindle being furnished with a spring, at the end opposite the discharge end of the cylinder; furnished with an inclosing cap at one end perforated to allow the discharge of the liquid; an inclosing cap perforated to receive the spindle, the cylinder being solid for a short distance also perforated to form a bearing for the spindle at the other end; and the spindle formed to make a sharp point to enter the discharge-hole in the cap; substantially as and for the purpose described.

593,733. SEWING-MACHINE. GEORGE H. COLLEY, Jackson, Mich., assignor to the Weeks-Colley Manufacturing Company, same place. Filed June 10, 1896. Serial No. 595,021. (No model.)



Claim.—1. A sewing-machine having two shuttles and mechanism for driving the same, in combination with a single needle arranged for conjoint action with said shuttles, means for causing the needle to operate with either shuttle independently of the other or with both in alternation in forming successive stitches, and mechanism for actuating the needle, substantially as described.

2. A sewing-machine having a single needle and two shuttles arranged for conjoint action, means for actuating the needle and simultaneously driving both shuttles, means for automatically shifting the needle so that it shall operate first with one shuttle and then with the other in forming successive stitches, and means for automatically rewinding the shuttle-threads so as to adapt the shuttles to take up the under thread, substantially as described.

3. A sewing-machine having a single needle and a plurality of shuttles, a main driving-shaft adapted to impart a reciprocating movement to the needle-bar, a shuttle-driving shaft for simultaneously driving the two shuttles, mechanism actuated by said main shaft for imparting a partial rotation to the needle-bar when the needle is lifted, so as to adapt the needle to descend for operation first with one shuttle and then with the other, and means for causing the needle to operate at will with one shuttle only, substantially as described.

4. In a sewing-machine for flossing the combination with a single needle and means for imparting a reciprocating movement thereto, of means for moving the needle laterally each time it is lifted, a shuttle-driving shaft, a plurality of shuttles arranged to be driven by said shaft, and means for rewinding the bobbin-threads, substantially as described, whereby a single needle is adapted to operate alternately with a plurality of shuttles and the unused thread paid out by the bobbins is automatically rewound.

5. In combination with the vertically-reciprocating needle-bar and two shuttles arranged for conjoint action, and means for operating the same, means for vibrating or giving a partial rotation to said needle-bar when lifted so as to adapt the needle to operate alternately with two shuttles, comprising a cam arranged to rotate independently of but geared to the driving-shaft, an oscillating lever arranged to be actuated by said cam, a reciprocating pitman pivotally connected to said oscillating lever and carrying a rack at its free end, and a pinion or gear-wheel secured on said needle-bar in engagement with said rack-bar; said pinion being arranged to permit longitudinal movement of the needle-bar while imparting a rotatory or vibratory movement thereto and a clutch device for disengaging the needle-bar-vibrating mechanism so as to adapt the needle to operate with one shuttle only, substantially as described.

6. In a sewing-machine, the combination with a reciprocating needle-bar and means for imparting motion thereto, a movable presser-foot, a shuttle-race carrying two rotating shuttles, means for imparting motion to said shuttles, means for lifting the presser-foot when the needle is raised, and mechanism for imparting a vibratory movement to the needle-bar, so as to adapt the needle to operate alternately with the two shuttles, and a clutch device for disengaging the needle-bar-vibrating mechanism so as to adapt the needle to operate with one shuttle only, at the will of the operator, substantially as described.

7. In a rotating-shuttle sewing-machine, the combination with two rotating shuttles and a driving-shaft therefor, a vertically-reciprocating needle-bar, a main driving-shaft for actuating said needle-bar and connections between said main shaft and the shuttle-driving shaft for imparting motion from the former to the latter, and mechanism for giving a partial rotation to the needle-bar each time the needle is lifted, together with a presser-foot bar and means for raising the presser-foot when the needle ascends, whereby a single needle is adapted to operate alternately with two shuttles so as to form successive stitches first with one shuttle and then with the other, and the material intermittingly released when the needle and presser-foot are lifted to permit it to be moved to form a stitch of any desired length, substantially as described.

8. In combination with two rotatory shuttles, each having a spring-actuated bobbin adapted to automatically rewind the unused bobbin-thread paid out in forming a stitch, a single needle, and mechanism for reciprocating said needle and shifting its position laterally at each reciprocation, to adapt it to operate alternately with the two shuttles, means for stopping the motions of the needle and shuttles once during each complete revolution of the main driving-shaft, and means for lifting and holding the presser-foot in a raised position when the needle is lifted and stopped, substantially as described.

9. In a sewing-machine, the combination with a single needle, of two rotating shuttles each having a spring-actuated bobbin adapted to rewind the bobbin-thread which is not utilized in forming a stitch, means for imparting an oscillatory motion to the shuttles and for reciprocating the needle-bar, mechanism for vibrating the needle-bar so as to shift its position after each action, and mechanism for lifting the presser-foot when the needle is lifted, whereby a single needle is adapted to operate alternately with two shuttles in forming successive stitches and the underlying thread is automatically taken up between the stitches so as to avoid long threads or stitches on the under side of the goods, substantially as described.

10. In combination with the reciprocating needle-bar and means for imparting motion thereto, a vertically-movable presser-foot and means for raising the same each time the needle is lifted, together with a stop device adapted to arrest the action of the needle at each complete revolution of the driving-shaft comprising a wheel fast on the main driving-shaft provided with a peripheral lug, a continuously-driven wheel loose on said shaft but in frictional engagement with said fast wheel, a sliding bar provided with a notch or recess adapted to be thrown across the path of movement of said lug to permit the uninterrupted passage of the lug for continuous motion and means for shifting said sliding bar so as to cause the same to engage said lug and stop the main driving-shaft at each complete revolution with the needle and presser-foot lifted, substantially as described.

11. In combination with the needle, and two shuttles adapted to operate alternately therewith, and mechanism for imparting motion to said needle and shuttles, the stop mechanism comprising a disk or wheel fast on the driving-shaft and having a peripheral pin or lug, a band-wheel loose on said shaft in frictional contact with said disk and adapted to be continuously driven by suitable power, a stop-bar placed across the path of movement of said pin or lug and having a notch or recess therein to permit the passage of the lug when said recess is arranged in the path of the lug, and a rocking lever pivotally connected to said stop-bar, and means for rocking said lever so as to shift the position of the stop-bar to permit the lug on the stop-wheel to escape or pass, substantially as described.

12. In combination with the main driving-shaft and the shuttle-driving shaft driven thereby, for imparting motion to the needle and shuttles, respectively, two shuttles and a single needle arranged to operate with either shuttle, mechanism for giving a partial rotation to the needle-bar at each rotation of said main shaft, and a clutch device for throwing said mechanism into and out of gear to adapt the needle to be reciprocated for action with only one shuttle, or alternately with both, at the will of the operator, substantially as described.

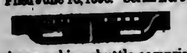
13. In a sewing-machine, the combination with the main driving-shaft and mechanism for imparting a reciprocating and vibratory motion to the needle-bar, of the shuttle-driving shaft and shuttles driven from said main shaft, and a clutch device for throwing said needle-vibrating mechanism into and out of gear, comprising a clutch-section loose on the main driving-shaft having a gear-wheel in mesh with a gear-wheel for imparting movement to the needle-bar-vibrating mechanism, a clutch-sleeve slidingly arranged on said main shaft so as to be driven thereby while permitting free movement thereof longitudinally of the shaft, and a lever for shifting said sleeve to adapt it to engage or disengage the loose clutch-section, substantially as described.

14. In combination with the main driving-shaft and mechanism actuated from said main shaft for imparting a reciprocating and vibratory motion to the needle-bar, a clutch device for throwing said main shaft into and out of gear with said needle-bar-vibrating mechanism, comprising a clutch-section loose on the main driving-shaft having a gear-wheel in mesh with a gear-wheel for imparting movement to the needle-bar-vibrating mechanism, a clutch-sleeve slidingly arranged on said main shaft so as to be driven thereby while permitting free movement thereof longitudinally of the shaft, a lever for shifting said sleeve to adapt it to engage or disengage the loose clutch-section, and a spring-arm carried by said lever having a stud adapted to engage the toothed section of the clutch device so as to hold the latter immovable in the position in which it is shifted when the clutch is disengaged, substantially as described.

15. In combination with the vertically-reciprocating needle-bar, the driving-shaft therefor, the presser-foot bar, and means for lifting the presser-foot once during each complete revolution of said shaft, mechanism for stopping the motion of the needle when the presser-foot is lifted, comprising a stop-wheel frictionally geared to a continuously-driven wheel on the main driving-shaft and having a lug adapted to engage a stop-bar arranged across the path of motion of the lug, together with said stop-bar having a notch or recess therein, and means for shifting the same so as to throw said notch across the path of motion of the lug and release the stop-wheel; whereby the latter may be caused to revolve continuously or stopped at each rotation of the driving-shaft, substantially as described.

16. In combination with a single needle adapted to operate alternately with two loopers, and means for actuating the same, two continuously-rotating loopers, and mechanism for operating said loopers, each looper being provided with a rotary bobbin, and means for automatically rewinding the bobbin-thread so as to adapt the loopers to take up the under thread, substantially as described.

593,734. SHUTTLE FOR SEWING-MACHINES. GEORGE H. COLLEY, Jackson, Mich., assignor to the Weeks-Colley Manufacturing Company, same place. Filed June 10, 1896. Serial No. 595,020. (No model.)



Claim.—1. A sewing-machine shuttle comprising a body portion having a hook, a rotary bobbin, tensioning devices therefor, and a spring arranged to yieldingly resist the rotation of said bobbin and to reverse its motion so as to rewind the unused bobbin-thread when the pull upon the latter is released, substantially as described.

2. A sewing-machine shuttle comprising a ring-shaped body portion having a hook, a stationary plate at one side of the opening in said ring having an arbor projecting from its inner face, a rotatable friction plate or disk journaled on said arbor within said ring, a bobbin incased in said ring arranged to rotate independently of said friction-plate but frictionally geared thereto so as to rotate therewith, and a spring arranged to resist the rotation of said bobbin and disk and to hold the disk normally in a fixed position relatively to the hook and to reverse the motion of the disk so as to return the same with the bobbin to normal position, when moved against the force of the spring; said frictional gearing being adapted to cause the bobbin and disk to move together and to permit independent movement of the bobbin when the friction is overcome, substantially as described.

3. A rotating shuttle comprising a body portion or ring having a hook and a side plate carrying an arbor, a disk journaled on said arbor, means for limiting the rotary movement of the disk, a spring adapted to yieldingly oppose the rotation of the disk and to restore it to normal position when moved against the force of the spring, a rotary bobbin, and friction devices adapted to cause the bobbin and disk to rotate together and to permit independent movement of the bobbin on the stoppage of the disk when the frictional resistance is overcome; whereby unused thread paid out by the bobbin may be automatically rewound or taken up, substantially as described.

4. A rotating shuttle comprising a main body portion or ring having a hook and a side plate or cover for the opening at one side of the ring, a hollow interiorly-screw-threaded spindle or arbor projecting from the inner face of said plate, a disk journaled on said arbor, a friction-ring adjacent to said disk and means for maintaining the proper friction or tension between said disk and ring to adapt them to rotate together in frictional contact, a detachable bobbin locked to said friction-ring so as to revolve therewith, means for limiting the rotatory movement of said disk, and a spring adapted to yieldingly oppose the rotation of the disk and to restore it to normal position when moved against the opposing force of the spring, substantially as described.

5. A rotating shuttle comprising a ring-shaped body portion having a hook and a stationary plate at one side of the opening in said ring having an arbor projecting from its inner side, a disk journaled on said arbor, a spring adapted to yieldingly oppose the rotation of the disk and to restore it to normal position when moved against the opposing force of the spring, a friction-ring journaled on the hub of said disk, means for maintaining the proper frictional resistance between said friction ring and disk to regulate the tension of the thread, means for securing the rotating disk and friction-ring on said arbor, a bobbin locked to said friction-ring so as to rotate therewith, and a stop for limiting the rotary movement of the disk, whereby the bobbin, friction ring and disk are adapted to rotate together until the motion of the disk is stopped, whereupon the bobbin and friction-ring may rotate together independently of the disk when the frictional resistance is overcome, so as to adapt the bobbin to automatically rewind or take up slack or unused thread, substantially as described.

6. A rotating shuttle comprising a ring-shaped body having a hook, a stationary plate or cover for one side of the opening in said ring having an interiorly-screw-threaded arbor projecting from its inner face, a rotary plate or disk journaled on said arbor, a friction-ring engaging said disk so as to rotate in frictional contact therewith, lock-nuts screwed upon the hub of said disks so as to maintain the proper frictional contact between said friction ring and disk, a bobbin having a bearing on said lock-nuts and locked to said friction-ring so as to rotate therewith, a screw-threaded plug having a flanged head screwed into said arbor so as to secure said disk thereon, a stop for limiting the rotary movement of the disk, and a coiled spring arranged between said stationary plate and disk, having one end fixed to said plate and the other end thereof engaging a fixed point on said disk, so as to yieldingly hold the disk in normal position and to restore it to such position when moved against the force of the spring, substantially as described.

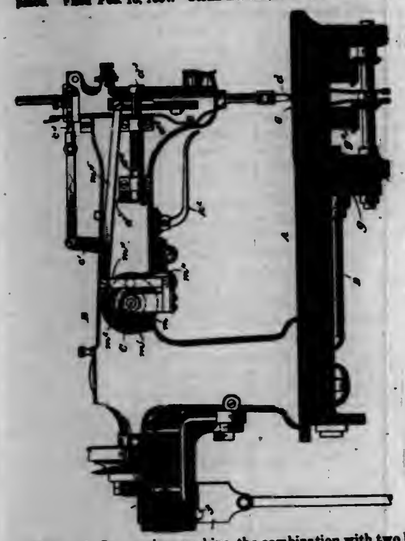
7. A sewing-machine shuttle comprising a ring-shaped body portion having a hook, a stationary plate fixed at one side of the opening through said ring and having an arbor projecting centrally from its inner face, a rotary plate journaled on said arbor, a spring adapted to yieldingly resist the motion of said rotary plate and to restore it to normaly position when moved in opposition to the spring, a stop to limit the movement of the latter plate, a bobbin detachably journaled adjacent to said friction-plate and means for causing the bobbin and friction-plate to rotate together until the motion of the latter is stopped and to permit independent movement thereafter of the bobbin opposed by the frictional resistance, whereby the required length of thread may be paid out by the bobbin and the unused portion thereof automatically rewound or taken up, substantially as described.

8. In combination with the rotary hook having the bobbin and the friction-plate journaled within the ring-shaped body portion thereof, means for regulating the tension of the bobbin-thread, a spring adapted by its recoil to reverse the motion of the bobbin when the thread is released, and means for limiting the rotary movement of the friction-plate while permitting independent rotary movement of the bobbin when the frictional resistance opposing its motion is overcome, substantially as described.

9. A rotary hook having a ring-shaped body portion with an aperture for the bobbin-thread extending from the inside of the ring to one side thereof, a stationary plate at one side of said ring having a hollow interiorly-screw-threaded arbor projecting from its inner face, an exteriorly-screw-threaded plug fitting the interior of said arbor having an aperture adapted to receive the bobbin-thread, a rotating disk journaled on said arbor, a spring arranged to resist the rotation of said disk, a bobbin journaled adjacent to said disk, and means for creating frictional resistance against the rotation of the bobbin, substantially as described.

10. A sewing-machine shuttle comprising a body portion, having a rotary bobbin, and a spring arranged to yieldingly resist the rotation of said bobbin and to reverse its motion so as to rewind the unused bobbin-thread when the pull upon the latter is released, substantially as described.

593,735. SEWING-MACHINE. THOMAS H. COLLEY, Jackson, Mich., assignor to the Weeks-Colley Manufacturing Company, same place. Filed Feb. 10, 1897. Serial No. 624,027. (No model.)



Claim.—1. In a sewing-machine, the combination with two loopers and mechanism for operating the same, of a needle-bar provided with a single needle, means for vertically reciprocating said bar, mechanism for imparting a partial rotation to the needle-bar when the needle is lifted so as to adapt the needle to descend for operation first with one looper and then with the other, a presser-foot, and means for raising and lowering said foot, together with mechanism for imparting a vibratory movement to the presser-foot while the latter is raised so as to correspond to the vibratory or rotary movement of the needle, substantially as described.

2. A sewing-machine having a single needle and two loopers, means for actuating the needle and loopers and means for automatically shifting the needle so that it shall operate alternately with the two loopers, a presser-foot and means for raising and lowering said foot, mechanism for imparting a vibratory movement to the presser-foot while the latter is raised, and means for causing the needle and presser-foot to operate at will with one looper only, substantially as described.

3. A sewing-machine having two loopers and a needle-bar provided with a single needle, a main driving-shaft for actuating the needle-bar, and a looper driving-shaft connected with and receiving motion from said main driving-shaft, mechanism for imparting a partial rotation to the needle-bar each time the needle is lifted so as to adapt the needle to descend and operate alternately with the two loopers, a bar provided with a presser-foot, means for raising and lowering said bar, a cam operated by the main driving-shaft, a lever adapted to be actuated by the cam when the latter is rotated, and connections between the lever and the presser-foot bar so as to vibrate the latter while in a raised position, substantially as described.

4. In a sewing-machine, the combination with a needle bar and a driving-shaft for actuating said bar, a bar having a presser-foot secured thereto, means for raising and lowering said presser-foot bar, a cam operated by the main driving-shaft, a lever pivoted at one end to a suitable support, a spring normally pressing said lever into engagement with the cam so that said lever will be operated in one direction by the cam and in the other by the spring, together with a link or rod connected at one end to the lever and at the other end to a stud or projecting arm on the presser-foot bar so as to vibrate the latter when the cam is rotated, substantially as described.

5. A sewing-machine having two loopers and a needle-bar provided with a single needle, a driving-shaft for actuating said bar, means connected to the driving-shaft for actuating the loopers, mechanism for imparting a partial rotation to the needle-bar when the needle is lifted so as to adapt the needle to descend for operation first with one looper and then with the other, a presser-foot and means for raising and lowering said foot, mechanism for imparting a vibratory movement to the presser-foot while the latter is raised, together with a clutch device for simultaneously throwing the needle-bar and presser-foot vibratory mechanisms into or out of gear with the driving-shaft so that said needle bar and presser-foot may operate alternately with the two loopers or with one looper only, substantially as described.

6. The combination with a reciprocating needle-bar and means for imparting motion thereto, of a vertically-movable presser-foot and means for raising the same each time the needle is lifted, a stop-wheel fast on the main driving-shaft and provided with a peripheral lug or tooth, a wheel loose on said shaft but in frictional engagement with said stop-wheel and adapted to be continuously rotated, a sliding bar provided with a notch or recess adapted to be thrown across the path of movement of said lug to permit the uninterrupted passage of the lug for continuous motion, and a vertically-movable cam-bar provided with a cam-slot engaging a portion of the sliding bar for shifting said sliding bar so as to cause the same when operated to engage the tooth on the stop-wheel and stop the main driving-shaft at each complete revolution, with the needle and the presser-foot lifted, substantially as described.

7. A sewing-machine looper, comprising a casing having a loop-engaging end or point, a stationary bobbin-casing arranged in said looper-casing so as to permit the latter to revolve around said bobbin-casing, a rotary bobbin arranged in the bobbin-casing, and a spring arranged to yieldingly resist the rotation of said bobbin and to reverse its motion so as to rewind the unused bobbin-thread when the pull upon the latter is released, substantially as described.

8. A sewing-machine looper, comprising a casing having a loop-engaging end or point, a bobbin-casing arranged in the looper-casing and provided with a lip or projection adapted to engage a portion of the machine so as to permit the looper-casing to revolve around said bobbin-casing, a rotary bobbin arranged in the bobbin-casing, tensioning devices, and a spring arranged to yieldingly resist the rotation of said bobbin and to reverse its motion so as to rewind the unused bobbin thread when the pull upon the latter is released, substantially as described.

9. A sewing-machine looper comprising a casing having a loop-engaging end, a removable bottom plate provided with an upwardly-projecting lip under said loop-engaging end, a bobbin-casing arranged in the looper-casing and provided with a projection or lip adapted to engage a portion of the machine so as to permit the looper-casing to revolve around said bobbin-casing, a rotary bobbin arranged in the bobbin-casing, tensioning devices, and a spring arranged to yieldingly resist the rotation of said bobbin and to reverse its motion so as to rewind the unused bobbin-thread when the pull upon the latter is released, substantially as described.

10. A rotating looper comprising a casing provided with a loop-engaging end or point, a bobbin-casing arranged in the looper-casing and provided with a projection or lip adapted to engage a portion of the machine so as to permit the looper-casing to revolve around said bobbin-casing, and a rotary bobbin arranged in latter casing; said casing being provided with a spindle or arbor projecting from the lower face thereof, a disk journaled on said arbor, tension devices arranged in the arbor in engagement with the disk and bobbin, and a spring adapted to yieldingly oppose the rotation of the disk and to restore it to its normal position when moved against the opposing force of the spring, substantially as described.

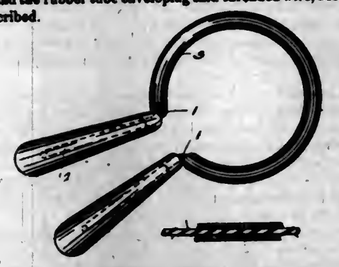
11. A sewing-machine looper comprising a casing, a rotary bobbin, means adapted to engage the needle-thread, a spring arranged to yieldingly resist the rotation of said bobbin and to reverse its motion so as to rewind the unused bobbin-thread when the pull upon the latter is released, and means for adjusting the tension of said spring, substantially as described.

12. A sewing-machine looper comprising a casing, means adapted to engage the needle-thread, an arbor independent of the casing, a rotatable disk, a rotary bobbin, tensioning devices therefor, a spring having one end secured to the arbor and its other end to the rotatable disk, so as to yieldingly resist the rotation of said disk and to reverse its motion when the pull upon the bobbin-thread is released, and means for adjustably securing the arbor to the casing to permit the tension on said spring to be varied, substantially as described.

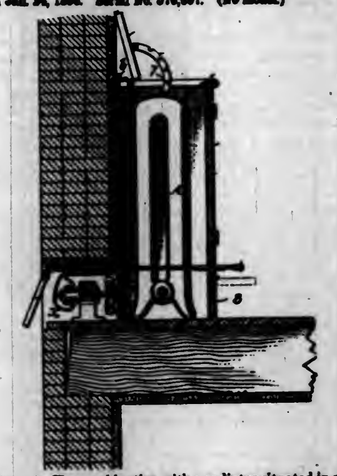
13. A sewing-machine looper comprising a casing having a loop-engaging end or point, a bobbin-casing arranged in said looper-casing so as to permit the latter to revolve around said bobbin-casing, an arbor independent of the bobbin-casing, a rotatable disk arranged on the arbor, a rotary bobbin arranged on said disk, tensioning devices therefor, a spring having one end secured to the arbor and its other end to the rotatable disk so as to yieldingly resist the rotation of said disk and to reverse its motion so as to rewind the unused bobbin-thread when the pull upon the latter is released, means for permitting the rotary adjustment of the arbor, and a screw for holding the arbor and bobbin-casing together, substantially as described.

593,736. JAR-WRENCH. ELIAS B. COLYER, Pittsburg, Pa. Filed Mar. 25, 1895. Serial No. 542,961. (No model.)

Claim.—The jar-opener consisting of the circular wire having integrally formed thereon a spiral thread and having handles at its ends, and the rubber tube enveloping said threaded wire, substantially as described.



593,737. HEATING AND VENTILATING DEVICE. ROBERT A. CORNIE, Philadelphia, Pa., and CHARLES R. FOSTER, Washington, D. C. Filed Jan. 24, 1896. Serial No. 576,697. (No model.)



Claim.—1. The combination with a radiator situated in an apartment or room, of a casing inclosing the radiator and provided with a fan-opening, and a fan arranged at said opening, the said casing being adapted to be thrown open at the top thereof, substantially as described.

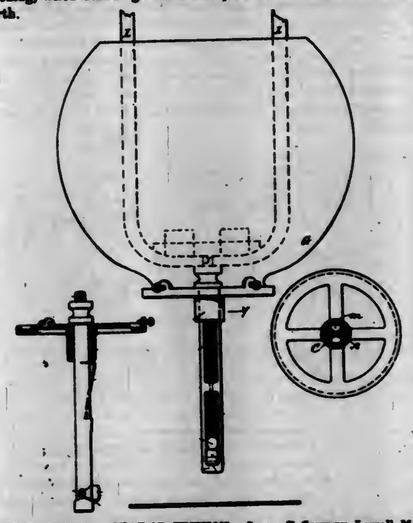
2. The combination with a radiator situated in an apartment or room, of a casing having a fan-opening and inclosing the radiator and adapted to be thrown open at the side, and a fan located at the opening, the said casing being also adapted to be thrown open independently at or near both the top and bottom portions thereof, substantially as described.

3. A casing adapted to be applied to a radiator as arranged in a fixed position in a room to be heated, to inclose the said radiator, and provided with inlet and outlet openings arranged respectively at the bottom and top thereof to both communicate with said room, a fan arranged to direct the air through one of the openings into the casing and force it through the casing to the other opening, and a motor for operating the fan, substantially as described.

593,738. ELECTRIC-ARC LAMP. WILLIAM B. CUSHMAN, Worcester, Mass., assignor to the Worcester Electric Light Company, same place. Filed Apr. 2, 1897. Serial No. 631,265. (No model.)

Claim.—1. In a globe-holder, the spindle having an opening therethrough with a solid-metal bearing-seat at the bottom of the opening; in combination with the swinging dog arranged in said opening, and having one end horizontally pivoted near the lower part thereof, its head or free end adapted to normally fall outward and project laterally from one side of the spindle, with the side of the dog supported upon said solid bearing-seat, said dog adapted to be turned upward within the opening to permit the globe-supporting collar to pass onto or from said spindle; said parts arranged and operating substantially as shown and described.

2. The combination with the frame, the globe, and globe-supporting collar in an electric-arc lamp; of the globe-holder spindle provided with a spring-latch that retains said globe and collar at elevated positions, and the pivoted laterally-projecting dog that sustains the said globe and collar when at lowered position, said dog arranged as described in an opening formed through the spindle, and its head adapted to seat upon the solid metal at the bottom of said opening, when standing at normal position, all substantially as set forth.



593,739. SEAT OR CUSHION. JAMES T. COWLEY, Lowell, Mass., assignor, by mesne assignments, to the American Metallic Cushion Company, of West Virginia. Filed Mar. 2, 1896. Serial No. 581,462. (No model.)



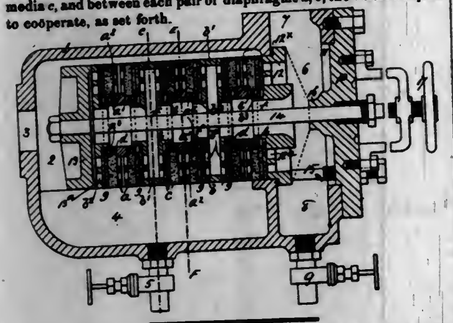
Claim.—1. In a seat or cushion, the combination of the upper, lower and intermediate flexible supporting-rods respectively arranged in planes substantially parallel, the upper and lower series of two-armed springs, each of said springs having an eye formed in each end and a coil in the bifurcation of the same, said springs arranged so that one arm of each in the upper set is in a plane substantially the same as the face of the cushion with the eye in the end of the same engaging with one upper supporting-rod and the coil in the bifurcation engaging with another upper supporting-rod, and so that the other arm extends to one of the intermediate supporting-rods and has the eye in the end of the same engaging with said rod to have a sliding hinged connection therewith, and the springs of the lower set arranged so that one arm of each of the springs thereof is in a plane substantially the same as the back of the cushion with the eye in the end of said arm engaging with one of the lower supporting-rods and the coil in the bifurcation engaging with another of said lower supporting-arms, and the other arm extended to an intermediate supporting-rod and having a sliding hinged engagement therewith.

2. A seat or cushion composed of two sets of two-armed springs having an eye in each end and a coil intermediate of said eyes, said springs arranged so that an arm of each of the springs of one set is in the plane substantially the same as the face of the cushion and so that an arm of each of the springs of the other set is in a plane substantially the same as the back of the cushion, the upper supporting-rods passing through the eyes and coils of the arms in the face of the cushion, the lower supporting-rods passing through the eyes and coils of the arms in the back of the cushion, the intermediate supporting-rods passing through the eyes of the inner arms of the springs and hinging said arms together, and the links extending along the outer edges of the face and back of the cushion and connecting the supporting-rods in said face and back respectively.

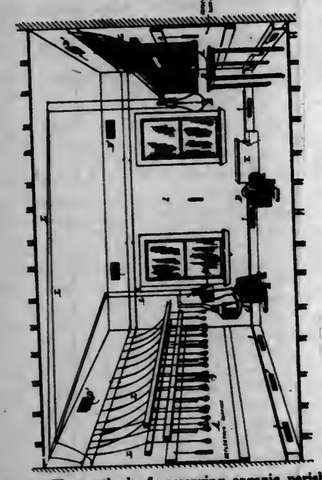
593,740. FEED-WATER-FILTERING APPARATUS. JAMES DAVIE, Glasgow, Scotland, and JOHN WORTHINGTON, London, England. Filed May 27, 1897. Serial No. 638,287. (No model.)

Claim.—In feed-water-filtering apparatus; in combination; a filter-body having inlet and outlet chambers and depending sediment-

collectors and an end opening 11, adapted with a removable cover, an adjusting-screw 14, a fixed plate 12, and adjustable plate 13; and a filtering device composed of series of pairs of perforated inlet-diaphragms *a*, spaced apart, closed at their inner peripheries, and formed with central annular bosses a^3, perforated outlet-diaphragms *b*, spaced apart, closed at their outer peripheries and formed with central bosses b^3, the bosses a^3, b^3, being telescopically arranged and constituting a central outlet, filtering media *c*, and separating-diaphragms *g*, interposed between each pair of diaphragms *a*, *b*, and flexible shields *d*, and contained springs *e*, arranged within the inner periphery of the media *c*, and between each pair of diaphragms *a*, *b*, the whole adapted to cooperate, as set forth.



593,741. METHOD OF PRESERVING PERISHABLE SUBSTANCES. WILLARD G. DAY, Baltimore, Md., assignor of two-thirds to William F. Howard, same place, and George H. Howard, Washington, D. C. Filed Sept. 14, 1896. Serial No. 605,770 (No specimens.)



Claim.—1. The method of preserving organic perishable substances, which consists in generating electrical energy, producing by said energy waves of radiant energy, bringing said radiant energy to the required strength and activity, and causing it to penetrate and act upon the perishable substances placed in proximity to the center of action for a sufficient length of time to destroy all germs of decay, substantially as set forth.

2. The method of preserving organic perishable substances, which consists in generating electric currents, carrying said currents to any desired point, producing by said currents, light, heat and actinic waves of energy, bringing said waves to the required strength and activity, and causing them to penetrate and act upon the perishable substances placed in proximity to said point of action for a sufficient length of time to destroy all germs of decay, substantially as set forth.

3. The method of preserving organic perishable substances, which consists in generating electric currents, carrying said currents to any desired point, producing by said currents a focus of radiant energy in, for example, an incandescent or arc lamp, by which light, heat and actinic waves are produced, and causing said waves to penetrate and act upon the perishable substances placed in proximity to said focus for sufficient length of time to destroy all germs of decay, substantially as set forth.

4. The herein-described method of preserving organic perishable substances from decay and deterioration, which consists in producing by an electric current light, heat and actinic or chemical rays capable of penetrating said substances, and in proximity exposing the same to the penetrative action of said rays for a sufficient length of time to accomplish the required result.

5. The method herein described of preserving organic perishable substances from decay and deterioration, which consists in producing by an electric current heat, light and actinic or chemical rays, capable of penetrating said substances, in proximity exposing the same to the penetrative action of said rays, and regulating the amount of electrical energy in accordance with the demand, and subjecting said germs to said action for such time as is in accordance with the strength of the germs to be destroyed in each particular case.

6. The method of preserving organic perishable substances from decay, which consists in producing by an electric current, light, heat and actinic or chemical rays, capable of penetrating said substances, and in proximity exposing said substances to the penetrative action of said rays for a sufficient length of time to accomplish the required result, and enveloping the said substances in a germ-protecting covering so as to prevent new access of germs to said substances, substantially as set forth.

7. The method of preserving organic perishable substances, which consists in generating electric currents, carrying said currents to any desired point, producing by said currents light, heat and actinic waves of energy, bringing the said waves to the required strength and activity, and causing them to penetrate and act upon the perishable substances placed in proximity to said point for a sufficient length of time to destroy all germs of decay, and subjecting said substances, while under the influence of said currents, to a circulation of air for carrying off therefrom the moisture liberated by the heat energy of said electric currents, substantially as set forth.

8. The method of preserving organic perishable substances, which consists in generating electric currents, carrying said currents to any desired point, producing by said currents light, heat and actinic waves of energy, bringing the said waves to the required strength and activity, and causing them to penetrate and act upon the perishable substances for a sufficient length of time to destroy all germs of decay, and subjecting said substances, while in proximity to and under the influence of said currents, to a circulation of artificially-dried air for carrying off therefrom the moisture liberated by the heat energy of said electric currents, substantially as set forth.

9. The method of preserving organic perishable substances, which consists in generating electric currents, carrying said currents to any desired point, producing by said currents light, heat and actinic waves of energy, bringing the said waves to the required strength and activity, and causing them to penetrate and act upon the perishable substances for a sufficient length of time to destroy all germs of decay, and subjecting said substances, while in proximity to and under the influence of said currents, to a circulation of artificially-dried and filtered air for carrying off therefrom the moisture liberated by the heat energy of said electric currents, substantially as set forth.

10. The herein-described method of producing an article of food, which consists in subjecting the food substance placed in proximity to the radiant energy of electric currents, utilizing therefrom the light, heat and actinic waves produced thereby, and carrying off the moisture liberated by the heat energy of said currents, substantially as set forth.

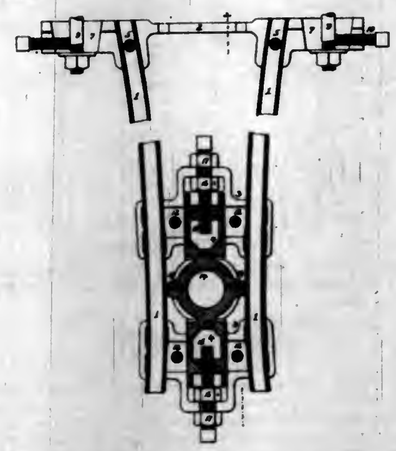
11. The method of producing an article of food, which consists in subjecting the food substance placed in proximity to the radiant energy of electric currents, utilizing therefrom the light, heat and actinic waves produced thereby, carrying off the moisture liberated by the heat energy of said currents, and finally pulverizing or grinding said substances, substantially as set forth.

12. The method of producing an article of food, which consists in subjecting the food substance placed in proximity to the radiant energy of electric currents, utilizing therefrom the light, heat and actinic waves produced thereby, carrying off by artificially-dried air the moisture liberated by the heat energy of said currents, and finally pulverizing or grinding said substance, substantially as set forth.

13. The method of producing an article of food, which consists in subjecting the food substance placed in proximity to the radiant energy of electric currents, utilizing therefrom the light, heat and actinic waves produced thereby, carrying off by artificially-dried and filtered air the moisture liberated by the heat energy of said currents, and finally pulverizing or grinding said substance, substantially as set forth.

593,742. SHAFT-HANGER. THOMAS C. DILL, Philadelphia, Pa., assignor to the T. C. Dill Machine Company, same place. Filed Apr. 1, 1897. Serial No. 630,279. (No model.)

Claim.—1. The combination in a shaft-hanger, of opposite hanger-rods, shaft-box-holding clamp-plates having jaws for embracing said rods, and bolts securing said clamp-plates together, substantially as specified.



2. The combination in a shaft-hanger, of the hanger-rods, bracket clamp-plates having jaws for embracing said rods, and bolts for securing said clamp-plates together, substantially as specified.

3. The combination in a shaft-hanger, of the hanger-rods, bracket clamp-plates having jaws for embracing said rods and bolts passing through said jaws and through the rods and serving to secure the clamp-plates together and to the rods, substantially as specified.

4. The combination with a shaft-hanger bracket having laterally-elongated slots, with securing-bolts passing through said slots, and set-screws projecting into said slots and bearing against the securing-bolts to lock the bracket thereto, substantially as specified.

5. A shaft-hanger in which are combined hanger-rods, bracket clamp-plates having jaws for embracing said rods, and laterally-elongated slots, supporting-bolts passing through said slots, bolts passing through the bracket clamp-plates and serving to secure the same together and to the hanger-rods, and adjusting and locking set-screws adapted to threaded openings in the bracket clamp-plates and projecting into the ends of the elongated slots therein so as to bear upon the supporting-bolts which pass through said slots, substantially as specified.

6. The combination in a shaft-hanger, of the hanger-rods, shaft-box-holding clamp-plates having jaws for embracing said rods, bolts for securing said clamp-plates together, and shaft-box supporting and guiding blocks contained in recesses in said clamp-plates, substantially as specified.

7. The combination in a shaft-hanger, of the hanger-rods, shaft-box-holding clamp-plates having jaws for embracing said rods, bolts for securing said clamp-plates together, shaft-box supporting and guiding blocks adapted to recesses in the clamp-plates, and adjusting-screws carried by said clamp-plates and engaging said blocks, substantially as specified.

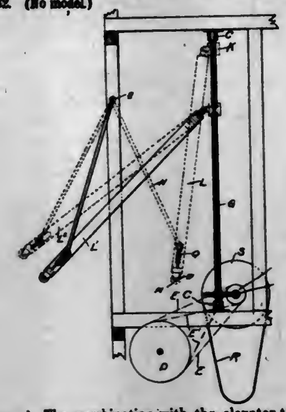
8. The combination in a shaft-hanger, of the hanger-rods, shaft-box-holding clamp-plates having jaws for embracing said rods, bolts for securing said clamp-plates together, shaft-box supporting and guiding blocks adapted to recesses in said clamp-plates, set-screws carried by said clamp-plates and engaging with said blocks, and locking collars and nuts on said adjusting-screws, substantially as specified.

9. The combination in a shaft-hanger, of the hanger-rods, shaft-box-holding clamp-plates having jaws embracing said rods, bolts for securing said clamp-plates together, shaft-boxes having ribs at top and bottom, and box supporting and guiding blocks adapted to recesses in the clamp-plates and having sockets for the reception of said ribs, substantially as specified.

10. The combination in a shaft-hanger, of the hanger-rods, shaft-box-holding clamp-plates having jaws for embracing said rods, bolts for securing said clamp-plates together, a shaft-box having ribs at top and bottom, box supporting and guiding blocks adapted to recesses in the clamp-plates and having sockets for the reception of said ribs, and means for vertically adjusting said blocks in the recesses of the clamp-plates, substantially as specified.

11. A divided shaft-box having ribs at top and bottom, and side wings on each part, which, when the box is closed, form side ribs, and a hanger structure having blocks with sockets for the reception of either the top and bottom or side ribs of the box, substantially as specified.

593,743. MARINE-LEG-PUSHING DEVICE. HAVELOCK E. HAND and LOUIS GREENBERG, Buffalo, N. Y. Filed June 30, 1897. Serial No. 642,962. (No model.)

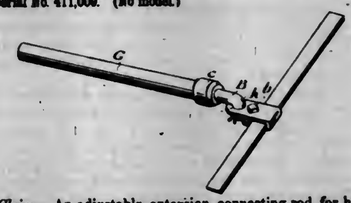


Claim.—1. The combination with the elevator tower or structure and the elevator-leg which is supported and capable of vertical movement in the same, of a pushing device arranged in said tower or structure and comprising a movable boom against which the leg rests, the leg being free to be raised and lowered past the outer end of the boom, a support for the outer end of the boom, and an adjusting device whereby the boom is moved in and out, substantially as set forth.

2. A marine-leg-pushing device comprising a boom adapted to bear with its outer end against the leg, a support for the outer end of the boom, a screw-nut to which the inner end of the boom is pivoted, and an actuating-screw, substantially as set forth.

3. A marine-leg-pushing device comprising a boom adapted to bear against the leg, said boom consisting of side pieces having longitudinal slots near their outer ends, a spring-pressed shaft arranged in said slots, pivoted supporting-rods connected to said shaft, and an actuating-screw and nut whereby the boom is moved in and out, substantially as set forth.

593,744. CONNECTING-ROD FOR ATTACHABLE SLEIGH-RUNNERS. JOHN F. HOBBS, North Berwick, Me. Filed Nov. 5, 1891. Serial No. 411,009. (No model.)



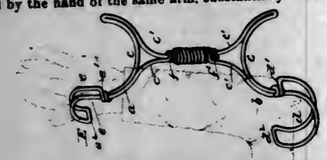
Claim.—An adjustable extension connecting-rod for holding a pair of sleigh-runners parallel with each other, consisting of a rod having each of its ends tubular to receive the shank of a bolt, the circumference of each end of said rod threaded for a distance and in opposite directions and having fitted thereon threaded couplings, the interior of the outer ends of said couplings reduced in diameter and threaded, said bolts each having a hook formed thereon, and the shank of each of said bolts threaded and fitted in the reduced ends of said couplings and the free ends of said hooks provided with apertures to receive a key to hold said hooks in place when engaged in eyes or apertures, substantially as shown and described.

593,745. CLOTHES-LINE HOLDER. GEORGE M. HUGHES, Buffalo, N. Y. Filed June 25, 1897. Serial No. 642,228. (No model.)

Claim.—1. A clothes-line holder adapted to be rigidly attached to the person and consisting of a frame having horns or guards at its upper and lower ends for confining the clothes-line thereon, and provided at its lower end at one edge with a laterally-projecting attachment constructed for engagement with the arm of the user and at its upper end directly above said arm attachment with a laterally-projecting attachment constructed for engagement with the hand of the same arm, substantially as set forth.

2. A clothes-line holder, consisting of a frame having horns or guards at its upper and lower ends for confining the clothes-line thereon

and provided at its lower end, at one edge with an upwardly-facing hook adapted to embrace the arm near the elbow, and at its upper end at the same side, with a downwardly-facing hook adapted to be engaged by the hand of the same arm, substantially as set forth.



3. A clothes-line holder, bent from a single length of wire and consisting of a frame having horns or guards at its upper and lower ends formed by doubling the wire upon itself and provided at one edge, at its upper and lower ends, respectively, with hand and arm hooks each composed of a pair of curved separated side bars connected by inner and outer cross-bars, substantially as set forth.

4. A clothes-line holder, consisting of concave side bars, upper and lower concave end bars connecting said side bars, and hand and arm hooks arranged at opposite ends of the holder, at one side thereof, the entire holder being bent from a single length of wire having its branches or end portions twisted around the contracted middle portion of the holder, substantially as set forth.

593,746. KRAUT-CUTTER. WILLIAM A. KIRKPATRICK and JOHN R. ROBBINS, Greensburg, Ind. Filed Nov. 23, 1896. Serial No. 613,170. (No model.)



Claim.—1. In a kraut-cutter, the combination with a suitable casing, of a rotary knife mounted in the same, means for revolving said knife, and a conical spring feeding-tube comprising a single piece of material bent so that its free edges overlap so that said tube may expand or contract as required, substantially as described.

2. In a kraut-cutter, the combination with a suitable casing, of a rotary knife mounted in the same, gearing for revolving said knife, a conical spring-tube comprising a single piece of material having its free edges overlapped so that said tube may expand or contract as necessary, and a spring connected to one of the free edges of said tube for assisting in holding the same in a contracted condition, substantially as described.

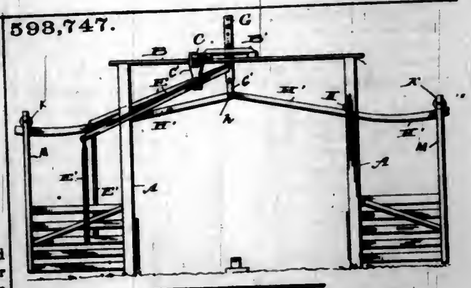
3. In a kraut-cutter, the combination with a suitable casing having a discharge-slot formed in its bottom, of a rotary cutter mounted above said slot, gearing for revolving said cutter, a fly-wheel for causing a uniform movement of said cutter, and a conical spring feeding-tube comprising a single piece of material having its free edges overlapped so that said tube may expand or contract as necessary, substantially as described.

4. In a krant-cutter, the combination with a suitable casing, of a rotary knife mounted in the same, means for revolving said knife, and a conical spring feeding-tube comprising a single piece of material having its edges overlapped, a rivet connecting said overlapping edges at one end, and a spring connected to one of the overlapping edges at the opposite end so as to normally hold this end of the feeder contracted to permit of its expansion when necessary, substantially as described.

593,747. GATE. CHARLES M. LANE, Olathe, Kans. Filed Apr. 20, 1897. Serial No. 633,005. (No model.)

Claim.—In a sliding gate, the combination with the posts A and cross-piece B, and the inclined tracks pivoted to said posts, the inner ends of the tracks being pivoted together and to a link by a common pivotal pin, of the post G pivoted at its lower end to said link, its upper end being guided in registering apertures in the cross-piece B, a strip B', and the adjusting-pin G', designed to engage in an adjusting-aperture in member G, the bar C and yokes C', pivoted at their upper bifurcated ends to the ends of said bar, the operating-levers E, fulcrumed on pivotal pins carried at the lower split ends of said yokes, the inner ends of said levers E being connected to the member G, and the pulleys K mounted at the upper ends of stiles M and designed to travel on said tracks, all substantially as shown and described.

593,747.



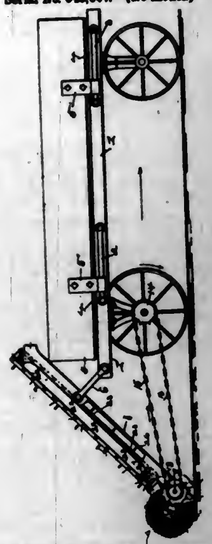
593,748. TWIN SNAP-HOOK. WILLIAM R. LAPSLEY and WALTER SALLEE, McAfee, Ky. Filed Dec. 28, 1896. Serial No. 617,296. (No model.)



Claim.—1. The herein-described sheet-metal snap-hook having a reinforced eye portion, laterally-yielding coextensive arms projecting respectively from the members of said eye portion, and terminating in hooks having respectively opposite throat portions and provided with outwardly flared or deflected extremities, said arms being connected contiguous to their bases by a transverse rivet and being intertwisted to dispose said hooks perpendicular to the plane of the eye, substantially as specified.

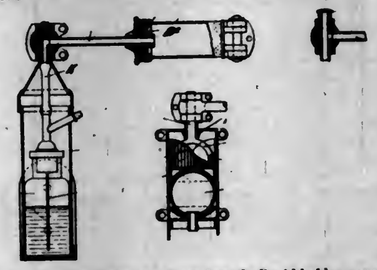
2. As a new article of manufacture, the herein-described sheet-metal snap-hook blank, having a central enlargement, and terminal enlargements connected with the central enlargement by reduced arms, the central enlargement being provided with openings arranged at equal distances upon opposite sides of the transverse center of the blank, the terminal enlargements being provided with openings having throat portions arranged respectively at opposite sides of the blank to form oppositely-turned hooks, and the arms being provided at their bases, contiguous to said central enlargement, with rivet-perforations, substantially as specified.

593,749. STREET-SWEEPER. JOHN Z. LEVY, Apollo, Pa. Filed June 14, 1897. Serial No. 640,667. (No model.)



Claim.—The combination with a wagon, of the inclined links, the inclined conveyer-pan secured thereto, the transverse shafts at the upper and lower ends thereof provided with spiders, the endless chain passing around the same provided with blades, the sprocket-pinion on one end of the lower shaft, the sprocket-chain, the rotatable brush having a sprocket-pinion at one end with which said chain engages, the cog-pinion at the other end of said brush, the pinion meshing therewith secured to a stud-shaft, the sprocket-pinion on said stud-shaft, the chain connected therewith and the sprocket-pinion on the wagon-axle with which said chain is also connected, substantially as described.

593,750. ATOMIZER. GEORGE G. MABEE, London, England. Filed June 10, 1896. Serial No. 594,923. (No model.) Patented in England Oct. 24, 1895, No. 20,070; in Belgium May 11, 1896, No. 121,209; in France May 13, 1896, No. 254,267; in Germany June 1, 1896, Nos. 88,543 and 88,540; in Switzerland June 2, 1896, No. 12,501; in Austria July 29, 1896, No. 46/3,040; in Italy Sept. 1, 1896, LXXXIII, 170; in Hungary Sept. 4, 1896, No. 7,296; in Norway Sept. 5, 1896, No. 5,194; in Sweden Sept. 7, 1896, No. 7,999, and in Spain Nov. 21, 1896, No. 19,594.



Claim.—In combination in an atomizer, the liquid-holder, a spray-pipe, the air-pump comprising the cylinder and piston, a permanent pipe connection between the pump and the spray-pipe, an air-escape nipple connecting with the said pipe, and means for opening and closing the said nipple whereby the air may be allowed to escape from the pipe while the same remains connected with both the air-pump and the spray-pipe.

593,751. MITER-BOX. JOHN T. MILLER and JOSEPH A. DENNEY, Mount Ayr, Iowa. Filed July 26, 1897. Serial No. 646,008. (No model.)



Claim.—1. In a miter-box, the combination with the bed-plate and a casting secured to the bottom thereof near its rear edge, said casting having a stem projecting beyond the rear edge, of a plate mounted on the said stem to turn thereon, a saw-guide supported in said plate to turn axially therein, a rod having a hinged connection to said casting and extending to the front of the miter-box, means to slidably support the front end of said rod, and a saw-guide supported by said rod substantially as described.

2. In a miter-box, the combination with the bed-plate, of a semicircular slotted guide-plate secured to the front edge of the bed-plate, a casting secured to the bottom of the bed-plate near its rear edge and having a rounded stem projecting beyond the bed-plate, a plate pivoted on the said stem, a saw-guide supported by the plate to turn axially therein, a rod having a hinged connection at its rear end to said casting and being supported at its front end in the slot of the said guide-plate, a tabular standard connected to said rod in front of the bed-plate, and a saw-guide supported in said standard substantially as described.

3. In a miter-box, the combination with the bed-plate, of a semicircular slotted guide-plate secured to the front edge of the bed-plate, a casting secured to the bottom of the bed-plate near its rear edge and having a socket and an outwardly-flaring recess formed therein, and a rounded stem projecting beyond the bed-plate, a semicircular plate pivoted on the said stem, a saw-guide supported by the plate to turn axially, a rod extending at its rear end into the said flaring recess and having a ball-shaped head seated in said socket, said rod being supported at its front end in the slot in the guide-plate, a tabular standard carried by said rod in front of the bed-plate, and a saw-guide supported in said standard to move longitudinally therein, substantially as described.

4. In a miter-box, the combination with the bed-plate and a casting secured to the bottom of the plate near its rear edge and having a rounded stem projecting beyond said edge, a semicircular plate mounted on said stem to turn thereon, and having a scale formed on its periphery, a fixed pointer to cooperate with the scale, means to lock said plate against turning, a saw-guide supported in said plate to have axial turning, a rod hinged at its rear end to said casting, means to support the front end of said rod in advance of the bed-plate, and a saw-guide supported by said rod, substantially as described.

5. In a miter-box, the combination with the bed-plate and a casting secured to the bottom thereof near the rear edge, said casting having a stem projecting beyond said rear edge, said stem having a flattened portion on its upper face, a semicircular plate mounted on said stem to turn thereon, spaced guides carried by said plate, a collar supported on said stem adjacent to the plate, a bar rigidly connected to said collar to engage the flattened portion of said stem, a saw-guide supported between said spaced guides to move vertically and its lower end engaging said bar, and wedges carried by said bar on opposite sides of the saw-guide with their thin faces opposing each other, substantially as described.

6. In a miter-box, a rod extending below the bed-plate and supported at its ends to turn axially, a slotted tubular standard secured to said rod near its front end and extending above the bed-plate, a bar extending through the slot in the tubular standard and supported at its ends against axial movement, a disk within the tubular standard connected to said bar to move longitudinally thereon and locked against rotary movement thereon, and a saw-guide loosely fitted in the said standard and supported at its lower end on said disk, substantially as described.

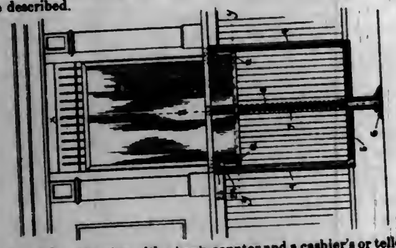
7. In a miter-box, the combination with the bed-plate, of spaced guides at the rear edge of the bed-plate and a tubular standard in front of the bed-plate, said guides and standard being supported to swing laterally in either direction from a vertical position, saw-guides supported by the spaced guides and the standard, respectively, to have vertical movement therein, and devices to engage the lower ends of said saw-guides and move them within their supports when the latter are swung laterally from a vertical position, substantially as described.

8. In a miter-box, the combination with the bed-plate and a casting secured to the rear edge thereof, said casting having a stem projecting beyond said edge, of a semicircular plate mounted to turn on said stem, said plate having a straight edge on its lower portion, spaced guides carried by said plate, a slotted semicircular bar secured to the front edge of the bed-plate, a rod connected at its rear end to said casting to turn axially therein and also to swing horizontally, said bar having a vertical transverse slot near its front end, a bracket having spaced ears secured to the straight edge of the said semicircular plate, a second rod extending parallel to the first-named rod and pivoted at its rear end between said spaced ears to swing vertically and horizontally, and having spaced ears at its front end, a tubular standard having a rod extending from its lower end through the slot in the first-named rod and between the spaced ears of the second rod, and being pivotally connected to both rods, and saw-guides supported respectively by the tubular standard and said spaced guides, substantially as described.

593,752. CASHIER-PROTECTOR. JOHN A. MURRAY and THEODORE IVERS, Schaller, Iowa. Filed Nov. 27, 1896. Serial No. 613,543. (No model.)

Claim.—1. The combination with a bank-counter and a cashier's

or teller's window located above the same, of a pair of vertically-disposed guide-rods located beneath said counter, a protecting plate or sheath movable between said guide-rods, loops upon the outer edges of said plate surrounding said guide-rods, a vertical tubular rod or bar located between said guide-rods, a spring attached to said tubular rod and to said window for normally urging the latter upwardly, means for holding said plate normally beneath said counter, and means for releasing said plate, substantially as and for the purpose described.



2. The combination with a bank-counter and a cashier's or teller's window located above the same, of a pair of vertically-disposed parallel guide-rods located beneath said counter, a protecting plate or sheath movable between said guide-rods, loops upon the outer edges of said plate, surrounding said guide-rods, a vertical tubular rod or bar located between said guide-rods, a collar secured to the lower end of said plate, and surrounding said tubular rod, a coil-spring surrounding said tubular rod connected at its upper end thereto and at its lower end to said collar, means for holding said plate normally beneath said counter, and foot-actuated mechanism located on the inside of said counter for releasing said plate, substantially as and for the purpose described.

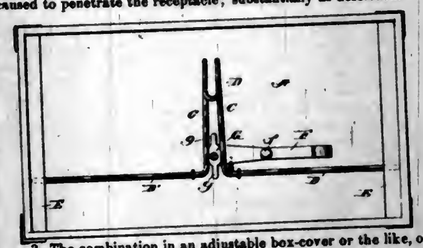
3. The combination with a bank-counter and a cashier's or teller's window located above the same, of a pair of vertically-disposed parallel guide-rods located beneath said counter, a protecting plate or sheath movable between said guide-rods, loops upon the outer edges of said plate surrounding said guide-rods, a vertical tubular rod or bar located between said guide-rods and formed with an elongated slot therein, a collar secured to said plate and surrounding said tubular rod, a cylindrical rod slidingly mounted on the inside of said tubular rod and connected to said collar by means of a pin which moves in said slot, a coil-spring surrounding said tubular rod connected at its upper end thereto and its lower end to said collar, and a trigger adapted to engage the rod on the inside of said tubular bar for normally holding said plate in its lowered position; the said trigger being adapted to be operated by foot from the inside of the counter, substantially as and for the purpose described.

4. The combination with a bank-counter and a cashier's or teller's window located above the same, of a pair of vertically-disposed parallel guide-rods located beneath said counter, a protecting plate or sheath movable between said guide-rods, loops upon the outer edges of said plate surrounding said guide-rods, a vertical tubular rod or bar located between said guide-rods and formed with an elongated slot therein and with a slot or opening at its lower end, a collar secured to said plate and surrounding said tubular rod, a cylindrical rod slidingly mounted on the inside of said tubular rod and connected to said collar by means of a pin which moves in said slot, a coil-spring surrounding said tubular rod connected at its upper end thereto and at its lower end to said collar, provided with a notch or shoulder at a point near its lower end which is adapted to register with the opening in the lower end of said tubular rod when said plate is in its lowered position, and a trigger whose engaging end is adapted to project through the opening in the lower end of said tubular rod and to engage said notch or shoulder for holding said plate normally in its lowered position against the action of said spring, the said trigger being adapted to be operated by foot from the inside of said counter for releasing said plate, substantially as and for the purpose described.

593,753. BOX-FASTENER. JOHN W. MYERS and CLARENCE A. MYERS, Quincy, Ill. Filed Aug. 30, 1897. Serial No. 649,968. (No model.)

Claim.—1. The combination with an adjustable box-cover, of a fastener formed of a single piece of wire having the oppositely-extending locking-arms, and central doubled portion, a locking-lever having an enlarged head, working between the legs of the doubled portion, whereby they may be spread; substantially as described.

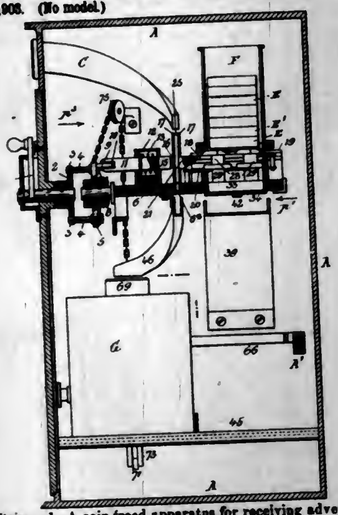
2. The combination with an adjustable box cover, of a fastener formed of a single piece of wire, having the oppositely-extending pointed arms for penetrating the receptacle, and a central doubled portion, a horizontally-pivoted lever having the head wider in one direction than in the other, lying between the legs of the doubled portion, whereby when the lever-head is turned with its wider portion at right angles to said legs, they will be spread apart and the arms caused to penetrate the receptacle; substantially as described.



3. The combination in an adjustable box-cover or the like, of a fastener formed of a single piece of wire bent to form the central doubled portion and oppositely-extending arms, and a lever having an enlarged head lying between the legs of the doubled portion, and provided with the overhanging lugs; substantially as and for the purpose set forth.

4. The combination in an adjustable box-cover of a fastener formed of a single piece of wire bent to form the central doubled portion and oppositely-extending locking-arms, a horizontal pivoted lever, for spreading said arms, and the locking projection carried by said lever; substantially as described.

593,754. AUTOMATIC ADVERTISER. HANS PETSCH and HUGO SOUKUP, Vienna, Austria-Hungary. Filed July 29, 1896. Serial No. 600,903. (No model.)



Claim.—1. A coin-freed apparatus for receiving advertisements comprising a casing, a coin-freed device within the casing for holding a series of articles adapted to receive the advertisement and to deliver them in exchange for a coin, and a compartment within the casing for receiving the articles after the advertising matter has been placed therein, substantially as described.

2. In combination, the casing, the coin-freed device therein adapted to deliver an article designed to receive advertising matter in exchange for a coin, a removable compartment within the casing designed to receive the articles after the advertising matter has been written thereon and also the coin from the coin-freed apparatus, and means whereby the admission of the articles containing advertising matter is prevented when the removable compartment is removed, substantially as described.

3. In combination, the casing, the magazine for holding articles adapted to receive advertising matter, the carriage for delivering said articles, the coin-chute, the operating-handle designed to be normally disconnected from the carriage, means for causing the coin to connect the operating-handle and delivery-carriage to deliver the article, and a compartment to receive the article after the advertising matter has been placed therein, substantially as described.

4. In combination, the casing, the magazine for the articles designed to receive advertising matter, the carriage for delivering said articles singly, the operating-handle normally disconnected from said carriage, the coin-chute, the lever arranged to retain said coin in a position to operatively connect the handle and carriage, and the second lever adapted to be operated by the weight of the article as it leaves the carriage to restore said first-named lever to normal position, substantially as described.

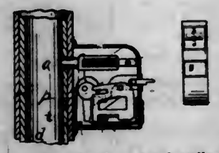
5. In combination, the casing, the magazine for holding articles designed to receive advertising matter, the coin-controlled operating-handle for effecting the delivery of said articles, the removable compartment for receiving the articles after the advertising matter has been placed therein, the coin-receiving cylinder in said compartment, and means for agitating the coins within said cylinder to cause them to lie flatwise, said agitating means being operated from the operating-handle, substantially as described.

6. In a coin-controlled device for delivering articles designed to receive advertising matter, the combination with the casing, of a removable compartment, a coin-receiving cylinder therein, a second cylinder telescoping in said coin-cylinder and having a slot for the admission of the coin, means for holding said second cylinder in an elevated position and permitting it to drop upon the coins in the coin-receiving cylinder upon the removal of the compartment from the casing, and means carried by said cylinder for automatically locking them together when the upper cylinder is so released, substantially as described.

7. In a coin-controlled device of the character described, the combination with the casing, of the removable compartment, the coin-receiving cylinder therein, the toothed rods pivotally connected therewith under spring tension, the second cylinder telescoping in the coin-cylinder and having hooked arms for engaging the toothed rods when said second cylinder drops therein, the slides for passing the toothed rods inward to prevent the sinking of the second cylinder within the coin-cylinder while it is being put in place, the stationary fork within the casing adapted to engage the toothed rods and hold them pressed inward toward the second cylinder, means whereby the said stationary fork moves the slides from contact with the fork and sets the parts in such a position that upon the removal of the compartment from the casing the second cylinder sinks within the coin-cylinder and is automatically locked therein, substantially as described.

8. In a coin-freed apparatus for delivering articles designed to receive advertising matter, a removable compartment designed to receive back the articles after the advertising matter has been placed therein, a counting-disk, and dog-and-ratchet connections whereby said disk is operated by the removal of the compartment from the casing, substantially as described.

593,755. LOCK FOR BICYCLES. WILLIAM H. POND and WILLIAM H. TAIPE, Providence, R. I. Filed Aug. 26, 1897. Serial No. 649,573. (No model.)



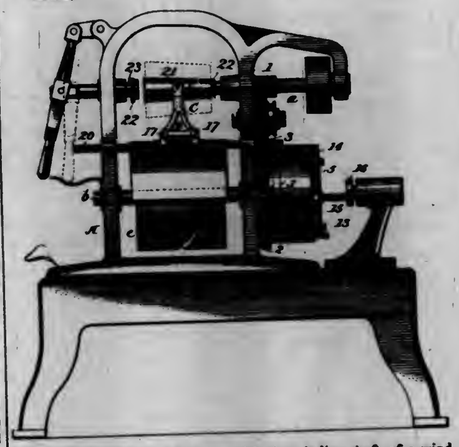
Claim.—1. In a lock of the character described the combination of a bolt forked to admit a stationary stud to guide it, an open spiral spring held in said fork to press the bolt in to accomplish the locking, a lever pivoted at its center and having one end held in a notch in said bolt and its other end extending down by a sliding plate, a sliding plate arranged to push said lever and accomplish the unlocking, a latch pivoted to said plate and arranged to catch on the case and hold the bolt unlocked, a series of pivoted tumblers to hold said sliding plate from pushing said lever, substantially as described.

2. In a lock of the character described, the combination of a bolt, a lever to operate said bolt, a sliding plate to push the lever, one or more pairs of pivoted tumblers to control said sliding plate, a dog held on a pin to connect the two plates of a pair, a spring arranged to press on one plate of a pair, substantially as described.

3. In a lock of the character described the combination of a bolt, a lever to operate said bolt, a sliding plate to push the lever, one or more pairs of pivoted tumblers to control said sliding plate, a dog held on a pin to connect the two plates of a pair, a spring arranged to press on one plate of a pair, a sliding plate to close the keyhole, a spring arranged to press said plate up over the keyhole when not in use, substantially as described.

4. In a lock of the character described the combination of a bolt, a lever to operate said bolt, a sliding plate to push the lever, one or more pairs of pivoted tumblers to control said sliding plate, a dog held on a pin to connect the two plates of a pair, a spring arranged to press on one plate of a pair, a front tube of a bicycle-frame to hold the lock having a hole in it to receive the end of the bolt, a bicycle-guiding stem having a hole in it corresponding to the hole in said tube when the wheel is at an angle to the bicycle-frame, substantially as specified.

593,756. MACHINE FOR WINDING TAPERING COPS. SIMON W. WARDWELL, Jr., Boston, Mass., assignor to the Universal Winding Company, Portland, Me. Filed Nov. 28, 1893. Serial No. 492,264. (No model.)



Claim.—1. The combination with the winding-shaft of a winding-machine, of a reciprocating guide having a flat face, means for maintaining the guide with a yielding pressure in contact with the face of the cop being wound, and a connection between the head of the guide and its support whereby the said guide is self-adjusting to a position parallel to the face of the cop, substantially as and for the purpose set forth.

2. The combination with the winding-shaft and tapering holder, of a reciprocating guide supported to move to and from the holder, and with a flat bearing-face having an eye at right angles thereto, means for maintaining the guide in contact with the cop, and a connection between the guide and its support permitting the guide to turn laterally to automatically accommodate itself to the form of the cop, and maintain the said eye at right angles to the face of the cop, substantially as set forth.

3. The combination of the winding-shaft and reciprocating guide of a winding-machine, of means for varying the relative movements of the guide and the winding-shaft, the said guide having a flat face bearing on the cop and being supported to turn laterally to automatically maintain its parallelism at all times with the face of the cop, substantially as set forth.

4. The combination in a winding-machine, of the winding-shaft, a reciprocating frame, a guide supported by said frame and consisting of two sections, the upper section having a flat face and an eye or slot at right angles to said face and pivotally connected to the lower section, and means for maintaining the face of the guide in contact with the surface of the cop, substantially as set forth.

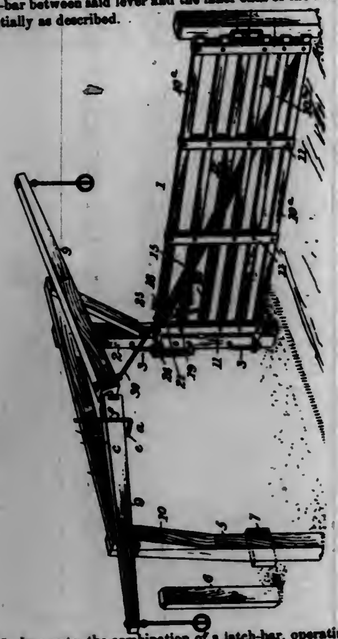
593,757. SWINGING GATE. WILLIAM R. WHITE, Bloomington, Ill. Filed Mar. 23, 1897. Serial No. 628,856. (No model.)

Claim.—1. In a gate, the combination with suitable hand operating-levers, supporting-posts therefor, and a cross-brace, of a guide for said levers comprising a frame having one side or member thereof embedded in a groove in said brace and one end projected into or through the brace and the other end left free, substantially as described.

2. In a gate, the combination of a latch-bar, operating hand-levers for the gate, a combined rocking and oscillating lever for operating the latch-bar, the same having an independent movement vertically, and a connecting-bar between said lever and the hand-levers, substantially as described.

3. In a gate, the combination of a latch-bar; operating hand-levers for the gate, a lever for operating the latch-bar having a short arm connecting with the gate and rocking in a horizontal plane above the latch-bar, and a longer arm oscillating in a substantially vertical plane to move the bar, and a connecting-bar between said lever and the hand operating-levers, substantially as described.

4. In a gate, the combination of a latch-bar, operating hand-levers for the gate, a lever for operating the latch-bar having a short arm connecting with the gate and rocking in a horizontal plane, and a longer arm oscillating in a substantially vertical plane to move the bar, said lever having an independent vertical movement, and a connecting-bar between said lever and the inner ends of the hand-levers, substantially as described.



5. In a gate, the combination of a latch-bar, operating hand-levers for the gate, a lever for operating the latch-bar having a limited vertical movement and constructed of a short arm and a long arm joined by an eye or loop, the said short arm connecting with the gate, and the said long arm having a working bearing on the gate, and a bar in movable connection with said eye or loop and with one of the hand operating-levers, substantially as described.

6. In a gate, the combination of a latch-bar, operating hand-levers for the gate, a combined rocking and oscillating lever for operating the latch-bar the same having an independent vertical movement and being constructed of a short arm in movable connection with the gate at the top, and a long arm in movable connection with the bar, and a connecting-bar between said lever and one of the hand-levers, substantially as described.

7. In a gate, the combination of a latch-bar, a horizontal bearing projecting from the far side of the gate at the top, and a similar bearing projecting from the opposite side of the gate above the latch-bar and to one side of said first bearing, a combined rocking and oscillating lever having a short arm passing through the first bearing and secured against vertical displacement, and a long arm inclining in the direction of the hinged end of the gate and passing through the second bearing and being in movable connection with the latch-bar, and a connecting-bar between said lever and the inner end of one of the hand-levers, substantially as described.

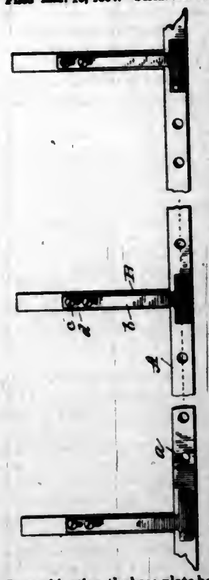
8. In a gate, the combination of posts arranged in the sweep or path of the free end of the gate, and at a right angle and an obtuse angle, respectively, to the plane of the gate when closed, the gate provided with a movable latch-bar, operating hand-levers for the gate, means for operating the latch-bar, and connections between said means and the inner end of one of the hand-levers, substantially as described.

9. The combination in a gate, of a longitudinally-movable latch-bar constructed with a loop for engaging the gate-posts in its open and closed positions, said loop being extended vertically and supported and guided between guides above and below the latch-bar, substantially as described.

10. The combination in a gate constructed of longitudinal rods or bars, of a movable latch-bar constructed with a loop for engaging the gate-posts in its open and closed positions, said loop being supported and guided between the gate rods or bars next adjacent to the latch-bar above and below the latter, substantially as described.

11. The combination in a gate, of a longitudinally-movable latch-bar constructed with a loop for engaging the gate-posts in its open and closed positions, said loop being supported and guided between guides on the gate above and below the latch-bar, substantially as described.

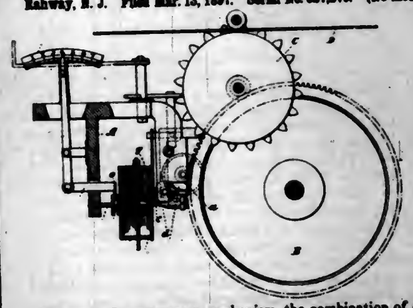
598,758. PORTABLE BOOK-RACK. GUSTAVUS P. ALLEN, Cambridge, Mass. Filed Mar. 19, 1897. Serial No. 628,236. (No model.)



Claim.—1. In combination, the base-plate having a series of openings in each side edge thereof, a transverse partition adapted to rest upon the base-plate, and a movable plate under spring tension secured to each end of said partition having a T-shaped lower end and projections on said end spaced a distance apart adapted to engage the openings and support the partition, substantially as described.

2. In combination, a base-plate made in parts connected together by dowels and openings and a partition above the point of connection, plates carried by said partitions and crossing the line of junction on each edge of the base-plate and projections from said plates engaging openings in the adjacent ends of the joined base-plate, substantially as described.

598,759. GOVERNOR MECHANISM. GUSTAV A. BRACHHAUSEN, Rahway, N. J. Filed Mar. 13, 1897. Serial No. 627,279. (No model.)



Claim.—1. In a governor mechanism, the combination of overlapping automatically-expanding wings and means under control of an operator during the rotation of the governor for varying the distance of said wings from the center of rotation of the governor independently of the automatic operation thereof and for increasing or decreasing the extent to which said wings overlap.

2. In a governor mechanism, the combination of overlapping automatically-expanding pivoted wings and means under control of the operator for varying the distance of said wings from the center of rotation of said governor and for increasing or decreasing the extent to which said wings overlap.

3. In a governor mechanism, the combination of pivoted governing elements and means under control of the operator for varying the distance of the pivots of said elements from the center of rotation of said governor.

4. In a governor mechanism, the combination of overlapping pivoted wings and means under control of the operator for varying the distance of said wings from the center of rotation of said governor and for increasing or decreasing the extent to which said wings overlap.

5. In a governor mechanism, the combination of pivoted wings and means under control of the operator for varying the distance of the pivots and free ends of said wings from the center of rotation of said governor.

6. In a governor mechanism, the combination of automatically-expanding pivoted wings and means under control of the operator for varying the distance of the pivots and free ends of said wings from the center of rotation of said governor.

7. In a governor mechanism, the combination of pivoted governing elements, movable arms, a spring connecting each of said arms with a pivoted governing element and means for moving said arms to vary the distance of the governing elements from the center of rotation of said governor.

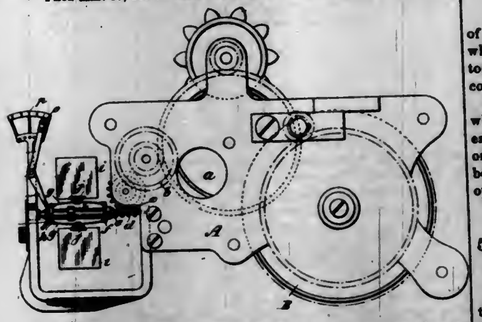
8. In a governor mechanism, the combination of pivoted governing elements, movable arms, a spring connecting each of said arms with a pivoted governing element, a movable cam contacting with said arms to vary the distance of the governing elements from the center of rotation of said governor and means under control of the operator for moving said cam.

9. In a governor mechanism, the combination of pivoted governing elements, movable arms, a spring connecting each of said arms with a pivoted governing element, a frusto-conical cam longitudinally movable upon the governor-shaft and adapted to contact with the arms to vary the distance of the governing elements from the center of rotation of the governor.

10. In a governor mechanism, the combination of pivoted governing elements, movable controlling-arms, a connection between the free portion of each of said governing elements and one of said arms, a second arm connected with each of said controlling-arms, each of said second-named arms being pivotally connected with a governing element and means under control of the operator for moving the controlling-arms to vary the speed of the governor.

11. In a governor mechanism, the combination of pivoted governing elements, movable controlling-arms, a spring connecting each of said arms with a pivoted governing element, a supporting-arm connected with each of said controlling-arms, each of said supporting-arms constituting a carrier for a governing element and means for moving the said controlling-arms to vary the distance of the governing elements from the center of rotation of the governor.

593,760. GOVERNOR. GUSTAV A. BRACHHAUSEN, Rahway, N. J. Filed Mar. 13, 1897. Serial No. 627,280. (No model.)



Claim.—1. In a governor mechanism, the combination of automatically-expanding governing elements mounted upon springs, each of which is fixed against longitudinal movement at one end and controlling means for deflecting said springs from the free ends thereof.

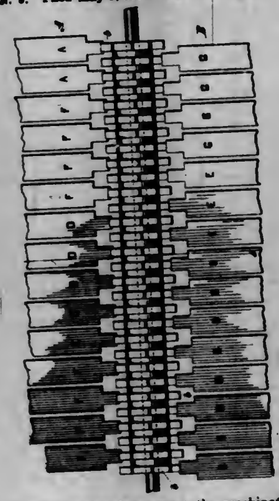
2. In a governor mechanism, the combination of automatically-expanding wings, springs upon which said wings are mounted, each of said springs being fixed against longitudinal movement at one end, controlling means for deflecting said springs from the free ends thereof outwardly from the center of rotation of said governor and means for retaining the controlling means in the position to which it is moved.

3. In a governor mechanism, the combination of automatically-expanding wings, springs upon which said wings are mounted, each of said springs being fixed against longitudinal movement at one end, a movable sleeve to which said springs are connected at the free ends and controlling means for moving said sleeve to deflect the springs.

4. In a governor mechanism, the combination of automatically-expanding wings, springs upon which said wings are mounted, each of said springs being connected at one end to a movable sleeve and fixed against longitudinal movement at the other end, hand-operated adjusting means for moving the said sleeve in one direction in opposition to the tension of the springs and means for retaining the hand-operated adjusting means in the position to which it has been moved.

5. In a governor mechanism, the combination of automatically-expanding wings, leaf-springs *g* upon which said wings are mounted, each of said springs being pivotally connected at one end to a movable sleeve carried upon the governor-shaft and being pivotally connected at the other end to a support fixed upon said shaft, hand-operated adjusting means for moving the said sleeve in one direction in opposition to the tension of said springs, adjustable means for limiting the movement of said movable sleeve and means for retaining the hand-operated adjusting means in the position to which it has been moved.

593,761. MUSICAL INSTRUMENT. GUSTAV A. BRACHHAUSEN, Rahway, N. J. Filed May 5, 1897. Serial No. 635,147. (No model.)



Claim.—1. In a musical instrument, the combination of a series of star-wheels and steel combs mounted on opposite sides of said star-wheels, each of said combs having a plurality of tongues of the same tone on one side of the series of star-wheels and each tongue of the combs being vibrated by an independent star-wheel.

2. In a musical instrument, the combination of a series of star-wheels and steel combs mounted on opposite sides of said star-wheels, each of said combs having a plurality of tongues of the same tone on one side of the series of star-wheels and each tongue of the combs being vibrated by an independent star-wheel with adjacent star-wheels operating comb-teeth mounted on opposite sides of said star-wheels.

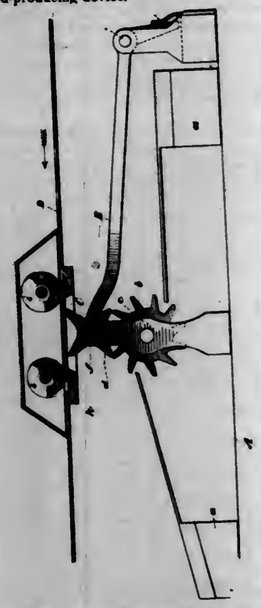
593,762. MECHANICAL MUSICAL INSTRUMENT. GUSTAV A. BRACHHAUSEN, Rahway, N. J. Filed June 30, 1897. Serial No. 642,911. (No model.)

Claim.—1. In an automatical musical instrument, the combination of sound-producing devices, a plurality of series of interlocking star-wheels, each of the star-wheels of one series being capable of movement bodily toward and away from the star-wheels of the other series and means for effecting the movement of said star-wheels to operate the sound-producing devices.

2. In an automatic musical instrument, the combination of sound-producing devices, a plurality of series of interlocking star-wheels, each of the star-wheels of one series being capable of movement bodily toward and away from the star-wheels of the other series and a perforated note-sheet for effecting the movement of said star-wheels to operate the sound-producing devices.

3. In an automatic musical instrument, the combination of sound-producing devices, a plurality of series of interlocking star-wheels, one series of said star-wheels operating upon the sound-producing devices

and a perforated note-sheet adapted to bear directly upon another series of star-wheels, the axis of each of which is movable and each of which is adapted to communicate motion to a star-wheel which operates a sound-producing device.



4. In an automatic musical instrument, the combination of sound-producing devices, a plurality of interlocking star-wheels, each of the star-wheels of one series being pivoted upon a movable arm, while the star-wheels of another series cooperate with the sound-producing devices and a perforated note-sheet against which the movable star-wheels are adapted to bear.

5. In an automatic musical instrument, the combination of sound-producing devices, a plurality of series of interlocking star-wheels, each of the star-wheels of one series being pivoted upon a spring-pressed pivoted lever, while the star-wheels of another series cooperate with the sound-producing devices and a perforated note-sheet against which the movable star-wheels are adapted to bear and by means of which motion is transmitted to the said movable star-wheels.

598,768. VEHICLE-WHEEL. CHARLES E. BULKLEY, Summit, N. J. Filed Mar. 23, 1897. Serial No. 628,815. (No model.)



Claim.—1. In a vehicle-wheel, a hollow annulus or rim having a continuous open slot on the line of the tread, the free edges and side walls serving as springs, in combination with an annular tread held in said slot by engaging said free edges, and a filling of light resilient material within said annulus, serving to reinforce the latter and said tread, all substantially as herein specified.

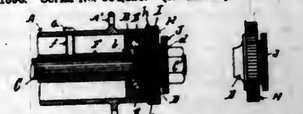
2. In a vehicle-wheel, a hollow annulus or rim formed by two concavo-convex rings lapped and joined along the inner line and having a continuous open peripheral slot on the line of the tread between the free edges of said rings, in combination with an annular tread having narrow grooves on the sides and held in said slot by the engagement of said grooves with said free edges, and a filling of light resilient material as cork within said annulus, introduced through said slot and serving to reinforce the rim and tread, all substantially as herein specified.

3. In a vehicle-wheel, a hollow annulus or rim formed by two concavo-convex rings lapped and joined along the inner line and having a continuous open peripheral slot on the line of the tread between the free edges of said rings, in combination with a tread of sponge rubber having an outer wearing surface thereon and narrow grooves on the sides, engaged by said free edges and thereby held in said slot, and a filling of cork in the form of short segments introduced through said slot and arranged in layers within said annulus, all substantially as herein specified.

4. The concavo-convex rings A, lapped and joined at A' and having the slot a' between the free edges A^3 of said rings on the line of the tread, in combination with the cork rings D, D' having the space D^2, and the tread of sponge rubber comprising the two portions E, E', the former serving as the tread of the wheel and the latter received in said space and held in engagement with the rim by the said free edges entered in the narrow grooves e' on the sides of the tread, all substantially as herein specified.

5. The concavo-convex rings A, lapped and joined at A' and having the slot a' between the free edges A^3 of said rings on the line of the tread, in combination with the cork rings D, D' having the space D^2, and the tread of sponge rubber comprising the two portions E, E', the former serving as the tread of the wheel and the latter received in said space and held in engagement with the rim by the said free edges, and the rings A^3, A^4 carried by the said free edges near said tread, all substantially as and for the purposes herein specified.

598,764. BICYCLE-WHEEL HUB. GEORGE BURDICK, Erie, Pa., assignor to the Penn Manufacturing Company, same place. Filed Sept. 4, 1896. Serial No. 604,828. (No model.)



Claim.—The combination, with a shaft, and a shell or hub A concentric with the said shaft, of a ball-cup B inserted in one end of the said shell and provided with a flange s bearing against the end of the shell, a ball-cone D secured on the end portion of the said shaft and provided with a screw-threaded projection d, a washer of soft material encircling the said cone and bearing against the end of the ball-cup, a cap H having a flange h encircling the said flange s and the washer, a nut J screwed on the projection d and holding the said cap in position, balls between the said cup and cone, and an oil-tube F encircling the said shaft and secured into the ball-cup, substantially as set forth.

598,765. SHELL-FUSE. FRANK H. CORSWELL, Ipswich, Mass. Filed Feb. 25, 1897. Serial No. 625,004. (No model.)



Claim.—1. In a fuse, the combination of a spindle, a fan-wheel carried by the spindle, and friction explosive arranged to be ignited by the rotation of the spindle, substantially as described.

2. In a fuse, the combination of a spindle, a fan-wheel carried by the spindle, friction explosive arranged to be ignited by the rotation of the spindle, and slow-burning fuse composition arranged to be ignited by the friction explosive, substantially as described.

3. In a fuse, the combination of a spindle, a fan-wheel carried by the spindle, friction explosive arranged to be ignited by the rotation of the spindle, slow-burning fuse composition, and quick-burning material between the fuse composition and the friction explosive, substantially as described.

4. In a fuse, the combination of a spindle, a fan-wheel carried by the spindle, and friction explosive on the spindle, substantially as described.

5. The combination with a casing 10, of spindle 13, fan-wheel 16, friction explosive on said spindle, and a friction-surface in position to engage said explosive when the spindle rotates, substantially as described.

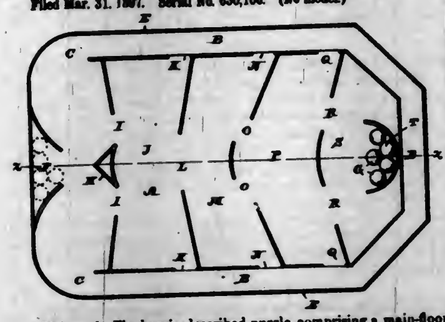
6. The combination with a cylindrical casing 10 provided with an external flange and an external screw-thread at one end, of spindle 13, fan-wheel 16, friction explosive on said spindle, and a friction-surface in position to engage said explosive when the spindle rotates, substantially as described.

7. The combination with a casing 10, of spindle 13, fan-wheel 16, and friction explosive carried by the spindle in position to engage the walls of an opening 17 in a diaphragm 18, substantially as described.

8. The combination with a casing 10 having interior shoulders 1, 2, 3, of diaphragms 14, 15 and 18 seated on said shoulders, spindle 13 journaled in diaphragms 14 and 15, fan-wheel 16 carried by the spindle, and friction explosive carried by the spindle in position to engage the walls of an opening 17 in the diaphragm 18, substantially as described.

9. The combination with a casing 10, of diaphragms 14, 15 and 18, spindle 13 journaled in diaphragms 14 and 15, air-openings 4 and 5 in diaphragms 14 and 15, fan-wheel 16 carried by the spindle, and friction explosive carried by the spindle in position to engage the walls of an opening 17 in the diaphragm 18, substantially as described.

598,766. PUZZLE. WILLIAM F. DERWIN, Waterbury, Conn. Filed Mar. 31, 1897. Serial No. 630,106. (No model.)

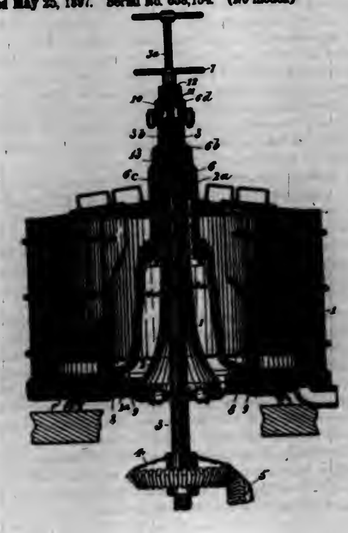


Claim.—1. The herein-described puzzle, comprising a main-floor pen F, adjacent to the rear end thereof, compartments J, M and S having exits and passages as shown, cage T upon the front end and marbles G all arranged for the purpose set forth.

2. The herein-described puzzle, comprising a main floor having pen F, compartments, J, M, P and S, side exits leading from said compartments, passage-ways between said compartments, cage T, alley-ways upon each side of the main floor and across the front end thereof.

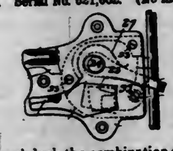
3. A puzzle substantially as herein shown and described the same consisting of a main floor and inclined alley-ways upon three sides thereof, a series of compartments upon said main floor, each provided with passage-ways from one to the other and side exits leading into the alley-way, pen F, adjacent to the rear end and cage T at the opposite end, the whole arranged for the purpose specified.

598,767. AMALGAMATING-PAN AND SETTLER. WILLIAM B. EASTON, Chicago, Ill., assignor to the Fraser & Chalmers, same place. Filed May 25, 1897. Serial No. 638,154. (No model.)



Claim.—In amalgamating-pans or settlers, the combination of a spindle, a pan-cone provided with a dish-shaped top, a driver-head fixed at the upper end of the spindle and having an annular channel, and an oil-guard, the upper end of the oil-guard being loosely inclosed in the annular channel in the driver-head, and having its lower end resting in the dish-shaped top of the pan-cone, substantially as described.

598,768. SASH-FASTENER. GEORGE H. FORSYTH, Chicago, Ill. Filed Feb. 2, 1897. Serial No. 621,602. (No model.)

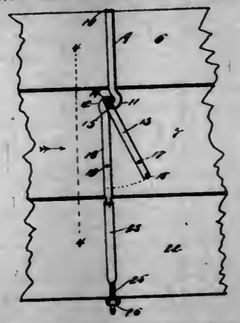


Claim.—1. In a sash-lock the combination of a rod and a pivoted dog for engaging the rod when the sash is raised and means for preventing such engagement of the dog and rod when the sash is lowered, substantially as set forth.

2. In a sash-lock the combination with a lock-case and its face-plate, said case and said plate having registering apertures therein, a pivoted locking-dog having pintles entering said apertures and forming pivots for the dog, and an operating-lever pivoted within the lock-case and having an offset lug adapted to bear upon the edge of the dog, the body of said lever being extended through the face-plate, substantially as described.

3. In a sash-lock the combination with a stationary locking-rod of a pivoted dog carried by the sash and normally locked upon the rod and a pivoted operating-lever also carried by the sash and so arranged with reference to the dog that, by a movement of the lever in the direction in which it is desired to move the sash, the dog is rocked upon its pivot to release the rod, substantially as described.

598,769. WAGON-BODY. GEORGE M. HARRISON, Humboldt, Iowa. Filed May 12, 1897. Serial No. 636,156. (No model.)



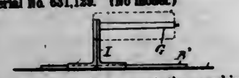
Claim.—1. The herein-described locking device for wagon-bodies, the same consisting of two plates or bars, which are provided at one end with semicircular hooks or curves, a locking-lever pivotally connected with the ends of said semicircular hooks or curves, one of said plates or bars being provided at its free end with a hook which is adapted to engage with the top of the side of a wagon-body, and the other with means for securing it to the bottom of said wagon-body, substantially as shown and described.

2. The herein-described locking device for wagon-bodies, the same consisting of two plates or bars, which are provided at one end with semicircular hooks or curves, a locking-lever pivotally connected with the ends of said semicircular hooks or curves, one of said plates or bars being provided at its free end with a hook which is adapted to engage with the top of the side of a wagon-body, and the other with means for securing it to the bottom of said wagon-body, consisting of transverse notches or recesses formed in the sides thereof, and a plate which is secured to the bottom of the wagon-body and provided with jaws which are adapted to pass through said notches or recesses, substantially as shown and described.

3. The herein-described locking device for wagon-bodies, the same consisting of two plates or bars, which are provided at one end with semicircular hooks or curves, a locking-lever pivotally connected with the ends of said semicircular hooks or curves, one of said plates or bars being provided at its free end with a hook which is adapted to engage with the top of the side of a wagon-body, and the other with means for securing it to the bottom of said wagon-body, said

locking-lever being provided with an opening, and one of said plates or bars with a pin which is adapted to pass therethrough, substantially as shown and described.

593,770. TROWEL. JAMES HILTON, Newark, N. J. Filed Apr. 7, 1897. Serial No. 631,129. (No model.)



Claim.—1. In a plastering-trowel, the combination with the trowel-blade of a handle-bracket formed in two halves, each half consisting of an elbow-piece of flat channel form, the corresponding arms in the two elbow-pieces being secured together with the edge ribs in contact to form a vertical post and to receive the shank of the handle, and the remaining arms projecting in the same plane to form a flat foot for attachment to the trowel-blade, substantially as herein set forth.

2. In a plastering-trowel, the combination with the trowel-blade, having a dovetail stiffening-bar as set forth, of a handle-bracket formed in two halves, each half consisting of an elbow-piece of flat channel form, the corresponding arms in the two elbow-pieces being secured together with the edge ribs in contact to form a vertical post and to receive the shank of the handle, and the remaining arms projecting in the same plane and having the ribs inclined to form a flat foot with dovetail groove upon the under side for attachment to the dovetail bar, substantially as herein set forth.

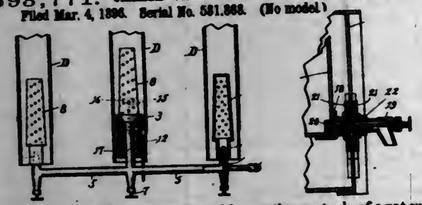
3. In a plastering-trowel the combination, with the trowel-blade of a stiffening-bar having, intermediate of its ends, a portion provided with dovetail edges, and having a handle-bracket formed in two halves, each half consisting of a sheet-metal elbow-piece of flat channel form, the corresponding arms of the two elbow-pieces being secured together with the edge ribs in contact to form a vertical post and to receive the shank of the handle, and the remaining arms forming a flat foot with the ribs upon the same inclined to fit the dovetail portion upon the said stiffening-bar, substantially as herein set forth.

4 In a plastering-trowel, the combination, with the trowel-blade, of a stiffening-bar having a forward portion and intermediate portion of the same width, with dovetail edges upon such intermediate portion, and a narrower rear portion adapted to guide a dovetail foot-piece upon the intermediate portion, and a handle having foot with dovetail groove to fit the bar, substantially as herein set forth.

5. In a plastering-trowel, the combination, with the trowel-blade, of a stiffening-bar having a forward portion and intermediate portion of the same width, with tapering dovetail edges upon such intermediate portion, a parallel rear portion of less width than the intermediate portion, and a handle having a bracket with dovetail groove in the foot adapted to fit the dovetail edges of such stiffening-bar, and to be guided upon the same by the rear portion of such bar, as and for the purpose set forth.

6. In a plastering-trowel, the combination with a trowel-blade of a stiffening bar attached to the blade midway of its length and breadth, and formed with the short forward portion B, the intermediate portion having tapering dovetail *b* upon its edges, and the narrower rear portion B' of greater length than the portion B, and a handle with foot having dovetail groove, as and for the purpose set forth.

593,771. CHEESE-VAT. GERRITT J. LIEREN, Bingham, Wis. Filed Mar. 4, 1896. Serial No. 581,868. (No model.)



Claim.—1. The combination with a stationary tank, of a vat suspended and adapted to float on water therein and to rise and fall therewith, and a faucet fixed in the vat and projecting through the wall of the tank in a water-tight joint but movably and so as to be raised and lowered with the vat.

2. The combination with a stationary tank, and a vat suspended so as to rise and fall therein, of a faucet fixed in the wall of the vat and projecting movably through a slot in the wall of the tank, and slides secured to the faucet over said slot arranged to move up and down in ways therefor on the wall of the tank.

3. The combination with a vat movable vertically in a tank, of a faucet comprising an inner tube secured to the vat, an outer tube secured to and continuous of the inner tube, a valve closing against the inner tube and having a stem turning by screw-thread through the end of the outer tube.

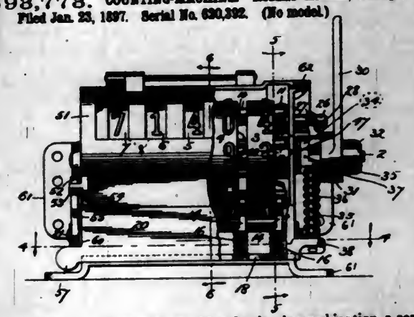
4. The combination with a tank and a combustion-flue secured to and extending through said tank, of a vaporizing device comprising a liquid holding and vaporizing chamber, a tube leading therefrom to a vapor-discharging cone, the vapor-discharging cone below said vapor-supplying tube leading thereto, and a sleeve provided with radially-discharging burning-orifices leading from near the cone past the vaporizing chamber.

5. The combination with a tank and a combustion-flue secured to and extending through said tank, of a vaporizing device comprising a liquid holding and vaporizing chamber, a tube leading therefrom to a vapor-discharging cone, the vapor-discharging cone below said vapor-supplying tube leading thereto, a sleeve provided with radially-disposed burning-orifices leading from near the cone past the vaporizing-chamber, a valve adapted to close the rear end of the sleeve, and a tubular perforated burner extending beyond the sleeve into the combustion-flue.

593,772. COMBINED WOOLEN AND LINEN UNDERCLOTHING. FERDINAND LINDBORN, Hagen, Germany. Filed Aug. 8, 1896. Serial No. 602,190. (No specimens.) Patented in Sweden June 21, 1893, No. 5,606; in England June 23, 1893, No. 12,390; in Austria-Hungary June 30, 1893, No. 67,220 and No. 6,637; in Switzerland July 15, 1893, No. 7,151; in France July 18, 1893, No. 231,601; in Belgium July 18, 1893, No. 105,583; in Luxemburg Aug. 25, 1893, No. 1,681; in Canada Oct. 18, 1893, No. 46,335; in Denmark Sept. 21, 1894, No. 94, and in Germany Oct. 12, 1894, No. 86,417.

Claim.—Woven or knit fabric consisting of one surface composed of previously-greased threads of linen and the other surface composed of threads of wool, previously treated to remove the grease substantially as described.

593,773. COUNTING-MACHINE. ROBERT MIEHLE, Chicago, Ill. Filed Jan. 23, 1897. Serial No. 620,392. (No model.)



Claim.—1. A counting-machine having in combination a series of digit disks provided with teeth or lugs and each provided with an aperture therethrough, a stationary cam, a lever pivoted in each aperture of said disks and one of said levers having a projection adapted to engage with said cam on one side and an edge on the other side adapted to engage with said teeth or lugs of the next disk, and another one of said levers having a projection arranged within the circle described by said lugs and adapted to be engaged by said edge and means for imparting rotation to one of said disks, substantially as set forth.

2. A counting-machine having in combination a series of digit-disks each provided with an aperture and having teeth or lugs, a stationary cam, a lever pivoted in each of said apertures and one of said levers having on one side a projection adapted to engage with said cam on the other side, an edge adapted to engage with the teeth or lugs on the adjacent disk and also with the lever on the adjacent disk for crowding said levers against one another, substantially as set forth.

3. A counting-machine having in combination a series of digit-disks each provided with an opening therethrough and having teeth or lugs, a stationary cam, a lever pivoted in each of said openings and one of said levers provided on one side with a projection adapted to engage with said cam and on the other side with an edge adapted to engage with the teeth or lugs of the adjacent disk and the others of said levers being each provided on one side with a projection and on the other side with an edge elongated toward its axis and in the plane of oscillation of the lever upon which it is formed, said levers being arranged adjacent to each other so that the said elongated edge on one will be opposite and adapted to engage with the said projection on the next, substantially as set forth.

4. A counting-machine having in combination a number of revolving oscillatory levers each provided on one side with an edge elongated toward its axis and in the plane of its oscillation and on the other side with a projection adapted to be engaged by the said elongated edge of the adjacent lever, rotary digit-disks having means for the engagement of said levers, and means for imparting rotation to one of said disks and oscillating said levers, substantially as set forth.

5. A counting-machine having in combination a number of revolving oscillatory levers each provided on one side with an edge elongated in the plane of its oscillation and on the other side with a projection elongated across the plane of such oscillation, said edge being arranged opposite and adapted to engage the projection on the adjacent lever, rotary digit-disks having means for the engagement of said levers, and means for revolving and oscillating one of said levers, substantially as set forth.

6. A counting-machine having in combination a number of revolving oscillatory levers each provided on one side with an edge elongated in the plane of its oscillation and on the other side with a projection whose outer margin is nearer the point of fulcrum of the lever than the outer extremity of said edge, said levers being arranged adjacent to each other so that the elongated edge on one will be opposite and adapted to engage with said projection on the next, rotary digit-disks having means for the engagement of said levers, and means for revolving and oscillating one of said levers, substantially as set forth.

7. A counting-machine having in combination a series of rotary digit-disks each having an opening or aperture therethrough and being provided with lugs or teeth, a lever pivoted in each of said openings and adapted to engage with said lugs or teeth and each lever having on one side an edge elongated toward its axis and in the plane of its oscillation and on the other side a projection with which the said edge of the adjacent lever engages, and means for periodically oscillating one of said levers, substantially as set forth.

8. A counting-machine having in combination a series of digit-disks, a stationary cam, a lever carried by one of said disks and having on one side a projection adapted to engage with and be deflected by said cam, teeth or lugs carried by said disks, the other side of said lever being provided with an edge adapted to engage with said teeth or lugs on the adjacent disk, a second lever carried by the adjacent one of said disks and being provided with an elongated projection adapted to be engaged by said edge on said first lever whereby the first lever will deflect the second lever while the edge of the first lever is passing said projection, said second lever being also provided with a portion adapted to be projected into engagement with the teeth or lugs on the next succeeding disk and said next succeeding disk being likewise provided with means with which said second lever engages and which in turn engages the teeth or lugs of the next or fourth disk; and means for imparting rotation to said first disk, substantially as set forth.

9. A counting-machine having in combination a series of digit-disks, a stationary cam, a lever carried by one of said disks and having on one side a projection adapted to engage with and be deflected by said cam, teeth or lugs carried by said disk, the other side of said lever being provided with an edge adapted to engage with said teeth or lugs on the adjacent disk, a second lever carried by the adjacent one of said disks and being provided with a rounded elongated projection adapted to be engaged by said edge on said first lever whereby the first lever will deflect the second lever while the edge of the first lever is passing said rounded projection, said second lever being also provided with a portion adapted to be projected into engagement with the teeth or lugs on the next succeeding disk and said next succeeding disk being likewise provided with a lever having a projection adapted to be engaged by said second lever and a portion adapted to engage the teeth or lugs of the next or fourth disk, and means for imparting rotation to said first disk, substantially as set forth.

10. A counting-machine having in combination a series of digit-disks, pivoted levers carried by said disks and adapted to engage with each other, a fixed cam having the plain face 44ª adapted to engage with one of said levers, said levers being provided with projections elongated in the direction of the length of said cam and also with elongated edges extending at an angle to said projections and in the plane of oscillation of the lever, means for rotating one of said disks and means whereby said levers are caused to rotate the remaining disks, said levers being arranged adjacent to each other so that the said elongated edge on one will be opposite and adapted to engage with said elongated projection on the next, substantially as set forth.

11. A counting-machine having in combination a series of digit-disks each having an aperture therethrough, a non-elastic or rigid lever pivoted in each of said apertures, a coil-spring interposed between one end of each of said levers and the disk to which it is pivoted, lugs or teeth on said disks, and means for rotating one of said disks and forcing said levers against each other and into engagement with said lugs, said levers being provided on one side with an edge elongated toward their axes and in the plane of their oscillation and on the opposite side with a projection elongated across such edge, substantially as set forth.

12. A counting-machine having in combination a series of digit-disks, a casing in which said disks are journaled, pivoted levers carried by said disks, the end of said casing being provided with a slot, a cam adapted to engage with one of said pivoted levers and being provided with a tongue fitted in the slot of said casing, and means for rotating one of said disks, substantially as set forth.

13. A counting-machine having in combination a casing provided with a slot in the end thereof, a cam having a tongue fitted in said slot, a series of digit-disks having pivoted levers, a pin passing through said disks and cam, said cam being arranged to engage with one of said levers, and means for imparting rotation to one of said disks and communicating the movement of the lever carried thereby to the others of said disk, substantially as set forth.

14. A counting-machine having in combination a casing provided with a slot in the end thereof, a cam having a tongue fitted in said slot and being provided with the lip 47, a series of digit-disks arranged in said casing, a pin passing through said disks and cam, means for rotating one of said disks and means for imparting such rotation to the remaining disks, substantially as set forth.

15. A counting-machine having in combination a casing, a series of digit-disks mounted in said casing and being provided with teeth or lugs, means for imparting the movement of one of said disks to the other, a pawl located between the end of said casing and one of said disks, a lever pivoted on the outside of said casing and having an inwardly-projecting pin, said casing being provided with a curved slot through which said pin passes and said pawl being pivoted upon said pin, and a hood arranged over said slot, substantially as set forth.

16. A counting-machine having in combination a casing, a series of digit-disks mounted in said casing and having teeth or lugs, a pawl engaging with said teeth or lugs for rotating said disks, means for imparting the movement of one of said disks to the others, the lever 24 pivoted to the end of said casing and having the inwardly-projecting pin 34, the rod 35 pivoted on said pin between said lever 24 and casing, a spring shouldered upon said rod and the perforated ear 38 through which said rod passes and upon which said spring is supported, substantially as set forth.

17. A counting-machine having in combination a casing, a series of digit-disks mounted therein and provided with teeth or lugs, holding-dogs engaging with said teeth or lugs, springs arranged under said holding-dogs, the plate 18 located in the bottom of the casing and being provided with apertures in which said springs rest, said plate being also provided with the lugs 19 engaging in said casing, and the removable face-plate 20 holding said plate 18 in place, substantially as set forth.

18. A counting-machine having in combination a pawl for actuating the counting mechanism, a pivoted lever having one end pivoted to said pawl for operating it, a pivot at the other end of said lever, a rod secured to said last pivot, a perforated ear through which said rod passes, a spring shouldered on said rod and bearing against said ear, the pivot carried by said lever being arranged to one side of a straight line extending between said ear and the axis of said lever, an arm connected with said lever and adapted to force the said pivot carried thereby to a position between said ear and axis, whereby the effect of the leverage upon said spring will be increased substantially in proportion to the increasing resistance of the spring, substantially as set forth.

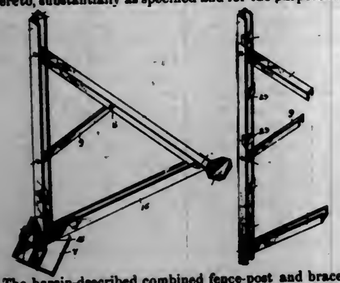
19. A counting-machine having in combination a digit-disk provided on one side with the lugs 40 having the bore 40ª, a lever arranged between said lugs for the purpose specified, a pin passing through said lugs 40 and lever, the pintle 2 passing through said disk and holding said pin from movement in one direction and the pin 40ª passing through one of said lugs at the other end of said pin for holding the latter against movement in the opposite direction, substantially as set forth.

593,774. COMBINED POST AND BRACE. ERVIN E. MURRY, Litarberry, Ill. Filed Aug. 5, 1897. Serial No. 647,223. (No model.)

Claim.—1. The herein-described combined post and brace therefor, consisting of the upright sections formed by bending a piece of sheet metal to provide the central section 2 and the parallel sections 3 and 4; an upper and lower brace formed substantially as described and so connected to said upright section and each other that a triangular outline is provided; a base plate permanently attached to the upright section by means of the right-angled bends provided on the lower end thereof; an intermediate brace-section connecting the upper brace with the central section of the post, and an enlarged section integrally formed with the upper brace-section, all operatively combined in the manner and for the purpose set forth.

2. The herein-described combined post and brace, consisting of the upright section and braces therefor, in combination with a base-

plate secured to the upright section in the manner specified, and free edges formed upon said upright section provided at intervals with extensions designed to reach across to the opposite edge and be secured thereto, substantially as specified and for the purpose set forth.



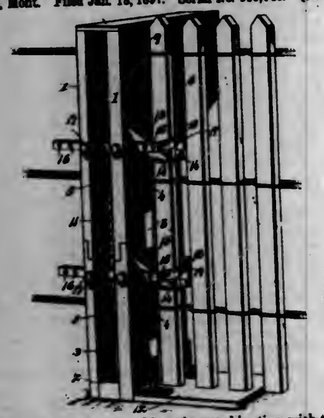
3. The herein-described combined fence-post and brace consisting of the upright section; an upper and lower brace-section connected to said post and to each other; an intermediate brace-section connected to the post and the upper brace-section, and overlapping sections secured to the free edges of the upright sections and extending into engagement with the edge of the opposite parallel section, substantially as specified and for the purpose set forth.

593,775. MAT-SURFACE PHOTOGRAPHIC PAPER. MOTT W. MCDONALD, Polk, Ohio. Filed Feb. 1, 1897. Serial No. 621,556. (Specimens.)

Claim.—1. As a new article of manufacture, a surface-ground, sized paper, presenting a mat surface, substantially as described.

2. The method of producing paper for photographic pictures, which consists in applying a sensitized surface to sized paper, and then removing the gloss by abrasion, substantially as described.

593,776. WIRE-FENCE MACHINE. THOMAS H. MCDONALD, Potomac, Mont. Filed Jan. 18, 1897. Serial No. 619,646. (No model.)



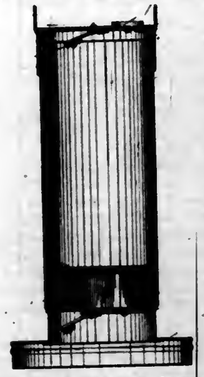
Claim.—1. In a fence-machine, the combination with the frame, and the wire-twisting mechanism, of a pair of spring-spacers having adjustable connection with the frame and having their outer or active ends bent inward toward each other at an inclination to admit of the pickets passing from between them, thence outwardly to engage with the rear edge of the picket last passing by them, substantially as shown and described.

2. In a fence-machine, the combination of the frame, a series of wire-twisters at intervals in the length of the frame, guides located above the wire-twisters and having their directing portions tapering and converging, and a pair of spring spacers in the plane of each picket-guide, substantially as set forth.

3. A fence-machine comprising a frame formed of sections which are detachably connected together, wire-twisters applied to the parts of the frame, a gage adapted to be applied to either part of the frame accordingly as the machine is adapted for long or short pickets, and actuating mechanism for the wire-twisters, substantially as set forth.

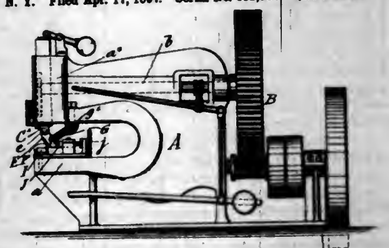
4. In a fence-machine, the combination of a frame, a shaft adapted to have the power applied thereto and provided with a spur and a sprocket gear, a wire-twister having a toothed portion in mesh with the spur-gear, a second wire-twister having a sprocket portion, and a sprocket-chain connecting the aforesaid sprocket-gear with the sprocket portion of the last-mentioned wire-twister, substantially as specified.

593,777. FUMIGATOR. THOMAS H. MCDONALD, Potomac, Mont. Filed June 14, 1897. Serial No. 640,733. (No model.)



Claim.—A device of the class described comprising a telescoping casing composed of upper and lower sections the upper section being provided at its top with a valve, a horizontal diaphragm mounted on the lower section at the lower end thereof, and provided with a valve, and a foraminous diaphragm mounted within the lower section at a point above the said diaphragm and forming a fuel-support, said foraminous diaphragm preventing the fuel from coming in contact with the lower valve, substantially as and for the purpose described.

593,778. BEVEL-SHEARING ATTACHMENT FOR PUNCHING-MACHINES. CHARLES P. O'NEILL, Brooklyn, N. Y., assignor of one-half to George A. Phail, Winfield, and Francis E. Krueger, New York, N. Y. Filed Apr. 17, 1897. Serial No. 632,536. (No model.)



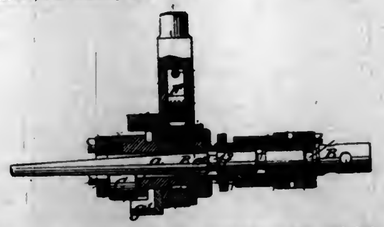
Claim.—1. The combination with a punching-machine, of a shearing attachment arranged in the throat of the machine, and consisting of a supporting-plate fixed to the reciprocating rod in the upper arm of the machine, a knife-head pivoted to said supporting-plate and provided with a cutting-blade, links pivoted at one end to the said head below its pivotal connection with the supporting-plate, and at the other end being pivotally connected with a support on the upper arm of the machine, and a fixed blade arranged upon the anvil portion of the machine, substantially as set forth.

2. The herein-described shearing attachment for punching-machines, comprising a lower fixed blade, a supporting-plate, an oscillating head pivoted to the supporting-plate and provided with a cutting-blade, links pivoted to the said head at one end, fastening-bolts to which the other ends of the links are pivoted, and means for securing said parts to the punching-machine, substantially as set forth.

593,779. TUBE-EXPANDER. JOHN O'ROURKE, Brooklyn, N. Y. Filed May 15, 1897. Serial No. 636,631. (No model.)

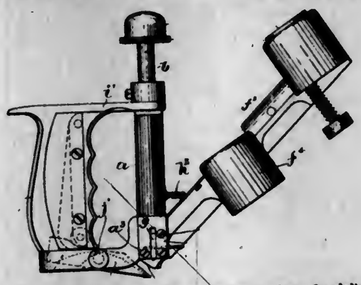
Claim.—1. A tube-expander comprising a tubular casing carrying the expanding-rollers, a ratchet-toothed wheel secured to the casing, an operating-lever loosely embracing the casing and carrying a pawl, a screw-threaded sleeve secured to the casing in axial alinement therewith, an expanding-spindle and a feed-sleeve swiveled to the expanding-spindle and engaged with the first-named sleeve, substantially as set forth.

2. A tube-expander comprising a casing carrying expanding-rollers, means for rotating the casing, a screw-threaded sleeve secured to the casing, a feed-sleeve engaged with the aforesaid sleeve, an expanding-spindle, a swivel connection between the expanding-spindle and feed-sleeve, and an adjustable stop to limit the movement of the feed-sleeve, substantially as set forth.



3. A tube expander comprising expanding-rollers and their support, means for rotating the roller-support, an expanding-spindle, means for feeding it into engagement with the rollers and means for connecting the feed device to the expanding-spindle at intervals along the spindle, substantially as set forth.

593,780. HAND TACKING-TOOL. ALBERT F. PRESTON, Boston, Mass., assignor to the Busell Casting Machine Company, Nashua, N. H. Filed Feb. 23, 1897. Serial No. 624,680. (No model.)



Claim.—1. A tacker comprising a driver, a chute for delivering tacks to the action of the driver, and means located above the line of tacks and acted on directly by the driver for automatically holding them against movement when the driver engages the tack in its path.

2. A tacker comprising a driver, a chute for delivering tacks to the action of the driver, and means engaging the heads of the tacks and automatically engaged and operated by the driver for holding all the tacks against movement except that one engaged by said driver, during the action of the driver.

3. A tacker comprising a driver, a chute for delivering tacks to the action of the driver, and a bar located above the chute and engaged and operated automatically by the driver to hold all of the tacks against movement except the lowest one in the chute.

4. A tacker comprising a driver, a chute for delivering tacks to the action of the driver, means located above the tacks and normally raised therefrom, and extending into the path of the driver to be engaged thereby, whereby when the driver is operated the said means engage the tacks and hold them against movement.

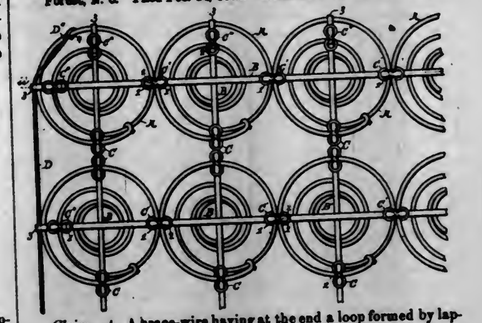
5. A tacker comprising a driver, a chute, a yielding guide at the end of the chute and in line with the driver, whereby the tacks may pass freely into the guide without the employment of a separator, and means located above the tacks for automatically holding against movement all of them except the one in the guide, when the driver is depressed.

6. A tacker comprising tacking means, a handle, a stationary jaw, a movable jaw pivoted in the handle, and a bar in position to be grasped by the fingers and adapted to ride on said movable jaw to lock the jaws together.

7 A tacker comprising tacking means, a handle, a stationary jaw, a movable jaw pivoted in the handle and having a cam-surface, and a pivoted lever in position to be grasped by the fingers and having a roller adapted to ride on said cam-surface to lock the jaws together.

8. A tacker comprising tacking means, a handle, a stationary jaw, a movable jaw pivoted in the handle and having a slot, a dog located in said slot and pivoted to the handle on the axis of the fulcrum of said movable jaw, for the purpose described.

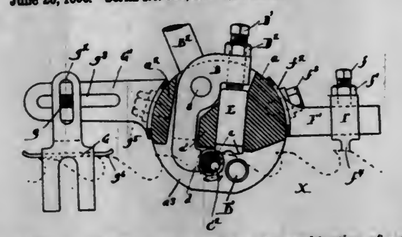
593,781. SPRING BED-BOTTOM. ADDISON F. PURIFOY, Wake Forest, N. C. Filed Feb. 14, 1893. Serial No. 462,294. (No model.)



Claim.—1. A brace-wire having at the end a loop formed by lapping said wire upon itself, in combination with a wire threaded through said loop, and a coupling having openings at the ends with the lapped portions of the brace threaded through said openings and bound together by said coupling, substantially as described.

2. In combination with the coiled-wire springs of a bed-bottom, brace-wires having the ends looped about spring-wires and being secured also to the spring-wires where they cross the same, the lapped ends of the braces being secured to the body portions thereof by bent-wire couplings having a loop at each end which receives the lapped portions of the brace wires and an oblique body portion which crosses and confines them, and similar couplings securing the brace-wires to the spring-wires at their crossings, substantially as described.

593,782. SAW-SWAGE. SAMUEL V. RAWLINS, Marquette, Mich., assignor of one-half to Seymour H. Holley, same place. Filed June 26, 1896. Serial No. 596,969. (No model.)



Claim.—1. A saw-swage comprising the combination of a suitable anvil, means for shifting said anvil to cause it to compress the top of the saw tooth, a movable die having a reduced or flattened part exposed to the under side of the saw-tooth during the compressive action of the anvil and having a projecting part to engage the under side of the saw-tooth after the top of said tooth has been compressed by the movement of the anvil and swage outward the material pressed down from the top or crown of the tooth, substantially as described.

2. In a saw-swage the combination of a suitable anvil, means for shifting said anvil to cause it to compress the top of the saw-tooth, a rotary die having a reduced or flattened part exposed to the under side of the saw-tooth during the movement of said anvil and having a projecting part to engage the under side of the saw-tooth after the top of said tooth has been compressed by the anvil and swage outward the material pressed down from the top or crown of the tooth, substantially as described.

3. In a saw-swage the combination of a suitable anvil, means for shifting said anvil to cause it to compress the top of the saw-tooth, a rotary die having a reduced or flattened part exposed to the under side of the saw-tooth during the movement of the anvil and having a projecting part consisting of a roller-die to engage the under side of the saw-tooth after the top of said tooth has been compressed by the anvil and swage outward the material pressed down from the top, substantially as described.

4. The combination of a suitable anvil, a die-carrying roller provided with a roller-die mounted therein, said die-carrying roller being reduced or flattened at one side of the roller-die to permit the metal of the saw-tooth to be depressed by the anvil, and means for shifting said anvil to cause it to compress the top of the saw-tooth before said roller-die is brought into engagement with the under side of said saw-tooth, substantially as described.

5. In a saw-swage the combination of a suitable anvil, a die-carrying roller having a bearing-surface against which the under side of

the saw-tooth will bear when said tooth is first inserted in the swage and having a roller-die projecting from its periphery and having a reduced or flattened portion intermediate said roller-die and said bearing-surface and suitable means for shifting said anvil to cause it to compress the saw-tooth while the end of said tooth is opposite the reduced or flattened portion of the die-carrying roller and before the roller-die is caused to engage the under side of the saw-tooth, substantially as described.

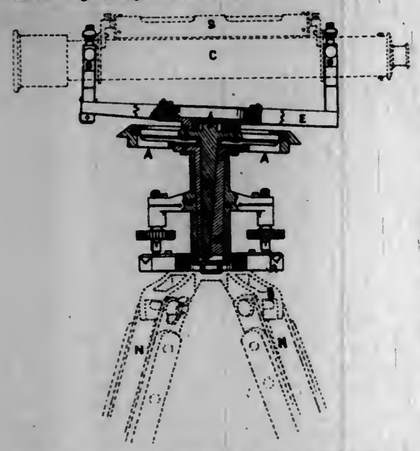
6. In a saw-swage the combination with a suitable anvil, of a rotary die-carrying roller having a raised or eccentric part and having a suitable part to act upon the under side of the saw-tooth, and a pivoted lever, one arm of which engages the raised or eccentric part of the die-carrying roller and the other arm of which actuates said anvil, substantially as described.

7. In a saw-swage the combination with a suitable anvil, of a die-carrying roller having a raised or eccentric part and an elbow-lever intermediate said die-carrying roller and said anvil, one arm of said elbow-lever extending in position to engage said raised or eccentric part of the die-carrying roller, and the opposite arm of said elbow-lever being provided with an adjusting-screw to determine the movement of the anvil, substantially as described.

8. In a saw-swage the combination with the die-carrying roller C provided with the roller-die C^3 and having the cut-away space c^2 and the raised parts c^3, the pivoted elbow-lever D, the lower end whereof engages said roller C, the set-screw D′ extending through the upper end of said elbow-lever and the anvil E bearing against said set-screw D′, substantially as described.

593,783. WITHDRAWN.

593,784. SURVEYING INSTRUMENT. JOHN SHORT, London, England. Filed May 11, 1896. Serial No. 591,113. (No model.) Patented in England July 29, 1889, No. 11,906.

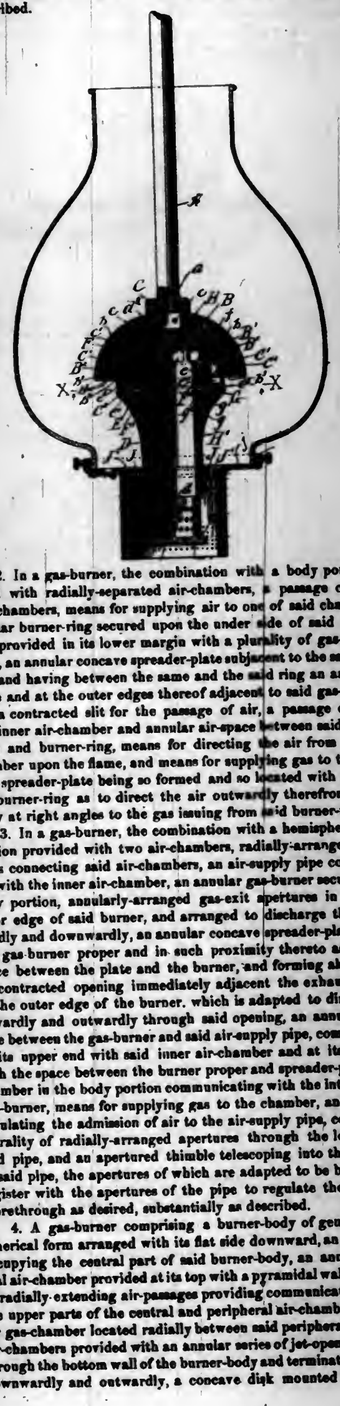


Claim.—1. The combination in a surveying instrument of two axes, one of which is mounted eccentrically to the other, whereby gradients and distances may be measured by the relative movement of the axes.

2. The combination in a surveying instrument of two axes, one of which is mounted eccentrically to the other, a sight member and a scale to indicate the relative movement of the axis for the purpose of measuring gradients and distances.

593,785. GAS-BURNER. WILLIAM D. SMITH, Chicago, Ill., assignor of two-thirds to Franklin W. Daniels and W. Jay Anderson, same place. Filed Jan. 6, 1896. Serial No. 574,506. (No model.)

Claim.—1. In a gas-burner, the combination with a body portion provided interiorly with an air-chamber and means for supplying air thereto, of a gas-burner ring secured to said body portion and provided with annularly-arranged, downwardly and outwardly extending apertures for the passage of gas therethrough, means for supplying gas to the burner proper, a concave annular spreader-plate of substantially the same diameter as the burner-ring located below and in such proximity to the burner as to form a contracted air-exit opening adjacent to the apertures in the burner-ring, and a conduit or air-passage communicating at one end with the air-chamber in the body portion and at the other end in said contracted air space or opening, whereby a volume of air will be forced radially upward through the downwardly and outwardly directed flame, substantially as described.



2. In a gas-burner, the combination with a body portion provided with radially-separated air-chambers, a passage connecting said chambers, means for supplying air to one of said chambers, an annular burner-ring secured upon the under side of said body portion provided in its lower margin with a plurality of gas-exit apertures, an annular concave spreader-plate subjacent to the said burner-ring and having between the same and the said ring an annular air-space and at the outer edges thereof adjacent to said gas-exit openings a contracted slit for the passage of air, a passage connecting said inner air-chamber and annular air-space between said spreader-plate and burner-ring, means for directing the air from the outer chamber upon the flame, and means for supplying gas to the burner, said spreader-plate being so formed and so located with relation to the burner-ring as to direct the air outwardly therefrom, substantially at right angles to the gas issuing from said burner-ring.

3. In a gas-burner, the combination with a hemispherical body portion provided with two air-chambers, radially-arranged passage-ways connecting said air-chambers, an air-supply pipe communicating with the inner air-chamber, an annular gas-burner secured to said body portion, annularly-arranged gas-exit apertures in the lower outer edge of said burner, and arranged to discharge the gas outwardly and downwardly, an annular concave spreader-plate beneath the gas-burner proper and in such proximity thereto as to form a space between the plate and the burner, and forming also an annular contracted opening immediately adjacent the exhaust-openings in the outer edge of the burner, which is adapted to direct the air upwardly and outwardly through said opening, an annular air-passage between the gas-burner and said air-supply pipe, communicating at its upper end with said inner air-chamber and at its lower end with the space between the burner proper and spreader-plate, a gas-chamber in the body portion communicating with the interior of the gas-burner, means for supplying gas to the chamber, and means for regulating the admission of air to the air-supply pipe, comprising a plurality of radially-arranged apertures through the lower end of said pipe, and an apertured thimble telescoping into the lower end of said pipe, the apertures of which are adapted to be brought into register with the apertures of the pipe to regulate the flow of air therethrough as desired, substantially as described.

4. A gas-burner comprising a burner-body of generally hemispherical form arranged with its flat side downward, an air-chamber occupying the central part of said burner-body, an annular peripheral air-chamber provided at its top with a pyramidal wall, a plurality of radially-extending air-passages providing communication between the upper parts of the central and peripheral air-chambers, an annular gas-chamber located radially between said peripheral and central air-chambers provided with an annular series of jet-openings opening through the bottom wall of the burner-body and terminating obliquely downwardly and outwardly, a concave disk mounted immediately below the body of the burner with its concave side uppermost and with its perimeter arranged closely to the annular series of jet-openings, so as to form, in conjunction with the lower side of the burner-body, a chamber having a narrow circumferential slit opening, a relatively large central air-tube communicating at its upper end with the central chamber of the burner-body, an annular air-space leading from the central air-chamber to the space between the concave disk and burner-body, and a gas-supply inlet communicating with the annular gas-chamber, substantially as described.

5. In a gas-burner the combination of a hemispherical body portion having two air and one gas annularly-arranged chambers therein each communicating with the lower end of said body portion and a second gas-chamber near the upper end of the body portion, means for supplying gas to the last-mentioned chamber, radially and downwardly arranged passage-ways for conducting gas from said upper gas-chamber to the gas or central one of the lower chambers, an annular ring constituting a gas-burner proper secured to said body portion and provided with an annular gas-chamber adapted to register with the said lower central gas-chamber, said burner being provided at its lower margin with a plurality of openings terminating obliquely downwardly and outwardly for the passage of gas therethrough, a perforated spreader-plate separating the said lower central gas-chamber and the gas chamber in the burner proper, radial passage-ways connecting the inner and the outer air-chambers in the body portion proper, a relatively large, centrally-arranged air-supply tube connecting with the central air-chamber and means, substantially as stated, for permitting the air to escape therefrom both above and below the gas-flame, substantially as described.

6. In a gas-burner, the combination of a gas-supply pipe with a hemispherical body portion provided with a gas-chamber communicating with said gas-supply pipe, a second gas-chamber in the body portion, radial passage-ways connecting the two gas-chambers, a gas-burner proper comprising a ring provided with a gas-chamber registering with the last-mentioned gas-chamber of the body portion and provided with a plurality of gas-exit openings at the margin of the ring arranged obliquely downwardly and outwardly, a perforated spreader-plate separating the gas-chamber in the burner-ring from the adjacent gas-chamber in the body portion, an enlarged air-supply tube secured centrally of the body portion communicating at its upper end with an air-chamber, an annular space between the gas-burner ring and said air-passage connecting at its upper end with the air-chamber in the body portion, a spreader-plate secured to the air-supply tube having its concaved portion adjacent to the burner ring, of such diameter and so located with respect to the latter as to form a marginal, narrowly-contracted opening adjacent to the gas-exit openings for the passage of air from beneath to the flame, a second part or member as B′ of the body portion proper provided with an inwardly-directed annularly-apertured flange, an air space or chamber between said member and the body portion, radial passage-ways for connecting the two air-chambers, means for connecting the supply of air to the air-tube, a chimney-holder secured to the air-supply tube, the air-supply tube outside of the body portion of the burner being covered by porcelain all arranged and operating substantially as described.

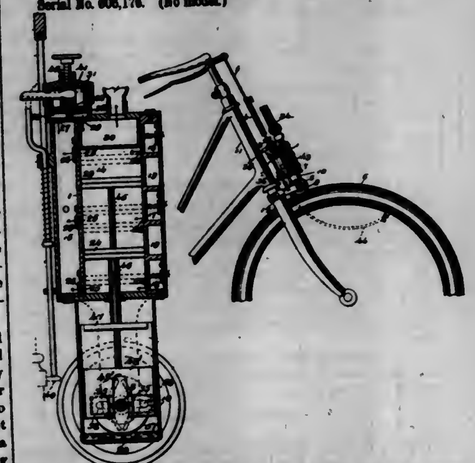
7. In a gas-lamp, the combination with the body portion provided with two radially-arranged air-chambers and with a burner, said burner being provided with a plurality of outwardly and downwardly extending gas-exit apertures on the lower margin thereof, means for supplying gas to the burner, a concave spreader-plate subjacent to the burner and forming between the same and the burner adjacent to said gas-exit apertures a contracted slit for the egress of air, a pipe for supplying air to one of said chambers, means for directing the air from the inner chamber to the space between the spreader-plate and burner, an apertured chimney-holder through which the air may be directed to the outside of the burner, a chimney on said holder, means for regulating the supply of air to the interior and exterior of the burner comprising a regulating-valve in the air-supply pipe, and a damper mounted on the chimney-holder and adapted to regulate the supply of air therethrough.

8. In a gas-lamp, the combination with a burner comprising a body portion provided interiorly with an air-chamber, a pipe for supplying air thereto, an apertured chimney-holder secured to said pipe, a chimney on said holder, a gas-burner comprising a hollow ring secured to said body portion and provided with annularly-arranged, downwardly and outwardly extending apertures for the passage of gas therethrough, means for supplying gas to the burner, a concave annular spreader-plate of substantially the same diameter as that of the burner-ring located below and in such proximity to said burner as to form a contracted air-exit opening adjacent to the apertures in the burner-ring, and an air-passage communicating at one end with the air-chamber in the body portion and at its other end with the contracted air space or opening, of a rotating apertured damper secured to said chimney-holder, a series of radial apertures in the lower end of the air-supply pipe, and a rotatable apertured thimble telescoped upon said apertured end of the pipe, whereby the supply of air to the burner both from within and without may be regulated as desired, substantially as described.

9. In a gas-lamp, the combination with a burner, comprising a body portion provided with a central air-chamber and with an air-supply pipe, an apertured chimney-holder secured to said pipe, a chimney on said holder, a gas-burner secured to said body portion, provided on its outer edge with downwardly and outwardly directed gas-exits, means for supplying gas to the burner, a concave annular spreader-plate located below said burner and in such position as to form between the outer edge of the same and the annular burner a contracted air-exit, an air-passage connecting said central air-chamber and narrow air-exit, of an apertured damper mounted on the chimney-holder to rotate thereon, a series of radial apertures in the lower end of the air-supply pipe, and a rotatable apertured thimble telescoped in said pipe, whereby the supply of air to the burner both from within and without may be regulated as desired by adjusting said damper and thimble upon their engaging parts in various relations to each other.

10. In a gas-lamp, the combination with a body portion provided with an air-chamber and with a burner, said burner being provided with a plurality of gas-exit openings in its lower margin, means for directing the air in a thin sheet upon the issuing gas and substantially at right angles thereto and for also directing the air downwardly upon the flame radially outside of said gas-exit apertures, a pipe for supplying air to said chamber, an apertured chimney-holder mounted on said pipe, of means for regulating the supply of air to the interior and exterior of the burner comprising a regulating-valve in the supply-pipe, a damper mounted on the chimney-holder and adapted to regulate the supply of air therethrough.

593,786. BICYCLE SIGNAL-ALARM AND BRAKE. CHARLES O. SOMMERS, St. Louis, Mo. Filed Oct. 26, 1895. Renewed Sept. 17, 1896. Serial No. 606,176. (No model.)



Claim.—1. In a bicycle signal-alarm, a suitable air-pump, means for varying the position of said pump relatively to the running-gear of the machine, a sounding device or signal operated thereby, means for operating the pump from the running-gear of the machine, and suitable means for shutting off communication between the air-pump and sounding device, substantially as set forth.

2. In a bicycle signal-alarm, a suitable air-pump secured to and controlled by the brake-rod of the machine, a signal device normally in communication with the air-pump, the air-pump being adapted to be set in motion by the wheel of the bicycle upon a partial depression of the brake-rod and sound the signal device, and means carried by the air-pump for shutting off communication between the air-pump and signal device upon a further depression of the brake-rod, substantially as set forth.

3. In a bicycle signal-alarm, a suitable air-pump carried by the brake-rod and adapted to be set in motion upon the depression of said rod, by the wheel of the machine, independent means for operating the pump when the brake-rod is in its normal position, a suitable air-chamber, means for shutting off communication between the air-chamber and the signal device, and a suitable plug carried by the air-chamber whereby upon removal of the same a suitable tube can

be inserted and lead the air from the chamber to the tire of the wheel for inflating the same, substantially as set forth.

4. In a bicycle signal-alarm, an air-pump carried by and controlled by the brake-rod of the machine, an air-cylinder forming a part of said pump, an air-storage chamber communicating with said cylinder, an air-expansion chamber communicating with the storage-chamber, a whistle normally in communication with the expansion-chamber, means for bringing the operating mechanism of the air-pump in contact with the tire upon a partial depression of the brake-rod, a spring-controlled valve interposed between the storage-chamber and the expansion-chamber, and suitable means carried by the pump-cylinder for seating said valve upon a further depression of the brake-rod and thus shut off communication between the air-chamber and expansion-chamber, allowing the air to accumulate in the air-chamber, thus resisting the action of the pump and converting the device into a brake mechanism, substantially as set forth.

5. In a bicycle signal-alarm, a suitable casing, an air-cylinder and air-chamber forming part of the same, an expansion-chamber communicating with the air-chamber, a spring-controlled valve controlling the communication between the air-chamber and expansion-chamber, a rocking arm projecting from the casing or chamber of said valve, the inner end of said arm adapted to depress the valve against the resiliency of the spring, a spring-controlled rod carried on the side of the casing, a pin projecting from the front post of the machine and adapted to support one end of the said rod, the upper end of said rod adapted to tilt the rocking arm upon a maximum depression of the brake-rod and thus depress or seat the valve interposed between the air-chamber and expansion-chamber, substantially as set forth.

6. In a bicycle signal-alarm, a suitable air-chamber and expansion-chamber, a valve casing or chamber mounted above the air-chamber, a spring controlling the valve in said chamber, a rocking arm passed through the wall of the valve-chamber and adapted to depress the valve, a cover for said valve-chamber, and a screw-bolt carried by the cover and adapted to be screwed against an inner end of the rocking arm to temporarily retain the valve against its seat, substantially as set forth.

7. In a bicycle signal-alarm, a suitable air-pump, driving-disks for the same, means for imparting motion to said disks upon a partial depression of the brake-rod of the machine, an air-storage chamber for the pump and suitable means coöperating with the air-pump for compressing the air in the storage-chamber and resisting further rotation of the disks upon an increased depression of the brake-rod, thus converting the driving-disks into a brake mechanism for the wheel, substantially as set forth.

593,787. PYROXYLIN COMPOUND. JOHN H. STEVENS, Newark, N. J., assignor to The Celluloid Company, New York, N. Y., a Corporation of New Jersey. Filed July 22, 1897. Serial No. 645,513. (No specimens.)

Claim.—1. The new composition of matter consisting of soluble pyroxylin in combination with sulfate of urea, as described.

2. The process for rendering soluble pyroxylin compounds stable, which consists in introducing sulfate of urea into the compound as specified.

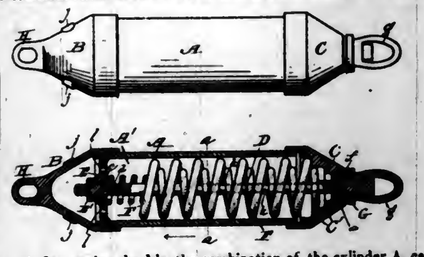
3. A new composition of matter consisting of soluble pyroxylin in combination with sulfate of urea and a solvent or solvents of pyroxylin, as set forth.

593,788. COMBINED SPRING-SHACKLE AND OIL-EJECTOR. JAMES R. STONE, Worcester, Mass. Filed Apr. 5, 1897. Serial No. 630,733. (No model.)

Claim.—1. An improved, combined spring-shackle and oil-ejector for attachment to anchor-cables and towing-hawsers, comprising in combination the following elements, to wit: the cylinder or casing A; the caps or heads B, C, adapted for attachment to said cylinder ends to form an oil reservoir or chamber A′ within, extending the entire length of the interior of the device and provided with suitable plugged inlets for admitting the oil, the cap or head C being provided with a central longitudinal opening in its outer end; the stuffing-box G and bushings fitted in said opening; the longitudinal rod or spindle D, provided with the adjustable head E at its inner end, with means for attachment to the cable or hawser at its outer end, and with longitudinal grooves or slots, preferably made of different lengths, and the spiral springs F interposed between the head E on the rod or spindle and the cap or head C forming one end of the device, substantially as and for the purpose set forth.

2. In a spring-shackle, the combination of the cylinder or case A and the caps or heads B, C secured to the ends thereof to form the oil reservoir or chamber A′, with the grooved or slotted rod or spindle D having the head E and the springs F arranged in said oil reservoir or chamber, substantially as set forth.

3. In a spring-shackle, the combination of the cylinder A and caps or heads B, C, with the grooved or slotted rod D having the head E and means for attachment to the cable or hawser and springs arranged in the oil reservoir or chamber for exerting a resistance to the tensional strain of said cable or hawser, substantially as set forth.

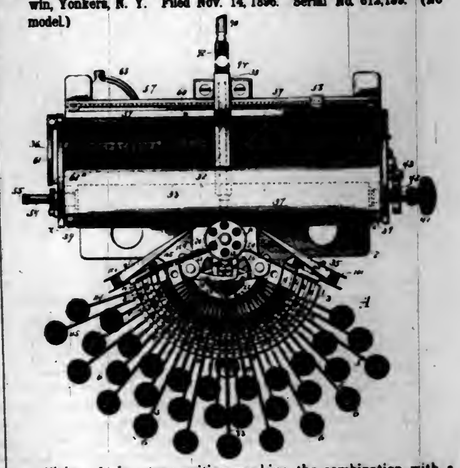


4. In a spring-shackle, the combination of the cylinder A, caps or heads B, C and stuffing-box G, with the central rod or spindle D having grooves or slots formed therein, whose forward ends are arranged at different distances from the opening in the cap or head C and the springs arranged in the oil reservoir or chamber, substantially as and for the purpose set forth.

5. In a spring-shackle, the cylinder A having heads B, C, in combination with the central rod or spindle with which the cable or hawser is connected, having a series of longitudinal grooves or slots whose forward ends are arranged to begin at different distances from its outer end, substantially as set forth.

6 In a spring shackle, the combination of the cylinder A, caps or heads B, C, stuffing-box G, central rod or spindle D, springs F arranged in the oil reservoir or chamber A′, and the head E provided with perforations or openings to permit a free passage of the oil, also adapted to be adjusted and locked on said rod or spindle, substantially as set forth.

593,789. TYPE-WRITING MACHINE. RICHARD W. UHLIG, College Point, N. Y., assignor, by mesne assignments, to William R. Baldwin, Yonkers, N. Y. Filed Nov. 14, 1896. Serial No. 612,139. (No model.)



Claim.—1. In a type-writing machine, the combination with a type-carrier, and key-levers, of gearing connected with the type-carrier, two operating-levers in constant connection with said gearing and coöperating with the key-levers and a flier coöperating with the type-carrier and key-levers, whereby both of said operating-levers and flier will be actuated when a key-lever is depressed and lock the type-carrier by the wedging action of the gearing, substantially as set forth.

2. In a type-writing machine, the combination with a type-carrier, and two groups of key-levers, of two levers coöperating with the respective groups of key-levers, and gearing between said coöperating levers and the type-carrier, said gearing being connected constantly with said levers and with the type-carrier, whereby when a key-lever of either group is operated, both of the coöperating levers and gearing connecting them with the type-carrier will be actuated, and a flier actuated by said gearing and adapted to be stopped by engagement with a key-lever when the latter has been operated, substantially as set forth.

3. In a type-writing machine, the combination with a type-carrier and a series of key-levers, of gearing connected with said type-carrier, and levers in constant connection with said gearing, said levers coöperating with the key-levers in such manner that when one is moved forwardly, the other will be moved over key-levers, substantially as set forth.

4. In a type-writing machine, the combination with a type-carrier, a pinion adapted to transmit motion thereto, key-levers and a flier actuated when said pinion is moved, to strike a key-lever, of two sets of actuating devices between said key-levers and pinion, both sets of actuating devices being in constant connection with said pinion and coöperating with the flier to hold the type-carrier fixed when set to writing position, substantially as set forth.

5. In a type-writing machine, the combination with a type-carrier and gearing connected therewith, of two levers in constant connection with said gearing so that any movement of one lever will result in a corresponding movement in the opposite direction of the other lever and transmit motion to the type-carrier, and a series of key-levers having cam ends to coöperate respectively with said first-mentioned levers, and move the same different distances, in accordance with key-lever operated, substantially as set forth.

6. In a type-writing machine, the combination with a type-carrier and a pinion adapted to transmit motion thereto, of type-levers having cam ends, pivoted levers to be engaged by the cam ends of the key-levers, rack-bars carried by said pivoted levers and meshing with said pinion, and a single spring bearing at its ends against the rack-bars and between its ends against said pivoted levers, substantially as set forth.

7. In a type-writing machine, the combination with a type-carrier having an elongated pinion, of a combined pinion and toothed segment, the latter to mesh with the elongated pinion, of key-levers having cam ends, pivoted levers to be engaged by said cam ends of the key-levers, and rack-bars carried by said pivoted levers and meshing with the pinion to which the toothed segment is secured, substantially as set forth.

8. In a type-writing machine, the combination with a type-carrier having an elongated pinion, of a combined toothed segment and pinion, the former meshing with said elongated pinion, key-levers, rack-bars meshing with the pinion which carries the toothed segment, connections between said rack-bars and key-levers, and a flier mounted independently of said combined toothed segment and pinion and adapted to receive motion from the elongated pinion of the type-carrier, substantially as set forth.

9. In a type-writing machine, the combination with a type-carrier carrying an elongated pinion and a series of key-levers, of a flier consisting of a toothed segment having arms, said toothed segment meshing with said elongated pinion, a combined toothed segment and pinion mounted on the same stud with the flier but independently thereof and adapted to transmit motion to the elongated pinion of the type-carrier, rack-bars meshing with the pinion of the combined toothed segment and pinion and connections between said rack-bars and the key-levers, substantially as set forth.

10. In a type-writing machine, the combination with a frame having a segmental guiding-flange, a type-carrier and gearing connected with said type-carrier, of a series of key-levers mounted on the frame and terminating forwardly of said guiding-flange and spaced apart at their forward extremity whereby to permit the free forward ends of the key-levers to be bent laterally within the segmental guiding-flange, said forward extremities of the key-levers having cam-faces to actuate said gearing, substantially as set forth.

11. In a type-writing machine, the combination with a type-carrier and gearing connected therewith, of a pivoted lever adapted to mark the arc of a circle and constructed to transmit motion to said gearing and a series of key-levers having cam ends to engage said lever and move the same different distances and a shoulder on one end of the cam of each key-lever, said shoulders being adapted to engage the first-mentioned lever when a key-lever has been fully depressed, substantially as set forth.

12. In a type-writing machine, the combination with a type-carrier and gearing connected therewith, of levers coöperating with said gearing, devices constructed to lock said levers and gearing in their normal positions and key-levers constructed to coöperate with said first-mentioned levers and locking devices, whereby to actuate said levers and gearing and move the type-carrier to writing position according to the key-lever operated, substantially as set forth.

13. In a type-writing machine, the combination with a type-carrier and key-levers, of gearing between the type-wheel and key-levers, said gearing being constructed and adapted to hold the type-carrier, rigid when set to writing position, and devices connected with said gearing and adapted to positively lock the type-wheel in normal position, substantially as set forth.

14. In a type-writing machine, the combination with a type-carrier, and gearing connected with said type-wheel, of levers connected with said gearing, key-levers having cam ends to engage said first-mentioned levers, and vertically-movable frames constructed and adapted to lock the type-wheel and gearing in their normal positions, and hooks or projections on the key-levers for raising one or the other of said vertically-movable frames and thus unlocking the gearing and type-wheel, substantially as set forth.

15. In a type-writing machine, the combination with a type-carrier having an elongated pinion, of a combined toothed segment and pinion, the former meshing with the elongated pinion, oscillatory shafts, rack-bars secured to said shafts and meshing with the pinion carrying the toothed segment, levers projecting from said shafts, key-levers having cam ends to engage said levers, a vertically-movable frame having cam-faces, and pins on said shafts to engage said frames and adapted to be moved by said cam-faces, substantially as set forth.

16. In a type-writing machine, the combination with a type-carrier and an impression-hammer, of a force-hammer, a normally loose spring connected with the force-hammer, a trip device normally locking said force-hammer, key-levers and devices operated by the key-levers and constructed and adapted to first apply tension to said spring while the force-hammer is locked and then operate said trip to release the force-hammer, substantially as set forth.

17. In a type-writing machine, the combination with a type-carrier and an impression-hammer, of a force-hammer, a trip device serving to normally lock the force-hammer, a normally loose spring for the force-hammer, a pivoted yoke, key-levers and connections between one end of said yoke and the key-levers, the other end of said yoke being adapted to apply tension to said spring while the force-hammer remains locked and then operate the trip, when a key-lever is pressed, substantially as set forth.

18. In a type-writing machine, the combination with a type-carrier and an impression-hammer, of a force-hammer, a normally loose spring therefor, a trip device serving to normally lock said force-hammer, key-levers, vertically-movable frames adapted to be raised by the key-levers, and a pivoted yoke having arms disposed over portions of the respective vertically-movable frames and also having an arm connected with the force-hammer spring and adapted to operate said trip device to release the force-hammer, substantially as set forth.

19. In a type-writing machine, the combination with a carriage and a ratchet-bar thereon, of a pivoted plate having a fixed dog at one end to engage said ratchet-bar, a dog pivoted to said plate and adapted to coöperate with the first-mentioned dog, a single bow-spring bearing against the pivoted dog, means for adjusting said bow-spring, vertically-movable frames, an arm projecting from said pivoted plate and terminating over portions of both frames, and key-levers adapted to raise said vertically-movable frames, substantially as set forth.

20. In a type-writing machine, the combination with a carriage and a ratchet-bar thereon, of a pivoted plate, ratchet devices carried by said plate coöperating with the ratchet-bar to effect the feed of the carriage, an arm projecting from said pivoted plate, a key-lever connected with said arm whereby to actuate the ratchet devices to effect a step-by-step feed of the carriage, means for limiting the movement of said key-lever, and a key connected with the arm of the pivoted plate whereby to move the dogs out of engagement with the ratchet-bar and effect the release of the carriage, substantially as set forth.

21. In a type-writing machine, the combination with a type-carrier having a pinion and key-levers having cam ends, of a combined toothed segment and pinion, two oscillatory shafts, rack-bars carried by said shafts and meshing with said last-mentioned pinion, two levers, one secured to each oscillatory shaft, said levers being normally disposed coincident with the segment of a circle marked by the cam ends of the key-levers, substantially as set forth.

22. In a type-writing machine, the combination with vertically-movable frames and key-levers adapted to raise said frames, of ribbon-reels having ratchet-teeth, pivoted levers, a dog pivoted to one arm of each of said levers and adapted to engage ratchet-teeth of the ribbon-reels, vertically-movable rods adapted to engage the other arms of said levers, and pins projecting from said rods and adapted to be engaged by portions of said vertically movable frames, substantially as set forth.

23. In a type-writing machine, the combination with a framework and a top plate, of key-levers, vertically-movable frames to be raised by said key-levers, ribbon-reels mounted on the framework and each comprising two ratchet-wheels, a pivoted lever adjacent to each ribbon-reel, a dog carried by one arm of each lever and adapted to engage one ratchet-wheel of each reel, vertically-movable rods to engage the other arms of said levers, a cross-bar connecting said rods, pins projecting from said rods and over portions of the vertically-movable frames, a sliding switch-bar on the top plate of the machine, dogs pivoted to said top plate to engage a ratchet wheel of the ribbon-reels and cam-arms carried by said switch-bar and adapted to raise the dogs from the ratchet-wheels of one reel and permit the dogs of the ratchet-wheels of the other reel to engage the same, substantially as set forth.

24. In a type-writing machine, the combination with the framework and a carriage, of a bar secured to the framework, a stop adjustably secured to said bar, an oscillatory rod mounted on the carriage, a pin on said rod, normally out of line with said stop, and an arm secured to said rod for maintaining said pin out of line with the stop and serving as means whereby to oscillate said rod to move the pin in line with the stop, whereby to regulate the margin on the paper being written upon, substantially as set forth.

25. In a type-writing machine, the combination with a framework and a carriage, of a ratchet-bar secured to the framework, a stop adjustably secured to said ratchet-bar, an oscillatory rod mounted on the carriage, a pin on said rod normally out of line with said stop, an arm on said rod for normally maintaining said pin out of line with the stop and serving as means whereby to oscillate the rod to move the pin on the latter in line with said stop, and a pin on said arm to engage the carriage and form a stop for said arm and oscillatory rod, substantially as set forth.

26. In a type-writing machine, the combination with a carriage and paper-feed rollers mounted therein, of a star-wheel and a knob on one of the journals of one of said rollers, a pivoted detent, a roller carried by said detent and adapted to engage the star-wheel, a spring attached to the free end of said detent and to the carriage, a pin on the detent, a pivoted arm and a hook on said pivoted arm to engage said pin, substantially as set forth.

27. In a type-writing machine, the combination with the framework, a carriage and ratchet feed mechanism for the carriage, of a combined spring-actuated drum and bell, a strap attached at one end of the carriage and removably attached at the other end to the spring-actuated drum, and a hammer for said bell attached to the frame of the machine and carrying a trip device to be actuated by a projection on the carriage, substantially as set forth.

28. In a type-writing machine, the combination with a framework having two segmental notched flanges, radial slots and segmental grooves in its top, of key-levers guided by said notched flanges and radial slots and having pivot-pins seated in said segmental grooves, said key-levers terminating within the inner segmental flange, a type-wheel and gearing between said type wheel and key-levers and adapted to be actuated by the inner ends of the latter to turn said type-wheel, substantially as set forth.

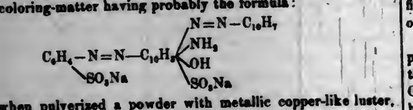
29. In a type-writing machine, the combination with a carriage and paper-feed rollers, of a ratchet-wheel on one of the journals of one of said rollers, a pivoted lever carrying a dog to engage said ratchet-wheel, a tubular arm on said lever, and a spring-actuated dog mounted in said tubular arm and adapted to engage a stop on the carriage or to be moved out of line with said stop, substantially as set forth.

30. In a type-writing machine, a type-wheel consisting of a ring having a perforated web, a hollow shank extending through said web, a plate on the shank on which plate said web rests, a pin projecting from said plate and entering the web and a strip containing characters, on said ring, substantially as set forth.

598,790. BLUE-BLACK DISAZO DYE. MORITZ ULRICH and JOHANN BANNANN, Elberfeld, Germany, assignors to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Dec. 16, 1896. Renewed Oct. 13, 1897. Serial No. 655,080. (Specimens.) Patented in England May 17, 1893, No. 9,894, and in France Oct. 24, 1893, No. 233,009.

Claim.—1. The process for the production of a new disazo coloring-matter by first combining one molecular proportion of paradiazobenzenesulfo-acid with one molecular proportion of alpha$_1$ amido-alpha$_4$ naphthol-alpha$_2$ sulfo-acid or salts thereof in a weakly mineral-acid solution and secondly combining the intermediate product thus obtained with one molecular proportion of alpha-diazonaphthalene in alkaline solution, substantially as described.

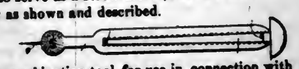
2. As a new article of manufacture the blue-black wool-dyeing disazo coloring-matter having probably the formula:



being when pulverized a powder with metallic copper-like luster, soluble in cold water with violet-black color, soluble in alcohol with blue color, soluble in dilute ammonia liquor with blue color, soluble in concentrated sulfuric acid with greenish-blue color which solution separates on the addition of a small quantity of ice-water a greenish-blue flaky precipitate, dyeing wool in acid-baths blue-black shades fast to the action of alkali and acid, also fast to the action of light, substantially as described.

598,791. TOOL FOR TYPE-WRITERS. CHARLES S. VIDOR, Galveston, Tex. Filed Apr. 15, 1897. Serial No. 632,319. (No model.)

Claim.—1. A combination-tool for use in connection with type-writers, said tool comprising an oblong handle which is provided at one end thereof with an extension on which is formed or to which is secured a brush, said extension being also provided with a prong, and said handle being provided in its opposite sides with longitudinal grooves which are adapted to receive plates, one of said plates being adapted to serve as a screw-driver, and the other as a cleaner, substantially as shown and described.



2. A combination-tool for use in connection with type-writers, said tool comprising an oblong handle which is provided at one end thereof with an extension on which is formed or to which is secured a brush, said extension being also provided with a prong, and said handle being provided in its opposite sides with longitudinal grooves which are adapted to receive plates, one of said plates being adapted to serve as a screw-driver, and the other as a cleaner, and the end of the handle opposite the brush being also provided with an eraser, substantially as shown and described.

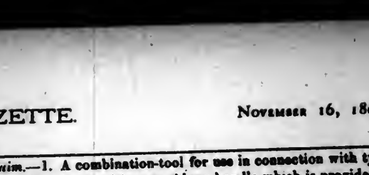
598,792. PROCESS OF ENAMELING SURFACES. ANDREW J. VOLLRATH, Sheboygan, Wis. Filed June 14, 1897. Serial No. 640,766. (No specimens.)

Claim.—1. The process of enameling surfaces, which consists in mixing enamel, ground to an impalpable powder, with water to a state of high dilution, projecting the mixture in a fine spray upon the surface to be enameled, rapidly evaporating the water, by the action of heat, immediately upon its contact with the surface, and then firing, substantially as described.

2. The process of enameling surfaces, which consists in heating the article to a temperature which will rapidly vaporize water, projecting upon the heated surface, in the form of a fine spray, a liquid solution of finely-ground enamel and water, and then firing, substantially as described.

3. The process of enameling surfaces, which consists in heating the article to be enameled to a temperature which will rapidly vaporize water, projecting upon the heated surface, in the form of a fine spray, a heated liquid solution of finely-ground enamel and water, and then firing, substantially as described.

598,798. SAW-FILE HOLDER AND GUIDE. AARON VERELAND, East Orange, N. J. Filed June 2, 1897. Serial No. 638,027. (No model.)



Claim.—1. A saw-file holder and guide comprising the cross-bars A, A', provided with the rods B and tightening-nuts C, the handles D, D' fitted to the tang and point of the file, and inserted removably in the cross-bars as set forth, pins *d* inserted through the handles upon the inner side of the cross-bars to press the handles upon the ends of the file when the nuts are tightened, and the notch *a* in the cross-bar A, to hold the handle D from rotating, as and for the purpose set forth.

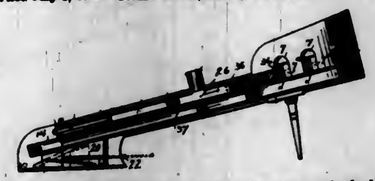
2. A saw-file holder and guide comprising the cross-bars A, A', provided with the rods B and tightening-nuts C, the handles D, D' fitted to the tang and point of the file, and inserted removably in the cross-bars as set forth, pins *d* inserted through the handles upon the inner side of the cross-bars to press the handles upon the ends of the file when the nuts are tightened, and the handle D' having a series of holes d^2 to receive the pin *d*, as and for the purpose set forth.

3. A saw-file holder and guide comprising the cross-bars A, A', provided with tie-rods B and tightening-nuts C, handles supported in the cross-bars to fit the tang and point of the file, and the guide-bar G linked to the corresponding ends of the cross-bars and adjustable below the plane of the tie-rods, as and for the purpose set forth.

4. A saw-file holder and guide comprising the cross-bars A, A', provided with tie-rods B and tightening-nuts C, handles supported in the cross-bars to fit the tang and point of the file, and the guide-bar G connected at each end with the end of one of the cross-bars by jointed links having a clamping-bolt at their intersection, as and for the purpose set forth.

5. A saw-file holder and guide comprising the cross-bars A, A', provided with tie-rods B and tightening-nuts C, handles supported in the cross-bars to fit the tang and point of the file, and the guide-bar G provided at each end with the slotted link K having the link J secured thereto by the clamping-bolt *k* fitted to the slot, the links K being pivoted upon the ends of the cross-bars, as and for the purpose set forth.

598,794. PARLOR GAME-BOARD. OSCAR A. WADE, Avon, Mass. Filed July 1, 1896. Serial No. 597,788. (No model.)



Claim.—1. The combination of a board having a raised edge, an impelling device for projecting the balls forward, domes disposed on said board and provided with openings on the reverse side to the impelling device, pockets disposed at one end of said board, and converging channels connecting the several domes with the two pockets bearing the highest numbers, each of said domes being independent of the others.

2. The combination of a board having a raised edge, a device for impelling the balls forward, independent domes disposed on said board and provided with openings on the reverse side to the impelling device, pockets disposed at one end of said board below the surface thereof, guiding-stalls for directing the balls into said pockets, and a ball-chamber disposed below said pockets.

3. The combination of a board having raised edges, domes disposed on said board and provided with openings, pockets disposed at one end of said board, channels connecting said domes and pockets, a ball-chamber below said pockets, and a hinged section beneath said pockets adapted to drop the balls into said ball-chamber when desired.

4. The combination of a board having raised edges, a peak at the top of said board for directing the course of the balls, an impelling device for projecting the balls forward, domes disposed at the top of said board and provided with openings on the reverse side to the impelling device, pockets for receiving the balls, and channels connecting the domes and pockets, said domes being independent of each other.

5. In a game-board, the combination of an inclined board having raised edges, an impelling device for projecting the balls forward, independent domes disposed on said board and having openings therein on the reverse side to the impelling device, pockets disposed at one end of said board below the surface thereof, and channels disposed under said board and connecting the domes with the pockets.

6. In a game-board, the combination of an inclined board having raised edges, an impelling device for projecting the balls forward, independent domes disposed on said board and having openings on the reverse side to the impelling device, pockets disposed at one end of said board, channels connecting said domes and pockets, stalls disposed adjacent to said pockets for directing balls thereinto, and impeding devices disposed between the upper end of the board and the stalls.

7. In a game-board, the combination of a board having raised edges, a spring-actuated cue for impelling the balls forward, independent domes disposed on said board and provided with openings on the reverse side to the impelling device, pockets disposed at one end of said board, and channels connecting said domes and pockets.

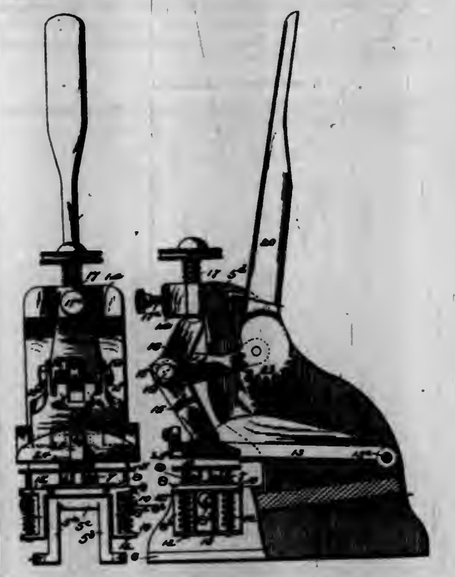
8. In a game-board, the combination of an impelling device for projecting the balls forward, independent domes disposed on said board, said domes having openings on the reverse side to the impelling device, means disposed at one end of the board for receiving the balls, and means for connecting the domes with the ball-receiving means.

598,795. CHECK-CANCELING DEVICE. JAMES M. WILLBUR, New York, N. Y. Filed Apr. 30, 1897. Serial No. 634,503. (No model.)

Claim.—1. A check-canceler comprising a frame, the cutting-knives, the movable arm, the toggle-joint connected to said arm, the hand-lever having a toothed end, the rack adapted to be engaged by said teeth to prevent the slipping of said end and the connection between the toggle-joint and the hand-lever, substantially as described.

2. In combination, the main frame, the knife-carrying frame of inverted-U shape removably carried upon the main frame and having side flanges, the yielding stripper-plate having guides extending through openings in the side flanges, the arm and means for operating it, substantially as described.

3. In combination, the frame, the knives, the hand-lever, the pivoted arm, the toggle-joints the members thereof having their meeting ends recessed and provided with overlapping ears, the pin passing through said ears and bearing within said recessed portion, and the link connecting said pin to the hand-lever, substantially as described.



4. In combination, the main frame, the rack fixed thereto, the movable arm, the segmental gears of the hand-lever engaging said racks of the main frame, the hand-lever being provided with a projection or pin to stop it striking against the main frame on its upward movement after the pressure is removed, the toggle-joint with means for operating the same, the set-screw for adjusting the upper end of the toggle-joint and means for locking the set-screw against movement, substantially as described.

598,796. SOLDERING-IRON. DAVID H. ALLEN, Miamisburg, Ohio. Filed Apr. 12, 1897. Serial No. 631,718. (No model.)



Claim.—1. In a soldering copper or iron, the copper or iron proper provided with a beveled end, in combination with a headed pin for coupling the handle thereto and permitting the relative adjustment of said iron and handle, substantially as described.

2. In a soldering-iron, the copper or iron proper having a beveled end and a headed pin thereon, in combination with a handle having a slotted and correspondingly-beveled end for engaging said pin, substantially as described.

3. The combination in a soldering-iron of the iron proper having a beveled end and a headed pin thereon, a handle having a correspondingly-beveled end slotted to engage said pin, and a clamping rod or lever also engaging said pin for forcing the handle and iron into rigid engagement, substantially as described.

4. The combination with a soldering-iron having a beveled end and a headed pin thereon, of a hollow or concavo-convex handle provided with a slotted, inclined web for engaging said pin, and an adjustable clamping rod or lever connected to said handle, substantially as described.

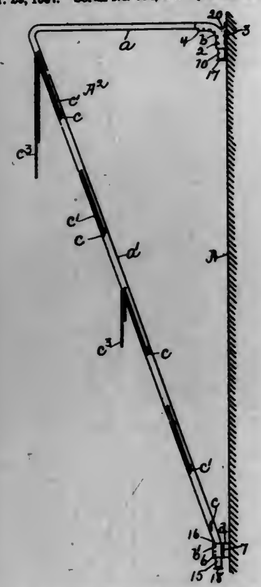
5. In a soldering-iron, the concavo-convex handle, in combination with an adjustable clamping rod or lever working within said handle, and means for holding said rod or lever at the desired adjustment, substantially as described.

6. In a soldering-iron, the concavo-convex handle having an inclined, slotted end or web for engaging the iron, in combination with an adjusting rod or lever having a similarly-slotted end also engaging

the iron, and means for holding said rod at the desired adjustment, substantially as described.

7. In a soldering-iron, the iron proper having a beveled end and a headed pin thereon, in combination with the concavo-convex handle having a slotted and correspondingly-beveled end for engaging said iron, a clamping-rod adjustable within the handle, the latter being screw-threaded, and a nut adjustable on said handle for adjusting said clamping-rod, substantially as described.

593,797. CLOTHES-DRIER. CHARLES M. BIDDLE, Boston, Mass. Filed Apr. 23, 1897. Serial No. 634,367. (No model.)



Claim.—1. A clothes-drier comprising two side frames, each consisting of a substantially horizontal member *a* and an inclined member *a'* extended from the horizontal member toward and substantially into a vertical line with the inner end of the said horizontal member, means to attach said side frames to a support, to enable the said side frames to be turned toward each other and lines connecting the inclined members of the side frames at different points in the length of said inclined members, substantially as described.

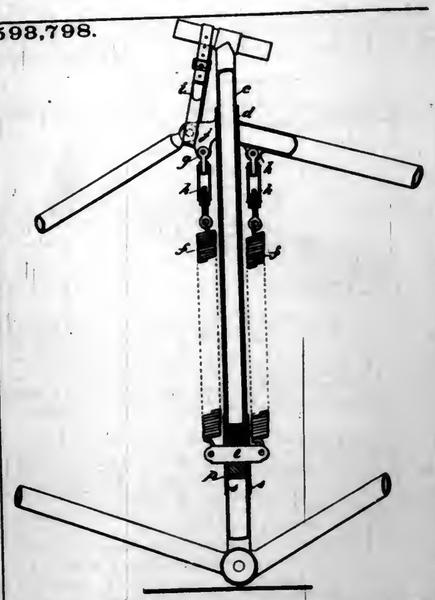
2. In a clothes-drier, a metallic side frame comprising a substantially horizontal member *a* provided with a substantially vertical depending arm 10 at its inner end to form a pivot for the upper end of the said frame, a substantially long inclined member *a'* integral with the member *a* and provided at its lower end with a substantially vertical arm 15 substantially in line with the arm 10 of the member *a* to form a pivot for the lower end of the side frame, and devices secured to the inclined member to which the clothes-line may be connected, substantially as described.

3. The combination with the hangers *b* provided with the hub 2 and grooved arm 4, and the hangers *b'* having the hub 6, of the side frames A' A², each comprising the substantially horizontal member *a* having an arm 10 extended into the hub of the hanger *b*, and an inclined member *a'* having a substantially straight arm 15 extended into the hub of the hanger *b'*, devices *c* attached to the inclined members of the side frames, and line-sections connected to the said inclined members by the devices *c*, substantially as described.

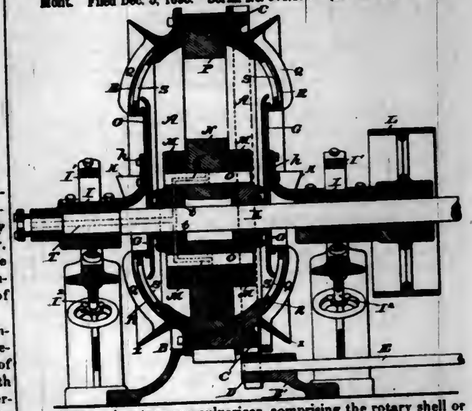
598,798. SEAT OR SADDLE SUPPORT FOR CYCLES OR OTHER VEHICLES. EDMOND J. BYRNE, Dundrum, Ireland. Filed Oct. 5, 1896. Serial No. 607,901. (No model.)

Claim.—A seat or saddle support for cycles or other vehicles consisting of a tube forming a rigid part of the frame of the vehicle, a lengthened saddle pin or pillar guided and sliding freely in the tube, a cross-bar attached as shown to the pillar and passing through slots in the tube, of a spring or springs suspending the saddle pin or pillar in its guides from the said frame, and of a means for suitably adjusting the spring or springs having regard to the weight and preference of the rider.

598,798.



593,799. ROTARY CRUSHER. NEWMAN CAMPBELL, Helena, Mont. Filed Dec. 5, 1895. Serial No. 571,132. (No model.)

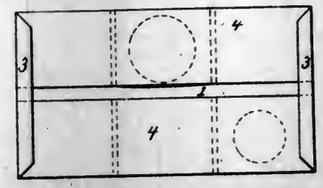


Claim.—A rotary ore-pulverizer, comprising the rotary shell or barrel *l*, provided with the external gear-wheel C, the annular integral flaring flanges X X and the screen-frame Q, the segmental screens R R, and the diagonally-arranged slats S secured therein, and the annular anvil P located within and carried by said shell, in combination with the shaft E, the pinion D fixed on said shaft and meshing with the gear-wheel C on the shell A, the horizontal shaft K mounted in the bearings I adjustably secured in the standards I' I', the parallel splash-guards G G provided with the hoppers H H, and secured to the vertical integral arms A A of the bearings I I, the parallel disks M M fixed on said shaft K, the spindles O O fixed in said disks at equidistant points and concentric with the shaft K, and the beater-arms N pivoted at their inner ends on said spindles, substantially as and for the purpose set forth.

593,800. COIN-TRANSMITTER. JAMES H. CRABB, Indianapolis, Ind., assignor of one-half to Oscar J. Ensley, same place. Filed July 12, 1897. Serial No. 645,300. (No model.)

Claim.—1. A coin-transmitter comprising a main strip or back of stiff material, another strip secured at intervals to the main strip or back to form coin-receptacles, and a strip or stop piece of stiff material secured to the main strip or back near the openings of the coin-receptacles to prevent the escape of the coins therefrom, substantially as set forth.

2. A coin-transmitter comprising a main strip or back of stiff material, and two other strips of stiff material so secured at intervals to the main strip as to form coin-receptacles whose openings are near and opposite to each other, substantially as and for the purpose set forth.



3. A coin-transmitter comprising a single piece of stiff material with two opposite sides folded in toward each other so that their inner edges will be near each other, and with end flaps that are turned down and secure the parts together, substantially as set forth.

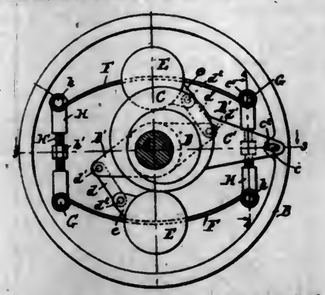
4. A coin-transmitter comprising a single piece of stiff material with its opposite sides folded in toward each other so that their inner edges will be near each other, means for securing such sides to the body-piece at intervals so as to form coin-receptacles opening inward, and end flaps that are turned over and secured down upon the side strips, substantially as and for the purpose set forth.

593,801. MINERAL-OIL BURNER. JOSEPH J. HALL, Los Angeles, Cal., assignor, by mesne assignments, to James Smith, Pasadena, Cal. Filed Apr. 14, 1896. Serial No. 587,470. (No model.)



Claim.—A downward-acting burner for burning mineral oils consisting of the mixing-chamber the outer conical chamber surrounding the mixing-chamber, the outer conical chamber and mixing-chamber forming an air-heating space between them, the mixing-chamber formed with the vapor-generator adapted to discharge into said chamber at its top in which the oil to be burned is received and vaporized before passing down into the mixing-chamber, the lid with openings for admitting the supply of air to the mixing-chamber and to the air-heating chamber, all operating together in the manner and for the purposes substantially as set forth.

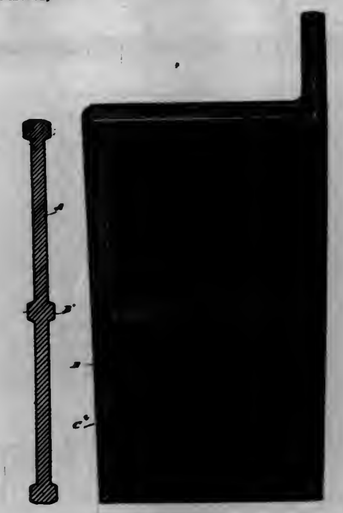
593,802. ENGINE-GOVERNOR. HALBERT B. HALVORSEN, Chicago, Ill., assignor of one-half to William K. Millholland, same place. Filed June 25, 1896. Serial No. 596,880. (No model.)



Claim.—1. The combination with a shaft and fly-wheel, of a main eccentric which has laterally-movable but non-rotativa connection with the fly-wheel, an inner eccentric mounted to turn on the shaft and to support the main eccentric, a governor-weight pivotally connected with said inner eccentric in such manner as to turn the same when the weight moves inwardly or outwardly and a leaf-spring supporting the weight between its ends, said spring being attached at one end to a pivot-stud rigidly secured to the fly-wheel and attached at its other end to said wheel by means of an endwise-adjustable link pivotally connected with the spring and with the fly-wheel.

2. The combination with a shaft and fly-wheel of a main eccentric which has laterally-movable but non-rotative connection with the fly-wheel, an inner supporting-eccentric mounted to turn on the shaft and engaging said main eccentric, said eccentric being provided with a rigidly-attached radial arm, a centrifugally-acting weight connected with said arm and a leaf-spring which engages the weight between its ends, said spring having pivotal connection at one end with said fly-wheel, and a link connecting the opposite end of said spring with said fly-wheel consisting of separate end pieces, and an oppositely-screw-threaded intermediate part connecting the same, said link having a pivotal connection with the spring and fly-wheel.

593,803. ELECTRIC BATTERY. WILLIAM W. HANSCOM and ARTHUR HOUGH, San Francisco, Cal., assignors of one-half to J. O. B. Gunn and E. H. Potter, same place. Filed Apr. 21, 1897. Serial No. 633,160. (No model.)



Claim.—1. The method of constructing elements for storage batteries consisting in mixing litharge and sugar, setting the same by adding sulfate of ammonia, dissolving out part of the sugar and electrolytically reducing to spongy lead substantially as described.

2. The method of constructing elements for storage batteries consisting in mixing litharge and sugar, then moistening the mixture with sulfate of ammonia to form the same into a paste, then molding the paste into a desired form, then reducing the same to spongy lead by electrolytically charging, and discharging it until formed, substantially as described.

3. The method of constructing elements for a storage battery, consisting in mixing litharge and sugar, then moistening the mixture with sulfate of ammonia to form the same to a paste, then molding the paste to form slabs having ridges of greater thickness than the body of the said slabs, then reducing the same to spongy lead by electrolytically charging and discharging it in a suitable electrolyte, then compressing the said ridges to a dense mass to form supports for the said elements, substantially as described.

4. The method of constructing elements for a storage battery consisting in mixing litharge and sugar then moistening the mixture with sulfate of ammonia to form the same into a paste, then molding the paste into a slab having ridges of greater thickness than the body of the slab, then reducing the same to spongy lead by electrolytically charging and discharging the same in a suitable electrolyte, then compressing the said ridges to the flush surface of the said slabs to form them into a denser mass to form supports for the said elements, substantially as described.

5. The method of constructing elements for storage batteries consisting in electrolytically producing slabs of spongy lead, then compressing the same about the edge to a dense mass, and welding metallic lead upon said compressed edge to form a frame, substantially as described.

593,804. FIREPROOF BUILDING. JULIUS R. HINTER, Brooklyn, N. Y. Filed Mar. 18, 1897. Serial No. 628,155. (No model.)

Claim.—1. In a fireproof structure, the combination, with the woodes floor-joists, of a fireproof sheathing attached to the upper and lower sides thereof, and longitudinal fireproof strips secured to the upper and lower sides of said joists and serving as a means by

which the floor and ceiling are attached to said joists, substantially as set forth.

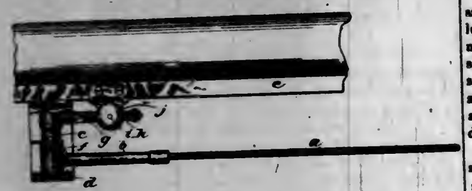


2. In a fireproof structure, the combination with the floor-beams of a fireproof sheathing applied to the upper and lower sides thereof, fireproof strips extending longitudinally along the upper and lower surfaces of said floor-beams, a flooring secured to the upper strips, a fireproof ceiling secured to the lower strips and air-spaces formed above and below said floor-beams, substantially as set forth.

3. In a fireproof structure, the combination, with the wooden floor-joists, of an asbestos sheathing attached to the upper and lower sides thereof, longitudinal asbestos strips secured to the upper and lower sides of said joists, a flooring attached to the upper strips, and metal lathing secured to the lower strips and adapted to receive a plaster, substantially as set forth.

4. In a fireproof structure, the combination, with the floor-beams, of a fireproof sheathing applied to the lower side of said floor-beams, fireproof strips extending longitudinally along said floor-beams, and serving to secure said sheathing thereto, and a fireproof ceiling secured to said strips and forming an air-space between said sheathing and ceiling, substantially as set forth.

593,805. HAT-HOLDER. WILLIAM JOHNSTON, Jr., Somerville, Mass. Filed Aug. 20, 1896. Serial No. 603,365. (No model.)



Claim.—1. A hat-holder comprising in its construction the bracket *d*, adapted to be secured to the under side of a seat; combined with the standard *c*, journaled in the bracket, and provided with the holder-loop *a*, its shank *b*, and the arm *g*; a spring *f* coiled about the standard and having one end secured thereto and the other end secured to a fixed part; the guide-eye *i*; and cord *h*, secured at one end to the arm and extending through the guide-eye, as set forth.

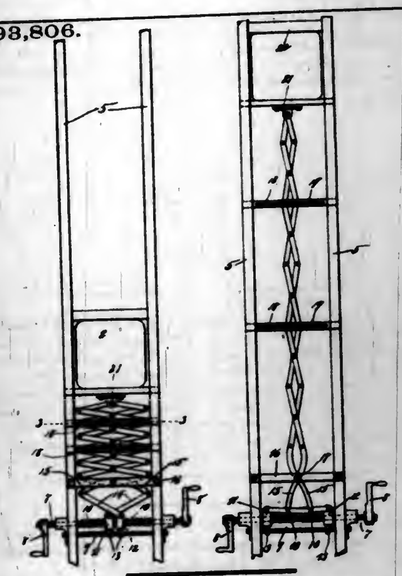
2. A hat-holder comprising in its construction the bracket *d*, adapted to be secured to the under side of a seat; combined with the standard *c*, journaled in the bracket and provided with the holder-loop *a*, its shank *b*, and the arm *g*; the said standard being set on an incline in the bracket, whereby the holding-loop and its shank will normally, by their own gravity, be swung under the seat, the guide-eye *i* and cord *h* secured at one end to the arm *g* and extending through the guide-eye, as set forth

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593,806. ELEVATOR. THOMAS KEENAN, New York, N. Y. Filed Mar. 3, 1897. Serial No. 625,858. (No model.)

Claim.—The herein-described elevator comprising the combination with an elevator-shaft having uprights or posts 6, of a shaft 7 provided with cranks 8, a fixed rod 9, said shaft 7 being provided with reverse threads 10 on which are mounted blocks or heads 11 and 12, each of which is provided with a lug 13 slidably mounted on said rod 9, links 14 pivotally connected with said heads 11 and 12, lazy-tongs 15 pivotally connected with said links 14, and with cross-bars 16, a rod or bolt 17 fixed to said bar 16 on which the lazy-tongs are pivotally mounted, and a plurality of bars 18 having slots 19 adapted to receive pins 20 which are connected with said lazy-tongs, all combined substantially as and for the purpose described.

593,806.



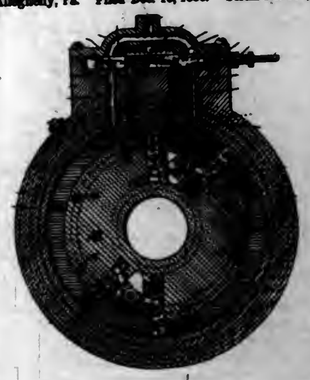
593,807. MAGIC TOY. PAUL G. KLEISLER and JOSEPH W. MAYER, Easton, Pa. Filed Feb. 26, 1897. Serial No. 626,148. (No model.)



Claim.—1. The herein-described toy fortune-telling device, the same consisting of a cylindrical casing in which is mounted a revoluble drum, said drum being provided with a rod which passes diametrically therethrough, and on which is mounted a movable weight, said drum being also provided with means for revolving the same and said casing being provided at the perimeter thereof with an opening, and said drum being provided on its perimeter with words which are adapted to show through said opening, substantially as shown and described.

2. The herein-described toy fortune-telling device, the same consisting of a cylindrical casing in which is mounted a revoluble drum, said drum being provided with a rod which passes diametrically therethrough, and on which is mounted a movable weight, and said casing being provided at the perimeter thereof with an opening, and said drum being provided on its perimeter with words which are adapted to show through said opening, and means for revolving said drum, substantially as shown and described.

593,808. MOTOR. WILLIAM R. LIPPINCOTT and OTTO R. C. HOMANN, Allegheny, Pa. Filed Dec. 10, 1896. Serial No. 615,129. (No model.)

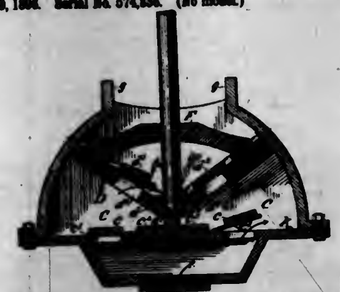


Claim.—1. In a rotary motor, two pistons having an endwise movement, combined with a rocking lever which is connected directly to the inner end of each piston, whereby the movement of one piston operates the other in an opposite direction; and the frame of the engine, having an abutment to operate the pistons, substantially as set forth.

2. In a rotary motor, an inclosing case, and a rotary cylinder having radial grooves made therein, and a suitable opening between the grooves, combined with the two endwise-moving pistons placed in the grooves, and a rocking lever pivoted between the two pistons, and loosely connected directly to them both, whereby when the rotation of the cylinder brings the forward piston in contact with the abutment, and it is forced backward into its groove, the other piston will be forced outwardly, substantially as specified.

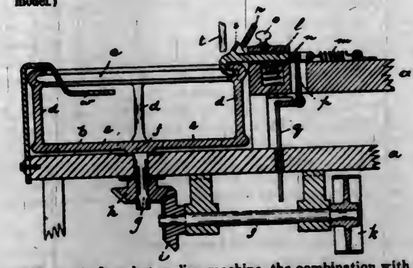
3. A grooved outer ring, a central cylinder, and two sides secured to the cylinder and provided with flanges to fit in the grooves in the ring, combined with two pistons having an endwise movement, a rocking lever which is connected directly to the inner end of each piston, the outer ring being provided with an abutment to operate the pistons, substantially as specified.

593,809. PUMP. HENRY S. LOCKMAN, Castleton, N. Y. Filed Jan. 9, 1896. Serial No. 574,836. (No model.)



Claim.—The combination in a pump, of a piston-chamber cylindric in form and having in its top a flanged discharge-opening and a spout, a removable supply-chamber having a top plate constituting the bottom of the piston-chamber and provided at opposite points with hinged valves opening into said piston-chamber, a convex bearing-strip extending diametrically across the top plate intermediate its valves, and a vibrating piston constituted of plates substantially equal to the radius of the piston-chamber and uniting with each other at an angle and each having an upwardly-opening valve, the said piston being provided on its upper side near the ends with a cross-brace, which secures the valves of the plates in place and having an operating-rod fastened at its lower end to the piston and passing through an opening in the center of the cross-brace, substantially as shown and for the purpose described.

593,810. HAT-BRIM-CURLING MACHINE. WILLIAM J. MCCALL, West Orange, N. J. Filed July 27, 1896. Serial No. 600,615. (No model.)

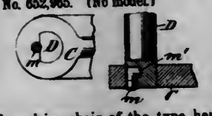


Claim.—1. In a hat-curling machine, the combination with the rotary frame having an annular, concavous flange and arms *d*, supporting the same and raising said flange above the base of said frame to admit the hands of the operator to pass between the base of said frame and the hat-brim, of a hooked tool having an edge corresponding in curve with that of the flange, a spring for holding said parts in engagement with an elastic pressure and means for operating said frame, substantially as set forth.

2. In a hat-curling machine, the combination with the rotary frame, of a non-rotary ironing-tool cooperating therewith to curl the brim, a spring *m*, a gas-pipe, a steam-pipe *t*, and means for rotating said frame and throwing said tool from said frame against the power of said spring, substantially as and for the purposes set forth.

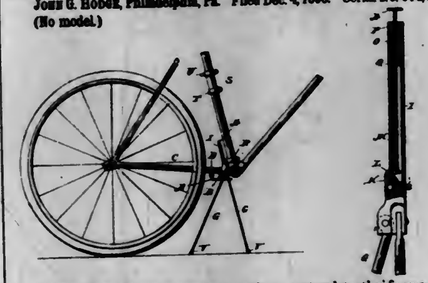
3. In a hat-curling machine, the combination with the rotary frame, having a concavous and annular flange raised above the base of said frame, bevel-gears *h*, *i*, shaft *j* and power-pulley, a support *w*, to cooperate with the hands in holding the hat up to the said annular flange, and an ironing-tool *l*, spring *m*, and lever *p*, and means whereby the same may be operated, substantially as and for the purposes set forth.

593,811. CHAIN. JACOB H. MCINTIRE, New York, N. Y., assignor to The Ewart Manufacturing Company, Chicago, Ill. Filed Sept. 25, 1897. Serial No. 652,965. (No model.)



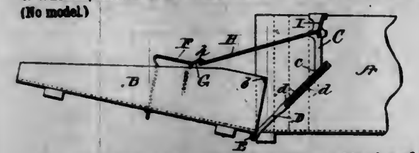
Claim.—1. In a drive-chain of the type herein shown and described, the combination, with the side bars B and C, one of which has a circular perforation in it and the other of which has a non-circular aperture, substantially such as specified, of a pintle-bar D, the bearing-surface of which is made very hard and has its continuity unbroken; and a soft-metal fastening device arranged as shown within the stock of the apertured side bar C, formed with a laterally-projecting portion which engages with a radially-arranged depression in the pintle and having its protruding end upset, or riveted over, as shown and described, whereby the pintle is held against displacement endwise, relatively to the said bars of the link, all substantially as and for the purposes hereinbefore set forth.

593,812. BICYCLE-SUPPORT. CHRISTOPHER J. O'CONNOR and JOHN G. HODGE, Philadelphia, Pa. Filed Dec. 4, 1896. Serial No. 614,446. (No model.)



Claim.—In a bicycle-support, a plate secured to the frame of a wheel, three rods slidable through openings in the plate, a rod *d* to which the first-named rods are pivoted at their ends, a sleeve surrounding the rod *d*, a hook extending outward and upward from the sleeve, a clip engaged by the hook, and a spring interposed between the end of the sleeve and a collar on the rod, said spring pressing the sleeve upward, as and for the purpose described.

593,813. WAGON END-GATE. FRANK M. PIERCE and ALBERT C. WARNER, Allentown, Ill. Filed Mar. 22, 1897. Serial No. 628,628. (No model.)



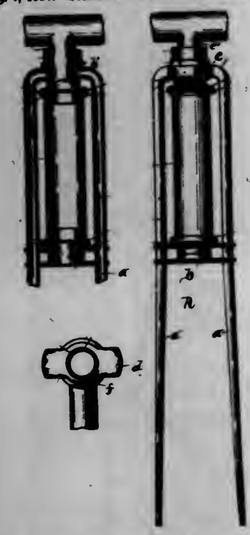
Claim.—1. In an end-gate for wagons, the combination of the hanger-plate C, provided with the loop I and the pin *c* having a laterally-extending lug therefrom; of the bar D, provided with the sets of perforations *d* and with an elongated perforation at one end thereof adapted to engage a pin or lug on the end-gate; the rod H, having a toggle joint connection with the loop F on the end-gate and provided with a hook on its free end adapted to engage the loops I on the hanger-plate when the end-gate is lowered, the said rod H adapted to be engaged by the lug *b* on the end-gate when the end-gate is in an elevated position, substantially as and for the purpose described.

2. In an end-gate for wagons, the combination with the wagon-body, of the hanger-plate C, provided with the loop I, and the pin *c*, the end-gate B, provided with the adjustable loop F; the bar D, pro-

vided with sets of perforations *d*, adapted to be engaged by pin *c*, and provided with a perforation at one extremity for engaging a lug or pin on the end-gate; the rod H connected with the loop F, by means of the link G, and provided at its free end with a hook adapted to engage the loop I, substantially as and for the purpose described.

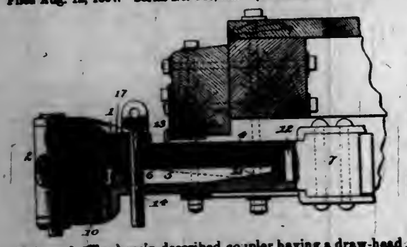
3. In combination with a wagon-body, an end-gate provided with the adjustable loop F, the hanger-plate C provided with the loop I, and the pin *c*, the bar D, provided at one extremity with an elongated slot *e*, engaged by the pin E, on the end-gate, and having a series of perforations *d*, throughout its length for engaging the pin projection on the hanger-plate adapting the end-gate to any height of wagon-bed, the rod H, connected to the loop on the end-gate through and by means of the link G, and provided with the lugs *h*, bearing on the link, and having a hook on its free end adapted to engage the loop I, on the hanger-plate when the same is lowered, the said rod H, adapted to be engaged by the lug *b*, on the end-gate when the end-gate is in an elevated position, substantially as and for the purpose described.

593,814. BICYCLE. LOUIS DE RANGO, Syracuse, N. Y., assignor to McKee & Harrington, New York, N. Y. Filed Feb. 13, 1896. Renewed Aug. 7, 1897. Serial No. 647,489. (No model.)



Claim.—In a bicycle, the combination of the steering-fork having extensions above its crown, a journal-cone on said crown, the lower end of the head of the frame supported on said cone, said extensions being joined above said head and formed integral and formed with a screw-threaded eye thereat, a longitudinally-adjustable stem in said eye and provided with a journal-cone in its lower end to support the upper end of the aforesaid head, a jam-nut on said stem to hold the same in its adjusted position, a longitudinally-adjustable handle-bar stem in the aforesaid stem, and a clamp thereon to hold said handle-bar stem in its adjusted position as set forth.

593,815. CAR-COUPLING. ERNEST L. RICKSON, Dubuque, Iowa. Filed Aug. 12, 1897. Serial No. 648,033. (No model.)



Claim.—1. The herein-described coupler having a draw-head, a knuckle with a tail; a lock for the tail in the form of a perforated link; a seat on the inside of the hollow shank formed by inwardly and upwardly projecting lugs of metal integral with the said shank for holding the lock against endwise movement both rearwardly and forwardly; and a pin for operating the lock; in substance as set forth.

2. A car-coupler having a knuckle; a draw-head; a shank; a lock; and an operating-pin; said shank being provided with a lug, as 11, extending upwardly and within the slot of the lock; and a stop, as 12; in substance as set forth.

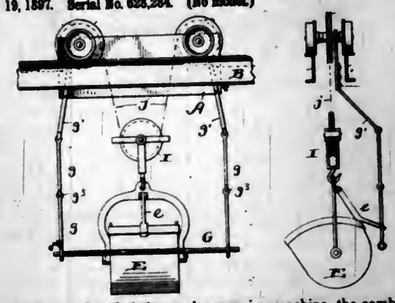
3. A coupler having a draw-head; a knuckle and tail; a longitudinally-slotted lock with closed ends for the knuckle located within the hollow shank and provided with a substantially rectangular end and beveled surface 10; and an operating-pin; said tail of the knuckle having a recess at 9 and a beveled surface at 8, whereby the said tail may rise and clear the end of the lock when the knuckle is rotated; in substance as set forth.

4. The combination with a car-coupler, constructed and operating as described, of a lock in the form of a slotted link and an operating-pin having the wings 14, fitting recesses 16 in the shank said pin being passed through the slot in the link and its lower end extended through a hole below the recesses 16; in substance as set forth.

5. The combination with a coupler, constructed substantially as described, of a slotted lock, and an operating-pin; said pin being provided with the wings 14, 14 and 13, 13, the latter fitting within a recess 15 in the draw-head, substantially as and for the purpose set forth.

6. The combination with a car-coupler, constructed substantially as described, and having a raised lug 11, of the lock in the form of a link and provided with two slots 18 and 18', the said lug 11 extending upwardly and within the slot 18' for the purpose of preventing a forward movement of the lock under normal conditions, in substance as set forth.

593,816. BUCKET-DUMPING DEVICE FOR HOISTING AND CONVEYING MACHINES. FREDERICK H. SCHLOEMILCH, Cleveland, Ohio, assignor of one-half to Timothy Long, same place. Filed Mar. 19, 1897. Serial No. 628,284. (No model.)



Claim.—1. In a hoisting and conveying machine, the combination of a movable trolley, a bucket suspended from said trolley, and means for raising and lowering said bucket, with a latch for the bucket, and a tripping device suspended from the trolley and adapted to engage with and operate said latch when the bucket is being lowered, substantially as and for the purpose specified.

2. In a hoisting and conveying machine, the combination of a movable trolley, a bucket suspended from said trolley, and means for raising and lowering said bucket, with a latch-lever for the bucket, and a swinging releasing device suspended from the trolley and adapted to engage with and operate said latch-lever when the bucket is being lowered, substantially as and for the purpose specified.

3. In a hoisting and conveying machine, the combination of a movable trolley, a bucket suspended from said trolley, and means for raising and lowering said bucket, with a latch-lever projecting laterally beyond the bucket, two freely-swinging links suspended from the trolley, and a horizontal bar supported by said links in the path of said latch-lever when the bucket is raised or lowered, substantially as and for the purpose specified.

593,817. RHEOSTAT. GEORGE J. SCHNEIDER, Detroit, Mich. Filed Mar. 5, 1897. Serial No. 626,116. (No model.)

Claim.—1. The combination with circuit-closing switch and the movable contact of a rheostat, of a time-motor for actuating said movable contact to cut out resistance adapted to be started upon the closing of the switch, and means for compelling the return of said movable contact before the opening of said switch.

2. The combination with the circuit-closing switch and the movable contact of a rheostat, of an escapement-motor for actuating said movable contact to cut out resistance, normally locked from movement, means for closing said switch adapted to simultaneously unlock the escapement, and means for opening said switch adapted to compel the return of said contact and to rewind the motor.



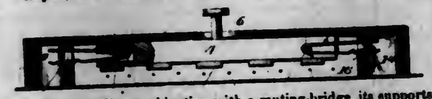
3. The combination with the circuit-closing switch and the movable contact of a rheostat, of an escapement-motor for actuating said movable contact to cut out resistance, normally locked from movement, and means for closing said switch adapted to simultaneously unlock the escapement, means for opening said switch adapted to compel the return of said movable contact and to rewind the motor, and a clutch between said escapement and movable contact, permitting of the quick return of the latter.

4. The combination with the circuit-closing switch and the movable contact of a rheostat of a spring acting to open said switch and actuate said movable contact to cut out resistance, an escapement governing the movement of said contact, and an actuating-arm adapted to close said switch and release said movable contact when moved in one direction, and to return said contact and release said switch when moved in the opposite direction.

5. The combination with the circuit-opening switch and the movable contact of a rheostat, of a spring acting to open said switch and actuate said movable contact to cut out resistance, an escapement for governing the movement of said contact, an actuating-arm for closing said switch and releasing said movable contact when actuated in one direction and for returning said contact and releasing said switch when moved in the opposite direction, a spring-latch on said switch with which said arm engages to close the switch, and an electrically-operated latch for retaining said switch in its closed position.

6. The combination with the circuit-closing switch, the movable contact of the rheostat, and a motor for operating said movable contact to cut out resistance, upon the closing of said switch, of means for automatically opening said switch upon the failure of current, and means for compelling the return of said movable contact before said switch can be again closed.

593,818. HARP. GEORGE B. SHEARER, Oneonta, N. Y. Filed May 21, 1896. Renewed Apr. 3, 1897. Serial No. 630,632. (No model.)



Claim.—1. The combination with a muting-bridge, its supports, and a vertically and longitudinally movable damper-bar, of a spring connected to and movable with and affording a vertical elastic support for the damper-bar and projected beyond the end of said bar lengthwise thereof and into the bridge-support in which it is guided and has a sliding movement, substantially as and for the purposes described.

2. The combination with a muting-bridge, its supports, and a longitudinally and vertically movable damper-bar, of a spring connected to and affording an elastic support for said bar and projected from the bar into the bridge-support in which it is guided and has a sliding movement, said spring having a portion thereof fluted or corrugated, and a bearing for said corrugated portion to contact with, substantially as and for the purposes described.

3. The combination of a muting-bridge, a vertically and longitudinally movable damper-bar formed with a spring-support projected from its end lengthwise of the bar, and a support for the muting-bridge formed with a slot to receive the projecting spring and a chamber or recess in the support back of the slot for the reception of the spring, substantially as and for the purposes described.

4. The combination of a muting bridge, a vertically-movable damper-bar, a supporting-spring secured to and projected lengthwise from each end of the bar, and supports for the muting-bridge formed on their faces adjacent to the ends of the bar with slots into which the projected ends of the supporting-springs extend, substantially as and for the purposes described.

5. The combination of a muting-bridge, a vertically and longitudinally movable damper-bar, a spring projected from the damper-bar lengthwise of the bar and having its bearing in the bridge-support, a portion of said spring being corrugated or fluted, and a bearing for the corrugated portion of the spring to contact with, substantially as and for the purposes described.

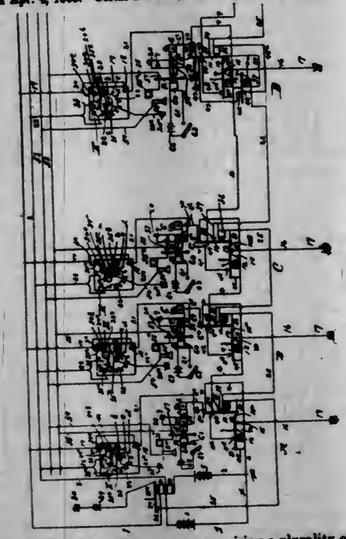
6. The combination of a muting-bridge, a vertically and longitudinally movable damper-bar, a spring carried thereby in the vertical and longitudinal movement of the bar, and a member for said spring to engage with, substantially as and for the purposes described.

7. The combination of a muting-bridge, a vertically and longitudinally movable damper-bar, a corrugated or fluted spring carried by the damper-bar, and a member for the corrugated portion of said spring to engage with, substantially as and for the purposes described.

8 The combination of a muting-bridge, a damper-bar, a corrugated or fluted spring-support for the bar, and a member to engage the corrugations of said spring-support to retain the bar in position at the point of contact between said member and the spring-support, substantially as and for the purposes described.

9. The combination of a muting-bridge, a damper-bar, a spring connected to said bar and extending lengthwise thereof, and a bearing for said spring to rest upon, said bearing and spring being free from a fixed connection with each other, substantially as and for the purposes described.

593,819. TELEPHONE AND SIGNALING OR CALLING SYSTEM. JAMES G. SMITH, New York, N. Y., assignor, by direct and mesne assignments, to the Smith-Vassar Telephone Company, of New York. Filed Apr. 4, 1895. Serial No. 544,401. (No model.)



Claim.—1. A signaling system comprising a plurality of stations, a circuit for said stations divided into sections in each station, and electrically-operating devices in each station arranged to be operated directly from any of the stations for connecting two sections of said circuit together to establish a through line between any two of said stations, substantially as set forth.

2. In an electrical signaling system, a plurality of stations, a wire from each station to another, electrically-operating devices in each station, and means in each station for operating said devices in any other station for connecting two of said wires in a station together to establish a through line between any two stations, to permit a current from a calling-station to be sent over the wires so connected as a through line, to operate a signaling instrument at a desired station located on said wire, substantially as set forth.

3. In an electrical signaling system, a plurality of stations, a wire from each station to another, electrically-operating devices in each station, and means in each station for operating said devices in any other station for connecting two of said wires in a station together to form a through line between two stations, a separate circuit passing through said stations and connected with the first-mentioned wire in one station, and means in each station on said separate circuit arranged to operate the circuit-changing devices, and other means in each station to operate a signaling instrument in a called station after the two wires between two stations have been so connected together as a through line, substantially as set forth.

4. A signaling system comprising a plurality of stations, a signaling instrument in each station, a plurality of wires, each of which

respectively leads from one station to the signaling instrument in another station, and electrically-operating devices in each station, comprising a magnet and armature, connected with the respective wire leading to their station arranged to act by a single impulse to connect two of said wires together to form a through line between a calling and a called station, substantially as set forth.

5. A signaling system comprising a plurality of stations, a signaling instrument in each station, a plurality of wires which lead successively from one station to the signaling instrument in the next station, electrically-operating devices in each station arranged to operate one at a time and successively to successively connect two of said wires together to form a through line between two stations without operating the wire-connecting devices in stations beyond, a separate circuit leading through said stations and having electrical devices for operating the first-mentioned electrical devices to establish a through line between two stations, and means in each station for operating the signaling instrument in the called station, substantially as set forth.

6. A signaling or calling system comprising a plurality of stations, signaling instruments at each station, a wire leading from each station to and through the signaling instrument at the next station, and electrically-operating devices in each station for breaking connection between the corresponding signaling instrument and its wire in one station, and for thereupon establishing connection between the wires from stations on opposite sides of said station to form a through line to the signaling instrument in the called station, substantially as set forth.

7. A signaling system comprising a plurality of stations, signaling instruments in each station, a wire in a station disconnected from the signaling instrument in that station and leading to and through the signaling instrument in the next station, electrically-operating circuit-changing devices in each station connected with the respective separate wire that leads into that station for breaking the circuit of the signaling instrument from said wire and for connecting the wires leading to and from two stations on opposite sides of it, to form a line from one station through an intermediate station to another station, a separate circuit passing through all the stations and connected with the first-mentioned wire in one station, and means in each station on said separate circuit for sending an impulse to the circuit-changing devices to operate them successively as desired, substantially as set forth.

8. A signaling system comprising a plurality of stations, a signaling instrument in each station, a plurality of wires each normally leading from one station to and through the signaling instrument in the next station, said wires being normally disconnected, in each station whence they start, from the wire leading to the signaling instrument in that station, a magnet in each station on the respective wire, whose armature is adapted to connect the wire leading to said magnet with the wire leading from said station to the next station, to form a through line between two stations and to shunt said magnet from the through line when it is so connected, a wire also passing through said stations, and devices at each station on the second-mentioned wire to operate the said magnets to form a through line, substantially as set forth.

9. A signaling system comprising a plurality of stations, a signaling instrument in each station, a separate wire leadiug from each station to and through the signaling instrument in the next station, a branch wire in each station, and electrically-operating devices in each station for connecting said branch wire in any station with the wires leading to and from its station, to establish a through line from a calling to a called station through said branch wire and for breaking the connections of the signaling instrument from its wire in stations between a calling and a called station, so that the corresponding signaling instrument will not be operated when its wire is connected with the branch wire, substantially as set forth.

10. A signaling system comprising a plurality of stations, a signaling instrument in each station, a wire leading from each station to and through the signaling instrument in the next station, and so on throughout the series of stations, a movable contact in each station to break the circuit of the signaling instrument with its wire, a branch wire in each station normally in connection with the wire leading into its station, a movable contact in each station arranged to establish connection between said branch wire and the wire that leads from its station, electrically-operating devices in each station for actuating the corresponding movable contacts to break the signaling instrument from its line and establish a through line through the branch wire, and a circuit passing through said stations having devices for operating said contacts, as and for the purposes specified.

11. A signaling system comprising a plurality of stations, a signaling instrument in each station, a wire leading from each station normally to and through the signaling instrument in the next station, electrically-operating devices in each station located on the respective wire leading thereto, and arranged to connect two of said wires in a station together, between a calling and a called station, without operating the electrical devices in a station beyond, thereby establishing a through line out of said separate wires directly to the signaling instrument in a called station without operating any devices in the latter station, a circuit leading through all the stations and connected with the first-mentioned wire in one station, means on said separate circuit for sending an impulse to any number of stations, for operating their respective electrical devices, to connect two wires together, and means in each station for operating the signaling instrument in a called station after a through line is so established thereto without operating any signaling instruments between a calling and a called station, substantially as set forth.

12. A signaling system comprising a plurality of stations, a signaling instrument in each station, a wire leading from each station to the signaling instrument in the next station, and so on throughout the series of stations, a movable contact 6^a in each station to break the circuit of the signaling instrument with its wire, a contact 4^a connected with the wire in each station that leads to the next station, a branch wire in each station to be connected with said contact 4^a, a contact 4^b on said branch wire to connect with said contact 4^a, another movable contact 9 in each station connected to the wire that leads to the signaling instrument in that station and also normally in electrical connection with said branch wire, and electrically-operating devices to operate said contacts 4^a, 6^a, to break the signaling-instrument circuit in any station and establish a through line between two or more stations through the branch wire in an intermediate station, substantially as set forth.

13. A signaling system comprising a plurality of stations, a signaling instrument in each station, a wire leading from one station to the signaling instrument in the next station, a contact in the circuit, an armature or bar to operate said contact to break said circuit through said instrument, another movable contact in each station engaged with the wire that leads to the next station, a branch wire in each station to connect with the last-mentioned contact when one of them is operated, another contact connected with the branch wire, an armature or contact to engage the second-mentioned contact on said branch wire, said armature or contact being connected with the wire that leads into a station, a magnet on said wire to operate said armature to break its connection with said branch wire, and means for operating the first-mentioned contact to break the circuit through a signaling instrument and to establish a through line between a calling and a called station, substantially as set forth.

14. A signaling system comprising a plurality of stations, a signaling instrument in each station, a wire leading from one station to the signaling instrument in the next station, a contact in the circuit, an armature or bar to operate said contact to break said circuit through said instrument, and another movable contact in each station engaged with the wire that leads to the next station, a branch wire in each station to connect with the last-mentioned contact when one of them is operated, another contact connected with said branch wire, an armature or contact to engage the second-mentioned contact on said branch wire, said armature or contact being connected with the wire that leads into a preceding station, a contact 13 carried by said armature, a wire and contact leading to ground, a magnet, a wire 14 connecting said magnet or its wire with the contact 13, and means for operating the appropriate contacts to break the circuit through a signaling instrument and to establish a through line between a calling and a called station, substantially as set forth.

15. A signaling system comprising a plurality of stations, a signaling instrument in each station, a wire leading from one station to the signaling instrument in the next station, a contact in the circuit to said signaling instrument, a contact in each station engaged with the wire that leads to the next station, an armature or bar connected with each contact to operate them, a branch wire in each station having a contact to engage the second-mentioned contact, another contact on said branch wire, an armature or contact engaging said last-mentioned contact, said armature or contact leading to the wire that passes into its station, a magnet on said wire to operate said armature, means to establish a ground for said magnet when its armature is attracted, means for operating the first-mentioned armature by the second-mentioned armature, and a magnet to operate the first-mentioned armature to restore the circuit of the signaling instrument and to break the circuit through the branch wire, substantially as set forth.

16. A signaling system comprising a plurality of stations, a signaling instrument in each station, a circuit for said stations divided into sections at said stations, devices in each station arranged to break the circuit of its signaling instrument and to join the sections of said circuit into a through circuit in each station, a magnet in each station to restore the circuit of the signaling instrument and break the main circuit into sections, a circuit for said magnets, and a shunt around each magnet arranged to be broken when the corresponding signaling-instrument circuit is broken and to be restored when the signaling-instrument circuit is restored.

17. A signaling system comprising a plurality of stations, signaling instruments in each station, a circuit for said stations divided into sections in said stations, each station being normally in circuit with

a signaling instrument in a station, means in each station for breaking the circuit of its signaling instrument and for establishing a complete line through that station to the signaling instrument at the next station, another circuit for said stations, magnets on said circuit to restore the signaling-instrument circuits and to break the first-mentioned line into sections, the second-mentioned circuit being divided, between certain series of stations, into a section, and means at one station of a series to establish a complete line between two series of stations, substantially as set forth.

18. A signaling system comprising a plurality of stations, signaling instruments in said stations, a circuit for said stations divided into sections in said stations, the section of said circuit in each station leading to the signaling instrument in its station, an armature or bar to operate a contact to make and break the circuit of the respective signaling instrument, another contact operated by said armature or bar to establish a through line out of said sections of said circuit, and a magnet in each station to operate the respective armatures or bars, another circuit passing through said stations, magnets 36 in said stations on said circuit arranged to operate said armatures or bars to restore the signaling-instrument circuits and break the first-mentioned circuit into sections, shunts around said magnets 36 including their armatures therein, and contacts leading to the circuit of said magnets 36 and arranged to form the shunts around said magnets by engagement with their armatures.

19. A signaling system comprising a plurality of stations, signaling instruments in said stations, a circuit for said stations divided into sections in said stations, each section leading to the signaling instrument in the respective station, contacts arranged to break the circuits of said signaling instruments and to form the sections of said circuit into a through line between stations, magnets and armatures to actuate said contacts, another circuit 25 for said stations, magnets 36 in said circuit, shunts around said magnets 36 arranged to be broken by said armatures, a ground for said circuit at one station arranged to be formed by the operation of said armature at the first station of a series to permit the magnets 36 of a series to be operated, and electrically-operating devices at said first station of a series of stations arranged to break said ground and restore the circuit 25 as a through circuit through a second series of stations.

20. A signaling system comprising a plurality of stations, signaling instruments in said stations, a circuit for said stations divided into sections in said stations, each section leading to the signaling instrument in the respective station and from another station, contacts arranged to break the circuits of said signaling instruments and to form the sections of said circuit into a through line between stations, magnets and armatures to actuate said contacts, another circuit 25, for said stations, magnets 36 in said circuit, shunts around said magnets 36 arranged to be broken by said armatures, a ground for said circuit at one station arranged to be formed by the operation of said armature at the first station of a series of stations to permit the magnets 36 of a series to be operated, a magnet 40 on the circuit 25 at the first station of a series of stations, an armature for said magnet 40 arranged to form the circuit for said ground and to break said ground when operated, and a contact 48, leading to a magnet 36 of said first series of stations, arranged to connect the circuit 25 through said magnet 36 when the armature of the magnet 40 is operated, to operate said magnet 36 to restore the line 25 as a through circuit.

21. A signaling system comprising a plurality of stations, signaling instruments in said stations, a circuit for said stations divided into sections in said stations, each section leading from one station to the signaling instrument in another station, contacts arranged to break the circuits in said signaling instruments and to form the sections of said circuit into a through line between stations, magnets and armatures to actuate said contacts, another circuit 25 for said stations, magnets 36 in said circuit, shunts around said magnets 36 arranged to be broken by said armatures, a magnet 40 on the circuit 25 at the first station of a series of stations, an armature for said magnet, a branch wire 43 having a contact 42 normally engaging said armature, said branch wire leading to a contact 43^a operated by the corresponding magnet 36, a contact 45 to be engaged by the contact 43^a and leading to ground, the main circuit leading around the corresponding magnets 36 and 40, a contact 48 to be engaged by the armature of the magnet 40, and a wire leading from the contact 48 to the corresponding magnet 36, whereby when the contact 43^a is operated a ground will be formed for the circuit 25 to energize magnet 40 and the magnets 36 of a preceding series of stations, the magnet 40 operating its armature to cause the restoration of the circuit 25 in the corresponding station.

22. A circuit 25, magnets 36 and 40 connected therewith and having a normal shunt, an armature 41 leading to wire 25, a contact 42, a wire 43 leading therefrom to a contact 43^a to be operated by magnet 36, a contact 45, leading to ground, to be engaged by contact 43^a to establish a ground for wire 25, means to operate contact 43^a is operated a ground will be established for wire 25 to energize magnet 40, which by attracting its armature 41 breaks said ground-circuit to energize magnet 36 to further break said ground at 43^a, 45, and reëstablish a through circuit in wire 25.

23. A circuit having a magnet, an armature therefor, another circuit having a magnet 36, an armature 10 therefor, the latter armature being arranged to be operated by the armature 9 to make and break the first-mentioned circuit, the magnet 36 serving to operate armature 10 to restore the circuits to their normal conditions, substantially as set forth.

24. A circuit having a magnet, an armature 9 therefor, a contact in said circuit, an armature 10 to operate said contact to break said circuit, the armature 10 being arranged to be operated by the armature 9, another circuit, a magnet 36 therein to operate the armature 10 to restore the first-mentioned circuit, and a shunt around the magnet 36, the circuit through which shunt is made and broken by said armature 10, substantially as set forth.

25. A circuit having a magnet 12, an armature 9 therefor, a contact 13 to be operated by said armature, a contact leading to ground to be engaged by the contact 13 to establish a ground for the magnet 12, an armature 10 arranged to be operated by the armature 9, a contact to be operated by the armature 10 to break said circuit, another circuit having a magnet 36 to operate said contact to restore said circuit, and a shunt around the magnet 36 to be made and broken by the armature 10

26. A circuit having a signaling instrument whose magnet is polarized, circuit changing devices on said circuit arranged to cut the signaling instrument from the circuit and having a magnet which is polarized oppositely to the first-mentioned magnet, two batteries connected with said circuit by poles of opposite polarity, means to discharge a current from one battery to the magnet of the signaling instrument, and means to discharge a current of opposite polarity from the other battery to the other magnet on said circuit, to operate but one of such magnets at a time, so that when the magnet of the circuit-changing devices is energized the magnet of the signaling instrument will not be affected, and vice versa.

27. A signaling system comprising a plurality of stations, a circuit for said stations, a signaling instrument in each station having a polarized magnet, circuit-changing devices in said stations to break the circuit through the signaling instruments and to establish a through line between stations desired, magnets to operate said circuit-changing devices, said magnets being polarized oppositely to the magnets of the signaling instruments, two batteries connected by opposite poles to said circuit and arranged to discharge currents of opposite polarity respectively to the magnet of the signaling instrument and to the magnet of the circuit-changing devices.

28. A signaling system comprising a plurality of stations, a circuit divided into sections in each station, a signaling instrument in each station connected with the section of said circuit that leads from another station, the magnet in said signaling instrument being polarized, circuit-changing devices in each station arranged to break the circuit of the corresponding signaling instrument and to establish a through line out of said sectional line, said circuit-changing devices each having a magnet of opposite polarity to the polarity of the magnet of the signaling instrument, and two batteries connected with said circuit, one being arranged to discharge a current of like polarity to that of the magnet of the circuit-changing devices to cause the latter to operate, the other battery being arranged to discharge a current of opposite polarity to operate the signaling instruments.

29. A normally open circuit having a battery and means to close the circuit, combined with another circuit having a double magnet to operate said circuit-closing devices when both coils are energized, a battery connected with each of said coils and means for simultaneously discharging the currents from said batteries through the corresponding coils to operate said circuit-closing devices, substantially as set forth.

30. A normally open circuit having a battery and means to close the circuit, combined with a double magnet to close said circuit, a wire connected with one coil of said magnet, a battery on said wire, a wire connected with the other coil of the magnet, said wires being connected together at one part, and means for closing the circuit through said wires to operate both of said coils simultaneously to close the first-mentioned circuit, substantially as set forth.

31. A magnet having two coils, a circuit leading to and from one of said coils, thence to one pole of a battery, thence to the opposite pole of another battery, thence from the opposite pole of said battery through the other of said coils, and means for closing said circuit to discharge the currents from said batteries through their corresponding coils, substantially as set forth.

32. A signaling system comprising a plurality of stations, a signaling instrument in each station, a circuit for said stations having branch connections in each station, circuit-changing devices in each station to cut out the corresponding signaling instrument, and to con-

nect up the branch connections to establish a through line to the signaling instrument in the next station, a normally open circuit for said stations having a battery, a maguet in each station on said open circuit, an armature, a contact to be operated thereby to restore the branch connection of the corresponding signaling instruments, and means in each station adapted to cause the closing of said open circuit to energize the magnet thereon in any other station, substantially as set forth.

33. A signaling system comprising a plurality of stations, a signaling instrument in each station, a circuit for said instruments divided into sections in each station, each section leading from one station to the signaling instrument in the next station, circuit-changing devices in each station arranged to break the circuit of its signaling instrument and to establish a through line out of the corresponding sections of said circuit, a normally open circuit for said stations having a battery, a magnet in each station on said open circuit to restore the circuit of the corresponding signaling instrument and to break the first-mentioned circuit into sections, and means in each station to cause the closing of said open circuit to energize its magnets, substantially as set forth.

34. A signaling system, comprising a plurality of stations, a signaling instrument in each station, a circuit for said instruments divided into sections in each station, each section leading from one station to the signaling instrument in the next station, circuit-changing devices in each station arranged to break the circuit of its signaling instrument and to establish a through line out of sections of said circuit, and a normally open circuit for said stations having a battery, a magnet in each station on said open circuit to restore the circuit of the corresponding signaling instrument and to break the first-mentioned circuit into sections, a wire passing through said stations and connected with the first-mentioned circuit to operate the signaling instruments, another wire passing through said stations and included in the circuit of the circuit-changing devices to operate said circuit-changing devices, a magnet and batteries on said two wires, and circuit-closing devices in the open wire adapted to be operated by said magnet when the said two wires are joined to form a metallic circuit, substantially as set forth.

35. A signaling system comprising a plurality of stations, signaling instruments and circuit-changing devices in said stations, said circuit-changing devices being arranged to cut their corresponding signaling instruments from their circuit and to establish electrical connection between stations, a circuit for said stations divided into sections between stations, and on which sections said signaling instruments are respectively located, said circuit having a wire 1 and battery 3 to operate said signaling instruments, another circuit on which said circuit-changing devices are located, said circuit having a wire 2 and a battery 5, the latter serving to operate said circuit-changing devices, all the signaling instruments being normally in circuit with the respective sections of their line so that when one of said instruments is cut from its line the next will be in condition to be operated directly without changing its circuit, substantially as set forth.

36. A signaling system comprising a plurality of stations, signaling instruments and circuit-changing devices in said stations, a circuit for said stations on which said signaling instruments are located, a circuit on which said circuit-changing devices are located, and a battery for each circuit, said circuits having a portion in common, said circuits and batteries being so arranged as to operate the circuit-changing devices or the signaling instruments according to which battery-current is discharged over the respective circuit, substantially as set forth.

37. A signaling system comprising a plurality of stations, signaling instruments and circuit-changing devices in said stations, a circuit for said stations on which said signaling instruments are located, a circuit on which said circuit changing devices are located, and a battery for each circuit, said circuits having a portion in common, said batteries being located on that portion of each circuit that is not common to both, said batteries being adapted to discharge currents of opposite polarity to their respective signaling instruments and the circuit-changing devices, substantially as set forth.

38. A telephone-circuit having telephone instruments normally out of circuit therewith, and another independent circuit having electrically-operating devices arranged to be operated from either station on the circuit to any other station on the circuit to place the telephones in circuit with their line, and signaling instruments also on said independent circuit, all so arranged that when an impulse is sent over said independent circuit it will actuate the signaling instrument in a called station and also the devices for placing the telephone in circuit with its line in said called station, substantially as set forth.

39. A telephone-circuit having normally open branch wires, and telephone instruments on said branch wires, and another circuit having signaling instruments and also electrically-operating devices to close the circuits of the branch wires, all being so arranged that when an impulse is sent over the circuit it will operate the signaling instrument in a called station, and also operate the devices for placing the telephone instruments in circuit with the telephone-lines in both the calling and the called stations substantially as set forth.

40. A telephone-circuit having two wires and a plurality of telephone instruments normally out of circuit therewith, and another circuit having electrically-operating devices so arranged that when a current is passed along said circuit it will operate said electrically-operating devices in two stations to close the circuit of two of said telephone instruments with said two wires to place the telephones in any two stations in communication through a metallic circuit, substantially as set forth.

41. A telephone-circuit having a plurality of telephone instruments normally out of circuit therewith, circuit-closing devices to close the circuits of said telephone instruments, another circuit having signaling instruments, and separate magnets on the last mentioned circuit arranged to operate said circuit-closing devices in the telephone-circuits so that when an impulse is sent to a signaling instrument said impulse will simultaneously operate the corresponding magnets on the circuit in the calling and a called station to cause said magnets to close the circuits of the respective telephone instruments with their lines in a calling and a called station, substantially as set forth.

42. A telephone-circuit having a plurality of normally open branch circuits, telephone instruments on said branch circuits and contacts to close said branch circuits, and another circuit having magnets to operate said contacts to close the circuit of said branch lines in a calling and a called station respectively when said magnets are operated from any station, and other independently-operating devices to operate said contacts to break the circuits of said branch lines to cut the corresponding telephone instruments from the telephone-lines, substantially as set forth.

43. A telephone system comprising a plurality of stations, a telephone-circuit passing through said stations, normally open branch wires in said stations connected with said telephone-circuit, telephone instruments on said branch wires, electrically-operating devices in said stations arranged to close the circuits of said branch wires as desired, another circuit for said stations arranged to actuate said electrically-operating devices and the signaling instruments on said circuit in said stations, and means in each station arranged to select the station desired to be communicated with, all so arranged that when an impulse is sent over the circuit to a signaling instrument it will also operate the devices for closing the circuit of the telephone instrument in the same station.

44. A telephone system comprising a plurality of stations, a telephone-circuit passing through said stations, normally open branch wires in said stations, telephone instruments on said branch wires, electrically-operating devices in said stations arranged to close the circuits of said branch wires, as desired, to place the telephone instruments in circuit with the main line, another circuit for said stations arranged to actuate said electrically-operating devices, and signaling instruments on said circuit in said stations, the last-mentioned circuit and the electrically-operating devices located thereon, in said stations, being arranged so that when a current is sent over said circuit the signaling instrument in a station to be called will be operated, and so that said electrically-operating devices in a calling and a called station will also be operated to place the telephones in circuit with their line in both the calling and called stations.

45. A telephone system comprising a plurality of stations, a telephone-circuit passing through said stations, normally open branch wires therefrom in said stations, telephone instruments on said branch wires, contacts to close said branch wires to place the telephones in the circuit with the telephone-lines, magnets having double coils oppositely polarized to operate said contacts to close the branch wires for the telephones, and another circuit for said stations arranged to be established through a coil of one polarity at one station and through a coil of opposite polarity at another station to close the circuits through the branch telephone-wires in a calling and a called station to connect the corresponding telephones together, substantially as set forth.

46. A telephone system comprising a plurality of stations, a telephone circuit, normally open branch wires therefrom in said stations, telephone instruments on said branch wires, contacts to close the circuit through said branch wires to place the telephones in circuit with their lines, another circuit for said stations, magnets on said circuit arranged to operate two of said contacts at a time in different stations to close the branch circuits through telephone instruments in two stations to connect them for telephone purposes, and a local circuit in each station having a magnet to operate the contacts of the branch wires to break the circuit of the telephones individually in the branch wires after they have been connected, substantially as set forth.

47. A telephone and signaling system comprising a plurality of stations, a telephone-circuit for said stations, telephone instruments normally out of circuit with said telephone circuit, another circuit for said stations, signaling instruments and other electrically-operating devices on said last mentioned circuit in each station, the last mentioned devices being arranged to close the circuits of the telephone instruments in a calling and a called station while an impulse from a calling-station is sent to the signaling instrument in the called station, another circuit for said stations having circuit-changing devices arranged to cut the signaling instruments in stations between a calling and a called station from the circuit and to establish a through line between a calling and a called station, substantially as set forth.

48. A telephone and signaling system comprising a plurality of stations, a telephone-circuit for said stations, telephone instruments normally out of circuit with said telephone-circuit, another circuit for said stations, signaling instruments on said circuit, another circuit for said stations, electrically-operating circuit-changing devices on said last-mentioned circuit in each station arranged to be operated from any station to cut the signaling instruments from the circuit in intermediate stations and to establish a through line from a calling-station to the signaling instrument in a called station, and other electrically-operating devices on the circuit of the signaling instruments arranged to close the circuits of the telephones in a calling and a called station when an impulse is sent to the signaling instrument in a called station from a calling-station to place their respective telephone instruments in circuit, substantially as described.

49. A telephone system comprising a plurality of stations, a circuit therethrough, telephone instruments normally out of circuit therewith, another circuit for said stations having electrically-operating devices arranged so that when an impulse is sent over the circuit it will place two of said telephone instruments simultaneously in circuit with the telephone-circuit, as desired, and a local open circuit for each telephone comprising a magnet, battery, switch and wires arranged to break the circuit through the respective telephones to cut the telephones from circuit with their lines, substantially as set forth.

50. A telephone and signaling system comprising a plurality of stations, signaling instruments in said stations, the circuit for said stations being divided into sections in each station, means in each station arranged to be operated from any calling-station to cut out the respective signaling instrument from the circuit and to establish a through line between a calling and a called station directly to the signaling instrument in the latter station, and a telephone circuit for said stations having telephone instruments in said stations arranged for use when a calling-station has signaled to a called station, substantially as set forth.

51. A telephone and signaling system comprising a plurality of stations, signaling instruments in said stations, a circuit for said stations divided into sections in each station, means in each station arranged to be operated from any calling-station to cut out the respective signaling instrument from the circuit and to establish a through line between a calling and a called station to the signaling instrument in the latter station, and a telephone-circuit for said stations having telephone instruments normally out of circuit with the telephone-lines, and devices in said stations arranged to close the circuit of the telephone instruments with the telephone-lines in a calling and a called station when an impulse is sent over the circuit from a calling-station to the signaling instrument in a called station, substantially as set forth.

52. A telephone and signaling system comprising a plurality of stations, signaling instruments in said stations, a circuit for said stations divided into sections in each station, means in each station to cut out the respective signaling instrument from the circuit and to establish a through line between a calling and a called station to the signaling instrument in the latter station, and a telephone circuit for said stations having normally open branch wires in said stations, telephone instruments on said branch wires, electrically-operating devices in said stations for closing said branch wires and arranged to close the branch wires in a calling and a called station when an impulse is sent over the circuit from a calling-station to the signaling instrument in a station to be called, and means for breaking said branch wires to cut the telephones from circuit with the main telephone-lines, substantially as set forth.

53. In a signaling system, a plurality of stations, wires 1 and 2 passing through said stations, signaling instruments in each station, a circuit for said instruments, devices in each station to break the circuit of its signaling instrument and to establish a through line to the signaling instrument of a desired station, the wires 1 and 2 being connected with said circuit, another circuit for said stations having magnets arranged to restore the circuit of said signaling instruments, electrically-operating devices on the wires 1 and 2 to close the last-mentioned circuit, and devices in each station arranged to close the circuit between the wires 1 and 2, and devices in each station to send the desired impulses along wire 2 to effect the changing of the sectional circuit into a through circuit between a calling and a called station, and devices in each station to send an impulse along wire 1 to give a signal in the called station, substantially as set forth.

54. A circuit-operating device comprising a contact 33^b, to be connected with a line, a contact 35^c to engage contact 33^b and to be connected with another line, a contact a connected with the latter line, and an arm to cause contacts 33^b and 35^c to engage, and to also engage contact a, substantially as set forth.

55. A circuit-operating device comprising a contact 33^b, a contact 35^c to engage it, a contact 35^c also arranged to engage contact 33^b, the contacts 35^c, 35^c, being connected together, a contact a, and an arm to cause contacts 35^c and 35^c to engage contact 33^b, and also to close a circuit through contact a, substantially as set forth.

56. A circuit-operating device comprising a contact 33^b connected with a switch, a contact to engage the contact 33^b, a contact a, and an arm to cause the second-mentioned contact to engage the contact 33^b, and also to close a circuit through the contact a, substantially as set forth.

57. The combination of a wire 1, a wire 19 leading therefrom, a contact 33^b in circuit with the wire 19, a contact 35^c to engage the contact 33^b, a wire 2, a wire 22 connected with wire 2 and with contact 35^c, a contact a connected with wire 2, and an arm adapted to cause contact 35^c to engage contact 33^b to close the circuit between wires 1 and 2, and to close the circuit of contact a with said arm, substantially as set forth.

58. The combination of a wire 1, a wire 19 leading therefrom, a contact 33^b connected with wire 19, a contact 35^c to engage contact 33^b, a wire 2, a wire 22, a contact 35^c connected with wire 22 and with contact 35^c, contacts a, b, c &c., also connected with wire 2, and an arm to cause contacts 35^c and 35^c to engage contact 33^b, and to close the circuit of contacts a, b, c with wire 2, substantially as set forth.

59. The combination of a wire 1, a wire 19 leading therefrom, a contact 33^b, connected with wire 19, a contact 35^c to engage contact 33^b, a wire 2, a wire 22, a contact 35^c connected with wire 22 and with contact 35^c, contacts a, b, c, &c., also connected with wire 2, an arm to cause contacts 35^c and 35^c to engage contact 33^b, and to close the circuit of contacts a, b, c with wire 2, and a switch 34^b connecting contact 33^b with wire 19, substantially as set forth.

60. The combination of a wire 1, a wire 19 leading therefrom, a contact 33^b connected with wire 19, a contact 35^c to engage contact 33^b, a wire 2, a wire 22, a contact 35^c connected with wire 22 and with contact 35^c, contacts a, b, c, &c., also connected with wire 2, an arm to cause contacts 35^c and 35^c to engage contact 33^b, and to close the circuit of contacts a, b, c, with wire 2, and a push-button or switch 18 also connected with wire 1, substantially as set forth.

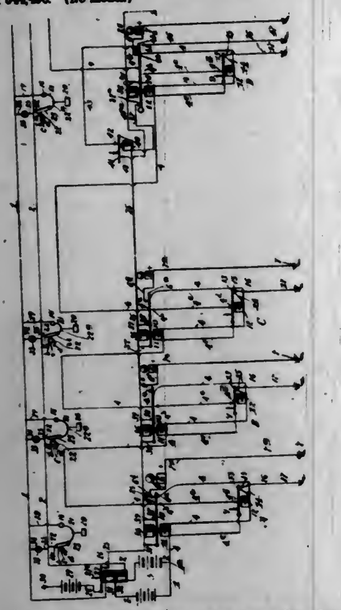
61. A signaling system comprising a plurality of stations, a signaling instrument in each station, a circuit for said instruments divided into sections at said stations, devices in each station arranged to break the circuit of its signaling instrument and to join the sections of said circuit into a through circuit in each station, a magnet in each station to restore the circuit of the signaling instrument and break the main circuit into sections, and a circuit for said magnets, substantially as set forth.

62. A circuit having a magnet 12, an armature 9 therefor, a contact 13 to be operated by said armature, a contact leading to ground to be engaged by the contact 13 to establish a ground for the magnet 12, an armature 10 arranged to be operated by the armature 9, a contact to be operated by the armature 10 to break said circuit, and another circuit having a magnet 36 to operate said contact to restore said circuit, as and for the purposes specified.

63. In a signaling system, a plurality of stations, a circuit for said stations divided into sections in each station, and electrically-operating devices in each station to partially join two sections of the circuit together when moving in one direction, a ground to hold the devices in this position, and means to break the circuit to cause said devices when moving back to completely join said two sections together to form a through circuit between two stations.

64. In a signaling system, a plurality of stations, a circuit divided into sections in each station, a signaling instrument in each station normally in circuit with the respective section of the circuit leading into its station, a contact 6^a in each station to make and break the circuit of the respective signaling instrument, a contact 4^a in each station connected with the section of the circuit leading to the next station, a branch wire in each station to be connected with said contact 4^a, another contact 9 in each station normally connected with said branch wire and connected to the section of the circuit leading into its station, electrically-operating devices in each station to operate the contact 6^a to break the circuit of the signaling instrument and to operate the contact 4^a to join the branch wire to the section of the circuit leading to the next station, and likewise arranged to operate the contact 9 to temporarily break its connection with the branch wire, and means in each station arranged to hold the contact 9 from circuit with the branch wire so long as the impulse or current which served to operate said contact is active, the devices being so arranged that when the impulse or current ceases the contact 9 will move to complete the circuit through the branch wire between two stations.

593,820. ELECTRIC SIGNALING OR CALLING SYSTEM. JAMES G. SMITH, New York, N. Y. Original application filed Apr. 4, 1895, Serial No. 544,401. Divided and this application filed July 14, 1897. Serial No. 644,490. (No model.)



Claim.—1. In a signaling or calling system a plurality of stations, a circuit for said stations divided into sections in said stations, two magnets on said circuit in said stations, an armature for each of said magnets, one of said armatures being arranged to break the circuit of the signaling instrument in its station and to connect two sections of said circuit to partially establish a complete circuit through said station, the other of said armatures being arranged to temporarily break said circuit and to then complete the circuit, substantially as set forth.

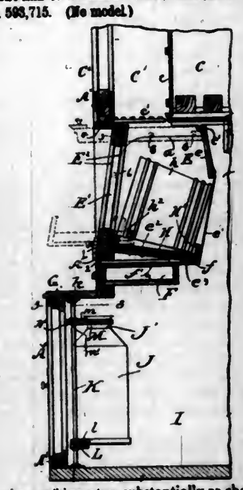
2. In a signaling or calling system, a plurality of stations, a signaling instrument in each station, a circuit leading from one station to the signaling instrument in the next station and normally broken in the first-mentioned station, two magnets in each station located on said circuit, an armature for each of said magnets, one of said armatures being arranged to break the circuit through its signaling instrument and to form circuit with a wire that leads to the other armature, the latter armature being normally in circuit with said wire and arranged to temporarily break the circuit through said wire when its magnet is energized and to restore said circuit when the magnet is deenergized, substantially as set forth.

3. A signaling system comprising a plurality of stations, a signaling instrument in each station, a circuit leading from one station to the signaling instrument in the next station, and normally broken in the first-mentioned station, two magnets in each station located on said circuit, an armature for each of said magnets, one of said armatures being arranged to break the circuit through its signaling instrument and to form a circuit with a wire that leads to the other armature, the latter armature being normally in circuit with said wire, and arranged to temporarily break the circuit through said wire when its magnet is energized and to restore said circuit when the magnet is deenergized, and means to form a temporary ground for said circuit when the second-mentioned armature is attracted to prevent current from passing along the line until the proper time, substantially as set forth.

4. A signaling system comprising a plurality of stations, a signaling instrument in each station, a wire leading from a contact in one station to the signaling instrument in the next station, and so on through the series of stations, an armature in each station to operate the corresponding contact to join two sections of said circuit together and to break the circuit of the corresponding signaling instrument, a magnet on said circuit for said armature, a wire 4^c having a contact to engage the first-mentioned contact, a movable contact normally in circuit with the wire 4^c, a magnet on said first-mentioned circuit to operate said contact, a wire leading from said contact to the first-mentioned circuit in advance of the first-mentioned magnet, and means to establish a new ground for the second-mentioned magnet as and for the purposes specified.

5. A signaling system comprising a plurality of stations, a signaling instrument in each station, a circuit for said signaling instrument divided into sections in each station, the magnets in said signaling instruments being polarized, two magnets 11 and 12 in each station located in said circuit, said magnets being polarized oppositely to the first-mentioned magnets, the magnets 11 and 12 having armatures arranged to make and break the sections of the first-mentioned circuit and means for discharging currents of opposite polarity through said circuit, as desired, to join sections of said circuit into a through circuit, and to operate the desired signaling instrument, substantially as set forth.

593,821. REFRIGERATOR. HENRY SEAIS, Brooklyn, N. Y., assignor of one-half to William F. Watt, same place. Filed June 1, 1896. Serial No. 593,715. (No model.)



Claim.—In a refrigerator, substantially as shown and described, an auxiliary compartment I, provided with a door, and means for supporting a milk-can upon said door, said means comprising a vertical rod journaled in said compartment having a framework on the lower portion thereof for engagement with the lower edge of the said can, and a further framework on the upper portion, said framework having a spring-plate secured thereto which coils around the said neck and is connected to the inner surface of the said door, whereby said can will be carried outwardly when the door is opened and inwardly when the door is closed, substantially as shown and described.

593,822. DEVICE FOR MAKING CIGARETTES. JOHN H. TABLER and FRANK T. GRACEY, Nashville, Tenn. Filed Feb. 19, 1897. Serial No. 624,208. (No model.)

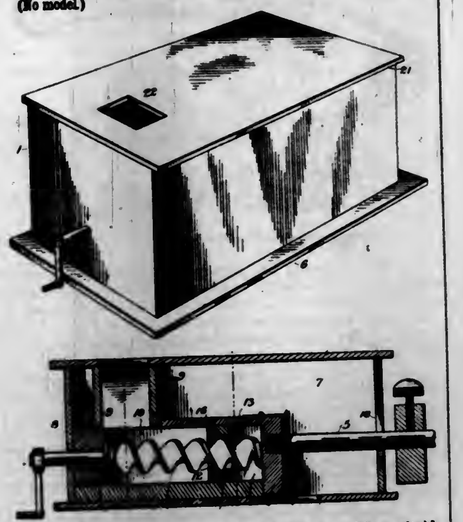


Claim.—1. In combination with a tobacco bag or pouch, the herein-described pocket cigarette-making device adapted to be attached to and detachable from the mouth of said bag or pouch, consisting of the band around which fits the mouth of the bag or pouch, and the cylindrical tube, tobacco-feeder and cigarette-former swiveled to the band and adapted to feed the tobacco into the cigarette-wrapper which is formed in proper shape on the tube and while being drawn off the tube is filled with tobacco.

2. In combination with a tobacco bag or pouch, the pocket cigarette-making device adapted to be attached in or detached from the mouth of said bag or pouch, consisting of the band around which is connected the mouth of the bag or pouch, and a cylindrical cigarette-former and tobacco-feeder swiveled in the band and having a slit in its side adapted to hold an edge of the cigarette-wrapper while being formed on the former and allowing the wrapper to be drawn off as it is filled with the tobacco.

3. A pocket cigarette-making device, consisting of the bag or pouch having means for closing the mouth thereof, a pipe or conduit having at its inner end a flange or collar, a flanged collar surrounding the inner end of the tube and resting upon the flange of the tube or conduit to form a swivel connection for the tube and to receive the mouth of the bag or pouch and form a smooth close joint.

593,823. GRINDING-MILL. ANDREW J. TALLEY and WILLIAM B. TALLEY, Bell Point, Ohio. Filed May 21, 1897. Serial No. 637,636. (No model.)



Claim.—1. In a grinding-mill, the combination with a suitable casing, of a rotatable feeding and grinding screw mounted in the same and having a grinding end, a movable pressure-piece mounted in proximity to the grinding end of said screw, and devices for holding said pressure-piece in such position with a yielding pressure whereby the grain is forced between said grinding end and said pressure-piece, substantially as described.

2. In a grinding-mill, the combination with a suitable casing, of a rotatable feeding and grinding screw mounted in the same and having a roughened or corrugated grinding end, a movable pressure-piece mounted in proximity to said grinding end, and devices for holding said pressure-piece in position in relation to said grinding end with a yielding pressure, substantially as described.

3. In a grinding-mill, the combination with a suitable casing, of a feeding-trough mounted therein, a rotatable feeding and grinding screw mounted in said trough and having a grinding end, a movable pressure-piece adapted to normally lie in proximity to said grinding end and contact with the end of said trough, and devices for holding said pressure-piece in position with a yielding pressure, substantially as described.

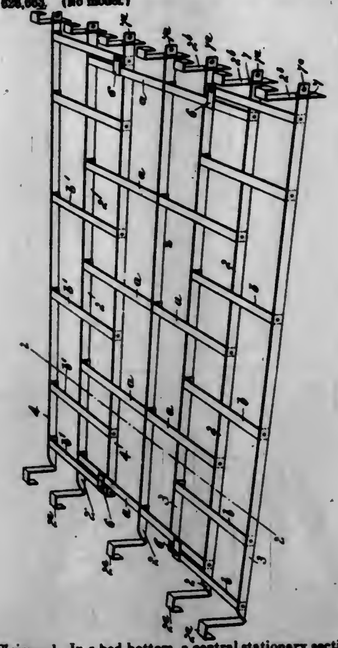
4. In a grinding-mill, the combination with a suitable casing, of a rotatable feeding and grinding screw mounted in the same and having a grinding end, a movable pressure-block mounted in proximity to said grinding end, and a weight mounted on said pressure-block and adapted to normally hold it in proximity to said grinding end with a yielding pressure, substantially as described.

5. In a grinding-mill, the combination with a suitable casing, of a feeding and grinding screw mounted therein and having the metal forming the same bent at one end at right angles to the axis of the screw and roughened or corrugated, a movable pressure-block engaging the end of said screw and means for forcing said pressure-block into engagement with said screw under a yielding pressure, substantially as described.

6. In a grinding-mill, the combination with a suitable casing, of a feeding-trough mounted therein, an end block mounted in one end of said trough and formed with a circular opening and a shallow chamber outside of said opening, a feeding and grinding screw mounted in said trough so as to project through the circular opening, a pressure-block adapted to engage the end of the end block to close the shallow chamber therein and also the end of the screw, and means for forcing said pressure-block into engagement with the screw and end block under a yielding pressure, substantially as described.

7. In a grinding-mill, the combination with a suitable casing, of a rotatable feeding and grinding screw mounted in the same and having a grinding end, a hinged pressure-block mounted in proximity to said grinding end, and a weight mounted on said block for holding it in place in proximity to said grinding end with a yielding pressure, substantially as described.

593,824. EXTENSIBLE BED-BOTTOM FOR IRON BEDSTEADS. FRANCIS M. TIERNAN, Springfield, Mass. Filed Mar. 9, 1897. Serial No. 626,063. (No model.)



Claim.—1. In a bed-bottom, a central stationary section consisting of the parallel longitudinal supports 2 which are united by the transverse supports *a*, which extend in opposite directions from the central longitudinal supports 2, combined with longitudinal supports 3, 4, which are united in pairs by the transverse supports *b*, *b'*, which extend across the tops of the outer longitudinal supports 2, and the supports 6 which catch upon the tops of the transverse supports *a*; the longitudinal supports being provided with hooks upon their ends, and the transverse supports 3, 4, being horizontally adjustable in relation to the supports 2, whereby the width of the bed-bottom can be increased or decreased at will, substantially as shown.

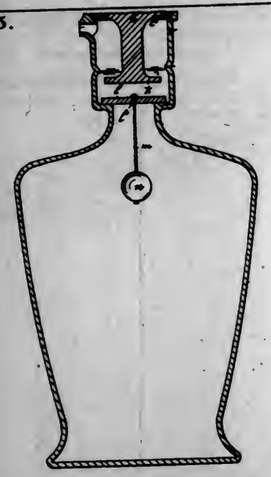
2. In a bed-bottom, a stationary longitudinal support 2, provided with hooks 2^a at one end, the transverse supports *a* which connect the supports 2 rigidly together, and the removable hooks 2^b, which are applied to the outer ends of the longitudinal supports, combined with the removable longitudinal supports 3, 4, the transverse supports *b*, *b'*, which unite them in pairs, and which supports catch over the top edges of the two outer stationary longitudinal supports 2; the supports 6 secured to the inner ends of the transverse supports *b*, *b'*, and which supports catch over the tops of the stationary transverse supports *a*, and the pins 7^a which prevent the removable hooks from becoming detached, all combined and arranged to operate, substantially as specified.

3. A bed-bottom for iron bedsteads consisting of a central section, separate side sections transversely movable on said central section, means of engagement between said side and central sections for holding them in the same plane, and fixed and longitudinally-adjustable end supports on the opposite ends of said sections, substantially as described.

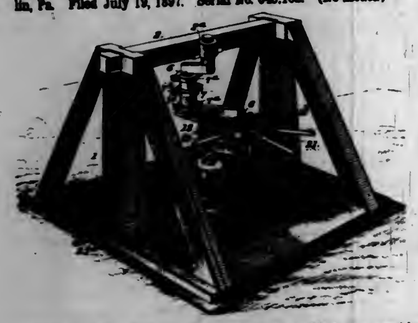
593,825. NON-REFILLABLE BOTTLE. ALBERT R. WILSON and EDWIN R. CRATFIELD, Newark, N. J. Filed Sept. 29, 1896. Serial No. 607,212. (No model.)

Claim.—The improved non-refillable bottle comprising a bottle having a flat annular shoulder formed in the neck and above said shoulder providing an outlet for the fluid and a seat for a permanent plug, of a flat disk valve centrally provided with means for securing a flexible connection, said flexible connection and a weight attached thereto, and a plug seated in said neck and having a foot or bearing *k*, for limiting the movement of the disk, substantially as set forth.

598,825.



598,826. OIL-WELL PUMPING-RIG. EDWARD D. YATES, Franklin, Pa. Filed July 19, 1897. Serial No. 645,102. (No model.)



Claim.—1. In a pumping mechanism as specified, the combination with the crank-shaft and means for operating the same, of the actuating-disk having annularly arranged sockets arranged in a series, said sockets having one side thereof in a radial line of the disk, the other side at an inclination to the said radius as set forth.

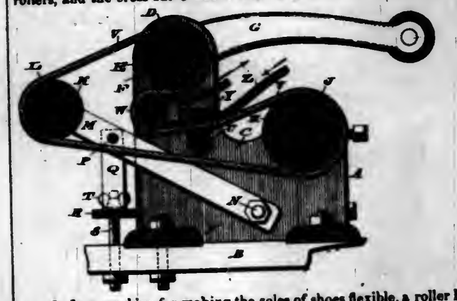
2. In a pumping mechanism as specified, the combination with the crank-shaft, of an actuating-disk having a series of sockets at the periphery, an outer series of bolt-apertures, one for each socket, an inner series of bolt-apertures, one for each pair of adjacent sockets and a pump-rod having a pair of bolts to engage the inner and outer bolt-apertures substantially as shown and for the purposes described.

3. In an oil-well pumping mechanism, the combination with the supporting-frame, the crank-shaft journaled thereon, means for operating such shaft, said shaft having its crank portion made non-circular, a sectional sleeve fitted on such crank portion, said sleeve having two or more vertical exterior bearings, a horizontal bearing intermediate the vertical bearings, and upper and lower horizontal bearings, a sectional actuating-disk mounted on such horizontal and vertical sleeve-bearings, said disk having a series of alternately radially disposed dovetail sockets, a bolt-aperture in each socket, a bolt-aperture at a point intermediate the inner end of each pair of sockets, of a pump-rod having a dovetail head to engage the sockets and a pair of bolts to engage the bolt-apertures, all being arranged substantially as shown and for the purposes described.

598,827. MACHINE FOR MAKING SHOE-SOLES FLEXIBLE. LEWIS D. ZIEGLER, Philadelphia, Pa. Filed Apr. 7, 1897. Serial No. 631,091. (No model.)

Claim.—1. In a machine for making the soles of shoes flexible, a roller F, means for rotating the same, a roller H secured in advance of said roller F and a roller K secured in the rear thereof, a roller W located underneath said roller F, an endless apron passing around said rollers and the cross-bar Y adjacent said roller W.

2. In a machine for making the soles of shoes flexible, a roller F suitably supported, rollers H and K mounted in front of and behind said roller F, said roller K being mounted on adjustable arms M, a roller W located in proximity to the roller F, a roller U located between said rollers W and H, an endless apron passing around said rollers, and the cross-bar Y above said roller U.

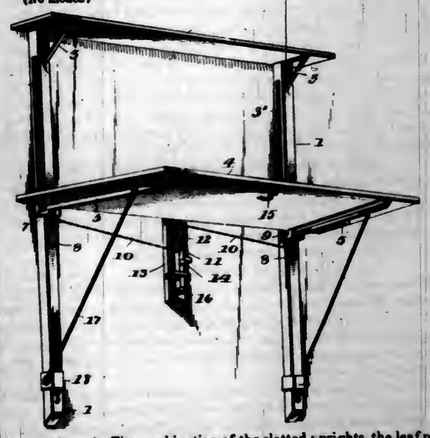


3. In a machine for making the soles of shoes flexible, a roller F suitably supported, rollers H and K located in front of and behind said roller F, arms M in which said roller K is journaled, means for raising and lowering said arms, a roller U, a cross-bar Y located above said latter roller, a roller W located in proximity to said roller F and said cross-bar Y, and an endless apron passing around said rollers.

4. In a machine for making the soles of shoes flexible, a roller F suitably supported, means for actuating the same, a roller H located in front of said roller F, a roller K located behind the latter, arms in which said roller K is journaled, upright strips connected to said arms and resting upon a cross-piece R, means for adjusting the height of said cross-piece, a roller W located in proximity to the roller F, a cross-bar Y located adjacent said roller W, a roller U located under said cross-strip and an endless apron passing around said rollers.

5. A machine for making the soles of shoes flexible, consisting of a base with standards mounted thereon, a series of rollers mounted in said standards, an endless apron on said rollers having a portion doubled upon itself, mechanism connected with and supported on said base for adjusting the tension of said apron and a cross-bar adjacent to one of said rollers and between which and said adjacent roller said apron and the sole or leather to be treated pass.

598,828. FOLDING WALL SHELF, TABLE, OR DESK. GEORGE A. ANE, Mount Carroll, Ill. Filed Mar. 2, 1897. Serial No. 625,741. (No model.)



Claim.—1. The combination of the slotted uprights, the leaf provided with brackets having a member movable in the slots of the uprights, and catches adapted to engage a rear portion of the brackets to sustain the leaf in a horizontal position, substantially as and for the purposes described.

2. The combination of the slotted uprights, the leaf provided with brackets having a member movable in the slots of said uprights, catches to engage a portion of said brackets, and a lever joined to said catches by suitable connections and adapted to be moved so as to withdraw the catches from engagement with the brackets to permit the leaf to be folded, substantially as and for the purposes described.

3. The combination of the slotted uprights, the leaf having brackets with a member at the rear moving in the slots of said uprights, means for supporting the leaf in a horizontal position, and a pawl or catch for securing the leaf in a vertical position when folded, substantially as and for the purposes described.

4. The combination of the slotted uprights, the leaf provided with brackets having rearwardly-extending pars to lie on opposite sides of the uprights, and a member supported by the ears of each bracket and passing through the slots of the uprights, substantially as and for the purposes described.

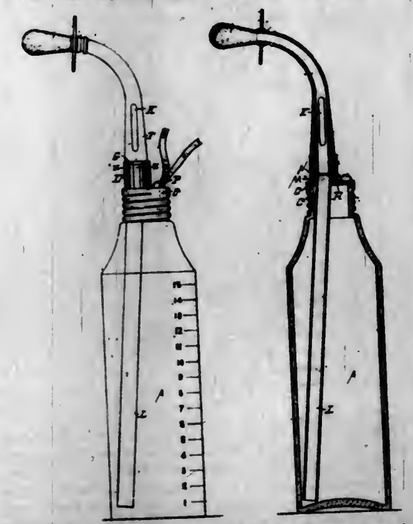
598,829. CURTAIN-POLE. EDMUND R. BECHTOLD, Pittsburg, Pa. Filed Feb. 25, 1897. Serial No. 624,906. (No model.)



Claim.—1. In a curtain-pole, the hollow body portion having a slot extending the entire length, a fastening-bar provided with arms extending substantially at right angles to each other, one arm adapted to lie within the hollow body portion, the other arm provided with a bulged portion, providing means for securing the fastening-strip in the body portion, substantially as shown and described.

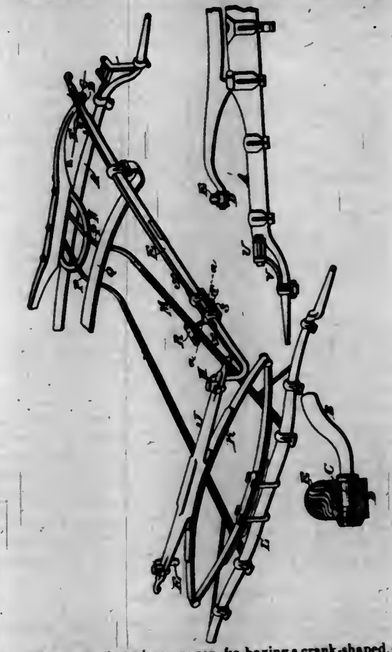
2. A curtain-pole consisting of a hollow body portion, a slot extending longitudinally the entire length of the body portion, a fastening-bar having arms extending at right angles to each other, said fastening-bar provided with means for locking it in position, substantially as shown and described.

598,830. NURSING-BOTTLE. CLARA BORGENSCHILD, Racine, Wis. Filed July 17, 1897. Serial No. 644,011. (No model.)



Claim.—The combination with a bottle, of a cap adapted to fit thereon and having an opening therethrough surrounded by an upwardly-projecting interiorly-screw-threaded thimble, and air-admitting openings exterior to the thimble, together with an eye for the attachment of a holding ribbon or cord, a washer adapted to cover said air-admission openings, a glass tube adapted to fit through said thimble-opening and provided with an annular flange at its upper end adapted to engage the sides thereof, an upper glass tube covered with metal and adapted to screw into said thimble with its lower end in connection with said first-mentioned tube, and a rubber nipple adapted to fit over the free end of the upper tube, substantially as described.

598,831. SPRING-GEAR FOR CARRIAGES. JAMES H. CAFFREY, Philadelphia, Pa. Filed July 1, 1897. Serial No. 643,109. (No model.)



Claim.—1. A carriage, wagon, &c. having a crank-shaped, curved or arched or sprung-up axle, side-bars or spars the forward ends of which are adapted to be supported in any suitable manner upon said axle, and an elliptic spring on which the rear ends of said spars are adapted to be suitably supported.

2. A carriage or wagon &c. having a crank-shaped, curved, arched or sprung-up front axle, a bolster supported thereon, side-bars or spars supported by said bolster, a second bolster supporting the rear end of said spars and an elliptic spring supporting said last-mentioned bolster.

3. A carriage, wagon, &c. having a front axle, a bolster supported thereon, pivots on each end of said bolster, side-bars or spars having sockets which are adapted to receive said pivots and support the front end of said spars, a bolster to which the rear ends of said spars are adapted to be secured, a spring carrying said last-mentioned bolster, supports for the body, pivots on said supports and sockets on said side-bars receiving the latter-named pivots.

4. A carriage, wagon, &c. having a crank-shaped, curved, arched or sprung-up axle, a bolster thereon, side-bars or spars which are adapted to be supported by said bolster, and by a second bolster, an elliptic spring mounted on the rear axle and supporting said second bolster, and perches which are secured to said front and rear axles.

5. A carriage, wagon, &c. having a crank-shaped, curved, arched or sprung-up axle, an elliptic spring supported upon the rear axle, side-bars or spars which are suitably supported upon said front and rear axle, supports on said side-bars to which the body is secured, and cross or spar springs secured to said side bars.

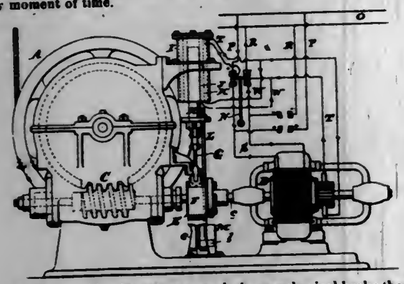
6. A carriage, wagon, &c. having a front axle, an elliptic spring supported upon the rear axle, side-bars suitably supported on said front axle and said elliptic spring, a cross or spar spring on said side-bars, sockets on said side-bars and supports having pivots, which are adapted to enter said sockets.

7. In a carriage, wagon, &c. a crank-shaped, curved, arched or sprung-up axle, shaft-boxes thereon, and braces or supports which are secured to said shaft-boxes and to said axle forming a truss.

598,832. ELECTRIC BRAKE FOR ELEVATORS. JOHN P. CASEY, Bloomsburg, Pa. Filed Aug. 23, 1894. Serial No. 521,068. (No model.)

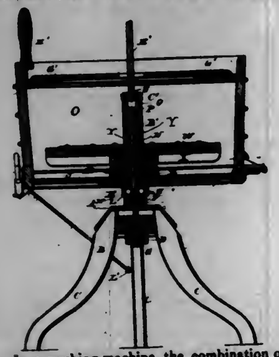
Claim.—1. The combination of a power-shaft, an electric motor to rotate said shaft, a friction gravity-brake adapted to arrest the rotation of said shaft, an electromagnetic device for removing the said brake provided with high and low resistance coils for producing the same polarities in the electromagnetic devices, an electric circuit

including the low-resistance coil in series with the armature, a shunt-circuit including the high-resistance coil in shunt relation with the armature of the motor, and a switch device for controlling the flow of current through said circuits for always maintaining the current flowing in both coils of the brake-magnet in the same direction at any moment of time.



2. The combination of a power-shaft, a mechanical brake therefor, a vertically-movable magnetic core to apply the brake by the weight of said core, a casing for said core, a compound winding arranged on said casing and composing high and low resistance coils adapted to produce similar polarities at all times, current translating or consuming devices in series with the low-resistance coil, and switch devices for controlling the current to said coils so that it flows through them always in the same direction at any moment of time, whereby the current flowing through the low-resistance coil may raise the core of the brake to remove the brake, and the current flowing through the high-resistance coil may assist in maintaining the brake in its elevated position irrespective of variations in the current flowing through the low-resistance coil due to any action of the translating or current-consuming devices.

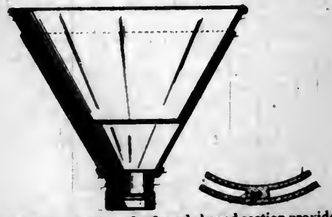
598,833. WASHING-MACHINE. ALONZO A. CASLER, Mansfield, Ohio. Filed Jan. 11, 1897. Serial No. 618,827. (No model.)



Claim.—In a washing-machine, the combination of the tub or receptacle having a central opening, the casting secured to the bottom of the tub and formed with an annular groove, a tube having its lower end connected to the casting and extending upward, the post passing upward through the tube having a squared upper portion and its lower end extended downward below the bottom of the tub and formed with screw-threads, the supporting-legs connected with the said post, the base and nuts on the threaded portion of the post, the washers and balls arranged in the annular groove of the casting, and the rubbing-disk provided with braces having connected at their upper ends a sleeve capable of a vertical movement on the squared end of the post to accommodate the clothes and permit removal of the rubbing-disk.

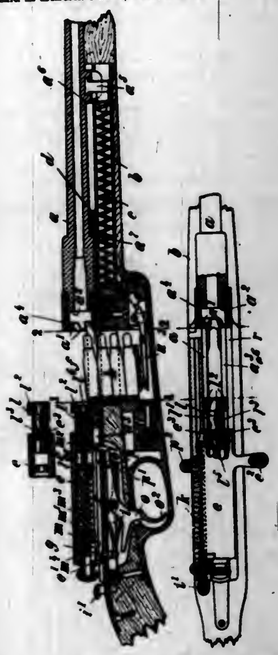
598,834. COMBINED FUNNEL AND STRAINER. CHARLES G. CHAMBERS, Brownsville, Texas. Filed Oct. 5, 1896. Serial No. 607,826. (No model.)

Claim.—1. A combined funnel and strainer consisting of the outer flaring funnel portion having a shoulder at its lower portion formed with a lug at the upper edge and terminating in a threaded rim, a cap having its upper portion fitting against said shoulder, having threads to engage the threads of the band and provided with an interior intermediate flange, and a strainer resting on said flange and retained thereon by the threaded rim of the funnel and the inner funnel-section having a channel to receive the lug on the outer section.



2. A funnel consisting of a funnel-shaped section provided on one side with a lug and a funnel section within said first-named section having a groove to receive said lug to permit the inner section to be adjusted to change the capacity of the funnel.

598,835. RECOIL-OPERATED FIREARM. CLAUS H. R. CLAUSIUS, Hamburg, Germany. Filed Feb. 5, 1896. Serial No. 578,116. (No model.) Patented in Germany Jan. 29, 1895, No. 87,963; in Belgium Nov. 15, 1895, No. 118,361; in England Dec. 31, 1895, No. 25,042; in Sweden Dec. 31, 1895, No. 7,833; in Italy Dec. 31, 1895, No. 40,515; in Hungary Dec. 31, 1895, No. 7,102; in Norway Dec. 31, 1895, No. 4,728; in Switzerland Dec. 31, 1895, No. 11,481; in France Dec. 31, 1895, No. 252,881, and in Austria Feb. 6, 1896, No. 46/447.

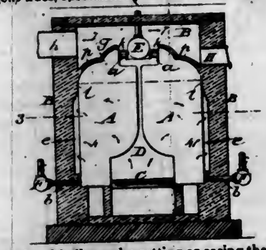


Claim.—1. The combination with the endwise-movable barrel provided at its rear end with helical locking-lugs a', of the breech-bolt c and the closing-head l provided with a helical groove of equal but opposite pitch to that of the locking-lugs a' on the barrel and with a peripheral groove l^3 intersecting said helical groove, said breech-bolt engaging said helical groove of the closing-head, substantially as and for the purpose set forth.

2. The combination with the breech-bolt and firing-pin provided with radial legs c', m', respectively, and the levers i', p; of the trigger-lever o and a fulcrum-pin common to all three levers, and means for depressing the upturned nibs or noses thereof independently of one another, substantially as and for the purpose set forth.

598,836. SECTIONAL STEAM-BOILER. WILLIAM F. CUNNINGHAM, Brooklyn, N. Y. Filed July 16, 1897. Serial No. 644,776. (No model.)

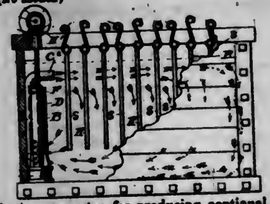
Claim.—1. In a sectional boiler and a setting or casing therefor, the combination of a series of boiler-sections including within them a central fire-chamber and having between them spaces forming flues which diverge laterally from said chamber but are closed at the top, and side flues with which said laterally-divergent flues severally communicate and from which there are outlets common to the said laterally-divergent flues, substantially as herein set forth.



2. In a sectional boiler and a setting or casing therefor, the combination of a series of boiler-sections including within them a central fire-chamber and having between them spaces forming flues which diverge laterally from said chamber but are closed at the top, side flues with which the said laterally-divergent flues severally communicate, a back flue with which said side flues communicate in rear of the several sections, and a top flue with which said back flue communicates and which runs over the several sections, substantially as herein described.

3. The combination of the boiler-sections A A arranged in two opposite series those of each series being separated by flue-spaces d d, the central fire-chamber D between the two series of sections, the plates p p closing the flue-spaces d d at the top of said sections, the wall i j in rear of said sections, and the inclosing casing B within which are formed the flues e e f and g, the said flues e e forming lateral outlets to the flue-spaces d d, the flue f forming an outlet in rear of the sections A A and wall i j from the rear of the flues e e, and the flue g forming an outlet above the sections A A and wall i j from the said flue f to the chimney-outlet A, all substantially as herein described.

598,837. APPARATUS FOR CIRCULATING LIQUID IN TANKS. GEORGE R. DUNTON, Boston, Mass. Filed Aug. 31, 1897. Serial No. 650,112. (No model.)



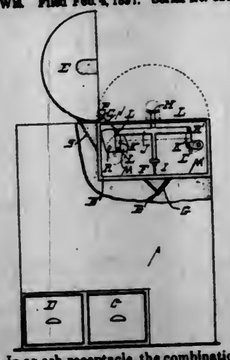
Claim.—1. An apparatus for producing continual and definite agitation and circulation of liquids, comprising a tank, anodes and cathodes therein arranged side by side, and having a space between their ends and the tank, a pump having an inlet, and an outlet-pipe provided with a substantially horizontal nozzle near the top of the tank, arranged substantially at a right angle to the plane of the anodes and cathodes, and in the space between their ends and the tank, whereby a circulation of the liquids in and entirely around the tank is effected, substantially as described.

2. An apparatus for producing continual and definite agitation and circulation of liquids, comprising a tank, anodes and cathodes therein arranged side by side, and having a space between their ends and the tank, a pump having an inlet or suction opening, and an outlet-pipe provided with a substantially horizontal nozzle near the top of said tank, said outlet-pipe leading across the bottom of the tank, then up to a point near the top of the same on the opposite side thereof to that occupied by the pump, and arranged substantially at a right angle to the plane of the anodes and cathodes, and in the space between their ends and the tank, whereby a circulation of the liquids in and entirely around the tank is effected, substantially as described.

3. An apparatus for producing continual and definite agitation and circulation of the liquids composing a bath, comprising a tank, anodes and cathodes therein arranged side by side, and having a space between their ends and the tank, a pump located in one corner of said tank having an inlet near the lower end of the suction-pipe, and an outlet-pipe provided with a substantially horizontal nozzle near the top of said tank, said outlet-pipe leading from the casing at the lower end of the suction-pipe to a point near the top of the tank on the opposite side thereof to that occupied by the pump, and arranged substantially at a right angle to the plane of the anodes and cathodes and in the space between their ends and the tank, whereby a circulation of the liquids in and entirely around the tank is effected, substantially as described.

4. An apparatus for producing continual and definite agitation and circulation of the liquids composing an electrolytic bath, comprising a centrifugal pump having a suction-pipe provided with an inlet-strainer near its lower end, a casing at the lower end of said suction-pipe having an outlet-pipe leading therefrom to a point near the top of the tank and on the opposite side, a turbine wheel located in the casing, a shaft upon which the turbine wheel is journaled supported in bearings in the upper and lower part of the pump and at the top of the tank, a gear-wheel on the upper end of said shaft, a gear-wheel on the inner end of a horizontal shaft supported in a bracket on the top of the tank and meshing with the gear on the shaft; and a pulley-wheel on the outer end of the horizontal shaft adapted to receive power from any suitable source, substantially as described.

598,838. ASH SIFTER AND RECEPTACLE. RICHARD EVANS, Milwaukee, Wis. Filed Feb. 4, 1897. Serial No. 621,950. (No model.)



Claim.—1. In an ash-receptacle, the combination with the inclosing walls thereof of a slanting screen arranged at an angle to the vertical walls of the inclosure; a shovel-supporting standard located above said screen; a shovel-inclosing cover pivoted to the upper inclosing walls of said receptacle upon a supporting-shaft; mechanism for automatically swinging open said cover upon its supporting-shaft; and mechanism for communicating motion from said shovel-supporting standard to said cover, and automatically closing the same as the weight of a shovel and contents is supported thereon, whereby said cover is automatically closed above the shovel and its contents, and the dust therefrom, when emptied, is prevented from rising, substantially as and for the purpose specified.

2. In an ash-receptacle, the combination with the inclosing walls thereof of a slanting screen arranged at an angle to the vertical walls of the inclosure; a shovel-supporting standard located above said screen; a shovel inclosing cover pivoted to the upper inclosing walls of said receptacle upon a supporting-shaft; mechanism for automatically swinging open said cover upon its supporting-shaft; mechanism for communicating motion from said shovel-supporting standard to said cover, and automatically closing the same as the weight of a shovel and contents is supported thereon; swinging doors located beneath the upper inclosing walls of said receptacle adapted to close above the ashes after they have been discharged upon said supporting-screen: and mechanism for communicating motion from said shovel-supporting standard to said swinging doors, substantially as and for the purpose specified.

3. In an ash-receptacle, the combination within the inclosing walls thereof of a slanting screen B, arranged at an angle to the vertical walls of the inclosure; a shovel-supporting standard H located above said screen; standard-supporting spring I adapted to retain said standard H in its raised position when the shovel-inclosing cover is thrown open; shovel-inclosing cover E pivoted to the inclosing walls of the receptacle upon a supporting-shaft P, having bearings in the respective ends of its inclosing walls; bar J rigidly affixed to the supporting-standard H and connected at one end with said shovel-inclosing cover E through the pivot L, link K, pivot L', segmental pulley M, cord N, segmental pulley O and cover-supporting shaft P, whereby said cover E is closed by the downward movement of said standard H; spring S secured at one end to said cover E and at its opposite end to the receptacle B', and adapted by its recoil to swing back and open said cover as soon as the standard H is relieved from

the weight of the shovel thereon, said bar J being connected with the respective doors F and G through the links K and K', segmental pulley M and arm M', pivots L, L and L', L', and door-supporting shafts R and R', all substantially as and for the purpose specified.

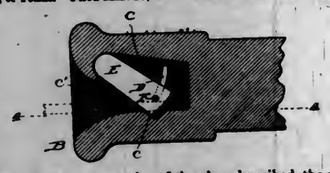
593,839. COMBINED BRAKE AND FENDER. NEWTON FEIGLEY, Pittsburg, Pa., assignor of one-fourth to James R. O'Donnell, same place. Filed July 16, 1897. Serial No. 644,759. (No model.)



Claim.—1. In a combination brake and fender, the brake-shoes having upwardly-extending portions with spring-straps secured thereto, supporting braces attached to said shoes and the car-truck, a brake-rod connected to one of said braces, a locking mechanism for holding said shoes in the elevated position, strips connecting said shoes and extending transversely of the car to form the fender, substantially as shown and described.

2. In a brake of the class described, the brake-shoes having an upwardly-extending portion with spring-straps secured thereto, supporting-braces attached to said shoes and car-truck, a brake-rod connecting to one of said braces, a locking mechanism for holding said shoes in the elevated position, substantially as shown and described.

593,840. CAR-COUPLING. CHARLES W. GILLESPIE, San Angelo, Tex., assignor to the Huntington Automatic Railway Car Coupler Company, of Texas. Filed Mar. 29, 1897. Serial No. 629,788. (No model.)



Claim.—1. In a car-coupler of the class described, the combination of the draw-head, having curvilinear slots near its rear end upon opposite sides, and a swing-pin provided with a bar F near its lower end passing through said slots adapted to bear upon and hold the link in position for coupling, and means for operating said bar.

2. In a car-coupler of the class described, the combination of the draw-head having a ledge c in the upper portion of its mouth, curvilinear slots upon opposite sides near the rear end of the draw-bar, and a swing-pin having its upper end resting upon said ledge, its lower end provided with a hanger-bar passing through said slot and means for operating said bar.

593,841. METALLIC JUNCTION-BOX AND MEANS FOR UNITING METAL CONDUIT-TUBES THERETO. EDWIN T. GREENFIELD, New York, N. Y. Filed July 27, 1897. Serial No. 646,100. (No model.)

Claim.—1. A metallic junction-box having one or more integral screw-threaded necks, in combination with a metal conduit-tube and a split nut exteriorly screw-threaded and adapted to firmly grip and hold the conduit-tube in the integral neck, substantially as described.



2. A cast-iron junction-box having one or more integral screw-threaded necks, in combination with a metal conduit-tube and a soft-metal split nut adapted to surround the conduit-tube and firmly grip the same within the integral neck, substantially as described.

3. A cast-metal junction box having one or more integral screw-threaded necks, said junction-box being lined with insulating material, in combination with one or more metallic conduit-tubes lined with insulating material and one or more split nuts exteriorly screw-threaded and adapted to unite said conduit tube or tubes to the integral necks, substantially as described.

4. A cast-iron junction-box having one or more integral necks, each interiorly screw-threaded, said junction-box being lined with insulating material, in combination with one or more armored conduit-tubes and a screw-threaded split nut adapted to surround each of said conduit-tubes and firmly unite the same to its corresponding integral neck, substantially as described.

5. A cast-iron junction-box having one or more integral necks interiorly screw-threaded and provided each with a conical surface at its inner end, said junction-box being lined with insulating material, in combination with one or more armored conduit-tubes and a soft-metal split nut adapted to secure each of said conduit-tubes to its corresponding integral neck, said split nut being cone or wedge shaped at its inner end, substantially as described.

6. A cast-iron junction-box having integral necks screw-threaded interiorly, in combination with an armored conduit-tube and a soft-metal nut screw-threaded exteriorly and adapted, by its wedging action, to unite said conduit-tube to the integral neck, substantially as described.

593,842. FLEXIBLE ARMORED CONDUIT. EDWIN T. GREENFIELD, New York, N. Y. Filed Oct. 4, 1897. Serial No. 654,070. (No model.)



Claim.—1. A flexible armored conduit-tube consisting of a flexible lining and two or more metallic armor-strips spirally wound thereon and curved in opposite directions, substantially as described.

2. A flexible armored conduit-tube consisting of a flexible lining and two or more metallic armor-strips spirally wound thereon, said armor-strips being curved in opposite directions and breaking joints with each other, substantially as described.

3. A flexible armored conduit-tube consisting of a flexible lining and two or more metallic armor strips spirally wound thereon, said armor-strips being curved in opposite directions and breaking joints with each other, in combination with a strip of flexible material located between the spirals thereof, substantially as described.

4. A flexible armored conduit-tube consisting of a flexible lining and two or more metallic armor-strips spirally wound thereon, the armor-strips being curved in opposite directions and one of them provided with a centrally-located row of locking lugs or projections I, substantially as described.

5. A flexible armored conduit-tube consisting of a flexible lining and two or more metallic armor-strips spirally wound thereon, said armor-strips being curved in opposite directions and breaking joints with each other and one of them provided with a centrally-located row of locking lugs or projections, in combination with one or more flexible strips located between the spirals of the armor, substantially as described.

6. A flexible armored conduit-tube consisting of a flexible lining of vulcanizable material and two or more metallic armor-strips spirally wound thereon, said strips being curved in opposite directions, the inner strip being provided with a centrally-located row of lugs or projections, in combination with a spirally-wound strip of vulcanizable material located between the spirals of the armor, all of said parts being united together by vulcanization, substantially as described.

7. A flexible armored conduit-tube consisting of a flexible insulating-lining and two or more metallic armor-strips spirally wound thereon, said armor-strips being curved in opposite directions and breaking joints with each other, in combination with a flexible spirally-wound strip of insulating material located between the spiral convolutions of the armor-strips, all of said parts being adhesively united together, substantially as described.

8. A flexible armored conduit-tube consisting of a flexible insulating-lining and two or more metallic armor strips spirally wound thereon, said armor-strips being curved in opposite directions and one of them provided with a centrally-located row of locking lugs or projections, in combination with a spirally-wound strip of flexible insulating material located between the spiral convolutions of the armor, all of said parts being adhesively connected together in such manner as to be water tight, substantially as described.

593,843. BALE-TIE. JOHN W. GRISWOLD, Troy, N. Y. Filed May 17, 1895. Serial No. 549,613. (No model.)



Claim.—1. A wire bale-band having at one end a loop or eye provided with a saddle, clasp, or catch-plate held in said loop, the ends only of said plate being clamped against the side wires of the loop, substantially as described.

2. A wire bale-band having at one end an eye, and in said eye a saddle or clasp formed of a flat metal plate bent to produce a V-shaped angle wherein the opposite end of said band may, on insertion, become wedged, and means for holding said plate in said eye, substantially as described.

3. A wire bale-band having at one end an eye, and in said eye a saddle or clasp having a V-shaped angle wherein the opposite end of said band may, on insertion, become wedged, and provided at its ends with recesses or notches receiving the side wires of said loop, substantially as described.

4. A wire bale-band having at one end an eye, and in said eye a saddle or clasp having a V-shaped angle wherein the opposite end of said band may, on insertion, become wedged, and provided at its ends with outwardly-projecting notched lugs or ears receiving the side wires of said loop, substantially as described.

5. A wire bale-tie having at one end a loop or eye provided with a saddle or catch-plate, B, having the notches b^3 b^3, into which the side wires of the loop fit, the ends b' b' of the plate being clamped against said wires, substantially as described.

593,844. SAFETY RELEASING DEVICE. RICHARD A. HAMBLIN, St. Joseph, Mo. Filed June 15, 1896. Serial No. 595,606. (No model.)

Claim.—1. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto, a water-pipe, spring-pressed cocks pivotally mounted on said pipe between said brackets, controlling the flow of water from the pipe, and means for simultaneously moving all of said cocks against the action of their springs, as and for the purpose set forth.

2. The herein-described improved device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto, a water-pipe, a series of cocks pivotally mounted on said pipe between said brackets controlling the flow of water from the pipe, and having upwardly-extended arms, springs bearing against said arms, and means for simultaneously moving all of said cocks against the action of said springs, as set forth.

3. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured to said framework, a pipe supported by said brackets and designed to be normally filled with water under pressure, a series of cocks pivotally mounted on said pipe and having upwardly-extended arms and lower hook-like extensions, springs bearing against the arms of said cocks, and means for simultaneously moving all of said cocks against the action of said springs, substantially as set forth.

4. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto and each having forwardly-extended arms, a pipe supported by said arms and designed to be normally filled with water under pressure, a web connecting said arms and having a hole or opening therein, a series of cocks pivotally mounted on said pipe and having hook-like portions, springs for normally holding said hook portions in the holes or openings of said webs, and means for simultaneously moving all of said cocks against the action of said springs, substantially as set forth.

5. The herein-described device for releasing animals, comprising a supporting framework, a series of brackets secured thereto and each having forwardly-extended arms, a web connecting said arms and having a hole or opening therein, a pipe supported by said arms and designed to be normally filled with water under pressure, a series of cocks pivotally mounted on said pipe and having hook-like portions, rings adapted to rest on said webs coincident with the holes or openings thereof, springs adapted to hold said hook portions in engagement with said rings, and means for simultaneously withdrawing all of said hook portions, substantially as set forth.



6. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto and having forward shoulders, webs formed adjacent said shoulders and having holes or openings therein, a pipe supported by said brackets and designed to be normally filled with water under pressure, a series of cocks pivotally mounted on said pipe and having hook-like portions, rings adapted to rest on said webs and having shoulders designed to fit beneath the shoulders of said brackets, springs adapted to hold the hook portions of said cocks in engagement with said rings, and means for simultaneously withdrawing all of said hook portions, substantially as set forth.

7. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto, a pipe supported by said brackets designed to be normally filled with water under pressure, and having holes or perforations therein, cocks pivotally mounted on said pipe and having hook-like projections and provided with slots adapted to register with said holes or perforations, springs bearing against said cocks and adapted to keep said holes or perforations normally closed, and means for simultaneously moving all of said cocks against the action of said springs, substantially as set forth.

8. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto, a pipe supported by said bracket designed to be normally filled with water under pressure, and having a series of holes or perforations therein, cocks pivotally mounted on said pipe and having slots adapted to register with said holes or perforations, said cocks being also provided with hook-like projections and upper arms or extensions, springs secured to said framework and bearing against said arms or extensions, and means for simultaneously moving all of said cocks against the action of said springs, substantially as set forth.

9 The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto, a pipe supported by said brackets having holes or perforations therein, cocks pivotally mounted on said pipe and having slots adapted to register with said holes or perforations, said cocks being provided

with hook-like projections and upper arms or extensions, springs bearing against said arms or extensions, a rotatable shaft mounted on said framework, and connections between said shaft and the arms or extensions of said cocks, substantially as set forth.

10. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto, a pipe supported by said brackets, cocks pivotally mounted on said pipe and having upper arms or extensions and lower hook-like portions, springs bearing against said arms or extensions, a rotatable shaft mounted on said framework, and connections between said shaft and the arms or extensions of said cocks, substantially as set forth.

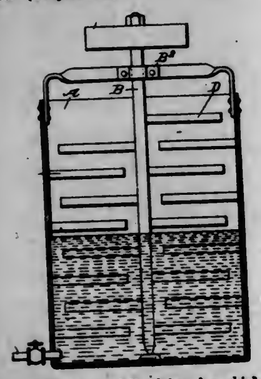
11. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto, a pipe supported by said brackets and having holes or perforations therein, cocks pivotally mounted on said pipe and having slots adapted to register with said holes or perforations, said cocks being also provided with upper arms or extensions and lower hook-like portions, springs bearing against said arms or extensions, a rotatable shaft mounted on said framework, and connections between said shaft and the arms or extensions of said cocks, substantially as set forth.

12. The herein-described device for releasing animals, comprising a supporting-framework, a series of brackets secured thereto, a pipe supported by said brackets and having holes or perforations therein, cocks pivotally mounted on said pipe and having slots adapted to register with said holes or perforations, said cocks being also provided with upper arms or extensions and lower hook-like portions, springs bearing against said arms or extensions, a rotatable shaft mounted on said framework, chains connected to said shaft and to the arms or extensions of said cocks, means for rotating said shaft, and means for holding said cocks against the action of said springs, substantially as set forth.

13. The herein-described device for releasing animals comprising a supporting framework, brackets secured thereto, cocks pivotally mounted in said brackets, having upper arms or extensions, springs bearing against said arms or extensions, a rotatable shaft mounted in said framework, connections between said shaft and said cocks, a drum mounted on said shaft, and a cord secured to said drum and designed to be connected to the latch of a stable-door, substantially as set forth.

14. The herein-described device for releasing animals, comprising a framework, brackets secured thereto, a pipe supported by said brackets and having holes or perforations therein, cocks mounted on said pipe and having slots adapted to register with said holes or perforations, said cocks also having lower hook-like extensions, connections between said shaft and said cocks, a drum mounted on said shaft, and a cord secured to said drum and designed to be connected to the latch of a stable-door, substantially as set forth.

593,845. PROCESS OF DISSOLVING GLUE AND MAKING CLAY SIZE. FRIMAN KAHN, New York, N. Y. Filed Feb. 5, 1897. Serial No. 622,200. (No specimens.)



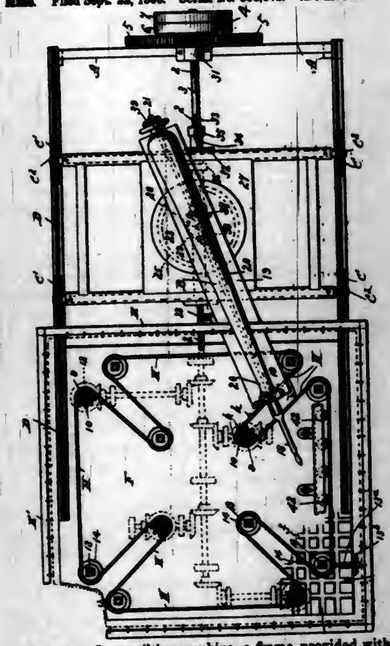
Claim.—1. The process of dissolving glue which consists in heating the requisite quantity of water to a temperature above the congealing-point of the glue that is about 90° Fahrenheit and below its softening-point, that is about 120° Fahrenheit and adding the glue to the warm water and incorporating the same therewith, while the solution remains between such limits of temperature.

2. The process of dissolving glue which consists in heating the requisite quantity of water to a temperature sufficient to bring the temperature of the final mixture above the congealing-point of the glue solution, but below the softening-point of the glue itself that is from 90° Fahrenheit to 120° Fahrenheit, then discontinuing the supply of heat, adding the glue, and mechanically stirring the mixture of glue and warm water.

3. The process of making clay size which consists in heating the requisite quantity of water to a temperature sufficient to bring the final mixture to a temperature above the setting-point of such mixture and below the softening-point of the glue, then discontinuing the supply of heat, adding and incorporating the necessary quantity of glue, and finally adding and incorporating the requisite amount of clay in a dry absorbent state, substantially as set forth.

4. The process of making a filled size which consists in heating the requisite quantity of water to a temperature above the congealing-point of such mixture and below the softening-point of the glue, then adding and incorporating the necessary quantity of glue, while keeping the mixture within the aforesaid limits of temperature and finally adding and incorporating the requisite amount of solid filling material in a dry absorbent state, substantially as set forth.

593,846. QUILTING-MACHINE. JAMES C. KNOWLES, Holyoke, Mass. Filed Sept. 23, 1896. Serial No. 606,672. (No model.)



Claim.—1. In a quilting-machine, a frame provided with horizontal tracks, a carriage moving thereon, sewing mechanism mounted on said carriage for a swinging movement in a horizontal plane, a quilt-supporting frame, a pattern-plate supporting above its surface a chain arranged in pattern form on sprocket-wheels and sheaves, which sheaves are movable on said pattern-plate, whereby said chain may be arranged in a variety of pattern forms, and means for imparting rotary movements to said sprocket-wheels and for actuating said sewing mechanism, and means of engagement between said chain and sewing mechanism, substantially as set forth.

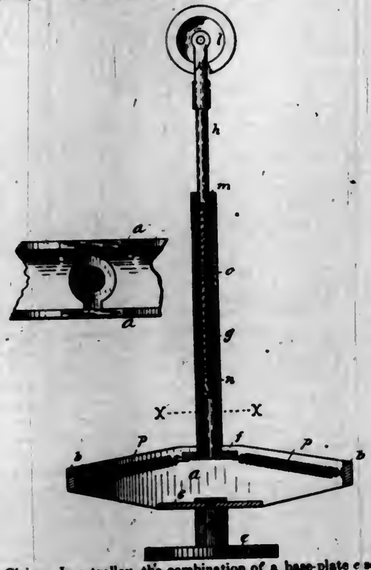
2. In a quilting-machine, a frame provided with horizontal tracks, a carriage moving thereon, sewing mechanism mounted on said carriage for a swinging movement in a horizontal plane, a quilt-supporting frame, means for moving said sewing mechanism and said carriage consisting of an endless chain arranged in pattern form in a plane parallel with the plane of movements of the carriage and sewing mechanism thereon, said chain being driven and supported by sprocket-wheels and sheaves, the latter being adjustable whereby the pattern form of said chain may be varied, and means for imparting rotary movements to said sprocket-wheels and means for actuating said sewing mechanism, and means of connection between said chain and said sewing mechanism, substantially as set forth.

3. A quilting-machine consisting of horizontal movable sewing mechanism, and a flexible and variably adjustable pattern-form, consisting of a chain supported on driving-wheels and sheaves means for rotating said driving-wheels and actuating said sewing mechanism,

means of adjustment on one or more of said sheaves for tightening and loosening said chain, and means for guiding said chain in a straight line between two of said sheaves, a suitable temporary connection between said sewing mechanism and said chain and a fixed frame for supporting a quilt in a horizontal plane in operative relation to said sewing mechanism, substantially as set forth.

4. In a quilting-machine, a frame for holding a quilt in a horizontal plane, a flexible and variable pattern-form, supported on a suitable frame, a carriage movable on tracks D, on said frame, sewing mechanism mounted for swinging movement in a horizontal plane on said carriage and driving mechanism for said sewing mechanism consisting of the suitably-driven shaft 2, supported on said carriage and said frame, a sleeve 34 having a sliding movement on said shaft and rotating therewith, said sleeve being secured to and moving with said carriage, a gear 37 on said sleeve engaging with a gear 30, on a shaft 28, and suitable gear connections between shaft 28 and shaft 22, and suitable connections from shaft 22 to shaft 21 for rotating the latter, substantially as set forth.

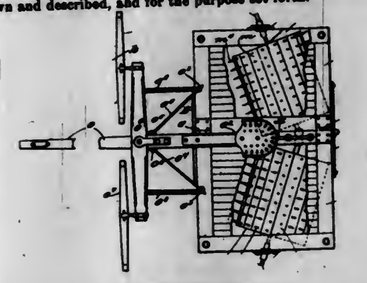
598,847. TROLLEY. OSWALD L. KIESER, West View, Pa. Filed Apr. 24, 1897. Serial No. 633,594. (No model.)



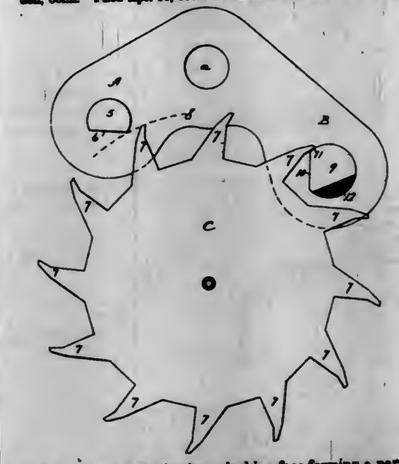
Claim.—In a trolley, the combination of a base-plate *c* secured to the top of the car, a shaft or fulcrum-pin secured to said plate, a base-plate *c*, pivoted to said pin, a frame supported by the base-plate *c*, a plate *f*, journaled in said frame, a casing secured in said plate *f*, having a collar in its upper end and a flange intermediate the ends, a trolley-pole *h*, operating in said casing, a coil-spring surrounding said pole and held in position by the collar and flange, the upper end of said spring being secured to the pole, a trolley-wheel suitably secured in the end of the trolley-pole, and coil-springs secured to the plate *f*, and to the ends of the frame substantially as shown and described.

598,848. MACHINE FOR PULVERIZING SOIL. FRANKLIN P. KRUWSON, Philadelphia, Pa. Filed Apr. 26, 1896. Serial No. 588,999. (No model.)

Claim.—The herein-described harrow comprising a frame in which are mounted two rollers which are provided on their outer surfaces with spikes or teeth, said rollers being suspended by hangers which are connected with said frame, two of which are arranged at the opposite side thereof, and one at the center and a little to the rear of the other two, and said rollers being each mounted on separate shafts, the inner ends of which are connected with the central hanger by a ball-and-socket or pivotal joint and the outer ends of said shafts being pivotally connected to their respective hangers by means of an opening in said hangers, through which the ends of the said shafts project, and in which they have a sliding play, whereby the said rollers are held at an angle to the longitudinal line of said frame, and the position of the central hanger being transversely adjustable, and said frame being composed of two separate sections which are hinged together, and being also provided with means whereby when in use, the separate frames may be rigidly connected, and said frame being also provided with a tongue or pole which is connected with the frame transversely thereof, all substantially as shown and described, and for the purpose set forth.



598,849. BALANCE-ESCAPEMENT. ALMERON M. LANE, Meriden, Conn. Filed Apr. 16, 1897. Serial No. 632,455. (No model.)



Claim.—1. A pallet having a locking-face forming a part of the circumference of a round wire or rod, and a driving face or plane relatively arranged thereto, so that the scape-wheel teeth will always lock upon said locking-face by its point, substantially as described and for the purpose specified.

2. A pallet having a locking-face formed by the periphery of a round rod, a driving-plane extended from said locking-face, and a clearance-face upon the side of said wire which is opposite the locking-face, substantially as described and for the purpose specified.

3. The pallets for a clock, mounted upon suitable arms, the entrance-pallet of which is formed of a round wire with a driving-face upon one side, and the deliverance-pallet of which is formed of round wire of a larger diameter with a driving-face of the same length and with a portion of the periphery adjoining the said driving-face forming the locking-face for being acted upon by the point of the scape-wheel teeth, substantially as described and for the purpose specified.

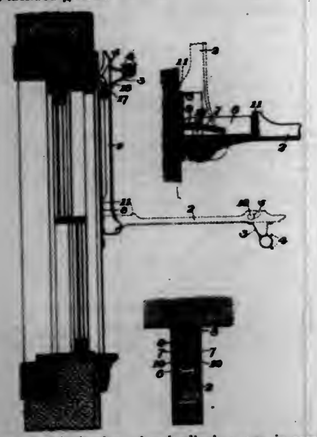
598,850. CURTAIN AND SHADE HOLDER. JESSE R. OAKLEY, Braddock, Pa. Filed Jan. 7, 1897. Serial No. 618,230. (No model.)

Claim.—1. A support for curtains or shades, consisting of two vertically-extending standards, pivoted at their lower ends and arranged to rest against the framing when in vertical position, each of said standards having a separate lock arranged to secure the same when in its vertical position, said lock being independent of the window-sash.

2. A support for shades, curtains, &c., comprising two vertically-extending standards, each having at its lower end an inclosed vertical slot, the walls at the sides of the slot being provided with grooves engaged by pins projecting from brackets secured at the sides of the window.

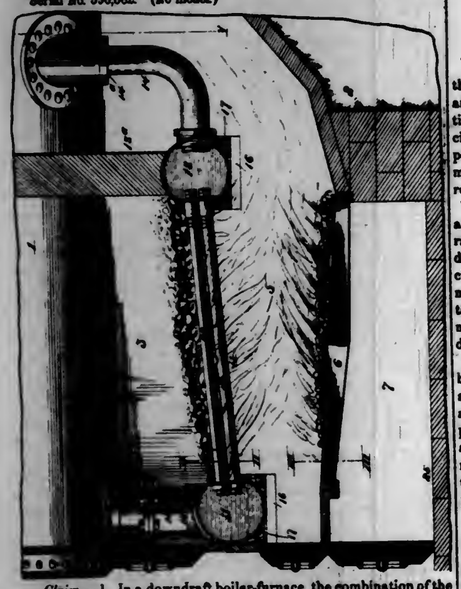
3. A support for curtains, shades, &c., comprising two vertically-extending standards, each having at its lower end an inclosed slot,

the side walls of the slot being provided with inclined grooves, in combination with a bracket or plate arranged to be secured at the sides of the window, and having a lug provided with pins arranged to enter the inclined groove.



4. A curtain-pole having a longitudinal groove, in combination with a strip provided with pins, and arranged to be forced laterally into the groove, said groove being arranged to receive the pins when the strip is reversed.

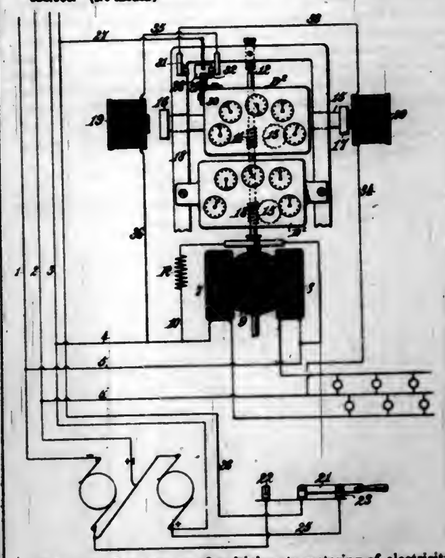
598,851. BOILER-FURNACE. JOHN O'BRIEN and CHARLES K. PICKLES, St. Louis, Mo. Filed Oct. 17, 1892. Renewed May 5, 1896. Serial No. 590,382. (No model.)



Claim.—1. In a downdraft boiler-furnace, the combination of the boiler, manifolds communicating with the boiler, and water-tubes connecting the manifolds; said water-tubes being arranged in an upper and lower series; the upper series being arranged in pairs with less distance between the tubes of each pair than the adjacent tubes of two pairs, and the tubes of the lower series being arranged beneath the wider spaces of the upper series; substantially as and for the purpose set forth.

2. In a downdraft boiler-furnace, the combination of a boiler, manifolds communicating with the boiler, water-tubes arranged in an upper and lower series, and connecting the manifolds, and a lower, ordinary grate; the tubes of said upper grate being arranged in an upper and lower series; those of the upper series being arranged in pairs, with less distance between the tubes of each pair than between the adjacent tubes of two pairs, and the tubes of the lower series being arranged beneath the wider spaces of the upper series; substantially as and for the purpose set forth.

598,852. MULTIPLE METERING OF ELECTRIC CURRENTS. EUSTACE OXLEY, Washington, D. C. Filed Oct. 2, 1897. Serial No. 653,908. (No model.)



Claim.—1. In a process of multiple-rate metering of electricity the combination with suitable metering or registering apparatus, of an electromagnetic device suitably located and arranged with relation to each point where a multiple rate is given, a normally open circuit for said electromagnetic device, and means located at a single point for establishing said circuit at suitable intervals, to control the metering or registering apparatus in showing the consumption of current at different rates, substantially as described.

2. In a process of multiple-rate metering, the combination with a plurality of metering or registering mechanisms arranged at a plurality of points where multiple rates are given, of an electromagnetic device suitably located with relation to each of said points, a single circuit for the whole series of said electromagnetic devices, and means located at a single point for establishing said circuit at certain intervals, to control the action of the metering or registering mechanisms, in measuring or registering the current consumption at different rates, substantially as described.

3. In a process of multiple-rate metering of electricity, the combination with a plurality of metering or registering mechanisms of any type arranged at each point where a multiple rate is given, of an electromagnetic device suitably located in relation to each of said points, a single circuit for the series of said electromagnetic devices, and means located at a single point for establishing said circuit momentarily at certain intervals and thereby simultaneously controlling the action of the said metering or registering mechanisms at all the points where the same are placed, substantially as described.

4. In a process of multiple-rate metering, the combination with a series of pairs of meters arranged at a plurality of points, of an electromagnetic apparatus suitably located with relation to each pair of meters, a control-circuit for the said apparatus, and means arranged at a single point for temporarily closing said control-circuit to actuate the electromagnetic apparatus and control the meters in the measurement or registration of current at different rates, substantially as described.

5. In a process of multiple-rate metering, the combination with a series of pairs of meters arranged at points where a multiple rate is given, of an electromagnetic device suitably arranged with relation to each pair of meters, a control-circuit for said electromagnetic device, means placed at a single point for closing said control-circuit at certain hours, and an indicator denoting by illumination which one of each pair of meters is in operation, substantially as described.

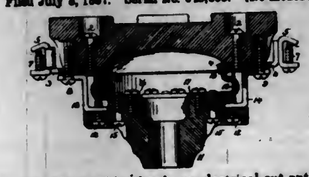
6. In a process of multiple-rate metering, the combination with a series of pairs of metering or registering mechanisms arranged at a series of points where current is used at different rates during different periods of the day, of an electromagnetic apparatus suitably arranged in relation to each of said points, of a single control-circuit for the series of electromagnetic apparatus, means located at a single point for closing said circuit at certain times, and an indicator consisting of lamps one of which is lighted when the control-circuit is established to denote which meter is brought into operation, substantially as described.

7. In a process of multiple-rate metering of electric currents, the combination with the mains of a system of a plurality of metering or registering mechanisms of any type arranged at each point where multiple rates are given, a plurality of electromagnets arranged at each of said points, an independent control-circuit for said electromagnets, and means located at a single point for closing said control-circuit, to bring one of said metering or registering mechanisms into operation during a period of inactivity of the second metering or registering mechanisms, substantially as described.

8. In a process of multiple-rate metering, the combination with the mains of a generating system, of two metering or registering mechanisms arranged at each of a number of points where current is consumed at multiple rates, two independent electromagnets suitably arranged with relation to said metering or registering mechanisms, a single control-circuit for all said electromagnets, means arranged at a single point for closing said control-circuit to energize either one of said electromagnets and thereby bring either one of said meters into action, and an indicator consisting of two lamps of different color one of which is lighted when the metering or registering mechanism is brought into action, substantially as described.

9. In a process of multiple-rate metering the combination with two independent metering or registering mechanisms, of an electromagnetic apparatus suitably located with reference to said mechanisms, and consisting of two independent electromagnets, a control-circuit for said electromagnets, means located at a single point for closing said circuit to control the operative relations of the members of each pair of meters, and means whereby the control-circuit is automatically disestablished, or opened, by action due to the energized electromagnet, substantially as described.

598,853. ELECTRIC CUT-OUT. HARRY T. PAIGE, Philadelphia, Pa. Filed July 8, 1897. Serial No. 643,895. (No model.)



Claim.—1. The combination in an electrical cut-out, of the base having contact-plates, and line-wire connections, the cap having plates forming electrical connection with the contact-plates of the base, and other plates providing for mechanical connection therewith, and set-screws for effecting this mechanical connection, the latter and the line-wire connections being wholly outside of the limits of the cap and the electrical connections being wholly inside of the same, substantially as specified.

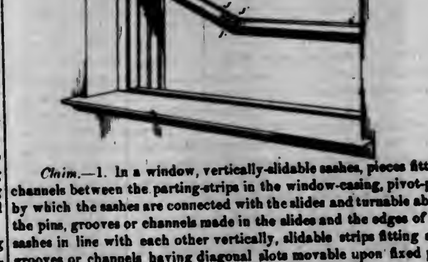
2. The combination in an electrical cut-out, of the base having inwardly-projecting contact-plates and external retaining-screws, with the cap having contact-plates with loops forming within the cap elastic contact portions for bearing against the inwardly-projecting contact-plates of the base, and notched securing-plates projecting outwardly beyond the cap and adapted to engage with the external retaining-screws on the base, substantially as specified.

3. The combination in an electrical cut-out, of the base having inwardly-projecting contact-plates thereon and external cap-retaining screws, and the cap having contact-plates with loops terminating within the cap in projecting contact-fingers adapted to bear yieldingly against the inwardly-projecting contact-plates of the base, and notched and outwardly-projecting securing-plates adapted to engage with the external retaining-screws on the base, substantially as specified.

598,854. SHUTTER-WORKER. SANFORD C. PITNEY, Quincy, and FREDERICK C. HANSEN, Freeport, Ill.; said Hansen assignor to said Pitney. Filed Oct. 7, 1897. Serial No. 654,479. (No model.)

Claim.—1. In combination with a shutter-worker, a spindle or shaft adapted to be turned to operate the shutter, a hinged and rotatable handle provided with one or more cams, a relatively fixed plate or member having one or more cam-surfaces against which the cam operates to revolve the spindle, substantially as described.

2. In a shutter-worker, a manipulating-handle provided with one or more cams, in combination with a fixed member having cam-surfaces, and a spindle to which the handle is attached, substantially as described.



3. In a shutter-worker, the combination with a spindle, and gearing substantially as described, of a sleeve adapted to fit over the end of the spindle, a pair of lugs projecting from the sleeve, a manipulating-handle having an arm hinged between the lugs, right and left cams on the arm, and a relatively fixed plate or member provided with slots to receive the cams when the handle is raised or lowered.

598,855. REVERSIBLE WINDOW. LOUIS PROLL, CHARLES M. DEPEW, and EUGENE W. HAWLEY, San Francisco, Cal. Filed May 13, 1897. Serial No. 636,243. (No model.)

Claim.—1. In a window, vertically-slidable sashes, pieces fitting channels between the parting-strips in the window-casing, pivot-pins by which the sashes are connected with the slides and turnable about the pins, grooves or channels made in the slides and the edges of the sashes in line with each other vertically, slidable strips fitting said grooves or channels having diagonal slots movable upon fixed pins at the upper and lower ends whereby the upward and diagonal movement of said strips upon the pins depresses them into the sash-slots and disengages them from the slides and the downward movement correspondingly projects them from the sashes and causes them to engage and connect both the sashes and slides, and levers fulcrumed to the sashes, each having one end to engage one of the strips and the opposite end projecting through the inner edge of the sash, for raising said strips to disengage.

2. In a window, vertically-slidable sashes, independent pieces slidable in guides or channels in the window-casings and pivot-pins by which the sashes are turnably connected therewith, grooves or channels made in the slides and in the sashes, slidable strips fitting said grooves or channels having diagonal slots at the top and bottom, and stationary pins extending into the slots whereby the upward movement of the strips disengages them from the sliding pieces to which the sashes are pivoted and the downward movement causes

them to be projected and engaged therewith, levers engaging said strips projecting through the inner edges of the sashes and corresponding projections fixed to the sashes with relation to the lever M so that the two may be grasped simultaneously to form a purchase to operate the levers.

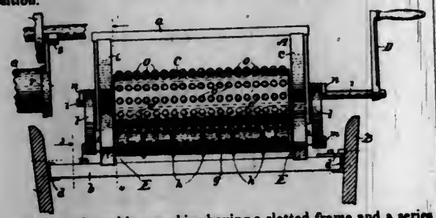
3. In a window, vertically-sliding sashes, corresponding slides fitting grooves or channels in the casing and slots made in the slides and the edges of the sashes with strips movable to engage the two or disengage them, pivot-pins connecting the sashes with the slides whereby the sashes are turnable about said pins, and extensions of the pins outwardly whereby they are fixed to the slides, said extensions forming attachments for the counterweight cords or chains.

4. In a window, vertically-slidable sashes detachably engaged with slides which are adapted to travel in grooves or channels formed in the window casing, pivot-pins fixed to the slides and extending into sockets in the sashes whereby the latter are turnable upon said pins when the locking devices between the sash and the slides are disengaged, extensions from the pivot-pins having sockets adapted to receive enlarged heads upon the chain or cord whereby the latter is connected with the pivot-pins and slides.

5. In a window, vertically-slidable sashes, slides fitting in grooves or channels in the casing, pivot-pins uniting the slides with the sashes whereby the sashes may be turned horizontally about said pivot-pins, strips fitting channels made in line with each other in the slides and the sashes, inclined slots made in the strips and slidable upon fixed pins with means whereby the strips may be raised and sunk into the channels in the sashes so as to disengage them from the slides, or allowed to drop and be projected from the sashes and engaged with the slides, locking-levers fulcrumed to the top of the lower sashes having projections adapted to engage with the lower rail of the upper sash, and inclined lugs upon the locking-strips adapted to engage the lever and turn it to unlock the sashes when the strips are raised to disengage the sashes from the slides, and a spring whereby the lever is actuated to again lock the sashes when the strips are allowed to drop and connect the sashes and slides.

598,856. WASHING-MACHINE. JOHN W. RICKER, Chelsea, Mass. Filed Jan. 13, 1897. Serial No. 619,067. (No model.)

Brief.—The plates E have, on one side, the cups *r* to cover ends of bed-rolls; on the other side, at opposite end, the rest *s*, which fits in slot in standards *c*, and on which journal *i* rests when at its lowest position.



Claim.—A washing-machine having a slotted frame and a series of bed-rollers in the frame, and a master-roller over said bed-rollers to coact with the latter, and means for turning the master-roller, in combination with plates having cups or cavities upon one surface at one end in which to receive and to cover the extreme ends of the bed-rollers, and a rest upon the opposite surface of the other end, said rest projecting into the slot of the frame and so related to the cavities that the surfaces of the respective rollers journaled therein cannot touch each other substantially as and for the purpose specified.

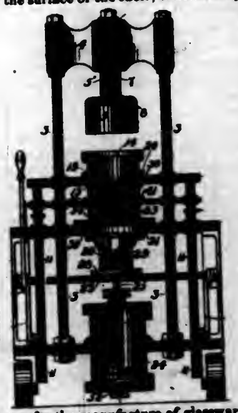
598,857. APPARATUS FOR FORMING ARTICLES OF GLASSWARE. DANIEL C. RIPLEY, Pittsburg, Pa. Filed Jan. 3, 1893. Serial No. 457,040. (No model.)

Claim.—1. The combination of a fount, a mold, a cutter interposed between the base of the fount and the mold and adapted to cut the sprues, and means for separating the fount and mold to permit operation of the cutter, substantially as described.

2. In apparatus for the manufacture of glassware, a press having a fixed bed for supporting the mold, a movable shelf for supporting the fount, and adapted to separate the fount from the mold, and a plunger; substantially as described.

3. In apparatus for the manufacture of glassware, a shelf for supporting the fount, said shelf having at one end a projection for closing the opening in the bottom of the fount while the fount is in position for being filled; substantially as described.

4. In apparatus for the manufacture of glassware, a shelf or support for the fount, said shelf having at one end a movable projection for closing the opening in the bottom of the fount, while the fount is in position for being filled, and devices for depressing the projection below the level of the surface of the shelf; substantially as described.



5. In apparatus for the manufacture of glassware, the combination of a mold having an interior cavity, a pin or core adapted to be inserted in the cavity, a neck-section of the mold capable of separation from the body of the mold, a fount capable of separation from the body of the mold, a plunger for pressing the glass from the fount into the cavity of the mold around the core, and devices for separating the fount from the mold, the body of the mold from the neck-section, and the core from the blank; substantially as described.

6. In apparatus for the manufacture of glassware, the combination of a mold having a series of cavities, a fount capable of removal from the mold, a neck-section capable of removal from the body of the mold, a series of pins or cores capable of removal from the blanks, a fixed plunger; devices for carrying the fount, mold, and cores to the plunger; and devices for separating the fount from the mold and the mold from the blanks; substantially as described.

7. In apparatus for the manufacture of glassware, a press having a fixed plunger, in combination with a movable shelf for supporting the fount, and a movable frame for supporting the body of the mold, a fixed table for supporting the mold, a piston having a head adapted to lift the mold and fount against the plunger, and devices for raising the fount-support and the movable mold-support, so as to separate the fount from the body of the mold and to lift the body of the mold from the blanks; substantially as described.

8. In apparatus for the manufacture of glassware, the combination of a press having a table provided with guide grooves, and having at its forward end a series of air-ports; a mold adapted to slide in the guides of the plate; a locking-rod adapted to lock the mold in position over the air-ports, and devices for operating said rod; substantially as described.

9 In apparatus for the manufacture of glassware, the combination of a mold composed of two or more separable horizontal sections and having a series of cavities; a table having a series of air-ports, and a locking-rod angular in cross-section and adapted to fit in angular cavities extending through the mold-section; substantially as described.

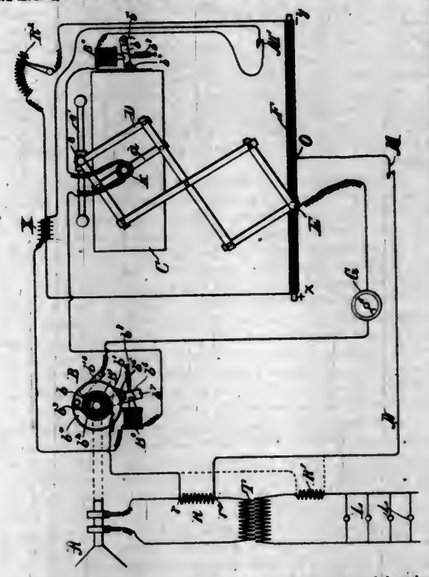
10. A mold for the manufacture of glassware, having cutting-shears composed of metal plates pivoted to each other, and adapted to sever the sprues; substantially as described.

598,858. INDICATOR FOR ELECTRICAL MEASUREMENTS. EDWARD B. ROSA, Middletown, Conn. Filed July 13, 1897. Serial No. 644,431. (No model.)

Claim.—1. In apparatus for recording instantaneous values of electrical quantities, the combination with an instantaneous-contact maker having a brush adapted to move periodically, of a recording-surface adapted to move in synchronism with said brush, and means for recording the electrical values on said surface, substantially as described.

2. In apparatus for recording instantaneous values of electrical quantities, the combination with an instantaneous-contact maker, of a periodically-moving recording-surface, a solenoid, an electric circuit adapted to pass through said instantaneous contact and through the said solenoid, a movable contact-maker adapted to pass over said solenoid and make contact with the wires thereof, a pantograph attached to said movable contact maker and a recorder carried by said pantograph whereby the said instantaneous values of the electric current may be recorded on said moving surface, substantially as described.

3. In apparatus for recording instantaneous values of electrical quantities, the combination with an instantaneous-contact maker, of a periodically-moving recording-surface, a solenoid, an electric circuit adapted to pass through the said instantaneous contact and through the said solenoid, a sliding contact adapted to pass over said solenoid and means for recording on said moving surface the values of the electric current obtained from the various positions of said sliding contact-maker, substantially as described.



4. In apparatus for recording the intantaneous values of electrical quantities, the combination with an instantaneous-contact maker, of an electric circuit adapted to pass through said contact, means for reducing the potential in said circuit to zero when closed, and means for automatically making a permanent record of the electric quantities obtained from the different points of zero potential of said circuit, substantially as described.

5. In apparatus for recording instantaneous values of electrical quantities, the combination with an instantaneous-contact maker, of an electric circuit adapted to pass through said contact-maker, means for reducing the potential in said circuit to zero when closed, and a pantograph and moving recording-cylinder whereby the said electrical quantities may be automatically and permanently recorded, substantially as described.

6. In apparatus for recording instantaneous values of electrical quantities, the combination with a movable surface and a record-sheet adapted to be carried thereby, means for imparting step-by-step motion to the said surface, a pantograph and a recorder carried thereby, a solenoid and a sliding contact attached to said pantograph and adapted to travel over said solenoid and in electrical connection with the wire of said solenoid, substantially as described.

7. In apparatus for recording instantaneous values of electrical quantities, the combination with a solenoid, sliding contact-maker, pantograph and recorder, of a movable surface and a record-sheet carried thereby, means for imparting step-by-step motion to said surface and an electromagnet for actuating said means, substantially as described.

8. In apparatus for recording instantaneous values of electrical quantities, the combination with an electrical circuit carrying an alternating current, of an instantaneous-contact maker provided with a brush adapted to move periodically and complete the said circuit at successive points in a cycle of the alternating current, a periodically-moving recording-surface moving in synchronism with the said brush and means for recording on the said recording-surface the values obtained from the various positions of said brush, substantially as described.

9. In apparatus for recording instantaneous values of electrical quantities, the combination with an electric circuit carrying an alternating current, of an instantaneous-contact maker provided with a brush adapted to move periodically and to complete said electric circuit at successive intervals in a cycle of the alternating current, a recording-surface adapted to move periodically and in synchronism with said brush, a pantograph mounted near said recording-surface, a recorder carried by said pantograph, a sliding contact maker carried by said pantograph and a solenoid adapted to engage said sliding contact-maker, substantially as described.

10. In an instantaneous-contact maker, the combination with a rotatable disk, of a contact-strip mounted in the periphery of said disk, a brush adapted to engage the periphery of said disk, means for conveying the current to and from said contact-strip and brush when the said strip and brush engage each other, and means for automatically imparting angular step-by-step motion to the said brush, substantially as described.

11. In an instantaneous-contact maker, the combination with a shaft, of a disk mounted on said shaft and adapted to revolve therewith, a conducting-strip mounted in the periphery of said disk, a brush adapted to make contact with said conducting-strip once in every revolution of the said disk, an arm carrying said brush, mounted on said shaft and adapted to advance the said brush step by step around the said disk, and means for conveying the current to and away from said brush and contact-piece, substantially as described.

12. In an instantaneous-contact maker, the combination with a shaft, of a disk mounted on said shaft and adapted to rotate therewith, a conducting-strip mounted on the periphery of said disk, a brush adapted to make contact with said conducting-strip periodically, an arm carrying the said brush and mounted on the said shaft, means for conveying the current to and away from the said brush and contact-strip, and an electromagnet for giving angular step-by-step movement to the said arm, substantially as described.

13. In an instantaneous-contact maker, the combination with a shaft, of a disk of insulating material mounted thereon and adapted to rotate therewith, a metallic contact-blade mounted in the periphery of said disk, a brush adapted to engage the periphery of said disk and to make contact with said contact-blade periodically, an arm carrying said brush, means for conducting the current to and away from said brush and contact-blade, means for imparting angular step-by-step movement to said brush and arm, and an electromagnet for actuating the said means, substantially as described.

14. In an instantaneous-contact maker, the combination with a shaft, of a disk mounted on said shaft and adapted to rotate therewith, a contact-blade mounted in the periphery of said disk, a brush adapted to engage the periphery of said disk and to make contact periodically with said contact-blade, means for conducting the current to and away from said brush and contact-blade, an arm mounted loosely on said shaft and carrying said brush, a gear mounted on said arm, a ratchet and pawl for rotating said gear, an electromagnet and spring for actuating said pawl, so that the said brush is advanced step by step around the periphery of the said disk, substantially as described.

15. In an instantaneous-contact maker, the combination with a shaft, of a disk mounted on said shaft and rotating therewith, a contact-blade carried by said disk, a brush adapted to engage the periphery of said disk and to make contact periodically with said contact-blade, means for conveying the current to and away from the said brush and contact-blade, an arm carrying said brush and mounted loosely on said shaft, a gear-wheel attached to said arm, a pinion meshing with said gear, a shaft carrying said pinion, a ratchet and pawl adapted to rotate said shaft and pinion, an arm carrying said pawl, a depending arm secured to said first arm, an armature carried by said depending arm, an electromagnet adapted to attract said armature, a spring adapted to return the said arm and armature to their initial positions, and means for limiting and varying the travel of the said arm, substantially as described.

16. In an instantaneous-contact maker, the combination with a brush and means for instantaneously completing an electric circuit therethrough, of an arm carrying the said brush, a gear-wheel secured to said arm, a pinion meshing with said gear, a shaft carrying said pinion, a ratchet and pawl adapted to rotate said shaft, an arm mounted on said shaft and carrying said pawl, a depending arm secured to the said arm, an armature carried by the said depending arm, an electromagnet adapted to attract said armature, a spring adapted to return the said arm and armature to their initial position when released by the said magnet, and means for varying and limiting the travel of the said pawl, substantially as described.

17. In a device for recording instantaneous values of electrical quantities, the combination with a revoluble cylinder and a record-sheet adapted to be carried thereby, of an electromagnet, an armature adapted to be attracted by said magnet, means for returning said armature to its initial position, a swinging arm carrying said armature, a second swinging arm, means for regulating the travel of said arm, a pawl carried by said second arm, a ratchet actuated by said pawl, and means for imparting rotary motion to said cylinder from said ratchet, substantially as described.

18. In a device for recording instantaneous values of electrical quantities, the combination with a revoluble cylinder and a record-sheet adapted to be carried thereby, of means for imparting step-by-

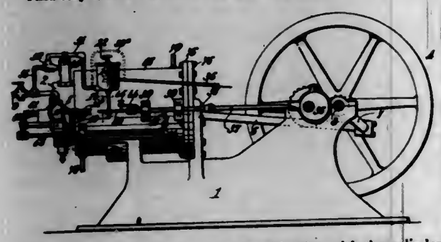
step rotary motion to said cylinder, a pantograph mounted near said cylinder, a recorder carried by said pantograph and adapted to record the said electrical quantities on the said record-sheet, a sliding contact carried by said pantograph and a solenoid adapted to be engaged by said sliding contact, substantially as described.

19. In a device for recording instantaneous values of electrical quantities, the combination with a revoluble cylinder and a record-sheet adapted to be carried thereby, of means for imparting step-by-step rotary motion to said cylinder, an electromagnet for actuating said means, a pantograph mounted near said cylinder, an electromagnetic recorder carried by said pantograph and adapted to operate in synchronism with the aforesaid electromaguet, a sliding contact-maker carried by said pantograph, a solenoid adapted to be engaged by said sliding contact and means for imparting motion to the said sliding contact, substantially as described.

20. The combination with a pantograph of a recorder carried thereby, which consists of solenoid, an iron plunger adapted to be drawn into said solenoid, a spring to return the plunger to its initial position, and a recording-point carried by said plunger, substantially as described.

21. The method of recording instantaneous values of electrical quantities which consists in instantaneously completing an electric circuit at successive intervals in a complete cycle of the alternation of the current, maintaining the potential in the said circuit at zero for each time that the instantaneous contact is made and automatically recording the values of the current on a periodically and synchronously moving surface, substantially as described.

593,859. GAS-ENGINE. ALBERT ROSENBERG, Baltimore, Md. Filed May 1, 1896. Serial No. 589,881. (No model.)



Claim.—1. In a gas-engine, the combination with the cylinder and a self-closing gas-supply valve therefor, of a pivoted reciprocating tappet actuated by the engine for periodically engaging and opening said valve, a vertically-movable, rotatable spindle supported on a yielding support and connected to said pivoted tappet, a rotary fan having inclined blades fixed on said spindle and operating to lift the same by the reaction of the fan against the atmosphere to throw the valve-operating mechanism out of operation, a spring for normally holding said tappet in position for engaging the valve, and means for adjusting the tension of said spring, substantially as described.

2. In a governor for gas-engines, the combination with fixed bearings 15 and 16, of a vertically-movable, rotatable spindle 14 journaled therein and having splined thereon a driving-pulley 32 journaled in a fixed bearing, a rotary fan 31 having inclined blades fixed on said spindle and operating to lift the spindle by reacting against the atmosphere, an adjustable spring 27 for normally holding said spindle down, a hood fixed on the spindle above the said fixed bearings, and valve-operating mechanism thrown into and out of operation by the vertical movement of the spindle, substantially as described.

3. In a gas-engine, the combination with the cylinder, a self-closing gas-supply valve 11, and a normally-closed exhaust-valve 59, of a reciprocating rod 38 actuated by the engine, a tappet 40 pivoted to said rod and normally held in position for engaging the valve 11 to periodically open the latter, a rocking lever 62 adapted to engage the valve 59, a rocking lever 64, a link 63 connecting said levers, a tappet 65 on the rod 38 arranged to periodically engage the lever 64 and open the exhaust-valve, and a speed-governor driven by the engine for throwing the tappet out of the path of the gas-supply valve when the speed of the engine becomes excessive, substantially as described.

4. The combination in a gas-engine, of a cylinder, an igniter-tube, an injector-burner for delivering a jet of flame against said tube, and a fan-governor provided with an inclosing casing having an air inlet and an outlet pipe leading to the injector burner, substantially as described.

5. In a gas engine, the combination with the cylinder 2 provided at one end with an annular flange 73, of the water-jacket 68 surrounding said cylinder and having two concentric walls 69 and 70 and a head 71, an annular flange 75 on the end of the wall, and means for securing the open end of the water-jacket to the flange 73 of the cylinder, substantially as described.

6. The combination with a motor, of a speed-governor comprising a rotary fan driven by said motor and arranged to move in a line coincident with its axis of rotation, a speed-regulating device connected with said governor and controlled by the axial movement of the latter, and a casing inclosing the governor and adapted to inclose the medium in which the governor revolves, substantially as described.

7. In a governor for gas-engines, the combination of a rotatable, lengthwise-movable spindle journaled in fixed bearings, a pulley loosely splined on said spindle and journaled in bearings independent of the spindle-bearings, means for driving said pulley, and a rotary fan fixed to said spindle and operating to lift the latter.

8. In a governor for gas-engines, the combination with fixed bearings, of a vertically-movable, rotatable spindle journaled therein, means for rotating the spindle, a rotary fan fixed on the spindle, and a hood fixed on the spindle above the fixed bearings, substantially as described.

9. In a governor for gas-engines, the combination of a spindle, a fan fixed on the spindle, means for driving the spindle, and separate ball-bearings in which the spindle is journaled and in which it is revolubly and lengthwise movable, substantially as described.

10. In a gas-engine, the combination with the cylinder and a self-closing gas supply valve therefor, of a reciprocating rod actuated by the engine for periodically engaging and opening said valve, a vertically-movable rotatable spindle, a rotary fan having inclined blades fixed on said spindle and operating to lift the same by the reaction of the fan against the atmosphere, a pivoted lever engaged by said spindle and operated thereby to throw the valve-operating mechanism out of operation, means for normally holding said lever in position for operating the valve, and means for adjusting the tension of said spring, substantially as described.

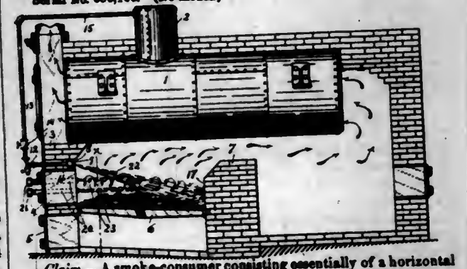
11. In a gas-engine, the combination with a cylinder and a reciprocating piston, of a water-jacket surrounding said cylinder and comprising two concentric cylinders detachably secured on the engine-cylinder and closed at their ends, substantially as described.

12. In a gas-engine, the combination with the cylinder and a self-closing gas-supply valve therefor, a vertically-movable, rotatable spindle, a pivoted lever for operating said valve, said lever being cut away to receive said spindle, means for rotating the spindle, and means for moving said spindle vertically, substantially as described.

13. In a gas-engine, the combination with the cylinder and a self closing gas-supply valve therefor, of a pivoted lever for operating said valve, a vertically-movable rotatable spindle connected to said lever, a rotary fan having inclined blades attached to said spindle and operating against the atmosphere to lift said spindle, and means for rotating the spindle, substantially as described.

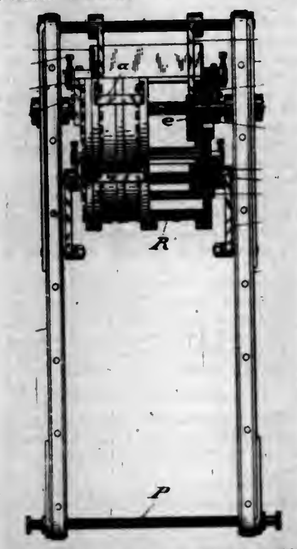
14. In a gas-engine, the combination with the cylinder provided with an annular flange at one end, of a water-jacket surrounding said cylinder and having two concentric walls and a head, and means for securing the open end of the water-jacket to the said flange, substantially as described.

593,860. SMOKE-CONSUMER. JOHN H. SAUNDERS, Buffalo, N. Y., assignor of one-half to John A. Hyle, same place. Filed May 12, 1897. Serial No. 636,160. (No model.)



Claim.—A smoke-consumer consisting essentially of a horizontal pipe centrally arranged in the upper part of the furnace within or next to its front wall and provided throughout its length with a series of fine perforations, for discharging jets of steam in a downward diagonal direction against the inner vertical face of the bridge-wall for producing a back current and a series of passages through the front wall of the furnace on each side thereof and below the perforated horizontal steam-pipe for admitting a divided current of air to the furnace on each side thereof and in close proximity to the fuel to produce in conjunction with the back current a rotary longitudinal current in each side of the furnace, the two rotary currents moving in opposite directions, all operating in the manner and for the purpose stated.

593,861. ROCK-CRUSHER. BARTER R. SEARCOY, Victoria, and JOHN R. BROWN, Harrison Hot Springs, Canada. Filed Mar. 20, 1897. Serial No. 628,506. (No model.)



Claim.—1. In a rock-crusher, a curved bed, in combination with an oscillator suitably journaled on a shaft carried by the frame of the machine; an arm or arms connected to the oscillator and one or more levers, each suitably journaled on the oscillator-shaft and pivotally connected at one end to an oscillator-arm, substantially as and for the purpose specified.

2. In a rock-crusher, an upper curved bed and a lower curved bed communicating therewith, in combination with an upper oscillator suitably journaled on a shaft carried in bearings on the frame of the machine, a lower oscillator fast on a shaft suitably journaled on the frame of the machine; an arm or arms connected to the upper oscillator, and extending upwardly therefrom; an arm or arms rigidly connected to the shaft of the lower oscillator, and one or more levers, each suitably journaled on the upper-oscillator shaft, pivotally connected at one end to an upper-oscillator arm, and adapted to rock the lower-oscillator arm or arms, substantially as and for the purpose specified.

3. In a rock-crusher, an upper curved bed and two lower curved beds communicating therewith; in combination with an upper oscillator suitably journaled on a shaft carried in bearings on the frame of the machine; two lower oscillators fast on shafts suitably journaled on the frame of the machine; an arm or arms rigidly connected to the upper oscillator and extending upwardly therefrom; an arm or arms rigidly connected to one or both of the lower-oscillator shafts; one or more levers each suitably journaled on the upper-oscillator shaft, pivotally connected at one end to an upper-oscillator arm; a link connecting each pair of the arms of the lower oscillator shafts, and a pin upon a link adapted to engage in a slot in one of the said levers, substantially as and for the purpose specified.

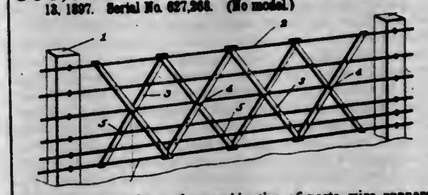
4. In a rock-crusher, an upper curved bed and a lower curved bed communicating therewith, in combination with an upper oscillator suitably journaled on a shaft carried in bearings on the frame of the machine; a lower oscillator fast on a shaft suitably journaled in bearings vertically adjustable on the frame of the machine; an arm or arms connected to the upper oscillator and extending upwardly therefrom; an arm or arms rigidly connected to the shaft of the lower oscillator, and one or more levers, each suitably journaled on the upper-oscillator shaft, pivotally connected at one end to an upper-oscillator arm, and adapted to rock the lower-oscillator arm or arms, substantially as and for the purpose specified.

5. In a rock-crusher, an upper curved bed and a lower curved bed communicating therewith, in combination with a suitably-journaled upper oscillator; a suitably-journaled lower hollow oscillator; means for rocking the said oscillator and a screen covering the said oscillator; discharge-openings being formed in the lower side of the said lower oscillator and in the bottom of the machine below the said oscillator, substantially as and for the purpose specified.

6. In a rock-crusher, an upper curved bed and two lower curved beds communicating therewith, in combination with a suitably-journaled upper oscillator; two suitably-journaled lower oscillators; means for rocking the said oscillators; a wedge-shaped screen located below the upper oscillator and above a suitable chamber, and screens covering the top of one or both lower oscillators, discharge-openings being formed in one or both lower oscillators and in the bottom of the machine below each of the said oscillators, substantially as and for the purpose specified.

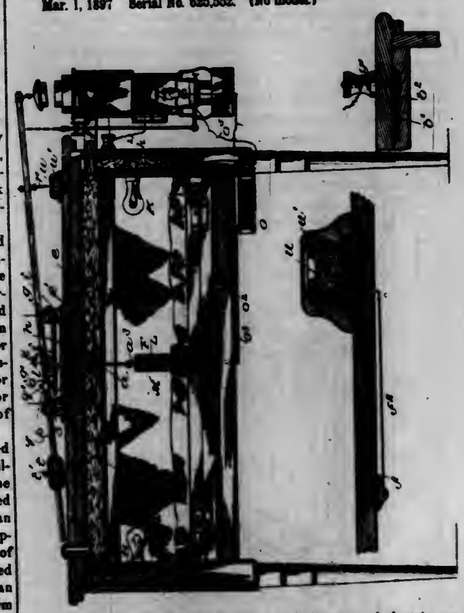
7. In a rock-crusher a frame having formed therein two curved beds located one above the other so that the material discharged from one falls in the other, two shafts journaled in said frame one above the other, oscillators journaled on said shafts, arms extending from said oscillators, and means for rocking the said arms, substantially as and for the purpose specified.

593,862. FENCE. JOHN H. SEARS, Springport, Ind. Filed Mar. 13, 1897. Serial No. 627,268. (No model.)



Claim.—In a fence, the combination of posts, wire runners extending over the posts, pickets applied to the wire runners and arranged on opposite sides of the same in pairs in continuity so that the lowermost angle on one side will be opposite the highest angle of the pair on the opposite side, and a series of staples extending throughout the length of the pickets through which the said wires pass, thereby holding the latter firmly against elevation or depression, substantially as and for the purpose specified.

593,863. INCUBATOR. GEORGE H. STAHL, Quincy, Ill. Filed Mar. 1, 1897. Serial No. 625,552. (No model.)



Claim.—1. A casing having an electric heater and electric conductors; in combination with a lamp located near the heater and means for automatically lighting the lamp when the electric current is cut off from the electric heater, substantially as described.

2. A casing having an electric heater and electrical conductors; in combination with a lamp located near the heater and means for automatically and mechanically lighting the lamp when the electric current is cut off from the electric heater, substantially as described.

3. The combination with an incubator, of an electric heater, a pivoted counterbalanced arm adapted to make and break the elec-

tric circuit of said heater, and a thermostat adapted to actuate said arm, substantially as described.

4. As an improvement in incubators, the combination with a main casing, provided with an electric heater and electrical conductors, of receptacles containing a liquid located in the circuit and between the electrical conductors; and means actuated by the varying degrees of heat in the incubator for causing the said liquid to establish, and cut out, alternately, the electric current between the electrical terminals, substantially as described.

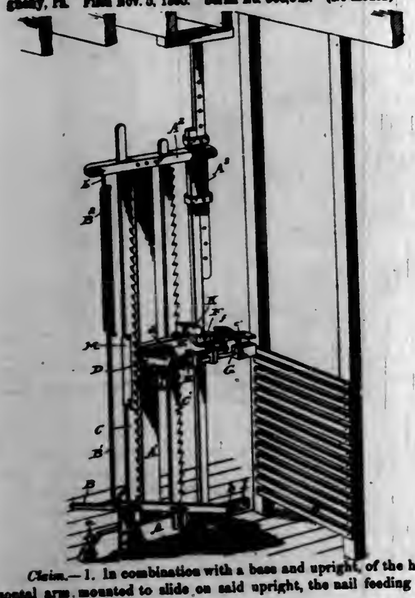
5. In an incubator, the combination with a main casing, of an electric heater and electric conductors therefor, a cup and a liquid contained therein, the said cup and liquid connected in the circuit with said conductors, a plunger adapted to dip into and be withdrawn from said liquid and to make and break the electrical circuit therethrough, and a thermostat adapted to actuate said plunger, substantially as described.

6. As an improvement in incubators, a main casing provided with an electric heater and conductors therefor; in combination with a thermostat having a contact-plate connected thereto and an electric conductor leading therefrom, a second plate located adjacent to and in position to contact with the plate secured to the thermostat and an electrical conductor, leading therefrom, and a battery located between the last-mentioned electrical conductor and a lamp, the electrical conductor leading from the plate on the under side of the thermostat to the lamp, the two conductors constructed substantially as described and located substantially as shown, whereby the lamp will be automatically lighted by the contraction of the thermostat and the consequent contact of the plate secured to the thermostat, with the contact-plate secured adjacent thereto and in position to contact therewith, substantially as shown and for the purposes specified.

7. As an improvement in incubators, a main casing provided with an electric heater and conductors therefor; in combination with an automatic current controller and a mercury-cup having a partition therein and having two chambers and adapted to have a liquid located within the chambers, substantially as described, whereby the displacement of the liquid by means of the controller in one of the chambers of the cup will raise the mercury in the same until it establishes electrical connection with the other chamber in the cup, thus making the circuit, substantially as described.

8. In an incubator, a main casing, provided with an electrical heater and conductors therefor, in combination with a cup located in the circuit and provided with a liquid and a tilting rod *o* carrying a plunger and provided with means for operating it automatically, substantially as described, whereby the circuit may be broken or closed at will, to regulate and determine the temperature of the interior chamber of the incubator, substantially as described.

598,864. LATHING-MACHINE. JOHN G. STAUDENMAYER, Allegheny, Pa. Filed Nov. 5, 1895. Serial No. 568,045. (No model.)



Claim.—1. In combination with a base and upright, of the horizontal arm mounted to slide on said upright, the nail feeding and driving mechanism, mounted on said arm, the vertically-movable rack-bars and a pivoted foot-lever connected with said rack-bars, substantially as described.

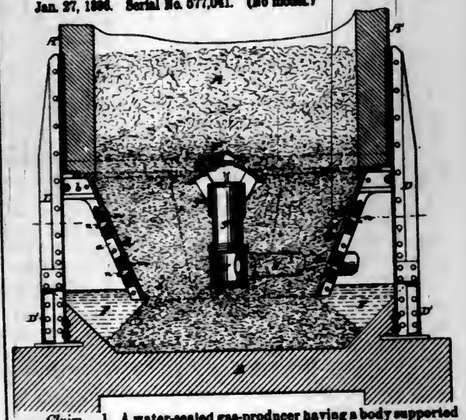
2. The combination with a base and upright of a horizontal arm mounted to slide on said upright, a nail feeding and driving mechanism mounted on said arm, the vertically-movable rack-bars and a pivoted foot-lever connected with said rack-bars and a retracting-spring connected with said foot-lever, substantially as described.

3. The combination with the base and the upright, the rack-bars, the pivoted foot-lever connected therewith and a spring connected with said foot-lever, of a pivoted hammer on said arm and a nail feeding, guiding, holding and driving mechanism mounted on said arm, substantially as described.

4. The combination with the base and the upright, the rack-bars, the pivoted foot-lever connected therewith and a spring connected with said foot-lever of a pivoted hammer on said arm, a nail feeding, guiding, holding and driving mechanism mounted on said arm and a lath holding mechanism also mounted on said arm, substantially as described.

5. The combination with the base and the upright, the rack-bars, the pivoted foot-lever connected therewith and a spring connected with said foot-lever, of a pivoted hammer on said arm, a nail feeding, guiding, holding and driving mechanism mounted on said arm and a lath-holding mechanism also mounted on said arm and means for adjusting the latter, substantially as described.

598,865. GAS-PRODUCER. BENJAMIN TALBOT, Pencoyd, Pa., assignor of one-fourth to William B. Hughes, Philadelphia, Pa. Filed Jan. 27, 1896. Serial No. 577,041. (No model.)



Claim.—1. A water-sealed gas-producer having a body supported upon legs above a sealing-pit, an ash-hopper suspended from said body and depending into said sealing-pit, said hopper being exposed to atmospheric pressure only, and having poke-holes formed in it, and an internal air-supply pipe within the hopper, substantially as specified.

2. A gas-producer having a body supported above a sealing-pit, and an ash-hopper, exposed externally to atmospheric pressure only, said hopper being suspended from said body by means of bolts and depending into said sealing-pit, substantially as specified.

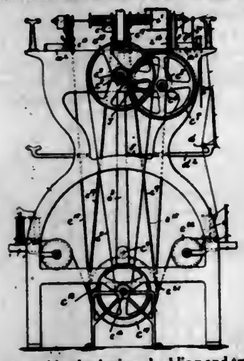
3. The combination of the elevated body of the producer, the suspended ash-hopper composed of sections secured together and each having projecting ears, with suspending bolts mounted in brackets on the body of the producer and passing through openings formed in the projecting ears of the hopper-sections, substantially as specified.

4. A gas-producer divided horizontally and having the lower portion water-sealed and mounted so as to be susceptible of movement in a horizontal plane each portion containing a mass of fuel whereby the contents of said lower section are caused to move in contact with the contents of the upper fixed section at the line of division, substantially as specified.

5. The combination of the elevated body of the producer with the depending ash-hopper, suspending bolts therefor having heads pivotally mounted on said body, and means for moving the hopper transversely beneath the producer-body, substantially as specified.

6. The combination of the elevated body of the producer, with the water-sealed depending ash-hopper having therein openings surrounded by slotted flanges, bushings adapted to said openings, retainer-plates for said bushings, and bolts adapted to the slots in the flanges and serving to secure said retaining-plates in place, substantially as specified.

598,866. COMBINED SPINNING, DOUBLING, AND TWISTING MACHINE. CORNELIUS C. B. VAN ALSTINE and GEORGE W. GRAHAM, Paterson, N. J. Filed Feb. 19, 1897. Serial No. 624,122. (No model.)



Claim.—1. A combined spinning, doubling and twisting machine, consisting of a frame, a reciprocating beam in said frame, a series of fulcrumed arms supporting said beam, a shaft in said frame, a series of cams on said shaft and adapted to operate said fulcrumed arms, means for revolving said shaft, a series of receiving-bobbins carried by said beam and at right angles thereto, a series of hollow shafts in said frame and in alinement with the receiving-bobbins, an L-shaped arm projecting from the inner end of each shaft and in close proximity with its respective bobbin, a series of delivery-bobbins also arranged in the frame, a series of intermediate eyes between the delivery-bobbins and the hollow shafts, and means for revolving the delivery and receiving bobbins and the hollow shafts, all said parts, substantially as and for the purposes described.

2. A combined spinning, doubling and twisting machine, consisting of a frame, a reciprocating beam in said frame, means for operating said beam, a series of plates slidingly arranged on said beam, a stationary spindle on each plate and projecting at right angles therefrom, a receiving-bobbin revolubly arranged on each of said spindles, a series of hollow shafts in said frame and in alinement with the receiving-bobbins, an L-shaped arm projecting from the inner end of each shaft and in close proximity with its respective bobbin, a series of delivery-bobbins also arranged in the frame, a series of intermediate eyes between the delivery-bobbins and the hollow shafts, and means for revolving the delivery and receiving bobbins and the hollow shafts, all said parts, substantially as and for the purposes described.

3. A combined spinning, doubling and twisting machine, consisting of a frame, a reciprocating beam in said frame, a series of receiving-bobbins carried by said beam and at right angles thereto, an upwardly-projecting plate supported by the frame and substantially parallel with the beam and provided with a series of vertical slots, a series of plates slidingly arranged on said upwardly-extending plate and in front of said slots, a hollow shaft revolubly arranged in each of said plates, an L-shaped arm projecting from the inner end of the shaft and in close proximity with its respective bobbin, a series of delivery-bobbins also arranged in the frame, a series of intermediate eyes between the delivery-bobbins and the hollow shafts, and means for revolving the delivery and receiving bobbins and the hollow shafts, all said parts, substantially as and for the purposes described.

4. A combined spinning, doubling and twisting machine, consisting of a frame, a reciprocating beam in said frame, means for operating said beam, a series of receiving-bobbins carried by said beam and at right angles thereto, a series of hollow shafts in said frame and in alinement with the receiving-bobbins, an L-shaped arm projecting from the inner end of each shaft and in close proximity with its respective bobbin, a series of delivery-bobbins also arranged in the frame, two horizontal rods in the frame, a series of eyes on one of said rods and above and substantially in the center lines of their respective delivery bobbins, a series of fallers fulcrumed on the other rod, a downwardly-projecting U-shaped arm adapted to be engaged by its respective faller, a fulcrumed lever pivotally connected with said U-shaped arm, an eccentrically-arranged shaft in the frame and at right angles to the beam, a fulcrumed weight adapted to operate said shaft and in engagement with the fulcrumed lever, and means operated by said shaft for controlling the receiving and delivery bobbins, and means for revolving the delivery and receiving bobbins and the hollow shafts, all said parts, substantially as and for the purposes described.

5. A combined spinning, doubling and twisting machine, consisting of a frame, a reciprocating beam in said frame, means for operating said beam, a series of plates slidingly arranged on said beam, means for locking said plates in normal position, a bobbin carried by each of said plates, a series of delivery-bobbins also arranged in the frame, two horizontal rods in the frame, a series of eyes on one of said rods and above and substantially in the center lines of their respective bobbins, a series of fallers fulcrumed on the other rod, a downwardly-projecting U-shaped arm adapted to be engaged by its respective faller, a fulcrumed lever pivotally connected with said U-shaped arm, an eccentrically-arranged shaft in the frame and at right angles to the beam, a fulcrumed weight adapted to operate said shaft and in engagement with the fulcrumed lever, means operated by said shaft for controlling the locking mechanism, a hollow shaft in front of each receiving-bobbin, and means for revolving the receiving and the delivery bobbins and the hollow shafts respectively, all said parts, substantially as and for the purposes described.

6. The combination with a frame, of a beam in said frame, a series of vertically-guided plates on said beam, a fulcrumed spring-controlled latch for each of said plates and adapted to lock the same, a vertical plate provided with an indentation in engagement with each latch, an eccentrically-arranged shaft arranged in said frame and at right angles to the beam and supporting said vertical plates, and means for operating said shaft, all said parts, substantially as and for the purposes described.

7. The combination with a frame, of a beam in said frame, a series of vertically-guided plates on said beam, a fulcrumed spring-controlled latch for each of said plates and adapted to lock the same, a vertical plate provided with an indentation in engagement with each latch, an eccentrically-arranged shaft in said frame and at right angles to the beam and supporting said vertical plates, and having one of its ends bent outward, a weight adapted to engage the outward-bent end of the shaft, a fulcrumed needle-pointed lever in engagement with said weight, and means for operating said lever, all said parts, substantially as and for the purposes described.

8. The combination with a frame, of a series of delivery-bobbins in said frame, a series of receiving-bobbins also in said frame and substantially at right angles to the delivery-bobbins, a series of revolving hollow shafts intermediately arranged between said series of bobbins and in alinement with their respective receiving-bobbins, an L-shaped arm projecting from the inner end of each hollow shaft, a guide in front of the forward end of each shaft, a series of eyes intermediately arranged between said guides and the delivery-bobbins and above and substantially in the center lines of the latter, and means for revolving the receiving and delivery bobbins and the hollow shafts, all said parts, substantially as and for the purposes described.

9. The combination with a frame, of a reciprocating horizontal beam in said frame, a series of stationary spindles on said beam and at right angles thereto, a rail parallel with the beam and on one side of the frame, a series of vertically-arranged spindles on said rail, interchangeable bobbins on said series of spindles, a series of revolving hollow shafts intermediately arranged and carried by the frame, an L-shaped arm projecting from the inner end of each shaft, a guide in front of each shaft, a series of eyes intermediately arranged between said guides and the spindles on the rail and above and substantially in the center lines of the said spindles, and means for revolving the bobbins and the hollow shafts, all said parts, substantially as and for the purposes described.

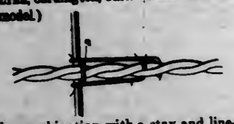
598,867. SELF-OILING SPINDLE. JOHN M. WALKER, Converse, Ind. Filed Jan. 7, 1897. Serial No. 618,206. (No model.)



Claim.—1. The combination with an axle, a spindle, and an enlarged collar arranged at the junction of the axle and spindle and provided with an annular groove and with a wedge-shaped recess, of an oil-cup fitted upon the axle and provided with an outwardly-extending wedge-shaped portion fitting in the recess of said collar and provided with a depression in its outer surface, the said wedge-shaped portion having a longithdinal bore or passage for the oil, and a band fitting around the grooved collar and also engaging the depression in the oil cup, substantially as described.

2. The combination with an axle, a spindle, and an enlarged collar arranged at the junction of the axle and spindle and provided with an annular peripheral groove and with a recess opening out at the periphery thereof, of an oil-cup fitted upon the axle and provided with an outwardly-extending portion fitting in the recess of said collar and provided with a depression in its outer surface registering with the groove in the collar, said outwardly-extending portion being provided with a bore or passage for the oil, and a band fitted around the grooved collar and also engaging said depression in the oil-cup, substantially as described.

593,868. SPRING-CLAMP FOR WIRE-FENCE STAYS. MARCELLUS B. WALTER, Cardington, Ohio. Filed Jan. 19, 1897. Serial No. 619,636. (No model.)

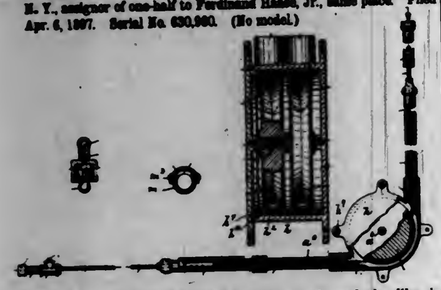


Claim.—1. The combination with a stay and line-wires, of a fastener consisting of a single piece of metal which has its intermediate portion extended across and looped around the stay, and has its end sections or limbs looped or bent completely around the line-wire and provided with hooks engaging with the stay.

2. The combination with a stay and line-wires, of a fastener made of a single piece of spring metal which is looped around the stay and has its end sections or limbs bent or twisted completely around the line-wire on opposite sides of the stay, and then extended along the length of the stay and terminating in hooks which engage with or embrace said stay.

3. The combination with a stay and a line-wire, of a fastener made of a single piece of spring metal which is looped around the stay, is then bent completely around the line-wire on opposite sides of the stay and extended along the length of the stay on opposite sides thereof and the end portions terminating in angularly-disposed hoops located one in advance of the other and embracing the stay on the same side thereof.

593,869. PROTECTOR FOR WIRES, RODS, &c., IN RAILWAY SIGNALING AND SWITCHING SYSTEMS. JOHN WRIGLEY, Elmira, N. Y., assignor of one-half to Ferdinand Hasse, Jr., same place. Filed Apr. 6, 1897. Serial No. 630,980. (No model.)



Claim.—1. The combination with wires, rods and the like, in systems of the character above described, of pipes inclosing said wires, rods, &c., and of a lubricant, such as oil, in said pipes, substantially as and for the purposes described.

2. The combination with wires, rods and the like, in systems of the character above described, of pipes surrounding said wires, rods, &c., a box intermediately arranged between said pipes and also inclosing its respective wire, a lid removably arranged on said box, a lubricant, such as oil, in said pipes and box, all said parts substantially as and for the purposes described.

3. The combination with wires, rods, chains and pulleys in systems of the character above described, of pipes inclosing said rods, wires, chains, &c., a substantially air-tight box or receptacle, inclosing said pulleys, and intermediately arranged between said pipes and connected therewith, a lubricant, such as oil, in said pipes and box or receptacle, all said parts substantially as and for the purposes described.

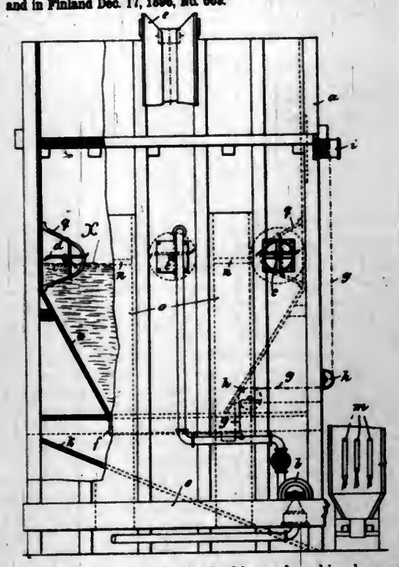
4. The combination with wires, rods, and the like, and with chains and pulleys, in systems of the character above described, of pipes connecting said wires, rods, chains, &c., a receptacle intermediately arranged between said pipes and connected therewith and inclosing the said pulleys, a box also inserted between said pipes and connected therewith and provided with a removable lid, a lubricant, such as oil, in said pipes, receptacle and box, all said parts substantially as and for the purposes described.

5. The combination with wires, rods and the like, in systems of the character above described, of pipes surrounding and inclosing said wires, rods, &c., a T-coupling at or near one end of said pipes and provided with a removable plug, a loose cap or cover on the other end of said pipes, a lubricant, such as oil, in said pipes and T-coupling, all said parts substantially as and for the purposes described.

6. The combination with grooved pulleys and chains passing over the same, in systems of the character above described, of a box or receptacle inclosing said pulleys, and provided with inlets and outlets, and a lubricant, such as oil, in said box or receptacle, substantially as and for the purposes described.

7. The combination with wires, rods and the like, in systems of the character above described, of pipes inclosing said wires, rods, &c., a lubricant, such as oil in said pipes, and a closed pipe loosely arranged on and adapted to protect the free ends of the pipes, substantially as and for the purposes described.

593,870. APPARATUS FOR BARKING AND WASHING LOGS. ANDREAS ANDERSEN, Tistedalen, Norway. Filed June 10, 1897. Serial No. 640,184. (No model.) Patented in Norway Nov. 18, 1895, No. 5,083, and in Finland Dec. 17, 1896, No. 669.



Claim.—1. An apparatus for barking and washing logs and the like, consisting of a tank adapted to contain water to float the logs, and rigid rotating beaters having cutting extremities arranged to act upon said logs as they are yieldingly supported by the water, substantially as described.

2. An apparatus for barking and washing logs and the like comprising a tank adapted to contain water to float the logs, rigid rotating beaters having cutting extremities adapted to contact with said logs as they are yieldingly supported by the water, an inclined discharge-plane beneath the tank, a discharge-trap at the bottom of the tank for discharging the contents of the tank upon the inclined plane, and a lift at the extremity of the inclined plane, substantially as described.

3. An apparatus for barking and washing logs comprising a tank adapted to contain water to float said logs, rigid beaters having cutting extremities rotating within said tank, overflow slits or openings at the level of the beaters and water-conduits connected with said openings, substantially as described.

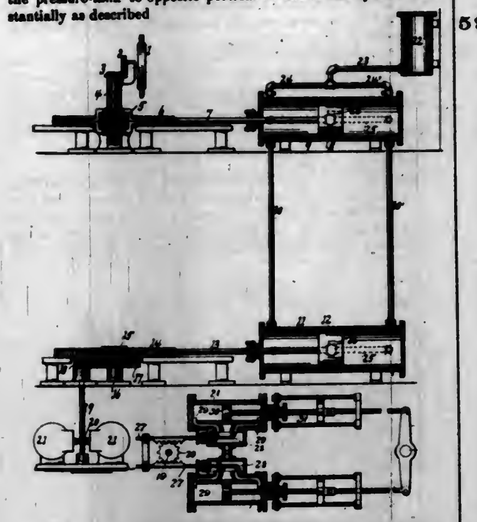
4. An apparatus for barking and washing logs comprising a tank, shafts rotating therein, the beater-irons *d*, and the stirrup-irons *r* for holding them to the shafts, substantially as described.

593,871. HYDRAULIC STEERING MECHANISM. ALEXANDER BAIN, Brooklyn, N. Y. Filed May 6, 1897. Serial No. 636,288. (No model.)

Claim.—1. The combination with two fixed cylinders each provided with a double-acting piston, of tubes made to respectively connect opposite portions of the cylinders, an actuating gear and rack for one of the pistons, a steering gear and rack actuated by the other piston, a pressure-tank, and tubes with inlet-valves made to lead from the pressure-tank to opposite portions of one of the cylinders substantially as described.

2. The combination with two fixed cylinders each provided with a double-acting piston, of tubes made to respectively connect opposite portions of the cylinders, an actuating gear and rack for one of the pistons, a rack actuated by the other piston, a steering-engine, and transmission-gears between the actuated rack and the steering-engine, said steering-engine comprising two double-acting cylinders, each cylinder having its piston connected to the rudder so as to actuate the latter independently of the other piston and cylinder substantially as described.

3. A steering-wheel, a gear and rack actuated thereby, a double-acting piston actuated by the rack, a fixed cylinder for said piston, a second fixed cylinder with a double-acting piston, tubes made to respectively connect opposite portions of the cylinders, a rack actuated by the second piston, transmission-gears actuated from said rack, a steering-engine actuated by said transmission-gears, a pressure-tank, and connecting-tubes with inlet-valves made to lead from the pressure-tank to opposite portions of one of the cylinders substantially as described



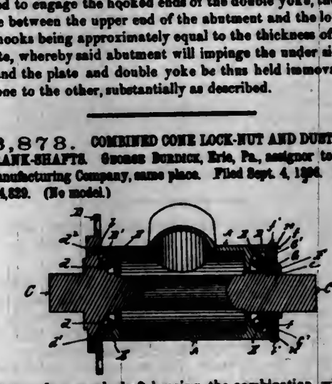
593,872. COUPLING-LINK FOR REPAIRING DRIVE-CHAINS. FRANK BARNHART, Warren, Pa. Filed Aug. 19, 1897. Serial No. 648,788. (No model.)



Claim.—1. A coupling-link for joining the ends of a broken chain, consisting of a main body constructed with a double yoke to receive the chain-links and provided with an abutment between the link-receiving yokes, oppositely and outwardly beveled spring-hooks formed on the ends of said double yoke, and a plate having slots in its opposite ends arranged to engage the hooked ends of the double yoke, said plate constructed to bear against the abutment intermediate its ends, substantially as described.

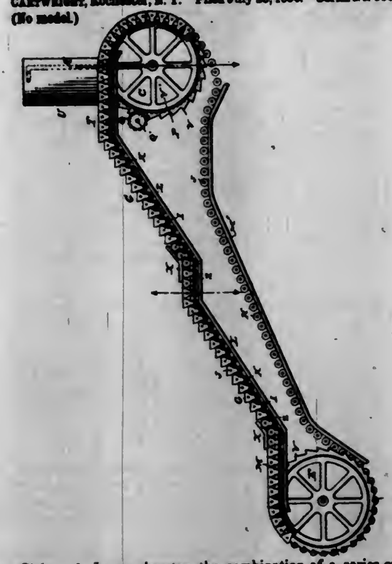
2. A coupling-link for joining the ends of a broken chain, consisting of a main body constructed with a double yoke to receive the chain-links and provided with an abutment between the link-receiving yokes, oppositely and outwardly beveled spring-hooks formed on the ends of said double yoke, and a plate having slots in its opposite ends arranged to engage the hooked ends of the double yoke, the vertical distance between the upper end of the abutment and the lower edge of the hooks being approximately equal to the thickness of the slotted plate, whereby said abutment will impinge the under side of the plate, and the plate and double yoke be thus held immovable relatively one to the other, substantially as described.

593,873. COMBINED CONE LOCK-NUT AND DUST-CAP FOR CRANK-SHAFTS. GEORGE BURDICK, Erie, Pa., assignor to the Penn Manufacturing Company, same place. Filed Sept. 4, 1896. Serial No. 604,829. (No model.)



Claim.—In a crank-shaft bearing, the combination, with a shell having a cup at one end, of a shaft, a cone C' screwed on the said shaft and slidable inside the mouth of the said cup, balls between the said cup and cone, a metallic washer on the shaft, a washer H of flexible material surrounding the said metallic washer and covering the joint between the shell and the cup, and a lock-nut screwed on the said shaft and provided with a web *f* bearing against the washer H, and a flange *f'* inclosing the end portion of the said shell, substantially as set forth.

593,874. TRAVELING STAIRWAY OR ELEVATOR. ROBERT CARTWRIGHT, Rochester, N. Y. Filed July 23, 1896. Serial No. 600,270. (No model.)



Claim.—1. In an elevator, the combination of a series of carriages each provided with supporting-wheels and with bearings extending below the axes of said wheels, rails upon which the supporting-wheels travel, connections between the carriages and connections between the bearings thereof, substantially as described.

2. The combination in an endless elevator, of a series of carriages each having an axle and two end wheels, and a cross-bar below the axle, links connecting the axles of the adjacent carriages, and other links with elongated eyes connecting the cross-bars of adjacent carriages, substantially as set forth.

3. In an elevator, the combination with a continuous series of carriages each provided with depending bearings, axles supported on the bearings, supporting-wheels upon the axles and links connecting the axles of adjacent carriages, substantially as described.

4. In an elevator, the combination with a continuous series of carriages each provided with treads and risers, connections between the carriages, drums around which the carriages pass, rails for supporting the upper run of the series of carriages, and rails for supporting the lower run of said series, the lower rails being shorter than the lower run of said series of carriages to permit a part of the lower run of the series to hang between the rails and one of the drums, substantially as described.

5. In an elevator, the combination with a continuous series of carriages each provided with supporting-wheels and with bearings depending below the axes of the supporting-wheels, connections between the carriages and links having elongated eyes connecting the bearings, substantially as described.

6. In an elevator, the combination with a continuous series of carriages each provided with supporting-wheels and with bearings depending below the axes of the supporting-wheels, wheels carried by the bearings, rails upon which said wheels travel, connections between the carriages and independent connections between the depending bearings, substantially as described.

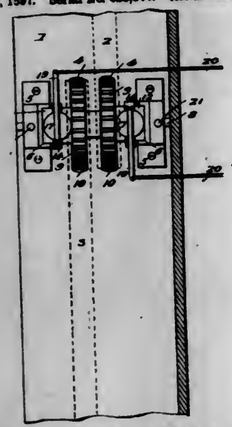
7. In an elevator, the combination with supporting-rails, of a continuous series of carriages adapted to travel thereon, drums adjacent the ends of said rails around which the carriages pass, said drums being provided with peripheral teeth, and driving mechanism meshing with said teeth, substantially as described.

8. In an elevator, the combination with separated rails and an intermediate rail parallel with said rails but in a lower plane, of a continuous series of carriages each provided with wheels adapted to

engage the separated rails and the intermediate rail, substantially as described.

9. In an elevator, the combination with a continuous series of carriages provided with projecting bearings of drums provided with sockets and with projections arranged in different circular planes, said sockets being adapted to receive a part of the carriages and the projections adapted to receive the bearings of said carriages between them, whereby the carriages are maintained in true radial position in traveling around the drums, substantially as described.

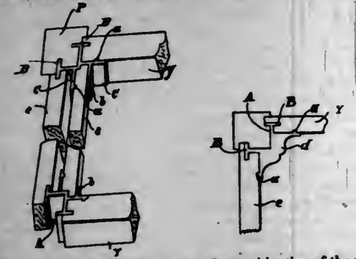
598,875. SASH-LOCK. LAUREN A. CROCKER, Lexington, Tex. Filed Feb. 27, 1897. Serial No. 625,377. (No model.)



Claim.—1. The combination with a sliding window-sash provided with a rack-bar of a spring-actuating gear-wheel, a ratchet-wheel secured to said gear-wheel, a spring-actuating pawl pivoted in a sliding block, a cam for throwing the pawl out of engagement with the ratchet.

2. The combination with a window-frame of a sliding sash, brackets secured to the window-frame and provided with slots and guides, a sash having its ends projected through said slots, springs for forcing the shaft inward, gear-wheels loosely journaled on said shaft and engaging rack-bars with said sash and provided with integral ratchet-wheels, and blocks seated to slide in the recesses of said brackets, pawls pivoted in said recesses and having their inner ends in locking engagement with the rack-bars of the sash, and cams consisting of a sleeve provided with inclined faces, said cam journaled to the outer ends of the sliding blocks and adapted to press the outer ends of the pawls together to remove their inner ends from locking engagement with the ratchets, springs located in the recesses of the sliding block and adapted to force the outer ends of the pawls apart, arms secured to said cams and links or rods connected to said arms, substantially as set forth.

598,876. FURNITURE-FASTENING. SAMUEL J. DE LONG, HENRY B. PELTON, and JAMES STEWART, Grand Rapids, Mich. Filed Feb. 10, 1897. Serial No. 622,838. (No model.)



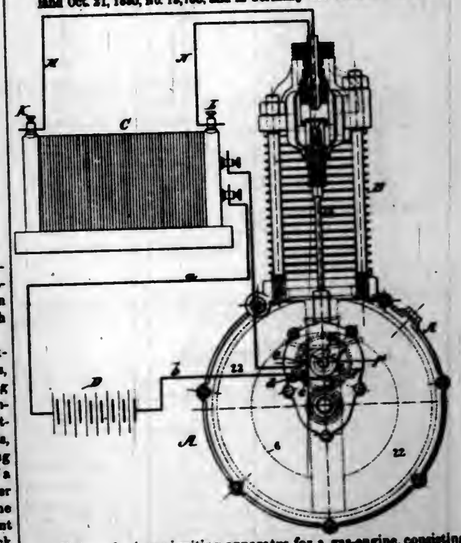
Claim.—1. In a fastening device, the combination of the angular web A, provided at each end with oppositely-projecting flanges B, said flanges extending outward upon both sides of the web, wings C, projecting outward from two sides of the web near the angular portion thereof, and ribs or lugs on the wings adapted to engage with and secure the rail of a piece of furniture to the web, substantially as described.

2. In a fastening device, the combination of the web A, provided at its free ends with oppositely-disposed perpendicular flanges B, which extend outward upon both sides of the web, and wings C, projecting outward from two sides of the web, substantially as described.

3. The combination of a web provided with end flanges, wings as C, extending out from the web and provided with ribs or lugs, a corner-post embraced by the web, side and end rails secured to the post by the web and wings, a supplementary rib *b*, projecting outward from one of the said wings, and a supplemental rail *a*, embraced at either end by the said supplementary rib and opposite wing, substantially as described.

4. In a furniture-fastening, an angular web A, adapted to embrace a corner-post, wings C, extending out from the web, and a supplementary rib *b*, projecting outward from one of said wings and arranged parallel with the opposite wing, said rib and adjacent parallel wing being arranged to embrace one end of a supplemental rail, substantially as described.

598,877. IGNITING DEVICE FOR GAS OR LIKE MOTORS. ALBERT DE DION and GEORGES BOUTON, Puteaux, France. Filed Sept. 6, 1896. Serial No. 605,001. (No model.) Patented in France Sept. 13, 1895, No. 250,250; in Switzerland Oct. 17, 1895, No. 11,033; in England Oct. 21, 1895, No. 19,735, and in Germany Oct. 23, 1895, No. 87,252.



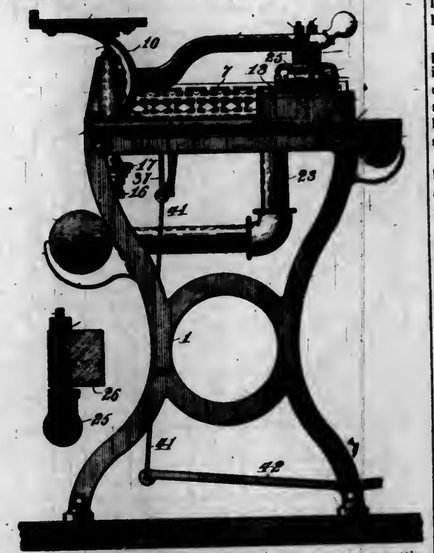
Claim.—1. A gas-igniting apparatus for a gas-engine, consisting of a vibratory conducting-strip or circuit-closer having a shoe, a conducting contact-point, wires connected to both and to the terminals of the primary of an induction-coil, and a notched disk upon the periphery of which the shoe of the circuit-closer rests out of contact with the point, and at each revolution falls into the notch and closes the circuit of the primary of the induction-coil, substantially as described.

2. In explosion-motors a device for igniting the explosive mixture by electricity consisting of a notched disk revolved by any suitable means, a circuit-closer having a shoe resting on the disk and falling at each revolution into the notch, a contact-point close to but out of contact with the circuit-closer save when the shoe thereon passes into the notch in the disk and an induction-coil having the terminal of its primary connected to the circuit-closer and contact-point and the terminals of its secondary slightly separated in an explosion-chamber, substantially as described.

598,878. CIGAR OR CIGARETTE WRAPPER CUTTING MACHINE. NAPOLEON DU BEUL, Cincinnati, Ohio. Filed Apr. 8, 1897. Serial No. 631,284. (No model.)

Claim.—1. A cigar or cigarette wrapper cutting machine comprising a table having independent air and suction openings, a hollow open cutting-die surrounding said air-opening and providing a wrapper-receptacle thereover, the suction-chamber surrounding said cutting-die and said suction-opening, and the plates having an opening through which the cutting-die projects, provided with perforations surrounding the cutting-die and forming the top of the suction-chamber; substantially as described.

2. A cigar or cigarette wrapper cutting machine comprising a table having independent air and suction openings, a removable hollow open cutting-die surrounding said air-opening and providing a wrapper-receptacle thereover, the suction-chamber surrounding said cutting die and said suction-opening and the platen having an opening through which the cutting-die projects and provided with perforations surrounding the cutting-die and forming a removable top to the suction-chamber; substantially as described.

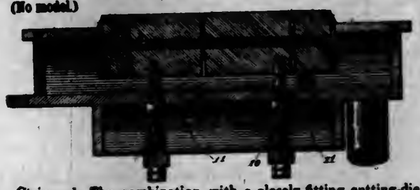


3. The combination with the cutting-die of a wrapper-cutting machine and a roller-support; of a pair of rollers having their axes mounted in the same horizontal plane approximately, in parallel position approximately, overlapping at their inner ends, and adapted to work on opposite sides of the cutting-die to insure the perfect cutting of the wrappers; substantially as described.

4. The combination with the cutting-die of a wrapper cutting machine and a roller-support; of a pair of rollers having their axes mounted in the same horizontal plane approximately, in parallel position approximately, adjustable transversely of the cutting-die, overlapping at their ends, and adapted to work on opposite sides of the cutting-die to insure the perfect cutting of the wrappers; substantially as described.

5. The combination with the cutting-die of a wrapper-cutting machine; of a roller-support comprising an oscillating arm having a box formed with bores in different vertical planes, the spring-hangers having spindles adjustably mounted in the bores of the boxes, and the pair of horizontal and parallel overlapping rollers mounted in the hangers and adapted to work on opposite sides of the cutting-die to insure the perfect cutting of the wrappers; substantially as described.

598,879. CIGAR OR CIGARETTE WRAPPER CUTTER. NAPOLEON DU BEUL, Cincinnati, Ohio. Filed Apr. 22, 1897. Serial No. 633,369. (No model.)



Claim.—1. The combination, with a closely-fitting cutting-die; of a die-block for wrapper-cutters consisting of a series of sections presenting broad flat imperforate surfaces for the support of the tobacco leaf during the cutting operation, and spaced apart so as to leave channels between the sections through which the air is exhausted; substantially as described.

2. A wrapper-cutter comprising a cutting-die, an air-chamber surrounding the cutting-die, and a die-block consisting of a series of sections presenting broad flat imperforate surfaces for the support of the tobacco-leaf during the cutting operation and spaced apart so as to leave channels between the sections through which the air is exhausted; substantially as described.

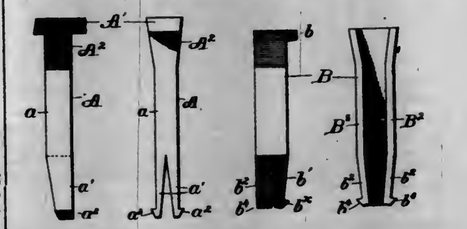
3. The combination, with a cutting-die; of a die-block for wrapper-cutters consisting of a series of sections presenting broad flat imperforate surfaces for the support of the tobacco-leaf during the cutting operation, and means extending the length of the die-block whereby the sections are secured together in proper relation so as to leave channels between the sections through which the air is exhausted; substantially as described.

4. The combination, with a cutting-die; of a die-block for wrapper-cutters consisting of a series of sections presenting broad flat imperforate surfaces for the support of the tobacco-leaf during the cutting operation, having spaces between them, and a base-plate on which the sections are mounted; substantially as described.

5. In a wrapper-cutter, the combination of the supporting die-block formed of sections secured together with spaces between them, and a cutting-die having lateral openings in the wall thereof for the escape of air from said spaces, as herein explained.

6. In a wrapper-cutter, the combination of a supporting die-block formed of sections, mounted upon a base-plate with spaces between them, and a surrounding cutting-die provided with openings corresponding with the spaces between the block-sections, substantially as and for the purposes set forth.

598,880. SPIKE. ADOLPHE C. G. DUPUIS, New Orleans, La. Filed July 24, 1896. Serial No. 600,428. (No model.)



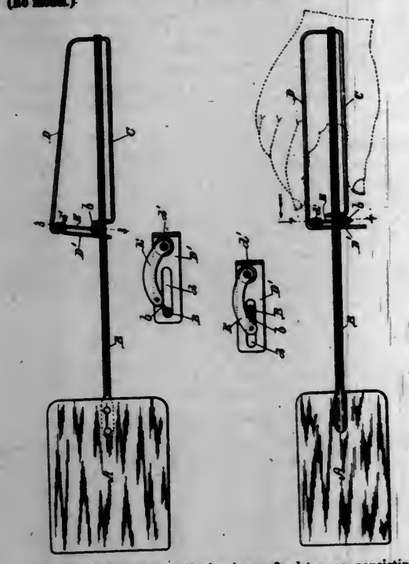
Claim.—1. The combination with a sheathing comprising a back member having a flanged upper end; and a pair of similar side members terminating at their lower ends in a pair of converging legs provided with a pair of oppositely-disposed barbs or spurs thereon; of a spike having a flanged head and having a bifurcated spring-point provided with a pair of oppositely-disposed barbs or spurs thereon, adapted to force the said legs on the sheathing outward as the spike is driven into said sheathing, and to engage beneath the ends of said legs after passing said ends, substantially as described.

2. The combination with a sheathing comprising a back member having a flanged upper end and terminating at its lower end in a leg provided with an outwardly-disposed barb or spur; and a pair of similar side members terminating at their lower ends in a pair of converging legs provided with a pair of oppositely-disposed barbs or spurs thereon; of a spike having a flanged head, and having a bifurcated spring-point provided with a pair of oppositely-disposed barbs or spurs thereon, adapted to force the said legs on the sheathing outward as the spike is driven into said sheathing, and to engage beneath the ends of said legs after passing said ends, substantially as described.

3. The combination with a sheathing having a flange at one side of its top, and having a plurality of spring-legs at its lower ends provided with outwardly-disposed barbs or spurs thereon; of a spike having a point provided with a plurality of spring-legs having outwardly-disposed barbs or spurs thereon, the said spike being adapted to be driven into said sheathing and to force the legs on said sheathing apart, and the barbs or spurs on said spike being adapted to engage beneath the lower ends of the legs on said sheathing after passing said ends, substantially as described.

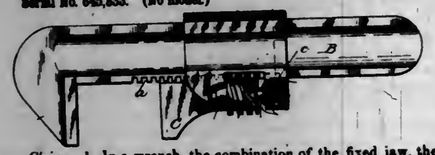
4. The combination with the sheathing B comprising the back member B′ having flange *b* at its upper end and terminating at its lower end in a bent spring-leg *b′* having spur *b×* thereon, and the side members B^3 in the bent spring-legs b^3 b^3 having oppositely-disposed spurs b^4 b^4 thereon; of the spike A having flanged head A′ and having the pair of similar spring-legs *a′* A′ at its point provided with oppositely-disposed spurs a^3 a^3 thereon, the said spike being adapted to be driven into said sheathing and to lock the same in the crosstie, and said sheathing being adapted to lock the said spike in position, substantially as and for the purposes described.

593,881. GRIDDLE-CAKE OR FOOD TURNER. CHARLES M. FOWLER, Worcester, Mass. Filed Apr. 10, 1897. Serial No. 631,531. (No model.)



Claim.—The herein-described cake or food turner, consisting in combination, a blade A, attached to a shank or spindle B, a stationary handle part C, in which said spindle is journaled, an expansive handle portion D, having a slotted guide D', for receiving the shank B, and a link E pivotally connected to the expansive portion of the handle and to a crank *b*, on the blade-shank substantially as and for the purpose set forth.

593,882. WRENCH. SAMUEL T. FREAS, Trenton, N. J., assignor to the American Saw Company, same place. Filed July 24, 1897. Serial No. 645,833. (No model.)



Claim.—1. In a wrench, the combination of the fixed jaw, the sliding jaw, the adjusting-nut having a projection that enters the sliding jaw, and the ball-bearing support for the nut, consisting of the removable cup in the end of the sliding jaw and a ball between said cup and the countersunk end of the nut, substantially as described.

2. In a wrench, the combination of the fixed jaw, the sliding jaw, the adjusting-nut having a projection that enters the sliding jaw, and the ball-bearing support for the nut, consisting of the hollow removable cup in the sliding jaw, a ball between said cup and the nut, and a spiral spring within the cup bearing against the ball, substantially as described.

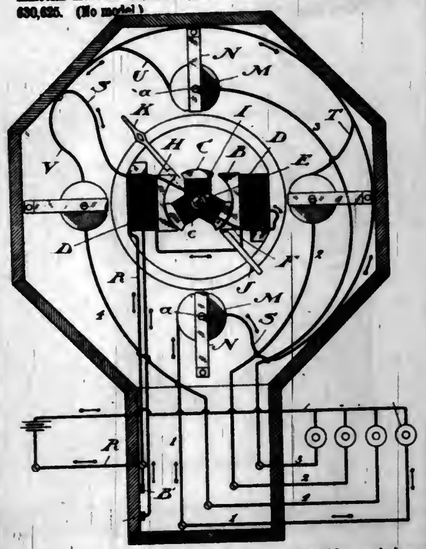
3. In a wrench, the combination with a threaded handle carrying the fixed jaw, of the sliding jaw on said handle, an adjusting-nut engaging the threaded handle and having a cone engaging with a recess in the sliding jaw, the ratchets for preventing rotation of the nut, and the ball-bearing support for the nut, substantially as described.

593,883. MANUFACTURE OF MIXED OR PARTY-COLORED FABRICS. HENRY GIESLER, Mohlheim, Germany. Filed May 8, 1897. Serial No. 636,732. (Specimens.) Patented in Germany Mar. 27, 1896, No. 89,037, and in France June 3, 1896, No. 256,918.

Claim.—1. The herein-described process of imparting to fabrics the appearance of a woven fabric of different or party-colored fibers, consisting in impressing or printing a design on the fabric, fixing said design thereon and then distorting the fibers by displacing, turning or twisting them so as to destroy the sharp lines of the design, substantially as set forth.

2. As a new article of manufacture, a textile fabric having the design impressed or printed thereon and having its fibers distorted by displacing, turning or twisting them after being printed, to get the appearance of a mixed woven fabric or one formed from fibers dyed with various colors before weaving, substantially as set forth.

593,884. ELECTRIC ANNUNCIATOR. JAMES A. GOWANS, Stratford, Canada, assignor of three-fourths to Samuel Street Fuller and Malcolm MacFarlane, same place. Filed Apr. 3, 1897. Serial No. 630,625. (No model.)



Claim.—1. In an electric annunciator, a suitably-carried motor consisting of field-magnets and a suitably-supported rotatable armature, and a stop-arm connected to the shaft of the armature of the motor, in combination with one or more electrically-actuated stop mechanisms, and means for causing a current to pass through the motor and any one of the stop mechanisms so as to draw the stop-arm round to and arrest it at the said stop mechanism, substantially as and for the purpose specified.

2. In an electric annunciator, a suitably-carried motor consisting of field-magnets and a suitably-supported rotatable armature, and a stop-arm connected to the shaft of the armature of the motor in combination with one or more electromagnets each provided with a movable armature adapted when attracted to the magnet to engage and hold the said stop-arm, and means for causing a current to flow through the motor and any one of the said stop mechanisms, substantially as and for the purpose specified.

3. In an electric annunciator, the combination of a suitably-carried motor consisting of field-magnets and a suitably-supported rotatable armature in circuit with a battery or other source of electricity; a push-button or switch adapted to make and break the circuit; a stop-arm fast on the shaft or the motor, and an electromagnet in the same circuit with the motor and provided with a suitably-supported armature adapted when drawn down to arrest the motion of the stop-arm, substantially as and for the purpose specified.

4. In an electric annunciator, the combination of a suitably-carried motor consisting of field-magnets and a suitably-supported rotatable armature, and a series of electromagnets each arranged in an independent circuit with the motor and a battery or source of current; a push-button in each circuit adapted to make and break contact; a stop-arm connected to the shaft of the motor and a suitably-supported armature for each electromagnet adapted when drawn down to arrest the motion of the stop-arm, substantially as and for the purpose specified.

5. In an electric annunciator, the combination of a suitably-carried motor consisting of field-magnets and a suitably-supported rotatable armature, and a series of electromagnets each arranged in an independent circuit with the motor and a battery or source of current; a push-button in each circuit adapted to make and break contact; a stop-arm connected to the shaft of the motor and a suitably-supported armature for each electromagnet adapted when drawn down to arrest the motion of the stop-arm, and a bell so connected electrically as to ring whenever a call is made, substantially as and for the purpose specified.

6. In an electric annunciator, the combination of a suitably-carried motor consisting of field-magnets and a suitably-supported rotatable armature, and a series of electromagnets each arranged in an independent circuit with the motor, and a battery or source of current; a push-button in each circuit adapted to make and break contact; a stop-arm connected to the shaft of the motor; a suitably-supported armature for each electromagnet adapted when drawn down to arrest the motion of the stop-arm; and a bell in a shunt-circuit connected with the battery and with the main circuit before it enters the motor, substantially as and for the purpose specified.

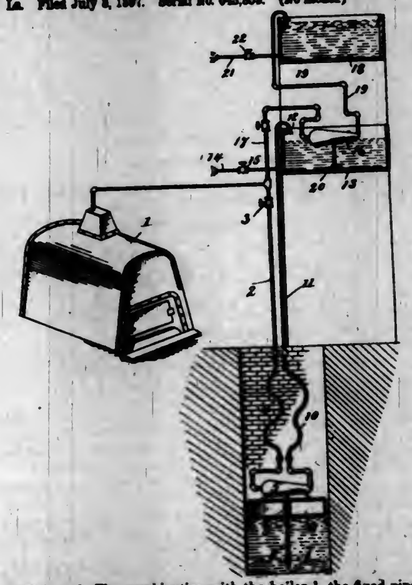
7. In an electric annunciator, the combination of a suitably-carried motor consisting of field-magnets and a suitably-supported rotatable armature, and a series of electromagnets each arranged in an independent circuit with the motor, and a battery or source of current; a push-button in each circuit adapted to make and break contact; a stop-arm connected to the shaft of the motor; a suitably-supported armature for each electromagnet adapted when drawn down to arrest the motion of the stop-arm; a pointer connected to the motor-shaft and a dial beneath the pointer, substantially as and for the purpose specified.

8. In an electric annunciator, stop mechanism comprising an electromagnet; a suitably-supported armature having its end wedge-shaped and provided with a stop, the parts being so located and proportioned that a stop-arm may be held between the spool of the electromagnet and the armature when the latter is drawn down, substantially as and for the purpose specified.

9. In an electric annunciator, stop mechanism comprising an electromagnet; a suitably-supported armature having its end wedge-shaped and provided with a stop, the parts being so located and proportioned that a stop-arm may be held between the spool of the electromagnet and the armature when the latter is drawn down, and a brass steadying and regulating screw passing through a hole in the armature into the core of the magnet, substantially as and for the purpose specified.

10. In an electric annunciator, stop mechanism comprising a two-pole electromagnets, one pole forming the core of the magnet and the other a standard; an armature flexibly connected to the said standard by a brass strip and provided with a stop at its outer end, and a brass steadying and regulating screw passing through a hole in the armature into the core of the magnet, substantially as and for the purpose specified.

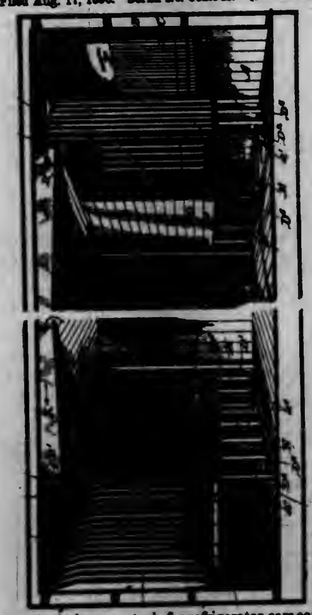
593,885. EJECTOR FOR WELLS. JOHN J. GREER, Brookville, Ia. Filed July 8, 1897. Serial No. 643,859. (No model.)



Claim.—1. The combination with the boiler 1, the fixed pipe 2 provided with the valve 3 and flexible pipe 4, of the ejector 5 and the pipes 8 and 10, substantially as shown and described.

2. The combination with the boiler 1, the pipe 2 provided with the valve 3, the float 6 provided with the orifice 9, the ejector 5 mounted on said float and having the vertical inlet-pipe 8 extending through said orifice, the flexible pipe 4 extending from the ejector to the pipe 2, the discharge-pipe 10, and fixed pipe 11 connecting said ejector with the tank 13, substantially as shown and described.

593,886. REFRIGERATOR-CAR. CHARLES S. HARDY, San Diego, Cal. Filed Aug. 17, 1896. Serial No. 602,941. (No model.)



Claim.—1. An ice-receptacle for refrigerator-cars comprising the bottom hinged at its lower edge to and turning up against the end of the car and the front wall composed of vertical sections hinged vertically at their outer edges and swinging at their inner edges inward toward the end of the car and adapted when folded to hold the bottom in folded position substantially as shown and described.

2. In a car the ice-receptacle composed of the bottom hinged to the car and folding upward against the same the front sections hinged at their outer edges on vertical axes at the opposite sides of the car and turning inward toward the end of the car and arranged when so folded to hold the bottom in folded position and the latches on the bottom by which to secure the front sections in folded position substantially as shown and described.

3. In a refrigerator-car, the ice-receptacle comprising the bottom hinged at its lower end and turning to and against the end of the car, and the front sections forming walls of the ice-receptacle and means for holding the bottom in folded position, said front sections being hinged or pivoted at their outer ends on vertical axes at the opposite sides of the car and swinging at their inner free ends in toward the end of the car and arranged when folded to rest in front of the folded bottom and hold the latter from dropping and means for securing the front sections when so folded substantially as shown and described.

4. The combination of the car, the draft-flue and the floor-cleat, of the swinging floor and the vertical door-like sections adapted to support said floor and opening outward against the floor-cleat and against the draft-flue substantially as shown and described.

5. The combination of the car the draft-flue and the floor-cleat, the swinging floor made in sections, the vertical door-like sections corresponding to the floor-sections and having cleats to support the same when opened, and latch devices by which to hold the door-like sections closed substantially as shown and described.

593,887. FOOT-POWER APPLICATION. COURTNEY K. HEATH, Brooklyn, N. Y. Filed Mar. 18, 1897. Serial No. 626,115. (No model.)

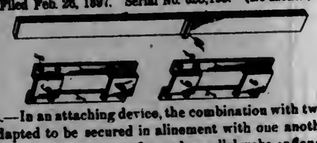
Claim.—1. In a foot-power device for wind or other instruments, the combination with the foot-board, of a lever connection between one end of said foot-board and a movable part of the instrument, and a movable support for the opposite end of the foot-board whereby said board is allowed an oscillating movement, substantially as described.

2. In a foot-power device for wind or other instruments, the combination with the foot board or boards, of a pivoted lever connected at one end to the foot-board and at its other end to a movable part of the instrument, and a movable support for the opposite end of the foot-board, substantially as described.



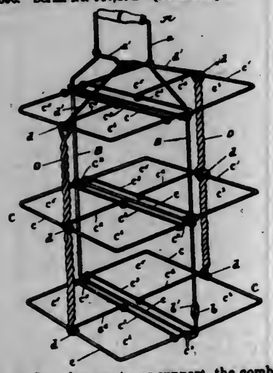
3. In a foot-power device for wind or other instruments, the combination with one or more foot-boards, of a pivoted lever connected at one end to the foot-board and at its opposite end to a movable part of the instrument, a link for pivotally supporting the opposite end of the board, and a support for the link, substantially as described.

598,888. **FASTENING DEVICE FOR FURNITURE.** WILLIAM S. HITCH, Laurel, Del., assignor of one-half to James H. Wilson, Dover, Del. Filed Feb. 26, 1897. Serial No. 625,195. (No model.)



Claim.—In an attaching device, the combination with two arched keepers adapted to be secured in alinement with one another, each of said keepers comprising two flat and parallel webs or flanges lying in the same plane and two arched continuous sockets formed integrally with said webs and uniting the latter, of a bolt adapted to seat in said keepers and removable from both of them, said bolt being provided intermediate its ends with a lug arranged to rest on the uppermost arched socket of the lower keeper and hold the bolt in place, substantially as described.

598,889. **BERRY-CARRIER.** ADAM HORN, Batavia, N. Y. Filed Dec. 28, 1896. Serial No. 617,194. (No model.)

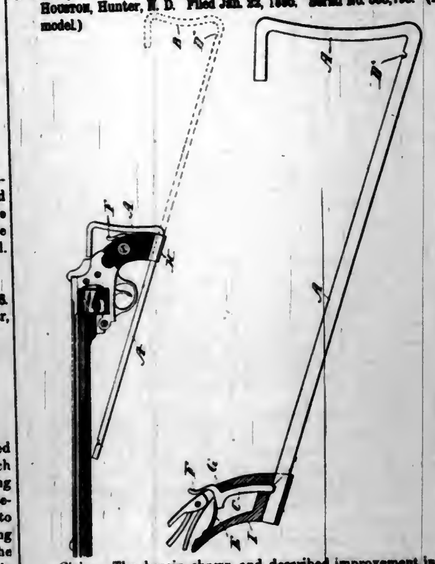


Claim.—1. In a box crate or support, the combination with a suitable handle having pendent supporting-rods, of apertured box-supports hinged on said rods, and hook-bars connected to said supports and adapted to hook over the handle to hold the supports in a horizontal operative position or permit them to descend to close the device, substantially as described.

2. In a box support or crate, the combination with a handle having pendent supporting-rods secured thereto, of a plurality of wire box-supporting frames hinged on said supporting-rods, spaced rods connecting said frames, and hooks mounted on the top frames and adapted to engage a portion of the handle, whereby said frames are all supported in a horizontal position, but in such manner that they may be doubled either up or down upon the disengagement of the hooks, substantially as described.

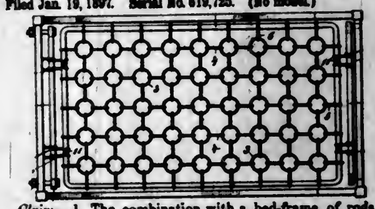
3. In a box-support, the combination with a handle having pendent connected arms, of rods connecting said arms at intervals, a plurality of wire box-supports hinged upon said connecting-rods, spaced bars connecting said wire box-supports and hooks mounted on the top frames and adapted to engage the handle, whereby all of said frames are supported in a horizontal position, but are capable of being doubled up or down against the supporting-arm, substantially as described.

598,890. **EXTENSION-STOCK FOR FIREARMS.** DAVID H. HOUSTON, Hunter, N. D. Filed Jan. 23, 1895. Serial No. 536,795. (No model.)



Claim.—The herein shown and described improvement in fire-arms, consisting of the pistol-butt having the channel or guide in the lower portion, the spring having one end secured to the inner wall of the pistol-butt, the catch bolt having a lateral projection on one side against which bears the free end of the spring, and a handle or finger-piece on the opposite side projecting out through the outer wall of the butt to be readily accessible to the finger, and the sliding skeleton stock adjustable in the channel or guide of the butt and having the notches or recesses to receive the lower end of the catch-bolt for holding the stock at the proper adjustment.

598,891. **BED-BOTTOM.** KITTIE C. HOUT, Schenectady, N. Y. Filed Jan. 19, 1897. Serial No. 619,725. (No model.)



Claim.—1. The combination with a bed-frame, of rods or bars secured to the inner surfaces thereof, spring-clips arranged at spaced intervals on said rods, and a bed-bottom detachably mounted and yieldingly supported upon said clips, substantially as described.

2 The combination with a bed-frame, of a rod or bar extending along the inner surface of the head or foot board thereof, bolts adjustably securing said rod to the board, and spring-clips mounted upon said rod and adapted to detachably engage and yieldingly support a bed-bottom, substantially as described.

3. The combination with the head or foot board of a bed, of a rod extending along the inner surface thereof and having its ends bent to form eyes, bolts passing through said eyes and connected to said board and providing for the adjustment of said rod toward and away from the board, and spring-clips mounted upon said rod and adjustable therewith and adapted to detachably engage and yieldingly support a bed-bottom, substantially as described.

4. The combination with a bed-frame and a bed-bottom, of a rod extending along the inner surface of the bed-frame, and clips arranged at spaced intervals on said rod, each of said clips being composed of spring-wire provided with coils embracing said rod, the terminals of the wire being secured to the bed-frame and the central portion of the wire bent to form a hooked loop for detachably engaging and yieldingly supporting the bed-bottom, substantially as described.

598,892. **PERMUTATION-PADLOCK.** JOHN R. HOVER, Washington, D. C., assignor of one-fourth to Samuel Bruckheimer, same place. Filed May 25, 1896. Serial No. 592,969. (No model.)



Claim.—1. In a lock of the character described, the combination with a lock-body, having an angular chamber, of a latch-body pivotally seated in the angle of said chamber, and adapted to be swung from wall to wall of said chamber, a latch borne by said latch-body, and designed to be moved, by the latch-body, into and out of engagement with the part to be locked, a reciprocating fence working in said latch-body, a bolt also working in said latch-body and engaging with said fence to secure the latch-body against either wall of the angular chamber, and means for reciprocating said fence.

2. In a lock of the character described, the combination with a lock-body, having an angular chamber, of a latch-body pivotally seated in the angle of said chamber, and adapted to be swung from wall to wall of said chamber, a latch borne by said latch-body, and designed to be moved by the latch-body, into and out of engagement with the part to be locked, a reciprocating fence working in said latch-body, a bolt also working or reciprocating in said latch-body and engaging with said fence, to secure the latch-body against either wall of the angular chamber, the tumbler-shaft provided with notched tumblers, engaging with the fence, the tubular shaft fitting on said tumbler-shaft, having notched tumblers also engaging with the fence, and dials on the outer ends of the said shafts.

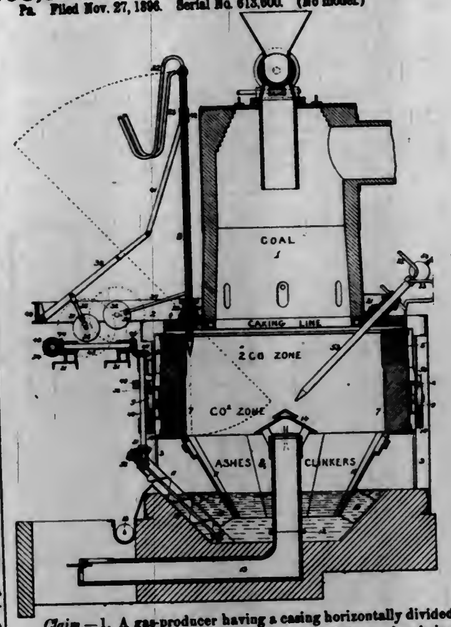
3. In a lock of the character described, the combination with a lock-body, having an angular chamber, of a latch-body pivotally seated in the angle of said chamber, and adapted to be swung from wall to wall of said chamber, a latch borne by said latch-body and designed to be moved by the same, into and out of engagement with the part to be locked, a curved slot in said latch-body, a notched, reciprocating fence working in said slot, a second curved slot branching from said first-named slot, a bolt working therein and engaging with a shoulder on said fence, whereby the latch-body may be secured against either wall of the angular chamber, and means for reciprocating said fence.

4. In a lock, the combination with a lock-body, having an angular chamber, of a latch-body, pivotally seated in the angle of said chamber, and adapted to be swung from wall to wall of said chamber, a latch borne by said latch-body and designed to be moved by the same into and out of engagement with the part to be locked, a curved slot in said latch-body, a notched, reciprocating fence working in said slot, a second curved slot, branching from said first-named slot, a bolt working therein and engaging with a shoulder formed on said fence, whereby the latch-body may be secured against either wall of the angular chamber, the tumbler-shaft provided with notched tumblers, engaging with the fence, the tubular shaft fitting on said tumbler-shaft, having notched tumblers also engaging with the fence, and permutation-dials on the ends of said shafts, outside the lock-body, through a slot in which the said shafts project or extend.

5. The combination with a bicycle-frame and a recessed steering post, of a lock-body secured thereto and having an angular chamber, a latch-body pivotally seated in the angle of said chamber, and adapted to be swung from wall to wall thereof, a latch borne by said latch-body and designed to be moved by the latch-body into and out of engagement with the recess in the steering-post, a reciprocating fence working in said latch-body, a bolt also working in said latch-body and engaging with said fence, to secure the latch-body against either wall of the chamber, and means for reciprocating said fence.

6. The combination with a bicycle-frame and a recessed steering-post, of a lock-body secured thereto and having an angular chamber, a latch-body pivotally seated in the angle of said chamber, and adapted to be swung from wall to wall thereof, a latch borne by said latch-body and designed to be moved by the latch-body into and out of engagement with the recess in the steering-post, a reciprocating fence, working in said latch-body, a bolt also working in said latch-body and engaging with said fence, to secure the latch-body against either wall of the chamber, the tumbler-shaft provided with notched tumblers, engaging with the fence, the tubular shaft fitting on said tumbler-shaft, having notched tumblers also engaging with the fence, and dials on the outer ends of the said shafts, for reciprocating said fence, to move said latch into or out of engagement.

598,898. **GAS-PRODUCER.** WILLIAM B. HUGHES, Philadelphia, Pa. Filed Nov. 27, 1896. Serial No. 613,600. (No model.)



Claim.—1. A gas-producer having a casing horizontally divided at or near the top of the hot zone, one portion of the casing being revoluble, substantially as specified.

2. A gas-producer having a casing and a poker-supporting structure above the same, one of said portions being revoluble and said casing and poker-supporting structure being constructed so as to form a seal, substantially as specified.

3. A gas-producer having a casing horizontally divided at or near the top of the hot zone, the sections of the casing being constructed so as to form a seal between the two, substantially as specified.

4. A gas-producer having a revoluble ash-hopper, and a water-seal pit into which the lower portion of said hopper projects, substantially as specified.

5. A gas-producer consisting of upper and lower independent sections, one of which is revoluble, the lower section being expanded laterally in respect to the upper section, and a structure extending from one section of the casing to the other and carrying one or more pokers, substantially as specified.

6. A gas-producer having upper and lower sections, one of which is revoluble, the lower section being laterally expanded, a structure extending from one of the said sections to the other, and having a portion extending into a seal on the lower section, and one or more pokers mounted upon said connecting structure so as to be outside of the upper section, and inside of the lower section of the producer, substantially as specified.

7. A gas-producer in which are combined a producer-body with a structure mounted above the same, one of said parts being revoluble, and a poker mounted on said superstructure so as to be free to swing in a radial plane, said poker projecting down into the producer-body, substantially as specified.

8. A gas-producer having a body in which are combined a producer with a structure mounted above the same, one of said parts being revoluble in respect to the other, a block mounted on said superstructure so as to be free to swing in a radial plane, and a poker free

to slide back and forth through said block, said poker projecting down into the producer-body, substantially as specified.

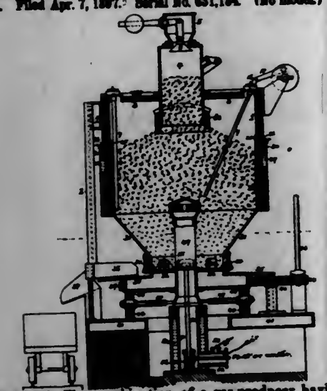
9. A gas-producer in which are combined an upper fixed section, a lower section laterally expanded in respect to said upper section, means for mounting said lower section so that it can rotate, a structure extending from one section of the casing to the other, and one or more pokers mounted upon said connecting structure, and extending down into the lower section of the producer-body, substantially as specified.

10. A gas-producer having a casing divided horizontally, one portion being revoluble in respect to the other, and pokers mounted upon the upper portion of the casing and projecting down into the lower portion of the same, whereby said pokers are, by the rotative movement of the casing, caused to agitate and break up the mass into which they project, substantially as specified.

11. A gas-producer having a casing divided horizontally, and having one part revoluble in respect to the other, said parts of the casing being constructed to form a water-seal chamber, substantially as specified.

12. The combination of a gas-producer having a revoluble body portion, a movable poker mounted so as to project into said revoluble body portion of the producer, and mechanism having a common driving-shaft and serving to operate the poker and rotate the revoluble body portion of the producer, substantially as specified.

598,894. GAS-PRODUCER. WILLIAM B. HUGHES, Philadelphia, Pa. Filed Apr. 7, 1897. Serial No. 631,184. (No model.)



Claim.—1. The combination of a gas-producer having a body divided horizontally at a point above the level of the fuel therein, one part being revoluble in respect to the other, with a fuel-reservoir carried by the upper portion of the producer-body and projecting down into the gas-chamber.

2. The combination of a gas-producer having a body with lower revoluble section and upper fixed section divided horizontally at a point above the level of the fuel, with a fuel magazine or reservoir carried by said upper fixed section of the producer-body and projecting down into the same, substantially as specified.

3. The combination of the lower section of a gas-producer body, an upper section having a fuel reservoir or magazine projecting down into the producer-body, one of said sections being revoluble and the horizontal division between the sections being above the level of the fuel, and pokers mounted upon the upper section of the producer-body, substantially as specified.

4. The combination of the producer-body comprising upper and lower sections, one of which is revoluble, with joint-rings having inner depending flanges whereby the access of coal to the horizontal portion of the joint is prevented, substantially as specified.

5. The combination of the cap-plate of the body of a gas-producer with a hollow poker having trunnions adapted to bearings in said cap-plate, one of said trunnions having a chamber communicating directly with the upper end of the poker and the other trunnion having a chamber communicating through a pipe with the inner end or point of the poker, substantially as specified.

6. The combination of a gas-producer body with a vibratable poker having trunnions adapted to bearings on the producer body the top bearing-plate having an opening extending vertically therethrough, and a sealed bell for closing said opening, substantially as specified.

7. A gas-producer body having a revoluble ash-hopper and an ash-receiving plate revoluble therewith and adapted to receive the ashes as they are drawn from the hopper, substantially as specified.

8. A gas-producer having a revoluble body with depending ash-hopper and hearth-plate, and lateral openings above said hearth-plate, with doors for closing said openings, substantially as specified.

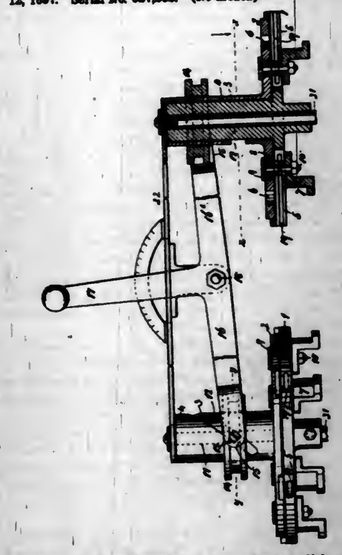
9. The combination of a gas-producer having a revoluble ash-hopper and an ash-receiving plate extending outwardly beyond said hopper and revolving therewith whereby it is adapted to receive the ashes as they are drawn from the hopper, substantially as specified.

10. The combination of a gas-producer having a revoluble ash-hopper, an ash-receiving plate revolving therewith and extending outwardly therefrom, and means for removing ashes from said plate as it rotates, substantially as specified.

11. The combination of the ash-hopper of a gas-producer, an air-pipe projecting up into the same, and a pipe passing through said air-pipe and having a branch or branches serving to project water or steam laterally into the lower portion of the ash-hopper directly above the hearth, substantially as specified.

12. The combination of the ash-hopper of a gas-producer, an air-pipe projecting up into the same and having a rotative movement, a pipe passing through said air-pipe and having branches carried thereby and serving to project water or steam laterally into the lower portion of the ash-hopper above the hearth, and a fixed supply-pipe having a stuffing-box connection with the pipe carried by the rotating air-pipe, substantially as specified.

598,895. EXPANSIBLE PULLEY. WILHELM JASPER, New York, N. Y., assignor of one-half to Max Mindheim, same place. Filed Mar. 12, 1897. Serial No. 627,208. (No model.)



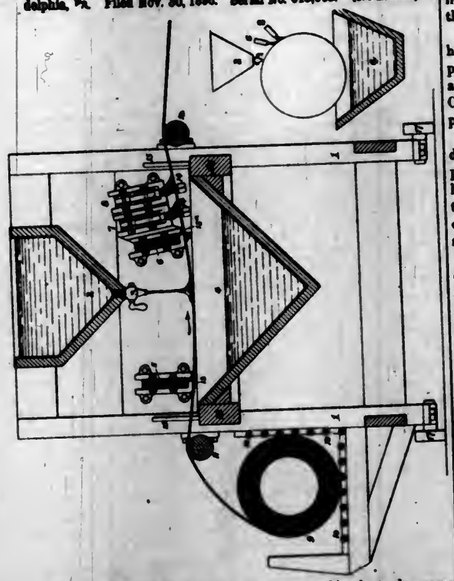
Claim.—1. A guiding-disk and an adjusting-disk, combined with concentric shafts for the disks, and bearing-pieces engaged by said disks, said shafts being respectively provided with helical and rectilinear grooves, and a sleeve or shifter having a stud made to engage the grooves substantially as described.

2. A disk provided with rectilinear radial slots, combined with a disk provided with helical slots, bearing-pieces placed against one of the disks and having stems extended through said slots, concentric shafts for the disks provided respectively with rectilinear and helical grooves, and a sleeve or shifter having a stud made to engage said grooves substantially as described.

3. A guiding-disk provided with rectilinear radial slots, combined with an adjusting-disk provided with helical slots, bearing-pieces placed against one of the disks and having stems extended through said slots, concentric shafts for the disks provided respectively with rectilinear and helical grooves, and a sleeve or shifter having a stud made to engage said grooves, said guiding-disk having its rectilinear slot walls channeled, and said bearing-stems having tongues fitted into said channels substantially as described.

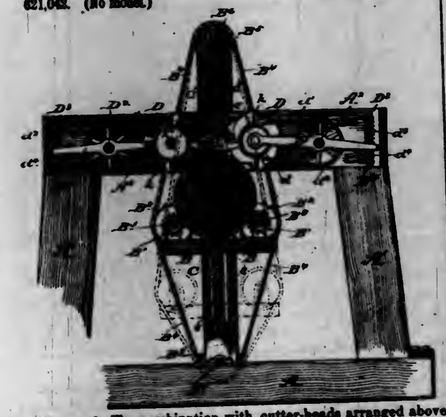
4. The combination with a guiding-disk and an adjusting-disk provided, respectively, with rectilinear and helical slots, concentric shafts provided, respectively, with helical and rectilinear grooves and connected with said disks, bearing-pieces engaged with the slots of the disks, and a shifter movable upon one of the shafts and having a stud engaging the rectilinear and helical grooves of said shafts, substantially as described.

598,896. PAINTING-MACHINE. WILLIAM K. JOHNSON, Philadelphia, Pa. Filed Nov. 20, 1896. Serial No. 613,263. (No model.)



Claim.—A coating-machine in which are combined a tank, means for moving a strip or sheet over said tank, and for maintaining it in a laterally-inclined position during such passage, provision for causing a flow of the coating material onto the strip or sheet, and means for spreading or distributing said coating material over the strip or sheet as it is moved forward, whereby the surplus material is caused to flow laterally into the tank from the lower edge of the strip or sheet, substantially as specified.

598,897. BARK-PEELING MACHINE. JOHN T. JOHNS and GEORGE W. JOHNS, Western Port, Md. Filed Jan. 28, 1897. Serial No. 621,042. (No model.)



Claim.—1. The combination with cutter-heads arranged above the log; of a subjacent log-supporting table, turning devices consisting of a horizontal shaft on each side of the table provided with supporting-wheels and sprocket-wheels on their ends, an endless chain belt passing around said sprocket-wheels, and distending and actuating wheels for the chain belt one arranged above and the other below the log-table, and means for adjusting the table and its turning devices vertically substantially as and for the purpose described.

2. The combination with cutter heads arranged above the log; of a subjacent log-supporting table, turning devices consisting of a horizontal shaft on each side of the table provided with supporting-wheels and sprocket-wheels on their ends, endless chain belts passing around said sprocket-wheels, distending and actuating devices for the chain belt, and a vertical adjusting-screw at each end of the table in mesh with nuts on the ends of the table and arranged to adjust the latter vertically substantially as and for the purpose described.

3. In a bark-peeling machine the combination of the main frame having slotted end standards A^3; of a log-table provided with supporting and turning devices consisting of shafts B^2 B^3, wheels B^7 B^8, and chain belt B^4, and also a screw-nut b at its ends, the screw-rods C, bevel-gears c' c^2, and operating-shaft C' substantially as and for the purpose described.

4. The combination with a set of log turning and supporting devices; of two series of yielding cutter-heads arranged upon independent axes alternately upon opposite sides of the middle of the log-table, with the cutter-heads of one set alternating with those of the other set and revolving in opposite directions to cause the pull of one set of cutter-heads on the log to neutralize that of the other set substantially as and for the purpose described.

5. The combination with a set of log turning and supporting devices; of a set of yielding cutter-heads arranged upon independent axes alternately upon opposite sides of the log-table and resting against the log and following its inequalities substantially as and for the purpose described.

6. In a bark-peeling machine the combination with the log supporting and turning devices; of a horizontal shaft D^2 carrying a series of rigid drive-pulleys d^3, a series of cutter-heads and actuating devices consisting each of a horizontal frame D' hinged upon said shaft D^2 and carrying at its end, a cutter-head D with drive-pulley d, the belt d' connecting said pulleys d^3 and d' and springs d^5 and d^6 arranged above and below the outer ends of the hinged frames D' substantially as and for the purpose described.

598,898. CARPET-STRETCHER. PHILIP A. LAWYER, Janesville, Ill. Filed May 27, 1897. Serial No. 638,430. (No model.)



Claim.—1. A carpet-stretcher consisting of a stem provided with a cross-head having a carpet-engaging jaw carrying removable teeth, means to retain the teeth in place, a recess in the central front edge of the cross-head and a plate extending across the recess, a lever pivoted to the stem having teeth in its end, all combined as set forth.

2. A carpet-stretcher, consisting of a stem provided with a cross-head having a carpet-engaging jaw carrying teeth, a recess in its front edge inclosed by a plate, a lever pivoted to the stem having a recess in its outer end, removable teeth in said recess and means to retain them in place, all combined as set forth.

3. The herein-described carpet-stretching appliance consisting of a cross-head having the carpet-engaging jaw and anchoring-stem disposed at right angles thereto, said jaw having the recess in its forward edge and further provided with the reinforcing-plate; an operating-lever pivotally secured to said stem and having anchoring-teeth secured to its lower end, and a series of carpet-engaging teeth mounted in said jaw, each tooth having a sharpened engaging point and a laterally-curved anchoring bolt-engaging section, all operatively combined in the manner and for the purpose set forth.

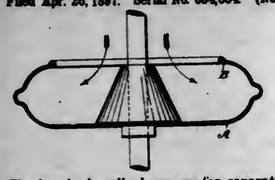
598,899. ELECTRIC-ARC LAMP. GEORGE B. LEAN, Cleveland, Ohio; Jotham Potter, administrator of said Lean, deceased, assignor to the Jandus Electric Company, same place. Filed Jan. 23, 1897. Serial No. 620,436. (No model.)

Claim.—The combination with an arc-inclosed alternating-cur-

rent arc-lamp, of cored carbons the cores of which are one sixteenth of an inch in diameter or less, substantially as set forth.

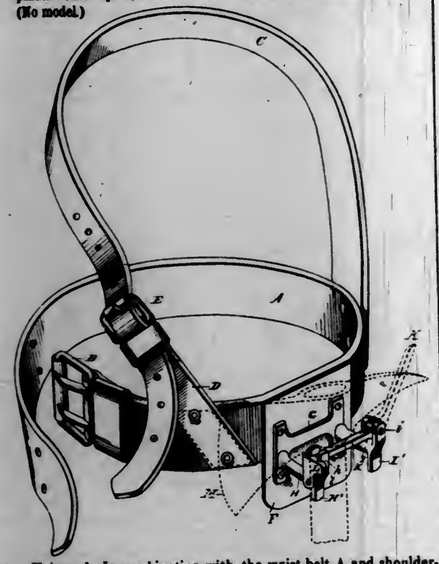


598,900. PROCESS OF SEPARATING HEAVY FROM LIGHT PARTICLES BY CENTRIFUGAL ACTION. LOUIS MAICHE, Paris, France. Filed Apr. 26, 1897. Serial No. 634,004. (No specimens.)



Claim.—The herein-described process for separating the heavy from the light particles of pulverized material by mixing the material with viscous liquid and subjecting the mixture to centrifugal action.

598,901. FIREMAN'S TOOL AND HOSE CARRIER. JOHN H. MURNAN, Boston, Mass., assignor of one-half to William J. Kelly, same place. Filed Apr. 2, 1896. Renewed Oct. 4, 1897. Serial No. 654,039. (No model.)



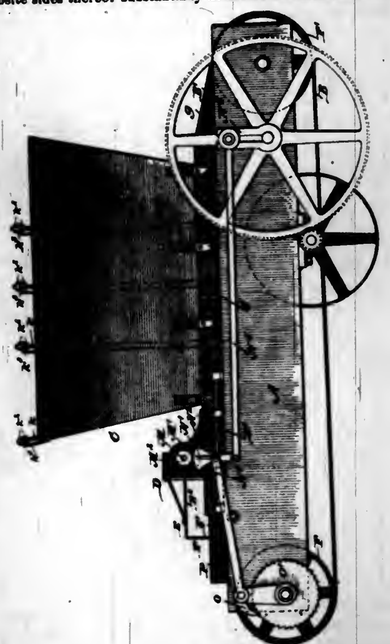
Claim.—1. In combination with the waist-belt A and shoulder-strap C secured thereto, the metal plate G secured to said belt and having outwardly-projecting arms H, I, a lever K pivoted to one of said arms and adapted to be locked to the other arm substantially as and for the purpose set forth.

2. In combination with the waist-belt A and shoulder-strap C secured thereto, the metal plate G secured to said belt and having outwardly-projecting arms H, I, downwardly-projecting cleats on said arms and a lever pivoted to one of the arms and adapted to be locked to the other arm substantially as and for the purpose set forth.

598,902. MACHINE FOR PACKING POWDER. JAMES MCNAB, Catonsville, Md. Filed Mar. 29, 1897. Serial No. 629,730. (No model.)

Claim.—1. A machine substantially as described comprising the hopper-chambers following each other in succession and having their outlets extended each above that of the preceding chamber, and the carrier-belt traveling through the lower ends of said chambers and having a central or main portion and flexible edge portions thinner than the main portion and adapted to be turned up from said main portion within the hopper-chambers substantially as described.

2. In a machine substantially as described a carrier-belt having a main or central portion and flexible edge portions made thinner than and extended from the lower edges of the main portion at the opposite sides thereof substantially as shown and described.



3. In a machine substantially as described, a carrier-belt having a central or main portion and flexible edge portions made thinner than and adapted to be turned up at the opposite sides of the said main portion, substantially as shown and described.

4. In a machine substantially as described a carrier composed of a plurality of layers of material one layer being wider than the other or others and extending at both edges beyond the same forming portions adapted to be upturned and cooperating with the intermediate portion in forming a trough substantially as described.

5. The combination substantially as described of the hopper-chambers, the belt having edge portions adapted to be upturned, the guide-plates for said upturned edge portions and the retaining-plates overlapping the said edge portions and stepped, substantially as shown and described.

6. In an apparatus substantially as described the combination of the hoppers, the outlet of each being higher or extended above the preceding one, the carrier, and the retaining plates lying within said carrier and below the hoppers said plates being stepped substantially as described.

7. In a machine substantially as described the combination with a belt or carrier of a double-bladed divider adapted to travel with the belt while acting upon the material and having above the blades an intermediate plate by which to compress the divided charge, substantially as shown and described.

8. A machine for packing powder comprising the belt or carrier, the carriage movable in the direction of length of the carrier, the divider having two blades and movable up and down in said carriage operating means and a movable connection between the same and the carriage whereby the operating means may raise and lower the divider and may reciprocate the divider substantially as shown and described.

9. A machine, substantially as described comprising the belt or carrier, the carriage movable in the direction of movement of said carrier, a divider supported on said carriage and having two blades and operating mechanism including devices for intermittently advancing the carrier with the corresponding movement of the carriage substantially as shown and described.

10. A machine substantially as described comprising the hoppers having their outlets or discharges arranged successively higher, the trough-shaped belt-carrier operating beneath said hoppers, the stepped retaining-plates lying within said trough-shaped belt and the divider and its carriage substantially as described.

11. In a machine substantially as described, the combination of the longitudinally-movable carriage, a divider movable on said carriage, a rocking arm supported on and movable with and independently of the carriage and engaging the divider, said arm being arranged to rock in the direction of movement of the carriage, and means for operating the said arm substantially as shown and described.

12. A machine substantially as described comprising a belt or carrier, a carriage reciprocating along the same, a divider carried by and movable up and down on said carriage, a rocking arm pivoted to said carriage and geared with the divider and the operating mechanism connected with the arm whereby to first operate the divider and then reciprocate the carriage, substantially as described.

13. A machine substantially as described, comprising the belt the pulleys supporting the same, a ratchet in connection with one of said pulleys, the carriage, a pawl engaging said ratchet and connected with the carriage, means for reciprocating the carriage and a divider supported by said carriage, substantially as shown and described.

14. A machine substantially as described, comprising a belt or carrier, a carriage movable along the same a divider supported by and movable up and down on the carriage and provided with a rack, a shaft having a gear meshed with said rack, and a pinion, an arm pivoted between its ends and having a segment meshing said pinion, and a pitman connected with said arm, substantially as shown and described.

15 A machine substantially as described, comprising the belt or carrier, the carriage movable with and independently of said carrier and provided with the divider and the delivery-plate arranged at one end adjacent to the belt or carrier and spaced at its other end slightly apart from the belt whereby a box may be slipped over such end, substantially as described.

16. A machine substantially as described comprising the endless belt-carrier having flexible edge portions adapted to be upturned, the hopper-chambers, the guide-plates by which to upturn the edges of the carrier, the carriage moving with and independent of the belt-carrier the divider carried by said carriage and operating means, substantially as described and shown.

17. A machine substantially as described, comprising a plurality of hopper-chambers, a blind chamber or compartment being provided, in connection therewith, and a carrier cooperating with said hopper-chambers, substantially as shown and described.

598,903. HAIR-PIN. CLARENCE A. PACKARD, Charleston, W. Va. Filed July 6, 1897. Serial No. 643,879. (No model.)



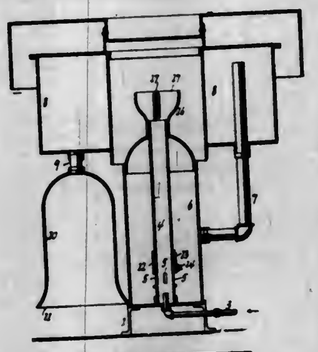
Claim.—1. A hair pin comprising a hollow body having near one end lateral openings, an operating-rod within and having one end project through the opposite end of the body, locking arms pivoted to the opposite end of the rod and adapted to be projected and retracted through said openings, the body having a combined guide and stop for said rod situated a distance from the said openings equal to the length of said locking-arms, substantially as described.

2. A hair-pin comprising a hollow body having near one end lateral openings, an operating-rod within and having one end project through the opposite end of the body, locking-arms pivoted to the opposite end of the rod and adapted to be projected and retracted through said openings, the end of the body opposite the openings having a yielding lock engaging said rod and holding it within the body, substantially as described.

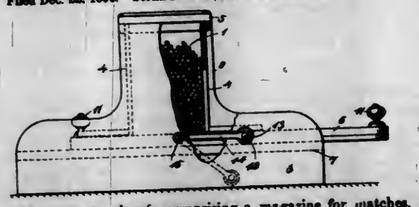
3. A hair-pin comprising a casing having near one end lateral openings, an operating-rod within and having one end project through the opposite end of the body, locking-arms pivoted to the opposite end of the rod, the casing having therein a wedge or tapered projection *d* extending inward between said openings and arms, substantially as described.

598,904. ATMOSPHERIC BURNER OR HEATER. WILLIAM PARFENT, New York, N. Y., assignor to himself, Richard K. Owens, and George Cody, same place. Filed July 30, 1896. Serial No. 601,083. (No model.)

Claim.—The herein-described atmospheric burner or heater consisting of a burner-tube provided with a burner, means for admitting fuel to said burner-tube, a closed heated-air-supply chamber surrounding the burner-tube, a closed ring-chamber surrounding the burner for heating the air before it enters the air-supply chamber and having a contracted air-inlet at one side and a tube communicating with the upper part of the air-heating chamber at the side thereof opposite the inlet and leading to the air-supply chamber, substantially as described.

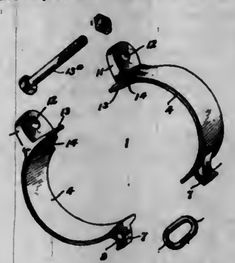


598,905. MATCH-SAFE. WALTER W. PENNINGTON, Butte, Mont. Filed Dec. 22, 1896. Serial No. 616,596. (No model.)



Claim.—A match-safe, comprising a magazine for matches, a carriage mounted to slide across the open lower end of the magazine, the said carriage being provided with two transverse channels to receive matches whereby a match may be carried out of the magazine by the carriage in either of its longitudinal movements under the magazine, substantially as specified.

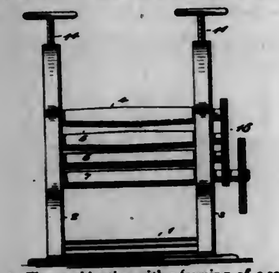
598,906. CLAMP FOR HOSE-COUPLINGS. ORANGE POUND, Bartow, Fla. Filed July 28, 1896. Serial No. 600,836. (No model.)



Claim.—1. A clamp for hose-couplings, comprising a pair of opposite duplicate semicircular clamp members hinged together at one end and provided at their unhinged terminals with offstanding perforate bolt-ears, narrowed binding-lips projected on a curved line beyond the plane of the bolt-ears, and curved recesses formed in the inner faces at one side of said lips, the opposing binding-lips being arranged in parallel circular planes whereby each lip will work in the curved recess of the opposing clamp member, and a clamping-bolt detachably connecting said bolt-ears, substantially as set forth.

2. A separable clamp for hose-couplings, comprising a pair of duplicate semicircular clamp members provided at one end with opposing offstanding contacting hinge-lugs arranged in the same circular plane and having inner convexed bearing-faces and outer concaved faces or edges, an open coupling-link loosely and detachably connecting the adjacent hinge-lugs and permitting the clamp to adjust itself to inequalities in the hose, said inner convexed bearing-faces of the opposing lugs being adapted to ride in direct contact when the members are spread apart to permit the points of the lugs to approach and provide for the ready disengagement of the coupling-link therefrom, and a bolt detachably clamping the unhinged ends of the clamp members, substantially as set forth.

593,907. MACHINE FOR ROLLING TAPERED METAL. CHESTER PROUTY, Ridgway, Pa. Filed Apr. 3, 1897. Serial No. 630,628. (No model.)



Claim.—1. The combination with a framing, of a set of coacting working rolls, and another set of coacting templet-rolls independent of the working rolls and arranged to be adjusted by a templet fed therethrough and to vary the width of the pass between the working rolls according to the degree of adjustment afforded by the varying thicknesses or gages of the templet, as and for the purposes described.

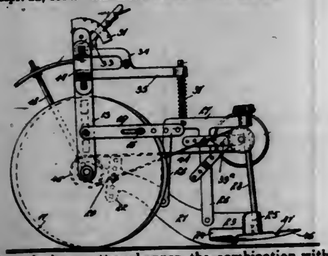
2. The combination with a framing, of a set of coacting working rolls, another set of coacting templet-rolls independent of the working rolls and in operative relation to the working rolls to vary the width of the pass therebetween according to the different gages or thicknesses of the templet, and means for giving uniform peripheral speed to all the rolls of the said sets of working and templet rolls, as and for the purposes described.

3. The combination with a framing, of a set of coacting working rolls one of which is adjustable with relation to the other, another set of independent coacting templet-rolls, one occupying a non-adjustable position and the other arranged for adjustment in connection with the adjustable working roll, and gearing for operatively connecting all of said rolls to give a uniform peripheral speed thereto, as and for the purposes described.

4. The combination with a framing, of a set of coacting rolls the upper one of which has its boxes held in place by suitable means and the other roll having its boxes mounted in said frame to slide freely therein, another set of coacting templet-rolls the lower one of which likewise has its boxes stationary within the frame and the other roll mounted in freely-slidable boxes, the latter arranged to raise or lower the adjustable working roll according as the adjustable templet-roll is raised or lowered by the varying thicknesses or gages of a templet fed between the templet-rolls, as set forth.

5. The combination of a set of positively-driven working rolls, another set of templet-rolls independent of, and driven at the same peripheral speed as, the working rolls and arranged to adjust the working rolls at different periods, and a templet of variable thicknesses or gages arranged to be fed through the templet-rolls, substantially as described, for the purposes set forth.

593,908. COTTON-CHOPPER. FRANK L. RICHTER, Moravia, Tex. Filed Apr. 22, 1897. Serial No. 633,357. (No model.)



Claim.—1. In a cotton-chopper, the combination with an axle, runners extending forwardly from the axle, and cultivators carried by the axle, of revoluble chopping-disks supported by the runners, said disks being at angles to each other and to the cultivators, each disk being also provided with corresponding peripheral recesses, and a driving connection between the axle and the disks, substantially as described.

2. In a cotton-chopper, an axle, cultivators secured upon the axle and chopping-disks located in advance of the cultivators, said disks being placed at angles to one another and provided with peripheral recesses, the recesses in one disk being arranged to register with corresponding recesses in the other disk for the purpose specified.

3. In a cotton-chopper, the combination with an axle, and cultivator-disks secured to the axle, the cultivator-disks at one side of the center of the axle being at angles to the disks at the opposite side, of chopping-disks supported from the axle adapted to revolve in close relation to each other and located approximately at a right angle to the cultivator-disks for the purpose specified.

4. In a cotton-chopper, the combination with an axle constructed in sections having a swivel connection, and disk cultivators secured upon the axle supporting the same, of chopping-disks having their under surfaces facing the ground, and means, substantially as described, for adjustably supporting the chopping-disks in advance of the cultivator-disks.

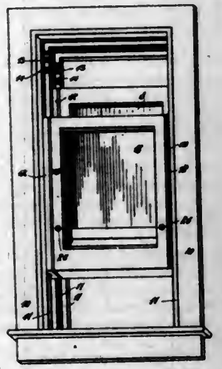
5. In a cotton-chopper, the combination with an axle and disk cultivators secured to the axle, of chopping-disks located in advance of the cultivators, and runners carrying the chopping-disks, said runners being re-turned over the chopping-disks constituting scrapers therefor, and likewise serving to maintain the disks in proper relation to the runners, as specified.

6. In a cultivator, a cotton-chopper or similar machine, an axle constructed in sections, a swivel-coupling connecting the sections of the axle, and cultivator-disks secured to the sections of the axle, the disks at one side of the coupling being at angles to those at the opposite side of the coupling, the said disks being arranged to converge at the front and diverge at the rear, substantially as shown and described.

7. In a cotton-chopper or like machine, the combination, with an axle constructed in sections, the sections being at angles to one another, a swivel-coupling connecting the said sections, and disks secured on the sections of the axle, the disks of one section being at an angle to the disks upon the opposite section, of runners supported from the axle, scrapers located at the rear ends of the runners, disks mounted to revolve beneath each scraper, the disks being in near relation and at angles one to the other, having recesses in their periphery, and a driving connection, substantially as described, between the axle and the said disks, as and for the purpose set forth.

8. In a cotton-chopper or like machine, the combination, with an axle constructed in sections, the sections being at angles to one another, a swivel-coupling connecting the said sections, and disks secured on the sections of the axle, the disks of one section being at an angle to disks upon the opposite section, of runners supported from the axle, scrapers located at the rear ends of the runners, disks mounted to revolve beneath each scraper, the disks being in near relation and at angles one to the other, having recesses in their periphery, and a driving connection, substantially as described, between the axle and the said disks, a tension-controlled arm regulating the upward movement of the runners, a lever, and a rack for the same, the said lever being provided with an extension arranged to limit the upward movement of the tension-controlled arm, as and for the purpose set forth.

593,909. WINDOW-SASH. ALFRED F. SMITH, Las Vegas, N. Mex. Filed Apr. 22, 1897. Serial No. 633,355. (No model.)



Claim.—1. The combination of a sash, a cleat, a plate carried on the cleat and having overhanging edges, a plate carried on the sash and having inturned edges to slidably engage the overhanging edges of the first-named plate, a casing carried by the window-sash, a tumbler having hollow trunnions mounted in the casing and projecting to the outer face of the window-sash, and a bolt slidable in the casing and actuated by the tumbler and capable of removably connecting the sash and cleat with each other.

2. The combination with a window-frame provided with a bead formed with a recess near its top, of a cleat slidable on said frame and provided with a spring-controlled cam-shaped bolt arranged to enter the said recess and by which said cleat is rigidly connected with said bead at the upward limit of its movement, a sash mounted to slide on said cleat and detachable therefrom, and means for rigidly connecting said sash and cleat.

3. The combination with the window-frame, and the bead provided with a recess near its upper end, of the cleat slidable upon said frame, a dash slidable upon said cleat, a spring-controlled cam-shaped bolt carried by said cleat and arranged to enter the recess in said bead when the cleat is at the upward limit of its movement, a casing carried by the window-sash, a tumbler having hollow trunnions mounted in the casing and projecting to the outer face of the window-sash, and a bolt slidable in said casing being actuated by said tumbler, and by which the sash is rigidly connected with the cleat.

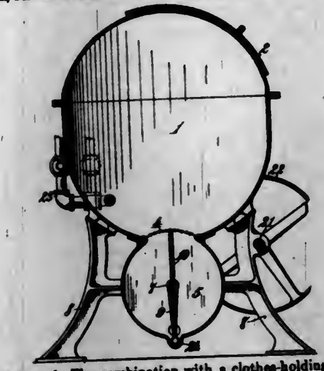
4. The combination with the window-frame, of the cleat slidable thereon, means for rigidly connecting said cleat with the frame when the former is at the upward limit of its movement, a sash fitted to slide longitudinally on and off said cleat, said cleat and sash having interlocking edges by which they are held against lateral displacement, and means for rigidly connecting said cleat and sash together.

5. The combination, with the window-frame, of a sash, a cleat slidable thereon, a plate carried by said cleat, and having overhanging edges, a plate carried by said sash and having inturned edges arranged to engage the overhanging edges of the first-named plate and by which said cleat and sash are slidably connected, a spring-actuated device carried by said cleat and arranged to automatically engage the window-frame, whereby to rigidly connect said cleat therewith, and means for rigidly connecting said cleat and sash.

6. The combination with a window-frame provided with a recess near its top, of a cleat slidable on said frame and provided with a spring-controlled cam-shaped bolt arranged to enter said recess and by which said cleat is rigidly connected with the frame, a plate carried on said cleat and formed with overhanging edges, a sash provided with a plate formed with inturned edges arranged to engage the overhanging edges of the first named plate, and by which said sash and cleat are slidable one upon the other, and means for rigidly connecting said sash and cleat.

7. The combination with the window-frame provided with a bead formed with a recess near its top, of a cleat slidable on said frame and provided with a spring-controlled cam-shaped bolt arranged to enter said recess and by which said cleat is rigidly connected with said bead at the upward limit of its movement, a sash slidable longitudinally on and off said cleat and being held from lateral displacement by its edges interlocking with the edges of said cleat, and means for rigidly connecting said sash and cleat.

593,910. WASHING-MACHINE. HAMILTON E. SMITH, Philadelphia, Pa. Filed Jan. 26, 1897. Serial No. 620,823. (No model.)



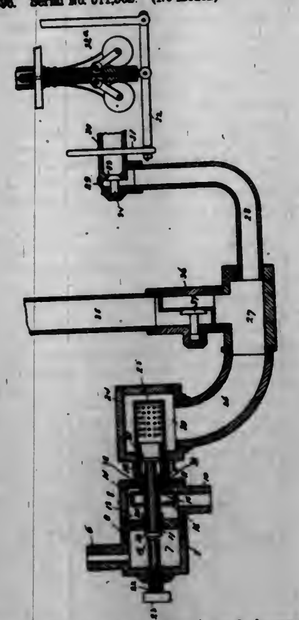
Claim.—1. The combination with a clothes-holding vessel, of a water-chamber arranged beneath said vessel and communicating therewith, a screen which sustains the clothes in the holding vessel and prevents them from descending into the water-chamber, a dividing partition or plate arranged beneath the screen, an oscillating water-propelling blade working directly in the water-chamber and operating to drive the water upwardly at either side of said dividing partition or plate, and means for oscillating the water-propelling blade, substantially as described.

2. The combination with a clothes-holding vessel, of a water-chamber arranged beneath said vessel and communicating therewith, a screen for sustaining the clothes in the holding vessel, a rock-shaft extending through the central portion of the water-chamber and having an attached pendent water-propelling blade working in the water-chamber, a vertical partition extending longitudinally of the water-chamber between the said screen and the said rock-shaft, and mechanism, substantially as described, for rocking the shaft and oscillating the water-propelling blade, to raise the water alternately at opposite sides of said partition, substantially as described.

3. The combination of a clothes-holding vessel having a longitudinal opening in its bottom portion, a water-chamber arranged under said vessel and communicating therewith through said longitudinal opening, a screen which sustains the clothes in the vessel, a vertical partition running longitudinally through the top portion of the water-chamber, an oscillating water-propeller arranged below said partition and operating to drive the water from the water-chamber upward alternately at opposite sides of said partition, and pinion-and-gear mechanism for oscillating the water-propeller, substantially as described.

4. The combination of a clothes-holding vessel having a longitudinal opening in its bottom portion, a water-chamber arranged under said vessel and communicating therewith through said longitudinal opening, a screen which sustains the clothes in the vessel, a vertical partition running longitudinally through the top portion of the water-chamber, an oscillating water-propeller arranged below said partition and operating to drive the water from the water-chamber upward alternately at opposite sides of said partition, a pinion connected with the water-propeller, a toothed segment engaging the pinion, a rocker-shaft mounted in bearings on the machine-frame and to which the toothed segment is secured, a crank-arm extending from the rocker-shaft, a driving-shaft, and a rod connection between said crank-arm and said driving-shaft, for rocking the rocker-shaft to which the toothed segment is attached, substantially as described.

593,911. VAPORIZING-CARBURETER AND AIR-GOVERNOR FOR GAS-ENGINES. FRANKLIN F. SNOW, Benton Harbor, Mich. Filed Nov. 7, 1896. Serial No. 611,362. (No model.)



Claim.—1. In a vaporizing-carbureter and air-governor for gas-engines, the combination of a main casing, with means for admitting gasolene thereto, said casing being provided at its outer end with a screw-threaded bolt which passes therethrough, and at its inner end with a central tube, a supplemental casing connected with said main casing through which said tube passes, a valve mounted in said main casing, and provided with a stem, which passes through said tube, said valve being adapted to close the passage through said tube, said supplemental casing being also provided centrally of its outer end with a tubular extension with which is connected an auxiliary casing, within which is mounted a perforated tube, which is connected with said tubular extension, and a cylindrical hollow valve mounted in said supplemental casing and provided with a tubular extension, which passes through the tubular extension of the supplemental casing into the perforated tube in the auxiliary casing, and the inner end of the

valve-stem of the valve within the main casing being provided with a cross head or rod which is connected with the tubular extension of the valve within the supplemental casing, substantially as shown and described.

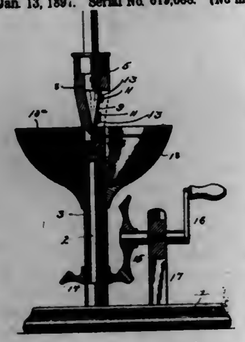
2. In a vaporizing-carbureter and air governor for gas-engines, the combination of a main casing with means for admitting gasolene thereto, said casing being provided at its onter end with a screw-threaded bolt which passes therethrongh, and at its inner end with a central tube, a supplemental casing connected with said main casing through which said tube passes, a valve mounted in said main casing and provided with a stem, which passes through said tube, said valve being adapted to close the passage through said tube, said supplemental casing being also provided centrally of its outer end with a tubular extension with which is connected an auxiliary casing within which is mounted a perforated tube, which is connected with said tubular extension, and a cylindrical hollow valve mounted in said supplemental casing and provided with a tubular extension, which passes through the tubular extension of the supplemental casing into the perforated tube in the auxiliary casing, and the inner end of the valve-stem of the valve within the main casing being provided with a cross head or rod which is connected with the tubular extension of the valve within the supplemental casing, and said supplemental casing being provided with air ports or passages which are controlled by the valve mounted therein, substantially as shown and described.

3. In a vaporizing-carbureter and air-governor for gas-engines, the combination with a casing as 5, provided with a screw-threaded bolt 22, in one end thereof, and at the other with a central tube as 17, of a supplemental casing as 8, connected therewith, and provided with a tubular extension as 12, an auxiliary casing as 24, mounted on said tubular extension and provided with a perforated tube which communicates therewith, the casing 5, being provided with a valve as 19, which closes the passage through the tube 17, and with a valve-stem which passes therethrough, and the casing 8, being provided with a hollow cylindrical valve as 14, which is provided with a tubular extension which incloses the tube 17, and which communicates with the perforated tube in the casing 24, and the end of said valve-stem and the tubular extension of the valve 14, being connected, and said supplemental casing being provided with air ports or passages which are controlled by the valve 14, mounted therein, substantially as shown and described.

4. In a vaporizing-carbureter and air-governor for gas-engines, the combination of three separate casings connected in line as described, means for admitting gasolene to the outer casing, means for admitting gas and air to the central casing, and valves located in each which are operatively connected, said central casing being also in communication with the inner casing which is provided with a perforated tube which is in communication with said outer and central casings, said central casing being also provided with air ports or passages which are controlled by the valve located therein, substantially as shown and described.

5. In a vaporizing-carbureter and air governor for gas-engines, the combination of three separate casings connected in line as described, means for admitting gasolene to the outer casing, means for admitting gas and air to the central casing, and valves located in each which are operatively connected, said central casing being also in communication with the inner casing which is provided with a perforated tube, which is in communication with said outer and central casings, said central casing being also provided with air ports or passages which are controlled by the valve located therein, and said inner casing being also in communication with the engine, this connection being made in the usual manner, substantially as shown and described.

593,912. PENCIL-SHARPENER. LEORA A. STOUGH, Durango, Colo. Filed Jan. 13, 1897. Serial No. 619,088. (No model.)



Claim.—1. In a pencil-sharpener, the combination of a base, a vertical spindle mounted thereon, a rotary pencil-holder disposed vertically and composed of an upper pencil-receiving head and a lower tubular shank arranged on the said spindle, a support rising from the base, a horizontal shaft journaled on the support, and gearing connecting the shaft with the tubular shank, substantially as described.

2. In a pencil-sharpener, the combination of a base, a vertical spindle rising from the base, a rotary pencil-holder having a tubular shank arranged on the spindle, a blade carried by the rotary pencil-holder and arranged to engage a pencil, a receptacle mounted on and carried by the tubular shank and arranged beneath and extending around the blade in position to receive the shavings, and gearing for rotating the pencil-holder, substantially as described.

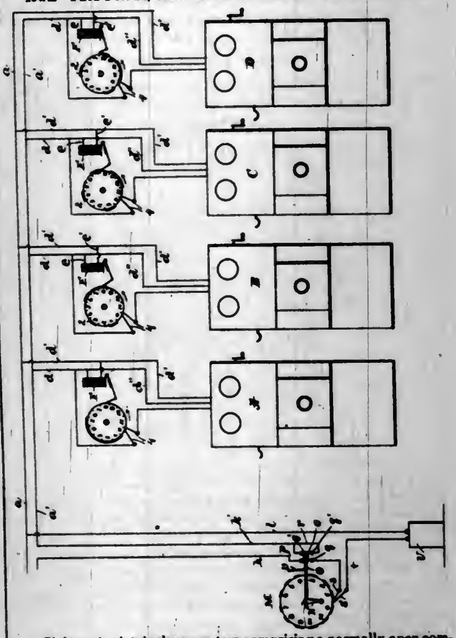
3. In a pencil-sharpener, the combination of a rotary pencil-holder having a pencil-receiving opening, a blade, a receptacle mounted on the pencil-holder and located below the blade, said receptacle being provided at its upper edge with an inwardly-extending rim adapted to prevent the shavings from being thrown out of the receptacle by centrifugal force, and means for rotating the pencil-holder, substantially as described

593,913. NUT-LOCK. ROBERT H. WALKER, Washington, Iowa, assignor of two-thirds to Robert Shields, same place, and W. C. Linton, Ottumwa, Iowa. Filed Feb. 3, 1897. Serial No. 621,865. (No model.)



Claim.—In a nut-lock, the combination with a bolt provided with a plurality of longitudinal grooves in its threaded portion, of a nut having a dovetail recess in its periphery, and a locking-pawl consisting of a body having its longitudinal edges beveled to fit in the recess of the nut, and a spring-tongne projecting laterally from one end of the body, said tongue being curved to fit around the bolt and having its end engaging one of the grooves of the bolt, substantially as shown and described.

593,914. ELECTRIC SWITCH. WILL M. T. WEBB, Davenport, Iowa. Filed Feb. 24, 1897. Serial No. 624,810. (No model.)



Claim.—1. A telephone system comprising a normally open combined talking and controlling circuit including a rotatable central controlling member adapted to open and close said circuit alternately when rotated, telephones and rotatable switches for the telephones also included in said circuit, electromagnets also included in and energized by said circuit, magnet-armatures adapted to actuate said telephone-switches, a normally closed signal-circuit, and a switch adapted to open and close said circuits alternately, substantially as described.

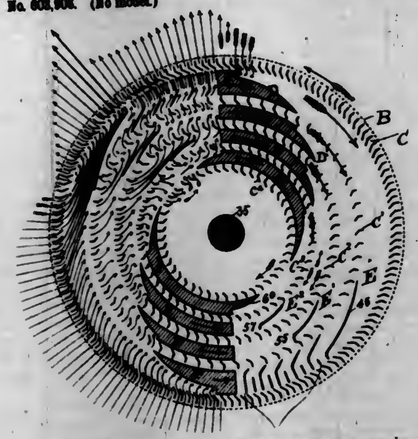
2. A telephone system having a main and a ring circuit, a plurality of phones and switches therefor in said circuits, actuating members for said switches in the main circuit, a central rotating switch controlling said actuating members, and a switch controlling the main and ring circuits, a spring actuating the said switch to normally close the ring-circuit, and a connection between the central switch and the circuit-switch whereby when the central switch is moved the ring-circuit is broken and the main circuit closed, substantially as described.

3. A telephone system comprising a main and a ring circuit, a plurality of phones and switches therefor in said circuit, actuating members for said switches in the main circuit, a rotating central switch controlling said actuating members, an arm frictionally held in contact with the shaft of the central switch and having its free end provided with switch-plates situated between the two circuits, means for normally holding the arm to close the ring-circuit, the friction of the arm on the switch-shaft being sufficient to overcome the opposing actuating means, whereby the parts operate substantially as and for the purpose described.

4. A telephone-line having a main and a ring circuit, a plurality of phones and switches therefor in said line, actuating members for said switches, a central switch controlling said phone-switches, a contact controlling said main and ring circuits, said circuit-contact having frictional connection with said central switch, substantially as described.

5. A telephone-line having a main and a ring circuit, a plurality of phones and switches therefor in said circuit, actuating members for said switches in the main circuit, a central switch controlling said actuating members, a switch controlling said main and ring circuits, and normally holding the ring-circuit closed, and a connection between the circuit-switch and the central switch, whereby when the central switch is moved the ring-circuit is broken and the main circuit closed, substantially as described.

593,915. MACHINE FOR SIFTING GRANULAR MATERIALS. FRIEDRICH G. WINKLER, Jersey City, N. J. Filed Aug. 25, 1896. Serial No. 603,906. (No model.)



Claim.—1. The combination in a machine for sifting granular materials, of a cylindrical sieve, a rotatable fan or fans therein adapted to generate a main sifting-current and an outward after-current through the sieve, and a plurality of rotatable vacuum-generators within said sieve adapted to successively generate vacuums within the sieve whereby a large volume of air is brought in to supply the blasts, substantially as described.

2. The combination in a machine for sifting granular materials, of a cylindrical sieve, a main rotatable fan or fans therein, adapted to generate a sifting-current, and a plurality of rotatable concentric auxiliary fans and gratings within said sieve, adapted to generate successive vacuums within the sieve for drawing a large volume of air therein, and also to generate an outward after-current following the aforesaid sifting-current, substantially as and for the purpose described.

3. The combination in a machine for sifting granular materials, of a cylindrical sieve, and a chamber therein, a plurality of rotatable pressure-fans and vacuum-generators in said chamber and passages through or between said fans and vacuum generators for the flow of air through said chamber and to the points of discharge both of the sifting and outward after-current, substantially as described.

4. The combination in a sifting machine, of a cylindrical sieve, heads carrying a plurality of concentric gratings which project inwardly from said heads, a wing-plate adapted to rotate independently of said heads, and fans on said wing-plate projecting outwardly therefrom in the spaces between said concentric gratings, and means for independently revolving said heads and said wing-plate, substantially as described.

5. In a sifting-machine, the combination of a rotary sieve, a rotary plate adapted to carry gratings which project from the sides of the plate, a head rotating independently of said plate, fans projecting from said head into the intervals between said gratings, and means for independently rotating said sieve, head and plate, substantially as set forth.

6. In a sifting-machine, the combination with an inclosing sieve, a rotary pulsator arranged within said sieve and producing blast and suction pulsations of the air within said sieve, and the feed-spout through which the material to be separated enters said sieve, of a screen which is interposed between said feed-spout and said pulsator and whereby the air pulsations are checked before reaching the feed-spout, substantially as set forth.

7. In a sifting-machine, the combination with an inclosing sieve, of a rotary blast and vacuum generator arranged within said sieve, and an air-shifting device arranged inside of the path of said blast and vacuum generator and mounted independently of the same, substantially as set forth.

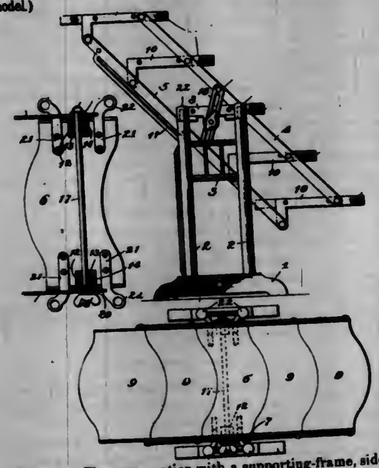
8. In a sifting-machine, the combination with an inclosing sieve, of a rotary blast and vacuum generator arranged within said sieve, and an air-shifting device arranged inside of the path of said blast and vacuum generator and operating to shift the air in a direction contrary to that in which the blast and vacuum generator rotates, substantially as set forth.

9. In a sifting-machine, the combination with an inclosing sieve, of a rotary blast and vacuum generator arranged within said sieve, and an air-shifting device arranged inside of the path of said blast and vacuum generator and rotating in an opposite direction, substantially as set forth.

10. The combination in machines for sifting granular materials of a cylindrical sieve, a rotatable deflecting-grate within and adjacent to the sieve, a rotatable suction block or blocks and fan or fans within said deflecting-grate, a rotatable grating within said suction-block or suction-blocks and said fan or fans, and an air-chamber in the center of the machine, substantially as and for the purpose described.

11. The combination in a sifting-machine, of a sieve, a rotatable deflecting-grate within said sieve, rotatable suction-block or suction-blocks and rotatable main fan or fans within said grate, and rotatable auxiliary fan or fans behind said main fan or fans and between the same and said suction block or blocks, substantially as set forth.

593,916. CONVERTIBLE SHELVING AND TABLE. FREDERICK YUNCK, Bryan, Ohio. Filed June 21, 1897. Serial No. 641,643. (No model.)



Claim.—1. The combination with a supporting-frame, side bars, and shelves pivoted to said side bars, of a fixed intermediate shelf, to

which said side bars are pivoted intermediate their length, means for connecting said shelf to the supporting-frame, sockets fixed to the under side of said shelf, apertured plugs in said sockets projecting beyond the outer edges of the same, a transverse shaft passing through said plugs and sockets, links pivoted to the side bars and engaged by said shaft, and means on said shaft for clamping said links in any adjusted position against said plugs, substantially as set forth.

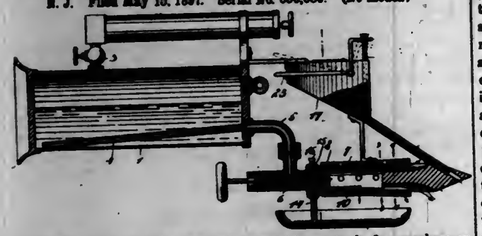
2. The combination with a supporting-frame, side bars, and shelves pivoted to said side bars, of a fixed intermediate shelf, to which said side bars are pivoted intermediate their length, means for connecting said shelf to the supporting-frame, sockets fixed to the under side of said shelf and having annular shoulders at their inner ends, removable apertured plugs in said sockets limited in their movement thereinto by said annular shoulders and projecting beyond the outer edge of said sockets, a transverse shaft passing through said plugs and sockets, links pivoted to the side bars and engaged by said shaft, and means on said shaft for clamping said links in any adjusted position against said plugs, substantially as set forth.

3. The combination with a supporting-frame embodying vertical uprights, side bars, and shelves pivoted to said side bars, of a fixed intermediate shelf to which said side bars are pivoted, a transverse shaft passing beneath the fixed shelf and connected thereto by suitable means and projecting between the vertical uprights of the supporting-frame, links pivoted to the side bars and engaged by said shaft, means on said shaft for clamping said links in any adjusted position, and brackets attached to the fixed shelf and carrying sockets at their outer ends adapted to engage with the upper ends of said uprights, substantially as set forth.

593,917. PAINT. HUGH W. AIRD and CHARLES E. FELCH, Montreal, Canada. Filed July 30, 1896. Serial No. 600,925. (No specimens.)

Claim.—A paint consisting of a liquid vehicle composed of linseed-oil, spirits of turpentine, litharge, magnesium oxid, and kauri-copal gum, to which has been added Canadian graphite in the proportions specified.

593,918. SOLDERING-IRON. JOHN C. BARBER, Phillipsburg, N. J. Filed May 15, 1897. Serial No. 636,689. (No model.)



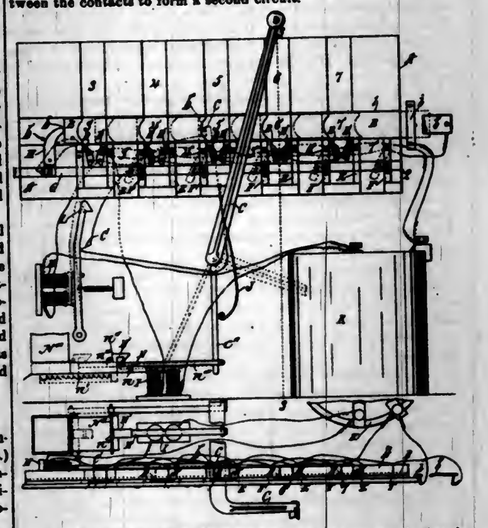
Claim.—1. A soldering-iron, comprising a tank for gasolene or the like, means for forcing air into the same, a burner having communication with the tank, a valve for controlling said communication, a soldering-iron mounted in the burner, a container for solder and a raceway leading from said container to the soldering-iron, substantially as specified.

2. A soldering-iron, comprising a tank for gasolene or the like, a pump for forcing air into the same, a burner having communication with the tank, a valve for controlling said communication, a soldering-iron mounted in the burner, a container for solder, and an inclined raceway leading from said container to an opening through the soldering-iron, substantially as specified.

3. A soldering-iron, comprising a tank for gasolene or the like, a pipe running longitudinally through said tank at its bottom, a pump for forcing air into the tank, a burner communicating with the tank, a valve for controlling said communication, a soldering-iron supported in the forward end of the burner and having a hole diagonally through it, a container for solder pellets, a raceway leading from the said container to the opening through the soldering-iron, a valve for controlling the communication between the raceway and container, a spring for normally holding said valve open, and a fulcrumed lever for closing said valve, substantially as specified.

593,919. ELECTRICAL SWITCHBOARD FOR COIN-OPERATED MACHINES. JERRY L. BLODGETT, Los Angeles, Cal. Filed July 20, 1897. Serial No. 645,279. (No model.)

Claim.—1. The combination of a slide with a coin-receptacle therein beneath a coin-slot; electrical contacts beneath the receptacle to support a coin in the receptacle and be thereby electrically connected to make a circuit; means for moving the slide a coinway below the slide, and at one side of a vertical line drawn from said contacts, to receive the coin when the slide has moved it from beneath the coin-slot; an electrical contact on one side of the coinway; a movable electrical contact on the opposite side of such way and operatively connected with the slide to move into the coinway when the receptacle is above the coinway, thereby to hold the coin between the contacts to form a second circuit.



2. The combination of a coin-slide with a coin-receptacle therein beneath a coin-slot; electrical contacts beneath the receptacle to support a coin in the receptacle and be thereby electrically connected to make a circuit; means for moving the slide; a coinway below the slide, and at one side of a vertical line drawn from said contacts, to receive the coin when the slide has moved it from beneath the coin-slot; an electrical contact on one side of the coinway; a movable electrical contact on the opposite side of such way; a contact-operating slide connected with such movable contact to operate the same; a lever arranged to operate the contact-slide and arranged in the path of stops on the coin-slide to be operated thereby.

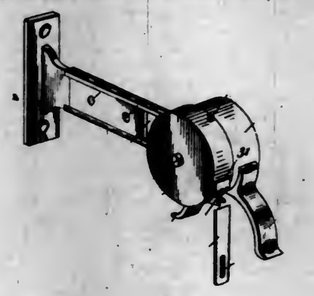
3. The combination of a vulcanized-rubber plate with horizontal channels for slideways and with vertical channels for coin-slots with their lower open ends at the top of the upper slideway; a circuit-closing coin-carrying slide in such slideway and provided with a coin receptacle to receive coins from the slotways respectively, and also provided with lever-operating stops; means for moving the coin-slide; electrical contact-points below the slideway and arranged two beneath each slotway, to support a coin dropped through such slotway into the receptacle therefor; coinways below the slide, one at the side of each pair of said contacts; stationary contacts, one at the side of each coinway; pivoted contacts, one at the opposite side of each coinway; a contact-moving slide in the lower slideway to operate the pivoted contact; a lever pivoted between the slideways, with one end between the stops of the coin-slide and other end operatively connected with the contact.

4. The combination of a slide with a coin-receptacle therein beneath a coin-slot; electrical contacts beneath the receptacle to support a coin in the receptacle and be thereby electrically connected to make a circuit; a lever for moving the slide; and a lock for locking such lever and arranged to be released by said magnet.

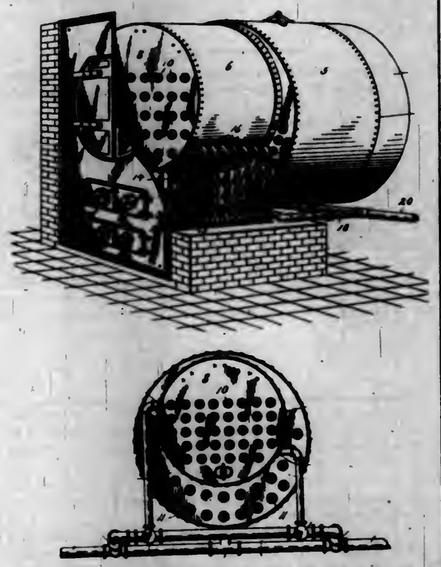
5. The combination of the slide provided with a coin-receptacle and having a projecting pin; a lever with two arms to operate upon opposite sides of the pin to move the slide in opposite directions; a lock for locking the lever; a magnet for unlocking such lock; an electrical circuit for energizing the magnet; and contact-points in such circuit and arranged to be electrically connected by a coin in the receptacle of the slide.

593,920. CURTAIN-POLE BRACKET. ELLA E. BOLAND, Pittsburg, Pa., assignor of one-half to Charles H. Lloyd, same place. Filed Oct. 1, 1896. Serial No. 607,521. (No model.)

Claim.—A bracket having at its outer end a spring-casing, a shaft passing through the casing and rotated by the spring, the casing having a stop or socket for the pole, a tape having one end adapted to be attached to the curtain-pole and adjacent its opposite end a transverse opening, and a projection upon the casing adapted to pass through the transverse opening for the purpose described.



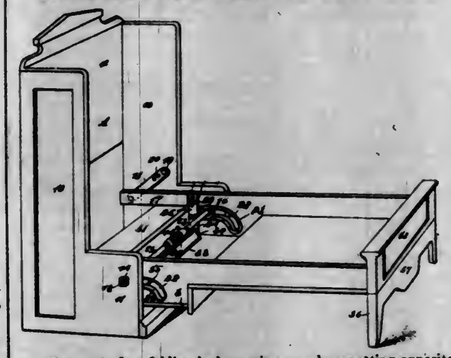
593,921. STEAM-BOILER. ALEXANDER R. BURNS and JAMES T. KITCHEN, Green Bay, Wis. Filed Mar. 17, 1897. Serial No. 627,951. (No model.)



Claim.—1. In a boiler, the combination with a furnace and the fire-grate therein; of the boiler proper essentially comprising separate shell-sections of different diameter and eccentrically disposed, and the fire-flues extending the entire length of the boiler and also through the lower part of the larger section, the smaller section of the boiler forming the crown-sheet for the fire-box above the grate, and the lower front end portion of the large section forming the rear wall of the fire-box immediately above the grate-line, a transverse bridge-wall pipe arranged directly under the front lower side of the larger shell-section, and circulating-pipe connections with said transverse bridge-wall pipe, substantially as set forth.

2. In a boiler, the combination with a boiler-furnace and the fire-grate therein; of a boiler essentially comprising separate eccentrically-disposed shell-sections of different diameter, and the fire-flues extending through the entire length of the boiler, and also through the lower part of the large section, the smaller section of the boiler lying above the fire-grate, and the lower front end portion of the larger section being disposed at the rear side of the grate immediately above the grate-line, a transverse bridge-wall pipe arranged under the front lower side of the larger shell-section, opposite header-pipes connected with the bridge-wall pipe and arranged at opposite sides of the grate, a return-piping frame connected with the bridge-wall pipe and with the lower side of the large shell-section, and opposite sets or series of vertical circulating-pipes connected at their lower ends with said header pipes and at their upper ends to opposite sides of the smaller shell-section, respectively at points about on a line with the top and bottom rows of flues in such section, substantially at set forth.

593,922. FOLDING BED. FRANK A. COOPER, Brooklyn, N. Y. Filed Jan. 14, 1897. Serial No. 619,228. (No model.)



Claim.—1. In a folding bed, a casing, a rod connecting opposite sides of the casing, a bed-body having curved slots in its side rails, receiving the connecting-rod of the casing, a head-rest having a hinged connection with the body of the bed, and a guide carried by the casing, in which the head-rest of the bed has movement, as and for the purpose set forth.

2. In a folding bed, the combination, with a casing having wings, and a brace-bar connecting the said wings, of a bed-body provided with slots in its side rails at its head portion, the said slots being cam-slots, extension-rails having a hinged connection with the side rails of the body, a cross-bar forming a head-rest, connected with the said extension-rails, arms pivotally connected with the extension-rails and pivotally attached to the said casing, and a support for the foot portion of the bed-body, as and for the purpose set forth.

3. In a folding bed, the combination, with a casing having wings and a brace-bar connecting said wings, of a bed-body fulcrumed upon the said brace-bar, the brace-bar entering the curved slots in the side rails of the said body, a weighted head-rest having a hinged connection with the head portion of the bed-body, arms pivoted to the casing and pivotally connected with the said head-rest, legs connected with the foot portion of the said body, and means for controlling the said legs when the body is raised and lowered, as and for the purpose specified.

4. The combination of a main portion, a bracket standing thereon, a bell-crank lever fulcrumed to the bracket one end of the bell-crank lever being weighted, a member hinged to the main portion, and a link between the bell-crank lever and said hinged member, substantially as described.

5. In a folding bed, a casing, a shaft passing between opposite sides of the casing, a bed-body having curved slots receiving the shaft, the sides of the bed-body respectively lying snugly against the inner faces of the sides of the casing, and two flanged rollers carried on the shaft and respectively running in the grooves in the bed-body, the flanges of the rollers running respectively against the inner faces of the side portions of the bed-body whereby to prevent the inward movement of the sides of the bed-body, substantially as described.

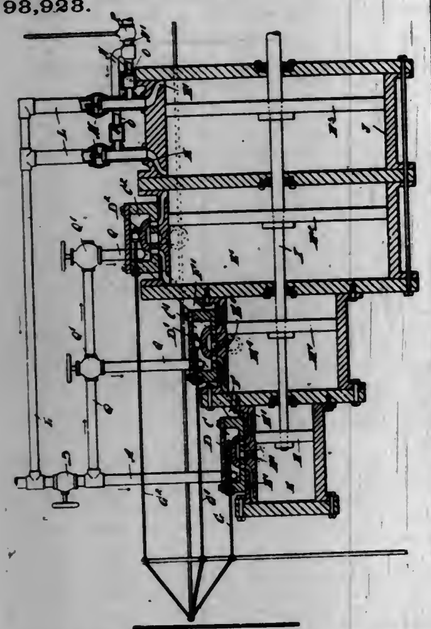
6. A folding bed having a casing, a shaft passed through the casing and holding opposite walls thereof, a bed-body each side of which has a closed slot, the sides of the bed-body being respectively in snug engagement with the inner sides of the casing, and the shaft being passed through the slots in the bed-body, and two rollers carried on the shaft, the rollers respectively running in the slots of the bed-body and having flanges bearing against the inner faces of the sides of the bed-body, substantially as described.

7. The combination of a casing, a shaft run transversely through from opposite sides of the casing and rigidly attached to said sides to hold the same rigid, and a bed-body mounted to swing in the casing in a fixed arc, the bed-body having slots curved in conformity with the arc and receiving the shaft whereby to guide the bed-body on the shaft.

593,923. AIR-MOTOR. GEORGE H. COOPER, New Westminster, Canada. Filed Apr. 14, 1897. Serial No. 632,101. (No model.)

Claim.—An air-motor having a cylinder and a piston therein, an air-supply channel connected to said cylinder, a compressor operated by said piston, and a valved compressed air-channel leading from said compressor directly to the air-supply pipe to partly replenish the supply of air, substantially as described.

593,923.



593,924. FOLDING BABY-CARRIAGE. JESSE A. CRANDALL, Brooklyn, N. Y., assignor of one-half to C. V. C. Van Deusen, same place. Filed Jan. 23, 1897. Serial No. 620,418. (No model.)



Claim.—1. In a folding baby-carriage, the combination of the sides, the bottom, and the ends pivoted to the bottom, and provided with clips adapted to engage the sides, and removably suspend the bottom thereon.

2. In a folding baby-carriage, the combination of the sides, having inwardly-projecting lugs on their lower edges, the bottom resting on said lugs and provided with buttons adapted to be turned under the sides, and the ends pivoted to the bottom and provided with clips adapted to engage the sides.

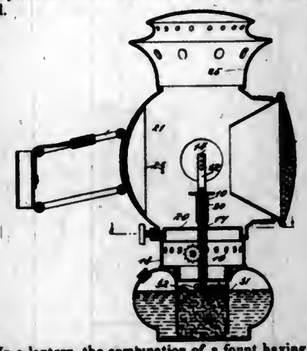
3. In a folding baby-carriage the combination of side-bars, sides carried thereby, folding braces connecting the side-bars, a bottom, ends pivoted to said bottom, clips carried by said ends and adapted to engage over the edge of the sides and removably suspend the bottom thereon, substantially as described.

4. In a folding baby-carriage the combination of sides, a bottom divided transversely, the parts being hinged together to fold upon each other, ends pivoted to the bottom, and clips carried by the ends and adapted to engage the sides above the bottom and removably suspend the bottom thereon, substantially as described.

5. In a folding baby-carriage, the combination of the side-bars, folding braces connecting the same, the sides carried by the side-bars, and the bottom and ends suspended on the sides.

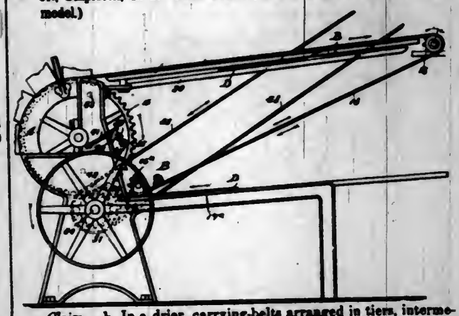
593,925. INCANDESCENT BURNER FOR LANTERNS, &c. JAMES W. DEARING, Brooklyn, N. Y., assignor to Emeline Parfitt, same place. Filed Feb. 6, 1897. Serial No. 622,310. (No model.)

Claim.—1. A filament-carrier for lanterns, comprising a sleeve having a flange at its upper end and provided at said upper end with uprights apertured and having notches in their edges, substantially as described.



2. In a lantern, the combination of a fount having a box structure on its upper face, said box structure being provided with lugs on its upper edge, a body provided in its bottom with a channel having openings in its bottom and provided with a lug projecting into the said channel, and a set-screw at the lower portion of the body, substantially as described.

593,926. DRIER FOR PAPER IN SHEET FORM. LOUIS DEJONGE, Jr., Stapleton, N. Y. Filed Dec. 19, 1896. Serial No. 616,305. (No model.)



Claim.—1. In a drier, carrying-belts arranged in tiers, intermediate belts of the said tiers having movement in reverse direction to the belts between which they are located, and a rectifying-belt forming a continuation of the lower tier of carrying-belts, and geared to travel in a reverse direction to the main belts of the said lower tier and in the same direction as the belts of the said intermediate tier, substantially as described.

2. In a drier, carrying-belts arranged in tiers, intermediate belts of the said tiers having movement in reverse direction to the belts between which they are located, and a rectifying-belt located beneath the delivery end of an intermediate carrying-belt and forming a continuation of the belts of the lower tier, the said rectifying-belt being geared to travel at a greater speed than the adjacent belts of the tiers and in the same direction as the belts in the intermediate tier beneath which the said rectifying-belt is placed, substantially as described.

3. In a drier, carrying-belts arranged in tiers, intermediate belts of said tiers having movement in reverse direction to the belts between which they are located, a rectifying-belt located beneath the delivery end of an intermediate carrying belt and forming a continuation of the belts of the lower tier, the said rectifying-belt being geared to travel at a greater speed than the adjacent belts of the tiers and in the same direction as the belts in the intermediate tier beneath which said rectifying-belt is placed, a transfer mechanism located at the rear of the upper tier of the carrying-belts, a transfer mechanism at the forward end of the intermediate tier of carrying-belts, a finishing-belt, and a transfer device between the finishing-belt and the belts of the lower tier, as and for the purpose set forth.

4. In a drier, carrying-belts arranged in tiers, intermediate belts of said tiers having movement in reverse direction to the belts between which they are located, a rectifying-belt located beneath the delivery end of an intermediate carrying-belt and forming a continuation of the belts of the lower tier, the said rectifying-belt being geared to travel at a greater rate of speed than the adjacent belts of the tiers and in the same direction as the belts of the intermediate tier beneath which said rectifying-belt is placed, a transfer mechanism located at the rear of the upper tier of carrying-belts, a transfer mechanism at the forward end of the intermediate tier of carrying-belts, a finishing-belt, and a transfer device between the finishing-belt and the belts of the lower tier, and a transfer device located at the forward end of the intermediate tier, adapted to deliver the material carried to the lower tier of belts, as and for the purpose set forth.

5. In a drier, carrying-belts arranged in tiers, intermediate belts of the said tiers having movement in reverse direction to the belts between which they are located, and aprons traveling with the said carrying-belts, as and for the purpose set forth.

6. In a drier, carrying-belts arranged in tiers, intermediate belts of the said tiers having movement in reverse direction to the belts between which they are located, aprons traveling with the said carrying-belts, pins projected from the said belts, and carriers supported by the belts, the material held by the carriers being supported on the aprons connected with the belts, as and for the purpose set forth.

7. In a drier, carrying-belts arranged in tiers, intermediate belts of the said tiers having movement in reverse direction to the belts between which they are located, aprons traveling with the said carrying-belts, pins projected from the said belts, carriers supported by the belts, the material held by the carriers being supported on the aprons connected with the belts, and transfer devices arranged to receive the carriers, conducting the said carriers from one tier of belts to the other, substantially as and for the purpose specified.

8. In a drier, the combination, with an upper horizontal carrying-belt, means for rotating the same, an apron connected with the said belt, a transfer-belt operating in conjunction with the apron-carrying belt, and a transfer device receiving the material from the transfer-belt, of a series of horizontal belts located beneath the upper belt and the transfer extension thereof, the latter belts being geared to travel in a direction the reverse of the upper belts, an apron operating in conjunction with and independent of the rear series of the second tier of belts, the apron being geared to travel at a greater rate of speed than the belts beneath which it is placed, the forward belts of the second tier having aprons attached thereto, a third tier of belts geared to travel in a direction the reverse of the intermediate tier, sundry of the third set of belts having aprons also attached thereto, others being passed over stationary supports, a rectifying-belt located in front of and forming a continuation of the lower tier of carrying-belts, the rectifying-belt being geared to travel in a reverse direction to the carrying-belts of the lower tier, and a transfer device located at the forward end of the intermediate tier, adapted to deliver the material carried to the lower tier of belts, as and for the purpose set forth.

9. In a drier, the combination, with an upper horizontal carrying-belt, means for rotating the same, an apron connected with the said belt, a transverse belt operating in conjunction with the apron-carrying belt, and a transfer device receiving the material from the transfer-belt, of a series of horizontal belts located beneath the upper belt and the transfer extension thereof, the latter belts being geared to travel in a direction the reverse of the upper belts, an apron operating in conjunction with and independent of the rear series of the second tier of belts, the apron being geared to travel at a greater rate of speed than the belts beneath which it is placed, the forward belts of the second tier having aprons attached thereto, a third tier of belts geared to travel in a direction the reverse of the intermediate tier, sundry of the third set of belts having aprons also attached thereto, others being passed over stationary supports, a rectifying-belt located in front of and forming a continuation of the lower tier of carrying-belts, the rectifying-belt being geared to travel in a reverse direction to the carrying-belts of the lower tier, a transfer device located at the forward end of the intermediate tier, adapted to deliver the material carried to the lower tier of belts, the said rectifying-belt being geared to travel at a greater rate of speed than the carrier-belts, carriers provided with clamps, located on the carrying-belts and adapted to be received by the transfer devices, and means for holding the carriers at predetermined intervals on the carrying-belts, as and for the purpose set forth.

10. In a drier, the combination with an upper horizontal carrying-belt, means for rotating the same, an apron connected with the said belt, a transfer-belt operating in conjunction with the apron-carrying belt, and a transfer device receiving the material from the transfer-belt, of a series of horizontal belts located beneath the upper belt and the transfer extension thereof, the latter belts being geared to travel in a direction the reverse of the upper belts, an apron operating in conjunction with and independent of the rear series of the second tier of belts, the apron being geared to travel at a greater rate of speed than the belts beneath which it is placed, the forward belts of the second tier having aprons attached thereto, a third tier of belts geared to travel in a direction the reverse of the intermediate tier, sundry of the third set of belts having aprons also attached thereto, others being passed over stationary supports, a rectifying-belt located in front of and forming a continuation of the lower tier of carrying-belts, the rectifying-belt being geared to travel in a reverse direction to the carrying-belts of the lower tier, a transfer device located at the forward end of the intermediate tier, adapted to deliver the material carried to the lower tier of belts, the said rectifying-belt being geared to travel at a greater rate of speed than the carrying-belts, carriers provided with clamps located on the carrying-belts and adapted to be received by the transfer devices, means for holding the carriers at predetermined intervals on the carrying-belts, a finishing-belt arranged to receive the said carriers and located beneath the tiers of carrying-belts, and a transfer device establishing communication between the lower tier of carrying-belts and the finishing-belt, as and for the purpose set forth.

11. In a drier, the combination, with carrying-belts arranged in tiers, intermediate belts of said tiers having movement in reverse directions, aprons carried by the upper and the lower tiers of belts and by sundry of the belts in the intermediate tiers, other of the belts in the intermediate tiers being provided with aprons independent thereof and geared to travel at a higher rate of speed, transfer devices between the several tiers of carrying-belts, a finishing-belt, a transfer connection between the lower tier of carrying-belts and the finishing-belt, carriers located on the carrying-belts, the said carriers being provided with clamps to hold material in sheets, the clamps of the carriers being provided with projecting arms, and trip devices located in the path of the carriers, arranged for engagement with the said arms, the said trip devices serving to open and to close the clamps, as and for the purpose set forth.

12. In a drier, the combination, with carrying-belts arranged in tiers, intermediate belts of the said tiers having movement in reverse directions, aprons carried by the upper and the lower tiers of belts and by sundry of the belts in the intermediate tiers, others of the belts in the intermediate tiers being provided with aprons independent thereof and geared to travel at a higher rate of speed, transfer devices between the several tiers of carrying-belts, a finishing-belt, a transfer connection between the lower tier of carrying-belts and the finishing-belt, carriers located on the carrying-belts, the said carriers being provided with clamps to hold material in sheets, the clamps of the carriers being provided with projecting arms, and trip devices located in the path of the carriers, arranged for engagement with the said arms, the said trip devices serving to open and to close the clamps, and rails located over the trip devices under which the carriers pass, whereby the carriers are held from turning upon reaching the trip devices, substantially as shown and described.

13. A carrier consisting of a body-bar, rollers located at the ends of the body-bar, clamps attached to the body-bar, each of the said clamps consisting of a fixed and a movable member, and spring-controlled shafts connected with the movable members of the clamps, as and for the purpose set forth.

14. A carrier consisting of a body-bar, rollers located at the ends of the body-bar, a series of clamps secured to the body-bar near each end, each clamp comprising a fixed and a movable member, and a shaft connecting the movable members of each series of clamps, each shaft terminating in a crank-arm at its outer end, as and for the purpose set forth.

15. A carrier consisting of a body-bar, a roller at each end of the said body-bar, a series of clamps secured to the body-bar near each end, each clamp consisting of a fixed and a movable member, shafts connecting the movable members of each series and serving to hold the movable members in engagement with the fixed members, crank-arms formed at the outer ends of the shafts, and guide-surfaces formed on the body-bar near its ends, the guide-surfaces being adapted to assist in holding the body-bar against turning, under certain conditions in the application of the carrier, as and for the purpose set forth.

16. A gripper, consisting of a body-bar, a shaft journaled in the body-bar, cams located at the ends of the shaft, and gripping-arms secured to the said shaft, the free ends of the gripping-arms being adapted for engagement with a longitudinal edge of the body-bar, as and for the purpose set forth.

17. A gripper consisting of a body-bar, a shaft journaled in the said body-bar, a cam located at each end of the shaft, and springs secured to fixed supports and having bearing one against each of the cams, and gripping-arms secured to the said shaft, the free ends of the gripping-arms being curved in direction of a longitudinal edge of the body-bar, as and for the purpose set forth.

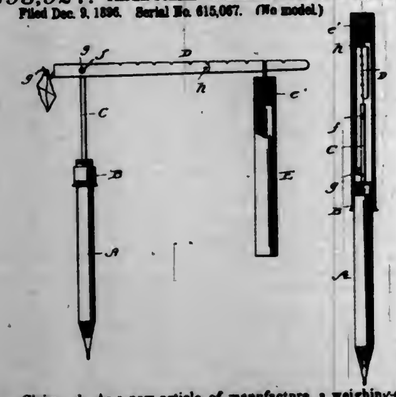
18. The combination, with chain belts, of a gripper consisting of a body-bar having its ends of angular construction, the ends being secured to the said belts, a shaft journaled upon the body-bar, the ends of the shaft extending beyond the raised portions of the angular ends of the said body-bar, spring-controlled cams secured to the ends of the shaft, and gripping-arms attached to the shaft between its ends, extending in direction of a longitudinal edge of the body-bar, as and for the purpose set forth.

19. The combination, with a support, chains held to travel over the said support, and trip-fingers projected from the support, of grip-

pers attached to the chains, each gripper consisting of a body having its ends angular, the ends being attached to opposing chains, a shaft journaled upon the body-bar, extending beyond the higher portions of its angular ends, cams secured upon the outer ends of the shaft, each cam being provided with a shoulder arranged for engagement with a trip-finger upon the said support, springs bearing upon the said cams, and gripping-arms secured to the shaft, the said arms being curved at their free ends in direction of a longitudinal edge of the body bar, as and for the purpose specified.

20. The combination, with a support, chains held to travel in parallel order around the said support, grippers attached at their ends to the said chains, each gripper consisting of a body-bar, a shaft journaled in the said body-bar and provided with cams at its ends, each cam being spring-controlled, gripping-arms attached to the said shaft and extending in direction of a longitudinal edge of the body-bar, and fingers attached to the said supports and arranged for tripping engagement with the shoulders of the said cams, of a cylinder around which the said chains pass, and a protective device carried by the cylinder, which protective device consists of a shaft and plates secured to the said shaft, the said plates being curved at their free ends and arranged to engage with the body-bar of the gripper between the gripping-arms thereof, as and for the purpose set forth.

593,927. PAPER-SCALE. William W. Dodge, Burlington, Iowa. Filed Dec. 9, 1896. Serial No. 615,067. (No model.)

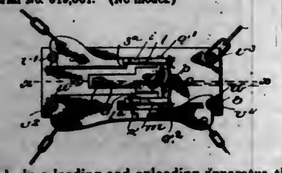


Claim.—1. As a new article of manufacture, a weighing-scales attachment for pencils and other staffs comprising an attachable cap, a scale-lever pivotally and detachably connected to said cap and provided at one end with a suitable retainer, and a hollow sheath or cover attachable to said cap and provided with means for slidably connecting said sheath or cover to the scale-lever, whereby said sheath or cover serves as the scale-balance when attached to the lever and as a means for inclosing the scale-lever when the scale is dismantled, as set forth.

2. As a new article of manufacture, a weighing-scales attachment for pencils or other staffs comprising a cap attachable to a staff, a sectional, foldable scale-lever detachably attached to said cap, and a weighted sheath or cover having means for slidably attaching the same to the scale-lever and constructed for attachment to the cap, for the purposes described, substantially as set forth.

3. The combination of a threaded cap B, a rod C rigid with said cap and provided with the pivot *f*, a foldable scale-lever having an opening *g* to receive the pivot *f*, and a weighted cover or sheath E threaded at its open end for attachment to the cap and provided with a hook *e'* to suspend said cover from the scale-lever, as and for the purposes described.

593,928. CHAIN-LOCK IN LOADING OR UNLOADING APPARATUS. Henry C. Donever, Sauvie's Island, Oreg. Filed Jan. 15, 1897. Serial No. 619,361. (No model.)



Claim.—1. In a loading and unloading apparatus, the combination of a slotted plate, a bolt slidable therein, fixed abutments on the plate, anchors engaging said abutments loosely or so as to be movable therefrom and held in contact with said abutments by said bolt, chains secured to said anchors, a trigger for moving said bolt, and means for holding the movable parts to the plate substantially as described.

2. In a loading and unloading apparatus, the combination of a slotted plate, a bolt slidable therein, fixed abutments on the plate, anchors engaging said abutments loosely or so as to be movable therefrom and held in contact with said abutments by said bolt, chains secured to said anchors, a spring for retaining said bolt in its operative position, a trigger for moving said bolt, and means for holding the movable parts to the plate substantially as described.

3. In a loading and unloading apparatus, the combination of a slotted plate, bolts slidable in the slots of said plate, fixed abutments on the plate, anchors engaging said abutments and held by said bolts, chains secured to said anchors, a trigger for working said bolts, and means for holding the movable parts to the plate substantially as described.

4. In a loading and unloading apparatus, the combination of a slotted plate, bolts slidable in the slots of said plate, fixed abutments on the plate, anchors engaging said abutments and held by said bolts, chains secured to said anchors, a spring for retaining said bolts in their operative position, a trigger for moving said bolts, and means for holding the movable parts to the plate substantially as described.

5. In a loading and unloading apparatus a chain-lock comprising the slotted and perforated plates *b c* the bolts *l m* the trigger *q* and its operating connections, the spring *o* the posts $v' v^2 v^3 v^4$ the anchors 1 2 3 and the chains, the parts being combined and operating substantially as set forth.

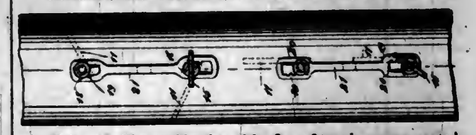
593,929. WINDOW OR CURTAIN FIXTURE. Plato G. Emery, Chicago, Ill., assignor to the Adams & Westlake Company. Filed Dec. 23, 1896. Serial No. 616,736. (No model.)



Claim.—1. The combination, with a window-frame or its described equivalent, and a spring-rolled curtain or its described equivalent, of a tube carried by the curtain, and two chains of the ladder construction each connected to diagonally opposite corners of the window-frame, passing through the said tube and crossing the other chain, each end of said tube having notched or serrated wheels engaging the chains, substantially as and for the purpose set forth.

2. The combination, with a window-frame or its described equivalent, and a spring-rolled curtain or its described equivalent, having a tube at its lower end, of a guide-piece at each end of the tube, notched or serrated wheels mounted in each of said bearings, and two chains of the ladder construction each connected to diagonally opposite corners of the window-frame, passing through the tube and crossing the other chain, said chains being adapted to engage with the said notched or serrated wheels, substantially as and for the purposes described.

593,930. DAMPER. George C. Fraser and Norman P. Fraser, Carsonville, Mich. Filed Dec. 5, 1896. Serial No. 614,526. (No model.)



Claim.—1. The combination with a flue, of two dampers mounted to turn therein and each having an area less than the width of the flue, a pinion connected with each damper, and a rack-bar extending between and connected with the pinions, the rack-bar engaging opposite sides of the pinions to turn the dampers oppositely, substantially as described.

2. The combination with a flue, of two dampers mounted to turn therein on axes transverse to the flue and each having an area less than the width of the flue, a pinion fixed to the trunnion of each damper, and a bar having a loop at each end, the loops respectively inclosing the pinions and each loop having rack-teeth at one of its sides whereby to be connected with the pinions and the rack-teeth being oppositely located with reference to each other, substantially as described.

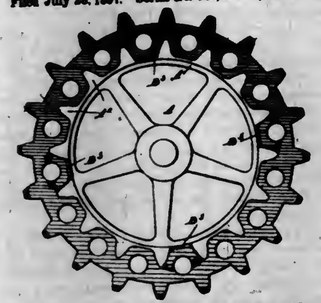
3. The combination with a flue, of two dampers mounted to turn therein on axes transverse to the flue and each having an area less than the width of the flue, a pinion fixed to the trunnion of each damper, a bar extending between the pinions and having a loop at each end, the loops respectively inclosing the pinions, and one side of each loop having rack-teeth to respectively engage the pinions, the rack-teeth being oppositely located with reference to each other, and a spring held within each loop of the bar and respectively pressing the pinions into engagement with the rack teeth, substantially as described.

593,931. WHEEL-TIRE. William A. Prime, Brooklyn, N. Y. Filed Jan. 12, 1897. Serial No. 618,902. (No model.)



Claim.—A wheel-tire, comprising a flexible outer tube, and a filling consisting of comminuted cork, a binder of carding droppings and a rubber cement, the said cork comprising the major portion of the filling, and the said filling being cemented to the tube, substantially as specified.

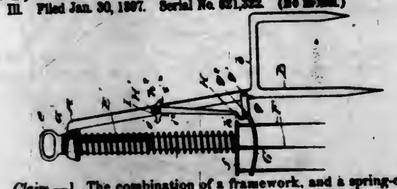
593,932. EXTENSION-GEAR. William R. Goldie, Wakefield, N. Y. Filed July 26, 1897. Serial No. 646,180. (No model.)



Claim.—1. An extension-rim having a plurality of flanges on one face, and a plurality of bosses on the opposite face, the bosses being adapted to be formed into flanges, substantially as shown and described.

2. An extension-rim having a plurality of flanges on one face, and a plurality of bosses on the opposite face, the bosses being adapted to be formed into flanges, the said flanges and bosses being arranged one opposite the other, as set forth.

593,933. IMPALEMENT-TRAP. Lewis H. Guerrin, Momence, Ill. Filed Jan. 30, 1897. Serial No. 621,332. (No model.)



Claim.—1. The combination of a framework, and a spring-controlled spear, of a horizontal operating-shoe G having its shank pivoted to the framework, a trigger H having its lower end operatively engaging with the shoe, a tappet arranged to engage with the trigger and with the spear-head, and a common pivot which connects the tappet and the upper end of the trigger to the framework, as and for the purposes described.

2. The combination with a suitable framework, and a spring-controlled spear, of an operating-shoe, a trigger to engage with said shoe and pivoted to the framework, and a tappet pivoted to the framework and having the spaced devices to engage with the trigger and a projecting toe-piece to engage the spear-head, substantially as and for the purposes described.

3. The combination with a framework and a spring-controlled plunger or spear, of the shoe G having a shank pivoted at *g'* to the framework and provided at an intermediate point of its length with the flange g^3 which extends horizontally from one side of said shank, a trigger provided with a hook-shaped free end *h'* and a stud *h* to fit beneath the flange g^3 of the shoe, and means whereby the upper end of the trigger may be operatively engaged with the spear-head.

593,934. REVERSIBLE PROPELLER. Ralph B. Hain, Grand Rapids, Mich. Filed Feb. 6, 1897. Serial No. 622,389. (No model.)

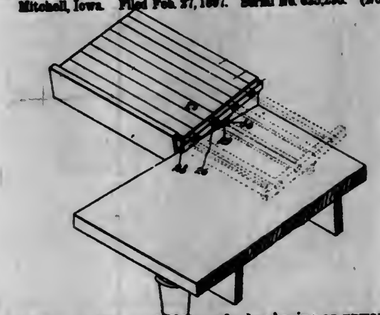


Claim.—1. In a reversible propeller-wheel, a hub having a large transverse screw-threaded opening, blades having screw-threaded shanks rotative in said openings, slotted arms on said blades, a yoke embracing and engaging the sides of said hub, and longitudinally movable thereon, and studs in said yoke engaging the slots in said arms, substantially as described.

2. In a reversible propeller-wheel, a hub attached to the shaft, and having flattened sides and ends, a yoke attached to a sleeve movable on said shaft and having flattened inner surfaces engaging the sides and ends of said hub, blades pivotally attached to said hub, and tarsing on radial axes, slotted arms on said blades, and studs in said yoke engaging the slots in said arms, substantially as described.

3. The combination of a shaft, a hub on the end of the shaft, and having a transverse screw-threaded opening and a boss at the rear, blades having screw-threaded shanks loosely fitted in said opening, slotted arms on said blades, a sleeve on said shaft, a yoke engaging the sides of said hub and attached to said sleeve, and having a boss at its rear end, and studs on said yoke engaging the slots in said arms substantially as described.

593,935. BOOK OR MANUSCRIPT HOLDER. Elbert D. Hall, Mitchell, Iowa. Filed Feb. 27, 1897. Serial No. 625,293. (No model.)



Claim.—1. The combination of a bar having an upwardly-bent portion at one end, a book-rest having a passage receiving the upwardly-bent portion of the bar, the book-rest also having a recess in which the horizontal portion of the bar adjacent to the upwardly-extending portion thereof projects, and two plates carried by the book-rest and respectively located on the sides of the horizontal portion of the bar, whereby to limit the swinging movement of the bar relative to the book-rest, substantially as described.

2. A book-rest having a frame-plate with a recess in its lower portion and with a passage extending upwardly from the recess, a bar having a main portion and an upwardly-bent portion, the main portion extending into the recess and the upwardly-bent portion running into the passage, and two plates carried by the frame-plate and adjustable toward and from the main portion of the bar, so as to regulate the movement of said bar relative to the book-rest, substantially as described.

3. The combination of a supporting-bar, a book-rest pivoted thereto, and two plates carried by the book-rest and respectively on opposite sides of the supporting-bar, the plates being movable toward and from the bar, so as to limit the movement of the bar relative to the book-rest, substantially as described.

4. A book-rest having a frame-plate with a recess in its lower edge, the frame-plate also having a passage extending upwardly from the recess, a supporting-bar having an upwardly-bent end, the supporting-bar having a portion running into the recess and having the upwardly-bent end revolubly mounted within the passage, a wear-plate held against the upper wall of the recess and engaging the supporting-bar, and two plates respectively carried by the frame-plate and adjustable toward and from the supporting-bar, the frame-plates being located on opposite sides of the recess and serving to limit the movement of the bar relative to the book-rest, substantially as described.

5. A book-rest having a main portion, an extension slidably connected with the main portion, a supporting-bar pivotally connected to the book-rest, and a bar sliding in the main portion of the book-rest and moved outward by the movement of the extension, the said bar being capable of engaging the supporting-bar to assist in holding the book-rest, substantially as described.

6. The combination of a book-rest, an extension sliding thereon, a bar moved outward by the extension and capable of engaging a support, and a supporting-bar pivoted to the book-rest, substantially as described.

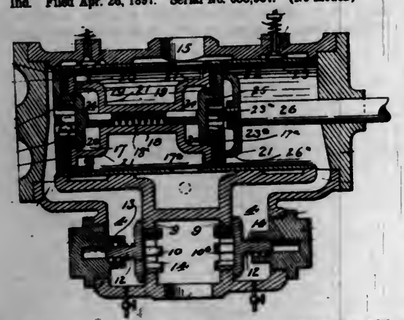
7. The combination of a book-rest, an extension sliding thereon, and a bar sliding in the book rest and moved outward by the movement of the extension, the bar being capable of engaging a support to assist in holding the book-rest, substantially as described.

8. The combination of a book-rest, an extension sliding on the book-rest, a bar slidable in the book-rest and connected rigidly to the extension, a second bar sliding in the book-rest and capable of being moved by the movement of the first bar, and a supporting-bar pivotally connected to the book-rest, substantially as described.

9. The combination of a book-rest, an extension sliding thereon, a bar sliding in the book-rest and rigidly connected to the extension, and a second bar also sliding in the book-rest and moved by the movement of the first bar, substantially as described.

10. The combination of a book rest, an extension sliding on the book-rest, a bar also sliding on the book-rest and rigidly connected to the extension, a lug on the bar, a second bar sliding in the book-rest, and two lugs on the second bar, the lugs on the second bar being respectively located on opposite sides of the lug of the first bar, substantially as described.

593,936. DOUBLE-ACTING PUMP. ALLEN O. HANEY, Milford, Ind. Filed Apr. 26, 1897. Serial No. 633,967. (No model.)

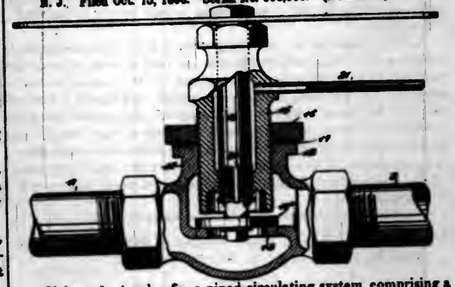


Claim.—1. In a double-acting pump, the combination with the pistons comprising the circular plates or disks, formed with annular screw-threaded flanges on the inner sides or faces, and wing-valves provided with stems, of the caps consisting of the circular screw-threaded plates engaging with said flanges, the connecting-tube and coiled spring and the packing-rings, substantially as described.

2. In a double-acting pump, the combination with the cylinder, having inlet-openings at the ends, and a central outlet, the valve-openings at opposite sides of said central outlet, the valves, the headed valve-stems and the coiled springs, of the pistons consisting of circular plates or disks, having central openings and screw-threaded annular flanges, the wing-valves seated in said openings, and provided with stems, the circular caps secured to said flanges, the arms connected therewith, the tube connected with said arms, the coiled spring, and the piston-rod connected with one of said pistons, substantially as described.

3. In a double-acting pump, the combination with the cylinder, having end inlet-openings and a central outlet, the bosses formed in the cylinder at opposite sides of said outlet having valve-openings therein and the air-valves seated in said openings, of the circular pistons, having central openings and annular screw-threaded flanges, the screw-caps connected therewith, the packing-rings, the arms connected with said cap, the connecting-tube, the wing-valves seated in the openings in the pistons, the stems thereof working in the ends of the tube, the coiled spring in said tube, the arms secured to or formed with one of said pistons, and the piston rod secured thereto, substantially as described.

593,937. DAMPER-REGULATOR. JOHN R. HANLON, Pennington, N. J. Filed Oct. 15, 1896. Serial No. 608,916. (No model.)

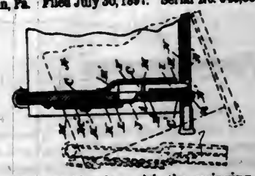


Claim.—1. A valve for a piped circulating system, comprising a casing having a perforated diaphragm within it, a tubular post having screw-thread connection with the hood of said casing, whereby said post may be adjusted relatively to the casing, a valve-stem having an exteriorly-screw-threaded portion engaging with the interior threaded portion of a reduced portion at the inner end of the hollow post, the screw-thread of said stem having a channel or waterway formed longitudinally through it, a plate-valve carried on the inner end of the said stem and adapted for closing the perforations through the diaphragm, and also for closing against the inner end of the tubular post, and a waste tube or pipe communicating with the interior of the said tubular post, substantially as specified.

2. A draft-regulator for a furnace, comprising a device operated by water-pressure and connected with the doors and damper of a furnace to regulate the same, a water-pressure pipe adapted to convey water to operate said device, a main water-pipe, a valve located between said main water-pipe and the water-pressure pipe and comprising a casing, having a perforated diaphragm, a hollow plug having screw-thread connection with said casing and with which the waste or discharge pipe connects, means for providing communication between the interior of said hollow plug and the water-pressure pipe, a valve adapted to engage the bottom of said hollow plug and close the said communication, and also adapted to close the perforation through the diaphragm, a lever connected with the stem of said valve, and chains depending from the opposite ends of said lever, substantially as specified.

3. A draft-regulator for a furnace, comprising a device operated by water-pressure and connected with the doors and damper of a furnace to regulate the same, a water-pressure pipe adapted to convey water to operate said device, a main water-pipe, a valve located between the said main water-pipe and the water-pressure pipe and comprising a casing having a perforated diaphragm, a hollow plug having a screw-threaded connection with the said casing and connected with a waste or discharge pipe, a valve-stem having screw-thread engagement with the said hollow plug, a channel in said valve-stem adapted to establish communication between the interior of said hollow plug and the water-pressure pipe, a valve carried by said stem and adapted when moved in one direction to cut off communication between the water-pressure pipe and the interior of said hollow plug and when moved in the opposite direction to close the perforation through the diaphragm, and means connected with the valve stem for controlling the movement of the valve, substantially as specified

593,938. MINE-CAR-DOOR FASTENING. FRANKLIN C. HOOKENSMITH, Irwin, Pa. Filed July 30, 1897. Serial No. 646,534. (No model.)



Claim.—1. The combination with the swinging end-gate of a mine-car, of a latch mechanism on the inner side of the gate, and a latch-actuating mechanism on the outer side of the gate, substantially as shown and described.

2. The combination of a swinging end-gate of a mine-car, a latch-casing secured to the inner side thereof and forming a buffer for the gate as described, a latch movable in the casing and a latch-actuating mechanism, substantially as shown and described.

3. The combination of a swinging end-gate for a mine-car, a latch-casing secured to the inner side thereof and constituting a buffer as described, said casing being formed with a vertical bore open on its side adjacent the gate, the gate being apertured opposite the open side of the casing, a bolt movable in the casing and an actuating mechanism on the outer side of the gate and extended to the bolt through the aperture in the gate, substantially as shown and described.

4. The combination of a swinging end-gate for a mine-car, a latch-casing secured to the inner side of the door and formed with a bolt-passage, the gate being slotted adjacent the casing, a bolt movable in the casing, an operating-lever fulcrumed to the outer side of the gate, and a link extending through the slot of the gate and connecting the bolt and the lever, substantially as shown and described.

5. The combination of a swinging end gate of a mine-car, a bolt-casing secured to the inner side thereof, the bolt-casing and the gate being slotted vertically, a bolt movable longitudinally through the casing and at its upper end turned laterally into the slot in the gate, a link secured to said laterally-bent end of the bolt, said link being on the outer side of the gate, and actuating means connected with the link, substantially as shown and described.

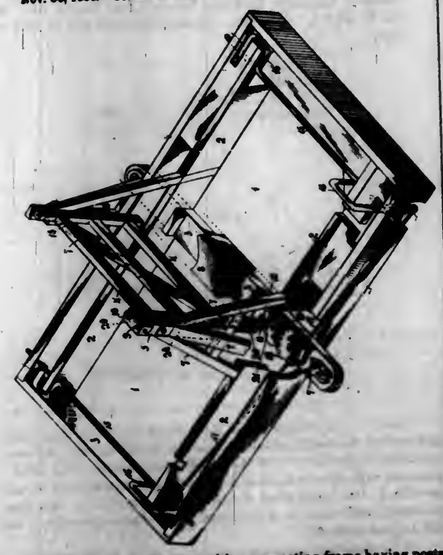
6 The combination of the swinging end-gate of a mine-car formed with a slot, a bolt on the inner side of the gate having a projection extending laterally through the slot, and actuating mechanism on the outer side of the gate operatively connected to the bolt extension, substantially as shown and described.

7. The combination of a latch mechanism for a mine-car gate, a latch-actuating lever, an elongated keeper in which the lever reciprocates, and an elongated laterally-yielding spring secured within the keeper and bowed between its ends to extend across the keeper and removably hold the lever in either end thereof, substantially as shown and described.

8. The combination of a mine car, a gate, and a combined buffer and latch mechanism secured to the inner side of the gate and adapted to protect said side from wear and also secure the gate when closed, substantially as shown and described.

9. The combination of a mine-car including a draw-bar formed with a bolt-receiving opening, a bolt securing the draw-bar to the car-bottom between the end of the former and said opening whereby the extended end of the bar is not weakened by the opening, a swinging door, and a locking-bolt for the door adapted to enter said opening in the draw-bar, substantially as shown and described.

593,939. GATE. LORENZO D. HOOVER, Coffeyville, Kans. Filed Nov. 30, 1896. Serial No. 613,968. (No model.)



Claim.—The combination with a supporting-frame having posts, of a gate pivoted to one of said posts, a gear-pinion mounted upon said frame and having a cam situated to engage the lower end portion of said post, a spring-rod connected with said cam and said gate, a gear-wheel mounted upon said frame and intermeshing with said pinion, and shafts having cranks mounted upon said frame and connected with said gear-wheel.

593,940. BELT CUTTER AND PUNCH. HARVEY HUBBELL, Bridgeport, Conn. Filed May 24, 1897. Serial No. 637,865 (No model.)

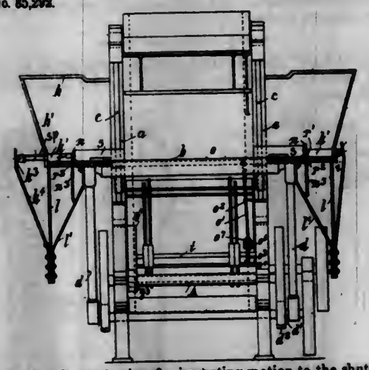


Claim.—1. In a device of the character described the combination with a body having a longitudinal recess, a transverse recess and a transverse opening, of a slide lying in the longitudinal recess and having a cutter adapted to move across the transverse recess, an elongated opening with which the opening in the body registers and a punch extending forward in the elongated opening and adapted to be moved across the opening in the body and means for actuating the slide to either cut or punch a belt.

2. In a device of the character described the combination with a body having a longitudinal recess, a transverse recess and a transverse opening, of a slide lying in the transverse recess and having a cutter and a punch substantially as described for the purpose set forth, and rack-teeth, and an operating-lever having a head with teeth engaging the rack-teeth, said slide and operating-lever having corresponding recesses 21 for closing link fasteners.

3. In a device of the character described the combination with a body and an operating-lever, of a slide having a cutter, an elongated opening and an opening *a* connecting therewith substantially as described, and a punch extending forward in the elongated opening and having at its base a neck and an enlargement, the edges of which lie at right angles to the sides thereof and which closely fit in opening *a*.

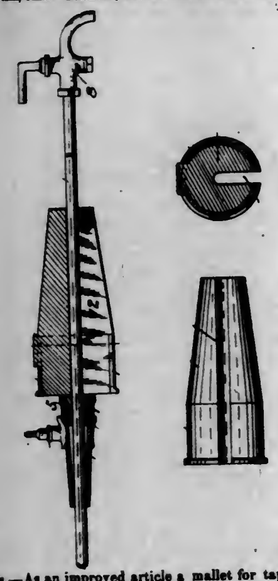
593,941. SHUTTLE-OPERATING MECHANISM FOR POWER-LOOMS. ERNST HUSCHER, Saalfeld, Germany. Filed July 23, 1896. Serial No. 600,261. (No model.) Patented in Germany June 9, 1896, No. 85,292.



Claim.—In mechanism for imparting motion to the shuttle of a power-loom, the combination of a batten, sleeves, having keyways, secured to the ends of the shuttle-way; striking-bolts, having forked heads, sliding in the sleeves; splines set in the bolts; pins or spindles set crosswise in the forked heads of the striking-bolts and projecting to one side therefrom, antifriction-rollers set on these pins or spindles between the tines of the forked heads; downward-extending brackets secured to the batten, one on each end; springs, secured to the ends of the brackets and engaging these rollers; antifriction-rollers set on the projecting ends of the pins or spindles; sloping rails, secured to the standards of the loom-frame in position to engage these outer rollers, ratchet-bars, pivoted to the ends of the shuttle-way and adapted to drop into recesses provided in the striking-bolts; springs drawing the ratchet-bars downward; a shaft pillowed in the stand-

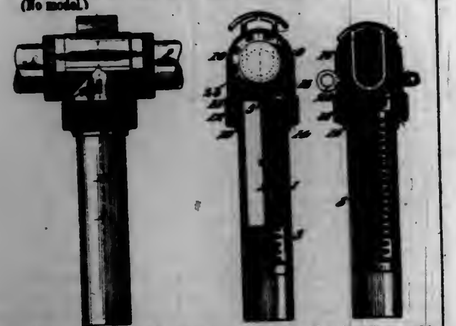
ards of the loom-frame above the driving-shaft; a gearing transmitting the motion from the driving-shaft to this shaft; a spiral cam, set on this shaft; a horizontally-disposed sliding bar, vertically upward projecting blocks, set one on each end of the horizontally-disposed sliding bar; a rocking rod, engaging with its forked end the spiral cam, and shifting the sliding bar to and fro, thereby alternately lifting the ratchet-bars and releasing the striking-bolts.

598,942. MALLET FOR TAPPING BEER-KEGS. EMIL JOHNSON, Ashtabula, Ohio. Filed May 20, 1897. Serial No. 637,397. (No model.)



Claim.—As an improved article a mallet for tapping beer and other kegs, consisting of the cylindroconical wooden block, having a slot at one side extending from end to end, and a rectangular projection formed on the cylindrical portion diametrically opposite said slot, and the metal band fitting on the large or cylindrical end, formed with an open rectangular slot in its inner edge with which said projection engages, substantially as described.

598,943. ADJUSTABLE HANDLE-BAR FOR BICYCLES. PHILIP S. KINGSLAND, St. Louis, Mo. Filed Nov. 27, 1896. Serial No. 613,568. (No model.)



Claim.—1. In an adjustable handle-bar for bicycles, the combination of a post, a handle-bar provided with a circumferentially-grooved ratchet-wheel, a box connecting the handle-bar to the post, a spring-actuated pawl located within the post and adapted to engage said ratchet-wheel, and a button located over said box and provided with a stem fitting in the groove of the ratchet-wheel and adapted to engage said pawl, substantially as set forth.

2. In an adjustable handle-bar for bicycles, the combination of a post, a handle-bar, a box connecting the handle-bar to the post and which is adapted to revolve upon the post, a ratchet-wheel carried by the handle-bar and circumferentially grooved, a spring-actuated pawl located within the sleeve and provided with a perforation, a button located over said box and having a stem fitting in the groove in the ratchet-wheel, and a pin depending from the stem and fitting in the perforation in the pawl, substantially as and for the purpose set forth.

3. In an adjustable handle-bar for bicycles, the combination of a post containing a spring-actuated pawl, a handle-bar immediately above the pawl, a box securing the handle-bar to the post and inclosing a grooved ratchet-wheel on the handle-bar, and a button located over and having a stem working in the groove of said ratchet-wheel bearing directly against said pawl and holding it from said ratchet-wheel during adjustment, substantially as set forth.

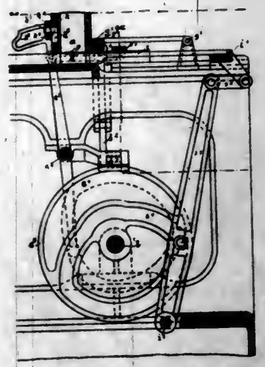
4. In an adjustable handle-bar for bicycles, the combination of a hollow post, a hollow plunger fitting within the post and provided with a pawl the ends of which extend beyond the plunger and fit in notches in the upper end of the post, a handle-bar, a box securing the handle-bar to the post, a grooved ratchet-wheel on said handle-bar within said box, a button located over the box and having a stem fitting in the groove of the ratchet-wheel, and a pin on the lower end of said stem fitting in a perforation in said pawl, substantially as set forth.

5. In an adjustable handle-bar for bicycles, the combination of a post containing a spring-actuated pawl, a handle-bar, a box in line with said post and connecting the handle-bar thereto, a grooved ratchet-wheel on said handle-bar within the box and adapted to be engaged by said pawl and a button 18 on top of the box and having a U-shaped stem projecting downwardly through the groove of the ratchet-wheel and on opposite sides of the shaft and engaging the pawl to push it out of engagement with the ratchet and free the handle-bar so that it may revolve horizontally, substantially as set forth.

6. In an adjustable handle-bar for bicycles, the combination of a post, a handle-bar, a box connecting the handle-bar to the post, a spring-actuated pawl within the post, a ratchet-wheel on said handle-bar within the box, and a key adapted to pass through a groove in the said box and hold said pawl out of engagement with said ratchet-wheel, so that the handle-bar is free to revolve horizontally, substantially as set forth.

7. In an adjustable handle-bar for bicycles, the combination of a post, a spring actuated pawl located within the post, a handle-bar, a box for securing the handle-bar to the post, a grooved ratchet-wheel located on the handle-bar within the box, a button provided with a stem for moving said pawl out of engagement with the ratchet-wheel, and a key adapted to pass through a slot in said box and stem to hold the pawl out of engagement with the ratchet-wheel, so that the handle-bar is free to revolve horizontally, substantially as and for the purpose set forth.

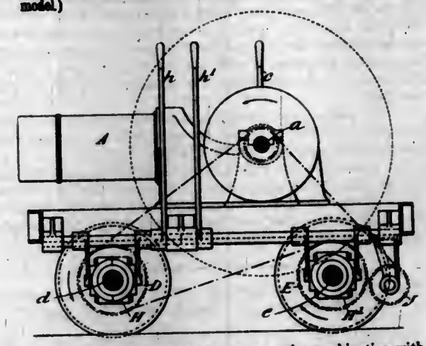
598,944. MACHINE FOR PACKING MATCHES IN BOXES, &c. PETTER C. KJELLBERG, Stockholm, Sweden. Filed Feb. 26, 1895. Serial No. 539,814. (No model.) Patented in Sweden May 12, 1894, No. 5,434.



Claim.—1. In machines for packing matches in boxes, paper cases and the like, the combination of a reservoir for the matches and compartments *d* adapted to hold the matches horizontally, with slides *e* provided with narrowed end extensions lying longitudinally in, and movable in the longitudinal direction of, the matches in said compartments, and means for moving said slides, substantially as and for the purpose set forth.

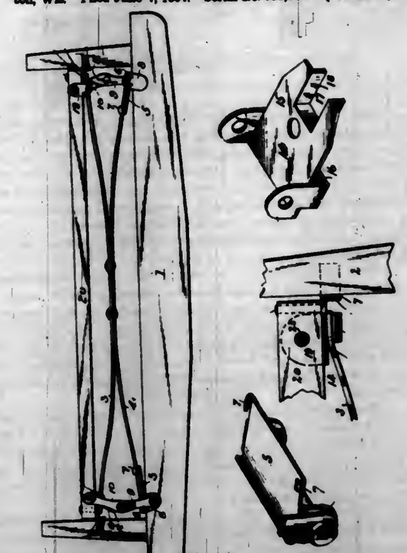
2. In machines for packing matches in boxes, paper cases or the like, the combination of the compartments *d* provided with grooves *f*, with the slides *e* provided with a pointed side edge, and the vibrating implements *g*, substantially as and for the purpose set forth.

593,945. DRIVING-GEAR FOR MOTOR-CARS. FERDINAND KRAMER, Cologne, Germany, assignor to the Gas-Motoren-Fabrik-Deutz, Cologne-Deutz, Germany. Filed Sept. 3, 1897. Serial No. 650,507. (No model.)



Claim.—In driving-gear for motor-cars, the combination with a motor, and a wheel C driven by said motor in one direction, of wheels D, E that are mounted loosely on the forward and rear car-axles, respectively, clutches H, H' to make said wheels fast on the car-axles, means for operating said clutches alternately, a chain driven by the wheel C and engaged with the wheels D, E to drive them in contrary directions, and a pulley J to guide said chain, substantially as described.

593,946. WAGON BOLSTER-SPRING. TABER G. MANDT, Stoughton, Wis. Filed June 7, 1897. Serial No. 639,730. (No model.)



Claim.—In a bolster-spring for wagons, the combination with the bolster, the oppositely curved or bowed spring plates or leaves, secured to each other at the center, the movable shoes, having upwardly-extending flanges and downwardly-depending lugs, the levers pivoted to said lugs, provided with extensions and stops or projections, of the movable bar, the shackles secured thereto provided with loops and lugs, and the levers pivoted to said shackles and pivotally connected with said first-mentioned levers, substantially as described.

598,947. AIR-LOCK FOR CAISSONS. SAMUEL MATTHEWS, Brooklyn, N. Y. Filed Feb. 9, 1897. Serial No. 622,660. (No model.)

Claim.—1. An air-lock for caissons having an opening in its top, and a wheel having a support pivotally mounted concentric to said opening, as and for the purpose set forth.

2. An air-lock for caissons having an opening in its top, a stuffing-box fitted in said opening, and a wheel having a support pivotally mounted concentric to said stuffing-box, as and for the purpose stated.



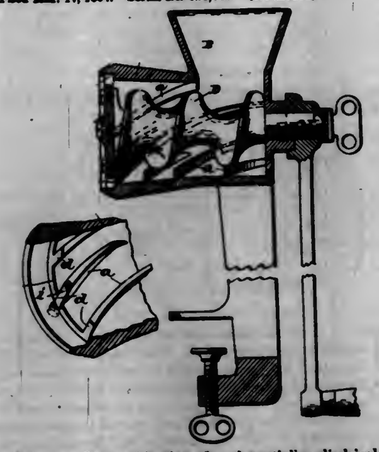
3. An air-lock for caissons having an opening in its top, a stuffing-box fitted in said opening, a wheel, and an arm or bracket therefor pivotally held at its lower end so as to be free to move concentrically to said stuffing-box, substantially as set forth.

4. In an air-lock for caissons having an upper casing, an inclined chute leading from said casing having closures for its ends, and an air-pipe opening on line with the bottom of said chute at or near its upper end, substantially as set forth.

5. In an air-lock for caissons having an upper casing, a chute leading therefrom, a gate at the outer end of said chute, and an air-pipe opening into said chute so as to eject air over the lower seat of said gate, substantially as set forth.

6. In an air-lock for caissons having a casing, a chute leading therefrom having at its lower end an upper extension, a vertically-movable gate at the lower end of said chute, a lever and a chain connecting the latter to said gate, substantially as set forth.

598,948. MEAT-CUTTER. CHARLES P. MOSHER, Groton, N. Y. Filed Mar. 17, 1897. Serial No. 628,017. (No model.)



Claim.—1. The combination of a substantially cylindrical casing formed with internal spiral feed-ribs terminating abruptly in a plane at right angles to the axis of the cylinder and forming sharp cutting edges; a feed-screw terminating in the same plane as the feed-ribs; and a cutter-disk secured thereto and having blades formed by recesses in the periphery presenting cutting edges of practically the

same depth as the ribs and coacting therewith to shear the material; whereby a minimum deflection of the material from the lines of its progression is effected.

2. The combination of a substantially cylindrical casing formed with internal spiral ribs terminating abruptly in a plane at right angles to the axis of the cylinder and forming sharp cutting edges; a feed-screw terminating in the same plane as the feed-ribs; and a cutter-disk secured thereto and having its blades formed by recesses in its periphery presenting cutting edges extending practically to the periphery of the feed-screw and coacting with the feed-ribs; whereby a minimum deflection of the material from the lines of progression is effected.

3. In a cutter of the type described, a cylinder having ribs at its inner side, cutter-pins extending radially and transversely through the cylinder at the outer ends of the ribs, the pins having their outer sides flattened or cut away in a plane at right angles to axis of the cylinder for the purpose described.

593,849. BAKING-PAN. WILLIAM H. MULLINS, Salem, Ohio. Filed Mar. 17, 1897. Serial No. 627,968. (No model.)



Claim.—1. A baking-pan having convergent sides, angular ends, and a minimum contact or supporting surface formed by the intersection of said sides, in combination with means for maintaining the pan in an upright position, substantially as described

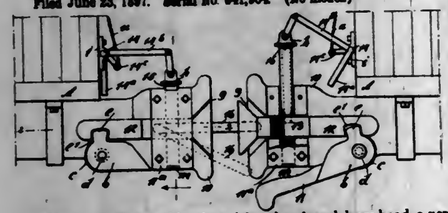
2. A quadrangular baking-pan formed of corresponding sections divided by a plane extending through opposing angles of the figure, in combination with means for supporting said pan upon one of its angles, substantially as described.

3. A rectangular baking-pan formed of corresponding sections each configured by a series of transverse corrugations, in combination with means for supporting the pan upon one of its angles, substantially as described.

4. A rectangular baking-pan formed of corresponding sections each configured by a series of transverse corrugations, in combination with a swinging bail for supporting the pan upon one of its angles, substantially as described.

5. A rectangular baking-pan formed of two interchangeable sections, in combination with a horizontal rim surrounding each section, registering lugs and depressions on the meeting faces of said rims, and a bail pivoted upon each section for interlocking them and supporting the pan upon one of its angles, substantially as described.

598,950. CAR-COUPLING. ELISHA F. MCMURTREY, Rison, Ark. Filed June 23, 1897. Serial No. 641,904. (No model.)

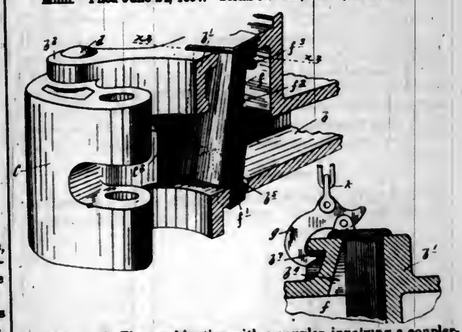


Claim.—1. The combination with a chambered draw-head, a vertically-slidable coupling-pin therein, a guide-yoke vertically slidable on the draw-head and connected with the pin, said yoke having two spaced depending legs, and means for manually adjusting the pin and yoke from the side or roof of a car, of an apron having ears at the rear end embracing the draw-head and pivoted thereon, said apron having toggle-bosses projecting upwardly from the ears thereon, and two longitudinally-slidable bars on the draw-head, having notches wherein the toggle-bosses loosely engage, said bars being projected in advance of the draw-head by the gravity of the apron, said apron inclining downwardly when the coupling-pin is elevated, substantially as described.

2. In a car-coupling of the character described, the combination with the draw-head having a chamber extending from the front end rearwardly, and an apron having rearwardly-projecting ears at the sides thereof, which ears embrace the draw-head and are pivoted thereto, of slide-bars loosely secured at the sides of the draw-head above the ears of the apron, and toggle-joint connections between the rear ends of the slide-bars and the ears of the apron, whereby the rocking depression of said apron by its gravity is adapted to slidably project the bars in advance of the draw-head, substantially as described.

3. In a car-coupling of the character described, the combination with the draw-head, of the arched guide-yoke having two parallel limbs which are slidable in vertical recesses formed in the side walls of the draw-head, said yoke being centrally perforated in its upper portion, and a coupling-pin having a flattened head and its body grooved below said head, the head of the pin being insertible in the perforation of the guide yoke, and securable therein by a partial rotation of the pin-body, substantially as described.

593,951. CAR-COUPLING. EDWIN C. WASHBURN, Minneapolis, Minn. Filed June 24, 1897. Serial No. 642,063. (No model.)



Claim.—1. The combination with a coupler, involving a coupler-head, pivoted knuckle and locking-dog, of a retaining device acting to secure said dog in its locking position, a sustaining surface or projection carried by the tail of said knuckle, adapted to move under said locking-dog and acting to hold said dog upward above a position in which said retaining device is operative to secure the same, and a releasing connection arranged to first release said retaining device and then move said dog into its unlocking position, substantially as described.

2. The combination with a coupler, involving a coupler-head, pivoted knuckle and locking-dog, of a retaining device acting to secure said dog in its locking position, a dog lifting or releasing device involving said retaining device as a section or link thereof, and a surface or projection carried by the tail of said knuckle and acting to hold said dog in a position in which said retaining device is inoperative to secure the same, when said knuckle is opened, substantially as described.

3. The combination with a coupler, involving a coupler-head, pivoted knuckle or jaw and locking-dog, of a hand-operated dog-releasing device involving, a spring, and a spring-holding bracket or buckle constructed to permit said spring to yield less than the limit of its elasticity and then to become rigid, to positively release the dog, substantially as described.

4. The combination with a coupler, involving a coupler-head, pivoted knuckle and vertically-movable locking-dog, of a retaining device acting to secure said dog in its locking or lowermost position, a surface or projection carried by the tail of said knuckle and acting to hold said dog above the position in which said retaining device is active thereon to secure the same, while said knuckle is open, which retaining device is in the form of a hook pivoted to said dog and forming part of the releasing or dog-lifting connection, substantially as described.

5. In a coupler of the character described, the combination with the pivoted knuckle, of a locking dog or pin mounted in the coupler-head, with freedom for vertical and a limited lateral movement, a surface or flange carried by the tail of said knuckle and acting to prevent said locking dog or pin from falling into a locking position while the knuckle is open, and a raised shoulder or ledge on the tail of said knuckle, upon which the lower end of said dog or pin is adapted to be engaged to set said dog so that the knuckle may be opened, substantially as described.

6. In a coupler of the character described, the combination with the pivoted knuckle, of a locking dog or pin mounted in the coupler-

head, with freedom for vertical and a limited lateral movement, a surface or flange carried by the tail of the knuckle and acting to prevent said locking dog or pin from falling into its locking position while the knuckle is open, a raised shoulder or ledge on the tail of said knuckle upon which the lower end of said dog or pin is adapted to be engaged to set said dog so that the knuckle may be opened, and cooperating stop projections or surfaces, one on said locking-dog and the other on the coupler-head, which projections or surfaces prevent the lateral movement of said dog or pin when resting upon the lower surface or flange of said knuckle, but permit the lateral movement of the said dog when raised for engagement with the said raised shoulder or ledge of said knuckle, substantially as described.

7. In a coupler of the character described, the combination with the recessed coupler-head b' b^3, of the pivoted knuckle c, the tail of which is formed with the lower and extended dog-sustaining surface or flange c' and the raised shoulder or ledge c^3, the vertically-movable locking dog or pin f cooperating with the tail c' c^3 of said knuckle and provided with the guide-lug projection f', and the cam-lug b^5 formed on the coupler-head and cooperating with said guide-lug f', all substantially as described.

8. The combination with a coupler having a vertically-movable locking dog or pin, of a dog-lifting device, involving the rock-shaft k' provided with the arm k^3 with perforated head k^3, and the link or rod k^4 working loosely through said perforated head k^3, provided, at its upper end with the head or stop k^5 and pivotally secured, at its lower end, to the head of said pin or dog, substantially as described.

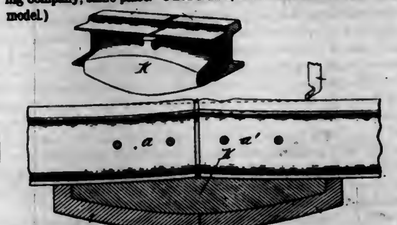
9. The combination with a coupler, involving a coupler-head, a pivoted knuckle or jaw and a locking-dog, of a hand-operated dog-releasing device, involving the rod k^9 with head k^{11}, the buckle k^{10} in which said rod k^9 and head k^{11} work, and the spring k^{12} compressed between one end of said buckle k^{10} and said head k^{11}, substantially as described.

598,952. COVER FOR PNEUMATIC TIRES. JAMES WEST, London, England, assignor to James West, George West, and Henry Joseph Wilberforce Raphael, same place. Filed Apr. 5, 1897. Serial No. 630,833. (No model.) Patented in France Mar. 25, 1897, No. 263,358.



Claim.—A pneumatic tire-cover having formed around its tread portion two or more rows of closely-pitched holes each of which extends entirely through the cover itself, eyelets or bushes secured in said holes so as to reinforce the same, and studs of elastic or yielding material extending through said eyelets or bushes and having enlarged heads at their inner ends bearing against the inner side of the cover and enlarged outer ends projecting beyond the outer side of the cover, said studs being each made of a greater diameter than that of the hole in the eyelet or bush through which it is forced so that its outer projecting end is expanded over the outer end of the said eyelet or bush, substantially as herein described for the purpose specified.

598,953. METHOD OF REPAIRING RAILWAY-TRACK RAILS. HERMAN W. FALK, Milwaukee, Wis., assignor to the Falk Manufacturing Company, same place. Filed Feb. 4, 1897. Serial No. 621,974. (No model.)



Claim.—1. The herein-described method of repairing railway-track rails, which consists in preparing the abutting rails for casting thereon a body of metal, raising and maintaining the defective portions of said rails above the level of the track, casting upon said rails a body of metal, removing the raised and defective portions of the rails and dressing the heads thereof into alinement with the level of the track.

2. The method of repairing defective rails, which consists in preparing the ends thereof for casting thereon a bond or union, raising or bending the defective portions of the rails above the level of the track, heating the parts, casting thereon a body of metal adapted to maintain the same securely in their relative positions, and cutting away the defective portions of said rails sufficiently to provide an even and practically continuous head, whereon the car-wheels are adapted to travel, substantially as described.

3. The herein-described method of repairing defective joints of railway-track, which consists in preparing the ends of the rails, bending the defective end portions above the level of the track, inserting a wedge or shim between abutting rails, heating the parts, casting a body of metal upon the lower portions of the rail ends adapted to maintain the same firmly in their relative positions, and cutting away from the upper surface of the joint thus formed the defective portions of the rail out of alinement with the corresponding portions of the track

4. The method of repairing railway-track rails, which consists in preparing the ends of the rails for uniting the same, bending the defective portions thereof above the level of the track, heating the ends of the rails, fusing thereon a body of metal adapted to retain the same securely in their relative positions, and removing the upwardly-projecting and defective portions from the rails, and thereby providing an even and continuous head whereon the car-wheels are adapted to travel, substantially as described.

5. The herein-described method of repairing railway-track rails which consists in prepairing the ends of said rails for casting thereon a metallic bond or union, bending the defective end portions above the level of the track, filling the intervening space between the rail ends with a shim or wedge, heating the parts, casting upon the lower portions of said rail ends a body of metal adapted securely to hold the same in their relative positions, and cutting away from the head of the rail-joint the portions extending above the level of the track.

593,954. CHEST AND NECK PROTECTOR. JOHN H. WAY, Philadelphia, Pa. Filed Sept. 11, 1897. Serial No. 651,335. (No model.)



Claim.—1. A chest and neck protector comprising a collar and a depending flap, the collar being elastic in the direction of its length, and the upper edge of the flap being united to the lower edge of the collar centrally for a portion of the width of said flap, whereby the latter is free from the collar for a portion of its width at each side of the point of union, and the collar free to be fastened about the neck of the wearer; substantially as described.

2. A chest and neck protector comprising a collar and a depending flap, the two being formed of a single piece of elastic knit fabric, and the upper edge of the flap being united to the lower edge of the collar centrally for a portion of the width of said flap, whereby the latter is free from the collar for a portion of its width at each side of the point of union, and the collar free to be fastened about the neck of the wearer; substantially as described.

3. A chest and neck protector comprising an upper or neck portion folded over at its upper edge to form a two-ply collar, and a depending flap, said collar being elastic in the direction of its length, and the upper edge of the flap being united to the lower edge of the collar centrally for a portion of the width of said flap, whereby the latter is free from the collar for a portion of its width at each side of the point of union, and the collar free to be fastened about the neck of the wearer; substantially as described.

593,955. NECKTIE-FASTENER. HENRY M. ARMSTRONG and WILLIAM J. JONES, Detroit, Mich.; said Jones assignor to said Armstrong. Filed Jan. 11, 1897. Serial No. 618,764. (No model.)



Claim.—1. A necktie-fastener composed of a single wire bent into a heart-shaped loop, the ends of the wire being extended across the loop bent to make the central opening e and the passage leading thereinto, and terminating with the hook d, adapted to engage under the collar, substantially as described.

same depth as the ribs and coacting therewith to shear the material; whereby a minimum deflection of the material from the lines of its progression is effected.

2. The combination of a substantially cylindrical casing formed with internal spiral ribs terminating abruptly in a plane at right angles to the axis of the cylinder and forming sharp cutting edges; a feed-screw terminating in the same plane as the feed-ribs; and a cutter-disk secured thereto and having its blades formed by recesses in its periphery presenting cutting edges extending practically to the periphery of the feed-screw and coacting with the feed-ribs; whereby a minimum deflection of the material from the lines of progression is effected.

3. In a cutter of the type described, a cylinder having ribs at its inner side, cutter pins extending radially and transversely through the cylinder at the outer ends of the ribs, the pins having their outer sides flattened or cut away in a plane at right angles to axis of the cylinder for the purpose described.

593,949. BAKING-PAN. WILLIAM H. MULLINS, Salem, Ohio. Filed Mar. 17, 1897. Serial No. 627,968. (No model.)



Claim.—1. A baking-pan having convergent sides, angular ends, and a minimum contact or supporting surface formed by the intersection of said sides, in combination with means for maintaining the pan in an upright position, substantially as described

2. A quadrangular baking-pan formed of corresponding sections divided by a plane extending through opposing angles of the figure, in combination with means for supporting said pan upon one of its angles, substantially as described.

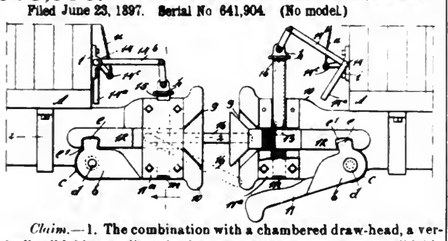
3. A rectangular baking-pan formed of corresponding sections each configured by a series of transverse corrugations, in combination with means for supporting the pan upon one of its angles, substantially as described.

4. A rectangular baking-pan formed of corresponding sections each configured by a series of transverse corrugations, in combination with a swinging bail for supporting the pan upon one of its angles, substantially as described.

5. A rectangular baking-pan formed of two interchangeable sections, in combination with a horizontal rim surrounding each section, registering lugs and depressions on the meeting faces of said rims, and a bail pivoted upon each section for interlocking them and supporting the pan upon one of its angles, substantially as described

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593,950. CAR-COUPLING. ELISHA F. MCMURTREY, Rison, Ark. Filed June 23, 1897. Serial No 641,904. (No model.)

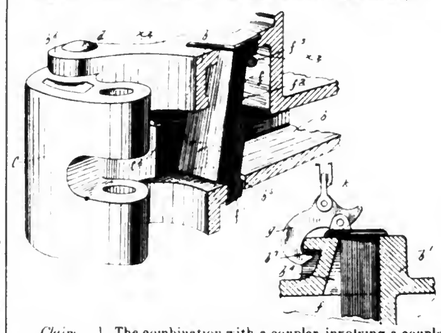


Claim.—1. The combination with a chambered draw-head, a vertically-slidable coupling-pin therein, a guide-yoke vertically slidable on the draw-head and connected with the pin, said yoke having two spaced depending legs, and means for manually adjusting the pin and yoke from the side or roof of a car, of an apron having ears at the rear end embracing the draw-head and pivoted thereon, said apron having toggle-bosses projecting upwardly from the ears thereon, and two longitudinally-slidable bars on the draw-head, having notches wherein the toggle-bosses loosely engage, said bars being projected in advance of the draw-head by the gravity of the apron, said apron inclining downwardly when the coupling-pin is elevated, substantially as described.

2. In a car-coupling of the character described, the combination with the draw-head having a chamber extending from the front end rearwardly, and an apron having rearwardly-projecting ears at the sides thereof, which ears embrace the draw-head and are pivoted thereto, of slide-bars loosely secured at the sides of the draw-head above the ears of the apron, and toggle-joint connections between the rear ends of the slide-bars and the ears of the apron, whereby the rocking depression of said apron by its gravity is adapted to slidably project the bars in advance of the draw-head, substantially as described.

3. In a car-coupling of the character described, the combination with the draw-head, of the arched guide-yoke having two parallel limbs which are slidable in vertical recesses formed in the side walls of the draw-head, said yoke being centrally perforated in its upper portion, and a coupling-pin having a flattened head and its body grooved below said head, the head of the pin being insertible in the perforation of the guide yoke, and securable therein by a partial rotation of the pin-body, substantially as described.

593,951. CAR-COUPLING. EDWIN C. WASHBURN, Minneapolis, Minn. Filed June 24, 1897. Serial No. 642,068. (No model.)



Claim 1. The combination with a coupler, involving a coupler-head, pivoted knuckle and locking-dog, of a retaining device acting to secure said dog in its locking position, a sustaining surface or projection carried by the tail of said knuckle, adapted to move under said locking-dog and acting to hold said dog upward above a position in which said retaining device is operative to secure the same, and a releasing connection arranged to first release said retaining device and then move said dog into its unlocking position, substantially as described.

2. The combination with a coupler, involving a coupler-head, pivoted knuckle and locking-dog, of a retaining device acting to secure said dog in its locking position, a dog lifting or releasing device involving said retaining device as a section or link thereof, and a surface or projection carried by the tail of said knuckle and acting to hold said dog in a position in which said retaining device is inoperative to secure the same, when said knuckle is opened, substantially as described.

3. The combination with a coupler, involving a coupler-head, pivoted knuckle or jaw and locking-dog, of a hand-operated dog-releasing device involving, a spring, and a spring-holding bracket or buckle constructed to permit said spring to yield less than the limit of its elasticity and then to become rigid, to positively release the dog, substantially as described.

4. The combination with a coupler, involving a coupler-head, pivoted knuckle and vertically-movable locking-dog, of a retaining device acting to secure said dog in its locking or lowermost position, a surface or projection carried by the tail of said knuckle and acting to hold said dog above the position in which said retaining device is active thereon to secure the same, while said knuckle is open, which retaining device is in the form of a hook pivoted to said dog and forming part of the releasing or dog-lifting connection, substantially as described.

5. In a coupler of the character described, the combination with the pivoted knuckle, of a locking dog or pin mounted in the coupler-head, with freedom for vertical and a limited lateral movement, a surface or flange carried by the tail of said knuckle and acting to prevent said locking dog or pin from falling into a locking position while the knuckle is open, and a raised shoulder or ledge on the tail of said knuckle, upon which the lower end of said dog or pin is adapted to be engaged to set said dog so that the knuckle may be opened, substantially as described.

6. In a coupler of the character described, the combination with the pivoted knuckle, of a locking dog or pin mounted in the coupler-

head, with freedom for vertical and a limited lateral movement, a surface or flange carried by the tail of the knuckle and acting to prevent said locking dog or pin from falling into its locking position while the knuckle is open, a raised shoulder or ledge on the tail of said knuckle upon which the lower end of said dog or pin is adapted to be engaged to set said dog so that the knuckle may be opened, and coöperating stop projections or surfaces, one on said locking-dog and the other on the coupler-head, which projections or surfaces prevent the lateral movement of said dog or pin when resting upon the lower surface or flange of said knuckle, but permit the lateral movement of the said dog when raised for engagement with the said raised shoulder or ledge of said knuckle, substantially as described.

7. In a coupler of the character described, the combination with the recessed coupler-head b' b^2, of the pivoted knuckle c, the tail of which is formed with the lower and extended dog-sustaining surface or flange c' and the raised shoulder or ledge c^2, the vertically-movable locking dog or pin f coöperating with the tail c' c^2 of said knuckle and provided with the guide-lug projection f'', and the cam-lug b^8 formed on the coupler-head and coöperating with said guide-lug f'', all substantially as described.

8. The combination with a coupler having a vertically-movable locking dog or pin, of a dog-lifting device, involving the rock-shaft k' provided with the arm k^8 with perforated head k^7, and the link or rod k^6 working loosely through said perforated head k^7, provided, at its upper end with the head or stop k^9 and pivotally secured, at its lower end, to the head of said pin or dog, substantially as described.

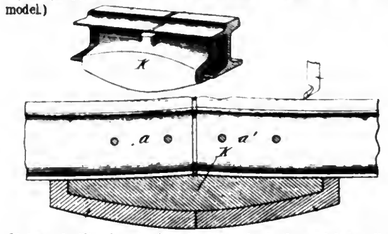
9 The combination with a coupler, involving a coupler-head, a pivoted knuckle or jaw and a locking-dog, of a hand-operated dog-releasing device, involving the rod k^6 with head k^{11}, the buckle k^{10} in which said rod k^6 and head k^{11} work, and the spring k^{14} compressed between one end of said buckle k^{10} and said head k^{11}, substantially as described.

593,952. COVER FOR PNEUMATIC TIRES. JAMES WEST, London, England, assignor to James West, George West, and Henry Joseph Wilberforce Raphael, same place. Filed Apr. 5, 1897. Serial No. 630,833. (No model.) Patented in France Mar 25, 1897. No. 263,358.



Claim.—A pneumatic tire-cover having formed around its tread portion two or more rows of closely-pitched holes each of which extends entirely through the cover itself, eyelets or bushes secured in said holes so as to reinforce the same, and studs of elastic or yielding material extending through said eyelets or bushes and having enlarged heads at their inner ends bearing against the inner side of the cover and enlarged outer ends projecting beyond the outer side of the cover, said studs being each made of a greater diameter than that of the hole in the eyelet or bush through which it is forced so that its outer projecting end is expanded over the outer end of the said eyelet or bush, substantially as herein described for the purpose specified.

593,953. METHOD OF REPAIRING RAILWAY-TRACK RAILS. HERMAN W. FALK, Milwaukee, Wis., assignor to the Falk Manufacturing Company, same place. Filed Feb. 4, 1897. Serial No. 621,974. (No model.)



Claim.—1. The herein-described method of repairing railway-track rails, which consists in preparing the abutting rails for casting thereon a body of metal, raising and maintaining the defective portions of said rails above the level of the track, casting upon said rails a body of metal, removing the raised and defective portions of the rails and dressing the heads thereof into alinement with the level of the track

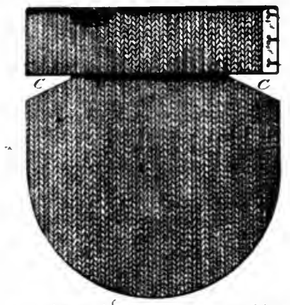
2. The method of repairing defective rails, which consists in preparing the ends thereof for casting thereon a bond or union, raising or bending the defective portions of the rails above the level of the track, heating the parts, casting thereon a body of metal adapted to maintain the same securely in their relative positions, and cutting away the defective portions of said rails sufficiently to provide an even and practically continuous head, whereon the car-wheels are adapted to travel, substantially as described.

3. The herein-described method of repairing defective joints of railway-track, which consists in preparing the ends of the rails, bending the defective end portions above the level of the track, inserting a wedge or shim between abutting rails, heating the parts, casting a body of metal upon the lower portions of the rail ends adapted to maintain the same firmly in their relative positions, and cutting away from the upper surface of the joint thus formed the defective portions of the rail out of alinement with the corresponding portions of the track

4. The method of repairing railway-track rails, which consists in preparing the ends of the rails for uniting the same, bending the defective portions thereof above the level of the track, heating the ends of the rails, fusing thereon a body of metal adapted to retain the same securely in their relative positions, and removing the upwardly-projecting and defective portions from the rails, and thereby providing an even and continuous head whereon the car-wheels are adapted to travel, substantially as described.

5. The herein-described method of repairing railway-track rails which consists in prepairing the ends of said rails for casting thereon a metallic bond or union, bending the defective end portions above the level of the track, filling the intervening space between the rail ends with a shim or wedge, heating the parts, casting upon the lower portions of said rail ends a body of metal adapted securely to hold the same in their relative positions, and cutting away from the head of the rail-joint the portions extending above the level of the track.

593,954. CHEST AND NECK PROTECTOR. JOHN H. WAY, Philadelphia, Pa. Filed Sept. 11, 1897. Serial No. 651,335. (No model.)



Claim.—1. A chest and neck protector comprising a collar and a depending flap, the collar being elastic in the direction of its length, and the upper edge of the flap being united to the lower edge of the collar centrally for a portion of the width of said flap, whereby the latter is free from the collar for a portion of its width at each side of the point of union, and the collar free to be fastened about the neck of the wearer; substantially as described.

2. A chest and neck protector comprising a collar and a depending flap, the two being formed of a single piece of elastic knit fabric, and the upper edge of the flap being united to the lower edge of the collar centrally for a portion of the width of said flap, whereby the latter is free from the collar for a portion of its width at each side of the point of union, and the collar free to be fastened about the neck of the wearer; substantially as described.

3. A chest and neck protector comprising an upper or neck portion folded over at its upper edge to form a two-ply collar, and a depending flap, said collar being elastic in the direction of its length, and the upper edge of the flap being united to the lower edge of the collar centrally for a portion of the width of said flap, whereby the latter is free from the collar for a portion of its width at each side of the point of union, and the collar free to be fastened about the neck of the wearer; substantially as described.

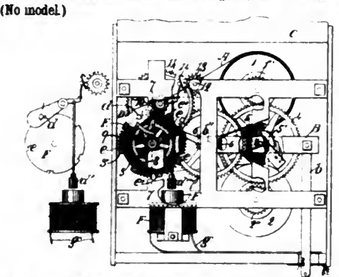
593,955. NECKTIE-FASTENER. HENRY M. ARMSTRONG and WILLIAM J. JONES, Detroit, Mich.; said Jones assignor to said Armstrong. Filed Jan. 11, 1897. Serial No. 618,764. (No model.)



Claim.—1. A necktie-fastener composed of a single wire bent into a heart-shaped loop, the ends of the wire being extended across the loop bent to make the central opening c and the passage leading thereinto, and terminating with the hook d, adapted to engage under the collar, substantially as described.

2. A necktie-fastener composed of a single wire bent to form the hook *d*, the lobes *b*, *b*, the central opening *c*, and the passage leading thereinto, the lobes and the hook being disposed on opposite sides of the wires which bound the central opening, substantially as described.

593,956. STREET AND STATION INDICATOR. SEYMOUR E. BIBBER, South Pasadena, Cal. Filed Aug. 28, 1896. Serial No. 604,218 (No model.)



Claim.—1. In a street and station indicator, the combination of a take-up roller; a display-roller; an indicator-ribbon passed around the display-roller and arranged to positively rotate the same and wrapped upon the take-up roller and having its end fastened thereto; means for driving the take-up roller to take up the ribbon and thereby positively rotate the display-roller; an escapement to stop such mechanism; a stop-wheel provided with stop-notches and fixed on the display-roller; a stop to stop the escapement and provided with a dog arranged to ride upon the stop-wheel and to enter the said stop-notches; and means to withdraw the dog from the stop-wheel and the stop from the escapement.

2. In a street and station indicator, the combination of a take-up roller; a display-roller with notched stop-wheel fixed thereon; an indicator-ribbon passed around the display-roller and arranged to positively rotate the same and wrapped upon the take-up roller and having its end fastened thereto; means for driving the take-up roller to take up the ribbon and thereby rotate the display-roller, stop mechanism operatively connected with the notched stop-wheel of the display-roller and arranged to automatically and normally stop the said take up mechanism; and stop mechanism controlling means for releasing the stop mechanism to allow the take up mechanism to act.

3. The combination of two ribbon-take-up rollers, each provided with a cog-wheel; said cog-wheels being arranged to rotate in a common plane, an indicator-ribbon wound on said rollers and having its ends respectively fastened thereto; a shifting spring-driven master-wheel mounted between the cog-wheels of the take-up rollers to rotate in a common plane therewith and arranged to move from one of said cog-wheels to the other to alternately drive the same; means for shifting the master-wheel in the plane of its rotation; stop mechanism connected with the master-wheel and arranged to automatically and normally stop the same; an armature for releasing said stop mechanism; and an electromagnet with switch for actuating said armature.

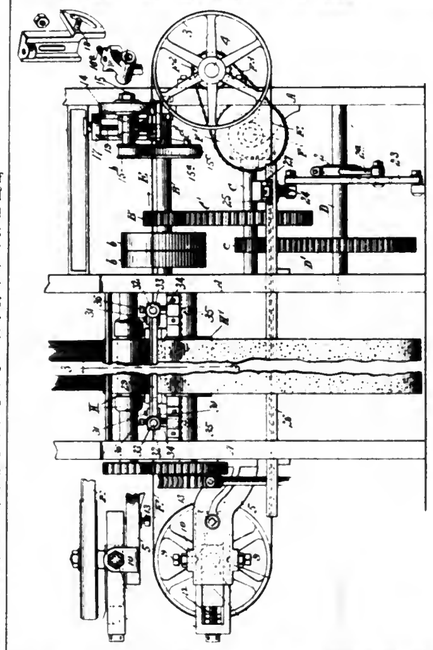
4. The combination of two ribbon-take-up rollers, each provided with a cog-wheel; a display-roller provided with ribbon-holding teeth and to be driven by the display-ribbon; a shifting spring-driven master-wheel mounted between the cog-wheels of the ribbon-take-up rollers and arranged to move from one of said cog-wheels to the other to alternately drive the same; an indicator-ribbon arranged over the display-roller and having holes to receive the ribbon-holding teeth to drive the display-roller and being wound around the ribbon-take-up rollers with its ends respectively fastened thereto; the escapement operatively connected with and driven by the master-wheel; stop mechanism to stop the escapement, operatively connected with the display-roller; and means for releasing the stop mechanism.

5. In a street indicator, the combination of a stop-wheel provided with stop-notches and operatively connected with the indicator-ribbon and to be moved thereby; mechanism to drive the ribbon; an escapement to stop such mechanism; a stop to stop the escapement and provided with a dog arranged to ride upon the stop-wheel and to enter the said stop-notches; an armature connected with said stop; and an electromagnet arranged to actuate said armature to withdraw the dog from the stop-wheel and the stop from the escapement.

6. In a street and station indicator, the combination of a stop-wheel operatively connected with the indicator-operating mechanism; a lever provided at one end with means to stop said stop-wheel; an electromagnet arranged below such lever; and a swinging armature pivoted to and hanging from the free arm of the lever and arranged to swing over the electromagnet to be operated thereby.

7. The combination of two ribbon-take-up rollers, each provided with a cog-wheel said cog-wheels being arranged to rotate in a common plane; an indicator-ribbon wound on the take-up rollers and having its ends respectively fastened thereto; a shifting master-wheel mounted on an axle between the cog-wheels of the take-up rollers and arranged to rotate in a common plane therewith and to move from one of said cog-wheels to the other to alternately drive the same; a spring fastened to and carried by said axle to drive it; and means for shifting the master-wheel in the plane of its rotation to engage with one or the other of said roller cog-wheels.

593,957. PILE-FABRIC LOOM. CHARLES H. BURT, Warren, Mass., assignor to the Burtworth Carpet Company, Springfield, Mass. Filed June 17, 1897. Serial No. 641,111. (No model.)

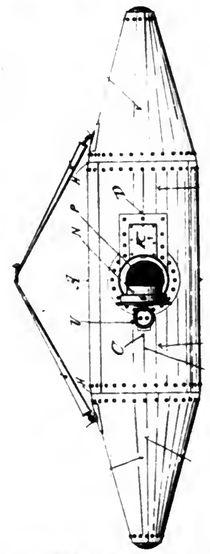


Claim.—1. In a double pile-fabric loom, two studs supported on the frame thereof, one fixed and the other supported in a bearing, movable toward and from said fixed stud, in a frame hung on trunnions, and adapted to be moved in a plane coinciding with and at right angles to the plane of movement of said bearing, pulleys on said studs, a band-knife on said pulleys, the operative edge of which knife has a direction of movement transverse to the direction of movement of the fabric woven on said loom during the operation thereof, combined with a horizontally and vertically adjustable backing-sheath for the operative edge of said band-knife, a grinding-wheel movable vertically in a frame having a swinging movement toward and away from the outer edge of said knife, and a smoothing-stone having a reciprocating movement transversely across the inner edge of said knife, at a point beyond the contact thereof with said grinding wheel, and means for operating said knife, said grinding-wheel, and said smoothing-stone, substantially as described.

2. In a double-pile-fabric loom, a fixed stud in the frame of said loom having a pulley thereon, a movable stud having a pulley thereon, a band-knife engaging said pulleys, a bearing block 7 for said movable stud, a yoke 8 in which said bearing-block has a movement toward and from said fixed stud, a fixed support 5, for said yoke, pivot-screws 9, for the latter in said support 5, an adjusting screw 13, in said support 5, the point of which screw engages with said yoke for moving it in a direction at right angles to the movement of said bearing-block, a vertically and horizontally adjustable backing-sheath for supporting the operative edge of said band-knife, a grinding-wheel movable vertically in a frame having a swinging movement toward and away from the outer edge of said knife, and a smoothing-stone having a reciprocating movement transversely across the inner edge of said knife at a point beyond the contact of said grinding-wheel therewith, and means for operating said knife, said grinding-wheel, and said smoothing-stone, substantially as described.

3. In a double-pile-fabric loom, two studs supported on the frame thereof, one fixed and the other supported in a bearing movable toward and from said fixed stud in a frame hung on trunnions and adapted to be moved in a plane coinciding with and at right angles to the plane of movement of said bearing, pulleys on said studs, a band-knife on said pulleys, the operative edge of which knife has a direction of movement transverse to the direction of movement of the fabric woven on said loom during the operation thereof, combined with a horizontally and vertically adjustable backing-sheath for the operative edge of said band-knife, a grinding-wheel movable vertically in a frame having a swinging movement toward and away from the outer edge of said knife, an arm secured to a fixed support in proximity to the said grinding-wheel for supporting said knife against the action of said wheel, a smoothing-stone having a reciprocating movement transversely across the inner edge of said knife, at a point beyond the contact thereof with said grinding-wheel, and means for operating said knife, said grinding-wheel, and said smoothing-stone, substantially as described.

593,958. MARINE LIFE-SAVING MESSENGER. JOSEPH M. COTEY, West Superior, Wis. Filed Apr. 24, 1897. Serial No. 633,800. (No model.)



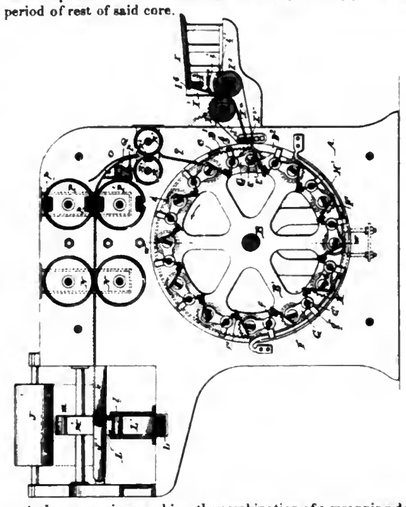
Claim.—A marine life-saving messenger, cylindrical in form with conical ends, partitions therein forming a plurality of inaccessible compartments at the ends, a central compartment having a hand-hole opening therein, a lid for closing said hole, a yielding collar against which the lid closes, a lock for holding the lid closed, and an elastic band connected to the device for securing it to the person, substantially as described.

593,959. WRAPPING-MACHINE FOR NEWSPAPERS, &c. HARRY B. CLARK, Florin, Cal. Filed July 27, 1896. Serial No. 600,608 (No model.)

Claim.—1. In a wrapping machine, the combination of a rotating wrapping-mandrel, consisting of two flat plates or jaws relatively hinged on a longitudinal axis, means to move the jaws relatively to receive the thing to be wrapped, means to rotate the wrapping-mandrel, feeding devices for delivering the thing to be wrapped to the jaws of the wrapping-mandrel, feeding devices for supplying a wrapper to the wrapping-mandrel, and ejecting devices, independent of the means for operating the jaws, for ejecting the thing or sealed package from the mandrel.

2. In a wrapping-machine, the combination of a rotating wrapping device, a moving frame or carrier for the wrapping device, means to intermittently rotate the wrapping device, feeding devices for delivering the thing to be wrapped to the wrapping device just prior to its rotation, feeding devices for supplying a wrapper to the wrapping device, pasting devices for applying paste to the wrapper, and ejecting devices for ejecting the wrapped and sealed article from the wrapping device at times intermediate of its rotation.

3. In a wrapping-machine, the combination of a wrapping device consisting of a core or mandrel, means to intermittently rotate said wrapping device, automatic devices for supplying at definite periods of rest an article to be wrapped to the wrapping device, automatic devices for feeding at definite periods a wrapper to the wrapping device, and means for discharging the wrapped and sealed article from the core upon which it is wound, said discharge taking place during a period of rest of said core.



4. In a wrapping-machine, the combination of a wrapping device consisting of two flat plates having a hinge-like movement about a longitudinal axis, a rotating frame or carrier for the wrapping device to which it is journaled at one end, feeding devices for delivering an article to be wrapped to the wrapping device, automatic feeding devices for delivering to the wrapping device a wrapper, and means for ejecting or discharging the wrapped and sealed article from the wrapping device.

5. In a wrapping-machine, the combination of a series of wrapping devices, formed with jaws, a rotating frame or carrier for the wrapping devices, feeding devices for delivering articles to be wrapped to the wrapping devices, feeding devices for delivering to the wrapping devices wrappers, devices for operating the jaws to receive the articles to be wrapped, pasting devices for applying paste to the wrappers, and means, substantially of the character shown and described, and independent of the devices for operating the jaws, for ejecting or discharging the wrapped and sealed articles from the wrapping devices.

6. In a wrapping-machine, the combination of a series of wrapping devices, means for moving them continuously through a definite orbit, feeding devices for delivering articles to be wrapped to the wrapping devices, feeding devices for delivering to the wrapping devices a wrapper, ejecting-frames, movable longitudinally of the wrapping devices, and cam-guides circumferentially arranged about the orbit of the wrapping devices, for reciprocating the ejecting-frames.

7. In a wrapping-machine, the combination of a rotating wrapping-mandrel, consisting of two flat plates or jaws relatively hinged on a longitudinal axis, means to occasion the opening and closing movement of said jaws, a presser-plate operative in connection with said jaws, means for rotating said mandrel, and means for ejecting an article from said mandrel, substantially as set forth.

8. In a wrapping-machine, the combination of a series of intermittently-rotating wrapping devices, a rotating frame or carrier for the wrapping devices, feeding devices for delivering articles to the wrapping devices before their rotation, feeding devices for delivering to the wrapping devices wrappers during their rotation, pasting devices for applying paste to the wrappers, an ejecting-frame movable longitudinally of a wrapping device, and cam-guides for reciprocating the ejecting-frame.

9. In a wrapping-machine, the combination of a rotating mandrel, a rotating frame or carrier for the wrapping-mandrel, gearing to rotate the mandrel, a stationary rack for operating said gearing, a cam-shoe moving with the mandrel, a fixed curved guide for the cam-shoe, feeding devices for delivering an article to be wrapped to the wrapping-mandrel, feeding devices for supplying a wrapper to the wrapping-mandrel, and means for ejecting or discharging the wrapped and sealed article from the wrapping-mandrel while it is held fixed with relation to the carrier.

10. In a wrapping-machine, the combination of a wrapping device composed of flat blades, a pressure-plate pivoted so as to freely move to and from the wrapping device as it rotates, a spring acting thereon for creating a pressure upon the thing being wrapped and wrapper in process of wrapping and following the irregular shape of the thing wrapped, means for rotating the wrapping device and moving it through a definite orbit, and feeding devices for delivering to the wrapping device a wrapper.

11. In a wrapping-machine, the combination of a wrapping device, a freely-moving pivoted pressure-plate movable to and from the wrapping device, and a spring acting thereon, movable with the wrapping device for creating a pressure upon the thing being wrapped and wrapper in process of wrapping and following its irregular shape, means for rotating the wrapping device and moving it through a definite orbit, feeding devices for delivering to the wrapping device a wrapper, means for holding the wrapping device against rotation during the ejecting or discharging operation of the wrapped article, and means for ejecting or discharging the wrapped and sealed article from the wrapping device.

12. In a wrapping-machine, the combination of a rotating wrapping-mandrel, a moving frame or carrier for the wrapping-mandrel, gearing to intermittently rotate the wrapping-mandrel, a stationary rack for operating said gearing at intervals of time, feeding devices for delivering to the wrapping-mandrel a wrapper, a spring pressure-plate movable freely to and from the mandrel and moving with the carrier, ejecting devices for ejecting the wrapped and sealed article from the mandrel, and means for holding the mandrel against rotation upon its axis during the ejecting or discharging operation.

13. In a wrapping-machine, the combination of a rotating wrapping device consisting of two flat blades movable relatively to each other upon a longitudinal axis, a continuously-moving frame or carrier for moving the wrapping device continually through a definite orbit, ejecting devices continuously movable with the carrier for ejecting the wrapped and sealed article from the wrapping device, and means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation.

14. In a wrapping-machine, the combination of a rotating wrapping device consisting of two flat blades movable relatively to each other upon a longitudinal axis, means for moving the wrapping device continuously through a definite orbit, a pressure device for pressing the thing being wrapped and wrapper during the wrapping operation and movable through the orbit of the wrapping device, ejecting devices for ejecting the wrapped and sealed article from the wrapping device, movable with the wrapping device, and means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation, and while it is traveling with the wrapping devices.

15. In a wrapping-machine, the combination of a rotating wrapping-mandrel consisting of two flat blades movable relatively to each other to grasp the thing to be wrapped, means for moving the wrapping-mandrel through a definite orbit, an ejecting-frame movable longitudinally of the wrapping-mandrel, means to move the ejecting-frame to lock the mandrel-blades relatively in a closed position, feeding devices for supplying a wrapper to the wrapping-mandrel, cam-guides for reciprocating the ejecting-frame to eject the wrapped article, and means for holding the mandrel against rotation upon its axis during the ejecting or discharging operation.

16. In a wrapping-machine, the combination of a rotating wrapping-mandrel, means for moving the wrapping-mandrel continuously through a definite orbit, gearing to rotate the mandrel, feeding devices for supplying a wrapper to the wrapping-mandrel, an ejecting-frame movable longitudinally of the wrapping-mandrel, cam-guides for reciprocating the ejecting-frame, and means for holding the mandrel against rotation upon its axis during the ejecting or discharging operation.

17. In a wrapping machine, the combination of a wrapping device having relatively movable jaws hinged on a longitudinal axis, a rotating frame or carrier for the wrapping device, a flat pressure device pivoted loosely, and spring-actuated, for pressing upon the thing being wrapped and wrapper and freely movable to and from the wrapping device, and feeding devices for supplying an article and a wrapper to the wrapping device.

18. In a wrapping-machine, the combination of a wrapping device, means for continuously moving the wrapping device through a definite orbit, means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation, an ejecting-frame movable longitudinally of the wrapping device, and a cam guide for reciprocating the ejecting-frame, arranged immediately outside of the wrapping devices.

19. In a wrapping-machine, the combination of a wrapping device, a moving frame or carrier for the wrapping device, means to intermittently rotate the wrapping device, continuous-feeding devices for supplying a wrapper to the wrapping device, pasting devices for applying paste to the wrapper at intervals, printing devices for printing a name or address directly upon the wrapper-paper, means for holding the wrapping device fixedly to and with reference to the moving frame or carrier, and means for ejecting or discharging the wrapped and sealed article from the wrapping device.

20. In a wrapping-machine, the combination of a wrapping device comprising long flat blades longitudinally hinged, gearing to rotate the wrapping device, a moving frame or carrier for the wrapping device, a stationary rack for operating said gearing at intervals of time, feeding devices for delivering to the wrapping device a wrapper, a cam-shoe on the wrapping device, a fixed guide for the cam-shoe to permit of the wrapping device moving in its orbit but held against independent rotation, and means for ejecting or discharging the wrapped and sealed article from the wrapping device.

21. In a wrapping-machine, the combination of a rotating wrapping device consisting of two flat blades movable relatively to each other upon a longitudinal axis, means for opening the blades of the wrapping device, feeding devices for automatically delivering the thing to be wrapped between the blades of the wrapping device, feeding devices for supplying a wrapper to the wrapping device, means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation, and a reciprocating ejecting-frame encircling both blades for ejecting the wrapped and sealed articles from the wrapping device.

22. In a wrapping-machine, the combination of a rotating wrapping device consisting of two flat blades movable relatively to each other upon an axis parallel to their length, means for opening the blades of the wrapping device, feeding devices for delivering the thing to be wrapped to the wrapping device, feeding devices for supplying a wrapper to the wrapping device, means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation, and an ejecting-frame encircling both the wrapping-blades for ejecting the wrapped and sealed article from the wrapping device.

23. In a wrapping-mandrel, the combination of a rotating journal D, carrying a fixed blade E, and a movable blade E', hinged to the rotating journal upon an axis parallel to the length of the blade, and provided with means for moving it to or from the blade E like a hinge, means to operate the rotating mandrel, means to automatically oscillate the movable blade E', and a longitudinally-movable ejecting-frame inclosing the blade and movable in the direction of the length of the blade.

24. In a wrapping-mandrel, the combination of a rotating journal D, carrying a fixed blade E, and a movable blade E', hinged to the rotating journal upon an axis parallel to the length of the blade, and provided with means for moving it to and from the blade E like a hinge, and a hinged blade F freely movable to and from the rotating wrapping-blades to follow their irregular shape when rotating.

25. In a wrapping-machine, the combination of a rotating wrapping-mandrel, a pressure device located wholly on one side of the mandrel for pressing upon the thing being wrapped and wrapper, ejecting devices for ejecting the wrapped and sealed article from the mandrel, and cams located wholly upon the other side of the mandrel for operating the ejecting devices.

26. In an addressing device for a wrapping-machine, an endless carrier combined with means to feed it intermittently, a type-chase carried by said carrier, feeding devices for a continuously-moving web of paper, an impression device adapted to be moved in timed relation to the movements of the chase and carrier and to at intervals impart an impression to the web of paper, perforating or cutting devices for subdividing the web into sheets, and connecting devices for making the feeding and perforating devices act in unison with the impression device.

27. In an addressing device for a wrapping-machine, consisting of an endless carrier having short pins, combined with means to feed it intermittently, a type-chase carried by said carrier and having a hole in its bottom for the pins of the carrier, continuous feeding devices for a web of paper, an impression device adapted to be moved in timed relation to the movements of the chase and carrier and impart intermittent impressions, perforating or cutting devices for subdividing the web into sheets, and connecting devices for making the feeding and perforating devices act in unison with the impression device.

593,960. HOOF-PAD FOR HORSES. ALBERT H. DORSEY, Allentown, Pa. Filed June 9, 1897. Serial No. 640,066. (No model.)

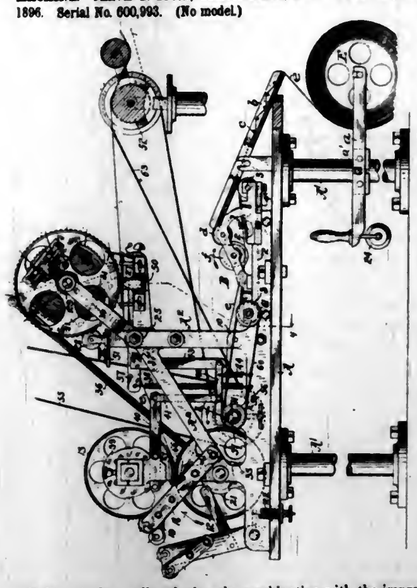
Claim.—1. A hoof-pad composed of a series of layers of felt-cloth united together along their ends, lower edges, and near their upper top edges, the latter being left free and open above such point of union, forming an upper sponge-like portion, as set forth.

2. A hoof-pad composed of a series of layers of felt-cloth united together along their lower edges, at the ends, and adjacent to the top edges, which latter are fluted to form curved projections, the layers being free and disconnected above said upper union, forming an upper sponge-like portion, as set forth.

3. A hoof-pad composed of a series of layers of felt-cloth, the upper edges of which are disconnected, forming an upper sponge-like portion, said layers being connected together below said upper edges, substantially as set forth.



593,961. COMBINED RULING, PRINTING, AND NUMBERING MACHINE. JARVIS B. EDSON, Shelter Island, N. Y. Filed July 29, 1896. Serial No. 600,993. (No model.)



Claim.—1. In a ruling device, the combination with the impression device, of grooved rolls at opposite sides thereof, endless parallel marking-threads spaced apart by said rolls and coacting with the impression device with their upper runs, and means for rotating one of said grooved rolls, substantially as described.

2. The combination with the impression device, of grooved rolls at opposite sides thereof, endless marking-threads passed around said rolls and coacting with the impression device with their upper runs, and a support for a pattern within the space between the two runs of the threads, substantially as described.

3. In a ruling device, the combination of an impression device for the material to be ruled, a plurality of suitably-supported parallel marking-threads coacting with the impression device, and a support for a pattern arranged adjacent the threads to act as a guide for the proper location of said threads, as described.

4. In a ruling device, the combination with the impression-roll for the material to be ruled, parallel endless marking-threads coacting at their upper ends with said impression-roll, and a pair of grooved rolls around which said threads are stretched, of an auxiliary means of adjustment for said threads, and a pattern-holder in the space between the two runs of the threads, substantially as described.

5. In a ruling device, the combination with the impression-roll for the ribbon or strip to be ruled, grooved rolls at opposite sides thereof, means for rotating one of said grooved rolls, endless parallel marking-threads spaced apart by said rolls and coacting at their upper runs with said impression-roll, of auxiliary adjusting devices for adjusting the upper runs of the threads independent of the grooved rolls, substantially as described.

6. In a ruling device, the combination of the impression-roll for the ribbon or strip to be ruled, a plurality of parallel endless marking-threads coacting with said impression-roll, a pair of grooved rolls around which said threads are stretched, a support for a pattern arranged adjacent each roll, and a plurality of removable pins for transversely adjusting the positions of the threads, as set forth.

7. The herein-described ruling mechanism, comprising the parallel grooved rolls, one of which is driven, the endless marking-threads passing around said rolls and spaced by the grooves thereof, an impression-roll journaled over the upper run of the threads, a guide and leading roll for guiding the strip to be ruled under said impression-roll, and a pattern holder or support between the two runs of the threads, substantially as described.

8. The combination with the endless traveling ruling-threads and the impression-roll over the upper runs thereof, of an inking device for the threads, an apertured plate under the upper runs of the threads at one side of the impression-roll and removable pins in said apertures for properly spacing the threads, substantially as described.

9. The herein-described ruling mechanism, comprising a suitable frame, a bracket for supporting the roll of paper to be printed, a guide-trough above the bracket and having rods for straightening the strip, a leading-roll at the forward end of the trough, an impression-roll under which the strip passes from the leading-roll, parallel grooved rolls at opposite sides of the impression-roll and the endless ruling or marking threads passed around said grooved rolls, substantially as set forth.

10. The combination with the frame, and the mechanism for ruling the strip longitudinally, of an impression-cylinder around which the strip or ribbon passes from the ruling mechanism, a printing-cylinder over the impression-cylinder and provided with devices for printing the transverse graduations at the opposite edges of the strip, a consecutive-numbering cylinder parallel with the printing-cylinder and above the line-ruling mechanism and under which the strip or ribbon passes from the printing-cylinder, a platen movable toward and from the said numbering-cylinder and mounted between the said cylinder and the ruling mechanism, and an operating mechanism for actuating the numbering-cylinder from the shaft of said impression-cylinder a single character at predetermined intervals, substantially as described.

11. The combination with the impression-cylinder and the printing-cylinder coacting therewith, of an intermittently-actuated rotary numbering cylinder having a spirally-arranged series of consecutive numbers and having a sliding movement, a spring-projected platen for the numbering-cylinder, mechanism for retracting the platen at regular intervals, mechanism actuated from the axis of the printing-cylinder to release the platen, and mechanism actuated from the shaft of the impression-cylinder for operating the numbering-cylinder, the space of a single number for every time its platen is released, substantially as described.

12. The combination with the printing-cylinder having a cam on its axis, and an impression-cylinder provided with an eccentric, of a rotary numbering-cylinder having a rotary shaft on which it slides and with which it turns, said cylinder having a spirally-arranged series of consecutive numbers, and an external spiral groove, a flange entering said groove, a ratchet-wheel on the shaft of the numbering-wheel, a lever having a pawl engaging said ratchet-wheel, and a rod connected at one end to the eccentric and at its opposite end engaging said pawl-lever, a lever pivoted below the printing-cylinder, and provided at one end with a platen to cooperate with the numbering-cylinder, a spring for projecting the platen toward said cylinder, a hooked lever for rocking the platen-lever against the action of its spring, a cam having a shoulder to engage and operate said hooked lever, and a trip-lever connected with the hooked lever and actuated from the cam on the axis of the printing-cylinder, substantially as described

13. The combination with the rotary non-slidable shaft and means for rotating it intermittently, of a cylinder sliding on and turning with said shaft, and having a series of numbers arranged spirally around its exterior, a spiral groove being formed between the lines of numerals, and an idler rotating in fixed bearings and provided with flanges engaging the groove at opposite sides of the line of numerals, substantially as described.

14. The combination with the numeral-carrying cylinder having an external spiral groove, and a flanged idler engaging the groove to cause the cylinder to move endwise when rotated, of a rotary non-sliding shaft extending through the cylinder and provided with a parallel arm also passing freely through the cylinder, the said cylinder having antifriction-wheels between which said arm passes, substantially as described.

593,962. TELEPHONE TOLL APPARATUS. WILLIAM GRAY, Hartford, Conn., assignor to The Gray Telephone Pay Station Company, same place. Filed Feb. 8, 1897. Serial No. 622,578. (No model.)

Claim.—1. In combination with the receiving and transmitting part of a telephone apparatus, a metallic channel-plate supporting a signal device, a metallic post supporting a transmitter and a metallic connection uniting the transmitter-post and the channel-plate.

10. In a wrapping-machine, the combination of a wrapping device composed of flat blades, a pressure-plate pivoted so as to freely move to and from the wrapping device as it rotates, a spring acting thereon for creating a pressure upon the thing being wrapped and wrapper in process of wrapping and following the irregular shape of the thing wrapped, means for rotating the wrapping device and moving it through a definite orbit, and feeding devices for delivering to the wrapping device a wrapper.

11. In a wrapping-machine, the combination of a wrapping device, a freely-moving pivoted pressure-plate movable to and from the wrapping device, and a spring acting thereon, movable with the wrapping device for creating a pressure upon the thing being wrapped and wrapper in process of wrapping and following its irregular shape, means for rotating the wrapping device and moving it through a definite orbit, feeding devices for delivering to the wrapping device a wrapper, means for holding the wrapping device against rotation during the ejecting or discharging operation of the wrapped article, and means for ejecting or discharging the wrapped and sealed article from the wrapping device.

12. In a wrapping-machine, the combination of a rotating wrapping-mandrel, a moving frame or carrier for the wrapping-mandrel, gearing to intermittently rotate the wrapping-mandrel, a stationary rack for operating said gearing at intervals of time, feeding devices for delivering to the wrapping-mandrel a wrapper, a spring pressure-plate movable freely to and from the mandrel and moving with the carrier, ejecting devices for ejecting the wrapped and sealed article from the mandrel, and means for holding the mandrel against rotation upon its axis during the ejecting or discharging operation.

13. In a wrapping-machine, the combination of a rotating wrapping device consisting of two flat blades movable relatively to each other upon a longitudinal axis, a continuously-moving frame or carrier for moving the wrapping device continually through a definite orbit, ejecting devices continuously movable with the carrier for ejecting the wrapped and sealed article from the wrapping device, and means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation.

14. In a wrapping-machine, the combination of a rotating wrapping device consisting of two flat blades movable relatively to each other upon a longitudinal axis, means for moving the wrapping device continuously through a definite orbit, a pressure device for pressing the thing being wrapped and wrapper during the wrapping operation and movable through the orbit of the wrapping device, ejecting devices for ejecting the wrapped and sealed article from the wrapping device, movable with the wrapping device, and means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation, and while it is traveling with the wrapping devices.

15. In a wrapping-machine, the combination of a rotating wrapping-mandrel consisting of two flat blades movable relatively to each other to grasp the thing to be wrapped, means for moving the wrapping-mandrel through a definite orbit, an ejecting-frame movable longitudinally of the wrapping-mandrel, means to move the ejecting-frame to lock the mandrel-blades relatively in a closed position, feeding devices for supplying a wrapper to the wrapping-mandrel, cam-guides for reciprocating the ejecting-frame to eject the wrapped article, and means for holding the mandrel against rotation upon its axis during the ejecting or discharging operation.

16. In a wrapping-machine, the combination of a rotating wrapping-mandrel, means for moving the wrapping-mandrel continuously through a definite orbit, gearing to rotate the mandrel, feeding devices for supplying a wrapper to the wrapping-mandrel, an ejecting-frame movable longitudinally of the wrapping-mandrel, cam-guides for reciprocating the ejecting-frame, and means for holding the mandrel against rotation upon its axis during the ejecting or discharging operation

17. In a wrapping machine, the combination of a wrapping device having relatively movable jaws hinged on a longitudinal axis, a rotating frame or carrier for the wrapping device, a flat pressure device pivoted loosely, and spring-actuated, for pressing upon the thing being wrapped and wrapper and freely movable to and from the wrapping device, and feeding devices for supplying an article and a wrapper to the wrapping device.

18. In a wrapping-machine, the combination of a wrapping device, means for continuously moving the wrapping device through a definite orbit, means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation, an ejecting-frame movable longitudinally of the wrapping device, and a cam-guide for reciprocating the ejecting-frame, arranged immediately outside of the wrapping devices.

19. In a wrapping-machine, the combination of a wrapping device, a moving frame or carrier for the wrapping device, means to intermittently rotate the wrapping device, continuous-feeding devices for supplying a wrapper to the wrapping device, pasting devices for applying paste to the wrapper at intervals, printing devices for printing a name or address directly upon the wrapper-paper, means for holding the wrapping device fixedly to and with reference to the moving frame or carrier, and means for ejecting or discharging the wrapped and sealed article from the wrapping device.

20. In a wrapping-machine, the combination of a wrapping device comprising long flat blades longitudinally hinged, gearing to rotate the wrapping device, a moving frame or carrier for the wrapping device, a stationary rack for operating said gearing at intervals of time, feeding devices for delivering to the wrapping device a wrapper, a cam-shoe on the wrapping device, a fixed guide for the cam-shoe to permit of the wrapping device moving in its orbit but held against independent rotation, and means for ejecting or discharging the wrapped and sealed article from the wrapping device.

21. In a wrapping-machine, the combination of a rotating wrapping device consisting of two flat blades movable relatively to each other upon a longitudinal axis, means for opening the blades of the wrapping device, feeding devices for automatically delivering the thing to be wrapped between the blades of the wrapping device, feeding devices for supplying a wrapper to the wrapping device, means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation, and a reciprocating ejecting-frame encircling both blades for ejecting the wrapped and sealed articles from the wrapping device.

22. In a wrapping-machine, the combination of a rotating wrapping device consisting of two flat blades movable relatively to each other upon an axis parallel to their length, means for opening the blades of the wrapping device, feeding devices for delivering the thing to be wrapped to the wrapping device, feeding devices for supplying a wrapper to the wrapping device, means for holding the wrapping device against rotation upon its axis during the ejecting or discharging operation, and an ejecting-frame encircling both the wrapping-blades for ejecting the wrapped and sealed article from the wrapping device.

23. In a wrapping-mandrel, the combination of a rotating journal D, carrying a fixed blade E, and a movable blade E', hinged to the rotating journal upon an axis parallel to the length of the blade, and provided with means for moving it to or from the blade E like a hinge, means to operate the rotating mandrel, means to automatically oscillate the movable blade E', and a longitudinally-movable ejecting-frame inclosing the blade and movable in the direction of the length of the blade.

24. In a wrapping-mandrel, the combination of a rotating journal D, carrying a fixed blade E, and a movable blade E', hinged to the rotating journal upon an axis parallel to the length of the blade, and provided with means for moving it to and from the blade E, like a hinge, and a hinged blade F freely movable to and from the rotating wrapping-blades to follow their irregular shape when rotating.

25. In a wrapping-machine, the combination of a rotating wrapping-mandrel, a pressure device located wholly on one side of the mandrel for pressing upon the thing being wrapped and wrapper, ejecting devices for ejecting the wrapped and sealed article from the mandrel, and cams located wholly upon the other side of the mandrel for operating the ejecting devices.

26. In an addressing device for a wrapping-machine, an endless carrier combined with means to feed it intermittently, a type-chase carried by said carrier, feeding devices for a continuously-moving web of paper, an impression device adapted to be moved in timed relation to the movements of the chase and carrier and to at intervals impart an impression to the web of paper, perforating or cutting devices for subdividing the web into sheets, and connecting devices for making the feeding and perforating devices act in unison with the impression device.

27. In an addressing device for a wrapping-machine, consisting of an endless carrier having short pins, combined with means to feed it intermittently, a type-chase carried by said carrier and having a hole in its bottom for the pins of the carrier, continuous feeding devices for a web of paper, an impression device adapted to be moved in timed relation to the movements of the chase and carrier and impart intermittent impressions, perforating or cutting devices for subdividing the web into sheets, and connecting devices for making the feeding and perforating devices act in unison with the impression device.

593,960. HOOF-PAD FOR HORSES. ALBERT H. DORNEY, Allentown, Pa. Filed June 9, 1897. Serial No. 640,066. (No model.)

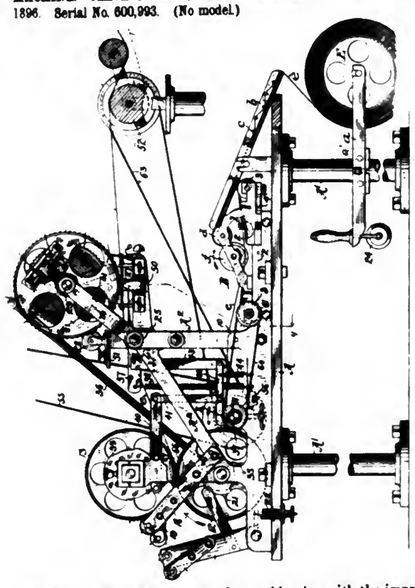
Claim.—1. A hoof-pad composed of a series of layers of felt-cloth united together along their ends, lower edges, and near their upper top edges, the latter being left free and open above such point of union, forming an upper sponge-like portion, as set forth.

2. A hoof-pad composed of a series of layers of felt-cloth united together along their lower edges, at the ends, and adjacent to the top edges, which latter are fluted to form curved projections, the layers being free and disconnected above said upper union, forming an upper sponge-like portion, as set forth.

3. A hoof-pad composed of a series of layers of felt-cloth, the upper edges of which are disconnected, forming an upper sponge-like portion, said layers being connected together below said upper edges, substantially as set forth.



593,961. COMBINED RULING, PRINTING, AND NUMBERING MACHINE. JARVIS B. EDSON, Shelter Island, N. Y. Filed July 29, 1896. Serial No. 600,993. (No model.)



Claim.—1. In a ruling device, the combination with the impression device, of grooved rolls at opposite sides thereof, endless parallel marking-threads spaced apart by said rolls and coacting with the impression device with their upper runs, and means for rotating one of said grooved rolls, substantially as described.

2. The combination with the impression device, of grooved rolls at opposite sides thereof, endless marking-threads passed around said rolls and coacting with the impression device with their upper runs, and a support for a pattern within the space between the two runs of the threads, substantially as described.

3. In a ruling device, the combination of an impression device for the material to be ruled, a plurality of suitably-supported parallel marking-threads coacting with the impression device, and a support for a pattern arranged adjacent the threads to act as a guide for the proper location of said threads, as described.

4. In a ruling device, the combination with the impression-roll for the material to be ruled, parallel endless marking-threads coacting at their upper ends with said impression-roll, and a pair of grooved rolls around which said threads are stretched, of an auxiliary means of adjustment for said threads, and a pattern-holder in the space between the two runs of the threads, substantially as described.

5. In a ruling device, the combination with the impression-roll for the ribbon or strip to be ruled, grooved rolls at opposite sides thereof, means for rotating one of said grooved rolls, endless parallel marking-threads spaced apart by said rolls and coacting at their upper runs with said impression-roll, of auxiliary adjusting devices for adjusting the upper runs of the threads independent of the grooved rolls, substantially as described.

6. In a ruling device, the combination of the impression-roll for the ribbon or strip to be ruled, a plurality of parallel endless marking-threads coacting with said impression-roll, a pair of grooved rolls around which said threads are stretched, a support for a pattern arranged adjacent each roll, and a plurality of removable pins for transversely adjusting the positions of the threads, as set forth.

7. The herein-described ruling mechanism, comprising the parallel grooved rolls, one of which is driven, the endless marking-threads passing around said rolls and spaced by the grooves thereof, an impression-roll journaled over the upper run of the threads, a guide and leading roll for guiding the strip to be ruled under said impression-roll, and a pattern holder or support between the two runs of the threads, substantially as described.

8. The combination with the endless traveling ruling-threads and the impression-roll over the upper runs thereof, of an inking device for the threads, an apertured plate under the upper runs of the threads at one side of the impression-roll and removable pins in said apertures for properly spacing the threads, substantially as described.

9. The herein-described ruling mechanism, comprising a suitable frame, a bracket for supporting the roll of paper to be printed, a guide-trough above the bracket and having rods for straightening the strip, a leading-roll at the forward end of the trough, an impression-roll under which the strip passes from the leading-roll, parallel grooved rolls at opposite sides of the impression-roll and the endless ruling or marking threads passed around said grooved rolls, substantially as set forth.

10. The combination with the frame, and the mechanism for ruling the strip longitudinally, of an impression-cylinder around which the strip or ribbon passes from the ruling mechanism, a printing-cylinder over the impression-cylinder and provided with devices for printing the transverse graduations at the opposite edges of the strip, a consecutive-numbering cylinder parallel with the printing-cylinder and above the line-ruling mechanism and under which the strip or ribbon passes from the printing-cylinder, a platen movable toward and from the said numbering-cylinder and mounted between the said cylinder and the ruling mechanism, and an operating mechanism for actuating the numbering-cylinder from the shaft of said impression-cylinder a single character at predetermined intervals, substantially as described.

11. The combination with the impression-cylinder and the printing-cylinder coacting therewith, of an intermittently-actuated rotary numbering cylinder having a spirally-arranged series of consecutive numbers and having a sliding movement, a spring-projected platen for the numbering-cylinder, mechanism for retracting the platen at regular intervals, mechanism actuated from the axis of the printing-cylinder to release the platen, and mechanism actuated from the shaft of the impression-cylinder for operating the numbering-cylinder, the space of a single number for every time its platen is released, substantially as described.

12. The combination with the printing-cylinder having a cam on its axis, and an impression-cylinder provided with an eccentric, of a rotary numbering-cylinder having a rotary shaft on which it slides and with which it turns, said cylinder having a spirally-arranged series of consecutive numbers, and an external spiral groove, a flange entering said groove, a ratchet-wheel on the shaft of the numbering-wheel, a lever having a pawl engaging said ratchet-wheel, and a rod connected at one end to the eccentric and at its opposite end engaging said pawl-lever, a lever pivoted below the printing-cylinder, and provided at one end with a platen to coöperate with the numbering-cylinder, a spring for projecting the platen toward said cylinder, a hooked lever for rocking the platen-lever against the action of its spring, a cam having a shoulder to engage and operate said hooked lever, and a trip-lever connected with the hooked lever and actuated from the cam on the axis of the printing-cylinder, substantially as described

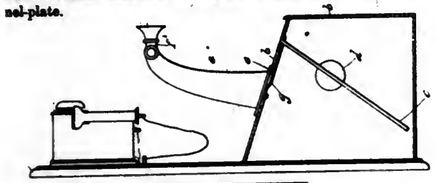
13. The combination with the rotary non-slidable shaft and means for rotating it intermittently, of a cylinder sliding on and turning with said shaft, and having a series of numbers arranged spirally around its exterior, a spiral groove being formed between the lines of numerals, and an idler rotating in fixed bearings and provided with flanges engaging the groove at opposite sides of the line of numerals, substantially as described.

14. The combination with the numeral-carrying cylinder having an external spiral groove, and a flanged idler engaging the groove to cause the cylinder to move endwise when rotated, of a rotary non-sliding shaft extending through the cylinder and provided with a parallel arm also passing freely through the cylinder, the said cylinder having antifriction-wheels between which said arm passes, substantially as described.

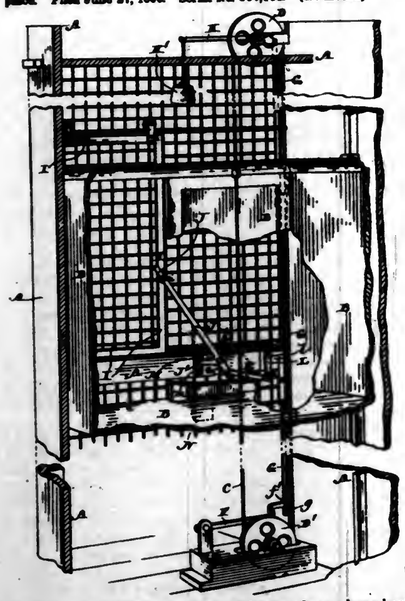
593,962. TELEPHONE TOLL APPARATUS. WILLIAM GRAY, Hartford, Conn., assignor to The Gray Telephone Pay Station Company, same place. Filed Feb. 8, 1897. Serial No. 623,578. (No model.)

Claim.—1. In combination with the receiving and transmitting part of a telephone apparatus, a metallic channel-plate supporting a signal device, a metallic post supporting a transmitter and a metallic connection uniting the transmitter-post and the channel-plate.

2. In combination with the receiving and transmitting part of a telephone apparatus, a metallic channel-plate supporting a signal device, a signal-box containing the channel-plate the wall of the signal-box with an opening therethrough, a metallic post supporting a transmitter and covering the opening through the wall of the signal-box, and a metallic connection uniting the transmitter-post and the channel-plate.



593,963. ELEVATOR. ALBERT ISER and ANTHONY ISER, Lancaster, Pa., assignors of one-fourth to G. W. Arms and A. L. Thomas, same place. Filed June 27, 1896. Serial No. 597,181. (No model.)



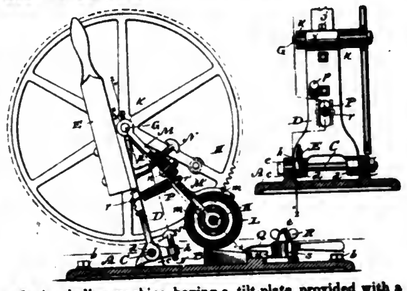
Claim.—1. In combination with an elevator-door, a lever having a sliding connection therewith, a spring-catch engaging the said lever to hold the said door closed, and an elevator-car provided with an attachment arranged to act on the said catch when the car comes opposite the said door, thereby freeing the said lever and permitting the door to open substantially as set forth.

2. In combination with an elevator-door, a lever J attached to the said door, and provided with an arm J', a spring-catch engaging the said arm to hold the door closed and an elevator-car provided with a lug adapted to press against the said catch and free the said arm when the car is opposite the door substantially as set forth.

3. In combination with the controlling-cord of an elevator-car and its pulleys, a toothed wheel carried by one of the said pulleys, a pivoted lever or catch locking the said wheel, a rod extending from said lever, a counterbalance, acting on said rod to free said wheel, a connection from said lever to said rod, a sliding elevator-shaft door, a lever connected thereto, a spring-catch engaging the said lever and an elevator-car provided with a lug which engages the said spring-catch to free the said door when the car is opposite thereto substantially as set forth.

593,964. GRINDING-MACHINE. CLARENCE J. LUTHER, Poynette, Wis., assignor to the C. J. Luther Company, Port Washington, Wis. Filed Apr. 19, 1897. Serial No. 632,763. (No model.)

Claim.—1. A grinding-machine having a cast-metal base in one piece with a pair of upwardly-extending lugs and a V-notched bevel-top sickle-bar support, a sickle-bar clamp-plate in suitable connection with the base, a tilt-plate having lugs in pivotal connection with the base-lugs, an arbor supported by the tilt-plate, a frame in pivotal connection with the arbor, suitable means for effecting positive pivotal adjustment of the frame, a spiral spring connected at its ends to said tilt-plate and frame to move therewith coincident with its expansion and contraction, a grinding-wheel having its arbor rotative in bearings constituting parts of the frame, a pinion fast on the latter arbor, and a driving spur-wheel loosely mounted on the former arbor to mesh with said pinion.



2. A grinding-machine having a tilt-plate provided with a depending rear stop that comes to rest on the base of the machine, an adjustable stop arranged to limit forward movement of the tilt-plate, an arbor supported by the tilt-plate, a frame having positive pivotal adjustment on the arbor, a spiral spring connected at its ends to said tilt-plate and frame, a grinding-wheel having an arbor rotative in bearings constituting parts of the frame, a pinion fast on the latter arbor, a driving spur-wheel on the former arbor having mesh with the pinion, a transverse bevel-top V-notched ledge on the machine-base, and a clamp mechanism for a sickle-bar supported on said ledge.

3. A grinding-machine having a tilt-plate, an arbor supported by the same, a frame having positive pivotal adjustment on the arbor, a spiral spring connected at its ends to the tilt-plate and frame to move therewith coincident with its expansion and contraction, a grinding-wheel having an arbor in rotative connection with said frame, a pinion fast on the latter arbor, a driving spur-wheel on the former arbor in mesh with the pinion, a transverse bevel-top V notched ledge on the machine-base, and a clamp mechanism for a sickle-bar supported on said ledge.

4. A grinding-machine having a tilt-plate, an arbor supported by the same, a frame in positive pivotal adjustment on the arbor, a spiral spring having one end thereof in adjustable connection with the tilt-plate longitudinally of the same and its other end in non-adjustable connection with the frame although movable with both, a grinding-wheel having an arbor in rotative connection with said frame, a pinion fast on the latter arbor, a driving spur-wheel on the former arbor having mesh with the pinion, a transverse bevel-top V-notched ledge on the machine-base, and a clamp mechanism for a sickle-bar supported on the ledge.

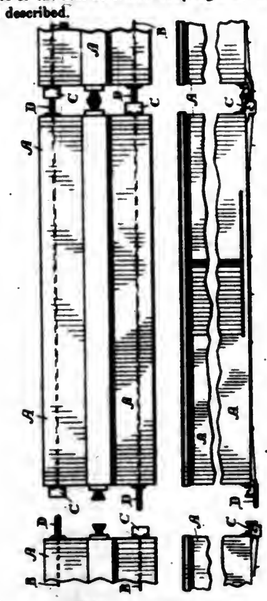
5. A grinding-machine comprising a tilt-plate and means for locking the same in swung-back position, an arbor supported by the tilt-plate, a frame in spring connection with said tilt-plate and having positive pivotal adjustment on the arbor, a sickle-bar-supporting ledge and clamp on the machine-base, an arbor rotative in the frame and having one of its ends extended from said frame for the engagement of a detachable grinding-wheel when said tilt-plate is locked in swung-back position, a grinding-wheel fast on the frame-supported arbor for work on sickle-bar knife-sections when the aforesaid tilt-plate is free to be swung forward, a pinion fast on the latter arbor, and a driving spur-wheel loosely mounted on the former arbor to mesh with the pinion.

593,965. COUPLING FOR ELECTRIC CIRCUITS IN RAILWAY-TRAINS. JAMES MERRYWEATHER, Greencastle, Ind., assignor of two-thirds to Arthur Throop and Henry H. Hillis, same place. Filed Oct. 7, 1897. Serial No. 654,450. (No model.)

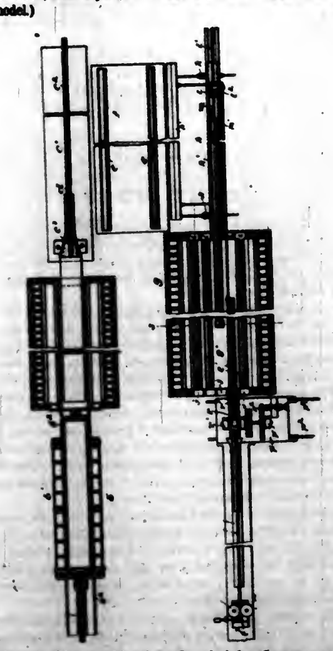
Claim.—1. The combination, with a railway-train having an electric signaling-circuit, of coupling devices consisting of male and female coupling-halves adapted to be connected to the ends of the cars and to engage with each other, each car being equipped with two of each form of coupling-halves, one upon each end, the corresponding coupling-halves being arranged in all cases diagonally opposite to each other, substantially as shown and described.

2. A coupling device for electric signaling-circuits on railway-trains, composed of the two halves C and D, each coupling-half C being box-like in general form with swinging doors for the contact-surfaces, and the coupling-halves D each consisting of a plunger or arm adapted to pass into the box-like coupling-half C and in contact with the doors thereof.

3. A coupler for electric signaling-circuits on railway-trains, consisting of a coupling-half C provided with two swinging doors C' C^2 having curved or rounded edges and provided with springs s for holding said doors toward their closed position, and a coupling-half D having an arm or plunger adapted to pass between and into contact with the doors of the first-described coupling-half, all substantially as shown and described.



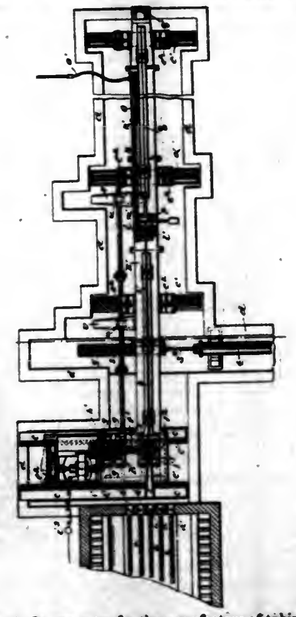
593,966. APPARATUS FOR MANUFACTURING TUBING. PETER C. PATTERSON, McKeesport, Pa. Filed May 4, 1896. Serial No. 590,314. (No model.)



Claim.—1. The combination of a skelping-furnace and a welding-furnace in proximity with each other, a receiving-platform near the skelping-furnace, charging mechanism in line with that platform and movable transversely as to the welding-furnace and having a pusher movable longitudinally toward and from the welding-furnace, and welding mechanism at the opposite end of the welding-furnace movable transversely of the furnace, substantially as set forth.

2. The combination of a welding-furnace, charging mechanism at one end thereof, movable transversely thereof having a pusher movable longitudinally toward and from the furnace, and welding mechanism at the other end of the furnace movable transversely of the furnace adapted to bring the welding-rolls into line with two or more skelps within the furnace, substantially as set forth.

593,967. TUBE-WELDING APPARATUS. PETER C. PATTERSON, McKeesport, Pa. Filed May 4, 1896. Serial No. 590,315. (No model.)



Claim.—1. In apparatus for the manufacture of tubing, the combination of a skelp-heating furnace, a transversely-moving carriage in front of said furnace, welding-rolls on said carriage adapted to be moved into line with a plurality of skelps in the furnace, mandrel-feeding mechanism on said carriage back of said rolls, and power apparatus for operating said mandrel-feeding mechanism, substantially as set forth.

2. In apparatus for the manufacture of tubing, the combination of a skelp-heating furnace, a transversely-moving carriage in front of said furnace, welding-rolls on said carriage adapted to be moved into line with a plurality of skelps in the furnace, and mandrel-feeding mechanism on said carriage back of said rolls, and power apparatus for operating said mandrel-feeding mechanism on said carriage, substantially as set forth.

3. In apparatus for the manufacture of tubing, the combination with a skelp-heating furnace of a transversely-moving carriage in front thereof, welding-rolls on said carriage adapted to be moved into line with a plurality of skelps in the furnace, a motor on said carriage for driving said welding-rolls, mandrel-feeding mechanism and power mechanism for operating the same on said carriage, and flexible connections between said motor and mandrel-feeding mechanism and their respective sources of supply, substantially as set forth.

4. In apparatus for the manufacture of tubing, the combination with a skelp-heating furnace of a transversely-moving carriage in front thereof, welding-rolls on said carriage adapted to be brought into line with a plurality of skelps in the furnace, mandrel-feeding rolls, a shaft on which one of said rolls is mounted, a power-cylinder on the carriage and connections between said power-cylinder and said shaft, substantially as set forth.

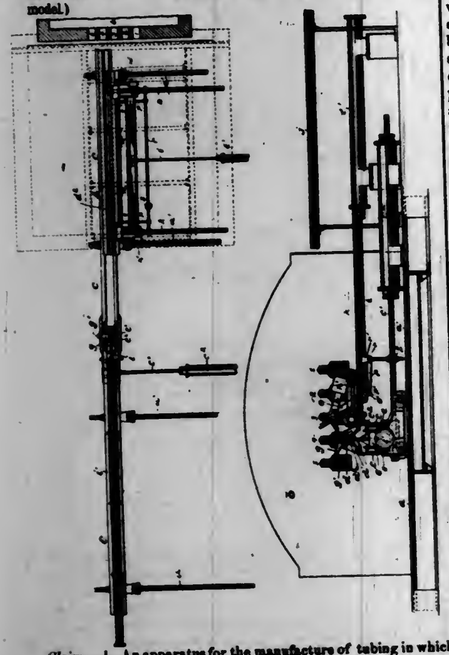
5. In apparatus for the manufacture of tubing, the combination with a skelp-heating furnace, of a transversely-moving carriage in front thereof, welding-rolls on said carriage adapted to be moved into line with a plurality of skelps in the furnace, mandrel-feeding rolls on

said carriage, power mechanism on the carriage and connections between the same and the mandrel-feeding rolls, substantially as set forth.

6. In apparatus for the manufacture of tubing, the combination with a skelp-heating furnace, of a transversely-moving carriage in front thereof carrying welding rolls and also carrying the trough *k* and trough *q*, mandrel-feeding rolls between said troughs, a power-cylinder on the carriage and rack-and-pinion connections between the cylinder and one of said rolls, substantially as set forth.

7. In apparatus for the manufacture of tubing, the combination with a skelp-heating furnace, of a transversely-moving carriage in front of said furnace carrying welding-rolls, and carrying rack-bars, a longitudinally-extending shaft having pinions engaging with said rack-bars and a power-cylinder mounted at one side of the carriage and having a rack engaging with the pinion on said shaft, substantially as set forth.

593,968. SKELP-CHARGING APPARATUS. PETER C. PATTERSON, McKeesport, Pa. Filed May 4, 1896. Serial No. 590,216. (No model.)



Claim.—1. An apparatus for the manufacture of tubing in which are combined: a furnace having a series of charging-openings, a transversely-moving carriage for supporting the blanks in line with said openings, and pushing mechanism traveling longitudinally along said carriage to push the blanks into the respective charging-openings when the carriage is brought into line therewith, substantially as set forth.

2. An apparatus for the manufacture of tubing in which are combined: a furnace having a series of charging-openings, a transversely-moving carriage for supporting the blanks in line with said openings, and transversely and longitudinally moving pushing mechanism traveling longitudinally along said carriage to push the blanks into the respective charging-openings when the carriage and pushing mechanism are brought into line therewith, substantially as set forth.

3. An apparatus for the manufacture of tubing in which are combined: a furnace having a series of charging-openings, a transversely-moving carriage having a trough or platform thereon, and charging apparatus on and movable transversely with the carriage, and movable longitudinally of the carriage to push the blank into the respective charging-openings when the carriage is brought into line therewith, substantially as set forth.

4. An apparatus for the manufacture of tubing in which are combined: a furnace having a series of charging-openings, a transversely-moving carriage having a slotted trough or platform for supporting the blanks in line with said openings, and pushing mechanism on and movable transversely with the carriage and having an upwardly-extending pusher passing up through the slot of the trough and traveling longitudinally along the same to push the blanks into the respective charging-openings when the carriage is brought into line therewith, substantially as set forth.

5. An apparatus for the manufacture of tubing in which are combined: a furnace having a series of charging-openings, a transversely-moving carriage having a slotted trough or platform for supporting the blanks in line with the openings, and having below the same a longitudinally-extending track, and a pushing-buggy traveling longitudinally on said track and having an upwardly-extending pusher passing up through the slot of the trough to push the blanks into the respective charging-openings when the carriage is brought into line therewith, substantially as set forth.

6. In apparatus for the manufacture of tubing, the combination with a suitable furnace, of a transversely-moving carriage having a trough or platform thereon, a buggy mounted on said carriage, a forwardly-projecting rod on said buggy adapted to engage the tube-skelp on said trough, a second forwardly-projecting rod on said buggy at one side of said first-mentioned rod, and mechanism for advancing and withdrawing said buggy, substantially as set forth.

7. In apparatus for the manufacture of tubing, the combination with a suitable furnace, of a transversely-moving carriage, a trough or platform on said carriage, said trough having a slot therein, a buggy mounted on said carriage, an upwardly-extending pusher on said buggy passing up through said slot, a forwardly-projecting rod carried by said pusher, an arm extending out at one side of said pusher, a second forwardly-projecting rod carried by said side arm, and mechanism for advancing and withdrawing said buggy, substantially as set forth.

8. In apparatus for the manufacture of tubing, the combination with a suitable furnace, of a transversely-moving carriage, a trough or platform on said carriage having a slot therein, a buggy mounted on said carriage, an upwardly-extending pusher on said buggy passing up through said slot, a forwardly-projecting rod carried by said pusher, a hooked arm extending out at one side of said pusher, a second forwardly-projecting rod having collars thereon engaged by said hooked arm, and mechanism for advancing and withdrawing said buggy, substantially as set forth.

9. In apparatus for the manufacture of tubing, the combination of a furnace, charging mechanism in line with the charging-opening in the furnace, and a transversely-moving carrying-buggy adapted to carry the skelp transversely to and deposit it on the charging mechanism, substantially as set forth.

10. In apparatus for the manufacture of tubing, the combination with a furnace, of charging mechanism having a receiving-trough, and a transversely moving carrying-buggy, adapted to carry the skelp to and deposit it in the trough of the charging mechanism, substantially as set forth.

11. In apparatus for the manufacture of tubing, the combination with a furnace, of a transversely-moving carriage, a trough on said carriage, a transversely-moving carrying-buggy having a trough and mechanism for dumping the trough of the carrying-buggy, substantially as set forth.

12. In apparatus for the manufacture of tubing, the combination with a suitable furnace having openings therein, of a charging-trough supported in line with said opening, a transversely-moving trough and mechanism for dumping said transversely-moving trough, substantially as set forth.

13. In apparatus for the manufacture of tubing, the combination with a suitable furnace having openings therein, of a charging-trough supported in line with said openings, a transversely-moving buggy, a trough mounted on said buggy, and mechanism for dumping said trough, substantially as set forth.

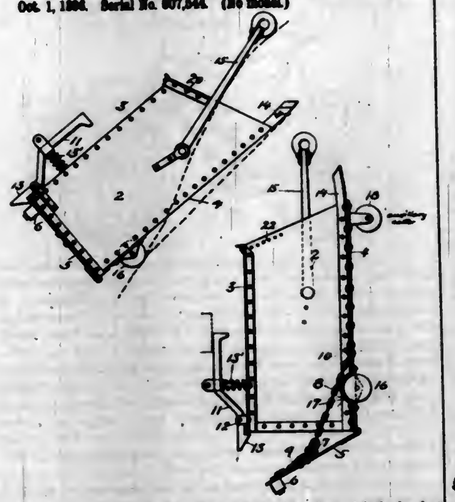
14. In apparatus for the manufacture of tubing, the combination with a suitable furnace having openings therein, of a charging-trough supported in line with said openings, a transversely-moving buggy, a rocking shaft, a dumping-trough on said rocking shaft, and mechanism for dumping said trough, substantially as set forth.

15. In apparatus for the manufacture of tubing, the combination with a suitable furnace having openings therein, of a charging-trough supported in line with said openings, a transversely-moving buggy, a rocking shaft, a dumping-trough on said rocking shaft, an arm extending from said rocking shaft, and mechanism for arresting the lower end of said arm as said buggy advances, whereby said last-mentioned trough is dumped, substantially as set forth.

16. In apparatus for the manufacture of tubing, the combination with a suitable furnace having openings therein, of a charging-trough supported in line with said openings, a transversely-moving buggy, a rocking shaft, a dumping-trough on said rocking shaft, a hooked arm in the path of said buggy adapted to engage the lower end of said first-mentioned arm, substantially as set forth.

17. In apparatus for the manufacture of tubing, the combination with a suitable furnace having openings therein, of a charging-trough supported in line with said openings, a transversely-moving buggy, a rocking shaft, a dumping-trough on said rocking shaft, a weight depending from said dumping-trough, an arm extending from said shaft, a hooked arm in the path of said buggy adapted to engage the lower end of said first-mentioned arm, substantially as set forth.

593,969. PICK-UP BUCKET. ROBERT R. PATTON, West Superior, Wis., assignor of one-half to J. H. Semmons, Minneapolis, Minn. Filed Oct. 1, 1896. Serial No. 607,546. (No model.)



Claim.—1. In a pick-up bucket, the combination, with the bucket proper of a drop-bottom therefor, a chain fastened within the bucket and to said bottom to limit the drop of the same, an automatic latch for the bottom, and a bail attached to the sides of the bucket and whereby the bucket is drawn and lifted, as and for the purpose specified.

2. In a pick-up bucket, the combination, with the bucket proper, of the drop-bottom, a latch therefor, the bail attached to the sides of the bucket, and stops for limiting the movement of the bail with respect to the bucket, as and for the purpose specified.

3. The combination, with the bucket proper, of the drop-bottom therefor hinged at one side thereof, means for limiting the movement of said bottom or door, and the automatic latch therefor comprising the hooked lever 11 pivoted on the bucket, having a hook to engage the bottom when it is raised, and having a spring-supported arm at its upper end adapted to strike an obstacle as the bucket is moved, substantially as described.

4. The combination, with the bucket proper, of the hinged door or bottom, the automatic latch therefor, the bail attached to the sides of the bucket, the stops for the bail and the casters provided beneath the rear end of the floor of the bucket, substantially as described.

5. The combination, with the bucket proper, of the hinged door or bottom, the automatic latch therefor, the bail attached to the side of the bucket, the stops for the bail the casters provided beneath the rear end of the floor of the bucket, and the auxiliary caster 18 for use when moving the bucket from place to place, substantially as described.

593,970. MUFFLER FOR GAS-ENGINES. CHARLES A. SCHWARM, Pittsburg, Pa., assignor of one-half to George Trautman, same place. Filed Sept. 28, 1896. Serial No. 607,168. (No model.)

Claim.—1. An exhaust mechanism for engines, comprising in combination with the exhaust-pipe, a larger pipe or muffling-chamber through which the exhaust is passed, and a discharge-pipe of smaller diameter leading from the chamber and having its outer portion exterior to the larger chamber provided with perforations which lead into the open air; substantially as described.

2. An exhaust mechanism comprising an exhaust-pipe, a larger pipe or muffling-chamber into which it leads, and a discharge-pipe of smaller diameter leading from within the larger pipe or chamber and having its outer exterior portion provided with perforations leading into the open air, at least one of said smaller pipes being perforated within the larger chamber.

3. An exhaust mechanism comprising in combination with an exhaust-pipe, a larger perforated pipe secured to its end, a larger pipe or chamber surrounding the perforated pipe, and a smaller perforated pipe leading from the opposite end of the surrounding pipe or chamber; substantially as described.

593,970.



593,971. ROTARY CLEARER FOR DRAWING-ROLLS OF COTTON MACHINERY. JAMES THOMSON, Jr., Pawtucket, R. I., assignor to the Thomson Manufacturing Company, Providence, R. I. Filed Apr. 1, 1897. Serial No. 630,943. (No model.)



Claim.—1. The combination of the drawing-rolls, with a rotary clearing-disk having the plane of its clearing face supported in an inclined position relatively to the plane of the adjacent surfaces of the rolls, a portion of the face of the clearing-disk at one side of its turning axis being held in driven contact with one or more of the said rolls, while the face of the disk at the opposite side of its turning axis is held away from bearing contact therewith, substantially as described.

2. The combination of the drawing-rolls, with an axially-supported rotary clearing-disk, and means for depressing the face of the clearing-disk at one side of its turning axis, to contact with one or more of the rolls, thus causing the rotation of the clearing-disk with the face of the disk at the opposite side of its axis held out of bearing contact with the rolls, substantially as described.

593,972. ROTARY CLEARER FOR DRAWING-ROLLS OF COTTON MACHINERY. JAMES THOMSON, Jr., Pawtucket, R. I., assignor to the Thomson Manufacturing Company, Providence, R. I. Filed Apr. 20, 1897. Serial No. 633,043. (No model.)

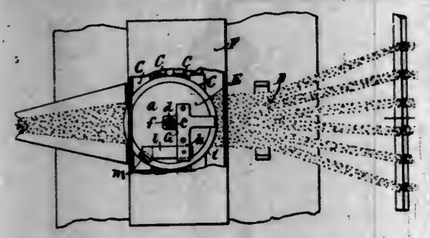


Claim.—The combination of the drawing-rolls, with a clearing-disk having a convex or protuberant face, whereby, when the face of the disk at one side of its turning axis is in contact with one or more of the top rolls, the face of the disk at the opposite side of its axis will be elevated from the rolls, and an outwardly-enlarging space will be provided between the faces of the disk and the plane of the upper surface of the rolls, for inducing the proper accumulation of waste upon the outer portion of the face of the disk.

593,978. ROTARY CLEARER FOR DRAWING-ROLLS OF COTTON MACHINERY. JAMES THOMSON, Jr., Pawtucket, R. I., assignor to the Thomson Manufacturing Company, Providence, R. I. Filed Apr. 28, 1897. Serial No. 634,256. (No model.)

Claim.—1. A rotary clearing-disk, having an unyielding edge or rim, and a flexible face which is held at its outer portion by the

rim of the disk, and adapted at its inner portion to yield upwardly to an accumulation of waste; substantially as described.

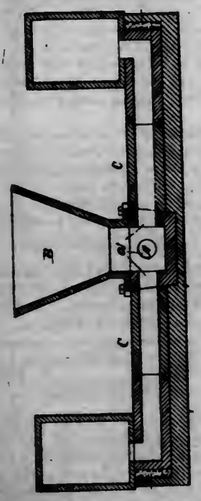


2. A rotary clearing-disk provided with a shallow recess, and a flexible covering which is held in contact with the boundary edge of the said recess, and adapted to yield to limiting contact with the bottom of the recess, upon the gradual accumulation of waste upon the flexible covering, substantially as described.

3. The combination of a rotary clearing-disk provided with a turning axis having a retaining head or shoulder, with a holding-support adapted for pivotal movement, and having an open notch, the sides of which are adapted to form a bearing for the said turning axis and for retaining the head or shoulder of the axis upon the upward turning of the holding-support and providing for the convenient upward removal of the disk from its bearing-notch at the upwardly-turned position of the support, substantially as described.

4. The combination of the drawing-rolls and the clearing-disk provided with a turning axis having a retaining head or shoulder, with the bracket attached to a pivotal support and provided with an open notch, the sides of which are adapted to form a bearing for the said turning axis, and for retaining the head or shoulder of the axis upon the upward turning of the pivotal support of the bracket and the pressure spring secured to the bracket, and adapted to bear upon the disk at one side of its axis to hold that side of the disk in driven contact with one or more of the rolls, substantially as described.

593,974. RUNNER-BRICK FOR BOTTOM-CAST MOLDS. MORGAN L. WILLIAMS, Johnstown, Pa., assignor of one-half to James P. Thomas, same place. Filed Mar. 18, 1897. Serial No. 628,221. (No model.)



Claim.—In a runner-brick bottom for bottom-cast molds, the combination with a bottom plate having a seat therein for a center brick and radiating grooves or channels extending therefrom and closed at their outer ends by vertical walls, of a polygonal center brick formed with a number of under-beveled sides or faces and having a central cavity therein and radiating openings leading therefrom out through the said beveled faces or sides, and lateral bricks closed at their outer ends and seated in said grooves or channels, said bricks being of less length than the grooves or channels whereby an intervening wedging-space is formed between their outer closed ends and the end walls of the grooves or channels, said bricks also having passages therethrough, and beveled inner ends which are adapted to form a close joint with the under-beveled faces of the center brick when wedged up against the same, substantially as specified.

593,975. BICYCLE. VICTOR EBNER, Cleveland, Ohio. Filed July 19, 1897. Serial No. 645,165. (No model.)



Claim.—1. In a bicycle, the combination with a main frame having wheels, a crank-shaft with foot-pedals, sprockets upon the crank-shaft and main axle, respectively, and connected by a drive-chain; of the additional brace B in the main frame, a crank-shaft C journaled to said brace, a crank-shaft E journaled at E' on the main frame, hand-levers F F connecting said crank-shafts C and E, at each side of the frame, respectively, a sprocket D mounted on shaft C, a corresponding sprocket I loosely mounted on the treadle-shaft, drive-chain K connecting said sprockets D and I, sprocket H also loosely mounted on the treadle-shaft, latch *l* on sprocket H, and a latch *m* on sprocket I, whereby said sprocket H may be rotated by the sprocket I on the treadle-shaft independently of the treadles, for propelling the bicycle by the hand-power movement, substantially as described.

2. In a bicycle, a knee steering device consisting of sleeve *q* and sprocket *r* loosely mounted on brace B, sprocket *p* mounted on steering-fork head, chain *t* connecting said sprockets, a jointed knee-lever L attached to said sleeve *r*, adapted to operate substantially as described.

593,976. STATION-INDICATOR. WILLIAM R. GARNER, Galveston, Tex., assignor to Lytle J. Hunter, Covington, Ky. Filed Nov. 11, 1896. Serial No. 611,698. (No model.)



Claim.—1. In a machine for indicating stations, the combination of the spring-roller J, display-strip D containing names of the stations successively marked thereon, roller E having shaft E^2 connected to a wheel positively operated by a pulley-band on which are marks or characters whereby the stations to be displayed by the strip D are marked, substantially as and for the purposes specified.

2. In a station-indicator, the combination of the spring-roller J, idler rollers and roller E, strip D connected to the rollers J and E and made taut upon the idler-rollers, the roller having shaft E^2, engaging pawl F^2 fixed to the frame of the machine, and the wheels G fixed on the same shaft for positively operating the roller E, in combination with means whereby the rotation of the wheel G is in accordance with indicating-marks adjacent to and at the inspection of the operator, substantially as and for the purposes specified.

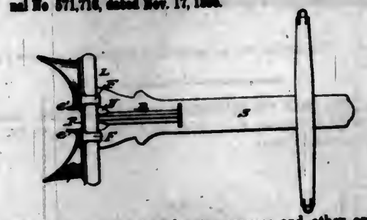
3. In an indicating-machine, the combination of the compartment, spring-roller J, roller E, strip D duly strained and arranged to move across the front of the chamber, and shaft E^2 of the roller, ratchet-wheel F and sprocket-wheel G mounted on said shaft, pawl F^2 of the frame engaging the ratchet-wheel F, sprocket-wheel strap K having stations marked thereon corresponding to the indications as marked on the indicating-strip D and the sprocket-wheel H combined with the endless strap K, substantially as and for the purposes specified.

4. The combination of the lantern box or case, rectangular at bottom, and at its front upper corner, and the positively-operating

roller E at the rear lower corner, idlers H and I at the respective front corners, and the spring-roller J, at the upper part of the case in rear of idler H, and a display flexible sign or curtain stretched between rollers E and D, and in front of and on idlers H and I, and the lamps located in the space between the rolls E and H, and I and J, substantially as and for the purposes specified.

REISSUES.

11,688. STEREOSCOPE OR OTHER BINOCULAR INSTRUMENT. HAWLEY C. WHITE, North Bennington, Vt., assignor to the H. C. White Company, same place. Filed Feb. 12, 1897. Serial No. 623,304. Original No. 571,716, dated Nov. 17, 1896.



Claim.—1. An eyepiece for stereoscopes and other optical instruments consisting of a tubular piece having the end which contacts with the user's face fitted to the orbit of the eye by having an outer projection fitted to the temple and an inner projection fitted to enter the sunken depression at the inner corner of the eye beside the nose.

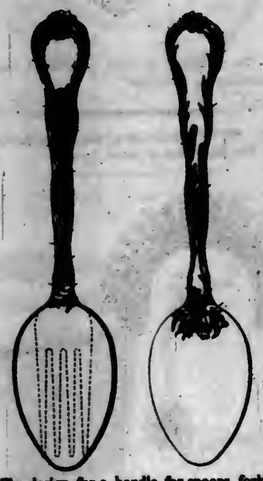
2. An eyepiece for stereoscopes and other optical instruments, consisting of a piece having the part which contacts with the user's face fitted to the orbit of the eye by having an inner projection fitted to enter the sunken depression at the inner corner of the eye beside the nose.

3. A stereoscope fitted with tubular eyepieces for the eyes, each having an outer projection fitted to the temple and an inner projection fitted to enter the sunken depression at the inner corner of the eye, whereby a dark chamber for each eye is obtained in use.

4. A stereoscope in which the means employed for excluding light from the eyes embrace in combination an inner projection or shield fitted to enter the sunken depression at the inner corner of the eye beside the nose.

DESIGNS.

27,846. HANDLE FOR SPOONS, &c. EDWARD HOLBROOK, New York, N. Y. Filed Oct. 4, 1897. Serial No. 654,092. Term of patent 7 years.



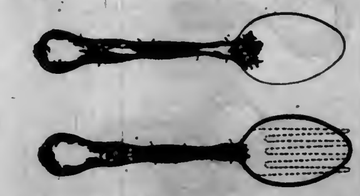
Claim.—The design for a handle for spoons, forks and similar articles herein shown and described.

27,847. HANDLE FOR SPOONS, &c. EDWARD HOLBROOK, New York, N. Y. Filed Oct. 4, 1897. Serial No. 654,093. Term of patent 7 years.



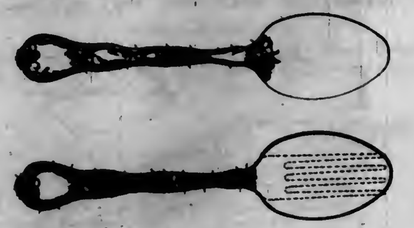
Claim.—The design for a handle for spoons, forks, and similar articles herein shown and described.

27,848. HANDLE FOR SPOONS, &c. EDWARD HOLBROOK, New York, N. Y. Filed Oct. 4, 1897. Serial No. 654,094. Term of patent 7 years.



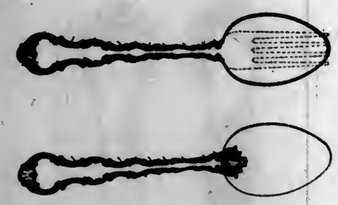
Claim.—The design for a handle for a spoon, fork or similar article herein shown and described.

27,849. HANDLE FOR SPOONS, &c. EDWARD HOLBROOK, New York, N. Y. Filed Oct. 4, 1897. Serial No. 654,095. Term of patent 7 years.



Claim.—The design for a handle for a spoon, fork or similar article herein shown and described.

27,850. HANDLE FOR SPOONS, &c. WILLIAM C. GODMAN, Providence, R. I. Filed Oct. 6, 1897. Serial No. 654,295. Term of patent 7 years.



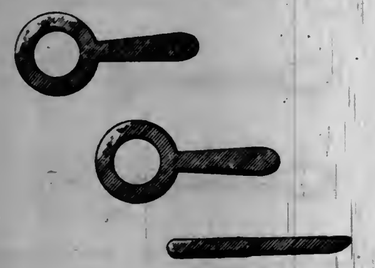
Claim.—The design for the handles of spoons, forks and similar articles herein shown and described.

27,851. SPECTACLE OR EYEGLASS TEMPLE. SIEGFRIED G. MARMEYER, Los Angeles, Cal. Filed May 17, 1897. Serial No. 636,905. Term of patent 14 years.



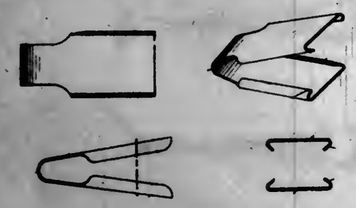
Claim.—The design for spectacle and eyeglass temples substantially as shown and described.

27,852. TEETHING-RING. WILLIAM J. COAKLEY and LEVI M. ROGERS, Rockland, Me. Filed Oct. 6, 1897. Serial No. 654,594. Term of patent 14 years.



Claim.—The design for a teething-ring as herein shown and described.

27,853. PEN-WIPER HOLDER. JOSEPH A. HEALY, Lynn, Mass. Filed Sept. 27, 1897. Serial No. 653,263. Term of patent 7 years.



Claim.—The design for a pen-wiper holder, substantially as shown and described.

27,854. ENVELOP. JOSEPH KOEHLER, New York, N. Y. Filed Aug. 18, 1897. Serial No. 648,736. Term of patent 14 years.



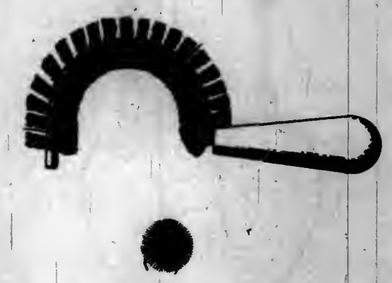
Claim.—The design for an envelop, substantially as shown and described.

27,855. BACK FOR BRUSHES OR SIMILAR ARTICLES. DANIEL A. LOSEER, Sag Harbor, N. Y. Filed Oct. 5, 1897. Serial No. 654,193. Term of patent 7 years.



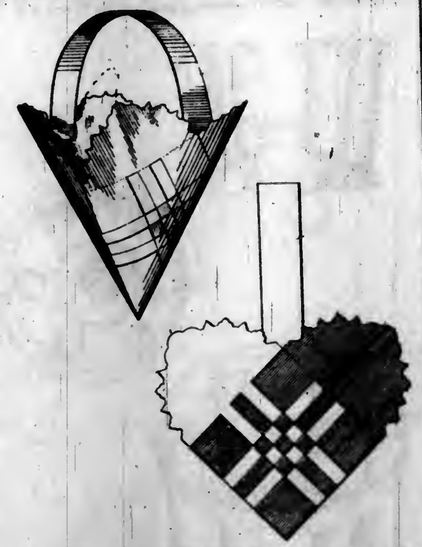
Claim.—The design for the back for a brush, mirror, or similar article, substantially as described.

27,856. BRUSH. MAX LANGE, Philadelphia, Pa. Filed Oct. 9, 1897. Serial No. 654,730. Term of patent 7 years.



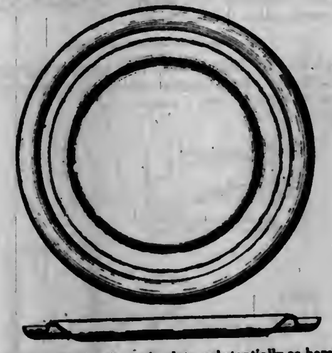
Claim.—The design for a bicycle or other brush, substantially as shown and described.

27,857. BASKET. JOHAN H. HOFF, Chicago, Ill. Filed Oct. 2, 1897. Serial No. 653,966. Term of patent 7 years.



Claim.—The new and original design or useful shape for a basket, substantially as herein shown and described.

27,858. PIE-PLATE. JUDSON DUNLAP, Cambridge, Mass., assignor of one-half to Porter Dunlap, same place. Filed Sept. 25, 1897. Serial No. 653,058. Term of patent 7 years.



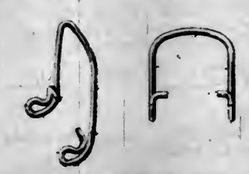
Claim.—The design for a pie-plate, substantially as herein shown and described.

27,859. JUG. HENRY T. POPE and BENJAMIN F. KIDDER, Fort Payne, Ala. Filed Oct. 6, 1897. Serial No. 654,390. Term of patent 7 years.



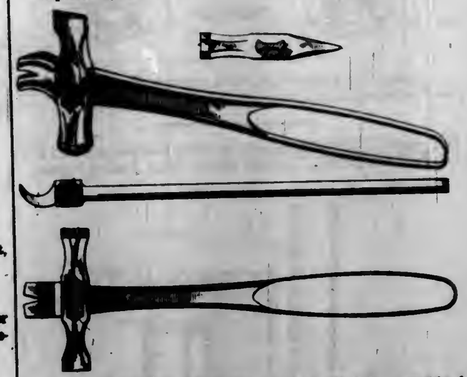
Claim.—The design for a jug herein shown and described.

27,860. BOTTLE-STOPPER LEVER. PETER J. GRAHL, Brooklyn, N. Y., assignor of one-half to Herman Ost and Frank P. Widdecker, same place. Filed Aug. 16, 1897. Serial No. 648,475. Term of patent 14 years.



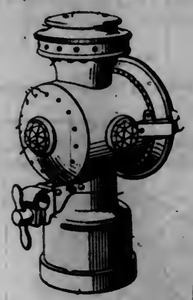
Claim.—The design for a bottle-stopper lever, or the like, substantially as herein shown and described.

27,861. HAMMER, LIFTER, AND TACK-PULLER. WILLIAM C. HOOKER, Abingdon, Ill. Filed Sept. 29, 1897. Serial No. 653,533. Term of patent 7 years.



Claim.—The design herein shown and described for a combined hammer, lid-lifter and tack-puller.

27,862. LANTERN-BODY. EDWIN M. ROSENBLATH, Philadelphia, Pa. Filed July 1, 1897. Serial No. 643,157. Term of patent 7 years.



Claim.—A design for a lantern body, substantially as herein shown and described.

27,863. AUXILIARY CHANGE-COUNTER. GEORGE H. CRUMP, New York, N. Y. Filed May 20, 1897. Serial No. 638,512. Term of patent 7 years.



Claim.—The design for an auxiliary change-counter, substantially as shown and described.

27,864. CAKE OF SOAP. CHARLES M. BLACKMAN, Brooklyn, N. Y., assignor to the S. H. Wetmore Company, New York, N. Y. Filed June 8, 1897. Serial No. 639,222. Term of patent 7 years.



Claim.—The design for the toilet pumice or cake of soap substantially as shown and described.

27,865. SOCKET MEMBER OF DETACHABLE FASTENERS. WILLIAM S. RICHARDSON, Boston, Mass. Filed Apr. 29, 1897. Serial No. 634,485. Term of patent 14 years.



Claim.—The design for a socket member of a detachable fastener herein shown and described.

27,866. PLUMBER'S TRAP. FREDRICK KIRCHNER, Brooklyn, N. Y. Filed Sept. 24, 1897. Serial No. 652,936. Term of patent 14 years.



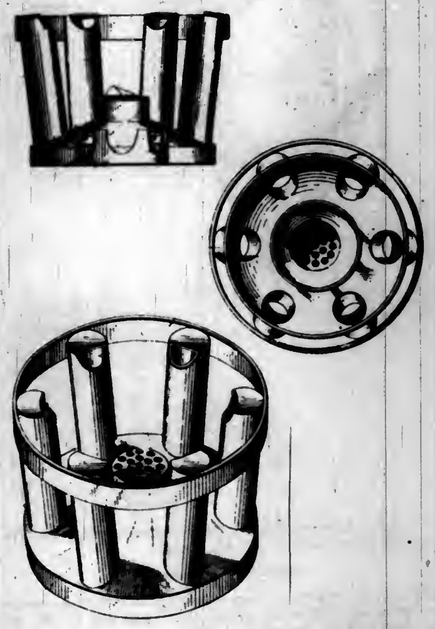
Claim.—The design for a plumber's trap herein shown and described.

27,867. DOOR-STOP. JACOB SCHMOK, St. Louis, Mo. Filed Oct. 4, 1897. Serial No. 654,694. Term of patent 14 years.



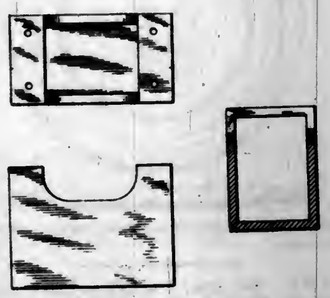
Claim.—The design for a door stop and shoe, substantially as herein shown and described.

27,868. SPRAYER ATTACHMENT FOR WASHING-MACHINES. WILLIAM T. BUSHNETTE, Temple, Tex. Filed Sept. 27, 1897. Serial No. 653,269. Term of patent 3½ years.



Claim.—The design for a sprayer attachment for washing-machines, herein shown and described.

27,869. FOUNDATION FOR SWITCH AND SIGNAL SUPPORTING STANDARDS. HENRY JOHNSON, Arlington, N. J. Filed July 31, 1897. Serial No. 646,707. Term of patent 14 years.



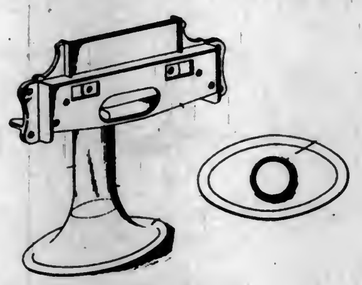
Claim.—The design for a foundation for switch and signal supporting standards, substantially as shown.

27,870. ARMATURE. OSCAR WIEDENBECK, Summit, N. J. Filed Oct 2, 1897. Serial No. 653,860. Term of patent 14 years.



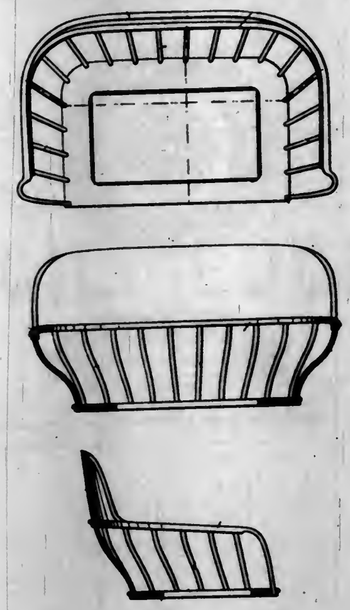
Claim.—The design for an armature substantially as shown.

27,871. CAR-SEAT FRAME. HENRY S. HALE, Philadelphia, Pa. Filed July 28, 1897. Serial No. 646,209. Term of patent 14 years.



Claim.—The design for a car-seat frame substantially as herein shown and described.

27,872. CARRIAGE-SEAT. SAMUEL R. BAILEY, Amesbury, Mass. Filed Aug. 5, 1897. Serial No. 647,261. Term of patent 3½ years.



Claim.—The design for a carriage-seat as herein shown and described.

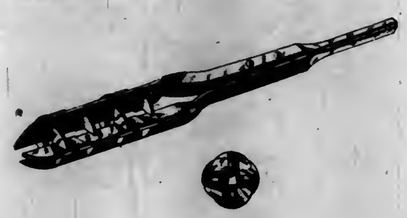
27,873. BICYCLE-FRAME. HENRY G. PIFFARD, New York, N. Y. Filed June 30, 1897. Serial No. 643,083. Term of patent 7 years.



Claim.—The design for a bicycle-frame, substantially as shown and described.

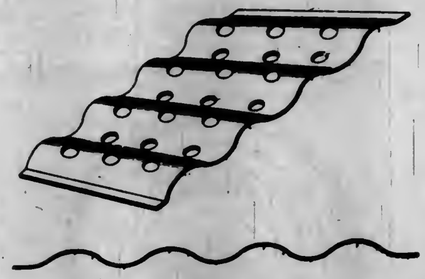
27,874. WITHDRAWN.

27,875. FLUE-CLEANER. GEORGE E. SHIRLEY, Galena, Kans., assignor of one-half to A. R. Kramer, same place. Filed June 10, 1897. Serial No. 640,257. Term of patent 14 years.



Claim.—The design for a flue-cleaner substantially as shown and described.

27,876. GRATE. FRANK R. SMITH, Houlton, Me. Filed Sept. 27, 1897. Serial No. 653,265. Term of patent 14 years.



Claim.—The design for a grate as herein shown and described.

27,877. HEATING-STOVE. EDWARD G. GERBER, Erie, Pa. Filed Sept. 27, 1897. Serial No. 653,770. Term of patent 14 years.



Claim.—1. In a design for a heating-stove, the design for the stove-base, substantially as shown and described.

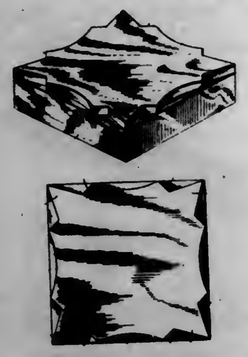
2. In a design for a heating-stove, the design for the brackets, extending from the lower part of the stove-body downwardly and outwardly around the fire-pot, to and supporting the foot-rail, substantially as shown and described.

3. In a design for a heating-stove, the design for the front section of the stove-body, substantially as shown and described.

4. In a design for a heating-stove, the design for the stove-top, substantially as shown and described.

5. The design for a heating-stove, substantially as shown and described.

27,878. GLASS OR TILE. JACOB JACOBS, Brooklyn, N. Y. Filed Oct. 9, 1897. Serial No. 654,721. Term of patent 14 years.



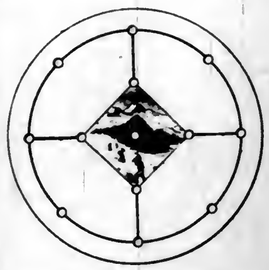
Claim.—The design for a glass or tile, substantially as shown and described.

27,879. TOY. JOHN T. HENDERSON, Council Bluffs, Iowa. Filed Sept. 28, 1897. Serial No. 654,182. Term of patent 3½ years.



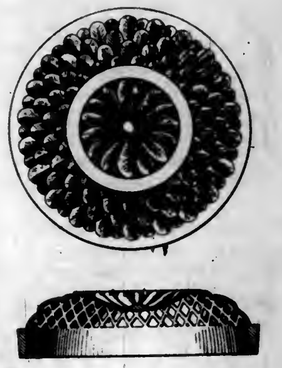
Claim.—The design for a sounding toy as herein shown and described.

27,880. PUZZLE-BOARD. WILLIAM J. FLEMING, New York, N. Y. Filed Oct. 7, 1897. Serial No. 654,464. Term of patent 3½ years.



Claim.—The design for a puzzle-board, as herein shown and described.

27,881. FLYING TARGET. HENRY F. PARKER, Brooklyn, N. Y., assignor to the Coast Pigeon Manufacturing Company, Cuyahoga Falls, Ohio. Filed Feb. 26, 1897. Serial No. 625,220. Term of patent 14 years.



Claim.—The design for a flying target herein shown and described.

TRADE-MARKS

REGISTERED NOVEMBER 16, 1897.

30,836. MANUFACTURED LUMBER. JOSEPH W. SAUNDERS, Kansas City, Mo. Filed Sept. 20, 1897.



Essential feature.—The representation of a group of trees and sign-boards extending across the trees. Used since September 1, 1891.

30,837. CUTLERY AND OTHER CUTTING-EDGE TOOLS. FARWELL, OZMUN, KIRK & COMPANY, St. Paul, Minn. Filed Apr. 17, 1897.

GILT EDGE

Essential feature.—The words "GILT EDGE." Used since January 1, 1885.

30,838. ARTICLES COMPOSED IN WHOLE OR IN PART OF RUBBER, INCLUDING TIRES, HOSE, BELTING, AND HORSESHOES. THE WEITMAN & BARNES MANUFACTURING COMPANY, Akron, Ohio. Filed July 26, 1897.



Essential feature.—The representation of a diamond with the letters, character, and abbreviation "W & B Co." at the corners thereof. Used since July 1, 1897.

30,839. PNEUMATIC TIRES AND PARTS THEREOF. THE AMERICAN DUNLOP TIRE COMPANY, New York, N. Y. Filed Oct. 9, 1897.



Essential feature.—The representation of a pair of human hands with the fingers and thumbs extended. Used since December, 1895.

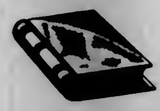
30,840. BALLS AND BALL-BEARINGS. THE GRANT BALL COMPANY, Cleveland, Ohio. Filed Oct. 4, 1897.



Essential feature.—The representation of a pyramid of balls surrounded by a circle. Used since September 15, 1897.

30,841. CHEWING AND SMOKING TOBACCOS AND CIGARETTES. LIGGETT & MYERS TOBACCO COMPANY, St. Louis, Mo. Filed Oct. 16, 1897.

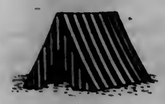
BOOK



Essential feature.—The representation of a book or the word "BOOK." Used since June 23, 1897.

30,842. CHEWING AND SMOKING TOBACCOS AND CIGARETTES. LIGGETT & MYERS TOBACCO COMPANY, St. Louis, Mo. Filed Oct. 16, 1897.

TENT



Essential feature.—The representation of a tent or the word "TENT." Used since June 23, 1897.

30,843. CHEWING AND SMOKING TOBACCOS AND CIGARETTES. LIGGETT & MYERS TOBACCO COMPANY, St. Louis, Mo. Filed Oct. 16, 1897.

GOOD FORM

Essential feature.—The words "GOOD FORM." Used since June 23, 1897.

30,844. ALL-TOBACCO CIGARETTES OR SMALL CIGARS. THE H. SIEBENBERG, STIEFEL & COMPANY, New York, N. Y. Filed Oct. 13, 1897.



Essential feature.—The pictorial representation of a bale of tobacco ruptured at one end, exposing a portion of the contents of said bale, the seal thereon bearing the words "GRAND REPUBLIC CIGAR FACTORY." Used since January, 1891.

30,845. LAGER-BEER. ADOLPH G. HUPFEL, New York, N. Y. Filed Oct. 6, 1897.

SETTER

Essential feature.—The word "SETTER." Used since January 1, 1897.

30,846. BEER. THE ESTATE OF JOHN F. TROMMER, Brooklyn, N. Y. Filed Aug. 5, 1897.

EVERGREEN BREWERY

E

Essential feature.—The words "EVERGREEN BREWERY" and a star bearing the letter "E." Used since June 15, 1897.

30,847. CEREAL COFFEE OR COFFEE SUBSTITUTE. ROKA FOOD CO., Warsaw, N. Y. Filed Oct. 9, 1897.

ROKA

Essential feature.—The word "ROKA." Used since June 11, 1897.

30,848. COFFEE, CEREALS, DRIED FRUIT, CANDIES, AND CONDENSED MILK. THOMAS MARTINDALE, Philadelphia, Pa. Filed Sept. 25, 1897.

SALUDO

Essential feature.—The word "SALUDO." Used since April 15, 1897.

30,849. SARDINES IN OIL. LA MANNA, ARENA & FARRAN, New York, N. Y. Filed Oct. 13, 1897.

FALSTAFF

Essential feature.—The word "FALSTAFF." Used since May 1, 1893.

30,850. WHEAT-FLOUR. BALLARD & BALLARD COMPANY, Louisville, Ky. Filed Oct. 2, 1897.

BICYCLE

Essential feature.—The word "BICYCLE." Used since September 2, 1897.

30,851. WHEAT-FLOUR. BALLARD & BALLARD COMPANY, Louisville, Ky. Filed Oct. 2, 1897.

SAFETY

Essential feature.—The word "SAFETY." Used since September 2, 1897.

30,852. WHEAT-FLOUR. BALLARD & BALLARD COMPANY, Louisville, Ky. Filed Oct. 2, 1897.



Essential feature.—The representation of a bicycle. Used since September 2, 1897.

30,853. WHEAT-FLOUR. HENRY L. WRIGHT, Santos, Brazil. Filed Oct. 2, 1897.

INTERNACIONAL

Essential feature.—The representation of a diamond and the word "INTERNACIONAL" produced upon said diamond. Used since September 1, 1897.

30,854. ROLLER OR PATENT FLOUR. THE JOHN P. DOUGHAN MILLING COMPANY, Depere, Wis. Filed Dec. 17, 1896.

TOP NOTCH

Essential feature.—The words "TOP NOTCH." Used since 1884.

30,855. PLASTERS. SEABURY & JOHNSON, New York, N. Y. Filed Oct. 9, 1897.



Essential feature.—The representation of three seals arranged in alinement, upon the central one of which the earth and a flying Mercury are shown and the words "BENSON'S" and "PLASTER" are printed and upon each of the other two of which appear the words "SEABURY & JOHNSON." Used since August 15, 1897.

30,856. HAIR-TONIC. THOS. McGOWAN & BRO., Chicago, Ill. Filed Sept. 21, 1897.

The Two Mac's
Hair Restorer

Essential feature.—The phrase "THE TWO MAC'S HAIR RESTORER." Used since May 1, 1897.

30,857. TONIC AND LAXATIVE. JOHNSON BROS., St. Louis, Mo. Filed July 17, 1897.

Dr Lacy's

Essential feature.—The word "DR LACY'S." Used since June 19, 1895.

30,858. REMEDIES FOR DISEASES OF WOMEN. JOHN R. DAVIS, Chicago, Ill. Filed Aug. 28, 1897.

C

Essential feature.—The word "NOVITA." Used since January 1, 1893.

30,859. REMEDIES FOR ECZEMA AND SKIN DISEASES. ADALINE WOOD, De Leon, Mo. Filed Oct. 18, 1897.



Adaline Wood

Essential feature.—A portrait of the registrant and a facsimile of her signature. Used since June 23, 1897.

30,860. REMEDY FOR BUNIONS, CORNS, CHILBLAINS, FROSTBITES, INGROWING NAILS, STINGING FEET, AND OTHER AILMENTS INCIDENT TO THE FEET. FRANK B. MORGAN, Brooklyn, N. Y. Filed Oct. 9, 1897.

FUT-AKE

Essential feature.—The coined word "FUT-AKE." Used since June 5, 1897.

30,861. TOILET PREPARATION. NORA CARR, Grand Rapids, Mich. Filed Oct. 19, 1897.

"TOUJOURS JEUNE."

Essential feature.—The words "TOUJOURS JEUNE." Used since November 1, 1888.

30,862. LAUNDRY, TOILET, AND DYEING SOAP. WILLIAM V. ALBERT, New York, N. Y. Filed Oct. 2, 1897.

HARLEQUIN



Essential feature.—The word "HARLEQUIN" and the figure of a harlequin. Used since September 29, 1897.

30,863. SOAP AND WASHING-POWDER. THE CUTTYSUNK COMPANY, New York and Brooklyn, N. Y. Filed Oct. 6, 1897.

KLONDIKE

Essential feature.—The word "KLONDIKE." Used since August, 1897.

30,864. ELECTRICAL INSULATORS, CONSISTING OF A BLACK LIQUID TO BE APPLIED WITH A BRUSH. MICA INSULATOR COMPANY, New York, N. Y.; Chicago, Ill.; San Francisco, Cal.; St. Louis, Mo., and Cincinnati, Ohio. Filed Oct. 14, 1897.

M·I·C COMPOUND

Essential feature.—The letters "M. I. C.," accompanied by the word "COMPOUND," so that the whole combination reads "M. I. C. COMPOUND." Used since September, 1897.

30,865. GLUE AND SIZING. MOSES R. BAASH, Philadelphia, Pa. Filed Aug. 14, 1897.

GLUGLOSS

Essential feature.—The word "GLUGLOSS." Used since January 1, 1897.

30,866. PAINTS AND INGREDIENTS THEREOF. GRIFFITHS BROS. & Co., London, England. Filed July 26, 1897.

FERRODOR

Essential feature.—The word "FERRODOR." Used since June 30, 1893.

30,867. ERASIVE RUBBER. THE PARAMOUNT RUBBER COMPANY, Newark, N. J. Filed May 6, 1897.

)PARAMOUNT(

Essential feature.—The word "PARAMOUNT," preceded and followed by a crescent-shaped figure. Used since February 18, 1897.

30,868. SEWING COTTON, THREADS, YARNS, WORSTED OR HAIR AND BRAIDS, TRIMMINGS, AND PASSEMENTERIE. AKTIENGESELLSCHAFT FÜR TEXTIL-INDUSTRIE, VORMALS DOLLFUS-MIEG & CIE., Mülhausen, Germany, and Belfort and Paris, France. Filed Oct. 7, 1897.



Essential feature.—The letters "D M C" inclosed in a round design. Used since January 2, 1897.

30,869. SEWING COTTON AND SILKS, YARNS, AND THREADS OF VARIOUS KINDS. AKTIENGESELLSCHAFT FÜR TEXTIL-INDUSTRIE, VORMALS DOLLFUS-MIEG & CIE., Mülhausen, Germany, and Belfort and Paris, France. Filed Oct. 7, 1897.



Essential feature.—The letters "D M C" and a circular design, upon which appears a cartouche supported by a ribbon bound to the frame of the label. Used since June 1, 1897.

30,870. EMBROIDERED ARTICLES, SUCH AS HANDKERCHIEFS, DOILIES, AND TIDIES. SCHULTZ, TANNER & Co., New York, N. Y. Filed Aug. 18, 1897.



Essential feature.—The representation of a Spanish caravel. Used since May 1, 1897.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Eighth Circuit.

KANSAS CITY HAY-PRESS COMPANY *v.* DEVOL *et al.*

Decided May 10, 1897.

1. SOOY—BALING-PRESS—VALID—INFRINGED.
   Claims 1 and 2 of Letters Patent No. 394,623, granted December 18, 1888, to Ephraim C. Sooy, for a baling-press, *Held* not anticipated by certain prior patents and also *Held* infringed.
2. SAME—SAME—NOT INFRINGED.
   Claim 1 of Letters Patent No. 386,360, granted July 17, 1888, to Ephraim C. Sooy, for a baling-press, construed and *Held* not infringed.
3. SAME—SAME—DOUBTFUL VALIDITY—NOT INFRINGED.
   Claim 1 of Letters Patent No. 358,898, granted March 8, 1887, to Ephraim C. Sooy, for a baling-press, considered and patentable novelty *Held* doubtful. In any event the patentee should be limited to the precise form of construction described in his patent, and as thus construed the claim is not infringed.
4. SAME—SAME—NOT INFRINGED.
   Letters Patent No. 456,239, granted July 21, 1891, to Ephraim C. Sooy, for a baling-press, one element of which is a curved spring-plate upon the vibrating end of a pitman, is not infringed by a press which lacks this element.
5. LIVENGOOD *et al.*—SAME—INFRINGED.
   Claim 5 of Letters Patent No. 495,944, granted April 18, 1893, to James E. Knight, Edward Kelly, and William A. Alderson as assignees of Winfield S. Livengood, Walter H. Chadbourne, and James M. Gibson, for a baling-press, construed and *Held* to be infringed.
6. INFRINGEMENT SUITS—MULTIFARIOUSNESS.
   Where devices covered by several patents are capable of embodiment and conjoint use in a single machine, a bill which seeks to recover in a single suit for the infringement of all the patents is not multifarious.
7. SAME—SEVERAL PATENTS IN SUIT—TITLE TO ONE IN DISPUTE.
   Where devices covering several patents are capable of embodiment and conjoint use in a single machine and it was sought to recover in a single suit for infringement, the failure of the complainant either to establish title to one of the patents or to show infringement of one or more of them does not affect his right to an injunction and an accounting in respect of others if the proof is sufficient to show that they are infringed.
8. INFRINGEMENT—PROOF OF ANTICIPATION—MODEL.
   A model of an alleged anticipating machine made merely from recollection years after the machine that it purports to represent and which is introduced without disclosing the fact that it was not an original model until the same was developed on cross-examination cannot be accepted as sufficient evidence to invalidate a patent.
9. TITLE TO A PATENT—DEFECTIVE ASSIGNMENT BY A CORPORATION—EFFECT AS TO INFRINGERS.
   Where an assignment of a patent by a corporation is executed by its president and secretary, who own all the stock, without any previous authorization by the board of trustees, *Held* that it is no defense to an infringement suit brought by the assignees against a third party where the corporation itself has never questioned the validity of an assignment.

APPEAL from the Circuit Court of the United States for the Western District of Missouri.

STATEMENT OF THE CASE.

This suit was brought by the Kansas City Hay-Press Company, the appellant, against H. F. Devol, George Devol, and W. S. Livengood, the appellees, to restrain the infringement of the following Letters Patent, to wit: Patent No. 358,898, issued to Ephraim C. Sooy March 8, 1887; Patent No. 363,012, issued to said Sooy May 17, 1887; Patent No. 386,360, issued to said Sooy July 17, 1888; Patent No. 394,623, issued to said Sooy on December 18, 1888; Patent No. 456,239, issued to said Sooy July 21, 1891, and Patent No. 495,944, issued April 18, 1893, to James E. Knight, Edward Kelly, and William A. Alderson, as assignees of Winfield S. Livengood, William H. Chadbourne, and James M. Gibbons. The bill showed that the patents had been duly assigned to the complainant company; that they related to a baling-press for baling hay; that the several devices covered by the respective patents were capable of embodiment and conjoint use in a single baling-press, and that they had been so embodied and used in a baling-press that had been manufactured and sold quite extensively by the defendants. There was the usual prayer for an injunction to restrain the alleged infringement and for an accounting. The defendants denied the complainant's title to Patent No. 495,944, they pleaded several anticipatory patents, they denied infringement, and they denied, on information and belief, that the various devices covered by said patents were capable of embodiment and conjoint use in a single baling-press.

Patent No. 394,623, issued to Sooy on December 18, 1888, which will be first noticed, covers the power mechanism whereby power is generated to compress the hay or other material as it is fed into the baling-chamber. The baling-press as a whole may be described with sufficient accuracy as follows: A long bed-plate is mounted on wheels at both ends, whereby the press can be moved when necessary. At one end of the bed-plate is the baling-chamber. At the other is the power mechanism. Intermediate between the power mechanism and the baling-chamber and extending from one to the other is a pitman which actuates the plunger or traverser in the baling-chamber. The power mechanism consists of a revolving shaft set upright on the bed-plate, which is supported by a U-shaped casting or frame. The shaft is revolved by a sweep or lever extending from the upper end thereof and at right angles thereto, to which sweep a team is attached. Underneath the sweep two short cranks are rigidly attached to the revolving shaft, on opposite sides thereof, and extend therefrom a short distance at right angles thereto. These cranks have antifriction-rollers at their outer ends. On one side of the shaft are two arms, which extend laterally beyond the radius of the aforesaid cranks and serve to control the movement of the pitman, keeping it at all times in a proper relation to the aforesaid cranks. These laterally-extended

arms at their outer ends hold a guide-roller, which comes in contact with the outside of the pitman. The pitman, at the end which passes between the laterally-extended arms, has an incline on one side, and its end is formed like the human foot, with a slight curve or depression.

The operation of the mechanism is as follows: When the upright shaft revolves, the antifriction-rollers in the outer ends of the short cranks come successively in contact with the incline at the end of the pitman and by pressure thereon force the pitman outward, as well as forward, in the direction of the baling-chamber. As each roller at the end of a crank comes in contact with the pitman the roller travels down the incline at its side, passes around the heel of the pitman and into the depression at the outer end thereof, and eventually escapes from contact with the pitman, when the latter rebounds, owing to the pressure of the hay in the baling-chamber. By the rebound and the restraining action of the laterally-extended arms the pitman is thrown back to its former position, ready to come in contact with the next crank, and the operation last described is repeated. The pitman is thus driven forward twice, and twice rebounds at each revolution of the shaft. Moreover, by the contrivance aforesaid the power applied to the pitman is very much increased, upon the principle of the toggle-joint, when the end of the crank and the end of the pitman come in contact, the operation of the power mechanism being to apply the greatest pressure when the hay in the baling-chamber offers the greatest resistance. The power mechanism last described will be more fully understood by reference to the annexed drawings, Figs. 1, 4, and 5, which form a part of the specification of Letters Patent No. 394,623.

E. C. SOOY.

Baling-Press.

No. 394,623. Patented December 18, 1888.

Fig. 1



Fig. 4

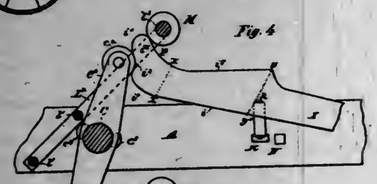


Fig. 5

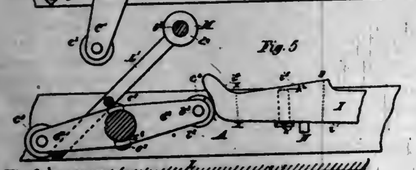


Fig. 6.



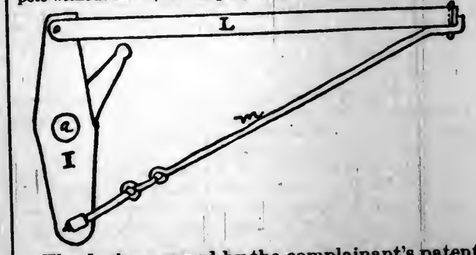
The claims in said patent, which cover the device last described and which are said to have been infringed, are as follows:

1. In a baling-press having a suitable bed, the combination, with a driving-shaft and its cranks, of laterally-extended arms provided with an anti-friction guide-roller extending beyond the radius of said cranks, a rebounding plunger, and a pitman adapted to rebound within the radius of said cranks, and provided with a contracted inclined vibrating end portion adapted to come into contact with said guide-roller, as described.

2. In a baling-press having a suitable bed, the combination, with a driving-shaft, of cranks provided with anti-friction end rollers, laterally-extended fixed arms provided with an anti-friction guide-roller extending beyond the radius of said cranks, a rebounding plunger, and a pitman having a vibrating end portion adapted to rebound within the radius of said cranks, and an inclined outer edge portion declining toward its end adapted to come into contact with said guide-roller, and retain the said end of the pitman in the path of the anti-friction roller on the end of said cranks, for the purpose described.

The device covered by the complainant's patents, Nos. 363,012 and 386,360, issued, respectively, May 17, 1887, and July 17, 1888, which is said to have been infringed by the defendants, relates to the sweep or lever by which the upright revolving shaft of the baling-press is turned, the object of the patented device being to prevent the sweep from moving forward suddenly and striking the team attached thereto when the crank is released from contact with the pitman and the latter rebounds. To this end the inventor provided a rod to serve as a yielding support to the sweep, which rod had a link in the center, the design being that when the strain on the sweep was released as the contact between the crank and pitman was broken the link in the rod or yielding support would permit the sweep to spring backward and prevent it, in a measure, from striking the team. The device in question will be readily comprehended by reference to the accompanying drawing, in which L is the sweep, M the rod or yielding support, and I the yoke attached to the top of the revolving shaft, which is indicated by the letter *a*. The claim for this device is couched in Patent No. 386,360 in the following language:

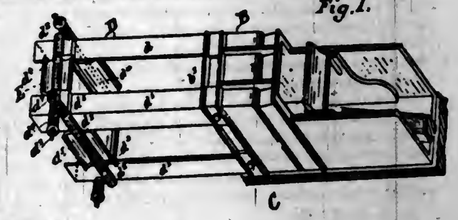
2. The combination, in a baling-press, with the driving-shaft, of a yoke on said shaft and a draft-pole pivotally attached thereto and having a yielding support beyond the pivotal point of said pole on said yoke adapted to permit an accelerated speed of the shaft in passing a dead-center to relieve the tension on the draft-pole without shock, for the purpose specified.



The device covered by the complainant's patent No. 358,898, issued March 8, 1887, which is said to have been infringed by the defendants, is disclosed by the annexed drawing, Figure 1, which forms a part of the specification of said patent. It may be said generally that the device in question consists of a box or frame bolted to the baling-chamber of the hay-press at the delivery end thereof, the outer end of this box or frame being so constructed, by means of lugs, nuts, bolts, and springs, as to permit the same to expand and contract to a limited extent when any hard substance happens to become mixed with the hay. The claim of the patent covering the device in question is as follows:

1. In a baling-press, the combination with a suitable baling-chamber, of a delivery portion of said press pivoted at one end thereto, and an opposite expansible end, and adjusting-bolts in suitable lugs upon said expanding end and nuts upon said bolts, and springs between said nuts and lugs, for the purpose described.

Fig. 1.

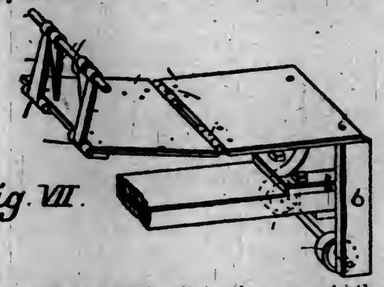


The only device covered by Patent No. 495,944, issued April 18, 1893, to James E. Knight and others as assignees of Winfield S. Livengood and others which is involved in the present controversy is the device covered by the fifth claim of the patent, which reads as follows:

5. In a baling-press, the combination of the traverser; a pitman; means for operating the pitman, and a folding apron formed in sections pivoted to each other and connecting the traverser with a stationary portion of the press; substantially as and for the purpose set forth.

The folding apron is illustrated in the annexed cut, which forms a part of the specification of the patent, and it may be said generally that this invention is designed to close the end of the baling-chamber at which the pitman enters when the pitman rebounds. This function is performed automatically by making the apron in two sections, hinging them together, and attaching one section of the apron to the upper part of the traverser or plunger and the other section to a stationary portion of the press. By this means as the traverser moves forward the folding apron is extended, and when the pitman rebounds the two sections of the apron are partially folded and the end of the baling-chamber is thereby closed.

Fig. VII.



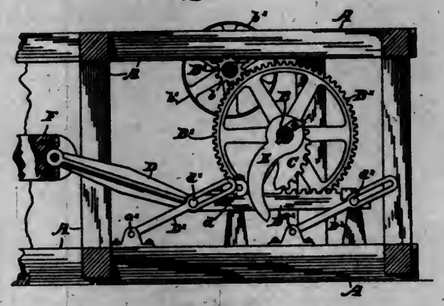
For reasons which will sufficiently appear in the opinion no description need be given of the device covered by Patent No. 456,239, issued to Sooy July 21, 1891. On the hearing of the case in the trial court the complainant's bill was dismissed. The case comes to this court on an appeal taken by the complainant from such decree.

J. B. JOHNSON.

Baling-Press.

No. 361,764. Patented April 26, 1887.

Fig. 3.



H. PURRIER.

Baling-Press.

No. 354,517. Patented December 14, 1886.

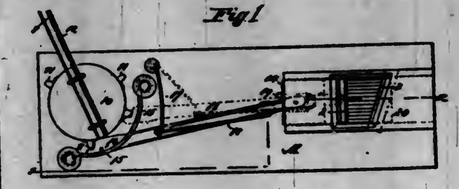


G. MCCARN.

Power Mechanism for Reciprocating Plungers.

No. 367,539. Patented August 2, 1887.

Fig 1



Before CALDWELL, SANBORN, and THAYER, Judges.

Mr. Charles K. Offield and *Mr. Charles C. Linthicum* (*Mr. James Scammon*, *Mr. John S. Crosby*, *Mr. Henry Stubenrauch*, and *Mr. Richard H. Manning* on brief) for the appellant.

Mr. George A. Neal and *Mr. T. S. Brown* for the appellees.

THAYER, Circuit Judge, after stating the case as above, delivered the opinion of the court.

The circuit court found that the complainant below, who is the appellant here, had not established its title to Patent No. 495,944, issued April 18, 1893, and it accordingly dismissed the bill without considering the other patents, upon the theory, no doubt, that there could be no recovery unless the complainant established its right to an injunction and an accounting as to each patent counted upon in the complaint. (*Hay-Press Co.* v. *Devol*, 72 Fed. Rep., 717, 723.) This was an error. The bill charges, and it is also obvious, that the devices covered by the several patents were capable of embodiment and conjoint use in a single hay-press. Indeed, only one hay-press made by the defendants was produced for the purpose of establishing an infringement of all the patents. Under these circumstances the bill was not multifarious, because it sought a recovery in a single suit for the infringement of all the patents. Moreover, a failure of the complainant either to establish its title to one of the patents or to show an infringement of one or more of the patents would not affect its right to an injunction and an accounting with respect to the other patents, provided the proof showed that they had been infringed. (*Nourse* v. *Allen*, 4 Blatchf., 376; 18 Fed. Cas., 459; *Gillespie* v. *Cummings*, 3 Sawy., 259; Fed. Cas., No. 5,434; *Horman Patent Manufg. Co.* v. *Brooklyn City R. Co.*, 15 Blatchf., 444; Fed. Cas., No. 6,703; *Seymour* v. *Osborne*, 11 Wall., 516, 559; *Hayes* v. *Dayton*, 18 O. G., 1406; 8 Fed. Rep., 702.)

The patent of chief value which is involved in the present controversy is the one first described in the statement, No. 394,623, issued December 18, 1888, and it will be referred to hereinafter as the "power patent." The other patents cover different parts of the baling-press, and while they may be useful devices the successful operation of the machine is not so vitally dependent thereon as it would seem to be on the mechanism described and claimed in the power patent. An attempt was

made at the trial to show that the device covered by claims 1 and 2 of the power patent is disclosed, substantially, by several prior patents, and for that purpose reference was made more especially to the following patents, to wit: Patent No. 361,764, issued to J. B. Johnson April 26, 1887; Patent No. 354,517, issued to H. Purrier December 14, 1886, and Patent No. 367,539, issued to G. McCarn August 2, 1887. Certain drawings forming a part of the specifications of these patents, which will suffice to show the alleged anticipatory devices, have been incorporated into the foregoing statement. By reference to these drawings it will be observed that in the Johnson patent the pitman was driven forward by means of a cam attached to a revolving drum or wheel which meshed into cogs on the side of the pitman-bar and thus moved the pitman forward; that in the Purrier patent a forward motion was given to the pitman by a revolving triangular plate, in the three corners of which antifriction-rollers were inserted, which rollers as the triangular plate revolved came successively in contact with the end of the pitman and forced it forward, and that in the McCarn patent three lugs were placed at intervals on the periphery of a revolving drum, which lugs as the drum revolved came successively in contact with the end of the pitman and moved it forward substantially in the same manner that the pitman was moved by the triangular plate in the Purrier patent. Neither of these devices made use of pressure upon an inclined plane for the purpose of moving the pitman, while the complainant's invention described in the power patent embodies the principle of giving the pitman a forward motion, first, by bringing the antifriction-rollers of the cranks into contact with an inclined plane on the side of the pitman, and, second, by bringing said antifriction-rollers into contact with the end of the pitman, thus increasing the power and giving the pitman a powerful forward thrust at the moment the greatest force is required to compress the hay.

It cannot be said, we think, that the complainant's invention is disclosed or anticipated by either of the patents aforesaid to which reference has been made. On the trial of the case a model of a hay-press was introduced in evidence by the defendants which was said to be a correct model of a hay-press that was constructed by the defendant, W. S. Livengood, during the year 1886 or prior thereto. The model was offered for the purpose of showing that Livengood had made a hay-press either during or prior to the year 1886 which anticipated the device covered by the complainant's power patent. With reference to this model it is sufficient to say that it was proven on the trial of the case that it was not an original model of the press which it purported to represent, but was made by the defendant, Livengood, about six months after the institution of the suit at bar for the purpose of being used as evidence to invalidate the claims of the power patent. It was so made merely from the witness's recollection of the structure of the press that it purported to represent, which he had not seen for eight or ten years, and the fact that it was not an original model was not disclosed when it was offered in evidence, but was intentionally concealed until the fact was developed on cross-examination. Under the circumstances we cannot accept the model in question as sufficient evidence to invalidate the claims of the power patent. Moreover, even if we were able to find that it was a correct model of a hay-press constructed by the defendant, Livengood, we should be of the opinion that in the hay-press in question the power was wholly applied to the very end of the pitman and that the principle embodied in the complainant's power patent of applying pressure to the incline on the side of the pitman was neither conceived nor applied in the older press, which the model purports to represent.

It remains to be determined whether the defendant's baling-press infringes claims 1 and 2 of the power patent. It will be observed that one element of the combination covered by those claims consists—

of laterally-extended arms provided with an antifriction-roller extending beyond the radius of said cranks.

It is contended by the defendants that this element is wanting in the infringing baling-press which was introduced in evidence. None of the drawings which form a part of the power patent disclose the laterally-extended arms very clearly, and for that reason it is necessary to say that these arms extend from the U-shaped casting which supports the revolving shaft, at right angles to the shaft, one of the arms being above and one below the pitman, their sole function being to control the vibrating end of the pitman and keep it in a position to be acted upon at the proper moment by the short cranks attached to the revolving shaft. These arms hold a roller at their outer end, which comes in contact with the outer edge of the pitman as it is pushed forward or rebounds, and thus lessens the friction. In the infringing device, on the other hand, an arm curving outwardly is firmly attached to the bed-plate some distance from the revolving shaft and extends backward in the direction of the shaft, outside of the radius of the cranks, to a point about as far as the pitman goes when it rebounds. An antifriction-roller is pivoted to the bottom of the pitman, which presses against the inner side of the curved arm when the pitman is in motion, and thus controls the movement of the pitman, keeping it always in proper relation to the cranks. In the infringing device the pitman is prevented from moving upward or vertically, when it rebounds, by curved rods attached to the frame holding the revolving shaft, which pass over the pitman and are attached to the axle which supports the bed-plate of the press at a point outside of the radius of the cranks. The curved arm or curved way in the infringing device, against which the antifriction-roller presses, which is pivoted to the pitman, undoubtedly performs the same function as the laterally-extended arms and antifriction-roller of the power patent. We cannot say that, as a means of controlling both the lateral and forward motion of the pitman, it is any improvement upon the mechanism designed for the same purpose in the power patent. It seems to be simply a mechanical deviation from the method of construction described in the latter patent, which neither involves a new principle of operation nor produces a better or a different result. Our conclusion is, therefore, that the curved arm or way in the infringing device must be regarded as a mechanical equivalent for the laterally-extended arms of the power patent. It results from this view that claims 1 and 2 of that patent have been infringed.

We are not able to say that the evidence discloses an infringement of the claims of Patents Nos. 363,012 and 386,360, which are referred to and described in the statement. The only claim of these patents which is alleged to be infringed is the one quoted in the statement, which seems to be based upon a method of constructing the draft-pole or sweep whereby it is allowed to spring backward slightly when the strain on the sweep ceases as the pitman is released. This object is accomplished by putting a link in the rod which reinforces or strengthens the sweep. In the infringing device it does not appear that the rod supporting the sweep is divided into sections by a link or that it was designed to permit the sweep to spring backward to any marked extent. The rod in question is rigidly attached at one end to the sweep and at the other to the yoke by which the shaft is turned. Its sole function would seem to be to strengthen or reinforce the sweep. If it has any other function, it is not disclosed by the model of the infringing device which was offered in evidence.

We have also reached the same conclusion last announced with reference to the charge of infringement in so far as it respects complainant's patents, Nos. 358,898 and 456,239. Without going into the subject in detail, as these patents do not seem to be of much value or importance, it will suffice to say that the means employed by the defendants in the infringing device to permit the frame attached to the outer end of the baling-chamber to expand or contract are so essentially different from the means described to accomplish the same object in complainant's patent, No. 358,898, that the claim of infringement as to the latter patent cannot be sustained. In the complainant's device a coiled spring is interposed between the nuts of the cross-bars which hold the frame together and the lugs through which the cross-bars pass. In this way the end of the delivery-chamber is made to expand or contract as occasion requires. In the defendants' device no such coiled springs are employed. Besides, we entertain such grave doubt as to whether the device covered by claim 1 of Patent No. 358,898 possesses patentable novelty that in any event the patentee should be limited to the precise form of construction described in his patent.

Complainant's patent, No. 456,239, is not infringed by the defendants for the reason that the combination covered by the claims of that patent which are said to have been infringed embrace, as one element thereof, "a curved spring-plate upon the vibrating end of said pitman," and there is no pretense that the hay-press manufactured by the defendants employs such a spring-plate on the end of the pitman or anything equivalent thereto.

This brings us to a consideration of Patent No. 495,944, which was issued on April 18, 1893, to James E. Knight, Edward Kelly, and William A. Alderson as assignees of Winfield S. Livengood *et al.* The trial court held that the complainant company had no title to this patent which would enable it to complain of an infringement thereof. The hay-press which is being manufactured by the defendants discloses a combination such as is covered by the fifth claim of Patent No. 495,944, consisting of—

the traverser, pitman, means for operating the pitman, and a folding apron formed in sections pivoted to each other, and connecting the traverser with a stationary portion of the press.

The defendants are therefore guilty of an infringement of the fifth claim of this patent, and the only question to be considered is whether the complainant company has a title thereto. Its alleged title was thus derived: Livengood, Chadbourne, and Gibbons, the inventors, prior to the issuance of the patent conveyed the invention to a corporation, the Midland Manufacturing Company. The Midland Manufacturing Company conveyed the same to Edward Kelly by a written assignment which was signed by W. H. Chadbourne as president of the company and attested by the signature of P. D. Myers, its secretary, with the corporate seal attached. Kelly then transferred a two-thirds interest in the invention to James E. Knight and William A. Alderson, and Kelly, Knight, and Alderson subsequently sold and assigned the patent, after it was issued to them, to the complainant, the Kansas City Hay-Press Company. It is the conveyance from the Midland Manufacturing Company to Kelly which is supposed to be defective, for the reason that it was not executed in pursuance of a resolution of the board of directors of the company. When the last-mentioned assignment was made, Chadbourne, the president of the company, and Myers, the secretary, were the owners of all the capital stock of the Midland Manufacturing Company. Livengood, it seems, had a lien on certain shares of the stock that were held in pledge for his benefit to secure a debt in the sum of about $1,000 which Chadbourne owed him. The corporation to whom the invention belonged has never as yet questioned the validity of the assignment to Kelly, although that assignment was executed on March 23, 1893, and the patent was subsequently issued to parties who derived their right to the patent under that assignment. Moreover, as we understand the evidence contained in the present record, the consideration received for the assignment of the invention to Kelly was the satisfaction of a certain indebtedness which the Midland Manufacturing Company owed Kelly, and which that company also owed Knight and Alderson for professional services that had been rendered for and in behalf of the company. It also appears from the testimony that, although the assignment was not formally authorized by the board of directors, yet Chadbourne and Myers, who owned all the stock

of the company, after a full consideration of the condition of the company, concluded to execute the assignment, as the company was at the time insolvent and unable to further prosecute its business. In view of these facts we are constrained to hold that the defendants in this suit cannot successfully challenge the complainant's title to Patent No. 495,944. We are of opinion that the Midland Manufacturing Company is alone entitled to question the validity of the assignment, which was executed by its president and secretary, and that none of the defendants occupy such a relation to that company as entitles them to complain of a sale of a corporate asset of which the company itself does not see fit to complain. It may be conceded that the sale of the patent in question to Edward Kelly was not within the scope of the ordinary powers of the president and secretary, but the act in question was not *ultra vires*, and it was clearly subject to ratification by the corporation. Inasmuch as four years have elapsed since the assignment was executed and the corporation has shown no disposition to question its validity, and inasmuch as the assignment under which the complainant derives title is good and sufficient in form to transfer a legal title to the patent, we think that no third party—not even a person who has a lien on certain stock of the corporation—should be permitted to challenge the validity of the assignment in a collateral proceeding. (2 Mor. Corp., secs. 619, 626, 631, and cases there cited.)

It results from these views that the decree dismissing the bill of complainant was erroneous. The decree of the circuit court is accordingly reversed and the case is remanded to that court with directions to enter a decree dismissing the bill at complainant's cost as to Patents Nos. 358,898, 363,012, 386,360, and 456,239, and with further directions to enter a decree establishing the validity of Patents Nos. 394,623 and 495,944 and the complainant's title thereto, with costs; also, with directions to award an injunction restraining the defendants from infringing claims 1, 2, and 3 of said Patent No. 394,623 and claim 5 of Patent No. 495,944, and also with directions to order an accounting as to the profits realized by the defendants and the damages sustained by the complainant in consequence of the infringement of the above-specified claims of the two patents last described.

COMMISSIONER'S DECISIONS.

EX PARTE HAMPDEN WATCH COMPANY.

Decided October 12, 1897.

1. TRADE-MARK—"MENLO PARK"—REGISTRABLE.

The decision of the Examiner that the words "Menlo Park" cannot be registered as a trade-mark for time-keeping instruments, as the words have no other than a geographical meaning, and do not, therefore, constitute a lawful trade-mark under the decisions of the courts and under the practice of the Patent Office, reversed.

2. SAME—SAME—GEOGRAPHICAL TERM.

While it is true that "Menlo Park" is a geographical term, it does not stand on the same footing as the word "Columbia" or "Lackawanna" or "International" or "East India," all of which have been held not to be lawful trade-marks. (*Columbia Mills* v. *Alcorn*, 65 O. G., 1916.)

3. SAME—SAME—MANUFACTURING TOWN.

While it is true that Menlo Park is the name of a small town in New Jersey and is also the name of a town in San Mateo county, California, it does not appear that either of these localities is a manufacturing town. Certainly in neither of these towns is the manufacture of watch-movements carried on.

ON petition.

TRADE-MARK FOR TIME-KEEPING INSTRUMENTS.

Application for registration of trade-mark filed April 8, 1897, No. 53,354.

Mr. C. R. Miller and *Mr. B. G. Cowl* for the applicant.

GREELEY, *Assistant Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing registration of the words "Menlo Park" as a trade-mark for time-keeping instruments, which mark, as stated in the application, has been used at Canton, Ohio, upon time-keeping instruments, and particularly watch-movements, since April, 1880.

The particular ground for refusing registration, as set up in the Examiner's answer to the appeal, is that the words for which registration is sought have no other than a geographical meaning, and do not, therefore, constitute a lawful trade-mark under the decisions of the courts and under the practice of this Office.

While it is true that Menlo Park is the name of a small town in New Jersey and is also the name of a town in San Mateo county in California, it does not appear that either of these localities is a manufacturing town. Certainly in neither of these towns is the manufacture of watch-movements carried on, and while it is true that if the business of manufacturing watch-movements were to be established in either of these towns those engaged in that business would have the right to put the name of the locality on the products made there the contingency is too remote to bar the registration of a trade-mark which has been in use in a purely arbitrary and fanciful sense by these applicants for over seventeen years.

While it is true that Menlo Park is a geographical term, it does not, in my opinion, stand on the same footing as the word "Columbia," commonly used to designate the United States as a whole, or the word "Lackawanna," the name of a region of country in Pennsylvania, or "International," or "East Indian," all of which have been held not to be lawful trade-marks and all of which are considered or referred to in the decision of the Supreme Court in *Columbia Mills* v. *Alcorn*, (65 O. G., 1916.) In all these cases the word on which suit was brought was one which was of such a nature or covered such an extent of territory that it was necessarily to be presumed that there would be those who could employ the word with equal truth and would therefore have an equal right to employ it for the purpose for which it was used by the person who brought suit.

The line is not easily drawn in all cases between those words of geographical nature which are registrable and those which are not, but where there is reasonable doubt registration should be permitted. In the present case I am clearly of opinion that the words sought to be registered constitute a lawful trade-mark and are registrable.

The decision of the Examiner of Trade-Marks is reversed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 8. TUESDAY, NOVEMBER 23, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
ATTORNEYS	1283
DISCLAIMER	1283
PRICE OF PRINTED COPIES OF PATENTS	1283
CHANGES IN CLASSIFICATION	1283
APPLICATIONS BY EMPLOYEES OF THE PATENT OFFICE	1284
ISSUE OF NOVEMBER 23, 1897	1284
APPLICATIONS UNDER EXAMINATION	1284
PATENTS GRANTED	1285
REISSUES	None.
DESIGNS	1409
TRADE-MARKS	1413
LABELS	None.
PRINTS	None.
DECISIONS OF THE U. S. COURTS—	
Mergenthaler v. Scudder	1417
National Hollow Brake Beam Company *et al.* v. Interchangeable Brake Beam Company. (No. 4,047.) Chicago Railway Equipment Company v. Interchangeable Brake Beam Company. (No. 4,048)	1423

Attorneys.

(ORDER No. 1,160.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 19, 1897.

With the approval of the Secretary of the Interior, John S. Thurman, of Indianapolis, Ind., is hereby disbarred from practice before the United States Patent Office for gross misconduct, pursuant to the provisions of section 487 of the Revised Statutes.

A. P. GREELEY,
Acting Commissioner.

Disclaimer.

534,579.—*Francis M. Rites*, Allegheny, Pa. IMPROVEMENT IN GOVERNORS. Patent dated February 19, 1895. Disclaimer filed November 16, 1897, by the patentee.

Enters his disclaimer—

As to claims 5, 6, 7, 8, and 9, to structures comprising a centrifugal weight and an inertia-weight, rigidly connected or integrally formed, in which the inertia-weight is not so arranged and disposed, relatively to the centrifugal weight, as to resist the action of gravity on the centrifugal weight.

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Changes in Classification.

(ORDER No. 1,159.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 15, 1897.

The following changes in classification are hereby directed:

In Division III, Class 204, Electro-Chemistry, subclass 22, Bleaching, is abolished, and the following subclasses are established:

Class 204, Electro-Chemistry:

Electrolysis—
Aqueous bath—
57. Refining metals,
Chemicals—
58. Alkalies and chlorine,
59. Bleaching and disinfecting liquors,
60. Chlorates,
61. Dyes and pigments.
Synthesis—
Synthesis—
62. Carbids.

In Division XVI, Class 178, Telegraphy, subclass 41, Relays and sounders, is abolished. The following subclasses are established in the same division:

Class 176, Electric Lighting:

Cut-outs—
Mechanical—
284. Perpendicular snap handle blade,
285. Two-button snap.

Class 177, Electric Signaling:

Alarms—
286. Hose.
Annunciators—
287. Elevator.
Bells—
288. Electromechanical.
Railway—
Block—
289. Crossing,
Cab—
Sectional rail—
290. Relay,
291. Lock,
Sectional rail—
292. Cab and block,
293. Crossing,
294. Electromanual lock,
295. Lock.

Class 175, Electricity, Special Applications:

Igniting devices—
296. Cigar.

Class 178, Telegraphy:

297. Autographic.
Automatic—
298. Multiple-pen.
299. Details.
300. Superposed current.
Circuit-closers—
301. Letter-box,
Thermal—
302. Fluid.
303. Fusible.
304. Relays—
305. Coil,
306. Core-armature,
307. Sounders.

A. P. GREELEY,
Acting Commissioner.

Applications by Employees of the Patent Office.

All applications for patents now pending before the Office filed by employees of the Patent Office during the period of their service, either complete or incomplete, or completed after they had separated themselves from the service, are ordered to be stricken from the files and the fees returned.

The views of the Commissioner upon section 480 of the Revised Statutes are expressed in his decision in the case of *ex parte John H. McElroy*, (80 O. G., 1123.)

Issue of November 23, 1897.

Patents	388	No. 593,977 to No. 594,364, inclusive.
Designs	23	No. 27,882 to No. 27,904, inclusive.
Trade-Marks	38	No. 30,871 to No. 30,908, inclusive.
Labels	None.	
Prints	None.	
Reissues	None.	
Total issue	449	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	3		New Hampshire	1	
Arizona Territory			New Jersey	14	9
Arkansas			New Mexico Territ'y	2	
California	13	1	New York	59	10
Colorado	4		North Carolina	2	
Connecticut	16		North Dakota		
Delaware	2		Ohio	20	1
District of Columbia	2		Oklahoma Territory	1	
Florida	4		Oregon		
Georgia	3		Pennsylvania	45	5
Idaho			Rhode Island	3	
Illinois	27		South Carolina		
Indian Territory			South Dakota		
Indiana	10		Tennessee	2	1
Iowa	7		Texas	5	
Kansas	6		Utah	3	
Kentucky	4		Vermont		
Louisiana	2		Virginia	1	
Maine	5		Washington		1
Maryland	4	1	West Virginia		
Massachusetts	44	2	Wisconsin	12	1
Michigan	13		Wyoming		
Minnesota	7	1	U. S. Army		
Mississippi			U. S. Navy		
Missouri	6	1			
Montana	1		Total to citizens of the United States	365	35
Nebraska	3	1			
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		
Austria-Hungary	2		Newfoundland		
Barbadoes			New South Wales	1	
Belgium			New Zealand	1	
Bermuda			Norway		
Brazil			Portugal		
Canada	1		Queensland		
Cape Colony			Roumania		
Chile, Republic of			Russia		
China			Scotland	1	
Colombia			Siam	1	
Cuba			South African Republic		
Denmark			South Australia		
Egypt			Sweden	1	
England	17	2	Switzerland	1	
Finland			Venezuela		
France	6		Victoria		
Germany	8	1			
India					
Ireland	1		Total to citizens of foreign countries	46	3
Italy	2				

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business November 16, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between one and two months.			
158	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Sept. 17	Nov. 1	192
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Sept. 27	Oct. 30	162
96	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Sept. 27	Oct. 27	209
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Oct. 9	Oct. 20	158
250	VIII. Furniture, Beds, Store Furniture, etc.	Sept. 16	Oct. 20	435
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 2	Oct. 15	229
106	II. Farm Stock, Products, etc.	Sept. 17	Oct. 14	328
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Sept. 17	Oct. 4	283
149	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Sept. 17	Sept. 29	224
	Between two and three months.			
109	XIX. Stoves and Furnaces	Aug. 19	Oct. 27	318
98	XXI. Textiles, etc	Sept. 4	Oct. 26	207
253	X. Carriages and Wagons	Aug. 20	Oct. 22	343
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Sept. 2	Oct. 20	396
215	XVII. Paper Manufactures and Printing.	Sept. 9	Oct. 16	197
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Aug. 17	Oct. 16	212
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 23	Oct. 15	257
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Sept. 14	Oct. 14	344
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 10	Oct. 9	171
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Aug. 27	Oct. 1	298
246	I. Tillage and Fences	Aug. 18	Sept. 10	295
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Aug. 2	Nov. 10	536
120	IX. Hydraulics, Fire-Extinguishers, etc.	Aug. 12	Nov. 9	201
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Aug. 4	Nov. 1	321
123	XXIX. Wood-Working Machines, Carpentry, Coöpering and Roofing, etc.	Aug. 3	Oct. 27	215
248	XVIII. Steam-Engineering, etc.	July 26	Oct. 14	294
256	XII. Mechanical Engineering, Store-Service, etc.	Aug. 9	Oct. 12	193
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 9	Sept. 13	600
240	VII. Velocipedes	Aug. 2	Sept. 3	1285
	Between four and five months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	July 14	Sept. 27	495
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Sept. 21	168
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	Aug. 13	411
	Between five and six months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	June 2	Oct. 30	669
221	XXIII. Instruments of Precision, Acoustics, etc.	June 9	Aug. 26	334

Total number of applications awaiting action 10,980

Under one month.			
Designs	Oct. 18	Oct. 25	255
Trade-Marks	Nov. 8	Nov. 15	54

PATENTS

GRANTED NOVEMBER 23, 1897.

593,977. WIRE-NAIL-MACHINE FEED. LOUREE M. RAUH, Braddock, Pa., assignor to Jesse M. Rauh, same place. Filed Apr. 13, 1897. Serial No. 631,894. (No model.)



Claim.—1. In wire-nail feeds, the combination of a rigid grip on one side, a spring-actuated roller or grip on the other and a clamping-roller on whose periphery said gripping-roller travels.

2. In a wire-nail feed the combination of a yielding feed-roller and a clamping-roller on whose periphery said feed-roll travels.

3. In a wire-nail feed the combination of a stud; a clamping-roller turning on said stud; a feed-roll holder and a feed-roll loose in said holder and in peripheral contact with the clamping-roll.

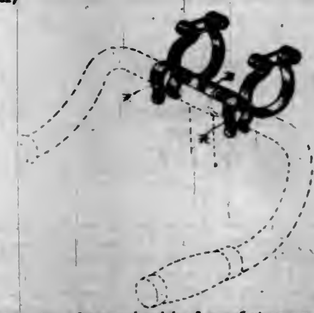
4. In a wire-nail feed, the combination of a stud; a clamping-roller turning on said stud; a feed-roll holder on said stud; a feed-roll in said holder and means for clamping together the feed-roll holder and the clamping-roller.

5. In a wire-nail feed, the combination of a stud; a clamping-roller turning on said stud; a feed-roll holder encircling said stud and provided with legs to partially encircle a feed-roll, and said feed-roll.

6. In a wire-nail feed, the combination of a stud threaded in the feed-table; a nut on said stud; a collar on said stud; a feed-roll holder on said stud and a clamping-roller on said stud, whereby by turning the stud the collar will lock the feed-roll holder and the clamping-roller to the table.

7. In a wire-nail feed, the combination of a feed-table; a clamping-roller supported upon said table; a bolt passing through said clamping-roller and through said table and a feed-roller held in peripheral contact with said clamping-roller.

593,978. PARCEL-CARRIER FOR BICYCLES. FREDERICK J. BOEHM, Brooklyn, N. Y. Filed Aug. 17, 1896. Serial No. 603,045. (No model.)



Claim.—As an improved article of manufacture, a parcel-carrier for bicycles comprising a strip adapted to lie parallel with the handle-bar, substantially inverted-U-shaped springs at opposite ends of said strip, substantially U-shaped springs oppositely disposed at the ends of said strip upon the opposite side thereof with their upper ends curved outwardly, and elastic bands, one for each of the last-mentioned springs, engaging the bent-over portions thereof, all substantially as herein shown and for the purpose specified.

593,979. SLATE. CHARLES P. BERRY, Parkville, Mo. Filed Dec. 7, 1896. Serial No. 614,794. (No model.)



Claim.—1. The combination with the frame of a slate or similar article provided with a bore for the reception of a pencil, said bore terminating in spaced recesses in the edge of the frame, of a spring located before the open end of said bore and forming a stop-shoulder for preventing the displacement of the pencil, said spring being provided with laterally-projecting and oppositely-located lips for facilitating the manipulation of the spring, and a stop at the opposite end of the bore for preventing displacement of the pencil, substantially as described.

2. The combination with the frame of a slate or similar article having recesses in one edge located at spaced points and also having a bore extending longitudinally of said edge between the recesses, of a pair of springs arranged one at each end of said bore, each of said springs being secured at one end to the frame and provided at its opposite end with a stop-shoulder which normally projects across its respective end of the opening, either of said springs being capable of being pressed in one recess for moving its stop-shoulder from before the adjacent end of the bore, substantially as and for the purpose described.

3. The combination with the frame of a slate or similar article, one of the bars of which is provided at spaced points with recesses or notches, and the intervening portion provided with a through-bore, of springs arranged adjacent to said recesses and at each end of said bore and adapted to be pressed into said recesses, the said springs being provided with stop-shoulders obstructing the open ends of the bore and adapted to be moved from before the same, substantially as and for the purpose described.

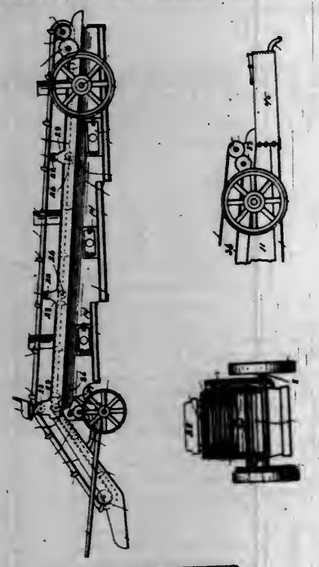
593,980. MACHINE FOR MELTING SNOW FROM CITY STREETS. FRANKLIN H. BULLIS, Brooklyn, N. Y. Filed May 22, 1897. Serial No. 637,802. (No model.)

Claim.—1. In a machine for removing snow from the streets, an attachment pivotally mounted on the forward end thereof, and adapted to be raised or lowered, said attachment being provided with a forwardly-directed chute, a snow carrier or conveyer mounted over the downwardly and backwardly inclined plate over the fire-boxes, and passing around sprocket-wheels mounted on said attachment and at the rear end of the truck-frame, the sprocket-wheels at the rear ends of the truck-frame being geared in connection with one of the wheels of the truck, said snow carrier or conveyer being provided with transverse buckets or scrapers which are connected by a wire or wires in which are formed spring-coils, substantially as shown and described.

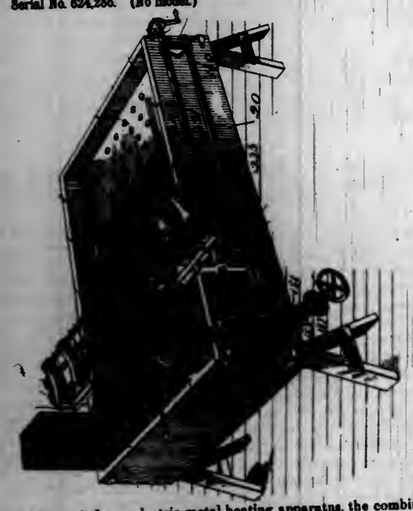
2. A machine for removing snow from the streets comprising a truck, fire-boxes mounted thereon and provided with a backwardly and downwardly inclined upper surface or plate a pivotally-mounted attachment secured to the forward end thereof and adapted to be raised and lowered and an endless-chain conveyer mounted above said fire-boxes and extending into said pivotally-mounted attachment and adapted to slide snow along the upper surface of said fire-boxes and means for operating said endless-chain conveyer, substantially as and for the purpose described.

3. The herein-described machine for removing snow from the streets, comprising a truck, a casing mounted thereon, and provided

with an upper surface, or plate which is backwardly and downwardly inclined, an attachment or scoop pivotally mounted on the forward end of said casing, a shaft mounted adjacent to the lower end of said attachment a second shaft mounted on the upper surface or plate adjacent to the rear end of said casing, an endless chain mounted upon said shafts, buckets mounted upon said chains and adapted to drag snow backwardly along the upper surface of said casing, a large gear-wheel mounted upon one of the rear wheels of the hub and pinions mounted adjacent thereto and adapted to operate therewith, said pinions being adapted to operate the said shaft mounted upon the rear end of said casing, substantially as and for the purpose described.



593,981. APPARATUS FOR ELECTRICALLY HEATING METALS AND ORES. GEORGE D. BURTON, Boston, Mass. Filed Feb. 20, 1897. Serial No. 624,286. (No model.)



Claim.—1. In an electric metal-heating apparatus, the combination of a hearth, an electrolytic solution therein, holders for holding blanks to be heated on said hearths, and means for pressing said blanks together, said blanks being connected with one electric pole and the liquid with the other.

2. In a metal-heating apparatus, the combination of a tank for an electrolytic liquid, a receptacle in said tank, a detachable hearth surmounting said receptacle and above the level of the solution in the tank, and means for elevating said liquid from said receptacle so that it will overflow onto said hearth.

3. In an electrolytic metal-heating apparatus, the combination of a receptacle composed of a conductive metal and adapted to contain an electrolytic liquid, a detachable hearth in the form of a shallow pan surmounting said receptacle, and means for elevating said liquid into said hearth.

4. In an electrolytic heating apparatus, the combination of a receptacle composed of a conductive metal adapted to contain an electrolytic liquid, a hearth surmounting said receptacle and provided with a dependent tube which shuts into said receptacle and protects it, and means for elevating said liquid into said hearth.

5. In a metal-heating apparatus, the combination of a tank for containing an electrolytic solution, and an anode consisting of two united plates, a conductive plate and a perforated non-conductive protective plate.

6. In a metal-heating apparatus, the combination of a tank for containing an electrolytic solution, a detachable hearth in the form of a shallow pan elevated above the plane of the sides of the tank, and means for elevating the liquid from the solution in the tank onto said hearth.

7. In a metal-heating apparatus, the combination of a tank for containing an electrolytic solution, a detachable hearth in the form of a shallow pan elevated above the plane of the sides of the tank, means for elevating the liquid from the solution in the tank onto said hearth, and mechanical means for holding the metal to be heated over said hearth.

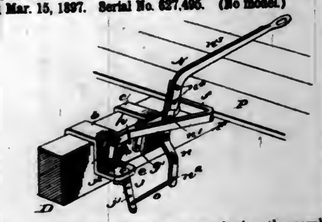
8. In a metal-heating apparatus, the combination of a tank for containing an electrolytic solution, a detachable hearth in the form of a shallow pan elevated above the plane of the sides of the tank, means for elevating the liquid from the solution in the tank onto said hearth, mechanical means for holding the metal to be heated over said hearth, and means for adjusting said holder.

9. In an electric metal-heating apparatus, the combination of a receptacle for an electrolytic solution, a detachable hearth in the form of a shallow pan disposed above the sides of said receptacle, means for elevating a liquid onto said hearth, holders for holding blanks to be heated on said hearth, and means for pressing said blanks together, said blanks being connected with one electric pole, and the liquid with the other.

10. In an electric metal-heating apparatus, the combination of a receptacle for the electrolytic solution, a detachable hearth in the form of a shallow pan on a plane above the sides of said receptacle, means for elevating said liquid from said receptacle so that it will flow onto said hearth, and means for governing the quantity of liquid conducted from the receptacle to said hearth.

11. In a metal-heating apparatus, the combination of a tank for containing an electrolytic solution, a hearth elevated above the plane of the sides of the tank, a reservoir elevated above the hearth, means for elevating the liquid from the solution in the tank into said reservoir, and means for supplying an electrolytic solution to said hearth from said reservoir.

593,982. FLOORING-JOINER. JOHN L. CARROLL, Creston, Iowa. Filed Mar. 15, 1897. Serial No. 627,495. (No model.)



Claim.—1. In a floor-board-securing device, the combination of a stationary body portion provided with means for engaging the joist, a movable member to abut against the edge of the board, links pivoted to the said stationary portion, and carrying the said movable member, a pivot clamp or clutch device provided with a series of openings in its arm and with a cam-face adapted to engage the side of the joist, a lever pivoted to the said board-pressing device, and a connection between the said lever and the arm of the said clamp or clutch and adapted to engage either opening therein, substantially as described.

2. In a floor-board-securing device, the combination of a body portion adapted to engage a floor-joist, a triangular-shaped floor-board-pressing device, the broad base of which is adapted to engage the edge of the board, links pivoting the apex or reduced end of the said pressing device to the body portion, a lever extending between

the arms of the triangular pressing device and pivoted thereto, a clamping device to engage the joist, and a connection between the said clamping device and the lower end of the lever, substantially as described.

3. In a floor-board-pressing device, the combination of a body portion having two lateral extensions provided with downwardly-projecting flanges adapted to engage a joist and extending parallel with said body, a triangular-shaped movable member connected with said body and having its broad base adapted to bear against the edge of the board, a clamping device provided with an arm having a cam-face adapted to engage the side of the joist and hold the body portion secured thereto, a lever pivoted to the triangular presser and extending below the same, and a rod secured to the lower end of the lever and adapted to be adjustably connected with the arm of the clamp to vary the throw of the same, substantially as described.

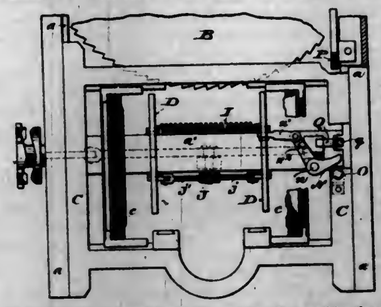
4. In a floor-board-securing device, the combination with a stationary member adapted to engage a joist, of a triangular-shaped movable member pivoted to said stationary member and adapted to have its broad base press against the edge of the board, and a lever mounted on one arm of said triangular pressing device and extending down in the space between the arms thereof to a point below the same, means for engaging the joist and holding the stationary member thereon, and a connection between said holding means and the lower end of the lever.

5. In a floor-board-pressing device, the combination with a stationary body portion adapted to engage the floor-joist, of a movable member adapted to engage and press against the edge of the board to be secured, and a lever constructed in two parts, the upper portion of which is detachably connected with the lower portion bent at an angle thereto and movably secured to said lower portion, which latter is pivoted to said movable member, substantially as described.

6. In a floor-board-securing device, the combination of a stationary body portion to engage the floor-joist, a movable member adapted to press against the edge of the board to be secured, a clamp device adapted to be forced into and out of engagement with the floor-joist and carried by said body portion, a lever constructed in two parts, the lower one of which is pivoted to said floor-board-pressing device and the upper one of which is bent at an angle to said lower end and removably attached thereto, and a connection between the lower end of the lever and the clamp device.

7. In a floor-board-securing device, the combination of a body portion to engage the floor-joist, a triangular-shaped movable member attached thereto and having its upper end adapted to bear against the edge of a board, a clamp device to engage the joist and secure the body portion thereto, a lever constructed in two parts, the lower one of which is pivoted to the said floor-pressing device and the upper portion of which is bent at an angle to said lower portion and removably secured thereto, and a connection between said clamp and the lower pivoted end of the lever.

593,983. SHINGLE-SAWING MACHINE. FRANK CHALLONER, Oshkosh, Wis. Filed Sept. 10, 1896. Serial No. 605,350. (No model.)



Claim.—1. In a shingle-sawing machine the combination with the saw and a reciprocating carriage of block-tilting mechanism comprising two vertically and laterally movable supports over which the carriage passes in its return movement from the saw, mechanism for alternately moving said supports vertically, one up and the other down, and mechanism under the control of the operator for moving said supports laterally away from each other whereby a block or spalt is permitted to fall between them, substantially as and for the purposes set forth.

2. In a shingle-sawing machine the combination with the saw and carriage of block-tilting mechanism consisting of two vertically and laterally movable supports, a horizontally-disposed rocking lever pivotally connected on opposite sides of its fulcrum with said supports, mechanism for tilting said lever alternately in opposite directions each time the carriage passes over said supports, a lever connected with and arranged to move said supports apart so as to allow a block or spalt to fall between them, and a trip on the carriage movable by the operator into range with one arm of said lever and adapted in abnormal position to swing said supports away from each other on their pivot connections with said rocking lever, substantially as and for the purposes set forth.

3. In a shingle-sawing machine the combination with the saw and carriage of block-tilting and spalt-dropping mechanism consisting of two horizontal supports below the path of the carriage, a horizontally-disposed rocking lever with which said supports are pivotally connected, a spring tending to draw said supports toward each other and holding them normally in operative position, a lever fulcrumed to the frame and connected on opposite sides of its fulcrum by links with said supports, whereby a lateral movement of one support causes a like movement of the other, a lever fulcrumed to the frame of the machine and connected with one of said supports, and a trip on the carriage movable by the operator into range with a part of said lever and adapted by engagement therewith to spread said supports sufficiently to allow a spalt or block to fall between them, substantially as and for the purposes set forth.

4. In a shingle-sawing machine the combination with the saw and carriage of block-tilting mechanism consisting of two vertically-movable supports, a horizontally-disposed rocking lever pivotally connected with said supports on opposite sides of its fulcrum, a bell-crank lever having a dependent arm and a horizontally-disposed arm connected by a link with said rocking lever, a horizontally-disposed lever constantly pressed downward at one end and having an upwardly-bearing connection at the opposite end with the dependent arm of said bell-crank lever, an intermittingly-turning cam-wheel and a vertically-disposed lever engaging at its upper end with said cam-wheel and connected at its lower end with the dependent arm of said bell-crank lever, substantially as and for the purposes set forth.

5. In a shingle-sawing machine the combination with the saw and carriage of block-tilting mechanism consisting of two vertically-movable supports, a horizontally-disposed rocking lever pivotally connected on opposite sides of its fulcrum with said supports, means for automatically tilting said lever alternately in opposite directions and a vertically-adjustable support to which said rocking lever is fulcrumed, substantially as and for the purposes set forth.

6. In a shingle-sawing machine the combination with the saw and carriage of block-tilting mechanism consisting of two vertically-movable supports, a horizontally-disposed rocking lever pivotally connected with said supports on opposite sides of its fulcrum, a bell-crank lever having a dependent arm and a horizontally-disposed arm connected with said rocking lever, a horizontally-disposed lever forced downward on one side of its fulcrum with a yielding pressure, and bearing upward on the opposite side of its fulcrum against the dependent arm of said bell-crank lever, means of alternately swinging the dependent arm of said bell-crank lever past a vertical line and adjustable stops for limiting the vertical movement of said rocking lever, substantially as and for the purposes set forth.

7. In a shingle-sawing machine the combination with the saw and carriage of block-tilting mechanism consisting of two vertically-movable supports, a horizontally-disposed rocking lever pivotally connected on opposite sides of its fulcrum with said supports, a bell-crank lever having a horizontally-disposed arm connected by a link with one arm of said rocking lever, a horizontally-disposed lever constantly pressed downward at one end by a spring and having an upwardly-bearing connection at the opposite end with the dependent arm of said bell-crank lever, and a vertically-adjustable support to which said several levers are fulcrumed, substantially as and for the purposes set forth.

8. In a shingle-sawing machine the combination with the saw and carriage of block-tilting mechanism consisting of two vertically-movable supports, a horizontally-disposed rocking lever pivotally connected on opposite sides of its fulcrum with said supports, a vertically-adjustable support to which said lever is fulcrumed, vertical screws having threaded connections with said support and bearings at their lower ends on the frame, and a horizontal shaft connected by bevel-gears with said screws for adjusting said support, substantially as and for the purposes set forth.

9. In a shingle-sawing machine the combination with the saw and carriage of two vertically and laterally movable block-supports, a lever connected with and arranged to spread said supports sufficiently to allow a block to fall between them, a trip on the carriage movable by the operator into position to engage said lever, and an incline on the frame of the machine arranged to return said trip automatically to normal position, substantially as and for the purposes set forth.

10. In a shingle-sawing machine the combination with the saw and a reciprocating carriage arranged to travel back and forth over the saw, of two laterally and vertically movable block-supports, means

of alternately raising and lowering said supports, a lever connected with and arranged to spread said supports sufficiently to allow a shingle-block to fall between them, a trip on the carriage movable by the operator into position to engage said lever, and a gravitating catch arranged to engage said lever and hold it in abnormal position, and provided with an incline in the path of said trip when the latter is in abnormal position for disengaging said catch and releasing said lever, substantially as and for the purposes set forth.

593,984. TROLLEY. ROBERT W. CLARKE, Victoria, Canada. Filed Feb. 17, 1897. Serial No. 623,808. (No model.)

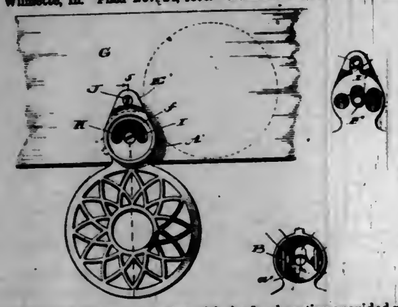


Claim.—1. In combination, a trolley-pole having its upper end turned outward, two arms swiveled thereon, means for revolving said arms, means for securing said arms in their adjustment when revolved, a trolley-wheel journaled upon each of said arms, and a switch so arranged relative to one of said wheels as to permit the passage of a trolley-wheel carried by another car without interference with either, as specified.

2. In combination, a trolley-pole secured to a car, its upper end being turned outward, two arms swiveled to this end, a pulley carried by the arms, a rope secured to said pulley and having its ends located in easy reach of the conductor, two trolley-wheels journaled upon said arms, a switch arranged in connection with one of said wheels so as to permit the passage of another trolley traveling upon the same wire in opposite direction, and small rolls carried by the switch, substantially as and for the purpose set forth.

3. In combination, a trolley-pole having its upper end turned outward, two arms swiveled to said pole, a latch so arranged as to lock the arms in their active position, two trolley-wheels journaled to the arms, a switch so arranged relative to one of the wheels as to permit the passage of another wheel therearound when meeting upon a single feed-wire, ropes for operating the arms and latch, and small rolls arranged to come in contact with the feed-wire when the switch is utilized, as specified.

593,985. LAMP BRACKET OR HOLDER. GEORGE A. COLTON, Wilmette, Ill. Filed Nov. 24, 1896. Serial No. 613,290. (No model.)



Claim.—1. The combination with the fixed portion provided with a notch and a boss and adapted to be secured to a support, of the supporting portion lying between said fixed portion and the support and slidingly connected with said fixed portion so as to have lateral and rotary movement in relation to said boss, a lug carried by said supporting portion to engage said notch, and a spring connected with the supporting portion to produce a lateral movement of the former, substantially as described.

2. The combination with the fixed portion having a notch and a boss, of the supporting portion having a slot to receive said boss and a lug to enter said notch, and a spring secured to the supporting portion and having an arm traversing said slot in contact with the boss, substantially as described.

3. The combination with the fixed portion having a notch and a boss, of the supporting portion having a slot to receive said boss, and a spring secured to the supporting portion and having an arm traversing said slot in contact with the boss, said boss being formed with the projecting flange; substantially as described.

4. The combination with the fixed part having a boss and notch, of the supporting portion having a lug to engage said notch, and a slot to receive said boss and lugs, and a spring held by said lugs and having a portion traversing the slot and bent to receive the boss; substantially as described.

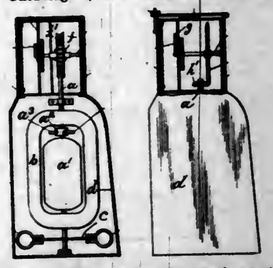
5. The combination with the fixed part having a boss and notch, of the supporting portion having a lug to engage said notch, and a slot to receive said boss and lugs, and a spring held by said lugs and having a portion traversing the slot and bent to receive the boss, said boss having a lateral flange to engage and prevent displacement of the portion of the spring which traverses the slot; substantially as described.

6. The combination with the fixed part having a notch and boss, and a depressed portion, of the supporting portion having a concavity, an elongated slot, a lug in line therewith projecting beyond the periphery, and a spring confined within the chamber formed by the adjacent concavities of the two parts, and having a portion traversing the slot and engaging the boss; substantially as described.

7. The combination with the fixed part having a notch and boss and a depressed portion, of the supporting portion having a cavity, an elongated slot, a lug in line therewith projecting beyond the periphery, and a spring confined within the chamber formed by the adjacent concavities of the two parts, and having a portion traversing the slot and engaging the boss, said boss being formed with a lateral flange to engage and prevent displacement of the spring; substantially as described.

8. The combination with a support, as a shelf, of a lamp-supporting bracket supported upon the under side thereof, and having a portion mounted for movement about a fixed pivot, and also constructed and arranged to slide in and out and to be automatically locked in its distended position; substantially as described.

593,986. SEPARABLE RECORDING-METER. JAMES B. CRAVATH, Chicago, Ill., assignor to the Cravath Manufacturing Company, same place. Filed Aug. 12, 1897. Serial No. 647,990. (No model.)



Claim.—1. The combination with the actuating parts of an electric recording-meter, of recording mechanism separable therefrom, and separable gearing connecting the actuating parts of the meter and the recording mechanism to permit the removal of the recording mechanism for reading, substantially as described.

2. The combination with the actuating parts of an electric recording-meter, of a casing associated therewith, a box carrying the recording mechanism arranged to fit therein, and separable gearing between the actuating parts of the meter and the box carrying the recording mechanism to permit the removal of said box, substantially as described.

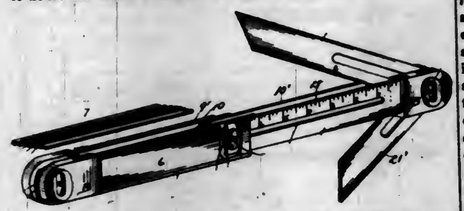
3. The combination with the actuating parts of an electric recording-meter, of a casing associated therewith and having a door or covering, a dial-box carrying the recording mechanism arranged to fit within said casing and to permit the closing of the door or covering only when completely in position and separable gearing between the recording mechanism and the actuating parts of the meter to permit the removal of said box, substantially as described.

4. The combination with the actuating parts of an electric recording-meter, of a box carrying the recording mechanism, separable gearing connecting the recording mechanism and the actuating parts of the meter and permitting the removal of said box, and a door or covering upon said box permitting access to the interior thereof, substantially as described.

5. The combination with an electrical translating device, of a meter recording mechanism associated therewith, means for permitting the removal of the recording mechanism for reading, and a circuit-controller for cutting the translating device out of circuit when the recording device is removed, substantially as described.

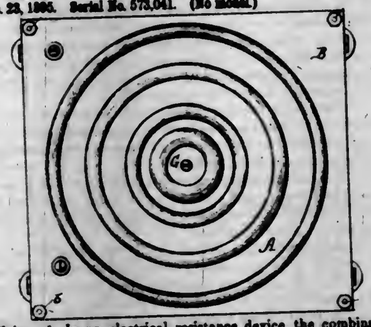
593,987. ADJUSTABLE BEVEL. JOHN F. CREBS, Mahanoy City, Pa. Filed Apr. 28, 1897. Serial No. 634,231. (No model.)

Claim.—1. In a bevel in combination with a case having grooves, a blade pivotally attached to a head at one end and arranged to fold backward in line with the guide and to enter the grooves in the case to house the blade, as and for the purposes set forth.



2. In a bevel a housing-case provided with multiplex grooves for the reception of guides and blades attached to heads at each end of the case, guides rigidly attached to the heads and operating within the grooves, means to regulate the extension of the heads carrying the blades, slotted blades adjustable in the heads and arranged to fold backward in line with the guides and to enter the grooves in the case, means for holding the blades in adjustment at a desired angle and means for regulating the extension of the guides, as and for the purposes set forth.

593,988. RESISTANCE DEVICE. GEORGE K. CUMMINGS, Chicago, Ill., assignor to the Graphite Rheostat Company, same place. Filed Dec. 23, 1895. Serial No. 573,041. (No model.)



Claim.—1. In an electrical resistance device, the combination with the cross-pieces, of the terminal rods supported on said cross-pieces, two of said cross-pieces being movable, a number of tubes containing electric resistance material of constant density supported between the movable cross-pieces, and means for adjusting the tubes on some of the terminal rods, substantially as and for the purpose described.

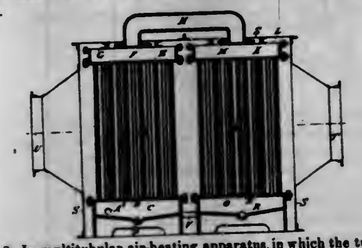
2. The combination of a frame, the cross-pieces movably secured in said frame, a number of tubes arranged between said cross-pieces and containing suitable resistance material, a terminal rod secured in one end of each tube, and another terminal rod arranged in the other end of each tube, and means for moving said cross-pieces to adjust the tubes on some of said terminal rods, substantially as described.

3. The combination of a frame, the cross-pieces movably secured in said frame, a number of tubes arranged between said cross-pieces and containing suitable resistance material, a terminal rod secured in one end of each tube, another terminal rod arranged in the other end of each tube, a rack-bar secured between said cross-pieces, and a ratchet-wheel arranged in engagement with said rack-bar and adapted to be operated to move the cross-pieces, substantially as described.

4. The combination of a frame, the rods secured in said frame, the movable cross-pieces mounted on said rods, a number of tubes secured between said cross-pieces and containing an electric resistance material, a terminal rod rigidly secured in one end of each tube, a stationary cross piece, a terminal rod arranged in the other end of each tube and secured to the stationary cross-piece, a rack-bar connecting the movable cross-pieces, a ratchet-wheel arranged in engagement with said rack-bar, and a handle for operating said ratchet-wheel whereby the tubes may be adjusted to increase or decrease the resistance between the ends of the terminals, substantially as described.

593,989. MULTITUBULAR AIR-HEATING APPARATUS. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Dec. 8, 1896. Serial No. 614,874. (No model.) Patented in England Sept. 21, 1895, No. 17,651; in India Jan. 8, 1896, No. 315, and in Ceylon Jan. 28, 1896, No. 489.

Claim.—1. In multitubular air-heating apparatus, in which the tubes are heated by steam passing through them, the combination of a series of straight tubes, all of equal length, for the flow of the heating steam, a tube-plate at each end of said series of tubes and receiving said tubes, a supply steam-chest at the one end and a discharge steam-chest at the other end of said series of tubes, the inner wall of each of said steam-chests being the corresponding tube-plate; a second series of straight tubes all of equal length for the return of the heating steam, a tube-plate at each end of said second series of tubes, said tube-plates receiving said tubes and being independent of the tube-plates of the flow series of tubes, a supply steam-chest at the one end and a discharge steam-chest at the other end of said second series of tubes, the inner wall of each of said steam-chests being the corresponding tube-plate, and a steam-pipe yieldingly connected to and communicating between the discharge steam-chest of the series of flow-tubes and the supply steam-chest of the series of return-tubes, and conducting the steam from said discharge steam-chest and yielding to the differences in expansion between said chests to said supply steam chest, all substantially as hereinbefore described and shown, whereby the tubes in each series are free to expand and contract in their separate tube-plates independently of the expansion of the tubes of the other series in their tube-plates, as and for the purpose set forth.



2. In multitubular air-heating apparatus, in which the tubes are heated by steam passing through them, a separate series of straight tubes of equal length for the inflow of the heating steam, and a separate series of straight tubes of equal length for the outflow of the steam, in combination with separate and independent tube-plates to which the two series of tubes are respectively connected, steam chests of which said tube-plates form part, the chests at the discharge end of the inflow-tubes and at the receiving ends of the outflow-tubes having sheet-metal covers, and a pipe conducting the steam from the outflow end of the first series of tubes to the inflow end of the second series, and connected to said sheet-metal covers, whereby the pipe and covers can yield and expansion and contraction of said two series of tubes under variations of temperature can take place independently of each other, and an air-casing inclosing said tubes, substantially as set forth.

3. In a multitubular air-heating apparatus, in which the tubes are heated by steam passing through them, the combination of the inflow-tubes A, the outflow-tubes B, the steam-chests C and F with which the inlet and delivery ends of said tubes A respectively communicate, the steam-chests K and O with which the inlet and delivery ends of said tubes B respectively communicate, the steam pipe H communicating between said chests F and K, said chests F and K separate and independently movable under expansion of their tubes, the steam-inlet pipe A', the exhaust and drain pipe R, the distance-bolts V between and connecting said chests C and O, and the casing S inclosing both said inflow and outflow tubes and their chests and having air-inlet T and air-outlet U, all substantially as set forth and shown.

593,990. INSECT-EXTERMINATING COMPOUND. WILLIAM J. DENNIS, Murphysborough, Ill. Filed Apr. 2, 1897. Serial No. 630,457. (No specimens.)

Claim.—A composition of matter for the purpose described, composed of pyrethrum, gum-camphor, alcohol, carbolic acid, and oil of pennyroyal in substantially the proportions specified.

593,991. MANUFACTURE OF MANTLES OR INCANDESCING BODIES FOR INCANDESCENT GAS-LAMPS. JOHN F. DUKE, London, England. Filed July 27, 1896. Serial No. 600,690. (No specimens.)

Claim.—1. The process or method of treating mantles or incandescing bodies for incandescent gas-lamps, which consists in impregnating existing bodies of such character with a barium compound, and reducing such compound to barium-oxid coating on said bodies by submitting them to a high temperature, substantially as set forth.

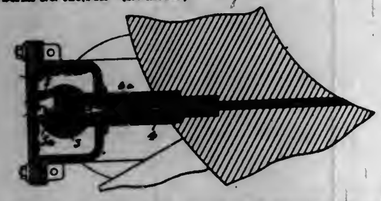
2. The process or method of treating mantles or incandescing bodies for incandescent gas-lamps, which consists in forming a coating of barium oxid on said bodies with a barium salt, substantially as and for the purpose set forth.

3. The improved mantles or incandescing bodies for incandescent gas-lamps, consisting of bodies of refractory materials having an external surface of barium oxid, substantially as and for the purpose set forth.

4. The process or method of making mantles or incandescing bodies for incandescent gas-lamps, which consists in dipping a body of refractory metal in a solution of a barium salt, drying the dipped body, and heating it at a high temperature.

5. The improved article for mantles or incandescing bodies for incandescent gas-lamps, consisting of an interstitial body of refractory metal having an external coating of barium oxid, substantially as and for the purpose set forth.

598,992. ORE-CONVERTER. JULIUS A. DYBLIE, Anaconda, Mont., assignor to the Fraser & Chalmers, Chicago, Ill. Filed Mar. 30, 1897. Serial No. 629,943. (No model.)



Claim.—1. The combination of a converter provided with a twyer-box and twyers connecting the twyer-box and the converter, the twyer-box having peep-holes opposite the twyers, with ball-valves to close the peep-holes, and holders to support the ball-valves and adapted to allow the ball-valves to be moved from their seats, substantially as described.

2. The combination, with a twyer-box having a peep-hole therein, of a ball-valve to close the peep-hole, and a slotted inclined support for the ball-valve, substantially as described.

598,993. OBSERVATION-OPENING FOR DOORS. JONATHAN ELWOOD, Sanger, Cal. Filed July 29, 1896. Serial No. 600,941. (No model.)



Claim.—1. The combination with a door having a hole bored therein, of a lens applied against the outside of the door over the hole, a clamping-plate attached directly to the door outside of the lens and flanged to embrace the lens to hold the latter in place but without obstructing the view through said opening and lens, a plate provided with a plurality of minor perforations and fastened to the inside of the door over the hole therein, and a shutter attached to the inside perforated plate to close the openings therein or to expose the plate, as and for the purposes described.

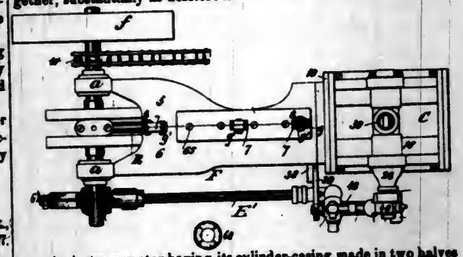
2. The combination with a door having a hole bored therein, of a telescopic lining having its members adjustable and slidable freely one within the other and flanged at their ends to embrace the edges of the door-opening, a lens applied directly against the outer face of the door and the flanged edge of one member of the lining, a clamping-plate whose internal diameter is less than that of the telescopic lining and which is attached to the outside of the door to embrace the lens to hold the latter in place without obstructing the view through the lining and lens, a perforated plate fastened to the door, over the hole therein, and bearing against the flanged edge of the other member of said lining, and a shutter pivoted to the perforated plate, substantially as and for the purposes described.

598,994. STEAM-MOTOR. VICTOR H. RAMEY, Jersey City, N. J. Filed Mar. 13, 1896. Serial No. 583,077. (No model.)

Claim.—1. A frame for a steam-motor having bearings for the crank-axle at one end and divided in halves bolted together in combination with the steam-cylinder at the other end of the frame, having a part embracing the divided ends of said frame, substantially as described.

2. A steam-motor having a frame divided in halves threaded at the cylinder end, in combination with the steam-cylinder having its head with a threaded flange to screw onto the threaded end of the divided frame, substantially as described.

3. A frame for a steam-motor, divided in halves, one part having locating-thimbles and the other recesses therefor on the meeting faces, and bolts passing through the thimbles to secure the parts together, substantially as described.



4. A steam-motor having its cylinder-casing made in two halves divided longitudinally, in combination with an inner shell forming ports in conjunction with grooves in the casing, substantially as described.

5. A steam-motor having its cylinder-casing made in two halves having grooves on their inner faces to form ports in combination with an inner shell, and valve-casings fitted to the outer sides of the two-part casing, substantially as described.

6. A steam-motor having a cylinder with two sets of steam-ports for the steam side, in combination with a valve-stem carrying two rotary valves to control said ports, one of said valves being rotarily adjustable whereby any variation of steam-supply may be secured, substantially as described.

7. A steam-motor, having a cylinder with two sets of steam-ports for both the steam and the exhaust sides in combination with a valve-stem for each side carrying two rotary valves controlling said ports, one of said valves being rotarily adjustable, whereby any variation of steam-supply on the steam side and cushion on the exhaust side may be secured, substantially as described.

8. The combination of a valve-stem having a notched collar with a hollow valve, a clamping-ring and screws passing through the clamping-ring and valve, and also the notches of the collar, substantially as and for the purpose set forth.

9. The combination of a valve-stem having a polygonal part with a piece fitted thereon and a hollow valve having segmental slots in its head and securing-screws passing through said slots into the fitted piece, substantially as described.

10. A motor having a steam-cylinder with rotary valves in combination with a sliding cross-head, links and levers connecting the latter to the said valves, and guide-rods for the cross-head supported by the steam-cylinder, substantially as described.

11. A motor having a steam-cylinder formed with a socket on one side, and having rotary valves in combination with a sliding cross-head controlling said valves, a guide-rod part for the cross-head provided with a stud fitting in said socket, substantially as described.

12. The combination of the guide-rods, of the valve-gear with the sliding cross-head having hardened split bearing-faces surrounding said rods with a clamping-piece, and bolt and nut to tighten the bearing-faces to make up for wear.

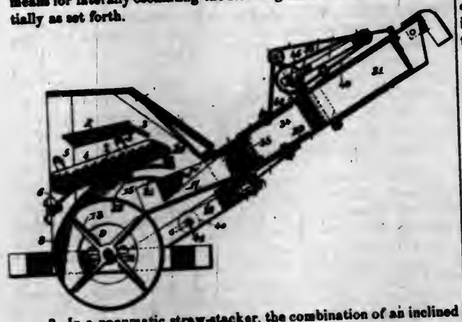
13. A motor having an eccentric with beveled bearing-faces in combination with a two part eccentric-strap correspondingly beveled and split in the plane of the eccentric, substantially as described.

14. A motor having a crank-shaft with a clamping split conical bushing keyed thereto longitudinally adjustable on said shaft and an eccentric fitted on the bushing, substantially as described.

598,995. PNEUMATIC-STRAW-STACKER ATTACHMENT. SAMUEL D. PERKINS and ELIAS G. GUSTAFSON, Maple Bay, Minn. Filed Mar. 12, 1897. Serial No. 627,158. (No model.)

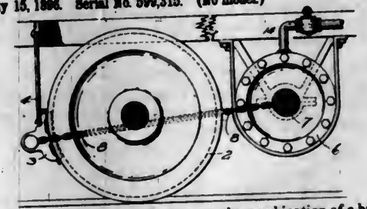
Claim.—1. In a pneumatic straw stacker, the combination with a threshing-machine casing, of an air-trunk detachably fastened to the rear end of said casing and provided with a discharge-neck, a stacking-tube connected with said discharge-neck, a blast-fan casing provided with a rearwardly-extending blast-spout communicating with the interior of the threshing-machine casing, and having a straight lower side extended to a point directly within said air-trunk, and a curved upper side shorter than and arched over said lower side to provide for deflecting the air-currents into the straw as it falls into the blast-spout, a wind-board arranged within said blast-spout, and the rotary fan, substantially as set forth.

2. In a pneumatic straw-stacker, a stationary flared air-trunk adapted to be detachably fastened at the rear end of a threshing-machine casing and provided at its outer contracted side with a discharge-neck, an inclined stacking-tube provided at its inner lower end with upper and lower extension-plates pivotally bolted to and receiving therebetween the upper and lower sides of said discharge-neck, a pair of opposite flexible closure-plates hinged at their inner ends to the air-trunk at the inner end of the neck thereof and having their free ends loosely engaging with opposite inner sides of the stacking-tube, said closure-plates lying at opposite sides of said discharge-neck between the extension-plates of the stacking-tube, and means for laterally oscillating the stacking-tube on its pivot, substantially as set forth.



3. In a pneumatic straw-stacker, the combination of an inclined stacking-tube, an outer slidable sleeve-section working on the outer end portion of said tube and carrying at its inner lower edge an antifriction-roller, bearing against the under side of the inner section of the tube a windless-shaft supported transversely above the lower portion of the stacking-tube, a chain-wheel fitted on the windless-shaft intermediate its ends, a bearing-arm fitted at one end to the windless-shaft and extended outwardly and upwardly from the latter, said arm carrying at its opposite end above said sleeve-section an idler-pulley, an endless adjusting-chain working over said chain-wheel and idler-pulley and having its lower portion between the wheel and the pulley connected with said sleeve-section, a winding-spool fitted on the windless-shaft at one side of the chain-wheel, a single adjusting-cable fastened at one end to the sleeve-section and winding and unwinding at its other end on said spool, and a suitably-adjusted deflecting-hood pivotally mounted on the outer end of said slidable sleeve-section, substantially as set forth.

598,996. AIR-BRAKE. FRED A. FISH, Kingman, Me. Filed July 15, 1896. Serial No. 599,315. (No model.)



Claim.—In a brake for railway-cars, the combination of a brake-cylinder having a lug or shoulder upon the inner surface thereof provided with an L-shaped port whose lower end is concentric with said cylinder, connections between said port and the main supply-pipe or auxiliary reservoir for air under pressure, a rotary piston upon the inside of said cylinder, a shaft to which said piston is keyed or otherwise secured projecting out through the heads of said cylinder, a substantially circular coil-spring located on the inside of said cylinder for returning said piston to its normal position after it has been actuated, one end of said spring engaging the internal lug or shoulder on said cylinder, and the other end engaging the blade of said piston, and chains attached to the outer ends of said shafts and connected to the brake-shoes, substantially as and for the purpose described.

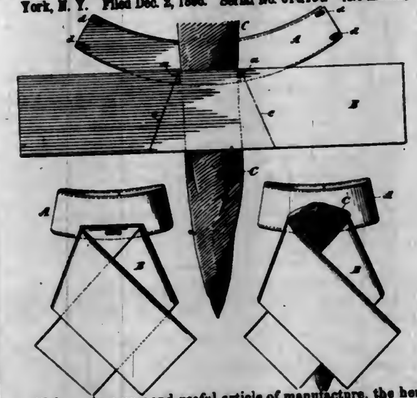
598,997. METHOD OF TRANSFERRING DESIGNS. WILLIAM B. FISH, Brooklyn, N. Y. Filed Oct. 7, 1896. Serial No. 608,156. (Specimens.)

Claim.—1. The process of producing transfer-prints, consisting in treating the paper containing the drawing or design, with a mixture of water and albumen, gelatin, or one of the mucilaginous gums, then washing the same in water, then treating it with a greasy ink, then washing it, and transferring the same to the stone, plate or printing-surface, substantially as described.

2. The process of producing transfer-prints, consisting in first printing or drawing on paper or fibrous film, with a permanent ink or coating of a light or white color which becomes hard when dry, then saturating the paper with a mixture of water and albumen, gelatin or one of the mucilaginous gums, then treating it with an unctuous ink, and then transferring it to the stone, plate, or printing-surface, substantially as described.

3. The herein-described process of producing transfer-prints which consists of first treating the sheet or film containing the drawing or design with a mixture of water and albumen, gelatin or one of the mucilaginous gums, then washing the same in water, then treating it with a greasy or printing ink, and then transferring the same to a stone, plate or printing-surface.

598,998. COLLAR AND CRAVAT. LOUIS FRANKENSTEIN, New York, N. Y. Filed Dec. 2, 1896. Serial No. 614,164. (No model.)



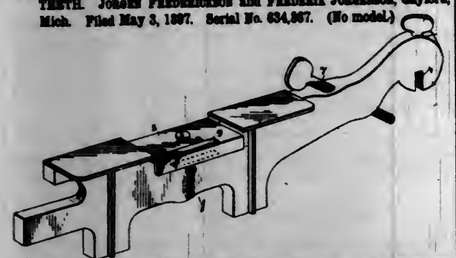
Claim.—As a new and useful article of manufacture, the herein-described combined collar and cravat structure, comprising the combination of an upright collar A, a band B secured by the middle of its upper edge to the middle of the lower edge of the collar at two points removed from each other so as to leave an opening *b* between the collar and band, and a scarf C passing through said opening between the collar and band B and around the said band B, and exposed in front of the upper portion of the said band B, whereby a combined collar and changeable cravat is produced, substantially as described.

598,999. BOTTLE. SIMON F. FRASER, West Albany, N. Y. Filed Oct. 21, 1896. Serial No. 609,541. (No model.)



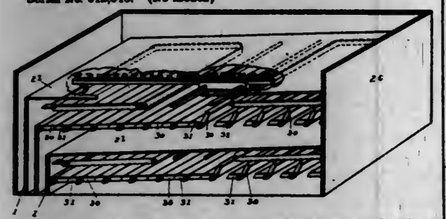
Claim.—The combination with a vessel having a tubular neck provided with an annular shoulder forming a valve-seat of a valve adapted to enter said seat, said valve having a central, curvilinear upward projection surrounded by an annular groove, the lateral curve of said groove being a continuation of the curved projection, and a guard-plate arranged above the valve, said guard-plate having an upwardly-curved, central portion having perforations or passages lying in lines radiating from the projection of the valve whereby an instrument passed through a perforation will strike upon the projection of the valve and at no other place.

594,000. DEVICE FOR SETTING, GAGING, AND JOINTING SAW-TEETH. JORGEN FREDERICKSON and FREDERIK JORGENSON, Gaylord, Mich. Filed May 3, 1897. Serial No. 634,867. (No model.)



Claim.—A device for setting, gaging and jointing saw-teeth, comprising a body portion formed with a head provided with a vertical slot and with a communicating vertical screw-threaded aperture, a screw working through said aperture into the slot and provided with a shoulder, a regulating-screw extending through the body portion at an angle thereto in close proximity to the slot in the head, a vertically-adjustable raker secured to the body portion, and a gage consisting of a series of laterally-projecting pins extending from the side of the body portion and arranged in different planes, substantially as set forth.

594,001. MEANS FOR KEEPING MESHES OF BOLTING-CLOTH CLEAN. FORREST G. GAUNTT, Fort Wayne, Ind. Filed Nov. 16, 1896. Serial No. 612,313. (No model.)



Claim.—1. The combination in a gyratory sieve of the sieve-frame 1; a pair of rectangular tracks rigidly suspended in said sieve-frame in parallel arrangement by proper supporting-brackets; a traveling cleaner-brush longitudinally arranged in said frame, slidably mounted upon said tracks and actuated in one continuous direction of travel in contact with the bolting-cloth, by the momentum of the sieve-frame; means for preventing a retrograde movement of the brush on said tracks; and means for maintaining said brush in parallel arrangement with the sides of said frame throughout its travel, all substantially as described.

2. The combination of the sieve-frame 1 having a bolting-cloth thereon; the horizontal rectangular tracks 2 and 3 rigidly suspended in said frame in parallel relation; a pair of transverse parallel guide-rods rigidly fixed in the sides of said frame intermediate the said tracks; a longitudinally-slotted guide-bracket slidably mounted on said guide-rods and adapted to maintain the cleaning-brush in parallel arrangement with the sides of said frame throughout its travel; a traveling cleaning-brush slidably mounted in said guide-bracket and on said supporting-tracks in contact with the sieve-cloth, and adapted to be actuated or driven in one continuous direction by the gyratory motion of the sieve-frame, and provided with means for preventing a retrograde movement thereof, all substantially as described.

3. The combination of the sieve-frame 1 having a bolting-cloth therein; a pair of rectangular tracks arranged in parallel relation and fixed in said frame as shown; the hangers 7 slidably mounted on said tracks and adapted for movement in but one direction thereon; a traveling cleaning-brush pivotally mounted on said hangers and adapted to be actuated or driven in one continuous direction on said tracks by the momentum or gyration of the said frame; and means for maintaining said brush in its normal position relative to the sides of the said frame throughout its travel, all substantially as described.

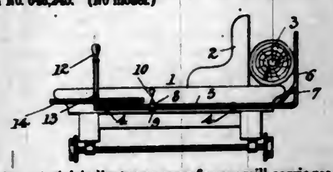
4. The combination of the sieve-frame 1 having a bolting-cloth 21 arranged therein; the tracks 2 and 3 suspended in said frame, as shown, and provided upon one edge thereof with a series of ratchet-teeth; the hangers 7 slidably mounted on said tracks and provided with the spring-detent 19 to engage said teeth under the conditions described; the parallel rods 5 arranged as shown in said frame; the two-part guide-bracket 6 slidably mounted on said rods and adapted to loosely contain the traveling brush for the purpose specified; and the traveling brush for freeing the meshes of the bolting-cloth slidably mounted in said guide-block and having its ends pivotally mounted on said hangers, and adapted to be actuated or driven continuously in one direction in its rectangular path on said tracks by the gyratory motion of the said containing-sieve frame, all substantially as described.

594,002. SELF-CLEANING COMB. WALTER L. GIBSON, Woodley, Fla., assignor of one-half to Fred W. White, Roseland, Fla. Filed Dec. 10, 1896. Serial No. 615,155. (No model.)



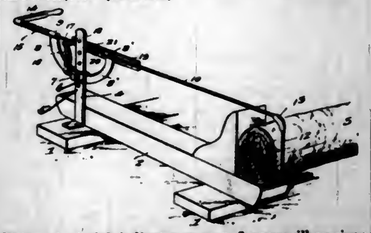
Claim.—A comb provided with solid integral end teeth 2 2 formed with longitudinal guide-grooves 2' 2' on their outer opposite edges, the lower ends of which are provided with integral ratchet-shaped teeth 3 3, and having recesses 6 6, located in said grooves near their upper ends and extending below the plane of the bottom edge of said grooves, in combination with the sliding sheath 4, having integral spring-fingers 7 7 formed on its outer ends and projecting into said guide-grooves, and adapted to alternately engage said teeth 3 and recesses 6, as and for the purpose set forth.

594,003. SLAB INDICATOR OR GAGE FOR SAWMILL-CARRIAGES. GEORGE GLASS, Port Huron, Mich. Filed July 28, 1897. Serial No. 646,245. (No model.)



Claim.—A slab indicator or gage for sawmill-carriages, comprising the carriage-bed, the pointer 10, guide-eyes 4 4 and the guide-rod 14, fixed to said bed in combination with the transverse sliding rod 5, having a longitudinal and a rotary movement in said guide-eyes and provided at its outer end with the gage-arm 6 and at its inner end with the lever-handle 12, formed with the clamp-offset 13, and the pointer 8, adjustably secured on the rod 5, substantially as and for the purpose set forth.

594,004. SLAB GAGE OR INDICATOR FOR SAWMILL-CARRIAGES. GEORGE GLASS, Port Huron, Mich. Filed Sept. 20, 1897. Serial No. 652,328. (No model.)

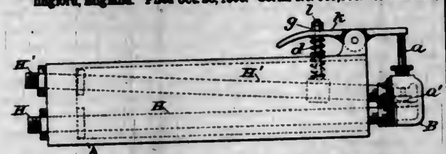


Claim.—1. A slab indicator or gage for sawmill-carriages, comprising the carriage-bed, the standard 4 fixed thereon, the cross-head 6 vertically adjustable thereon, and provided with the arms 8 8', the cylindrical rod 10 longitudinally and axially adjustable in said arms and terminating at its outer end in the gage-arm 12, and means as described for indicating the point of longitudinal adjustment of said rod, substantially as shown and described.

2. A slab indicator or gage for sawmill-carriages, comprising the carriage-bed, the standard 4 provided with the transverse orifices 5 5, the cross-head 6, vertically adjustable on said standard and provided with the arms 8 8' terminating in the alined sleeves 9 9', the spring-actuated pin 7 mounted in said cross-head and adapted to engage said orifices in the standard, the rod 10 journaled in and longitudinally adjustable in said sleeves and having its outer end terminating in a right-angular gage-arm 12, the handle 14 fixed on the opposite end of said rod, the spiral spring 15 encompassing said rod between the handle and the sleeve 9, the fixed plate 19 provided with the graduated scale, and the pointer 20 adjustably mounted on said rod and adapted to traverse said scale, substantially as shown and described.

3. A slab-indicator for sawmill-carriages, comprising the carriage-bed, the standard 4 provided with the transverse orifices 5 5, the cross-head 6, vertically-adjustable on said standard and provided with the arms 8 8' terminating in the alined sleeves 9 9', the spring-actuated pin 7 mounted in said cross-head and adapted to engage said orifices in the standard, the rod 10 journaled in and longitudinally adjustable in said sleeves and having its outer end terminating in a right-angular gage-arm 12, the handle 14 fixed on the opposite end of said rod, the spiral spring 15 encompassing said rod between the handle and the sleeve 9, the fixed plate 19 provided with the graduated scale, and the pointer 20 adjustably mounted on said shaft, and the spring-dog 16 fixed to said cross-head and having its free end terminating in the square jaws 17 17 adapted to engage said collar, substantially as shown and described.

594,005. AUTOMATIC STEAM-TRAP. WILLIAM T. GOOLD, Shillingford, England. Filed Oct. 20, 1896. Serial No. 609,306. (No model.)

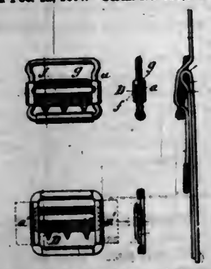


Claim.—1. The combination, substantially as described, in a steam-trap, of two connected tubes having different coefficients of expansion, and an outlet-valve the seat and valve-stem of which are both connected to said tubes and moved therein in the manner described so as to increase the clearance of the valve.

2. In an automatic steam-trap, the combination, substantially as described, of a hollow rod, tube or pipe as H, fastened at one end and connected at its opposite or free end to another similarly-mounted tube or rod so as to move at its free end by the torsional effects due to differences of temperature between the two rods, an outlet-valve carried by said tube or pipe, and a lever bearing at one end on the valve-stem and at its other upon a spring supported upon said tube.

3. In an automatic steam-trap a pair of tubes fixed at one end and having different coefficients of expansion, a head or coupling in which said tubes are joined at the opposite end, a valve in said coupling, a lever *k* bearing on the valve-stem, a spring *d* and rod *l* connected with said tubes all arranged and operated as and for the purpose set forth.

594,006. GARMENT-SUPPORTER. ROBERT GORTON, Newton, Mass. Filed Feb. 12, 1897. Serial No. 623,158. (No model.)



Claim.—1. A slide-bar buckle consisting of a frame having upper and lower cross-bars and side bars connecting them, a bar attached to the side bars of the frame adapted to slide thereon and provided with spurs or teeth on its lower edge, and with means for the attachment of a webbing, in combination with webbing extending through the frame between the upper and lower cross-bars thereof, and the opposite edges of the slide-bar, and around the spurs and another web attached to the slide-bar and extending downwardly therefrom.

2. A slide-bar buckle consisting of a frame having upper and lower cross-bars and side bars connecting them, and a bar attached to the side bars of the frame adapted to slide thereon, provided with spurs or teeth on its lower edge, and with means for attaching a webbing, in combination with webbing extending through the frame between the upper and lower cross-bars thereof and the opposite edges of the slide-bar, and around the spurs and another web attached to the slide-bar and adapted to exert a downward pull thereon to cause the spurs or teeth to engage the first-mentioned webbing.

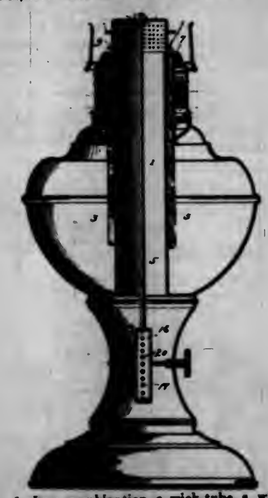
3. A slide-bar buckle consisting of a frame having upper and lower cross-bars and side bars connecting them, a slotted toothed bar attached to the side bars of the frame and adapted to slide thereon, in combination with a web extending through the frame between the upper and lower cross-bars and the opposite edges of the slide bar, and around the spurs and another web extending through the slot of the slide bar and over the upper edge thereof and adapted to exert a downward pull thereon to cause the spurs to engage the first-mentioned webbing.

4. A buckle consisting of an open frame narrower both inside and outside at its central portion than at its upper and lower ends, and a bar mounted to slide on the central portion of the frame without abutting against the upper cross-bar thereof, whereby relatively wide slots (the upper one of which is always unobstructed) are provided at the ends of the frame to permit the insertion of a relatively wide webbing that covers or partially covers and conceals the side bars of the frame in combination with webbing extending through said slots.

5. A slide-bar buckle consisting of an open rectangular frame formed of a bent length of wire and having the sides set in to form guides for a slide-bar and to provide widened openings for the webbing at the top and bottom of the frame, and a central portion which is narrower both inside and outside than the upper and lower ends of the frame, and a slide-bar struck up from sheet metal with its ends curled around the sides of the frame formed with a slot and having projecting spurs or teeth on its lower edge in combination with webbing extending through the slots or openings above and below the slide-bar and other webbing extending through the slot in the slide-bar.

6. A slide-bar buckle consisting of an open rectangular frame formed of a bent length of wire, and a slide-bar struck up from sheet metal with its ends curled around the sides of the frame formed with a slot and having the curled-over edges of the metal cut away opposite the ends of the slot in combination with webbing extending through to the rectangular frame and other webbing extending through the slot of the slide-bar.

594,007. LAMP-BURNER. JOSEPH GREGORY, New York, N. Y. Filed Dec. 11, 1896. Serial No. 615,342. (No model.)



Claim.—1. In a combination, a wick-tube, a wick, a spreader provided with teeth inclining upwardly and outwardly and adapted to engage directly with the wick upon elevating the spreader and to disengage from the wick when lowering the spreader, and actuating mechanism for the spreader for raising and lowering it, substantially in the manner set forth.

2. In combination, a wick-tube, a spreader having a series of spring-teeth to engage directly with the wick upon elevating the spreader and to move inward out of engagement with the wick upon lowering the spreader, and means for moving the spreader, substantially as set forth.

3. In a lamp-burner, a wick-tube, a spreader slidably mounted with respect to the wick-tube and provided with means for engaging directly with the wick on ascending and automatically releasing the wick when descending, and actuating mechanism for raising and lowering the spreader, substantially as specified.

4. In combination, a wick-tube, a spreader composed of an upper and a lower part, the latter having a centrally-apertured cross-piece

and the former having its top formed with a central opening in coincident relation with the opening of the aforesaid cross-piece, both openings being provided with notches, and an operating-rod detachably connecting the parts having a shoulder to engage with the lower side of the aforesaid cross-piece, and having lateral wings at its upper end to pass through the notched openings of the cross piece and top, substantially in the manner set forth for the purpose described.

5. In combination, a wick-tube, a spreader, an operating-rod connected with the spreader and having a loop, one member of the loop being longitudinally slotted and the opposite member having a series of openings, a shaft, and a pinion mounted upon the shaft and having its toothed portion adapted to act jointly with the apertured member of the said loop, and having its opposite portion operating in the slotted member of the said loop, substantially as specified.

6. In combination, a wick-tube, a wick, a spreader provided with teeth and lateral projections, and actuating mechanism for raising and lowering the spreader, substantially as and for the purpose set forth.

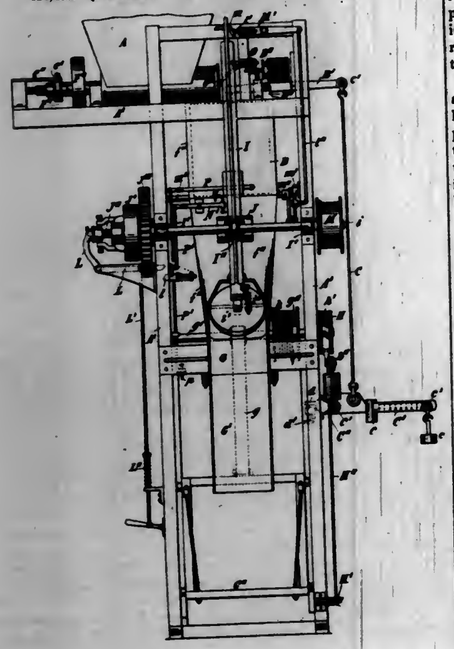
7. In combination, a wick-tube, a spreader having the wick fitted thereto, a rod having connection with the spreader, a loop applied to the said rod and formed with a series of openings, and a wick-raising shaft passing through the said loop and having a pinion to engage with the openings thereof, substantially as shown for the purpose specified.

8. A spreader for lamp-burners comprising an upper perforate part and a portion provided with means for engaging with and holding the wick, the two parts being connected to move together, substantially as and for the purpose set forth.

9. A spreader for lamp-burners composed of separable parts, the upper part being perforate, and the lower part being supplied with means to engage with and hold the wick, and means for positively connecting the two parts to cause them to move together and prevent their separation except at the will of the user, substantially as set forth.

10. In a lamp-burner, the combination with a central-draft wick-tube, and wick-raising means comprising a rod, of a spreader slidably mounted with respect to the wick-tube and comprising separable parts, the upper part being perforate and having an annular offset, forming an extinguisher, and the lower part provided with teeth to engage with the wick, and means for securing the two parts of the spreader to the rod of the wick-raising means, whereby the parts of the spreader and the wick are moved in unison, substantially as set forth.

594,008. AUTOMATIC WEIGHING AND PACKING MACHINE. EDWARD HANAK, Sacramento, Cal. Filed Mar. 15, 1897. Serial No. 627,499. (No model.)



Claim.—1. In a weighing and packing machine the combination of the following instrumentalities arranged for operation in substantially the manner described, a hopper, a weighing-bucket into which the material is delivered, a feed or delivery controlling mechanism, dependent for its operation in shutting off the feed upon the preponderating movement of the weighing-bucket, a receiver into which the contents of the bucket discharge, a plunger movable through said receiver, a movable platform for supporting and moving the receptacles for containing the material into position to receive the charges of said material from the receiver, means for discharging the contents of the bucket actuated by the platform at a predetermined point in its upward movement, and mechanism for refilling the bucket comprising means for restoring the weighing-bucket to condition to retain a charge, and means for starting the feed-delivery mechanism in operation, both of said means being actuated by the engagement therewith of the plunger at given points in its movement, as set forth.

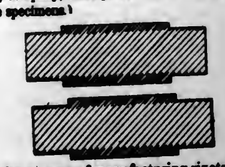
2. In a weighing and packing machine the combination with feed-controlling devices, a weighing-bucket, and means dependent upon the preponderating movement of the weighing-bucket to arrest the feed of material to the same, of a chute through which the bucket discharges its contents into a receptacle placed to receive them, a plunger for packing the material in said receptacle, and mechanism for refilling the bucket comprising means for restoring the weighing-bucket to condition to retain a charge, and means for starting the feed-delivery mechanism in operation, both of said means being actuated by the engagement therewith of the plunger at given points in its movement, as set forth.

3 The combination in a weighing and packing machine with a feed mechanism, a weighing-bucket and means for arresting the feed, controlled by the preponderating movement of the bucket, of a receiver into which the bucket is caused to discharge, a plunger adapted to pass through the receiver, a source of power, and gearing for impelling the plunger forward, means for throwing the plunger out of gear with the power, operated by the movement of the plunger itself to a predetermined point, a device such as a drum and weighted cord for restoring the plunger to its initial position, and mechanism for refilling the bucket comprising means for restoring the weighing-bucket to condition to retain a charge, and means for starting the feed-delivery mechanism in operation, both of said means being actuated by the engagement therewith of the plunger at given points in its movement, as set forth.

4. The combination with the hopper having an orifice through which the material passes, an automatic trap or plate for closing said orifice, a locking device for holding the same open, a weighing-bucket into which the material discharges, an electromagnetic tripping device for releasing the trap, in a circuit closed by the bucket when lowered by a given weight of material, a power-impelled plunger for packing in a receptacle the contents of the bucket when discharged into such receptacle, and mechanism for reopening the trap and refilling the bucket actuated by the plunger at a given point in its travel, as set forth.

5. In a weighing and packing machine, the combination with an automatic weighing-bucket, having a hinged bottom, and a spring-latch for holding the same closed, of a power-impelled plunger for packing the contents of the bucket when discharged into a receptacle, means for tripping the latch and emptying the bucket of its contents, and a system of levers shifted by the plunger at a given point in its movement and operating to close and latch the bottom of the bucket, as set forth.

594,009. MANUFACTURE OF BICYCLE-CHAINS. HUMPHREY HARRINGTON, Indianapolis, Ind., assignor to the Indianapolis Chain and Stamping Company, same place. Filed Jan. 14, 1897. Serial No. 619,152. (No specimens.)



Claim.—In the process of manufacturing rivets for pitch-chains, first carbonizing mildly a considerable depth on the whole surface of iron or low-steel wire, next machining by turning down the reduced necks and cutting off the rivets, third carbonizing highly a thin coating over the entire surfaces of the fully-shaped rivets, and fourth hardening by sudden cooling from a red heat, all substantially as herein specified.

594,010. BICYCLE-CHAIN. HUMPHREY HARRINGTON, Indianapolis, Ind., assignor to the Indianapolis Chain and Stamping Company, same place. Filed Mar. 8, 1897. Serial No. 626,433. (No model.)

Claim.—A rivet for bicycle-chains, having a body and reduced ends, and composed of a core of rivetable metal extending through the ends and body, a very hard surface layer over the body and ends, and a layer of intermediate hardness on the body between said core and surface layer, said intermediate layer being absent wholly or in large part from the reduced ends of the rivet, substantially as described.

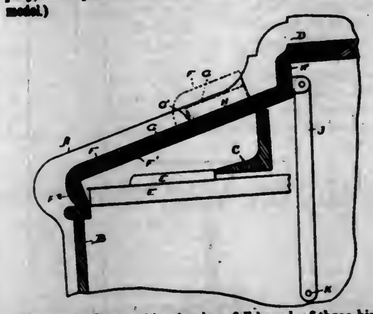


594,011. NON-REFILLABLE BOTTLE. HARRY HAYES, Ogden, Utah. Filed Feb. 10, 1897. Serial No. 622,845. (No model.)



Claim.—A bottle provided with a plain neck and cylindrical mouth, a conical valve-seat below the neck, in the body of the bottle, a valve 9, 10 of double frusto-conical form in the seat, and a guard above the valve in the neck of the bottle, said guard consisting of a perforated diaphragm 12, and depending spring-arms 13, with laterally-extending terminals fitting in the groove 4, at the junction of the neck and body of the bottle, substantially as described.

594,012. FALL-BOARD FOR MUSICAL INSTRUMENTS. FREDERICK W. HEDGELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed Sept. 17, 1897. Serial No. 652,080. (No model.)



Claim.—1. The combination in a fall-board, of three hinged sections F, G and H, the front section having an extension adapted to cover the edges of the other two sections when folded, substantially as specified.

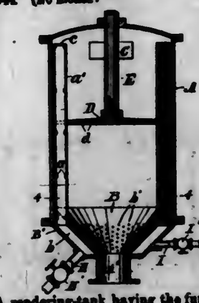
2. The combination with an instrument having a recess in its front adapted to receive the folded fall-board, of a fall-board composed of three hinged sections F, G and H, substantially as specified.

3. The combination with an instrument having a recess in its front adapted to receive the folded fall-board, of a hinged fall-board composed of three hinged sections F, G and H and swinging levers J attached to the inner section, substantially as specified.

4. The combination in a fall-board of three hinged sections F, G and H adapted to fold together, as set forth, said section F having a downward extension F^3, and said section H having an upward extension H', substantially as specified.

5. The combination of an inner section H supported by swinging levers within the case, an intermediate section G hinged at its top to section H, and a front section hinged to section G at its under surface, with a musical instrument having a recess adapted to receive said sections when folded one upon the other, substantially as specified.

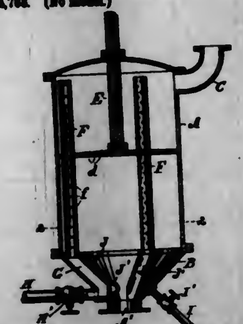
594,013. RENDERING APPARATUS. EMIL HOLTHAUS, Canarsie, N. Y., assignor to Cyrus C. Currier, Newark, N. J. Filed July 13, 1896. Serial No. 598,944. (No model.)



Claim.—1. A rendering-tank having the funnel B at the bottom with outlet A' at the center, the funnel being perforated and surrounded with an annular jacket B' forming the annular passage *b*, perforated stand-pipes projected upward at the sides of the tank from the annular passage *b*, the pipe H provided with cock H' for drawing liquid from the passage *b*, and the pipe I provided with cock I' for admitting steam to the passage *b*, the whole being arranged and operated, when the material is placed in the funnel between the stand-pipes, to admit steam through the perforations of the funnel and stand-pipes to cook the material, and when the material is cooked, to drain the water from the material through the same perforations, substantially as herein set forth.

2. The combination, with a cylindrical rendering-tank, of stand-pipes extended vertically within such tank, and provided at the bottom with steam and water connections, as set forth, the stand-pipes being formed each of integral rings and a series of screen-bars formed of parallel staves secured vertically upon said rings with narrow intervening spaces adapted to strain the liquid from the material when the material is pressed thereon, substantially as herein set forth.

594,014. RENDERING APPARATUS. EMIL HOLTHAUS, Canarsie, N. Y., assignor to Cyrus C. Currier, Summit, N. J. Filed July 16, 1897. Serial No. 644,768. (No model.)

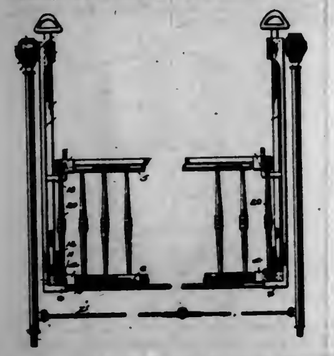


Claim.—1. A rendering-tank having the funnel B at the bottom with outlet A' at the center, and formed upon its sloping sides with the independent passages G provided each with outlet-pipe H, and the series of perforated stand-pipes extended vertically along the walls of the tank and connected each with one of the passages G, the material to be rendered filling the tank between the stand-pipes, and the fluid being strained and drawn from the material through the perforations in the stand-pipes, to the passages G and outlet-pipes H, substantially as herein set forth.

2. A rendering-tank having the funnel B at the bottom with outlet A' at the center, and formed upon its sloping sides with the independent passages G provided each with outlet-pipe H, the series of perforated stand-pipes connected each with one of the passages G, and the steam-inlet pipes I inserted through the sides of the funnel and covered each with the perforated pipes or strainers J', the

whole being arranged and operated when the material is placed in the funnel, and between the stand-pipes, to introduce the steam to the material through the strainers J' during the cooking operation, substantially as herein set forth.

594,015. FOLDING CRADLE. HOWARD H. HOMER, Franklin, Me. Filed Apr. 15, 1897. Serial No. 632,310. (No model.)



Claim.—1. In combination, the end plates, the divided end pieces pivotally connected at their inner ends, the side pieces journaled in the outer ends of the end pieces, the braces extending between the same and the side pieces 3, extending between the upper end pieces and rigidly held therein, substantially as described.

2. In combination, the end plates, the divided upper and lower end pieces, the inner end of the lower end pieces being pivotally connected to said end plates, the inner ends of the divided upper end pieces being also pivotally supported, the guide carried by said end plates, the operating-arm shiftable in said guide and the supporting means, substantially as described.

3. In combination, the end plates, the pivotally-supported upper and lower divided end pieces, the ledge extending inwardly from the end plates and forming seats for the lower end pieces, and the supporting means, substantially as described.

4. In combination, the end plates, the pivotally-supported upper and lower divided end pieces, the guide carried by said end pieces, the arm movable therein having a forked end the prongs of said fork being pivotally secured to operate said lower end pieces, and the supporting means, substantially as described.

5. In combination, the end plates, the pivoted divided end pieces, the side pieces journaled in the outer ends of said end pieces and extending between the same, the vertically-guided operating-arm having a forked end the prongs of which are pivotally connected to operate each of the members of one of said divided end pieces, the rigid brace connecting the upper and lower side pieces, and the braces extending between the upper and lower end pieces, said braces being pivotally connected at their opposite ends thereto, substantially as described.

6. In combination, the end plates, the pivoted end pieces, the side pieces, the journals extending outwardly from the upper end of said outer end plates, the leg pivoted on said journals and the means carried by one of said legs and extending over said journals concentric-thereto and the head of the opposite leg adapted to project into the path of the latter leg to limit the spreading thereof, substantially as described.

7. In combination, the body including the end plates, the stud extending outwardly therefrom, the circular head journaled thereon, the hollow section carried by said head, the section adapted to telescope therewith, the hooked head surrounding the circular head, the shoulder, and the means for retaining said heads together and the telescopic section carried by the second head, substantially as described.

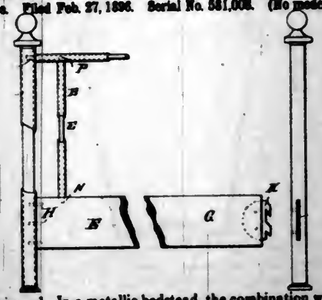
8. In combination, the body, the pair of legs pivoted at each end thereof, and the braces connecting the members of one pair with the member of the opposite pair, said braces having lower intermediate portion with diagonal straight extensions, said extensions crossing and being pivotally connected together, substantially as described.

9. In combination, the body comprising the outer end plates, the divided end pieces, the rigid vertical end braces, and the pivoted end braces arranged on each side of the rigid braces substantially as described.

10. In combination, the body comprising the outer end plates having ledges, the horizontal flanged plates secured thereto, the second flanged plates arranged above the first, the supplemental pieces having the segmental ends, the rigid braces extending between said flanged plates, the upper and lower divided end pieces, the segmental end of the supplemental pieces being pivoted to the flanges of the first plates, and the adjacent ends of the upper end pieces being pivotally connected to the flanges of the second plates, the vertical braces extending between said flanged plates and rigidly fixed therein, the vertical braces extending between the upper and lower end pieces and pivotally connected therein, and the side pieces and braces.

11. In combination, the body comprising the outer end plates having ledges, the horizontal flanged plates secured thereto, the second flanged plates arranged above the first, the supplemental pieces having the segmental ends, the rigid braces extending between said flanged plates, the upper and lower divided end pieces, the segmental end of the supplemental pieces being pivoted to the flanges of the first plates, and the adjacent ends of the upper end pieces being pivotally connected to the flanges of the second plates, the vertical braces extending between said flanged plates and rigidly fixed therein, the vertical braces extending between the upper and lower end pieces and pivotally connected therein, the vertically-movable arm having a forked end, the prongs thereof being pivotally secured to said supplemental pieces and the side pieces and braces.

594,016. METALLIC BEDSTEAD. ALEXANDER W. HOMPE, Grand Rapids, Mich., assignor to the Royal Furniture Company, same place. Filed Feb. 27, 1896. Serial No. 581,008. (No model.)



Claim.—1. In a metallic bedstead, the combination with tubular end posts having wood fillings, of side rails having hooks projecting into the wood fillings, and metal connecting-tubes between the posts at the ends of the bedstead having engagement with the post, and provided with wood fillings which project beyond the tubes into the wood fillings of the post, substantially as described.

2. A metal bedstead comprising end sections formed with tubular posts having wood fillings, and connecting metal tubes between the posts having engagement therewith, and provided with wood fillings which project beyond the ends of the tubes into the wood fillings of the posts, substantially as described.

3. In a metallic bedstead, the combination with metal posts each having wood fillings, of side rails, tubular metallic top end pieces having engagement with the posts, and provided with wood fillings which project into the wood fillings of the post, broad wood end rails having doweled connection with the wood filling of the post, and spindles consisting of metal tubes having wood fillings, substantially as described.

594,017. CASTER. DAVID HUNT, Boston, Mass. Filed Sept. 18, 1896. Serial No. 606,192. (No model.)

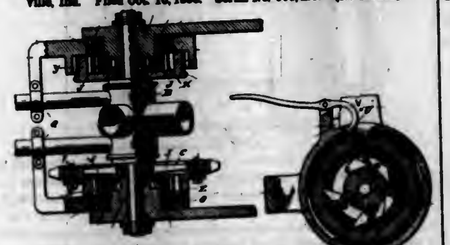


Claim.—1. In a caster, the roller *b* having journals *b'*, the bearing-block therefor having recesses for said journals, the base-plate *a* adapted to be secured to an article, and ferrule *d* loosely embracing and supporting said bearing-block and secured to said base-plate, substantially as described.

2. In a caster, a roller having journals, a bearing-block, a base-plate, grooves formed in the adjacent faces of said bearing-block and base-plate and a set of balls contained therein, and a ferrule for holding said parts assembled, substantially as described.

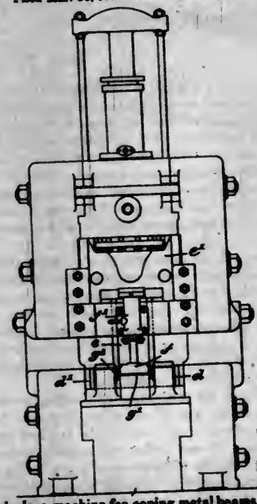
3. In a caster, a roller having journals, a separable bearing-block the parts of which are formed with recesses, balls contained therein surrounding the journals of the roller, a base-plate and a ferrule for holding the parts of said bearing-block assembled and connecting them with the base-plate, substantially as described.

594,018. BRAKE FOR BICYCLES. JAMES W. JACOBS, Jeffersonville, Ind. Filed Oct. 10, 1896. Serial No. 608,498. (No model.)



Claim.—In combination with a bicycle, a bracket secured to the frame, and running parallel therewith, a shaft journaled in the crank-hanger and extending through the bracket, a drum rigidly secured on the shaft and fitting against the bracket, an annular flange formed on the bracket inclosing the drum, a lever pivoted to ears on the flange one end extending through an opening in the flange, a flexible band running around the drum and secured at one end to the lever and at the other to the bracket, a flange formed around the inner edge of the drum to retain the flexible band thereon, substantially as described.

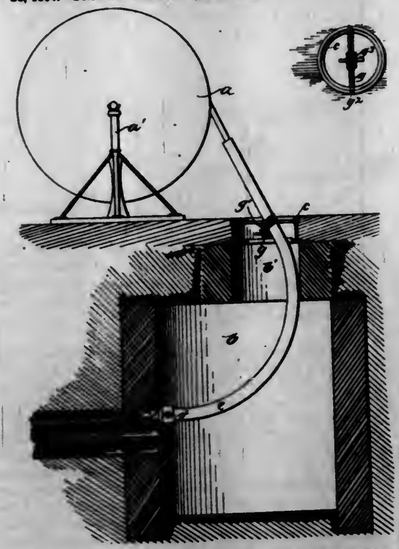
594,019. HYDRAULIC COPING OR SHEARING MACHINE. REUBEN A. W. JEFFERIES, Philadelphia, Pa., assignor to Walter Wood, same place. Filed Mar. 30, 1897. Serial No. 629,894. (No model.)



Claim.—1. In a machine for coping metal beams, a bed supporting an anvil having an opening provided with sharp edges, a block provided with an opening having sharp edges, said block adapted to be shifted inward toward the center of said anvil and outward therefrom, a tool or die consisting of a blade having flanges, and a recessed cutting-face in width corresponding to the web to remain upon the beam to be cut, and a clamping-block adapted to approach and recede from said anvil, the construction being such that said blade is adapted to shear the web of the beam by passing vertically through the same and the flanges to sever the flange of the beam by a transverse action at one and the same operation, substantially as and for the purposes described.

2. In a machine for coping metal beams, a bed supporting an anvil having an opening provided with sharp edges, a horizontal block provided with an opening having sharp edges, said block adapted to be shifted inward toward the center of said anvil and outward therefrom by means controlled by a piston or ram, a tool or die adapted to slide vertically toward or away from said anvil and consisting of a blade having tapering or beveled flanges at right angles thereto and a cutting-face of a width corresponding to the width of the web to remain upon the beam to be cut, and a clamping-block adapted to slide vertically within said flanges and to approach or recede from said anvil, substantially as and for the purposes described.

594,020. APPARATUS FOR FEEDING CABLES INTO UNDERGROUND CONDUITS. WILLIAM H. JOHNSTON, St. Louis, Mo., assignor to the Bell Telephone Company of Missouri, same place. Filed July 26, 1897. Serial No. 645,211. (No model.)



Claim.—1. In an apparatus for feeding cables into underground conduits, the combination with a curved tubular guide through which the cable may be passed and adapted for insertion within the manhole, of means for bringing an end of said guide into communication with a duct communicating with the manhole, through which duct the cable is to be threaded, and means for securing the curved tubular guide in position at the manhole-opening, said means permitting the sidewise movement of the guide by the cable as it is unwound, whereby the guide is maintained in alinement with the unwinding cable, substantially as described.

2. In an apparatus for feeding cables into underground conduits, the combination with a flexible tubular guide for the cable constructed to flex only into comparatively large curves, and adapted for insertion within the manhole, of a nozzle provided upon one end of said guide for affording communication between the tubular guide and the duct communicating with the manhole, through which duct the cable is to be threaded, and means for securing the tubular guide in position at the manhole-opening, said means permitting the sidewise movement of the guide by the cable as it is unwound, whereby the guide is maintained in alinement with the unwinding cable, substantially as described.

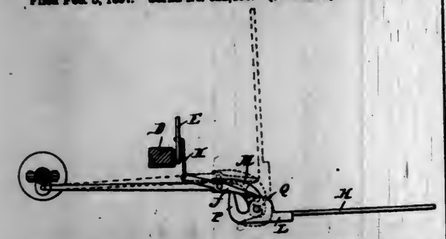
3. In an apparatus for feeding cables into underground conduits, the combination with a flexible tubular guide for the cable constructed to flex only into comparatively large curves, and adapted for insertion within the manhole, of a nozzle provided upon one end of said guide for affording communication between the tubular guide and the duct communicating with the manhole, through which duct the cable is to be threaded, and a jack-bar adapted to be secured at the manhole-opening to support the upper portion of the tubular guide whereby the position of the tubular guide is fixed relative to the manhole-opening, substantially as described.

4. In an apparatus for feeding cables into underground conduits, the combination with a curved tubular guide for the cable adapted for insertion within the manhole, of a nozzle provided upon one end of said guide for affording communication between the tubular guide and the duct communicating with the manhole through which duct the cable is to be threaded, and a jack-bar adapted to be secured at the manhole-opening to support the upper portion of the guide, the guide being capable of movement sidewise upon the jack-bar whereby it is preserved in alinement with the cable as it is uncoiled, substantially as described.

5. In an apparatus for feeding cables into underground conduits,

the combination with a curved guide at the manhole for directing the cable into a duct of the conduit, of means for securing the curved guide in position at the manhole-opening, said means permitting the sidewise movement of the guide by the cable as it is unwound, whereby the guide is maintained in alinement with the unwinding cable, substantially as described.

594,021. MOWING-MACHINE. MAURICE KANE, Austin, Ill.
Filed Feb. 5, 1897. Serial No. 622,199. (No model.)



Claim.—1. In a mowing-machine, a finger-bar, means for raising and lowering said bar, and a counterbalance in combination with means for compensating for the lowering of the inner end of said bar when the outer end thereof is raised or folded to an upright position independently of the said raising and lowering means, as and for the purpose set forth.

2. In a mowing-machine, a finger-bar, and means for raising and lowering the same, in combination with means whereby the raising of the outer end of said bar to folded or upright position and independently of the said raising and lowering means, also effects a raising of the inner end of said bar, as and for the purpose set forth.

3. In a mowing-machine, a finger-bar, a bell-crank lever, and a gag-lever connection between said bar and bell-crank, and means whereby the raising of the outer end of said bar to an upright position and independently of the said raising and lowering means, effects a raising of the inner end of said bar, as and for the purpose set forth.

4. In a mowing-machine, a finger-bar having a heel projection and a cam-surface, a bell-crank lever, connections between said bar and bell-crank lever, including a gag-lever, said gag-lever arranged to engage and bear on said heel projection when said bar is in its normal working position, the end of said gag-lever being arranged to engage said cam-surface when the outer end of said bar is raised independently of said bell-crank lever, as and for the purpose set forth.

5. In a mowing-machine, a finger-bar, pivotally mounted and provided with a cam-surface and means arranged to be engaged by said cam-surface when the outer end of said bar is raised to an upright position, for raising the inner end of said bar, as and for the purpose set forth.

6. In a mowing-machine, a finger-bar, pivotally mounted and provided with a surface eccentric with reference to the axis of the pivot of said bar, and means arranged to be engaged by such eccentric surface when the outer end of said bar is raised to an upright position, for preventing the inner end of such bar from being lowered, as and for the purpose set forth.

7. In a mowing-machine, a frame, a bell-crank lever pivotally mounted thereon, a foot-lever for rocking the same, and a counterbalancing-spring connected at one end to said frame and at the other to said bell-crank lever, in combination with a bracket, a shoe pivotally mounted thereon and provided with a heel projection, a finger-bar mounted at one end on said shoe, a gag-lever pivotally mounted intermediate its ends upon said bracket, a link pivotally connected at one end to said bell-crank lever and at the other end to one end of said gag-lever, the other end of said gag-lever arranged to bear on said heel projection when said bar is in its normal working position, and a cam-surface formed on said shoe and arranged to engage the free end of said gag-lever when the outer end of said bar is raised by means other than said bell-crank lever, as and for the purpose set forth.

594,022. FREIGHT-CAR. LEMUEL C. KENDALL, Boston, Mass., assignor of one-half to Charles L. Young, Springfield, Mass. Filed Dec. 15, 1896. Serial No. 615,742. (No model.)

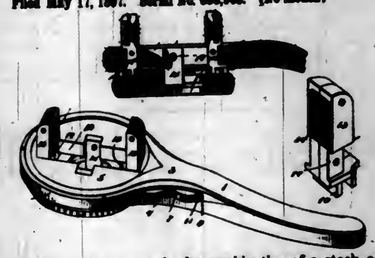
Claim.—1. In a grain-car, the combination with a cylindrical car-body, of flanges extending thereabout adapted to roll upon a track, and inflatable means contained in said car and secured along one end thereof whereby the space unoccupied by grain may be filled, and a safety-valve operatively connected with said inflatable means.

2. In a grain-car, the combination with a cylindrical car-body, having flanges mounted thereon and extending thereabout, of an air-tight bag of flexible material contained within the car body and means whereby the same may be automatically inflated with air.



3. In the herein-described freight-car, the combination with a cylindrical body having a flexible receptacle therein and means for automatically inflating the same, a wheel comprising a grooved trough of annular form carried upon said car, an annular flange fitting within said trough provided with complementary grooves, and balls within said grooves constituting a ball-bearing adapted to permit the rotation of the flange relative to the trough.

594,023. WRENCH. LOUIS G. KRUEGER, Wrightstown, Wis. Filed May 17, 1897. Serial No. 636,963. (No model.)



Claim.—1. In a wrench, the combination of a stock or shank provided with a head or casing, a ratchet-wheel mounted in the head or casing and provided with nut-engaging devices, a pair of oppositely-disposed pawls adapted to engage the ratchet-wheel alternately and pivoted between their ends, and a transversely-disposed catch centrally fixed to the shank and provided with resilient arms extending from opposite sides of the shank and having heads or shoulders adapted to engage the inner ends of the pawls alternately to lock one of them out of engagement with the ratchet-wheel, substantially as described.

2. In a wrench, the combination of a stock or shank provided with a head or casing, a rotary ratchet-wheel journaled in the casing or head and provided with suitable ways, sliding jaws mounted in said ways, L-shaped arms extending from one of the faces of the ratchet-wheel, and an adjusting-wheel having a spiral flange to engage and operate the jaws and having an internal groove interlocked with the said arms, whereby the adjusting-wheel is rotatively mounted on the ratchet-wheel, substantially as described.

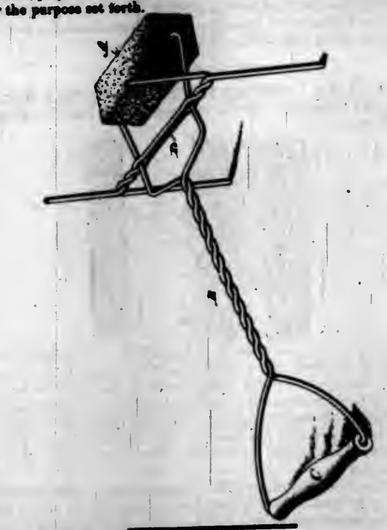
3. In a wrench, the combination of a sliding jaw having a socket beveled at the mouth thereof, and a gripping-plate beveled at the inner face to conform to the bevel of the jaw and provided with a shank arranged in the said socket, substantially as described.

4. In a wrench, the combination of a jaw having a socket beveled at the mouth thereof, a beveled gripping-plate fitting in the beveled mouth of the socket and provided with a shank having a limited movement in the socket, and a spring connecting the gripping-plate with the jaw and adapted to return the former to its initial position when the strain is removed, substantially as described.

594,024. FIRE-KINDLER. ERWIN LAHR, Johnstown, Pa., assignor of three-fourths to Thomas J. Pearl, same place. Filed Jan 27, 1897. Serial No. 620,961. (No model.)

Claim.—1. An improved fire-kindler consisting of a wire frame, a handle carried by one end thereof, and a porous block engaged by the other end, together with an intermediate fulcrum or support having rests of different lengths on opposite sides of the frame, substantially as shown.

2. In a fire-kindler, the combination with a frame B, made up of a single piece of wire bent upon itself to carry a handle C, at one end, and engage with a porous block at the other end, of a support or rest D, made up of two pieces which engage with each other and with the diverging end members of the frame, the terminals of the wires D, projecting in opposite directions, substantially as shown and for the purpose set forth.

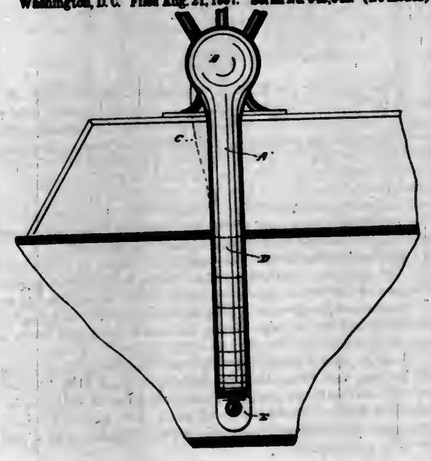


594,025. CURRYCOMB. ROBERT J. LEE, Oklahoma, Okla. Filed May 15, 1897. Serial No. 636,670. (No model.)



Claim.—A self-cleaning currycomb, comprising the currycomb proper, a cleaning attachment in the form of a rectangular frame pivoted to the comb and provided with a series of substantially U-shaped bars or plates, which fit between the sets of teeth of the comb and are provided with rounded ends which bridge one or more teeth of each row, and with recesses whereby the remaining teeth are fully exposed, and a spring holding said cleaning attachment yieldingly against the under side of the comb, substantially as and for the purpose described.

594,026. BOW-NUT COVER FOR VEHICLES. SAMUEL LLOYD, Washington, D. C. Filed Aug. 21, 1897. Serial No. 649,042. (No model.)



Claim.—1. A bow-nut cover consisting in the body D, head E, and tip E, substantially as shown.

2. A bow-nut cover consisting in the body D, head E, and lip C, substantially as shown.

594,027. COMBINATION BABY-CARRIAGE AND CHAIR. ALBERT H. LOUIS, Rochester, N. Y. Filed Feb. 2, 1897. Renewed Oct. 26, 1897. Serial No. 656,420. (No model.)



Claim.—1. In combination, a body, consisting of two sides, a sectional bottom hinged thereto and a head and foot board hinged to the sides, and wheels journaled upon studs projecting from the sides, as specified.

2. A collapsible carriage, consisting of a bottom composed of two sides, a sectional bottom hinged thereto, a head and foot board also hinged thereto and a seat hinged to one of the sides, means for securing the several parts in adjustment, studs projecting from the sides of the body, and wheels journaled upon said studs, as specified.

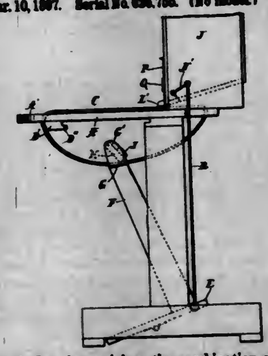
3. The herein-described combination of the sides, a bottom hinged thereto, said bottom composed of two sections hinged together, a head and foot board hinged to the sides, means for securing the several parts in their adjusted positions, a seat hinged to one of the sides and adapted to be supported by the opposite side when in place, studs projecting from the sides, wheels journaled upon said studs, handle-bars adjustably secured to the sides, and a cross-bar for connecting the two handle-bars when in position, substantially as and for the purpose set forth.

4. In combination with the body of a collapsible carriage of the character described, two plates hinged to the bottom of said body, and a strap or other means for supporting said plates in their adjusted position whereby a high chair is provided, as specified.

5. In combination with the body of a collapsible carriage of the character described, a block fitted to slide within guideways carried by said body, a rod connected with said block and passing through a bridge, a spring coiled about said rod between said block and bridge, and a cam pivoted upon the upper end of the rod and adapted to lock the wheel against rotation, as specified.

6. The herein-described combination of a block fitted to slide within suitable guideways carried by the body of the carriage, a wheel journaled upon said block, a rod attached to the block and extending upward through a bridge, a spring coiled about said rod, a cam pivoted upon the outer end of the rod, and a thumb-nut for holding said cam in any adjustment whereby the wheel is prevented from rotation, as specified.

594,028. BEAN-PICKING MACHINE. MARCELLUS A. LOHR, Charlotte, Mich., assignor of one-half to William Wildt, same place. Filed Mar. 10, 1897. Serial No. 626,755. (No model.)



Claim.—1. In a bean-picker, the combination of the belt, slack in its under part, the vibratory arm having a clamp which engages

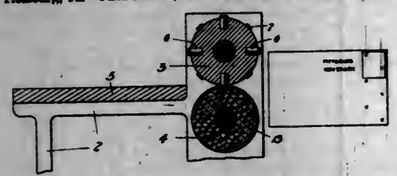
the slack part of the belt while moving in one direction and releases it when moved in the other direction, and a table over which said belt moves, said table having rounded ends which form stationary supports for the belt and stretch the upper side thereof, for the purpose specified.

2. In a bean-picker, the combination of the table having rounded ends, the belt movable above and below said table and engaging the rounded ends thereof, the hopper having a feed-opening, and a plate, secured to said hopper adjacent to said opening and having its free end engaged with said belt, whereby the upper part of the belt is stretched and held taut, substantially as described.

3. In a bean-picker, in combination with a table and a movable belt thereon, a hopper above said belt, having an opening in its lower side, a gate to adjust said opening, a plate projecting outward from said hopper below said opening and yieldingly engaging said belt, and vibrated thereby, substantially as described.

4. In a bean-picker, the combination with a movable belt, a hopper above the same, a rod journaled in the hopper and having a set-off adjacent to the feed-opening in said hopper, and an arm on said rod, of an arm, having a clamp operating to move said belt intermittently, a treadle to which said clamp-arm is rigidly secured, and a pivoted rod connecting said treadle with the first-mentioned arm, substantially as described.

594,029. STAMP-CANCELING MACHINE. FRANK E. MARTIN, Pittsburg, Pa. Filed Jan. 19, 1897. Serial No. 619,823. (No model.)



Claim.—1. The combination of a frame, a feed-table having a guiding edge, a positively-driven under roller of resilient material with its top on a level with the feed-table top, an upper roller composed of an unyielding material mounted adjacent to such roller, intermeshing gearing connecting the rollers and a series of slightly-projecting canceling-pins having crossed cutting edges arranged irregularly around one end of the upper roller adapted to slightly depress the surface of the resilient roller, substantially as set forth.

2. The combination of a frame, a feed-table having a guiding edge, a positively-driven under roller of resilient material with its top on a level with the feed-table top, an upper roller composed of an unyielding material mounted adjacent to such roller, intermeshing gearing connecting the rollers, a series of slightly-projecting canceling-pins having crossed cutting edges arranged irregularly around one end of the upper roller adapted to slightly depress the surface of the resilient roller, a dating-stamp affixed to the unyielding roller adjacent to the canceling-pins and an inking-roller mounted on a support attached to the frame, in the path of the dating-stamp, substantially as set forth.

594,030. GATE. VALENTINE MITCHELL, Horton, Mich. Filed June 29, 1897. Serial No. 642,831. (No model.)



Claim.—1. The combination with a hinge-post, a swinging frame or hanger mounted thereon, and a gate provided with a pintle mounted on the outer end of the swinging frame or hanger, of a latch comprising a pair of horizontally-disposed jaws provided with angular engaging portions adapted to receive the gate between them, and a coiled spring connecting the rear portions of the jaws and holding the latter in position for engaging the gate, substantially as described.

2. The combination with a hinge-post, a horizontally-swinging frame or hanger mounted thereon, a gate provided with a central vertical pintle mounted on the swinging frame or hanger, and the horizontally-disposed catches projecting from the same side of the gate and adapted to engage the swinging frame or hanger, of a latch comprising a pair of horizontally-pivoted jaws provided at their front portions with angular engaging parts, and a coiled spring connecting the rear ends of the jaws, substantially as described.

3. The combination with a gate, of a latch comprising a support, a pair of substantially L-shaped jaws pivoted between their ends and having their angles projecting from the support and adapted to receive the gate between them, each jaw being provided at the end of one arm with a stop and having its other arm extended at the rear end toward the opposite jaw, and a coiled spring connecting the rear ends of the jaws, substantially as described.

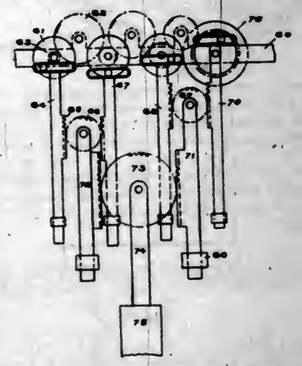
594,031. COMBINED MATCH-SAFE AND CIGAR-CUTTER. HARRY T. MOSER, Vera Cruz, Pa. Filed Apr. 24, 1897. Serial No. 633,563. (No model.)



Claim.—1. The combination of a match-safe and a cigar-cutter inclosed by the same casing, a partition for dividing the match-receptacle from the cutter, said cutter consisting of a stationary knife, a movable knife, guide-plates for said movable knife, a lever journaled in extensions of said plates and connected with the movable knife, a plunger working in said casing and bearing against said lever, and a spring for bearing against the movable knife, substantially as shown and described.

2. The combination of a match-receptacle and a cigar-cutter inclosed by the same casing, a pair of tops hinged to the casing for closing the match-receptacle, a rod sliding in suitable guides, a spring connected at one end to said rod and at its other end to the casing, levers connected to the rod and to the hinged tops, and a finger-piece sliding on the casing and connected with said rod, substantially as shown and described.

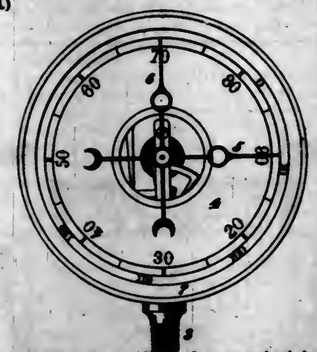
594,032. COMPOUND HARMONIC MOVEMENT FOR MACHINES. EDWARD J. MCCLELLAN, New York, N. Y. Filed May 4, 1896. Serial No. 590,092. (No model.)



Claim.—1. The combination in a mechanical movement, of a connected series of revoluble cranks, said cranks having such relative angular positions and throws as determined by the harmonic equation of the curve representing the motion to be produced, as described, gearing connecting said cranks together and adapted to drive each crank at a speed proportional to the order in which the respective crank stands in the series, and suitable means, such as shown and described, for converting the rotary motions of said cranks into respective rectilinear motions and combining these rectilinear movements into one net resultant motion, substantially as described.

2. The combination in a mechanical movement, of a connected series of revoluble cranks, said cranks having such relative angular positions and throws as determined by the harmonic equation of the curve representing the motion to be produced, as described, gearing connecting said cranks together and adapted to drive each crank at a speed proportional to the order in which the respective crank stands in the series, slotted connecting-rods 64 67 from each pair of cranks and having a rack 65 on the side meshing with gears 66 69, connecting-rods 72 71 from the respective centers of gears 66 69, and a second set of gears 73 meshing with racks on 72 71, and so on until a single gear is reached which receives the net resultant motion, substantially as described.

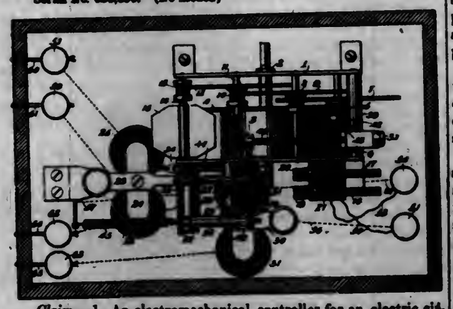
594,033. PRESSURE-INDICATOR FOR AIR-BRAKE APPARATUS. FREDERICK M. HELLS, New York, N. Y., and SAMUEL D. HUTCHINS, Columbus, Ohio. Filed June 22, 1897. Serial No. 641,948. (No model.)



Claim.—1. In a pressure-indicator for automatic air-brake apparatus, the combination of a dial provided with division-marks on substantially one-half of its circumference, for the representation of a range of pressures from that which is normal in the train-pipe on a full application of the brakes to that which is normal in the main air-reservoir in running condition, and two indexes actuated by pressure-gages connected with a train-pipe and with a main air-reservoir respectively, and fitted to traverse concentrically on said dial, substantially as set forth.

2. In a pressure-indicator for automatic air-brake apparatus, the combination of a dial provided with division-marks on substantially one-half of its circumference, for the representation of a range of pressures from that which is normal in the train-pipe on a full application of the brakes to that which is normal in the main air-reservoir in running condition, and two indexes actuated by pressure-gages connected with a train-pipe and with a main air-reservoir respectively, and standing, in normal running condition, substantially at right angles one to the other, said indexes being fitted to traverse concentrically on said dial, substantially as set forth.

594,034. AUTOMATIC CIRCUIT-CONTROLLER. CHARLES W. PRIOR, Newark, N. J., assignor, by mesne assignments, to the Montauk Multiphase Cable Company, New York, N. Y. Filed Mar. 23, 1897. Serial No. 628,200. (No model.)



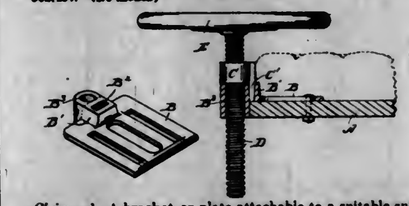
Claim.—1. An electromechanical controller for an electric circuit, comprising a spring-driven motor, holding devices for said motor, an electromagnet in a normally closed local circuit for operating one of said holding devices, another electromagnet in a normally open local circuit for operating the other of said holding devices, a main circuit, and two circuit-controlling disks for said main circuit and operated by the motor, substantially as specified.

2. An electromechanical controller for an electric circuit, comprising a spring-driven motor, a screw-shaft operated by said motor, a pair of main circuit making and breaking disks on said screw-shaft, a pivoted lever having a pin engaging between the threads of said screw-shaft, a pin extended laterally from said lever, a pin extended from the screw-shaft at its end opposite that upon which the disks are mounted, and adapted to engage with the pin on the lever, means for shifting the lever to its normal position, an electromagnet in a normally closed local circuit operating to release the motor, and an electromagnet in a normally open local circuit also operating to release the motor, substantially as specified.

3. An electromechanical controller for an electric circuit, comprising a spring-driven motor, a pair of circuit making and breaking disks operated by the motor, a fan-shaft comprised in the motor, a stop-lever pivoted to the frame of the motor and adapted to be engaged by said pin, an electromagnet in a normally closed local circuit, an electromagnet in a normally open local circuit, armature levers operated by said magnets and each adapted to engage with a finger extended from the stop-lever, a contact-post normally engaged by the armature-lever of the closed-circuit electromagnet, a connection between said post and a main-line wire, and a connection between the armature-lever of the open-circuit electromagnet and a main-line wire, substantially as specified.

4. An electromechanical controller for an electric circuit, comprising a spring-driven motor, a screw-shaft operated by said motor, main circuit making and breaking disks on the screw-shaft, a pivoted lever having a pin engaging between the threads of said screw-shaft and provided with means for stopping the movement of the shaft and motor, a rock-shaft on which the lever is mounted, a rod extended from said rock-shaft, trip-levers pivoted on a projection from the frame of the device, an arm extended from the rod and adapted to engage with the rear ends of said trips, armature-levers engaged by said trips, a stop-lever operated by said armature-levers, and a pair of local-circuit electromagnets for controlling the armature-levers, substantially as specified.

594,035. SEAT. JOHN REICHERT, Racine, Wis., assignor of one-half to Lactus J. Elliott, same place. Filed May 21, 1896. Serial No. 592,407. (No model.)



Claim.—1. A bracket or plate attachable to a suitable support and provided with a socket or receptacle, a non-rotative nut having a correspondingly-shaped portion or portions for detachable engagement within said socket or receptacle, and a spindle having screw-threaded engagement with said nut, and provided at its upper end with a seat.

2. A bracket or plate attachable to a suitable support and provided with a socket or receptacle having inclined sides or faces, a non-rotative nut provided with a correspondingly-shaped portion or portions for detachable engagement with said socket or receptacle, and a spindle having screw-threaded engagement with said nut, and provided at its upper end with a seat.

3. A bracket or plate attachable to a suitable support and provided with a socket or receptacle, a non-rotative nut provided with one or more projections for detachable engagement with said socket or receptacle, and a spindle having screw-threaded engagement with said nut, and provided at its upper end with a seat.

4. A bracket attachable to a suitable support and provided with a socket or receptacle having inclined sides or faces, a non-rotative nut provided with one or more projections having correspondingly-inclined sides or faces, and adapted for detachable engagement with said socket or receptacle, and a spindle having screw-threaded engagement with said nut, and provided at its upper end with a seat.

5. A bracket or plate attachable to a suitable support, a nut for detachable engagement therewith, one of the parts being provided with a socket or receptacle having inclined or tapered sides, and the other with a correspondingly-shaped projection for engagement within said socket or receptacle, and a spindle having screw-threaded engagement within the nut, and provided at its upper end with a seat.

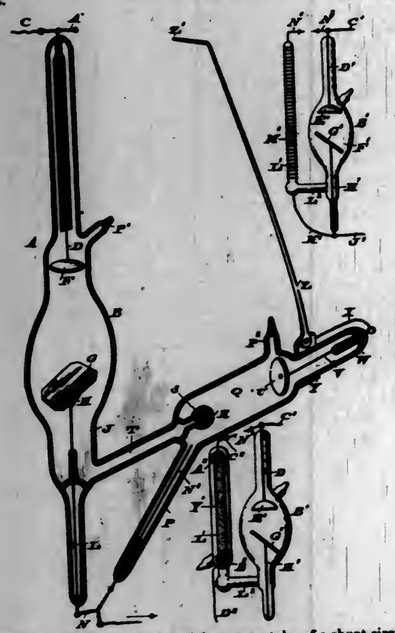
6. In an auxiliary seat, a supporting bracket or plate for engagement with a detachable non-rotative nut carrying a spindle and seat, said plate being provided with slots for the reception of bolts for securing it to a support, and said slots being extended to the rear edge of the bracket or plate.

594,036. ROENTGEN-RAY TUBE. HENRY L. SAYRE, Philadelphia, Pa., assignor to the Queen & Company, of Pennsylvania. Filed Apr. 20, 1897. Serial No. 634,319. (No model.)

Claim.—1. As a means for varying the pressure in a high-vacuum tube, a main circuit for operating the tube and a shunt-circuit for varying the pressure.

2. In combination with a high-vacuum tube, a shunt-circuit arranged in proximity thereto, means connected with the above and

set into operation by the current in the shunt-circuit to cause gas to enter said tube, and means for varying the pressure in the shunt-circuit.



3. The combination with a high-vacuum tube of a shunt-circuit arranged in proximity thereto, and means connected with the above and set into operation by the current in the shunt-circuit to cause gas to enter said tube.

4. In combination with a high-vacuum tube, a vacuum-chamber, a bulb containing potassic hydrate or other suitable material located therein, but out of communication therewith, a passage leading from said bulb to said high-vacuum tube, and a shunt-circuit arranged in proximity to said bulb.

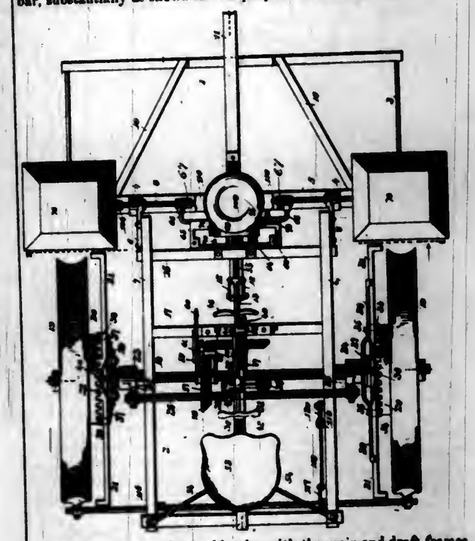
5. In combination with a high-vacuum tube, a passage T leading therefrom, a bulb R containing potassic hydrate or other suitable material S therein, in communication with said passage T, a vacuum-chamber Q, having an extension P, in which the conductor N' is located, a conductor V, having an electrode U attached thereto, and disconnected from said conductor N', and a conductor Z in proximity to but disconnected from the terminal A'.

6. A device for varying the pressure of a high-vacuum tube, consisting of the passage T, the bulb R in communication therewith, and containing potassic hydrate or other suitable material, a vacuum-chamber adjacent to and disconnected from said bulb, said chamber having an extension P in which the conductor N' is located, a conductor V also located in said chamber and having a plate U attached thereto and a conductor Z in communication with said conductor V, and in proximity to but disconnected from the main circuit.

7. In combination with a high-vacuum tube, a passage T leading therefrom, a bulb R containing potassic hydrate or other suitable material S therein, in communication with said passage T, a vacuum-chamber Q, having an extension P, in which the conductor N' is located, a conductor V having an electrode U attached thereto, and disconnected from said conductor N', and a conductor Z suitably supported, so that the same may be moved toward or away from the terminal A'.

594,087. PLANTER. JOHN M. SCOBEE and EDMOND S. BURR, Shelbyville, Ky. Filed Mar. 28, 1896. Serial No. 585,271. (No model.)

Claim.—1. In a planter, the combination with the main and draft frames pivotally connected, the draft frame having a portion extending in the rear of the pivotal connection, of a foot-lever fulcrumed between its ends to the main frame and having connection with the rear extension of the draft-frame, a bar extending upwardly from the foot-lever, a brace between the foot-lever and the upper end of the bar, an arm extending forwardly from the upright bar and terminating in a foot-rest, a hand-lever arranged adjacent to the upright bar and foot-lever and adapted to engage with the upright bar when moved forward, and a dog having pivotal connection with the hand-lever and adapted to engage with the upper end of the upright bar, substantially as shown for the purpose described.



2. In a planter, the combination with the main and draft frames pivotally connected together, the draft-frame having a rear extension, of a foot-lever fulcrumed between its ends to the main frame and having connection with the rear extension of the draft-frame, a bar projecting upwardly from the foot-lever and having a lateral extension at its upper end, a hand-lever fulcrumed upon the same pivotal support with the foot-lever and adapted to engage with the lateral extension of the upright bar, and a dog having pivotal connection with the hand-lever and constructed to engage with the upper end of the said upright bar, having a lateral extension, substantially as and for the purpose set forth.

3. In a planter, the combination with the main and draft frames pivotally connected together, of a bracket secured to the main frame, a foot-lever fulcrumed between its ends to the bracket and having connection with a rear extension of the draft-frame, an upright bar connected with the foot-lever and having a lateral extension at its upper end, a brace between the upright bar and foot-lever, an arm projecting forwardly from the upright bar and terminating in a foot-rest, a hand-lever mounted upon the pivotal connection between the aforesaid bracket and foot-lever, means for securing the hand-lever in an adjusted position, and a dog pivoted to the hand-lever and adapted to engage with the upper end of the upright bar, substantially as set forth.

4. In a planter, the combination with the main and draft frames pivotally connected together, of a foot-lever fulcrumed upon the main frame and operatively connected with the draft-frame, and having a cross-bar at its rear or free end, forming a foot-rest, a bar projecting vertically from the foot-lever and having a lateral extension, an arm extending forwardly from the upper end of the vertical bar and terminating in a foot-rest, a notched segment, a hand-lever fulcrumed upon the same pivot with and located just beside the foot-lever and bearing a hand-latch to engage with the notched segment and adapted to come in contact with the aforesaid lateral extension of the vertical bar, and a dog pivoted to the hand-lever and having a lateral extension, and adapted to connect the hand-lever with the said vertical bar, whereby the foot-lever and the hand-lever can be operated together or independently, substantially as set forth for the purpose described.

5. In a planter, the combination of the main and draft frames pivotally connected together, a foot-lever fulcrumed upon the main frame and operatively connected with the draft-frame, a clutch mechanism for throwing the machine into and out of gear for timing or bringing the planting mechanism into register, a transverse rod having connection with the clutch mechanism, a stop adjustably mounted upon the transverse rod, and a lever having a portion in engagement with the said adjustable stop, and having a portion extending across the path of the aforesaid foot-lever, and provided with a foot-rest, substantially as set forth for the purpose described.

6. In a planter, the combination of a drive-wheel having a toothed rim, a marker-bar mounted midway of its ends in line with the axis of the drive-wheel, clutch-levers pivoted directly to the end portions of the marker-bar and having lugs a distance from their pivots projecting across the path of the marker-bar and adapted to engage with the toothed rim, and means under the control of the driver for operating the clutch-levers to throw their lugs into and out of engagement with the toothed rim of the drive-wheel, substantially as and for the purpose set forth.

7. In a planter, the combination of a drive-wheel having a toothed rim, a marker-bar mounted midway of its ends in line with the axis of the drive-wheel, clutch-levers pivoted directly to the end portions of the marker-bar and having lugs extending across the path thereof and adapted to engage with the toothed rim, a spring secured directly to the marker-bar at a point midway of its length and having its end portions engaging with the oppositely-disposed clutch-levers, and means under the control of the driver for actuating the clutch-levers to cause their lugs to engage with or become disengaged from the said toothed rim, substantially as and for the purpose set forth.

8. In a planter, the combination of an axle, drive-wheels loosely mounted upon the spindle portions of the axle, marker-bars mounted intermediate of their ends upon the axle so as to turn therewith and having inwardly-extending sleeves, clutch-levers pivoted directly to the end portions of the marker-bars and having lugs projecting across the path thereof and adapted to engage with the toothed rims applied to the aforesaid drive-wheels, springs secured directly to the marker-bars and normally exerting a pressure against the clutch-levers, collars slidingly mounted upon the sleeves of the marker-bars, and means for connecting and simultaneously operating the collars for throwing the lugs of the clutch-levers into and out of engagement with the toothed rims of the drive-wheels, substantially as and for the purpose set forth.

9. In a planter, the combination of an axle, drive-wheels loosely mounted upon the spindle portions of the axle, each having a toothed rim or disk, marker-bars mounted midway of their ends upon the axle to revolve therewith and having inwardly-extending sleeves, clutch-levers fulcrumed between their ends directly to the end portions of one of the marker-bars and having lugs at their outer ends to project across the path of the marker-bar and engage with the toothed rim of the adjacent drive-wheel, a second set of clutch-levers fulcrumed at their outer ends to the end portions of the other marker-bar and having lugs intermediate of their ends projecting across the path of the marker-bar to engage with the toothed rim of the contiguous drive-wheel, the two sets of clutch-levers having their inner ends claw-shaped and embracing the opposite sides of the sleeves of the marker-bars, springs attached directly to the marker-bars for holding the clutch levers in operative relation, collars slidingly mounted upon the said sleeves, one of the collars having a flange to engage with the inner ends of the set of clutch-levers fulcrumed at their outer ends, a rod or bar having radius-arms bearing the said collars, and means for imparting an endwise movement to the said rod or bar to simultaneously throw the two sets of clutch-levers out of engagement with their respective toothed rims, substantially as and for the purpose set forth.

10. In a planter, the combination with the dropping rod or bar, a plate having connection with the said rod and provided with stops, and projections yieldingly connected with the plate, of a shaft, an eccentric attached to the shaft and adapted to alternately actuate the said yielding projections, and a retarder operatively connected with the eccentric and shaft to engage with the stops of the said plate to hold the latter stationary during the operation of the eccentric in moving either one of the yielding projections, substantially as set forth for the purpose described.

11. In a planter, the combination with the rod or bar for transmitting motion to the seed-dropping plates, of a projection operatively connected with the said rod, a spring for normally holding the said projection in a predetermined position, an eccentric for moving the projection against the tension of the said spring to store power in the latter, and a stop mechanism to hold the said rod or bar against movement during the storing of power in the aforesaid spring and adapted to release the said rod when the spring has been subjected to the required tension, substantially as and for the purpose set forth.

12. In a planter, the combination with a rod or bar for transmitting motion to the seed-dropping mechanism, of oppositely-disposed projections yieldingly connected with the said rod, an eccentric to alternately engage with and move the said projections in opposition to a yieldingly-resistant force, oppositely-disposed stops, and a segmental retarder to alternately engage with the said stops to prevent movement of the aforesaid rod or bar during the movement of one of the projections against its resistant force, substantially as set forth for the purpose described.

13. In a planter, the combination with the seed-dropping rod or bar, a plate connected therewith and provided with stops, projections slidably mounted upon the plate, springs for maintaining the slidable projections in a normal position, and a shaft, of an eccentric attached to the shaft and adapted to alternately engage with the slidable projections and move them against the tension of their springs, and a segmental retarder rotating with the eccentric and shaft to engage with the stops and hold the said plate against movement during the operation of the eccentric in moving a slidable projection against the action of its spring, and adapted to release the said plate when the spring has reached the required tension, substantially as set forth for the purpose described.

14. In a planter, the combination with a seed-dropping rod, a plate applied to the said rod, rods slidably mounted upon the plate and having cross-heads at their opposite ends, and springs mounted upon the slidable rods to return them to and maintain them in a normal position, of an eccentric disposed to alternately engage with the headed ends of the slidable rods to subject their springs to tension, and a stop mechanism to hold the plate against movement during the interim of subjecting the aforesaid springs to tension, substantially as and for the purpose set forth.

15. In a planter, the combination with a seed-dropping rod or bar, a plate connected therewith and having projecting stops, rods slidably connected with the plate and having projecting portions at their opposite ends, and springs for maintaining the rods in a normal position, of an eccentric to alternately engage with the projecting portions of the slidable rods to subject their actuating-springs to tension, and a segmental flange adapted to engage with the projections or stops of the plate to retard the movement of the latter during the interim of subjecting the springs of the slidable rods to tension, substantially as set forth for the purpose described.

16. In a planter, the combination with a rotatable seed-dropping plate having a series of spurs, of a reciprocating rod or bar, pawls connected to and movable with the said rod or bar and adapted to alternately actuate the seed-dropping plate, a pivoted detent located intermediate of the pawls, and a rigid arm movable with the said rod or bar and adapted to engage with a spur of the seed-dropping plate on the forward movement of the rod and to engage with and actuate the pivoted detent on the return stroke of the said rod, whereby the seed-dropping plate has its position fixed at each stroke of the rod or bar, substantially as set forth.

17. In a planter, the combination with a rotatable seed-dropping plate, an operating-rod, and an actuating-pawl, of a pivoted detent actuated by the operating-rod and brought into engagement with the seed-dropping plate to properly position the latter, and a stop adjustably connected with the pivoted detent to insure a correct positioning of the seed-dropping plate, substantially as and for the purpose set forth.

18. In a planter, the combination with a rotatable seed-dropping plate, an operating-rod, and actuating-pawls carried by and movable with the operating-rod and disposed to move the plate at each stroke of the operating-rod, of a pivoted detent, and an arm movable with the operating-rod and having a pendent lug and adapted at the forward stroke of the operating-rod to engage with the seed-dropping plate and upon the return stroke of the operating-rod to actuate the detent and cause it to engage with the seed dropping plate, substantially as and for the purpose set forth.

19. In a planter, the combination with a rotatable seed-dropping plate having spurs, of a reciprocating rod provided with a cross-head having parallel arms, an arched frame pivotally supported at one end and having its opposite end pivotally connected with the parallel arms, and actuating-pawls mounted upon the pivotal connection between the arched frame and parallel arms and extending in the same direction and disposed to alternately engage with the spurs of the seed-dropping plate, substantially as and for the purpose set forth.

20. In a planter, the combination with a rotatable seed-dropping plate having spurs, of an operating-arm having a cross-head provided with parallel arms, an arched frame pivotally supported at one end and having side ears at its opposite end, a pin passing through transversely-alining openings in the side members of the arched frame and in the side ears and pivotally connecting the parallel arms therewith, and actuating-pawls for alternately operating the dropping-plate mounted upon the said pin in the spaces formed between the side ears and the side members of the aforesaid arched frame, substantially as set forth.

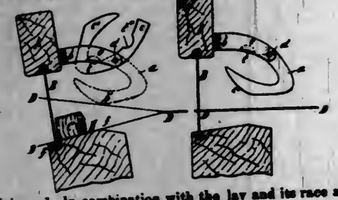
21. In a planter, the combination with a rotatable seed-dropping plate having spurs, of an operating-rod provided with a cross-head having an intermediate and side arms, the intermediate arm serving as a detent to properly position the dropping-plate, and actuating-pawls having pivotal connection with the side arms for operating the dropping-plate, substantially as set forth.

22. In a planter, the combination with a rotatable seed-dropping plate having spurs, of an operating-rod provided with an intermediate and side arms, the intermediate arm serving as a detent to engage with the spurs of the dropping-plate and properly position the latter, and formed with a lug, a pivoted detent having one end adapted to engage with the dropping-plate and having its other end project-

ing within the path of the lug to be engaged thereby, and actuating-pawls having pivotal connection with the side arms of the operating-rod, substantially as and for the purpose set forth

23. In a planter, the combination of a rotatable dropping-plate provided with spurs, an operating-rod having an intermediate and side arms, the intermediate arm serving as a detent to properly position the dropping-plate and formed with a lug, an arched frame pivotally supported at one end and having pivotal connection at the other end with the said side arms, actuating-pawls pivotally mounted upon the connection between the arched frame and side arms, and a pivoted detent having a member projecting across the path of the aforesaid leg and bearing an adjustable stop at its other end to engage with the spurs of the dropping-plate, substantially as set forth.

594,038. SHUTTLE-GUARD FOR LOOMS. LEOPOLDO SCOSTIERTI, Legnano, Italy. Filed July 13, 1896. Serial No. 599,737. (No model.) Patented in Italy July 13, 1894, LXXI, 473; in Switzerland Sept. 27, 1894, No. 9,337; in England Oct. 26, 1894, No. 20,533; in France Oct. 26, 1894, No. 242,409; in Germany Nov. 3, 1894, No. 85,308; in Austria Dec. 31, 1894, No. 44/6,573; in Spain Feb. 6, 1895, No. 16,708, and in Belgium Feb. 21, 1895, No. 114,196.

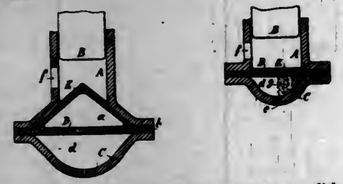


Claim.—1. In combination with the lay and its race a series of brackets *c* above the same and a series of guards independently pivoted thereon, substantially as described.

2. In combination with the lay and its race, the brackets *c* each having the stop, the series of guards pivoted to the said brackets and having portions *c'*, the stops in the brackets limiting the movement of the guards, said guards being so balanced as to return automatically to position when the lay is operated, substantially as described.

3. In combination with the lay and its race, a series of independently-pivoted guards each guard having its lower edge of a general convex contour and arranged to be above the plane of the warps and to prevent the shuttle from moving from the race, substantially as described.

594,039. MEANS FOR PREVENTING SHOCKS IN PUMPS. JEAN P. SERVE, Paris, France. Filed Aug. 31, 1896. Serial No. 603,482. (No model.)



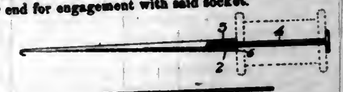
Claim.—1. In combination with a pump; a plate or disk of flexible and impervious material provided on one side with a pouch or chamber filled with compressed air; a grating of the same form as said pouch to maintain it in place in the pump; and a chamber filled with compressed air formed on the opposite face of the flexible plate by the bottom of the pump, substantially as and for the purpose set forth.

2. In combination with a pump; two sheets of flexible material each so supported by metallic gratings as to form between them a chamber intended to receive compressed air and so placed within the pump as to form between the second sheet and the bottom of the pump a second chamber in which air may be compressed at a pressure superior to that in the first chamber substantially as hereinbefore described and for the purpose set forth.

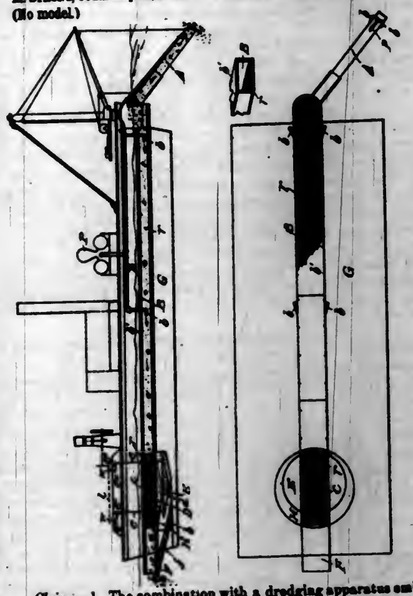
594,040. CROCHET HOOK OR NEEDLE. PETER A. SHRIVER, Corning, N. Y. Filed June 9, 1897. Serial No. 640,002. (No model.)

Claim.—1. The combination with the crochet-hook of a spool-supporting spindle removably secured to the handle end thereof, the outer end of the spindle being provided with the head or stop for the outer end of the spool, and the handle end of the hook forming an abutment for the opposite end of the spool.

2. The combination with a crochet-hook, provided at its handle end with an internally-threaded socket, of a spool-supporting spindle provided at its outer end with a head, and screw-threaded at its other end for engagement with said socket.



594,041. PLACER-GOLD-EXTRACTING MACHINE. WILLIAM M. STRONG, Cedar Rapids, Iowa. Filed Feb. 25, 1895. Serial No. 539,583. (No model.)



Claim.—1. The combination with a dredging apparatus embracing, first, an excavating and elevating mechanism and, second, a gold-separating sluice-box set below the water-line in the hull of a scow or float, of a removable top or sluice-box cover *b'*, the diagonally-entering jet-tubes *b*, the riffle paving *r*, the screen C, the hopper D, the gold-pan E, the well H, and the discharging-sluices *f* and F, substantially as described.

2. The combination with a dredging apparatus embracing an excavating and elevating mechanism of a floating covered gold separating sluice-box, the obliquely-entering water-jet tubes *b* and the removable cover *b'* substantially as described.

3. The combination with a dredging apparatus and floating gold-separating sluice-box of a screen and concentrating mechanism consisting of a horizontally-rotating gold-pan or shaking table set below said screen, near and at the discharging end of said sluice-box substantially as described.

594,042. REGULATING DEVICE FOR GAS OR PETROLEUM MACHINES. CLAS A. SUNDBERG, Stockholm, Sweden. Filed Apr. 8, 1897. Serial No. 631,286. (No model.)



Claim.—1. A spring-closed valve, its spindle end provided with a toothed tappet adapted to have axial motion thereon, in combination with a revoluble tappet-cylinder provided with teeth at either end, a guide for the spindle of the revoluble tappet having teeth on its face, said revoluble tappet adapted to be revolved by engagement with the aforementioned toothed tappet and the teeth on the guide, substantially as and for the purpose set forth.

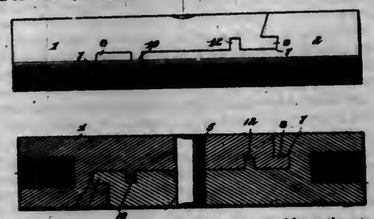
2. A spring-closed valve provided with an axially-movable toothed tappet on its spindle end, in combination with a double-ended toothed tappet revoluble on its spindle, a guide for said spindle having teeth on its face, the teeth of these respective cooperating elements so formed as to turn the revoluble tappet by its alternate engagement with the guide-face and axially-movable tappet, substantially as and for the purpose set forth.

3. In a valve-operating mechanism substantially as described, a tooth-faced guide, an axially-movable tappet provided with a set of teeth out of register with the series of teeth on the guide-face, the intermediate double-ended toothed tappet adapted to alternately engage both series of teeth and thereby receive a step by-step rotation, for the purpose set forth.

4. In a valve-operating mechanism, a governor comprising a bell-crank lever hinged to the end of the eccentric-rod, a weight hinged to one arm of said lever, an arm perpendicular to said weight and normally having sliding contact with a guide-piece, substantially as set forth.

5. In a valve-operating mechanism, a governor comprising a bell-crank lever hinged to the end of the eccentric-rod, whose longer arm operates a tappet when running normal, a weight hinged to its shorter arm, an arm extending from said weight, a buffer-spring between the eccentric-rod and the aforementioned arm, and a yielding guide, provided with a notch at the end of a guide-surface thereon, into which the arm extending from the weight slides, substantially as set forth.

594,048. COUPLING FOR PUMP-RODS, &c. GEORGE C. THOMPSON and FRANCIS A. ABBOTT, Salinas, Cal. Filed Feb. 18, 1897. Serial No. 624,025. (No model.)



Claim.—1. A coupling comprising two separable sections having reduced overlapped portions provided at their inner ends with recesses and having interlocking lips at their outer ends, one of the sections being provided with a pivot and the other having a corresponding opening, said lips and recesses holding the sections against separation when in alinement, and a lug or projection arranged to engage a recess at one side of one section and carried by the other section, said lug being adapted to hold the sections in alinement and being arranged to engage and disengage the recess automatically as the sections are turned on the pivot, substantially as described.

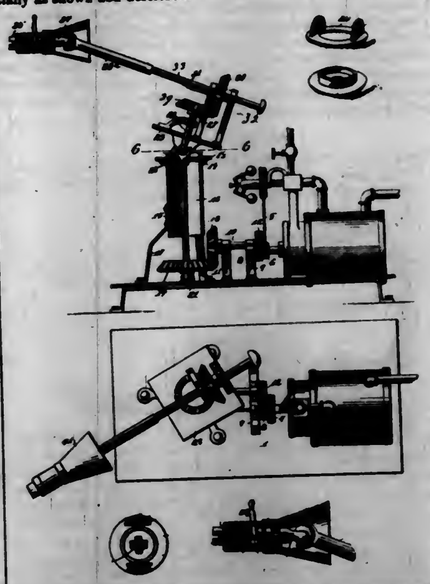
2. A coupling comprising two sections having reduced overlapped portions detachably pivoted and interlocked at their ends, one of the sections being provided with a curved rib 10 extending entirely across it, and the other section having a curved groove receiving the rib, substantially as described.

3. A coupling comprising two sections having reduced overlapped portions provided at their inner ends with recesses and having interlocking lips at their outer ends, one of the sections being provided with a pivot and the other having a corresponding opening, the curved rib 10 extending across one of the sections and fitting in a corresponding groove of the other, and the curved projection extending from the inner face of one of the sections and engaging a recess of the other, substantially as described.

594,044. BOLT TAPPING AND DRILLING MACHINE. WILLIAM M. A. TIBBS, Mount Vernon, Ohio, assignor of one-half to William M. Johnson, Newark, Ohio. Filed Feb. 23, 1897. Serial No. 624,022. (No model.)

Claim.—1. The combination in a bolt tapping and drilling machine of the engine, the drill or tap adapted to be driven thereby, a suitable support, a turn-table carried on said support, and a table or plate hinged to said turn-table and carrying the drill or tap, and suitable gearing between said engine and drill or tap, substantially as shown and described.

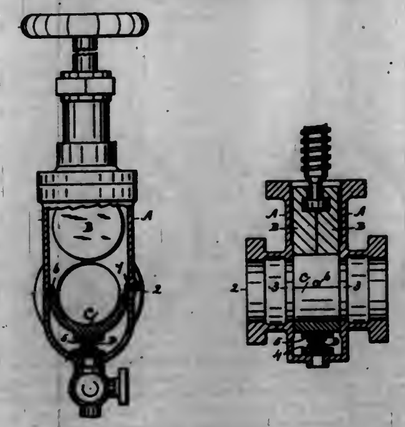
2. In a bolt drilling and tapping machine, the combination of the engine, the drill or tap adapted to be driven thereby, a suitable support and a suitable plate carrying the drill or tap mounted to turn on said support, suitable gearing mounted on said plate for operating the drill or tap, suitable gearing carried by said support and operated by the engine, and a universal-joint connection between the gearing on the plate or table and the gearing carried by the support, substantially as shown and described.



3. In a bolt drilling and tapping machine, the combination of the engine or motor, a drill or tap adapted to be operated thereby, a suitable support and a turn-table mounted on said support, a table or plate hinged to said turn-table and carrying gearing for operating the drill or tap, a universal-joint connection placed between said gearing and drill or tap, suitable gearing for operating the gearing on said plate and having a universal-joint connection between the two, substantially as shown and described.

4. In a bolt drilling and tapping machine, the combination of the engine or motor and the drill or tap, a shaft for operating the said drill or tap having a universal joint therewith, and a support for said shaft in which said shaft slides lengthwise, suitable means in connection with said support for tilting and turning it and suitable means located between the engine and shaft for operating the shaft and a universal-joint connection between said means and the shaft substantially as shown and described.

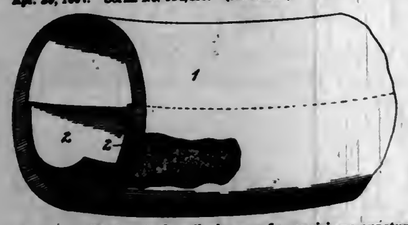
594,045. GATE-VALVE. JOSEPH TOLHURST, Burlington, Canada. Filed Mar. 31, 1897. Serial No. 630,095. (No model.)



Claim.—A gate-valve having through waterways, a vertically-operating valve between said waterways to fully stop the same, a

lower chamber formed to admit the lower part of the valve, and to admit an independent protector, said protector of semicircular form and concaved to admit and to conform to the lower semicircular part of the valve when same is closed, and when open, the concaved protector forced on a line and level with the lower semicircular or concaved part of said waterways by means of a spring engaging with the lower convex part of the protector, a rigid stop and a removable stop in the walls of the valve-chamber to act against the force of the said spring, to retain the protector in position, as described.

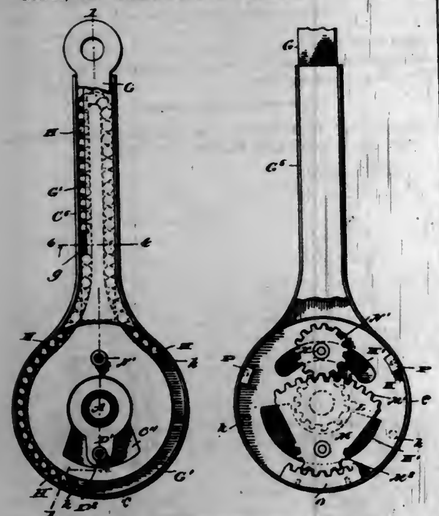
594,046. PNEUMATIC TIRE. THEOPHIL P. WALTER, Beatrice, Nebr., assignor of one-half to Albertus H. Kidd, same place. Filed Apr. 30, 1897. Serial No. 634,405. (No model.)



Claim.—1. The herein-described means for repairing a punctured tire or like inflated device, consisting of a patching-strip secured by a comparatively small margin to the inner side of the tire, a cementing substance applied to either the patching-strip or tire, or both, and allowed to dry, and rendered active or adhesive by the introduction of a solvent through the puncture, and a non-adhesive powder interposed between the patching-strip and tire, substantially as set forth.

2. The combination with a pneumatic tire, of companion patching strips or webs secured along their outer edges to the inner wall of the tire at diametrically opposite points, and having the remaining portion loose, and overlapping at their inner edges opposite the longitudinal center of the tire, a cement applied to the patching-strips or tire, or both, and allowed to become dry, and rendered adhesive by the introduction of a solvent through a puncture, and a non-adhesive powder interposed between the strips and the tire, as and for the purpose described.

594,047. EXTENSIBLE PEDAL-LEVER FOR BICYCLES. EDWARD B. WELLES and GEORGE R. B. WELLES, Asheville, N. C. Filed Nov. 25, 1896. Serial No. 613,420. (No model.)



Claim.—1. A bicycle attachment, comprising a shaft, a crank-casing, an extensible pedal-carrying lever carried therein, a rocking disk and a series of antifriction-balls adapted to bear between projections on said disk and lever, a coiled spring, having one end secured to the cylindrical portion of the casing carried on the crank-shaft, a sprocket-carrying cylieder, to which the other end of the spring is connected, and geared connection between the axle-shaft and mechanism carried in the casing, whereby the pedal-carrying lever when extended may be withdrawn into the casing, substantially as shown and described.

2. An extensible pedal-carrying lever for bicycles, comprising in combination with the crank-shaft, a cylinder, mounted thereon, a casing secured thereto, an extensible pedal-lever provided with a lug carried in the said casing, a sprocket-wheel-carrying cylinder, mounted over the inner cylinder, a disk within the casing, having lugs on its under face, a series of antifriction-balls adapted to bear between the lugs on the said disk and extensible pedal carrying lever, a spring connecting the sprocket-carrying cylinder with the casing, and a geared connection between the pedal-shafts and the mechanism carried within the casing, whereby the extensible pedal-carrying lever may be extended or drawn within its casing, substantially as set forth.

3. An extensible pedal for a bicycle, consisting of the main crank-shaft threaded at its ends combined with a cylinder B mounted thereon, and carrying a casing, a thimble D carried on said shaft, and resting on an annular shoulder of the cylinder; jam-nuts on the shaft on either side of the thimble, an arm D′ on the thimble, carrying a lug D^2, the disk K, mounted on the end of the shaft, and having a recess in which the said lug D^2 and arm D′ have a lateral play, an extensible pedal-carrying lever, a series of antifriction-balls adapted to bear between lugs on the said disk, and a lug on the extensible pedal-carrying lever, whereby the said lever may be extended, and means for closing the lever in its casing, substantially as described.

4. In an extensible pedal carrying lever for a bicycle, the combination with the crank-shaft, cylinder B and casing mounted thereon, the sprocket-wheel-carrying cylinder and coil-spring C, having an end connected to each, of the thimble D mounted on the crank-shaft and in the said casing, and carrying a lug, of the disk K, and means connected with the said thimble-lug for rocking the same: lugs on the under surface of the said disk, adapted to travel in the recess of the crank extension of the casing, a pedal-carrying lever carried therein, a lug on said lever, which extends in a recess continuous with the line in which the lugs of the disk extend, of a continuous series of antifriction-balls in said recess, bearing against the lugs on the disk, and lever, and means for throwing the lever in and out as a variable pressure is brought to bear against the pedal, substantially as described.

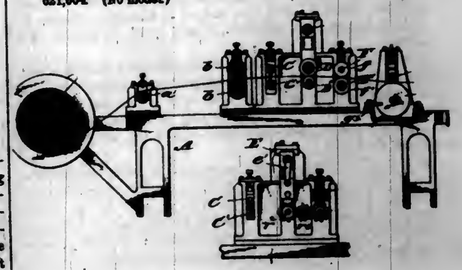
5. In an extensible pedal-lever, the combination with the crank-shaft, cylinder, spring connecting same and thimble provided with an arm carrying a lug D^2, of the casing, the disk mounted therein on the said crank-shaft, the segment M, mounted on the lug D^2, which has a lateral play in a recess in the inner face of the casing, of a rack-bar secured to the inner periphery of the casing, the integral geared wheel on the disk and geared wheel secured to the casing, which wheel is designed to mesh with teeth on the segment and on the integral geared wheel, of the pedal-carrying lever, a lug thereon traveling in a recess in the casing, lugs on the disk, and balls bearing between the said lugs on lever and disk, substantially as described.

594,048. PAINT. FRANK WHITE and JAMES THOMSON, Christchurch, New Zealand, assignors to the Non Corrosive Preserving and Fire Resisting Paint Company, Limited, same place. Filed Oct. 23, 1896. Serial No. 609,731. (No specimens.)

Claim.—1. A paint consisting of a paint-base, such as flake-white, linseed-oil, sulfuric acid, turpentine and ammonia, substantially in the proportions herein specified.

2. A paint consisting of a paint-base, such as flake-white, linseed-oil, sulfuric acid, turpentine and ammonia, chlorid of copper, chlorid of zinc, nitrate of mercury and cyanid of potassium substantially in the proportions herein specified.

594,049. MACHINE FOR MAKING PAPER BOXES. LEVI K. WHITE, executrix of Andrew J. White, deceased, JOSEPH CRAMER, and HENRY P. GAINES, Cincinnati, Ohio. Filed Feb. 2, 1897. Serial No. 621,664. (No model.)



Claim.—1. In a machine for making paper boxes from a continuous roll of paper, the combination of feeding mechanism intermediate of the final cutting-off mechanism and the scoring and slitting mechanism, a pair of adjustable transverse scoring-rolls, a pair of slitting-rolls, mechanism for operating said slitting-rolls intermittingly, a pair of longitudinally-scoring rolls, mechanism for applying paste to one edge of the paper, folding mechanism for turning the paper over to form a flattened tube, and cutting-off mechanism, substantially as described.

2. In a machine for making paper boxes, from a continuous roll of paper, the combination of feeding mechanism intermediate of the final cutting-off mechanism, and the scoring and slitting mechanism, a pair of adjustable transverse scoring-rolls, a pair of slitting-rolls, mechanism for operating said slitting-rolls intermittingly, a pair of longitudinally-scoring rolls, mechanism for applying paste to one edge of the paper, folding mechanism for turning the paper over to form a flattened tube, tension mechanism for the paper strip applied thereto before its passage to the scoring and slitting mechanism, and cutting-off mechanism.

3. In a machine for making paper boxes from a continuous roll of paper, the combination of feeding mechanism intermediate of the final cutting-off mechanism, and the scoring and slitting mechanism, a pair of adjustable transverse scoring-rolls, a pair of slitting-rolls, mechanism for operating said slitting-rolls intermittingly, a pair of longitudinally-scoring rolls, mechanism for applying paste to one edge of the paper, folding mechanism for turning the paper over to form a flattened tube, tension mechanism for the paper strip applied thereto before its passage to the scoring and slitting mechanism, means adjacent to the final cutting-off mechanism for actuating said tension mechanism, and cutting-off mechanism, substantially as described.

4. The combination with a supporting-frame, of a reel carrying a continuous roll of paper, a pair of feed-rolls for pulling the paper off the roll, a pair of adjustable cross-scoring rolls, a pair of slitting-rolls adapted to act intermittingly on the paper strip, a pair of longitudinally-scoring rolls, pasting and folding mechanism, a second pair of feed-rolls for feeding the strip of paper to the cutting mechanism at the proper rate of speed, substantially as described.

5. In a machine for making paper boxes, from a continuous roll of paper, the combination with the feeding mechanism, of a pair of adjustable cross-scoring rolls, a pair of adjustable slitting-rolls adapted to act intermittingly upon the paper strip, a pair of longitudinally-scoring rolls, pasting and folding mechanism, cutting-off mechanism, and driving mechanism adapted to drive the cutting-knives, cross-scoring rolls and the slitting mechanism at a uniform rate of speed, substantially as described.

6. The combination in a machine for making paper boxes and the like, from a continuous roll of paper, of a slitting mechanism, consisting of a lower roll provided with a series of adjustable disks, an upper roll mounted in sliding bearings provided with a series of adjustable cutters, and means for imparting a vertically-reciprocating movement to the said upper roll, substantially as described.

7. The combination in a machine for making paper boxes from a continuous roll of paper, of a slitting mechanism consisting of a supporting-frame, a lower roll provided with a series of adjustable disks, an upper roll provided with a series of adjustable cutters mounted in sliding bearings, an eccentric shaft provided with pitman connections to the said sliding bearings, and driving mechanism for operating said eccentric shaft, substantially as and for the purpose stated.

8. The combination in a machine for making paper boxes from a continuous roll of paper, of a slitting mechanism consisting of a supporting-frame, a lower roll provided with a series of adjustable disks, an upper roll provided with a series of adjustable cutters mounted in sliding bearings, an eccentric shaft provided with pitman connections to said sliding bearings and driving mechanism for imparting a rotary motion to both upper and lower rolls, substantially as described.

9. In a cutting-off mechanism for machines for making paper boxes, tubes and the like, a lower shaft having a knife rigidly secured thereto, an upper shaft having a knife loosely mounted thereon, a coiled spring having one end secured in the shaft, a stop-plate rigidly secured to the said shaft and against which the said knife rests, and gearing connecting the two knife-shafts to impart an opposite rotary movement thereto, substantially as described.

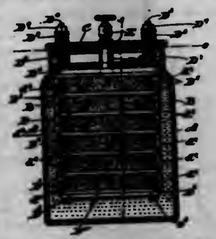
594,050. RAILWAY CATTLE-GUARD. ZEPH WIGGS, Denton, Tex. Filed June 26, 1897. Serial No. 642,637. (No model.)

Claim.—1. A railway cattle-guard comprising a fixed horizontal portion provided with rigid obstructions, and a smooth depressible platform or portion hinged at its inner end to the fixed portion and forming a continuation of the same, said depressible portion being adapted to drop between the cross-ties when trodden upon by stock, substantially as and for the purpose described.

2. In a device of the class described, the combination with supporting-ties or the like, of a fixed horizontal portion mounted thereon, provided with suitable rigid obstructions and projecting from one of the cross-ties, the rigid longitudinal supporting-bars extending from the projecting edge of the fixed portion to the adjacent cross-tie, and the spring-supported platform hinged at its inner end to the fixed portion, forming a continuation of the same and abutting against the lower faces of the supporting-bars, said platform being adapted to be depressed by stock treading upon it, substantially as described.



594,051. ELECTRIC BATTERY. DAVID S. WILLIAMS, Philadelphia, Pa. Filed Aug. 23, 1895. Serial No. 560,214. (No model.)



Claim.—1. A conductor and support for the active material of a battery-electrode formed of a single sheet of metal stamped or cut out and then bent transversely upon itself in such manner as to form a series of superposed channeled plates united by integral yielding conducting-strips.

2. In a positive electrode, the combination of a series of blocks of active material, and a conductor in contact therewith, said conductor being formed of a single sheet of metal cut away at intervals to form integral yielding connecting-strips and then bent transversely upon itself to form a series of superimposed channeled plates between which said blocks of active material are supported.

3. In a positive electrode, the combination of a series of channeled supporting and conducting plates united by integral yielding conducting-strips, blocks of active material between said plates, rods passing through said plates to hold the same in position, the cover-plate C, compression-springs surrounding the rods at a point outside the cover, and filler blocks or sleeves D^6 interposed between the under surface of the cover and the top of the electrode.

4. In a battery, a casing, a cover-plate to which the electrodes are secured, a central positive electrode having at its bottom a plate of non-conducting material of a width greater than that of the electrode, and negative electrodes on either side of the positive electrodes, said negative electrodes having bottom plates of non-conducting material wider than said plates and in contact with the non-conducting plate of the positive electrode.

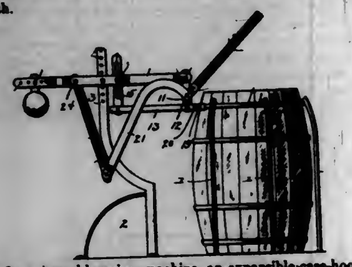
5. The combination in an electric battery of the central positive electrode D formed of blocks of active material D′ interposed between conducting-plates D^5, plates D^4 and D^5 situated respectively above and below the body of the electrode and secured thereto, negative electrodes comprising cap-plates F, conducting-bars *f*, and spongy lead surrounding said bars, a bottom plate F′ of non-conducting material secured to the negative electrode, a conductor G connecting the two negative electrodes, and binding-posts connected to the positive electrodes respectively, substantially as specified.

594,052. MACHINE FOR HOOPING BARRELS. MELVILLE C. WILCOX and HENRY C. REED, Oil City, Pa. Filed Dec. 17, 1896. Serial No. 616,048. (No model.)

Claim.—1. In a barrel-hooping machine, an expansible case-hoop for reinforcing the hoop to be driven composed of a plurality of sections, and means in the plane of the hoop overlapping the joint between the sections and holding them in alinement and admitting of their relative movement, whereby provision is had for the expansion of the hoop, substantially as set forth.

2. In a barrel-hooping machine, an expansible case-hoop for reinforcing the hoop to be driven composed of a plurality of sections each having an inner flange at its top side and the flanges unitedly forming an inner rim to engage over the top edge of the hoop to be forced home, and means in the plane of the hoop and exterior thereto for holding the several sections in alinement and overlapping the

joint formed between their meeting ends and allowing for the expansion and contraction of the hoop, substantially as and for the purpose set forth.



3. In a barrel-hooping machine, an expansible-case-hoop composed of a plurality of similarly-formed sections having a groove in their periphery, and a spring-band seated in the said groove and overlapping the joint formed between the sections and adapted to hold them in alinement and admit of their expansion when forced upon the barrel or package, substantially as set forth.

4. In a barrel-heading machine, the combination of a support, an arm carrying a catch-hoop, a link having pivotal connection with the rear end of the arm and a pivotal and slidable connection with the support, a second link, and means for pivotally and slidably connecting the second link with the said arm and support, substantially as and for the purpose set forth.

5. In a barrel-heading machine, the combination of a support, a link, arms attached to and carried by the said link and bearing a catch and a case hoop, respectively, and other links having pivotal connection with the rear ends of the said arms and pivotal and slidable connection with the said support, substantially as set forth.

6. In combination, a counterbalanced beam, an arm bearing a hoop, and links connecting the arm with the counterbalanced beam, substantially as and for the purpose set forth.

7. In combination, a beam, a weight adjustably connected with the beam and shiftable toward and from the fulcrum thereof, a link having pivotal and slidable connection with the beam, an arm bearing a catch-hoop having pivotal and slidable connection with the said link, a second arm bearing a case-hoop having pivotal connection with the said link, and other links having pivotal connection with the rear ends of the arms and pivotal and slidable connection with the beam, substantially as set forth.

8. In combination, a frame, a beam having adjustable connection with the frame, a weight adjustably connected with one end of the beam, a link having pivotal and slidable connection with the opposite end of the said beam, an arm bearing a catch-hoop and having pivotal and slidable connection with the link, a second arm bearing a case-hoop having pivotal connection with the link, and other links having pivotal connection with the rear ends of the arms and pivotal and slidable connection with the beam, substantially as set forth for the purpose described.

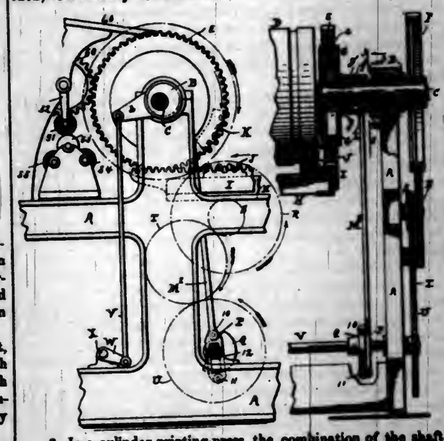
9. In a barrel-hooping machine, a case-hoop composed of a plurality of sections having a channel in their exterior forming a seat, a strip overlapping the joint formed between the sections to hold them in alinement and located in the said seat, and a spring-band seated in the channel and holding the several strips and sections in place, substantially as set forth.

10. In a barrel-hooping machine, a case-hoop composed of a plurality of sections having a channel in their periphery and a groove communicating with the channel, strips overlapping the joints between the sections and interlocking at their ends with the grooves formed in adjacent sections, and a spring-band holding the sections together and retaining the strips in place, substantially in the manner set forth for the purpose described.

11. A case-hoop composed of sections having a channel and grooves in the bottom of the channel terminating short of the ends of the sections, spring tongues or strips fitted in the channel and having studs operating in the grooves, and a spring-band holding the sections together and the said strips in place, substantially as specified.

594,053. REGISTERING MECHANISM FOR PRINTING-PRESSES. HENRY A. W. WEED, New York, N. Y., assignor to the Campbell Printing Press and Manufacturing Company, of New York. Filed May 28, 1892. Serial No. 434,804. (No model.)

Claim.—1. The combination in a printing-press, of the impression-cylinder, gearing for continuously rotating the same in one direction, a disk mounted to turn with said impression-cylinder and forming one member of a friction-clutch, a registering-gear forming the other member of the friction clutch, the reciprocating bed having a rack with which said registering-gear meshes, a starter segment and rack secured to said bed and cylinder, and a clutch-operating mechanism arranged to connect said clutch after the bed and cylinder have been brought into register by said starter segment and rack, substantially as described.



2. In a cylinder printing-press, the combination of the shaft C, the impression-cylinder mounted on the same, the registering-gear E loosely mounted on said shaft C, the disk G keyed to said shaft, said gear E and disk G constituting a friction-clutch, the nut L engaging said disk, the stationary screw M which said nut L engages, means for adjusting and clamping screw M, means for oscillating the nut L at the proper time, and the reciprocating bed H, having a registering rack I secured to the same in constant mesh with the registering-gear E, substantially as described.

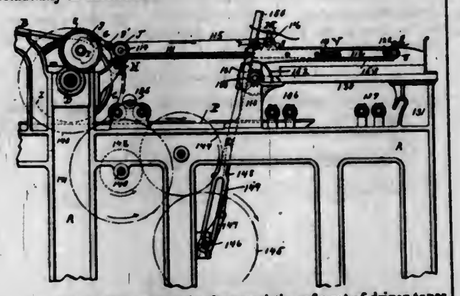
3. In a cylinder printing-press, the combination of the impression-cylinder, the registering gear mounted independently of said impression-cylinder, the disk connected to turn with said impression-cylinder, said disk and registering-gear constituting a friction-clutch, the reciprocating bed having a registering-rack in constant mesh with the registering-gear, a starter segment and rack secured to the impression-cylinder and bed, and clutch-operating mechanism so timed that the clutch will engage after the bed has started on its forward or printing stroke, and while the starter segment and rack are in operation, and so that the clutch will be disengaged when the bed starts on its retrograde movement, substantially as described.

4. In a cylinder printing-press, the combination of the impression cylinder, the registering-gear mounted independently of said impression-cylinder, the disk mounted to turn with said impression-cylinder, said registering-gear and disk constituting a friction-clutch, said friction-clutch being mounted to rise and fall with the impression-cylinder, stationary means for operating said friction-clutch, a compensating connection between said friction-clutch and said stationary means, whereby the vertical movement of the impression-cylinder will not affect the proper action of the clutch, and the reciprocating bed having a registering rack in constant mesh with the registering gear, substantially as described.

5. In a cylinder printing-press, the combination of the impression-cylinder, the registering-gear mounted independently of said impression-cylinder, the disk connected to turn with said impression-cylinder, said disk and registering-gear constituting a friction-clutch, the reciprocating bed having the registering-rack in constant mesh with said registering-gear, a starter segment and rack secured to the impression-cylinder and bed, clutch-operating mechanism arranged to connect said clutch after the bed and cylinder have been brought into register by said starter segment and rack, and an inking mechanism having its parts driven from said registering-gear, substantially as described.

594,054. DELIVERY MECHANISM FOR PRINTING-PRESSES. HENRY A. W. WEED, New York, N. Y., assignor to the Campbell Printing Press and Manufacturing Company, of New York. Filed May 28, 1892. Serial No. 434,805. (No model.)

Claim.—1. In a sheet-delivery mechanism, the combination of a set of driven tapes, two stationary tape-pulleys mounted in the frame, two looping tape-pulleys, the tapes running forward from the first stationary pulley to the second stationary pulley, then backward around the first looping-pulley, then forward to the second looping-pulley, and then backward to the first stationary pulley, whereby two portions of the tapes are uppermost for controlling the sheet, the speed of which second section will be controlled by the movement of the looping-rollers, and means for moving the looping-rollers so that the sheet while being delivered will remain substantially stationary, and the tapes will be withdrawn from under the same, substantially as described.



2. A sheet-delivery mechanism consisting of a set of driven tapes onto which the sheet passes, two stationary rollers, two looping-rollers around which the tapes run, the top portion of the tapes running from the first stationary roller to the second stationary roller, and from the second stationary roller around the looping-rollers, and the under part of the tapes running from the last looping roller back to the first stationary roller, and means for reciprocating the looping-rollers at substantially one-half the speed of the tapes, substantially as described.

3. A sheet-delivery mechanism comprising a set of driven tapes onto which the sheet passes, stationary rollers, two looping-rollers for the tapes arranged so that the loop in the tapes lies under the last stationary roller, and means for reciprocating the looping-rollers at substantially one-half the speed of the tapes, substantially as described.

4. The combination in a delivery mechanism of the impression-cylinder, the set of traveling tapes, means for driving the same, means for guiding the sheet from the impression-cylinder onto the tapes, two stationary rollers, a carriage carrying two looping-rollers, the tapes passing around the two stationary rollers and then around the two looping-rollers and back from the last looping-roller to the first stationary roller, and means for reciprocating said carriage at substantially one-half the speed of the tapes, substantially as described.

5. The combination in a delivery mechanism of the impression-cylinder, the set of traveling tapes, means for driving the same, means for directing the sheets from the impression-cylinder onto the tapes, the stationary rollers R and S, the carriage V carrying the rollers T and U, means for reciprocating the carriage, the roller T being between the roller S and the impression-cylinder, the tapes passing around rollers R, S, T and U, and the guiding or directing fingers M placed over the roller S adapted to guide the sheet down onto the portion of the tapes between the rollers T and U, substantially as described.

6. The combination in a delivery mechanism of the impression-cylinder, the set of traveling tapes, the stationary rollers, and the tape-carriage carrying the moving rollers around which said tapes pass, and means for reciprocating said tape-carriage consisting of racks mounted on the carriage, gears meshing into said racks, said gears being mounted on a shaft, a pinion mounted eccentrically on said shaft, a rack meshing with said pinion, and a crank for reciprocating said rack, said eccentric pinion and crank being set so as to impart substantially a uniformly-reciprocating movement to said carriage, substantially as described

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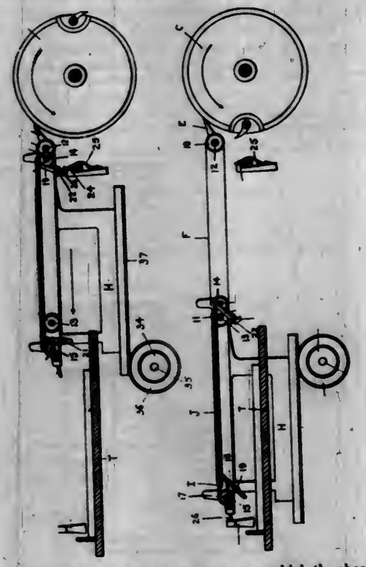
594,055. DELIVERY MECHANISM FOR PRINTING-PRESSES. HENRY A. W. WEED, New York, N. Y., assignor to the Campbell Printing Press and Manufacturing Company, same place. Filed Aug. 19, 1896. Serial No. 603,170. (No model.)

Claim.—1. In a delivery mechanism for printing-presses, the combination of movable frames or fly-sticks, and a set of bodily-movable tapes, the said parts being arranged so that the fly-sticks will deposit a sheet upon the bodily-movable tapes, and the tapes will then deposit said sheet upon the delivery-table, substantially as described.

2. The combination of a movable carriage, delivery-tapes and frames or fly-sticks mounted therein, and means for actuating said parts so that the sheet will be carried by the fly-sticks while the carriage is moving in one direction, and by the tapes while the carriage is moving in the other direction, substantially as described.

3. The combination of two sets of tapes, one set of tapes being mounted on tape-rolls having fixed bearings, the other set being bodily movable, and means for transferring a sheet from the first to the second set of tapes, substantially as described.

4. The combination of a set of tapes mounted on tape-rolls having fixed bearings, a movable carriage, a second set of tapes mounted therein, and movable frames or fly-sticks for transferring a sheet from the first to the second set of tapes, substantially as described.



5. The combination of a set of tapes onto which the sheet first passes, a set of delivery-tapes intermeshing with the first set of tapes, said delivery-tapes being bodily movable forward and backward, and movable frames or fly-sticks for transferring a sheet from the first to the second set of tapes, substantially as described.

6. The combination of a set of tapes onto which the sheet first passes, a movable carriage, delivery-tapes mounted therein, fly sticks or frames also mounted in said carriage, and stops for actuating the fly sticks or frames to transfer a sheet from the first set of tapes onto the second set of tapes, substantially as described.

7. The combination of a set of tapes onto which the sheet first passes, a movable carriage, delivery-tapes mounted therein, movable frames or fly-sticks also mounted in said carriage, and means actuated by the movement of the carriage for driving the delivery-tapes and actuating the fly sticks or frames, substantially as described.

8. The combination of a set of tapes onto which the sheet first passes, a movable carriage having delivery-tapes and movable frames or fly-sticks mounted therein, and means for raising the fly-sticks so as to support the sheet while the carriage is moving away from the impression-cylinder, and for lowering said fly-sticks when the carriage reaches its extreme position away from the impression-cylinder, substantially as described.

9. The combination of a set of tapes onto which the sheet first passes, and a set of bodily-movable delivery-tapes and fly sticks or frames intermeshing with the first set of tapes, substantially as described.

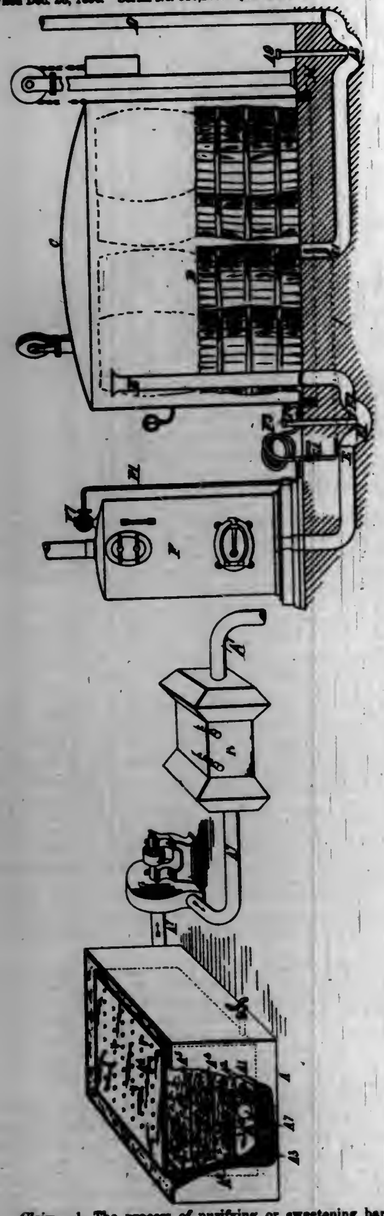
10. The combination of a set of tapes onto which the sheet first passes, a movable carriage having delivery-tapes and movable frames or fly-sticks mounted therein, a stationary rack and gearing meshing therewith for actuating the delivery-tapes, and means for raising the fly-sticks so as to support the sheet while the carriage is moving away from the impression-cylinder, and for lowering said fly-sticks when the carriage reaches its extreme position away from the impression-cylinder, substantially as described.

11. The combination of a set of tapes onto which the sheet first passes, gearing driven from the impression-cylinder of a printing-press for actuating said tapes, a movable carriage having delivery-tapes and movable frames or fly-sticks mounted therein, a crank-driving mechanism for said carriage, a stationary rack and gearing meshing therewith for actuating the delivery-tapes, and stops arranged to raise the fly-sticks so as to support a sheet while the carriage is moving away from the impression-cylinder, and so as to lower said fly-sticks when the carriage reaches its extreme position away from the impression-cylinder, substantially as described.

12. In a delivery mechanism for printing-presses, the combination of a set of tapes onto which the sheet first passes, and a set of bodily-movable delivery-tapes intermeshing therewith, said tapes being ar-

ranged at different relative levels, and means for transferring a sheet from the first set of tapes onto the delivery-tapes, substantially as described.

594,056. APPARATUS FOR PURIFYING BARRELS. CHARLES J. YARNOLD, London, and WILLIAM J. ENGLEHURT, Byfleet, England. Filed Dec. 28, 1896. Serial No. 617,279. (No model.)



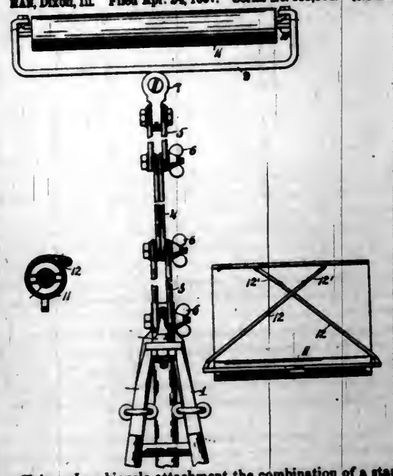
Claim.—1. The process of purifying or sweetening barrels or casks which have contained alcoholic or malt liquors characterized by first damping the interior of the cask and then subjecting it to the action of ozone and finally subjecting it to a washing action.

2. In the purification or sweetening of barrels by ozone the combination with an air-drying and cleansing chamber A of a blower G ozonizer B and chamber C for the purpose set forth.

3. In the purification or sweetening of barrels by ozone the combination with an air-drying and cleansing chamber A of a blower G ozonizer B chamber C, and a boiler, for the purpose set forth.

4. The process of purifying or sweetening barrels or casks, consisting in first treating the interior of the casks with steam, then subjecting them to the action of ozone delivered into the barrels, and then cleansing the barrels by steam.

594,057. SUPPORT FOR BICYCLE-SHADES. FRANK S. YOUNGMAN, Dixon, Ill. Filed Apr. 24, 1897. Serial No. 633,561. (No model.)



Claim.—In a bicycle attachment the combination of a standard having a yoke movably mounted on the upper end thereof, a spring-roller embraced by said yoke, the latter having folding arms movably attached thereto, and a shade adjustably engaging the said roller and supported by the said arms, substantially as, and for the purposes specified.

594,058. WASHING-MACHINE. KARL BARNETT, Manchester, Ind. Filed July 9, 1896. Serial No. 598,502. (No model.)

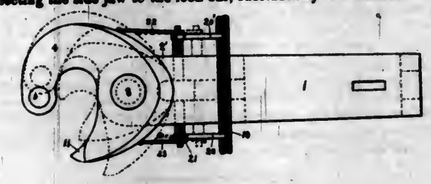


Claim.—In a washing-machine, the combination with a suitable frame carrying at each side a rack, of a semicylindrical containing vessel supported in said frame by means of pinions adapted to rest in the racks; bifurcated arms carried by said containing vessel, a rubber adapted to oscillate in said containing vessel and having bearings supported in the bifurcations of said arms, an upward-extending arm carried by the rubber, an upward-extending support carried by the frame, a lever-arm pivotally connecting the upper ends of said arm and support, and means for rocking the said containing vessel on its bearings, whereby to impart, through the connections described, a counter oscillation to the rubber, substantially as described.

594,059. CAR-COUPLING. ANDREW J. BEARD, Eastlake, Ala. Filed Sept. 20, 1897. Serial No. 652,203. (No model.)

Claim.—1. In a draw-head, the combination with the shank having projecting lugs formed on the front end thereof, of the head having slots formed therein to receive the shank-lugs, the jaw engaging in slots formed in the head, the pin pivotally connecting all the parts together, and the sliding locking device to engage the recesses formed in the head and jaw, substantially as and for the purpose described.

2. In a car-coupling, the combination with the operating-rod having two downwardly-extending arms, the lower ends of the arms pivotally connected to a transverse bar attached to the locking device, of a rod connecting the head to the lock-bar, and a rod connecting the side jaw to the lock-bar, substantially as described.



594,060. TELEPHONE. THEODORE BERDELL, New York, N. Y. Filed Dec. 27, 1895. Serial No. 573,433. (No model.)



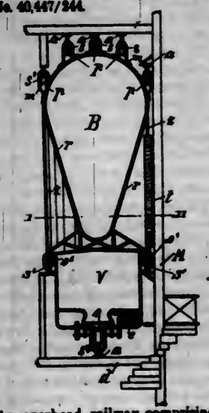
Claim.—1. In a telephone, two adjacent flexible diaphragms secured in place at their peripheries and unencumbered at the center portions of their facing sides thereby leaving a free space between them at that place, and granular or spherical material confined between the diaphragms about the central space, for the purpose set forth.

2. A telephone in which are comprised two diaphragms unencumbered at their centers and held apart at their peripheries in an insulating-case, a ring of insulating material held between the diaphragms, and spherical or granular material loosely held in the space outside of the ring, the space between the diaphragms within the ring being unoccupied, substantially as shown and described.

3. In a telephone, two adjacent flexible diaphragms secured in place at their peripheries and unencumbered at the center portions of their facing sides thereby leaving a free space between them at that place, granular or spherical material confined between the diaphragms about the central space, and an electromagnet arranged to act upon one of said diaphragms for the purpose set forth.

4. In a telephone, two adjacent flexible diaphragms one of which is cut away at its center, a magnet extending into the opening so formed in the one diaphragm and arranged to act upon the other diaphragm, and granular or spherical material confined between the diaphragms around said opening for the purpose set forth.

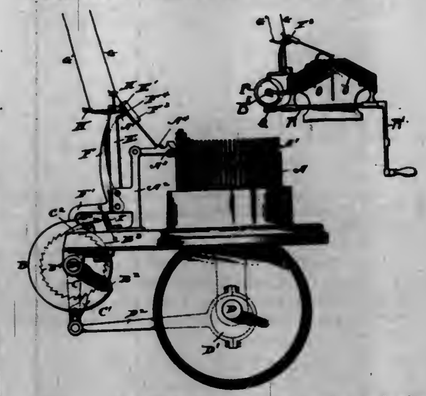
594,061. HIGH-LEVEL TRAMWAY. EDGARD BOCK, Bangkok, Siam. Filed July 10, 1897. Serial No. 644,143. (No model.) Patented in France Sept. 10, 1895, No. 250,136; in Belgium Oct. 14, 1895, No. 117,867; in Switzerland Oct. 14, 1895, No. 11,363; in England Oct. 15, 1895, No. 19,370; in Austria Oct. 16, 1895, No. 45/4,530; in Hungary Oct. 31, 1895, No. 4,450; in Norway Oct. 23, 1895, No. 4,734; in Sweden Dec. 12, 1895, No. 7,443; in Denmark Dec. 21, 1895, No. 803, and in Italy Dec. 28, 1895, No. 40,447/244.



Claim.—1. An overhead railway comprising a superstructure composed of posts connected by two transversely-disposed struts, a cable carried by the lower strut to partly support the rolling-stock a car provided with guide and driving wheels adapted to engage the said cable, a compartment-balloon attached to the car and serving to carry the greater portion of the weight of the car, guide-wheels journaled to the frame of the balloon and engaging the cables suspended from the upper strut of the superstructure, substantially as and for the purposes set forth.

2. In an overhead railway comprising a superstructure composed of posts, transverse struts, cable-supports *a* and cables, in combination with a car-body supported by a balloon and the said cables, of driving and guide wheels for the said car-body and balloon, said wheels journaled in bearings having yielding ends to allow for the passage of the cable-supports *a* when the car with its balloons is in motion, substantially as and for the purposes set forth.

594,062. CIRCULAR-KNITTING MACHINE. ERWIN R. BRANSON, Philadelphia, Pa., and ROBERT R. DAVIS, Rockford, Ill., assignors to said Branson. Filed July 20, 1895. Serial No. 557,544. (No model.)



Claim.—1. In a knitting-machine, in combination, a pair of arms pivoted one upon the other, one arm being stationary, each arm having an eye therein, adjacent to the other, wherethrough yarn may pass at predetermined intervals, to reinforce the heels and toes of stockings, by reason of the alternate opening and shutting of said arms and a pattern-wheel for alternately opening and closing the same, substantially as and for the purpose specified.

2. In a knitting-machine, in combination, a pair of arms pivoted one upon the other, one arm being stationary, each of said arms having an eye in the free end thereof to admit the passage of yarn therethrough, and a yarn-chute, fast to the upper portion of one of said arms and having an eye therein, opposite to the eyes in said arms, substantially as and for the purpose specified.

3. In a knitting-machine, in combination, a stationary arm, an additional arm pivoted thereto and provided with an actuating-lug projecting therefrom, a chute secured to the upper portion of the movable arm, each arm and the chute having eyes therein, to admit the passage of yarn therethrough, and a pattern-wheel for actuating the movable arm at predetermined intervals, substantially as and for the purpose specified.

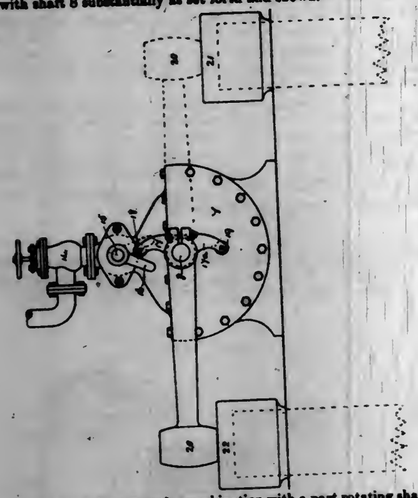
4. In a knitting-machine, in combination, a detent, having an open slot therein, one side whereof is provided with an incline K^3, a rotatable cam, having a pin L', projecting therefrom, adapted to engage with the incline, K^3, of the detent K, and slide the same endwise, a crank mounted on a shaft B^2 and provided with a pin at its free end for rotating the said cam, the bar J^4, and the bar-actuating spring J^7, substantially as and for the purpose specified.

5. In combination, in a knitting-machine, the endwise-sliding bar J^4, suitably supported and having a notch J^6, therein, the bar-actuating spring J^7, the sliding detent, adapted to engage with the notch J^6, in said bar J^4, and having an open slot therein, one side whereof is provided with an incline K^3, a rotatable cam having a pin L', projecting therefrom to engage with the incline K^3 of the detent K, and draw it out of engagement with said bar J^4, a spring for holding the detent K, when normal, in engagement with said bar J^4, and a crank suitably mounted and provided with a pin M' for rotating said cam, substantially as and for the purpose specified.

594,063. POWER-HAMMER. EDWARD S. BERRY, Coventry, England. Filed June 21, 1897. Serial No. 641,506. (No model.)

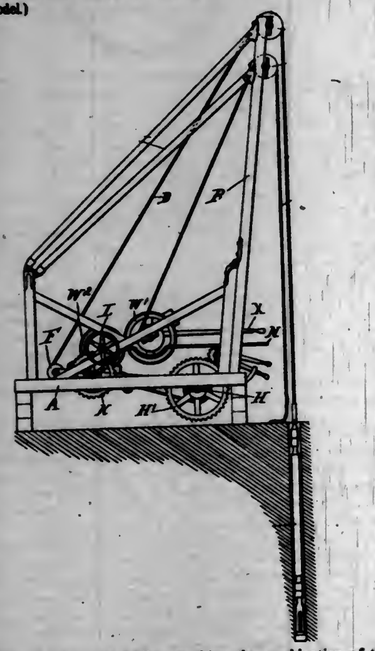
Claim.—1. In power-hammers the combination with the valve

11, ports 12 and 13, spindle 15 and crank-arm 16, of the cams 17 and 17ª with shaft 8 substantially as set forth and shown.



2. In power-hammers the combination with a part rotating shaft 8 of the hammer 20 having a double face, with double anvils 21 and 22, substantially as set forth and shown.

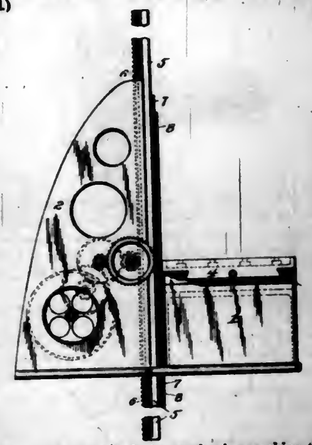
594,064. WELL-DRILLING MACHINE. MORTON G. BUSHELL, Chicago, Ill., and WILLIAM T. PERKINS, Rensselaer, Ind., assignors to Frederick C. Austin, Chicago, Ill. Filed Dec. 14, 1895. Serial No. 572,135. (No model.)



Claim.—1. In a well-drilling machine, the combination of the main drum; a pivotally-secured walking-beam provided with a pulley at its free end, and a yoke forming a guideway; concentrically-mounted gear-wheels carrying a crank-pin working in said guideway; a shaft adapted for continuous rotation from a suitable driving power; pinions mounted on said shaft, but not rigid therewith, and meshing with said gear-wheels; and a clutch to compel the rotation of said pinions by said shaft; substantially as described.

2. In a well-drilling machine, the combination of the main drum; a pivotally-secured walking-beam having a pulley at its free end, and a sheave located between said pulley and its pivoted end, and provided with a yoke adapted to serve as a guide; concentrically-mounted gear-wheels carrying a crank-pin provided with a roller working in said guideway, said wheels having corresponding bearings for said pin at varying distances from their common center; a shaft adapted for continuous rotation from suitable driving power; pinions mounted on a sleeve loose upon said shaft, and meshing with said gear-wheels; and a clutch to compel the rotation of said pinions by said shaft; substantially as described.

594,065. MACHINE FOR PLANING METALS. WILLIAM H. CHAPPELL, Chicago, Ill. Filed Jan. 22, 1897. Serial No. 620,240. (No model.)



Claim.—1. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed carried by said frame, a cutter-bar carried by said frame, and a series of independent tools or cutters secured in said cutter-bar the cutting-points of said tools being arranged in a common and rectilinear plane and obliquely to the line of movement so that each cutting-point will remove an independent and simultaneously successive cut of the full depth required, substantially as set forth.

2. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed carried by said frame, a cutter-bar carried by said frame, means for effecting an oblique adjustment of said cutter-bar, and a series of independent tools or cutters secured in said cutter-bar, the cutting-points of said tools being arranged in a common plane and obliquely to the line of movement, so that each cutting-point will remove an independent and successive cut of the full depth required, substantially as set forth.

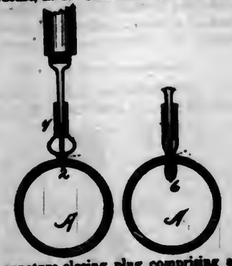
3. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed, arranged adjustably thereon, a vertically-moving slide arranged in suitable guides on the main frame, means for imparting a rectilinear reciprocation to said slide, and a cutter-bar secured to said slide and carrying a series of tools or cutters, that have an oblique arrangement, substantially as set forth.

4. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed arranged adjustably thereon, a vertically-moving slide arranged in suitable guides on the main frame, means for imparting a rectilinear reciprocation to said slide, a cutter-bar adjustably secured to said slide and carrying a series of tools or cutters, and means for adjusting and securing the cutter-bar in an oblique position on the slide, substantially as set forth.

5. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed arranged adjustably thereon, a vertically-moving slide arranged in suitable guides on the main frame, means for imparting a rectilinear reciprocation to said slide, a cutter-bar adjustably secured to said slide, and carrying a series of tools or cutters, and means for adjusting and securing the cutter-bar in an oblique position on the slide, the same comprising attaching-bolts, and transverse slots in the slide, substantially as set forth.

6. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed arranged thereon, a frame secured to said bed and provided with journal-bearings in which to support a curved article in a vertical manner, means for pivotally moving said article, a vertically-moving slide arranged in guides on the main frame, means for imparting a rectilinear reciprocation to said slide, a cutter-bar adjustably secured to said slide and carrying a series of tools or cutters, and means for adjusting and securing the cutter-bar in an oblique position on the slide, substantially as set forth.

594,066. DEVICE FOR REPAIRING VEHICLE-TIRES. ROBERT H. CLEKTON, Syracuse, N. Y. Filed Jan. 26, 1897. Serial No. 620,787. (No model.)



Claim.—1. A puncture-closing plug comprising a tubular stem and a hollow head provided with perforations adjacent to said stem.

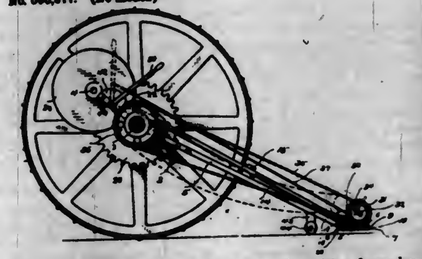
2. A puncture-closing plug comprising a tubular stem and a hollow and longitudinally-elastic head provided with perforations adjacent to said stem.

3. A puncture-closing plug comprising a tubular stem and a hollow perforated and longitudinally-elastic head provided with an apex.

4. The combination with a tire of a puncture-closing plug comprising a tubular and laterally expansible and compressible stem, and a hollow and perforated and longitudinally-elastic head provided with an apex.

5. A puncture-closing plug comprising a tubular stem and a transverse head hollow, perforated and elastic in the direction of the bore of the stem.

594,067. LAWN-MOWER. CHARLES H. CURTIS, Derby, and CHARLES B. ATWATER, New Haven, Conn. Filed May 8, 1896. Serial No. 590,677. (No model.)



Claim.—1. In a lawn-mower the combination with a frame having a forwardly-extending arm, of guard-plates hinged to said arm, a cutter-plate lying between the guard-plates and having stud 20, a lever 14 having a socket at its lower end, a plate 19 fitting over the stud 20, a rod 17 pivoted to plate 19 and adapted to slide in the socket, means for oscillating the lever and reciprocating the cutter-plate and means for tilting the guard-plates and cutter-plate in the vertical plane independently of the arm and without interrupting the action of the machine, or altering the elevation of the arm.

2. In a lawn-mower the combination with a frame having a forwardly-extending arm, of guard-plates hinged to said arm, a cutter-plate lying between the guard-plates, lever 14 pivoted to the arm and having an extensible and jointed lower end connected with the cutter-plate which will permit the guard-plates and cutter plate to be tilted without lifting the arm, means for oscillating said lever and reciprocating the cutter-plate a bracket depending from said arm and carrying a roller upon which the weight of the guard-plates and cutter-plate rests, and means for tilting the guard and cutter plates relatively to the arm without interrupting the action of the machine.

3. The combination with the shaft, a frame in which said shaft is journaled and which is provided with an arm 5, a fixed shaft at the rear of the frame and a cam mounted on said shaft, of guard-plates hinged to the arm, a cutter-plate lying between the guard-plates, lever 14 pivoted to the frame, the lower end of said lever being jointed and extensible and connected to the cutter-plate and the other provided with a yoke which engages the cam, means for transmitting motion from the shaft to the cam whereby the cutter-plate is reciprocated in use, and means for tilting the guard and cutter plates relatively to the arm without interrupting the action of the machine.

4. The combination with the shaft, a frame in which the shaft is journaled and which is provided with an arm 5, a fixed shaft at the rear of the frame, and a cam mounted on said shaft, of guard-plates hinged to the arm, a cutter-plate lying between the guard-plates, lever 14 pivoted to the frame, the lower end of said lever being jointed and extensible and connected to the cutter-plate and the other provided with a yoke which engages the cam, means for transmitting motion from the shaft to the cam, a roller at the forward end of the arm upon which the weight rests and means as lifting-rod 37 for raising or lowering the guard-plates and cutter-plate independently of the arm and without interrupting the action of the machine.

5. The combination with the shaft, a frame in which the shaft is journaled and an arm 5 extending forward from the frame, of guard-plates hinged to the arm, a cutter-plate lying between the guard-plates, a rotary brush journaled in swinging arms 33 and mechanism intermediate the shaft and guard-plates for rotating the brush and for reciprocating the cutter plate, the guard-plates, cutter-plate and brush being free to tilt vertically independently of the arm.

6. In a lawn-mower the combination with an arm 5, guard-plates hinged to said arm so as to tilt in the vertical plane, a cutter-plate between said guard-plates, means for reciprocating the cutter-plate and means for tilting the guard-plates and cutter plate independently of the arm, of arms 33 pivoted to arm 5, a brush journaled in arms 33, rests 48 extending downward from said arms and bearing on the upper guard-plate to support the brush and means for rotating the brush.

7. In a lawn-mower the combination with an arm 5, guard-plates hinged to said arm so as to tilt in the vertical plane, and a cutter-plate between said guard-plates, of arms 33 pivoted to arm 5, a brush journaled in arms 33, sprocket-wheels and a sprocket-chain by which the brush is rotated.

8. In a lawn-mower the combination with an arm 5, guard plates hinged to said arm so as to tilt in the vertical plane and a cutter-plate between said guard-plates, of arms 33 pivoted to arm 5, a brush journaled in arms 33, sprocket-wheels and a sprocket-chain by which the brush is rotated, stops for supporting arms 33 and the brush when out of operative position and means for disconnecting the driving-sprocket so that the brush will not rotate.

594,068. RUDDER. JOHN W. DONNOU, Salt Lake City, Utah. Filed Oct. 31, 1896. Serial No. 610,757. (No model.)



Claim.—1. The combination with the hull of a boat, of a flexible rudder therefor fixedly secured at its forward end to the stern of the boat.

2. The combination with the hull of a boat, of a rudder constructed of steel or other suitable flexible material fixedly secured at its forward end to the boat, and means for bending said rudder.

3. The combination with the hull of a boat, of a flexible rudder therefor, an arm pivoted at its rear end to the free end of said rudder and extending forwardly therefrom, and means for turning said arm, substantially as and for the purpose described.

4. The combination with the hull of a boat, of a flexible rudder therefor secured at its forward end to the stern of said boat, an arm pivoted at its rear end to the free end of said rudder and at its forward end to a stationary part of said boat, and a handle upon said arm, substantially as and for the purpose described.

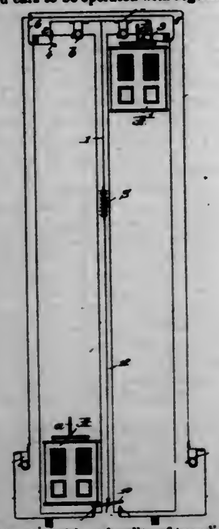
5. The combination with the hull of a boat, of a flexible rudder therefor secured at its forward end to the stern of said boat, an arm pivoted at its rear end to the free end of said rudder and connected at its forward end to a cross-bar pivoted to the stationary part of said boat, and means for swinging said cross-bar, substantially as and for the purpose described.

594,069. MEANS FOR REGULATING OPERATION OF ELEVATOR OR TRAVELING CARS. FREDERICK L. EMERY, Lexington, Mass. Filed Dec. 11, 1896. Serial No. 615,308. (No model.)

Claim.—1. The combination with a plurality of traveling cars, having respectively different lines of travel, of automatic means for insuring the movement of said cars in certain predetermined order one with relation to another, substantially as described.

2. The combination with a plurality of traveling cars, having respectively different lines of travel, of automatic means for indicating

to the operator in one of said cars the position of another of said cars to enable said cars to be operated with regularity, substantially as described.



3. The combination with a plurality of traveling cars, having respectively different lines of travel, of controlling means for one car operable automatically by another car at a predetermined point in the travel of the latter, substantially as described.

4. The combination with a plurality of traveling cars, of governing means at the end of travel of one car operable automatically by movement of another car to a predetermined point in the travel of the latter, substantially as described.

5. The combination with a plurality of traveling cars, having respectively different lines of travel, of audible indicating means for one car operable automatically by movement of another car to a predetermined point in its travel, substantially as described.

6. The combination with a plurality of traveling cars, having respectively different lines of travel, of automatic car-controlling means operated by the movement of a plurality of said cars simultaneously into predetermined positions, substantially as described.

7. The combination with a plurality of traveling cars, having respectively different lines of travel, of car-controlling means constructed to automatically lock said cars at predetermined points, and automatic means operated from one car to automatically unlock the governing means for another car, substantially as described.

8. The combination with a plurality of traveling cars, having respectively different lines of travel, provided respectively with shipping mechanism, of means to lock said shipping mechanism, and automatic means to unlock the shipping mechanism of one car when another has reached a predetermined position, substantially as described.

9. The combination with a plurality of traveling cars, of indicating and locking mechanism for each and automatic means for operating the indicating and locking mechanism of one car by movement of another car, substantially as described.

10. The combination with a plurality of traveling cars, having respectively different lines of travel, of electrically-actuated governing means governing the movements of one car by the movements of another car, substantially as described.

11. The combination with a plurality of traveling cars, having respectively different lines of travel, of electrically-controlled means indicating through the movements of one car certain positions of another car, substantially as described.

12. The combination with a plurality of traveling cars having respectively different lines of travel, of electrically-controlled means for insuring movement of said cars in desired order one with relation to another, and circuit-controlling devices at fixed points in the travel of said cars to govern the operation of said electrically-controlled means, substantially as described.

13. The combination with a plurality of traveling cars having respectively different lines of travel, of electrically-controlled means for insuring movement of said cars in desired order one with relation to another, and circuit-controlling devices governing said means, movement of a plurality of said circuit-controlling devices into predetermined position simultaneously, being necessary for effective operation of said means, substantially as described.

14. The combination with a plurality of traveling cars having respectively different lines of travel, of electrically-controlled means for insuring the movement of said cars in desired order, one with relation to another, and circuit-controlling devices operated by movement of said cars and governing said means, some of said circuit-controlling devices after movement by a car automatically resuming original position when released by movement of said car, others of said circuit-controlling devices remaining always in position where left by movement of a car until positively changed into different position by movements of a different car, substantially as described.

594,070. ANTIFREEZING-VALVE. AUGUSTUS W. FARR, Manchester, Va. Filed Dec. 17, 1896. Serial No. 616,091. (No model.)



Claim.—1. In a self-draining valve, the combination with a valve-casing having inlet and discharge pipes and also a waste-pipe, and provided with an internal annular shoulder and a longitudinal passage communicating with the waste-pipe, of a cap removably fitted in said casing and having waterways formed in its sides and also provided with a drain-opening extending longitudinally through the cap, a movable valve-stem, a valve for closing the lower end of the cap, a spring for holding said valve normally closed, and a valve or washer movable with the stem for closing the drain-opening when the valve proper is opened.

2. A valve-casing comprising inlet and outlet pipes communicating with the interior thereof and provided in one side with an inclosed opening, out of communication with the interior of the casing and in communication with a waste-pipe and in further communication with an annular canal or groove in the top of the casing, in combination with a cap removably fitted to said casing and provided with waterways for admitting water to the discharge or supply pipe and also having a drain-opening extending through said cap and communicating with the canal in the valve-casing, a valve normally actuated for shutting off the water-supply, and means for operating said valve, substantially as described.

3. In a self-draining valve, a valve-casing comprising a cylindrical body provided in its upper portion with an annular canal for receiving the drain-water and also having inlet and discharge orifices, and further provided with an inclosed passage affording communication between said canal and a waste-pipe, said passage being out of communication with the interior of the valve-casing, substantially as described.

4. In a self-draining valve, a valve-casing comprising a cylindrical body having an internally-arranged annular shoulder, in combination with a cap removably fitted to said casing, a valve-stem extending through said cap, a valve secured to the lower end of said stem, a washer interposed between said annular shoulder and cap, and a spring interposed between said washer and a collar or shoulder on the valve-stem and exerting its tension to hold the valve normally closed, substantially as described.

5. In a self-draining valve, the valve-casing substantially in the form of a hollow cylinder having inlet and outlet orifices and provided with an internal annular shoulder, in combination with a cap removably fitted in said casing and having a hollow lower portion provided with waterways opening through the side walls thereof, a valve-stem passing through said cap, a valve fast on the lower end of said stem, a washer or valve-seat interposed between said annular shoulder and the lower portion of the cap, and a spring arranged between said washer or seat and a collar or shoulder on the valve-stem, substantially as described.

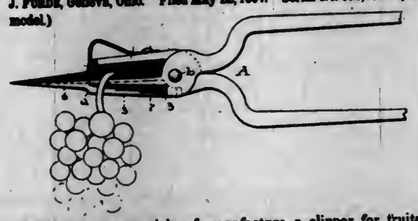
594,071. TOBACCO-BOX. MOSES FALK, New York, N. Y. Filed Oct. 9, 1896. Serial No. 608,260. (No model.)



Claim.—1. A tobacco-box, having a hinged cover, formed with a depressed portion, or cavity at one side thereof, and adjacent to the edge of the cover, and a raised portion at the other side, an opening in the bottom of said cavity and a cover movable over said opening, said cavity having an inclined edge or side, forming with the edge of the hinged cover and side of the box a lip or nose, as and for the purpose set forth.

2. A tobacco-box, having a hinged cover, formed with a depressed portion, or cavity at one side thereof, adjacent to its edge, and a raised portion at the other side, said cavity having a tapering edge or side, which forms with the edge of the hinged cover a discharge lip, or nose, an opening in the bottom of said cavity, and a cover and handle located at the bottom of said cavity and movable over said opening, as and for the purpose set forth.

594,072. GRAPE OR FLOWER CLIPPER OR SHEARS. THOMAS J. FORDE, Geneva, Ohio. Filed May 22, 1897. Serial No. 637,696. (No model.)



Claim.—As a new article of manufacture, a clipper for fruits, flowers and the like, consisting of a pair of pivotally-connected shear-blades, one of said blades having a lateral rib substantially parallel to the cutting edge thereof and a spring fixed to the other blade and arranged to bear on said rib substantially the full length thereof, and said blades having sharp-pointed cutting extremities projecting beyond said rib and spring, substantially as described.

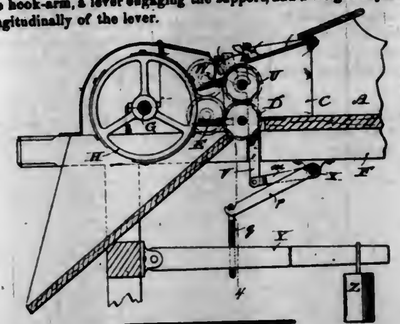
594,073. NON-REFILLABLE BOTTLE. EPHRIAM A. FOSTER, Port Clinton, Ohio. Filed Mar. 25, 1897. Serial No. 629,187. (No model.)



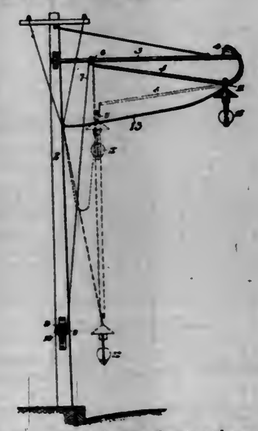
Claim.—The combination with a frangible bottle, the neck having a solid head formed with a recess at the junction of said head and with a slot communicating with said recess having shoulders at the upper and lower sides, of the stopper consisting of a spring metal plate bent over at the center forced into said recess, and its ends engaging with said shoulders; substantially as described.

594,074. STRAW-CUTTER. JOHN A. FRENCH, Walbridge, Wis. Filed Aug. 14, 1896. Serial No. 602,715. (No model.)

Claim.—In a straw-cutter, the combination of the upper feed-roller having its journals engaged with guide-slots, hangers constituting bearings for said journals, a pressure-plate having ears that engage guide-recesses and connect with the hangers, a hinged cover-plate having arms engaging apertured lugs rising from the pressure-plate, a rocker-bar having link-arms connected to the hangers, a hook-arm extended from the rocker bar, a support suspended from the hook-arm, a lever engaging the support, and a weight adjustable longitudinally of the lever.



594,075. MAST OR HANGER FOR STREET-LAMPS. JULIUS GABOR, Allegheny, Pa., assignor to Walter Cameron. Filed Apr. 27, 1897. Serial No. 634,067. (No model.)



Claim.—1. In a mast or hanger for street-lamps, the combination of a jib, a stiff arm pivoted to the jib and having a free inner end, a trolley carrying the lamp adapted to run on the arm, and a cord attached to the free end of the arm in which the trolley is caught and suspended as it leaves the arm and by which it is lowered; substantially as described.

2. In a mast or hanger for street-lamps, the combination of a jib, a pulley, a stiff arm pivoted to the jib having a free inner end, a lamp-carrying trolley having a grooved wheel which wheel is constructed and arranged to run on the arm, and a cord attached to the end of the arm and extending over said pulley in which cord the grooved wheel of the trolley is caught and suspended as it leaves the arm and by which it is lowered; substantially as described.

3. In a mast or hanger for street-lamps, the combination of a jib, an arm pivoted thereto having a stop for limiting the downward motion of the free end of said arm, a trolley adapted to run on the arm and a cord attached to the end of the arm in which the trolley is caught and suspended as it leaves the arm and by which it is lowered; substantially as described.

4. In a mast or hanger for street-lamps, the combination of a jib, a pulley, a stiff arm pivoted to the jib having a free inner end, a stop for limiting the downward movement of the free end of said arm, a lamp carrying trolley having a grooved wheel, which wheel is constructed and arranged to run on the arm, and a cord attached to the end of the arm and extending over said pulley, in which cord the grooved wheel of the trolley is caught and suspended as it leaves the arm and by which it is lowered; substantially as described.

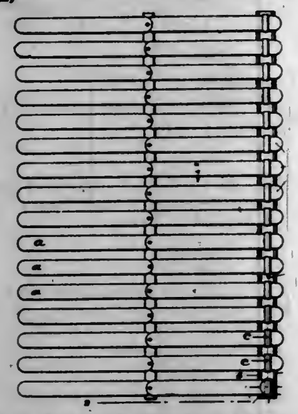
5. In a mast or hanger for street-lamps, the combination of a jib, an arm pivoted thereto having a stop at its outer end for limiting the downward motion of the free end of said arm, a trolley adapted to run on the arm, and a cord attached to the end of the arm in which

the trolley is caught and suspended as it leaves the arm and by which it is lowered, substantially as described.

6. In a mast or hanger for street-lamps, the combination of a jib, and an arm pivoted thereto having a downward and inward curve toward the mast from the pivotal point; substantially as described.

7. In a mast or hanger for street lamps, the combination of a jib, and an arm pivoted to the jib having a free end and provided with a suitable stop for limiting the downward motion of said free end, said arm having a downward and inward curve toward the mast from the pivotal point; substantially as described.

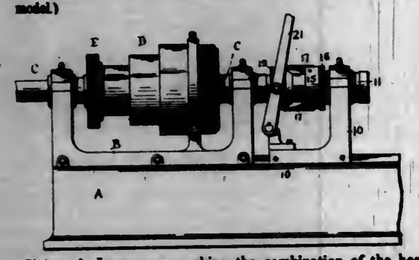
594,076. SURGICAL SPLINT. ERNEST H. GARDINER, Brooklyn, N. Y. Filed Nov. 2, 1896. Renewed May 3, 1897. Serial No. 635,736. (No model.)



Claim.—1. A new article of manufacture of the class described, consisting of a stiffened or reinforced strip, lateral strips or pieces connected thereto by means of a sliding pivotal connection.

2. A new article of manufacture of the class described, consisting of a stiffened or reinforced strip, lateral strips or pieces movably attached thereto, and an auxiliary stiffened or reinforced strip connected with said lateral projection by means of a sliding pivotal connection.

594,077. SCREW-MACHINE CHUCK. ERNEST V. GAUTHIER, Westborough, Mass. Filed Aug. 9, 1897. Serial No. 647,530. (No model.)



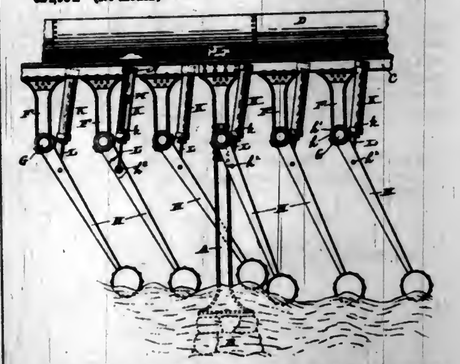
Claim.—1. In a screw-machine, the combination of the headstock, the hollow main spindle journaled therein, a removable bearing-piece, a spindle extension journaled in said bearing-piece, means for detachably connecting the main spindle and the spindle extension, and a chuck carried by the spindle extension, substantially as described.

2. An attachment for increasing the capacity of screw-machines, comprising a bearing-piece adapted to be detachably secured to the bed of the machine, a spindle extension journaled in said bearing-piece, means for detachably securing the spindle extension to the hollow main spindle of the machine, and a chuck carried by the spindle extension, whereby the full inside diameter of the main spindle may be utilized without stopping the machine, substantially as described.

3. An attachment for screw-machines, comprising a bearing-piece adapted to be detachably secured to the bed of the machine, a spindle extension journaled in said bearing-piece and adapted to be removably threaded to the hollow main spindle of the machine, and a chuck carried by said spindle extension, said chuck comprising a longitudinally-movable sleeve, a spring for forcing the sleeve in one direction, bell-crank levers for moving the sleeve in the opposite direction, an operating-sleeve having a cam-section for actuating said bell-crank levers, and a yoke-piece for shifting said actuating-sleeve, substantially as described.

4. An attachment for screw-machines comprising a bearing-piece 10, a spindle extension 11 journaled therein, and having a threaded socket for engaging the main spindle of the screw-machine, and a draw-in chuck mounted in said spindle extension, said draw-in chuck comprising a longitudinally-movable sleeve 12, a detachable end piece or spring-collet having a conical operating-section 13, a spring 14 for forcing the sleeve 12 in one direction, an adjustable collar 15, check-nuts 16 for holding said collar in its adjusted position, bell-crank levers 17 pivotally mounted in the collar 15, an operating-sleeve 19 for actuating said bell-crank lever 17, and a yoke for shifting said actuating-sleeve, substantially as described.

594,078. MACHINE FOR STORING WAVE-POWER. ALEX P. HAAS and FRANK J. FREDERICK, Fall River, Mass., assignors of one-third to John L. Wiener, same place. Filed Feb. 25, 1897. Serial No. 624,964. (No model.)



Claim.—1. In a machine for storing wave-power, the combination with an air-receiver, of one or more air-pumps each mounted on a trunnion, and one or more levers each carrying a float and connected directly to the piston rod of one of said air pumps, each lever being fulcrumed on a different axis from that of its pump-trunnion, substantially as described.

2. In a machine for storing wave-power, the combination with an air-receiver, of one or more air-pumps, each mounted on a hollow trunnion opening into the pump-cylinder and communicating with the air-receiver, a lever connected directly with the piston-rod of each pump, and a float on the end of said lever, substantially as described.

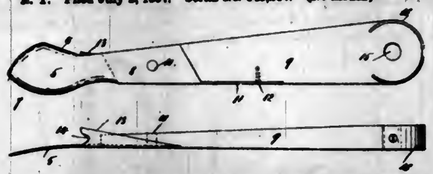
3. In a machine for storing wave-power, the combination with supporting-columns, of a girder thereon, a tubular air-receiver mounted on said girder, a plurality of air-pumps, each pump-cylinder having a hollow trunnion journaled in a bearing in said girder, and opening into the cylinder, a pipe connecting said trunnion with the air-receiver, a check-valve controlling said pipe, a lever pivotally supported from the girder adjacent to each cylinder, and connected directly with the piston-rod of the pump, and a float on the end of the lever, substantially as described.

4. In a machine for storing wave-power, the combination with the girder of a series of hangers secured thereto, a horizontal stud at the end of each hanger, a lever pivoted on said stud, a float on the end of the lever, an air-pump actuated by the lever, and an air-receiver, substantially as described.

5. In a machine for storing wave-power, the combination with a girder, of a series of hangers secured thereto, a horizontal stud on the end of each hanger, said studs projecting alternately to right and to left, bifurcated levers each having a long eye pivotally mounted on a stud, an air-tight drum secured to legs of the lever, a transverse bar between said legs, and an air-pump on a trunnion adjacent to each hanger, and having its piston-rod connected directly to said bar, substantially as described.

6. In a machine for storing wave-power, the combination with columns A, of girders C, air-reservoir D, hangers F secured to said girder and carrying studs G, bifurcated levers H having eyes h fitting said studs, floats I secured to said levers, cylinders K having air-inlet ports k, pistons M having check-valves m, piston-rods L connected directly with the levers H, hollow trunnions N opening into the cylinders and journaled in a plate P secured to the girder, unions R and pipes R' connecting said trunnions with the air-reservoir D, and check-valves S controlling said pipes R', substantially as described.

594,079. CAN-OPENER. CHARLES W. HAIGHT, Mount Vernon, N. Y. Filed July 2, 1897. Serial No. 643,287. (No model.)

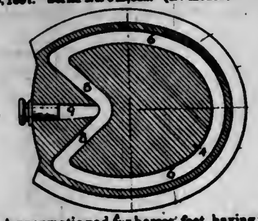


Claim.—1. A can-opener comprising a handle 9, a blade 5, which is provided with a shank 8, said shank being secured to one side of the end of the handle, and being provided at one side thereof with a backwardly-directed extension which is secured to one edge of the handle, and at the opposite side with a forwardly-directed lateral extension which is adapted to rest on the rim of a can, substantially as shown and described.

2. A can-opener comprising a handle 9, a blade 5, which is provided with a shank 8, said shank being secured to one side of the end of the handle, and being provided at one side thereof with a backwardly-directed extension which is secured to one edge of the handle, and at the opposite side with a forwardly-directed lateral extension which is adapted to rest on the rim of the can, said last-named extension being provided at its outer end with a notch or recess, substantially as shown and described.

3. A can-opener comprising a handle 9, a blade 5, which is provided with a shank 8, said shank being secured to one side of the end of the handle, and being provided at one side thereof with a backwardly-directed extension which is secured to one edge of the handle, and at the opposite side with a forwardly-directed lateral extension which is adapted to rest on the rim of the can, said last-named extension being provided at its outer end with a notch or recess, and said blade being substantially elliptical in outline and laterally curved, substantially as shown and described.

594,080. PNEUMATIC RUBBER HOOF-PAD. JAMES HERSHEY, Painesville, Ohio, assignor of one-half to John M. Warn, same place. Filed July 19, 1897. Serial No. 645,082. (No model.)



Claim.—1. A pneumatic pad for horses' feet, having flanges 2 and 5, respectively, about its edge and a space between said flanges for the horseshoe, and having a pneumatic channel opposite said space for the horseshoe, substantially as described.

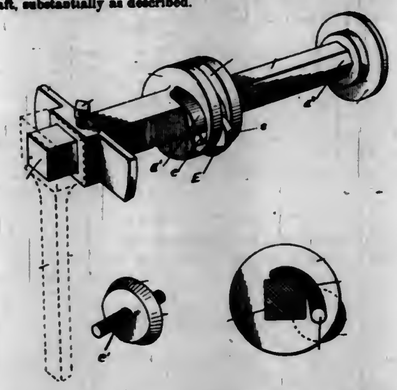
2. A pad substantially as described, having a body portion to fill the space within the shoe, and flanges about its edge to engage over the top and under the bottom of the horseshoe, respectively, and a pneumatic channel extending around the body of the pad in position to bear laterally against the shoe, substantially as described.

594,081. FLUE CUTTER AND EXPANDER. WALTER D. HERVEY, Chenoa, Ill. Filed Feb. 12, 1897. Serial No. 623,081. (No model.)

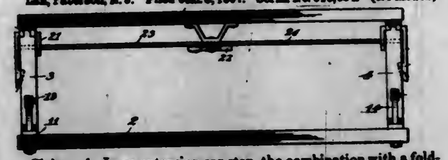
Claim.—1. In a flue cutter or expander, the combination with a power-shaft having an enlargement formed with a segmental recess and segmental cam-slots in each wall of said recess, of a wheel adapted to operate in said recess and having trunnions extending to opposite sides so as to rest in the cam-slots, and means for operating the power-shaft, substantially as described.

2. In a flue cutter or expander, the combination with a power-shaft having an enlargement formed with a segmental recess, and segmental slots in each wall of said recess, of a wheel adapted to operate in said recess and having trunnions extending to opposite sides and mounted in the cam-slots, a guide-plate mounted upon one end of said shaft, and an operating-handle mounted upon the opposite end, substantially as described.

3. In a flue cutter or expander, the combination with a power-shaft having an enlargement formed with a segmental recess and segmental cam-slots in each wall of said recess, of a wheel adapted to operate in said recess, and having trunnions extending to opposite sides of the same and mounted in the cam-slots, an adjustable plate mounted on said shaft, and an operating-handle also mounted on said shaft, substantially as described.



594,082. RAILWAY-CAR EXTENSION-STEP. GEORGE W. HEBLER, Paterson, N. J. Filed Jan. 5, 1897. Serial No. 618,084. (No model.)

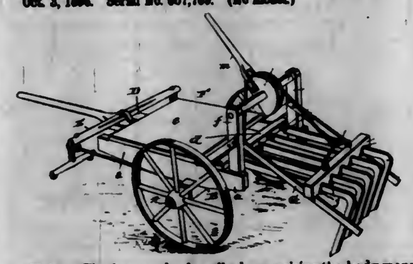


Claim.—1. In an extension car-step, the combination with a foldable step, of permanent spring-catches adapted to engage therewith on opposite sides and hold said step folded, a shifting lever, and connections between said lever and the catches whereby when the lever is moved they may be spread and disengaged from the step.

2. In an extension car-step, the combination with the main steps, of links hinged thereto, a step hinged to the links, toggle-levers connecting the step with the main steps, mechanism carried by the movable step adapted to break the toggle-levers when the step is being folded, and means for holding the movable step in folded position.

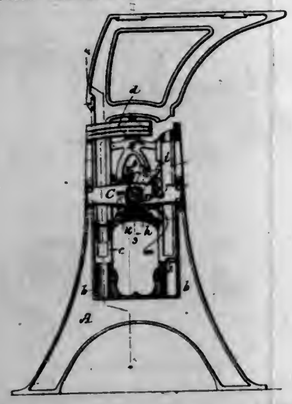
3. In an extension car-step, the combination with the main steps, of links hinged thereto, a step hinged to the links, toggle-levers connecting the main steps and the other step, and members connected to the single step and passing loosely through the links and the toggle-levers, said members being provided with devices adapted to lock or unlock the toggle-levers and means for holding the additional step in folded position.

594,088. HORSE-RAKE. ULRIC HIRN, Baldwin, La. Filed Oct. 3, 1896. Serial No. 607,769. (No model.)



Claim.—The horse-rake described comprising the body mounted on traveling wheels, the several parallel teeth loosely connected at their forward ends with the rear end of the body, the transverse bar connecting the several teeth together at an intermediate point of their length and having the pivoted bail *s*, on its upper side, the sheave mounted on the body and arranged in a plane below the connection of the several teeth, to the body, the segment mounted upon the body in a plane above the connection of the several teeth to the body and forming part of a hand-lever, and the strap connected at one end to the under side of the bar connecting the several teeth and at its opposite end to bail *s* and passed under the sheave and over the segment and connected to said segment, substantially as and for the purpose set forth.

594,084. SCHOOL-DESK STANDARD. WILLIAM C. HOOD, Racine, Wis., assignor to the Racine Hardware Company, same place. Filed Feb. 13, 1897. Serial No. 623,924. (No model.)

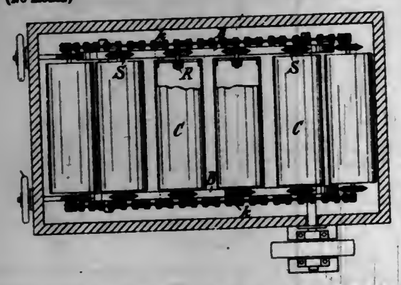


Claim.—1. A school-desk standard comprising a floor-section, a desk-section in adjustable clamp connection with the former section and provided with a rack, a pivotal detent engageable with the rack, a hand-lug extending from the detent through a segmental slot in said floor-section, and a cam on the desk-section operative against said lug to throw said detent from idle to working position.

2. A school-desk standard comprising a floor-section provided with vertical guide-grooves, an upper cross-brace and notched lateral lugs; a desk-section having branches engaging said guide-grooves outside of said cross-brace and one of these branches provided with a rack, a cross-bar having reduced angular ends seated in the floor-section lugs to thereby oppose said branches of the desk-section, a clamp-bolt and nut connecting the cross-bar with said floor-section, and a rack-engaging detent having said bolt for its pivot.

3. A school-desk standard comprising a floor-section provided with vertical guide-grooves and an upper cross-brace, a desk-section having branches engaging said guide-grooves outside of said cross-brace and one of these branches provided with a rack, a detachable cross-bar supported on the floor-section in opposition to said branches, a clamp-bolt and nut connecting the cross-bar with said floor-section, a rack-engaging detent having said bolt for its pivot, and stop-lugs on said desk-section arranged with respect to the aforesaid cross-brace and cross-bar to limit vertical movement of the latter standard-section in either direction.

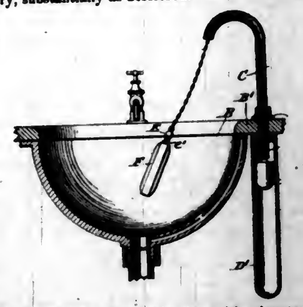
594,085. DRIER FOR SEMIFLUID MATERIAL. JOHANNES HUNDHAUSEN, Hamm, Germany. Filed June 10, 1896. Serial No. 594,971. (No model.)



Claim.—A drying apparatus comprising a series of cylinders, an endless chain for moving said cylinders, driving means for the said chains, parallel frames B and pinions S carried by the spindles of the cylinders and engaging the frames B to rotate the cylinders, substantially as described.

594,086. SOAP-HOLDER. RICHARD F. IRISH, Boston, Mass. Filed Apr. 14, 1897. Serial No. 632,155. (No model.)

Claim.—1. In a soap-holder, the combination with a tubular gooseneck, and a lavatory to which said gooseneck is attached, of a flexible suspending device connected to the soap and movable within the tubular gooseneck, and a weight secured to one end of the flexible suspending device and below the upper surface of the lavatory, said weight being arranged to withdraw automatically the soap from the lavatory, substantially as described.



2. In a soap-holder the combination, with a lavatory, and a tubular gooseneck secured to the lavatory, of a tubular guide-sleeve secured to the lower end of the said gooseneck, a flexible suspending device for the soap, arranged partly within the gooseneck, and a weight movable within the tubular guide-sleeve and arranged to withdraw the soap from the lavatory, substantially as described.

3. In a soap-holder, the combination, with a lavatory and a gooseneck having its lower end threaded and projecting below the upper surface of said lavatory, said gooseneck having a shoulder resting upon said lavatory, of a tubular guide-sleeve larger in diameter than the gooseneck, and screwed on the threaded end of the gooseneck, the upper end of the guide-sleeve coming into contact with the lavatory and serving as a nut to hold the gooseneck in place, a flexible suspending device secured to the soap and arranged within the gooseneck, and a weight movable within the guide-sleeve and secured to the lower end of the said suspending device.

594,087. MEDICINE-GLASS. JOHN M. JENKINS, Palmer, Tex. Filed May 5, 1897. Serial No. 635,352. (No model.)



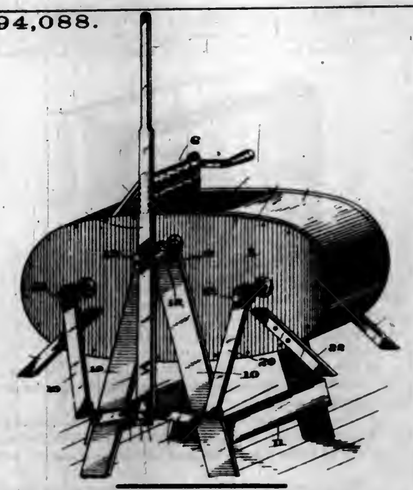
Claim.—A medicine-glass having an elongated spout, a medicine-compartment communicating with said spout, a second compartment in the rear of the medicine-compartment and adapted to contain water or other liquid, said water-compartment being of greater depth than the medicine-compartment, the wall between said cavities being formed with the channel or depression at its upper edge, said glass being graduated as desired upon the walls of its medicine-compartment, substantially as described.

594,088. WASHING-MACHINE. MOSES LAFOND and LOUIS HAMLIN, Little Falls, Minn. Filed Jan. 7, 1897. Serial No. 618,394. (No model.)

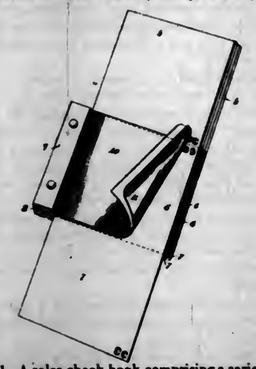
Claim.—1. In a washing-machine, the combination with a supporting-frame, of a receptacle or body pivotally mounted thereon, an actuating-lever pivoted in line with the pivot of the body, a cross-bar carried at the lower end of the actuating-lever, links pivoted at their opposite extremities to the extremities of the cross-bar and to the receptacle respectively, and stops for limiting the vibratory movement of said receptacle, substantially as specified.

2. In a washing-machine, the combination with a supporting-frame, of an elongated body or receptacle pivotally mounted thereon, an actuating-lever pivoted in line with the pivot of the receptacle, a cross-bar carried at the lower end of the actuating-lever, means for adjusting the relations of the actuating-lever and the cross-bar, links pivotally connected at their opposite ends to the extremities of the cross-bar and to the receptacle respectively, and inclined legs carried by the receptacle and designed to support the same when detached and to limit its movement when vibrated by the actuating-lever, substantially as specified.

594,088.



594,089. CHECK-BOOK. EDWARD S. LOWE, Somerville, Mass. Filed Feb. 23, 1897. Serial No. 624,701. (No model.)



Claim.—1. A sales-check book comprising a series of leaves each having a central portion furnished with a securing stub, and end portions foldable on the central portion, with a duplex carbon adapted to be interposed between two of said portions.

2. A sales-check book comprising a series of leaves, or slips, each having a central check furnished with a securing-stub, and end checks foldable on the central check.

3. A sales-check book comprising a series of slips, or leaves, each having a central check furnished with a securing-stub, and end checks foldable on the central check, in combination with a duplex carbon attached to the stub and adapted to be introduced between two of the checks.

4. A sales-check book comprising a series of leaves, each having a central check furnished with a laterally-extending securing-stub, and end checks foldable on the central check, in combination with a duplex carbon attached to the stub and adapted to be introduced between two of the checks.

594,090. PNEUMATIC-DESPATCH APPARATUS. JULIUS W. MATHIS and AUGUST MATHIS, Chicago, Ill. Filed June 1, 1897. Serial No. 639,053. (No model.)

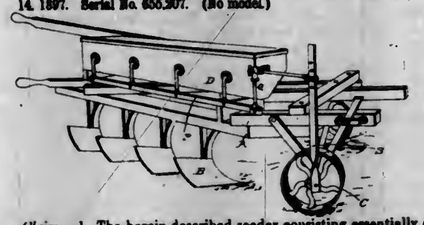


Claim.—1. The combination of a pneumatic-despatch tube, having a side opening, a hinged shutter closing the same, and spring tending to hold said shutter in a partially open condition, substantially as set forth.

2. The combination of a pneumatic-despatch tube, having a side opening, a hinged shutter closing the same, a spring tending to hold said shutter in a partially open condition, and an intermediate abutment or rest for such spring between the point of attachment of said spring to the despatch-tube and to the hinged shutter, substantially as set forth.

3. The combination of a pneumatic-despatch tube, having a side opening, a hinged shutter closing the same, a spring tending to hold said shutter in a partially open condition, and a hinge 4, forming an intermediate rest or abutment for the spring between the point of attachment of said spring to the despatch-tube and to the hinged shutter, substantially as set forth.

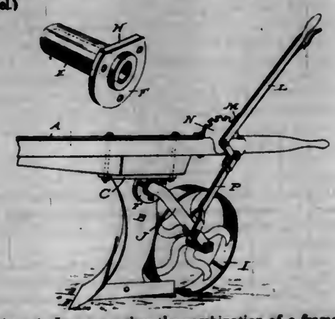
594,091. SEEDER ATTACHMENT FOR GANG-PLOWS. WALTER C. MATTESON, Stockton, Cal. Filed Dec. 21, 1896. Renewed Oct. 14, 1897. Serial No. 655,207. (No model.)



Claim.—1. The herein-described seeder consisting essentially of the main frame, plows connected to and depending from the main frame, a traveling wheel connected to and supporting the main frame, a seedbox arranged on the main frame and having outlets in its bottom at intervals in the length thereof, sleeves arranged in the rear wall of the seedbox in the same vertical planes as the outlets, crank-shafts journaled in said sleeves and having depending, angular arms at their outer ends, the agitators connected to the said crank-shafts and arranged and adapted to move over the outlets in the bottom of the box, the support R, connected to one end of the seedbox and extending in rear of the same, the bell-crank lever fulcrumed on said support R, and resting in alinement with the depending arms of the crank-shaft, the bar P, connecting the lower ends of the several arms of the crank-shaft and the depending arm of the bell-crank lever, and the pitman connected to the other arm of the bell-crank lever and also connected to the traveling wheel of the center of the same, all substantially as and for the purpose set forth.

2. In a seeder the combination of a plow having traveling wheels, a seedbox arranged on the plow-frame and having an outlet in its bottom, a sleeve fixed in the wall of the box, in the same vertical plane as the outlet a crank-shaft journaled in said sleeve and having an arm at its outer end, an agitator connected to the crank-shaft and arranged and adapted to oscillate over the outlet in the bottom of the seedbox, the support R, connected to one end of the seedbox and extending in rear of the same, a bell-crank lever fulcrumed on said support and resting in alinement with the arms of the crank-shaft, a bar connecting the depending arm of said lever and the arm of the crank-shaft and a pitman connected at one end to the other arm of the lever and at its opposite end to one of the traveling wheels, substantially as specified.

594,092. GANG-PLOW. WALTER C. MATTESON, Stockton, Cal. Filed Dec. 30, 1896. Renewed Oct. 14, 1897. Serial No. 655,208. (No model.)

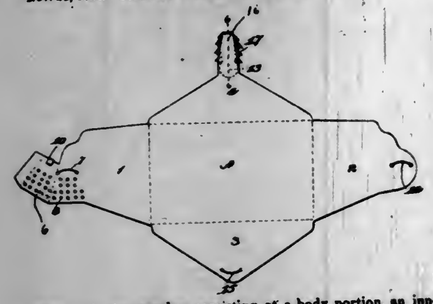


Claim.—1. In a gang-plow the combination of a frame, a plow connected to the frame and having the transversely-disposed aperture in its standard, a bushing arranged in said aperture and detachably

connected to and extending laterally from the standard so as to form a broad bearing, a gage wheel, a hanger carrying said wheel and having a shaft journaled in the bushing, and means for adjusting and adjustably fixing said hanger with respect to the frame, substantially as specified.

2. In a gang-plow, the combination of a frame, a plow having a standard provided with a transversely-disposed aperture and also provided at its upper end with a flange connected to the under side of the frame, the bushing arranged in the aperture and extending laterally therefrom and having the flange at one end, detachably connected to the standard and provided with the straight edge bearing against the flange of the standard, the gage-wheel, the hanger carrying said wheel, and having the shaft journaled in the bushing, and suitable means for adjusting and adjustably fixing the hanger with respect to the frame, substantially as specified.

594,093. ENVELOP. WILLIAM MCNAUL, Bradley, Cal. Filed Nov. 21, 1896. Serial No. 613,019. (No model.)



Claim.—1. An envelop consisting of a body portion, an inner flap having a pocket that is closed at its sides, second and third flaps secured to said inner flap and to each other, registering slots in said flaps leading to said pocket, and an outer flap provided with a tongue to pass through said slots and enter said pocket, said tongue being provided with teeth adapted to stick into and enter the material forming the side of said pocket.

2. An envelop consisting of a body portion, an inner flap having a pocket which tapers toward its upper end, said pocket being closed at its sides, second and third flaps secured to said inner flap and to each other, registering slots in said flap leading to said pocket, said slots being situated adjacent to the small end of the pocket, and an outer flap provided with a tongue to pass through said slots and enter said pocket, said tongue being provided with teeth adapted to stick into and enter the material forming the sides of said pocket.

3. An envelop consisting of a body portion provided with an inner flap having a tapering pocket, openings in the sides of said pocket, a slot in the outer side of said pocket, a flap 2 provided with a slot, a flap 3 provided with a slot, and an outer flap 4 provided with a tongue adapted to enter said slots and pocket and provided with long and short anchoring-teeth, substantially as described.

4. In an envelop, a plurality of flaps folded upon each other and provided with slots and a pocket, said pocket being closed at its side edges, an outer flap having a tongue adapted to extend through said slots and into said pocket, said tongue having rearwardly-extending teeth to engage the walls of said pocket, substantially as described.

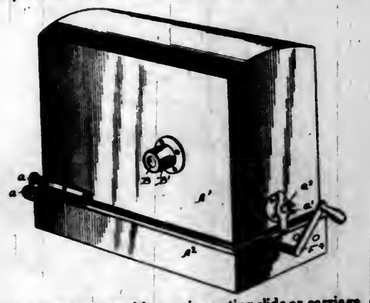
5. In an envelop, a plurality of flaps folded upon each other and provided with slots and a pocket, a clasp secured to the inner side of said pocket and provided with teeth 12 extending toward said pocket, an outer flap provided with a tongue, and a plate secured to said tongue, substantially as described.

6. In an envelop, a plurality of flaps, provided with slots and a pocket upon the end of the inner flap provided with openings, a clasp having teeth secured to the inside of said pocket, an outer flap provided with a tongue having anchoring-teeth, and a plate upon said tongue, substantially as described.

594,094. KINETOGRAPHIC CAMERA. NICOLAY NELSON, Waukegan, Ill., assignor to himself and the Chicago Recording Scale Company, same place. Filed June 10, 1897. Serial No. 640,132. (No model.)

Claim.—1. In an apparatus for taking or enlarging and projecting successive pictures of moving objects, the combination with a lens and an intermittently-operating shutter, of an intermittently-rotating and rectilinear-moving plate, film or picture holder, substantially as specified.

2. In a successive picture taking or projecting apparatus, a rectilinear-moving and intermittently-rotating holder for the picture plate or film, whereby successive pictures on its surface are successively exposed in a continuous spiral, substantially as specified.



3. The combination with a reciprocating slide or carriage, of an intermittently-rotating film, plate or picture holder mounted thereon, substantially as specified.

4. The combination with a reciprocating slide or carriage of an intermittently-rotating film, plate or picture holder mounted thereon, a lens and an intermittently-operated shutter, substantially as specified.

5. The combination with a lens of a shutter, a rectilinear-moving slide, and an intermittently-rotating holder for the plate or film mounted on said slide, substantially as specified.

6. The combination with a lens of a shutter, a rectilinear-moving slide, and an intermittently-rotating holder for the plate or film mounted in said slide, and a feed screw for operating the slide, substantially as specified.

7. The combination with a lens of a shutter, a rectilinear-moving slide, and an intermittently-rotating holder for the plate or film mounted in said slide, a feed-screw for operating the slide, and mechanism for intermittently rotating said holder, substantially as specified.

8. The combination with a lens of a shutter, a rectilinear-moving slide, and an intermittently-rotating holder for the plate or film mounted in said slide, a feed-screw for operating the slide, mechanism for intermittently rotating said holder, and means for intermittently operating said shutter, substantially as specified.

9. The combination with a lens, of a shutter, a feed-screw, a rotary ring plate-holder provided with teeth on its periphery, a feed-slide, and a worm-cam engaging said teeth on said holder, substantially as specified.

10. The combination with a feed-slide of a worm-cam and an intermittently-rotating plate-holder having teeth engaging said worm-cam, substantially as specified.

11. The combination with a feed-slide having a ring to receive a rotating ring plate-holder, of a rotating ring plate-holder, means for operating said feed-slide, and means for intermittently rotating said holder, substantially as specified.

12. The combination with a feed-slide having a ring to receive a ring-shaped holder, a rotating ring-shaped holder provided with teeth on its periphery, a feed screw, and a worm-cam for intermittently rotating the holder, substantially as specified.

13. The combination with a two-part opening and closing case, of a lens, a screw, a shutter, a feed-slide, guides for said slide, a screw for operating said slide, a stationary ring on the slide, a rotary ring-shaped holder, and a worm-cam, substantially as specified.

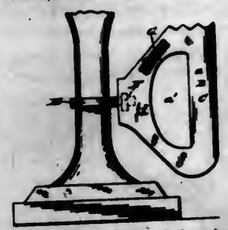
14 The combination with a two-part opening and closing case, of a lens, a screw, a shutter, a feed-slide, guides for said slide, a screw for operating said slide, a stationary ring on the slide, a rotary ring-shaped holder, a worm-cam, and a condenser in the back side of said case, substantially as specified.

15. The combination with a case of a lens, a shutter, a condenser in the back side of the case, and an intermittently-rotating rectilinear-moving holder whereby the same apparatus may be used both for taking and enlarging and projecting successive pictures of moving objects, substantially as specified.

16. The combination with a case of a lens, a shutter, a slide or carriage, a rotary holder mounted thereon, mechanism for intermittently rotating said holder, and means for feeding said slide in both directions as the holder rotates to enable the same apparatus to present the same pictures in their direct or reverse order, substantially as specified.

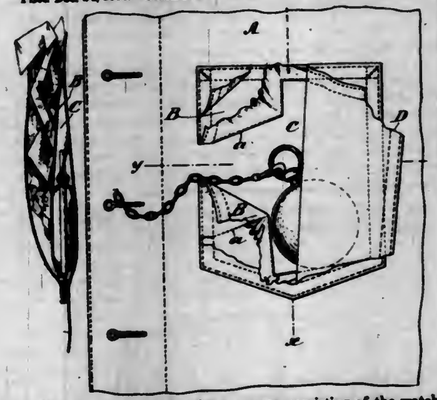
594,095. LAMP-HANDLE. JAMES R. OWEN, Allisonia, Va. Filed Jan. 27, 1896. Serial No. 576,997. (No model.)

Claim.—1. A blank for a handle having a body portion with openings, wings upon the adjacent sides of said openings, a wing to constitute the bottom of a match-receptacle, and other wings adapted to be disposed coincident with each other when the blank is folded to constitute the handle, substantially as shown and described.



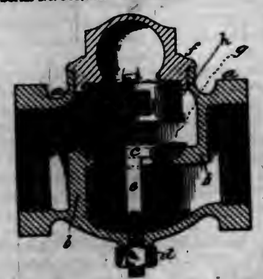
2. A detachable and adjustable handle for a lamp comprising in a single element a body portion, wings adapted to be folded to form a handhold, extensions adapted to be folded to form a receptacle combined with a detachable and adjustable clamping device for attaching said handle to a lamp, all substantially as herein shown and described.

594,096. SAFETY-POCKET. HARRY S. PETERS, Dover, N. J. Filed Dec. 24, 1896. Serial No. 616,905. (No model.)



Claim.—A safety-pocket for garments, consisting of the watch-receiving compartment having the elongated throat-opening on one side and extending inwardly and upwardly as explained, and the overlying compartment open at its top and secured to the garment around the sides and bottom, except at the part over the throat of the under compartment, substantially as shown and described.

594,097. VALVE. MELBERT PETERS, Hartford, Conn. Filed Sept. 27, 1895. Serial No. 563,840. (No model.)



Claim.—The improvement in globe-valves herein described, consisting of the valve-body *a*, having central diaphragm valve-seat base *b*, annular removable valve-seat *c*, fitted in said base, bifurcated retaining-rod *e*, screw-threaded on its stem, and fitted in ways in the rim of the valve-seat base, retaining-nut *d*, ball-valve *g*, fitting the annular seat *c*, removable body-cap *f*, having screw-threaded connection with the valve-body *a*, and valve-retainer *h*, vertically pendent from the said removable body-cap *f*, all substantially as and for the purpose specified.

594,098. FOUNTAIN-PEN. FRANCIS J. PRIBYL, Hazleton, Pa. Filed July 14, 1896. Serial No. 599,066. (No model.)



Claim.—1. A fountain-pen comprising a tubular reservoir, or holder, which is closed at one end, and open at the other, a tube mounted in the open end thereof, and provided with a tubular extension which projects into the reservoir, a sliding cylinder mounted in said end tube, and provided with a shaft which projects through said tubular extension, and on which is mounted a packing which is adapted to close the inner end of said extension, said shaft being provided with longitudinal grooves, and with an elastic band which serves to keep the packing seated, on the inner end of the tubular extension, and said cylinder being also provided at its outer end with a central bore, the inner end of which is provided with side ports or openings, which form a communication between the annular chambers 12 and 13, and the said bore, and said cylinder being also provided at its outer end with a suitable feeding-plug, and a penholder, substantially as shown and described.

2 A fountain-pen comprising a tubular reservoir or holder, which is closed at one end, and open at the other, a tube mounted in the open end thereof and provided with a tubular extension which projects into the reservoir, a sliding cylinder mounted in said end tube, and provided with a shaft which projects through said tubular extension, and on which is mounted a packing, which is adapted to close the inner end of said extension, said shaft being provided with longitudinal grooves and with an elastic band which serves to keep the packing seated on the inner end of the tubular extension, and said cylinder being also provided at its outer end with a central bore, the inner end of which is provided with side ports or openings, which form a communication between the annular chambers 12 and 13, and said bore, and said cylinder being also provided at its outer end with a suitable feeding-plug, and a penholder, said penholder consisting of a tubular sleeve, mounted on said cylinder, which is adapted to move therewith, and to slide within the outer end of the tube which is connected with the reservoir or holder, and between which and said tube, is an air-passage, substantially as shown and described.

3. The herein-described fountain-pen, consisting of a tubular reservoir or holder 7, a tube as 8, mounted in the outer end thereof, and provided with an inwardly-directed tubular extension at its inner end, a cylinder as 14, mounted in said tube and provided with a grooved shaft, which passes through said tubular extension, and on the inner end of which is mounted a suitable head, nut or bur, an elastic band which passes over said head, and which is connected with said tubular extension, and said cylinder being provided with a central bore, which opens outwardly, and side ports or passages which communicate therewith, and said central bore being provided at its outer end with a feeding-plug which is adapted to serve as a pen, substantially as shown and described.

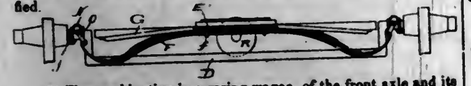
4. The herein-described fountain-pen, consisting of a tubular reservoir or holder 7, a tube as 8, mounted in the outer end thereof, and provided with an inwardly-directed tubular extension at its inner end, a cylinder as 14, mounted in said tube, and provided with a grooved shaft, which passes through said tubular extension, and on the inner end of which is mounted a suitable head, nut or bur, an elastic band which passes over said head, and which is connected with said tubular extension, and said cylinder being provided with a central bore, which opens outwardly, and side ports or passages which communicate therewith, and said central bore being provided at its outer end with a feeding-plug which is adapted to serve as a pen, said feeding-plug being provided with a longitudinal groove in the back thereof, through which the ink passes, and said cylinder being also provided with a sleeve which is adapted to serve in connection with said cylinder, as a penholder, substantially as shown and described.

594,099. SPRING-WAGON GEAR. SAMUEL D. REYNOLDS, WALTER S. REYNOLDS, and MADISON D. SHIPMAN, De Kalb, Ill., assignors to said Shipman, Charles R. Bradt, and Samuel R. Bradt, same place. Filed June 4, 1895. Serial No. 551,602. (No model.)

Claim.—1. The combination with the body of a spring-wagon, of the front axle, the springs attached to and supported by said axle, the rearwardly-located king-bolt, and a roller R supported by the springs and sustaining the weight of the body, substantially as specified.

2 The combination with the body of a spring-wagon, of the front axle, the springs attached to and supported by said axle, the rear-

wardly-located king-bolt, the plate or frame mounted upon the springs and connecting them to the bolt, and a roller R borne by said plate or frame and sustaining the weight of the body, substantially as specified.



3. The combination in a spring-wagon, of the front axle and its spring, the rearwardly-located king-bolt, the roller located in proximity to the axle, the body supported by said roller, and a plate E attached to and resting upon the spring and serving both to connect the axle to the bolt and to support said roller, substantially as specified.

4. The combination with the springs, the front axle swiveled upon a rearwardly-located king-bolt, and the roller supported upon the springs, of the heads N rigid upon the axle, and joined to the springs by connections adapted to allow their flexure while retaining them in their proper vertical planes, substantially as specified.

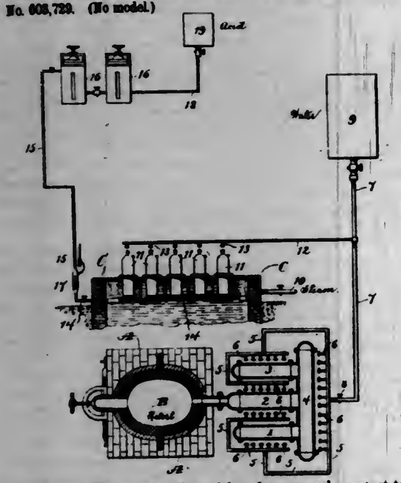
5. The combination with the springs, the front axle swiveled upon a rearwardly-located king-bolt, and the roller supported upon the springs, of the heads N rigid upon the axle, and joined to the springs by connections adapted to allow their flexure while retaining them in their proper vertical plane, and draft connections joined to said heads, substantially as specified.

6. The combination of the front axle, the springs, the rearwardly-located king-bolt, the plate or frame, E, the brace G extending from the ends of the springs to the plate, the thills and the connections between the thills and axle, substantially as specified.

7. The combination with the wagon-body of the front axle, the springs attached to said axle, and an antifriction-roller supporting the body and mounted upon the springs in a plane close to but not over the axle, whereby the periphery of the roller is permitted to move below the top plane of the axle, substantially as specified.

8. The plate E mounted upon the springs, the rearwardly-located king-bolt, and a continuous brace G, extending from the plate to the draft connections, in combination with the front axle, front springs and said draft connections, substantially as specified.

594,100. APPARATUS FOR MAKING AMMONIUM CARBONATE. WILLIAM SANDERS, Lowell, Mass. Filed Aug. 24, 1896. Serial No. 603,729. (No model.)



Claim.—1. The combination with a furnace and a retort to be heated thereby, of a series of cooling-chambers to receive fumes from said retort, means for subjecting said cooling chambers to the action of cold water, a tank adapted to receive water, means for heating the water: condensers in said tank, means for subjecting said condensers to the action of cold water and means for generating carbon-dioxid gas and conducting it into said condensers, substantially as set forth.

2. The combination with a furnace and a retort to be heated thereby, of a series of cooling-chambers adapted to communicate with said retort, pipes alongside said cooling-chambers, a cold-water tank adapted to supply water to said pipes, sprays communicating with said pipes and adapted to discharge cold water against said cooling-chambers, a hot-water tank, steam-pipes leading into said hot-water tank, condensers in said hot-water tank, means for generating carbon-dioxid gas and conducting it to said condensers, and pipes communicating with the cold-water tank and having sprays to discharge water on said condensers, substantially as set forth.

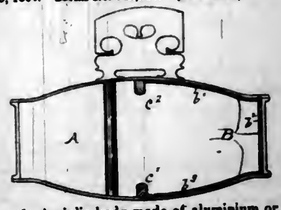
594,101. GRINDING-MILL. ORVILLE SIMPSON, Cincinnati, Ohio. Filed Nov. 25, 1895. Serial No. 570,035. (No model.)



Claim.—1. In a grinding-mill of the character indicated a supporting-frame and casing embodying in combination the following elements or features of construction: viz: a base adapted to be attached to and remain permanently upon a fixed foundation; an intermediate removable section fitted to said base and extending to the axial plane of the shaft, constituting the lower half of the grinding-chamber and provided with outer supporting-brackets for the shaft-bearings, and adjustable supports for the bed-stone; and a removable cover constituting the upper half of the grinding-chamber carrying the hopper, grain feed conduits and agitating devices adapted to be brought into operative engagement with the shaft by placing the cover in position, substantially as set forth.

2. In a grinding-mill of the character indicated, the combination of the casing or housing divided on the axial plane of the shaft, provided with opposite box extensions similarly divided; perforated blocks resting in the lower half of said box extensions, a bed-stone casing with opposite trunnions extended into said blocks, thereby suspending the bed-stone in the housing and adjusting-screws threaded through the wall of one or both of the housing extensions, substantially as set forth.

594,102. VIOLIN. ALFRED SPRINGER, Cincinnati, Ohio. Filed Aug. 16, 1897. Serial No. 648,397. (No model.)



Claim.—1. A violin-body made of aluminium or its alloys, provided with a lateral strip or cross-piece passing beneath the left foot of the bridge.

2. In a violin-body of the character indicated, a lateral strip attached to the inner sides of the belly and back respectively and extending in a common plane toward the center of each, substantially as set forth.

3. In a violin-body of the character indicated, a substantially continuous strip connecting the inner sides of the belly back and side, in the plane of the bridge and at the left side of same, substantially as set forth.

4. In a violin-body of the character indicated, two lateral strips attached in the same relative plane to the inner sides of the belly and back respectively, at the left of and perpendicular to the longitudinal axis of the body, and integrally connected by a corresponding part attached to the side of the body, substantially as set forth.

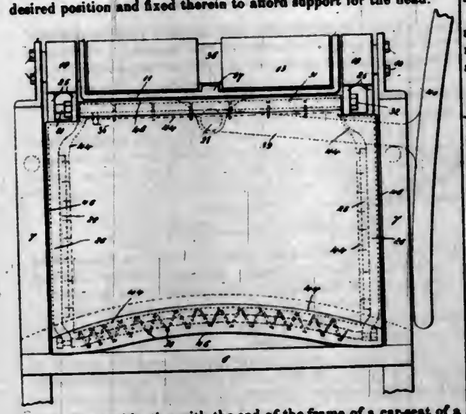
5. In a violin-body of the character indicated, the combination of a lateral strip such as described, with short central braces longitudinally disposed, substantially as set forth.

594,108. HEAD-REST FOR CAR-SEATS. JOSEPH B. STEARNS, New York, N. Y., assignor of one-half to Edwin Bearman Tuteur, Chicago, Ill. Filed Mar. 6, 1897. Serial No. 626,265. (No model.) Patented in Canada Apr. 6, 1897, No. 55,529.

Claim.—1. The combination with a car-seat, of a head rest permanently connected with the seat-frame, and movably mounted thereon, whereby it may be positioned to act as a pillow for the head and be retracted when not in use.

2. The combination with a car-seat provided with an end frame, of a head-rest permanently connected with said end frame and adapted to be locked in position at any desired angle with said end frame.

3. The combination with a car-seat, provided with end posts of a head-rest permanently attached to said posts, said head-rest consisting of a suitable rest or pillow pivotally supported from the tops of said posts, and adapted to be turned about between them into any desired position and fixed therein to afford support for the head.



4. The combination with the end of the frame of a car-seat of a head-rest pivotally supported therein, and adapted to be turned so as to act as a support for the head, said head-rest consisting of a pillowed frame, which is mounted between the end posts of the seat-frame, which is adapted to be turned upon its supports, and devices connected with the end posts of the seat-frame, and with the head-rest frame for holding the latter in any desired position.

5. The combination with the frame of the end of a car-seat of a head-rest comprising a frame pivoted between the end posts of said seat-frame, a pillow or cushion attached thereto, means whereby said pillow or cushion may be inflated and means whereby said head-rest may be maintained in any desired position, substantially as described.

6. The combination with the frame of the end of a car-seat provided with the usual upright posts, of two upright plates attached thereto, a cross-plate having vertical extensions thereon, bolts rigidly connecting said upright and said cross-plates, trunnions situated between said plates and said extensions and supported by said bolts, and a revoluble, cushion-supporting frame mounted upon said trunnions, substantially as described.

7. The combination with the frame of the end of a car-seat provided with the usual upright posts of upright plates secured to the tops of said posts, a cross-plate having vertical extensions on each end thereof, bolts rigidly connecting said plates and said extensions trunnions supported by said bolts, a revoluble, cushion-supporting frame mounted upon said trunnions and means whereby said frame may be locked in any desired position, substantially as described.

8. The combination with the frame of the end of a car-seat, provided with the usual upright posts, of upright plates secured to the tops of said posts, a cross-plate mounted between said plates, and provided at each end with an upwardly-directed flange or head, said flanges or heads being bolted to the upright plates on the posts, and a revoluble arm mounted between said upright flanges or heads, a head-rest frame mounted between the end posts of the seat, on trunnions supported by bolts which connect the end plates on the posts with said upright flanges or heads of the cross-plate, and said head-rest frame being adapted to be turned on its supports, and said arm being in operative connection with toothed locking-disks, adapted to engage with corresponding teeth in said head-rest frame and to lock it in any desired position with reference to the car-seat, and said head-rest frame being provided with a pillow or cushion, which is connected therewith, and said pillow or cushion being adapted to be inflated, substantially as shown and described.

9. The combination with the frame of a car-seat, of a head-rest consisting of suitable side posts, trunnions or supports connected with said posts, a cross-piece in operative connection with said trunnions or supports and sustaining them in position, a head-rest frame pivotally supported by said trunnions or supports and adapted to be turned about them, and means for locking said head-rest frame in any desired position relative to said trunnions or supports, substantially as shown and described.

10. The combination with the frame of a car-seat, of a head-rest consisting of adjustable side posts, means for locking said posts in one or more positions, trunnions or supports connected with said posts, a cross-piece in operative connection with said trunnions or supports and sustaining them in position, a head-rest frame pivotally supported by said trunnions or supports, and adapted to be turned about them, means for locking said head-rest frame in any desired position relative to said trunnions or supports, and said pillow or cushion being provided with a suitable pillow or cushion, and said pillow or cushion being provided with an auxiliary renewable covering, substantially as shown and described.

11. The combination with the end of the frame of a car-seat, of an adjustable head-rest supported therein, and a supplemental head-rest which is also supported within said frame, substantially as shown and described.

12. The combination with the frame of a car-seat provided with uprights or posts at the ends thereof, of a head-rest adjustably supported between said posts, and a supplemental head-rest which is also adjustably supported between said posts.

13. The combination with the end of the frame of a car-seat of main and supplemental head-rests, said head-rests being both separately and jointly adjustable and adapted to be locked in positions making any angle with each other and the seat

14. The combination with the end of the frame of a car-seat, of a head-rest consisting of movable side posts, movable supporting-pieces connected therewith, movable head-rest frames attached to said supporting-pieces, pillows detachably connected with said head-rest frames, and means for locking any and all of the parts in position, independently or coincidently, substantially as shown and described.

15. The combination with a car-seat of a head-rest fitted between suitable side posts or uprights, and extending downwardly whereby it substantially forms when out of use, the arm-rest and seat-siding; said head-rest being adapted to lock in this position and to be moved therefrom and lock in any other position at a suitable angle with the seat-cushion for the purpose specified.

16. The combination with a car-seat of main and supplemental head-rests, fitted between suitable side posts or uprights, and extending downwardly, whereby they form when out of use, the arm-rest and seat-siding; said head-rests being adapted to lock in these positions and to be moved therefrom and caused to lock in other positions in proper alinement with each other and at a suitable angle with the seat cushion for the purpose specified.

17. The combination with the frame of a car-seat, of a head-rest fitted within said frame between the uprights or posts thereof, and extending from the arm-rests downwardly, whereby it is substantially inclosed within the said frame when out of use; said head-rest being adapted to be moved from such position and caused to extend inwardly from the said frame in the direction of the seat-cushion for the purposes specified.

18. The combination with the frame of a car-seat, of a head-rest pivotally connected with the uprights of said frame, said head-rest being adapted to be turned or adjusted into any desired position or angle with reference to said uprights, and being also adapted to be locked in the desired position, substantially as shown and described.

594,104. FLAX-THRESHING MACHINE. JOHN SWITZER, San Francisco, Cal. Filed Oct. 2, 1896. Serial No. 607,693. (No model.)

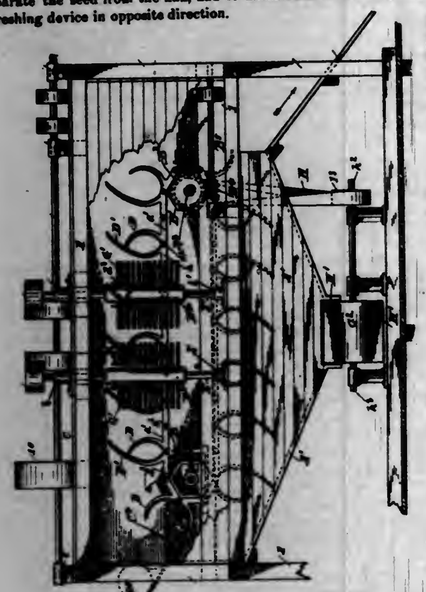
Claim.—1. In a flax-threshing machine, the combination with the horizontally-traveling endless chain carrier composed of a series of links united by a rule-joint, of the end wheels over which said carrier travels, of mechanism for driving one of said wheels, the automatically opening and closing clamping-jaws secured to and operated by the travel of the horizontally-traveling endless carrier over the end wheels, said jaws consisting of two curved fingers or arms which are secured to opposing links of the carrier, and of the vertically-arranged rotary threshing devices located between the end wheels, which devices thresh the bundles or sheaves as carried past by the endless carrier.

2. In a flax-threshing machine, the combination with the horizontally-traveling endless-chain arrier said carrier consisting of a series of links united by a rule-joint, of mechanism for driving the same, a series of clamping devices for receiving and holding the bundles secured to and carried and operated by the movement of the endless carrier, each clamping device consisting of two fingers or arms secured to opposing links of the carrier, and of vertically-arranged rotating devices for threshing the bundles or sheaves as carried by the endless carrier.

3. In a threshing-machine for flax, the combination with the horizontally-traveling endless-chain carrier, of the end wheels over which said endless-chain carrier travels, mechanism for driving one of said end wheels, a series of automatically-operated clamping devices for the bundles or sheaves secured to and carried and operated by the movement of the endless carrier, and of the vertically-arranged rotary threshing devices arranged at a right angle to the endless carrier and which during their rotary movement separate the seed from the flax as the bundles are carried past the same, and of mechanism for rotating the threshing devices in opposite directions.

4. In a flax-threshing machine, the combination of an endless

horizontally-traveling chain carrier composed of a series of links or sections united by a rule-joint, of the end wheels over which the said carrier travels, a series of clamping-jaws composed of two curved arms each arm being secured to an independent link or section of the endless carrier, mechanism for driving the endless carrier and causing the clamping-jaws to automatically close and open in order to clamp the bundles or sheaves and discharge the same, of devices rotating in a plane at an angle to the traveling carrier in order to separate the seed from the flax, and of mechanism for rotating the threshing device in opposite direction.



5. In a flax-threshing machine, the combination with the horizontally-traveling endless-chain carrier composed of a series of links united by a rule-joint, of the end wheels which support and over which the endless-chain carrier travels, a series of automatically opening and closing clamping devices for the bundles or sheaves secured to and carried and operated by the movement of the carrier, each clamping device consisting of a pair of fingers or arms which are secured to opposing links of the carrier, mechanism for driving the carrier, a cylinder arranged at an angle to the endless carrier, mechanism for imparting rotary movement to the cylinder, and of the comb or separating teeth or fingers removably secured to and carried by the said cylinder, which teeth or fingers as carried around engage the head of the bundles or sheaf of flax and remove or separate the seed therefrom.

6. In a flax-threshing machine, the combination with the endless horizontally-traveling chain carrier, of the end wheels which support and over which the endless carrier works, the clamping devices secured to and carried and operated by the movement of said carrier, mechanism for driving the said endless carrier, a pair of rotating comb-cylinders carrying comb teeth or fingers arranged at an angle to the endless carrier, the comb teeth or fingers of which cylinders engage with the head of the bundles held within the clamping devices and separate the seed therefrom, and of mechanism for communicating opposite rotation to the two comb-cylinders.

594,105. SULFUR DYE. HENRI R. VIDAL, Paris, France. Filed Feb. 26, 1897. Serial No. 625,210. (Specimens.) Patented in France Aug. 18, 1896, No. 258,978.

Claim.—1. The process of producing coloring-matters by reacting with sulfur upon the specified meta derivatives of benzene (such as resorcin) the substances being heated together substantially as described.

2. The process of producing coloring-matters by reacting with sulfur upon the specified meta derivatives of benzene (such as resorcin) the substances being heated together in presence of an alkaline sulfid, substantially as described.

3. The specified coloring-matters derived from meta derivatives of benzene, by the action of sulfur, said coloring-matters being capable of directly dyeing cotton fibers a black or brown-black, being soluble in sodium sulfid appearing brown, being of a deep-brown color when unmixed with sodium sulfid, the isolated products having the capacity of strongly attracting the moisture of the air, substantially as described.

594,106. MIXED SULFUR DYE. HENRI R. VIDAL, Paris, France. Filed July 24, 1897. Serial No. 645,856. (Specimens.) Patented in France Feb. 27, 1897, No. 261,183, and in England Mar. 3, 1897, No. 5,000.

Claim.—1. The process of producing coloring-matters which consists in heating parapheuylene-diamin and hydroquinone in equal parts in presence of sulfur, substantially as described.

2. The product of the reaction of sulfur upon paraphenylene-diamin and hydroquinone, the same being constituted in part by a body directly soluble in acids and dyeing animal fibers an intense black, and in part by a body soluble in alkalies and dyeing vegetable fibers dull blue, substantially as described.

594,107. THIAZIN DYE. HENRI R. VIDAL, Paris, France. Filed July 24, 1897. Serial No. 645,860. (Specimens.) Patented in France Feb. 27, 1897, No. 264,510, and in England Mar. 3, 1897, No. 5,001.

Claim.—1. The method of preparing coloring-matters which consists in heating with sulfur a mixture of paramidophenol and hydroquinone, substantially as described.

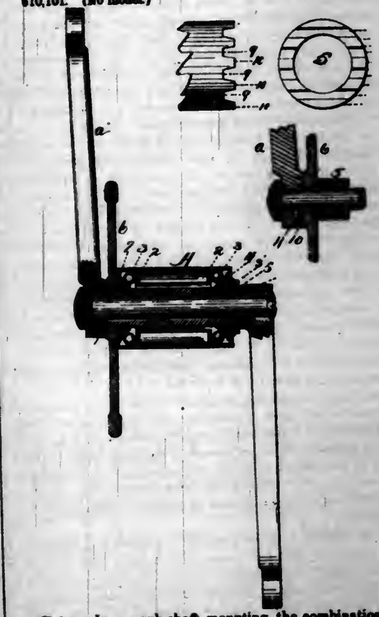
2. The method of preparing coloring-matters which consists in heating with sulfur a mixture of paramidophenol, paraphenylene-diamin, and hydroquinone, substantially as described.

594,108. HEEL FOR BOOTS OR SHOES. JOHN F. WARNER, Boston, Mass. Filed Apr. 27, 1897. Serial No. 634,163. (No model.)



Claim.—In a boot or shoe, a yielding heel-pad, placed under the inner sole in a recess formed in the outer sole and supported by a recessed heel, whereby the heel of the person using the same impinges upon a cushioned bearing substantially as and for the purpose set forth.

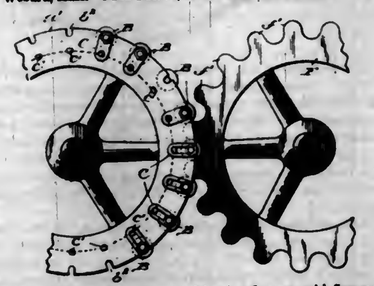
594,109. CRANK FOR BICYCLES. HARRY DE LYER WEBB and RAY P. DEARDORFF, Syracuse, N. Y. Filed Oct. 26, 1896. Serial No. 610,101. (No model.)



Claim.—In a crank-shaft mounting, the combination with a tubular shaft recessed in parallel lines across its ends, a sprocket-wheel

recessed across its hub upon like lines, and cranks recessed across their inner faces upon like lines, of a bolt inserted through all of them to hold them in mesh and interlocked together.

594,110. BALL-BEARING ROLLER-COG WHEEL. FRANK L. HIGGINS, Winthrop, Mass., assignor of one-half to Fred H. Burdett, Woburn, Mass. Filed Feb. 16, 1897. Serial No. 623,633. (No model.)



Claim.—1. A roller-cog wheel having flanges, said flanges being provided with open notches or sockets at their perimeters, and rollers on axles removably lodged in such notches, the axles having threaded ends, and devices applied to such threaded ends and serving to secure the axle to the flanges, all substantially as shown and described.

2. A roller-cog wheel having lugs on its sides and notched flanges on its perimeter and the series of removable roller-cogs each cog on its own axle and separately and individually removable from the notches in the flanges, each of such axles projecting beyond the faces or sides of the wheels and held in place in said notches, combined with collars applied to these axles and lugs, all substantially as shown and described.

3. In combination with the wheel having external lugs and notched peripheral flanges, roller-cogs inwardly recessed at their ends, axles on which these cogs revolve, ball-bearing cones inserted in said recesses, balls for said recesses and bearing upon the cones, and collars or washers for securing these parts in place on the wheel by means of said lugs, all substantially as shown and described.

4. In combination with the wheel having external lugs and two peripheral flanges notched as described, the recessed roller-cogs having each an axle lodged in said flanges and projecting beyond the same, the head on each axle, the ball-bearing cones, nuts on the axles, and elongated collars or washers holding the axles to the lugs on the flanges or wheels, all substantially as set forth.

5. In combination with the wheel having external lugs and two peripheral flanges notched as described, the recessed roller cogs having each an axle lodged in said flanges and projecting beyond the same, the head on said axle, the ball-bearing cones, nuts on the axles, elongated collars or washers holding the axles to the lugs on the flanges of the wheels, and keys for locking the nuts in place, all substantially as shown and described.

6. In combination with a flanged wheel having a system of removable roller-cogs on axles held in place by means of keyed nuts and collars applied to the threaded ends of the axles outside of the wheel-flanges, a companion wheel adapted to cooperate therewith, all substantially as set forth.

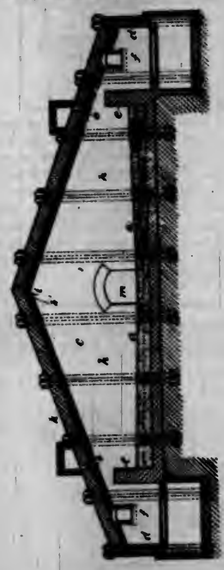
7. In a bevel gear-wheel having inclined peripheral flanges and open notches in such flanges, a series of roller-cogs formed as truncated cones recessed at their ends, balls and ball-bearing cones inserted in said recesses, inclined axles for said rollers removably lodged in said open notches, and means as described for securing said axles to and outside of said flanges.

8. In combination with the roller-cog bevel-wheel and with its truncated-cone rollers provided with recessed ends for ball-bearing appliances, a companion bevel-wheel having fixed cogs whose outer parts have their contact-surfaces preferably in the form of halves of truncated cones, the respective diameters or thickness of said half-cones being preferably equal to the corresponding diameters of the roller cogs and adapted to cooperate with them substantially as set forth.

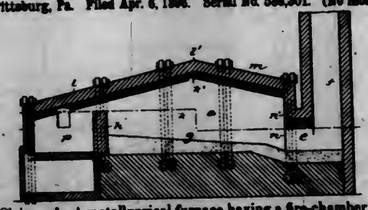
594,111. METALLURGICAL FURNACE. BERNARD C. LAUTH, Pittsburg, Pa. Filed Apr. 6, 1896. Serial No. 586,303. (No model.)

Claim.—1. A metallurgical furnace having a fire-chamber, a hearth, and a high peaked roof formed of straight roof-walls extending up from each end over the hearth at an angle of not less than twenty-five degrees from the horizontal and forming an angle at about the center thereof, so forming a high furnace-chamber, substantially as set forth.

2. A metallurgical furnace having a fire-chamber, a hearth and a high peaked roof formed of straight roof-walls extending up from each end over the hearth at an angle of not less than twenty-five degrees from the horizontal and forming an angle at about the center thereof, and an outlet flue centrally of the furnace-chamber at about the level of the hearth, substantially as set forth.



594,112. METALLURGICAL FURNACE. BERNARD C LAUTH, Pittsburg, Pa. Filed Apr. 6, 1896. Serial No. 586,301. (No model.)



Claim.—1. A metallurgical furnace having a fire-chamber at one end, an outlet-flue at the other and a hearth between them, and having a peaked roof formed of straight upwardly-inclined roof-walls extending at an angle of not less than twenty-five degrees from the horizontal from the ends of the furnace over the hearth and meeting at about the center thereof, and forming a high furnace-chamber, substantially as and for the purposes set forth.

2. A metallurgical furnace having a fire-chamber at one end, a hearth, and an end wall at the other end, and an outlet-flue leading from the same below the top of the wall and narrower than the hearth, and having a peaked roof formed of straight upwardly-inclined roof-walls extending at an angle of not less than twenty-five degrees from the horizontal from the end walls over the hearth and meeting at or about the center thereof and forming a high furnace-chamber, substantially as and for the purposes set forth.

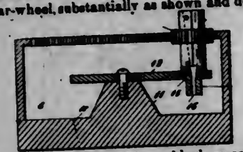
594,118. CEMENT. CHARLES F. LAWTON, Brooklyn, N. Y. Filed Dec. 7, 1895. Serial No. 571,411. (No specimens.)

Claim.—The within-described composition of matter consisting of tetrasilicate of sodium, with calcium carbonate, powdered quartz, silicate and aluminate of lime, soda, and iron, and anhydrous antimonic oxid, all compounded and treated substantially as and for the purposes hereinbefore specified.

594,114. PENCIL-SHARPENER. JOHN L. LOVE, Fall River, Mass. Filed Apr. 23, 1897. Serial No. 633,474. (No model.)

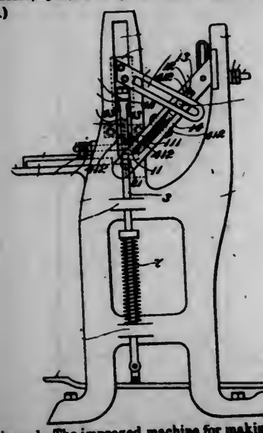
Claim.—1. In a device of the character herein described, a chamber which is open at the top, and around which is formed or secured

an inwardly-directed annular flange or rim which is provided with gear-teeth, the bottom of said chamber being raised and provided with a pivoted arm or plate, and a pencil-sharpener which is revolubly mounted in one end of said arm or plate, and which is provided with a pinion or gear-wheel, substantially as shown and described.



2. A pencil-sharpener, comprising a block or casing in which is formed a chamber which is open at the top, the top walls of said chamber being provided with an inwardly-directed annular flange or rim, which is provided with gear-teeth, an arm or plate which is pivotally mounted on the raised portion connected with the bottom of said box or casing, and a pencil-sharpener which is revolubly mounted in one end of said arm or plate, said pencil sharpener being provided with a pinion or gear-teeth, and at the lower end thereof, with a tubular extension which passes through the end of said arm or plate, substantially as shown and described.

594,115. MACHINE FOR MAKING SPRING-HEELS. ELBRIDGE S. MANNELL, Lynn, Mass. Filed Feb. 2, 1897. Serial No. 621,633. (No model.)



Claim.—1. The improved machine for making spring-heels comprising a support for a heel-bar, a gage to determine the position of the rear end of the said heel-bar, a knife or cutter whereby to sever a heel-blank from the said end of the said heel bar and a knife or cutter whereby to skive one edge of said heel-blank, substantially as described.

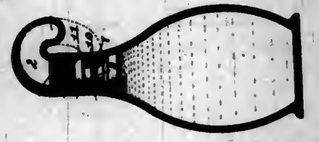
2. The improved machine for making spring-heels, comprising a support for a heel-bar, a vertically-moving knife or cutter whereby to sever a heel-blank from the said heel-bar, an obliquely-moving knife or cutter whereby to skive or bevel off the breast end of the heel-blank, and means to actuate the said knives or cutters whereby a draw cut is produced, substantially as set forth.

3. The improved machine for making spring-heels, comprising a support for a heel-bar, a vertically-moving knife or cutter whereby to sever a heel-blank from the said heel-bar, an obliquely-moving knife or cutter whereby to skive or bevel off the breast end of the heel-blank, and means to actuate the said knives or cutters, including provisions for moving said knives or cutters endwise in opposite directions to each other, substantially as described.

594,116. NON-REFILLABLE BOTTLE. GEORGE W. MATTHAM, Buffalo, N. Y. Filed Oct. 23, 1896. Serial No. 609,698. (No model.)

Claim.—1. In a non-refillable bottle, the neck thereof having a downwardly-bent portion, which at its outer end is bent upwardly, said upwardly-bent portion being provided with an annular recess near its outer end, caused by reducing the thickness of the glass, and having its outer end sealed by drawing the glass to a point, substantially as set forth.

2. In a non-refillable bottle, a valve plug having a tapering valve-seat, a valve which is provided with an ear or extension set thereon, a fastening adapted to pass through said ear or extension and valve-plug and hold the valve to its seat, said fastening having a head or extension extending over the valve and adapted to control the movement thereof, and a perforated cap secured to the valve-plug, substantially as set forth.



3. The combination with a bottle, having its neck bent or crooked upon itself, of a valve-plug set in said neck, said valve-plug being provided with a valve-seat, a valve having an ear or extension whereby it is secured to the valve-plug, a perforated cap secured to the upper face of the valve-plug, and a protector placed in the neck above the latter, said protector having a glass tube embedded therein, and a metal cap secured to its upper face, said cap being provided with a hole which is adapted to register with the glass tube, substantially as set forth.

4. The combination with the bottle-neck crooked or bent upon itself, of a valve-plug carrying a valve, situated in said neck, said valve-plug being provided with a perforated metal cap on its upper face, a protector having a gooseneck-tube embedded therein, said protector being situated in the neck above the valve-plug and being separable for the purpose of readily embedding the gooseneck-tube therein, substantially as set forth.

5. The combination with a bottle, the neck thereof having a downwardly-bent portion which at its outer end is bent upwardly, the end of said upwardly-bent portion being about midway of the length of the downwardly-bent portion, of a valve-plug provided with a valve-seat located in said neck, a valve seated against said valve-seat, a fastener adapted to secure the valve to the valve-plug, said fastener being also adapted to control the movement of the valve, a perforated metal cap secured to the upper face of the valve-plug, and a protector having a winding liquid passage or outlet located in the neck above the valve, substantially as set forth.

6. In a non-refillable bottle, the combination with the bottle-neck, of a valve set in said neck, a protector located in the neck above the valve, said protector being separable and having a gooseneck-tube embedded therein and a metal cap secured to the upper face thereof, said cap being provided with a hole which is adapted to register with the gooseneck-tube, substantially as set forth.

594,117. CUSPIDOR. MOSES C. MERKEL, Philadelphia, Pa. Filed July 3, 1897. Serial No. 642,334. (No model.)



Claim.—1. In combination a spittoon, a perforated or slotted lining therefor, a water-discharge pipe fixed to the outer wall of the spittoon, said pipe holding the lining in a removable manner, substantially as described.

2. A spittoon having an inner wall or lining provided with a downwardly and inwardly inclined open channel and with overflow-openings in combination with means for discharging water into said channel, substantially as described.

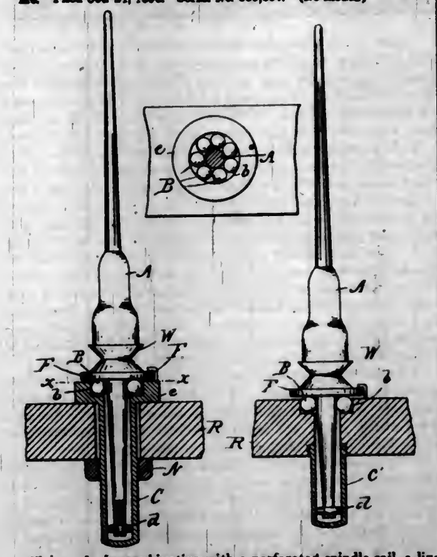
3. A spittoon having an inclined wall or lining provided with a downwardly and inwardly inclined open channel and with overflow-openings, said lining consisting of a band bent into helical form, in combination with means for discharging water into said channel, substantially as described.

4. A spittoon having an inner wall or lining provided with a downwardly and inwardly inclined open channel and with overflow-openings in combination with means for discharging water into said channel, said means consisting of a perforated pipe bent in helical form, substantially as described.

5. A spittoon having an inclined wall or lining provided with a downwardly and inwardly inclined open channel and with overflow-openings in combination with means for discharging water into said channel, said means consisting of a perforated pipe bent in helical form, and the lining adapted to be screwed into the helix of pipe, substantially as described.

6. In combination a spittoon, a support for a drinking-glass, a movable cover for said glass, and a water-supply cock the cover having a sliding connection with the body of the cock, substantially as described.

594,118. SPINDLE AND BEARING. JOSEPH S. MCCOY, Saco, Me. Filed Oct. 21, 1896. Serial No. 609,607. (No model.)

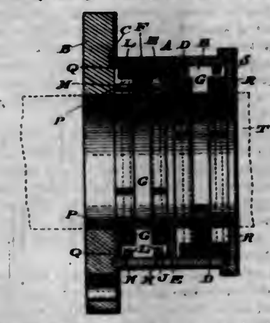


Claim.—1. In combination with a perforated spindle-rail, a live vertical spindle, carrying at its lower end a freely-rotating disk; a case to control the radial thrust of said disk; a flange fixed on said spindle above said disk, to support the entire vertical thrust of said spindle when in position in said rail; said flange resting and rotating upon a single series of caged spherical balls; said balls being freely rotatable in all directions, substantially as specified.

2. The herein-described spindle, and bearing for the same: comprising a spindle A, carrying at its lower end a freely-rotating disk *d*; a spindle-case C, to control the radial thrust of said disk; a flange F secured on said spindle above said disk; a whirl W secured on said spindle above said flange; a series of spherical rollers or balls B, caged in a counterbore *b*; the flange of the spindle resting upon said caged balls and freely rotating thereon, and supporting the vertical thrust of said spindle; the spindle when in position in the rail forming with the wall of the counterbore a cage for said balls, in combination substantially as specified.

594,119. ROD-PACKING. ALFRED W. MORRIS and ALFRED D. MORRIS, Philadelphia, Pa. Filed Apr. 7, 1897. Serial No. 631,048. (No model.)

Claim.—1. A packing consisting of a sectional T-shaped ring having a projecting web and laterally-extending walls, means for holding the sections of said ring in juxtaposition, substantially rectangular sectional rings located on one side of said web, and angular-shaped sectional rings located on the other side of said web, said angular rings having a flange engaging the contiguous laterally-extending wall of said T-shaped ring, whereby leakage of steam is prevented.



2. A packing consisting of a T-shaped ring having a projecting web and laterally-extending walls, a groove or grooves in said ring, springs located in said grooves, substantially rectangular-shaped sectional rings located on one side of said web, and angular-shaped sectional rings located on the other side of said web, said angular rings having a flange engaging the contiguous laterally-extending wall of said T-shaped ring, whereby leakage of steam is prevented.

3. In a packing, a T-shaped ring having a depending web, and laterally-extending walls, a groove or grooves in said ring, springs located in said grooves, pins located in said web, substantially rectangular sectional rings located on one side of said web, and angular-shaped sectional rings located on the other side of said web, said angular rings having a flange engaging the contiguous laterally-extending wall of said T-shaped ring.

4. In a packing, the plates S and B, the shell D supported thereon and provided with an inwardly-extending flange E, T-shaped sectional rings H having inwardly-extending webs and laterally-extending walls, said rings being located in the spaces between said plates and flange, rectangular rings R located in proximity to a side of said webs, angular-shaped rings N located between one of said webs and the flange E and also between the other of said webs and the plate B, respectively, and means for holding said rings and their adjuncts in juxtaposition.

594,120. PHOTOGRAPHIC CAMERA. DANIEL P. O'LEARY and SAMUEL R. KULL, New York, N. Y. Filed July 22, 1896. Serial No. 600,122. (No model.)



Claim.—1. A photographic camera, provided with a roller for winding up the film, a train of gears for turning the said roller, and a pawl-and-ratchet mechanism connected with the said train of gear-wheels and actuated by the shutter mechanism, substantially as shown and described

2. A photographic camera, provided with a winding-up roller for the film, mechanism operated by a pawl-and-ratchet device for moving the said winding-up roller, an index-roller actuated by the film, and a connection between the said roller and the pawl of the pawl-and-ratchet device, whereby the said pawl may be thrown out of operation, substantially as shown and described.

3. A photographic camera, provided with an index-roller actuated by the movement of the film, mechanism for moving said film, and a pawl-and-ratchet device connected with said mechanism, the pawl of the said device being controlled from the said index-roller, substantially as shown and described.

4. A photographic camera, provided with a winding-up roller for the film, a train of gear-wheels for turning the said roller, a pawl-and-ratchet mechanism connected with the said train of gear-wheels

and actuated from the shutter mechanism, and an index-roller rotated from the film and controlling the said pawl, substantially as shown and described.

5. A photographic camera, provided with a winding-up roller for the film, a train of gear-wheels for turning the said roller, a pawl-and-ratchet mechanism connected with the said train of gear-wheels and actuated from the shutter mechanism, an index-roller rotated by the film, and a throw-out lever for the pawl of the said pawl-and-ratchet mechanism, the said lever being controlled by the said index-roller, substantially as shown and described.

6. A photographic camera, provided with a winding-up roller for the film, a train of gear-wheels for turning the said roller, a pawl-and-ratchet mechanism connected with the train of gear-wheels and actuated from the shutter mechanism, an index-roller rotated by the film, a lever adapted when moved to engage the said pawl to throw and hold the latter out of operation, and an arm on the shaft of the said index-roller adapted to engage the free end of the said lever, substantially as shown and described.

7. A photographic camera, provided with a winding-up roller for the film, a shutter mechanism, mechanism for connecting said shutter mechanism and roller, whereby an intermittent rotary motion is imparted to the roller upon operating the said shutter mechanism, an index-roller rotated by the intermittently-moving film, means for controlling from the index-roller the mechanism connecting the shutter mechanism and the winding-up roller, whereby the movement of the winding-up roller is prevented during the exposing period, and a locking device for preventing the return movement of the mechanism connecting the shutter mechanism and the winding up roller until a full movement is imparted to the winding-up roller, substantially as described.

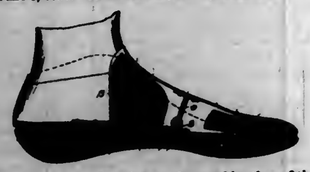
8. A photographic camera, provided with a partition forming a guide for the portion of the film to be exposed, a casing for the film at the rear of the partition, a guide-board secured to the rear of the said partition near one side, the rear face of the said guide-board at the top and bottom being formed with recesses, and an index-roller having its ends provided with toothed wheels adapted to engage the film at the said recesses, substantially as shown and described.

9. A photographic camera, provided with an index-roller having toothed wheels adapted to be engaged by the intermittently-movable film to rotate the said roller, a lever connected with the shutter mechanism, mechanism connected with the said lever for moving the film intermittently, means for controlling the said mechanism from the index-roller whereby the said mechanism is rendered inoperative during the exposing period, and means for locking the said lever against return movement until it has completed its stroke, substantially as described.

10. A photographic camera, provided with a revoluble winding-up roller for the film, the said roller having a flat portion at its periphery, and a longitudinally-extending bar provided at its ends with pins engaging slots in the flanges of the roller, and a casing for the said roller formed in its side with a slot for the passage of the exposed film to the roller, substantially as shown and described.

11. A photographic camera, provided with an operating-lever adapted to be moved by the shutter mechanism, a locking device for the said lever and comprising a rack on the said lever, a slidable bar having ends adapted to be engaged by opposite sides of the said lever, to shift the bar, a pawl adapted to engage the said rack, and a cam projection on the said bar for throwing the pawl out of engagement with the said rack when the lever reaches the end of its throw substantially as shown and described.

594,121. ARTIFICIAL FOOT. JOHN F. READ, Walsenburg, Colo. Filed June 8, 1897. Serial No. 639,814. (No model.)

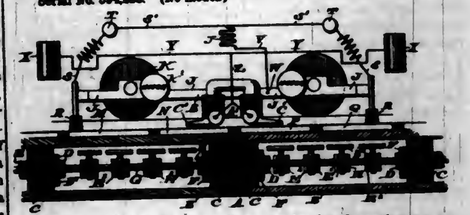


Claim.—1. In an artificial foot, the combination of the shell, the yielding sole suitably attached to the shell, the top plate hinged to the shell, a yielding substance or device supporting the top plate to the rear of the hinge, and a suitable pad or other support engaging the said plate forward of the hinge.

2. In an artificial foot the combination of the shell having a flange on its lower edge, the sole composed of a yielding body portion, and an insole attached thereto but loose at its edges to allow the flange of the shell to pass between the insole and the said body portion, a plate hinged to the shell and forming the front portion of the foot, a suitable yielding substance or device supporting the said plate to the front and rear of the hinge, and a suitable partition attached to the top of the sole and forming a stop against the backward movement of the yielding substance or device which engages the rear portion of the hinged plate.

3. An artificial foot composed of a shell, an elastic or yielding sole detachably applied to the shell, a hinge member applied to the upper surface of the sole, a plate forming the front portion of the foot, a depending hinge member attached to said plate, a pin connecting the two hinge members and engaging apertures in the shell, and a suitable substance or device resting on the sole and supporting the said plate in the front and rear of the hinge.

594,122. INDICATOR FOR UNDERGROUND ELECTRIC RAILWAYS. HARRY C. REAGAN, Jr., Philadelphia, Pa. Filed June 4, 1896. Serial No. 594,223. (No model.)



Claim.—1. In an electric railway, an insulated continuous sectional conductor, energizing means for its sections, brushes or other contact devices carried upon each end of a car and adapted to contact with different sections of said conductor, an indicator connected with each of said brushes, a resistance-coil connected with said indicators and a wire from said resistance-coil grounded in said frame.

2. In an electric railway, a conduit composed of a series of pipes or boxes forming sections, each of the latter having a removable top, a head in each end of said sections, an opening in each head, a hollow sleeve or bolt passing through said heads, and means for holding said sleeve or bolt in position, said hollow bolt having insulation in its interior, and being adapted to allow a feed-wire to pass therethrough.

3. In an underground electric railway, a feed-wire, means for supporting the same, a conduit composed of sections having a removable top and heads of wood or similar material in the end of each section, openings in said heads, a hollow sleeve or bolt fastened in said openings, inclosing said feed-wire, the ends of said sleeve being threaded and having nuts engaging therewith, which are adapted to pull the aforesaid heads together when said nuts are tightened.

4. In an electric railway, a feed-wire having oscillatory contacts mounted thereupon, supporting devices therefor, a conduit composed of sections having removable tops and heads located in the ends thereof and provided with apertures, and means for holding said heads and the ends of said sections in juxtaposition.

5. In an electric railway, a feed-wire, a conduit therefor, a sectional conductor, a strip of resilient material coiled around said feed-wire at substantially a right angle thereto, an armature attached to said strip, the terminal of the latter being adapted to abut against said conductor, and thus complete the circuit when a magnet is brought into proximity to said armature.

6. In an electric railway, a feed-wire, an oscillatory contact mounted thereon, said feed-wire serving as an axis for said contact, the latter having a portion thereof, composed of resilient material, and an elongated armature B^3 attached to said contact, for the purpose of exposing a greater extent of metal to the lines of force.

7. In an electric railway, a closed conduit, made in sections, each of the latter having a removable top and apertured heads located in their ends, in combination with means for holding said heads and the ends of said sections in juxtaposition.

8. In an electric railway, a closed conduit made in sections, each of the latter having a removable top, apertured heads located at or near the ends of said sections, and means for holding said heads and the ends of said sections in juxtaposition, in combination with a feed-wire passing through said conduit.

9. In an electric railway, a conduit, a feed-wire suitably supported therein, an oscillatory contact mounted on said feed-wire, the latter serving as an axis therefor, a portion of said contact being composed of resilient material, a conductor against which the latter is adapted to abut, means for conveying electricity from said conductor to a car-motor, an elongated armature attached to said contact, and means for magnetically operating said armature from the exterior of said conduit.

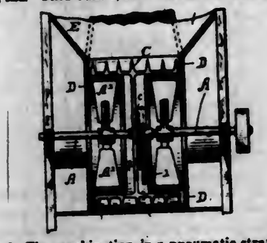
10. In an electric railway, a conduit, a feed-wire suitably supported therein, an oscillatory contact mounted on said feed-wire, the latter serving as an axis therefor, a portion of said contact being composed of resilient material, a bolt or similar fastening device against which the latter is adapted to abut, a conductor held against a side of said conduit by said bolt, means for conveying electricity from said conductor to a car-motor, an elongated armature attached to said contact, and means for magnetically actuating said armature from the exterior of said conduit.

594,128. BLUE-RED TETRAZO DYE. CHRISTIAN H. RUDOLPH and JULIUS HERRMANN, Offenbach-on-the-Main, Germany, assignor to The Firm of K. Oehler, same place. Filed May 15, 1897. Serial No. 636,986. (Specimens.)

Claim.—1. As a new process, the production of a bluish-red tetrazo dye, which consists in the combination of tetrazo-dichlordiphenyl, derived from diorthochlorbenzidin, with two molecules of beta,-naphthylamin-beta,-beta,-disulfo-acid, the so-called "amido R acid," substantially as described.

2. As a new article, the bluish-red tetrazo dyestuff herein described derived from tetrazo-dichlordiphenyl and amido R acid, being a brown-red powder and having the following properties, viz: being easily soluble in cold water with a bluish-red color, its aqueous solution not being altered by the addition of properly-diluted caustic lye or soda but yielding a red flocculent precipitate when the lye or soda is added in a concentrated condition, giving when dissolved in concentrated sulfuric acid a pure blue solution from which by the addition of a little water there are precipitated brown flakes which by more water are dissolved with a bluish-red color, dyeing cotton without mordants a bluish red which is distinguished by its pure brilliant shade and fastness to acids.

594,124. PNEUMATIC STRAW-STACKER. JAMES R. SCHUHAM, Columbia, Ind. Filed June 1, 1897. Serial No. 638,986. (No model.)



Claim.—1. The combination, in a pneumatic straw-stacker, of a fan, a fan-casing, a surrounding casing, and a rotary fork structure adapted to carry the straw between said fan-casing and said surrounding casing and throw the same into the air-blast.

2. The combination, in a pneumatic straw-stacker, of a fan, a fan-casing, a casing surrounding said fan-casing, and a rotary spider-like fork structure mounted upon the fan-shaft and revolving in the same direction as the fan-blades, the fork ends projecting beyond the periphery of the fan-casing.

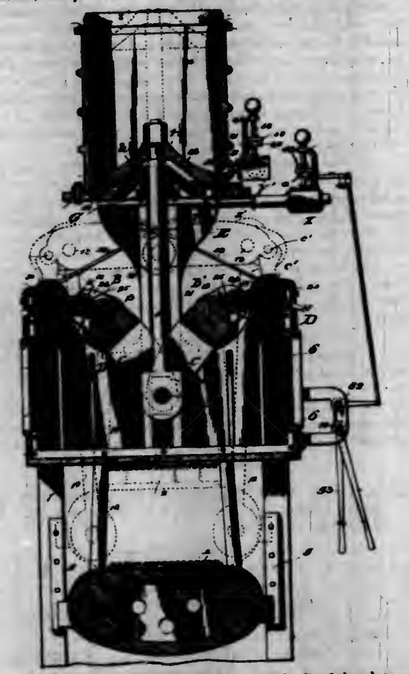
3. The combination, in a pneumatic straw-stacker, of a fan, a fan-casing, a casing surrounding said fan-casing, a rotary fork structure mounted on the fan-shaft, a counter-shaft, and a series of spur gear-wheels driven from said fan-shaft and driving said fork structure, whereby a variable speed between said fan-shaft and said fork structure may be obtained, substantially as set forth.

4. The combination, in a pneumatic straw-stacker, of a fan-shaft, two fans mounted thereon, a fan-housing for each fan with a space between them, a rotary fork structure mounted on said shaft at a point between said fan-housings, and a gearing whereby said fork structure is driven from said fan-shaft at a variable speed therewith, substantially as set forth.

5. The combination, in a pneumatic straw-stacker, of a fan-shaft, two fans mounted thereon, two fan-housings, one for each fan, with a space between them, and a spider-like rotary fork structure mounted on said shaft at a point between the two fan-housings, the fork ends whereof project beyond the peripheries of said housings, and an outer casing surrounding the whole, substantially as shown and described.

594,125. COTTON-COMPRESSOR. ARTHUR T. SHOOBRIDGE, Dothan, Ala. Filed May 4, 1897. Serial No. 635,075. (No model.)

Claim.—1. The combination, substantially as set forth, of the platen, the pistons, means for operating it, the toggle-levers, consisting relatively of the short fulcrum-levers and the longer operating-levers, each set of said toggle-levers being provided with a knuckle-joint, one member of which has a convex portion and the other member of which has a concave portion on which the periphery of the convex portion of the first-mentioned member bears and which also has a flange overhanging the convex portion of the first-mentioned member, and provided with openings for the admission of a lubricant, and pitmen connecting the toggle-levers with the platen.



2. The combination, substantially as set forth, of the platen, the piston, means for operating it, the toggle-levers each pair of which is provided with a knuckle-joint, one member of which has cylindrical lugs arranged within projecting wings and the other of which has a concave portion fitting the cylindrical lugs, and provided with a flange overhanging the lugs and arranged between the wings.

3. The combination, substantially as set forth, of the platen, the piston, means for operating it, the toggle-levers, each pair of which is provided with a knuckle-joint, one member of which is formed with cylindrical lugs arranged between projecting wings and the other of which is provided with a cylindrical lug fitting between the cylindrical lugs of the other member, a pin passing through the lugs of both members, and pitmen connecting the toggle-levers with the platen.

4. A cotton-compressor comprising a steam-actuated piston, a movable platen, and toggle-levers, each set of which has a knuckle-joint, one member of which is convex and the other of which has a concave portion against which the periphery of the convex portion of the first-mentioned member bears, lugs on the two members, and a pin extending through said lugs and joining the two members.

5. A cotton-compressor comprising a movable platen, a steam-actuated piston and toggle-levers, each set of which comprises two members, one of which members is bifurcated and has cylindrical lugs separated by a hollow space, and the other of which has concave portions fitting the cylindrical lugs, and a cylindrical lug fitting the space between the cylindrical lugs of the first-mentioned member, and provided also with apertures to receive the lubricant.

6. In a cotton-compressor, the combination of the piston, the platen, connections between the piston-rod and the platen, the cylinder, the piston-head secured to the piston-rod within the cylinder, and having an inclined top surface and an annular deflector at the top of the cylinder to prevent the escape of oil.

7. The combination of the movable platen, the piston-rod, connections between the piston-rod and the platen, the piston-head secured to the piston-rod, the cylinder, and an annular, diagonally-arranged deflector or guard at the the top of the cylinder to prevent the escape of oil.

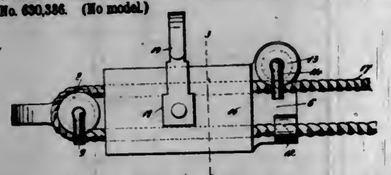
8 The combination of the reciprocating piston, the cylinder formed with an annular rabbet at its upper open end, and a deflector or guard having a body portion arranged in the annular rabbet, and an inwardly-projecting, annular flange to prevent the escape of oil from the cylinder when the piston is in operation.

9. The combination of the platen, the piston, connections between the platen and the piston, the steam-cylinder open at the top, a supply-pipe for admitting steam to the cylinder at the bottom thereof, a valve governing the supply of steam to the cylinder, another valve governing the exit of water of condensation from the bottom of the cylinder, a lever, connections between said lever and the said valves, an exhaust-port located near the lower end of the cylinder but above the bottom thereof, and which the piston passes as it rises and falls, two valve-boxes connected with said exhaust-port, and valves in said boxes governing the exhaust of steam from the cylinder, an operating lever, and connections between said lever and said two exhaust-valves, whereby they are open successively.

10. The combination, substantially as set forth, of the platen, the piston, connections between the platen and the piston, the steam-cylinder open at the top and having a deflector around its upper end, means for admitting steam to the lower end of the cylinder below the piston, an exhaust port at the side of the cylinder near the bottom thereof, a valve in said exhaust-port, and lever mechanism for opening and closing the valve, the organization being such that the exhaust-port may be open while the piston is descending, but may be closed by the piston before the latter reaches the bottom of the cylinder.

11. The combination of the platen, the piston, connections between the platen and the piston, the steam-cylinder, means for admitting steam to the cylinder below the piston, an exhaust-port in the side of the cylinder above the lower end thereof, valves governing said port, and lever mechanism for operating the said valves to first permit the escape of steam in one direction from the exhaust-port and then open an additional escape for steam in another direction.

594,126. CLAMP OR FASTENING DEVICE FOR LINES. CHRISTOPHER C. SPRINGER, Poughkeepsie, N. Y. Filed Apr. 2, 1897. Serial No. 630,386. (No model.)



Claim.—A clamp or fastening device for lines or cables, consisting of a plate or block 5, to one side of which is secured a metal plate which projects at each end thereof, said metal plate being provided at one end with a keeper which is secured to one side thereof, and at the opposite side with a pulley and said plate being provided at its opposite end with a pulley and with a hook or other attaching device, and a clamping-block which is connected with said plate or block by a bolt which is passed therethrough, and on which is mounted a nut or bur, said plate or block and said clamping-block being provided with two longitudinal grooves in their adjacent surfaces through which the line is passed, substantially as shown and described.

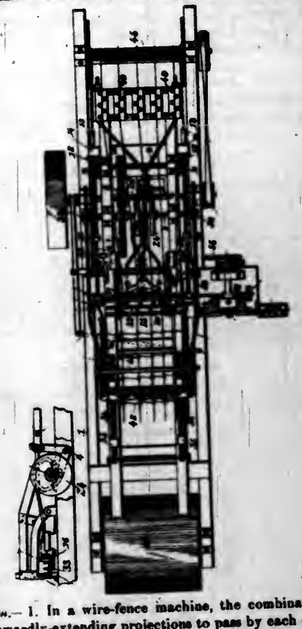
594,127. MILK-BUCKET. WILLIAM J. WALSH, Cleveland, Tenn. Filed July 21, 1897. Serial No. 645,434. (No model.)



Claim.—1. The combination with a milk-bucket having a spout, of a spring-actuated slide mounted on the bucket and covering the upper end of the spout, said slide being adapted to be withdrawn from over the spout to permit a funnel to be arranged therein and being capable of automatically closing the same when the funnel is removed, substantially as described.

2. The combination of a milk-bucket having a spout, a support mounted on the lid and extending in the direction of the spout, and provided with ways, a slide arranged in said ways and extending over the mouth of the spout and closing the same, and a spring connected with the slide for holding the same normally over the spout, substantially as described.

594,128. WIRE-FENCE MACHINE. CHARLES R. WARNER, Waverly, Kans. Filed Nov. 30, 1896. Serial No. 614,016. (No model.)



Claim.—1. In a wire-fence machine, the combination of jaws having inwardly-extending projections to pass by each other, means for closing the jaws, and a looper for deflecting the longitudinal wires during the closing of the jaws, substantially as set forth.

2. In a fence-machine, the combination of jaws having quadrantal-shaped projections grooved in their arcuate faces, means for closing the jaws and causing the projections to pass by each other, and a looper for deflecting the longitudinal wires as the jaws are closing, substantially as set forth.

3. In a fence-machine, the combination of jaws having companion grooves in their meeting faces which unitedly form a passage, means for closing the jaws and looping the wires between them, and a feeding mechanism for threading a cross or filling wire through the loops, substantially in the manner set forth for the purpose described.

4. In a fence-machine, the combination of cooperating jaws having projections at their inner faces, one of the jaws comprising upper and lower parts, the upper part carrying the inner projections, inclined projections between the parts for moving the longitudinal wires laterally and beneath the inner projections on the said upper part as the jaws close, and means for advancing and withdrawing the other jaw from the two part jaw, substantially as and for the purpose set forth.

5. In a fence-machine, the combination of cooperating jaws having inner projections on their meeting faces, one of the jaws comprising an upper and a lower part, projections between the complementary parts of the jaw having an inclined edge to cause a lateral movement of the longitudinal wires as the parts of the jaw come together, and means for moving the other jaw toward and from the two-part jaw, substantially as and for the purpose set forth.

6. In a fence-machine, the combination of a movable jaw, a tubular spindle provided with a wire-twister and movable with the said jaw, a coil-spring having connection with the tubular spindle, means for storing power in the coil-spring, which power when expended actuates the wire-twister, and cooperating stops to hold the tubular spindle against rotation during the operation of storing power in the coil-spring, substantially as set forth.

7. In a wire-fence machine, the combination of a movable jaw, a tubular spindle movable with the jaw and bearing a wire-twister, a hollow shaft mounted upon the tubular spindle, a coil-spring mounted upon the tubular spindle and having connection therewith and with the hollow shaft, means for rotating the hollow shaft to store power

in the coil spring, and cooperating stops to hold the tubular spindle against rotation during the storing of power in the said coil-spring, substantially as set forth for the purpose described.

8. In a wire-fence machine, the combination of cooperating jaws, means for imparting a reciprocating movement to one of the jaws, tubular spindles located at the ends of the movable jaw and adapted to reciprocate therewith and provided with wire-twisters, hollow shafts having the tubular spindles operating therein, coil-springs placed upon the tubular spindles and secured thereto at one end and to the hollow shafts at their opposite end, cooperating stops for holding the tubular spindles against rotation during the closing of the jaws, and means for rotating the hollow shafts for storing power in the coil-springs, substantially as and for the purpose set forth.

9. In a wire-fence machine, the combination of mechanism for looping the longitudinal wires, a feeding mechanism for threading the cross or filling wires through the loops, comprising companion feed-rollers, and a lever bearing a cutter for severing the length of wire when fed to the machine and at the same time throwing the feeding mechanism out of operation, substantially as set forth.

10. In a wire-fence machine, the combination with the mechanism for effecting an interlocking of the cross or filling wires with the longitudinal wires, of a mechanism for advancing the completed fence, consisting of a cross-head, a series of spring-actuated dogs having pivotal connection with the cross-head, and actuating mechanism for the cross-head, substantially as and for the purpose set forth.

11. In a wire-fence machine, the combination with the mechanism for producing an interlocking of the cross or filling wires with the longitudinal wires, of a feeding mechanism for advancing the completed fence, consisting of a cross-head, dogs carried thereby, bars having pivotal connection with the cross-head and extending forwardly and having shoulders a short distance from their front ends, and arms attached to a rotatable shaft to engage with the shoulders of the said bars, substantially as and for the purpose set forth.

12. A wire-fence machine, comprising in its organization the following instrumentalities: cooperating jaws having inner projections and companion grooves in their meeting faces, means for moving one of the jaws vertically and the other jaw toward and from the first-mentioned jaw, a looper for deflecting the longitudinal wires between the jaws as the latter are closing, a feeding mechanism for threading a filling-wire through the loops, a lever bearing a cutter for severing the filling-wire and at the same time throwing its feeding mechanism out of operation, tension devices for the longitudinal wires, a feeding mechanism for drawing the completed fence through the machine and at the same time straightening the loops and producing an interlocking of the longitudinal and filling wires, wire-twisters for wrapping the ends of the filling-wires about the side cables, a measuring-roller for determining the length of completed fence, and a drum for winding up the completed fencing into a roll, substantially in the manner set forth.

13. In a fence-machine, the combination of independent coacting jaws, a looper for deflecting the longitudinal wires between the jaws as the latter are closing and cooperating therewith to form the deflected portion of the wires into loops, a feeding mechanism for passing a cross-wire through the loops, and means for separating the jaws and subjecting the longitudinal wires to linear tension, whereby the said loops are stretched and an interlocking between the longitudinal and cross wires is effected, substantially in the manner shown for the purpose specified.

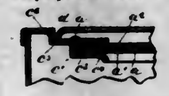
594,129. BRIDGE FOR BOW INSTRUMENTS. MAURICE W. WHITE, Somerville, Mass., assignor of one-half to Frederick A. Buck, Boston, Mass. Filed Dec. 7, 1896. Serial No. 614,815. (No model.)



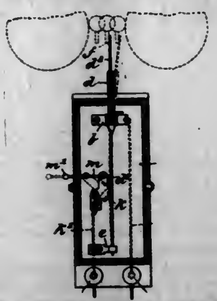
Claim.—A bridge for bow instruments, having the contracted portion or waist *d* dividing the bridge into a base portion and a crown portion, the central orifice *e*, and the side orifices *f* in said crown, portions of the said central orifice extending under the side orifices and thereby forming between them horizontal resilient arms connecting the top or string-supporting portion of the crown with the waist, and imparting resilience to the central portion of said crown.

594,130. CAN OR JAR CLOSURE. WILLIAM H. BURNETT, Red Hook, N. Y. Filed Oct. 23, 1896. Serial No. 609,432. (No model.)

Claim.—An improved closure for cans or other vessels, comprising, in combination with the can or vessel having the top opening surrounded by the groove c' forming the groove-seat c^3 and the shoulder c^4 and having the groove c^5 extending from the shoulder c^4 and forming the outer shoulder c^6 the sealing-disk embodying the soft-metal disk and the supplementary top disk, the edge of the soft-metal disk being bent around the supplementary disk and adapted to be hermetically sealed in connection with the shoulder c^6 by the amalgamation of the metals, and the protective cap having the downturned edge adapted to be sprung into position within the shoulder c^6, substantially as and for the purpose set forth.



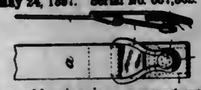
594,131. BELL EXTENSION FOR TELEPHONES. ERNEST S. DICKERSON, Philadelphia, Pa. Filed Aug. 11, 1897. Serial No. 647,779. (No model.)



Claim.—1. The combination with the call-bell lever of a telephone, of a flexible arm resting at one end against said lever, a contact to which said arm is pivotally secured, a stop wherein the other end of the arm rests, a second contact arranged between the stop and the first contact, all arranged so that when the call-bell lever oscillates the flexible arm will periodically engage the second contact, a local-battery circuit wherein the contacts are included, and one or more signaling devices included in said local-battery circuit, substantially as and for the purposes described.

2. The combination with the call-bell attachment of a telephone, of a make-and-break device, consisting of a long flexible arm pivotally connected with a contact-point, a stop in which the other end of said flexible arm rests, said arm adapted to be oscillated by said telephone call-bell attachment to swing it into and out of engagement with a second contact located between said stop and first contact and provided with a shifting device, a local-battery circuit wherein said contacts are adapted to be included, and one or more signaling devices in said circuit, substantially as and for the purposes described.

594,132. GARMENT-SUPPORTER. JOHN J. DOBBERT, New York, N. Y. Filed May 24, 1897. Serial No. 637,862. (No model.)



Claim.—The combination in a garment-supporter, of a flexible tape, a loop connected thereto and having its free end bent inward toward the tape, a stud and a plate to which said stud is fixed, said plate being bent outward below the stud, substantially as shown and described.

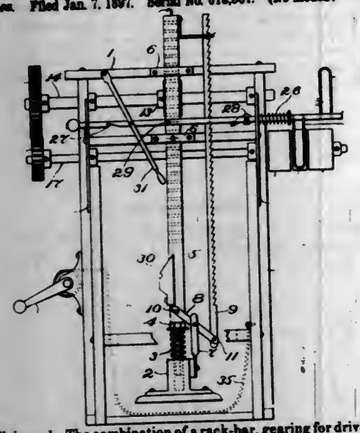
594,133. MANUFACTURE OF MATCHES. GEORG FISCHING, Vienna, Austria-Hungary, assignor, by mesne assignments, to the Duplex Match Company, of New Jersey. Filed Apr. 6, 1897. Serial No. 630,957. (No specimens.) Patented in Austria Oct. 18, 1896, No. 46/4,135.

Claim.—1. The method herein described, of manufacturing headless safety-matches, which consists in applying to the end or ends of the match-splints sodium chlorate, a sulfate of a metal proper and a gum in solution, so as to impregnate the end or ends of the splints, thoroughly drying and subsequently dipping the splints to a greater depth in a hydrocarbon waterproof solution, substantially as described.

2. A solution for the impregnation of matches in the manufacture of safety-matches, consisting of sodium chlorate, gum-arabic, a sulfate of a metal proper and water, substantially as specified.

3. A solution for treating matches after their impregnation with an oxidizing or consuming agent, said solution consisting of rosin, tarpentine, oleic acid and linseed-oil, substantially as specified.

594,184. RAGGING-MACHINE. FRANK I. FURBUSH, Graniteville, Mass. Filed Jan. 7, 1897. Serial No. 618,367. (No model.)



Claim.—1. The combination of a rack-bar, gearing for driving the same, a plunger carried by the rack-bar, a spring interposed between the rack-bar and plunger, a lever pivoted to the rack-bar and plunger, a ratchet-bar pivoted to the lever, a pawl engaging the ratchet-bar and attached to a shift-rod and fast and loose pulleys actuated thereby and actuating the gearing.

2. The combination of a rack-bar, gearing for driving the same in either direction, a plunger carried by the rack-bar, a spring interposed between the rack-bar and plunger, a lever pivoted to the rack-bar and plunger, a ratchet-bar pivoted to the lever, and a pawl engaging the ratchet-bar and attached to a shift-rod and fast and loose pulleys actuated thereby and actuating the gearing.

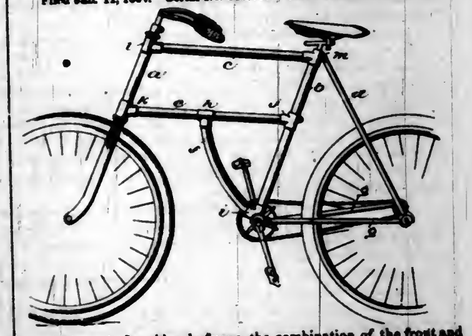
3. The combination of a rack-bar, gearing for driving the same, a shift for actuating the gearing in either direction and for arresting it, a plunger carried by the rack-bar, a spring interposed between the rack-bar and plunger, a lever pivoted to the rack-bar and plunger, a ratchet-bar pivoted to the lever, a pawl engaging the ratchet-bar and attached to the shift, a spring tending to reverse the shift-rod when the ratchet-bar actuates the pawl, a cam-plate on the rack bar, and a pin on the shift-rod in the path of the cam-plate for arresting the gearing when the rack-bar has been retracted.

594,185. UMBRELLA. JAMES C. HALL, Waldo, Fla., assignor of one-fourth to George H. Barker, same place. Filed Jan. 11, 1897. Serial No. 615,691. (No model.)



Claim.—In an umbrella or the like, a hollow stem 2 provided at one end with a handle and closed at said end, a longitudinal slot in said stem 2, a stem 1 sliding in said stem 2 and provided at one end with a sleeve 4 that encircles the said stem 2 and is connected with said stem 1 through the said slot, a spring actuated detent carried by the sleeve 4 of said stem 1 and adapted to engage openings in said hollow stem 2, a spring situated within said hollow stem and bearing at its opposite ends against the closed end of said hollow stem and the end of said stem 1, ribs pivoted to said stem 1, and spreading-levers pivoted to said ribs and to said hollow stem 2.

594,186. BICYCLE-FRAME. SYLVESTER R. HILL, Chicopee, Mass. Filed Jan. 11, 1897. Serial No. 618,796. (No model.)



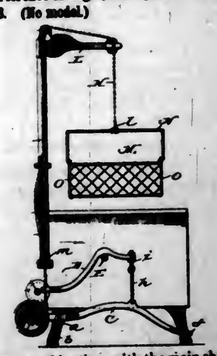
Claim.—1. In a bicycle-frame, the combination of the front and rear bars *a* and *b*, the upper bar *c*, the lower bar *e* extending from the lower end of the front bar *a* to substantially the middle point of the rear bar *b*, and the bar *f* extending from the lower end of the bar *b* to substantially the middle point of the bar *e*, said bars having suitable connections at their points of juncture.

2. In a bicycle-frame, the combination of the front and rear bars *a* and *b*, the upper bar *c*, the lower bar *e* extending from the lower end of the front bar *a* to substantially the middle point of the rear bar *b*, the bar *f* extending from the lower end of the bar *b* to substantially the middle point of the bar *e*, said bars having suitable connections at their points of junction, the rear top braces *d* extending from the top of the bar *b* to the shaft of the rear wheel, the lower rear bars *g* extending from the crank-axle back to said shaft, and the rear braces *n* extending from the junction of the bars *e* and *b* to substantially the middle point of the rear braces *g*.

3. In a bicycle-frame, the combination of the front and rear parallel bars *a*, *b*, the upper and lower parallel horizontal bars *c*, *e*, the four forming a parallelogram in which a rectangular luggage-carrier can be snugly carried and effectively secured, and a brace extending from the lower bar *e* to a point on the bar *b* outside said space, substantially as described.

4. In a bicycle-frame, the combination of front and rear bars *a* and *b*, the upper and lower parallel bars *c*, *e*, and the curved brace *f* extending from an intermediate point in the lower bar *e* to the lower portion of the rear bar *b*, substantially as described.

594,187. DISH-CLEANER. ALFRED INSINGER, Philadelphia, Pa., assignor to C. Florence Insinger, same place. Filed Apr. 7, 1896. Serial No. 586,496. (No model.)



Claim.—1. The combination, with the main shaft of a dish-washing machine, of a basket lifting or hoisting device comprising a lever, a drum carried by said lever, a chain having one end connected to said drum, means for revolving the drum from the main shaft, and means for automatically engaging the lever to stop the motion of the drum, substantially as described.

2. A basket hoisting or lifting device for dish-washing machines, consisting of a pivoted lever, a drum carried by said lever, a chain having one end attached to said drum, means for guiding said chain over the machine, means for revolving said drum, and means connected with the chain for automatically stopping the movement of said drum, substantially as described.

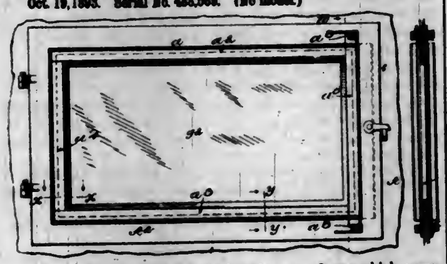
3. A basket hoisting or lifting device for dish-washing machines, consisting of a pivoted lever, a drum carried by said lever, friction-wheels for revolving said drum, a guide for guiding said chain over the machine, a stop carried by said chain, and means operated by said stop to automatically separate or disengage the friction-wheels, whereby further revolution of the drum will cease, substantially as described.

4. The combination with the main shaft of a dish-washing machine having a friction-wheel mounted thereon, of a pivoted lever, a friction-wheel and drum carried by said lever, a lever pivoted above and connected to said first-named lever, a vertical tube, an arm pivotally mounted on said tube, a chain having one end connected to said drum and extending through said tube to the end of said arm, and a stop carried by said chain and adapted to engage and depress one end of the uppermost lever, substantially as described.

5. The combination, with a basket for dish-washing machines, of a rack consisting of a series of cross-pieces and a series of rods passing through said cross-pieces and forming compartments each adapted to receive a cup, and means arranged in each compartment for engaging the cups to hold the same against movement, substantially as described.

6. The combination, with a basket for dish-washing machines, of a rack formed with a series of compartments each adapted to receive a cup, and spring-metal wires secured to said rack and extending into said compartments and adapted to engage the cups and retain them in the compartments, substantially as described.

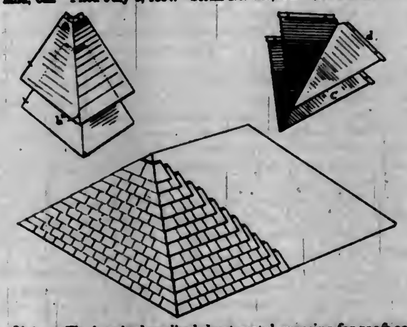
594,188. STOVE-DOOR. LOUIS P. KNOLL, Montrose, Pa. Filed Oct. 19, 1893. Serial No. 488,502. (No model.)



Claim.—1. A stove-door which embraces a frame which corresponds with the opening of the oven, or other chamber of the stove or range, and which has inner and outer grooves or ways; a window-plate in the inner grooves or ways; a window-plate in the outer grooves or ways; and yielding stops or holding-plates one of which automatically bears against the outer extremity of one window-plate.

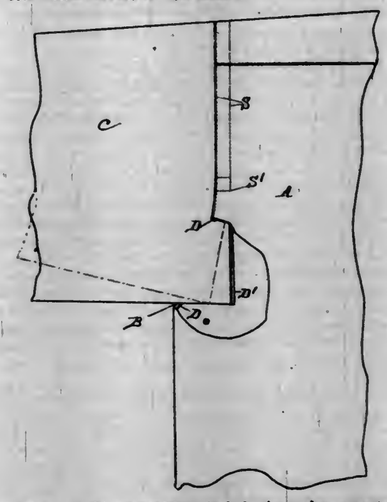
2. A stove-door which embraces a frame which at one extremity is hinged to the body of the stove; and which is provided upon its inner and outer surfaces with window ways or grooves; a window-plate in the inner way or groove; a window-plate in the outer way, the two windows inclosing an intervening air-chamber; and spring-stops, or automatically-acting holding-doors, at the free end of the stove door, operating to permit expansion of the window-plates, while preventing their displacement from position.

594,189. SHEET-METAL ROOFING. JAMES J. KNOWLTON, Oakland, Cal. Filed July 6, 1897. Serial No. 643,631. (No model.)



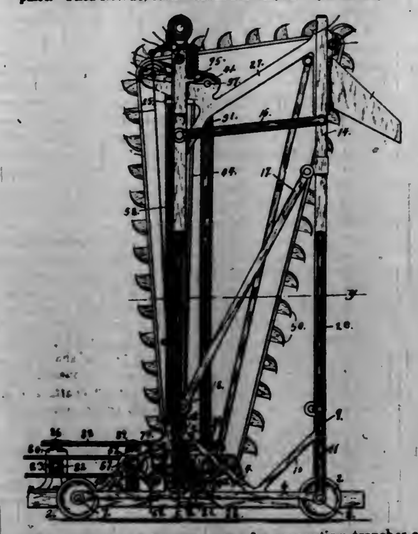
Claim.—The herein-described sheet-metal covering for roofs consisting of the roofing-plates A of rectangular shape provided with a bend or offset across the upper end for nailing the plate to the roof-surface, the hip-plates B of double-triangular shape having a bend along the middle and an offset across the upper end, and the valley-plates C of corresponding angular shape provided with an offset across the wider end, the sides of the said angular plates B and C being adapted by the form of the plates to lie parallel with and form butt-joints with the perpendicular edges of the rectangular roofing-plates, substantially as set forth.

594,140. SHIRT. JAMES H. MYERS, Troy, N. Y. Filed July 8, 1896. Serial No. 598,367. (No model.)



Claim.—A shirt comprising a body having a sleeve-aperture and a sleeve secured to the body in communication with the aperture by a seam extending around the upper side of the sleeve and terminating at or near the middle thereof at front and back respectively, the sleeve having its lower part loosely inserted in the lower portion of the aperture, and the loose edges of the sleeve and body being separately finished, substantially as described.

594,141. TRENCH-EXCAVATING APPARATUS. HERMANN NETTELBECK, Buffalo, N. Y., assignor of one-half to Gustav A. Grimm, same place. Filed Nov. 28, 1896. Serial No. 613,708. (No model.)



Claim.—1. A portable apparatus for excavating trenches consisting of a truck carrying an upright main framework having vertical guides or ways, a frame vertically adjustable in the guides or

ways of the main framework, a series of vertically-cutting disks and a series of endless bands carrying horizontally-cutting scoops both mounted and operating in the vertically-adjustable frame, a vertical shaft journaled in the vertically-adjustable frame and carrying a stationary feathered sprocket-wheel for actuating the vertical shaft and its attached operative parts in the vertically-adjustable frame, a shaft mounted on the truck carrying loose lower winding-drums with clutch mechanism and cords attached to lower drums and vertically-adjustable frame for lowering same, and a shaft mounted in the main framework and carrying rigid upper winding-drums and cords attached to upper drums and vertically-adjustable frame for raising same.

2. A portable apparatus for excavating trenches consisting of a truck carrying an upright main framework having vertical guides or ways, a frame vertically adjustable in the guides or ways of the main framework, a series of vertically-cutting disks and a series of endless bands carrying horizontally-cutting scoops both mounted and operating in the vertically-adjustable frame, a vertical shaft journaled in the vertically-adjustable frame and carrying a stationary feathered sprocket-wheel for actuating the vertical shaft and its attached operative parts in the vertically-adjustable frame, a shaft mounted on the truck carrying loose lower winding-drums with clutch mechanism and cords attached to lower drums and vertically-adjustable frame for lowering same, a shaft mounted in the main framework and carrying rigid upper winding-drums and cords attached to upper drums and vertically-adjustable frame for raising same, a loose pulley with clutch mechanism on the truck-shaft and a rigid pulley on the main-framework shaft, with belt connecting lower loose pulley for operating upper winding-drums, a ratchet-wheel and dog on the main-framework shaft for holding the vertically-adjustable frame at any point, and a friction-disk and band connected with the main-framework shaft for regulating the descent of the vertically-adjustable frame.

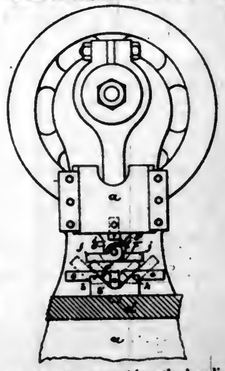
3. A portable apparatus for excavating trenches consisting of a truck carrying a collapsible main framework having vertical guides or ways, a frame vertically adjustable in the guides or ways of the main framework, a series of vertical cutting-disks and a series of endless bands carrying horizontally-cutting scoops both mounted and operating in the vertically-adjustable frame, and means for raising and lowering the vertically-adjustable frame.

4. A portable apparatus for excavating trenches consisting of a truck, a collapsible main framework having vertical guides or ways, a frame vertically adjustable in the guides or ways of the main framework, a series of vertical cutting-disks and a series of endless bands carrying horizontally-cutting scoops both mounted and operating in the vertically-adjustable frame, a vertical shaft journaled in the vertically-adjustable frame and carrying a stationary feathered sprocket-wheel for actuating the channeled shaft and its attached operative parts, in the vertically-adjustable frame, and means for raising and lowering the vertically-adjustable frame.

5. A portable apparatus for excavating trenches consisting of a truck carrying a collapsible main framework having vertical guides or ways, a frame vertically adjustable in the guides or ways of the main framework, a series of vertically-cutting disks and a series of endless bands carrying horizontally-cutting scoops, both mounted and operating in the vertically-adjustable frame, a vertical shaft journaled in the vertically-adjustable frame and carrying a stationary feathered sprocket-wheel for actuating the vertical shaft and its attached operative parts in the vertically-adjustable frame, a shaft mounted on the truck carrying loose lower winding-drums with clutch mechanism and cords attached to lower drums and vertically-adjustable frame for lowering same, a shaft mounted in the main framework and carrying rigid upper winding-drums, and cords attached to upper drums and vertically-adjustable frame for raising same.

6. A portable apparatus for excavating trenches consisting of a truck carrying a collapsible main framework having vertical guides or ways, a frame vertically adjustable in the guides or ways of the main framework, a series of vertically-cutting disks and a series of endless bands carrying horizontally-cutting scoops, both mounted and operating in the vertically-adjustable frame, a vertical shaft journaled in the vertically-adjustable frame and carrying a stationary feathered sprocket-wheel for actuating the vertical shaft and its attached operative parts, in the vertically-adjustable frame, a shaft mounted on the truck carrying loose lower winding-drums with clutch mechanism and cords attached to lower drums and vertically-adjustable frame for lowering same, a shaft mounted on the main framework and carrying rigid upper winding-drums and cords attached to upper drums and vertically-adjustable frame for raising same, a loose pulley with clutch mechanism on the truck-shaft and a rigid pulley on the main-framework shaft with belt connecting lower loose pulley for operating upper winding-drums, a ratchet-wheel and dog on the main-framework shaft for holding the vertically-adjustable frame at any point and a friction-disk and band connected with the main-framework shaft for regulating the descent of the vertically-adjustable frame.

594,142. BAG-FRAME MACHINE. LOUIS OGREE and GUSTAV OGREE, Newark, N. J., assignors to William Roemer, same place. Filed Dec. 15, 1896. Serial No. 615,743. (No model.)

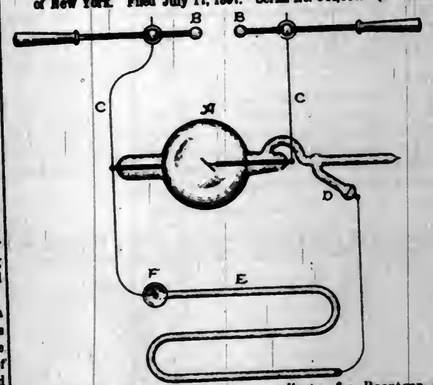


Claim.—1. In a bag-frame machine, the bending-dies comprising upper and lower members each of which is provided with arms which are in pairs and normally extend oppositely in alinement and are free upon their connections to turn and assume an angular relation, one arm with the other in each pair, the arms in one pair being movable with the opposite arms in the other pair and maintaining parallel relations therewith while assuming the said angular relations, said parts being combined, substantially as set forth.

2. In a bag-frame machine, the bending-dies comprising upper and lower members each of which is provided with pivotal holding-arms, the upper member having a convexity to engage a concavity in the lower die and the said lower die member having said concavity and having a vertically-sliding section *c*, all parts being combined and operating, substantially as set forth.

3. In a bag-frame machine, the combination with the member *b*, comprising plates *b'*, *b''*, and intermediate plates *b'''*, *b''''*, of pivotal arms *c*, *c*, and sliding section *c*, of a member F, having arms *j*, *j*, all said parts being arranged and operating, substantially as set forth.

594,143. REGULATING ROENTGEN-RAY TUBES. MARTIN P. RICE, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed July 17, 1897. Serial No. 644,887. (No model.)



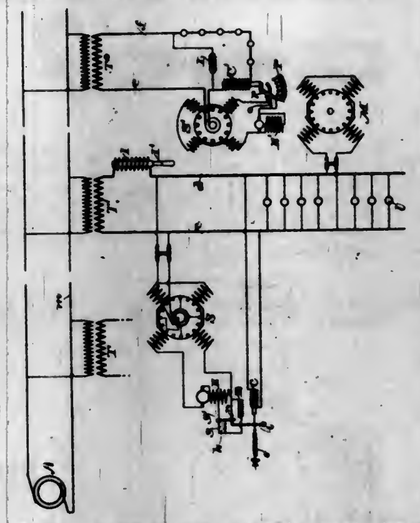
Claim.—1. An automatic vacuum-adjuster for Roentgen-ray tubes, consisting of a shunt-circuit including in the path of the current a volatile salt within the vacuum inclosure, and a high resistance in lieu of the usual spark-gap.

2. An automatic vacuum-adjuster for Roentgen-ray tubes, consisting of a shunt-circuit including in the path of its current a volatile salt, and a resistance consisting of a tube filled with water or other liquid.

3. An automatic adjustable vacuum-tube having a chemical bulb and a shunt-circuit discharging through the bulb and presenting a continuous path of high resistance from terminal to terminal, without spark-gaps at any point exterior to the tube.

4. In an automatic adjustable vacuum-tube, the combination of a vacuum-tube having a chemical bulb, a shunt circuit forming a continuous high-resistance path uninterrupted by spark-gaps at any point exterior to the tube, and means whereby the current in the shunt regulates the vacuum in the tube.

594,144. REGULATION OF ALTERNATING-CURRENT SYSTEMS. CHARLES P. STEINMETZ, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Dec. 22, 1893. Serial No. 494,384. (No model.)



Claim.—1. The combination in an alternating-current system, of a source of out-of-phase waves of current or electromotive force between the feeding-mains and a working subcircuit or branch of the system, and a phase-modifier in such subcircuit.

2. The combination in an alternating-current system, of a regulable phase-modifier in a subcircuit or branch of the system, and a localizer restricting the influence of the phase-modifier from other portions of the system, as set forth.

3. The combination in an alternating-current system, of a phase-modifier in a working subcircuit or branch of the system, and an inductance localizing the action of such phase-modifier, as set forth.

4. The combination in an alternating-current system, of a source of out-of-phase waves of current or electromotive force between the mains and a subcircuit of the system, with a phase-modifier in such subcircuit and a regulator therefor such that the current in such subcircuit may be caused to lead or lag behind the electromotive force.

5. The combination in an alternating-current system, of a source of out-of-phase waves of current or electromotive force between the mains and a subcircuit of the system, with an electrodynamic phase-modifier comprising a conductor movable relatively to a magnetic field, and means for regulating the phase-modifier, as set forth.

6. The combination in an alternating-current system, of an inductance for localizing a subcircuit or portion of such system, and an electrodynamic phase-modifier comprising a conductor movable relatively to a magnetic field for modifying the relation of current and electromotive force in such regulated portion of the system and means for regulating the phase-modifier so as to cause the current to lead or lag, as set forth.

7. The combination in an alternating-current system, of an electrodynamic phase-modifier of the synchronous type regulable for modifying the phase relation as desired in a subcircuit or portion of the system, and an inductance serving as a localizer for restricting the influence of the phase-modifier, as set forth.

8. The combination in an alternating-current system, of a phase-modifier and an artificial inductance for localizing the influence of the phase-modifier to a subcircuit or portion of the system requiring regulation, one connected in series and the other in shunt with the load, as set forth.

9. The combination in an alternating-current system, of a phase-modifier and a source of out-of-phase waves of current or electromotive force acting as a localizer to restrict the influence of the phase-modifier, and means for regulating the localizer, as set forth.

10. The combination in an alternating-current system, of an artificial inductance between the feeding-mains and a subcircuit or regulated portion of the system, with means for regulating the inductance and a phase-modifier in the subcircuit, as set forth.

11. The combination in an alternating-current system, of an artificial inductance and a phase-modifier of such character as to cause the current to lead the electromotive force.

12. The combination in an alternating-current system, of an artificial inductance, a phase-modifier and means for regulating the phase-modifier so as to cause the current to lag or lead as desired.

13. The combination in an alternating-current system, of an artificial inductance in series with the load on a subcircuit of the system with an electrodynamic phase-controller of the synchronous type in shunt to the load on such circuit, and means for regulating the counter electromotive force of such phase-modifier with relation to the impressed electromotive force, as described.

14. The combination with the mains of an alternating system, of an inductance between said mains and the translating devices, and a phase-modifier controlling the relation of current and electromotive force in said devices.

15. The combination with the mains of an alternating system, of an inductance between said mains and the translating devices, and a regulable phase-modifier controlling the relation of the current and electromotive force in said devices.

16. The combination with the mains of an alternating system, of an inductance between said mains and the translating devices, and an automatically-regulable phase-modifier controlling the relation of current and electromotive force in the said devices.

17. The combination in an alternating-current system, of a phase-modifier and localizer acting respectively to modify the phase relation of current and electromotive force in a subcircuit or portion of the system, and to restrict the phase modification from other parts of the system, and an automatic regulator for the phase-modifier maintaining the desired potential or current conditions, as set forth.

18. The method of regulating an alternating-current-distribution system which consists in modifying the phase relation between current and electromotive force in a subcircuit or portion of such system requiring regulation, and localizing the influence of such phase modification from other portions of the system, as set forth.

19. In an alternating-current system, the method of regulation which consists in localizing a sub circuit or circuits from the feeding-mains by a source of out-of-phase waves of current or electromotive force, and modifying the phase relation in such sub circuit or circuits in such manner as to maintain the desired potential or current conditions, as set forth.

20. The method of regulation for an alternating-current system which consists in providing an inductance in a subcircuit or portion of the system requiring regulation, and modifying the phase relation of current and electromotive force in such subcircuit, as set forth.

21. The method of localizing or rendering independent two or more subcircuits or portions of an alternating system, supplied from common mains, which consists in adjusting to different conditions, the self-induction and the displacement of phase of electromotive force and current in such different portions.

22. The method of localizing a subcircuit supplied from alternating mains, which consists in adjusting the relative value of the self-induction and of displacement of phase of electromotive force and current in such portions to give the desired relation between the subcircuit and the mains.

23 The combination with alternating mains of two or more subcircuits supplied from such mains, regulable artificial inductances in said subcircuit and phase-modifiers connected with such subcircuits controlling the relative phase of electromotive force and current in such subcircuits.

24. The combination with alternating mains of two or more subcircuits applied therefrom, regulable artificial inductances in said subcircuits and regulable phase-modifiers connected with such subcircuits and controlling the relative phase of electromotive force and current in said subcircuits.

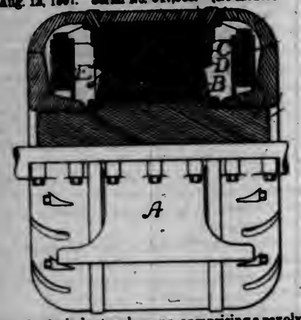
25. The combination with alternating mains of a subcircuit supplied therefrom and a regulable artificial inductance in said circuit and a phase-modifier controlling the relative phase of current and electromotive force in said subcircuit.

26. The combination with alternating-current mains of a subcircuit supplied from such mains and an artificial inductance in such said circuit and a phase-controller connected with such subcircuit and controlling the relative phase of current and electromotive force in the subcircuit.

27. The combination in an alternating-current system, of an electrodynamic phase-modifier comprising a conductor movable relatively to a magnetic field, and an automatic regulator therefor responsive to changes of potential in the circuit.

28. The combination in an alternating-current circuit, of a phase-modifier consisting of a dynamo-electric machine of the synchronous type, and a regulator responsive to changes of potential in the circuit for varying the counter electromotive force developed in the machine with relation to the impressed electromotive force.

594,145. INDUCTOR-DYNAMO. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 12, 1897. Serial No. 647,963. (No model.)



Claim.—1. An inductor-dynamo, comprising a revolving inductor and a stationary armature, the latter having portions of laminated iron and a solid yoke, with an auxiliary or additional air-gap in the armature-iron.

2. An inductor-dynamo having a revolving inductor and stationary armature, the armature having on its outer edge a short-circuited or squirrel-cage winding.

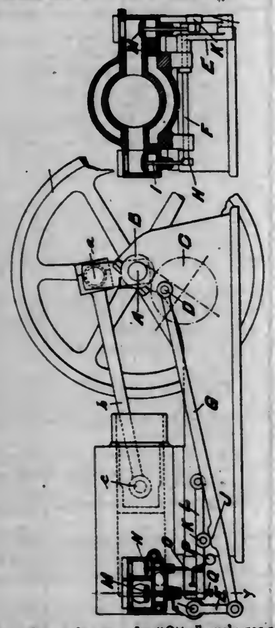
3. An inductor-dynamo, comprising a revolving inductor and a stationary armature, the armature provided with an auxiliary air-gap in its circuit and a short-circuited or squirrel-cage winding near its outer edge.

4. In a dynamo, an auxiliary or additional air-gap between the laminated and the solid parts of the magnetic circuit.

5. In an inductor-dynamo, an air-gap between the laminated and solid parts of the armature-iron.

6. In a dynamo-electric machine of the inductor type, the combination of a polar inductor, and an annular magnetic structure recessed to receive the armature-coils and having its magnetic reluctance increased by an air gap or gaps, of high reluctance compared with the reluctance of the armature-iron.

594,146. VALVE-GEAR FOR GAS OR OIL ENGINES. CHARLES WOOD, London, England. Filed Dec. 30, 1896. Serial No. 617,476. (No model.)



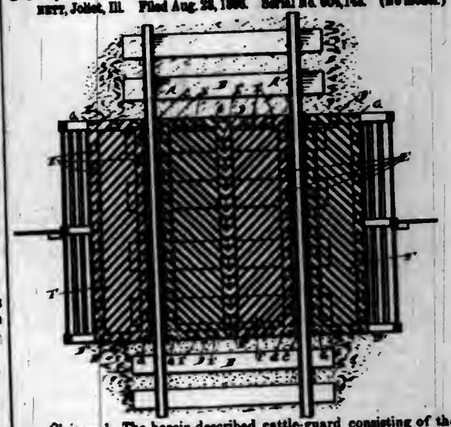
Claim.—In a valve-gear for "Otto" cycle gas or oil engines, the combination of the exhaust-valve, a lever and rod for operating the valve, an eccentric or crank running at half the speed of the engine for operating the lever and rod, the air-valve, the gas-valve and the governor, and a single lever for operating the said air-valve, gas-valve and governor and a cam on the eccentric link or rod for operating the single lever, substantially as described.

594,147. VELOCIPEDE-FRAME. FELIX J. DE ANDRADE, Liverpool, England. Filed Dec. 29, 1896. Serial No. 617,394. (No model.)



Claim.—In a cycle, a frame-bar and coupling comprising the member A the second member *b* having a vertical dovetail socket axially in line with the member A and the coupling-piece between the member A and the socket consisting of the screw-threaded shank at one end, and the dovetail portion tapered vertically at the other end and adapted to the dovetail socket with the cross-pin uniting the dovetail parts, substantially as described.

594,148. CATTLE-GUARD FOR RAILWAYS. FRANK C. BURNETT, Joliet, Ill. Filed Aug. 28, 1896. Serial No. 604,143. (No model.)



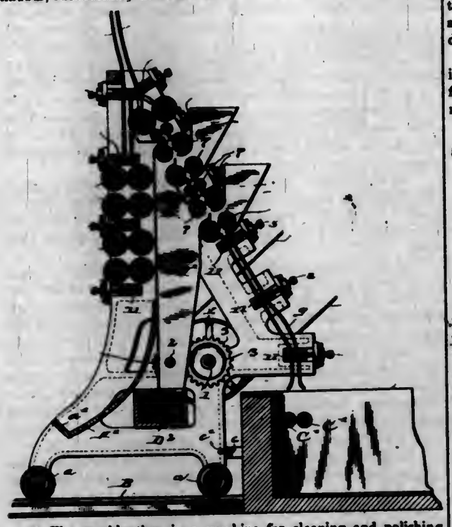
Claim.—1. The herein-described cattle-guard consisting of the cross-sills; the frames removably attached to said sills; the slat spreading and securing blocks, and the triangular corner-blocks attached to said frames; and the obliquely-arranged guard-slats detachably attached to said spreading and securing blocks, substantially as set forth.

2. In the herein-described cattle-guard the frames D D', the slat spreading and securing blocks, and triangular corner-blocks attached to said frames; the obliquely-arranged guard-slats attached to said spreading and securing blocks, and the intervening slat-supporting blocks H attached to said frames, substantially as set forth.

594,149. MACHINE FOR CLEANING AND POLISHING METAL PLATES. JOHN BURTON, Anderson, Ind. Filed Dec. 21, 1896. Serial No. 616,448. (No model.)

Claim.—1. In a machine for cleaning and polishing metal plates, the combination, of the train of carrying-rolls on one side of the upright frame, a series of sets of brushing or cleaning rolls interposed between them, hoppers containing an absorbent material mounted on said frame, one near and adapted to discharge directly onto each set of said cleaning-rolls, a second train of carrying-rolls leading downwardly on the opposite side of said frame, polishing-rolls interposed between them, said first set of carrying-rolls being adapted to deliver the plates to said second set of carrying-rolls, whereby they are first cleaned and then polished automatically by a single machine, substantially as set forth.

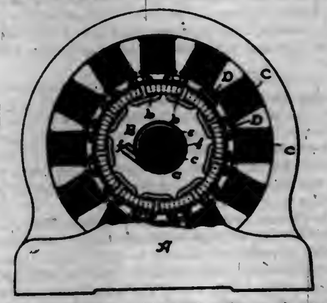
2. The combination with a tinning-machine, of a cleaning and polishing machine mounted to move toward and from said tinning-machine, means for securing them in fixed relation, the frame of said cleaning and polishing machine being formed with an overhanging portion adapted to project over the top of the tinning-machine, a train of carrying-rolls mounted on said frame, the lower pair of which are directly above the final set of rolls in said tinning-machine, cleaning-rolls interposed between said carrying-rolls, another train of carrying-rolls leading down the opposite side of said frame and adapted to receive the plates from said other carrying-rolls, and polishing-rolls between said carrying-rolls, whereby the plates as they leave the tinning-machine may be conveyed directly into and through the cleaning and polishing machine, and the entire operation made continuous, substantially as set forth.



3. The combination, in a machine for cleaning and polishing metal plates, of a frame inclined on one side and substantially vertical upon the other side, a train of carrying rolls having brushing or cleaning rolls interposed between them mounted on the inclined side of the frame, and a train of carrying-rolls having polishing-rolls interposed between them mounted on the vertical side of the frame, whereby the plates being treated are cleaned while traveling up said inclined side and polished while descending said vertical side of said machine, substantially as shown and described.

4. The combination, in a machine for finishing metal plates, of a framework running to an apex, trains of carrying-rolls leading upwardly on one side toward said apex and downwardly therefrom upon the other side, the set of rolls near the apex of the machine consisting of three, the center one of which forms one of each of the two pairs, one leading upwardly, and the other downwardly, and guides positioned above said central roll, whereby the plate is held upright until it reaches its extreme upper position, and is then guided over said central roll to the second pair of the set, by which it is caused to descend.

594,150. STARTING DEVICE FOR ALTERNATING-CURRENT MOTORS. WILLIAM J. FOSTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 4, 1896. Serial No. 574,313. (No model.)



Claim.—1. As a means of increasing the starting torque of a synchronous alternating-current motor, a bridge of magnetic material adjacent to the polar faces of the induced member, substantially as described.

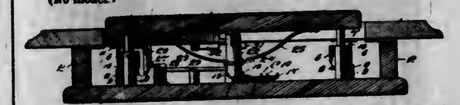
2. As a means of increasing the starting torque of a synchronous motor, a short-circuited coil between two of the polar faces of the field-magnets, substantially as described.

3. As a means of increasing the starting torque of a synchronous motor, a short-circuited coil of magnetizable material adjacent to the polar faces, substantially as described.

4. As a means of increasing the starting torque of a synchronous motor, a short-circuited coil of magnetizable material, placed between two of the polar faces of the field-magnet, and serving both to preserve the magnetic continuity of the field-ring and to furnish an induced current for starting the motor, substantially as described.

5. As a means of increasing the starting torque of an alternating-current motor, a bridge of magnetic material adjacent to the faces of the polar projections of the induced member, and fixed with relation thereto.

594,151. AUTOMATIC ROTATING BOOK-REST. WILLIAM R. FULLER, New Haven, Conn. Filed Mar. 30, 1897. Serial No. 628,432. (No model.)



Claim.—1. In a revolving support and tilting table for books, the combination with a base-board or support, side strips supporting the tilting table, a disk or revolving book-rest supported by the base-board, hollow standards carrying vertically-movable rods, levers connected to the rods for moving them upward when the table is brought from a tilting position to a level, a swinging plate or catch engaging the tilting table, and a lever for releasing the catch operated by the rotation of the book support or rest, substantially as shown and for the purpose set forth.

2. A revolving support and tilting table for books, comprising a base-board supporting the tilting table having a circular opening therein, a standard supporting a disk or revolving book-rest within this opening, a swinging plate engaging the catch carried by the tilting table, a lever operating the swinging plate to release the same from the catch, and means carried by the revolving disk or book-support for operating the lever, substantially as shown and for the purpose described.

3. In a revolving support and tilting table for books, the combination with the base-board and tilting table thereon, the tilting table having a central opening therein, of a standard located at the center of the base-board, a revolving book-rest or disk having a tube which engages the standard, said tube having an annular flange and projections with antifriction-rollers, the collar at the base of the standard having cam-surfaces; together with devices for raising the disk or book-support when the table is brought from an inclination to a level, substantially as shown and for the purpose described

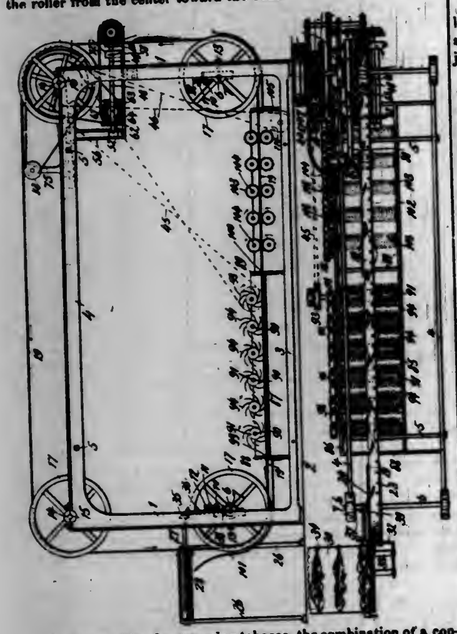
4. In a revolving support and tilting table for books, the combination with the base-board and tilting table, the latter having a central opening, of a disk rotatably supported in the opening, hollow standards secured to the base and having vertical slots with inclined flanges on one side of the same, rods sliding vertically in the standards and provided with catches which project through the slots, levers fulcrumed on the base so that their inner ends will engage the catches and inclined flanges, the opposite ends of said levers being connected to the tilting table; together with a hinged plate supported on the base-board engaging a catch carried by the table, a lever for releasing said hinged plate, and means carried by the rotatable disk or book-support for operating said levers, substantially as shown and for the purpose described.

5. In a revolving support and tilting table for books, the combination with the base and tilting table supported thereby, said table having a central opening, of a rotatable disk supported in said opening and having a depending tube with an annular flange and projections below the same, a collar having cam-faces upon which the projections ride, a lever supported on the base and engaging a swinging catch at one end and the annular flange at the other; together with mechanism for raising the rotatable disk when the tilting table comes to a level, substantially as shown and for the purpose set forth.

594,152. TOBACCO-STEMMING AND GRIT-CLEANING MACHINE. JAMES D. GOODWIN, Richmond, Va., assignor of one-half to the Cardwell Machine Company, same place. Filed Dec. 6, 1895. Renewed Sept. 21, 1897. Serial No. 652,452. (No model.)

Claim.—1. In a machine for stemming tobacco, the combination of means for positively engaging and holding the leaf, and a rotary spreader for spreading or combing the leaf outwardly toward the edges, said spreader consisting of a roller armed with resilient teeth or fingers running in reversed spirals around the same from the center toward the ends.

2. In a machine for stemming tobacco, the combination of a conveyer constructed to positively engage the leaf, a surface over which the leaf is carried by the conveyer, and an overlying, positively-driven, rotary spreader for spreading or combing the leaf outward toward the edges, said spreader consisting of a roller traveling in the reverse direction to the movement of the conveyer and provided with curved resilient teeth or fingers arranged in reversed spirals running around the roller from the center toward the ends.



3. In a machine for stemming tobacco, the combination of a conveyer constructed to positively engage the leaf and carry it along, and a rotary spreader for spreading or combing the leaf outwardly toward the edges, said spreader consisting of a roller armed with resilient teeth or fingers running in reversed spirals around the same from the center toward the ends.

4. In a machine for stemming tobacco, the combination of a feed-table provided with a moving belt upon which the leaves rest and are carried, an endless belt constructed and adapted to engage the leaves by their stems and carry them inward, said belt traveling in proximity to said table so that it may take the leaves therefrom, and a stripper located in relation to the endless belt so that, as the leaves are carried along by the belt butt-end foremost, the stripper will act to strip them from the stems.

5. In a machine for stemming tobacco, the combination of a stripper, an endless carrier provided with stem clips or holders, and an endless conveyer-belt provided with a series of catches adapted to engage the projecting stems of the tobacco-leaves to remove them from the carrier and deliver them to the stripper.

6. In a machine for stemming tobacco, the combination of a stripper, an endless carrier provided with clips or holders to detachably secure the leaf-stems, and an endless conveyer-belt provided with a series of slots or notches adapted to receive the stems of the leaves and automatically detach the latter from the endless carrier and deliver them to the stripper.

7. In a machine for stemming tobacco, the combination of a leaf-carrying belt slotted to receive the leaf stems, and pulleys around which the belt passes, said pulleys having annular peripheral grooves into which the projecting ends of the stems of the leaves project as the belt passes over the pulleys.

8. In a machine for stemming tobacco, the combination of an endless leaf-carrying belt provided along one of its edges with a series of perforations, and along its opposite edge with a series of slots or notches, and driving and guide pulleys for the belt, each of said pulleys being provided on one side of its periphery with sprocket-teeth, and on the opposite side of its periphery with an annular groove.

9. In a machine for stemming tobacco, the combination of a feed-table having an endless carrier provided along one of its edges with clips or catches, an endless leaf-carrying belt provided with slots or notches coinciding with the clips or catches of the feed-table carrier, said carrier and leaf-carrying belt being arranged to pass each other in their travel, so that the stems of the leaves projecting from the feed-table carrier will be engaged by the leaf-carrying belt, and a stripper to which the carrying-belt conducts the leaves taken from the feed-table carrier.

10. In a tobacco-stemming machine, the combination of a feed-table, an endless leaf-carrying belt, and yielding fingers or guards to hold the leaf while it is being taken from the feed-table by the belt.

11. In a tobacco-stemming machine, the combination of an endless belt adapted to hold and carry the leaves by their stem ends, a stripper, pulleys for said belt, and one or more guides arranged adjacent to the pulleys to hold the leaves in proper relation to the belt.

12. In a tobacco-stemming machine, the combination of a leaf-carrying belt, and a stripper comprising a pair of revolving fluted disks, between which the belt delivers the leaves and which act to strip the leaf portion from the stem while the latter is held in the grasp of the carrying-belt.

13. In a tobacco-stemming machine, the combination of a leaf-carrying belt, a stripper comprising a pair of oppositely-revolving fluted or ribbed disks between which the belt carries the leaves, and an auxiliary disk having its periphery extending between the fluted disks.

14. In a tobacco-stemming machine, the combination of a leaf-carrying belt, a stripper comprising a pair of fluted or ribbed disks mounted upon yielding supports, concentric collars adjacent to said disks, the belt traveling between said collars and disks, and an auxiliary disk mounted to revolve at right angles to said pair of disks.

15. In a tobacco stemming machine, the combination of a leaf-carrying belt, a stripper comprising a pair of beveled and fluted disks between which the belt carries the leaves, and an oppositely-beveled auxiliary disk revolving at right angles to said pair of disks and having its periphery extending between the disks, said disks revolving in a direction reverse to the travel of the belt.

16. In a tobacco-stemming machine, the combination of a leaf engaging and carrying endless belt, a stripper located in relation to said belt so that, as the leaves are carried along thereby, it may strip them from the stems, and means for discharging the stems, said means being in such proximity to the traveling belt that the stems may be engaged thereby and disengaged from the belt after stripping.

17. In a tobacco-stemming machine, the combination of a feed-table, an endless leaf-carrying belt constructed and adapted to engage the leaves by their stems and carry them inward, said belt traveling in proximity to said table so that it may take the leaves therefrom, a stripper located in relation to said belt so that, as the leaves are carried along thereby, it may strip them from the stems, and means for engaging and discharging the stripped stems, said means being located in such relation to the traveling belt beyond the stripper that the stems may be discharged from said belt.

18. In a tobacco-stemming machine, the combination of a leaf-carrying belt, a stripper, and a rotary stem-discharging device arranged in proximity to said belt.

19. In a tobacco-stemming machine, the combination of a leaf-carrying belt, a stripper, and a rotary stem-discharging device arranged in proximity to said belt, and revolving in the same direction therewith but at a higher speed.

20. In a tobacco-stemming machine, the combination of a leaf-carrying belt provided with open-ended slots or notches a stripper and a rotary stem-discharging device arranged in proximity to said belt, and revolving in the same direction therewith but at a higher speed, the open end of the notches being arranged forward of their closed ends with relation to the travel of the belt.

21. In a tobacco-stemming machine, the combination of a feed-table having an endless carrier provided with leaf-holders, a leaf-carrying belt provided with slots arranged to coincide with said leaf-holders, spring-fingers to support the leaves, a stripper, and a stem-discharger.

22. In a tobacco stemming machine, the combination of a traveling feed-table, a leaf-carrying belt adapted to take the leaves by their stems from the table, a stripping mechanism to and through which the belt carries the leaves butt-end foremost, a rotary spreader for combing or spreading the leaves outward toward both edges after leaving the feed-table, and a series of grit-cleaning rolls to the action of which the leaves are subjected after leaving the spreader and before reaching the stripping mechanism.

23. In a tobacco-stemming machine, the combination of a feed-table, a leaf-carrying belt adapted to take the leaves from the table by the stems, a stripping mechanism to and through which the belt carries the leaves butt end foremost, a surface over which the belt carries the leaves on their way to the stripping mechanism, and a revolving spreading-roll for combing or spreading the crumpled leaves outwardly from the center toward the edges.

24. In a tobacco-stemming machine, the combination of a feed-table, a leaf carrying belt adapted to take the leaves from the table by their stems ends, a stripper to and through which the belt carries the leaves butt-end foremost, and a series of grit-cleaning rollers arranged above and below the belt, so that the leaves after leaving the spreader pass between the grit-cleaning rolls on their way to the stripper.

25. In a tobacco-stemming machine, a leaf-carrying belt provided with open ended notches in its edge, said notches being adapted to engage and hold the leaf-stems.

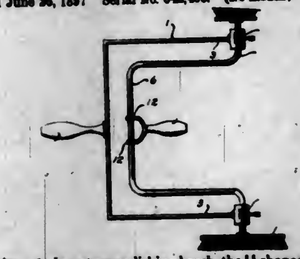
594,158. NUT-LOCK. JOHN A. GOEHWEILER, Martin's Ferry, Ohio, assignor of one-half to Franklin B. Palmer, same place. Filed June 23, 1897. Serial No. 642,040. (No model.)



Claim.—1. In a device of the character described, the combination with a bolt having an inclined recess in the screw-threaded portion thereof, and an inclined wedge or key provided with a head on its outer end and adapted to enter said recess, a lock formed with the spirally-inclined face with notches thereon and adapted to be turned upon the bolt, the spirally-inclined face of said lock being adapted to be brought in contact with the head on the wedge or lock, thereby drawing said wedge in close contact with the nut when said lock is turned to prevent the nut from turning on the bolt, substantially as and for the purpose set forth.

2. In a device of the character described, the combination with a bolt having an inclined recess in the screw-threaded portion thereof, an inclined wedge or key provided with a head on its outer end and threads on its upper side and adapted to enter the recess, a lock formed with a spirally-inclined face with notches thereon and adapted to be turned upon the bolt and upon the wedge, thereby drawing said wedge in closer contact with the nut and preventing the same from turning, substantially as and for the purpose set forth.

594,154. STOVE-POLISHING BRUSH. HARRY L. HAMSON, Union Mills, Wis., assignor of one-third to Patrick P. Egan, Highland, Wis. Filed June 26, 1897. Serial No. 642,466. (No model.)



Claim.—1. In a stove-polishing brush, the U-shaped handle-frame provided in the ends of its arms with bearings for the brush-shaft, in combination with a revoluble shaft carrying brushes upon its ends and provided intermediate the arms of the handle-frame with a double crank for actuating it, substantially as described.

2. The U-shaped handle-frame provided with a handle in its loop end and with bearings in the ends of its arms for the brush-shaft, in combination with the brush-shaft mounted in said ends and provided intermediate its bearings therein with a crank portion, a swiveling handle mounted on said crank portion, and a brush secured to the end of said shaft, substantially as described.

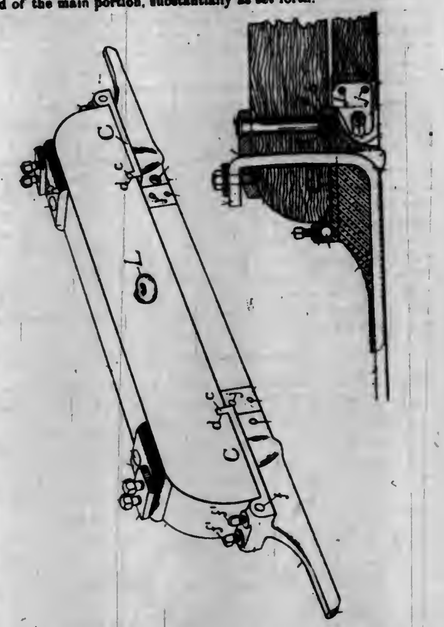
594,155. SECTION-INSULATOR. JOSEPH HOFFMAN, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 7, 1897. Serial No. 647,419. (No model.)

Claim.—1. In a section-insulator, a main portion or body of insulating material, and metallic end pieces secured to the main portion and having a transverse flange or rib engaging the main portion, substantially as set forth.

2. In a section-insulator, a main portion or body of insulating material, and metallic end pieces secured to the main portion and having a transverse flange or rib engaging the main portion, and an elevated portion or rib abutting against an end of the main portion, substantially as set forth.

3. In a section-insulator, a main portion or body of insulating material having a transverse groove on its under side adjacent to each end, and metallic end pieces secured to the main portion and having a transverse flange or rib engaging the transverse groove in the main portion, substantially as set forth.

4. In a section-insulator, a main portion or body of insulating material having a transverse groove on its under side adjacent to each end, and metallic end pieces secured to the main portion, and having a transverse rib or flange engaging the transverse groove in the main portion, and an elevated portion or rib abutting against an end of the main portion, substantially as set forth.



5. A metallic end piece for section-insulators, formed with a flat top having a shallow transverse flange or rib at its inner end, as and for the purpose set forth.

6. A metallic end piece for section-insulators, formed with a flat top, having a shallow transverse flange or rib at its inner end, and a transverse elevated portion or rib at its outer end, as and for the purpose set forth.

7. As a new article of manufacture, a metallic end piece for section-insulators, formed with a flat top having a shallow transverse flange or rib at its inner end, an enlarged portion or rib at its outer end, a vertical passage for the trolley-wire with an enlargement at its lower end communicating with the trolley-wire groove in its bottom, and a recess at its forward end, as and for the purpose set forth.

8. A section-insulator, consisting of a main portion or body of insulating material having a transverse groove on its under side and a vertical hole for the passage of the trolley-wire, and a second hole for the passage of a bolt adjacent to each end, metallic end plates formed with a flat top, having a transverse flange or rib engaging the transverse groove in the main portion, and an elevated portion or rib at its outer end against which an end of the main portion abuts, a passage way for the trolley-wire, and a recess at its forward end with a removable transverse pin; in combination with a connecting-bar of insulating material in the plane of the bottom line of the end pieces, and engaging the inner ends of the end pieces, a bolt adjacent to each end of the main portion and engaging the inner end of the end plate, in combination with the trolley-wire passing through the end piece and main portion and secured thereto, as set forth.

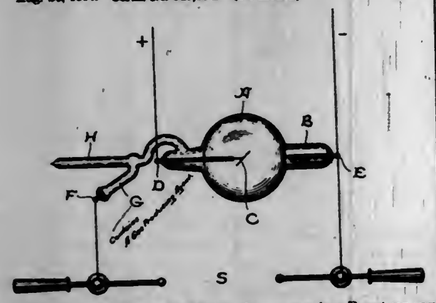
9. A section-insulator comprising a main portion of insulating material having a transverse groove on its under side adjacent to each end, metallic end pieces formed with a flat top having a transverse rib at its inner end engaging said transverse groove, and a transverse rib at its outer end abutting against one end of the main portion, a vertical hole in the main portion and adjacent to each end thereof, for the passage of an end of the trolley-wire, and a bolt passing through the inner portion at each end and engaging the inner rib of the end plate, and an underrunning connecting-bar of insulating material in line with the end pieces and connected thereto; in combination with the connecting ends of the trolley-wire secured to the end pieces and to the main portion, substantially as set forth.

10. A section-insulator consisting of a main portion or body of insulating material having a transverse groove in its under side adjacent to each end, and a vertical hole adjacent to each end for the

passage of one end of the trolley-wire, and a second vertical hole connecting with said transverse groove, a plate on top of and at each end of the main portion with a hole for the passage of the end of the trolley-wire, and means for clamping the latter thereto, a bolt passing through said plate and the main portion and engaging the inner end of the end plate, and end plates formed with a flat top having a transverse rib at its inner end engaging the transverse groove in the main portion, and a rib at its outer end against which an end of the main portion abuts, a vertical passage-way for the trolley-wire connecting with the hole in the main portion, a recess at the inner end of the end plate having a removable transverse pin, and a connecting-bar of insulating material in the plane of the bottom line of the end pieces and having its ends engaging the recess and transverse pin in the inner end of the end pieces, substantially as set forth.

11. A section-insulator consisting of a main portion of insulating material having a transverse slot on its under side adjacent to each end, end plates formed with a flat top having a transverse rib at its inner end engaging said transverse slot and a rib at its outer end against which the end of the main portion abuts, a vertical bolt adjacent to each end of the main portion and extending through the same and engaging the end piece, and a connecting-bar secured to and in the same plane with the under part of the end pieces; in combination with the connecting ends of the trolley-wire passing vertically through the end pieces and the ends of the main portion and secured thereto, substantially as set forth.

594,156. ROENTGEN-RAY TUBE. IRWIN W. HOWELL, Newark, N. J., assignor to the General Electric Company, of New York. Filed Aug. 26, 1897. Serial No. 649,554. (No model.)



Claim.—1. The art of regulating the vacuum in a Roentgen-ray tube, which consists in passing a current proportioned to the resistance of the tube through a suitable salt in the vacuous inclosure, and thereby volatilizing the salt in accordance with the degree of vacuum desired.

2. A vacuum-tube having in shunt to the main discharge-path, a second discharge-path through a gas-producing agent in the same vacuous space with the main discharge-path, and serving to regulate the vacuum in the main bulb, as set forth.

3. An adjustable vacuum-tube having main discharge-terminals, a comparatively small auxiliary tube at or near one end of the main bulb containing a gas-producing agent, and an auxiliary discharge-terminal in said tube, said main bulb and auxiliary tube communicating in a common vacuous space, as set forth.

4. An adjustable vacuum-tube affording main and shunt discharge-paths through different distinct courses in a common vacuous space, and a gas-producing agent in the shunt discharge-path which acts to lower the resistance of the main discharge path upon an increase of current in the shunt.

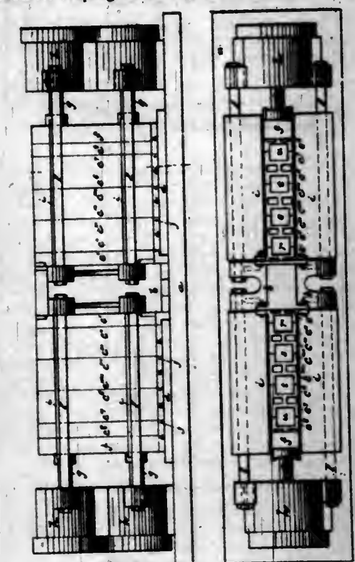
5. An adjustable vacuum-tube having a main bulb A provided with discharge-terminals C and E, a tube G, communicating with bulb A, and an auxiliary terminal F, in tube G, as set forth.

6. A Roentgen-ray tube comprising a main bulb A, provided with a concave disk electrode B, and an inclined piece of foil C to be bombarded with suitable terminals, and an extension G for a volatile salt, with a third terminal F sealed through the glass.

594,157. INGOT-CASTING MACHINE. JOHN ILLINGWORTH, Newark, N. J. Filed Feb. 24, 1897. Serial No. 624,353. (No model.)

Claim.—1. The improved ingot-machine herein described comprising a central standard, a series of separable mold-sections arranged in back-to-back pairs on opposite sides of said central standard, carriages or tracks, each supporting a back-to back pair of said mold-sections, coupling means for the carriages, and means for compressing the ingot between said mold-sections, substantially as set forth.

2. The improved ingot-molding machine herein described comprising a series of molds each comprising two separable sections, the said series of molds being arranged upon a series of carriages, the contiguous half-sections of adjacent molds being arranged back to back on each carriage whereby when the carriages are uncoupled, the molds can be separated, wedges adapted to be inserted within the mold-chamber, after the sections thereof are separated and means for compressing the mold-sections, after the insertion of the wedges, and means for coupling the carriages, substantially as set forth.



3. The combination with a central standard, of horizontal ways *d*, for carriages, said carriages *c*, vertical mold-sections, stationed upon said carriages, the two sections of each mold being arranged on different adjacent carriages of the series, hydraulic compression devices, stationed at the ends of the series, wedges adapted to be forced into the molds after the partial consolidation of the ingot and the separation of the mold-sections, and means for coupling the carriages, substantially as set forth.

4. The combination with a series of sectional molds, of a series of carriages supporting said molds, each carriage supporting a pair of sections of adjacent molds, the said sections being back to back, and coupling means suitably disposed to hold the said sections in train, substantially as set forth.

5. The combination with a track or way and a series of carriages thereon, of compression means stationed at opposite ends of said track or way, a series of removable mold-sections arranged on said carriages independent thereof, and means for coupling and uncoupling said carriages, substantially as set forth.

6. The combination with vertical horizontally-movable molds, arranged in sections, of a series of carriages adapted to be coupled together, each carriage having depending stop projections, *p*, adapted to limit the movements of the rolls beneath said carriages and said rolls arranged between the said stop projections, substantially as set forth.

7. The combination with a track or way and a series of separable carriages thereon, of compression means stationed at opposite ends of said track or way, a series of mold-sections, all separable from one another to permit them to be opened apart from one another and coupling means constructed and arranged to hold a part of the sections closed while others of the series are being drawn apart, substantially as set forth.

8. The combination with the standard *b*, horizontal supports for the molds, a horizontal series of horizontally-movable molds in separable sections, guides *i*, *i*, for holding said molds in alinement as they move horizontally, detachable coupling means permitting detachment of each section from the others of the series and compression means at the ends of the series, substantially as set forth.

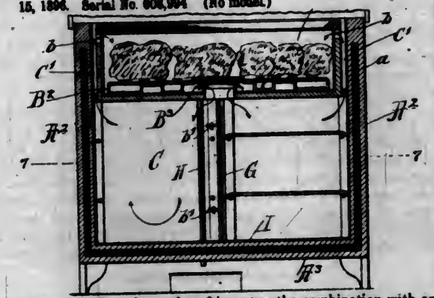
594,158. KNITTED FABRIC. SAMUEL D. KERR, Providence, R. I., assignor, by mesne assignments, to Samuel Bottomley, same place. Filed Dec. 28, 1896. Serial No. 617,154. (No specimens.)

Claim.—1. As an article of manufacture, a knit fabric in a tubular form having one side or one half made of a thread knit with a large open stitch, and the other part or half of the tube knit with a close fine stitch, substantially as and for the purpose set forth.



2. A fabric knit in a tubular form having one side or one half longitudinally, made of a thread knit with a large open stitch and the other part or half of the tube knit with a fine close stitch, and having one or more ribs made lengthwise therein, substantially as described and for the purpose set forth.

594,159. REFRIGERATOR. FRED E. RANNEY, Greenville, Mich., assignor to the Ranney Refrigerator Company, same place. Filed Oct. 15, 1896. Serial No. 608,964. (No model.)



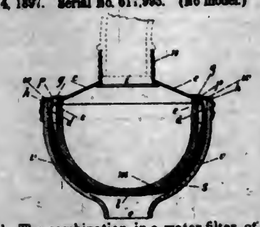
Claim.—1. In a domestic refrigerator, the combination with an ice-chamber and with provision-chambers beneath the ice-chamber, of a removable partition between the provision-chambers and removable cleats for holding said partition in position, substantially as described.

2. In a domestic refrigerator having two provision-chambers and an ice-chamber above the provision-chambers, of angle-irons, vertically secured in pairs to the front and rear walls of the provision-chambers, means for detachably securing one or more of the angle-irons in place, and a vertical partition secured between each pair of angle-irons, whereby by the removal of one or more of the angle-irons, the partition may be released and the two provision chambers thrown into one, substantially as described.

3. In a domestic refrigerator, the combination with an ice-compartment above and two provision-compartments below, of a removable partition arranged to separate the provision-compartments, cleats arranged in pairs at the front and rear for the purpose of securing the front and rear margins of said partition, and means for detachably securing one or more of the cleats in position, comprising a slot, as b^3, through the cleats, an apertured lug, as b', extending from the wall of the refrigerator and adapted to pass through the slots in the cleats and locking-pins, as b^3, substantially as specified.

4. In a domestic refrigerator, the combination of an ice-chamber above and two provision-chambers below, of cleats arranged in pairs and removably secured to the front and rear walls respectively, vertically arranged recesses between each pair of cleats and a partition between the provision-chambers and resting in said recesses, said partition consisting of a corrugated plate of sheet metal, or other material, substantially as described.

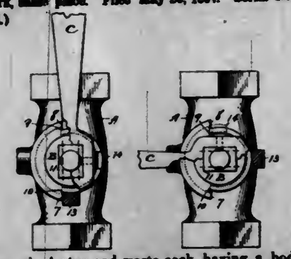
594,160. WATER-FILTER. HENRY F. RISCH, Brooklyn, N. Y. Filed Jan. 4, 1897. Serial No. 617,993. (No model.)



Claim.—1. The combination, in a water filter, of a semispherically-shaped outer vessel attached to a cap or cover which has connection with a faucet, said outer vessel holding in position on its inner surface a semispherically-shaped corrugated or grooved wire or perforated metal screen, which in turn holds in place a semispherically-shaped bag of filtering material, substantially as described and for the purpose specified.

2. The combination in a water-filter of a semispherically-shaped outer vessel *v* connected to a cap C and inclosing semispherically-shaped perforated screen *s* and semispherically-shaped filtering-bag *m*, the upper edge *p* of filtering-bag *m* fitting tightly in a groove *g* on cap C substantially as described.

594,161. RIGHT AND LEFT HAND STOP AND WASTE COCK. CHARLES F. SMITH, New Britain, Conn., assignor to the Landers, Frary & Clark, same place. Filed May 20, 1897. Serial No. 638,715. (No model.)

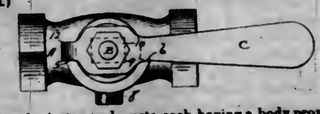


Claim.—1. A stop and waste cock having a body and plug, a handle and handle-stop detachably fixed on said plug, a pair of fixed stops on said body at each end of said plug, and a plug-stop at the small end of the plug, the said handle-stop and plug-stop being arranged for acting upon said fixed stops at the respective ends of said body, substantially as described.

2. A stop and waste cock having a body provided with two pairs of fixed stops, a plug fitted to said body, a handle for turning said plug, and two stops moving with the plug and handle, one of which engages one fixed stop of one pair and the other of which engages one fixed stop of the other pair, substantially as described.

3. A stop and waste cock having a body provided with two pairs of fixed stops, a plug fitted to said body, a plug-stop having a single position only on said plug, and an operating-handle and handle-stop changeable on said plug by half-revolutions, the said handle-stop acting in connection with one pair of fixed stops and the said plug-stop acting in connection with the other pair, substantially as described.

594,162. RIGHT AND LEFT HAND STOP AND WASTE COCK. CHARLES F. SMITH, New Britain, Conn., assignor to the Landers, Frary & Clark, same place. Filed July 9, 1897. Serial No. 643,997. (No model.)



Claim.—1. A stop and waste cock having a body provided with a pair of external stops, a plug fitted to said body, a handle fitted to said plug and having a handle-stop for engaging the said external body-stops, and an internal stop coacting with a portion of the said plug substantially as described.

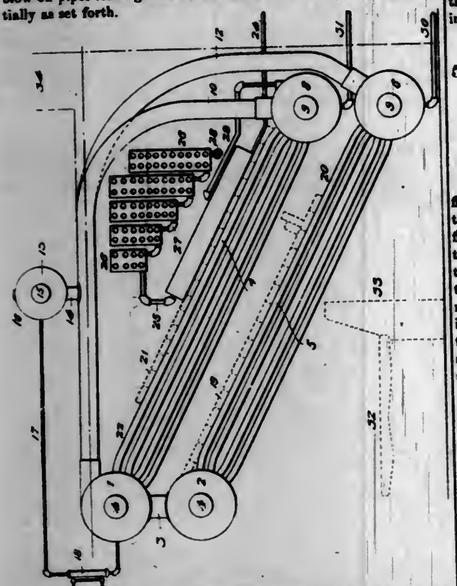
2. The combination of a cock-body having a pair of opposing external stops, a handle having a stop for coacting therewith, a plug having a reduced portion with stop-shoulders and an internal stop projecting from the inner wall of said body into the reduced portion of said plug substantially as described

3. The combination in a stop and waste cock of a cock-body having a pair of stops, a handle having a stop for engagement therewith, a plug having a reduced portion with stop-shoulders and a screw secured in said body with its end projecting into the reduced portion of said plug substantially as described.

594,168. WATER-TUBE STEAM-GENERATOR. GEORGE H. TURNER, Marion, Ohio. Filed Feb. 13, 1897. Serial No. 624,239. (No model.)

Claim.—1. In a steam-generator, the combination with the two sets of drums 1 and 2 and 6 and 8, the drums of each set arranged one above the other, and one set arranged above and in advance of the other set, a series of tubes connecting respectively the upper and lower drums of each set, circulating-tubes 10 12 connected to the rear set of drums 6 8 extending upwardly, horizontally and forwardly,

and connected with the upper drum of the forward set, a steam-drum communicating with the steam-space of the tubes 10 and 12, and blow-off pipes leading from the lower set of drums 6 and 8, substantially as set forth.

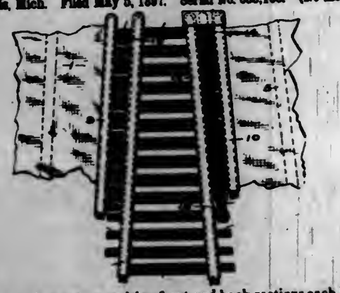


2. In a steam-generator, the combination with the drums 1 and 2 and 6 8, connecting-tubes 5 and 8, circulating-tubes 10 and 12 connecting the drums 1 2 and 6 8, a steam-drum communicating with the steam-space of the tubes 10 12, a band of separated but communicating feed-water heaters, an inclined settlings-chamber communicating with the feed-water heaters, a pipe establishing communication between the settlings-chamber and the lower dram 8, blow-off pipes for the settlings-chamber and the lower drums 6 8, and the inclined walls 19 21 arranged as described.

3. A water-tube steam-generator, comprising the forward horizontal drums 1 and 2 arranged in the same vertical plane and connected by the saddles 3, the rear horizontal drums 6 and 8 mounted in the same vertical plane, a series of inclined tubes connecting the drums 1 and 8 and 2 and 6, respectively, a series of curved return-drums 10 connecting the drums 1 and 8, and an alternate series of curved return-drums 12 connected to said drum 1 and the lower rear drum 6, a transverse steam-drum 13 connected to the return-drums 10 and 12, substantially as and for the purpose set forth.

4. A steam-generator comprising the drums 1 2 and 6 8, the drums of each set arranged vertically above each other, and the front set arranged above and in advance of the rear set, a series of tubes connecting the upper and the lower drums of each set, and a series of independent circulating-tubes 10 12, connecting the rear set of drums with the upper drum of the front set, substantially as shown and described.

594,164. CORSET. EDWIN A. WARREN and RUTH A. WARREN, Sturgis, Mich. Filed May 5, 1897. Serial No. 635,163. (No model.)



Claim.—A corset comprising front and back sections each having marginal side loops, in combination with elastic side pieces composed of elastic bands arranged in a horizontal plane, vertical stays to which the ends of the bands are secured, loops secured to the stays opposite the end of each elastic band arranged alternately with the loops upon the back and front sections, and a locking-stay to pass through and interlock with said loops, substantially as described.

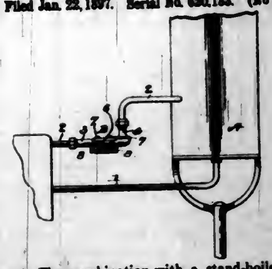
594,165. CUE-TIP FASTENER. NORMAN B. WILDER, Prophetstown, Ill., assignor of one-half to H. H. Paddock and W. P. Millikan, same place. Filed Mar. 15, 1897. Serial No. 627,555. (No model.)



Claim.—1. A cue-tip fastener comprising the ferrule having a flat end formed with a central diametrical dovetailed groove or mortise opening through the edge of the ferrule, the detachable plate fitting on the end of the ferrule with its edge flush with the edge of the ferrule and formed at its inner flat face with the diametrical dovetailed tenon arranged to enter one end of the said groove and wedge therein, the detachable cushion or tip resting on said plate, and removable securing-screws passed through said plate from its inner side into and detachably holding the cushion thereto, so that by sliding the plate transversely from the end of the ferrule and removing said screws the cushion is released and a new one can be substituted, substantially as described.

2. A cue-tip fastener comprising the metal ferrule having at its end the diametrical dovetailed groove tapering from one end to the other and open at its ends, the plate having at its under side the dovetailed diametrical tenon tapering from one end to the other to wedge and lock in said groove, said plate having the transverse screw-holes countersunk at both ends and the rigid points or spurs at its outer face, the detachable cushion, and the removable screws passing through said holes into the cushion and drawing the same against the plate and the spurs into the cushion, substantially as described.

594,166. HEATER FOR STAND-BOILERS. FREDERICK V. WINTER, New York, N. Y., assignor of one-half to John A. York, same place. Filed Jan. 22, 1897. Serial No. 620,153. (No model.)



Claim.—1. The combination with a stand-boiler and the hot-water feed-pipe thereof a heater interposed in the hot-water feed-pipe, comprising a body formed with a flat shallow reservoir of extended superficial area, and a plurality of vertically-depending water-sockets in the bottom plate of the reservoir, and a detachable cover over the reservoir, substantially as and for the purpose specified.

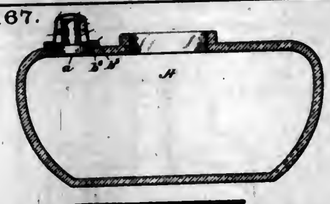
2. The combination with a stand-boiler and the hot-water feed-pipe thereof, of a heater interposed in the hot-water feed pipe, comprising a body formed with a flat shallow reservoir of extended superficial area, and a plurality of vertically-depending water sockets or tubes in the bottom plate of the reservoir, an inlet-pipe nipple opening into the reservoir and a hot-water outlet-pipe nipple vertically rising from the body opposite to the inlet, substantially as and for the purpose specified.

3. The combination with a stand-boiler and the hot-water feed-pipe thereof, of a heater interposed in the hot-water feed-pipe, comprising a disk-shaped body formed with a flat shallow reservoir and a plurality of vertically-depending water sockets or tubes in the bottom, and parallel flanges extending across the top of the body, a removable cover the side edges of which engage in said flanges, and fastening-bolts in the ends of the cover.

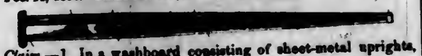
594,167. SAFETY-CAP FOR LAMPS. WILLIAM H. ADAMS, Boston, Mass. Filed Apr. 17, 1897. Serial No. 632,583. (No model.)

Claim.—As a new article of manufacture, the herein-described detachable safety-cap for lamps and the like, the same comprising a cover provided with a fastening-shank and a vent-hole; a vent extension around said vent-hole; and a perforated hood over said vent extension.

594,167.



594,168. WASHBOARD. LEWIS O. BROWN, Toledo, Ohio. Filed Feb. 11, 1897. Serial No. 622,880. (No model.)



Claim.—1. In a washboard consisting of sheet-metal uprights, longitudinal edges of said uprights being curled, said uprights supporting a rubbing-surface between the curls, strips having inwardly-inclined sections adapted to engage the inner ends of the curls, and thereby hold the curls together, said strips being located at the upper ends of the uprights.

2. In a washboard consisting of sheet-metal uprights, the longitudinal edges of said uprights being curled, a rubbing-surface supported between the curls of said uprights, strips having inwardly-inclined edges connecting the inner edges of the curls, said strips being located above the rubbing-surface, a shifting partition located above the rubbing-surface, said shifting partition being supported at its upper edge by the upper ends of the strips.

594,169. BASKET-TRAP FOR WATER-CLOSETS, &c. HERMAN CATHEY, Philadelphia, Pa. Filed Nov. 2, 1896. Serial No. 610,789. (No model.)



Claim.—1. A basket-trap for water-closets, &c., comprising the receptacle of spirally-wound wire with the lateral opening d^4 therein, the yoke-frame embracing said receptacle, and the suspensory devices, substantially as described.

2. A basket-trap for water-closets, &c., comprising the receptacle of spirally-wound wire with the opening d^4 therein, the inwardly-projecting points, and the suspensory devices, substantially as described.

3. A basket-trap for water-closets, &c., comprising the receptacle of spirally-wound wire, the yoke-frame, the links connected therewith, and the ring, substantially as described.

4. In a basket-trap for water-closets, &c., the receptacle of wire wound in open spiral coils to form the sides and in close or contracted coils to form the bottom, part of one or more of said coils being removed to form the enlarged lateral opening d^4, the yoke-frame embracing said coils and secured thereto, and suspensory devices connected with the extremities of the yoke-frame, substantially as described.

594,170. KNIFE-CASTING AND PROCESS OF MAKING SAME. THOMAS COLDWELL, Newburg, N. Y. Filed Oct. 15, 1896. Serial No. 608,975. (No model.)



Claim.—1. The herein-described process of uniting a sheet-metal blade to a cast-metal back which consists in placing the blade in a suitable mold, casting the back along and upon one edge of the blade, thereby heating this edge and causing it to expand, simultaneously heating the front or cutting edge throughout its length to cause it to expand at the same rate as the back edge, and allowing all portions of the blade to cool simultaneously with the cast back, substantially as set forth.

2. The herein-described knife-casting consisting of the metal blade, the cast-metal back embracing one edge of said blade, and a cast dummy-bar beneath the exposed portion of the blade and connected to the back by a fracturable connection, substantially as described.

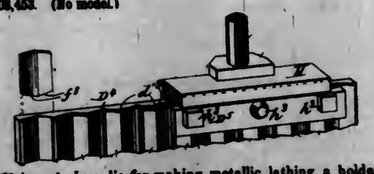
3. The herein-described knife-casting consisting of the metal blade, the cast-metal back embracing one edge of said blade, and a cast dummy-bar beneath the exposed portion of the blade, connected to the back at intervals by integral fracturable webs, substantially as described.

594,171. MOSQUITO-SCREEN. JORDAN L. CRUDUP, Tampa, Fla. Filed Feb. 2, 1897. Serial No. 621,735. (No model.)



Claim.—As an improvement in canopy-frames and their attachments a holder B and a bow-shaped spring C having two straight portions located within said holder, the bow of the spring being below the same, and the terminal c of the spring having an eye e, in combination and connected with a frame D having its lower terminal pivoted to the outside of the holder and embraced by said eye, and a means of retaining the frame in the position it would occupy when required for use, substantially as described.

594,172. DIE FOR MAKING METALLIC LATHING. WILLIAM DUNCAN, Kearney, and ALEXANDER R. FORDYCE, Newark, N. J.; said Duncan assignor to said Fordyce. Filed Aug. 21, 1896. Serial No. 603,453. (No model.)



Claim.—1. In a die for making metallic lathing, a holder, and the cutters mounted therein, the latter being arranged in rows so that the cutters of one row break joint with those of an adjacent row, and so that a cutter in one row has a face contacting with the faces of the two opposite cutters in an adjacent row.

2. In a die for making metallic lathing, a holder, and the cutters mounted therein, the latter being angular in cross-section and arranged in rows so that the cutters of one row break joint with those of an adjacent row.

3. In a die for making metallic lathing, a holder, and the cutters mounted therein, the latter being angular in cross-section and arranged in parallel rows so that the cutters of one row break joint with those of an adjacent row, and so that each cutter in one row has its concave face contacting with the concave faces of the two opposite cutters in an adjacent row.

4. In a die for making metallic lathing, a holder, and the cutters mounted therein, the latter being angular in cross-section and arranged in rows so that the cutters of one row break joint with those of an adjacent row, and so that there are spaces between the cutters of each row.

5. In a die for making metallic lathing, a holder, and the cutters mounted therein, the latter being arranged in rows so that the cutters of one row break joint with those of an adjacent row, and so that a cutter in one row has a face contacting with the faces of the two opposite cutters in an adjacent row, and also so that there are spaces between the cutters of each row.

6. In a die for making metallic lathing, a holder, and the cutters mounted therein, each of the latter being bent along a medial line so as to be angular in cross-section, the said cutters being arranged in rows so that those of one row break joint with those of an adjacent row and so that there are spaces between the cutters of

each row, with each of which spaces the bent portion of a cutter in an adjacent row registers.

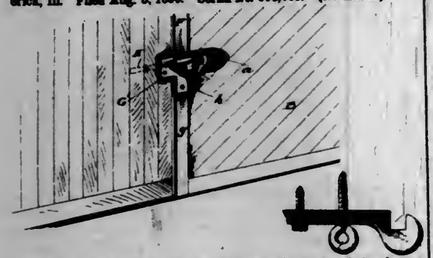
7. In a die for making metallic lathing, a holder, and the cutters mounted therein, the latter being arranged in two parallel rows, one of said rows being formed of cutters having cutting edges in substantially the same plane, and the other row formed of cutters having angular cutting edges.

8. In a die for making metallic lathing, a holder, cutters angular in cross-section mounted therein and arranged in a row, and a retaining-plate having concave recesses formed therein to receive the convex backs of said cutters.

9. In a die for making metallic lathing, a holder, cutters, angular in cross section, mounted in said holder and arranged in a row with spaces between them, and a retaining-plate having concave recesses formed therein to receive the convex backs of said cutters and having ribs projecting into the spaces between said cutters

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594,173. SLIDING-DOOR FASTENER. PULASKI FARWELL, Frederick, Ill. Filed Aug. 5, 1896. Serial No. 601,763. (No model.)



Claim.—1. A sliding-door fastener comprising a hook having an opening therethrough, a pivoted latch provided with a cam-flange thereon constructed to engage the hook and tapered in two directions at right angles to each other to draw the door toward the hook and at the same time press it against the jamb, said latch having an extension with an opening coincident with an opening in the hook, substantially as described.

2. A sliding-door fastener comprising a plate provided with a hook extending therefrom and a flange extending at right angles from the plate, a lag screw having a polygonal head located in the angle formed by the hook and flange and a pivoted latch to engage said hook so as to prevent rotation of the plate and lag-screw, substantially as described.

594,174. LAST. WALTER FIRMAN, Rushden, England, assignor to John Cave & Sons, same place. Filed Nov. 14, 1896. Serial No. 612,042. (No model.) Patented in England Apr. 11, 1896, No. 7,680.



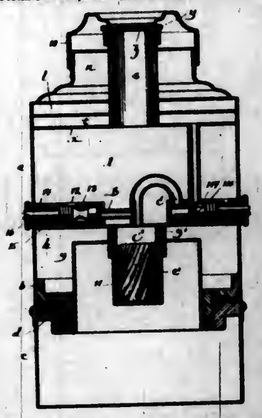
Claim.—1. In a last the combination with the toe and heel parts hinged together and having a tapering recess between them, one of said parts being provided with a guiding-recess, of a wedge-piece adapted to engage said tapering recess and provided with a guide for engaging said guiding-recess and a locking device for said wedge, substantially as described.

2. In a last the combination with the toe and heel parts hinged together and having a tapering recess between them, of a wedge-block adapted to engage said recess, provided with a guiding device, and a spring locking-plate having a part adapted to enter a locking-recess in one of said heel and toe parts, substantially as described.

3. In a last, the combination with the heel and toe parts hinged together and forming a tapering recess between them, of the locking-wedge, provided with a spring-plate on one side, said plate having a projecting portion adapted to enter a recess in one of the parts of the last, and having a portion extending above the top of the last to assist in withdrawing the wedge, substantially as described.

4. In a last the combination with the heel and toe parts, of a hinge for uniting the same adjacent to the bottom, one of the hinge members being provided with a socket extending through the part to which it is attached to the top of the last, the locking-wedge having a guide adapted to engage one of said hinge parts and a spring locking-plate having a portion for engaging a locking-recess in the other part, and a projecting portion to assist in removing said wedge, substantially as described.

594,175. ACETYLENE-GAS GENERATOR. OTTO S. HELWIG, Chicago, Ill., assignor to George P. Fisher, Jr., same place. Filed Apr. 30, 1897. Serial No. 634,569. (No model.)



Claim.—1. In gas-generators, the combination with the retort and with the closed tank for the exciting liquid located at a level relatively higher than the retort, of an obstructive percolator interposed between said tank and retort, said percolator discharging at one side into the retort and at the opposite side communicating with the tank by dual passages respectively above and below the free surface of its liquid contents, the passage that extends above the tank's contents being for the escape of gas from the retort, and the other being for the passage of the liquid from the tank into the retort, substantially as described.

2. In gas-generators, the combination with the retort and with the closed tank for the exciting liquid located at a level relatively higher than the retort, of a percolator with obstructive wad therein and located between said tank and retort; said percolator opening at one side of its wad into the retort, and at the opposite, by branching passages communicating with the closed tank, respectively above and below the level of its liquid contents, the passage that extends above the tank's contents being for the escape of gas from the retort, and the other being for the passage of the liquid from the tank into the retort, and independent means for regulating the size of each passage, substantially as described.

3. In gas-generators, the combination with the inclosing case having removable cup-retort at its base with escape vent therefrom, of the cross-diaphragm with dependent bell projected into said retort, the percolator having an obstructive wad and extended within said bell to open into the retort, the tank located above said diaphragm and having a closed inlet to admit the liquid-supply, and branched conduits furnished with regulating-valves, leading out from the percolator over its obstructive wad and respectively communicating with said tank above and below the level of its liquid, substantially as described.

4. In gas-generators, the combination with the inclosing case having cross-diaphragm therein to define a retort below and a tank for liquid above said diaphragm, of an interposed percolator dependent from said diaphragm, furnished with an obstructive wad, and opening into said retort beneath the wad, a regulated conduit uniting the lower part of the tank with the percolator above its wad, and a separate regulated conduit joining the like end of the percolator with the upper part of said tank, substantially as described.

5. The combination with the inclosing case *a*, the cup-retort *c* secured at the base thereof and with the cross-diaphragm *f* having dependent bell-drum *g* projected in close proximity to the adjacent retort-wall thereby establishing a reserve gas-chamber *h* between said retort and diaphragm, of the tank A with closed inlet for the liquid, the percolator C carried beneath from said diaphragm, furnished with an obstructive wad 11 and opening below such wad into the retort, the branching dual conduits B, C uniting the percolator above its wad with the upper and lower parts of said tank respectively, the distributing-dome *n* having outlet *o* for the gas and a tube *i* establishing communication between gas-reserve chamber *h* and dome *n* through porous check *k*, substantially as described.

594,176. BAG-HANDLE. HUBERT F. JONAS, Oshkosh, Wis., assignor of two-thirds to Frank B. Marshall, George F. Marshall, and Mike F. Miller, same place. Filed Jan. 20, 1897. Serial No. 619,901. (No model.)

Claim.—1. As an improved article of manufacture a handle for bags or similar articles, consisting of upper and lower pieces of leather stitched together and each provided with two edges forming side extensions, a suitable filling between said pieces, the two joined edges of the pieces of leather on opposite sides being turned up around the central portion to form a smooth handhold, substantially as described.

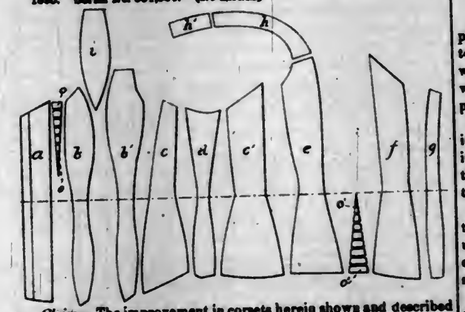


2. As an improved article of manufacture a handle for bags or similar articles, formed of upper and lower pieces of leather, a suitable filling interposed between the said pieces, stitches arranged longitudinally and inclosing said filling, the opposite edges of each piece extending considerably beyond the stitching around the filling, and having their outer edges also stitched together, opposite joined edges being turned up upon either side of the central filled portion to present a smooth surface to the hand, substantially as described.

3. As an improved article of manufacture a handle for bags or similar articles formed of upper and lower pieces of leather, a suitable filling interposed between said pieces, stitches arranged longitudinally of said pieces and inclosing said filling, the two opposite edges of said pieces extending considerably beyond the stitching and being turned up around the filling to form side coverings for inclosing the central filled portion whereby a smooth surface is presented to the hand and attaching-eyes secured in the ends of said handles for securing it to said bag or other article, substantially as described.

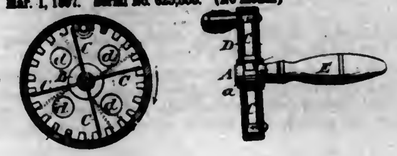
4. As an improved article of manufacture a handle for bags or similar articles consisting of upper and lower pieces of leather, a suitable filling interposed between said pieces and arranged longitudinally thereof, stitches passed through said pieces of leather so as to inclose said filling, the two edges of each piece extending some distance beyond the filled portion and both of said edges turned up around the same to present a smooth surface to the hand, substantially as described.

594,177. CORSET. ANNIE M. KING, Logan, Iowa. Filed June 3, 1895. Serial No. 551,530. (No model.)



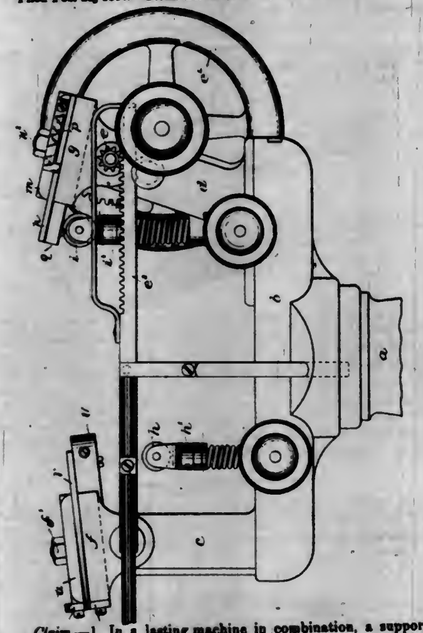
Claim.—The improvement in corsets herein shown and described consisting of the front section having the pieces *a*, *b*, *b'*, *c*, of the contour shown with the short bust-piece *i* having convex edges united to similar convex edges on the pieces, and with the elastic connections *e* of varying lengths united to the pieces *a*, *b*, from the waist-line upward; the back section having the pieces *d'*, *c*, *f* and *g* of the form shown and with the elastic connections *d'* joined to the pieces *c*, *f*, and of variable lengths from the waist-line downward, and the under-arm piece *d* tapered from the waist-line toward the top and bottom and united to the adjacent pieces *c*, *d'*, of the front and back sections, as and for the purposes described.

594,178. TOY RATTLE. OSCAR LOUD, Brooklyn, N. Y. Filed Mar. 1, 1897. Serial No. 625,555. (No model.)



Claim.—A toy rattle comprising an axle, one or more elastic wings attached to and projecting laterally from said axle, a handle to which said axle is rigidly attached, and a circular shell fitted to rotate on said axle and provided around its inner circumference with teeth engaging with said wings, substantially as herein described.

594,179. LASTING-MACHINE. ALBERT F. PERRON, Boston, Mass., assignor to the Bunell Lasting Machine Company, Nashua, N. H. Filed Feb. 23, 1897. Serial No. 624,679. (No model.)



Claim.—1. In a lasting machine in combination, a support, a pivot, coacting wipers on said support, and arranged to be swung toward each other over the last by the engagement of the last therewith, and means for connecting said wipers movably around said pivot, whereby said wipers are movable bodily about said pivot on said support in the plane of their independent movement.

2. In a lasting-machine in combination a head or support, coacting wipers movable bodily about a single pivot on said head, and an independent pivot for each of the wipers, said pivots being substantially parallel, whereby the wipers automatically adjust themselves to a last and wipe the edges of the upper thereover.

3. In a lasting-machine, in combination a head or support, and two coacting wipers operated only by the engagement of a last and upper therewith, said wipers being adapted to have their adjacent edges move toward and from each other over a last, and pivoted to swing bodily in the same plane of movement about a single pivot.

4. In a lasting-machine, in combination, a head or support, a plate pivoted to said head, and coacting wipers, each pivoted to said plate, whereby said wipers may move about independent pivots, and may also swing bodily about a single pivot with the said plate.

5. In a lasting-machine in combination, a head or support, a plate pivoted to said head, and coacting wipers located between the head and the plate, and each of said wipers being pivoted to said plate by an independent pivot.

6. In a lasting-machine, in combination, a head or support, a plate pivoted to said head, yielding means for holding said plate in its normal position, two coacting wipers loosely pivoted on said plate, and adapted to swing in planes parallel thereto, and yielding means for holding said wipers in their normal positions.

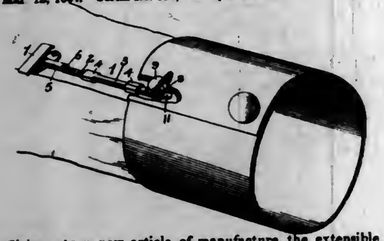
7. In a lasting-machine, in combination, a head, two loosely-pivoted wipers supported by said head, and adapted to be automatically operated by the engagement of the last therewith, said wipers being constructed to oscillate at right angles to the planes of their swinging movement.

8. In a lasting-machine, in combination, a head, two loosely-pivoted wipers supported by said head, and adapted to be automatically operated by the engagement of the last therewith, said wipers being constructed to oscillate oppositely of each other at right angles to the planes of their swinging movement.

9. In a lasting-machine, in combination, a head, two loosely-pivoted wipers supported by said head, and adapted to be automatically operated by the engagement of the last therewith, said wipers being tapering toward their ends, whereby they may automatically oscillate at right angles to the planes of their swinging movement.

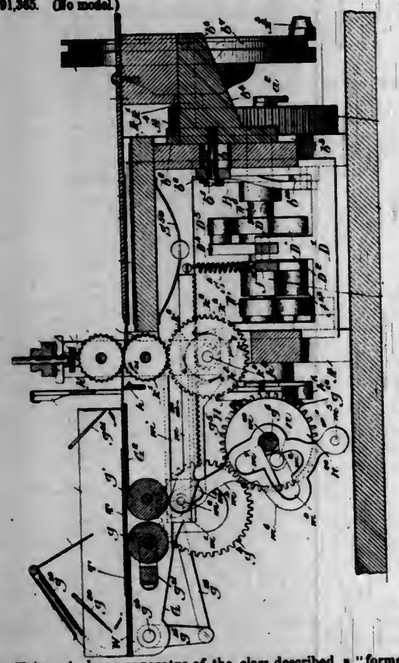
10. In a lasting-machine, in combination, a support, coacting wipers loosely mounted on said head, and movable automatically to wipe the edges of the upper over the last, and stops secured to the under faces of the wipers, back from the operative edges thereof, said stops comprising flanged strips with flexible material inserted therein.

594,180. CUFF-HOLDER. JOHN A. PUGH, Waverly, Ill. Filed Mar 12, 1897. Serial No. 627,164. (No model.)



Claim.— As a new article of manufacture, the extensible cuff-holder herein shown and described, comprising a two-part shank having the members 2, 3, and the clasps 4, 4, fitted on the members to slidably connect the same together, said member 3 provided at one end with an offstanding lug 8, a clamp attached directly to the outer end of the member 2, a button attached to the offstanding lug 8 of the member 3, and the offset plate 10 fastened to the member 3 and having one end extended beyond the lug 8 to form the protruding tongue 11, substantially as described, for the purposes set forth.

594,181. MECHANISM FOR COVERING STRAPS. WILLIAM C. RAND, Lewiston, Me., assignor to Vertrude P. Buck, Auburn, Me., and Harry W. Spencer, Boston, Mass. Filed May 13, 1896. Serial No. 591,965. (No model.)



Claim.—1. In an apparatus of the class described, a "former," a guide to direct the webbing beneath the "former," intermittingly-operated feeding mechanism to move the leading end of a strip of covering material transversely to and under the webbing, means to clamp the "former" upon the webbing and covering material, a strip-severing device, mechanism operating in connection with said former to fold the severed covering material about the webbing, means to render said covering immovable on said webbing, and a webbing-severing device between said latter means and said folding mechanism, substantially as described.

2. In an apparatus of the class described, a "former," convexed on one side to bend the webbing between its longitudinal edges, and feeding, severing, and folding mechanisms to feed a strip of covering material, sever a portion thereof, and fold said severed portion about the webbing and "former," substantially as described.

3. In an apparatus of the class described, webbing-feeding mechanism, means to feed, sever, and fold a portion of covering material around the webbing, a gage to position the cover upon the webbing, and a device to sever the covered portion of webbing, substantially as described.

4. In an apparatus of the class described, a "former," a guide for the webbing extended in the direction of the length of the "former," means to feed, sever, and fold a portion of a strip of covering material about the webbing and the "former," webbing-feeding mechanism, a gage to position the cover upon the webbing, means to sever the webbing, and folding mechanism to fold upon itself the covered and severed portion of webbing, substantially as described.

5. In an apparatus of the class described, a "former," a guide for the webbing extended in the direction of the length of the "former," means to feed, sever, and fold a portion of a strip of covering material about the webbing and the "former," webbing-feeding mechanism, a severing device for the webbing, folding-rolls across which the covered portion of webbing is moved, means to position said folded covering relatively to said rolls, and a coöperating blade to act upon the unsupported side of the severed portion of webbing, to bend the latter and present it to said rolls, to be thereby folded upon itself, substantially as described.

6. In an apparatus of the class described, webbing supplying and feeding mechanism, a webbing-severing device, paper-feeding mechanism, a "former" between said webbing-supplying mechanism and said webbing-severing device to clamp the paper at times, pasting mechanism to apply paste to the paper at one side of the "former," a device to sever a portion of the paper, and folding-blades to engage and overlap one ply of the severed portion upon the other pasted ply and thereby form a flattened tube around the webbing and the "former," substantially as described.

7. In an apparatus of the class described, a "former," a guide for the webbing extended in the direction of the length of the "former," means to feed, sever, and fold a portion of a strip of covering material about the webbing and the "former," webbing-feeding mechanism, folding mechanism to fold the covered webbing, and a webbing-severing device located between said webbing-feeding mechanism and said webbing-folding mechanism, the latter folding upon itself said covered and severed portion of webbing, substantially as described.

8. In an apparatus of the class described, a frame or bed hollowed as at $b^{\times}$, a convex former, means to move said former to coöperate therewith, webbing-feeding mechanism to feed webbing between said bed and said former, a type-bed mounted on said frame in the path of said webbing, feeding mechanism to feed a covering-strip between said former and hollowed portion, folding mechanism, movement of said former into said hollowed portion printing said web and deflecting the projecting portions of said strip to be folded by said folding mechanism, substantially as described.

9. In an apparatus of the class described, a frame, a bed b^4, a carrier b^5 movable thereon, a former secured on said carrier and projecting over said frame to coöperate with the latter, a passage for said webbing being provided between said carrier and former, and strip severing and folding mechanisms, substantially as described.

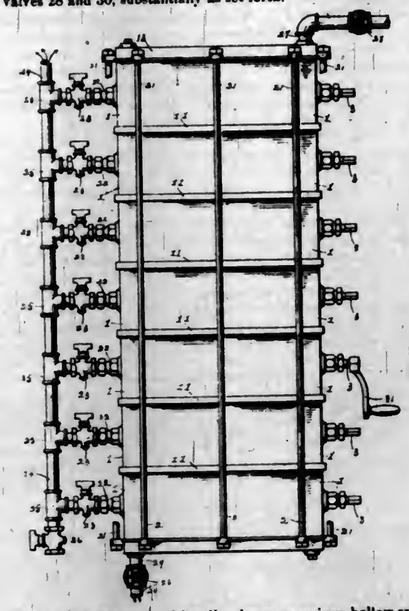
10. In an apparatus of the class described, a web-guide to receive the web and its covering, and two oppositely-movable members to gage the covering on its web, substantially as described.

11. In an apparatus of the class described, a paper-strip-feeding mechanism, a guide, a folding-blade, a projection on said blade, and means to coöperate with said projection to cause said blade to press firmly on the paper in its folding movement, substantially as described.

12. In an apparatus of the class described, a paste-vat, a rock-shaft, a rocker-arm loosely mounted thereon, a paster carried by said arm, a hub and arm fixed on said shaft, and a spring s connecting said arms, and a paste-lifter connected to said fixed arm, combined and operating substantially as described

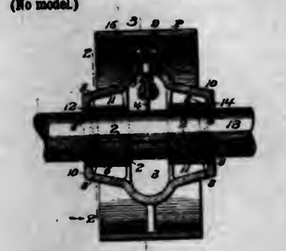
594,182. WATER-FILTER. JOSEPH L. SHIRING, Allegheny, Pa. Filed Aug. 21, 1896. Serial No. 603,434. (No model.)

Claim.—1. A water-filter comprising filtering boxes or casings having porous bodies journaled therein and mounted on a shaft, granular beds of loose material surrounding the said porous bodies, screens between said granular beds, suitable means for revolving the filtering-bodies, and means for flushing the said porous bodies comprising the valves 28 and 30, substantially as set forth.



2. A water-filter comprising filter boxes or casings, hollow cylindrical porous bodies journaled in said boxes or casings, and mounted on a hollow shaft, said shaft having an opening at one end which communicates with the interior of the filtering-body, granular beds of loose material surrounding said filtering-bodies, screen-plates arranged between said granular beds, a top and bottom plate provided with waterways and screens, means for revolving the filtering-bodies comprising a crank 31 adapted to fit on the end of the said hollow shaft, and means for flushing the said cylinders comprising the valves 28 and 30 located at the top and bottom of said boxes or casings, substantially as set forth.

594,183. LUBRICATING DEVICE FOR REVOLVING BODIES. JOHN STODDARD, Wilmington, Del. Filed Dec. 5, 1896. Serial No. 614,532. (No model.)



Claim.—1. A device for lubricating the shafts or bearings of revolving bodies, the same consisting of a revolving reservoir for the lubricant, and a wheel moving with the reservoir the periphery of which wheel engages with the shaft and lubricant and is revolved to carry the lubricant from said reservoir to the shaft, substantially as described.

2. A device for lubricating the shafts or bearings of revolving bodies, the same consisting of a revolving reservoir for the lubricant, and a lubricant-carrying wheel moving with the reservoir the periphery of which wheel projects into said reservoir and runs in engagement with the shaft of the revolving body, and means for holding the wheel yieldingly in contact with the said shaft, substantially as described.

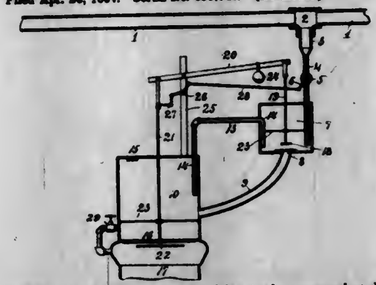
3. A device for lubricating the shafts or bearings of revolving bodies, the same consisting of a reservoir for the lubricant, a bushing on which the outer ends of said reservoir are secured, which bushing turns on the shaft, and a lubricant-carrying wheel held within said reservoir so that its periphery runs in engagement with the shaft, substantially as described.

4. A device for lubricating the shafts or bearings of revolving bodies, the same consisting of a reservoir for the lubricant, a bushing on which the outer ends of said reservoir are secured, which bushing turns on the shaft, a lubricant-carrying wheel held within said reservoir so that its periphery runs in engagement with the shaft, and means for holding the said wheel yieldingly in contact with the shaft, substantially as described.

5. In a device for lubricating the shafts or bearings of revolving bodies, the combination of a reservoir for the lubricant, bushing 12, 14 on the shaft, with which bushing the reservoir revolves on the shaft, said bushing having oil-grooves 2 on its inner surface, and a lubricant-carrying wheel held within said reservoir so that its periphery runs in engagement with the shaft, substantially as described.

6. In a device for lubricating the shafts or bearings of revolving bodies, the combination of a reservoir for the lubricant, bushing 12, 14 on the shaft with which bushing the reservoir revolves on the shaft, said bushing having oil-grooves 2 on its inner surface, and openings 8 connecting said grooves with the reservoir, substantially as described.

594,184. STEAM-TRAP. COLONEL G. TALLY, Cincinnati, Ohio. Filed Apr. 26, 1897. Serial No. 633,949. (No model.)



Claim.—1. A steam-trap comprising tanks arranged at different elevations, valves located in the bottom of said tanks and opening in opposite directions, and means connecting said valves for operating them in unison, the steam-pipe discharging into the upper tank, a pipe connecting the upper tank with the lower tank, and an overflow-pipe connecting said tanks, substantially as shown and for the purpose set forth.

2. In a steam-trap, the combination with the tanks located at different elevations, a pipe and overflow-pipe connecting the upper tank with the lower tank, a valve in the upper tank, and a valve in the lower tank closing an opening therein leading to the waste-pipe, the latter valve opening downward, and means for connecting the valves to each other, the steam-pipe discharging into the upper tank, substantially as shown and for the purpose set forth.

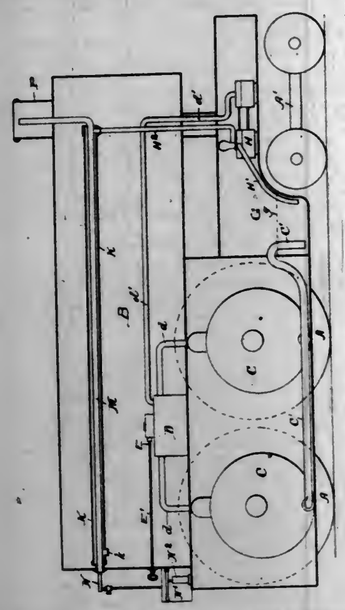
3. In a steam-trap, the combination with the tanks located at different elevations and connected to each other by a pipe, of a valve closing the upper end of said pipe, and a valve in the bottom of the lower tank opening downward, together with means connecting the valve to operate them in unison, a valve in the supply-pipe which enters the upper tank, and devices for manipulating the valve in the supply-pipe when the valves in the tanks are operated, substantially as shown and for the purpose set forth.

4. In a steam-trap, the combination with the tanks located one above the other and connected by a discharge-pipe which communicates with the upper tank through an opening in the bottom thereof, a valve covering said opening, a second valve covering an opening in the lower tank and opening downward therefrom, an overflow-pipe connecting the upper and lower tanks, and a lever connecting the valves in the two tanks, together with the valve in the supply-pipe, and bell-crank levers connecting said valve with the mechanism that operates the valves in the tanks, substantially as shown and for the purpose set forth.

594,185. HOT-WATER-STORAGE MOTIVE-POWER SYSTEM AND APPARATUS. HERBERT A. THOMAS, Chicago, Ill. Filed Mar. 20, 1897. Serial No. 630,744. (No model.)

Claim.—1. The hot-water-storage motive-power system or apparatus, comprising in combination a hot-water-storage tank, filled with hot water under pressure, a steam-expansion chamber communicating therewith, a steam-engine, a condensing-tank partially filled with water, an exhaust-pipe leading from the engine to said condensing-tank, a pump for forcing the water from said condensing-tank back into the storage-tank under pressure to maintain the storage-

tank constantly filled with water under pressure, and a heating pipe or flue for reheating the water returned to the storage-tank by the pump from the condensing-tank; whereby steam is prevented from expanding in the storage-tank as the hot water is withdrawn therefrom for use in the engine, and the temperature and pressure in the storage-tank maintained, substantially as specified.



2. The hot-water-storage motive-power system or apparatus, comprising in combination a hot-water-storage tank filled with hot water under pressure, a steam-expansion chamber communicating therewith, a steam-engine, a condensing-tank partially filled with water, an exhaust-pipe leading from the engine to said condensing-tank, a pump for forcing the water from said condensing-tank back into the storage-tank under pressure to maintain the storage-tank constantly filled with water under pressure, a reheating pipe or flue for reheating the water returned to the storage-tank by the pump from the condensing-tank, whereby steam is prevented from expanding in the storage-tank as the hot water is withdrawn for use in the engine and the temperature and pressure in the storage-tank maintained, and a fluid-fuel reservoir and burner for supplying heat to said flue or heating-pipe, substantially as specified.

3. In a hot-water-storage motive-power system or apparatus, the combination with a hot-water-storage tank filled with hot water under pressure, of a steam-expansion tank, a steam-engine, a steam-condensing tank into which the exhaust is delivered from the engine, and a pump for forcing the water of condensation from the condensing-tank into the storage-tank and thus maintaining the same constantly filled with water under pressure, substantially as specified.

4. The combination with a wheeled car or vehicle of a motor apparatus therefor comprising a hot-water-storage tank filled with hot water under pressure, a steam-expansion tank, a steam-engine, a steam-condensing tank into which the exhaust is delivered from the engine, and a pump for forcing the water of condensation from the condensing-tank into the storage-tank and thus maintaining the same constantly filled with water under pressure, substantially as specified.

5. The combination with a wheeled car or vehicle of a motor apparatus therefor comprising a hot-water-storage tank filled with hot water under pressure, a steam-expansion tank, a steam-engine, a steam-condensing tank into which the exhaust is delivered from the engine, a pump for forcing the water of condensation from the condensing-tank into the storage-tank and thus maintaining the same constantly filled with water under pressure, and a reheating pipe or flue for reheating the water of condensation returned by the pump from the condensing-tank to the storage-tank, substantially as specified.

6. The combination with a wheeled car or vehicle of a motor apparatus therefor comprising a hot-water-storage tank filled with hot water under pressure, of a steam-expansion tank, a steam-engine, a steam-condensing tank into which the exhaust is delivered from the engine, a pump for forcing the water of condensation from the condensing-tank into the storage-tank and thus maintaining the same constantly filled with water under pressure, and a reheating pipe or flue for reheating the water of condensation returned by the pump from the condensing-tank to the storage-tank, and a water-conducting pipe contiguous to said heating pipe or flue located in the storage-tank for conducting the water from the pump and delivering it after reheating into the storage-tank, substantially as specified.

7. The combination with a wheeled car or vehicle of a motor apparatus therefor comprising a hot-water-storage tank filled with hot water under pressure, a steam-expansion tank, a steam-engine, a steam-condensing tank into which the exhaust is delivered from the engine, a pump for forcing the water of condensation from the condensing-tank into the storage-tank and thus maintaining the same constantly filled with water under pressure, and a reheating pipe or flue for reheating the water of condensation returned by the pump from the condensing-tank to the storage-tank, and a water-conducting pipe contiguous to said heating pipe or flue located in the storage tank for conducting the water from the pump and delivering it after reheating into the storage-tank, and a fluid-fuel reservoir and burner for supplying heat to said heating pipe or flue, substantially as specified.

594,186. SHADING AND SPACING TOOL. JOHN W. WALTER, Oshkosh, Wis., assignor of one-half to August J. Beduhn, same place. Filed Mar. 5, 1897. Serial No. 626,149. (No model.)



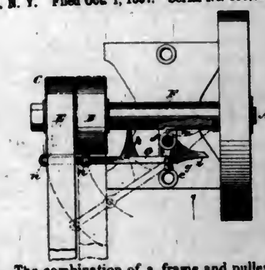
Claim.—1. A spacing-tool comprising a handle having a socket at its lower end, two or more marking-blades adapted to be mounted in said socket, spacing-blocks interposed between said blades and a clamping-screw for holding the said blocks and blades in the socket, substantially as described.

2. A spacing-tool consisting of a handle having a socket at its lower end, said socket being open at its ends, marking-blades adapted to be inserted in said socket, spacing-blocks for holding the blades the proper distance apart and means for holding said blades and blocks in the said socket, substantially as described.

3. A spacing-tool comprising a handle having a socket at its lower end, marking-blades adapted to be inserted in said socket, spacing-blocks for holding the said blades the proper distance apart, a shoulder in said socket for holding the blocks within the same, a set-screw for clamping the said blades and blocks in the socket, substantially as described.

4. In a spacing and shading tool, the combination of a suitable handle having a socket at its lower end, reversible marking-blades each having a narrow marking edge at one end and a wide marking edge at the other end whereby upon reversing said blades lines of different widths may be produced, spacing-blocks interposed between said blades and a clamping-screw for holding the said blades and blocks in the socket, substantially as described.

594,187. BELT-SHIPPER. THOMAS R. ALMOND, Dunwoodie Heights, N. Y. Filed Oct. 1, 1897. Serial No. 653,690. (No model.)



Claim.—The combination of a frame and pulley-shaft with the pivoted shipping-lever G, said lever having the toes A i, and with the spring-click m, the said toes being arranged to alternately strike the framing of the machine, substantially as and for the purpose specified.

594,188. WATCH-CARRIER. LOUIS F. AMEZ-DROZ, Geneva, Switzerland. Filed Feb. 16, 1897. Serial No. 623,608. (No model.) Patented in Switzerland July 31, 1896, No. 12,574, and in England Sept. 16, 1896, No. 20,903.

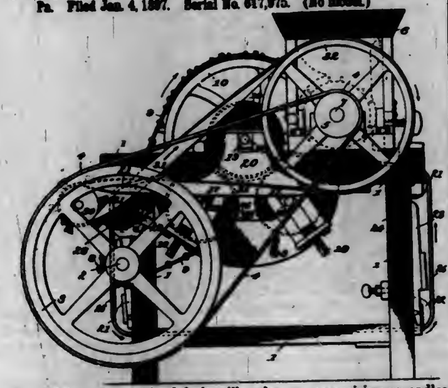


Claim.—1. The combination, with a back frame, of arms hinged to the lower portion of said frame, prongs hinged to the upper portion of the frame, and a spring-clip above said prongs adapted to retain the button or pendant of the watch, substantially as set forth.

2. The combination, with a frame, of two spring-arms hinged to the lower portion of the said frame, two prongs hinged to the upper portion of the frame, securing-lugs for the prongs, and a spring-clip pivoted to the upper portion of the frame and adapted to clamp the upper portion of a watch, substantially as set forth.

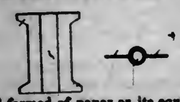
3. The combination, with an open frame, of two curved spring-arms hinged to the lower portion of said frame, each formed of two separated wires adapted to inclose the rim of a watch, two fastening-prongs hinged to the upper portion of the frame and adapted to form supporting-lugs for the frame, securing-lugs for the prongs, and a spring-pressed clip pivoted to the upper portion of the frame and adapted to clamp the watch to the frame, substantially as set forth.

594,189. FRUIT-PRESS. MATHIAS M. APPLEMAN, Rohrsburg, Pa. Filed Jan. 4, 1897. Serial No. 617,975. (No model.)



Claim.—A combined fruit mill and press, comprising an endless apron 25, mounted upon a series of fixed rollers 21, a fixed pressure-roller 14 and a pair of adjustable pressure-rollers 15 16 located in the same horizontal plane, and in the path of said endless apron, a guide-roller 26, engaging said apron on the side opposite to that engaged by said fixed pressure-roller 14, and means substantially as described for adjusting said guide-roller radially with reference to said fixed pressure-roller, substantially as shown and described.

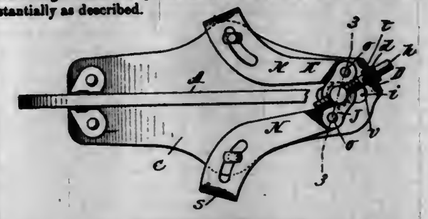
594,190. SPOOL FOR CONTAINING THREAD. BENJAMIN L. ARMSTRONG, New London, Conn. Filed June 3, 1896. Serial No. 594,128. (No model.)



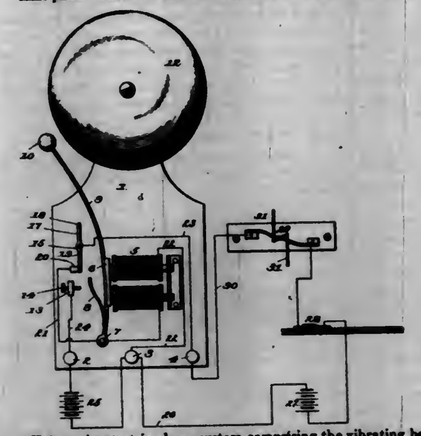
Claim.—A spool formed of paper or its equivalent and consisting of a single strip coiled to form a tubular core and folded to form a flattened body portion embracing the tubular core and extending in opposite directions from the core to form retaining-ears, substantially as set forth.

594,191. SKATE. EVERETT H. BARNEY, Springfield, Mass. Filed Mar. 1, 1897. Serial No. 625,483. (No model.)

Claim.—In a skate, the foot-plate C, provided with a turned-down flange D at its rear end, and which flange extends at an angle to the plate which is provided with a longitudinal slot through its rear end, combined with the operating-screw A, which is passed through the turned-down flange, a headed bolt K loosely placed in the slot and adapted to be moved back and forth therein by a screw, the plate J pivoted upon the bolt and the two sole-clamps N N loosely connected to the opposite ends of the plate; the screw being placed at an angle to the foot-plate, and made to project from one side, substantially as described.

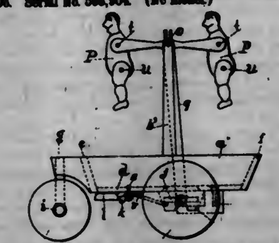


594,192. AUTOMATIC ELECTRIC BURGLAR-ALARM. JOHN W. RAUSHAW, Dalton, Ohio, assignor of one-half to Millard F. McDowell, same place. Filed Mar. 25, 1897. Serial No. 629,200. (No model.)



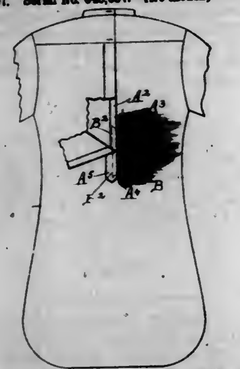
Claim.—An electric-alarm system comprising the vibrating bell, having the terminal connecting-posts 2 3, and 4, the lever 15 provided with a pin 18 projecting into the path of the hammer-arm, a conductor 23 connecting said lever with the post 4, a contact 20 located in the path of one end of said lever and in electrical connection with the post 3, through the conductor 21, post 7, magnet 5 and conductor 22, the contact-post 13, connected to the terminal post 2 by the conductor 24, and the local battery 25, having its poles connected to the terminal posts 2 and 3, in combination with the alarm-circuit, its battery and spring connections 28 and 29, substantially as shown and described

594,193. TOY. CHARLES A. CHENEY, Madison, Wis. Filed June 1, 1896. Serial No. 593,904. (No model.)



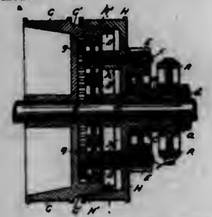
Claim.—The combination with the toy wagon having a removable rear axle secured in position by a button, and two removable standards slotted at the top ends to receive the bearings of a horizontal bar carrying two performing figures, of the rubber band for the purpose of transmitting motion from the axle to the horizontal bar, and by the removal of said rubber band the releasing of the said parts making the toy compact and convenient for shipment, as described and set forth.

594,194. SHIRT. CHARLES G. CLEMENSHAW, Troy, N. Y. Filed June 14, 1897. Serial No. 640,657. (No model.)



Claim.—A shirt having a gore-shaped opening reinforced by facing-strips and provided on one side of the crotch with a lateral reinforce consisting of a piece of fabric having one side lapped by the facing-strips above and below the crotch, the lapped edges of the strip and piece being secured by the same stitching to the body, and the exposed edges of the piece by separate stitching, substantially as described.

594,195. VARIABLE AND REVERSING SPEED GEAR. ARTHUR G. COOKE, London, England. Filed July 9, 1897. Serial No. 644,004. (No model.)



Claim.—1. A variable-speed gearing consisting of driving and driven wheels, in combination with pinions having two independent motions, a rotation upon their axis and a rotation of that axis around that of said wheels, a controlling-wheel having teeth meshing with those of one of said pinions, and movable independently of said wheels, one of said pinions meshing with the driving-wheel and the other of said pinions meshing with the driven wheel, a supporting-wheel carrying said pinions and movable independently of said wheels, and brakes controlling rotation of said controlling and supporting wheels respectively.

2. A variable-speed gearing consisting of the combination of a pinion having two independent motions, a rotation upon its axis and a rotation of that axis around that of a supporting-wheel, such supporting-wheel carrying said pinion, a second wheel and a third wheel independently movable relatively to each other, each with teeth meshing with those of such pinion the one at one side and the other at the diametrically opposite side thereof, so that the said pinion can roll upon and between the teeth of said second and third wheels, a second pinion revolving with said first-mentioned pinion, means controlling movement of said second, third and supporting wheels, and a fourth wheel gearing with said second pinion, substantially as and for the purpose set forth.

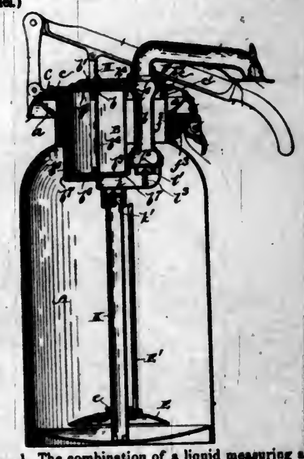
3. A variable-speed gear comprising a driving-wheel, in combination with a pair of pinions, rotating together on one axle, a supporting wheel supporting said axle, a driven wheel, and an independent wheel, each meshing with one pinion of such pair so as to roll upon same, brakes on the supporting and on the independent wheels respectively, and means for operating such brakes, substantially as set forth.

4. A variable-speed gear comprising a driving-wheel, in combination with a pair of pinions, rotating together on one axle, a differential wheel supporting said axle, a driven wheel, and an independent wheel, each meshing with one pinion of such pair so as to roll upon same, a clutch between the differential and independent wheels, and means for operating such clutch, band-brakes on the differential and independent wheels, and means for operating such brakes, substantially as described.

5. A variable-speed gear comprising driving and driven gear-wheels mounted on the same axis, in combination with differential pinions mounted on an axis parallel with that of said wheels, revolving together around their axis and revoluble around the axis of said wheels, and meshing the one with one of said wheels and the other with the other of said wheels, a supporting-wheel supporting said pinions and revoluble around the axis of said driving and driven wheels, and a controlling-wheel meshing with one of said pinions for controlling its movement and movable independently of the supporting-wheel, and means for clutching said supporting and controlling wheels together against independent movement, substantially as and for the purpose set forth.

6. A variable-speed gear comprising driving and driven gear-wheels revolving on the same axis, differential pinions gearing the one with one of said wheels and the other with the other thereof, revolving together on the same axis and revoluble around the axis of said wheels, a supporting-wheel carrying said pinions, a controlling-wheel meshing with one of said pinions, and movable relatively to said supporting-wheel and means for arresting the revolution of one of the latter wheels, substantially as and for the purpose set forth.

594,196. MEASURING AND DISPENSING APPARATUS. CHAS. W. CRAMER, Scranton, Pa. Filed July 22, 1896. Serial No. 600,123. (No model.)



Claim.—1. The combination of a liquid measuring and dispensing apparatus, comprising a liquid-containing vessel, a pump mounted in the same, a piston-rod connected to said pump and having a slot therein provided with stair-step projections, an adjustable pin projecting into said slot and limiting the movement of the piston-rod according to its adjustment in or out, a tube pendent from said pump into the body of the vessel, means for operating the piston and a delivery-spout passing through the top of the vessel and connected to the pump, an agitator comprising a concaved disk mounted on the pendent tube and guided thereby and a rod independent of the said pump, operating means for operating said agitator whereby the contents of the vessel may be agitated as much as desired without operating the pump, substantially as described.

2. In a liquid measuring and dispensing apparatus, the combination with a liquid vessel, a pump mounted in the same, a piston-rod connected to said pump and having a slot therein provided with stair-step projections, an adjustable pin projecting into said slot and limiting the movement of the piston-rod according to its adjustment in or out, and a delivery-spout connected to the pump, substantially as described.

3. In a liquid measuring and dispensing apparatus, the combination with a liquid-containing vessel, a pump located therein, a tube pendent from the said pump into the body of the vessel, a piston-rod connected to said pump, a handle for operating said rod, means for positively limiting the upward movement of said rod, said means being adjustable in and out to a greater or less extent at right angles to the movement of the piston-rod for regulating the stroke of the piston and consequently the amount of liquid delivered, and a delivery-spout connected to said pump, substantially as described.

4. In a liquid measuring and dispensing apparatus, the combination with a liquid-containing vessel, a pump mounted within the same, a piston-rod moving in said pump and having a slot provided with engaging shoulders, a rod adapted to engage said shoulders, means for adjusting said rod in or out to a greater or less degree at right angles to the movement of said piston-rod so as to pump only the desired quantity, a lever for operating said pump, and a delivery-spout connected to said pump, substantially as described.

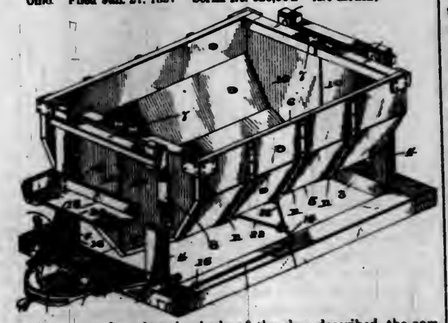
5. In a liquid measuring and dispensing apparatus, the combination with a liquid-containing vessel, a cover for the same, a pump attached to said cover, a tube pendent from said pump into the body of the vessel, a piston-rod connected to said pump, having a slot provided with engaging shoulders and a rod adapted to engage said shoulders for positively limiting the movement of said piston and adjusting means for moving said rod at right angles to the movement of the piston-rod predetermined distances to gage the quantity of liquid delivered, and a delivery-spout connected to said pump, substantially as described.

6. In a liquid measuring and dispensing apparatus, the combination with a liquid-containing vessel, a pump located within the same, means for operating said pump and a delivery-spout connected to said pump and having a rotatable discharging end portion adapted to be turned up to prevent all dripping after the device is used each time and retaining means for holding said discharging end in its adjusted position, substantially as described.

7. In a liquid measuring and dispensing apparatus, the combination with a pump-cylinder, a cover for the same and bracket-bolts adapted to be secured in the cover and support the pump and thumb-nuts for tightening the bolts in the cover, substantially as described.

8. In a liquid measuring and dispensing apparatus, the combination with a liquid-containing vessel having a flaring mouth portion, of a cover for the same, a pump attached to said cover, a pendent tube connected to the pump and extending into the body of the vessel, a valve-chamber interposed between said pendent tube and the cylinder, valves controlling the inlet and outlet to said chamber, a delivery-spout also secured to said cover and a tube connecting said spout with the valve-chamber and hand-operated means for engaging the said flaring mouth portion of the liquid-containing vessel and wedging said cover tightly in position, substantially as described.

594,197. DUMPING-WAGON. WILLIAM H. EARL, Painesville, Ohio. Filed Jan. 27, 1897. Serial No. 620,964. (No model.)



Claim.—1. In a dumping-body of the class described, the combination with a body formed of a series of sections, of a frame adapted to be secured upon the running-gear of a wagon to secure the body thereon, a series of rock-shafts, links connecting the rock-shafts with the sections of the body, and means for operating the rock-shafts to open and close said sections, substantially as set forth.

2. In a dumping-body of the class described, the combination with a body formed of a series of sections, of a frame adapted to be secured upon the running-gear of a wagon to secure the body thereon, a series of rock-shafts, links connecting the rock-shafts with the sections of the body, and a lever having link connections with the rock-shafts for operating the latter, substantially as set forth.

3. In a dumping-body of the class described, the combination with a body formed of a plurality of sections suitably connected together and adapted to be spread apart for dumping the contents thereof, of a frame adapted to be mounted upon the running-gear of a wagon to secure the body thereon, suitable connections between said body and the frame for securing the body on the latter, rock-shafts mounted upon said frame, links connecting the rock-shafts with the sections of the body to open and close the same when the rock-shafts are operated, and means for operating the rock-shafts, substantially as set forth.

4. In a dumping-body of the class described, the combination with a body formed of a plurality of sections suitably connected together and adapted to be spread apart for dumping the contents thereof, of a frame adapted to be applied to the running-gear of a wagon to secure the body thereon, suspending-bars pivotally connected to the body and said frame for securing said body upon the latter, said bars being adapted to permit free movement of the sections of the body when the same are operated, rock-shafts mounted upon the frame, links connecting the rock-shafts with the sections of the body for opening and closing the same when said rock-shafts are operated, and means for operating said rock-shafts substantially as set forth.

5. In a dumping-body of the class described, the combination with a body formed of a plurality of sections suitably connected together and adapted to be spread apart for dumping the contents thereof, of a frame adapted to be mounted upon the running-gear of a wagon for securing the body thereon, means for connecting the body with said frame and adapted to permit the sections of the body operating when opening and closing the same, rock-shafts mounted upon the frame, links connecting the rock-shafts with the sections of the body, whereby said sections may be opened and closed upon due operation of the rock-shafts, a lever for operating the rock-shafts, link connections between the rock-shafts and said lever, and means for retaining said lever locked in different positions for retaining the sections of the body open and closed, substantially as set forth.

6. In a dumping-body of the class described, the combination with a body formed of a plurality of sections suitably connected together and adapted to be spread apart for dumping the contents thereof, of a frame adapted to be mounted upon the running-gear of a wagon for securing the body thereon, suspending-bars pivotally connected to the body and the frame, whereby the sections of the body may be opened and closed, rock-shafts mounted upon the frame and provided at one of their ends with cranks, suitable connections between said cranks and the sections of the body, a lever suitably connected to the rock-shafts and adapted to operate the latter for opening and closing the sections of the body, and means for retaining said lever in different positions to hold the sections of the body opened and closed, substantially as set forth.

7. In a dumping-body of the class described, the combination with a body formed of a plurality of sections suitably connected together and adapted to be spread apart for dumping the contents thereof, of a frame adapted to be mounted upon the running-gear of a wagon for securing said body thereon, divergent links connected to said rock-shafts and the sections of the body and adapted to open and close said sections, and means for operating said rock-shafts, substantially as set forth.

8. In a dumping-body of the class described, the combination with a body formed of a plurality of sections suitably connected together and adapted to be spread apart to dump the contents thereof, of a frame adapted to be mounted upon the running-gear of a wagon for securing the body thereon, suspending-bars pivotally connected to said frame and the sections of the body and adapted to permit said sections being opened and closed, rock-shafts mounted upon the frame and provided at one of their ends with cranks, links connected to said cranks and the sections of the body, whereby when said rock-shafts are operated the sections of the body are opened or closed, a lever pivoted to the frame, suitable connections between said lever and the rock-shafts, an auxiliary operating-lever suitably connected to said lever, and means for retaining said auxiliary operating-lever in different positions to retain the sections of the body open and closed, substantially as set forth.

9. In a dumping-body of the class described, the combination with a body formed of a plurality of sections suitably connected together and adapted to be spread apart to dump the contents thereof, of a frame adapted to be mounted upon the running-gear of a wagon for securing the body thereon, suspending-bars pivotally connected to the sections of the body and the frame and adapted to permit said sections being opened and closed, rock-shafts mounted upon said frame, diverging links connecting said rock-shafts with the sections of the body, a lever pivoted to the frame, links connecting said lever with the rock-shafts, an auxiliary operating-lever pivoted adjacent to said lever and suitably connected with the latter, and a rack-bar adapted to be engaged by the auxiliary operating-lever to lock the latter in different positions for retaining the sections of the body open and closed, substantially as set forth.

594,198. SWITCH-OPERATING MECHANISM. CHARLES ELWER, Allegheny, Pa. Filed May 19, 1897. Serial No. 637,273. (No model.)

Claim.—1. In a switch-rail, the two projections extending above the level of the track, and placed in a longitudinal line with each other, and an operating mechanism connecting the two, combined with the pivoted shifting lever 19, the angular endwise-moving switch-point, provided with lugs on its under side and which project through a slot in the rail, and with which lugs the shifting lever engages, whereby a downward pressure upon either one of the projections will cause an endwise movement of the switch-point, substantially as shown.

2. The track-rails provided with suitable slots, the angular levers 23 and 24, pivoted connecting-rods 25 and 28, provided with the pro-

jections 25′ and 28′, and which project through a slot in the rail, combined with the connecting-rods 20 and 21, the shifting lever 19 connected to and operated by the rods, and the switch-point provided with lugs on its under side, and which lugs project through a slot in the switch-point, said rail having an endwise movement, substantially as described.



3. In a switch-rail, the three projections 25′, 28′ and 32, which project through slots in the rail, an operating mechanism connected with each of the projections, and the rod 26 for connecting the operating mechanism, and the projections 28′ and 32, combined with the connecting-rods 20 and 21 and which are connected at their inner ends, a shifting lever connected to and operated by the rods, and the angular endwise-moving switch-point, provided with lugs which make connection with the shifting lever, whereby when one of the projections which extend above the level of the track, is operated, the switch-point is given an endwise movement, substantially as set forth.

594,199. PROJECTILE. EDWIN S. FIELD, Springfield, Mass. Filed July 9, 1897. Serial No. 643,993. (No model.)

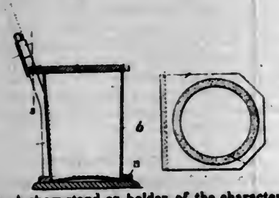


Claim.—1. A projectile for firearms comprising a metallic shell having one or more openings through its side, each surrounded by an elongated indentation, concave in cross-section, below the apex thereof, thereby forming knife-like borders around the said openings, and a body of soft metal inclosed by said shell, substantially as described.

2. A projectile for firearms comprising a malleable metal shell having several elongated openings therethrough, which openings have oppositely-arranged knife-like borders, and a body of soft metal inclosed in said shell, substantially as set forth.

3. A projectile for firearms comprising a body of soft metal, and a shell of malleable metal inclosing said body, said shell having several openings through its sides below the apex thereof, knife-like borders around the same forming several weakened shell portions for outwardly abnormal distention, whereby said borders are turned outwardly and portions of said body are forced through said openings, as a result of the impact of the projectile, when fired, substantially as described.

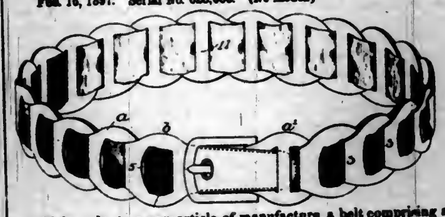
594,200. SHOW STAND OR HOLDER. EDWARD H. FOOTE, Somerville, Mass. Filed Mar. 30, 1897. Serial No. 628,397. (No model.)



Claim.—1. A show stand or holder of the character specified, comprising a base, one or more jars or receptacles mounted thereon, standards attached to the base, a hinge-rod supported by and between the standards, one or more covers for said jars mounted to swing on the rod, and a rest for the covers attached to the standards and projecting above the jars.

2. A show stand or holder of the character specified, comprising a base, a plurality of jars or receptacles mounted thereon, standards attached to the base, a hinge-rod supported by and between the standards, covers for the said jars mounted to swing on the rod, and a rest for the covers attached to the standards and projecting above the jars, the said covers having provisions for a loose vertical movement upon the rod whereby the covers are enabled to adjust themselves independently of the jars.

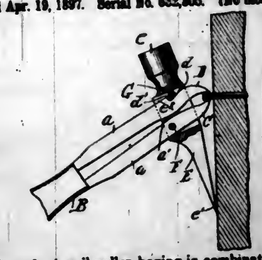
594,201. BELT. ARTHUR G. FROTHINGHAM, Salem, Mass. Filed Feb. 16, 1897. Serial No. 623,668. (No model.)



Claim.—1. As a new article of manufacture, a belt comprising a series of assembled leather links, each link being doubled over the end bars of a preceding link, and having a cross-bar, a ribbon interwoven through said links and passing over said cross-bars and under the end bars, and means for attaching the ends of the belt together.

2. As a new article of manufacture, a belt comprising a series of doubled leather links each having a central cross-bar, a ribbon interwoven through said links and passing over the cross-bars and under the remainder of the links, a buckle on one end of the belt, and a strip on the other end of the belt having its edges scalloped, and provided with a series of eyelets.

594,202. NAIL-PULLER. REMINGTON H. GILFILLAN, Chicago, Ill., assignor to the Gilfillan Scale and Hardware Company, same place. Filed Apr. 19, 1897. Serial No. 632,805. (No model.)

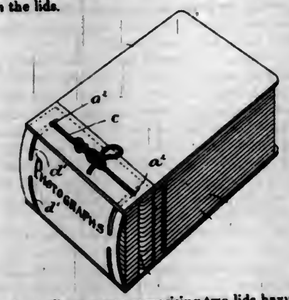


Claim.—1. A nail-puller having in combination a hammer provided with an opening, spring-separated shanks projecting through said opening and having gripping-jaws at their protruding ends, said hammer being pivoted to one of said jaws and adapted to impinge against and deflect the other toward its mate when the hammer is oscillated in one direction, and a stop for limiting the oscillation of the hammer in the other direction, the protruding end of said deflectable jaw being extended below and across the arc described by a part of the hammer when the hammer is oscillated, substantially as set forth.

2. A nail-puller having in combination a pair of spring-separated shanks terminating in gripping-jaws, a hammer having an opening through which said jaws pass, one of said jaws being pivotally connected to said hammer and the other of said jaws being provided with an edge adapted to engage with a projecting part of the hammer, the part of said edge that is located below said projecting part being extended outwardly or away from the opposite jaw, the upper end of said edge being provided with a notch or shoulder for engaging with said projecting part of the hammer; whereby the oscillation of the hammer will be limited in one direction by the notch or shoulder and in the other direction by the said edge of said jaw, and when said projecting part of the hammer is moved away from said notch or shoulder, said edge will act to again return the hammer to its normal position with its said projecting part resting against said notch or shoulder, substantially as set forth.

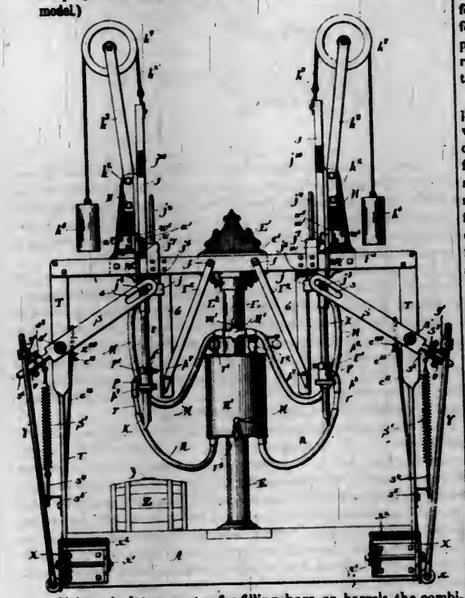
594,208. SEPARABLE BOOK. FRANKLIN H. GILSON, Wellesley, Mass., assignor to the F. H. Gilson Company, Boston, Mass. Filed Feb. 15, 1897. Serial No. 623,407. (No model.)

Claim.—1. A book of the character specified, comprising a cover composed of two independent lids, each having openings at or near its top and bottom edges and near its inner end, the openings in one lid coinciding with those of the other; leaves interposed between said lids and having openings coinciding with the openings in the lids; a flexible fastening-cord passing through the openings in the leaves and lids; and a flexible back piece free from direct connection with the lids and having provisions for engagement with the portions of the cord that pass through the lids and leaves, whereby the back piece is retained in its operative position by said cord, the back piece being adjustable endwise in either direction, to centralize its exposed portion between the lids.



2. A book or album cover comprising two lids having openings for the reception of a binding-cord, and an adjustable back free from direct connection with the said lids and having longitudinal slots arranged to coincide with the said openings and adapted to receive the said binding-cord.

594,204. APPARATUS FOR FILLING BARRELS. CARL HANEMANN, Chicago, Ill., assignor to the National Filter and Carbonating Company, same place. Filed Nov. 23, 1896. Serial No. 613,056. (No model.)



Claim.—1. In apparatus for filling kegs or barrels the combination with a filling-pipe provided with a plug and with a plunger to which said pipe is rigidly connected, of a pivoted lever one end whereof is connected with said plunger, a treadle connected with the opposite end of said lever and whereby the plunger may be operated, and a pivoted hand-lever provided with means for engaging said plunger in order to force the same downward and effect a more secure bearing of the plug against the bung of the keg to be filled, substantially as described.

2. In apparatus for filling kegs or barrels the combination with a filling-pipe provided with a plug adapted to close the bung of a keg or barrel and with a plunger or support for said pipe, of ratchet-teeth, a pawl engaging said ratchet-teeth to force the plunger downward, and a lever for operating said pawl whereby a final downward movement of the plunger can be imparted to force the plug into secure bearing against the bushing of the barrel or keg to be filled, substantially as described.

3. In apparatus for filling kegs or barrels the combination with a filling-pipe provided with a plug and with a plunger or support for said pipe, of a treadle for operating said plunger, said plunger being provided with ratchet-teeth, a pawl engaging said ratchet-teeth and whereby said plunger may be forced downward and a pivoted lever to which said pawl is pivotally connected, said lever serving by its shift of the pawl to effect the final downward movement of the plunger, substantially as described.

4. In apparatus for filling kegs or barrels the combination with a filling-pipe and with a plunger or support rigidly connected to said pipe, of a vertical guide for said plunger, a pivoted lever for operating the plunger, a treadle connected with said lever, ratchet-teeth upon the plunger, a pawl engaging said ratchet-teeth and a pivoted hand-lever W whereon said pawl is pivotally mounted and whereby the final downward movement of the plunger may be effected, substantially as described.

5. In filling apparatus of the character described, the combination with a filling-pipe provided with a plug and with a plunger or support for said pipe, and a main operating-lever, of a pivoted supplemental lever and an intermediate connection between said lever and said plunger whereby said plunger may be forced downward, and a treadle for shifting said lever to release the plunger, and suitable connections between said treadle and said lever, substantially as described.

6. In filling apparatus of the character described, the combination with a filling pipe provided with a plug and with a plunger or support for said pipe, of ratchet-teeth upon said plunger or support, a pawl for engaging said ratchet-teeth and a lever for shifting said pawl to force the plunger downward, and a treadle for releasing said pawl and suitable connections between said treadle and said lever, substantially as described.

7. In filling apparatus of the character described, the combination with a filling-pipe provided with a plug and a plunger or support for said pipe and with a treadle for operating said plunger, of means for forcing said plunger or support downward and locking it in depressed position, and a releasing-treadle whereby said plunger can be released, said releasing-treadle being located in proximity to the treadle whereby the plunger is operated, substantially as described.

8. In apparatus for filling kegs or barrels the combination of duplicate filling-pipes and plungers or supports rigidly connected therewith and extending upward therefrom, a frame provided with vertical guides whereon said plungers or supports are mounted in manner free to slide, plugs connected to said filling-pipes, pivoted levers connected to said plungers or supports, individual treadles connected to said pivoted levers for operating the plungers or supports, an overflow-reservoir, a main delivery-pipe m provided with a three-way cock m′, individual branch delivery-pipes M connecting each of the filling-pipes to said main delivery-pipe m, an overflow-reservoir R′ and discharge-pipes R connecting the plug of each filling-pipe with the bottom of the overflow-reservoir whereby the overflow from one barrel will be delivered into the reservoir and will be discharged therefrom when the next barrel is to be filled, substantially as described.

9. In apparatus for filling kegs or barrels the combination of duplicate filling pipes or nozzles provided with chambered plugs adapted to close the bung-holes of the kegs to be filled, a main delivery-pipe provided with a three-way cock, branch pipes leading from said main delivery-pipe to the individual filling pipes or nozzles, an overflow-reservoir, individual discharge-pipes leading from said chambered plugs to the bottom of said overflow-reservoir and cocks for controlling the flow through said several pipes, substantially as described.

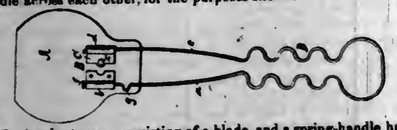
10. In apparatus for filling kegs or barrels the combination with a filling-pipe and with a plunger for raising and lowering the same, of a frame extending above said filling-pipes and provided with a depending vertical support whereon said plunger is mounted in manner free to slide, a tank located beneath said frame, a truck or support arranged above said tank for supporting the barrel or keg to be filled, means for moving said barrel truck or support away from the position that it occupies during the filling apparatus and a latch for holding said barrel support or truck in position, substantially as described.

11. In filling apparatus of the character described, the combination with a filling-pipe and with suitable means for raising and lowering the same, of a subjacent base provided with rails and with a barrel support or truck mounted upon said rails, a spring for shifting said barrel support or truck, a catch for retaining said barrel support or truck against the force of said spring, and suitable connection between said catch and means whereby the filling-pipe is operated, substantially as described.

594,205. PANCAKE-TURNER. JOHN HEMERLING, Rochester, N. Y. Filed June 15, 1896. Serial No. 595,063. (No model.)

Claim.—1. A cake-turner, consisting of a blade and a spring-handle having its two free ends pivoted or journaled to the blade and adapted to partly rotate the blade laterally, when said ends are forced across each other, for the purposes shown.

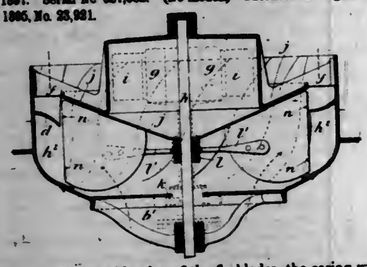
2. A cake-turner, consisting of a blade provided with two journal-boxes, one rigidly fixed upon the blade and the other pivoted thereto and a spring-handle having its free ends inserted in said journals and adapted to partly rotate the blade by forcing the two ends of the handle across each other, for the purposes shown.



3. A cake-turner, consisting of a blade, and a spring-handle having two free ends journaled to said blade, one of which is provided with a loop forming a stop to engage the blade and prevent undue rotation of same, the blade being rotated laterally by forcing the two arms of the handle across each other, as and for the purposes shown.

4. A cake-turner, consisting of a blade A, and a handle D, having the arms *a*, and *c*, journaled to the blade, the arm *a*, provided with the bend *j*, and the arm *c*, having the bend *k*, whereby the compressing of the handle, will force the arm, *c*, across the arm *a*, and partly rotate the blade, as and for the purposes shown.

594,206. FAN. JOHN JEFFREYS, London, England. Filed Mar. 11, 1897. Serial No. 627,003. (No model.) Patented in England Dec. 13, 1895, No. 23,921.



Claim.—1. The combination of the fly-blades, the casing within which the blades are mounted to rotate, the annular series of spiral directing-blades within the casing and surrounding the fly-blades, the central inlet for air on one side of the casing and the annular outlet on the other side, the arrangement being such that air entering at the inlet is driven by the fan-blades into the spiral directing-channels and is conducted by these to the annular outlet where it issues in a direction parallel to the fly-shaft.

2. The combination of the fly-blades, the casing around the blades, the spiral directing-blades, the central inlet and annular outlet, a chamber within the end cover of the casing on the outlet side, and an armature of an electric motor fixed upon the fly-shaft within said chamber.

3. The combination of the fly-shaft, the fly-blade secured thereto, a casing having a central inlet, and an annular outlet, fly-blades secured to the shaft and to the annular series of directing-blades surrounding the fly-blades and interposed between them and the annular outlet.

594,207. WIRE FENCE. GEORGE D. LOCKWOOD, Ypsilanti, Mich. Filed June 25, 1897. Serial No. 642,333. (No model.)



Claim.—1. In a wire fence, the combination of a series of parallel line-wires and of a marginal line-wire, and wire stays intersecting said line-wires and secured at the point of intersection with each line-wire except the marginal wire with a locking-loop formed of the wire of the stay and coiled upon said line-wire and at the point of its intersection with the marginal wire with an open loop through which said marginal wire can pass freely.

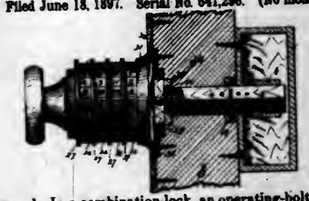
2. In a wire fence, the combination of a series of parallel line-wires and of a twisted-wire cable forming one of the marginal line-wires of the fence, and wire stays intersecting said line-wires and secured at the point of intersection with each line-wire with a locking-loop formed of the wire of the stay and coiled upon said line-wire, each stay-wire having the portion between the cable and the next adjacent line formed with a twisted loop terminating in an eye loosely embracing the cable.

3. In a wire fence the combination of a series of parallel line-wires composed of single wires and of a twisted wire cable forming the top line-wire of the fence, and stay-wires intersecting said line-wires, each connected thereto at its points of intersection with the single line wires by a locking-loop formed of the wire of the stay and coiled around the line-wire and with the cable by a loop formed by looping the stay from the next adjacent line-wire over the cable, said loop being reversely twisted and forming an eye for the cable through which the same passes loosely.

4. In a wire fence, the combination of a series of parallel line-wires composed of single wires and of twisted-wire cables forming the top and bottom line-wires of the fence, and stay-wires intersecting said line-wires, each stay-wire being firmly interlocked with the single line-wires at their point of intersection therewith by having a portion of the stay-wire twisted about the line-wire and engaging with the cable-wires by means of eyes formed in the ends of the stay-wires through which the cables pass loosely, said eyes being formed by looping each stay-wire from the line-wires next adjacent to the cables around said cables and twisting said loops.

5. In a wire fence composed of a series of parallel line-wires, a marginal wire and intersecting stay-wires loosely engaging the marginal wire of locking-loops formed of the wire of the stays and securing the stay-wires to the line-wires at their point of intersection, and elastic bends formed in the line-wires at such point of intersection with the stay-wires by means of tensioning each stay-wire between the locking-loops upon the line-wires, said locking-loops being formed with locking-coils *c c'* under tension.

594,208. COMBINATION-LOCK. WARREN L. LOVE, Beaver Falls, Pa. Filed June 18, 1897. Serial No. 641,296. (No model.)

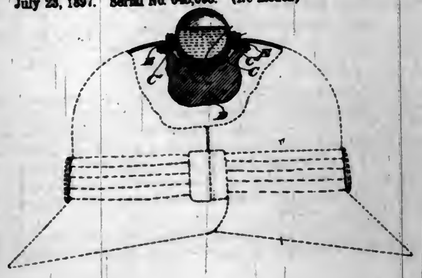


Claim.—1. In a combination-lock, an operating-bolt having connections with a latch-bolt, said operating-bolt having a shell thereon provided with pockets, the shank of said bolt being provided with grooves which together with the pockets in the shell form receptacles for the tumblers and operating-rings forming the combination arranged on said shell, substantially as shown and described.

2. In a combination-lock, a bolt having a series of grooves part way on its shank, a shell mounted on the bolt over said grooves, pockets formed in said shell, said pockets and grooves in the bolt forming receptacles for the tumblers operating-rings on said shell, said rings provided with grooves to engage the tumblers when the same are unseated from their position on the grooves, and a latch-bar arranged within a casing and having connections with the operating-bolt, whereby the same is turned when the rings have been set at a certain position, substantially as shown and described.

3. In a combination-lock, an operating-bolt, a shell mounted on said bolt, said shell being provided with pockets and the bolt having a groove part way on its exterior face, numbered operating-rings mounted on said shell, tumblers in said pockets, the operating-rings being provided with recesses or grooves to engage the tumblers when they are unseated from their pockets, a latch-bar, a yoke connected to said latch-bar, means whereby the yoke is operated to withdraw the latch when the operating-bolt is turned and means for holding the operating-rings and lock in the desired position, substantially as shown and described.

594,209. HEAD-COOLER. HENRY D. MEARS, Philadelphia, Pa., assignor to Annie E. Mears and Anna L. Thompson, same place. Filed July 23, 1897. Serial No. 645,695. (No model.)

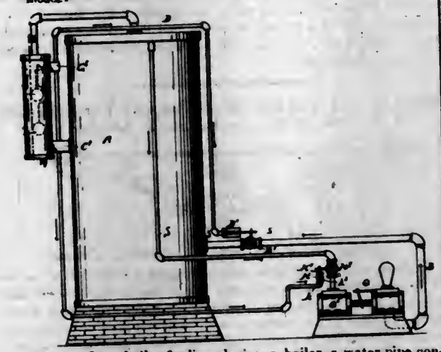


Claim.—1. A cooling device for headwear, comprising a compressible bulb or reservoir, adapted to contain a fluid and provided with a discharge-orifice and a piece of absorbent material opposite to said orifice secured to said reservoir.

2. A cooler or moistening device for an article of headwear, consisting of a compressible bulb or reservoir adapted to contain a fluid and having a discharge-orifice, a support for said reservoir and a piece of absorbent material below said support.

3. An article of headwear having in its top or crown, an opening and a head-cooler or moistening device, adapted to be suspended from said top or crown through said opening consisting of a compressible bulb or reservoir adapted to contain a fluid and provided with a discharge-orifice and a piece of absorbent material opposite the said orifice secured to said reservoir.

594,210. AUTOMATIC BOILER-FEED. CHARLES F. MURRAY, Wayne County, Mich. Filed Apr. 26, 1897. Serial No. 633,925. (No model.)



Claim.—In a boiler-feeding device, a boiler, a water-pipe connected thereto at one end, a pump for forcing water into the boiler through the water-pipe, which is provided with a suitable valve; a steam pipe leading from the boiler to the pump, and which steam-pipe is also provided with a suitable valve, combined with a water-column secured to the boiler, two floats placed therein, one of which is normally submerged, and the other on top of the water, two valves connected to and operated independently by said floats, two steam-pipes extending from the water column, and each provided with a cylinder upon its end, a spring-actuated piston extending through the end of the cylinder and connecting with the valves, whereby the rising or falling of the floats operates the valves so as to admit steam to the pipes leading to the valves, substantially as shown and described.

594,211. BICYCLE-WHEEL. GUSTAVUS R. ODELL, Minneapolis, Minn., assignor of one-half to Augustus R. McCarty, same place. Filed July 6, 1896. Serial No. 598,193. (No model.)



Claim.—1. In a wheel the combination of a flexible tire, with an inflexible wheel-rim of smaller diameter than said tire, inelastic but collapsible ties or stays, connecting said tire and rim, and arranged tangentially with respect to said wheel-rim, and whereby said tire is held concentric with the rim except at the point of contact with the ground, substantially as described.

2. The combination, in a wheel, of the rim, with the flexible spring-tire of greater diameter than said rim, lock-fastenings provided upon the tire and rim, the taut stays or ties tangentially arranged with respect to said rim and secured in said fastenings, means for tightening said stays or ties, and said stays or ties being inelastic but flexible, substantially as described.

3. The combination, in a wheel, of the rim, with the tire of greater diameter than said rim, fastenings provided in the middle of the said tire and at the edges of said rim, and ties or stays alternated upon the two sides of the wheel-rim and secured in said fastenings, the said ties or stays acting to stay the tire in a lateral direction, and being inelastic but collapsible, substantially as described

4. The combination, in a wheel, of the inflexible wheel-rim, with the flexible tire, the tangential ties or stays connecting said rim and tire, two or more sets or series of said ties or stays being employed, whereby the tire is supported at many points, and said ties or stays being collapsible but inelastic, whereby the tire is held concentric with the rim at all points except at the point of contact with the ground, substantially as described.

5. The combination, in a wheel, of the rim, with the flexible tire, the tangential, collapsible and inelastic ties or stays connecting said rim and tire, the flexible tread provided on said tire and the thin flexible sides inclosing the space between the rim and the tire, and fastened upon the rim, substantially as described.

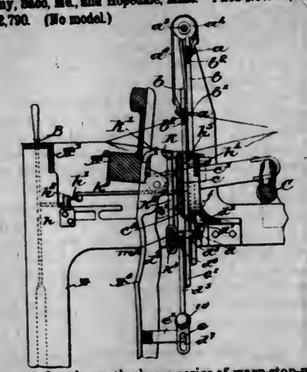
594,212. TAP-WRENCH. CARL J. PIHL, Brooklyn, N. Y., assignor of one-half to Alfred A. Fisher, same place. Filed May 14, 1897. Serial No. 636,448. (No model.)



Claim.—1. As an article of manufacture, a tap-wrench consisting of opposing yielding and curved metallic members united at their ends to provide an intermediate space widest at the center of the wrench and gradually tapering toward each end, and provided with a socket for receiving a tool, and a pair of screws equidistant from the socket and in such relation that both screws are operated by the same movement of the fingers.

2. A tap-wrench consisting of two opposing spring members having oppositely-curved inner faces and permanently-united closed ends, and normally separated to form a central longitudinal slit widest at the central portion of the wrench and gradually tapering toward and terminating short of each end, said members having a tool-holding recess, and a clamping-screw on each side of said recess and entering the wrench from the same side for simultaneously drawing the members toward each other to secure the tool, said members simultaneously expanding when the screws are loosened.

594,218. WARP STOP-MOTION FOR LOOMS. ORIS PIPER, Manchester, N. H., assignor, by mesne assignments, to the Northrop Loom Company, Saco, Me., and Hopedale, Mass. Filed Nov. 20, 1896. Serial No. 612,790. (No model.)



Claim.—1. In a loom, the lay, a series of warp-stop-motion-actuating detectors independent thereof and adapted to drop into operative position upon failure of the warp-threads, a vibrating feeler mounted in stationary bearings independent of the lay, a weight operatively connected with and to move said feeler toward and to be stopped by engagement with a dropped detector, means connected with the lay to positively move the feeler away from the detectors, and stopping mechanism for the loom, rendered operative by stoppage of the feeler due to a dropped detector, substantially as described.

2. In a loom, the lay, a series of warp-stop-motion-actuating detectors independent of the lay and adapted to slide vertically, and each having a warp-eye, combined with a stationary guide for the lower ends of the detectors, a vibrating feeler mounted independent of the lay, a weight connected with said feeler to move it by gravity toward and to engage and be stopped by a dropped detector, means connected with the lay to positively rock the feeler in the opposite direction or away from the detectors, stopping mechanism for the loom, and connections between it and the feeler, substantially as described.

3. In a loom, the lay, a series of metallic warp-stop-motion-actuating detectors adapted to slide vertically and controlled by the warp-threads, a stationary guide for the lower ends of the detectors, a feeler mounted independent of the lay, a connected weight to move the feeler by gravity toward and to engage a dropped detector due to breakage or undue slackness of its warp-thread, means, including a link, positively oscillated by the lay, to retract the feeler from the path of movement of the detectors, and stopping mechanism for the loom, operative upon stoppage of the feeler by a dropped detector, substantially as described.

4. In a loom, the lay, a heddle-frame provided with a cross-bar, and a series of metallic heddles adapted to slide vertically on and independently of said bar, and a stationary guide for the lower ends of the heddles, combined with a rock-shaft independent of the lay, a feeler vibrated thereby to engage the end of a detector in abnormal position due to breakage or undue slackness of its warp-thread, a depending longitudinally-slotted link pivotally connected eccentrically to said rock-shaft, to rock the latter toward the heddles by its weight, a reciprocating actuator for the link, mounted on the lay and entering the longitudinal slot, whereby the link will be oscillated and moved longitudinally against its weight, such longitudinal movement positively rocking the shaft to move the feeler away from the heddles, stopping mechanism for the loom, and connections between said mechanism and the feeler, substantially as described.

5. In a loom, the lay, a cross-bar, and a series of longitudinally-slotted metallic warp-detectors adapted to slide vertically on and independently of said bar, a vibratable feeler mounted independently of the lay, to engage a dropped detector, a depending weighted link pivoted eccentrically to said vibrator, and having a longitudinal opening therein, a lug movable with the lay, to enter said opening, whereby said link will be oscillated and moved upward to retract the feeler on one stroke of the lay, the weight of the link depressing it and moving the feeler toward the path of the detectors on the other stroke of the lay, and stopping mechanism for the loom, operative upon stoppage of the feeler by a dropped detector, substantially as described.

6. In a loom, the lay, a heddle frame provided with a cross-bar, and a series of metallic heddles adapted to slide vertically on and independently of said bar, combined with a feeler mounted independent of the lay and heddle-frame, a connected weight to move it toward and to engage a dropped heddle, means to positively retract said feeler, a shipper-lever, a releasing device therefor, a controller for said device, rendered operative by stoppage of the feeler, and actuating connections between said controller and the feeler, substantially as described.

7. In a loom, the lay, a heddle-frame provided with a cross-bar, and a series of metallic heddles adapted to slide vertically on and independently of said bar, combined with a stationary guide for the lower ends of the heddles, a gravity-actuated, vibratable feeler mounted independently of the lay, to engage a dropped heddle, means operated by movement of the lay to retract the feeler positively, and stopping mechanism for the loom, including a dog and a cooperating bunter, and a connection between the dog and feeler, whereby the former is placed in operative position by stoppage of the feeler, substantially as described.

8. In a loom, the lay, a series of warp-stop-motion-actuating detectors having a vertical movement controlled by the warp-threads, combined with a reciprocating feeler independent of the lay, a weight connected with the feeler to move it by gravity toward and to engage a detector dropped by breakage or slackness of its warp-thread, means actuated by the lay to retract the feeler positively, and stopping mechanism for the loom, operative upon stoppage of the feeler by a dropped detector, substantially as described.

594,214. NUT-LOCK. GEORGE RADEL, Jr., Napoleon, Ohio. Filed Aug. 26, 1897. Serial No. 649,605. (No model.)



Claim.—1. In a nut-lock, the combination with the bolt having a longitudinal groove, and the nut having a substantially radial channel from its bolt-opening outward; of an angular member removably secured upon the nut and closing the outer end of said channel, a spring-pressed catch within the channel and carrying a dog at its inner end normally entering the groove in the bolt, and a pivoted pawl for retracting the catch, as and for the purpose set forth.

2. In a nut-lock, the combination with a bolt having a longitudinal groove, and a nut having a channel extending from its bolt-opening outward; of a catch within the channel having a dog to enter the groove in the bolt, a detachable member upon the nut, a bracket carried thereby, and a pawl pivoted in the bracket with one extremity engaging said catch, as and for the purpose set forth.

3. In a nut-lock, the combination with a bolt having a longitudinal groove, and a nut having a channel opening from its bolt-opening; of a plate removably attached to the nut and closing said channel at its outer end, a bracket carried by said plate, a pawl pivoted between its ends within the bracket, a screw passing through the plate and bracket and bearing upon one end of said pawl, a spring in the channel beneath said plate, a catch borne inward by the spring and having an aperture receiving the tip of the pawl, and a dog on the head of the catch for entering the groove in the bolt, as and for the purpose set forth.

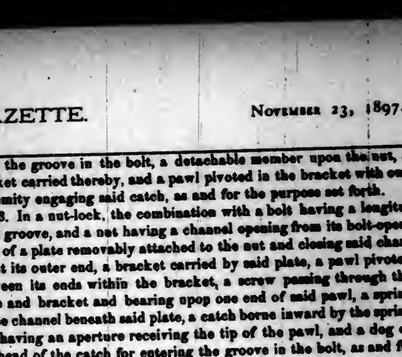
4. In a nut-lock, the combination with the bolt, the nut having a channel leading from its bolt-opening outward, and a substantially L-shaped member detachably secured upon the nut and closing the outer end of the channel therein; of a bracket carried by said member and having an inclined wall forming one side of the channel, a pawl pivoted within the bracket, a screw through the member against one end of the pawl, an expansive spring within the channel, and a catch forced by this spring toward the bolt and having an aperture in its head for the reception of the other end of the pawl, as and for the purpose set forth.

594,215. RAILROAD-SWITCH. ARCHIE F. RAINEY, Bernard's, Pa. Filed Mar. 12, 1897. Serial No. 627,153. (No model.)



Claim.—In an automatic switch a casing arranged at the sides of the track, a trip journaled in said casing, connections between said trips and the switch-tongue, in combination with an operating mechanism attached to the car-track, consisting of a plide arranged in a block, a curved rod or lever pivotally secured to said block, one arm of said lever engaging a lug near the top of the slide, an operating-rope secured to the opposite end of the curved lever, and engaging a foot-lever operating in the car-platform, springs adapted to return the curved levers to their normal position, and a spring adapted to retract the slide, substantially as shown and described.

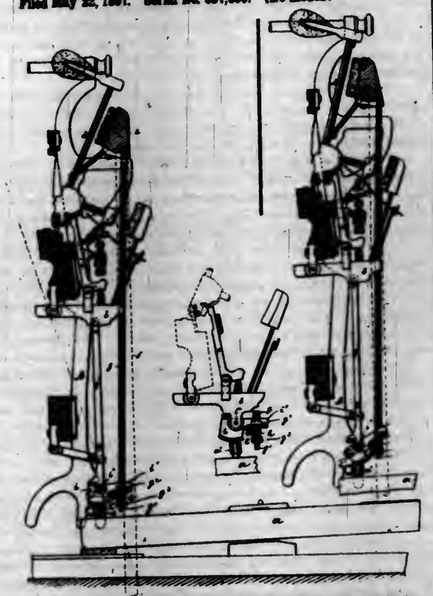
594,216. STEAM-GENERATOR. SAMUEL R. SHIPLEY, White Plains, N. Y. Filed Apr. 24, 1897. Serial No. 633,566. (No model.)



Claim.—1. A steam-generator, comprising a furnace, which is provided at the front thereof, with a grate, and rearwardly of said grate with a transverse buffer-wall, said furnace being also provided with a downwardly and backwardly directed partition rearwardly of said buffer-wall, and with horizontal partition-plates which extend backwardly toward the rear wall of the furnace, and with corresponding partition-plates which extend forwardly from the rear wall of the furnace, a water-supply drum or vessel mounted over the rear portion of the furnace, a pipe connected therewith and coiled back and forth longitudinally of the rear portion of the furnace between said partition-plates, said pipe being carried downwardly beneath said transverse partition, and then upwardly over said buffer-wall, and formed in coils over the grate, said coils being in communication with a steam-drum, substantially as shown and described.

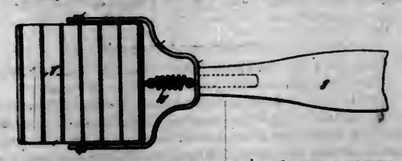
2. A steam-generator, comprising a furnace which is provided at the front thereof, with a grate, and rearwardly of said grate with a transverse buffer-wall, said furnace being also provided with a downwardly and backwardly directed partition rearwardly of said buffer-wall, and with horizontal partition-plates which extend backwardly toward the rear wall of the furnace, and with corresponding partition-plates which extend forwardly from the rear wall of the furnace, a water-supply drum or vessel mounted over the rear wall of the furnace, a pipe connected therewith and coiled back and forth longitudinally of the rear portion of the furnace between said partition-plates, said pipe being carried downwardly beneath said transverse partition, and then upwardly over said buffer-wall, and formed in coils over the grate, said coils being in communication with a steam-drum, and the pipe in the rear portion of the furnace being provided below said transverse partition with a mud-drum which is in communication therewith, substantially as shown and described.

594,217. PIANO-ACTION. ALBERT T. STRAUCH, New York, N. Y. Filed May 22, 1897. Serial No. 637,699. (No model.)



Claim.—In a piano action, the combination of a pivoted wippen with a pivoted cam adapted to tilt the same, a bar for actuating the cam upon the depression of the soft pedal, and a key, all being so constructed that power will be transmitted from the key to the wippen through the cam-body in the same vertical plane at both positions of the soft pedal, substantially as specified.

594,218. CURRYCOMB. RENO G. TOMLINSON, Scenery Hill, Pa. Filed May 18, 1897. Serial No. 637,094. (No model.)



Claim.—As an improved article of manufacture, a carrycomb comprising a frame or head, one side of which is provided with a brush and the opposite side with transverse ribs or flanges, a yoke in which said head is pivotally mounted and in which it is adapted to partially turn, and a coil-spring secured to the inner end of said yoke and to one side of said head, said yoke being provided with a handle, substantially as and for the purpose described.

594,219. GEAR-WHEEL. CHARLES A. TREDWELL, Bristol, Conn., assignor, by mesne assignments, to the P. & F. Corbin, New Britain, Conn. Filed Sept. 12, 1896. Serial No. 605,586. (No model.) Patented in England Sept. 26, 1896, No. 21,454.

Claim.—1. A gear consisting of a pair of plates, and cog-pins uniting the same, said pins being formed by teeth struck up substantially as set forth.



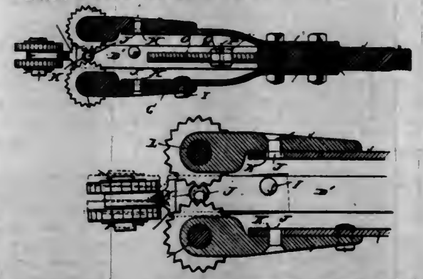
2. A gear consisting of a pair of plates provided, respectively, with teeth struck up from their edges, respectively, and united together to form a whole, substantially as and for the purpose specified.

594,220. FLANGED BELT. LAMARTINE C. TRENT, Salt Lake City, Utah, assignor to the Revere Rubber Company, Boston, Mass. Filed Oct. 12, 1896. Serial No. 608,551. (No model.)



Claim.—An endless belt having the flat, non-extensible body A and the raised, extensible marginal flanges B, blunt and rounded at the upper edge, vertical at base, and curving uniformly toward each other, from a point immediately above the base to said upper edge, and adapted to fold bodily inward and downward, toward the face of the belt, without dipping into the material thereon in passing around the supporting-rollers, substantially as set forth.

594,221. FLUE-CLEANER. HENRY F. WEHLAND, Springfield, Ohio, assignor to Lagonda Manufacturing Co., same place. Filed July 2, 1897. Serial No. 643,242. (No model.)



Claim.—1. In a boiler-tube-cleaning tool, a shank or body, a plurality of spring-arms secured thereto, a plate shiftingly attached to each spring and one or more toothed wheels carried by each plate.

2. In a boiler-tube-cleaning tool, a body or shank having two sets of springs secured thereto, a plate secured to each spring, a pair of toothed wheels secured to each plate, the plates being shiftingly attached to the springs so as to move sidewise somewhat.

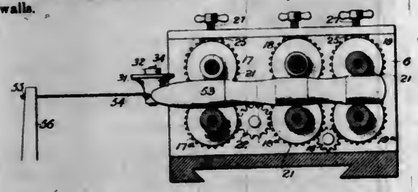
3. In a boiler-tube-cleaning tool, a shank or body having two sets of springs secured thereto, and means to expand one set of springs from each other or permit them to come closer together, a plate shiftingly secured to each spring so as to change the position laterally and one or more toothed wheels carried by each plate.

4. In a boiler-tube-cleaning tool, a shank or body having at one end a screw-threaded extension and a bar held by said nuts, four springs secured to the shank or body, two of which are engaged by the ends of said bar, a plate pivoted to each spring, a stud secured to each plate and shiftable in an opening or slot in the respective springs, and a pair of toothed wheels rotatably carried by each plate with their axes at right angles to said studs as to the respective paths.

594,222. MACHINE FOR TURNING LOCK-SEAMS ON SHEET-METAL CONDUCTORS. PHILIP R. ALEXANDER, Springfield, Mass. Filed Jan. 27, 1897. Serial No. 620,971. (No model.)

Claim.—1. In a machine of the kind specified, a plurality of sets of rolls for forming and turning a lock-seam, the first of said sets of

rolls being adapted to receive a conductor having a circular body portion with one edge provided with an inner radial lip and the other edge provided with an outer radial lip and a tangential flange and consisting of a supporting-roll and a face-roll provided with a groove, the depth of said groove being equal to the width of the seam to be turned, and the said groove being provided with straight and inclined walls.



2. In a machine of the kind specified, a plurality of sets of rolls for forming and turning a lock-seam, the first of said sets of rolls being adapted to receive a conductor having a circular body portion with one edge provided with an inner radial lip and the other edge provided with an outer radial lip and a tangential flange and consisting of a supporting-roll and a face-roll provided with a groove, having a straight wall situated upon the side thereof from which the seam is to be turned and an inclined wall situated upon the side toward which the seam is turned.

3. In a machine of the kind specified, a plurality of sets of rolls for forming and turning a lock-seam, the first of said sets of rolls being adapted to receive a conductor having a circular body portion with one edge provided with an inner radial lip and the other edge provided with an outer radial lip and a tangential flange and consisting of a supporting-roll and a face-roll provided with a groove having a straight wall situated upon the side thereof from which the seam is to be turned and an inclined wall situated upon the side toward which the seam is turned, said inclined wall meeting the outer face of the roll by a curved portion.

4. In a machine of the kind specified, a plurality of sets of rolls for forming and turning a lock-seam, the second of said sets of rolls consisting of a supporting-roll and a face-roll having a groove provided with a straight inclined rear wall and a deep wall on the side thereof toward which the seam is turned, said inclined rear and deep walls being connected by a curved portion.

5. In a machine of the kind specified, a plurality of sets of rolls for forming and turning a lock-seam, the second of said sets of rolls consisting of a supporting-roll and a face-roll having a groove, said groove being wider than the seam to be turned and having a straight inclined rear wall and a deep wall upon the side thereof toward which the seam is to be turned, said deep wall connecting with the rear wall by a curved portion and with the outer face of the roll by a sharp corner.

6. In a machine of the kind specified, a plurality of sets of rolls for forming and turning a lock seam, the first of said sets of rolls being adapted to receive a conductor having a circular body portion with one edge provided with an inner radial lip and the other edge provided with an outer radial lip and a tangential flange and consisting of a supporting-roll and a face-roll having a deep and narrow groove, the second of said sets of rolls consisting of a supporting-roll and a face-roll having a shallow and wide groove, and the third set of said rolls consisting of a supporting-roll and a plain face-roll.

7. In a machine of the kind specified, a plurality of sets of rolls for bending or turning down the stock forming the seam, and a single presser-roller situated between the first and second sets of rolls and adapted to come in contact with the overlapping flange on one side of the partially-bent lock-seam, and against the side toward which the seam is turned.

8. In a machine of the kind specified, a plurality of sets of rolls, each of said sets of rolls consisting of a supporting-roll and a face-roll mounted in sliding bearings, springs for lifting said bearings, and set-screws for moving said bearings in an opposite direction.

9. In a machine of the kind specified, a plurality of sets of rolls, each of said sets of rolls consisting of a supporting-roll, and an adjustable face-roll, and a presser-roller adjustably secured to the frame of the machine and situated between the first and second sets of rolls and adapted to come in contact with the overlapping flange on one side of the partially-bent lock-seam, and against the side toward which the seam is turned.

10. In a machine of the kind specified, a stationary plate, a movable plate, and a plurality of sets of rolls carried by rotatable spindles mounted in bearings upon said plates, said spindles being provided at one end with headed trunnions that are mounted in the bearings of the stationary plate, with straight trunnions mounted in the bearings of the movable plate, and with a longitudinal key to enter a groove upon the roller.

11. In a machine of the kind specified, a plurality of sets of supporting and face rolls, and a vertically and laterally adjustable presser-roller mounted upon the frame of said machine and situated between the first and second sets of said rolls.

12. In a machine of the kind specified, a plurality of sets of supporting and face rolls, and a presser-roller mounted at the upper end portion of the upright slide that is situated within an upright guide in the frame of the machine and between the first and second sets of said rolls and provided with an adjusting and set screw.

13. In a machine of the kind specified, a plurality of sets of supporting and face rolls, and a presser-roller mounted at the upper end portion of the upright slide that is situated within an upright guide in the frame of the machine and between the first and second sets of said rolls, a slot in said upright guide, and a headed set-screw extending through said slot and fastened to said frame and adjusting-screws upon said frame engaging said slide.

14. In a machine of the kind specified, the combination with the supporting and face rolls, of a pair of conical guide-rollers situated in front of the same, each of said guide-rollers consisting of a rotatable roller having a wide overhanging upper end portion, and a narrow inwardly-extending lower end portion adapted to embrace the conductor passing therethrough at and below its center.

15. In a machine of the kind specified, the combination with the supporting and face rolls, of a pair of guide rollers situated in front of the same, said guide-rollers being mounted upon pivoted levers; and set-screws for adjusting said pivoted levers.

16. In a machine of the kind specified, the combination with the supporting and face rolls, of a pair of guide-rollers mounted upon the inner ends, of levers pivoted to the frame of the machine, the outer end portions of said levers being situated close to the outside of said frame and being provided with set-screws engaging the same.

17. In a machine of the kind specified, a frame provided with a stationary side plate, a movable side plate, devices for moving said side plate, a plurality of supporting and face rolls mounted between said side plates, the rolls of each set being provided with intermeshing gearing, a gear-pinion intermeshing with the lower rolls of two of said sets and with a source of power, and an idler intermeshing with the lower roll of the third set and one of said first-mentioned sets.

18. In a machine of the kind specified, a pair of guide-rollers supported upon upright axes, a plurality of sets of rolls having horizontal axes and adapted to form and turn a lock-seam, the first of said sets of rolls, consisting of a supporting-roll and a face roll provided with a deep and narrow groove having straight and inclined side walls, the depth of said groove being equal to the width of the seam to be turned, the second of said sets of rolls consisting of a supporting-roll and a face-roll having a shallow and wide groove provided with an inclined rear wall, a deep wall on the side thereof toward which the seam is turned, said inclined rear and deep walls being connected by a curved portion, the third set of said rolls consisting of a supporting-roll and a plain face-roll, and a pressure-roller situated between the first and second sets of rolls and on the side thereof toward which the seam is turned, said pressure-roller being adapted to come in contact with the side of the partially-turned lock-seam.

594,228. HAIR-PIN. LOUIS G. BARSOW, Brooklyn, N. Y. Filed Dec. 4, 1896. Serial No. 614,472. (No model.)

Claim.—A hair-pin provided at one end with a point and intermediate its ends with a flattened resilient portion adapting the rear end of the pin to be bent so as to extend in the same direction as the pointed end of the pin, and a barb at or near the point of the pin for preventing backward movement thereof, substantially as described.

594,224. INSECT-SCREEN. ERNST C. F. BARTH, Philadelphia, Pa. Filed Apr. 10, 1897. Serial No. 631,496. (No model.)

Claim.—1. A screen having battens on the sides and bottom thereof, said battens being hinged together, the side battens being detachable from the screen and provided with means for connecting the same therewith, in combination with a window-frame having rollers mounted on the side stiles thereof and adapted to have the side battens move therein.

2. A screen having side battens detachably connected with the lower ends thereof and a bottom batten, adjustable in length, said side battens being hinged to said bottom batten, so as to fold thereon, and said bottom batten having clips to receive said side battens when so folded.

3. A screen, and battens at the sides thereof, in combination with fastening-heads, and sockets on said parts.

4. A screen provided with a batten at the bottom thereof, and battens at the sides thereof, said bottom and side battens being hinged together and provided with rule-joints, and said side battens being detachably connected with the screen.

594,224.



594,225. METAL-CRIMPING TOOL. PHILIP W. BERRIDGE, Sturgis, Mich. Filed Mar. 26, 1897. Serial No. 629,408. (No model.)



Claim.—1. The combination with a pair of pivotally-united handles, of a crimping-die fixed to one of the handles, and extending in a plane parallel with the pivotal axis of the handles, of a correspondingly-located oscillatory die secured to the other handle, and adapted to be actuated by engagement of the fixed die, substantially as set forth.

2. In a crimping-tool, the combination with one of its handles, of a die provided with a base-plate, and a crimping-plate extending out therefrom at substantially a right angle and a lug upon the base-plate, a recess in the handle adapted to receive the lug, registering apertures in the base-plate and handle, and a bolt adapted to enter said apertures and secure the die to the handle, substantially as set forth.

3. In a crimping-tool, the combination with one of its handles, of a die provided with a base-plate, and a lug upon the base-plate, of a recess in the handle of greater diameter than the lug, adapted to receive it, registering apertures in the base-plate and handle, and a bolt adapted to enter said apertures and secure the parts movably together, substantially as set forth.

594,226. CLOTHING-CABINET. LEO BLUMENBERG, Minneapolis, Minn. Filed Apr. 3, 1897. Serial No. 630,534. (No model.)

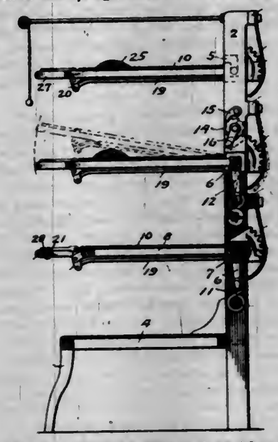
Claim.—1. The combination, in a clothing-cabinet, of a number of shelves, locks for securing the same, and means for automatically lifting any one of said shelves when it is released; substantially as described.

2. The combination, in a clothing-cabinet, of a number of hinged or pivoted shelves, with means for securing the same in substantially horizontal positions, and means for automatically lifting said shelves, substantially as described.

3. In a clothing cabinet or shelving, the combination of a series of hinged or pivoted shelves, with means for locking each shelf in a substantially horizontal position, means for releasing the same, and springs for automatically lifting or tilting said shelves when released, substantially as described.

4. The combination, in a clothing-cabinet, of a suitable support, of shelves removably pivoted or hinged thereon, springs for supporting the weight of the shelves and the articles on the same, and means for locking the shelves in horizontal positions, as and for the purpose specified.

5. In a clothing-cabinet, the combination, with hinged shelves and means for locking the same in a horizontal position, of springs to raise said shelves when the same are released, and means for adjusting the tension of said springs, substantially as described.



6. In a clothing-cabinet, the combination, with a series of hinged or pivoted shelves, with toothed segments provided upon said shelves, pawls to engage therewith, means for disengaging said pawls, and means for automatically lifting the shelves or any one thereof when released from engagement with respective pawls, substantially as described.

7. In a clothing-cabinet, the combination, with a series of hinged or pivoted shelves, each provided or connected with a toothed segment or part, a spring-pawl to engage therewith, thrust-rods provided upon said shelves to disengage the pawl opposite each of the same, a handle provided upon each shelf for the operation of its thrust-rod, and an adjustable lifting mechanism provided in connection with each shelf, substantially as described.

8. In a clothing-cabinet, the combination, of the hinged shelf, with the segment carried thereby, the pawl to engage said segment, the push-rod, the handle upon said shelf, and the handle arranged in connection with said rod and to be grasped with the handle of the shelf, as and for the purpose specified.

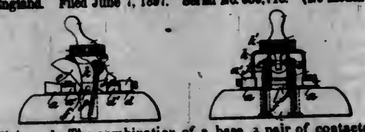
9. The combination, in a clothing-cabinet, of the hinged or pivoted shelves, means for locking the same in position, the spring shaft or arbor, the springs thereon, and adapted to automatically lift said shelves, substantially as described.

10. The combination, in a clothing-cabinet, of two or more hinged or pivoted shelves, means for automatically raising the same, means for locking the shelves, and means upon the lower shelf for unlocking the same and also unlocking the shelf above it, substantially as described.

11. In a clothing-cabinet, the combination, with a suitable support of two or more hinged shelves, pawls for securing said shelves in position, means for lifting the shelves, and a bar or rod engaging the pawl of the lower shelf and connected with the pawl of the shelf or shelves above the same, and means upon each shelf for operating the respective pawls, as and for the purpose specified.

12. The combination, with a suitable support, of a series of shelves hinged thereon, locks for securing the same in position, springs for lifting the shelves, a pivoted bar or lever engaging the lock of the lower shelf and having links or ties engaging the locks of the other shelves, and means upon the shelves for operating said locks, substantially as described.

594,227. ELECTRIC SWITCH. ALFRED C. BROOKES, London, England. Filed June 7, 1897. Serial No. 639,710. (No model.)



Claim.—1. The combination of a base, a pair of contacts fixed to the base, a contact pivoted to the base consisting of a U-shaped conducting-plate the sides of whose free ends respectively engage the contact-faces of the fixed contacts, and a tensional spring having one end fixed to the base, and the other end to the pivoted contact, the positions of the points of attachment being such that when the piv-

oted contact is moved from one extreme position to the other, the spring crosses from one side to the other of the pivot.

2. The combination of a base, a pair of contacts fixed to the base, a contact pivoted to the base consisting of a U-shaped conducting-plate the sides of whose free ends respectively engage the contact-faces of the fixed contacts, means tending to keep the pivoted contact in one or other of its extreme positions, a pin carried by the pivoted contact and insulated from it, and a forked lever embracing the pin.

3. The combination of a base, a pair of contacts fixed to the base, a contact pivoted to the base consisting of a U-shaped conducting-plate the sides of whose free ends respectively engage the contact-faces of the fixed contacts, a tensional spring having one end fixed to the base, and the other end to the pivoted contact, the positions of the points of attachment being such that when the pivoted contact is moved from one extreme position to the other, the spring crosses from one side to the other of the pivot, a pin carried by the pivoted contact and insulated from it, and a forked lever embracing the pin.

4. The combination of the base, a pair of contacts fixed thereto, a U-shaped contact-piece pivoted at or near its lower edges to the base and the sides of whose free ends are respectively adapted to engage the faces of the fixed contacts, a pin insulated from and connecting the sides of the U-shaped piece near their upper edges, a pivoted forked lever embracing the pin, and a tensional spring whose ends are respectively connected to the base and pivoted contact-piece, the points of connection being such that when the pivoted contact-piece is moved from one extreme position to the other the spring crosses from one side to the other of the pivot of said piece.

5. The combination of the base, a pair of contacts fixed thereto, a U-shaped contact-piece pivoted at or near its lower edges on lugs or pins carried by a screw-bolt seated in the base and the sides of whose free ends are respectively adapted to engage the faces of the fixed contacts, a pin insulated from and connecting the sides of the U-shaped piece near their upper edges, a pivoted forked lever embracing the pin, and a tensional spring whose ends are respectively connected to the base and pivoted contact-piece, the points of connection being such that when the pivoted contact-piece is moved from one extreme position to the other the spring crosses from one side to the other of the pivot of said piece.

6. The combination of the base, a pair of contacts fixed thereto, a U-shaped contact-piece pivoted at or near its lower edges to the base and the sides of whose free ends are respectively adapted to engage the faces of the fixed contacts, a pin insulated from and connecting the sides of the U-shaped piece near their upper edges, a lever operatively connected with and insulated from the pivoted U-shaped piece, a bridge-piece in which said lever is pivotally mounted, and a tensional spring whose ends are respectively connected to the base and pivoted contact-piece, the points of connection being such that when the pivoted contact is moved from one extreme position to the other the spring crosses from one side to the other of the pivot of said piece.

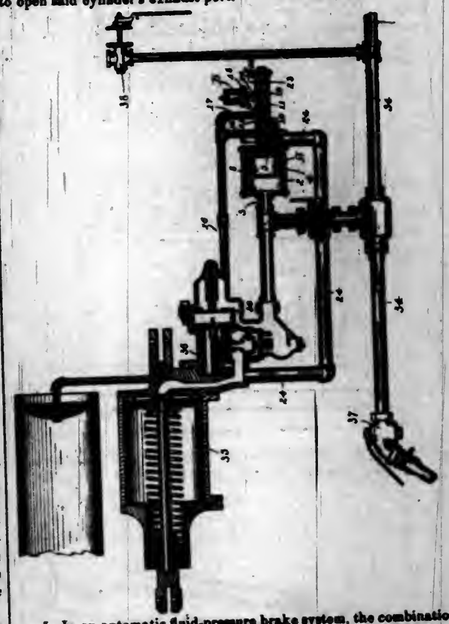
594,228. AIR-BRAKE. CHARLES B. BRUSSON, administrator of John W. Winters, deceased, St. Paul, Minn., assignor of five-eighths to Deville H. Kent and Jeremiah Webber, same place, and Albert J. Kos, Rochester, Minn. Filed Oct. 6, 1896. Serial No. 607,995. (No model.)

Claim.—1. The combination in a fluid-pressure brake system, of a pressure-retaining valve and a piston-valve for connecting and disconnecting the pressure-retaining valve and the brake-cylinder exhaust-port through the medium of the pressure in the brake-cylinder, and operated by reducing the train-pipe pressure below that for service application.

2. In an automatic fluid-pressure brake system, the combination of the train-pipe, the auxiliary reservoir, the brake-cylinder, the pressure-retaining valve, and the piston-valve adapted to connect and disconnect such pressure-retaining valve and brake-cylinder exhaust-port and operated by reducing the train-pipe pressure below that for service application.

3. In an automatic fluid-pressure brake system, the combination with the train-pipe, the brake-cylinder and the pressure-retaining valve, of means interposed in said system between said retaining-valve and said train-pipe and brake-cylinder, whereby the reduction of pressure in the train-pipe below that for service application serves to connect said valve with the brake-cylinder exhaust-port, and when thus connected by the train-pipe pressure being again in like manner reduced said valve is disconnected from said exhaust-port.

4. In an automatic fluid-pressure brake system, the combination with the brake-cylinder, the train-pipe, and the pressure-retaining valve, of the interposed means operative by the variations in pressure of the air in the train-pipe and that in the brake-cylinder, whereby the reduction of the pressure in the train-pipe below that for service application causes said means to connect said retaining-valve with the exhaust-port of said brake-cylinder, and when thus connected, and after the normal pressure has been restored and the train-pipe pressure being again reduced below that for service application said means serves to disconnect said valve from said brake-cylinder and to open said cylinder's exhaust-port.



5. In an automatic fluid-pressure brake system, the combination with the brake-cylinder, its auxiliary reservoir, the train-pipe and pressure-retaining valve, of the means connected with said cylinder, pipe and valve, automatically operative by the variations in pressure of the air in said pipe, and serving when the pressure in said pipe is reduced below that for service application to connect said valve with said brake-cylinder exhaust-port, and to maintain such connection to permit the normal pressure in said pipe to be restored so as to refill said reservoir, and serving when the train-pipe pressure is again reduced in like manner, to disconnect said valve from said cylinder and to open said cylinder's exhaust-port and permit the normal train-pipe pressure to be again restored.

6. In an air-brake system, the combination with the train-pipe, the brake-cylinder, the triple valve, the retaining-valve and the piston-stem valve, of the air-cylinder connected at one end with the train-pipe and at the other end with the brake-cylinder, the piston-cylinder working in said air-cylinder, and having a lateral opening communicating with the air-cylinder forward of the piston-cylinder, the piston working in said piston-cylinder and having an air-vent connecting the interior of the piston-cylinder with the outer air when the piston passes to the left of the lateral opening which connects the piston-cylinder with the outer cylinder, and operative connection between said piston and said piston-stem valve, substantially as described.

594,229. LOCK FOR STOP-COCKS, VALVES, &c. NELSON CLINE and JOHN FARRELL, Freedom, Pa. Filed Mar. 30, 1897. Serial No. 629,464. (No model.)



Claim.—1. In a locking device for cocks and the like, consisting of a casing, a cut-off plug in said casing, a nut in the bottom of said casing, a spring-actuated plug carried by said nut, engaging the cut-off plug, a key for operating the spring-actuated plug to unlock the same to permit the cut-off plug to be operated, substantially as shown and described.

2. In a locking device for angle-cocks and the like, the combination of the cock or valve, a plug therein, a lever for operating said plug, a nut secured in the base of said cock, a rack-post depending through said nut, a segment-bar arranged within a recess in said nut, said bar carrying a locking-bar to engage the plug, a tension-spring arranged within said nut, and means whereby the locking-pin may be disengaged from the plug so as to permit the operation of the same by the lever, substantially as shown and described.

594,230. SAFETY-PLUG FOR STEAM-BOILERS. CHARLES J. COLE, Pittsfield, Mass. Filed Apr. 5, 1897. Serial No. 630,908. (No model.)



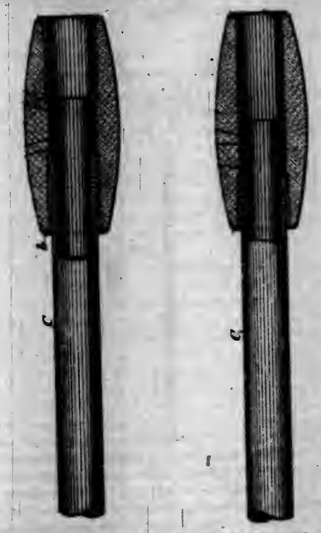
Claim.—1. A safety device for steam-boilers consisting of a plug adapted to be screwed into the boiler from the outside and having a central fusible plug and a water or steam chamber surrounding said plug, substantially as and for the purpose set forth.

2. A safety device for steam boilers adapted to be exteriorly screwed into the shell of the boiler and consisting of a plug having an inner water and steam receiving chamber, and a thin metal tube located centrally within said chamber and having a fusible filling, substantially as and for the purpose set forth.

3. A safety device for steam-boilers consisting of a plug adapted to be screwed into the boiler from the outside and having a rectangular head and an inner water and steam receiving chamber, and a central tube seated in said head and extending therefrom into said chamber and having a filling of fusible material, substantially as and for the purpose set forth.

4. A safety device for steam-boilers consisting of a plug having an outer threaded portion which is screwed into the shell of the boiler from the outside, a rectangular head resting on the outer face of the boiler-shell, a chambered inner portion extending within the boiler and a fusible plug centrally located within said chamber, substantially as and for the purpose set forth.

594,231. DETACHABLE HANDLE FOR BICYCLE HANDLE-BARS. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, same place and Portland, Me. Filed June 29, 1896. Serial No. 597,236. (No model.)



Claim.—1. The combination with a handle-bar or other like part having its end screw-threaded, of a handle composed of a suitable grip and a tube to support and retain the same, the said tube being screw-threaded interiorly to engage the screw-threaded portion of the handle-bar and being swaged down in the wake of said screw-threaded portion, whereby said tube and grip are supported firmly by the handle-bar, substantially as shown and described.

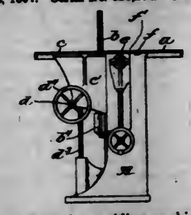
594,232. PNEUMATIC TIRE. LEO T. DARRAGH, London, England. Filed July 2, 1896. Serial No. 598,033. (No model.)



Claim.—1. The combination with the inflatable tube of a pneumatic tire, of dry, pulverized or granulated vulcanized rubber loosely contained within such tube adapted to be accumulated by adhesion over a spot or blob of rubber solution injected through a puncture and to thus confine such solution to a small circumscribed spot and to form in conjunction with the injected rubber solution an elastic patch within the tube, substantially as herein shown and described.

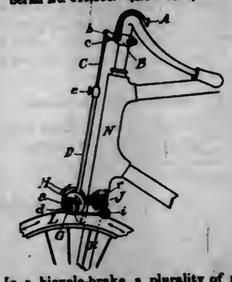
2. The combination with the inflatable tube of a pneumatic tire, of a dry, pulverized or granulated substance loosely contained within such tube, adapted to be accumulated by adhesion over a spot or blob of adhesive solution injected through a puncture and to thus confine such solution to a small circumscribed spot, and to form in conjunction with the injected adhesive solution a dry, elastic patch within the tube over the puncture, substantially as herein shown and described.

594,233. MOLDING-MACHINE. ADAM DICKEY, Boston, Mass. Filed Jan. 22, 1897. Serial No. 620,254. (No model.)



Claim.—In an irregular molding-machine, the combination of the main frame, the stationary table *a* thereon, the rising-and-falling table *c* and its supporting-frame *c'*, and means for adjusting said table *c* to a plane flush with said table *a* or above or below said plane, the front edge of said table *a* and the rear edge of said table *c* approximately abutting when said tables occupy the same plane, and the vertical cutter-carrying spindles *b* located between the abutting edges of said tables *a* and *c*, and means for raising and lowering them, substantially as described.

594,234. BICYCLE-BRAKE. ADRIAN W. DUDE, Oakland, Cal. Filed Oct. 23, 1896. Serial No. 610,308. (No model.)



Claim.—1. In a bicycle-brake, a plurality of rollers journaled upon shafts extending downwardly and forwardly at an obtuse angle with each other and means for forcing the rollers into contact with the tire.

2. In a bicycle-brake, a plunger-rod having shafts at its lower ends extending in opposite directions downwardly and forwardly at an obtuse angle, rollers on said shafts, frictional washers on the outer portions of the shafts to receive the outward pressure of the rollers and means for forcing the rollers in contact with the tire.

3. In a bicycle-brake and in combination with the brake-rod, an actuating bell-crank lever connected with the rod and having its free end curved over and behind the handle-bar so that the lever lies in the direction of the line of travel of the machine.

4. In a bicycle-brake, rollers journaled upon shafts extending downwardly and forwardly at an obtuse angle from their junction, a plunger rod fixed to the junction of said shafts extending upwardly having its upper end connected with one arm of a bell-crank lever,

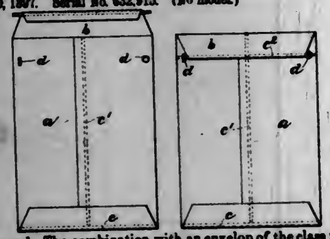
the other arm of said lever extending upwardly and bent backwardly above the handle-bar of the machine and having transverse extensions, a clamp fixed to the stem and below the handle-bar, a fulcrum-pin upon which the angle of the bell-crank lever is turnable whereby the brake is applied by moving the lever in the line of travel of the machine.

5. In a bicycle-brake, a bell-crank lever having one arm curved above the handle-bar, horizontal extensions upon the rear end of this arm whereby either hand may be employed to operate the lever, a clamp fixed to the stem of the handle-bar and below the bar having a fulcrum-pin in its forward portion upon which the angle of the bell-crank lever is turnable, a plunger-rod having the upper end connected with the forwardly-projecting arm of the bell-crank brake-lever, and the lower end connected with shafts which diverge downwardly and forwardly from the point of junction, rollers mounted and turnable upon said shafts, said rollers having essentially cylindrical faces to contact with the tire upon each side of a central line, screw-threaded frictional washers adjustable upon the ends of the roller-shafts and against which the outer ends of the rollers abut, and a spring extending forwardly from the lower part of the steering-head engaging the washers and supporting the plunger-shaft, and the rollers normally out of contact with the tire.

6. In a bicycle brake, a vertically-movable plunger-rod having its upper end connected with a bell-crank lever fulcrumed to move in line with the travel of the machine whereby the plunger-rod is depressed, shafts having the junction connected with the lower end of the plunger-rod and extending at an angle downwardly and forwardly from said junction, rollers journaled upon said shafts having the outer portion of their faces made cylindrical and the inner portion curved, screw-threaded washers fitting corresponding threads upon the outer ends of the roller-shafts whereby the frictional contact between said washers and the outer ends of the rollers is regulated, a spring secured between the forks at the lower end of the steering-post of the bicycle, serving to support the plunger-rod and the rollers normally out of contact with the bicycle-tire and having the forward ends adapted to enter perforations in the washers exterior to the rollers whereby the device is supported and the washers prevented from turning.

7. In a bicycle-brake, a vertically-movable plunger-rod having the upper end connected with a brake-lever fulcrumed to move in the line of travel of the machine, the lower end carrying downwardly and forwardly diverging shafts, rollers journaled upon said shafts and having cylindrical contact-surfaces to press upon the tire at each side of the central line, circular screw-threaded washers fitting and adjustable upon the ends of the shafts to form frictional contact with the outer ends of the rollers, a spring having its forward ends adapted to enter perforations in the washers, whereby the rollers are normally supported out of contact with the tire and the washers are prevented from turning, said spring extending rearwardly between the forks of the bicycle and bent transversely across behind said forks having a central portion, and means for securing it centrally within the fork-crown whereby said spring forms a yielding support to normally hold the rollers out of contact with the tire, a stop to prevent the rollers and plunger-rod from being moved forwardly when the brake is applied, and means for locking the frictional washers to prevent their rotation.

594,235. ENVELOP. MOSES H. EATON, Philadelphia, Pa. Filed Apr. 30, 1897. Serial No. 632,915. (No model.)



Claim.—1. The combination with an envelop of the class recited, of one or more straight elastic stiffening-wires secured thereto and extending across the length or width thereof, said wire or wires operating by reason of the elasticity thereof to preserve the flat position or contour of the envelop, substantially as described.

2. The combination with an envelop of the class recited, of elastic stiffening-wires secured thereto, one transversely along or across its bottom edge portion, a second midway longitudinally thereof, and a third along the free edge of its closing flap, said wires operating by reason of their elasticity to preserve the normal flat contour or position of the envelop, substantially as described.

3. In an envelop of the class recited, the combination with the flap of the elastic stiffening-wire along the free end thereof, the length of which wire is less than the width of the envelop, the ends of which wire project beyond the sides of the said tongue, together with the slots or the like in the body of the envelop whereby said ends of the wire can be sprung into said slots, and the wire then returned to the normal position, substantially as described.

4. In an envelop of the class recited, the combination with the closing-flap thereof, of a straight elastic stiffening-wire secured transversely along the free edge portion thereof and operating by reason of its elasticity to maintain the normal flat position of said flap, together with means whereby said wire and flap may be secured when the latter is turned over on the body of the envelop, substantially as described.

594,236. MECHANICAL MUSIC-BOX. PAUL EHRLICH, Leipsic-Gohlis, Germany. Filed Dec. 23, 1895. Serial No. 572,997. (No model.) Patented in Germany June 10, 1893, No. 79,601.

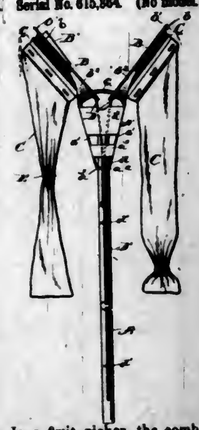


Claim.—1. In a music-box the combination of a plurality of steel tongues, a plurality of sound-producing devices, distinct from the tongues, star-wheels and levers arranged alongside of one another upon a shaft, and adapted to operate said tongue and sound-producing devices, substantially as shown and described.

2. In a music-box the combination of a plurality of steel tongues, a plurality of sound-producing devices, loosely-disposed star-wheels and levers arranged alongside of one another upon a shaft to operate said tongues and sound-producing devices respectively, and a music-sheet adapted to operate said wheels and levers, substantially as and for the purposes hereinbefore set forth.

3. In a music-box the combination of a plurality of steel tongues, a plurality of sound-producing devices, loosely-disposed star-wheels and levers arranged alongside of one another upon a shaft, and a music-sheet having projections in series to actuate the said star-wheels and levers, substantially as and for the purposes hereinbefore set forth.

594,237. FRUIT PICKER. DAVID J. BELT, Louisville, Ky. Filed Dec. 16, 1896. Serial No. 615,864. (No model.)



Claim.—1. In a fruit-picker, the combination of the pole, a relatively stationary open frame projecting therefrom and having a transverse connecting-strip at its front, cups each pivotally connected at one side of its mouth to the adjacent side of the frame, longitudinally-movable arms extending through said frame and provided with flanges to engage said transverse strip, the upper ends of said arms being pivotally connected with the adjacent sides of the cups, and means for raising and lowering said arms bodily to open and close the cups.

2. In a fruit-picker, the combination of the pole, hinged depending sacks, and a tube longitudinally adjustable upon the pole and around the lower ends of the sack to inclose and protect the same, as described.

3. In a fruit-picker, the combination of a pole, an open frame fixed upon the upper end thereof, arms movable longitudinally through said frame, rings having annular flanges b' and curved flanges b^2 projecting from said annular flanges at an angle therewith, said curved flanges being hinged both to the frame and arms, a sharpened blade projecting from one of said annular flanges, and means for moving said arms bodily to turn said rings upon their pivots.

4. The herein-described fruit-picker, comprising a pole, an open frame fixed upon the upper end and having a transverse connecting-strip at its front, arms movable longitudinally through said frame and provided with projections to engage said connecting-strip, rings having curved flanges each hinged at one side to the adjacent arm and at its other side to the contiguous side of the frame, a sharpened blade projecting from one of said rings, cups connected with said rings, and means for moving said arms bodily through said frame.

5. In a fruit-picker, the combination with the pole, and the open frame fixed upon the upper end thereof, of threaded rings each pivoted at one side to the adjacent side of said frame, arms movable longitudinally through said frame and pivoted to the other sides of said rings, removable cups having threaded mouths engaging the threaded rings, and means for moving said arms bodily.

6. In a fruit-picker, the combination of the hinged and threaded rings, and interchangeable pairs of cups, having threaded mouths, detachably secured to said rings.

7. The herein-described fruit-picker, comprising a pole, a frame secured to the upper end thereof, longitudinally-movable arms, threaded rings, having flanges hinged to said frame and arms, and interchangeable sets of cups threaded upon said rings, one set of said cups having depending sacks formed of a fabric, and the other set thereof being concavo-convex and formed of metal.

594,238. LAND-ROLLER. JOSEPH A. FISHER, Christiansburg, Va. Filed May 6, 1897. Serial No. 635,340. (No model.)



Claim.—In a land-roller, the combination with a supporting-frame, of land-rollers arranged end to end, an iron bar bolted to the supporting-frame and provided intermediate its ends with oppositely-projecting stud-shafts, journal-boxes secured to the side pieces of the frame, stud-shafts journaled in said boxes and having tapering inner ends provided with barbs embedded in the outer ends of the rollers, and journal-blocks, the inner ends of which are of greater area than the outer ends, said blocks embedded in the inner ends of the rollers and provided with journal-bearings to receive stud-shafts of the aforesaid bar, substantially as set forth.

594,239. COLLAPSIBLE LIFE-BOAT. WILLIAM F. FOORD, London, England, assignor of one-half to William Gowan, same place. Filed Oct. 13, 1896. Serial No. 608,730. (No model.) Patented in England Aug. 16, 1894, No. 15,006.

Claim.—1. A collapsible life-boat in which the sides of the boat are divided into parts hinged together both midway of their lengths and also near each end of the structure, these sides constituting also a part of the bow and stern, and the deck of the boat being divided longitudinally and transversely and hinged to such sides, substantially as and for the purposes set forth.

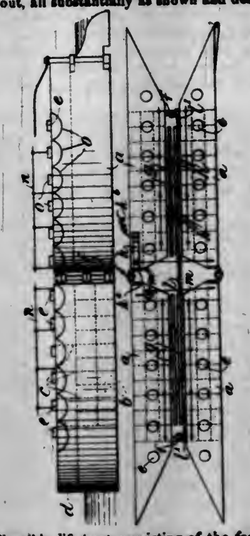
2. In a collapsible life-boat, the combination of a number of rafts each having at its extremity an inwardly-slanting side, hinged together centrally of their lengths and also near the inner ends of such slants, and having compartments filled with light buoyant material, of flaps hinged to the said rafts and to one another, substantially as shown and described.

3. In a collapsible life-boat, composed of four similar rafts each having its ends terminating in an angle as shown, and hinged together about centrally of the boat and also near the base of such angles, the combination therewith of flaps hinged to said rafts and to one another in pairs, and of means substantially as described for securing the boat in its collapsed and also in its opened-out positions.

4. In a collapsible life-boat the combination of a number of rafts hinged together, with flaps hinged to the same and to one another, a spring for opening out the boat and a wire rope and winch for collapsing the same, substantially as described.

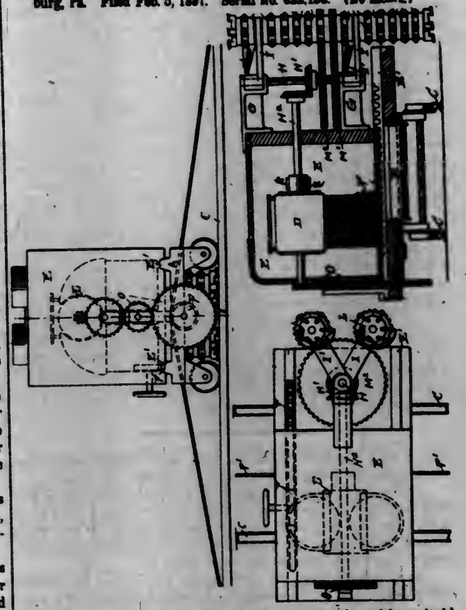
5. In a collapsible life-boat the combination of a number of rafts hinged together, with flaps hinged to the same and to one another a catch comprising a ring connected to one of the rafts and adapted to engage with a pin on an opposite raft and a hinged plate for disengaging the said ring, substantially as, and for the purpose, described.

6. In a collapsible life-boat having its hinged sides of the form and with the pointed ends substantially as shown, and adapted to meet together to form a sharp bow and stern when the sides are opened out, the combination therewith of flaps hinged to such sides and to one another, bars attached to certain of the flaps and serving to support the other flaps, and of bolts for holding the flaps together when opened out, all substantially as shown and described.



7. A collapsible life-boat consisting of the four rafts a, flaps g, hinged to the same and to one another, bars i, i, bolts j, j for locking the said flaps, spring l for opening out the boat, wire rope m, and winch m^3 for collapsing the boat, catch for locking the boat in its collapsed position, the said catch comprising the pin l^2, ring l^3, and plate or bar k as described and illustrated in the accompanying drawings.

594,240. COAL-MINING MACHINE. WILLIAM D. FORSYTH, Pittsburg, Pa. Filed Feb. 5, 1897. Serial No. 622,156. (No model.)



Claim.—1. In a mining-machine, the combination with a suitable frame or truck, of a reciprocating carriage mounted thereon, gear for reciprocating said carriage, arms pivoted to said carriage, and a cutting device journaled in said arms and comprising a carrier, a plural-

ity of swinging arms pivoted to the carrier, and a rolling cutter journaled to the free end portion of each of said arms, substantially as specified.

2. In a mining-machine, the combination with a reciprocating carriage having horizontally-extending arms pivoted thereto, of a cutting device journaled in said arms and comprising a carrier, a plurality of swinging arms pivoted to said carrier, and rolling cutters journaled to said arms, together with a device behind said carrier with which the free end portions of the cutter-carrying arms are adapted to impinge during a portion of their revolution, substantially as specified.

3. In a coal-mining machine, the combination with a frame, of a pair of vertical cylinders journaled therein side by side, and consisting each of a plurality of disks, each of which has pivoted thereto a series of arms, and rolling cutters journaled to said arms, the two cylinders having their bearings in said frame at different vertical points, substantially as specified.

4. In a coal-mining machine the combination with a frame, of a pair of vertical cylinders journaled thereon side by side, and carrying each a series of pivoted arms to which rolling cutters are journaled, and eccentric shields behind and adjacent to said cylinders, substantially as specified.

5. In a coal-mining machine, the combination with a frame, of a pair of vertical cylinders journaled therein, and composed each of a plurality of disks, a series of arms pivoted to said disk, a toothed cutter journaled to the free end portion of each of said arms, and eccentrically-placed shields behind and adjacent to each of said cylinders, substantially as specified.

6. In a coal-mining machine, the combination of a frame mounted upon suitable trucks, a carriage mounted to reciprocate upon said frame, and a pair of cutting-cylinders journaled side by side in said carriage and having each a plurality of pivoted arms, each of which has a cutter-disk journaled thereto, together with means for rotating said cylinders and for actuating said carriage, substantially as specified.

7. In a coal-mining machine, the combination of a frame mounted upon suitable trucks, a carriage mounted upon suitable guides thereof, means for operating said carriage, arms pivoted to said carriage to swing in a horizontal plane, a pair of cutter-cylinders journaled in said arms, and having each a plurality of pivoted arms, a rolling cutter-disk journaled to each of said arms, and a motor and gear for rotating said cylinders, substantially as specified.

8. The herein-described coal mining machine, comprising a frame mounted upon trucks, a carriage mounted to move back and forth in said frame, a motor supported on said frame, gear operated by said motor whereby said frame may be moved on its trucks, gear for actuating said carriage, arms pivoted to said carriage, a pair of cutter-cylinders journaled side by side in said arms and carrying each a series of pivoted arms free to rotate therewith, rolling cutter-disks journaled to said arms, gear for rotating said cylinders, and means for drawing said arms in toward the axis of the cylinders during a portion of their movement, substantially as specified.

9. In a coal-mining machine, the combination with a rotary cylinder having a plurality of arms pivoted thereto, and rolling cutters journaled to said arms, of a stationary device located behind the said cylinder and with which the free end portions of the said arms impinge during a portion of their revolution, substantially as specified.

10. In a mining-machine, a cutting-cylinder having a plurality of arms pivoted thereto, said arms being arranged in sets, and cutting wheels or disks journaled to the free portions of said arms, the said wheels or disks which are journaled upon the arms at the end portions of the cylinder being inclined with respect to the axis of said cylinder, substantially as and for the purpose described.

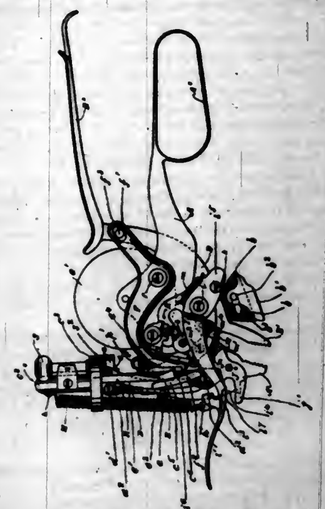
11. In a mining-machine, the combination with a supporting-frame, of a pair of cylinders journaled vertically in the said frame, side by side, and having their bearings in different horizontal planes, a plurality of horizontally-swinging arms pivoted to each of said cylinders, and cutter wheels or disks journaled to the free end portions of said arms, substantially as specified.

594,241. HAND LASTING-TOOL. ISAIE PRÉCHETTE, Montreal, Canada. Filed Jan. 23, 1897. Serial No. 621,092. (No model.)

Claim.—1. In a lasting-tool, the combination, with two pivoted levers provided with jaws, one of the said levers having a lug on its under side; of a shoe slidable on the said lug, means for connecting the said lug and shoe, and a spring operating to press the shoe away from the said jaws, substantially as set forth.

2. In a lasting-tool, the combination, with a lever A provided with a socket, and a nail-driving plunger slidable therein; of a lifter-bar pivoted to the said plunger, a retractable spring-pressed pawl for sustaining the said lifter-bar, and a plate secured to the said socket for the said pawl to rest against, substantially as set forth.

3. In a lasting-tool, the combination, with a lever A provided with a socket, and a nail-driving plunger slidable therein and provided with a projecting flange; of a thumb-screw engaging with the said flange and provided with an eccentric projection on its lower end for limiting the stroke of the plunger, and a spring bearing against the stem of the said thumb-screw and holding it steady, substantially as set forth.



4. In a lasting-tool, the combination, with two pivoted levers provided with jaws, one of the said levers being provided with a lug *a'*; of a foldable presser-piece V pivoted to the said lug crosswise of the said jaws and provided with curved ends for holding the upper down on the heel when turned downward so as to project below the said jaws, substantially as set forth.

5. In a lasting-tool, the combination, with a pivoted lever A provided with a guide for the lasting-nails; of a block secured in a recess in the said lever in front of the said guide, and a spring-pressed shoe slidable in the said block and pressing the nails against the said guide, substantially as set forth

6. In a lasting-tool, the combination, with a pivoted lever A; of a lever I, for operating the nail-feed, pivoted to the said lever and provided with a jaw which slides upon a curved guide-rib on the said lever and prevents the lever I from being displaced laterally, substantially as set forth.

7. In a lasting-tool, the combination, with a pivoted lever A provided with a socket, and a nail-driving plunger slidable in the said socket; of a lever I, for operating the nail-feed, pivoted to the said lever, and a spring connecting the lever I with the upper part of the said plunger, substantially as set forth.

8. In a lasting-tool, the combination, with a pivoted lever A; of an oscillatory nail-cutter journaled in a recess in the said lever, a lever I, for operating the nail-feed, pivoted to the lever A, and a lever J secured to the said nail cutter and operatively connected with the said lever I, substantially as set forth.

9. In a lasting-tool, the combination, with a pivoted lever A provided with a socket, and a spring-pressed plunger slidable in the said socket and provided with a lifter-bar; of a pawl provided with a laterally-projecting pin said pawl being pivoted to the said lever and sustaining the lifter-bar, and a lever I pivoted to the lever A below the said pawl and provided with an upwardly-projecting tappet arranged to strike the said pin and push the said pawl from under the lifter-bar, thereby permitting the plunger to descend, substantially as set forth.

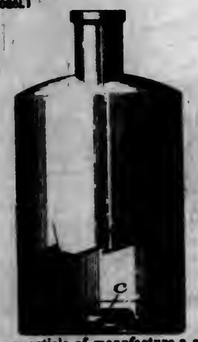
10. In a lasting-tool, the combination, with a lever A, and a lever M pivoted to the lever A and provided with means for feeding the nails; of a lever I pivoted concentric with the lever M, a toothed segment K pivoted concentric with the lever I and operatively connected to it, and a toothed segment L pivoted to the lever A in gear with the segment K and provided with a roller bearing on the upper side of the lever M, substantially as set forth.

11. In a lasting-tool, the combination, with a lever A, and a lever M pivoted to the lever A and provided with means for feeding the nails; of a lever I pivoted concentric with the lever M, and a spring connecting the levers I and M and constraining the lever M to rise with the lever I, substantially as set forth.

12. In a lasting-tool, the combination, with a lever A provided with a socket, a spring-pressed plunger slidable therein, and a nail-cutter pivoted in a recess in the said lever under the said plunger; of a lever J secured to the said cutter and provided with projections, and a lever I pivoted to the lever A and provided with a projection engaging with the said projections on the lever J, substantially as set forth.

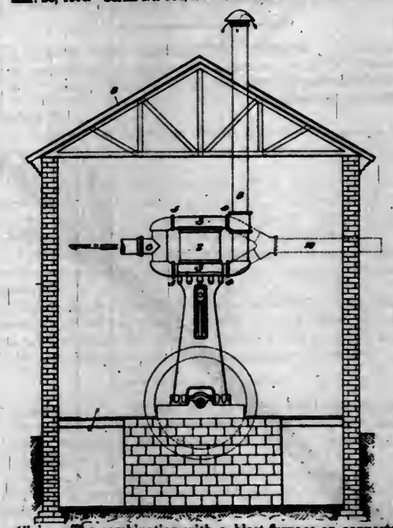
13. In a lasting-tool, the combination, with a lever A provided with a socket, and a spring-pressed plunger slidable therein and provided with a depending stop R; of mechanism for feeding the nails, and a lever I pivoted to the lever A and operatively connected to the said nail-feed mechanism, the said lever I being provided with a tappet which passes under the stop R when the lever I is depressed and prevents the nail-feed mechanism from being operated until the said plunger is raised, substantially as set forth.

594,242. BOTTLE. ALBERT A. FREEMAN, Philadelphia, Pa., assignor to John H. Scott, same place. Filed Nov. 17, 1894. Serial No. 529,062. (No model.)



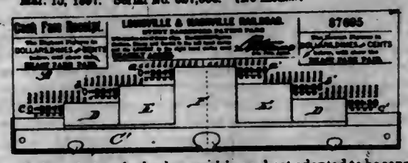
Claim.—As a new article of manufacture a glass bottle, having a recess in its wall provided with an inwardly-projecting rim, in combination with a coin of greater value than said bottle, held in said recess and having a portion of its outer face near its periphery engaged by said rim, the remainder of said face being uncovered, substantially as and for the purpose set forth.

594,243. APPARATUS FOR SUPPLYING AIR TO BLAST-FURNACES AND CONVERTERS. JAMES GAYLEY, Pittsburg, Pa. Filed Mar. 26, 1896. Serial No. 584,938. (No model.)



Claim.—The combination with a blast-furnace or converter, of an air-blowing engine which supplies air thereto and is inclosed in a building, and a pipe or conduit leading from a point outside the building to the air-inlet of said engine, whereby the air delivered to the furnace or converter is taken from the external atmosphere; substantially as described.

594,244. CASH-CHECK. JAMES D. GIBBS, Atlanta, Ga. Filed Mar. 15, 1897. Serial No. 627,008. (No model.)



Claim.—1. A cash-check comprising a sheet adapted to be severed to form a passenger's receipt and a stub and having thereon columns of figures in progression in double series representing money, each column being adapted to be severed through each of its series whereby the highest and lowest figures in the two series of the columns correspond to represent the fare paid.

2. A cash-check comprising a sheet adapted to be severed to form a passenger's receipt and a stub and having thereon parallel columns of figures in progression, each column of figures being composed of two series of the same figures representing money, fixed lengths of the sheet being adapted to be removed from the passenger's receipt through the columns of figures.

3. A cash-check comprising a sheet adapted to be severed to form a passenger's receipt and a stub and having thereon parallel columns of figures, each column having two similar sets of figures, the sets of the adjoining columns being arranged in a step-up and a step-down position with respect to each other.

4. A cash-check comprising a receipt or passenger's portion and a stub portion when severed and having a double series of the same characters in progression representing amounts of money and arranged in the same longitudinal column, a length of the ticket being removed through the column such length being fixed but taken from the check through the column at a place determined before severance whereby the highest and lowest characters in the series, respectively, will correspond to represent the amount paid.

5. A cash-check comprising a receipt or passenger's portion and a stub portion when severed and three parallel columns of figures representing dollars, dimes and cents, respectively, each column having two sets of figures in numerical progression beginning with "0" and ending with "9," the sets being arranged in a step-up and step-down position with respect to each other, fixed lengths of the check being severed from each column and cutting through each set of each column, the position of such severed lengths with respect to figures in the column being varied according to the fare paid.

6. A cash-check having arranged substantially at each end and in alinement a double set of similar figures or characters representing amounts of money, and having at a somewhat higher position along a line parallel with said first sets of figures and approaching the central portion of the ticket, a double set of similar figures or characters representing amounts of money of a different denomination and also having at a still higher position and occupying substantially the central portion of the check a third double set of similar figures or characters representing amounts of money of a still different denomination, whereby as fixed lengths are removed from each set at the desired adjustable position with respect to the check, the highest and lowest figures remaining in the sets, respectively, in each of the three series indicate the amount paid.

7. A cash-check having printed in column and substantially near each end a corresponding series of figures or characters representing amounts of money and having at a somewhat higher position along a line parallel therewith and beginning approximately at the inner ends of said first series, a column of figures or characters likewise in double set representing amounts of a different denomination and having also at a still higher position commencing substantially at the inner ends of said second series and occupying substantially the central portion of the check, a third column also composed of a double set of similar figures or characters representing amounts of money of still another denomination, fixed lengths being removed from each column at different positions with respect thereto according to the amount paid.

8. A cash-fare check having printed thereon six sets of figures commencing with "0" and ending with "9," and arranged in a step-up and a step-down position with respect to each other, the first and sixth sets being in alinement and representing the same denomination of money, the second and fifth sets being in a higher position and representing a denomination different from the first mentioned, and the third and fourth sets being in a still higher position and representing a still different denomination.

9. A ticket-cutter comprising a case or frame and cutting edges or rulers of different lengths and widths arranged in the frame and slidable upon each other the widest ruler being at the middle and forming steps downward from the middle toward each end.

10. A ticket-cutter comprising a case or frame and three slides or cutters arranged in the frame, the slides having decreasing lengths

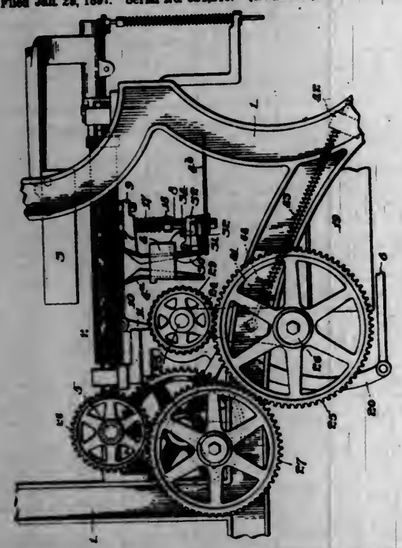
and increasing widths to form steps up and down, and slidable upon each other.

11. A cash-fare check having printed thereon six sets of figures from "0" to "9" both inclusive and arranged in a step-up and step-down position with respect to each other, the first and sixth sets being in alinement and representing dollars, the second and fifth sets being in a higher position and representing dimes and the third and fourth sets being in a still higher position and representing cents, in combination with a cutting or severing device comprising three cutters slidable upon each other and decreasing in length as they increase in width, the lowest cutter being the longest and adapted to remove a fixed length from the dollar-column but adjustable in position thereon and the other cutters adapted to remove fixed lengths from the dimes and cents columns and likewise adjustable along such columns.

12. A ticket-cutter comprising a case adapted to hold a pile of tickets, a strip movable in the case and a series of cutters having different widths and lengths and adjustable on the strip.

13. A ticket-cutter comprising a case adapted to hold a pile of tickets, a member movable in the case and a series of cutters adjustable on said member, such cutters being slidable upon each other and having decreasing lengths and increasing widths to form steps up and down.

594,245. PAPER-FOLDING MACHINE. JAMES GILL, Philadelphia, Pa., assignor to the Chambers Brothers Company, same place. Filed Jan. 29, 1897. Serial No. 621,219. (No model.)

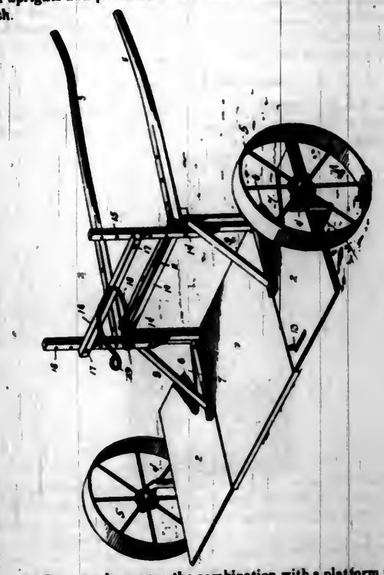


Claim.—1. In a folding-machine of the class recited, the combination of the folding-rollers and the shoo-fly, the rollers journaled to and projecting into the transfer-box of the latter, and the opposed coacting rollers; together with means for reciprocating the same at predetermined intervals, contiguous to and away from the first-mentioned rollers, substantially as and for the purpose set forth.

2. In a folding-machine of the class recited, the combination with the folding-rollers and the shoo-fly of the rollers journaled to and projecting into the transfer-box of the latter, means for swinging said box on its pivot, at predetermined intervals, the shaft having the rollers, 29, opposed to the first-mentioned rollers, the pivoted arm, 22, to which said shaft is journaled, the arm, 39, connected to arm, 22, the shaft, 36, carrying the cam adapted to impinge against arm, 39, means for imparting a rotary motion to said shaft and arm; together with the spring adapted to draw arm, 22, and, consequently, the rollers, 29, toward the said rollers carried by the transfer-box, at an interval in the rotation of said cam, all constructed and adapted to operate substantially as and for the purpose set forth.

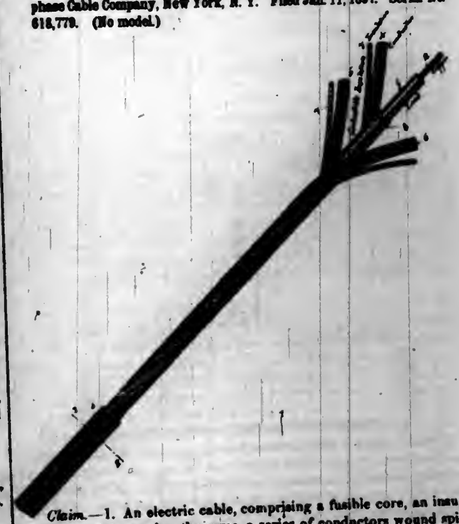
594,246. CORN-HARVESTER. WILLIAM H. GORTON, Angola, Kans., assignor of one-half to Thomas Scurr, Jr., Coffeyville, Kans. Filed Aug. 1, 1896. Serial No. 601,260. (No model.)

Claim.—1. In a corn-harvester, the combination of a shock-forming platform mounted to tilt rearwardly, fixed platforms at the sides of the shock-forming platform provided with cutting apparatus, uprights at the inner forward corners of the side platforms, a cross-bar connecting the uprights intermediate of their ends and extending in front of the shock-forming platform to limit the forward movement of the stalks, thills secured to the cross-bar, braces connecting the terminals of the cross-bar and the rear ends of the thills with the side platforms and forming guards between them and the shock-forming platform, and a cross-beam having adjustable connection with the said uprights and provided with a shock-holder, substantially as set forth.



2. In a corn-harvester, the combination with a platform provided with cutting mechanism, of a spring-holder for receiving and retaining the stalks during the formation of a shock, constructed of a single length of stout wire bent into an approximately circular form and having its end portions separated for the ready admission of the stalks and bent to provide finger-grips, substantially as set forth.

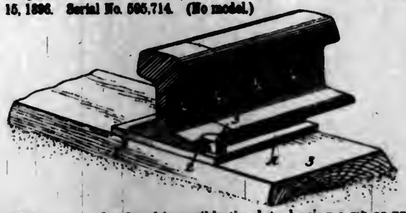
594,247. ELECTRIC CABLE. JOHN D. GOULD, Brooklyn, N. Y., assignor, by direct and mesne assignments, to the Montauk Multiphase Cable Company, New York, N. Y. Filed Jan. 11, 1897. Serial No. 618,779. (No model.)



Claim.—1. An electric cable, comprising a fusible core, an insulating material covering the same, a series of conductors wound spirally around said insulating material, and an insulating-cord wound between adjacent spirally-wound conductors, substantially as specified.

2. An electric cable, comprising a fusible core, a copper or similar wire extended longitudinally through said core, an insulating material covering the core, a series of conductors wound spirally around said insulating material, and an insulating-cord wound spirally around the insulating material between adjacent spirally-wound conductors, substantially as specified.

594,248. TIE-PLATE. WILLIAM F. GOULD, Des Moines, Iowa, assignor of one-half to Webster Bishop, New York, N. Y. Filed June 15, 1896. Serial No. 595,714. (No model.)



Claim.—1. A flat-faced invertible tie-plate having a rib or projection on one surface near one edge adapted to engage a railway-tie and the edge of the flange of a rail, and a spike-opening adjacent the said projection, and a corresponding rib or projection and perforation on the opposite side of the plate near the other edge, substantially as shown and described.

2. An invertible tie-plate having a rib or projection upon its opposite faces adapted to engage the flange of the rail or to enter a recess in the tie according to its position and provided with spike-openings, the spike-openings being in such relation to the ribs as to permit the heads of the spikes to overlie and engage the said flange, substantially as described.

3. An invertible tie-plate having counterpart top and bottom faces and ribs and perforated so that the perforations will not coincide with previous spike-openings in the tie when the plate is inverted, substantially as described.

594,249. RAILWAY-TIE PLATE. WILLIAM F. GOULD, Des Moines, Iowa, assignor of one-half to Webster Bishop, New York, N. Y. Filed Feb. 13, 1897. Serial No. 623,305. (No model.)



Claim.—1. An invertible tie-plate provided with a rib on its opposite faces, the ribs being in the same vertical plane, substantially as described.

2. An invertible tie-plate provided with a rib on its opposite faces, the ribs differing from each other in cross-section, substantially as described.

3. An invertible tie-plate having a rib on each of its faces the ribs being in the same vertical plane and having a number of spike-openings in different positions with relation to the ribs to adapt the plate for rails of various sizes, substantially as described.

4. A tie-plate provided with an opening, and a cushion adapted to said opening and arranged to bear on the tie and rail, substantially as described.

5. The combination with a rail, of a tie having a recess along the outer edge of the rail, and an invertible tie-plate having ribs in the same vertical plane one entering the recess and the other bearing against the outer edge of the rail, substantially as described.

594,250. SHREDDER-CYLINDER FOR FODDER-MILLS. CHARLES P. HALDEMAN and ELMER W. SILVER, Salem, Ohio, assignors to the Silver Manufacturing Company, same place. Filed Feb. 3, 1897. Serial No. 621,813. (No model.)

Claim.—1. In a shredder-cylinder the combination with adjustable heads, of gear-teeth interposed between the heads for interlocking same, and a series of shredder-blades between which blades and gear-teeth there is an absence of an exact ratio, substantially as described.

2. In a shredder cylinder the combination with corrugated adjustable heads, of gear-teeth interposed between said heads for interlocking same, and a series of shredder-blades carried by each head in different planes, substantially as described.

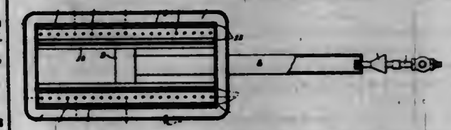
3. In a shredder-cylinder the combination with a series of adjustable heads, of suitable shredder-blades carried thereby, and a clutch mechanism comprising external and internal gears for interlocking said heads in operative relation, substantially as described.



4. In a shredder cylinder the combination with a series of adjustable heads, of suitable shredder-blades carried thereby, and a clutch mechanism comprising external and internal gears with tapering teeth for interlocking said heads in operative relation, substantially as described.

5. In a shredder-head the combination with a surrounding flange formed of diametrically opposite spirals, and shredder-blades supported upon said flange in adjacent planes, substantially as described.

594,251. FUEL-GAS BURNER. ROBERT HENDERSON, Pittsburg, Pa. Filed Jan. 26, 1897. Serial No. 620,838. (No model.)



Claim.—1. A fuel-gas burner having upwardly and inwardly tapering sides and perforations in the top, a surrounding outer wall forming a closure for the ends of the burner-chamber, said wall being parallel with the sides of the burner-chamber, an air-space being formed between said wall and the sides of the burner, said wall being turned up to form a continuous water-trough, substantially as set forth.

2. A fuel-gas burner comprising a series of perforated burner-chambers, means for supplying gas and air to said chambers, a surrounding outer wall forming a closure for the ends of the burner-chambers, said wall being parallel with the sides of the burner-chambers, and inner partitions also parallel with the inner sides of the burner-chambers, air-spaces being formed between the outer sides of the burner-chambers and the surrounding outer wall and between the inner sides of the burner-chambers and the partitions, the outer wall being turned up to form a continuous water-trough, substantially as set forth.

594,252. KITCHEN-TABLE. RUDOLPH J. HEFNER, Jersey City, N. J. Filed Nov. 13, 1896. Serial No. 611,960. (No model.)



Claim.—1. The combination with a kitchen-table, of a bin pivoted in the body of the table, the rear portion of the bin being of elliptical form, and a stop-bar attached to the rear surface of the said bin and having its outer surface inclined, the back board of the body of the table having an inclined inner face to engage the outer inclined surface of the stop-bar when the bin is closed to limit its inward movement, and the upper surface of the body having a pro-

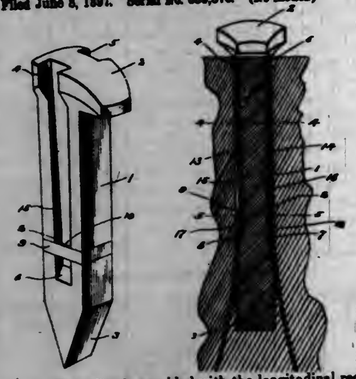
jecting portion adapted for engagement with the said stop-bar when the bin is opened, to limit the outward movement of the bin, as and for the purpose set forth.

2. A kitchen-table, comprising a box-body having an opening in its front portion extending from the bottom edge, a second opening in the front near the top of the table adapted to receive a pastry-board, and compartments provided with drawers located at opposite sides of the lower opening, and a bin pivoted in the body of the table and extending upward into the said lower opening of the body and below the said opening, the said bin being provided at its rear portion with a stop-bar adapted to engage a projection at the upper portion of the body to limit the outward movement of the bin, the said stop-bar having its outer surface shaped to engage with a corresponding surface on the rear portion of the body of the table to limit the inward movement of the bin, as and for the purpose set forth.

3. The combination with a kitchen-table having an opening in the front central portion of the body, extending from the bottom edge, of a bin extending upward into the said opening of the body and below the body, the said bin being provided with a straight front board, and end boards straight at their upper forward portions, but elliptical throughout the rest of their contour, a bottom attached to the lower edge of the front board and to the lower and rear edges of the end boards, trunnions secured to the end portions of the bin and located forward of the center, hangers attached to the bottom of the body and receiving the said trunnions, and a stop-bar secured to the rear portion of the bin and extending from one end board of the bin to the other, the said stop-bar being arranged for engagement with the upper surface of the body to limit the outward movement of the bin, and having its outer surface shaped to engage with the rear of the said body to limit the inward movement of the bin and form a tight closure, as and for the purpose set forth.

4. A kitchen-table, comprising a body portion formed with compartments at its sides and having an opening at its front portion extending from the bottom edge and a second opening near the top of the table, a bin pivotally attached to the body of the table and extending upward into the said lower opening in the body and below the body, a stop-bar at the rear of the said bin, the said stop-bar having its outer surface inclined and adapted when the bin is closed to engage an inclined face on the back board of the body of the table, the said stop-bar when the bin is opened being adapted to engage with the upper surface of the body of the table, as and for the purpose set forth.

594,258. RAILROAD-SPIKE. JAMES A. R. HINTON, Longview, Ala. Filed June 8, 1897. Serial No. 639,870. (No model.)



Claim.—1. The spike 1, provided with the longitudinal recesses 4 and 5, the lower ends of which terminate in beveled shoulders 6 and 7 and the transverse recess 8, arranged above said shoulders, in combination with the encompassing band 9, engaging the recess 8 and the staple 12 having its parallel arms 13 14, adapted to engage said longitudinal recesses between said band and the body of the spike, substantially as shown and described.

2. The spike 1, provided with the longitudinal recesses 4 and 5, and the transverse recess 8, in combination with the band 9, engaging the recess 8 and the staple 12, the integral arms 13 and 14 being provided with transverse notches 17 and 18, adapted to engage said band when the staple is inserted in said spike, substantially as shown and described.

594,254. CORN-CULTIVATOR. PHILIP JARVIS, Cedar Rapids, Nebr. Filed July 8, 1897. Serial No. 643,909. (No model.)

Claim.—1. In a corn-cultivator, the combination with a transverse main beam, the plow-beams attached thereto for lateral adjustment, and a draft appliance, of the runners fastened to the ends of the transverse beam, and the guide and cutter plates attached rigidly to the runners and projecting below the edges thereof, for the purposes described, substantially as set forth.



2. In a corn-cultivator, the combination with a transverse main beam, and the draft-tongues, of the standards rigidly attached to the transverse beam, the cultivator-beams pivoted to the standards, the doubletrees pivoted to the tongues, the draft-bars carrying the whiffletrees and linked to the standards, and braces for said standards, as and for the purposes described.

3. In a corn-cultivator, the combination with a main transverse beam, and the draft-tongues, of the cultivator-beams loosely fitted on the standards, the spacing sleeves or collars on the standards to hold the beams from vertical play thereon, the vertical draft-bars, the doubletrees, the links connecting said draft-bars with the standards, and the braces attached to the standards and to the draft-tongues, as and for the purposes described.

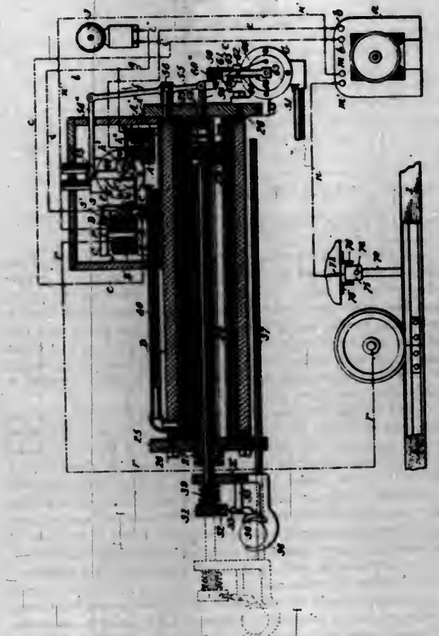
594,255. PORTABLE GOLD-WASHER. FELIX KAHN, Laredo, Tex. Filed Apr. 15, 1897. Serial No. 632,215. (No model.)



Claim.—1. The rotatable basin having a discharge-pipe which opens on the inner side and near the top of the same, and water-passage arranged exteriorly and communicating with such pipe, for aiding the centrifugal outflow of material, by induction, as shown and described.

2. In a portable gold-washer, the combination, with the tank and contained basins, of the rakes adapted to work in the latter, transverse bars supported removably on the sides of the tank and carrying said rakes, and a rotatable spindle connected with the bars and carrying the aforesaid basins, as shown and described, whereby the basins, rakes, bars, and spindle form a connected apparatus which is adapted to be readily inserted in or removed from the tank, as specified.

594,256. ELECTRIC RAILWAY SIGNAL AND SAFETY DEVICE. KOBY KOHN, Seward, Nebr. Filed Mar. 8, 1895. Serial No. 540,970. (No model.)



Claim.—1. The combination with an electric conductor alongside the track, and devices on the train maintaining electric contact with said conductor, of the steam-valve 46, the lever carried by the spindle of said valve, the armature engaging said lever, the coils A, A', and the wire connections for energizing the same, the rod 58, normally pressed outward, and pivoted movable connections between said rod and the upper end of said lever, substantially as described.

2. The combination with an electric conductor alongside the track, and a pendent swinging arm on the train carrying a brush maintaining electric contact with said conductor, of the steam-valve 46, the lever carried by the spindle of said valve, the armature engaging said lever, the coils A, A', and the wire connections for energizing the same, the rod 58 normally pressed outward, and pivoted movable connections between said rod and said lever, substantially as described.

3. The combination with the throttle-valve of an engine, of the steam-valve 46 and its casing, the lever carried by the spindle of said valve, the armature engaging said lever, the coils A, A', and the wire connections for energizing the same, the rod 58, normally pressed outward, pivoted movable connections between said rod and lever, a steam-cylinder communicating with the valve casing, a piston working in said cylinder, and connections between the said piston and throttle-valve, substantially as described.

4. The combination of the steam-valve 46, and its casing, the lever carried by the spindle of said valve, the armature A^3 engaging the lower arm of said lever, the coils A, A', and the wire connections for energizing the same, the rod 58 normally pressed outward, and pivoted movable connections between said rod and the upper end of said lever, substantially as described.

5. The combination with the steam-valve 46, and the throttle-valve of an engine, of the cylinder D, the piston and its rod, the hanger formed with the bracket and having the guide-rod 37, the pivoted arm operating the throttle-valve, and the nut or cap on the end of the piston-rod forming a movable connection with said pivoted arm, and the spring 39, all operating substantially as shown and described.

6. The combination with the steam-valve 46, and its casing, of the lever 53, the coils A, A', the armature engaging said lever, the rod connecting the upper end of the lever, the vertically-disposed lever 55 movably connected to the rod, the piston 29, and cylinder, the rod 58 normally pressed outward, means for energizing the coils, and a pipe leading from said valve to one end of said cylinder, substantially as shown and described.

7. The combination of the steam-valve, the lever connected therewith, a steam-cylinder communicating with the steam-valve, a piston in the cylinder and devices connected therewith leading to the throttle valve, a spring-pressed rod, and electrically-controlled devices for engaging and releasing said lever, substantially as described.

8. The combination of the steam-valve, the lever connected therewith, a steam-cylinder communicating with the steam-valve, a piston in the cylinder, and devices connected therewith leading to the throttle-valve, a spring-pressed rod, and a pivoted lever and a rod connecting said spring-pressed rod with the lever connected with the steam-valve, and electrically-controlled devices for engaging and releasing said latter lever, substantially as described.

9. The combination with the steam valve and its lever 53, and electrically-controlled devices engaging and releasing said lever, of the connecting-rod 54^a, the pivoted vertical lever movably joined to said rod, a spring-pressed rod operating said lever in one direction, and a steam-pressed piston for resetting said parts, substantially as described.

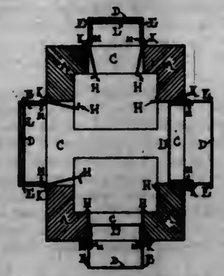
10. The combination with the steam-valve and its lever 53, and electrically-controlled devices engaging and releasing said lever, of the connecting-rod 54^a, the pivoted vertical lever movably joined to said rod and having the tappet at its lower end, a spring-pressed rod operating said lever in one direction, and a steam-pressed piston for resetting said parts, the air-valve, the two-part lever with a spring pressing against the upper part in one direction, and the restoring-spring for said lever, substantially as described.

11. The combination of the steam-valve, the cylinder, a pipe leading from said valve to said cylinder, the rod 58, and its spring, the vertically-disposed lever movably connected at its lower end to said rod, the rod 54^a, and the lever carried by the spindle of the valve, the armature engaging said latter lever, the coils A, A', and means for energizing the latter to release the armature, substantially as described.

12. The combination of the air-valve, the jointed lever carried thereby, the spring for restoring said lever after the valve has been shifted, the spring pressing against the upper joint of said lever, and a tappet and spring-pressed piston for operating said valve, substantially as described.

13. In electric signal and safety devices embodying a pendent arm on a train in electrical contact with a conductor alongside the rails, the conductors disconnected at suitable points beyond the rails at a crossing, and the blocks $8'$, $8'$ and 9^a, arranged between the rails intermediate the ends of the conductors, substantially as shown and for the purpose described.

594,257. CHIMNEY-TOP DRAFT-REGULATOR. BENJAMIN R. LEWIS, Bridgeport, Conn. Filed May 27, 1896. Serial No. 593,253. (No model.)



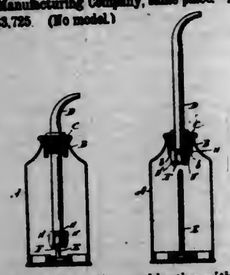
Claim.—1. In a chimney-top, the combination of a stone cap B and a flue-opening shield D, whose supporting sides E, E, constitute side linings of the flue-opening, substantially as shown.

2. In a chimney-top, the combination of a stone cap B, and a flue-opening shield D having supporting sides E, E constituting side linings of the flue-opening, and having interior flanges H, H, substantially as shown.

3. In a chimney-top, the combination of a stone cap B, and a flue-opening shield D having supporting sides E E constituting side linings of the flue-opening with interior flanges H, H, and exterior flanges K, K, substantially as shown.

4. In a chimney-top the combination of a stone cap B, and a flue-opening shield D having supporting side pieces E, E, constituting side linings of the flue-opening, having interior flanges H, H, and exterior flanges K, K, and having also a reversible clamp L, substantially as shown.

594,258. OIL-CAN. JOHN LIEBS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Apr. 24, 1897. Serial No. 633,725. (No model.)



Claim.—1. In an oil-can, the combination with the fount thereof, of a nipple located in the neck of the said fount, a removable cap located in the nipple, a longitudinally-movable spout mounted in the said cap, a guide-pin connected with the bottom of the fount and entering the spout when the same is pushed inward into the fount, and means located at the inner end of the spout and coacting with the nipple for locking the spout against rotation when in its fully-projected position, the said spout and its locking means being adapted to be withdrawn through the nipple after the removal of the cap therefrom.

2. In an oil-can, the combination with the fount thereof, of a nipple located in the neck of the fount and formed at its inner end with locking lugs having spaces between them, a removable cap located in the said nipple, a longitudinally movable spout mounted in the said cap, a guide-pin connected with the bottom of the fount and entering the spout when the same is pushed inward into the fount, and locking-fingers located at the inner end of the spout and passing between the said locking-lugs when the spout is in its fully-projected position, the said nipple and locking-fingers being constructed to permit the withdrawal of the spout through the nipple when the cap is removed therefrom.

3. In an oil-can, the combination with the fount thereof, of a nipple located in the neck of the said fount, and formed at its inner end with locking-lugs having clearance-spaces between them, a removable cap located in the nipple, a longitudinally-movable spout mounted in the cap, a guide-pin connected with the bottom of the fount and entering the spout when the same is pushed inward into the fount, and a ring applied to the inner end of the spout and formed with inwardly-projecting locking-fingers which will pass through the spaces between the locking-lugs of the nipple and which will lock the spout against rotation when the same is in its fully-projected position.

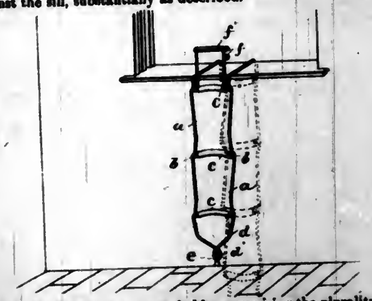
4. In an oil-can, the combination with the fount thereof, of a nipple located in the neck of the said fount, a removable cap located in the said nipple, a longitudinally-movable spout mounted in the said cap, a guide-pin connected with the bottom of the fount and entering the spout when the same is pushed into the fount, and a packing-cup secured to the inner end of the spout and containing a packing which forms a close fit with the guide-pin when the spout is thrust into the fount.

5. In an oil-can, the combination with the fount thereof, of a nipple located in the neck of the said fount, a removable cap located in the said nipple, a longitudinally-movable spout mounted in the said cap, a guide-pin connected with the bottom of the fount and entering the spout when the same is pushed inward into the fount, a cap applied to the inner end of the spout and containing a packing forming a close fit with the guide-pin when the spout is pushed inward, and locking-lugs also connected with the inner end of the spout and extending over the said cap and coacting with the inner end of the nipple for locking the spout against rotation when in its projected position.

6. In an oiler, the combination with the fount, a vertical guide-pin therein, of the longitudinally-movable spout, the internal diameter of which is greater than the diameter of said pin, a cap applied to the lower end of said spout and containing a packing with which the pin will closely engage, substantially as described.

594,259. FIRE-ESCAPE. MARSHALL S. LODEWICK, Saratoga Springs, N. Y.; Cora B. Lodewick administratrix of said Marshall S. Lodewick, deceased. Filed Feb. 8, 1897. Serial No. 622,534. (No model.)

Claim.—1. A folding fire-escape ladder comprising the U-shaped wire links, the ends of the two sides of each link coiled around the extremities of the closed end of the adjacent link so as to turn thereon, each link having the enlarged curved rung at its closed end and between and separating and receiving the inward thrust of the coiled ends of the link sides of the adjacent link, said ladder formed for securing at or near a window and having a link formed for bending over a window-sill, and a swinging handhold loosely coupled to the inner portion of the ladder below the sill and arranged to swing against the sill, substantially as described.

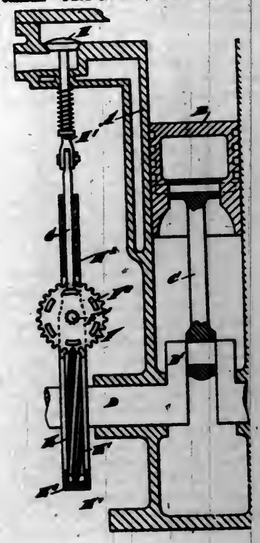


2. The folding fire-escape ladder comprising the plurality of pivotally-joined U-shaped wire links arranged to swing on one another when folded, the ends of the sides of each link coiled around the extremities of the closed end of the next adjacent link to turn thereon, and means forming an enlarged rung at the closed end of each link between said coiled ends of the sides of the next link and by which said coiled ends are held separated and which receives the inward thrust of said coiled ends, said enlarged rungs centrally deflected or curved, for the purpose stated.

3. A folding fire-escape ladder comprising the pivotally-joined U-shaped wire links, the ends of the two sides of each link coiled loosely around the extremities of the closed end of the next adjacent link with the extremity of each coil at the inner side thereof, and a metal tube on the closed end of each link between said coiled ends of the sides of the next adjacent link and against the ends of which said coils abut, for the purpose stated, said tubes held against turning and the links formed to cause said coiled ends of the sides to press inward against the ends of the tubes, substantially as described.

4. A fire-escape made up of loosely-joined wire links capable of folding one on the other, the end link having a strong eye adapted for securing in a room beneath a window, an intermediate link formed to bend over the window sill and depend therefrom at the inner side of the sill, a tube at the inner depending end of said link, and a handhold or grip passed through said tube and extending upwardly therefrom with the cross-piece at its free end so that in use the lower portion of the handhold will bear against the inner edge of the sill with said cross-piece arranged a distance above the sill, substantially as described.

594,260. VALVE-GEAR FOR GAS-ENGINES. FRANK S. MEAD, Montreal, Canada. Filed Nov. 14, 1896. Serial No. 612,061. (No model.)



Claim.—1. A valve-gear, comprising an eccentric formed at its disk with cam or worm teeth, a toothed wheel in mesh with the said disk and journaled on the eccentric-rod and means for operating the valve from the toothed wheel, substantially as shown and described.

2. A valve-gear, comprising an eccentric formed on its disk with teeth, a toothed wheel in mesh with the said disk and carrying lugs for intermittently engaging the valve-stem, the said wheel being journaled in the eccentric-rod and reciprocating with the same, substantially as shown and described.

3. A valve-gear, comprising an eccentric, and a wheel for controlling the valve and journaled on the eccentric-rod, to reciprocate with the latter, the said wheel being in mesh with the disk of the said eccentric, substantially as shown and described.

4. A valve-gear, provided with an eccentric, and a wheel journaled on the eccentric-rod and controlling the movement of the valve, the said wheel receiving an intermittent rotary motion from the said eccentric-disk, substantially as shown and described.

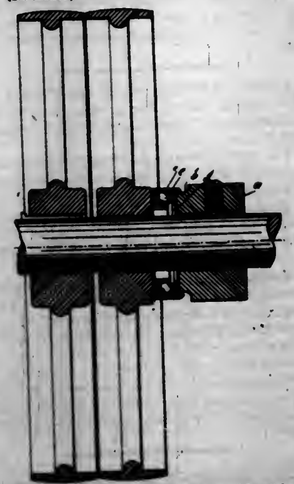
5. The combination of a toothed eccentric, its straps and rod, a wheel mounted in the rod and provided with pins or lugs, and means for operating the said wheel from the toothed eccentric, substantially as herein shown and described.

6. The combination with a spring-pressed valve of a toothed eccentric, an eccentric-strap, a toothed wheel carried by the strap and meshing with the teeth of the eccentric, and means for moving the valve against the action of its spring from said wheel substantially as described.

7. The combination with a valve-stem, of a toothed eccentric, an eccentric-strap and its rod, and a toothed wheel mounted in the eccentric-rod and meshing with the toothed eccentric, said wheel being provided with laterally-projecting pins or lugs intermittently engaging the valve-stem, substantially as described.

8. The combination with a valve and its stem, of an eccentric having worm-teeth on its periphery, an eccentric-strap and its rod, a toothed wheel mounted in the rod and meshing with the eccentric, said wheel being provided with laterally-projecting pins, and a rod fitted to slide in the eccentric-rod and connected with the valve-stem, substantially as herein shown and described.

594,261. ABUTMENT RING OR COLLAR FOR SHAFTING. HEINRICH MELTZER, Ratibor, Germany. Filed Apr. 3, 1897. Serial No. 631,220. (No model.)



Claim.—The combination of a collar capable of being attached to a shaft, the collar having an exterior groove forming a neck at one end of the collar, a channel-ring having a perpendicular bottom wall with concentric side walls running transversely thereto and forming with the bottom wall the channel-ring, the outer side wall having its outer edge contracted to fit loosely into the neck of the collar, and the inner side wall terminating in close proximity with the adjacent edge of the collar, and antifriction-balls located within the channel-ring and causing pressure to be exerted on the bottom wall thereof and on the said end of the collar.

594,262. DRIP-TROUGH. JOHN W. MERRY, Mount Ayr, Ind. Filed Apr. 15, 1897. Serial No. 632,592. (No model.)

Claim.—1. The combination with a grooved window-sash, of a drip-trough, comprising a gutter and a diverging portion, the latter of which is designed to be attached to the face of the sash and the other to be maintained in engagement with the groove, in said sash, by spring-tension.



2. The combination with a grooved window-sash, of a drip-trough formed of spring metal and bent upon itself, longitudinally, to form a gutter and a diverging portion, the latter designed to be attached to the window-sash, and the former to enter the groove and to be retained therein by spring-tension.

3. The combination with a grooved window-sash, of a drip-trough, comprising a gutter and a diverging portion, the latter of which is designed to be attached to the face of the sash and the other to be maintained in engagement with the said groove, in the sash, by spring-tension, and means for relieving the drip-trough of the liquid collected thereby.

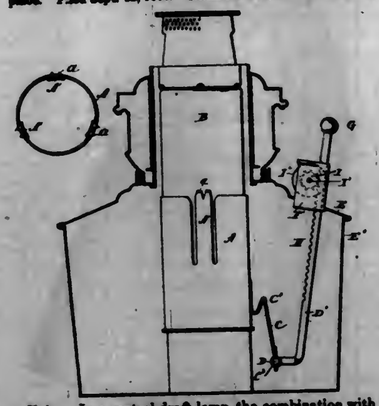
594,268. DOUBLETREE. DAVID L. MILLER, Wilson, Kans. Filed Mar. 1, 1897. Serial No. 625,434. (No model.)



Claim.—1. The combination of a pivoted bar, rearwardly-extending arms secured to its ends, said arms being slotted, forwardly-extending arms movable upon said rearwardly-extending arms, pins connecting said arms, said pins movable in the slots of the rearwardly-extending arms, and springs secured at one end to the pivoted bar and at their opposite ends adapted to extend between the rearwardly-extending arms and engage the pins of the movable arms, substantially as described.

2. The combination of the doubletree, of rearwardly-extending slotted frames, forwardly-extending clevises having pins which extend through the slots of the frames, whereby the clevises are movable thereon, and leaf-springs secured at their inner ends to the doubletree and at their outer ends projecting in the frames and bearing upon the pins of the clevises, substantially as described.

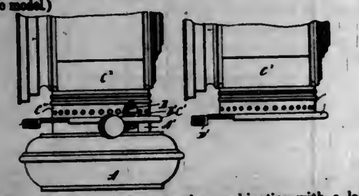
594,264. WICK-ADJUSTER. JOHN C. MILLER, Waterbury, Conn., assignor to the Matthews & Willard Manufacturing Company, same place. Filed Sept. 12, 1896. Serial No. 605,571. (No model.)



Claim.—In a central-draft lamp, the combination with the fount and the central draft-tube thereof, of a wick-holder mounted upon the said tube so as to slide up and down thereupon, a flat bearing-tube permanently mounted in the top of the fount in an outwardly-inclined position, having its outer edge made tubular in cross-section and having horizontal grooves formed in its flat sides and close to its

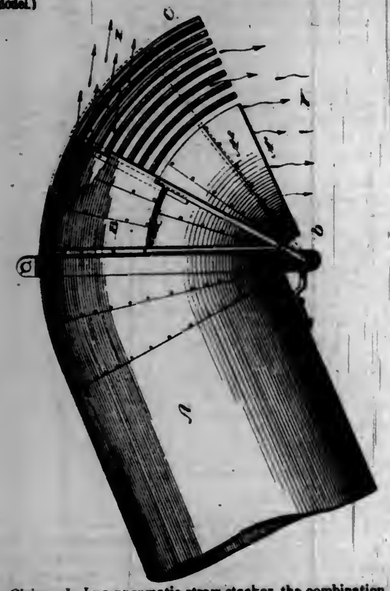
upper end, a straight rigid draw-bar mounted in an inclined position in the said inclined bearing-tube, located in the tubular outer edge thereof, and having a rack formed upon its inner face, a pinion located in the flat main portion of the said tube and meshing into the rack formed upon the inner face of the bar, a horizontally-arranged stem journaled in the said tube, having the said pinion mounted upon it, and furnished with an operating-button, means for connecting the lower end of the inclined draw-bar with the wick-holder, and made flexible so as to provide for the movement of the bar toward and away from the draft-tube due to its inclination, and a sliding cover applied to the flat main portion of the top of the said bearing-tube, having its inner end cut away to fit around the said draw-bar, having its edges turned inwardly to form hooks which enter the said horizontal grooves formed in the upper end of the tube, and having its outer end adapted to be engaged with the inner face of the inner edge of the said tube.

594,265. BICYCLE-LAMP. JOHN C. MILLER and ALBERT T. BOOTH, Waterbury, Conn., assignors to the Matthews & Willard Manufacturing Company, same place. Filed Sept. 7, 1897. Serial No. 650,726. (No model.)



Claim.—In a bicycle-lantern, the combination with a lantern-body furnished with a collar provided with a horizontal flange having formed in it clearance-openings located opposite each other, of a locking-ring applied to the said flange so as to have oscillating movement thereupon, and formed with clearance-notches adapted to be registered with the said clearance-openings, and also formed with wedge-shaped locking edges; and a lamp-fount provided with two upwardly-projecting locking-fingers, having outwardly-set, inwardly-opening, locking-flutes, adapted to be taken under by the said locking edges after the fingers have been introduced into the said clearance openings and notches, substantially as set forth.

594,266. PNEUMATIC STRAW-STACKER. ANTON MOELLENBECK, Amity, Iowa. Filed Sept. 14, 1897. Serial No. 651,634. (No model.)

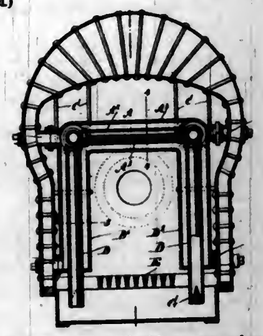


Claim.—1. In a pneumatic straw-stacker, the combination with the trunk having a downwardly-curved elbow-shaped discharge end, of the grille or grating C, and the hood B hinged to the trunk and adapted to telescope upon the discharge end of the same and to cover more or less of the length of said grating as desired, substantially as and for the purposes hereinbefore set forth.

2. In a pneumatic straw-stacker, the combination with the downwardly-curved discharge end of the trunk of the telescopic hood hinged thereto, the grille or grating C, and the imperforate extension A^2, under the arrangement and for joint operation as set forth.

3. In a pneumatic straw-stacker, a trunk provided with a downwardly-turned discharge end, having a portion of its length against which the blast impinges made in open-work so as to permit the passage of the wind but arrest the straw, in combination with a telescopic hood hinged to the trunk and adapted to move back and forth upon the said open-work portion so as to cover more or less of the same as desired, substantially as and for the purposes hereinbefore set forth.

594,267. SMOKE AND GAS CONSUMER. ARTHUR B. MOORE, East Las Vegas, N. Mex. Filed May 26, 1897. Serial No. 638,240. (No model.)



Claim.—A furnace provided with a rectangular pipe-frame supported in the fire-box, each pipe in the said frame having a longitudinal slit opening toward the center of the fire-box, stand-pipes one at each corner of the frame with their lower ends opening in the ash-pit and their upper ends communicating with the pipes of the frame, and said pipes each having a surrounding water-jacket, substantially as described.

594,268. BLASTING-POWDER AND PROCESS OF MAKING SAME. FRIEDRICH MÜLLER, STEFAN OBERLÄNDER, VICTOR H. FUCHS, and SIGMUND GOMPERZ, Vienna, Austria-Hungary. Filed May 3, 1897. Serial No. 634,926. (No specimens.)

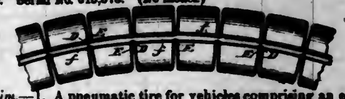
Claim.—1. The herein-described blasting compound composed of picrate combined with sulfur, nitrate of potassium, and a carrier, such as nitrated cellulose, substantially as set forth.

2. The herein-described blasting compound, composed of picrate, combined with sulfur, nitrate of potassium, a carrier, and a substance which readily yields free oxygen, such as pyrolusite, substantially as set forth.

3. The herein-described process of making a blasting material, which consists in mixing sulfur and carbolic acid, also mixing nitrate of potassium and nitric acid, then combining these two mixtures, and then neutralizing with an alkali, substantially as set forth.

4. The herein-described process of making a blasting material, which consists in mixing sulfur and carbolic acid, also mixing nitrate of potassium and nitric acid, then combining these two mixtures, then neutralizing with calcined soda, (soda-ash,) and finally adding a carrier, and a material which will readily yield free oxygen, substantially as set forth.

594,269. PNEUMATIC TIRE FOR CYCLES. RODERICK MCLEOD, Jr., and ALEXANDER M. MCLEOD, Edinburgh, Scotland. Filed Dec. 11, 1896. Serial No. 615,373. (No model.)



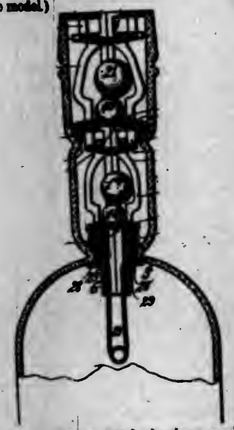
Claim.—1. A pneumatic tire for vehicles comprising an expansible continuous air-tube formed with radial compartments and with necks providing air-passages connecting the said compartments, and an expansible continuous air-tube extending through the said necks whereby the passages connecting the compartments are closed: substantially as described.

2. A pneumatic tire for vehicles comprising an expansible continuous air-tube formed with radial compartments and with necks providing air-passages connecting the compartments, the strengthening-bands surrounding the said necks, and an expansible continuous air-tube extending through the said necks whereby the passages connecting the compartments are closed; substantially as described.

3. A pneumatic tire for vehicles comprising an expansible continuous air-tube formed with radial compartments and with necks providing air-passages connecting the said compartments, an expansible continuous air-tube extending through the said necks whereby the passages connecting the compartments are closed, and the inflating-valve connected with the said compartment-tube; substantially as described.

4. A pneumatic tire for vehicles comprising an expansible continuous air-tube formed with radial compartments and with necks providing air-passages connecting the said compartments, an expansible continuous air-tube extending through the said necks whereby the passages connecting the compartments are closed, and the inflating-valve connected with the said closing-tube; substantially as described.

594,270. CONSTRUCTION OF NON-REFILLABLE BOTTLES. CHARLES H. NEWBURY, St. Paul, Minn. Filed Aug. 3, 1897. Serial No. 647,008. (No model.)



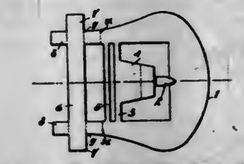
Claim -1. A non-refillable bottle, having a neck provided with a contracted lower end and with an interior rib between the ends, in combination with an insertible frame having a cushioned hollow terminal fitting the contracted lower end of the neck, an annular plate forming part of the frame and lying above the interior rib in the bottle-neck, ball-valves one of which normally closes the open end of the pendant and the other an opening in the annular plate, and springs to automatically and permanently lock the frame in the bottle-neck, after the bottle is filled, substantially as described.

2. In a non-refillable bottle, the combination with a bottle-neck having a contracted lower end and an interior rib between the ends, of a skeleton frame having a cushioned pendant closely fitting the contracted end of the neck, a ball-valve normally resting on a valve-seat around the open end of the terminal, a gravity-ball resting on the ball-valve, both balls inclosed by a cage forming part of the skeleton frame, a circular cushion compressed on the interior rib by an annular plate forming part of said frame, a ball-valve closing the opening in said annular plate, a gravity-ball resting on the ball-valve, both inclosed by a cage which is part of the frame, and springs which automatically and permanently lock the frame in the bottle-neck said frame being inserted after the bottle is filled, substantially as described.

3. The combination with a bottle of a skeleton frame inserted in the bottle-neck after filling, a cushioned pendant forming part of said frame and fitting a contracted opening at the lower end of the neck a circular cushion compressed against an interior rib in the neck by an annular plate on the frame, ball-valves resting on valve-seats around the upper end of the pendant and around the opening in the annular plate, gravity-balls resting on said ball-valves, said balls being contained in cages in the frame, an annulus at the upper end of the frame fitting the open mouth of the neck, and springs which automatically and permanently lock the skeleton frame in the neck when the latter is inserted after the bottle is filled, substantially as described.

4. A non-refillable bottle, having a neck provided with a contracted lower end and with an interior rib between the ends, in combination with an insertible frame having a cushioned hollow terminal fitting the contracted lower end of the neck, an annular plate forming part of the frame and lying above the interior rib in the bottle-neck, ball-valves one of which normally closes the open end of the pendant and the other an opening in the annular plate, and means for permanently securing the frame in the bottle-neck, after the bottle is filled, substantially as described.

594,271. BUCKLE. CHRISTIE P. HENDERSON, New York, N. Y. Filed Apr. 14, 1897. Serial No. 632,106. (No model.)

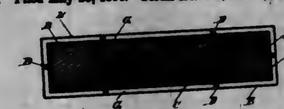


Claim.—1. A buckle-blank, formed of a single piece of metal, and comprising a loop portion, a tongue extended inward from the loop portion, a transverse bar at the rear portion of the loop having a hook-forming tang, a belt-attaching bar rearward of the tang-bar, a slide-forming bar rearward of the belt-fastening bar, and ears projected rearward at the ends of the slide-forming bar, substantially as specified.

2. A buckle-blank, formed of a single piece of metal, and comprising a loop portion, a tongue extended inward from the loop portion, a transverse bar at the rear portion of the loop and having a hook-forming tang, a belt-fastening bar, a loop-forming bar, ears extended rearward at the ends of the loop-forming bar, and ears extended laterally in line with the loop-forming bar, substantially as specified.

3. A buckle, consisting of a single piece of metal, and comprising a loop portion, a tongue portion extended inward from the front bar of the loop, a transverse bar at the rear portion of the loop, a hook on said bar, a belt attaching bar rearward of the hook-bar, a slide-bar turned forward above the plane of the loop, ears turned downward at the ends of the last-named bar to form the front walls of boxings at the ends of the bar, and ears forming the end walls of said boxings, substantially as specified.

594,272. PRESERVING BUTTER. ANDREW NIEBO, Medford, Mass. Filed May 20, 1896. Serial No. 592,307. (No model.)



Claim.—1. The herein-described method of packing and preserving butter and like food products, consisting in first wrapping it in paper or parchment charged with a saline solution, then inclosing each package in a paste or pulp board box, tying coarse cords about the ends, sides, top and bottom of each box, treating the box with melted paraffin, plunging the box in cold water to cause the sealing solution to set and harden and form an air-tight envelop around all parts of said package, and finally inclosing said box in a carton slightly larger than the box and immersing the carton in melted paraffin and plunging the same in cold water to set and harden as aforesaid, substantially as described.

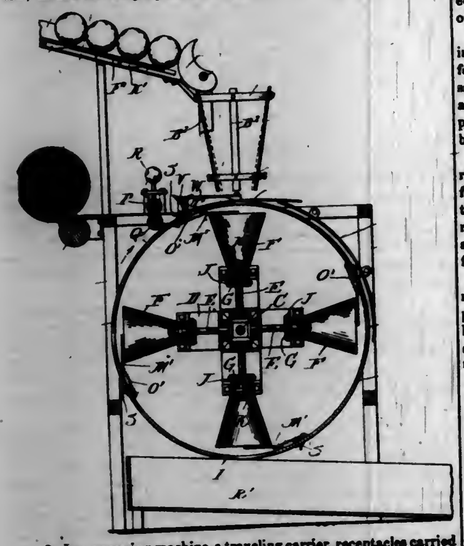
2. The herein-described food-preserving package consisting of a saline-charged paper or parchment B wrapped around the food, a paste or pulp board box C inclosing the wrapped food, coarse cords D tied about the sides, ends, top and bottom of the box, a coating of paraffin applied to said box and cords, the whole being inclosed in a carton E slightly larger than the box C whereby a dead-air space is formed between the box C and carton E, and a paraffin coating applied to the exterior of the carton, for the purpose specified.

594,273. WRAPPING-MACHINE. THOMAS R. NEEDHAM, Interlachen, Fla., assignor of one-half to Charles Francis, Jr., same place, and George F. Francis, Chicago, Ill. Filed Nov. 4, 1895. Serial No. 567,951. (No model.)

Claim.—1. In a wrapping-machine, a carrier, a receptacle, means for rotating the same, means arranged in the path of feed of said carrier adapted to engage and hold against rotation the edges of the wrapper and a lever mounted on said carrier and arranged adjacent to the receptacle and carrying an arm adapted to follow the neck of the wrapper while being twisted, as and for the purpose set forth.

2. In a wrapping-machine, a traveling carrier, a shaft mounted thereon, a receptacle carried by said shaft, means for feeding a wrap-

per over the mouth of said receptacle, means for depositing an article to be wrapped in said wrapper and receptacle, stationarily-held means arranged in the path of travel of said carrier and adapted to engage and confine the projecting edges of the wrapper, a gear-wheel mounted on said shaft and having a groove in the outer periphery thereof, a rubber tire mounted in said groove, a friction-plate arranged in the path of travel of said carrier and adapted to engage and actuate said carrier, whereby said shaft and receptacle are rotated; as and for the purpose set forth.



3. In a wrapping-machine, a traveling carrier, receptacles carried thereby adapted to receive a wrapper and the article to be wrapped, means for rotating said receptacles in combination with a gathering device mounted upon said carrier to travel therewith and arranged adjacent to said receptacle, and means for actuating the same, whereby the edges of the wrapper are gathered around the article, and stationarily-held means for engaging the gathered edges of the wrapper and holding the same against rotation during the rotation of the receptacles; as and for the purposes set forth.

4. In a wrapping-machine, a traveling carrier, a receptacle carried thereby and adapted to receive a wrapper and the article to be wrapped, means for rotating said receptacle, a lever mounted upon said carrier adjacent to said receptacle, and adapted when moved to gather the edges of the wrapper around the article, stationarily-held means for engaging the gathered edges of the wrapper and holding the same against rotation during the rotation of the receptacle; as set forth.

5. In a wrapping machine, a traveling carrier, adapted to receive a wrapper and the article to be wrapped, means for rotating the article, a lever mounted on said carrier and adapted to be moved to gather the edges of the wrapper around said article, a spring for holding said lever in normally-retracted position, and stationarily-held means for holding the gathered edges of the wrapper during the rotation of the article; as set forth.

6. In a wrapping-machine, a cutting-blade, a cooperating ledger-blade, suitably journaled to rotate, and having a flat-sided boss on the shaft thereof, in combination with a spring arranged to bear on said boss and oppose the rotation of said blade; as set forth.

7. In a wrapping-machine, a cutting-blade, a cooperating rotarily-mounted ledger-blade, provided with wings and a flat-sided boss upon the shaft thereof, of a spring arranged to bear on said boss; as set forth.

8. In a wrapping-machine, wrapper-material-feeding mechanism, a traveling carrier, a holder mounted thereon adapted to receive a wrapper and the article to be wrapped, said carrier carrying a cutter, adapted to sever a wrapper, and means for adjusting said cutter with reference to said holder; as set forth.

9. In a wrapping-machine, wrapper-material-feeding mechanism, a traveling carrier, a holder mounted thereon adapted to receive a wrapper and the article to be wrapped and carrying a cutter, means for adjusting said cutter with reference to said holder, a ledger-blade arranged to project into the line of travel of the cutter, the line of feed of the wrapper material being between said ledger-blade and the path of travel of the cutter; as and for the purpose set forth.

10. In a wrapping-machine, a guide for the articles to be wrapped, comprising spring-arms and an adjustable ring or band arranged to encircle said arms, and means for securing said ring or band in adjusted position; as set forth.

11. In a wrapping-machine, a traveling carrier, receptacles carried thereby adapted to receive and rotate the articles to be wrapped, means for automatically depositing the articles to be wrapped in said receptacles, means for imparting rotation to said receptacles, and means arranged in the path of travel of said carrier for holding the edges of the wrapping material against rotation during the rotation of said articles; as and for the purpose set forth.

12. In a wrapping-machine, a carrier, a receptacle mounted therein adapted to receive a wrapper and the article to be wrapped, means for rotating said receptacle, means arranged in the path of travel of said receptacle, adapted to engage and hold the edges of the wrapper against rotation during the rotation of said receptacle, and means for preventing the twisted neck of the wrapper from dragging or lagging behind in said holding means; as and for the purpose set forth.

13. In a wrapping-machine, a traveling carrier, receptacles carried thereby, means for feeding the wrapper material thereto, means for automatically delivering the article to be wrapped to said receptacles, stationarily-held means arranged in the path of travel of said receptacles for contracting and holding the edges of the wrapper around the article, and means for rotating said receptacles; as and for the purpose set forth.

14. In a wrapping-machine, the combination of a traveling carrier, of receptacles mounted thereon, means for feeding the wrapping material over the mouth of said receptacles, means for depositing the articles to be wrapped in said receptacles and the wrapper material, whereby the articles are partially inclosed in the wrapper material, means arranged in the path of travel of the receptacles, adapted to contract and hold the projecting edges of the wrapper, and means for rotating said receptacles; as and for the purpose set forth.

15. In a wrapping-machine, a traveling carrier, receptacles carried thereby, means for feeding the wrapping material over the mouth of said receptacles, means for automatically dropping the articles to be wrapped in said wrapping material and receptacles, whereby the articles are partially inclosed in said wrapping material, means arranged in the path of travel of the receptacles for contracting and holding the projecting edges of the wrapper material, and means for axially rotating said receptacles; as and for the purpose set forth.

16. In a wrapping-machine, a traveling carrier, receptacles carried thereby, means for feeding the wrapping material over the mouth of said receptacles, means for delivering the articles to be wrapped into the wrapper and receptacle, whereby the articles are partially inclosed in said wrapping material, means arranged in the path of travel of the receptacle for imparting an axial rotation thereto during only a portion of the travel thereof, and means also arranged in the path of travel of the receptacle, adapted to engage, contract and hold the projecting edges of the wrapper during the rotation of said receptacle; as and for the purpose set forth.

17. In a wrapping-machine, a traveling carrier, receptacles carried thereby, means for rotating said receptacles, and means for first presenting the wrapper material to said receptacles and then introducing the article to be wrapped therein, whereby the articles are partially inclosed in the wrapper in combination with stationarily-held means for contracting and confining the projecting edges of the wrapper during the rotation of said receptacles; as and for the purpose set forth.

18. In a wrapping-machine, a rotary drum, receptacles rotarily mounted therein, means for automatically delivering, first, the wrapping material, and then the article to be wrapped in said receptacles, whereby the articles are partially inclosed in said wrapping material, and stationarily-held means for confining the projecting edges of the wrapper, and means for rotating said receptacle; as and for the purpose set forth.

19. In a wrapping-machine, a rotary drum, receptacles rotarily mounted therein, means for automatically delivering, first, the wrapping material and then the articles to be wrapped to said receptacles, whereby the articles are partially inclosed in said wrapping material, and stationarily-held means arranged in the path of travel of said receptacles adapted to receive, confine and contract the projecting edges of the wrapper and means for rotating said receptacles; as and for the purpose set forth.

20. In a wrapping-machine, a traveling carrier, a shaft mounted thereon and carrying a receptacle, means for feeding first the wrapping material and then the article to be wrapped to said receptacle, means arranged in the path of travel of said carrier for engaging, confining and contracting the projecting edges of the wrapping material, and means for rotating said shaft; as and for the purpose set forth.

21. In a wrapping machine, a traveling carrier, a shaft mounted thereon and carrying a receptacle, means for feeding, first the wrapping material and then the article to be wrapped in said receptacle, whereby the article is partially inclosed in the wrapping material, means arranged in the path of travel of the carrier, arranged to engage and confine the projecting edges of the wrapper, a gear mounted on said shaft, and means for engaging said gear during the travel of said carrier, whereby said shaft and receptacle are rotated and the wrapper is twisted about the article; as and for the purpose set forth.

22. In a wrapping-machine, a traveling carrier, a shaft mounted thereon and carrying a receptacle, means for feeding first the wrapping material and then the article to be wrapped to said receptacle, whereby the article is partially inclosed in the wrapping material, means arranged in the path of travel of the carrier, arranged to engage and confine the projecting edges of the wrapper, a gear mounted on said shaft, a gear-plate arranged in the path of movement of said gear, and adapted to engage and rotate said gear, whereby said shaft and receptacle are rotated and the wrapper twisted about the article; as and for the purpose set forth.

23. In a wrapping-machine, a traveling carrier, a shaft mounted thereon and carrying a receptacle, means for feeding the wrapper material and the article to be wrapped to said receptacle, whereby the article is partially inclosed in the wrapper, stationarily-held means for engaging and confining the projecting edges of the wrapper, a friction-gear mounted on said shaft, a friction-plate arranged in the path of travel of said friction-gear and adapted to engage and actuate said gear, whereby said shaft and receptacle are rotated while the projecting edges of the wrapper are confined, thereby twisting the wrapper about the article; as and for the purpose set forth.

24. In a wrapping-machine, a traveling carrier, receptacles carried thereby, means for delivering first the wrapper material and then the article to be wrapped to said receptacles, whereby the articles are partially inclosed in said receptacles, in combination with stationarily-held plates, arranged adjacent to the line of travel of said receptacles and adapted to receive and hold the projecting edges of the wrapper between them, and means for rotating said receptacles, whereby the wrapper is twisted about the articles during the rotation of the receptacles; as and for the purpose set forth.

25. In a wrapping-machine, a traveling carrier, rotatable receptacles carried thereby, means for automatically delivering, first, the wrapper material and then the articles to be wrapped to said receptacles, whereby the articles are partially inclosed in said wrappers, in combination with stationarily-held plates, having their meeting edges arranged in the path of travel of said receptacles and adapted to receive between their meeting edges the projecting ends of the wrapper, and means for rotating said receptacles, whereby the wrapper is twisted about the article during the rotation of said receptacle; as and for the purpose set forth.

26. In a wrapping-machine, a traveling carrier, rotatable receptacles carried thereby, means for automatically delivering first the wrapper material and then the articles to be wrapped to said receptacles, whereby the articles are partially inclosed in said wrappers, in combination with stationarily-held plates having curved meeting edges, said edges converging toward each other and arranged in the line of travel of the carrier and adapted to receive therebetween the projecting edges of the wrapper, and means for rotating said receptacles, whereby the wrapper is twisted about the articles; as and for the purpose set forth.

27. In a wrapping-machine, a traveling carrier, rotatable receptacles carried thereby, means for automatically delivering, first, the wrapper, and then the articles to be wrapped to said receptacles, whereby the articles are partially inclosed in the wrapper, in combination with stationarily-held juxtaposited plates arranged in the path of travel of said receptacles and adapted to receive therebetween their meeting edges the projecting edges of the wrapper, means for relatively adjusting the position of said plates and means for rotating the receptacles while the edges of the wrapper are confined between said plates, whereby the wrapper is twisted about the articles to be wrapped; as and for the purpose set forth.

28. In a wrapping-machine, a traveling carrier, receptacles carried thereby, means for automatically feeding first the wrapper and then the article to be wrapped to said receptacles, in combination with means for contracting the projecting edges of the wrapper around the article, stationarily-held means arranged in the path of travel of the receptacles, adapted to receive and confine the contracted edges of the wrapper, and means for rotating the receptacles while the wrapper is twisted about the articles; as and for the purpose set forth.

29. In a wrapping-machine, a traveling carrier, means for feeding thereto, first, the wrapper, and then the article to be wrapped, means mounted on said carrier for contracting the edge of the wrapper about the article, stationarily-held means arranged in the path of travel of the carrier, adapted to receive and hold the contracted edges of the wrapper, and means for rotating the article while the wrapper is so held; as and for the purpose set forth.

30. In a wrapping-machine, a traveling carrier, means for feeding the wrapper material to said carrier in a sheet or web, a cutter carried by said carrier, means for actuating said carrier, a stationarily-held ledger-blade against which said cutter operates to sever a wrapper from said sheet or web, means for feeding the article to be wrapped to said carrier, and means for twisting the wrapper about the article; as and for the purpose set forth.

31. In a wrapping machine, a traveling carrier, receptacles carried thereby, means for feeding first a wrapper and then the articles to be wrapped to said receptacles, whereby the articles are partially inclosed in the wrapper, stationarily-held means arranged in the path of travel of the receptacles adapted to receive and confine the projecting edges of the wrapper, means for rotating said receptacles while the wrapper edges are confined, and a receiving-trough arranged to receive the wrapped articles from said receptacles; as and for the purpose set forth.

32. In a wrapping-machine, a traveling carrier, means for feeding the wrapper material thereto, a cutter mounted on said carrier, a cooperating ledger-blade stationarily held and means for rotating the article to be wrapped; as and for the purpose set forth.

33. In a wrapping-machine, a traveling carrier, a cutter carried thereby, means for feeding the wrapper material to said carrier, a rotarily-mounted ledger-blade stationarily held adjacent to the path of travel of the carrier, means for delivering the article to be wrapped to said carrier, and means for twisting the severed wrapper about the article; as and for the purpose set forth.

34. In a wrapping-machine, a traveling carrier, a cutter carried thereby, means for feeding the wrapper material to said carrier, a ledger-blade journaled in stationary bearings adjacent to the path of feed of the wrapper material with which said cutter cooperates to sever a wrapper from said material, means for resisting the rotary movement of said ledger-blade, means for delivering the articles to be wrapped to said carrier, and means for twisting the severed wrapper about the articles; as and for the purpose set forth.

35. In a wrapping-machine, a traveling carrier, a cutter carried thereby, a ledger-blade journaled in stationary bearings adjacent to the path of movement of said cutter and arranged to cooperate therewith to sever a wrapper from the wrapper material, a spring arranged to hold said ledger-blade yieldingly against rotation, means for delivering the article to be wrapped to said carrier, and means for twisting the severed wrapper about the article; as and for the purpose set forth.

36. In a wrapping-machine, a traveling carrier, adapted to receive the wrapping material and the articles to be wrapped, a cutter mounted on said carrier, a ledger-blade rotarily mounted adjacent to the path of travel of said carrier and cooperating with said cutter to sever a wrapper from the wrapper material, said ledger-blade provided with a lug arranged to be engaged by said carrier, and means for twisting the severed wrapper about the article; as and for the purpose set forth.

37. In a wrapping-machine, a traveling carrier, means for feeding the wrapper material and the article to be wrapped to said carrier, a cutter mounted on said carrier, a ledger-blade rotarily mounted adjacent to the path of travel of the carrier and having a lug arranged to be engaged by the carrier, a spring arranged to yieldingly resist the rotary movement of the carrier, and means for twisting the severed wrappers about the article; as and for the purpose set forth.

38. In a wrapping-machine, and in combination with rotary receptacles and means for feeding the wrapper material thereto, of a delivery-trough for the articles, provided with a movable bottom, and means for reciprocating the same in the direction of the length thereof, and means for confining the edges of the wrapper material during the rotation of the said receptacles; as and for the purpose set forth.

39. In a wrapping-machine, a carrier, receptacles carried thereby, a feed trough having a movable part in the bottom thereof, arms pivotally mounted at one end in said trough and engaging at the opposite end with said movable part, and means for longitudinally reciprocating said movable part, whereby a rising-and-falling and longitudinal movement is imparted to said movable part; as and for the purpose set forth.

40. In a wrapping-machine, a drum, having perforations through the shell thereof, means for rotating said drum, receptacles mounted within said drum and having the mouths thereof arranged to register with said perforations, means for delivering the articles to said receptacles, through said perforations, whereby the articles are partially inclosed in the wrappers, means for rotating said receptacles, and means arranged in the path of travel of the receptacles adapted to confine the projecting edges of the wrapper during the rotation of said receptacles; as and for the purpose set forth.

41. In a wrapping-machine, a traveling carrier, an actuating-shaft therefor, comprising the main drive-shaft of the machine, means for delivering the articles to be wrapped to said carrier, including a driving-shaft, means for feeding the wrapper material to said carrier, including feed rolls, gears mounted on said rolls and shaft, a drive-belt

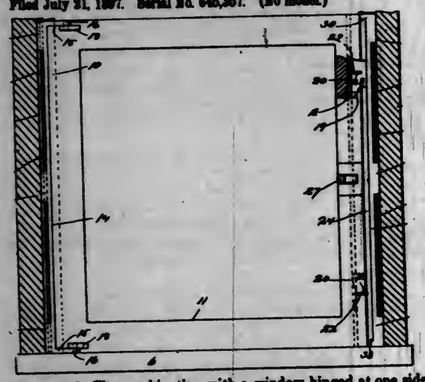
arranged to engage all of said gears whereby they are all simultaneously driven, and stationarily-held means, arranged in the path of travel of the carrier adapted to engage and confine the edges of the wrapping material, and means for rotating the article to be wrapped; as and for the purpose set forth.

594,274. NON-REFILLABLE BOTTLE. DANIEL O'DONNELL and JAMES H O'DONNELL, Grimes, Iowa. Filed May 28, 1896. Serial No. 593,457. (No model.)



Claim.—A bottle having its neck formed with receptacles upon the outside thereof, combined with a glass cap having lugs with openings and pins having shoulders and passed through said openings and having their lower portions screw-threaded and extended into cement or the like in said receptacles, substantially as specified.

594,275. WINDOW-SASH. ANDREW K. OLSEN, Elizabeth, N. J. Filed July 31, 1897. Serial No. 645,867. (No model.)

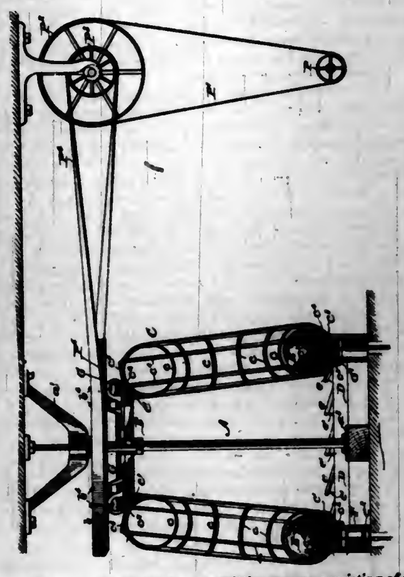


Claim.—1. The combination with a window hinged at one side, of a spring-controlled bead mounted in the opposite side and means for withdrawing the said bead into the sash-frame, and a supplemental piece provided with a groove in which said bead projects, substantially as and for the purpose described.

2. A window-frame provided at each side with the usual vertical spaces in which the window-sashes are mounted, said spaces being provided with beads or strips which are secured at the back thereof, and which are provided with vertical side flanges or guides, window sashes mounted in said frame and provided at one side with plates which are pivotally connected therewith, at the upper and lower ends thereof, and on which said sashes are free to swing, said plates being provided with inwardly-directed jaws by which said pivotal connection with the sashes is made, and with outwardly-directed supplemental jaws which are adapted to engage with and slide on the side flanges formed on said vertical strips or beads, and said sashes being provided at their opposite sides with means for locking them in connection with plates which are vertically movable in the frame, substantially as shown and described.

3. A window-frame provided at each side with the usual vertical spaces in which the window-sashes are mounted, said spaces being provided with beads or strips which are secured at the back thereof, and which are provided with vertical side flanges or guides, window-sashes mounted in said frame and provided at one side with plates which are pivotally connected therewith, at the upper and lower ends thereof, and on which said sashes are free to swing, said plates being provided with inwardly-directed jaws by which said pivotal connection with the sashes is made, and with outwardly-directed supplemental jaws which are adapted to engage with and slide on the side flanges formed on said vertical strips or beads, and said sashes being provided at their opposite sides with means for locking them in connection with plates which are vertically movable in the frame, consisting of spring-operated strips mounted in slots or grooves formed in said sashes, and vertical sliding plates which are provided with grooves into which said spring-operated strips are adapted to be forced, said plates being adapted to slide on vertical guides secured to the frame, substantially as shown and described.

594,276. MEANS FOR CONVERTING MOTION. AARON B. PERRIER, Topeka, Kans. Filed Feb. 18, 1897. Serial No. 623,980. (No model.)



Claim.—1. An engine for transmitting power, consisting of a circular track, one or more upright wheels traveling on the same with a gyratory motion, each provided with teeth on its periphery, a driving gear-wheel meshing with the gear of the gyratory wheel, means for rotating said gear-wheel, and a circular series of ball-bearings arranged to resist the outward trend of the gyratory wheel at the upper and lower points of contact substantially as shown and described.

2. An engine for transmitting power, comprising a circular track, one or more upright gyratory wheels running on said track and inclined inwardly at the upper end, and having peripheral gear-teeth and a driving gear-wheel, and means for actuating it, and a circular series of ball-bearings for guiding the gyratory wheels in their revolutions and resisting their outward trend substantially as shown and described.

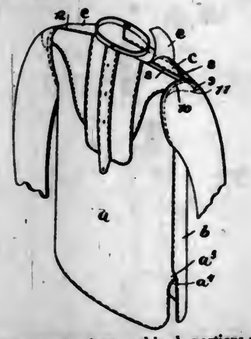
3. An engine for transmitting power, comprising a hollow upright traveling wheel having within the same a weight gravitating along the lower inner periphery of the hollow wheel, a peripheral gear on said traveling wheel, a gear-wheel meshing therewith and rotating it with a gyratory motion, and a supporting-track, substantially as and for the purpose described.

4. The combination of one or more upright traveling gyratory wheels each having gear-teeth on its periphery and a peripheral flange, a subjacent circular track with ball-bearings fitting against the side of said flange, and a driving gear-wheel at the top also provided with a ball-bearing for the side of said flange substantially as and for the purpose described.

5. The gear-wheel B carrying outside its rim of teeth a circular ball-bearing rim, in combination with a gyratory wheel having a circumferential row of teeth engaging with the gear-wheel, and a circumferential flange between its gear-teeth and its ball-bearing substantially as and for the purpose described.

594,277. SHIRT. GEORGE F. POOLEY, Brooklyn, Md., assignor to Beulah S. Pooley, same place, and Edward F. Pooley, Philadelphia, Pa. Filed Mar. 15, 1897. Serial No. 627,000. (No specimens.)

Claim.—1. A shirt having the front and back portions meeting and united over the outer portions of the shoulders and overlapping and secured to the sleeves outwardly beyond the stitching securing the sleeve to the body around the armhole, and yokes uniting the front and back portions between the neck and said meeting edges, substantially as described.



2. A shirt having the front and back portions meeting and secured together over the outer portions of the shoulders and extending outwardly and overlapping and secured to the sleeves outwardly beyond the stitching around the armholes, and the yokes tapering from the neck outwardly to a point and uniting the edges of the back and front portions from the neck outwardly to said meeting edges, substantially as described.

3. A shirt having the front and back portions, the outwardly-tapered inner shoulder-yokes uniting their top edges, the said back and front top edges meeting and united beyond the outer ends of said yokes and extended outwardly and overlapping the sleeves and united thereto, outwardly beyond the stitching around the sleeves and uniting the same to the body, and the outer shoulder-yokes extending from the sleeves to the neck and covering the inner yokes and extending beyond the united edges of the inner yokes and back and front, and onto and united to the back and front, substantially as described.

4. A garment having front and back body portions, yokes uniting the top edges of said front and back portions and tapering outwardly from the neck-opening toward the armholes, the top edges of the front and back body portions meeting and secured directly together beyond the outer ends of said yokes, substantially as described.

5. A garment having the front and back body portions, tapered inner yokes uniting the top edges of said body portions by lines of stitching, such as 8, and the outer shoulder-yokes arranged above and covering said inner yokes and extended down at the back and front beyond the inner yokes and united to the back and front body portions by lines of stitching, such as 12, arranged downwardly beyond the lines of stitching 8, for the purpose substantially as described.

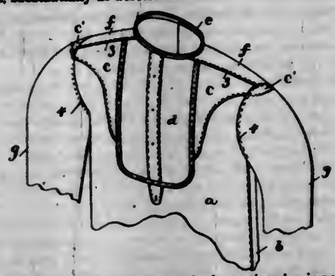
6. A garment having its body portion provided with two projections or ears at each armhole, said projections integral with the body, the projections at each armhole stitched together, and the sleeves stitched to the body completely around the armholes and inwardly beyond said projections with the projections extending outwardly along the sleeves over the shoulders and stitched around their edges to the sleeves outside of said stitching around the armholes, substantially as described.

7. A garment having its body portion formed with the armholes, the sleeves having their inner ends stitched to the body portion completely around the armholes, said body portion cut with an ear or projection integral therewith and projecting outwardly above each armhole, respectively, and beyond said stitching around the same and within the sleeves, and stitched around their edges to the sleeves, so that each sleeve is united to the body portion around the armhole and at another point outwardly beyond the armhole, and the body portion extends outwardly along the shoulder portion of each sleeve, substantially as described.

8. A garment having the gusset at the end of the seam uniting two portions thereof, comprising a tapered projection extending out from the edge of one portion, said seam continued along one edge of said projection and uniting the same to the edge of the opposite portion, the projection puckering out between said portions forming a fullness, the other edge of the projection being hemmed in continuation of the hemmed edges of said portions below said seam, substantially as described.

594,278. SHIRT. GEORGE F. POOLEY, Havre de Grace, Md., assignor to Beulah S. Pooley, same place, and Edward F. Pooley, Philadelphia, Pa. Filed Apr. 3, 1897. Serial No. 630,436. (No model.)

Claim.—1. A shirt having front and back body portions separated at their top edges, front reinforce-pieces secured to the front body portion and extending over the shoulder portions of the shirt and secured to the back body portion, and back reinforce-pieces secured to the back body portion and extending over the shoulder portions of the shirt and secured to the front body portion, said front and back reinforce-pieces overlapping over the shoulder portions of the shirt, substantially as described.

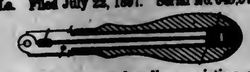


2 A shirt having front and back body portions having separated upper edges, front and back reinforce-pieces overlapping at the shoulder portions of the shirt and securing said top edges of the body portions together and forming the slope at the shoulder portions, and each reinforce-piece extending from the neck-opening along the shoulder portions of the shirt to the armholes, substantially as described.

3. A shirt comprising front and back body portions, sleeves, and front and back reinforce-pieces extending down on and secured to the front and back body portions of the shirt, respectively, and each extending over the shoulder portions of the shirt to and secured to the opposite body portion of the shirt, said reinforce-pieces overlapping on the shoulder portions of the shirt and extending from the neck-opening to the armholes and certain reinforce-pieces having projections integral therewith and projecting outwardly over and beyond the armholes and overlapping and secured to the sleeves, substantially as described.

4. A shirt having back and front body portions, the sleeves, and pieces, such as *c*, uniting the top edges of said front and back portions and extending from the neck-openings to the arm-openings, each piece *c*, having the projection, such as *c'*, integral therewith and extending inside of the sleeve over the shoulder portion thereof and outwardly beyond the armhole, the lines of stitching 4, around the armholes and uniting the sleeves to the body portion and to said pieces *c*, and the stitching outside of said stitching 4, and securing projections *c'*, inside the sleeves and around their edges to the sleeves, so that each piece *c*, is secured to its sleeve by the two lines of stitching, substantially as described.

594,279. COMBINATION DRAWING-KNIFE. JOSHUA M. POSEY, Vivian, La. Filed July 22, 1897. Serial No. 645,575. (No model.)



Claim.—1. An implement-handle, consisting of a hollow grip, and a shank removably fitted in the grip and composed of two shank-sections constructed to engage the implement, jointed together at one end and having the other end detachably engaged with an internal part of the grip, substantially as described.

2. An implement-handle, consisting of a hollow grip, and a shank removably fitted in the grip and composed of two shank-sections constructed to engage the implement, jointed together at one end, and having the other end detachably engaged with an internal part of the grip and constructed with screw-sockets to receive interchangeable caliper, compass and scriber legs, substantially as described.

3. An implement-handle, consisting of a hollow grip having a screw-nut fixed in its outer end, and a shank fitting the grip and composed of two shank-sections constructed to engage the implement, jointed together at one end and having screw-threads at the other end engaging the screw-nut in the grip, substantially as described.

4. An implement-handle, consisting of a hollow grip having a screw-nut fixed in its outer end, and a shank fitting the grip and composed of two shank-sections graduated for measurements, jointed together at one end and having the other end provided with screw-threads to engage the screw-nuts and screw-sockets to receive interchangeable caliper, compass, and scriber legs, substantially as described.

5. An implement-handle, consisting of a hollow grip, and a shank removably fitted in the grip and composed of two longitudinally-slotted shank-sections constructed to engage the implement, jointed together at one end and having means at the other end detachably engaged with an internal part of the grip, each shank-section having

a screw-socket at one end to receive interchangeable caliper, compass and scriber legs, and one shank-section having an arm pivoted in its slot and movable through the slot in the other shank-section, substantially as described.

6. A handle for a drawing-knife, consisting of a hollow grip having a screw-nut fixed in its outer end, and a shank removably fitted in the grip and composed of two shank-sections jointed together at one end, having screw-threads at the other end to engage the nut, and recessed near their jointed parts to receive and clamp parts of the drawing-knife, substantially as described.

7. The combination with a drawing-knife having end tangs, of handles each composed of a hollow grip having a nut fixed in its outer end, and a shank fitted in the grip and composed of two shank-sections jointed together at one end, having screw-threads at their other end to engage the nut and recessed near their joint to receive and clamp the tangs of the drawing-knife, substantially as described.

8. The combination with a drawing-knife having end tangs, of handles composed of hollow grips, and shanks removably fitted in the grips and each composed of two shank-sections jointed together at one end, having means at their other end to detachably engage an internal part of the grip, and recessed near their joint to receive and clamp the tangs of the drawing-knife, a section of one shank carrying a folding saw-blade and the sections of the other shank having longitudinal slots with an arm pivoted in one slot and movable through the other, substantially as described.

9. An implement-handle, consisting of a hollow grip, and a shank removably fitted in the grip and composed of two longitudinally-slotted shank-sections jointed together at one end, and having at the other end means to detachably engage an internal part of the grip, an arm pivoted in the slot of one shank-section and movable through the slot in the other shank-section, and a set-screw for engaging the arm to convert the shank into a try-square, substantially as described.

594,280. CHURN. JOHN H. POULTER, Bowman, Ill., assignor of two-thirds to C. M. Brady and John S. Walker, Danville, Ill. Filed Feb. 23, 1897. Serial No. 624,720. (No model.)

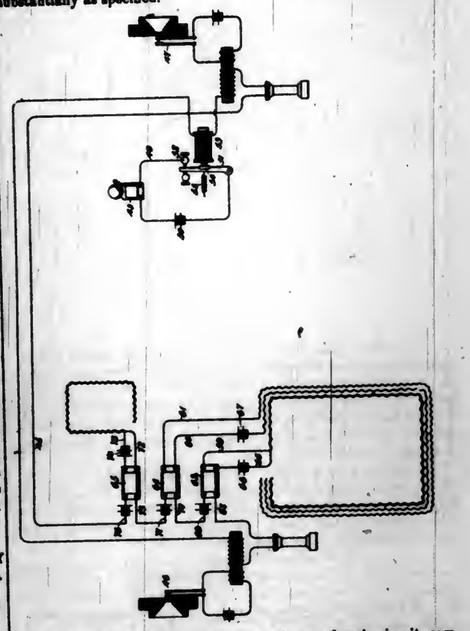


Claim.—1. In a churn, a revolving dash composed of double or parallel horizontal disks with radial flues alternately attached in an inclined position to the surfaces of the disks and communicating through openings with the interior of a central hollow shaft, upon which the disks are mounted, substantially as set forth.

2. In a churn, the combination of a revolving dash, composed of double or parallel horizontal disks with radial flues alternately attached in an inclined position to the surfaces of the disks, and a central hollow shaft upon which the disks are mounted with openings from the interior of the hollow shaft to the alternating radial flues, substantially as set forth.

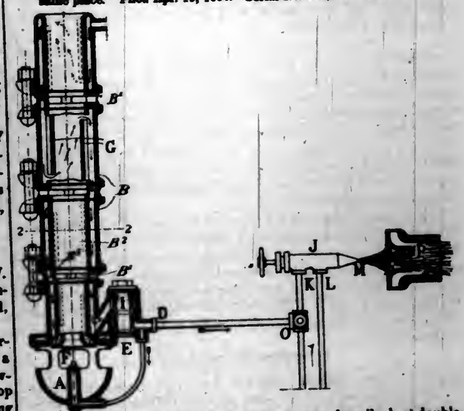
594,281. AUTOMATIC SIGNALING SYSTEM. CHARLES W. PRICE, Newark, N. J., assignor, by mesne assignments, to the Montauk Multiphase Cable Company, New York, N. Y. Filed Jan. 11, 1897. Serial No. 618,767. (No model.)

Claim.—1. An electromechanical controller for an electric circuit, comprising a motor, a screw-shaft operated by said motor, a circuit making and breaking disk for a main circuit on said screw-shaft, a pivoted lever movable by said screw-shaft and adapted to stop the motor after a certain number of rotations of the circuit-controlling disk shall have been made, an electromagnet in a local circuit, an armature-lever operated by said electromagnet for releasing the motor, a spring-plate for locking the armature-lever, and a lever serving to move the spring-plate out of engagement with the armature-lever, and also serving to return the locking-lever to its normal position, substantially as specified.



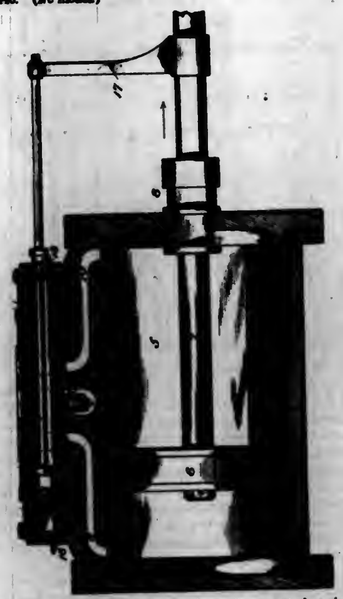
2. An electromechanical controller for an electric circuit, comprising a spring-driven motor, a screw-shaft operated by said motor, a main circuit making and breaking disk on said screw-shaft, a pivoted lever having a pin engaging between the threads of said screw-shaft, a pin extended laterally from said lever, a pin extended from the screw-shaft at its end opposite that upon which the disk is mounted, and adapted to engage with the pin on the lever, a shifting-lever extended from the first-named lever, an electromagnet comprised in a local circuit, an armature-lever operated by said electromagnet, for releasing the motor, a spring-plate for holding said armature-lever in its inoperative position, and an arm on the shifting-lever for moving said spring-plate out of engagement with the armature-lever, substantially as specified.

594,282. APPARATUS FOR LIGHTING AND HEATING BY MEANS OF HYDROCARBONS. JEAN A. RAMBAUD, Paris, France, assignor to the Compagnie Internationale des Procédés Adolphe Seigle, same place. Filed Apr. 19, 1897. Serial No. 633,793. (No model.)



Claim.—In an apparatus of the character described, a double-walled retort, comprising a series of intercommunicating sections spaced or separated from each other to provide passages for the entrance of air to the interior chamber or flue of the retort from the exterior atmosphere through said spaces and each section being provided with partitions arranged between its walls to form a circuitous passage through the retort of the oil or vapor therein, substantially as and for the purposes described.

594,288. ANTIFREEZING ATTACHMENT FOR ENGINES. ANDREW H. REEDER, Uniontown, Pa. Filed Oct. 29, 1896. Serial No. 610,448. (No model.)



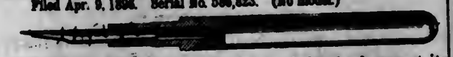
Claim.—1. The combination with an air-operated engine having its cylinder provided with live-air and exhaust ports, of an air-compression pump having its cylinder extending through the exhaust-port of the engine and provided with a compressed-air outlet opening into the air-chest of the engine, said air-compression-pump cylinder serving to prevent freezing of moisture in the exhaust-port by radiation of heat generated by compressing air in the air-compression pump, substantially as described.

2. The combination with an air-operated engine having a valve-chest and a cylinder provided with live-air and exhaust ports, of an air compression pump having its cylinder arranged longitudinally between the cylinder and the valve-chest of the engine, said air-compression-pump cylinder serving to prevent freezing of moisture in the air and exhaust ports of the engine-cylinder by radiation of heat generated by compressing air in said air-compression pump, substantially as described.

3. The combination with an air-operated engine having its cylinder provided with live-air and exhaust ports, of an air-compression pump mounted on the cylinder and around which the live-air and exhaust ports of the engine extend, and means for operating the air-compression pump, substantially as described.

4. The combination with an air-operated engine having its cylinder provided with live-air and exhaust ports, of an air-compression-pump cylinder mounted on the engine-cylinder and around which the live-air and exhaust ports of the engine-cylinder extend, a compressed-air outlet leading from the air-compression-pump cylinder to the air and valve chest of the engine, and a piston working in the air-compression-pump cylinder and having a piston-rod connected with the piston-rod of the air-operated engine, substantially as described.

594,284. RESERVOIR-PEN. CARL J. REHN, New York, N. Y. Filed Apr. 9, 1896. Serial No. 586,823. (No model.)

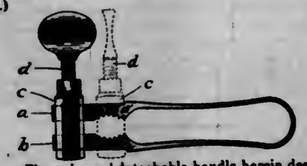


Claim.—1. A pen having a tapering tubular shank open at its inner end and provided with barriers, and an integral tongue curved in cross-section and extending beyond an opening at the branching of the nibs of the pen, said tongue being arranged with its concave surface facing the under side of the pen with its longitudinal edges adjacent to the same throughout their length and forming therewith a continuation of the ink-reservoir formed by the tubular shank, substantially as described.

2. A pen having a tapering tubular shank open at its inner end and provided with transverse barriers, and a tapering integral tongue curved in cross-section and extending beyond an opening at the branch of the nibs of the pen, said tongue being arranged with its concave surface facing the under side of the pen with its longitudinal edges adjacent to the same throughout their length and forming therewith a continuation of the ink-reservoir formed by the tubular shank, substantially as described.

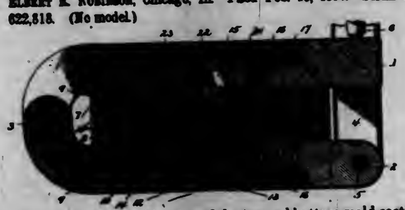
3. The combination with a holder having an air-opening therein, of a pen secured in the said holder, the said pen being provided with a tubular shank open at its inner end, a tongue curved in cross-section and integral with the under portion of the shank, said tongue being arranged with its concave surface facing the under side of the pen with its longitudinal edges adjacent to the same throughout their length, and barriers formed in tubular portions of the pen, as and for the purpose specified.

594,285. UNIVERSAL DETACHABLE HANDLE. EDWARD RIVETT, Boston, Mass. Filed Feb. 2, 1897. Serial No. 621,690. (No model.)



Claim.—The universal detachable handle herein described, consisting of a pair of jaws *a*, *b*, on the ends of a loop-like spring-acting handle, a notch in the adjacent face of each jaw, extending lengthwise, and a hole at the rear end of said loop-like handle in line with said notches, a curved recess in the adjacent face of each jaw provided with teeth, the elongated loop *c* embracing said jaws *a*, *b*, and the screw *d* passing through said loop at one end which acts upon one of said jaws.

594,286. CASTING COMPOSITE OR OTHER CAR-WHEELS. ELBERT R. ROBINSON, Chicago, Ill. Filed Feb. 10, 1897. Serial No. 622,818. (No model.)



Claim.—1. The combination of the top and bottom mold-sections for holding the grooved wheel, the grooved wheel, and the metallic ring-sections fitted to the groove of the wheel but leaving a space within said ring-sections to receive a filling to be cast therein, substantially as shown and described.

2. The combination of the upper and lower disks or flanges, top and bottom mold-sections fitted to said disks or flanges for holding them in place, and metallic ring-sections fitted to the groove formed by the inner faces of said disks or flanges but leaving a space within said ring sections to receive a filling to be cast therein, substantially as shown and described.

3. The combination of the top and bottom mold-sections hinged together and provided with a fastening means at their free ends, centering means provided on the inner faces of said mold-sections, the grooved pulley adapted to be centrally held by said centering means and the ring-sections fitted to the groove of the wheel, substantially as shown and described.

4. The combination of upper and lower disks or flanges, top and bottom mold-sections fitted to said disks or flanges for holding them in place, and metallic ring-sections fitted to the groove formed by the inner faces of said disks or flanges having a sand filling but leaving a space within said ring-sections to receive a filling to be cast therein, substantially as shown and described.

5. The combination of upper and lower disks or flanges, provided with an axial bore, top and bottom mold sections fitted to said disks or flanges for holding them in place, metallic ring-sections fitted between said disks or flanges and leaving a space within said ring-sections, and a sand core fitted in the axial bore in the disks whereby

a bushing is formed integral with the filling cast between the ring-sections and disks or flanges, substantially as shown and described.

6. The combination of upper and lower disks or flanges provided with the shoulders, top and bottom mold-sections fitted to said disks or flanges for holding them in place, and the metallic ring-sections fitting between said disks or flanges and having their inner periphery extending to the shoulders on the disk, and having a sand filling which projects beyond the shoulders but leaving a space between it and the disks to receive a filling to be cast therein, substantially as shown and described.

7. In combination with a mold for casting grooved wheels, a metal ring for forming the grooved periphery of said wheel, and having a radial cavity 10 intermediate its faces to receive a filling of sand, for substantially the purpose set forth.

8. In combination with a mold for casting grooved wheels, a metal ring 7 for forming the grooved periphery of said wheel, provided with a radial cavity 10 intermediate its faces and the retaining-lugs 11 projecting radially at the ends of the said cavity, substantially as herein explained.

9. In a mold for casting composite grooved wheels, the metal ring 7 constructed to fit between the top and bottom of the mold, and disks forming the sides of the wheel, fitted to said ring and spaced apart by the ring to receive the metal filling between them; substantially as herein described.

10. The combination in a mold for casting grooved wheels, of the upper and lower mold-sections, the upper and lower disks for forming the sides of the wheel, and the metallic ring-sections fitted between said disks and having a filling of sand conforming to the shape of the groove of the wheel, but leaving a space within the sections to receive a filling to be cast therein, substantially as shown and described.

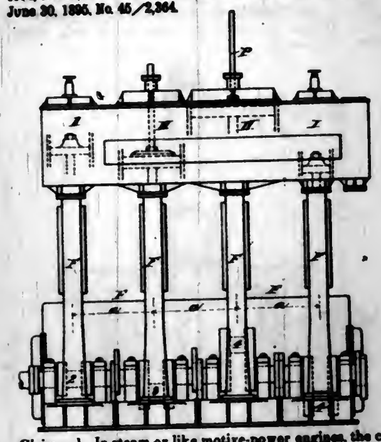
594,287. ORE-SEPARATOR. ALBION M. ROUSE, Denver, Colo., assignor of one-half to H. M. Williamson, same place. Filed June 30, 1897. Serial No. 643,002. (No model.)



Claim.—1. An ore-separator comprising an inclined flat-bottom pan provided with forwardly-pointed dividers in the body portion and a close series of long forwardly-pointed dividers providing a compact series of rearwardly-deepening channels at the rear portion having a plurality of exits therefrom, an affix having a knife-edge located over the exits and means for supporting and vibrating the pan and exits: substantially as described.

2. An ore-separator comprising an inclined flat-bottom pan provided with forwardly-pointed dividers in the body portion and a close series of long forwardly-pointed dividers providing a compact series of rearwardly-deepening channels at the rear portion having a plurality of exits therefrom, an adjustable affix having a knife-edge located over the exits, the supporting-straps at the lower end of the pan, the rod whereby the affix is supported on the straps, the hopper beneath the lower end of the pan, the hopper beneath the lower end of the affix, and means for vibrating the pan; substantially as described.

594,288. STEAM OR LIKE MOTIVE-POWER ENGINE. HERMANN O. SCHLICK, Hamburg, Germany, assignor to the Yarrow Schlick & Tweedy System, Limited, London, England. Filed Sept. 6, 1895. Serial No. 561,629. (No model.) Patented in Germany Nov. 10, 1893, No. 80,974; in England Feb. 8, 1894, No. 2,813; in France Feb. 9, 1894, No. 236,163; in Belgium Mar. 12, 1894, No. 108,979; in Italy Mar. 15, 1894, No. 35,963; in Hungary Dec. 12, 1894, No. 1,783, and in Austria June 30, 1895, No. 45/2,364.



Claim.—1. In steam or like motive-power engines, the combination with the cylinders arranged side by side with their longitudinal axes at predetermined distances apart and the moving elements of said cylinders, namely, their pistons and parts reciprocating therewith; of a shaft having four cranks acted upon by the said moving elements and set at different angles, the angular relation of said four cranks varying in accordance with and being determined by their length, the distances between them, and the weights of the aforesaid moving elements, to balance the reaction forces engendered by the weight of said parts and acting upon the crank-shaft in planes perpendicular to each other, for the purpose set forth.

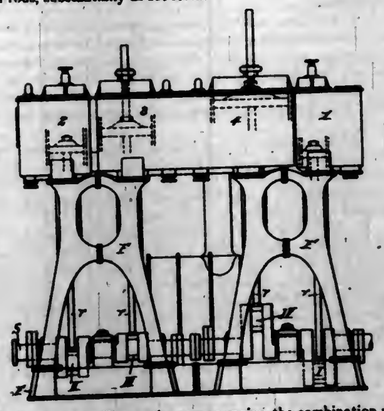
2. In a steam or like motive-power engine, the combination with cylinders of varying diameter arranged side by side with their longitudinal axes at predetermined distances apart, and the moving elements of said cylinders, namely, their pistons and parts reciprocating therewith; of a shaft having four cranks acted upon by the said moving elements and set at different angles, the angular relation of said four cranks varying in accordance with and being determined by their length, the distances between them, and the weights of the aforesaid moving elements to balance the reaction forces engendered by the weight of said parts and acting upon the crank-shaft in planes perpendicular to each other, for the purpose set forth.

3. In a steam or like motive-power engine, the combination with cylinders of varying diameter arranged side by side with their longitudinal axes at predetermined distances apart, the cylinders of greater diameter between those of smaller diameter, and the moving elements of said cylinders, namely, their pistons and parts reciprocating therewith; of a shaft having four cranks acted upon by the said moving elements and set at different angles, the angular relation of said four cranks varying in accordance with and being determined by their length, the distances between them, and the weights of the aforesaid moving elements, to balance the reaction forces engendered by the weight of said parts and acting upon the crank-shaft in planes perpendicular to each other, for the purpose set forth.

4. In a steam or like motive-power engine, the combination with the cylinders arranged side by side with their longitudinal axes at predetermined distances apart, the moving elements of said cylinders, namely, their pistons and parts reciprocating therewith, and the valve-gears; of a shaft having four cranks acted upon by the said moving elements and valve-gears and set at different angles, the angular relation of the four cranks varying in accordance with and being determined by their length, the distances between them, and the weights of the aforesaid moving elements, to counterbalance the reaction forces engendered by said moving elements and acting upon the crank-shaft in planes perpendicular to each other, for the purpose set forth.

594,289. BALANCING OF STEAM OR LIKE MOTIVE-POWER ENGINES. HERMANN O. SCHLICK, Hamburg, Germany, assignor to the Yarrow Schlick & Tweedy System, Limited, London, England. Filed Sept. 6, 1895. Serial No. 561,630. (No model.)

Claim.—1. In a steam or like motive-power engine, the combination with the cylinders arranged side by side with their longitudinal axes at predetermined distances apart, and the moving elements of said cylinders, namely their pistons and parts reciprocating therewith; of a shaft having four cranks acted upon by said moving elements set at different angles, the angular relation of said four cranks varying in accordance with and being determined by their length, the distances between them, the weights of the aforesaid moving elements and the finite length of the connecting-rods to balance the reaction forces acting upon the crank-shaft and engendered by the weight of said moving elements and resulting from the finite length of said rods, substantially as set forth.



2. In a steam or like motive-power engine, the combination with cylinders of different diameters arranged side by side with their longitudinal axes at predetermined distances apart, and the moving elements of said cylinders, namely their pistons and parts reciprocating therewith; of a shaft having four cranks acted upon by the said moving elements set at different angles, the angular relation of said four cranks varying in accordance with and being determined by their lengths, the distances between them, the weights of the aforesaid moving elements and the finite length of the connecting-rods to balance the reaction forces acting upon the crank-shaft and engendered by said moving elements and resulting from the finite length of said rods, substantially as set forth.

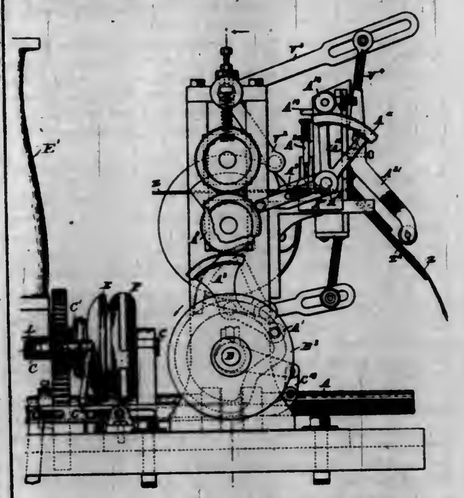
3. In a steam or like motive-power engine, the combination with cylinders of different diameters arranged side by side with their longitudinal axes at predetermined distances apart, the cylinders of greater diameter between those of less diameter, and the moving elements of said cylinders, namely their pistons and parts reciprocating therewith; of a shaft having four cranks acted upon by said moving elements set at different angles, the angular relation of said four cranks varying in accordance with and being determined by their lengths, the distances between them, the weights of the aforesaid moving elements and the finite length of the connecting-rods to balance the reaction forces acting upon the crank-shaft and engendered by said moving elements and resulting from the finite length of said rods, substantially as set forth.

4. In a steam or like motive-power engine, the combination with the cylinders arranged side by side with their longitudinal axes at predetermined distances apart, the moving elements of said cylinders, namely their pistons and parts reciprocating therewith and the valve-gears; of a shaft acted upon by said reciprocating elements and valve-gears and having four cranks set at different angles, the angular relation of said four cranks varying in accordance with and being determined by their length, the distances between them, the weights of said moving elements and valve gears and the finite length of the connecting-rods, to balance the reaction forces acting upon the crank-shaft and engendered by the weight of said parts and resulting from the finite length of the connecting-rods, substantially as described.

594,290. BUTTONHOLE-SEWING MACHINE. JACOB SCHWARZ, New York, N. Y. Filed Aug. 7, 1894. Serial No. 519,648. (No model.)

Claim.—1. The combination of a shaft as A, a buttonhole-sewing machine, a feeding device for a buttonhole-strip, comprising feeding-rollers, means for positively connecting the shaft A with the buttonhole-sewing machine, means for positively connecting the feeding device with the shaft A, and a reciprocally-operated connection between the two last-mentioned means for engaging either the buttonhole-sewing machine or the feeding device with the shaft A, substantially as described.

2. The combination with a buttonhole-sewing machine, of means for feeding a buttonhole-strip, the same consisting of gripping-rollers, intermittently-operated moving devices for rotating the gripping-rollers, and means for communicating motion from the moving devices to the gripping-rollers, and means for intermittently moving the moving devices, substantially as described.



3. The combination with a buttonhole-sewing machine, of a buttonhole strip-feeding mechanism, the same consisting of gripping feeding-rolls for moving the buttonhole-strip, intermittently-operated moving devices for communicating motion to the rolls, and means for intermittently operating the moving devices together with a starting device for the feeding mechanism actuated by the buttonhole-sewing machine upon the completion of each buttonhole, the said starting device being independent of the mechanism for moving the feeding-rolls, substantially as described.

4. The combination with a buttonhole-sewing machine, of a buttonhole-strip-feeding mechanism, the same consisting of feeding-rollers for gripping and moving the strip, an intermittently-moving cam-piece, and means for communicating an intermittent movement from the cam-piece to the feeding-rolls, together with a starting device for the feeding mechanism actuated by the buttonhole-sewing machine on the completion of each buttonhole, the said starting device being independent of the mechanism for moving the feeding-rollers, substantially as described.

5. The combination with a buttonhole-sewing machine, of a feeding device for the buttonhole-strip consisting of engaging devices for engaging and moving the buttonhole-strip, step-by-step devices for moving the engaging devices step by step and mechanism for actuating the step-by-step devices, a cutting device for severing the buttonhole-strip, means for rendering the feeding device inactive while the buttonhole is being worked, and a connection between the sewing-machine and the feeding device for causing the feeding device to be actuated upon the completion of a buttonhole, substantially as described.

6. The combination with a buttonhole-sewing machine, of a feeding device for the buttonhole-strip consisting of engaging devices for engaging and moving the buttonhole strip, step-by-step devices for communicating an intermittent movement to the engaging devices for the buttonhole-strip, mechanism for actuating the step-by-step devices, a cutting device for severing the buttonhole-strip actuated by the mechanism for actuating the step-by-step devices, means for rendering the feeding device inactive while the buttonhole is being worked, and a connection between the sewing-machine and the feeding device for causing the feeding device to be actuated upon the completion of a buttonhole, substantially as described.

7 The combination with a buttonhole-sewing machine, of a feeding device for a buttonhole-strip, feeding-rolls for moving the buttonhole-strip, step-by-step mechanism for communicating a step-by-step motion to the feeding-rolls and mechanism for actuating the step-by-step mechanism, a cutting device for severing the buttonhole-strip operated by the mechanism for actuating the step-by-step mechanism, means for rendering the feeding device inactive while the buttonhole is being worked, and a connection between the sewing-machine and the feeding device for causing the feeding device to be actuated upon the completion of a buttonhole, substantially as described.

8. The combination with a buttonhole-sewing machine, of a feeding device for feeding the buttonhole-strip comprising feeding-rolls and moving mechanism therefor, a stop device for stopping the motion of the feeding devices, and a starting device for the feeding mechanism actuated by the sewing-machine upon the completion of each buttonhole, the said starting device operating independently of the feeding mechanism, substantially as described.

9. The combination with a buttonhole-sewing machine, of step-by-step feeding devices for moving a buttonhole-strip comprising feeding-rolls and moving mechanism therefor, a stop for the feeding devices, and a starting device for the feeding mechanism actuated by the sewing-machine upon the completion of each buttonhole, the said starting device operating independently of the feeding mechanism, substantially as described.

10. The combination with a sewing-machine, of feeding devices for feeding the buttonhole-strip, a mutilated pinion for communicating motion to the feeding devices from the driving-shaft, whereby when the gap in the mutilated pinion comes in proximity to its operating mechanism the feeding devices will be stopped, and a connection between the sewing-machine and the feeding devices for engaging the mutilated pinion with its operating mechanism, substantially as described.

11. The combination with a buttonhole-sewing machine, of feeding devices for moving a buttonhole-strip, means for communicating motion thereto consisting of a worm and a mutilated pinion, with a connection between the sewing-machine and the pinion for engaging the pinion with the worm at a predetermined time, substantially as described.

12. The combination of a buttonhole-sewing machine, a feeding device for feeding a buttonhole-strip, a connection between the feeding device and the presser-foot of the sewing-machine to lift the presser-foot at predetermined times, and a cutter operated from the feeding device at predetermined times to sever the strip, substantially as described.

13. The combination of a buttonhole-sewing machine, a feeding device for a buttonhole-strip, the said feeding device being provided with a cam for raising the presser-foot of the sewing-machine at predetermined periods, and a cutter operated from the feeding device at predetermined times to sever the strip, substantially as described.

14. In a feeding mechanism, the combination of feeding-rolls, a ratchet rigidly carried by one of the rolls so as to move the rolls when actuated, a pinion loosely mounted upon the axis of the said roll, actuating means between said pinion and said ratchet, a sector engaging with the pinion, an intermittently-moving cam device, and means for communicating an intermittent motion to the sector from the cam device, substantially as described.

15. In a feeding device, the combination of feeding-rolls, a ratchet carried by one of the rolls, a pinion also carried by one of the rolls and provided with a pawl for engaging with the ratchet, a sector meshing with the pinion, an intermittently-moving cam device and means for communicating motion from the cam device to the sector, substantially as described.

16. The combination with a buttonhole-sewing machine of a feeding device for the buttonhole-strip comprising feeding-rolls for engaging the strip, means for communicating intermittent movements of equal length to the said rolls, and means for causing the said rolls to receive at predetermined times a greater range of movement than any of the preceding equal intermittent movements, substantially as described.

17. The combination in a feeding device, of feeding-rolls, an expansible cam device, means for communicating motion from the said cam device to the feeding-rolls, and a cam mechanism for expanding the cam device to cause the cam device at predetermined times to give a longer throw to the mechanism for communicating motion to the feeding-rolls, substantially as described.

18. In a feeding device, the combination of feeding-rollers, a pinion carried by one of the rollers coöperating with pawl-and-ratchet mechanism also carried by one of the rollers, moving mechanism for communicating motion to the pawl-and-ratchet mechanism, and a cam device for communicating motion to the moving mechanism, the said cam device consisting of a disk, a cam-lever carried thereby, pawl-and-ratchet mechanism and a cam device for coöperating with the cam-lever at predetermined periods to rock the cam-lever and thereby expand the cam, substantially as described.

19. The combination in a feeding device, of feeding-rolls, moving mechanism for communicating motion thereto, an expansible cam device for imparting throws of various lengths to the moving mechanism for the feeding-rollers and means for expanding the cam device, substantially as described.

20. The combination with a buttonhole-sewing machine, of a feeding device for feeding a buttonhole-strip, adjusting mechanism for adjusting the feeding devices with respect to the sewing-machine, means for rendering the feeding device inactive while the buttonhole is being worked, and a connection between the sewing-machine and the feeding device for causing the feeding device to be actuated upon the completion of a buttonhole, substantially as described.

21. In a feeding and band-severing device for buttonhole-sewing machines, the combination with a knife-bar mounted in suitable guides and carrying a knife, of a stretcher actuated by the knife-bar and feeding-rolls for feeding a buttonhole-strip, substantially as described.

22. In a feeding and band-severing device for buttonhole sewing machines, the combination with a knife-bar carrying a knife and provided with a pivoted stretcher, of feeding-rolls for feeding a buttonhole-strip, together with means for moving the knife-bar, substantially as described.

23. A feeding and band-severing device for buttonhole-sewing machines comprising a feeding device for the buttonhole-strip provided with a main cam-shaft, step-by-step mechanism operated from the main cam-shaft and serving to operate a cam, together with a knife and operating mechanism therefor actuated at predetermined intervals by the cam of the step-by-step device, substantially as described.

24. The combination in a feeding device for a buttonhole-strip, of a main cam-shaft, a sector operated from the main cam-shaft, a toothed disk engaging with the sector and provided with a pawl-and-ratchet mechanism, a cam device, and a knife for severing the strip operated by the cam device, substantially as described.

25. The combination of a buttonhole-sewing machine, a knife-bar mounted in suitable guides, a rock-shaft provided with cams engaging with the knife-bar, a step-by-step feeding device for the buttonhole-strip, and a connection between the step-by-step feeding device and the rock-shaft for actuating the rock-shaft at predetermined periods, and means for propelling the step-by-step device, substantially as described

26. The combination of a buttonhole-sewing machine, feeding-rolls for advancing the work step by step, a chute, a knife-bar carrying a knife, and a stretcher carried by the knife-bar and coöperating with the chute to stretch the strip before the same is severed, substantially as described.

27. The combination in a feeding device, and band severing and marking device for use with buttonhole-sewing machines, of intermittently-operated feeding-rolls, a knife-bar provided with a knife, a stamp and means for operating the stamp, together with mechanism for moving the knife-bar at predetermined times, substantially as described.

28. The combination with a knife-bar provided with a knife, of a stretcher pivoted on the knife-bar, the same consisting of a forked bar A^{31} provided with a roller A^{32} and with a spring, substantially as described.

29. The combination in a strip-feeding device for buttonhole-sewing machines, of a driving-shaft A provided with a worm, a mutilated pinion engaging with the worm and serving to communicate motion from the shaft A to the main cam-shaft of the mechanism, a notched collar upon the main cam-shaft with which coöperates a detent carried by a collar on the main cam-shaft, and a connection between the sewing-machine and the detent to move the same to engage with the notched collar to rotate the main cam-shaft at predetermined periods, substantially as described.

30. The combination with a buttonhole-sewing machine, of a feeding mechanism for a buttonhole-strip provided with a main cam-shaft, a connection between the sewing-machine and the main cam-shaft to turn the latter at predetermined periods, and a cam upon the main cam-shaft for actuating the aforesaid connection to start the sewing-machine, substantially as described.

31. The combination of a buttonhole-sewing machine provided with a presser-foot, a feeding mechanism for the buttonhole strip adjustable with relation to the sewing-machine and provided with a cam, a rock-shaft coöperating with the cam, and an adjustable connection between the rock-shaft and the presser-foot, substantially as described.

32. The combination, with a buttonhole-sewing machine having a presser-foot, of a rock-shaft connected with the presser-foot and provided with a projection, a feeding mechanism for a buttonhole-strip, and a cam on the feeding mechanism coöperating with the projection and serving to rock the shaft in one direction, whereby the presser-foot may be lifted at predetermined times, substantially as described.

33. The combination with a buttonhole-sewing machine, of a feeding device for feeding a buttonhole-strip, comprising feeding-rolls and moving mechanism therefor, a driving-shaft A, a connection between the shaft A and the feeding device, a clutch for connecting the shaft C of the sewing-machine with the shaft A whereby the shaft C may be driven, a connection between the sewing-machine and the clutch constituting a shifting mechanism therefor, a connection between the feeding mechanism and the buttonhole-sewing machine adapted to operate the shifting mechanism, the said connection being adapted for engagement with a catch, and means for releasing the catch from the buttonhole attachment whereby the buttonhole-sewing machine may be started by the movement of the feeding mechanism and stopped by the movement of the buttonhole attachment upon the completion of a buttonhole, substantially as described.

34. The combination of a buttonhole-sewing machine, a feeding mechanism for buttonhole-strip comprising feeding-rolls, a driving-shaft, and an automatically-operated connection between the sewing-machine and the feeding mechanism for alternately connecting the driving-shaft with the sewing-machine and with the feeding mechanism, substantially as described.

35. The combination of a disk provided with a pivoted cam-lever, a pawl carried by the disk, a ratchet adapted for engagement with the pawl, a cam device carried by the ratchet and provided with one or more projections for engaging with the cam-lever to rock the same at predetermined periods, substantially as described.

36. The combination of a disk T^{14}, a cam-lever T^7 pivoted thereto and provided with a toe T^9, a pawl b pivoted to the disk, a ratchet T^8 mounted in proximity to the disk and free to revolve, a cam-piece T^6 arranged to move with the ratchet and to engage with the toe T^9 at predetermined periods to rock the same, substantially as described.

37. In a stop mechanism for buttonhole-sewing machines, the combination of a rotating shaft provided with a disk, a yielding stop upon the disk and with a spring-pressed friction device, together with a movable abutment engaging with the stop and friction device to arrest the motion of the shaft, substantially as described.

38. In a stop mechanism, the combination of a rotating shaft provided with a disk, a lever pivoted to the disk, a spring bearing upon and cushioning the pivoted lever, a friction-lever also pivoted to the disk and having a spring for holding the same under tension, together with a movable abutment in the path of the levers and engaging with the said levers to stop the shaft, substantially as described.

39. In a stop mechanism, the combination of a disk, a spring-pressed stop-lever pivoted to the disk and constituting a yielding stop, a spring-pressed friction-lever also pivoted to the disk, together with a movable abutment adapted to engage with the levers to stop the rotation of the disk and means for moving the abutment, substantially as described.

40. In a stop mechanism, the combination of a disk, a pivoted spring-pressed lever carried thereby and constituting a yielding stop, of a spring-pressed friction-lever carried also by the disk, and a yielding abutment with which the levers are adapted to engage to stop the rotation of the shaft, substantially as described.

41. The combination with a buttonhole-sewing machine, of a feeding mechanism for feeding a buttonhole-strip, a stop mechanism for the sewing-machine, the same consisting of a disk carried by a rotating part of the sewing-machine mechanism, the said disk being provided with a spring-pressed pivoted lever constituting a yielding stop and a spring-pressed friction-lever, and an abutment with which the levers are adapted to engage, together with a shifting device, for the abutment, the same being operated from the feeding mechanism, substantially as described.

42. The combination with a buttonhole-sewing machine having a reciprocating work-clamp, of a strip-guiding device or guide fixed with respect to the work-clamp, over which guide the strip runs to the work-clamp, a tension device in advance of the buttonhole-sewing machine to maintain a constant tension on the strip, a strip feeding mechanism beyond the buttonhole-sewing machine and connecting mechanism whereby the strip-feeding mechanism is operated when the buttonhole-sewing machine is at rest and the strip-feeding mechanism is arrested when the buttonhole-sewing machine is in operation.

43. The combination with a buttonhole-sewing machine, of a supporting strip-feeding roll, another strip-feeding roll resting thereon, and operating mechanism connecting the said supporting-roll with the buttonhole-sewing machine whereby the strip-feeding rolls are revolved when the buttonhole-sewing machine is at rest and the strip-drawing rolls are arrested when the buttonhole-sewing machine is in operation.

44. The combination with a buttonhole-sewing machine, of a work-clamp located at the point where the needle operates, suitable guides for conducting to said clamp a strip of material of indefinite length, mechanism for automatically and intermittently feeding said strip through said clamp, mechanism actuated by the strip-feeding mechanism for automatically and intermittently opening and closing the work-clamp, and mechanism actuated by the strip-feeding mechanism for starting the buttonhole-sewing machine at each cessation of the movement of the strip, substantially as described.

45. The combination with a continuously-rotating shaft A, of a buttonhole-sewing mechanism comprising a spring-closed work-clamp and connected with the shaft A by clutch-gearing, a shaft B positively geared with the shaft A, a cam on said shaft B operating to open the work-clamp of the sewing mechanism, a second cam on said shaft B operating the starting mechanism of the sewing-machine, and a third cam on said shaft B operating intermittently a strip-feeding mechanism, substantially as described.

46. The combination with a buttonhole sewing machine having a spring-closed work-clamp at the point where the needle operates, of a rotating shaft geared with said machine, a pair of feed-rolls for feeding a strip of material through the sewing-machine, a cam on said shaft adapted to operate said feed-rolls intermittingly, and other cams on said shaft for respectively starting the sewing-machine and opening the work-clamp, in synchronism with the movement of the feed-rolls, substantially as described.

47. The combination with a buttonhole-sewing machine, comprising a spring-closed work-clamp, of a rotating shaft geared with said machine, a cam on said shaft, a rigid connection between said cam and the work-clamp whereby the cam operates to open said clamp at regular intervals, a strip-feed mechanism operated by said shaft at the intervals when the clamp is open, and a cam on said shaft operating to start the sewing-machine at the close of each feeding movement, substantially as described.

48. The combination, with a buttonhole-sewing machine including means for starting the same, a work-clamp and means for driving the sewing-machine, of a strip-feeding mechanism, cams B^3 B^4 B^5 operating in unison with the said means for driving the sewing-machine, and operating connections between said cams B^3 B^4 B^5 and the strip-feeding mechanism, the means for starting the machine and the work-clamp, respectively.

49. The combination of a sewing-machine, means for stopping the same, and strip feeding mechanism actuated by a cam operating in harmony with the sewing-machine, and means for adjusting said cam.

50. The combination, with a sewing-machine, its stop mechanism, and a strip-feeding mechanism, operated by an adjustable cam device operating in harmony with the sewing-machine, of an automatic cam-adjusting mechanism operating in harmony with the sewing-machine.

51. The combination with the sewing-machine and the coöperating strip-feeding mechanism operated by a cam provided with an adjustable part, of another cam mounted on the first-named cam for controlling said adjustable part.

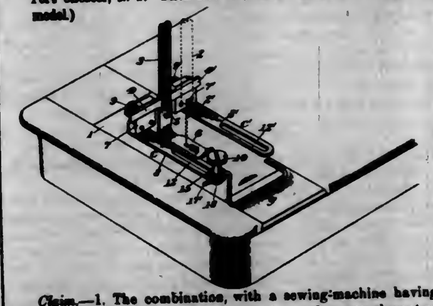
52. The combination, with a buttonhole-sewing machine, including mechanism for working a buttonhole of a strip-feeding mechanism coöperating therewith to advance a continuous strip of fabric through the work-clamp of the machine intermittingly after the stitching of each buttonhole, together with a strip-dividing mechanism and mechanism for operating the same only after a predetermined series of successive feeding and buttonhole-stitching operations.

53. The combination, with a sewing-machine and a strip-feeding mechanism, of a strip-dividing mechanism, a cam operating in harmony with the strip-feeding mechanism, a cam to operate the strip-dividing mechanism, and a ratchet-gear between said cams.

54. The combination, with a strip-feeding mechanism and a strip-marking device or stamp, of cams for actuating the strip-marking device operating in harmony with the strip-feeding mechanism, and a ratchet-gear between said cams.

55. The combination of a buttonhole-sewing machine, including means for working a buttonhole, a strip-feeding mechanism operating intermittently with the buttonhole-sewing machine and a strip-marking device operating intermittently with the strip-feeding mechanism.

594,291. SEWING-MACHINE ATTACHMENT. JAMES W. SIMONS, Port Chester, N. Y. Filed Nov. 19, 1896. Serial No. 612,868. (No model.)



Claim.—1. The combination, with a sewing-machine having a needle-bar, a presser-bar, and a presser-foot; of an attachment-supporting member carried by said presser-bar above the presser-foot and disposed transversely to the presser-foot and the path of movement of the needle; an arm carried by said member and projecting transversely therefrom and movable therealong transversely to said path of the needle; and a fabric-controlling attachment adjustably secured to the free end of said arm.

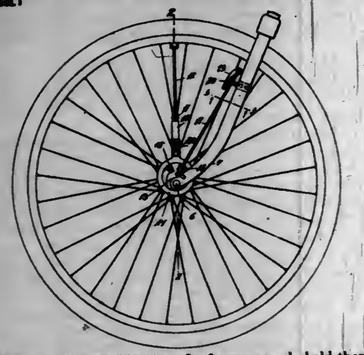
2. The combination, with a sewing-machine having a needle-bar, a presser-bar, and a presser-foot; of an attachment-supporting mem-

ber carried by said presser-bar above the presser-foot and disposed transversely to the presser-foot and the path of movement of the needle; an arm carried by said member and projecting transversely therefrom and movable thereabout transversely to said path of the needle; and a fabric-controlling attachment secured to the free end of said arm and adjustable thereabout and transversely thereto.

3. The combination, with a sewing-machine having a needle-bar, a presser-bar, and a presser-foot, of an attachment-supporting member carried by said presser-bar above the presser-foot and disposed transversely to the path of movement of the needle; a longitudinally-slotted transverse arm carried by said member and movable thereabout transversely to the path of the needle; and a fabric-controlling attachment secured to said arm and adjustable longitudinally of said slot.

4. The combination, with a sewing-machine having a throat-plate, a presser-bar, and a presser-foot, of a transverse attachment-supporting member carried by the presser-bar above the presser-foot; a longitudinally-slotted transverse arm carried by, and movable along, said member; a clamp-screw for securing the arm to said member; a fold-gage-clamping device carried by said arm and adjustable longitudinally of said slot; and a fold-gage mounted in said clamping device and adjustable toward and from the throat-plate.

594,292. PUMP FOR PNEUMATIC TIRES. ALLANSON S. SIMPSON, Folsom, N. Mex. Filed June 3, 1897. Serial No. 639,265. (No model.)



Claim.—1. The combination of a frame, an axle held thereby, a wheel turning loose on the axle, a cylinder carried by the wheel, a piston working in the cylinder, a rod attached to the piston, an eccentric loose on the axle and having a lug, a strap embracing the eccentric and connected with the rod of the piston, a shaft rocking in the frame, and a dog carried by the shaft and capable of engaging the lug whereby to stop the revolution of the eccentric.

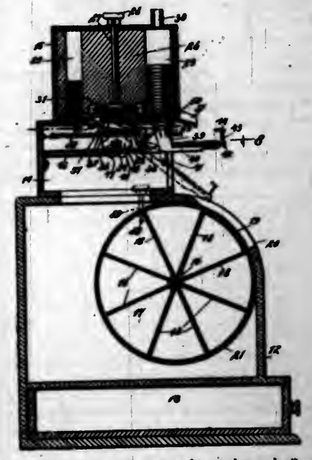
2. The combination of a shaft, an eccentric loose thereon, the eccentric having a lug provided with two recesses and the face of the eccentric having an inclined way running up to the lug, a shaft rockably held by the frame, and a dog carried by the shaft and having two fingers capable of respectively engaging in the recesses of the lug.

3. The combination of a shaft, an eccentric loose on said shaft, a strap turning around the shaft and coacting with the eccentric, a rock-shaft mounted adjacent to the eccentric, and a dog carried on the rock-shaft and movable to engage and disengage the eccentric whereby to hold the same fixed with reference to the shaft.

594,293. CASH-RECEPTACLE. ALPHEUS C. SIER, Stanford, Ky. Filed June 4, 1897. Serial No. 639,891. (No model.)

Claim.—1. The combination of a rotary coin-carrier with vertically-extending stacks therein designed to receive varying denominations of coins, a gear turning concentrically to the axis of the coin-carrier, a gear mounted on an axis running at right angles to the axis of the coin-carrier, and meshing with the gear of the coin-carrier, a sliding bar having a slot therein, a rack-bar pivoted to the sliding bar and geared with the shaft of the second-named gear, a bell-crank lever, a link establishing a connection between the bell-crank lever and the slotted bar, an ejector-plate coacting with the coin-carrier, and a link connecting the ejector-plate with the bell-crank lever.

2. The combination of a rotary coin-carrier turning on a vertical axis and having a series of vertically-extending coin-stacks, the coin-carrier also having a centrally-located recess in its lower end, and a series of slideways run radially past the lower ends of the coin-stacks, an ejector-plate normally held within the recess of the coin-carrier, a link pivoted to the ejector-plate, a bell-crank lever to which the link is pivoted, a second link pivoted to the bell-crank lever, and a swinging bar to which the second link is also pivoted.



3. The combination of a rotary coin-carrier, a shaft geared therewith whereby to turn the coin-carrier, a rack-bar geared with the shaft and serving to turn the same, a slotted bar pivoted to the rack-bar, a bell-crank lever in connection with the slot of the said slotted bar, an ejector-plate for the coins of the coin-carrier, and a connection between the bell-crank lever and the ejector-plate.

4. The combination of an alarm, a rock-shaft mounted adjacent thereto, means carried by the rock-shaft whereby to operate the alarm, an arm fixed to the rock-shaft, a cash-receptacle mounted adjacent to the arm, and a slidable rack-bar capable of turning the cash-receptacle and of engaging the arm whereby to throw the rock-shaft.

5. The combination of an alarm, a rock-shaft mounted adjacent thereto, means carried by the rock-shaft whereby to operate the alarm, an arm carried by the rock-shaft, means for engaging the arm whereby to swing the same, a rack-bar fixed to the rock-shaft, and a pinion engaging with the rack-bar whereby to slide the rack-bar and move the said arm relatively to the means for operating the same.

6. The combination of a coin-carrier, means for operating the coin-carrier, a note-receptacle, means for operating the note-receptacle, a rock-shaft mounted adjacent to said elements, two arms fixed to the rock-shaft and respectively engaged by the operating means for the coin-carrier and note-receptacle, an alarm, and means carried by the rock-shaft whereby to operate the alarm.

7. A cash-receptacle having a casing with an opening therein, and a note-receptacle revolubly mounted within the casing and having a series of compartments capable respectively of registering with the opening in the casing, one of the compartments having a cover-plate adapted to normally close the opening in the casing.

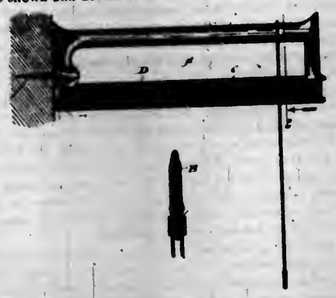
8. The combination of a cylindrical casing with an opening run through one side thereof, and a cylindrical note-receptacle revolubly mounted within the casing and loosely engaging the interior sides thereof, the note-receptacle having compartments respectively registering with the opening in the casing, and one of the compartments in the note-receptacle being closed by a plate extending across the mouth of said compartment so as to form a dummy compartment.

9. The combination with a casing having an outlet-orifice therein, of a coin-carrier mounted to turn on a vertical axis and having a series of vertical coin-stacks therein, the coin-carrier also having a recess in its lower end, the recess being located inward from the coin-stacks and being in communication therewith by radial slots formed in the coin-carrier, a gear-wheel, located within the recess and attached to the coin-carrier, gearing in connection with said gear-wheel whereby to turn the coin-carrier, a horizontal ejector-plate normally held within the recess of the coin-carrier and movable radially independently of the coin-carrier so as to eject the coin from the stacks thereof, and for reciprocating the ejector-plate.

594,294. SHOESTRING-HOLDER. HENDERSON T. SMALL, Chanute Kans. Filed Dec. 7, 1896. Serial No. 614,778. (No model.)

Claim.—1. A shoestring-holder, composed of the bracket having at one end a screw-shank, provided with a longitudinally-extended contact-surface, having seats at the ends of such surface, and provided with an elastic band sprung into such seats all substantially as and for the purposes set forth.

2. A shoestring-holder comprising a bracket over the upper edge of which the strings may be hung and along the opposite edges of which the said strings may hang, such bracket being provided with a contact-surface and with seats at the opposite ends thereof and the elastic band sprung into said seats and holding the strings substantially as shown and described

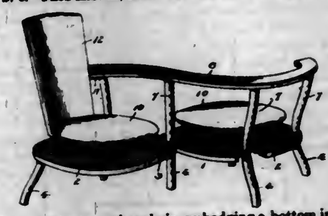


594,295. BRAKE FOR VELOCIPEDES. FREDERICK SMART, Hastings, England. Filed Apr. 16, 1897. Serial No. 632,451. (No model.)



Claim.—The combination with the shoe A, having side plates B, and horns C, of a brake-block D, having longitudinal recesses D^2, and extensions D', for receiving the said parts B, C, substantially as described.

594,296. SPECIALIST'S CHAIR. WELLINGTON STOTT, Washington, D. C. Filed Mar. 12, 1897. Serial No. 627,072. (No model.)



Claim.—1. An operating-chair, embodying a bottom in the form of two disks joined together, a series of supporting-legs for said bottom, a superposed rail detachably connected to said bottom, and a pair of revolving seats, all arranged substantially as described.

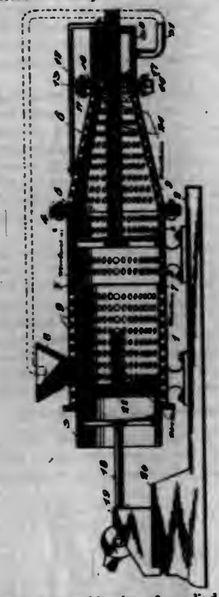
2. An operating-chair, comprising a bottom in the form of joined disks, legs supporting said bottom, revoluble and vertically-adjustable seats mounted on said bottom, a back attached to one of said seats, a superposed rail or arm-rest detachably connected to said bottom, and means for locking said chair-back and rail together, substantially as described.

3. An operating-chair, consisting of a bottom embodying two joined disks, legs supporting said disks and having tubular upper ends which open out at the upper side of the bottom, a pair of movable seats arranged above said bottom, a superposed rail or rest, and a series of pendent supports for said rail, said supports having their lower ends adapted to be removably fitted in the upper tubular ends of said legs, substantially as described

4. An operating-chair, consisting of a suitable bottom, legs supporting said bottom and having tubular upper ends which open out through the upper surface of the bottom, a pair of movable seats supported upon said bottom, a back secured to and movable with one of said seats, an S-shaped rail superposed above the bottom and having means whereby the chair-back may be locked thereto and unlocked therefrom, and pendent supports carried by said rail and having their lower ends reduced and removably fitted in the upper ends of the legs, substantially as described.

594,297. PRESS. FREDERICK STRATTNER, Salisbury, Md. Filed Feb. 5, 1897. Serial No. 622,171. (No model.)

Claim.—1 In a press, the combination with a cylinder, of an elongated, perforated, reducing-cone 6 rigid with said cylinder, a perforated drainage-tube extending longitudinally through said reducing-cone and protruding through the rear end thereof, a spider for supporting the inner end of said drainage-tube within the cylinder, and a piston fitted in the cylinder and provided with a drainage-tube 22 to permit of the drainage of liquid matter from the core of the mass of material in said cylinder, substantially as described.

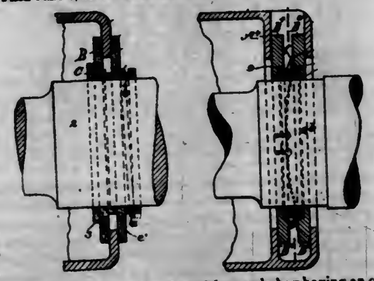


2. In a press, the combination of a cylinder having a reducing-cone, a hollow plunger, a perforated drainage-tube attached to said plunger to be movable therewith and arranged in the line of the axis of the cylinder, another drainage-tube situated axially within the reducing-cone and extending through the discharge end thereof, and means for holding in place said last mentioned drainage-tube, as and for the purposes described.

3. In a press, the combination with a cylinder, a reducing-cone, and a plunger, of a discharge-regulator fitted to the extremity of said reducing cone and having two slotted members one of which is adjustable with relation to the other and both members provided with central openings, and a drainage-tube extending through said reducing-cone and the central openings in the members of said regulator, substantially as and for the purposes described.

4. In a press, the combination with a cylinder, and a reducing-cone rigid therewith, of the slotted regulator members 13, 15, one of which is rigidly connected to the extremity of the cone and the other member is adjustably clamped to the rigid member, a drainage-tube supported at its inner end in the cylinder and passing centrally through the regulator members, a receptacle 30 arranged to receive from the regulator, and a plunger having a drainage-tube, as and for the purposes described.

594,298. AXLE-BOX. FRANZ A. SÜRTH, Dortmund, Germany. Filed June 6, 1896. Serial No. 594,494. (No model.)



Claim.—1. The combination with an axle-box having an opening therein and with an axle passed through the opening, of a ring em-

bracing the axle and having a flange at each end, one flange being smaller than the other flange, two plates embracing the ring, one of the plates being engaged with the larger flange, and an expansive spring located between the remaining plate and the smaller flange and pressing the ring to force the two plates toward each other and into engagement with the axle-box.

2. A closure for an axle-box, the closure consisting in a ring at each end of which is a flange, two plates embracing the ring, one of the plates engaging one of the flanges whereby the plate is held on the ring, and a spring pressing the second of the plates and also pressing the remaining of the flanges.

3. The combination with an axle-box having an opening in the rear wall thereof, and with an axle passed through the opening, of a ring snugly embracing and supported by the axle, and two plates embracing and carried on the ring and engaging opposite faces of the rear wall of the axle-box whereby to assist in closing that portion of the opening in the rear wall of the axle-box which portion is not closed by the axle, the plates and the ring being movable with the axle so as to perform their function irrespective of the relative positions of the axle-box and axle.

4. The combination of an axle-box having an opening in one wall thereof, an axle run through said opening, and means for closing such portion of the opening in the axle-box as is not closed by the axle, said means comprising two plates separate from each other and embracing the axle and movable therewith relatively to the axle-box, the plates engaging the wall of the axle-box which has the opening, and a rigid ring separate from the plates, the rigid ring surrounding the axle, the ring and the plates being supported by the axle as distinguished from the axle box, and the ring engaging the said plates.

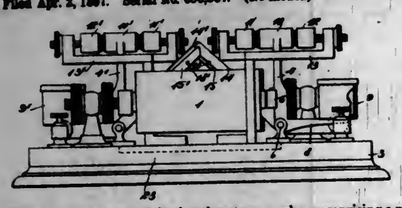
594,299. LINING FOR BOOTS OR SHOES. WALTER SUTCLIFFE, Todmorden, England. Filed Aug. 31, 1896. Serial No. 604,396. (No specimens.) Patented in England Aug. 26, 1892. No. 15,268.



Claim.—1. A shoe-heel lining formed of a single piece of perforated leather backed with absorbent material secured to the leather by rows of stitches, and comprising an upper part shaped to fit against the upper, and a lower part shaped to fit over the insole, notches being formed at the junction of the said parts permitting the lining to be bent crosswise and fitted into the heel portion of the shoe, substantially as set forth.

2. A shoe-heel lining formed of a single piece of perforated leather backed with absorbent material secured to the leather by rows of stitches, and comprising an upper part shaped to fit against the upper, and a lower part shaped to fit over the insole, notches being cut at the junction of the said parts thereby forming projections B, and the said lining being bent crosswise between the notches and the projections tucked under the said lower part, substantially as set forth.

594,300. RAILWAY-SIGNAL. JOHN D. TAYLOR, Chillicothe, Ohio. Filed Apr. 2, 1897. Serial No. 630,387. (No model.)



Claim.—1. In an electric-signal system, a relay comprising a pair of electromagnets, pivoted armature-levers coacting therewith, contacts carried by the armature-levers, front and back contact-pieces for engagement with the contacts carried by the levers, rock-shafts on which the armature-levers are mounted, arms rigidly mounted on the rock-shafts, and arms loosely mounted on the rock-shafts, the loose arm of one shaft being adapted to interlock with the rigid arm of the other shaft, substantially as specified.

2. In an electric-signal system for railways, a relay comprising a pair of electromagnets, pivoted armature-levers coacting therewith, a counterbalance on each armature-lever, contacts carried by the armature-levers, front and back contact-pieces for engagement with the contacts carried by the levers, the front and back contact-pieces of the pair being in electrical connection, rock-shafts upon which the armature-levers are mounted, an arm extended rigidly from the rock-shafts, and arms loosely mounted on said shafts and having outwardly-extended counterbalancing portions, the loose arm of one shaft being adapted to interlock with the rigid arm of the other shaft, substantially as specified.

3. An electric signal system for railways, comprising a relay consisting of two electromagnets, armature-levers coacting with the electromagnets, contact-pieces in the alarm-circuit and adapted to be engaged by the armature-levers, shafts upon which the armature-levers are mounted, arms extended upward from said shafts, other arms loosely mounted on the shafts and having counterweights, and pins extended laterally from said loosely-mounted arms to engage underneath the first-named arms, the several arms being adapted to interlock at the ends, substantially as specified.

4. An electric-signal system for railways, comprising a relay consisting of two electromagnets, an armature-lever coacting with each electromagnet and adapted to close an alarm-circuit, shafts upon which said armature-levers are mounted, an arm extended at an angle from each shaft, each arm having a notch at its end providing a lug extended substantially at right angles to the length of the arm, and also providing a beveled shoulder, and other arms mounted to swing on the shafts, the said other arms being beveled at the ends, the loose arm on one shaft being adapted to interlock with the arm rigidly extended from the other shaft, substantially as specified.

5. A railway-crossing-alarm system, comprising two track-sections, batteries having connection with opposite rails of the sections, a relay comprising two electromagnets connected respectively with opposite rails of the sections, a signal-circuit comprising a battery, armature-levers coacting with the relay-electromagnets, front and back contacts having connection with the signal-circuit and adapted to be closed by the armature-levers, and interlocking arms operated by the armature-levers, substantially as specified.

6. An electric-signal mechanism for railways, comprising two electromagnets, an armature-lever coacting with each electromagnet, rock-shafts upon which the armature-levers are mounted, an arm extended rigidly from each shaft, and a counterbalanced arm mounted to swing on each shaft, each rigid arm having a notch 19, a lug 20, for limiting the motion of the arm and lever connected thereto by engaging the square portion of the end of the opposite swinging arm, and a beveled shoulder 21 for effecting the same purpose by engaging the beveled shoulder of the opposite swinging arm, and the swinging arms each having a square portion and a beveled portion 22 at the end and carrying a pin 18 projecting under the adjacent rigid arm for limiting the motion of the swinging arm, substantially as specified.

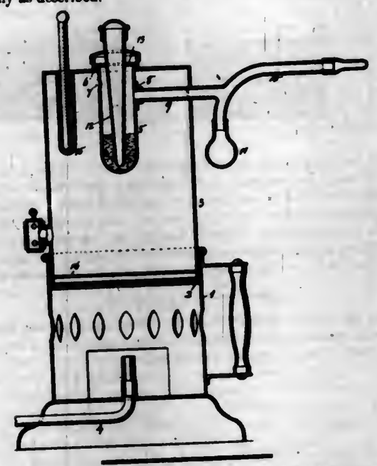
594,301. NON-REFILLABLE BOTTLE. GEORGE TURRELL, Patterson, N. Y. Filed Sept. 1, 1896. Serial No. 604,553. (No model.)



Claim.—The combination with a bottle having a contracted tubular neck and a web on the inside thereof having a central opening in it, of a spool-shaped stopper fitting the upper end of the neck of said bottle, having a central longitudinal opening therein which is closed at its lower end, having slots near the upper end thereof leading into said central opening and having the lower flange thereof notched or cut away, a valve rod or stem on the under side of said stopper fitting the opening in said web and a valve having an annular flange upon it, slidingly mounted on said valve rod or stem and adapted to close the opening in said web when the bottle is in one position, but which is free to move away from said web when the bottle is tilted for the purpose of pouring out the contents thereof.

594,302. INHALER. GEORGE B. UNDERWOOD, New York, N. Y. Filed July 9, 1896. Serial No. 598,599. (No model.)

Claim.—The combination in an apparatus for preparing medicated vapors, of a closed heating vessel provided with a valved inlet near the bottom of said vessel; means for heating the vessel, a vessel for containing the medicament suspended within the heating vessel at the top of the latter and having an inlet-aperture establishing communication between said medicament vessel and the interior of the heating vessel, and an outlet or inhaling tube passing through the wall of the heating vessel and terminating at its inner end flush with the interior wall of the medicament vessel at a point above the level of the medicament whereby the entering air is led or directed over and above the medicament, the said outlet being led transversely from the medicament vessel above the level of the medicament, substantially as described.

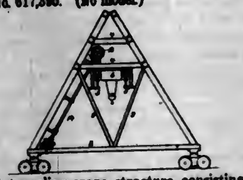


594,303. LADDER. BRYANT A. WARD, Bardwell, Ky., assignor of one-half to John T. Davis, same place. Filed May 24, 1897. Serial No. 638,579. (No model.)



Claim.—A ladder comprising two sections hinged together so that when the sections are straightened out their adjacent ends will abut, braces curved in the arc of a half-circle, the lower ends of said braces being secured to the sides of one section of the ladder and the upper ends of said braces extending over the upper end of that section of the ladder to which the lower end of the brace is attached, and having its extremity lying parallel and in line with the forward edge of the side piece of said ladder-section, and formed with an angular hook E adapted to receive the folding section of the ladder and brace the same, and a spring-bolt and thumb-screw for clamping the braces to the folding section of the ladder, substantially as set forth.

594,304. TRAVELING CRANE. SAMUEL T. WELLMAN, JOHN W. SEAVER, and CHARLES H. WELLMAN, Cleveland, Ohio. Filed Dec. 29, 1896. Serial No. 617,395. (No model.)



Claim.—1. A traveling-crane structure consisting of a pair of longitudinal girders disposed side by side and inclined toward each other at the top, each of said girders comprising upper and lower longitudinal members extending throughout the length of the girder, and web members or braces connecting the said upper and lower longitudinal members at intervals, said longitudinal girders being combined with transverse braces so as to form a structure of substantially triangular cross-section from end to end, substantially as specified.

2. A crane structure consisting of a pair of longitudinal girders disposed side by side and inclined toward each other at the top, each of said girders consisting of upper and lower longitudinal members extending throughout the length of the girder and connected by web members or braces at intervals, one of the longitudinal members being bowed so as to lessen the depth of the girder at the ends, and said longitudinal girders being combined with transverse braces so as to form a structure of approximately triangular cross section from end to end, substantially as specified.

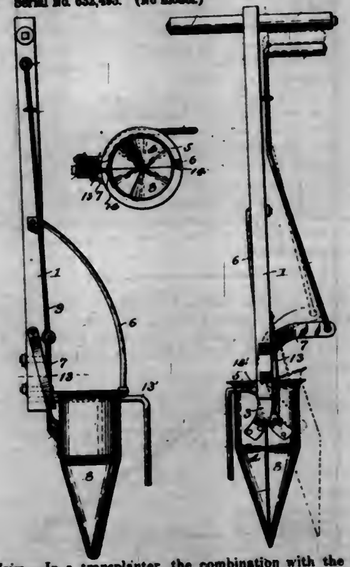
3. A traveling-crane structure comprising girders inclined toward each other at the top and connected and braced so as to form a structure of approximately triangular cross-section with trolley-runways carried by the lower portion of said structure, substantially as specified.

4. A traveling crane structure consisting of girders inclined toward each other at the top and connected and braced so as to form a structure of approximately triangular cross-section, in combination with trolley-runways suspended from the lower transverse braces of the structure, substantially as specified.

5. A traveling-crane structure consisting of a pair of longitudinal girders disposed side by side and inclined toward each other at the top, each of said girders being composed of upper and lower longitudinal members extending throughout the length of the girder and connected by web members or braces at intervals, said longitudinal girders being also connected by transverse braces so as to form a structure of approximately triangular cross-section, and said structure being supported at each end by means of legs or supports carried down at the same, or approximately the same angle as the girders, substantially as specified.

6. A traveling crane in which are combined a structure mounted upon trucks by means of a pivotal joint, in combination with gearing for driving the axles of the trucks, the axis of the main driving-wheel of the gearing being coincident with the axis of the pivotal connection between the trucks and superstructure, substantially as specified.

594,305. TRANSPLANTER. ELKANAH WIGHT, Harriman, Tenn., assignor of two-thirds to Warren A. Rockwell, same place, and John A. Rockwell, Norwich, Conn. Filed June 2, 1896. Renewed Apr. 16, 1897. Serial No. 632,493. (No model.)

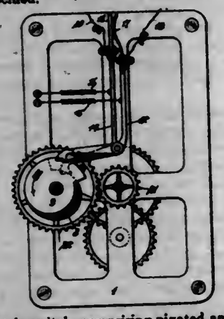


Claim.—In a transplanter, the combination with the bar, the curved plate secured thereto, the conical bit or blade secured thereto, the curved lever, the movable conical bit or blade secured to said lever, the operating-rod and the spring and the point of the fixed blade or bit overlapping the point of the movable one, of the marker consisting of the rod having one end screw-threaded and engaging with an eye on said bar and curved or bent in the arc of a circle around the stationary blade and then extended vertically downward, substantially as described.

594,306. ELECTRIC TIME-SWITCH. ADDISON B. WILLIAMS, Waco, Tex., assignor of one-half to Louey Migel, same place. Filed July 7, 1897. Serial No. 643,707. (No model.)

Claim.—1. An automatic electric switch, comprising rocking levers carrying contact-plates, the contact-plates being insulated from

the levers, means for moving said plates directly from each other without rubbing action, a cam for governing each lever, the two cams being of like construction, means for adjusting the cams one relatively to the other, and time mechanism for rotating the cams, substantially as specified.

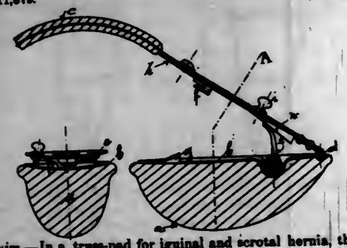


2. An electric switch, comprising pivoted angle-levers, contact-plates carried by the vertically-disposed members of said levers and insulated therefrom, one of said plates being curved, cams engaged by the horizontally-disposed members of the angle-levers, the said cams being of like construction, means for adjusting one cam relatively to the other, springs for holding the levers yieldingly in engagement with the cams, and also serving to separate the contacts, and time mechanism for rotating the cams, substantially as specified.

3. An electric switch, comprising pivoted angle-levers, contact-plates on the vertically-disposed portions of said levers and adapted to engage, one with the other, a rotary shaft, a cam mounted on said rotary shaft, a sleeve mounted frictionally on said shaft, a cam carried by the sleeve, the said cams being of like contour, that is, having their peripheries gradually increasing in distance from the axis of the shaft from one end of the cams to the other, forming a shoulder at the junction, the horizontally-disposed members of the angle-levers being engaged with the peripheries of the cams, and also engaging with the sides thereof, and a time mechanism for rotating the cams, substantially as specified.

4. An electric switch, comprising pivoted angle-levers, contact-plates carried by the vertically-disposed members of the levers, but insulated therefrom, a rotary shaft having a pointer on its outer end movable over a time-dial, a cam on said shaft with which the horizontally-disposed member of one of the angle-levers engages, a sleeve frictionally mounted on said shaft and having a graduated finger-piece on its outer end, a cam carried by said sleeve and engaging with a horizontally-disposed member of the other of said angle-levers, and a time mechanism for imparting rotary motion to the cams, substantially as specified.

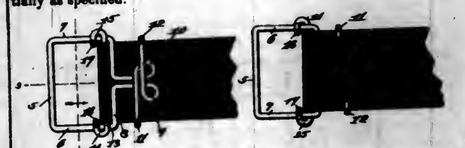
594,807. TRUSS. HERMANN WOLFERMANN, Strasburg, Germany. Filed May 8, 1897. Serial No. 635,677. (No model.) Patented in Germany June 21, 1895, No. 85,144; in France Sept. 25, 1895, No. 237,761; in Austria Oct. 17, 1895, No. 46/1,963, and in Switzerland Jan. 6, 1896, No. 11,879.



Claim.—In a truss-pad for iguinal and scrotal hernia, the combination with a plate provided with a pad c curved outwardly and secured to a supporting-spring, of a second plate C arranged below the first plate and oscillating upon a hinge, said second plate being convex like the first plate and carrying a pad *a*, of a spiral spring *e* separating said plates, and of a wedge *w* for adjusting the separating force between said plates substantially as described.

594,808. BUCKLE. ISAAC D. WEIMER, Sedalia, Mo., and ALBERT R. MCCLURE, Pittsburg, Pa. Filed Sept. 23, 1896. Serial No. 607,238. (No model.)

Claim.—1. A buckle consisting of a wire bent to form the back bar 5, the parallel side bars 6 and 7, the gripping-bar 8, the loops 9 and 10 and the hooks 11 and 12, and a wire forming the sliding bar 13, which sliding bar is somewhat longer than the distance between the side bars 6 and 7 and rests on top of said side bars, the U-shaped portions 14 and 15 formed integral with said sliding bar 13, and the bearings 16 and 17 formed integral with the opposite ends of said U-shaped portions 14 and 15 from said sliding bar 13, said side bars 6 and 7 operating in said bearings 16 and 17, respectively, substantially as specified.



2. In a buckle, the parallel side bars 6 and 7, the sliding bar 13, said sliding bar being somewhat longer than the distance between said side bars 6 and 7 and resting on top of said side bars, the U-shaped portions 14 and 15 formed integral with said sliding bar 13, and the bearings 16 and 17 formed integral with the opposite ends of said U-shaped portions 14 and 15 from said sliding bar 13, said side bars operating in said bearings 16 and 17, substantially as specified.

594,809. BASE FOR CLOCKS. WILLIAM H. WRIGHT, Bristol, Conn., assignor to the R. Ingraham Company, same place. Filed Apr. 3, 1897. Serial No. 630,531. (No model.)



Claim.—As a new article of manufacture, a framed clock-base consisting of several wooden molding-sections framed together and each provided upon the inner face of its upper edge with an integral, inwardly-projecting assembling-flange extending throughout its length, and formed by cutting away a portion of its inner face, a panel placed upon the upper edges of the said framed molding-sections so as to rest upon the assembling-flanges thereof; and fastening devices passed upward through the said flanges into the lower face of the panel which they firmly bind to the framed molding-sections, substantially as described.

594,810. PNEUMATIC TIRE. FRANK WYNNE, London, England. Filed Jan. 5, 1897. Serial No. 618,054. (No model.)



Claim.—1. The combination with a pneumatic tire and a wheel-rim upon which said tire is seated, of a hollow inflatable sphincter grip-ring located within said tire-ring and adapted when deflated to exert a contractile action around and upon the inner peripheral portion of said tire and hold the same upon said wheel-rim.

2. The combination with a pneumatic tire comprising a hollow ring having an annular joint at its inner periphery, and a wheel-rim upon which the said tire is seated, of a hollow or tubular pneumatic sphincter grip-ring capable of being increased in diameter by inflation and decreased in diameter by deflation, said rim being located within said tire-ring and acting when deflated to close the said annular joint in said tire-ring.

3. The combination of a hollow inflatable tire divided longitudinally at its inner periphery and having its edges overlapping one another, a wheel-rim upon which the overlapped edges are seated, and a hollow or tubular pneumatic sphincter grip-ring located within said tire and adapted, when deflated, to exert a contractile action around and upon the overlapped edges of said tire.

4. The combination of a tire-ring divided at its inner periphery, a pneumatic sphincter grip-ring located within said tire-ring and around its divided inner periphery and adapted to grip said tire-ring by deflation, a wheel-rim upon which said tire ring is mounted, and air-valves by which each of said rings can be separately inflated with air under pressure and deflated, substantially as described.

5. The combination of a hollow inflatable tire-ring divided longitudinally at its inner periphery, a wheel-rim upon which said tire-ring is seated, a hollow or tubular pneumatic sphincter grip-ring located within said tire-ring and having a contractile action, produced by deflation of said grip-ring around and upon the divided inner periphery of said tire-ring but made of smaller cross-section than that of the tire-ring, an air-valve, and a flexible pipe connecting said air-valve with the outer peripheral surface of said pneumatic sphincter grip-ring, substantially as described.

6. The combination of a hollow inflatable tire-ring divided longitudinally at its inner periphery and having its edges overlapping one another, a wheel-rim upon which the overlapped edges are seated, a hollow or tubular pneumatic sphincter grip-ring located within said tire-ring and having a contractile action, produced by deflation of said grip-ring around and upon the overlapped edges, and made of smaller cross-section than that of the interior of the tire-ring, a fixed air-valve, and a flexible air pipe connecting said air-valve with the outer periphery of said joint sphincter grip ring, substantially as described.

7. The combination of a hollow inflatable tire-ring divided longitudinally at its inner peripbery, a wheel-rim upon which said tire-ring is seated, and a hollow or tubular pneumatic sphincter grip-ring located within said tire-ring and having a contractile action, produced by deflation around and upon the divided inner periphery of said tire-ring, the tube of said sphincter grip ring being capable of extension along its axis but only of limited circumferential expansion, or distention substantially as described for the purpose specified.

8. The combination of a hollow inflatable tire-ring divided longitudinally at its inner periphery and having its edges overlapping and interlocked with one another, a wheel-rim upon which said overlapped and interlocked edges are seated, and a hollow or tubular pneumatic sphincter grip-ring located within said tire-ring and having a contractile action around and upon the overlapped edges and produced by deflation of said ring, said sphincter grip-ring being made of smaller cross-section than that of the interior of the tire-ring and provided with an air-valve, substantially as described.

9. The combination of a hollow inflatable tire-ring having an annular joint at its inner periphery, a wheel-rim upon which said ring is seated, a hollow or tubular pneumatic sphincter grip-ring arranged within said tire-ring and having a contractile action, produced by deflation, around and upon the divided inner periphery of said tire-ring, and a supplementary ring secured to the inner periphery of said sphincter grip ring substantially as described for the purpose specified.

10. The combination of a hollow inflatable tire-ring having an annular joint at its inner periphery, a wheel-rim upon which said tire-ring is mounted and an inflatable sphincter grip-ring located within said tire ring and acting around and upon said annular joint when deflated, said sphincter grip-ring being connected in an air-tight manner to the inner surface of one of the sides of said tire-ring, and having a diameter less normally than the inner periphery of said tire-ring, substantially as described for the purpose specified.

11. The combination of a hollow inflatable tire-ring having an annular joint at its inner periphery, a wheel-rim upon which said tire-ring is mounted, a hollow or tubular pneumatic sphincter grip-ring located within said tire ring and acting around and upon said joint when deflated, and an air-tight band secured to said sphincter grip-tube and to the inner surface of one of the sides of said tire-ring, substantially as described.

594,811. ATTACHMENT FOR BABY-CARRIAGES. JOSEPH YEISLE, Johnstown, Pa. Filed Apr. 6, 1897. Serial No. 631,000. (No model.)



Claim.—1. In attachments for baby-carriages, the combination of two rocker-frames provided with clips to engage the carriage-wheels, and jointed or collapsible rod connections between said frames, substantially as described.

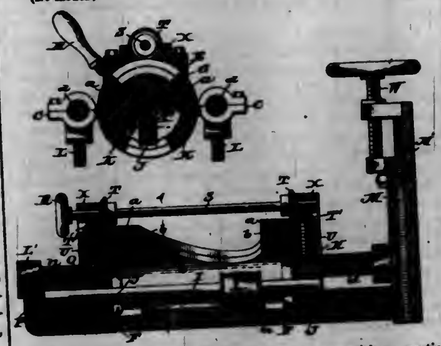
2. In attachments for baby-carriages, the combination of two rocker-frames provided with clips adapted to engage the wheels of the carriage, collapsible or jointed rods connecting said frames, an adjustable bar connected with one frame and provided with means to engage the carriage-wheels secured to the opposite frame, and sled-runners adapted to be attached to the rocker-frames, substantially as described.

3. In attachments for baby-carriages, the combination of two rocker-frames provided with clips adapted to engage the wheels of the carriage, and removable runner attachments therefor adapted to be applied to the rocker-frames adjoining the point of upward bend thereof to convert the same into runners for passing over a surface of snow or ice, substantially as described.

4. In attachments for baby-carriages, the combination of two rocker-frames provided with clips adapted to engage the wheels of the carriage, means for connecting said rocker-frames, and runner attachments therefor consisting of a plate having a connection with the upper extremity of the runner, and an engaging projection securing one end of the runner to the rocker adjoining the point of upward bend thereof, substantially as described.

5. In attachments for baby-carriages, the combination of two rocker-frames provided with upper and lower plates and with clips adapted to engage the wheels of the carriage, collapsible or jointed rods connecting between the top plates of the two rocker-frames, and an extensible adjusting and clamping bar adapted to engage one of said rocker-frames and provided with a hook to fit over the top plate of the opposite rocker-frame, said sled-runner attachments adapted to be secured to the rockers at the point of upward bend thereof, substantially as described.

594,812. MACHINE FOR PATCHING SAWS. MICHAEL D. AHEARN, Green Bay, Wis. Filed July 8, 1897. Serial No. 643,892. (No model.)



Claim.—1. A machine for cutting recesses, comprising a vertical fixed plate, a vertically-adjustable plate carrying two parallel horizontal guide-rods projecting at right angles to the plate, a frame sliding longitudinally on said guide-rods, a horizontal rotary shaft journaled in said frame parallel with and between the guide-rods and provided with a cutting-wheel, and means for adjusting said shaft substantially as shown and described.

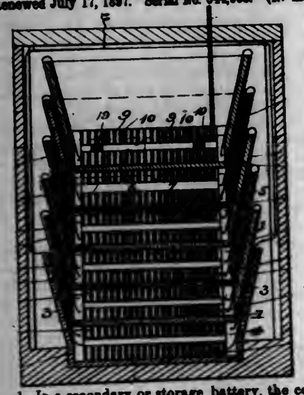
2. A machine for cutting recesses, comprising horizontal guide-rods, a non-rotary frame sliding thereon, and an oscillating frame arranged within the non-rotary frame and carrying a horizontal shaft with drive-pulley and cutting-wheel, and means for adjusting this shaft and wheel vertically substantially as and for the purpose described.

3. The combination with horizontal guides; of a sleeve-frame *a* with lugs embracing the same, a rotary sleeve-frame *b*, arranged within *a* and having at each end collar F and jaws G and journal-box X, sliding blocks H carrying shaft I with driving-pulley and cutting-wheel, the adjusting-screws U for the block H, and the shaft S with hand-wheel and bevel-gears connecting the shaft to the adjusting-screws substantially as and for the purpose described.

4. The combination with horizontal guides, of the two concentric sleeve-frames *a* and *b* both cut away in the middle, the frame *a* being arranged to slide on the horizontal guides, and the frame *b* being arranged to oscillate within *a* and having a rotary shaft and cutting-wheel, and means for adjusting the same substantially as shown and described.

5. The combination with the vertical plate M' and set-screw W; of the sliding plate M having arms L with horizontal guide-rods *d*, the sleeve-frame *a* sliding on said rods, the oscillating sleeve-frame *b* with collars F, jaws G, and journal-boxes X, the blocks H arranged in said jaws and having adjusting-screws U, bevel-gears T T', and shaft S, and the drive-shaft I with band-pulley and cutting-wheel upon its end substantially as and for the purpose described.

594,818. STORAGE OR SECONDARY BATTERY. RALPH ASHLEY, Port Republic, N. J., assignor, by direct and mesne assignments, to the Guarantor Electric Company, of New Jersey. Filed Apr. 25, 1896. Renewed July 17, 1897. Serial No. 644,903. (No model.)

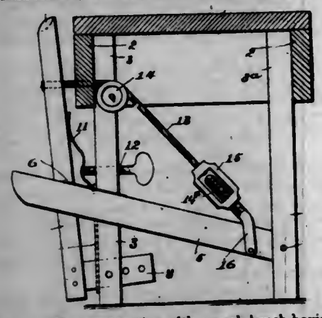


Claim.—1. In a secondary or storage battery, the combination with the superimposed trays or cups each consisting of a rectangular base, outwardly-flaring upwardly-extending sides and supporting-lugs on the inner sides at the corners thereof, with spaces between said lugs, of the conductors running along the outside of the trays, and then down the inside thereof, and the electrodes, substantially as described.

2. In a secondary or storage battery, the combination with the trays of insulating material nested within each other to form a stack or pile, the positive electrodes located in said trays, the negative electrodes secured to the bottom or under side of the trays, and the conductors secured to said trays, of the base upon which said stack or pile is supported, the box or housing having a closed top fitting over said stack, and secured to the base, and formed with a groove on the inner side, the conductor seated in said groove and passing through the top of the housing and secured to the positive electrode of the lowermost tray, the conducting-lug passing through said top and connected with a negative electrode located in the uppermost tray, and the insulating-strips supported by the positive electrode in said tray, and upon which said negative electrode rests; substantially as described.

3. An electrode for a storage or other battery consisting of the horizontal, straight, and corrugated metal strips alternating with each other, and the spacing-pieces between the ends thereof, and soldered thereto; substantially as described.

594,814. WOODWORKER'S VISE. MARION B. BARR, Caseville, Mo. Filed Mar. 10, 1897. Serial No. 626,785. (No model.)



Claim.—1. The combination with a work-bench having suitable legs, of a vise-jaw pivoted to one of said legs, a spring, a rack-bar, and a pulley, secured to said leg, a foot-lever having a plate or projection to engage the rack-bar and pivoted in the other of said legs, a turnbuckle, a screw-stem having a forked end secured to the foot-lever, and a rope connected to the turnbuckle, at one end, the other end passing over the said pulley and secured to the vise-jaw, as set forth.

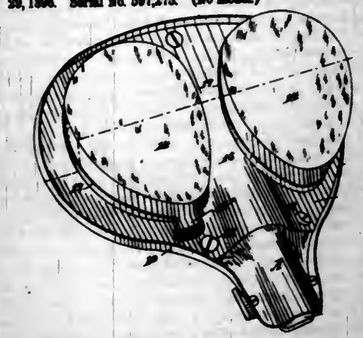
2. The combination with a work-bench having suitable legs, one of which being offset, of a vise-jaw, a spring, a rack-bar, a pulley, and a set-screw upon the leg to which the vise-jaw is pivoted, a foot-lever having a plate to engage the said rack-bar and pivoted to the said offset leg, a screw-stem having a fork secured to the said foot-lever, a rope secured to the vise-jaw, and a turnbuckle connecting the said stem with the rope, as set forth.

594,815. CAR-COUPLING. JAMES S. BARTLEY, Whiteville, Ga. Filed June 23, 1897. Serial No. 641,916. (No model.)



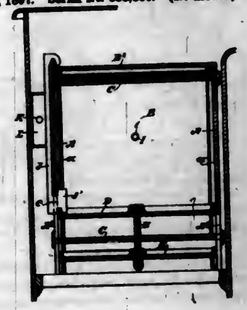
Claim.—In a car-coupling, the combination with a chambered draw-head having alined orifices through its top and bottom walls, of a coupling-box, a flange extended rearward from the front end of the coupling-box, there being a space between the box and said flange to receive the end of the draw-head, horizontal partitions in the coupling-box provided with elongated openings in line with openings through the top and bottom walls of the box, and a spring for holding the box yieldingly forward with its top and bottom openings out of line with the pin-openings of the draw-head, substantially as specified.

594,816. SADDLE. DAVID BASCH, New York, N. Y. Filed June 29, 1896. Serial No. 597,275. (No model.)



Claim.—A bicycle-saddle having a body-plate undulating to suit the form of the saddle and with an edge flange projecting upwardly therefrom, a canvas body rested snugly on the body-plate and inclosed by the flange, two cushions separated from each other and carried by the canvas body, a covering for each cushion, each covering having a portion running out horizontally over the canvas body and approximately parallel with the body-plate, and a tie-plate conforming to the shape of the body-plate to rest snugly against the canvas body and having two openings respectively receiving the cushions, the openings having upwardly-extending flanges lying against the sides of the cushions, and the tie-plate being fitted within the flange of the body-plate and clamped down thereon on the canvas body to hold the coverings of the cushions in position, substantially as described.

594,817. CRUDE-PETROLEUM BURNER. FRANCIS C. BATES, San José, Cal., assignor of one-half to John W. Holland, same place. Filed June 1, 1897. Serial No. 638,889. (No model.)



Claim.—1. A device for burning petroleum, consisting of an inclosing case, a horizontally-disposed pan situated intermediate between the top and bottom of the case, said case having an opening made in it just above the edge of the tray for the delivery of the burning gases whereby they are carried up over the outside of the case, a pipe with a controlling-valve through which petroleum is supplied to the tray, a horizontal perforated jet-pipe extending through the case above the pan and adapted to vaporize water and deliver steam-jets therethrough to mingle with the petroleum-vapors, and a means for heating the pan preliminary to the supply of oil to it.

2. An apparatus for burning crude petroleum consisting of an inclosing case provided with a discharge-opening in its side, for the products of combustion, said case having means for relieving an excess of pressure therein, a shallow tray within said case and means for supplying oil thereto, means for supplying steam-jets to mingle with the petroleum-vapors and a means proximate to the tray and adapted to heat the same preliminary to the supply of oil to said tray.

3. A device for burning crude petroleum consisting of an inclosing box or case adapted to fit the fire-box of the stove or other structure within which it is to be used, a horizontally-disposed tray having shallow peripheral side flanges, and means for introducing a regulated supply of petroleum to the bottom of the tray, a perforated pipe with means for controlling the supply of water thereto, said pipe passing through the box above the tray whereby the water is converted into steam and the jets discharged and decomposed to mingle the resultant gases with the vapors of the hydrocarbon, said case having an opening made in its side just above the edge of the tray for the delivery of the burning gases whereby they are carried up over the outside of the box, and a preliminary heating and igniting tray situated below the main tray with a means for supplying the hydrocarbon thereto so that by its iguition the main tray is heated preliminary to the supply of oil to it.

4. An apparatus for burning petroleum consisting of a box or case fitted to the fire-box in which it is to be used, superposed trays within said case, the upper tray of which is adapted to contain the petroleum, and the lower one serving as a preliminary heater and igniter, and pipes and valves through which petroleum is supplied to each of the trays when desired, and water supplied within the upper part of the case.

5. In an apparatus for burning petroleum, the inclosing casing, having an opening in its side for the delivery of the burning gases whereby the latter are carried up over the outside of the casing, means for burning oil in said casing and a scraper slidably mounted on the casing and having a lug engaging the walls of the discharge-opening to remove deposits therefrom.

6. An apparatus for burning petroleum consisting of a box or case with a horizontal burning-tray and means for supplying oil thereto, a loosely-attached safety-cover having a flange upon one edge, a slidable scraper having the lower edge provided with a grooved lug slidable upon the flanged edge of the tray, and the upper end with a grooved lug slidable upon the exterior cover-flange and forming a hinge for the same.

594,818. FIRE-ESCAPE. CHARLES J. BEERS, New London, Conn., assignor of one-half to Clarence M. Caulkins, same place. Filed Apr. 19, 1897. Serial No. 632,885. (No model.)



Claim.—In a fire-escape, the combination, with a radially-perforated disk, the periphery of which is provided with a groove, the groove at the ends of the radial perforation being deeper on one side of the perforation than on the other, a rope having one end connected with the disk upon one side of the perforation, the main portion of the rope passing through the perforation and the portions adjacent thereto passing over the grooved portions of the disk, a loop suspended from the disk upon the opposite side of the perforation to which the rope is secured, and a support for the portion of the rope between the end that is connected with the disk and the portion that is passed through the disk, substantially as set forth.

594,819. CHECK-PROTECTOR. GAYLORD W. BEERS, Minneapolis, Minn. Filed Oct. 25, 1896. Serial No. 609,908. (No model.)

Claim.—1. In a device of the class described, the combination, with a suitable base, provided with an annular flange upon its upper surface, of a revolvable and vertically-movable shaft supported by said base, a disk carried by said shaft and arranged within said flange, and provided with a series of dies and with a series of notches in its edge, and a spring-dog arranged in a recess in said flange and adapted to engage the notches in said disk, for the purpose specified.



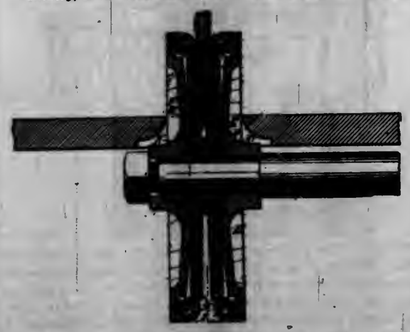
2. In a device of the class described, the combination, with a suitable base provided with an upright circular flange or wall, a rotating disk mounted upon an upright vertically-movable shaft and substantially filling the space within said wall or flange, and provided with a series of dies upon its under surface and with a series of notches in its edge, a spring arranged within said wall and engaging said notches, and means for inking said dies, for the purpose set forth.

3. The combination, with the suitable base, provided with an annular flange upon its upper surface, of a revoluble disk supported by said base within said flange, dies upon said disk, a plate or female die carried by the base beneath said disk, an inking-pad also arranged upon the base beneath the disk, said disk being provided with an opening through which said pad may be inked, for the purpose set forth.

4. In a device of the class described, the combination with a hollow base, of a revolving vertically-movable disk arranged thereon, a rod whereon said disk is supported, a horizontal shaft arranged within said base, a ratchet carried thereby, a dog carried by said rod and engaging with said ratchet, a wheel carried by the outer end of said shaft, vertically movable therewith, and extending up through openings in the top of said base into engagement with a roller arranged thereon, a series of dies carried by said disk and provided with serrations forming characters corresponding to characters marked upon the upper surface of said disk, a movable plate or female die arranged beneath said disk, and provided with indentations to receive the serrations on the face of said dies when said disk is depressed, and means for inking said dies, substantially as described.

5. In a device of the class described, the combination with the base, of the vertically-movable revolving disk mounted thereon, a rod or shaft supporting said disk, the bracket upon the lower end thereof, a horizontal shaft having one end extending through the wall of said base, the ratchet-wheel upon the inner end thereof, the dog carried by said bracket for engaging the teeth of said ratchet during the upward movement of said disk, the wheel arranged upon the outer end of said shaft and extending up through the top of said base, the roller above said wheel, the spring for normally holding said wheel in engagement with said roller, and permitting said shaft and wheel to be depressed to insert the paper between said wheel and said roller, the female die arranged beneath said disk, a series of dies carried by said disk, means for inking the same, and a guide for preventing said disk from turning while being depressed, and the spring for normally holding said disk in a raised position substantially as described.

594,820. SANDPAPERING-MACHINE. GEORGE C. BONNEWELL, Hickory, N. C. Filed Jan. 30, 1897. Serial No. 621,351. (No model.)



Claim.—1. An abrading-wheel, comprising a disk, and a bed or support for the sandpaper secured to the inner face of the said disk, said bed or support being of flexible material and yieldingly supported at its periphery, substantially as described.

2. An abrading-wheel, comprising a disk, a second disk yieldingly supported at its periphery, and a covering of flexible material on said second disk, substantially as described.

3. An abrading-wheel, comprising a disk, a second disk secured to the inner portion of the first disk, a ring yieldingly supported on the first disk and to which the periphery of the second disk is secured, and a covering of elastic material on the second disk and over which the paper is stretched, substantially as described.

4. An abrading-wheel, comprising a disk, a second disk means for securing the same to the first disk, a ring near the periphery of the first disk and to which the periphery of the second disk is secured, a spring between the ring and the first disk, and a bed or covering for the second disk formed of elastic material, substantially as described.

5. A sandpapering-machine, provided with a disk for the sandpaper, and made of cork, substantially as shown and described.

6. A sandpapering-machine, provided with an abrading-disk having a disk for carrying the sandpaper, the inner edges of the disk resting against a shoulder, and the outer edge being pressed on by a spring, to permit the disk to yield, substantially as shown and described.

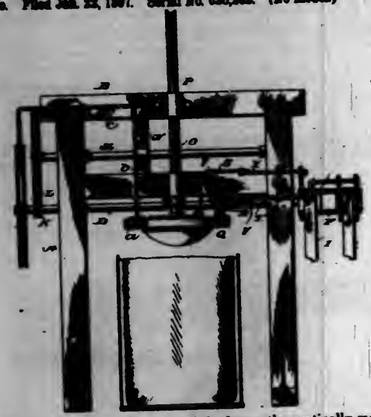
7. A sandpapering-machine, provided with a disk made in sections, and a sectional covering for the said disk and made of elastic material, substantially as shown and described.

8. In an abrading-wheel, the combination with a disk, of a support for the paper having its inner and outer edges beveled, and yieldingly held at its periphery, a beveled clamping-disk for clamping the paper upon the beveled inner edge of the support, and a ring on the periphery of the disk and provided with a flange for clamping the paper upon the outer beveled edge of the said support, substantially as described.

9. In an abrading wheel, the combination with a disk, of beveled rings secured to the said disk, the outer ring being yieldingly supported, a second disk having a covering of elastic material, said second disk being secured at its inner edge to the first disk by the inner beveled ring and having its outer edge secured to the outer ring, a beveled clamping-disk for the inner ring, and a ring on the periphery of the first disk and provided with a flange for clamping the paper on the said outer ring, substantially as described.

10. In a sandpapering-machine, the combination with a shaft, disks mounted thereon and having their outer and inner edges beveled, and means for clamping the paper on the outer beveled edges of the said disks, of a beveled disk on the shaft for clamping the paper on the inner beveled edge of one disk, said beveled disk having a threaded hub, and a second beveled disk on the hub of the first disk and serving to clamp the paper on the inner beveled edge of the other disk, substantially as herein shown and described.

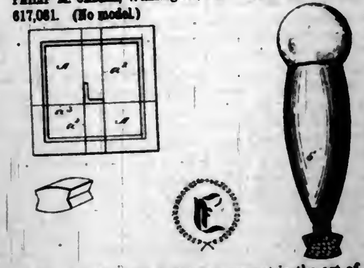
594,821. WOOL-RAGGING MACHINE. JAMES BRANDT, Trinidad, Colo., assignor of three-fourths to George M. Forbes, Las Animas County, Colo. Filed Jan. 22, 1897. Serial No. 620,262. (No model.)



Claim.—1. The combination of the frame, the vertically-movable rack-bar and plunger mounted thereon, a driving-shaft mounted on the frame and provided with a balance-wheel at one end, gearing between said driving-shaft and the rack-bar, means for rotating the driving-shaft, a brake-lever fulcrumed on the frame, a brake-shoe at the outer end of the brake-lever adapted to bear on the balance-wheel, and a rod depending freely from the inner end of the brake-lever and having its lower end in the path of and adapted to be struck by the rising plunger.

2. The combination of the frame, a driving shaft mounted thereon and having fast and loose pulleys at its end, a plunger driven by said shaft and having an inwardly-inclined bracket on its upper side, a shifting-rod mounted on the frame and having its outer end adapted to move the driving-belt and its inner end arranged in the path of said bracket.

594,822. METHOD OF AND DEVICE FOR FINE STENCILING. PHILIP M. CARELL, Wilmington, Del. Filed Dec. 26, 1896. Serial No. 617,061. (No model.)

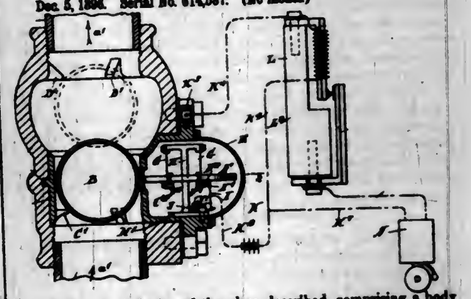


Claim.—1. The described improvement in the art of stenciling, which consists in applying and working in the coloring-matter through the openings in the stencil-plate, by successive tamping pressures of a compressible or elastic material carrying the coloring-matter.

2. A tamping-stick for stenciling, consisting of a holder and a color-applying tip formed of some elastic or compressible substance to which the coloring-matter to be applied will adhere.

3. A stencil or tamping plate in which the pattern to be printed is cut, and on which by visible indications the exact width of the letter or pattern is shown.

594,823. MEANS FOR INDICATING MOVEMENT OR CESSATION OF MOVEMENT OF FLUID. ORVILLE CARPENTER, Pawtucket, R. I., assignor of one-half to James M. Carpenter, same place. Filed Dec. 5, 1896. Serial No. 614,587. (No model.)



Claim.—1. A device of the class described, comprising a body in a fluid, the body being heavier than the fluid and arranged to be moved by the pressure of the fluid when the fluid is in motion, and a magnet exterior of the said fluid and body and so arranged that the body may come within and leave the field of said magnet, to cause a disturbance thereof, substantially as shown and described.

2. A device of the class described, comprising a body resting in a fluid and heavier than the fluid and arranged to be moved by the pressure of the fluid when in motion, and an electromagnetic alarm or indicating device exteriorly of the said fluid and body and controlled by the latter, substantially as shown and described.

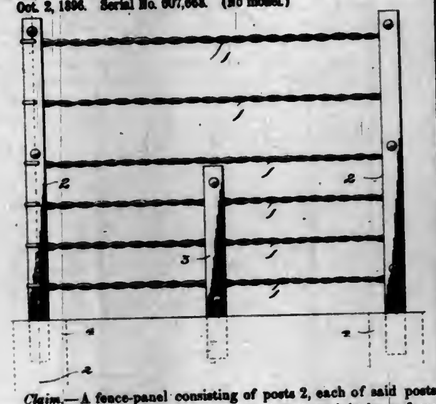
3. A device of the class described, comprising an electromagnetic alarm or indicating device, a body normally at rest in a dormant fluid and in the field of a magnet of the said alarm, the body being heavier than the fluid and the said body being moved by the direct pressure of the fluid out of the field of the said magnet, to cause a disturbance of the latter so that the alarm or indicating device is actuated, and a responsive device in the circuit of the said alarm or indicating device and controlling the sounding or indicating device thereof, substantially as shown and described.

4. An indicator having a casing, a portion of which is adapted to have a fluid moved through it, a magnetic body normally carried within said portion of the casing and closing the same and capable of being forced out of said portion of the casing, and a magnetic alarm or indicating device actuated by the magnetic body, substantially as described.

5. An indicator having a magnetic body adapted to be moved by a fluid, the magnetic body being heavier than the fluid, and a magnetic alarm or indicating device actuated by the magnetic body, substantially as described.

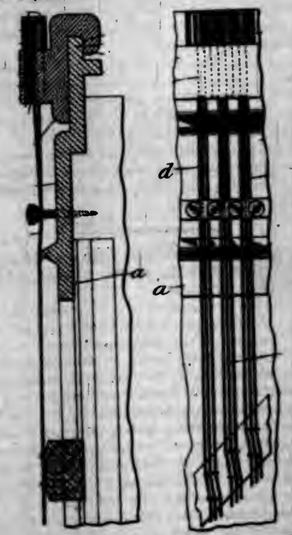
6. An indicator having a casing with two chambers one of which is adapted to have a fluid moved through it, a magnetic body seated within said chamber and loosely engaging the sides thereof so that the fluid on passing through the chamber will force the magnetic body from its seat, and a magnetic alarm or indicating device actuated by the magnetic body, substantially as described.

594,824. FENCE. FRANK CHILDERS, Wolf Creek, Ill. Filed Oct. 2, 1896. Serial No. 607,663. (No model.)



Claim.—A fence-panel consisting of posts 2, each of said posts comprising two upright bars having smooth and straight inner faces and between which the fence-wires are situated and clamped, said bars being fastened together at intervals by rivets, a base or foundation for said upright bars and in which said bars are embedded, and a short auxiliary post 3 situated between each pair of posts 2, said auxiliary post consisting of two upright bars having smooth and straight inner faces fastened together and between which the fence-wires are situated and clamped, said bars being fastened together at intervals by rivets, and said auxiliary post supporting only the lower strands of the wire forming said fence-panel.

594,825. IRON-FRAME PIANOFORTE. MELDRUM J. CHRISTIE, London, England. Filed May 9, 1896. Serial No. 590,806. (No model.) Patented in England Oct. 18, 1894, No. 19,890, and in France Aug. 17, 1895, No. 249,681.



Claim.—1. In an iron-frame pianoforte a "wrest-plank" of suitable metal formed separate from the iron frame and in one or more lengths formed with an overhang to hook the iron frame substantially as herein shown and described.

2. In an iron-frame pianoforte the combination of a "wrest-plank" of suitable metal formed separate from the iron frame in one or more lengths at the rear provided with an overhang, and an iron frame shaped to fit such overhang and support the "wrest-plank" substantially as herein shown and described.

3. In an iron-frame pianoforte the combination of a "wrest-plank" formed with a number of vertical holes therethrough "wrest-pins" adapted to loosely fit such holes longitudinal half-round grooves in the sides of the "wrest-pins" corresponding grooves in the walls of the holes of the "wrest-plank" two transverse holes in the "wrest-pins" communicating with the grooves the wire being passed up one side groove then through the upper transverse hole then down the other side groove and having its end turned into and concealed in the lower transverse hole and means for moving the "wrest-pins" endwise to regulate the tension of the wires substantially as herein shown and described.

4. In an iron-frame pianoforte the combination of a separate "wrest-plank" formed with an overhang to hook onto the frame a number of vertical holes through the "wrest-plank," "wrest-pins" to fit such holes, longitudinal half-round grooves in the "wrest-pins" corresponding grooves in the walls of the holes of the "wrest-plank" so arranged that the wire will lie in straight lines partly in the grooves of the "wrest-plank" and partly in those of the "wrest-pins" two transverse holes in the pins through one of which the wire is passed and into the other of which the end of the wire is turned and fixed, screw-threads upon the "wrest-pins," corresponding tubular nuts engaging such threads and taking a bearing upon the top of the "wrest-plank," and a slit or notch in the top of each nut adapted to engage a flat strip of metal for tuning purposes substantially as herein shown and described.

594,826. WATER-ACCUMULATOR. CARLO CODA, Civita Vecchia, Italy. Filed Mar. 25, 1896. Serial No. 584,873. (No model.) Patented in Belgium Nov. 30, 1895, No. 118,282; in Hungary Dec. 7, 1895, No. 4,733; in Italy Feb. 8, 1896, No. 316, and in Austria Mar. 26, 1896, No. 46/1,155.



Claim.—1. A water-supply apparatus, comprising a main reservoir, an auxiliary reservoir or water-tower communicating therewith and provided with an air-tight cover continued upwardly by a vent-pipe beyond the level of the main reservoir, and a discharge-nozzle connected to the said reservoirs, substantially as described.

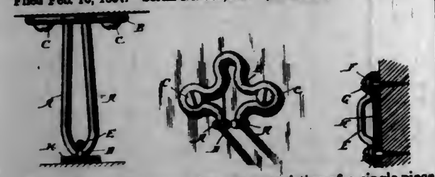
2. The combination of the main reservoir, the auxiliary reservoir communicating therewith, a gooseneck secured directly to the said auxiliary reservoir, and another gooseneck connected to the pipe by which the main reservoir is connected with the auxiliary reservoir, substantially as described.

3. A water-accumulator for feeding locomotives, comprising a

main reservoir, an auxiliary reservoir permanently communicating with said main reservoir so that the water shall always stand at the same level in both, a vent-pipe on the auxiliary reservoir, and one or more gooseneeks located at a lower level than said reservoirs, substantially as described.

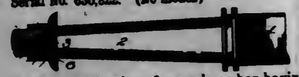
4. The combination with the main reservoir, the auxiliary reservoir permanently communicating with said main reservoir so that the water shall always stand at the same level in both, a gooseneck intermediate between said reservoirs and connected thereto, and another gooseneck connected directly to said auxiliary reservoir, substantially as described.

594,327. DOOR STOP AND CHECK. JACOB H. COFFMAN, Philadelphia, Pa., assignor of one-half to Leopold Ketterer, same place. Filed Feb. 16, 1897. Serial No. 623,596. (No model.)



Claim.—In combination, a door-stop consisting of a single piece of wire bent to produce two parallel arms of equal length, the ends of the wire being squared, the loop portion being then bent at right angles to the arms and arranged to form eyes for the passage of screws, the arms being bent toward each other, the edges of the ends meeting at one point and forming a V-shaped notch, and a striker or retainer formed of a single piece of wire having its ends bent to produce eyes, and the body portion raised or set away from the door or shutter, screws adapted to pass through said eyes, and an escutcheon-plate secured between the retainer and the door by the screws, as and for the purpose described.

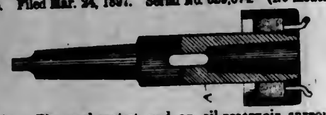
594,328. AXLE-NUT. CORTEIN COLLINS, Dallas, Tex. Filed Apr. 5, 1897. Serial No. 630,822. (No model.)



Claim.—1. The combination of an axle or bar having at its end a portion threaded in one direction and adjacent thereto a portion threaded in the opposite direction, a nut threaded on one of said portions having also a second thread of opposite direction to that engaging the axle, and a washer secured on the oppositely-threaded portion of the axle and also engaging the second thread of the nut, substantially as described.

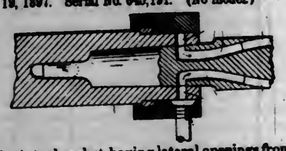
2. The combination of an axle or bar having at one end a portion threaded in one direction and adjacent thereto a portion threaded in the opposite direction, a nut threaded on one of said portions having also a second female thread of opposite direction to that engaging the axle, and a washer having a female thread engaging the oppositely-threaded portion of the axle and a male thread engaging the second thread of the washer, substantially as described.

594,329. SOCKET OR COLLET. JACOB D. COX, Jr., Cleveland, Ohio. Filed Mar. 24, 1897. Serial No. 629,074. (No model.)



Claim.—The tool-socket and an oil-reservoir surrounding the lower end thereof and an outlet for the oil from the bottom of said reservoir, substantially as described.

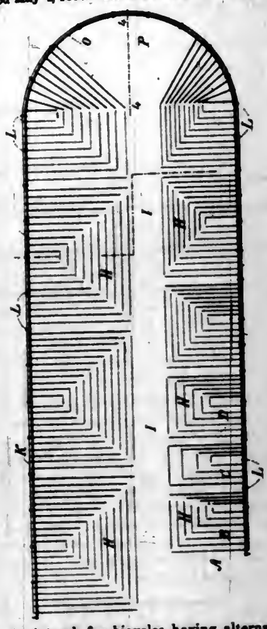
594,330. DRILL-SOCKET. JACOB D. COX, Jr., Cleveland, Ohio. Filed July 19, 1897. Serial No. 645,191. (No model.)



Claim.—1. A tool-socket having lateral openings from the inside to the outside of the socket, and a stationary collar in which said socket revolves and having an orifice to register with the lateral openings in said socket, in combination with a tool having oil-passages opening into the oil-passages in the socket, substantially as described.

2. A tool-socket having lateral oil-passages through the wall of the socket and a source of supply at the outside of said socket, in combination with a tool having oil-passages through its shank communicating with said lateral passages, substantially as described.

594,331. BICYCLE-TRACK. WILLIAM P. CROSSLEY, New York, N. Y. Filed May 4, 1897. Serial No. 634,980. (No model.)



Claim.—1. A track for bicycles having alternate upward and downward inclinations with the angles of inclination increasing from the starting-point, substantially as set forth.

2. A track for bicycles having alternate upward and downward inclinations with the angles of inclination increasing from the starting-point, such track being in two parts connected together by a curved track, substantially as set forth.

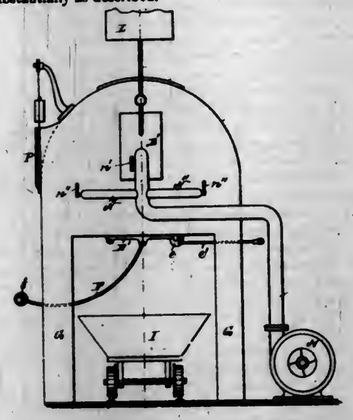
3. A bicycle-track having undulations with the inclines at gradually-increasing angles and with downwardly-inclined surfaces between the ends of the undulations, and a substantially level track whereby the party can run off at one side of the undulating track onto a substantially level track, substantially as set forth.

4. The bicycle-track having upward and downward inclinations at successively-increasing angles, in combination with posts and a rope supported by the posts and running along the track substantially as and for the purposes set forth.

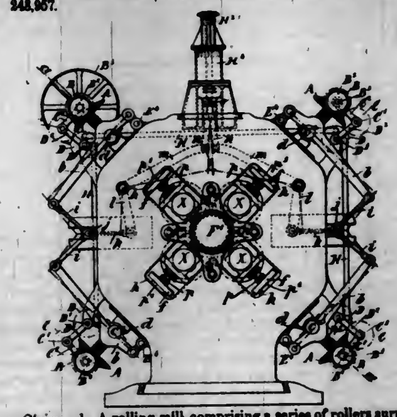
594,332. LIME-BURNING FURNACE. ISAAC W. DEMING, Gloucester, Mass. Filed May 23, 1895. Renewed Sept. 11, 1897. Serial No. 651,324. (No model.)

Claim.—1. The combination of a horizontal lime-burning furnace having a charge-opening in its top and a sunken well in its bottom for the reception of the decomposed lime, a hinged, counterbalanced door for closing the bottom of said well, means for holding said door closed, openings in the sides of the furnace formed flush with the level of the furnace-chamber, balanced doors for closing said openings, a chamber communicating with the front end of the furnace-chamber, a gas-generating burner arranged in said chamber, means for supplying air to the burner chamber, an escape-flue arranged at the rear end of the furnace chamber, a transverse partition arranged in front of said escape-flue and having openings in its sides only for the escape of the gases and products of combustion, a steam-generator connected with said escape-flue, a pipe leading from the steam-space of said generator to the gas-generating burner, and a reservoir for supplying carbon liquid to the burner, substantially as described.

2. The combination of a horizontal lime-burning furnace having a charge-opening in its top and a sunken well in its bottom for the reception of the decomposed lime, a door hinged at one side of the furnace beneath said well, a catch for engaging the other side of the door to hold it closed, curved rods pivotally connected to said doors and extending through apertures formed in the side walls of the furnace, weights arranged on the free ends of said rods, openings formed in the sides of the furnace, doors for closing said openings, a chamber communicating with the front end of the furnace, an escape-flue at the other end thereof, a gas-generating burner arranged in said chamber, a reservoir for holding carbon liquid connected with said burner, an air-forcing device, a pipe leading from said air-forcing device to said chamber, branch pipes leading from said pipe to the furnace, valves arranged in said pipes for controlling the admission of air to said chamber and furnace, a steam-generator connected with the said escape-flue of the furnace, means for checking the escape of the products of combustion from the furnace to said flue, and a pipe leading from the steam-space of said steam-generator to the gas-generating burner, substantially as described.



594,333. ROLLING-MILL FOR MANUFACTURING ROUND BARS, &c. PAUL J. DELAY, Bougan, France. Filed Feb. 28, 1896. Serial No. 581,131. (No model.) Patented in France July 17, 1895, No. 248,957.



Claim.—1. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides carrying the said rollers and arranged to move radially in the frame of the machine, the rollers being carried bodily by the slides so that during the movement of the slides the axes of the rollers remain parallel to their original positions, means for moving said slides radially with the rollers, and means for rotating the rollers while they are being moved inward against the blank, substantially as described.

2. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides mounted to move radially in the frame of the machine and carrying the said rollers bodily, so that during the movement of the slides the axes of the rollers remain parallel to their original positions, a set of levers fulcrumed on the frame and connected to the slides to move the same in unison, and means for rotating the rollers while they are being moved inward against the blank, substantially as described.

3. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides carrying said rollers and mounted to move toward and from the said central space, the rollers being carried bodily by the slides so that during the movement of the slides the axes of the rollers remain parallel to their original positions, a connection between all of said slides to compel them to move in unison, and means for rotating the rollers while they are being moved inward against the blank, substantially as described.

4. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides mounted to move radially and carrying said rollers, said slides consisting of nuts having guided movement in the frame of the machine, and radial screws carried by said nuts and connected to the bearings of said rollers, substantially as described.

5. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides mounted to move radially and carrying said rollers, said slides consisting of nuts having guided movement in the frame of the machine, and screws carried by said nuts and connected to the bearings of said rollers, a connection between all of the nuts to cause them to slide in unison, and a connection between all of the screws to cause them to turn in unison, as and for the purpose set forth.

6. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides mounted to move radially in the frame of the machine, a connection between said slides whereby they are compelled to move in unison, mechanism for moving said slides, radially-arranged rotatable supports having a screw connection with said slides and carrying bearings for said rollers, and adjusting mechanism connected to all of said supports to rotate them in unison, substantially as described.

7. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides mounted to move radially in the frame of the machine, a connection between said slides whereby they are compelled to move in unison, mechanism for moving said slides, radially-arranged rotatable supports having a screw connection with said slides, bearings having a swivel connection to the inner ends of the said supports and receiving the journals of said rollers, and adjusting mechanism connected to all of said supports to rotate them in unison, substantially as described.

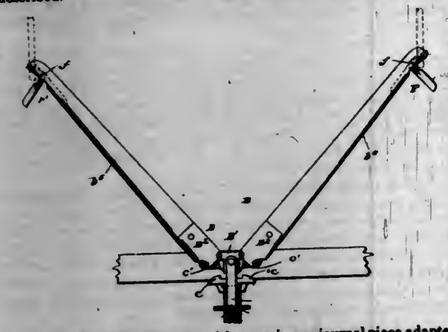
8. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides mounted to move radially in the frame of the machine, a connection between said slides whereby they are compelled to move in unison, mechanism for moving said slides, radially-arranged rotatable supports having a screw connection with said slides and carrying bearings for the said rollers, toothed wheels mounted on said supports, gear-wheels rotatably mounted on the frame, links pivotally connected with each other and with said toothed wheels and gear-wheels, motion-transmitting wheels carried by the links at their connecting-points and engaging the said toothed wheels and gear wheels, and a connection between all of said gear-wheels to cause them to turn in unison, substantially as described.

9. A rolling-mill, comprising a series of rollers surrounding a central space adapted to receive the blank, slides mounted to move radially in the frame of the machine, a connection between said slides whereby they are compelled to move in unison, mechanism for moving said slides, radially-arranged rotatable supports having a screw connection with said slides and carrying bearings for the said rollers, toothed wheels mounted on said supports, gear-wheels rotatably mounted on the frame, links pivotally connected with each other and with said toothed wheels and gear-wheels, motion-transmitting wheels carried by the links at their connecting-points and engaging the said toothed wheels and gear-wheels, supplemental wheels journaled in the frame and engaging sundry of the said gear-wheels, and a connection between said supplemental wheels and the gear-wheels to cause them to turn in unison, substantially as described.

594,334. HORSE-DETACHER. JAMES A. DONALDSON, Greenville, Pa. Filed Jan. 16, 1897. Serial No. 619,483. (No model.)

Claim.—1. A detaching device comprising a union or journal piece adapted to be attached to the cross-bar or other portion of a vehicle, sections or members pivoted or hinged to the union-piece on opposite sides thereof so as to have their ends adjacent to the hinge abutting against the sides of said union-piece when in their normal position and to permit said sections to swing forward and inwardly on their pivots, a catch provided with lips fitting recesses and engaging projections on said members so as to rigidly hold said members in their normal position, or when disengaged permit them to swing inwardly on their pivots, and means for disengaging the catch, whereby the members, socket-piece and the catch are normally interlocked and rigidly held together, substantially as described.

2. A safety detaching device comprising a union or journal piece adapted to be attached to the cross-bar or other securing portion of a vehicle so as to swing or oscillate thereon, sections or members pivoted or hinged at the forward edge of said union-piece on opposite sides thereof and having their ends adjacent to the hinge abutting against the ends of said union-piece when in their normal position and to permit said sections to swing forward and inwardly on their pivots, a spring-retained catch slidingly held on the union-piece and provided with lips fitting recesses and engaging projections on said members so as to rigidly hold the members in their normal position or when disengaged to permit them to swing inwardly on their pivots to permit the traces to automatically slip therefrom, and means for releasing said catch, whereby the members, socket-piece and the catch are normally interlocked and rigidly held together, substantially as described.



3. A horse-detacher comprising a union or journal piece adapted to be attached to the cross-bar or other portion of a vehicle, sections or members pivoted or hinged to said union-piece on opposite sides thereof, means adapted to engage said members or to be disengaged therefrom so as to rigidly hold said members in their normal position or to permit them to swing forward and inwardly on their pivots, and means arranged intermediate the ends of the members adapted to positively retain the traces on the members when in their normal position and to permit the traces to automatically slip off the ends of said members when pulled or drawn upon and the ends of the members permitted to swing inwardly, substantially as described.

4. A safety detaching device comprising a union or journal piece adapted to be attached to a cross-bar or other projection of a vehicle so as to swing or oscillate thereon, sections or members pivoted or hinged to said union-piece on opposite sides thereof so as to swing forward and inwardly and adapted to have the traces attached thereto, means adapted to engage said members or to be disengaged therefrom so as to rigidly hold the members in their normal position or to permit them to swing or move on their pivots, and angular tongues arranged near the outer ends of said members adapted to permit the traces to be slipped over the ends thereof and held thereon when the traces are drawn upon and to permit them to be automatically disengaged from said members when the latter are released to permit their outer ends to swing inwardly, substantially as described.

5. A safety detaching device comprising a union or journal piece adapted to be attached to the cross-bar or other portion of a vehicle so as to swing or oscillate thereon, two sections or members pivoted or hinged at their inner ends to said union-piece on opposite sides thereof so as to swing forward and inwardly and adapted to have the traces attached thereto, a spring-pressed sliding bolt arranged in the union-piece, a catch loosely held on the said bolt and having its outer ends adapted to engage projections on the sections or members so as to rigidly hold said members in their normal position or to permit them to swing on their pivots, and a connection secured to the catch for releasing the members to permit the traces to be automatically disengaged therefrom when drawn or pulled upon, substantially as described.

6. In a horse-detacher, the combination with a union or journal piece adapted to be attached to the cross-bar or other portion of the vehicle so as to swing or oscillate thereon, of two members or sections each comprising a socket-piece pivoted or hinged to said union-piece on opposite sides thereof so as to swing forward and inwardly and a bar secured to and extending outwardly from the socket-piece adapted to have the traces attached thereto, a catch slidingly held on the union-piece and having its outer ends engaging projections on the sections or members so as to rigidly hold said members in their normal position or to permit them to swing inwardly on their pivots, means for releasing said catch, and a spring tending normally to force the catch into engagement with said members, substantially as described.

7. In a horse-detacher, the combination with a union or journal piece adapted to be attached to the cross-bar or other portion of the vehicle so as to swing or oscillate thereon, of two members or sections each comprising a socket-piece pivoted or hinged to said union-piece on opposite sides thereof so as to swing forward and inwardly and a bar secured to and extending outwardly from the socket-piece adapted to have the traces attached thereto, a bolt slidingly held in the union-piece and provided with a head arranged to work in a recess in said union-piece, a spring arranged in the recess and interposed between the head of the bolt and the bottom of said recess, a catch loosely held upon the bolt and having its outer ends adapted to engage projections on the members or sections or to be disengaged therefrom so as to rigidly hold said members in their normal position or to permit them to swing on their pivots, and means for releasing said catch, substantially as described.

8. In a horse-detacher, a singletree comprising two pivotal members and means for holding said members in substantially the same straight line or to permit their outer ends to swing inwardly on their pivots, in combination with a tongue pivoted to each of the members, said tongue comprising two arms arranged at an angle to each other and adapted to permit the traces to be slipped over the ends of the members and be held thereon by the draft of said traces or to permit the automatic disconnection of the traces when the ends of the members of the singletree swing inwardly, substantially as described.

9. The combination with a whiffletree provided with an annular rib and a pendent stem or bolt integral with a portion of the whiffletree and having an enlarged head forming an annular groove between said head and the rib, of a plate having a central aperture in which the head of the bolt is adapted to fit and annular ribs fitting the groove and surrounding the rib on the whiffletree, said bearing-plate having a recess or cut-away portion at one edge thereof, and a lug projecting from the whiffletree and engaging the recess so as to limit the oscillatory movement thereof, substantially as described.

10. The combination of a whiffletree provided with bolts or stems projecting outwardly on opposite sides thereof, one of which is adapted to pass through an aperture in the cross-bar or other securing portion of the vehicle, and a clevis comprising two members having one of their ends fitting over the bolts and their other ends adjustably secured together so as to fit various sizes of cross-bars and whiffletrees and to assist in retaining and holding the parts together, substantially as described.

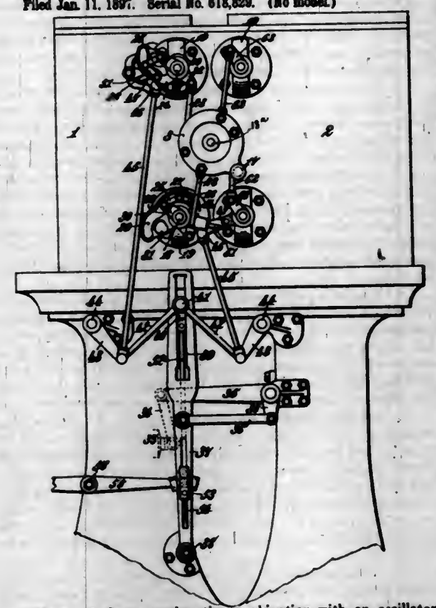
11. The combination of a whiffletree provided with bolts or stems projecting outwardly on opposite sides thereof, one of which is adapted to pass through an aperture in the cross-bar or other securing portion of the vehicle, and a clevis comprising two members having one of their ends fitting over the bolts and their other ends overlapping and provided with slots through which a bolt may pass to adjustably hold said members together, said clevis being substantially U-shaped and provided with a slot or opening therein adapted to permit a strap to pass and be guided therein, substantially as described.

594,885. HOOK. JAMES A. DONALDSON, Greenville, Pa. Filed Jan. 16, 1897. Serial No. 619,484. (No model.)



Claim.—A hook for harness comprising a base-piece adapted for attachment to a suitable support and having a hook proper rising therefrom; said base-piece being longitudinally recessed in the upper surface thereof to receive a spring inserted from above and provided with ledges or shoulders at opposite ends of said recess to form rests for the ends of the spring confined therein, and having vertical slots or narrow recesses in its under side on opposite sides of said longitudinal recess, a spring spanning said longitudinal recess, removably inserted therein from above, and having its ends free and resting on said ledges, and a two-armed rock-lever or tongue resting on said spring and pivotally arranged in and confined by said longitudinal recess so that either arm thereof may be thrown into an upright position to close the opening between the free end of the hook and the base-piece, while the other arm is horizontally arranged, in one of which positions of the tongue its upright arm is adapted to lock and positively retain the rein or strap in engagement with the hook, while in the other position, the upright arm is adapted to confine the rein or strap in engagement with the hook under normal conditions, and to yield to applied pressure so as to permit the confined part to be quickly withdrawn; said tongue being secured and retained in operative position in said longitudinal recess by the pressure of said spring on which it rests, and the engagement of its pivot-pin or studs with said side recesses, substantially as described.

594,886. STEAM-ENGINE. JOSIAH DOW, Philadelphia, Pa. Filed Jan. 11, 1897. Serial No. 618,829. (No model.)



Claim.—1. In an engine, the combination with an oscillatory valve controlling both induction and eduction, and a valve-gear comprising a wrist-plate and connections actuated from an eccentric on the main engine-shaft, of governor-controlled cut-off mechanism actuated from the movement of the cross-head and piston-rod of the engine, whereby a variable cut-off is effected at the same position of the piston relative to the stroke for both directions of its movement and at any point of the stroke, substantially as described.

2. In an engine, the combination with a valve, and a valve-gear comprising a wrist-plate and valve connections actuated from an eccentric on the main engine-shaft, of a cut-off lever having direct connection with and actuated from the movement of the piston-rod and engine cross-head, a governor-controlled slide-block carried by said cut-off lever, a cut-off plate in toggle-link connection with the valve-gear and its wrist-plate, and connecting mechanism from the governor-controlled slide-block to the said cut-off plate, substantially as described.

3. In an engine, the combination with a valve, and a valve-gear comprising a wrist-plate actuated from an eccentric on the main engine-shaft, of a cut-off lever actuated from the movement of the cross-head and piston-rod of the engine, a governor-controlled slide-block carried by said lever, a slotted cut-off plate, a collar having two arms to one of which is attached a connecting-rod from the wrist-plate, toggle-links connecting the other arm of said collar to a rigid arm on the valve-stem, a roller at the connecting-joint of said toggle-links and engaged in the slot of the cut-off plate, and lever connections from the governor-controlled slide-block to the cut-off plate, substantially as described.

4. In an engine, the combination with a valve, the valve-gear, and wrist-plate connections, of a cut-off lever actuated from the movement of the piston-rod and engine cross-head, a governor-controlled slide-block carried by said cut-off lever, a cut-off plate having a slotted portion in toggle-link connection with the valve-gear and wrist-plate, a rocker-arm having a pivotal link connection with the governor-controlled slide-block, a rocker-arm slidingly connected with the cut-off plate, and connecting-rods between the said rocker-arms, substantially as described.

5. In an engine, the combination with a valve, the valve-gear, and its wrist-plate, of a cut-off lever actuated from the movement of the piston-rod and engine cross-head, coincidently-acting slide-blocks carried by said cut-off lever, a cut off plate actuated from one of said slide-blocks and in variable connection with the valve-gear and wrist-plate, a governor having lever connections to the other one of said slide-blocks, and a movable weight supported by said lever connections and adjustable thereon to vary the resistance to the action of the governor through the cut off mechanism and thereby control the engine speed, substantially as described.

6. In an engine, the combination with a valve, the valve-gear, and its wrist-plate of a rock-shaft provided with two arms one of which has an actuating connection to the said wrist-plate, a guide-sleeve rigid on the engine-frame, a slide-block arranged in said sleeve and provided with two pins or pivot-bearings at right angles to each other, a link connecting one of said pins to an arm of the said rock-shaft, and an eccentric-rod connecting the other of said pins to an eccentric on the engine-shaft, substantially as described.

7. In an engine, the combination with an oscillatory valve having its stem provided with a rigid crank-arm, of an oscillatory collar mounted concentric with the axis of said valve and provided with two arms one of which is in line with the outer end of the valve-arm, toggle-links connecting said collar-arm and valve-arm, a connecting-rod between the other collar-arm and a wrist-plate that is actuated from the engine-shaft, a cut-off plate having a slot that is concentric for the greater part of its length with the axis of the valve and for the remainder of its length concentric with the pin that makes connection between the outer end of the valve-arm and one of said toggle-links, a roller engaged in said slot and mounted on the joint that connects the two toggle-links, and governor-controlled mechanism connected with the said slotted cut-off plate and actuated from the engine cross-head, substantially as described.

8. In an engine, the combination with an oscillatory valve having its stem provided with a rigidly-attached crank-arm, of an oscillatory collar mounted concentric with the axis of said valve and provided with two arms, toggle-links connecting one of said collar-arms with the valve-arm, a connecting-rod between the other collar-arm and a wrist-plate, a cut-off plate having an arc-slot that is partly concentric with the valve-axis and partly eccentric thereto, a roller engaged in said slot and mounted on a pin at the joint connection of the two toggle-links, a cut-off lever actuated from the movement of the piston-rod and engine cross-head, a governor-controlled slide-block carried by said lever, and connections from said slide-block to the cut-off plate, substantially as described.

9. In an engine, the combination of a wrist-plate actuated from an eccentric on the engine-shaft, an oscillatory valve, a valve-gear through which the valve is oscillated to the opening of the exhaust then back again to its closing and onward to the opening of the steam-port directly from action of the wrist-plate, a cut-off plate having slot and toggle-link connection with the valve-gear and wrist-plate, and governor-controlled mechanism connected with said cut-off plate and actuated from the movement of the engine cross-head, substantially as described.

10. In an engine, the combination of an oscillatory valve, a wrist-plate, valve-gear through which the valve is oscillated to the opening and closing of the exhaust and onward to opening of the steam-port directly by action of the wrist-plate, a cut-off plate having slot and toggle-link connection with the valve-gear and wrist-plate, and governor-controlled mechanism for effecting cut-off through said plate at any point in the stroke and without interval between the latest action of the cut-off plate and the closing of the valve by wrist-plate movement, substantially as described.

11. In an engine, the combination of an oscillatory valve, a wrist-plate, valve-gear actuated from said wrist-plate for controlling induction and eduction through said valve, a cut-off plate having variable slot and toggle-link connection with the valve-gear and wrist-plate, a cut-off lever actuated from the movement of the piston-rod and engine cross-head, a governor-controlled slide-block carried by said lever, and rocker mechanism having a pivotally-linked connection with said slide-block and a sliding connection with the cut-off plate, substantially as described.

12. In an engine, the combination with a valve, a wrist-plate, a valve-gear, and cut-off plate, of a slotted cut-off lever, coincidently-acting slide-blocks carried in the slots of said lever, rocker mechanism connecting one of said slide-blocks with the cut-off plate, the other one of said slide-blocks being provided with an arc-groove, and a lever having one end slidingly engaged in said arc-groove and its other end connected with a governor mechanism, substantially as described.

13. In an engine, the combination with a valve, a valve-gear, and a variable cut-off, of an oscillatory cut-off lever, coincidently-acting slide-blocks carried by said lever and connected with each other by a link or rod, connections from one of said slide-blocks to the cut-off proper for concentration of motion upon only the necessary movement of the cut-off, and governor mechanism connected with the other slide-block, substantially as described.

14. In an engine, the combination with a valve and valve-gear, of governor-controlled cut-off mechanism actuated from the movement of the cross-head and piston-rod of the engine, the said cut-off mechanism comprising means for effecting concentration of motion upon only the necessary movement of the cut-off, substantially as described.

15. In an engine, the combination with a valve, and valve-gear actuated from the engine-shaft, of a governor-controlled cut-off mechanism actuated direct from the movement of the cross-head and pis-

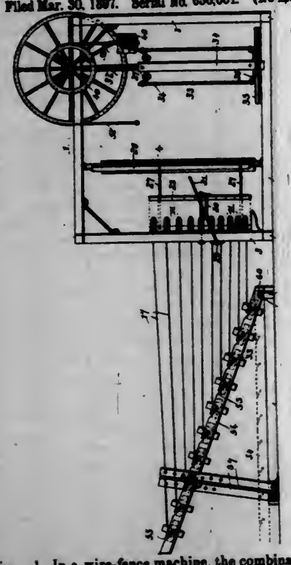
ton-rod of the engine, with provision for concentration of motion upon only the necessary movement of the cut-off, substantially as described.

16. In an engine, the combination with a valve, and valve-gear, of an oscillatory cut-off lever, a governor-controlled slide-block carried by said lever, and a variable cut-off controlled from said slide-block with provision for concentration of motion upon only the necessary movement of the cut-off, substantially as described.

17. In an engine, the combination with a valve, and valve-gear through which the valve is actuated to the opening and closing of the exhaust and onward to opening of the steam-port, of a variable cut-off, a governor for controlling the cut-off, and means for varying the resistance to the action of the governor through the cut-off mechanism to thereby control the engine speed, substantially as described.

18. In an engine, the combination with a valve, and valve-gear, of a variable cut-off operating partly in an arc concentric with the valve-stem and partly in an arc eccentric thereto, an oscillatory cut-off lever, a slide-block carried by said lever and having link and rocker-arm connection with the cut-off proper, the said connection being arranged for concentration of motion upon only the necessary movement of the cut-off, a governor for controlling the slide-block movement, and means for varying the resistance to the governor action through the cut-off mechanism, substantially as described.

594,837. FENCE-MACHINE. JOHNSON A. JEWELL, Ottawa, Kans. Filed Mar. 30, 1897. Serial No. 630,001. (No model.)



Claim.—1. In a wire-fence machine, the combination of longitudinally-grooved uprights, longitudinal plates secured in parallel relation to the uprights and having their opposing edges spaced apart and extending over the open side of the grooves, cross-plates bearing wire-twisters, and fastenings adjustably connecting the said cross-plates with the grooved uprights and adapted to move in the spaces formed between the longitudinal and parallel plates, substantially as set forth.

2. In a fence machine, the combination of uprights, a plate adjustably connected with the uprights and provided between its ends with a bearing-sleeve, a twisting-wheel having a toothed portion engaging with one end of the bearing-sleeve, a holder having a base portion engaging with the opposite end of the bearing-sleeve, and means for securing the base of the holder to the hub of the twisting-wheel, substantially as and for the purpose set forth.

3. In a fence-machine, the combination with the wire-twisting mechanism, of a picket spacer and adjuster comprising a bar having portions to extend across the line of fencing, a guide for directing the bar in its reciprocating movements, an operating-lever, and a link connecting the operating-lever with the bar, substantially as set forth.

4. In a fence-machine, the combination with the wire twisting mechanism, of a picket spacer and adjuster consisting of a bar having portions extending across the line of fencing, a spring for moving the bar in one direction and holding the picket in place during the operation of the wire-twisting mechanism, and an operating-lever for moving the bar backward and forward, substantially as set forth.

5. In a wire fence machine, the combination with the wire-twisting mechanism, of a picket spacer and adjuster comprising a bar, a guide-rod directing the bar in its reciprocating movements and provided with a stop to limit its movement, a spring for holding the bar against the stop of the guide-rod, and an operating-lever for moving the bar, substantially as set forth for the purpose described.

6. In a fence-machine, the combination with the wire-twisting mechanism, of a picket spacer and adjuster comprising parallel bars, transverse rods connecting the bars and extending across the line of fencing to engage with and move the pickets, and an operating-lever for moving the bars backward and forward, substantially as set forth.

7. In a fence-machine, the combination with the wire-twisting mechanism, of a picket spacer and adjuster comprising parallel bars, actuating mechanism for reciprocating the bars, transverse rods connecting the bars and adapted to engage with and move the pickets, and springs acting upon the parallel bars and normally tending to move them away from the wire-twisting mechanism, substantially as set forth.

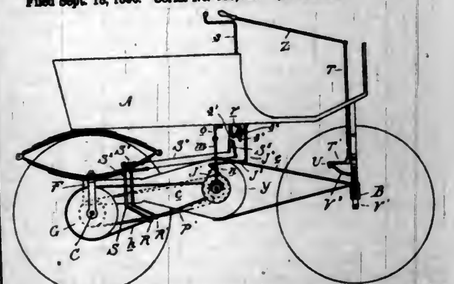
8. In a fence-machine, the combination with the wire-twisting mechanism, of a reel to receive the completed fencing comprising slats and end supports, one of the supports appearing as a spider and rigidly secured to the reel-shaft, end extensions having the slats secured thereto and slidingly mounted upon the arms of the spider, and means for adjustably connecting the said end extensions with the arms of the spider, substantially as set forth for the purpose described.

9. In a fence-machine, the combination with the wire-twisting mechanism, of a reel to receive the completed fencing, a shaft for receiving and supporting the reel and comprising sections which are jointed, actuating mechanism applied to the shaft for turning the reel, and a rod slidably mounted in one of the sections of the shaft and adapted to move therein to admit of the joint separating and to be projected across the joint to stiffen and strengthen it when the parts of the shaft are brought into alinement, substantially as set forth.

10. In a fence-machine, the combination with the wire-twisting mechanism, of a reel to receive the completed fencing, a shaft having the reel mounted thereon and comprising separable parts, a rod slidingly mounted in one of the parts of the shaft and having a finger grip or extension projecting through a longitudinal slot formed therein, means for securing the rod to the opposite section and holding it projected, and actuating mechanism for turning the shaft and reel, substantially as set forth.

11. In a fence-machine, the combination with the wire-twisting mechanism, of a reel adapted to receive the completed fencing, a shaft supporting the reel, a second shaft, intermeshing gearing between the two shafts for transmitting motion from one to the other, a clutch mechanism between the said second shaft and the power-transmitting gearing to admit of the second shaft turning backward for storing power, and a counterbalanced rope or cord adapted to be wound upon a pulley or part of the second shaft, substantially as set forth.

594,838. MOTOR-CARRIAGE. RANSOM E. OLDS, Lansing, Mich. Filed Sept. 18, 1896. Serial No. 606,245. (No model.)



Claim.—1. In a motor-carriage, a supporting-frame comprising the front and rear axle, a yoke extending above the rear axle and in which the latter is journaled, in end bearings, and a reach rigidly connecting said yoke with the front axle and composed of the engine-frame having its rear end bolted to said yoke and its forward end extending beyond the engine-shaft and united with the front axle by truss-rods, substantially as described.

2. In a motor-carriage, the combination of a spring-supported body, a supporting-frame of which the engine-frame constitutes a central rigid reach connecting the front axle with a yoke carrying the rear axle, an engine-shaft journaled in the engine-frame and extending to opposite sides thereof, a chain-gear between one end of the engine-shaft and the rear axle, a medium and fast belt-drive connecting the opposite end of the engine-shaft, controlling devices and front wheels supported on stub-axles having vertical pivot-bearings in the ends of the front axle and steering connection therefor.

3. In a motor-carriage, a supporting-frame in which the engine-frame forms a component part of a central reach rigidly connecting the front axle with the rear axle through the medium of a yoke provided with end bearings in which the rear axle is journaled, and variable transmission-gear from the engine to said rear axle.

4. In a motor-carriage, a supporting-frame in which the engine-frame forms a component part of a central reach rigidly connecting the front axle with the rear axle through the medium of a yoke provided with end bearings in which the rear axle is journaled, an engine-shaft supported in the engine-frame and extending on opposite sides thereof, a chain transmission-gear connecting one end of said shaft to the rear axle, and two variable belt-drives connecting the other end of the shaft to the rear axle.

5. In a motor-carriage, a supporting-frame in which the engine-frame forms a component part of a central reach rigidly connecting the frame with the rear axle through the medium of a yoke provided with end bearings in which the rear axle is journaled, an engine-shaft supported in the engine-frame on opposite sides thereof and variable transmission-gear connecting the opposite ends of the engine-shaft with the rear axle and a single controlling device.

6. In a motor-carriage a supporting-frame in which the engine-frame forms a component part of a central reach rigidly connecting the front axle with the rear axle through the medium of a yoke provided with end bearings in which the rear axle is journaled, an engine-shaft journaled in the engine-frame and extending to opposite sides thereof, a chain transmission-gear connecting one end of said engine-shaft with the rear axle and provided with a reversing-clutch, variable belt drive connection connecting the other end of the engine-shaft with the rear axle and a single controlling-shaft for the transmission-gear.

7. In a motor-carriage, a supporting frame of which the engine-frame forms a component part of a central reach rigidly connecting the front axle with the rear axle through the medium of a yoke supported by end bearings upon the rear axle, an engine-shaft supported in the engine-frame and extending transversely on opposite sides thereof, a chain transmission-gear from one end of the engine-shaft to the rear axle and comprising a sprocket-wheel loose upon the engine-shaft and formed with two flanged heads, one of which forms the loose member, of a friction-clutch for imparting forward motion to the rear axle, and the other forming the member of a reversing-clutch for imparting motion in the reverse direction to the rear shaft.

8. In a motor-carriage, a supporting-frame of which the engine-frame forms a component part of a central reach rigidly connecting the front axle with the rear axle through the medium of a yoke supported by end bearings upon the rear axle, an engine-shaft supported in the engine-frame, a chain transmission-gear from one end of the engine-shaft to the rear axle and comprising a sprocket-wheel loose upon the engine-shaft and formed with two flanged heads, each of which forms a member of a friction-clutch, one for transmitting motion in one direction and one for transmitting motion in the other direction.

9. In a four-wheeled motor-carriage the combination with the engine-shaft supported in fixed parallel relation with the rear drive-axle, of a chain drive-gear connecting said engine-shaft with the rear axle and comprising a loose sprocket-wheel on the engine-shaft provided with two flanged heads H′ H², the head H² forming the fast member of a friction-clutch for imparting motion in one direction and the reversing friction-clutch composed of the loose head K provided with a brake-strap operated by the controlling-staff, the pinions J carried by said head, and the gear I, all arranged to operate as described.

10. In a four-wheeled motor-carriage the combination with the engine-shaft supported in fixed parallel relation with the rear drive-axle, of a chain drive-gear connecting said engine-shaft with the rear axle and comprising a loose sprocket-wheel on the engine-shaft provided with two flanged heads H′ H², one of which forms the member of a friction-clutch for imparting motion in one direction and the other of which forms the member of a friction-clutch for imparting motion in the other direction, and the controlling-staff $s\,s'$ having the actuating-cams $r\,s^3$ for throwing said clutches in or out of gear.

11. In a four-wheeled motor-carriage, the combination with the engine-shaft supported in fixed parallel relation with the rear drive-axle, of a chain-gear operated by intermediate friction-clutches on the engine-shaft for imparting motion in opposite directions and two drive-belt chain connections operated by belt-tighteners of the controlling-staff $s\,s'$, the cams $r\,s^3\,s^4\,s^4$ on said shaft, and actuating-gear connection for operating the friction-clutches and belt-tighteners by turning the staff in various prescribed positions, substantially as described.

12. In a four-wheeled motor-carriage, the combination with front axle fast with the frame of the stub-axles formed with the gooseneck and vertical pivot-pins engaging in vertical bearings in the end of the front axle and steering connection with said axles.

594,839. DIE FOR ROLLING SCREW-THREADS. WILLIAM L. AMES, Worcester, Mass. Filed July 6, 1897. Serial No. 643,663. (No model.)



Claim.—A die for rolling screw-threads, having its face provided with alternate grooves and ridges or ribs, the latter being narrow at the entering end of the die and increasing in width to the finishing part of the die, and for a part of this distance of such form that the cross-section outline thereof shall have parallel sides for a portion of the working depth, while for the remainder, or finishing portion of the die, the section of the ribs corresponds to the grooves—or space between threads—on the finished screw.

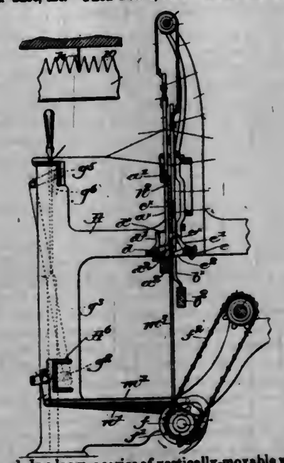
594,840. BUCKET BAIL-EAR. JAMES ANDERSON, Sidney, Ohio, assignor of one-half to Wilson Carothers, same place. Filed July 26, 1897. Serial No. 645,999. (No model.)



Claim.—1. As an article of manufacture, a bail-ear for wooden buckets, comprising a rounded and curved ear portion, an integral outer strap having a hook at its lower end adapted to clasp over the lower chime of the bucket, and an inner strap integral with the ear portion and parallel with the outer strap, both of said straps being perforated for the reception of rivets, substantially as described.

2. The combination, with a wooden bucket, of two bail-ears, each having an integral outer strap formed with a hook at its lower end adapted to clasp over the lower chime of the bucket, and also having an integral inner strap reaching to a point opposite the upper hoop and parallel with the outer strap, said ears being rigidly secured to the bucket by rivets passed through the straps, the hoops, and the staves.

594,841. WARP STOP-MOTION FOR LOOMS. MYRON J. BRIGGLOW, Hopedale, Mass., assignor to the Northrop Loom Company, same place and Saco, Me. Filed Dec. 4, 1896. Serial No. 614,394. (No model.)



Claim.—1. In a loom, a series of vertically-movable warp-stop-motion-actuating detectors, a vibrating feeler moved by gravity toward

them and to be engaged and held by a dropped detector, a shipper-lever, and a releasing device therefor, combined with controlling means for said device, including a rotating cam having a projection thereon, and a shouldered lever fulcrumed on a part of said releasing device and connected with the feeler and cooperating with the cam, to positively raise said lever on its fulcrum and move the feeler away from the detectors, stoppage of the said feeler holding the lever raised with its shoulder in the path of and to be engaged by the cam projection, to thereby move the lever longitudinally and operate the releasing device, substantially as described.

2. In a loom, a series of vertically-movable warp-stop-motion-actuating detectors, a vibrating feeler moved by gravity toward them and to be engaged and held by a dropped detector, a shipper-lever, and a releasing device therefor, combined with controlling means for said device, including a rotating cam having a projection thereon, and a lever connected with the feeler and normally rocked by the cam, said lever having a downturned extension thereon to be engaged by the cam projection upon accidental stoppage of the feeler, to thereby depress the lever and effect movement of the feeler, substantially as described.

3. In a loom, a series of vertically-movable warp-stop-motion-actuating detectors, a vibrating feeler moved by gravity toward them and to be engaged and held by a dropped detector, a shipper-lever, and a releasing device therefor, combined with controlling means for said device, including a rotating cam having a projection thereon, and a lever connected with the feeler and normally rocked by the cam, said lever having a shoulder, and a downturned extension to be engaged by the cam projection upon accidental stoppage of the feeler, to effect movement of the latter, stoppage of the feeler by a dropped detector bringing the shoulder into the path of the said projection, to thereby move the lever longitudinally and operate the releasing device, substantially as described.

4. In a loom, a series of stop-motion-actuating detectors movable vertically by the warp-threads, a cooperating feeler vibrated positively in one direction and in the other direction by gravity, and stopping mechanism for the loom, combined with controlling means for said mechanism, comprising a rocking and longitudinally-movable lever, a continuously-rotated cam to engage and rock said lever, an actuating projection on said cam to move the lever longitudinally, and a link pivotally connecting the free end of the lever and the feeler, whereby stoppage of the latter by a dropped detector will retain the lever out of engagement with the cam and in the path of movement of said actuating projection, whereby engagement of the latter with the lever will move it longitudinally and release the stopping mechanism, substantially as described.

5. In a loom, a series of stop-motion-actuating detectors vertically movable by the warp-threads, a feeler moved by gravity toward said detectors, to be engaged and held by one in abnormal position, a shipper-lever, and releasing mechanism therefor, combined with controlling means for said mechanism, comprising a rotating cam, a normally-vibrated lever pivotally mounted on said mechanism and directly connected by a link with and to move the feeler away from said detectors, by engagement with the cam, and a continuously-rotated actuator to engage the lever when held from vibration by the feeler, and move the lever longitudinally to operate the releasing mechanism, substantially as described.

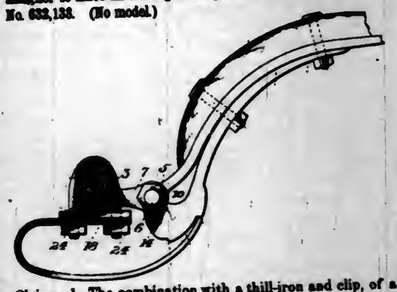
6. In a loom, a series of flat warp-stop-motion-actuating detectors vertically movable by the warp threads, a stationary bar to act against one longitudinal edge of a detector in abnormal position, a feeler having a deeply-notched edge to engage the adjacent longitudinal edge of a dropped detector, said notches being deeper than one-half the width of the detectors, to prevent the latter from twisting out of a notch when engaged and backed against the bar, the sides of the notches inwardly converging to guide the detector to the bottom of a notch, and means to vibrate the feeler, substantially as described.

7. In a loom, a series of stop-motion-actuating detectors vertically movable by the warp-threads, a feeler moved by gravity toward said detectors, to be engaged and held by one in abnormal position, a shipper-lever, a knock-off arm therefor, a rock-shaft having a rocker-arm, and a link connecting said knock-off and rock-shaft, combined with a lever pivoted on said rocker-arm and connected with the feeler, a continuously-rotating cam to rock said lever on its pivot and thereby effect vibration of the feeler, and means to engage said lever and move it longitudinally to rock the knock-off-controlling shaft, upon stoppage of the feeler by a dropped detector, substantially as described.

8. In a warp stop-motion for looms, a series of vertically-movable flat detector-heddles, a notched vibratable feeler to engage and be stopped by a dropped heddle, and a cooperating guide at the back of the heddles, the notches being deeper than one-half the width of the heddles to prevent the latter from twisting out of a notch when engaged and backed against said guide, said notches having sides converging to the bottoms thereof, to guide the edge of a heddle to the bottom of a notch, substantially as described.

9. In a loom, a series of flat stop-motion-actuating detectors vertically movable by the warp-threads, and a vibratable feeler having a notched acting edge, to engage the adjacent longitudinal edge of a dropped detector, said notches having inwardly-converging sides to guide the detector to the bottom of a notch, the depth of the notches being greater than one-half the width of the detector, whereby the latter is prevented from twisting out of a notch when engaged by the feeler, substantially as described.

594,842. THILL-SUPPORT. SHEPARD W. CATELY, Cortland, N. Y., assignor to Alice M. Etting, same place. Filed Apr. 14, 1897. Serial No. 632,138. (No model.)



Claim.—1. The combination with a thill-iron and clip, of a supporting-spring having a horizontal part secured to the lower ends of the clip and a curved part extending rearward, downward, forward and upward and terminating in a beveled end, a shoe attached to the under side of the thill-iron at one end and having a concavity to engage its barrel at the other end, the under side of the rear end of said shoe being formed with beveled notches to receive the forward extremity of said spring, whereby definite stops for the end of the spring are provided, and at the same time the beveled end of the spring is caused to yield to force applied to the thill and thereby enable the beveled notches of the shoe to slip over the end of the spring, as and for the purpose set forth.

2. The combination with a thill-iron and clip, of a supporting-spring having a horizontal part with an elongated opening adapting it to be secured at the lower end of different-sized clips, and a curved part extending rearward, downward, forward, and upward and terminating in a beveled end, a shoe attached to the under side of the thill-iron at one end and having a concavity to engage its barrel at its other end, the under side of the rear end of said shoe having beveled notches to receive the front beveled end of the spring, whereby a definite stop is provided which yields on applying force to the thill which causes the beveled notches and end of the spring to slip one over the other, as and for the purpose set forth.

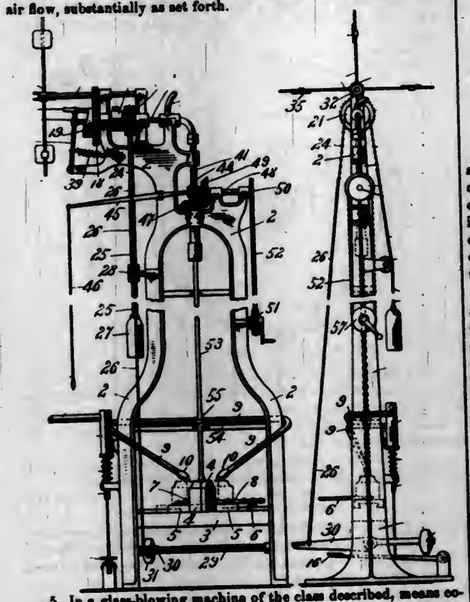
594,843. GLASS-BLOWING MACHINE. HENRY J. COLBURN and MICHAEL J. OWENS, Toledo, Ohio, assignors to the Toledo Glass Company, same place. Filed May 24, 1897. Serial No. 637,849. (No model.)

Claim.—1. In a glass-blowing machine of the class described, a mold, a blow-iron, means for supporting the blow-iron in operative relation to the mold, and separately-organized mechanisms, each subject to the manipulation of the operator of the machine, for independent temporary action for admitting air under pressure to said blow-iron, for rotating the blow-iron, and for wetting the mold, substantially as set forth.

2. In a glass-blowing machine of the class described, a mold, a blow-iron, means for supporting the blow-iron in operative relation to the mold, separately-organized mechanisms, each subject to the manipulation of the operator of the machine for independent, temporary action for admitting air under pressure to said blow-iron, for rotating the blow-iron, for wetting the mold, and mechanism cooperating with that which admits said air to the blow-iron whereby the volume of air so admitted is gradually increased during the formation of an article in the mold, substantially as set forth.

3. In a glass-blowing machine of the class described, a mold, a blow-iron, means for supporting the blow-iron in operative relation to the mold, separately-organized mechanisms, each subject to the manipulation of the operator of the machine for independent, temporary action for admitting air under pressure to said blow-iron, for rotating the blow-iron, for wetting the mold, and mechanism whereby the duration of the air flow through the blow-iron is increased or diminished, as required by the quantity of glass in the article being operated upon, substantially as set forth.

4. In a glass-blowing machine, a mold, a blow-iron, means for supporting the blow-iron in operative relation to the mold, for admitting and controlling the flow of air to, and through the blow-iron to the mold, and for increasing and diminishing the duration of said air flow, substantially as set forth.



5. In a glass-blowing machine of the class described, means cooperating with the glass-blowing air-supply of the machine, whereby the duration of said air-supply for action upon an article being blown is made variable, substantially as described.

6. In a glass-blowing machine of the class described, a sectional mold, a mold-table on which the mold-sections are supported for movements in a right line from and toward each other, a blow-iron, means for supporting the blow-iron in operative relation to the mold, means for moving said mold-sections to open and close the mold, separately-organized mechanisms, each subject to the manipulation of the operator of the machine for independent temporary action for admitting air under pressure to said blow-iron and mold, for rotating the blow-iron, and for wetting the mold, substantially as set forth.

7. In a glass-blowing machine of the class described, a mold, a blow-iron, means for supporting the blow-iron in operative relation to the mold, and gravity-actuated mechanism for admitting air under pressure to said blow-iron substantially as set forth.

8. In a glass-blowing machine of the class described, a mold, a blow-iron, means for supporting the blow-iron in operative relation to the mold, and manually-operated mechanism for rotating said blow-iron, substantially as set forth.

9. In a glass-blowing machine of the class described, a mold consisting of two disconnected sections, a table on which said mold-sections are supported for movements in a right line from and toward each other, means for manually sliding said sections to open and close the mold, conducting-pipes conveying and applying water to said mold-sections, a valve in said pipes, and a foot-lever connected with said valve for operating the same, whereby the flow of water through said pipes to the mold-sections is controlled, substantially as set forth.

10. In a glass-blowing machine of the class described, a mold, a blow-iron, means for supporting the blow-iron in operative relation to the mold, and gravity-actuated mechanism for admitting air under pressure to said blow-iron, and for varying the volume of air so admitted, whereby said volume is increased during the blowing of an article in the mold, substantially as set forth.

594,844. WARP STOP-MOTION FOR LOOMS. WILLIAM F. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Feb. 26, 1897. Serial No. 625,222. (No model.)

Claim.—1. In a loom the following instrumentalities, in combination, viz: a series of flat vertically-reciprocating warp-stop-motion-actuating detectors movable into abnormal operative position upon breakage or undue slackening of a warp-thread, a cooperating vibrator having parallel-sided notches to be entered by a detector in abnormal position, and means to normally move said vibrator back and forth in the direction of the length of the warp-stopping means, and connections therefrom to the vibrator, substantially as described.



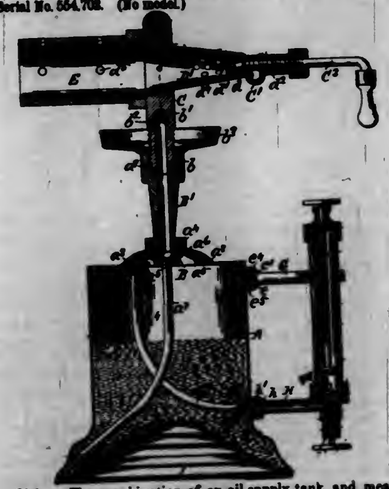
2. In a loom the following instrumentalities in combination, viz: a series of flat vertically-reciprocating warp-stop-motion-actuating detectors, movable into abnormal operative position upon breakage or undue slackening of a warp thread, a cooperating vibrator having parallel-sided notches and flaring entrances to be entered by a dropped detector, and means to normally move the vibrator in the direction of the length of the warp-stopping means, and connections therefrom to the vibrator, substantially as described.

3. In a loom the following instrumentalities in combination, viz: a series of flat vertically-reciprocating warp-stop-motion-actuating detectors, a cooperating vibrator having notches with parallel sides of a depth equal to substantially one-half the width of and to be entered by a detector in abnormal position, and means to normally move the vibrator in the direction of the length of the warp-stopping means, and connections therefrom to the vibrator, substantially as described.

4. In a loom the following instrumentalities, viz: a series of flat vertically-reciprocating warp-stop-motion-actuating detectors movable into abnormal operative position upon breakage or undue slackening of a warp-thread, a cooperating vibrator, slotted to form tines presenting parallel sides and pointed outer ends, said slots being entered by a detector in abnormal position, and means to normally move said vibrator back and forth in the direction of the length of the warp-stopping means, and connections therefrom to the vibrator, substantially as described.

5. As an article of manufacture, a comb-like vibrator for warp-stop-motion mechanisms, presenting a series of tines having parallel sides and pointed outer ends, substantially as described.

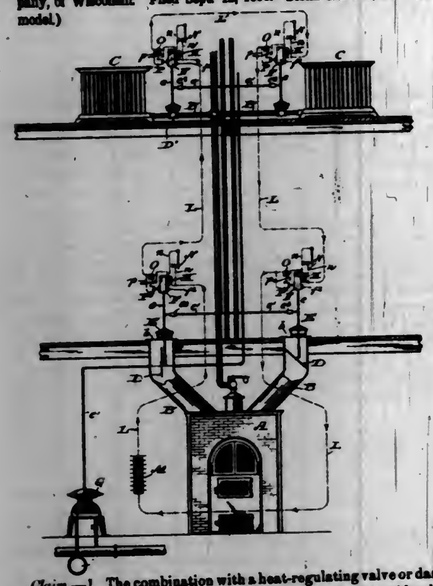
594,845. BRAKING APPARATUS. JOHN C. DUPEE, Chicago, Ill., assignor of one-half to Ripley J. White, same place. Filed July 2, 1895. Serial No. 554,702. (No model.)



Claim.—The combination of an oil-supply tank and means for compressing air therein, of a generator or retort in operative connection with said tank, said generator consisting of a chambered ring, as distinguished from an elongated tube having a tubular-shaped chamber therein, said ring being so shaped in a section cut through the plane of its axis as to provide a minimum distance for the heat to pass by metallic conductivity to the outside thereof, the chamber in said ring being continuous from the oil-inlet around through the ring to a point near said inlet, a rearwardly-projecting tube connecting with the end of said chamber, means for separating said chamber at the entrance of said tube from the oil-inlet, a burner upon said rearwardly-projecting tube having its opening coincident with the

axis of said ring retort, a shield surrounding said burner, means for admitting air thereto, and a combustion-tube arranged in front of said retort, substantially as described.

594,846. HEAT-REGULATING APPARATUS. CHARLES L. FORTIER, Milwaukee, Wis., assignor to the Johnson Electric Service Company, of Wisconsin. Filed Sept. 12, 1896. Serial No. 605,556. (No model.)



Claim.—1. The combination with a heat-regulating valve or damper, of an electromagnet for controlling the operation of said valve or damper, an electric circuit connecting the coil of said magnet with a source of electricity and a shunt containing a thermostat and tapping said circuit on opposite sides of said magnet, substantially as and for the purposes set forth.

2. The combination with a number of heat-regulating valves or dampers, of electromagnets for controlling the operation of said valves or dampers, an electric circuit connecting the coils of said magnets in series with a source of electricity and a shunt for each magnet containing a thermostat and tapping said circuit on opposite sides of said magnet, substantially as and for the purposes set forth.

3. The combination with a heat-regulating valve or damper, of an electromagnet for controlling the operation of said valve or damper, an electric circuit connecting the coil of said magnet with a source of electricity, a thermostat in a shunt tapping said circuit on opposite sides of said magnet, a resistance in said circuit, and a shunt around said resistance containing an automatic circuit-controller which is arranged to cut out said resistance whenever the thermostat is opened, substantially as and for the purposes set forth.

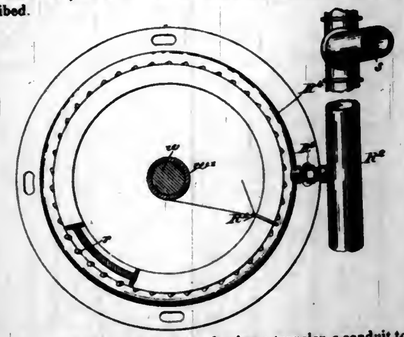
4. The combination with heat-regulating valves or dampers, of electromagnets for controlling their operation, an electric circuit connecting the coils of said magnets in series with a source of electricity, a shunt around each magnet containing a thermostat, a resistance in said circuit for each magnet, and a shunt around said resistance containing an automatic circuit-controller arranged to open said shunt whenever the associated thermostatic shunt is closed, substantially as and for the purposes set forth.

5. The combination with heat-regulating valves or dampers, of electromagnets controlling the operation thereof, an electric circuit connecting the coils of said magnets in series with a source of electricity, and single-point thermostats having their expansion-strips connected with said circuit on one side and their contacts connected with said circuit on the other side of said magnets, substantially as and for the purposes set forth.

594,847. RING SPINNING AND TWISTING FRAME. JOHN W. FOSTER, Westfield, Mass., assignor of one-half to Muldrd M. Dunn, Boston, Mass. Filed Mar. 26, 1896. Serial No. 584,764. (No model.)

Claim.—1. In a spinning or twisting machine, the following instrumentalities, viz: a ring and traveler, and means to direct a current or blast of air against the traveler to aid the same in traveling about the race of the ring, substantially as described.

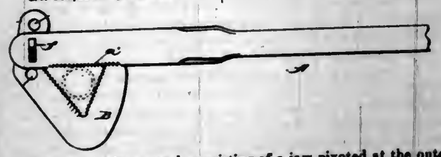
2. In a spinning or twisting machine, the following instrumentalities, viz: a spindle adapted to receive a cop-tube, a ring and traveler, and means to direct a current or blast of air to aid in moving the traveler about the race of the ring when the spindle is rotating to twist the yarn or thread to wind the same, substantially as described.



3. A ring-rail, a ring thereon having a traveler, a conduit to supply a current or blast of air to the traveler, a pipe carried by the said rail to supply air to said conduit, and a flexible pipe connected to said air-pipe, said flexible pipe rising and falling with the ring-rail, substantially as described.

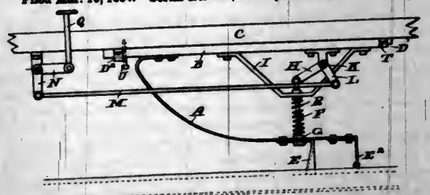
4. A spinning or twisting ring having a conduit for the reception and discharge of air, to operate substantially as described.

594,848. PIPE-WRENCH. JOHN J. HALDEMAN, Shamokin, Pa., assignor of one-fourth to William P. G. Hoffman and William A. Murray, Sunbury, Pa. Filed Aug. 25, 1896. Renewed May 6, 1897. Serial No. 635,410. (No model.)



Claim.—A pipe-wrench consisting of a jaw pivoted at the outer end of a bifurcated handle, with its free end turned inward to pass between the bifurcations, gripping-teeth upon the bifurcations, a V-shaped clamping-surface within the jaw and provided with gripping-teeth, a shank on the jaw extending over the clamping-surface, and provided with perforations for adjustment and a thumb-screw for holding the jaw in adjusted position, substantially as described.

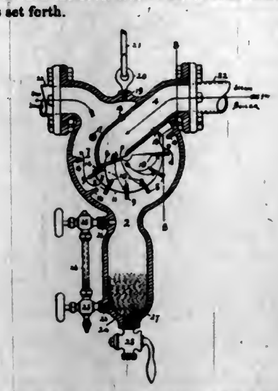
594,849. GROOVED-RAIL CLEANER. ALBERT HOCHSTRASSER, Cincinnati, Ohio, assignor of one-half to Peter Buchheit, same place. Filed Mar. 19, 1897. Serial No. 628,316. (No model.)



Claim.—The combination in a grooved-rail-cleaning device, of two plows, the forward plow for loosening the dirt, the rear plow for removing the dirt from the groove and top of rail, the two plows attached to a flexible bar and also supplied with a spring to force the plows into the groove and down on top of the rail, the two plows also being attached to a suitable device for raising and lowering the plows, the flexible piece, A, attached to the bar, B, which is secured to the timbers of the car in such a manner as to be quickly attached and detached to and from the car, the form of the rear plow to conform to the shape of the groove in the rail and top of rail, substantially as set forth.

594,850. SEPARATOR. WILLIAM C. JENKINS, Philadelphia, Pa., assignor to the Watson & McDaniel Company, same place. Filed June 30, 1897. Serial No. 642,925. (No model.)

Claim.—1. In a separator a circular chamber elliptically formed as to its vertical cross-section having an inlet-pipe entering therein at one side of the circular wall, near its top and an outlet-pipe leading therefrom at the opposite side of the circular wall, near its top, the inlet-pipe passing within the chamber, clear of its walls and outwardly being curved at its inner end, near the center of the chamber with its orifice constructed and arranged to centrifugally discharge its contents toward the outer side of the circular-chamber case, substantially as set forth.



2. In a separator, a circular chamber elliptically formed as to its vertical cross-section having an inlet-pipe entering the circular side near its top therein, and an outlet-pipe leading therefrom at the opposite side, the inlet-pipe being curved at its delivery end, near the center of the chamber, and its orifice constructed and arranged to centrifugally discharge its contents between guiding-plates, disposed at each side to direct the discharge to the circular side of the chamber oppositely to the exit by the delivery-pipe, substantially as described.

3. In a separator, a circular chamber elliptically formed as to its vertical cross-section, having a single curved inlet-pipe entering the chamber through its curved wall and arranged to centrifugally discharge its contents near the chamber's center, an outlet-pipe leading from the curved wall of the chamber oppositely to the inlet-pipe, and a well opening into the chamber and connected thereto by a neck smaller than the well and adapted to receive liquid deposit therefrom, substantially as described.

4. In a separator, a circular chamber elliptically formed as to its vertical cross-section having an outlet-pipe, having spaces between its exterior and the interior of the chamber and an inlet-pipe curved at its inner end for centrifugal discharge and guiding-plates supported at opposite sides of the inlet-pipe orifice substantially to each other, and to the elliptic sides of the chamber, and adapted to guide the discharge outward to the lower circular sides of the chamber and thereafter form passages between the outer sides and the elliptic sides of the chamber for the passing of the dry part of the discharge to the delivery-pipe, substantially as described.

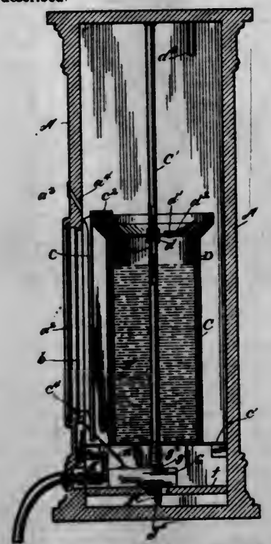
5. In a separator, a circular chamber elliptically formed as to its vertical cross-section, having an inlet-pipe entering the chamber, and an outlet-pipe, the inlet-pipe attached thereto entering to about the center of the chamber and having an orifice near the center of the chamber constructed and adapted to cause a centrifugal discharge, guide-plates at the sides of the orifice and baffle-plates supported thereon and between and so disposed as to intercept, divide and scatter the discharge from the inlet-pipe orifice, substantially as set forth.

6. In a separator, a circular chamber elliptically formed as to its vertical cross-section, an inlet-pipe within the chamber, and an outlet-pipe from the chamber, the inlet-pipe having a centrifugal discharge, and intercepting-ribs within the casing, and secured thereto at their ends and one edge and adapted to intercept any liquid carried by the flow of the steam or vapor upon the interior of the casing in the direction of the delivery-pipe, substantially as described.

7. In a separator having a chamber, an outlet pipe and a centrifugally-discharging inlet-pipe, a depending well having means thereon and thereto connected to indicate by a glass tube the amount of deposit within the well, substantially as described.

594,851. LUNG-TESTING APPARATUS. HERMAN A. KOEHLER, Chicago, Ill., assignor of one-half to William H. Habbeler, same place. Filed Sept. 25, 1897. Serial No. 652,953. (No model.)

Claim.—1. In a lung-testing apparatus, the combination of a casing provided with a slot for the deposit of a coin, and a graduate scale, of a vessel located in said casing for the reception of a liquid, and another vessel or plunger located within the first-named vessel, a guideway or chute for a coin secured to the plunger and carried thereby and having its lower end bifurcated, an index or pointer secured on the lower portion of said chute, a tube extending through the top of the plunger and the bottom of the outer vessel and having an opening within the plunger above the water-line, a valve communicating with the lower end of said tube and having a rod to extend between the forks of the chute or guideway, when the latter is in its lowered position, and a tube connected to the valve-chamber, substantially as described.



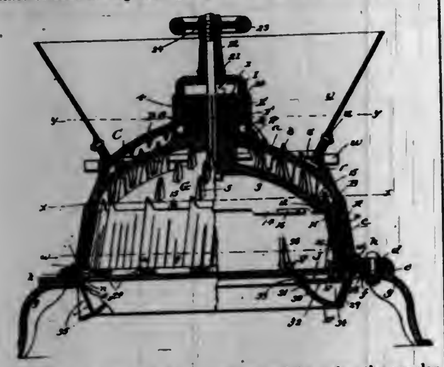
2. In a lung-testing apparatus, the combination of a casing provided with a slot for the deposit of a coin, and a graduate scale, of a vessel located in said casing for the reception of a liquid, and another vessel or plunger located within the first-named vessel, a guideway or chute for a coin secured to the plunger and carried thereby and having its lower end bifurcated, an index or pointer secured on the lower portion of said chute, a tube extending through the top of the plunger and the bottom of the outer vessel and having an opening within the plunger above the water-line, a valve-box having in its upper portion an opening communicating with the lower end of said tube, and an opening *i*, in its upper part, the lever *m'*, fulcrumed in the valve-box and having the valves *o*, and *m*, the rod E, secured at one of its ends to the lever *m'*, and extending through the opening *i*, and between the forks of the chute or guideway, when the same is in a lowered position, and a tube communicating with the valve-box, substantially as described.

3. The combination of the casing A, provided with the slot a^3, of the graduate scale *b*, exposed in said casing, and having the vertical slot b^3, the receptacle C, the plunger D, having its upper end closed and its lower end open, the guideway or chute *c*, secured to the upper portion of the plunger, and having its lower end bifurcated, the pointer c^4, located on the lower portion of the said chute and extending through the slot b^3, in the graduate scale, a fixed tube C', extending through the top of the plunger and bottom of the vessel C, the valve-box G, having the openings *g*, g^3, and *i*, the lever *m'*, fulcrumed within the valve-box and provided with the valves *o*, and *m*, the inclined rod E, secured at one of its ends to the lever *m'*, and extending through the opening *i*, and between the forks of the guideway or chute *c*, when the same is in its lowered position, and the flexible tube H, connected to and communicating with the tubular opening *g*, all constructed, arranged and operating substantially as and for the purpose set forth.

4. The herein-described valve, comprising a closed vessel G, having the openings *g*, g^3, and *i*, a lever *m'*, fulcrumed within the vessel and provided with the valves *o*, and *m*, to close the openings g^3, and *i*, respectively, and the rod E, secured at one of its ends to the lever *m'*, and extending through the opening *i*, substantially as described.

594,852. GRINDING-MILL. GEORGE R. MEASE, Marion, Ohio, assignor of one-half to John Kendall, same place. Filed May 24, 1897. Serial No. 637,857. (No model.)

Claim.—1. In a grinding-mill, the combination with the casing having the lateral flange at its base; of the shell provided with teeth on its inner side and the angular wall at its base, and also having angular studs or lugs to take into correspondingly-shaped recesses in the casing, the rubber or annulus having teeth on its outer side and lugs beveled to correspond with and engage the angular wall of the shell, the conveyer-trough, the legs secured to the casing by bolts and adapted to also receive the flange of the conveyer-trough, and the runner or cone having the lugs on its edge as described.



2. In a grinding-mill, the combination of the casing, the annular shell arranged in the casing and having the teeth *p*, on its inner side and also having the angular surface *j*, inclined in conformity to the inclination of the edges of the teeth *p*, and the vertically-adjustable and rotatable rubber or annulus having the teeth 9, on its outer side with edges inclined in conformity to those of the teeth *p*, and also having the lugs with surfaces 41, inclined to correspond with and engage the inclined surface *j*, of the shell, substantially as specified.

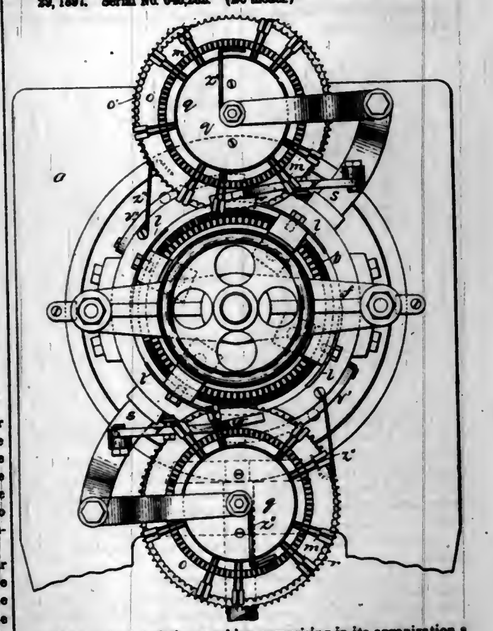
3. In a grinding-mill, the combination of the casing, the annular shell arranged in the casing and having the teeth *p*, on its inner side and also having the angular surface *j*, inclined in conformity to the inclination of the edges of the teeth *p*, and the vertically adjustable and rotatable rubber or annulus having the teeth 9, on its outer side with edges inclined in conformity to those of the teeth *p*, and also having the lugs with surfaces 41, inclined to correspond with and engage the inclined surface *j* of the shell, and further having the upwardly-extended guides 11, substantially as specified.

4. In a grinding-mill, the combination of the casing, the annular shell arranged in the casing and having the teeth *p*, on its inner side and also having the angular surface *j*, inclined in conformity to the inclination of the edges of the teeth *p*, and the vertical surface *s*, immediately below the angular surface, and the vertically adjustable and rotatable rubber or annulus having the teeth 9, on its outer side with edges inclined in conformity to those of the teeth *p*, and also having the lugs with surfaces 41, inclined to correspond with and engage the inclined surface *j*, of the shell and with vertical surfaces 41^a, to engage the vertical surface *s*, of the shell, substantially as specified.

5. In a grinding-mill, the combination of the casing provided with the open-work or spider dome armed with teeth and having an annular groove on its upper side and also having a central opening, a rotatable, toothed spider mounted on said dome and having a hub with a central opening and an annular groove in its under side adapted to serve in conjunction with that in the casing-dome to form a raceway, balls arranged in said raceway, the cone provided with teeth and having a central hub extending through the aperture in the dome of the casing and the aperture in the hub of the spider and keyed to the latter, the removable and threaded rod passing through the aperture in the cone-hub, the threaded hand-wheel mounted on said rod, the annular shell arranged in the casing and having the teeth *p*, on its inner side and also having the angular surface *j*, inclined in conformity to the inclination of the edges of the teeth *p*, and the vertical surface *s*, immediately below the angular surface, and the rubber or annulus connected to the cone and having the teeth 9, on its outer side with edges inclined in conformity to those of the teeth *p*, and also having the lugs with surfaces 41, inclined to correspond with and engage the inclined surface *j*, of the shell and with vertical surfaces 41^a, to engage the vertical surface *s*, of the shell, substantially as specified.

6. In a grinding-mill, the combination of a cone having a plurality of lugs 14, arranged in one horizontal plane and a plurality of lugs 15, arranged in a horizontal plane above that of the lugs 14, and a rubber or annulus having an inwardly-directed flange 12, with notches 13, for the passage of the lugs 15, of the cone, and also having lugs 16, on its under side for the engagement of the lugs 14, of the cone, substantially as specified.

594,858. KNITTING-MACHINE. FREDERICK H. MOSS, Hyde Park, Mass., assignor to Charles F. Murphy, Boston, Mass. Filed July 29, 1897. Serial No. 646,223. (No model.)



Claim.—1. A knitting-machine comprising in its organization a needle-cylinder and its needles; a revoluble cam-cylinder, provided with needle-operating cams, as described; a picker-dial, adapted to revolve with the cam-cylinder, and provided with pickers adapted to engage certain of the needles to raise the same out of position for action thereon by the cams on the cam-cylinder; the said pickers being provided at their inner ends with holes; a wire pivoting-hoop passed through the said holes to form a pivot for the pickers; a cap covering the central portion of the dial over the pivotal points of the pickers, and means for raising the pickers, the said picker-dial being adapted to engage the needle-cylinder and to be rotated thereby.

2. A knitting-machine comprising in its organization a needle-cylinder and its needles; a revoluble cam-cylinder provided with needle-operating cams, as described; a pair of picker-dials, adapted to revolve with the cam-cylinder, and provided with pickers in one dial adapted to engage the hooks of certain of the needles, and those in the other dial adapted to engage the heels of certain of the needles, to raise them out of position for action thereon by the cams on the cam-cylinder: and means for raising the pickers, the said picker-dials being adapted to engage the needle-cylinder and to be rotated thereby.

3. A knitting-machine comprising in its organization a needle-cylinder and its needles; a revoluble cam-cylinder provided with a plurality of sets of needle-operating cams, as described; a plurality of yarn-feeds; a plurality of pairs of picker-dials adapted to revolve with the cam-cylinder, and provided with pickers, in one dial of each pair adapted to engage the hooks of certain of the needles, and those in the other dial of each pair adapted to engage the heels of certain of the needles, to raise them out of position for action thereon by the cams on the cam-cylinder; and means for raising the pickers; the said picker-dials being adapted to engage the needle-cylinder and to be rotated thereby.

4. A knitting-machine comprising in its organization a needle-cylinder and its needles; a revoluble cam-cylinder, provided with needle-operating cams, as described; a picker-dial, adapted to revolve with the cam-cylinder, and provided with pickers adapted to engage certain of the needles to raise the same out of position for action thereon by the cams on the cam-cylinder; the said pickers being provided at their inner ends with holes; a wire pivoting-hoop passed through the said holes to form a pivot for the pickers; a cap covering the central portion of the dial over the pivotal points of the pickers and means for raising the pickers, the said picker-dial being adapted to engage the needle-cylinder and to be rotated thereby, combined

with a needle-dial and its needles, and a revoluble cam-dial provided with cams to operate the dial-needles.

5. A knitting-machine comprising in its organization a needle-cylinder and its needles; a revoluble cam-cylinder provided with needle-operating cams, as described; a pair of picker-dials, adapted to revolve with the cam-cylinder, and provided with pickers, in one dial adapted to engage the hooks of certain of the needles, and those in the other dial adapted to engage the heels of certain of the needles, to raise them out of position for action thereon by the cams on the cam-cylinder; and means for raising the pickers, the said picker-dials being adapted to engage the needle-cylinder and to be rotated thereby, combined with a needle-dial and its needles, and a revoluble cam-dial provided with cams to operate the dial needles.

6. A knitting-machine comprising in its organization a needle-cylinder and its needles; a revoluble cam-cylinder provided with needle-operating cams, as described; a plurality of yarn-feeds; a plurality of pairs of picker-dials adapted to revolve with the cam-cylinder, and provided with pickers, in one dial of each pair adapted to engage the hooks of certain of the needles, and those in the other dial of each pair adapted to engage the heels of certain of the needles, to raise them out of position for action thereon by the cams on the cam-cylinder; and means for raising the pickers; the said picker-dials being adapted to engage the needle-cylinder and to be rotated thereby, combined with a needle-dial and its needles; and a revoluble cam-dial provided with needle-operating cams corresponding with the needle-operating cams in the cam-cylinder, to operate the dial-needles.

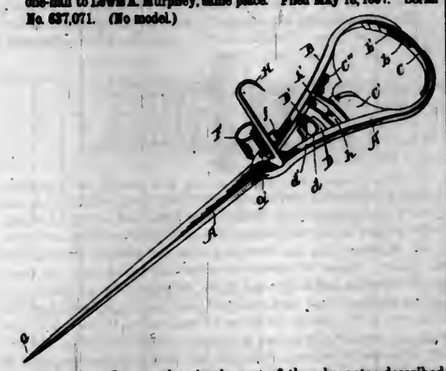
7. A picker-dial having radially-inclined grooves, pickers each having a vertically flat inner portion or shank provided on its inner end with a hole and having a horizontally flat outer end, combined with a spring hoop or ring passed through the said holes to hold the said pickers longitudinally in place, and a cap to hold the pickers in place transversely.

8. The combination, with the needle-cylinder provided with needle-grooves, needles therein, and needle-operating means, of a picker-dial toothed on its periphery to engage the needle cylinder and to be rotated thereby, swinging pickers carried by the picker-dial to engage the needles and raise them, movable cams adapted to be raised into and lowered out of operative position with respect to the said pickers, and means for raising and lowering the said cams.

9. The combination, with the needle-cylinder provided with needle-grooves, needles therein and needle-operating means, of a pair of picker-dials toothed on their peripheries and one arranged above the other and positioned to engage the needle-cylinder and to be rotated thereby, swinging pickers carried by the picker-dials—arranged in one dial to engage the hooks of the needles and in the other to engage their heels—to raise them, movable cams adapted to be raised into and lowered out of operative position with respect to the said pickers, and means for raising and lowering the said cams.

10. The combination, with a needle-cylinder provided with needle-grooves, needles therein, and needle-operating means, of a picker-dial toothed on its periphery to engage the needle-cylinder and be rotated thereby, swinging pickers in the picker-dials to engage and pick or raise the needles, means to act upon the said pickers to render them operative, and means to raise and lower the last-mentioned means.

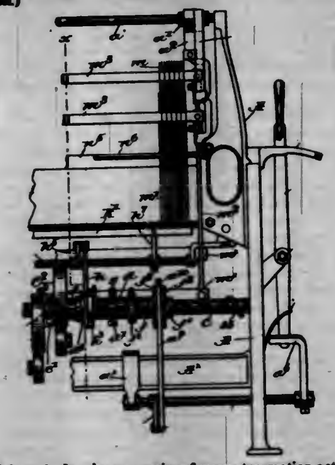
594,854. MINER'S COMBINED CANDLESTICK, CAP-CRIMPER, AND FUSE-CUTTER. CHARLES S. MCCREADY, Bodie, Cal., assignor of one-half to Lewis A. Murphey, same place. Filed May 18, 1897. Serial No. 637,071. (No model.)



Claim.—1. In a tool or implement of the character described, the combination with the tapered and pointed bar having the fixed, approximately semicircular jaw, of the movable jaw of similar form pivoted to said bar, and the spring, the latter consisting of a number of superimposed leaves secured at one end to the inner face of one of the said jaws and having a sliding bearing upon the inner face of the other jaw, said spring closing the space between the free ends of the jaws, together with coacting cap-crimping and fuse-cutting devices located on the throat portions of said jaws, substantially as specified.

2. In a tool or implement of the character described, having two jaws, the one fixed and the other movable and acted upon by a spring, one of said jaws having upon its throat portion a slotted projection D, a knife C, and a lug A, and the other of said jaws having upon its similar portion a concave lug D adapted to enter the slot of the lug D, a knife C' adapted to coact with the knife C, and a lug A' arranged to slide upon the lug A and thereby hold the two knives in proper relative positions, substantially as described.

594,855. WARP STOP-MOTION FOR LOOMS. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Mar. 15, 1897. Serial No. 627,545. (No model.)



Claim.—1. In a loom, a series of warp-stop-motion-actuating detectors movable into operative position by breakage or undue slackening of the warp-threads, a vibrator to engage and be held by a dropped detector, mechanism to vertically reciprocate said detectors, means to normally rock the vibrator, a rotatable shaft and controlling connections mounted adjustably on said shaft between said means and the mechanism for reciprocating the detectors, whereby adjustment of the detector-reciprocating mechanism governs the timing of the means for rocking the vibrator, substantially as described.

2. In a loom, a series of warp-stop-motion-actuating detectors movable into operative position by breakage or undue slackness of the warp-threads, a vibrator to engage and be stopped by a dropped detector, means to normally rock the vibrator, a harness-cam, and connections between it and said means, whereby the timing of the normal operation of the vibrator is controlled by the set of said cam on its shaft, substantially as described.

3. In a loom, a series of warp-stop-motion-actuating detectors serving as heddles; means, including harness-cams, to reciprocate said detectors vertically, a vibrator to engage and be stopped by a dropped detector due to breakage or undue slackening of its warp-thread; mechanism to normally rock the vibrator, and connections between said mechanism and the harness-cams, whereby the set of the latter on their shaft controls the timing of the normal operation of the vibrator, substantially as described.

4. In a loom, a series of warp-stop-motion-actuating detectors serving as heddles; means, including adjustable harness-cams, to reciprocate said detectors vertically, a vibrator to engage and be stopped by a dropped detector due to breakage or undue slackening of its warp-thread, mechanism to normally rock the vibrator, connections between said mechanism and the harness-cams, whereby adjustment of the latter on their shaft will govern the timing of the former, stopping mechanism for the loom, and means to operate the stopping mechanism when a dropped detector is engaged by the vibrator, substantially as described.

5. In a loom, shed-forming mechanism, including detector-heddles, and adjustable cams to effect their vertical reciprocation, combined with a stopping mechanism for the loom, including a vibrator

to coöperate with a dropped heddle, and connections between said vibrator and said cams, whereby the set of the latter on their shaft governs the timing of the normal operation of the vibrator, substantially as described.

6. In a warp stop-motion for looms, a cam-shaft, harness-cams adjustable thereon, a vibrator, actuating mechanism therefor, connections between said mechanism and the cams, whereby adjustment of the latter on their shaft will govern and adjust the timing of said mechanism, a shipper-lever, releasing mechanism therefor, and means to operate it upon stoppage of the vibrator in its normal movement, substantially as described.

7. In a loom, warp-stop-motion-actuating detectors, a vibrator to engage a dropped detector, mechanism to normally rock said vibrator, including a cam having a movable segment, and a link reciprocated by the cam, combined with a shipper-lever, a releasing device therefor, and means operative upon movement of the cam-segment into abnormal position to actuate the releasing device, substantially as described.

8. In a loom, a rock-shaft having a vibrator mounted thereon, a link to rock said shaft and provided with a roll or stud, a coöperating actuating-cam having a spring-controlled segment, and a normally inoperative pawl, combined with a shipper-lever, and releasing means therefor, including a controlling-cam and a ratchet-wheel, stoppage of the vibrator, acting to move the cam-segment and bring the pawl into engagement with the ratchet-wheel, to thereby rotate the controlling-cam in unison with the actuating-cam, substantially as described.

9. In a loom, a rotatable shaft, a fast and a loose sleeve thereon, the latter having a ratchet-wheel, a shipper-lever, and means to release it upon rotation of the loose sleeve, combined with a cam on the fast sleeve, having a recessed periphery, a spring-controlled segment movable in the recess, a pawl for the ratchet-wheel, controlled by said segment and pivotally mounted on the fast sleeve, and means operative upon failure of a warp-thread to move said segment, and effect the stoppage of the loom, substantially as described.

10. In a loom, the harness-cam shaft, harness-cams adjustable thereon, a connected cam having a recessed periphery, a movable segment therein, means operative upon failure of a warp-thread to move said segment, a shipper-lever, and releasing devices operated by movement of the cam-segment into abnormal position, substantially as described.

11. In a loom, the harness-cam shaft, harness-cams adjustable thereon, a connected cam having a recessed periphery, a movable segment therein, and means operative upon failure of a warp-thread to move the segment, said means including a series of detector-heddles moved into operative position upon breakage or undue slackening of the warp-threads, a coöperating vibrator, and connections between it and the recessed cam, combined with a shipper-lever, and releasing means therefor operated by movement of the cam-segment into abnormal position due to stoppage of the vibrator by a dropped heddle, substantially as described.

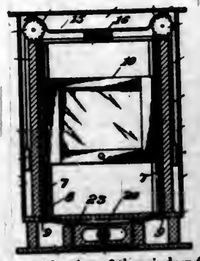
12. In a loom, a heddle-frame provided with a plurality of adjacent cross-bars in parallelism, and a series of flat metallic heddles supported upon each of said bars and adapted to be moved vertically independently thereof, the heddles of one series being staggered relatively to the heddles of an adjacent series, combined with a common vibrator movable in the direction of the length of the warp-threads, to engage and be stopped by a dropped detector of a series, means to reciprocate said heddle-frames vertically, and mechanism controlled thereby as to its normal operation, to rock the vibrator when the warp-threads are intact, substantially as described.

13. In a loom, a harness-frame having a plurality of adjacent cross-bars, series of heddles having each a warp-eye and an elongated slot near its end, each bar supporting a series of heddles, and a vibrator having its axis of motion at right angles to the length of the warp, to coöperate with a dropped heddle and be stopped thereby, combined with means to reciprocate said harness-frame vertically, vibrator-actuating mechanism, stopping mechanism for the loom controlled thereby, and connections between said actuating mechanism and the means to reciprocate the harness-frame, whereby a change in the timing of the latter will effect a corresponding change in the timing of the former, substantially as described.

14. In a loom, a series of vertically-movable warp-stop-motion-actuating detectors, and a vibrator movable in the direction of the length of the warp-threads and adapted to engage a dropped detector, combined with means to move said vibrator back and forth in the direction of the length of the warp, said means including an actuating-cam, and a connected cam to control the vertical reciprocation of the detectors, variation in the set of the latter cam acting to adjust the timing of the vibrator, substantially as described.

15. In a loom, shed-forming mechanism, including detector-heddles and cam-actuated means to reciprocate them, a vibrator movable in the direction of the length of the warp-threads, to coöperate with a dropped detector, stopping mechanism for the loom, operative upon engagement of the vibrator with a detector, and connections between the said cam-actuated means and the vibrator, to control the normal vibration of the latter, substantially as described.

594,856. SASH-HOLDER. CHARLES F. DAVIS and PERRY L. COOPER, Olivet, Mich. Filed July 12, 1897. Serial No. 644,242. (No model.)



Claim.—1. The combination of the window-frame provided with a base or sill compartment, a sash, clamping-bars at each side of the window-frame adapted to clamp the sash, a spring-metal connecting-bar or bridge-piece in the base-compartment having its ends secured to said clamping-bars, said bridge-piece being adapted to hold the clamping-bars out of clamping engagement by its spring action thereon, and means engaging said bridge-piece to move the clamping-bars into engagement with the sash, substantially as described.

2. The combination of the window-frame provided with two vertical side bars and a sill-compartment provided with openings in the top thereof, a window-sash, a clamping-bar pivoted by links to each vertical side bar and having its lower end adapted to move in the said sill-opening, a bow-shaped spring-metal bridge-piece connecting the lower ends of the clamping-bars and located in said sill-compartment, said bridge-piece being adapted to hold the clamping-bars out of engagement with the sash by its spring action thereon, a block secured to the bridge-piece and provided with a cam-slot, and a handle provided with an eccentric head occupying said slot and adapted to force the block, bridge-piece and clamping-bars downward so as to cause the latter to clamp the window-sash, substantially as described.

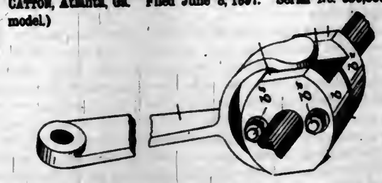
3. The combination of the window-frame provided with two vertical side bars and a sill-compartment provided with openings in the top thereof, a window-sash, a clamping-bar pivoted by links to each vertical side bar and having its lower end adapted to move in the said sill-opening, a bow-shaped spring-metal bridge-piece connecting the lower ends of the clamping-bars and located in said sill-compartment, said bridge piece being adapted to hold the clamping-bars out of engagement with the sash by its spring action thereon, a block secured to the bridge-piece and provided with a cam-slot, a catch device on the exterior of the window-sill, a shaft provided with an eccentric head occupying said cam-slot and acting on the block to draw the bridge-piece and clamping-bar downward into locking engagement, and a handle secured to said shaft and adapted to engage with the catch to hold the parts in locking engagement, substantially as described.

594,857. ROLLER-BUSHING FOR SHEAVES. ALONZO J. Q. KNOWLTON, Camden, Me., assignor to the Duplex Roller Bushings Company, same place. Filed Mar. 15, 1897. Serial No. 627,684. (No model.)



Claim.—A sheave or pulley having a central cavity, a bushing or casing inserted in said cavity and having at one end an integral inwardly-projecting flange forming the fixed end wall of a roller-holding space within said casing, and an annular end piece or cap of larger diameter than the casing and attached outside the casing to the pulley, a series of rollers located in said casing, said end piece constituting the removable end of the roller-holding space and having an abutment that surrounds and prevents the spreading of the open end of the casing, trunnions on said rollers, suitable trunnion-engaging annular ribs formed on the cap and the end wall of the casing, and suitable annular abutments also formed on the said parts at opposite sides of the trunnions from the said ribs, the said abutments and ribs together constituting adequate end bearings for the said rollers.

594,858. SLEEVE FOR RECIPROCATING RODS. WILLIAM CATTON, Atlanta, Ga. Filed June 8, 1897. Serial No. 639,888. (No model.)

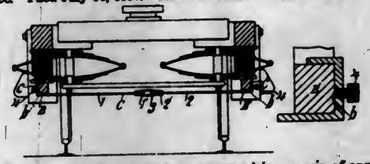


Claim.—1. In a sleeve for a reciprocating rod, a reciprocating rod, a cross-head consisting of two blocks, one secured to said rod and the other sliding upon said rod, an intervening shim of elastic material and means for clamping the two sections of the cross-head together, lips on the outer end of each block projecting laterally and a bifurcated lever pivotally secured and lugs on its bifurcated end lying between said lips.

2. In a sleeve for a reciprocating rod, a reciprocating rod, a cross-head consisting of two blocks, one secured to said rod and the other sliding upon said rod, an intervening shim of elastic material and means for clamping the two sections of the cross-head together consisting of bolts passing through said sections and nuts thereon, lips on the outer end of each block projecting laterally, and a bifurcated lever pivotally secured and lugs on its bifurcated end lying between said lips.

3. In a sleeve for reciprocating rods, a combination of a reciprocable rod, a cross-head thereon consisting of two sections mounted thereon, one secured to said rod and the other movable thereon, an intervening shim of elastic material, lips on the outer end of each of the sections of said cross-head, and projecting laterally therefrom, and a bifurcated lever pivotally mounted adapted to be connected to operative mechanism, and bifurcated at its end, said bifurcation lying between the respective lips of said cross-head, and inwardly-projecting lugs on said bifurcation and adapted to contact with said lips, substantially as and for the purpose specified.

594,859. CAR-BEARING ADJUSTER. CLARENCE V. GREENAWYER, Los Angeles, Cal., assignor of one-half to Albert P. Cross, same place. Filed July 16, 1897. Serial No. 644,837. (No model.)



Claim.—1. A car-bearing adjuster comprising a pair of equalizing-bars tied together by a connecting device which allows independent movement of the bars, but prevents them from spreading apart under the pressure of the springs.

2. The combination with the brasses and the equalizing-bars of a tie connecting the equalizing-bars at the middle thereof to prevent the bars from spreading apart under the pressure of the car-springs.

3. The combination of the equalizing-bars and an adjustable tie connecting the bars.

4. The combination with the equalizing-bars of a swiveled tie connecting the bars.

5. The combination with the equalizing-bars of a swiveled and adjustable tie connecting the bars.

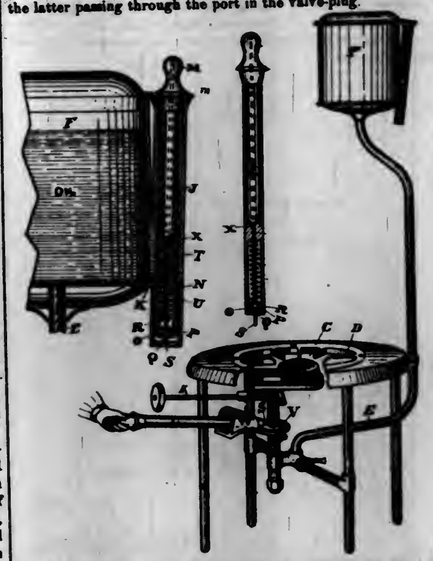
6. The combination of the equalizing-bars; stirrups, one on each of the bars and adjustable, therealong; means for fixing the stirrups in place on the bars; and a tie connecting the stirrups together.

7. The combination of the equalizing-bars on the brasses of a truck; a swiveled tie and means for adjustably fastening the ends of the tie to the bars.

8. A tie for equalizing-bars of car-trucks adjustable both as to length and position of adjustment to the equalizing-bars and torsionally automatically adjustable to the independent rocking action of either equalizing-bar.

594,860. LIGHTING DEVICE FOR VAPOR-STOVES. ISAAC KIRBY, Dayton, Ohio. Filed Oct. 13, 1896. Serial No. 608,698. (No model.)

Claim.—1. A liquid-conveyer for use with the ignition-cup of a hydrocarbon-vapor stove, consisting of a rod cored out for a portion of its length to form a chamber the liquid-holding capacity of which is approximately equal to that of said cup, a valve-plug in the lower end of the chamber, an air-vent for the chamber, and a valve and means for closing it located in the chamber, said valve having an upper stem and a lower stem, the former working in the air-vent and the latter passing through the port in the valve-plug.



2. A liquid-conveyer for use with the ignition-cup of a hydrocarbon-vapor stove, consisting of a rod cored out for a portion of its length to form a chamber the liquid-holding capacity of which is approximately equal to that of said cup, a valve-plug in the lower end of the chamber, an air-vent for the chamber, and a valve and a coiled spring for closing it located in the chamber, said valve having an upper stem and a lower stem, the former being encircled by the spring and working in the air-vent, and the latter passing through the port in the valve-plug.

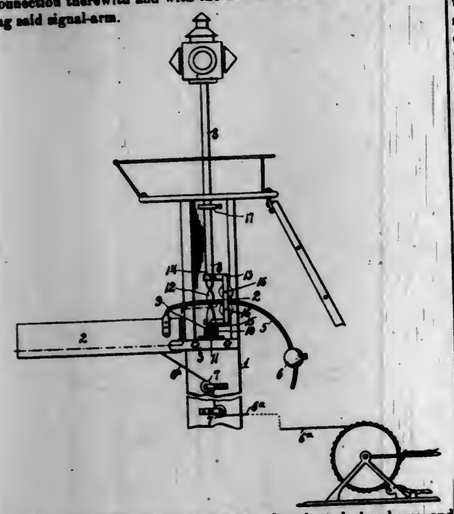
3. In a hydrocarbon-vapor stove, the combination, with the oil-tank and a liquid-holder secured to the outer side of the tank, the interior of said holder being in open communication with the interior of the tank through a suitable port or duct, of a liquid-conveyer adapted on being placed loosely in the holder to close the upper end thereof to automatically take up a definite quantity of oil, and to retain the oil so taken up when removed from the holder, said conveyer comprising a rod of sufficient length to extend above said holder when in place therein, cored out in its lower portion to form a liquid-chamber, and having a longitudinal air-vent extending from the upper portion of the chamber entirely through the rod, a valve-plug in the lower end of the chamber, and a valve and means for closing it located in the chamber, said valve having a stem which passes through the port in the valve-plug, all substantially as and for the purposes set forth.

4. In a hydrocarbon-vapor stove, the combination, with an ignition-cup and a conveyer-guide located adjacent thereto, of a conveyer having a chamber the liquid-holding capacity of which is approximately equal to that of the ignition-cup, a valve-plug in the lower end of the chamber, and an automatically-closing valve within the chamber provided with a stem projecting outwardly through the valve-plug, and a device in line with the conveyer-guide with which the valve-stem contacts when the conveyer is placed in the guide, whereby when a slight forward pressure is exerted on the conveyer the valve will open and permit the liquid in the chamber to flow into the ignition-cup.

5. In a hydrocarbon-vapor stove, the combination, with the retort and an ignition-cup adjacent thereto, of a conveyer-guide located adjacent to the ignition-cup in line with the retort, and a conveyer having a chamber the liquid-holding capacity of which is approximately equal to that of the ignition-cup, a valve-plug in the lower end of the chamber, and an automatically-closing valve within the chamber provided with a stem projecting outwardly through the valve-plug, the conveyer-guide being adapted, when the conveyer is placed therein, to direct the valve-stem into contact with the retort, as and for the purposes set forth.

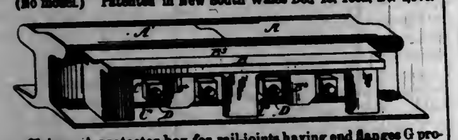
594,861. SIGNAL. MOSES LALONDE, Mooers, N. Y. Filed Mar. 6, 1897. Serial No. 626,946. (No model.)

Claim.—1. The combination with a post, of a signal-arm pivoted thereto and provided with a weighted, curved arm, a rotatable lantern-standard mounted in bearings upon said post and having a cam, a movable yoke mounted upon said standard and having a sliding connection therewith and with the carved arm, and means for moving said signal-arm.



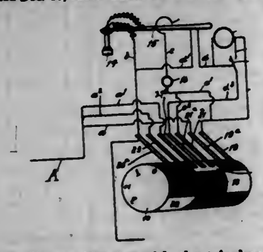
2. The combination with a post, of a pivoted signal-arm and means for drawing the same downwardly, a weighted, curved arm secured to said signal-arm, a rotatable lantern-standard mounted in bearings upon said post and provided with a cam at its lower end portion, a yoke slidingly mounted upon said standard and provided at its lower end with a slot to engage said cam, and guide-rollers upon said yoke between which the said curved arm is situated.

594,862. FISH-PLATE FASTENING. ALFRED R. PULLEN, Paddington, New South Wales. Filed July 9, 1896. Serial No. 598,598. (No model.) Patented in New South Wales Dec. 13, 1892, No. 4,176.



Claim.—A protector-box for rail-joints having end flanges G provided with webs G' extending toward each other parallel with the longitudinal part of the box, said webs having perforations adapted to fit over the ends of the fish-bolts, of a locking-plate B^2 provided with a flanged cover B^3 and having depending lugs B^4 arranged to project between the nuts on the fish-bolt and lock them against rotation, substantially as described.

594,863. TELEPHONE SYSTEM. ALFRED F. SWAN, Bayonne, N. J. Filed Dec. 10, 1896. Serial No. 615,105. (No model.)

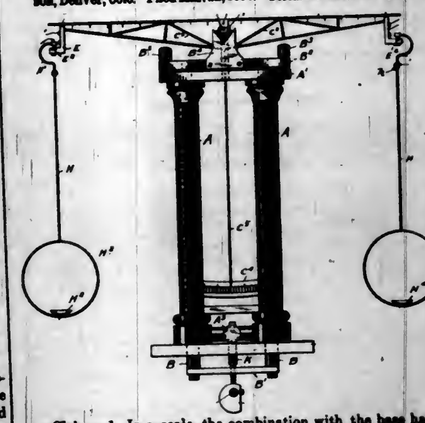


Claim.—1. The combination with the telephone apparatus, the line, and the switch-barrel having means as shown for stepping it around, of the series of insulating and conducting strips on the switch-barrel, a series of brushes to contact with the aforesaid strips, and connections between the brushes, the bell and talking set and the line whereby one position of the switch-barrel cuts the bell to line, the second position cuts the talking set to line, and the third position cuts the bell and talking set out of line by short-circuiting, substantially as described.

2. The combination with the telephone apparatus, the line, and the switch-barrel having means as shown for stepping it around, of a triple series of circumferentially-arranged insulating and conducting strips on the switch-barrel, a set of brushes to contact with one series of conducting-strips and cut the bell to line and the talking set into the line-circuit controlled by the telephone-hook, a second set of brushes arranged to connect with a second series of conducting-strips and cut the talking set to line, a second set of brushes to contact with the third series of conducting-strips and cut the talking set and bell out by short-circuiting, and suitable connections between the brushes, the telephone apparatus and the line, substantially as described

3. The combination with the telephone apparatus, the line, and the switch-barrel having a triple series of insulating and conducting strips and means as shown for stepping it around, of a triple set of brushes contacting with one series of conducting-strips, connections between said brushes, the line, the bell, and the talking set, the latter connections being controlled by the telephone-hook, a pair of brushes contacting with the second series of conducting-strips, connections between the second set of brushes, the talking set and the line, a pair of brushes contacting with the third series of conducting-strips, and connections between the third pair of brushes and the line whereby the talking set is cut out by short-circuiting, the said series of brushes and conducting-strips being arranged so that only one set of brushes can contact with a conducting-strip at any one time, substantially as described.

594,864. ASSAY AND CHEMICAL BALANCE. FRED W. THOMPSON, Denver, Colo. Filed Mar. 22, 1897. Serial No. 628,068. (No model.)



Claim.—1. In a scale, the combination with the base having a hole, hollow pillars rising from the base, supports carried thereby, and a scale-beam resting on said supports; of a cam beneath the hole, a screw resting thereon, a cross-bar through which the screw is threaded, rods connected with the cross-bar, and plates carried by the rods beneath the pivotal supports of said scale-beam, as and for the purpose set forth.

2. In a scale, the combination with two posts having parallel strips in their upper ends, the scale-beam, and the rock-shaft therethrough having knife-edges resting on said strips; of projections in the ends of the shaft laterally beyond said knife-edges, a cross-head, means for raising it, and upright plates carried by said head and having notched upper ends standing beneath said projections, as and for the purpose set forth.

3. In a scale, the combination with the scale-beam having supporting-trusses and a central upright plate, a rock-shaft through the latter having knife-edges in its under side and projections at its extremities, and supports for said knife-edges; of a vertically-movable cross-head standing under the beam, studs at its ends adapted to strike under said trusses, and plates at its sides with notched upper edges adapted to strike under the projections of the shaft, as and for the purpose set forth.

4. In a scale, the combination with a rock-shaft having a pin rising from its center, supports for the ends of said shaft, a scale-beam, and a plate connected therewith and surrounding the shaft above which it has an opening; of screws threaded edgewise through said plate into its opening on opposite sides of said pin, and spur-wheel-shaped weights on the screws, as and for the purpose set forth.

5. In a scale, the combination with a rock-shaft having a pin rising from its center and knife-edges set in its under side near its ends, supports for said knife-edges, and a scale-beam having an upright plate surrounding the shaft adjacent said pin; of plates screwed to opposite sides of said upright plate and having hubs embracing the shaft, both hubs being notched on their under sides for the passage of said knife-edges, and screws threaded edgewise through this hub inwardly against opposite sides of the pin, as and for the purpose set forth.

6. In a scale, the combination with the scale-beam having pendent arms at its extremities, and a central pivotal support therefor; of L-shaped brackets having slotted upright arms, screws taking through the slots into said pendent arms, rods supported by the feet of the brackets, and pans carried by the rods, as and for the purpose set forth.

7. In a scale, the combination with the scale-beam having a pendent arm near its extremity; of an L-shaped bracket whose upright arm is U-shaped in cross-section and snugly embraces the pendent arm, one of said arms being slotted, a pan supported by the foot of the bracket, and screws taking through said slots and into the other arm, as and for the purpose set forth.

8. In a scale, the combination with the scale-beam having a pendent arm, and an L-shaped bracket whose upright arm has a U-shaped groove snugly embracing the pendent arm: of means for adjustably connecting the two arms where they lap each other, a screw extending through the elbow of the bracket into the lower end of the pendent arm, and a pan supported by the foot of the bracket, as and for the purpose set forth.

9. In a scale, the combination with the scale-beam having a pendent arm, an L-shaped bracket having a knife-edge in its lower member, and means for adjustably connecting its upright member with said arm; of a block resting on said knife-edge, a bent rod connected therewith and curving around the lower member, and a pan supported by this rod, as and for the purpose set forth.

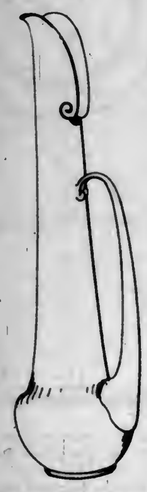
DESIGNS.

27,882. SPOON. ROBERT SCHAEBLEIN, San Francisco, Cal. Filed Sept. 17, 1897. Serial No. 652,077. Term of patent 3½ years.



Claim.—The design for a spoon substantially as herein shown and described.

27,883. VASE. CHARLES JOHN NOKE, Burslem, England, assignor to Henry Doulton, London, England. Filed Sept. 2, 1897. Serial No. 650,401. Term of patent 7 years.



Claim.—The design for a vase, as herein shown and described.

27,884. BOTTLE. ANDREW ST. GEORGE, Chicago, Ill., assignor to George Benz & Sons, St. Paul, Minn. Filed Oct. 15, 1897. Serial No. 655,353. Term of patent 14 years.



Claim.—The design for a bottle as herein shown and described.

27,885. BOTTLE. SYLVESTER R. CHANDLER, Baltimore, Md., assignor of one-fourth to Aldebert W. Mears, same place. Filed July 26, 1897. Serial No. 646,043. Term of patent 14 years.



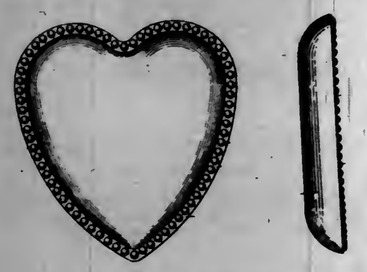
Claim.—The design for bottles substantially as shown and described.

27,886. DRINKING-CUP. TIMOTHY ROGERS, Dayton, Ohio. Filed Oct. 14, 1897. Serial No. 655,225. Term of patent 3½ years.



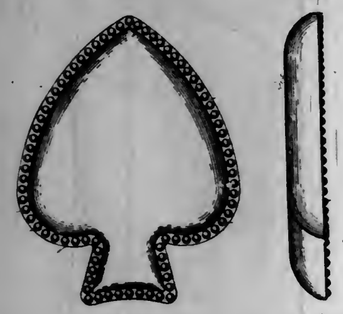
Claim.—The design for a drinking-cup herein shown and described.

27,887. TRAY. ANDREW SNOW, Jr., New Bedford, Mass. Filed Dec. 30, 1896. Serial No. 617,511. Term of patent 7 years.



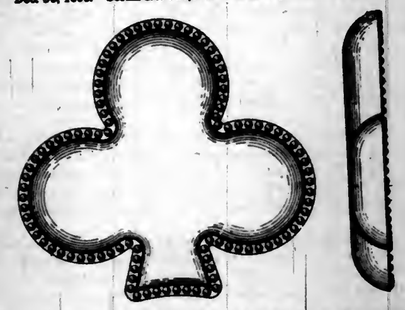
Claim.—The design for a tray, substantially as shown and described.

27,888. TRAY. ANDREW SNOW, Jr., New Bedford, Mass. Filed Dec. 30, 1896. Serial No. 617,512. Term of patent 7 years.



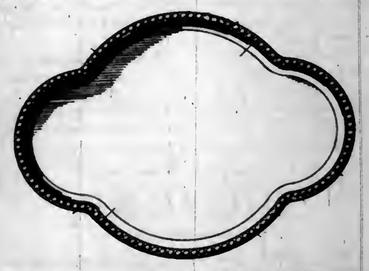
Claim.—The design for a tray, substantially as shown and described.

27,889. TRAY. ANDREW SNOW, Jr., New Bedford, Mass. Filed Dec. 30, 1896. Serial No. 617,513. Term of patent 7 years.



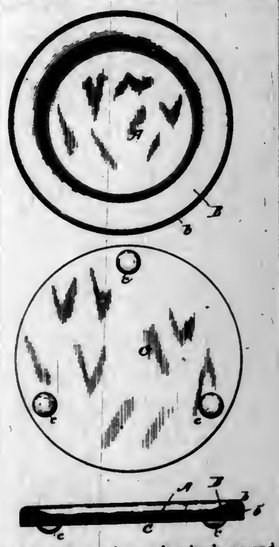
Claim.—The design for a tray, substantially as shown and described.

27,890. TRAY. ANDREW SNOW, Jr., New Bedford, Mass. Filed Dec. 30, 1896. Serial No. 617,514. Term of patent 7 years.



Claim.—The design for a tray as herein shown and described.

27,891. COIN-TRAY. HENRY A. MEYER, Malden, Mass. Filed Feb. 27, 1897. Serial No. 625,422. Term of patent 7 years.



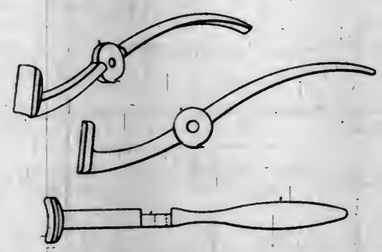
Claim.—The design for a coin-tray herein shown and described, comprising the annular rim *b* having the straight edge *b'*, the outwardly-rounded upper corner, the angular lower corner, the downwardly-sloping top B, the flat depressed central section A, the flat bottom C and the rounded supports *c*.

27,892. STOPPER-EXTRACTOR. HENRY STRENTZ, St. Louis, Mo. Filed Oct. 11, 1897. Serial No. 654,894. Term of patent 14 years.



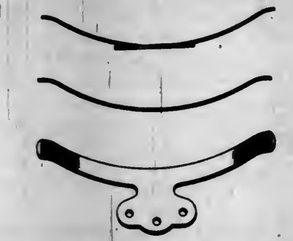
Claim.—The design for a stopper-extractor herein shown and described.

27,893. CLAMPING-ARM FOR PAN-LIFTERS. GEORGE H. COLE, South Bend, Ind. Filed Sept. 1, 1897. Serial No. 650,306. Term of patent 14 years.



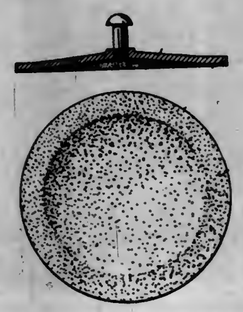
Claim.—The design for a clamping-arm for pan-lifters, substantially as herein shown and described.

27,894. SASH-SPRING. JOHN P. SÖRENS, New York, N. Y. Filed Sept. 16, 1897. Serial No. 651,932. Term of patent 14 years.



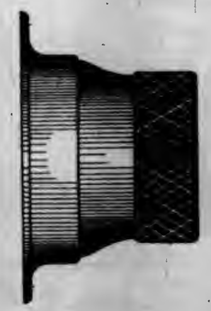
Claim.—The design for a sash-spring, as herein shown and described.

27,895. ROTARY CLEARING-DISK. JAMES THOMSON, Jr., Pawtucket, R. I., assignor to the Thomson Manufacturing Company, Providence, R. I. Filed Apr. 23, 1897. Serial No. 634,200. Term of patent 14 years.



Claim.—The design for a rotary clearing-disk substantially as herein shown and described.

27,896. HUB-FLANGE. JAMES G. COOPER, Terre Haute, Ind., assignor to the Standard Wheel Company, Chicago, Ill. Filed July 30, 1897. Serial No. 646,564. Term of patent 7 years.



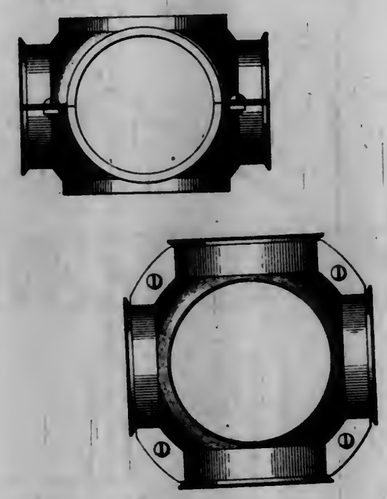
Claim.—The design for a hub-flange, substantially as herein described and shown.

27,897. FISHING-REEL PLATE. ANDREW B. HENDRYX, New Haven, Conn. Filed Oct. 11, 1897. Serial No. 654,890. Term of patent 14 years.



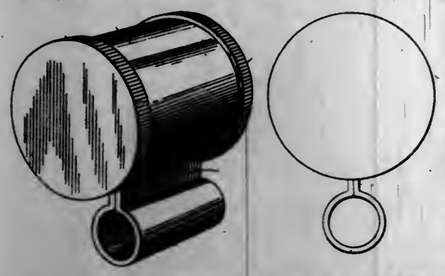
Claim.—The design for the end plate of a fishing-reel as herein shown and described.

27,898. LAMP OR LANTERN BODY. ROBERT J. ARMOUR, Newark, N. J., assignor to the Rail Road Signal Lamp and Lantern Company, New York, N. Y. Filed Mar. 2, 1897. Serial No. 625,903. Term of patent 14 years.



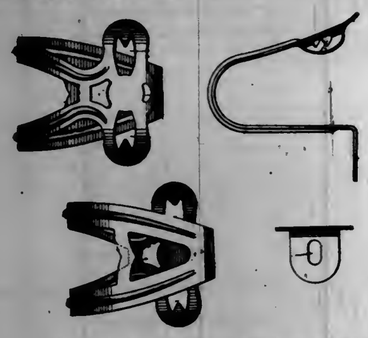
Claim.—The design for a lamp or lantern body herein shown and described.

27,899. CYCLOMETER-BODY. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Sept. 8, 1897. Serial No. 650,963. Term of patent 3½ years.



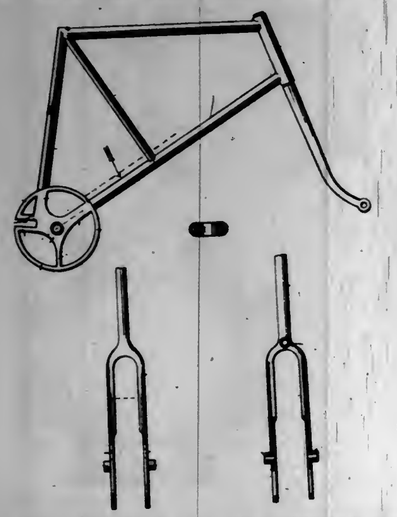
Claim.—The design for the body of a cyclometer, substantially as herein shown and described.

27,900. TOE-CLIP. THOMAS MILLER, New York, N. Y., assignor of one-half to Louis P. Whiteman, same place. Filed Sept. 30, 1897. Serial No. 653,653. Term of patent 3½ years.



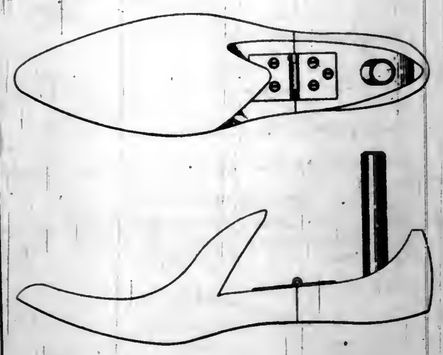
Claim.—The design for a toe-clip, as shown and described.

27,901. BICYCLE-FRAME. CLARENCE C. CHRISMAN, St. Louis, Mo. Filed Sept. 7, 1897. Serial No. 650,854. Term of patent 14 years.



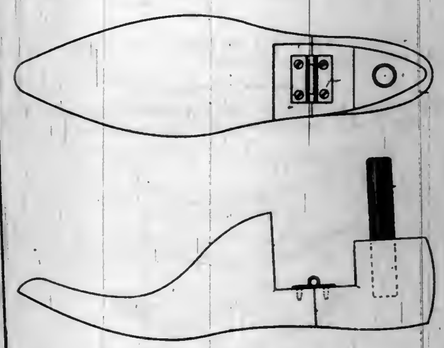
Claim.—The design for a bicycle frame, substantially as herein shown and described.

27,902. SHOE-FORM. ABEL D. TYLER, Jr., Brockton, Mass. Filed Sept. 2, 1897. Serial No. 650,405. Term of patent 7 years.



Claim.—The design for a shoe-form, substantially as herein shown and described.

27,903. SHOE-FORM. ABEL D. TYLER, Jr., Brockton, Mass. Filed Sept. 2, 1897. Serial No. 650,406. Term of patent 7 years.



Claim.—The design for a shoe-form substantially as herein shown and described.

27,904. DISPLAY-CABINET. GEORGE DE BRETON HAYES, Chetek, Wis. Filed Oct. 5, 1897. Serial No. 654,183. Term of patent 7 years.



Claim.—The design for a display-cabinet herein shown and described.

TRADE-MARKS

REGISTERED NOVEMBER 23, 1897.

30,871. ROOFING-SLATE. SLATINGTON-BANGOR SLATE SYNDICATE, Slatington, Pa. Filed Oct. 26, 1897.

SBS

Essential feature.—The group of initial letters "S B S." Used since October 1, 1894.

30,872. GAS AND GASOLENE ENGINES. THE FAIRBANKS COMPANY, New York, N. Y. Filed Aug. 27, 1897.

THE FAIRBANKS IMPROVED GAS & GASOLENE ENGINES

Essential feature.—The representation of a segment of a wheel with the words and lettering "THE FAIRBANKS" on the segment of the wheel and above the hub the word "IMPROVED" and underneath the segment of the wheel the words "GAS & GASOLENE ENGINES." Used since April 1, 1897.

30,873. ELECTRICAL APPARATUS AND APPLIANCES FOR LIGHTING RAILWAY-CARS BY ELECTRICITY GENERATED FROM ROTATING CAR-WHEEL AXLES. NATIONAL ELECTRIC CAR-LIGHTING COMPANY, Newark, N. J., and New York, N. Y. Filed Aug. 11, 1897.

AXLE LIGHT

Essential feature.—The words "AXLE LIGHT." Used since July 1, 1897.

30,874. CERTAIN NAMED TOOLS, IMPLEMENTS, AND HARDWARE. THE WHITMAN & BARNES MANUFACTURING COMPANY, Akron, Ohio. Filed July 26, 1897.

W&B

Essential feature.—The representation of a diamond having the initial letters and character "W & B" therein. Used since 1877.

30,875. LATCHES AND FASTENING, COUPLING, AND CATCH DEVICES. AUSTIN ADAMS, New York, N. Y. Filed Sept. 21, 1897.

OPNEZ

Essential feature.—The word "OPNEZ." Used since July, 1897.

30,876. LATCHES AND FASTENING, COUPLING, AND CATCH DEVICES. AUSTIN ADAMS, New York, N. Y. Filed Sept. 21, 1897.

EZOPN

Essential feature.—The word "EZOPN." Used since July, 1897.

30,877. DEVELOPERS FOR PHOTOGRAPHIC PLATES IN GRANULAR OR POWDERED FORM. BOSTWICK, HARRISON & Co., Brooklyn, N. Y. Filed Aug. 9, 1897.

TRENOL.

Essential feature.—The word "TRENOL." Used since July 1, 1897.

30,878. WAX PREPARATION FOR WASHING AND IRONING PURPOSES. ALBERT HILS and CHARLES H. HUNT, St. Louis and Canton, Mo. Filed May 28, 1897.

FLAT IRON

Essential feature.—The representation of a flat-iron or the words "FLAT IRON." Used since October 2, 1895.

30,879. WASHING-POWDER. JOSEPH D. JOWERS, Smith's Fork, Tenn. Filed Sept. 20, 1897.

HESPERUS

J

Essential feature.—The word "HESPERUS" and the letter "J," inclosed within a diamond-shaped panel or space. Used since August 15, 1897.

80,880. MEDICAL OINTMENT. DANIEL R. AUSERT, Milton, Pa. Filed June 3, 1897.



Essential feature.—The portrait of Rebecca Straub. Used since May 1, 1895.

80,881. SALVES. VALENTINER & SCHWABE, Leipsic, Germany. Filed July 1, 1897.

ANTITUSSIN

Essential feature.—The word "ANTITUSSIN." Used since April 25, 1897.

80,882. REMEDY FOR GONORRHŒA. FARBENFABRIKEN OF ELBERFELD COMPANY, New York, N. Y. Filed Oct. 7, 1897.

PROTARGOL

Essential feature.—The word "PROTARGOL." Used since July 1, 1897.

80,883. EFFERVESCENT MEDICINAL PREPARATIONS FOR THE TREATMENT OF LIVER, HEAD, STOMACH, THROAT, AND URINARY DISORDERS, GOUT, STONE, ANÆMIA, FEVERS, RHEUMATISM, GLANDULAR AILMENTS, AND LIKE AFFECTIONS. ALFRED BISHOP & SONS, LIMITED, London, England. Filed Oct. 26, 1897.

Alfred Bishop

Essential feature.—The facsimile signature "ALFRED BISHOP." Used since July 15, 1857.

80,884. DOG AND POULTRY FOOD. JOHN WOOD, Manchester, England. Filed Aug. 9, 1897.

ZEBRIL

Essential feature.—The word "ZEBRIL." Used since February 28, 1897.

80,885. MEAL, FLOUR, CRACKED WHEAT, OATS OR RYE, AND OTHER FOOD PRODUCTS. MARIA A. HALL, Dansville, N. Y. Filed Apr. 27, 1897.



Essential feature.—A pound-sterling mark used in connection with the words "STERLING BRAND." Used since April 13, 1897.

80,886. CANNED FISH, ESPECIALLY SALMON. ALASKA PACKERS ASSOCIATION, San Francisco, Cal. Filed Sept. 2, 1897.



Essential feature.—The word "GUARANTY" in connection with a circular field or figure containing a factory and wharf scene and iceberg in the distance. Used since July 1, 1896.

80,887. OYSTERS, MEATS, FRUITS, VEGETABLES, JELLIES, PRESERVES, SOUPS, AND SUCH LIKE GOODS USUALLY PUT UP BY FOOD-PACKERS, EXCEPT FISH. WM. HOOPER & SONS, INCORPORATED, Baltimore, Md. Filed Apr. 19, 1897.



Essential feature.—The pictorial representation of a sailing vessel. Used since 1878.

80,888. SMOKED MEATS. FRANK A. FERRIS, New York, N. Y. Filed Aug. 27, 1897.



Essential feature.—The combination of the words "OUR TRADE MARK HAM" arranged within an elongated border, said border being surrounded by a shield, across the upper end of which extend ribbons with the representation of a seal and the words, abbreviations, and character "F. A. FERRIS & Co., NEW YORK." Used since April 1, 1876.

80,889. CERTAIN NAMED TABLE DELICACIES. SEVILLE PACKING COMPANY, New York, N. Y. Filed June 16, 1897.

NO DO

Essential feature.—The words "No Do." Used since May 1, 1896.

80,890. MIXED TEAS. SCHEUER & FLEISCHER, Paterson and Passaic, N. J. Filed June 18, 1897.



Essential feature.—The letter "T," having a scroll entwined about it, on which appear the words "PERFECTION BLEND." Used since May 15, 1892.

80,891. TEA. DODWELL, CARLILL & Co., Tacoma, Wash. Filed Oct. 6, 1897.

MOOEESAN

Essential feature.—The word or name "MOOEESAN." Used since January 1, 1896.

80,892. MINERAL WATER. WILLIAM S. KAISER, Philadelphia, Pa. Filed Oct. 26, 1897.

GO-LIN-DO

Essential feature.—The word "GOLINDO." Used since April, 1897.

80,893. PALE BEER. FREDERICK A. POTH, Philadelphia, Pa. Filed Apr. 6, 1897.



Essential feature.—The words "TIVOLI" and "EXPORT," arranged in collocation, and making up a composite word. Used since April, 1893.

80,894. BEER. MAYER BREWING Co., Nebraska City, Nebr. Filed Oct. 26, 1897.



Essential feature.—The representation of an Indian chief. Used since May 1, 1897.

80,895. MALT EXTRACT. MINNEAPOLIS BREWING COMPANY, Minneapolis, Minn. Filed Oct. 27, 1897.

REX-NUTRIO

Essential feature.—The compound word "REX-NUTRIO." Used since May 1, 1897.

80,896. CIGARS. JOHN A. POST & Co., Mothersytown, Pa. Filed Oct. 25, 1897.

BUSINESS

Essential feature.—The word "BUSINESS." Used since September, 1895.

80,897. DRESS-STAYS. KURVEM DRESS STAY COMPANY, Eau Claire, Wis. Filed Aug. 10, 1897.

KURVEM

Essential feature.—The word "KURVEM." Used since January 15, 1896.

80,898. WOVEN GOODS, SUCH AS COTTON FABRICS OR CLOTHS. ADOLPH L. BERNHEIMER, New York, N. Y. Filed Aug. 10, 1897.

PROSPERITY CLOTH

Essential feature.—The word "PROSPERITY," used in connection with the word "CLOTH" or analogous word. Used since June 1, 1896.

80,899. BOOTS AND SHOES. RICE & HUTCHINS, INCORPORATED, Boston, Mass. Filed Sept. 2, 1897.

BIKE-COMFORT

Essential feature.—The compound word "BIKE-COMFORT." Used since December 1, 1896.

80,900. LEATHER BOOTS AND SHOES. FREDERICK V. CHIPMAN & Co., Boston, Mass. Filed Oct. 13, 1897.

BACON

Essential feature.—The word "BACON." Used since February, 1892.

80,901. WRITING-PAPER. GEORGE H. SIMPSON, New York, N. Y. Filed Oct. 23, 1897.

Bank Exchange

Essential feature.—The words "BANK EXCHANGE." Used since July, 1892.

80,902. METALLIC PENS. THE ESTERBROOK STEEL PEN MANUFACTURING COMPANY, Camden, N. J., and New York, N. Y. Filed Oct. 28, 1897.

621

Essential feature.—The numerals "621." Used since July 29, 1897.

30,903. METALLIC PENS. THE BUTTERBROOK STEEL PEN MANUFACTURING COMPANY, Camden, N. J., and New York, N. Y. Filed Oct. 23, 1897.

575

Essential feature.—The numerals "575." Used since May 12, 1896.

30,904. METALLIC PENS. THE BUTTERBROOK STEEL PEN MANUFACTURING COMPANY, Camden, N. J., and New York, N. Y. Filed Oct. 23, 1897.

453

Essential feature.—The numerals "453." Used since May 22, 1895.

30,905. METALLIC PENS. THE BUTTERBROOK STEEL PEN MANUFACTURING COMPANY, Camden, N. J., and New York, N. Y. Filed Oct. 23, 1897.

126

Essential feature.—The numerals "126." Used since January 1, 1868.

30,906. METALLIC PENS. THE BUTTERBROOK STEEL PEN MANUFACTURING COMPANY, Camden, N. J., and New York, N. Y. Filed Oct. 23, 1897.

570

Essential feature.—The numerals "570." Used since February 7, 1896.

30,907. METALLIC PENS. THE BUTTERBROOK STEEL PEN MANUFACTURING COMPANY, Camden, N. J., and New York, N. Y. Filed Oct. 23, 1897.

556

Essential feature.—The numerals "556." Used since September 12, 1895.

30,908. METALLIC PENS. THE BUTTERBROOK STEEL PEN MANUFACTURING COMPANY, Camden, N. J., and New York, N. Y. Filed Oct. 23, 1897.

460

Essential feature.—The numerals "460." Used since November 7, 1894.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

MERGENTHALER *v.* SCUDDER.

Decided October 4, 1897.

1. INTERFERENCE—CONCEPTION OF INVENTION.

A complete conception as defined in an issue of priority of invention is matter of fact and must be clearly established by proof. The conception of the invention consists in the complete performance of the mental part of the inventive act. All that remains to be accomplished in order to perfect the act or instrument belongs to the department of construction, not invention. It is therefore the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice that constitutes an available conception within the meaning of the patent law.

2. SAME—DATE OF CONCEPTION.

The date of the conception is the date when the idea of means, including all the essential attributes of the invention, becomes so clearly defined in the mind of the inventor as to be capable of exterior expression, and it is settled both by practice and express decision that such exterior expression of the mind of the inventor when relating to machinery may be by exhibits either in the form of drawings or by model, so as to lay the foundation of a claim to priority, if thereby the invention be made sufficiently plain to enable those skilled in the art to understand it.

3. SAME—PROVING CONCEPTION—UNSUPPORTED TESTIMONY.

The fact of conception by an inventor, for the purpose of establishing priority, cannot be proved by his mere allegation nor by his unsupported testimony where there has been no disclosure to others or embodiment of the invention in some clearly perceptible form, such as drawings or model, with sufficient proof of identity in point of time.

4. SAME—DATE OF CONCEPTION—ADEQUATE PROOF—DATE OF APPLICATION.

Any full and accurate description of the invention, either in words or drawings or by model, if it be of a machine, or even an unsuccessful effort to embody the conception, when the effort discloses that the idea was complete, will suffice, although the attempt to represent it may have failed. In the absence of all other proof the date of the application for a patent, if containing a complete description, is taken as the date of the conception.

5. SAME—SAME—SAME—DRAWINGS.

If drawings be exhibited and relied on as evidence of the conception of the invention, they must show a complete conception, free from ambiguity or doubt, and such as would enable the inventor or others skilled in the art to reduce the conception to practice without any further exercise of inventive skill.

6. SAME—SAME—DEFECTIVE DRAWINGS INSUFFICIENT TO PROVE CONCEPTION.

Where drawings are in many essential particulars defective and wanting in completeness as means of showing and illustrating an invention involved in interference, such defects and want of completeness in the drawings cannot be aided and the defective drawings made effective by construction or by reference to the prior state of the art.

7. SAME—SAME—SUFFICIENCY OF DRAWINGS.

Where an inventor has undertaken to invent and construct a machine essentially different from preëxisting machines and not simply a mere improvement upon previous inventions, it is necessary for him to furnish such full, clear, and definite drawings of his invention to prove conception as will enable any person skilled in the art of construction of such machines to reduce the invention to practical form.

Mr. P. T. Dodge and *Mr. Fredk. H. Betts* for the appellant.

Mr. M. Bailey for the appellee.

ALVEY, *J.*:

These appeals are from decisions of the Commissioner of Patents, and they present questions of interference adjudged to exist between applications for patents for line-casting machines, two of the applications having been filed by Ottmar Mergenthaler, the senior party, and one by Wilbur S. Scudder, the junior party, as the alleged inventors. The interferences, while separately declared, are closely related to each other and have in all stages of the proceeding been treated as one case. We shall so treat them on these appeals.

These interference cases are numbered, respectively, 16,233 and 16,270, and the two separate applications by Mergenthaler stand serially numbered 375,632 and 391,702, the first of which was filed December 23, 1890, and the second May 5, 1891, and the one application by Scudder was filed September 14, 1892, and is Serial No. 445,900.

The issues, as framed by the Patent Office, on the first of the applications of Mergenthaler, as senior party, with the subsequent application of Scudder, are in two counts and are as follows:

First. The combination in a line-casting machine having suitable operating mechanism, of a series of matrices constructed to be assembled side by side in different orders to form the impression-line, each matrix having several different characters less in number than the assortment used in the machine, the characters being independently usable.

Second. In a line-casting machine, the combination of a series of matrices each bearing several distinct characters, and mechanism for selecting and conducting the matrices to a place of assemblage or alinement, and adjusting the matrices endwise individually in order to bring their selected characters, one on each matrix, into a common line.

And the issues framed on the second of the applications of Mergenthaler, with the subsequent application of Scudder, are in three counts and are as follows:

First. The combination in a line-casting machine having suitable operating mechanism, of a series of matrices, each having several different characters less in number than the assortment used in the machine, the characters being independently usable, and a distributing mechanism by which the matrices are returned to their place of storage through a path different from that pursued in the course of composition.

Second. In combination with the matrices each having a series of characters at different points in its length, and a compos-

ing mechanism for assembling said matrices with their selected characters in line, a bed or support for the line having a rib or guide to engage the matrices and prevent them from shifting endwise in relation to each other after they are assembled, and means for shifting said composed line along said rib or guide to the required point.

Third. The combination with a series of matrix-bars each having type on its edge, of a magazine having a chamber for and adapted to contain a plurality of each species of the series, means for separately delivering either species of matrix-bar, a series of stops corresponding with the characters on the matrices, and finger-keys and connected mechanism whereby any desired stop can be projected into the path of any one of the released matrix-bars.

On neither issue did Mergenthaler introduce any testimony to prove priority of invention, but rested on the dates of filing his applications—namely, December 23, 1890, and May 5, 1891; but Scudder introduced evidence to support the claim made in his preliminary application, and upon the evidence introduced by him he contends that he has successfully shown conception and disclosure to others of the subject-matters of the several issues of interference as far back as February, 1889, and that he made drawings of his alleged invention in February and November, 1889, and thus he claims to have established priority of invention.

In No. 16,233, the first case of interference, the Examiner of Interferences decided both issues in favor of Scudder, and in No. 16,270, the second case, he decided the first issue in favor of Mergenthaler and the second and third issues in favor of Scudder, and he accordingly awarded judgment of priority of invention in favor of Mergenthaler on the first count in No. 16,270 and in favor of Scudder on all the other issues in both cases of interference.

On appeal to the Board of Examiners-in-Chief that tribunal decided all the issues of interference in both cases in favor of Mergenthaler, thereby reversing the judgment of the Examiner of Interferences, so far as the latter had decided in favor of Scudder, and held that Mergenthaler was entitled to priority of invention upon all the issues of interference in both cases. That ruling was appealed from, and the cases were taken before the Commissioner of Patents in person, and the latter reversed *in toto* the decision of the Examiners-in-Chief and awarded priority in favor of Scudder upon all the issues, and it is from that decision that these appeals are taken to this court.

The appellant has assigned several grounds or reasons for the appeals, but they all may be reduced to two principal questions: First, whether prior to the applications filed by Mergenthaler there was complete conception of the inventions in issue by Scudder and sufficiently shown in proof, and, if so, second, whether Scudder has proven that he proceeded with reasonable diligence to reduce the conception to practical form.

First. The appellant, Mergenthaler, is the senior party in both interferences, and his application involved in No. 16,233 was filed nearly two years and his application involved in No. 16,270 was filed nearly a year and a half before the single application of Scudder was filed. The cases being thus presented the onus is upon Scudder to establish by clear proof the fact of priority of invention. This is an established principle both by rule and decision.

By rule 116 of the Patent Office it is provided that—

in original proceedings in cases of interference the several parties will be presumed to have made the invention in the chronological order in which they claim the same in their completed applications for patents clearly illustrating and describing the invention; and the burden of proof will rest upon the party who shall seek to establish a different state of facts.

But by Rule 117 it is declared that—

the preliminary statement can in no case be used as evidence in behalf of the party making it.

The allowed applications of Mergenthaler operated as constructive reduction to practice of the inventions claimed, and it was therefore incumbent upon Scudder to show by clear proof completed invention prior to the dates of such applications of Mergenthaler. (*Porter* v. *Louden*, 73 O. G., 1551; 7 App. D. C., 64, 72; *Soley* v. *Hebbard*, 70 O. G., 921; 5 App. D. C., 99, 103; *Christie* v. *Seybold*, 64 O. G., 1650, 1653.)

Before examining the facts relating to the question of priority of invention it may be well and of interest to refer to the state of the art of invention and construction of linotype and line-casting machines in order to see to what extent the previously-existing invention pertaining to the subjects involved in the present issues may throw light upon and aid the claim and contention of either of the parties to the present cases of interference.

In a recent number of *Chamber's Journal*, published in Edinburgh, occurs an article giving quite a graphic description of the linotype printing-machine, and which article was republished in this country in the *Eclectic Magazine of Foreign Literature, Science and Art* for July, 1897. That article is descriptive of the state of the invention prior to the dates involved in the present issues. In that article is given the history of the progress of the inventions relating to the art of printing by machine-presses. The writer gives a short history of the evolution of the art, and says that it has progressed to such an extent that we now have—

an almost human machine that simply needs to be kept fed with molten metal while turning out automatically the most perfect type ready for the printer's hand.

After describing previous inventions and processes the writer says:

The invention of the Linotype Company machine marks a revolution greater than anything which has occurred in printing during the past four hundred years. It is neither the first nor the only attempt that has been made at what is called "mechanical composition," as distinguished from ordinary type-setting by hand. But it is the first successful attempt, we believe, to combine type-founding with type-setting, and in point of fact to dispense with fonts of type altogether. And it is a proved success, both mechanically and economically. Even the trade-unionists have recognized that the thing has "come to stay," and, adapting themselves to the situation, skilled compositors are as quickly as possible transforming themselves into skilful machine-operators.

The linotype cannot be said to be the invention of any single individual. In its modern form it is a completion of the design of Ottmar Mergenthaler, but the machine in use to-day represents the product of no fewer than fourteen hundred separate patents. That is to say, it is the embodiment of successive improvements, found to be necessary after Mergenthaler's machine came into practical operation. But the idea itself is an old one—as old, one may say, as the stereotyped blocks with which the ancients stamped their pottery. It is a curious thought that on the eve of the twentieth century we are going back to the first, or even earlier, in principle. But without going so far back, we may find the germ of the linotype in the logotype which early in the present century found so much favor.

* * * * * * *

The difference between the linotype and all previous type-setting machines is material, for the linotype does not set type at all. It does not compose types, but composes matrices in lines. In ordinary type the characters are in relief on the metal; in a

matrix the characters are impressed in intaglio. This was the original thing about Mergenthaler's invention—the dispensing with a magazine, or font, of movable metal types. He had many imitators, but the Court of Appeals in the United States found that he was really the first to "combine with mechanism for forming a matrix composed of a series of dies adapted for transposition or rearrangement, a mold and a casting mechanism, and the first to produce a practical machine by which ordinary hand composition is superseded."

The linotype does not cast letters, it casts lines; hence its name, "line-of-type." It has taken twenty years and fourteen hundred patents to bring the machine up to its present state, which may not yet be perfection, but yet is so efficient that it is being adopted in all the principal newspaper offices in the country, and gradually in the great printing-houses. It was unfortunate, perhaps, in being placed on the market too soon, for the first machines were not a success, and caused rather a prejudice against the name—a prejudice which has had to be overcome.

The mechanical compositor has no heavy cases of type to pick and choose from. He sits in front of a machine so compact that it does not occupy more than six square feet of floor-space. Before him is a keyboard, not unlike that of a type-writer. When he depresses a key he instantaneously releases a matrix in the magazine above him, bearing a character corresponding to the key. This magazine is placed sloping downward toward the operator, and the matrices as released drop by natural gravity through vertical channels onto a traveling belt, which carries them as quick as thought, one after the other, into a little compartment on the operator's left, where they compose the words under his eye. The side of this little chamber is open, and on the portion of the matrices exposed to view the characters they represent are marked. In this way the operator can at once detect any literal error as it occurs, extract the wrong matrix and insert the correct one in an instant without stopping the machine. When the little chamber or block, which is adjusted to the width of the column to be printed, is about full it announces the fact by ringing a bell, thus giving the operator time to see how much more he can get in. Then by the touch of a lever the operator sends the line on a stage to the molding-wheel, connected with which is a pot of molten metal, kept hot by gas-burners. Half a turn of this wheel forces out a charge of molten metal and presses it into the incised letters on the matrices. The line is thus cast in an instant in a single solid bar. An arm now comes down with a swoop from the top of the machine, seizes the matrices and places them on a distributing-bar, perhaps the most wonderful part of the machine, and almost human in its intelligence. Each matrix is a thin piece of brass, and on the opposite end to the letter is toothed something like a Chubb's lock, and by means of these teeth it hangs on to corresponding teeth on the bar, along which the matrices are forced by a worm-wheel. At intervals there are vacancies on the bar, and a matrix on reaching one of these vacancies loses its grip there and drops into its own proper groove, and runs into the magazine ready for use again. No matrix can drop off the bar until it reaches its own box, nor can it be carried beyond, for the slightest disturbance of the adjusted teeth causes the machine to stop.

Now to come back to the cast "line-of-type." The mold-wheel, in returning to position after having ejected the metal, forces the line or bar out into a receiving-galley, where a little automatic arm holds all the lines in position until the "take" is full—say one hundred lines or so. Then the operator lifts it out, sends it away for proof, and starts at once on his next "take." The movement is continuous. While he is setting one line of type by his keyboard, another is being cast, and the matrices are being redistributed as fast as he can use them. At the side of his keyboard is a little lever by which he introduces space-bands to divide the words. These bands are of tapering thickness, so that the spaces can be made as close or as wide as desired, and all is done as smoothly and effectively as if by the human hand. This automatic justifying is a thing that used to be accounted an impossibility, but it is done, and all because matrices are used instead of metal types.

But it is practically impossible [says the writer of the article] by mere verbal description to give an adequate representation of this marvelous machine, which comprises two thousand separate pieces of mechanism. It is a combination of the ideas of many minds adjusted to this particular purpose. Seated at his keyboard, the modern printer is both machinist, type-setter, justifier, type-founder, and type-distributer. Motive power is supplied to him by shafting from some central steam or gas engine, and all he has to do is to manipulate his keyboard and keep his melting-pot supplied with metal, while, of course, using his eyes to see that the right matrices are coming into position. The old type-setting machines required three operators, one for the keyboard, one to keep up the supply of type, and one to "justify" the lines.

We have thus extensively extracted from or, rather, reproduced the descriptive portions of the article referred to because of the lucid and instructive description furnished of the highly-organized and very complex machine called the "linotype" and because of the great difficulty we would have of conveying an adequate description of the combination and construction of the machine and of its manner of operation to those who had never seen it in action. It may be that the statements in regard to the number of patents embodied in the combination and the number of pieces of separate mechanism contained in the machine are excessive, though we have no data at hand to show any such error, if there be such. Patents to Mergenthaler were granted in 1885 and 1886, and the proof in this case shows that the changes, modifications, and improvements in the machine have been constantly going on since the date of the original patents.

By the proof in this case it is shown that Mergenthaler is the original inventor of line-casting machines as we now have them and that he has invented and developed two general types or kinds of these machines having distinguishing mechanism and methods of operation the one from the other. The first of these, known as the "band-machine," employs matrix-bars connected to and forming an integral part of the machine, each bar bearing on its face or edge the whole assortment of letters or characters used in the machine. In this machine the matrices are assembled in line by a keyboard mechanism which on bringing each matrix into line at the same time stops it at the proper height for the letter or character required. Upon this being done the line is justified and the casting operation performed, and then the matrices are returned to their original position ready for use in the operation of casting the next line of type.

The other machine, known as the separate or single character matrix-machine, and which is in most general use, has as a distinguishing feature a separate matrix for each separate letter or character in the assortment used in the machine. The matrices are stored in a magazine, each letter in its own compartment, and the several matrices necessary to form a composed line are discharged from their respective magazine-compartments and assembled in line by means of mechanism operated by a keyboard. After being thus assembled the line of matrices is moved to the casting-point and is there justified and the casting operation performed, after which the matrices are automatically distributed and returned each to its respective compartment in the magazine. These machines have been used with great success.

Since the construction and use of these two different types of machines Mergenthaler has attempted to develop an intermediate type of machine, that containing the combinations described in the issues of this interference.

Such was the state of the art or invention of the linotype or line-casting printing-machines at the time when and in view of which the parties to this controversy claimed to have completely conceived and disclosed and illustrated by drawings the invention as embodied in the machine containing the combinations described in the issues of interference. That Scudder, the junior party, was entirely familiar with the preëxisting machines invented by Mergenthaler would seem to be clear, for the proof shows that he was from the year 1888 to some time in the latter part of the year 1891 in the employ of the Mergenthaler Company at Brooklyn, and was during a larger part of that time superintendent of the Mergenthaler factory,

ut a liberal salary. As superintendent of the factory Scudder was doubtless familiar with the older form or band-machine; and it appears that he was well acquainted with all the details of construction and operation of the single-character matrix-machine, which was being introduced into the newspaper and book printing houses of the country. To what extent he made his knowledge thus acquired available in the conception of his alleged invention, which led to his drawings of May, 1890, and his subsequent construction of his line-casting machine involved in the issues of these cases, is more a matter of rational supposition than of positive proof. Doubtless he had in mind the previous state of invention, and his effort was so to differentiate his conception as to make a machine that would be independent in structure and operation from those of Mergenthaler's invention; and the question is, did he accomplish this object at a time and in such complete practical form as to entitle him to priority in the present issues of interference?

A complete conception as defined in an issue of priority of invention is matter of fact and must be clearly established by proof. The conception of the invention consists in the complete performance of the mental part of the inventive act. All that remains to be accomplished in order to perfect the act or instrument belongs to the department of construction, not invention. It is therefore the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice that constitutes an available conception within the meaning of the patent law. (1 Rob. on Pats., sec. 375.)

He who first conceives and gives expression to the idea of an invention in such clear and intelligible manner that a person skilled in the business could construct the thing is entitled to a patent, provided he uses reasonable diligence in perfecting it. (*Machine Co.* v. *Harvester Works*, 42 Fed. Rep., 152, 157.)

Or, as said by Mr. Commissioner Leggett in *Champan* v. *Candee*, (2 O. G., 245:)

It is for him (the party upon whom the onus rests) to prove priority of invention, and he may do it by establishing either that he was the first to conceive the idea and the mode of putting it into practice, and used reasonable diligence in adopting and perfecting it, or that he actually perfected and reduced the invention to practice prior to the date of the application of the opposing party to the issue.

Or, as more fully stated by the same learned Commissioner in the case of *Cameron & Everett* v. *I. R. Brick*, (C. D., 1871, 89:)

The point of time at which invention, in such sense as to merit the protection of law, dates is neither when the first thought of it is conceived nor when the practical working machine is completed, but it is when the thought or conception is practically complete; when it has assumed such shape in the mind that it can be described and illustrated; when the inventor is ready to instruct the mechanic in relation to putting it in working form; when the "embryo" has taken some definite form in the mind and seeks deliverance, and when this is evidenced by such description or illustration as to demonstrate its completeness. * * * The true date of invention is at the point where the work of the inventor ceases and the work of the mechanic begins. Up to that point he was inventing, but had not invented, and he must have invented before the law will come to his protection.

In the case of *Voelker* v. *Gray* (30 O. G., 1091) Mr. Commissioner Butterworth in defining what will constitute complete conception within the meaning of the patent law says that the party claiming—

must have been first to conceive the thing in controversy; not merely to conceive it possible to construct a device which would produce the result sought. * * * The conception must not be the result to be obtained, but the means (which is the patentable thing) to produce that result. As long as there is a missing ingredient, in the absence of which the means utilized is a failure, the desired result unattainable, the invention is incomplete. * * * That of which the law takes notice is not the maturing, but the matured conception which can materialize in an operative device; but it very frequently occurs that the inventor confounds his original device and later conception and gives the latter the date of the former, and does it innocently.

It follows from the principles thus enunciated that the date of the conception is the date when the idea of means, including all the essential attributes of the invention, becomes so clearly defined in the mind of the inventor as to be capable of exterior expression, (1 Rob. on Pats., sec. 380,) and it is settled both by practice and express decision that such exterior expression of the mind of the inventor when relating to machinery may be by exhibits either in the form of drawings or by model, so as to lay the foundation of a claim to priority, if thereby the invention be made sufficiently plain to enable those skilled in the art to understand it. (*Webster Loom Co.* v. *Higgins*, 21 O. G., 2031; 105 U. S., 580, 594.)

Now upon the application of these well-settled general principles, the onus of proof being upon Scudder, the question is whether upon the facts of the case the *prima facie* effect of the applications filed by Mergenthaler has been overcome and the priority of invention, as matter of fact, has been shown by Scudder in plain, definite, and comprehensive terms.

The fact of conception by an inventor, for the purpose of establishing priority, cannot be proved by his mere allegation nor by his unsupported testimony where there has been no disclosure to others or embodiment of the invention in some clearly-perceptible form, such as drawings or model, with sufficient proof of identity in point of time, for otherwise such facile means of establishing priority of invention would in many cases offer great temptation to perjury and would have the effect of virtually precluding the adverse party from the possibility of rebutting such evidence. Hence it has been ruled in many cases that the mere unsupported evidence of the alleged inventor on an issue of priority as to the fact of conception and the time thereof cannot be received as sufficient proof of the fact of prior conception, (*Hisey* v. *Peters*, 71 O. G., 892; 6 App. D. C., 73; *Stevens* v. *Putnam*, 18 O. G., 520; *Farmer* v. *Brush*, 17 O. G., 150; *Brungger* v. *Smith*, 62 O. G., 1511;) but any full and accurate description of the invention, either in words or drawings or by model, if it be of a machine, or even an unsuccessful effort to embody the conception, when the effort discloses that the idea was complete, will suffice, although the attempt to represent it may have failed. In the absence of all other proof the date of the application for a patent, if containing a complete description, is taken as the date of the conception. (1 Rob. on Pats., sec. 380.) But if drawings be exhibited and relied on as evidence of the conception of the invention they must show a complete conception, free from ambiguity or doubt, and such as would enable the inventor or others skilled in the art to reduce the conception to practice without any further exercise of inventive skill. (*Ib.*)

In his preliminary statement Scudder alleges that he conceived the invention claimed by him and made disclosure thereof in February, 1889; that he made experimental matrices in November, 1889, and also began an experimental machine embodying the subject-matter of some of the counts of interference in December, 1891, and that he finished such machine in February or March, 1892, and that he subsequently built a second and a third machine. He also alleges that he made drawings in May, 1890, which he has produced as evidence of a completed conception of the invention at that time. But there is no evidence legally sufficient, apart from the testimony of Scudder himself, to show clearly and definitely the fact of conception of the invention involved in the present issues of interference prior to May, 1890, the time when the drawings exhibited as evidence of conception were made. The case of Scudder must therefore depend largely, if not entirely, upon the sufficiency of those drawings as evidence of completeness of conception, for as all the work of embodying the invention in a working machine was done after Mergenthaler had filed his applications Scudder cannot avail himself of such subsequent work to establish prior conception to Mergenthaler's applications. If, however, those drawings are shown to be sufficient to establish a complete conception of the invention in issue in May, 1890, that date being prior to the filing of Mergenthaler's applications, and Scudder can show that he has used reasonable diligence in reducing such conception to practical form, then he is entitled to the position of prior inventor and, consequently, to a patent for such invention.

Now as we have shown that there is no sufficient evidence of conception of the invention in issue prior to May, 1890, do the drawings of that date, relied on by Scudder to prove conception of the invention in issue, so clearly and distinctly show to any one skilled in the particular art the mechanism adapted to perform the functions which are claimed to be novel and useful as to enable such person to understand and practically use such invention? There is a third sheet of drawings alleged to have been made by a draftsman employed by Scudder for the purpose of showing and illustrating the completion of the conception; but as these drawings were not made until December, 1891, after the filing of the applications of Mergenthaler, they are not evidence *per se* of priority of conception, and while the testimony of Scudder may be material to explain what is shown in the drawings, his testimony alone, as we have seen, is not competent or admissible to establish the fact of priority of conception.

In order to identify them and to show what the drawings of 1890 expressed and illustrated and that they were sufficient to enable a skilful mechanic to understand and use them, Scudder produced as a witness a person named Sytz, a mechanic familiar with the construction of linotype machinery and who had been for a considerable time employed with Scudder in the Mergenthaler workshops at Brooklyn and occupied therein a prominent position. This witness identifies the drawings of 1890 and thinks they were made by Scudder in June or July, 1890, and that they represented and illustrated a keyboard and magazine and a means of assembling the matrices into line. He also says that one of the drawings showed a distributing mechanism. He testifies that Scudder entered upon the work of building a line-casting machine embodying the plan which he had devised and showed in the drawings referred to in December, 1891; that he saw said machine about May or June, 1892, and it was not then completed. He saw a completed machine embodying the plan in November, 1892; but in answer to cross-question 122 the witness says that he does not think the machine was running. It was only partly completed. In fact, says the witness—

if I remember right, the base stood on a couple of wooden sawhorses.

In answer to further question the witness replied that—

while it was only a partly-completed machine, it had the keyboard and magazine on and a means for assembling the line, also means for transferring the line. The distributer, while they said that they had it working, was not on the machine when I saw it; it was on the bench for repairs or changes, and I do not remember whether there was any means for casting a line. I do not think the matrices had any characters upon them at that time.

He further testified in regard to the drawings of 1890 that they did not show many of the essential things to completeness of the machine in issue. By cross-question 82 the witness was asked:

Did the 1890 drawings, when you last saw them in 1890, represent any means for guiding the matrices falling from the magazine at different points to one and the same point at the end of the line, or any means for confining the line during composition, or any means for transferring the line to the casting-point, or any casting mechanism, or any spacing or justifying mechanism of any kind, or any means for transferring the line to the distributer, or any means for releasing the assembled matrices and lining them up with their ends in their required relation to enter the distributer, or any means for advancing them through or along the distributer to the magazine, or any driving connections?

The answer was: "No, sir; the drawings did not show such things."

The witness also testifies that there were essential parts and connections in the Scudder machine not shown in the drawings of 1890 and were not embodied in the Mergenthaler machines. By cross-question 114 the same witness was asked:

Am I to understand from your testimony-in-chief that in the Mergenthaler machines built in the Brooklyn factory there were line-assembling devices, carriages for conveying the composed lines and elevating devices to the distributer, or devices for feeding the matrices through the distributer which were constructed and arranged in forms suitable for use with the devices shown in the May, 1890, drawings?

The answer was: "No, sir."

This same witness, a skilled mechanic in the art, further testifies that, although he was familiar with these drawings of 1890, he could not understand them or Scudder's explanation of them without sketches of the different parts of the contemplated machine.

Cross-question 58. During 1890 and prior to August of that year, did you see any other drawings of Mr. Scudder's similar to the drawings in evidence to which you have referred?—Ans. No drawings; simply sketches which he made so that I could understand the parts he was explaining.

Cross-question 59. You refer, I suppose, to sketches other than these 1890 May drawings?—Ans. Yes; free-hand sketches which he would make on the margin of a newspaper or an envelop or something of that sort.

Cross-question 60. Why were these sketches necessary if you were already familiar with the May, 1890, drawings?—Ans. More to explain in detail those parts which I could not understand from his conversations.

Indeed, this witness frankly admits, though a

skilled mechanic with special knowledge in the construction of linotype-machines, that he cannot now understand the drawings of May, 1890, though Scudder had previously explained them to him both orally and by means of free-hand sketches. This is shown in the following cross-examination of the witness:

Cross-question 86. Referring to your answer 33, am I right in understanding that the parts and movements therein named were things which Mr. Scudder proposed to develop, but which were not shown in any drawings which you saw in 1890?—Ans. The keyboard was shown, and a means for releasing the matrices and bringing them down to an alining-bar, and the distributing-wires are shown, but the rest of it was only shown in such sketches as he made for me so that I could understand his plans, and were afterward destroyed.

Cross-question 110. Am I correct, then, in understanding that you do not recollect the details of the matrix-feeding mechanism, or how it was that the matrices were to get into the magazine-channels leading to the point of delivery, or how the pawls acted in delivering them?—Ans. You are.

Cross-question 111. Are you not, as a skilled mechanic, accustomed to working from drawings, able to determine the construction and operation proposed in reference to the May, 1890, drawings, and in the light of the fact that you saw them made and repeatedly discussed them with Mr. Scudder?—Ans. I consider that I am capable of understanding drawings, and think that I understood these drawings at the time they were made, but there were a great many little details which are not on the drawings, and if they were explained to me I have forgotten them.

Cross-question 112. I suppose you refer to details which it would be necessary for you to have in mind or before you in order to understand the construction and operation of the parts shown in the May, 1890, drawings?—Ans. I do.

Similar answers were made to other interrogatories.

But Scudder himself was a witness in his own behalf and testified as to his relations with and as employee of the Mergenthaler Factory Company during the time that he was engaged in conceiving and experimenting with his invention, from 1889 to 1892, and he testified as to the time and circumstances of his making the drawings of May, 1890. He described his invention as developed in his line-casting machine of 1892, which did not, in fact, embody all the parts and connections and conform to the drawings of 1890. He says:

In December, 1891, I engaged a draftsman, whose name was Baker, to make drawings more fully illustrative than the drawings of 1890.

He was then asked for what particular purpose were the drawings of which the one he then produced was made in 1891. His answer was: "For the purpose of building a working model from it." The next question was: "Was that model built?" The reply was: "It was." He then stated where and when built, and in answer to these latter questions he said the work on the machine—

was actually begun in December, 1891, and a working model, as far as the keyboard, magazine, and assembling devices and distributer were concerned, was completed in March, 1892.

In answer to another question—

Did that model or experimental machine, as completed in March, 1892, embody the mechanism illustrated in your May, 1890, and your December, 1891, drawings—

he said:

It did, largely, but not wholly. The making of some of the parts were changed in order to manufacture more easily, and others in detail to get better and more accurate results; but no departure was made from the original drawings, except in detail.

He was next asked whether anything had been done preparatory to the commencement of the work on the experimental machine begun in December, 1891—whether any preparatory work had been done before that time. He answered:

Yes, there was. From time to time I had made different lots of experimental matrices, and had talked over with those in whom I had confidence different details and plans for operating a machine of this class, and had, as far as I could practically do so, worked out the details of this machine. Owing to the nature of the business I was employed in at that time, and the fact that it was being pushed almost night and day, left me with but slight opportunity to engage myself wholly upon a work of this kind, as, owing to the entire change from the existing machines of this class, an entire departure from the fixed plans of doing this work had to be made. In fact, every movement in the machine had to be designed especially for it, and no one of the then known means of assembling and distributing matrices or matrix-bars was applicable to my invention. A new system of storing the bars, releasing, adjusting them endwise and assembling them beside each other, handling the composed lines, preparing them for distribution and distributing them, had to be made, as the fact that the matrix-bar was independent and had several characters upon it required entire new mechanism to handle it. This work, while it was considerable, was constantly going on at such times as I could spare from the business I was then engaged in.

And upon a very lengthy and searching cross-examination of Scudder it is very fully shown that the drawings of May, 1890, in many important particulars are wholly insufficient and inapplicable, in point of completeness, as means of showing and illustrating all the parts and connections of the invention involved in the present issues of interference. This cross-examination, though of great importance as evidence, is of too great length to be inserted in this opinion; but such parts of it as relate to the drawings of 1890 and their want of sufficiency to illustrate the issues of interference (those parts which have been printed in the brief of the appellant) will be appended hereto as a footnote by the reporter.

It is manifest from all the evidence, and especially that of Scudder himself, that the drawings of 1890 are in many essential particulars defective and wanting in completeness as means of showing and illustrating the invention involved in the present controversy, and such defect and want of completeness in the drawings cannot be aided and the defective drawings made available by construction or by reference to the prior state of the art or of the then-existing linotype or line-casting machines, as seems to have been supposed by the Commissioner of Patents, upon the principle stated in the case of *Webster Loom Co.* v. *Higgins*, (21 O. G., 2031; 105 U. S., 580.) Scudder has undertaken to invent and construct a machine essentially different from the preëxisting linotype-machine of Mergenthaler, not simply a mere improvement upon the previous invention. It is necessary for him, therefore, to furnish such full, clear, and definite drawings of his invention as will enable any person skilled in the art of construction of such machines to reduce his invention to practical form; but this he has failed to do. To say nothing of the defects and inadequacies of the drawings, admitted to exist by Scudder himself and his witness Sytz, two expert witnesses, both skilled in the art of construction and in the use of drawings, testify that the drawings of May, 1890, are so defective as not to be understood by mechanics. Mr. Crane, one of these expert witnesses, sums up the condition of these drawings thus:

To recapitulate, the May, 1890, drawings afford no indication that they represent a line-casting machine, and if they do claim to represent such a mechanism they are destitute of the greater part of the essential elements of such a machine; and the parts which they do exhibit are incomplete, inoperative, and unsuited to perform the functions which belong to such parts.

And Mr. Brevoort, the other expert witness, after pointing out in what respects the drawings of May, 1890, fail to show a conception of the various combinations of the issues in controversy, says:

It will thus be seen that the drawings, Sheets 1 and 2, do not show to a person looking at them any of the combinations which are set forth in the four interference issues which I have been considering. No one looking at the drawings would obtain therefrom the information contained in the combination, or would he find or have established to him the combinations and the elements of the combinations which are set forth in the various issues.

It must be borne in mind that we are not considering as evidence, to affect the question of priority of invention, Scudder's completed machine of 1892; but we are considering the sufficiency of the drawings of May, 1890, as evidence of the completed conception of Scudder of the subject-matters of the issues of the interference at the time that the applications of Mergenthaler were made, and, as we have seen, these drawings are in many essential respects defective and insufficient as proof to establish the claim of priority of invention.

Upon the whole case and each of the cases we entirely concur with the conclusion reached by the Examiners-in-Chief, and, their conclusion being stated in clear and explicit terms, we shall adopt it in the terms employed by them. They say:

From the drawings themselves, and from the evidence of Sytz, and from the evidence of Scudder, we think it impossible to say that Scudder had at the date of these drawings any definite conception of the actual arrangement of the parts necessary for storing the bars, releasing them, adjusting them endwise, assembling them, handling the composed lines, preparing them for distribution, and distributing them. And the essence of the invention involved in these issues lies in the arranging and inventing these parts to perform these necessary functions, although most of them were clearly suggested in one or the other of the old machines.

These drawings, when taken in connection with the drawings of his application and the actual embodiment of the idea in a working machine, show at most, that he at that time had the germ of the idea which at some subsequent time was matured into the form shown in the present embodiment, (that is, the machine of 1892,) but this inchoate and incomplete idea is not sufficient—

that is to say, not sufficient to show complete conception prior to the dates of the filing of the applications of Mergenthaler.

The views we have expressed and the conclusion resulting therefrom apply alike to both cases of interference, Nos. 16,233 and 16,270. The two interferences have been conducted and considered as one case, the exhibits, testimony, and briefs being the same in both cases, and both are subject to the same conclusion.

Second. With respect to the question of due diligence by Scudder the Examiners-in-Chief were of opinion that due diligence had not been exercised by Scudder since May, 1890, the time of making the drawings, in adapting and perfecting the invention alleged to have been conceived by him at that time; but in the view we have of the principal question we deem it unnecessary to express an opinion upon the question whether due diligence was exercised by Scudder or not. That question is immaterial.

It follows that the decisions of the Commissioner in both cases of interference must be reversed, and the clerk of this court will certify this opinion and the proceedings in both causes of interference to the Commissioner of Patents, that they may be entered of record in the Patent Office, according to law, and it is so ordered. Rulings appealed from reversed and causes remanded.

U. S. Circuit Court—Eastern District of Missouri.

NATIONAL HOLLOW BRAKE BEAM COMPANY *et al. v.* INTERCHANGEABLE BRAKE BEAM COMPANY. (No. 4,047.) CHICAGO RAILWAY EQUIPMENT COMPANY *v.* INTERCHANGEABLE BRAKE BEAM COMPANY. (No. 4,048.)

Decided October 20, 1897.

1. EQUITY SUIT—WAIVER OF ANSWER UNDER OATH—FAILURE TO ANSWER INTERROGATORIES—ANSWER BY CORPORATION.
   When it is urged by the defendant, a corporation, in justification of failure to answer certain interrogatories propounded that the complainants' waiver of an answer under oath is a waiver of all right to exceptions for insufficiency, *Held* that, the cause being against a corporation only, an answer under oath, even if not waived by the bill, could not have been required. Corporations answer under the sanction and solemnity of their seals only. But whether defendant answers under oath or under corporate seal, when oaths are waived, they are required to answer fully on every material issue.
2. SAME—SAME—PURPOSE OF WAIVER.
   The waiver of an oath in any case is made by the complainant for the purpose of depriving the defendant of the advantage of his answer as evidence in his favor. If no such waiver is made, a sworn answer is taken as evidence in favor of the defendant so forceful as to require two witnesses or one witness and corroborating circumstances to overcome it.
3. SAME—SAME—SAME—ANSWER AS PLEADING—FULLNESS OF ANSWER.
   The sole purpose of a waiver of an oath to an answer is to affect the evidential character and value of the answer. It has nothing to do with the answer as a pleading, and the rule prevails that the defendant must answer fairly fully to each and every material fact alleged in the bill. This fair and full answer should serve the purpose of eliminating many undisputed facts from the case.
4. RULES OF THE COURT—EQUITY RULE 39—ANSWER—PLEA.
   Equity Rule 39 discussed and construed.

Mr. Paul Bakewell and *Mr. James A. Carr* for the complainants.

Messrs. Noble & Shields for the defendants.

ADAMS, *J.:*

These two causes are submitted on exceptions to the answers of the defendants filed in each of them. These exceptions raise substantially the same questions and may properly be considered together. The bills allege that the complainants are the owners of certain patents particularly described and that such patents are valid and have been infringed by the defendants. The bill in No. 4,047 is for relief and discovery, and propounds to the defendant three interrogatories, as follows:

First. Whether prior to the filing of this bill, and subsequent to December 8, 1892, the defendant, Interchangeable Brake Beam Company, made, sold or used, or caused to be made, sold or used, any railway brake-beams like the brake-beam herewith filed and marked "Exhibit F," and if so, how many such brake-beams were made, sold or used by it, or caused to be made, sold or used by it, and between what dates?

Second. Whether it made, sold or used, or caused to be made, sold or used, the brake-beam "Exhibit F" before the filing of this bill, and after December 8, 1892?

Third. Whether it made, sold or used, or caused to be made, sold or used, prior to the filing of this bill, and after December 8, 1892, any brake-beams like the brake-beam illustrated by "Exhibit F," and if so, how many?

"Exhibit F," referred to in the interrogatories, is a full-sized sample brake-beam, and is charged to have been made by the defendant and to be in all particulars like the brake-beams made, sold, and used by the defendant and to embody the device and invention of the complainant's patent and to be an infringement thereof. The defendant's answer in case No. 4,047 denies the incorporation of the complainant; denies the novelty and utility of the invention; denies that any patentable invention is involved in it; alleges that the same had been in public use and on sale in the United States for more than two years prior to the application for the patent; alleges anticipation of the invention by several persons; denies acquiescence by the public, and particularly denies any and all infringe-

ment by the defendant. From this general summary of the answer it will be seen that the defendant has pleaded and relies upon nearly every possible defense that can be made to a cause of the kind stated in the bill. The interrogatories of the bill are addressed to the conscience of the defendant on one of the several issues created by the answer—namely, the issue of infringement. The bill expressly waives answer under oath. The defendant fails to answer the interrogatories propounded and the complainant excepts to the answer because of such failure for insufficiency.

It is urged, first, by the defendant in justification of such failure that the complainant's waiver of an answer under oath is a waiver of all right to exceptions for insufficiency. This cause being against a corporation only, an answer under oath, even if not waived by the bill, could not have been required. Corporations answer under the sanction and solemnity of their seals only. But whether defendants answer under oath or under corporate seals, when oaths are waived, they are required to answer fully on every material issue. The waiver of an oath in any case is made by the complainant for the purpose of depriving the defendant of the advantage of his answer as evidence in his favor. If no such waiver is made, a sworn answer is taken as evidence in favor of the defendant so forceful as to require two witnesses or one witness and corroborating circumstances to overcome it. From this general survey it appears that the sole purpose of a waiver of an oath to an answer is to affect the evidential character and value of the answer. It has nothing to do with the answer as a pleading, and the rule prevails that the defendant must answer fairly fully to each and every material fact alleged in the bill. This fair and full answer should serve the purpose of eliminating many undisputed facts from the case. If facts alleged by the complainant are admitted by the defendant in his answer, the necessity for consumption of time and expenditure of money in making proof thereof does not exist and the court's attention is at once drawn to the debatable issues only. The power of the court to require such an answer ought not to be abridged at all, and therefore if the complainant, for the purpose of preventing the defendant from making its answer equal in evidential strength to two witnesses, sees fit to waive the oath to the answer the right to exceptions for insufficiency must still exist. (*Gamewell Fire Alarm Telegraph Company* v. *The Mayor, etc.*, 31 Fed. Rep., 312; *Reed* v. *Cumberland Mutual Fire Insurance Co.*, 36 N. J. Eq., 393; *Colgate* v. *Compagnie Francaise, etc.*, 23 Fed. Rep., 82; *Whittemore* v. *Patten et al.*, 81 Fed. Rep., 527, and cases cited.)

Again, it is urged by defendant that the several interrogatories of complainant's bill are for a discovery in aid of an accounting, and that as an accounting will not be necessary, if any of its defenses prevail, answers to the interrogatories ought not now to be required. This, I think, is begging the question. One of the issues presented by the bill and answer is infringement or non-infringement. The interrogatories propounded go directly to this issue. Again, it is urged by defendant that under Equity Rule 39 it is not required to answer these interrogatories. This rule, so far as it is necessary to quote it, is as follows:

> The rule that if a defendant submit an answer he shall answer fully to all the matters of the bill shall no longer apply in cases where he might by plea protect himself from such answer and discovery. * * *

It is contended that because the defendant might have resorted to pleas in bar and in this way presented each and every one of the defenses separately stated in the answer he is thereby entitled to the protection against discovery found in Rule 39, *supra*. I think this is a misconception of the rule and a misconeeption of the function of pleas, as distinguished from answers. The plea, speaking generally, is the appropriate resort when the defendant relies upon some one definite and conclusive ground why the suit should either be dismissed, delayed, or barred. (Story's Eq. Pl., 10th ed., sec. 649; Cooper's Eq. Pl., p. 223.)

The proper function of a plea is to interpose some ground of conclusive defense, like the pendency of a prior suit between the same parties, want of title in the complainant, statute of limitations, former adjudication, or the like, which may determine the suit without the necessity of an exhaustive hearing on the merits of the case under the several different defenses which may be made appropriately by answer. The defendant by such a plea rests his entire defense on it and may not resort, after an adverse decision on his plea, to an answer on the merits. He therefore should resort to a plea instead of an answer with great caution and only upon the fullest assurance of right. (*Hughes* v. *Blake*, 6 Wheat., 453; *State of Rhode Island et al.* v. *Massachusetts*, 14 Peters, 210, 257.)

The defendant, as already observed, has pleaded every conceivable defense in its answer, and among them the defense of non-infringement. The contention that all these defenses could have been interposed as technical pleas, in my opinion, overlooks the chief office of pleas and cannot be assented to. (Story's Eq. Pl., *supra*, sec. 652.) By such contention the distinction between pleas and answers, which has ever been found of great use in practice in equity, is ignored. The Supreme Court of the United States in adopting Rule 39 never intended it to be applicable to such a state of pleadings as is found in this case. For another reason, also, I cannot hold that the rule is applicable here. The issue of non-infringement is clearly made by the answer. To permit defendant to claim immunity from a full answer under Rule 39 or otherwise would, in effect, permit him to deny to complainant the right to make proof of the very issue created by the defendant. Lord Langdale in *Chadwick* v. *Broadwood*, (3 Bevan, 540,) referring to what the answer must contain by way of a discovery, makes the following very pertinent and rational observation:

> If they (the interrogatories) are material for the purpose of displacing the plea, they are to be answered, but on the other hand, if they are not material for that purpose, you are not to answer them, for by so doing you overrule your plea.

This doctrine seems to be founded upon the intrinsic nature of pleas, as already observed. It presupposes that the plea raises a definite and distinct issue, single in its character, upon which interrogatories may be predicated, and also that there might be possible issues upon which evidence would be immaterial and therefore not to be inquired into by interrogatories or otherwise—in other words, that the defendant stakes his case on his plea and of necessity excludes consideration of other possible issues. For these reasons I am of the opinion that defendant can get no comfort from Rule 39.

The bills in both of the cases are for relief and discovery. Notwithstanding the fact, to which my attention was called in argument, that bills of discovery are not now as necessarily and commonly resorted to as formerly, when parties were disqualified from testifying, yet, in my opinion, discovery is not only now permissible but is an invaluable aid in the administration of equitable remedies. (See Rule 41 in Equity and addition to Rule 41 made by the Supreme Court at its December term, 1871.) These are remedies addressed to the conscience, and litigants in this court ought to have their consciences searched. By so doing time is saved, expense is avoided. and the court is able the more readily to reach and deal with the very thing in dispute.

The foregoing remarks made in suit No. 4,047 are equally applicable to the other suit submitted, (No. 4,048,) and the exceptions in both are allowed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 9. TUESDAY, NOVEMBER 30, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
CHANGE OF SIGNATURE ON DRAWINGS	1425
NAMES OF APPLICANTS	1425
ATTORNEYS	1425
PAYMENT OF FEES	1426
PUBLISHERS' CATALOGUES	1426
ISSUE OF NOVEMBER 30, 1897	1426
APPLICATIONS UNDER EXAMINATION	1427
PATENTS GRANTED	1604
REISSUES	1604
DESIGNS	1609
TRADE-MARKS	None.
LABELS	None.
PRINTS	
COMMISSIONER'S DECISIONS—	
Ex parte Letellier	1611
DECISIONS OF THE U. S. COURTS—	
National Harrow Company *v.* Hench *et al*	1612
Willcox & Gibbs Sewing Machine Company *v.* Merrow Machine Company *et al*	1613
Morgan Envelope Company *v.* Walton *et al*	1615
AMENDMENTS TO THE RULES OF PRACTICE	1617

Change of Signature on Drawings.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 22, 1897.

The attention of the Examiners is called to Order No. 480, relating to the change of signature on the drawing, which they are directed to follow strictly.

A. P. GREELEY,
Acting Commissioner.

(*Order No. 480.*)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 28, 1883.

The attention of the Commissioner has been called to the fact that patent solicitors who are appointed attorneys in fact in applications pending in the Office upon revocation of powers of attorney to former solicitors in the same cases are in the habit of erasing from the drawings the names of the solicitors who prepared and signed the drawings at the time they were originally filed.

In *ex parte Wharton* (40 O. G., 917) I called attention to the impropriety of changing in any manner the drawings themselves, and while the signatures of attorneys to such drawings are not of especial importance, circumstances might arise which would make them of very great importance, as, for instance, were a question raised concerning the identity of the drawings.

It is hereby directed that the practice of erasing the names of attorneys, or writing upon the drawings the names of attorneys subsequently appointed, so as to make it appear that their names were present when the drawings were originally filed, shall be discontinued.

Examiners will observe that this order is not violated. They are instructed to report to the Commissioner all instances which come within their knowledge of such violation.

BENTON J. HALL,
Commissioner.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., November 19, 1897.

SIR: The Secretary of the Interior has ordered that S. W. Thompson, of Vicksburg, Miss., be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., November 19, 1897.

SIR: The Secretary of the Interior has ordered that A. W. Wilkins, of Fayetteville, N. Y., be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., November 23, 1897.

SIR: The Secretary of the Interior has ordered that D. W. Curtis, of Antwerp, Ohio, be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

(ORDER No. 1,161.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 27, 1897.

With the approval of the Secretary of the Interior, Mr. H. Roscoe Wheeler, formerly of Detroit, Mich., but whose present address is No. 1457 Monadnock Building, Chicago, Ill., is hereby disbarred from practice before the United States Patent Office for gross misconduct, pursuant to the provisions of section 487 of the Revised Statutes.

A. P. GREELEY,
Acting Commissioner.

Payment of Fees.

On and after September 15, 1897, fees intended for entry on the day of payment must be paid to the Financial Clerk before three o'clock p. m., in order that his accounts for the day may be balanced before the Office is closed.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Issue of November 30, 1897.

Patents	476—No. 594,365 to No. 594,840, inclusive.
Designs	24—No. 27,905 to No. 27,928, inclusive.
Trade-Marks	21—No. 30,909 to No. 30,929, inclusive.
Labels	None.
Prints	None.
Reissues	1—No. 11,639.
Total issue	522

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	4	----	New Hampshire	3	----
Arizona Territory	1	----	New Jersey	20	1
Arkansas	4	----	New Mexico Territ'y	----	----
California	9	1	New York	92	12
Colorado	3	----	North Carolina	3	----
Connecticut	16	----	North Dakota	1	----
Delaware	----	----	Ohio	31	----
District of Columbia	5	----	Oklahoma Territory	----	----
Florida	2	----	Oregon	3	----
Georgia	3	----	Pennsylvania	70	----
Idaho	----	----	Rhode Island	2	----
Illinois	33	1	South Carolina	1	----
Indian Territory	----	----	South Dakota	1	----
Indiana	12	----	Tennessee	4	----
Iowa	16	----	Texas	7	----
Kansas	8	----	Utah	2	----
Kentucky	3	----	Vermont	1	----
Louisiana	----	1	Virginia	5	----
Maine	3	----	Washington	3	----
Maryland	6	----	West Virginia	1	----
Massachusetts	31	----	Wisconsin	5	----
Michigan	10	----	Wyoming	1	----
Minnesota	5	----	U. S. Army	----	----
Mississippi	1	1	U. S. Navy	----	----
Missouri	24	----			
Montana	1	----	Total to citizens of the United States	460	17
Nebraska	4	----			
Nevada	----	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Mexico	----	----
Australia	----	----	Netherlands	----	----
Austria-Hungary	1	----	Newfoundland	----	----
Barbadoes	----	----	New South Wales	----	----
Belgium	1	----	New Zealand	----	----
Bermuda	----	----	Norway	1	----
Brazil	----	----	Portugal	----	----
Canada	3	----	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile, Republic of	----	----	Russia	----	----
China	----	----	Scotland	1	----
Colombia	----	----	Siam	----	----
Cuba	----	----	South African Republic	----	----
Denmark	----	----	South Australia	1	----
Egypt	----	----	Sweden	----	----
England	11	4	Switzerland	----	----
Finland	----	----	Venezuela	----	----
France	4	----	Victoria	----	----
Germany	16	----			
India	----	----	Total to citizens of foreign countries	40	4
Ireland	----	----			
Italy	1	----			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business November 23, 1897.

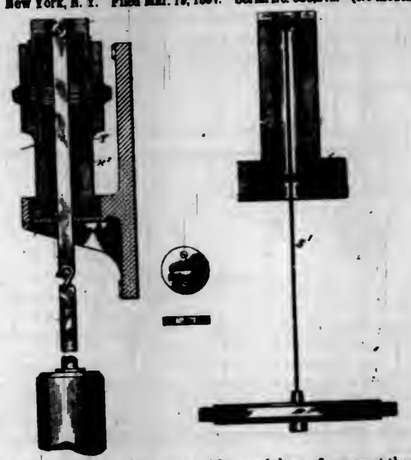
Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between one and two months.			
309	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Sept. 30	Nov. 5	196
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 5	Nov. 4	205
106	II. Farm Stock, Products, etc.	Sept. 28	Nov. 4	327
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Oct. 9	Oct. 30	153
250	VIII. Furniture, Beds, Store Furniture, etc.	Sept. 23	Oct. 27	400
215	XVII. Paper Manufactures and Printing.	Sept. 24	Oct. 26	190
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 2	Oct. 15	187
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Sept. 27	Oct. 11	293
	Between two and three months.			
120	IX. Hydraulics, Fire-Extinguishers, etc.	Aug. 25	Nov. 16	183
253	X. Carriages and Wagons	Aug. 24	Nov. 15	208
158	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Sept. 22	Nov. 9	175
93	XXI. Textiles, etc	Sept. 4	Nov. 8	210
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 23	Nov. 4	229
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Sept. 9	Nov. 1	407
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 1	Oct. 30	297
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 11	Oct. 26	166
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Aug. 23	Oct. 26	194
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Sept. 17	Oct. 23	349
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Sept. 17	Sept. 30	231
246	I. Tillage and Fences	Aug. 28	Sept. 10	291
	Between three and four months.			
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Aug. 14	Nov. 16	503
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Aug. 9	Nov. 15	313
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 3	Nov. 15	176
255	XII. Mechanical Engineering, Store-Service, etc.	Aug. 9	Nov. 13	166
102	XIX. Stoves and Furnaces	Aug. 19	Nov. 11	330
248	XVIII. Steam-Engineering, etc.	July 26	Nov. 9	293
99	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 20	Sept. 24	569
240	VII. Velocipedes	Aug. 9	Sept. 16	1257
	Between four and five months.			
85	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	July 14	Oct. 18	507
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Sept. 21	142
221	XXIII. Instruments of Precision, Acoustics, etc.	July 12	Sept. 13	337
	Between five and six months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	June 8	Nov. 13	635
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	Aug. 13	412
	Total number of applications awaiting action			10,621

Under one month.			
Designs	Oct. 26	Nov. 15	213
Trade-Marks	Nov. 15	Nov. 19	40

PATENTS

GRANTED NOVEMBER 30, 1897.

594,365. COMPENSATING PENDULUM. ERNEST K. ADAMS, New York, N. Y. Filed Mar. 19, 1897. Serial No. 628,272. (No model.)



Claim.—1. The combination with a pendulum, of a support therefor consisting of a standard composed of a material having a coefficient of expansion higher than that of the pendulum, and a device constituting a center of suspension secured at one end of the standard, the pendulum being supported from a point at the opposite end of the standard and passing through the center of suspension, whereby the effective length of the pendulum will be maintained uniform by the expansion and contraction of the standard and consequent variation of the distance between the point of support and center of suspension, as set forth.

2. The combination with a pendulum, of a cylinder composed of a material having a coefficient of expansion higher than that of the pendulum, a support at one end of the cylinder to which the pendulum is attached, and a device, such as a slotted plate, which forms a center of suspension at the opposite end of the cylinder and through which the pendulum passes.

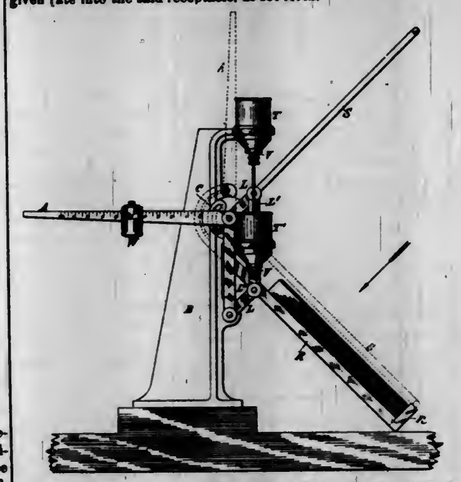
3. The combination with a pendulum, of a cylinder of hard rubber, a support at one end of the cylinder to which the pendulum is attached, and a slotted plate at the other which forms a center of suspension through which the pendulum passes.

4. The combination with a pendulum of a support composed of a cylinder of highly-expansible material, the pendulum being supported at one end of said cylinder and passing through a contracted opening at the other, the said cylinder being formed in sections adjustable with reference to each other, whereby its length or height may be varied, as set forth.

594,866. PHOTOGRAPHIC-PRINTING APPARATUS. ERNEST K. ADAMS, New York, N. Y. Filed Sept. 1, 1897. Serial No. 650,251. (No model.)

Claim.—1. The combination with a support for holding photographic-printing frames, of a counterbalanced movable shade or screen, means for moving the shade or screen to cover the printing-frames, a receptacle connected therewith and a device for delivering such a substance as sand in regulable quantity into said receptacle, to effect the movement of the shade or screen after a predetermined interval, as set forth.

2. The combination with a support for holding photographic-printing frames, a hinged screen or shade, a counterbalance tending to maintain the screen in a raised position, a receptacle connected with the shade and operating when filled with a heavy substance to lower the shade so as to cut off the light from the printing-frames, and a hopper from which such a substance as sand is delivered at a given rate into the said receptacle, as set forth.



3. The combination of the standard B, the frame-rack R, the hinged shade or screen S, the weighted arm A, rigidly connected with the shade, the receptacle T connected with the shade, and a hopper T for delivering sand at a predetermined rate into the receptacle T, as set forth.

4. The combination of the standard B, the frame-rack R, the shade or screen S and the weighted arm A fixed to the same shaft, the parallel levers L L' L'' pivoted to the standard and connected with the shade, the receptacle T connected with said levers, and the sand-hopper T, as and for the purpose described.

594,867. CAR-COUPLING. DAVID ALTMAN, Chattanooga, Tenn., assignor of one-half to Ira Poss and Robert Schwartz, same place. Filed Jan. 30, 1896. Serial No. 577,486. (No model.)

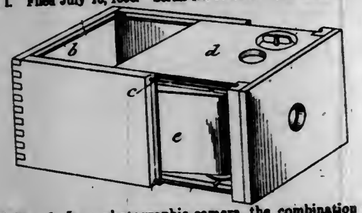


Claim.—1. In a car-coupler, the combination with the draw-head, jaws and knuckles pivoted therein, of a spring-actuated locking-bolt, designed to normally engage with the end of a knuckle when closed, and a lever and notch engaging therewith designed to hold the said bolt out of the path of the pivoted knuckle, substantially as shown and described.

2. In a car-coupler the combination with the draw-head, jaw and knuckle, of the spring-actuated locking-bolt, a casing inside of the draw-head in which the said bolt is guided, shoulders on opposite sides of the bolt designed to abut against the end of said casing to limit its rearward throw, and a stop to limit its forward throw, formed by the end wall of a recessed portion, of the jaw, in which the head of the bolt slides, substantially as shown and described.

3. In combination with the draw-head, jaw, and knuckle pivoted thereto, the spring-actuated bolt and lever for actuating the same, the stop M to limit the forward throw of said bolt, the offset H over which the said lever may be made to engage, after the bolt is forced back in the draw-head, to hold the bolt from engaging with the end of the knuckle, substantially as shown and described.

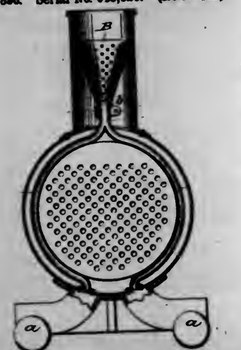
594,868. PHOTOGRAPHIC CAMERA. CHARLES F. AKES and HENRY A. REARSON, Boston, Mass., assignors to D. L. Goff, Pawtucket, R. I. Filed July 16, 1896. Serial No. 599,422. (No model.)



Claim.—1. In a photographic camera, the combination with a three-sided inclosing cover, of a three-sided film-supporting frame telescoping the cover and adapted to be drawn out or made extensible relatively thereto, said frame having a series of slots formed in the top and bottom thereof, which slots are provided at their inner ends with angular parts to receive spool-pintles and hold the same in position, a series of film-supporting spools suitably supported in the film-frame, stops to limit the extent to which said frame may be drawn out, and lens-supporting means at the forward end of the frame.

2. In a photographic camera, the combination with the three-sided inclosing cover open at the top and bottom and provided at its upper and lower edges with grooves, of a three-sided film-supporting frame telescoping the cover and provided with tongues at the top and bottom thereof to ride in the grooves in the cover, tongues on the front edges of the cover adapted to register with grooves in the film-frame, by which means the camera is made light-tight, and film-supporting rolls suitably journaled in the film-frame.

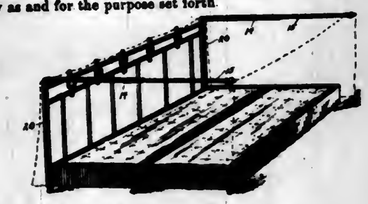
594,869. SPARK-ARRESTER. EDWARD R. AVERY, Joliet, Ill. Filed Dec. 14, 1896. Serial No. 615,629. (No model.)



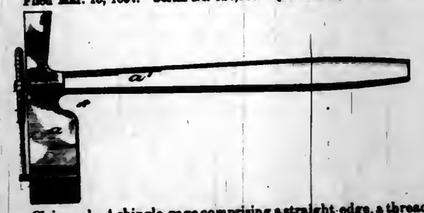
Claim.—In a spark-arrester for locomotives, the combination with a perforated truncated inverted cone applied in the smoke-stack, and having an annular split clamping-flange at its lower open end, of a plurality of steam-pipes connected respectively to the exhaust-ports of the cylinders, a common pipe connected to said exhaust-pipes and having one end mounted within the annular flange at the lower end of the cone, and a split clamping-sleeve applied about said annular flange to contract the same about the steam-pipe and thus clamp the two firmly together, substantially as described.

594,870. CANOPY-SUPPORT. FRANCIS P. BAILEY, Indianapolis, Ind. Filed Mar. 19, 1896. Serial No. 583,854. (No model.)

Claim.—As an article of manufacture, a canopy-support consisting of two sections hinged together, said sections being adapted to be received by the hollow corner-post of a bed and one of said sections being hollow, a rod provided at one of its ends with a flange formed by forcing outward the walls of the tube, and adapted to enter said hollow section, an interned flange, formed in said hollow section by forcing inward the walls thereof, adapted to engage said rod, an indentation formed in said hollow section by forcing the wall thereof inward, whereby a portion of the shell of said hollow section is caused to project into the interior thereof in position to engage with the flanged end of the rod, all combined and arranged substantially as and for the purpose set forth.



594,871. SHINGLING-GAGE. TRUEMAN R. BARNES, Omaha, Nebr. Filed Mar. 13, 1897. Serial No. 627,300. (No model.)



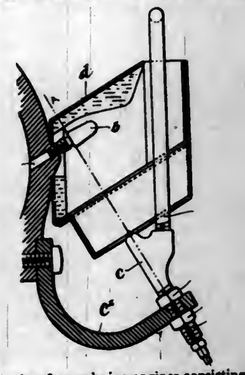
Claim.—1. A shingle-gage comprising a straight-edge, a threaded support at right angles thereto, and a longitudinally-adjustable rod having a threaded portion engaging said threaded support, said rod being extended parallel with said straight-edge and having a widened end at right angles to the latter, as set forth.

2. A shingling-gage consisting of a post, a rod adjustable longitudinally in said post by being rotated in said post and having a spring portion provided with a flange at one end, and a straight-edge parallel with said rod and at right angles to said flange which is held against said straight-edge by said spring portion, substantially as set forth.

3. The combination with a hammer or hatchet having a blade provided with a straight-edge, of a screw or post projecting from said blade at right angles to said straight-edge and having a threaded hole therein, a rod having a thread working in said hole, and a spring portion, and a flange having its face at right angles to said straight-edge and formed with a groove to accommodate the latter against which it is held by said spring portion, substantially as set forth.

4. The combination with a hatchet having a straight-edge, of a post, a rod adjustable in said post and extended parallel with said straight-edge, said rod having a flattened, springy portion and a head on the end thereof having a groove to accommodate said straight-edge, substantially as set forth.

594,872. IGNITER FOR EXPLOSIVE-ENGINES. WILLIAM BAILEY, Springfield, Ohio. Filed July 14, 1896. Serial No. 599,173. (No model.)



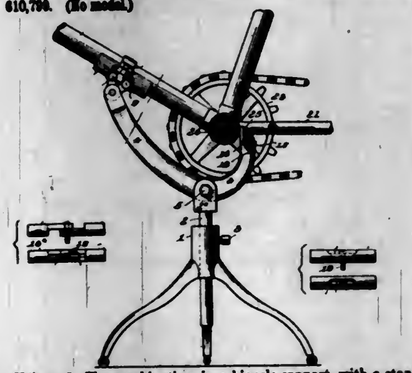
Claim.—1. An igniter for explosive-engines consisting of a closed chamber having a reduced jet or nozzle extending into said chamber, said jet or nozzle being provided with a reduced opening, as described, and adapted to form the communication with the exploding-chamber which admits the explosive charge, and means, substantially as described, for heating the walls of said igniting chamber from the outside to cause the explosive mixture which enters through said nozzle to burn in the igniting-chamber so long as the pressure in the igniting-chamber is less than that which supplies the explosive mixture to said chamber, substantially as specified.

2. An igniter for explosive-engines consisting essentially of a base portion having an extended jet or nozzle of reduced area, and a removable casing extending over said nozzle so as to leave a space between the sides of said nozzle and said chamber to receive the burned gases therein, and means for heating the walls of said igniting-chamber to cause the gases to burn in said igniting-chamber at the end of the nozzle, substantially as specified.

3. The combination with an igniting-chamber, of a jet-valve supported on one side of said chamber and a shield on the opposite side of said chamber to form a combustion-chamber, and means for adjusting said jet-valve to or from said igniting-chamber, substantially as specified.

4. The combination with an igniting-chamber, of a jet-valve supported on one side of said chamber and a shield on the opposite side of said chamber, said shield being adapted to form a combustion-chamber in which the gas from said jet-valve is burned to heat said igniting-chamber, substantially as specified.

594,873. BICYCLE-SUPPORT. WILLIAM H. BRADDLEY and FRANK B. FISHER, Bridgeport, Conn., assignors to Marcellus Hartley and Malcolm Graham, New York, N. Y. Filed Nov. 2, 1896. Serial No. 610,799. (No model.)

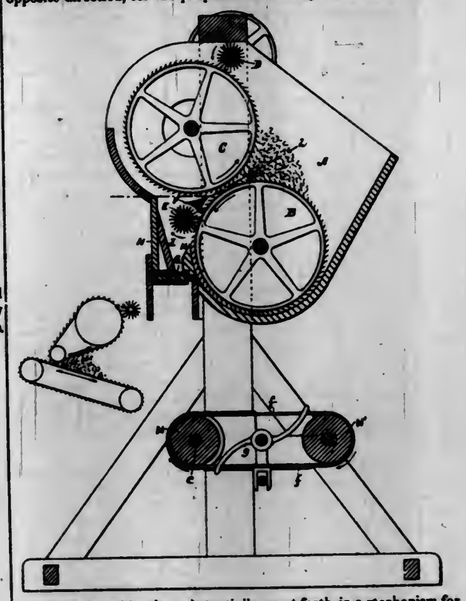


Claim.—1. The combination, in a bicycle-support, with a stand carrying a vertically-adjustable spindle of an angularly-constructed supporting-arm adjustably mounted in said spindle, a laterally-adjustable rear brace-supporting seat mounted on one end of said arm, and a projection or finger adapted to engage the rear surface of a bicycle-hub to locate such hub with respect to such seat, the opposite end of said arm carrying a pivotal seat adapted to support the lower forward brace of a bicycle, all combined so that a bicycle is supported from the front and rear braces leaving the sprocket-hub to swing clear, substantially as set forth.

2. The combination with a supporting-stand and a vertically-adjustable spindle of a U-shaped support having a long and a short arm mounted in the end of said spindle, the short arm carrying a laterally-adjustable seat for the rear braces, of a bicycle, and a projection or finger projecting above such seat to limit the backward movement of the sprocket-hub, the long arm carrying a pivotal seat for the lower forward brace of a bicycle, the shape of the U-shaped support being such that the sprocket-hub swings clear within the arms of such support, substantially as described and set forth.

594,874. MECHANISM FOR FEEDING AND MEASURING TOBACCO FOR CIGARETTE-MACHINES. HUGO ERLEBAH, Philadelphia, Pa., assignor, by mesne assignments, to the Bonsack Machine Company, Salem, Va. Filed Apr. 17, 1893. Serial No. 470,676. (No model.) Patented in England Sept. 26, 1896, No. 190; in France Apr. 2, 1897, No. 265,612; in Spain Apr. 3, 1897, No. 20,425; in Canada Apr. 15, 1897, No. 55,630; in Jamaica Apr. 21, 1897; in Malta Apr. 26, 1897, No. 24; in British Guiana May 3, 1897, No. 190; in Cape Colony May 7, 1897, No. 1,243; in Natal May 13, 1897, No. 55; in Turkey June 1, 1897, No. 575; in Italy June 9, 1897, No. 87; in Brazil June 9, 1897, No. 2,295, and in Austria June 30, 1897, No. 2,497.

Claim.—1. The combination substantially as set forth, in a mechanism for feeding and measuring tobacco, of a hopper or receptacle for containing an undistributed mass of tobacco, a rotating cylinder, constituting the feeding-cylinder, located to form the bottom of the hopper and provided with teeth or pins projecting from its peripheral surface and inclined in the direction of its rotation and a second rotating cylinder, constituting the filling-cylinder, arranged laterally of a vertical plane passing through the center of the feed-cylinder and forming a bite or narrow hopper-discharge therewith, the feeding-cylinder being arranged so that its upper peripheral surface will rotate toward the bite or hopper-discharge, while the adjacent surface of the filling-cylinder is arranged to rotate in an opposite direction, for the purpose substantially as set forth.



2. The combination substantially as set forth, in a mechanism for feeding and measuring tobacco, of a hopper or receptacle for containing the tobacco, a rotating cylinder, constituting the feeding-cylinder, located to form the bottom of the hopper and provided with teeth or pins projecting from its peripheral surface and inclined in the direction of its rotation and a second rotating cylinder, constituting the filling-cylinder, arranged laterally to a vertical plane passing through the center of the feed-cylinder and forming a bite or narrow hopper-discharge therewith, the feeding-cylinder being arranged so that its upper peripheral surface will rotate toward the bite or hopper-discharge while the adjacent surface of the filling-cylinder rotates in the opposite direction, substantially for the purpose set forth.

3. The combination substantially as set forth, in a mechanism for feeding and measuring tobacco, of a hopper or receptacle for containing the tobacco, a rotating cylinder, constituting the feeding-cylinder, located to form the bottom of the hopper and provided with teeth or pins projecting from its peripheral surface and inclined in the direction of its rotation, and a second rotating cylinder, constituting the filling-cylinder, arranged laterally of a vertical plane passing through the center of the feed-cylinder and having its peripheral surface provided with teeth or pins inclined in a direction opposite to its rotation and forming a bite or hopper-discharge with the feeding-cylinder, the feeding-cylinder being arranged so that its upper peripheral surface will move toward the bite or hopper-discharge while the adjacent surface of the filling-cylinder moves in the opposite direction, substantially for the purpose set forth.

4. The combination substantially as set forth, in a mechanism for feeding and measuring tobacco, of a hopper or receptacle for containing an undistributed mass of tobacco, a rotating cylinder, constituting the feeding-cylinder, located to form the bottom of the hopper and provided with teeth or pins projecting from its peripheral surface, and a second rotating cylinder, constituting the filling-cylinder, arranged laterally of a vertical plane passing through the center of the feed-cylinder and forming a bite or narrow hopper-discharge therewith, the feeding-cylinder being arranged so that its upper peripheral surface will move toward the bite of the hopper-discharge, while the adjacent surface of the filling-cylinder is arranged to move in an opposite direction, and means for giving a greater peripheral speed to the filling-cylinder than to the feeding-cylinder, for the purpose substantially as set forth.

5. The combination substantially as set forth, in a mechanism for

feeding and measuring tobacco, of a hopper or receptacle for containing an undistributed mass of tobacco, a rotating cylinder, constituting the feeding-cylinder, located to form the bottom of the hopper and provided with peripherally-projecting pins or teeth, and a second rotating cylinder, constituting the filling-cylinder whose peripheral surface is arranged to form a bite or hopper-discharge with the surface of the feeding-cylinder, the feeding-cylinder being arranged so that its upper peripheral surface will rotate toward the bite or hopper-discharge while the adjacent surface of the filling-cylinder is arranged to rotate in an opposite direction, and a stripping-roll, as E, arranged to operate to remove the tobacco from the surface of the feeding-roll after it has passed the bite or hopper-discharge, substantially as set forth.

6. The combination substantially as set forth, in a mechanism for feeding and measuring tobacco, of a hopper for containing tobacco, a rotating feeding-cylinder forming the bottom of the hopper and provided with peripherally-projecting teeth or pins and a second rotating cylinder arranged laterally of a vertical plane passing through the center of the feeding-cylinder and forming the front wall of the hopper and a narrow hopper discharge or exit with the feeding-cylinder, the surfaces of the feeding-cylinder being arranged to rotate in an opposite direction to that of the second cylinder as they pass the hopper-discharge, substantially for the purpose set forth.

7. The combination substantially as set forth, of a hopper for containing tobacco, a rotating feeding-cylinder forming the bottom of the hopper and provided with peripherally-projecting teeth or pins, a rotating filling-cylinder arranged laterally of a vertical plane passing through the center of the feeding-cylinder to form the front wall of the hopper and a narrow hopper discharge or exit with the feeding-cylinder, the surfaces of the cylinders being arranged to rotate in opposite directions at the hopper-discharge, and a brush-roll, as D, operating to sweep the fibers of tobacco from the surface of the filling-cylinder and deposit them in the hopper, for the purpose set forth.

8. The combination substantially as set forth, in a mechanism for feeding and measuring tobacco, of a hopper for containing tobacco, a rotating feeding-cylinder forming the bottom of the hopper and provided with peripherally-projecting teeth or pins, a rotating filling-cylinder arranged laterally of a vertical plane passing through the center of the feeding-cylinder and forming a hopper-discharge therewith, the surfaces of the cylinders being arranged to rotate in opposite directions at the hopper-discharge, and devices for adjusting the feeding and filling cylinders relatively, whereby the extent of the hopper-discharge will be increased or diminished.

9. The combination substantially as set forth, in a mechanism for feeding, measuring and disposing tobacco, of a hopper for containing the tobacco, a feeding-cylinder forming the hopper-bottom and provided with peripherally-projecting teeth or pins, a filling-cylinder whose adjacent peripheral surface rotates in an opposite direction to that of the feeding cylinder and forms a hopper-discharge therewith, whereby a mass of tobacco placed in the hopper is formed into a web or layer of substantially uniform thickness on the peripheral surface of the feeding-cylinder, a stripper roll or brush, as E, arranged to remove the web of tobacco uniformly from the filling-cylinder, and a moving conveyer arranged beneath the stripper-roll to receive the tobacco as it is showered therefrom.

10. The combination substantially as set forth, in a mechanism for feeding and disposing tobacco for cigarette-fillers, of a rotating feeding-cylinder provided with teeth inclined in the direction of its rotation, means for filling the teeth of said cylinder with tobacco to form a web of substantially uniform thickness, a stripper-roll, as E, provided with teeth arranged to intermesh with the teeth of the feeding-cylinder to remove the tobacco therefrom, and a guard, as F, whereby the tobacco will be uniformly removed from the web and showered down.

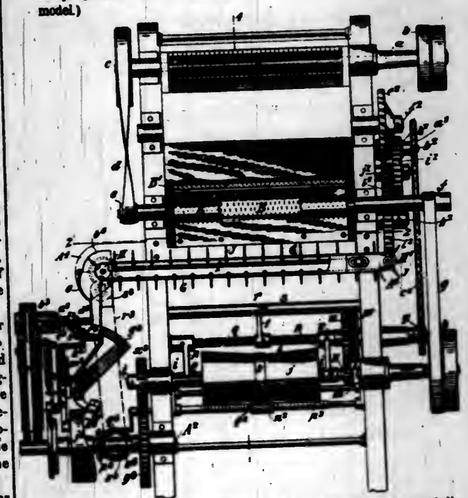
11. The combination substantially as set forth, in a mechanism for feeding and disposing tobacco for cigarette-fillers, of means for uniformly showering the tobacco, a moving surface for receiving or collecting the showered tobacco in a stream or layer and a deflecting-surface arranged above the said receiving-surface, whereby the stream or layer of tobacco will be thicker at one edge of its width than at the other.

12. The combination substantially as set forth, in a mechanism for feeding and disposing tobacco for cigarette-fillers, of means for uniformly showering the tobacco, a traveling surface for receiving or collecting the showered tobacco in a stream or layer and a deflecting-surface arranged above and diagonally across the said receiving-surface, whereby the completed stream or layer of tobacco will be thicker at one of its edges than at the other.

13. The combination substantially as set forth, in a mechanism for feeding and disposing tobacco for cigarette-fillers, of a toothed traveling surface to engage the tobacco, means for limiting the quantity of tobacco engaged by such surface, a device for stripping the tobacco from the teeth of said surface, a traveling surface for receiving or collecting the tobacco in a stream or layer as it falls from the stripping device and a deflecting-surface arranged above and diagonally across the said traveling surface.

14. The combination substantially as set forth, in a mechanism for feeding and disposing tobacco for cigarette-fillers, of a belt in position to receive a shower of tobacco and passing around pulleys, a brush in position to sweep the surface of said belt as it passes around one of said pulleys, and a yielding concave presser in sections, each section bearing upon the tobacco on said belt and extending partly around said pulley, whereby the action of said brush is limited to the tobacco with which it comes in contact.

594,875. CIGARETTE MACHINERY. JAMES A. BONSACK and HUGO BUARAN, Philadelphia, Pa., assignors to the Bonsack Machine Company, Salem, Va. Filed Jan. 7, 1897. Serial No. 618,422. (No model.)



Claim.—1. In cigarette machinery, the combination substantially as set forth, of a continuously-traveling feeding-surface provided with teeth and an intermittently-traveling filling-surface, the said feeding and filling surfaces being arranged so that their contiguous surfaces will travel in opposite directions, for the purpose set forth.

2. In cigarette machinery, the combination substantially as set forth, of a continuously-traveling feeding-surface provided with teeth and an intermittently-traveling filling-surface, the said filling and feeding surfaces being arranged so that their contiguous surfaces will travel in opposite directions and the speed of the filling-surface when in movement will be greater than that of the feeding-surface, for the purposes set forth.

3. In cigarette machinery, the combination substantially as set forth, of a continuously-rotating feed-cylinder provided with teeth and an intermittently-rotating filling-cylinder, the cylinders being arranged so that their contiguous surfaces will rotate in opposite directions, for the purpose set forth.

4. In cigarette machinery, the combination substantially as set forth, of a continuously-rotating feed-cylinder provided with teeth and an intermittently-rotating filling-cylinder, the cylinders being arranged so their contiguous surfaces will rotate in opposite directions and the peripheral rotative speed of the filling-cylinder will be greater than that of the feeding-cylinder, for the purposes set forth.

5. In cigarette machinery, a series of advancing compartments adapted to contain parcels of tobacco of shape and size for forming the cigarette-fillers desired, in combination with means for simultaneously delivering to several of the compartments the desired quantity of tobacco and disposing the same therein in the desired shape for the parcels, and means for discharging the parcels from compartments.

6. In cigarette machinery, the combination substantially as set forth, of a series of advancing compartments adapted to contain parcels of tobacco for cigarette-fillers, means for simultaneously delivering tobacco to several of the compartments and disposing it in larger quantity at one end of the compartments and gradually decreasing toward the other end, and thereby forming parcels of tobacco of shape and size adapted upon compression to form conical or tapered cigarette-fillers.

7. In cigarette machinery, the combination substantially as set forth, of an endless apron divided by transverse partitions into compartments of substantially the length of the cigarette-fillers desired, mechanism for showering tobacco into such compartments in quantity and disposition to form parcels for cigarette-fillers and means for discharging the parcels from the compartments.

8. In cigarette machinery, in combination with an endless apron divided by transverse partitions into a series of compartments adapted to contain parcels of tobacco in shape and size for cigarette-fillers, mechanism for showering tobacco into the compartments, means for advancing such compartments and means for discharging the contents therefrom, of side guides to retain the tobacco in the compartments.

9. In cigarette machinery, in combination with an endless apron divided by transverse partitions into a series of compartments adapted to contain parcels of tobacco in shape and size for cigarette-fillers, means for advancing such compartments and means for discharging the contents therefrom, of side guides to retain the tobacco in the compartments, said side guides being cut away or at a greater distance apart at or near the place of discharge to give the desired clearance to the parcels, substantially as described.

10. In cigarette machinery, the combination of a series of compartments adapted to contain parcels of tobacco for cigarette-fillers, means for showering tobacco, a deflecting-surface arranged diagonally above the compartments operating to deliver the showered tobacco in larger quantities to one end of the compartments than to the other and means for advancing the compartments, whereby the parcels formed therein are adapted for conical or tapered cigarette-fillers.

11. In cigarette machinery, the combination of an endless apron carrying a series of compartments adapted to contain parcels of tobacco for cigarette-fillers, means for advancing the apron, means for showering tobacco and a deflecting-surface arranged diagonally above the compartments and operating to deliver the showered tobacco in larger quantities to one end of the compartments than to the other, whereby the parcels are adapted for conical or tapered cigarette-fillers.

12. In cigarette machinery, the combination substantially as set forth, of mechanism for showering tobacco, a series of moving compartments for receiving the showered tobacco, a deflecting surface or plate arranged diagonally between the showering mechanism and the compartments and means for directing the entire shower of tobacco upon the said deflecting-surface substantially throughout its entire length, whereby the showered tobacco will be thrown upon the deflecting-plate and will be delivered therefrom into the compartments to form parcels adapted for cigarette-fillers of uniform diameter.

13. The combination of a stripper-roll, as E, a concave guide, as M, arranged beneath the stripper-roll, a series of compartments adapted to contain parcels of tobacco for cigarette-fillers, means for advancing the same and a deflecting-surface, as L, arranged above and diagonally of the compartments, whereby the tobacco will be delivered from the stripper-roll to the diagonal deflecting-surface and thence to the compartments to form parcels adapted for cigarette-fillers of uniform diameter.

14. The combination, in an endless apron divided into compartments, of transverse partitions, as J, located on one side of the apron, cleats, as r^3, located on the other side of the apron and opposite the base of the partitions and screws, as r^4, passing through the cleats and apron and into the base of the partitions, substantially as set forth.

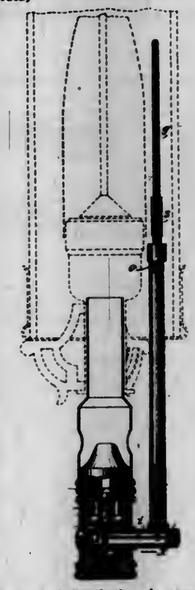
15. In cigarette machinery, the combination substantially as set forth, with a series of moving compartments for containing parcels of tobacco for cigarette-fillers, of a door, as O, means for bringing the parcels of each compartment successively to rest upon the door when in its closed position, means for opening the door to discharge each parcel as it is brought to rest upon it and mechanism for closing the door before the next succeeding parcel is brought into discharging position.

16. In cigarette machinery, the combination substantially as set forth, with a series of moving compartments adapted to contain parcels of tobacco for cigarette-fillers, mechanism for compressing the parcels to filler shape, mechanism for discharging the complete parcels from the compartments and delivering them to the compressing mechanism and mechanism for discharging the incomplete parcels whereby they will not be delivered to the compressing mechanism.

17. In cigarette machinery, the combination substantially as set forth, with a series of moving compartments for containing parcels of tobacco for cigarette-fillers and mechanism for compressing the parcels to filler shape, of a door, as O, through which the complete parcels are delivered to the compressing mechanism, devices for retaining the door closed to the compressing mechanism for an indefinite period to permit the partitions of the compartments to carry incomplete parcels over the free end of the door and discharge them outside of the compressing mechanism.

18. The combination with a series of compartments for containing parcels of tobacco and a drum, as H, around which the compartments are advanced, of a door, as O, so curved in its closed position that the ends of the compartment-partitions will sweep over its interior surface and discharge the incomplete parcels over the free end of the door while in its closed position, substantially as and for the purpose set forth.

594,876. AUTOMATIC LIGHTING DEVICE FOR GAS-BURNERS. HUGO BORCHARDT, Berlin, Germany. Filed Feb. 12, 1897. Serial No. 623,154. (No model.)



Claim.—1. In a gas-lighting device, the combination, with a gas-valve, and a wire operatively connected with the said valve; of a carrier supporting the upper part of the said wire, a guide encircling the lower part of the carrier, a stationary support, and a screw engaging with the said support and supporting the said guide and carrier, substantially as set forth.

2. In a gas-lighting device, the combination, with a branch pipe, a valve for closing one end of the said pipe, and a burner at the other end of the pipe; of a wire supported in front of the said burner, and intermediate connections between the said wire and valve, said connections being arranged within the said pipe, substantially as set forth.

3. In a gas-lighting device, the combination, with a branch pipe, a valve for closing one end of the said pipe, and a burner at the other end of the pipe; of a wire supported in front of the said burner, a lever pivoted inside the said pipe and operatively connected with the said valve, and a rod arranged inside the said pipe and having its lower end connected to the said lever and its upper end connected to the said wire, substantially as set forth.

4. In a gas-lighting device, the combination, with a branch pipe provided with a vertical and a horizontal portion, a valve for closing one end of the said horizontal portion, a plug closing the other end of the horizontal portion, and a burner at the upper end of the vertical portion; of a lever pivoted in the said plug and connected with the said valve, a rod passing through the said vertical portion of the pipe and connected to the said lever, and a wire supported in front of the said burner and connected to the upper part of the said rod, substantially as set forth.

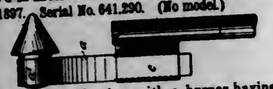
5. In a gas lighting device, the combination, with a branch pipe a valve closing one end of the said pipe, and a burner at the other end of the pipe; of a wire supported in front of the said burner, intermediate connections between the said wire and valve, and a spring holding the said wire in tension, said connections and spring being arranged within the said pipe, substantially as set forth.

6. In a gas-lighting device, the combination, with a main gas-pipe provided with a valve-seat, of a branch pipe having a horizontal portion passing transversely through the said gas-pipe and provided with an opening in its side communicating with the said valve-seat, a burner carried by the said branch pipe, a valve for closing the said valve-seat, a wire supported in front of the said burner, and intermediate connections between the said wire and valve, said connections being arranged inside the said branch pipe, substantially as set forth.

7. In a gas-lighting device, the combination, with a main gas-

pipe provided with an upper and a lower valve-seat, of a double valve arranged between the said valve-seats and operating to close them alternately, a branch pipe having a horizontal portion passing transversely through the said gas-pipe below the said valves and provided with an opening communicating with the said lower valve-seat, a burner carried by the said branch pipe, a wire supported in front of the said burner, and intermediate connections between the said wire and double valve, said connections being arranged inside the said branch pipe, substantially as set forth.

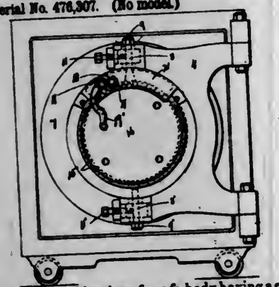
594,377. MEANS FOR HOLDING PLATINUM SPONGES IN AUTOMATIC GAS-LIGHTERS. HUGO BORCHARDT, Berlin, Germany. Filed June 18, 1897. Serial No. 641,290. (No model.)



Claim.—1. The combination, with a burner having a laterally-projecting socket, of a platinum igniting-sponge, and spring-arms retained in the said socket and in contact with the said sponge by their own elasticity, substantially as set forth.

2. The combination, with a burner having a laterally-projecting socket, of a platinum igniting sponge, and two flat spring-arms having curved upper end portions, said arms being retained in the said socket and in contact with the said sponge by their own elasticity, substantially as set forth.

594,378. SAFE. THOMAS M. BRIENTALL, Medina, Ohio, assignor to the National Safe and Lock Company, Cleveland, Ohio. Filed June 1, 1893. Serial No. 476,307. (No model.)



Claim.—1. The combination of a safe-body having a circular front opening and a mutilated female screw, a swinging crane-hinge provided with a ring having vertical and horizontal adjustments, a circular door also provided with a ring and supported by said hinge, a mutilated male screw located on the door and adapted to enter and interlock with the female screw in the door-frame, and retaining means which automatically enter sockets when the safe-door shall have been turned a partial revolution to lock the safe, substantially as described.

2. The combination of a safe-body having a circular front opening and a mutilated female screw, a swinging crane-hinge secured to the front of the safe-body, a ring carried by the crane-hinge and having vertical and horizontal adjustments thereon, a circular door provided with toothed gearing, an intermediate pinion carried by the ring and gearing with the toothed gearing on the door, a driving-pinion also located on the hinge-ring and gearing with the first-mentioned pinion but not meshing with the toothed gearing on the door, whereby the door may be given a rotary motion in the direction of the crank through the arc of a circle, and a mutilated male screw secured to or formed upon the door, said male screw being adapted to enter and interlock with the female screw upon a partial revolution of the door, substantially as described.

3. The combination of a safe-body having a circular front opening and a mutilated female screw, a swinging crane-hinge secured to the front of the safe-body, a ring carried by said crane-hinge and having vertical and horizontal adjustment thereon, a circular door carried by said ring, a segmental gear secured to the door and a pinion secured to said ring, means for turning said pinion whereby the circular door is turned through the arc of a circle, a male screw upon the door, the male screw being adapted to enter and interlock with the female screw, and bolts which automatically engage sockets as the door is turned to lock the safe, substantially as illustrated and described.

4. The combination in a safe, of a circular door provided with a ring having gear-teeth, a crane-hinge carrying a ring, a driving-pinion on said hinge-ring, a driven pinion also on said hinge-ring and interposed between the driving-pinion and the gear-teeth on the door and meshing with said driving-pinion and toothed gearing, whereby in opening and closing the door it will be turned in the same direction as the crank-operating handle is turned, substantially as described.

5. The combination of a ring, a safe-door having upon its face a ring which fits into the first-mentioned ring, ball-bearings between said rings, a toothed gear provided in the ring that is attached to the safe-door, a driven pinion mounted on the first-mentioned ring and meshing with a driving-pinion, the said driven pinion meshing with the toothed gearing on the door, the door also provided with a female mutilated screw which interlocks with a mutilated male screw on the door-frame, substantially as described.

6. In a safe, an automatically-operating bolt-lock consisting of a plate having formed in one of its faces segmental grooves, bolts provided with studs which travel in said segmental grooves, and a spring which automatically rotates said plate through the segment of a circle and throws the bolts, substantially as illustrated and described.

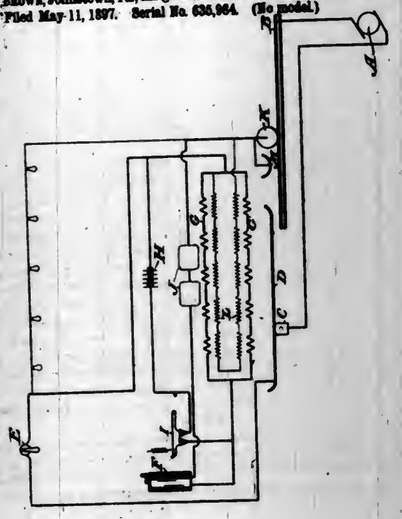
7. A circular safe-door having secured to its inner face an annular ring, lateral openings through the ring, a plate within the ring, said plate having segmental grooves formed in one of its faces, bolts which pass through the lateral openings of the ring and have studs which travel in said segmental grooves, and means for automatically rotating said plate independently of the door and automatically throwing said bolts, substantially as illustrated and described.

8. A circular safe-door, a ring secured to the inner face of the door, lateral openings through the ring, a circular plate within the ring, said plate having segmental grooves formed in one of its faces, bolts which pass through the lateral openings of the ring and are provided with studs which travel in said segmental grooves, a spring to rotate said plate independently of the door, a peppet adapted to hold said plate in a fixed position when the bolts are withdrawn from the sockets of the safe-body, and means for automatically releasing said puppet when the safe-door is partially revolved, whereby the plate is caused to rotate independently of the door and automatically throw the bolts, substantially as illustrated and described.

9. The combination with a safe-body, of a door, a crane-hinge having supporting-arms provided with vertical and horizontal adjusting-screws for adjusting the hinge and door supported thereby in a vertical and horizontal direction, whereby the door can be perfectly adjusted with respect to the door-frame and be held in such adjusted position, substantially as described.

10. In a safe, the combination with an automatic bolt-locking mechanism, of a pin connected with and operated by said automatic bolt-locking mechanism, a pivoted time-lock-tripping lever provided on its lower end with a segmental retaining-rim, a dog-lever pivoted at or near one of its ends and provided between its pivot-point and toe-engaging end with a heel-stop for retaining the pin connected with the automatic bolt-locking mechanism in position, the length of the dog-lever from its pivot to its toe-engaging end being equal to the distance from the center of its pivot to the center of the pivot of the time-lock-tripping lever, whereby all strain on the time locking mechanism is obviated, and a positive lock of the time locking-trip secured, substantially as described.

594,379. ELECTRIC SYSTEM OF PROPULSION. WILLIAM M. BROWN, Johnstown, Pa., assignor to the Johnson Company, Lorain, Ohio. Filed May 11, 1897. Serial No. 636,964. (No model.)



Claim.—1. In an electromagnet adapted to travel over fixed contacts and close the circuit between said contacts and the source of supply, energizing-coils comprising a winding of comparatively high resistance connected to both sides of the circuit, in combination with a winding of comparatively low resistance placed in series with motors for propelling a vehicle, said windings being adapted to simultaneously cooperate in energizing the magnet.

2. The combination, in an electric system of propulsion, of a vehicle and a magnet carried thereby having energizing-coils consisting of one winding of comparatively high resistance and one of comparatively low resistance, said windings being so connected to the circuits that current passes through both windings simultaneously when a circuit is established through the motors.

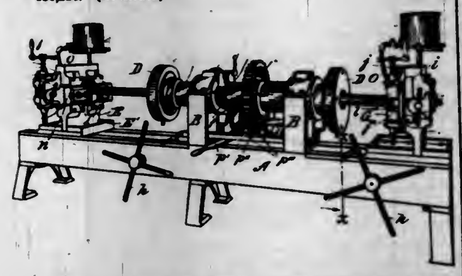
3. In an electrically-propelled vehicle, a magnet carried thereby having energizing-coils comprising two distinct sets of windings, one winding being in shunt with the motors carried by said vehicle, and the other winding being in series with said motors.

4. The combination of an electrically-propelled vehicle, motors carried thereby, an electromagnetic closer also carried thereby, and an energizing-coil for said closer in series with the motors and connected through a switch to the terminals of an independent source of electric supply carried by the vehicle.

5. The combination upon a vehicle, of motors for propeling the same, storage batteries and a switch in circuit therewith, an electromagnetic closer carried by said vehicle, and energizing-coils for said closer comprising two sets of windings, one of said windings being in series with said motors, and connected when the said switch is closed, to the terminals of the storage batteries, the other of said windings being in shunt with the motors.

6. The combination upon an electrically-propelled vehicle, of contact-makers D and K, motors, a controller, storage batteries and a switch therefor, an electromagnetic closer and coils therefor having two distinct windings G and L, connections from one of said contact-makers through the motors to the controller, and connections from the other of said contact makers either through said winding G to the controller, or, when said battery-switch is closed, through coil G and the batteries in multiple to the controller.

594,380. DOUBLE-HEADED THREADING-MACHINE. BENJAMIN T. CARTWRIGHT, Washington, Pa. Filed June 3, 1897. Serial No. 639,296. (No model.)



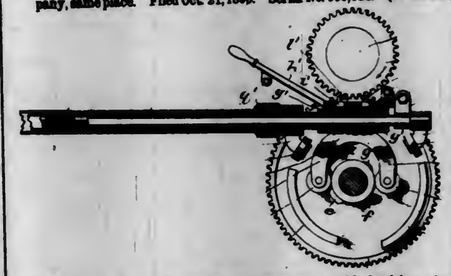
Claim.—1. A double-headed thread-cutting machine, comprising a bed or frame, on which are secured pillow-blocks into which are journaled a main and auxiliary power-shaft and chuck-spindle, each of which are geared with the other by suitable pinions and gear-wheels, said chuck-spindle being provided at both ends with chucks for holding and feeding the article to be threaded into the dies, substantially as shown and described.

2. A double-headed thread-cutting machine, comprising a bed or frame, on which are secured pillow-blocks into which are journaled a main and auxiliary power-shaft and chuck-spindle, a guide cast on the side of one of the pillow-blocks which contains a block provided on its under side with threads said block being adapted to mesh with the threaded portion which is formed on or secured to the chuck-spindle for imparting a longitudinal movement thereto for feeding the article to be threaded into the dies, substantially as shown and described.

3. A double-headed thread-cutting machine, comprising a bed or frame, on which are movably secured die-holders, said holders being adapted to be moved laterally on said bed or frame for bringing the dies proper into engagement with the article to be threaded, together with suitable cutters secured on one side of said die-holders for cutting the article to the desired length, all substantially as shown and for the purposes described.

4. A double-headed thread-cutting machine for cutting two consecutive and continuous threads on both ends of the article at one operation, comprising a bed or frame, pillow-blocks secured on said frame into which are journaled a main and auxiliary power-shaft and chuck-spindle, said spindle being provided with a rotary and longitudinal movement, die-holders movably secured on the bed of the machine for containing the dies, a threaded portion formed on or secured to the chuck-spindle, together with a guide on the side of one of the pillow-blocks which contains a vertically movable block which is threaded on its under side and adapted to mesh with the threaded portion of the chuck-spindle for feeding the article to be threaded into the dies, substantially as shown and described.

594,381. VALVE-GEAR FOR GAS-ENGINES. EDMUND CHILLISON, Philadelphia, Pa., assignor to the Pennsylvania Iron Works Company, same place. Filed Oct. 21, 1896. Serial No. 609,631. (No model.)



Claim.—1. A valve-gear for gas-engines provided with a shaft composed of concentric members connected to the igniter and the exhaust-valve of the engine and means for imparting oscillating motion to one of said members and longitudinal reciprocating motion to the other.

2. A valve-gear for gas-engines having a shaft composed of concentric members connected to the igniter and the exhaust-valve of the engine and means for imparting oscillating motion to one of said members and longitudinal reciprocating motion intermittently to the other.

3. A valve-gear for gas-engines having a gear-wheel provided with a cam on its face, a hub on said wheel provided with a cam on its periphery, an oscillating shaft operated by the cam on the face of the wheel and connected to the igniter and a reciprocating shaft operated by the cam on the hub of said wheel and connected to the exhaust-valve.

4. A valve-gear for gas-engines having concentric shafts, a gear-wheel provided with a cam on the face of the wheel for operating an igniter and cams on its hub for operating an exhaust-valve, an arm connected to one of the shafts and engaging the cam on the face of the wheel and an arm on the other shaft engaging the cams on the hub of said wheel.

5. A valve-gear for gas-engines having concentric shafts, a gear-wheel provided with an igniter-cam on the face of the wheel, and exhaust-valve-operating cams in different planes on its hub, an arm connected to one of the shafts and engaging the cam on the face of the wheel and the bifurcated arm on the other shaft engaging either of the cams on the hub of said wheel.

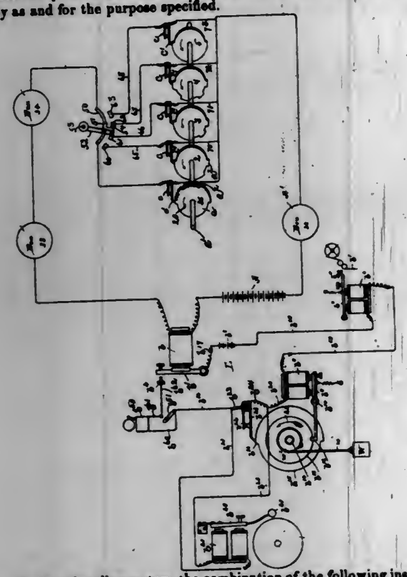
6. A valve-gear for gas-engines having three concentric shafts, a gear-wheel provided with concentric cams on its face, two of said shafts being rocking shafts and engaging said cams and connected to the igniters of the engine and the third being a reciprocating shaft having a loose bifurcated arm, two sets of cams on the hub of said gear-wheel with either of which said bifurcation may engage, and means for moving said arm about its shaft.

594,382. SIGNALING SYSTEM. HENRY A. CHASE, Boston, Mass., assignor, by mesne assignments, to the Metropolitan Duplex Fire and Police Signal Company, Portland, Me. Filed Jan. 23, 1893. Renewed May 22, 1897. Serial No. 637,798. (No model.)

Claim.—1. In a signaling system, the combination of the following instrumentalities, viz: a signal-transmitting apparatus constructed to transmit a number of impulses indicative of the apparatus and additional impulses indicative of different signals, of a receiving instrument or relay responsive to all the impulses transmitted, an audible signal normally passive or non-responsive to the impulses indicative of the apparatus, and a controller for said audible signal governed by the relay and controlling the operation of the audible signal to cause the said audible signal to become responsive to each additional impulse indicative of the different signals, substantially as described.

2. In a signaling system, the combination of the following instrumentalities, viz: a signal-transmitting apparatus constructed to transmit a plurality of different signals, a receiving instrument or relay

responsive to all the impulses transmitted by said apparatus, a local circuit controlled by said relay and provided with a branch having circuit-terminals, an electromagnet included in said branch controlling the operation of an audible signal, a circuit-controller for said circuit-terminals and an electromagnet controlled by said relay and governing the operation of the circuit-controller, the latter acting on the circuit-terminals to render the said audible signal responsive to selected or predetermined impulses received by the relay, substantially as and for the purpose specified.



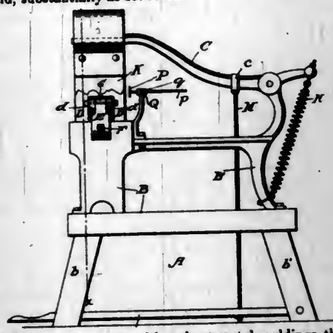
3. In a signaling system, the combination of the following instrumentalities, viz: a signal-transmitting apparatus constructed to transmit a plurality of different signals, a receiving instrument or relay responsive to all the impulses transmitted by said apparatus, a local circuit controlled by said relay and provided with circuit-terminals, an electromagnet in said local circuit controlling the operation of an audible signal, a circuit-controller cooperating with the said circuit-terminals to render the audible-signal magnet responsive to predetermined impulses received by the relay, and an electromagnet operated by the relay and governing the operation of the said circuit-controller, substantially as described.

4. In a signaling system, the combination of the following instrumentalities, viz: a signal-transmitting apparatus constructed to transmit a number of impulses indicative of the apparatus and additional impulses indicative of different signals, of a receiving instrument or relay responsive to all the impulses transmitted, an audible signal normally passive or non-responsive to the impulses indicative of the apparatus, and a controller for said audible signal governed by the relay and constructed and arranged with relation to the signal-transmitting apparatus to maintain the audible signal passive or non-responsive to a predetermined number of the impulses transmitted by the said apparatus and to cause the said audible signal to respond to each impulse additional to the said predetermined number of impulses, for the purpose specified.

5. In a signaling system, the combination of the following instrumentalities, viz: a signal-transmitting apparatus, constructed to transmit a plurality of special signals, each comprising a number of impulses indicative of the apparatus, and one or more additional impulses indicative of the particular signal transmitted, a receiving instrument or relay responsive to all the impulses comprising the special signal, a local circuit controlled by said relay, a register included in said circuit, a branch or shunt circuit for said local circuit including an audible signal and provided with normally closed circuit-terminals, a circuit-controller for said circuit-terminals, and an electromagnet in the local circuit controlling the operation of the circuit-controller, the said circuit-controller rendering the audible signal passive or non-responsive to some of the impulses of the transmitting apparatus, and active or responsive to other impulses of the said transmitting apparatus, substantially as described.

594,888. MACHINE FOR MAKING SHEET-METAL MOLDING. CHARLES T. CHILDERS, Galesburg, Ill. Filed Apr. 10, 1897. Serial No. 631,553. (No model.)

Claim.—1. The combination with a stationary base, of a die, D, stationarily mounted on said base, dies, D′, D² pivotally supported on arms extending upwardly from the base on opposite sides of the first said die, D, whereby said dies, D′, D², are adapted to extend parallel to the intermediate stationary die, or at an angle to said stationary die, bars, G′, adjustable toward and from said central die, D, for supporting the lower end of said dies, D′, D², when in other than a vertical position, and a vertically-vibratable die mounted above those aforesaid, substantially as set forth.



2. In a machine for making sheet-metal moldings, the combination with a base, of the die, D, mounted on said base, the dies, D′, D², arranged on opposite sides of said base, and each provided on its outer surface above its lower end with a pair of lugs or ears, arms rigid with the base and extending upward between said ears on the dies, D′, D², pivot-bolts connecting said ears and arms, and a vertically-vibratable hammer-like die mounted above those aforesaid, substantially as set forth.

3. In a metal-bending machine, the combination of a base-plate or bed, a die, D, secured on said bed, dies, D′, D², pivotally supported on opposite sides of said die, D, and adapted to rest on the base-plate or bed when in a position parallel to the first said die, adjustable supporting-bars, G′, mounted on the base and movable toward and from said die, D, the upper surfaces of said bars being adapted to support the dies, D′, D², when out of parallelism with the first said die, D, and a vertically-vibratable die mounted above those aforesaid, substantially as set forth.

594,884. FULCRUM FOR BRAKE-BEAMS. FRANK W. COOLBAUGH, Easton, Pa. Filed Mar. 15, 1897. Serial No. 627,562. (No model.)



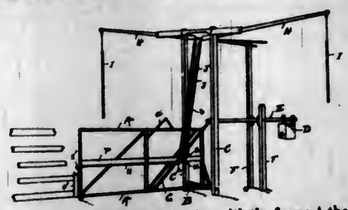
Claim.—1. The combination with a brake-beam of two fulcrum-sections secured on the same, each section having an inclined projecting wing provided on its inner surface with a neck, the ends of the necks on the two wings abutting when the sections are secured on the beam, substantially as herein shown and described.

2. The combination with a brake-beam, of two fulcrum-sections secured on the same, each section having an inclined projecting wing provided on its inner surface with a neck and a rib extending from the neck to the edge of the wing and the free ends of said necks abutting when the two sections are secured on the beam, substantially as herein shown and described.

3. The combination with a brake-beam, of two fulcrum-sections placed on opposite sides of the web, each section having a recess for receiving part of the flange of the beam and a rearwardly-extending wing and each section having an inclined wing extending to the front and having on its inner face a neck, the ends of which necks abut when the sections are secured on the beam, a rivet passed through the rear wings and the web of the beam and a rivet passed through the abutting necks on the front wings, substantially as herein shown and described.

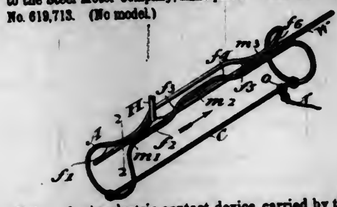
594,885. TILTING GATE. JAMES M. DAVIS, Deer Creek, Ill. Filed Oct. 29, 1896. Serial No. 610,394. (No model.)

Claim.—1. In a tilting gate, the combination with the frame thereof, of suitable pivotal supports for same, a system of operating-arms for tilting the gate on its pivots, a tilting device consisting of a table secured to the top of the gate, and means for engaging said tilting device, consisting of a finger pivoted to the operating portion of the gate substantially as and for the purposes set forth and described.



2. In a tilting gate, the combination with the frame A thereof, of the uprights C C pivotally supporting the gate, the arms H pivoted to said uprights, the portion P forming part of the gate and provided with the slots Q and R, the rods J hung from the arms H, a shaft K passing through the slot in the portion P and connecting the ends of the said rods J, rollers L placed on the said shaft K, the gate-latch N′, the wire N connecting the said latch and rollers, the arm G pivoted at its lower end to the gate, an arm E pivoted to the arm G, the posts F F supporting the said arm E, the weight D on said arm, a tilting table *a* secured to the gate and an operating-finger pivoted to one of the arms J for engaging said tilting table substantially as and for the purposes set forth and described.

594,886. ELECTRIC CONTACT DEVICE AND CONDUCTOR CONSTRUCTION THEREFOR. JOHN M. DORTCH, Johnstown, Pa., assignor to the Steel Motor Company, same place. Filed Jan. 19, 1897. Serial No. 619,713. (No model.)



Claim.—1. An electric contact device, carried by the conductor having a plurality of supporting portions, and cam-faces substantially in alinement with the conductor-hangers.

2. An electric contact device, carried by the conductor, having a non-continuous or curved passage longitudinally therethrough and cam-faces substantially in alinement with the conductor-hangers.

3. An electric contact device, carried by the conductor, having a longitudinal passage, normally non-continuous in any longitudinal vertical section, and means, comprising cam-faces in alinement with the conductor-hangers, for passing said hangers through said passage.

4. An electric contact device, carried by the conductor, having a passage therethrough normally non-continuous in any vertical longitudinal section, and means, comprising cam-faces in alinement with the conductor-hangers for making said passage continuous in a vertical, longitudinal, section made by the movement of the device past a desired section of the conductor.

5. An electric contact device, carried by and completely surrounding the conductor, having a longitudinally-continuous, curved passage.

6. An electric contact device, carried by the conductor, having a longitudinally-continuous, curved, passage and a plurality of cam-faces in alinement with the conductor-hangers.

7. An electric contact device, carried by and completely surrounding the conductor, having a longitudinally-continuous, reverse spiral, passage.

8. An electric contact device, carried by the conductor, having a longitudinally-continuous, reverse spiral, passage and a plurality of cam-faces in alinement with the conductor-hangers.

9. An electric contact device, carried by and completely surrounding the conductor, comprising a tubular member having a curved passage from end to end thereof and means for moving said member along the conductor.

10. An electric contact device, carried by the conductor, having a longitudinally-continuous curved passage, and means, comprising cam-faces in alinement with the conductor-hangers for rotating said device.

11. An electric contact device, carried by the conductor, having a longitudinally-continuous, reverse spiral, passage, and having means, comprising cam-faces in alinement with the conductor-hangers, for rocking said device in each direction.

12. An electric contact device, carried by the conductor, comprising a skeleton tube, as A, having a longitudinally-continuous, reverse spiral, passage.

13. In an electric contact device, a skeleton tube formed of wire, and having a longitudinal passage which is non-continuous in any longitudinal, vertical section.

14. An electric contact device comprising a skeleton tube formed of wire and means for moving said tube along the conductor.

15. In an electric contact device, a skeleton tube formed of wire, having a longitudinally-continuous, curved passage.

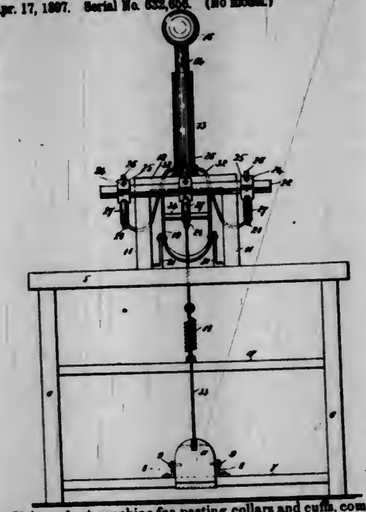
16. In an electric contact device, a skeleton tube formed of wire adapted to be carried by the conductor, and having cam-faces in alinement with the conductor-hangers.

17. An electric contact device comprising, in combination, a tubular member surrounding the conductor and supported thereon, a rod secured horizontally below said member and connections from said rod to the moving vehicle.

18. In an electric contact device, a slotted tube surrounding the conductor and forming a skeleton tube of larger size, and a plurality of balls loosely filling said slotted tube and projecting outward from the slot.

19. The combination, in a frog for electric conductors, of a plurality of crossing-points having lateral shelves, suspended by hangers from a hood, and arranged so as to form an unobstructed space at the central portion of the crossing.

594,887. MACHINE FOR PASTING COLLARS AND CUFFS. ARDEN L. DURRIS and FLORENCE I. ROURKE, Glens Falls, N. Y. Filed Apr. 17, 1897. Serial No. 632,656. (No model.)



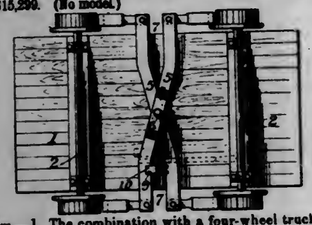
Claim.—1. A machine for pasting collars and cuffs, comprising a table or support, a cross-head mounted thereover, an upright tubular receiver mounted on said cross-head and provided with a vertically-movable plunger, a pedal pivotally supported below said table or support, a yoke or lever pivoted above said table or support, and connected with said pedal, a cross-bar connected with said yoke or lever, and provided with a plurality of tubular sleeves which are suspended therefrom, each of which is provided with a branch tube, a flexible tube connected with each of said branch tubes, and with said receiver, and a sliding tube mounted in each of said sleeves and provided with an opening which is adapted to register with said branch tubes, substantially as shown and described.

2. In a machine for pasting collars and cuffs and similar articles, the combination with a table or support, of a receiver mounted thereover, a vertically-movable plunger mounted in said receiver, a pedal supported beneath said table or support, a yoke or lever pivotally supported above said table or support, and in operative connection with said pedal, a cross-bar connected with said yoke or lever, and provided with a plurality of tubular sleeves which are suspended therefrom, each of which is provided with a branch tube, a flexible tube connected with each of said branch tubes, and with said receiver, and a sliding tube mounted in each of said sleeves and provided with an opening which is adapted to register with the branch tube connected therewith, substantially as shown and described.

3. In a machine for pasting collars and cuffs, the combination with a suitable table or support as 5, of a tubular receiver as 13, supported thereover, a vertically-movable plunger as 14, mounted in said tubular receiver, a pedal as 10, pivotally supported below said table or support, a yoke or lever as 19, pivotally supported above

said table or support, and in operative connection with said pedal, a cross-bar as 22, connected with said yoke or lever tubular sleeves as 27, suspended from said cross-bar, each of which is provided with a branch tube as 31, flexible tubes connecting said branch tubes with said receiver, and sliding tubes as 28, mounted in said sleeves, each of said sleeves being also provided with a spring by which the sliding tube therein is depressed, substantially as shown and described.

594,388. BRAKE. WALTER S. EASTON, Elk Lick, Pa., assignor of one-half to J. C. LOWRY, Somerset, Pa. Filed Dec. 11, 1896. Serial No. 615,299. (No model.)



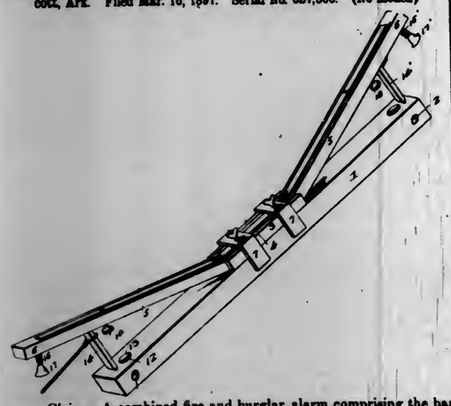
Claim.—1. The combination with a four-wheel truck, of a pair of brake-beams interposed between the wheels of the truck and connected pivotally to the truck and also provided with brake-shoes, and a wedge for spreading said beams and forcing the shoes simultaneously into contact with all of the wheels, substantially as described.

2. The combination with a wheeled truck, of a pair of brake-beams crossing each other at intermediate points and pivotally connected together and also provided at or near their extremities with brake-shoes for engaging the wheels, a wedge interposed between said beams at one side of their pivotal connection, and means for advancing said wedge for the purpose of spreading the beams, substantially as described.

3. The combination with a wheeled truck, of a pair of brake-beams arranged between the truck-axles and crossing each other at intermediate points and pivotally connected as described, brake-shoes carried by the outer ends of said beams, a wedge operating between said beams at one side of their fulcrum, and an operating-lever fulcrumed on the truck and having pivotal connection with said wedge, said lever being adapted to raise and lower the wedge, substantially in the manner and for the purpose described.

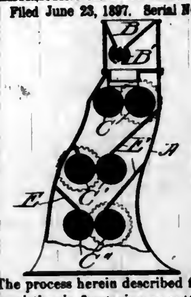
4. The combination with a wheeled truck, of crossed brake-beams interposed between the truck-axles and carrying brake-shoes at or near their ends, a vertically-movable wedge interposed between said beams and provided at its lower end with a stop for limiting the upward movement of the wedge, a bracket secured to the wedge at one side near its upper end, said bracket and wedge being provided with transversely-alining openings, an operating-lever fulcrumed on the truck, and a pin passing through said lever and also through the wedge and its bracket, whereby the relative positions of the operating-lever and wedge may be adjusted, substantially as described.

594,389. BURGLAR AND FIRE ALARM. JAMES H. ELLIS, Prescott, Ark. Filed Mar. 16, 1897. Serial No. 627,360. (No model.)



Claim.—A combined fire and burglar alarm comprising the bar 1, provided with the studs 12 12, in combination with the pivoted levers 5 5, formed with the hammer-heads 10 10, the clamps 7 7 provided with the thumb-screws 8 8, the spring 9 centrally secured in said clamps, the detachable props 14 14' and the jingle-bells 17 and 17', located in the path of the free ends of said levers 5 5, substantially as shown and described.

594,390. EXTRACTING OIL FROM SEEDS. ALEXANDER EUSTON, St. Louis, Mo. Filed June 23, 1897. Serial No. 641,881. (No specimens.)

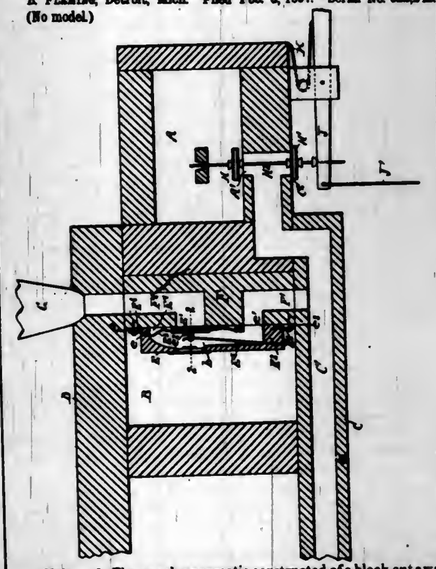


Claim.—1. The process herein described for treating oleaginous seeds, the same consisting in fracturing or cutting the seeds without crushing the oil cells or sacs, tempering the seeds so fractured, and extracting the oil therefrom; substantially as described.

2. The process herein described for treating oleaginous seeds, the same consisting in cutting or fracturing the seeds so as to expose their meal contents at the same time preserving the integrity of the oil cells or sacs as far as possible, impregnating the meal contents of the seeds with moisture or water while the seeds are subjected to heat, and finally subjecting the seeds so treated to pressure to express the oil from the meal; substantially as described.

3. The herein-described process of preparing oleaginous seeds, for tempering, the same consisting in cutting or fracturing the seeds so as to expose their meal contents, at the same time preserving the integrity of the oil cells or sacs as far as possible; substantially as described.

594,391. POUCH-PNEUMATIC FOR PIPE-ORGANS. WILLIAM R. FLEMING, Detroit, Mich. Filed Feb. 6, 1897. Serial No. 622,242. (No model.)



Claim.—1. The pouch-pneumatic constructed of a block cut away intermediate its extremities, a flexible strip secured upon the cut-away portion of the block and provided with a pallet, and a spring bearing upon said pallet, said pouch-pneumatic provided with a wind-channel communicating therewith, substantially as set forth.

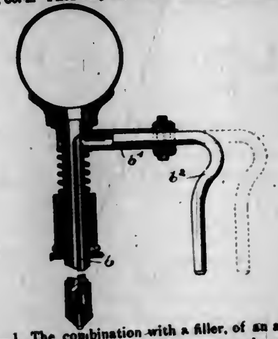
2. The pouch-pneumatic constructed of the block E^3 cut away intermediate its ends, and a flexible strip secured upon said block intermediate its ends, a pallet connected by said strip, and a spring bearing upon said pallet, said pouch-pneumatic having an air-passage communicating with the interior thereof substantially as set forth.

3. In a pipe-organ the combination of the wind-chest B, and chest-bar F provided with air-passages F' and F^3, and a pouch-pneumatic located in the wind-chest, said pouch-pneumatic formed with an interior air-chamber communicating with the channel F', with a flexible strip E^3, a pallet carried by said flexible strip and a spring bearing upon said pallet, substantially as set forth.

4. In a pipe-organ the combination with a wind-chest B and a chest-bar F provided with air-passages F' and F^3, a pipe communicating with the wind-chest, and a pouch-pneumatic located in the wind-chest, said pneumatic formed with an interior air-chamber communicating with the channel F', with a flexible strip E^3, a pallet E' controlling the communication of the wind-chest with the pipe, and a spring bearing upon said pallet, said wind-chest having a wind-chamber E^4 under said flexible strip, substantially as described.

5. The combination with a wind-chest of an independent and separably-removable pouch-pneumatic for each key on the organ, said pneumatic constructed of a block formed with a wind-chamber *b*, a flexible strip forming one side of said chamber, and a pallet carried by said strip, said pneumatic provided with an air-passage leading into said chamber, and said wind-chest opening underneath said flexible strip, substantially as described.

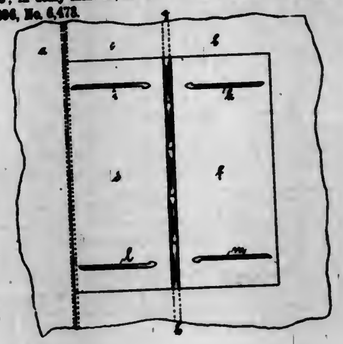
594,392. BOTTLE-FILLING MACHINE. WILLIAM M. FOWLER, Stamford, Conn. Filed July 24, 1896. Serial No. 600,331. (No model.)



Claim.—1. The combination with a filler, of an air-escape conduit leading from the filler into position to enter the mouth of a receptacle at the same time the filler enters the mouth of another receptacle, the said air-escape conduit being formed in sections, and means for adjusting one of the sections relative to the other, substantially as set forth.

2. The combination with the filler, of the air-escape conduit leading therefrom, the said air escape conduit consisting of a section fitted to telescope within another section, a wedge-shaped ring fitted to enter between the movable section and the inner wall of the other section, and a nut for forcing the ring into position to lock the movable section in the desired adjustment, substantially as set forth.

594,393. CASE OR HOLDER FOR MANUSCRIPTS. FRANZ FRIEDRICHS and ALEXANDER BREDE, Cologne, Germany. Filed May 12, 1896. Serial No. 591,277. (No model.) Patented in Germany Feb. 2, 1896, No. 88,532; in Belgium Mar. 9, 1896, No. 120,288; in France Mar. 9, 1896, No. 254,619; in Norway Mar. 9, 1896, No. 5,008; in Sweden Mar. 9, 1896, No. 5,018; in Austria, Mar. 11, 1896, No. 46/2,071; in Hungary Mar. 11, 1896, No. 6,557; in Switzerland Mar. 13, 1896, No. 12,013; in Italy Mar. 14, 1896, No. 41,029/345, and in England Mar. 24, 1896, No. 6,473.



Claim.—In cases or holders for manuscripts and the like covers *a b*, back *c*, hinged members *d f* the junction of which is coincident with the junction of cover *b* and back *c* of the case, curved pins *i l k m* rigidly attached to the hinged members *d f*, and shoulders on the curved pins *i l k m* in locking engagement when the back is nearly in the plane of the cover *b*.

594,394. GAS-BROILER. JAMES GIBSON, Jr., Jersey City, N. J. Filed May 27, 1896. Serial No. 593,215. (No model.)



Claim.—1. A broiler comprising two opposing fire-walls each having its own source of heat and an attached substance-holding grid device.

2. A broiler comprising two opposing fire-walls adjustable relatively to each other, each fire-wall having its own source of heat and a substance-holding grid device.

3. A broiler comprising two opposing fire-walls adjustable relatively to each other, each fire-wall having its own source of heat and a substance-holding grid device and a handle.

4. A broiler comprising two opposing fire-walls adjustable relatively to each other, each fire-wall having its own source of heat and a substance-holding grid device and parts adapted to support the fire-wall and grid edgewise in vertical planes.

5. A broiler comprising two opposing fire-walls adjustable relatively to each other, each fire-wall having its own source of heat and a substance-holding grid device and a back plate forming a chamber for combustion products behind the grid.

6. A broiler comprising two fire-walls hinged together, each fire-wall having its own source of heat and a substance-holding grid device.

7. A broiler comprising two fire-walls hinged together, each fire-wall having its own source of heat and a substance-holding grid device and a handle.

8. A broiler comprising two fire-walls hinged together and opening and closing to the right and left hand, each fire-wall having its own source of heat and a substance-holding grid device and a rearwardly-projecting handle.

9. A broiler comprising two fire-walls hinged together, each fire-wall having its own source of heat and a substance-holding grid device and parts adapted to support the fire-wall and grid edgewise in vertical planes.

10. A broiler comprising two fire-walls hinged together, each fire-wall having its own source of heat and a substance-holding grid device and a back plate forming a chamber for combustion products behind the grid.

11. A broiler comprising two opposing and relatively-adjustable fire-walls each having a burner face-plate provided over the whole or part of its area with perforations through which the burner flames; said fire-walls each also having a grid device sustained at a distance from the perforated flame-plate and forming between said plate and the substance on the grid a chamber for free circulation of hot products and air.

12. A broiler comprising two opposing and relatively-adjustable fire-walls, each having its own source of heat, and a readily-detachable substance-holding grid device.

13. A portable-broiler fire-wall having its own source of heat and provided with a support adapted to sustain a substance to be broiled at that side or face of the fire-wall at which the heat area is produced.

14. A portable-broiler fire-wall having its own source of heat and a handle and a substance-holding grid device providing a combustion-product chamber behind the grid.

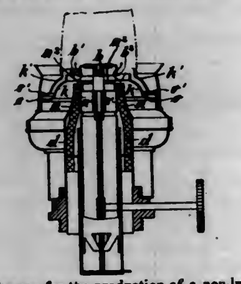
15. A portable-broiler fire-wall having its own source of heat, a substance-holding grid device and a back plate providing a combustion-chamber between said plate and the grid.

16. A portable-broiler fire-wall having a burner face plate provided over the whole or part of its area with perforations through or at which the burner flames; said fire-wall also having a grid device sustained at a distance from the perforated flame-plate and forming between said plate and the substance on the grid a chamber for free circulation of hot products and air.

17. A portable-broiler fire-wall having its own source of heat and provided with a readily-detachable substance-holding grid device.

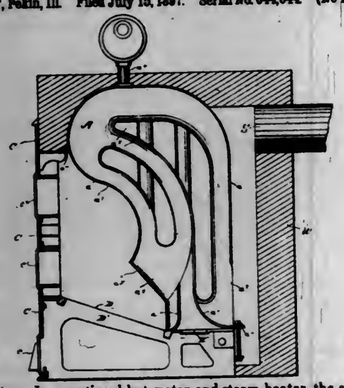
594,395. OIL-BURNER FOR PRODUCING NON-LUMINOUS FLAME. MAX GRAEFE, Berlin, Germany. Filed Aug. 20, 1897. Serial No. 648,965. (No model.) Patented in England June 26, 1897, No. 15,317.

Claim.—1. In an oil-burner for the production of a non-luminous flame, the combination with the two concentric wick-tubes the inner of which is contracted at or near its upper end, of a spreading-disk having a downwardly-bent rim and apertures in said rim, a cap surrounding the outer wick-tube, and terminating in about the height of the lower edge of said spreading-disk; and another cap surrounding said first cap, and terminating about the height of the lateral apertures of the said spreading-disk, substantially as and for the purpose set forth.



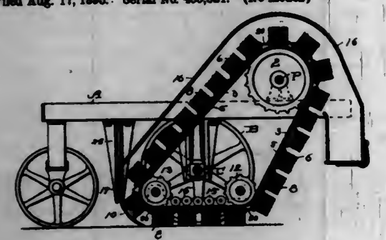
2. In an oil-burner for the production of a non-luminous flame, the combination with the two concentric wick-tubes *a a'*, the inner of which *a'* has a contracting cap a^3 at or near its upper end, of a spreading-disk *b* having a downwardly-bent rim and apertures *b'* in said rim; a cap *k* surrounding the wick-tube *a* and terminating in about the height of the lower edge of said spreading-disk; another cap *k'* surrounding said cap *k* and terminating in about the height of the apertures *b'* of the said spreading-disk, and openings *o o'* provided in the base parts of said two caps, the base part of the cap *k'* being located above the base part of the cap *k*, substantially as and for the purpose set forth and shown in the drawings.

594,396. STEAM AND HOT-WATER HEATER. JOHN D. HANDBURY, Pekin, Ill. Filed July 15, 1897. Serial No. 644,644. (No model.)



Claim.—In a sectional hot-water and steam heater, the sections A having front concavities E F for the magazine and fire-spaces, the several openings *a*, a^4, a^5, a^7 and the return-pipe connections *a'* in combination with a slide-valve K having holes to register with holes *a* between the sections and a grate D inclined from front to rear as shown and described.

594,397. STREET-SWEEPER. HALE E. HAWK, Cleveland, Ohio. Filed Aug. 17, 1893. Serial No. 483,321. (No model.)



Claim.—1. The apron consisting of the sprocket-chains, a series of flat pieces secured to said chains, sweeping-brushes fixed along one edge of said flat pieces, plates attached to said flat pieces and adapted to bridge the spaces between said flat pieces, and guards at the ends of said pieces to prevent dirt from escaping, substantially as set forth.

2. In a street-sweeping machine, an endless sweeper-apron having sprocket-chain connections and a series of flat pieces and brushes along the rear edges of said pieces and flexible guards across the ends thereof, and the plates attached to said flat pieces and adapted to bridge the spaces, in combination with the wheels 12 and 13 arranged in the same plane and the wheels 2 carrying the said apron, substantially as described.

594,398. SHREDDING ATTACHMENT FOR FEED-CUTTERS. WILLIAM D. HERSNER and NATHANIEL MEIS, Lansdale, Pa. Filed July 23, 1897. Serial No. 645,726. (No model.)



Claim.—1. A shredding and cutting bar consisting of a bar adapted for attachment to a machine provided with a cutter or shredder head, having a cutting edge *x*, and above the latter a series of teeth 4, 4, 4, substantially as and for the purpose set forth.

2. A cutter-bar provided with a cutting edge *x*, a series of teeth above said edge and a rounded edge *c*, at the top of the bar, substantially as and for the purpose set forth.

3. The combination with the feed-rolls and cutter-head of a shredder, of a cutter-bar having a face *c*, a rounded edge *c* above said face, and cutting edge *x* below the same, substantially as described.

4. The combination in a cutter, of a cutter-head B, and feed-rolls 1, 2, and a cutter-bar having teeth 4, 4, 4, and a cutting edge *x* below the said teeth, substantially as set forth.

5. The combination in a cutter, of a cutter-head B, feed-rolls 1, 2, and a cutter-bar provided with a rounded edge *c*, a series of teeth below said edge, and a cutting edge *x* below the teeth, substantially as and for the purpose described.

594,399. WRENCH. JOHN A. HILL, Leechburg, Pa. Filed Feb. 16, 1897. Serial No. 623,590. (No model.)



Claim.—A wrench, consisting of a stationary jaw, a bar formed therewith, a movable jaw adapted to slide upon said bar, teeth formed upon said movable jaw, a rack-bar pivoted to the stationary jaw whose teeth are adapted to engage with the teeth of the movable jaw, a handle secured upon the shank of the first-named bar, a revoluble band secured upon the handle having a notch cut therein for the passage of the end of the rack-bar, and a spring for locking the band in position, all arranged substantially as and for the purpose set forth.

594,400. STOCKING-CUTTER. EMIL A. HIRNER, Allentown, Pa. Filed Jan. 25, 1897. Serial No. 620,627. (No model.)

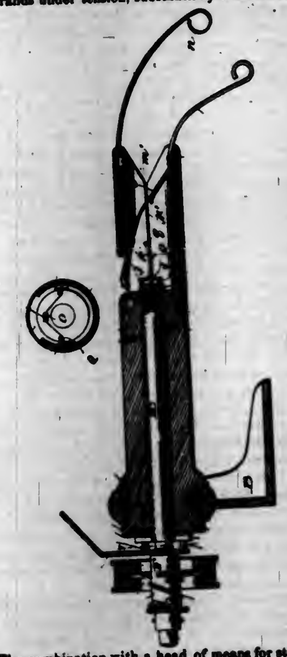
Claim.—1. A device comprising a form for stretching a tubular, knitted fabric and interior cutters carried by the form for severing interior transverse strands thereof, substantially as specified.

2. A device comprising a form for holding a tubular fabric having interior transverse strands, a guide for placing the transverse strands under tension and separating said strands from the body of the fabric whereby the strands are adapted to be operated upon, and a cutting mechanism for severing said strands, substantially as specified.

3. The combination with a head, of means for stretching a tubular body, and means carried by the head and projected into said stretching means for severing transverse, interior strands of such body, substantially as described.

4. The combination with a head, of means for stretching a tubular body, means carried by the head for severing transverse strands of such body, and yielding means for placing said strands under tension, substantially as described.

5. The combination with a head, of means for stretching a tubular body, means carried by the head for severing transverse strands of such body, and means near the center of the tube or head for placing said strands under tension, substantially as described.



6. The combination with a head, of means for stretching a tubular body, means carried by the head for severing transverse strands of such body, and means near the sides of the tube or head for placing said strands under tension; substantially as described.

7. The combination with a head, of means for stretching a tubular body, means carried by the head for severing transverse strands of such body, and means near the center of the tube or head and near the sides thereof for placing said strands under tension; substantially as described.

8. The combination with a head, of a slitted extension or form for stretching a tubular body, means carried by the head for severing transverse strands of such body, means near the center of the tube or head and near the sides thereof for placing said strands under tension, substantially as described.

9. The combination with a head and its extension or form having oppositely-disposed, longitudinal slits, means for placing under tension the transverse interior strands of the tubular, knitted body, and means for severing said strands while under tension, substantially as described.

10. The combination with a head and its extension or form having oppositely-disposed, longitudinal slits, of means for placing under tension the transverse strands of a tubular, knitted body, means for severing said strands while under tension, and guiding-arms for said tubular body at the outer end of said extension, substantially as described.

11. The combination with a head and its extension or form having oppositely-disposed, longitudinal slits, of yielding means for placing under tension the transverse strands of a tubular knitted body, means for severing said strands while under tension, and rods for engaging the strands in proximity to the points where the cutters operate thereupon, substantially as described.

12. The combination with a head and a revoluble shaft, of an extension or form on said head having longitudinal slits, interiorly-arranged cutters carried by the form, and the cam carried by said shaft and constructed and arranged to simultaneously actuate said cutters, substantially as described.

13. The combination with a head and a revoluble shaft, of an extension or form on said head having longitudinal slits, interiorly-arranged cutters carried by the form, a cam carried by said shaft and constructed and arranged to simultaneously actuate said cutters, and means for receiving and holding under tension the transverse strands of the article operated upon, substantially as described.

14. The combination with a body portion and its tubular extension having longitudinal slits, of arms at its outer end, a spring-arm for holding under tension the strands to be severed, and cutters for severing said strands; substantially as described.

15. The combination with a body portion and its tubular extension having longitudinal slits, of arms at its outer end, a spring-arm for holding under tension the strands to be severed, cutters for severing said strands, and rods for holding the strands under tension in proximity to the cutters; substantially as described.

16. The combination with a body portion and its tubular extension having oppositely-disposed, longitudinal slits and an opening upon its upper face in proximity to the end of the body portion, of the oppositely-disposed cutters, means for actuating the same, and a spring-arm carried by the extension and having a loop adjacent to the opening in said extension; substantially as described.

17. The combination with a body portion and its tubular extension having oppositely-disposed, longitudinal slits and an opening upon its upper face in proximity to the end of the body portion, of oppositely-disposed cutters, means for actuating the same, a spring-arm carried by the extension and having a loop adjacent to the opening in said extension, and arms on the outer end of the extension, one of which is resilient; substantially as described.

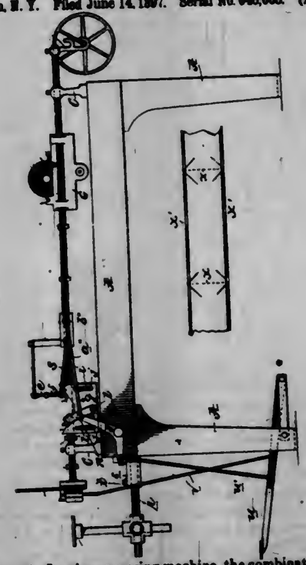
18. The combination with a body portion and its tubular extension having oppositely-disposed, longitudinal slits and an opening upon its upper face in proximity to the end of the body portion, of oppositely-disposed cutters, means for actuating the same, a spring-arm carried by the extension and having a loop adjacent to the opening in said extension, and rods carried by the outer end of the body portion adjacent to the slits of the extension; substantially as described.

19. Mechanism for severing inner transverse strands of tubular knitted fabric, consisting of a tubular fabric-holding device, means for separating the inner transverse strands from the body of the fabric, and means for severing the said separated strands, substantially as and for the purpose set forth.

20. Mechanism for severing transverse strands of a knitted tubular fabric, consisting of means for insertion between the fabric and the strands for separating the said strands from the body of the fabric, and means for severing the strands at both ends when thus separated, substantially as described.

21. In mechanism for the purpose described, the combination of a form for holding a tubular knitted fabric, strand-separating means, and severing devices acting at both ends of the strand, substantially as specified.

594,401. BOX-COVERING MACHINE. HARRY A. INMAN, Amsterdam, N. Y. Filed June 14, 1897. Serial No. 640,665. (No model.)



Claim.—1. In a box-covering machine, the combination of a support for a coil of paper, mechanism for pasting the edges of the paper, cutting devices for slitting the paper at its edges, and means to support the box-blank, for the purposes set forth.

2. In a box-covering machine, the combination of a support for a coil of paper, mechanism for pasting the edges of the paper, cutting

devices for slitting the paper at its edges, cutting devices for severing the paper entirely, and means to support the box-blank, for the purposes set forth.

3. In a box-covering machine, the combination of a support for a coil of paper, mechanism for pasting the edges of the paper, a device for supporting the medial part of the paper during the pasting operation, cutting devices for slitting the paper at its edges, and means to support the box-blank, for the purposes set forth.

4. In a box-covering machine, the combination of a support for a roll of paper, mechanism for pasting the edges of the paper, a device for supporting the medial part of the paper during the pasting operation, cutting devices for slitting the paper at its edges, means to support the box-blank, and means to sever the paper entirely, for the purposes set forth.

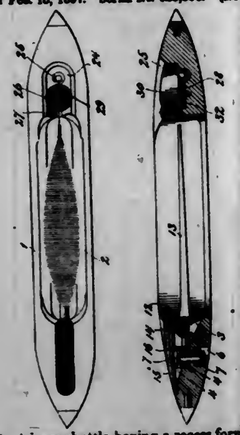
5. In a box-covering machine, the combination of a support for a coil of paper, laterally-adjustable means for pasting the paper at its edges, devices for slitting the paper at its edges, laterally adjustable toward and from each other, and means to support a box-blank, for the purposes set forth.

6. In a box-covering machine, the combination of devices for pasting the paper at its edges, laterally adjustable toward and from each other, other devices for supporting the medial portion of the paper during the pasting operation, slitting devices for cutting the paper at its edges, other devices for severing the paper transversely, and a support for the box-blank adjustable toward and from the machine, for the purposes set forth.

7. In a box-covering machine the combination of a support for a coil of paper, mechanism for pasting the edges of the paper, devices for slitting the paper at its edges, movable devices which press the paper on the said slitters, and which operate during their movement in one direction, and means for lifting the said pressing devices from the paper during their rearward movement, for the purposes set forth.

8. In a box-covering machine, the combination of a support for a coil of paper, mechanism for pasting the edges of the paper, devices for slitting the paper at its edges, means for pressing the paper upon the said slitters, which operate during their movement in one direction only, means for lifting the said pressing devices from the paper during their rearward movement, and cutting devices for completely severing the paper transversely, for the purposes set forth.

594,402. LOOM-SHUTTLE. ALFRED ISHERWOOD, New Bedford, Mass. Filed Feb. 15, 1897. Serial No. 623,538. (No model.)



Claim.—1. A loom-shuttle having a recess formed in advance of its pot-eye and in the path to be traveled by the thread, and a plate removably seated in the recess and adapted to be reversed, said plate having a file-like surface to slightly retard the passage of the thread, its opposite surface smooth, substantially as specified.

2. A loom-shuttle having a recess formed in advance of its pot-eye and in the path traveled by the thread, in combination with a plate having a file-like surface for slightly retarding the passage of the thread, and means for raising and lowering the plate, substantially as specified.

3. A loom-shuttle having a recess formed in advance of its pot-eye and in the path traveled by the thread, in combination with a plate having a file-like surface and a central perforation, a screw passing through the perforation into the bottom of the recess, and a spring arranged between the bottom of the recess and the under side of the plate, substantially as specified.

4. The combination with the body of a loom-shuttle, the same having a spring-receiving longitudinally-disposed cavity at one end of and communicating with the filling-opening thereof, of a lateral yoke-frame located in the cavity and having a front transverse portion forming a pintle occurring at the front end of the cavity, a spindle having a head loosely engaging the said pintle, a spring bearing on the head, and means for retaining the spring under tension and retaining the yoke-frame, substantially as specified.

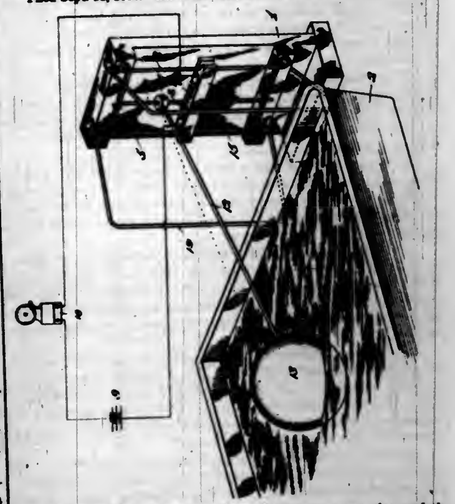
5. The combination with the body of a loom-shuttle, the same having a cavity at one end of and communicating with its filling-opening, said cavity having its sides provided with a longitudinal groove, of a yoke located removably therein, the front end of the yoke being provided with a transverse pintle, a spindle having its head pivotally connected with the pintle a spring bearing on the head of the spindle, a bolt passing through the spring and rear end of the yoke and for retaining the spring under tension and the yoke in position and against withdrawal, substantially as specified.

6. The combination with the body of a loom-shuttle, the same having a cavity at one end of and communicating with its filling-opening, the side walls of which cavity are provided with a longitudinal groove and the bottom with a bolt-hole, of a longitudinally and transversely expansible yoke-frame, comprising a rectangular portion fitting the groove in the cavity and a rearward-curved extension forming a loop encircling the bolt-hole, a spindle having its head pivotally connected to the inner end of the frame of the yoke, a spring bearing on the head and located in the upper end of the cavity, and a bolt secured to the spring and provided with means at its lower end for retaining the spring under tension, substantially as specified.

7. The combination with a shuttle-body having a cavity at one end of and communicating with its filling-opening, the bottom of said cavity being provided with a bolt-hole and having its side and end walls provided with a continuous groove, of the yoke 5 fitting the groove, a spindle having its head pivotally connected to the front cross-bar of the same, a bolt passed through the bolt-hole and the loop 11 of the yoke, a bowed spring seated on the head of the spindle and connected to the bolt and occupying the upper end of the cavity, and means for retaining the spring under tension through the medium of the bolt, substantially as specified.

8. As a new article of manufacture, the herein-described spindle-supporting yoke, the same comprising the opposite side 8 transverse connecting-bars 9 and 10, and the curved extension 11 beyond the latter bar, substantially as specified.

594,408. OVERFLOW-ALARM. CHARLES JOHNSON, Chicago, Ill. Filed Sept. 18, 1897. Serial No. 652,104. (No model.)



Claim.—1. In an overflow-alarm for water-receptacles and the like, the combination with two terminals of an alarm-bell circuit, of a member normally positioned above the terminals and a body capable of floating and normally located in the air above the water and substantially at high-water level, said member being conditioned to fall and connect the terminals when the water in the receptacle reaches said level and touches said body.

2. In an overflow-alarm for water-receptacles and the like, the combination of two terminals of an alarm-bell circuit, a member normally positioned above the terminals, and a ball connected to such member and located over the water-receptacle and positioned at the high-water level and normally above the water, such ball being adapted to cause the said member to drop and connect the terminals.

3. In an overflow-alarm for water-receptacles and the like, the combination of two terminals of an alarm-bell circuit, a boss normally above the terminals and slidable up and down, a rod connected with the boss and a ball at the free end of the rod, the ball being normally positioned above the water the boss being normally retained in elevated position but adapted to fall and connect the terminals when the water rises and raises the ball.

4. In an overflow-alarm, the combination of a frame, a vertical rod therein, two terminals of an electrical alarm-circuit located adjacent to the rod, a boss sliding on the rod, an outwardly-extending rod connected with the boss, and a ball at the free end of such last-named rod.

5. In an overflow-alarm, the combination of a frame, a cross-bar therein, two terminals of an electrical alarm-circuit upon the top face of the cross-bar, a member having a vertical movement in the frame and located above the terminals and means for causing the member to fall to connect the terminals when the water in a receptacle has reached a predetermined level, said means comprising a body capable of floating and connected to said member, such body being normally suspended substantially at the predetermined level and above the water.

6. In an overflow-alarm, the combination of a frame, a vertical rod therein, two terminals of an electrical alarm-circuit located adjacent to the rod, a boss sliding on the rod, and means for causing the boss to drop to connect the terminals when the water in the receptacle has reached a predetermined level, said means comprising a rod connected to the boss, and a body capable of floating and attached to the free end of the rod.

7. In an overflow-alarm, the combination of a frame, a vertically-movable cross-bar therein, two terminals of an electrical alarm-bell circuit located upon the top face of the cross-bar, a vertical rod in the frame passing between the terminals, a boss sliding on the rod above the bar, a rod connected to the boss and extending over a water pan or receptacle and a ball at the free end of the last-named rod, the weight of the ball normally binding the boss on the vertical rod but the raising of such ball by the water causing such boss to fall and connect the terminals.

8. In an overflow-alarm, the combination of a frame having three vertical wires, a cross-bar vertically adjustable thereon, two terminals of an electrical alarm-bell circuit located upon the top face of the cross-bar, a boss sliding upon the middle wire, a rod connected to the boss and a ball at the free end of such rod and extending over the edge or side of a water-pan.

9. In an overflow-alarm, the combination of two terminals of an electrical alarm-bell circuit, a frame having a vertical rod adjacent to the terminals, a weight having a hole to receive the rod, and a weighted arm located over the water-pan and connected to said weight to normally bind the same on its rod but such weight being released when the water rises and reaches the weighted arm.

10. In an overflow-alarm, the combination of a weighted arm having a ball at one end and movable in a guide at the other end, the weight of the ball normally binding the other end of the arm, and two terminals of an electrical alarm-bell circuit in the path of travel of the end of the arm which moves in the guide and which is conditioned to fall to connect the terminals when the water in a pan raises the ball.

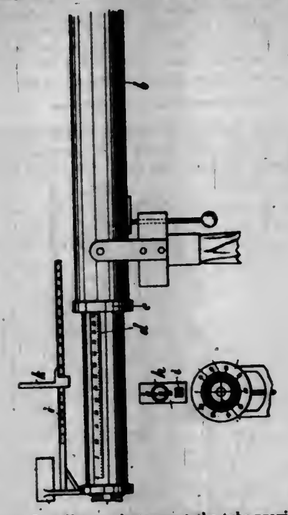
11. In an overflow-alarm, the combination of a frame guiding mechanism therein, an arm whose one end is slidable in the guiding mechanism in the frame and whose other end is provided with a float or ball, the arm being normally inclined by the weight of the ball to bind the same in the guiding mechanism but adapted to be caused to fall when the water by raising the ball raises the arm to horizontal position, and an electrical alarm-bell circuit adapted to be closed when the said arm falls.

12. The combination of a frame having wires 3, 4 and 5, a boss 11 slidable on wire 4, an arm 12 connected thereto, a ball 13 at the free end of the arm and electrical alarm-bell-circuit terminals adapted to be connected by the boss as the latter falls when the water in a pan has raised the ball.

13. The combination of a frame having wires 3, 4 and 5, a cross-bar 6 vertically adjustable on the wires, an arm 12 having a boss 11, said arm projecting over the side of a water-pan, and terminals 7 and 8 of an electrical alarm-bell circuit.

14. The combination of a frame having three vertical wires 3, 4 and 5, formed of a continuous wire, a cross-bar 6, a boss 11 movable on wire 4, an arm 12 connected thereto and having a ball 13 at its free end and electric alarm-bell-circuit terminals 7 and 8 upon the cross-bar and in the path of travel of the boss which connects such terminals when the water has risen to raise the ball and permit the boss to drop.

594,404. DISTANCE INSTRUMENT. GOTTLIEB KIENZLE, Ruhlingen, Germany. Filed Jan. 11, 1896. Serial No. 575,136. (No model.)

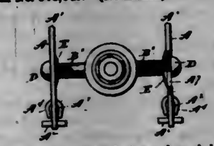


Claim.—1. In a distance instrument, the tube provided with the ocular glasses and a scale extending along the tube, and the tube carrying the objective glass, in combination with a cut-out portion of a female screw, fitted to the tube carrying the objective glass, a small threaded band fixed to the forward end of the tube provided with the ocular glasses, and working in the female screw, and a ring fixed to the back of the tube carrying the objective glass, and having division-lines from 1 to 100, as and for the purpose set forth.

2. In a distance instrument the tube provided with the ocular glasses and a scale extending along the tube, and the tube carrying the objective glass, in combination with a cut-out portion of a female screw, fitted to the tube carrying the objective glass, a small threaded band fixed to the forward end of the tube provided with the ocular glasses, and working in the female screw, a ring fixed to the back of the tube carrying the objective glass, and having division-lines from 1 to 100, and a cross of threads arranged between the first and the second lens of the tube carrying the ocular glasses, as and for the purpose specified.

3. A distance instrument composed of a tube provided with the ocular glasses and a scale, and a tube carrying the objective glass and a graduated ring, said tubes being connected by a screw-joint, in combination with a pillar fixed to the tube having the ocular glasses, an arm fitted to the pillar and provided with a scale formed in such a manner that on each side of the point of zero corresponding to the normal vision are numbers of the glasses to be added to the ocular glass for abnormal vision, and an indicator having numbers and adapted to be pushed along the arm, substantially as and for the purpose described.

594,405. BICYCLE-PEDAL. JOSEPH P. LAVIGNE, New Haven, Conn., assignor of one-half to Wilbur F. Day, same place. Filed Feb. 10, 1896. Serial No. 578,649. (No model.)



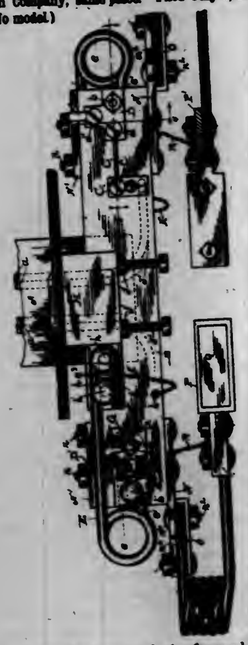
Claim.—1. In a convertible balanced pedal, the combination with a pedal-frame comprising a hub, and arms projecting laterally therefrom, of foothold-plates having their edges differentiated in their holding character, applied to the outer ends of the said arms and movable with respect thereto for shifting the center of gravity in the pedal to cause the same to balance with either edge of its footholds uppermost.

2. In convertible bicycle-pedal, the combination with a frame comprising a hub, and arms projecting laterally therefrom, of two foothold-plates having their edges differentiated to form rat-trap and rubber-bar footholds, and applied to the outer ends of the said arms with respect to which they are movable for shifting the center of

gravity in the pedal so as to balance it with either the rat-trap or rubber-bar edges of its plates uppermost.

3. In a convertible balanced bicycle-pedal, the combination with the frame thereof, of two foothold-plates formed with slots, means for securing the plates through their slots to the frame, and springs interposed between the plates and the frame for normally restraining the movement of the plates, substantially as described.

594,406. TRAVELING CONTACT DEVICE FOR ELECTRIC RAILWAYS. MYRON D. LAW, New York, N. Y., assignor to the Love Electric Traction Company, same place. Filed July 8, 1896. Serial No. 598,371. (No model.)



Claim.—1. A traveling contact device for conduit electric roads, comprising a supporting-bar, a frame of insulating material carried by the same, a contact-piece and a spring-arm for supporting the contact-piece, comprising a single piece of spring metal bent into a coil between its ends, and attached at one end to the frame, and carrying the contact-piece at its opposite end, substantially as described.

2. A traveling contact device for conduit electric roads, comprising a supporting-bar, a frame of insulating material attached to said bar, a contact-piece, and a spring-arm for supporting the contact-piece, comprising a spring-metal rod or wire bent to form a coil with its ends extending at the same side of the coil in substantially parallel relation, and attached at one of its ends to the supporting-frame and carrying the contact-piece at its opposite end, substantially as described.

3. A traveling contact device comprising a spring-arm, consisting of a wire bent to form a coil, and having its end which is attached to the frame bent on itself to form a loop, and two securing-bolts passing through said loop; said frame having a segment-slot for one of said bolts to afford adjustment of the angle of the arm, substantially as described.

4. A traveling contact device comprising a spring-arm consisting of a single piece of wire bent to form a coil and having its arm which is attached to the frame bent on itself to form a loop, two securing-bolts passing through said loop, and a plate applied between the bolt-heads and the arm and provided with an inwardly-bent end which engages the bent end of the arm, substantially as described.

5. A traveling contact device comprising a spring-arm, consisting of a single piece of wire, which is bent back on itself at its free end to form a loop, of a contact-piece provided with a shank which is recessed to receive the bent end of the arm, and bolts inserted through the looped end of the arm and said shank, substantially as described.

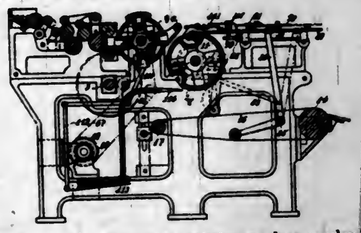
6. A traveling contact device for acting on either one of two conductors located one below the other, and one of which is adapted for upward and the other for lateral pressure, comprising a supporting-bar, a frame consisting of horizontal, longitudinally-arranged bars, a spring-arm attached to the side of the frame and moving in a vertical plane, and a second spring-arm attached to the bottom of the frame and movable in a horizontal plane, substantially as described.

594,407. TELEPHONE-LINE SWITCH. GILBERT LAY, Licking, Mo. Filed Oct. 10, 1896. Serial No. 608,460. (No model.)



Claim.—A telephone-line switch comprising a movable pair of connected metallic arms N, R; a second pair of such arms T, K, insulated bridging-strips on one arm of each pair, and stationary contact-points connected to the line-wires, and an intermediate connecting-plate *b* spanned by the bridging-strips, substantially as set forth.

594,408. MECHANISM FOR FEEDING ENVELOPS, &c., TO PRINTING-MACHINES. JULIUS LIEBHARDT and ERNST FISCHER, Barmen, Germany. Filed Apr. 16, 1896. Serial No. 587,815. (No model.) Patented in Germany Nov. 11, 1894, No. 85,362.



Claim.—1. In a machine for printing envelops envelop-blanks and the like the combination of a revolving printing-cylinder as 11, a supporting-plate as 89, a cross-bar 88, adjustable needle-arms as 90, 91 fixed to said bar, means substantially as described to shift the bar to and fro in order to feed the blank; of a second set of needle-arms as 100, 101, pivoted to the plate 89, means to oscillate said needle-arms after the positioning of the blanks, substantially as set forth and for the purpose described.

2. In combination with a revolving printing-cylinder a variable catching device consisting of a set of grippers 110, fixed on a rod 109, a segmental lever 105, 107 fulcrumed to said cylinder and gear 108 to swing the grippers, stationary cams 120ª, 123ª, to oscillate the lever 105, 107 at each revolution of the printing-cylinder, means to vary the position of said cams consisting of a box 120 and a ring 123 carrying said cams, with arms 121, 124, connecting-rods 122, 125 and crank-disks *c*, 126 adapted to operate the cams substantially as illustrated and set forth.

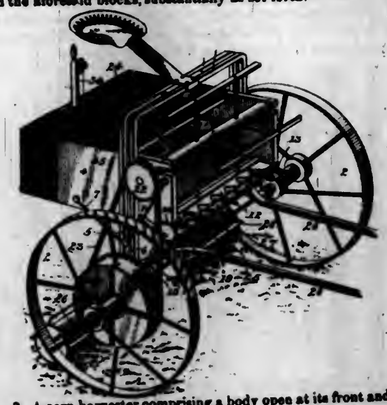
3. In combination with the revolving printing-cylinder the device for holding the blank on said cylinder consisting of a set of arms 130 fixed to a square shaft 131 and pressing-rollers 103, a lever with antifriction-roller 129, that engages a pair of adjustable cams 127, 127ª substantially as described and for the purpose set forth.

4. The adjustable mouthpiece 114, having a middle 116 and two side blowing portions 117, which may be shifted on a pipe of a bellows so as to correspond with slots 118, cut into said pipe for the purpose as described and set forth.

594,409. CORN-HARVESTER. JOHN G. MAHON and CHARLES E. GOWER, Baldwyn, Miss. Filed Apr. 13, 1897. Serial No. 631,973. (No model.)

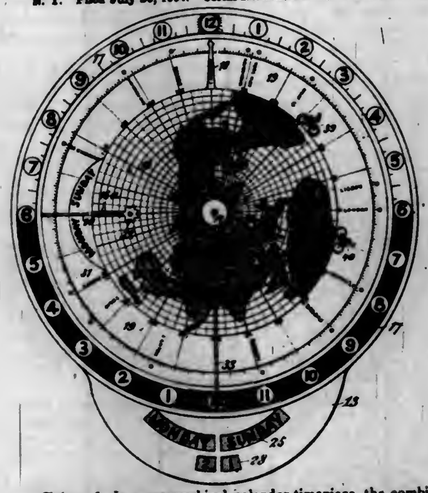
Claim.—1. In a corn-harvester, the combination with the cutting or harvesting mechanism, of a clearing-roller located immediately below the cutting mechanism and mounted in slotted hangers, substantially as set forth.

2. In a corn-harvester, the combination of an arched axle, an arched bar secured to the arched portion thereof, blocks interposed between the arched bar and arched axle, a body having lateral extensions resting upon the said blocks, said truss braces having connection at their ends with the body upon opposite sides of the end portions of the arched bar and axle and intermediate of their ends with the aforesaid blocks, substantially as set forth.



3. A corn-harvester comprising a body open at its front and having the rear portion of its bottom hinged to open downward and discharge the load, a cutting apparatus at the front end of the body, a clearing-roller below the cutting apparatus, a reel operating over the cutting apparatus, and rollers operating in the rear of the harvesting mechanism to engage with the lower ends of the stalks and prevent their uprooting, substantially as set forth.

594,410. GEOGRAPHICAL CLOCK. HIRAM MARCOLIS, New York, N. Y. Filed July 29, 1897. Serial No. 646,395. (No model.)



Claim.—1. In a geographical calendar-timepiece, the combination of a map-disk adapted to revolve, a stationary ring graduated for hours of the day, a disk graduated for the days of the week and mounted on a portion stationary with the ring the said disk being arranged to disclose always two days of the week, means whereby the said disk may be partially rotated step by step relatively to the revolution of the map-disk, and a line of demarcation carried by the map-disk indicating the international dividing-line between the days of the week substantially as and for the purpose specified.

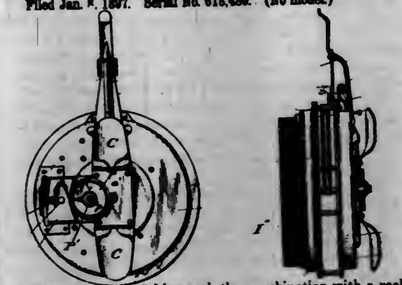
2. In a geographical calendar-timepiece the combination of a map-disk adapted to revolve, a stationary ring graduated for hours of the day, a disk graduated for the days of the week and mounted on a portion stationary with the ring, another disk graduated for the days of the week and mounted to travel with the map-disk, and means whereby the said disks may be partially rotated step by step relatively to the revolution of the map-disk substantially as specified.

3. In a geographical timepiece the combination of a map-disk adapted to revolve, a stationary ring graduated for hours of the day, a disk graduated for the days of the week and mounted on a portion stationary with the ring, the said disk being arranged to disclose always two days of the week, means whereby the said disk may be partially rotated step by step relatively to the revolution of the map-disk, and a line of demarcation carried by the map-disk indicating the international dividing-line between the days of the week and for the purpose specified.

4. In a geographical calendar-timepiece the combination of a map-disk adapted to revolve a stationary ring graduated for hours of the day, a disk graduated for the days of the week and mounted on a portion stationary with the ring, the said disk being arranged to disclose always two days of the week, a similar disk graduated for days of the month and mounted on a portion stationary with the ring, the said disk being arranged to disclose always two consecutive days of the month, another disk graduated for the days of the week and mounted to travel with the map-disk, the said disk being also arranged to disclose always two days of the week, and means whereby said disks may be partially rotated step by step relatively to the rotation of the map-disk substantially as specified.

5. In a geographical calendar-timepiece, the combination of a map-disk adapted to revolve, a stationary ring graduated for the hours of the day, a disk graduated for the days of the week and mounted on a portion stationary with the ring, the said disk being arranged to disclose always two days of the week, means whereby the said disk may be partially rotated step by step relatively to the revolution of the map-disk, a bar secured to a portion stationary with the ring and overhanging a map-disk, in a line passing through the center of the disk indicating days of the week, and the center of the map-disk, and a line of demarcation carried by the map-disk indicating the international dividing-line between the days of the week substantially as and for the purpose specified.

594,411. FISHING-REEL. HERMAN W. MARTIN, Ilion, N. Y. Filed Jan. 8, 1897. Serial No. 618,499. (No model.)



Claim.—1. In a fishing-reel, the combination with a reel-housing, and a mainspring, of a revolving line-spool shaft or arbor journaled in said housing and operatively connected with said mainspring, a line-spool mounted loosely on said revolving arbor or shaft, multiplying-gearing and clutch mechanism intermediate between the revolving shaft or arbor and the line-spool loosely mounted thereon and a line-indicator mechanism arranged laterally on the reel-housing and in operative relation to said revolving line-spool to be driven thereby, substantially as and for the purposes described.

2. In a fishing-reel the combination with a reel-housing and a mainspring, of a single revolving arbor or shaft having one end operatively connected with said mainspring and extended, at its other end, beyond the reel-housing, a line-spool mounted loosely on said shaft or arbor, a fixed gear or rack in the reel-housing adjacent to the free end of said shaft or arbor, a rotary crank attached to the arbor or shaft and carrying gears which mesh with said fixed gear or rack and with a gear on the line-spool, and a line-indicator mechanism supported externally on the reel-housing and having a driven wheel operatively connected with the exposed or projecting end of the revolving arbor or shaft, as and for the purposes described.

3. In a fishing-reel, the combination with a reel-housing and a mainspring, of the revolving shaft or arbor, a line-spool mounted loosely thereon, an internal gear or rack fixed in the reel-housing, a clutch connected with the line-spool and carrying a gear-pinion, a crank-arm attached to the shaft or arbor to rotate therewith, and a compound gear which meshes with the fixed internal gear and with the clutch-pinion, respectively, as and for the purposes described.

4. The combination with a reel-housing and a rotatable line-spool, of brake mechanism comprising a pair of oppositely-movable jaws hung to embrace opposite faces of said line-spool and a single controlling-lever arranged in operative relation to both jaws of said brake device, as and for the purposes described.

5. The combination with a reel-housing and a line-spool, of a

pair of brake-jaws fulcrumed to move in opposite directions simultaneously and arranged to embrace opposite faces of said line-spool, and a spring controlled brake-lever, one of said jaws being impelled in one direction by a spring and moved in the opposite direction by said brake-lever, and the other jaw being connected with said brake-lever to move therewith, as and for the purposes described.

6. The combination with a reel-housing and a line-spool, of a brake supporting device attached to said housing, a spring-controlled brake-jaw pivoted to said supporting device, a brake-lever fulcrumed on the housing and arranged to act on the spring-jaw against the tension of its spring, and another brake-jaw also pivoted on the supporting device and operatively connected with the brake-lever, substantially as described.

7. The combination with a reel-housing and a line-spool, of a supporting-plate, a brake-jaw pivoted to said plate and carrying a spring which normally impels it upon the line-spool, another brake-jaw hung at a point intermediate of its length on said plate and having a slotted end, and a spring-pressed brake-lever fitted in the slotted end of one brake-jaw and carrying a projection to bear upon the other jaw, as and for the purposes described.

8. In a fishing-reel, a brake-jaw having a perforated or slotted working face and a friction-pad formed by threading a fibrous material through said slotted or perforated face of the jaw, as described.

9. In a fishing-reel, the combination with a reel-housing and a line-spool, of an idle line-guide, segmental in form, which is loosely supported between and substantially concentric with the heads of the reel-housing and provided with a slot or eye for the passage of the line therethrough, said line-guide being capable of movement freely in the plane across the face of the line-spool, substantially as described.

10. In a fishing-reel, the combination with disk-like heads coupled by transverse posts to form a reel-housing, and a line-spool, of a segmental guide having its ends fitted loosely on adjacent posts and arranged concentric with, and between, the disk-like heads to play idly on said posts in a plane across the face of the line-spool, for the purposes described, substantially as set forth.

11. The combination with a reel-housing and a line-spool, of a revolving arbor or shaft on which the line-spool is mounted, and a line-indicator mechanism mounted on said reel-housing and having a smooth wheel which frictionally engages with the revolving arbor or shaft to be driven thereby, as and for the purposes described.

12. The combination with a reel-housing and a line-spool, of a revolving line-spool shaft or arbor, a movable carrier on said reel-housing, and a line-indicator device mounted on said carrier and arranged to have frictional engagement with said revolving shaft or arbor, substantially as described.

13. In a fishing-reel, the combination with a reel-housing and a line-spool, of a revolving shaft or arbor on which a line-spool is mounted, a slidable spring-controlled carrier fitted to said reel-housing, and an indicator mechanism mounted on said carrier and pressed or held thereby into operative contact with said revolving shaft or arbor, substantially as described.

14. The combination of a revolving arbor or shaft, a fixed keeper or slideway, a carrier-plate fitted in said keeper or slideway, a spring acting on said carrier-plate to normally impel it toward said shaft or arbor, and an indicator mechanism mounted on the carrier-plate, as and for the purposes described.

15. The combination with a reel-housing and a line-spool, of a line-guide arranged concentric to the line-spool and movable across the face of the same, and a button carried by said guide and movable longitudinally thereon in an arc of a circle concentric with the line-spool, substantially as described.

16. The combination with a reel-housing and a line-spool, of a slotted line-guide fitted loosely on said housing to play freely across the face of the line-spool, and an eye-formed button mounted loosely in said slotted line-guide, as and for the purposes described.

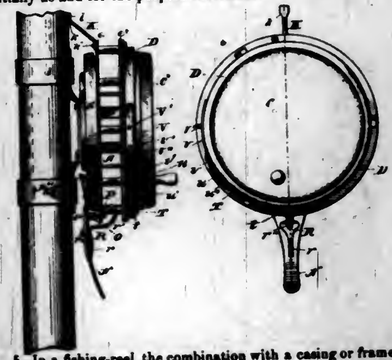
594,412. FISHING-REEL. HERMAN W. MARTIN, Ilion, N. Y. Filed Sept. 20, 1897. Serial No. 652,295. (No model.)

Claim.—1. In a fishing-reel, the combination with a line-spool, a casing or frame, and a spring brake-lever, of a brake-shoe arranged to ride upon the periphery of the line-spool, and a connection between said brake-shoe and the brake-lever whereby the brake-shoe is carried by the brake-lever and is movable in a plane toward or from the periphery of the line-spool, as and for the purposes described.

2. In a fishing-reel, the combination with a casing or frame, a line-spool, and a brake-lever, of a brake-shoe arranged to press against the line-spool, and a spring carried by the brake-lever and connected with the brake-shoe, as and for the purposes described.

3. In a fishing-reel, the combination with a frame or casing and a line spool, of a spring brake-lever, a brake-shoe arranged to have peripheral contact with the line-spool, and a spring connection between the brake-shoe and the brake-lever, as and for the purposes described.

4. In a fishing-reel, the combination with a casing or frame and a line-spool, of a spring brake-lever, a brake-shoe to ride against the line-spool, and a spring which connects with the brake-shoe and brake-lever and which is arranged to fit over the reel-casing and serve as a guard to prevent the line from becoming entangled with the reel, substantially as and for the purposes described.



5. In a fishing-reel, the combination with a casing or frame, and a line-spool, of the spring-pressed brake-lever fulcrumed in the frame or casing, a transverse brake-shoe fitted to press against the peripheral edge of the line-spool, and a spring R which is attached to the brake-lever and pivotally connected to the brake-shoe, as and for the purposes described.

6. In a fishing-reel, the combination with a casing or frame, a mainspring-drum having a ratchet, and an externally-arranged detent attached to said casing or frame and having a projection engaging with said ratchet of the spring-drum, of a release device mounted externally on the casing or frame adjacent to the detent and movably held in position for adjustment into or out of engagement with said detent, as and for the purposes described.

7. In a fishing-reel, the combination with a ratchet spring-drum, a clamp therefor, and a detent to engage with the ratchet of the spring-drum, of a release-spring bar slidably connected to said clamp and having means for moving it into and out of engagement with said detent, as and for the purposes described.

8. In a fishing reel, the combination with a reel-casing and a line-spool, of an arbor or spindle passing through a bushing of the line-spool and having a threaded end, a threaded boss screwed on the end of said arbor and held in place by a check device, and a spring connected to said boss, as set forth.

9. In a fishing-reel, a spring-drum provided with a ratchet and the angular reinforcement-band fitted in and secured to the flange of said drum, said reinforcement provided with a lip for attachment thereto of the mainspring, substantially as described.

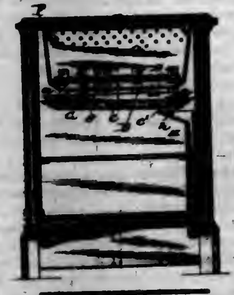
10. In a fishing-reel, the combination with a mainspring, and a rotatable drum therefor, of a link connected to the outer end of said mainspring and to the drum so as to compensate for contraction or expansion of the spring without breaking the connection between said spring and drum, as and for the purposes described.

11. In a fishing-reel, the combination with a mainspring having a slot, *a*, at its outer end, and a drum provided with a lip or stud, of the link having a keyhole-slot for the reception of the lip or stud and carrying a headed stud or pin which fits in the slot of the spring, substantially as and for the purposes described.

12. In combination with a frame or housing, and a line-spool, the brake-lever fulcrumed on said housing, a primary spring bearing against said brake-lever, an adjustable stop device for said brake-lever, and a yieldable shoe carried by the brake-lever.

594,413. REFRIGERATOR. CHAUNCEY J. MEDBERRY, Fond du Lac, Wis., and JAMES T. GURNEY, Boston, Mass. Original application filed Jan. 31, 1893, Serial No. 460,492. Divided and this application filed Feb. 20, 1894. Serial No. 500,935. (No model.)

Claim.—The combination with the external casing of a refrigerator, of the ice-tank removable from said casing and having a relatively-tight joint therewith, and having a bottom which is practically entirely open when its detachable parts are removed, suspension-bars across the tank above the bottom, a corrugated plate supported on said bars, the drip-pan below the open bottom and secured to the tank and having upward-turned side walls and an inclined bottom which is imperforate except at the point of discharge of the waste water, said drip-pan being adapted to collect the water of melting of the ice, the supplemental, lower, detachable pan, suspended from the upper drip-pan, and extending beyond the outer vertical lines thereof, and having an inclined bottom parallel to the bottom of the upper pan with a discharge-opening under that aforesaid, said lower pan being adapted to collect the water of condensation from the upper pan, and the waste-pipe H, said ice-tank and drip-pans being suspended out of contact with the side walls of the casing, and the ice-tank having apertures *d'* at the top, substantially as and for the purposes set forth.



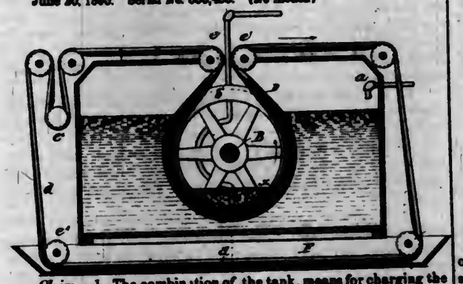
594,414. CRANK-MOVEMENT. JAMES H. MILLER, Bloomington, Ind. Filed June 30, 1896. Serial No. 597,574. (No model.)



Claim.—1. The combination with a frame, shaft, wheel and annular flange upon it coaxial with the shaft, of a spring-actuated lever pivoted to the shaft, a second lever pivoted to one end of the first-named lever, said second lever being independently spring-actuated and provided with a clutch jaw or recess adapted to be engaged by the wheel to drive it, substantially in the manner and for the purpose specified.

2. The combination with a frame, shaft, sprocket-wheel, and annular flange upon the sprocket-wheel coaxial with the shaft, of a lever pivoted to the shaft, a spring secured at one end to said lever, and at the other to the frame, a second lever pivotally united to the first-named lever, a recess or clutch-jaw formed in the second lever to engage with the flange, a spring secured at one end to the second lever, and at the other to the frame, said lever being thereby independently spring-actuated, substantially as specified.

594,415. FILTER. ERWIN MOSHIMER, Philadelphia, Pa. Filed June 20, 1896. Serial No. 593,455. (No model.)



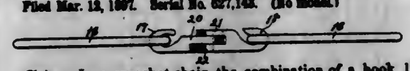
Claim.—1. The combination of the tank, means for charging the tank with liquid to be filtered, a shaft, wheels on said shaft, an endless filtering-apron of a greater width than the distance between the wheels so that the filtering-apron will bag in passing around the wheels in order to increase the filtering-surface, guides for the apron and a discharge-pipe entering the space formed by the wheels and the cloth so that the unfiltered material will remain in the tank, substantially as described.

2. The combination of the tank, the shaft, two or more wheels on said shaft, an endless filtering-apron consisting of a cloth and cords attached to the cloth, said cords being adapted to the wheels and guides, the guides for the apron as it passes onto and from the wheels being spaced to form an opening at the top of the tank, an inlet for the tank and a discharge-pipe extending through the opening between the guides and into the space inclosed by the wheels and filtering-cloth, substantially as described.

3. The combination of a tank, a shaft, a series of flanged wheels on said shaft, corrugated screens forming a perforated drum with annular corrugations, guides outside the tank, an endless filtering-apron adapted to pass around the perforated corrugated drum and around the guides and a discharge-pipe entering the space within the drum, substantially as described.

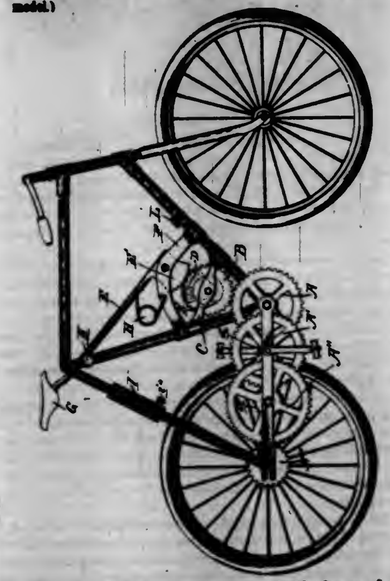
4. The combination of a tank, an inlet therefor, a shaft, a series of flanged wheels on said shaft, the end wheels of said series being solid, guides outside of the tank, with an endless filtering-cloth adapted to pass around the wheels and guides and a series of cords adapted to confine the cloth to the wheels and a discharge-pipe entering the space formed by the wheels and the cloth so that the unfiltered material will remain in the tank, substantially as described.

594,416. SPROCKET-CHAIN. JOHN MCCORMICK, Spencer, Iowa. Filed Mar. 12, 1897. Serial No. 627,143. (No model.)



Claim.—In a sprocket-chain the combination of a hook 17, a stem 20 on said hook, which stem is relatively thinner than the hook and transversely apertured, a hook 18, ears 21, 22 on said hook and transversely apertured, which ears 21, 22 embrace the stem 20, a pivotal pin 23 mounted in the apertures of the ears and stem, in combination with a link mounted in each hook, the openings of the hooks being of less width than the diameters of the ends of the links, as set forth.

594,417. GEARING FOR BICYCLES. MATTHEW MCGOWAN, St. Louis, Mo., assignor of one-half to George W. Hartnett and Henry B. Barthing, same place. Filed Mar. 8, 1897. Serial No. 626,455. (No model.)



Claim.—1. The combination with a suitable frame, of a lever-operated segment pivotally mounted thereon, a spring for returning said lever to its raised position, a saddle or seat on the end of said lever, a plunger carried by the end of said lever, a cylinder in which said plunger operates, suitable valves in said cylinder and plunger, for controlling and regulating the downward stroke of said lever and permitting an unretarded upstroke of the same, and suitable gearing between said segment and the ground-wheel; substantially as described.

2. The combination with a suitable bicycle-frame, of a seat-car-

rying lever E having a segment fixed to its pivoted end, a spring for returning said lever, a dash-pot cooperating with the outer end of said lever, a rocking pawl-carrying segment engaging the lever-segment, a ratchet-wheel with which the pawl on said pawl-carrying segment cooperates, a gear-wheel conjoined to said ratchet-wheel, a gearing between said gear-wheel and the ground-wheel of the vehicle, said gearing comprising the gears A, A', A'', and A''', and pinions a' and a'', and cranks and pedals secured to the shaft of the gear-wheel A'; substantially as described.

594,418. CORN-HARVESTING MACHINE. THOMAS D. MCGRATH, Muncie, Kans. Filed Nov. 16, 1896. Serial No. 612,348. (No model.)



Claim.—1. In a corn-harvesting machine, the combination of a wheeled frame, cross-bars thereon, grooved rollers carried by said cross-bars at one side of the frame, a rack resting upon said grooved rollers, levers pivoted to the cross-bars, links connected to the end of the rack upon said rollers, and a rod connecting said links and said levers, and also supporting the opposite end of said rack, substantially as described.

2. In a corn-harvesting machine, the combination of a wheeled frame, cross-bars thereon, grooved rollers at one side of the frame and suitably supported, a rack resting at one end on said grooved rollers, bars pivoted to the rack at said ends and also resting on said grooved rollers, bars pivoted to the cross-bars and to the opposite ends of the bars pivoted to the rack, and means for pivotally operating said last-named bars and thereby moving the rack to an inclined position, substantially as described.

3. In a corn-harvesting machine, the combination of a wheeled frame, grooved rollers carried thereby, levers pivotally mounted upon the frame, links resting upon said grooved rollers, a rod connecting said links and the outer ends of said levers, and a rack resting upon said rod between said links and upon said rollers, and pivotally connected to said links at the ends supported by said rollers, substantially as described.

4. In a corn harvesting machine, the combination of a wheeled frame, grooved rollers carried thereby at one end, standards erected upon the frame and provided with pulleys, levers pivoted to the frame near the lower ends of the standards, a rod connecting the outer ends of said levers, links mounted pivotally upon said rod and resting upon said grooved rollers, a rack between said links resting upon said rod and said rollers, and pivotally connected to said links at the end supported by said rollers, a shaft provided with winding-drums, flexible connections engaging the said pulleys and connecting the outer ends of said levers with said drums, and means for rotating said shaft and thereby moving the rack to an inclined or tilted position, substantially as described.

5. In a corn-harvesting machine, the combination of a wheeled frame, grooved rollers carried thereby at one side, standards erected upon the frame, and provided with pulleys, levers pivoted to the frame near the lower ends of the standards, a rod connecting the outer ends of said levers, links mounted pivotally upon said rod and resting upon said grooved rollers, a rack between said links resting upon said rod and said rollers, and pivotally connected to said links at the end supported by said rollers, a shaft provided with winding-drums, flexible connections engaging said pulleys and connecting the outer ends of said levers with said drums, and means to rotate said shaft, and means to secure it at any point of adjustment desired, substantially as described.

6. In a corn-harvesting machine, the combination of a wheeled frame, a rack mounted thereon, a guide-track upon said rack, a second guide-track carried by said frame below and to one side of the first-named guide-track, a corn cutting and gathering frame mounted adjustably upon said guide-tracks, and means to move said corn cutting and gathering frame forward or backward upon said tracks, substantially as described.

7. In a corn-harvesting machine, the combination of a wheeled frame, a rack mounted thereon, a guide-track upon said rack, a second guide-track carried by the frame below and at one side of the first-named guide-track, a corn cutting and gathering frame mounted upon said guide-tracks, sprocket-wheels suitably supported, an endless chain connecting them and connected to said corn cutting and gathering frame, and means to rotate one of said sprocket-wheels and thereby shift said frame backward or forward upon the track-rails, substantially as described.

8. In a corn-harvesting machine, the combination of a wheeled frame, a rack mounted thereon, a guide-track upon said rack, a second guide-track carried by the frame below and at one side of the first-named guide-track, a corn cutting and gathering frame mounted adjustably upon said guide-tracks, sprocket-wheels suitably supported, an endless chain connecting them and connected to said corn cutting and gathering frame, a shaft provided with a handle journaled at the front end of the wheeled frame, and cog-gearing connecting said shaft and the front sprocket, substantially as and for the purpose described.

9. In a corn-harvesting machine, the combination of a wheeled frame, a swinging frame mounted thereon, a guide-track upon said swinging frame, a second track extending parallel therewith and carried by the wheeled frame, a corn cutting and gathering frame mounted upon said tracks, and means to operate said swinging frame and thereby tilt and more evenly distribute the weight of the corn cutting and gathering frame upon the wheeled frame, for the purpose set forth.

10. In a corn-harvesting machine, the combination of a wheeled frame, transversely-extending bars above the same, rock-arms supporting said bars horizontally, a guide-track supported horizontally by said bars, a second track extending parallel therewith and carried by the wheeled frame, a corn cutting and gathering frame mounted upon said tracks, means to operate said rock-arms and thereby tilt and more evenly distribute the weight of said frame upon the wheeled frame, and means for securing said rock-arms at the required point of adjustment so as to hold the corn cutting and gathering frame reliably in its adjusted position, substantially as described.

11. In a corn-harvesting machine, the combination of a wheeled frame, a longitudinal track carried thereby at one side, a tilting rack upon the frame, a longitudinal track mounted upon the rack, rock-arms suitably supported in advance of the rack, horizontal bars pivotally carried thereby, a track-section mounted upon said bars and normally in alinement with the track-section of the rack, a corn cutting and gathering frame mounted upon the track-rails of the frame and the rack, means for shifting it forward until it is supported upon the track-rails of the frame and said horizontal bars, and means for operating said rock arms so as to tilt said frame over the wheeled frame and out of the way entirely of the tilting rack, substantially as described.

12. In a corn-harvesting machine, the combination of a wheeled frame, guide-tracks carried thereby, a corn cutting and gathering frame provided with grooved rollers engaging the upper and lower sides of one track, and with a roller engaging the other track to prevent the frame from tilting inward or outward, and means to shift said frame longitudinally upon said track-rails, substantially as described.

13. In a corn-harvesting machine, the combination of a wheeled frame, guide-tracks carried thereby, a corn cutting and gathering frame, rollers journaled thereon and engaging the upper and lower sides of one track-rail, and a bracket swiveled to said frame and projecting downwardly and inwardly and provided with a roller engaging the other track-rail to prevent the frame tilting inwardly or outwardly, with a third track-rail arranged in alinement with the last-named track-rail and adapted to be engaged by the roller of the swiveled bracket, and means to move said last-named track-rail inward and maintain it in a horizontal position at all times, so as to tilt the corn cutting and gathering frame inward over the wheeled frame, substantially as described.

14. In a corn-harvesting machine, the combination of a suitable wheeled frame, with a corn cutting and gathering frame suitably supported at one side of the wheeled frame and comprising bars arranged to form an angular path for the passage of the corn, rotating sprocket-wheels at opposite sides of the mouth of said passage, guide-rollers carried by said bars at opposite sides of the transversely-extending portion of said passage and inward of said sprocket-wheels, a sprocket-chain connecting the inner sprocket-wheel and the guide-rollers at the front side of the transverse portion of said passage, and provided with outwardly-projecting hook-arms, and a second sprocket-chain engaging the outer sprocket-wheel, the guide-rollers at the rear side of the transverse portion of the passage and engaged by the hook-arms of the first chain where it contacts with said first-named chain at the bend of the said passage, substantially as described.

15. In a corn-harvesting machine, the combination of a suitable wheeled frame, with a corn cutting and gathering frame suitably supported at one side of the wheeled frame and comprising bars arranged to form an angular path for the passage of the corn, rotating sprocket-wheels at opposite sides of the mouth of said passage, guide-rollers carried by said bars at opposite sides of the transversely-extending portion of said passage and inward of said sprocket-wheels, a sprocket-chain connecting the inner sprocket-wheel and the guide-rollers at the front side of the transverse portion of said passage, and provided with outwardly-projecting hook-arms, a second sprocket-chain engaging the outer sprocket-wheel, the guide-rollers at the rear side of the transverse portion of the passage and engaged by the hook-arms of the first chain where it contacts with the said first-named chain at the bend of the said passage, forked arms pivoted to the first-named sprocket-wheel, and a cam positioning said arms radially of said wheel, that they may reliably but loosely embrace the upper and lower sides of said chains at the bend of said passage and prevent any possible disengagement thereof, substantially as described.

16. In a corn-harvesting machine, the combination of a suitable wheeled frame, with a corn cutting and gathering frame suitably supported at one side of the wheeled frame and comprising bars arranged to form an angular path for the passage of the corn, rotating sprocket-wheels at opposite sides of the mouth of said passage, guide-rollers carried by said bars at opposite sides of the transversely-extending portion of said passage and inward of said sprocket-wheels, a sprocket-chain connecting the inner sprocket-wheel and the guide-rollers at the front side of the transverse portion of said passage, and provided with outwardly-projecting hook-arms, a second sprocket-chain engaging the outer sprocket-wheel, the guide-rollers at the rear side of the transverse portion of the passage and engaged by the hook-arms of the first chain where it contacts with the said first-named chain at the bend of the said passage, means for cutting the corn as it enters the mouth of said passage, and means for tilting the corn forward with respect to its direction of movement to an approximately horizontal position as it is carried through the transverse portion of the passage, substantially as described.

17. In a corn-harvesting machine, the combination of a wheeled frame, with a corn cutting and gathering frame suitably supported at one side of the wheeled frame, and consisting of bars arranged to form an angular passage, the mouth of said passage being disposed forwardly, and its discharge end transversely of and superposed relatively to the machine, shafts at opposite sides of the mouth of said passage, sprocket-wheels thereon, guide-rollers arranged at the front side of the transverse portion of the passage, a chain connecting the same and the sprocket at the inner side of the passage and provided with outwardly-projecting hook-arms, guide-rollers mounted at the rear side of the transversely-extending portion of said passage, a sprocket-chain engaging said rollers and the sprocket-wheel at the outer side of said passage, and engaged by the hook-arms of the first-named sprocket-chain where it contacts with the said first-named chain at the bend of said passage, a reel mounted upon the shaft of the outer sprocket-wheel, a third shaft journaled in the frame in advance of and in longitudinal alinement with the shaft of the inner sprocket, a reel mounted thereon, a knife for cutting the corn below said reels, mechanism interposed between one drive-wheel of the machine and said inner shafts, for causing the operation of said reels and sprocket-wheels, and means for throwing said mechanism out of gear, substantially as described.

18. In a corn-harvesting machine, the combination of a wheeled frame, parallel track-rails carried thereby, a longitudinal shaft rotating with one of the drive-wheels at the will of the operator, a corn cutting and gathering frame mounted upon said tracks, gear-wheels mounted slidingly and non-rotatably upon said shaft and geared to the mechanism of said corn cutting and gathering frame, a bracket secured to said frame and embracing the opposite sides of said gear-wheels, and means to adjust said frame longitudinally upon said track-rails and thereby also move said gear-wheels upon said shaft so as to keep them always in gear with the mechanism of the corn cutting and gathering frame, substantially as described.

19. In a machine of the character described, the combination of a wheeled frame, and a corn cutting and gathering frame carried thereby, with a supplemental stalk-cutting mechanism, comprising a knife, rods swiveled at their upper ends to said frame and to the opposite ends of said knife, and chains connecting the opposite ends of said knife also with said frame, substantially as described.

20. In a machine of the character described, the combination of a wheeled frame, and a corn cutting and gathering frame mounted thereon, with a stalk-cutting mechanism comprising a knife, rods connected to said knife and swiveled to said corn cutting and gathering frame, brackets secured to said frame and provided each with communicating openings, one opening being larger than the other, and chains secured at their lower ends to said knife, and extending through and engaged by said brackets, substantially as shown and described.

594,419. METALLIC RAILROAD-TIE. SIMON D. S. HARPER, Le Grand, Iowa. Filed June 10, 1897. Serial No. 640,201. (No model.)



Claim.—1. As a new article of manufacture, a railway-tie comprising upper and lower plates, transversely-extending plates to which said upper and lower plates are attached, said transversely-extending plates projecting on opposite sides of the top and bottom plates, and a web connecting said plates, said web being formed zigzag in contour, substantially as set forth.

2. As a new article of manufacture, a railway-tie comprising a top and bottom plate having their ends extending at right angles and overlapping, transversely-extending plates to which the overlapping ends of the top and bottom plates are attached, said transversely-extending plates projecting on opposite sides of the top and bottom plates, a series of diamond-shape boxes or casings connecting said top and bottom plates, and means for securing the rails to the tie, substantially as set forth.

594,420. TEMPORARY BINDER. TRUMAN NOBLE, Ithaca, N. Y. Filed Dec. 29, 1896. Serial No. 617,343. (No model.)



Claim.—1. In a temporary binder, complementary members normally secured by means of an interlocking joint and readily separable, each adapted to receive the papers, and having their sides flush at the joint, and one member having a terminal portion to enter a depression in the terminal of the opposite member, and having a cleft extending for a short distance from its extremity, providing spring members at all times accessible to be pressed between the fingers for releasing the interlocking joint, substantially as set forth.

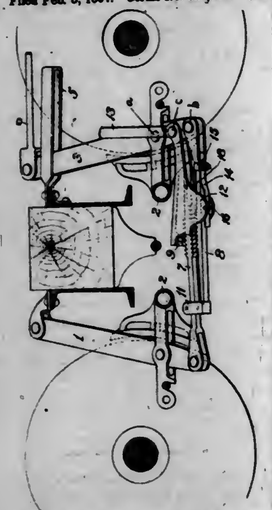
2. In a temporary binder, a base-plate, and a holder comprising similar or complementary parts having their upper end portions bent toward each other and separable at a middle point, one of the parts being rigidly attached to the base-plate and the other part having a pivotal connection therewith, and an interlocking joint provided between the meeting ends of the parts by having a notch or socket in the end of one part, and a cleft in the end of the other part, providing spring members whose ends are reduced and formed with lateral extensions to engage positively with the notched or socketed end of the other part, substantially in the manner set forth.

3. In a temporary binder, complementary members relatively movable toward and from each other to receive the papers on either one, and normally held together by an interlocking joint, one member having a socket or notch, and the opposite member having its terminal portion reduced to enter the depressed extremity of the other member to interlock therewith, and having the sides of the two members flush at the joint, and the last member having a cleft extending through its reduced terminal, forming spring members or parts which are at all times accessible to be pressed together between the fingers to admit of the interlocking joint being released, substantially as set forth.

4. In a temporary binder, a base-plate having a portion bent at right angles thereto, a member rigidly attached to the base-plate, and a complementary member pivoted to the said bent portion of the base-plate and having its free end constructed to interlock with the free terminal of the fixed member, and having its end cleft, forming spring parts, substantially as and for the purpose set forth.

5. In a temporary binder, a base-plate provided with anchoring-points and having a portion bent at right angles thereto, and a holder comprising a member rigidly attached to the base-plate and a second member pivoted to the aforesaid bent portion, the fixed member having a notch or socket, and the pivoted member having its end constructed to enter the said notch or socket and adapted to interlock therewith, and cleft, providing spring parts, substantially as and for the purpose set forth.

594,421. SLACK-ADJUSTER FOR BRAKE-RIGGING. DOMENEC C. O'KAIN, Wilkinsburg, Pa., assignor to Edward H. Goodman, Pittsburg, Pa. Filed Feb. 5, 1897. Serial No. 622,097. (No model.)



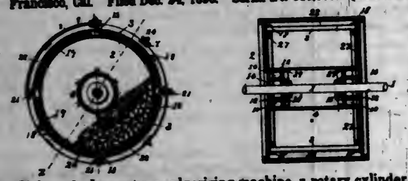
Claim.—1. In a slack-adjuster for brake-rigging, the combination of brake-beams, shoes carried by said beams, means for automatically adjusting the shoes toward the wheels, and means for effecting a separation of the engaging parts of the adjusting mechanism to permit the shoes to drop away from the wheels, substantially as set forth.

2. In a slack-adjuster for brake-rigging, the combination of the live and dead levers of such rigging, an automatically-operating mechanism for adjusting the position of the levers with relation to the wheels, and means for effecting a separation of the engaging parts of the adjusting mechanism to permit the levers to drop away from the wheels, substantially as set forth.

3. In a slack-adjuster for brake-rigging, the combination of the live and dead levers of such rigging, an automatically-adjustable connection between said levers, and means for effecting a separation of the engaging parts of such connection to permit the levers to drop away from the wheels, substantially as set forth.

4. In a slack-adjuster for brake-rigging, the combination of the live and dead levers of such rigging, a connection between said levers consisting of three parts or members, one part or member connected to one lever and the other parts or members so connected to the other lever as to have a different range of movement when the lever is shifted and constructed to alternately engage the third member, and means for effecting the separation of both members simultaneously from the third member, substantially as set forth.

594,422. PULVERIZING MACHINERY. ALMARIN B. PAUL, San Francisco, Cal. Filed Dec. 24, 1896. Serial No. 616,933. (No model.)



Claim.—1. In a rotary pulverizing-machine, a rotary cylinder or barrel mounted on a solid horizontal shaft, ends or heads having recessed chambers concentric with the said shaft, radial feeding-ways through the cylindrical walls of said chambers, and a cylinder 4 surrounding said shaft and supported upon the walls of the said recessed chambers, substantially as shown and described.

2. In a rotary pulverizing-machine, a rotary cylinder or barrel mounted on a horizontal shaft, ends or heads having inwardly-projecting recessed chambers formed with peripheral feed-openings, grate-bars connecting the heads near the outer margin of the said barrel, and a reinforcing drum or cylinder connecting the inwardly-projecting chambers and forming a longitudinal brace for the barrel, substantially as shown and described.

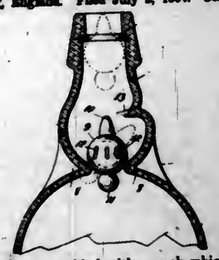
3. In a rotary pulverizing-machine, a central solid shaft, heads or ends having inwardly-projecting recessed chambers with feed-openings therein, a reinforcing-drum concentric with said shaft, and supported upon the inwardly-projecting chambers, grate-bars connecting the heads or ends near their outer margin, and a series of circumferential screens surrounding the said grate-bars, substantially as shown and described.

4. In a rotary pulverizing-machine, a rotary cylinder or barrel mounted upon a central solid shaft, ends or heads having inwardly-projecting recessed chambers with radial feed-openings in the walls thereof, interior projecting lugs 13 formed on said ends, grate-bars supported on said ends near the outer margin thereof and arranged in series with intermediate spaces corresponding to lugs 13, and a reinforcing-drum surrounding the central shaft, supported upon the said inwardly-projecting chambers, substantially as shown and described.

5. In a rotary pulverizing-machine, a central solid shaft, a barrel having recessed and chambered ends with feed-openings therein, reinforcing-drum 4, grate-bars arranged in annular-spaced series near the periphery of the said barrel, screens 8 outside the said grate-bars, forming the annular space or interval 22, curved diaphragms 21 arranged in the said spaces and removable bands 18 embracing and confining the said grate-bars, substantially as shown and described.

6. In a rotary pulverizing-machine, a central solid shaft, a barrel having recessed and chambered ends with feed-openings therein, reinforcing-drum 4, grate-bars arranged in annular-spaced series near the periphery of the said barrel, inwardly-projecting flanges 19 for supporting the said grate-bars, segmental ledge 30 for guiding the insertion of the said bars, screens 8 outside the said grate-bars, forming the annular space or interval 22, curved diaphragms 21 arranged in the said spaces, removable bands 18, embracing and confining the said grate-bars, longitudinal bars 7 for sustaining the edges of the said screens, and clamps and buttons 24, substantially as shown and described.

594,423. BOTTLE AND STOPPER THEREFOR. ARTHUR R. POLLARD, Worthing, England. Filed July 2, 1897. Serial No. 643,283. (No model.)



Claim.—1. A bottle provided with a neck which is enlarged at its lower end and which is provided with inwardly-directed ribs or projections, said neck being also provided at its upper end with an inwardly-directed portion whereby an annular shoulder is formed, a packing-ring placed beneath said annular shoulder, and a stopper which is spherical in form, and which is adapted to rest upon the inwardly-directed ribs or projections at the bottom of the neck, said stopper being provided at its upper side with a conical projection, and around its center circumference with slots or grooves which extend in line with said projection, substantially as shown and described.

2. A bottle provided with a neck which is enlarged at its lower end and which is provided with inwardly-directed ribs or projections, said neck being also provided at its upper end with an inwardly-directed portion whereby an annular shoulder is formed, a packing-ring placed beneath said annular shoulder, and a stopper which is spherical in form, and which is adapted to rest upon the inwardly-directed ribs or projections at the bottom of the neck, said stopper being provided at its upper side with a conical projection, and around its center circumference with slots or grooves which extend in line with said projection, and at its lower side with a ball or body which serves as a weight, substantially as shown and described.

3. A bottle provided with a neck which is enlarged at its lower end and which is provided with inwardly-directed ribs or projections,

said neck being also provided at its upper end with an inwardly-directed portion whereby an annular shoulder is formed, a packing-ring placed beneath said annular shoulder, and a stopper which is spherical in form, and which is adapted to rest upon the inwardly-directed ribs or projections at the bottom of the neck, said stopper being provided at its upper side with a conical projection, and around its center circumference with slots or grooves which extend in line with said projection, and at its lower side with a ball or body which serves as a weight, and the enlarged portion of the neck being provided at one side with an inwardly-directed circular rib or projection, substantially as shown and described.

594,424. GRATER. DAVID C. POWELL, Michigan City, Ind., assignor of one-half to Edward J. Powell, same place. Filed Dec. 28, 1896. Serial No. 617,237. (No model.)



Claim.—1. A grater comprising a handle provided with a chamber for holding the article to be reduced, a slide to which the handle is removably secured, a grating-plate, a cylindrical casing attached thereto, a spring in the casing, a disk within the casing against which the spring bears, a rod connecting the disk with the slide, and a handle at the end of the grating-plate for moving the grating-plate against the face of the spring.

2. A grater comprising a handle provided with a chamber for holding the article to be reduced, a perforated grating-plate having a bur or cutting edge on one side only of each perforation, sliding connections between the handle and the grating-plate, a thumb-piece secured to the grating-plate and extending therefrom laterally on that side of the perforations on which the bur is located, and a spring for moving that end of the grating-plate on which the thumb-piece is located away from the chambered handle, the arrangement being such that by the contraction of the hand the cutting edges of said perforations are forced against the article to be reduced, while the spring moves the plate in the opposite direction without performing the grating operation.

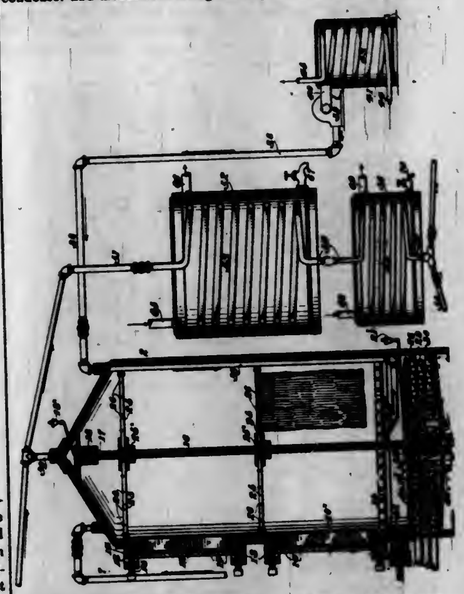
3. A grater comprising a handle having a chamber for holding the article to be reduced, and a socket for retaining a spiral spring, a spring arranged in said socket and extending into the chamber of the handle, a plunger having a hollow stem encircled by the spring, a rod secured at one end to said handle which projects into the hollow stem of the plunger to serve as a guide therefor, a stop on said rod to limit the movement of the plunger, a grating-plate, sliding connections between the grating-plate and the handle, a spring for moving the grating-plate in one direction relatively to the handle, and a thumb-piece for moving the grating-plate in the opposite direction.

594,425. APPARATUS FOR EXTRACTING OIL. EMANUEL PFEIFFER, Philadelphia, Pa. Filed May 8, 1897. Serial No. 635,630. (No model.)

Claim.—1. In an apparatus for extracting oil and grease from leather, a closed tank, a rotatable frame within the same with arms thereon, a grating, a steam-coil in said tank below said grating, a naphtha supply tank with a pipe leading into the said first-mentioned tank, and a blower with pipe leading into said tank below said grating.

2. In an apparatus for extracting oil and grease from leather, a closed tank having a rotatable frame therein, with arms thereon, a grating in said tank below said frame, a steam-coil in said tank below said grating, a wheel connected with said frame, and a shaft passing through a stuffing-box in the side of said tank, and having a wheel meshing with said first-mentioned wheel, both of said wheels being within said tank.

3. In an apparatus for extracting oil and grease from leather, a closed tank having an upright shaft rotatably mounted therein, arms projecting from said shaft adapted to support leather, a grating in the lower portion of said tank, means for conducting hot air into the latter below said grating, means for rotating said shaft, a heating coil located in the lower portion of said tank, outlets located in the upper and lower portions of said tank, said latter outlet leading to a receiving-tank, a connection from the latter to the outlet-pipe of the leather-holding tank, a common discharge-pipe leading to a condenser and means for storing the naphtha thus condensed.



4. In an apparatus for extracting oil and grease from leather, a leather-receiving tank closed at top and provided with an outlet-pipe, a rotatable frame in said tank with a vertical shaft, a cup supported within said tank and provided with ports communicating with said outlet-pipe, and a socket in said cup forming a bearing for said shaft.

5. In an apparatus for extracting oil and grease from leather, a leather-holding tank, a cup located in the lower portion of the latter, said cup receiving a socket, an upright shaft having a bearing in said socket, a bevel-gear connected to said shaft, a bevel-pinion meshing with said gear and rotating the same, a grating supported above said bevel-gear, a hot air pipe discharging into said leather-holding tank, intermediate said bevel-gear and grating, arms on said shaft adapted to support leather, a series of heating-coils in the lower portion of said tank below said gear, an outlet in the lower portion of said leather-holding tank, an outlet in the upper portion thereof and means for condensing the naphtha discharged through said leather-holding tank.

6. In an apparatus for extracting oil and grease from leather, a storage tank for naphtha, a leather-holding tank, means for forcing naphtha into said latter tank, means for heating said tank, means for forcing hot air into the latter, an outlet leading from the top of said leather-holding tank to a coil, a condensing-chamber in which said coil is located, means for conducting a cooling medium to and from said chamber, an outlet-pipe leading from the latter and having a plurality of valved branches, one of said branches leading to said storage-tank, and the other to any desired point.

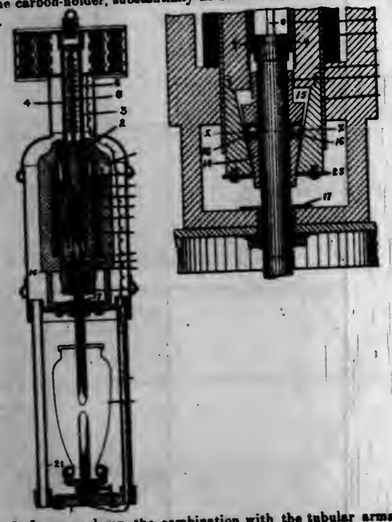
7. In an apparatus for extracting oil and grease from leather, a leather-receiving tank having a closed top and provided with a rotatable frame therein having arms thereon, a naphtha-supply tank with pump and pipe leading into said leather-receiving tank, a naphtha-receiving tank having heating-coils therein and an inlet-pipe leading from said leather-receiving tank, condensers having a pipe passing through them, said pipe being in communication with the upper ends of said leather-receiving and naphtha-receiving tanks, and a heated-air supply with blower and pipe leading into said leather-receiving tank.

594,426. ELECTRIC-ARC LAMP. HENRY R. QUIMBY, Rochester, N. Y. Filed Feb. 18, 1897. Serial No. 624,094. (No model.)

Claim.—1. In an electric-arc lamp, the combination with the movable armature having the tapering recess, of the carbon-clamp embodying the collar through which the carbon passes, movable in said recess, having the radial apertures, and the balls arranged in said apertures and engaging the walls of the tapering recess and also the carbon, and a releasing projection cooperating with the clamp-collar, substantially as described.

2. In an arc-lamp, the combination with the movable armature,

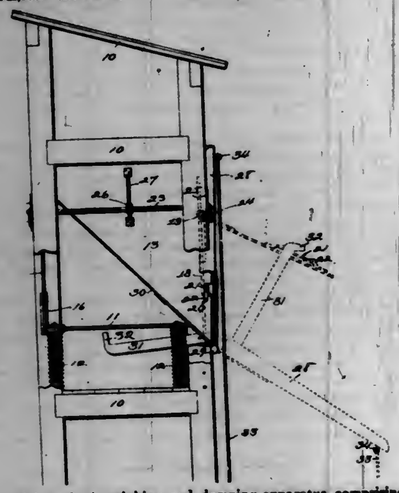
having the tapering recess, of the collar through which the carbon passes vertically movable in said recesses and having the radial apertures, the balls in the apertures engaging the sides of the tapering recess and the carbon, a movable carbon-holder, and guides for preventing its rotation, and an extensible current-conductor attached to the carbon-holder, substantially as described.



3. In an arc-lamp, the combination with the tubular armature having the removable lower end provided with a tapering recess, of the collar operating in said recess, having the radial apertures, and balls in the apertures coöperating with the walls of said recess to clamp the carbon passing through the armature, substantially as described.

594,427. APPARATUS FOR WEIGHING AND DUMPING COAL.

PETER J. GUIRE, Des Moines, Iowa. Filed June 26, 1897. Serial No. 642,536. (No model.)

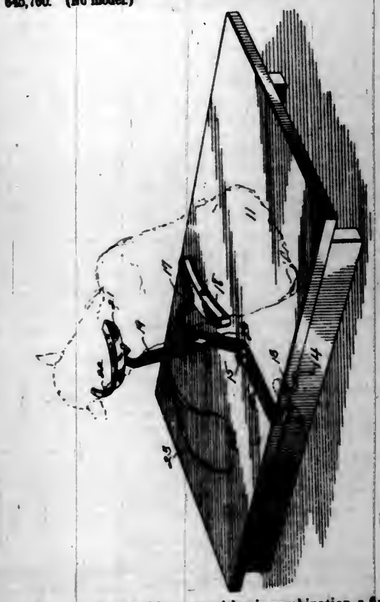


Claim.—1. A weighing and dumping apparatus, comprising in combination, a supporting-frame, a hopper or receptacle slidingly mounted therein, and having an inclined bottom, means whereby the said hopper or receptacle is depressed a distance proportionate to the amount of weight contained therein, a gate at the front of the hopper hinged at its upper end so that its lower end may swing outwardly, gravity-latches on the said gate to enter notches in the side of the hopper, a shaft rotatably mounted in the stationary frame, an indicator on the end of the shaft, and a pinion-wheel on its central portion, a segmental scale fixed to the frame in proximity to the indicator, a rack fixed to the hopper or receptacle to mesh with the said pinion-wheel, a trough or chute hinged to the lower corner of the hopper or receptacle, means for normally holding the same elevated, and arms formed on or fixed to the said chute or trough to engage the said gravity-latches and release them when the said chute or trough is pulled downwardly, all arranged and combined substantially in the manner set forth and for the purposes stated.

2. A weighing and dumping apparatus, comprising in combination, a frame, a hopper having an inclined bottom slidingly mounted within the said frame, extensile coil-springs fixed to the said frame to support the hopper, guides arranged to permit a free vertical movement of the hopper and to prevent a lateral movement thereof, a gate at the front of the hopper hinged at its upper end so that its lower end may swing outwardly, gravity-latches on the said gate to enter notches in the sides of the hopper, a shaft rotatably mounted in the stationary frame, an indicator on its end and a pinion on its central portion, a segmental scale fixed to the frame in proximity to the indicator, a rack fixed to the hopper or receptacle to mesh with the said pinion, a trough or chute hinged to the lower corner of the hopper or receptacle, springs for normally holding the same elevated, and arms formed on or fixed to the said chute or trough to engage the said gravity-latches and release them when the said chute or trough is pulled downwardly, all arranged and combined substantially in the manner set forth and for the purposes stated.

594,428. SUPPORT FOR SHEEP WHILE BEING SHEARED.

THOMAS A. REYNOLDS, Dunch, Iowa. Filed July 24, 1897. Serial No. 645,760. (No model.)



Claim.—A sheep-holder, comprising in combination, a fixed part, means for detachably connecting the same with the table, a body-rest 18 thereon, a hinged part 19 pivotally connected with the said fixed part, a head-rest 21 thereon, a hook 22 fixed to the head-rest, and a fork pivotally connected with the hinged part and designed to engage the top surface of the table, all arranged and combined substantially in the manner set forth and for the purposes stated.

594,429. SHUTTLE FOR SEWING-MACHINES.

HUBERT P. RICHARDS, New Britain, Conn. Filed Aug. 15, 1896. Serial No. 602,863. (No model.)

Claim.—1. A reversibly-rotatable shuttle comprising an annularly-recessed casing having two sets of oppositely-disposed peripheral loop-engaging hooks; a cop-carrier rotatably supported in the recess of the casing and having a depressed peripheral portion; a duplex tension device carried on the side face of the carrier and having two oppositely-disposed resilient thread-engaging arms whose free ends extend laterally over the depressed portion of said carrier; two threadways formed transversely in the periphery of the carrier at opposite sides, respectively, of the tension device; and two independent oppositely-disposed resilient thread guards located upon, and fixed at their adjacent ends to, the perimeter of the cop-carrier between said perimeter and the surrounding wall of the casing and having their outer free ends extending over the threadways, respectively.



2. The combination, with an annularly-recessed discoidal outer member having opposing loop-engaging hooks on the periphery thereof, of an inner member comprising a hub supported for rotative movement on the outer member, and an annular flange at the outer end of said hub, located wholly within the recess of the outer member, and having a depressed peripheral portion constituting two opposing bearing-faces; a discoid tension device having two independent concentrically-curved resilient arms having laterally-projecting hooks at the free ends thereof that engage over the opposing bearing-faces of the depressed peripheral portion of the flange; and two opposite thread-guides located on the periphery of the inner member at opposite sides of the tension device and between said periphery and the surrounding wall of the outer member.

3. A reversibly-rotatable shuttle comprehending an annularly-recessed discoidal casing having peripheral loop-engaging hooks so disposed as to render the shuttle effective for engaging the loop of the needle-thread when rotated in either direction and also having a centrally-disposed, outwardly-extending hub; a cop-carrier rotatably supported on the hub of the casing and having an annular flange located within the recess of the casing, with its outer face flush with the outer face of said casing, and also having a depressed peripheral portion constituting two oppositely-disposed bearing-faces; a tension device fixed to the outer face of the cop-carrier near the periphery thereof and having two oppositely-curved resilient arms furnished with laterally-projecting hooks at the free ends thereof, which project over the two bearing-faces at a point below the peripheral line of the cop-carrier flange; two transverse threadways formed in the periphery of the cop-carrier flange, one at each side of the tension device; and two resilient guards fixed at their adjacent ends to the perimeter of said flange in juxtaposition to the arms of the tension device and having their opposite ends extending one over each threadway.

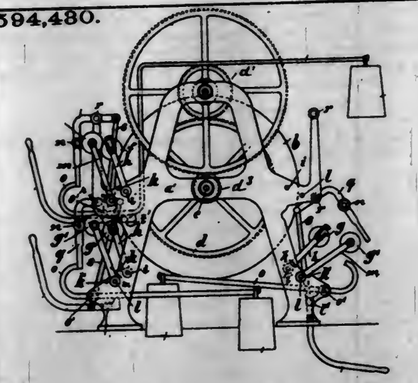
4. In a shuttle, the combination, with an annularly-recessed outer member having peripheral loop-engaging hooks, of an annularly-flanged cop-carrying member rotatably supported on the outer member and having in the periphery thereof three transverse notches or recesses, the middle one of which is shaped to form two oppositely-disposed bearing-faces, and the two outer ones of which are each constructed to form a threadway and a thread-guide, and which flange is also peripherally grooved longitudinally to form two thread-guard-retaining grooves and holding flanges located one at each side of the two bearing-faces; two resilient thread-guards secured in the retaining-grooves at their inner adjacent ends by the inturned flanges and extending at their outer free ends over the thread-guides and partially over the threadways; and a duplex tension device fixed to the outer face of the cop-carrying member near the periphery thereof and comprising two concentrically-disposed resilient arms, each having at the free end thereof a laterally-projecting hook which extends from one of the bearing-faces of the cop-carrier below the perimeter thereof.

594,430. MANGLE.

FRIEDRICH R. RICHTER, Leipsic, Germany. Filed Mar. 20, 1896. Serial No. 584,186. (No model.) Patented in Germany July 10, 1896, No. 86,694; in France Nov. 19, 1895, No. 251,813; in England Nov. 20, 1896, No. 22,903; in Switzerland Feb. 18, 1896, No. 12,004, and in Austria Apr. 3, 1896, No. 46/1,297.

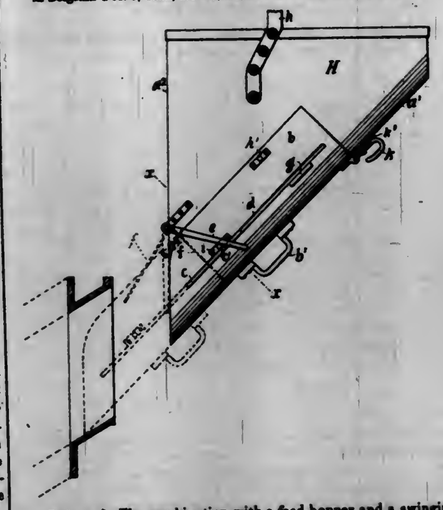
Claim.—In a mangling-machine the combination of a rotary drum supported between two standards, with two rollers for the reception of the washing to be smoothed, arranged on each side of the said drum and supported by pivotal levers, rollers also arranged on each side of the drum and supported by pivotal levers and pressing upon the rollers carrying the washing, rolls also arranged on each side of the drum and supported by pivotal levers and pressing upon the said pressing-rollers, weighted levers the shorter arm of which presses against the longer arm of the levers carrying the said rolls, and levers the longer arm of which forms a handle and the shorter acts upon the longer arm of the said weighted levers and being connected by means of link-pieces with the shorter arm of the levers carrying the said rolls; as and for the purpose set forth.

594,480.



594,481. STOKER FOR INCLINED GRATES OR RETORTS.

ERNST RIEDEL, Stettin, Germany. Filed Sept. 25, 1897. Serial No. 653,087. (No model.) Patented in Germany Feb. 3, 1892, No. 64,443; in Belgium Feb. 3, 1892, No. 96,192, and in Denmark May 9, 1892.



Claim.—1. The combination with a feed-hopper and a swinging valve or gate controlling its discharge-orifice; of a guide-chute having sliding motion on the hopper-bottom and controlling the opening and closing of the valve or gate according as said chute is moved to project beyond the discharge-opening of the hopper or is retracted, for the purpose set forth.

2. The combination with a feed-hopper, a swinging valve or gate controlling the discharge of said hopper, and locking devices to lock the gate closed; of a chute having sliding motion on the hopper-bottom and adapted to be projected beyond the hopper-discharge, releasing devices on said chute acting on the gate-locking devices to release such gate when the chute is projected, locking devices on said chute for locking the gate open, and appliances on said chute for closing the gate and bringing its locking devices into engagement when said chute is retracted, for the purpose set forth.

3. The combination with a feed-hopper of substantially triangular shape in side elevation, and having its discharge at the apex, said hopper provided with abutments on opposite sides, a valve or gate for said discharge, and a lever at each end of the gate-pintle normally in contact with the aforesaid abutments on the hopper to lock the gate closed; of a guide-chute having sliding motion on the hopper-bottom and adapted to be projected beyond the discharge of said hopper, and wedge-shaped cleats on said chute adapted to engage the gate-levers and move the same off their abutments when said chute slides in the direction of the hopper-discharge, for the purpose set forth.

4. The combination with the hopper H having guide-cleats *e* provided with inclines *e'* forming stop-shoulders, the hopper valve or

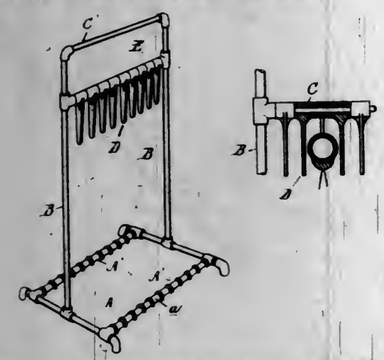
gate *f* and the levers *c* on the gate-pintle; of the chute *b* having longitudinal slots for said hopper-cleats, and wedge-shaped cleats *g* adapted to move behind the aforesaid levers *c*, and the pins or studs *i h* on said chute, said parts arranged for operation substantially as and for the purpose set forth.

594,432. NUT-LOCK. HERMANN SCHMIDT, Brooklyn, N. Y. Filed July 30, 1896. Serial No. 601,026. (No model.)



Claim.—The combination with a body having a narrowed screw-threaded extremity and a shoulder at the base of said narrowed portion, of segmental cut-away portions extending rearwardly from the shoulder resulting in similar projections adjacent the shoulder, a washer having a cut-away portion corresponding to the projections adjacent the shoulder and fitted upon the body flush with the shoulder, a flanged nut upon the screw-threaded extremity of the body, a ring encircling the nut and having a flange engaging the flange of the nut and the washer, and screws passed through the ring and into the washer as and for the purpose set forth.

594,433. BICYCLE-STAND. MARK A. SHELDON, Detroit, Mich. Filed Sept. 14, 1896. Serial No. 605,794. (No model.)



Claim.—1. In a bicycle-stand, the combination of a substantially horizontal bar, supporting means for said bar, a series of pendent movable fingers on said bar, and means to prevent movement of the fingers longitudinally of the bar.

2. The combination in a bicycle-stand, formed with a wheel-supporting base, of a cross-bar supported above said base, provided with a series of pendent fingers sleeved upon said cross-bar, free to move.

3. In a bicycle-stand, the combination of a substantially horizontal bar, supporting means therefor, and a plurality of pendent fingers sleeved on said bar and prevented from longitudinal movement thereon.

4. The combination in a bicycle-stand of the wheel-supporting base provided with the grooved cross-bars A', the vertical standards B B, the cross-bars C provided with a series of loose pendent fingers and the supplementary cross-bar C'.

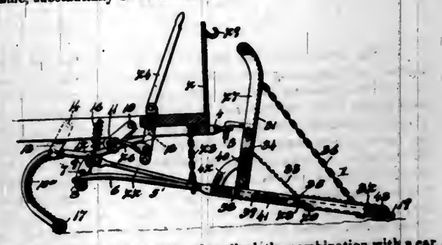
5. In a bicycle-stand, the combination of a wheel-supporting base, standards thereon, a cross-bar between said standards, a plurality of pendent movable fingers on said cross-bar, and means acting to prevent the movement of said fingers longitudinally of the cross-bar.

6. In a bicycle-stand, the combination of a base, a bar above said base, supports for said bar, a series of sleeves on said bar and held from movement longitudinally thereof, and a finger depending from each sleeve.

594,434. CAR-FENDER. EARL SHERWOOD, Brooklyn, N. Y. Filed Mar. 9, 1897. Serial No. 626,645. (No model.)

Claim.—1. In a device of the class described, the combination with a car, of a car-fender fulcrumed thereon and adapted to be tilted up and down to raise it from and lower it to a track, and a wheel-guard or scoop pivotally connected with the car and adapted to swing up and down to raise and lower it from the track, and an oscillating operating-gate engaging both the fender and the wheel-guard or scoop and adapted when swung to raise and lower the same simultaneously, substantially as described.

2. In a device of the class described, the combination with a car, of a tilting car-fender adapted to be lifted from and dropped to the track, a pivoted wheel-guard or scoop located in rear of the car-fender, an oscillating operating-gate engaging the fender and the wheel-guard or scoop and adapted to raise and lower the same simultaneously when it is swung outward and inward, a trip-frame extending in front of the fender, connected with the gate and adapted to be reciprocated to trip the fender and the wheel-guard or scoop, and an operating-lever connected with the gate and adapted to oscillate the same, substantially as described.



3. In a device of the class described, the combination with a car, of a tilting car-fender detachably mounted on the car and provided with a rearwardly-extending arm, an oscillating gate or frame mounted on the car and provided with an opening receiving the said arm whereby when it is oscillated it will raise and lower the arm to tilt the car-fender, and operating mechanism connected with and adapted to actuate the gate or frame, substantially as described.

4. In a device of the class described, the combination with a car, of a tilting car-fender provided with a rigid rearwardly-extending arm having its rear portion bent downward, the wheel-guard or scoop pivotally suspended from the car and provided with a forwardly-extending arm, an oscillating gate engaging both of said arms and adapted to raise and lower the same, and means for operating the gate, substantially as described

5. In a device of the class described, the combination with a car, of a depending operating-frame having its lower portion bent outward and provided with lower horizontal rods 7 and 8 and an upper rod 11, a tilting car-fender mounted on the car and provided with a rearwardly-extending arm arranged in the space between the rods 7 and 8 and having its rear portion bent downward, and the pivotally-mounted wheel-guard or scoop provided with a forwardly-extending arm engaged by the upper rod 11, substantially as described.

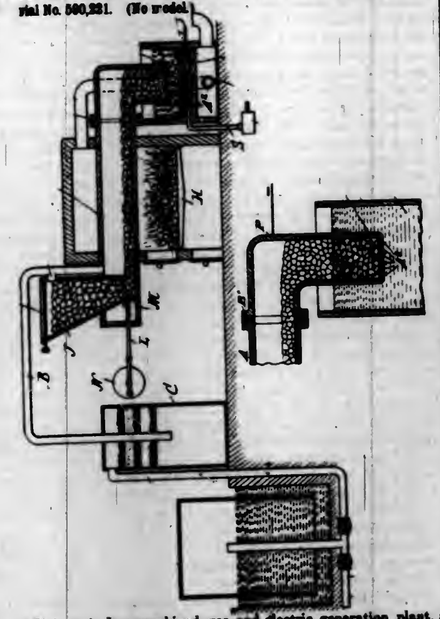
6. In a device of the class described, the combination with a car, of a depending operating-frame having its lower portion bent outward and provided with lower horizontal rods 7 and 8 and an upper rod 11, a tilting car-fender detachably fulcrumed on the car and provided with a rigid rearwardly-extending V-shaped arm or loop arranged between the rods 7 and 8, and the pivotally-mounted wheel-guard or scoop provided with forwardly-extending arms engaging under the rod 11, substantially as described.

7. In a device of the class described, the combination with a car, of a depending operating-frame having a transverse rod, a pivotally-mounted wheel-guard or scoop having forwardly extending arms engaging under the transverse rod and provided at their ends with stops to limit the swing of the frame, a spring connected with one of the arms in advance of the pivotal point and adapted to throw the wheel-guard or scoop downward and maintain it in such position when the frame is swung rearward, and means for operating the frame, substantially as described.

8. In a device of the class described, the combination with a car, of a car-fender fulcrumed thereon and adapted to tilt bodily and having a hinged bottom portion capable of swinging upward freely, a wheel-guard or scoop pivotally mounted in rear of the car-fender, a swinging gate or frame engaging the fender and the wheel-guard or scoop, and a reciprocating trip-frame extending in advance of the car-fender and connected with the gate or frame, the sides of the trip-frame being composed of two sections hinged together, substantially as described.

9. In a device of the class described, the combination of a fender-supporting frame comprising a substantially vertical back portion provided with a transverse rod 34 and a hinged bottom portion having a transverse rod 35, and the body portion of the fender composed of a vertical back section, a horizontal bottom section and a flexible intermediate section disposed at an inclination and extending downward from the lower edge of the back section to the rear edge of the bottom section and adapted when the bottom section is swung upward to be lifted clear of the draft mechanism, substantially as described.

594,435. COMBINED GAS AND ELECTRIC GENERATOR PLANT. SIDNEY H. SHORT, Cleveland, Ohio. Filed May 4, 1896. Serial No. 590,221. (No model.)



Claim.—1. In a combined gas and electric generation plant, a gas-retort, means for heating the same, a coke-holder adapted to receive the coke from said retort, a material electronegative with respect to such coke, an electrolyte intervening between said electronegative material and the coke, means for supplying oxygen to said electrolyte through said electronegative material, and means whereby the electrolyte and the electronegative material are heated by the products of combustion of said retort-heating means, as and for the purpose set forth.

2. In a combined gas and electric generation plant, a gas-retort, means for heating the same, a coke-holder communicating with but insulated from said retort, an electrolyte in which said carbon-holder is immersed, a material electronegative with respect to the coke, and means for heating the said electronegative material and electrolyte by the products of combustion of said retort-heating means, as and for the purpose set forth.

3. In a combined gas and electric generation plant, a gas retort, means for heating the same, means arranged to receive the coke product therefrom while in its heated condition, a lead electrode, an electrolyte in which said electrode and also said coke are immersed, means for subjecting said electrolyte to the action of the products of combustion of the gas-retort-heating means, whereby said electrolyte is maintained in a heated condition, and means for supplying oxygen to said electrolyte through said lead electrode, as and for the purpose set forth.

594,436. MANDOLIN. ROY B. SIMPSON, Fort Worth, Tex., assignor of one-half to Walter B. Keye, same place. Filed Oct. 1, 1896. Serial No. 607,515. (No model.)



Claim.—1. A mandolin having a neck-piece provided with a U-shaped brace mortised therein.

2. A mandolin having a sounding-board provided with sounding-holes arranged parallel, curved braces glued to the under side of said board, one set of said braces being arranged on the outside of and near one end of said holes and another set of braces on the inside of and near the other end of said holes.

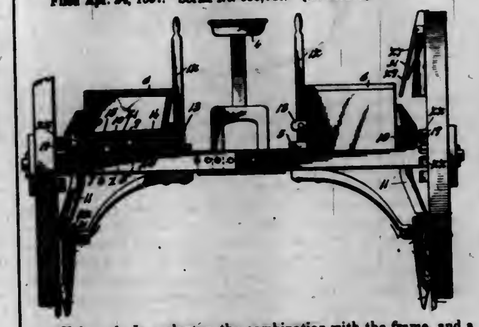
3. A mandolin having a neck-piece, a finger-board attached to said piece, a shell and jacket attached to and inclosing the inner end of said neck-piece and a U-shaped brace mortised in said shell and neck-piece.

4. A mandolin having a neck-piece, a shell attached to said neck-piece, and a U-shaped brace mortised in said neck and said shell.

5. A mandolin having a neck-piece, a shell attached to said neck-piece, a U-shaped brace mortised in said neck-piece and said shell, and cross-braces mortised in said shell.

6. A mandolin having a neck-piece, a shell and a finger-board attached thereto, said finger-board being provided with steel frets, a U-shaped brace mortised in said shell and neck-piece, a sounding-board provided with a bass-bar and having sound-holes.

594,437. CORN-PLANTER. HENRY D. SMITH, Newbern, Va. Filed Apr. 24, 1897. Serial No. 633,748. (No model.)



Claim.—1. In a planter, the combination with the frame, and a ground-wheel provided with cogs, of a hopper provided with seed-dropping mechanism comprising a plate having spurs projecting beyond the hopper to intermesh with the cogs of the ground-wheel, and slidingly mounted upon the frame and held thereon and guided in its movements thereby, and means for laterally shifting the hopper bodily toward and from the aforesaid ground-wheel to throw the seed-dropping mechanism into and out of mesh with the cogs of the ground-wheel, substantially as described.

2. In a planter, the combination of a frame, a ground-wheel having cogs, a plate secured to the frame and having an elongated opening, a hopper held to and slidingly mounted upon the said plate and having a pendent pin operating in the aforesaid elongated opening, a seed-plate between the hopper-bottom and base-plate and mounted upon the said pendent pin, and a lever having positive connection with the hopper and base-plate to shift the hopper laterally toward and from the ground-wheel, substantially as and for the purpose specified.

3. In a planter, the combination of a support provided with a discharge-opening and a series of clearing-openings, a hopper mounted upon the support, and a seed-dropping plate independent of and operating over the support and in the space formed between it and the bottom of the hopper, substantially as set forth.

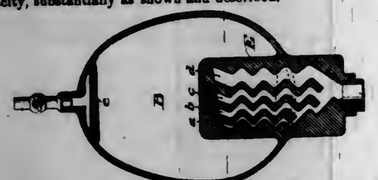
4. In a planter, the combination of a support provided with a series of clearing-openings, a hopper mounted upon the support and a seed-dropping plate independent of and operating over the support and in the space formed between it and the bottom of the hopper and formed with a series of clearing-openings, substantially in the manner and for the purpose specified.

5. In a planter, the combination of a relatively stationary hopper, seed-dropping mechanism, a ground-wheel, housings applied to the spokes of the ground-wheel and forming therewith grain-boots which have their inner ends expanded in the direction of motion of the ground-wheel and successively brought beneath the hopper, blades fitted in notches in the side of the rim of the ground-wheel to come flush therewith and having their penetrating ends projecting beyond the tread-surface of the wheel, flap-valves provided with flanges at their longitudinal edges which have pivotal connection with ears applied to the aforesaid blades, and means for operating the flap-valves for effecting a proper discharge of the grain into the hills, substantially as described.

6. In a planter, the combination of a hopper having an arcuate slot or discharge-opening in its bottom and having a groove in the lower side of the bottom communicating with or forming a prolongation of the slot, a brush separating the slot from the groove, a seed-dropping plate arranged to operate beneath the bottom of the hopper and having the lower end of the said brush touching its top surface, and actuating mechanism for operating the seed-dropping plate, substantially as described.

594,438. URINAL. WILLIAM SMITH, Trenton, N. J. Filed June 24, 1896. Serial No. 593,634. (No model.)

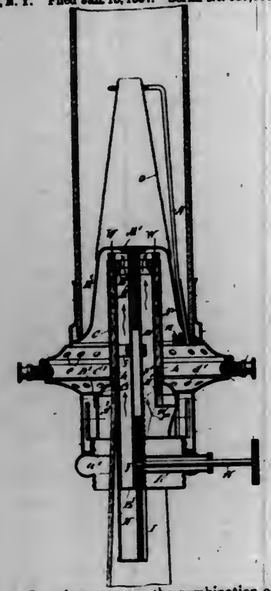
Claim.—1. In a liquid-receptacle having an inlet and an outlet for the passage of water to and from the same, the combination of a plurality of siphons of different capacities having tortuous longer legs, the longer leg of each siphon opening into the longer leg of the one of next larger capacity, and one or more of the siphons of smaller capacity arranged to discharge against the walls of those of larger capacity, substantially as shown and described.



2. The combination with the wall of a vessel, of a depending partition terminating above the bottom of the vessel, a second partition extending upward between the wall and the depending partition and terminating below the top of the same, and a series of transverse vertical walls dividing the space between the central and depending partitions into a plurality of communicating siphonic passages, substantially as described

3. The combination with the wall of a vessel, of a depending partition terminating above the bottom of the vessel, a second partition extending upward between the wall and the depending partition, and a series of transverse vertical walls of varying height forming, in connection with the central and depending partitions, a plurality of communicating siphonic passages, substantially as described.

594,439. INCANDESCENT OIL-BURNER. WILLIAM A. SMITH, New York, N. Y. Filed Jan. 15, 1897. Serial No. 619,308. (No model.)

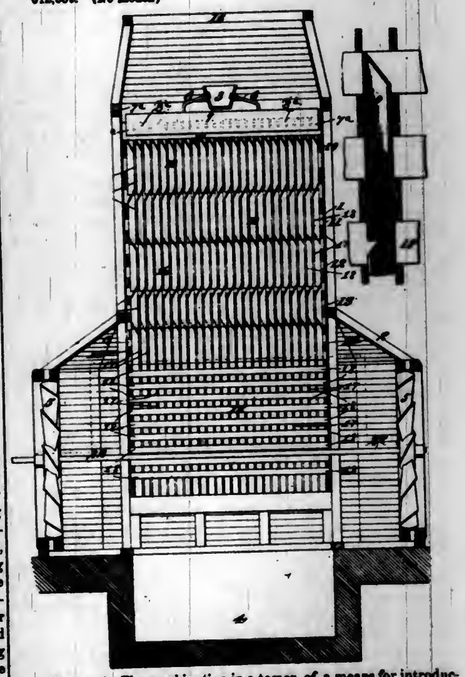


Claim.—1. In a lamp-burner, the combination of a hollow circular section screw-threaded upon the upper and lower ends and adapted to screw into the lamp-fount, having also a hollow cylinder of slightly-reduced diameter extending upward above the upper screw-threads and interrupted at one side by an inwardly-extending air-passage, and a central cylinder attached thereto and similarly interrupted on one side forming the inner wall of the wick-chamber, with a tube forming the outer wall of the wick-chamber and flaring at its lower end to fit over the upwardly-extending cylinder upon the lower threaded section, and an outer base-section consisting of a cylindrical section of larger diameter than said cylinder upon the lower threaded section and screwing upon the upper threads thereof, said cylinder having draft-openings therein, and an inwardly-projecting flange at the upper end of this cylinder engaging the upper surface of the flaring base of the tube forming the outer wall of the wick-chamber, substantially as described.

2. In a lamp-burner, the combination of a hollow circular section screw-threaded upon the upper and lower ends and adapted to screw into the lamp-fount, having also a hollow cylinder of slightly-reduced diameter extending upward above the upper screw-threads and interrupted at one side by an inwardly-extending air-passage, and a central cylinder attached thereto and similarly interrupted on one side forming the inner wall of the wick-chamber, with a tube forming the outer wall of the wick-chamber and flaring at its lower end to fit over the upwardly-extending cylinder upon the lower threaded section, an outer base-section consisting of a cylindrical section of larger diameter than said cylinder upon the lower threaded section and screwing upon the upper threads thereof, said cylinder having draft-openings therein, an inwardly-projecting flange at the upper end of this cylinder engaging the upper surface of the flaring base of the tube forming the outer wall of the wick-chamber, an outwardly-projecting flange attached to the same part having draft-openings, and a chimney-supporting base carried on said last flange and provided with draft-openings, substantially as described.

3. In a lamp-burner, the combination of a hollow circular section screw-threaded upon the upper and lower ends and adapted to screw into the lamp-fount, having also a hollow cylinder of slightly-reduced diameter extending upward above the upper screw-threads and interrupted at one side by an inwardly-extending air-passage, and a central cylinder attached thereto and similarly interrupted on one side forming the inner wall of the wick-chamber, with a tube forming the outer wall of the wick-chamber and flaring at its lower end to fit over the upwardly-extending cylinder upon the lower threaded section, an outer base-section consisting of a cylindrical section of larger diameter than said cylinder upon the lower threaded section and screwing upon the upper threads thereof, said cylinder having draft-openings therein, an inwardly-projecting flange at the upper end of this cylinder engaging the upper surface of the flaring base of the tube forming the outer wall of the wick-chamber, an outwardly-projecting flange attached to the same part having draft-openings, and a chimney-supporting base carried on said last flange and provided with draft-openings, and having a hollow frustum of a cone embracing the upper end of the wick-chamber and bent inward at its upper end to deflect the air upon the flame, substantially as described.

594,440. LIQUID-COOLING APPARATUS. JOHN BROCKER and HARRY H. PHILPER, St. Louis, Mo. Filed Nov. 13, 1896. Serial No. 612,089. (No model.)

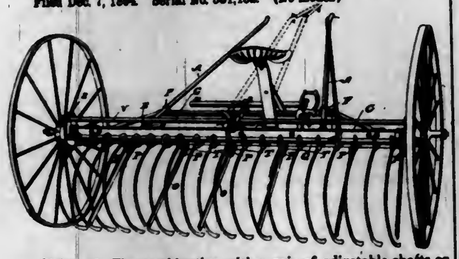


Claim.—1. The combination in a tower, of a means for introducing a current of cool air at the base thereof, a means of introducing the liquid to be reduced in temperature at the top thereof, and a series of checker-work partitions on the interior of said tower, gradually diminishing in height toward the bottom of the tower, substantially as described.

2. The combination with a tower and means for introducing a current of air therethrough, of a slotted beam situated at the upper portion of said tower, and a sliding trough having a sectional bottom straddling the beam and provided with depending sides located out of contact with the beam; substantially as described.

3. A liquid-cooling device consisting of a tower, a means of introducing a current of air through said tower from the bottom thereof, a means of introducing the liquid from the top thereof, and a series of interior partitions composed of graduated slats placed horizontally at right angles with each other the height of the tower, and oblique vertical slats placed within the squares formed by said horizontal partitions, substantially as described.

594,441. HORSE HAY-RAKE. WILLIAM STRAIT, Elmira, N. Y. Filed Dec. 7, 1894. Serial No. 531,182. (No model.)



Claim.—1. The combination with a pair of adjustable shafts or thills designed by their adjustment to be converted into a pole or tongue, of means for causing the extremities of the shafts or thills to depend when in position to constitute a pole or tongue, and a detachable pole-extension piece extending in the direction of the said depending extremities.

2. The combination of detachable and rotary thills bent at their outer ends, a pole-extension piece adapted to be attached thereto, devices for holding the thills with their bent ends projecting laterally outward when used as thills, and devices for holding the thills with their bent ends projecting downwardly when used as a pole or tongue.

3. The convertible rotary pole and thills, combined with a swiveling box in which the pole or thills may be rotated.

4. The combination with a rake-frame or the like of a pivoted thill or pole bearing block adjustable upon the frame independently of its pivoted movement, an eye adjustable upon the frame independently of the bearing-block and a thill or pole carried by the bearing-block and eye.

5. The combination of slotted dog carrying boxes, and a dog-carrying rod carried therein having thimble-bearings thereon working in said boxes.

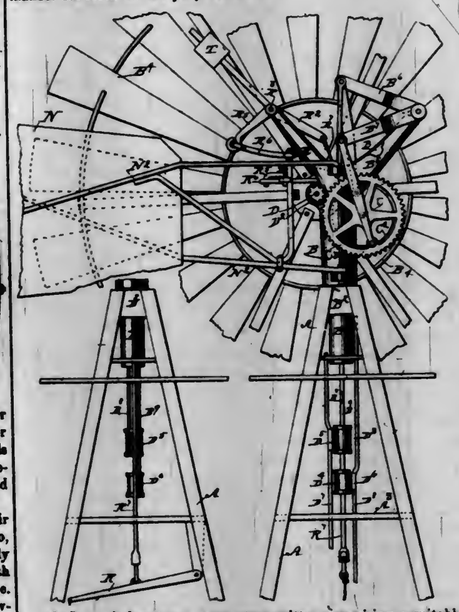
6. A pole-extension piece composed of a cylindrical rod or tube having its ends bent into divergent relation and a stop concaved upon its opposite sides and wedged between the sides of the pole-extension piece.

7. The swivel-socket bearing comprising an upper and lower box having bearing-surfaces, a single swiveling bolt uniting the two, combined with an interposed pole or thill having an opening or openings adapted to register with the swiveling bolt.

8. The combination with a rake-frame, of rotary tubular thills or shafts, convertible into a pole or tongue, of means for causing the extremities of the thills or shafts, to depend when so converted, a pole-extension piece, and pin-openings at right angles in one end of the thills designed to receive securing-pins, and pin-holes at the opposite ends of the thills for the reception of securing-pins.

594,442. WIND-MOTOR AND POWER-TRANSMITTER. JOHN E. SWANSON, Stratford, Iowa. Filed May 10, 1897. Serial No. 635,962. (No model.)

Claim.—1. In a wind-motor, a tubular rotating post having an arm extending horizontally from its top portion, and shaft-bearers extending vertically to support a shaft in a horizontal position, an axle supported in said arm to revolve vertically and rotate with the post and arm horizontally, a pinion on the inner end of said axle and a wind-wheel on the outer end, two reciprocating rods extending up through the rotating post, two parallel bearers projecting outward and upward from the top of said post and connected with the top ends of said rods, links for making said connections, a rotating shaft extending horizontally in bearings at the top of said post and having a crank at one end connected with the top of one of the reciprocating rods by means of a link, a link for said purpose, a gear-wheel on the other end of the shaft in engagement with the pinion on the end of the wind-wheel axle and connected with the top of one of the said rods by means of a link, a link and a wind-wheel arranged and combined to reciprocate the two parallel rods connected with said wind-wheel carried on said rotating post, two reciprocating rods, two vertically-vibrating levers at their lower ends and rotatably connected with the lower ends of the two rods connected with said wind-wheel at the top of the post, all arranged and combined to operate in the manner set forth for the purposes stated.

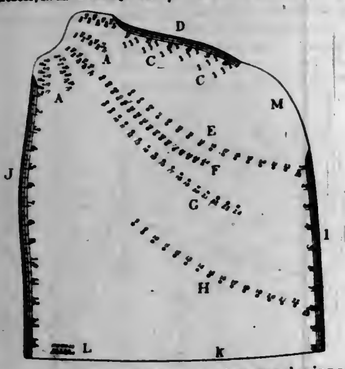


2. In a wind-motor, a power-transmitter comprising a suitable frame, a rotating shaft having a fixed gear-wheel and two fixed ratchet-wheels, a parallel shaft having a fixed pinion in engagement with said gear-wheel, means for transmitting motion from said second shaft to extraneous machinery, two arms pivotally connected with the shaft having fixed ratchet-wheels, pawls carried by said arms to engage the ratchet-wheels, two parallel vertically-vibrating levers connected with said arms by means of links, links for making such connections, a support for a wind-wheel, two vertically-vibrating levers fulcrumed to said support and connected with the aforesaid levers and two reciprocating rods operated by a wind-wheel, and a vertically-rotating wind-wheel and a wind-wheel support, all arranged and combined for the purposes stated.

3. A wind-motor comprising a tubular rotating post having an arm extending horizontally from its top portion, an axle supported in said arm to revolve vertically and rotate with the post and arm horizontally, a pinion on the inner end of said axle and a wind-wheel on the outer end, two reciprocating rods extending up through the rotating post, two parallel bearers projecting outward and upward from the top of said post and connected with the top ends of said rods, links for making such connections, a rotating shaft extending horizontally in bearings at the top of said post and having a crank at one end connected with the top of one of the reciprocating rods by means of a link, a link for making such connection, a gear-wheel on the other end of the shaft in engagement with the pinion in the end of the wind-wheel shaft, and connected with a wind-wheel at the top of the post, a power-cumulator comprising a suitable frame, a rotating shaft having a fixed gear-wheel and two fixed ratchet-wheels, a parallel shaft having a fixed pinion in engagement with said gear-wheel, means for transmitting motion from said second shaft to extraneous machinery, two arms pivotally connected with the shaft having fixed ratchet-wheels, pawls carried by said arms to engage the ratchet-wheels, two parallel vertically-vibrating levers connected with said arms by means of links, links for making such connections arranged and combined upon said frame, a support for a wind-wheel frame and two vertically-vibrating levers fulcrumed to said support and connected with the aforesaid levers, links for making such connections, and two reciprocating rods operated by a wind-

wheel, and a vertically-rotating wind-wheel, all arranged and combined for the purposes stated.

594,443. PATTERN-DRAFTING DEVICE. HIRAM H. TAYLOR, Manchester, N. H. Filed Apr. 22, 1897. Serial No. 633,382. (No model.)



Claim.—1. A drafting device for apparel-patterns having a series of perforations placed on portions of elliptic circles and compound curves, respectively, and graduated scales set on compound curves, substantially as specified.

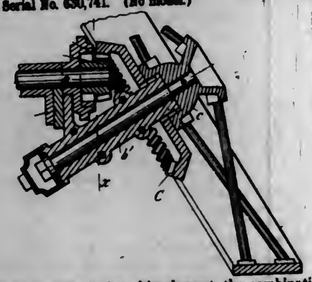
2. The drafting device for apparel-patterns, having the radiating rows of perforations at the neck, the rows of perforations at the shoulder, set on elliptic circles, the graduated scale at the shoulder arranged on a compound curve, the rows of perforations for the chest and arm-eye measurement, respectively, the row of under-arm line of perforations, the graduated scales I, J and the line of perforations L, substantially as indicated.

3. The drafting device for apparel-patterns, having the row of perforations C' set on a compound curve, the graduated scale D' also arranged on a compound curve, the rows of perforations E', H', and the graduated scales I', N and O, said rows of perforations curving upward from said scales, at the top and about midway thereof, respectively, all substantially as and for the purpose set forth.

4. The drafting device for apparel-patterns having the rows of perforations P, P' and Q, Q', said row of perforations P arranged out of alinement with and below the row of perforations P', and the row of perforations P' passing vertically through the rows of perforations Q, the rows of perforations Q' arranged parallel with and above said rows of perforations Q, the single perforation arranged centrally of, and some distance above said rows of perforations Q' Q', the curved edge S and the graduated edges D' D^3, substantially as specified.

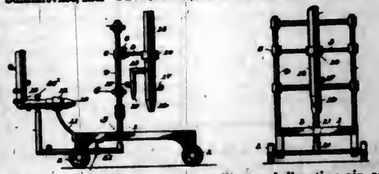
5. The drafting device for sleeve-patterns having the series of rows of numbered perforations at one end converging inward, the series of rows of numbered perforations across the same, at the elbow and the series of numbered perforations at the opposite end also converging inward and the scales, one arranged along each longitudinal edge thereof, substantially as set forth.

594,444. DRIVING MECHANISM FOR AGRICULTURAL IMPLEMENTS. ANDRÉ TÉTRAULT, Montreal, Canada. Filed Apr. 5, 1897. Serial No. 630,741. (No model.)



Claim.—In an agricultural implement, the combination, with a frame, and a horizontal shaft journaled therein and provided with a driving device: of two conical ground-wheels, two upwardly and outwardly inclined axles journaled in the frame and supporting the said ground-wheels, beveled toothed wheels C operatively secured to the said ground-wheels, beveled toothed wheels D journaled on the said shaft and gearing into the wheels C, internal ratchet-wheels secured on the said shaft, and pawls pivoted to the wheels D and engaging with the said ratchet-wheels, substantially as set forth.

594,445. DEVICE FOR CONTROLLING AND DIRECTING AIR TO GLASS-PRESSES. ROBERT H. THOMAS and JOHN A. CREIGHTON, Summitville, Ind. Filed Nov. 25, 1896. Serial No. 613,434. (No model.)



Claim.—1. The device for controlling and directing air, consisting of the mold carrier or plate, an adjustable holder carried by said plate, a vertical or perpendicular pipe carried by the holder, means for adjusting the pipe, and an adjustable horizontal pipe for horizontally directing the air.

2. The combination of a mold-carrier, a perpendicular air-directing pipe having a vertically, a horizontally, and a forward and backward adjustment with reference to the mold-carrier.

3. The combination of the mold-carrier, a perpendicular air-directing pipe having a vertical, forward and backward and horizontal adjustment with reference to the mold-carrier, and a pipe arranged horizontally and movable or adjustable with reference to the mold-carrier.

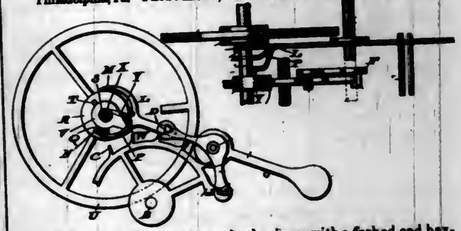
4. An elbow-pipe consisting of a short section provided with a nozzle, a long section provided with a cut-off and both sections provided with a series of nipples, and means for closing the nipples and nozzle.

5. The device for controlling and directing air to molds, consisting of the adjustable holder, the vertical pipe carried by said holder and having an elbow-shape branch, the horizontally-disposed band, and an elbow-pipe 18, and a holder therefor.

6. The combination with the mold carrier or plate, the standards rising therefrom, the cross-piece having its ends connected to the standards and provided with a slot, a slotted arm adjustably connected to the slot of the cross-piece, the perpendicular or vertical pipe carried by said slotted arm, and a horizontal elbow pipe.

7. The combination with the mold carrier or plate, the standards rising therefrom, the cross-piece having its ends connected to the standards and provided with a slot, the slotted arm adjustably connected to the slot of the cross-piece, the perpendicular or vertical pipe carried by said slotted arm, the horizontal elbow-pipe, the nipples on said horizontal elbow-pipe, means to close said nipples, and the branch pipe adapted to be connected to any one of the nipples and leading to any desired point.

594,446. BALANCE-ESCAPEMENT. FREDERICK H. VOIGT, Philadelphia, Pa. Filed June 16, 1896. Serial No. 595,737. (No model.)

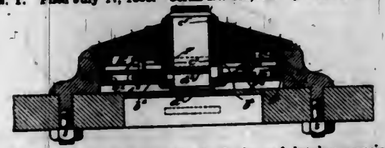


Claim.—1. An escapement-wheel, a lever with a forked end having one of its members out of the plane of the body of the lever and the other member, a pallet on the staff of said lever with faces engaged by the teeth of the escapement-wheel, a balance-wheel with pins on its hub adapted to contact with the members of said forked end of the lever, and a projecting nose on said forked end adapted to engage in a longitudinally extending slot in the staff of said balance-wheel.

2. An escapement-wheel, a lever with a forked end having the ends of its members in different planes, and provided with a projecting nose, a pallet connected with the staff of said lever and having faces engaged by the teeth of said escapement-wheel, stops for said lever, a balance-wheel with pins on its hub contacting with said members, one of said pins being deflected and an impulse-pallet on said balance-wheel staff, said projecting nose of the lever engaging in a longitudinally-extended slot in the staff of said balance-wheel.

3. An escapement-wheel, a lever with a forked end, having the ends of its members in different planes, and provided with a projecting nose, a pallet connected with the staff of said lever, and having faces engaged by the teeth of said escapement-wheel, a balance wheel having a staff, a collet supported on said staff and having teeth or projections extending therefrom, and adapted to contact with the extremities of said lever, and an impulse-pallet on said balance-wheel staff, said nose being adapted to engage a longitudinally-extending slot in the staff of said balance-wheel.

594,447. COMBINATION-LOCK. JAMES H. WARNER, New York, N. Y. Filed July 17, 1893. Serial No. 480,752. (No model.)



Claim.—1. A masking device for locks and latches, consisting of a stationary casing and a withdrawable core; said core consisting of a central operating-bolt projecting from the casing and rotating bolts arranged circumferentially with respect to said operating-bolt and operatively connected with rotatable rings adapted to register with retaining-lugs upon said stationary casing; substantially as and for the purposes described.

2. A masking device for locks and latches consisting of a stationary casing provided with retaining-lugs, independently-rotatable retaining-rings adapted to register with said lugs to permit the withdrawal of said rings, a series of concentric bolts in operative connection with and retained within said casing by said rings, said series of bolts being adapted to be operated from without said stationary casing; substantially as and for the purposes described.

3. The combination with an open ring-casing provided with means for detachably securing it to a given object, of a combination-lock detachably secured within said casing and consisting of certain operatively-connected members all of which latter move in unison when the lock is removed from, or placed within, the casing.

4. The combination with a frame or casing provided with retaining-lugs, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, a plurality of rings, means for rotating the rings, and means on the rings cooperating with the lugs to permit the removal of the lock.

5. The combination with a casing, of a combination-lock, comprising a plurality of bolts and a plurality of rings, means for rotating the rings in one direction, means for preventing their complete rotation in a reverse direction, and means for detachably connecting the lock to the casing.

6. The combination with a frame or casing, of a combination-lock, comprising a plurality of bolts nesting one within the other, a plurality of rings rotatably connected with one of the bolts, means for rotating the rings in one direction and means for impeding their rotation in a reverse direction, and means for retaining the lock within the casing permitting its removal.

7. The combination with a casing, of a combination-lock removably secured therein, a cap carried by, and removable from the casing with, said lock for masking the lock mechanism, and means for holding said cap stationary relative to said lock while the latter is being operated.

8. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, means for retaining the lock within the casing, permitting its removal, and a cap secured to one of the bolts masking the lock mechanism.

9. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, and each of said bolts having a beveled flange at its outer end and the outer bolt having a cap, and means for retaining the lock within the casing permitting its removal.

10. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, and each of said bolts having a beveled flange at its outer end, the inner bolt having a supporting-flange at its inner end and the outer bolt having a cap, means for retaining the lock within the casing permitting its removal.

11. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, the inner two of the bolts being provided with pinions, a plurality of rings rotatably connected with one of the bolts, means for cooperating with the pinions for rotating the rings, and means for retaining the lock within the casing permitting its removal.

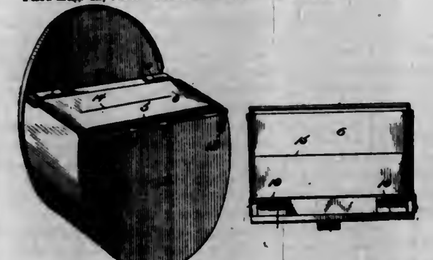
12. The combination with a frame or casing, of a combination-lock removably secured therein, comprising a plurality of bolts nesting one within the other, two of the bolts being provided with pinions, a plurality of rings rotatably connected with one of the bolts, and cogs on each of the rings, gearing connecting the cogs of the rings with the pinions of the bolts, and means for retaining the lock within the casing permitting its removal.

13. The combination with a casing provided with retaining means of a combination-lock, comprising a plurality of rings, means for operating said rings, and means carried by said rings and adjustable thereon for cooperating with the said retaining means, whereby a change in the effective combination may be obtained; substantially as described.

14. The combination with a casing provided with retaining means, of a combination-lock comprising a plurality of rings, means for operating said rings, and spring-controlled devices carried by, and adjustable on, said rings; substantially as described.

15. The combination with a casing provided with retaining means, of a combination-lock comprising a plurality of rings, means for operating said rings, means carried by said rings cooperating with said retaining means whereby the lock may be removed from the casing, and means adjustably secured to said rings and also cooperating with said retaining means, the latter means performing the double function of determining the effective combination and of preventing the complete rotation of the rings in a reverse direction; substantially as described.

594,448. BAIT-HOLDER. JOHN F. WEBBER, Sheridan, Wyo. Filed Aug. 12, 1897. Serial No. 648,001. (No model.)



Claim.—1. A bait-box, having a cover formed of an elastic diaphragm provided with a dividing slit, substantially as and for the purpose specified.

2. A bait-box, having a cover comprising a wire frame hinged to the box, and an elastic diaphragm secured to the frame and provided with a dividing slit, substantially as and for the purpose specified.

3. A bait-box, having a cover comprising a wire frame hinged to the box and provided with locking-catches, and an elastic diaphragm secured to the frame and provided with a dividing slit, substantially as and for the purpose specified.

4. A bait-box, having a cover, comprising a wire frame hinged to the box and provided with locking-catches, and an elastic diaphragm formed of two pieces of rubber secured to the frame and arranged side by side in close proximity to each other, substantially as described.

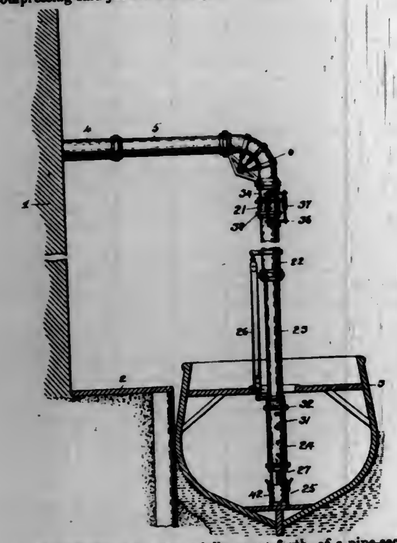
594,449. ELEVATOR MARINE LEG. FREDERICK J. WEBER, Connersville, Ind. Filed Jan. 20, 1897. Serial No. 621,174. (No model.)

Claim.—1. The combination, substantially as set forth, of an elevator structure, a pipe projecting outwardly therefrom, an elbow at the outer end of said pipe, a flexible pipe-joint at the base of said elbow, a pipe section suspended from said flexible joint, a telescopic pipe-section sliding within said suspended pipe, a flexible pipe-section at the base of said telescopic pipe, a mouthpiece at the base of said flexible pipe-section, and rope-tackle supported direct by said suspended pipe and connected with the pipe parts below it and having its head-rope near said mouthpiece.

2. The combination, substantially as set forth, of two pipe-sections, a series of short frusto-conical pipe-sections connecting the first-mentioned pipe-sections and having intermembering inner and outer hook-shaped flanges, and a flexible jacket surrounding said series of frusto-conical sections and attached at its ends to the first-mentioned pipe sections.

3. The combination, substantially as set forth, of a pair of pipe-sections, elastic rings surrounding the ends thereof, a flexible jacket surrounding said elastic rings and extending from one ring to the

other, and draw-bands encircling said jacket exterior to said rings and compressing said jacket and rings.



4. The combination, substantially as set forth, of a pipe-section having its end formed directly with an outward flare, a pipe-section with its end fitting loosely directly within said flaring end, brackets rigidly secured to and projecting from said pipe-sections, suspension-links connecting said brackets, and a flexible jacket connected with said pipe-sections and inclosing their juncture.

5. In a flexible joint connection the combination of a pipe-section having a flared end, with a second pipe-section fitting loosely and directly within said flaring end, oppositely-disposed brackets rigidly secured to and projecting from the pipe-sections, oblong interlocking links connecting said brackets, and a flexible jacket connected with said pipe-sections and inclosing their juncture.

6. A mouthpiece for pneumatic grain-tubes consisting of the open end of the tube in combination with a jacket surrounding and adjustably supported upon the tube with an annular space between the tube and jacket, the lower end of the jacket projecting below the lower end of the tube, and spacing means interposed between the tube and jacket and projecting slightly below the latter, substantially as described.

7. The combination, substantially as set forth, of a mouth-pipe, a jacket surrounding the same and leaving an annular space outside the mouth-pipe, brackets secured to and projecting outwardly from the mouth-pipe within and into engagement with the jacket, and means for securing said jacket at selective heights directly to said brackets consisting of pins passing through holes in the jacket and entering one of a series of holes in each bracket.

8. The combination, substantially as set forth, of a mouth-pipe, a jacket surrounding the same and leaving an annular space around the mouth-pipe, brackets connecting the top of the jacket with the mouth-pipe, and bows within the annular space around the mouth-pipe and engaging the mouth-pipe and jacket and projecting below the end of the mouth-pipe and serving to maintain the end of the mouth-pipe free of a supporting-surface below it.

594,450. BALL-BEARING FOR CYCLES. ENOCH J. WIRE, Folesshill, England. Filed Nov. 23, 1896. Serial No. 613,143. (No model.) Patented in France Nov. 25, 1896, No. 261,614.



Claim.—1. In a ball-bearing, the combination, with the shell of the bearing and an adjustable cup screwed in said shell and having a cone at the back thereof, of a split ring having a conical inside and screwed in the said shell, substantially as and for the purpose set forth.

2. In a ball-bearing, the combination, with the shell of the bearing and cones *a* and *a'* fixed on a spindle or shaft, of a cup C fixed in said shell, an adjustable cup C' screwed in the said shell and having a cone *c* on the back thereof, and a ring D having a conical inside *d* and screwed in the aforesaid shell, substantially as and for the purpose set forth.

594,451. BICYCLE-SADDLE. BENJAMIN F. WHEELER, Detroit, Mich., assignor to the Wheeler Saddle Company, same place. Filed May 28, 1897. Serial No. 638,492. (No model.)



Claim.—1. In a bicycle-saddle, the combination of the saddletree comprising two rearwardly-extending independent members divided by a central opening and united in a reduced forwardly-extending neck, of the leather covering consisting of two opposed layers embracing said tree having central depressions whose opposed faces meet between the members of said saddletree and extend outward to the rear margin of the saddle and whose marginal edges meet beyond the perimeter of said tree, and the line of stitching around said marginal edges and following the line of said central depression.

2. In a bicycle-saddle, a laminated wooden saddletree comprising two rearwardly-extending flaring members separated by a central oblong opening and having a reduced forwardly-extending neck, a reinforcing-tongue extending longitudinally of said neck into the body of said tree beyond the point of the forward terminus of said central opening.

3. In a bicycle-saddle, the saddletree comprising two rearwardly-extending flaring members curved at their rear edges and divided by an opening extending forward through the back of said tree and having a reduced forwardly-extending neck.

4. In a bicycle-saddle, the combination of the saddletree having two rearwardly-extending members divided by an opening extending through the back thereof and having a forwardly-extending neck, of the padding mounted upon the tree, the two coverings of leather embracing said tree and padding, said leathers being united between the divided members of said tree and beyond the marginal edges thereof, and the line of stitching through the united faces of said leathers around the divided members of said tree.

5. In a bicycle-saddle, the combination of the saddletree having a reduced neck and flaring independent members divided by a central opening extending forward through the back thereof, the coverings of leather embracing said tree and conforming thereto, said leathers meeting between said divided members forming a united web and having lapping margins which are united beyond the perimeter of said tree, the support or spring mounted upon the under face of the saddle attached to the pommel at its forward ends, the rear ends of said spring diverging and having the closed eyes, and having the integral cross-bar extending between said eyes across the dividing-opening between the members of said saddle, and the bolts mounted in the saddletree and projecting through said eyes in the spring.

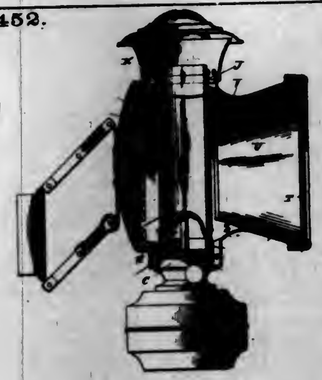
6. In a bicycle-saddle, the combination of the saddletree having a reduced neck and flaring independent members divided by a central opening extending through the back of said tree, the coverings of leather embracing said tree and conforming thereto, the support or spring having a transverse bar which crosses the central opening between the members of the saddletree and is secured at opposite ends to said members.

594,452. BICYCLE OR OTHER LANTERN. THOMAS WIRE, East Orange, N. J. Filed Dec. 9, 1896. Serial No. 615,040. (No model.)

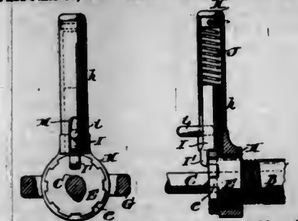
Claim.—1. In combination with a bicycle-lamp having a cylindrical casing, a reflector placed at one end of the casing, a second reflector placed in the lens-housing, and a third reflector cylindrical in form detachably secured in the casing concentric therewith, as and for the purpose described.

2. In a bicycle-lamp, a cylindrical casing in a horizontal position, a reflector at one end of the casing, a reflector having the shape of a truncated cone detachably secured in the housing, a cylindrical reflector detachably secured in the casing concentric therewith, as and for the purpose described.

594,452.



594,458. STUFFING-BOX. CHARLES A. WRIGHT, Philadelphia, Pa. Filed June 19, 1897. Serial No. 641,504. (No model.)



Claim.—1. A stuffing-box having a rotatable adjustable cap formed with a series of notches about its periphery, in combination with a hub journaled upon the cap and formed with a tubular handle extension for operating it having a slot M near its hub, a locking-tooth fitted in the tubular handle and movable to and from the notches of the cap and also furnished with a detachable extending finger or projection *i* for operating said tooth working in said slot M, and an extended portion I' to hold the hub against longitudinal motion, a spring also arranged within the tubular handle for pressing the locking-tooth positively toward the cap, and a block K secured in the outer end of said tubular handle to form an abutment for the spring.

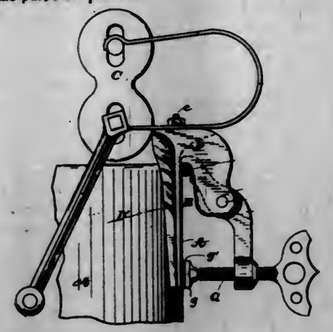
2. A stuffing-box having a rotatable and adjustable cap formed with an annular flange having a series of notches about its periphery, combined with a handle journaled concentrically to and upon said cap and fitted to one side of the annular flange, and a spring-actuated tooth adjustable upon the handle adapted to the notches for turning it and further provided with a projection extending over the cap to hold the adjustable handle from movement longitudinally thereon.

3. The combination of a stuffing box, with a handle permanently journaled concentrically to the cap of the stuffing-box, and a detachable and adjustable locking connection between the handle and the cap of the stuffing-box having a retaining projection for holding the handle against longitudinal movement relatively to the cap, whereby the said handle and cap may be positively connected and disconnected at intervals for the purpose of imparting a rotary motion in either direction to the cap by a reciprocating motion of the handle and held after adjustment against accidental rotation due to the jarring of the engine or machine and at the same time the handle be continuously held in working relation to the cap.

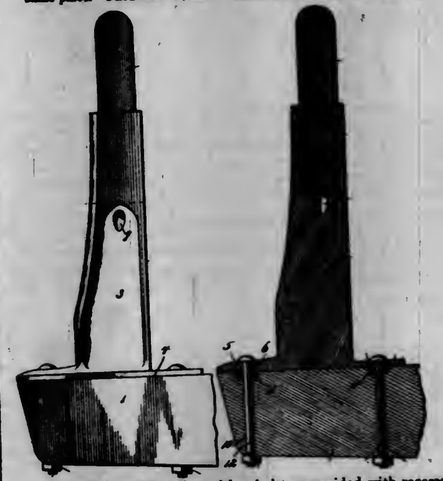
4. A stuffing-box having a rotatable and adjustable cap E formed with a flange having a series of notches *e* about its periphery, in combination with a tubular handle A having a hub H journaled upon the cap to one side of the notched flange thereof, a locking-tooth I carried in the tubular handle and having an extension I' for holding the hub H against longitudinal movement upon the cap and a spring J arranged within the tubular handle for pressing the tooth toward the cap.

594,454. CLOTHES-WRINGER CLAMP. HOWARD U. ACKERMAN, Indianapolis, Ind. Filed Apr. 30, 1897. Serial No. 634,531. (No model.)

Claim.—A clamp for fastening clothes-wringers to tubs comprising a body portion having an arm to go on the inside of the tub, ears integral with the arm but partially separated therefrom by an under side tapering notch to receive the side of the tub, in combination with a lever pivotally secured to the ears and notched at its upper end to engage the tub in the manner as described and bent outwardly below to receive the staves of a wooden tub, and means for forcing the lower end of the lever in an outward direction, all substantially as described and for the purposes specified.



594,455. WAGON-STANDARD. JOHN W. ARMSTRONG and NICHOLAS M. BERRY, Searcy, Ark., assignors of one-third to J. R. Mitchell, same place. Filed Jan. 14, 1897. Serial No. 619,210. (No model.)



Claim.—The combination with a bolster provided with recesses in its upper face, of a standard having a base-plate extending outwardly therefrom on each side, said base-plate having bosses formed on its lower surface to fit into the recesses in the bolster, securing-bolts passing through the base-plate, bosses, and bolster, said bolster having a socket at its upper end for the reception of a stake, and an opening or openings leading downwardly from the bottom of the socket to the outer surface of the standard, substantially as and for the purpose specified.

594,456. CAR-MOVER. SIDNEY J. BROWN, Tip Top, Va. Filed Feb. 19, 1897. Serial No. 624,152. (No model.)

Claim.—1. In a car-mover, a frame having at one end a depending portion to engage a railroad-tie, and a laterally extending adjustable support at its other end to rest on another tie, combined with a drum mounted to revolve in the frame, and a flexible connection adapted to wind on the drum and be connected to a car, substantially as described.

2. A car-mover having a frame, one end of which has a depending portion to engage one of the ties, and the other end of which has a shank, a drum mounted to turn on the frame and adapted to receive a connection coupled to the car, and a cross-bar having a sliding engagement with the shank, the ends of said cross-bar forming supports to engage the ties at opposite sides of the frame, substantially as described.

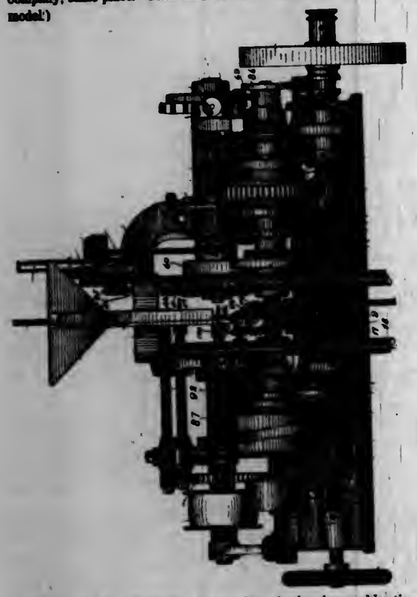
3. A car mover having a frame, one end of which has a depending portion to engage one of the ties, and the other end of which has a shank, a drum mounted to turn on the frame and adapted to receive a connection coupled to the car, and a cross-bar having a slid-

ing engagement with the shank, said cross-bar being curved and having its ends arranged to form supports to engage the ties at opposite sides of the frame, substantially as described.



4. A car-mover having a frame, one end of which has a depending portion to engage one of the ties, and the other end of which has an upwardly-bent shank, a drum mounted to turn on the frame and adapted to receive a connection coupled to the car, and a support having a sliding engagement with said shank, to support the frame upon the ties, substantially as described.

594,457. MACHINE FOR FORMING NIPPLES. ANDREW C. CAMPBELL, Waterbury, Conn., assignor to the H. J. Manville Machine Company, same place. Filed May 26, 1897. Serial No. 638,378. (No model.)



Claim.—1. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, drilling, tapping and milling tools movable simultaneously toward and from the carrier for operating upon the blanks, an ejector movable on the tool side of the carrier independently of the tools for discharging the finished nipples from the jaws of the carrier, and mechanisms for moving the ejector, substantially as specified.

2. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, means for opening and closing the jaws of the carrier, drilling, tapping and milling tools movable simultaneously toward and from the carrier for operating upon the blanks, an ejector movable on the tool side of the carrier independently of the tools for discharging the finished nipples from the jaws of the carrier, and mechanisms for moving the ejector, substantially as specified.

3. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a pusher for advancing the blanks from the feed mechanisms into the jaws of the carrier, tools movable toward and from the carrier for operating upon the blanks, and an ejector connected with the pusher for discharging the finished nipples from the jaws of the carrier, substantially as specified.

4. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a pusher for advancing the blanks from the feed mechanisms into the jaws of the carrier, tools movable independently of the pusher toward and from the carrier for operating upon the blanks, and an ejector connected with the pusher for discharging the finished nipples from the jaws of the carrier, substantially as specified.

5. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, boring and milling tools movable together toward and from the carrier for operating upon the blanks, a threading-tool movable independently of the boring and milling tools toward and from the carrier for threading the blanks, and an ejector for discharging the finished nipples from the jaws of the carrier, substantially as specified.

6. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a carriage movable toward and from the carrier, turning and boring tools supported by and movable with the carriage, and mills supported by the bed independently of the carriage and movable simultaneously with the turning and boring tools, substantially as specified.

7. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a carriage movable toward and from the carrier, turning and boring tools supported by and movable with the carriage, mills supported by the bed independently of the carriage, and a connection between the mill-supporting frame and the carriage, substantially as specified.

8. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a carriage movable toward and from the carrier, turning and boring tools supported by and movable with the carriage, and mills supported by a frame that is pivotally connected with the bed, substantially as specified.

9. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a carriage movable toward and from the carrier, turning and boring tools supported by and movable with the carriage, and a tap supported by but movable independently of the carriage, substantially as specified.

10. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a carriage movable toward and from the carrier, turning and boring tools supported by and movable longitudinally together with the carriage, a tap supported by but movable independently of the carriage, and mills supported independently of but movable with the carriage, substantially as specified.

11. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a carriage movable toward and from the carrier, turning and boring tools supported by and movable with the carriage, mills supported by the bed independently of the carriage but connected so as to move therewith, a tap supported by the carriage but moving independently thereof, and an ejector for discharging the finished nipples from the jaws of the carrier, supported by the bed and movable independently of the carriage, substantially as specified.

12. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, feed mechanisms for transferring the blanks from the receptacle to the jaws of the carrier, a carriage movable toward and from the carrier, turning and boring tools supported by and movable with the carriage, a tap supported by but movable independently of the carriage, mills borne by a frame pivotally connected with the bed in advance of the carriage, and a link connecting the mill-frame with the carriage, substantially as specified.

13. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, an elevator for lifting the blanks from the receptacle, a trough for receiving the blanks from the elevator, a slide for carrying the blanks from the trough, reciprocating fingers for removing the blanks from the slide, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, a pusher for advancing the blanks from the fingers into the jaws of the carrier, cutting and tapping tools movable toward and from the carrier, and a movable ejector for discharging the finished nipples from the jaws of the carrier, substantially as specified.

14. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, an elevator for lifting the blanks from the receptacle, a trough for receiving the blanks from the elevator, a slide for carrying the blanks from the trough, reciprocating fingers for moving the blanks from the slide, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, a pusher for advancing the blanks from the fingers into the jaws of the carrier, means for intermittently rotating the carrier, mechanisms for opening and closing the jaws, cutting and tapping tools movable toward and from the carrier, and a movable ejector for discharging the finished nipples from the jaws of the carrier, substantially as specified.

15. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, an elevator for lifting the blanks from the receptacle, a trough for receiving the blanks from the elevator, a slide for carrying the blanks from the trough, reciprocating fingers for removing the blanks from the slide, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, a pusher for advancing the blanks from the fingers into the jaws of the carrier, means for intermittently rotating the carrier, mechanisms for opening and closing the jaws, a carriage movable toward and from the carrier, turning and boring tools mounted on the carriage and movable simultaneously with the carriage toward and from the carrier, and a movable ejector on the tool side of the carriage for discharging the finished nipples from the jaws of the carrier, substantially as specified.

16. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, an elevator for lifting the blanks from the receptacle, a trough for receiving the blanks from the elevator, a slide for carrying the blanks from the trough, fingers for removing the blanks from the slide, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, a pusher for advancing the blanks from the fingers into the jaws of the carrier, means for intermittently rotating the carrier, mechanisms for opening and closing the jaws, a carriage movable toward and from the carrier, turning and boring tools mounted on the carriage and movable simultaneously toward and from the carrier, mills supported by the bed independently of the carriage but connected so as to move therewith, and an ejector for discharging the finished nipples from the jaws of the carrier, substantially as specified.

17. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, an elevator for lifting the blanks from the receptacle, a trough for receiving the blanks from the elevator, a slide for carrying the blanks from the trough, fingers for removing the blanks from the slide, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, a pusher for advancing the blanks from the fingers into the jaws of the carrier, means for intermittently rotating the carrier, mechanisms for opening and closing the jaws, a carriage movable toward and from the carrier, turning and boring tools mounted on the carriage and movable simultaneously toward and from the carrier, a tap supported by the carriage and movable independently thereof, and an ejector for discharging the finished nipples from the jaws of the carrier, substantially as specified.

18. In a machine for forming nipples, in combination, a receptacle for receiving the blanks, an elevator for lifting the blanks from the receptacle, a trough for receiving the blanks from the elevator, a slide for carrying the blanks from the trough, fingers for removing the blanks from the slide, a carrier with holding-jaws for grasping the blanks rotarily mounted upon the bed, a pusher for advancing the blanks from the fingers into the jaws of the carrier, means for intermittently rotating the carrier, mechanisms for opening and closing the jaws, a carriage movable toward and from the carrier, turning and boring tools mounted on the carriage and movable simultaneously toward and from the carrier, mills supported by the bed independently of the carriage but connected so as to move therewith, a tap supported by the carriage but moving independently thereof, and an ejector for discharging the finished nipples from the jaws of the carrier, supported by the bed and movable independently of the carriage, substantially as specified.

19. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a rotary carrier, pairs of jaws borne by the carrier, one of each of said pairs of jaws having a spring-shank, a cam-stud for closing one of the jaws of each pair, a crank for operating this cam-stud, an oscillating cam for rocking the crank, a bar for oscillating the crank-moving cam, and a rotary cam for reciprocating the bar, substantially as specified.

20. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a carrier, pairs of jaws pivoted to the carrier, a cam-stud for adjusting one of each of the pairs of jaws, a cam-stud for closing the other of each of the pairs of jaws, a crank for operating one cam-stud of each pair, an oscillating cam for rocking the crank, a bar for oscillating the crank-moving cam, and a rotary cam for reciprocating the bar, substantially as specified.

21. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a carrier, pairs of jaws borne by the carrier, one of the jaws of each pair having a spring-shank and an adjusting-screw to regulate the spring of the shank, a cam-stud bearing against the spring-shank of one of each of the pairs of jaws, a crank for operating each cam-stud, an oscillating cam for rocking the cranks, a bar for oscillating the crank-moving cam, and a rotary cam for reciprocating the bar, substantially as specified.

22. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a carrier, pairs of jaws pivoted to the carrier, one of the jaws of each pair having a spring-shank and an adjusting-screw for regulating the spring of the shank, a cam-stud bearing against the spring-shank of one of each of the pairs of jaws, a crank for operating each of the cam-studs, an oscillating cam for rocking the cranks, a bar for oscillating the crank-moving cam, a rotary cam for reciprocating the bar, and a wedge-stud for adjusting the other of each of the pairs of jaws, substantially as specified.

23. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a carrier bearing adjustable jaws, mechanisms for adjusting and for opening and closing the jaws, an index-disk connected with the carrier, a crank for rotating the index-disk, said crank being borne upon a reciprocating shaft, means for rotating the crank-shaft, and mechanisms for reciprocating the crank-shaft, substantially as specified.

24. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a carrier bearing adjustable jaws, mechanisms for opening and closing the jaws, an index-disk connected with the carrier, said disk having driving-mortises and peripheral locking-notches, a crank adapted to engage the driving-mortises, means for rotating the crank, a bolt adapted to engage the locking-notches, and mechanism for reciprocating the bolt radially of the disk and withdrawing it from the notches at the proper time, substantially as specified.

25. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a rotary carrier bearing jaws, mechanisms for opening and closing the jaws, an index-disk connected with the carrier, said disk having driving-mortises and locking-notches, a crank adapted to engage with the driving-mortises, said crank being borne upon a reciprocating shaft, means for rotating and mechanisms for reciprocating the crank-shaft, a bolt adapted to engage the locking-notches of the index-disk, and mechanisms for withdrawing the bolt from the notches at the proper time, substantially as specified.

26. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a carrier bearing jaws, mechanisms for opening and closing the jaws, an index-disk connected with the carrier, said disk having driving-mortises and locking-notches, a crank adapted to engage with the driving-mortises, said crank being borne upon a reciprocating shaft, means for rotating and mechanisms for reciprocating the crank-shaft, a spring-bolt adapted to engage the locking-notches of the index-disk, and a cam for moving the lever at the proper time, substantially as specified.

27. In combination with the feeding mechanisms, the carrier and

the cutting-tools of a machine of the within-described class, a pusher for advancing the blanks to the carrier, an ejector for discharging the finished nipples from the carrier, said pusher and ejector being mounted with their axes in the same line and connected so as to move together and operate upon opposite sides of the same set of jaws, levers for reciprocating the pusher and ejector, and a cam for oscillating the levers, substantially as specified.

28. In combination with the feeding mechanisms, the carrier and cutting-tools of a machine of the within-described class, a pusher for advancing the blanks to the carrier, an ejector for discharging the finished nipples from the carrier, said pusher and ejector being mounted upon the same spindle, levers for reciprocating the spindle, and a cam for oscillating the levers, substantially as specified.

29. In combination with the feeding mechanisms, the carrier and the cutting-tools of a machine of the within-described class, a frame mounted upon the bed so that it may be oscillated, mechanisms for oscillating the frame, a spindle supported by the frame, two pairs of mills adjustably supported by the spindle, and means for rotating the spindle, substantially as specified.

30. In combination with the feeding mechanisms, the carrier and the boring-tools of a machine of the within-described class, a frame mounted upon the bed so that it may be oscillated, one of the brackets of said frame being adjustable, a spindle supported by the frame, two pairs of mills adjustably supported by the spindle, and means for rotating the spindle, substantially as specified.

31. In combination with the feeding mechanisms, the carrier and the cutting-tools of a machine of the within-described class, a threading mechanism consisting of a movable spindle bearing a tap and a pinion, means for reciprocating the spindle, a gear mounted upon a movable shaft and meshing with the tap-spindle pinion, clutch-pulleys mounted upon the gear-shaft, and means for reciprocating the gear-shaft so as to connect one and disconnect the other of the clutch-pulleys with the gear to reverse the direction of rotation of the gear and tap-spindle, substantially as specified.

32. In combination with the feeding mechanisms, the carrier and the cutting-tools of a machine of the within-described class, a threading mechanism consisting of a spindle bearing a tap and pinion, a gear mounted upon a shaft and meshing with the tap-spindle pinion, pulleys mounted upon the gear-shaft, levers for shifting clutches so as to connect one and disconnect the other with the gear, springs for throwing the levers, a catch for holding the levers with the springs under tension, and a trip mechanism for releasing the catch at the proper time, substantially as specified.

33. In combination with the feed mechanisms, the carrier and the cutting-tools of a machine of the within-described class, a threading mechanism consisting of a spindle bearing a tap and a pinion, levers for advancing the tap-spindle, a cam for moving the levers, a gear mounted upon a shaft and meshing with the tap-spindle pinion, pulleys mounted upon the gear-shaft, levers for shifting clutches so as to connect one and disconnect the other of the pulleys with the gear, springs for throwing the levers, a catch for holding the levers with the springs under tension, and a trip mechanism for releasing the catch, substantially as specified.

34. In combination with the feeding mechanisms, the carrier and the cutting-tools of a machine of the within-described class, a threading mechanism consisting of a spindle bearing a tap and a pinion, levers for advancing the tap and spindle, a cam for moving the levers, a gear mounted upon a shaft and meshing with the tap-spindle pinion, pulleys mounted upon the gear-shaft, levers for shifting clutches so as to connect one and disconnect the other of the pulleys with the gear, springs for throwing the levers in one direction, a catch for holding the levers with the springs under tension, levers and cams for drawing the clutch-levers and placing the springs under tension and setting the catch, and a connection between the tap-spindle levers and the latch for releasing the catch, substantially as specified.

35. In combination with the feeding mechanisms and cutting-tools of a machine of the within-described class, a carrier bearing jaws, an index-disk connected with the carrier, a crank for rotating the index-disk, said crank being borne upon a reciprocating shaft, means for rotating the crank-shaft, and mechanism for reciprocating the crank-shaft, substantially as specified

36. In combination in a machine of the within-described class, a gravity feed-trough, a movable slide at the bottom of the feed-trough for receiving the blanks, mechanism for moving the slide with a blank from the bottom of the trough to a position in line with the grasping-fingers, reciprocating grasping fingers for picking up the blank from the slide, mechanisms for reciprocating the fingers, a rotary disk with jaws for receiving the blank arranged around the face of the disk, mechanisms for opening and closing the jaws, and reciprocating pushers for alternately thrusting a blank into and forcing a nipple out of the pairs of jaws, substantially as specified.

37. In combination with a carrier for receiving pieces to be operated upon and the tools for operating upon the pieces, a hopper, a feed trough leading from the hopper to the carrier, an elevator-plate movably held by the walls of the hopper, a stop for limiting the upward movement of the elevator-plate, mechanism for reciprocating the elevator-plate, and an adjustable elastic connection between the elevator-plate and the mechanism for moving the elevator-plate, substantially as specified.

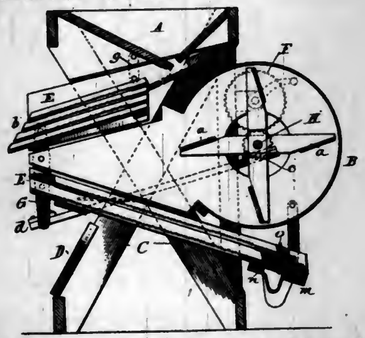
38. In combination with a carrier for receiving pieces to be operated upon and the tools for operating upon the pieces, a hopper, a feed-trough leading from the hopper to the carrier, an elevator-plate movably held by the walls of the hopper, a stop for limiting the upward movement of the elevator-plate, mechanism for reciprocating the elevator plate, and an elastic connection between the elevator-plate and the mechanism for moving the elevator-plate, substantially as specified.

594,458. FILM-SPOOL. JOHN CARBUTT, Philadelphia, Pa. Filed May 7, 1897. Serial No. 635,551. (No model.)



Claim.—The combination with the film-spool consisting of a drum and opaque flanges at the ends of the drum, of a bar fixed to the spool parallel to its axis and having its central portion slightly separated from the drum's surface, and spurs projecting from the drum at one side of the bar, for the purpose set forth.

594,459. DOUBLE-GRADE GRAIN-CLEANER. ANDREW J. CLELAND and HERBERT W. CLELAND, Mankato, Minn. Filed Apr. 15, 1895. Serial No. 545,757. (No model.)

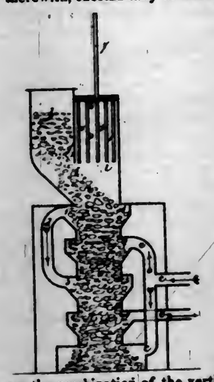


Claim.—The combination of the lower shoe E, having slots *j j*, through its lateral walls, the grade-screen *b*, formed with one or more countersinks or corrugations in the outer surface of its side bars and the springs *k*, secured to the outer faces of the walls of the shoe, and having the formed angles or bends projecting through the slots and engaging countersinks in the side bars of the screen whereby said screen may be removed, replaced, or adjusted, and held in position by simply sliding it endwise into the shoe, all as set forth and described.

594,460. GAZOGENE. ANDRÉ CLOUARD, Caen, France. Filed Nov. 25, 1895. Serial No. 569,997. (No model.) Patented in France Apr. 24, 1895, No. 246,795.

Claim.—1. In a gazogene, the combination with a vertical furnace, of a flue for the admission of air and steam communicating with the furnace at two points, one point being at the bottom of the furnace and the other point near the upper part of the furnace below the point where the fuel is fed thereto, a gas-flue communicating at its upper end with the furnace above the point where the air and steam flue communicates therewith at its upper end and at its other end communicating with the furnace between the points of communication of the two ends of the air and steam flue therewith, and an exit-flue leading from the furnace between the points of communication of the air and steam flue therewith, substantially as and for the purposes described.

2. In a gazogene, the combination with the vertical furnace, of a flue for the admission of air and steam communicating with the furnace at two points, one point being at the bottom of the furnace and the other point near the upper part of the furnace below the point where the fuel is fed thereto, a gas-exit flue leading from the furnace between the points of communication of the air and steam flue therewith, and a gas-flue communicating at one end with the furnace above the point where the air and steam flue communicates therewith at its upper end and at its other end communicating with the furnace between the points where the air and steam flue communicates therewith at both ends and above the point where the gas-exit flue communicates therewith, substantially as and for the purposes described.



3. In a gazogene, the combination of the vertical furnace, the feed-hopper opening into the same at its upper end and divided centrally by a vertical partition, vertically-movable rods operating in the hopper to one side of the partition and adapted to crush the cake of coke formed at the upper end of the furnace, a flue for the admission of air and steam communicating at one end with the upper portion of the furnace and at the other end with the lower portion of the furnace, a gas-flue communicating at its upper end with the furnace above the point where the upper end of the air and steam flue communicates therewith and at its other end with the furnace between the points where the two ends of said flue communicate therewith, and a gas-exit flue leading from the furnace between the points of communication of the air and steam flue therewith, substantially as and for the purposes described.

594,461. GRUBBING IMPLEMENT. JOHN H. CONNELL and WILLIAM J. CONNELL, Charleston, W. Va. Filed Jan. 29, 1897. Serial No. 621,183. (No model.)



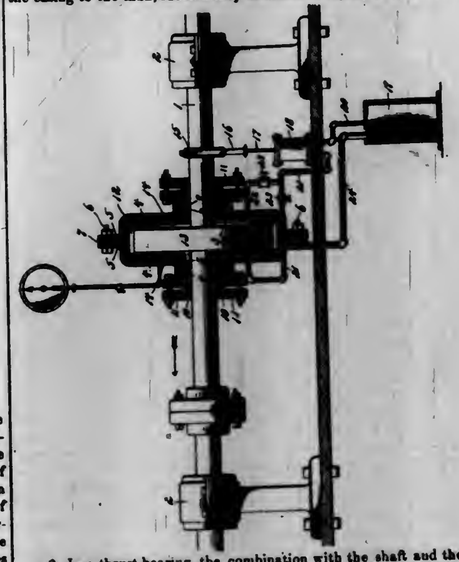
Claim.—1. An implement of the kind specified consisting of a handle, a clamping-jaw pivoted to the lower end portion of said handle and adapted to swing vertically and having an angular end extending across the end of said handle, and a roller carried below said handle.

2. In an implement of the kind specified, a handle having a roller, said handle having a roughened end, and a clamping-jaw having a roughened inner face to coact with the roughened end of said handle.

3. In an implement of the kind specified, a handle, a roller carried thereby, a pivoted clamping-jaw having an angular end portion extending across the end of said handle and provided with a handle.

594,462. THRUST-BEARING FOR PROPELLER-SHAFTS. OREN F. COOK, San José, Cal. Filed Jan. 19, 1897. Serial No. 619,781. (No model.)

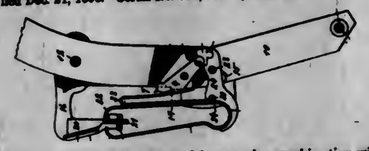
Claim.—1. In a thrust-bearing, the combination with the shaft and the collar rigid thereon, of a casing inclosing the collar, the chamber of said casing being of larger dimensions than the collar to permit the latter to rotate therein without frictional contact, said casing having annular recesses in its opposite faces, said recesses being of less diameter than that of the collar and each forming a closed chamber when the collar frictionally engages the inner face of the casing in which said recess is formed, an oil-tank, a pump operated by the shaft and having a pipe connection with the tank, a pipe leading from the pump to said recesses, and a pipe leading from the interior of the casing to the tank, substantially as and for the purpose specified.



2. In a thrust-bearing, the combination with the shaft and the collar rigid thereon, of a casing inclosing the collar, the chamber of said casing being of larger dimensions than the collar to permit the latter to rotate therein without frictional contact, said casing having annular recesses in its opposite faces, said recesses being of less diameter than that of the collar and each forming a closed chamber when the collar frictionally engages the inner face of the casing in which said recess is formed, and means substantially as described to circulate oil under pressure through the chamber and cause it to accumulate in the recesses, whereby an oil-cushion is formed, substantially as and for the purpose described.

3. In a thrust-bearing, the combination with the shaft and the collar rigid thereon, of a casing inclosing the collar, the chamber of said casing being of greater diameter than the collar to leave an annular space between them, said casing having a recess formed in the inner face thereof at each side of the collar, an oil-tank, a pump operated by the shaft, a pipe leading from the tank to the pump, pipes leading from the pump to said recesses, valves in the last-named pipes to control the flow of oil therethrough, and a return pipe leading from the annular space in the casing to the oil-tank, the construction being such that by operating the said valves the oil can be pumped to either of the recesses and pass into the said annular space to be returned to the tank, substantially as described.

594,468. SPRING-TRIP CULTIVATOR. GEORGE E. COPPER, Sheffield, Mo., assignor of one-half to William H. Woodard, same place. Filed Dec. 21, 1896. Serial No. 616,558. (No model.)



Claim.—1. In a spring-trip cultivator, the combination with the beam, of a shovel-carrying frame pivoted thereto, and provided with a contracting or tapering tension-arm, devices locking said frame and beam together, and a spring actuating said devices and engaging normally the contracted end of the tension-arm, substantially as described.

2. In a spring-trip cultivator, the combination with a beam, of a shovel-carrying frame pivoted thereto, and provided with a contracting tension-arm having a substantially abrupt shoulder or point of resistance near its lower end, devices locking said beam and frame

together, and a spring actuating said devices and engaging the tension-arm normally just below said abrupt shoulder or point of resistance, substantially as and for the purpose set forth.

3. In a spring-trip cultivator, the combination with the beam, and a dog pivoted thereto, of a shovel-carrying frame pivoted to the cultivator, and a spring-actuated rocker carried by the frame and engaging said dog, which is adapted to be pivotally operated by reason of said engagement when the shovel encounters an unusual resistance, and thereby permit it to swing back out of the way as the cultivator advances, substantially as described.

4. In a spring-trip cultivator, the combination with the beam, and a dog pivoted to and depending from the same, of a shovel-carrying frame pivoted to the beam and provided with a tension-arm, a rocker carried by said frame and engaged by said dog, and a spring engaging the opposite end of said rocker and said tension-arm, substantially as and for the purpose described.

5. In a spring-trip cultivator, the combination with the beam, and a dog pivoted to and depending from the same, of a shovel-carrying frame pivoted to said beam and provided at its upper end with a tension-arm, and below said dog with a lug, a rocker carried by said frame and engaging said dog in advance of its axis, and resting upon said lug in rear of its axis, and a spring engaging the rear end of said rocker and said tension-arm, substantially as described.

6. In a spring-trip cultivator, the combination with the beam, of a shovel-carrying frame pivoted thereto, and provided with a downwardly-contracting tension-arm, devices locking said frame and beam together, and an approximately U-shaped spring holding said devices interlocked and having its free ends pressing against opposite sides of said contracting tension-arm, substantially as described.

7. In a spring-trip cultivator, the combination with the beam, of a shovel-carrying frame pivoted thereto, and provided with a downwardly-contracting tension-arm, devices locking said frame and beam together, an approximately U-shaped spring holding said devices interlocked and having its free ends pressing against opposite sides of said contracting tension-arm, and means to increase the width of said tension-arm and thereby afford greater resistance to the sliding action of the spring, substantially as described.

8. In a spring-trip cultivator, the combination with the beam, of a shovel-carrying frame pivoted thereto, and provided with a downwardly-contracting tension-arm, devices locking said frame and beam together, an approximately U-shaped spring holding said devices interlocked and having its free ends pressing against opposite sides of said contracting tension-arm, a wedge-block slidingly mounted upon and forming a part of said tension-arm, and means to adjust the same longitudinally, and thereby increase or diminish the width of said arm, substantially as described.

9. In a spring-trip cultivator, the combination with the beam, of a shovel-carrying frame pivoted thereto, and provided with a downwardly-contracting tension-arm, devices locking said frame and beam together, an approximately U-shaped spring holding said devices interlocked and having its free ends pressing against opposite sides of said contracting tension-arm, and a wedge-shaped block carried by and forming a part of said tension-arm, and provided with a threaded stem, and a set-screw engaging said stem and bearing against the lower end of the tension-arm, substantially as and for the purpose described.

10. In a spring-trip cultivator, the combination with the beam, of a shovel-carrying frame pivoted thereto, and comprising a pair of similar members arranged at opposite sides of the beam and each provided with a rearwardly-projecting arm having parallel depending extensions which diminish in width, and each provided with obliquely-extending ribs, a wedge-block arranged slidingly between said extensions and bearing against said ribs, and provided with a threaded stem, a set-screw engaging said threaded stem and the lower end of said extensions, devices locking the frame and beam together, and a spring holding said devices interlocked, and engaging the tension-arm formed conjointly by said extensions and said wedge-block, substantially as described.

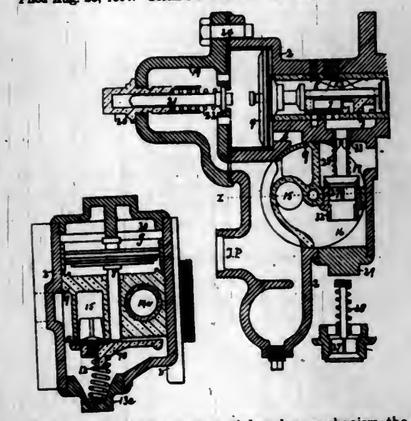
11. In a spring-trip cultivator, the combination with the beam, and a dog pivoted to its lower end, of a shovel-carrying frame pivoted to the beam, a rocker carried by the beam, a spring holding its lower end elevated, and a spring holding the front end of the dog depressed and in the path of rearward movement of said rocker, substantially as described.

12. In a spring-trip cultivator, the combination with the beam, and a dog pivoted to and projecting below its lower end, of a shovel-carrying frame pivoted to the beam, and provided with a tension-arm, a rocker, and springs carried by said rocker and holding the same and the dog interlocked, and one of them engaging said tension-arm, substantially as described.

13. In a spring-trip cultivator, the combination with the beam, and a dog pivoted to and projecting below its lower end, of a shovel-carrying frame pivoted thereto and provided with a tension-arm, and with a shoulder, a spring engaging the tension-arm, a second spring holding the front end of the dog depressed and a rocker mounted upon the frame and supporting said springs and hold by one of them into engagement with said dog, which rocker, under an unusual resistance to the shovel, is depressed by the dog until their disengagement is complete, and said first-named spring has been moved upwardly upon the tension-arm and the free end of the last-named spring has become engaged with the shoulder of the frame, substantially as described.

14. In a spring trip cultivator, the combination with the beam, provided with a recess in its lower end, and a dog pivoted in said recess and projecting beyond the rear and lower edges of the beam, of a shovel-carrying frame pivoted to the beam and provided with a shoulder disposed opposite the rear end of said dog, with a lug below the beam, and with a depending tension-arm rearward of the beam, a rocker mounted upon said frame above said lug, a spring engaging said rocker and said tension arm, and a second spring carried by said rocker and having its free end engaging the shoulder of the frame, and adapted, as the shovel-carrying frame swings downwardly and forwardly from its inoperative position, to strike the dog and raise its rear end until it contacts with the beam and its lower end is depressed in the path of rearward movement of the rocker, and then by such frictional engagement with the relatively-immovable dog to be forced from engagement with said shoulder to permit the tension-spring to move downwardly and the rocker to interlock with the dog, substantially as described.

594,464. AIR-BRAKE. MURRAY CORRINGTON, New York, N. Y. Filed Aug. 25, 1897. Serial No. 649,427. (No model.)



Claim.—1. In a quick-action triple-valve mechanism, the combination of two cavities communicating respectively with the atmosphere and the brake-cylinder, a partition between said cavities, an emergency-passage opening from the train-pipe and means for closing or opening the partition between said cavities, whereby the train-pipe air may be vented at one time into the atmosphere and at another time into the brake-cylinder in emergencies.

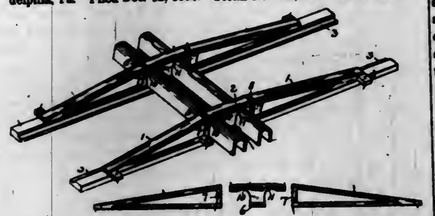
2. In an automatic fluid pressure brake system, the combination, with a triple valve, of a casing having two cavities opening respectively to the atmosphere and to the brake-cylinder, an emergency-passage from the train-pipe to one of said cavities and means for controlling the train-pipe air in emergency operations, whereby it may be vented at one emergency action to the atmosphere and at another to the brake-cylinder.

3. In an automatic fluid-pressure brake system, the combination, with a triple valve in a casing, of a bushing in a horizontal chamber underneath the triple valve chamber, an emergency port or passage in said bushing communicating with the train-pipe, cavities in said bushing communicating with the atmosphere and brake-cylinder, respectively, and means for controlling the various communications, whereby the train-pipe air may be vented either to the atmosphere or to the brake-cylinder in emergencies.

4. In an automatic fluid-pressure brake system, the combination, with a triple valve for controlling communication between an auxiliary reservoir and a brake-cylinder and a quick-acting valve for controlling communication between a train-pipe and a brake-cylinder, of a supplemental valve device for closing the former communication while the latter communication is open.

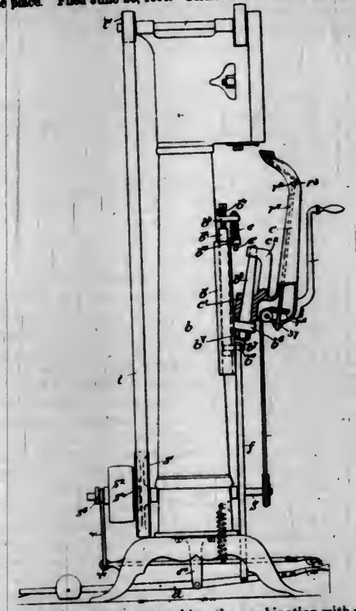
5. In a brake mechanism, the combination, with a train-pipe, an auxiliary reservoir and a brake-cylinder, of an emergency-passage leading from the train-pipe to the brake-cylinder, an emergency-valve controlling said passage and normally closing the same, a triple valve controlling a service-passage from the auxiliary reservoir to the brake-cylinder and a valve device in said emergency-passage actuated by air from the train-pipe to close said service passage, so long as train-pipe air is flowing through said emergency passage.

594,465. HOSE-BRIDGE FOR RAILWAYS. FRANK CRANE, Philadelphia, Pa. Filed Dec. 12, 1896. Serial No. 615,430. (No model.)



Claim.—In a hose-bridge, in combination, a center span having a chair adapted to be supported by and secured to a railway-track, a pair of approaches adapted to be supported by and secured to said railway-track and having their abutments in engagement with said center span, and archways formed by said abutments and chair, whereby a hose-passage is formed on each side of said chair, as specified.

594,466. PEGGING-MACHINE. ELOUID DUPLESSIS, St. Hyacinthe, Canada, assignor of two-thirds to Emile Arthur Marchildon, Mathilda Masse, (wife of François Tousignant,) and Louis H. Martin, same place. Filed June 26, 1896. Serial No. 597,008. (No model.)



Claim.—1. In a pegging-machine, the combination with a rotary cutter consisting of a ring saw-toothed on its inner edge, a work supporting section located within and concentrically of said ring, for the purpose set forth.

2. In a pegging machine, a rotary cutter having a central work-supporting portion and said cutter being adapted to rotate about and eccentrically of the point at which the pegs are driven, for the purpose set forth.

3. In a pegging-machine, a rotary cutter consisting of a ring saw-toothed on its inner edge and connected to a rotatable hub-section adapted to partially support the work, for the purpose set forth.

4. In a pegging-machine, a rotary cutter consisting of a hub-section, a ring having its inner edge formed with saw-teeth, a series of downwardly-offset arms or braces connecting the under side of said ring rigidly to the lower end of said hub, for the purpose set forth.

5. In a pegging-machine, a rotary cutter consisting of a hub-section, a ring having its inner edge formed with saw-teeth, the upper surface of such ring being located on a line with the upper face of such hub, a series of downwardly-offset arms or braces connecting the under side of said ring rigidly to the lower end of said hub, for the purpose set forth.

6. In combination with the nose of the horn or work-support of a pegging-machine, a rotary cutter consisting of a hub-section, a ring having its inner edge formed with saw-teeth, the upper surface of such ring being located on a line with the upper face of such hub, a series of downwardly-offset arms or braces connecting the under side of said ring rigidly to the lower end of said hub, means for rotating said cutter, and means for retaining same against displacement, for the purpose set forth.

7. In combination with the nose of the horn or work-support of a pegging-machine, an aperture concentric of the upper surface of said nose; a rotatable cap consisting of a plate having a downwardly-projecting flange adapted to take into a circular recess formed at the upper end of said nose and concentric of the aperture therethrough, said plate extending over a second recess encircling said first-mentioned recess, a series of rollers located in said last-mentioned recess and adapted to support said cap, a cutter mounted upon the upper end of a rotatable spindle extending through said aperture, the edge of said plate being upwardly curved and extended inwardly to closely encircle said cutter and furnish a bearing-surface for the work, sections of said upwardly-curved portion of the plate being cut away; and means for rotating said spindle, for the purpose set forth.

8. In combination with the nose of the horn or work-support of a pegging-machine, an aperture concentric of the upper surface of said nose; a rotatable cap consisting of a plate having a downwardly-projecting flange adapted to take into a circular recess formed at the upper end of said nose and concentric of the aperture therethrough, said plate extending over a second recess encircling said first-mentioned recess, a series of rollers located in said last-mentioned recess and adapted to support said cap, a cutter mounted upon the upper end of a rotatable spindle extending through said aperture, the edge of said plate being upwardly curved and extended inwardly to closely encircle said cutter and furnish a bearing-surface for the work, sections of said upwardly-curved portion of the plate being cut away and the lower edge thereof having a downwardly-extending flange formed thereon and adapted to overlap the edge of said nose; and means for rotating said spindle, for the purpose set forth.

9. In combination with the nose of the horn or work-support of a pegging-machine, an aperture concentric of the upper surface of said nose; a rotatable cap consisting of a plate having a downwardly-projecting flange adapted to take into a circular recess formed at the upper end of said nose and concentric of the aperture therethrough, said plate extending over a second recess encircling said first-mentioned recess, a series of rollers located in said last-mentioned recess and adapted to support said cap, a rotary cutter consisting of a hub-section provided with a screw-threaded central perforation, a ring having its inner edge formed with saw-teeth, the upper surface of such ring being located on a line with the upper face of such hub, a series of downwardly-offset arms or braces connecting the under side of said ring rigidly to the lower end of said hub, said cutter being mounted through its perforated hub upon the upper screw-threaded end of a rotatable spindle extending through said aperture, the edge of said plate being upwardly curved and extended inwardly to closely encircle said cutter and furnish a bearing-surface for the work, sections of said upwardly-curved portion of the plate being cut away, and means for rotating said spindle, for the purpose set forth.

10. In combination with the nose of the horn or work-support of a pegging-machine, an aperture concentric of the upper surface of said nose; a rotatable cap consisting of a plate having a downwardly-projecting flange adapted to take into a circular recess formed at the upper end of said nose and concentric of the aperture therethrough, said plate extending over a second recess encircling said first-mentioned recess, a series of rollers located in said last-mentioned recess and adapted to support said cap, a rotary cutter consisting of a hub-section, provided with a screw-threaded vertical perforation, a ring having its inner edge formed with saw teeth, the upper surface of such ring being located on a line with the upper face of such hub, a series of downwardly-offset arms or braces connecting the under side of said ring rigidly to the lower end of said hub, said cutter being mounted through its perforated hub upon the upper screw-threaded end of a rotatable spindle extending through said aperture, the edge of said plate being upwardly curved and extended inwardly to closely encircle said cutter and furnish a bearing-surface for the work, sections of said upwardly-curved portion of the plate being cut away and the lower edge thereof having a downwardly-extending flange formed thereon and adapted to overlap the edge of said nose; and means for rotating said spindle, for the purpose set forth.

11. In combination with the nose of the horn or work-support of a pegging-machine, said nose being formed with a central aperture

and recessed to form a shoulder, a circular bearing-section diminished in diameter to form a shoulder near the upper end thereof, and further diminished in diameter to form a second shoulder near the lower end thereof, the upper shoulder being adapted to rest upon the top edge of the nose and the lower shoulder being adapted to rest upon the shoulder formed by said recess in the nose; said bearing-section being provided with a central aperture, and a recess formed in the upper face of such bearing-section and encircling said aperture and a second recess similarly located and encircling said first-mentioned recess; a rotatable cap consisting of a plate having a downwardly-projecting flange adapted to take into said first-mentioned circular recess, said plate extending over said last-mentioned recess, a series of rollers located in said last-mentioned recess and adapted to support said cap, a cutter mounted upon the upper end of a rotatable spindle extending through said aperture, the edge of said plate being upwardly curved and extended inwardly to closely encircle said cutter and furnish a bearing-surface for the work, sections of said upwardly-curved portion of the plate being cut away; means for retaining said bearing-section in place; and means for rotating said spindle, for the purpose set forth.

12. In combination with the nose of the horn or work-support of a pegging-machine, said nose being formed with a central aperture and recessed to form a shoulder, a circular bearing-section diminished in diameter to form a shoulder near the upper end thereof, and further diminished in diameter to form a second shoulder near the lower end thereof, the upper shoulder being adapted to rest upon the top edge of the nose and the lower shoulder being adapted to rest upon the shoulder formed by said recess in the nose; said bearing-section being provided with a central aperture, and a recess formed in the upper face of such bearing section and encircling said aperture and a second recess similarly located and encircling said first-mentioned recess; a rotatable cap consisting of a plate having a downwardly-projecting flange adapted to take into a circular recess formed at the upper end of said nose and concentric of the aperture therethrough, said plate extending over a second recess encircling said first-mentioned recess, a series of rollers located in said last-mentioned recess and adapted to support said cap, a cutter mounted upon the upper end of a rotatable spindle extending through said aperture, the edge of said plate being upwardly curved and extended inwardly to closely encircle said cutter and furnish a bearing-surface for the work, sections of said upwardly-curved portion of the plate being cut away and the lower edge thereof having a downwardly-extending flange formed thereon and adapted to overlap the edge of said nose; means for retaining said bearing-section in place; and means for rotating said spindle, for the purpose set forth.

13. In combination with the nose of the horn or work-support of a pegging-machine, said nose being formed with a central aperture and recessed to form a shoulder, a circular bearing-section diminished in diameter to form a shoulder near the upper end thereof, and further diminished in diameter to form a second shoulder near the lower end thereof, the upper shoulder being adapted to rest upon the top edge of the nose and the lower shoulder being adapted to rest upon the shoulder formed by said recess in the nose; said bearing-section being provided with a central aperture, and a recess formed in the upper face of such bearing-section and encircling said aperture and a second recess similarly located and encircling said first-mentioned recess; a rotatable cap consisting of a plate having a downwardly-projecting flange adapted to take into said first-mentioned circular recess said plate extending over said last mentioned recess, a series of rollers located in said last-mentioned recess and adapted to support said cap, a rotary cutter consisting of a hub-section provided with a screw-threaded central perforation, a ring having its inner edge formed with saw-teeth, the upper surface of such ring being located on a line with the upper face of such hub, a series of downwardly-offset arms or braces connecting the under side of said ring rigidly to the lower end of said hub, said cutter being mounted through its perforated hub upon the upper screw-threaded end of a rotatable spindle extending through said aperture, the edge of said plate being upwardly curved and extended inwardly to closely encircle said cutter and furnish a bearing-surface for the work, sections of said upwardly-curved portion of the plate being cut away; means for retaining said bearing-section in place; and means for rotating said spindle, for the purpose set forth.

14. In combination with the nose of the horn or work-support of a pegging-machine, said nose being formed with a central aperture and recessed to form a shoulder, a circular bearing-section diminished in diameter to form a shoulder near the upper end thereof, and further diminished in diameter to form a second shoulder near the lower end thereof, the upper shoulder being adapted to rest upon the top edge of the nose and the lower shoulder being adapted to rest upon the shoulder formed by said recess in the nose; said bearing-section being provided with a central aperture, and a recess formed in the upper face of such bearing-section and encircling said aperture and a second recess similarly located and encircling said first-mentioned recess; a rotatable cap consisting of a plate having a downwardly-projecting flange adapted to take into said first-mentioned circular recess said plate extending over said last-mentioned recess, a series of rollers located in said last-mentioned recess and adapted to support said cap, a rotary cutter consisting of a hub-section provided with a screw-threaded central perforation; a ring having its inner edge formed with saw-teeth, the upper surface of such ring being located on a line with the upper face of such hub, a series of downwardly-offset arms or braces connecting the under side of said ring rigidly to the lower end of said hub, said cutter being mounted through its perforated hub upon the upper screw-threaded end of a rotatable spindle extending through said aperture, the edge of said plate being upwardly curved and extended inwardly to closely encircle said cutter and furnish a bearing-surface for the work, sections of said upwardly-curved portion of the plate being cut away and the lower edges thereof having a downwardly-extending flange formed thereon and adapted to overlap the edge of said nose; means for retaining said bearing-section in place: and means for rotating said spindle, for the purpose set forth.

15. In a pegging machine, the combination with the pedestal thereof having a vertical guideway formed thereon, and a bracket b^3 carried by said frame above and in vertical line with said guideway; a sliding bar located in said guideway, a vertically-adjustable screw carried by said bracket and in line with the upper end of said sliding bar; a bracket projection formed near the upper end of said sliding bar and having its forward end perforated a guiding-spindle screw-threaded into the forward end of said first-mentioned bracket, said spindle having its lower end extended in diameter to form a shoulder and adapted to take through the perforation in the bracket projection carried by said sliding bar, a perforated disk adapted to take over the upper portion of said guiding-spindle; a nut screwed upon the screw-threaded portion of said spindle below its carrying-bracket, a helical spring encircling said spindle and adapted to bear between said nut and disk; said sliding bar carrying a horn or work-support; and treadle mechanism for moving said sliding bar to and from said bracket b^3 for the purpose set forth.

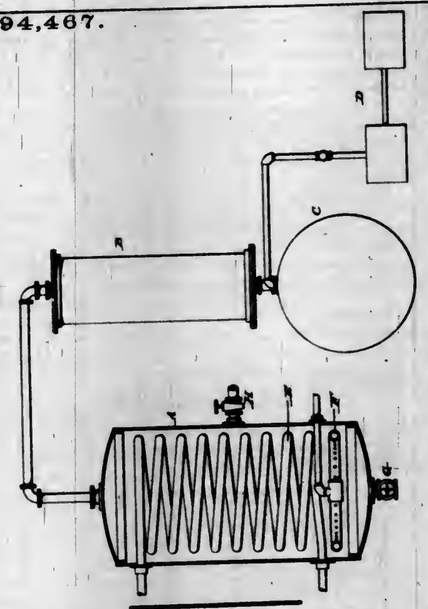
16. In combination with the pedestal and driving-shaft of a pegging-machine, a perforated forwardly-projecting, downwardly-inclined bracket carried by said pedestal, a conical standard having its lower end diminished and screw-threaded, and adapted to take through the perforation in said bracket and receive a retaining-nut thereon; a horn or work-support formed with a perforated rearward extension and a perforated upwardly-offset portion both adapted to take over said standard; the upper end of said horn being offset and the center of the nose thereof located in the axial line of said horn or work-support, for the purpose set forth.

17. In a pegging-machine, the combination with the pedestal thereof having a vertical guideway formed thereon, and a bracket carried by said frame above and in vertical line with said guideway; a sliding bar located in said guideway a vertically adjustable screw carried by said bracket and in line with the upper end of said sliding bar; a bracket projection formed near the upper end of said sliding bar and having its forward end perforated; a guiding-spindle screw-threaded into the forward end of said first-mentioned bracket, said spindle having its lower end extended in diameter to form a shoulder and adapted to take through the perforation in the bracket projection carried by said sliding bar, a perforated disk adapted to take over the upper portion of said guiding-spindle; a nut screwed upon the screw-threaded portion of said spindle below its carrying-bracket, a helical spring encircling said spindle and adapted to bear between said nut and disk; a perforated forwardly-projecting, downwardly-inclined bracket carried by said sliding bar, a conical standard having its lower end diminished and screw-threaded, and adapted to take through the perforation in said bracket and receive a retaining-nut thereon; a horn or work-support formed with a perforated rearward extension and a perforated upwardly-offset portion both adapted to take over said standard, the upper end of said horn being offset and the center of the nose thereof located in the axial line of said horn or work-support, for the purpose set forth.

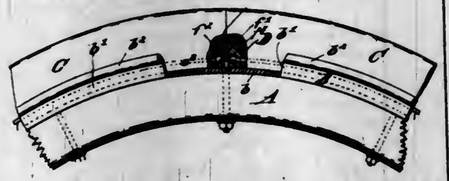
594,467. PROCESS OF PURIFYING FIXED OILS, FATS, &c. FRANK L. DYER, Washington, D. C., assignor to William F. Jobbins and Joseph Van Ruymbeke, Chicago, Ill. Filed Mar. 7, 1894. Serial No. 502,691. (No specimens.)

Claim.—In the art of purifying and distilling fixed oils, fats and fatty acids, the improvement which consists in first passing steam through the material at a temperature below the boiling-point of the liquid treated, to remove volatile impurities and subsequently maintaining the material *in vacuo* in a heated state and simultaneously injecting live steam, of a temperature not lower than the boiling-point of the material at the vacuum used so that active distillation is effected, substantially as set forth.

594,467.



594,468. VEHICLE-TIRE. SAM H. PERLEY, Atlanta, Ga. Filed Nov. 30, 1896. Serial No. 614,018. (No model.)



Claim.—1. In a vehicle-tire, a channel-bar rim consisting of a base-web and edge flanges thereon, the inner sides of said flanges and said base-web being of curved surface, said curves springing from the said flanges near their outer peripheries and from said base-web a short distance from its center, and a tire of elastic material adapted to normally contact with said base-web along its center and said flanges near their outer peripheries but lying normally out of contact with the said curved portions of the channel, substantially as specified.

2. In a vehicle-wheel, a rim of channel-iron, a tire of elastic material seated therein, and provided with wire-passages in its base, a series of holes in the base of said channel-iron rim, flanged blocks provided with stems adapted to enter said holes and set in the tire correlatively thereto, the tops of said blocks lying in line with said wire-passages and being correlatively grooved, substantially as and for the purpose specified.

3. In a vehicle-wheel, a channel-rim, a tire adapted to seat in said rim, wire-passages therein, a plate, of metal disposed radially in and secured to said channel rim in the joint of said tire and being perforated coincidently with said wire-passages in the latter, wires in said wire-passages passing through said plate and enlargements thereon on each side of said plate, substantially as and for the purpose specified.

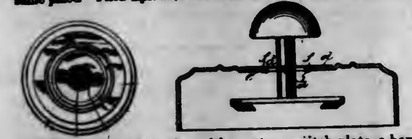
4. In a vehicle-wheel, a rim of channel-iron, a tire of elastic material adapted to seat therein and being provided with tie-wire passages near its base, and extending longitudinally thereof, a bolt passing through the rim and felly and having a head in the form of a plate lying radially in said rim at the tire-joint and being perforated concentrically with said wire-passages and tie-wires seated in said passages, joined and enlarged on each side of said bolt-head, substantially as and for the purpose specified.

594,469. CAN-OPENER. CHARLES W. GARST, Berlin, Pa. Filed Mar. 26, 1897. Serial No. 629,416. (No model.)

Claim.—A can-opener substantially such as shown and described comprising the block 7 having a central hammer-head and the horizontally-inclined arms which extend in opposite directions from said block and terminate in rounded ends, the lower edge of the block and its arms presenting an arched surface to provide for the clearance of the block when riding upon a can, a rod or shank attached to said block and having an elbow 4 and the entrance-prong 5, and a cutter blade 6 attached to the block and depending below the rounded terminals of the guide-arms, as and for the purposes described



594,470. ELECTRIC SWITCH. GERALD W. HART, Hartford, Conn., assignor to the Hart & Hegeman Manufacturing Company, same place. Filed Apr. 30, 1896. Serial No. 589,585. (No model.)



Claim.—1. In combination with a rotary switch-plate, a handle, a cover-plate through which the shank of the handle extends, an index mounted in the opening in the cover-plate and underlying the handle, and means for locking the index in the desired position of adjustment with reference to the handle of the switch-plate, all substantially as described.

2. In combination with a rotary switch-plate, a handle, a base, a cover-plate secured against rotation on the base and through which the shank of the handle extends, an index mounted in the opening in the cover-plate and underlying the handle, and means for locking the index in the desired position of adjustment with reference to the handle of the switch-plate, all substantially as described.

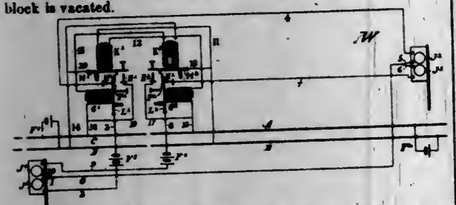
3. In combination with a rotary switch-plate having a switch-spindle, a handle secured to the switch-spindle, a cover-plate adapted to inclose the switch-plate, and an index adjustably mounted with reference to the handle and on the cover-plate.

4. In combination with a rotary switch-plate having a switch-spindle, a handle secured to the spindle by means of intereengaging screw-threaded parts, a cover-plate adapted to inclose the switch-plate, and an index adjustably mounted with reference to the handle and on the cover-plate.

5. In combination with a rotary switch-plate having a spindle secured thereto, a handle secured to the spindle, a cover-plate inclosing the switch-plate, an index adjustably mounted with reference to the handle and on the cover-plate, and means for locking the index in the desired position of adjustment.

594,471. ELECTRICALLY-CONTROLLED BLOCK-SIGNAL FOR RAILWAYS. ROBERT J. HEWETT, St. Louis, Mo. Filed Aug. 20, 1894. Serial No. 608,209. (No model.)

Claim.—1. In a railway signal system, a block having a plurality of insulated track-sections, each section being provided with an independent track-circuit and a forward and rear signal for the block for each direction, distinguishable in character, one in advance and the other in the rear of the controlling-train, each set being included in a circuit controlled by a relay in its governing track-circuit, and electromagnetic devices for locking the relay against change until the block is vacated.



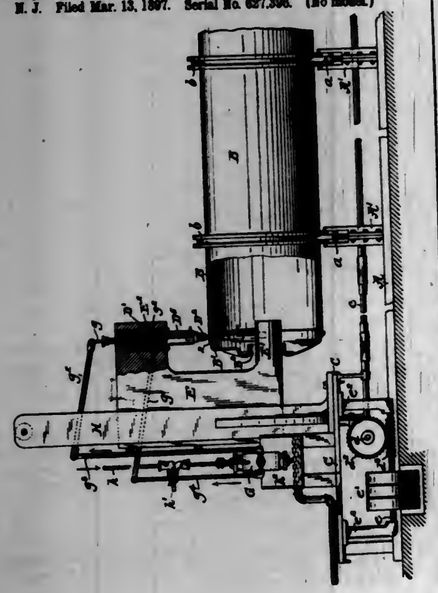
2. In a railway signal system, a block having a plurality of insulated track-sections, each section being provided with an independent track-circuit, signals in independent signal-operating circuits for each direction of travel, and interlocking magnetic devices controlling said signal-circuits and included in the track-circuits.

3. In a railway signal system a plurality of blocks, each having a plurality of insulated track-sections, each section being provided with an independent track-circuit, signals in normally-closed independent signal-operating circuits for each direction of travel, interlocking magnetic devices controlling said signal-circuits and included in the track-circuits, and circuit-changers controlled by said magnetic devices.

4. In a railway signal system a block having a plurality of insulated track-sections, each section being provided with an independent track-circuit, signals in independent signal-operating circuits for each direction of travel, magnetic devices in each track-circuit controlling the block-signals, and means for locking the signal-controlling device of a track-circuit when the corresponding device of an adjacent track-circuit operates, and holding it locked until the block is cleared.

5. In a railway signal system a block having a plurality of insulated track-sections, each section being provided with an independent track-circuit, a signal-operating circuit, controlling forward and rear signals at the block termini, a magnetic device in each track-circuit controlling the signal-operating circuit, and means for electromechanically locking the device of another track-circuit in a block when one has been actuated, and holding it locked until the block is cleared.

594,472. RIVETING-MACHINE. CAMPBELL P. HIGGINS, Roselle, N. J. Filed Mar. 13, 1897. Serial No. 627,396. (No model.)



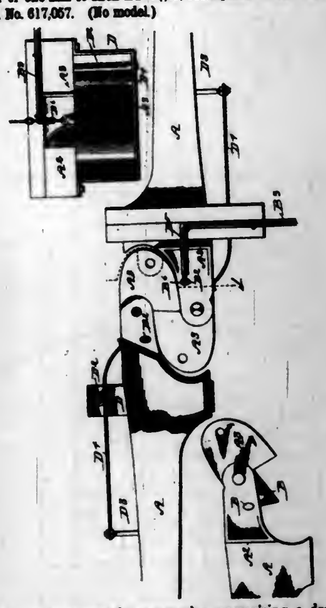
Claim.—1. In a riveting-machine, the combination of a vertically-movable head, a relatively-fixed die carried by said head, an opposed die carried by the head and movable relatively thereto, means for moving the head and dies and other means for moving the movable die with respect to the head and other die, as set forth.

2. In a riveting-machine, the combination, of a vertically-movable head carrying diametrically-opposed riveting-dies, a hydraulic cylinder and ram for raising the head and dies, and a hydraulic cylinder and plunger supported by the head, said plunger carrying one of said dies, as set forth.

3. In a riveting-machine, the combination of a vertically-movable head, a relatively-fixed die carried by the head, an opposed die movably supported in and carried by said head, means for moving the movable die into contact with the rivet and holding it in contact, and means for moving the head and other die in opposition to the opposed die and with less force, as set forth.

4. In a riveting-machine, the combination of a vertically-movable head having two projecting arms one adapted to project through the manhole of a drumhead and to hold a riveting-die within the drum and the other arm provided with a hydraulic cylinder and plunger and outer die, and a hydraulic cylinder and ram for moving the head, as set forth.

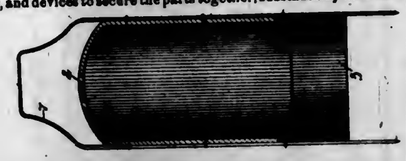
594,473. CAR-COUPLING. GEORGE HILES, Des Moines, Iowa, assignor of one-half to Alex Adlfinger, same place. Filed Dec. 26, 1896. Serial No. 617,057. (No model.)



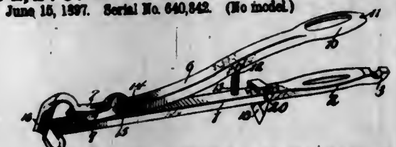
Claim.—An automatic car-coupler, comprising a draw-bar designed to be mounted beneath a car and capable of a limited lateral movement, a bracket for supporting its forward end and for limiting said lateral movement, an arm to project laterally from the draw-bar, a leaf-spring adjustably fixed thereto with its central portion in engagement with part of said brackets, and its forward end in engagement with the side of the draw-bar, a vertical jaw pivoted to the forward end of the draw-bar, and having its forward end approximately wedge-shaped so that when brought together with a mating jaw in a locked position the said wedge-shape projections will engage and cause the draw-bars to move laterally relative to each other and to assume a coupled position, a rear extension on the said jaw having a vertical opening therein, and a coupling-pin mounted in the draw-bar and arranged to automatically enter the opening in the vertical jaw when the said rear extension is moved rearwardly, as required to lock the jaw, all arranged and combined to operate in the manner set forth and for the purposes stated.

594,474. PLANT-PROTECTOR. LAURA G. HUNTER, Ewing, Ill. Filed Mar. 27, 1897. Serial No. 629,534. (No model.)

Claim.—A plant-protector, comprising a cylindrical main body portion made from heavy waterproof paper with its upper end closed, a sheet-metal cylindrical extension secured to the lower end of the paper cylinder, a wire bent to substantially U shape with its loop fitting over the closed end of the paper cylinder and forming a handle, and its arms extending down the sides of the protector at opposite points and extending beyond the lower end of the sheet-metal cylinder, and devices to secure the parts together, substantially as described.



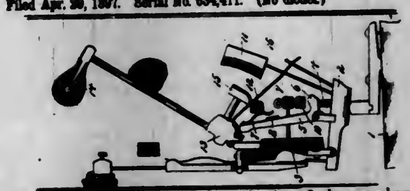
594,475. PAN-LIFTER. WILLIAM W. JOHNSON, Beebe, Ark. Filed June 15, 1897. Serial No. 640,842. (No model.)



Claim.—1. A pan-lifter comprising a bar provided at one end with a handle and having at its other end, a depending jaw disposed substantially at right angles to it, an operating-lever fulcrumed between its ends on the bar, provided at its inner end with a handle and having at its other end a substantially triangular or wedge-shaped projection 14 formed on the outer face of the lever and extending outward from the device, a spring interposed between the handle portions of the bar and the lever, an engaging lever fulcrumed between its ends on the bar and having its inner end enlarged and outwardly offset and provided with a triangular recess receiving the said projection, a jaw depending from the outer end of the engaging lever and coöperating with the jaw of the bar, and a spring interposed between the outer end of the engaging lever and the bar, substantially as described.

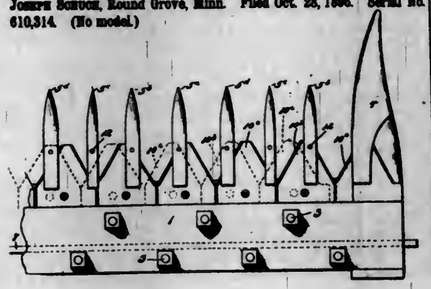
2. In a device of the class described, the combination with a bar forming a support and provided at one end with a handle, of a can-opening blade provided at its shank with a recess receiving the bar, said shank being adapted to be introduced on the bar at a point between the ends thereof and a pivoted locking device having a depending arm extending across the mouth of the recess and engaging the bar, substantially as described.

594,476. PIANO-ACTION. CLAUDE H. KIDD, Lexington, Ky. Filed Apr. 20, 1897. Serial No. 634,411. (No model.)



Claim.—In a piano-action, the combination of a hammer having a knuckle, a jack with a spring on the outer side of the upper portion thereof, a rail to engage the said spring, and a button adapted to coact with the jack, substantially as and for the purposes specified.

594,477. CUTTER-BAR. HENRY KLOSSNER, Winthrop, and JOSEPH SCHUCH, Round Grove, Minn. Filed Oct. 28, 1896. Serial No. 610,314. (No model.)



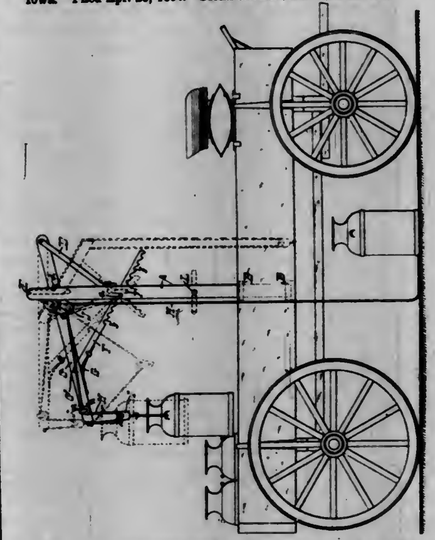
Claim.—1. A cutting apparatus having a cutter-bar provided with knives spaced at regular intervals, guard-fingers spaced from center to center at irregular intervals of which each is less than those between said knives, each knife being adapted at each stroke to coöperate with a plurality of guard-fingers, and having a stroke of a length greater than the width of one knife and less than the width of two, substantially as specified.

2. A cutting apparatus having a cutter-bar provided with knives spaced at uniform intervals, and guard-fingers spaced from center to center at irregular intervals which are less than those between the knives, said cutter-bar being adapted to move at each stroke through an interval slightly in excess of the width of a knife, the intervals between alternate pairs of fingers being reduced to enable each knife to coöperate at each stroke with two guard-fingers, the finger between said reduced intervals being of reduced width, and the knife which passes through the reduced finger being adapted to coöperate also with the fingers on opposite sides of the reduced finger, and being adapted to operate at each stroke with two fingers throughout the length of one of its cutting edges, substantially as specified.

3. A cutting apparatus having a cutter-bar provided with knives 10^a, 10^b, 10^c spaced from center to center at uniform intervals, guard-fingers arranged in groups of four, as 5^a, 5^b, 5^c and 5^d, and the intervals between the finger 5^c and the fingers, respectively, upon opposite sides thereof being less than the intervals between the remaining fingers, said finger 5^c being also of less width than the remaining fingers, substantially as specified.

4. A cutting apparatus having a cutter-bar provided with knives spaced at regular intervals, and guard fingers spaced from center to center at irregular intervals, the intervals between alternate pairs of fingers being reduced, and the fingers between said reduced intervals being of reduced width, and the cutter-bar having a stroke of a length greater than the width of one knife and less than the width of two, whereby each knife coöperates at each stroke with a plurality of guard-fingers, substantially as specified.

594,478. MILK-CAN LOADER. GOTLIEB F. KNOBB, Fontanelle, Iowa. Filed Apr. 29, 1897. Serial No. 634,492. (No model.)



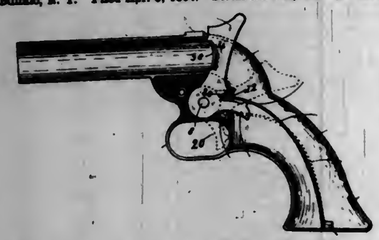
Claim.—1. The combination with a wagon-box, of a removable rotary standard mounted therein, a boom adjustably mounted upon the upper end of said standard, and provided with suitable pulleys and tackle for elevating the milk-cans, the outer of said pulleys being provided with a hinged bracket adapted to release the rope from the pulley, substantially as and for the purpose set forth.

2. The combination with a wagon-box, of a removable rotary standard mounted therein, and provided with an open-ended slot at its upper end, a boom extending through said slot and pivoted to an arm or brace projecting from the standard, an adjustable brace for supporting the boom in front of the standard, and suitable pulleys and tackle for elevating the milk-cans, substantially as described.

3. The combination with a wagon-box, of a removable standard mounted therein, and provided with an open-ended slot at its upper end, a boom extending through said slot and pivoted to an arm or

brace projecting from the standard, a brace pivotally connected to said boom in front of the standard and having a notched lower end projecting through a slot in the standard and adapted to be engaged by a cross-pin therein, a spring for holding said brace in engagement with the cross-pin, and suitable pulleys and tackle for elevating the milk-cans, substantially as and for the purpose set forth.

594,479. TOY MARBLE-SHOOTER. CHARLES L. LAMBRECHT, Buffalo, N. Y. Filed Apr. 5, 1897. Serial No. 630,769. (No model.)



Claim.—1. In a toy pistol, the combination of the pistol-frame, a combined hammer and trigger pivotally mounted therein, an operating-spring in the pistol-frame, means for supporting the forward extreme in contact with the combined hammer and trigger during the larger portion of its forward flight, stop mechanism located on the pistol-frame for catching the forward extreme of the spring slightly before the completion of the forward flight of the hammer, and means on the trigger adapted to contact with the spring when the hammer is nearly down to stop the inertia of the hammer with a spring force when removed from the influence of the forward propelling force of the spring.

2. The combination in a toy pistol, of a combined hammer and trigger, a depression in the back of said hammer, a spring for actuating the hammer, and a projection at the back of the trigger adapted to contact with the spring when the hammer is thrown forward to propel a ball and thereby stop the inertia of said hammer with a spring force when the said hammer is nearly down.

3. The combination in a toy pistol, of a barrel provided with a rearward and downward inclined portion, a pivoted hammer having a concave front portion adapted to receive and hold the ball in the inclined portion of the barrel, a trigger forming a part of the hammer, a spring for actuating the hammer, means for releasing the said hammer from the influence of the spring near the completion of its forward movement, and means for bringing the trigger into contact with said spring, substantially as described.

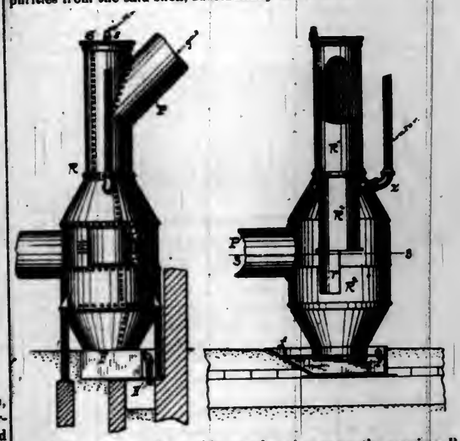
4. In a toy pistol, the combination of the pistol-frame, a combined hammer and trigger, an operating-spring, and means whereby the trigger contacts with the spring when the hammer has nearly completed its forward flight and thereby stops the inertia of said hammer with a spring force.

5. In a toy pistol, the combination with the pistol-frame, having a barrel provided with a rearward and downward inclined portion, and a longitudinal slot in the top of said portion, and the operating-spring, of a hammer pivotally mounted at its lower end in the frame, and having a concave front portion adapted to travel in the rearward and downward inclined portion, a cocking portion above said concave portion, projecting through the longitudinal slot, and a finger forming a trigger projecting rearwardly at substantially a right angle from the lower end of said hammer, substantially as set forth.

594,480. APPARATUS FOR WASHING GAS. OWEN F. LEIBERT, Bethlehem, Pa. Filed Apr. 8, 1896. Serial No. 586,665. (No model.)

Claim.—1. In apparatus for washing or cleansing gases, a vertical receiver provided with an expanded or enlarged lower portion contracting at its base where it enters the water seal, the admission-pipe at or near the upper end, the discharge-pipe leading from the said expanded or enlarged portion, the continuation of the upper portion extending down within the said expanded or enlarged portion, means for introducing water in a shower or other suitable form into the upper portion of the said receiver, and a water seal into which the said receiver opens and is in part submerged, substantially as set forth.

2. In apparatus for washing or cleansing gases, a receiver provided with an expanded or enlarged lower portion, the admission-pipe at or near the upper end, the discharge-pipe leading from the said expanded or enlarged portion, the continuation R″ of the portion extending down within the said expanded or enlarged portion, and open on the side remote from the discharge pipe, means for introducing water in a shower or other suitable form into the said receiver, and means for withdrawing surplus water and depositing impurities from the said shell, substantially as set forth.



3. In apparatus for washing or cleansing gases, the receiver R comprising a shell or chamber R‴, a pipe, passage or portion R″ opening laterally and extending into the said shell or chamber, an outlet or discharge F′ therefrom opening from the said receiver at a point remote from the open side of the said pipe, passage or portion R″, whereby the gases entering the said shell or chamber from the said pipe, passage or portion R″ will circulate before passing out through the said outlet or discharge, means for introducing water into the said shell or chamber, and means for withdrawing water and deposits therefrom, substantially as set forth.

4. In apparatus for washing or cleansing gases, the combination of a receiver provided with suitable water-supply, a pan F into which the said receiver opens and is partially submerged, so as to form a water seal, means for introducing and discharging the gases into and out of the said receiver, and a sprinkler-head consisting of an annular conduit or water-chamber, and perforated pipes extending across the space included by said annular conduit, substantially as set forth.

5. In apparatus for washing and cleansing gases, the vertical pipe or passage, to the upper portion of which the gases to be washed are supplied, in combination with spraying apparatus at the upper end of said vertical pipe or passage, the enlarged shell or chamber R‴ and the supplemental sprinkling device Z therefor, substantially as set forth.

6. In combination with the descending vertical passage or pipe for the gases, the spraying device delivering water into the said descending passage or pipe, the enlarged shell into which the said descending passage or pipe opens and projects, and the secondary annular spraying-pipe Z delivering water against the inner surface of the said shell and the outer surface of the lower end of said descending passage or pipe, substantially as set forth.

7. In a spraying or sprinkling head, the channel or conduit C, the removable plate *m* closing the said channel or conduit at the top, and spraying or sprinkling devices receiving water from said channel or conduit, substantially as set forth.

8. In a spraying or sprinkling head, the channel or conduit C, the removable plate *m* closing the said channel or conduit at the top, and spraying or sprinkling pipes *c* extending across beneath the said plate *m* and supplied from the said channel or conduit, substantially as set forth.

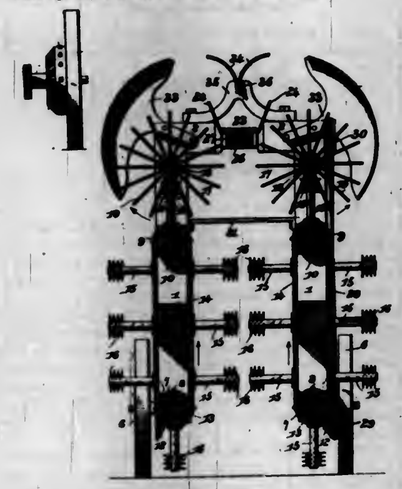
9. In a spraying or sprinkling head, the channel or conduit C, the removable plate *m* closing the said channel or conduit at the top, and spraying or sprinkling pipes *c* extending across beneath the said plate *m* through the inner wall of the said channel or conduit and opening therein, substantially as set forth.

10. In a spraying or sprinkling head, the channel or conduit C, the removable plate *m* closing the said channel or conduit at the top, and spraying or sprinkling pipes *c* extending across beneath the said plate *m* and open into the said channel or conduit, and plugs in the outer wall of the said channel or conduit opposite the open ends of the said pipes, substantially as set forth.

11. In a spraying or sprinkling head, the channel or conduit, a source of water supply therefor, the series of perforated pipes *c* extending from the wall of the said channel or conduit and opening therein, and the series of plugs in the wall of said channel or conduit opposite the open ends of the said pipes *c*.

12. In combination with or in a gas-washing apparatus, the spraying-head, including a channel or conduit extending around the upper end of the said apparatus, the series of transverse perforated pipes *c* open at both ends into the said channel or conduit and extending through the inner wall thereof, and the series of plugs in the outer wall thereof opposite the open ends of the several pipes *c* whereby the water may freely flow from the conduit into the said pipes and whereby the said pipes may be readily cleaned, substantially as set forth.

594,481. COTTON-PICKER. ANTHONY S. MARTIN, Malden, N. C. Filed Apr. 30, 1896. Serial No. 589,711. (No model.)



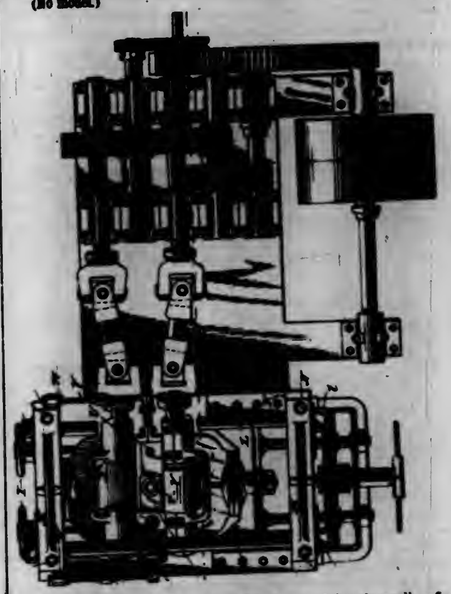
Claim.—1. In a cotton picker, the combination with a frame, of endless picker-aprons having upright inner sides, picker-fingers carried by the aprons, brushes arranged in operative relation with the aprons to detach the cotton from the picker-fingers, shields arranged in operative relation with the brushes, connections between the brushes and the means for carrying the aprons, whereby the brushes are operated at a speed greater than the aprons and in the opposite direction thereto, respectively, a central receptacle arranged between the planes of the aprons, and means for communicating motion to the aprons, substantially as specified.

2. In a cotton-picker, the combination with a frame, of endless picker-aprons carrying picker-fingers and mounted upon parallel upper and lower rolls, brushes arranged in operative relation with the apron contiguous to the upper rolls to detach the cotton from the picker-fingers, connections between the upper rolls and the brushes, whereby the latter are rotated at a higher rate of speed than the former and respectively in directions opposite thereto, shields or hoods arranged around and in operative relation with the brushes, a conveyer arranged between and adapted to receive cotton from the brushes, and means for operating the aprons, substantially as specified.

3. In a cotton-picker, the combination with a frame, of parallel side aprons provided with picker-fingers and mounted upon upper and lower rolls, brushes arranged in operative relation with the aprons at their upper ends and operatively connected with the upper rolls thereof to rotate respectively in directions opposite thereto, cross-sectionally-curved shields or hoods for the brushes, means for operating the said aprons to cause their inner sides to ascend, a conveyer arranged in the plane of the longitudinal center of the machine between said brushes, and having a trough and an endless apron traversing the bottom of the trough, and means for communicating motion to said apron, substantially as specified.

4. In a cotton-picker, the combination with a frame, of endless picker-aprons mounted upon opposite sides of the center of the frame and carrying picker-fingers, means for operating said aprons whereby their inner or contiguous sides are caused to ascend, brushes arranged in operative relation with the aprons to detach cotton from the picker-fingers, means for rotating the brushes at a higher rate of speed than the aprons and respectively in directions opposite thereto, cross-sectionally-curved shields or hoods for the brushes, a conveyer arranged in the plane of the longitudinal center of the frame and provided with an endless apron, means for communicating motion to the apron of the conveyer, and deflectors arranged in operative relation with the conveyer in the path of cotton discharged from the brushes, whereby the cotton is deflected into the conveyer, substantially as specified.

594,482. MACHINE FOR STRAIGHTENING AND POLISHING SHAFTING, &c. PHILIP MEHARG, St. Louis, Mo., assignor of one-half to William Medart, same place. Filed June 24, 1897. Serial No. 642,169. (No model.)



Claim.—1. The combination with the straightening-rolls, of an upper guide, a lower guide-block, a holder in which it is mounted, a supporting frame having vertical guides for the holder, wedges arranged in said frame under the holder, screws for moving the wedges independently, and screws connected to the bed-plate of the machine and to the supporting-frame for independently adjusting the frame at opposite ends.

2. The combination of the straightening-rolls, the upper guide pivoted on a central, vertically-arranged pivot, and means for adjusting the guide about its pivot.

3. The combination with the straightening-rolls, of the upper guide, a central pivot therefor, means for adjusting the guide about its pivot, independent means for adjusting the opposite ends of the guide vertically, and other means for adjusting the guide transversely to the axes of the rolls.

4. The combination with the straightening-rolls, of the upper guide-block, its holder, the housing in which the holder is mounted, a central pivot for the housing, screws extending through the housing and into sockets in the holder, and means for adjusting the housing about its central pivot.

5. The combination of the straightening rolls, the frame of the machine, the cross-bar secured thereto, the housing pivotally connected with the cross-bar, the guide-block, its holder arranged within the housing, and means for adjusting both the housing and the holder.

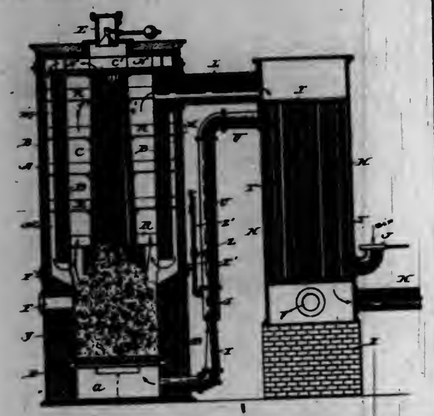
6. The combination of the straightening-rolls, the main frame of the machine, the horizontal bars or bolts above the plane of the straightening-rolls, the cross-bar removably secured to these bars, and adjustable longitudinally thereon, and the upper guide connected with and supported by said cross-bar.

7. The combination of the straightening-rolls, the main frame having the vertical end pieces, the bars connecting the end pieces and arranged above the plane of the rolls, the cross-bar supported by the connecting-bars, removable therefrom and adjustable thereon, the upper guide block, its holder, the housing within which it is arranged, a pivotal connection between the housing and the cross-bar, and screws extending through the cross-bar and into the guide-block holder.

8. The combination of the straightening-rolls, means for actuating them, the rolls arranged to receive shafts, &c., as they are delivered from the straightening mechanism, and the positively-driven rolls arranged in pairs and having their peripheries in close proximity adapted to receive said shaft, &c., and to rotate and test it, substantially as set forth.

594,488. GAS-PRODUCER. KERR M. MITCHELL, St. Joseph, Mo., and JOHN HARLEMAN, Kansas City, Kans. Filed Feb. 5, 1897. Serial No. 622,074. (No model.)

Claim.—1. In a gas-producer, the combination of a furnace, a retort tapering upward and having its walls imperforate and grooved vertically on its inner surface, and having an annular space or chamber as described surrounding such retort, and an annular flue surrounding such chamber and in communication at its top with the retort and at its bottom with the coke-chamber located between the grate and the bottom of the retort.



2. In combination, the furnace, the tapering imperforate and grooved retort, the annular space or chamber having at its upper end a gas-exit pipe, the annular flue M, the superheater, a hot-air pipe and blower, said pipe connecting the superheater at its top with the space beneath the furnace-grate, and a valved steam-pipe communicating with the blower, all substantially as and for the purposes set forth.

3. In a gas-producer, the combination with the furnace of a retort oval in its cross-section and having a solid imperforate wall grooved vertically as described on its interior surface, thus affording passages for the gas as generated, to pass either upward or downward in such grooves but not laterally through the wall of the retort.

4. In combination with the furnace, the vertical, tapering, imperforate retort grooved on its interior as described and provided with exterior rings or projections, and block-tilings or lateral supports resting at their inner ends on such rings or projections, all substantially as set forth.

5. In a gas-producer, the combination of a retort having an imperforate wall oval in cross-section, open at its top and internally grooved as set forth, an annular flue or passage around the retort and in direct communication with its top and with the coke-chamber located between the grate and the bottom of the retort, and also in communication with the space surrounding the retort and between it and said flue, the combination serving not only to permit the hot gases as generated to pass upward or downward in the retort-grooves, but also to pass upward around the exterior of the retort, all substantially as set forth.

6. In combination, the tapering, oval, and internally-grooved retort C, the flue N, leading from the top of this retort, the annular flue M, leading down from the flue N to the bottom of the retort, and the chamber directly surrounding this retort and between it and flue M, and pipe L connecting the upper part of said chamber with the superheater, all substantially as set forth.

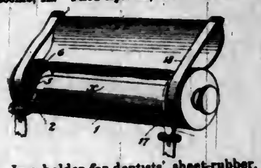
7. The furnace and its tapering grooved retort, in combination with the flue N, leading from its top, the flue M, leading down from N to the bottom of the retort, the chamber directly surrounding the retort, the gas-pipe L, the superheater connected by this pipe with such chamber, the hot air pipe U, connecting the superheater with a steam-jet and leading to the space beneath the grate, all substantially as and for the purposes set forth.

594,484. TAG. FRANK MULLER, Philadelphia, Pa. Filed Mar. 27, 1897. Serial No. 629,542. (No model.)



Claim.—The combination with a shipping-tag, of a keeper secured thereto and having opposite fastening ends inserted through slits formed in the tag and having one end of greater width than the opposite end, the reduced end of the keeper being cut away and formed with an inwardly-bent lip providing a shoulder or engaging groove, and a cord or analogous attaching means having a metallic tongue extending beyond its point of securement and bent over upon itself to form a shoulder or engaging groove adapted to engage the shoulder or groove of the keeper, the said keeper and tongue after engagement being inseparably secured, and the tongue permitted to have a slight movement in the keeper to relieve the tag of tearing strain, substantially as described.

594,485. HOLDER FOR ROLLED MATERIAL. JAMES D. MCMILLAN, Macomb, Ill. Filed Apr. 22, 1897. Serial No. 633,278. (No model.)



Claim.—1. In a holder for dentists' sheet-rubber, the combination with a casing provided near its ends with the interior partitions, one of which has a radial offset slot, of the rotative stem 8 having a headed inner end provided with a longitudinal kerf which opens through the headed end of said stem which is journaled in one end wall and partition of the casing to be held therein against endwise movement, and a spindle having a flattened end detachably engaged with the kerf-formed end of the rotative end piece to be held therein by the partition in which it is journaled, the other end of said spindle being fitted in the slotted partition and said spindle removable from the casing by withdrawing one end from said slotted partition and detaching its flattened end from said rotative end piece, substantially as described.

2. A holder for dentists' sheet-rubber comprising a casing having a hinged cover arranged to partially close an opening in said case and to leave a continuous slot through which the contents of the case may be drawn when the cover is closed, a partition fixed within said casing and provided with a radial slot which opens into the opening in said casing and is adapted to be closed by the cover, a rotative stem journaled in said casing, and a spindle fitted detachably in said stem and the radially-slotted partition, substantially as described.

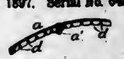
3. In a holder for dentists' sheet-rubber, a spindle provided with a bar 14 which is attached to said spindle in parallel relation thereto and having pointed free ends adapted to penetrate a rubber sheet and thereby attach the same firmly to the spindle, as set forth.

4. In a holder for dentists' sheet-rubber, the combination of a shell having a hinged cover, a spindle journaled in said shell and provided with means for adjusting the same, and a suspension-strap attached to the cover and slidably connected to the shell, as and for the purposes described.

5. In a holder for dentists' sheet-rubber, the combination with a carrying-case, and a cover therefor, of a suspending device slidably connected to the case and attached to the cover to hold the same normally closed, substantially as described.

6. A holder for rolled material comprising a body having an opening in its wall, a cover to partially close the opening, loops on the body at opposite ends of the opening, other loops on the cover at opposite ends of the same and adjacent to the loops on the body, and tapes passed through the loops on one part and engaging the loops on the other part, substantially as set forth.

594,486. DENTAL APPLIANCE. JOSEPH E. NICHOLS, Rochester, N. H. Filed July 21, 1897. Serial No. 645,400. (No model.)

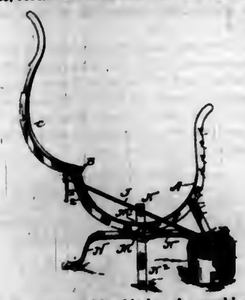


Claim.—1. In combination with the teeth of an artificial denture provided with headed pins, of a strip of metal or other material positioned edgewise against the body of the teeth and provided with notches conforming in size with the diameter of the pin-shanks and engaging therewith in the manner and for the purpose described.

2. A strengthening device for artificial dentures, consisting of a metallic or other plate provided at its edge with a plurality of notches or recesses to receive the material of the denture in the manner and for the purpose described.

3. The combination with the teeth of an artificial denture provided with headed pins or the like, of a strip of metal or other material having notches or recesses engaging said pins, said strip being reinforced at the joint of the teeth, substantially as and for the purpose set forth.

594,487. FODDER-BINDER. JOHN P. HOFFMAN, Dubuque, Iowa. Filed Feb. 25, 1896. Serial No. 580,730. (No model.)



Claim.—1. In a corn-fodder binder, the combination with a support adapted to rest upon the ground of a curved bar secured to said support, a second curved bar pivotally connected to the first bar, means for detachably securing the bars together at various points of adjustment of the second bar, a bail or clevis adapted to limit the throw of the second bar away from the first bar and support said second bar, a projection on said clevis and forming a throat adapted to secure the twine, and a twine-holder secured to the support.

2. In a corn-fodder binder, the combination with a support adapted to rest upon the ground, said support consisting of arms crossing each other at an angle, and secured together and being bent downward to form legs, one leg being shorter than the opposite leg and the other legs being of an intermediate length for the purpose described, of a curved bar secured to the support, a second curved bar pivotally secured to the first bar, and means for detachably securing the bars together at various points of adjustment of the second bar as set forth.

594,488. POLYCIRCUIT DYNAMO. IRVING R. PRENTISS, Cleveland, Ohio. Filed Nov. 9, 1896. Serial No. 611,506. (No model.)



Claim.—1. A multipolar dynamo-electric machine having separate independent circuits each connected with part of the poles and their corresponding brushes and disconnected from the other poles and brushes, substantially as described.

2. A multipolar dynamo having separate independent circuits each connected with two poles of opposite polarity, substantially as described.

3. A multipolar dynamo having separate independent circuits each connected with a pair of poles of like polarity and a pair of poles of opposite polarity, substantially as described.

4. A multipolar dynamo-electric machine having separate independent circuits each connected between adjoining poles, substantially as described.

5. A multipolar dynamo having separate and independent circuits, in each of which circuits two field-magnets of opposite polarity, and two or more brushes of each commutator-ring are connected in series with the load, substantially as described.

6. A multipolar dynamo having separate and independent circuits in each of which circuits two field-magnets of opposite polarity and two brushes of each commutator-ring are connected in series with the load and a variable resistance is connected in shunt around one of the field-magnets in each circuit, substantially as described.

7. A multipolar dynamo having separate and independent external circuits in each of which are connected in series two adjoining poles of opposite polarity and that part of the armature which is directly energized by that pair of poles, substantially as described.

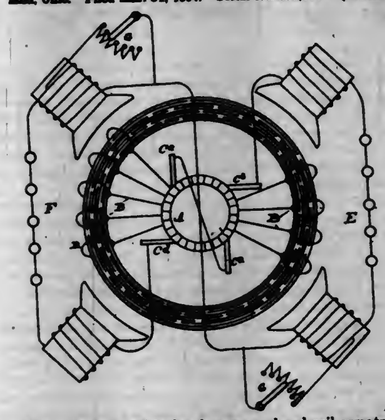
8. A multipolar dynamo having separate and independent external circuits in each of which are connected in series two adjoining field-magnets of opposite polarity and that part of the armature which is directly energized by said two poles, a variable resistance being connected in shunt around one of the field-magnets in each circuit.

9. In a multipolar dynamo an open-coil armature having the ends of each bobbin connected to separate parallel commutator-segments placed on the same arc of the commutator and insulated from each other.

10. A multipolar dynamo having two or more independent circuits each of which is connected between two field-magnets of opposite polarity and having one or more of such separate circuits subdivided and one or more of said subcircuits connected in series between two sets of brushes or between rings of the commutator, substantially as described.

11. A multipolar dynamo having two or more separate independent circuits each of which is connected in series with two field-magnets of opposite polarity and disconnected from all the other field-magnets, one or more of said separate circuits being subdivided into several distinct portions and one of such portions being interposed between the two groups of brushes, another portion between separate brushes of each group, and another between the field-magnet and the brushes, substantially as described.

594,489. POLYCIRCUIT DYNAMO. IRVING R. PRENTISS, Cleveland, Ohio. Filed Mar. 31, 1897. Serial No. 630,080. (No model.)



Claim.—1. In a multipolar dynamo a closed-coil armature having the brushes under each pair of field-magnets of opposite polarity connected in series with an external circuit, substantially as described.

2. In a multipolar dynamo a closed-coil armature having the brushes under each pair of adjoining field-magnets of opposite polarity connected in series with an external circuit, substantially as described.

3. In a multipolar dynamo a closed-coil armature having the brushes under all the poles of one polarity connected together, and a separate independent external circuit connected between said connected brushes and each brush under a pole of polarity opposite to that of the said connected brushes, substantially as described.

4. In a multipolar dynamo having a closed-coil armature, a plurality of external circuits in each of which are connected in series two poles of opposite polarity and their corresponding brushes, substantially as described.

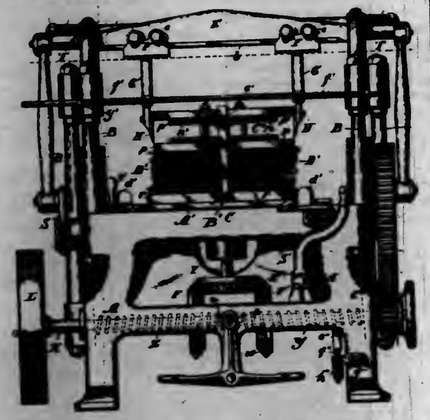
5. In a multipolar dynamo having a closed-coil armature a plurality of external circuits in each of which are connected in series two poles of opposite polarity and their corresponding brushes, a variable resistance being connected in shunt around one of the field-spools in each circuit, substantially as described.

6. In a multipolar dynamo a closed-coil armature having the brushes under all the poles of one polarity connected together, and a separate independent external circuit connected between said connected brushes and each brush under a pole of polarity opposite to that of the said connected brushes, a variable resistance being connected in shunt around one of the field-spools in each circuit, substantially as described.

594,490. PAPER-TRIMMING MACHINE. CHARLES SEYBOLD, Dayton, Ohio, assignor to the Seybold Machine Company, same place. Filed June 10, 1897. Serial No. 641,515. (No model.)

Claim.—1. A book-trimming machine, provided with a number of cutting-knives, arranged in parallel planes, and mounted to reciprocate when the clamp is rotated, with means for actuating the knives to cut the paper, and a rotatable clamp for holding the paper bundles

during the operation, with mechanism for rotating same, substantially as shown and described.



2. A book-trimming machine, provided with a number of vertically-operating cutting-knives, arranged in parallel planes, and mounted to reciprocate when the clamp is rotated, with means for actuating the knives to cut the paper, and a clamp for holding the paper, with mechanism for turning same, to bring the parallel edges of the paper within the stroke of the knives, and means for holding the knives in a fixed position during the operation, substantially as shown and described.

3. A paper-trimming machine, provided with a vertically-operating knife-bed, and a pair of cutting-knives hung thereon in parallel planes and movable laterally, means for holding said knives in a fixed position during operation, an oscillating clamp for holding the paper and for bringing the parallel edges of the paper within the stroke of the knives, and mechanism for actuating said knife-bed to trim the paper, substantially as shown and described.

4. In a paper-trimming machine, provided with a vertically-operating knife-bed having lateral guide tracks thereon, the combination, with knife-carriages mounted on said tracks to slide laterally, and cutting knives arranged in parallel planes thereon, of an oscillating clamp for holding the paper, with pattern-block thereon, and springs to keep said knives in contact with said pattern, means for oscillating said clamp horizontally, and mechanism for actuating said knives, substantially as shown and described.

5. In a paper-trimming machine, the combination, with a pair of vertically-acting and laterally-sliding cutting-knives, of a horizontally-oscillating clamp-table, with screw-operated clamp-plate thereon, provided with upper and lower sets of pattern-boards, the upper set of patterns serving as a means for adjusting the cutting-knives between the cuts, substantially as shown and described.

6. In a paper-trimming machine, the combination, with a knife-bed, provided with laterally-shiftable cutting-knives, of a clamp-table, with screw-operated clamp-plate thereon provided with an upper and lower set of pattern-boards, mechanism for shifting said clamp to turn the paper at the end of each stroke, and means for holding said knives and their supporting-plates in contact with the pattern-boards during operation, but to yield during the turning of the clamp, substantially as shown and described.

7. In a paper-trimming machine, the combination, with a rotatable clamp for the paper bundles, of a gage for the accurate adjustment of the paper in the clamp, and a cam contacting with said gage to move same out of the way during the rotation of the clamp, substantially as shown and described.

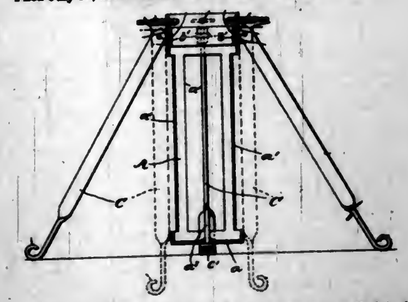
8. In a paper-trimming machine, the combination, with a rotatable clamp for the paper bundles, of a spring-pressed gage for the accurate adjustment of the paper in the clamp, and a cam on the clamp contacting with said gage to move same out of the way during the rotation of the clamp, substantially as shown and described.

9. In a paper-trimming machine, the combination, with a rotatable clamp for the paper bundles, and a pair of cutting-knives arranged to act in parallel planes, of a spring-pressed gage for the accurate adjustment of the paper in the clamp, and a cam on the clamp contacting with said gage to move same out of the way during the rotation of the clamp, substantially as shown and described.

10. In a paper-trimming machine, the combination, with a rotatable clamp for the paper bundles, of a gage-block, and hinged rod to which said gage is attached, a spring acting on said rod to keep the gage in position, with cam on the clamp, and connecting mechanism between said cam and hinged rod, whereby the movement of the clamp in turning the paper will cause said hinged rod and gage to swing away from the clamp to permit its rotation, substantially as shown and described.

11. In a paper-trimming machine, a framework for the operating mechanism, side standards, with head-blocks mounted thereon, within which the knife mechanism works, and rod passing through said head-blocks, with adjustable nuts on the outer ends thereof, and springs bearing between said nuts and the outer faces of the head-blocks to maintain and support the side standards and take up any wear thereon, substantially as shown and described.

594,491. CHRISTMAS-TREE HOLDER. MARCELL SILVERMAN, New York, N. Y., assignor of one-half to Louis Hoecker, same place. Filed July 21, 1897. Serial No. 645,238. (No model.)



Claim.—1. A Christmas-tree holder, comprising a cylindrical box having an annular groove formed in the exterior upper portion thereof, and a spur projected upwardly from the bottom thereof and a collar secured within the groove, said collar having a series of radial projections thereon to which are pivotally attached folding legs, said legs having shoulders on the upper ends thereof for engagement with the collar, whereby they may be extended at an angle for supporting the box, substantially as shown and described.

2. In a Christmas-tree holder, the combination of a cylindrical box having a spur extended upwardly from the bottom thereof, an annular groove in the upper portion thereof and a series of thumb-screws extended radially through the upper end thereof, and a series of swinging legs or supports, said legs pivoted to radial projections forming part of a collar secured within the groove on the upper end of the box, substantially as shown and described.

594,492. BALL-BEARING FOR SCALES. ROBERT M. SKILES, Atlantic, Iowa, and CHARLES LEDERER, New York, N. Y. Filed Oct. 14, 1896. Serial No. 608,822. (No model.)



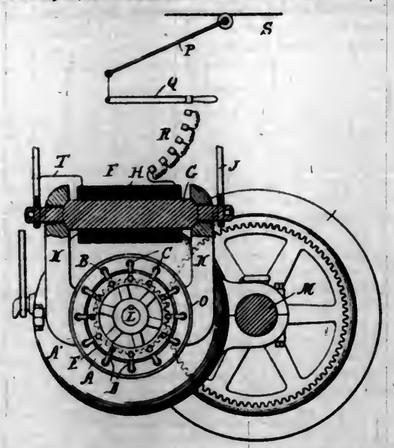
Claim.—1. In scales or weighing apparatus, a platform, a lever and removable ball-bearing connections between the former and the latter, whereby no knife-edge connections or bearings are required, substantially as herein shown and described.

2. In scales or weighing apparatus, a combination of a principal platform, and a main lever both of which are provided with removable or separable conical cup-bearings, of a spherical body mounted in said bearings and forming connections at point of suspension for said platform and lever, instead of knife-edge connections for said parts, substantially as described.

3. In scales, the combination of the main or principal platforms, and main or principal levers, having the removable semispherical concave cups or bearings, upon the lower and upper surfaces secured to the said platform and lever, respectively, the ball or sphere inclosed within said cups, whereby the use of the knife-edge bearings is unnecessary, substantially as herein shown and described.

4. In scales the combination of the chief or principal platform and chief or principal lever, provided with semispherical concave cups or bearings or nearly semispherical, upon the inner concave surfaces thereof, and secured to the platform and lever, upon the lower and upper surfaces, respectively, and the ball or sphere, smaller than the circle, described by the inner surfaces of the combined concave cups, whereby the knife-edge bearings are rendered unnecessary, substantially as herein shown and described.

594,493. ELECTRIC BRAKE. SIDNEY H. SHORT, Cleveland, Ohio. Filed May 10, 1897. Serial No. 635,865. (No model.)



Claim.—1 In a braking system, the combination with circuits closed upon themselves in a closed magnetic field, of means for inducing heavy currents in said closed circuits, as and for the purpose set forth.

2. In a braking system, brakes arranged to form part of a closed magnetic field, in combination with electrical circuits closed upon themselves and means for inducing therein heavy currents, as and for the purpose set forth.

3. In a braking system, a closed circuit, means for creating a large magnetic field therein, circuits closed upon themselves and arranged in said field and means for inducing alternating currents in said last-mentioned circuits, as and for the purpose set forth.

4. In a braking system, a closed magnetic circuit including a brake wheel, brake-shoes, and an electromagnet, and inductors carried by said brake-wheel and arranged to move across or transverse to said magnetic circuit as and for the purpose set forth.

5. In a braking system, a brake-wheel, brake-shoes arranged to bear against the surface of said wheel, said shoes and wheel forming part of a closed magnetic circuit, in combination with inductors carried by said brake-wheel and arranged to cut the lines of force of said magnetic circuit, and means for energizing said circuit, as and for the purpose set forth.

6. In a braking system, a brake-wheel, brake-shoes arranged to bear thereagainst, said brake wheel and shoes included in a closed magnetic circuit an electromagnet for energizing said circuit, and means for controlling the current through said magnet, in combination with inductors carried by said brake-wheel and arranged to cut the lines of force of said magnetic circuit, as and for the purpose set forth.

7. In a braking system, a brake-wheel, inductors carried thereby, said inductors being short-circuited upon themselves, brake-shoes arranged to bear against said wheel, said brake shoes and wheel forming part of a closed magnetic circuit, as and for the purpose set forth.

8. In a braking system, a brake-wheel, inductors mounted thereon but insulated therefrom, said inductors being short-circuited upon themselves, brake-shoes arranged to bear against said wheel, said shoes and wheel forming part of a closed magnetic circuit, as and for the purpose set forth.

9. In a braking system, a brake-wheel, inductors carried thereby, means for electrically connecting said inductors, brake-shoes arranged to bear against said brake-wheel, said shoes and wheel included in a magnetic circuit, as and for the purpose set forth.

10. In a braking system, a brake-wheel, inductors carried thereby, means for electrically connecting the ends of said inductors, brake-shoes arranged to bear against said wheel, said wheel and shoes included in a magnetic circuit, as and for the purpose set forth.

11. In a braking system, a brake-wheel, inductors carried thereby, means for electrically connecting the ends of said inductors, brake-shoes arranged to bear against the said wheel, said wheel and shoes forming part of a magnetic circuit, and means for energizing said circuit, as and for the purpose set forth

12. In a braking system, a brake-wheel, inductor-sections mounted in the periphery thereof, said inductor-sections forming circuits closed upon each other, brake-shoes arranged to bear against said wheel, said wheel and shoes forming part of a magnetic circuit, as and for the purpose set forth.

13. In a braking system, a brake-wheel perforated in the peripheral rim thereof, inductor-sections mounted in said perforations, means for electrically connecting said sections, brake-shoes arranged to bear against said wheel, said wheel and shoes forming part of a magnetic circuit, as and for the purpose set forth.

14. In a braking system, a brake-wheel having perforations arranged in the periphery thereof, insulating-sleeves mounted in said perforations, inductor-sections mounted in said insulating-sleeves, said sections being electrically connected together, brake-shoes arranged to bear against said wheel, said brake shoes and wheel included in a magnetic circuit, as and for the purpose set forth.

15. In a braking system, a brake-wheel, inductor-sections carried thereby, conducting-rings connecting the ends of said sections, brake-shoes arranged to bear against said wheel, said shoes and wheel included in a magnetic circuit, as and for the purpose set forth.

16. In a braking system, a brake-wheel, brake shoes loosely supported and arranged to bear against said wheel, said shoes and wheel forming part of a closed magnetic circuit, in combination with inductors carried by said wheel and arranged to move across said circuit, as and for the purpose set forth.

17. In a braking system, an electromagnet and a brake-wheel, and brake-shoes respectively arranged to bear against said wheel and the core of said magnet, thereby forming a closed magnetic circuit, in combination with inductors carried by said wheel and arranged to move across said circuit, as and for the purpose set forth.

18. In a braking system, a brake-wheel, means for magnetically applying thereto a frictional braking effort comprising an electric magnet and brake-shoes forming the pole-pieces of said magnet, in combination with means for developing a coincident electrical braking effort, and means for varying the amount of current through said electromagnet, whereby the magnetic braking effort may be varied, as and for the purpose set forth.

19. In a braking system, a brake-wheel, an electromagnet, pole-pieces loosely mounted at the ends thereof in magnetic relation to the core of said magnet, and arranged to bear against said brake wheel, thereby forming a closed magnetic circuit, said brake-wheel comprising an armature adapted to revolve in a direction to cut the lines of force of said magnetic circuit, whereby, when said electromagnet is energized, a magnetic and a coincident electric braking effort is secured, as and for the purpose set forth.

20. In a braking system, a magnetic circuit, a brake-wheel and brake-shoes included in said circuit, an electromagnet for energizing said magnetic circuit, and a circuit for said electromagnet including a brake-lever and a rheostat, whereby the magnetic circuit may be gradually energized, in combination with inductor-sections carried by said wheel and arranged to cut said circuit transversely, as and for the purpose set forth.

21. In a braking system, a brake-wheel, comprising an armature of closed circuits, in combination with an electromagnet and loosely-mounted pole-pieces therefor, said pole-pieces forming brake-shoes, as and for the purpose set forth.

22. In a braking system, a brake-wheel, an electromagnet, brake-shoes loosely supported upon the core of said magnet and arranged to bear against said brake-wheel, in combination with inductors carried by said wheel and arranged to move across the magnetic circuit formed by said parts, as and for the purpose set forth.

23. In a braking system, a brake wheel, brake-shoes perforated at one end thereof and arranged to bear against said wheel at the other end thereof, an electromagnet, the perforations in said shoes adapted to receive the core of said magnet, the core, shoes and wheel forming a closed magnetic circuit in combination with inductors carried by said wheel and arranged to transversely cut said circuit, as and for the purpose set forth.

24. In a braking system, a brake-wheel, an electromagnet, brake-shoes arranged to contact at the respective ends thereof against the core of said magnet and said wheel, and inductor-sections short-circuited upon themselves carried by said brake-wheel, as and for the purpose set forth.

25. In a braking system, an electromagnet, a brake-wheel, brake-shoes contacting at the respective ends thereof with the core of said magnet and the surface of said wheel, thereby forming a closed magnetic circuit, a circuit for said electromagnet, and means for controlling the current through said circuit, in combination with inductor-sections carried by said wheel and arranged to cut the lines of force of said circuit, as and for the purpose set forth.

26. In a braking system, a brake-wheel, an electromagnet, brake-shoes contacting at the respective ends thereof with the core of said magnet and the surface of said wheel, a circuit for said magnet, and a rheostat arranged in said circuit for controlling the same, in combination with inductor-sections carried by said wheel, as and for the purpose set forth.

27. In a braking system, an axle, a shaft geared thereto through reduction-gearing, a brake-wheel mounted on said shaft, brake-shoes arranged to bear against said wheel, said brake-shoes and wheel

forming part of a magnetic circuit, and inductors short-circuited upon themselves carried by said brake-wheel, as and for the purpose set forth.

28. In a braking system, an axle, a motor having the shaft thereof geared thereto through reduction-gearing, a brake-wheel mounted on the shaft of said motor, brake-shoes contacting with said brake-wheel, said shoes and wheel forming part of a magnetic circuit, and inductor-sections short circuited upon each other carried by said wheel, as and for the purpose set forth.

29. In a braking system, an axle, a shaft geared thereto, a brake-wheel mounted on said shaft, inductor-sections electrically connected together mounted on said wheel and a magnetic circuit in which said wheel is adapted to revolve, as and for the purpose set forth.

30. In a braking system, a brake-wheel, inductor-sections electrically coupled together and carried by said wheel, and means for creating a magnetic field in which said brake-wheel is adapted to revolve, as and for the purpose set forth.

31. In a braking system, the combination with an axle and a shaft geared thereto, of a brake-wheel mounted on said shaft, brake-shoes arranged to contact with said wheel, said shoes and wheel forming part of a closed magnetic circuit, and means for energizing said circuit, in combination with inductors carried by said wheel, as and for the purpose set forth.

32. In a braking system, an electromagnet, means for supporting the same, brake-shoes loosely suspended from the core of said magnet, a brake-wheel, said shoes bearing against said wheel, and means for controlling the energizing-circuit of said magnet, in combination with inductors carried by said wheel, as and for the purpose set forth.

33. In a braking system, a brake-wheel, a removable ring mounted on the periphery thereof, brake-shoes arranged to bear against said ring, said shoes and wheel forming part of a closed magnetic circuit, and means for energizing said circuit, in combination with inductors carried by said wheel, as and for the purpose set forth.

34. In a braking system, an armature comprising insulated inductor-sections electrically connected together, brake-shoes arranged to bear against said armature and forming magnetic pole-pieces, and means for energizing said shoes at will, as and for the purpose set forth.

35. In a braking system, an axle, a brake-wheel rotatively connected therewith and carrying insulated, closed electric circuits, in combination with an electromagnet having pole-pieces arranged to frictionally engage said brake-wheel, as and for the purpose set forth.

36. In a braking system, a rotating brake-wheel, an electromagnet having pole-pieces arranged to frictionally engage said brake-wheel, in combination with electrical devices carried by said wheel for developing an electrical braking effort coincident with the application of said pole-pieces, as and for the purpose set forth.

37. In a braking system, a rotating brake-wheel, means for magnetically applying a frictional braking effort thereto, in combination with means carried by said rotating brake-wheel and dependent upon the speed of rotation thereof for coincidently developing an electrical braking effort, as and for the purpose set forth.

38. In a braking system, a rotating brake-wheel, means for magnetically applying a frictional braking effort thereto, in combination with electrically-connected conductors carried by said wheel for developing a coincident electrical braking effort, whereby as the speed of rotation of said wheel decreases said electrical braking effort decreases, while the frictional braking effort remains constant, as and for the purpose set forth.

594,494. MANUFACTURE OF GLASS BOTTLES. MORITZ SCHNEIDER, Harkleuthen, Germany. Filed June 24, 1897. Serial No. 642,036. (No model.)

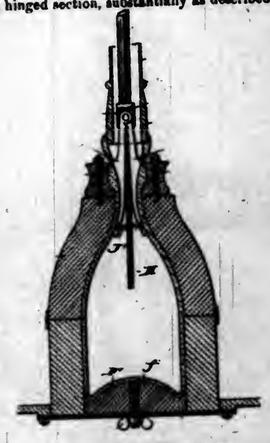
Claim.—1. In an apparatus for molding glass bottles, a mold-body formed in a single piece, sections of mold hinged thereto, and rollers journaled upon the upper edge of each hinged section, substantially as described.

2. In an apparatus for molding glass bottles, a mold-body of a single piece, sections of mold hinged thereto, rollers journaled upon the upper edge of each hinged section, in combination with a blow-pipe carrying expanding devices, substantially as described.

3. In an apparatus for molding glass bottles, a base, a mold carried thereby, a standard carried by the base, a blowpipe having a collar thereon for engagement with the standard, and expanding devices carried by the blowpipe, substantially as described.

4. In an apparatus for molding glass, a mold, a blowpipe comprising an outer shell and an inner tube movable longitudinally therein, and legs pivotally secured to the tube normally held apart by an interposed spring, substantially as described.

5. In an apparatus for molding glass bottles, a base having a screw-threaded orifice therein, a mold-body formed of a single piece screwed therein, a plate secured to the base below the orifice, a mold-bottom arranged in the body secured to the plate, sections of mold hinged to the body and grooved rollers journaled upon the upper edge of each hinged section, substantially as described.

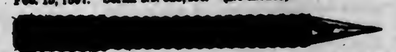


594,495. REFLECTOR. AUGUST STOHR, Barmen, Germany. Filed Apr. 30, 1896. Serial No. 589,670. (No model.) Patented in Germany Feb. 11, 1896, No. 89,940, and in Norway May 22, 1896, No. 4,973.



Claim.—A reflector comprising a reflecting-plate, a glass cover-plate, a back plate and a rim-plate all hermetically sealed at their adjacent peripheral edges, the said reflecting-plate and back plate being concave and connected to the cover-plate and to the rim-plate as shown to provide an air-tight space, both in front of and behind the reflector-plate, substantially as described.

594,496. ERASER. NORMAN C. STILES, Watertown, N. Y. Filed Feb. 15, 1897. Serial No. 623,408. (No model.)



Claim.—1. An erasive implement comprising a tubular eraser-carrier internally screw-threaded at the inner end thereof and having an inwardly-projecting annular flange at the outer end thereof and also having a compression-chamber, intermediate the inner and outer ends, of larger diameter than the internal diameter of the annular flange; a compressing member having a screw-threaded inner end seated in the screw-threaded end of the carrier, for adjustment longitudinally thereof to compress the eraser; and a distensible eraser having a portion thereof located within the compression-chamber of said carrier and abutting against the inner end of the compressing member.

2. In an implement of the class specified, the combination, with a tubular handle having external screw-threads at the inner end thereof and also having a transverse eraser-engaging portion or plate, of a tubular eraser-carrier having the inner end thereof screwed upon the handle and having the outer end thereof turned inward to form an annular flange, and said holder also having, intermediate the end of the holder and the inner face of said flange, a compression-chamber of larger diameter than the internal diameter of said flange; and a distensible cylindrical rubber movably supported in the compression-chamber and having a portion thereof projecting beyond the outer end of said carrier.

3. In an erasive implement, the combination, with an elongated tubular handle having a transverse bearing-plate near the inner end thereof, of a tubular eraser-carrier screwed upon said holder and having a relatively-contracted opening at the outer end thereof; and a pliable eraser located in the carrier and with its end in bearing engagement with the bearing-plate of the holder and having a portion of the outer end thereof extending through the opening in the outer end of said carrier.

4. In an implement of the class specified, the combination of a tubular handle screw-threaded externally at the inner end thereof and adapted for receiving a lead-pencil; a tubular eraser-carrier internally screw-threaded at the inner end thereof and adjustably engaging the screw-threaded end of the handle and also having an inturned annular flange at the outer end thereof, the internal diameter of which is less than the internal diameter of the main body portion of the carrier; and a pliable eraser of greater normal diameter than the internal diameter of the internal flange, located within the carrier with its inner end abutting against the inner end of the handle and having a portion of its outer end contracted and extended through the opening of the flange of said carrier.

594,497. PROCESS OF PURIFYING IRON. BENJAMIN P. STOCKMAN, London, England, assignor to the Stockman Iron and Steel Company, of West Virginia. Filed Mar. 3, 1896. Serial No. 581,806. (No specimens.) Patented in England Apr. 27, 1894, No. 8,370; in France Apr. 4, 1895, No. 246,294; in Belgium Apr. 23, 1895, No. 115,268; in Luxemburg Apr. 26, 1895, No. 2,823; in Italy May 18, 1895, LXXVI, 43; in New Zealand June 7, 1895, No. 7,660; in Austria Sept. 2, 1895, No. 45/3,098, and in Hungary Oct. 26, 1895, No. 4,016.

Claim.—1. The herein-described process of converting phosphoric or other iron from its crude state into malleable iron which consists in subjecting such iron in a molten state to the action of a loose granular mixture of nitrate of soda in a dry powdered state and magnetic iron-sand.

2. The herein described compound to be used in the conversion of molten phosphoric or other pig-iron into malleable iron which consists of a loose granular combination of dry powdered nitrate of soda and magnetic iron-sand mixed together in proportions suitable to the quantity of molten metal to be converted.

594,498. WRENCH. ERWIN F. STOUT, East Orange, N. J. Filed Mar. 4, 1896. Serial No. 581,740. (No model.)



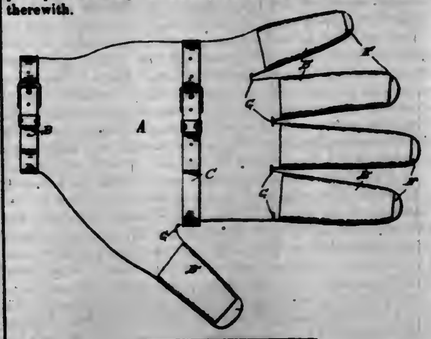
Claim.—1. As a new article of manufacture, a wrench having a handle, a removable side plate engaging the same, and being provided therein with a longitudinal chamber, a rectangular shank having teeth on its upper side within said chamber, a movable jaw on one end of said shank, a projection on the other end of the shank, a shoulder in said handle adapted to engage said projection, a stationary jaw having an enlarged portion provided with a triangular chamber therein, a dog in said chamber being adapted to engage said shank-teeth, a lever engaging said dog and passing outwardly through an opening in said handle, and a spring secured to the pivot-pin connecting the lever and dog, and adapted to force said dog on said shank, said parts being combined substantially as described.

2. A wrench having a handle, a removable side plate secured therein, and said handle being provided with a longitudinal chamber therein, a shank mounted in said chamber, a jaw on the outer end of said shank, said shank being rectangularly formed in cross-section, ratchet teeth or serrations in the upper part thereof, a shoulder or projection on the inner end of said shank, said handle being provided in the inner walls with a longitudinally-extending cavity adapted to receive said shoulder and in connection with said main chamber, a stationary jaw secured to said handle having formed therein a triangular-shaped chamber, a triangular dog mounted therein, having ratchet-teeth on its under side, a lever pivotally connected therewith, said chamber being provided with an aperture formed therein having said lever pass therethrough, a spring secured at one end to the pivot-pin connecting the lever and dog and at the other end to the inner wall of the triangular chamber, all of the said parts being combined substantially as and for the purpose described.

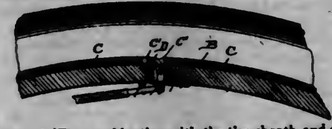
3. A wrench having a handle provided with an accessible longitudinal chamber therein, a movable jaw, a shank thereon passing into said chamber, teeth formed on the upper side of said shank, a shoulder on the inner end of said shank projecting into a corresponding cavity formed in said handle, the outer end of said jaw being enlarged and having formed therein a triangular chamber, a triangular dog mounted therein, ratchet-teeth on the under side thereof, a lever pivotally connected therewith and a spring secured at one end to the pivot-pin connecting the lever and dog and at the other end to the inner wall of the triangular chamber, said parts being combined substantially as described.

594,499. GLOVE. EDGAR SUIT, Baltimore, Md. Filed May 15, 1896. Serial No. 591,631. (No model.)

Claim.—As an article of manufacture, a glove comprising a palm portion formed from a single piece of material having at the wrist portion a strap to encircle the wrist, and a strap at substantially the mid-length of the palm portion to pass over the back of the hand, and finger portions comprising front portions integral with the palm portion and back portions secured to said front finger portions at the respective side edges, leaving the tip portions unattached, the said palm portion being notched adjacent to the junction of the fingers therewith.



594,500. TIRE-FASTENING. HENRY C. SWEENEY, Chicago, Ill. Filed June 4, 1897. Serial No. 639,376. (No model.)



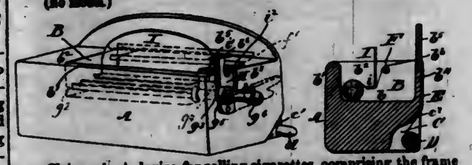
Claim.—1. The combination with the tire-sheath and attaching-wire C, of a curved and slotted tightener adapted to be drawn through the rim and having a flexible attachment to one end and an attachment sliding in its slot to the other end of the wire, substantially as specified.

2. The combination with the rim having an opening through it, the tire-sheath and the attaching-wire, of a tightener movable longitudinally through said opening in the rim and having a flexible attachment to one end of the wire and a sliding attachment to the other end thereof, and a removable keeper engaging the projecting end of the tightener and retaining the tension upon the wire, substantially as specified.

3. The combination with the rim having an opening through it, the sheath and the attaching-wire, of a curved tightener or take-up attached to the wire and adapted to engage and be drawn through the rim by a detached hand-lever, and a keeper engaging the end so drawn through, substantially as specified.

4. The combination with the rim having an opening through it, the sheath and the attaching-wire, of a curved tightener or take-up flexibly joined to one end of the wire and slidingly attached to the other end thereof, said tightener being also adapted to be engaged by a hand-lever and drawn longitudinally through said opening, and means engaging the end so drawn through and serving to retain the tension, substantially as specified.

594,501. DEVICE FOR ROLLING CIGARETTES. JAMES A. SWEETING, New York, N. Y. Filed Oct. 14, 1896. Serial No. 608,852. (No model.)



Claim.—1. A device for rolling cigarettes, comprising the frame or body embodying therein a rotary mandrel or former having a concave or semicylindrical stem, the guide-plate mounted in rear of and with relation to said mandrel and provided with the angular bottom edge or flange *i*, and guide mechanism arranged in rear of said plate and adapted to direct the paper, substantially as and for the purpose set forth.

2. A device for rolling cigarettes, comprising the frame or body having the top chamber, a rotary mandrel or former mounted within said chamber and provided with a concave or semicylindrical stem, a guide-plate mounted within said chamber in rear of and with relation to said mandrel and provided with the angular bottom edge, and mechanism carried by said frame or body adapted to support and

guide the paper under the angular edge of the guide-plate to the mandrel, substantially as and for the purpose set forth.

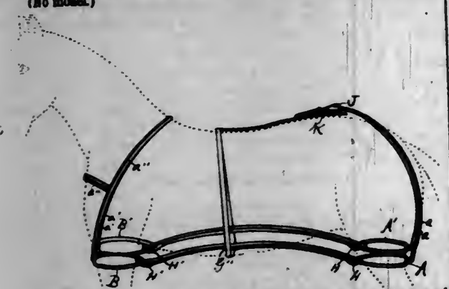
3. A device for rolling cigarettes, comprising the block or body having the top chamber and the slotted rear wall, the pin or shaft mounted at the rear of said body and adapted to carry a roll of paper, the rotary mandrel or former mounted within said chamber and provided with the concave or semicylindrical stem, and the guide-plate mounted in the chamber in rear of and with relation to the rotary mandrel and provided with the angular bottom edge, the relative construction and arrangement being such that the paper is adapted to be drawn from the rear of the device through the slotted rear wall and under the angular edge of the guide-plate by the mandrel, substantially as and for the purpose set forth.

4. A device for rolling cigarettes, comprising the block or body provided with a top chamber B having the slotted rear wall and the recessed and slotted end walls, substantially as set forth, and provided with the recess C at the back, the pin or shaft mounted in said back recess and adapted to carry a roll of paper, the rotary mandrel bearing in the slotted or recessed end walls of the chamber and provided with the concave or semicylindrical stem, means for locking said mandrel in position, the guide-plate mounted in the slotted or recessed side walls of the chamber in rear of and with relation to the mandrel and provided with the bottom edge *i* and the transverse roller or guide devices for guiding the paper under the bottom edge of said plate, substantially as and for the purpose set forth.

5. A device for rolling cigarettes, comprising the block or body having the top chamber, a rotary mandrel or former mounted in said chamber at the bottom and front end thereof, a guide-plate mounted in the chamber in rear of the mandrel and provided with a bottom edge projecting with relation to the latter, and guide devices for directing the paper under the bottom edge of said plate to the mandrel substantially as and for the purpose set forth.

6. A device for rolling cigarettes, comprising the block or body provided with the top chamber B having the slotted or recessed end walls, substantially as set forth, the removable mandrel or former having the concave or semicylindrical stem and bearing in the slotted and recessed walls of the chamber and provided with an operating-handle projecting from the block or body, the guide-plate mounted in the slotted and recessed walls of the chamber and having the angular bottom edge *i* projecting with relation to the mandrel, and a roller or guide device mounted in said chamber and adapted to guide the paper under the bottom edge of the plate to the mandrel, substantially as and for the purpose set forth.

594,502. HOPPLE. SUBMITH Y. TRICE, Dallas, Tex., assignor to Agnes M. Trice, same place. Filed May 12, 1896. Serial No. 591,226. (No model.)

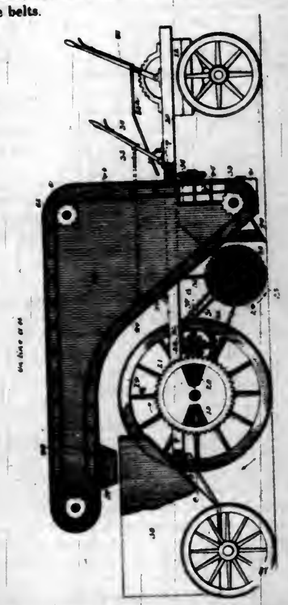


Claim.—1. A hopple for speeding animals consisting of an oval constructed of strong material, a steel sprieg bent around the large end of said oval and held flush with the same, a cushion attached to the inside of said oval, a covering of soft material for all of said parts, said covering being stitched on the outside of said hopple, and a strap across the small end of said oval adapted to protect the leg from the bearings of the connecting-straps and to hold the connecting-straps in place.

2. A hopple for speeding animals consisting of an oval constructed of strong material, a cushion held on the inside of said oval, a covering of soft material for all of said parts, said covering being stitched on the outside of said hopple, a strap across the small end of said oval adapted to hold the connecting-straps in place and means for supporting said hopples on horses.

594,503. STREET-SWEEPER. WILLIAM T. URIE, Kansas City, Mo. Filed Dec. 15, 1896. Serial No. 615,780. (No model.)

Claim.—1. In a sweeping-machine, the combination with the frame, of the transverse casing sustained at its forward end and provided at its base with a horizontal opening through which the sweepings are directed, two transverse belts mounted in said casing and provided with scrapers arranged to act along the bottom of the same, a horizontal rotary brush to deliver the sweepings through the opening in the casing onto its bottom, a longitudinal casing sustained by the frame communicating at its front sides with the transverse casing between the two belts and having its bottom extending rearwardly and upwardly, and an endless belt in said longitudinal casing provided with scrapers arranged to act rearwardly and upwardly along the bottom of the same on the sweepings delivered thereto by the transverse belts.



2. In a sweeping-machine the combination with the frame of the transverse casing sustained thereby and provided with an opening to receive the sweepings, conveyers in said casing arranged to carry the sweepings toward the center of the machine, a brush to deliver the sweepings to the conveyers a longitudinal casing communicating with the transverse casing and a divider intermediate of the brush and longitudinal casing and serving to direct the sweepings laterally in opposite directions from the longitudinal casing.

3. In a sweeping-machine the combination with a transverse casing provided with an opening and having its bottom curved upward between its ends, of conveyer-belts provided with scrapers arranged to act along the bottom of the same and the upwardly-curved portions, a longitudinal casing communicating with the transverse casing between the upwardly-curved portions and a conveyer in said longitudinal casing.

4. In a sweeping-machine, the combination with the frame of the vertically-movable brush-bearing, the brush mounted therein a vertical hollow rod connected to said bearing and communicating with the bearing-surface of the brush and means for raising and lowering said rod.

5. In a sweeping-machine, the combination with the frame, of the vertical guide sustained thereby, the bearing-block mounted in said guide, the bearing-collar sustained by said block, the brush-shaft mounted in said collar, the vertical hollow rod connected to the bearing-collar and communicating with the bearing-surface of the brush-shaft and means for raising and lowering said rod.

6. In a sweeping-machine the combination with the frame, of the transverse casing sustained thereby and provided with an opening at its base to receive the sweepings, two conveyers mounted in said casing and arranged to carry the sweepings toward the center of the same, a rotary brush for delivering the sweepings into the opening of said casing, an apron connected at its edge to the transverse casing, a longitudinal casing communicating with the transverse casing between the conveyers therein, a conveyer in said longitudinal casing and a divider sustained by the apron and comprising two diverging vertical shields to direct the sweepings from the central portion of the brush laterally to the two transverse conveyers.

594,504. SHUTTER-BOWER. JAMES W. WAMSLEY and HONORÉ F. LAINÉ, Philadelphia, Pa.; said Lainé assignor of one-half of his right to Damase T. Lainé, same place. Filed Aug. 19, 1897. Serial No. 648,770. (No model.)



Claim.—1. In a fastening device, a pair of sliding bolts, a guideway for each of said bolts, and a separable pivotal connection between said bolts by which they are locked in bowed relation by first moving them together while in alinement and then moving them to the bowed position, as specified.

2. In a fastening device, a pair of sliding bolts, a guideway for each of said bolts, a catch for holding each of said bolts in any desired position in its path of travel, and a separable pivotal connection between the adjacent ends of said bolts by which they are held locked together in bowed relation and permitted to be separated when in alinement, as specified.

3. In a fastening device, a pair of separable sliding bolts, a guideway for each of said bolts, an aperture in the end of one of said bolts having a passage through the end thereof, a pivot in the end of the other of said bolts adapted to enter said passage when said bolts are in alinement and bear in said aperture, and means for preventing the withdrawal of said pivot through said passage when said bolts are bowed, as specified.

4. In a fastening device, a sliding bolt, in combination with a latch, a series of catches adapted to be engaged by said latch to hold said bolt in desired position, a guideway for said bolt, and an abutment therefor which requires said latch to be oscillated to the normal locking position to effect the complete withdrawal of said bolt, as specified.

5. In a fastening device, a pair of sliding bolts, a guideway for each of said bolts, a vertical cylindrical aperture passing through the outer end of one of said bolts, a passage of less width than the diameter of said aperture which leads from the said aperture through the end of said bolt, and a vertical pivot fixed in the outer end of the other of said bolts and adapted to enter said passage and turn in said aperture, said pivot being of such section as to be secured in said aperture when said bolts are in bowed position, as specified.

6. In a fastening device, a pair of sliding bolts, a guideway for each of said bolts, a stud fixed in the end of one of said bolts, a channel formed in the end of the other of said bolts through which said stud may pass when said bolts are in alinement and from which said stud cannot be withdrawn when said bolts are bowed, whereby said bolts are locked together, as specified.

594,505. DESK. JAMES M. WELSH and ALBERT BRESEE, Independence, Tex. Filed June 20, 1896. Serial No. 596,233. (No model.)



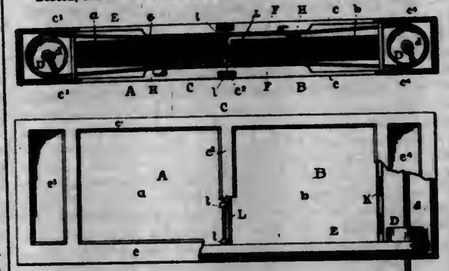
Claim.—1. The combination with a desk or table, of a depressible leaf having a rigidly-attached and threaded depending stem, an internally-threaded gear-wheel surrounding said stem and adapted when rotated to raise and lower said leaf, means for operating said gear-wheel, and an auxiliary stem rigidly connected to the under side of said leaf and sliding through an opening in the leaf-support, substantially as described.

2. The combination with a desk or table, of a pair of vertically-movable leaves or writing-bed sections having depending threaded stems, pinions or gears having a threaded engagement with said stems, a shaft interposed between said gears and carrying a fixed and a sliding gear meshing with the aforesaid gears, a shipping-lever for moving the sliding gear longitudinally of its shaft and into and out of engagement with its mate, and means for rotating the gear on the stem of one of the leaves, all arranged substantially as and for the purpose described.

3. The combination with a desk or table having a recess or depression opening out at one edge thereof, of a horizontally-sliding shelf arranged in said recess, vertically-movable leaves mounted side by side on said shelf and each movable up and down, and means for moving said leaves simultaneously in opposite directions to each other, substantially as described.

4. The combination with a desk or table having a recess in its top, of a pair of leaves arranged side by side and movable up and down in said recess, and means to positively move said leaves simultaneously in opposite directions to each other or one of said leaves independently of the other, substantially as described.

594,506. CARD-DISPLAYING DEVICE. HARVEY C. WHEELER, Boston, Mass. Filed Feb. 3, 1897. Serial No. 621,795. (No model.)

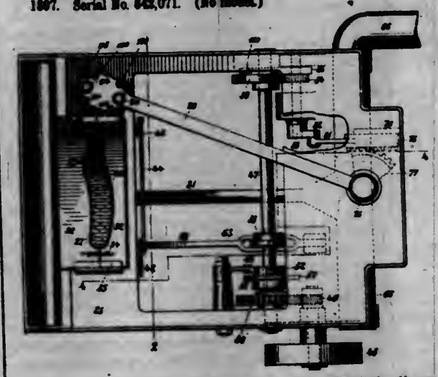


Claim.—1. In a card-displaying device, the combination of the stacks of cards, the continuously-moving belt exterior to said stacks but in close proximity to the outermost of said cards, catches carried by said belt, and shoulders adapted for pressing said catches into engagement with the outermost of said cards, whereby said cards are automatically transferred from stack to stack, substantially as and for the purpose set forth.

2. In a card-displaying device, the combination of the case provided with the partitions K and L, the stacks of cards located therein, the pulleys at the ends of said case, the endless belt passing about said pulleys and in close proximity to the faces of the outermost cards in said stacks, the catches carried by said belt, and means for pressing said catches into engagement with said outermost cards, substantially as and for the purpose set forth.

3. In a card-displaying device, the combination of the case, the partitions K, the central partition L having the springs *l*, the four pulleys located at the corners of the case, the endless belt passing about said pulleys and moved by the same, the catches carried by said belt, the shoulders, F, the springs H, and the stacks of cards located in said case, substantially as and for the purpose set forth.

594,507. MACHINE FOR CUTTING OUT WRAPPERS OR BINDERS FOR CIGARS. JOHN R. WILLIAMS, East Orange, N. J., assignor to the John R. Williams Company, New York, N. Y. Filed June 24, 1897. Serial No. 642,071. (No model.)



Claim.—1. In a machine of the character described, the die, movable table encompassing said die, and air-suction apparatus connected with said die, combined with the oscillating arm, the pressure-rollers

carried thereby, the driving-shaft, mechanism intermediate said shaft and said arm for moving the latter and said rollers across said die and arresting said arm at the end of each of its movements, and mechanism intermediate said shaft and said table, for securing the lowering of said table for the passage of the pressure-rollers over said die and the raising of said table thereafter and then the lowering of said table; substantially as set forth.

2. In a machine of the character described, the die, the movable table encompassing said die, and air-suction apparatus for holding the leaf on said die, combined with the oscillating arm, the pressure-rollers carried by said arm, the driving-shaft, means for automatically stopping said shaft at the end of each revolution, the means for manually starting said shaft after each stoppage thereof, mechanism intermediate said shaft and said arm for moving the latter and said rollers across said die and arresting said arm at the end of each of its movements, and mechanism intermediate said shaft and said table, for securing the lowering of said table for the passage of the pressure-rollers over said die and the raising of said table thereafter; substantially as set forth.

3. In a machine of the character described, the die, the movable table encompassing said die, and air-suction apparatus for holding the leaf on said die, combined with the oscillating arm, the pressure-rollers carried by said arm, the driving-shaft, means for automatically stopping said shaft at the end of each revolution, the means for manually starting said shaft after each stoppage thereof, mechanism intermediate said shaft and said arm for moving the latter and said rollers across said die and arresting said arm at the end of each of its movements, and mechanism intermediate said shaft and said table for securing the lowering of said table for the passage of the pressure-rollers over said die and the raising of said table thereafter and then the lowering of said table, the mechanism being so arranged that said pressure-rollers are moved and said table elevated and then lowered during each revolution of said driving-shaft and that said rollers are moved to effect the cutting of the wrapper during the early part of the revolution of said shaft and are then arrested until said shaft starts to make another revolution; substantially as set forth.

4. In a machine of the character described, the die, the movable table encompassing said die, and air-suction apparatus for holding the leaf on said die, combined with means normally holding said table in its lower position, the oscillating arm, the pressure-rollers carried by said arm, the driving-shaft, means for automatically stopping said shaft at the end of each revolution, the means for manually starting said shaft after each stoppage thereof, mechanism intermediate said shaft and said arm for moving the latter and said rollers across said die and arresting said arm at the end of each of its movements, the cam on said shaft, and mechanism intermediate said cam and said table for raising said table after said rollers have passed across said die and maintaining said table in its elevated position a definite length of time and then permitting it to lower; substantially as set forth.

5. In a machine of the character described, the die, the movable table encompassing said die, and air-suction apparatus for holding the leaf on said die, combined with means normally holding said table in its lower position, the oscillating arm, the pressure-rollers carried by said arm, the driving-shaft, means for automatically stopping said shaft at the end of each revolution, the means for manually starting said shaft after each stoppage thereof, mechanism intermediate said shaft and said arm for moving the latter and said rollers across said die and arresting said arm at the end of each of its movements, the cam on said shaft, the arm acted on by said cam and hung by a pivot at one end, and means intermediate the other end of said arm and said table for raising said table after said rollers have passed across said die and maintaining said table in its elevated position a definite length of time and then permitting it to lower; substantially as set forth.

6. In a machine of the character described, the die, the table encompassing said die, and air-suction apparatus for holding the leaf on said die, combined with the driving-shaft, means for automatically stopping said shaft at the end of each revolution, means for starting said shaft after each stoppage thereof, the oscillating arm, the pressure-rollers carried thereby, and mechanism intermediate said shaft and said arm for moving the latter and said rollers across said die and arresting said arm at the end of each of its movements; substantially as set forth.

7. In a machine of the character described, the die, the table encompassing said die, and air-suction apparatus for holding the leaf on said die, combined with the driving shaft, power mechanism therefor, the oscillating arm, the pressure-rollers carried thereby, and mechanism substantially as described intermediate said shaft and said arm for moving the latter and said rollers across said die and arresting said arm at the end of each of its movements without interfering with the continuing of said shaft on its movement; substantially as set forth.

8. In a machine of the character described, the die, and air-suction apparatus for holding the leaf thereon, combined with the driving-shaft, power mechanism therefor, the oscillating arm, the pressure-rollers carried thereby, and mechanism substantially as described intermediate said shaft and said arm for moving the latter and said rollers across said die and arresting said arm at the end of each of its movements without interfering with the continuing of said shaft on its movement; substantially as set forth.

9. In a machine of the character described, the die, and air-suction apparatus for holding the leaf thereon, combined with the driving-shaft 47, the segmental gear-wheel 59 on said shaft, the locking-plate 160 on said shaft and having the regular convex surface 164, and also the recess in its periphery breaking the continuity of said surface 164, the auxiliary shaft 83, the pinion 84 on said auxiliary shaft, the locking-plate 85 on said auxiliary shaft and having a concave surface to engage the convexity of said regular surface 164, the oscillating arm 29, the pressure-rollers 30 carried by said arm, and means intermediate said shaft 83 and arm 29 for imparting motion from the former to the latter; substantially as set forth.

10. In a machine of the character described, the die and air-suction apparatus for holding the leaf thereon, combined with the driving shaft 47, the segmental gear-wheel 59 on said shaft, the locking-plate 160 on said shaft and having the regular convex surface 164, and also the recess in its periphery breaking the continuity of said surface 164, the auxiliary shaft 83, the pinion 84 on said auxiliary shaft, the locking-plate 85 on said auxiliary shaft and having a concave surface to engage the convexity of said regular surface 164, the oscillating arm 29, the pressure-rollers 30 carried by said arm, the sliding rack 75 engaging said segment 77 on said arm 29, the crank and pitman connecting said rack 75 with said auxiliary shaft 83; substantially as set forth.

11. In a machine of the character described the die and air-suction apparatus for holding the leaf thereon, combined with the driving-shaft 47, the segmental gear-wheel 59 on said shaft, the locking-plate 160 on said shaft and having the regular surface 164, recesses 161 and 162, and toe 163, the auxiliary shaft 83, the pinion 84 on said auxiliary shaft, the locking-plate 85 on said auxiliary shaft and having the concave surfaces at its opposite ends to engage the convexity of said regular surface 164, the oscillating arm 29, pressure-rollers 30 carried by said arm, and means intermediate said shaft 83 and said arm 29 for imparting motion from the former to the latter; substantially as set forth.

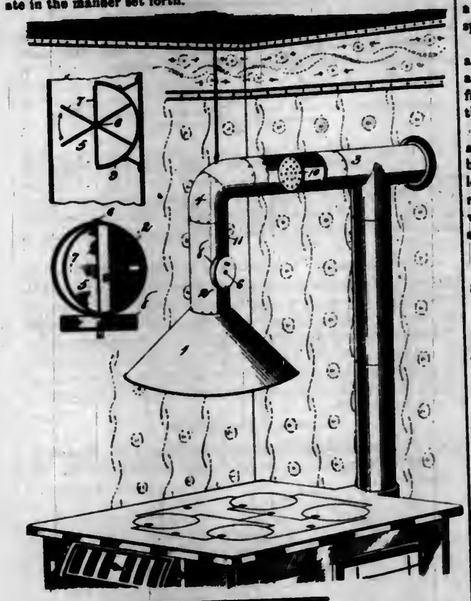
12. In a machine of the character described, the die and air-suction apparatus for holding the leaf thereon, combined with the arm 29, the pressure-roller frame 93 carried by said arm, the bolts 94 supporting said frame 93 from said arm and engaging at their lower ends threaded apertures in said frame and passing through free apertures in said arm 29 of such size as to permit movements in transverse direction, the adjustable stop screws 97 carried by said arm and engaging the top of said frame 93, and the pressure-roller 30 carried by said frame 93, said bolts 94 being at the longitudinal center of said frame 93 and said stop-screws 97 being at opposite sides of said center; substantially as set forth.

13. In a machine of the character described, the die and air-suction apparatus for holding the leaf thereon, combined with the arm 29, the pressure-roller frame carried by said arm, means for adjusting said frame on said arm, the pressure-rollers 30 carried by said frame, the yokes 99 extending transversely over said rollers 30 and having the contact-rollers 103, means suspending said yokes 99 from said frame 93 and upwardly-yielding springs 102 intermediate the ends of said yokes and said frame; substantially as set forth.

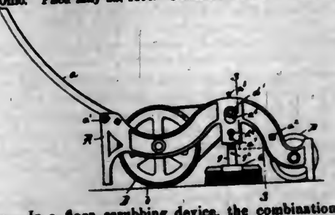
14. In a machine of the character described, the die and air-suction apparatus for holding the leaf thereon, combined with the arm 29, the pressure-roller frame 93 carried by said arm, the bolts 94 engaging the top of said frame 93 and passing through free apertures in said arm 29 of such size as to permit movements in transverse directions, the series of screw-stops 97 passing downward through said arm 29 and impinging the top of said frame 93, the pressure-rollers 30 having a central opening and carried by said frame 93, the shaft 90 journaled in the ends of said frame 93 and passing through openings in said rollers 30 but being less in diameter than the diameter of said openings, the yokes 99 passing transversely over said rollers 30, the contact-rollers 103 carried by said yokes at opposite sides of the longitudinal center of said rollers 30, the screws 100 supporting said yokes 99 and the springs 102 on said screws 100 intermediate the ends of said yokes 99 and the top of said frame 93; substantially as set forth.

594,508. AUTOMATIC KITCHEN-VENTILATOR AND STOVE-PIPE ATTACHMENT. BENJAMIN F. WOOD, Des Moines, Iowa, assignor of one-half to C. D. Rawson, same place. Filed July 27, 1894. Renewed Apr. 12, 1897. Serial No. 631,940. (No model.)

Claim.—A kitchen-ventilator comprising a stovepipe-elbow having a hood fixed to its lower open end, a rotary fan within the pipe and above the hood, a spring-motor in a case fixed to the outside of the pipe to operate the fan, a damper within the elbow and a perforated partition in the upper portion of the elbow-shaped pipe, in combination with a stove, substantially as shown and described to operate in the manner set forth.



594,509. SCRUBBING-MACHINE. HARMAN F. ACKERMAN, Cleveland, Ohio. Filed May 22, 1896. Serial No. 592,661. (No model.)



Claim.—In a floor-scrubbing device, the combination of the framework, a transverse bar D vertically adjustable thereon, a roller mounted in the framework and adapted to contact with the floor, a shaft C mounted upon said transverse bar, and mechanism for transmitting motion from the roller to the shaft, with vertical shafts journaled in said bar, meshing bevel-gears on said shaft C and vertical shafts, brush-holders which are vertically movable upon the lower ends of said vertical shafts, and revolve with them, and springs surrounding said shafts and thrusting said brush-holders downward, substantially as and for the purpose specified.

594,510. FOLDING BED. PHILOMENA ARTH, Dover, Mo. Filed Dec. 17, 1896. Serial No. 616,055. (No model.)



Claim.—1. In a device of the character described, the combination with a stationary frame and a folding frame, of a shaft carried in suitable bearings upon the stationary frame and provided with a locking-lever, and means for rotating the shaft, substantially as specified.

2. In a device of the character described, the combination with a stationary frame, of a shaft carried in suitable bearings thereon, a locking lever operatively connected with said shaft and folding frame, and a spring-latch in said folding frame designed to retain the locking-lever, substantially as specified.

3. In a device of the character described, the combination with a stationary frame and a folding frame, of a shaft carried in suitable bearings thereon and provided upon its opposite ends with a locking-lever and actuating mechanism respectively, and a spring-latch carried by the folding frame and designed to retain the locking-lever when the same is turned to the locking position by rotation of the shaft, substantially as specified.

594,511. MOTOR MECHANISM FOR HORSELESS CARRIAGES. JAMES H. AUBLE, Lawrenceburg, Ind., assignor, by direct and mesne assignments, of three-fourths to James M. Graham, same place, and John H. Fox and Louis S. Matheus, Dearborn County, Ind. Filed Apr. 17, 1897. Serial No. 632,632. (No model.)



Claim.—1. The combination of the rotatable body A, having the female screw, and the sprocket-chain having extensions, engaging said thread, and guide through the body, for holding the chain in position in the body A while passing through the latter, substantially as and for the purposes specified.

2. The combination of the rotatable body A, having the female screw, and the sprocket-chain having extensions, engaging said thread, and guide in the passage through the body, the chain having rollers for running over the guide, substantially as and for the purposes specified.

3. The combination of the rotatable body A, having a screw-threaded passage through it, and the sprocket-chain, having extensions on which are rollers, engaging the screw-thread, and also rollers, and a guide composed of plates or bars parallel, and beveled at their terminals, the last-named rollers of the chain engaging said guide-plates, substantially as and for the purposes specified.

4. The combination of a cylindrical body having end flanges, and journal-bearings grasping the cylinder, and within a passage provided with screw-thread, and a chain for being moved through this passage, and engaging the threads of this cylindrical body, substantially as and for the purposes specified.

5. The combination of the cylinder A, interiorly-screw-threaded passage, and flanges, and journal-bearings embracing the cylinder in conjunction with the flanges, and the ball-bearings, and chain engaging the screw-thread, substantially as and for the purposes specified.

6. The combination of the cylinder A interiorly-screw-threaded passage, and flanges, and journal-bearings embracing the cylinder in conjunction with the flanges and the ball-bearings, located between the cylinder and bearings, also between the flanges and bearings, substantially as and for the purposes specified.

7. The combination of the cylinder, having interior screw threaded passage, and chain engaging said screw, and journal-bearings, in which said cylinder rotates, and end flanges on said cylinder, one of said flanges being combined with a toothed wheel and a second toothed wheel in connection, substantially as and for the purposes specified.

8. The combination of the cylinder, having interior screw-threaded passage, and chain engaging said screw, and journal-bearings, in which said cylinder rotates, and end flanges on said cylinder, one of said flanges being combined with a toothed wheel and a second toothed wheel in connection, and a fly-wheel fixedly connected to the cylinder, substantially as and for the purposes specified.

9. The combination of the cylindrical body screw-threaded interiorly, chain whose extensions engage the screw-thread, flanges on the cylindrical body, journal-bearings, in which the latter revolves, treadle, shaft thereof, wheel thereof, connected with and turning the cylindrical body by a wheel in conjunction with the latter, fly-wheel, wheel operated by the chain, and connected to the axle of a carriage-gear, reaches or frame of the gear, the bearings of the cylinder and of treadle-shaft being supported by the carriage-gear, substantially as and for the purposes specified.

10. The combination of a rotatable body A, having a screw-threaded interior passage, and a chain whose extensions engage the threads of the passage, and a wheel, receiving from the chain the motion of the latter, for imparting it to other mechanism, and bearings in which the body A revolves around the axis of its screw, and means substantially as described for imparting to the body A a rotary movement, substantially as and for the purposes specified.

11. The combination of a rotatable body A, having a screw-threaded interior passage, and a chain whose extensions engage the threads of the passage, and a wheel, receiving from the chain the motion of the latter, for imparting it to other mechanism, and another wheel beyond the other end of the body A to receive the chain, substantially as and for the purposes specified.

12. The combination of the rotatable cylinder A, having female screw, chain having extensions engaging with the screw-thread, and bearings in which the cylinder A revolves, and guides through the cylinder for holding the chain in position while passing through the cylinder, the guides being fastened to and upheld by the journal-bearings, by the end extensions, substantially as and for the purposes specified.

13. The combination of the rotatable cylinder A having female screw, chain having extensions engaging with the screw-thread, bearings in which the cylinder revolves, end flanges on the cylinder, the one provided with pinion, and the other with fly-wheel, and the chain-guide through the cylinder, having end plates, which pass outside of the flanges, and in extension unite with the extensions of the bearings, substantially as and for the purposes specified.

594,512. SECTIONAL STEAM OR HOT-WATER BOILER. JOHN R. BARNAM, Worcester, Mass. Filed Sept. 23, 1896. Serial No. 607,372. (No model.)



Claim.—1. In a boiler, the combination with a fire-box, of one or more central sections, each of said sections containing a water-chamber and comprising a front vertical tube extending vertically upward from above the fire-box, a horizontal tube running lengthwise the boiler, and a rear vertical tube extending downwardly from said horizontal tube at the rear of the boiler said vertical tubes and said horizontal tube inclosing a combustion-chamber, substantially as described.

2. In a boiler, the combination with a supporting base-plate and a fire-box of a water-section extending lengthwise said fire-box and comprising a front vertical tube extending upwardly at the front of the fire-box, a vertical tube extending from said base-plate upwardly, a horizontal tube connecting the upper ends of said tubes, an oblique pipe connecting the lower ends of said front and rear vertical pipes, and a vertical drop-pipe extending downwardly midway from said oblique pipe, substantially as described.

3. In a boiler, the combination of a supporting-base of one or more central sections extending lengthwise said boiler and comprising front and rear vertical tubes, a horizontal tube connecting the upper ends of said vertical tubes, an oblique tube connecting the lower ends of said vertical tubes and a pair of side sections each containing a water-chamber communicating with the tubes of said central section, substantially as described.

4. In a boiler, the combination with a fire-box of a central section comprising vertical tubes at the rear and front of the boiler, a horizontal tube connecting the upper ends of said rear and front vertical tubes, oblique tubes extending from said front vertical tubes rearward to said rear tubes, a drop-tube forming the rear wall of said fire-box, and an oblique tube connecting said drop-tube with said rear vertical tube, substantially as described.

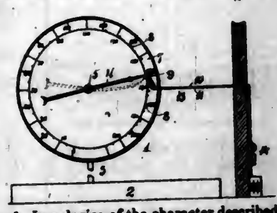
594,513. CAPE-SUPPORT FOR BICYCLES. HENRY H. BARREDA, Buffalo, N. Y., assignor to himself and Harry M. Rose, same place. Filed Dec. 24, 1896. Serial No. 616,890. (No model.)



Claim.—1. A supporting device, consisting of two semicircular clamping portions secured to each other at one end by a hinge and at the other by a thumb-screw, a tubular screw-threaded ear projecting outwardly from each of said clamping portions and supporting-arms provided with screw-threaded ends engaging in said ears, as set forth.

2. A device adapted to be attached to a bicycle for supporting the front of a waterproof covering from contact with the rider's limbs, comprising two semicircular clamping portions pivotally hinged to each other at one end, and having extensions provided with circular screw-threaded openings at their opposite ends, a thumb-screw fitting said openings, a tubular screw-threaded ear projecting outwardly from substantially the middle of each of said clamping portions, and straight portions having one end screw-threaded to fit and engage in the ears, as set forth.

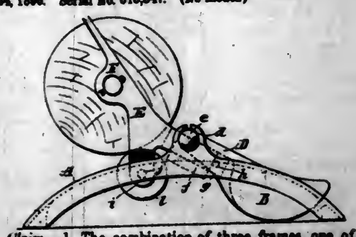
594,514. AUTOMATIC HIGH-PRESSURE ALARM. CHARLES W. BENNS, Tacoma, Wash. Filed Jan. 9, 1897. Serial No. 618,560. (No model.)



Claim.—1. In a device of the character described, the combination with a pressure-gage provided with a non-conductive dial and with a metallic alarm-dial provided with graduated apertures, of a contact-plug, an alarm-circuit having both terminals wrapped upon the plug, one of said terminals being insulated therefrom, and a hand movable over the face of the gage and mounted edgewise, said hand being designed to make contact with the insulated terminals of the alarm-circuit and to hold said circuit closed during a predetermined movement of the hand, substantially as specified.

2. In a device of the character described, the combination with a pressure-gage provided with a non-conductive dial and with a metallic alarm-dial surrounding the same provided with graduated apertures, of a contact-plug designed to be inserted in the apertures, an alarm-circuit having its terminals wrapped upon and insulated from the plug, and a hand mounted edgewise and movable over the dial in a manner to make contact between the terminals of the alarm-circuit and to retain said circuit closed during a predetermined movement of the hand, the location of the contact-plug upon the alarm-dial and the provision of a non-conductive dial serving to prevent magnetizing of the movable parts of the gage, substantially as specified.

594,515. CAR-AXLE LUBRICATOR. EDWIN H. BENNETT, Elizabeth, N. J., and WILLIAM A. STADELMAN, New York, N. Y. Filed Nov. 24, 1896. Serial No. 613,347. (No model.)



Claim.—1. The combination of three frames, one of which is stationary and the other two pivotally supported thereon, said pivotally-supported frames centrally swiveled to each other in an axis at right angles to the axis in which they are pivoted to the stationary frame, one of these pivotally-supported frames having a counterweight and the other carrying a roller which parallels itself with the journal to be lubricated and upon which it has bearing contact.

2. The combination, with a base having bearings, of a frame journaled therein and provided with a counterweight, a second frame journaled in said first-mentioned frame and adapted to have an independent movement at right angles to the movement of said first-mentioned frame, and a lubricating-roller and a feed-roller journaled in said second frame, substantially as set forth.

594,516. BICYCLE-LAMP. CLAUDIUS V. BOUGHTON, Buffalo, N. Y. Filed Feb. 26, 1896. Serial No. 580,701. (No model.)



Claim.—In a bicycle-lamp, the combination with the socket 37 for securing the lamp to the frame of the bicycle, of the arms 36, 36, rigidly secured to the body of the lamp at their forward ends and pivoted to the socket 37 at their rear ends and the spring 42 with its ends curved in opposite directions its outer end 43 being rigidly secured to the rear face of the socket 37 and its inner end being loosely bent around the cross-bar 45 which extends across between the two arms 36, 36.

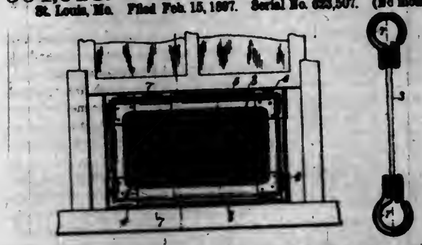
594,517. TAPER FOR BICYCLE OR CARRIAGE LAMPS. CLAUDIUS V. BOUGHTON, Buffalo, N. Y. Filed Feb. 26, 1896. Serial No. 580,754. (No model.)



Claim.—1. A taper for bicycle or carriage lamps consisting of the closed metallic receptacle 1 filled with solid wax, the wick-holder 4 extending through the top or cover 2 and provided at its upper end with the heating-strip 5, integral with said wick-holder and extending across the top of the wick, and at its lower end with the integral radial extensions 6 and the wick 8 extending to the bottom of the receptacle.

2. A taper for bicycle or carriage lamps consisting of the closed metallic receptacle 1 filled with solid wax, the wick-holder 4 extending through the top or cover 2 and provided at its upper end with the heating-strip 5 integral with said wick-holder and extending across the top of the wick, and its lower end with the integral radial extensions 6 having the turned down ends 7 and the wick 8 extending to the bottom of the receptacle.

594,518. METALLIC WINDOW-SCREEN. ANDREW J. BRADLEY, St. Louis, Mo. Filed Feb. 15, 1897. Serial No. 623,507. (No model.)



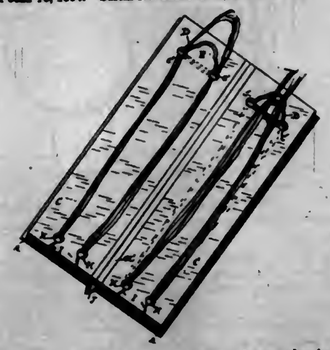
Claim.—1. A window-screen consisting of a frame composed of sheet-metal strips bent to have their edges turned outwardly and having one of said edges folded back on the side toward the opposite edge, and a wire-cloth having its margins folded back and interlocked with said folded edges and clamped between the outturned edges of the respective strips, and corner-pieces overlapping and reinforcing said strips, substantially as described.

2. A window-screen consisting of sheet-metal strips and corner-pieces therefor, said strips being bent into cylindrical form with radially-outturned edges and having one of said edges folded back on the side toward the opposite edge, and a wire-cloth having its margins folded back and interlocked with said folded edges and clamped between the outturned edges of the respective strips, substantially as described.

3. A window-screen consisting of sheet-metal strips bent into cylindrical form with radially-outturned edges and having one of said edges folded back, and a wire-cloth having its margins folded back and interlocked with said folded edges and clamped between the outturned edges of the respective strips, in combination with guides secured to the window-frame and having grooves in which the side strips are adapted to slide, substantially as described.

4. An adjustable window-screen comprising two three-sided frames composed of strips of sheet metal bent into tubular form with outturned edges, one edge of each tube being looped back on the side toward the opposite edge of said strip, and a wire-cloth for each frame whose margins are folded back and interlocked with the looped edges of the strips of its frame, the top and bottom tubes of one frame telescoping with the corresponding tubes of the other frame and the saloped edge of each inner tube being between the loops of the two tubes when assembled, substantially as and for the purpose set forth.

594,519. SKEIN-SILK BOOK. HENRY BERTOW, Brooklyn, N. Y. Filed Jan. 16, 1897. Serial No. 619,474. (No model.)



Claim.—1. A skein-silk book consisting of covers having secured thereto and therein between a series of leaves joined together with and separated by a strip *a'* to facilitate the opening of the book flat out, and to accommodate the additional thickness of the bulk of the silk, said leaves provided with openings and flaps or tongues to receive and hold the silk, as set forth.

2. A skein-silk book consisting of a series of leaves bound together and provided at or near one end with a tongue having openings at either side of its base and provided at or near the opposite end with a tongue having openings at either side of its base, the distance between the openings at the base of one of the tongues being greater than the distance between the openings at the base of the other tongue, and the width of the base of one of the tongues being greater than the width of the base of the other tongue, as and for the purpose specified.

3. A skein-silk book consisting of covers having secured thereto and therein between a series of leaves joined together with and separated by a strip *a'* to facilitate the opening of the book flat out, and to accommodate the additional thickness of the bulk of the silk, said leaves provided with openings and flaps or tongues to receive and hold the silk and an outside cover provided with means for fastening the book closed to prevent soiling, distorting, fraying and tangling of the silk.

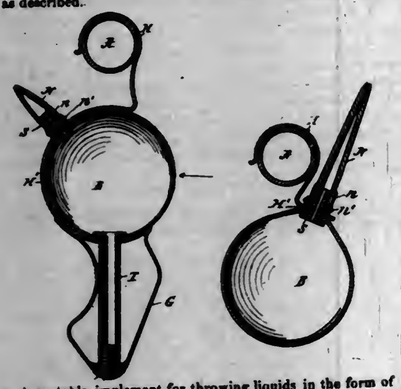
594,520. IMPLEMENT FOR THROWING OR DISCHARGING LIQUIDS IN FORM OF STREAMS. JESSE H. BUNNELL, Brooklyn, N. Y., and THOMAS A. CASEY, Passaic, N. J., assignors, by direct and mesne assignments, to said Bunnell and Charles J. Kintner, New York, N. Y. Filed Feb. 15, 1897. Serial No. 623,367. (No model.)

Claim.—1. A portable implement for throwing liquids in the form of a stream, consisting of a hollow elastic or yielding chamber provided with a nozzle, in combination with means for holding said chamber against pressure exerted on one side and at a point substantially opposite to the nozzle, said elastic or yielding chamber being sustained in an exposed position so that it may be acted upon directly by the hand of the user substantially as described.

2. A portable implement for throwing liquids in the form of a stream, consisting of a hollow elastic or yielding chamber provided with a nozzle and means for holding said chamber firmly in the hand of the user, in combination with a sustaining device in the nature of a book, the same constituting a part of the implement and adapted to sustain the implement at some point of easy access to the user, substantially as described.

3. A portable implement for throwing liquids in the form of a

stream, consisting of a hollow elastic or yielding chamber having a nozzle and retaining or holding means in the nature of a grip, said parts being so arranged as to adapt the implement for use after the manner of a pistol, the compressible part of the yielding chamber being exposed to the direct action of the hand of the user, substantially as described.

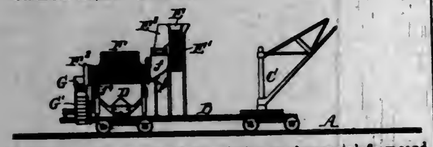


4. A portable implement for throwing liquids in the form of a stream, consisting of an elastic or compressible chamber having a nozzle, in combination with means which partially surrounds or incloses said chamber in such a manner as to expose it directly to the compressive action of the hand of the user, and a filling-tube, substantially as described.

5. A portable implement for throwing liquids in the form of a stream, consisting of a hollow elastic or compressible chamber having a nozzle and a holding device or grip, which partially surrounds the compressible chamber and leaves it directly exposed to the hand of the user in combination with a sustaining device which constitutes a part of the implement and is adapted to sustain it at some point of easy access to the user, substantially as described.

6. A portable implement for throwing liquids in the form of a stream, consisting of a compressible chamber sustained by a holding device which partially surrounds said compressible chamber so as to leave it exposed to the hand of the user and thereby adapt it to react against the compressive action of the user's hand, in combination with a nozzle and a sustaining device in the nature of a hook adapted to sustain the implement at some point of easy access to the user, substantially as described.

594,521. APPARATUS FOR EXTRACTING GOLD OR OTHER PRECIOUS METALS FROM EARTH, &c. BENJAMIN S. CHURCH, New York, N. Y., assignor, by mesne assignments, to the Church Machinery Company, of New Jersey. Filed Nov. 22, 1893. Renewed May 7, 1897. Serial No. 635,601. (No model.)



Claim.—1. An apparatus for separating precious metals from sand having in combination a tank, means for feeding sand into one end and withdrawing it from the other, one or more separators arranged in the tank, one or more return-conduits arranged as described from front to rear of the tank and opening into it at the top and the bottom substantially throughout its length to remove the sand settling to the bottom of the tank as it settles, and means for elevating the sand through said return conduit or conduits and discharging it into the top of the tank.

2. An apparatus for separating precious metals from sand having in combination a tank with a hopper-shaped bottom extending lengthwise of the tank, one or more separators arranged in the tank, one or more return-conduits arranged as described from front to rear of the tank and opening into it at the top and bottom substantially throughout its length to remove the sand settling to the bottom of the hopper-shaped bottom of the tank as it settles, and means for elevating the sand through said return conduit or conduits and discharging it into the top of the tank.

3. An apparatus for separating precious metals from sand having in combination a tank, means for feeding sand into one end and withdrawing it from the other, one or more separators arranged in the tank, one or more return-conduits arranged as described from front to rear of the tank and opening into it at the top and bottom substantially throughout its length to remove the sand settling to the bottom of the tank as it settles, and means for drawing the water from the bottom of the tank along its length and forcing it and sand carried by it through the return conduit or conduits to the top of the tank.

4. An apparatus for separating precious metals from sand having in combination a tank with a hopper-shaped bottom extending lengthwise of the tank, one or more separators arranged in the tank, one or more return-conduits arranged as described from front to rear of the tank and opening into it at the top and bottom substantially throughout its length to remove the sand settling to the bottom of the hopper-shaped bottom of the tank as it settles, and means for drawing the water from the bottom of the tank along its length and forcing it and sand carried by it through the return conduit or conduits to the top of the tank.

5. An apparatus for separating precious metals from sand having in combination a tank with a hopper-shaped bottom extending lengthwise of the tank, one or more separators arranged in the tank, one or more return-conduits opening at top and bottom into the tank substantially throughout its length, means for elevating the sand through said return conduit or conduits as it settles in the hopper-shaped bottom of the tank and discharging it into the top thereof and regulable means for feeding the sand longitudinally through the tank as it circulates through said tank and its return-conduits.

6. An apparatus for separating precious metals from sand having in combination a tank-chamber, one or more separators situated in said chambers, a return conduit or conduits connecting with the bottom and top of said tank-chamber, said conduits being of less area than the tank-chamber, a pump arranged to force the water and sand from the bottom to the top of the tank through the return-conduits and a series of angularly-adjustable deflecting-plates arranged to move the sand along the tank as it circulates through the chamber and conduit.

7. An apparatus for separating precious metals from sand, having in combination a tank-chamber, one or more separators situated in said chamber, a series of angularly-adjustable return-conduits, connecting with the top and bottom of the tank-chamber and means for forcing sand and water from the bottom to the top of the tank through the return-conduits.

8. In an apparatus for separating precious metals from sand the combination of a tank-chamber, a narrow chamber connecting the top and bottom of the tank, a series of angularly-adjustable deflecting-plates situated in said narrow chamber, one or more separators situated in the tank-chamber and means for forcing sand and water through the narrow chamber aforesaid from the bottom to the top of the tank.

9. In an apparatus for separating precious metals from sand, the combination of a tank-chamber, a narrow chamber connecting the top and bottom of the tank, a series of angularly-adjustable deflecting-plates situated in said narrow chamber, a series of transversely-set and angularly-adjustable separating-plates situated in the tank-chamber and means for forcing sand and water through the narrow chamber aforesaid from the bottom to the top of the tank.

10. In an apparatus for separating precious metals from sand the combination of a tank-chamber, having a hopper-bottom extending from front to rear as described, one or more separators situated in said chamber, a return conduit or conduits connecting with the top and bottom thereof throughout its length, a receptacle for mercury extending along the bottom of the hopper bottom and means for forcing sand and water from the bottom to the top of the tank through the return-conduit.

11. In an apparatus for separating precious metals from sand, the combination of a tank-chamber having a hopper-bottom extending from front to rear as described, one or more separators situated in said chamber, a return conduit or conduits connecting with the top and bottom thereof throughout its length, a receptacle for mercury extending along the bottom of the hopper-bottom, means for forcing sand and water from the bottom to the top of the tank through the return-conduit and means for longitudinally shifting the mass of sand as it circulates through the apparatus.

12. In an apparatus for separating precious metals from sand the combination of a tank-chamber, a narrow upright return-conduit connecting the top and bottom of the tank and dividing it into two compartments, means for forcing sand and water through said conduit from the bottom to the top of the tank-compartment and a mercury-trough situated below the return-conduit.

13. In an apparatus for separating precious metals from sand, the combination of a tank-chamber, a narrow upright return-conduit connecting the top and bottom of the tank and dividing it into two compartments, means for forcing sand and water through said conduit from the bottom to the top of the tank-compartments, a mercury-trough situated below the return-conduit and means for longitudinally shifting the mass of sand as it circulates through the tank.

14. In an apparatus for separating precious metals from sand, the combination of a tank-chamber having a hopper-shaped bottom extending from front to rear, a return conduit or conduits extending lengthwise of the tank and opening into it at top and bottom, stirring and propelling mechanism as elongated spur-wheels or ribbed cylinders I' I' extending along the bottom of the tank below the entrance of the return conduit and arranged to draw water and sand from the bottom of the tank throughout its length and force it into and through the return conduit or conduits and one or more separators arranged in the tank-chamber.

15. In an apparatus for separating precious metals from sand the combination of a tank-chamber having a hopper-shaped bottom, a return conduit or conduits reaching from near the bottom of the tank, upward stirring and propelling mechanism, as elongated spur-wheels or ribbed cylinders I' I', arranged at the bottom of the tank below the entrance of the return-conduit, for the purpose of forcing water and sand through said conduit, a series of adjustable deflecting-plates arranged as described to give longitudinal movement to the same and a series of separators arranged in the tank-chamber.

16. In an apparatus for separating precious metals from sand, the combination of a tank chamber or chambers containing separating-plates, a return conduit or conduits leading from the bottom to the top thereof, means for forcing water and sand through said conduits and a protecting-grating *q* arranged as described to protect the return-conduit and forcing mechanism.

17. An amalgamating apparatus having in combination a tank-chamber, a series of amalgamating-plates situated in said chamber, a return conduit or conduits connecting with the bottom and top of said tank-chamber, said conduits being of less area than the tank-chamber, a pump arranged to force the water and sand from the bottom to the top of the tank through the return conduits and a series of angularly-adjustable deflecting-plates arranged to move the sand along the tank as it circulates through the chamber and conduit.

18. An amalgamating apparatus having in combination a tank-chamber, a series of amalgamating-plates situated in said chamber, a series of angularly-adjustable return-conduits, connecting with the top and bottom of the tank-chamber and means for forcing sand and water from the bottom to the top of the tank through the return-conduits.

19. In an amalgamating apparatus the combination of a tank-chamber, a narrow chamber connecting the top and bottom of the tank, a series of angularly-adjustable deflecting-plates situated in said narrow chamber, a series of amalgamating-plates situated in the tank-chamber and means for forcing sand and water through the narrow chamber aforesaid from the bottom to the top of the tank.

20 In an amalgamating apparatus the combination of a tank-chamber, a narrow chamber connecting the top and bottom of the tank, a series of angularly-adjustable deflecting-plates situated in said narrow chamber, a series of transversely-set and angularly-adjustable amalgamating-plates situated in the tank-chamber and means for forcing sand and water through the narrow chamber aforesaid from the bottom to the top of the tank.

21. In an amalgamating apparatus the combination of a tank-chamber, a narrow chamber connecting the top and bottom of the tank, a series of transversely-set angularly-adjustable amalgamating-plates situated in the tank-chamber and means for forcing sand and water through the narrow chamber aforesaid from the bottom to the top of the tank.

22. In an amalgamating apparatus the combination of a tank-chamber, a narrow upright return-conduit connecting the top and bottom of the tank and dividing it into two compartments, means for forcing sand and water through said conduit from the bottom to the top of the tank-compartments, a mercury-trough situated below the return-conduit and means for longitudinally shifting the mass of sand as it circulates through the tank.

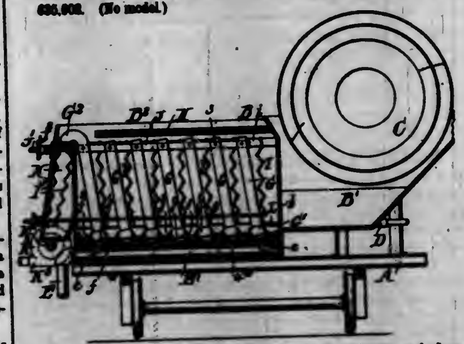
23. In an amalgamating apparatus the combination of a tank having a hopper-shaped bottom, a return conduit or conduits connecting the top and bottom of the tank substantially throughout its length, means for forcing sand and water through said conduit, a mercury-trap set along the inclined side or sides of the tank, and amalgamating-plates set in the tank so that mercury or amalgam falling therefrom will be intercepted in the trap.

24. In an amalgamating apparatus the combination of a tank having a hopper-shaped bottom, a return conduit or conduits connecting the top and bottom of the tank, means for forcing sand and water through said conduit, a mercury-trap set along the inclined side or sides of the tank, and consisting of a retaining-plate r', a bent cover-plate r^2 r^3 and a bottle R^3 connected therewith, and a series of amalgamating-plates set in the tank so that mercury or amalgam falling therefrom will be intercepted in the trap.

25. In an amalgamating apparatus the combination of a tank-chamber having a hopper-shaped bottom, a return conduit or conduits reaching from near the bottom of the tank, upward stirring and propelling mechanism as elongated spur-wheels I' I' arranged at the bottom of the tank below the entrance of the return-conduit for the purpose of forcing water and sand through said conduit, a series of adjustable deflecting-plates arranged as described to give longitudinal movement to the same and a series of amalgamating-plates arranged in the tank-chamber.

26. In an amalgamating apparatus the combination of a tank-chamber having a hopper-shaped bottom, a return conduit or conduits reaching from near the bottom of the tank, upward stirring and propelling mechanism as elongated spur-wheels I' I' arranged at the bottom of the tank below the entrance of the return-conduit for the purpose of forcing water and sand through said conduit, a mercury-trough set between the spur-wheels, a series of adjustable deflecting-plates arranged as described to give longitudinal movement to the sand, and a series of amalgamating-plates arranged in the tank-chamber.

594,522. APPARATUS FOR SEPARATING PRECIOUS METALS FROM SAND, ROCK, &c. BENJAMIN S. CHURCH, New York, N. Y., assignor, by mesne assignments, to the Church Machinery Company, of New Jersey. Filed Dec. 4, 1893. Renewed May 7, 1897. Serial No. 635,602. (No model.)



Claim.—1. In an apparatus for separating precious metals from sand the combination of a tank, one or more separators situated therein and adapted to catch and retain the precious metals, a return-conduit or a series of return-conduits of relatively small cross-sectional area as compared with the tank extending from front to rear of the tank and opening into the top of said tank in a line extending from front to rear, and a jet-pump or series of jet-pumps situated along the bottom of the tank from front to rear said jet pump or pumps having suction-openings as *f f* leading from the bottom of the tank from front to rear thereof, and said pump or pumps delivering sand and water into the return conduit or conduits aforesaid, all substantially as specified and so as to effect a uniform articulation of the sand in the tank.

2. In an apparatus for separating precious metals from sand the combination of a tank, one or more separators situated therein and adapted to catch and retain the precious metals, a return-conduit or a series of return-conduits of relatively small cross-sectional area as compared with the tank extending from front to rear of the tank and opening into the top of said tank in a line extending from front to rear, a jet-pump or series of jet-pumps situated along the bottom of the tank from front to rear said jet pump or pumps having suction-openings as *f f* leading from the bottom of the tank from front to rear thereof, and said pump or pumps delivering sand and water with the return conduit or conduits aforesaid, and means as described for feeding the sand longitudinally forward in the tank as it circulates therein.

3. In an apparatus for separating precious metals from sand the combination of a tank, one or more separators situated therein, a series of pipes constituting return-conduits arranged in line from front to rear of the tank and opening into the top thereof, a series of jet-pumps also extending from front to rear of the tank having suction-openings as *f f* leading from the bottom of the tank said pumps delivering sand and water into the return-conduits aforesaid all substantially as and for the purpose specified.

4. In an apparatus for separating precious metals from sand the combination of a tank, a separator system situated in said tank, and adapted to catch and retain the precious metals, a series of jet-pumps situated in the bottom of the tank and adapted to carry up the sand settling to the bottom of the tank, a series of angularly-adjustable pipes arranged to receive the sand and water thrown up by the jet-pumps and convey it to the top of the tank.

5. In an apparatus for separating precious metals from sand the

combination of a tank, a separator system situated in said tank and adapted to catch and retain the precious metals, a series of jet-pumps situated in the bottom of the tank and adapted to carry up the sand settling to the bottom of the tank and a series of angularly-adjustable pipes secured to the mouths of the jet-pumps by ball-and-socket joints arranged to receive the sand and water thrown up by the jet-pumps and convey it to the top of the tank.

6. In an apparatus for separating precious metals from sand, the combination of a tank, a separator system situated in said tank and adapted to catch and retain the precious metals, a series of jet-pumps situated in the bottom of the tank and adapted to carry up the sand settling to the bottom of the tank, and a series of angularly-adjustable pipes, secured to the mouths of the jet-pumps by ball-and-socket joints arranged to receive the sand and water thrown up by the jet-pumps and carry it to the top of the tank, and means for adjusting the angular inclination of said pipes.

7. In an apparatus for separating precious metals from sand, the combination of a tank, a separator system situated in said tank and adapted to catch and retain the precious metals, a series of jet-pumps situated in the bottom of the tank and a series of pipes arranged to receive the sand and water thrown up by the jet-pumps and carry it to the top of the tank, and a terminal pipe as G^2 leading to the outside of the tank.

594,523. HORSESHOE. CHARLES CHAMBERLIN, New York, N. Y. Filed Mar. 26, 1897. Serial No. 629,444. (No model.)



Claim.—1. A horseshoe provided with a supplemental plate or shoe which is secured to the top thereof, and which is provided with upwardly-directed teeth or projections, said supplemental plate or shoe being divided transversely of the toe thereof, and being provided with backwardly-directed plates or projections which are pivotally connected, substantially as shown and described.

2. A horseshoe provided with a frog-support, and with a supplemental plate or shoe which is secured to the top thereof, said supplemental plate or shoe being provided around its perimeter with an upwardly-directed flange which is provided with teeth or projections which are adapted to be bent inwardly so as to conform to the hoof of a horse, substantially as shown and described.

3. A horseshoe provided with detachable calk-sockets, said sockets being provided with conical openings which register with cylindrical openings formed in the shoe, and detachable calks which are provided with conical shanks having cylindrical extensions at one end and which are pointed at the other, said conical shanks being adapted to be secured in said conical openings, substantially as shown and described.

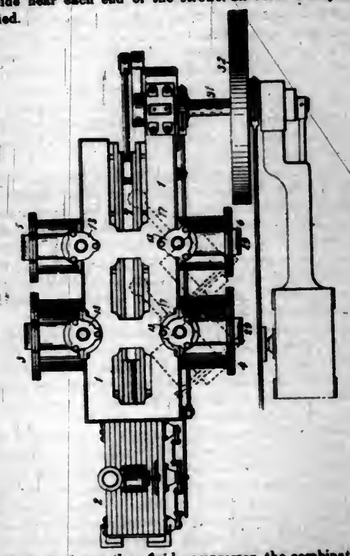
4. A horseshoe provided with a supplemental plate or shoe which is secured to the top thereof, said shoe being provided with sockets or cavities, and said supplemental plate or shoe with downwardly-directed projections which are adapted to enter said sockets or cavities, and said supplemental plate or shoe being secured in place by screws which pass through the main shoe, and into said downwardly-directed projections, said supplemental plate being also provided with an upwardly-directed flange on which are formed upwardly-directed teeth or projections, substantially as shown and described.

5. A horseshoe provided with a supplemental plate or shoe which is secured to the top thereof, said shoe being provided with sockets or cavities, and said supplemental plate or shoe with downwardly-directed projections which are adapted to enter said sockets or cavities, and said supplemental plate or shoe being secured in place by screws which pass through the main shoe and into said downwardly-directed projections, said supplemental plate being also provided with an upwardly-directed flange on which are formed upwardly-directed teeth or projections, and said supplemental plate or shoe being formed of two parts which are pivotally connected at the toe of the shoe, substantially as shown and described.

6. A horseshoe provided with a supplemental plate or shoe which is secured to the top thereof, said horseshoe being provided with sockets or openings which are oblong in form and conical in cross-section, and in which are placed rubber bearings which are held in place by said supplemental plate or shoe, substantially as shown and described.

594,524. AIR OR GAS COMPRESSOR. JONAS CRAWFORD, New York, N. Y. Filed Apr. 13, 1896. Serial No. 587,313. (No model.)

Claim.—1. In an air or gas compressor, the slide 7 and means for reciprocating it strongly in a right line in combination with a pair of compressing-pumps arranged on opposite sides thereof and pivotally connected thereto, arranged to oscillate on trunnions near the inner ends so as to give a motion nearly coinciding with that of the slide near each end of the stroke, all substantially as herein specified.



2. In an air or other fluid compressor, the combination with a pair of opposed compressing-cylinders and induction and delivery valves therefor said cylinders being arranged to oscillate on trunnions, at their inner ends, of a rolling connection with the inner ends of the rods of the compressing-pistons so as to turn without friction on each other, substantially as specified.

3. In an air or other compressor, the combination with a pair of opposed compressing-cylinders arranged to oscillate on trunnions located at their inner ends, of piston-rods for said cylinders having heads abutting against and arranged to roll on each other, and means for reciprocating such heads and consequently the compressing-pistons, substantially as herein specified.

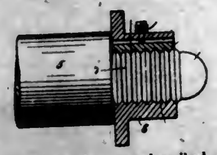
4. In an air or other compressor, the combination with a supporting-frame, a pair of oscillating compressing-cylinders having diametrically-located trunnions each containing an opening 11 for the passage of the fluid, a packed recess 12 surrounding such opening and separated therefrom by a substantial rim 12^a, of a plate 13 for each trunnion bolted to the supporting-frame and having an annular projection 14, bearing in the packed recess, together with a compressing-piston and operative connections, substantially as herein specified.

5. In an air-compressor, the combination of primary and secondary balanced pairs of oscillating compressing-cylinders having suitable pistons and valves with a reservoir connecting with the delivery from one pair and with the induction of another pair by stuffing-boxes maintaining tight joints and allowing the motions, said cylinders moving in unison so that the primary pair simultaneously delivers to the reservoir, while the secondary pair similarly receives the air of compression, all substantially as herein specified.

6. In an air or other compressor, the combination with a compressor-cylinder, of its piston and actuating-means, said cylinder having induction and delivery valve-chambers, located in its head and containing their respective valves, the delivery-valve chamber having a cap 45, the inner rim of which has a port 48 establishing communication between the spaces at the rear of the delivery-valve and the delivery, and adapted to be closed by the delivery-valve when unseated, so as to effect the closing motion of the valve by the subsequent expansion of the air or other gas thus received, substantially as herein specified.

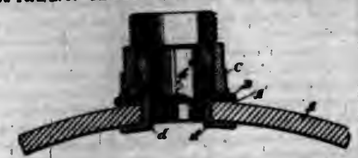
594,525. NUT-LOCK. JAMES DOUGLASS, New York, N. Y. Filed May 21, 1897. Serial No. 637,590. (No model.)

Claim.—1. In a nut-lock of the character described, a spindle provided at the end with a plurality of ribs between which are formed a plurality of grooves, said ribs and grooves being on a plane at right angles to the axis of the spindle, a block mounted on said ribbed portion and provided with an opening the wall of part of which is provided with a plurality of ribs and grooves which correspond with the said ribs and grooves of the spindle and a detachable section adapted to be inserted in said opening, said section being segmental in form in cross-section and being provided on the inner side with a plurality of ribs and grooves which also correspond with said ribs and grooves of the spindle, and means for forcing the ribs formed in the said block and the ribs formed in the said detachable section into contacts with the ribs and grooves of the said spindle, substantially as and for the purpose described.



2. In a nut-lock of the character described, a spindle provided at the end with a plurality of ribs between which are formed a plurality of grooves, said ribs and grooves being on a plane at right angles to the axis of the spindle, a block mounted on said ribbed portion and provided with an opening the wall of part of which is provided with a plurality of ribs and grooves which correspond with the said ribs and grooves of the spindle, and a detachable section adapted to be inserted in said opening, said section being segmental in form in cross section and being provided on the inner side with a plurality of ribs and grooves which also correspond with said ribs and grooves of the spindle, and means for forcing the ribs formed in the said block and the ribs formed in said detachable section into contact with the ribs and grooves of the said spindle, consisting of a bolt mounted in an oblique screw-threaded bore or passage formed in said detachable section, said bore or passage directed inwardly and upwardly whereby the inner end of the said bolt is adapted to bear against the wall of the opening formed in the said block, substantially as and for the purpose described.

594,526. PIPE COUPLING OR CONNECTION. MAX GLAUBER, New York, N. Y. Filed Feb. 27, 1897. Serial No. 626,213. (No model.)



Claim.—In a pipe joint or connection for water-closets and the like, the device D comprising the sections presenting the threaded tube portions and attaching-arms for the bowl or basin, said arms being pivotally secured at one side and having a tongue-and-notch engagement at the other, in combination with a suitable lock-nut, substantially as herein specified.

594,527. FLOW-POINT FASTENER. ELLIS W. GRIFFITHS, McCracken, Kans. Filed Apr. 28, 1897. Serial No. 634,344. (No model.)



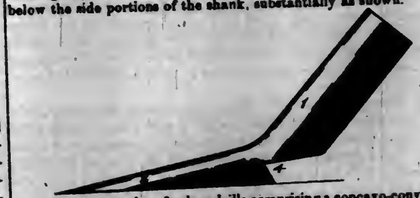
Claim.—1. In a cultivator-shovel or similar earth-working device provided with a detachable point, the combination of a coupling-plate overlapping the joint formed between the body and point and secured to each, and a socket secured to the body of the shovel and interlocking at its lower end with the upper edge of the coupling-plate, substantially as and for the purpose set forth.

2. In a cultivator-shovel or earth-working device of kindred nature having a detachable point, the combination of a coupling-plate overlapping the joint formed between the body and point, and a socket secured to the body of the shovel and having a tongue at its lower end overlapping the upper portion of the coupling-plate to strengthen and reinforce it, substantially as set forth.

3. The combination with a cultivator-shovel or like device having a detachable point, of a coupling-plate secured to the body and point and overlapping the joint between them, and having a notch in its upper edge, and a socket secured to the body and having its lower end entering the notch of the coupling-plate and formed with a tongue overlapping the same, substantially as set forth for the purpose described.

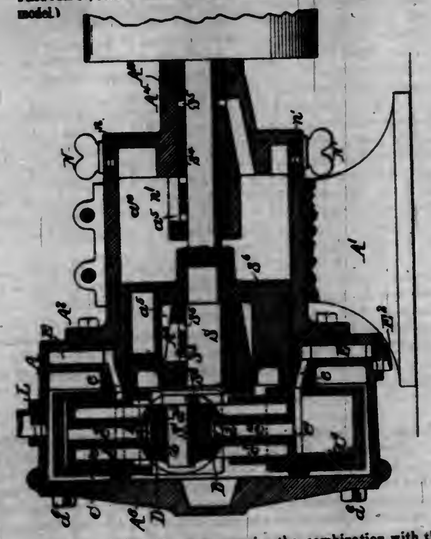
594,528. SHOE FOR HOE-DRILLS. ELLIS W. GRIFFITHS, Galva, Kans. Filed May 20, 1897. Serial No. 638,761. (No model.)

Claim.—1. A shoe or foot for hoe-drills comprising an arrow-shaped point concavo-convex in transverse section and having its longitudinal edges curved, and a shank curved between its longitudinal edges and of less width than the spread of the rear or heel portion of the point, whereby the projecting end portions form shoulders or wings whose rear edges are straight and incline rearwardly at their outer lower ends, and having the side portions of the shank cut away at their lower ends on straight lines drawn from the apex of the point and passing midway between its top and bottom edges, as shown, forming angling spaces immediately in the rear of the shoulders and below the side portions of the shank, substantially as shown.



2. A foot or shoe for hoe-drills comprising a concavo-convex arrow-shaped point having an intermediate portion at its rear edge beveled upwardly, a shank curved between its longitudinal edges and having its lower end tapering and bent forwardly to snugly fit the concave side of the point and the intermediate beveled portion of the rear edge, said shank being of less width than the spread of the point at its rear or heel, whereby shoulders or wings are provided whose rear edges are straight and incline rearwardly and outwardly, and the said shank having the lower ends of its sides cut away on straight lines drawn from the apex of the point and passing midway between its top and bottom edges as shown, forming angling spaces immediately in the rear of the shoulders of the point and below the side portions of the shank, substantially as shown for the purpose specified.

594,529. STEAM-ENGINE. JAMES T. HALSEY, Philadelphia, Pa. Filed Jan. 17, 1895. Renewed May 18, 1897. Serial No. 637,121. (No model.)



Claim.—1. In a fluid-pressure engine the combination with the oppositely-arranged cylinders C C' of pistons c c' moving therein, a cylinder B secured to and operated by the pistons c c' a piston D working in said cylinder and having recesses d' d' in its sides substantially as and for the purpose specified, a port connecting each of the recesses d' d' with the steam-space in a cylinder C or C' and ports b^4 b^4 in the cylinder B with one of which ports each recess is adapted to register at a portion of the stroke of the piston D whereby there will be a free passage for motive fluid through the ports b^4 to the steam-spaces in the cylinders C C'.

2. In a fluid pressure engine the combination of a suitable casing having oppositely arranged faces a a, a cylinder B adapted to reciprocate in said cylinder and having heads bearing against the faces a a, said faces a a being arranged substantially as specified and so that one face extends farther to one side and the other face extends farther to the other side of the middle line of travel of the cylinder

B, all substantially as specified and so that the extreme movement of the cylinder in either direction will bring part of the cylinder-opening beyond the edge of one of the faces so as to admit steam into one end or the other of the cylinder.

3. In a fluid-pressure engine the combination of the casing A cylinders C C' arranged therein as specified pistons c c' operating in said cylinders, a cylinder B operated by the pistons c c', a piston D in said cylinder B having recesses d' d' therein, a port leading from each recess to the steam space in one of the cylinders C or C', ports b^4 in the cylinder adapted to register with the recesses d' at certain parts of their travel and admit fluid under pressure to the steam-spaces of the cylinders, ports serving on the proper movement of the cylinder B to admit motive fluid thereto and exhaust-ports adapted when uncovered to permit the escape of motive fluid from the cylinders.

4. The combination with the casing A having slide-faces a a of the fixed cylinders C C' situated opposite to each other, exhaust-ports c^4 c^4 leading from the faces a a, exhaust-ports c c leading from cylinders C C' at a distance from their outer ends, the pistons c c' working in cylinders C C', the cylinder B firmly secured to pistons c and c', the heads b^3 b^3 secured on each side of cylinder B and moving on slides a a said heads having passages c^3 c^3 adapted to register with the exhaust-ports c^4 at proper times and communicating with the cylinder B at some distance from the outer ends thereof, and means for admitting steam to each cylinder in turn, all substantially as described, and whereby each outward movement of the pistons is cushioned on steam inclosed in the outer end of its cylinder.

5. In a fluid-pressure engine the combination with a casing A adapted to contain live steam and having an exhaust-passage E formed in its walls, of the oppositely-arranged cylinders C C' secured to the casing and projecting into the steam-chamber thereof, pistons c c' moving in said cylinders, a cylinder B directly secured to the pistons c c' and adapted to be moved thereby, steam-ports c^4 formed in each piston c c', steam-ports b^4 b^4 connecting casing A with cylinder B, a piston D working in said cylinder B adapted to engage with a suitable crank-pin and operate a power-shaft, recesses d' d' in piston D adapted to connect ports b^4 and c^4 at proper intervals, exhaust-ports c leading from cylinders C C' and opened at proper intervals by the movement of pistons c c', faces a a against which the heads of cylinder B slide formed to connect each end of the said cylinder at proper times with the casing A and with the exhaust-passage, and exhaust-passages c^3 c^3 formed in the cylinder-heads and adapted to register with the exhaust-ports at proper times.

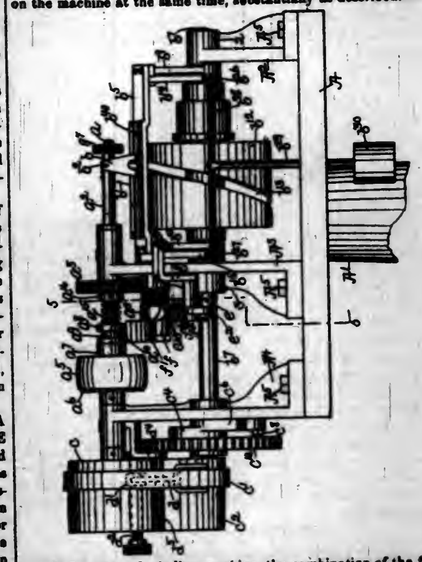
6. The combination with the casing A containing a series of cylinders and pistons arranged to act upon a crank contained in said cylinders and to afford a bearing for a crank-shaft passing into said casing, said casing also serving as a receptacle for the fluid by which the pistons are actuated of a casing A^2 secured to the wall of casing A at one end and at its other supporting a second bearing for the shaft, said casings A and A^2 having no channel of communication, and means for supplying oil to said casing A^2 as described and so as to flood both shaft-bearings with oil.

7. The combination with the casing A serving as a receptacle for the actuating fluid and having the fixed cylinders C C', the movable cylinder B secured to the pistons c c' of the cylinders C C' and the piston D of a crank S' journaled in piston D, a crank-shaft S passing through casing A, a casing A^2 secured to the wall of casing A and surrounding shaft S, a counterbalance-wheel S^2 secured to shaft S and revolving in casing A^2, and means for supplying oil to casing A^2 to flood both bearings.

594,580. THREAD-WINDING MACHINE. THORVALD HANSEN, Everett, Mass. Filed Nov. 23, 1896. Serial No. 613,065. (No model.)

Claim.—1. In a thread-winding machine, the combination of the following instrumentalities, viz: a plurality of rotary cop-shafts arranged in a substantially horizontal plane, a plurality of reciprocating thread-guides located on opposite sides of the said cop-shafts and movable toward and from the said shafts independent of each other and in opposite directions, a rotatable cam located below and in line with said cop-shafts to produce reciprocation of said thread-guides, carriers for said thread-guides movable in opposite directions, a clutch mechanism to control rotation of the cop-shafts, a locking device for said clutch mechanism, and separate stop mechanisms cooperating with said carriers and connected to said locking device to permit the latter to be released by either of said carriers, substantially as described.

2. In a thread-winding machine, the combination of the following instrumentalities, viz: a plurality of rotary cop-shafts, a plurality of reciprocating thread-guides cooperating therewith, a rotatable cam to produce reciprocation of said thread-guides, carriers for said reciprocating thread-guides, a clutch mechanism controlling the rotation of the said cop-shafts, and an automatic stop mechanism cooperating with said clutch mechanism and consisting of movable members cooperating with said carriers and connected together to permit the said clutch mechanism to be operated by either of the said carriers and thereby enable cops of different sizes to be wound on the machine at the same time, substantially as described.



3. In a thread-winding machine, the combination of the following instrumentalities, viz: a cop-shaft provided with a normally loose pulley, means to render the said pulley fast on the said cop-shaft, a cam to disengage said pulley from the cop-shaft, means to lock said cam in its inoperative position, a second cop-shaft, gearing connecting said cop-shafts, reciprocating thread-guides cooperating with said cop-shafts and located on opposite sides of the said cop-shafts, carriers for said thread-guides movable in opposite directions, a cam cooperating with both of said thread-guides to produce reciprocations of the same, a cam-shaft, mechanism connecting said cam-shaft with one of said cop-shafts, and means operated by either of said carriers to release the locking device for said cam, substantially as described.

4. In a thread-winding machine, the combination of the following instrumentalities, viz: two cop-shafts, gearing connecting them, reciprocating thread-guides located on opposite sides of the said cop-shafts and movable toward and from the said shafts in opposite directions independent of each other, a rotatable cam with which both of said thread-guides are engaged, a cam-shaft on which said cam is mounted, means to connect said cam-shafts with one of the cop-shafts, a clutch mechanism to control the rotation of the said shafts, stop mechanisms located on opposite sides of the machine and connected together and to the said clutch mechanism, whereby the machine may be automatically stopped when the cop on either of the said cop-shafts has reached a predetermined diameter without regard to the size or diameter of the cop on the other shaft, substantially as described.

5. In a thread-winding machine, the combination of the following instrumentalities, viz: a cop-shaft, a clutch mechanism to control its rotation, a cam cooperating with said clutch mechanism, a brake mechanism cooperating with the clutch mechanism and operated simultaneously with the clutch-operating cam, a reciprocating thread-guide, a rotatable carrier for said thread-guide, a cam to operate said thread-guide, a cam-shaft, mechanism to connect the said cam-shaft with the cop-shaft, and an automatic stop mechanism acting on said clutch mechanism and operated by the said rotatable thread-carrier, substantially as described.

6. In a thread-winding machine, the combination of the following instrumentalities, viz: a plurality of cop-shafts, means to rotate them, a plurality of reciprocating thread-guides cooperating with said cop-shafts, carriers for said thread-guides movable toward and from said cop-shafts independent of each other but in opposite directions, a single cam to operate the said thread-guides, a cam shaft, mechanism connecting said cam-shaft with one of said cop-shafts, and means to control the rotation of the said plurality of cop-shafts operated by either of the said carriers, substantially as described.

7. In a thread-winding machine, the combination of the following instrumentalities, viz: a plurality of rotatable cop-shafts, gearing connecting said shafts, a clutch mechanism cooperating with one of

said cop-shafts to control rotation of both, reciprocating thread-guides cooperating with the said cop-shafts, movable carriers for said thread-guides, a cam-shaft, a cam mounted thereon and operating both of said thread-guides, mechanism connecting said cam-shaft with one of said cop-shafts, a locking device for the clutch mechanism adapted to be unlocked by either of said carriers, substantially as described.

8. In a thread-winding machine, the combination of the following instrumentalities, viz: two cop-shafts arranged in a substantially horizontal plane, reciprocating guides, carriers for said guides movable toward and from the said cop-shafts independent of each other on opposite sides of the same and in opposite directions, a rotatable cam located below and between said cop-shafts and engaging both of said reciprocating guides, a brake mechanism cooperating with one of said cop-shafts and disengaged therefrom while the machine is in operation, means to lock said brake mechanism in its inoperative position and operated by either of said carriers, substantially as described.

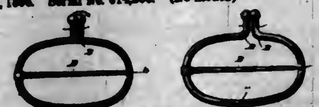
594,581. TYPE-WRITER PLATEN. CHARLES H. HASTINGS, Chicago, Ill. Filed Nov. 6, 1896. Serial No. 611,297. (No model.)



Claim.—1. The combination with a type-writer platen, of a pair of clamping-jaws longitudinally disposed upon and secured to the surface of the platen, and being capable of circumferential movement thereupon, and a spring for causing the mutual approach of the jaws.

2. The combination with a type-writer platen, of a plate, B, secured to the face of the platen and having a radially-projecting flange, a strip, C, means for fixing the strip C to the plate B, a strip, D, parallel with the strip C and in sliding contact with the plate B and having a radially-projecting flange, and springs interposed between the flanges of the plate B and strip D and tending to force the strip D toward the strip C.

594,582. SPRING-BUCKLE. WILLIAM V. HATTEN, Pax, Mo., assignor of one-third to William F. Strasser, Stotts City, Mo. Filed Dec. 2, 1896. Serial No. 614,206. (No model.)



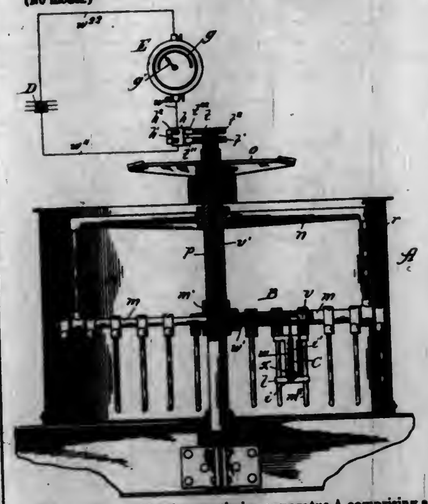
Claim.—1. A buckle, comprising an open spring-frame, the ends of said frame being adapted to interlock, and a tongue adapted to be attached to one side of the frame and adapted to engage the opposite side when the said ends are interlocked, substantially as shown and described.

2. A buckle, comprising an open spring-frame, having interlocking ends provided with interlocking knobs or balls and the tongue pivotally attached to one side of the frame and adapted to engage the opposite side when the said ends and knobs are interlocked, substantially as shown and described.

3. In a buckle of the kind described, the combination with the open spring-frame having the ends of said frame bent in reverse directions and provided with interlocking knobs or balls, of the tongue pivotally attached to the frame at one side when the ends of the knobs are interlocked, substantially as shown and described.

4. In a buckle of the kind described, the combination with the open spring-frame having the ends thereof bent outwardly in reverse directions, and provided with interlocking knobs or balls, of the tongue pivotally attached to the frame at one side and adapted to engage said frame at the opposite side, said frame being reduced at the point where the tongue is attached and recessed where the free end of said tongue engages the frame, substantially as shown and described.

594,583. TEMPERATURE-INDICATING STIRRING APPARATUS. MAX HENIUS, Chicago, Ill. Filed Mar. 29, 1897. Serial No. 629,808. (No model.)



Claim.—In combination, a stirring apparatus A comprising a receptacle r containing an upright rotary shaft p carrying a stirrer B and provided on its outer end with insulated contacts t' and t^2, a thermometer C on said stirrer and comprising a holder containing a thermostatic column, a high-resistance conducting-wire w confined in the holder to contact toward one end with said column, a wire w' leading from said high-resistance wire to one of said contacts, a wire w^3 leading from said column to the other of said contacts, brushes engaging said contacts, a generator D having its poles connected, respectively, by wires w^{11} and w^{22} with said brushes, and an electric indicator included in the generator-circuit, the whole being constructed and arranged to operate substantially as described.

594,584. MEASURING APPARATUS FOR RIBBONS, &c. JACOB HOTZ, Philadelphia, Pa. Filed Oct. 27, 1896. Renewed Sept. 29, 1897. Serial No. 653,530. (No model.)

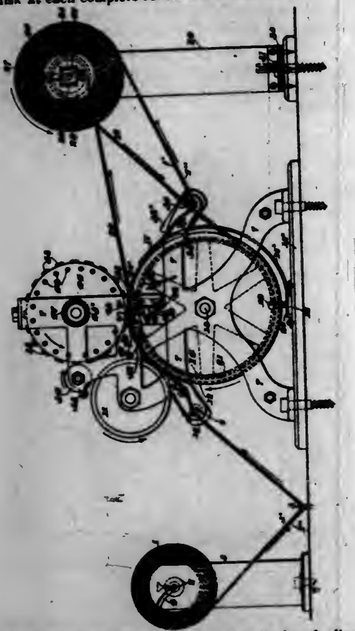
Claim.—1. An apparatus for the purpose described having rotatable shafts, a drum mounted on one of said shafts, a rotatable marking device mounted on the other shaft adjacent to said drum, mechanism carried by said drum for automatically operating the latter at intermittent periods, a locking mechanism for said marking device self-supported on the frame of the apparatus, and releasing mechanism carried by said drum for said locking mechanism.

2. In an apparatus of the character described, a rotatable drum having a roughened periphery, tension devices adjacent thereto, a marking device mounted adjacent said drum, pins projecting from said marking device, a latch suitably fulcrumed and having a dog thereon adapted to engage and lock said pins, a finger mounted on said drum and adapted to engage said pins after the latter are unlocked, said finger having a nose located adjacent thereto adapted to actuate said latch at the proper intervals.

3. In an apparatus of the character described, a marking-disk suitably supported and having characters on the periphery thereof indicative of distance, pins projecting from the side of said disk, means for holding the latter in proper position, means for inking said marking-disk, a dog adapted to engage said pins and lock said marking-disk, a latch suitably fulcrumed to which said dog is attached, a feeding-drum located adjacent said marking-disk, a finger and a nose attached to said drum, said nose being adapted to unlock a pin of said marking-disk, and said finger being adapted to rotate the latter.

4. In an apparatus of the character described, a feeding-drum

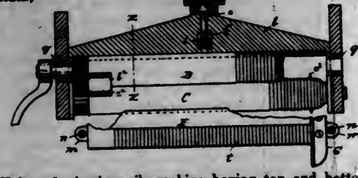
having a roughened periphery, a marking-disk above said drum having indicating characters on its periphery, pins projecting from the side of said disk, a plate detachably secured to the side of said drum, a finger adjustable in ears on said plate and adapted to engage said pins so as to impart intermittent rotary motion to said disk, and a pad on said drum adapted to be adjacent to a marking character on said disk at each complete revolution of said drum.



5. In an apparatus of the character described, a feeding-drum having a roughened periphery, suitable tension devices adjacent thereto, a marking-disk located in proximity to said drum, pins on said marking-disk, a dog 49 having a shoulder 49× adapted to engage one of said pins, and a latch pivotally supported to which said dog is attached, the under face of said latch being carved or cam-shaped, in combination with a plate attached to said drum and having a nose and a finger mounted thereon, said nose being adapted to engage said latch, and thus unlock the disk and said finger being adapted to actuate said disk, and means for holding said latch in position.

6. In an apparatus of the character described, a frame, a feeding device including a drum, a marking-disk having pins on its side, a plate adapted to be secured to the side of said drum and provided with the threaded ears 39 and 40, a finger held in said ears, and adapted to contact with the said pins, a latch pivoted to said frame and carrying a spring-pressed pawl normally engaging one of said pins, said latch having a shoulder thereon adapted to be engaged by one of said ears so as to remove said pawl from said pins.

594,535. WIRE-COIL MACHINE. HENRY M. JACKSON and GUSTAVE M. JACKSON, Reading, Pa., assignors to Kelley Bros. & Spielman, Philadelphia, Pa. Filed Mar. 31, 1897. Serial No. 630,023. (No model.)



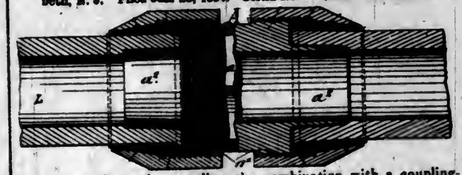
Claim.—1. A wire-coil machine having top and bottom jaws adapted to engage the coil and having serrations formed on a portion of their meeting faces, rolls mounted in swinging ears, backed by strengthening-ribs and adapted to feed said coil through a belt or other article, substantially as set forth.

2. A wire-coil machine having top and bottom jaws adapted to engage and flatten the coil, adjustable rolls mounted in the swinging ears pivotally connected to the lower jaw, said rolls being adjustable by means of a movable block, and links located back of each roll and operated by a screw, substantially as set forth.

3. A wire coil machine having top and bottom jaws adapted to engage and flatten the coil, adjustable rolls tapered at their feed ends and mounted in swinging ears pivotally secured to the lower jaw, one of said rolls provided with a circumferential rib or flange near its feed end, and the rear and lower rolls being formed with registering grooves near the outlet end thereof, substantially as set forth.

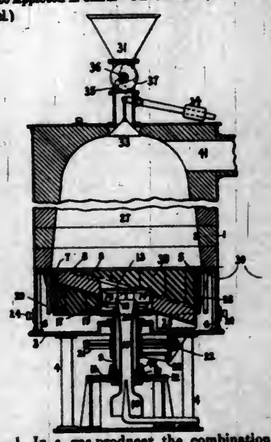
4. A wire-coil machine having top and bottom jaws adapted to engage and flatten the coil, said top jaw having upwardly-projecting ears A in which is an eccentrically-mounted shaft H, guide-rods n secured in lugs on the ends of said jaws and adapted to travel in pivoted guides o, the upper jaw being operated by means of a lever secured to the shaft H, and the lower jaw being provided with a guide G for the belt or other article, substantially as set forth.

594,536. PIPE-COUPLING. FERDINAND B. KAUFMANN, Bloomfield, N. J. Filed Jan. 25, 1897. Serial No. 620,530. (No model.)



Claim.—In a pipe-coupling, the combination with a coupling-piece having a threaded portion and a reduced and beveled extension at its end, of a split ring having a cylindrical portion and a beveled portion and provided with a short bevel upon its interior edge adjacent to the threaded portion of the coupling-piece, and an outer sleeve threaded on a part of its bore to correspond with the threads on the coupling-piece and being conical for the remainder of its bore to cooperate with the bevel of the split ring, substantially as set forth.

594,537. GAS-PRODUCER. ARTHUR KITSON, Philadelphia, Pa., assignor to Appleton L. Clark. Filed Mar. 18, 1896. Serial No. 583,235. (No model.)



Claim.—1. In a gas-producer the combination of the hearth formed by the upper surface of a rotating table, with a combustion-chamber whose walls extend downward below said hearth, and encircle and closely fit the edges of the table, the opposing surfaces thus formed being sufficiently near to grind the ashes sifting between, and one of said surfaces being adjustable radially to the rotating table, substantially as described.

2. In a gas-producer, the combination of a hearth formed by the upper surface of a rotating table, with a combustion-chamber whose walls extend downward below said hearth, and encircle and closely fit the edges of the table, the opposing surfaces thus formed being sufficiently near to grind the ashes sifting between them, one or both of said opposing surfaces being roughened, one of said surfaces being adjustable radially to the rotating table, substantially as described.

3. In a gas-producer, the combination of a hearth formed by the upper surface of a rotating table, with a combustion-chamber whose walls extend downward below said hearth, and encircle and closely fit the edges of the table, the opposing surfaces thus formed being sufficiently near to grind the ashes sifting between them, one or both of the opposing cylindrical surfaces thus formed being roughened by the formation of helical grooves therein, one of said surfaces being adjustable radially to the rotating table, substantially as described.

4. In a gas-producer, the combination of a hearth formed by the upper surface of a rotating table mounted on a vertical axis, the general plane of said upper surface being inclined to the horizon, but diversified by elevations above and depressions below said general plane, a combustion-chamber whose walls extend downward below the lowest point of said hearth, and encircle and closely fit the edges of the table, one of said surfaces being adjustable radially to the rotating table, substantially as described.

5. In a gas-producer, the combination of a hearth formed by the upper surface of a rotating table mounted on a vertical axis, the general plane of said upper surface being inclined to the horizon, but diversified by elevations above and depressions below said general plane, a combustion-chamber whose walls extend downward below the lowest point of said hearth, and encircle and closely fit the edges of the table, together with mechanism for rotating said hearth, and one or both of the opposing surfaces formed by the downwardly-extending walls of the combustion-chamber and the edges of the table being roughened, and one of said surfaces being adjustable radially to the rotating table, substantially as described.

6. In a gas-producer, the combination of the rotating, ring-shaped hearth formed by the upper surface of a rotating, ring-shaped table, the combustion-chamber whose walls extend downward below said hearth and closely fit the edges of the table, the opposing surfaces thus formed being sufficiently near to grind the ashes sifting between them, one of said surfaces being adjustable radially to the rotating table, the stationary central plate nearly filling the opening in said ring-shaped table, and mechanism for rotating said ring shaped table, substantially as described.

7. In a gas-producer, the combination of the rotating, ring-shaped hearth formed by the upper surface of a rotating ring-shaped table, the combustion-chamber whose walls extend downward below said hearth and closely fit the edges of the table, the opposing surfaces thus formed being sufficiently near to grind the ashes sifting between them, one of said surfaces being adjustable radially to the rotating table, the stationary central plate nearly filling the opening in said ring-shaped table, and mechanism for rotating said ring-shaped table, together with radially-projecting wings on said central plate, substantially as described.

8. In a gas-producer, the combination of the rotating, ring-shaped hearth formed by the upper surface of a rotating, ring-shaped table, the combustion-chamber whose walls extend downward below said hearth, and closely fit the edges of the table, the opposing surfaces thus formed being sufficiently near to grind the ashes sifting between them, one of said surfaces being adjustable radially to the rotating table, the stationary central plate nearly filling the opening in said ring-shaped table, and mechanism for rotating said ring-shaped table, together with a pipe attached to and depending from the under side of said plate, a blast-producing mechanism, and connections therefrom to said pipe, substantially as described.

9. In a gas-producer, the combination of the rotating, ring-shaped hearth formed by the upper surface of a rotating ring-shaped table, the combustion-chamber whose walls extend downward below said hearth and closely fit the edges of the table, the opposing surfaces thus formed being sufficiently near to grind the ashes sifting between them, one of said surfaces being adjustable radially to the rotating table, the stationary central plate nearly filling the opening in said ring-shaped table, and mechanism for rotating said ring-shaped table, together with a pipe attached to and depending from the under side of said plate, and a blast-producing mechanism, located in said pipe, substantially as described.

10. In an automatic charging device the combination of the hopper, the hollow charging-valve, the bell closing the discharge-pipe, the pivoted counterweighted lever, which normally holds said bell in position to close said discharge-pipe, the cam on the valve-shaft, and connecting mechanism whereby said cam oscillates the counterweighted lever to automatically lower the bell after the charge has been deposited thereon by the charging-bell, substantially as described.

11. In an automatic charging device, the combination of the hopper, the hollow charging-valve, the bell closing the discharge-pipe, the pivoted counterweighted lever, which normally holds said bell in position to close said discharge-pipe, and means operated by the valve-shaft to oscillate the counterweighted lever and automatically lower the bell after the charge has been deposited thereon by the charging-valves, substantially as described.

12. In a gas-producer, the combination of the circular walls of the combustion-chamber, the charging-bell, and the rotating hearth inclined to the horizontal plane, substantially as described.

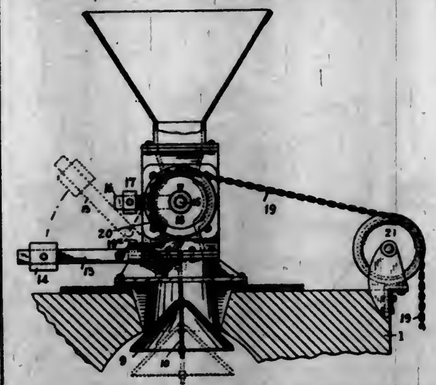
13. In a gas-producer the combination of the circular inwardly-inclined walls of the combustion-chamber, the charging-bell, and the rotating hearth inclined to a horizontal plane, substantially as described.

14. In a gas-producer, the combination of the circular walls of the combustion-chamber, the charging-bell, and the rotating hearth inclined to the horizontal plane, the lower portion of the walls of said combustion-chamber surrounding said hearth, and one of the grinding-surfaces thus formed being adjustable radially to the hearth, substantially as described.

15. In a gas-producer, the combination of the shell, having its lower portion closed to form an ash-pit, an outlet for said ash-pit, the revolving inclined hearth, the scraper depending therefrom to the floor of the ash-pit, substantially as described.

16. In a gas-producer, the combination of the shell having its lower portion closed to form an ash-pit, an outlet for said ash-pit, a water seal with which said outlet communicates, the revolving inclined hearth and the radially-arranged scraper depending therefrom to the floor of the ash-pit, substantially as described.

594,538. AUTOMATIC FUEL-CHARGING APPARATUS. ARTHUR KITSON, Philadelphia, Pa., assignor to Appleton L. Clark. Filed May 10, 1897. Serial No. 636,947. (No model.)



Claim.—1. In an automatic fuel-charging apparatus the combination of the hopper, the intermittently-oscillating valve, the charging-bell, and counterweight therefor, with connecting mechanism which transmits a portion of the motion of the valve to the charging-bell, substantially as described.

2. In an automatic fuel-charging apparatus the combination of the hopper, the intermittently-oscillating valve, the charging-bell, and counterweight therefor, with the chain which transmits motion to the valve, and to the counterweight, that portion of the chain between valve and counterweight being normally slack, substantially as described.

3. In a fuel-charging apparatus the combination of the hopper and the valve located in the throat of said hopper, the casing of said valve being cored out so as to leave bearing-surfaces for the valve only adjacent to the intersection of the throat and the valve-casing, substantially as described.

4. In a fuel-charging apparatus the combination of the hopper and the valve located in the throat of said hopper, the casing of said valve being cored out so as to leave bearing-surfaces for the valve only adjacent to the intersection of the throat and the valve-casing, and the lower pair of said bearings being scored vertically to discharge the material collected in said cored-out portions, substantially as described.

5. In an automatic fuel-charging apparatus the combination with the hopper and controlling apparatus located in the throat thereof, of the revolving weight, means for communicating the falling motion of said weight to said controlling apparatus, and means for revolving the weight in a vertical plane, substantially as described.

6. In an automatic fuel-charging apparatus the combination with the hopper and controlling apparatus located in the throat thereof, of the revolving weight mounted on a horizontal shaft, the ratchet-wheel mounted on said shaft, driving and checking pawls for said ratchet-wheel, and means for communicating the falling motion of the weight to the controlling apparatus, substantially as described.

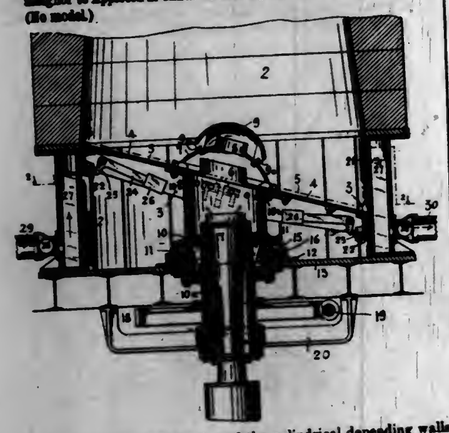
7. In an automatic fuel-charging apparatus the combination with the hopper and controlling apparatus located in the throat thereof, of the revolving weight mounted on a horizontal shaft, the ratchet-wheel mounted on said shaft, driving and checking pawls for said ratchet-wheel, and means for communicating the falling motion of

the weight to the controlling apparatus, together with a variable-speed gear for the driving-pawl, substantially as described.

8. An apparatus for producing intermittent motion, which consists of the actuating-lever, connecting mechanism which normally lifts said lever, the continuously-rotated horizontal shaft, and the weight mounted thereon, the loose cam mounted on said shaft, and bearing on the lever, and the connection between weight and cam, which permits one to make a partial rotation independent of the other, substantially as described.

9. An apparatus for producing intermittent motion, which consists of the actuating-lever, elastic connecting mechanism which normally lifts said lever, the continuously-rotated horizontal shaft, and the weight mounted thereon, the loose cam mounted on said shaft and bearing on the lever, and the connection between weight and cam, which permits one to make a partial rotation independent of the other, substantially as described.

594,589. GAS-PRODUCER. ARTHUR KITSON, Philadelphia, Pa., assignor to Appleton L. Clark. Filed May 10, 1897. Serial No. 635,948. (No model.)



Claim.—1. The combination of the cylindrical depending walls of the combustion-chamber, the rotating hearth within the same, the adjustable plates attached to said hearth, and conforming to the curvature of said walls and means for forcing said plates against said walls with yielding pressure, substantially as described.

2. The combination of the cylindrical depending walls of the combustion-chamber, the rotating hearth within the same, the adjustable plates attached to said hearth by bolt-and-slot connection, conforming to the curvature of the walls, and weighted levers, which press said plates outwardly, substantially as described.

3. The combination of the closed ash-pit walls and bottom, the rotating hearth having openings therethrough and the adjustable plates at the circumference of the hearth, with means for holding said plates against the ash-pit walls with yielding pressure, substantially as described.

4. In a furnace the hearth inclined to the horizontal plane but rotating on a vertical axis, the depending inclosing walls which surround said hearth, and air-conduits extending along said walls for heating the air forced through said conduits, substantially as described.

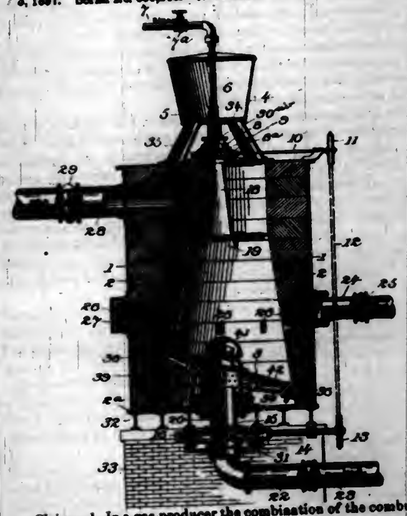
5. In a furnace the combination of the hearth inclined to the horizontal plane but rotating on a vertical axis, the central main blast opening through said hearth, and the raised cap for said blast-opening, which is formed symmetrically to an axis perpendicular to the plane of the hearth, substantially as described.

6. In a furnace the combination of the inclined walls of the combustion-chamber, the perforated hearth, inclined to the horizontal plane but rotating on a vertical axis, the depending perpendicular walls which surround said hearth, and adjustable means for making a tight joint between the hearth and the walls, substantially as described.

7. In a furnace the combination of the rotating perforated hearth, the surrounding depending walls, the adjustable plates on the under side of the hearth at the circumference thereof, which conform to the curvature of the walls and means for pressing said plates against said walls with yielding pressure, substantially as described.

8. In a furnace the combination of the hearth inclined to the horizontal plane but rotating on a vertical axis, the central main blast-opening through said hearth, and the raised cap over said blast-opening which cap is formed eccentrically to the vertical axis of the hearth, substantially as described.

594,540. APPARATUS FOR MANUFACTURING GAS. ARTHUR KITSON, Philadelphia, Pa., assignor to Appleton L. Clark. Filed June 3, 1897. Serial No. 639,218. (No model.)



Claim.—1. In a gas-producer the combination of the combustion-chamber, with take-off ports near the bottom thereof, one or more fuel-charging ports in the upper portion thereof, and a rotary, combined blast-pipe and stirrer which extends downward below the normal fuel-line, substantially as described.

2. In a gas-producer the combination of the combustion-chamber, with take-off ports near the bottom thereof, one or more fuel-charging ports in the upper portion thereof, and a rotary combined blast-pipe and stirrer which extends downward below the normal fuel-line, the lower end thereof being provided with curved extensions projecting into the charge of fuel, substantially as described.

3. In a gas-producer the combination of the combustion-chamber, with take-off ports near the bottom thereof, one or more fuel-charging ports in the upper portion thereof, and a rotary, combined blast-pipe and stirrer which extends downward below the normal fuel-line, together with a steam-pipe which discharges into said blast-pipe, and adjustable air-inlet ports for said blast-pipe, substantially as described.

4. In a gas-producer the combination of the combustion-chamber, with take-off ports near the bottom thereof, one or more fuel-charging ports in the upper portion thereof, and a rotary, combined blast-pipe and stirrer which extends downward below the normal fuel-line, together with a rotating hearth and mechanism for causing simultaneous rotation of the hearth and stirrer, substantially as described.

5. In a gas-producer the combination of the combustion-chamber, with take-off ports near the bottom thereof, one or more fuel-charging ports in the upper portion thereof, and a rotary combined blast-pipe and stirrer, which extends downward below the normal fuel-line, together with a hearth inclined to the horizontal plane, but rotating on a vertical axis, and mechanism for causing simultaneous rotation of the hearth and stirrer, substantially as described.

6. In a gas-producer the combination of the combustion-chamber, with take-off ports near the bottom thereof, one or more fuel-charging ports in the upper portion thereof, and a rotary, combined blast-pipe and stirrer, which extends downward below the normal fuel-line, together with a rotating hearth and mechanism for causing simultaneous rotation of the hearth and stirrer, a blast-pipe connection to the ash-pit beneath said hearth and a take-off port above the normal fuel-line, with means for controlling all said take-offs and blast-pipes, substantially as described.

7. In a fuel-gas producer the combination with the inwardly-inclined walls of the combustion-chamber and ash-pit, of the hearth located between said inclined walls, said hearth being inclined to the horizontal plane, but rotating on a vertical axis, substantially as described.

8. In a fuel-gas producer the combination with the inwardly-inclined walls of the combustion-chamber and ash-pit, of the hearth located between said inclined walls, and provided with rubbing-surfaces in contact therewith, said hearth being inclined to the horizontal plane, but rotating on a vertical axis, and means for adjustment of one or both of the rubbing-surfaces thus opposed to one another, radially to the hearth, substantially as described.

9. In a fuel-charging device the combination of the hopper, the combustion-chamber below, one or more flaring conduits leading from said hopper to said combustion-chamber, and the rotating disk which has one or more openings which register at intervals with the upper ends of said conduit or conduits, substantially as described.

10. In a fuel-charging device, the combination of the hopper, the combustion-chamber below, one or more flaring conduits leading from said hopper to said combustion-chamber, and the rotating disk which has one or more openings which register at intervals with the upper ends of said conduit or conduits, said conduits being inclined to discharge against the walls of the combustion-chamber, substantially as described.

11. In a gas-producer the combination of the combustion-chamber with take-off ports near the bottom thereof, one or more fuel-charging ports in the upper portion thereof, and a rotary, combined blast-pipe and stirrer which extends downward below the normal fuel-line, together with the fuel-hopper, one or more flaring conduits leading from the hopper to the fuel-charging ports and the rotating perforated disk rotating with said stirrer to alternately open and close the conduits, substantially as described.

594,541. COMBINATION BROOM AND DUST-PAN HOLDER. BURDETTE KILBOURN, Utica, N. Y. Filed Apr. 9, 1894. Serial No. 506,981. (No model.)



Claim.—1. The combination in a broom-holder of a casing having openings in its opposite ends, of jaws 4 and 5 having interlocking teeth 7, stop-shoulders 8 and 9, arms *a*, projections 10 entering the openings in the ends of the case and a spring for operating the jaws substantially as set forth.

2. The combination in a broom-holder of a casing having openings at either end, interlocking jaws 4 and 5 having projections 10 entering the openings and adapted to slide and swing therein, and a spring extending between the jaws and engaging upon the projections 10, substantially as set forth.

3. In a broom-holder the combination of the jaws 4 and 5 having interlocking teeth 7 and shoulders 8 and 9 and also having projections 10 10, of a spring passing around the back of the jaws and engaging upon the projections 10 of the jaws, substantially as set forth.

594,542. STONE-SAWING MACHINE. FRANK KNOWS, Bedford, Ind. Filed July 6, 1897. Serial No. 643,844. (No model.)

Claim.—1. In a stone sawing machine, the combination with an endless cutting-cable and sheaves regulating the path of said cable of a driving and automatic tensioning device for the cable, comprising, in combination, an inclined track, a truck thereon carrying a journaled driving-pulley over which the cable passes, and a motor upon the truck and connected with said driving-pulley, substantially as and for the purpose set forth.

2. In a stone-sawing machine, the combination with an endless cutting-cable, and sheaves regulating the path of said cable, of an automatic tensioning device, comprising a track, a gravity-moved truck mounted thereon, a pulley journaled in the truck-frame about which the cable passes, a rack attached to the track, a pinion engaging therewith carried by a shaft journaled in the truck-frame, and a ratchet and pawl controlling said pinion operating to permit movement of the truck to take up the slack in the cutting-cable, but to prevent a return of the truck under an added strain upon the cable, substantially as and for the purpose set forth.

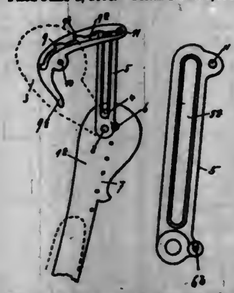
3. In a stone-sawing machine, the combination with the main frame, endless cutting cables, and sheaves directing the path of said cables, of driving and tensioning means for the cables, comprising, in combination, an inclined track at one side of the frame, a movable truck mounted thereon, driving-pulleys journaled in the truck-frame about which said cables pass, a motor on the truck connected with said pulleys, and supplementary tensioning devices at the opposite side of the main frame comprising gravity-operated trucks, one for each cutting-cable, and each carrying a pulley about which the cable passes, substantially as and for the purpose set forth.

4. In a stone-sawing machine, the combination with two endless cutting-cables and a motor for driving the same, of supporting-posts A' and A^2 located between said cables at some distance apart, two laterally-projecting brackets on each of said posts, and extending longitudinally thereof, movable slides upon said brackets, and supporting-sheaves for the cables journaled in the slides, substantially as and for the purpose set forth.



5. In a stone-sawing machine, the combination with two endless cutting-cables and a motor for driving the cables, of supporting posts A' and A^2 located between said cables at some distance apart, two laterally-projecting, longitudinally-extending, brackets C on each of said posts provided with flanges C' and on their outer faces with racks C^2, slides D engaging said flanges, pinions G journaled in the slides and engaging the racks, shafts E carried by the slides, guide sheaves F upon said shafts, and means for adjusting said sheaves laterally for proper alinement, substantially as and for the purpose set forth.

594,548. ADJUSTABLE HEAD-REST. CHARLES A. LEE, Canastota, N. Y. Filed June 1, 1896. Serial No. 593,791. (No model.)



Claim.—1. The combination with the extension head-pieces of a chair-back, of the intermediately-located head-rest pivoted at its lower edge and folding gravity-catch 9 having a curved slot with catch-notches and arm 9^a located and folding between the end of the head-rest and the extension head-piece and pivoted to the head-rest, and a rigidly-held projecting pin engaging in the slot of the said catch, substantially as set forth.

2. The combination with the extension head-pieces of a chair-back, of an intermediately-located head-rest, sliding hangers located between the ends of the head-rest and head-pieces and secured to the head-pieces, to which the lower side of the head-rest is pivoted at its lower end and folding catches 9 located and folding between the ends of the head-rest and the head-piece and each having a curved slot

with notches and an arm 9^{x}, and rigid pins which engage with the catches within the slot, substantially as set forth.

594,544. OIL-CUP. AXEL LEVERAHL, Aurora, Ill., assignor to the Aurora Automatic Machinery Company, same place. Filed July 30, 1896. Serial No. 601,076. (No model.)

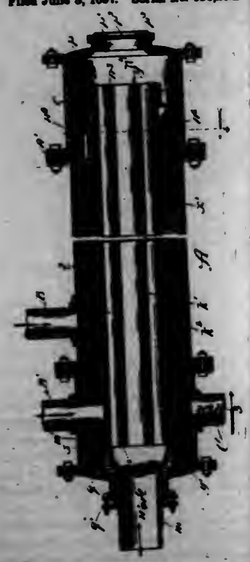


Claim.—1. An oil-cup comprising a cylindric body portion and a sleeve movably mounted thereon each part having an opening through its sides, the opening in the sleeve registering with the opening in the body portion when the former is rotated upon the latter, a shoulder adjacent to the inner end of the body portion, an inturned flange on the sleeve adapted to engage said shoulder and prevent the sleeve from bodily outward movement, a shoulder adjacent to the outer end of the body portion forming with the sleeve an annular space between them, an inwardly-extending flange or annular shoulder upon the outer end of the sleeve located at a point above the face of the outer shoulder of the body portion, and a spring interposed in said space between the sleeve-shoulder and the body-portion shoulder and acting to exert a pressure lengthwise of the sleeve.

2. An oil-cup comprising a cylindric body portion, a sleeve mounted to turn thereon, a shoulder adjacent the inner end of the body portion, a flange on the sleeve adapted to engage said shoulder, an annular shoulder on the outer end of the body portion, an inwardly-extending flange on the sleeve adjacent to said annular shoulder and a spiral spring interposed between said last-mentioned flange and said annular shoulder in contact with the said shoulder and flange in order to exert a pressure longitudinally of the sleeve and to force the flange on the opposite end of the sleeve against the adjacent shoulder to thereby augment the frictional contact between the said parts.

3. An oil-cup comprising a cylindric body portion, a sleeve mounted to turn thereon, each member having an opening through its side, said openings being arranged to register when the sleeve is rotated upon the body portion, an annular shoulder adjacent the inner end of the body portion, a flange on the sleeve adapted to engage said annular shoulder and a spring interposed between the shoulder on the outer end of the body portion and the outer flange of the sleeve, and acting to exert a pressure lengthwise thereof, said sleeve being so constructed as to expose the outer end of the body portion so that it may be engaged by a suitable tool.

594,545. LIQUID-COOLING APPARATUS. OTTO MEISSBAUER, Chicago, Ill. Filed June 3, 1897. Serial No. 639,234. (No model.)



Claim.—1. In a liquid-cooler, the combination of a shell, an inner cylinder and inner walls forming together primary and secondary end chambers and intermediate and intercommunicating concentric chambers, a conduit extending into one end of the shell, a series of straight and parallel pipes extending from said conduit through the inner intermediate chamber to the primary end chamber, a series of straight and parallel pipes extending from one end chamber to the other through the outer intermediate chamber, a conduit communicating with the secondary end chamber, and conduits communicating respectively with the inner and outer intermediate chambers, substantially as and for the purpose set forth.

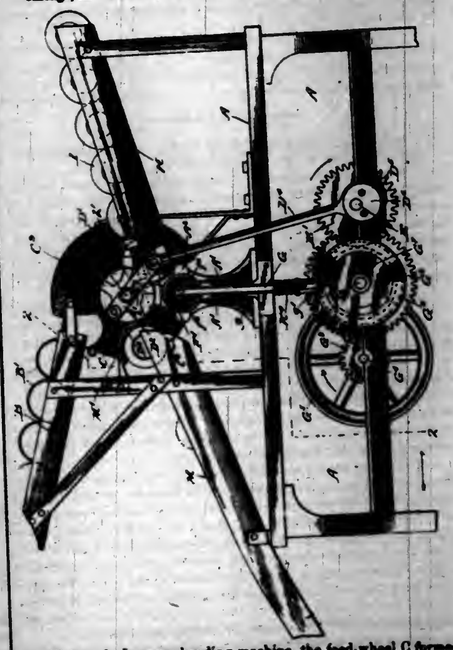
2. In a liquid-cooler, the combination of the outer shell, inner cylinder k and inner cylinder ends l n forming together end chambers y y' and intermediate concentric chambers x x', a conduit m at one end of the shell, pipes k' k^3 extending from said conduit through the chamber x to the chamber y, pipes i extending between the chambers y y', through the chamber x, and conduits communicating respectively with the chambers x x' and y', all constructed and arranged to operate, substantially as described.

594,546. NUT-LOCK. CHARLES R. MILLER, Obed, Tenn., assignor of one-half to George R. Durell, Harriman, Tenn. Filed Nov. 27, 1896. Serial No. 613,508. (No model.)



Claim.—A nut-lock, comprising a washer provided with a bolt-aperture and two spring-arms connected to its respective opposite ends and bent at right angles thereto, and extending toward each other, so as to lie with their respective ends approximately under the bolt-aperture, but leave sufficient space for the reception of the angular corner of a nut between them, substantially as described.

594,547. CAN-HEADING MACHINE. CHARLES R. McDONALD, Chicago, Ill. Filed Sept. 28, 1896. Serial No. 607,157. (No model.)



Claim.—1. In a can-heading machine, the feed-wheel C formed with recesses C', each such recess being provided with rollers C^2 and C^3 between which the can-body is held.

2. In a can-heading machine, the feed-wheel C provided with semicircular recesses C'; the roller C^2 mounted at the bottom of said recess; and the rollers C^3 mounted upon spring-controlled arms C^4, on each side of said recess.

3. In a can-heading machine, the feed-wheel C, provided with the recesses C'; the roller C^2; the pivoted arms C^4, carrying the rollers C^3; the springs C^5; and the stop-pin c', substantially as described.

4. In a can-heading machine, the feed-wheel C provided with recesses adapted to receive the can-bodies, and mounted upon the shaft D; the ratchet-wheel D' keyed to said shaft; the crank D^2 provided with the pawl D^3; the connecting-rod D^4; the shaft E; an eccentric connection between the said shaft E and the connecting-rod D^4; the friction-pulley D^7 keyed to the shaft D; and the friction-belt D^8.

5. In a can-heading machine, the shafts F adapted to rotate and reciprocate in their bearings; the hoods F^2 adapted to reciprocate with the said shafts but not to rotate therewith; the chucks F^7 adapted to rotate with the said shafts within the hoods; and means adapted to revolve and intermittently to reciprocate the said shafts.

6. In a can-heading machine, the shafts F adapted to rotate and reciprocate in their bearings; the hoods F^2 mounted upon the said shafts to reciprocate but not to rotate therewith, and adapted to receive the can-heads and carry them into contact with the can-body; the chucks F^7 adapted to rotate with the said shafts within the hoods; and means adapted to revolve and intermittently to reciprocate the said shafts.

7. In a can-heading machine, mechanism adapted to feed and hold the can-bodies; reciprocating hoods F^2 adapted to receive and carry the can-heads into contact with the can-body, and provided with apertures adapted to admit the crimping-rolls; and crimping-rolls adapted to enter the said hoods and crimp the heads upon the can-body while the same are held in contact within the said hoods.

8. In a can-heading machine, mechanism adapted to feed the can-bodies and hold the same; reciprocating hoods F^2 adapted to receive and carry the can-heads into contact with the can-bodies, provided with apertures for the admission of the crimping-rolls; chucks F^7 adapted to rotate the said can bodies and heads while so held in contact; and crimping-rolls K^2 adapted to enter the said hoods and crimp the heads upon the can-body while the same are held in contact within the said hoods and are rotated by the said chucks.

9. In a can-heading machine, mechanism adapted to feed the can-bodies; the shafts F; means for rotating and for reciprocating the said shafts; chucks mounted thereon adapted to revolve and to reciprocate therewith; hoods upon the said shafts adapted to reciprocate but not to revolve therewith, and further adapted to receive and carry the heads into contact with the can-body; and crimping-rolls adapted to crimp the said heads while so held in contact by the said hoods.

10. In a can-heading machine, mechanism adapted to feed the can-bodies; the shafts F; means for rotating and for reciprocating the said shafts; chucks mounted thereon adapted to revolve and to reciprocate therewith; hoods upon the said shafts adapted to reciprocate but not to revolve therewith, the said hoods being provided with apertures above for receiving the heads, and with apertures below for the admission of the crimping-rolls thereto; and crimping-rolls adapted to crimp the said heads while so held in contact by the said hoods.

11. In a can-heading machine, means for feeding the can-bodies; the shafts F adapted to reciprocate and rotate in their bearings; means adapted to reciprocate the said shafts; a spring f^5 interposed between the said reciprocating means and each said shaft; a chuck F^7 fixedly mounted upon each said shaft, and adapted to rotate and reciprocate therewith; the hood F^2 also mounted upon the said shaft to reciprocate but not to rotate therewith, and adapted to receive the can-head and carry the same into contact with the can-body; and means to rotate the said shaft.

12. In a can-heading machine, the combination of the hood F^2 provided with an annular recess in its interior of a size adapted to retain the can head admitted thereto before its edges are crimped and to carry the can-head into contact with the can-body, with mechanism for reciprocating said hood to and from the can-body and for crimping the can-head thereby fastening it to the can-body and reducing its diameter sufficiently to release it from said recess, said crimping mechanism being so located as to be applicable to the can-head when the hood is in its innermost position.

13. In a can-heading machine, a hood adapted to receive a head and carry the same into contact with the can-body, provided on its interior surface with a recess of a size adapted to retain the head before the edges of the same are crimped upon the can-body, and to release the same when its edges are so crimped, and provided with an aperture adapted to admit the crimping-roll to contact with the said head; and a crimping-roll adapted to crimp the head upon the can-body while the same is held by the hood in contact.

14. In a can-heading machine, a hood adapted to receive a head and carry it into contact with the can-body, provided with an annular recess upon its inner surface or a nose adapted to retain the head before the edges of the same are crimped upon the can-body, and to release the same when its edges are so crimped, and provided with an upper aperture adapted to admit the can-head, and with a lower aperture adapted to admit the crimping-roll, both opening into the said recess; a chuck mounted within the hood adapted to revolve the can head and body; and a crimping-roll adapted to crimp the said head upon the said body while so revolved.

15. In a can-heading machine, the hood F^2 mounted upon the shaft F and adapted to reciprocate horizontally therewith, the said hood being provided with an interior circular recess; a chuck F^7 keyed to the said shaft adapted to revolve and reciprocate therewith, within the said recess of the hood; a shoulder f^9 upon the inner wall of the hood-recess, forming a groove f^{10} behind the same adapted to receive the can-head, the said groove f^{10} being provided with an opening to admit the can-head, and with a second opening to admit the edge of a suitable crimping-roll.

16. In a can-heading machine, the shaft F; the hood F^2; the chuck F^7; means adapted to revolve the said shaft; the lever-arm G; the cam-wheel G^7 provided with a cam-surface g^8; the crimping-roll K^2 mounted upon the spindle K; and the cam-wheel J provided with the cam-surface J', constructed and operating substantially as described.

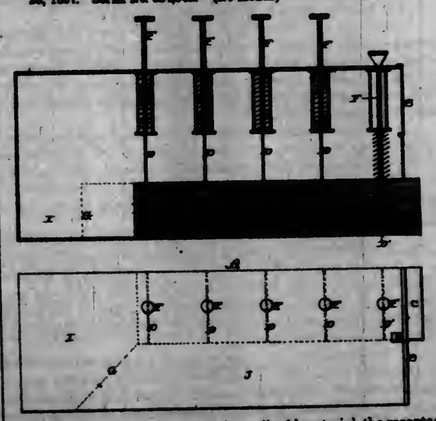
17. In a can-heading machine, the shaft F, mounted in bearings A^5 and A^6; the collar; the spring f' adapted to retain the shaft in its normal outer position; the pulley F' keyed to the said shaft; the hood F^2 adapted to move longitudinally with the said shaft, provided with guide-rods F^6; the chuck F^7 keyed to the shaft F within the said hood; the cap f^3 inclosing the end of the shaft F; the pin f^4; the spring f^5 between the said pin and the said cap; and connections with the cap f^3 adapted to move the shaft inwardly intermittently, substantially as described.

18. In a can-heading machine, the inclined chute H mounted fixedly upon the framework adapted to feed forward the can-heads I; the reciprocating hood F^2 adapted to receive the can-head; and an automatic feed device H^3 operated by the movement of the hood, adapted to admit a can-head to the said hood each time the said hood is reciprocated.

19. In a can-heading machine, the feed-chute H, the escapement H^4 provided with the pins h and h' adapted alternately to project across the chute H; the arm A^3 carried by the escapement; and the spring A^2 adapted to hold the said arm in contact with the hood, substantially as described.

20. In a can-heading machine, the hood F^2 provided with an interior circular cavity; the rib f^9 on the inner wall of said cavity forming the groove f^{10}, the said groove opening through the top of the hood by the aperture f^{11}; means adapted to reciprocate said hood backward and forward; a feed-chute H fixedly mounted on the framework and provided with a downward opening H' registering with the opening f^{11} in the hood, when the hood is in its outer position only; and an automatic feed device H^3 operated by the movement of the hood adapted to admit a single can-head into the said hood when the same is in its outer position.

594,548. MEASURE. WILLIAM J. MCDOWELL, Salt Lake City, Utah, assignor of one-half to Frank I. Gunnell, same place. Filed Feb. 22, 1897. Serial No. 624,562. (No model.)



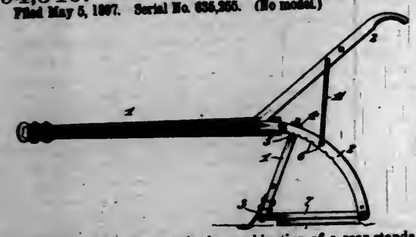
Claim.—1. In a measure for dry or liquid material, the receptacle provided with a suitable opening for filling purposes, the tube C ex-

tending partially through the receptacle along its bottom, and a suitable door for closing the opening, combined with spring-actuated slides which are adapted to work in and out through the tube; the outer slide remaining normally closed while the others are normally open, substantially as shown.

2. In a measure for dry or liquid material, a receptacle, a tube placed along its bottom, and provided with a series of slots through its top, and a partition G secured to the inner end of the tube and extending across the receptacle, combined with a series of spring-actuated slides which work in and out of the slots in the top of the tube, the outer slide remaining normally closed while the inner ones are normally open, substantially as described

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594,549. PLOW. MURDOCK M. MCKINNON, Laurinburg, N. C. Filed May 5, 1897. Serial No. 635,355. (No model.)



Claim.—1. In a plow-stock, the combination of a rear standard curved in its length and having notches along one edge, a front standard having a lateral extension to engage with one of the series of notches in the edge of the curved standard, means for securing the standards in an adjusted position, and a connecting-bar between the lower ends of the front and rear standards, substantially as set forth.

2. In a plow-stock, the combination of a rear standard curved in its length and having separated parts and corresponding notches along the edges of the said parts, a front standard having its upper portion passing between the separated parts of the rear standard and having lateral extensions to enter corresponding notches thereof, means for securing the standards in an adjusted position, and a bar connecting the lower ends of the standards, substantially as specified.

3. In a plow-stock, the combination of a curved rear standard comprising separated parts having corresponding notches along one edge, a front standard having lateral extensions to engage with any one of the series of notches and operating in the space formed between the parts of the rear standard, and having its upper end reduced, threaded and provided with a binding-nut, and a bar connecting the lower ends of the standards, substantially as set forth.

4. In a plow-stock, the combination of a curved rear standard, a front standard, a bar having pivotal connection with the lower end of the front standard and pivotal and adjustable connection with the lower end of the rear standard, and means for adjustably connecting the upper end of the front standard with the rear standard, substantially as set forth.

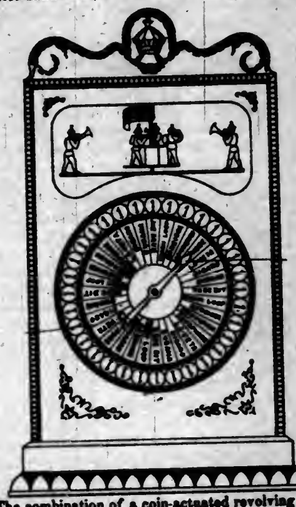
594,550. COIN-CONTROLLED VENDING AND AMUSEMENT MACHINE. JOSEPH HINDLE and JOHN H. DAVIS, Chicago, Ill. Filed May 13, 1897. Serial No. 636,201. (No model.)

Claim.—1. A combination of a wheel provided with buckets actuated by the falling of the coin and mounted upon a hollow shaft, a dial mounted upon said shaft, an indicator-hand before the face of the dial, the shaft supporting the indicator-hand being moved by frictional contact with the bucket-wheel shaft in the manner shown and for the purpose described.

2. The combination of the bucket-wheel mounted to be revolved by the falling of the coin, of a dial mounted on the bucket-wheel shaft; with a vertical shaft provided with a flexible disk engaging by friction the dial on the bucket-wheel shaft and revolved thereby, said vertical shaft carrying figures or images in the manner shown and for the purpose described.

3. The combination of the bucket-wheel adapted to be revolved by the falling of the coin, and of a pendulum-arm supporting figures as shown and adapted to be swung by the momentum of the coin in falling, with a vertical shaft supporting figures as shown and provided with an elastic friction-disk for engaging a disk on the axis of the bucket-wheel and thereby driven, combined and arranged substantially as shown and described.

4. The combination of a bucket-wheel adapted to be revolved by the falling of the coin; said bucket-wheel being mounted upon a hollow shaft, and a dial-plate mounted on said shaft and revolving therewith; with an indicator-hand shaft mounted within the cavity of the hollow bucket-wheel shaft and revolved by frictional contact with the bucket-wheel shaft and with a detent for preventing the backward movement of the hollow shaft, but not the movement of the indicator-hand shaft, in the manner shown and for the purpose described.



5. The combination of a coin-actuated revolving bucket-wheel, of a dial revolving with the shaft of the bucket-wheel, and of an indicator-hand movable in relation to the dial, and of a vertical rotatable shaft supporting figures and driven by frictional gearing from the bucket-wheel shaft; with a pendulum actuated in swinging by the coin in falling and carrying a cross-arm on which are mounted figures which are vibrated with the pendulum, combined and arranged substantially as shown and described.

6. The combination of a bucket-wheel carrying an indicator or display and mounted to be revolved by a coin in falling, of a vertical shaft carrying figures and mounted to be revolved from the bucket-wheel, with a pendulum supporting figures and mounted to be swung by the coin in falling, combined and arranged whereby the three sets of displays are operated by the falling of the coin as is shown.

594,551. FORM FOR BOOTS OR SHOES. WALTER L. G. NILES, Lynn, Mass. Filed Dec. 2, 1896. Serial No. 614,949. (No model.)



Claim.—1. A form for boots or shoes comprising the hollow body portion open at the bottom and having inwardly-turned flaps, and a rigid vertical brace secured to said flaps and the top of the form, substantially as described.

2. A form for boots or shoes comprising the hollow body portion, and rigid vertical and lateral braces within said body portion, substantially as described.

3. A form for boots or shoes comprising a hollow rigid body portion, and a rigid vertical brace within said body portion, located at the heel portion of said form and supporting the "comb" thereof, substantially as described.

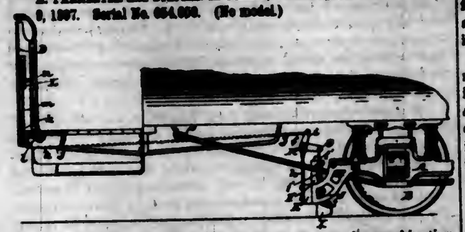
4. A form for boots or shoes comprising a hollow body portion and a vertical brace within said body portion, located at the heel portion of said form and supporting the "comb" thereof and a spindle-socket within said brace, substantially as described.

5. A form for boots or shoes comprising a hollow body portion, end rests secured to opposite sides of the ball portion of said body portion and a lateral rigid brace extending between said end rests to prevent lateral compression, substantially as described.

6. A form for boots or shoes comprising a hollow body portion open at the bottom and having the lower portion of the heel removed, from a point slightly below the "comb" of the form at the back thereof, and extending to a point approximating the central portion of the heel, substantially as described.

7. A form for boots or shoes comprising a hollow body portion having the lower portion of the heel removed, and a vertical brace adjacent said cut-away portion, substantially as described.

594,552. TRACK-CLEANER FOR STREET-RAILWAYS. GEORGE A. FARRINGTON and STEPHEN H. PERRIN, Cambridge, Mass. Filed Oct. 9, 1897. Serial No. 654,893. (No model.)



Claim.—1. In a track-cleaner for street cars the combination with the truck-frame of the car, of a stand carried by said frame and provided with a guideway-slot in its upper portion; a radius-arm pivoted at one end to said stand and provided with a vertical slot through the same; a scraper or plowshare to contact with the track-rail and provided with or secured to a shank or bar projecting upward through the slots in said radius-arm and stand and having its upper end portion curved toward the end of the car; a series of teeth formed on the rear edge of said scraper-bar; a second series of teeth formed in the rear end of the slot through said radius-arm adapted to engage said first series of teeth; and means carried by said truck-frame for raising said scraper when not required for use.

2. In a track-cleaner for street-cars the combination with the truck-frame of the car and its pilot-board, of the stand F F'; the arm G pivoted to said stand, and provided with the shoulders *b* and *c* and having a vertical slot through the same provided in its rear end with the teeth *e*; the scraper I; the scraper-carrying bar J having a curved upper portion and provided in its rear edge with the teeth *d*; the spring H engaging the shoulder *b* of the arm G; the rocker-shaft K mounted in bearings in the stands A secured to said pilot-board; the arms *g* and *i* firmly secured on said shaft; a slotted link connection between said bar J and arm *g*; and means for partially rotating said shaft K to raise said scraper.

3. In a track-cleaner for street-cars the combination with the truck-frame of the car and its pilot-board of the stand F F'; the arm G provided with the shoulders *b* and *c* and having a vertical slot through the same provided in its rear end with the teeth *e*; the scraper I; the scraper-bar J provided with the teeth *d*; the spring H; the stands A *h*; the rocker-shaft K; the arms *g* and *i* all carried by the pilot-board of the truck-frame; the rods *j* and *m*, the chain *k*; the sheave *l*; the handle *n*; and the casing L provided with the slot *m'* and the shoulder or catch *m²* all constructed, arranged, and operating substantially as and for the purposes described.

594,553. MEANS FOR RAISING OR LOWERING SASHES. ANDREW PEARSON, Brooklyn, N. Y. Filed June 26, 1897. Serial No. 642,496. (No model.)



Claim.—The herein-described device for raising and lowering the sash of a window and for locking the same in position comprising a plate mounted in the guideway at each side of the frame and which is provided with an inwardly-directed flange having a rack-bar formed thereon, a shaft mounted in one end of the sash and provided at each end with a pinion adapted to engage the corresponding rack-bar, a transverse shaft mounted above the first-named shaft and provided with a worm-gear, said first-named shaft being provided with a pinion adapted to engage said worm-gear, and means for operating said second shaft, substantially as and for the purpose described.

594,554. HOSE-NOZZLE. WALTER S. POWERS and ADRIAN J. REYNOLDS, Nashville, Mich. Filed Apr. 6, 1897. Serial No. 630,980. (No model.)



Claim.—1. In a hose-nozzle, the combination of a casing having an interior hollow, a core adjustable longitudinally in said hollow and having a central bore for the discharge of a solid stream, the diameter of said core being less than the diameter of the hollow of the casing, said core having at its discharge end a projecting annular flange extending substantially at right angles to the axis of the core and adapted to fit at its edge inside of the discharge end of the casing, substantially as set forth.

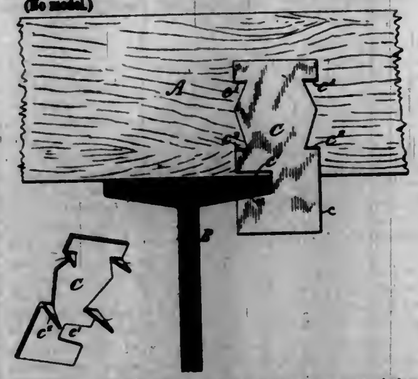
2. In a hose-nozzle, the combination of a casing having an interior hollow, a core adjustable longitudinally in said hollow and having a central bore for the discharge of a solid stream, the diameter of said core being less than the diameter of the hollow of the casing, said core having at its discharge end a projecting annular flange extending substantially at right angles to the axis of the core and having its periphery beveled to fit inside of the discharge end of the casing, said discharge end of the casing being tapered or flared, substantially as set forth.

3. The combination of a casing having a series of longitudinal ribs or projections formed in its interior, a core of less diameter than the interior diameter of the casing arranged inside said casing and movable longitudinally between the lugs or projections inside the same, said core having a longitudinal bore for the discharge of a solid stream of water and forming between it and the inner wall of the casing a space or passage for the discharge of the spray, said core having at its discharge end a projecting annular flange adapted to fit inside of the mouth of the casing, substantially as set forth.

4. The combination of a casing having a hollow provided with longitudinal projections or lugs having screw-threads formed in them, a core having a screw-threaded exterior adapted for engagement with the screw-threads of the projections or lugs of the casing and having a longitudinal hollow for the discharge of a solid stream of water, the diameter of said core being less than that of the hollow of the casing so as to form a passage or space between the parts for the discharge of a spray, and said core having at its discharge end a projecting annular flange adapted to fit inside the mouth of the casing, substantially as set forth.

5. The combination of a casing having a longitudinal hollow and a core having threaded engagement with the casing to permit of longitudinal adjustment in said hollow end of less diameter than the same so as to form a space or chamber between the parts for the discharge of the spray, the core being formed with a longitudinal hollow for the discharge of a solid stream of water and having at its discharge end an annular projecting flange arranged to fit in the mouth of the casing, said flange having at opposite sides projecting thumb-pieces bent to extend over the outside of the casing, substantially as set forth.

594,555. CLIP FOR SECURING SLEEPERS TO BEAMS. JOHN H. PEARSON, Brooklyn, N. Y., assignor to the Jackson Architectural Iron Works, of New York. Filed June 10, 1896. Serial No. 595,124. (No model.)



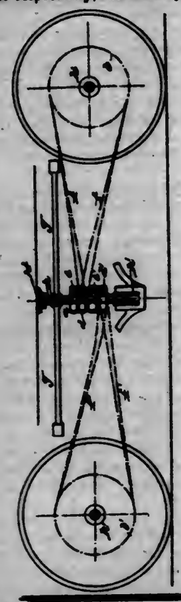
Claim.—1. A clip for securing sleepers to beams consisting of a plate having a recess, adapted to embrace a part of the beam, and prongs flaring outward from and integral with the plate to secure the plate to the sleeper, substantially as set forth.

2. A clip for securing sleepers to beams consisting of a plate having a recess in one side adapted to embrace one edge of the top of the beam, and prongs of unequal length, flaring outward from and integral with the plate, to secure the clip to the sleeper, substantially as set forth.

594,556. CAR-STARTER. ARTHUR PRIN, Brussels, Belgium. Filed May 25, 1897. Serial No. 638,015. (No model.)

Claim.—1. A starting device for tram-cars and other vehicles consisting of a vertically-arranged shaft, a fly-wheel carried by said

shaft, a series of fixed and loose pulleys mounted on said shaft, pulleys mounted on the axles of the tram-cars, and belts connecting said last-mentioned pulleys with the fixed and loose pulleys on the vertically-arranged shaft respectively, substantially as and for the purposes described.



2. The combination with a tram-car and its axles, of a pulley secured on each of said axles, a vertical shaft between said axles and suitably supported on the tram car, a fly wheel mounted on said shaft, a series of fixed and loose pulleys arranged on said shaft, and belts connecting said pulleys with the pulley on the axles of the tram-car, substantially as and for the purposes described.

594,557. BOX-COUCH. DAVID G. PROCTOR and GEORGE R. PROCTOR, Washington, D. C. Filed July 10, 1896. Serial No. 598,868. (No model.)



Claim.—1. A box-couch comprising a top hinged to one side thereof, tracks having notches and secured within the top adjacent to the ends thereof, loosely-mounted springs for supporting the weight of the top in opening and closing the couch, each spring consisting of a cylindrical coil having its ends straightened so as to provide lower and upper arms, and means whereby the lower arms are removably secured to the ends of the couch for supporting the coils and upper arms of the springs while the extremities of the upper arms are adapted to engage the tracks to seat in the notches thereof and to travel thereon, substantially as described.

2. A box-couch comprising a top hinged to one side thereof, tracks having reduced portions and secured within the top adjacent to the ends thereof, loosely-mounted springs for supporting the weight of the top in opening and closing the couch; each spring consisting of a cylindrical coil having its ends straightened so as to provide lower and upper arms, and means whereby the lower arms are removably and adjustably secured for regulating the tension of the springs while the extremities of the upper arms are adapted to engage the tracks to be disengaged at the reduced portions thereof and to travel thereon, substantially as described.

3. In combination with a couch or other receptacle and the top hinged thereto; the herein-described counterbalancing-spring secured to the receptacle at a point away from the side containing the hinges, and having its free end provided with a sleeve bearing upon the under side of said top, and a track secured to the under side of said top and forming a bearing for the free end of the sleeve, substantially as explained.

4. A box-couch comprising a body, a top hinged to the body along one side thereof, a track secured to the top, and the counterbalance-spring having an arm, and a sleeve on the arm formed with a grip having interned projections adapted to slide on the track; substantially as described.

5. A box-couch comprising a top hinged to one side thereof, tracks secured within the top adjacent to the ends thereof, springs for supporting the weight of the top in opening and closing the couch, each spring consisting of a cylindrical coil having its ends straightened so as to provide lower and upper arms, means whereby the lower arms are removably secured to the ends of the couch for supporting the coils and upper arms of the springs, and the sleeves, into which the upper arms are inserted, having their upper ends adapted to travel on the tracks, substantially as described.

6. In combination with a couch or other receptacle, and the top hinged to one side thereof; the counterbalancing-spring formed of a coil having one end fixed to the end of the couch and having upon its other end the sleeve 7ª formed at its outer end with a grip 8, said top being provided with a track which receives the grip in substantially the manner explained.

7. In combination with a couch or other receptacle, and the top hinged to one side thereof; the counterbalancing-spring having a free arm making sliding contact with the top and having an attaching-arm for securing it to the end of the couch, the socket 6, and the sockets 6ª, 6ª, 6ª symmetrically arranged about the socket 6 and receiving the attaching end to provide for securing the spring adjustably to the receptacle, as set forth.

8. In combination, with a couch or other receptacle and the hinged top thereof; tracks located on the top, the longitudinally-reciprocating rods located on the receptacle in position to engage the tracks and terminating at their meeting ends in the cam ends 18, the plate 19, having perforations to receive the said cam ends, and means for depressing said plate at will, substantially as described.

9. In combination, with a couch or other receptacle and the top hinged thereto; the locking-rods 15 having the cam ends 18, tracks located on the top with which the rods engage, the plate 19 controlling said rods through the medium of their cam ends, the base-plate 22 providing a mounting for the plate 19 and having a keyhole located to bring a wedging-key into contact with the plate 19, substantially as described.

10. In combination, with a couch or other receptacle and the top hinged thereto; the locking-rods 15 tracks located on the top with which the rods engage, the plate 19 having working connection with said rods, the base-plate 22 providing a mounting for said plate, and the tubular key having a wedging end; said base-plate having a semicircular opening located to direct the wedging end of the key upon the plate 19 when the key is introduced, substantially as described.

11. In combination, with a couch or other receptacle and the top hinged thereto; the locking-rods 15, tracks located on the top with which the rods engage, the actuating-plate 19, the rod 23 threaded at its upper end into the plate 19 and having its lower end projecting through the bottom of the couch for manipulation, substantially as described.

594,558. COPY-HOLDER. EVERETT B. GUNNERSEN, Sedalia, Mo., assignor of one-half to John W. Curtiss, same place. Filed June 4, 1897. Serial No. 638,455. (No model.)

Claim.—1. A copy-holder comprising an attaching-base, an upright springing from said base, and a copy-supporting frame and retaining means carried by said upright; said frame and retaining means consisting of a plurality of rods or bars extending from said upright at an angle thereto and arranged so that a number of said rods together form a broad base or rest for the copy, while the others extend lengthwise of the frame and serve as a means for retaining the copy thereon, substantially as described.



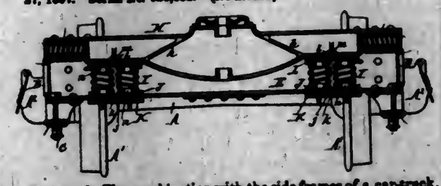
2. The combination, in a copy-holder, of the attaching-base, the upright, and the inclined cross piece, the U-shaped supporting-frame carried on one side of said cross-piece having its ends secured thereto and its connected portion remote therefrom, and the copy-holding bars extending along the opposite edges of said frame, substantially as shown and described.

3. In a copy holder for attachment to type-writing machines, the combination of the attaching-base, the upright springing therefrom, the inclined cross-piece on said upright, the supporting-frame carried by said inclined cross-piece, and the copy-holding bars extending from said inclined cross-piece and arranged at the opposite edges of the frame on opposite sides thereof, substantially as shown and described.

4. A copy-holder comprising an attaching-base, an upright carrying a copy-supporting frame which extends therefrom at an angle thereto on one side thereof and is constructed to afford a broad base or rest for the copy, together with copy-retaining rods or bars extending from said upright lengthwise of said frame along the marginal portions thereof for retaining the copy thereon, substantially as described.

5. A copy-holder comprising a suitable attaching-base, an upright springing therefrom, a substantially rectangular frame supported on said upright at an angle thereto and affording a broad rest for the copy, and copy-retaining bars extending longitudinally of the said frame on opposite sides thereof, substantially as and for the purpose described.

594,559. CAR-TRUCK. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed Jan. 27, 1897. Serial No. 620,802. (No model.)

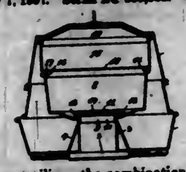


Claim.—1. The combination with the side frames of a car-truck, and a transom connecting the same, of a base-plate carried by the transom, a rocking spring-seat pivotally mounted on said base-plate by corresponding ribs and depressions arranged on the opposing faces of the base-plate and spring-seat, springs resting on said rocking seats, and a bolster supported on said springs, substantially as set forth.

2. The combination with the side frames of a car-truck, and a transom connecting the same, of springs supported on said transom, a bolster, springs and rocking caps interposed between said springs and said bolster and having a pivotal bearing against the bolster consisting of corresponding ribs and depressions arranged on the opposing faces of the bolster and the rocking caps, substantially as set forth.

3. The combination with the side frames of a car-truck, and a pair of separated transoms connecting the same, of base-plates bridging the transom and each provided on its upper side with a convex pivot-rib, rocking spring-seats having central concave depressions resting on said ribs, springs resting on said seats, rocking caps supported on said springs and each having a central convex pivot-rib on its upper side, and a bolster supported on said caps and having concave depressions which receive the pivot-ribs of the caps, substantially as set forth.

594,560. STERILIZER. GEORGE W. ROGERS, West Superior, Wis. Filed May 7, 1897. Serial No. 635,282. (No model.)



Claim.—1. In a sterilizer, the combination of a water-pan provided with a series of small perforations in its bottom and with a central opening, a chamber formed on the outer face of the bottom of the water-pan with which said central opening communicates, a tube extending upwardly from said opening, horizontally-disposed pipes secured to the bottom of the water-pan exterior thereof and connecting said perforations with the said chamber, a steam-chamber supported on the upper end of said tube, a sterilizing-chamber having a perforated bottom, supported on the steam-chamber, and a condensing-plate interposed between the upper end of said tube and steam-chamber, substantially as described.

2. In a sterilizer, the combination of a steam-chamber having an opening in its bottom, a sterilizing-chamber supported above the steam-chamber, a steam-generator below the steam-chamber and communicating therewith through the opening in the bottom, and a condensing-plate hinged within the steam-chamber over said opening, said plate having downwardly-extending flanges to rest on the bottom of the chamber and said flanges having a series of openings formed therein, substantially as described.

594,561. HALTLESS HORSESHOE. WILLIAM G. ROTHELL, Warren, Pa. Filed Sept. 3, 1897. Serial No. 650,523. (No model.)



Claim.—1. A horseshoe, comprising two hinged sections having their rear ends curved inwardly to form parallel horizontal arms as described, in combination with a bolt connecting the rear ends of the sections, and a spring adapted to normally hold the rear ends of the sections at the outward limit of their movement, substantially as described.

2. In a horseshoe, two pivoted sections having at their rear ends inwardly and forwardly extending arms, a bolt passed through ears at the rear ends of the shoe-sections, and connecting the same at points below the forwardly-extending arms, and a coiled spring sleeved upon the bolt and bearing against the inner faces of the rear ends of the shoe-sections, substantially as described and for the purpose specified.

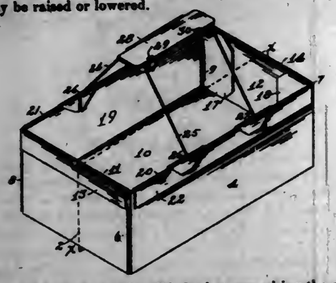
3. A horseshoe, comprising two hinged sections having inwardly-projecting points to engage the outer edge of the hoof, and at their rear ends provided with inwardly and forwardly extending arms as described, in combination with a bolt connecting the rear ends of the sections at points below the forwardly-extending arms, and a spring sleeved upon the bolt and having its ends bearing against the inner faces of the sections, substantially as described and for the purpose specified.

594,562. FOLDING BASKET. SAMUEL M. ROYER, Martinsburg, Pa., assignor to Charlotte Royer and Olney R. Royer, same place. Filed Oct. 14, 1896. Renewed Sept. 14, 1897. Serial No. 651,630. (No model.)

Claim.—1. A knockdown or collapsible basket comprising, the combination with a bottom, sides and ends made double and hinged to the bottom and adapted to fold down thereupon, of a band which lies within the double sides and ends, and means for raising and lowering said band.

2. A knockdown or collapsible basket comprising the combination with a bottom, and sides and ends which are double and hinged thereto and adapted to fold down thereupon, of a band which lies in

the double sides and ends, and loops pivotally connected to said band and projecting through openings in the double sides, whereby said band may be raised or lowered.



3. A knockdown or collapsible basket comprising the combination with a bottom and foldable sides and ends hinged thereto, said sides and ends being made double, of a band which is located in the sides and ends, wire loops pivoted to said band and projecting through openings in the sides, and a handle connected to one of the loops and having hooks adapted for engagement with the other loop.

4. A collapsible or knockdown basket comprising the combination with a rectangular bottom, double sides and ends hinged to said bottom and adapted to fold down thereupon, bracing-flaps connected to side pieces at opposite ends thereof and adapted for reception in the double ends of the box, bracing-flaps connected to the respective ends of the box and adapted for reception in the sides, a rectangular band which lies in the double sides and ends, loops pivotally connected to said band and projecting through the sides at the tops thereof, and a handle pivotally connected to one of the loops and provided with hooks which are adapted for engagement with the other loop.

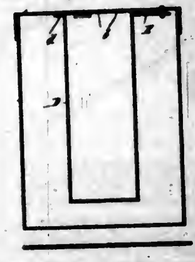
594,568. PIPE-WRENCH. ROBERT A. RYRIE, Camden, N. J. Filed Sept. 15, 1897. Serial No. 651,760. (No model.)



Claim.—A pipe-wrench comprising a bar provided with a chain-engaging opening and having a longitudinal ear at one end and adapted to receive a pipe or rod centrally of the latter, the reversible link-bars pivoted together and to said ear, provided at their opposite edges with teeth and forming dogs for engaging a pipe or rod, and a chain having one end connected with the link-bars and adapted to engage the opening of the bar at either side thereof, said link-bars and chain being adapted to grip a pipe or rod when the bar is moved in one direction, and capable of instantly releasing the same when the bar is moved in the opposite direction, substantially as described.

594,564. DINNER-PAIL. ROBERT SHAMLIBAUM, Lowell, Mass. Filed Apr. 17, 1896. Serial No. 588,098. (No model.)

Claim.—In a dinner-pail, the combination with a body portion or receptacle and a cover therefor adapted to fit upon the pail and to be removed therefrom, said cover having a plurality of perforations in its central portion, of a supplemental imperforate receptacle having its lower end closed and its upper end open, and provided with an annular outwardly-turned flange at its upper edge, and a plurality of fingers pivoted to the under side of the cover and adapted to engage and receive between them and the adjacent surface of the cover the flange of the supplemental receptacle whereby the supplemental receptacle will be withdrawn when the cover is removed, said receptacle lying in a position to embrace the whole number of perforations in the lid and prevent access to the body of the pail through the perforations.



594,565. BOTTLE. MARTIN R. SHAFFER, Slatington, Pa. Filed Dec. 5, 1896. Serial No. 614,692. (No model.)



Claim.—1. In a bottle of the class described, the combination with the neck thereof provided with an inwardly-projecting lug, of a stopper mounted upon the exterior of the neck and having means for engagement with said lug, and sealing-tabs arranged at the exterior of the neck for locking the stopper into engagement therewith, substantially as set forth.

2. In a bottle of the class described, the combination with the neck thereof provided with an inwardly-projecting lug, of a stopper adapted to be mounted on said neck and provided with a locking-hook adapted to engage with said lug, and keepers arranged upon the neck and adapted to lock said hook in engagement with the lug, substantially as set forth.

3. In a bottle of the class described, the combination with the neck thereof provided with an inwardly-projecting lug, of a stopper adapted to be mounted on said neck and provided with a locking-hook adapted to engage with said lug to retain the stopper upon the neck, keepers carried by the neck and adapted to lock said hook in engagement with said lug, and sealing-tabs formed on the neck and on the stopper and adapted to be secured together so as to seal the bottle, substantially as set forth.

4. In a bottle of the class described, the combination with the neck thereof provided with an inwardly extending lug and having a series of inwardly-projecting pins arranged in different planes and adapted to prevent insertion within the neck of a stopper after the original stopper has been removed therefrom, of a stopper having at its lower side a locking-hook adapted to engage with the inwardly-extending lug of the neck, means for hermetically sealing the stopper on the neck, and keepers carried by the neck and adapted to retain the locking-hook in engagement with the inwardly-extending lug of the neck and preventing disengagement of the same therefrom, substantially as set forth.

5. In a bottle of the class described, the combination with the neck thereof provided with an inwardly-extending lug and having a series of inwardly-projecting pins arranged in different planes adapted to prevent insertion within the neck of a stopper after the original stopper has been removed therefrom, of a stopper having at its lower side a locking-hook adapted to engage with the inwardly extending lug of the neck, means for hermetically sealing the stopper on the neck, keepers carried by the neck and adapted to retain the locking-hook in engagement with the inwardly-extending lug of the neck and prevent disengagement therefrom, and sealing-tabs formed on the neck and the stopper, said tabs being adapted to be sealed together to securely retain the stopper in said neck, substantially as set forth.

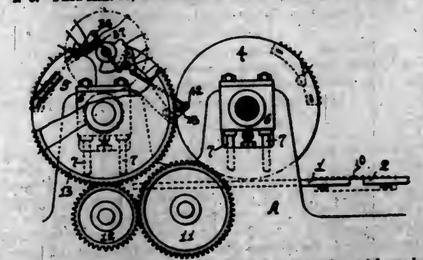
6. In a bottle of the class described, the combination with the neck thereof provided with an inwardly-extending lug and having a series of inwardly-projecting pins arranged in different planes, said pins being adapted to prevent the insertion within the neck of a stopper after the original stopper has been removed therefrom, said neck being further provided with a series of keepers, of a stopper adapted to be mounted upon the neck and provided with a locking-hook, and also having a lining whereby said stopper may be hermetically sealed to the neck, said locking-hook being adapted to engage with the inwardly-extending lug of the neck and be retained in engagement therewith by said keepers, and sealing-tabs formed on the neck and the stopper and adapted to be securely fastened together so as to seal the bottle, substantially as set forth.

7. In a bottle of the class described, the combination with the neck thereof provided with an inwardly-extending lug and having a series of inwardly-projecting pins arranged in different planes, said pins being adapted to prevent the insertion within the neck of a stopper after the original stopper has been removed therefrom, said neck being further provided with a series of keepers, of a stopper adapted to be mounted upon the neck provided with a locking-hook and also having a lining whereby said stopper may be hermetically sealed to the neck, said locking-hook being adapted to engage with the inwardly-extending lug of the neck and be retained in engagement therewith by said keepers, a sealing-tab formed integrally with the stopper and projecting therefrom, and a sealing-tab formed integrally with the neck and corresponding with the sealing-tab of the stopper, said tabs being adapted to be securely fastened together so as to seal the bottle, and be fractured to permit opening of the latter, substantially as set forth.

8. In a bottle of the class described, the combination with the neck thereof provided with an inwardly-extending lug, and having a series of inwardly-projecting pins arranged in different planes, said pins being adapted to prevent the insertion within the neck of a stopper after the original stopper has been removed therefrom, said neck being further provided with a series of keepers, of a stopper adapted to be mounted upon the neck and provided with a locking-hook, and also having a lining whereby said stopper may be hermetically sealed to the neck, said locking-hook being adapted to engage with the inwardly-extending lug of the neck and be retained in engagement therewith by said keepers, said stopper being further provided with a plurality of fracture-grooves, a sealing-tab formed integrally with the stopper, and a sealing-tab formed integrally with the neck and corresponding with the sealing-tab of the stopper, the latter being adapted to be seated and securely fastened upon the sealing-tab of the neck, whereby the bottle is sealed, substantially as set forth.

9. In a bottle of the class described, the combination with the neck thereof provided with an inwardly-extending lug, the lower side of which is beveled, and having a series of inwardly-projecting pins arranged in different planes, said pins being adapted to prevent the insertion within the neck of a stopper after the original stopper has been removed therefrom, said neck being further provided with a series of keepers, of a stopper adapted to be mounted upon the neck and provided with a locking-hook the upper side of which is beveled to correspond with the beveled lower side of the inwardly-projecting lug, and also having a lining whereby said stopper may be hermetically sealed to the neck, said locking-hook being adapted to engage with the inwardly-extending lug of the neck and be retained in engagement therewith by said keepers, said stopper being further provided with a plurality of fracture-grooves, a sealing-tab formed integral with said stopper, and a sealing-tab formed integral with the neck and corresponding with the sealing-tab of the stopper, the sealing-tab of the latter being adapted to be held and securely fastened upon the sealing-tab of the neck, whereby the bottle is sealed, substantially as set forth.

594,566. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Mar. 23, 1895. Serial No. 542,867. (No model.)



Claim.—1. In a printing-machine, the combination with an impression-cylinder having a rising-and-falling motion, guide or lifting fingers thereon, a cam rising and falling with and also movable relatively to the cylinder, and a fixed projection or pin on the framework for operating said cam, substantially as described.

2. In a printing-machine, the combination of an impression-cylinder having a rising-and-falling motion, a cam pivotally connected therewith, the pivot of said cam rising and falling with said cylinder, lifting-fingers on said cylinder, and a fixed pin or projection on the framework for connection with said cam to move the same on its pivot and operate the lifting-fingers, substantially as described.

3. The combination with a two-revolution cylinder, and the slotted T-head of its gripper-shaft, of two pins, one for closing and the other for opening the grippers during alternate revolutions of the cylinder, pivoted arms for carrying said pins, said arms having their axes of motion parallel to the axis of the cylinder, and mechanism provided with an elastic or yielding element for rocking said arms to move said pins into and out of positions wherein they operate said gripper-shaft, and whereby said pins slide over or pass a misplaced T-head, substantially as described.

4. The combination with a two-revolution cylinder, and the slotted T-head of its gripper-shaft, of two pins, one for closing and the other for opening the grippers during alternate revolutions of the cylinder, pivoted arms for carrying said pins, shafts carrying said arms, said shafts being parallel to the axis of the cylinder, second arms on said shafts, and cam-operated means provided with an elastic or yielding element for rocking said arms and shafts to move said pins into and out of position for operating said gripper-shaft, and whereby the said pins slide over or pass a misplaced T-head, substantially as described.

5. The combination of a rising-and-falling two-revolution cylinder, boxes in which the shaft of said cylinder is journaled and by means of which the cylinder is lifted and lowered, a frame carried by one of said boxes, a rock-shaft journaled in said frame parallel to the axis of the cylinder or nearly so, grippers on said cylinder, connections from said rock-shaft for operating said grippers, a brake-wheel on said cylinder, a second shaft in said frame driven from the cylinder, and connections from said second shaft for rocking said rock-shaft and for controlling said brake-wheel, substantially as described.

6. The combination of a reciprocating form-carrier, two impression-cylinders alternately rising from and falling to position for connection with said carrier to take impressions and one transferring the sheets to the other, a toothed gear-segment fixed on one of said cylinders, a toothed gear-segment movable circumferentially of the other of said cylinders, a spring normally pressing said movable segment against a stop on said cylinder, and mechanism for throwing off impressions, at which time said movable segment is moved circumferentially of its cylinder when in mesh with said fixed segment, substantially as described.

7. In a printing-machine, the combination of an impression-cylinder, the slotted T-head of the gripper-shaft, two pins borne by pivoted arms for operating said head, cam-controlled mechanism for rocking said arms on their pivots, said mechanism containing a spring which during normal operation of the mechanism exerts substantially the same force and keeps the pin-moving mechanism against the cam or cams, substantially as described.

594,567. CHANGE-SPEED GEARING. SEYMOUR K. SEELYE, Chicago, Ill., assignor of one-third to Poole & Brown, same place. Filed May 1, 1895. Serial No. 547,730. (No model.)



Claim.—1. A change-speed gear comprising a fixed shaft, an internally-toothed gear-ring, a central gear-pinion mounted to turn and slide longitudinally on said shaft, a rotative annular part provided with intermediate gear-wheels intermeshing with said internal gear-teeth and central gear-pinion and means for locking said central gear-pinion to the shaft.

2. A change-speed gear comprising a fixed shaft, an internally-toothed gear-ring, a central gear-pinion mounted to turn and slide longitudinally on said shaft, a rotative annular part provided with intermediate gear-wheels intermeshing with said internal gear-teeth and central gear-pinion and means for locking said central gear-pinion to the shaft or to the rotative annular part as desired.

3. A change-speed gear comprising a fixed shaft, an internally-toothed gear-ring, a central gear-pinion mounted to turn and slide longitudinally on said shaft, a rotative annular part provided with intermediate gear-wheels intermeshing with said internal gear-teeth and central gear-pinion and means for locking said central gear-pinion to the shaft comprising interlocking clutch projections on said central gear-pinion and shaft.

4. A change-speed gear comprising a fixed shaft, an internally-toothed gear-ring, a central gear-pinion mounted to turn and slide longitudinally on said shaft, a rotative annular part provided with intermediate gear-wheels intermeshing with said internal gear-teeth and central gear-pinion and means for engaging said central gear-pinion with the shaft and with said rotative annular part comprising clutch members on said central pinion and on the shaft and rotative annular part.

5. A change-speed gear comprising a fixed shaft, an internally-toothed gear-ring, a central gear-pinion mounted to turn and slide longitudinally on said shaft, a rotative annular part provided with intermediate gear-wheels intermeshing with said internal gear-teeth and central gear-pinion, and oppositely-facing clutch projections on said central gear and corresponding clutch projections on the shaft and rotative annular part whereby said central gear may be locked to either the shaft or rotative part as desired.

6. A change-speed gear comprising a fixed shaft, an internally-toothed gear-ring, a central gear pinion mounted to slide and turn longitudinally on said shaft, a rotative annular part mounted on the shaft and provided with annularly-arranged bearing-studs, a detachable annular flange rigidly secured to the said bearing-studs, a plurality of intermediate gears journaled upon said studs and intermeshing with the toothed gear-ring and with the central gear-pinion, oppositely-facing clutch projections on the said central gear-pinion, clutch projections on the rotative part adapted to interlock with one set of clutch projections on the said pinion and clutch projections on the said shaft adapted to interlock with the other set of clutch projections on said central pinion.

7. A change-speed gearing, comprising a fixed shaft, a rotative part journaled on said shaft, planet-gears arranged concentrically about the shaft on said rotative part, an internally-toothed gear-ring surrounding said planet-gears and intermeshing therewith, smooth annular bearing-surfaces on said gears and gear-ring affording a roller-bearing for the latter; an inner sleeve surrounding the shaft and provided with exterior teeth intermeshing with the planet-gears, said sleeve being movable endwise of the shaft, and means for alternately interlocking said sleeve with the rotative part or shaft according to the position of the sleeve on the latter, substantially as described.

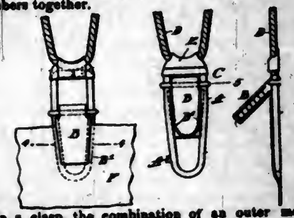
8. In a change-speed gearing for vehicle-wheels, the combination with the shaft or axle, and the wheel-hub, of a plurality of planet-gears journaled on said hub concentrically about the shaft; an internally-toothed gear-ring surrounding said planet-gears and intermeshing therewith, smooth annular bearing-surfaces on said gears and gear-ring affording a roller-bearing for the latter; an inner sleeve surrounding the shaft and provided with exterior gear-teeth intermeshing with the planet-gears, said sleeve being movable endwise of the shaft; interlocking recesses and projections on said hub and sleeve, other interlocking recesses and projections on said shaft and sleeve, and means for moving the sleeve endwise of the shaft to alternately interlock with the axle or shaft, substantially as described.

9. In a change-speed gearing for vehicle-wheels, the combination with the axle or shaft and the wheel-hub journaled thereon of an integral annular flange on said hub; a detachable annular flange rigidly secured to the integral flange, a plurality of planet-gears journaled between said flanges concentrically about the shaft; an interiorly-toothed sprocket-ring surrounding said gears and intermeshing therewith; an inner sleeve provided with exterior teeth intermeshing with said gears; clutch-teeth on said sleeve adapted to interlock with corresponding teeth rigid with said hub; interlocking recesses and projections on the sleeve and shaft; and means for moving the sleeve endwise on the shaft to alternately interlock the same with the hub or shaft, said sleeve being provided at its inner end with an annular recess of larger diameter than the shaft; a tubular extension on the wheel-hub projecting into the said recess; bearing-balls seated in the end of said tubular extension, and a cone on the shaft within the recess adapted to engage said balls, substantially as described.

594,568. CLASP. ALFRED SHERLOCK, Jersey City, N. J. Filed Mar. 22, 1897. Serial No. 628,593. (No model.)

Claim.—1. A clasp comprising the combination of two members, one member having an open face whose sides converge at or toward one end forming gripping-surfaces, the other member having cooperating gripping-surfaces, the said members being so connected as to have their gripping-surfaces located in a common plane with the fabric clasped between them, one or both of said members being laterally spring-acting to provide for a yielding action between the gripping-jaws of the two members.

2. In a clasp, the combination of an outer member having an open face whose sides form gripping-surfaces and are inclined convergently from their upper to their lower parts, a supporting webbing or cord attached to the upper end of this member, an inner member having cooperating gripping-surfaces formed to fit between the inclined gripping-surfaces of the outer member, and means for connecting the two members together.



3. In a clasp, the combination of an outer member having straight interior gripping-jaws formed by its sides inclined convergently from their upper to their lower parts, a supporting webbing or cord attached to the upper end of this member, an inner member having exterior gripping-jaws at its inclined sides formed to fit between the inclined jaws of the sides of the outer member and having a hole formed through its upper end, and a wire connection arranged in said hole, constituting a hinge for said member and formed to slide on the upper parts of the sides of the outer member.

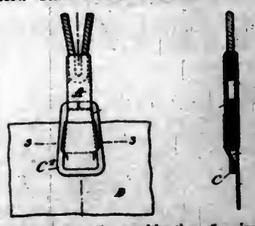
4. In a clasp, the combination of an outer member made of wire formed with a bar at its upper end and sides extending therefrom inclined in straight lines inwardly at their lower parts, a supporting webbing or cord attached to the top bar of this member, an inner flat member having straight inclined grooved sides constituting with the inclined sides of the outer member the gripping-jaws of the clasp, and means for connecting the two members together.

5. In a clasp, the combination of an outer member made of wire formed with a bar at its upper end and sides extending therefrom inclined in straight lines inwardly at their lower parts, a supporting webbing or cord attached to the top bar of this member, an inner flat member having straight inclined grooved sides constituting with the inclined sides of the outer member the gripping-jaws of the clasp, and a connection between the upper end of the inner member and the sides of the outer member.

6. In a clasp, the combination of an outer member made of wire formed with a bar at its upper end and sides extending therefrom inclined inwardly at their straight lower parts, a supporting webbing or cord, a metal sleeve for connecting the webbing or cord to the top bar of this member, an inner flat member having straight inclined grooved sides constituting with the inclined sides of the outer member the gripping-jaws of the clasp, and a wire passed through a lateral hole formed in the upper end of the inner member and bent to embrace the sides of the outer member.

7. In a clasp, the combination of an outer member made of wire formed with a bar at its upper end and sides extending therefrom inclined inwardly at their lower parts, which join together in a loop, the bar at the upper end being divided at its central part thereby affording elasticity to the sides, a supporting webbing or cord, attached to the top bar of this member, an inner flat member having inclined grooved sides constituting with the inclined sides of the outer member the gripping-jaws of the clasp, and a connection between the upper end of the inner member and the sides of the outer member.

594,569. CLASP. ALFRED SHERLOCK, Jersey City, N. J. Filed Mar. 22, 1897. Serial No. 628,581. (No model.)



Claim.—1. In a clasp, the combination of an inner member having its sides grooved and divergently inclined toward its lower end, a supporting webbing or cord attached to its upper end, the outer member consisting of an open wire loop whose sides are inclined correspondingly to the inclined sides of the inner member and means for connecting the two members together to allow the outer member to swing away from the inner member for the admission of a fabric between them, to be brought together with the counterparts of the gripping-jaws in one plane to grip the fabric between them, and to be free to slide with the fabric, thereby firmly gripping it without adding to its initial distortion.

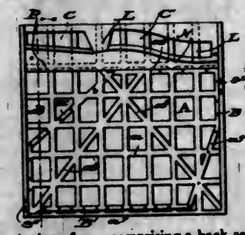
2. In a clasp the combination of an inner member having exterior gripping-surfaces formed by its sides inclined divergently from their upper to their lower parts, a supporting webbing or cord attached to the upper end of this member, an outer member having interior gripping-surfaces at its sides correspondingly inclined to fit over the inclined jaws of the sides of the inner member, said inner member having a slot laterally formed through it at its upper part, and a pin or bar at the upper end of the outer member arranged to slide in said slot.

3. In a clasp, the combination of an inner member having the sides divergently inclined downwardly and grooved, and a slot formed transversely through the upper part, a supporting cord or device attached to the upper end of the inner member and an outer member formed of a piece of wire with a bar at its lower end, two inclined sides corresponding to the inclined sides of the inner member and a bar at its upper end located in the transverse slot of the inner member.

4. In a clasp, the combination of two members one of which is supported and having exterior gripping-surfaces, and the other one having an open face whose sides form gripping-surfaces and attached thereto so as to partly surround it, the interlocking surfaces of said members being inclined and diverging from their upper to their lower parts, one or both of the members being spring-acting to provide for yielding between the inclined sides, the said outside member being free to slide on and swing away from the inner supported member when in its upper position thereon.

5. In a clasp the combination of an inner member having exterior gripping-jaws formed by its sides inclined divergently from their upper to their lower parts, a supporting webbing or cord attached to the upper end of this member, an outer member consisting of an open wire loop whose sides are correspondingly inclined to fit over the inclined jaws of the sides of the inner member, said inner member having a slot laterally formed through it at its upper part, and a pin or bar at the upper end of the outer member arranged to slide in said slot, the bar at the upper end being separated at its central part thereby affording elasticity to the sides.

594,570. FRAME FOR PIANOS. WILLIAM SIEBEL, Stade, Germany. Filed Jan. 25, 1897. Serial No. 620,603. (No model.)



Claim.—1. A piano-frame comprising a back section formed of rectangularly-disposed cross-bars and diagonal bars, an integral vertical flange extending around three sides of the back section, a cross-flange connecting the side flanges intermediate the length of the same, a tuning-pin board secured in the frame outside of and abutting against the cross-flange, and a top section secured to the back section, substantially as described.

2. A piano-frame comprising parallel bars and an integral exterior stiffening-flange embracing three sides of the same, a cross-flange B^2 and a top flange P, connecting the side flanges, the cross-bars extending beneath the top flange, a tuning-pin board secured in the receptacle formed by the extending ends of the bars, the cross-flange B^2 and the top flange P and openings in the top plate through which the tuning-pins project, substantially as described.

3. A piano-frame comprising a rectangular exterior flange, a skeleton-frame plate contained therein and a superposed plate S, having an L-flange to fit the side of one of the exterior plates and overlie the skeleton-frame plate, substantially as described.

594,571. TRACK-CLEANER. EDWARD W. SIKES, Fort Assiniboine, Mont., assignor of one-half to William D. Davis, same place. Filed July 21, 1897. Serial No. 645,415. (No model.)

Claim.—1. In a track cleaner, the combination with a suitable platform provided with wheels, and adapted to run upon a track, of a transverse shaft mounted in suitable bearings at the rear of the platform, and provided with means for gearing the same with any suitable source of power to rotate the shaft, a miter gear-wheel upon the transverse shaft, a longitudinally-extending shaft mounted in suitable bearings upon the platform, and provided with a miter gear-wheel at each end, and a fly-wheel and crank, the rear gear-wheel being adapted to engage with the gear-wheel on the transverse shaft, a post mounted near the front of the platform, a longitudinally-extending arm pivoted thereto, and provided at its forward end with snow-knives, and passing through suitable guides near the rear of the machine, a pitman connection between the said rod and crank on the longitudinally-extending shaft, whereby said bar is rocked vertically, causing the knives to cut or loosen the snow when the shaft is rotated, and means for removing the snow from the track, after it has been loosened by the knives, substantially as and for the purpose set forth.

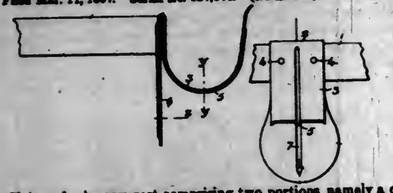


2. In a device of the character described, the combination with a suitable platform provided with wheels, and adapted to run upon a track, of a transverse shaft mounted in suitable bearings at the rear of the platform, and provided with means for gearing the same with any suitable source of power to rotate the shaft, a miter gear-wheel upon the shaft, a longitudinally-extending shaft mounted in suitable bearings upon the platform, and provided with gear-wheels at each end, and a fly-wheel and crank, the rear gear-wheel being adapted to mesh with the gear-wheel on the transverse shaft, a miter gear-wheel mounted upon the platform, and adapted to mesh with the gear-wheel on the front end of the longitudinal shaft, a crank-arm mounted upon said gear-wheel, a post mounted upon the forward end of the platform, a longitudinally-extending arm passing through said post and provided at its front end with a snow-shovel, and having its rear end connected to the crank-arm on the gear-wheel, so that the shovel is laterally vibrated to remove the snow from the track when the transverse shaft is turned, and means for breaking or loosening the snow, so that the shovel can readily remove the same, substantially as and for the purpose set forth.

3. In a device of the character described, the combination with a suitable platform provided with wheels, and adapted to run on a track, of a transverse shaft mounted in suitable bearings at the rear of the platform, and provided with means for gearing the same with any suitable source of power to rotate the shaft, the miter gear-wheel mounted upon the shaft, a longitudinally-extending shaft mounted in suitable bearings upon the platform, and provided with miter gear-wheels at each end thereof, and a fly-wheel and crank, the rear gear-wheel being adapted to engage with the gear-wheel on the transverse shaft, a post mounted near the front of the platform, a longitudinally-extending arm pivoted therein, and provided at its forward end with cutting-knives, and passing through a suitable guide near the rear of the machine, a pitman connection between the rod and the crank on the longitudinal shaft, whereby said bar is rocked vertically to loosen the snow, a gear-wheel mounted upon the platform, and adapted to mesh with a gear-wheel on the front end of the horizontal shaft, a crank-arm upon the gear-wheel, a longitudinally-extending arm passing through the post, and provided at its front end with

a snow-shovel, and having its rear end connected with the crank-arm on the gear-wheel, whereby said arm is caused to vibrate laterally, to cause the shovel to throw the snow from the track, at either side thereof, after the same has been loosened by the knives, substantially as and for the purpose set forth.

594,572. ARM-REST. WILLIAM M. SLAVIK, St. Louis, Mo. Filed Mar. 11, 1897. Serial No. 627,053. (No model.)



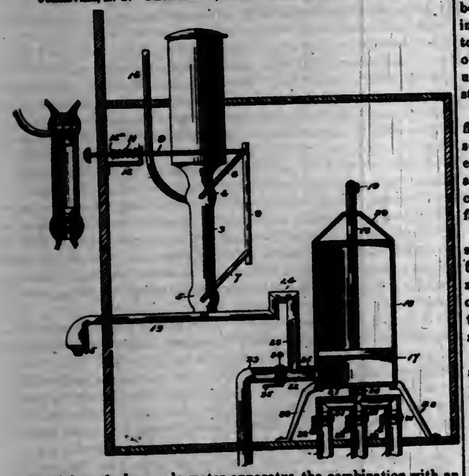
Claim.—1. An arm-rest comprising two portions, namely a concave portion or rest proper, and a second portion forming a continuation of the concave portion and adapted to rest or bear against the body of the wearer, the whole being secured to a strap passed about the waist of the wearer, substantially as set forth.

2. An arm-rest comprising a concave portion or rest proper, a hook forming a part of the rest, and adapted to be passed over the edge of a suitable strap and secured to the body of the wearer, substantially as set forth.

3. An arm-rest comprising a concave portion or rest proper, a hook forming a part of the same, an expanded extension forming a part of the wall of the hook which is adjacent to the body, the hook being adapted to be passed over the edge of a suitable strap and secured to the body of the wearer, substantially as set forth.

4. An arm-rest comprising a concave portion or rest proper, a reinforcing-rib formed along the under surface of the same, a hook forming a continuation of the concave portion, said hook adapted to be passed over the edge of a suitable strap, an expanded extension forming a continuation of the wall of the hook which comes adjacent to the body, said expanded extension forming a distributing-surface for the load imparted thereto by the weight of the arm in the rest, and extending below the base of the concave portion, and a rib formed along the wall of the expanded portion and the wall of which it is an extension on that side which is nearest the body, substantially as set forth.

594,573. SODA-WATER APPARATUS. WALTER B. SMITH, St. Johnsville, N. Y. Filed Mar. 6, 1897. Serial No. 626,238. (No model.)

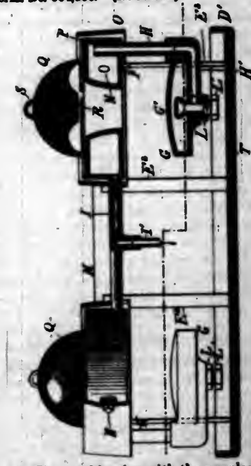


Claim.—1. In a soda-water apparatus, the combination with an ordinary syrup-jar, of a tube or cylinder communicating therewith, valves located in the opposite ends of said tube or cylinder, and means for operating the valves; together with a vent-tube opening into the cylinder at the upper valve; and located so that the vent-tube will be closed when the valve is open, and opened when the valve is closed, substantially as shown and described.

2. In a soda-water apparatus, the combination with the discharge-pipe connected to the syrup jars, of a pump having an outlet-pipe connected to the discharge-pipe by an interposed elbow-coupling, said outlet-pipe having a check-valve adjoining the cylinder, and a series of supply-pipes extending from tanks and communicating with the lower end of the cylinder of the pump, said supply-pipes having cut-off valves and operating rods extending therefrom, substantially as shown and for the purpose set forth.

3. In a soda-water apparatus, the combination with the discharge-pipe connected to the several syrup-jars, a pump having an outlet-pipe connected to the discharge-pipe, said outlet-pipe having a check-valve adjoining the cylinder, a waste-pipe connected to the intermediate portion of the outlet-pipe and having a valve therein; together with a series of supply-pipes communicating with the lower end of the cylinder, valves located in the supply-pipes, and operating-rods connected with the several valves, substantially as shown and for the purpose set forth.

594,574. COMPOUND GENERATIVE BURNER. REGINALD R. STAFFORD, Hoboken, N. J., assignor, by mesne assignments, to the United Fuel Gas Generator Company, of New Jersey. Filed Aug. 26, 1896. Serial No. 604,160. (No model.)



Claim.—1. The combination with the annular generating-chamber having the central opening expanded upwardly, of the jet directing its flame into the center thereof, and a circular concaved deflector having a flat central flame-breaking surface and movably located over the central opening to return the flame to both the central and upper walls of the chamber and to shape its outward course, substantially as set forth.

2. A substantially semispherical deflector having a central, flat, flame-breaking surface, a concave annular groove extending from said surface to the edge of the deflector, and suitable supports at said edge in combination with an annular generating-chamber upon which said deflector rests, and a gas-jet directing its flame through the central opening of said chamber and against said flame-breaking surface for the purpose set forth.

3. The combination with the primary generating-chamber, of the secondary generating-chamber to which heat from the former is deflected, the said secondary chamber being provided with a gas-outlet and with a vapor-inlet consisting of a hooded rose located under said outlet and having lateral openings under the hood which discharge the vapor into the chamber at an angle to the outflow of gas, as and for the purpose set forth.

4. The combination with the secondary generating-chamber suitably heated and provided with a central discharge-outlet, of the vapor-inlet projecting into said chamber under said outlet and provided with lateral openings for entering the vapor at an angle to the discharge, as and for the purpose set forth.

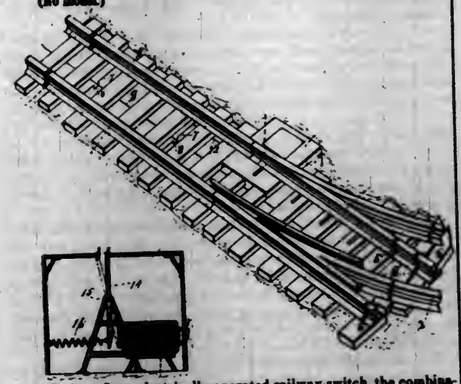
5. A regenerative oil-burner consisting of an annular primary generating-chamber having an oil-inlet at the bottom of one side and a vapor-outlet at the top of the opposite side, a secondary generating-chamber provided with a jet discharging into the central space of the primary chamber, a pipe leading from said outlet to an inlet at the bottom of the secondary chamber, a laterally-discharging rose in the secondary chamber in which said pipe terminates, said rose being located under the jet-opening, and a deflector over the opening of the primary chamber and constructed to break up the jet of flame issuing from the secondary chamber and direct it against the primary chamber, substantially as and for the purpose set forth.

6. A regenerative oil-burner, consisting of the annular primary generating-chamber F, having an inlet at one side and an outlet-pipe discharging from the opposite side, a secondary generating-chamber G, having an opening in the center of its bottom and a jet-opening in the center of its top, and having a duct H', cast integral therewith and constructed for connection to the outlet-pipe from chamber F, and a rose-plug fitted to the opening in the bottom of the secondary chamber and communicating with said duct, all substantially as and for the purpose set forth.

7. The circular generating-chamber G, suitably heated and having a jet-opening at the center of its top, a screw-threaded opening at the center of its bottom, an inlet-duct cast integral with its bottom wall and opening into the side of said bottom opening, and the screw-threaded rose-plug L, provided with the stopper L', and having a lateral opening registering with said duct, substantially as and for the purpose set forth.

8. The combination with the annular primary generating-chamber provided with an oil-inlet, of the secondary generating-chamber connected therewith and located under the central space of the primary generator and having a discharge or jet opening in alinement with the center of said space, and a deflector above the annular chamber provided with a flat surface located over said space for deflecting the heat downward to the secondary chamber and for breaking up the flame and directing it against the central wall of the annular chamber for the purpose set forth.

594,575. ELECTRICALLY-OPERATED SWITCH. WALTER D. STANTON, Springfield, Mass. Filed Jan. 14, 1897. Serial No. 619,165. (No model.)



Claim.—In an electrically-operated railway-switch, the combination with insulated sections of the main and siding rails, of a pivoted switch-rail movable in a horizontal plane, an electromagnet located beneath and at a distance from the free end of the switch-rail and having electrical connection with one of the insulated rail-sections and also with one of the main or siding rail sections, a lever moving in a vertical plane and interposed between said magnet and switch-rail, said lever being fulcrumed at an intermediate point in its height and having a loose connection at its upper end with the switch-rail, and a retracting-spring connected to said lever, substantially as and for the purpose described.

594,576. LUBRICANT. RAYMOND C STEWART, Huntingdon, Pa., assignor of one-third to Henry Clay Claisten, same place. Filed Apr. 21, 1897. Serial No. 633,117. (No specimens.)

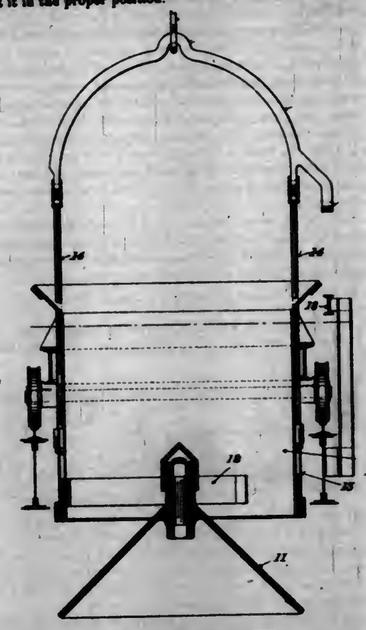
Claim.—The herein-described composition of matter to be used as a cooling agent and lubricant, consisting of soap, tallow, plumbago, white lead, gum-camphor, resin, and table-salt, in the proportions specified.

594,577. BLAST-FURNACE. MAXIMILIAN M. SUPPE, Lorain, Ohio. Filed July 28, 1896. Serial No. 600,764. (No model.)

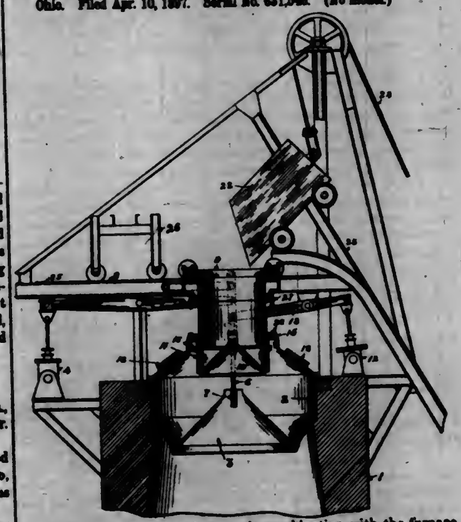
Claim.—1. A charging-car for blast-furnaces, comprising a frame supporting a shell and a bottom member a distance below the shell whereby there is an opening between the bottom and the shell and a vertically-movable shell adapted to close the opening and open it for the discharge of the charge.

2. In a charging-car for blast-furnaces, a shell, a bottom, an annular orifice between the two and a vertically-movable shell adapted to close the orifice and open it for the emptying of the charge.

3. In combination with a charging-car of the class described, a bail on the operating member upon said car, a fixed stop adjacent to the track upon which the car runs and adapted to engage the bail and set it in the proper position.



594,578. BLAST-FURNACE. MAXIMILIAN M. SUPPE, Lorain, Ohio. Filed Apr. 10, 1897. Serial No. 631,546. (No model.)



Claim.—1. In a blast-furnace, in combination with the furnace, a distributing-car located permanently at the top of the furnace but movable upon a horizontal track, a bell forming the bottom of said car, an annular orifice between said bell and the side of the car, a vertically-movable shell adapted to close said orifice, a gas-seal extending from the furnace to the vertically-movable shell, an inclined track extending downward from above the distributing-car, a skip-car upon said track and suitable means for operating the several parts.

2. In a blast-furnace, in combination with the body of the furnace, a gas-seal covering the hopper above the furnace-bell, a vertically-movable shell passing through an orifice in the seal, a distributing-car whose body extends upward from said vertically-movable

shell, a second bell supported by and below said distributing-car body and an inclined track extending downward from a point above said distributing-car, a skip-car upon the track, and means for operating the several parts.

3. In a blast-furnace, in combination with the furnace, a distributing car supported above the hopper of the same, a sealing member inclosing the space above the hopper, a vertically-movable shell surrounding the distributing-car body and adapted to retain the load in the distributing-car and means of operating the several parts.

4. In a blast-furnace in combination with the furnace, a track extending across the top of the furnace, and a distributing-car adapted to travel upon said track, a secondary track of wider gage than and parallel to, and inclosing the first-mentioned track and both tracks passing centrally over the furnace, and a movable crane carried on the second track.

5. In a blast-furnace-charging car, in combination with the body of the car having a fixed shell, and the vertically-movable shell, the adjustable ring 20 formed of separate sections and secured to one of said shells in such manner as to closely engage the other shell.

594,579. DRAFT MECHANISM FOR RAILWAY-CARS. James B. Thomas, St. Louis, Mo. Filed Feb. 8, 1897. Serial No. 622,543. (No model.)



Claim.—1. The combination with a car, and a draw-head, of a laterally swinging stirrup supporting the shank or draw-bar of the draw-head and composed of vertical sides pivoted at their upper ends to the car, and a transverse bottom piece extending beneath the shank or draw-bar of the draw-head and hinged at its ends to the lower terminals of the sides, substantially as described.

2. The combination with a car provided in its end sills with tapering openings, a draw-head, and pivots located at the upper ends of the tapering openings, of a jointed supporting-stirrup suspended from the said pivots and receiving the shank or draw-bar of the draw-head, the sides of the stirrup being arranged in the tapering openings, and the latter being of sufficient width to permit the stirrup to swing both transversely and longitudinally of the car, substantially as described.

3. The combination with a car, and a draw-head, of a stirrup depending from the car, receiving the shank or draw-bar of the draw-head and composed of sides pivoted at their upper terminals and provided at their lower ends with pins, and the horizontal bottom piece having its ends bifurcated to receive the sides and curved to engage the pins, substantially as and for the purpose described.

4. The combination with a car, of the longitudinal draft-irons arranged in pairs, provided with ways and having upper horizontal arms extending forward or outward, a draw-head having its shank or draw-bar located beneath the horizontal arms of the draft-irons, a draft-bolt connected with the shank or draw-bar, a spring disposed on the draft bolt, and follower plates or blocks receiving the draft-bolt and arranged in the ways of the draft-irons, substantially as described.

5. The combination with a car, of longitudinal draft-irons composed of rectangular frames forming ways, and flanges arranged at the outer faces of the frames and provided with entrance-recesses, follower-plates arranged in the ways of the draft-irons and adapted to be passed through the entrance openings or recesses of the flanges, a draw-head, a draft-bolt connected with the shank or draw-bar of the draw-head and with the follower-plates, and a spring disposed on the draft-bolt between the follower-plates, substantially as described.

6. The combination with a car, of longitudinal draft-irons comprising central rectangular frames forming ways, and upper and lower horizontal arms extending forward and rearward from the top and bottom of the frame, follower-plates detachably arranged in said ways, and a draw-head connected with the follower-plates, substantially as described.

7. The combination with a car, of longitudinal draft-irons comprising central rectangular frames forming ways and provided at their outer faces with flanges having entrance-recesses, and upper and lower arms extending horizontally from the top and bottom of the frames, follower-plates arranged in said ways and adapted to be passed through the entrance-recesses, and bolts passing through the frames opposite the recesses, substantially as described.

8. In a device of the class described, a draft-iron composed of a central rectangular frame or portion forming a way and provided with entrance recesses or openings communicating with the ways and upper and lower arms extending horizontally from the top and bottom of the frame, substantially as described.

9. In a device of the class described, a draft-iron comprising a central rectangular frame forming ways, arms extending horizontally from the top and bottom of the frame, flanges extending around the rectangular frame and provided with recesses forming entrances to the said ways, the longitudinal strengthening-flange extending the entire length of the draft-iron, and the lug extending upward from the top of the same, substantially as described.

594,580. SELF-LOCKING SEAL. Emil Tyden, Chicago, Ill., assignor to John A. Johnson, same place. Filed Feb. 4, 1897. Serial No. 621,906. (No model.)



Claim.—1. In a seal, in combination with a chambered body, a securing device adapted to be inserted thereinto and an engaging device lodged unattached in the chamber and completely inclosed therein, such engaging device being a spring adapted to be encountered by the intruded securing device and to react automatically into engagement therewith.

2. In a seal, in combination with the chambered body, a securing device adapted to be inserted thereinto and to substantially close the aperture through which it is inserted; an elastically-operating catch lodged within the chamber adapted to engage the securing device back of its intruded end; a guard which detains the engaging end of the catch out of the path of the intruded securing device; said guard and catch being relatively movable and one of said parts being extended into the path of the intruded securing device and adapted to be encountered thereby and moved relatively to the other part to cause the disengagement of said parts to permit the catch to engage the securing device.

3. In a seal, in combination with a chambered body, a securing device adapted to be inserted thereinto and to substantially close the aperture through which it is inserted; an elastically-operating catch lodged within the chamber adapted to engage the intruded securing device; a guard which detains the engaging end of the catch out of the path of the intruded securing device, the catch being extended into the path of said intruded securing device and adapted to be encountered thereby and disengaged from the guard.

4. In a seal, in combination with a chambered body, a securing device adapted to be inserted thereinto, and when fully inserted to close the aperture through which it is inserted, an engaging device lodged unattached within the chamber and wholly inclosed thereby, such engaging device being adapted to be encountered by the intruding securing device, and to react automatically into engagement with the latter when so encountered.

5. In a seal, in combination with a chambered body, a securing device adapted to be inserted into the chamber and to fill the aperture through which it is thus inserted; and a spring which normally coils with its ends lapped lodged within the chamber, and a device within the chamber which holds the ends of the spring separated to permit the inserted securing device to pass between them, the locking device having an aperture back of its inserted end and adapted after entering between said ends to withdraw them from the separating device, whereby the spring may be coiled through said aperture.

6. In a seal, in combination with a chambered body having a throated neck whose throat constitutes the only access to the chamber, a securing device adapted to be inserted through such throat and to substantially fill the same; a spring coiled so that normally its ends lap lodged within the chamber; and a device fixed with respect to the chamber-wall adapted to hold the ends of the spring separated and on opposite sides of the throatway, the securing device having an aperture in its inserted portion at a distance back from the end equal to the diameter of the coiled spring, whereby, when inserted through the throatway, it passes between the separated ends and encounters the opposite side of the coil and pulls its ends off the separating device, whereby the ends lap through said aperture.

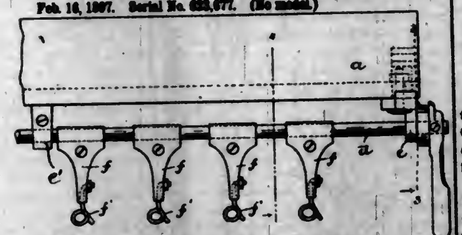
7. In a seal, in combination with the body having a shallow or flat chamber and a groove or channel transverse with respect to the flat chamber and a neck provided with a throatway corresponding to the cross-section of the groove or channel, such throatway constituting the only entrance into the chamber; a securing device adapted to be inserted through the throatway into the groove and to completely close the throatway when thus inserted, a spring coiled so that normally its ends lap lodged unattached in the flat chamber and adapted to extend on both sides of the plane of the groove; guards extending from the opposite sides of the throatway respectively adapted to hold the ends of the spring separated; the securing device having an aperture back of the end which is inserted through the throat a distance substantially equal to the diameter of the spring, whereby, upon its insertion through the throat, it passes between the separated ends and encounters the opposite side of the spring and pulls it off of the separating device and is engaged by the lapped ends of the spring through its aperture.

8. In a seal, in combination with the chambered body A, B, having transverse recesses, the securing device consisting of the strap having one end folded upon the other and the folded portion permanently secured in the transverse recess and having coinciding apertures within the chamber; the spring D coiled so that its ends lap, and lodged unattached within the chamber and having its ends separated by and bearing against the opposite sides of the folded strap, the opposite end of the strap being adapted to be inserted between the folds of the permanently-secured end, and provided with an aperture at a distance back from its end substantially equal to the diameter of the spring, whereby when thus inserted it passes between the separated ends and encounters the opposite side of the spring and disengages the separated ends and receives them lapped through its aperture.

9. In a seal, in combination with the chambered body A, B, having transverse grooves constituting a seat for the securing device, and a throatway leading from the seal-chamber; the securing device consisting of a strap folded upon itself at one end and notched longitudinally through the fold and having the coinciding apertures c^3 c^3 back of the notch, such folded end being lodged in the transverse grooves and permanently secured within the seal and extending therefrom, the outer portion of the strap having an aperture back of the outer end a distance approximately equal to the diameter of the coiled spring D, and adapted to coincide with the apertures c^3 c^3 when said end is inserted between the folded portions.

10. In a seal, in combination with the chambered body, the securing device consisting of a strap adapted to be inserted into such body and to close the aperture through which it is thus inserted and having an aperture in the inserted portion; a spring normally coiled so that its ends lap lodged within the chamber, and a device therein which holds the ends of the spring separated to permit the inserted securing device to pass between them and afterward dislodge them and receive the lapped ends through its aperture, said spring, when spread to separate its ends, being in contact at opposite sides with the edge walls of the chamber.

594,581. THREAD-GUIDE FOR SPINNING-MACHINES AND SUPPORT THEREFOR. Edward Whitton, Fall River, Mass. Filed Feb. 16, 1897. Serial No. 623,677. (No model.)



Claim.—1. In a spinning-machine, the combination of a series of thread-guides, a rod or shaft on which the said thread-guides are mounted, and a latch mechanism controlled by said shaft.

2. In a spinning-machine, the combination of a series of thread-guides, a rod or shaft on which said thread-guides are mounted, and a latch mechanism comprising a member affixed to and movable with the shaft, and an independently-movable complemental member or dog.

3. In a spinning-machine, the combination of a series of thread-guides, a rod or shaft supporting the same, a latch mechanism comprising a member affixed to and movable with the shaft, an independently-movable complemental member or dog, and a dog biasing device operated by movements of the shaft.

4. In a spinning-machine, the combination of a series of thread-guides, a rod or shaft supporting the same, shoulders affixed to said shaft, a dog independently mounted and formed to cooperate as described with said shoulders, and a spring-pressed arm having dog-controlling faces adapted to impart biasing pressure to said dog in different directions.

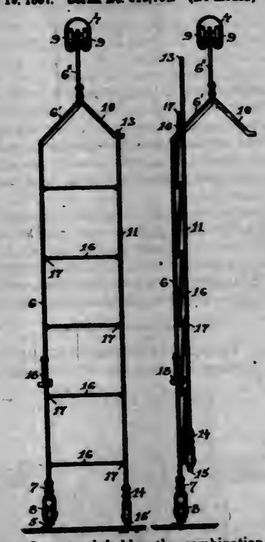
5. A thread-guiding arm comprising a body-section having at one end a socket to engage a supporting rod or shaft, and at the other end a recess, and a wire section bent at its outer end to form an eye and bent and threaded at its other end to form a bolt which passes through one of the walls of the recess and is provided with a clamping-nut.

6. A thread-guiding arm comprising a body-section made from a sheet-metal blank, one end of which is bent to partly embrace a supporting-shaft, while the other end is bent to form ears extending substantially at right angles with said shaft, a clamping member secured to said body-section, and a wire section secured between said ears.

7. A thread-guide comprising an arm or body section provided with an orifice, and a wire pigtail having its inner end bent and threaded and passed through said orifice in the arm, said end having a securing-nut.

8. A thread-guiding arm having a socket formed to embrace a supporting rod or shaft, said socket comprising the two separate curved portions 21 and 24 bolted together and being provided with a slot formed partly in each of said curved portions to receive a stop-stud on said rod, the said stud and slot permitting a limited oscillating movement of the arm on the rod.

594,582. LADDER. William Wildprett, Providence, R. I. Filed Jan. 19, 1897. Serial No. 619,761. (No model.)



Claim.—1. In a track-ladder, the combination with the upper track, and a supporting-truck, of the central support 6^3, the oblique 6', the bracket 10, the side supports 6 and 11, and the steps 16 pivotally connected with the two side supports, the roller 8, and the floor-rail 5, as and for the purpose described.

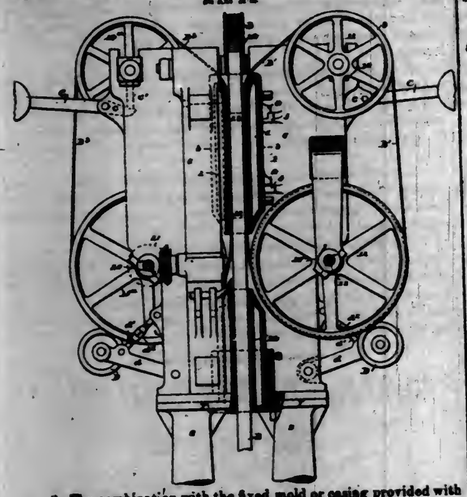
2. In a track-ladder, the combination with the floor-rail 5, the upper rail 4, the side support 6 of the ladder bent to form the oblique 6' and central support 6^3, and rollers 8 and 9, of the bracket 10, the side support 11, the roller 15 at the lower end of the support 11, and the steps 16 pivotally connected with the two side supports 6 and 11, whereby the ladder may be folded when not in use, as and for the purpose described.

594,588. CASTING APPARATUS. Frederick W. Wood, Baltimore, Md. Filed Feb. 15, 1897. Serial No. 623,502. (No model.)

Claim.—1. The combination with a fixed mold or casing provided with a vertical opening therethrough from end to end and with a chamber or chambers surrounding said opening, of thin metallic bands extending through the opening in the mold and flatly against its interior sides and jointly wholly covering the same, means for moving the bands downward through the mold and means for circulating a cooling medium through the surrounding chamber.

2. The combination with a fixed mold or casing provided with a vertical opening therethrough from end to end of rectangular form in cross-section and with a surrounding chamber or chambers, of four thin metallic bands extending downward through said opening and flatly over the four interior sides of the mold, means for moving said

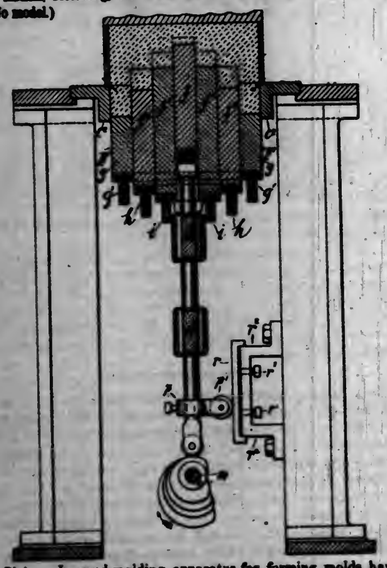
bands downward through the mold, and means for circulating a cooling medium through the surrounding chamber.



3. The combination with the fixed mold or casing provided with an opening therethrough from end to end, of the bands extending through said opening, and the rolls over which said bands pass, said rolls having their peripheral surfaces situated laterally beyond the respective interior sides of the mold; whereby the rolls will have a tendency to maintain the close contact of the bands against the interior sides of the mold.

4. The combination with the fixed mold or casing provided with a vertical opening therethrough from end to end forming flat interior faces rounded or curved outward at the upper end of the mold, of the bands passing downward through the mold and closely over the flat interior surfaces thereof; whereby the introduction of the molten metal into the upper end of the mold between the bands is facilitated.

594,584. APPARATUS FOR FORMING SAND MOLDS. STEPHEN J. ADAMS, Pittsburg, Pa. Filed Mar. 31, 1896. Serial No. 585,615. (No model.)



Claim.—In sand-molding apparatus for forming molds having different depths in the mold cavity, the combination of a pressing-pattern composed of several independent upwardly-movable pattern parts of different height, and a series of cams operating on the respective pattern parts, and having different lengths of strokes respectively and set so that their pressing action will commence at the same time and end at the same time, substantially as set forth.

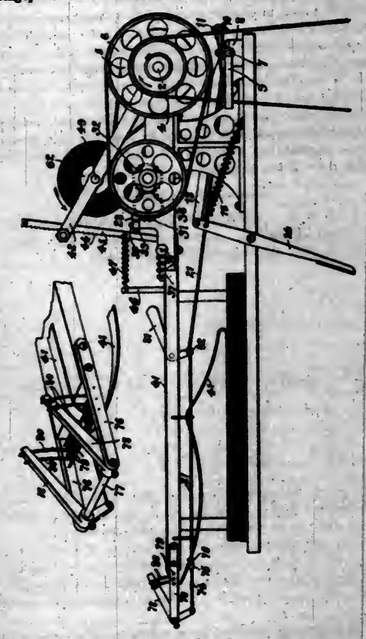
594,585. ELECTRIC-ARC LAMP. THOMAS R. ADAMS, Cleveland, Ohio. Filed Jan. 21, 1897. Serial No. 620,105. (No model.)



Claim.—1. The combination with a lamp-arm having a pin or projection thereon, of a carbon-guide constructed with a body portion adapted to permit the unobstructed passage of the carbon and terminating at one end in an arm adapted to engage the pin or projection on the lamp-arm, an upwardly and inwardly projecting finger projecting from said body portion so as to engage the carbon, substantially as set forth.

2. The combination with a lamp-arm having a pin or projection thereon, of a carbon-guide comprising an expansible body portion provided at one of its ends with an arm adapted to engage the pin or projection on the lamp-arm and fingers projecting upwardly and inwardly from said body portion, said fingers having pointed free ends to engage the carbon passing through said guide, substantially as set forth.

594,586. MACHINE FOR FOLDING AND WINDING STRIPS OF FLEXIBLE MATERIAL. ABRAHAM I. ADAMS and GEORGE E. HAWES, Bridgeport, Conn. Filed Jan. 20, 1897. Serial No. 619,904. (No model.)



Claim.—1. In a machine of the character described, the combination of the shaft against which the folding is effected, the collars mounted on said shaft and separated by a distance equal to the width of the folded strip, means for delivering the strip at a tension between said collars, and means for deflecting the folded strip at a tension around said shaft whereby the latter is closely hugged by said strip, substantially as set forth.

2. In a machine of the character described, the combination of the shaft against which the folding is effected, the folding-collars mounted on said shaft and separated by a distance equal to the width of the folded strip, means for delivering the unfolded strip between said collars, and means for drawing the strip between the collars and snugly around said shaft, whereby the edges are folded and caused to lie flat against the body of the strip, substantially as set forth.

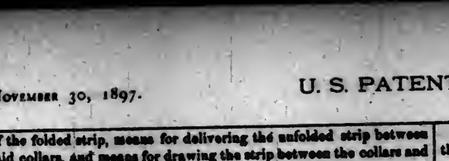
3. In a machine of the character described, the combination of the shaft, the collars secured thereon at a distance apart equal to the width of the folded strip, means for delivering the unfolded strip between said collars at a tension, and a pair of ironing-rolls through which the folded strip is passed, the location of such rolls with respect to said shaft being such that the folded strip will be deflected and caused to closely hug said shaft, substantially as set forth.

4. In a machine of the character described, the combination of the shaft, the adjustable collars secured thereon, the combined tension and guide device supported on the bed of the machine and whereby the strip is delivered at a proper tension and in the proper direction with respect to said collars, and the ironing-rolls through which the folded strip is passed, said rolls being capable of drawing the strip between the folding-collars and snugly against said shaft, substantially as set forth.

5. The combination of the frame which supports the winding devices, the head-blocks supported within said frame one of said blocks being tubular and the other block provided at its inner end with a threaded socket, while the inner ends of both blocks are beveled, the keeper-rings secured to the inner ends of each block, the fingers interiorly beveled at both ends and loosely connected at their bases to the keeper-ring attached to the tubular block and whereby said fingers may be capable of distention or contraction, and the spindle threaded at its inner end to engage with said threaded socket, substantially as set forth.

6. The combination of the extension from the bed supporting cross-wires over which the strip is delivered, the rock-shaft journaled within such extension at the end thereof and beyond said wires, the cranks secured at opposite ends of said rock-shaft and carrying U-shaped wires which are adapted to pass between said cross-wires when said cranks are lowered, one of said cranks having a depending portion whereby a bell-crank is formed, the belt-shifting appliances, and the rod connected to the depending portion of said bell-crank and to said appliances, substantially as set forth.

594,587. CHUCK. THOMAS R. ALMOND, Dunwoodie Heights, N. Y. Filed Sept. 4, 1897. Serial No. 650,568. (No model.)



Claim.—1. In a chuck, the combination of the contractor-shell B having internal sloping contact-faces *b b* that stand at angles to one another, with the jaws A A' &c. having external contact-faces *b b* that stand at the like angle to one another and that correspond and contact with the faces in the said shell, two of the faces of each jaw being in contact with two faces of the shell, and with means substantially as described for moving the jaws longitudinally, as specified.

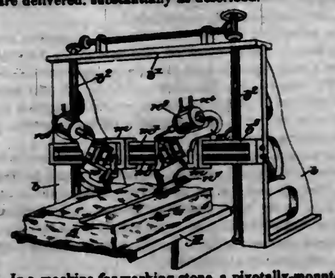
2. In a chuck, the combination of the contractor-shell B having internal contact-faces *b b* that stand at angles to one another, and a bevel-like connection *c* between said contact-faces, with the jaws A A' &c. having external contact-faces *b b*, and an external bevel-like connection between said faces, the contact-faces and bevel-like connection of said jaws corresponding and contacting in the rearmost position of the jaws with the contact-faces and bevel-like connection of the shell, all arranged so that two contact-faces *b b* of each jaw shall meet two contact-faces *b b* of the shell, and means substantially as described for moving the jaws longitudinally, as specified.

3. A chuck composed of a longitudinally-movable shell B, and means for moving it longitudinally, of a suitable spindle E carrying said shell, and of tapering angular jaws A A' &c. resting against said spindle and contained within said shell, the said jaws and the inner faces of said shell forming angular contact-faces *b b* and bevel connections *c*, as and for the purpose specified.

4. The combination in a chuck of a contractor-shell B having inner tapering flat contact-faces *b b*, with the jaws A A' &c. having corresponding outer flat contact-faces *b b* and with spiral springs *c c* interposed between said jaws and socketed therein, and with means substantially as described for moving the jaws longitudinally, as and for the purpose specified.

594,588. MACHINE FOR WORKING STONE. GEORGE L. RADEKA, Quincy, Mass. Filed Jan. 21, 1896. Serial No. 576,226. (No model.)

Claim.—1. In a machine for working stone, a work-support for the stone, a vibrating carrier, a tool yieldingly mounted thereupon, arranged to deliver a succession of blows in a straight line in the direction of said vibration, means to vibrate said carrier, and feeding mechanism to impart a relative feeding movement to said support and carrier, in line with the direction in which the impacts of said blows are delivered, substantially as described.



2. In a machine for working stone, a pivotally-mounted carrier, and means to reciprocally vibrate the same about its said pivot for dressing the stone, combined with one or more tools loosely mounted upon and to be vibrated by said carrier, said tools striking the stone in a rapid succession of short sharp blows, the dressing of the stone resulting solely from said blows, substantially as described.

3. In a machine for working stone, a pivotally-mounted carrier, and means to rapidly vibrate the same about its said pivot for dressing the stone, combined with a tool pivoted to and to be vibrated by said carrier, to strike a progressive series of rapid blows in the direction of said vibration, said tool having also a rotative movement about its own pivot, substantially as described.

4. In a machine for working stone, a vibrating carrier, a tool loosely mounted upon and to be vibrated by said carrier, and a retarding device to move said tool on said carrier as the tool is vibrated past said device, said tool being vibrated adjacent to and to be engaged by said retarding device, substantially as described.

5. In a machine for working stone, a carrier, a support in which the same is mounted to vibrate at an acute angle with the stone surface, and one or more tools loosely mounted upon the said carrier and means to rapidly vibrate said tools with a progressive movement relatively to the stone thereby to deliver a succession of blows following close upon each other across the stone upon the said stone surface, substantially as described.

6. In a machine for working stone, a vibrating carrier, one or more tools mounted thereupon, means to impart to the tools short, rapid vibrations in a progressive series relatively to the stone, thereby to deliver a succession of blows upon the stone surface, a support for the said carrier, and means for varying the position of the axis of said carrier on and with relation to its said support to vary the angle at which the blows are delivered by the tool upon the stone surface, substantially as described.

7. In a machine for working stone, a vibrating mounted carrier, a support for the same, one or more tools yieldingly mounted on said carrier, a cylinder and its piston connected with and to vibrate said carrier, substantially as described.

8. In a machine for working stone, a head, a carrier-shaft journaled therein, a carrier at one end of said shaft, and one or more tools yieldingly mounted on said carrier, a crank at the opposite end of said shaft, and a cylinder having its piston connected with and to vibrate said crank and its connected carrier, substantially as described.

9. In a machine for working stone, a work-support, a movable head arranged to travel across said work-support, and provided with a tool-carrier, and one or more tools mounted loosely thereupon to yield as they strike the stone, combined with a motor mounted upon and movable with said head and connected with and to operate said tool-carrier in a direction transverse to said travel, substantially as described.

10. In a stone-dressing machine, the combination with a cylinder and a piston reciprocated therein, of a tool-carrier, a tool freely rotatable therein, said tool having a smooth beveled edge, and connections between said piston and said carrier to vibrate the latter, said tool being free to turn in contact with the stone, substantially as described.

11. In a machine for working stone, a vibrating carrier, and one or more tools mounted thereon, a support for said carrier, means to vibrate the carrier, and means to lock the same against vibration, and a work-support, substantially as described.

12. In a machine for working stone, the combination with a vibrating swinging carrier, and a plurality of disk-like tools rotatably mounted in the same plane thereon, and means to actuate said tool-

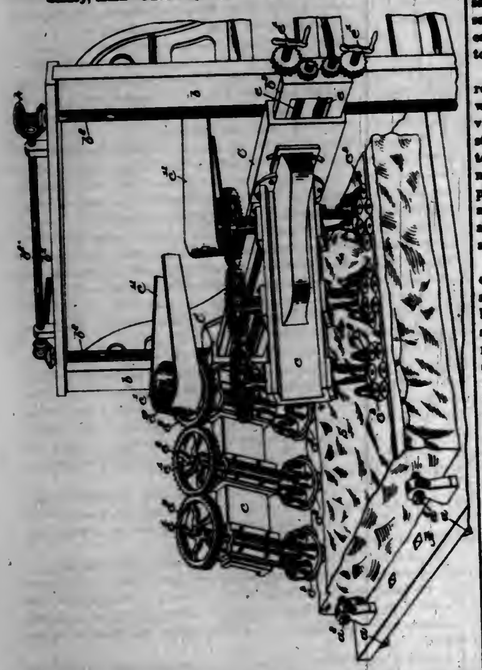
carrier, to deliver a rapid succession of blows, with impacts in one and the same straight line, of a work-support, and means to move the same relatively to said tool-carrier, substantially as described.

13. In a stone-dressing machine, the combination with a cylinder and a piston reciprocated therein, of a pivoted tool-carrier, a tool freely rotatable therein, said tool having a smooth beveled edge, and connections between said piston and said carrier to vibrate the latter about its pivot, substantially as described.

14. In a machine for working stone, a work-support, a tool-carrier, and means to impart a relative feeding movement thereto, combined with a tool mounted upon said carrier and movable in an arc substantially tangential to the surface of the stone, and means rapidly to vibrate said carrier, to deliver a rapid succession of blows, each having its impact at said tangential point of meeting the surface, substantially as described.

15. In a machine for working stone, a work-support, a tool-carrier, a tool carried thereby, means to impart continuous feeding movement relatively to said support and carrier, and means to impart at the same time to the latter a rapid succession of short vibrations in the direction of said feeding movement, to deliver thereby a series of rapid blows approximately in the plane of the dressed surface of the stone, substantially as described.

594,589. STONE-WORKING MACHINE. GEORGE L. RADDER, Quincy, Mass. Filed July 27, 1896. Serial No. 600,656. (No model.)



Claim.—1. A machine for working stone containing a work-support for the stone, and working mechanism comprising one or more yielding tools, and means to impart to the same a rapid combined forward-and-back and rising-and-falling movement, all in a plane oblique to the stone surface to cause said tools to rapidly and sharply strike the stone surface, the tool delivering one blow freeing itself from the stone before the next blow is struck, whereby the stone is cracked off by a rapid succession of sharp blows, and means to cause a relative feeding movement of said work-support and working mechanism in substantially the direction of the forward movement of said tool or tools at the time of delivery of said blows, whereby a finished surface presenting parallel substantially straight lines may be had, substantially as described.

2. A machine for working stone, containing a work-support for the stone, and working mechanism, comprising one or more yielding tools, means to impart to said tools a rapid repetition of combined forward-and-back and falling-and-rising movements all in one and the same plane oblique to the stone surface, to cause the said tools to rapidly and sharply strike the stone surface, said mechanism being arranged to deliver the impact of the blows substantially in the plane of the finished surface and in the coincident line therewith of said oblique plane, and means to cause a relative feeding movement of said work-support and working mechanism in the direction of said coincident line, whereby a finished surface presenting parallel substantially straight lines may be had, substantially as described.

3. A machine for working stone, containing a work-support for the stone, one or more freely-rotatable disk tools, means to revolve the same in an oblique plane at an angle of twenty degrees or more to the stone surface, and to cause said tools to sharply strike the stone at approximately their lowest point of travel, said disks being peripherally beveled to a wedge-shaped edge, the upper surface of said edge at the moment of impact thereof being oblique to the stone surface, and means to cause a relative feeding movement of said work-support and tools in the direction of the line of intersection of said plane of revolution and the stone surface, substantially as described.

4. In a machine for working stone, a work-support, one or more rotatable tools and a carrier for and to move the said tool or tools to and from the stone in a plane at an acute angle with the stone surface to thereby chip away the stone surface, said tools being arranged to deliver a rapid succession of sharp blows progressively approximately in and on the line of intersection of said plane and the plane of the finished surface, and to instantly leave the surface after striking the blow, and means to relatively reciprocate the said carrier and work-support in the direction of said line of intersection, whereby the said tool is capable of acting upon and to remove the stone on the said relative movement in either direction in said line, without necessary reversal of the angle of the plane in which the said rotatable tool is moved to and from the stone, substantially as described.

5. In a machine for working stone, a work-support, one or more rotatable tool-carriers arranged at each of two opposite sides of said work-support, one or more tools rotatably mounted on and to be revolved by the respective carriers in planes at acute angles with the stone surface, whereby rotation of said carriers causes the said tools to deliver a succession of blows upon the said stone surface, and means to impart a relative feeding movement to the said work-support and carriers in substantially the direction in which the said blows are struck, and means to move the said carriers one toward the other and inwardly from the edge or edges of said work-support, to operate, substantially as described.

6. In a machine for working stone, a work-support, a plurality of rotatable tool-carriers arranged at or near opposite sides of the said work-support, tools rotatably mounted upon and to be revolved by rotation of said carriers in planes at acute angles with the stone surface to thereby deliver a succession of blows upon the latter, and means to impart a relative movement to the said work-support and carriers, in substantially the direction in which said blows are delivered upon the stone surface, and connecting adjusting devices, between carriers at opposite sides said work-support, whereby simultaneous adjustment of the carriers so connected may be had to insure accuracy of product, substantially as described.

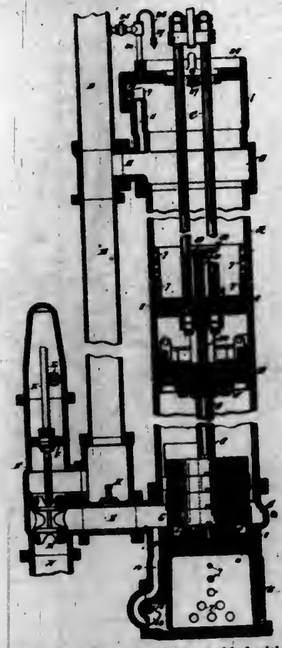
7. In a machine for working stone a rotatable tool-carrier, and a plurality of yielding disk tools rotatably mounted on said carrier and having their working edges or perimeters lying in one and the same plane oblique to the stone surface being worked and arranged to deliver a succession of blows, substantially as described.

594,590. HYDRAULIC ELEVATOR. NORMAN C. RADDIN, Yonkers, N. Y., assignor, by mesne assignments, to the National Company, of Illinois. Filed Apr. 17, 1890. Serial No. 348,413. (No model.)

Claim.—1. The combination with a cylinder having a passage for the supply and exhaust of fluid, and extending beyond said passage, of a piston arranged to gradually close said passage as the piston approaches the limit of its movement, and prevent the escape of fluid from the space between said passage and the end of the cylinder, and another passage connecting the supply with said space and provided with a self-acting valve arranged to prevent the flow of fluid from said space, but to permit the flow of fluid from the supply to said space on the reversal of the piston, substantially as described.

2. The combination with a cylinder having a partition and an opening adjacent to the end, of a piston having a projection adapted to fit said opening and arranged to enter the same as the piston approaches the limit of its movement, a channel provided with a self-acting valve and connecting the parts of the cylinder on the opposite sides of the partition, said cylinder being provided with a supply and discharge opening beyond which said projection passes when the piston is at the limit of its movement, substantially as described.

3. The combination with a cylinder having a partition and an opening adjacent to the end, of a piston having a projection adapted to enter the opening, and channels connecting the parts of the cylinder on opposite sides of the partition, one of said channels being provided with a self-acting valve, said cylinder being provided with a supply and discharge opening beyond which said projection passes when the piston is at the limit of its movement, substantially as described.



4. The combination with a cylinder provided with a dash-pot at the end thereof, of a piston provided with a projection arranged to enter said dash-pot as the piston approaches the limit of its movement and operating to gradually close the discharge-port of the cylinder, a by-pass connecting said dash-pot with the water-supply, and a check-valve for controlling said by-pass, said cylinder being provided with a water supply and discharge opening beyond which said projection passes at the limit of its movement, substantially as described.

5. The combination with a cylinder having a partition with an opening adjacent to the end, of a piston having a plunger adapted to fit said opening and arranged to enter the same as the piston approaches the limit of its movement, whereby a dash-pot is provided, said plunger being constructed to gradually retard the flow of water from the dash-pot as it enters the latter, a series of water-grooves between the plunger and cylinder, and a passage independent of said opening connecting the dash-pot with the fluid-supply and provided with a check-valve permitting the admission of fluid to the dash-pot but preventing the escape of fluid from the latter, substantially as described.

6. In a hydraulic motor, the combination with a motor-cylinder provided with a dash-pot at the end, of a piston provided with a hollow plunger entering said dash-pot, the wall of the plunger being provided with one or more series of perforations, the total area of the perforations on different lines transversely to the plunger decreasing from the outer end of the plunger inward, substantially as described.

7. In a hydraulic motor, the combination with a motor-cylinder provided with a dash-pot at the end, of a piston provided with a hollow plunger entering said dash-pot and operating to close the discharge-port of the cylinder, the wall of the plunger being provided with one or more series of perforations the total area of the perforations on different lines transversely to the plunger decreasing from the outer end of the plunger inward, substantially as described.

8. In a hydraulic motor, the combination with a motor-cylinder provided with a dash-pot at the end, of a piston provided with a hollow plunger entering said dash-pot, the wall of the plunger being provided with one or more series of perforations, the total area of the perforations on different lines transversely to the plunger decreasing from the outer end of the plunger inward, a by-pass connecting said dash-pot with the water-supply, and a check-valve controlling said by-pass, substantially as described.

9. In a hydraulic motor, the combination with a motor-cylinder provided with a dash-pot at the end, of a piston provided with a plunger entering said dash-pot, a by-pass connecting the dash-pot with the water-supply, a check-valve controlling said by-pass, and cocks for cutting out said by-pass and valve, substantially as described.

10. In a hydraulic motor, the combination with a motor-cylinder provided with a dash-pot at the end, of a piston provided with a plunger entering said dash-pot during the normal movement of the piston, said plunger forming with said dash-pot a cushion-stop for the piston, said dash-pot being provided with an air-escape and said piston being provided with an air-passage, a normally-closed valve controlling said air-passage and opening toward the air-escape end of the cylinder, and means for automatically opening said valve to allow the escape of air from the air-passage to the air-escape end of the cylinder, substantially as described.

11. In a hydraulic motor, the combination with the motor-cylinder provided with an air-escape port at one end, of a piston provided with an air passage, a normally-closed valve controlling said passage and opening toward the air-escape end of the cylinder, and means for automatically opening said valve to allow the escape of air from the air-passage to the end of the cylinder, substantially as described.

12. In a hydraulic motor, the combination of a piston provided with an air-passage, a pipe connected with said passage, a valve normally closing said pipe, and an arm connected to said valve and extended beyond the face of the piston in position to engage a fixed part of the motor, whereby the valve is opened as the piston reaches the end of its stroke, substantially as described.

13. The combination of the cylinder A, air-escape pipe 24, cock 25, pipe 26 entering pipe 24, and cock 27 in said pipe 26, substantially as described.

14. The combination of the vertical cylinder A, air-escape pipe 24, cock 25, pipe 26 entering pipe 24, cock 27 in said pipe 26, and drain-cup 28, substantially as described.

594,591. CALENDAR. MARCELLUS F. BERRY, Brooklyn, N. Y. Filed Feb. 5, 1897. Serial No. 622,126. (No model.)



Claim.—A calendar consisting of a blank bent to form two wings, a strap partially severed from the blank along the base of each of the wings, the free end of one of the said straps being opposite the unsevered end of the other strap, and a socket formed in the base of each wing near the free end of the strap, the socket in one wing being adapted to embrace the strap of the other wing when the strap is bent at substantially right angles thereto, thereby spacing the said wings apart upon the opposite sides of their bases, substantially as set forth.

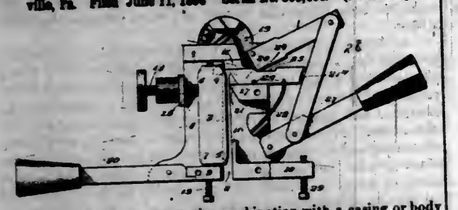
594,592. NON-REFILLABLE BOTTLE. THOMAS R. BRIDGE, Akron, Ohio. Filed Dec. 7, 1896. Serial No. 614,766. (No model.)



Claim.—1. In an antirefilling bottle, the combination with the bottle proper having a plurality of internal vertical grooves, an annular internal groove communicating with the same, an annular internal cork-receiving groove and an annular external weakening-groove formed in its neck, of a flexible stopper adapted to be applied in the annular cork-groove, a locking-stopper provided with a plurality of projections adapted to enter the vertical grooves and the annular groove connected therewith, another similar locking-stopper applied above the first-mentioned stopper, and a filling of cement for locking the two stoppers rigidly together in their respective positions, substantially as described.

2. In an antirefilling bottle, the combination with a bottle proper having a plurality of vertical grooves, and a horizontal groove connecting the lower ends of the vertical grooves formed in its neck, of a plurality of locking-stoppers having projections adapted to enter the vertical grooves and the horizontal grooves and be supported by the latter, and cementing means for locking the two stoppers together, substantially as described.

594,593. SAW-SETTING MACHINE. HENRY L. BOSS, Watsonville, Pa. Filed June 11, 1896. Serial No. 595,106. (No model.)



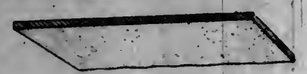
Claim.—1. In a saw-set, the combination with a casing or body having an opening to receive the saw, of a combined anvil and saw-clamp located on one side of the slot, means for moving the said anvil and clamp across the slot, a setting-die located on the other side of the slot from the saw-clamp, and means for moving said die.

2. In a saw-set, the combination with the saw-set casing or body, of a movable combined saw-clamp and anvil having die faces, means for effecting adjustment of said plate both longitudinally and transversely of its length, a setting-die adapted for cooperation with the die-faces of the set-plate, and means for actuating said die.

3. In a saw-set, the combination with an adjustable set-plate having die-faces, of a movable tooth-rest, abutting on the set-plate and actuated by the movement of the latter, a setting-die for forcing the teeth against the set-plate, and means for actuating the setting-die, substantially as described.

4. In a saw-set, the combination with an adjustable set-plate for clamping the saw in position, and which serves as an anvil, of a spring-pressed tooth-rest, abutting on the set-plate and actuated by the movement of the latter, a setting-die, and means for actuating the latter, substantially as described.

594,594. FLASH-LIGHT COMPOSITION. JAMES A. BONFWICK, Brooklyn, N. Y., assignor of one-third to Charles W. Hedget, New York, N. Y. Filed Oct. 21, 1896. Serial No. 609,586. (No specimens.)



Claim.—1. The herein-described new article of manufacture consisting of a photographic flash-light film or sheet composed of highly-inflammable material having combined with it photographic flash-light material, whereby upon its ignition an actinic light of brief duration and large area is produced.

2. The herein-described new article of manufacture consisting of a photographic flash-light film or sheet composed of collodion having combined with it powdered flash light material, whereby upon its ignition an actinic light of brief duration and large area is produced.

3. As a new article of manufacture, two thin sheets or films of collodion having applied to their contiguous faces a powdered combustible flash-light mixture that will produce a brief illumination upon the combustion of the collodion.

4. As a new article of manufacture, a sheet of collodion having combined with it powdered magnesium for the purposes described.

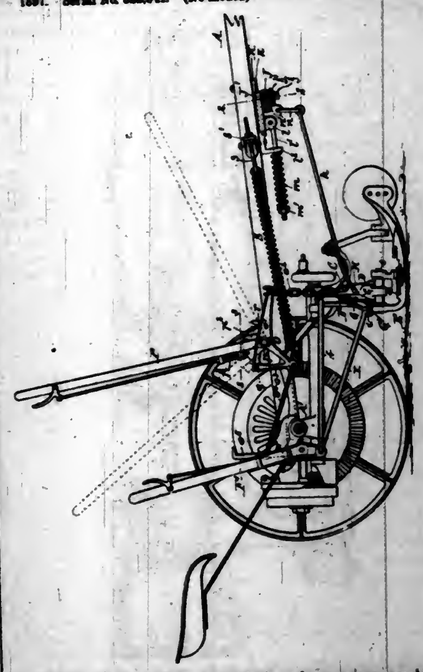
5. As a new article of manufacture, a sheet of collodion having combined therewith a powdered mixture of potassium chlorate, potassium perchlorate, magnesium and aluminium, substantially as and for the purposes set forth.

594,595. TOY. OTTO BREITHAUER, Brooklyn, N. Y., assignor of one half to August Weismantel, same place. Filed Nov. 20, 1896. Serial No. 612,229. (No model.)



Claim.—A finger-ring comprising a hollow pipe or body, and a setting, said hollow pipe or body communicating at one portion of the same with a rubber ball filled with liquid, and the opposite end extending into and substantially through said setting, as set forth.

594,596. MOWER. THOMAS S. BROWN, Poughkeepsie, N. Y., assignor to the Adriance, Platt & Company, same place. Filed Feb. 6, 1897. Serial No. 622,341. (No model.)



Claim.—1. The combination with the pole, an evener capable of longitudinal movement on the pole, a draft-spring which is strained by the forward movement of the evener on the pole, and the coupling bar or support of the cutter mechanism, of a draft connection which extends from the evener to said coupling bar or support and which is normally slack, in which condition of the parts the draft is applied through the draft-spring to the pole and not to the coupling bar or support, while said connection is tightened by an excessive draft and then applies part of the draft directly to the coupling bar or support, substantially as set forth.

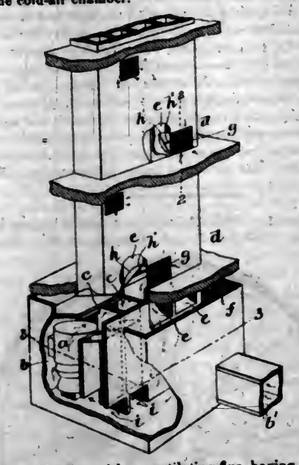
2. The combination with the pole, a longitudinally-movable slide mounted on the pole, an evener attached to said slide, a draft-spring interposed between said slide and the pole, and the coupling bar or support of the cutter mechanism, of a draft connection which extends from the evener to said coupling bar or support and which is normally slack but is tightened by an excessive draft, substantially as set forth.

3. The combination with the pole, a longitudinal guide-bar secured to the under side of the pole and provided at its rear end with a downwardly-projecting lug, a slide mounted on said guide-bar and provided with a downwardly-projecting pivot, a draft-bar mounted on said pivot, a rod extending rearwardly from said slide, and a draft-spring applied to said rod and bearing against said lug, of a coupling-bar, a draft-rod extending forwardly from said coupling-bar, a washer provided with an eye and applied to said pivot below the draft-bar, and a link connecting said washer with said draft-rod, substantially as set forth.

4. The combination with the coupling-bar, of a surrounding sleeve provided along its inner side with a longitudinally-recessed expansion rib or channel, substantially as set forth.

594,597. HEATING AND VENTILATING APPARATUS. EDWARD Q. BURROWS, Somerville, Mass., assignor to the Smith & Anthony Company, Boston, Mass. Filed Jan. 28, 1897. Serial No. 621,070. (No model.)

Claim.—1. A heating and ventilating apparatus or system, comprising an air-heating chamber, an uptake connecting said chamber with an apartment to be heated, a cold-air chamber communicating with the heating-chamber, a ventilating-flue connected at one end with the cold-air chamber and at the other end with the external air, and communicating at an intermediate point with the apartment through a ventilation-opening, and a damper in said flue adjacent to said opening and subdividing the ventilating-flue into two sections and adapted to direct air from the apartment upward through the upper section to the external air, or downward through the lower section to the cold-air chamber.



2. The combination with a ventilating-flue having an opening which connects it with an apartment to be ventilated, of a damper pivoted in the flue at a point opposite the opening and curved in cross-section, the pivot of the damper being at a distance from the center of its concave side, said damper being arranged to gravitate to connect the upper portion of the flue with said opening and provided with means for positively holding it in opposition to its gravity to connect the lower portion of said flue with the opening.

594,598. FOLDING SUPPORT FOR HAMMOCKS AND TENTS. JOHN C. BYRNE and PETER E. PETERSEN, Pensacola, Fla. Filed Feb. 23, 1897. Serial No. 624,657. (No model.)



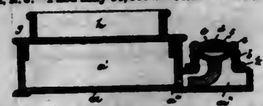
Claim.—1. In combination, base-strips, staples thereon, stanchions having hooked ends engaging the staples, caps for securing the upper ends of the stanchions together, brace-rods connecting the stanchions to the base-strips, tent-poles inserted in the holes in the caps and a tent or the like supported by the tent-poles, as and for the purpose described.

2. In combination, the base-strips A having strengthening-strips secured upon their upper sides and adapted to draw them out of line, spreaders for holding the base-strips in position, stanchions adapted to be hooked to the base-strips, caps for securing the upper ends of the stanchions in position relative to each other, and brace-rods for holding said stanchions in position relative to the base-strips, substantially as and for the purpose set forth.

3. A hammock-support, consisting of base-strips formed in two sections and hinged together, said strips having strengthening strips secured to their upper sides in such manner as to draw the base-strips out of line, staples secured to the strengthening-strips, stanchions having hooked ends for engagement with said staples, caps for securing the upper ends of the stanchions together, brace-rods stapled to the base-strips and arranged to engage staples in the stanchions, and spreaders for holding the base-strips parallel, substantially as and for the purpose set forth.

4. The herein-described combination of the base-strips A made in sections and hinged together, spreaders D and E for holding said strips parallel, strengthening-strips secured to the upper sides of the base-strips and arranged to draw the latter out of line, stanchions adapted to be hooked to the strengthening-strips, caps for securing the upper ends of the stanchions together, brace-rods for securing the stanchions in their relative positions to the base-strips, hooks carried by said caps for the support of a hammock, tent-poles O arranged to be supported by the caps by insertion within suitable holes in said caps, and a suitable tent supported by said poles, substantially as and for the purpose set forth.

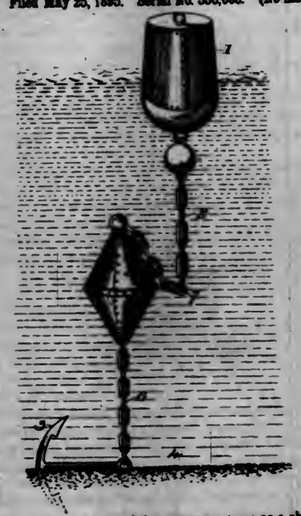
594,599. STAMP OR ENVELOP MOISTENER. GEORGE J. CAVE, Elizabeth, N. J. Filed May 10, 1897. Serial No. 635,812. (No model.)



Claim.—1. The combination with the receptacle *a*, having the extension *a''*, of an absorbent wiper with its upper end hollow and containing a disk-shaped core-piece *c*, of cork or any other suitable material, whereby said upper end of the wiper is extended to form a broad wiping-surface, the lower end of the wiper dipping in the water, and said wiper and core-piece being held in position in the mouth of the extension *a''*, by the collar *c*, substantially as set forth.

2. In the stamp and envelop moistener herein described, the combination of the water-chamber *a*, the extension *a''*, communicating therewith by passage *a'''*, the collar *c*, having at its upper end an inwardly-extending and slightly-funnel-shaped flange, the wiper extending up from the water and hollow at its upper end to receive the disk-shaped core-piece *c*, which is perforated to allow the descent from the wiping-surface of superfluous water, the cover for the water-chamber *a'*, and the washer *k*, all of said parts being arranged and combined, substantially as set forth.

594,600. SUBMARINE BUOY. ERNEST A. CHAMBERLAIN, Woods, Oreg. Filed May 25, 1895. Serial No. 550,663. (No model.)



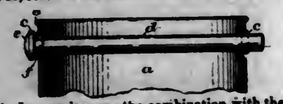
Claim.—A buoy adapted for permanent use as a channel or similar buoy, comprising an air-tight surface buoy, a permanently-submerged buoy 5, a chain 6 carrying an anchor and permanently connected at its upper end to the lower point of the submerged buoy, and an anchoring-chain permanently connected at one end with the lower side of the surface buoy and at its other end with the upper point of the submerged buoy, said anchoring-chain having a normally slack portion lying on the upper side of the submerged buoy, substantially as set forth.

594,601. WHEEL-TIRE. BERNARD H. CHAMBROT, Paris, France. Filed Mar. 26, 1897. Serial No. 629,294. (No model.)



Claim.—An elastic wheel-tire comprising in combination a felly, a band of elastic material placed around the felly and a series of independent metallic segments placed over said band and provided with wings which engage with the sides of the felly for retaining themselves and the band on the felly said segments having spaces between their ends and said band having projections which fill the said spaces, and the said band and wings being relatively so proportioned in width that in their normal condition empty spaces are left between the said wings and the sides or lateral faces of the band, substantially as herein described.

594,602. ROVING-CAN. JOHN A. COLLINS, Fall River, Mass. Filed Dec. 23, 1896. Serial No. 616,708. (No model.)



Claim.—1. In a roving-can, the combination with the upper end of the can, of the openings *c*, *c* in the wall of the can below the edge surrounding the open end and the bar *d* provided with a groove adapted to engage with the walls of one of the openings, whereby the bar, when inserted, is held in place, as described.

2. In a roving-can, the combination with the openings *c*, *c*, in the wall of the can below the edge surrounding the open end, of the bar *d* having the head *e* at one end and the groove *f*, whereby the coiled roving is held in the can against displacement, as described.

3. In a roving-can, the combination with the open end of the can, of the openings *c*, *c*, in the wall of the can below the edge surrounding the open end, and a bar *d* extending through the openings and across the can; whereby the roving is held in the compressed condition, as described.

594,608. VEHICLE-WHEEL. HARRY R. COLLINS, South Bethlehem, Pa. Filed Mar. 31, 1897. Serial No. 630,164. (No model.)



Claim.—1. In a vehicle-wheel, the combination with a hub exteriorly screw-threaded at its middle portion with a shoulder or collar at one terminus of the screw-thread, a saddle provided with an interior screw-thread engaging the screw-threaded part of the hub and abutting against the said shoulder, a removable interiorly-screw-threaded collar screwing on the hub and against the saddle for locking it on the hub, a pneumatic tube on said saddle, and a spoke-ring inclosing said tube, substantially as described.

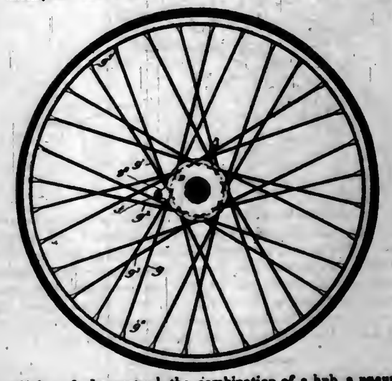
2. In a vehicle-wheel the combination with a hub exteriorly screw-threaded at its middle portion with a shoulder or collar at one terminus of the screw-thread, a saddle formed of a pair of similar parts each provided with an interior screw-thread engaging the screw-threaded part of the hub and one abutting against the collar and the other against its mate, a removable interiorly-screw-threaded collar screwing on the hub and against the saddle for locking the latter on the hub, a pneumatic tube on said saddle, and a spoke-ring inclosing said tube, substantially as described.

3. In a vehicle-wheel, the combination of a hub, an annular saddle mounted fixedly thereon and having parallel sides or flanges, a pneumatic tube seating around said saddle between its sides, a spoke-ring embracing said tube on its outer side and having flanges extending outwardly parallel with the sides of the saddle, and terminal flanges on said outwardly-extending flanges, and ring-washers interposed between the said outwardly-extending flanges of the spoke-ring and the saddle sides and confined by the terminal flanges, said ring-washers constituting closures for the pneumatic-tube-containing chamber, while permitting radial movement of the saddle and spoke-ring, substantially as described.

4. In a ball-bearing, the combination of a cone having a projecting flange with a groove in one side thereof and a second groove in the inner side of the first groove at right angles to the axis of the cone, and a washer or packing-ring in the latter groove; with a ball-race having a projecting portion adapted to enter the first groove of the cone and overlie the packing in the second groove, and balls interposed between the ball-race and cone, for the purpose and substantially as described.

5. In a vehicle-wheel, the combination with a hub, of an annular saddle having a vertically-disposed flange or plate at each side thereof provided with a radial groove or slot in its inner face arranged opposite or in alinement with the corresponding groove in the inner face of the other flange, a pneumatic tube or cushion seated on said saddle, and a spoke-ring movable relatively to said saddle so as to effect the compression of said tube and having a stud or lateral projection at each side thereof engaging one of said radial grooves; whereby a pivotal connection is formed between the saddle and spoke-ring to compel them to rotate together while permitting relative rectilinear movement thereof and a swinging or oscillatory movement of the spoke-ring about said pivot as a center, substantially as described.

594,604. VEHICLE-WHEEL. HARRY R. COLLINS, South Bethlehem, Pa. Filed June 23, 1897. Serial No. 641,958. (No model.)



Claim.—1. In a wheel, the combination of a hub, a pneumatic tube encircling the same, a spoke-ring encircling the said tube, and a radius bar or link pivotally connected at one end with the hub and at the other end with the spoke-ring, thus rotatively connecting these parts while permitting relative radial movement thereof without a change of leverage in the connections between them, substantially as described.

2. In a wheel, the combination of a hub having side flanges, a pneumatic tube encircling the hub between its side flanges, a spoke-ring encircling said tube, and a radius bar or link pivotally connected at one end with the side flanges of the hub and at the other end with the spoke-ring, substantially as and for the purpose described.

3. In a wheel, the combination of a hub having side flanges and a pull-bar extending across between said flanges and fastened in the same, a pneumatic tube encircling said hub between its side flanges, a spoke-ring encircling said tube and having an outwardly-projecting pedestal fastened to it, and a link pivotally mounted at one end on the pull-bar and pivotally connected at the other end with the pedestal, substantially as and for the purpose described.

4. In a wheel, the combination with the hub, of the concentric spoke-ring and the pneumatic tube interposed between the hub and spoke-ring, a pedestal carried by the spoke-ring, a pull-bar carried by the hub, a link connecting the pedestal and pull-bar, and ball-bearings at the ends of the link between the same and the pedestal and pull-bar, substantially as described.

5. In a wheel, the combination with the sleeve of the hub provided with centrally-disposed exterior right and left handed screw-threads and an annular collar at one terminus of one set of threads, of the annular saddle-sections, one of which is interiorly correspondingly screw-threaded and which have their adjacent ends constructed with interlocking portions, one of said sections abutting against said collar and engaging the right-hand screw-thread, while the other section is locked in engagement with the first-mentioned section, and a collar bearing against the latter section and engaging the left-hand screw-thread, substantially as described.

6. In a wheel, the combination with the hub having the axle-sleeve provided with right and left handed screw-threads thereon, of the saddle-sections placed on said hub and having recesses or cut-out portions in the engaging end of one section adapted to receive correspondingly-formed extensions or projections on the engaging end of the other section, the annular part of one saddle-section being interiorly screw-threaded and adapted to be screwed on said sleeve while the other section is smooth, and a screw-threaded collar for holding the latter section on the sleeve, substantially as described.

7. In a wheel, the combination with the hub, the saddle-sections carried by said hub, the spoke-ring, a pneumatic tube interposed between the spoke-ring and saddle-sections and annular auxiliary saddle-seats or thimbles interposed between the seats of the saddle-sections and said tube, substantially as described.

8. In a wheel, the combination with the hub, the saddle-sections carried thereby, the spoke-ring, and the pneumatic tube interposed between the spoke-ring and saddle-sections, of the auxiliary saddle seats or thimbles carried by the seat portions of the saddle-sections and interposed between said sections and the pneumatic tube; said thimbles being adapted to be maintained stationary relatively to the tube when the saddle-sections are locked in position on the hub so as to prevent the tube from being worn by contact with the saddle-sections, substantially as described.

9. In a wheel, the combination with a hub having a saddle and a pneumatic tube thereon, of a spoke-ring provided with vertical annular flanges each having a series of apertures, spokes having their ends bent and fitted in said apertures, and packing-rings interposed between the said flanges of the spoke-ring and the sides of the saddle and engaging the ends of the spokes, substantially as described.

10. In a wheel, the combination with a hub having a saddle and a pneumatic tube thereon; of a spoke-ring provided with vertical annular flanges each having a series of apertures, spokes having their ends bent, fitted in said apertures, and upset, and packing-rings interposed between the said flanges of the spoke-ring and the sides of the saddle, and socketed for engagement with the upset ends of the spokes, substantially as described.

11. In a wheel, the combination with a hub having a saddle with side flanges, and a pneumatic tube on said saddle; of a spoke-ring provided with vertical annular flanges inside the said flanges of the saddle, and each having a series of apertures, and spokes extending on the inner sides of the flanges of the spoke-ring and having their ends bent outwardly and fitted in said apertures.

12. In a wheel, the combination with a hub having a sleeve provided with interior annularly-recessed ends, of a ball-race fitted into each end of the sleeve and having a shoulder adapted to engage the recess of the sleeve, and cones projecting into said ball-races, each having a flange bearing against the ends of the ball-race and sleeve with an annular lip taking over the latter.

13. In a wheel, the combination with a hub having a sleeve provided with interior annularly-recessed ends, of a ball-race fitted into each end of the sleeve, and having a shoulder adapted to engage the recess of the sleeve, cones projecting into said ball-races each having an exterior annular groove in its portion which projects into the ball-race, and a flange bearing against the ends of the ball-race and sleeve with an annular lip taking over the latter, and a packing-ring fitted in said groove and contacting with the interior surface of the ball-race, substantially as and for the purpose described.

14. In a wheel, a saddle on the hub composed of two annular sections with interlocking formations in their confronting edges, means for holding said sections interlocked, a pneumatic tube encircling the saddle, and a spoke ring encircling the pneumatic tube.

15. In a wheel, the combination with the hub, the spoke-ring and the wheel-rim, of the tangential spokes secured at one end to the spoke-ring and at the other end to the wheel-rim; said spokes being interlaced by each spoke passing alternately over and under the several spokes intercepted in passing from the spoke-ring to the rim, substantially as described.

16. In a wheel, the combination with the hub, of the saddle-sections having annular seat portions together affording a bearing for a pneumatic tube, and vertically-disposed outer flanges, said sections formed from sheet-steel pressed into the required shape, and having interlocking formations in their confronting edges, substantially as described.

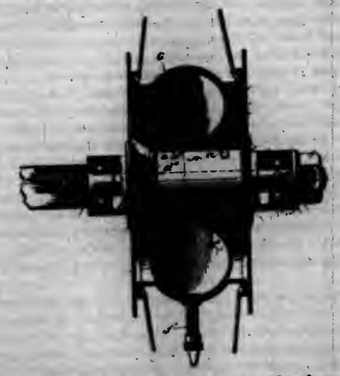
17. In combination with the wheel-hub, the saddle sections adapted to afford a bearing for a pneumatic tube; said sections being formed from sheet-steel pressed into the required shape and provided with strengthening ribs or corrugations, substantially as described.

18. In a wheel, the combination with the hub, of the saddle-sections carried thereby, said sections being formed from sheet-steel having strengthening ribs or corrugations stamped therein, substantially as described.

19. In a wheel, the combination with the hub and spoke-ring radially movable relatively to each other, of an interposed cushion, and a bearing for the latter between the same and the hub and rotatively movable with respect to the latter, whereby wear of the cushion is obviated, substantially as described.

594,605. VEHICLE-HUB. HARRY R. COLLINS, South Bethlehem, Pa. Filed July 15, 1897. Serial No. 644,095. (No model.)

Claim.—1. The combination with a sleeve or axle, a saddle rotatably mounted thereon, and antifriction-bearings interposed between the sleeve and saddle, with means for confining the saddle upon the sleeve, substantially as described.



2. In a pneumatic hub, the combination of a sleeve or axle, a saddle rotatably mounted thereon, and antifriction-bearings interposed between the sleeve and saddle; with the pneumatic tube, the spoke-ring, and means for confining the saddle and spoke-ring upon the sleeve, substantially as described.

3. The combination of the sleeve or axle, a saddle rotatably mounted thereupon, the disks rotating with the sleeve and confining the saddle in place thereupon, and means for securing said disks upon the sleeve, substantially as described.

4. The combination of the sleeve or axle, a saddle rotatably mounted thereupon, antifriction-rollers interposed between the saddle and sleeve, and means for preventing lateral displacement of the saddle, substantially as described.

5. The combination of the sleeve or axle, a saddle rotatably mounted thereupon, the removable disks for confining the saddle in place upon the sleeve, and means for locking said disks to the sleeve, substantially as described.

6. The combination of the sleeve or axle, a saddle rotatably mounted thereon, antifriction-bearings interposed between the saddle and sleeve, removable disks on the sleeve for preventing lateral displacement of the saddle, and means for locking said disks to the sleeve, substantially as described.

7. The combination of the sleeve or axle, a saddle rotatably mounted thereupon, removable disks for retaining the saddle in place upon the sleeve, means for causing the disks to rotate with the sleeve, and means for securing the disks upon the sleeve, substantially as described.

8. The combination of the sleeve or axle, a saddle rotatably mounted thereon, antifriction-bearings interposed between the saddle and sleeve; opposite disks confining the saddle on the sleeve and locked to the saddle so as to rotate therewith, and the ring-nuts for securing the disks to the sleeve, substantially as described.

9. The combination of the sleeve having segmental collars a saddle rotatably supported on the sleeve intermediate said collars, opposite disks confining said saddle in place upon the sleeve, said disks having segmental projections interlocking with said collars so as to compel the disks to rotate with the sleeve, substantially as described.

10. The combination of the sleeve having segmental collars, a saddle rotatably mounted on the sleeve, antifriction-bearings interposed between the sleeve and saddle and lying between the said collars; with removable disks fitted on the sleeve having segments interlocking with said collars, and means for confining the disks on the sleeve, substantially as described.

11. The combination of the sleeve with segmental collars, a saddle on said sleeve, disks on said sleeve confining the saddle in place and having segments interlocking with said collars so as to cause the disks to rotate with the sleeve, a pneumatic tube surrounding said saddle, a spoke-ring surrounding said tube, said spoke-ring being also confined between said disks, substantially as described.

12. The combination of the sleeve, the saddle rotatably mounted on said sleeve, the pneumatic tube surrounding said saddle, and the spoke-ring surrounding said tube; with opposite disks fitted on the sleeve and retaining the saddle and spoke-ring in position, and means for locking the said disks to the sleeve so as to cause them to rotate therewith, substantially as described.

13. In a vehicle-wheel, the combination with the axle box or sleeve, the saddle-sections supported by said sleeve, the interposed rollers between the sleeve and saddle-sections, the disks for preventing lateral movement of the saddle-sections, the pneumatic tube car-

tied by said sections, and the spoke-ring confining said tube, substantially as described.

14. In a vehicle-wheel, the combination with the axle box, or sleeve, having segmental collars or shoulders, the saddle-sections carried by said sleeve, the interposed rollers between said sleeve and saddle-sections located between and confined by the segmental collars, the disks on said sleeve in engagement with said collars and preventing lateral movement of the saddle-sections, the pneumatic tube carried by said saddle-sections, and the spoke-ring for confining the pneumatic tube on said saddle-sections, substantially as described.

15. In a vehicle-wheel, the combination of the sleeve or axle, the segmental shoulders or collars diametrically arranged on said sleeve, the saddle-sections carried on said sleeve, the disk carried by said sleeve for preventing lateral movement of the saddle-sections, said disks being formed with projections which fit between the segmental shoulders or collars whereby the disks are turned with the sleeve, the pneumatic tube carried by the saddle-sections, and the spoke-ring for confining said tube on the saddle-sections, substantially as described.

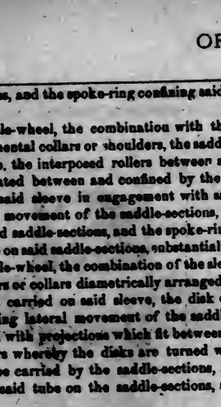
16. In a vehicle-wheel, the combination of the sleeve, the saddle-sections carried on said sleeve, the disks for preventing lateral movement of the saddle-sections mounted on the sleeve so as to turn therewith, the clamping-rings fitting on said sleeve and bearing against said disks, and a set-screw provided in each of said rings, for holding them against movement, said set-screws having each a rose-bit tip which will embed in the disks, substantially as described.

17. In a pneumatic hub, the combination with the axle box or sleeve, the saddle-sections for supporting the pneumatic tube carried on said sleeve, the pneumatic tube, means for confining it on the saddle, and the antifriction-rollers interposed between the sleeve and the saddle-sections, substantially as described.

18. In a hub for vehicle-wheels, the combination of the sleeve provided with the segmental shoulders or collars, the saddle-sections carried on said hub, antifriction-rollers interposed between said sleeve and saddle-sections and confined by said collars, disks carried by said sleeve for preventing lateral movement of said saddle-sections and in locked engagement with said segmental collars or shoulders, a pneumatic tube on said sections, a spoke-ring on said tube, and a suitable connection between said spoke-ring and disks, substantially as described.

19. In a wheel, the combination with the hub and spoke-ring radially movable relatively to each other, of an interposed cushion, and roller bearings between said cushion and the hub.

594,606. WINDOW-SCREEN. BENNIE COOK, Niles, Mich. Filed Mar. 5, 1896. Serial No. 581,980. (No model.)



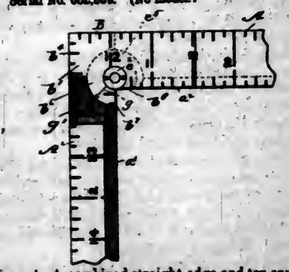
Claim.—1. In a window screen, the combination of the window-screen B, cross-bar D at one end thereof; the brackets E, E, on the window casing or frame to engage said cross-bar; cross-bar C with notches a'' therein; molding C' clamping the screen onto said bar C at the opposite end, so that the molding shall project beyond the inner edge of the casing; a fastening device consisting of the brackets F with bolts G therein, having ears a to pass into notch a'' between the cross-bar C and the molding C'; a lever H pivoted to the bottom of said bolt or bar; and a dog upon said lever so pivoted in relation to the pivotal point of the lever H that when the lever is moved next to the casing the pivot of the dog passes the dead-center and locks the same in position, as specified.

2. In a window-screen, the combination of cross-bars to each end of the screen; suitable fasteners for one of the cross-bars; and a tension-fastening for the opposite cross-bar, consisting of the bracket F with the bolt G therein; the lever H pivoted to said bolt and the dog I pivoted to said lever so situated that when the lever is pressed next to the casing the pivot of the dog passes the dead-center and locks the same in position, as specified.

3. In a window-screen, the combination of the screen B, bar D at one end with suitable means of attaching the same to the window-casing; bar C at the opposite end; the molding C' to clamp upon said bar and hold the screen between the two; a bolt G with an ear a to project between the bar C and the molding C'; suitable means of supporting the bolt on the casing inside the screen and means of adjusting the same, coacting as specified.

4. In a window-screen, the combination of the screen B; bar D, at one end with suitable means of attaching the same to the window-casing; bar C, at the opposite end of said screen; the molding C', to clamp upon said bar C, and hold the screen between the two; a bolt G, with an ear a, to project between the bar C, and the molding C', and pointed lug a', to engage the bar C, to prevent its rotating; and suitable means of supporting the bolt on the casing inside the screen and means of adjusting the same coacting as specified.

594,607. FOLDING RULER. JOHN R. DAVIS, Conway, N. H., assignor of one-half to Edward D. Holmes, Newton, Mass. Filed Aug. 15, 1896. Serial No. 602,869. (No model.)



Claim.—1. A combined straight-edge and try-square comprising the two members A, A', adapted to be thrown into longitudinal alinement relative to each other to form a straight-edge, the ears b^2, c^2, secured to said members A, A', said ears being provided with edges b^3, c^3 which are at right angles to the edges b^2 c^2 of the members A, A', said edges b^3, c^3, serving to indicate the proper angular position of said members A, A' with respect to each other to form a try-square, and a pivot-pin e passing through said ears.

2. A combined straight-edge and try-square comprising the member A having the ears b^2, said ears having the straight edge b^3; extensions b', b^3, formed on said member A; and the member A' having the tongue e provided with an ear portion c^4 which is pivoted between extensions b', b^3 and is provided with a straight edge c^3 at right angles to the body portion of the member, said straight edge c^3 when brought into alinement with said straight edge b^3 indicating the right-angle position of the members A, A', a pivot-pin e passing through ears b^3 and c^3, and a stop f on the face of ear c^3 which engages a recess f' on one of the extensions of member A.

3. A combined straight-edge and try-square comprising the two members A, A', both of which are rabbeted on one edge so as to close together, ears b^2, c^2, having cut-away portions to form right-angle straight edges b^3, c^3, a pivot-pin e passing through said ears, the pivotal end of member A' being reduced some distance from the hinge-joint to allow free movement of the extensions b', b^3 formed on member A, said extensions b, b' not only completing the continuity of the straight-edge when the members A, A' are in alinement, but also completing the outer angle of the try-square when the members are at right angles to each other.

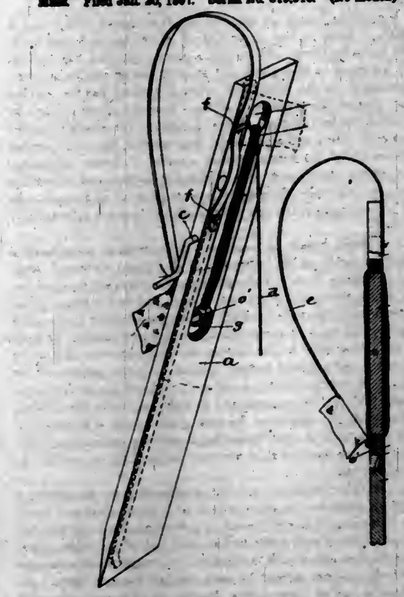
594,608. LEVER-SHIELD. HERMANN G. DITTRICHER, Minneapolis, Minn. Filed Jan. 20, 1897. Serial No. 619,969. (No model.)



Claim.—1. A lever-shield, comprising a base or lower portion forming a wall about the lower portion of the lever, and having an opening in its top to receive the upper portion of the same, and said shield being also provided with an extension projecting above the handle of said lever, for the purpose set forth.

2. In a device of the class described, the combination with the pivoted lever, of the shell or casing arranged over the same, means for securing said casing in an upright position, said casing having an opening at its upper end to receive the upper end of said lever, an extension provided near the upper end of said casing, said extension having a curved outer surface, and the ears provided on said surface, for the purpose set forth.

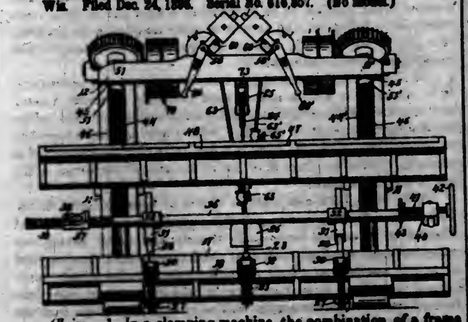
594,609. FISHING APPARATUS. HENRY M. DODGE, Boston, Mass. Filed Jan. 20, 1897. Serial No. 619,910. (No model.)



Claim.—1. A fishing appliance comprising a holder or standard, an elastic signal-arm longitudinally movable in guides on the holder and adapted to be retracted and lie against the holder and to be projected therefrom while the guides firmly hold its lower end, a reel rotatively connected with the holder, and a detent adapted to engage the outer end of the elastic arm and hold said arm out of its normal position when projected, said detent and arm being arranged to be disconnected by a movement of the reel.

2. A fishing appliance comprising a holder or standard, an elastic signal-arm longitudinally movable in guides on the holder, an elongated reel rotatively connected with the holder, and a detent attached to the reel and adapted to engage the outer end of the arm, said detent being arranged in such relation to the axis of the reel that the tension of the arm will yieldingly hold the reel and detent in the arm-engaging position of the latter, a movement of the reel from said position causing the release of the arm by the detent.

594,610. CLAMPING-MACHINE. HERMAN C. DOMAN, Oshkosh, Wis. Filed Dec. 24, 1896. Serial No. 616,857. (No model.)



Claim.—1. In a clamping-machine, the combination, of a frame having an inclined front, a lower clamping-bar normally resting against said inclined front, and fulcrumed thereon, means for swinging said clamping-bar to a vertical position for the assembling of the parts to be clamped thereon, and an upper clamping-bar adapted to travel along the inclined front of the frame toward and from the lower bar.

2. In a clamping-machine, the combination, of an inclined frame, a clamping-bar normally resting against said frame in an inclined position, means for swinging said bar to a vertical position for the assembling of the parts to the article to be clamped, rods pivoted to the clamping-bar, a horizontal bar connected to the rods, clamping-jaws carried by said bar, and another clamping-bar.

3. In a clamping-machine, the combination, of an inclined frame, a clamping-bar normally resting against said frame in an inclined position, means for swinging said clamping-bar to a vertical position for the assembling of the parts of the article to be clamped thereon, rods pivoted to the clamping-bar, said rods extending forwardly beyond the clamping-bar, and formed with foot-treadles, a horizontal bar connected to the rods, and clamping-jaws carried by said rods, and another clamping-bar.

4. In a clamping-machine, the combination, of an upright frame having upper and lower clamping-bars arranged across and against the face of the frame, said bars adapted to engage the sides of a door, sash, or like device, and one of said bars being adjustable vertically, and a bar arranged against and across the front face of the frame intermediate the upper and lower clamping-bars, said carrying adjustable clamping-jaws thereon, said intermediate bar being adjustable vertically along the front face of the frame, so as to adapt the clamping-jaws thereof to engage the centers of the ends of doors or blinds of varying widths.

5. In a clamping-machine, the combination, of a frame having an inclined front face, opposed clamping-bars adjacent to the inclined face of the frame, one of said bars being movable toward and from the other, upright rods each provided with ratchet-teeth, sleeves through which the rods pass, said sleeves provided with bearing-boxes and carrying dogs adapted to engage the ratchet-teeth, and a horizontal rod carried in the bearing-boxes, said rod being adjacent to the inclined face of the frame, and intermediate the clamping-bars, and said rod carrying adjustable clamping-jaws thereon, the bearing-boxes of the horizontal rod being adjustable vertically on the upright rods, whereby the vertical position of said horizontal rod along the inclined face of the frame may be regulated, so as to adapt the clamping-jaws of said horizontal rod to engage the centers of the ends of doors, or blinds of varying widths.

6. In a clamping-machine, the combination, of a frame, clamping bars carried by said frame, screw-shafts passing through one of the bars, a shaft having sets of fast and loose pulleys mounted thereon, a gearing between said shaft and the screw-shafts, a belt for each set of pulleys, said belts running in opposite directions, bell-crank levers, rock-shafts passing loosely through said bell-crank levers, segments mounted rigidly upon said rock-shafts, cranks on the ends of the rock-shafts, belt-shifting mechanism for each set of pulleys and connected to the cranks, and means for operating the bell-cranks, when the clamping-bar has completed its travel in either direction, whereby one arm of the bell-crank is brought into contact with a projection of the segment, to cause the turning of the segment and the consequent turning of the rock-shaft and the operation of the belt-shifting mechanism.

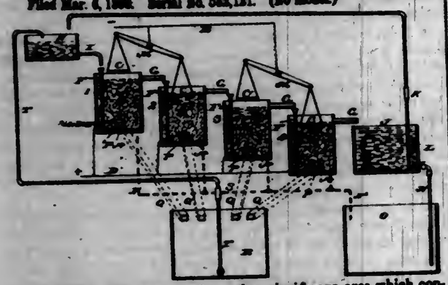
7. In a clamping-machine, the combination, of a frame, clamping-bars carried by said frame, screw-shafts passing through one of the clamping-bars, a shaft having sets of fast and loose pulleys thereon, a gearing between said shaft and the screw-shafts, a belt for each set of pulleys, said belts running in opposite directions, bell crank levers, rock-shafts passing loosely through said bell-crank levers, segments mounted rigidly upon said rock-shafts, cranks on the ends of the rock-shafts, handles on the opposite ends thereof, belt-shifting mechanism for each set of pulleys and connected to the cranks, and means for operating the bell-cranks when the clamping-bar has completed its travel in either direction.

8. In a clamping-machine, the combination, of a frame, clamping-bars carried by said frame, screw-shafts passing through one of said bars, a shaft having sets of fast and loose pulleys thereon, a gearing between said shaft and the screw-shafts, a belt for each set of pulleys, said belts running in opposite directions, bell-crank levers, rock-shafts passing loosely through said bell-crank levers, segments mounted rigidly upon said rock-shafts, cranks on the ends of the rock-shafts, traveling blocks connected to the cranks, belt-shifting arms connected to the blocks, and means for operating the bell-cranks, when the clamping-bar has completed its travel in either direction.

9. In a clamping-machine, the combination, of a frame, clamping-bars carried by said frame, screw-shafts passing through one of the bars, a shaft having sets of fast and loose pulleys mounted thereon, a gearing between said shaft and the screw-shafts, a belt for each set of pulleys, said belts running in opposite directions, bell-crank levers, a weight on one arm of each bell-crank lever, rock-shafts passing loosely through said bell-crank levers, segments mounted rigidly upon said rock-shafts and adapted to be turned by contact therewith

of the bell-crank levers when said levers are turned, cranks on the ends of the rock-shafts, belt-shifting mechanism for each set of pulleys and connected to the cranks, rods connected to and depending from the bell-crank levers, adjustable stops carried by the rods, and contacts carried by the movable clamping-bar, and through which contacts the depending rods pass freely, said contacts adapted to act, respectively, on the completion of the movement of the clamping-bar in opposite directions, on the stops of the respective rods, so as to cause said rods to act on the bell-crank levers, and thereby shift a belt from the fast pulley of its set to the loose pulley thereof, in order to arrest the movement of the clamping-bar.

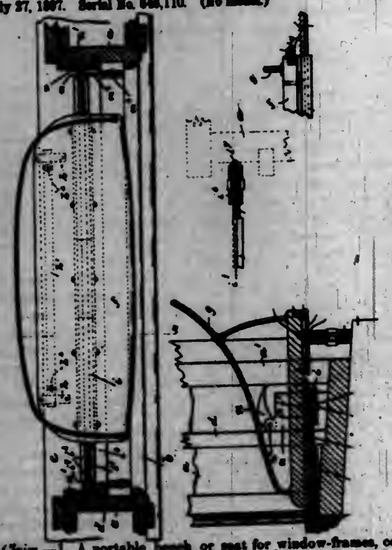
594,611. PROCESS OF AND APPARATUS FOR REMOVING ZINC FROM ZINCIFEROUS ORES. SIDNEY H. EMERSON, New York, N. Y. Filed Mar. 6, 1896. Serial No. 582,121. (No model.)



Claim.—1. The process of treating zinciferous ores which consists in pulverizing and roasting the ore, leaching it in a series of vessels through which the solution flows continuously, and subjecting the contents of each vessel intermittently to electrolytic action, whereby the solution is rendered alternately acid and neutral or more acid and less acid in contact with each body of ore, substantially as hereinbefore specified.

2. An apparatus for treating zinciferous ores comprising a series of leaching-vats each provided with an inlet-pipe extending to the bottom and with an exit pipe or trough leading from the top of the vat, and each provided at bottom with an insoluble anode, a series of movable cathodes suspended above said vats, means for raising and lowering the cathodes of adjoining vats alternately, and an electric circuit to the respective poles of which said anodes and cathodes are connected, substantially as hereinbefore specified.

594,612. WINDOW-CHAIR. CHARLES W. ENGLERT, Paterson, N. J., assignor of one-half to August J. Englert, Brooklyn, N. Y. Filed July 27, 1897. Serial No. 646,110. (No model.)



Claim.—1. A portable bench or seat for window-frames, comprising a frame-plate, a guide on the under side of said frame-plate and longitudinally extending from end to end, a pawl-controlled toothed bar slidingly arranged in said guide and at each end of the frame-plate, means arranged on the outer end of each toothed bar for locking the same against the sides of a window-frame, a screw carried by each toothed bar and at right angles thereto, an internally-threaded sleeve on each screw and adapted to bear against the outer portion of the inner sill of the window-frame, and means carried by the outer under portion of the frame-plate, for supporting said frame-plate on the top portion of the outer sill, substantially as described.

2. A portable bench or seat for window-frames, comprising a frame-plate, a guide on the under side of said frame-plate and longitudinally extending from end to end, a pawl-controlled toothed bar slidingly arranged in said guide and at each end of the frame-plate, means arranged on the outer end of each toothed bar for locking the same against the sides of a window-frame, a screw carried by each toothed bar and at right angles thereto, an internally-threaded sleeve on each screw and adapted to bear against the outer portion of the inner sill of the window-frame, a series of screws adjustably arranged on the under outer side of the frame-plate and depending therefrom, an internally-threaded sleeve on each of said screws and adapted to bear against the top portion of the outer sill, substantially as described.

3. A portable bench or seat for window-frames, comprising a frame-plate, a guide on the under side of said frame-plate and longitudinally extending from end to end, a pawl-controlled toothed bar slidingly arranged in said guide and at each end of the frame-plate, means arranged on the outer end of each toothed bar for locking the same against the sides of a window-frame, a screw carried by each toothed bar and at right angles thereto, an internally-threaded sleeve on each screw and adapted to bear against the outer portion of the inner sill of the window-frame, a series of guide-plates on the under outer portion of the frame-plate and at right angles to the toothed bars, a bar slidingly supported by said guide-plates, a screw at or near each end of said bar and depending therefrom, and an internally-threaded sleeve on each of said screws, substantially as and for the purposes described.

4. A portable bench or seat for window-frames, comprising a frame-plate, a guide on the under side of said frame-plate and longitudinally extending from end to end, a pawl-controlled toothed bar slidingly arranged in said guide and at each end of the frame-plate, a block on the free end of each toothed bar, a pawl pivotally arranged on each block, a screw carried by each toothed bar and loosely arranged thereon and at right angles thereto, an internally-threaded sleeve on each of said screws, and adjustable supporting means on the under outer portion of the frame-plate and depending therefrom, all said parts, substantially as and for the purposes described.

594,613. DOOR-CHECK. JOHN EWART, Lawrence, Mass., assignor of one-fourth to Joseph A. Ewart, same place. Filed Mar. 25, 1897. Serial No. 629,158. (No model.)

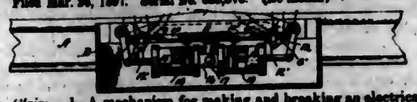


Claim.—1. A door-check comprising in its construction a member having a circular inclined outer portion and a central recess, said member being adapted to be attached to a floor and to yield vertically relatively thereto, and an arm member adapted to be attached to a door to ride over the inclined portion of the floor member and engage the central recess thereof.

2. A door-check comprising in its construction a member adapted to be attached to a floor and to yield vertically relatively thereto, said member having an inclined portion and a recess above the incline and having also a vertical stop-face, and an arm member adapted to be attached to a door, the floor member being rotatively mounted to locate its vertical stop-face in or out of the path of movement of the end of the arm member.

3. A door-check comprising a socket or casing adapted for insertion in a floor; a buffer movable vertically in said socket and adapted to be turned horizontally therein, said buffer having two outer faces, one of which is circular and inclined and formed to yield to an arm attached to a door, while the other is substantially vertical and formed to resist movement of said arm, and an inner face formed and arranged to engage said arm after its passage over the inclined face, the outer faces being interchangeable by a turning movement of the buffer in the socket; and a spring supported by the casing and yieldingly supporting the buffer.

594,614. MECHANISM FOR MAKING, BREAKING, AND SWITCHING ELECTRIC CIRCUITS FOR RAILWAY-SIGNALS. PENDROY H. FORBES, CHARLES C. FORBES, and ARTHUR LEE, Topeka, Kans. Filed Mar. 26, 1897. Serial No. 629,573. (No model.)

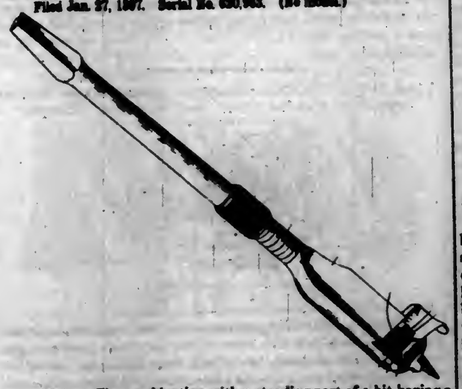


Claim.—1. A mechanism for making and breaking an electrical wire signal-circuit, comprising a depressible bar disposed parallel with the track-rail, a suitably-journaled rock-shaft, an arm on the rock-shaft connected to said bar, a finger on the rock-shaft, a contact-spring in the path of the said finger, circuit-wires connected to said contact elements, an arm on the rock-shaft, a threaded rod secured to this arm, an adjusting-nut on the threaded rod, a guide for the rod against which the nut lodges, a retractile spring secured to the threaded rod, and means connected to the rock-shaft to retard the return movement of the depressible bar and separation of the contacts.

2. A mechanism for making and breaking an electrical wire signal-circuit, comprising a suitable box or casing, a depressible lever or bar having a double-incline tread-surface arranged adjacent to the tread of the rail, rock-shafts journaled across the box, arms connecting the rock-shafts to the ends of the depressible bar, depending arms on the rock-shafts, a retractile spring connecting the depending arms to return the rock-shafts to normal positions, fingers on the rock-shafts, contact-springs in the path of said fingers, circuit-wires connected to said contact elements, air-cylinders in the casing, pistons in the cylinders, and arms connecting the piston-rods to the rock-shafts.

3. A mechanism for making and breaking an electrical wire signal-circuit, comprising a suitable box or casing, a depressible bar or lever having a double-incline tread-surface arranged adjacent to the tread of the track-rail, rock-shafts journaled across the box, arms connecting the rock-shafts to the ends of the depressible bar, depending arms on the rock-shafts, a retractile spring connecting the depending arms to return the rock-shafts to normal positions, fingers on the rock-shafts, contact-springs in the path of said fingers, circuit-wires connected to said contact elements, air-cylinders in the casing, regulating-valves in the cylinder-heads to adjust and regulate the exit of air from the cylinders, pistons in the cylinders, valves in the pistons to admit air when the pistons are withdrawn, and piston-rods having their ends connected to arms on the rock-shaft.

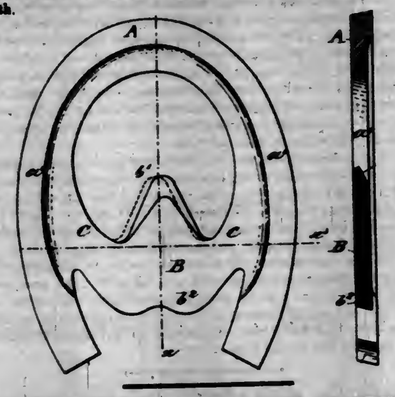
594,615. EXPANSIVE BIT. BERNARD H. POWER, Spokane, Wash. Filed Jan. 27, 1897. Serial No. 620,963. (No model.)



Claim.—The combination with a standing part of a bit having a guide, a groove in the rear side of said guide, a lug at the end of said groove, and an adjusting-screw mounted upon said lug and provided with a finger-piece, of a cutter, moving in said guide and provided on its inner face with a screw-threaded groove to engage the said adjusting-screw, and the notched end of said cutter adjacent said finger-piece.

594,616. HORSESHOE. JOSEPH A. GARNEAU, Quebec, Canada. Filed Dec. 8, 1896. Serial No. 614,868. (No model.)

Claim.—A solid uncut horseshoe A, having a frog-supporting plate B, of a heart shape situated between the side bars of the shoe with its apex directed toward the toe of the shoe, said plate being connected integrally with the shoe by obliquely-arranged lateral ties at points forward of the heels of the shoe, and having its apex inclined toward one side of the longitudinal axis of the shoe, as set forth.



594,617. BUTTON-FEEDING APPARATUS FOR SEWING-MACHINES. LEO GOODKIND, HARRY M. BENJAMIN, and HOWARD E. BARTLETT, St. Paul, Minn., said Benjamin assignor to said Goodkind. Filed Nov. 27, 1896. Serial No. 613,674. (No model.)



Claim.—1. In a button-feeding device, the combination with a lower hopper member of disk shape with raised edge, said member standing normally inclined, its bottom rising abruptly within said edge at its lower side and gradually at its upper side, and said edge having an exit-opening at its lowest point; of an upper hopper member of inverted-cup shape with openings in its edge which moves within the raised edge of the lower member, and means for agitating said upper member, as and for the purpose set forth.

2. In a button-feeding device, the combination with a lower hopper member of disk shape with raised edge, said member standing normally inclined, its bottom rising abruptly within said edge at its lower side and gradually at its upper side, and a pin rising from its center, said edge having at its lower point an exit-opening, and a runway leading therefrom; of an upper member of inverted-cup shape having a downwardly-projecting sleeve journaled on said pin, and a series of ribs carried by the edge of this member and moving over said exit-opening, as and for the purpose set forth.

3. In a button-feeding device, the combination with a hopper having an exit-opening; of a runway comprising a track leading from said opening and having a longitudinal groove depressed below its upper face and widened gradually toward said opening, side edges rising above said upper face, longitudinal strips secured on said edges and projecting slightly beyond their inner faces, the strips being omitted at the lower end of the runway, and spring-fingers located

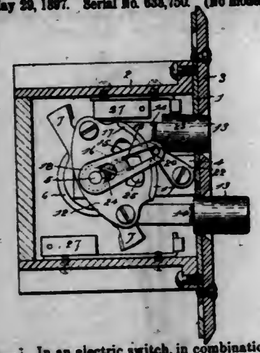
where the strips are omitted for frictionally retaining the buttons, as and for the purpose set forth.

4. The combination with a button-runway having raised edges notched at certain points; of a cut-off comprising a substantially flat L-shaped plate pivoted at one end upon one of said edges, and thus being capable of swinging across the top of the runway, and having a handle at its opposite end projecting beyond the other of said edges; and two lips depending from the plate near its angle and adapted to be moved inward through said notches, the location of the lips being such that they are brought alternately into the path of the buttons, as and for the purpose set forth.

5. The combination with a button-runway; of a plate having a slot in its body standing opposite the delivery end of the runway with a circular enlargement at the inner end of the slot, and a curved rib rising from the plate concentric with and slightly remote from said enlargement, and at that side thereof which is opposite the slot and runway, as and for the purpose set forth.

6. The combination with a button-runway; of a holding-plate located at the delivery end thereof, a rib rising from this plate in the path of the button, a clamp having pivoted arms with curved and grooved extremities forming jaws standing at opposite sides of the button when the latter rests against said rib, and means for moving the arms, as and for the purpose set forth.

594,618. ELECTRIC SWITCH. Monroe Gurry, Hartford, Conn., assignor to the Hart & Hegeman Manufacturing Company, same place. Filed May 29, 1897. Serial No. 638,750. (No model.)



Claim.—1. In an electric switch, in combination, a locking-plate arranged to be oscillated between two normal positions, means for oscillating the plate beyond those normal positions, a locking-lever loosely connected with the poles and arranged to engage a portion of the plate until it is oscillated beyond either one or the other of those normal positions, a spring engaging the plate and also a part connected with the poles and arranged to be put under tension by the oscillation of the plate, said spring when under tension being adapted to throw the poles and to move the plate to either one or the other of its normal positions, and poles mounted upon a spindle and adapted to be oscillated when the locking lever moves, substantially as specified.

2. In an electric switch, in combination, an oscillating plate, means for oscillating the plate, a locking-lever adapted to engage a portion of the plate during a part of its oscillation, a crank-arm engaged by the locking-lever, a spindle connected with the crank-arm, poles mounted upon the spindle, and a spring arranged to engage the oscillating plate and also the crank-arm, substantially as specified.

3. In an electric switch, in combination, an oscillating plate with a wall projecting outwardly therefrom, means for oscillating the plate, a locking-lever with a part adapted to engage the projecting wall of the plate during a part of its oscillation, a crank-arm engaged by the locking-lever, a spindle connected with the crank-arm, poles mounted upon the spindle, and a spring arranged to engage with the oscillating plate and also with the crank-arm, substantially as specified.

4. In an electric switch, in combination, an oscillating plate with a wall projecting outwardly therefrom, said wall having an opening through it, means for oscillating the plate, a locking-lever having a lug adapted to engage the projecting wall of the plate during a part of its oscillation, a crank-arm having a slot engaged by a part of the locking-lever, a spindle connected with the crank-arm, poles mounted upon the spindle, and a spring arranged to engage a lug projecting from the crank-arm and also a lug projecting from the oscillating plate, substantially as specified.

6. In an electric switch, in combination, an oscillating plate with a wall projecting outwardly therefrom, said wall having an opening through it, means for oscillating the plate, a locking-lever having a lug adapted to engage the projecting wall of the plate during a part of its oscillation, a crank-arm having a slot engaged by a stud projecting from the locking-lever, a spindle connected with the crank-arm, a block of insulation borne by the spindle, poles loosely mounted upon the block, and a spring arranged to engage a part connected with the oscillating plate and also with a part connected with the crank-arm, substantially as specified.

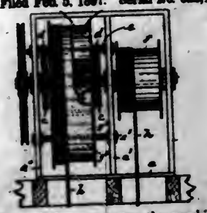
7. In an electric switch, in combination, an oscillating plate, push-buttons connected with the oscillating plate, a locking-lever adapted to engage with the plate during a part of its oscillation, a crank-arm engaged by a locking-lever, a spindle connected with the crank-arm, poles mounted upon the spindle, and a spring arranged to engage with the oscillating plate and also with the crank-arm, substantially as specified.

8. In an electric switch, in combination, a block of insulating material firmly supported by a spindle, said block having angular hubs projecting from its opposite faces, means for rotating the block and spindle, poles projecting radially substantially in the plane of the block and loosely fitting the angular hubs of the block, and means for loosely retaining the pole-pieces upon the hubs so they rotate with but are movable sidewise independently of the block, substantially as specified.

9. In an electric switch, in combination with movable poles and a spring for throwing the poles, a locking-lever connected with the poles, an oscillating plate normally held by the spring in position to obstruct the movement of the lever, and means for making the spring tense and oscillating the plate out of the path of the lever so the spring can throw the poles, said spring and plate being so connected that the plate is moved by the spring backward in a direction opposite to its forward oscillation, to obstruct the lever after each movement of the lever and throw of the poles, substantially as specified.

10. In an electric switch, in combination with movable poles and a spring for throwing the poles, a locking-lever connected with the poles, an oscillating plate held by a spring in either one of two normal positions with a portion obstructing the movement of the lever, the obstructing portions of the plate being so arranged as to hold the lever until the plate is oscillated from one normal position beyond the other normal position, and means for oscillating the plate from one normal position beyond the other normal position so the spring can throw the poles, said spring returning the plate to the nearest normal position after each movement of the poles, substantially as specified.

594,619. HOISTING APPARATUS. Thomas Haddow, West Hoboken, N. J. Filed Feb. 5, 1897. Serial No. 622,143. (No model.)



Claim.—1. In a hoisting apparatus, the combination with a frame, comprising a bed-plate and three standards, of two parallel shafts mounted in said standards, one of said shafts having its bearings in two of said standards, while the other shaft extends beyond the central standard to and into the third standard, in which latter an additional bearing is formed for said shaft, a cylindrical drum secured on the shorter one of said shafts, a cylindrical drum of larger diameter secured on the extended portion of the other shaft, a pinion on the first-mentioned shaft on each side of the drum, gear-wheels on the other shaft and meshing with said pinions, a lift-rope secured with one end to one of said drums and with its other end to the other drum and coiled in the same direction, on said drums, and means such as a crank, for operating one of said shafts, substantially as described.

2. In a hoisting apparatus, comprising two drums, means for operating said drums at different speeds and in opposite directions, one of said drums having the form of an endless belt stretched over two drums of smaller diameter than the independent drum, and a lift-rope secured with one end to the independent drum and with its other end to the belt-drum, and coiled around said drums in the same direction, substantially as and for the purposes described.

594,620. ENVELOP. David Harris, Star, Wis. Filed Feb. 1, 1897. Serial No. 621,493. (No model.)



Claim.—1. An envelop having a blank comprising a rectangular front fold, interior and exterior back folds integral with the side edges of the front fold, the exterior back fold being provided at intermediate points with transverse slits and having its inner surface gummed parallel with its edges to adhere to the outer surface of the interior back fold, and closing and bottom flaps integral with the end edges of the front fold, and of a length greater than the intervals between the extremities of the front fold and said slits, for terminal insertion through the latter, said flaps having gummed inner surfaces to adhere to the outer surfaces of the exterior and interior back folds, and the exterior back fold being gummed contiguous to its slits for adhesion to the exterior surfaces of the flaps, substantially as specified.

2. An envelop having a blank comprising a rectangular main fold, integral approximately coextensive interior and exterior back folds arranged at the side edges of the front fold, the exterior back fold being provided at intermediate points with transverse curved slits, bowed respectively toward the contiguous ends of said fold to form outwardly-extending segmental tongues, and closing and bottom flaps integral with the front fold at its end edges, and of a length greater than the interval between each end edge of the front fold and the contiguous curved slit of the exterior back fold, and adapted to be inserted respectively through said slits, the exterior and interior back folds being adhesively connected at their edges, the flaps and tongue being gummed on their inner surfaces, substantially as specified.

3. An envelop having a blank provided with approximately coextensive front, and exterior and interior back, folds adapted to lie in parallel planes, the said back folds being adhesively connected, and the exterior back fold being slitted to expose the outer surface of the interior back fold; and peripherally-rounded end flaps integral with the end edges of the front fold and adhesively secured, centrally, to the outer surface of the interior back fold and, upon opposite sides of said central points, to the outer surface of the exterior back fold, said exterior back fold being further provided with tongues overlapping and adhesively secured to the exterior surfaces of the end flaps, substantially as specified.

594,621. WAGON-BED. Edward R. Hartsell, Rowland, Ala., assignor of one-third to Isaac Fox Delony, same place. Filed Apr. 21, 1897. Serial No. 633,305. (No model.)



Claim.—1. The combination with the body of a wagon or similar vehicle, of extension-sides made removable in an oblique line, substantially as described.

2. The combination with the body of a wagon or other vehicle, of extension-sides having obliquely-disposed standards, and socket-pieces secured to the said body and adapted to receive said standards, substantially as described.

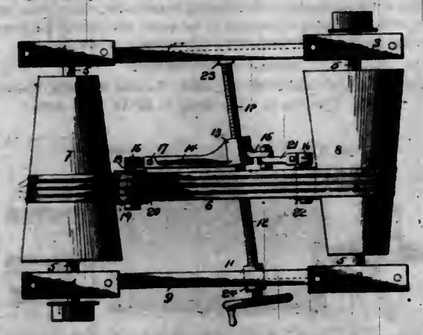
3. The combination with the body of a wagon or other vehicle, of an extension-side, a series of oblique standards secured rigidly to said extension-side and having their lower ends extended below the bottom edge of the extension-side, and keepers or socket-pieces secured to said body and adapted to receive the lower ends of the standards, substantially as described.

4. The combination with the body of a wagon or other vehicle, of extension-sides provided with oblique standards adapted to be received in socket-pieces on the body whereby the extension-sides are caused to move in oblique planes, and removable end-boards slidingly fitted between the extension-sides and movable in vertical lines, substantially as described.

5. The combination with the body of a wagon or other vehicle, of extension-sides provided with oblique standards adapted to enter socket-pieces on the body whereby the sides are made movable in oblique lines, and extension end-boards slidingly mounted in ways between the extension-sides and movable in a different direction from the direction in which the sides move, substantially as described.

6. The combination with the body of a wagon or other vehicle, of extension-sides mounted thereon, extension front and rear boards slidingly engaging the sides and serving to lock the same against displacement, and standards secured to the end-boards and removably fitted in openings in the bottom of the body, said standards having provision beneath the bottom of the body for preventing their displacement, substantially as described.

594,622. BELT TIGHTENER AND SHIFTER. Pembroke D. Hanton, Philadelphia, Pa. Filed June 22, 1897. Serial No. 641,826. (No model.)



Claim.—1. In a belt tightener and shifter for cone-pulleys, the combination of a threaded shaft adjustably secured to the sides of the machine with means for operating the same, a nut on said shaft having two arms each provided with an adjustable end and with a roller, all substantially as and for the purposes set forth.

2. In a belt tightener and shifter for cone-pulleys, the combination of an adjustable threaded shaft interposed between the cone-pulleys, a nut on said shaft having two arms one of which is swiveled, each provided with an adjustable end carrying a roller or guide with two or more webs, all substantially as described.

3. In a belt tightener and shifter, the combination with the cone-pulleys and adjustable threaded shaft arranged at an angle to the shafts of the pulleys, of a nut on said shaft carrying two arms each provided with a roller or guide, substantially as described.

594,623. WEATHER-STRIP. George A. Hill, Marcona, Iowa. Filed Aug. 10, 1897. Serial No. 647,712. (No model.)



Claim.—1. A weather-strip having upper and lower main and auxiliary troughs or gutters declining toward and communicating with a common outlet-spout, projecting outwardly and adapted to discharge the contents of the troughs or gutters at a point remote from the exterior surface of a door, substantially as specified.

2. A weather-strip having a plate adapted to be secured to a door contiguous to its lower edge, and provided with an upper abruptly-inclined main trough or gutter, and a lower slightly-inclined auxiliary trough or gutter, arranged approximately parallel with and contiguous to the lower edge of the door, to receive water deposited upon the surface of the door below the main trough or gutter, and a spout for receiving the contents of the troughs or gutters, the same extend-

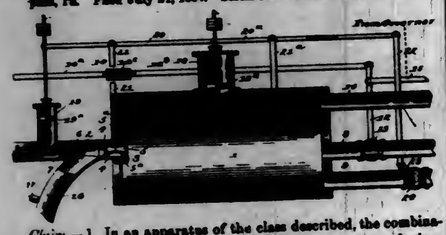
ing outwardly and terminating at a point remote from the exterior surface of the door, substantially as specified.

3. A weather-strip consisting of a plate folded or doubled upon itself to form upper and lower main and auxiliary troughs or gutters 5 and 7, and a spout arranged to receive the contents of said troughs or gutters and discharge the same at a point remote from the plane thereof, substantially as specified.

4. A weather-strip having a sheet-metal plate doubled upon itself to form main and auxiliary troughs inclined in a common direction and communicating with a common spout, said plate being provided with extensions or tongues adapted to lie in contact with the lower edge of a door and to be terminally secured to the inner surface thereof, substantially as specified.

5. The combination with a weather-strip having a trough or gutter communicating at its lowermost point with an outwardly-extending spout, and adapted to be secured to the exterior surface of a door contiguous to its lower edge, of a stationary inclined guard-plate adapted to be secured to the exterior surface of a door-sill, and provided at its upper edge with an enlargement having a horizontal upper surface arranged contiguous to the lower edge of said strip, and having a vertical exterior surface, substantially as specified.

594,624. EXHAUST-UTILIZER. PATRICK F. HALEY, Philadelphia, Pa. Filed July 21, 1897. Serial No. 645,441. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a reservoir, a main supply-pipe provided with a reducing-bushing, a check-valve and a reciprocating cut-off valve, a discharge-pipe, an escape-pipe having a valve, levers connected with said valve and the reciprocating cut-off and an adjustable rod connecting said levers, substantially as shown and described.

2. In an apparatus of the class described, the combination of a reservoir, a main supply pipe, a conical reducing-bushing in said pipe a conical reciprocating cut-off valve connecting therewith, a check-valve between the cut-off valve and reservoir, an exhaust-pipe adapted to carry off the pressure in the supply-pipe when said check-valve is closed, a discharge-pipe, an escape-pipe having a valve, levers connected with said valve and the reciprocating cut-off, and an adjustable rod connecting said levers, substantially as shown and described.

3. In an apparatus of the class described, the combination of a reservoir, a main supply-pipe having a check-valve adapted to close when the pressure in the reservoir exceeds that in the main pipe, a discharge-pipe, an escape-pipe provided with a valve, cylinders in communication with the supply-pipe and reservoir, a plunger in each cylinder, a tilting rod connecting the rods of said plungers, and a lever connecting the tilting rod and escape-pipe valve, substantially as described.

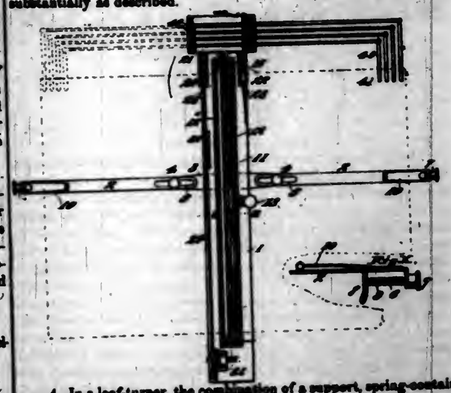
4. In an apparatus of the class described, the combination of a reservoir, a main supply-pipe provided with a reducing-bushing, a check-valve and a reciprocating cut-off valve, a discharge-pipe, an escape-pipe provided with a valve, cylinders in communication with the supply-pipe and reservoir, a plunger in each cylinder, a tilting rod connecting the rods of said plungers, and a lever connecting the tilting rod and escape-pipe valve, substantially as described.

594,625. MUSIC-LEAF TURNER. HERMAN HEUCKLER and WILLIAM J. HIGGS, St. Louis, Mo. Filed Feb. 5, 1897. Serial No. 622,198. (No model.)

Claim.—1. In a leaf-turner, the combination of a support, spring-containing barrels mounted on said support, sheet-turning arms carried by said barrels, a support provided with stops, pawls carried by said barrels arranged to engage said stops, and means for tripping said pawls, substantially as described.

2. In a leaf-turner, the combination of a support, spring-containing barrels mounted on said support, sheet-turning arms carried by said barrels, a support provided with stops, said stops being provided with inclined rear faces, spring-controlled pawls carried by said barrels arranged to ride over said inclined faces and engage said stops, and means for tripping said pawls, substantially as described.

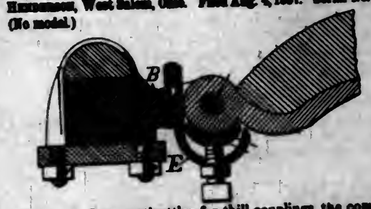
3. In a leaf-turner, the combination of a support, spring-containing barrels mounted on said support, sheet-turning arms carried by said barrels, a support provided with stops, spring-controlled pawls carried by said barrels, a trip-rod carrying a prong adapted to engage said pawls, and an operating-lever connected to said trip-rod, substantially as described.



4. In a leaf-turner, the combination of a support, spring-containing barrels mounted on said support, sheet-turning arms carried by said barrels, an upright, stops offset from each other on said upright, spring-controlled pawls carried by said barrels, a trip-rod arranged to engage said pawls, a spring arranged to press said trip-rod into engagement with said pawls, and means for operating said trip-rod, substantially as described.

5. In a leaf-turner, the combination of a support, a clamp composed of two members separately pivoted to said support, lugs arranged on the inner sides of said members opposing and contacting with each other, a spring arranged to hold said members together, one of said members being provided with a finger-piece on the depressed of which the lug carried by its member is caused to operate the opposing lug and cause the clamp members to be opened simultaneously, substantially as described.

594,626. ANTIRATTLER FOR THILL-COUPLINGS. THOMAS HENDERSON, West Salem, Ohio. Filed Aug. 4, 1897. Serial No. 647,080. (No model.)



Claim.—1. In an antirattler for thill-couplings, the combination with the axle-clip and thill-iron; of the hook-shaped holder having an elongated shank adapted to project through the space between the eye of the thill-iron and the axle; and provided with a transverse opening in its upper end, and a shouldered key adapted to pass through and fit said transverse opening in the shank and rest upon the upper edge of the ears; and a bearing-block provided with an antifriction-lining, controlled by a set-screw projecting through the bottom of the holder adapted to bear against the under face of the thill-iron, substantially as described.

2. In an antirattler for thill-couplings, the combination with the axle-clip and thill-iron, of the hook-shaped holder having an elongated shank adapted to project between and above the ears of the clip in rear of the eye of the thill-iron, and provided with a transverse opening in its top; and a key provided with a recess in its upper edge corresponding in width to the upper end of the holder; and a bearing-block resting in the curved bottom of the holder and controlled by a set screw projecting through said curved bottom, substantially as described.

594,627. BICYCLE-SUPPORT. WILLIAM P. HEWLETT, Pomona, Cal., assignor of one-half to R. S. Bennett and Fred J. Smith, same place. Filed Oct. 23, 1896. Serial No. 609,609. (No model.)

Claim.—1. In a bicycle-support, a stem provided at its upper end with an adjustable spindle, arms at one end of said spindle provided at their outer ends with hooks, and a depending rod secured at the outer end of said spindle and provided at its lower end with oppositely-extending fingers, substantially as described.

2. In a bicycle-support, a stem provided at its upper end with a rotatable and longitudinally-movable spindle, devices for holding said spindle rigid in relation with said stem, and devices carried by said spindle for supporting a bicycle, substantially as described.

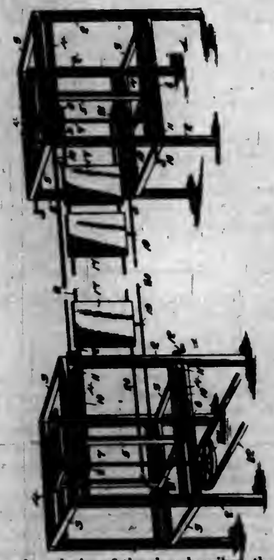


3. In a bicycle-support, a stem provided with a transverse spindle, arms upon one end of said spindle, hooks upon the outer end of said arms, one of said hooks being adjustable thereon, and an upright rod secured to said spindle provided at its lower end with oppositely-extending fingers, substantially as described.

4. In a bicycle-support, a stem having a transverse spindle provided at one end with arms having hooks, and a longitudinally-adjustable rod secured to said spindle provided at its lower end with oppositely-extending fingers, substantially as described.

5. In a bicycle-support, a stem provided with a transverse spindle having arms provided with hooks and a rod having oppositely-extending fingers, and an adjustable extension at one end of one of said arms provided at its lower end with a pivoted yoke, substantially as described.

594,628. ADVERTISING DEVICE. ALFRED J. KELLOGG, Portland, Oreg., assignor of one-half to W. J. Minges, Vancouver, Wash. Filed Apr. 30, 1896. Renewed July 23, 1897. Serial No. 645,621. (No model.)



Claim.—1. In a device of the class described, the combination of a pair of supporting-frames, gearing mounted thereon, an endless belt or cable connected with the gearing and disposed horizontally, vertical bulletins detachably mounted on the belt or cable and depending therefrom, and means for guiding and supporting the lower portions of the bulletins, substantially as and for the purpose described.

2. In a device of the class described, the combination of a supporting-frame, pulleys mounted thereon, an endless belt or cable arranged on the pulleys and disposed horizontally, a series of clamps mounted on the belt or cable and provided with eyes, vertical bulletins provided at their rear faces with pins detachably engaging the eyes, and the parallel horizontal guides connecting the supporting-frame and supporting and guiding the lower portions of the bulletins, substantially as described.

3. In a device of the class described, the combination of a pair of supporting-frames provided with guides, bearing-frames adjustably mounted in the guides, vertical shafts journaled on the bearing-frames, horizontal pulleys fixed to the shafts, an endless belt or cable arranged on the pulleys, vertical bulletins detachably connected with and depending from the belt or cable and provided at their lower edges with depending pins, and parallel horizontal guides connecting the supporting-frames arranged at opposite sides of the bulletins and engaged by said pins, substantially as described.

4. In a device of the class described, the combination of supporting-frames, pulleys mounted thereon, an endless belt or cable arranged on the pulleys and disposed horizontally, a series of clamps mounted on the belt or cable, vertical bulletins detachably secured to the clamps, parallel horizontal guide-wires connecting the supporting-frames, a curved guide connected with the terminals of the wires and located below the pulleys, and pins depending from the lower edges of the vertical bulletins and arranged within and supported by the guide-wires and the curved guides, substantially as and for the purpose described.

594,629. SYRUP-PITCHER. ELMER G. LANTS, Albany, Oreg. Filed June 28, 1897. Serial No. 642,314. (No model.)



Claim.—1. The combination with a syrup-pitcher provided with inner and outer lids, of a guide mounted on the inner lid and provided with a shoulder, and a link carried by the outer lid and engaging said guide, whereby the two lids are loosely connected, said link being adapted to engage the shoulder of the guide to close the inner lid and cut off the flow of liquid before the outer lid closes, substantially as described.

2. The combination with a syrup-pitcher provided with inner and outer lids, of a guide consisting of a loop mounted on the inner lid and provided at its top with a shoulder, and a link hinged to the outer lid and engaging the guide, substantially as and for the purpose described.

3. The combination with a syrup-pitcher provided with inner and outer lids, of a guide mounted on the inner lid and consisting of a pair of oblong loops bent at their upper sides to form shoulders, and a link hinged to the outer lid and passing through the loops of the guide and provided at its bottom with a weight, substantially as and for the purpose described.

4. The combination of a syrup-pitcher provided with inner and outer lids, a link loosely connecting the lids to cause the inner one to open after the outer lid and close before the same, and means for engaging the link in closing the lids, whereby the inner lid is held firmly closed by the outer lid for cutting off the flow of syrup positively, substantially as described.

5. The combination of a syrup-pitcher, provided with inner and outer lids, and means for loosely connecting the lids to cause the inner lid to open after the outer one and to close before the same, said means comprising a guide mounted on one of the lids, a link connected with the other lid and with the guide, and a stop arranged to be engaged by the link in closing the lids, whereby a positive connection between them is provided, substantially as and for the purpose described.

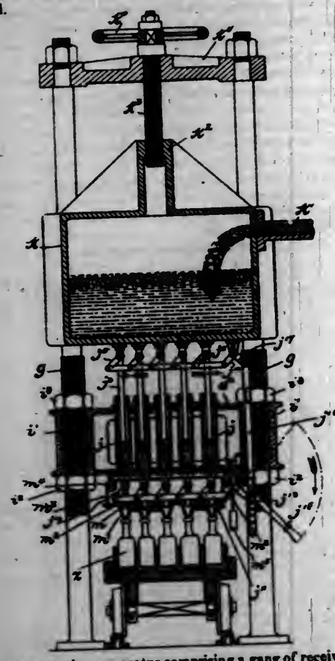
594,630. APPARATUS FOR MEASURING, REGISTERING, AND DELIVERING LIQUIDS. WILLIAM LINDSAY, Manchester, England. Filed Dec. 30, 1896. Serial No. 617,490. (No model.) Patented in England June 7, 1894, No. 11,088.

Claim.—1. A measuring apparatus comprising an air-tight receiver, a measure-regulating supply-tube extending into and communicating with said receiver with provisions for varying the extent of its projection therein, and valves controlling the supply through said tube and the delivery from the receiver, substantially as described.

2. A measuring apparatus comprising an air-tight receiver, a measure-regulating supply-tube extending into and communicating with said receiver with provisions for varying the extent of its projection therein, a valve controlling the supply through said tube, a valve controlling the delivery from the receiver, and connections between said valves to effect their simultaneous operation, substantially in the manner described.

3. A measuring apparatus comprising a plurality of air-tight re-

ceivers, measure-regulating supply-tubes extending into and communicating with the receivers respectively, with provisions for varying the extent of their projection thereinto, and valves controlling supply to said receivers through said tubes, and delivery from the receivers, and connected for simultaneous operation, substantially as described.



4. A measuring apparatus comprising a gang of receivers, measure-regulating supply-tubes extending into and communicating with the said receivers respectively and longitudinally adjustable therein, and valves controlling supply to the receivers through the tubes and delivery from the receivers and connected for simultaneous operation, substantially as described.

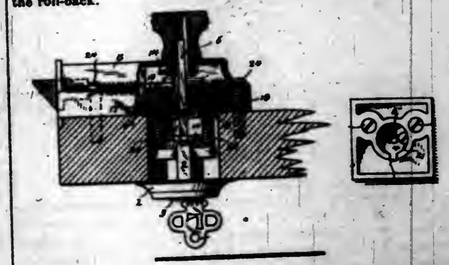
5. In a measuring apparatus, the combination of a supply tank or reservoir, an air-tight measuring chamber or receptacle below the same, one of said parts being adjustable toward and from the other, a tube fastened to the tank and communicating with the interior thereof and extending through a stuffing-box in the top side of the measuring-receptacle and communicating with the interior of the latter, and adjusting means for varying the distance between the tank and the receptacle and consequently the extent of projection of the tube into the latter, to regulate the measure therein by entrapment of air in the receptacle above the lower end of the tube.

6. A measuring apparatus comprising a supply-tank, a support below the same, one of said parts being adjustable toward and from the other, a gang of air-tight receivers carried by said support, tubes carried by the tank and extending into the top sides of the receivers respectively, with a sliding engagement, valves controlling communication between the tank and the receivers through said tubes, valves controlling the delivery from the receivers, connections between all the said valves for securing simultaneous operation thereof, and means for varying the distance between the tank and the receiver-support and consequently the extent of projection of the tubes into the receivers, to regulate the measure by entrapment of air in the receptacles above the lower ends of the tubes.

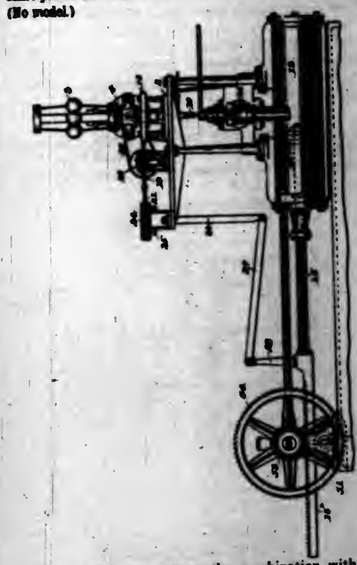
7. In a measuring apparatus, the combination of receivers, in communication with a source of supply and having outlet-nozzles, valve mechanism controlling such communication, and, also, the outlet from the receivers, a plate having a series of funnels embracing the said nozzles respectively, a counterbalance, flexible connections between the same and the funnel-plate, and guides for said connections.

594,681. LOCK. HENRY S. LOCKWOOD, South Norwalk, Conn. Filed Aug. 24, 1897. Serial No. 649,304. (No model.)

Claim.—In a mechanism of the character described, the combination with a roll-back within a latch-case and an oscillating key-hub not in the latch-case, said roll-back having an opening through it and the hub having a similar opening in its inner end, of a plate adapted for attachment to the inner side of a door and having an opening through it a portion of which is made angular, a nut adapted to lie in said opening and having an angular portion to engage the angular portion of the opening, whereby the nut is held against rotation, and a rod adapted to engage the openings in the hub and the roll-back and threaded to engage the nut so that rotation of the hub will carry the roll-back.



594,682. SPEED-REGULATOR. NATHANIEL LOMBARD, Boston, Mass., assignor to the Lombard Water Wheel Governor Company, same place and Portland, Me. Filed Dec. 12, 1896. Serial No. 615,499. (No model.)



Claim.—1. In a regulator the combination with centrifugal weights, a reciprocating rod for axial rotation, a main gate operated by the weights through the agency of the rod, and intermediary mechanism to connect the rod with the gate, of elements positively connected in train and actuated by the movement of the gate to rotate the rod during the interval required to return the weights to their normal position, substantially as set forth.

2. In a regulator, a plurality of centrifugal weights, a rod for right-line reciprocations induced by said weights, mechanism interconnecting said rod with the main gate, and a main gate, combined with a revoluble shaft adapted for endwise movement to rotate the rod.

3. In a regulator centrifugal weights, a rod adapted to be reciprocated by the weights, a main gate, mechanism interconnecting the gate with the rod and serving to actuate and lock the gate, combined with a shaft for right-line movement endwise to revolve the rod, and mechanism from the prime motor to rotate the shaft, substantially as specified.

4. In a regulator, centrifugal weights, a rod for right-line thrust and rotary motion, a main gate, gate-operating mechanism which connects the rod with the gate to actuate and lock said gate, combined with a stationary tubular support, a toothed sleeve united with the gate-operating mechanism, a shaft interlocked with the rod, and means for revolving said shaft, substantially as described.

5. In a governor, a plurality of centrifugal weights, a rod reciprocated by said weights, a toothed wheel affixed to said rod, a main gate, gate-actuating mechanism united with and controlled by said rod, combined with a fixed support, a toothed sleeve therein, a shaft united by screw engagement with said sleeve, a rack operated by the shaft and meshing with the toothed wheel, actuating-levers from the toothed sleeve to the gate-operating mechanism, and means for revolving the shaft in either direction as specified.

6. In a governor adapted to control the main gate or valve of some prime motor, the combination with centrifugal weights, gate actuating and locking mechanism, and a rod for right-line and axial rotary movement, of a toothed wheel upon the rod, a rack meshing with said wheel, a shaft attached to the rack, two gears mounted in a fixed standard, and a pinion in constant rotation and to engage with either gear, substantially as described.

7. In combination with centrifugal weights, a rod equipped with a toothed wheel, gate-actuating mechanism controlled by the rod, a shaft-rack equipped at one end to mesh in the toothed wheel, screw-threaded at the opposite end to engage in a toothed sleeve, a pinion for constant rotation, two gears in a fixed stand to rotate the shaft, said shaft to have free endwise thrust through the gears, and a sector operated by the gate-actuating mechanism to impart a thrust to the shaft.

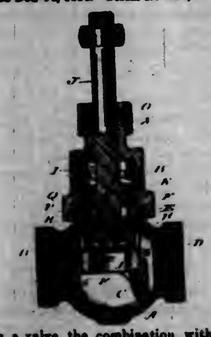
8. In governors, the combination with centrifugal weights, a rod, a toothed wheel thereupon, a shaft when thrust endwise to revolve the rod, two gears in a fixed stand, a pivotally-mounted shaft extension having a pinion on its free end, a rocking, spring-actuated, balanced finger-plate, and an arm in contact with said plate to unbalance said plate when the shaft is thrust endwise.

9. In a governor, centrifugal weights, a rod adapted for direct endwise thrusts and axial rotation, gate-actuating mechanism controlled and locked by said rod, a toothed sleeve adapted to slide at times and actuated by the gate mechanism, a sliding toothed rack to engage a toothed wheel on the rod, combined with a shaft which interconnects said rack and sleeve, gears upon said shaft, a balanced finger-plate for rocking movement upon right-line thrust of the shaft, and a pinion for constant rotation of the shaft, while the finger-plate is held unbalanced.

10. In a governor the combination with centrifugal weights, a rod for variable adjustments in length, a main gate, gate actuating and locking mechanism controlled by said rod, a sliding sleeve operated by the gate mechanism and mounted in a fixed support, and a rack to engage the rod, a shaft united with the rack and screw-threaded at one end to enter the sleeve, a balanced finger-plate held in unbalance upon right-line thrust of the shaft, and means to continue the rotation of the shaft and turning of the rod until the said finger-plate is restored to balance.

11. In a governor, the combination with centrifugal weights, a rod reciprocated by said weights, gate locking and actuating devices operated by the rod, and a main gate, of a rotary shaft, mechanism connected with the gate-operating devices to impart endwise thrust to the shaft and axial rotation of the rod, and apparatus united to the shaft to produce reverse rotation of the rod during the return of the weights to their normal.

594,683. QUICK-OPENING VALVE. EDWARD H. LOCKER, Denver, Colo. Filed Dec. 14, 1896. Serial No. 615,716. (No model.)

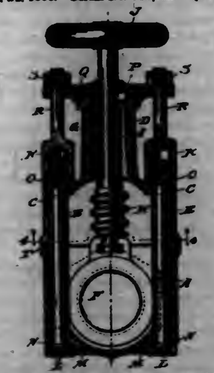


Claim.—1. In a valve, the combination, with the casing composed of a body portion A and a bonnet portion B, the former provided with the diaphragm C, of the cylinder F secured at its lower end in the diaphragm C and extending at its upper end into the bonnet-opening of the casing, and provided with the seat G and ports H, the valve-stem J provided with threads cooperating with threads in the bonnet B, the cylindrical valve L carried by the stem J and fitting within the cylinder F and cooperating with the seat G and ports H thereof, said valve and valve-stem being capable of slight longitudinal movement independently of each other and said valve-stem operating by such independent movement to control an auxiliary passage through the valve to open and close communication between its upper and lower sides independently of the opening and closing of the main valve, for the purpose described.

2. In a valve, the combination, with the body A and the bonnet B, the former provided with the diaphragm C, of the cylinder F fitting within the bonnet-opening of the body A and secured at its lower end in the diaphragm C, and provided with the seat G and ports H, the valve-stem J provided with threads cooperating with threads in the bonnet B, the cylindrical valve L carried by the stem J and fitting within the cylinder F and cooperating with the seat G and ports H thereof, said valve and valve-stem being capable of slight longitudinal movement independently of each other and the valve being provided with a port R controlled by the lower end of the valve-stem, and a passage furnishing communication between the upper side of the valve L and the space within the same below the valve-stem, for the purpose described.

3. In a valve, the combination, with the body A and the bonnet B, the former provided with the diaphragm C, and the latter having an internal diameter approximating that of the bonnet-opening in the valve and provided with a plurality of internal threads I of coarse pitch, as described, of the valve-stem J provided with the collar K having threads cooperating with the threads in the bonnet B, and having its lower end suitably shaped to act as a valve and also provided with a flange or collar P, the cylindrical valve L fitting within the cylinder F and cooperating with the seat G and ports H thereof, and having the interiorly-threaded opening or bore, and the central port R through its bottom, the lock-nut Q surrounding the valve-stem J above its collar P and screwed into the valve L, and a passage S furnishing communication between the space above the valve and the space within the valve below the stem J, for the purpose specified.

594,684. STRAIGHTWAY VALVE. EDWARD H. LOCKER, Denver, Colo. Filed Dec. 21, 1896. Serial No. 616,445. (No model.)



Claim.—1. In a straightway valve, the combination, with the body portion of the casing containing the valve-seat and provided with the opposite pipe connections, and the bonnet or hood of the casing seated upon said body portion, of bolts passing vertically through said body and bonnet within the same and upon opposite sides of the passage through the valve, said bolts suitably engaging the casing at one end and screw-threaded at their opposite ends, and binding-nuts applied to the threaded ends of said bolts to firmly secure the two portions of the casing together, substantially as described.

2. In a straightway valve, the combination, with the body portion of the casing, and the bonnet or hood portion seated upon said body portion, of bolts passing vertically through said body and bonnet of the casing within the same and on opposite sides of the passage through the valve, and in the plane of the valve-disk so as to be engaged thereby and serve to guide the disk in its vertical movements, said bolts suitably engaging the casing at one end and screw-threaded at their opposite ends, and binding-nuts applied to the threaded ends of said bolts, substantially as and for the purpose described.

3 In a straightway valve, the combination, with the body portion of the casing and the bonnet or hood portion seated thereon, of bolts passing vertically through said body and bonnet within the same and on opposite sides of the passage through the valve, and provided at one end with enlarged heads bearing against the surface of the casing and screw-threaded at their opposite ends, and binding-nuts applied to the threaded ends of said bolts, substantially as and for the purpose described.

4. In a straightway valve, the combination, with the body portion and the bonnet or hood portion of the casing, of bolts passing vertically through said body and bonnet, within the same and on opposite sides of the passage through the valve, said bolts being provided at one end with enlarged heads bearing against the surface of the casing and screw-threaded at their opposite ends, closed cap-nuts applied to the threaded ends of said bolts, to bind the two portions of the casing firmly together, and packing-washers surrounding said bolts and interposed between the surface of the casing and the bolt-heads and nuts, substantially as described.

5. In a straightway valve, the combination with the body portion and the bonnet or hood portion of the casing, of bolts passing vertically through said body and bonnet, within the same and on opposite sides of the passage through the valve, and in the plane of the valve-disk so as to be engaged thereby and serve to guide the disk in its vertical movements, said bolts being provided at one end with enlarged heads bearing against the surface of the casing and screw-threaded at their opposite ends, closed cap-nuts applied to the threaded ends of said bolts and bearing upon the surface of the casing to firmly bind the two portions thereof together, and packing-washers surrounding said bolts and interposed between the surface of the casing and the bolt-heads and nuts, substantially as described.

6. In a straightway valve, the combination, with the body portion of the casing containing the valve-seat and provided with the opposite pipe connections, and the bonnet or hood of the casing seated upon said body portion, of bolts passing vertically through said body and bonnet within the same and upon opposite sides of the passage through the valve, said bolts engaging the body of the casing at their lower ends and screw-threaded at their upper ends, and binding-nuts applied to their upper ends and bearing upon the upper surface of the bonnet, substantially as and for the purpose described.

7. In a straightway valve, the combination, with the body portion of the casing, and the bonnet or hood portion seated upon said body portion, of bolts passing vertically through said body and bonnet of the casing within the same and on opposite sides of the passage through the valve, and in the plane of the valve-disk so as to be engaged thereby and serve to guide the disk in its vertical movements, said bolts engaging the body of the casing at their lower ends and having their upper ends threaded and provided with binding-nuts screwed upon them and bearing against the upper side of the bonnet, substantially as and for the purpose described.

8. In a straightway valve, the combination, with the body portion of the casing and the bonnet or hood portion seated thereon, of bolts passed upward through said body and bonnet within the same and on opposite sides of the passage through the valve, said bolts being provided at their lower ends with enlarged heads bearing against the under side of said body and screw-threaded at their upper ends, and binding-nuts applied to the upper ends of said bolts and bearing upon the upper surface of the bonnet, substantially as and for the purpose described.

9. In a straightway valve, the combination, with the body portion of the casing and the bonnet or hood portion, the latter being provided with a vertically-extending neck portion, of bolts passing vertically through said body and bonnet, within the same and on opposite sides of the passage through the valve, said bolts engaging said body at their lower ends and screw-threaded at their upper ends, cap-nuts screwed upon the upper ends of such bolts and bearing upon the upper surface of the bonnet, a cross-head or gland fitting upon the upper end of the neck portion of the bonnet and confining the packing around the valve-stem at the upper end of such neck portion, and rods connecting the cap-nuts with the opposite ends of said cross-head, substantially as and for the purpose described.

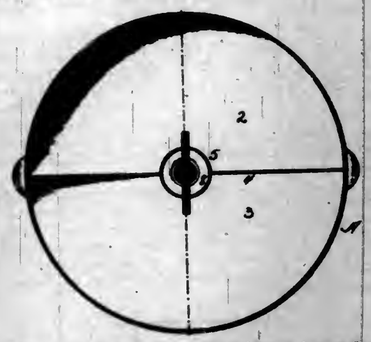
10. In a straightway valve, the combination, with the body portion A containing the valve-seat and having the opposite pipe connections B B, and the bonnet or hood portion C seated upon the body A and provided with internal threads, of the bolts E E passing vertically through the body A and bonnet C within the same and on opposite sides of the passage through the valve, said bolts engaging the body A at their lower ends and screw-threaded at their upper ends, the nuts K K screwed upon the upper ends of said bolts E E and bearing upon the upper surface of the bonnet C, the valve-stem G provided with external threads H engaging the internal threads of the bonnet C, and the valve-disk F carried by the stem G and at its opposite edges engaging and guided upon the bolts E E, substantially as and for the purpose described.

11. In a straightway valve, the combination, with the body portion A of the casing, and the bonnet or hood portion C, of the bolts E E passed through the body A and bonnet C and provided at their lower ends with the heads L L bearing against the under side of the body A and held from turning by engagement therewith, and screw-threaded at their upper ends, the closed cap-nuts K K screwed upon the upper ends of the bolts E E, the packing-washers N N interposed between the heads L L of the bolts and the under side of the body A, and the washers O O interposed between the nuts K K and the upper side of the bonnet C, substantially as and for the purpose described.

12. In a straightway valve, the combination, with the body portion A of the casing, and the bonnet or hood portion C, the latter provided with the vertically-extending neck portion D, of the bolts E E passing vertically through the body A and the bonnet C, within the same and on opposite sides of the passage through the valve, said bolts engaging the body A at their lower ends and screw-threaded at their upper ends, the cross-head or gland Q fitting over the upper end of the neck D of the bonnet C, the cap-nuts K K screwed upon the upper ends of the bolts E E and provided with the vertically-extending rods R R passing through holes in the opposite ends of the cross-head Q, and the nuts S S screwed upon the upper ends of the rods R R, substantially as and for the purpose described.

13. In a straightway valve, the combination, with the body portion A containing the valve-seat and provided with opposite pipe connections B B, and the bonnet C seated upon the body A and provided with internal threads, of the bolts E E passed upward through the body A and bonnet C within the same and on opposite sides of the passage through the valve, and provided at their lower ends with the heads L L bearing against the under side of the body A and screw-threaded at their upper ends, the closed cap-nuts K K screwed upon the upper ends of the bolts E E, the washers N N interposed between the heads L L of the bolts and the under side of the body A and the washers O O interposed between the nuts K K and the upper surface of the bonnet C, the valve-stem G provided with external threads H engaging the internal threads of the bonnet C, and the valve F carried by the stem G and engaging and guided by the bolts E E at its opposite edges, substantially as and for the purpose described.

594,685. DEVICE FOR FACILITATING RISING OF CREAM FROM MILK. EDWIN G. LYNCH, Parish, N. Y. Filed June 25, 1897. Serial No. 642,231. (No model.)



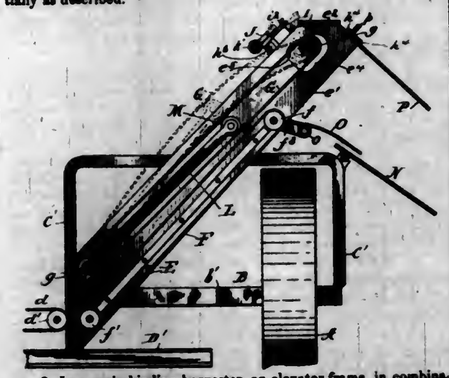
Claim.—1. A device for facilitating the rising of cream from milk, comprising a receiver divided into chambers for the milk and water, a valve-body erected in said receiver and connected by ports to both of said compartments, and a rotating valve provided with strainer-ports adapted to equally coincide with said seat-ports whereby an equal and regulated discharge of the milk and water is obtained through a valve common to both.

2. A device for facilitating the rising of cream from milk, comprising a receiver divided into chambers for the milk and water, a valve-body erected in said receiver and connected by ports to both of said compartments, and a rotating valve provided with strainer-ports adapted to equally coincide with said seat-ports whereby an equal and regulated discharge of the milk and water is obtained through a valve common to both, and an auxiliary separator and aerator combined detachably connected to said receiver and receiving the discharge through the valve.

594,686. GRAIN-HARVESTER ELEVATOR. JAMES MACPHAIL, Blue Island, Ill., assignor to the Piano Manufacturing Company, Chicago, Ill. Filed July 22, 1895. Serial No. 556,675. (No model.)

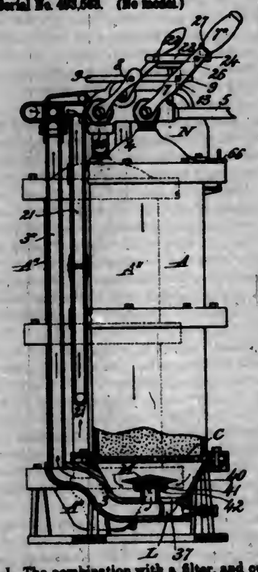
Claim.—1. In a grain-binding harvester, an elevator-frame; an outer elevator-apron having a lower and a single upper roller, the latter journaled in pivoted swinging supports; a tension mechanism connected to said pivoted supports and adapted to stretch the upper apron in the direction of its length; and an under apron having its rollers mounted in fixed journals, whereby the outer apron may be pressed outward from the under apron, by irregularities in the grain, and automatically returned to normal position after the passage of any such enlarged portion of grain, substantially as described.

2. In a grain-binding harvester, an elevator-frame, in combination with an under elevator-apron having rollers with only rotary movement, an upper elevator-apron having its upper roller journaled in swinging bearings, an elastic mechanism connecting with said swinging bearings and constructed to normally act thereon to throw the upper roller mounted therein outward to keep the upper apron taut, a supplemental frame, arranged between the two parts of the upper elevator-apron and pivoted at its lower end to the journals of the lower roller thereof, and a roller journaled loosely in the upper end of said frame and of a size corresponding with the distance between the two parts of the said elevator-apron when at rest, substantially as described.



3. In a grain-binding harvester, an elevator-frame, in combination with upper elevator-apron G, pivoted arms, I, in which the journals of the upper roller of said apron are mounted, elastic mechanism connected with said arms and constructed to turn the journal ends thereof outward to keep the apron taut, a supplemental frame, L, arranged between the two sections of the upper apron and having two side arms, *l*, journaled at their lower ends on the shafts of the roller at the lower end of said apron, and a stiff cross-bar, *l'*, near their upper ends, and an idle-roller, M, journaled in the free outer ends of the arm-frames and filling the normal space between the two sections of the elevator, substantially as described.

594,687. FILTER. JOSEPH T. MANNING, Philadelphia, Pa., assignor to the Loomis-Manning Filter Company, same place. Filed Dec. 13, 1893. Serial No. 493,563. (No model.)



Claim.—1. The combination with a filter, and current-reversing valves having circumferentially-disposed ports in the key portion of said valves, of a filtered-water valve which is arranged to put the filtered-water outlet or bottom of the filter in communication with a house-pipe when said valve is in one position and with a waste-pipe when it is in another position and which has a port-controlling connection with said current-reversing valves so that its waste position is insured when these are in the washing position and is also permitted or insured during their return to the filtering position, substantially as described.

2. In combination with a filter, and current-reversing valves having distinct sets of circumferentially-disposed ports in the key portion of said valves, a filtered water valve which is arranged to put the filtered-water outlet or bottom of the filter in communication with a house-pipe when said valve is in one position and with a waste-pipe when it is in another position and which has a port-controlling connection with said current-reversing valves so that its waste position is insured when these are in the washing position and is also permitted or insured during their return to the filtering position, substantially as described.

3. The combination with a filter, and current-reversing valves therefor, of a filtered-water valve which is arranged to put the filtered-water outlet or bottom of the filter in communication with a house-pipe when said valve is in one position and with a waste-pipe when it is in another position and which has a port-controlling connection with said current reversing valves whereby the waste position of said filtered-water valve is insured when the first-mentioned valves are in the washing position, the said filtered-water valve being movable independently of them when these are in the filtering position, and provision being made against the careless movement of said filtered-water valve to the house position in restoring the current-reversing valves to the filtering position, substantially as described.

4. The combination with a filter, and current-reversing valves therefor, of a filtered-water valve having a batting or loose connection with the first-mentioned valves arranged to shift automatically the said filtered-water valve to the waste position, leaving it to be returned independently, substantially as described.

5. In combination with a filter, a valve apparatus arranged at one end of said filter and comprising current-reversing and filtered-water valves of the rotary-key class provided with circumferentially-disposed ports and turning in a compound casing in one piece of metal with supply, waste, house and filter passages formed in said casing, a valve-controlling connection being provided between the filtered-water and the current-reversing valves, and said valves being so arranged that the house-passage may be opened only when the current-reversing valves are in the filtering position and that such opening may be effected independently of the communications established through the filter by the said current-reversing valves, substantially as described.

6. In combination with a filter, a valve apparatus at the end of said filter comprising current-reversing and filtered-water valves of the rotary-key class provided with sets of circumferentially-disposed ports in a compound casing in one piece of metal with supply-passages extending from one outside opening to different valve-seats, waste-passages leading from different valve-seats to one outside opening, filter-passages with outside openings, and a house-passage leading to an outside opening from a valve-seat from which a waste-passage extends, substantially as described.

7. In combination with a filter, a valve apparatus arranged at one end of said filter comprising current-reversing and filtered-water valves composed of rotary keys with circumferentially-disposed ports in a compound casing in one piece of metal with supply, waste, house and filter passages formed in said casing, said filtered-water valve being formed in a separate key from the current-reversing valves and having with the latter a port-controlling connection which is arranged to permit the independent operation of the filtered-water valve when said current-reversing valves are in the filtering position, substantially as described.

8. In combination with a filter, an elongated valve apparatus arranged at one end of said filter at right angles to the axis of the latter and comprising current-reversing and filtered-water valves composed of rotary keys provided with circumferentially-disposed ports in a compound-valve casing in one piece of metal, said keys being transverse to the length of said casing and said casing being provided in addition to other passages with a branched waste-passage one branch of which extends from the waste-opening at one end of said casing to an adjacent valve-seat while the other branch extends from the same waste-opening over a valve key to the seat of a key nearer to the other end of said casing, substantially as described.

9. In combination with a filter, a valve apparatus at one end of said filter comprising rotary keys with three sets of circumferentially-disposed ports and a compound casing in one piece of metal with valve-seats and passages as follows, namely supply-passages leading directly to two seats from an outside opening, waste-passages leading from two seats to an outside opening, house and filter passages each leading from a valve seat to an outside opening, and a passage for connecting two valve-seats with each other, substantially as described.

10. In combination with a filter, a valve apparatus at one end of said filter, comprising a rotary-key portion with filtered-water ports in addition to two sets of circumferentially-disposed current-reversing ports and a compound casing in one piece of metal with key-seats and passages as follows, namely supply-passages leading directly to the seats belonging to both sets of current-reversing ports from an outside opening, waste-passages leading from both said seats to an outside opening, filter-passages leading to outside openings, one from each of said seats, and a house-passage leading from the seat corresponding with the filtered-water ports, said filtered-water ports being arranged for closure of the house-passage when the current-reversing ports are in the washing position and for opening the house-passage independently of the current-reversing ports when these are in the filtering position, substantially as described.

11. Two filter-chambers having their bottoms connected with each other, in combination with supply, waste and house pipes, current-reversing valves controlling the connection of the tops of the chambers with the water-supply and waste alternately, and a filtered-water valve having ports arranged to register with the house and waste pipes alternately, the said house-pipe leading from said filtered-water valve independently both of the waste-pipe and of the connection between the filter chambers, substantially as described.

12. Two filter-chambers having their bottoms connected with each other and their tops with the filter-passages of current-reversing valves, in combination with said current-reversing valves arranged to control the connection of said passages with the supply and waste, and a filtered-water valve at the termination of passages from the bottoms of both chambers and also of two additional passages leading from said valve to waste and house respectively, said filtered-water valve being provided with movable ports for delivering the water from the filter-chambers to either of said additional passages, substantially as described.

13. In combination with a filter of two chambers, current-reversing valves having separate waste-passages and being arranged respectively at the terminations of filter and supply and waste passages, and an additional valve in one of said separate waste-passages for controlling it independently, substantially as described.

14. In combination with a filter of two chambers, current-reversing valves, a filtered-water valve seated at the terminations of house and waste as well as of filter passages, the said house and waste passages terminating at separate openings in the valve-seat, and an additional valve in the said waste-passage, substantially as described.

15. In a two-chamber filter having valves, which in one position direct water so that both chambers are filtering and in other positions so that each chamber is washed with filtered water from the other chamber, in combination with the connected filter-chambers A and B, of valves of the aforesaid description connected for joint operation by means which allow an independent motion and arranged when shifted together from the position in which both chambers are filtering to cause chamber A to be washed with filtered water from chamber B and when shifted in part only from said position to cause chamber B to be washed with filtered water from chamber A, substantially as described.

16. In combination with a filter of two chambers connected at the bottoms, connected current-reversing valves arranged to control the passages leading to the tops respectively of said chambers, and a filtered-water valve which is arranged to direct the filtered water to house when in one position and to a waste-passage when in another position and which has such a port-controlling connection with said current-reversing valves as insures the waste connection in washing while allowing an independent motion when the current-reversing valves are in the filtering position, substantially as described.

17. In combination with a filter of two chambers having the bottoms connected, current-reversing valves, arranged to control the passages leading to the tops respectively of said chambers and composed of separate keys having with each other a connection for conjoint operation while allowing an independent motion, and filtered-water valves one or more of which have such a port-controlling connection with said current-reversing valves as insures the waste position in washing while allowing an independent motion when the current-reversing valves are in the filtering position, substantially as described.

18. The combination with a valve-key and its casing, of a packing around the valve-stem, a larger packing at the mouth of the valve-casing, a pressure-held disk interposed between the said two packings, a follower arranged beyond the valve-stem packing, and means which engage the said casing and press the said follower inward, the pressure being transmitted by the follower to the disk through the said valve-stem packing, substantially as described.

19. The combination with a valve-key, and its casing, of a pressure-held disk of greater diameter than the valve-key arranged to close the key-space and to bear upon the surrounding casing with a packing-ring between the disk and casing, a follower, a stuffing-box between the follower and disk, and holding means extending from the follower to the casing and having a swivel connection with said follower, substantially as described.

20. The combination with a valve key, and its casing, of a non-rotatable pressure-held disk of greater diameter than the valve-key arranged to close the key-space and to bear upon the surrounding casing with a packing-ring between the disk and casing, a follower held from turning by positive means as opposed to mere friction, a stuffing-box between the follower and disk, and a holding means having a swivel connection with said follower, substantially as described.

21. The combination with a valve-key, a closure for the key-space, a follower held from turning by positive means as opposed to mere friction, a stuffing-box between the follower and closure, and a holding means having a swivel connection with said follower, substantially as described.

22. In combination with a filter-chamber, and a granular filter-bed partly filling the filter-chamber, and current-reversing valves, a sand-trap communicating with said chamber above the filter-bed and provided with a valved passage leading back to the filter-bed, substantially as described.

23. In combination with a filter-chamber, and a granular filter-bed partly filling the filter-chamber, and current reversing valves, a sand-trap communicating with said chamber above the filter-bed and provided with a passage leading back to the filter-bed, said trap and passage arranged for the automatic return of the sand from the trap to the filter-bed, substantially as described.

24. In combination with a filter-chamber, and a granular filter-bed partly filling the filter-chamber, and current-reversing valves, a sand-trap arranged between the fresh-water inlet and wash-water outlet and the filter-bed, substantially as described.

25. In combination with a filter-chamber, a granular filter-bed partly filling the said chamber, and current reversing valves, a sand-trap arranged within the said chamber and communicating with the said chamber above the filter-bed and provided with a passage leading back to the filter-bed, substantially as described.

26. In combination with a filter-chamber, and a granular filter-bed partly filling the filter-chamber, and current-reversing valves, a sand-trap communicating with said chamber above the filter-bed and provided with a valved passage leading back to the filter-bed, the fresh-water-inlet port being arranged above said trap so that the water to be filtered passes through the trap, substantially as described.

27. In combination with a filter-chamber, and a granular filter-bed partly filling the filter-chamber, and current-reversing valves, a sand-trap communicating with said chamber above the filter-bed and provided with a passage leading back to the filter-bed, and a baffle above said trap, substantially as described.

28. In combination with a filter-chamber, and a granular filter-bed partly filling the filter-chamber, and current-reversing valves for controlling the flow of water through the said bed to make it self-cleansing, a sand-trap communicating with said chamber above the filter-bed and provided with a passage leading back to the filter-bed, a baffle above said trap, and deflectors around the mouth of said trap arranged to deliver horizontally the water entering the trap from the filter-chamber, substantially as described.

29. In combination with a filter-chamber, and a granular filter-bed partly filling the filter-chamber, and current-reversing valves, a sand-trap communicating with said chamber above the filter-bed and provided with a passage leading back to the filter-bed, and an automatic valve for said passage arranged to be opened and closed automatically in changing the current from the washing to the filtering direction and the reverse, substantially as described.

30. In combination with a filter-chamber, and a granular filter-bed partly filling the said chamber, and current-reversing valves, a sand-trap communicating with said chamber above the filter-bed and provided with a passage leading back to the filter-bed, and an automatic valve for said passage arranged to be controlled automatically by the water-current, substantially as described.

31. In combination with a filter-chamber, and a granular filter-bed, and current-reversing valves, a sand-trap for the washing-current provided with a passage leading back to the filter-bed, and an automatic valve for said passage, substantially as described.

32. In combination with a filter-chamber, and granular filtering material, a screen, and a more coarsely perforated screen-supporting sheet roughened or indented to form supporting-points, said plate being perforated at short intervals over its whole area and being upheld by the edges above the bottom of the filter-chamber, substantially as described.

33. In combination with a filter-chamber, and granular filtering material, a screen of perforated sheet metal, and a more coarsely perforated screen-supporting sheet indented or roughened, said plate being perforated at short intervals over its whole area and being upheld by the edges above the bottom of the filter-chamber, substantially as described.

34. In combination with a filter-chamber provided with granular filtering material supported by a screen and having a filtered-water outlet below the said screen, a sand trap below the filtered-water outlet, and deflectors whose upper surfaces are above the said trap and below the said outlet and are arranged to deflect the current horizontally across and above the said trap, substantially as described.

35. In combination with a filter-chamber, granular filtering material, and current-reversing valves, a screen interposed between the said material and the wash-water inlet and filtered-water outlet, and more coarsely perforated sheets on opposite sides of said screen, each sheet being roughened or indented to form screen-supporting points, and perforated at short intervals over its whole area, and the two sheets with interposed screen being upheld at the edges above the bottom of the filter, substantially as described.

36. In combination with a filter-chamber provided with a granular filter-bed supported by a screen and a sand-trap below said screen, and also provided with a filtered-water outlet above the sand-trap and below the said screen, deflectors at different levels between the outlet and the sand-trap, namely an overhanging deflector next the outlet whose under surface is arranged to deflect the rising water horizontally outward and deflectors nearer the said trap whose upper surfaces are arranged to deflect the descending water horizontally inward across and above the said sand-trap, substantially as described.

37. A filter-chamber provided below the granular filter-bed with a water-outlet port, and a sand-trap below said port, and deflectors intermediate the sand-trap and said port and also above said port for protecting the trap against direct water-currents, substantially as described.

38. In combination with a filter-chamber, and filtering material, a closed coagulant chamber, a valved waste-passage from said chamber, and a valved passage outside the coagulant-chamber connecting said waste with a supply of flush-water, the valves for said passages being outside the fresh-water-supply pipe, substantially as described.

39. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a valved feed-passage from said chamber, a valved waste-passage from said chamber with its inner end at a point above said feed-passage, and a valved passage connecting said waste with a supply of flush-water, substantially as described.

40. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a valved feed-passage, and a valved circulation-passage, both passages terminating at about or below the middle of said chamber so as to form an air-space therein, substantially as described.

41. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a valved feed-passage, and a valved circulation-passage, both passages terminating at about or below the middle of said chamber so as to form an air-space therein, the feed-passage terminating below the circulation-passage so as to form unbalanced columns, substantially as described.

42. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a valved feed-passage, a valved circulation-passage, and a valved waste-passage, both the latter terminating at the middle portion of the chamber, substantially as described.

43. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a valved feed-passage, a passage communicating with said chamber at a point above the feed-passage and at a suitable distance below the top of the chamber to leave an air-space, and a valved fresh-water passage and a valved waste-passage both connecting with said second-mentioned passage, substantially as described.

44. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a valved feed-passage, a valved waste-passage connecting with said chamber, and a valved fresh-water passage outside the coagulant-chamber connecting with the said chamber and with said waste-passage, the valves for said feed, waste and supply passages being outside of the fresh-water-supply pipe, substantially as described.

45. In combination with a water-supply pipe, a filter-chamber, and filtering material, a closed coagulant-chamber, a valved feed-passage at the base of said coagulant-chamber between it and said pipe, and a valved circulation-passage opening at one end into said pipe at the base of said chamber at a higher level than said feed-passage and terminating above said feed-passage within the coagulant-chamber at about the middle thereof, substantially as described.

46. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a valved feed-passage, a valved circulation-passage, a valved coagulant-waste passage, and a valved passage between the said waste-passage and a supply of flush-water, substantially as described.

47. In combination with a filter chamber, and filtering material, a closed coagulant-chamber, a coagulant-waste passage, a passage connecting the said waste with a supply of flush-water, and a valve or key having relief and flushing ports, substantially as described.

48. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a feed-passage, a circulation-passage, and a valve or key having ports for both passages arranged to open the feed and circulation passages together and to close said circulation-passage while opening the feed-passage for variable-pressure feeding, substantially as described.

49. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a feed passage, a coagulant-waste passage, and a valve or key having feed and relief ports arranged to open the feed-passage when the waste-passage is closed and to open the latter when the former is closed, substantially as described.

50. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a feed-passage, a circulation-passage, a coagulant-waste passage, and a valve or key having ports for circulation feed and for said waste, substantially as described.

51. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber provided with a confined-air space, a feed-passage, a circulation-passage, a coagulant-waste passage, and a valve or key having a relief-port and ports for circulation feed and for opening the feed-passage when the circulation-passage is closed, substantially as described.

52. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a feed-passage, a coagulant-waste passage, a flush-water passage, and a valve or key having feeding, relief and flushing ports, substantially as described.

53. In combination with a filter-chamber, and filtering material, a closed coagulant-chamber, a valve or key, a feed-passage between the said chamber and the valve, a fresh-water passage between the filter-supply and the valve or key, a waste-passage leading from the valve or key seat, and an additional passage between the key or valve and said chamber, said key or valve being provided with circulation feed, relief and flushing ports, substantially as described.

54. In combination with a filter chamber, and filtering material, a closed coagulant-chamber, a valve or key, a feed-passage between the said chamber and the valve or key, a fresh-water passage between the filter supply and the valve or key, a coagulant-waste passage leading from the valve or key seat, and an additional passage between the key or valve and said chamber, said key or valve being provided with variable-pressure feed, circulation-feed, relief and flushing ports, substantially as described.

55. The herein-described self-cleaning granular-bed filter with coagulant-supply, the same comprising a filter chamber or chambers with granular filter-bed therein, a valve apparatus comprising mechanically-connected current-reversing and filtered-water valves with independent control of the filtered water when the current-reversing valves are in filtering position and an integral compound casing with supply, waste, house and filter passages, and a coagulant-chamber connected with the conduit between the fresh-water pipe and said chamber, and provided with a compound valve and casing having feed, waste and flushing passages and a key with feed, relief and flushing ports, substantially as set forth.

56. In combination with a filter of two chambers provided with current-reversing valves and filter-passages therefor connected with the tops of said chambers and also provided with a passage between the chamber-bottoms, a valve in said last-named passage having a butting or loose connection with said current-reversing valves, substantially as described.

57. In combination with a filter of two chambers provided with current-reversing valves and with waste and filter passages therefor, the filter-passages being connected with the tops of said chambers, a valved passage separate from the waste of said current-reversing valves arranged within the same casing as said current-reversing valves between the bottom of one chamber and the filter-passage leading to the top of another, substantially as described.

58. In combination with a filter of two chambers provided with current-reversing valves and with waste and filter passages therefor, the filter-passages being connected with the tops of said chambers, a valved passage separate from the waste of said current-reversing valves arranged within the same casing as said current-reversing valves between the bottom of one chamber and the top of another, and a valved passage also within said casing between the bottoms of said chambers, substantially as described.

59. In combination with a filter of two chambers provided with current-reversing valves and with waste and filter passages therefor, the filter-passages being connected with the tops of said chambers, a passage separate from the waste of said current-reversing valves between the bottom of one chamber and the top of the other, another separate passage between the chamber-bottoms, and a valve arranged to control both said separate passages by closing the one in opening the other, said passages being all within the same valve-casing, substantially as described.

60. In combination with a filter of two chambers provided with current-reversing valves and with waste and filter passages therefor, the filter-passages being connected with the tops of said chambers, a

passage separate from the waste of said current-reversing valves between the bottom of one chamber and the top of the other, another separate passage between the chamber-bottoms, a valve arranged to control both said separate passages by closing the one in opening the other, an additional valve in the passage between the chamber-bottoms, and additional waste and house passages terminating separately in the seat of said last-named valve, substantially as described.

61. The combination with a valve-key, and its casing, of a pressure-held disk of angular or irregular form and of greater diameter than the valve-key arranged to close the key-space and to bear upon the surrounding casing with a packing-ring interposed, said disk carrying a stuffing-box for the valve-stem, substantially as described.

62. In combination with a water-supply pipe having an opening in the wall thereof, a closed coagulant-chamber, a valve-casing connected by screw-joints directly with said pipe and with said chamber so that the said chamber and pipe may communicate with each other through the said opening in the wall of said pipe, and a valve in said casing outside of said pipe so as to leave the bore of this latter clear, substantially as described.

63. A closed coagulant-chamber provided with a confined-air space, in combination with a valved coagulant-waste passage, and means for admitting fresh water to said chamber by the passage through which said waste-passage communicates with said chamber, substantially as described.

64. A closed coagulant-chamber provided with a confined-air space, in combination with a valved coagulant-waste passage, and means for admitting fresh water to said chamber by the passage through which said waste-passage communicates with said chamber and for supplying flush water to said waste-passage, substantially as described.

65. A closed coagulant-chamber provided with a confined-air space, in combination with a valved feed-passage, and a valved passage outside the coagulant-chamber for running fresh water to waste from the vicinity of said feed-passage, substantially as described.

66. A closed coagulant-chamber provided with a confined air space, in combination with a valved feed-passage, and a valved passage for running fresh water to waste from the vicinity of said feed-passage, the valves for said passages having an operative connection so that one movement of the operator can close the second-mentioned and open the first-mentioned passage, substantially as described.

67. A closed coagulant-chamber provided with a confined-air space, in combination with a valved coagulant-waste passage, means for admitting fresh water to said chamber by the passage through which said waste-passage communicates with said chamber, and a valved passage for running fresh water to waste from the vicinity of said passage, substantially as described.

68. A closed coagulant chamber, in combination with a valved coagulant-waste passage, means for admitting fresh water to said chamber by the passage through which said waste-passage communicates with said chamber, and a valved passage for running fresh water to waste from the vicinity of said passage, the valves for said passages having an operative connection, substantially as described.

69. A closed coagulant chamber, in combination with a valved feed-passage, a valved coagulant-waste passage communicating with said chamber at a point above the inner end of said feed-passage, means for admitting fresh water to said chamber by the passage through which said waste-passage communicates with said chamber, and a valved passage for running water to waste from the vicinity of said feed-passage and the passage through which the said coagulant waste communicates with said chamber, substantially as described.

70. A closed coagulant chamber, in combination with a valved feed-passage, a valved coagulant-waste passage communicating with said chamber at a point above the inner end of said feed-passage, means for admitting fresh water to said chamber by the passage through which said waste-passage communicates with said chamber, and a valved passage for running water to waste from the vicinity of said feed-passage and the passage through which the said coagulant waste communicates with said chamber, the valves for said passages having an operative connection, substantially as described

71. A filter-chamber provided below its granular filter-bed with a sand-trap and a water-outlet above said trap, and having also a fitting M composed of an overhanging enlargement 42 with the outlet-holes 41 in said enlargement and a further-enlarged top 39 which overhangs said holes, substantially as described.

72. A filter-chamber provided below its granular filter-bed with a sand-trap and a water-outlet above said trap, and deflectors 37 intermediate the said outlet and trap and having also a fitting M composed of an overhanging enlargement 42 above said deflectors with the outlet-holes 41 in said enlargement and a further-enlarged top 39 which overhangs said holes, substantially as described.

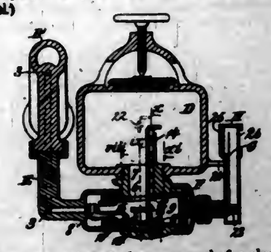
73. In combination with a water-supply pipe, a filter-chamber, and filtering material, a closed coagulant-chamber, a valve-casing with passages therein screwed to said pipe at the side thereof so as to leave the pipe-bore clear and to the bottom of said coagulant-chamber and having a pipe extension up into said chamber, and a valve-key in said casing for controlling the passages between said pipe and coagulant-chamber, substantially as described.

74. In combination with a filter, a valve apparatus comprising a supply-passage, a house-passage, filter-passages, and a waste-passage together with current reversing and filtered-water ports mechanically connected with one another and circumferentially disposed in the movable key portion of the valve apparatus, said ports being arranged to close the house-passage while the current-reversing ports are in the washing position and are returning therefrom to the filtering position, and the terminal openings of the house and waste passages being arranged to register alternately with a filtered-water port when the current-reversing ports are in said filtering position, substantially as described.

75. A valve-casing provided with a non-rotatable disk for closing the key-chamber, and a rotatable coupling engaging said casing for clamping said disk, the latter carrying a stuffing-box for the valve-stem and being held from rotation by positive means, substantially as described.

594,688. COAGULANT-FEEDER FOR WATER PURIFICATION.

Joseph T. Manning, Philadelphia, Pa., assignor to the Loomis-Manning Filter Company, same place. Filed Oct. 15, 1895. Serial No. 565,760. (No model.)



Claim.—1. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit connected with said chamber and rising to the junction of said conduit with the fresh-water-supply pipe, to form a trap against the transfer of the coagulant to the said pipe while the water therein is at rest, said feeder being also provided with means as specified for letting water into said conduit without emptying the said chamber of liquid, substantially as described.

2. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit connected with said chamber and rising to the junction of said conduit with the fresh-water-supply pipe, to form a trap against the transfer of the coagulant to the said pipe while the water therein is at rest, said feeder being also provided with means as specified for letting water into said conduit automatically, that is to say by differences of pressure in the said supply-pipe, substantially as described.

3. A coagulant-feeder composed of a closed coagulant-chamber, a coagulant-conveying conduit connected with said chamber and rising to the junction of said conduit with the fresh-water-supply pipe, and a valve arranged at the bottom of said chamber between it and said conduit, substantially as described.

4. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit of U or forked shape, which is connected with said chamber, which has its branches in communication with each other outside of said chamber, and which rises to the junction of both its said branches with the fresh-water-supply pipe to form a trap against the transfer of the coagulant to the said supply-pipe while the water is at rest therein, substantially as described.

5. A coagulant-feeder composed of a closed coagulant-chamber, a coagulant-conveying conduit of U or forked shape which is connected with said chamber, which has its branches in communication with each other outside of said chamber, and which rises to the junction of both its said branches with the fresh-water-supply pipe to form a trap against the transfer of the coagulant to the said supply-pipe while the water is at rest therein, and a valve arranged at the bottom of said chamber between it and said conduit, substantially as described.

6. A coagulant-feeder composed of a coagulant-conveying conduit rising to its junction with the fresh-water-supply pipe, to form a trap against the transfer of the coagulant to said pipe while the water is at rest therein, and means for holding in spaces back of said conduit and in communication therewith, a supply of coagulant and a body of confined air, substantially as described.

7. A coagulant-feeder composed of a coagulant-conveying conduit of U or forked shape which rises to the junction of both its branches with the fresh-water-supply pipe, to form a trap against the transfer of the coagulant to said pipe while the water is at rest therein, and means for holding in spaces back of said conduit and in communication therewith, a supply of coagulant and a body of confined air, substantially as described.

8. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit which is connected at two ends with the fresh-water-supply pipe and at an intermediate point with the said chamber, the said conduit being continuous outside of said chamber between its two junctions with said supply-pipe, substantially as described.

9. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit which is connected at two ends with the fresh-water-supply pipe and at an intermediate point with the said chamber, the said conduit being continuous outside of said chamber between its two junctions with said supply-pipe, and the bore of the latter being contracted between said junctions, substantially as described.

10. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit which is connected at two ends with the fresh-water-supply pipe and at an intermediate point with said chamber and which rises to its two junctions with the supply-pipe, thereby forming a trap against the transfer of the coagulant to said supply-pipe while the water is at rest therein, the said conduit being continuous outside of said chamber between its said junctions with the supply-pipe, substantially as described.

11. A coagulant feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit which is connected at two ends with the fresh-water-supply pipe and at an intermediate point with said chamber and which rises to its two junctions with the supply-pipe, thereby forming a trap against the transfer of the coagulant to said supply-pipe while the water is at rest therein, the said conduit being continuous outside of said chamber between its said junctions with the supply-pipe, and the bore of said supply-pipe being contracted between said junctions, substantially as described.

12. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit, which is connected at two ends with the fresh-water-supply pipe and at an intermediate point with the said chamber, the said conduit being continuous outside of said chamber between its two junctions with said supply-pipe, and the end at which coagulant is delivered into said supply-pipe being turned in the direction of the pipe's axis like an ejector-nozzle, substantially as described.

13. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit which is connected at two ends with the fresh-water-supply pipe and at an intermediate point with the said chamber, the said conduit being continuous outside of said chamber between its two junctions with said supply-pipe, and the end at which coagulant is delivered into said supply-pipe being turned in the direction of the pipe's axis like an ejector-nozzle, in combination with a supply-pipe having its bore contracted between said junctions, substantially as described.

14. A chambered coagulant-feeder adapted to act as a reservoir for coagulant and as an air-reservoir, and provided with a coagulant-conveying conduit having the end thereof at which coagulant is delivered into the supply-pipe turned in the direction of the pipe's axis like an ejector-nozzle, substantially as described.

15. In combination with a fresh-water-supply pipe, a closed coagulant-chamber, and a coagulant-conveying conduit connected with said chamber and said supply-pipe and having the end at which coagulant is delivered into said supply-pipe formed in the wall of said pipe and there turned in the direction of the pipe's axis like an ejector-nozzle, substantially as described.

16. A coagulant-feeder composed of a closed coagulant-chamber, and a coagulant-conveying conduit of U or forked shape which rises to the junction of both its branches with said supply-pipe and which has the end at which the coagulant is delivered turned in the direction of the pipe's axis like an ejector-nozzle, said conduit being continuous outside said chamber and connected therewith at a point between its junctions with the supply-pipe, substantially as described.

17. A coagulant-feeder composed of a coagulant-chamber, a coagulant-conveying conduit connected with said chamber and rising to its junction with the fresh-water-supply pipe to form a trap against the transfer of the coagulant to said supply-pipe while the water is at rest therein, and a valved draw-off conduit connected outside said chamber with the said coagulant-conveying conduit, substantially as described.

18. A coagulant-feeder composed of a coagulant-chamber, a coagulant-conveying conduit of U or forked shape, which is connected with said chamber, which has its branches in communication with each other outside said chamber, and which rises to the junction of both its said branches with the fresh-water-supply pipe to form a trap against the transfer of the coagulant to said supply-pipe while the water is at rest therein, and a valved draw-off conduit connected outside said chamber with the said coagulant-conveying conduit, substantially as described.

19. A coagulant-feeder composed of a coagulant-chamber, a coagulant-conveying conduit connected with said chamber and rising to its junction with the fresh-water-supply pipe to form a trap against the transfer of the coagulant to said supply-pipe while the water is at rest therein, a valve arranged at the bottom of said chamber between it and the said coagulant-conveying conduit, and a valved draw-off conduit connected outside said chamber with the said coagulant-conveying conduit, substantially as described.

20. A coagulant-feeder composed of a coagulant chamber, a coagulant-conveying conduit connected with said chamber and rising to its junction with the fresh-water-supply pipe to form a trap against the transfer of the coagulant to said supply-pipe while the water is at rest therein, and a valved draw-off conduit connected with said chamber, substantially as described.

21. A coagulant-feeder composed of a coagulant-chamber, a coagulant-conveying conduit connected with said chamber and rising to its junction with the fresh-water-supply pipe to form a trap against the transfer of the coagulant to said supply-pipe while the water is at rest therein, a valve arranged at the bottom of said chamber between it and the said coagulant-conveying conduit, a valved draw-off conduit connected with said chamber, and a valved draw off conduit connected outside said chamber with the said coagulant-conveying conduit, substantially as described.

22. The combination of a fresh-water-supply-pipe section having the wall on the under side thereof very thick and a passage therein to form part of a coagulant-conveying conduit, an attachment having a passage therein to form another portion of said conduit and coupled to said pipe with its portion of said conduit in line with the portion in the wall of the pipe-section, and a closed coagulant-chamber having its interior connected with the portion of the conduit formed by said attachment, substantially as described.

23. The combination with a closed coagulant-chamber, of a fresh-water-supply pipe having an inverted-U-shaped bend, and a coagulant-conveying conduit connected with the bottom of said chamber and the high part of said inverted-U bend and rising to its junction with said bend to form a trap against the transfer of the coagulant into said supply-pipe when it is at rest therein, substantially as described.

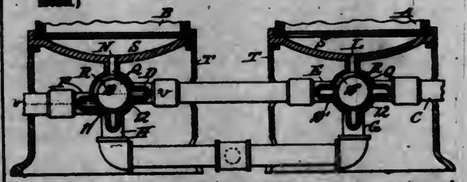
24. The combination with a supply-pipe, and a coagulant-chamber, of a U or forked shaped coagulant-conveying conduit, which is connected with said chamber, which has its branches in communication with each other outside of said chamber, which rises to the junction of both its said branches with said supply-pipe, and which has the upper ends of said branches faced in opposite directions, substantially as described.

25. A valve provided with an index and a case inclosing the index to prevent access thereto and having the valve-key with the end squared or inclosed or both squared and inclosed so as to require the use of a special device or key for turning the same, substantially as described.

26. The combination with the coagulant-chamber, and the coagulant-conveying conduit, of a valve for said conduit provided with an index and a case inclosing the index to prevent access thereto, said valve having the end squared or inclosed or both squared and inclosed so as to require the use of a special device or key for turning the same, substantially as described.

594,689. VALVE APPARATUS FOR FILTERS.

Joseph T. Manning, Philadelphia, Pa. Filed Oct. 21, 1896. Serial No. 609,404. (No model.)



Claim.—1. In combination with a filter, a current-reversing and drainage valve apparatus therefor placed below the filter-chamber and connected with the top and bottom thereof, said apparatus having house, waste, supply and filter ways and a system of connected valves or ports whereby in one position of said apparatus the current flows in the filtering direction through the filter to the house-pipe, and in another position in a reverse direction to the waste-pipe, and in a third position the filter is cut off from the supply and house pipes and a communication opened to the waste-pipe from the bottom of the filter-chamber and from the upright pipe which leads to the top of said chamber, substantially as described.

2. In combination with a filter, a current-reversing and drainage valve apparatus therefor placed below the filter chamber and connected with the top and bottom thereof, said apparatus having house, waste, supply and filter ways and a system of connected valves or ports whereby in one position of said apparatus the current flows in the filtering direction through the filter to the house-pipe, in another position in the same direction to the waste-pipe, in a third position in the reverse direction to the waste-pipe, and in a fourth position the filter is cut off from the supply and house pipes and a communication opened to the waste-pipe from the bottom of the filter-chamber and from the upright pipe which leads to the top of said chamber, substantially as described.

3. In combination with a filter, a by-pass and drainage valve apparatus placed below the filter-chamber and connected with the top and bottom thereof, said apparatus having house, waste, supply and filter ways and a system of connected valves or ports whereby the supply can be cut off from the filter and be connected with the house-pipe while at the same time the house connection with the filter is stopped and the bottom of the filter-chamber and the upright pipe leading to the top of said chamber are put in communication with the waste-pipe, substantially as described.

4. In combination with a filter, a current reversing by-pass and filter draining valve apparatus placed below the filter-chamber and connected with the bottom thereof, said apparatus having house, waste, supply and filter ways and a system of connected valves or ports whereby the supply can be cut off from the filter and connected with the house-pipe while at the same time the bottom of the filter-chamber is put in communication with a waste-pipe and the current can in other positions of said valve apparatus be sent through the filter-chamber in the filtering direction to the house-pipe, in the filtering direction to the waste-pipe, and in the washing direction to a waste-pipe, substantially as described.

5. In combination with a filter, a current-reversing by-pass and drainage valve apparatus placed below the filter-chamber and connected with the top and bottom thereof, said apparatus having house, waste, supply and filter ways and a system of connected valves or ports whereby the supply can be cut off from the filter and connected with the house-pipe while at the same time the bottom of the filter-chamber and the upright pipe leading from the top of said chamber are put in communication with the waste-pipe and the current can in other positions of said valve apparatus be sent through the filter-chamber in the filtering direction to the house-pipe, and in the washing direction to the waste-pipe, substantially as described.

6. In combination with a filter, a current-reversing by-pass and drainage valve apparatus placed below the filter-chamber and connected with the top and bottom thereof, said apparatus having house, waste, supply and filter ways and a system of connected valves or ports whereby the supply can be cut off from the filter and connected with the house-pipe while at the same time the bottom of the filter-chamber and the upright pipe leading from the top of said chamber are put in communication with the waste-pipe and the current can in other positions of said valve apparatus be sent through the filter-chamber in the filtering direction to the house-pipe, in the filtering direction to the waste-pipe, and in the washing direction to the waste-pipe, substantially as described.

7. In combination with a filter, a current-reversing-valve apparatus provided with means for letting a substantially larger stream pass through the filter in washing than in filtering, substantially as described.

8. In combination with a filter, a current-reversing-valve apparatus provided with openings at the ends of wash-water ways of substantially larger section than the ends of the filtered-water ways and with wash-water key-ports and filtered-water key-ports to correspond, so that a larger stream may pass through the filter in washing than in filtering, substantially as described.

9. In combination with a filter, a current-reversing-valve apparatus provided with double wash-water-inlet ways and ports approximating each other in size and a single set of ways and ports for the water in filtering, substantially as described.

10. In combination with a filter, a current-reversing-valve apparatus, having two circles of ports and a wash-water-inlet port in each circle, substantially as described.

11. In combination with a filter, a current-reversing valve apparatus provided with a system of connected valves or ports whereby the current can be sent through the filter in the filtering direction to a house-pipe and in the washing direction to a waste-pipe and composed of substantially larger openings for the flow of the water in said washing direction, substantially as described.

12. In combination with a filter, a current-reversing-valve apparatus, composed of supply, house, filter and waste ways terminating in two circles with key-ports to correspond, arranged to send the current through the filter in the filtering direction to the house-pipe and in the washing direction to the waste-pipe and having wash-water-inlet openings in both said circles, substantially as described.

13. In combination with a filter, a current-reversing drainage and cut-off valve apparatus placed below the filter-chamber and connected with the top and bottom thereof, said apparatus having house, waste, supply and filter ways and a system of connected valves or ports whereby the current can be sent through the filter in the filtering direction to the house-pipe, and in the washing direction to the waste-pipe, and can be cut off from the filter chamber and its upright pipe while these are connected to waste, and can be cut off from the house-pipe while at the same time it is cut off from passing through the filter, substantially as described.

14. A valve apparatus composed of two four-way valves having their key portions connected for joint operation, one four-way valve being arranged for putting one of its four ways separately in communication with each of the other three and for connecting two of these three with each other, and the other four-way valve being arranged for connecting two of its ways with each other in two positions of the valve and for connecting the other two with each other in a third position, substantially as described.

15. A valve apparatus composed of two four-way valves having their key portions connected for joint operation, one four-way valve being arranged for putting one of its four ways separately in communication with each of the other three and for connecting two of these three with each other, and the other four-way valve being arranged for connecting two of its ways with each other in two positions of the valve and for connecting one of said two and the remaining two ways with one another when in a third position, substantially as described.

16. A valve apparatus composed of two four-way valves having their key portions connected for joint operation, one four-way valve being arranged for putting one of its four ways separately in communication with two of the other three and for connecting two of these three with each other, and the other four-way valve being arranged for connecting two of its ways with each other in two positions of the valve and for connecting the other two with each other in a third position and being provided with a side passage and ports in addition, substantially as described.

17. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of two four-way valves connected for joint operation and arranged to constitute filter-draining, by-pass and current-reversing valves, substantially as described.

18. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of two four-way valves connected for joint operation and arranged to constitute filter-draining, cut-off, by-pass and current-reversing valves, substantially as described.

19. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of two four-way valves connected for joint operation and arranged to constitute filter-draining, cut-off and current-reversing valves, substantially as described.

20. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of two four-way valves connected for joint operation and arranged to constitute current-reversing valves with wash-water-inlet openings in each of said four-way valves, substantially as described.

21. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of two four-way valves connected for joint operation and arranged to constitute filter-draining, by-pass and current-reversing valves with wash-water-inlet openings in each of said four-way valves, substantially as described.

22. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of two four-way valves connected for joint operation and arranged to constitute filter-draining, cut-off, and current-reversing valves with wash-water-inlet openings in each of said four-way valves, substantially as described.

23. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of two four-way valves connected for joint operation and arranged to constitute filter-draining, by-pass, cut-off and current-reversing valves with wash-water-inlet openings in each of said four-way valves, substantially as described.

24. A valve apparatus composed, in connection with another many-way valve, of a four-way valve having a key-port 10 to connect two adjacent ways in the casing with each other, and provided with additional ports as 11 and 12 opening from the same space in the center of the key and located opposite said port 10, one of said four ways being arranged to be stopped, in the proper position of the valve, by the shell of the key outside of and next to the said port 10, substantially as described.

25. A valve apparatus composed, in connection with another many-way valve, of a four-way valve having openings of different sizes at the ends of the casing-ways, substantially as described.

26. A valve apparatus composed, in connection with another many-way valve, of a four-way valve having the openings at the ends of the ways in the casing unsymmetrically disposed, and the key-ports arranged to put one of said casing-ways in separate communication with each of the other three, substantially as described.

27. A valve apparatus composed, in connection with another many-way valve, of a four-way valve having the openings at the ends of the ways in the casing unsymmetrically disposed and of different sizes, substantially as described.

28. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of valves which are connected for joint operation, which have casing-ways extending from the valves directly to filter, supply, waste, and house respectively, and which have said ways and the corresponding key-ports arranged to establish a filtering to house, a filtering to waste, a washing, and a filter-draining position by a succession of movements within an arc of half a circle, substantially as described.

29. In combination with a filter, a valve apparatus placed below the filter-chamber and composed of a four-way valve connected for joint operation with another many-way valve, and having its key-ports and ways arranged to establish a filtering to house, a filtering to waste, a washing, a by-pass or cut-off or both, and a filter-draining connection by a succession of movements within an arc of half a circle, substantially as described.

30. In combination with a filter, a current-reversing and filter-draining valve apparatus placed below the filter and connected with the top and bottom thereof, said apparatus having two sets of key-ports and two sets of casing-ways, the casing-ways of one set being connected respectively with both ends of said chamber and with supply and waste pipes, and the corresponding key-ports being arranged in one position of the valve apparatus to connect both ends of the filter with the waste-pipe while cutting off the flow of water to the filter, substantially as described.

31. In combination with a filter, a by-pass, filter draining and current-reversing valve apparatus having two sets of key-ports and casing-ways, arranged in one position of said valve apparatus to establish a by-pass through ports and ways of one set and a filter-draining connection with the bottom of the filter through ports and ways of the second set, substantially as described.

32. In combination with a filter, a by-pass, filter-draining and current-reversing valve apparatus having two sets of key-ports and casing-ways, arranged in one position of said valve apparatus to establish a by-pass through ports and ways of one set and a drainage connection through ways and ports of the second set for both the filter-chamber and the upright pipe leading to the top thereof, substantially as described.

33. A valve having in its key a central chamber open at one end and ports, as 13 and 14, opening from said chamber at the periphery thereof, and also provided with a side passage, between other ports as 15 and 16, and with an end pipe as K, and casing ways or passages as P D H, terminating in the circle of the peripherical ports, the side passage being adapted to connect two of the last-mentioned casing ways or passages which are not directly opposite to the exclusion of the third way or passage, and the first-mentioned ports being located at opposite points as well as at an intermediate point, substantially as described.

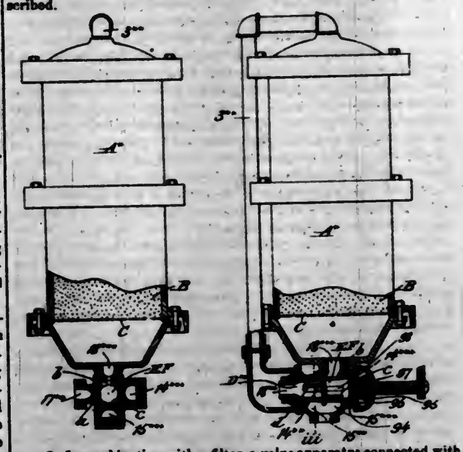
34. A valve apparatus composed of two four-way valves connected for joint operation, one of which valves has a central chamber open to a pipe, as K, and provided with peripherical ports, as 13 and 14, at opposite points and also at an intermediate point for registering with the casing ways or passages, as P D H, while the other of said valves has a central chamber provided with peripherical ports at opposite points and also at intermediate points for registering with the casing ways or passages, as N D H F, substantially as described.

35. A valve apparatus composed of two four-way valves connected for joint operation, one of which valves has a side passage between ports, as 15 and 16, in addition to a central chamber open to a pipe, as K, and is provided with peripherical ports, as 13 and 14, at opposite points and also at an intermediate point for registering with the casing ways or passages, as P D H, while the other of said valves has a central chamber provided with peripherical ports at opposite points and also at intermediate points for registering with the casing ways or passages, as N D H F, substantially as described.

594,640. FILTER AND VALVE APPARATUS THEREFOR.

JOSEPH T. MANNING, Philadelphia, Pa., assignor to the Loomis-Manning Filter Company, same place. Original application filed Dec. 13, 1893, Serial No. 493,563. Divided and this application filed June 24, 1897. Serial No. 642,143. (No model.)

Claim.—1. In combination with a filter, a valve apparatus connected with the filter and having two supply-passages together with waste, house and filter passages, as well as movable ports mechanically connected with one another for conjoint operation, said ports being arranged to form current-reversing, filtered-water and by-pass valves, so that in different positions of said ports water from one or other of said supply-passages may be sent through the filter to waste in either direction or to house in the filtering direction or may be sent to house without passing through the filter, substantially as described.



2. In combination with a filter, a valve apparatus connected with the filter and having two supply-passages, together with waste, house and filter passages all in one compound casing, as well as movable ports mechanically connected with one another for conjoint operation by being made in the same key, said ports being arranged to form current-reversing, filtered-water and by-pass valves, so that in different positions of said ports water from one or other of said supply-passages may be sent through the filter to waste in either direction or to house in the filtering direction or may be sent to house without passing through the filter, substantially as described.

3. In combination with a filter, a valve apparatus placed below said filter and comprising current-reversing, filtered-water and filter-draining valves connected with one another for conjoint operation, so that in different positions of said valves the water may be sent through the filter in the filtering direction to house, or in the filtering direction to waste, or in the washing direction to waste, and that in a fourth position of said valves the bottom of said filter may be put in communication with the waste for emptying said filter, while at the same time the filter is cut off from the house and supply passages, substantially as described.

4. In combination with a filter, a valve apparatus placed below said filter and comprising current-reversing, filtered-water and filter-draining valves connected with one another for conjoint operation by being made in one key turning in one compound casing, so that in different positions of said valves the water may be sent through said filter in the filtering direction to house, or in the filtering direction to waste, or in the washing direction to waste, and that in a fourth position of said valves the bottom of said filter may be put in communication with the waste for emptying said filter, while at the same time the filter is cut off from the house and supply passages, substantially as described.

5. In combination with a filter, a valve apparatus placed below said filter and comprising current-reversing, filtered-water, filter-draining and by-pass valves connected with one another for conjoint operation, so that in different positions of said valves the water may be sent through the filter in the filtering direction to house, or in the filtering direction to waste, or in the washing direction to waste, or may be cut off from the filter while at the same time the bottom of said filter is put in communication with the waste for emptying said filter, or may be prevented from flowing through the filter while at the same time it is sent to house through the by-pass connection, substantially as described.

6. In combination with a filter, a valve apparatus placed below said filter and comprising current-reversing, filtered-water, filter-draining and by-pass valves connected with one another for conjoint operation by being made of one key turning in one compound casing, so that in different positions of said valves the water may be sent through the filter in the filtering direction to the house, or in the filtering direction to waste, or in the washing direction to waste, or may be cut off from the filter while at the same time the bottom of said filter is put in communication with the waste for emptying said filter, or may be prevented from flowing through the filter while at the same time it is sent through the by-pass connection, substantially as described.

7. A valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation and arranged in each of three

positions to put one of said casing-passages in separate communication with a different one of three others, and also in each of said positions to put a fifth one of said passages in separate communication with one or other of the remaining two, substantially as described.

8. In combination with a filter, a valve apparatus having seven casing-passages together with movable ports mechanically connected with one another for conjoint operation, one of said passages being in communication with the filtered-water end of said filter, three others forming house, waste and supply passages respectively, a fifth one of said passages being in communication with the opposite end of said filter, and the remaining two forming supply and waste passages respectively, and said movable ports being arranged in one position to put the first-mentioned filter-passage in communication with the house-passage and the second-mentioned filter-passage in communication with a supply-passage, in a second position to put the first-mentioned filter-passage in communication with a waste-passage and the second-mentioned filter-passage in communication with a supply-passage, and in a third position to put the first-mentioned filter-passage in communication with a supply-passage and the second-mentioned filter-passage in communication with a waste-passage, substantially as described.

9. A valve apparatus having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key and arranged in each of three positions to put one of said passages in separate communication with a different one of three others and also in each of said positions to put a fifth one of said passages in separate communication with one or other of the remaining two, substantially as described.

10. In combination with a filter, a valve apparatus having seven casing-passages in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key, one of said passages being in communication with the filtered-water end of said filter, three others forming house, waste and supply passages respectively, a fifth one of said passages being in communication with the opposite end of said filter, and the remaining two forming supply and waste passages respectively, and said movable ports being arranged in one position to put the first-mentioned filter-passage in communication with the house-passage and the second-mentioned filter-passage in communication with a supply-passage, in a second position to put the first-mentioned filter-passage in communication with a waste-passage and in a second-mentioned filter-passage in communication with a supply-passage, and in a third position to put the first-mentioned filter-passage in communication with a supply-passage and the second-mentioned filter-passage in communication with a waste-passage, substantially as described.

11. A valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation and arranged in each of three positions to put one of said casing-passages in separate communication with a different one of three others, and when given a fourth position to connect two of said three passages with each other, said ports being also arranged in each of the three positions first mentioned to put a fifth one of said passages in separate communication with one or other of the remaining two, substantially as described.

12. In combination with a filter, a valve apparatus having seven casing-passages together with movable ports mechanically connected with one another for conjoint operation, one of said passages being in communication with the filtered-water end of said filter, three others forming house, waste and supply passages respectively, a fifth one of said passages being in communication with the opposite end of said filter, and the remaining two forming supply and waste passages respectively, and said movable ports being arranged in one position to put the first-mentioned filter-passage in communication with the house-passage and the second-mentioned filter-passage in communication with a supply-passage, in a second position to put the first-mentioned filter-passage in communication with a waste-passage and the second-mentioned filter-passage in communication with a supply-passage, in a third position to put the first-mentioned filter-passage in communication with a supply-passage and the second-mentioned filter-passage in communication with a waste-passage, and when given a fourth position to establish a by-pass from a supply-passage to the house-passage while at the same time the metal in the key portion of the valve apparatus stops the flow of water through the filter, substantially as described.

13. A valve apparatus having seven casing-passages in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in one key and arranged in each of three positions to put one of said passages in separate communication with a different one of three others and when given a fourth position to connect two of said three passages with each other, said ports also being arranged in each of the three positions first mentioned to put a fifth one of said passages in separate communication with one or other of the remaining two, substantially as described.

14. In combination with a filter, a valve apparatus having seven casing-passages in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key, one of said passages being in communication with the filtered-water end of said filter, three others forming house, waste and supply passages respectively, a fifth one of said passages being in communication with the opposite end of said filter, and the remaining two forming supply and waste passages respectively, and said movable ports being arranged in one position to put the first-mentioned filter-passage in communication with the house-passage and the second-mentioned filter-passage in communication with a supply-passage, in a second position to put the first-mentioned filter-passage in communication with a waste-passage and the second-mentioned filter-passage in communication with a supply-passage, and in a third position to put the first-mentioned filter-passage in communication with a supply-passage and the second-mentioned filter-passage in communication with a waste-passage, and when given a fourth position to establish a by-pass from a supply-passage to the house-passage while at the same time the metal of the key portion of the valve apparatus stops the flow of water through the filter, substantially as described.

15. A valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation and arranged in each of three positions to put one of said casing-passages in separate communication directly through the key portion of said apparatus with a different one of three other passages and also in each of said positions to put a fifth one of said passages in separate communication directly through the said key portion with one or other of the remaining two, substantially as described.

16. In combination with a filter, a valve apparatus having seven casing-passages together with movable ports mechanically connected with one another for conjoint operation, one of said passages being in communication with the filtered-water end of said filter, three others forming house, waste and supply passages respectively, a fifth one of said passages being in communication with the opposite end of said filter and the remaining two forming supply and waste passages respectively, and said movable ports being arranged in one position to put the first-mentioned filter-passage in communication directly through the key portion of said valve apparatus with the house-passage and the second-mentioned filter-passage in communication directly through the key portion with a supply-passage, in a second position to put the first-mentioned filter-passage in communication directly through the key portion with a supply-passage and the second-mentioned filter-passage in communication directly through the key portion with a waste-passage, and in a third position to put the first-mentioned filter-passage in communication directly through the key portion with a supply-passage and the second-mentioned filter-passage in communication directly through the key portion with a waste-passage, substantially as described.

17. A valve apparatus having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key and arranged in each of three positions to put one of said passages in separate communication directly through the said key with a different one of three other passages and also in each of said positions to put a fifth one of said passages in separate communication directly through the said key portion with one or other of the remaining two, substantially as described.

18. In combination with a filter, a valve apparatus having seven casing-passages in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key, one of said passages being in communication with the filtered-water end of said filter, three others forming house, waste and supply passages respectively, a fifth one of said passages being in communication with the opposite end of said filter, and the remaining two forming supply and waste passages respectively, and said movable ports being arranged in one position to put the first-mentioned filter-passage in communication directly through the said key with the house-passage, and the second-mentioned filter-passage in communication directly through the said key with a supply-passage, in a second position to put the first-mentioned filter-passage in communication directly through the said key with a waste-passage and the second-mentioned filter-passage in communication directly through the said key with a supply-passage, and in a third position to put the first-mentioned filter-passage in communication directly through the said key with a supply-passage and the second-mentioned filter-passage in communication directly through the said key with a waste-passage, substantially as described.

19. A valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation and so arranged that in three positions of said ports one of said passages is put in separate communication with a second, a third and a fourth passage respectively, while in two of said positions a fifth passage is separately put in communication with a sixth and in a third position with a seventh passage, and that when given a fourth position the metal in the key portion of said valve apparatus closes two at least of said second, third and fourth passages and one at least of said sixth and seventh passages without said ports establishing all the communications of any of the first three positions, substantially as described.

20. In combination with a filter, a valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation, one of said passages being in communication with the filtered-water end of said filter, a second, a third, and a fourth passage forming a house, a waste and a supply passage respectively, a fifth passage being in communication with the opposite end of said filter, and a sixth and a seventh passage forming a supply and a waste passage respectively, said movable ports being so arranged that in one position the first-mentioned filter-passage is put in communication with the house-passage and the second-mentioned filter-passage in communication with a supply-passage, that in a second position the first-mentioned filter-passage is put in communication with a waste-passage and the second-mentioned filter-passage in communication with a supply-passage, that in a third position the first-mentioned filter-passage is put in communication with a supply-passage and the second-mentioned filter-passage in communication with a waste-passage, and that in a fourth position the metal in the key portion of said valve apparatus stops the flow of water through said valve apparatus as well to house as to waste, substantially as described.

21. A valve apparatus, having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key and so arranged that in three positions of said ports one of said passages is put in separate communication with a second, a third and a fourth passage respectively, while in two of said three positions a fifth passage is separately put in communication with a sixth and in a third position with a seventh passage, and that when given a fourth position the metal in the key portion of said valve apparatus closes two at least of said second, third and fourth passages and one at least of said sixth and seventh passages without said ports establishing all the communications of any of the first three positions, substantially as described.

22. In combination with a filter, a valve apparatus having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key, one of said passages being in communication with the filtered-water end of said filter, a second, a third and a fourth passage forming a house, a waste and a supply passage respectively, a fifth passage being in communication with the opposite end of said filter, and a sixth and seventh passage forming a supply and a waste passage respectively, and said movable ports being so arranged that in one position the first-mentioned filter-passage is put in communication with the house-passage and the second-mentioned filter-passage in communication with a supply-passage, that in a second position the first-mentioned filter-passage is put in communication with a waste-passage and the second-mentioned filter-passage in communication with a supply-passage, that in a third position the first-mentioned filter-passage is put in communication with a supply-passage and the second-mentioned filter-passage in communication with a waste-passage, and that when given a fourth position the metal in the key portion of said valve apparatus stops the flow of water through the said valve apparatus as well to house as to waste, substantially as described.

23. A valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation and so arranged that in three positions of said ports one of said passages is put in separate communication with a second, a third and a fourth passage respectively, while in two of said three positions a fifth passage is separately put in communication with a sixth and in a third position with a seventh passage, and that when given a fourth position the first-mentioned passage is put in communication with one of the next-mentioned two without establishing the intercommunication of said fifth and sixth passages, substantially as described.

24. A valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation and so arranged that in three positions of said ports one of said passages is put in separate communication with a second a third and a fourth passage respectively, while in two of said three positions a fifth passage is separately put in communication with a sixth and in a third position with a seventh passage, and that when given a fourth position the intercommunication of said fifth and seventh passages is established without establishing the intercommunication of the said first and fourth passages, substantially as described.

25. In combination with a filter, a valve apparatus placed below said filter and having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation, two of said passages being in communication with said filter, another passage forming a house-passage, two others forming waste-passages, and two others still forming supply-passages, and said movable ports being so arranged that in three of said positions thereof one filter-passage is separately put in communication with a house, a waste and a supply passage respectively while the other filter-passage is in two of said three positions put in communication with a supply and in a third position with a waste passage, and that when given a fourth position a filter-passage is put in communication with a waste-passage without putting either supply-passage in communication with the filter, substantially as described.

26. In combination with a filter, a valve apparatus placed below said filter and having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation, two of said passages being in communication with the said filter, another passage forming a house-passage, two others forming waste-passages, and two others still forming supply-passages, and said movable ports being so arranged that in three positions thereof one filter-passage is separately put in communication with a house, a waste and a supply passage respectively while the other filter-passage is in two of said three positions put in communication with a supply and in a third position with a waste passage, and that when given a fourth position the bottom of said filter is put in communication with a waste-passage without putting either supply-passage in communication with the filter, substantially as described.

27. In combination with a filter, a valve apparatus placed below said filter and having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation, two of said passages being in communication with the said filter, another passage forming a house-passage, two others forming waste-passages, and two others still forming supply-passages, and said movable ports being so arranged that in three positions thereof one filter-passage is separately put in communication with a house, a waste and a supply passage respectively while the other filter-passage is in two of said three positions put in communication with a supply and in a third position with a waste passage, and that when given a fourth position the top of said filter is put in communication with a waste-passage without putting either supply-passage in communication with the filter, substantially as described.

28. A valve apparatus having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key and so arranged that in three positions of said ports one of said passages is put in separate communication with a second, a third and a fourth passage respectively, while in two of said three positions a fifth passage is separately put in communication with a sixth and in a third position with a seventh passage, and that when given a fourth position the first-mentioned passage is put in communication with one of the next-mentioned two without establishing the intercommunication of said fifth and sixth passages, substantially as described.

29. A valve apparatus having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key and so arranged that in three positions of said ports one of said passages is put in separate communication with a second, a third and a fourth passage, respectively, while in two of said three positions a fifth passage is separately put in communication with a sixth and in a third position with a seventh passage, and that when given a fourth position the intercommunication of said fifth and seventh passages is established without establishing the intercommunication of the said first and fourth passages, substantially as described.

30. In combination with a filter, a valve apparatus placed below said filter and having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key, two of said passages being in communication with said filter, another passage forming a house-passage, two others forming waste-passages, and two others still forming supply-passages, and said movable ports being so arranged that in three positions thereof one filter-passage is separately put in communication with a house, a waste and a supply passage respectively while the other filter-passage is in two of said three positions but in communication with a supply and in a third position with a waste passage, and that when given a fourth position a filter-passage is put in communication with a waste-passage without putting either supply-passage in communication with the filter, substantially as described

31. In combination with a filter, a valve apparatus suitably placed below said filter for emptying the same through said apparatus and having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key, two of said passages being in communication with the said filter, another passage forming a house-passage, two others forming waste-passages, and two others still forming supply-passages, and said movable ports being so arranged that in three positions thereof one filter-passage is separately put in communication with the house a waste and a supply passage respectively, while the other filter-passage is in two of said three positions put in communication with a supply and in a third position with a waste passage and that when given a fourth position the bottom of said filter is put in communication with a waste-passage, without putting either supply-passage in communication with the filter, substantially as described.

32. In combination with a filter, a valve apparatus suitably placed below said filter for emptying the same through said apparatus and having seven casing-passages leading to outside openings in one compound casing together with movable ports mechanically connected with one another for conjoint operation by being made in the same key, two of said passages being in communication with the said filter, another passage forming a house passage, two others forming waste-passages, and two others still forming supply-passages, and said movable ports being so arranged that in three positions thereof one filter-passage is separately put in communication with the house, a waste and a supply passage respectively, while the other filter-passage is in two of said three positions put in communication with a supply and in a third position with a waste passage, and that when given a fourth position the top of said filter is put in communication with a waste-passage, without putting either supply-passage in communication with the filter, substantially as described.

33. A valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation and so arranged that in three positions of said ports one of said passages is separately put in communication with a second a third, and a fourth passage respectively, while in two of said positions a fifth passage is separately put in communication with a sixth and in a third position with the seventh passage, the arrangement of said ports being also such that when given a fourth position the first-mentioned passage is put in communication with one of the next-mentioned two without establishing the intercommunication of said fifth and sixth passages and that when given a fifth position said fourth passage is put in separate communication with one of the passages designated as the "second" and "third," substantially as described.

34. A valve apparatus having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation and so arranged that in three positions of said ports one of said passages is separately put in communication with a second a third and a fourth passage respectively, while in two of said positions a fifth passage is separately put in communication with a sixth and in a third position with a seventh passage, the arrangement of said ports being also such that when given a fourth position the intercommunication is established of the said fifth with said seventh passage and of said fourth with one of said second and third passages without establishing the communication of the first-mentioned with said fourth passage, substantially as described.

35. In combination with a filter, a valve apparatus placed below said filter and having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation, two of said passages being in communication with said filter, another passage forming a house-passage, two others forming waste passages, and two others still forming supply-passages, and said movable ports being so arranged that in three positions thereof one filter-passage is separately put in communication with a house, a waste and a supply passage respectively, while the other filter-passage is in two of said three positions put in communication with a supply and in a third position with a waste passage, and that when said ports are placed in a fourth position a filter-passage is put in communication with a waste-passage, without putting either supply-passage in communication with the filter, and that when they are given a fifth position the house-passage is put in communication with a supply-passage while the water from each supply-passage is stopped from flowing through the filter, substantially as described.

36. In combination with a filter, a valve apparatus placed below said filter and having seven casing-passages leading to outside openings together with movable ports mechanically connected with one another for conjoint operation, two of said passages being in communication with said filter, another passage forming a house-passage, two others forming waste-passages, and two others still forming supply-passages, and said movable ports being so arranged that in three positions thereof one filter-passage is separately put in communication with a house, a waste and a supply passage respectively while the other filter-passage is in two of said three positions put in communication with a supply and in a third position with a waste passage, and that when said ports are placed in a fourth position a filter-passage is put in communication with a supply and the former with a discharge passage, and that when given a third position a discharge and a supply passage are put in communication with each other while at the same time the flow of water from the supply-passages through the filter, is stopped, substantially as described.

37. In combination with a filter, a valve apparatus having six casing-passages leading to outside openings in one compound casing together with movable ports in one key turning in said casing, two casing-passages being in communication with the filter, two passages forming supply-passages, and two passages constituting discharge passages for water which has passed through the filter, and said movable ports being arranged in different positions of said key to put each filter-passage in turn in communication directly through the said key with a supply or a discharge passage the other filter-passage being at the same time put in communication directly through said key with a discharge or a supply passage, substantially as described.

38. In combination with a filter, a valve apparatus having six casing-passages leading to outside openings in one compound casing together with movable ports in one key turning in said casing, two casing-passages being in communication with the filter, two passages constituting supply-passages, and two passages constituting discharge-passages, and the said ports being so arranged that in one position of said key one filter-passage is put in communication with a supply-passage, while at the same time the other filter-passage is put in communication with a discharge-passage, that in a second position the last-mentioned filter-passage is put in communication with a supply and the former with a discharge passage, and that when given a third position a discharge and a supply passage are put in communication with each other while at the same time the flow of water from the supply-passages through the filter, is stopped, substantially as described.

39. A valve as E F having four casing-passages leading from the same key-space, together with movable ports opening from the same central chamber in the valve-key and separated by angles which severally correspond with those between adjacent and diametrically opposite passages in the case of four at least of the six pairs possible with four passages, in combination with a valve as D^{ee} mechanically connected with the former for conjoint operation and having three casing-passages leading from a key-space common to all, together with movable ports opening from a central chamber in the valve's key common to all these last-mentioned ports, two of the casing-passages last mentioned being separated from each other by an angle similar to that which separates two of the first-mentioned casing-passages from each other, and the movable ports last mentioned being arranged to put a casing-passage of said second-mentioned valve D^{ee} in separate communication with another of its casing-passages in two positions of the first-mentioned valve E F and in separate communication with the remaining casing-passages of said second valve D^{ee} in a third position of said first-mentioned valve E F, substantially as described.

40. A valve as E F having four casing-passages leading from the same key-space and each separated from the next passage on either side by an angle of ninety degrees together with movable ports opening from the same central chamber in the valve-key, said ports being arranged at the ends of four radii two of which are in line with each other on opposite sides of the center and the other two are separated from each other by an angle of ninety degrees and lie on opposite sides of the first-mentioned two radii, substantially as described.

41. A valve as E F having four casing-passages leading from the same key-space and each separated from the next passage on either side by an angle of ninety degrees together with movable ports opening from the same central chamber in the valve-key, said ports being arranged at the ends of four radii two of which are in line with each other on opposite sides of the center and the other two are separated from each other by an angle of ninety degrees and lie on opposite sides of the first-mentioned two radii, in combination with a second valve as D^{ee} connected with the former for conjoint operation and having three casing-passages leading from a key-space common to all these last-mentioned passages and two of them separated from each other by an angle of ninety degrees together with movable ports opening from a central chamber in this valve's key common to all the last-mentioned ports, a movable port being arranged at the end of each of two radii which form an oblique angle with each other, substantially as described.

42. In combination with a filter, a current-reversing filter-draining and cut-off valve apparatus placed below the filter-chamber, said apparatus having house, waste supply and filter passages and a system of connected valves or ports whereby communication to the filter-chamber and to and from the house-pipe can be stopped and at the same time a waste-pipe connection be opened from the bottom of said chamber, said valves or ports also serving to send the current through the filter in the filtering direction to the house-pipe and in the washing direction to the waste-pipe, substantially as described.

43. In combination with a filter, a current-reversing by-pass filter-draining and cut-off valve placed below the filter-chamber and connected with the top and bottom thereof, said apparatus having house, waste, supply and filter ways and a system of connected valves or ports whereby the current can be sent through the filter in the filtering direction to the house-pipe and in the washing direction to the waste-pipe, and can be sent direct to the house-pipe, and can be cut off from the house-pipe, and whereby further the bottom of the filter-chamber can be connected with the waste-pipe while the supply is cut off from said chamber and from the house-pipe, substantially as described.

44. In combination with a filter, a valve apparatus placed below said filter and comprising current-reversing, filtered-water and filter-draining valves connected with one another for conjoint operation, so that in different positions of said valves the water may be sent through the filter in the filtering direction to house, or in the filtering direction to waste, or in the washing direction to waste, and that in other positions the bottom of the filter and the upright pipe leading to the top thereof may be put in communication with the waste for emptying said filter and upright pipe while at the same time the filter is cut off from the house and supply passages, substantially as described.

45. In combination with a filter, a valve apparatus placed below said filter and comprising current-reversing, filtered-water, filter-draining and by-pass valves connected with one another for conjoint operation, so that in different positions of said valves the water may be sent through the filter in the filtering direction to house, or in the filtering direction to waste, or in the washing direction to waste, or may be cut off from the filter while at the same time the bottom of said filter is put in communication with the waste for emptying said filter, or may be prevented from flowing through the filter while at the same time it is sent to house through the by-pass connection, the said valves being further adapted to connect the upright pipe leading to the top of the filter with the waste while the filter is cut off from the supply, substantially as described.

46. A valve apparatus having two sets of ports in the key portion of said apparatus together with filter, waste, house and supply passages in the casing, said ports and passages being arranged not only to connect either of the filter-passages with the waste while the other is connected with the supply, and to connect one of them to house while the other is connected with the supply, but also in another position of said valve apparatus to establish a by-pass from supply to house through one set of ports and to connect a filter-passage to waste through the other set of ports, while at the same time cutting off both filter passages from the supply, substantially as described.

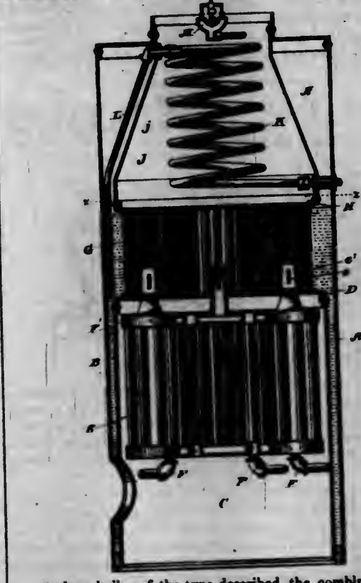
47. In combination with a filter, a valve apparatus placed below said filter and having two sets of ports in the key portion of said valve apparatus together with filter, waste, house and supply passages in said casing, said ports and passages being arranged not only to connect either of the filter-passages with the waste while the other is connected with the supply, and to connect one of them to house while the other is connected with the supply, but also in another position of said valve apparatus to establish a by-pass from supply to house through one set of ports and to connect the upright pipe leading to the top of said filter with the waste-passage through the other set of ports, while at the same time cutting off both filter-passages from the supply, substantially as described.

594,641. STEAM-GENERATOR. THOMAS MANNING, Cleveland, Ohio. Filed Apr. 26, 1897. Serial No. 633,862. (No model.)

Claim.—1. In a steam-generator of the drop-nest or drop-tube variety, the combination with said drop-tubes or drop-nests located in the furnace and having their upper portions extending above the crown-sheet of the same, of submerged flues carrying off the products of combustion from the furnace, substantially as and for the purpose shown and described.

2. In a steam-generator of the character described, the combination with the drop nests or tubes located in the furnace of said generator, said tubes having their upper ends extending above the crown-sheet of the furnace and in open communication with the water space, of submerged tubes communicating with the furnace at their lower end and secured to the crown-sheet, and at their upper end communicating with the stack, whereby products of combustion pass through said tubes and heat the water surrounding them, substantially as and for the purpose shown and described.

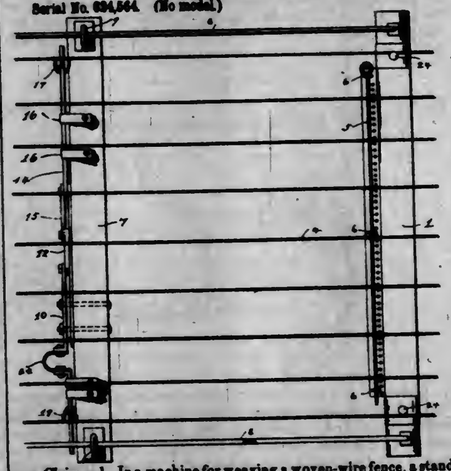
3. In a steam-generator of the type described, the combination with the inner and outer shell forming the water-leg of said generator, of drop tubes or nests communicating with said water-leg, said tubes or nests being provided with apertures at their upper end, said apertures located above the crown-sheet of the furnace and a series or number of flues surrounding the upper ends of the nests, said tubes being entirely submerged or beneath the normal level of the water in the boiler, substantially as described.



4. In a boiler of the type described, the combination with the drop tubes or nests and flues located above said drop tubes or nests, of a water-heater located in the stack of the boiler substantially as described, said water-heater provided with a drop-pipe for feeding the water to the boiler proper, substantially as shown and described.

5. In a steam-generator of the type described, the combination with the drop-nests E E secured to the crown-sheet of the furnace, of submerged pipes or flues G G, water-heater K and drop-pipe L, all operating substantially as shown and described.

594,642. WIRE-FENCE MACHINE. PETER MAST, Delphos, Ohio, assignor to the Mast Fence Company, same place. Filed Feb. 23, 1897. Serial No. 624,564. (No model.)

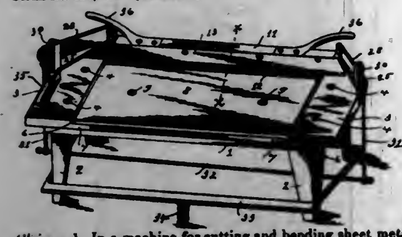


Claim.—1. In a machine for weaving a woven-wire fence, a standard having a clamp arranged thereon for engagement with the upper and lower longitudinal strands of a fence, and means for extending the clamp vertically.

2. In a machine for weaving a woven-wire fence, a standard having a clamp arranged thereon, said clamp comprising an upper clamping-section for engagement with the upper longitudinal strands of the fence and having a vertical movement, and a lower clamping-section having a limited vertical movement determined by a spring.

3. In a machine for weaving a woven-wire fence, a standard having guides projecting forwardly therefrom to receive the longitudinal strands of a fence, and means for holding the strands between the guides, a like standard adjustably secured to the first-named standard carrying a clamp for engagement with the upper and lower strands of the fence, and means for moving said clamp vertically.

594,648. MACHINE FOR CUTTING AND BENDING SHEET METAL. JACOB P. MEHRMAN, Toledo, Ohio. Filed Mar. 15, 1897. Serial No. 627,542. (No model.)



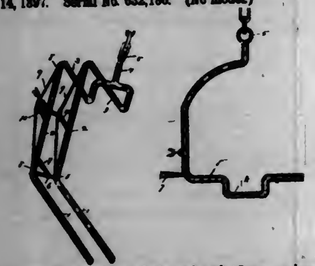
Claim.—1. In a machine for cutting and bending sheet metal, a table having knife-carrying arms adjustable longitudinally thereon, a stationary section of folder secured thereon between the knife-carrying sections and a folding section of folder, having means thereon to receive the edge of the sheet hinged to the stationary section of folder.

2. In a machine for cutting and bending sheet metal, a table having knife-carrying frames secured thereon, knives adjustable to each other secured to the frames upon the table, and a hinged section hinged thereto, said hinged section having a limited vertical movement with reference to the stationary portion normally held in a lowered position.

3. In a machine for cutting and bending sheet metal, a table having knife-carrying frames secured thereto, a stationary section of folder secured between the knife-carrying sections, a movable section of folder hinged to the stationary section, hinges being provided with vertical slots whereby the movable section has a limited vertical movement with reference to the stationary section, and springs for normally holding the movable section in a lowered position against the table.

4. In a machine for cutting and bending sheet metal, a table, knife-carrying frames having means for adjusting the same vertically with reference to the knife-carrying frames, a movable section of knife pivotally secured to the stationary section of knife, and means for adjusting the pivotal point vertically with reference to the stationary section of knife, and a treadle connected to the movable portion of the knife for depressing the same, and a spring for normally holding the movable knife in a raised position.

594,644. FORK. GEORGE T. MCCORKLE, Munhall, Pa. Filed Apr. 14, 1897. Serial No. 632,186. (No model.)

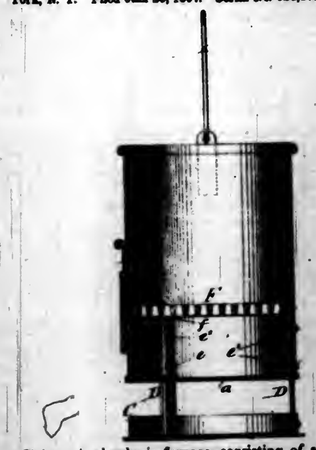


Claim.—1. In a fork consisting of a platform, a riser formed integral therewith, a span formed integral with said riser, and provided with a hanger, braces securing the arms of said platform together, said braces provided with a socket to receive a handle, a hook to receive dumping means, and strengthening means carried by said riser, substantially as shown and described.

2. In a fork, suspending means secured to said fork, a platform, risers provided with strengthening means, a dumping mechanism secured to said strengthening means, braces securing the forks of the platform together, and provided with means for guiding the fork, substantially as shown and described.

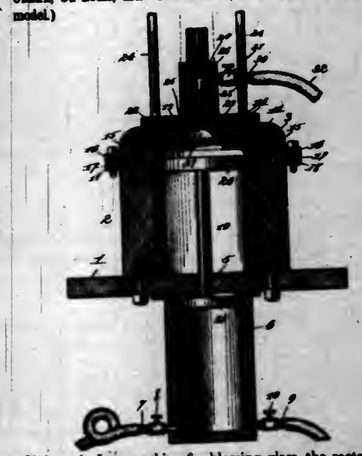
3. In a fork, a platform, a riser carrying said platform, strengthening means secured to said riser, and engaging a dumping-rope, means for guiding said fork, and means for operating the fork, substantially as shown and described.

594,645. PLUMBER'S FURNACE. JACOB NORDINGER, New York, N. Y. Filed Jan. 29, 1897. Serial No. 621,173. (No model.)



Claim.—A plumber's furnace, consisting of a casing provided with a door at its lower part, supporting-legs extending through the bottom of the casing along the inner wall of the same, bolts and nuts for removably securing the casing to the upper ends of the supporting-legs, said legs being provided at a suitable distance above the bottom of the casing with inturned lips or lugs, and a grate supported on the latter, whereby an ash-chamber is formed in the casing, below the grate, substantially as set forth.

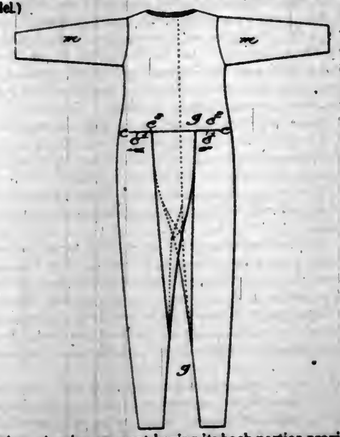
594,646. BOTTLE OR JAR BLOWING MACHINE. WILLIAM F. OBEAR, St. Louis, Mo. Filed Feb. 6, 1896. Serial No. 578,209. (No model.)



Claim.—1. In a machine for blowing glass, the rectangular cap 11 constructed in mating halves, each half having a semicircular notch or groove forming together a central opening concaved on its inner side and having the grooves 14 in the edge around the central aperture, perforated ears upon said cap through which ears keys operate to hold said cap, bolts in said ears engaging the mold to hold said cap in position, the mold 2 covered by said cap, and the disk 20 operating in said mold, substantially as specified.

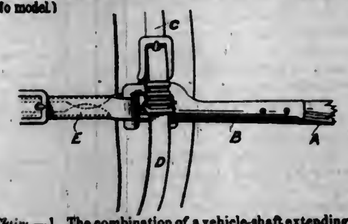
2. In a machine for blowing glassware, the ring 22, connecting-rods for operating said ring, said ring having the flared aperture 23, the plunger 26 designed to operate in said aperture, said plunger having the vertical bore 28 and the horizontal bore 29 intersecting each other, an inlet-pipe tapped into said bore 29, an inlet-valve in said inlet-pipe, and the under side of said plunger being concaved, substantially as specified.

594,647. BIFURCATED UNION GARMENT. WALTER A. O'BRIEN, Boston, Mass. Filed Feb. 23, 1897. Serial No. 624,516. (No model.)



Claim.—A union garment having its back portion provided with a cross-seam extending from substantially the side of one hip to substantially the side of the other hip, the hip-covering portion of the garment below said seam being fulled or gathered onto the back-covering portion of said garment above said seam, said seam also including in it between the ends of the hip-covering portions, fulled or gathered as described in said seam, two flaps, one superimposed on the other, the edges f^3, f^3, of said flaps being united respectively to the back and front part of each leg, and a part p p of each leg being stitched to the opposite part r r of the same leg, substantially as described.

594,648. SHAFT ATTACHMENT FOR VEHICLES. JOHN K. FILKINGTON, Liverpool, England. Filed Jan. 12, 1897. Serial No. 618,949. (No model.)



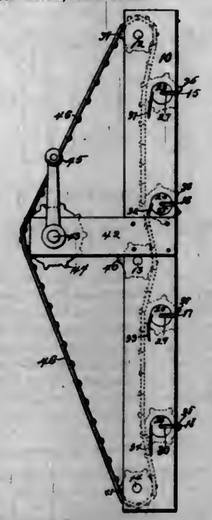
Claim.—1. The combination of a vehicle-shaft extending forward only as far as the saddle-band, a metal end thereon having a rigid hook with a portion at right angles to the shaft, for receiving the loop of the trace, and a portion parallel to the shaft for receiving the loop of the saddle-band, a looped short trace, and a looped saddle-band.

2. The combination with a looped saddle-band and a looped short trace, extending back only as far as the saddle-band, of a vehicle-shaft extending forward only as far as the saddle-band, and a metal end thereon having a rigid claw with a portion at right angles to the shaft, for receiving the loop of the trace, a portion parallel to the shaft for receiving the loop of the saddle-band, and a spring pin supported in the metal end and engaging with the claw so as to hold both the trace and saddle-band to the shaft.

3. The combination with a looped short trace and a looped saddle-band of a short shaft and a metal end thereon having a rigid bent hook with a portion at right angles to the shaft and a portion parallel to the shaft, receiving respectively the trace and saddle-band loop, and a spring-pin closing the opening of the hook.

594,649. FENCE-MACHINE. MARK PLUMMER, Mineral Springs, Mo. Filed July 19, 1897. Serial No. 645,075. (No model.)

Claim.—A fence-machine comprising the following elements in combination, to wit, the side pieces 10, 11 with marginal notches 15, 16, 17 and 18 in their forward edges: winding-hubs 23, 24, 25 and 26 mounted for revolution in the side pieces and provided with radial slots 27, 28, 29 and 30 arranged to register at times with the notches in the side pieces, the winding-hubs also being provided with grooves transversely of their peripheries opposite to the radial slots therein to receive tie-wires; the sprocket-wheels 35, 36, 37 and 38 rigidly mounted on the winding-hubs and radially slotted in communication with the radial slots in the hubs; the shafts 12, 13 and 14 stationarily positioned in the side pieces in staggered relations to a plane common to the axes of the winding-hubs; the sprocket-wheels 39, 40 and 41 mounted for revolution on said shafts; a bracket 42 fixed to and projecting rearwardly from the side piece 10; the crank-shaft 43 mounted for rotation in the outer end of said bracket; the sprocket-wheel 44 mounted rigidly on said crank-shaft; and the sprocket-chain 46 mounted for travel on and in engagement with the peripheries of the several sprocket-wheels, as set forth.



594,650. ENVELOP-OPENING APPARATUS. HERBERT R. RIDER, New York, N. Y., assignor to Celinda P. Robinson, same place. Filed July 17, 1896. Serial No. 599,486. (No model.)



Claim.—In an apparatus for opening envelops, the combination with the casing a having the opening a' therein adapted to receive the end of an envelop, of the pivoted movable platform k, and sustaining-spring l and stop l', the fixed cutting edge b, the rock-shaft c, carrying the movable cutting edge d, and spring o tending to hold said rock-shaft in normal position, the shaft h actuated by a motor and provided with a detent i, the trip-lever j connected to the movable platform k, and the cam n on the shaft h, said cam actuating the rock-shaft c and movable knife carried by said rock-shaft, substantially as set forth.

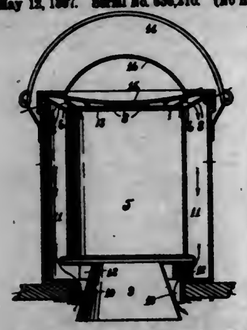
594,651. PIANO ATTACHMENT. HENRY ROBINSON, New York, N. Y., assignor to Henry Robinson & Co. Filed Feb. 10, 1897. Serial No. 622,781. (No model.)



Claim.—1. In a piano attachment, the combination with the tone muffling or changing device, of a clamping-bar formed of thin metal and having a flat portion and a half-round portion between which said device is clamped, and screws engaging with said flat and half-round portions and compressing them together.

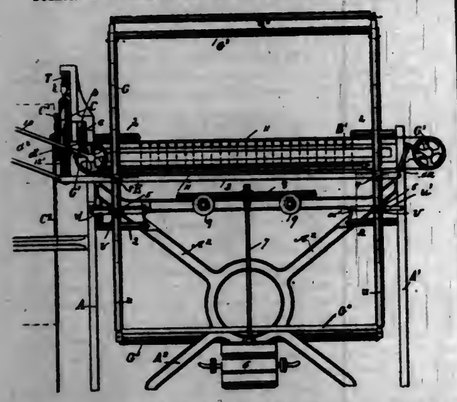
2. In a piano attachment, the combination with the tone muffling or changing device, of a hollow clamping-bar formed of thin metal having a slit at one side in which said device is held, and screws or bolts compressing the bar to clamp said device in place.

594,652. COOKING UTENSIL. FRANCIS I. ROGERS, Philadelphia, Pa. Filed May 12, 1897. Serial No. 636,210. (No model.)



Claim.—1. In a cooking utensil of the class described, the combination of the outer vessel having at its lower end a contracted open extension adapted to enter the hole of the top plate of a stove or range, and the inner vessel of less diameter than the outer one and having at its upper edge an upwardly and outwardly flaring perforated flange, and at its lower end an inverted-funnel-shaped extension of less diameter than the contracted lower portion of the outer vessel and extending down through such contracted portion, together with a detachable lid or cover for said outer vessel, substantially as described.

594,658. EMBROIDERING-MACHINE. MARTIN H. RUEFF, Paris, France. Filed June 4, 1895. Serial No. 551,595. (No model.)



Claim.—1. An embroidering-machine comprising a motor-shaft, a hook-operating shaft, a needle-operating shaft, the elliptical wheels whereby the motor-shaft transmits a variable movement to the hook-operating shaft and the eccentrically-mounted wheels whereby a variable movement differing from the movement of the elliptical wheels is imparted to the needle-operating shaft; substantially as described.

2. An embroidering-machine comprising a motor-shaft, needle-carriers, a combined pull-off and take-up device, an adjustable arm s' and a cam s^9 whereby the said device is connected with the motor-shaft, and fixed disks having means for imparting an adjustable pressure thereto and which serve for retaining the thread furnished in excess by the said device; substantially as described.

3. An embroidering-machine comprising a combined pull-off and take-up device, the tension-disks between the supply and the said device, adjustable pressers in advance of the said device, and a thread-grip located between the supply and the said device; substantially as described.

4. An embroidering-machine comprising the needle-operating shaft D, the combined pull-off and take-up device N, the needle-carrier H, the fixed and movable rods S, S', the adjustable pressure-disks R, R', operated by the rods, and the lever s and cam s', whereby the movable rod is operated, said cam being mounted on the needle-operating shaft; substantially as described.

5. An embroidering-machine comprising the needle-operating shaft D, the adjustable pressers R, the combined pull-off and take-up device N, a thread-grip located between the supply and the said device, the sliding carriage I, the needle-carriers H fixed in a removable manner on the said sliding carriage, rods f, plates f' and shaft g, and gearing whereby the shafts are connected with the said needle-operating shaft; substantially as described.

6. An embroidering-machine comprising the needle-operating shaft D, the spring tubular material-pressers K, the sliding carriage J to which the material-pressers are secured, the sliding carriage I, the needle carriers H located on the sliding carriage I and the levers k^3, the rod k', the grooved cam A, the shaft g' and the gearing whereby the shaft is connected with the needle-operating shaft; substantially as described.

7. An embroidering-machine comprising a needle-carrier carriage I having needle-carriers H, a presser-carriage J having material-pressers K, a hinged supporting-bar M, the levers k^3 connected with the presser-carriage, the rod k' connected with the levers, the plates f' connected with the needle-carriage and mechanism whereby the rod and plates are connected with the needle-operating shaft while permitting the raising of the supporting-bar; substantially as described.

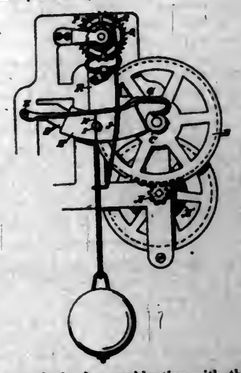
8. An embroidering-machine comprising the needle-operating shaft D, the material-carrying frame G^2 G having uprights u, the laterally-sliding socketed supports V, for the uprights, and the cams V' mounted on the sliding socketed supports adjacent to the uprights, and means whereby the needle-operating shaft is connected with the cams for rendering the frame stationary at intervals; substantially as described.

9. An embroidering-machine comprising a needle-operating shaft, a needle-carrier, a hook, and a needle having an eye, a point k' which when the needle is fixed in position stands near the projection of the lower generating-line of the body of the needle and an oblique spiral groove k^2 running from the point where the basal pierces the said generating-line and encircling the needle and terminating above the said point k' which causes the thread coming from the eye to pass above the point of the needle when the material is displaced horizontally in an opposite direction to the movement of the hook; substantially as described.

10. An embroidering-machine comprising a hook-operating shaft, a hook, the bowl recessed eccentrically in order to reduce as much as possible its external diameter and having a slot in its thickest part, the upper part x' of said slot being inclined in order to press on the thread and thus facilitate the formation of the loop when the needle describes a return movement, and the lower part of said slot being narrow and vertical in order to hold the loop in order to facilitate its being caught by the hook, and a spool located in the bowl; substantially as described.

11. An embroidering-machine comprising the pantograph, the material-carrying frame, a mechanism for parallelly guiding the frame consisting of two pulleys, a flexible band connecting the pulleys, the horizontal bar, and the parallel arms by means of which the pulleys are connected to the horizontal bar; substantially as described.

594,654. CLOCK. JOSEPH SCHULTE, Jr., Monterey, Cal., assignor of one-half to Thomas J. Field, same place. Filed May 13, 1897. Serial No. 636,362. (No model.)



Claim.—1. In a clock, the combination with the coiled spring and mechanism impelled thereby, of a cam in the train of clock mechanism and having a gradual increase in curvature from the beginning to the end of its cam-surface, a fulcrumed lever having a free end extending above the cam and adapted to rest thereon, and to be lifted by the movement of said cam, and a regulator movable in unison with the movement of the lever whereby the beats of the clock are increased in proportion as the spring which gives the impulse becomes weakened.

2. In a clock, the combination with the coiled spring and mechanism impelled thereby, of a fulcrumed lever, a cam with which one end of said lever-arm engages and by which it is gradually turned about its fulcrum-point by the movement of the clock mechanism, said cam being in the train of clock mechanism and having a gradual increase in curvature from the beginning to the end of its cam-surface, and having the free end of the lever-arm resting directly upon it, a regulator, a quadrant adapted to frictionally engage an adjacent surface, a connection between the lever-arm and the quadrant whereby it and the regulator are automatically moved by the movement of the cam transmitted through the lever-arm.

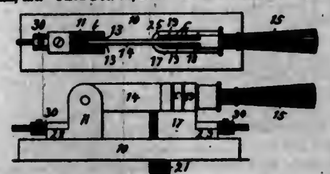
3. In a clock, a regulating mechanism comprising a cam in the train of clock mechanism and having a gradual increase in curvature from its initial point to the terminus of its cam-surface, and a fulcrumed lever having its free end continuously in engagement with said cam, whereby the impulse of the escapement is increased in proportion as the tension of the winding-spring is reduced, a disk centrally mounted with relation to the escapement-wheel, a pallet and verge carried by a downwardly-projecting extension of the disk, the verge connecting with the pendulum-rod whereby the tilting of the clock allows the disk and extension to move and arrange itself automatically with relation to the vertical position of the pendulum.

594,655. DIAPHANOUS PICTURE. WILLIAM SCHUMACHER, Boston, Mass. Filed May 26, 1897. Serial No. 638,214. (No model.)



Claim.—A diaphanous picture printed by print and counter-print in register on both sides of the sheet and having similar varnish impressions applied to said colors in register with the same and with each other, substantially as set forth.

594,656. ELECTRIC SWITCH. FERDINAND SCHWEDTMANN, St. Louis, Mo. Filed Dec. 14, 1896. Serial No. 615,705. (No model.)



Claim.—1. In an electric switch, a suitable contact part, a switch-blade adapted to make contact therewith, a solid pivot-post carrying said switch-blade and having formed in it a slot at the termination of the opening for the reception of the said switch-blade, and a contact-spring firmly secured in said slot with the free end between said pivot-post and said switch-blade.

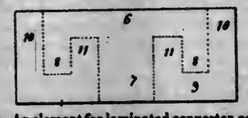
2. In an electric switch, a suitable contact-post, a switch-blade adapted to make contact therewith, a solid pivot-post carrying said switch-blade and having formed in it two slots at the termination of the opening for the reception of the said switch-blade, and two contact-springs firmly secured in said slots and having their free ends interposed between said pivot-post and switch-blade, one being at each side of said blade.

3. In an electric switch, a suitable pivot-post, a switch-blade carried thereby, a contact-post, and a plurality of contact-springs carried by said contact-post, said contact-springs being divided into a number of parts and the division of the several springs arranged out of register.

4. In an electric switch, a pivot-post, a switch-blade carried thereby, a contact-post, a plurality of contact-springs at each side of said contact-post and carried thereby, the springs of each set being divided into a number of parts and the division arranged out of register.

5. In an electric switch, a pivot-post, a switch-blade carried thereby, a contact-post, a contact spring or springs at each side of said contact-post and adapted to receive said blade between them, a spring-actuated contact-piece of conducting material carried by said contact-post, and a projection or tongue on said contact-piece and sliding between said contact-springs.

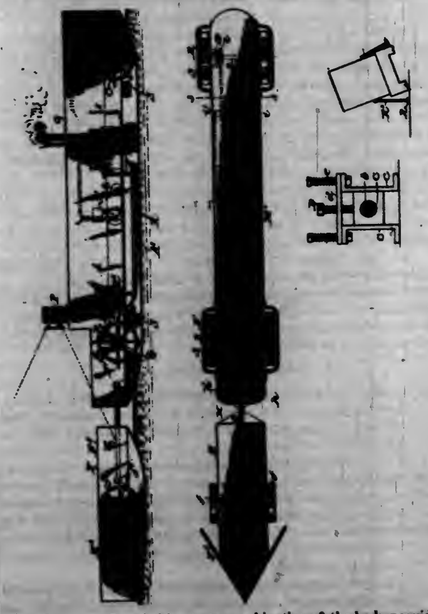
594,657. LAMINATED CONVERTER-CORE. FERDINAND SCHWEDTMANN, St. Louis, Mo. Filed Apr. 5, 1897. Serial No. 630,704. (No model.)



Claim.—1. An element for laminated converter cores consisting of a T-shaped plate having two short arms and a long arm, and two similar substantially U-shaped plates each having a long arm and a short arm, the ends of the long arms of said latter-named plates abutting the ends of the short arms of said T-shaped plate and their short arms abutting the end of long arm of said T-shaped plate.

2. A laminated converter-core, each element of which consists of a T-shaped plate having two short arms and a long arm, and two similar substantially U-shaped plates each having a long arm and a short arm, the ends of the long arms of said latter-named plates abutting the ends of the short arms of said T-shaped plate and the ends of their short arms abutting the end of the long arm of said T-shaped plate, said elements being arranged to throw the joints out of register.

594,658. SLED-BOAT. GERARD C. SCOTT, Lima, Ohio. Filed Aug. 30, 1897. Serial No. 650,010. (No model.)



Claim.—1. In a sled-boat, the combination of the body provided with propelling mechanism, substantially as described; with the buoyant pilot pivotally connected to the front end of the body, and mechanism for turning the pilot relatively to the body; said body being provided with buoyant runners for the purpose and substantially as described.

2. In a sled-boat, the combination of the body and the propel-

ling mechanism thereof, with the buoyant pilot pivotally connected to one end of the body, and the steering-chains attached to the pilot and to a steering mechanism on the body; said body being provided with buoyant runners for the purpose and substantially as described.

3. In a sled-boat, the combination of the buoyant body having longitudinal depending hollow runners at its sides, with the vertically-adjustable spring-cushioned shafts arranged transversely of the body, the propelling-wheels on said shafts exterior to the body, the engine, and the gearing between said engine-shafts and the propelling-wheel shafts, substantially as described.

4. The herein described sled-boat, adapted for travel on water, land, ice, &c., comprising a hollow steel body formed with a longitudinal channel in its bottom and longitudinal hollow runners on its sides, and means for propelling said vessel, substantially as described.

5. The combination with the buoyant body having hollow runners, substantially as described, the transverse shafts mounted in spring pressed journal-boxes, and means for vertically adjusting said shafts in said boxes; with the wheels attached to the outer ends of said shafts provided with detachable blades, all so arranged that the wheels can be caused to uphold the body upon land, or provided with blades and raised so as to propel the body through water or upon the runners, substantially as and for the purpose set forth.

6. The combination of the body having longitudinal depending hollow runners, transverse shafts carrying wheels on their ends exterior to the body, an engine, and mechanism substantially as described for driving said shafts and wheels; with the buoyant pilot pivotally connected to the front end of the body, and mechanism substantially as described for turning said pilot, substantially as and for the purpose set forth.

7. The combination of the hollow buoyant body having a longitudinal channel in its bottom and hollow runners at each side of said channel; transverse shafts journaled in spring-pressed vertically-adjustable journal-boxes; propeller-wheels on the outer ends of said shafts, an engine, and sprocket chains and gears for driving said propeller-wheel shafts from the engine-shaft, all substantially as described.

8. The herein-described sled-boat, adapted for travel on water, land, ice, &c., comprising a hollow steel body formed with a longitudinal channel in its bottom and longitudinal hollow runners on its sides, and means for propelling said vessel, with a hollow buoyant pilot in front of the body, the bar pivotally connecting the pilot to the body, and the crossed steering-chain connecting the pilot to the steering-gear on the body, all substantially as described.

9. The combination of the hollow buoyant body having a longitudinal channel in its bottom and hollow runners at each side of said channel; transverse shafts journaled in spring-pressed vertically-adjustable journal-boxes; propeller-wheels on the outer ends of said shafts, an engine, and sprocket chains and gears for driving said propeller-wheel shafts from the engine-shaft, with a hollow buoyant pilot in front of the body, the bar pivotally connecting the pilot to the body, and the crossed steering-chain connecting the pilot to the steering-gear on the body, all substantially as described.

10. In a sled-boat the combination of the body with the automatic guards pivotally attached thereto and adapted to automatically swing outward so as to maintain a perpendicular position to prevent upsetting thereof, for the purpose and substantially as described.

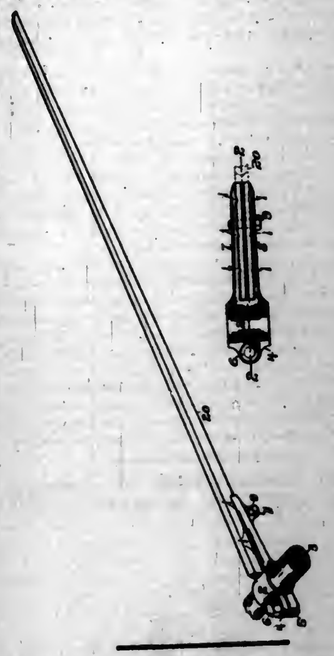
11. In a sled boat the combination of the body provided with propelling mechanism, substantially as described, with the automatically-actuated swinging guards suspended from the sides of the body and adapted to automatically swing outward to maintain a perpendicular position and prevent upsetting thereof, for the purpose and substantially as described.

594,659. FLY-FRAME FOR PRINTING-MACHINES. EDWIN L. SHATTUCK, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed July 11, 1895. Serial No. 555,677. (No model.)

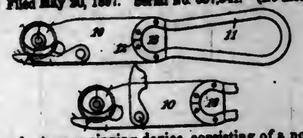
Claim.—1. A holder for a wooden or similar fly-frame finger, the same consisting of arms 7, 8 permanently connected together so as to provide a vertical seat, and two lateral clamping-faces between which said finger is supported or embraced, the same being provided with a clamping-bolt 9 and with means for rigidly attaching said holder to the fly-shaft at different positions of longitudinal adjustment thereof, substantially as described.

2. A fly-frame-finger holder consisting of arms 7, 8 permanently connected together and constructed so as to provide a vertical seat and lateral clamping-surfaces for supporting said finger said arms being provided with a clamping-bolt 9 and extending from a pivoted hub 2, substantially as described.

3. A fly-frame-finger holder consisting of arms 7, 8 permanently connected together and constructed so as to provide a vertical seat and lateral clamping-surfaces for supporting said finger, said arms being provided with a clamping-bolt 9 attached to a pivoted hub 2 having a clamping-screw for attaching the same to the fly-shaft, substantially as described.



594,660. SEAM-RIPPING DEVICE. JOHN G. SHEPARD, Windsor, Conn. Filed May 20, 1897. Serial No. 637,341. (No model.)



Claim.—1. A seam-ripping device, consisting of a non-rotatable blade, and of a rotatable sharp-edged disk, with means coöperating therewith to distend the separated folds of the fabric apart from the line of cleavage of the blades so as to successively lay bare the uncut threads thereof to the action of the blades.

2. In a tool of the class specified, in combination with the blades thereof, a distending-plate projecting from the side of the tool and coöperating therewith to distend the separated folds of fabric, so as to lay bare the uncut threads thereof to the action of the blades.

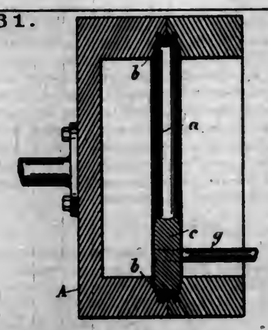
3. In a seam-ripping tool of the class specified, in combination with the blades thereof, a distending-plate pivotally mounted upon the tool and extending forward substantially to the point of contact of the blades, the plate being curved laterally from the plane of the blades so as to distend the separated folds of the fabric, and the forward point of the distending-plate being adapted to enter a perforation or depression in one of the blades, for the purpose specified.

4. A ripping device, consisting of a fixed blade, and of a rotatable sharp-edged disk cutter, the latter being adjacent to and substantially parallel with the fixed blade, with its sharpened edge engaging therewith to form a shear and a distending-plate bearing against the fixed blade and projecting therefrom against the fabric, whereby the folds of the latter are distended and the blades are pressed together with a tension governed by the resistance of the seam to the cutting operation, substantially as described.

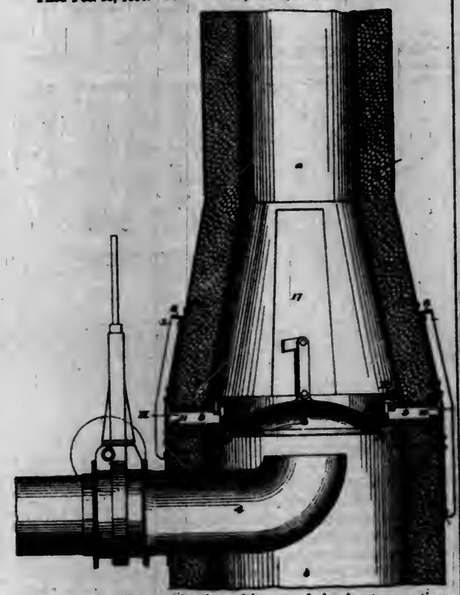
594,661. APPARATUS FOR MANUFACTURING BICYCLE-WHEEL RIMS. ALBERT R. SMITH and MATTHEW S. SMITH, London, England. Filed Apr. 12, 1897. Serial No. 631,771. (No model.)

Claim.—In apparatus for making wheel-rims, the combination, with an internal and circumferentially-divided chuck, and a ring divided transversely and seated in the said chuck; of a presser-roll for forming the tread of the rim, and a circumferentially-divided presser-roll for subsequently bringing together the sides of the rim and forming its under portion, substantially as set forth.

594,661.



594,662. FURNACE-VALVE. JAMES R. SPEER, Pittsburg, Pa. Filed Feb. 16, 1897. Serial No. 623,273. (No model.)



Claim.—1. The combination with a stack having two sections, the upper section being supported a distance above the lower section by connecting external members, of a valve-seat ring, arranged to be slid into the space between the two sections, and a valve-seat removably secured to said seat-ring; substantially as described.

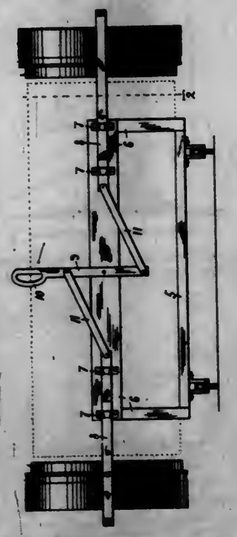
2. The combination with a stack formed in two sections, the upper section being supported above the lower section by external connecting strips or members, a part of which are permanently secured to the sections and others of which are removably secured, of a valve-seat ring arranged to be slid into the space between the two sections of the stack, while part of the connecting members are removed; substantially as described.

594,663. DEVICE FOR APPLYING END CAPS TO CYLINDRICAL BALES. JAMES F. SWINNERTON, St. Louis, Mo., assignor to the Kingsland & Douglas Manufacturing Company, same place. Filed Oct. 28, 1895. Serial No. 567,184. (No model.)

Claim.—1. In a device for applying end caps to cylindrical bales and the like, an outer cylindrical member adapted at one end to support an end cap of flexible material, and an inner cylindrical member slidingly mounted in the said outer member and adapted to be telescoped therein by the bale, whereby the end cap will be applied to the bale.

2. In a device for applying end caps to cylindrical bales or the like, a movable member adapted to slide over the ends of the bale, means for removably securing a piece of flexible material to said movable member, and means for actuating said movable member.

3. In a device for applying end caps to cylindrical bales and the like, two cap-holders adapted to slide over the end of the bale mounted on a suitable frame, means for removably securing a piece of flexible material to each of said cap-holders, and suitable actuating mechanism for causing said cap-holders simultaneously to approach toward or recede from each other.



4. In a device for applying end caps to cylindrical bales and the like, a movable member, means for actuating said movable member, means for removably securing a piece of flexible material to said movable member, and a second member carried by said movable member and adapted to telescope within it, said second member being adapted to slide over the end of the bale.

5. In a device for applying end caps to cylindrical bales and the like, a cylindrical member, a second cylindrical member carried by said first-named cylindrical member and telescoping within it, and a suitable spring or springs normally projecting said second cylindrical member beyond said first cylindrical member, whereby a suitable space is formed for the reception of a tie-wire.

6. In a device for applying end caps to cylindrical bales and the like, a movable cylindrical member, means for actuating said movable member, means for removably securing a piece of flexible material to said member, a second cylindrical member carried by said first-named cylindrical member and telescoping within it, and a suitable spring or springs normally projecting said second cylindrical member beyond said first-named cylindrical member, whereby a suitable space is formed for the reception of a tire-wire.

7. In a device for applying end caps to cylindrical bales or the like, a movable circular member carried upon a suitable arm, means for actuating said movable member, a second circular member telescoping within the said first circular member, spiral springs interposed between said circular members, a funnel-shaped member carried on said first-named circular member, and spring-clamps for removably securing a piece of flexible material to said funnel-shaped member.

8. In a device for securing end caps to cylindrical bales and the like, a movable cylindrical member, means for actuating said movable member, a funnel-shaped member removably carried by said cylindrical member, suitable spring-clamps carried by said funnel-shaped member for removably securing a piece of flexible material to it, a second cylindrical member carried by said first-named cylindrical member and normally projecting beyond it, whereby a suitable space is formed for the reception of a tie-wire, and means for securing the loose ends of said tie-wire in position.

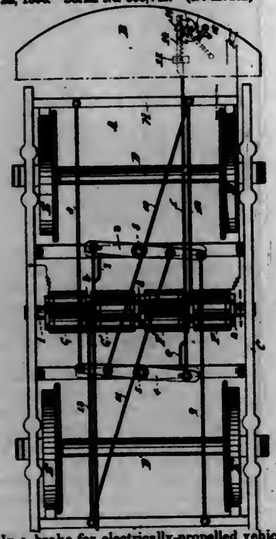
594,664. SOAP-SAVING DEVICE. MARY H. VERDIER, Pittsburg, Pa. Filed Jan. 12, 1897. Serial No. 618,961. (No model.)

Claim.—In a soap-saving device, the combination of a sectional casing provided with an outward and downward extension, pulleys mounted in the upper part of said extension; over which a chain is operated, and passing through an opening in lower part of said extension, the chain carrying on one end a counterweight, and on the other end a lock connecting a piece of soap, a float provided with a

stem carrying an eye, and a coating of soap covering said float, substantially as shown and described.

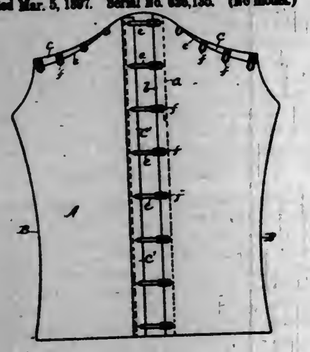


594,665. ELECTRIC BRAKE. WILLIAM WEHRL, New York, N. Y. Filed Oct. 22, 1896. Serial No. 609,749. (No model.)



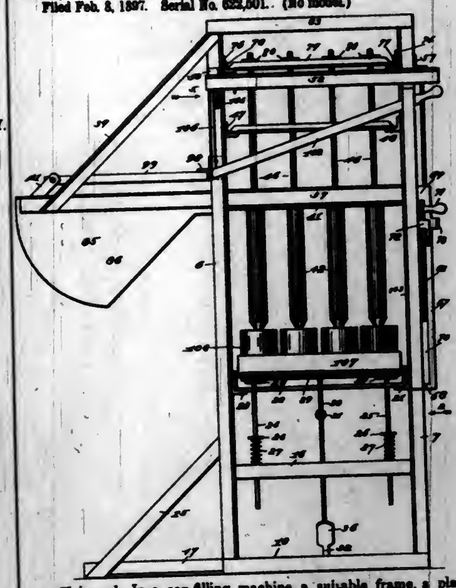
Claim.—In a brake for electrically-propelled vehicles, the combination of electromagnets mounted to vibrate, an operative connection between the same and the brake-beam, means for closing a circuit through the electromagnets, a hand-brake provided with a gear-wheel, a brake-rod connected with the operating-lever of the electric-brake system and provided with a rack engaging with the gear-wheel on the hand-brake, and a ratchet-wheel and pawl in connection with said hand-brake, substantially as described.

594,666. GARMENT-FITTING DEVICE. JOHN WEIR, Dayton, Ohio. Filed Mar. 5, 1897. Serial No. 626,135. (No model.)



Claim.—A device for obtaining a fit in tailor-made coats, comprising a pad C of flexible material; a series of elastic bands *e*, having one end permanently attached to said pad; a series of engaging clamps attached to the other ends of said elastic bands, the said flexible pad being adapted to a detachable connection with a portion of the underlapping edge of the goods, and the engaging clamps being adapted to a detachable connection with an adjacent overlapping edge of said goods, whereby a yielding connection is formed between the free or unsewed edges of said coat which enables an adjustment and fitting thereof, preparatory to the completion, of said garment, substantially as herein shown and described.

594,667. CAN-FILLING MACHINE. EMIL WILDE, Highland, Ill. Filed Feb. 8, 1897. Serial No. 622,501. (No model.)

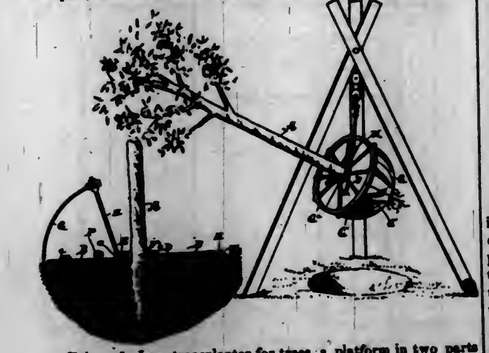


Claim.—1. In a can-filling machine, a suitable frame, a plate fixed in a horizontal position upon said frame, filling-tubes fixed in and depending through said plate and having apertures in their lower ends, walls projecting upwardly from the edges of said plate, valves operating in said filling-tubes to regulate the passages through said apertures in said tubes, valve-stems extending upwardly from said valves, a frame connecting the upper ends of said valve-stems, means of raising and lowering said frame whereby said valves are operated, means of flooding said plate, and means of bringing cans into position under the apertures in said filling-tubes; said last-mentioned means consisting of the slide 22 constructed of sheet metal in the form of a channel-bar, suitable supports for said slide, the rods 24 and 25 slidingly mounted in a vertical position through apertures in said slide 22, collars fixed upon said sliding rods and below said slide 22, expansive coil-springs upon said sliding rods and operating to elevate said collars and said rods 24 and 25, plates fixed in horizontal positions upon the upper ends of said rods 24 and 25, the sheet-metal plate 29 resting upon the first-mentioned plate, the rod 30 attached to the center of said plate 29 and extending downwardly through the slide 22, a lever connected to the lower end of said rod, and a suitable can-carrying tray resting upon said plate 29, substantially as specified.

2. In a can-filling machine, a suitable plate, filling-tubes fixed in and depending through said plate and having apertures in their lower ends, valves operating within said filling-tubes and controlling the passages through said apertures, means of bringing cans into position under the apertures in said filling-tubes, means of flooding said plate; said latter means consisting of the sheet-metal tank rigidly mounted in position at one side of said plate, the dipper 91 fitting into said tank and having an opening in its bottom, the valve 93 hinged in position to close said opening, and means of raising and lowering the outer side of said dipper as required to empty its contents upon said plate, substantially as specified.

3. In a can-filling machine, a suitable plate, filling-tubes fixed in and depending through said plate and having apertures in their lower ends, a suitable frame supporting said plate, walls projecting upwardly from the edges of said plate, valves operating in said filling-tubes to regulate the passages through said apertures in said tubes, valve-stems extending upwardly from said valves, a frame connecting the upper ends of said valve-stems, means of bringing cans into position under the apertures in said filling-tubes, and means of raising and lowering said frame whereby said valves are operated; said latter means consisting of the angle-bars 50 mounted in vertical positions outside of each of the posts of the frame and pivotally connected to said posts, the angle-bars 52 and 53 mounted in positions transversely of the machine and fixed to said angle-bars 50, the flat metal strip 54 having one of its ends rigidly fixed to the horizontal bar 52 and having the longitudinally-extending opening 56 in its opposite end the flat metal strip 57 having one of its ends fixed to the horizontal bar 53 and having the longitudinally-extending opening in its opposite end, said openings in the free ends of said strips 54 and 57 being normally in alinement and the plate to be raised and lowered being supported by said angle-bars 52 and 53, the connecting-rod 63 mounted in vertical position, the pin 65 fixed in the upper end of said connecting-rod and operating in the slots in the free ends of the metal strips 54 and 57, and a lever connected to the lower end of said connecting-rod as required to raise and lower said connecting-rod, substantially as specified.

594,668. TREE-TRANSPLANTER. JOHN A. WILKINS, Indianapolis, Ind. Filed Dec. 20, 1896. Serial No. 617,494. (No model.)



Claim.—1. In a transplanter for trees, a platform in two parts removably secured together, said platform having a central opening to receive the tree and means for fastening the blades to the platform, of a plurality of blades shaped and curved substantially as described and adapted to be driven into the ground around the margin of the platform so as to cut off a determinate portion of the earth within which the tree-roots are growing and hold the earth while the tree is being transported, and means substantially as described for hinging the blades to the platform and guiding them into position.

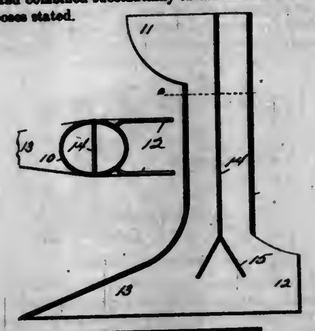
2. The combination, with a two part platform having a central opening to receive the tree, said parts being removably secured together to permit of the introduction of the tree, a cushion-lining for the opening to prevent injury to the tree and a plurality of pointed and curved blades hinged to the platform whereby when the blades are driven into the ground they will cut off a determinate portion of the earth containing the tree-roots and hold the earth from displacement during the removal of the tree, all substantially as described and specified.

3. The combination, with the platform B and the blades G secured to the platform in the manner described, of the bent stakes P to assist in lifting and sustaining the weight of earth around the roots and which is to be removed with the tree.

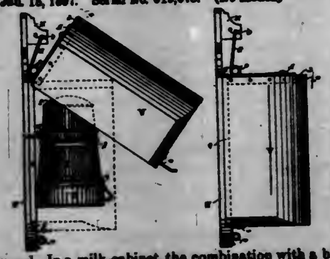
594,669. POTATO-PLANTER. THOMAS H. WILLIAMS, Huron, S. D. Filed June 26, 1897. Serial No. 642,202. (No model.)

Claim.—1. The combination with a potato-planter, of a hollow leg designed to be secured to the frame of a machine and having on its lower end a furrow-opener substantially straight on its lower edge, and having its front tapered to a point, landsides at its rear, separating means within the leg above the spreader, and an inverted-V-shaped spreader at the bottom of the leg, all arranged and combined substantially in the manner set forth and for the purposes stated.

2. The combination with a potato-planter, of a hollow leg, designed to be secured to the frame of the machine and having on its lower end a furrow-opener substantially straight on its lower edge and having its front tapered to a point, landsides at its rear, a vertical central partition or diaphragm within the hollow leg, and an inverted-V-shaped spreader at the lower end of the partition, all arranged and combined substantially in the manner set forth and for the purposes stated.



594,670. MILK-CABINET. ALBERT G. WILLIAMS, Mattoon, Ill. Filed Jan. 18, 1897. Serial No. 619,675. (No model.)



Claim.—1. In a milk-cabinet, the combination with a back having the rabbets *b* in its edges, and the groove *b'* across the upper side of its face; a ring secured to the said back; and receptacles supported in the said ring; of a hood hinged to the said back and adapted to cover the said receptacles and having thin edges adapted to enter the said rabbets and groove in the said back; and a spring adapted to hold the said cover in its closed position, substantially as described.

2. In a milk-cabinet, the combination with a back having a block H at the lower end and an eye *d'* at the upper end; a ring K secured to the said back and receptacles supported in the said ring; of a hood hinged to the back and adapted to cover the said receptacles; a spring secured to the bottom of the said hood, and adapted to bear against the said block H and hold the hood in its closed position; and a hasp *a* on the top of the said cover adapted to pass over the said eye *d'* on the back when the hood is closed, substantially as described.

594,671. STARCHING-MACHINE. CARL ALLGEIER, Chicago, Ill. Filed June 4, 1897. Serial No. 638,430. (No model.)

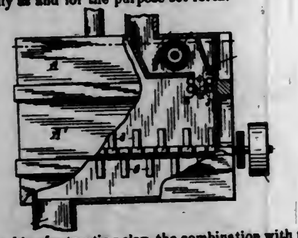


Claim.—In a starching-machine the combination of a zinc-lined box containing a stationary and a reciprocating corrugated roller mounted upon shafts, having their bearings in the sides of the box to permit a sliding and rotary movement, a crank on the end of one of the shafts, rocking levers bent to rest upon the ends of one shaft as a bearing, while the forked ends engage with the other shaft, and spiral springs extending from the side of the box to one of the shafts as and for the purpose specified.

594,672. MACHINE FOR PREPARING CLAY. PHINEAS ARNOLD, Canal Dover, Ohio. Filed Aug. 14, 1896. Serial No. 602,786. (No model.)

Claim.—1. The combination in a clay-working machine, of a chute provided with a scattering feed-brush, with a water-conducting

pipe having parallel branches provided with nozzles, and a steam-conducting pipe composed of like parallel branches, and provided with nozzles, both the water and steam pipes located below the chute and having supply-pipes attached thereto, provided with suitable cut-offs, substantially as and for the purpose set forth.



2. In a machine for treating clay, the combination with the clay-receptacle, of a conductor-chute having located therein a rotatable brush, parallel independent steam and water pipes located below the chute, and having suitable openings therein, and supply pipes connected thereto and provided with cut-off valves, whereby either the steam or water or both may be used, substantially as and for the purpose set forth.

3. The combination in a clay-working machine, of a conductor-chute terminating in a clay-receptacle, with independent water and steam conducting pipes located below the chute, having parallel branches provided with nozzles and suitable cut-off valves, substantially as and for the purpose set forth.

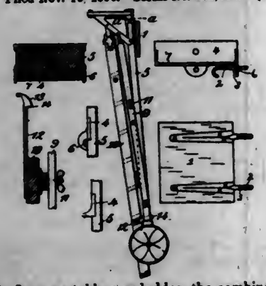
4. In a machine for treating clay, the combination with the clay-receptacle, of a conductor-chute, independent parallel steam and water pipes located below the chute, and having suitable openings therein, and provided with cut-off valves whereby either the steam or water or both may be used, substantially as and for the purpose set forth.

594,678. COMBINED JOCK-STRAP AND SUSPENSORY. CHARLES F. BENNETT, Chicago, Ill. Filed Mar. 29, 1897. Serial No. 630,833. (No model.)



Claim.—A combined jock-strap and suspensory comprising an endless belt portion, and two elastic bands separated at one end and attached to the rear of the belt and crossed intermediate of their length and secured together at their inner edges from said point of crossing to the other end and attached at said other end to the front of the belt, whereby there is provided at the rear an opening and at the front a pouch, substantially as and for the purpose set forth.

594,674. PORTABLE STEP-LADDER. HARVEY BOWMAN, Dayton, Ohio. Filed Nov. 16, 1896. Serial No. 612,214. (No model.)

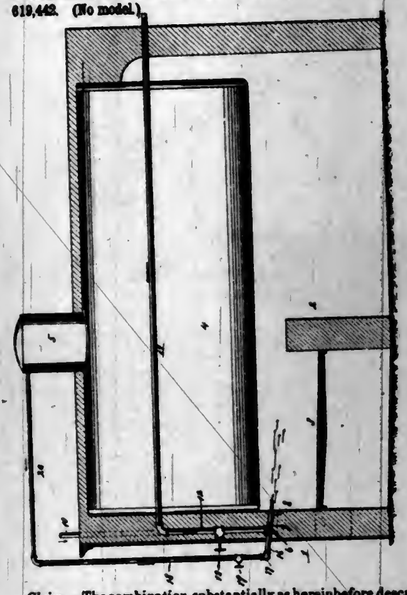


Claim.—1. In a portable step-ladder, the combination with triangular side brackets 16; posts 5 rigidly attached thereto, and step-posts 10 loosely connected thereto; of an upper shelf; rods terminating in hooks 2 and provided with spurs 3 attached to said shelf; brackets 4 attached to the inner sides of the posts 5, the said brackets having openings 6 and ledges 7 that are adapted to engage with said rods and hooks, whereby means are provided for supporting the upper shelf in either a raised or suspended position, as herein shown and described.

2. In a portable step-ladder, the combination with side brackets 16; the posts 5, and 10 attached thereto; of handle-bars 9 having attachment with said posts, and spring-bars 12 rigidly attached to the posts 10, the said spring bars having engaging ends 13 that are adapted to interlock with the posts 5, when the ladder is folded, substantially as shown and described.

3. In a portable step-ladder, the combination with triangular brackets 16; posts 5 rigidly attached thereto, and posts 10 loosely connected thereto; of an upper shelf projected in the front of posts 5; rods terminating in hooks attached to said shelf; brackets 4 secured to the inner sides of said posts 5, said brackets having eyes formed therein and ledges projecting therefrom which are adapted to support the said shelf in either a raised or lowered position; handle-bars 9 attached to said posts 5 and 10, and a lower shelf located between said handle-bars, all arranged substantially as shown and described.

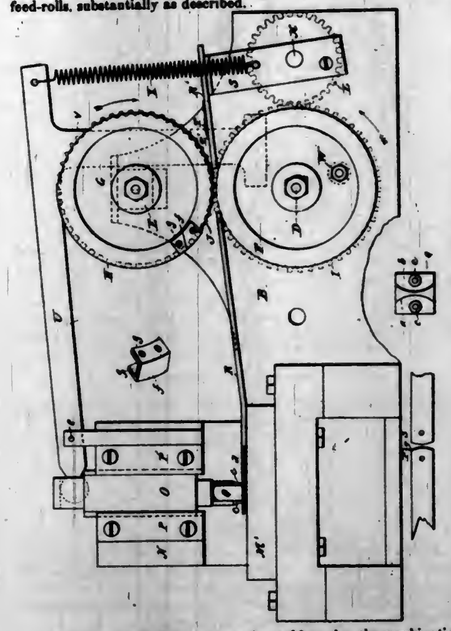
594,675. SMOKE-CONSUMING FURNACE. JOHN BRANDON and GEORGE BEAL, Leavenworth, Kans. Filed Jan. 16, 1897. Serial No. 619,442. (No model.)



Claim.—The combination, substantially as hereinbefore described, with a furnace, of a transverse pipe set in the front wall of the furnace, consisting of a number of sections 6, and couplings 7, nozzles 8 secured to said couplings and arranged to discharge into the fire-box, a valve-controlled pipe, 10, connected to each end of the said transverse pipe, and open to the entrance of outside air at their opposite ends, a pair of valve-controlled pipes 12, set in the front wall of the furnace and coupled to the transverse pipe at their lower ends, a pair of hot-air pipes 11, resting against the boiler and having their front ends coupled to the upper ends of pipes 12, and their rear ends open, a second transverse pipe, 14, parallel with the other and arranged in front of the furnace, nozzles 16, projecting from said pipe into the couplings 7, and clear across their transverse passages, and valve-controlled pipes connecting the transverse pipe 14, to the steam-dome of the boiler, substantially as described.

594,676. MACHINE FOR CUTTING WIRE. CHARLES S. CHAFFEE, Derby, Conn. Filed Jan. 14, 1897. Serial No. 619,137. (No model.)

Claim.—1. In a machine for cutting and punching wire, the combination with two rolls having their peripheries adjacent to but separated from each other, and means for driving them in opposite directions, one of said feed-rolls formed with an integral segmental feeding-face projecting beyond the main portion of the roll, of a combined cutter comprising two reversely-curved cutters and a punch adjacent to each cutter whereby both ends of the wire are rounded and perforated, a guideway extending from said rolls to the cutting and punching mechanism, and a lever connected with the said cutter and punch and adapted to be lifted by a stud on the side of one of said feed-rolls, substantially as described.



2. In a machine for cutting and punching wire, the combination with two rolls having their peripheries adjacent to but separated from each other, and means for driving them in opposite directions, one of said feed-rolls formed with an integral segmental feeding-face projecting beyond the main portion of the roll, of a combined cutter comprising two reversely-curved cutters and a punch adjacent to each cutter whereby both ends of the wire are rounded and perforated, a guideway extending from said rolls to the cutting and punching mechanism, and from the feed-rolls toward the source of supply, a holdback on said guideway, and a lever connected with the said cutter and punch, and adapted to be lifted by a stud on the side of one of said feed-rolls, substantially as described.

594,677. COMPOSITION FOR LIGHTING CIGARS. ALFRED CHATELAIN, Butler, Pa. Filed July 19, 1897. Serial No. 645,134. (No specimens.)



Claim.—1. A cigar or cigarette having at its end a combustible composition containing peroxid of manganese, permanganate of potash and chlorate of potash, and an outer frictionally-igniting head.

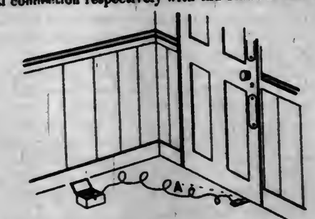
2. A cigar or cigarette having at its end a combustible composition composed of peroxid of manganese, permanganate of potash, chlorate of potash, powdered coke and cinnamon-bark, and an outer frictionally-igniting head.

3. A cigar or cigarette having at its end a combustible composition containing peroxid of manganese, permanganate of potash, chlorate of potash and a waterproofing material, and an outer frictionally-igniting head.

594,678. ELECTRIC BURGLAR-ALARM. THOMAS A. CLARKE, Bootle, England. Filed Jan. 12, 1897. Serial No. 618,978. (No model.)

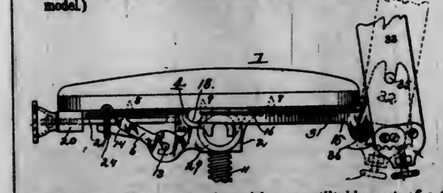
Claim.—1. In a burglar-alarm wedge the combination of the two portions forming the upper and lower parts of the wedge with a series of thin contact-plates forming the hinge and arranged with contacts of opposite polarity side by side and covering a greater portion of the surface of the wedge, whereby if a metal tool be used to push it away it will complete the circuit by bridging the distance between two contacts.

2. In a burglar-alarm wedge the combination of the wedge B' having conducting-strip G fixed thereto with the wedge B having spring-blade F of opposite polarity to the strip G and a battery X having wires D' and D in electrical connection respectively with the blade F and the strip G.



3. In an electrical wedge the combination of a wedge B, B' with two series of spring-plates E and E' of opposite polarity and alternating with each other and a battery and bell having wires in electrical contact respectively with the parts E and E'.

594,679. MECHANISM FOR SPRING-BACK CHAIRS. CHARLES R. DAVIS, Boston, Mass. Filed June 3, 1896. Serial No. 594,124. (No model.)



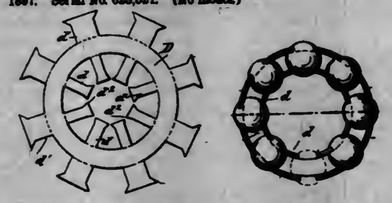
Claim.—1. The combination with a non-tiltable seat, of a tiltable back supported upon a rocking frame, a spider on the under side of the seat in which the frame is pivoted, an adjusting mechanism in front of the spider, and a pair of coiled springs embracing the arms of the spider, and being provided with forward and backward prolongations arranged to engage the adjusting device in the rocking frame respectively, substantially as described.

2. In a spring-back chair, the combination with a non-tiltable seat, of an adjustable back, a standard on which the back is supported, a pivot for supporting the standard, a frame secured to the under side of the seat and being provided with a vertically-projecting plate in which the pivot is seated, said plate being provided with notches on its under side, and a hand-screw on the lower end of the standard adapted to engage the notches, substantially as described.

3. The combination with a non-tiltable seat, of a tiltable back portion, a rocking support for the back pivoted beneath the seat, a pair of coiled springs secured beneath the seat and having forward and backward prolongations, and an adjusting device for regulating the tension of the springs, substantially as described.

4. In a chair, a non-tiltable seat portion provided with a tiltable back, a Y-shaped frame arranged to rock up and down under the seat, a vertically-extending plate rising from the back end of the frame, a standard provided with a bifurcated lower end within which the plate fits, and a longitudinally-extending set-screw on the lower end of the standard, said screw being arranged and adapted to engage the lower edge of the plate, substantially as described.

594,680. BALL-BEARING. CHARLES H. J. DILG, New York, N. Y., assignor to Gustavus Emil Strauss, same place. Filed Feb. 15, 1897. Serial No. 623,631. (No model.)

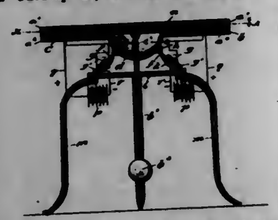


Claim.—1. In a ball-bearing, a ball-holding device consisting of a flat ring having a series of inner and a series of outer side flaps radially opposite each other and extending upwardly from the ring, and balls held in the spaces between the inner and outer flaps so that they project beyond the ring and side flaps in the inner and outer and in the upward directions, substantially as set forth.

2. In a ball-bearing, a ball-holding device consisting of a flat ring having inner and outer flaps, radially opposite to each other, the side portions of which are cut out, so that outer sharp points are formed, the flaps being upwardly bent, and balls held in the spaces between the corresponding inner and outer flaps by the said points and projecting beyond the device in the inner and outer and the upper directions, substantially as set forth.

3. The combination of a hub having inner flanges, and an axle having cones, the flanges and cones forming chambers, with ball-holding devices, one in each chamber, which devices each consist of a flat ring having a series of inner and a series of outer side flaps extending upwardly from the ring and having their side portions cut out so that sharp points on their outer ends are formed, and balls held in the spaces between the corresponding inner and outer flaps and projecting beyond the devices in the inner and outer and in the upper directions, substantially as set forth.

594,681. SELF-LEVELING TABLE. JAMES R. DOWNS, East Pittsburg, Pa. Filed Apr. 29, 1897. Serial No. 634,422. (No model.)



Claim.—1. A gravity-table consisting of a double top, supporting-legs, a ring supported by said legs, braces secured to said ring, a concave ring supported by said braces, a hemisphere resting in said concave ring and secured to the lower table and a weighted rod secured to said hemisphere, substantially as shown and described.

2. A gravity-table consisting of an upper and lower top, a hemisphere secured to the lower top, a concave ring forming a seat for said hemisphere, braces attached to said concave ring and to a ring supported by the legs, and a weighted rod attached to said hemisphere to retain the table top in a level position, substantially as shown and described.

3. A gravity-table having a double top, a hemisphere and rod for supporting same, a concave ring for forming a seat for the hemisphere, supporting means for said ring, electromagnets engaging the hemisphere, and one or more batteries connected to the table-top to control the electromagnets, substantially as shown and described.

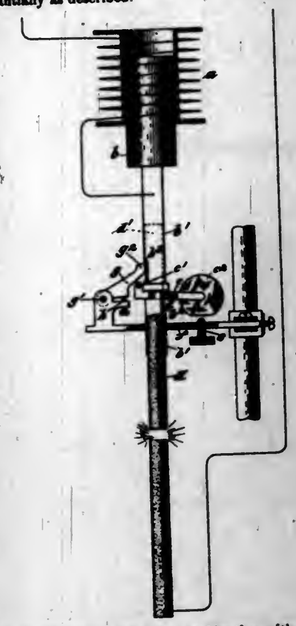
4. A gravity-table consisting of suitable supporting-legs, a ring supported by said legs, braces secured to said ring, a concave ring supported by said braces, said concave ring forming a seat to receive a hemisphere supporting the table-top a gravity-weight suspended from the hemisphere, electromagnets engaging said hemisphere, and electrical connections from batteries to the table-top for controlling the electromagnets, substantially as shown and described.

5. In a gravity-table, an upper and lower table, a hemisphere supporting the lower table, a rod secured to the upper table and engaging said hemisphere, a seat for said hemisphere, supports therefor, a gravity-weight attached thereto, electrical connections between the upper and lower table, and suitable batteries, and electromagnets engaging the hemisphere to control the movement of the same, substantially as shown and described.

594,682. ELECTRIC-ARC LAMP. THOMAS R. DRONAN, Chicago, Ill., assignor to the Stevens & Halske Electric Company of America, same place. Filed July 9, 1897. Serial No. 643,943. (No model.)

Claim.—1. In an electric-arc lamp, the combination with a longitudinally-movable tubular portion through which the carbon may freely pass, of a clutch-lever pivoted to said tubular portion and normally engaging the carbon, a stop in the path of said clutch-lever adapted to engage therewith and cause the same to release the carbon, means for preventing the engagement of the clutch-lever with said stop to prevent the total release of said carbon from the tubular portion after it has passed a given point therein, and electromagnetic means for causing the movement of said tubular portion to effect thereby the regulation of the lamp, substantially as described.

2. In an electric-arc lamp, the combination with a solenoid, of a hollow iron core therefor having a tubular extension through which the carbon may freely pass, a clutch-lever pivoted to said tubular extension and normally engaging the carbon, a stop in the path of said clutch-lever adapted to engage therewith and cause the same to release the carbon, and means for preventing the total release of the carbon after the latter has passed a given point in said tubular portion, substantially as described.



3. In an electric-arc lamp, the combination with a tubular part through which the carbon is adapted to be fed, of a trigger adapted to rest upon the carbon as it is fed through said passage and to engage with said tubular part after the carbon has passed the trigger, substantially as and for the purpose specified.

4. In an electric-arc lamp, the combination with a movable tubular part through which the carbon is adapted to be fed, of clutch mechanism carried by said tubular part, and normally engaging the carbon, a stop in the path of said clutch mechanism adapted to engage therewith to cause the same to release the carbon, means for preventing the release of the carbon after it has passed a given point in said tubular part, and electrically-operated means for causing the movement of said tubular part, to effect thereby the regulation of the lamp, substantially as described.

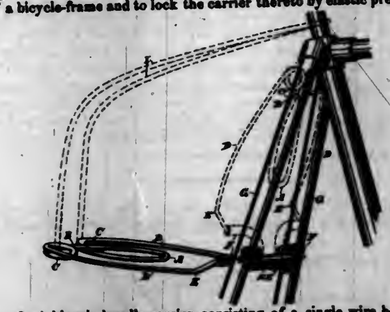
5. In an electric-arc lamp, the combination with a movable tubular portion through which the carbon is adapted to be fed, of clutch mechanism carried upon said tubular portion and normally engaging the carbon, a stop in the path of said clutch mechanism adapted to engage therewith to cause the release of the carbon, a stop adapted to rest upon the carbon as it is fed through said tubular portion and to engage with said tubular portion after the carbon has passed the stop, and electrically-operated means for causing the movement of said tubular portion, substantially as and for the purpose described.

6. In an electric-arc lamp, the combination with a solenoid having a hollow iron core, of a clutch-lever carried thereby and normally engaging the carbon, a stop in the path of said clutch-lever adapted to engage therewith and cause the release of the carbon, and a trigger resting upon the carbon as it is fed through said core and to engage with the core after the carbon has passed the trigger, substantially as and for the purpose described.

594,688. BICYCLE BUNDLE-CARRIER. ADRAN W. DUCK, Oakland, Cal. Filed Apr. 23, 1897. Serial No. 633,482. (No model.)

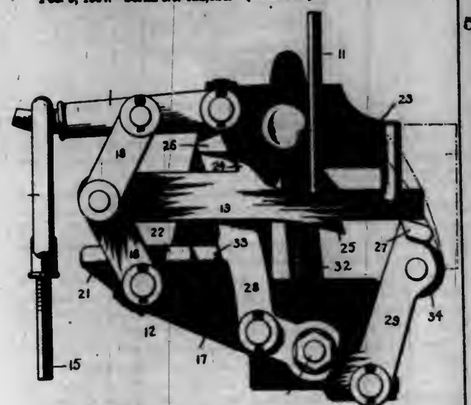
Claim.—1. A bundle or package carrier formed of a single piece of elastic wire bent at its center to form an elongated oval, the arms of the wire thence crossing each other at the apex of the oval and each formed with a spiral or coil, said arms being thence returned approximately parallel with the oval and having their free ends carved into hook form and adapted to engage the rear forks of the bicycle-frame.

2. A bundle-carrier consisting of a single piece of wire bent centrally to form an elongated oval, the wires crossing each other at the apex of the oval and bent to form one or more turns of a spiral, thence continued forwardly in curves approximately parallel with the central loop, having the ends upturned and bent into outwardly-hooking hooks adapted to detachably engage the vertical rear standards of a bicycle-frame and to lock the carrier thereto by elastic pressure.



3. A bicycle bundle-carrier consisting of a single wire bent to form a central elongated loop, the wires crossing each other at the rear portion of the oval and each formed into one or more turns of a spiral, thence returning in curves approximately parallel with the central oval, having the ends upturned and bent into outwardly-facing hooks to engage the vertical rear bars of the bicycle-frame, and a cord attached to one of the spirals adapted to pass over the bundle around the saddle-post and returning attach to the other spiral.

594,684. LOOM. JOHN F. DUTTER, Fitchburg, Mass., assignor to himself and the Parkhill Manufacturing Company, same place. Filed Feb. 9, 1897. Serial No. 622,981. (No model.)

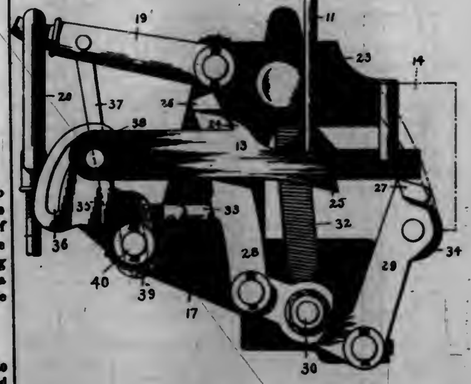


Claim.—1. In a loom, the combination of a dobby-cylinder and its pattern-chain, a supplemental pattern-chain for controlling the box-motion mounted to turn with said dobby-cylinder, a box-motion-controlling device comprising toggle-levers, lifting-links actuated thereby, hook-pieces controlled by the supplemental pattern-chain, and connected to the toggle-levers, pivoted pieces having actuating blades or sweeps connected to move toward and away from each other, a spring for normally separating the actuating-blades, and a cam for moving the actuating-blades toward each other, substantially as described.

2. In a device of the class described, the combination of toggle-levers, lifting-links actuated thereby, stops for said toggle-levers, one of said stops being arranged so that the toggle-levers can slightly pass their center of motion to lock a lifting-link in its raised position, hook-pieces connected to the toggle-levers, a pivoted bell-crank lever having an actuating blade or sweep, and a friction-roll, a cam driven from the operating parts of the loom to engage said friction-roll, a pivoted lever having a second actuating blade or sweep, a pin-and-slot connection for causing the actuating-blades to move toward each other, and a spring for normally separating said actuating-blades, substantially as described.

594,685. BOX-MOTION-OPERATING DEVICE FOR LOOMS. JOHN F. DUTTER, Fitchburg, Mass., assignor to himself and the Parkhill Manufacturing Company, same place. Filed July 30, 1897. Serial No. 646,329. (No model.)

Claim.—In a device of the class described, the combination of pivoted cam-pieces 35 having cam-slots 36, links 37, each having a projection engaging one of said cam-slots, said links 37 being guided at their lower ends, lifting-levers 19 actuated by the links 37, the cam-slots 36 being shaped to lock said lifting-levers in their raised position, hook-pieces 13, a pattern device controlling said hook-pieces, connected bell-crank levers 28 and 29 having actuating-blades 26 and 27, a spring 32 for normally separating said bell-crank levers, and a cam for moving said bell-crank levers toward each other, substantially as described.



594,686. DINNER-PAIL, &c. ANTHONY FREESE, Buffalo, N. Y., assignor to Sidney Shepard & Co., same place. Filed Apr. 8, 1897. Serial No. 631,236. (No model.)

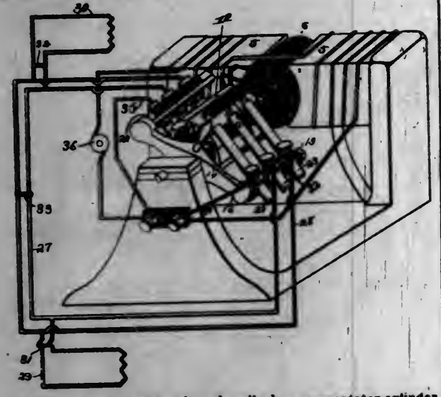
Claim.—1. The combination with a dinner-pail or similar vessel having ears which project above the rim of the cover, of an elastic bail having pivots which extend horizontally through the ears and are capable of lengthwise movement therein, said pivots projecting over the cover in their normal position and in all positions of the bail to retain the cover in place, while they can be withdrawn from the cover to release the same by springing the pivots away from the cover, substantially as set forth.

2. The combination with a dinner-pail or similar vessel having ears which project above the rim of the cover, of an elastic bail having pivots which extend inwardly through the ears and are capable of lengthwise movement therein and provided at their inner ends with stops which prevent the withdrawal of the pivots from the ears, said pivots projecting over the cover in their normal position and in all positions of the bail to retain the cover in place while they can be withdrawn from the cover to release the same by springing the pivots outwardly, substantially as set forth

594,687. COMMUTATOR. CHARLES J. GREINER, St. Louis, Mo. Filed Aug. 31, 1897. Serial No. 650,208. (No model.)

Claim.—1. In a device of the class described, a commutator-cylinder; said commutator-cylinder having a periphery consisting of metal segments of equal dimensions circumferentially, one-third of said segments being twice as long as the others and said segments being arranged with a long segment and a short segment alternating and with a short segment in longitudinal alinement with each long segment, and with a non-conducting surface in longitudinal alinement with each of said alternate short segments and each of said metal segments insulated from the others, and with said longitudi-

nally-alined short segments out of circumferential alinement with said alternate short segments; electrical connections between said short segments and the armature, brushes mounted to contact with said commutator-cylinder and electrical connections leading to said brushes, substantially as specified.



2. In a device of the class described, a commutator cylinder having a periphery consisting of the segments 9, the segments 10 arranged alternately with the segments 9, the segments 11 arranged in longitudinal alinement with said segments 10, and the non-conducting surfaces 12 arranged in alinement with said segments 9, substantially as specified.

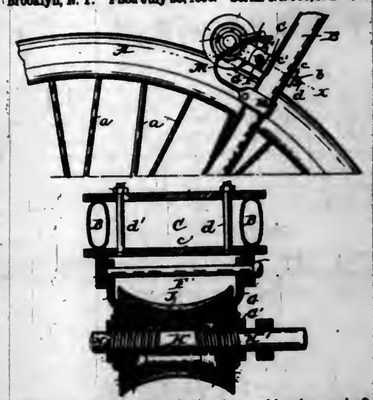
3. In a device of the class described, a pair of brushes connected to the magnetic field, a second pair of brushes connected together, a third pair of brushes connected together, a circuit connected to the connections between said brushes, and a commutator-cylinder engaging said brushes, the periphery of said cylinder consisting of metal segments of equal dimensions circumferentially, one-third of said segments being twice as long as the others and said segments being arranged with a long segment and a short segment alternating and with a short segment in longitudinal alinement with each long segment, and with a non-conducting surface in longitudinal alinement with each of said alternate short segments and each of said metal segments insulated from the others, and with said longitudinally-alined short segments out of circumferential alinement with said alternate short segments; electrical connections between said short segments and the armature, brushes mounted to contact with said commutator-cylinder and electrical connections leading to said brushes, substantially as specified.

4. In a device of the class described, a pair of brushes connected to the magnetic field, a second pair of brushes and a third pair of brushes mounted beside the first pair of brushes, electrical connections between corresponding ones of the second and third pairs of brushes, electrical connections between the other ones of said second and third pairs of brushes, a commutator-cylinder in position to be engaged by all of said brushes, the periphery of said commutator-cylinder consisting of a series of metal segments in permanent electrical connection with the coils of the armature, a non-conducting substance in longitudinal alinement with each of said metal segments, a second series of metal segments of double the length of the first-mentioned series arranged alternately with the first-mentioned series and having no direct connection with the armature, a third series of metal segments arranged in longitudinal alinement with the second series of segments and insulated therefrom and in permanent electrical connection with the armature, substantially as specified.

5. In a device of the class described, a commutator-cylinder having a periphery consisting of the segments 9, the segments 10 arranged alternately with the segments 9, the segments 11 arranged in longitudinal alinement with the segments 10 and the non-conducting surfaces 12 arranged in alinement with said segments 9, the brushes 21, 22, 23, 24, 25 and 26 mounted in positions to engage said commutator-cylinder, the conductor 27 connecting the brushes 22 and 25, the conductor 28 connecting the brushes 23 and 26, the circuit 29, the circuit 30, the switch 31 connecting the conductors 27 and 28 to the circuit 29, the switch 32 connecting the conductors 27 and 28 to the circuit 30, the switch 33 connecting the conductors 27 and 28 as required to disconnect the circuits 29 and 30, a generator connected to the brush 24, an armature permanently connected to the segments 9 and 11, a magnetic field around said armature, a conductor leading from the generator to said magnetic field and a conductor leading from said magnetic field to the brush 21, substantially as specified.

6. In a device of the class described, the commutator-cylinder having the metallic segments 9, 10 and 11 arranged upon its periphery, three pairs of brushes arranged to contact with said segments, conductors forming permanent electrical connections between the segments 9 and 11 and the armature, the conductor 27 connecting one pair of said brushes, the conductor 28 connecting a second pair of said brushes, the circuit 29, the circuit 30, the switch 31 connecting the circuit 29 to the conductors 27 and 28, the switch 32 connecting the circuit 30 to the conductors 27 and 28, the switch 33 connecting the conductors 27 and 28 as required to disconnect the circuits 29 and 30, a magnetic field connected to the third pair of said brushes, and to a generator, substantially as specified.

594,688. BICYCLE-BRAKE. DAVID J. GUE and HARRY D. GUE, Brooklyn, N. Y. Filed July 25, 1896. Serial No. 600,474. (No model.)



Claim.—1. In a braking device, in combination, a shaft, a wheel loose upon said shaft, said shaft having oppositely-threaded ends, and friction-disks working upon said threaded end and adapted, in the oscillation of the shaft, to be brought against and from the surface of the wheel.

2. In a braking device, in combination, a shaft, a wheel loose upon said shaft, said shaft having oppositely-threaded ends, and friction-disks working upon said threaded end and adapted in the oscillation of the shaft to be brought against and from the surface of the wheel, and means to oscillate said shaft.

3. In a braking device, in combination, a shaft, a wheel loose upon said shaft, said shaft having oppositely-threaded ends, and friction-disks working upon said threaded end and adapted in the oscillation of the shaft to be brought against and from the surface of the wheel, and means to oscillate said shaft, and means to normally hold said braking device free from the mechanism to be braked.

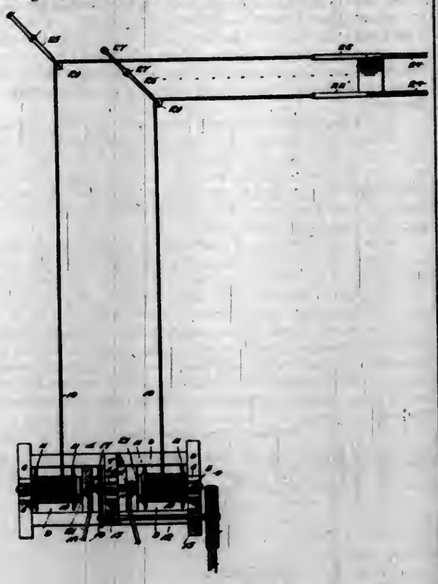
4. In a braking device, in combination, a shaft, a wheel loose upon said shaft, said shaft having oppositely-threaded ends, and friction-disks working upon said threaded end and adapted in the oscillation of the shaft to be brought against and from the surface of the wheel, and means to move said braking device to and from the mechanism to be braked, and means to oscillate said shaft to move said disks in contact with the wheel, said last-mentioned means acting simultaneously with the movement of the device to the mechanism to be braked.

594,689. TREE-DIGGER. WILLIAM H. HARTMAN and JONATHAN B. MOREY, Jr., Dansville, N. Y. Filed Mar. 22, 1897. Serial No. 628,597. (No model.)

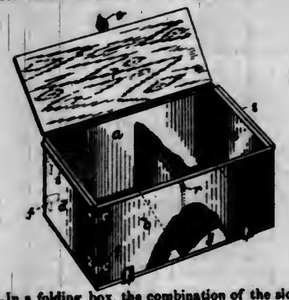
Claim.—1. In a device of the character described, the combination with a digging device, ropes connected thereto and extending on opposite sides of the trees operated upon, drums upon which the ropes are adapted to be wound, a driving mechanism for rotating said drums, and means for controlling the rotation of the drums so that they may be operated independently of each other, substantially as described.

2. In a device of the character described, the combination of a digging device, ropes connected thereto and extending on opposite sides of the trees operated upon, a shaft, a mechanism for rotating said shaft, drums loose upon said shaft, said ropes adapted to be wound upon the drums, and means for independently moving the drums to engage the shaft, substantially as described.

3. In a device of the character described, the combination of a digging device, ropes attached thereto and extending on opposite sides of the trees to be operated upon, pulleys suitably supported over which said ropes pass and are turned at right angles to the row of trees, drums to which the opposite ends of the ropes are attached, mechanism for rotating said drums, and means for independently controlling the rotation of the drums, substantially as described.

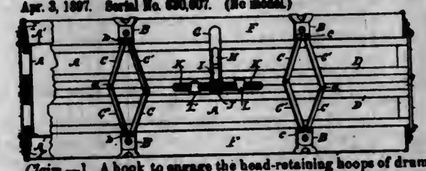


594,690. FOLDING BOX. JOHN A. HAYS, Pittsburg, Pa. Filed Jan. 21, 1897. Serial No. 620,137. (No model.)



Claim.—In a folding box, the combination of the side and end pieces hinged together in such a manner as to swing endwise in folding, a bottom hinged to the front, a lid hinged to the back, a partition hinged to the bottom and provided with a cut-away portion and a semicircular slot in a plane above the same, a locking-rod carried by said slot and secured to the same by staples and provided with a head, a lug on the bottom to engage one of the ends and hold the box rigid, and a hasp and staple for fastening the box when in the built-up form, substantially as shown and described.

594,691. DRUM. CHARLES T HENDERSON, Dunkirk, Ohio. Filed Apr. 3, 1897. Serial No. 630,607. (No model.)



Claim.—1. A hook to engage the head-retaining hoops of drums and like instruments comprising in combination a member having its upper end turned over said hoop, and provided with transverse corrugations, a member having pivotal connections at its lower portion and provided with transverse corrugations adapted to engage the corrugations on said other member, and means whereby said members may be adjustably attached and detached, substantially as and for the purposes shown and described.

2. In a hook for securing the head-retaining hoops of drums and like instruments, the combination of a back plate having a hooked end adapted to said hoops and provided with a raised central portion having an aperture therethrough, a front plate having a raised central portion provided with an aperture therethrough and adapted to engage the raised portion on said back plate, transverse corrugations on said plates in engagement, a screw-bolt arranged to bind said plates together, with means whereby said hooks may be operated, substantially as shown and described.

3. The combination of a drum or like instrument having head-retaining hoops, a hook adapted to engage said hoops and provided with means whereby it may be lengthened or shortened at will one independently of another of a series, with means whereby a series of said hooks may be actuated simultaneously, substantially as and for the purposes set forth.

4. A head-tightener for drums and like instruments comprising in combination a series of hooks each consisting of a part adapted to hook over the top of the head-retaining hoop, a part adapted to be connected adjustably to said other part and having means whereby to connect it to actuating-links, a bolt and a nut working thereon and securing said two parts together in any adjusted position relative to each other, the straining-rings encircling the shell of said instrument, the links connecting said hooks to said straining-rings, the swiveled nuts on said rings, the screw working in said nuts, and the ratchet connected to said screw, substantially as and for the purposes shown and described.

5. The combination of the hooks, each comprising the back plate having corrugations on the face thereof and provided with the upper hooked end and the slot in the body thereof, the front plate having corrugations at the back surface adapted to engage said other corrugations and provided with a bolt-hole in the body thereof coinciding with said slot, the bolt in said slot and said hole and a nut thereon whereby said front and back plates are secured adjustably together, means on said front plate whereby it may be connected to an operating mechanism, with a drum or like instrument provided with means whereby said hooks may be actuated simultaneously substantially as shown and described.

594,692. SPIRIT-LEVEL. GUSTAV HEINRICHS, New York, N. Y., assignor to Eduard Leissner, same place. Filed Aug. 30, 1897. Serial No. 648,925. (No model.)



Claim.—1. The combination with a spirit-level, comprising a rectangular block, having a recess provided with reflecting covering, a glass tube set in the recess and glass-covered look-holes for observing the tube in the recess, of sliding shields for covering the look-holes, comprising metallic plates having their edges bent, grooved bars secured to the block, the bent edges of the shields engaging in the grooves of the bars and the shields being guided thereby in their motion, and of means for moving the shields.

2. The combination with a spirit-level provided with sliding shields protecting the look-holes, of mechanism for operating the sliding shields, comprising a tube open on one end and provided with a central bore on the other end, a rod sliding through the tube, a collar secured to the rod, a spiral spring slid on the rod between the collar and the head of the tube, studs secured to the rod, screws securing the sliding shields to the studs, and means for securing the rod against the action of the spring when withdrawn from its normal position.

594,698. EMERGENCY BRAKE AND FENDER COMBINED. FRANCIS A. HITE, Pittsburg, Pa. Filed Feb. 3, 1897. Serial No. 621,781. (No model.)

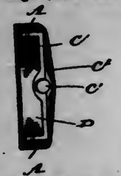


Claim.—1. In an emergency brake and fender, a fender consisting of side braces connected by an axle at their lower end, rollers se-

cured on said axle, a rod connecting said braces at the upper end, a rod provided with crank-arms engaging the aforesaid rod, an arm connecting the latter rod to the operating-lever, brake-shoes supported by levers pivotally secured to braces carried by the frame, a pull-rod pivotally secured to one arm of the levers and the operating-lever and a brake-shoe provided with engaging bits or spurs adapted to come in contact with the rail when the brake-shoes are forced against the wheel, substantially as shown and described.

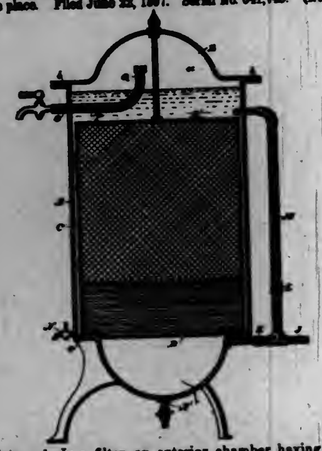
2. In an emergency brake and fender, a fender consisting of braces connected by an axle at their lower end, rollers secured on said axle, crank-arms secured to the platform of the car, and carrying springs, the opposite ends of which are secured to the side braces of the fender, an operating-lever having a link pivotally secured to the lower end of said operating-lever and extending at right angles thereto and engaging the crank-operating rod carried by the fender, a link, one end of said link being pivoted to the operating-lever, and the opposite end engaging an elbow-shaped lever operating the brake-shoe, substantially as shown and described.

594,694. DRESS AND MUD GUARD. WILLIAM C. HUMPHREY, Jamestown, N. D. Filed Aug. 11, 1896. Serial No. 602,425. (No model.)



Claim.—A guard for sprocket wheels and chains for bicycles, comprising in combination, the strips A A, the recessed, metallic cap D fitted over the rear ends of said strips, the band B secured in recessed portions at the forward ends of said strips and connecting the same, the recessed, metallic cap E fitted over the said connecting-band B and secured thereto, a leather covering for the space between the said caps, and the bracket G secured to the strips on the outside of the said covering, the removable plate K secured to the said bracket and the bracket C between angled ends secured to the inner face of the said strips A A, all substantially as shown and described.

594,695. WATER-FILTER. WILLIAM HOWITT, San Francisco, Cal., assignor, by direct and mesne assignments, to John B. McGlew, same place. Filed June 22, 1897. Serial No. 641,745. (No model.)



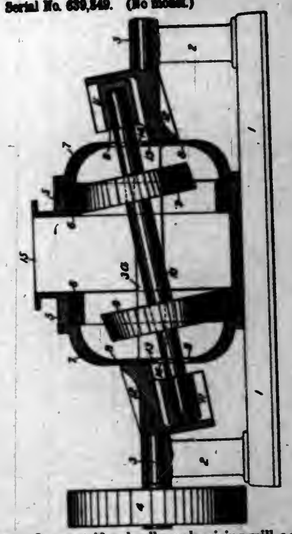
Claim.—1. In a filter, an exterior chamber having an annular seat surrounding the lower portion, an interior removable filter-chamber adapted to rest upon said seat having perforated bottom and top plates and a filling of filtering materials, a concave chamber formed in the outer case below the filter-chamber, and a reservoir-chamber situated above the filter-chamber, a pipe with controlling-cock through which water is admitted into the lower chamber under pressure whereby it is forced upwardly through the filtering material into the reservoir-chamber, a blow-off pipe connecting the lower part of the receiving-chamber, a branch from the inlet-pipe opening into the reservoir-chamber above, having a controlling-cock, and an aerating discharge-pipe from the reservoir-chamber.

2. The combination with an exterior case and an interior filtering-chamber removably secured therein, of a concave supply-chamber formed in the lower part of the outer case and an inlet-pipe through which water is delivered thereinto under pressure, a reservoir-chamber situated above the filter, a discharge-pipe the inner end of which is bent upwardly above the surface of the water in the reservoir-chamber with perforations therein for the admission of air, and perforations made in the submerged portion of the discharge-pipe whereby water is admitted and intermingled with the air at the instant of discharge.

3. In a water-filter, an exterior case, an interior filter-chamber intermediate between a receiving and sediment chamber in the lower part of the outer case, and a clear-water-reservoir chamber at the top, a curved discharge-pipe from the reservoir-chamber, the submerged portion of which has water-inlet openings and the portion above the water-line has air-inlet openings whereby the water is aerated at the instant of withdrawal.

4. In a water-filter, an exterior case, an interior filter-chamber intermediate between a receiving and sediment chamber in the lower part of the outer case, and a clear-water-reservoir chamber at the top, inlet-pipes to both lower and upper chambers, with controlling-cocks, a sediment-discharge cock at the bottom of the lower chamber, a pipe partly submerged in the reservoir-chamber having openings for the simultaneous admission and mixing of both water and air when the discharge-cock is opened, said pipe also serving for the admission of air from the outside into the reservoir-chamber by opening its faucet after closing the inlet-cocks and opening the sediment-discharge cock.

594,696. ROLLER PULVERIZING-MILL. GEORGE R. KING, New York, N. Y., and ALBERT RAYNER, Chicago, Ill. Filed June 8, 1897. Serial No. 639,849. (No model.)

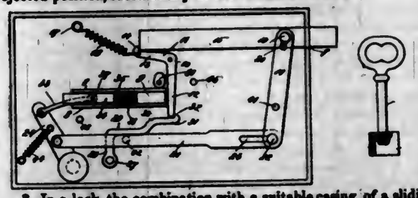


Claim.—In a centrifugal-roller pulverizing-mill, a roller-shaft having its bearings on the opposite sides of and attached to the driving-shaft and standing at an angle therewith in combination with two rollers having their faces standing at an angle with their own shaft and parallel with the driving-shaft at their points of contact with the faces of circular rings standing at right angles to the driving-shaft, whereby one pair of rollers can be mounted and rapidly revolved on the same shaft and counterbalance each other, and produce a slipping action between the tread of the rollers and the inner faces of the rings, substantially in the manner and for the purposes set forth.

594,697. LOCK. STEPHEN F. KITSELLA, Auburn, N. Y. Filed Aug. 5, 1896. Serial No. 601,734. (No model.)

Claim.—1. In a lock, the combination with a suitable casing, of a sliding lock-bolt, a lever by which said bolt is operated, a bar connected with said lever at one end, and at the other with a crank formed on or secured to the knob-shaft, a pivotally-supported lever for holding the lock-bar in the projected position, and a sliding bolt operated by said crank, for operating said lever, a detachable key head or block operating in connection with said sliding bolt substantially as described.

2. In a lock, the combination with a suitable casing, of a sliding lock-bolt, a lever by which said bolt is operated, a bar connected with said lever at one end, and at the other with a crank formed on or secured to the knob-shaft, a pivotally-supported lever for holding the lock-bar in the projected position, and a sliding bolt operated by said crank, for operating said lever, a detachable key head or block operating in connection with said sliding bolt, and a pivotally-supported angular lever one arm of which rests upon a pin or projection formed on said bar, said arm being also provided with an upwardly-directed head, and with a hook or projection which operates in connection with the lower end of the lever by which the lock-bolt is held in a projected position, substantially as shown and described.



3. In a lock, the combination with a suitable casing, of a sliding lock-bolt mounted therein, a lever pivotally connected therewith, a sliding bar pivotally connected with the lower end of said lever at one end, and provided with a slot through which the pivot-pin passes, said sliding bar being pivotally connected at its other end with a crank, formed on or secured to the knob-shaft, a sliding bolt operated by said crank, a detachable key or block adapted to operate in connection with said sliding bolt, and a lever by which the lock-bolt is held in the projected position, and which is adapted to be operated by said key head or block, substantially as shown and described.

4. In a lock, the combination with a suitable casing, of a sliding lock-bolt mounted therein, a lever pivotally connected therewith, a sliding bar pivotally connected with the lower end of said lever at one end, and provided with a slot through which the pivot-pin passes, said sliding bar being pivotally connected at its other end with a crank, formed on or secured to the knob-shaft, a sliding bolt operated by said crank, and adapted to operate in connection with a detachable key head or block, and a lever by which the lock-bolt is held in the projected position, and which is adapted to be operated by said key-head, and springs connected with said last-named lever, and with the crank for holding the same in operative position, substantially as shown and described.

5. In a lock, the combination with a suitable casing, of a sliding lock-bolt mounted therein, a lever pivotally connected therewith, a sliding bar pivotally connected with said lever and with a crank formed on or secured to the knob-shaft, other levers by which the lock-bolt is held in proper position, and means for operating said levers consisting of a sliding bar connected with said crank, and a detachable key or block which is adapted to be connected with said sliding bar, said key-head being adapted to be inserted and connected with said sliding bar, after which the handle of the key is detached from the head, and the keyhole left closed before the lock can be turned, substantially as shown and described.

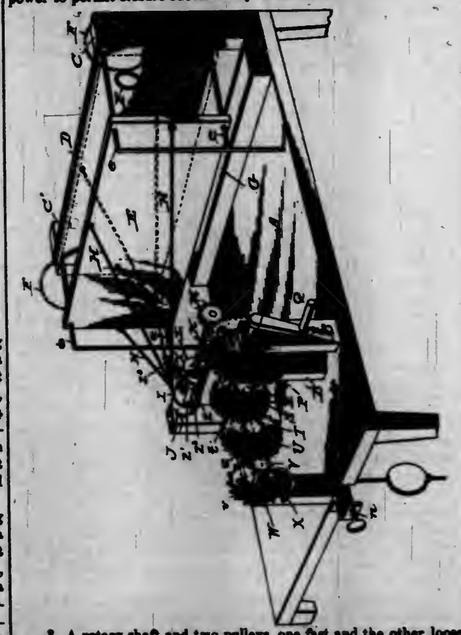
6. In a lock, the combination with a suitable casing, of a sliding lock-bolt mounted therein, a lever pivotally connected therewith, a sliding bar pivotally connected with said lever and with a crank formed on or secured to the knob-shaft, other levers by which the lock-bolt is held in proper position, and means for operating said levers consisting of a sliding bar connected with said crank, and a detachable key head or block which is adapted to be connected with said sliding bar, said key-head being adapted to be inserted and connected with said sliding bar, after which the handle of the key is detached from the key-head, and the keyhole left closed before the lock can be turned, and said lock being also provided with means whereby it may be operated from the inner side without a key, substantially as shown and described.

7. A lock which is operated by a crank connected with the knob-shaft, said crank being connected with a sliding bolt by which the lock mechanism is operated, and said sliding bolt being adapted to be detachably connected with a detachable key head or block, said key-head being disconnected from the key before the lock is operated, substantially as shown and described.

594,698. FLY-TRAP. FREDERICK A. LANE, Waterville, Me. Filed Aug. 3, 1897. Serial No. 646,983. (No model.)

Claim.—1. An automatically-closing fly-trap, in combination with means for automatically opening the same and automatic tripping devices, whereby it is periodically freed from the means for opening it, in order to permit such automatic closure substantially as set forth.

2. In a fly-trap a fixed jaw and a corresponding jaw movable toward and from the same, a mechanical power and connections operating to draw the latter jaw away from the former and tripping devices which periodically free the said movable jaw from the said power to permit closure substantially as set forth.



3. A rotary shaft and two pulleys, one fast and the other loose thereon, in combination with a mechanical power automatically driving the said shaft, a pair of spring-closed insect-killing jaws, a connection from one of said jaws to the said loose pulley on which it is wound, and a latch on the fast pulley engaging a pin on the loose pulley while having an arm arranged for contact with a part of such connection in order that said latch may be tripped from said pin, freeing the loose pulley and movable jaw at certain intervals substantially as set forth.

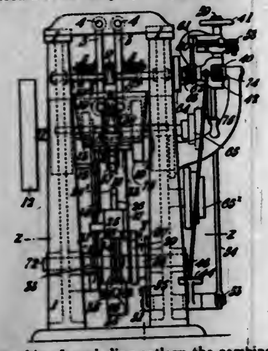
4. In combination with a pair of spring-closed jaws for killing flies and other insects a cord and pulley and attachments for opening the said jaws, a shaft on which the said pulley is loosely mounted, a pulley fast on said shaft, separable connections between said pulleys arranged to be freed by attachments of the said cord at regular intervals, a clock-spring and gearing whereby the said shaft is driven and an escapement controlling the action of the said spring substantially as set forth.

5. In combination with a mechanical power and a shaft driven thereby, a fast pulley and a loose pulley on the said shaft, a pin on the loose pulley, a latch having an arm in contact with said pin and another forwardly-extending arm, a cord winding on the said loose pulley and provided with means for acting on the said forward arm to lift said latch out of engagement with said pin, a spring on the said fast pulley for restoring the said latch to its normal position and a pair of fly-crushing jaws, one of which is attached to the cord and withdrawn by the winding of the said cord until the said latch is tripped from the said pin as hereinbefore described.

594,699. MEANS AND MACHINERY FOR GRINDING CUTLERY. HENRY W. LATHAM, London, England, assignor to the Wilkinson Sword Company, Limited, same place. Filed June 5, 1897. Serial No. 639,560. (No model.)

Claim.—1. In a machine for grinding cutlery, the combination with a pair of grinding-wheels, of means for moving the blade to be ground longitudinally and transversely between the grinding-wheels, means for moving said wheels toward and from each other synchronously with the transverse movement of the blade, and mechanism for controlling the to-and-fro movement of the wheels in such manner as to cause them to approach nearest each other when grinding the extreme edge of the blade, then gradually separate to form a swelled or thickened portion back of the edge, and then gradually approach each other again to form a thin portion between the swell and back of the blade, substantially as described.

2. In a machine for grinding cutlery, the combination with two swinging brackets 2 carrying grinding-wheels and provided with adjusting-screws 8, of a two-faced templet-cam 9 oscillating between and in contact with said screws, said cam being of tapering thickness whereby when it is turned in one direction it moves the grinding-wheels apart, and springs for moving said plate toward each other when the templet-cam is turned in the opposite direction, substantially as described and for the purpose specified.



3. In a machine for grinding cutlery, the combination with two swinging brackets carrying grinding wheels and springs for moving said brackets toward each other, of a cam of tapering thickness oscillating between said brackets to cause the grinding-wheels to move toward and from each other, and means for simultaneously imparting a gradual and continuous rotary motion to said cam in a direction from its thick part toward its thin part, whereby the grinding-wheels are caused to gradually approach nearer to each other during their described to-and-fro movement, substantially as described and for the purpose specified.

4. In a machine for grinding cutlery, a templet-cam of tapering thickness mounted between studs on two brackets carrying the grinding-wheels, said cam being mounted on a spindle receiving a reciprocating rotary motion by means of an arm receiving motion from a revolving cam or eccentric to which is connected a second cam or eccentric that imparts an up-and-down motion to a device carrying the blade to be ground by the said grinding-wheels whereby the motion of the said cam is made to synchronize with that of the blade-carrying device, substantially as described.

5. In a machine for grinding blades, the combination of a reciprocating templet-cam such as 9 for imparting a to-and-fro motion to the grinding-wheels, with an eccentric-cam such as 50 having bulges such as 50× which influence the motion of cam 9 so as to cause the grinding-wheels to produce a swell on the blade behind the cutting edge, substantially as described.

6. In a machine for grinding blades, the combination with a pair of grinding-wheels 2× 2× carried by swinging brackets 2, 2, of reciprocating templet-cam 9, adjustable screws 8, 8, carried by the brackets, in contact with the said cam, a worm-wheel 39 fixed on the shaft of cam 9 engaged with a worm 40 rotatable by hand, carried by a bracket 42 loose on the cam-shaft and having a quadrant-arm 42× connected by a rod 45 to a lever receiving a reciprocating motion through an eccentric-cam 50 and lever 51, so that while the templet-cam and its shaft receive a reciprocating rotary motion by means of the quadrant 42 and cam 50, the cam-shaft 10 and templet-cam 9 can be independently rotated by means of the worm 40 and worm-wheel 39, substantially as described.

7. The combination with the templet-cam 9, bracket 42, worm 40 and worm-wheel 39, a ratchet-wheel 58 fixed on the axis of the worm-wheel, and a lever 60 carrying a pawl 60× gearing with the ratchet-wheel, such lever and pawl being actuated by suitable means so as to effect the gradual rotation of the worm 40 whereby the worm-wheel 39, shaft 10, and templet-cam 9 are gradually rotated in the direction for allowing the grinding-wheels 2× 2× to approach each other at the same time that they are moved to and fro, substantially as described.

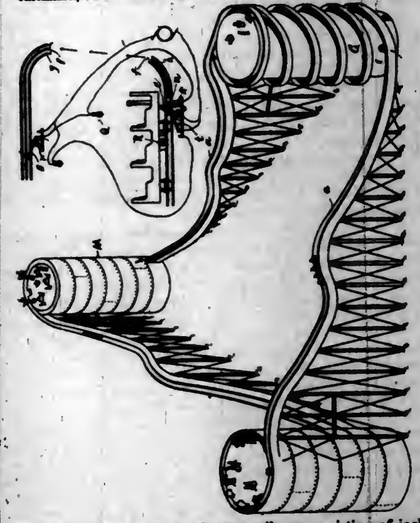
8. In combination with the ratchet-wheel 58 and pawl 60×, a worm-wheel 66 fixed on the axis of worm 40, and a bracket 67 loose on the said axis, carrying a worm 68 gearing with the worm-wheel 66, and a shroud 69 covering some of the teeth of the ratchet-wheel, so that when by the rotation of the ratchet-wheel, the shroud passes under the pawl 60×, this is disengaged from the ratchet-wheel 58, substantially as and for the purposes described.

9. In combination with the bracket 42 and quadrant 42× carried by the shaft of the templet-cam 9, a lever-arm 47 mounted loose on the said shaft and bracket but capable of being locked with the quadrant-arm 42× by a spring-bolt, which arm is connected by a rod 54 and lever 53 to a lever 51 bearing with a roller against a revolving cam or eccentric 50, so that when the arm is locked with the quadrant 42×, a spring-rod 46, connected to bracket 42 keeps the lever 51 and roller 55 in contact with the cam 50 so as to receive a to-and-fro motion therefrom, which is imparted to the bracket 42, shaft 10 and cam 9 while when arm 47 is disconnected from quadrant 42× such motion ceases, substantially as described.

10. In a machine for grinding blades, the combination with the grinding-wheels 2× 2× receiving a motion to and from each other by means of a reciprocating two-faced templet-cam 9, of a blade-support consisting of a tubular head 18 receiving an up-and-down motion upon a column 25 by means of a revolving cam or eccentric 29, while at the same time the column and head receive a rocking motion upon an axis 71, by means of a lever 14, and detachable connecting-rod 15 from an eccentric 13, the cam or eccentric 29, imparting the said up-and-down motion to the head 18 being connected to a cam or eccentric 50 that imparts the to-and-fro motion to the said templet-cam 9 whereby the synchronism of these two motions is obtained, substantially as described.

11. In a machine for grinding cutlery, the combination with a pair of grinding-wheels, of means for moving the blade to be ground longitudinally and transversely between the grinding-wheels, means for moving the said wheels toward each other as the edge of the blade recedes from between them in a transverse direction, and from each other as the edge of the blade advances between them, and means for gradually bringing the wheels nearer together simultaneously with the said to-and-fro motion, substantially as described.

594,700. ELECTRIC PLEASURE-RAILWAY. LOUIS LELLEY, Cincinnati, Ohio. Filed Feb. 4, 1896. Serial No. 578,083. (No model.)



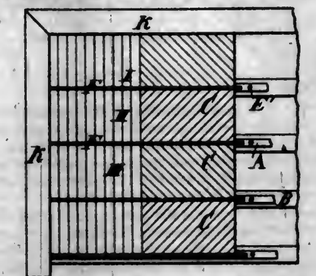
Claim.—In an electric pleasure-railway consisting of inclined railway-tracks leading to the base of a dark tower and thence spirally around the inside of the outer wall of said tower to the top thereof, said track leading to the base of an observation-tower G, with a spiral railway arranged around the outside thereof and leading to the top forming an observation-tower, substantially as specified.

594,701. FLOORING. ADOLPH LOEWI, Berlin, Germany. Filed Aug. 6, 1897. Serial No. 647,361. (No model.)

Claim.—1. A flooring consisting of boards united in the direction of their grain and having grooves in their cross-grain ends for the reception of a metallic fillet provided with holes and pointed prongs, substantially as and for the purpose specified.

2. A flooring composed of rows of boards united in the direction of the grain and having grooves in their cross-grain ends entered by a metallic fillet provided with screw-holes and pointed prongs and holding the adjacent rows of boards a distance apart from each other, the intermediate space between the said adjacent rows being filled up by wooden strips held fast by the said pointed prongs, substantially as and for the purpose specified.

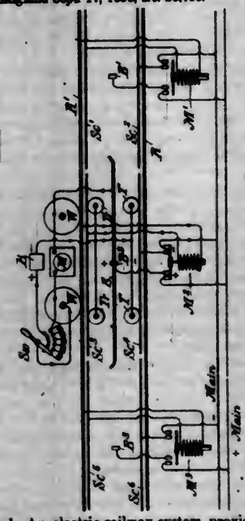
3. A flooring composed of rows of boards united in the direction of their grain and provided with grooves in their crossway ends receiving a metallic fillet holding the adjacent rows of parts a distance apart from each other and fastened detachably to a support by means of screws and having also pointed prongs entering a wooden strip inserted in the intermediate space between two adjacent rows of boards, substantially as and for the purpose specified.



4. In a flooring composed of rows of boards a metallic fillet having fastening-holes and pointed holding devices, substantially as and for the purpose specified.

5. A flooring consisting of a series of boards C the vertical sides of which extending in the direction of the grain are provided with the longitudinal grooves D for the reception of the feathers H uniting each two adjacent boards lengthwise, and the vertical sides of which extending in the cross-grain direction are provided with the transverse grooves L for the reception of the metallic fillet A entering said transverse grooves L on either side to such a distance only as to leave an open intermediate space between each two adjacent boards crosswise, the said fillet A having screw-holes E and pointed prongs G in line with said intermediate space, screws E' passing through the holes E and entering the support B underneath, and the said intermediate space above the screws E' being closed by means of wooden strips F driven into the pointed prongs G, substantially as and for the purpose specified.

594,702. ELECTRIC RAILWAY. ROBERT LUNDELL, Brooklyn, N. Y., assignor to the Johnson-Lundell Electric Company, New York, N. Y. Filed Aug. 24, 1896. Serial No. 603,723. (No model.) Patented in England Sept. 17, 1896, No. 20,796.



Claim.—1. An electric-railway system provided with a current feeder or main, normally open branch feeders, conducting contact-buttons, and sectional trolley rails or conductors, in combination with electromagnetic switching devices provided with pairs of switching-contacts and circuit-conductors whereby any surface leaking current to the switching-magnets from the current feeder or main after a car has passed a given switching-magnet will always be conveyed therethrough in a direction the reverse of that taken by the working current while the car or vehicle is being propelled over the route, substantially as described.

2. In an electric-railway system a current feeder or main, a series of branch feeders running from said current feeder or main to a series of conducting-contacts but normally open at points between said contacts and the current feeder or main, in combination with two sets or lines of sectional trolley-conductors, one of which sets is operatively connected with normally open branch feeders running to a negative main or return circuit, the other set being connected to the coils of switching-electromagnets, the cores or armatures of which are provided with circuit-closing contacts for closing both sets of branch feeders and circuit connections between said contacts and the switching-electromagnets whereby the working current from the current feeder or main flows directly to the conducting trolley-shoe carried by a car and any leaking current from the current feeder or main to the switching-magnet after the car or vehicle has passed a given section will always enter the coils of such switching-magnet in a direction the reverse to that taken by the energizing or operating current, substantially as described.

3. In an electric-railway system positive and negative current feeders or mains, sets of normally open branch feeders running respectively to conducting contact-buttons and one set of sectional trolley-conductors, a second set of sectional trolley-conductors connected to switching-electromagnets, in combination with a conducting trolley-shoe operatively connected with a motor on board of a car or vehicle and two sets of trolley-wheels adapted to contact with the sectional trolley-conductors and circuit connections between said contacts and the switching-electromagnets whereby the working current passes directly from the positive-current main through a branch feeder to the motor on board of the car, and any surface leakage occurring after the passage of the car will always flow through the switching-magnets in a reverse direction to that taken by the operating-current, substantially as described.

4. In an electric-railway system, three sets of surface contacts, one set being connected to the positive or plus current main, the second to the negative or minus main or return and the third set connected to the track-rails through switching-electromagnets, substantially as described.

5. In an electric-railway system, two current feeders or mains, two lines or sets of sectional trolley-conductors arranged in pairs, in combination with a third line of contacts located between said lines, and circuit connections with switching-electromagnets for connecting the third line of contacts with the plus or positive current main and the two lines or sets of sectional conductors respectively with the negative feeder and the switching-electromagnets, said parts being so located with relation to each other that any surface leaking current to the switching-electromagnets from the current feeder or main after a car has passed a given magnet will always be conveyed therethrough in a direction the reverse of that taken by the working current while a car or vehicle is being propelled over the route, substantially as described.

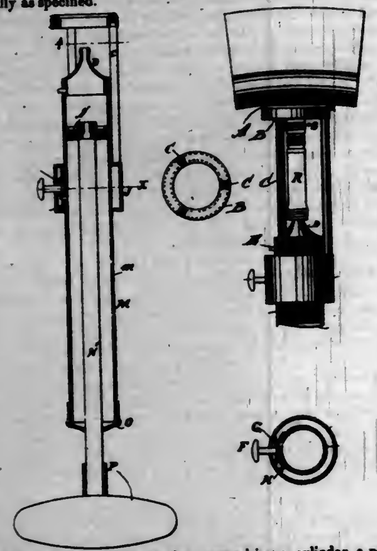
6. An electric-railway system having a positive and a negative current feeder or main, two sets of normally open branch feeders, one for each current feeder or main, two sets of sectional trolley-conductors arranged in pairs, contact buttons or plates one between each pair of sectional trolley-conductors, in combination with an electromagnetic switching device provided with pairs of switching-contacts and circuit-conductors for each button and pair of sectional trolley-conductors, and a trolley-shoe carried by a car or vehicle and adapted to span the distance between successive pairs of contact buttons or plates, together with a switch operating battery and a propelling-motor carried by a car, said parts being so located with relation to each other that the operating-current passes directly from the positive-current feeder or main to and through the trolley-shoe and the motor on board of the car without affecting any switch-controlling magnets and also that any surface leakage which enters a switching-magnet after a car or vehicle has passed such magnet will always flow through the coils thereof in a direction the reverse to that taken by the energizing-current, substantially as described.

7. In an electric-railway system, a line of track-rails; positive and negative current feeders or mains; three sets of sectional contacts or conductors located between the track-rails, one set being electrically connected to normally open branch feeders running to the positive-current feeder or main, the second set connected to normally open branch feeders running to the negative feeder or main, and the third set connected through the electromagnets of the switching devices with the track-rails, in combination with a trolley-shoe carried by a car and adapted to bridge adjacent pairs of contacts of one set and having electrical connection with a switch-operating battery and a propelling-motor carried also on the car, substantially as described.

594,703. AIR-PUMP. ALBERT S. NOONAN, Rome, N. Y. Filed Feb. 15, 1897. Serial No. 623,462. (No model.)

Claim.—1. A pump for inflating a pneumatic tire, comprising a cylinder, a piston operating therein, means for connecting the outlet

of the cylinder with the valve of a wheel, and a holder adjustable longitudinally of the cylinder to engage the rim of the wheel, substantially as specified.

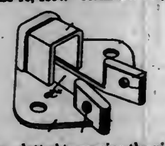


2. A pump for pneumatic tires, comprising a cylinder, a piston operating in said cylinder, means for connecting the outlet of the cylinder with the valve of a wheel, a holder adjustable longitudinally of the cylinder and adapted to engage with the rim of a wheel, and a clutch for securing said holder as desired, substantially as specified.

3. A pump for a pneumatic tire, comprising a cylinder, a piston operating therein, means for connecting the outlet of the cylinder with the valve of a wheel, a holder movable longitudinally of the cylinder and comprising a boxing surrounding such cylinder, rods extended from the boxing, a ring secured to the outer end of said rods, and a spring-pressed plate within the boxing having serrations adapted to engage with serrations on the cylinder, substantially as specified.

4. A pump for pneumatic tires, comprising a cylinder having annular serrations on its outer surface, a piston operating in the cylinder, a flexible tube for connecting the outlet of the cylinder with a valve-nipple, a boxing surrounding said cylinder and movable longitudinally thereof, a spring-pressed plate in the boxing, the said plate having serrations to engage with the serrations of the cylinder, arms extended outward from said boxing, a ring secured to the outer ends of said rods and a cushion on said ring adapted to engage with the rim of the wheel, substantially as specified.

594,704. SHUTTLE-BOX FOR LOOMS. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed June 18, 1897. Serial No. 641,263. (No model.)

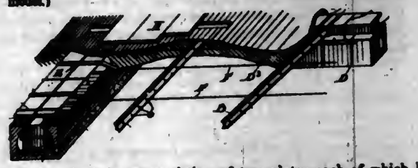


Claim.—1. The lay, slotted to receive the picker, the picker, and a guard located on the lay above the starting-point of and independent of the picker, to prevent the latter from lifting at the beginning of its inward stroke, substantially as described.

2. The lay having a shuttle box, the picker, a guard therefor and independent of the latter to prevent it from lifting at the beginning of its inward stroke, and outwardly-converging fixed abutments at the outer end of the shuttle-box, to position the shuttle centrally therein, substantially as described.

3. As a new article of manufacture, a picker-guard and shuttle-positioning device, comprising a base having a central passage-way, an upturned guard over one end of the latter, and upturned, divergent abutments on the base at the other end of the passage-way, substantially as described.

594,705. FIREPROOF-FLOOR CONSTRUCTION. FRANCIS GUESS, Moultrieville, S. C. Filed May 14, 1897. Serial No. 636,499. (No model.)



Claim.—1. A beam consisting of two plates each of which is curved outwardly at the top and bottom, and joined to each other with their convex sides toward the center, whereby an open space is left between said convex sides at the top and bottom of the beam, the said beam being provided with a series of holes passing through its central web, substantially as described.

2. A beam consisting of two plates each of which is curved outwardly at the top and bottom, and a third flat plate of less width than the curved plates and interposed between the same, the said plates being joined together with the convex sides of the outer plates resting against the center plate, whereby an open space is left between the convex sides of the outer plates at the top and bottom of the beam, the said beam being provided with a series of holes passing through its central web, substantially as described.

3. A fireproof-floor construction for steel-frame structures, comprising hangers consisting of flat strips hooked at one end and adapted to pass over the top of the floor-beams and engage one side edge of the flange thereof, the opposite ends of the said strips being bent downward, auxiliary beams supported at their ends by cross-beams and provided with a series of holes passing through their central web, and wires fastened to the downwardly-bent ends of the said strips and extending through the holes in the webs of the auxiliary beams, substantially as described.

4. A fireproof-floor construction for steel buildings, comprising strips hooked at one end and adapted to pass over the top of the floor-beams and engage one side edge thereof, wires extending from beam to beam and fastened to the opposite ends of said strips, and auxiliary cross-beams having holes through their webs, through which said wires pass, substantially as described.

5. A fireproof floor construction for steel-frame buildings, comprising tiles having rods secured therein and extending upward through the body of the tile and projecting therefrom, the ends of said rods being arranged to extend over the top of the floor-beams and formed with hooks to engage the opposite side edges of the beams, whereby the said rods serve as hangers to support the tiles from the beams, substantially as described.

6. A fireproof construction for steel-frame buildings, comprising tiles adapted to fit the sides of a floor-beam and formed with shoulders arranged to rest upon the lower flange of the beam, the said tiles each having a rod secured therein and projecting from one side, the ends of the rods being adapted to pass over the top of the floor-beams and engage the opposite side edges thereof, substantially as described.

7. A fireproof-floor construction for steel-frame buildings, comprising tiles adapted to fit the sides of a floor-beam and having their lower ends depending below said beam, the said tiles being formed with shoulders to rest upon the lower flange of the beam, and the inner surface of said depending portion inclining inward, tiles having two opposite edges inclined to fit between said depending portions of the first-mentioned tiles, means for locking the tiles together, and suspending rods embedded in the said tiles and having their upper ends projecting and adapted to engage the top of the floor-beam, substantially as described.

8. A fireproof-floor construction for steel-frame buildings, comprising tiles adapted to fit the side of a floor beam and having their lower ends depending below said beam, the inner surface of said depending portions inclining inward, tiles having two opposite edges inclined to fit said depending portions, one of said tiles having a longitudinal plate embedded therein with its edge projecting and the other having a groove to fit over said edge, substantially as described.

9. A fireproof-floor construction for steel-frame buildings, comprising tiles adapted to fit the side of a floor-beam, and having their lower ends depending below said beam, the inner surfaces of said depending portions inclining inward, tiles having opposite edges inclined to fit said depending portions, a longitudinal plate entering the body of both tiles to form a lock, and suspending rods embedded in the said tiles with their upper ends projecting and adapted to fit over the top of the floor-beams and engage the opposite side edge thereof, substantially as described.

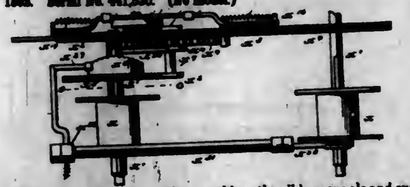
10. A fireproof construction for steel frame buildings, comprising hangers suspended from the floor-beams, auxiliary beams whose ends enter said hangers, said auxiliary beams having a series of holes through their webs, and wires or rods passing through said holes and connected to the main floor-beams, substantially as described.

11. A fireproof-floor construction for steel-frame buildings, comprising hangers suspended from the floor-beams, auxiliary beams whose ends enter said hangers and are supported thereby and extending between adjacent beams, said auxiliary beams having a series of holes through their webs, wires or rods passing through said holes and connected to the main floor-beams, and concrete or similar material between and surrounding said auxiliary beams and wires, substantially as described.

12. A fireproof construction for buildings, consisting of flat strips hooked at one end and adapted to pass over the top of the floor-beams and engage one side edge thereof, the opposite ends of the said strips being bent downward, hangers suspended from the cross-beams, auxiliary beams whose ends enter said hangers and extending between adjacent beams, said auxiliary beams having a series of holes through their webs, wires extending from beam to beam and fastened to the downwardly-bent ends of the said flat strips, the said wires passing through the holes in the auxiliary beams, and concrete or similar material between and surrounding said auxiliary beams and wires, substantially as described.

13. A fireproof construction for buildings, comprising tiles adapted to fit the sides of a floor-beam, each of said tiles being provided with a rod extending longitudinally of the same, and a second rod connected with the first rod and extending upward through the body of the tile and projecting therefrom, the projecting ends of the said rods being arranged to extend over the top of the floor-beam and engage the side edges thereof, substantially as described.

594,706. TYPE-WRITING MACHINE. WILLIS J. PERKINS, Grand Rapids, Mich., assignor, by mesne assignments, to the Smith Premier Typewriter Company, Syracuse, N. Y. Original application filed July 24, 1896, Serial No. 600,008. Divided and this application filed July 28, 1902. Serial No. 441,530. (No model.)



Claim.—1. In a type-writing machine, the ribbon-spools and supports therefor, means for moving the ribbon longitudinally from one spool to the other, a rotating cam and connections therefrom to the ribbon-spools by which said spools are moved to carry the ribbon laterally, and a spring acting on said spools against the force of the cam.

2. The combination, in a type-writing machine, of ribbon-supports and means for winding the ribbon thereon, an inclined bearing-surface and connections from an operative part of the machine to move said surface and thereby shift the ribbon sidewise, and a spring operating against the force of said inclined surface to press the ribbon in opposite direction.

3. In a type-writing machine, the ribbon, two spools on which the ribbon is supported, means for rotating these spools to traverse the ribbon longitudinally and means for automatically traversing the spools independently of their supports to move the ribbon laterally in a plane parallel with the face of the type when in printing position.

4. In a type-writing machine, the combination of the inking-ribbon and its supporting-spools, means for winding the ribbon longitudinally on said spools and for automatically reversing the movement thereof, and mechanism for automatically shifting the ribbon laterally and reversing such lateral movement, all substantially as described.

5. In a type-writing machine, the inking-ribbon and its supports and means for moving the ribbon in the direction of its length and for reversing this movement automatically, and means for traversing the ribbon in the direction of its width, and for reversing this movement automatically, all combined substantially as described.

6. In a type-writing machine, the inking-ribbon and its supports, means for feeding the ribbon longitudinally with a series of impulses, means for automatically moving the ribbon sidewise for a determined distance, and means for reversing the lengthwise movement, substantially as described.

7. In a type-writing machine, the inking-ribbon and supports, and a train of driving-gears automatically operated from a moving part of the machine, said train comprising within itself a reversing mechanism for traversing the ribbon lengthwise a determinable distance and then automatically reversing this lengthwise movement, substantially as described.

8. In a type-writing machine, the ribbon-spools and their supports and a positively-driven train of mechanism comprising within itself a motor part which at a determinable interval reverses the rotary movement of said spools, in combination substantially as described.

9. In a type-writing machine, the ribbon-supporting reels, a rock-shaft having arms connected to both reels, and means for rocking said shaft automatically to automatically shift said reels in the direction of their length, substantially as described.

10. In a type-writing machine, the reel-supporting shafts and means for positively driving both shafts simultaneously, reels supported on said shafts and a train of mechanism by which both reel-shafts are positively driven, all combined.

11. In a type-writing machine, the combination of the reel-supporting shafts both driven positively, the reels movable on said shafts, and means for automatically shifting the reels simultaneously and lengthwise of said shafts.

12. In a type-writing machine, the ribbon-supporting reels, and a train of mechanism connecting said reels, and positively driving both simultaneously and means for automatically reversing the rotation of both said reels, substantially as described.

13. In a type-writing machine, the ribbon-supporting reels, driving gear and ratchet-and-pawl connections by which both reels may be rotated, and a lever connected to the driving-ratchets of both reels, whereby both may be driven and the movement of both positively reversed simultaneously, substantially as described.

14. In a type-writing machine, the ribbon-winding reels both positively rotated simultaneously, a train of lever mechanism, and pawls operated by the lever mechanism to positively reverse the rotation of the winding-reels, all combined substantially as described.

15. In a type-writing machine the ribbon-reels ratchet-wheels connected to said reels, a lever having pawls operatively engaging said ratchet-wheels and variable driving mechanism operating on said pawls to shift them simultaneously and thereby reverse the rotary movement of the reels, all combined substantially as described.

16. In a type-writing machine, the ribbon-spools and their supports, a rock-shaft and means for oscillating the same automatically, and arms from the rock-shaft connecting to the ribbon-spools to shift them in the direction of their length, and simultaneously, substantially as described.

17. In a type-writing machine, the ribbon-spools, the ratchet-wheels connected thereto and the pawls engaging said wheels, the lever by which said pawls are operated, and the intermittingly rotating shifter forming part of the driving-train and connected to the pawls, whereby they are alternately engaged and disengaged and by which the direction of movement of the reels is controlled, all combined substantially as described.

18. In a type-writing machine, the ribbon-spools and driving-gear for rotating the same positively, a mutilated gear-wheel engaging said driving-gear to rotate the spools intermittingly, and means connected to the operative parts of the machine for rotating said mutilated gear, all combined substantially as described.

19. The combination in a type-writing machine, of an inking-ribbon, longitudinally-winding mechanism therefor, means for automatically reversing the longitudinal movement, and an automatic lateral-shifting mechanism for the ribbon, substantially as described.

20. The combination in a type-writing machine, of an inking-ribbon and ribbon-supports and longitudinal-feed mechanism, automatic reversing mechanism, and a mechanism for automatically shifting the ribbon sidewise, substantially as described.

21. In a type-writing machine, a ribbon, ribbon-supports, and variable automatic means for moving the ribbon lengthwise from one support to the other, combined with mechanism for automatically shifting the ribbon laterally, so as to use the ribbon in parallel longitudinal lines.

22. Means for moving the ribbon lengthwise and for reversing said movement, and means for shifting the ribbon sidewise, operatively connected to the train of mechanism for moving the ribbon lengthwise, whereby the lengthwise travel of the ribbon may be reversed, and the ribbon also moved sidewise, to present parallel lines of working surface.

594,707. MACHINE FOR BREAKING AND LOADING PIG-IRON. AXEL SAHLIN, Sparrow's Point, Md. Filed Jan. 16, 1897. Serial No. 619,464. (No model.)

Claim.—1. In a metal-breaking machine, the combination of a breaking-roller with a support for the article to be broken, and means for causing a relative motion between the support and the roller, substantially as described.

2. In a pig-breaking machine, the combination of a support for the pigs, means for advancing said support, and automatic means actuated by the motion of the pigs for breaking the pigs successively, substantially as described.

3. In a metal-breaking machine, the combination with a break-

ing-roller of a movable support for the article to be broken, and means for advancing said support, substantially as described.



4. In a metal-breaking machine, the combination of a stationary, adjustable, revolving roller, and a movable table carrying the article to be broken passing under said roller, substantially as described.

5. In a pig-breaking machine, the combination of a support for the pigs, two rollers, one mounted to bear on the sow, and one mounted to bear on the pigs successively, and means for causing a relative motion between the support and the rollers, substantially as described.

6. In a pig-breaking machine, the combination of a support for the pigs, a breaking-roller, means for causing a relative horizontal motion between the support and the roller, and means for adjusting the height of the roller, substantially as described.

7. In a pig-breaking machine, a carriage having a continuous overlapping flange at one side, substantially as described.

8. In a pig-breaking machine, a movable carriage having a support for each end of the pigs, depressions to receive the pigs and the sow, and a flange upon one side projecting over the ends of the pigs, substantially as described.

9. In a breaking-machine, the combination of a support for the article to be broken, a roller bearing upon one side of the article, a roller bearing upon the other side, and means for causing a relative motion between the support and the rollers, the two rollers being so situated with relation to each other that as the article is advanced between them lengths are successively broken from it, substantially as described.

10. In a pig-breaking machine, the combination of a support and three rollers, the first roller bearing upon the pigs, the second roller holding the sow in place while the pigs are being broken, and also, in conjunction with the third roller, breaking the sow into lengths, substantially as described.

11. In a pig-breaking machine the combination of a support, means for breaking the pigs, mechanism so adjusted as to cause a relative motion between the support and the means for breaking the pigs, and an overhanging flange at one end of the support for holding the sow in place, substantially as described.

12. In a breaking-machine, a carriage provided with an overhanging flange at one end, substantially as described.

13. In a breaking-machine the combination with a reciprocating carriage of a scraper reciprocating in a different plane, substantially as described.

14. In a breaking-machine, the combination of a carriage, means for reciprocating said carriage, a scraper, means for reciprocating said scraper, and a connection between the scraper and the carriage such that the scraper is automatically adjusted in place at the proper time, substantially as described.

15. The combination in a breaking-machine of a support for the article to be broken, a scraper, and means for causing two independent motions at right angles between the support and the scraper, substantially as described.

16. In a pig-breaking machine, the combination of a reciprocating support having an overhanging flange at one end, with two rollers, one above the level of the pig-bed and one below said level, one of said rollers bearing on the pigs and one bearing on the sow, substantially as described.

17. In a pig-breaking machine, the combination of a reciprocating support having an overhanging flange at one end to hold the end of the sow in place, and an overhanging flange at one side to prevent the pigs from flying up, and two rollers, one above the level of the pig-bed and one below said level, one of said rollers bearing on the pigs and bearing on the sow, substantially as described.

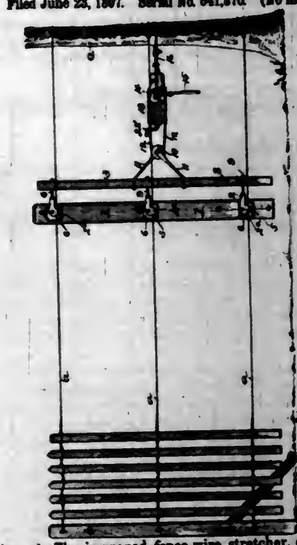
18. In a breaking-machine, the combination of a breaking-roller, with a support for the article to be broken, said support being so formed as to leave the article to be broken unsupported at the point where the roller acts upon it, and means for causing a relative motion between the support and the roller, substantially as described.

19. In a pig-breaking machine, the combination with means for holding the sow in place, of a roller bearing on the pigs successively, said roller having a flange of reduced diameter on the side nearest the sow, substantially as described.

20. In a metal-breaking machine, the combination with a stationary breaker, of a carriage for the material to be broken, and a roller-support for said carriage, substantially as described.

21. In a pig-breaking machine the combination with a support for the pigs, roughened or corrugated upon its edge, a breaking-roller, and means for causing a relative motion between the support and the roller, substantially as described.

594,708. FENCE-WIRE STRETCHER. JOHN W. SCHAAL, Logan, Ohio. Filed June 23, 1897. Serial No. 641,570. (No model.)



Claim.—1. The improved fence-wire stretcher, comprising the forked frame having a tie-loop at one end, the rotatable crank-roller journaled therein, a rope attached to said roller, a friction-band passing around the latter, a lever pivoted adjacent and parallel to the roller in slots of said frame, and connected with the band, and a crank-screw applied to the end of the frame and passing through the free end of the lever, as shown and described.

2. The fence-wire clutch mechanism comprising a bar, a series of clutches proper attached thereto, a tension-bar and arms attached to the latter and pivotally connected with the said clutches, for operating them simultaneously, as shown and described.

3. The improved fence-wire mechanism comprising a bar, having plates with projections or lugs as specified, a series of eccentric clutch-levers pivoted at points contiguous to said lugs, a tension-bar arranged parallel to the aforesaid bar, and pivotally connected with the free extremities of the clutch-levers, as shown and described.

4. In a fence-wire clutch mechanism, the combination with the bar 1, having a series of perforated plates attached, of a series of eccentric clutch-levers having tubular journals that fit and work in the holes of said plates, bolts passing through the tubular bearings, and washers applied on the rear side of the plates, as shown and described.

5. The combination with the bar 1, eccentric wire-clutch levers, and a tension-bar having arms which are pivoted to the free extremities of said levers, of the stretcher proper, comprising a frame, a roller, a rope for attachment to the tension-bar centrally, and friction locking mechanism for the roller, as shown and described, to operate as specified.

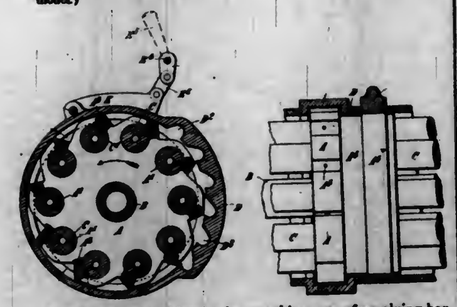
594,709. LOCK FOR FLUSHING-VALVES. CHARLES H. SHERWOOD, New York, N. Y. Filed May 2, 1896. Serial No. 589,970. (No model.)



Claim.—1. As an improved article of manufacture, a lock for flushing-valves, comprising a plate provided with pivot-studs, an angled lever mounted on one of the studs and provided with a long arm and a short hooked arm, and a spring-pressed catch-lever adapted to engage the short hooked arm, substantially as herein specified.

2. The combination, with the flush-valve lever and float lever of a flush-tank, of a lock comprising a plate provided with pivot-studs, an angled lever provided with a long and short arm, a spring-pressed catch-lever adapted to engage the short arm of the lever, a ring attached to the flush-valve lever of the tank and adapted to receive the long arm of the lock-lever, and a chain connecting the catch-lever and the float-lever, substantially as specified.

594,710. GAS-OPERATED ORDNANCE. WILLIAM R. SIMPSON, Mansfield, England. Filed Mar. 16, 1897. Serial No. 627,891. (No model.)



Claim.—1. The combination in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, ports or passages leading from the interior of said barrels to the recesses in the wheel or disk, and means for causing the portions of the discharge-gases escaping through said openings or passages to work the gun, substantially as described.

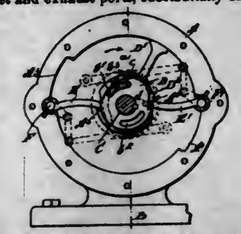
2. The combination, in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, ports or passages leading from the interior of said barrels to the recesses in the wheel or disk, a stationary ring surrounding said disk or wheel, and cavities or buckets in the interior of the ring for the gases flowing through the ports or passages to impinge against, and so cause the barrels to revolve substantially as described.

3. The combination, in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, means operatively connected with said recessed disk for utilizing a portion of the discharge-gases to revolve the barrels, and a brake to retard the speed of rotation of the barrels, substantially as described.

4. The combination, in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, a lateral projection on said disk or wheel having a tarved rim, a brake-shoe arranged to act on said rim, and means for causing rotation of the barrels by the energy of the exhaust-gases, substantially as described.

594,711. ROTARY ENGINE. WARD B. STORY, Freehold, N. Y. Filed Apr. 3, 1897. Serial No. 630,606. (No model.)

Claim.—1. A rotary engine, comprising a cylinder provided with recesses at diametrically opposite points in its wall and with shoulders on its heads, abutments pivoted at one end and adapted to fold into said recesses and to extend radially into the cylinder with their free ends resting against the said shoulders, and a piston mounted to revolve in the said cylinder and provided with a head extending into the working chamber of the cylinder, the hub of the piston being provided with inlet and exhaust ports, substantially as described.



2. A rotary engine comprising a cylinder provided with recesses at diametrically opposite points in its wall and with shoulders on its heads, abutments pivoted at one end and adapted to fold into said recesses and to extend radially into the cylinder with their free ends resting against the said shoulders on the cylinder-heads, and a piston mounted to revolve in the said cylinder and provided with a head extending into the working chamber of the cylinder, the hub of the piston being provided with an inlet-port leading to an annular recess formed in the hub, and from which recess lead two segmental ports adapted to register with a supply port in one of the cylinder-heads, substantially as shown and described.

3. A rotary engine comprising a cylinder provided with recesses at diametrically opposite points in its wall and with shoulders on its heads, abutments pivoted at one end and adapted to fold into said recesses and to extend radially into the cylinder with their free ends resting against the said shoulders on the cylinder-heads, and a piston mounted to revolve in the said cylinder and provided with a head extending into the working chamber of the cylinder, the hub of the piston being provided with an inlet-port leading to an annular recess formed in the hub, and from which recess lead two segmental ports adapted to register with a supply-port in one of the cylinder-heads, the said hub being also provided with an exhaust-port leading to an annular recess in the end of the hub and registering at all times with an exhaust-port in the other cylinder-head, substantially as shown and described.

4. A rotary engine comprising a cylinder, oppositely-arranged abutments mounted to swing in the said cylinder, a piston secured to the driving-shaft and mounted to rotate in the said cylinder, a cam held on the said shaft, means for connecting the said cam with the shafts of the said abutments, to impart a swinging motion to the same to move the abutments into an innermost active position or into an outermost folded position, the said abutments when in an innermost position being adapted to rest against shoulders on the cylinder-heads and against the inner peripheral surface of the hub of the piston, the latter having cut-out portions to establish communication between opposite sides of the corresponding abutment, substantially as shown and described.

5. A rotary engine provided with a swinging abutment and a cushioning device for the same, the said device comprising a crank-arm on the shaft of the abutment and having two chambers connected with each other by an aperture, and pistons fitted to slide in the said chambers, adapted to be engaged at the outer end of their piston-rods by a fixed pin as the crank-arm receives a swinging motion, substantially as shown and described.

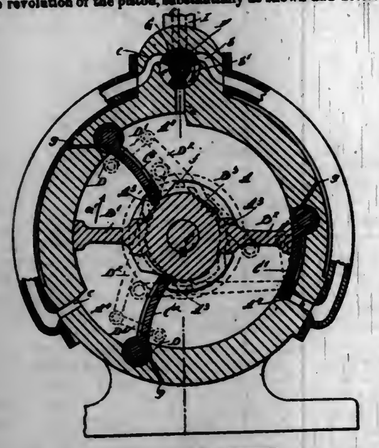
594,712. ROTARY ENGINE. WARD B. STORY, Freehold, N. Y. Filed Apr. 14, 1897. Serial No. 632,114. (No model.)

Claim.—1. A rotary engine, comprising a cylinder, a piston having a plurality of piston-heads in the same cylinder, a series of movable abutments in the said cylinder, and a rotary valve connected with a supply and an exhaust and adapted to connect with a series of ports leading into the said cylinder and positive rotative connections with the shaft, whereby the rotations of the valve are an even multiple of those of the shaft, substantially as shown and described.

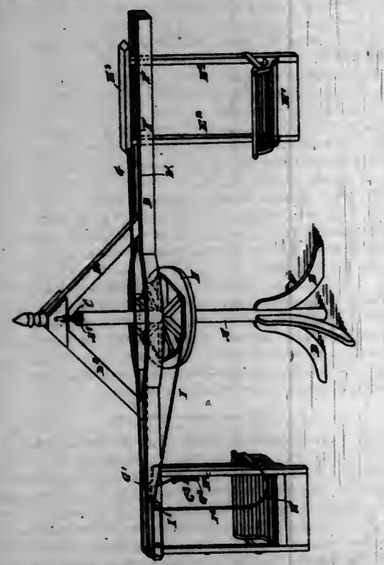
2. A rotary engine, comprising a cylinder having a series of ports forming alternately inlet and exhaust ports, a piston having a plurality of piston-heads in the same cylinder and mounted to turn in the said cylinder, a series of movable abutments in the said cylinder, a steam-chest connected with a supply and an exhaust, and a rotary valve in the said steam-chest having ports, of which one is connected at all times with the supply and the other with the exhaust, the said valve-ports being adapted to register successively with the said cylinder-ports, and rotative connections from the valve to the shaft, substantially as shown and described.

3. A rotary engine, comprising a cylinder having a series of ports forming alternately inlet and exhaust ports, a piston having a plurality of piston-heads and mounted to turn in the said cylinder, a series of movable abutments in the said cylinder, a steam-chest con-

nected with a supply and an exhaust, a rotary valve in the said steam-chest having ports, of which one is connected at all times with the supply and the other with the exhaust, the said valve-ports being adapted to register successively with the said cylinder-ports, and means substantially as described, for rotating the said valve from the piston-shaft in such a manner that the valve makes two revolutions to one revolution of the piston, substantially as shown and described.



594,718. MERRY-GO-ROUND. THOMAS T. TEMPLIN, Paris, Ky. Filed Oct. 6, 1896. Serial No. 607,906. (No model.)

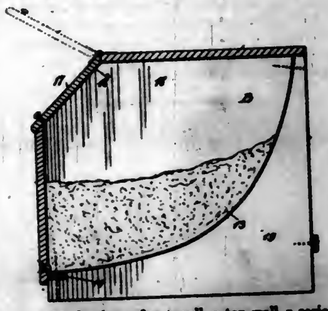


Claim.—1. The combination of a standard, a pulley fixed on the standard, a beam having two parallel portions spread from each other at an intermediate point, the spread portions of the beam embracing the standard, the beam also having two upwardly-extending auxiliary beams joined to each other at their upper ends, and bearing on the top of the standard, whereby the main beam is mounted to have gyrating swinging movement on the standard, a seat fixed to one end of the main beam, a second seat having a part extending between the sections of the main beam, and being adjustable longitudinally with the main beam, the said second seat being located at the end opposite the fixed seat, a pulley fixed to the standard, a connection between the pulley and the fixed seat, and a second connection between the two seats, substantially as described.

2. In a swing, a standard, a beam formed of two parallel sections spread from each other at intermediate portions to embrace the standard, two auxiliary beams fixed to the main beam and rising therefrom, the additional beams being joined to each other at their upper ends and being rested on the top of the standard, whereby to mount the main beam to have gyrating swinging movement, a seat fixed to one end of the beam, a pulley fixed to the standard, an endless connection passed over the pulley, the connection extending to the stationary seat, a pulley located at each side of the main beam and over which pulleys the respective runs of the flexible connection pass, a guide-block fixed to one side of the beam and having two openings through which two folds of one run of the flexible connection pass, a seat slidably mounted at the opposite end of the beams, and a connection between the two seats, substantially as described.

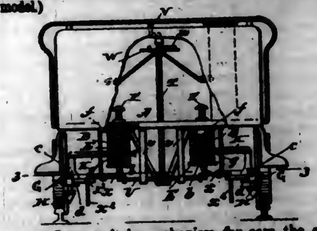
3. The combination of a standard, a beam mounted on the upper end of the standard and capable of having rotary gyrating movement thereon, a fixed seat at one end of the beam, a movable seat at the other end of the beam, means running between one of the seats and the standard by which the beam may be turned on the standard by a person resting in the said seat, and a second means running between the two seats and attached to the movable seat by which second means a person seated in the fixed seat may move the movable seat.

594,714. BIN. WALTER THOMAS, Palatka, Fla. Filed July 8, 1897. Serial No. 643,811. (No model.)



Claim.—A bin having a front wall, a top wall, a series of vertical partitions rigidly secured to the two walls, the partitions having curved edge portions removed from the said walls, a curved plate secured to said edge portions and forming the bottom of the bin, and a series of knees having curved edges conforming to the curvature of the plate, the knees being one for each partition and being respectively located in line with the partitions so that the weight of the bin is transmitted directly between the knees and partitions to the rigid framework of the bin.

594,715. SWITCH-OPERATING MECHANISM FOR CARS. MARCEL M. TREMBLAY, Springfield, Mass., assignor of one-half to Pierre Lussier, Jr., same place. Filed July 23, 1897. Serial No. 645,751. (No model.)

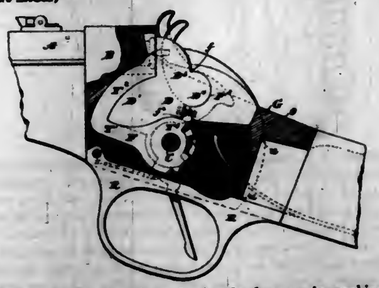


Claim.—1. In a switch mechanism for cars, the combination with laterally-movable switch-operating tongues or members and vertically-movable and spring-sustained supports on which said members are mounted, of a vertical shaft mounted on the car to rotate, connections between said shaft and the switch-operating members whereby when the shaft is rotated, said members will be correspondingly laterally moved, a graduated dial and pointer provided in relation to said shaft whereby the extent of the lateral movement of the said switch-operating members may be determined, and means for depressing the supports for said members, substantially as described.

2. In a switch mechanism for cars, the combination with laterally-movable switch-operating tongues or members and vertically-movable and spring-sustained supports on which said members are mounted, of a vertical shaft mounted on the car to rotate, and having the pinion, a rack-bar in mesh with said pinion and transversely movable, the rods connecting said rack-bar and said switch-operating members, a graduated dial and pointer provided in relation to said shaft whereby the extent of the lateral movement of the said switch-operating members may be determined, and means for depressing the supports for said members, substantially as described.

3. In a switch-operating mechanism for cars, the combination with the laterally-movable switch-operating tongues or members and vertically-movable and spring-sustained supports on which said members are mounted, of the vertical shaft T mounted on the car to rotate and having the pinion *t*, handle V and pointer *w*, the graduated dial W supported on the car through which said shaft passes, the rods *x x* connecting the opposite ends of said rack-bar with said switch-operating members, and means for depressing the supports for said members, substantially as described.

594,716. BREECH-LOADING FIREARM. JAMES M. WHITTEMORE, Washington, D. C. Filed Nov. 24, 1891. Serial No. 412,930. (No model.)



Claim.—1. In a breech mechanism for firearms, in combination with a movable breech-block, a locking-brace pivoted thereto, an abutment carrying a recoil-surface, a hammer engaging a portion of the locking-brace, so as to force the breech-block toward a closed position, and to move the locking-brace into locking position, when the breech-block is in position to close the breech, and means for limiting the swing of the locking-brace with reference to the breech-block, substantially as and for the purpose set forth.

2. In a breech mechanism for firearms, in combination with a movable breech-block, a locking-brace pivoted thereto, an abutment carrying a recoil-surface, a hammer engaging the locking-brace when the latter is off of the recoil-surface, so as to force the breech-block toward its closed position, and to move the locking-brace into contact with the recoil-surface, when the breech-block is in a closed position, means for limiting the swing of the locking-brace, with reference to the breech-block, and a spring for actuating the hammer, substantially as and for the purpose described.

3. In a breech mechanism for firearms, in combination with a movable breech-block and a locking-brace pivoted thereto, an abutment having a suitable recoil-surface, a hammer having a portion to engage a part of the locking-brace, when the latter is off of the recoil-surface, and the breech-block is open, whereby the pressure of the hammer, upon the locking-brace, acts to throw the breech-block into its closed position, and the locking-brace into contact with the recoil-surface, and a suitable guide to prevent the swing of the locking-brace under pressure of the hammer, until the breech-block has moved into closed position, substantially as and for the purpose set forth.

4. In combination with a pivoted breech-block, an abutment carrying a recoil-surface and the firing-hammer, a locking-brace pivoted to the rear side of the breech-block, and having a portion to be engaged by the hammer, when the locking-brace is down off of the recoil-surface, the point of contact between the hammer and locking-brace being at such a point, that the line of direction of the pressure of the hammer, under stress of the mainspring, upon the brace, will be to the rear of the pivotal center of the brace, substantially as and for the purpose described.

5. In combination with the pivoted breech-block, the locking-brace pivoted to the rear side thereof and having its rear end curved on a circle described from its center of motion engaging a correspondingly-curved recoil-surface, the directrices or guides for the rear end of the brace when it is rocked down off of the recoil-surface, curved on a circle described from the center of motion of the breech-block, the tongue or projection on the locking-brace, and the hammer-arm provided with a recess adapted to receive the tongue on the brace and having a cam-surface on its inner side up over which the tongue rides as the brace is rocked down on its pivot, substantially as and for the purpose described.

6. In combination with the breech-block, the locking-brace pivoted thereto provided with a cam tongue or projection, an abutment carrying a recoil-surface, the hammer provided with a cam engaged by this tongue, so shaped that as the locking-brace is swung down off its recoil-surface, the tongue will ride up the face of the cam and will pass off the cam-surface and rest on the upper side of the hammer-arm as the brace reaches the limit of its rocking motion on its pivot, and a suitable guide or guides for the rear end of the brace as it is carried back with the breech-block below the recoil-surface, substantially as and for the purpose described.

7. In combination with the pivoted breech-block, the locking-brace pivoted thereto, slotted at its rear end and provided between the arms thus formed with a tongue or projection, an abutment carrying a recoil-surface, the hammer adapted to move up through the slot in the brace and provided with a cam-surface adapted to engage the tongue on the brace, and guides for the rear end of the brace below the recoil-surface, curved from the center of motion of the breech-block, and with such radius as to keep the brace swung downward and inward on its pivot with its tongue resting on the top of the hammer-arm while the end of the brace is below the recoil-surface, substantially as and for the purpose described.

8. In combination with the pivoted breech-block, an abutment carrying a recoil-surface, the locking-brace pivoted to the rear side of said block, slotted vertically at its rear end to allow the passage of a portion of the hammer and adapted when swung upon its pivot to rest against said recoil-surface, the tongue on the brace between the arms forming the rear end thereof, the hammer pivoted on the same pin with the breech-block, provided with a cam-surface adapted to be engaged by the tongue on the brace, all so combined that as the brace is swung down off its recoil-surface, the tongue will ride up the cam-surface, and carry the hammer back and then pass off the surface and rest on top of the hammer-arm, substantially as and for the purpose described.

9. In combination with the pivoted breech-block, an abutment carrying a recoil-surface, the locking-brace vertically slotted at its rear end, pivoted to the rear side of the block by a socket-joint adapted to allow sufficient motion of the brace to carry the rear end of the brace off the recoil-surface, a spring tending to keep the brace normally up in locking position, the hammer pivoted on the same pin with the block and playing up through the slot in the brace, the cam-tongue on the brace and the cam on the hammer adapted to be engaged thereby as the brace is swung on its pivot, all substantially as and for the purpose described.

10. In combination with the pivoted breech-block, the slotted locking-brace pivoted to the rear side thereof by a socket-joint, and provided at one side with a suitable lever-arm, the recoil-surface of such extent that the brace end passes off of it as the brace is swung down to the limit of its motion on its pivot, the hammer pivoted on the same pin with the block, the cam on the hammer, the tongue or projection on the brace adapted to engage the cam on the hammer and ride up and off of the inclined outer face thereof onto the top of the hammer-arm, as the brace is rocked down off of its recoil-surface, and suitable guides below, each surface adapted to engage the rear end of the brace, when below the recoil-surface, to prevent the brace from being swung upward or outward on its pivot by the hammer-arm bearing against its tongue, substantially as and for the purpose described.

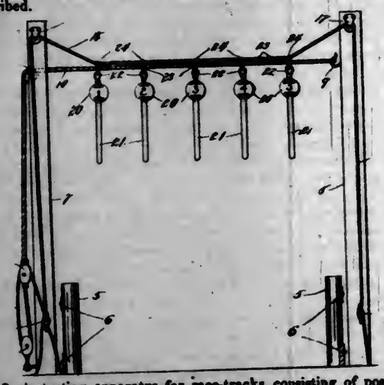
11. In combination with the pivoted breech-block having the curved forwardly-projecting portion adapted to close the receiver-recess in front of the block as the latter is swung back, the extractor and ejector pivoted on the breech-block pin, extending out in front of and over such projecting portion and provided at its upper end with a suitable lip or shoulder to engage the flange of the cartridge, substantially as shown and described.

12. The combination of the pivoted breech-block, an abutment carrying a suitable recoil-surface, the locking-brace F' pivoted thereto by a socket-joint, and slotted centrally and vertically at its rear end, the tongue or projection L^2 on the brace, the hammer passing up through the slot in the brace, and provided on its radial arm with a cam-surface U' adapted to be engaged by the tongue L^2, as the brace is rocked down off its recoil-surface, the guiding-ribs V', V', at the rear of the receiver-recess, the brace-lever arm H and the spring f^3 tending to keep the brace normally up in locking position, substantially as and for purpose described.

594,717. STARTING APPARATUS FOR RACE-TRACKS. WILLIAM H. WHITLE, New York, N. Y. Filed Mar. 16, 1897. Serial No. 627,286. (No model.)

Claim.—1. A starting apparatus for race-tracks, comprising uprights or posts at each side of the track, a cable or similar device which connects the upper ends thereof, a plurality of straps suspended therefrom, and means for moving said straps transversely of the track, substantially as shown and described.

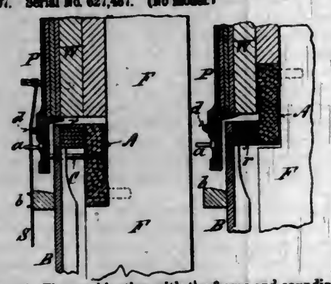
2. A starting apparatus for race-tracks, comprising uprights or posts at each side of the track, a cable or similar device which connects the upper ends thereof, a plurality of straps suspended therefrom, and means for moving said straps transversely of the track, each of said straps being also numbered, substantially as shown and described.



3. A starting apparatus for race-tracks, consisting of posts or uprights at each side of the track, a cable or other device by which the tops of said posts are connected, disks suspended from, and longitudinally movable on said cable, straps connected with said disks, a pulley mounted near the top of each of said posts or uprights, a cord which is passed over said pulleys and connected with each of said disks, substantially as shown and described.

4. A starting apparatus for race-tracks, consisting of posts or uprights placed at each side of the track, a cable or other device by which the tops of said posts are connected, disks suspended from, and longitudinally movable on said cable, straps connected with said disks, a pulley mounted near the top of each of said posts or uprights, a cord which is passed over said pulleys and connected with each of said disks, and means for drawing said cable taut, substantially as shown and described.

594,718. SOUNDING-BOARD FOR PIANOS. PAUL M. ZEIDLER, New York, N. Y., assignor to Strich & Zeidler, same place. Filed Mar. 15, 1897. Serial No. 627,467. (No model.)



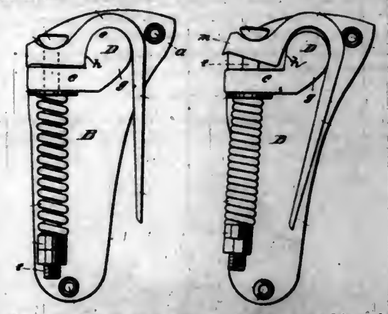
Claim.—1. The combination with the frame and sounding-board of a piano, of a spring-board interposed between said parts and attached to the facing or rim of the sounding-board and to the frame of the piano, said spring-board being free of contact with said sounding-board and frame except where attached thereto, substantially in the manner and for the purpose described.

2. The combination with the frame, sounding-board and string-plate of a piano, of a spring-board attached to the facing or rim of the sounding-board and to the frame of the piano, said spring-board being free of contact with said sounding-board and frame except where attached thereto, and means for coupling the said string-plate and spring-board together, substantially in the manner and for the purpose described.

3. The combination with the frame, sounding-board and string-plate of a piano, of a spring-board attached to the facing or rim of the sounding-board and to the frame of the piano, said spring-board being free of contact with said sounding-board and frame except where attached thereto, and an adjustable coupling between said string-plate and said spring board for the purpose of regulating the tension of the sounding-board, substantially as described.

4. In a piano, the combination with the frame, of a sounding-board having a rim or facing formed of layers of wood joined together, and a spring-board secured rigidly to said facing or rim and to the frame of the piano, said spring-board being free of contact with said sounding-board and said frame except where attached to said rim or facing and to the frame, substantially in the manner and for the purpose described.

594,719. PICKER-CHECK FOR LOOMS. ROBERT W. ANDREWS, Staffordville, Conn., assignor to George P. Andrews, same place, and Sarah Jane Chamberlin, Westerly, R. I. Filed Jan. 14, 1897. Serial No. 619,215. (No model.)



Claim.—1. In loom picker-checks, a lay-box, a metal frame bolted to its vertical wall, a lug integral with the frame and projecting at right angles therefrom over the inside of the box, said lug comprising a polygonal block presenting a rear horizontal seat and upward-extending rounded journal-surface from the front of said seat, a rigid lever with short arm and adjacent fulcrum adapted to rest upon and conform to the lug-seat and journal, and a long arm faced to the picker and extended downward in its path, coinciding bolt-holes through rear of lug and short arm of lever; and a downward-extending spring-bolt combined with the short lever-arm and lug, and operating to normally bear them together, substantially as shown and described.

2. A lay-box, a metal frame bolted to one vertical wall of the box, a polygonal lug from the frame and projecting over the interior of the box with a rear seat-surface and upward-extended journal therefrom, said journal being rounded on its top with an enlarged eccentric surface prolonged therefrom, a rigid lever comprising a short arm and adjacent fulcrum conformed to bear upon the lug-seat and rounded journal, and a long arm faced to the picker and extended down in its path in close proximity to the eccentric, coinciding bolt-holes through the lug-seat and short arm of the lever, and a spring-bolt received through the lug and short arm of the lever and bearing to normally hold the lever seated with its long arm just free of the eccentric, substantially as and for the purpose described.

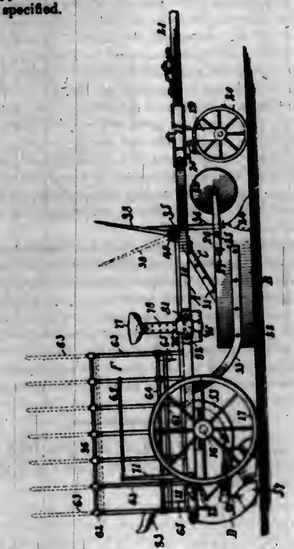
3. The combination of the frame; a lug thereon provided with a seat for the short lever-arm, and raised journal with outward-extended enlarged eccentric; rigid lever with straight long arm prolonged from its rounded journal portion and adapted upon its rotation or swing to bear upon the eccentric, as a fulcrum; and a coil-spring combined with the lever short arm and its seat, and arranged to surround the stem of a bolt tying the two together, and to bear between the lug and the free end of the bolt, as shown and described.

4. The combination with the lay-box, a frame adapted to be secured thereto, a lug projecting from said frame provided with a lever-seat, journal and eccentric bearing, rigid lever with short arm seated on the lug and long arm extended down into the picker-path, and spring-bolt *t* bearing the lever to its seat and journal, all arranged and operating as set forth, the short lever-arm and corresponding lug-seat being provided with coinciding bolt-holes *d'* and *d* therethrough and open to the rear, short lever-arm also being provided with a socket *e* therein above said holes, the head of the bolt resting in said socket; whereby the removable parts are held operatively connected by the spring, and adapted to be displaced or assembled without changing the position of the spring-regulating nut upon the bolt.

594,720. CANE-PLANTER. JACOB C. D'ARENDO, Brooklyn, N. Y. Filed Mar. 13, 1896. Serial No. 583,091. (No model.)

Claim.—1. In a machine for planting cane, a conducting-chute for the cane, the said chute being divided into compartments and each compartment being provided with antifriction-rollers in its bottom, and a plow located beneath the said conducting-chute, the said plow comprising a body portion having a chamber open at the back, the said chamber being arranged to receive the cane from the conducting-chute, and a furrow-opener located at the forward end of the said body, as and for the purpose specified.

2. In a cane-planting machine, the combination, with a wheel-supported platform having an opening therein for the reception of cane, and a cane-conducting chute having a hinged support below the platform adjacent to its cane-receiving opening, the body portion of the chute extending beneath the said opening and the said chute being provided with a longitudinal partition, of a plow having a pivotal connection with the machine and extending beneath the cane-conducting chute, the said plow comprising a chambered body, angular at the front and open at the top, bottom and back, and a furrow-opener attached to the angular front portion of the said body, the said cane-conducting chute having its free end resting upon the body of the plow and delivering the cane in the chambered body of the said plow, an adjusting device connected with the free end of the said plow, and a cutting-wheel carried by the forward portion of the plow and supported over the furrow-opener of the same, as and for the purpose specified.



3. In a cane-planting machine, the combination, with a wheel-supported platform having an opening therein for the reception of cane, and a cane-conducting chute having a hinged support beneath the platform adjacent to its cane-receiving opening, the body portion of the chute extending beneath the said opening, and the said chute being provided with a longitudinal partition, of a plow having a pivotal connection with the machine and extending beneath the cane-conducting chute, the said plow comprising a chambered body, angular at the front and open at the top, bottom and back, and a furrow-opener attached to the angular front portion of the body, the said cane-conducting chute having its free end resting upon the body of the plow and delivering the cane into the chambered body of the free end of the said plow, an adjusting device connected with the plow, a cutting-wheel adjustably connected with the body portion of said plow, being supported over the furrow-opener of the same, a rest connected with the plow and adapted to receive the free end of the said cane-conducting chute, and a coverer located at the rear of the plow, the said furrow-coverer being made in two sections, one section being of sufficient length to overlap the other section, as and for the purpose set forth.

4. In a machine for planting cane, the combination with the frame provided with a platform having openings therein at opposite sides, of a seat adjustably secured to the frame at each opening, and a foot-rest secured to the frame at each opening and extending below said opening, substantially as described.

594,721. SPRAYER. JULES RENOUF, Paris, France. Filed July 31, 1896. Serial No. 601,131. (No model.) Patented in France Feb. 1, 1896, No. 244,794.

Claim.—1. The combination with a spraying apparatus having a capillary discharge-orifice, of a yielding cap movably connected with the apparatus and adapted to close the outlet thereof, a spring for pressing the cap upon the outlet, and a sliding bar or handle for removing the cap from the outlet against the tension of the spring, substantially as described.

2. In a spraying apparatus, the combination with the receptacle, of a pivoted cap adapted to close the mouth of the receptacle, and a spring-pressed sliding rod connected with said cap, substantially as described.

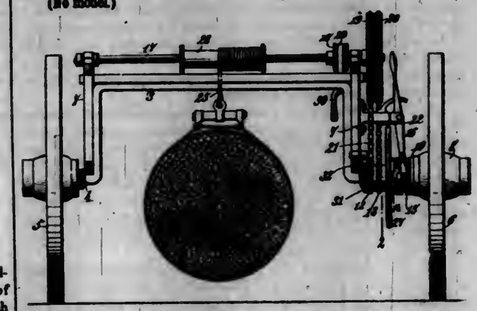


3. In a spraying apparatus, the combination with a receptacle, of an elbow-lever pivoted upon the receptacle, a cap carried by one member of the lever and adapted to close the receptacle, and a spring-pressed sliding rod pivoted to the other member of the elbow-lever, substantially as described.

4. In a spraying apparatus, the combination with a receptacle, of an elbow-lever pivoted on the receptacle, a cap secured to one member of the lever and adapted to close the discharge-passage of the receptacle, a casing secured to the receptacle, a rod secured to the other member of the elbow-lever and projecting into the casing, and a spring between the end of the rod and the bottom of the casing, substantially as described.

5. In a spraying apparatus, the combination with a receptacle, of a tube secured to the upper end of the receptacle and provided with a shoulder, a glass rod provided with a capillary discharge-passage having two communicating enlargements at its inner end, and a washer interposed between the shoulder of the tube and the top of the receptacle and engaging the glass rod, substantially as described.

594,722. HOISTING AND TRANSPORTING VEHICLE. JAMES W. BOOLEY, Staunton, Va. Filed June 21, 1897. Serial No. 641,673. (No model.)



Claim.—1. The combination, in a load raising and transporting vehicle, of an axle having a spindle, a chain-wheel supported by the spindle, a vehicle-wheel by which the chain-wheel is rotated, a windlass shaft journaled on the vehicle-frame, a windlass secured to the shaft and provided with a hoisting-cable, a chain-wheel on said shaft, and a chain belt connecting the chain-wheel on the axle-spindle with the chain-wheel on the windlass-shaft, substantially as described.

2. The combination, in a load raising and transporting vehicle, of an axle having a spindle, a sleeve rotatable on the spindle, a vehicle-wheel secured to the sleeve, a chain-wheel loosely mounted on the sleeve, a clutch for connecting the chain-wheel with the sleeve, a windlass shaft journaled on the vehicle-frame, a windlass secured to the shaft and provided with a hoisting-cable, a chain-wheel on said shaft, and a chain belt connecting the chain-wheel on the sleeve with the chain-wheel on the windlass-shaft, substantially as described.

3. The combination, in a load raising and transporting vehicle, of an axle-spindle, a chain-wheel supported by the spindle, a vehicle-wheel by which said chain-wheel is rotated, a clutch between the wheel-hub and the chain-wheel on the axle-spindle, a shaft journaled on the vehicle-frame, a windlass secured to the shaft and provided with a hoisting-cable, a chain-wheel on said shaft, and a chain belt connecting the chain-wheel on the axle-spindle with the chain-wheel on the windlass-shaft, substantially as described.

4. The combination, in a load raising and transporting vehicle, of an axle having a spindle, a duplex chain-wheel supported by the spindle, a vehicle by which said duplex chain-wheel is rotated, a pair of windlass-shafts journaled on the vehicle-frame, windlasses secured to the shafts and provided with hoisting-cables, chain-wheels on said shafts, and chain belts connecting the duplex chain-wheels on the axle-spindle with the chain-wheels on the windlass-shafts, substantially as described.

5. The combination, in a load raising and transporting vehicle, of an axle having a spindle, a duplex chain-wheel supported by the spindle, a vehicle-wheel by which the said chain-wheel is rotated, a

clutch interposed between the wheel-hub and the duplex chain-wheel, a pair of windlass-shafts journaled on the vehicle-frame, windlasses secured to the shafts and provided with hoisting-cables, chain-wheels on said shafts, and chain belts connecting the duplex chain-wheel on the axle-spindle with the chain-wheels on the windlass-shafts, substantially as described.

6. The combination, in a load raising and transporting vehicle, of an axle having a spindle, a main frame supported by the axle, a windlass-shaft journaled on the main frame and provided with a chain-wheel, a windlass secured to the windlass-shaft and having a hoisting-cable, a chain-wheel supported by the axle-spindle, a vehicle-wheel rotatable on the axle-spindle, a chain belt connecting the chain-wheel of the windlass-shaft with the chain-wheel supported by the axle-spindle, a clutch for throwing the chain-wheel on the axle-spindle into and out of operative connection with the vehicle-wheel, and means for turning the chain-wheel on the axle-spindle independent of the vehicle-wheel, substantially as described.

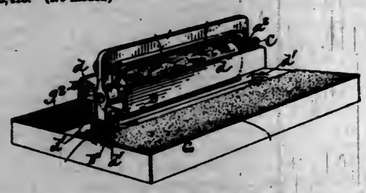
7. The combination, in a load raising and transporting vehicle, of an axle having a spindle, a main frame supported by the axle, a sleeve rotatable on the axle-spindle, a vehicle-wheel secured to the sleeve, a duplex chain-wheel loosely mounted on the sleeve, a clutch-section rotating with the sleeve and movable thereon into and out of engagement with the duplex chain-wheel, windlass-shafts journaled on the main frame and provided with chain-wheels, windlasses secured to the windlass-shafts and having hoisting cables, chain belts connecting the chain-wheels of the windlass-shafts with the said duplex chain-wheel, a clutch for causing the duplex chain-wheel to rotate with the sleeve, and means for turning the duplex chain-wheel independent of the vehicle-wheel, substantially as described.

8. The combination, in a load raising and transporting vehicle, of a hoisting mechanism operated by the motion of one of the vehicle-wheels, a clutch mounted on the spindle of the wheel which operates the hoisting mechanism and having a part engaged with a part of said hoisting mechanism by which the hoisting mechanism is thrown into and out of operative connection with said vehicle-wheel, and a pilot-wheel on the movable part of said clutch for manually operating the hoisting mechanism independent of said vehicle-wheel, substantially as described.

9. The combination of a vehicle having wheels, one provided with a clutch-section, a load-hoisting mechanism comprising a movable clutch-section by which the hoisting mechanism is thrown into and out of operative connection with the clutch-section of the vehicle-wheel, and a hand or pilot wheel mounted directly upon the movable part of said clutch for manually turning the same to operate the hoisting mechanism when the latter is thrown out of operating connection with the vehicle-wheel and while the vehicle stands motionless, substantially as described.

10. The combination, in a load raising and transporting vehicle, of an axle having a spindle, a chain-wheel supported by the spindle, a vehicle-wheel by which the chain-wheel is rotated, a windlass-shaft journaled on the vehicle-frame, a windlass secured to the shaft and provided with a hoisting-cable, a chain-wheel on said shaft, a chain belt connecting the chain-wheels, and a brake mechanism in operative connection with the said windlass-shaft for controlling or regulating its motion in lowering the load, substantially as described.

594,723. COMBINED SKATE AND KNIFE SHARPENER. FRIEDRICH W. G. BOETTCHER, Detroit, Mich. Filed Oct. 16, 1897. Serial No. 655,415. (No model.)



Claim.—1. A combined skate and knife sharpener comprising in its construction a suitable frame, a file-roller secured in the same, and a combined knife and skate guide secured to said frame adjacent to the file-roller so that one portion of the guide will serve to direct the movement of a knife along the file-roller and another portion of said guide will serve to direct the movement of a skate over said roller while said knife and skate are being sharpened, substantially as described.

2. A combined skate and knife sharpener comprising in its construction a suitable frame, a file-roller journaled in the same and capable of rotation, and a combined knife and skate guide secured to said frame adjacent to the file-roller so that one portion of the guide will serve to direct the movement of a knife along the file-roller and another portion of said guide will serve to direct the movement of a skate over said roller while said knife and skate are being sharpened, substantially as described.

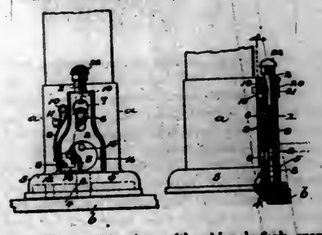
3. A combined skate and knife sharpener comprising in its construction a suitable frame, a file-roller secured in the same, and a combined knife and skate guide secured to said frame adjacent to the file-roller and capable of lateral adjustment so that one portion of the guide will serve to direct the movement of a knife along the file-roller and another portion of said guide will serve to direct the movement of a skate over said roller while said knife and skate are being sharpened, substantially as described.

4. A combined skate and knife sharpener comprising in its construction a suitable frame, a file-roller journaled in the same and capable of rotation, and a combined knife and skate guide secured to said frame adjacent to the file-roller and capable of lateral adjustment so that one portion of the guide will serve to direct the movement of a knife along the file-roller and another portion of said guide will serve to direct the movement of a skate over said roller while said knife and skate are being sharpened, substantially as described.

5. A combined skate and knife sharpener comprising in its construction a suitable frame, a file-roller secured in the same, a combined knife and skate guide secured to said frame adjacent to the file-roller so that one portion of the guide will serve to direct the movement of a knife along the file-roller and another portion of said guide will serve to direct the movement of a skate over said roller while said knife and skate are being sharpened, a base provided with a longitudinal slot for engaging the skate-guides and thereby holding the knife-sharpener in an upright position, and sharpening-surfaces on said base, substantially as described.

6. A combined skate and knife sharpener comprising in its construction a frame, comprising a longitudinally-arranged U-shaped portion, a file-roller journaled in the same and capable of rotation, means for securing the file-roller against rotation, and a combined knife and skate guide secured to said frame adjacent to the file-roller and capable of lateral adjustment so that one portion of the guide will serve to direct the movement of a knife along the file-roller and another portion of said guide will serve to direct the movement of a skate over said roller while said knife and skate are being sharpened, substantially as described.

594,724. DEVICE FOR LOCKING BICYCLES. EMIL BOEHME, Altoona, and JACK HALL, Juniata Kipple, Pa. Filed July 12, 1897. Serial No. 644,354. (No model.)

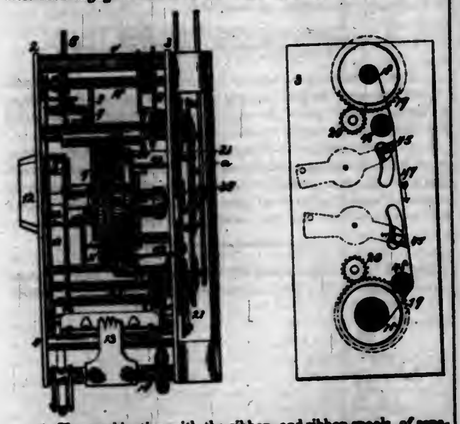


Claim.—1. The combination, with a bicycle-fork, crown having recesses in its upper side, and the lower fitting forming a rigid attachment of the head-tube, of the improved lock comprising the slidable bolt having a reduced lower end and key-opening as shown, and a laterally-projecting pin, spring-actuated tumblers arranged flatwise with said bolt, and having a slot for securing the bolt-pin, a casing adapted to fit over the lock proper and secured to the aforesaid fitting, also provided with an opening at the top through which the bolt-head projects, and a key-stud fixed in said fitting, and projecting into the bolt-opening, all arranged and operating as shown and described.

2. In the bicycle-lock described, the slidable bolt having the key-shaped slot 7, the lock-casing having the hole 20, and a bridge-piece 18, provided with the hole, which is coincident with said hole 20, the screw 19, passing through the bridge-piece and securing said casing to the fitting of the head-tube, the said slot 7 in the bolt being arranged as described, relative to the said screw and holes in the casing, whereby, when the bolt is in locking position, the head of the screw is covered by it and thus inaccessible, as shown and described.

594,725. RIBBON MECHANISM FOR TIME-RECORDERS, &c. WILLARD L. BUNDY, Binghamton, N. Y., assignor to the Bundy Manufacturing Company, same place. Filed Dec. 26, 1896. Serial No. 616,894. (No model.)

Claim.—1. As a means for operating a spool-reversing mechanism, a lever for operating the same standing at an angle to and having its free end engaging frictionally with the ribbon upon a fixed line intermediate of its width, combined with said ribbon and with said reversing mechanism whereby said lever will positively engage with said ribbon at a fixed point upon said line whereby its movement after such engagement will reverse said ribbon movement.



2. The combination with the ribbon, and ribbon-spools, of separate, unconnected, pivoted levers having their free ends respectively engaging frictionally with said ribbon upon a fixed line intermediate of its width adjacent to each spool, and each adapted to positively engage with it at a fixed point upon said line and to be swung by its movement to reverse said movement.

3. The combination with an ink-ribbon, its supporting-spools, and a separate ratchet upon each spool-shaft and pawl device for actuating each of them, of separate, unconnected shifters engaging with said ribbon at fixed points upon a fixed longitudinal line near its ends respectively, whereby the strain exerted by the moving ribbon will actuate the shifter then in such engagement to throw one pawl out of engagement with its ratchet and the other pawl into engagement with its ratchet and reverse the movement of the ribbon.

4. The combination with an ink-ribbon having an opening near each end, its spools, and a separate ratchet-and-pawl device for separately actuating one spool independently of the other, of a shifter having a head normally in frictional engagement with said ribbon and thereby caused to enter said opening when it reaches it by the movement of said ribbon and thereafter be swung by the moving ribbon and shift one pawl out of engagement and the other into engagement and reverse the movement of the ribbon.

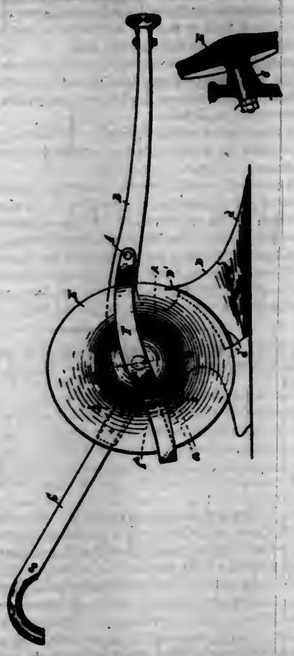
5. The combination with the ink-ribbon, its spools, and pawl-and-ratchet mechanism for actuating them, of a swinging pawl-carrier to which the pawls are connected, and a vertically-reciprocating tripper actuated by the movement of the ribbon alternately engaging with the actuating-pawls to shift one out of engagement and the other into engagement with its ratchet to rotate each spool separately.

6. The combination with the ink-ribbon, its spools and actuating-pawls and ratchets, of a swinging pawl-carrier, a vertically-reciprocating tripper alternately engaging with the actuating-pawls to swing one or the other into or out of engagement with its ratchet, and a lever engaging with said tripper to raise or lower it.

7. The combination with an ink-ribbon provided with openings near its ends, its spools, ratchets and their actuating-pawls, of a swinging carrier between said spools and upon which said pawls are pivoted, a vertically-reciprocating tripper provided with wedging faces adapted to engage wedgingly with pins upon the respective pawls, a vibratory lever having fork-arms alternately engaging with said tripper, pivoted shifters each adapted to engage with lateral arms upon said lever to vibrate it, and provided with a head in frictional engagement with said ribbon and adapted to positively engage with it when it meets one of said openings and thereafter to be swung by the strain of the moving ribbon to vibrate said lever and shift said tripper to throw one pawl into and the other out of engagement with a ribbon-spool ratchet and reverse the movement of the ribbon.

8. The combination with an ink-ribbon, the spools upon which it is wound, and their separate ratchets upon their shafts and actuating-pawls, of separately-swinging shifters each having one end normally in frictional contact only with the back of said ribbon and adapted to positively engage with it separately at fixed points near its ends respectively, whereby the strain exerted thereon by the subsequent movement of the ribbon will swing the shifter then in positive engagement to throw one pawl out of and the other into engagement with its ratchet and reverse the movement of the ribbon.

594,726. PLOW. GROVER GARNER, Rome, N. Y. Filed May 26, 1896. Renewed Nov. 3, 1897. Serial No. 657,202. (No model.)



Claim.—1. In a plow, the combination of a standard, a front moldboard fixed to the standard, and having the upper end of its rear edge formed with a rearwardly-projecting tapering arm, and an upright revolubie moldboard arranged at the rear of the front moldboard and having its outer engaging face arranged at the inner side of said tapering arm, and its opposite face adjacent to the standard provided with a projecting spindle journaled in the standard, said spindle being inclined downwardly from the revolubie moldboard for aligning the front portion of the periphery or edge of the revolubie moldboard with the rear edge of the fixed moldboard, substantially as and for the purpose specified.

2. In a plow, the combination of a standard, a beam, a front moldboard fixed to the standard, an upright revolubie moldboard arranged at the rear of the front moldboard and journaled upon the standard, a scraper for removing the soil from the engaging face of the revolubie moldboard, said scraper having one end pivoted to the beam, and a clamp for adjustably securing the opposite end of the scraper to the standard, substantially as and for the purpose set forth.

594,727. VENTILATOR FOR BUILDINGS. WILLIAM COOPER, Farnworth, England. Filed Dec. 26, 1896. Serial No. 617,293. (No model.) Patented in England July 22, 1896, No. 14,192.



Claim.—1. The combination with an air or ventilating shaft or passage-way, of a draft-regulator comprising oppositely-arranged flaps, and a jointed connection between the flaps.

2. The combination with a ventilating-shaft or passage-way, of a draft-regulator comprising oppositely-arranged flaps, and a pivoted and jointed link connection between the flaps.

3. An automatic draft-regulator for ventilators, comprising oppositely-swinging flaps or doors, and a jointed balancing connection between the flaps or doors.

4. A draft-regulator for ventilators, comprising oppositely-swinging flaps or doors, and a connection between the flaps consisting of arms one of which is fixedly secured to one door, and the other pivot-

ally secured to the other door, one of said arms being longer than the other, and a pivotal connection between the arms.

5. An automatic draft-regulator for ventilators consisting of oppositely-swinging flaps or doors, a fixed arm on one flap, and a connection between the arm and opposite flap.

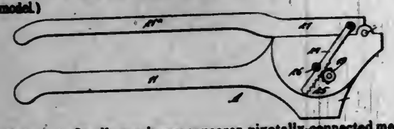
6. An automatic draft-regulator for ventilators, consisting of hinged flaps oppositely arranged, and means for uniting and balancing the flaps comprising arms and a joint connection between the arms, substantially as described.

7. An automatic draft-regulator for ventilators, consisting of oppositely-swinging pivotal flaps, and an eccentrically jointed bar connection between the flaps.

8. An automatic draft-equalizer, comprising oppositely-swinging flaps, of means for connecting and balancing the flaps, and adjustable means for varying the movement of the flaps to permit the same to either partially or fully close the ventilating-opening.

9. An automatic draft-equalizer for ventilators, consisting of oppositely-arranged flaps or doors suitably hinged to move in opposite directions, a jointed connection between the flaps, and means for adjusting the hinged connection of one of the flaps.

594,728. LEMON-SQUEEZER. WILLIAM H. COX and CHARLES HUGHES, Red Bluff, Cal. Filed July 15, 1897. Serial No. 644,617. (No model.)



Claim.—1. In a lime or lemon squeezer, pivotally-connected members, one of which is provided with a pocket to receive a lemon or a lime, the other member being provided with a projection arranged to enter the pocket, a knife mounted in the member with the pocket and adapted to traverse the said pocket, and means for operating the knife by a swinging movement of one of said members.

2. In a lime or lemon squeezer, a receiving and a compressing member, the receiving member being provided with a pocket and the compressing member with a projection arranged to enter the said pocket, and a knife pivoted in the receiving-pocket and arranged to cross the pocket, the said knife being of such length as to enter a lemon or a lime placed in the pocket, and sever the same at its bottom and end portion, leaving the upper outer portion intact, and means, substantially as described, for operating the knife by the opening and closing of the compressing member, as specified.

3. In a lime or lemon squeezer, a receiving member having a pocket arranged to receive a lemon or a lime, and an exit-channel leading from the said pocket, a shaft pivoted in the receiving member at one side of the exit-channel, a knife carried by the said shaft, a compressing member pivoted to the receiving member, and means for rocking the shaft by the opening and closing of the said compressing member.

4. In a lime or lemon squeezer, the combination, with a receiving member and a knife pivoted in the receiving member and arranged to pass through a pocket in the receiving member and from side to side of said pocket, of a compressing member, and a rack-and-pinion connection between the knife-support of the receiving member and the compressing member of the squeezer, for the purpose set forth.

5. In a lime or lemon squeezer, the combination, with a receiving member having a pocket for the reception of a lemon or a lime, an exit-opening leading from the said pocket, and a compressing member pivoted to the receiving member, of a shaft extending through the receiving member, a knife carried by the said shaft and arranged to traverse the said pocket, a pinion carried by the shaft, and a sliding rack engaging with the pinion and connected with the compressing member of the squeezer.

6. In a lime or lemon squeezer, the combination, with a receiving member having a pocket for the reception of a lemon or a lime, an exit-opening leading from the said pocket, and a compressing member pivoted to the receiving member, of a shaft extending through the receiving member, a knife carried by the said shaft and arranged to traverse the said pocket, a pinion carried by the shaft, and a sliding rack engaging with the pinion and connected with the compressing member of the squeezer, the said shaft being removable and provided with a groove at one of its ends, and a spring-keeper attached to the receiving member of the squeezer and arranged to enter the groove in the said shaft, for the purpose set forth.

594,729. CONNECTING-ROD FOR REAPERS, MOWERS, PUMPS, &c. DANIEL J. CROSBY, Kadina, South Australia. Filed Aug. 12, 1896. Serial No. 602,577. (No model.) Patented in South Australia Jan. 23, 1896, No. 3,147.

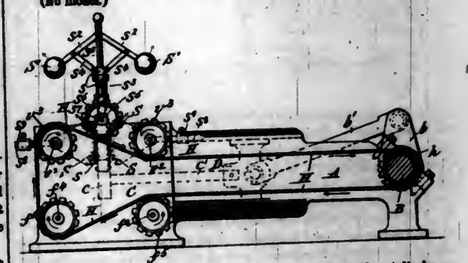
Claim.—1. A connecting-rod having a spindle, a frame having two bearings through which the spindle is longitudinally movable, a spring located between the bearings of the frame, and two pins slidable in the spindle and confining the spring, the pins being respectively capable of engaging the bearings as the spindle reciprocates in the frame, substantially as described.



2. A connecting-rod having a frame with two bearings, a spindle movable through the bearings, a spring located between the bearings, and means at each end of the spring, such means confining the spring and being slidable on the spindle, substantially as described.

3. A connecting-rod having a frame provided with two bearings, a rod having two longitudinal slots, the rod being reciprocal through the bearings, a pin slidable in each slot, the pins being respectively capable of engaging the bearings, and a coil-spring encircling the rod and located between the pins, substantially as described.

594,730. STEAM-ENGINE VALVE. ELMER C. DUDLEY, Chicago, Ill. Filed Mar. 7, 1894. Renewed Aug. 23, 1896. Serial No. 603,647. (No model.)



Claim.—1. In a steam-engine, the combination of a cylinder, a piston mounted in said cylinder, a steam-chest connected with said cylinder by an induction-port, a regulator consisting of a cylindrical shell journaled in said steam-chest and having an opening in its side adapted to register with said induction-port, means for operating said regulator, a valve consisting of a cylindrical shell journaled in said regulator and opening at an end into said steam-chest and having an opening in its side adapted to register with said opening in the side of the regulator, a steam-chest connected with said cylinder by an eduction-port, a valve consisting of a shell journaled in said latter steam-chest and having an opening adapted to register with said eduction-port, and means for rotating said valves at the same rate of speed.

2. In a steam-engine, the combination of a cylinder, a piston mounted in said cylinder, a steam-chest connected with said cylinder by an induction-port, a regulator consisting of a cylindrical shell journaled in said steam-chest and having an opening in its side adapted to register with said induction-port, a governor, devices operated by said governor for automatically adjusting said regulator, a valve consisting of a cylindrical shell journaled in said regulator and opening at an end into said steam-chest and having an opening in its side adapted to register with said opening in the side of the regulator, a steam-chest connected with said cylinder by an eduction-port, a valve consisting of a shell journaled in said latter steam-chest and having an opening adapted to register with said eduction-port, and sprocket wheel and chain mechanism for rotating said valves controlling the induction-port and the said valves controlling the eduction-port in opposite directions respectively.

3. In a steam-engine, the combination of a cylinder, a piston mounted in said cylinder, a steam-chest connected with said cylinder by an induction-port, a regulator consisting of a cylindrical shell journaled in said steam-chest and having an opening in its side adapted to register with said induction-port, means for operating said regulator, a valve consisting of a cylindrical shell journaled in said regulator opening at an end into said steam-chest and having an opening in its side extending around substantially one-fourth of its periphery adapted to register with the said opening in the side of said regulator, a steam-chest connected by an eduction-port with said cylinder, a valve consisting of a shell journaled in said latter steam-chest and having an opening extending around substantially one-half its periphery adapted to register with said eduction-port, and means for rotating the valves at the same rate of speed.

4. In a steam-engine, the combination of a cylinder, a piston mounted in said cylinder, a steam-chest connected with said cylinder by an induction-port, a regulator consisting of a cylindrical shell journaled in said steam-chest and having an opening in its side adapted

to register with said induction-port, a governor, devices operated by said governor for automatically adjusting said regulator, a valve consisting of a cylindrical shell journaled in said regulator opening at an end into said steam-chest and having an opening in its side extending around substantially one-fourth of its periphery adapted to register with the opening in the side of said regulator, a steam-chest connected by an eduction-port with said cylinder, a valve consisting of a shell journaled in said latter steam-chest and having an opening extending around substantially one-half its periphery adapted to register with said eduction-port, and sprocket wheel and chain mechanism for rotating said valves in opposite directions.

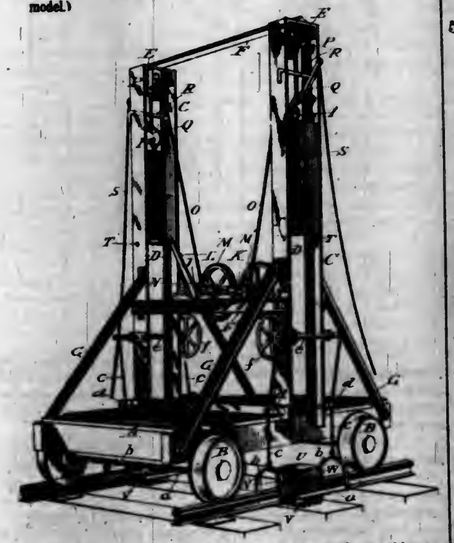
5. In a steam-engine, the combination of a cylinder, a piston mounted in said cylinder, a steam-chest connected by a port with said cylinder, a regulator controlling said port consisting of a cylindrical shell opening at an end into said steam-chest and having an opening in its side adapted to register with said port, a governor, a lever connected with said regulator to operate the same and mechanism connecting said governor with said lever.

6. In a steam-engine, the combination of a cylinder, a piston mounted in said cylinder, a steam-chest connected with said cylinder by a port, a regulator controlling said port consisting of a cylindrical shell opening at an end into said steam-chest and having an opening in its side adapted to register with said port, a rack, a governor connected with said rack to move the latter, and a segmental lever connected with said regulator and engaging with said rack.

7. In a steam-engine, the combination of a cylinder, a piston mounted in said cylinder, a steam-chest connected with said cylinder by a port, a regulator controlling said port consisting of a cylindrical shell opening at an end into said steam-chest and having an opening in its side adapted to register with said port, a rack, a governor connected with said rack, a segmental lever connected with said regulator and engaging with said rack, and adjustable counterpoises mounted on said lever.

8. In a steam-engine, the combination of a cylinder, a piston mounted in said cylinder, a plurality of rotary valves controlling the admission of steam to said cylinder, sprocket wheel and chain mechanism for rotating said valves in opposite direction, cut-off for regulating the amount of steam admitted through said valves, a governor, and devices operated by said governor for automatically adjusting said cut-off.

594,731. MACHINE FOR DRIVING TIE-PLATES. GEORGE W. DOWE, Carbondale, Pa. Filed Oct. 8, 1897. Serial No. 654,574. (No model.)



Claim.—1. In a machine for driving tie-plates, the combination of a frame; a weight; means for elevating and releasing the weight; an anvil; and means carried by the frame independent of the weight for raising and lowering the anvil.

2. In a machine for driving tie plates, the combination of a frame; a weight; means for elevating and releasing the weight; an anvil; and a cradle suspended from the frame designed to come into contact with the anvil and raise the same as the cradle is elevated.

3. In a machine for driving tie-plates, the combination of a frame; a weight; means for elevating and releasing the weight; an anvil; a cradle suspended from the frame; means for raising and lowering the cradle; and means for connecting the anvil and cradle as the cradle is elevated.

4. In a machine for driving tie-plates, the combination of a frame; columns extending therefrom; weights mounted in the columns; means for elevating and releasing said weights; cradles suspended from the frame beneath the columns; means for raising and lowering the cradles; and anvils carried by the cradles.

5 In a machine for driving tie-plates, the combination of a frame; columns extending up therefrom; weights mounted in the columns; means for elevating and releasing said weights; cradles suspended from the frame beneath the columns; means for raising and lowering the cradles; and anvils carried by the cradles, the anvils being provided with depending legs and means to engage the cradle.

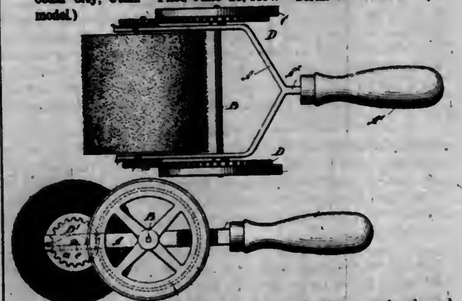
6. In a machine for driving tie-plates, the combination of a portable frame; columns extending up therefrom; weights mounted in the columns; means for elevating and releasing the said weights; cradles suspended from the frame beneath the columns, said cradles comprising the horizontal bars *a* connected at their ends by bails *b*; cables or ropes connected to said bails and extending up to and connected with a cross-shaft *c*; and an anvil with pins or projections extending from the sides thereof and designed to be engaged by the cross-bars when the cradle is elevated.

7. In a machine for driving tie-plates, the combination of a portable frame; columns extending up therefrom; cross braces connecting said columns; a small pinion mounted upon said cross-braces; gears M M' meshing with said pinion; drums connected to said gears; ropes or cables passing around said drums and up to the upper end of the columns; hooks carried by the ends of the cables and designed to engage the weights; cradles suspended from the frame beneath the columns, said cradles comprising the horizontal bars *a* connected at their ends by bails *b*; cables or ropes connected to said bails and extending up to and connected with a cross-shaft *c*; and an anvil with pins or projections extending from the sides thereof designed to be engaged by the cross-bars when the cradle is elevated.

8. An anvil for driving tie-plates, comprising two legs connected at their upper ends, and lifting-pins extending from each side of the anvil on opposite sides of the legs, substantially as and for the purpose described.

9. In a tie-plate driver, the combination of a portable frame; a cradle suspended therefrom; means for raising and lowering said cradle; and an anvil carried by the cradle.

594,732. ANIMAL-CLEANING DEVICE. ORSON P. FRETWELL, Cedar City, Utah. Filed June 23, 1897. Serial No. 641,856. (No model.)

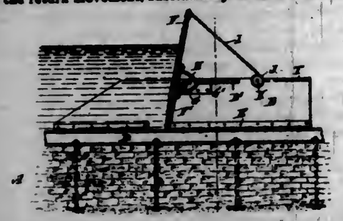


Claim.—An animal-cleaning apparatus having a yoke-shaped frame, each arm of which has a recess therein, a recessed bar pivotally mounted on each arm of the frame and adjacent to the recesses thereof, a shaft mounted in the arms of the frame, a wheel carried at each end of the shaft and outside of the frame, a gear attached to each wheel, a brush having a central core, a spindle projecting from each end of the core, the spindles being respectively mounted in the recesses of the yoke-shaped frame, a collar attached to each spindle, the collars respectively bearing against the arms of the frame, and a gear attached to the outer end of each spindle and located beyond the arms of the frame, the gear being respectively meshed with the gear of the aforesaid wheels and the spindles being held by the aforesaid recessed bars.

594,733. AUTOMATIC WEIR. GEORG L. FUCHS, Meiningen, Germany, assignor of one-half to ERNESTO FUCHS, same place. Filed Sept. 23, 1896. Serial No. 607,361. (No model.) Patented in Mexico July 11, 1896, No. 396.

Claim.—1. An automatic weir provided with a transversely-extending gate, curved rider-plates against which the said gate leans,

longitudinal ribs to which the said rider-plates are firmly attached, the said ribs serving to guide the gate in its tipping motion on the said rider-plates, and curved keeper-irons attached to the gate to guide the latter over the curved rider-plates, while the gate is changing its supporting-point from about one-third of the height of the gate to one-half the height thereof in opening, and also to guide the gate on the return movement, substantially as set forth.



2. An automatic weir provided with a transversely-extending gate, curved rider-plates on which the said gate is adapted to move, longitudinal ribs to which the said rider-plates are firmly attached, the said ribs serving as supports as well as guides to the gates, and keeper-irons attached to the gate to guide the same in its tipping movement over the curved rider-plates while changing from the closing position to the open position, as set forth.

3. An automatic weir provided with a gate, a curved fulcrum engaged by the back of said gate, a support to which the said fulcrum is rigidly secured, the said support forming a rest for the gate when the latter moves over the said fulcrum into the horizontal position, and keeper-irons rigidly secured to the gate and extending rearwardly therefrom, the said keeper-irons inclosing the said fulcrum to prevent accidental displacement of the gate while changing its position on the fulcrum, substantially as set forth.

4. An automatic weir, provided with a transversely-extending gate, curved supports fastened to fixed parts of the weir and engaged by the back of the said gate to form a fulcrum for the latter, a rest for the said gate when the latter is moved to an open position, and means for fastening the gate in the open position, substantially as set forth.

5. An automatic weir, comprising a series of longitudinal ribs secured in the waterway of the weir, upwardly and rearwardly curved fulcrums secured to the said ribs and in transverse alinement with one another, and a gate straddling said ribs and resting with its back on the said fulcrums, substantially as shown and described.

6. An automatic weir, comprising a series of longitudinal ribs secured in the waterway of the weir, upwardly and rearwardly curved fulcrums secured to the said ribs and in transverse alinement with one another, a gate straddling said ribs and resting with its back on the said fulcrums, and angle-irons secured to the said ribs and forming a rest for the said gate when the latter moves over the said fulcrums into a horizontal position, substantially as shown and described.

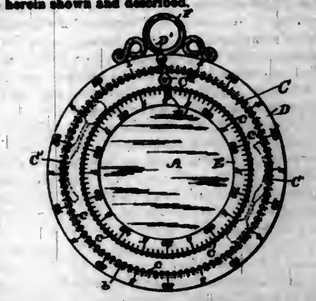
7. An automatic weir, comprising a series of longitudinal ribs secured in the waterway of the weir, upwardly and rearwardly curved fulcrums secured to the said ribs and in transverse alinement with one another, a gate straddling said ribs and resting with its back on the said fulcrums, and means, substantially as described for positively locking said gate in an open position by swinging the latter on said fulcrums, as set forth.

8. An automatic weir, comprising a series of longitudinal ribs secured in the waterway of the weir, upwardly and rearwardly curved fulcrums secured to the said ribs and in transverse alinement with one another, a gate straddling said ribs and resting with its back on the said fulcrums, angle-irons secured to the said ribs and forming a rest for the said gate when the latter moves over the said fulcrums in a horizontal position, and a locking device for locking the said gate in a horizontal position, as set forth.

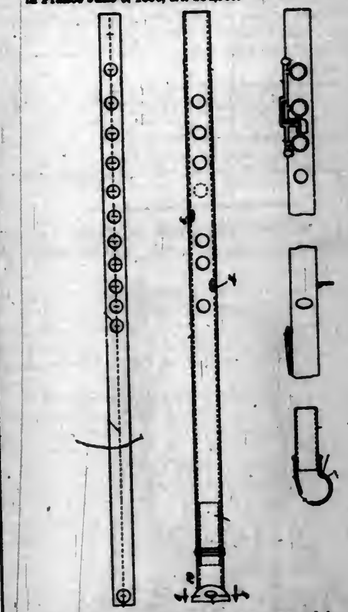
9. An automatic weir, comprising a series of longitudinal ribs secured in the waterway of the weir, upwardly and rearwardly curved fulcrums secured to the said ribs and in transverse alinement with one another, a gate straddling said ribs and resting with its back on said fulcrums, angle-irons secured to the said ribs and forming a rest for the said gate when the latter moves over the said fulcrums in a horizontal position, a locking device for locking the said gate in a horizontal position, and means, substantially as described, for unlocking said gate when in a horizontal position, as set forth.

594,784. ADDING-MACHINE. THOMAS GOSSER, Attleborough, Mass., assignor of one-half to Wilson Dyer, North Attleborough, Mass. Filed July 8, 1897. Serial No. 643,927. (No model.)

Claim.—In an adding-machine, the combination with the disk A provided with the graduated circles D and E, the groove *b*, and the stops *D'* and *E'*, of the rotatable annular ring C provided with the series of notches *c c*, the pointer C^3 and the springs C' C' constructed to enter the groove *b* formed in the disk A, substantially as and for the purpose herein shown and described.



594,785. FLUTE. CARLO T. GORNI, New York, N. Y. Filed Jan. 7, 1897. Serial No. 618,363. (No model.) Patented in Italy June 14, 1893, No. 171, and Oct. 2, 1895, No. 39,983; in Switzerland Mar. 13, 1896, No. 11,983; in Belgium Mar. 16, 1896, No. 120,092; in England Mar. 24, 1896, No. 6,515; in Austria Apr. 3, 1896, No. 46/1,289, and in France June 8, 1896, No. 254,305.



Claim.—1. A mouthpiece for flutes, curved in direction of the length of the flute and provided with a mouth-hole on its top and with a resounding-chamber extending below the line of communication between said mouthpiece and the body of the flute, substantially as described.

2. A flute having eleven finger-holes, the first one of which is arranged out of line with the second hole, whereby the phalange of the first finger may engage over the first hole and the said finger engage with the second hole, whereby all of the eleven holes may be controlled by the ten fingers of a player, substantially as specified.

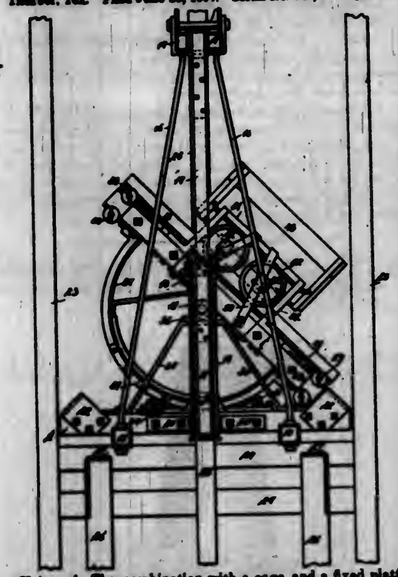
3. A mouthpiece for flutes substantially circular in direction of length of the flute and having its lower portion extending below the line of communication between said mouthpiece and the body of the flute whereby to form a resounding-chamber, substantially as shown and described.

4. A mouthpiece for flutes made substantially circular in the direction of length of the flute having its lower portion extending below the line of communication between said mouthpiece and the body of the flute and having its ends flattened all substantially as shown and described.

5. A mouthpiece for flutes, having its end widened to furnish a bearing for the chin and provided with a top opening and a resounding-chamber extending below the line of communication between the mouthpiece and the body of the flute, substantially as described.

6. A mouthpiece for flutes, curved in direction of length of the flute, and provided with a mouth-opening in its top and a resounding-chamber extending below the line of communication between the mouthpiece and body of the flute, the end of the mouthpiece being widened to form a bearing for the chin, substantially as described.

594,786. AUTOMATIC DUMPING-CAGE. WILLIAM K. GORDON, Thurber, Tex. Filed June 26, 1897. Serial No. 642,945. (No model.)



Claim.—1. The combination with a cage and a fixed platform, of a dumping-platform fulcrumed above the fixed platform, a segment extended downward from the dumping-platform and an automatically-actuated locking device for said segment.

2. The combination, with a cage, its fixed platform and boxes supported by the fixed platform, of a dumping-platform provided with a central shaft entering the said boxes, segments extending downward to the fixed platform, and locking devices for the segments.

3. The combination, with a cage and its fixed platform, of a dumping platform centrally fulcrumed above the fixed platform, segments extending downward from the dumping-platform, and spring-controlled bolts capable of being operated in an automatic manner, arranged for locking engagement with the said segments.

4. The combination, with a cage and its fixed platform and shields located at the ends of the fixed platform, having downward and outward inclination and extending from side to side of the platform, of a dumping-platform located above the fixed platform, the floor-section of the said dumping-platform at its ends being arranged to register with the inclined faces of one of the said shields when the upper platform is in dumping position.

5. In a cage for mining purposes, a fixed platform and a dumping-platform located above the fixed platform, and inclined shields attached to the end portions of the fixed platform, extending from side to side, the inclination of the shields being such that when the dumping-platform is carried to a dumping position the material will be conducted by the said shields beyond the ends of the fixed platform of the cage, for the purpose described.

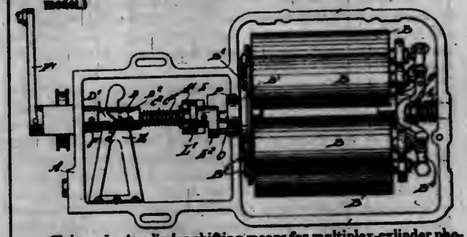
6. A cage for mining purposes, consisting of a fixed platform, a dumping-platform pivoted above the fixed platform, guide-plates extending upward from the fixed platform at each side, and guide-strips located at the sides of each guide-plate, extending outwardly at an angle thereto, for the purpose specified.

7. In a cage for mining purposes, the combination, with a dumping-platform, segments attached to said dumping platform, and a fixed platform over which the segments have movement, of spring-controlled bolts adapted to normally have locking engagement with the said segments, levers connected with the said bolts, and trips for the said levers, extending beyond opposite sides of the said fixed platform, for the purpose described.

8. In a cage for mining purposes, a fixed platform, a dumping-platform supported upon the fixed platform and pivoted to its center, and inclined shields secured at the ends of the fixed platform, having downward and outward inclination and arranged for registry with the floor-section of the depressed end of the dumping-platform, as described.

9. The combination, with a dumping-platform provided with tracks to receive a car, bolts carried by said platform, arranged to enter the space between the wheels of the car, means for operating said bolts, and brakes supported over the side portions of the platform, in a position to engage with the upper portion of the wheels of a car.

594,787. MULTIPLEX-CYLINDER PHONOGRAPH. GEORGE V. GRAM, Atlanta, Ga. Filed Mar. 24, 1897. Serial No. 628,013. (No model.)



Claim.—1. A cylinder-shifting means for multiplex-cylinder phonographs, comprising two end-faced cams, mounted one upon the handle-shaft and one upon an intermediate shaft, and a non-rotating lock for the intermediate shaft, freed by an endwise movement thereof.

2. A cylinder-shifting means for multiplex-cylinder phonographs, comprising two end-faced cams mounted one upon the handle-shaft and one upon an intermediate shaft, a spring pressing the two cams toward each other, and a non-rotating lock for the intermediate shaft freed by an endwise movement thereof.

3. A cylinder-shifting means for multiplex-cylinder phonographs, comprising a cylinder-carrying frame having locking-holes in one head, a locking device engaged with and freed from the frame by endwise movement of the frame, a turning-handle, an intermediate shaft adapted to connect the handle and cylinder-carrying frame by an endwise movement of the shaft, two engaging end-faced cams attached to the handle-shaft and intermediate shaft, and a non-rotating lock for the intermediate shaft freed by endwise movement thereof.

4. A cylinder-shifting means for multiplex-cylinder phonographs, comprising a cylinder-carrying frame having locking-holes in one head, a locking device engaged with and freed from the frame by endwise movement of the frame, a turning-handle, an intermediate shaft adapted to connect the handle and cylinder-carrying frame by an endwise movement of the shaft, two engaging end-faced cams attached to the handle-shaft and intermediate shaft, a non-rotating lock for the intermediate shaft freed by endwise movement, and stops limiting the oscillations of the intermediate shaft.

5. A cylinder-shifting means for multiplex-cylinder phonographs, comprising a cylinder-carrying frame having holes in one head, a locking device engaged with and freed from the frame by endwise movement of the frame, a turning-handle, an intermediate shaft adapted to connect the handle and cylinder-carrying frame by an endwise movement of the shaft, two engaging end-faced cams attached to the handle-shaft and intermediate shaft, a radial arm or ledge movable with the intermediate shaft, and a spring-arm engaging the same and preventing rotation until cleared by an endwise movement of the shaft.

6. A cylinder-shifting means for multiplex-cylinder phonographs, comprising a cylinder-carrying frame having holes in one head, a locking device engaged with and freed from the frame by endwise movement of the frame, a turning-handle, an intermediate shaft adapted to connect the handle and cylinder-carrying frame by an endwise movement of the shaft, two engaging end-faced cams attached to the handle-shaft and intermediate shaft, a radial arm or ledge movable with the intermediate shaft, a spring-arm engaging the same and preventing rotation until cleared by an endwise movement of the shaft, and stops limiting the oscillations of the intermediate shaft.

7. A cylinder-shifting means for multiplex-cylinder phonographs, comprising a cylinder-carrying frame having locking-holes in one head, a locking device engaged with and freed from the frame by endwise movement of the frame, a turning-handle, an intermediate shaft adapted to connect the handle and cylinder-carrying frame by endwise movement of the shaft, two engaging end-faced cams attached to the handle-shaft and intermediate shaft, a spring for returning the said shaft, and a non-rotating lock for the intermediate shaft, freed by endwise movement thereof.

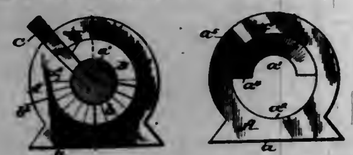
8. A cylinder-shifting means for multiplex-cylinder phonographs, comprising a cylinder-carrying frame having locking-holes in one head, a locking device engaged with and freed from the frame by endwise movement of the frame, a turning-handle, an intermediate shaft adapted to connect the handle and cylinder-carrying frame by endwise movement of the shaft, two engaging end-faced cams attached to the handle-shaft and intermediate shaft, a spring for returning the said shaft, a non-rotating lock for the intermediate shaft freed by endwise movement, and stops limiting the oscillation of the intermediate shaft.

9. A cylinder-shifting means for multiplex-cylinder phonographs, comprising a cylinder-carrying frame having locking-holes in one head, a locking device engaged with and freed from the frame by endwise movement of the frame, a turning-handle, an intermediate shaft adapted to connect the handle and cylinder-carrying frame by an endwise movement of the shaft, two engaging end-faced cams attached to the handle-shaft and intermediate shaft, a radial arm or lodge movable with the intermediate shaft, a spring engaging the same and preventing rotation until cleared by endwise movement of the shaft, and a spring for returning said shaft.

10. A cylinder-shifting means for multiplex-cylinder phonographs, comprising a cylinder-carrying frame having locking-holes in one head, a locking device engaged with and freed from the frame by endwise movement of the frame, a turning-handle, an intermediate shaft adapted to connect the handle and cylinder-carrying frame by an endwise movement of the shaft, two engaging end-faced cams attached to the handle-shaft and intermediate shaft, a spring engaging the same and preventing rotation until cleared by endwise movement of the shaft, a pin fixed upon the frame, a collar upon the shaft having two notches engaging said pin at the limits of oscillation of the shaft and at the middle of its longitudinal travel.

11. A cylinder-shifting mechanism for multiplex-cylinder phonographs, comprising interlocking jaw-clutches having one side of the jaws forming end faced cams, one part mounted on a handle-shaft and the other upon an intermediate shaft, said shafts having a longitudinal reciprocating and oscillating movement, and non-rotating locks for the intermediate shaft preventing its oscillation except at the ends of its longitudinal reciprocations.

594,788. NUT-LOCK. TOWNSON HAND, North Vernon, Ind., assignor of one-half to Oscar Hand, Shelbyville, Ind. Filed June 28, 1897. Serial No. 642,674. (No model.)



Claim.—1. A nut-lock consisting of the stationary member having an inclined surface concentric to the bolt-hole, and a rotary locking member, the outer face of which is adapted to be engaged by a nut and the inner face of which is inclined reversely to the stationary inclined surface to ride up the same and force said rotary member outwardly when the nut is turned to unscrew it, the stationary member being recessed in line with the said rotary member to receive means for preventing the revolution of the latter with respect to the nut, as set forth.

2. The combination with the stationary member recessed around its bolt-hole and provided concentric therewith with an inclined surface, of an annular locking member mounted to turn in said recess, said locking member having its inner face inclined reversely to the incline of the stationary member and its outer face toothed to engage the rear face of the nut, the stationary member being provided with a keyway adapted to receive a key to prevent said annular locking member from turning, as set forth.

3. A nut-lock consisting of a stationary member having a recess concentric to its bolt-hole, an inclined surface within said recess and terminating adjacent to the outer face of said member in a shoulder and the annular rotary member in said recess and having its inner face inclined to ride up the stationary incline, the outer face of said rotary member being adapted for engagement by a nut, there being provided a keyway adapted to receive a key to engage said rotary member to hold it stationary and permit the nut to be unscrewed, as set forth.

4. A nut-lock consisting of the stationary member having an inclined surface concentric to the bolt-hole, and a rotary locking member having its inner face inclined reversely to the incline of the stationary member and by which the said rotary member is forced outward into engagement with the nut when the latter is turned to unscrew it, the said members being provided with registering keyways adapted to receive a key to prevent said rotary member from turning, as set forth.

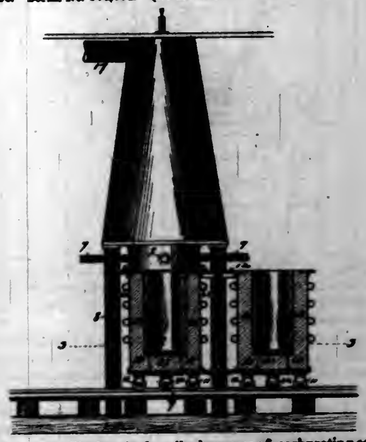
5. A nut-lock consisting of the stationary member provided with an opening extending therethrough from face to face and concentric to the bolt-hole, and an inclined surface concentric to said bolt-hole, said surface extending from the rear face of said member to the front face thereof, and a rotary locking member fitting in said opening and having a portion of its rear face beyond said opening inclined reversely to the incline of the stationary member, as set forth.

594,739. MANUFACTURE OF FUEL-BLOCKS FROM PETROLEUM. HARRY HANSEN, Christiania, Norway. Filed May 28, 1897. Serial No. 638,541. (No specimens.)

Claim.—1. The herein-described composition of matter for forming a fuel-block, consisting of petroleum, caustic soda, turpentine, pine-resin, margarin and cocoanut-oil, combined substantially in the proportions and the manner specified.

2. The method herein described of preparing artificial fuel-blocks, consisting in first making a soap of margarin, cocoanut-oil and caustic soda, drying and granulating the soap, then mixing therewith melted turpentine and resin, then adding petroleum, then heating and stirring the entire mixture with the further addition of caustic soda, and finally molding the mass into blocks, substantially in the manner and in the proportions specified.

594,740. PROCESS OF AND APPARATUS FOR CARBURETING CALCIUM. HERMAN I. HANTEMPEL, Bellaire, Ohio. Filed Jan. 7, 1896. Serial No. 574,661. (No model.)



Claim.—1. The herein-described process of carbureting calcium, which consists in calcining limestone and then forcing into the calcined mass while in a heated condition a carbonaceous material by the aid of a combustible gas under pressure and simultaneously subjecting the mass to the action of an electrical current, substantially as described.

2. The herein-described process of carbureting calcium, which consists in mixing raw limestone with a solid fuel and firing the same whereby to drive off its carbon dioxid, then forcing into the calcined stone a pulverized carbonaceous material and simultaneously treating the mass with an electrical current, substantially as and for the purpose described

3. The herein-described process of carbureting calcium, which consists in mixing the limestone with a solid fuel, firing the mass to drive off its carbon dioxid in the presence of an air-blast, then forcing into the calcined stone while heated a carbonaceous material and simultaneously subjecting the mass to the action of an electrical current, substantially as and for the purpose described.

4. The herein-described continuous process of carbureting calcium, which consists in mixing raw limestone with a solid fuel and firing the mass in the presence of an air-blast, then passing the calcined stone in a heated condition between two electric poles and simultaneously forcing into the calcined stone a carbonaceous material by the aid of a combustible gas under pressure and subjecting the mass to the action of an electrical current, substantially as described.

5. The herein-described apparatus, comprising a furnace having a calcining-chamber and a smelting-chamber, the latter having separated electrodes arranged in its walls, feed-pipes perforating said walls and arranged in horizontal series, a plurality of branch pipes connecting with said feed-pipes and a trunk connecting with the several branches and means for forcing a pulverized carbonaceous material through said trunk, the branches thereof and the several feed-pipes into the smelting-chamber, substantially as described.

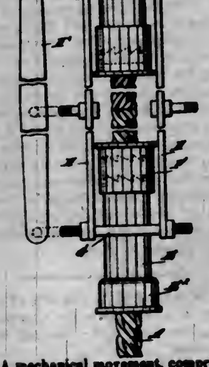
6. In a smelting-furnace, the combination with a smelting-chamber having separated electrodes arranged in its inner walls, pipes or passages piercing said walls, branch pipes communicating with the outer ends of said feed pipes or passages, a trunk communicating with the several branches, and means for delivering a carbonaceous material into said trunk and a means for delivering a gaseous vehicle under pressure into the trunk whereby to carry the pulverized carbonaceous material into the furnace, substantially as described.

7. In an electric smelting-furnace the combination with a calcining-chamber supported in an elevated position and having an open bottom, of a plurality of smelting-chambers each open at its upper end and capable of being moved into and out of operative relation to the calcining-chamber and each having electrodes in its walls, substantially as described.

8 In a smelting furnace, the combination with an upper portion supported in an elevated position, a horizontal track extending beneath said elevated portion and a plurality of base-sections each containing a chamber, said base-sections being connected by a table at their upper ends and adapted to be shifted into and out of line with the upper elevated portion as desired, substantially as described.

9. In an electric smelting-furnace the combination with a calcining-chamber supported in an elevated position, of a track arranged beneath said elevated portion and between its supports and a base portion movably mounted on said track, electrodes mounted in the walls of the movable portion and pipes or passages opening into the chamber thereof adjacent to the electrodes, substantially as described.

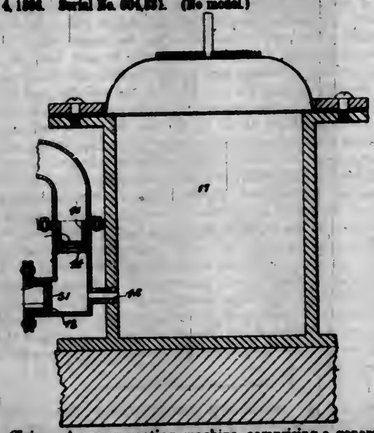
594,741. MECHANICAL MOVEMENT. SAMPTER L. HARWOOD, Uniontown, Ala. Filed Apr. 20, 1897. Serial No. 634,579. (No model.)



Claim.—1. A mechanical movement, comprising a shaft having sections spirally grooved in opposite directions, a sleeve surrounding each section, having apertures therein, and balls in said apertures, adapted to engage the spiral grooves and having also radially-projecting flanges having ratchet-teeth upon the side surface, an outer sleeve surrounding said first-named sleeve, having ratchet-teeth upon its end edges adapted to engage those upon the inner sleeve which permit free revolution in one direction and prevent revolution in the other direction, and a common connection between said outer sleeves, substantially as described.

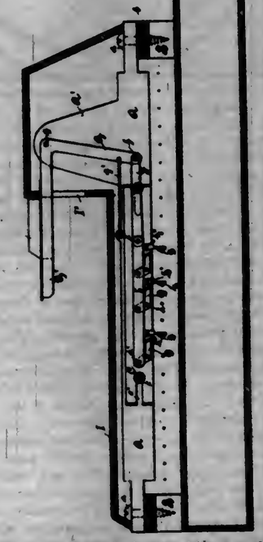
2. A mechanical movement, comprising a shaft having sections spirally grooved in opposite directions, a sleeve surrounding each section, having holes therein, balls in said holes adapted to engage the spiral grooves, a ball-retaining sleeve immediately outside said sleeve, an outer sleeve surrounding the whole, the outer and inner sleeves being provided with ratchet-engaging means to permit free revolution in one direction and prevent revolution in the other direction, and a common connection between the outer sleeves, substantially as described.

594,742. GAS-GENERATING MACHINE. FRANK A. HUTTER, New Haven, Conn., assignor to Emilie Hutter, same place. Filed Sept. 4, 1896. Serial No. 604,831. (No model.)



Claim.—A gas-generating machine, comprising a generator, an air-pressure cylinder, a pump for forcing air into said cylinder, air inlet and outlet controlling devices for said pump, comprising a valve-casing having a vertical member and a substantially horizontal member, the said casing communicating with the interior of the pump, an annular flange formed within the vertical member of the casing and also in the horizontal member of the casing, valve-seats resting on said flanges, valves engaging the said seats, sleeves movable within the casing to engage the valve-seats, the said sleeves having at their outer ends outwardly-extended annular perforated flanges, and clamping-bolts passing through said perforations and through perforations in the flanges at the ends of the valve-casing, substantially as specified.

594,743. STRINGED INSTRUMENT. JAN A. JOSEKOVY, Dresden, Germany. Filed June 2, 1897. Serial No. 640,016. (No model.)



Claim.—1. A plectrum device for citherns and other similarly-operated stringed musical instruments comprising a series of bars arranged transversely across the strings and carrying longitudinally-movable slides in combination with fingers D hinged on the slides and cooperating levers having resetting-springs as *f* in such manner that when a key is depressed first the fingers are brought into the plane of the strings and then the slide is caused to advance the strings being operated by the fingers and in the same manner when the key is

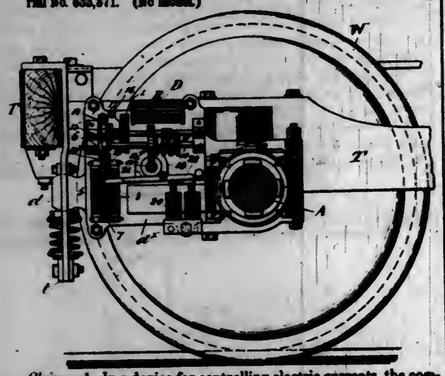
released first the fingers are withdrawn and then the slide is returned by its spring to its original position, substantially as described.

2. In a plectrum device for citherns and other similarly-operative stringed musical instruments, the combination with a series of bars arranged transversely across the strings the longitudinally movable slide carried by said bars, the rod carried by said slide, the angled plectrum-fingers pivotally mounted on the slide and connected to the bar, stops for limiting the movement of the slide-bar and the key-levers operatively connected with said slide; substantially as described.

3. In a plectrum device for citherns, &c., the combination with the series of bars arranged transversely across the strings and carrying longitudinally-movable slides, the plectrum-fingers hinged on the slides and having inclined free ends, and cooperating rods, whereby when a key is depressed, the said inclined surface will depress the string as the slide is moved forward and allow it to spring off at the lower point of the inclined end on the further advance of the slide and thus cause the string to vibrate; substantially as described.

4. In a plectrum device, of the character described, the combination with the longitudinally-movable slide, the damper-fingers pivotally mounted on said slide, movable in one direction only, whereby when the slide is advanced, the damper-fingers will be withdrawn from contact with the strings and be brought in contact with the strings when the slide is returned to normal position; substantially as described.

594,744. MEANS FOR CONTROLLING ELECTRIC CURRENTS. PATRICK KENNEDY, Brooklyn, N. Y., assignor to the American Railway Electric Light Company, New York, N. Y. Filed Apr. 26, 1897. Serial No. 633,571. (No model.)

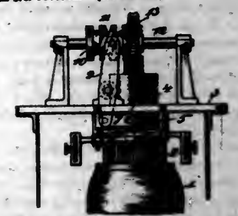


Claim.—1. In a device for controlling electric currents, the combination with a dynamo, an external circuit fed by said dynamo, a rheostat in the field-magnet circuit of the dynamo, and a solenoid in the said external circuit, said solenoid having a movable core and a spring connected therewith, of the said spring and core, the latter provided with pawl-operating branches 16 and 16×, the rotatively-mounted shaft 2, the contact-finger 3, carried by said shaft and adapted to move over the coil-terminals of the rheostat, the ratchet-wheels 15 and 15×, fixed on said shaft 2, the crank-shaft 10, driven from the armature of the dynamo, the rocking pawl-carrier 13, rocked by said crank-shaft, and the spring-pawls 14 and 14×, carried by said pawl-carrier and adapted to engage the respective ratchet-wheels 15 and 15×, the branches 16 and 16× on the core of the solenoid being adapted to shift said pawls, respectively, into and out of engagement by the movement of the solenoid-core, substantially as set forth.

2. In a device for controlling electric currents, the combination with a dynamo, an external circuit fed by said dynamo, a solenoid in said external circuit, the movable core of said solenoid and its spring, a rheostat in the field-magnet circuit of the dynamo, and mechanism, substantially as described, whereby the movement of the solenoid-core controls the resistance in the said field-magnet coils, of a branch circuit from the main exterior circuit, means for breaking said branch circuit, an electromagnet 20 in said branch circuit, an armature-lever, one arm of which is coupled to the spring of the solenoid-core and the other provided with an armature in the field of force of said electromagnet 20, and said armature, whereby, when said branch circuit is broken the tension of said spring is reduced, substantially as and for the purpose set forth.

3. In a device for controlling electric currents, the combination with a dynamo, an external circuit fed by said dynamo, a solenoid in said external circuit, the movable core of said solenoid and its spring, a rheostat in the field-magnet circuit of the dynamo, and mechanism, substantially as described, whereby the movement of the solenoid-core controls the resistance in the said field-magnet coils, of a branch circuit from the main exterior circuit, lamps in said branch circuit, means for breaking said lamp-circuit, an electromagnet in said lamp-circuit, and means between said electromagnet and the core-spring of the solenoid, whereby the tension of said spring is increased when the said electromagnet is excited, substantially as set forth.

594,745. POLE-CHANGING MECHANISM FOR ELECTRIC GENERATORS. PATRICK KENNEDY, Brooklyn, N. Y., assignor to the American Railway Electric Light Company, New York, N. Y. Filed Apr. 26, 1897. Serial No. 633,572. (No model.)



Claim.—1. The combination with a dynamo, of a shifting helix, having two relatively shallow circumferential grooves and a deeper, spiral groove, connecting said two circumferential grooves and forming deflecting shoulders at the points of intersection therewith, a shifting-lever, having a stud which engages a groove in said helix, gearing between the armature of the dynamo and said helix, whereby the former rotates the latter, and a pole-changer connected with and adapted to be operated by said shifting-lever when the direction of rotation of the dynamo is reversed.

2. The combination with a dynamo, having a rotating armature and a commutator, of a shifting helix having two relatively shallow circumferential grooves and a deeper spiral groove connecting said circumferential grooves, substantially as described, gearing between the armature and said helix whereby the former rotates the latter, a shifting-lever provided with a stud which engages a groove in said helix, two pairs of movably-mounted commutator-brushes, either pair of which may be put in contact with the commutator at will, and connections between said brushes and said shifting-lever, whereby the latter shifts the brushes when the direction of rotation of the armature is changed.

3. The combination with a dynamo having a rotating armature and a commutator, of the movable ring or sleeve 5, the brush-holders 15, pivotally mounted on said sleeve and having each a cam 19, the studs 16, over which said cams are drawn when said sleeve is moved rotatively, the brushes carried by the respective holders, the springs which serve to keep the brushes pressed up toward the commutator, and shifting mechanism between said sleeve 5 and the armature adapted to shift the brushes by a rotative movement of said sleeve when the direction of rotation of the armature is changed.

4. In a pole-changing mechanism, the combination with the shifting helix 11, having circumferential grooves *a* and *b*, a deeper spiral groove *c*, connecting the said circumferential grooves, and deflecting shoulders *d*, *d*, as described, of the shifting-lever 9, having a fixed stud 10, a sliding sleeve 10×, on said stud, and a spring 9×, bearing on said sleeve, said sleeve and stud engaging a groove in said helix, substantially as and for the purpose set forth.

594,746. BEARING-SLEEVE FOR CAR-AXLES. PATRICK KENNEDY, Brooklyn, N. Y., assignor to the American Railway Electric Light Company, New York, N. Y. Filed Apr. 26, 1897. Serial No. 633,573. (No model.)

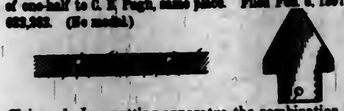


Claim.—1. A bearing-sleeve for a car-axle or the like, comprising a longitudinally-divided tubular body, having near each end a collar-bearing for a sectional screw-ring and at each end longitudinally-extending guideways to receive tapered jaws, the said screw-rings rotatively mounted in said collar-bearings, and the said jaws, mounted in said guideways and embraced by said rings, said jaws having screw-threads on their outer faces which engage the threads of internal screws in the rings, whereby the rotation of the screw-rings serves to drive the tapered jaws longitudinally of the bearing-sleeve

2. The combination with a car-axle which tapers, of a bearing-sleeve therefor, said sleeve comprising a tubular body A, divided longitudinally and having three or more slits or guideways in each end, said guideways extending longitudinally of the tubular body, tapered jaws C, which occupy the respective guideways in the body, screw-rings B, which embrace and rotate about the said tube and jaws, and have internal screw-threads which fit and engage similar screw-threads on the backs or outer faces of the jaws, and means for preventing the movement of the said rings longitudinally of the body A.

3. In a bearing-sleeve, the combination with the longitudinally-divided body A, having slits or guideways in its respective ends to receive the jaws C, and collars *c*, in pairs near its ends, of the said jaws, having screw-threads on their backs or outer faces, and the sectional screw-rings B, mounted on said body A between the respective collars *c*, said collars having raised bearing-surfaces *c'*, and said rings having bearing-surfaces *b'* to bear on the surfaces *c'*, and having each an internal screw to fit and engage the screw-threads on the jaws.

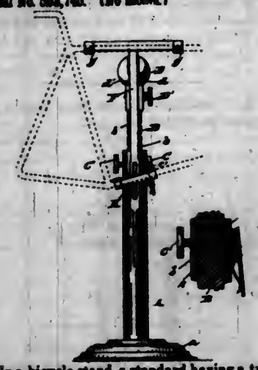
594,747. CUTTER-BAR. HENRY M. LAWSON, Alton, Va., assignor of one-half to C. E. Pugh, same place. Filed Feb. 6, 1897. Serial No. 622,362. (No model.)



Claim.—1. In a cutting apparatus, the combination of a cutter-bar provided with a recess having grooves at the edges thereof and formed with a countersink or opening in said recess, a ball seated in said countersink or opening, and a knife or blade adapted to be seated in said groove and provided with a countersink or opening in its other side adapted to fit over upon the ball, substantially as described.

2. In a cutting apparatus, the combination of a cutter-bar having a recess therein formed with a countersink and the edges of said recess beveled to form a guide-groove, a knife or blade having an extension provided with a corresponding countersink and with beveled edges adapted to be seated in said groove, and a ball seated in the countersinks in the recess of the cutter-bar and under side of the said blade to secure the two together, substantially as and for the purpose described.

594,748. BICYCLE-STAND. HEVIN B. LE FEVER, Littlestown, Pa., assignor to Zachariah K. Loucks, Philadelphia, Pa. Filed June 22, 1895. Serial No. 553,745. (No model.)



Claim.—In a bicycle-stand, a standard having a two-part socket, connected by a screw, a swinging arm F, to hold a bicycle, said arm having a cross-head G, rigid therewith and provided with hooks *g*, and a cross-head H, movably connected thereto and provided with hooks *h'*, a ball rigidly connected to said arm F, to engage the socket upon the standard, and hold said arm F, at different angles with said standard, substantially as described.

594,749. ADJUSTABLE FASTENER. GEORGE R. MITCHELL, Newburg, N. Y. Filed May 26, 1897. Serial No. 636,066. (No model.)

Claim.—A fastener comprising the connecting-bolt D, having a square head D' at one end, screw-threaded and provided with a nut at the other end, in combination with a retaining-plate C of such a shape that it occupies an inclined position when in place, and provided with an opening *c'* larger than said nut, and a slot extending downwardly from said opening smaller than said nut, substantially as described.

594,749.

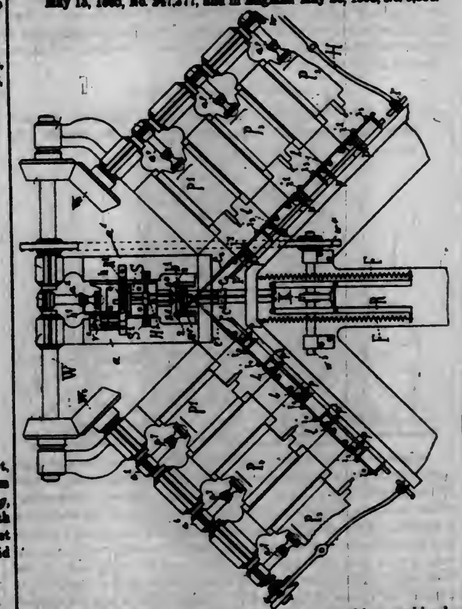


594,750. BICYCLE CHIME-BELL. THEODORE B. MOFFAT, Pittston, Pa. Filed Feb. 3, 1897. Serial No. 621,940. (No model.)



Claim.—The combination with the front fork of a bicycle, of the bracket-arms secured to the fork and projecting forwardly, a substantially U-shaped frame pivoted between said arms, chimes carried by the frame and a roller journaled in the frame, said roller being provided with the tappets for ringing the chimes, and suitable means operated by the rider for moving the roller into engagement with the front wheel, substantially as shown and described.

594,751. MACHINE FOR AUTOMATICALLY MANUFACTURING WRITING-PENS. FRIEDRICH HEYDUST, Reichenbrand, Germany. Filed Oct. 8, 1896. Serial No. 608,080. (No model.) Patented in France May 13, 1895, No. 247,377, and in England May 20, 1896, No. 9,981.



Claim.—1. In a punching and stamping machine combined, a punch having two dies, one in the rear of the other, a series of stamping-presses arranged below the punching-machine, and outwardly inclined therefrom, as described, with a chute from each punching-die to each series of presses, the upper ends of the chutes provided with openings, and vertically-operating guides, having forked upper ends adapted to operate in the chute-openings, to receive the punched blanks and deliver same to the chutes and presses, substantially as set forth.

2. In a combined punching-machine and stamping-press a chute for conveying the blanks from the punch to the press, said chute having an opening in the upper end thereof, and guides adapted to operate in said opening, the upper end of the guides composed of two parts, the part nearest the press having its upper surface inclined toward the same, and its other part made horizontal, substantially as and for the purpose set forth.

3. In combination with a punching-machine having guides adapted to operate under the dies thereof, a spring-supported frame connected with the guides and a shaft provided with an eccentric whereby the guides and frame are operated in opposition to the springs, substantially as and for the purpose set forth.

4. In a punching-machine the combination of a perforated die, a pin adapted to operate in said perforation, a spring for supporting the pin in its upper position, a spring-actuated piston for driving the pin downward, and a spring-actuated pin for holding the piston in elevated position, with a pivoted lever for disengaging the aforesaid pin, substantially as set forth.

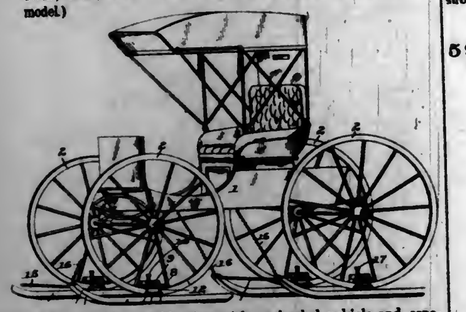
5. In a punching-machine, the combination of a pivoted curved lever, having a jointed and hooked lower end, a spring connected with the lever-pivot and lever, an outwardly-beveled upper end to the lever, and an outward projection from the plunger, said projection provided with a beveled slot within which the upper end of the lever is adapted to operate, substantially as set forth.

6. In a punching-machine the combination of a plunger and an angle-plate connected therewith, a vibrating frame, and a spring-actuated bolt fitted therein, the bolt provided on one end with jam-nuts and at its other end with a three-sided frame, and a downward projection at the outer side of said frame for successively engaging the perforation in a plate, substantially as set forth.

7. In combination with a vertical punching-machine and stamping-presses outwardly inclined therefrom, an inclined chute and feed mechanism connected therewith, the said mechanism consisting of levers pivotally arranged at opposite sides of the chute, springs for pressing the levers inward, and a block pivoted between each pair of levers, the levers provided with adjustable inwardly-projecting stops, a lever projecting from each pivoted block and a sliding rod with tappets thereon for action against the block-levers, substantially as specified.

8. In a stamping-press, a matrix having a perforated bottom, a pin to operate therein, and a spring connected with the pin, in combination with a spring-actuated catch for engaging the spring and a bar connected with a pivoted block and lever to release said catch, substantially as set forth.

594,752. RUNNER ATTACHMENT FOR VEHICLES. DAVID R. OWEN, Garlo, Ohio. Filed June 18, 1896. Serial No. 595,966. (No model.)



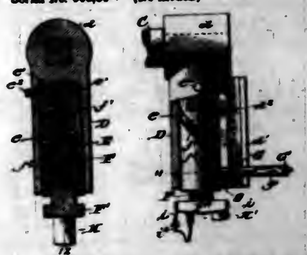
Claim.—1. The combination with a wheeled vehicle and especially with the wheels thereof, of a runner having loops or staples upon its upper side and a clamp for securing the runner to said wheel, made up of a base-plate engaging the inner surface of the wheel-rim, a clamping-plate upon the upper surface of said base-plate, a thumb-screw passing through said clamping-plate and engaging the top surface of said base-plate and loops fitting over the outer ends of said clamping-plate and provided with hooks upon their lower ends which engage the staples on said runner, substantially as and for the purpose described.

2. The combination with a wheeled vehicle and especially with the wheels thereof, of a runner having loops or staples upon its upper side and a clamp for securing the runner to said wheel, made up of a base-plate engaging the inner surface of the wheel-rim, a clamping-plate upon the upper surface of said base-plate having grooves upon its upper surface, a thumb-screw passing through said clamping-plate and engaging the top surface of said base-plate and loops fitting within said grooves and provided with hooks upon their lower ends which engage the staples on said runner, substantially as and for the purpose described.

594,758. SHEEP-DIP COMPOUND. JAMES A. PALESTROPE, Liverpool, England, assignor to the Tobacco Warehousing and Trading Company, Danville, Va. Filed Feb. 1, 1897. Serial No. 621,846. (No specimens.)

Claim.—A sheep-dip or insecticide consisting of a mixture of powdered tobacco, flowers of sulfur, ground hellebore, and ammoniated soda-ash: substantially as described

594,754. EDGE-SETTING MACHINE. ADAM H. PREBERG, Reading, Pa., assignor of one-half to Katie V. Ruber, same place. Filed Oct. 14, 1896. Serial No. 608,804. (No model.)



Claim.—1. The combination with the rock-shaft of the hollow radial oscillating head having radial slot and guide, a sleeve with spiral slot within the same carrying a tool holder with two kinds of tools and a slide with handle and pin moving in the radial guides and spiral slot to reverse the position of the tool-holder substantially as and for the purpose described.

2. The combination with the rock-shaft, of the hollow radial oscillating head having radial slot and guides, a sleeve with spiral slot within the same, a tool-holder within the sleeve having a coil-spring above it, two edge-tools carried by the holder, and a slide with pin entering the spiral slot, and locking devices for holding said slide to its two positions substantially as and for the purpose described.

3. The combination of oscillating head D having slot d^3, guides d', and screw e^3, and locking-holes m, the sleeve E with peripheral groove e', spiral slot e, and pin f^3, the tool-holder F with slotted shank F and pins h h', the spring f' arranged within the sleeve above the tool-holder shank, the tools H H' with sockets and locking-springs i, and the slide G with operating-stem G', pin g, and locking-latch g', substantially as and for the purpose described.

594,755. LUBRICATOR. JOHN FRICK, Trenton, N. J. Filed June 5, 1897. Serial No. 639,563. (No model.)

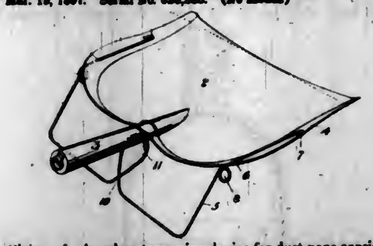


Claim.—1. An oil or grease cup having a skeleton top, a cover screwed to a central boss of said top, a reciprocatory valve-rod or plunger extending loosely through the said boss and cover and above the same into exposed position, and means carried by the said cover for regulating the throw of the said rod or plunger, substantially as described.

2. In an oil or grease cup, the skeleton top having a central, hollow, externally-threaded boss, a cover having a central hollow internally-threaded cylindric portion adapted to screw upon the said boss, a sleeve-nut also screwed into the said cylindric portion, a lock-nut for securing the adjustment of the sleeve-nut, and a reciprocating valve-rod or plunger which extends up through the said boss, the cover, and the sleeve-nut, and having an enlarged portion designed to contact with the inner end of said sleeve-nut, substantially as specified.

3. In an oil or grease cup, the skeleton top having a central, hollow, externally-threaded boss, a cover having a central, hollow, internally-threaded, cylindric portion adapted to screw upon the said boss, a sleeve-nut also screwed into the said cylindric portion, a lock-nut for securing the adjustment of the sleeve-nut, and a reciprocating valve-rod or plunger which extends up through the said boss, the cover and the sleeve-nut, and which has an enlarged portion designed to contact with the inner end of said sleeve-nut, together with a bottom cap having a screw-neck, and tie-rods which connect said bottom cap with the said skeleton top, substantially as specified.

594,756. DUST-PAN. LINTON H. RALPH, Pittsburg, Pa. Filed Mar. 19, 1897. Serial No. 628,295. (No model.)



Claim.—1. An edge-depressing device for dust-pans consisting of a double-sided arched treadle secured at the forward ends to the sides of the pan having a back portion formed at right angles to the arched side members and a central loop member extending up to and secured to the handle of the pan at its base, substantially as set forth.

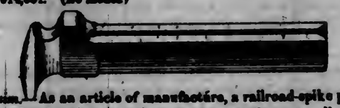
2. An edge-depressing device for dust-pans consisting of double-sided arched wire treadle with a spiral formed in the wire at the apex of the arch, secured at the forward ends to the sides of the pan, having a back portion formed at right angles to the arched side members and a central loop member extending up to and secured to the handle of the pan at its base, substantially as set forth.

3. In combination with a dust-pan; a front-edge-depressing device consisting of a wire treadle attachment formed with a central loop secured at its front to the base of the handle of the pan, extending backwardly at an angle to the floor, opposite lateral extensions of the loop conforming to the floor-level, and forwardly upwardly extending side members, deflected to alise with the sides of the pan and secured thereto, substantially as set forth.

4. In combination with a dust-pan; a front-edge-depressing device consisting of a wire treadle attachment formed with a central loop secured at its front to the base of the handle of the pan, extending backwardly at an angle to the floor, opposite lateral extensions of the loop conforming to the floor-level, and forwardly upwardly extending side members formed into a loop and deflected to alise with the sides of the pan and secured thereto, substantially as set forth.

5. In combination with a dust-pan; an edge-depressing device consisting of a double-sided arched wire treadle with a spiral formed in the wire at the apex of the arch, secured at the forward ends to the sides of the pan having a back portion formed at right angles to the arched side members and a central loop member extending up to and secured to the pan at its base, substantially as set forth.

594,757. RAILROAD-SPIKE. JULIUS REICHARD, Bisbee, Ariz., assignor of three-eighths to Frank Du Cacher, August Journ, Fred Coleman, and Otto von Kanel, same place. Filed Dec. 5, 1896. Serial No. 614,601. (No model.)



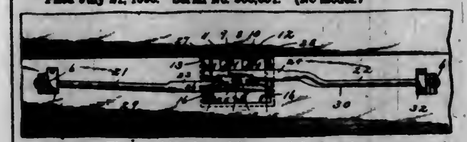
Claim.—As an article of manufacture, a railroad-spike provided below its head with a round transverse opening extending therethrough, the shank of the spike being divided longitudinally and centrally from said opening to the point of the spike where the divided portions are beveled reversely upon their inner surfaces, thickened cheek portions at each side of the spike extending from the transverse opening upward toward the head, and a rearwardly-projecting lug forming a sustaining-shoulder and having a curved and concave lower surface whereby in driving the spike, said shoulder or lug serves to force the head of the spike into solid engagement with the base of the rail, substantially as described.

594,758. COATING FOR MIRRORS AND METHOD OF PRODUCING SAME. ALFRED ROST, Halberstadt, Austria-Hungary. Filed Feb. 11, 1895. Serial No. 538,029. (Specimens.) Patented in Germany Oct. 13, 1894, No. 77,725.

Claim.—1. The herein-described process of coating mirrors consisting in dissolving platinum and silver in nitric acid and filtering the same, evaporating the solution to obtain crystals dissolving the crystals in water and adding ammonia, and finally a reducing fluid and coating the glass with the resulting solution, substantially as described.

2. As an article of manufacture, a mirror of transparent material having a thin coating of an alloy of platinum and silver of such thickness as to be partially transparent by transmitted light and reflective by reflected light, substantially as described.

594,759. TRUNK-LOCK. BERNHARD SONNUBR, Huntsville, Ala. Filed July 21, 1896. Serial No. 600,051. (No model.)



Claim.—The combination with a trunk-body, of a cover, a casing secured to the body, guides located within the casing, locking-rods having flattened portions slidable through said guides and provided with racks located in the casing, L-shaped catches secured to one rod and located within the casing, eyes secured to the cover or top of the trunk and projecting into the casing and adapted to receive the L-shaped catches, a rotatable spindle having a polygonal portion adapted to receive a key, a pinion secured to the spindle and interposed between the locking rods and meshing with the racks thereof, guides secured to the trunk and through which the rods loosely pass and hasps hinged to the cover and provided with ears having openings adapted to receive the ends of the locking rods and to pass through openings in the trunk-body.

594,760. VERTICAL BOLTING-MACHINE. ISAAC G. SHEPHERD, Findlay, Ohio. Filed Mar. 30, 1896. Serial No. 585,472. (No model.)



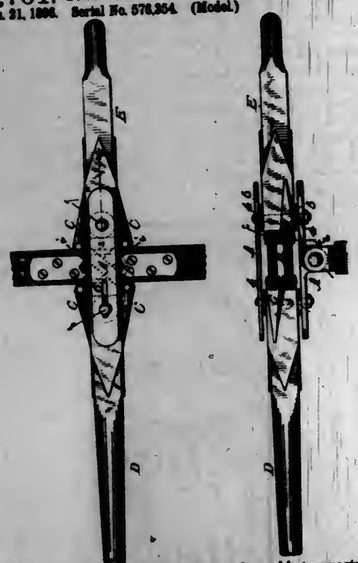
Claim.—1. In a vertical bolting-machine, the combination of a suitable casing, a series of superposed shelves having central openings, and secured within said casing, a series of revolving wheels located intermediate of each shelf, and each wheel having restricted peripheral passages for throwing the material received from one shelf against the bolting-cloth and having means on its under side for guiding the residue of material upon the next shelf below and suitable means for conducting away the separated material, substantially as shown and described.

2. In a vertical bolting-machine, the combination of a suitable casing, a series of superposed annular shelves secured therein, bolting-cloth inclosing said shelves, a series of revolving wheels located

intermediate of said shelves and each wheel having means for throwing the material received from one shelf against the bolting-cloth, consisting of a series of beaters located on the periphery of the wheels, cloths, each secured at one side to one of the beaters and having its free end bearing against the adjacent beater, and inclined conveyer-strips located on the under side of the wheels, for guiding the residue of material over the next shelf below upon the next wheel below, substantially as shown and described.

3. In a vertical bolting-machine, the combination of a suitable casing having a top and bottom piece, a series of superposed shelves having central openings located within the framework, bolting-cloth of one mesh surrounding a number of said shelves, and bolting-cloth of different mesh surrounding the remainder of said shelves, settling-chambers outside of said bolting-cloths, separated by suitable bottoms having separate outlets, a central shaft for said framework and having secured thereto, a number of wheels revolving intermediate of said shelves and having means in connection with each wheel for throwing the material against the bolting-cloth and conveying the residue over the next shelf to the next wheel below, conveyers located over the bottoms of the respective settling-chambers for conveying away the separated material, tubes leading from the tailings of each section and extending through the conveyers and bottoms, and bolts extending to and supporting each of said conveyers from the wheel next below, substantially as and for the purpose set forth.

594,761. BOAT-OAR. ORLANDO B. SHEDD, Dolgeville, N. Y. Filed Jan. 21, 1896. Serial No. 576,354. (Model.)



Claim.—The combination with an oar formed in two parts of caps fitted over the adjacent ends of said parts and provided on their opposite sides with perforated lugs or ears, diagonally-crossed links pivoted at their opposite ends to said lugs or ears, frusto-conical shaped bosses formed on the upper and lower sides of said caps, parallel plates bolted to the upper and lower sides of the caps and provided with conical recesses in which said bosses have bearing, and means for pivotally attaching the lowermost of said plates to the gunwale of a boat, substantially as described.

594,762. SHADE-ROLLER BRACKET. DALTON H. SHERWOOD, Headley's, Pa. Filed May 3, 1897. Serial No. 634,916. (No model.)



Claim.—In an adjustable shade-roller bracket, the combination of two adjustable sections, each of which has an angularly-disposed ear at its outer end to receive the opposite ends of a shade-roller, one section being formed with a slot which extends entirely therethrough and having the upper and lower walls thereof converged toward the outer surface to contract the slot at the front and enlarge it at the rear, the other section being formed with a tongue having corresponding beveled edges to movably fit in said slot and make a flush joint at the front and rear, openings being formed in the said parts through which the fastening devices are passed to secure the adjustment, and clips secured to the front of said tongue and having angularly-bent ends to engage the upper and lower edges of the slotted section, substantially as and for the purposes specified.

594,768. NON-REFILLABLE BOTTLE. EDWARD C. SMITH, Newburg, N. Y., assignor to Charles S. Brundage and George R. Mitchell, same place. Filed Mar. 31, 1897. Serial No. 630,068. (No model.)



Claim.—The herein-described non-refillable bottle having a neck at the upper end thereof with a circumferential groove in its outer surface, and the extreme end of said neck slightly contracted and formed with internal screw-threads, a cork fitting within the lower end of said neck, and a ball having suitable threads thereon which adapt it to be inserted through the contracted end of said neck, as and for the purpose set forth.

594,764. STEW-KETTLE AND JACKET. SARAH A. SMITH and ALEXANDER F. ASHBY, Coffeyville, Kans. Filed Feb. 27, 1897. Serial No. 625,362. (No model.)



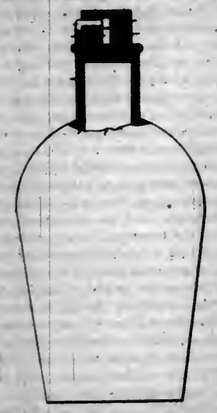
Claim.—In a culinary utensil, the combination of a supporting-jacket provided with equidistant inclines, each incline having notches along its surface, of a removable and adjustable vessel having equidistant laterally-projecting studs adapted to rest in said notches, said vessel converging downward from said jacket, by which construction, when the vessel is raised it is moved both away from the source of heat and from the supporting-jacket, substantially as described.

594,765. NON-REFILLABLE BOTTLE. JAMES M. TAYLOR, Yantis, Tex. Filed Mar. 10, 1897. Serial No. 626,235. (No model.)

Claim.—1. A vessel the mouth of which is provided with an overhanging fixed stud, a seal having a transverse aperture to receive the stud, and means carried by the seal for locking said seal to the stud.

2. A vessel the mouth of which is provided with an integral stud that projects upwardly and over the outlet thereof and is provided with a head, a seal having a transverse aperture to receive the head and the laterally-projecting portion of the stud, and having a vertical aperture intersecting the transverse aperture, and a spring-catch located in the vertical aperture and adapted to engage and lock the head of the seal.

3. A vessel the mouth of which is provided with a stud which projects over and above the outlet thereof, and a seal having a transverse aperture intersected by a vertical aperture, and a spring-catch located in the vertical aperture and adapted to clasp the stud and prevent the withdrawal of the seal, substantially as set forth.



594,766. WHEELBARROW. FREDERICK TAYLOR, Sidney, Ohio, assignor of one-half to the American Steel Scraper Co., same place. Filed June 9, 1897. Serial No. 640,087. (No model.)



Claim.—1. In a wheelbarrow, a tray stamped up from sheet metal and formed with integral outwardly-projecting stiffening-ribs in such manner as to leave the inner surface of the tray practically smooth.

2. In a wheelbarrow, hollow handles, each constructed of sheet-metal sections interlocked together on the inner side in such manner as to form longitudinal strengthening-ribs at the junction of said sections.

3. In a wheelbarrow, hollow handles, each constructed of sheet-metal sections interlocked together on the inner side in such manner as to form longitudinal strengthening-ribs at the junction of said sections, and provided with a longitudinal vertical brace.

4. In a wheelbarrow, legs and braces formed of sheet metal approximately U-shaped in cross-section and having beaded edges.

5. A wheelbarrow having hollow metal handles, with which the metal tray and legs are adapted to interlock, and provided with means for securing these parts in the interlocked condition.

6. In a wheelbarrow, hollow metal handles each having a rectangular depression in its upper side and a dowel extension on its lower side, a metal tray having dowel extensions adapted to fit in the depressions in the handles, metal legs having depressions in their upper surfaces adapted to receive the dowel extensions on the handles, and means for securing the tray, the handles, and the legs together.

7. In a wheelbarrow, the combination, with the metal tray and legs, of a transverse metal brace suitably secured at its ends to the legs, its middle portion being interlocked with and secured to the tray.

8. In a wheelbarrow, the combination, with the wheel and its axle, of hollow metal handles each having a transverse semicircular depression in its under surface, near the front end, a metal band encircling the front end of each handle and formed with a bead having openings in register with said depression in the handle, said depressions in the handles and the beads on the bands together forming journal-bearings for the wheel-axle, and suitable bushings for said bearings.

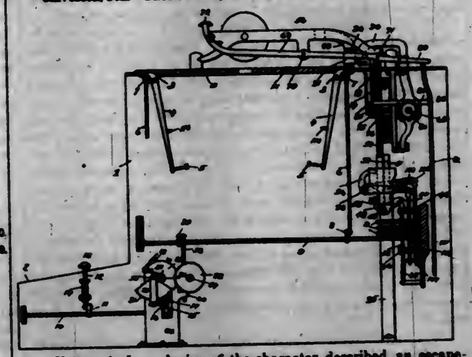
9. In a wheelbarrow, the combination, with the tray, handles having journal-bearings for the wheel-axle, and bushings in said bearings, the bushings being each formed with an annular groove, of braces for the front end of the tray, the lower ends of said braces resting in the grooves in the bushings, while their upper ends are interlocked with and bolted to the tray.

10. In a wheelbarrow, the combination, with hollow handles, of a hollow wheel-guard adapted to be detachably secured directly to the handles.

11. In a wheelbarrow, the combination, with hollow handles, of a hollow wheel-guard the ends of which are adapted to telescope in the ends of the handles.

12. In a wheelbarrow, the combination, with the hollow handles formed with depressions in their forward ends and the wheel, the axle of which is mounted in said depressions, of a hollow wheel-guard adapted to partially telescope in the ends of the handles, the ends of the wheel-guard passing inward beyond said depressions, whereby the handles are strengthened at the bearing-points of the wheel axle.

594,767. TYPE-WRITING MACHINE. ALLISON TEMPLETON, Galveston, Tex. Filed Nov. 27, 1896. Serial No. 613,505. (No model.)



Claim.—1. In a device of the character described, an escapement-pawl, an escapement-wheel engaged thereby, a shaft, a coil-spring connecting the escapement-wheel and shaft, a pinion mounted on the shaft, a pawl to engage the pinion, a pivoted segment having teeth to mesh with the teeth of the pinion, a gear-wheel suitably driven engaging teeth of the segment and means on the escapement-wheel for engaging the segment, as and for the purpose described.

2. In a device of the character described, an escapement-pawl, an escapement-wheel having projecting teeth engaging the pawl, a shaft a coil-spring connecting the escapement-wheel and shaft, a pinion mounted on the shaft, a pawl to engage the pinion, a pivoted segment having teeth to mesh with teeth of the pinion, a gear-wheel suitably driven and engaging teeth of the segment, a pin on the escapement-wheel, a rib on the segment to be engaged thereby to revolve the escapement-wheel and a sliding bar carrying a lug for engagement with the projecting teeth of the escapement-wheel, as and for the purpose described.

3. In a device of the character described, a frame, an escapement pawl pivoted therein, an escapement-wheel also journaled therein, teeth on the escapement-wheel engaging the escapement-pawl, a shaft journaled within the escapement-wheel, a coil-spring within the escapement-wheel connecting said wheel with the shaft, a pinion on the shaft, a pawl pivoted to the frame and adapted to engage the pinion to prevent it being turned by the spring, a segment pivoted to the frame and having teeth to engage the teeth of the pinion during part of its revolution, a suitably-driven gear-wheel having teeth to engage teeth of the segment during said part of its revolution, a pin projecting from the escapement-wheel, a rib on the segment to be engaged thereby to revolve the segment with the escapement-wheel and a slidable bar carrying a lug for engagement with the teeth of the escapement-wheel, substantially as described.

4. In an automatic type-writing machine, a suitable framework, a series of keys arranged therein, a series of rock-shafts to which said keys are connected, an escapement-pawl carried by each of said shafts, an escapement-wheel for each of said pawls and with which the latter operates, a spring arranged within the escapement-wheel, a spindle for winding said spring, means for automatically revolving said spindle from a source of power outside of the operator, and means for transmitting motion to the type-bars from the escapement-wheels, as specified.

5. In an automatic type-writing machine, a suitable frame, a series of keys arranged therein, a series of rock-shafts with which said keys are connected and adapted to oscillate, a series of escapement-pawls carried by said shafts, a series of escapement-wheels adapted to be controlled by said pawls, a series of springs arranged within the escapement-wheels for imparting motion thereto, a series of spin-

dles journaled concentric with the escapement-wheels, pinions carried by the spindles, segments having teeth adapted to intermittently mesh with the pinions, means for imparting motion to said segments, and means for transmitting motion from the escapement-wheel to the type-bars of the machine, substantially as and for the purpose set forth.

6. In an automatic type-writing machine, a suitable frame, a series of keys arranged therein, a series of rock-shafts with which said keys are connected and adapted to oscillate, a series of escapement-pawls carried by said shafts, a series of escapement-wheels adapted to be controlled by said pawls, a series of springs arranged within the escapement-wheels for imparting motion thereto, a series of spindles journaled concentric with the escapement-wheels, pinions carried by the spindles, segments having teeth adapted to intermittently mesh with the pinions, means for imparting motion to said segments, a second series of rock shafts each having a dependent bar adapted to be actuated by one of the escapement-wheels, radially-arranged type-bars, and means for transmitting motion from the last-named rock-shaft to said bars, substantially as and for the purpose set forth.

7. In an automatic type-writing machine, a suitable frame, an extension formed therewith, a series of keys arranged within said extension, a series of rock-shafts to which said keys are connected, a series of escapement-pawls carried by the shafts each of said pawls having a stationary and a pivoted tang, escapement-wheels having teeth projecting therefrom for engagement with said tangs, springs arranged within the wheels, spindles to which the inner ends of the springs are attached, pinions carried by the spindles, pawls for preventing a retrograde movement of the spindles, segments having teeth thereon adapted to engage with the pinions, a series of constantly-revolving gear-wheels, teeth formed upon the segments for engagement with said gear-wheels for winding the springs, a series of bars adapted to be drawn downward by the teeth of the escapement-wheels, a second series of rock-shafts to which said bars are attached, a series of type-bars connected by rods to the last-named shafts, and means controlled by said shafts for bringing about the movements of the carriage, substantially as and for the purpose set forth.

8. In an automatic type-writing machine, a frame, an extension formed therewith, a series of keys fitted therein, springs for holding said keys in their normally-elevated position, a series of rock-shafts having arms projecting therefrom with which the shanks of the keys connect, a series of escapement-pawls carried by the shafts each of said pawls having a stationary and a pivoted tang, a series of escapement-wheels having teeth projecting from their peripheries adapted to engage with the tangs of the pawls, a circumferential bearing for each of the wheels, springs arranged within said wheels, spindles passed through the wheels, pinions secured to the spindles, pawls for preventing a retrograde movement of the spindles, each of said spindles having one end of a spring attached thereto, segments having gear-teeth adapted to mesh with the pinions, a series of constantly-revolving gear-wheels receiving their motion from a suitable source of power outside of the operator, teeth formed upon the segments for engagement with these gear-wheels, means for automatically bringing about the engagement of the segments with the gear-wheels, dependent bars adapted to be operated by the teeth of the escapement-wheels, arms to which said bars are attached, rock-shafts 9 to which said arms are secured, arms 8 also projecting from said rock-shafts, rods 6 attached to the last-named arms, and type-bars to which the upper ends of said rods are attached, substantially as and for the purpose set forth.

9. In combination with the key mechanism of an automatic type-writing machine, a series of rock-shafts 9 actuated by said mechanism, a series of yokes embracing said shafts, a series of projections carried by the shafts and adapted to operate the yokes, a cross-bar arranged immediately above the yokes, a shaft 49 to which said bar is attached, an escapement-pawl carried by said shaft, said pawl having a stationary and a pivoted tang, an escapement-wheel with which said pawl engages, a spring arranged to move the wheel in one direction, a spindle and pinion adapted to wind the spring from the opposite end, a segment having teeth which intermittently enter into engagement with the pinion, a gear 63 with which certain teeth of the segment mesh, means for constantly revolving said gear, and a rack-bar carried by the carriage of the machine meshing with the escapement-wheel, substantially as and for the purpose set forth.

10. In an automatic type-writing machine, the combination of a carriage, a stationary and a movable rack-bar carried by said carriage, an escapement-wheel meshing with the movable rack-bar, means for actuating said escapement-wheel, a train of gears meshing with the stationary rack-bar, means for revolving said gears by power outside of the operator, and a key mechanism for controlling the revolving of these gears and also disengaging the movable rack-bar from the escapement-wheel when said gears are revolved, substantially as and for the purpose set forth.

11. The herein-described combination of a frame, a carriage adapted to move thereon, a rigid and a movable rack-bar supported by said carriage, a train of gears meshing with the rigid rack-bar, a constantly-revolving shaft upon which the primary member of the train of gears is loosely mounted, a clutch splined upon said shaft, a spring for moving said clutch into engagement with the primary gear of the train, a lever for holding said clutch out of such engagement, a rod for elevating said lever, an extension for controlling the movement of the movable rack-bar, said extension resting upon the upper end of the rod, and an escapement-wheel meshing with the movable rack-bar, substantially as and for the purpose set forth.

12. In combination with the carriage of a type-writing machine of the character described, a rigid and a movable rack-bar carried thereby, an escapement-wheel meshing with the movable bar, a spring for actuating said escapement-wheel, a spindle to which the inner end of the spring is attached, a pinion carried by said spindle for revolving the same, a segment having teeth adapted to mesh with said pinion, a constantly-revolving, gear-wheel with which other teeth upon the segment are adapted to mesh, an escapement-pawl for controlling the movements of the escapement-wheel, a train of gears meshing with the rigid rack-bar, a constantly-revolving shaft upon which the primary member of said train is loosely drawn, teeth formed upon said primary member, a clutch splined to the constantly-revolving shaft, a clutch-lever for controlling the clutch, a spring for moving said lever in one direction, a lever for engagement with a groove formed in said clutch, a vertically-movable rod attached to the last-named lever, an extension attached to the movable rack-bar, and means for elevating said extension in unison with the operation of the last-named lever, substantially as and for the purpose set forth.

13. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated, a carriage carrying a rack-bar, an escapement-wheel meshing with said rack-bar, an escapement-pawl for controlling the movements of said wheel, a series of yokes for operating said pawl, said yokes being under the control of the key mechanism, substantially as shown and described.

14. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated, a series of rock-shafts 9 actuated by said mechanism, a series of yokes embracing said shafts, a series of projections carried by the shafts and adapted to operate the yokes, a cross-bar arranged immediately above the yokes, a shaft 49 to which said bar is attached, an escapement-pawl carried by said shaft, said pawl having a stationary and a pivoted tang, an escapement-wheel with which said pawl engages, a spring arranged to move the wheel in one direction, a spindle and pinion adapted to wind the spring from the opposite end, a segment having teeth which intermittently enter into engagement with the pinion, a gear 63 with which certain teeth of the segment mesh, means for constantly revolving said gear, and a rack-bar carried by the carriage of the machine meshing with the escapement-wheel, substantially as and for the purpose set forth.

15. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated in combination with a carriage, a stationary and a movable rack-bar carried by said carriage, an escapement-wheel meshing with the movable rack-bar, means for actuating said escapement-wheel, a train of gears meshing with the stationary rack-bar, means for revolving said gears by power outside of the operator, and a key mechanism for controlling the revolving of these gears and also disengaging the movable rack-bar from the escapement-wheel when said gears are revolved, substantially as and for the purpose set forth.

16. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated, a frame, a carriage adapted to move thereon, a rigid and a movable rack-bar supported by said carriage, a train of gears meshing with the rigid rack bar, a constantly-revolving shaft upon which the primary member of the train of gears is loosely mounted, a clutch splined upon said shaft, a spring for moving said clutch into engagement with the primary gear of the train, a lever for holding said clutch out of such engagement, a rod for elevating said lever, an extension for controlling the movement of the movable rack-bar, said extension resting upon the upper end of the rod, and an escapement-wheel meshing with the movable rack-bar, substantially as and for the purpose set forth.

17. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated, a rigid and a movable rack-bar carried thereby, an escapement-wheel meshing with the movable bar, a spring for actuating said escapement-wheel, a spindle to which the inner end of the spring is attached, a pinion carried by said spindle for revolving the same, a segment having teeth adapted to mesh with said pinion, a constantly-revolving gear-wheel with which other teeth upon the segment are adapted to mesh, an escapement-pawl for controlling the movements of the escapement-wheel, a train of gears meshing with the rigid rack-bar, a constantly-revolving shaft upon which the primary member of said train is loosely drawn, teeth formed upon said primary member, a clutch splined to the constantly-revolving shaft, a clutch-lever for controlling the clutch, a spring for moving said lever in one direction, a lever for engagement with a groove formed in said clutch, a vertically-movable rod attached to the last-named lever, an extension attached to the movable rack-bar, and means for elevating said extension in unison with the operation of the last-named lever, substantially as and for the purpose set forth.

594,768. VEHICLE. NELSON J. TUBBS, Knoxville, Tenn. Filed Dec. 14, 1896. Serial No. 615,580. (No model.)

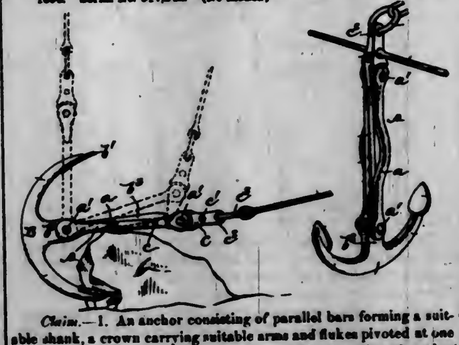


Claim.—1. In a vehicle, the combination of four small wheels arranged in pairs on proper axles, and adapted to sustain the load borne by said vehicle; each of said small wheels being further adapted to rotate upon the inner periphery of larger wheels upon the rotation of said larger wheels, means for supporting the forward pair of large wheels, which consists of a frame attached to the axle of the front pair of small wheels, and provided with two vertically-extended yokes, in which the axles of the larger wheels are journaled, means for supporting the axles of the rear pair of large wheels, means for securing the small wheels in operative relation to the large wheels, and means for adjustably connecting the rear set of wheels with the forward set, substantially as and for the purpose specified.

2. In a vehicle, the combination of a forward truck carrying two small wheels, connected by an axle of the ordinary form and construction, and adapted to rotate upon the inner periphery of corresponding larger wheels attached to short axles mounted upon the truck-frame; means for securing said truck-frame to the axle of said smaller wheels, a fifth-wheel suitably attached to the axle of said smaller wheels and to the truck-frame, and loosely mounted within jaws in the forward end of a reach-pole, and hinged hounds for connecting the fifth-wheel with the truck-frame, a rear truck-frame consisting of two small wheels, connected by an axle of the ordinary form and construction, adapted to rotate upon the inner periphery of two larger wheels attached to short axles, a truck-frame consisting of two vertically-extended yokes, in which are journaled the short axles, two braces extending from the forward ends of the yokes and attached to a sleeve loosely mounted on the reach-pole, two similar braces extending from the rear ends of the yokes and also attached to a sleeve that is loosely mounted on the reach-pole, two collars mounted on the reach-pole and provided with set-screws, one collar arranged in advance of the rear truck-frame and the other in rear of the same whereby the rear truck-frame may be adjusted on the reach-pole and held in its adjusted position, means for securing said truck-frame to the axle of said smaller wheels, which consists of two hinged hounds that are attached to the front braces and to the said axle, substantially as and for the purpose specified.

3. In a vehicle, the combination of a front truck, consisting of two small wheels axled together in the usual manner, two larger wheels, upon the inner periphery of which said small wheels are adapted to rotate, a fifth-wheel secured to the axle of said small wheels, and a truck-frame mounted upon said fifth-wheel and upon hounds projecting from, and secured to, the axle of said small wheels, said large wheels being mounted upon short axles supported by said truck-frame, with a rear truck-frame consisting of two small wheels axled together in the usual manner, two larger wheels, upon the inner periphery of which the said small wheels are adapted to rotate, a truck frame, supporting short axles upon which are mounted said last-mentioned larger wheels, which is secured to the axle of said last-mentioned small wheels, by means of hinged hounds projecting from said axle and to the coupling-pole, which couples said front and rear trucks together by means of sleeves through which said coupling-pole is projected, and adjustable collars on said coupling-pole adapted to engage against the sleeves on said truck-frame and to prevent same from moving forward and backward on said coupling-pole, suitable means for securing said coupling-pole to the front truck of the vehicle, and means for retaining said small wheels in operative position upon the inner periphery of the larger wheels, substantially as described.

594,769. ANCHOR. HEZEKIAH F. WARD, Churchton, Md., assignor of one-half to Emile A. Hartge, Galloway, Md. Filed Dec. 28, 1896. Serial No. 617,242. (No model.)



Claim.—1. An anchor consisting of parallel bars forming a suitable shank, a crown carrying suitable arms and flukes pivoted at one end of said shank, and a head carrying a stock pivoted at the other end of said shank, and engaging means upon the said crown and head for controlling the action of the anchor, substantially as described.

2. An anchor consisting of a suitable shank, a crown having suitable arms and flukes, pivoted at one end of the shank, a head carrying a suitable stock pivoted at the other end of said shank, and engaging means upon the said crown and head for controlling the action of the anchor, substantially as described.

3. An anchor consisting of a shank made of two parallel parts suitably secured together, and a head and a crown pivoted between the said parts of the shank, and engaging means upon the said crown and head for controlling the movement of said crown, substantially as described.

4. An anchor consisting of a suitable shank, a head pivoted at one end of said shank, and a crown pivoted at the other end thereof, an auxiliary shank upon said crown, and means upon the said head for engaging said auxiliary shank, whereby the crown is held from rotation upon its pivot, substantially as described.

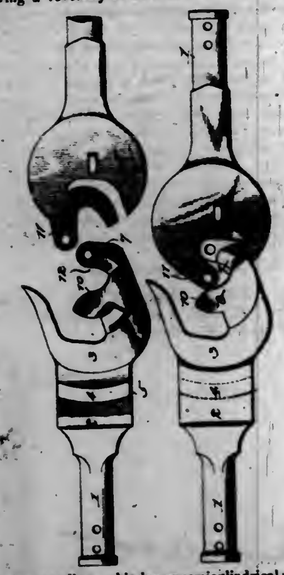
5. An anchor consisting of a suitable shank, a head pivoted at one end of said shank and a crown pivoted at the other end thereof, an auxiliary shank upon said crown and an extension upon said head for engaging said auxiliary shank and preventing the rotation of the said crown, substantially as described.

6. An anchor consisting of a shank made of two parts, bowed or bent out about centrally of their length, and thereby forming an enlarged space between them, a crown carrying arms and flukes pivoted between said parts of the shank, and the enlarged space providing for the free passage of the said flukes, a head carrying a suitable stock, also pivoted between the parts of said shank, and means whereby the flukes may be held in a fixed position or released therefrom, and engaging means upon the crown and head for preventing the crown from making a revolution when engaging the bottom, to anchor a vessel, substantially as described.

594,770. CAR-COUPLING. MICHAEL L. WELSH, Carlisle, Ga., assignor to Samuel T. Burnett, Atlanta, Ga. Filed May 19, 1897. Serial No. 637,376. (No model.)

Claim.—1. In a car-coupler, a stem portion provided with a horizontal T-slot and having a longitudinal bore for the reception of the draft-rod, and an enlargement in the neck of the T-slot for the passage of the head of a draft-rod into the T-slot, substantially as described.

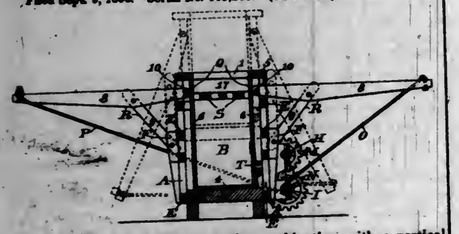
2. A car-coupling provided with a ship-lap or semicylindrical member having a reversely-curved contact-surface, substantially as described.



3. In a car-coupling, a ship-lap or semicylindrical member adapted to oscillate on a vertical center and provided with a reversely-curved contact-face adapted to meet a corresponding face on the opposite member, substantially as described.

4. In a car-coupling, a ship-lap or semicylindrical section having a vertical concaved contact-surface on the inner half of its front face and a vertical, convex, contact-surface on the other half of said face, substantially as described.

594,771. BALING-PRESS. ARNOLD ALNY, Middleburg, N. Y. Filed Sept. 9, 1896. Serial No. 605,268. (No model.)

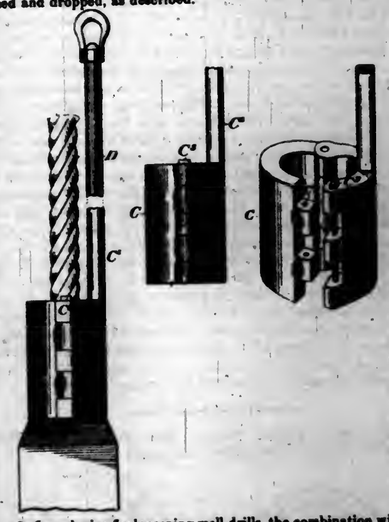


Claim.—1. In a baling-press, the combination, with a vertical press-frame provided with an open top and with guides at its opposite ends, and having doors at the front and rear, of a baling-chamber open at top and front and rear, but closed at its bottom, fitted to slide telescopically in the press-frame and having guides that slide in the guides of the press-frame; said baling-chamber being formed to leave openings between its front and rear and the corresponding parts of the press-frame, as and for the purpose specified.

2. In a baling-press, the combination, with a press-frame, A, having an open top and provided with guides, C, and doors, B, of a baling-chamber, Q, arranged to slide telescopically in said press-frame and having a constantly-open top for the reception of material to be compressed, and a flange, 5, which surrounds the upper end of said baling-chamber and which, when said baling chamber is depressed, will bear upon the top of said press-frame; said baling-chamber being arranged to form openings, 7, between the front and rear of the baling-chamber and corresponding parts of the press-frame, and toggle-joints, R, having one lever jointed to the press-frame A and the other to the baling-chamber Q, as specified.

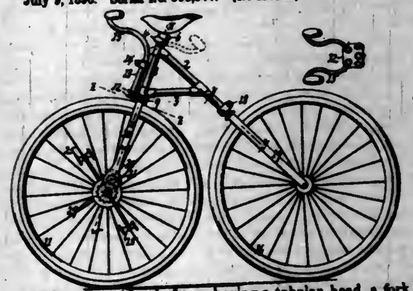
594,772. DEVICE FOR LOOSENING WELL-DRILLS. FREDERICK AUSTIN, Centre Point, Iowa. Filed Aug. 21, 1896. Serial No. 603,532. (No model.)

Claim.—1. The herein-described apparatus for loosening well-drills, consisting of the drill-rope and means for drawing the same taut, a head encircling said rope and adapted to strike the upper end of the drill when dropped, and upwardly-extending sections of rod or tubing connecting with said head, whereby the same may be raised and dropped, as described.



2. In a device for loosening well-drills, the combination with the main drill-rope and means for drawing the same taut, of a separable head adapted to encircle the drill-rope when closed, suitable fastenings for the halves thereof, and one or more upwardly-extending sections of rod or tubing connected to one of the halves of said head, whereby the head may be lifted and dropped, substantially as set forth.

594,773. BICYCLE. RUDOLPH F. BARTEL, Bayonne, N. J. Filed July 9, 1896. Serial No. 598,577. (No model.)



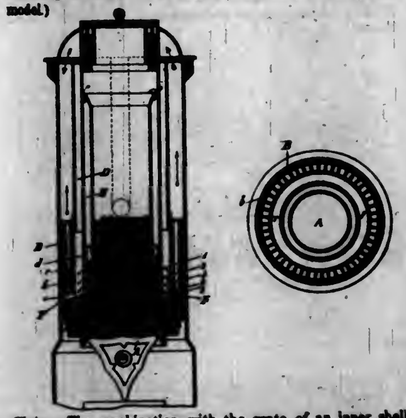
Claim.—1. A bicycle-frame having a tubular head, a fork having a tubular stem which enters the lower end of the tubular head, a saddle-post which enters the upper end of the said head and passes downward into the tubular stem of the fork, said tubular head having at its upper end a clamp or collar for detachably fixing or securing the saddle-post and said saddle-post being made to extend or sit loosely in the tubular fork-stem so as to be movable or adjustable on the loosening of the clamp and to leave the tubular head and fork-stem undisturbed relatively to one another as the post is adjusted, substantially as set forth.

2. In a bicycle, the combination with a tubular frame-head or head-sleeve of a fork having a tubular stem entering the lower end of the frame-head, a saddle-post entering the upper end of the latter and passing down into the tubular stem, steering-handles having arms curved toward and then into substantial parallelism with the frame-head and lugs or plates rigidly mounted on the fork and provided with rigid tubes extending upward in substantial parallelism with the frame-head, in front and on opposite sides of which said tubes are arranged, the parallel parts of the arms on the steering-handles being inserted in said tubes and fastened by clamps, substantially as described.

3. A driving or rotary axle, a fixed sleeve through which said

axle extends, a rotary hub made to surround the sleeve and connected or geared to the axle, and supporting collars for the sleeve, each collar having race-sections for interposed balls between the collar and hub and between the collar and axle, and one of the collars being screw-threaded or adjustable so as to also serve for tightening or loosening ball-races, said adjustable collar having a flange made to extend beyond the hub whereby the collar may be readily adjusted, and a jam or lock nut upon the exterior of said collar, substantially as described.

594,774. STOVE OR OTHER FURNACE. FRANZ C. BORMANN, Hamburg, Germany. Filed Aug. 1, 1896. Serial No. 601,360. (No model.)



Claim.—The combination, with the grate, of an inner shell, a second shell forming with the first the passage E leading to the fuel-space, communicating at its upper end with the interior of the inner shell, and having near its lower end air-passages to the fuel-space, third and fourth shells C, B, having ribs *c*, *b*, forming a final combustion-chamber, communicating at its lower end with the lower part of the fuel-space, means for supplying fresh air to the space without the second shell, and air-orifices for supplying fresh air to said final combustion-chamber.

594,775. PIPE-WRENCH. JOSEPH BROWNING, Philadelphia, Pa. Filed Jan. 11, 1897. Serial No. 618,690. (No model.)



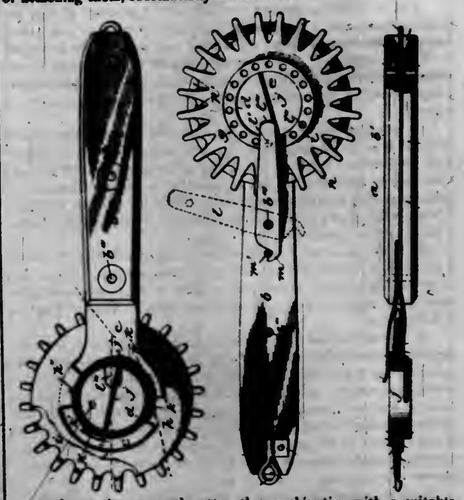
Claim.—A pipe-wrench having a movable gripping-wheel composed of parts having their peripheries provided with oppositely-directed diagonal grooves.

594,776. BAND-CUTTER. DELLA R. BURNHAM, Pullman, Wash. Filed Mar. 1, 1897. Serial No. 625,648. (No model.)

Claim.—1. In a band or twine cutter, a circular knife provided with a central opening and mounted upon a head having a handle, in combination with a circular guard-plate provided with radial fingers projecting beyond the edge of the knife, a locking-ring adapted to pass through the knife, guard-plate and head, and a latch to prevent the ring from turning in its place, substantially as described.

2. In a band or twine cutter, the combination with a suitable handle provided with a head having a central opening, a locking-ring adapted to fit within the opening, a circular knife encircling the locking-ring, a circular guard-plate revolubly mounted on the locking-ring and provided with radial fingers projecting beyond the edge of the knife, and having a cavity in its side for the reception of the knife so that it will lie flush with or below the sides of the fingers, and means for locking the ring on the head, substantially as described.

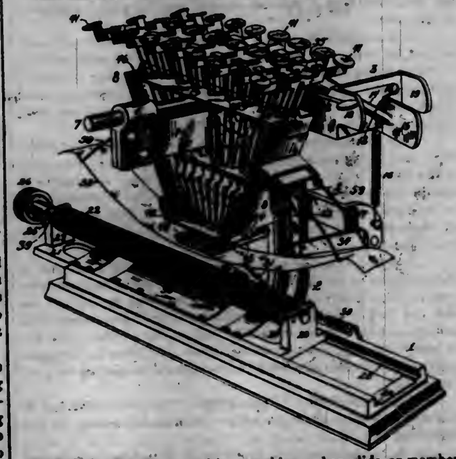
3. In a band or twine cutter, the combination with a suitable handle provided with a head having a circular opening therein, a circular flanged locking-ring fitting within the opening and a circular knife and guard-plate mounted on the ring, outwardly-projecting lugs on the ring, inclined surfaces on the head, the latter being provided with openings at the ends for the reception of the lugs, a locking-latch extending from the handle to the ring to lock it in position whereby, when the latch is released, the ring can be turned to lock or unlock the knife and its guard-plate for the purpose of detaching or attaching them, substantially as described.



4. In a twine or cord cutter, the combination with a suitable handle provided with a head having a circular opening therein, a locking-ring provided with a flange located within the opening, a circular knife surrounding the flange, a guard-plate between the ring and the head, and means for retaining the ring in locked position, substantially as described.

5. In a band or cord cutter, a circular knife provided with a revoluble guard-plate having radial fingers projecting beyond the edge of the knife, in combination with a handle provided with a head on which the knife and guard-plate are mounted, a flanged locking-ring arranged to lock said plate and knife on the head, and a latch for holding the ring in locked position, substantially as described.

594,777. TYPE-WRITING MACHINE. LEE S. BURRIDGE, New York, N. Y., assignor to the Century Machine Company, same place. Filed Mar. 10, 1897. Serial No. 626,672. (No model.)



Claim.—1. In a type-writing machine, a bar, slide or member carrying upon one part a plurality of printing characters, and upon another part a plurality of finger keys or buttons, said buttons being arranged to effect the necessary movements of the bar or member to determine which character shall print, and also to move such character to the printing-point in accordance with the button pressed.

2. In a type-writing machine, the combination of a bar, slide or member having a plurality of type or printing-characters rigidly

affixed thereto, and having also a plurality of finger keys or buttons; a paper-support; and a guide to direct one or another type or character to the printing-point on the paper according as one or another of the finger keys or buttons of the bar is pressed.

3. A bar, slide or member provided with a plurality of type or printing-characters, a plurality of finger keys or buttons, and a plurality of guideways or slots; and a fixed rod, bar or guide arranged in the path of the bar or member and adapted to occupy one or another of the slots or guideways as the bar is oscillated and moved longitudinally by pressure upon one or another of its finger keys or buttons.

4. In a type-writer, a bar, slide or member provided with a plurality of type or printing-characters and with a plurality of finger keys or buttons; a rod or pivot upon or about which said bar or slide may be oscillated by one or more of its finger-buttons; and guides arranged to maintain the bar or slide in the position to which it is so oscillated and to cause its longitudinal movement to take place without further oscillation.

5. In a type-writer, a series of bars or slides each provided with a plurality of type at one end and a plurality of finger-keys at the other end, said bars or slides being adapted to move both longitudinally and laterally to bring one or another type or character to the printing-point.

6. In combination with a platen or paper-support, a printing mechanism comprising a series of bars or slides each provided with a plurality of finger keys or buttons and with a plurality of types or printing-characters; guides for determining the direction of movement of each bar in accordance with the key or button pressed, the printing mechanism and the platen being also capable of movement one in relation to the other at right angles to the line of printing; whereby a small number of slides or bars is enabled to print a large number of characters.

7. In a type-writing machine, the combination of a platen; a printing mechanism consisting of a series of bars or slides each capable of longitudinal and lateral movement and each provided with a plurality of finger keys or buttons and a plurality of type or printing-characters; and means for moving the printing mechanism at right angles to the axis of the platen or to the printing-line.

8. In a type-writing machine, the combination of a paper-support; a frame; a series of bars or slides mounted in said frame and each provided with a plurality of type or printing-characters arranged in groups and with a plurality of finger keys or buttons; means for causing one or another of said groups of characters to stand opposite the paper-support; and guides, controlled by the finger keys or buttons to control the direction of movement of the slides or bars, and thereby to determine which character of the group shall print.

9. In combination with a bar or slide provided with a plurality of type at its end and adapted to slide longitudinally to and from the printing-point; a platen; and means for shifting the parts to cause one or another type of said bar or slide to strike the printing-point on the platen.

10. In combination with a paper-carriage and with pawl-and-ratchet mechanism for moving the same forward for letter-spacing; a jointed frame arranged to act upon the pawl-carrying devices to move the same; and a series of sliding type bars or members provided with finger keys or buttons, and arranged to bear upon a bar of the jointed frame whenever depressed

11. In combination with a paper-carriage and platen and with a frame carrying printing mechanism and bodily movable transversely to the platen; a universal space bar or rod pivotally attached to its support and adapted to move with the frame; and a series of bars or slides provided with finger keys or buttons and with printing type or characters, each slide adapted to bear upon and to actuate the space-bar.

12. In a type-writing machine, the combination of a main bar or slide provided with a plurality of type and with one or more directly-attached finger keys or buttons adapted to swing or oscillate the slide and then to move it longitudinally; and a supplemental slide having ears to engage the main slide; and provided with a finger key or button, whereby the supplemental slide is adapted to be independently guided and thus prevented from swinging or oscillating the main bar or slide.

13. In combination with guide-rods 50 and 54, slotted bar 40 provided with type 43, finger keys or buttons 41, opening 51, and tongues 52 and 53.

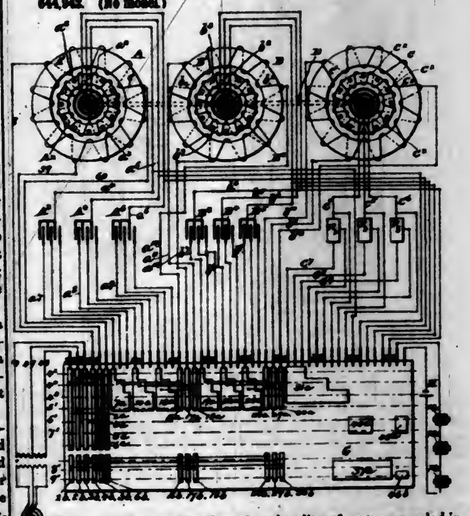
14. In combination with guide-rod 50, slotted bar 40 provided with a plurality of type or printing-characters and with a plurality of finger keys or buttons; and guides for maintaining the direction of movement of the slide or bar determined by the button pressed.

594,778. SHOVEL. EDWARD CHARLES, Norristown, Pa. Filed Jan. 25, 1897. Serial No. 620,646. (No model.)

Claim.—In a shovel, a bowl formed of a single piece of sheet metal, a handle also of sheet metal formed with the bowl, the sides of the shovel being turned up and over forming flanges overhanging the bowl, said upturned sides meeting along the handle and forming a rounded grip, substantially as described.



594,779. REGULATING ELECTRIC MOTORS. ALBERT G. DAVIS, Washington, D. C. Original application filed Nov. 17, 1896, Serial No. 612,493. Divided and this application filed July 17, 1897. Serial No. 644,942. (No model.)



Claim.—1. The combination of a plurality of motors coupled in tandem, with phase-advancing devices adapted to neutralize, in whole or in part, the self induction of the intermediate circuits, substantially as described.

2. The combination of two alternating-current motors with an intermediate circuit leading from the secondary of one motor to the primary of the next, and a condenser so connected as to regulate the phase relation between the current in the external circuit and the current in the intermediate circuit, substantially as described.

3. The combination with two alternating-current motors connected in tandem, of a condenser in each lead of the intermediate circuit.

4. The combination with two alternating-current motors connected in tandem, of an adjustable condenser in each lead of the intermediate circuit.

5. The combination with a plurality of alternating-current motors, of condensers, and a switch so adjusted and connected as to connect the motors in tandem, with the condensers in the intermediate circuits, vary the capacity of the condensers, and finally connect the motors in multiple.

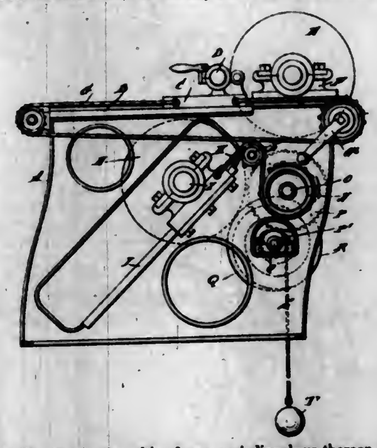
6. The combination with a plurality of alternating motors, of condensers, means for connecting said motors in tandem and in multiple, and means for inserting the condensers in the intermediate circuits when the motors are connected in tandem.

7. The combination with a plurality of alternating motors, of condensers, means for connecting said motors in tandem and in multiple, means for inserting the condensers in the intermediate circuits when the motors are connected in tandem, and means for varying the resistance of the induced members of the motors.

8. The combination with a plurality of alternating motors, of condensers, means for connecting said motors in tandem and in multiple, means for inserting the condensers in the intermediate circuits when the motors are connected in tandem, and means for reducing the resistance of the induced member of the first motor while in the multiple position below what it was while in the tandem position.

594,780. PAPER-WINDING MACHINE. WILLIAM H. DOREN, Rumford Falls, Me. Filed Feb. 27, 1897. Serial No. 626,311. (No model.)

Claim.—1. A paper-winding machine, comprising a shaft on which the paper is wound, sliding bearings for the said shaft, a supporting-drum adapted to support the paper on the said shaft and journaled in bearings fitted to slide at an angle to the line of movement of the said shaft-bearings, and a compensating counterweight device for the said drum, substantially as shown and described.



2. The combination with a frame, a winding-drum thereon, bearings slidable horizontally on the frame and adapted to carry the shaft of a paper-roll so that the bearings will be moved by the action of the winding-drum against the paper, a supporting-drum located below the bearings, bearings for the supporting-drum, the supporting-drum bearings being movable in a line inclined toward the direction in which the bearings of the paper-roll move during the winding of the paper, and a counterweight device for the supporting-drum.

3. The combination with a frame, of bearings movable thereon, and capable of carrying the shaft of a paper-roll, additional bearings carried by the frame and movable at an angle to the line of movement of the first-named bearings, a supporting-drum carried by the second-named bearings, and a compensating device for the supporting-drum.

4. The combination of bearings capable of carrying a paper-roll and movable to suit the growth of the roll, and a supporting-drum movable in a line diagonal to the line of movement of the said bearings and diverging from the said line of movement of the bearings, the diversion being in the direction of the movement of the bearings as the roll of paper increases.

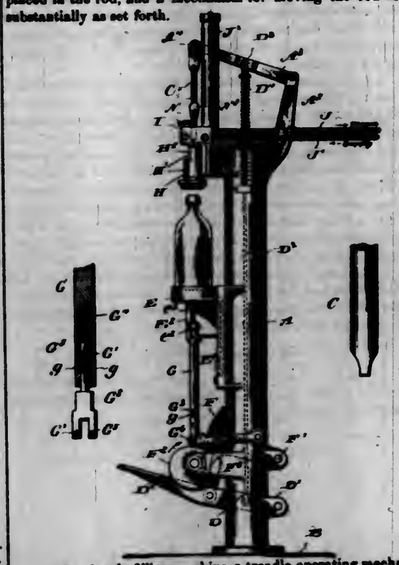
5. The combination of means for carrying a roll of paper, such means being movable to suit changes in the size of the roll of paper, and means for bearing against the roll of paper, such latter means being movable in a line diverging from the line of movement of the first-named means whereby the means for bearing against the roll of paper may move diagonally toward and from the means for carrying the paper.

594,781. BOTTLE-FILLING MACHINE. CHARLES S. DOLLEY, JOHN G. RENFREW, and JAMES HUEY, Philadelphia, Pa., assignors to the Universal Feed and Liquid Improving Company, same place. Filed Apr. 3, 1897. Serial No. 630,613. (No model.)

Claim.—1. In a bottle-filling machine, an upright, a treadle pivoted thereon, a toothed segment also pivoted upon the standard and connected to the treadle, a pinion with which the segment engages, and a cam, the pinion and the cam being connected so as to rotate together; combined with a pivoted arm, and a rod for moving the bottle-support vertically, substantially as shown.

2. In a bottle-filling machine, an upright, a treadle pivoted thereon, a toothed segment also pivoted upon the standard and connected to the treadle, a pinion with which the segment engages, a cam secured to the pinion so as to revolve therewith, and a rod for moving the bottle-support vertically, combined with a spring-actuated rod connected to the treadle, a pivoted lever A^3, and a plunger pivoted to the free end of the lever A^3 for driving the cork at the same time that the bottle is forced upwardly, substantially as described.

3. A vertically-moving bottle-support provided with a vertical slot, the rod G having its upper end loosely fastened in the slot of the bottle-support and which rod has a recess formed in its lower end and lateral openings through its sides, combined with the member G^2 provided with the thimble G', provided with lateral lugs g which extend outwardly through the lateral openings in the rod, a spring placed in the rod, and a mechanism for moving the rod vertically, substantially as set forth.



4. In a bottle-filling machine, a treadle-operating mechanism, an operating-rod connected thereto, the lever A^3 pivoted to the top of the upright or frame, a spring placed upon the rod, the link A^4 and the plunger C, combined with a pivoted lever N which is adapted to be moved into contact with the plunger, substantially as specified.

5. In a bottle-filling machine of the character described, the combination with the cork-seating plunger, of a pivoted lever, adapted to limit the downward movement of said plunger, substantially as described and for the purpose specified

6. The combination with the upright A, the vertically-movable bottle-support, the segment-gear F, the cam F^2, the pinion F^4 upon the cam-shaft, and a link connecting the segment-gear with the pedal, the rod G carrying at its lower end a friction-wheel, adapted to travel upon the periphery of the cam, substantially as described and for the purpose specified.

594,782. BABY-CARRIAGE. VICTOR ERICSSON, New York, N. Y. Filed Feb. 3, 1897. Serial No. 621,813. (No model.)



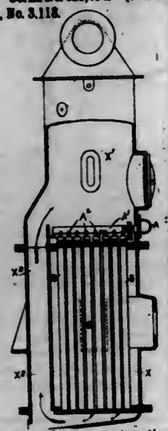
Claim.—1. In a combined baby carriage and chair, the combination with the body of the carriage having a hinged forward platform extension, of a tray located under the said extension and having a sliding engagement therewith, substantially as set forth

2. In a combined baby carriage and chair, the combination with the body portion having a hinged platform extension, the side pieces of the body and the extension being provided with grooves, of a tray having side flanges or rims engaged in said grooves, whereby a lock-joint is formed between the extension and the body portion when the device is used as a carriage, substantially as set forth.

3. The combination with the body portion of a carriage, of a combined seat and pillow hinged at the back of the body portion above its bottom, and provided at its forward edge with spring-arms having detents to engage the platform or floor of the body portion, substantially as set forth.

4. The combination with the axles and their supporting-wheels, of two sets of side-bars, one set being secured to the rear axle and extending forwardly, upwardly and thence rearwardly to form spring-arms, and the other set secured to the forward axles and extending upwardly, rearwardly and thence upwardly and connected by a handle, said side-bars being connected by pivoted bolts at the points where they cross each other, a carriage-body supported by the aforesaid spring-arms, counterbalancing coiled springs connecting the rear end of the carriage-body to the side-bars which carry the handle, hinge-arms secured to the last-mentioned side-bars, springs for forcing said hinge-arms rearwardly, detents secured to the said spring-arms and adapted to engage stops or staples secured to the rear axle, and a rod connecting the said hinge-arms, whereby either set of detents may be thrown into engagement with the stops or staples secured to the rear axle, substantially as set forth.

594,788. VACUUM-PAN. JAMES FOSTER, Glasgow, Scotland. Filed Mar. 2, 1897. Serial No. 625,754. (No model.) Patented in England Feb. 13, 1896, No. 3,113.



Claim.—1. In evaporating apparatus, the combination of outer and inner tubes, with an annular trough for feeding the liquid between the two tubes, the inner tube carrying shields *b'*, extending nearly to the outer tube, so as to direct the liquid from the outer surface of the central tube onto the inner surface of the outer tube, the said inner tube being also provided with openings below the shields to provide for the escape of vapor, substantially as set forth.

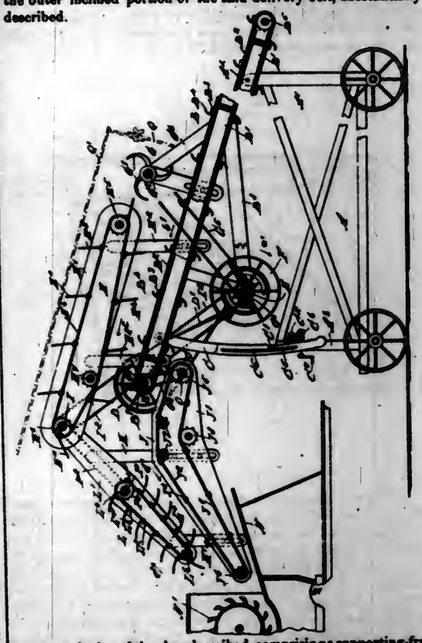
2. In evaporating apparatus, the combination comprising outer and inner tubes, and an annular trough fitted at the upper end of said tubes for receiving and directing the flow of the liquid between the tubes and providing for the escape of vapor, and means for redirecting the liquid onto the inner surface of the outer tube, substantially as set forth.

3. In evaporating apparatus, the combination of two rows of vertical duplex evaporating tubes, annular troughs fitted at the upper end of the duplex tubes for receiving and directing the flow of liquid, with a horizontal feeding-pipe provided with branches on each side thereof, leading to the said annular troughs, substantially as set forth.

594,784. BAND-CUTTER AND SELF-FEEDER. HENRY J. FOURNIER, Hazelton, Iowa. Filed Feb. 24, 1897. Serial No. 624,752. (No model.)

Claim.—1. A device of the class described, comprising a conveyer-belt, a cutter above the conveyer-belt, a spreader-belt in front of the cutter and projecting over and beyond the inner end of the conveyer-belt, said spreader-belt running at a higer rate of speed than the conveyer-belt, a delivery-belt projecting under the conveyer-belt and receiving the grain therefrom, and a feeder-belt over the delivery-belt, substantially as described.

2. A device of the class described, comprising a conveyer-belt, a cutter above the conveyer-belt, a spreader-belt in front of the cutter and projecting over and beyond the inner end of the conveyer-belt, said spreader-belt running at a higher rate of speed than the said conveyer-belt, a delivery-belt inclined in both directions from a point at one side of the center, one of the ends of the said belt extending under the conveyer-belt, and an inclined feeder-belt arranged over the outer inclined portion of the said delivery-belt, substantially as described.



3. A device of the class described, comprising a supporting-frame, an adjustable conveyer-frame mounted on the said supporting-frame, a toothed conveyer-belt mounted in the said frame, a rotary cutter carried by the conveyer-frame above the conveyer-belt, a toothed spreader-belt adjustably supported on the conveyer-frame above the inner end of the conveyer-belt, a delivery-belt adapted to be supported on the feed-table of a threshing-machine, said belt having one end extending under the conveyer-belt, and a toothed feeder-belt supported above the delivery-belt, substantially as described.

4. In a device of the class described, the combination with a conveyer, a cutter, and a spreader, of a delivery-belt having one end extending under the conveyer, standards secured to the sides of the delivery-belt frame and adapted to support one end thereof on the feed-table of a threshing-machine and a feeder-belt having its supporting-frame secured to the upper ends of the standards of the delivery-belt, substantially as described.

5. A device of the class described provided with a wheeled vehicle, a conveyer having its frame pivoted on the said vehicle, means for swinging the said conveyer up or down, a spreader held vertically adjustable on the conveyer-frame and located directly above the same, a delivery slat belt, and a feeder having arms for carrying the said slat belt and adapted to rest on the feed-table of the threshing-machine, substantially as shown and described.

594,785. STOCK-FEEDING BOX. ROBERT B. FOWLER, Butler, Pa. Filed May 22, 1897. Serial No. 637,681. (No model.)



Claim.—In a stock-feeding box, the combination with the feed-receptacle having an opening in front provided with a wire-gauze cover and provided with graduated marks at one edge of said opening, of the spout having an opening at the lower end, the inclined feed-board having a horizontal portion, located in said spout, the cylindrical slide-valve cut away on an incline at the lower end and fitting closely in said tube, and the operating-rod, substantially as described.

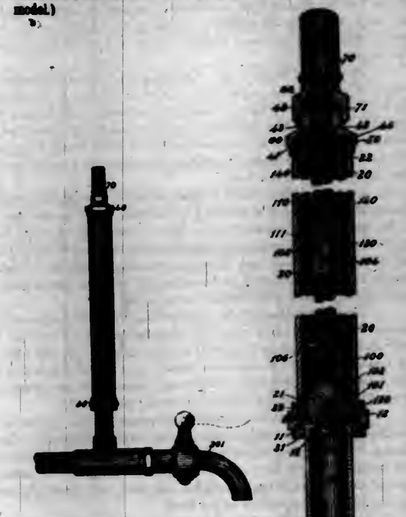
594,786. FURNACE-TWYER. ANDREW P. GAINES, South Pittsburg, Tenn. Filed Mar. 10, 1897. Serial No. 626,947. (No model.)

Claim.—1. The combination with the blast-pipe, of a furnace-twyer having nozzle-lips conforming approximately to an arc of a circle and forming a horizontally-elongated blast-orifice, said orifice having widened and narrowed portions symmetrically disposed with respect to the central point of the orifice, substantially as and for the purpose set forth.



2. The combination with the blast-pipe, of a furnace-twyer having nozzle lips conforming approximately to an arc of a circle and forming a horizontally-elongated blast-orifice, said orifice being vertically enlarged at the center, substantially as and for the purpose set forth.

594,787. CUSHION FOR WATER-PIPES. EDWARD J. GALLAGHER, Lafayette, Ind. Filed Aug. 12, 1897. Serial No. 648,085. (No model.)



Claim.—1. In a cushioning device for a water-pipe, the combination of a pipe adapted to connect with the water-pipe and provided with a valve-seat, a combined valve-spindle and piston-rod disposed in said pipe, a valve on said rod adapted to close against said valve-seat, a stuffing-box through which said rod passes, and a piston disposed on said rod between said valve and stuffing-box and adapted to form an air-cushion when the valve is opened which tends to close said valve.

2. In a cushioning device for a water-pipe, the combination of a valve-pipe adapted to connect with the water-pipe and provided with a seat, a combined valve-spindle and piston-rod disposed in said pipe, a valve on said rod adapted to close against said valve-seat, a stuffing-box through which said rod passes, a piston disposed on said rod between said valve and stuffing-box and adapted to form an air-cushion when the valve is opened which tends to close said valve, and a spring operating to reinforce the air-cushion and to hold said valve in closed position.

3. In a cushioning device for a water-pipe, the combination of a pipe adapted to connect with the water-pipe and provided with a valve-seat, a combined valve-spindle and piston rod disposed in said pipe, a valve on said rod adapted to close against said valve-seat, a piston on said rod, and a cap on said pipe provided with a stuffing-box and with a hollow extension inclosing the outer end of said rod.

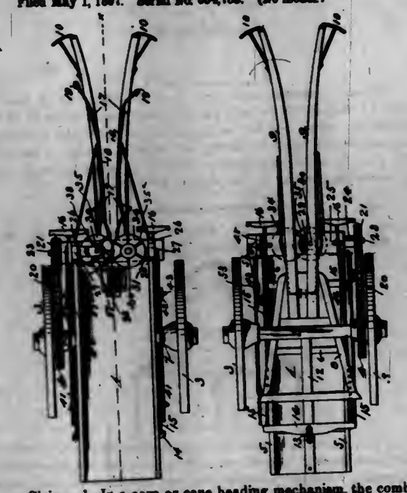
4. In a cushion for a water-pipe, the combination of a pipe provided with a valve-seat, a combined valve-spindle and piston-rod, a valve thereon adapted to close against said seat, a piston also disposed on said rod above said valve, and a spring normally operating to close said valve.

5. In a cushion for a water-pipe, the combination of a valve-seat pipe-section adapted to connect with the water-pipe and provided with a valve seat, a pipe-section adapted to connect with said valve-seat pipe-section, couplings for uniting said sections, a cap provided with a stuffing-box, a rod provided with a valve adapted to close against said valve-seat and with a piston operating in said pipe-section, and a spring for normally closing and holding said valve in closed position.

6. In a cushioning device for a water-pipe, the combination of a pipe adapted to connect with a water-pipe, a valve-seat, a combined valve-spindle and piston-rod disposed in said pipe and comprising a valve-section provided with a valve at one end and a flange at the other and, a shank-section in line with the valve-section and provided with a flange, and a piston clamped between the flanges of said sections, and a cap for said pipe provided with a stuffing-box for said rod.

7. In a cushioning device for a water-pipe, the combination of a pipe adapted to connect with the water-pipe and provided with a valve-seat, a combined valve-spindle and piston-rod disposed in said pipe, a conical elastic valve on said rod adapted to close against said valve-seat, a stuffing-box through which said rod passes, and a piston disposed on said rod between said valve and stuffing-box and adapted to form an air-cushion when the valve is opened which tends to close said valve.

594,788. CANE OR CORN HEADING MACHINE. ASA O. GERE, Stafford, Kans., assignor of one-half to Oliver H. Baugh, same place. Filed May 1, 1897. Serial No. 634,755. (No model.)



Claim.—1. In a corn or cane heading mechanism, the combination with the tongue, the hounds, the cross-strip, the rearwardly-extending bar, the whiffletree pivoted thereto, the rupes and the singletrees, of the eyes or pulleys secured to the tongue and hounds, the rope passing through the same, the snap-hooks on the ends thereof, adapted to be connected with the bits of a harness, substantially as described.

2. In a cane or corn heading machine, the combination with the forked tongue, the upwardly extending arms, the vertically-movable cross-head, the cutter journaled thereto, the angular, rotatable shaft, the vertically-movable cutter mounted thereon, the rotatable reels, and the stripper, of the bevel-pinion at the lower end of said shaft, the pinion meshing therewith, the stud-shaft, the sprocket-wheel at the outer end thereof, the sprocket-chain and the sprocket-wheel secured to one of the wheels of a wagon with which the mechanism is adapted to be connected, substantially as described.

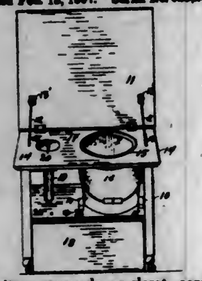
3. In a cane-heading machine of the character described, the combination with the vertical arms at opposite sides of the machine, the vertically-moving cross-head, the rotatable cutters, and reels, and means for operating the same, of the levers connected with said cross-head, the pivoted upwardly-extending bars, pivotally connected with plates secured to said vertical arms, and the adjustable brackets connected with said bars, to which said levers are pivoted, substantially as specified.

4. In a cane or corn heading machine, the combination with the forked tongue, the vertical arms connected therewith having notches in the edges, the vertically movable cross-head, the rotatable cutters and the rotatable reels, of the laterally-movable dogs attached to said cross-head, the wires connected therewith, the levers pivoted

to said cross-head, the adjustable brackets, the pivoted arms to which said brackets are attached, and the levers with which said wires are connected, substantially as described.

5. In a cane or corn heading machine, the combination with the forked tongue, the hounds, the rearwardly-extending bar, the whiffletree pivoted thereto, the ropes connected with the whiffletrees, the eyes or pulleys secured to said tongue and hounds, the rope passing through or around the same, having snap-hooks at the ends, of the plates secured to the tongue, the upwardly-extending arms, the vertically-movable cross-head, the vertical shaft and means for rotating the same, the rotatable cutters and reels, the hooks pivoted to said plates secured to the tongue, and means for elevating and lowering the said cross-head, substantially as described.

594,789. SANITARY COMMODE. CHARLES W. CRAFT, Jamestown, N. Y. Filed Feb. 13, 1897. Serial No. 623,205. (No model.)



Claim.—A sanitary commode or closet, consisting of box 10, cover 11 hinged thereto and provided with metal slides 12 12 for holding the cover, seat 14, having opening 15, air-pump 19 suitably mounted therein, shelf 28 having reservoir 22 secured to its under side, pipe 24, pail or removable receptacle 16, all arranged to operate in the manner and for the purpose set forth.

594,790. LANTERN. WILLIAM S. HAHN, Chicago, Ill. Filed Mar. 2, 1897. Serial No. 625,755. (No model.)



Claim.—1. In a lantern, the combination of a cap, a removable wind-cone adapted to move vertically therein, and a spring-actuated pin arranged to enter a suitably-disposed opening in the cap and the wind-cone, substantially as described.

2. In a lantern, the combination of a cap having slots, as 14, a wind-cone adapted to move vertically within the cap and be removed therefrom, spring-actuated pins secured to the wind-cone and arranged to pass through openings in the cap, and through the slots 14, substantially as described.

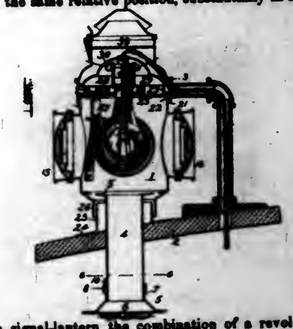
3. In a lantern, the combination of a perforated cap having slots 14, a wind-cone adapted to move vertically within the cap, and be removed therefrom, its upper end being above the perforations in the cap, springs secured to the wind-cone and provided with pins adapted to pass through openings in the cap, and through the slots 14, and finger-pieces for actuating the spring, substantially as described.

4. In a lantern, the combination of a perforated cap, a removable wind-cone adapted to move vertically within the cap, springs secured at one end to the wind-cone, and provided with pins and finger-pieces, the said pins arranged to pass through the openings in the wind-cone and the cap for retaining the wind-cone in place, means for forcing the wind-cone from the cap when the pins are withdrawn from the openings, and a chimney upon which the wind-cone presses, substantially as described.

594,791. LANTERN. WILLIAM S. HAHN, Chicago, Ill. Filed June 1, 1897. Serial No. 638,960. (No model.)

Claim.—1. In a signal-lantern, the combination of a revoluble body having a plurality of signals, a source of light within the body, and an indicator illuminated by the source of light, revolving with the body and displaying the same signals as the lantern, and in the same relative position, substantially as set forth.

2. In a signal-lantern, the combination of a revoluble body having a plurality of signals, a source of light within the body and a transparent or translucent indicator illuminated by the source of light, revolving with the body and displaying the same signals as the lantern, and in the same relative position, substantially as set forth.



3. In a signal-lantern, the combination of a revoluble body, a source of light therein, a plurality of signals secured to the body in the path of the rays of light, an indicator secured to and turning with the body, signals in the indicator similar to the signals on the body and illuminated by the same source of light, and means for revolving the lantern.

4. In a signal-lantern, the combination of a revoluble body, a source of light therein, a plurality of signals secured to the body in the path of the rays of light, an indicator secured to and turning with the body, signals in the indicator corresponding to the signals on the body, and illuminated by the same source of light, means for revolving the lantern, and means for locking the lantern in a working position, substantially as set forth.

5. In a signal-lantern, the combination of a revoluble body, a source of light therein, a plurality of colored signal-glasses secured to the body and illuminated by the light, a tube secured to the body of the lantern and opening thereinto beneath the source of light, signal-glasses in the lower end of the tube corresponding to the signal-glasses in the lantern both as to color and position, and means for rotating the lantern, substantially as set forth.

6. In a signal-lantern, the combination of a revoluble body, a source of light therein, a plurality of signal-glasses secured to the body and illuminated by the light, a tube opening into the body of the lantern beneath the source of light, a handpiece secured to the tube for rotating the lantern and signal-glasses in the handpiece illuminated by the source of light, substantially as set forth.

7. In a signal-lantern adapted to be placed on the roof of a car or other vehicle, the combination of a revoluble body having signal-glasses, a tube secured to the bottom of the body, opening thereinto and passing through the roof of the vehicle, a handpiece detachably secured to the tube in position to be operated, and signal-glasses in the handpiece, substantially as set forth.

8. In a signal-lantern, the combination of a fixed support secured to a car or other vehicle, a ring attached to the support, a lantern-body carried by and adapted to turn in said ring, and an electric lamp detachably supported by the fixed ring and extending into the lantern, substantially as set forth.

9. In a signal-lantern, the combination of a fixed support secured to a car or other vehicle, a ring attached to the support and forming a part thereof, a lantern-body carried by and adapted to turn in said ring, a source of light detachably supported by the fixed ring and extending into the lantern, a tube opening into the bottom of the body and an indicator on the bottom of the tube, substantially as set forth.

10. In a signal-lantern, the combination of a fixed hollow support secured to the roof of a car or other vehicle, a ring attached to the support, a signal-lantern supported by and adapted to turn in said ring, an electric lamp detachably supported against rotation by the fixed ring, and extending into the lantern, conductors from the electric lamp passing through the fixed support, and means for rotating the lantern, substantially as set forth.

11. The combination of a signal-lantern adapted to rotate in a fixed standard, a removable plate supported by the standard and carrying an electric lamp, and conductors from the electric lamp passing through the standard, substantially as set forth.

12. In a signal-lantern, the combination of a fixed support, a revoluble body having signals adapted to turn in the said fixed support, a plate supporting an electric lamp and its connections carried by the fixed support, and a cover for the fixed support to inclose the lantern and protect the electric lamp and its connections, substantially as set forth.

594,792. LOCOMOTIVE-CAB SEAT. AUSTIN I. HARVEY, Newport, Me. Filed May 22, 1893. Serial No. 433,992. (No model.)

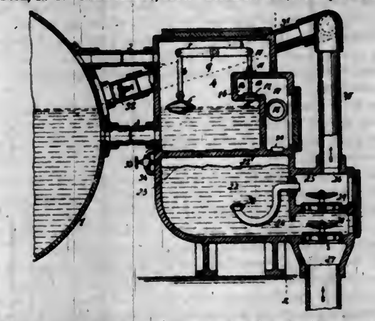


Claim.—1. A laterally-swinging locomotive-seat consisting of a seat proper provided with longitudinally-extending crank-hangers having their crank-shaped ends attached to the extremities of lateral springs and lateral springs having their free ends adapted to receive the ends of the crank-hangers, and a base having means for connecting said springs for the purpose described and substantially as shown and set forth.

2. A locomotive-seat consisting of the combination of a rectangular-shaped seat; an upright back connected thereto at one end by a spring; longitudinally-extending rods having crank-shaped ends passing under said seat and having their extremities connected to springs in such manner as to allow lateral swinging of the seat in a horizontal position; and a base-board extending under said seat upright cleats for attaching the springs thereto, lateral springs interposed between the crank-hangers and said cleats all for the purpose described and substantially as set forth.

3. An improved locomotive-seat consisting of the combination of a base-board having vertical cleats at each extremity; transverse springs of one or more leaves secured to said cleats; crank-hangers having their crank ends confined in the extremities of said springs; a seat attached to the shaft of said crank-hangers in such manner as to allow horizontal side movement; and a back secured to one end of said seat by a spring, all substantially as described and for the purpose set forth.

594,793. AUTOMATIC BOILER-FEED. OTTO HASELAU, Jr., New York, N. Y. Filed Jan. 28, 1897. Serial No. 621,096. (No model.)

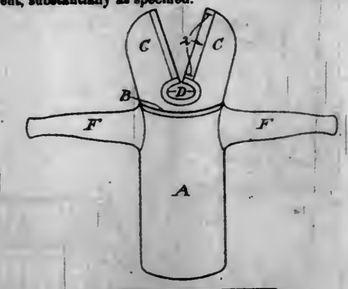


Claim.—1. A boiler and a water-chamber having a water and steam connection with the boiler, combined with a float-actuated valve in the water-chamber, a pressure-channel adapted to be closed by the float-actuated valve, pressure-chambers made to communicate with the pressure-channel, and a valve made to alternately close the pressure-chambers to the pressure-channel, each of said pressure-chambers having an inlet-valve, and an outlet valve and pipe made to communicate with the boiler, said outlet-pipe being provided with a spray-tube made to extend into the pressure-chamber, said pressure-chambers having valved water or filling pipes made to communicate with the water-chamber substantially as described.

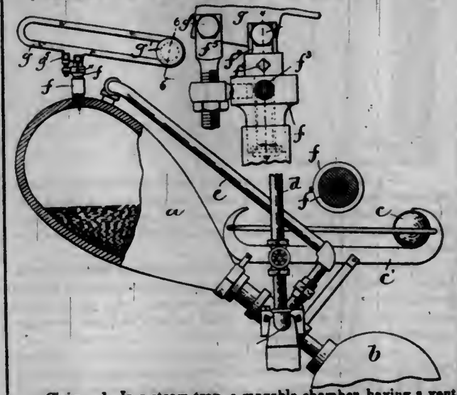
2. A boiler and a water-chamber having a water and steam connection with the boiler, combined with a float-actuated valve in the water-chamber, a pressure-channel adapted to be closed by the float-actuated valve, pressure-chambers made to communicate with the pressure-channel, and a valve made to alternately close the pressure-chambers to the pressure-channel, each of said pressure-chambers having an inlet-valve, and an outlet valve and pipe made to communicate with the boiler, said outlet-pipe being provided with a spray-tube made to extend into the pressure-chamber and being made to rise above the boiler water-level and provided with a pressure-valve substantially as described.

594,794. UNDERGARMENT. NATHAN HATCH, Albany, N. Y. Filed Nov. 4, 1896. Serial No. 611,008. (No model.)

Claim.—An undergarment comprising a body having at its upper part a transverse opening of practically the full width of the body, and a bifurcated flap at the upper end of the back containing a neck-opening that will register with the transverse opening of the body: the separated limbs of said flap forming tabs which are adapted to fold over onto the front portion of the body and having sufficient width to allow the edges thereof to meet at the median line of the garment, substantially as specified.



594,795. STEAM-TRAP. BURTON W. HILL, Somerville, Mass. Filed Feb. 1, 1897. Serial No. 621,393. (No model.)



Claim.—1. In a steam-trap, a movable chamber having a vent, a valve having a stem movable in said vent, a lever fulcrumed at one side of the stem and having one of its arms connected with the stem, said lever being formed as a guide, and a weight movable on said lever and adapted to tilt the same to open and close the valve.

2. A steam-trap comprising in its construction an oscillatory chamber having a counterbalancing-weight and a track and rolling weight for holding the chamber in either of its extremes of position, said chamber having a vent in its upper portion, a valve having a stem movable in said vent, a lever fulcrumed at one side of the stem and having one of its arms connected with the stem, said lever being formed as a guide, and a weight movable on said lever or guide and adapted to tilt the same to open and close the valve.

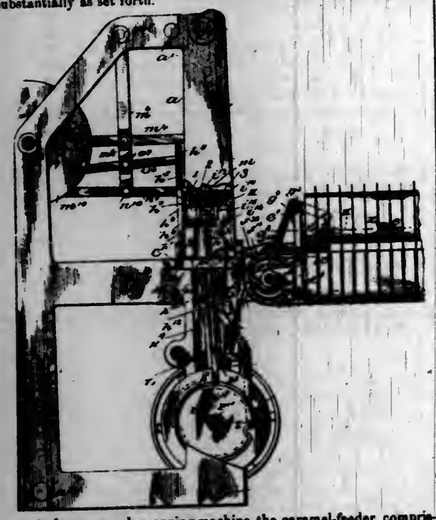
3. An automatic vent attachment for steam-traps, the same comprising a casing adapted for attachment to the water and steam receiving chamber of the trap, and having a vent-passage, a valve in said casing adapted to close said passage, and having a stem projecting from the casing, a lever fulcrumed to a support on the casing and having one arm connected with the valve-stem, said lever being formed as a guide, and a rolling weight movable on said lever and adapted to tilt the same, when the chamber is moved from one position to the other.

594,796. CARAMEL-WRAPPING MACHINE. MAURICE HOFHEIMER, Baltimore, Md. Filed May 1, 1896. Serial No. 589,920. (No model.)

Claim.—1. In a caramel-wrapping machine, a feeder for the candy cake, means for cutting said cake into strips, a second feeder movable transversely to said former feeder, and a knife for cutting said strips transversely after they engage said second feeder, substantially as set forth.

2. In a caramel-wrapping machine, a feeder for the candy cake, means for cutting said cake into strips, a second feeder movable transversely to said former feeder and comprising an endless belt with spaced-apart projections, and a knife for cutting said strips transversely after they engage said belt between said projections, substantially as set forth.

3. In a caramel-wrapping machine, the caramel-feeder comprising an endless belt, drums therefor having grooves in their peripheries, and spaced-apart projections extended through said belt and having their inner ends designed to fit in said grooves of said drums, substantially as set forth.



4. In a caramel-wrapping machine, the caramel-feeder, comprising an endless belt, a table over which said belt travels, and a tube open at one side and extending over said belt, in combination with a feeder for feeding the candy stripe into said tube over said belt, substantially as set forth.

5. In a caramel-wrapping machine, the caramel-feeder, comprising an endless belt, drums therefor, a tube open at one side and extending over said belt, a shelf adjacent to one of said drums, and a spring-plate attached to the top of said tube and designed to engage a caramel as it passes to said shelf, substantially as set forth.

6. In a caramel wrapping machine, the combination with the candy-cake feeder, of the caramel-feeder, comprising an endless belt, and drums therefor, means for gradually operating said drums, and means operated by one of said latter drums for periodically operating said candy-cake feeder, substantially as set forth.

7. In a caramel-wrapping machine, the combination with the candy-cake feeder, comprising an endless feeder and drums therefor, of the caramel-feeder, comprising an endless belt, and drums therefor, one of said latter drums being gradually operated, and mechanism operated by said latter drums and engaging one of the drums of said candy cake feeder, substantially as set forth.

8. The combination with the candy-cake feeder having endless belts and drums therefor, one of said drums having ratchet-teeth at one end, of the caramel-feeder comprising a belt movable transversely to said former belts, drums therefor, means engaging one of said drums for operating said belt, said drum having a cam-groove therein, a pawl engaging said ratchet-teeth, and a lever to which said pawl is connected having its fulcrum-pin fitting in said cam-groove, substantially as set forth.

9. The combination with the candy-cake feeder, and means for cutting said candy cake into strips, of the caramel-feeder at right angles to said former feeder, a tube open at one side extending over said caramel-feeder, and a vertically-movable knife movable over the open side of said tube, substantially as set forth.

10. In a caramel-wrapping machine, the combination with intermittently-operated feed-rolls between which the paper of a roll thereof is passed, of a guide for the paper adjacent to said feed-rolls formed in two sections, a connection for uniting said sections, intermittently-operated shears located between said sections, one member of said shears being secured to said connection, and a carrier for the cut paper normally beneath said shears and guide, substantially as set forth.

11. In a caramel-wrapping machine, the combination with intermittently-operated feed-rolls between which the paper of a roll thereof is passed, of a hollow guide through which the paper is passed from said roll, said guide being formed in two spaced-apart sections, a bowed portion connecting said sections, shears located between said sections, one member being secured to said bowed portion, the other member being pivoted to the stationary member, means for intermittently operating said pivoted member, and a carrier normally adjacent to the lower section of said guide designed to receive said paper after being cut, substantially as set forth.

12. In a caramel-wrapping machine, the combination with feed-rolls having intermeshing gear-wheels, of a wheel having a segmental-toothed portion engaging one of said gear-wheels, and provided with a bevel-pinion, a casting supporting the axle of said wheel, a shaft also supported by said casting having a beveled pinion engaging said former pinion, and a second pinion on its lower end, the main operating-shaft having a bevel-pinion with which engages said latter pinion, and a bearing for the lower end of said shaft on said main operating-shaft, substantially as set forth.

13. The combination with the paper-feed, of the pivoted sectional carrier designed to receive the paper-sections, and means for lowering said carrier and returning the sections thereof, the central one of said sections being returned independently of the others, substantially as set forth.

14. The combination with the paper-feed, of the pivoted carrier formed in sections, means for lowering said carrier, and means for independently retracting the sections thereof, as set forth.

15. The combination with the paper-feed, of the pivoted carrier formed in three sections, the central one of said sections being engaged by one of the other sections, means for lowering all of said sections simultaneously, and means for releasing said central section in advance of the others, and means for retracting all of said sections, substantially as set forth.

16. The combination with the paper-feed, and the table, of the paper-carrier pivotally mounted on said table and having corresponding end sections, and a central section, a lever having flexible connection with said end sections, an operating-wheel engaging said lever, a weighted cord for said end sections, said central section having a spring-catch and a weighted cord, and a projection on said table for releasing said catch, substantially as and for the purpose set forth.

17. The combination with the paper-feed, and the table, of the paper-carrier comprising three sections of pan-like form having extensions, a shaft to which the extensions of the two end sections are rigidly secured, the central section being loosely secured on said shaft, bearings for said shaft on said table, a catch carried by said central section engaging one of said end sections, a projection on said table for releasing said catch, weighted cords connected to said shaft and to said central section, the lever having a spring connection to one of said end sections, and the operating-wheel engaging said lever, substantially as set forth.

18. In a caramel-wrapping machine, a swinging carrier for the caramels having clamping-levers for holding a caramel, a lever for operating the same, and yielding connections for said lever, substantially as set forth.

19. In a caramel-wrapping machine, a swinging carrier for the caramels, comprising a depending bar, clamping-levers mounted on said bar having lower angular ends, a sliding rod to which said clamping-levers are connected, an operating-lever and a spring connection between said lever and said rod, substantially as set forth.

20. In a caramel-wrapping machine, a swinging carrier for the caramels, comprising a depending bar, clamping-levers mounted on said bar having lower angular ends, a rod loosely mounted on said bar, a collar on said rod, an operating-lever and upper and lower springs connecting one end of said lever to said rod and also to said collar, substantially as set forth.

21. In a caramel-wrapping machine, the combination with the caramel-feeder, of a swinging carrier having clamping-levers for holding a caramel, means for operating said clamping-levers, means for reclosing the same after the caramel is wrapped, and means for moving said carrier and again opening said clamping-levers, substantially as set forth.

22. In a caramel-wrapping machine, the combination with a caramel-feeder, of a swinging carrier, comprising a bar, clamping-levers on the lower end thereof, a hanger-bar, two levers fulcrumed on said hanger-bar, one being connected to said bar and the other to said clamping-levers, and operating-wheels with which said levers engage, substantially as set forth.

23. The caramel carrier and holder pivotally suspended and having folder-plates attached thereto, and means for lowering said folder-plates, substantially as set forth.

24. The caramel carrier and holder comprising a depending bar, vertically-movable folder-plates attached to the sides of said bar, a lever connected to said folder-plates, and means for operating said lever, substantially as set forth.

25. The combination with the depending bar, of the vertically-movable folder-plates attached to opposite sides of said bar, a hanger-bar, a lever fulcrumed on said hanger-bar and having a forked end connected to said folder-plates, and an operating-wheel engaging the other end of said lever, substantially as set forth.

26. In a caramel-wrapping machine having a table for supporting a caramel while being wrapped, provided with angularly-arranged openings, a post depending from said table, two vertically-movable folders mounted on said post and having upper spring-pressed fingers, and means for operating said folders, substantially as set forth.

27. In a caramel-wrapping machine having a table for supporting a caramel while being wrapped, provided with angularly-arranged openings, a post depending from said table, two vertically-movable folders mounted on said post and having at their upper ends spring-pressed fingers of different lengths, and means for raising said folders simultaneously and partly retracting one of them in advance of the other, substantially as and for the purpose set forth.

28. In a caramel-wrapping machine having a table for supporting a caramel while being wrapped, provided with angularly-arranged openings, a post depending from said table, two vertically-movable folders comprising plates mounted on said post and having spring-pressed fingers pivoted to their upper ends, arms extending from the lower ends of said plates having studs, and operating-wheels having cam-grooves in which said studs fit, substantially as set forth.

29. In a caramel-wrapping machine having a table for supporting a caramel while being wrapped, provided with angularly-arranged openings, a post depending from said table, two pivoted fork-shaped folders, and means for operating said folders, one in advance of the other, substantially as set forth.

30. In a caramel-wrapping machine having a table for supporting a caramel while being wrapped, provided with angularly-arranged openings, a post depending from said table, two folders of fork shape, two pivotally-mounted rods to which said folders are connected, depending arms connected to said rods, and operating-wheels for raising and lowering said arms, substantially as set forth.

31. In a caramel-wrapping machine having a table for supporting a caramel while being wrapped, provided with angularly-arranged openings, a post depending from said table, two folders of fork shape, two rods to which said folders are connected, lugs depending from said table and supporting said rods, depending arms connected to said rods and having studs in their lower ends, and operating-wheels having cam-grooves for said studs, substantially as set forth.

32. In a caramel-wrapping machine having a table for supporting a caramel while being wrapped, provided with angularly-arranged openings, a post depending from said table, two folders consisting of flat plates mounted on said post and connected together at their lower ends, an arm depending therefrom, and a wheel for operating said arm and folders, substantially as set forth.

33. A caramel-wrapping machine having a table provided with a series of openings and a depending post, a swinging carrier and holder for the caramels above said table, a series of folders mounted on said post, means for operating said folders in their order, and folders carried by said carrier and holder and designed to be operated subsequent to said folders on said post, substantially as set forth.

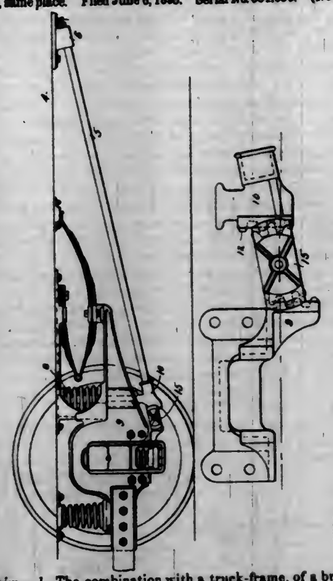
594,797. BUTTON. RUDOLPH HÖRMANN, Hoboken, N. J. Filed July 1, 1897. Serial No. 643,132 (No model.)



Claim.—1. A button comprising a tube having a flanged lower portion, and a contracted upper portion forming a shoulder near the top end of the tube, a closed top for the button, a clamping-plate having its edge clamped to the button-top and provided with a dished center and central orifice, and a body-piece clamped at its edge to the button-top and having a central orifice made to receive or clasp the wider or body part of the tube, said tube having its bottom open and its side and top closed and having its upper or contracted portion flattened or riveted between the button-top and the clamping-plate and said clamping-plate being made to rest its dished portion on the tube-shoulder substantially as described.

2. A button comprising a tube having a flanged lower portion, and a contracted upper portion forming a shoulder near the top end of the tube, a closed top for the button, a clamping-plate having its edge clamped to the button-top and provided with a dished center and central orifice, and a body-piece made to inclose the clamping-plate, said body-piece being clamped at its edge to the button-top and having a central perforated portion of tubular form to receive or clasp the wider or body part of the tube and to extend therealong toward the tube-flange, said tube having its bottom open and its side and top closed and having its upper or contracted portion flattened or riveted between the button-top and the clamping-plate and said clamping-plate being made to rest its dished portion on the tube-shoulder substantially as described.

594,798. TRUSS-BRACE FOR RAILWAY-CARS. MORSE G. HUBBARD, Jr., Chicago, Ill., assignor to the McGuire Manufacturing Company, same place. Filed June 6, 1896. Serial No. 551,850. (No model.)



Claim.—1. The combination with a truck-frame, of a brace supporting the end portion of the car-body, and vertically-movable mechanism coacting with the truck-frame to resist the end thrust of said brace and moving vertically with said brace, whereby the resistance to the end thrust of said brace is uniformly applied to said brace at substantially the same point, substantially as described.

2. The combination with a truck-frame, of a brace supporting the end portion of the car-body, and vertically-movable mechanism interposed between the truck-frame and said brace and coacting with the truck-frame to resist the end thrust of said brace, and moving vertically with said brace, whereby the resistance to the end thrust of said brace is uniformly applied to said brace at substantially the same point, substantially as described.

3. The combination with a truck-frame, and a brace supporting the end of the car-body, of a revoluble bearing between the lower end of said brace and the truck-frame, said bearing being vertically movable with said brace, substantially as described.

4. In a brace for cars, the combination with the truck-frame and a brace attached to the car-body, of a revoluble bearing between the lower end of said brace and the truck-frame and supported by the brace, substantially as set forth.

5. In a brace for cars, the combination with a truck-frame, and a brace attached to the car-body, of a roller arranged to travel vertically with the brace and interposed between the truck-frame and said brace, substantially as described.

6. In a truss or bracing for four-wheeled cars, the combination with a vertical member secured to the car-body, and a truck-frame, of a flanged traveling roller interposed between said vertical member and the truck-frame, substantially as described.

7. In a truss or bracing for four-wheeled cars, the combination with a vertical member secured to the car-body, and a truck-frame, of a flanged and partly-toothed traveling roller interposed between said vertical member and the truck-frame, substantially as described.

8. In a truss or bracing for four-wheeled cars, the combination with a vertical member secured to the car-body, and a truck-frame, of a flanged and partly-toothed traveling roller interposed between said vertical member and said truck-frame, said roller being formed in two parts, substantially as described.

9. In a truss or bracing for four-wheeled cars, the combination with the truck-frame, of a vertical member rigidly attached to the car-body, a diagonal member, one end of which is rigidly attached to the car-body and the other end of which is rigidly attached to said vertical member, with a roller interposed between said vertical member and the truck-frame, one side of the periphery of which engages said vertical member and the opposite side of the periphery of which engages the truck-frame, substantially as described.

10. In a truss or bracing for four-wheeled cars, a truck-frame, a vertical member attached to the car-body, a roller arranged to travel

vertically and interposed between said vertical member and the truck-frame, and a diagonal member interposed between said vertical member and the car-body, substantially as described.

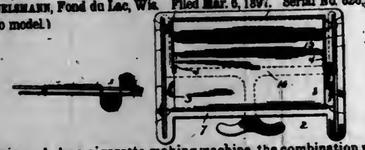
11. In a truss or bracing for cars, the combination with a truck-frame, of a vertical member attached to the car-body, a traveling roller having part of the face of its periphery toothed and part plane, a corresponding plane and toothed surface upon both the vertical member and the truck-frame arranged to engage said roller, and a diagonal member interposed between the lower end of said vertical member and the car-body, substantially as described.

12. In a truss or bracing for railway-cars, the combination of a truck-frame, a vertical member attached to the car-body at one end, a diagonal member attached to the car-body at one end and connected to the lower part of said vertical member at the other end, and a traveling journalless roller interposed between said vertical member and the truck-frame, substantially as described.

13. In a brace for cars, the combination with a truck-frame, and a brace attached to the car-body, of a vertically-movable support connected with the brace and truck-frame which receives the end thrust of said brace, substantially as described.

14. In a brace for cars, the combination with a truck-frame, and a brace attached to the car-body, of a vertically-movable support connected with the brace and truck-frame which receives the end thrust of said brace, and means for vertically adjusting said support to correspond to the vertical movements of the car.

594,799. MACHINE FOR MAKING CIGARETTES. ALBERT HUELSMANN, Fond du Lac, Wis. Filed Mar. 6, 1897. Serial No. 626,220. (No model.)



Claim.—1. In a cigarette-making machine, the combination with a plate having an opening therein and constructed to form a table or counter, said plate having slots in proximity to its ends, of a slide disposed under said plate, uprights on said slide projecting through said slots in the plate, a roller mounted in said uprights and a flexible apron attached at its ends to said plate and adapted to drop through said opening to form a pocket, substantially as set forth.

2. In a cigarette-making machine, the combination with a plate having an opening and a table or counter and having slots in proximity to said opening and table or counter respectively, of a flexible apron having loops at its ends to be passed through said slots, pins passing through said loops to prevent the escape of said apron, a slide having uprights which operate in elongated slots in the plate and a roller carried by said slide, substantially as set forth.

3. In a cigarette-making machine, the combination with a plate having an opening and a table or counter, of a flexible apron attached at its ends to said plate and adapted to drop through said opening to form a pocket, a slide under said plate, uprights on said slide and operating in elongated slots in the plate, a roller mounted in said uprights and adapted to be passed over said table, and arms or projections on said slide to engage the under face of the plate, whereby to prevent the handle of the slide from moving too far away from the table or counter, substantially as set forth.

594,800. ELECTRIC RAIL-BOND. SLAUGHTER W. HUFF, Baltimore, Md., assignor of one-half to Jesse Hilles, same place. Original application filed Aug. 29, 1896, Serial No. 604,304. Divided and this application filed Mar. 11, 1897. Serial No. 627,055. (No model.)



Claim.—1. A bond for electrical connections, comprising a flat-metal body portion composed of a number of parts which render it flexible edgewise, and attaching-lugs integral with the ends of said body portion and formed of the same original body of metal as said body portion.

2. A bond for making electrical connections formed of flat metal and comprising a body portion divided longitudinally into a number of strips to transform it into a multiplex structure which is flexible edgewise, and tubular attaching-lugs formed on the ends of the flat metal, as explained.

3. A bond for making electrical connections, comprising tubular attaching-lugs formed of bent sheet metal, and a multiplex connecting-strip integral with said lugs, and flexible to permit them to assume a shape which will render them resilient in use, as explained.

4. A bond for making electrical connections, comprising attaching-lugs and a flat, connecting-body, comprising a plurality of component parts all in the same plane and each formed in the same original piece of metal as said lugs, whereby the body is flexible edgewise and adapted to assume a shape which will render it resilient in use.

5. A bond for electrical purposes comprising a flat-metal body portion slitted longitudinally to make it flexible edgewise and having the integral flat-metal offset or enlargement curled or bent, substantially as described into a tubular attaching-lug; said body portion being also curved or turned edgewise to take up fullness produced in some of its component parts by forming the tubular lug as herein explained.

6. A bond for electrical purposes comprising a flat-metal body portion slitted longitudinally to make it flexible edgewise and having integral offsets or enlargements at its ends curled or bent into attaching-lugs projecting laterally from the plane of the body portion; said body portion being curved at two places in opposite directions to take up fullness produced in some of the constituent parts by forming the lug, as explained.

7. A bond for electrical purposes comprising a flat-metal body portion divided longitudinally into a number of strips which render it flexible edgewise, and with enlargements at the ends bent into integral attaching-lugs; said body portion being curved adjacent to the lugs, and also intermediately of said ends, and in opposite direction thereto substantially as and for the purposes set forth.

8. In a connector for electrical conductors, the combination of a cross-rod of conducting material, means whereby said cross-rod is mechanically fastened in place relatively to the conductors to be connected, and the herein-described resilient electric bonds making intimate electrical contact or connection with the cross-rod and the two conductors, substantially as described.

9. In a conductor for electrically connecting two lines of railway-track, the combination of the cross-rod, means whereby the ends of said cross-rod are mechanically fastened to the respective lines of track, and electrical bonding connection also joining said ends to said lines of track, substantially as described and for the purpose set forth.

10. In an electric railway, the combination with the rails, of cross-bars projecting between the rails and the herein-described bond, formed with lateral attaching-lugs inserted in openings beneath the cross-bars and the bases of the rails, to electrically connect them substantially in the manner explained.

11. In a bond for making electrical connections, the combination of the tubular attaching-lugs, and a body portion formed of strips uniting the lugs, flexibly to adapt them for bending so as to afford resiliency in use; said strips projecting from different points on the circumference of the tubular lugs in order to counteract torsional effects imposed on the lugs by tension on the respective body-strips, as explained.

12. In a bonded connection for electrical purposes, the combination of the metallic body to be connected, having a non-cylindrical opening, a bond having attaching-lugs permanently expanded into contact with the wall of the opening to prevent turning therein as explained.

13. In a bonded connection for electrical purposes, the combination of the metallic body to be connected, having a non-cylindrical opening, a bond having a tubular attaching-lug, and a rivet formed to permanently expand the lug into contact with the wall of the opening to prevent turning therein, as explained.

14. In combination with a metallic body to be electrically connected, a connecting-terminal having a split or open tubular attaching-lug and a spline and rivet for insertion respectively into the split and the eye of the lug for spreading and permanently opening the latter into intimate contact with the opening as explained.

15. In combination with a metallic body to be electrically connected, a bond having a split or open tubular attaching-lug, and a spline and rivet for insertion respectively into the split and the eye of the lug for spreading and permanently opening the latter into intimate contact with the opening, as explained.

16. In combination with the metallic body, to be connected, having an opening formed with a key-groove, an electrical connector having a slitted tubular attaching-lug, a securing pin entering the eye of the lug, and a spline or feather entering the slit in the lug and the key-groove in the opening for securing the lug against turning, as explained.

17. In combination with the abutting ends of rails, and with the connecting fish-plate therefor, a bond comprising a body portion formed of a number of strips which render the body portion flexible in the direction of its width, and two tubular attaching-lugs projecting at right angles to the plane of the body portion, into openings formed in the web of the rail; said body portion lying flat upon said web beneath the fish-plate as explained.

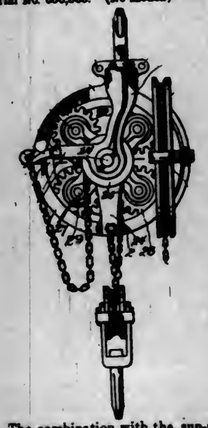
18. A bond for electrical purposes formed of a body portion and attaching-lugs, and made of sections, each section embracing two lug-forming parts and a connecting-body portion, and the sections being fitted to form two complete attaching-lugs and a multiplex flexible body, as explained.

19. A bond for making electrical connections, comprising attaching-lugs and a multiplex connecting-body, each component part of which body portion is formed of the same original body of metal as said lugs, and flexible to permit it to assume a shape which will render it resilient in use.

20. A bond for electrical purposes comprising attaching ends and an intermediate multiplex body portion bent in opposite directions to form a bond of approximate S shape, substantially as and for the purpose set forth.

21. In a bond for making electrical connections, the combination of the metallic body to be connected having an opening, the tubular attaching-lug inserted in said opening and the rivet having a conical depression driven into said lug to permanently expand it into contact with the wall of the opening; the driving end of the rivet being upset by hammering while the coned end is upset or swelled by contact with an upsetting center punch, substantially as set forth.

594,801. CHAIN HOIST. JOSEPH W. KINCAID, Reading, Pa., assignor to the Reading Crane and Hoist Works, same place. Filed Sept. 1, 1897. Serial No. 650,208. (No model.)



Claim.—1. The combination with the sun-and-planet gears, the bevel-gears, and the transverse pinion, of means for automatically locking all of the said gears together against separate or independent movement, comprising a brake-wheel a spring-controlled pawl on the brake-wheel and engaging ratchet-teeth of one of the said bevel-gears, and a brake-shoe working on the brake-wheel and attached to the lift-chain, as set forth.

2. A brake-shoe comprising a series of links secured together, certain of the links having V-shaped bearings, the top one of said links having projections to prevent the shoe moving, as set forth.

3. A brake-shoe comprising a series of links secured together in chain form, certain of the links having V-shaped bearings, the top one of said links having projections to prevent the shoe moving, and the bottom one of said links having a bearing for a swivel-fork by which the shoe is connected to a lift-chain, as set forth.

4. A driving mechanism for chain hoists comprising two bevel-gears loosely mounted on a fixed shaft, a pinion on one of said gears, a transverse pinion in mesh with the bevel-gears, the sun-and-planet gears, a lift-chain sheave on the planet-frame, the internal fixed gear with which the planet-gears mesh, and a suitable hand chain-wheel on the shaft of said pinion, as set forth.

5. A driving mechanism for chain hoists comprising two bevel-gears loosely mounted on a fixed shaft, a pinion integral with the hub of one of said bevel-gears, a transverse shaft adapted to be revolved at right angles to the fixed shaft, and having a suitable hand chain-wheel, a pinion on the transverse shaft in mesh with the bevel-gears, the sun-and-planet gears, the internal gear with which the planet-gears mesh, and a lift-chain sheave integral with the planet-frame, as set forth.

6. The combination with the driving mechanism, the frame portion having a journal-bearing for the pinion-shaft of said mechanism, and the brake-wheel, of the ring to hold the wheel in position and having a finger engaging the said frame portion to prevent movement of the ring, substantially as set forth.

7. The combination with the driving mechanism, of the keeper-ring having a finger, and a lug forming a bearing for the transverse shaft of the said mechanism, as set forth.

8. The combination with the driving mechanism, the brake mechanism, and the shafts upon which said mechanisms are mounted, one of said shafts being transverse to the other, of the frame portion to which one of said shafts is fixed and having a journal-bearing for the other shaft, the other frame portion having internal gear-teeth forming part of said driving mechanism, as set forth.

9. The combination with the two-part frame, one part forming an internal gear, a transverse pinion carried by the other part and having a hand-wheel, and a shaft fixed to both parts, of the sun-and-planet gear within the internal-gear part, the brake mechanism, the bevel-gears on said shaft, and the lift-chain sheave upon the planet-gear frame, as set forth.

10. The combination with a chain hoist, of a lift-chain keeper having a hook for one end of said chain, a pivot-bearing, curved surfaces, and a groove between said surfaces, as set forth.

11. In a chain hoist, the combination with the driving mechanism, and the brake mechanism, of the planet-gear frame formed integral with the lift-sheave of said driving mechanism, the planet-gears being countersunk and connected to said frame by screw-journals.

12. The combination with the two interlocking frame parts one part of said frame having depending ears, and a shaft to which each part is fixed, of the brake-wheel loosely mounted on said shaft, and the ring covering a portion of said wheel and having a finger engaging the space between the said ears to prevent the ring moving, as set forth.

13. In a brake mechanism for hoisting-machines, the combination of the brake-wheel having a spring-controlled pawl adapted to engage ratchet-teeth on the driving mechanism, the brake-shoe composed of a series of links joined together, the top one of which has projections and the bottom one a bearing for a swivel-fork connection to a lift-chain, and a ring upon the hub of the brake-wheel and covering a portion of the periphery of said wheel, a top projection from the periphery of the ring adapted to engage the projections of the said link, to prevent movement of the brake-shoe, as set forth.

14. The combination with the fixed frame having depending ears, a brake-wheel loosely mounted in said frame, a brake-shoe having top projections, and a bottom swivel connection, of a ring loosely mounted on the hub of said wheel and having a flange covering a portion of the wheel-periphery, a projection or lug extending from said flange over said wheel and between the said shoe projections, and a finger upon said lug and engaging the said ears to prevent the shoe moving, and to keep the swivel in the central vertical line with the brake-wheel, as set forth.

15. The combination with the fixed frame having an internal gear, the bevel-gears, the transverse pinion in mesh with the bevel-gears and having a suitable hand chain-wheel, and the pinion on one of said bevel-gears, of the planet-frame, the lift-sheave integral with the planet-frame, the planet-gears meshing with the said bevel-gear pinion and with the said internal gear, as set forth.

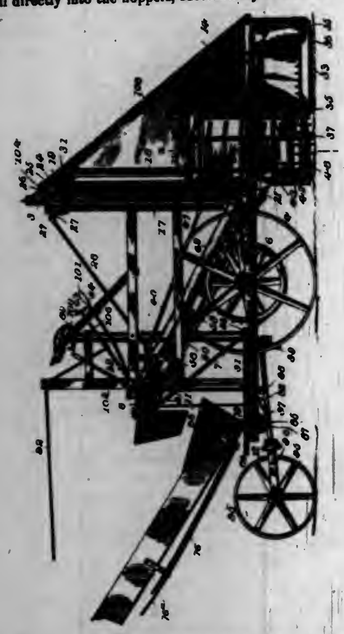
594,802. CORN-HARVESTER. CHARLES E. KNUDSON, Everest, Kans. Filed Feb. 16, 1897. Serial No. 623,718. (No model.)

Claim.—1. In a corn-harvesting machine, a main frame, consisting of the combination of two outer side frames provided with main supporting-wheels, said side frames being provided at their forward ends with vertical diverging guide-plates, a main V-shaped yoke projecting vertically upward rigidly connecting said outer frames, and an inner frame rigidly supported from the upper portion of said yoke, said inner frame being provided at its forward portion with vertical converging guide-plates meeting at their forward edges, said guide-plates being adapted to guide the corn into the channels between said frames, substantially as described.

2. In a corn-harvesting machine, a main frame consisting of the combination of two outer side frames, a main yoke projecting upwardly rigidly connecting said outer frames, an inner frame rigidly supported from the upper portion of said yoke forming channels between the outer frames and the inner frame, stripper-rollers located on each side of said channels each pair being inclined toward the other, and hoppers at the forward end of said inner frame, beneath said stripper rollers, and extending substantially the entire width of said inner frame, whereby the ears may fall directly into the hoppers, as and for the purpose set forth.

3. In a corn-harvesting machine, a main frame consisting of the combination of two outer side frames, a main yoke projecting upwardly rigidly connecting said outer frames, an inner frame rigidly supported from the upper portion of said yoke forming channels between the outer frames and the inner frame, stripper-rollers located on each side of said channels, each pair being inclined toward the other and arranged in a vertical plane, and hoppers at the forward end of said inner frame, beneath said stripper-rollers, and extending

substantially the entire width of said inner frame, whereby the ears may fall directly into the hoppers, substantially as described.



4. In a corn-harvesting machine, a main frame consisting of the combination of two outer side frames, a main V-shaped yoke projecting vertically upward rigidly connecting said outer frames, an inner frame rigidly supported from the upper portion of said yoke forming channels between the outer frames and the inner frame, stripper-rollers located on each side of said channels, each set of said rollers being arranged substantially parallel to the leg of the yoke adjacent thereto, and hoppers at the forward end of said inner frame beneath said stripper-rollers, and extending substantially the entire width of said inner frame, whereby the ears may fall directly into the hoppers, substantially as described.

5. In a corn-harvesting machine, the combination of a main frame consisting of two outer side frames, a main yoke projecting upwardly connecting said outer frames, an inner frame rigidly supported from the upper portion of said yoke, forming channels between the outer frames and the inner frame, stripper-rollers located on each side of said channels, each pair being inclined toward the other, hoppers at the forward end of said inner frame beneath said stripper-rollers and extending substantially the entire width of said inner frame, husking-rollers arranged longitudinally of the machine and upon said inner frame directly back of said hoppers, and means for conducting the ears from the hoppers to the husking-rollers, substantially as described.

6. In a corn-harvesting machine, the combination of the guide-plates extending forwardly and divergently and adapted to conduct the stalks to the operative parts of the machine, a pair of vertically-arranged sprocket-wheels suitably journaled adjacent to the rear face of each guide-plate near the lower edge thereof, endless gathering-chains provided with vertically-projecting fingers carried by each pair of sprockets, the under portions of said chains being driven in proximity to the ground and substantially parallel thereto, the direction of motion of said under portions being from the forward sprocket toward the rear sprocket, so as to conduct the fallen stalks and ears to the operative parts of the machine, substantially as described.

7. In a corn-harvesting machine provided with stripper-rollers, the combination of the guide-plates extending forwardly and divergently and adapted to conduct the standing stalks to the stripper-rollers, said guide-plates being provided at their lower edges with endless gathering-chains having vertically-projecting fingers, the under portions of said gathering-chains being arranged to be driven rearwardly in proximity to the ground and parallel thereto, and two conveyers 41 and 42, located vertically and opposite each other and adapted to receive the corn as it is discharged from the gathering-chains and convey the same to the stripper, substantially as described.

8. In a corn-harvesting machine, a corn-gathering mechanism consisting of front and rear sprockets located in a vertical plane and in proximity to the ground, an endless toothed gathering-chain carried by said sprockets, and an auxiliary toothed gathering-cylinder located in a substantially horizontal position in rear of said chain and in proximity to the ground, the shaft of said cylinder being connected to and rotating with the shaft of the rear sprocket, substantially as described and for the purpose set forth.

9. In a corn-harvesting machine, a corn-gathering mechanism, consisting of front and rear sprockets, located in proximity to the ground, an endless toothed gathering-chain carried by said sprockets, an auxiliary toothed gathering-cylinder located in rear of said chain, the shaft of said cylinder being connected to and rotating with the shaft of the rear sprocket, a shaft carrying sprockets located above said cylinder, an endless carrier passing over said sprockets and cylinder, and means for driving said upper shaft, substantially as described.

10. In a corn-harvesting machine, an endless carrier for elevating the stalks, consisting of the combination of upper and lower sprockets, endless carrier-chains passing over said sprockets, and cross-bars attached to said chains, said cross-bars having inwardly-turned forward ends, substantially as described.

11. In a corn-harvesting machine, a corn-gathering mechanism, consisting of the combination of a gathering-cylinder provided with teeth arranged at intervals over its entire surface, said cylinder being arranged in a substantially horizontal position and longitudinally of the machine, the forward end of said cylinder being tapered, and an endless carrier passing over said gathering-cylinder, said teeth projecting through said carrier and adapted to gather the corn and transfer the same to the carrier, substantially as described.

12. In a corn-harvesting machine, a corn-gathering mechanism consisting of the combination of a gathering-cylinder provided with teeth arranged at intervals over its entire surface, said cylinder being arranged in a substantially horizontal position and longitudinally of the machine and having its forward end tapered, sprockets carried by said cylinder, a shaft located above said cylinder carrying sprockets in alinement with the sprockets on the cylinder, chains passing over said sprockets, and slats connected transversely to said chains, said slats having inwardly-turned forward ends corresponding to the taper of the cylinder, substantially as described.

13. In a corn harvesting machine having a main frame provided with an internal channel, stripper-rollers arranged on opposite sides thereof, the combination of gathering-cylinders provided with teeth arranged at intervals over their entire surfaces, said cylinders being arranged substantially horizontally and longitudinally of the machine, sprockets arranged above said cylinders, and endless carriers passing over said sprockets and cylinders, said carriers and cylinders being arranged and driven on opposite sides of said channel, and adapted to lift the corn and conduct the same to the stripper-rollers, substantially as described.

14. In a corn-harvesting machine provided with an internal channel, having stripper-rollers located therein, endless vertical carriers arranged and driven on opposite sides of said channel, one of said carriers being shorter than the other, and a hopper located adjacent to the shorter carrier, substantially for the purpose set forth.

15. In a corn-harvesting machine, consisting of two outer frames and an inner frame, channels between said frames, stripper-rollers located on opposite sides of said channels, inner and outer vertical endless carriers arranged and driven on each side of said channels, and hoppers located between the inner carriers and adjacent thereto, said inner carriers being shorter than said outer carriers, substantially as described.

16. In a corn-harvesting machine, a main frame provided with internal channels having stripper-rollers located therein, front and rear sprockets located in proximity to the ground on each side of said channels, endless gathering-chains carried by said sprockets, upper and lower sprockets located on opposite sides of said channels, said lower sprockets being located in proximity to the ground in the rear of and adjacent to said rear sprockets, endless carriers carried by said upper and lower sprockets, the shafts of each lower sprocket being connected to the shafts of its corresponding rear sprocket by a universal joint, and means for driving said upper sprockets whereby the corn and stalks will be drawn into said channels and lifted up and conducted to the stripper, substantially as described.

17. In a corn-harvesting machine, a stripping mechanism consisting of the combination of stripper-rollers, and means for deflecting the ear to break it from the stalk as the stalk is drawn into the stripper-rollers, consisting of an auxiliary roller mounted in front of the opening between said stripper-rollers and adapted to be freely rotated by the corn as it passes to the stripper, substantially as described.

18. In a corn-harvesting machine, a stripping mechanism consisting of the combination of stripper-rollers, and means for deflecting the ear to break it from the stalk as the stalk is drawn into the stripper-rollers, consisting of a smooth auxiliary roller mounted in front of the opening between said stripper-rollers and adapted to be freely rotated by the corn as it passes to the stripper, substantially as described.

19. In a corn-harvesting machine, a stripping mechanism consisting of the combination of stripper-rollers, and means for deflecting the ear to break it from the stalk as the stalk is drawn into the stripper rollers, consisting of a smooth auxiliary roller mounted in front of the opening between said stripper-rollers, and parallel to said rollers, and adapted to be freely rotated by the corn as it passes to the stripper, substantially as described.

20. In a corn-harvesting machine, a stripping mechanism consisting of the combination of stripper rollers, and means for deflecting the ear to break it from the stalk as the stalk is drawn into the stripper-rollers, consisting of an auxiliary roller mounted in front of the opening between said stripper-rollers, and parallel to said rollers, and adapted to be freely rotated by the corn as it passes to the stripper, and means for adjusting said auxiliary roller with relation to said opening, substantially as described.

21. In a corn-husking mechanism, the combination of husking-rollers, and independent means for rotating the ears longitudinally upon and pressing them against said husking-rollers, said means consisting of an endless belt driven transversely over and upon said ears, and an independent endless conveyer for carrying the ears along said husking-rollers, said conveyer passing between the husking-rollers and the endless belt, substantially as described.

22. In a corn-husking mechanism, the combination of husking-rollers, and independent means for rotating the ears longitudinally upon and pressing them against said husking-rollers, said means consisting of an endless belt driven over and upon said ears, and an independent endless conveyer for carrying the ears along said husking-rollers, said conveyer passing between the husking-rollers and the endless belt, substantially as described.

23. In a corn-harvesting machine, a hopper for receiving the ears from the stripper-rollers, a conveyer-belt operating in the bottom of said hopper for conveying the ears to the husking mechanism of the machine, said conveyer being provided with transverse rods, and an agitator in the lower end of said hopper, consisting of a pivoted plate, the lower edge of said plate depending in the path of the cross-bars of the conveyer, whereby said plate will be oscillated as the bars of the conveyer strike the same, substantially as described.

24. A corn-husking mechanism, consisting of the combination of one or more pairs of husking-rollers, the rolls of each pair being driven toward each other, a pressure-belt above said rollers driven at right angles to said rollers and in proximity thereto, stop-bars arranged parallel to said rollers and between said belt and said rollers, one of said bars being arranged over each roll which rotates in the same direction as said belt, and an endless conveyer driven longitudinally of said rolls for carrying the ears along the same, substantially as described.

25. A corn-husking mechanism, consisting of the combination of one or more pairs of husking-rollers, the rolls of each pair being driven toward each other, a pressure-belt above said rollers driven at right angles to said rollers and in proximity thereto, stop-bars arranged parallel to said rollers and between said belt and said rollers, one of said bars being arranged over each roll which rotates in the same direction as said belt, and an endless conveyer driven longitudinally of said rolls for carrying the ears along the same, said conveyer being driven between said rolls and stop-bars, substantially as described.

26. In a corn-husking mechanism, the combination of husking-rollers, and independent means for rotating the ears longitudinally upon and pressing them against said husking-rollers, consisting of an endless belt driven transversely over and upon said ears, an independent endless conveyer driven longitudinally of said rolls for carrying the ears along the same, and means for confining the ears to the set of rolls upon which they are first conveyed, substantially as described.

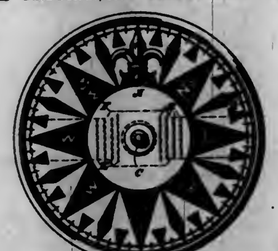
27. In a corn-harvesting machine, a husking mechanism, consisting of a hopper adapted to receive the ears of corn as they are stripped from the stalk, a pair of husking-rollers adjacent to said hopper, a conveyer for carrying the ears from the hopper to the husking-rolls, and an adjustable guard arranged between the hopper and the husking-rolls to prevent the passage of more than one ear at a time from the hopper to the rolls, substantially as described.

28. In a corn-harvesting machine, the combination of a hopper, a pair of husking-rollers for said hopper, said rollers and hopper being arranged in line, an opening in the side of said hopper, one end of the rolls being adjacent said opening, an endless conveyer arranged in the bottom of said hopper and carried longitudinally over said rolls, and means for adjusting said opening so that no more than a single ear will be discharged therethrough at a time, substantially as described.

29. In a corn-harvesting machine, a discharging-elevator consisting of a box provided with a pair of endless conveyers, a horizontal rotatable base, standards extending upwardly from said base upon which said box is pivotally supported at one end, a vertical shaft extending through the center of said base and provided at its upper end above said base with a bevel-gear, a horizontal shaft rotatably journaled in said arms, its axis being coincident with the axis upon which said box is pivoted, a bevel-gear on said horizontal shaft in mesh with the bevel-gear of said vertical shaft, a pair of sprockets carried by said horizontal shaft on opposite sides of said bevel-gears, over which said conveyers pass, and means for driving said vertical shaft, substantially as described.

30. In a corn-harvesting machine, a main frame consisting of the combination of two outer side frames, an upwardly-projecting yoke connecting said outer frames, an inner frame supported by said yoke, whereby internal channels are formed in said main frame, stripper-rolls located on each side of said channels, upper and lower sprockets located on opposite sides of said channels in advance of said strippers, endless carriers carried by said sprockets, a main driving-shaft extending transversely and located in the rear of said machine, rods 40 driven by said main shaft and connected at their forward ends to the upper sprockets of the outer carriers; shafts 27 journaled in the upper portion of said yoke and geared at their forward ends to said stripper-roll, rods 28 driven by said main shaft and connected to said shafts 27, sprockets carried by said shafts 27 and by the upper sprocket-shafts of said inner carriers, and driving-chains carried by said sprockets, substantially as described.

594,803. MARINER'S COMPASS. OSCAR KUSTEL, San Francisco, Cal. Filed Feb. 17, 1897. Serial No. 623,623. (No model.)



Claim.—1. In a mariner's compass, a compass-card formed of woven material having the points marked upon it, a supporting peripheral rim, and a band of woven material extending across from side to side of the rim and adapted to support the magnetic needles.

2. In a mariner's compass, a compass-card composed of a continuous circular sheet of woven material with a pivotal center and a peripheral supporting-rim, the surface of the card having the points of compass marked thereon and a support for magnetic needles consisting of a band to which the needles are fixed extending from side to side of the rim and crossing below the center of the compass-card.

594,804. MOVABLE LADDER FOR MUSICAL INSTRUCTION. ELLA L. R. MACK, Los Angeles, Cal. Filed Oct. 28, 1896. Serial No. 610,345. (No model.)

Claim.—1. A movable ladder for musical instruction comprising means whereby it may be suspended on a blackboard, two independent side pieces, top and bottom rounds whereby the side pieces are connected, a series of removable intermediate rounds, a removable panel having means whereby it may be suspended on the rounds, and a series of arms removably secured to one of the side pieces, substantially as set forth.

2. In a ladder for musical instruction, the combination of the ladder proper having rounds representing intervals and a series of arms removably secured to one of the sides of the ladder, substantially as set forth.

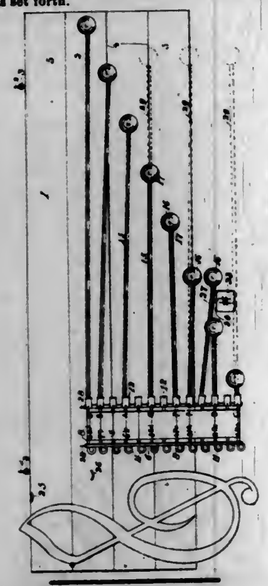
3. In a ladder for musical instruction the combination of the ladder proper having rounds representing intervals and a series of brackets pivoted to the ladder and having sockets for the reception of a series of arms, substantially as set forth.

4. In a ladder for musical instruction the combination of a ladder proper having removable rounds, pivoted brackets connected with the ladder; said brackets having sockets for the reception of a series of arms and removable buttons indicating notes, which may be connected with the outer ends of the arms, substantially as set forth.

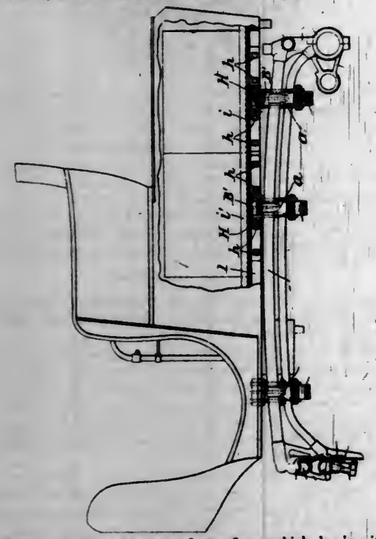
5. In a ladder for musical instruction the combination of a ladder proper, brackets on the ladder, arms secured to the brackets and staples on the arms to which tablets may be attached, substantially as set forth.

6. In a ladder for musical instruction the combination of a ladder proper, formed in sections, having rounds to indicate musical in-

tervals and a hook or its equivalent for securing the sections together, substantially as set forth.



594,805. MOTOR-VEHICLE. HIRAM P. MAXIM, Hartford, Conn. Filed May 3, 1897. Serial No. 634,841. (No model.)



Claim.—1. A running-gear frame for a vehicle having its side members composed each of two rods or bars one above the other, curved or arched upwardly and connected together at their ends and having a front member curved or arched downwardly and connected to the side members at its ends.

2. A running-gear frame for a vehicle having its side members composed of two rods or bars one above the other, curved or arched upwardly and connected together at their ends, and having a front member curved or arched downwardly and connected to the side members at its ends, and an axle curved or arched upwardly and connected to the front member at its middle.

3. The combination, in a vehicle with a running-gear frame having its front member composed of two rods or bars one above the other, curved or arched downwardly, of an axle pivotally connected to said front member to swing in a substantially vertical plane and vertical bearing-jaws extended downwardly from said front member to support the axle against movement in a horizontal plane.

4. The combination, in a vehicle with a running-gear frame, having its front member composed of two rods or bars one above the other, curved or arched downwardly, of a front axle curved or arched upwardly and pivotally connected to the front member to swing in a substantially vertical plane and vertical bearing-jaws extending downwardly from said front member to support the axle against movement in a horizontal plane.

5. In a motor-vehicle, the combination with the driving shaft or axle having a taper-shoulder and a screw-threaded end, of a wheel having a hub with a taper fit upon said taper-shoulder and a nut to engage the threaded end of said shaft or axle and force and hold the hub upon its seat on said axle.

6. In a motor-vehicle, the combination with a driving shaft or axle having a taper-shoulder and a screw-threaded end with flattened sides, of a wheel having a hub with a taper fit upon said taper-shoulder and formed to fit upon said end with flattened sides and a nut to engage said threaded end of said shaft or axle and force or hold the hub upon its seat on said axle.

7. In a motor-vehicle, the combination with the running-gear frame having a rear member, a driven shaft or axle and a motor, of hangers or brackets supported from said rear member and having bearings for said shaft or axle and hangers or brackets supported from said rear member and having bearings for the armature of said motor, and reducing mechanism between said motor and said shaft or axle.

8. In a motor-vehicle, the combination with the rear member of the running gear frame, a driven shaft or axle and a motor, of hangers or brackets supported from said rear member and having bearings for said shaft or axle, other hangers or brackets supported from said rear member and having bearings for the armature of the motor, arms projecting from the first-named hangers or brackets, a counter-shaft having bearings in said arms and reducing-gears connecting the armature of the motor, the counter-shaft and the driven shaft or axle.

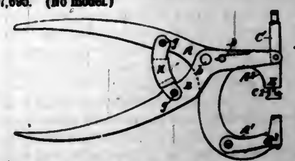
9. In a motor-vehicle, the combination with the rear member of the running-gear frame, a two-part driven shaft or axle, a balance-gear interposed between the two parts of said driven shaft or axle, two hangers or brackets supported from said rear member and having bearings for each part of said driven shaft or axle, two hangers or brackets also supported from said rear member and having bearings for the armature of said motor and reducing-gears interposed between said armature and said balance-gear.

10. In a motor-vehicle, the combination with the rear member of the running-gear frame, a driven shaft or axle and a motor, of hangers or brackets supported from said rear member and having bearings for said driven shaft or axle, and two hangers or brackets supported from said rear member and having bearings for the armature of said motor and supporting the field-coils of said motor.

11. In a motor-vehicle, the combination with the running-gear frame having a rear member, a driven shaft, a counter-shaft and a motor, of hangers or brackets having bearings for driven shaft, counter-shaft and motor, gears between said motor, counter-shaft and driven shaft, and a two-part casing inclosing the gears between said motor and counter-shaft and secured to said hangers or brackets.

12. In a motor-vehicle, the combination with the running-gear frame having a rear member, a driven shaft, a counter-shaft and a motor, of hangers having bearings for said driven shaft, counter-shaft and motor, gears between said motor, counter-shaft and driven shaft, and a two-part casing inclosing the gears between said counter-shaft and said driven shaft and secured to said hangers or brackets.

594,806. BUTTON ATTACHING OR DETACHING IMPLEMENT. FRANKLIN S. MCKENNEY, Detroit, Mich., assignor to the McKenney Button Fastening Company, same place. Filed July 1, 1896. Serial No. 597,695. (No model.)



Claim.—1. The pivotally-connected jaws for setting a button-fastening, said jaws provided with cutters for detaching a button, said cutters having in combination therewith a shield, substantially as set forth.

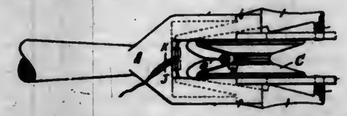
2. The pivotally-connected jaws, having in combination therewith a die-spindle reciprocatory through one of said jaws, and a removable and interchangeable button-holding device sleeved upon said die-spindle, substantially as set forth.

3. The pivotally-connected jaws, having in combination therewith a die spindle reciprocatory through one of said jaws, and a button-holding device sleeved upon said die-spindle, said device made tubular at its upper end and having a spring-tension upon the lower end of the die-spindle, the lower extremity of the device formed with spring-arms to clamp the eye of a button, substantially as set forth.

4. The pivotally-connected jaws, one of which is provided with a seat for a pronged fastening, having in combination therewith clamping-arms to engage a fastening upon the seat, and additional guards to shield the prongs of the fastening, said guards having a vertically and laterally movable engagement with one of said jaws, substantially as set forth.

5. The pivotally-connected jaws, having in combination therewith a die-spindle reciprocatory through one of said jaws, and a button-holding device constructed with a tubular portion at its upper end, sleeved upon the die-spindle and with depending spring-arms to support and clamp the shank of a button, said arms provided with a stop to center the end of the shank of the button under the center of the die, substantially as set forth.

594,807. TROLLEY-GUARD. LYMAN H. MCNETT, Eldora, Iowa. Filed July 26, 1896. Serial No. 600,478. (No model.)



Claim.—1. A trolley comprising in combination a pole or mast having at its upper end a bifurcated head or fork, part of which is webbed at top near crown; an electric conducting-wire; a grooved wheel journaled between the arms of said fork and running in contact with said wire; a pair of side guards each extending and continuing from said fork ends outward and upward above said wire and having an aperture through each transversely; a pair of levers pivoted in recesses in said head, the outer end of said levers operating in said apertures and terminating in fingers turned angularly toward each other the ends meeting centrally above said wire to form a top guard which, when closed, together with the wheel and side guards, incloses said wire in section, said levers having the opposite ends connected each to a cord running over guide-rollers and downward to afford means for manipulating said levers and top guard-fingers, and suitable springs supported to normally press said finger ends together, substantially as shown and for the purpose described.

2. In a trolley, the combination of a bifurcated head, a grooved wheel suitably journaled therein, a pair of guard-arms extending from the arms of said head upward above the flanges of said wheel, a pair of levers pivoted in said head having inwardly-turned guard-fingers at their outer ends, said fingers meeting centrally above a line drawn over the bottom of the groove in said wheel, suitable springs to automatically press said fingers normally together, and means substantially as described by which said fingers may be opened automatically when wheel is being disengaged from a circuit-wire, substantially as shown, for the purposes set forth

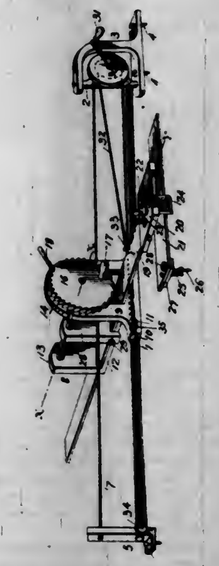
3. The herein-described trolley, comprising in combination, the bifurcated head, a grooved wheel journaled therein, running in contact with a circuit-wire, the side guards having apertures therethrough, the levers pivoted in said head having the turned guard-fingers, operating in said apertures, the spring normally pressing said fingers together, the guide-pulleys and cords running over same and connecting the inner ends of said levers, substantially as shown and described.

594,808. RULING-MACHINE. THOMAS OWEN, Houston, Tex., assignor of one-half to Thomas J. Baker and Jacob V. Dealy, same place. Filed May 25, 1897. Serial No. 638,124. (No model.)

Claim.—1. In an instrument of the character described, the combination with the track, of a carriage mounted to reciprocate thereon, a beam having a sliding engagement in said carriage, means for sliding said beam lengthwise, said beam being provided with a head, and a tool-bar rotatably connected with said head, and provided with means for locking it, substantially as set forth.

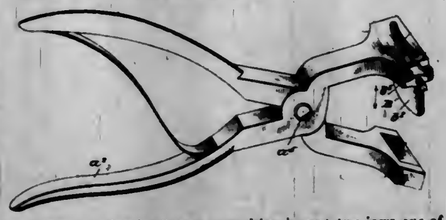
2. In an instrument of the character described, the combination with the track, of a carriage mounted to reciprocate thereon, a beam having a sliding engagement in said carriage, a ratchet-wheel carried by said carriage and provided with a screw-shaft, a nut engaged with said screw-shaft and adjustably connected with said beam, said beam provided with means for clamping and holding a tool or pencil, substantially as set forth.

3. In an instrument of the character described, the combination with a standard, of a track hinged thereto, a carriage supported to slide lengthwise of said track, means for reciprocating said carriage, a beam carried by said carriage, a tool or pencil supporting bar, means for connecting said bar to the beam, and means for rotating said bar, substantially as set forth.



4. In a tool of the character described, the combination with the standard, a post journaled therein, a pulley journaled on said post, a track connected to said post and provided at its outer end with a foot having means for fastening it stationary, a carriage adapted to slide on said track, a cord or connection wound about said pulley and having one end secured to the carriage at one point and the other end passing around a sheave journaled to the outer end of the track and secured to the carriage at another point, and a beam having a head at one end, means for longitudinally adjusting the beam, and a tool or pencil bar rotatably connected with said head and provided with means for fixing the tool-bar to said head, substantially as set forth.

594,809. HOG-NOSE CUTTER. ROBERT S. RUST, Front Royal, Va., assignor to Thomas Bolling Robertson, Delaplane, Va. Filed Aug. 4, 1897. Serial No. 647,060. (No model.)



Claim.—1. A pair of tongs comprising, in part, two jaws, one of which is provided with a chamber, having in its rear wall a slot, and in one of its side walls a recess having an external surrounding countersink, in combination with a hollow punch, having a head for engaging the chamber, and with an offset fitting the side recess, and a fastening device adapted to engage the countersink to hold the punch in place, substantially as described.

2. A pair of tongs comprising, in part, two jaws, one of which is provided with a chamber, having in its rear wall a slot, and in one of its side walls a recess having an external surrounding countersink, in combination with a hollow punch, the cutting portion of which is approximately semicircular in cross-section, the punch having a head for engaging the chamber, and with an offset fitting the side recess, and a fastening device adapted to engage the countersink to hold the punch in place, the other jaw being provided with a chamber in which is fitted a yielding bed or contact-face for the cutting edge of the punch, substantially as described.

594,810. SHOE-TURNING MACHINE. GEORGE H. RYAN, Brockton, Mass., assignor to Oliver A. Miller, same place. Filed Feb. 19, 1897. Serial No. 624,211. (No model.)

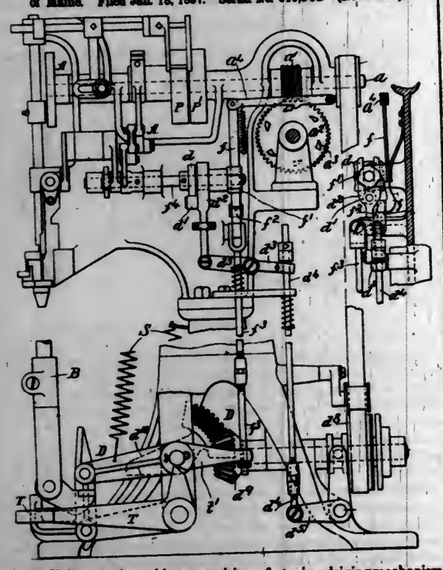


Claim.—1. In a machine for turning the rear or counter portion of a "turn-shoe," a form over which the shoe is turned having an open front, vertical side walls, and outwardly-slanting rear wall, whereby the shoe may be placed upon said form with the walls of the form directly under the junction of the edge of the sole with the upper, for the purpose set forth.

2. In a machine for turning the rear or counter portion of a "turn-shoe," the combination with a form over which the shoe is to be turned, having an open front, vertical side walls and outwardly-slanting rear walls, of a lever pivoted to the frame, a plunger mounted on the lever, a treadle, and connected mechanism between said treadle and lever moving said plunger in a curved line into and out of the form, for the purpose set forth.

3. In a machine for turning the rear or counter portion of a "turned shoe," a treadle, a form over which the shoe is turned, a lever fulcramed to the machine, a plunger attached to said lever, and connected operating mechanism between said treadle and lever, consisting of a rod pivoted to said treadle, a rod pivoted to said lever, said rods pivoted together, and a link pivotally attached at one end to the frame of the machine and at the other end to the pivotal joint between said rods, for the purpose set forth.

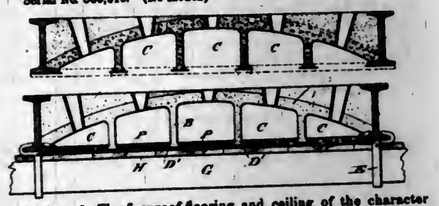
594,811. FASTENING-DRIVING MACHINE. WALTER SHAW, Boston, Mass., assignor to the Continental Lasting Machine Company, of Maine. Filed Jan. 18, 1897. Serial No. 619,544. (No model.)



Claim.—1. A machine comprising a fastening-driving mechanism; a jack; mechanism for presenting the jack and mechanism to automatically connect and disconnect the jack-presenting mechanism and its driving-shaft to cause the jack to be presented to the fastening-driving mechanism when the fastening-driving mechanism drives a fastening, substantially as described.

2. In combination, a fastening-driving mechanism; a jack; mechanism for presenting the jack; automatic mechanism to connect and disconnect the jack-presenting mechanism and its driving-shaft and means whereby the operator can control the operation of the automatic mechanism.

594,812. PROCESS OF CONSTRUCTING WALLS, FLOORS, AND CEILINGS. JUSTUS J. SMITH, New York, N. Y. Filed May 1, 1896. Serial No. 589,819. (No model.)



Claim.—1. The fireproof flooring and ceiling of the character described, which consists of primary arches spanning the interval between adjacent floor-beams; depending arms made integral with said arches, located within the cusps of said arches and extending longitudinally of said arches and parallel with said beams; a continuous ceiling, coincident with the chord-line of said arches and having the lower ends of the said depending arms embedded therein, substantially as described.

2. The fireproof flooring and ceiling of the character described, which consists of primary arches spanning the interval between adjacent floor-beams, the chord-line of said arches extending across the interval from one beam to the next; depending beams formed integral with said arches extending parallel with said floor-beams and having their lower ends extending into the chord-line of said arches; a series of plug-holes extending through the body of said arches between the said depending beams, and a continuous ceiling coincident with the chord-line of said arches and having the lower ends of said depending beams embedded therein, substantially as described.

3. In fireproof floorings and ceilings of the character described, the combination with a plurality of I-beams, concrete arches spanning the interval between adjacent I-beams the chord-line of said arches extending across from beam to beam; depending I-beams formed integral with the said arch with their lower ends extending into the chord-line of said arches and extending longitudinally of said arches and parallel with said beams; plug-holes extending through the body of said arches between the depending beams, and a continuous ceiling coincident with the chord-line of said arches and having the lower ends of the said beams embedded therein, substantially as described.

4. The fireproof flooring and ceiling of the character described, which consists of primary arches spanning the interval between adjacent floor-beams; depending beams made integral with said arches, located within the cusps of said arches and extending longitudinally of said arches and a continuous ceiling having the lower ends of the said depending beams embedded therein, substantially as described.

5. The fireproof flooring and ceiling of the character described, which consists of primary arches spanning the interval between adjacent floor-beams, the chord-line of said arches extending across the interval from one beam to the next; depending beams formed integral with said arches and extending parallel with said floor-beams; a series of plug-holes extending through the body of said arches between the said depending beams, and a continuous ceiling having the lower ends of said depending beams embedded therein, substantially as described.

6. The improved art of constructing fireproof flooring and ceiling of the character described, which consists in forming the arches and depending beams simultaneously *in situ*, by molding the same on core-boxes; then forming the ceiling after the arches and depending beams have become "fixed," by flooding concrete from above, through the body of said arches and on a temporary supporting structure, and causing the lower ends of said depending beams to become embedded in said ceiling, substantially as described.

594,818. BICYCLE-SUPPORT. JACOB W. STRICKLE and JOHN V. PRITT, Huntsville, Ala. Filed Nov. 6, 1896. Serial No. 611,221. (No model.)

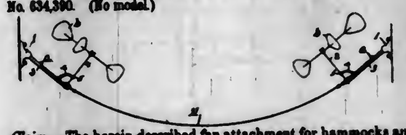
Claim.—1. A bicycle-support comprising a horizontal plate carrying a plurality of openings therein, a vertical shank upon said plate, a split inclined sleeve upon said shank adapted to engage the tubing of the bicycle-frame, legs extending down through the openings in said plate, and a slotted plate connecting the upper ends of said legs, substantially as described.



2. A bicycle-support comprising a horizontal plate having a plurality of openings formed therein, a vertical shank upon said plate, a split inclined sleeve upon said shank adapted to engage the tubing of the bicycle, legs extending through the openings in said plate, a slotted plate in which the upper ends of the legs are mounted, a wire flexibly connecting the upper ends of said legs to hold the same in the slots of the slotted plate, and means for holding the legs in an elevated position when so desired, substantially as described.

3. In a bicycle-support, the combination with a plate having openings therein, means upon said plate for securing the same to the frame of the bicycle, legs extending through the openings in said plate, a second plate to which the upper ends of the legs are pivotally attached, a hook upon said second plate, and an elastic member adapted to be secured to the frame of a bicycle so as to be engaged by the hook to hold the legs in an elevated position, substantially as described.

594,814. AUTOMATIC FAN ATTACHMENT FOR HAMMOCKS, &c. WHITFORD H. SWEET, Auburn, R. I. Filed Apr. 29, 1897. Serial No. 634,390. (No model.)



Claim.—The herein-described fan attachment for hammocks and analogous devices, consisting of an arm pivotally supported at one end for vertical movement, a spindle having one end journaled in the free end of said arm, and its free end extending at right angles therefrom, a pinion-gear rigidly secured upon the confined end of said spindle, and rotatable therewith, a segment-rack pivotally mounted upon said arm for movement transversely of the latter, and arranged to mesh with said pinion and by its movement to rotate the latter and said spindle, and fan blades or wings secured upon the free end of said spindle and rotatable therewith, all combined with each other and with a hammock or other oscillating body, and means for supporting the whole.

594,815. APPLIANCE FOR ASSISTING ANATOMICAL ORGANS. HORACE D. TAGGART, Akron, Ohio. Filed Jan. 13, 1896. Serial No. 574,669. (No model.) Patented in Belgium May 21, 1896, No. 115,705; in France May 21, 1896, No. 247,611, and in Canada June 23, 1896, No. 52,738.

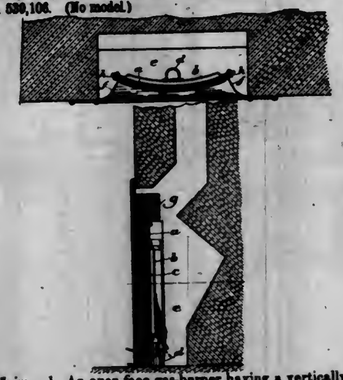


Claim.—1. An appliance for assisting the male generative organ in the natural performance of its functions, consisting of a triangular device having yielding portions, one of said yielding portions being adapted to press the dorsal vein.

2. An appliance for assisting the male generative organ in the natural performance of its functions, consisting of a device having yielding portions and a portion to receive the urethra without contracting it, one of said yielding portions being adapted to extend over and press the dorsal vein and the other yielding portions being adapted to bear against the corpora cavernosa.

3. As an article of manufacture an appliance for assisting anatomical organs in the performance of their functions, the same consisting of three members connected together in one piece, the sides thereof extending inward from a straight line between their ends to compress the organ at the sides without constricting the urethra, substantially as set forth.

594,816. BURNER FOR GAS FIREPLACES OR STOVES. WILLIAM G. TAYLOR, Hulton, Pa., assignor to the Taylor Burner and Electroplating Company, Limited, Pittsburg, Pa. Filed Feb. 20, 1895. Serial No. 539,106. (No model.)



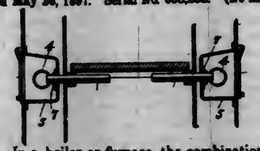
Claim.—1. An open-face gas-burner having a vertically-extending fire board formed with series of gas-jet perforations, said board being arranged to be heated by the flames issuing from the perforations and being curved outwardly in horizontal cross-section to separate the flames from each other.

2. An open-face gas-burner having a vertically-extending fire-board formed with series of gas-jet perforations, said board being arranged to be heated by the flames issuing from the perforations and being curved outwardly in horizontal cross-section to separate the flames from each other, and cheek-pieces secured to the side portions of the board.

3. An open-face gas-burner having a vertically-extending fire-board formed with series of gas-jet perforations, said board having incandescing material on its front face and being curved outwardly in horizontal cross-section to separate the flames from each other.

4. An open-face gas-burner formed with series of gas-jet perforations, said perforations being parallel with each other, the board being arranged to be heated by the flames issuing from the perforations, and being curved in horizontal cross-section, so that the tips of the jets are distant from each other farther than are the bodies of the jets.

594,817. BOILER-FURNACE. JUDSON W. WARNER, Oneida, N. Y. Filed May 26, 1897. Serial No. 638,252. (No model.)



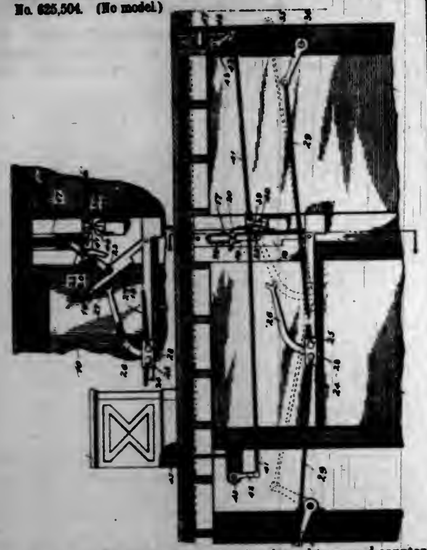
Claim.—1. In a boiler or furnace, the combination of grates, a longitudinal chamber, and short pipes communicating with said chambers at opposite ends of the grates and forming the support for said grates with their adjacent ends terminating at a distance from each other, substantially as and for the purpose specified.

2. In a boiler or furnace, the combination with the grates, of longitudinal chambers at opposite sides of the boiler, short pipes having their outer ends extended into said chambers and their inner ends supporting the ends of the grates and terminating at a distance from each other whereby equal distribution of the air is provided beneath the grates, substantially as specified.

3. In a boiler or furnace, the combination of grates, a longitudinal chamber at each side of the boiler, short pipes extending into the said chambers and having their inner ends supporting the grates and terminating at a distance from each other, and pipe-fixtures on the outer ends of said pipes within the chambers, substantially as and for the purpose specified.

4. In a boiler or furnace, the combination of grates, longitudinal chambers at opposite sides of the boiler, short pipes extending into said chambers and having their inner ends forming supports for the grates and terminating at a distance from each other, and removable plates forming the outer walls of said chambers, substantially as and for the purpose specified.

594,818. ROBBER AND BURGLAR TRAP. WILLIAM R. WEARTON and FRANK T. FREEMAN, Bentonville, Ark. Filed Mar. 1, 1897. Serial No. 625,504. (No model.)



Claim.—1. The combination with the pivoted traps and counterbalancing-weights, of a movable bracket for supporting the same, toggle-levers carrying said brackets, triggers for holding said toggle-levers extended, sliding arms for moving said toggle-levers to an extended position, and a tripping-lever for tripping said triggers.

2. In a device of the kind specified, the combination with the pivoted traps, of counterbalancing-weights, gearing between said counterbalancing-weights and said traps for raising the latter, stops to limit the upward movement of said traps, and movable brackets for supporting said traps, and devices for operating the same.

3. In a device of the kind specified, the pivoted traps, the counterbalancing-weights, rotatable shafts carried by said traps and having winding-drums connected by cables to said weights, gear-pinions upon said shafts intermeshing with stationary racks, stops to limit the upward movement of said traps, movable brackets for supporting said stops, and means for operating said brackets.

4. In a device of the kind specified, the pivoted traps having counterbalancing-weights, movable brackets for supporting the same, toggle-levers carrying said brackets, triggers and tripping devices for said toggle-levers, and movable arms situated to engage said toggle-levers and provided with devices for moving the same back and forth for the purpose of extending said toggle levers.

5. In a device of the kind specified, the pivoted traps having counterbalancing-weights, movable brackets for supporting said traps, toggle-levers supporting said brackets and provided with triggers and tripping devices, a projection upon said toggle-levers at the joints thereof, a forked and pivoted arm carried by a slide and adapted to engage the projections of said toggle-levers, and devices for moving said slide back and forth.

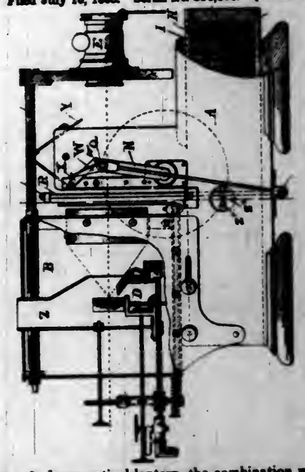
6. In a device of the kind specified, the pivoted traps having counterbalancing-weights, the brackets, toggle-levers, triggers and tripping devices, slides carrying pivoted forked arms adapted to engage projections upon said toggle-levers, and a pivoted lever connected with said slides for moving the same back and forth.

7. In a device of the kind specified, the pivoted traps having counterbalancing-weights, sliding brackets movable in upright guides adjacent the corners of said traps, toggle-levers having the upper ends of their upper joints pivoted to said brackets, an extension upon one of the joints of said toggle-levers, a spring upon the other joint of said toggle-levers to engage said extension, a trigger carried by said other joint of the toggle-levers to engage the other end of said extension, tripping devices for said lever, and a movable arm situated to engage and move said toggle-levers to an extended position.

8. In a device of the kind specified, the pivoted traps having counterbalancing-weights, sliding brackets movable in upright guides and carried by toggle-levers, a trigger for holding said toggle-levers extended, tripping-levers situated adjacent to said triggers, a foot-piece connected with said tripping-levers for moving the same to trip said triggers, and movable arms situated to engage said toggle-levers for the purpose of extending the same.

9. In a device of the kind specified, the pivoted traps having counterbalancing-weights geared to rotatable shafts carried by said traps, racks upon a stationary part and geared to said rotatable shafts, stops for limiting the upward movement of said traps, sliding brackets movable in upright guides and situated to engage the sinking corners of the said traps, toggle-levers to the upper end of which said sliding brackets are pivoted, extensions upon one of the joints of said toggle-levers, springs upon the other joints of said toggle-levers to engage the said extension, pivoted spring-actuated triggers carried by the upper joint of said toggle-levers, to engage the said extensions, pivoted spring-actuated tripping-levers situated to engage said triggers, a foot-piece connected with said tripping-levers for operating the same, and pivoted and movable forked arms situated to engage projections upon said toggle-levers, and a pivoted lever connected with said arms for moving the same.

594,819. OPTICAL LANTERN. SAMUEL W. ALLEN, New York, N. Y. Filed July 16, 1895. Serial No. 556,193. (No model.)

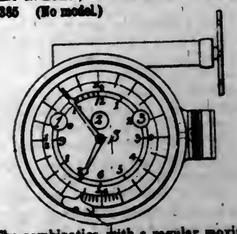


Claim.—1. In an optical lantern, the combination with the box and slides thereof, of a plunger passed through said box and arranged to raise said slides, a movable screen, and connections between said plunger and screen whereby reciprocations of the plunger operate to raise the screen and permit it to drop.

2. In an optical lantern, the combination with a slide box or rack arranged to be moved longitudinally below the lantern proper, of a plunger movable vertically through said box to elevate the slides out of the box, means for forcing the slides back to position in said box, a movable screen, and connections between said plunger and screen whereby reciprocations of the plunger operate to raise the screen and permit it to drop.

3. In an optical lantern, the combination with a slide box or rack arranged to be moved longitudinally below the lantern proper, of a plunger movable vertically through said box to elevate the slides therefrom, means for forcing the slides back to position in said box, pawl mechanism for advancing the box intermittently, a movable screen, and connections between said plunger and screen whereby reciprocations of the plunger operate to raise the screen and permit it to drop.

594,820. INSTRUMENT FOR MEASURING TIME AND DISTANCE. SERENO H. AYRES, New York, N. Y. Filed Apr. 28, 1896. Serial No. 589,385. (No model.)



Claim.—1. The combination with a regular moving mechanism of a record-tablet moved by said mechanism across a given point, a marker, a hammer, a second moving mechanism for operating said marker and engaging devices for intermittently holding said hammer from engaging the marker-head, all substantially as set forth.

2. The combination with a cyclometer-wheel provided with one or more notches, each provided with an inclined plane at one side, of a hammer provided with a lip extending over the rim of said wheel and adapted to enter the notch and engage the inclined plane thereof, a marker in line with said hammer, a tablet carried with regularity under the marker and mechanism substantially as described for moving said tablet, all substantially as set forth.

3. The combination with a double mechanism substantially as described of a circular moving tablet connected with the time-movement, a marker mounted on a movable arm, an elbow-lever mounted in the case, one end connected to the arm of the marker and the opposite end bearing against a cam, said cam, gears connecting said cam to the time-movement and means substantially as set forth for operating the marker to mark the tablet, all substantially as set forth.

4. The combination with a double mechanism substantially as described of a circular moving tablet connected with the time-movement, a marker mounted on a movable arm, an elbow-lever, with arms of different length, mounted in the case, the longer end connected to the arm of the marker and the opposite end bearing against a cam, said cam, gears connecting said cam to the time-movement and means substantially as set forth for operating the marker to mark the tablet, all substantially as set forth.

5. The combination with a double mechanism substantially as described of a circular moving tablet connected with a time movement, a marker mounted on a movable arm, an elbow-lever mounted in the case, one end connected to the arm of the marker and the opposite end bearing against a cam, said cam, gears connecting said cam to the time-movement, a spring bearing against said lever oppositely to the stress of the cam and means substantially as set forth for operating the marker to mark the tablet, all substantially as set forth.

6. The combination with a cyclometer-wheel provided with one or more notches, of a hammer, provided with a lip extending over the rim of said wheel and adapted to enter a notch, a second lip depending within the line of the wheel, an inclined plane also within said line and adjacent to the notch, a marker in line with said hammer, a tablet carried with regularity under the marker and mechanism substantially as described for carrying said tablet, all substantially as set forth.

594,821. CUSHIONED HORSESHOE. GEORGE H. BLANCHARD, Clinton, Iowa, assignor to Etta T. Blanchard, Davenport, Iowa. Filed Feb. 16, 1897. Serial No. 623,634. (No model.)



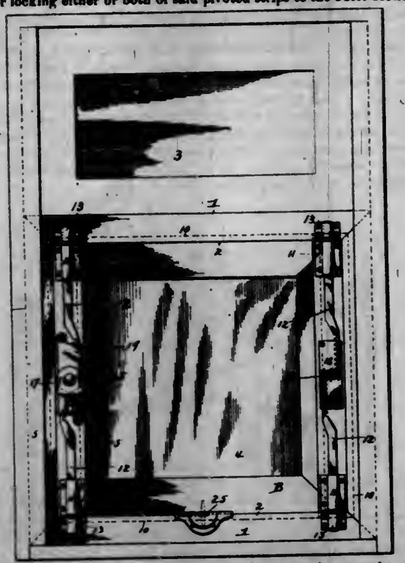
Claim.—1. A horseshoe, comprising a metal body provided with openings and having flanges projecting from its upper face and extending around its sides and ends, and a flat cushion arranged on the upper face of the body within the said flanges and provided with pendent calks extending through said openings and projecting below the metal body, substantially as described.

2. A horseshoe, comprising a metal body having a series of openings and provided with depending flanges surrounding the said openings, and a flat cushion arranged on the upper face of the body and provided with a series of pendent calks extending through the openings and projecting below the flanges, substantially as described.

3. The combination with the metal shoe-body having vertical flanges at the outer edges and a series of apertures having pendent surrounding guide-flanges, of the cushion member held on the top of the shoe with its outer edges to bear against the flanges thereof, said member having pendent calks or bearing portions made tapering and adapted to pass through and become wedged in such guides, as specified.

594,822. WINDOW-SASH. JAMES M. BOLTON, Sioux City, Iowa, assignor of one-half to James L. Kennedy, same place. Filed Feb. 27, 1897. Serial No. 625,338. (No model.)

Claim.—1. A window-sash, comprising an outer and an inner section, the sides of the latter carrying strips pivoted thereto and means for locking either or both of said pivoted strips to the outer section.



2. A window-sash, comprising an outer and an inner section, the sides of the latter carrying strips pivoted thereto, the meeting edges of said strips and inner section constructed to overlap, and means for locking either or both of said pivoted strips to the outer section.

3. A window-sash, comprising an outer and an inner section, the sides of the latter carrying strips pivoted thereto, means for locking either or both of said pivoted strips to the outer section and means for limiting the outward movement of the inner section.

4. A window-sash, comprising an outer and an inner section, the sides of the latter carrying strips pivoted thereto, devices for connecting either or both of said pivoted strips to the outer section and means for locking said connecting devices against movement.

5. In a window-sash, the combination with an outer and an inner section, and supplemental strips or rails carried by and pivotally connected to the side rails of the inner section, of locking-bolts carried by said pivoted strips for locking either or both of the pivotal strips to the outer section and means for actuating said bolts, substantially as set forth.

6. In a window-sash, the combination with an outer and an inner section, and supplemental strips or side rails carried by and pivotally connected to the side rails of the inner section, of locking-bolts carried by said pivoted strips for locking either or both of the pivotal strips to the outer section, means for actuating said bolts and locks adjacent to said actuating mechanism whereby either or both of said mechanisms may be locked against unauthorized manipulation, substantially as set forth.

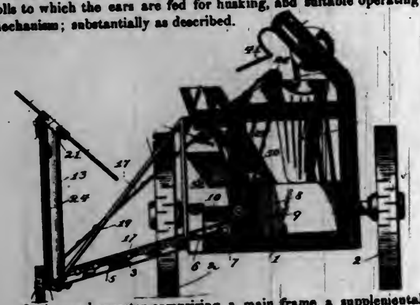
7. In a window-sash, the combination with outer and inner sections, and supplemental strips or side rails carried by and pivotally connected to the side rails of the inner section, of locking-bolts carried by said pivoted strips and provided with toothed ends resting opposite one another and held in position by a casing, and bolt-throwing devices each provided with a toothed wheel for engaging the toothed sections of its respective bolts, whereby either or both of the pivotal strips may be locked to and unlocked from the outer section, substantially as set forth.

8. In a window-sash, the combination with a window-frame, and a window-sash consisting of an outer and an inner section, the former being adapted to slide within said window-frame, while the latter section is provided with pivoted side strips carried thereby, of locking-bolts carried by said pivoted strips for locking either or both of the pivotal strips to the outer section and means for throwing and releasing said bolts, substantially as set forth.

594,823. COMBINED CORN HARVESTER AND SHUCKER. JOSEPH E. BROWN, Hubbard, Nebr. Filed Jan. 16, 1896. Renewed Nov. 4, 1897. Serial No. 657,427. (No model.)

Claim.—1. A corn harvesting and shucking machine comprising

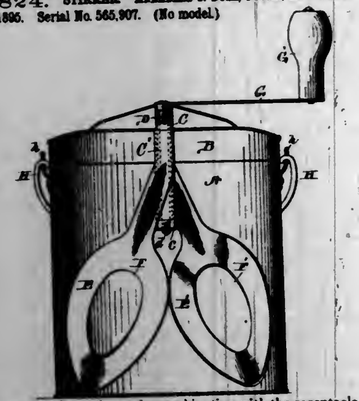
a main frame, a supplemental frame outwardly inclined from the main frame, the cutter inclined in the direction of the supplemental frame so as to cut the stalks at an angle to produce sharp-ended butts to the stalks, a belt-conveyer working laterally from the outer end of the supplemental frame to the top of the machine for conveying the cut stalks, an inclined bar extending from the main frame to the outer end of the cutter, an inwardly-inclined reel working at a right angle approximately to the inclined bar for throwing down the stalks over the latter so that the belt-conveyer will forward the stalks butt-end first, a pair of stripping-rolls into which the sharpened ends of the stalks are fed for removing the ears, a shield for preventing the separated ears from falling down the belt-conveyer, a pair of shucking-rolls to which the ears are fed for husking, and suitable operating mechanism; substantially as described.



2. A corn-harvester comprising a main frame, a supplemental frame, extending outwardly and downwardly from the main frame, the cutter inclined in the direction of the supplemental frame, so as to cut the stalks at an angle to produce sharp-ended butts to the stalks, a belt-conveyer for receiving and transferring the cut stalks, an inclined bar extending from the main frame to the outer end of the cutter, a support at the outer end of the supplemental frame, a reel having radial curved arms and mounted on the support at a right angle approximately to the inclined bar, for throwing down the stalks over the latter so that the belt-conveyer will forward the stalks butt-end first, and suitable operating mechanism, substantially as described.

3. A corn harvesting and shucking machine comprising a main frame, stripping-rolls located above the frame, husking-rolls located at the lower part of the frame, an inclined chute conducting the ears from the stripping-rolls onto the husking-rolls, a hopper located beneath the husking-rolls, a hopper located at the rear of the frame, the chute located over the frame, the belt for conveying the ears over the machinery from the hopper beneath the husking-rolls to the chute above, and suitable operating mechanism; substantially as described.

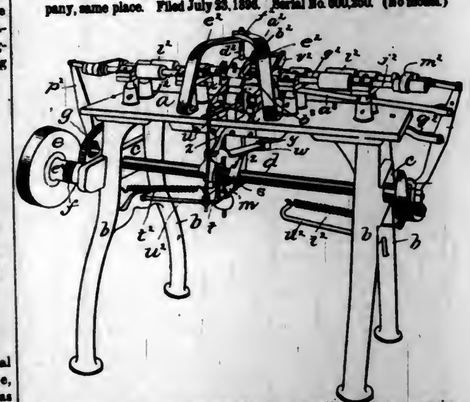
594,824. STIRRER. ANNABELL C. BULL, Peoria, Ill. Filed Oct. 16, 1895. Serial No. 565,907. (No model.)



Claim.—1. In a stirrer, the combination with the receptacle consisting of the body A, and the lid B, provided with the sleeve C, of the revoluble sleeve C', carried over and around the said sleeve, and having the concave stirrers E and E', attached thereto and means for revolving the said sleeve and stirrers, substantially as and for the purpose described.

2. In a stirrer, the combination with the receptacle consisting of the body A, and the lid B, the said lid provided with the sleeve C, of the rod D, carried in said sleeve and being threaded at its lower end and with a suitable handle for turning the same, the revoluble sleeve C', carried upon the sleeve C and formed with a threaded nut at its lower portion for engaging the threads on rod D, and the concave stirrers E, E' provided with the central openings F, F', substantially as and for the purpose described.

594,825. HANDLE-FINISHING MACHINE. CHARLES H. DUMP, Brandon, Vt., assignor to the Newton & Thompson Manufacturing Company, same place. Filed July 23, 1896. Serial No. 600,260. (No model.)



Claim.—1. In a machine for finishing handles, a rotary carrier provided with peripheral receptacles for the blanks, in combination with a segmental pad arranged to hold the blanks in the said receptacles, the said pad consisting of a layer of rubber or equivalent material having a metallic frame or backing and a flexible metallic bearing-face the said backing rubber layer and metallic face being secured together and fitting upon each other throughout the length of the pad so as to form one solid integral device, substantially as set forth.

2. A rotary carrier-disk *h* having grooves *i* in its periphery, in combination with a notched disk *r* turning with the said carrier, a pawl engaging the said disk *r* to turn the same, a cam *z*, bar *m*, link *n* and arm *o* for operating said pawl from the driving-shaft, a retracting-spring *l* connected to said bar, a stop-slide *u* arranged to engage the grooves *i* of the carrier, a weighted lever *w*, operating the said slide, and the main shaft and its cam *z* for actuating the said lever substantially as set forth.

3. In combination with a rotary blank-carrier having peripheral grooves or recesses and holes or recesses in its side, a pair of stops one engaging with said grooves the other with said holes, levers actuating the said stops and a rotary shaft provided with cams whereby said levers are independently actuated substantially as set forth.

4. In combination with a tool-blank carrier, a pair of cutter-spindles arranged to act on the blanks in said carrier, a saddle attached to one of the said spindles and entering between collars on the other arranged to allow unequal longitudinal motion of the two spindles, a lever attached to the said saddle, a shaft and cam for actuating the said lever and a rod attached to the said lever and adapted to enter a hole or recess of the carrier for holding the latter without motion substantially as set forth.

594,826. ACETYLENE-GAS GENERATOR. JAMES S. FERGUSON, Minneapolis, Minn. Filed July 19, 1897. Serial No. 645,040. (No model.)



Claim.—1. The combination with a telescope gas-holder, of a case or cabinet having horizontally-supported shelves hinged to its interior side or sides, magazines supported by, and latches supporting, the said shelves, a shaft having cams mounted thereon, and a ratchet-wheel affixed thereto, a pendent rod operated by the rising-and-falling case of the said telescope gas-holder, adapted when on its downward course to contact with a tooth of, and to rotate said ratchet-wheel, and a pipe connecting the said case or cabinet, and the said telescope gas-holder, substantially as shown, and for the purposes specified.

2. The combination with the telescope gas-holder of a case or cabinet having horizontally-supported shelves, magazines supported by, and latches supporting, the said shelves, a shaft having cams mounted thereon, and a ratchet-wheel affixed thereto, a pendent rod attached to, and operated by the rising-and-falling case of the said telescope gas-holder, and a pipe connecting the said case or cabinet and the said telescope gas-holder, substantially as shown and for the purposes specified.

594,827. PERIODICAL-FILE HOLDER. CHARLES A. PETTERS, Cincinnati, Ohio, assignor to himself, Henry C. Hoadinghoff, and William O. Wilcox, same place. Filed Feb. 10, 1897. Serial No. 622,806. (No model.)



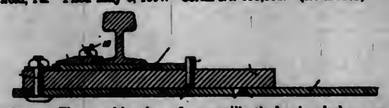
Claim.—1. A file-holder comprising a pair of flat boards having clamping meeting edges, a clamp-screw secured to one board and extending across the meeting edges into an opening in the other board, and a clamping-nut located between the faces of the latter for securing the boards together; substantially as described.

2. A file-holder comprising a pair of flat boards having respectively concave and convex meeting edges, a clamp-screw secured to one board and extending across the meeting edges into an opening in the other board, and a clamping-nut located between the faces of the latter for securing the boards together; substantially as described.

3. A file holder comprising a pair of flat boards having clamping meeting edges, long dowel-pins secured to one board and extending across the meeting edges into long sockets in the other board, a clamp-screw secured to one board and extending across the meeting edges into an opening in the other board, and a clamping-nut located between the faces of the latter for securing the boards together; substantially as described.

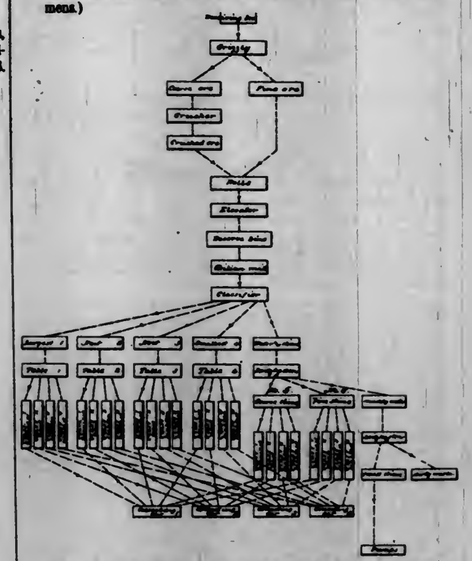
4. A file-holder comprising a pair of flat boards having respectively concave and convex meeting edges, long dowel-pins secured to one board and extending across the meeting edges into long sockets in the other board, a clamp-screw secured to one board and extending across the meeting edges into an opening in the other board, and a clamping-nut located between the faces of the latter for securing the boards together; substantially as described.

594,828. TIE AND RAIL FASTENER. JACOB S. FLEGAL, Clearfield, Pa. Filed May 6, 1897. Serial No. 635,383. (No model.)



Claim.—The combination of a metallic tie having holes near its ends, blocks having pins at their inner ends which project through the holes in the ties, bolts for securing the outer ends of the blocks to the ties, said blocks being provided with longitudinal grooves in their sides; a chair having side flanges adapted to engage said grooves; a stop-pin for holding the chair in position on said blocks, and clamps bolted to said chair, substantially as set forth.

594,829. PROCESS OF TREATING ZINC-LEAD OR OTHER ORES. SAMUEL I. HALLETT, Aspen, Colo., assignor of one-half to D. M. Hyman, Cincinnati, Ohio. Filed July 6, 1897. Serial No. 643,655. (No specimens.)



Claim.—1. The method of treating zinc-lead or other complex ores containing two or more metallic minerals, for recovering the valuable metals contained therein, which consists in crushing the ore to the fineness of the smallest crystal of the metallic mineral having the greatest specific gravity, and then subjecting the crushed material to the action of suitable devices for separating and concentrating it according to the gravity of its particles, substantially as described.

2. The method of treating zinc-lead ore for recovering the valuable metals contained therein, which consists in crushing the ore to the fineness of the smallest crystal of galena, and then subjecting the crushed material to the action of suitable devices for separating and concentrating it according to the gravity of its particles, substantially as described.

594,830. STARCHING-MACHINE. HANS JENSEN, Omaha, Nebr. Filed Apr. 13, 1896. Serial No. 587,403. (No model.)



Claim.—1. In a starching-machine the combination with a suitable trough, provided upon its bottom with a series of ribs, of a holder, said holder comprising a movable frame having a series of bottom slats within said holder, and a locking bar and rack to secure said bottom slats, all substantially as and for the purpose set forth.

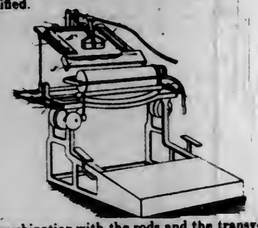
2. In a starching-machine the combination with the trough 2, provided with the ribs 3, of a holder comprising a bottomless frame having a series of removable bottom slats 7 therein, a locking-bar provided with an adjusting-screw 14 and pivotally secured to said holder, and a locking-rack 16 adapted to hold said locking-bar, all substantially as and for the purpose set forth.

594,831. TYPE-WRITING-MACHINE BLANK-FEEDER. CHARLES R. JONES, Catlettsburg, Ky. Filed July 31, 1896. Serial No. 601,313. (No model.)

Claim.—1. The combination with the rods and the transverse rod, of the sleeve thereon, the supporting-rods extending therefrom, the base-plate, and the gages thereon, substantially as specified.

2. The combination with the rods and the transverse rod, of the sleeve thereon, the supporting-rods extending therefrom, the base-plate and the gages thereon, and means for adjusting the gages.

3. The combination with the rods and the transverse rod, of the sleeve thereon, the supporting-rods extending therefrom, the base-plate and the gages thereon, means for adjusting the gages, a roller adapted to bear upon the uppermost sheet, a lever and connections whereby the roller is moved and rotated at the same time, substantially as specified.

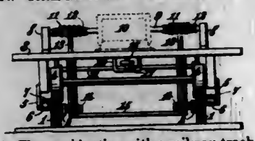


4. The combination with the rods and the transverse rod, of the sleeve thereon, the supporting-rods extending therefrom, the base-plate and the gages thereon, means for adjusting the gages, a roller adapted to bear upon the uppermost sheet, a lever and connections whereby the roller is moved and rotated at the same time, and a spring acting upon the roller to return the same and the lever to their normal positions, substantially as specified.

5. The combination with the rods and the transverse rod, of the sleeve thereon, the supporting-rods extending therefrom, the base-plate and the gages thereon, means for adjusting the gages, a roller adapted to bear upon the uppermost sheet, a lever and connections whereby the roller is moved and rotated at the same time, and a spring acting upon the roller to return the same and the lever to their normal positions, and a guide-plate at the lower end of the gages for guiding the paper to the platen of the type-writer, substantially as specified.

6. The combination with the rods and the transverse rod, of the sleeve thereon, the supporting-rods extending therefrom, the base-plate and the gages thereon, means for adjusting the gages, a roller adapted to bear upon the uppermost sheet, a lever and connections whereby the roller is moved and rotated at the same time, and a spring acting upon the roller to return the same and the lever to their normal positions, and a guide-plate at the lower end of the gage for guiding the paper to the platen of the type-writer, and a spring acting on said sleeve, substantially as specified.

594,832. LOCOMOTIVE FOR TOWING CANAL-BOATS. EDWIN A. LELAND, Great Barrington, Mass., assignor to Thomas Greenwood and Frank H. Wright, same place. Filed Feb. 20, 1897. Renewed Nov. 6, 1897. Serial No. 657,702. (No model.)



Claim.—1. The combination with a railway-track having its rails provided with lateral flanges, and a rack continuous with said track and provided with laterally-projecting teeth, of a motor-car having wheels running on the track-rails, brackets depending from the car-truck on each side and carrying rollers to run on the under side of the rail-flanges, a vertical shaft mounted on said car and provided at its upper end with a worm-wheel and at its lower end with a pinion in mesh with said rack, a horizontal shaft mounted on the car and provided with a worm in mesh with the worm-wheel of said pinion-shaft, and a motor for rotating the said worm-shaft, substantially as described.

2. The combination with a railway-track located on the tow-path of a canal, and a rack continuous with said track and provided with laterally-projecting teeth, of a motor for towing a canal-boat, a horizontally-arranged shaft mounted on said car and carrying a worm, an electric motor for rotating said shaft, a vertical shaft carried by the car and having on its upper end a worm-wheel in mesh with the worm on the horizontal shaft, and a pinion on the lower end of said vertical shaft in mesh with the horizontal teeth of the rack, substantially as described.

3. The combination with a railway-track located on the tow-path of a canal and having on each track-rail a rack provided with laterally-projecting teeth, of a motor-car for towing a canal-boat, vertical shafts carried by said car on each side and each provided at its upper end with a worm-wheel and having on its lower end a pinion in mesh with one of the racks on the track-rails, a horizontally-arranged shaft mounted on the motor-car and provided with worms in mesh with the worm-wheels of the vertical pinion-shafts, and an electric motor for rotating said worm-shaft, substantially as described.

594,833. TOILET ARTICLE. FRANK H. LOUD, Northampton, Mass. Filed Oct. 15, 1894. Serial No. 525,663. (No model.) Patented in England Mar. 3, 1896, No. 4,800.



Claim.—1. A toilet article having a body composed of a metallic shell made in sections which are united at their edges by overlapping flanges forming a bead, and provided with a reinforce placed between the outward extensions of said flanges, and against the outer edge of which reinforce the outer flange bears at its turn, substantially as set forth.

2. A toilet article provided with a sectional metallic body or shell, each of the sections thereof being stiffened or reinforced by an interior mass or layer of rigid material, the sections being secured together by overlapping or interlocking their edges and thereby forming a bead, the said bead containing a reinforce which is placed between the outward extensions of said flanges, and against the outer edge of which reinforce the outer flange bears at the turn thereof, substantially as described.

594,834. WATCH CASE OR HOLDER. WILLIAM H. SCHOENBERG, Philadelphia, Pa., assignor to Joseph J. Morio, same place. Filed Feb. 2, 1897. Serial No. 621,722. (No model.)



Claim.—1. In a watch-carrier, a casing having a concaved bottom in which the back of a watch is adapted to fit, sides curving up and over fitting against the rounded sides of a watch to prevent rattling, said curved sides leaving an opening exposing only the dial of the watch, a threaded annular flange formed around the opening, an offset formed at one side of the casing where the stem can be inserted, said casing having transverse cuts running from opposite sides of the opening through the sides to permit of one-half of the casing being sprung downward to enlarge the opening, the edges of the cuts overlapping to prevent the entrance of dust, a cap threaded to the flange, holding the two parts of the casing together, and a glass disk secured between the cap and the flange, and a clamp to secure the casing to a rod or tube, substantially as described.

2. A suitable casing, the sides of which are adapted to curve up and over leaving an opening exposing only the dial of a watch, said casing being divided at opposite sides by transverse cuts so that one-half of said casing may be sprung downward to enlarge the opening to admit a watch, a threaded flange formed around the opening, a cap threaded thereto, holding the curved sides of the casing against the sides of the watch to prevent rattling and causing the edges of the cuts to overlap, substantially as described.

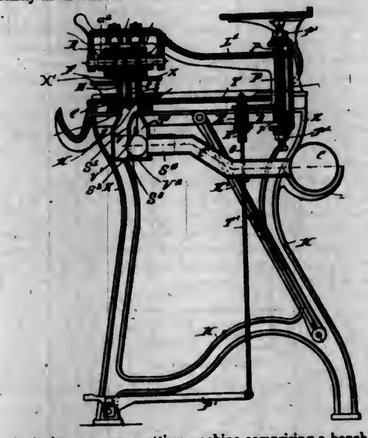
3. In a watch-carrier, a suitable casing, the sides of which are adapted to curve up and over leaving an opening exposing only the dial of a watch, said casing being divided at opposite sides by transverse cuts so that the lower half of the casing may be sprung downward in order to enlarge the opening to admit a watch, a threaded flange formed around the opening, a cap threaded on the flange, a glass disk secured in the cap and a clamp formed with the casing to secure it to a rod or tube, substantially as described.

594,835. CIGAR-WRAPPER-CUTTING MACHINE. PIETRO VERACI, Florence, Italy. Filed Dec. 12, 1896. Serial No. 615,537. (No model.)

Claim.—1. A cigar-wrapper-cutting machine comprising a cutting-die, a wrapper-support located within the cutting-die, a fixed or stationary rear platen on which the cigar is rolled, and a fixed or stationary front platen having its surface located at a lower level than the surface of the rear platen to provide room for the manipulation of the leaves; substantially as described.

2. A cigar-wrapper-cutting machine comprising a cutting-die, a wrapper-support located within the cutting-die, a fixed or stationary rear platen having its surface on which the cigar is rolled located beneath the edge of the cutting-die and a fixed or stationary front platen having its surface located at a lower level than the surface of the rear platen to provide room for the manipulation of the leaves; substantially as described.

3. A cigar-wrapper-cutting machine comprising a cutting-die, a wrapper-support located within the cutting-die, a fixed or stationary rear platen X on which the cigar is rolled, and a fixed or stationary front platen X' having its surface located at a lower level than the surface of the rear platen and extending around the ends of the cutting-die to provide a prominent offset down to the front platen; substantially as described.



4. A cigar-wrapper-cutting machine comprising a bench, a cutting-die, a wrapper-supporting plate within the die, a pivoted swinging arm having a roller at its outer end, a short arm extending from the pivoted end beneath the bench and treadle mechanism for operating the swinging arm by means of the short arm consisting of hangers secured to the bench, grooved pulleys journaled in the hangers, the treadles, the vertical pull-rods, and the cords, substantially as described.

5. A cigar-wrapper-cutting machine comprising a cutting-die, a valve-chest, an air-conduit, an air-suction device, and a valve within the valve-chest and arranged to leave a small opening into the conduit when the valve is seated; substantially as described.

6. A cigar-wrapper-cutting machine comprising a cutting-die, an air-suction device connected with the cutting-die, and a valve located between the cutting-die and air-suction device and arranged so as to leave a small leak between the valve and its seat to permit a slight suction after the valve is seated; substantially as described.

7. A cigar-wrapper-cutting machine comprising a cutting-die, an air-suction device connected with the cutting-die, a valve-chest located between the cutting-die and the air-suction device, and a valve located within the valve-chest and adapted to be seated when the leaf is applied to the cutting-die; substantially as described.

8. A cigar-wrapper-cutting machine comprising a cutting-die, an air-suction device connected with the cutting-die, and a ball-valve suspended between the cutting-die and the suction device; substantially as described.

9. A cigar-wrapper-cutting machine comprising a cutting-die, an air-suction device connected with the cutting-die, and a ball-valve suspended eccentrically to its seat between the cutting-die, and the air-suction device; substantially as described.

10. A cigar-wrapper-cutting machine comprising a cutting-die, an air-suction device connected with the cutting-die and a ball-valve having a rod by which it is suspended between the cutting-die and the air-suction device, and means for adjusting the ball-valve on its rod; substantially as described.

594,836. CORNER-BRACE. JAMES H. DYETT, Buffalo, N. Y. Filed Feb. 18, 1897. Serial No. 623,736. (No model.)



Claim.—1. In a corner-brace and fastening for the side rails and end bars of mattress-frames, &c., the combination of the rail and bar with a U-shaped brace-bolt, one arm of which transfixes both the rail and bar and is threaded on its lower end for the application of a binding-nut, the horizontal portion of said bolt overlying the end bar and extending inward parallel with the side rail and locked to the end bar, and the other arm of said brace engaging a hole in the side rail, substantially as and for the purpose described.

2. In a corner-brace for bed-frames the combination of the side rail and end bar, with a U-shaped brace-bolt having a short arm engaged in a hole in the side rail, its other arm transfixing both the rail and bar; and its horizontal part overlying the top of the end bar and resting in a transverse groove in the top thereof, whereby lateral twist or turning of the rail and bar in relation to each other is prevented; and a fastening device on the lower end of the longer arm, all substantially as and for the purpose described.

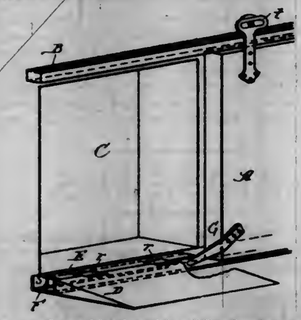
594,837. FOLDING HARROW. THOMAS G. FLEMING, Ayr, Nebr. Filed Nov. 18, 1896. Serial No. 612,587. (No model.)



Claim.—1. A folding harrow comprising a main frame consisting of a central beam and a front and rear cross-beam, a circular harrow-section pivoted under the front cross-beam, and wings, each consisting of a side beam and rear beam, the front end of the side beam being hinged to the front cross-beam of the main frame, and the rear beam to the rear cross-beam, and a circular harrow-section pivoted to the under side of the wings at the juncture of their beams, and means for locking the wings in a vertical position, substantially as described.

2. A folding harrow consisting of a main frame formed of a central beam and two cross-beams, a circular harrow-section pivoted under the front cross-beam, wings, each formed of an inclined side beam and a rear beam, the side beam and a rear beam, the side beam being hinged at its front end to the end of the front cross-beam and the rear beam to the end of the rear cross-beam, a circular harrow-section pivoted to the under side of each wing at the juncture of its beams, supporting-bars secured to the front cross-beam of the main frame, a seat on the rear ends of the supporting-bars, a fork secured to the said supporting-bars, and a caster-wheel mounted in the said fork, substantially as herein shown and described.

594,838. FIRE-DOOR. JOHN R. PHILLIPS, Chicago, Ill., assignor of one-half to Ellis R. Drake, same place. Filed Sept. 21, 1896. Serial No. 606,541. (No model.)

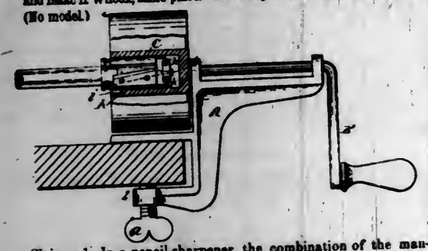


Claim.—1. In combination with a sliding fire-door traveling horizontally in a channel at its lower end, a threshold-piece closing the channel, a displacer for the threshold-piece to remove it from the path of the door, and means for operating the displacer substantially as described.

2. The combination with a sliding fire-door, traveling in a channel at its lower end, of a cover for the channel and a displacing device, operated by the door in closing, to remove the cover from the path of the door, substantially as described.

3. In combination with a sliding fire-door traveling in a channel at its lower end, a threshold-piece E, hinged to the outer edge of the channel, a support F, projecting from the lower face of the threshold-piece and having the beveled part q, and an arm G rigidly secured to the door and projecting downward and inward to engage the beveled part q of the support F as the door closes, thereby overturning the threshold-piece on its hinges, substantially as described.

594,839. PENCIL-SHARPENER. FRANKLIN D. CORNELL, Adrian, Mich., assignor of five-eighths to Millard F. Lyon, Alice A. Agnew, and Isaac L. Wilcox, same place. Filed May 1, 1896. Serial No. 589,825. (No model.)



Claim.—1. In a pencil-sharpener, the combination of the mandrel or socket for receiving the pointed end of the pencil, the flexibly-mounted rotary chuck adjacent thereto carrying a knife for pointing the end of the marking substance.

2. In a pencil-sharpener, the combination of the rotary mandrel for pointing the wooden casing of the pencil, the auxiliary chuck rotating therewith and flexibly connected thereto so as to have independent lateral movement, said chuck carrying a pointing-knife.

3. In a pencil-sharpener, the combination with the rotary mandrel for pointing the wooden casing of the pencil, the auxiliary chuck carrying a knife for pointing the end of the marking substance located adjacent thereto, and the spring-arm connecting said chuck and mandrel so as to cause them to rotate in unison.

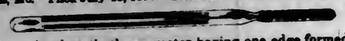
4. In a pencil-sharpener, the combination of the rotary mandrel for pointing the wooden casing of the pencil, the chuck adjacent to the inner end thereof, the spring-arms connecting said chuck with said rotary mandrel, and the auxiliary cutter-head mounted in said spring-supported chuck.

5. In a pencil sharpener, the combination of the adjacent rotary cutting-mandrel and the rotary cutter-carrying chuck, one of which is capable of independent lateral movement.

6. In a pencil-sharpener, the combination of the rotary socket, the wood-cutting mandrel and the flexibly-mounted knife-carrying chuck located in said socket, and means for rotating said socket.

7. In a pencil-sharpener, the combination of the wood-cutting mandrel, the flexibly-mounted cutter-carrying chuck adjacent thereto, and the closed case embracing said parts.

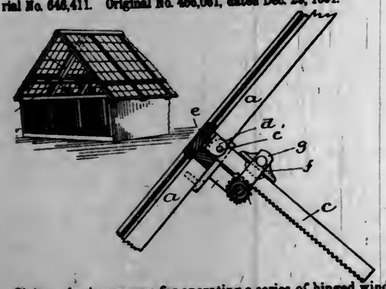
594,840. FEVER-THERMOMETER. CHARLES S. RUCKSTUHL, St. Louis, Mo. Filed July 13, 1896. Serial No. 598,959. (No model.)



Claim.—A prismatic thermometer having one edge formed into a cylindrical lens adapted to magnify the image of the thread of mercury, and having narrow colored streaks of low reflecting power on its surface alongside of the edge lens for indicating the place to look for the magnified image of the mercury thread and for rendering such image more easily visible, said streaks being narrow so as not to intercept the mercury-illuminating light-rays excessively, substantially as set forth.

REISSUES.

11,689. TRANSOM-LIFTER. WILLIAM ORMSBY, Melrose, Mass., assignor to Thomas Gray, Arlington, Mass. Filed July 29, 1897. Serial No. 646,411. Original No. 464,061, dated Dec. 29, 1891.



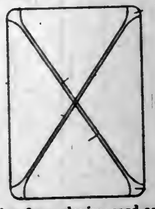
Claim.—1. As a means for operating a series of hinged windows or skylights, a shaft adapted to rotate in bearings and provided with a series of pinions adapted to engage racks connected to said windows, and a spring engaged with said shaft and with a suitable non-rotating support, said spring being arranged to be compressed by the closure of the windows and to rotate the shaft in the direction required to raise the windows, so that when the shaft is turned to raise the windows the spring assists in the operation, and when the windows are lowered the spring is compressed, the spring acting at all times to counterbalance the windows, as set forth.

2. The combination of a series of hinged windows or skylights *c*. each having a rack pivotally connected to and depending from it, a shaft journaled in fixed bearings and provided with a series of pinions meshing with said racks, and a spring engaged with said shaft and with a suitable fixed support, said spring being arranged to rotate the shaft in the direction required to raise the windows, whereby the windows are counterbalanced and caused to stand at any position to which they may be opened or adjusted by the rotation of the shaft, as set forth.

3. The combination of a hinged window, a rack pivoted to the swinging end thereof, a shaft journaled in fixed bearings and provided with a pinion meshing with said rack, an arm mounted on the shaft and adapted to oscillate freely thereon, and a shoe or guide rigidly connected to the outer end of said swinging arm and formed to bear on the back of the rack and hold the teeth thereof in engagement with the pinion, as set forth.

DESIGNS.

27,905. PLAYING-CARD. MICHAEL F. CAREY, Albany, N. Y. Filed Sept. 29, 1897. Serial No. 653,524. Term of patent 7 years.



Claim.—The design for a playing-card as herein shown and described.

27,906. BOTTLE. ROBERT H. LEWIS, Alton, Ill. Filed Sept. 20, 1897. Serial No. 652,383. Term of patent 7 years.



Claim.—The design for a bottle, substantially as herein shown and described.

27,907. HANDLE FOR TEA OR COFFEE POTS. EDWARD R. MANNING and MICHAEL SHIPS, Meriden, Conn. Filed Oct. 18, 1897. Serial No. 655,634. Term of patent 14 years.



Claim.—The design for a handle for tea and coffee pots as shown in the accompanying illustration.

27,908. PAIL-HOOK. SPENCER C. CARY, Brooklyn, N. Y. Filed Sept. 27, 1897. Serial No. 653,267. Term of patent 14 years.



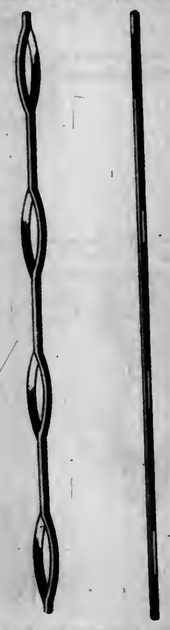
Claim.—The design for a pail-hook, substantially as shown and described.

27,909. KITCHEN-CABINET. SAMUEL E. TOOLEY, Cazenovia, N. Y. Filed Sept. 15, 1897. Serial No. 651,779. Term of patent 14 years.



Claim.—The design for a kitchen-cabinet, substantially as herein described and shown.

27,910. BOX-STRAP. SPENCER C. CARY, Brooklyn, N. Y. Filed Sept. 27, 1897. Serial No. 653,266. Term of patent 14 years.



Claim.—The design for a box-strap substantially as herein shown and described.

27,911. GUARD FOR KEYS. THOMAS M. HILLIARD, New York, N. Y., assignor of one-half to Henry A. Parr, same place. Filed Sept. 3, 1897. Serial No. 650,536. Term of patent 7 years.



Claim.—The design for the guard for keys herein shown and described.

27,912. ANGLER'S RING. PETER H. FELKER, St. Louis, Mo. Filed June 2, 1897. Serial No. 639,172. Term of patent 7 years.



Claim.—The design for an angler's ring, as herein shown and described.

27,918. CASING FOR JEWELER'S BLOWPIPES. OLOF ANDERSON, Chicago, Ill. Filed July 31, 1897. Serial No. 646,709. Term of patent 3½ years.



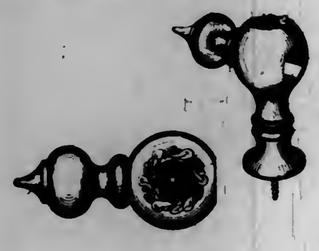
Claim.—A design for a casing for jewelers' blowpipes, substantially as herein shown and described.

27,914. CASE FOR COIN-CONTROLLED MACHINES. GUSTAV SETTMANN and WALTER H. PITT, Brooklyn, N. Y. Filed June 10, 1897. Serial No. 640,266. Term of patent 3½ years.



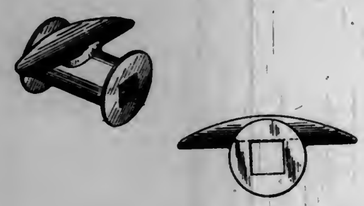
Claim.—The design for a case for coin-controlled machinery, set forth and described.

27,915. CURTAIN-POLE BRACKET. EDWARD ROOS, Chicago, Ill. Filed Oct. 14, 1897. Serial No. 655,224. Term of patent 7 years.



Claim.—The new and original design or useful shape for a curtain-pole bracket substantially as herein shown and described.

27,916. REST FOR CARRIAGE-TOPS. EDWIN J. GREEN, Hurlbert, Ind. Filed Oct. 18, 1897. Serial No. 655,632. Term of patent 7 years.

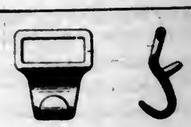


Claim.—The design for a rest for carriage-tops, substantially as herein shown and described.

27,917. HARNESS-HOOK. PETER EPLER, Williamsport, Pa. Filed Oct. 6, 1897. Serial No. 654,292. Term of patent 7 years.

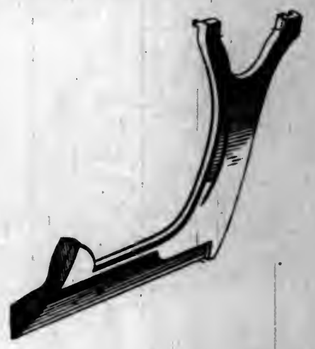


27,917.



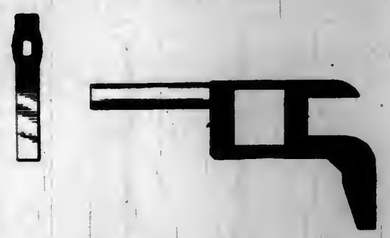
Claim.—The design for a harness-hook, as herein shown and described.

27,918. PLOW-STOCK. JOHN WILLIAM BARNARD, Shannon, N. C. Filed Sept. 22, 1897. Serial No. 652,662. Term of patent 7 years.



Claim.—The design for the plow-stock herein shown and described.

27,919. FRAME FOR WRENCHES. MARCUS D. BLODGE and JOSEPH A. RYAN, Washington, D. C. Filed Oct. 22, 1897. Serial No. 656,102. Term of patent 3½ years.



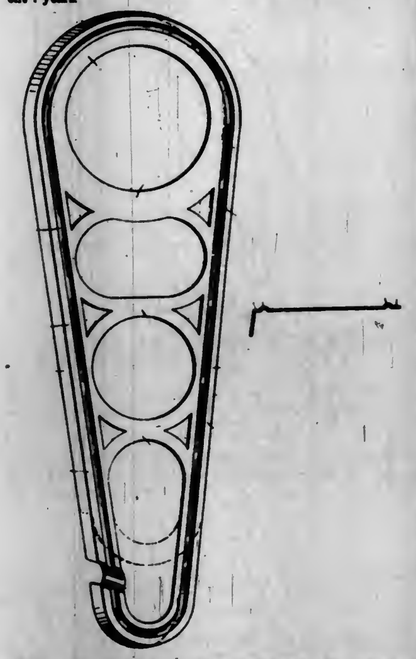
Claim.—The design for the frame of a wrench substantially as shown and described.

27,920. TOE-CLIP. DAVID BASCH, New York, N. Y. Filed Sept. 13, 1897. Serial No. 651,547. Term of patent 7 years.



Claim.—The design for a toe-clip herein shown and described.

27,921. SPROCKET-WHEEL AND CHAIN GUARD. LEE STRUSEN, Elmhurst, Ill. Filed June 12, 1897. Serial No. 640,586. Term of patent 7 years.



Claim.—The design for a chain and sprocket-wheel guard, substantially as shown and described.

27,922. TIRE. JOSEPH ASKIN, Ridgefield, N. J. Filed Oct. 7, 1897. Serial No. 654,469. Term of patent 14 years.



Claim.—The design for a pneumatic wheel-tire substantially as shown and described.

27,923. HANGER FOR ARTICLES OF MERCHANDISE. EDWIN STANLEY ROBBINS, Waterbury, Conn. Filed July 30, 1897. Serial No. 645,265. Term of patent 7 years.



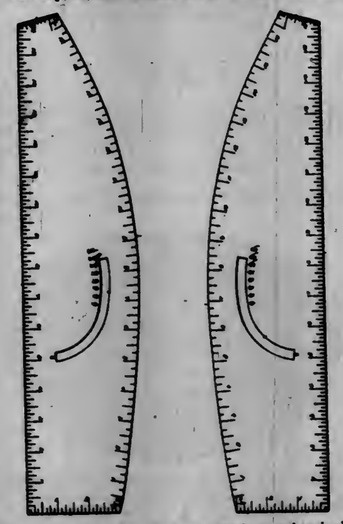
Claim.—The design for a hanger for articles of merchandise substantially as herein shown and described.

27,924. BIAS-STICK. POURUM S. KEPLER, Ashtabula, Ohio. Filed Sept. 2, 1897. Serial No. 650,404. Term of patent 14 years.



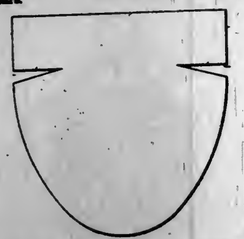
Claim.—The design for a bias-stick herein shown and described.

27,925. DRESSMAKER'S CHART. EMMA EPLEY, Philadelphia, Pa. Filed Sept. 22, 1897. Serial No. 652,659. Term of patent 14 years.



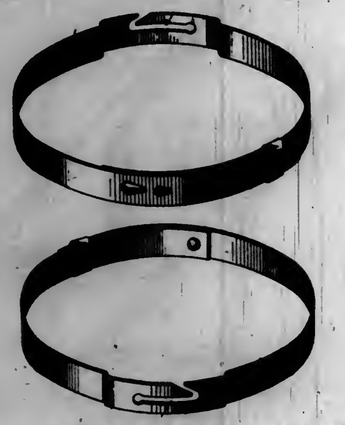
Claim.—The design for a dressmaker's chart, as herein shown and described.

27,926. CHEST AND NECK PROTECTOR. JOHN HOWARD WAY, Philadelphia, Pa. Filed Sept. 13, 1897. Serial No. 651,548. Term of patent 3½ years.



Claim.—The design for a chest and neck protector substantially as shown and described.

27,927. BELT. WILLIAM H. CARE and JOHN GEORGE WOLF, New York, N. Y. Filed Aug. 4, 1897. Serial No. 647,127. Term of patent 3½ years.



Claim.—The design for the belt herein shown and described.

27,928. ORNAMENTAL CROSS. GEORGE W. BUNCE, Detroit, Mich. Filed Mar. 15, 1897. Serial No. 627,703. Term of patent 3½ years.



Claim.—The design for a cross in the form of a cluster of like star-shaped devices, substantially as shown and described.

TRADE-MARKS

REGISTERED NOVEMBER 30, 1897.

30,909. CHAIN-LUBRICANTS AND TIRE AND RIM CEMENTS OF A SEMILIQUID OR PASTY CHARACTER PACKED IN CANS OR COLLAPSIBLE TUBES. BERRANS & ZACHARIAS, Asbury Park, N. J. Filed Oct. 7, 1897.

B. & Z.
BRUSH=TOP

Essential feature.—The word "BRUSH-TOP" in connection with the letters and character "B. & Z." Used since April, 1896.

30,910. VALVES, COCKS, PRESSURE-REGULATORS, AND TAPPING-MACHINES. H. MUELLER MANUFACTURING COMPANY, Decatur, Ill. Filed Sept. 20, 1897.

H M

Essential feature.—The letters "H. M." Used since February 15, 1887.

30,911. REMEDIES FOR PULMONARY AND SIMILAR DISEASES. ALONZO FRANK RICHARDSON, New York, N. Y. Filed Nov. 3, 1897.

OZOJELL

Essential feature.—The word "OZOJELL." Used since November 1, 1897.

30,912. LIQUID PREPARATION FOR RESTORING THE GROWTH OF THE HAIR. THE GEORGE R. SIMS HAIR RESTORER COMPANY, LIMITED, London, England. Filed Nov. 3, 1897.

"TATCHO"

Essential feature.—The written signature "GEO. R. SIMS" and the word "TATCHO." Used since May, 1897.

30,913. EFFERVESCENT MEDICINAL PREPARATIONS FOR THE TREATMENT OF CERTAIN AFFECTIONS OF THE HUMAN BODY. ALFRED BISHOP & SONS, LIMITED, London, England. Filed Oct. 29, 1897.

AB

Essential feature.—A monogram composed of the letters "A B." Used since 1860.

30,914. EFFERVESCENT MEDICINAL PREPARATIONS FOR THE TREATMENT OF DISORDERS OF THE HUMAN BODY. ALFRED BISHOP & SONS, LIMITED, London, England. Filed Oct. 29, 1897.

VARALETTES

Essential feature.—The word "VARALETTES." Used since October 19, 1894.

30,915. SUBSTITUTES FOR COFFEE. ALONZO FRANK RICHARDSON, New York, N. Y. Filed Nov. 3, 1897.

VIN-COFFEE

Essential feature.—The word "VIN-COFFEE" arranged as either a compound or a single word. Used since November 1, 1897.

30,916. PREPARATIONS FOR COAGULATING OR CURDLING MILK. JOHAN D. PETERSEN, Little Falls, N. Y. Filed Nov. 1, 1897.

JUNKET

Essential feature.—The word "JUNKET." Used since April, 1887.

30,917. CERTAIN NAMED CANNED GOODS. HERRENDEEN, HEARING & Co., Brooklyn, N. Y. Filed July 22, 1897.

MONTAGUE

Essential feature.—The word "MONTAGUE." Used since 1889.

30,918. CANNED SALMON. ALASKA PACKERS ASSOCIATION, San Francisco, Cal. Filed Sept. 2, 1897.



Essential feature.—The representation of a buoy or life-preserver with its life-line and in connection therewith the word "EXPORT." Used since July 1, 1896.

30,919. HAMS. TRIMPER RUSS & Co., Meridian, Miss. Filed Aug. 3, 1897.



Essential feature.—A black background, upon which appear the pictorial representation of a red rose, printed in red, and the words "RED ROSE" and the words "FANCY SUGAR-CURED HAM" printed in white. Used since June 15, 1897.

80,920. CIGARS. José Vega, New Orleans, La. Filed Sept. 20, 1897.

FORGET ME NOT.

Essential feature.—The words "FORGET ME NOT." Used since November, 1881.

80,921. CIGARETTES. NATIONAL CIGARETTE AND TOBACCO COMPANY, New York, N. Y. Filed Sept. 1, 1897.

YELLOW KID

Essential feature.—The words "YELLOW KID." Used since November 4, 1894.

80,922. CIGARETTES. NATIONAL CIGARETTE AND TOBACCO COMPANY, New York, N. Y. Filed Sept. 1, 1897.

IRON DUKE

Essential feature.—The words "IRON DUKE." Used since January 1, 1881.

80,923. SEWING, CROCHET, DARNING, AND EMBROIDERY SILK, COTTON, THREAD, AND TWINE. ARTHUR H. BOAS, New York, N. Y. Filed Nov. 1, 1897.

IDEAL

Essential feature.—The word "IDEAL." Used since January, 1897.

80,924. PERIODICAL PUBLICATIONS. THE BROOKLYN DAILY EAGLE, Brooklyn, N. Y. Filed Oct. 30, 1897.

EAGLE LIBRARY

Essential feature.—The words "EAGLE LIBRARY." Used since 1894.

80,925. HARMONICAS. R. ILLFELDER & Co., New York, N. Y. Filed Oct. 29, 1897.

BAND WAGON

Essential feature.—The words "BAND WAGON." Used since October 1, 1897.

80,926. LINSEED-OIL. RICHARD W. ENGLISH, Buffalo, N. Y. Filed Sept. 27, 1897.

LL

Essential feature.—The letters "L. L." Used since January 10, 1896.

80,927. LINSEED-OIL. RICHARD W. ENGLISH, Buffalo, N. Y. Filed Sept. 27, 1897.

CP

Essential feature.—The letters "C. P." Used since June 15, 1896.

80,928. FIREWORKS AND MATCHES. EDWARD H. WAGNER, New York, N. Y. Filed Oct. 19, 1897.



Essential feature.—The word "BICYCLE" and the representation of the figure of Mercury mounted upon a bicycle. Used since October 10, 1897.

80,929. COPPER IN INGOTS, BARS, AND OTHER UNMANUFACTURED FORMS. MOUNTAIN COPPER COMPANY, LIMITED, London, England. Filed Aug. 23, 1897.

MCC

Essential feature.—The letters "M C C." Used since August 9, 1897.

THE NORRIS PETERS CO. PHOTO-LITH WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE LETELLIER.

Decided October 26, 1897.

1. RECOMMENDATION OF EXAMINERS-IN-CHIEF—EFFECT ON PRIMARY EXAMINER.

The Rules of Practice of the Patent Office provide that the Examiners-in-Chief may annex to their decision a statement of apparent grounds for granting Letters Patent in the form claimed or any other form and may make such recommendation as they deem proper. Such statement and recommendation cannot be ignored or pleaded as of no effect. It is binding upon the Examiner and cannot be disregarded.

2. SAME—QUESTIONS CONSIDERED BY THE EXAMINERS-IN-CHIEF.

It is to be presumed that the Examiners-in-Chief consider fully all matters bearing upon the question of patentability of claims as to which they make favorable recommendations, the question of new matter, as well as other questions. Unless a state of the art not before the Examiners-in-Chief when their recommendation is made is found to exist by the Examiner, such as precludes the allowance of claims recommended by them, the Examiner should accept the recommendation.

3. RIGHT OF APPLICANT TO ACCEPT DECISION.

The Examiner's action holding that an applicant cannot appeal from the decision of the Examiners-in-Chief and at the same time take advantage of so much of their decision as is favorable to him—cannot "split up their decision and accept a part of their suggestion and appeal from the rest of their decision"—overruled, as this is precisely what an applicant is entitled to do. It is the purpose of the patent law to grant to an applicant all that he is entitled to claim as new.

ON petition.

CARPET-SWEEPER.

Application of Francis Letellier filed May 10, 1892, No. 432,466.

Messrs. Offield, Towle & Linthicum for the applicant.

GREELEY, *Acting Commissioner:*

On October 27, 1895, claims 1 and 3 of this application were finally rejected. On December 3, 1895, a substitute specification and drawing were offered, together with three new claims. Admission of these was refused by the Primary Examiner on the ground that the case was then in condition for appeal. Appeal was taken on December 21, 1896, and the Examiners-in-Chief in their decision affirmed the decision of the Primary Examiner. At the time of this appeal they were asked to consider the claims in the proposed amendment of December 3, 1895, and did so. They closed their decision with a recommendation for the admission and allowance of the claims proposed in that amendment.

Subsequently—namely, on April 6, 1897—the Examiner informed the applicant, in response to an oral interview, apparently, that the proposed amendment of December 3, 1895, involved new matter. This new matter consisted in the shape of the loop *e'* (shown in Fig. 3) and the description relating thereto. It was referred to in claim 2 of the proposed amendment. The applicant apparently acquiesced in the rejection of claim 1, appealed, and on July 26, 1897, appealed to the Commissioner in person from the decision of the Examiners-in-Chief in rejecting claim 3. On the same day he filed this petition, in which he prays that the Examiner may be instructed—

First. To enter and examine on its merits the amended specification and drawing filed December 3, 1895, together with the first claim of said amendment, but not the second claim thereof.

Second. That where two claims differing in substance are rejected on appeal by the Board, applicant is entitled to acquiesce in the rejection of one of said claims and to appeal from the decision of the Board as to the other of said claims.

Third. That applicant is entitled, where the Board recommends the admission and allowance of two claims relating to the same subject-matter as one rejected claim, to elect to make one of said recommended claims and to omit to make the other if he sees fit.

With regard to the first prayer of the petition the Examiner asserts that—

applicant is estopped from the remedy now sought, as he acquiesced in the action of the Examiner by failing to petition therefrom at the proper time and by prosecuting to a decision an appeal upon the merits.

As to the second prayer of the petition he says:

Inasmuch as the Examiner has no jurisdiction over appeals from the Examiners-in-Chief, the necessity of giving him any instructions in relation thereto is not apparent. Furthermore, the Examiner is well aware that where any two or more claims, whether differing in substance or not, are rejected upon appeal by the Examiners-in-Chief, the applicant may acquiesce in the rejection of any number less than the entire number so rejected, may cancel them, and may appeal to the Commissioner as to the rest of such claims, but this is not what this applicant is seeking to do. He is attempting to cancel the specification, drawing, and one of the rejected claims as the case now stands; to substitute therefor a new specification, new drawing, and three new claims that have never been examined, and to appeal to the Commissioner from the decision of the Examiners-in-Chief upon another rejected claim.

As to the third prayer of the petition the Examiner says:

An applicant is entitled to an amendment that is in strict compliance with the recommendation of the Examiners-in-Chief, if he sees fit to accept such recommendation, or he may appeal from their decision upon any or all of the rejected claims by canceling such as he does not care to appeal. But he cannot have the benefit of both of these remedies.

The Examiner's position, in brief, is that the applicant is seeking to follow two inconsistent courses—to appeal from the decision of the Examiners-in-Chief and at the same time to take advantage of so much of their decision as was favorable to him—

to split up their decision and accept a part of their suggestion and appeal from the rest of their decision.

But this is precisely what he is entitled to do. It is the purpose of the law to grant to an applicant all that he is entitled to claim as new. If a part of his claims only are allowed him by the Pri-

mary Examiner, he is entitled to accept the claims allowed and appeal from so much of the decision of the Examiner refusing other claims as he may see fit. So if the decision of the Examiners-in-Chief is in part favorable to him and in part unfavorable he may accept so much of the decision as he sees fit and appeal as to so much as he sees fit. It may happen, and no doubt has often happened, that an applicant may secure one claim from the Examiner, another from the Examiners-in-Chief, and a third from the Commissioner.

The rules provide that the Examiners-in-Chief may annex to their decision a statement of apparent grounds for granting Letters Patent in the form claimed, or any other form, and may make such recommendation as they may deem proper. (Rule 139 [a].). Such statement and recommendation cannot be ignored or treated as of no effect. It is binding upon the Examiner and cannot be disregarded. (See note annexed to the decision in *Painter* v. *Hall*, 80 O. G., 1124.)

The applicant is not, however, compelled to take advantage either in full or in part of such recommendation, whether favorable to him or not. It is his privilege to take full advantage of whatever is decided or recommended in the decision that is favorable to him and to refuse to accept so much as is unfavorable.

It is to be presumed that the Examiners-in-Chief consider fully all matters bearing on the question of the patentability of claims as to which they make a favorable recommendation, the question of new matter, as well as other questions. Unless a state of the art not before the Examiners-in-Chief when their recommendation was made is found to exist by the Examiner, such as precludes the allowance of claims recommended by them, the Examiner should accept the recommendation.

It is clear that in this case the applicant is entitled to insert in his application one or all of the claims which the Examiners-in-Chief recommended should be allowed. As to the amendment to the specification which it is desired to make, while this is, strictly speaking, not a matter as to which the Examiners-in-Chief can make recommendation, it is evident that this amendment is necessary, or at least desirable, in order to bring the specification into correspondence with the claims which in the opinion of the Examiners-in-Chief are allowable.

The first prayer of the petition is granted. The position of the Commissioner as to the second and third prayers is sufficiently indicated.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Third Circuit.

NATIONAL HARROW COMPANY *v.* HENCH *et al.*

Decided October 29, 1897.

1. CONTRACT—RESTRAINT OF TRADE.

While it is true that all contracts in restraint of trade are not prohibited, and it is sometimes difficult to determine whether a particular one is, there is no room for doubt that a contract between patentees and manufacturers of patented articles to prevent competition in business and enhance prices is unlawful.

2. SAME—PROPERTY COVERED BY LETTERS PATENT.

The fact that property involved is covered by Letters Patent cannot be urged as a justification of a contract which enhances prices and restrains trade. Patents confer a monopoly as respects property covered by them, but they confer no right upon the owners of several distinct patents to combine for the purpose of restraining competition and trade. Patent property does not differ in this respect from any other.

3. SAME—PATENT PRIVILEGES—COMBINATION BY DISTINCT OWNERS OF PATENTS—MONOPOLY—RESTRAINT OF TRADE.

The fact that one patentee may possess himself of several patents and thus increase his monopoly affords no support for an argument in favor of a combination by several distinct owners of such property to restrain manufacture, control sales, and enhance prices. Such combinations are conspiracies against the public interest and abuses of patent privileges. The object of these privileges is to promote the public benefit, as well as to reward inventors.

4. SAME—SAME—AVOIDING LITIGATION.

A contract based on patent-rights which restrains trade is not justified by the situation of the parties. Their exposure to litigation is entitled to no greater weight. Patentees may compose their differences, as the owners of other property may, but they cannot make the occasion an excuse or cloak for the creation of monopolies to the public disadvantage.

APPEAL from the Circuit Court of the United States for the Eastern District of Pennsylvania.

Before DALLAS, BUTLER, and KIRKPATRICK, Judges.

Messrs. Risley & Love for the appellant.

Messrs. Strawbridge & Taylor and *Mr. John G. Johnson* for the appellees.

BUTLER, *J.:*

The essential facts are well stated by the circuit court as follows:

The National Harrow Company, a corporation of the State of New York—to whose contract rights and general purposes the plaintiff, a subsequently-created New Jersey corporation, has succeeded—originated in a written agreement between a party of leading and distinct manufacturers, under various United States Letters Patent, of float spring-tooth harrows, whereby it was agreed that they would organize a corporation under the laws of New York, and would assign to the corporation all United States Letters Patent which they respectively then owned or should thereafter acquire relating to float spring-tooth harrows, and the good-will of their business in such harrows, and that they would not thereafter be interested in the manufacture or sale of such harrows except as agents or licensees of the corporation; that the corporation should issue to the persons, firms and corporations respectively so assigning to it their said patents and the good-will of their business exclusive licenses to manufacture and sell upon their own account, subject to uniform terms and conditions, the same style of harrows which they were making and selling just prior to the agreement, and that the corporation itself would not manufacture and sell any style of harrows covered by its licenses; that each licensee should pay to the corporation one dollar on every float spring-tooth harrow manufactured and sold by such licensee, and that each person, firm, or corporation transferring to the corporation the good-will of their float-spring-tooth-harrow business, and their patents relating thereto, should receive in payment therefor the value thereof as agreed upon or as fixed by arbitration, in paid-up stock of the corporation.

The agreement in the first instance was signed by six different manufacturers, but the contract contemplated and provided that others should come into the arrangement and become parties thereto. Accordingly other manufacturers of float spring-tooth harrows soon joined the combination, which then embraced twenty-two different persons, firms or corporations. Thus almost the entire output of float spring-tooth harrows made in the United States was brought under the regulation and control of this organization, its licensees manufacturing and selling at least ninety per cent. thereof.

The defendants were the owners of two United States Letters Patent relating to float spring-tooth harrows, under which they had been manufacturing and selling harrows. They joined the combination, and, agreeably to the provisions of the above-recited agreement, they assigned to the New York corporation their patents, and that corporation then issued to the defendants a license to manufacture and sell their old style of harrows. The New Jersey corporation, which was formed in furtherance of the general scheme, issued to the defendants a second license in terms and conditions substantially like the former license. These are the two license-contracts here sued on. The following-stated provisions are common to both licenses: The defendants agree not to sell float spring-tooth harrows, float-spring-tooth-harrow frames without teeth, or attachments applicable thereto, at less prices or on more favorable terms of payment and delivery to the purchasers than as is set forth in the schedule annexed to the license, unless the licensor should reduce the selling price and make more favorable terms for purchasers, and that the defendants will not directly or indirectly manufacture or sell any other float spring-tooth harrows, etc., than those which they are thus licensed to sell and market, except for another licensee, and then only of such style as he is licensed to manufacture and sell. They agree to pay to the corporation one dollar upon each float spring-tooth harrow, etc., manufactured and sold by them, agreeably to the terms of the license, and the sum of five dollars as liquidated damages for every harrow, etc., manufactured or sold by them contrary to the terms and provisions of the license, and the corporation agrees to defend all suits for alleged infringement brought against the licensees. All the licenses issued by the corporation are upon the like terms and conditions.

It is manifest as well from the contract as from the proofs outside of it that the purpose of the parties was to form a combination between the various manufacturers of these harrows to prevent competition in business and enhance prices, and such is the effect of their agreement. The corporation provided to hold the legal titles of the several patents is merely an instrument to effect this object. The prior owners are still beneficial owners, with right to continue their business, subject only to the restraint in its management imposed by the contract. The provision for licenses is made necessary by the transfers of title and is simply another part of the scheme for combination and control of the business of the several patentees. The result would be the same in legal contemplation if the corporation and licensees had been dispensed with and the contract had provided simply, as it does, for combination and restraint of competition. That such a contract would be unlawful seems clear. While it is true that all contracts in restraint of trade are not prohibited, and it is sometimes difficult to determine whether a particular one is, there is no room for doubt that such a contract as this which provides for general and unlimited restraint is unlawful. To justify restraint, reason for it must be found in the nature of the property or the situation of the parties—as, for instance, in the sale of a business or professional good-will and other similar cases. Even then the restraint must be confined within such reasonable limits as the circumstances require. Here there is nothing to justify restraint, and that imposed is without any limitation whatever. The fact that the property involved is covered by Letters Patent is urged as a justification; but we do not see how any importance can be attached to this fact. Patents confer a monopoly as respects the property covered by them, but they confer no right upon the owners of several distinct patents to combine for the purpose of restraining competition and trade. Patented property does not differ in this respect from any other. The fact that one patentee may possess himself of several patents and thus increase his monopoly affords no support for an argument in favor of a combination by several distinct owners of such property to restrain manufacture, control sales, and enhance prices. Such combinations are conspiracies against the public interest and abuses of patent privileges. The object of these privileges is to promote the public benefit, as well as to reward inventors.

The suggestion that the contract is justified by the situation of the parties—their exposure to litigation—is entitled to no greater weight. Patentees may compose their differences, as the owners of other property may, but they cannot make the occasion an excuse or cloak for the creation of monopolies to the public disadvantage.

We do not see anything to distinguish this case in principle from *Nester* v. *The Continental Brewing Co.*, (161 Pa., 473;) *Pittsburgh Canton Co.* v. *McMillan*, (119 N. Y., 46;) *Morris Run Coal Co.* v. *Barclay Coal Co.*, (68 Pa., 173;) *The Distilling & Cattle Feeding Co.* v. *The People*, (41 N. E. Rep., 188;) *Straight* v. *The National Harrow Company*, (18 N. Y. Sup. Ct., 233.) The last of these decisions was upon this contract, substantially, at least, as it appears before us. A similar conclusion was reached by the court in *The National Harrow Company* v. *Quick*, (71 O. G., 608; 67 Fed. Rep., 130,) where this contract was again involved. The doctrine of these cases is not new, and we feel no hesitation in applying it to the contract before us. The judgment is therefore affirmed.

U. S. Circuit Court—District of Connecticut.

WILLCOX & GIBBS SEWING MACHINE COMPANY *v.* MERROW MACHINE COMPANY *et al.*

Decided October 30, 1897.

1. WILLCOX—SEWING-MACHINE—INFRINGEMENT.

Claims 2 and 5 of Letters Patent No. 472,094, granted April 5, 1892, to Charles H. Willcox, for a sewing-machine, construed and *Held* that defendants' device is not found in the elements of these claims without unduly straining the doctrine of equivalents.

2. SAME—SAME—VALIDITY—INFRINGEMENT.

Claim 2 of Letters Patent No. 472,095, granted April 5, 1892, to Charles H. Willcox, for a sewing-machine, is of doubtful validity and it cannot be construed to cover defendants' device without unduly straining the doctrine of equivalents.

Messrs. Howson & Howson for the complainant.

Messrs. Church & Church for the defendants.

TOWNSEND, *J.:*

At final hearing on this bill in equity charging infringement of the second and fifth claims of Patent No. 472,094 and the second claim of Patent No. 472,095 defendants deny the validity of both patents and deny infringement. The question of infringement only will be considered.

The claims alleged to be infringed are as follows:

Patent No. 472,094.

2. The combination, with the needle and its operating mechanism, of a looper having an upper jaw provided with a hook and a lower jaw, said looper being arranged to oscillate in a path around the edge of the cloth-plate, and means for actuating said looper to carry a loop of the needle-thread around the cloth-plate, substantially as described.

5. The combination of the double-jawed looper moving in a single plane and a needle moving in a line oblique to the plane of the looper's movement and intersecting the same, whereby the looper is when beneath the cloth on one side of the needle and when above the cloth on the other side thereof, substantially as described.

Patent No. 472,095.

2. The looper made with two jaws, one of which is furnished with a hook and the other with an eye, in combination with a reciprocating needle and operating mechanism for moving the looper in a plane oblique to the plane of movement of said needle, substantially as described.

Both patents are for a sewing-machine making an overseam. No. 472,094 is for a single-thread machine. No. 472,095 is for a double-thread machine.

The application for No. 472,094 was filed July 28, 1887. The application for No. 472,095 was filed May 24, 1890. Both patents were issued April 5, 1892. No. 472,095 is similar to No. 472,094, except for the changes necessary to adapt it to the use of two threads.

The stitch formed by complainant's machine is made under Patent No. 472,095, is the same as that formed by defendants' machine, and is old, and several different machines for forming it were well known in the prior art.

Defendants' machine is a double-thread machine. Generally speaking, the mode of forming said stitch is the same in all these machines, including those of the complainant and the defendants.

A sewing-machine needle having the eye near the point is first thrust through the fabric, carrying the needle-thread with it. Then a hook of some kind takes hold of the needle-thread below the fabric and holds it so that the needle in being withdrawn from the fabric leaves a loop of needle-thread on the hook and below the fabric. This loop of needle-thread is then drawn out to and lifted up around the edge of the fabric. Then a loop of another thread is thrust through the loop of needle-thread, and the needle in making its second stroke passes through this second loop.

In single-thread machines the loop of needle-thread after being lifted up around the edge of the fabric is carried over the fabric, and the needle in making its second stroke passes through the needle-thread loop.

The implement which seizes the loop of needle-thread and carries it around the edge of the fabric is called the "looper." When two threads and two implements are used, the implement which passes the second loop through the needle-thread loop is called the "looper."

In Patent No. 472,094 the upper part of complainant's looper is shaped somewhat like the pointed end of a fish-hook. The point passes between the needle and the thread below the fabric, when the hook, which is shaped and attached very much like the barb of a fish-hook, seizes the thread and draws out the loop. After the loop is carried around and over the edge of the fabric the forward motion of the looper causes the hook or barb to drop the loop, and it then falls upon the lower jaw or member, which carries it forward over the fabric, so that the needle in its next descent may pass through it.

In Patent No. 472,095 this lower jaw member is longer and has an eye near the end carrying a second thread, and when the loop of needle-thread falls upon this lower jaw it is not carried forward, but slips back along it, while the needle passes between the lower jaw and the thread carried by its eye.

Defendants' looper, which is that of Patent No. 541,722, is a bar having the forward end curved around to form a hook, which is pointed, and having an eye carrying a thread in the forward part near where the curve begins.

In operation this hook is inserted from the rear—that is, in the opposite direction from complainant's—between the needle and thread. The needle is then withdrawn, and this needle-thread loop is brought forward and around the edge of the fabric; but as the looper with its threaded eye moves along over the fabric the needle-thread loop slips backward upon the bar of the looper, and the needle, again descending, passes between the looper-bar and the thread passing through its eye.

Various prior modes of forming both the single and double thread stitch have been put in evidence.

The Goods and Miller patent, granted in 1864, for a single-thread machine, has a slightly-curved bar ending in a point with a barb, which if inverted would be practically the upper jaw of complainant's patent. The point passes between the needle and thread. Then the barb seizes the thread and draws it backward and upward, when another hook seizes the thread, thus opening the loop, so that the needle may readily pass through it. The second hook thus performs nearly the same office as the second member of complainant's single-thread patent. Such a device is spoken of in the briefs of both counsel as a "two-implement" type of looper, because it requires two implements in addition to the needle.

The Wanzer British patent No. 1,093, granted in 1865, for a single-thread machine, has two jaws or prongs on the end. One of these is inserted from the rear between the needle and thread. The looper is then carried by a circular motion around and above the fabric and the loop is presented again to the needle. This belongs to the one-implement class.

The Frey patent, granted in 1865, has a single looping instrument, the operating end of which somewhat resembles a half-eyelet attached to a furcated shank. The hook formed by the groove thus formed at the side of the end of the furcated bar enters between the needle and thread from the rear. As the loop is drawn around the edge of and above the fabric the loop is gradually shifted until it is engaged in the upper jaw of the looper, then passes upon the notched ends of both jaws, and, finally, by a further turn is presented to the needle.

In the Richard patent No. 252,799, granted in 1882, for a single-thread machine, the looper has a curve on one side near the point and another higher up on the other side. It reciprocates in a curved path around the edge of the fabric, so that the loop is taken from one curve of the looper to the other and at last is presented to the needle.

The Rehfuss patent No. 40,311, granted in 1863, is a two-thread machine. A hook takes the needle-thread loop and draws it backward beyond the edge of the fabric, when a thread-carrying looper passes through the needle-thread loop and over the fabric and presents another loop for the needle. This is a two-implement machine.

The Tarbox machine, Patent No. 49,803, granted in 1865, has a slightly-curved looper with a threaded eye near the point arranged on an arm of a rock-

shaft and operated diagonally to the feeding device and to the bed of the machine. This looper is inserted from the rear with a needle and thread, and as it comes forward and upward around the edge of the fabric the needle-thread loop slips backward upon the looper, while the threaded end of the looper passes above the fabric and presents its loop to the needle.

Several other patents for devices for making these stitches were in evidence.

Defendants claim that their machine is less nearly related to the complainant's than to several others of the older machines, and they insists that the complainant's machine, with its two jaws, is founded upon the two-implement style of machine, while the defendants' machine is founded upon the one-implement type of machine. I am inclined to accept this view.

The single-implement double-thread loopers prior to this patent, from which the defendants' machine is claimed to be developed, complainant characterizes as "somersault-loopers."

Complainant characterizes its own machine as the "oblique-plane non-inverting looper" and claims that its high speed is due to using a one-implement non-inverting looper, thus avoiding the necessity of complicated machinery and of a long thrust to the needle; but I am unable to find any such statement in the claims or specification of its patent.

Even if defendants' inventor derived from complainant's patent his idea that an overseam-machine might be run at a high rate of speed by using a one-implement non-inverting looper he did not copy complainant's looper, and I think did not come as near to it in structure as to some of the others.

Patent No. 472,095 differs only slightly from No. 472,094 in view of the prior art, and it is very doubtful whether it can be said to contain invention. I am inclined to think that a skilful mechanic, being presented with a machine of No. 472,094 and with the prior patents in evidence and requested to adapt the machine to a double-thread stitch, would have made the change almost as a matter of course.

It is not denied that the machine of No. 472,094 had been in use for a long time before the application for No. 472,095. Both patents were issued upon the same day, and the specification of No. 472,095 states that—

> the general form and organization of the machine and many of the parts or elements thereof are similar to that described—

in the other specification.

The specification of No. 472,094 contains a statement of the invention in these words:

> The novel and important feature of this part of the invention consists in the relative arrangement of the needle and the double-jawed looper, so that the line of the needle's motion is oblique to the plane in which the looper moves. In the practical embodiment of this principle it is immaterial which of these devices is made to move obliquely with reference to the plane of the cloth-plate, and any arrangement in which a double-jawed looper having its movement all in any one plane coöperates with a needle so moving with reference thereto that it lies on one side of the looper when both are above the cloth and on the other when both are beneath the cloth would be within the invention.

I do not understand it to be disputed that patents of the prior art have loopers moving in one plane and so moving that the needle is on one side when both are above the cloth and on the other when both are below the cloth.

Attempts were made in the Patent Office to obtain a claim on this looper without the limitation of the double jaw, and in No. 472,095 an attempt was made to obtain a claim without the hook. The Office refused to grant them, and the claims were limited as appear in the patent.

If complainant considered that its invention lay in the non-inverting character of its looper, it should have so claimed it. In the absence of any hint that the substance of the invention consisted in this feature I do not think I have any right to so broaden the claim as to cover all one-implement non-inverting loopers moving in a plane oblique to the course of the needle. It is doubtful whether any such looper could be made which would be any more unlike that of the complainant than the looper of the defendants.

Complainant claims that it has a pioneer patent so far as rapid overseam-work is concerned, and from the evidence I am satisfied that prior to complainant's machine the practical work of such machines was not more than a thousand stitches per minute, while by complainant's machine more than two thousand stitches can be made. This advantage, complainant now insists, is due to the form of its looper, which allows the stitch to be made with a much shorter thrust of the needle. How much of this increase of speed is due to this device and how much to improvements in other parts of the machine does not appear. Patent No. 472,095 makes no reference to speed, and the only reference to speed in Patent No. 472,094 is the following:

> The machine has been contrived with reference to running it at a very high rate of speed, the reciprocating parts being as short and light as possible and their motions derived from eccentrics, although cams or cranks may be employed for that purpose. The feed is a four-motion feed, all of whose motions are positive, although other forms of feed as means of moving a four-motion feeding-surface may be employed.

In view of the prior art I am unable to find in defendants' looper the elements of the claims in suit of either of complainant's patents without unduly straining the doctrine of equivalents.

Let the bill be dismissed.

U. S. Circuit Court—District of New Jersey.

MORGAN ENVELOPE COMPANY *v.* WALTON *et al.*

Decided August 26, 1897.

1. TRADE-MARK—"COLUMBIA"—MISTAKE AS TO ORIGIN OF GOODS.
   Where W., a manufacturer of paper, placed thereon the word "Columbia," which paper became known to the trade and was called for as "Columbia" paper, and M., a like manufacturer, adopted and placed upon his goods for his distinguishing-mark a figure of the goddess Columbia, with the name "Columbia" upon the shield and the letters "Columbia" upon the side of the package, which paper also became known by the name "Columbia," and then W. was induced to place upon his paper a figure of Columbia which is in all respects similar to that used by M., *Held* that there cannot be any question that under these circumstances there is a grave danger that the goods may be mistaken the one for the other.
2. SAME—SAME—TECHNICAL TRADE-MARK.
   Although W. was the first to use the word "Columbia" on his goods, it cannot be said that he acquired a technical trade-mark in the word "Columbia" in view of the decision in *Columbia Mills Co. v. Alcorn*, (150 U. S., 160.)

3. SAME—SAME—UNFAIR COMPETITION.

Inasmuch as W. appeared to have been the first to put upon his goods the distinguishing-mark "Columbia," and as his goods were the first to become known to purchasers as "Columbia," no other person should be permitted to use the name as the sole distinguishing-mark for like goods, whether expressed in letters or figures, and in that manner mislead the general public into buying his goods as those of his competitors. If the word could not be used as a trade-mark, it is to be treated as a descriptive word, to the benefit of which W. is entitled.

Messrs. Church & Church, solicitors, and of counsel for Morgan Envelope Company.

Mr. Walter D. Edmonds, solicitor, and of counsel for D. S. Walton & Co.

KIRKPATRICK, *J.*:

The complainants, the Morgan Envelope Company, filed their bill in this court, setting out that for more than ten years last past, continuously, they had manufactured a superior quality of tissue-paper which has been known, identified, and called for as "Columbia," and which is known and referred to by such designation "Columbia" in connection with a symbolic or allegorical representation of Columbia, and charging the defendants, D. S. Walton & Co., with the use of a similar design upon their wrapper of tissue-paper in contravention of complainant's rights, and in such manner as to constitute an unfair and fraudulent competition in business, and asking for an injunction to restrain the defendants from making use of said wrapper or label or any colorable imitation in connection with tissue-paper not made by complainants. To this bill the defendants filed their answer, together with affidavits, denying all the material allegations in the complainant's bill, and in order to obtain full relief touching the matters of the original bill (*Morgan Company* v. *Texas Central Railroad*, 137 U. S., 171) by leave of the court filed their cross-bill, in which they claimed for themselves the exclusive use of the label charged by the complainants to be a fraudulent imitation, and founded their right upon the appropriation and use of the word "Columbia" as applied to tissue-paper and the continuous use of the same for a period of seventeen years prior to the filing of their bill. The defendants in their cross-bill ask for the same relief against the complainants which had been asked against themselves in the original bill.

From the affidavits filed these facts were disclosed: In 1883 D. S. Walton & Co., the defendants, were manufacturers of tissue-paper, which, without other distinguishing-mark, they placed upon the market labeled "Columbia," and that since that time they have continued to so label and sell it; that it has been known to the trade and has been called for as "Columbia" paper; that in 1885 or 1886 the complainants, being like manufacturers of tissue-paper, adopted and placed upon their product, without other distinguishing-mark, a figure of the goddess Columbia, with the name "Columbia" upon the shield and the letters "Columbia" upon the sides of the package, which paper has also been known to the trade and called for by the name "Columbia;" that in 1893 the defendants were induced to place upon their packages a figure of Columbia which is in all respects similar to that used by the complainants.

There cannot be any question that under these circumstances there is grave danger that the goods may be mistaken the one for the other. If the question presented were only the one raised by the complainant's bill, I should not hesitate to grant it the relief asked for, but by the prior application by the defendants of the word "Columbia" to the same product changes the situation of the parties.

It cannot be said that Walton & Co. acquired a technical trade-mark in the word "Columbia" in view of the decision of *Columbia Mills Company* v. *Alcorn*, (150 U. S., 460;) but that they were the first persons, so far as the record shows, to apply the word to this article of production cannot be disputed. By such application and continued use their paper became known to the trade and the public generally. It acquired a reputation for quality, and the name was a distinctive mark of excellence. The figure of Columbia afterward added by the complainants cannot be regarded as more than a mere amplification of the word "Columbia" previously appropriated. It conveys no further or other idea than the word and can be regarded only as a different way of expressing it. It is apparent that inasmuch as none of the wrappers in controversy bear the names of the makers the packages must be known and designated and called for by the users as "Columbia" paper whether the word "Columbia" be expressed in letters alone or in a figure typifying Columbia. So it would happen that whether a purchaser wanted the package of the complainants or the defendants he must ask for "Columbia" paper. It would be impossible for the seller to know which of the manufactured articles was desired, and the public would be rendered liable to have imposed upon it goods which they did not want. Such a condition must inevitably lead to confusion in the trade, disappointment to the general public, deception of ultimate purchasers, and be productive of unfair competition in trade. (*Orr* v. *Johnson*, 13 Ch. Div., 434; *Sawyer* v. *Horn*, 4 Hughes, 439.) One cannot be permitted to practice deception in the sale of his goods as those of another "nor to use the means which contribute to that end." (*Perry* v. *Truefit*, 6 Beav., 16.) Irrespective of the question of trade-mark, inasmuch as Walton & Co. appear to have been the first to put up their paper with the distinguishing-mark "Columbia" and as their goods were the first to become known to purchasers as "Columbia" paper no other person should be permitted to use that name as the sole distinguishing-mark of a like article, whether expressed in letters or by figure, and in that manner mislead the general public into buying his goods as those of his competitor. If the word could not be used as a trade-mark, it is to be treated as a descriptive term, to the benefit of which they are entitled. (*Wilson* v. *T. H. Garrett & Co.*, 47 U. S. App., 250.) The complainant charges in his bill that by reason of his symbol of Columbia his article has become known and asked for as "Columbia" paper. The evidence discloses the fact that by that name alone the defendants' paper has previously been known and called for. The confusion which his bill was filed to abate was of complainant's own creation, and he was himself the cause of the unfair competition in trade against which he asks relief.

The prayer of the complainant's bill will be denied and an injunction granted to the defendants on their cross-bill, as prayed for.

AMENDMENTS TO THE RULES OF PRACTICE

To Conform to the Provisions of the Acts Approved March 3, 1897.

The Rules of Practice in the United States Patent Office (edition of June 18, 1897) have been amended to conform to the provisions of the acts of Congress approved March 3, 1897, as indicated below.

Rules 24, (first paragraph,) 29, 31, (last paragraph,) 39, (section 1,) 46, 63, (second paragraph,) 75, 77, (first and second paragraphs,) 94, 166, 168, 171, (first paragraph,) and 198 are amended to read as follows. These rules as amended shall take effect on January 1, 1898, and shall apply to all applications filed on and after said date:

24. (First paragraph.) A patent may be obtained by any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, *or more than two years prior to his application*, and not in public use or on sale in the United States for more than two years prior to his application, unless the same is proved to have been abandoned, upon payment of the fees required by law and other due proceedings had.

29. The receipt of letters patent from a foreign government will not prevent the inventor from obtaining a patent in the United States, unless *the application on which the foreign patent was granted was filed more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country.*

31. (Last paragraph.) The application must be completed and prepared for examination within *one year* after the filing of the petition; and in default thereof, or upon failure of the applicant to prosecute the same within *one year* after any action thereon, (Rule 77,) of which notice shall have been duly mailed to him or his agent, the application will be regarded as abandoned, unless it shall be shown to the satisfaction of the Commissioner that such delay was unavoidable. (See Rules 171 and 172.)

39. (Section 1.) The following order of arrangement should be observed in framing the specification:

(1) Preamble stating the name and residence of the applicant and the title of the invention.

46. The applicant, if the inventor, must make oath or affirmation that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent, that he does not know and does not believe that the same was ever before known or used, and shall state of what country he is a citizen and where he resides. In every original application the applicant must distinctly state under oath that the invention has not been patented to himself or to others with his knowledge or consent in this or any foreign country for more than two years prior to his application and *that no application for a patent has been filed in any foreign country by himself or his legal representatives or assigns more than seven months prior to his application. If any application for patent has been filed in any foreign country by the applicant in this country or by his legal representatives or assigns, prior to his application in this country, he shall state the country or countries in which such application has been filed, giving the date of such application, and shall also state that no application has been filed in any other country or countries than those mentioned;* that to the best of his knowledge and belief the invention has not been in public use or on sale in the United States *nor described in any printed publication or patent in this or any foreign country* for more than two years prior to his application in this country. This oath must be subscribed to by the affiant.

63. (Second paragraph.) The following new applications have preference over all other new cases at every period of their examination in the order enumerated:

(1) Applications wherein the inventions are deemed of peculiar importance to some branch of the public service, and when for that reason the head of some Department of the Government requests immediate action and the Commissioner so orders; *but in such case it shall be the duty of such head of a Department to be represented before the Commissioner in order to prevent the improper issue of a patent.*

(2) Applications for reissues.

(3) Applications which appear to interfere with other applications previously considered and found to be allowable, or which it is demanded shall be placed in interference with an unexpired patent or patents.

75. When an original or reissue application is rejected on reference to an expired or unexpired domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant shall make oath to facts showing a completion of the invention in this country before the filing of the application on which the domestic patent issued, or before the

date of the foreign patent, or before the date of the printed publication, and shall also make oath that he does not know and does not believe that the invention has been in public use or on sale in this country, *or patented or described in a printed publication in this or any foreign country* for more than two years prior to his application, and that he has never abandoned the invention, then the patent or publication cited will not bar the grant of a patent to the applicant, *unless the date of such patent or printed publication is more than two years prior to the date on which application was filed in this country.*

77. (First and second paragraphs.) If an applicant neglect to prosecute his application for *one year* after the date when the last official notice of any action by the Office was mailed to him, the application will be held to be abandoned, as set forth in Rule 171.

Whenever action upon an application is suspended upon request of an applicant, and whenever an applicant has been called upon to put his application in condition for interference, the period of *one year* running against such application shall be considered as beginning at the date of the last official action preceding such actions.

94. (The following is added to Rule 94.)

(9) *An interference will not be declared between an original application filed subsequently to December 31, 1897, and a patent issued more than two years prior to the date of filing of such application, or an application for a reissue of such patent.*

166. Whenever the Commissioner shall direct the withdrawal of an application from issue on request of an applicant, for reasons not prohibited by Rule 165, such withdrawal shall not operate to stay the period of *one year* running against the application, which begins to attach from the date of the notice of allowance.

168. Every patent will contain a short title of the invention or discovery, indicating its nature and object, and a grant to the patentee, his heirs and assigns, for the term of seventeen years, of the exclusive right to make, use, and vend the invention or discovery throughout the United States and the Territories thereof. The duration of a design patent may be for the term of three and a half, seven, or fourteen years, as provided in Rule 80. A copy of the specifications and drawings will be annexed to the patent and form part thereof.

171. (First paragraph.) An abandoned application is one which has not been completed and prepared for examination within *one year* after the filing of the petition, or which the applicant has failed to prosecute within *one year* after any action therein of which notice has been duly given, (see Rules 31 and 77,) or which the applicant has expressly abandoned by filing in the Office a written declaration of abandonment, signed by himself and assignee, if any, identifying his application by title of invention, serial number, and date of filing. (See Rule 60.)

198. An assignment, grant, or conveyance of a patent will be void as against any subsequent purchaser or mortgagee for a valuable consideration without notice unless recorded in the Patent Office within three months from the date thereof. *If any such assignment, grant, or conveyance of any patent shall be acknowledged before any notary public of the several States or Territories or the District of Columbia, or any Commissioner of the United States circuit court, or before any secretary of legation or consular officer authorized to administer oaths or perform notarial acts under section seventeen hundred and fifty of the Revised Statutes, the certificate of such acknowledgment, under the hand and official seal of such notary or other officer, shall be prima facie evidence of the execution of such assignment, grant, or conveyance.*

A. P. GREELEY,
Acting Commissioner.

Department of the Interior, November 19, 1897.
Approved:
C. N. BLISS,
Secretary.

The following form of oath is substituted for Form 17 of the Appendix of Forms:

OATH.

} ss.

———, the above-named petitioner, being duly sworn, depose and say that —— citizen of ———— and resident of ————, and that —— verily believe —— to be the original, first, and —— inventor of the improvement in ———— described and claimed in the annexed specification; that —— do not know and do not believe that the same was ever known or used before —— invention or discovery thereof; or patented or described in any printed publication in the United States of America or any foreign country before —— invention or discovery thereof or more than two years prior to this application; or in public use or on sale in the United States for more than two years prior to this application, and that no application for foreign patent has been filed by —— or —— legal representatives or assigns in any foreign country, except as follows:

—— ——
—— ——
—— ——

Sworn to and subscribed before me this —— day of ——, 189 .

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 10. TUESDAY, DECEMBER 7, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
ATTORNEYS	1619
CHANGE OF SIGNATURE ON DRAWINGS	1619
PREPARATION OF SPECIFICATIONS, ENTRY OF AMENDMENTS, ETC	1619
APPLICATIONS BY EMPLOYEES OF THE PATENT OFFICE	1620
ISSUE OF DECEMBER 7, 1897	1620
APPLICATIONS UNDER EXAMINATION	1621
PATENTS GRANTED	1765
REISSUES	1765
DESIGNS	1780
TRADE-MARKS	None.
LABELS	None.
PRINTS	None.
DECISIONS OF THE U. S. COURTS—	
United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783
COMMISSIONER'S DECISIONS—	
Ex parte Nealon	1787
Hunter *v.* Wightman	1788

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., November 26, 1897.

SIR: The Secretary of the Interior has ordered that J. T. Lynch, of Houston, Mo., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., November 27, 1897.

SIR: The Secretary of the Interior has ordered that D. F. MacMartin, of Oklahoma City, Okla. Ter., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., November 27, 1897.

SIR: I am directed by the Secretary of the Interior to inform you that so much of the order of August 10, 1892, as disbarred Wilbur C. Benton, Jr., of Cincinnati, Ohio, of the firm of Wilbur C. Benton & Co., from practice before the Department and its Bureaus has this day been revoked.

Very respectfully,
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Change of Signature on Drawings.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 22, 1897.

The attention of the Examiners is called to Order No. 480, relating to the change of signature on the drawing, which they are directed to follow strictly.

A. P. GREELEY,
Acting Commissioner.

(*Order No. 480.*)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 28, 1888.

The attention of the Commissioner has been called to the fact that patent solicitors who are appointed attorneys in fact in applications pending in the Office upon revocation of powers of attorney to former solicitors in the same cases are in the habit of erasing from the drawings the names of the solicitors who prepared and signed the drawings at the time they were originally filed.

In *ex parte Wharton* (40 O. G., 917) I called attention to the impropriety of changing in any manner the drawings themselves, and while the signatures of attorneys to such drawings are not of especial importance, circumstances might arise which would make them of very great importance, as, for instance, were a question raised concerning the identity of the drawings.

It is hereby directed that the practice of erasing the names of attorneys, or writing upon the drawings the names of attorneys subsequently appointed, so as to make it appear that their names were present when the drawings were originally filed, shall be discontinued.

Examiners will observe that this order is not violated. They are instructed to report to the Commissioner all instances which come within their knowledge of such violation.

BENTON J. HALL,
Commissioner.

Preparation of Specifications, Entry of Amendments, Etc

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Applications by Employees of the Patent Office.

All applications for patents now pending before the Office filed by employees of the Patent Office during the period of their service, either complete or incomplete, or completed after they had separated themselves from the service, are ordered to be stricken from the files and the fees returned.

The views of the Commissioner upon section 480 of the Revised Statutes are expressed in his decision in the case of *ex parte John H. McElroy*, (80 O. G., 1123.)

Issue of December 7, 1897.

Patents	444	No. 594,841 to No. 595,284, inclusive.
Designs	92	No. 27,929 to No. 28,020, inclusive.
Trade-Marks	30	No. 30,930 to No. 30,959, inclusive.
Labels	None.	
Prints	None.	
Reissues	2	No. 11,640 to No. 11,641, inclusive.
Total issue	568	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	1	.....	New Hampshire	2	.....
Arizona Territory	.....	.....	New Jersey	20	1
Arkansas	1	.....	New Mexico Territ'y	.....	.....
California	20	5	New York	63	9
Colorado	4	.....	North Carolina	4	.....
Connecticut	18	.....	North Dakota	.....	.....
Delaware	1	.....	Ohio	33	2
District of Columbia	1	.....	Oklahoma Territory	1	.....
Florida	4	.....	Oregon	4	.....
Georgia	3	.....	Pennsylvania	33	.....
Idaho	1	.....	Rhode Island	5	.....
Illinois	107	3	South Carolina	1	.....
Indian Territory	1	.....	South Dakota	2	.....
Indiana	13	.....	Tennessee	1	.....
Iowa	16	.....	Texas	10	.....
Kansas	6	.....	Utah	2	.....
Kentucky	3	.....	Vermont	2	.....
Louisiana	2	.....	Virginia	4	.....
Maine	2	.....	Washington	2	.....
Maryland	5	.....	West Virginia	3	.....
Massachusetts	41	3	Wisconsin	2	.....
Michigan	13	.....	Wyoming	.....	.....
Minnesota	1	2	U. S. Army	.....	.....
Mississippi	6	.....	U. S. Navy	.....	.....
Missouri	15	2			
Montana	1	.....	Total to citizens of the United States	485	27
Nebraska	2	.....			
Nevada	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	.....	.....	Mexico	.....	.....
Australia	.....	.....	Netherlands	.....	.....
Austria-Hungary	1	.....	Newfoundland	.....	.....
Barbadoes	.....	.....	New South Wales	2	1
Belgium	2	.....	New Zealand	2	.....
Bermuda	.....	.....	Norway	.....	.....
Brazil	.....	.....	Portugal	.....	.....
Canada	5	.....	Queensland	.....	.....
Cape Colony	.....	.....	Roumania	.....	.....
Chile, Republic of	.....	.....	Russia	.....	.....
China	.....	.....	Scotland	1	.....
Colombia	.....	.....	Siam	.....	.....
Cuba	.....	.....	South African Republic	1	.....
Denmark	.....	.....	South Australia	.....	.....
Egypt	.....	.....	Sweden	1	.....
England	17	1	Switzerland	.....	.....
Finland	.....	.....	Tasmania	1	.....
France	5	.....	Victoria	2	.....
Germany	11	1			
India	.....	.....			
Ireland	.....	.....	Total to citizens of foreign countries	51	3
Italy	.....	.....			

APPLICATIONS UNDER EXAMINATION.

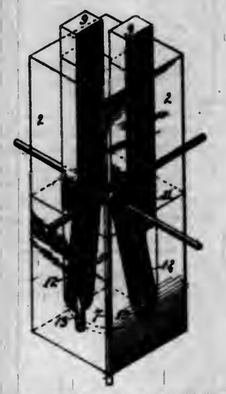
Condition at Close of Business November 30, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Between one and two months.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 2	Nov. 13	180
106	II. Farm Stock, Products, etc.	Sept. 30	Nov. 12	325
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 5	Nov. 11	210
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Oct. 8	Nov. 9	163
250	VIII. Furniture, Beds, Store Furniture, etc.	Sept. 30	Nov. 4	383
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Oct. 15	Nov. 1	167
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Oct. 4	Oct. 20	329
	Between two and three months.			
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Sept. 20	Nov. 23	163
120	IX. Hydraulics, Fire-Extinguishers, etc.	Sept. 13	Nov. 22	165
253	X. Carriages and Wagons	Sept. 3	Nov. 22	282
102	XIX. Stoves and Furnaces	Aug. 31	Nov. 20	290
255	XII. Mechanical Engineering, Store-Service, etc.	Sept. 24	Nov. 17	173
315	XVII. Paper Manufactures and Printing.	Sept. 27	Nov. 8	185
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Sept. 17	Nov. 8	327
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Sept. 13	Nov. 8	367
98	XXI. Textiles, etc	Sept. 4	Nov. 8	204
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Sept. 8	Nov. 2	198
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 4	Nov. 2	277
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 20	Oct. 26	171
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Sept. 17	Oct. 4	252
246	I. Tillage and Fences	Aug. 30	Sept. 21	259
	Between three and four months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 3	Nov. 23	165
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Aug. 13	Nov. 22	317
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Aug. 14	Nov. 16	498
248	XVIII. Steam-Engineering, etc.	Aug. 23	Nov. 15	273
206	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 23	Nov. 13	211
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 24	Oct. 2	566
240	VII. Velocipedes	Aug. 9	Oct. 1	1226
	Between four and five months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	July 14	Nov. 5	457
231	XXIII. Instruments of Precision, Acoustics, etc.	July 12	Sept. 14	378
	Between five and six months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	June 14	Nov. 19	647
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Sept. 21	177
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	Aug. 18	367
	Total number of applications awaiting action			10,351
	Under one month.			
	Designs	Nov. 1	Nov. 20	150
	Trade-Marks	Nov. 22	Nov. 29	25

PATENTS

GRANTED DECEMBER 7, 1897.

594,841. DIE FOR JOINING INTERSECTING WIRES. DANIEL P. ANTHONY, Tecumseh, Mich. Filed June 30, 1897. Serial No. 642,916. (No model.)



Claim.—1. In a pair of dies adapted to hold the cross-wires of a wire fence, means for feeding a tie-wire to the point of intersection of said cross-wires, means for looping said tie-wire across said cross-wires, means for bending the two extremities of said tie backwardly upon opposite sides of both of said cross-wires, and means for bending the extremities of said tie inwardly toward each other, substantially as and for the purpose specified.

2. In a pair of dies adapted to hold the cross-wires of a wire fence, means for feeding a tie-wire to the point of intersection of said cross-wires, means for crimping one of said cross-wires upon the other at its point of intersection, means for looping said tie-wire across said cross-wires, means for bending the two extremities of said tie backward upon opposite sides of both of said cross-wires, and means for bending the extremities of said tie inwardly toward each other, substantially as and for the purpose specified.

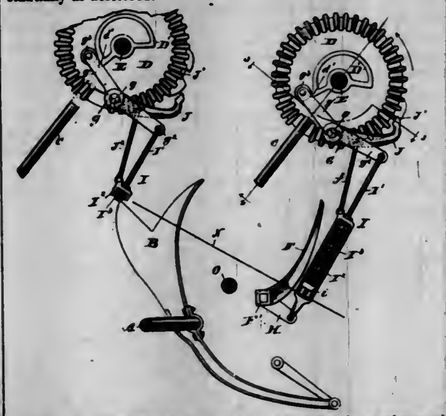
3. In a die for a wire-fence machine, a block having a pair of recesses with inwardly-converging walls, and a pair of plungers having their neighboring edges at their extremity within the die beveled or sloped backwardly toward each other, substantially as and for the purpose specified.

4. A pair of dies for a wire-fence machine, comprising a block having a plunger therein adapted to receive, carry forward and hold a wire loop, another block, a pair of plungers therein adapted by means of their beveled surfaces to engage and deflect the projecting prongs of such wire loop, substantially as and for the purpose specified.

5. In a pair of dies for a wire-fence machine, a block, a plunger therein adapted to project and hold a wire loop, a pair of arms pivoted in said block, an opposing block, a pair of plungers therein adapted to engage and deflect the projecting prongs of such loop, and adapted to engage said pivoted arms, which in turn are adapted to engage and further deflect said projecting prongs, substantially as and for the purpose specified.

594,842. GRAIN-BINDER. JOHN F. APPLEBY, Santa Cruz, Cal., assignor to the William Deering & Company, Chicago, Ill. Filed Feb. 21, 1893. Serial No. 463,284. (No model.)

Claim.—1. In a grain-binder, the combination of constantly-running mechanism, an intermittently-moved driving-wheel, a compressor-cam and a compressor, with locking mechanism unyieldingly connected to said compressor and adapted to be moved thereby in opposition to a spring, elastic mechanism connecting said compressor with a lever adapted to be controlled by said cam, the spring of said mechanism acting in opposition to the stress of the bundle upon said compressor to move said locking mechanism and the said lever, substantially as described.



2. In a grain-binder the combination of constantly-running mechanism, an intermittently-moved driving-wheel, a compressor-cam and a compressor with a lever controlled by said cam, a spring-link connecting said lever with said compressor and locking mechanism unyieldingly connected to said compressor and adapted to move in opposition to the stress of said spring-link, substantially as described.

3. In a grain-binder, the combination of the main driving-wheel adapted to be intermittently moved and having a stop on its periphery, a compressor-cam having a declivity, a lever having one end that rests upon the higher part of said declivity when the said driving-wheel is at rest, a compressor-finger, a spring-link connecting said finger to said lever and a detent engaging said stop on said wheel and adapted to be withdrawn therefrom by the pressure of the accumulated gavel, whereby the stress of said spring-link is exerted upon the declivity of said cam to quickly start the said driving-wheel, substantially as described.

4. In a grain-binder, the combination of a constantly-running pinion, a mutilated gear from which all parts of the binding devices receive their movements, a compressor-cam having a declivity, a lever having one end that rests upon the apex of said declivity when the said driving-wheel is at rest, a compressor-finger, a spring-link connecting the said finger to the said lever and clutching devices engaging said mutilated gear and adapted to be disengaged by the pressure of the accumulated gavel, said clutching devices unyieldingly connected to said compressor, substantially as and for the purpose described.

5. The combination of a constantly-running pinion, a mutilated gear, a cam having a declivity, clutching devices adapted to engage the periphery of said mutilated gear and a trip-finger adapted to disengage said clutching devices, and a lever having one end adapted to rest upon the declivity of said cam and elastically connected to said trip-finger whereby the said gear is given an initial movement when said clutching devices are released, substantially as described.

6. In combination with the continuously-running pinion, the wheel D having the declivity d' and the detent-engaging notch, the lever G, the detent J, the arm F and the elastic linking device I, the latter connected to the said arm G and the detent J so that the stress of the spring of said linking device may be exerted to force the detent into position and to provide the stress necessary to cause the binding

devices to be given the initial part of the movement necessary for throwing the clutching devices into engagement, substantially as described.

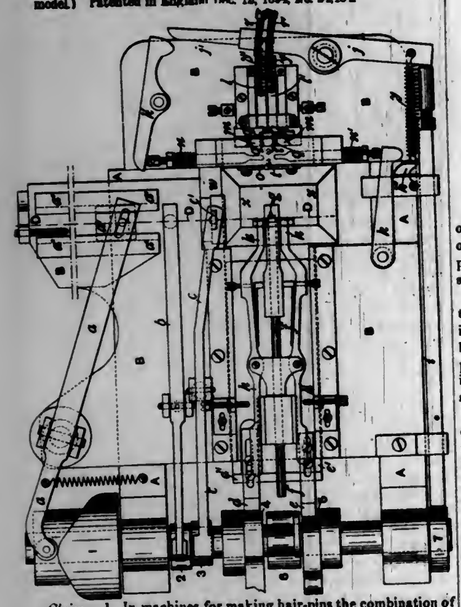
594,843. VALVE. JOHN B. ARETHEN, St. Louis, Mo., assignor of one-half to John G. Winters, same place. Filed Feb. 13, 1897. Serial No. 623,367. (No model.)



Claim.—1. The combination with the wooden valve, of a metallic band E embracing the same, a thimble or wear-sleeve F in a central perforation in the wooden portion of the valve, and radially-disposed rivets G, passing through the wooden portion of the valve, the ends of said rivets being secured in the band E and sleeve F; substantially as described.

2. The combination with a valve-seat, and valve-stem, of a valve arranged to slide on said stem and coöperate with said seat, said valve comprising a wooden body portion, a band surrounding said body portion, a sleeve acting as a wear-surface for the stem, and rivets passing through the wooden body portion of the valve, the ends of said rivets being secured in the band and in the sleeve; substantially as described.

594,844. HAIR-PIN-MAKING MACHINE. CHARLES BRAUMONT, Roubaix, France. Filed Sept. 10, 1896. Serial No. 605,448. (No model.) Patented in England Dec. 12, 1894, No. 24,134.



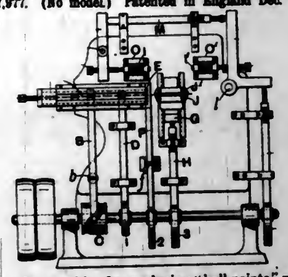
Claim.—1. In machines for making hair-pins the combination of a former, a seizing-piece for pressing the wire against the former, bending-jaws, a pair of matrices for holding the ends of the pins and pressers and stops for undulating the pins.

2. In machines for making hair-pins the combination of a former, a seizing-piece, bending-jaws, a pair of matrices for holding the ends of the pins and parallel punches for forming "ball-points."

3. In machines for making hair pins, the combination and arrangement of the piece *f* and former *g*, the jaws *h* actuated by a cam 5, the matrices *p p'*, and punches *l l'*, all coöperating to bend and point the pins, substantially as set forth with reference to the accompanying drawings.

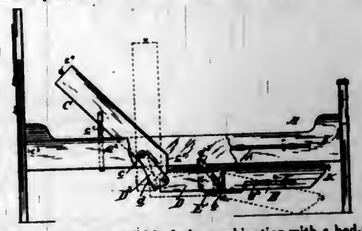
4. In machines for making hair-pins, the combination and arrangement of the piece *f* and former *g*, the jaws *h* actuated by a cam 5, the matrices *p p'*, the punches *l l'*, and the pressers and stops *n n' t t'*, all coöperating to bend, point and undulate the pins, substantially as set forth with reference to the accompanying drawings.

594,845. HAIR-PIN-MAKING MACHINE. CHARLES BRAUMONT, Roubaix, France. Filed Sept. 10, 1896. Renewed Nov. 9, 1897. Serial No. 657,977. (No model.) Patented in England Dec. 12, 1894, No. 24,145.



Claim.—In a machine for producing "ball-points" upon hair-pins the combination of means for feeding the wire into the machine, a clamp for holding the wire to stop the feed, means for cutting the wire into blanks, a pair of jaws shorter than the wire blank, means to move the jaws and blank out of line with the wire and dies or punches in line with each other to form the points, substantially as described.

594,846. INVALID-BED. ARIAN B. BENNETT, Opelika, Ala. Filed May 18, 1897. Serial No. 637,055. (No model.)



Claim.—1. In an invalid-bed, the combination with a bed-frame, of a foot-board having a hinged upper section, and a pivoted top rail on the hinged section arranged to be adjusted into a perpendicular position to maintain the hinged section in a horizontal position, substantially as described.

2. In an invalid-bed, the combination with a bed-frame, of a bottom consisting of three movable sections, means for pivotally securing the head-section to the frame, a swinging pivotal connection between the head-section and central section, a lock for preventing a pivotal movement of the connection, and means for preventing an independent movement of the foot-section and central section, substantially as described.

3. In an invalid-bed, the combination with a frame, of a bottom consisting of three movable sections, a pivotal connection between the head-section thereof and the frame, means for maintaining the head-section at different inclinations, a central section, a pivoted swinging connection between the head-section and central section, spring-actuated bolts for preventing the movement of said pivoted connection, a link connection between the frame and the center section, and means for maintaining the foot and center sections in adjusted positions, substantially as described.

4 In an invalid-bed, the combination with a frame, of the bed-bottom consisting of three movable sections, a pivotal connection between the frame and the head-section of the bottom, a link connection between the center section and the head connection, means for locking the head-section and center section together, a link connection between the frame and center section, and a detachable connection between the foot-section and center section, substantially as described.

5. In an invalid-bed, the combination with a frame, of bottom section consisting of three movable sections, means for maintaining all of the sections in alinement and in a horizontal position in the frame, a link connection between the head-section and the central section of the bottom, a removable connection between the head-section and center section, and removable central sectional bottom in the central section having projecting plates for maintaining the bottom sections of the central section in position, substantially as described.

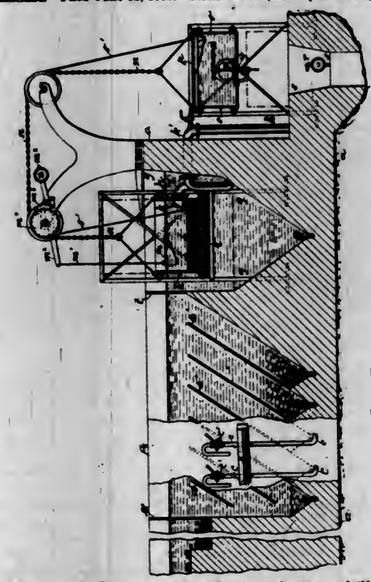
6. In an invalid-bed, the combination with the frame, of a bottom consisting of three movable sections, means for maintaining the sections in adjusted positions, removable apertured supports in the central section of a length less than the length of the space between the end bars of the central section, and pivoted extensions on the apertured supports for engaging the ends of the said section, substantially as described.

7. In an invalid-bed, the combination with the frame and bed-bottom consisting of three movable sections, a pivotal connection between the head-section and frame, a link connection between the central section and head-section, link connections between the central section and the frame, a hinge connection between the foot-section and the central section, and pivoted bars on the foot-section arranged to project below the central section, substantially as described.

8. The combination with the sectional bed-bottom, of stirrups R having the depending portions *r*, and lateral angular extensions at their ends engaging the sides of the bottom, and a detachable connection between the central section, and foot-section of the bottom, substantially as described.

9. In an invalid-bed, the combination with a frame and bottom, of a table consisting of a clip O, substantially U-shaped having an upturned lower end, an arm projecting through the clip and engaging the upturned end, and a table or tray on the outer end of the arm, substantially as described.

594,847. SEWAGE OR LIKE PRECIPITATING AND FILTERING TANK. JOHN H. BENNETT and HENRY BERRISFORD, Manchester, England. Filed June 12, 1897. Serial No. 640,553. (No model.)



Claim.—1. In sewage and the like precipitating and filtering tanks, having inclined partitions and hoppers at their lower ends, siphon-like pipes *c*, *c'*, through which the solid matter in the hopper *b* can be removed at will through the medium of the head of fluid in the tank, all substantially as set forth.

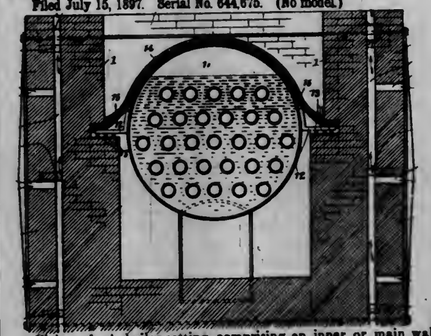
2. In an apparatus for filtering sewage and the like, the combination with the compartment for the inflowing fluid to be filtered, the filter-casing suspended therein carrying a suitable filtering material and adapted to permit the fluid to pass upward through said filtering material, an outlet for the filtered fluid above the filtering material, and means for closing said outlet to permit a body of fluid to accumulate above the filtering material, and means for varying the comparative levels of the fluid in the outer compartment and that in the filter-casing whereby the fluid in the latter will pass through the filtering material in a reverse direction to cleanse the same, substantially as described.

3. In combination, the compartment for the fluid to be filtered, the filter-casing vertically movable therein, having a filtering bed, the outlet above said bed, said filter being normally arranged to have the fluid in the compartment pass upward through the bed and out at said outlet, means for closing said outlet to permit a head of water to accumulate in the filter-casing, and means for raising the filter to discharge said head of water through the filter-bed to cleanse the same, substantially as described.

4. In combination, the compartment for the water to be filtered, the filter casing vertically movable therein and having a filtering-bed, an outlet-pipe for said filtering-casing, a balancing-chamber connected with said filter-chamber, a fluid-supply pipe for gradually filling said balancing-chamber, means for closing the outlet-pipe from the filter-casing when the balancing-chamber is full to accumulate a body of fluid in the filter-casing, and means controlled by the rise of water within the filter-casing for releasing the counterbalancing-chamber and permitting the same to raise the filter casing, substantially as described.

5. In combination, the compartment for the fluid to be filtered, the vertically-movable filter-casing, the counterbalancing-chamber connected therewith, the fluid-supply for gradually filling said counterbalancing-chamber, the outlet from the filter-casing, the valve for closing the same, the float in the counterbalancing-chamber connected with said valve for closing the same when the counterbalancing-chamber is full, the float in the filter-casing, means controlled by said float for releasing the counterbalancing-chamber when the filter-chamber is full, and means for automatically discharging the contents of the counterbalancing-chamber when the filter-casing has been raised to permit the parts to return to normal position, substantially as described.

594,848. BOILER-SETTING. LOUIS BERNHARD, Bridgeport, Conn. Filed July 15, 1897. Serial No. 644,675. (No model.)



Claim.—1. A boiler-setting comprising an inner or main wall upon which the boiler is freely supported, an outer wall, an air-space between the inner and outer walls and extended from the bottom up through the top thereof into the outside air, openings through the outer wall whereby fresh air is supplied to said space, pockets in the outer wall and opening into said space, and loose bricks resting within these pockets and of a length slightly less than the distance between the end walls of these pockets and the main wall, substantially as set forth.

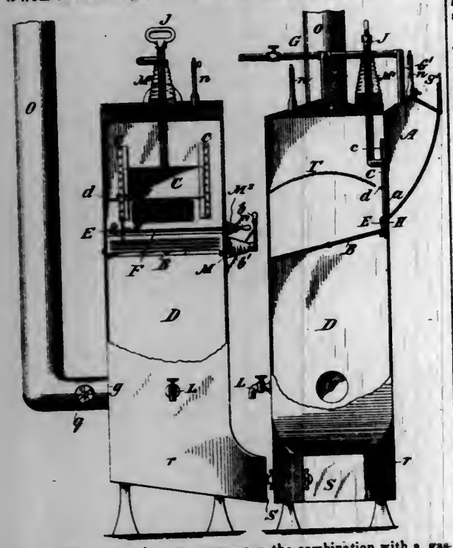
2. A boiler-setting comprising double walls separated by an intermediate air-space, one of such walls being provided with pockets opening into such space and with loose bricks resting in said pockets and of a length slightly less than the distance between the end walls of said pockets and the opposite wall, substantially as set forth.

594,849. ACETYLENE-GAS GENERATOR. GIANNI BETTINI, New York, N. Y. Filed Sept. 3, 1896. Serial No. 604,719. (No model.)

Claim.—1. In an acetylene-gas generator, the combination with a suitable inlet for the solid ingredient and a suitable inlet for the liquid ingredient, of a movable support for the solid ingredient placed below the inlet for the solid ingredient and above the inlet for the liquid ingredient, and mechanism to move said support from outside the generator without opening the generator, a shield above the said support and a door at the bottom or near the bottom of the generating-chamber for the removal of residue, and to thereby displace the solid residue from said support, whereby the generation of the gas may be practically continuous, substantially as set forth.

2. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a supply-chamber for the solid ingredient having feeding inlet, and a liquid-supply chamber having inlet, of a movable supporting-grate placed between the two inlets and mechanism to move it from outside the generator-chamber, a shield above the said grate and a door near the bottom of the generating-chamber for the removal of the residue, substantially as set forth.

3. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a supply-chamber for the solid ingredient having a discharge-opening into the generating-chamber, a closing port or gate for said discharge-opening inside the generating-chamber and mechanism to operate it from outside the generator, and a liquid-supply chamber having inlet and valve and mechanism to operate the valve from outside the generator, of a movable supporting-grate placed between the two inlets and mechanism to move it from outside the generator-chamber, substantially as set forth.



4. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a supply-chamber for the solid ingredient having feeding-inlet and also having a closing port or gate and mechanism to operate it from outside the generator, and a liquid-supply chamber having inlet, and valve and mechanism to operate the valve from outside the generator, of a movable supporting-grate placed between the two inlets and mechanism to move it from outside the generator-chamber, and mechanism to prevent the opening of the port or gate when the grate is moved out of its supporting position substantially as set forth.

5. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a supply-chamber for the solid ingredient having feeding-inlet, and also having a closing port or gate and mechanism to operate it from outside the generator, and a liquid-supply chamber having inlet and valve and mechanism to operate the valve from outside the generator, of a movable supporting-grate placed between the two inlets and mechanism to move it from outside the generator-chamber, and mechanism to prevent the moving of the grate from its supporting position when the port or gate is open, substantially as set forth.

6. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a supply-chamber for the solid ingredient having feeding-inlet, and also having a closing port or gate and mechanism to operate it from outside the generator, and a liquid-supply chamber having inlet and valve and mechanism to operate the valve from outside the generator, of a movable supporting-grate placed between the two inlets and mechanism to move it from outside the generator-chamber, mechanism to prevent the opening of the port or gate when the grate is moved out of its supporting position, and mechanism to prevent the moving of the grate from its supporting position when the port or gate is open, substantially as set forth.

7. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a suitable inlet for the solid ingredient and a suitable inlet for the liquid ingredient, of a movable supporting-grate B placed between the two inlets and an external operating device *b* and gas-tight bearing-box for same, a shield above the said grate and a door near the bottom of the generating-chamber for the removal of the residue, substantially as set forth.

8. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a supply-chamber for the solid ingredient having feeding-inlet, and a liquid-supply chamber having inlet, of a movable supporting-grate placed between the two inlets and mechanism to move it from outside the generator-chamber, and a stirring or agitating device placed above the grate and mechanism to operate it from outside the generator-chamber, substantially as set forth.

9. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a suitable inlet for the solid ingredient and a suitable inlet for the liquid ingredient, of a movable supporting-grate B placed between the two inlets and an external operating device *b* and gas tight bearing-box for same, and a slicing device F placed above the grate and mechanism to operate it from outside the generating-chamber and gas-tight bearing-box for same, substantially as set forth.

10. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a supply-chamber for the solid ingredient having a discharge-opening into the generating-chamber, a closing port or gate for said opening inside the generating chamber and mechanism to operate it from outside the generator, said mechanism having a gas-tight bearing-box, and a liquid-supply chamber having inlet and valve and mechanism to operate the valve from outside the generator, of a movable supporting-grate placed between the two inlets and mechanism to move it from outside the generator-chamber, substantially as set forth.

11. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a supply-chamber for the solid ingredient having feeding-inlet and also having a closing port or gate and mechanism to operate it from outside the generator, said mechanism having a gas-tight bearing-box, and a liquid-supply chamber having inlet and valve and mechanism to operate the valve from outside the generator, of a movable supporting-grate placed between the two inlets and mechanism to move it from outside the generator-chamber, said mechanism having a gas-tight bearing-box, substantially as set forth.

12. In an acetylene-gas generator, the combination with a gas-tight generating-chamber and a suitable inlet for the solid ingredient having closing port or gate and mechanism to operate it from outside the generating-chamber, said mechanism having a gas-tight bearing-box, and a suitable inlet for the liquid ingredient, of a movable supporting-grate B placed between the two inlets and an external operating device *b* and gas-tight bearing box for same, and a stirring or agitating device F placed above the grate and mechanism to operate it from outside the generating-chamber and gas-tight bearing-box for same, substantially as set forth.

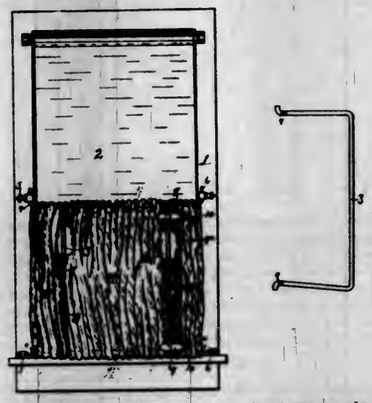
13. In an acetylene-gas generator, the combination with a suitable inlet for the solid ingredient and a suitable inlet for the liquid ingredient, of a movable support for the solid ingredient placed below the inlet for the solid ingredient and above the inlet for the liquid ingredient, and inclined or sloping downward from the inlet for the solid ingredient when in its supporting position, and mechanism to move said support from outside the generator without opening the generator, and to thereby displace the solid residue from said support, and a door near the bottom of the generating-chamber for the removal of the residue, whereby the generation of the gas may be practically continuous, substantially as set forth.

14. In an acetylene-gas generator, the combination with a suitable inlet for the solid ingredient and a supply-chamber and storage-vault for same with downwardly-inclined bottom or slide and a suitable inlet for the liquid ingredient and an open stand-pipe for same, of a movable support for the solid ingredient placed below the inlet for the solid ingredient and above the inlet for the liquid ingredient, and mechanism to move said support from outside the generator without opening the generator, and to thereby displace the solid residue from said support, and a door near the bottom of the generating-chamber for the removal of the residue, whereby the generation of the gas may be practically continuous, substantially as set forth.

15. In an acetylene-gas generator, the combination with a suitable inlet for the solid ingredient and a supply-chamber and storage-vault for same with downwardly-inclined bottom or slide and a suitable inlet for the liquid ingredient and an open stand-pipe for same, of a movable support for the solid ingredient placed below the inlet for the solid ingredient and above the inlet for the liquid ingredient and inclined or sloping downward from the inlet for the solid ingredient when in its supporting position, and mechanism to move said support from outside the generator without opening the generator, and to thereby displace the solid residue from said support, a shield above the said movable support and an opening near the bottom of the generating-chamber for the removal of the residue, whereby the generation of the gas may be practically continuous, substantially as set forth.

16. In an acetylene-gas generator, the combination with a suitable inlet for the solid ingredient and a suitable inlet for the liquid ingredient, of a movable support for the solid ingredient placed below the inlet for the solid ingredient and above the inlet for the liquid ingredient, and mechanism to move said support from outside the generator without opening the generator, and to thereby displace the solid residue from said support, and a flexible gas-tight bearing-box for said mechanism, a shield above the said movable support and an opening near the bottom of the generating-chamber for the removal of the residue, whereby the generation of the gas may be practically continuous, substantially as set forth.

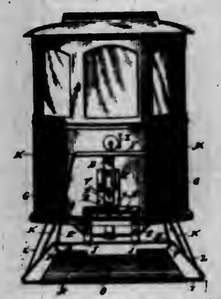
594,850. SCREEN FOR LIGHT AND VENTILATION. ALBERT F. BRANDENBURG, Dayton, Ohio. Filed July 14, 1896. Serial No. 599,751. (No model.)



Claim.—1. In a screen for the interior of dressing-rooms, the combination of angular frames 3 and 3ª having their ends bent on angles to the vertical portions, and terminating in curves; brackets on the interior of the window in which the said curved ends are loosely mounted; the said frames being adapted to stand inwardly from the window to provide spaces at the upper and lower ends of the screen for the circulation of air; curtains 6ª 6ª inclosing said frames, and a center curtain 7 one edge of which is permanently attached to one, and the other edge of which is detachably secured to the other of said curtains, substantially as and for the purposes specified.

2. A screen for the interior of windows, consisting of frames 3 and 3ª having their upper ends formed at right angles and terminating in curvatures 4, and their lower ends formed at angles less than right angles, and terminating also in curvatures 4, whereby said frames are adapted to stand inwardly from the window-casing; brackets in which the said curved ends are loosely mounted; curtains 6ª 6ª on said frames, and a center curtain 7 inclosing the space between said curtains 6ª 6ª, substantially as and for the purposes specified

594,851. CAR-FENDER. CARL E. BROWN, Columbus, and GEORGE H. SMITH, Santa Fé, Ohio. Filed Feb. 24, 1897. Serial No. 624,832. (No model.)



Claim.—1. A car-fender consisting of a suitable support, a fender-frame, and a platform hinged to the front portion of said frame so as to be drawn over the road-bed when in active use, as specified.

2. In a car-fender, a supporter detachably secured to the end of a car, a bar attached to said supporter, rods depending from said bar, a fender-frame hinged to said rods and supporter, toggle-levers for locking the fender-frame in its normal position, a platform hinged to the front portion of the fender-frame and adapted to be drawn over the road-bed when in activity, and a netting for protecting the rigid portions of the device, as specified.

3. In a car-fender, a supporter, means for securing said supporter to one end of a car, a cross-bar carried by said supporter, rods depending from said bar, a fender-frame journaled to said rods and supporter, toggle-levers for locking the fender frame in its normal position, ropes L for supporting the outer end of the fender-frame, a platform hinged to the front cross-rod of said frame, the outer end of said platform being turned upward after the manner of a toboggan, means for supporting the rear end of the platform, a netting so attached to the fender as to have its back and sides taut, while the bottom thereof is slack, and means for dropping the fender into activity, substantially as and for the purpose set forth.

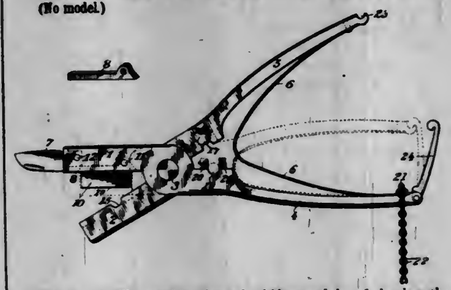
4. In a car-fender, a supporter slidably secured to the end of a car, a cross-bar hinged to the lower end of the supporter, a latch normally holding said supporter elevated, and a fender-frame carried by the support and cross-bar, substantially as described.

5. In combination with a fender of the character described, a supporter to which said fender is attached a bracket carried by the car for holding said supporter, a spring-actuating latch adapted to hold said supporter in its elevated position and permit it to be dropped, either by the action of the motorman or by the vertical member of the supporter B being thrown forward and dislodged from its support on nose of said latch, upon the front rod of the fender striking an obstruction, substantially as and for the purpose set forth.

6. In combination with a fender of the character described, principles for automatic action consisting of the supporter being hinged at *a*, so that when the front rod of fender strikes an obstruction the frame will be forced backward and by means of the lower portion of the supporter operating as a lever against the lugs W which act as a fulcrum, the lower part of vertical member B will be thrown sufficiently forward so as to become dislodged from its support upon the latch, substantially as and for the purpose set forth.

7. In a car-fender, a supporter consisting of a vertical member, a right-angular extension on the lower end thereof, a cross-bar hinged to the extension, arms depending from the cross-bar, said supporter being slidably secured on the end of a car, a spring-pressed latch extending forward under the right-angular extension and holding the supporter normally elevated, and the fulcrum-point arranged back of the depending arms, and a fender-frame carried by the supporter, substantially as described.

594,852. FUSE CUTTER, SPLITTER, AND CRIMPER. CHARLES G. BRUSELL, Custer, S. D. Filed Aug. 24, 1897. Serial No. 649,364. (No model.)



Claim.—1. The combination of a bifurcated jaw 1, having the handle 4, provided with circular notch 19 and studs 20; notched, grooved and slotted jaw 2, having the handle 5, pivoted to jaw 1 and provided with circular notch 17, and mortise-holes 18; blade 10, secured in the bifurcated jaw 1, its cutting edge 13, adapted to enter the slot 14, in the jaw 2, substantially as shown and described and for the purposes set forth.

2. The combination of the bifurcated jaw 1, having the handle 4, provided with a circular notch 19 and studs 20; notched, grooved and slotted jaw 2, having the handle 5, pivoted to the jaw 1, and having circular notch 17, and mortise-holes 18; knife-blade 7, pivoted in the bifurcated jaw 1; blade 10, secured in the same bifurcated jaw, 1, its cutting edge 13, adapted to enter the slot 14, in the jaw 2, substantially as shown and described and for the purposes set forth.

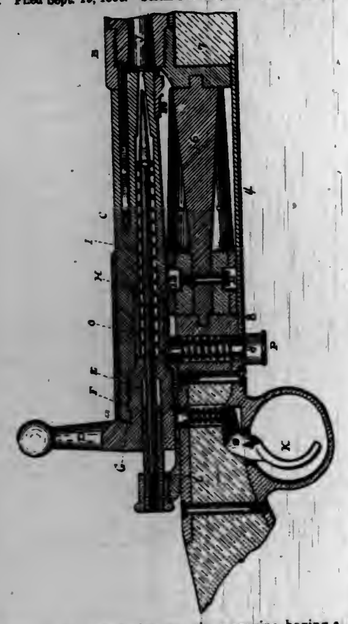
3. The combination of the bifurcated jaw 1, having the handle 4, provided with a circular notch 19 and studs 20; notched, grooved and slotted jaw 2, having the handle 5, pivoted to the jaw 1, and having circular notch 17, and mortise-holes 18; knife-blade 7, pivoted in the bifurcated jaw 1; blade 10, secured in the same bifurcated jaw, 1, its cutting edge 13, adapted to enter the slot 14, in the jaw 2; spring 6, having its extreme ends secured to the extreme ends and inner faces of the handles 4, 5, substantially as shown and described and for the purposes set forth.

4. The combination of the bifurcated jaw 1, having the handle 4, provided with a circular notch 19 and studs 20; notched, grooved

and slotted jaw 2, having the handle 5, pivoted to the jaw 1, and having circular notch 17, and mortise-holes 18; knife-blade 7, pivoted in the bifurcated jaw 1; blade 10, secured in the same bifurcated jaw, 1, its cutting edge 13, adapted to enter the slot 14, in the jaw 2; spring 6, having its extreme ends secured to the extreme ends and inner faces of the handles 4, 5; eye 21, adapted to carry a key-chain 22, substantially as shown and described and for the purposes set forth.

5. The combination of the bifurcated jaw 1, having the integral handle 4, provided with a circular notch 19 and studs 20; notched, grooved and slotted jaw 2, having the integral handle 5, pivoted to the jaw 1, and having circular notch 17, and mortise-holes 18; knife-blade 7, pivoted in the bifurcated jaw 1; blade 10, secured in the same bifurcated jaw, 1, its cutting edge 13, adapted to enter the slot 14, in the jaw 2; spring 6, having its extreme ends secured to the extreme ends and inner faces of the handles 4, 5; hook 24, pivoted in the extreme end of handle 4, and adapted to catch in the depression 23, of handle 5, substantially as shown and described and for the purposes set forth.

594,853. MAGAZINE BOLT-GUN. BETHEL BURTON, Brooklyn, N. Y. Filed Sept. 19, 1896. Serial No. 606,386. (No model.)



Claim.—1. In a magazine-gun, the magazine having a hinged cover, a spring to hold said cover in open or closed position, and a loading-clip having an interlocking projection engaging with said cover when the cover is in open position to hold the clip in the gun, all combined substantially as described.

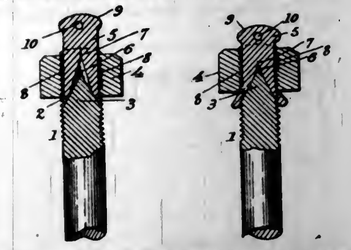
2. In a magazine-gun, the receiver and reciprocating bolt, the magazine in the frame and having an opening at the top and a hinged cover therefor, and a side passage at the bottom, a well communicating with said magazine and a rotary carrier in said well provided with inclines engaged by a projection from the bolt, whereby the said carrier may be intermittingly rotated as the bolt reciprocates, substantially as described.

3. In a magazine-gun, the magazine inclosed in the frame of the gun, the well in the frame and a rotating carrier in said well, the spool on said carrier having zigzag inclines, and the reciprocating bolt having a projection to engage directly with said inclines on the spool, all combined substantially as described.

4. In a magazine-gun, the bolt having an inclined projection thereon, the rotary carrier having a spool with inclines arranged in zigzag to be rotated by the engagement of said bolt projections as described, and the bolt-stop movable into position to prevent the engagement of the bolt-incline with the inclines of the carrier to rotate said carrier, all combined substantially as described.

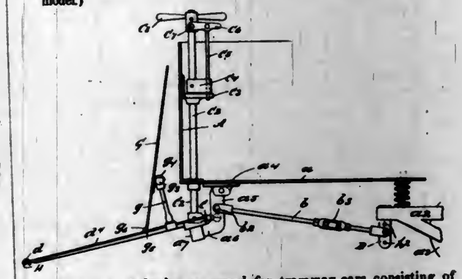
5. In a bolt-gun, the receiver, the non-rotating bolt having a projection for engagement with the carrier, the rotary carrier, and the bolt-handle having a partially-rotating sleeve, and a supporting-sleeve, O, integral therewith and extending into the chamber of the bolt proper, all combined substantially as described.

594,854. NUT-LOCK. THOMAS W. CALVERT, Guthrie, Okla. Filed July 28, 1897. Serial No. 646,241. (No model.)



Claim.—An improved nut-lock comprising the bolt 1, formed with the open-ended slot 2, extending diametrically across its threaded end and terminating at the V-shaped tongue 3, the nut 4, adapted to engage the threaded end of said bolt, in combination with the locking-key 5, provided with the V-shaped notch 6 terminating in the longitudinal slit 7, the longitudinal parallel beveled edges 8, 8, and the integral solid head 9, provided with the transverse orifice 10, substantially as shown and described.

594,855. FENDER FOR TRAMWAY-CARS. WILLIAM J. CALVERT, New York, N. Y. Filed July 16, 1897. Serial No. 644,827. (No model.)



Claim.—1. A fender or guard for tramway-cars consisting of crank-levers pivotally suspended from the platform at each side thereof, and the lower ends of which project forwardly, connecting-rods pivotally connected with said crank-levers and with the truck-frame, said crank-levers being also provided at their lower ends with tubular heads, and a fender or guard proper which is pivotally connected with said tubular heads, and means whereby said fender or guard proper may be shifted to one side of the car, substantially as shown and described.

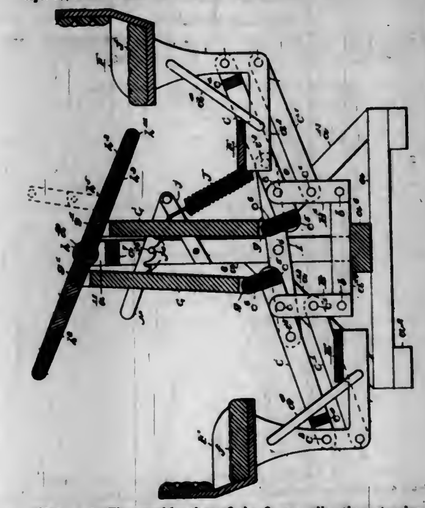
2. A fender or guard frame consisting of crank-levers pivotally suspended from the bottom of the platform at each side thereof, and which are provided at their lower ends with forwardly-directed extensions on which are formed tubular heads, connecting-rods pivotally connected with said crank-levers, and with the truck of the car, a fender or guard comprising a frame which is composed of a front cross-bar, a rear cross-bar and end cross-bars which are pivotally connected therewith, said fender or guard frame being also provided with cross-bars which are pivotally connected therewith and which project backwardly, and are pivotally connected with the tubular heads of said crank-levers, and a vertical rod which passes through the platform of the car, and is in operative connection with the backwardly-directed extension of one of said cross-bars, substantially as shown and described.

3. A fender or guard frame consisting of crank-levers pivotally suspended from the bottom of the platform at each side thereof, and which are provided at their lower ends with forwardly-directed extensions on which are formed tubular heads, connecting-rods pivotally connected with said crank-levers, and with the truck of the car, a fender or guard comprising a frame which is composed of a front cross-bar, a rear cross-bar and end cross-bars which are pivotally connected therewith, said fender or guard frame being also provided with cross-bars which are pivotally connected therewith and which project backwardly, and are pivotally connected with the tubular heads of said crank-levers, and a vertical rod which passes through the platform of the car, and is in operative connection with the backwardly-directed extension of one of said cross-bars whereby the fender or guard frame may be shifted by turning said rod and means for locking said rod and said fender or guard frame in any desired position, substantially as shown and described.

4. A fender or guard for tramway-cars consisting of crank-levers pivotally suspended from the platform at each side thereof, said crank-levers being provided at their lower ends with forwardly-directed extensions which are provided with tubular heads, connecting-rods pivotally connected with said crank-levers and with the truck of the car, a fender or guard proper comprising a frame composed of a front cross-bar, a rear cross-bar, and side bars pivotally connected therewith, said fender or guard frame being also provided with other cross-bars which are pivotally connected therewith, and the rear ends of which project backwardly and one of which is provided with a pin which projects into the tubular head of one of said crank-levers, and the other being provided with a pin which passes through a tube mounted in the head of the other crank-lever, and which is provided with a head having an arm which is connected by a ball-and-socket joint with a link which is pivotally connected with an arm formed on or secured to the lower end of the rod which passes upwardly through the platform of the car, substantially as shown and described.

5. A fender or guard for tramway-cars consisting of crank-levers pivotally suspended from the platform at each side thereof, said crank-levers being provided at their lower ends with forwardly-directed extensions which are provided with tubular heads, connecting-rods pivotally connected with said crank-levers and with the truck of the car, a fender or guard proper comprising a frame composed of a front cross-bar, a rear cross-bar, and side bars pivotally connected therewith, said fender or guard frame being also provided with other cross-bars which are pivotally connected therewith and the rear ends of which project backwardly and one of which is provided with a pin which projects into the tubular head of one of said crank-levers, and the other being provided with a pin which passes through a tube mounted in the head of the other crank-lever and which is provided with a head having an arm which is connected by a ball-and-socket joint with a link which is pivotally connected with an arm formed on or secured to the lower end of the rod which passes upwardly through the platform of the car, and means for operating said rod so as to shift said fender or guard frame to either side of the car, substantially as shown and described.

594,856. SEESAW. GUSTAF H. CARLSON, Lowell, Mass. Filed Apr. 19, 1897. Serial No. 632,899. (No model.)

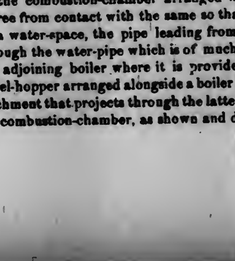


Claim.—1. The combination of the frame, vibrating standards, pivoted thereon, parallel bars, pivoted at their inner ends on said standards, a seat-frame, pivoted to said parallel bars and provided with a seat, equalizing-bars pivoted on said frame and at their ends pivoted to said parallel bars, an operating-lever, pivoted on said frame and rods connecting said lever and said parallel bars.

2. The combination of the frame, vibrating standards, pivoted thereon, parallel bars, pivoted at their inner ends on said standards, a seat-frame, pivoted to said parallel bars and provided with a seat, equalizing-bars pivoted on said frame and at their ends pivoted to said parallel bars, an operating-lever, pivoted on said frame, rods connecting said lever and said parallel bars, and springs, to raise said equalizing-bars.

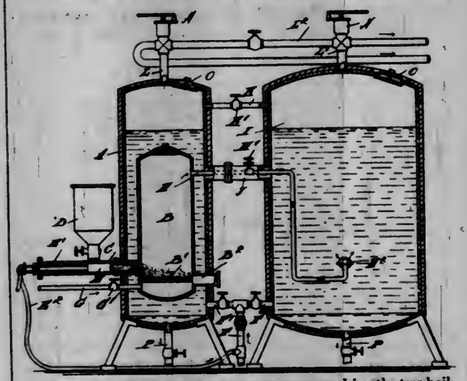
3. The combination of the frame, vibrating standards, pivoted thereon, parallel bars, pivoted at their inner ends on said standards, a seat-frame, pivoted to said parallel bars and provided with a seat, equalizing-bars pivoted on said frame and at their ends pivoted to said parallel bars, an operating-lever, pivoted to said frame, rods connecting said operating-lever and said parallel bars, a tension-lever, pivoted on said frame, a spring, connecting said lever and one of said equalizing-bars, a tension-rod, pivoted to the free end of said tension-lever and having notches to engage a stud on said frame, and said stud, to vary the tension of said spring.

594,857. STEAM-TRAP. RODNEY G. CHASE, Chicago, Ill., assignor of one-half to George H. Scoets, same place. Filed Feb. 1, 1897. Serial No. 621,415. (No model.)



Claim.—In a steam-trap, the combination with a suitable casing, having an inlet and outlet, the latter forming a valve-seat, of a lever fulcrumed at one end and carrying a valve at its free end suspended over the valve-seat in the outlet, said lever being slotted adjacent to its fulcrumed end, a spiral spring surrounding the stem of the valve and interposed between the under side of the lever and the top of said valve, a hermetically-sealed vessel adjustably suspended within the casing and filled with a readily-volatilizing fluid, forming an expansion-chamber, and having a post depending from its expansible base, and resting upon said lever above the slot therein, and a pivotal connection passing through said slot and into said post for flexibly uniting the post and valve-lever, substantially as set forth.

594,858. GENERATOR. HENRY C. CHRISTOPHER, Meridian, Miss., assignor to himself, Charles C. King, and Mathew T. Murphree, same place. Filed Feb. 27, 1897. Serial No. 625,300. (No model.)



Claim.—The improved steam-generator, comprising the two boilers arranged side by side and having horizontal steam and water pipe connections, the combustion-chamber arranged within one of said boilers, and free from contact with the same so that it is entirely surrounded by a water-space, the pipe leading from said combustion-chamber through the water-pipe which is of much greater diameter, and into the adjoining boiler where it is provided with a nozzle as shown, the fuel-hopper arranged alongside a boiler and having a tubular feed attachment that projects through the latter and connects with the inclosed combustion-chamber, as shown and described.

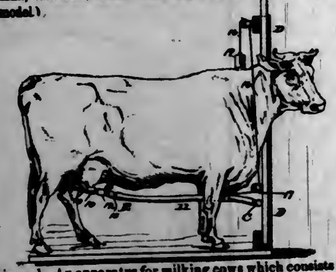
594,859. DEVICE FOR DETACHING HARNESS. NATHANIEL B. CLARKSON, Clinton, S. C., assignor of one-half to Augustus B. Blakely, same place. Filed Mar. 16, 1897. Serial No. 627,243. (No model.)



Claim.—1. An attaching and detaching device consisting of two sections, one having a T-shaped rib and outwardly-projecting perforated lug, and the other having a groove and a recess to receive the rib and lug, and a slide-pin which locks these parts together.

2. The combination with a section constructed and adapted to be attached to a harness, said section provided with a vertically-disposed T-rib, and an outwardly-projecting perforated lug, of a section connected with the tugs or traces, and provided with a groove to receive the rib and a recess to receive the lug, and a spring-actuated pin adapted to have sliding connection with one section and enter the hole in the lug whereby to lock the sections detachably together.

594,860. APPARATUS FOR MILKING COWS. MOSHEUS J. CUSHMAN, Waterloo, Iowa. Filed Sept. 16, 1895. Serial No. 562,701. (No model.)



Claim.—1. An apparatus for milking cows which consists of teat-cups, tubes connected thereto and to a common milk-conductor, means for creating a vacuum in such cups and tubes, and means constructed and arranged to apply a positive, uniform traction to the said conductor, substantially as and for the purpose described.

2. In a milking apparatus of the character indicated, the combination, with a series of sets of teat-cups and flexible tubes attached thereto, of flexible conductors with which such tubes connect, the main milk conductor arranged at or below the height of the cow's breast and connecting with said flexible conductor, automatic means for applying a positive, constant, and uniform traction to the latter and by it to the cow's teats, and means for producing a vacuum in the conductors, tubes, and teat-cups, simultaneously with the application of traction, substantially as shown and described.

3. In a milking apparatus of the character indicated, the combination with the main milk-conductor located as specified, a series of flexible branch conductors 11, attached thereto, ropes and weights for pulling said flexible conductors, the compound T's having nipples provided with stop-cocks and attached and also arranged at right angles, to the conductors, two short and two longer flexible tubes attached to such T's, and an air-pump for maintaining a vacuum simultaneously with the traction, as specified.

4. The combination, with a milking apparatus proper, and a conducting-pipe, of a series of milk-receptacles, and a series of T-shaped tubes whose vertical portions extend down through the covers of said receptacles, tubes connecting the horizontal portions of such T-tubes, and an air-pump arranged as shown and described, to operate as specified.

5. The combination with a milking apparatus composed of teat-cups, tubes, and an air-pump, or other vacuum-producer, of a vacuum-regulator composed of an automatically-expansible air-chamber having a pendent open-end tube, a weighted valve seated within said tube, and opening inward, as shown and described.

6. The combination with the milking apparatus composed of teat-cups, tubes, air-pump, and a milk-receptacle, of a vacuum regulator composed of an automatically-expansible air-chamber, an air-inlet valve therefor, adapted to open inward and thus automatically admit air, whether the air-chamber be wholly collapsed or not, as shown and described.

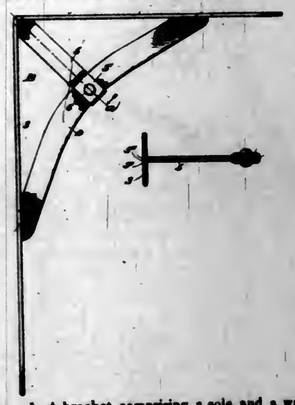
7. The compound T formed of a tube having open ends provided with removable, liquid-tight caps, and a series of nipples attached to the side of said tube, as shown and described.

594,861. NUT-LOCK. FREELING H. DENNIS, Glidden, Iowa. Filed July 28, 1897. Serial No. 646,243. (No model.)



Claim.—A nut-lock comprising the bolt 1, and the nut 2 formed with the flange 3 provided with a series of ratchet-shaped teeth 4, and an annular shoulder 5, in combination with the spring-pawl 6 having the flat heel 7 formed with the bolt-orifice 8 to engage an adjacent bolt, and having its toe formed with a ratchet-shaped tooth 9 and projecting guard-arm 10 to pass under the flange 3, substantially as shown and described.

594,862. BRACKET. CHARLES F. DOEHLER, Hartford, Conn. Filed Jan. 30, 1897. Serial No. 621,283. (No model.)

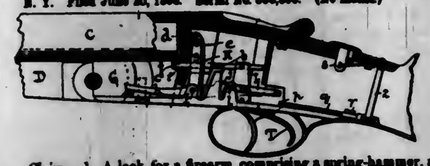


Claim.—1. A bracket comprising a sole and a wall-plate connected and having rivet-holes; a main rib disposed edgewise to the sole and the wall-plate and having at its ends integral longitudinally-extending rivets adapted to enter the proper rivet-holes in said members; and an auxiliary rib projecting from the main rib, substantially at the central point thereof, and also disposed edgewise to the sole and the wall-plate and having at its end an integral longitudinally-extending rivet adapted to enter a rivet-hole adjacent to the point of intersection of the main members of the bracket.

2. A sheet-metal bracket comprising a sole and a wall-plate connected and having rivet-holes one of which is located at the point of intersection thereof; a main rib disposed edgewise to the sole and the wall-plate and having at its ends integral longitudinally-extending rivets adapted to enter the proper rivet-holes in said members; and an auxiliary rib projecting from the main rib, substantially at the central point thereof, and also disposed edgewise to the sole and the wall-plate and having at one end a loop encircling the main rib and riveted thereto and having at its opposite end an integral longitudinally-extending rivet adapted to enter the rivet-hole at the point of intersection of the main members of the bracket.

3. A sheet-metal bracket comprising an integral sole and wall-plate having rivet-holes one of which is located at the point of intersection thereof; a main rib disposed edgewise to the sole and the wall-plate and having at its ends integral longitudinally-extending rivets adapted to enter the proper rivet-holes in said members; and an auxiliary sheet-metal rib of double thickness also disposed edgewise to the sole and wall-plate and having a loop at one end riveted to the main rib, substantially at the central point of the latter, and having at its other end an integral longitudinally-extending divided rivet adapted to enter the rivet-hole at the point of intersection of the main members of the bracket.

594,863. LOCK FOR FIREARMS. OTTO P. BLUMRICH, New York, N. Y. Filed June 25, 1896. Serial No. 596,980. (No model.)



Claim.—1. A lock for a firearm, comprising a spring-hammer, a lifting-tumbler operated by a movement of the barrel and having an upright arm engaging with the spring-hammer, and a sear engaging said tumbler, substantially as specified.

2. A lock for a firearm, comprising a spring-hammer, a lifting-tumbler having an upright arm engaging with the hammer and an arm having connection with the barrel, whereby the tumbler is operated by a movement of the barrel, and a sear engaging said tumbler, substantially as specified.

3. A lock for firearms, a trigger-plate provided with means for supporting the operative parts of the lock, said parts being composed of a lifting-tumbler having rear notches, an arm having connection with the barrel whereby the tumbler is operated by a movement of the barrel, and an upright arm, a sear adapted to engage in the notches, a spring-pressed trigger having a sliding connection with the sear, and a V-shaped spring-hammer engaged by the upright arm of the lifting-tumbler, substantially as specified.

4. In a lock for firearms, a hammer and mainspring formed of one piece and affixed to a trigger-plate, a lifting tumbler operated from the barrel and having connection with the spring-hammer, a trigger having a slot, and a sear engaging the lifting-tumbler and having a pin extended into the slot in the trigger, substantially as specified.

5. In a lock for firearms, the combination of a trigger-plate, a spring-hammer made in one piece, a lifting-tumbler pivoted to the trigger-plate and provided with an arm engaging the spring-hammer and with a forwardly-extended arm, an operative connection between the latter arm and the barrel and a sear engaging the lifting-tumbler, substantially as specified.

594,864. CYCLING-SKIRT. HANNAH B. BENNETT, New York, N. Y. Filed Sept. 1, 1896. Serial No. 604,566. (No model.)



Claim.—In a bicycle skirt, the combination with a skirt proper, of a cloth section inclosing the bottom of the same, and provided with apertures through which the rider's limbs are adapted to pass and also an independent central aperture located between the two before-mentioned apertures, a flap for covering said latter aperture and means for securing said flap, substantially as described.

594,865. FRACTURE APPARATUS. DAVID FORTNEY, Otho, Iowa. Filed May 29, 1897. Serial No. 638,220. (No model.)



Claim.—1. In a device for supporting and straightening the feet and legs of a person, a plate adapted in form to engage the person above the thigh and provided with an eye at one end and a ratchet-face at the bottom of the eye, in combination with the top of a jointed brace adapted to extend upward over the thigh and provided with an extension to enter said eye and a ratchet-face to engage the ratchet-face at the bottom of the eye, and a nut fitted to the screw-threaded top end of the said extension, as and for the purposes stated.

2. A device for supporting and straightening feet and legs comprising a plate having an eye at one end and a ratchet-face at the bottom of the eye, a thigh-piece having an extension at its top to enter said eye and a ratchet-face to engage the ratchet-face of the eye, a nut fitted to the screw-threaded end of said extension, a shank-piece pivoted at its upper end to said thigh-piece, an ankle-piece pivoted at its upper end to the lower end of the shank-piece and provided with a right-angled projection at its lower end and means for attaching the device to the body and leg of a person, as and for the purpose stated.

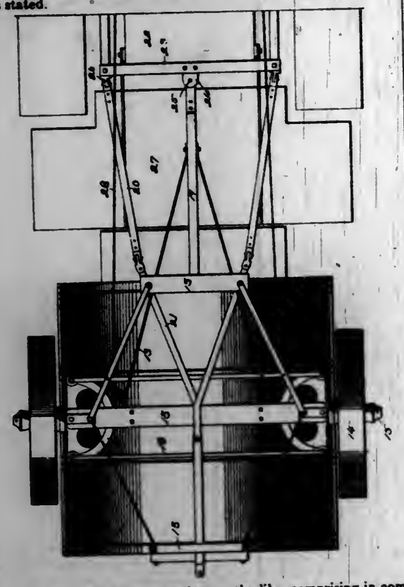
594,866. TENDER FOR TRACTION-ENGINES. JAMES M. FULLER, Sioux Falls, S. D. Filed Apr. 16, 1897. Serial No. 632,536. (No model.)

Claim.—1. The combination of an engine and tender, or like vehicle, of stub-axles pivotally connected with the tender at its opposite sides to swing in a horizontal plane, wheels fixed thereto, approximately semicircular tracks or guides connected with the inner ends of said axles, connecting-rods extended parallel with each other beneath the tender-body and pivotally connected with the ends of the said semicircular tracks or guides, and chains or their equivalents fixed to said tracks or guides and designed to be connected with the steering-axle of the engine, for the purposes stated.

2. The combination with a traction-engine and tender, or the like, of a frame in which the tender-body may be mounted, stub-axles at the sides of said frame, an upright formed on or fixed to the inner end of each of said stub-axles and having journals at their ends designed to be pivoted in the said frame, semicircular tracks or guides formed on or fixed to the said uprights, connecting-rods extended parallel with each other beneath the tender-body and pivotally connected with the ends of the said semicircular tracks or guides, chains fixed to the said tracks or guides and designed to be connected with the steering-axle of an engine, and coupling devices for connecting the tender and engine, for the purposes stated.

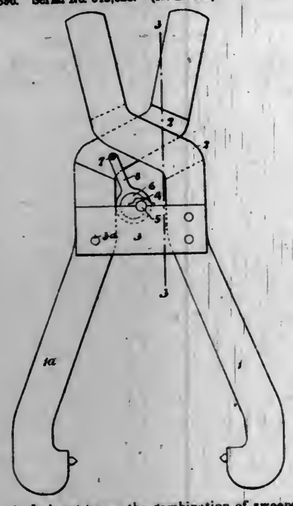
3. A tender for traction-engines or the like, comprising in combination, a tank, a frame for supporting the tank, stub-axles pivotally mounted in said frame and capable of swinging in a horizontal plane independently of each other, cross-pieces fixed to the inner end portions of said stub-axles, parallel rods to extend under the tender-body and pivotally connected with the opposite ends of the said cross-piece, and having one or more pin-holes in the forward one thereof, a pin or pins designed to be passed through said hole or holes and to engage with a part of the stationary frame of the tender so that the

axles will be held stationary relative to the tender-body, for the purposes stated.



4. A tender for traction-engines or the like, comprising in combination, a tank, a frame 13, wheels 14, stub-axles 15, uprights 16 formed on or fixed to the axles, semicircular grooved guides or tracks 17 formed on or fixed to the said uprights, connecting-rods 18 pivoted to the said tracks or guides 17, a coupling-pole 19 fixed to the frame 13, coupling-rods 20 pivoted to the frame, chains 29 connected with the semicircular tracks or guides, and means for connecting the front connecting-rod 18 with part of the stationary frame of the tender, all arranged and combined substantially in the manner set forth and for the purposes stated.

594,867. INGOT-TONGS. SAMUEL W. GILLIN, Paulton, Pa. Filed Dec. 15, 1896. Serial No. 615,825. (No model.)

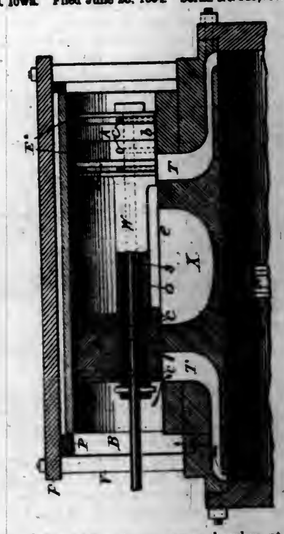


Claim.—1. In ingot-tongs, the combination of sweeps with sliding contact; a revoluble shaft: an eccentric on said shaft, and an eccentric-strap encircling said eccentric and pivoted to one of said sweeps.

2. In ingot-tongs, the combination of sweeps; a brace fixed to one of said sweeps; the other sweep pivoted to said brace; a revoluble shaft journaled in said brace; an eccentric mounted on said shaft, and pivotal connection between said eccentric and said pivoted sweep.

3. In ingot-tongs, the combination of sweeps with sliding contact; braces fixed to one of said sweeps; the other sweep pivoted to said braces; a revoluble shaft journaled in said braces; an eccentric mounted on said shaft, and an eccentric-strap encircling said eccentric and pivotally connected with said pivoted sweep.

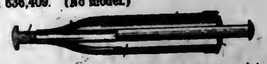
594,868. BALANCING SLIDE-VALVE. WILLIAM F. GOULD, Des Moines, Iowa. Filed June 25, 1894. Serial No. 515,710. (No model.)



Claim.—1. In a slide-valve, a steam-chamber at each end portion thereof maintained steam-tight by means of packing fitted in grooves at the ends of the valve to project outward beyond the surface of the grooved parts to engage a valve-cover at all times while the valve is in motion and ports extending through the ends of the valve to communicate with said chambers and ports in the cylinder.

2. A balanced valve having a flat bottom fitted to a flat seat connected with a cylinder provided with steam-induction ports and an exhaust-port between the said induction-ports, wings at each end of the valve extending from the flat bottom over the top and each wing provided with two grooves, a packing fitted in each groove to project outward beyond the surface of the wings, and steam-ports extending from top to bottom through said wings and a recess or chamber between the wings to alternately communicate with the induction-ports to be alternately filled with live steam in the manner set forth, while the valve is in motion.

594,869. TOOL FOR REPAIRING PNEUMATIC TIRES. MARIUS E. GRISWOLD, Chicago, Ill. Filed Dec. 17, 1894. Renewed May 13, 1897. Serial No. 636,409. (No model.)

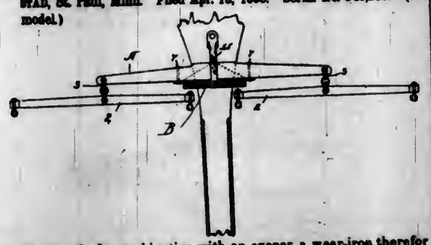


Claim.—1. The herein-described tool for repairing pneumatic tires, consisting of the combination of the outer tube A, having the expansible tapered end E and the inner plunger B, by which the plug is carried into the tire, having the compressible end F, with longitudinal tapered sections, all substantially as shown and described.

2. The herein-described tool for repairing pneumatic tires, consisting of the combination of the outer tube A, having the expansible tapered end E, the inner plunger B, by which the plug is carried into the tire, having the compressible end F, with longitudinal tapered sections, and the cap C forming a guide by which A and B are prevented from turning upon one another, and thereby caused to break joints, all substantially as shown and described.

3. The herein-described tool for repairing pneumatic tires, consisting of the combination of the outer tube A having the expansible, tapered end E, and the groove *a*, the plunger B by which the plug is inserted, having the feather *b*, and the cap C having the tongue *c* and the way *d*, all substantially as shown and described.

594,870. SHOE FOR DOUBLETREES. NICHOLAS M. HARBERSTAD, St. Paul, Minn. Filed Apr. 18, 1895. Serial No. 546,230. (No model.)



Claim.—1. In combination with an evener, a wear-iron therefor adapted to be secured upon the front of the evener, and having a horizontal plate portion serving as a bed for the evener, the boss having a vertical opening to receive a draft-pin, and being of slightly-greater height than the evener, so as to furnish a bearing for the hammer-strap, and the bevel-face on each side of said boss to deflect the ends of the connected whiffletrees.

2. The combination with the evener and whiffletrees, of the wear-iron for said evener adapted to be secured upon the front thereof, and having a rearwardly-extended horizontal web serving as a bed for said wear-iron having a draft-pin hole in front of said evener so as to furnish a bearing for the hammer-strap, the face of said wear-iron being beveled on each side of the draft-pin hole, so as to deflect the ends of the whiffletrees when brought into contact therewith.

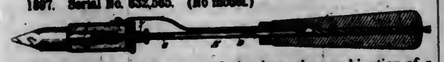
594,871. FLUE-STOP. JOSHUA A. HADLEY, Brasil, Ind., assignor of one-half to Johnathan M. Fast, same place. Filed Mar. 10, 1897. Serial No. 626,810. (No model.)



Claim.—1. In a flue-stop, the combination with the connected disk, and the pivot-pin, of the cylinder having overlapping ends, the clasp embracing the same, and the spring-arms connected with said pivot and with the rim of the cylinder, substantially as described.

2. In a flue-stop, the combination with the connected disk, and the pivot-pin, of the cylinder having overlapping ends, the clasp embracing the same, the spring-arms connected with said pivot and with the rim of the cylinder, and the spring-arm having one end engaging with the rim of the cylinder and the other end bent at a right angle and inserted between the other end of the cylinder and the disk, substantially as described.

594,872. ELECTRIC SOLDERING-IRON. FRANK H. HARRIMAN, Hartford, Conn., assignor to Henry Green, same place. Filed Apr. 17, 1897. Serial No. 632,565. (No model.)



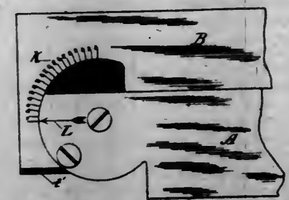
Claim.—1. In an electric soldering-iron, the combination of a soldering-head constituting one terminal of an electric circuit; a conducting shell surrounding and insulated from the stem of said soldering-head and filled with a comminuted carbonaceous material and constituting the other terminal of the circuit; and a handle connected with said soldering-head.

2. In an electric soldering-iron, the combination of a soldering-head constituting one terminal of an electric circuit; a conducting-shell open at its inner end and surrounding and insulated from the stem of said soldering-head and filled with a comminuted carbonaceous material and constituting the other terminal of the circuit; a removable cap for closing the inner end of said shell; and a handle connected with said soldering-head.

3. In an electric soldering-iron, the combination of a soldering-head having a stem of reduced cross-section and constituting one terminal of an electric circuit; an externally-screw-threaded shank secured to said head; a conducting-shell open at its inner end and surrounding and insulated from the stem of said soldering-head, and filled with a comminuted carbonaceous material and constituting the other terminal of the circuit; a removable insulating-cap mounted on said shank for closing the inner end of the shell; and holding means for securing said cap in place.

4. In an electric soldering-iron, the combination of a soldering-head having a stem of reduced cross-section and constituting one terminal of an electric circuit; an externally-screw-threaded shank secured to said head; a conducting-shell open at its inner end and surrounding and insulated from the stem of said soldering-head and filled with a comminuted carbonaceous material and constituting the other terminal of the circuit; a removable insulating-cap mounted on said shank, for closing the inner end of the shell; and clamping means on said shank, for holding said cap in place and clamping the shell between the cap and the shoulder of the soldering-head.

594,878. COMBINED SQUARE AND BEVEL. DOUGLAS S. HEWITT, Toronto, Canada. Filed Jan. 8, 1897. Serial No. 618,482. (No model.)



Claim.—In a combined square and bevel, a tongue consisting of a long arm, and a short arm at right angles to the long arm, a chamfer in the angle formed by the junction of the inner sides of the long and short arms, a pivot-hole concentric with the chamfer, a curvilinear slot concentric with the pivot-hole on the opposite side to the chamfer, a semicircular countersunk seat having its curve struck from the center of the pivot-hole, and arranged to form a shoulder in the long arm of the tongue, in alinement with the inner edge of the short arm, a tenon formed on the end of the short arm contiguous to its outer edge, in combination with the blade, having a semicircular-shaped end fitting the countersunk seat, a pivot-pin passing through the blade and pivot-hole, a shoulder on the blade to engage the end of the short arm of the tongue, and having a groove to receive the tenon, the inner edge of the end of the blade engaging the shoulder in the long arm of the tongue, when the blade and tongue are set at right angles, and a clamping-screw passing through the blade and curvilinear slot, substantially as specified.

594,874. BICYCLE-VISE. WILLIAM H. HOLMES, Columbus, Ohio. Filed Apr. 15, 1897. Serial No. 632,251. (No model.)



Claim.—1. In a machine for the purpose set forth, the combination with the standard or support having a bed-plate at its upper end, of a turn-table mounted upon the bed plate and having a depending arm or member extending therethrough, a cam-lever mounted upon the lower end of the arm and adapted to clamp the turn-table in an adjusted position, together with a vise supported upon the turn-table and presenting a stationary jaw, a pivoted jaw, and means for moving the pivoted jaw to and from the stationary jaw, substantially as described.

2. In a machine of the character described, of the standard having a bed-plate at its upper end, a turn-table mounted on the bed-plate and having a depending arm or member which extends through the said bed-plate, and a cam-lever mounted upon the lower end of

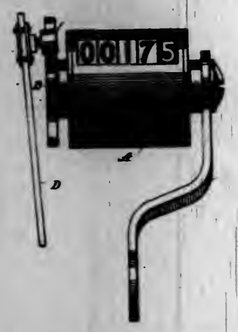
the arm or member to engage the under side of the bed-plate and clamp the turn-table in an adjusted position; together with a vise mounted upon the turn-table and consisting of a stationary jaw, a movable jaw pivoted at its lower end to the turn-table, a rod or shaft extending through the jaws and having a nut or stop which bears against the outer side of the stationary jaw, and a cam-lever pivoted to the other end of the rod and bearing against the movable jaw, substantially as shown and for the purpose set forth.

3. In a machine of the character described, the combination with the standard or support presenting a bed-plate at its upper end, of a turn-table mounted upon the bed-plate, and means for securing the turn-table in an adjusted position upon the bed-plate; together with a vise mounted upon the turn-table and consisting of a stationary jaw, a movable jaw pivoted at its lower end to the bed-plate, a rod or shaft passed through the jaws and engaging the stationary jaw, a cam lever upon the opposite end of the rod to bear against the pivoted jaw, and wooden blocks located between the jaws and presenting recesses which receive the tubes or work to be operated upon, substantially as shown and for the purpose set forth.

4. In a machine of the character described, the combination with the revoluble table, and means for holding the same in an adjusted position, of a vise located thereon and comprising a stationary member and a pivoted member, a rod or shaft passed through the jaws of the vise, and held in engagement with the stationary jaw, and a cam-lever pivoted to the other end of the rod or shaft to bear against the pivoted jaw of the vise; together with blocks having axial openings which are countersunk at their inner ends, thimbles located in said openings to encircle the shaft, and set-screws carried by the jaws to engage the thimbles and hold the blocks upon the jaws, the said blocks having recesses which register to receive the tubes or work to be operated upon, substantially as shown and for the purpose set forth.

5. In a machine of the character described, the combination with a turn-table suitably supported and provided with means for holding the same in an adjusted position, of a vise mounted upon the turn-table and consisting of a stationary jaw, a pivoted jaw, a rod passed through the jaws and in positive engagement with the stationary jaw, a cam-lever pivoted to the rod and bifurcated to present double cams which bear against the outer side of the pivoted jaw at opposite edges thereof; together with blocks mounted upon the rod and having transverse recesses in their opposing faces to receive the tube or work to be operated upon, the turn-table having a shelf or ledge, substantially as shown and for the purpose set forth.

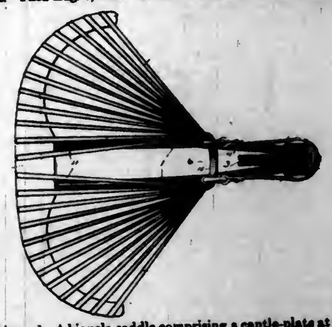
594,875. CYCLOMETER. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed May 14, 1897. Serial No. 636,463. (No model.)



Claim.—1. The combination of a cyclometer-casing having a stem-receiving opening therein, with a fixture carrying a laterally-directed tubular supporting-stem, adapted to enter said opening, the free end of said stem being split, and locking means carried within said stem, whereby the inner end of the stem may be expanded to secure the casing in the desired position.

2. The combination of a cylindrical cyclometer-casing having an internal stem-receiving recess therein concentric with its axis, with a fixture carrying a laterally-directed tubular stem, adapted to enter said opening, the free end of said stem being split and provided with internal shoulders, the opposite end being internally threaded, a screw for entering said threaded end of the stem, the free end of said screw being beveled or tapered, and adapted to coact with the shouldered split inner ends of said stem to expand the inner end of the same and lock said parts in the desired position.

594,876. BICYCLE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Aug. 7, 1896. Serial No. 601,906. (No model.)



Claim.—1. A bicycle-saddle comprising a cantle-plate at the rear of the saddle, a band or loop at the pommel end of the saddle, a spring intermediate said cantle-plate and loop, and strips of leather or lacing extending from the cantle-plate and connected with the rearwardly-extending arms of the loop at the pommel end, substantially as shown and described.

2. A bicycle-saddle comprising a cantle-plate at the rear of the saddle, a band or loop at the pommel end of the saddle, and a cushion-surface extending above said loop, a spring intermediate said cantle-plate and loop, and strips of leather or lacing extending from the cantle-plate and connected with the rearwardly-extending arms of the loop at the pommel end, and a top or cover extending over the lacing, with a central longitudinal opening therein, substantially as shown and described.

3. A bicycle-saddle, comprising a cantle-plate at the rear of the saddle, a band or loop at the pommel end of the saddle, and a cushion-surface extending above said loop, a spring intermediate said cantle-plate and loop, and strips of leather or lacing extending from the cantle-plate to and around a transverse plate connected with the rearwardly-extending arms of the loop at the pommel end of the saddle, and forming a central longitudinal opening in the saddle, substantially as shown and described.

4. A bicycle-saddle, comprising a cantle-plate at the rear of the saddle, a band or loop at the pommel end of the saddle, a spring intermediate said cantle-plate and loop, and strips of leather or lacing extending from the cantle-plate to and around a transverse plate connected with the rearwardly-extending arms of the loop at the pommel end, and a top or cover extending over the saddle, with a central longitudinal opening therein, and a cushion-surface extending around the pommel end of the saddle, substantially as shown and described.

5. In a bicycle-saddle, the combination with the cantle-plate, and a band or loop at the pommel end of the saddle, and a ring or link secured to each of the rearwardly-extending arms of the loop, and a transverse band extending between and secured to said links, of strips of leather or lacing extending from the cantle-plate around said transverse band, and forming a central longitudinal opening in the saddle, substantially as shown and described.

6. In a bicycle-saddle, the combination with the cantle-plate, and a band or loop at the pommel end of the saddle, and a ring or link secured to each of the rearwardly-extending arms of the loop, and a transverse band extending between and secured to said links, with its upper edge grooved or recessed, of strips of leather or lacing extending from the cantle-plate around said transverse band, and a spring secured at one end to the cantle-plate, and at its other end to a block mounted on an adjusting-screw supported at its end in the band at the pommel end of the saddle, substantially as shown and described.

7. In a bicycle-saddle, the combination with the cantle-plate, and a band or loop at the pommel end of the saddle, and a ring or link secured to each of the rearwardly-extending arms of the loop, and a transverse band extending between and secured to said links, of strips of leather or lacing extending from the cantle-plate around said transverse band, and a cushion surface extending around the pommel end of the saddle, above the metal band, substantially as shown and described.

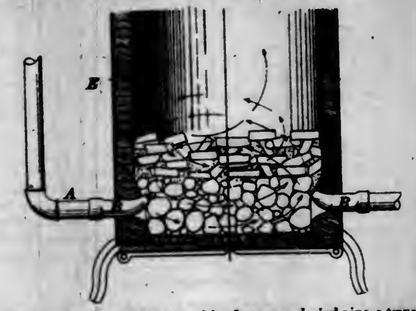
8. A bicycle-saddle, comprising a cantle-plate at the rear of the saddle, a band or loop at the pommel end of the saddle, a spring intermediate said cantle-plate and loop, and strips of leather or lacing extending from the cantle-plate to and around a transverse plate or device, connected with the rearwardly-extending arms of the loop at the pommel end of the saddle, said transverse plate having its upper edge curved downwardly or recessed, substantially as shown and described.

594,877. CHIMNEY-COWL. JAMES W. HUNT, Port Hope, Canada. Filed Mar. 10, 1897. Serial No. 626,966. (No model.) Patented in Canada Mar. 12, 1896, No. 51,642.



Claim.—The combination with a pipe A having a flaring mouth such as B, a conical cap E the base of which is substantially the diameter of the mouth of the pipe supported above the pipe but separated therefrom, and a double-cone casing D supported around the mouth of the pipe and its cap, and extending substantially from the top of the cap E to a point below the flaring mouth, the point of juncture of the two cone-sections of the casing D being opposite the exit from the pipe, substantially as described.

594,878. TWYER FOR FURNACES. MICHAEL HYDE, St. Johnsbury, Vt. Filed Jan. 27, 1897. Serial No. 620,967. (No model.)



Claim.—1. In combination with a furnace and wind-pipe, a twyer supplied by said pipe and mounted permanently in the wall of the furnace, the said twyer having a curved discharging part which is movable to all points of a circle for varying at will the direction of the blast substantially as set forth.

2. In combination with a furnace and a source of air-supply, a twyer discharging the air into the said furnace, the said twyer being provided with a curved discharging part which is adapted to turn independently on the remainder of the said twyer substantially as set forth.

594,879. POTENTIAL SWITCH. JOHN D. ILDER, Yonkers, N. Y., assignor to the Otis Brothers & Company, New York, N. Y. Filed Oct. 15, 1896. Serial No. 608,007. (No model.)



Claim.—1. A switch having two sets of terminals, a cup-shaped housing, inclosing the magnet, an armature thereon having a lug, a lever mounted on the housing and having a catch engaging the lug on the armature, the lever being under stress of a spring, substantially as described.

2. An electric switch comprising two sets of terminals, a cup-shaped housing having a pivoted armature or cover carrying a lug, a spring-actuated lever having blades engaging the terminals and mounted on the housing, a catch engaging the lug on the armature, and a handle for operating the lever, substantially as described.

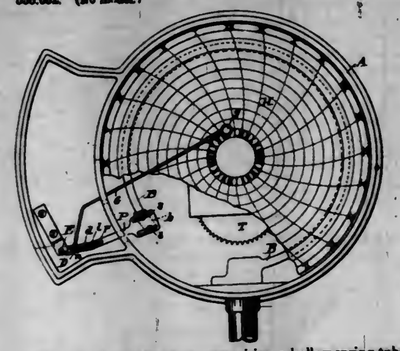
3. An electric switch comprising two sets of terminals a pivoted spring-actuated lever, blades insulated from the lever and engaging the main terminals, a blade also insulated from the lever and adapted to engage the other terminals, and a conductor connecting one of the main-circuit blades with the secondary-circuit blade, substantially as described.

4. A switch having a set of main-line terminals and a separate circuit-terminal, a lever carrying a set of blades cooperating with the main-line terminals and a blade insulated from the others cooperating with the separate circuit-terminal to close the same when the main-line circuit is broken, a catch on the lever, a magnet the armature of which controls the catch, and a spring for operating the lever to close the separate circuit when the main-line circuit is broken, substantially as described.

594,880. COMPOSITION OF MATTER FOR ARTIFICIAL FUEL. ROBERT ILLIUS, Chicago, Ill. Filed Dec. 23, 1896. Serial No. 616,656. (No specimens.)

Claim.—The herein-described composition of matter for an artificial fuel or fire-kindler, consisting of approximately equal parts of sawdust and tanbark, a large proportion of resin, and small percentages of tar and saltpeter, substantially in the proportions set forth in the above specification.

594,881. PRESSURE INDICATING AND RECORDING GAGE. FLORENTINE A. JOUBE, Malden, Mass. Filed Jan. 21, 1895. Serial No. 536,632. (No model.)



Claim.—1. A pressure-gage, comprising a hollow spring-tube, an extension rigidly and immovably fixed to the free end of said tube and provided with a slot arranged at an angle to the path of its movement, and a suitable gage mechanism having an arbor journaled at both ends in suitable bearings and provided with a transmitting-arm rigidly fixed to said arbor, and also provided with a pin or projection engaged with and freely and operatively sliding in said slot.

2. A pressure-gage, comprising a hollow spring-tube, an extension rigidly and immovably fixed to the free end of said tube, a suitable gage mechanism having an arbor journaled at both ends in suitable bearings and provided with a transmitting-arm rigidly fixed to said arbor, and a connection between the extension and the transmitting-arm, comprising a slot in one of said parts arranged at an angle to the path of its movement, and a pin or projection carried by the other part and engaging with and freely and operatively sliding in said slot.

3. In a pressure-gage, the combination with a hollow spring-tube, a suitable gage mechanism having an arbor journaled at both ends in suitable bearings and provided with a transmitting-arm rigidly fixed to said arbor and a power-transmitting pin or projection on said arm, of an extension rigidly and immovably fixed to the free end of the tube and provided with a slot arranged at an angle to the path of its movement and in which said pin or projection engages and freely and operatively slides.

4. In a pressure-gage, the combination with a hollow spring-tube and a movable gage mechanism, of an adjustable extension mounted on the free end of the spring-tube and having a slot in its outer end arranged at an angle to the path of movement, means for positively securing said extension in any position to which it may be adjusted, a transmitting-arm provided with a pin or projection engaged with and freely and operatively sliding in said slot, and an arbor journaled at both ends in suitable bearings and to which said transmitting-arm is rigidly fixed.

5. In a pressure-gage the combination with a hollow spring-tube and suitable gage mechanism provided with a sliding or adjusting piece having a pin or projection, of an extension provided with a slot arranged at an angle to its path of movement, said extension being rigidly and immovably fixed to the free end of said tube, and said pin or projection engaging with the slot and freely and operatively sliding therein.

6. In a pressure-gage the combination with a hollow spring-tube and a movable gage mechanism, of an extension adjustably mounted on the free end of the Bourdon tube, means for positively securing it

in any position to which it may be adjusted, said extension having a slot in its outer end arranged at an angle to the path of its movement, and a transmitting-arm operatively connected with the gage mechanism and provided with a longitudinally-adjustable piece having a pin engaged with and freely and operatively sliding in said slot.

7. A pressure-gage comprising a hollow spring-tube provided with an extension rigidly and immovably fixed to the free end of said tube, a suitable gage mechanism provided with a sliding adjustable piece, and a connection between the extension and the sliding adjustable piece comprising a slot in one of said parts arranged at an angle to the path of its movement, and a pin or projection carried by the other part and engaging with and freely and operatively sliding in said slot.

8. In a gage, the combination with a hollow spring-tube and the gage mechanism, of an extension secured to the tube and provided with a slot, and a slide mounted on the mechanism and provided with a pin engaging with said slot, substantially as set forth.

9. In a gage, the combination with the gage mechanism and a hollow spring-tube provided at its movable free end with a slotted extension, of a slotted slide arranged on the mechanism and provided with a pin engaging with the slot in said extension, and a fastening-screw arranged in the slot of the slide and securing the slide to the mechanism, the slots in said extension and slide being arranged in line or parallel to one another and substantially at right angles to the path of the extension, substantially as set forth.

10. A pressure-recording gage, comprising a hollow spring-tube having a lateral extension rigidly fixed thereto, said extension being provided with a slot arranged at an angle to the path of its movement, an arbor, a recording-arm provided with a marking device and movable about the axis of said arbor, and a transmitting-arm rigidly connected to said recording-arm, and having a pin entering and sliding in the slot in the said extension.

594,882. ELECTRIC CABLE. JOHN H. KELMAN, Pittsfield, Mass. Filed Sept. 25, 1897. Serial No. 652,967. (No model.)



Claim.—1. A cable consisting of several conductors, each separately coated with a continuous coating of varnish hardened by oxidation, and a covering holding said conductors together in close proximity, substantially as described.

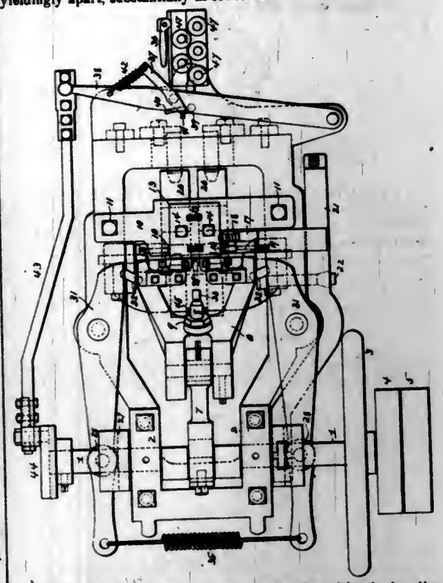
2. A cable consisting of several conductors, each separately coated with a continuous coating of linseed-oil varnish, and a covering holding said conductors together in close proximity, substantially as described.

594,883. WIRE-NAIL-MAKING MACHINE. CHARLES C. KESTY, Sunbury, Pa., assignor of one-half to Louisiana P. Johnson and Piercy Little, Northumberland, Pa. Filed Dec. 12, 1896. Serial No. 615,522. (No model.)

Claim.—1. In a wire-nail-making machine, the combination with a frame, a pair of point holding levers pivoted thereto, a pair of operating-levers 31, 31, for operating the pointing-levers, gripping dies, a die-operating lever, a lever 21 for operating this die-operating lever, and a heading-lever pivoted to the frame, of a rotary shaft having connection with the heading-lever for vibrating it, and cams on the shaft for vibrating levers 21 and 31.

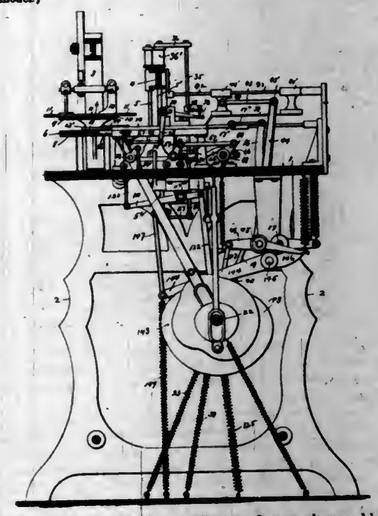
2. In a nail-making machine, the combination with gripping-jaws and a hammer or heading-tool, of a spring-clearer adapted to throw hanging nails out of the machine, a rocking lever which carries the hammer, said clearer adapted to be operated by a roller also carried by the lever, substantially as set forth.

3. In a nail-making machine, the combination with rocking point-holding levers, of operating-levers, cams located outside the bearings of shaft for moving the operating-levers, rocking pins having a species of ball-and-socket connection between the rocking point-holding levers and the cam-operated levers, and spring for holding the operating-levers yieldingly together or toward each other, and spring between the legs of point-holding rocking levers to open and hold them yieldingly apart, substantially as set forth.



4. In a nail-making machine, the combination with gripping-dies, one of which is movable, and point-holding levers, of operating-levers and cams located outside the bearing of shaft, one cam being a double or duplex cam for operating two of the levers, substantially as set forth.

594,884. ENVELOP-MACHINE. EVERETT M. LOW, Worcester, Mass., assignor, by mesne assignments, to the Worcester Envelope Company, same place. Filed Dec. 15, 1890. Serial No. 374,713. (No model.)



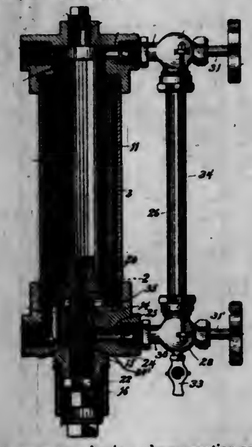
Claim.—1. In the folding mechanism of an envelop-machine, the combination with the back-flap folder, consisting of the gummed-surface pressure-plate yieldingly-supported on the plate which forms the fold of the envelop, of means for operating said back-flap folder, consisting of two cranks connected with the back-flap folder at different angles, for the purpose stated, and mechanism for operating said cranks, substantially as set forth.

2. In the folding mechanism of an envelop-machine, the combination with the back-flap folder, constructed so as to have a yielding pressure on the envelop-blank, of means for operating said back-flap folder, consisting of two cranks, connected with the back-flap folder at different angles, for the purpose stated, connectors from said cranks to two cranks on a shaft a spur-gear on said shaft, a rack operating said gear, a cam-lever supporting said rack, and operating the same through the intervention of a spiral spring supported on said lever, for the purpose of giving a yielding pressure to the back-flap folder, through the intervening connections, substantially as set forth.

3. In the mechanism for raising the folded envelop from the folding-box, the combination with the back-flap folder having a stop thereon, of the lifting-blades extending through slots in the bed of the folding-box, and secured at one end on a rod, and means for operating said rod, so that said lifting blades will be raised at the same time with the back-flap folder, holding the folded envelop between them, and a stop to come in contact with the stop on the back-flap folder, to prevent the envelop being pressed against said back-flap folder, substantially as set forth.

4. In the mechanism for removing the folded envelop from the folding-box, the combination with a pair of nipper-arms fast on a shaft, and means for operating said shaft to move the nipper-arms toward, and away from the folding-box at the proper time, of a second pair of nipper-arms fast on a shaft, supported on, and moving with the first-mentioned pair of nipper-arms, and having a motion independent thereof, for seizing and releasing the folded envelop, and means for operating the same, consisting of a crank-arm, having a hole in its outer end extending over a stud in one of said nipper-arms, and means for operating said crank-arm, and a spring on the shaft carrying the second pair of nipper-arms above mentioned, for giving a yielding motion thereto, for the purpose stated, substantially as set forth.

594,885. STEAM-TRAP. HENRY LUCAS, Lake, Wis., assignor to the George Ziegler Company, Milwaukee, Wis. Filed Apr. 16, 1897. Serial No. 632,462. (No model.)

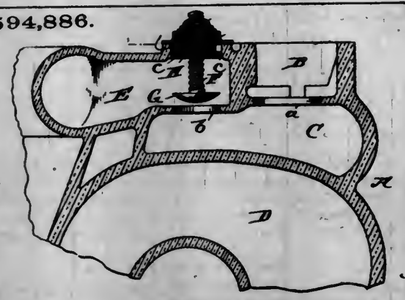


Claim.—A steam-trap, having a lower portion provided with an outlet-passage and with a lateral passage, a valve-seat provided with a vertical passage in communication at its lower end with the lateral passage of the lower portion of the trap, an expansible tube in communication with a source of steam-supply, and having its lower free end adapted, when the tube is under expansion, to bear against the seat, and a gage in communication with the expansible tube and also in communication with the lateral passage of the lower portion of the trap.

594,886. SUPPLY-REGULATOR FOR WATER-CLOSET BOWLS. JOHN MADDOCK, Trenton, N. J. Filed July 3, 1896. Serial No. 597,984. (No model.)

Claim.—The above-described regulator for water-closet bowls and similar articles which consists of the combination of a bowl having a recess for receiving the supply-water from the supply-pipe, an aperture leading from said recess to the flushing-rim, an aperture through the exterior wall of the bowl, and an adjustable regulating device inserted in said aperture and constructed so as to be turned from the exterior into greater or less proximity to said first aperture, whereby the supply of water to the flushing-rim is regulated.

594,886.



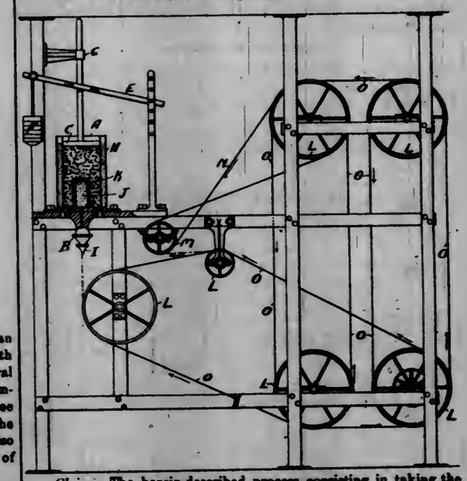
594,887. PRESSING AND SMOOTHING DEVICE. MEYER MERCY, Newark, N. J. Filed Jan. 4, 1897. Serial No. 617,963. (No model.)



Claim.—1. In an ironing device, a hollow frame or body part provided with devices for interiorly heating the same, and one or more rollers journaled thereto, and which are located in slots or openings therein which they practically close, which rollers alone come in contact with the goods, for the purposes set forth.

2. In an ironing device, a body part having rollers which are axially recessed at their ends, plates attached to the body part, a stud at the outer end of each plate, adapted to enter said recesses in said rollers, and antifriction-balls in the space between the stud and the walls of the recesses in the rollers, for the purposes set forth.

594,888. PROCESS OF OBTAINING USEFUL PRODUCTS FROM SILK-WORMS. ADAM MILLAR, Glasgow, Scotland. Filed Mar. 20, 1897. Serial No. 628,515. (No specimens.)



Claim.—The herein-described process consisting in taking the large intestines of the silk-worms when they have attained the maximum size and are about to begin spinning, subjecting them to pressure without preliminary treatment to produce the threads, and then drying the threads, substantially as described.

594,889. SOAP-FRAME. HENRY D. MORGAN, Liverpool, England. Filed Dec. 30, 1896. Serial No. 617,503. (No model.) Patented in England Mar. 9, 1893, No. 5,107.

Claim.—1. A soap-frame comprising the pairs of sides *a*, *b*, one pair of said sides having its edges extending beyond and inclosing the edges of the other pair of sides, the said extensions being fluted and

forming open channels to hold the soap material, substantially as described.



2. A soap-frame comprising a pair of sides *b*, and a pair of sides *a* extending across and beyond the edges of the sides *b* the said extensions being bent laterally and extending at a distance from the sides *b* to leave a space between, the edges of the plates *a* being bent inwardly and bearing upon the plates *b* at a distance from the edges thereof.

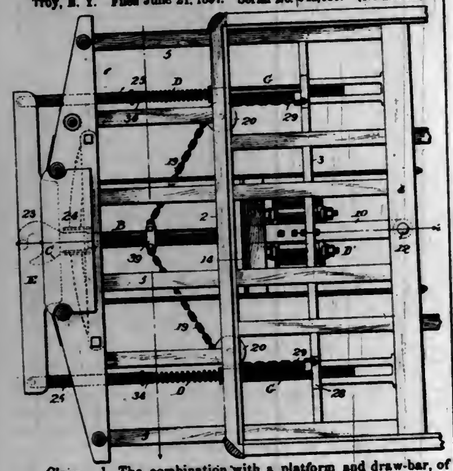
594,890. LIQUID-METER. WILLIAM MCCAUSLAND, New York, N. Y., assignor of one-half to Cord Ehlers, same place. Filed Dec. 31, 1896. Serial No. 617,570. (No model.)



Claim.—1. In a liquid-meter, the combination with a liquid-chamber, of a liquid-wheel therein provided with an elongated shaft, a sleeve mounted upon the shaft, mechanism intermediate the shaft and sleeve and designed to cause their rotation in the same direction at different speeds, a brake-wheel carried by the sleeve, a brake-band in contact with the periphery of the brake-wheel, and means for regulating the tension of the brake-band, substantially as specified.

2. In a liquid-meter, the combination with a liquid-chamber, of a liquid-wheel therein, provided with an elongated shaft, a sleeve mounted upon the shaft, an index-pointer operatively connected with the sleeve, and a dial designed to be traversed by the pointer, mechanism intermediate the shaft and sleeve designed to cause their rotation in the same direction at different speeds, a brake-wheel carried by the sleeve, a brake-band in contact with the periphery of the brake-wheel, and means for regulating the tension of the brake-band, substantially as specified.

594,891. DRAW-BAR PLATFORM FOR RAILWAY-CARS. THOS. L. MCKEEN, Easton, Pa., assignor to the Trojan Car Coupler Company, Troy, N. Y. Filed June 21, 1897. Serial No. 641,639. (No model.)



Claim.—1. The combination with a platform and draw-bar, of chains or cables extending laterally at each side from the draw-bar, and spring-actuated devices arranged to insure a greater draft upon one chain when the draw-bar is swung to the opposite side, substantially as described.

2. The combination with a car-platform, of a buffer-head, spring-bearings for the opposite ends of the buffer-head, a laterally-movable draw-bar, and connections between the draw-bar and the spring-bearings whereby when the draw-bar is swung laterally to one side or the other the spring-bearing at one end of the buffer-head is put under tension to project said end of the buffer-head in advance of the other, substantially as described.

3. The combination of a car-platform, draw-bar, springs and chains extending from opposite sides of the draw-bar and connected with said springs and guide-pulleys for said chains, substantially as described.

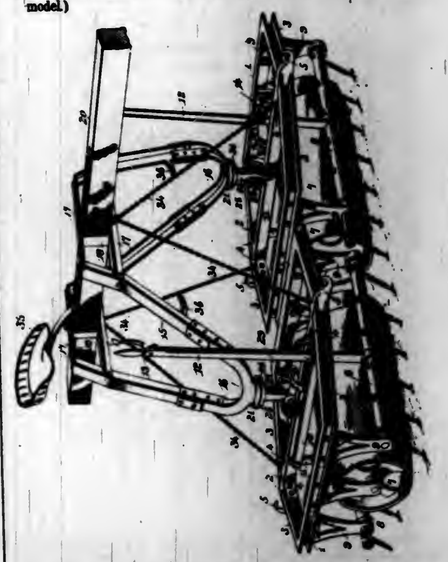
4. The combination of the platform and draw-bar of a car, buffer-head, rods extending to the buffer-head at each end, and chains extending from the draw-bar to the inner ends of the rods, and spring-actuated devices arranged to normally exert an equal and constant draft upon the chains, substantially as described.

5. The combination of a platform, draw-bar, buffer-head, rods 25, slides G, springs between the slides, and bearings on the rods, and chains extending from the draw-bar to the slides, substantially as described.

6. The combination with the buffer-head, of the rod 30 connected therewith, and a spring, and a bearing on the rod for the end of the spring, substantially as described.

7. The combination with a car-platform, of a yoke beneath the same, a draw-bar projecting through the yoke and laterally movable therein, centering devices for the draw-bar and yielding means interposed between the draw-bar and yoke and movable with the draw-bar whereby vertical vibration of the draw-bar within the yoke is permitted, substantially as described.

594,892. COMBINED HARROW AND ROLLER. WILLIAM H. NEWTON, Decatur, Ill. Filed Oct. 25, 1895. Serial No. 566,854. (No model.)



Claim.—1. An agricultural implement for the purposes set forth, comprising two sections provided with the earth-treating devices, an arched frame comprising approximately U-shaped side pieces oppositely inclined and connected at their upper ends, couplings loosely connecting the lower ends of the arched frame with the said sections and admitting of the latter having independent automatic horizontal and vertical tilting movements, and a pole connecting the members of the side pieces at their upper ends and extending over the space formed between them, substantially as specified.

2. In combination, two sections provided with earth-treating devices, an arched frame, a pole secured to the upper portion thereof, and couplings having an adjustable knuckle-joint connection with the sections and a pivotal connection with the ends of the arched frame, whereby the said sections can be moved farther apart or brought closer together and are adapted to automatically tilt vertically and to turn horizontally, substantially in the manner set forth for the purpose described.

3. In an agricultural implement, the combination of two sections having the earth-treating devices, an arched frame having pendent spindles at its ends and plates at the bases of the spindles formed with depending lugs, and sockets attached to the aforesaid sections and formed at their upper ends with plates having notches of greater length than the legs to receive them and limit the relative turning of the two plates, substantially in the manner set forth for the purpose described.

4. In an agricultural implement, the combination of two sections bearing the earth-treating devices, an arched frame, a pole or tongue applied to the arched frame, and couplings between the extremities of the arched frame and the said sections, each coupling having its lower part formed with a series of eyes or sleeves each of which constitutes a complementary part of a knuckle-joint, and each adapted to act jointly with the complementary part of the knuckle-joint attached to the sections, whereby the latter can be separated or brought together and are adapted to automatically tilt vertically, substantially as set forth.

5. In an agricultural implement, the combination of two sections having earth-treating devices, an arched frame, and couplings between the arched frame and the said sections, and having a limited slidable connection with the said sections, whereby the latter have an independent reciprocating movement, substantially as and for the purpose set forth.

6. In combination, independent sections provided with earth-treating devices, an arched frame connecting the sections and comprising similar side pieces of approximately U form having their lower or converging ends loosely connected with the said sections and inclining outwardly and downwardly from their upper ends, and parallel cross-pieces connecting corresponding members of the said side pieces and having sockets intermediate of their ends in longitudinal alinement, and a pole fitted into the said sockets and secured therein, substantially as set forth.

7. In combination, independent sections provided with earth-treating devices, a frame comprising oppositely-inclining side pieces of substantially U form having loose connection at their lower ends with the said sections, and cross-bars connecting corresponding members of the side pieces at their upper ends and formed with sockets at a medial point which aline longitudinally, foot-rests provided on the front members of the side pieces, a pole secured in the longitudinally-alining sockets, and a seat secured to the pole between the upper ends of the members comprising the side pieces, substantially as specified.

8. In an agricultural implement, oppositely-disposed end bars of V form, parallel side bars connecting the outer extremities of the said end bars, a middle longitudinal bar having integral hooks at its ends and corresponding oblique flanges adjacent to the hooked extremities and secured to the inner terminals of the end bars, toothed bars journaled in bearings provided on the aforesaid side bars, a lever secured to one of the toothed bars and operatively connected with an arm extending from the other toothed bar, and means for securing the lever in an adjusted position, consisting of a hand-latch and a toothed segment, the latter being applied to the middle longitudinal bar, substantially as set forth.

9. In an agricultural implement, the combination of two sections having earth-treating devices, an arched frame, said couplings connecting the said sections with the arched frame and comprising a knuckle-joint, and having a part embracing the sides of a frame-bar and slidable on the latter between stops, substantially as specified.

594,893. INKSTAND. EDWIN J. HIXSON, Red Oak, Iowa. Filed Jan. 19, 1897. Serial No. 619,746. (No model.)

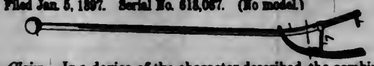


Claim.—1. An inkstand having an inverted-cone-shaped diaphragm therein provided with a central opening, a ball resting upon the upper surface of said diaphragm and adapted to close the opening therein, a dome-shaped top provided with an opening at one side normally inclosing the upper end of said stand, and a slidingly-mounted supplemental cover provided with a similarly-shaped opening, substantially as and for the purpose described.

2. In an inkstand, the combination with a cup-shaped base or ink-receptacle, of an inverted-cone-shaped diaphragm fitting within the upper end of said base-piece and provided with a central opening, a loose ball resting upon the top surface of said diaphragm and adapted to close the opening therein, a dome-shaped top having a side opening therein attached to the upper end of said base-piece and inclosing said diaphragm and ball, and a supplemental cover having a similarly-shaped opening in one side adapted to register with the opening in said top, said supplemental cover being pivotally connected thereto, substantially as and for the purpose described.

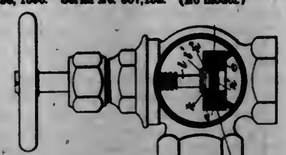
3. In an inkstand, the combination with a cup-shaped base or ink-receptacle having an internal annular flange at its upper end, of an inverted-cone-shaped diaphragm having a central opening therein and an annular flange adapted to fit within the upper end of said base-piece, a rubber packing ring or gasket surrounding the flange on said diaphragm and engaging the internal flange on said base-piece, a ball resting upon the top surface of said diaphragm and adapted to close the opening therein, a dome-shaped top having a side opening therein attached to the upper end of said base-piece and inclosing said diaphragm and ball, and a supplemental cover having a similarly-shaped opening in one side adapted to register with the opening in said top, said supplemental cover being pivotally connected thereto, substantially as and for the purpose described.

594,894. SHOE-HORN. JOSEPH L. NYLANDER, Duluth, Minn. Filed Jan. 5, 1897. Serial No. 618,067. (No model.)



Claim.—In a device of the character described, the combination with a shoe-horn curved laterally and longitudinally and apertured at its upper extremity, of a rod passing through the aperture in the shoe-horn and bent rearwardly, and a brace intermediate the rod and horn, substantially as specified.

594,895. VALVE. JEREMIAH O'MEARA, New York, N. Y. Filed Sept. 28, 1896. Serial No. 607,152. (No model.)



Claim.—1. A reversible disk for valves, composed of a body chambered on opposite sides and having such chambers packed with a suitable packing material, such chambers being separated by a partition, a socket-piece arranged in said partition, and a valve-stem fitted to such socket-piece and held in place in such socket-piece within the disk by the walls of the disk, to swivel the disk upon such stem, substantially as described.

2. A valve-disk, chambered on opposite sides, and provided with packing material, the chambers being separated horizontally by a partition, a socket-piece secured in such partition and having an undercut slot, combined with the valve-stem terminating in an inverted T, and fitted to such slot, the socket-piece and the end of the valve-stem being arranged within the walls of the disk, substantially as and for the purpose described.

3. A reversible disk for valves, having cavities or chambers in opposite faces, and having material of different quality or character arranged in such cavities or chambers, one chamber containing, for example, a packing material adapted for use with low-pressure steam, and the other chamber containing packing material adapted for high-pressure steam, so that the disk may be used for either class of service, combined with a stem and a swiveling connection for the stem and disk, the said stem and swiveling connection being joined within the disk and held together by the walls of the disk, substantially as and for the purpose described.

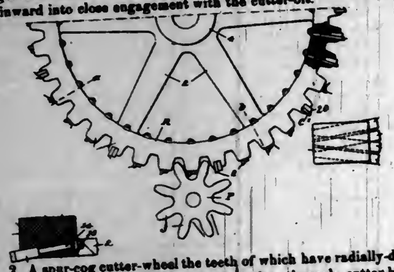
4. A reversible valve-disk, having sunk within its center a socket-piece having an undercut slot, combined with a valve-stem terminating in an inverted T which is connected with the undercut slot of the socket-piece, substantially as and for the purpose described.

5. A reversible valve-disk, a socket-piece screwed into the same and sunk within its top, combined with a valve-stem having its end arranged within said socket-piece and held from displacement therefrom by the walls of the disk, the disk being swiveled thereby upon the stem, substantially as described.

594,896. CUTTER-BIT FASTENING FOR MINING-MACHINES. CHARLES O. PALMER, Cleveland, Ohio. Filed Sept. 14, 1891. Serial No. 405,577. (No model.)

Claim.—1. A spur-cog cutter-wheel the cogs of which have radially-disposed inwardly-tapering mortises formed therethrough, cutter-bits seated in said mortises, inwardly-tapered cutter-wedges fitting inwardly from the peripheral openings of said mortises and adapted to be tightened in their seats by the inward pressure upon the cutter-

bits in cutting, and having screw-threaded shanks engaging said wedges from the inner side of the rim for drawing the wedges radially inward into close engagement with the cutter-bit.

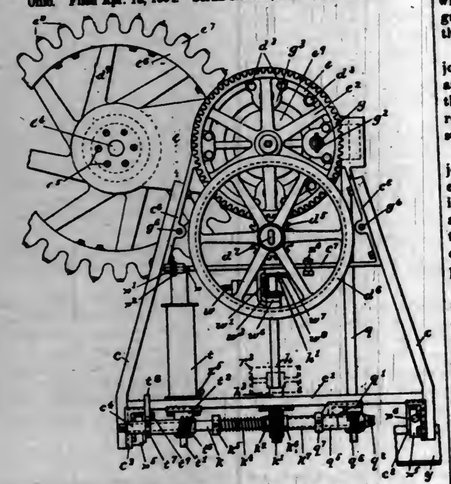


2. A spur-cog cutter-wheel the teeth of which have radially-disposed inwardly-tapering mortises formed therethrough, cutter-bits seated in said mortises, inwardly-tapered cutter-wedges fitting inwardly from the peripheral openings of said mortises and adapted to be tightened in their seats by the inward pressure upon the cutter-bit in cutting, said cutter bits or wedges being file-cut or roughened, and screw-threaded shanks engaging said wedges from the inner side of the rim for drawing the wedges radially inward into close engagement with the cutter-bit.

3. A spur-cog cutter-wheel the teeth of which have radially-disposed inwardly-tapering undercut mortises formed therethrough, on opposite sides thereof, of cutter-bits seated in said mortises, inwardly-tapered dovetailed cutter-wedges fitting inwardly from the peripheral openings of said mortises, and adapted to be tightened in their seats by the inward pressure upon the cutter-bits in cutting, and having screw-threaded parts engaging said wedges from the inner side of the rim for drawing the wedges radially inward into close engagement with the cutter-bit.

4. A spur-cog cutter-wheel the teeth of which have radially-disposed inwardly-tapering undercut mortises formed therethrough on opposite sides thereof, of cutter-bits seated in said mortises, inwardly-tapered dovetailed cutter-wedges fitting inwardly from the peripheral openings of said mortises, and adapted to be tightened in their seats by the inward pressure upon the cutter-bits in cutting, and having screw-threaded shanks engaging said wedges from the inner side of the rim for drawing the wedges radially inward into close engagement with the cutter-bit.

594,897. MINING-MACHINE. CHARLES O. PALMER, Cleveland, Ohio. Filed Apr. 13, 1894. Serial No. 506,922. (No model.)



Claim.—1. The combination in a mining-machine, of a machine-frame, a cutter-carrier projecting from the forward end thereof, a horizontally-revolving cutter supported by said carrier, one or more elastic feet supporting said carrier, a rigid track supporting the rear end of said frame, means for imparting a revolving motion to said cutter and sliding said frame on said track.

2. The combination in a mining-machine of a machine-frame having track-shoes on the two rear corners thereof, a cutter-carrier journaled on the forward end thereof, a horizontally-revolving cutter journaled on said carrier, an elastic foot under said cutter-carrier, a track under said track-shoes, and means for revolving said cutter and sliding the machine on said track substantially as set forth.

3. The combination in a mining-machine of the undercutting type, of a machine-frame, a cutter-arm supported by said frame and carrying a horizontally-revolving cutter, a track-rail supporting the rear end of said frame, a hole in the forward end of the machine, a vertically-sliding plunger passing downward through said hole to the floor of the mine, a spring-cushion interposed between the machine-frame and plunger upon which is supported its forward end, together with mechanism for driving and feeding said cutter to its work.

4. The combination in a mining-machine of a machine-frame having track-shoes on its rear end, a cutter-carrier journaled in its forward end, a horizontally-revolving cutter journaled at the extremity of said cutter-carrier, a cutter-wheel pinion journaled centrally of said cutter-arm journal, and engaging said cutter, tarret-screw g, on the under side of said cutter-carrier, bushing g^3, on the upper end of screw g, spring g^4, compressed between said bushing g^3 and the cutter-arm journal, a track under said track-shoes and means for revolving said cutter-wheel pinion and moving the mining-machine on said track.

5. A mining-machine track-rail having an aperture in the end thereof, an abutting rail formed with a hole therein registering with the said aperture, in combination with a track-jack having its lower end fitting said registered holes for securing said rails together and to the floor.

6. A mining-machine track consisting of a flanged beam, an angle-bar having one limb attached to the vertical flange of said flanged beam, and the other limb projecting horizontally from said flange, a flange on said track projecting below the floor-surface and engaging with a floor-groove, substantially as and for the purpose set forth.

7. A mining-machine track y, having an apertured plate y^4 attached thereto, an abutting rail formed with a hole therein registering with the hole in the plate y^4 in combination with a jack y^3 having its lower end fitting said registered holes substantially as and for the purpose set forth.

8. A mining-machine track consisting of two or more abutting rails, registering holes in the ends of said rails, a track-jack engaging said registering holes, a downwardly-projecting flange on said track engaging with a track-groove in the floor, an L-shaped flange projecting upward from said track, a track-shoe clip engaging said upper flange, substantially as and for the purpose set forth.

9. The combination with a mining-machine adapted to the undercutting of coal, of a track supporting the rear part thereof, said track formed with a downward-depending edge adapted to enter and be held in a groove in the floor, and a router operatively connected with the driving mechanism of the machine, and arranged to cut a groove in the floor of the mine parallel with the track and in advance thereof.

10. The combination in a mining-machine of a rotating cutter journaled on a carrying-arm, a router journaled in a swinging holder and adapted during its movement across the room to cut a groove therein but which may be swung above the floor to clear the said rotating cutter and carrying-arm when in their inner position, substantially as described.

11. The combination in a mining-machine of a rotating cutter journaled on a carrying-arm, of a router-shaft, a router-yoke hinged concentrically of said shaft, a horizontally-revolving router journaled in said yoke in operative connection with a gear on the router-shaft and adapted to cut a transverse groove in the floor of the mine when the said arm is in its downward position and to swing upwardly to clear the said rotating cutter and carrying-arm when in their inner position, substantially as described.

12. In combination in a mining-machine a horizontal router-shaft and means for driving the same, a router-yoke journaled concentrically with said shaft, an arm on said router-yoke, a router-screw attached to said arm, an adjusting-nut on said router-screw and lying between lugs on the router-screw bracket, together with a router journaled in said router yoke and driven from said router-shaft, substantially as and for the purpose set forth.

13. In a mining-machine the combination with a continuously-rotating cutter-wheel, of a feed-drum shaft, a feed-drum fixed on said shaft, a worm-wheel on said drum-shaft, a cross-feed shaft journaled on the machine-frame, a friction-gear journaled on said cross-feed shaft and normally coupling the feeding-train, a worm secured to said cross-feed shaft and engaging the drum worm-wheel, a ratchet fixed on said cross-feed shaft, a pawl engaging and disengaging said ratchet whereby when the pawl is in engagement with the ratchet the feed is arrested, and conversely.

14. A mining-machine frame, a cutter-carrier e projecting from the forward end thereof and carrying a horizontally-revolving cutter thereon, pinion e^2 engaging said cutter, together with gear e^3 on shaft d^3, pinion d^5, gear d^4 and pulley d^6 journaled on stud c^3, gear k^4 and worm k^5 on shaft k, gear k' and worm l^3 on shaft k, worm-wheel l^2 and drum l on shaft l', track-shoes c^4 and c^5 attached to the machine-frame and engaging track y, all combined and operated substantially as set forth.

15. The combination in a mining-machine of the machine-frame having a turret-ring on the forward end, an opening through the web of said turret-ring, flanges formed on the outside of said ring on the top and bottom sides of said opening, vertical ribs at the ends of said opening connecting said flanges, a cutter-carrier having cogs on its periphery journaled in said turret-ring and carrying a horizontally-revolving cutter, a worm situated in the said opening and engaging said cogs, a shaft splined in said worm and having at its outer end means for attaching a crank-handle for operating the same substantially as set forth.

16. In a mining-machine, the machine-frame having a turret-bearing at the forward end thereof, a cutter-carrier journaled in said bearing, shaft d^3 journaled in said cutter-carrier journal, combined with gear c^3, pinion d^5, pulley d^6, pinion c^2, cutter-wheel c^3, also, gears d^4 and k^4, shaft k, worm k^5, worm-wheel k', shaft k, worm q^4, worm-wheel q^3, shaft q, worm c^2 and worm-wheel c', substantially as and for the purpose set forth.

17. A spur-cog cutter-wheel, the teeth of which have radially-disposed inwardly-tapering mortises therethrough, cutter-chisels seated in said mortises, inwardly-tapering and radially-tapped dovetailed cutter-wedges fitting inwardly from the peripheral openings of said mortises and adapted to be tightened in their seats by the inward pressure upon the cutter-chisels in cutting, radial wedge-screws operated from the inside of the rim engaging said wedges and drawing the same radially inward to retain the wedge in close engagement with the cutter-chisels, substantially as described.

18. In a mining-machine, a horizontally-revolving cutter-wheel consisting of a hub, a rim, and receding spokes connecting said hub and rim, of grooves on the under side of said rim in line with the front of said spokes, and cutters projecting from the rim of said wheel all combined and operating substantially as and for the purpose set forth.

19. In a mining-machine in combination, a horizontally-revolving cutter-wheel consisting of a hub, a rim, and receding spokes connecting said hub and rim, and grooves on the under side of said rim in line with the front of said spokes; cutting-chisels passing radially through the gear-teeth of the cutter-wheel and secured therein, wedge-screws passing through said rim and serving to secure said chisels substantially as and for the purpose set forth.

20. In a mining-machine, a revolving turret on the forward end thereof, a gear-wheel journaled in said turret, a cutter-carrier on the under side of said gear-wheel carrying on its outer end a horizontally-revolving cutter consisting of a cutter-wheel having receding spokes and grooves on the under side of said rim in line with the front of said spokes, cutting-chisels on the periphery passing radially through the gear-teeth of the cutter-wheel and held in place by radially-tapped cutter-wedges, wedge-screws passing radially through said rim and engaging said wedges, substantially as and for the purpose specified.

21. In a mining-machine, a cross-feed shaft k, carrying worm q^4 on said shaft, worm-wheel q^3, shaft q, worm c^2, worm-wheel d' attached to the rotating arm c for operating the rotary-feed motion of the mining-machine, and worm l^3, worm-wheel l^2, shaft l' carrying the drum l, for operating the straight feed and friction gear-wheel k', substantially as set forth.

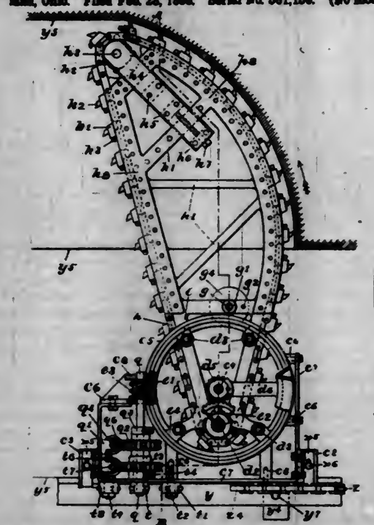
22. In a mining-machine a cross-feed shaft k, worm l^6 thereon engaging the drum worm-wheel l^2, and shaft l' carrying drum l and worm q^3 engaging the rotary-feed worm-wheel q^3, shaft q, worm c^2, worm-wheel d' attached to the rotating arm c, friction-gear k' on said shaft, ratchet-wheel l^7 fixed on said shaft, pawl l^8 engaging said ratchet, substantially as and for the purpose set forth.

23. In a mining-machine the combination of the machine-frame having a turret-ring on its forward end, a cutter-carrier journaled within said turret-ring and having cogs on the periphery of said journal within said ring, and a worm engaging said cogs, substantially as described.

24. The combination in a mining-machine of the machine-frame having a turret-ring on the forward end, an opening through the web of said turret-ring, flanges formed on the outside of said ring on the top and bottom sides of said opening, vertical ribs at the ends of said opening connecting said flanges, a cutter-carrier journaled within said turret-ring and having cogs on the periphery of said journal within said ring, and a worm journaled in the said opening and engaging said cogs, substantially as described.

25. In a mining-machine, the combination with the machine-frame of a turret-ring thereon having a worm-housing substantially as described, formed on the side thereof, a cutter-carrier arm having a journal fitting the interior of said turret, said journal having a worm-gear cut into its periphery at its middle part and having a bearing on the interior of said turret each side of said gear, and a worm situated in said housing and engaging the gear on said journal, substantially as described.

594,898. COAL-CUTTING MACHINE. CHARLES O. PALMER, Cleveland, Ohio. Filed Feb. 22, 1896. Serial No. 581,159. (No model.)



Claim.—1. The combination in a mining-machine of the machine-frame having a turret-ring formed on its forward end, worm-wheel c' mounted in said ring, cutter-arm c secured to said worm-wheel, together with the engaging gears d^5 and c^2 suitably supported within said turret-ring, and forming with pulley d^6 and sprocket-wheel c^6 a continuous driving-train, means for turning said pulley and supporting and moving said machine to its work.

2. In a coal-cutting machine, the combination with the driving mechanism, of the cutter-arm pivoted to, and radially movable with, said driving mechanism; an adjusting-screw g, with a suitable bearing therefor in the rearward portion of said arm, and the tilting leveling-shoe g^6 resting on the floor of the mine, and flexible connections between said shoe and the adjusting-screw g.

3. The combination in a coal-cutter of a horizontal turret-ring, lugs on the periphery thereof, a frame-bar extending around and attached to the ends of said lugs, track-shoes attached to the sides of said frame-bar and resting on the track, a cutter-arm journaled within said ring and carrying a turret worm-wheel thereon, a supporting-shoe under the cutter-arm, a worm journaled on its shaft and engaging said worm-wheel, a sprocket wheel mounted on said shaft and in said frame-bar, a worm-wheel secured to said sprocket-wheel, a worm engaging said sprocket worm-wheel, a chain engaging said sprocket-wheel and attached to a stationary object, substantially as described.

4. The combination with a coal-cutter track composed of a horizontal web, having a flange or bulb on one edge thereof, a vertical flange on the other, and an angle-iron secured to said vertical flange, of a track-chair having a vertical orifice therein supporting the end of said track, a similar abutting rail resting upon said chair, and having a vertical socket in said chair and a jack having a boss on its lower end fitting said registering sockets and holding the rails together and to the floor, for the purpose herein shown.

5. The combination with a coal-cutter adapted to cut a serrated floor, of a machine-track therefor supported on chairs resting upon said floor and abutting against the riser of the floor, and a jack resting on the track and inclined backward from the working face, substantially as shown and described.

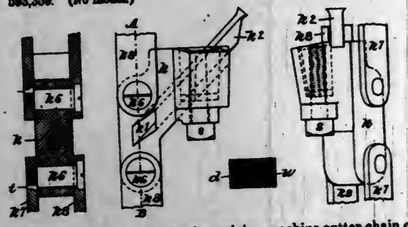
6. The combination with a serrated floor, of a coal-cutter track composed of an angle y^2, and angle y^3, rivated to its flange and projecting outward above said angle y^2, track-chairs y^4 secured under said angle y^3 and abutting the riser y^2 of the serrated floor, substantially as described.

7. The combination in a coal-cutter of a horizontal turret-ring, headless lugs on the periphery thereof, a frame-bar extending around, and attached to, the ends of said lugs, a swinging cutter-arm pivoted in said ring, coal-cutting apparatus mounted on said rotary arm, suitable supports carrying said frame and arm, together with means for

driving said cutting mechanism and feeding the same to its work, substantially as described.

594,899. CUTTER-BIT HOLDER FOR MINING-MACHINES.

CHARLES O. PALMER, Cleveland, Ohio. Filed May 27, 1896. Serial No. 593,359. (No model.)



Claim.—1. The combination in a mining-machine cutter-chain of a cutter-block with a countersunk cutter-link on one side thereof and a tapped link on the other, a pintle having a head on one end and a thread on the other passing through said countersunk link and cutter-block and screwed into said tapped link, together with one or more pins upset on the inner end thereof as it is driven into place from the outside, and engaging said outside link and pintle to prevent the pintle turning substantially as described.

2. The combination in a mining-machine, of a horizontally-revolving cutter, one or more bit-mortises therein, a cutter-bit in said mortise, an inwardly-tapering screw-threaded wedge entering the mortise from the cutting end and engaging said bit, screw-threaded parts engaging the tapered end of the wedge and drawing the wedge together with the cutter firmly in place substantially as described.

3. The combination in a mining-machine, of a horizontally-revolving cutter, one or more bit-mortises therein, a cutter-bit in said mortise, an inwardly-tapering screw-threaded wedge entering the mortise from the cutting end and engaging said bit, the bit or wedge being file-cut or roughened, screw-threaded parts engaging the tapered end of the wedge and drawing the wedge together with the cutter firmly in place substantially as described.

4. The combination in a cutter-chain of a cutter-block, a bit-mortise extending diagonally therethrough, a horizontal rearwardly-tapering wedge-mortise extending inward from the front end of said block and opening into said bit-mortise, a cutter-bit seated in the bit-mortise, a rearwardly-tapering screw-threaded wedge entering from the forward side of the cutter-block and engaging the cutter bit, screw-threaded parts engaging the rearward end of the wedge and drawing the wedge rearward into close engagement with the cutter-bit substantially as shown.

5. The combination in a cutter-chain of a cutter-block, a bit-mortise extending diagonally therethrough, a horizontal rearwardly-tapering wedge-mortise extending inward from the front end of said block and opening into said bit-mortise, a cutter-bit seated in the bit-mortise, a rearwardly-tapering tapped wedge entering from the forward side of the cutter-block and engaging the cutter-bit, a threaded bolt entering the rearward end of the wedge and drawing the wedge rearward into close engagement with the cutter-bit substantially as shown.

6. The combination in a cutter-chain of a cutter-block, a bit-mortise extending diagonally therethrough, a horizontal rearwardly-tapering wedge-mortise extending inward from the front end of said block and opening into said bit-mortise, a cutter-bit seated in said bit-mortise, a rearwardly-tapering screw-threaded wedge entering from the forward side of the cutter-block and engaging the cutter-bit, said bit or wedge being file-cut or roughened, screw-threaded parts engaging the rearward end of the wedge and drawing the wedge rearward into close engagement with the cutter-bit substantially as shown.

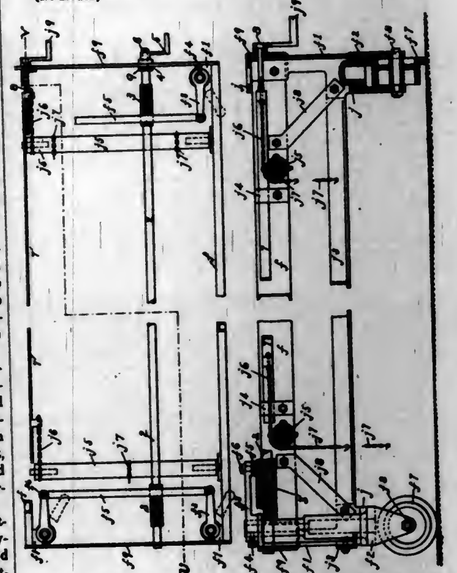
7. The combination in a cutter-chain of a cutter-block, a bit-mortise extending diagonally therethrough, a horizontal rearwardly-tapering wedge-mortise extending inward from the front end of said block and opening into said bit-mortise, a cutter-bit seated in said bit-mortise a rearwardly-tapering tapped wedge entering from the forward side of the cutter-block and engaging the cutter-bit, said bit or wedge being file-cut or roughened, a threaded bolt entering the rearward end of the wedge and drawing the wedge rearward into close engagement with the cutter-bit substantially as shown.

8. The combination in a cutter-chain of a cutter-block, a bit-mortise extending outwardly therethrough, a horizontal rearwardly-tapering wedge-mortise having transversely-beveled sides converging inwardly and opening toward the front end of said block and communicating with said bit-mortise, a cutter-bit seated in the bit-mortise, a rearwardly-tapering screw-threaded wedge having transversely-beveled sides converging inwardly and entering from the forward side of the cutter-block and engaging the cutter-bit, screw-threaded parts engaging the rearward end of the wedge and drawing the wedge rearward into close engagement with the cutter-bit substantially as shown.

9. The combination in a cutter-chain of a cutter-block, a bit-mortise extending outwardly therethrough, a horizontal rearwardly-tapering wedge having transversely-beveled sides converging inwardly and opening toward the front end of said block and communicating with said bit-mortise, a cutter-bit seated in the bit-mortise, a rearwardly-tapering tapped wedge having transversely-beveled sides converging inwardly and entering from the forward side of the cutter-block and engaging the cutter-bit, a threaded bolt entering the rearward end of the wedge and drawing the wedge rearward into close engagement with the cutter-bit substantially as shown.

594,900. TRUCK FOR MINING-MACHINES.

CHARLES O. PALMER, Cleveland, Ohio. Filed Mar. 26, 1897. Serial No. 629,457. (No model.)



Claim.—1. The combination in a mining-machine truck, of a frame adapted to support the mining machine, means for suspending the machine therefrom, casters journaled at the corners of said frame and having tillers rigid with the caster-shanks, a rack-bar hinged to the tillers of two casters, and means for longitudinally moving said connecting-bar to swivel the two casters simultaneously, substantially as described.

2. The combination in a mining-machine truck of a frame adapted to support the mining-machine, means for suspending the machine therefrom, casters journaled at the corners of said frame and having tillers rigid with the caster-shank, a rack-bar connecting the tillers of two casters and a crank-actuated pinion engaging said rack-bar for swiveling the two casters simultaneously, substantially as described.

3. The combination in a mining-machine truck of a frame adapted to support the mining-machine, means for suspending the machine therefrom, casters journaled at the corners of said frame and having tillers rigid with the caster-shank, a rack-bar connecting the tillers of two casters and a crank-actuated pinion engaging said rack-bar for swiveling the two casters simultaneously, and a friction-disk on the pinion-shaft for retaining it in position, substantially as described.

4. The combination in a mining-machine truck, of a frame adapted to support the mining-machine, means for suspending the machine therefrom, casters journaled at the corners of said frame and having tillers rigid with the caster-shank, a rack-bar connecting the tillers of the two casters at each end of the frame, a shaft extending across the frame, and having a pinion engaging each rack-bar, and a crank or equivalent means for rotating said shaft to swivel the casters simultaneously, substantially as described.

5. The combination of the frame having casters and adapted to support the machine, a roller or drum journaled in said frame near each end, lifting-chains fastened to said drums, and winding-chains wound on said drums and secured to a screw-actuated bar for turning said drums to lift the machine, substantially as described.

6 The combination of the frame having casters and adapted to support the machine, a roller or drum in said frame near each end, lifting-chains fastened to said drums, winding-chains wound on said drums and secured to a bar sliding in guides on said frame, and a screw journaled in the frame and engaging a thread on said bar, for simultaneously turning both drums to lift the machine, substantially as described

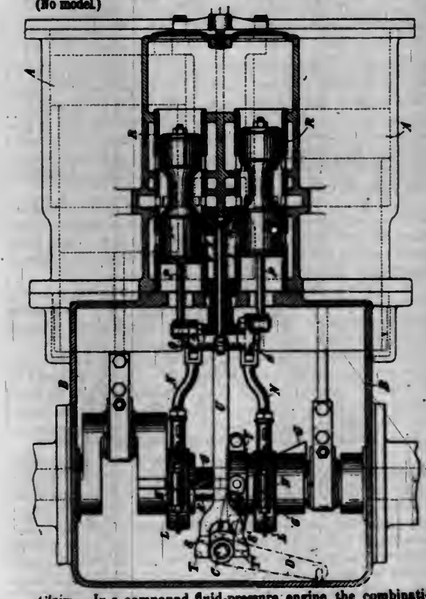
7. The combination of the frame having casters journaled at each corner, drums journaled in said frame, lifting-chains fastened to said drums, winding-chains wound on said drums and secured to a screw-actuated bar, tillers rigid with the caster-shanks, a rack-bar at each end of the frame connecting the caster-tillers, a shaft extending lengthwise the frame and having pinions engaging the rack-bars, and means for rotating said shaft to simultaneously swivel the casters, substantially as described.

8. The combination of the frame having casters journaled at each corner, drums journaled in said frame, lifting-chains fastened to said drums, winding-chains wound on said drums and secured to a screw-actuated bar, tillers rigid with the caster-shanks, a rack-bar at each end of the frame connecting the caster-tillers, a shaft extending lengthwise the frame and having pinions engaging the rack-bars, a frictional engagement of the shaft with the frame, substantially as described.

9. The combination of the frame having casters journaled at each corner, drums journaled in said frame, lifting-chains fastened to said drums, winding-chains wound on said drums and secured to a screw-actuated bar, tillers rigid with the caster-shanks, a rack-bar at each end of the frame connecting the caster-tillers, a shaft extending lengthwise the frame and having pinions engaging the rack-bars, a frictional engagement of the shaft with the frame, and a crank on said shaft for simultaneously swiveling the casters, substantially as described.

594,901. FLUID-PRESSURE ENGINE OR MOTOR.

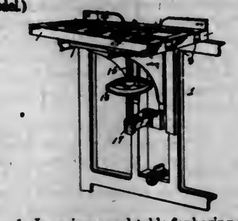
ROBERT A PARKE, New Brighton, N. Y. Filed Aug. 7, 1896. Serial No. 601,967. (No model.)



Claim.—In a compound fluid-pressure engine, the combination of high and low pressure cylinders, steam or air chests communicating therewith, piston-valves for distributing the pressure in the said cylinders, an operating device such as a stem for controlling the operation of the distribution-valves, a by-pass valve adapted to admit the fluid under pressure to the cylinders independently of the distribution-valves, the said by-pass valve being connected with the said stem and adapted to be operated by a movement of the same beyond the limits necessary for the operation or control of the distribution-valves, and an elastic resistance, compressed by such movement and adapted to restore the stem to normal position when the power necessary for compressing the same is relaxed, as set forth.

594,902. TABLE FOR BORING-MACHINES.

HENRY A. POERTNER and JOHN W. FIX, St. Louis, Mo. Filed Apr. 5, 1897. Serial No. 630,686. (No model.)

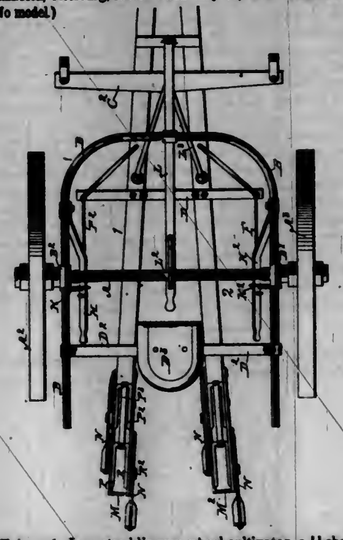


Claim.—1. In an improved table for boring-machines, composed of a table provided with two grooves extending throughout its entire length, vertical projections extending from said table, a jack adapted to be secured to said projections, said jack provided with holes for the passage of bits, a casting adjustably mounted in slides said table mounted upon the casting or bracket, an adjusting-rod provided and operated by a wheel adjusting said casting and table, said casting mounted in guides secured to the machine-frame, stops placed in said grooves in said table, said stops composed of a casting provided with a bore, a spring placed in said bore, for the purpose to keep the stop-post in a raised position, said stop for the purpose to guide the work when pressing on its side, but said pin to sink, when pressed upon, substantially as set forth.

2. In an improved table for boring-machines, having a table provided with slots formed throughout its length, stops adapted to be placed at any location in said slots, said stops composed of a casting, a bore formed in said casting, a pin placed in said bore, a spring placed in said bore, and pressing upward on said pin, a threaded plug placed in the base of said bore, for the purpose to prevent the pin and spring from falling from said bore, a set-screw provided to firmly secure said stop at any desirable location in said slots, a jack placed, and secured to said table, said jack used for the purpose to allow the ends of the rails to be straightly bored, said jacks adapted to correspond with the end of the rail to be bored, an adjusting-rod formed under said table for raising and lowering the same, substantially as shown and described.

594,903. STRADDLE-ROW WHEEL-CULTIVATOR.

JAMES PRENTICE, Colesburg, Iowa. Filed May 15, 1897. Serial No. 636,894. (No model.)



Claim.—1. In a straddle-row wheel-cultivator, a U-shaped carriage-frame, an arched axle, a pole and shovel-bearing beams suspended from the axle and a lever fulcrumed to the front and center of the carriage-frame and slidingly connected with the arched axle and pivotally connected with the pole and beams, arranged and combined to operate in the manner set forth, for the purposes stated.

2. In a straddle-row wheel-cultivator, an arched carriage-axle on wheels, a U-shaped carriage-frame fixed to the parallel upright

portions of the axle, a pole and two shovel-bearing beams rigidly joined and a lever pivotally connected with the pole and beams and fulcrumed to the front and center of the carriage-frame and slidingly connected with the top of the arched axle, bars pivoted to the beams to extend rearward and swing laterally, hand-levers pivotally connected with the carriage, chains connected with said levers and said pivoted swinging bars and means for fastening said levers at different points of elevation, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a straddle-row wheel-cultivator, an arched carriage axle on wheels, a U-shaped carriage-frame fixed to the parallel upright portions of the axle, a pole and two shovel-bearing beams rigidly joined and a lever pivotally connected with the pole and beams and fulcrumed to the front and center of the carriage-frame and slidingly connected with the top of the arched axle, bars pivoted to the beams to extend rearward and swing laterally, hand-levers pivotally connected with the carriage, chains connected with said levers and said pivoted swinging bars and means for fastening said levers at different points of elevation, racks fixed to the upright portions of the arched axle to lock the hand-levers in fixed positions and a seat-support fixed to the rear end portion of the carriage-frame, all arranged and combined to operate in the manner set forth, for the purposes stated.

4. In a straddle-row wheel-cultivator, an arched carriage-axle on wheels, a U-shaped carriage-frame fixed to the parallel upright portions of the axle, a pole and two shovel-bearing beams rigidly joined and a lever pivotally connected with the pole and beams and fulcrumed to the front and center of the carriage-frame and slidingly connected with the top of the arched axle, bars pivoted to the beams to extend rearward and swing laterally, hand-levers pivotally connected with said levers and said pivoted swinging bars and means for fastening said levers at different points of elevation, racks fixed to the upright portions of the arched axle to lock the hand-levers in fixed positions and a seat-support fixed to the rear end portion of the carriage-frame, a foot-rest fixed to the shovel-carrying beams and shovel-bearing standards adjustably connected with the rear ends of the beams, all arranged and combined to operate in the manner set forth for the purposes stated.

5. In a straddle-row cultivator, quadrangular frames fixed to the rear ends of the beams, arched rock-shafts journaled in said frames and linked together at their tops, cranks on the ends of the rock-shafts outside of said frames, shovel-bearing standards pivoted to the same frames and provided with slots and studs on the ends of the cranks extended through the slots, to raise and lower and lock the standards in the manner set forth for the purposes stated.

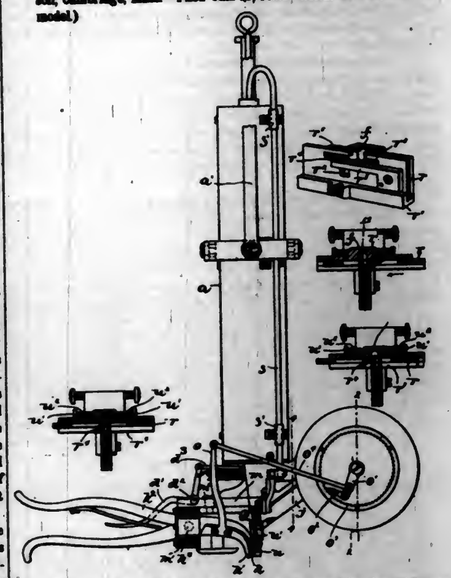
6. A straddle-row wheel-cultivator, comprising an arched carriage-axle on wheels, a U-shaped carriage-frame fixed to the parallel upright portions of the axle, a pole and two shovel-bearing beams rigidly joined and a lever pivotally connected with the pole and beams fulcrumed to the front and center of the carriage-frame and slidingly connected with the top of the arched axle, bars pivoted to the beams to extend rearward and swing laterally, hand-levers pivotally connected with said levers and said pivoted swinging bars and means for fastening said levers at different points of elevation, racks fixed to the upright portions of the arched axle to lock the hand-levers in fixed positions and a seat-support fixed to the rear end portion of the carriage-frame, a foot-rest fixed to the shovel-carrying beams and shovel-bearing standards adjustably connected with the rear ends of the beams, quadrangular frames fixed to the rear ends of the beams, arched rock-shafts journaled in the frames and linked together at their tops, cranks on the ends of the rock shafts, shovel-bearing standards having slots or bridles pivoted to the frames and studs fixed to the cranks to enter and traverse the slots, all arranged and combined to operate in the manner set forth, for the purposes stated.

594,904. GRATE-BAR. JAMES REAGAN, Philadelphia, Pa. Filed Jan. 16, 1897. Serial No. 619,482. (No model.)



Claim.—A hollow grate-bar consisting of the longitudinal side wings or flanges B B', with tapering partitions or bridges D D' formed at intervals therebetween, and provided between said partitions and along the inner side of the wings with a series of teeth F F', the edges of which project to within a short distance of the center of the bar and then extend downward on a vertical line a certain distance, thence incline outwardly to the bottom edges of said wings, with the upper edges of the wings and flanges between the teeth formed to slope inwardly to the points h h', from whence the sides gradually diminish in thickness, substantially as specified.

594,905. TACK-DRIVING MACHINE. THOMAS C. ROBINSON, Boston, Mass., assignor of five-eighths to H. B. Welch and Arthur H. Denison, Cambridge, Mass. Filed Jan. 13, 1896. Serial No. 575,196. (No model.)



Claim.—1. In a tack-driving machine, the combination with two solenoids insulated from each other, a driver operated by the solenoids, and means for delivering tacks to the action of the driver, of an inner tube surrounded by the coils of the solenoids, and projecting at the ends beyond said solenoids, insulated plates secured to the ends of the inner tube and projecting laterally beyond the solenoids, and a metallic casing having its ends connected to said plates and separated thereby from the solenoids.

2. In a tack-driving machine, the combination with a supporting-frame having a tack-delivering throat, a driver movable in said throat, and means for operating the driver, of an arm pivoted to the frame, a socket formed on the arm, and a pair of pincers rotatively engaged with the socket.

3. A pair of pincers comprising an inner jaw having a handle, an outer jaw pivoted to the inner jaw at a point above the grasping portions of the jaws, a link pivoted to the outer jaw, and a handle pivoted to said link and to the handle of the inner jaw.

4. In a tack-driving machine, the combination of a supporting-frame having a tack-delivering throat, a driver, means supported by the frame for operating the driver, a rotary tack-reservoir for delivering tacks to the throat, a pair of pincers connected with the frame, and connections between said reservoir and the pincers, whereby the reservoir is rotated when the pincers are being operated.

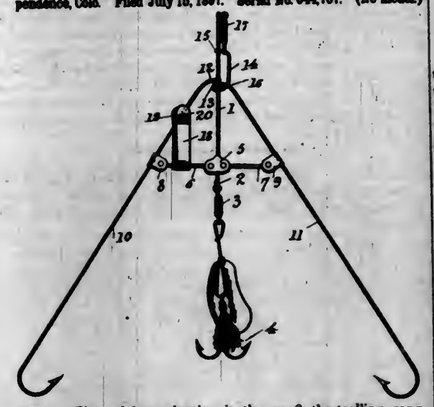
5. In a tack-driving machine, the combination of a supporting-frame having a tack-delivering throat, a driver-carrying metallic plunger movable in said frame, electrical means substantially as described for reciprocating said plunger and by which the plunger is temporarily magnetized, a tack-chute communicating with the throat, a tack controlling or feeding slide movable across the throat, and a metallic rod movable on the casing and connected at one end with said slide, its other end being arranged to be attracted to, and operated by the plunger, as set forth.

6. In a tack-driving machine, the combination of a motor, a motor-casing having rollers, a circular track supporting said rollers, and means for supporting said track.

7. In a tack-driving machine, the combination of a supporting-frame provided with a tack-delivering throat, a tack-chute communicating with said throat, a driver and operating mechanism therefor, a rotary tack-reservoir communicating with the tack-chute and provided with a cam-groove, means for rotating said reservoir, a tack-agitator pivoted to a support on the tack-chute, and a connection between said agitator and the cam-groove whereby motion is communicated from the cam-groove to the agitator.

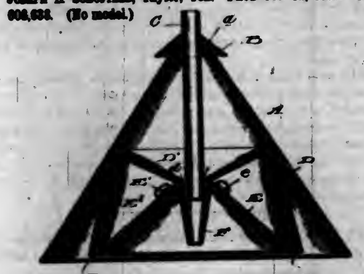
8. In a tack-driving machine, the combination of a supporting-frame provided with a tack-delivering throat, a tack-chute communicating with said throat, a chute guard or cover having an end j^4, a driver and operating mechanism therefor, a rotary tack-reservoir communicating with the tack-chute and provided with a cam groove, means for rotating said reservoir, and a tack-agitator pivoted to a support on the tack-chute, and having an arm extending into the cam-groove, whereby a positive motion in either direction is imparted to the tack-agitator to sweep it over the end j^4 of the said guard, and the tack-chute.

594,906. AUTOMATIC FISH-HOOK. ROBERT SCHINDLER, Independence, Colo. Filed July 16, 1897. Serial No. 644,707. (No model.)



Claim.—The rod 1 terminating in the eye 2, the trolling gang-hook 4, connected thereto, and the cross-head 5 fixed to said rod, in combination with the lateral arms 10 11 formed with eyes 12 and 13, which encompass said rod and are provided with the ears 8 9, the rods 6 and 7 connecting said arms and cross-head, the ball 14 encompassing the rod 1, above and below the contiguous ends of the arms, and the spring-clip 18, adapted to detachably connect the rod 6 and the lateral arm 10 substantially as shown and described.

594,907. CLOTHES-POUNDER. FRANK B. SCHOFIELD, West, and JOSEPH L. SCHOFIELD, Taylor, Tex. Filed Oct. 12, 1896. Serial No. 608,636. (No model.)



Claim.—A clothes-pounder comprising in combination with the outer conical shell, an inner truncated conical shell D, the concaved partition D' apertured at its apex to receive a tube C, and having a series of apertures d therein, the inner conical shell E the lower end of which is in the same plane with the lower end of the shell D, a series of valve-regulated apertures in said shell E, and an inner and upwardly tapering funnel F secured at its upper end to shell E and interposed between the two series of apertures, substantially as shown and described.

594,908. FUSE-PLUG. DUDY A. SCHUTT, Peru, Ind., assignor to the Peru Electric Manufacturing Company, same place. Filed Apr. 16, 1897. Serial No. 632,434. (No model.)

Claim.—1. A fuse-plug consisting of a base of insulating material, a center metallic post provided with a fuse connection at the top and internally threaded in its base, a metallic contact in the side of the base with a connecting-screw extending through to the top and provided with a fuse connection, and a fuse attached to such connection, substantially as set forth.

2. A fuse-plug consisting of a base of insulating material, a center metallic post provided with a fuse connection at the top and internally threaded in its base, a metallic contact in the side of the base with a connecting-screw extending through to the top and provided with a fuse connection, and a fuse attached to such connection, with a cap of insulating material secured upon the top of the base, substantially as set forth.

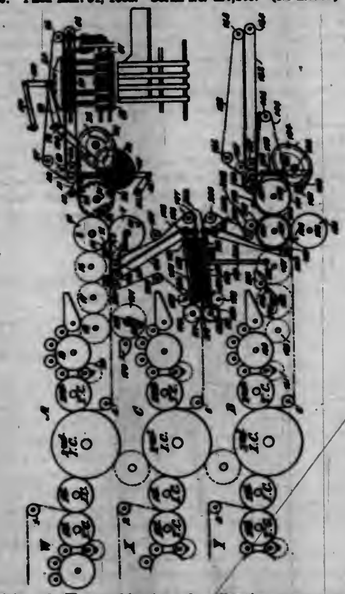


3. A fuse-plug consisting of a base of insulating material, a center metallic post provided with a fuse connection at the top and internally threaded at its base, a metallic contact in the side of the base with a connecting-screw extending through to the top and provided with a fuse connection, a similar oppositely-located bearing-plate, a depressed annular groove in the top of the base, a fuse located therein and attached to the fuse connections, air-vents through the side of the base, and a cap of insulating material secured upon the top of the base by a screw tapped into the center post, and air-vent passages through the cap, substantially as set forth.

4. In combination with the electric terminals of a circuit-block, a fuse-plug consisting of a base of insulating material, a center metallic post provided with a fuse connection at the top and internally threaded in its base, a metallic contact in the side of the base with a connecting-screw extending through to the top and provided with a fuse connection, and a fuse attached to such connection, with a cap of insulating material secured upon the top of the base substantially as set forth.

5. In combination with a metallic threaded post forming an electrical terminal and an encircling detached metallic ring forming the other terminal; a fuse-plug consisting of a base of insulating material, a center metallic post provided with a fuse connection at the top and internally threaded in its base, a metallic contact in the side of the base with a connecting-screw extending through to the top and provided with a fuse connection, and a fuse attached to such connection, with a cap of insulating material secured upon the top of the base, substantially as set forth.

594,909. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Mar. 31, 1893. Serial No. 467,163. (No model.)



Claim.—1. The combination of a vibrating creaser, means for adjusting it in a direction parallel to its axis of motion at right angles to its own length, folding-rollers coacting with said creaser, ad-

justable plates supporting said rollers, and means for adjusting said plates in the direction in which said creaser may be adjusted whereby the folding mechanism may be adjusted as and for the purposes described.

2. The combination of a vibrating creaser, means for adjusting its position relatively to its supports, folding-rollers, adjustable plates, rock-shafts journaled in said plates having arms in which said rollers are journaled, yielding means for moving said shafts in opposite directions, thereby maintaining said rollers in contact and means for adjusting said plates in the direction in which said creaser may be adjusted, substantially as and for the purposes described.

3. The combination of an adjustable creaser-blade, folding-rollers, plates for supporting said rollers, means for adjusting said plates on the framework, a driving-gear on said framework, and a gear on one of said rollers, whereby said rollers may be adjusted relatively to said driver and be driven thereby, substantially as described.

4. The combination of an adjustable creaser-blade, folding-rollers, adjustable plates on the framework for supporting said rollers, means for maintaining said rollers in yielding contact with each other, a driving-gear on the framework, and a gear on one of said rollers, whereby said roller may be adjusted relatively to said driver and be driven thereby, substantially as and for the purposes described.

5. The combination of an adjustable creaser-blade, folding-rollers, adjustable plates on the framework, rock-shafts journaled in said plates, arms on said shafts in which said rollers are journaled, springs controlling said shafts to move them in opposite directions, a driving-gear on the framework, and a gear on one of said rollers, whereby said rollers may be adjusted relatively to said driver and be driven thereby, substantially as and for the purposes described.

6. The combination of printing machinery for perfecting a web, web-cutting mechanism, four sets of folding-rolls (as 60, 61; 62, 63; 211 212; 214 215), means coacting with said rolls to fold sheets, guides for associating the folded products from pairs of said sets of rolls to form two packages, guides for associating said two packages to form one product, and folding mechanism for folding said product, substantially as described.

7. The combination of four sets of folding-rolls 60 61, 62 63, 211 212, 214 215; means for coaction therewith to fold sheets; guides 66 69, 70 73, 231 232, 235 249, for associating the folded sheets by pairs; sets of pairs of rollers 67, 86, 71 77, and 227, 228, 226 229; switches 225 241 for directing the associated folded sheets between either pair of said sets; three folders; and guiding means for directing the sheets to said three folders, according as said switches are set, substantially as described.

8. The combination of three web presses placed one above another, independent mechanisms to which the upper and lower webs are led without turning—there being one mechanism for each of said webs—for severing said webs into full-length sheets, mechanism for severing half-length sheets from the inner web and associating the same with the upper and the lower webs alternately, and two paste-applying blades one under the upper web and the other over the lower web and both between the presses and said web-severing mechanisms for said webs for applying transverse lines of paste thereto, substantially as described.

9. The combination of parallel shafts, as 96, 97, an arm on each adjustable thereon, as 98 and 100, a bar, as 102, pivotally attached to said arms, a creaser-blade, as 64, borne by said bar, folding-rollers adjustable in the direction of the length of said shafts, means permitting of said adjustments of said parts, and means for operating one of said shafts, substantially as described.

594,910. DRAWERS. JEREMIAH A. SCRIVER, New York, N. Y. Filed Apr. 19, 1897. Serial No. 632,732. (No model.)

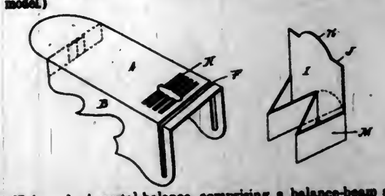


Claim.—1. In a nether garment, the combination of a front section *a* of inelastic material extending over the hips of the wearer and having its rear edge cut on a curve *c* surrounding the buttocks, and a section of elastic material secured to the said edge *c* and covering the buttocks so as to stretch when the garment is strained in use.

2. A pair of drawers comprising an inelastic waistband, an inelastic front section *a* extending around and forming part of the rear of the drawers and adapted to cover a portion of the buttocks and a continuous rear elastic section constituting a portion only of the rear of the drawers below the rearward extensions of the front sections, the said elastic section being therefore overlapped by the said extensions of the inelastic section, substantially as specified.

3. A pair of drawers the combination of a waistband *b*, an inelastic front section *a* secured to the lower edge of the said waistband and extending over the hips of the wearer and forming part of the rear thereof, the lower edge of the said inelastic section *a* being sloped away from the lower rear edge of the waistband so as to impart to the upper part of the said inelastic section the general shape of a tapering gore and an elastic rear section secured to the edges of the inelastic front section and constituting with the said front section an undergarment having its front portion and part of its rear portion inelastic and with an elastic rear portion constituting part only of the rear of the garment.

594,911. POSTAL BALANCE. HENRY R. SEAMAN, St. Louis, Mo., assignor to the Calvert Lithographing, Engraving and Map Publishing Company, Detroit, Mich. Filed Apr. 17, 1897. Serial No. 633,576. (No model.)

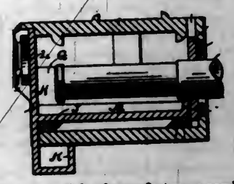


Claim.—1. A postal balance, comprising a balance-beam and a fulcrum-base and fulcrum, the balance being formed from a sheet of cardboard or similar material cut to form the plate A, forming the beam proper, the depending marginal flanges B, the flaps C connecting these marginal flanges and a mail-receptacle formed by a transverse slot through the balance plate and beam, and the flanges, and the fulcrum-stand and fulcrum-plate adapted to be engaged with one of a series of fulcrum-bearings formed in plate A.

2. In a postal balance the weighing balance or beam comprising the plate A, marginal flanges B for the weighing-receptacle F, and a series of fulcrum-bearings H at one end, a fulcrum-base and fulcrum-plate formed from a piece of cardboard or similar material bent to form a base and a vertical plate I having a projection adapted to engage through any one of the series of fulcrum-bearings H, substantially as described.

3. In a postal balance, the combination with the slotted balance-plate A, of the fulcrum-stand and the fulcrum-plate formed from a single piece of cardboard and comprising the vertical fulcrum-plate I, the flaps L bent to form a V-shaped base M interlocking with the fulcrum-plate at their intersection therewith, the extensions N on opposite sides of the fulcrum-plate and the central projection K at the top of the fulcrum-plate, the parts being arranged as and for the purpose described.

594,912. CAR-AXLE BOX. MICHAEL SHEEHAN and WILLIAM H. LAIN, Slater, Mo. Filed Feb. 1, 1897. Serial No. 621,530. (No model.)



Claim.—1. As an article of manufacture, a combined waste-receptacle and drip-cap, comprising two open top boxes disposed one above the other upon the rear side of an upright plate adapted to serve as the cover of the open end of an axle-box, substantially as described.

2. In a car-axle box, the combination with the axle-box provided with guard-plates upon its two inner sides, of a waste-receptacle adapted for insertion into or withdrawal from the axle-box, the two sides of the said receptacle being located between the said guard-plates and the sides of the axle-box respectively when the said receptacle is inserted in the axle-box, substantially as described.

3. In a car axle box, the combination with the axle-box provided with guard-plates upon its two inner sides, of a waste-receptacle adapted for insertion into or withdrawal from the axle-box, the sides of the said receptacle being located between the said guard-plates and the sides of the axle-box respectively when the receptacle is inserted in the axle-box, and means for releasably locking the receptacle within the axle-box, substantially as described.

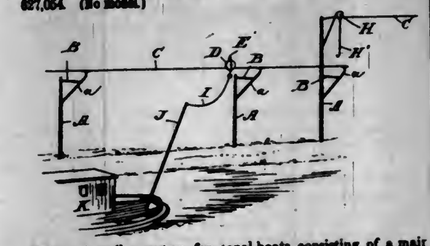
4. In a car-axle box, the combination with the axle-box, of the waste-receptacle adapted for insertion therein and withdrawal therefrom and a drip-cap located below the axle box and removable therefrom with the waste receptacle, substantially as described.

5. In a car-axle box, the combination with the axle-box, of a waste and oil receptacle comprising a vertical plate which serves to close the open end of the axle-box, and two vertical side plates, the two side plates being longitudinally movable in vertical longitudinal recesses provided one on each side of the interior of the axle-box, substantially as described.

6. In a car axle box, the combination with the axle-box the forward end of which is open, of a plate adapted to close the open end of the axle-box and extending below the bottom of the axle-box, and two boxes disposed upon the rear side of the said plate and located one within the axle-box and the other below the under side thereof when the said plate is secured in the closed position upon the axle-box, substantially as described.

7. In a car-axle box, the combination with the axle-box provided with a forward open end and also with guard-plates upon its two inner sides, of a waste-receptacle adapted for insertion into and withdrawal from the axle-box, the sides of the said receptacle being located between the said guard-plates and the sides of the axle-box, and the forward end of the receptacle serving to close the open end of the axle-box when the said receptacle is inserted into the axle-box, substantially as described.

594,913. TROLLEY CONNECTION FOR CANAL-BOATS. FREDERICK J. SHEWRING, Toronto, Canada. Filed Mar. 11, 1897. Serial No. 627,054. (No model.)



Claim.—A trolley system for canal-boats consisting of a main circuit-wire, a trolley-wheel mounted on the main circuit-wire, a vertical frame for the trolley-wheel, composed of two sides united at the top, an eye connected to the top of the sides, a hanger depending from one of the sides below the wheel, a horizontal extension for the hanger projecting under the vertical axis of the wheel, a vertical extension depending from the horizontal extension, a balance connected to the end of the vertical extension, a circuit-wire elevated above the main circuit-wire at canal junctions to allow of the free transit of the boats passing beneath, a trolley-wheel mounted on the elevated circuit-wire, a hanger depending from the trolley-wheel, having a hook-shaped end to engage the eye of the principal trolley-wheel, substantially as specified.

594,914. PIPE-REAMER. WILLIAM A. SHOER, Decatur, Ill. Filed Mar. 20, 1897. Serial No. 628,473. (No model.)



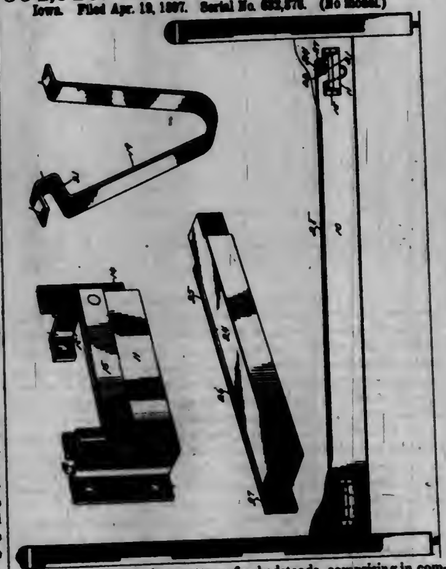
Claim.—1. A pipe-reamer consisting of a disk, a set of grooved ribs converging from a side of the disk and merging one into the other, a prismatic boss extending from the center of the disk on the side opposite the ribs, a wrench fitting onto the boss, a guide-shaft extended through the boss and into the space defined by the ribs, a fastening on the guide-shaft in the space defined by the ribs, and cutter-blades in the grooves of the ribs, substantially as set forth.

2. A pipe-reamer consisting of a disk, a set of grooved ribs converging from a side of the disk and merging one into the other, a prismatic boss extending from the center of the disk on the side opposite the ribs, a wrench fitting around and against the end of the boss, a guide-shaft extending through the wrench-head and through the boss and having a shoulder bearing against the wrench-head, a fastening on the guide-shaft in the space defined by the ribs, and cutter-blades in the grooves of the ribs, substantially as set forth.

3. A tapered pipe-reamer having three longitudinal grooves meeting at the apex of the reamer, and a cutter-blade in each groove extending beyond the meeting-point and backing one against the other, substantially as set forth.

4. A tapered pipe-reamer having three longitudinal grooves meeting at the apex of the reamer and a cutter-blade in each of the grooves, said blades extending beyond the meeting-point of the grooves, backing one against the other throughout the extensions, and being cut away to increase the abruptness of the taper near their points, substantially as forth.

594,915. SPRING BED-BOTTOM. WILLIAM S. SIMPSON, Grinnell, Iowa. Filed Apr. 19, 1897. Serial No. 633,876. (No model.)



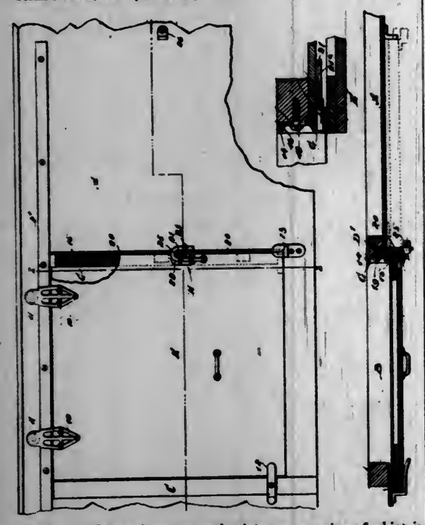
Claim.—1. A spring-mattress for bedsteads, comprising in combination, four brackets designed to be secured to the side pieces of a bedstead, two cross-pieces resting upon said brackets and capable of movement thereon longitudinally of the bedstead, springs for normally separating the cross-pieces and flexible metallic slats detachably connected with the cross-pieces, substantially as and for the purposes stated.

2. A spring-mattress for bedsteads, comprising in combination, four brackets each composed of a flat central portion, inwardly-bent ends provided with openings whereby they may be secured to the side pieces of a bedstead and having a recess at the top, a spring for each bracket having an approximately U-shaped body designed to enter between the bracket and the side board of the bed and having one end designed to engage a part of the bracket and its other end designed to receive a cross-piece, cross-pieces designed to be engaged by said springs and to rest in the said recesses in the brackets, and longitudinal slats connecting the said cross-pieces, for the purposes stated.

3. A spring-mattress for bedsteads, comprising in combination, four brackets each composed of a flat central portion, inwardly-bent ends provided with openings whereby they may be secured to the side pieces of a bedstead and having a recess at the top, a spring for each bracket having an approximately U-shaped body designed to

ester between the bracket and the side board of the bed and having one end designed to engage a part of the bracket and its other end designed to receive a cross-piece, rectangular bars designed to be engaged by the said spring and of such a length that their ends will rest in the recessed portions of the brackets on opposite sides of the bedstead and having vertical openings therein, and flat metal slats having their ends bent at right angles and designed to enter the said openings in the cross-pieces, all arranged and combined substantially in the manner set forth and for the purposes stated.

594,916. CAR-DOOR. JOHN M. SMITH, Van Wert, Ohio, assignor of one-half to Johnson B. Flanders, Toledo, Ohio. Filed Jan. 30, 1897. Serial No. 621,306. (No model.)



Claim.—1. In car-doors, an angle-plate, one member of which is arranged for attachment to a door-post, the other member being adapted to extend outward at the side of the car, and a wing having pivotal connection with the outer member of the angle-plate, which wing is adapted to be moved to an engagement with the edge of the car-door which in opening the door moves toward the end of the car, the said wing being also adapted to be carried out of the path of the said car-door, as and for the purpose set forth.

2. In a car, the combination, with a door-post, of an angle-plate attached to a surface of the door-post facing the door-opening, one of its members extending outward along the side of the car, and a wing having a pivotal connection with the outwardly-extending member of the said angle-plate, as and for the purpose set forth.

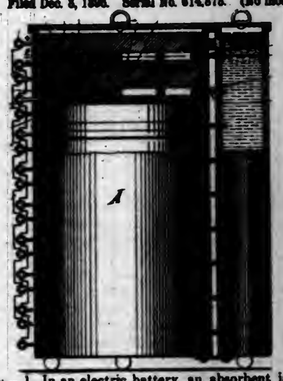
3. In a car, the combination, with a door-post, of a plate attached to the surface of the post facing the door-opening, the said plate being carried outward beyond the side of the car, a door, and a wing pivotally connected with the outer end of the said plate, being adapted for engagement with an upright edge of the door when the said door is closed, as and for the purpose set forth.

4. In a car, the combination, with a door-post, of an angle-plate one member whereof is attached to the surface of the door-post facing the door-opening, the said member so attached having lateral play, the other member of the said plate extending outward along the side of the car, and a wing pivotally connected to the said outer member of the plate, as and for the purpose set forth.

5. In a car, the combination, with a door-post, of an angle-plate, one member whereof is attached to the surface of the door-post facing the door-opening, the said member so attached having lateral play and the other member of the said plate extending along the side of the car, a wing pivotally connected to the said outer member of the plate, a sliding door, and a locking device carried by the said door and adapted for engagement with the said wing, as and for the purpose specified.

6. The combination with a door-frame and a door sliding by the frame, of an angle-iron lying against one side of the door-frame and held capable of adjustment toward and from the door, a wing pivoted to the angle-iron, and a latch for holding the wing in connection with the door, the wing being capable of swinging past one edge of the door.

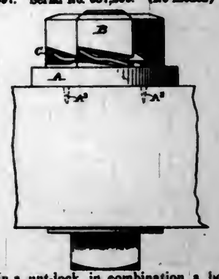
594,917. ELECTRIC BATTERY. WILLIAM M. STORM, New York, N. Y. Filed Dec. 3, 1896. Serial No. 614,878. (No model.)



Claim.—1. In an electric battery, an absorbent layer provided with a number of small glass tubes or chocks for preventing the compressing of the material, substantially as set forth.

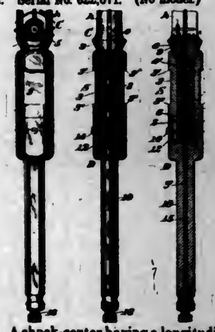
2. In an electric battery, the absorbent layer constructed with channels for the free passage and distribution of the exciting fluid and provided with a number of glass pieces or chocks for preventing the compressing of the material, substantially as set forth.

594,918. NUT-LOCK. EUGENE J. SWEENEY, Rockford, Ill. Filed May 19, 1897. Serial No. 637,290. (No model.)



Claim.—In a nut-lock, in combination, a bolt having a single, one-way thread, a washer fixed with relation to the part surrounding the bolt, which washer has a series of step-like projections, a nut for the bolt having radial teeth formed on its under face, and a locking-plate intended to be located between the washer and the nut, which locking-plate is formed of thin material and is provided with radial slits extending inward from the periphery at suitable points to be bent into engagement with the projection of the washer and the teeth on the under face of the nut substantially as and for the purpose specified.

594,919. CHUCK. CHARLES L. TERRY, Hartford, Conn. Filed Feb. 5, 1897. Serial No. 622,071. (No model.)



Claim.—1. A chuck-center having a longitudinal bifurcating-slot intersecting the longitudinal axis of the chuck-center and forming

holding-jaws, and also having an opening in its side disposed in a path transverse to that of the slot and intersecting said slot between the ends of the latter.

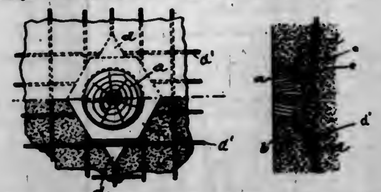
2. A chuck-center having a longitudinal bifurcating-slot intersecting the longitudinal axis of the chuck-center and forming holding-jaws, and also having a wide, deep recess transverse to said slot and intersecting the mouth of the slot and the side of the chuck-center.

3. A chuck-center having a longitudinal dividing-slot intersecting the longitudinal axis of the chuck-center and forming holding-jaws; a large opening in its side intersecting said slot; and a countersink in its head at the mouth of said slot and in the longitudinal axis of said chuck center.

4. The combination, in a chuck, of a chuck-center; a chuck-spindle for supporting said chuck-center; a drawing-in spindle rotatable relatively to the chuck-spindle and connected with the chuck-center for actuating the same longitudinally of the chuck; and means for holding the chuck-spindle and the drawing-in spindle against longitudinal movement relatively to each other.

5. The combination, in a chuck, of a chuck-center; and a pair of spindles rotatable relatively to each other and one mounted on the other and one constituting a chuck-spindle and the other constituting a drawing-in spindle operatively connected with the chuck-center for actuating the same longitudinally of the chuck, and one of said spindles having a peripheral groove and the other having a stop working in said groove, for preventing longitudinal movement of the spindles relatively to each other.

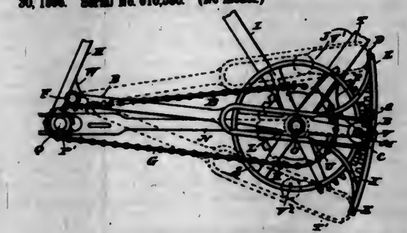
594,920. WOOD-PLUG HOLDER. AUGUST THIEME, Berlin, Germany. Filed Apr. 22, 1897. Serial No. 634,206. (No model.)



Claim.—1. A wood-plug holder, comprising a white-iron plate secured to the wall, and the plug held thereby to the wall, said plug fitting in a hole in the white-iron plate with a projecting rim on one or both sides, substantially as described.

2. A wood-plug holder, comprising the plate *b*, means for holding it to the wall, an opening through said plate for the insertion of the plug and means for holding the plug to the plate substantially as described.

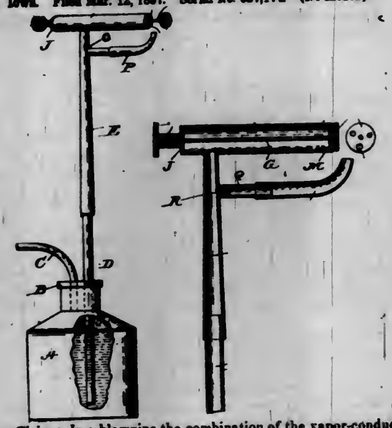
594,921. DEVICE FOR DRIVING BICYCLES OR VELOCIPEDES. WILLIAM WARLEN, Johannesburg, South African Republic. Filed Oct. 30, 1896. Serial No. 610,580. (No model.)



Claim.—1. The combination of two slotted radial levers each pivoted at one end and carrying a cogged sector at its other end with two wheels, a segment of the periphery of each of which is cogged to gear on the downward stroke with the sectors the connection between the wheels so that they will maintain a fixed relation to each other the feather or web in the back of the sector the triangular stay and guides in which the feathers or webs work, the pedals attached to the radial levers and the friction-wheel revolving on a stud in the outer end of one of the arms of each wheel, substantially as described in the foregoing specification and on the accompanying drawings.

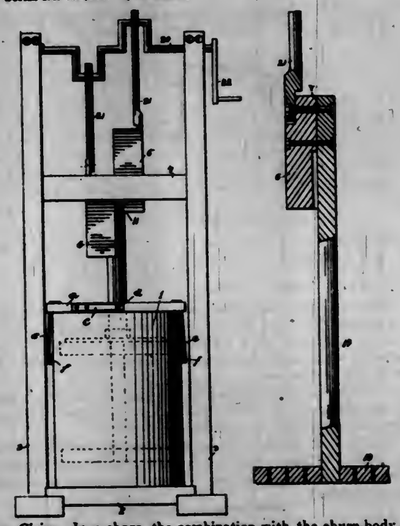
2. In an improved device for driving bicycles and velocipedes the slotted radial levers B, B carrying the cogged sectors X on their outer ends, the two wheels S, S a segment of the periphery of which is cogged, the shaft upon which the two wheels are rigidly mounted the feathers or ribs E, E at the back of the sectors, the triangular stay P, the guides M, M, the pedals A, A attached to the radial levers, the friction-wheels V on the ends of one arm of each of the two wheels S, S, substantially as described in the foregoing specification and on the accompanying drawings.

594,922. BLOWPIPE. CHARLES A. WEBSTER, Independence, Iowa. Filed Mar. 12, 1897. Serial No. 627,174. (No model.)



Claim.—In a blowpipe the combination of the vapor-conducting pipe, the pipe communicating with the upper end of the vapor-pipe, having one end closed and the other end provided with a cap having a single opening, and a stem or rod passing through said pipe carrying at one end a jam-nut and at the other end a disk provided with a series of openings to register with the opening of the pipe and a flame-pipe having its free end adjacent to the openings of the disk.

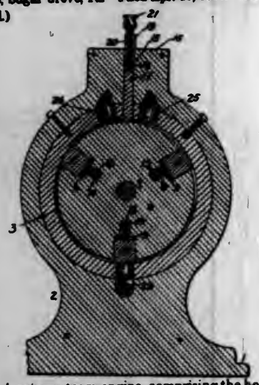
594,923. CHURN. JOSEPH WIGGENHAN, Henderson, Colo., assignor of one-half to M. F. Sullivan, same place. Filed May 11, 1897. Serial No. 635,977. (No model.)



Claim.—In a churn, the combination with the churn-body and the standards, of a cross-bar secured thereto near their upper ends and provided with a rectangular bearing-opening, sliding blocks fitted in said opening and provided with longitudinal grooves in their inner faces, dasher-shafts secured to said sliding blocks, one of said dasher-shafts being located in the groove of said blocks and forming a spline or rib for guiding the blocks in their vertical movement, one of said dasher-shafts being tubular and the other projecting through it, dashers secured to the extreme lower ends of said dasher-shafts, a top

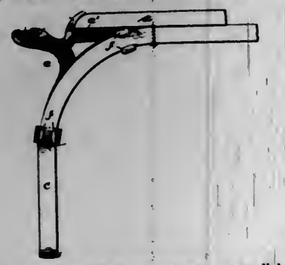
consisting of two hinged sections, means for securing the top to the churn-body, and means for securing the sections about the dasher-shafts, a crank-shaft journaled in bearings in the upper ends of the said standards, and links connecting the blocks with the shaft, substantially as set forth.

594,924. REVERSIBLE ROTARY STEAM-ENGINE. GEORGE E. WOODARD, Sugar Grove, Pa. Filed Apr. 19, 1897. Serial No. 632,847. (No model.)



Claim.—A rotary steam-engine, comprising the horizontal base 1 and integral frame 2 provided with the transverse cylindrical orifice 3, the inlet-passage 14, the vertical recess 15, the inlet ports 24 and 25, and the exhaust-port 22 in combination with the rotary disk piston 6, having the radial recesses 9 and the alined recesses 10, the plungers 12 fitted to the recesses 9, the block 17 mounted in the vertical recess 15, the springs 18 and the cap 19 provided with the oil-passage 20 and the oil-cup fixed to said cap, the steam-chest formed with the cylindrical chamber 23 and the semicircular valve 26 mounted in said chamber and arranged to alternately or simultaneously close said ports 24 and 25, substantially as shown and described.

594,925. HAND-SLED. PRESTON K. ALBRIGHT, Binghamton, N. Y. Filed Aug. 9, 1897. Serial No. 647,649. (No model.)



Claim.—1. In a sled, a knee comprising two parallel strips having diverging lower ends engaging the runner, a clamping-bracket located between said strips and clamping the same together, said bracket having a support for the sled-top and a support for the rave, substantially as described.

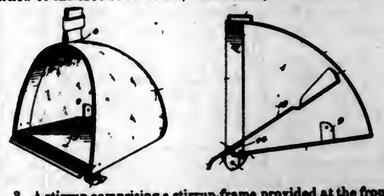
2. In combination with the sled-knee, a bracket secured thereto, said bracket supporting the rave and having a lug engaging the top of the sled, substantially as described.

3. In a sled, parallel knee-strips, a clamping-bracket between them supporting the rave and the top of the sled and securing means for the top of the sled extending between the knee-strips, substantially as described.

594,926. STIRRUP. HENRY ANDERSON, Sumner, Wash. Filed Apr. 24, 1897. Serial No. 633,730. (No model.)

Claim.—1. A stirrup comprising a stirrup-frame, and a tilting foot-plate arranged to swing rearward to throw the foot of a rider out of the stirrup and capable of a limited lateral movement independent of the stirrup-frame to permit the latter to vibrate without affecting the position of the foot of the rider, substantially as and for the purpose described.

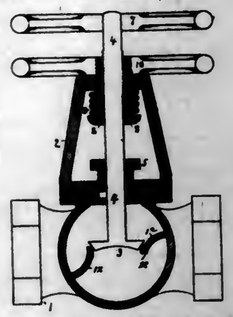
2. A stirrup comprising a stirrup-frame, a connecting-piece hinged to the bottom of the stirrup-frame at the back thereof and capable of swinging rearwardly, and a tilting foot-plate pivoted to the connecting-piece and capable of a limited lateral swing independent of the stirrup-frame to permit the latter to vibrate without affecting the position of the foot of the rider, substantially as described.



3. A stirrup comprising a stirrup-frame provided at the front portion of its bottom with curved arms having upwardly-extending lugs, a connecting-piece hinged to the bottom of the stirrup-frame at the back thereof, and a tilting foot-plate pivoted to the connecting-piece and capable of a limited lateral swing between the said lugs to permit the stirrup-frame to vibrate without affecting the position of the foot of the rider, said foot-plate being provided at its front with an upwardly-extending flange arranged to be engaged by the toe of the rider, substantially as described.

4. A stirrup comprising a stirrup-frame provided at opposite sides with openings and having depending perforated ears arranged in pairs at opposite sides of the openings, a tilting foot-plate, and substantially L-shaped arms connected with the foot-plate and pivoted between the perforated ears in the said openings and extending forward in position to engage the bottom of the stirrup to limit the tilting of the foot-plate, substantially as described.

594,927. VALVE. JOHAN AUSTIN, Marion, Ohio. Filed June 12, 1895. Serial No. 552,515. (No model.)



Claim.—1. A globe-valve comprising a barrel having a partition formed with a valve-seat, a valve having a screw-threaded stem, a yoke, and stuffing-box through which the stem slides, the valve-seating spring, the nut having its bore screw-threaded and secured to the stem and a shoulder receiving the pressure of the spring which seats the valve, and the hand-wheel secured to the stem; substantially as described.

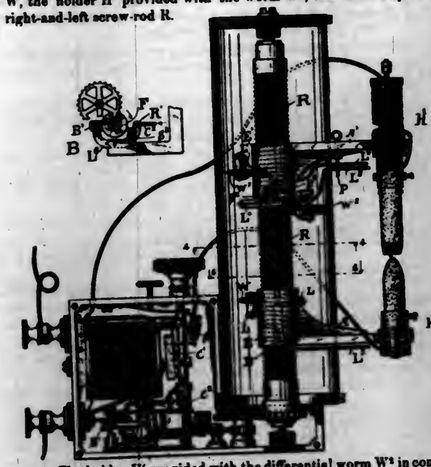
2. A globe-valve comprising a casing having a valve-seat, the valve having a screw-threaded stem and seating on the valve-seat, a yoke, a nut provided with a shoulder, a hand-wheel loosely mounted on the nut for raising and lowering the latter, the spring for depressing the nut, and a hand wheel fixed to the stem; substantially as described.

594,928. ELECTRIC-ARC LAMP. HAYDN M. BAKER, Jr., and ARTHUR W. FOX, Brooklyn, N. Y. Filed Feb. 24, 1897. Serial No. 624,873. (No model.)

Claim.—1. In combination the holder H provided with the plain wheel W, the holder H' provided with the plain wheel W', and the compound right-and-left screw-rod R, the axis of each of the plain wheels being located in lines parallel to the circumferential surface of the screw-rod.

2. In combination, the holder H provided with the plain wheel W, the holder H' provided with the plain wheel W', the compound right-and-left screw-rod R, the axis of which is parallel with the axes of the plain wheels W and W', the shunt-coil C provided with the armature C' and the arm C², all in combination with the independent brake-lever B and brake-wheel F.

3. In combination, the holder H provided with the plain wheel W, the holder H' provided with the worm W², and the compound right-and-left screw-rod R.



4. The holder H' provided with the differential worm W² in combination with the screw-rod R, the worm and the screw-rod cooperating to produce differential motion of the holder, substantially as shown and described.

5. The holder H provided with the plain wheel W, the holder H' provided with the worm W², the compound right-and-left screw-rod R, the axis of which is parallel with the axes of the plain wheel W and the worm W², and the shunt-coil C provided with the armature C' and the arm C², all in combination with the independent brake-lever B and brake-wheel F.

6. A screw-rod R and a differential worm W², each provided with the knurls K, the screw-rod and the worm cooperating to produce differential motion and the knurls cooperating to prevent slip and to secure accuracy of differential motion.

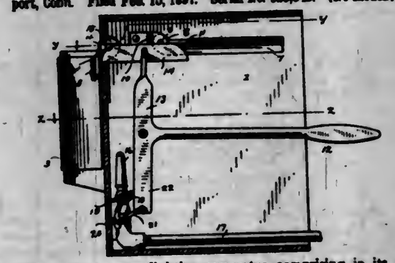
7. The holder of an arc-lamp provided with a pivoted lever carrying a revolving engaging wheel, in combination with the feed-screw, and also provided with a lever for tripping the wheel-lever, the axes of the revolving wheel and of the feed-screw being parallel.

8. A feeding-screw of an arc-lamp provided at one end with a right-hand screw and at the other end with a left-hand screw, and two sliding holders, each provided with a trip-wheel, the circumferences of which engage the right and left hand screw-threads, respectively, and guide the holders toward each other, the axes of the feeding-screw and of the two trip-wheels being parallel.

9 A feeding-screw of an arc lamp provided at one end with a right-hand screw and at the other end with a left-hand screw, and two sliding holders, one provided with a plain trip-wheel and the other provided with a trip-worm, the circumferences of which engage the right and left hand screw-threads, respectively, and guide the holders toward each other.

10. As a mechanical movement, the following elements in combination: a revolving screw without endwise, or axial, motion, and a revolving worm operated by the revolving screw, the threads of both the screw and the worm being held in peripheral engagement with each other, and the worm and its holder being free to move axially.

594,929. BAKER'S-OVEN LAMP. GEORGE L. BEITNER, Bridgeport, Conn. Filed Feb. 15, 1897. Serial No. 623,345. (No model.)



Claim.—1. An oven-lighting apparatus, comprising in its construction a burner or lamp, a reflector pivoted on a horizontal axis, and means for moving the reflector to a substantially horizontal and raised position and for simultaneously reducing the illumination.

2. An oven-lighting apparatus comprising in its construction a burner or lamp, a shield and reflector pivotally supported on opposite sides of said burner or lamp, and means for simultaneously raising one and lowering the other.

3. An oven-lighting apparatus comprising in its construction a burner or lamp, a shield and reflector pivotally supported on opposite sides of said burner or lamp, and means for simultaneously raising one and lowering the other and also controlling the amount of illumination.

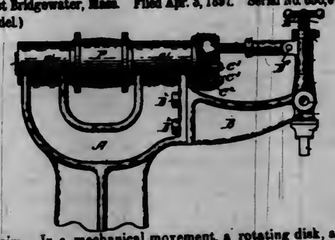
4. The combination with the frame having the mica wall 2, of the shield 3 pivoted to the frame and having the lug 6, and the sliding bar 14 adapted to abut against said lug to swing the shield and to extend under said lug to hold the shield in raised position.

5. The combination with the frame, of a lamp or burner, the reflector 7 pivoted to the frame and having the lug or arm 11, and the sliding bar 14 adapted to abut against said lug or arm to swing the reflector and to extend under said arm to hold the reflector in raised position.

6. The combination with the frame or casing 1 having the mica wall 2, of the shield 3 and reflector 7 pivoted on opposite sides of said wall and each having a lug, the sliding bar 14 adapted to alternately abut against the lugs of the shield and reflector to swing them, means for reciprocating said sliding bar, and a lamp or burner between the said mica wall and reflector.

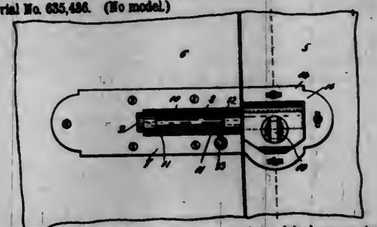
7. The combination with the frame or casing 1 having the mica wall 2, of the shield 3 and reflector 7 pivoted on opposite sides of said wall and each having a lug, the sliding bar 14 adapted to alternately abut against the lugs of the shield and reflector to swing them, the burner 16 and the lever having one arm connected to the sliding bar to reciprocate it and another arm having connections for controlling the illuminating power of said burner.

594,930. MECHANICAL MOVEMENT. BENJAMIN W. BENNETT, East Bridgewater, Mass. Filed Apr. 3, 1897. Serial No. 630,610. (No model.)



Claim.—In a mechanical movement, a rotating disk, a pitman connected to said disk, by means of a ball-and-socket joint, a vibrating member connected to said pitman by a pivot-joint, and adjusting mechanism by which the said pivot-joint may be adjusted in relation to the axis of the rotating disk, substantially as and for the purpose set forth.

594,931. BOLT. LEVI H. BIGELOW, Fremont, Mich., assignor of one-half to John F. Gibson, same place. Filed May 7, 1897. Serial No. 635,486. (No model.)

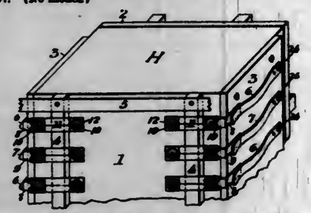


Claim.—1. A lock for use in connection with doors, gates and for other purposes, said lock consisting of a plate which is provided with a longitudinal tubular casing in which is mounted a longitudinally-movable locking-bolt, in one end of which is formed a semicircular notch or recess, another plate which is provided with a longitudinal keeper which is adapted to receive said locking-bolt, and a shaft or bolt which is passed through said last-named plate, and said keeper at right angles to the locking-bolt, said shaft or bolt being also provided adjacent to one end thereof, with a semicircular notch or recess, substantially as shown and described.

2. A lock for use in connection with doors, gates and for other

purposes, said lock consisting of a plate which is provided with a longitudinal tubular casing in which is mounted a longitudinally-movable locking-bolt, in one end of which is formed a semicircular notch or recess, another plate which is provided with a longitudinal keeper which is adapted to receive said locking-bolt, and a shaft or bolt which is passed through said last-named plate, and said keeper at right angles to the locking-bolt, said shaft or bolt being also provided adjacent to one end thereof, with a semicircular notch or recess, and said shaft or bolt being provided at its opposite ends with knobs or heads, substantially as shown and described.

594,932. TERMINAL FOR ELECTRIC CONDUCTORS. WILLIAM P. BOOTH, South Bend, Ind., assignor of one-half to the South Bend Telephone Company, same place. Filed Dec. 16, 1896. Serial No. 616,087. (No model.)



Claim.—1. In combination with a pair of resilient conducting-strips, and electrodes contacted thereby, a plug having multiple contact of conducting material mounted on one side of a body of insulating material and adapted to form a connection between the pair of resilient strips or electrodes to test either the incoming or outgoing circuits.

2. In combination with a pair of resilient conducting-strips, a plug consisting of a body of insulating material having on one side multiple contacts, and means to guide the plug as it is inserted under or withdrawn from the said strips.

3. In combination with a system of electrical conductors terminated in a head, resilient conducting-strips, electrodes attached to said head and contacted by the strips and a plug having multiple contacts mounted on one side of a body of insulating material and adapted to be inserted between a pair of electrodes or strips to connect the testing instruments either with the electrodes or strips accordingly as the plug is inserted one way or the other.

4. As a new article of manufacture a plug having multiple conducting-contacts mounted on one side of a body of insulating material and adapted to be inserted between resilient conducting-strips and electrodes.

5. As a new article of manufacture a multiple plug said plug consisting on one side of insulating material and on the other of multiple contacts of conducting material and means to guide the plug as it is inserted under or withdrawn from resilient conducting-strips.

6. A multiple plug consisting of an insulating-body 19, raised portion 20 and contacts 21 and 22.

7. In combination with the hollow supporting-pedestal consisting of base 26, standard 18, and fastening-flange 27, of the terminal-head H, the nozzle 17 extending therefrom and to which is secured the cable 16.

594,933. LAST FOR BOOTS OR SHOES. THOMAS BRINING, Leeds, England. Filed Sept. 14, 1896. Serial No. 605,764. (No model.) Patented in England Jan. 12, 1895, No. 795.



Claim.—In a boot or shoe last divided in an angular and interposed hooked direction, the combination therewith of a projecting dovetail D′ on the heel portion, and a recess D on the toe portion with which the said dovetail engages, said dovetail and recess being arranged along the division-line for a part of the distance from the sole to the hook portion thereof, a V-shaped projection P′ formed in the recess of the hook of the toe portion A, a recess P in the projection of the hook on the heel portion B with which projection P′ engages, a vertical spring-pin F armed with a cam-piece G for locking the two parts of the last together, and a cam-path *a* formed on the toe portion A and on which the said piece operates, all arranged substantially as herein set forth.

594,934. WATERPROOFING MATERIAL. LYMAN P. CONVERSE, Chicago, Ill., assignor to Wallace C. Converse, same place. Filed Jan. 3, 1895. Serial No. 533,754. (No specimens.)

Claim.—1. The fabric-waterproofing material comprising a mixture of boiled linseed-oil and cooked animal's blood, substantially as described.

2. The fabric-waterproofing material comprising a mixture of boiled linseed-oil and cooked animal's blood, and coloring material in the mixture, substantially as described.

3. The fabric-waterproofing material consisting of a paste comprising a mixture of boiled linseed-oil and cooked animal's blood and binding material, and coloring material in the mixture, substantially as described.

4. The process of producing a waterproofing material, which consists in boiling linseed-oil at a high temperature, thereupon cooling it and adding thereto and mixing therewith animal's blood, and cooking the mixture, substantially as described.

5. The process of producing a waterproofing material, which consists in boiling linseed-oil for a long period at a high temperature and raising the temperature to 600° Fahrenheit, or thereabout, thereupon cooling the oil, adding thereto and mixing therewith animal's blood, and cooking the mixture for a period of from two to four hours, or thereabout, substantially as described.

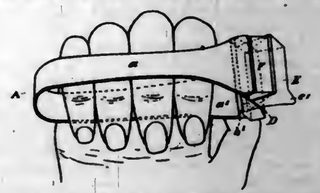
6. The process of producing a polished waterproof fabric, which consists in boiling linseed oil and a binding material for a long period of time at a high temperature, raising the temperature to 600° Fahrenheit, or thereabout, thereupon cooling the mixture and adding thereto and mixing therewith animal's blood and cooking the mixture for a period of from two to four hours, or thereabout, adding pulverulent coloring-matter, applying the paste thus produced to a textile fabric, and then applying a patent-leather polish, substantially as described.

594,935. WATERPROOFING COMPOUND. LYMAN P. CONVERSE, Chicago, Ill., assignor to Wallace C. Converse, same place. Filed Aug. 20, 1895. Serial No. 559,956. (No specimens.)

Claim.—1. A waterproofing compound composed of a mixture of boiled vegetable oil, animal's blood and petrolatum, or its equivalent, substantially in the proportions specified.

2. A waterproofing compound composed of a mixture of boiled vegetable oil, animal's blood, petrolatum or its equivalent, and coloring-matter, substantially in the proportions specified.

594,936. POTATO PARER AND SLICER. AUGUST G. DEHLIN, Seattle, Wash. Filed Oct. 27, 1896. Serial No. 610,341. (No model.)



Claim.—1. In potato-parers, the handle thereof comprising parallel shanks with a space between, transverse jaws overlapping and a screw threaded therethrough adapted to clamp cutters therebetween at the ends of said shanks, substantially as shown and described.

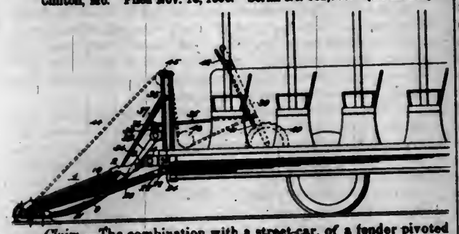
2. In potato-parers, the combination with the handle thereof comprising parallel shanks, with a space between, transverse jaws overlapping and a clamping-screw threaded therethrough, of the cutters clamped between said jaws comprising paring-blades forming an obtuse angle on one side and a slicing-blade on the opposite side of the handle at the ends of said shanks, substantially as shown and set forth.

594,937. CASTER-CASE. LEMI B. DENTON, Grand Rapids, Mich., assignor to Z. Clark Thwing, same place. Filed Sept. 22, 1894. Serial No. 523,232. (No model.)



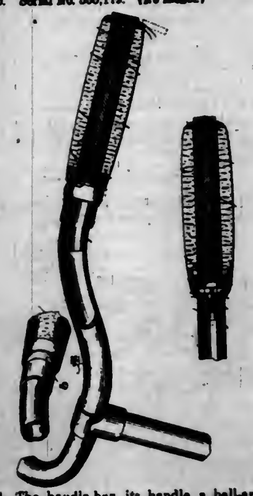
Claim.—In a case for furniture-casters, a solid body extending up for a distance from the track-plate, the upper end contracted or made smaller and slotted down to the line of contraction so that it can be made to spring apart, and the end left open so that the bulbous end of a caster-stem may be forced through and supported by resting upon the end of the case, substantially as and for the purpose set forth.

594,938. FENDER FOR STREET-CARS. CHARLES D. DORMAN, Clinton, Mo. Filed Nov. 16, 1896. Serial No. 612,318. (No model.)



Claim.—The combination with a street-car, of a fender pivoted to and projecting in advance of the car, side bars pivoted to the fender and provided with slots at their rear ends, pins carried by the car and engaging said slots, and springs connecting the rear ends of said bars with fixed points of the car, substantially as described.

594,939. BICYCLE. ALBERT C. FAIRBANKS, Boston, Mass. Filed July 8, 1895. Serial No. 555,179. (No model.)



Claim.—1. The handle bar, its handle, a ball-and-socket joint connecting them, the ball being hollow and provided with an elongated slot at its outer end, and means at its inner end for detachably securing it to its supporting part, and a clamp to hold them relatively immovable, the same comprising a bolt or spindle adjustably secured to the socket member, adapted to pass through the said slot and provided with a spheroidal head to engage the inner surface of the ball member, said head being inaccessible when said handle is in place, substantially as described.

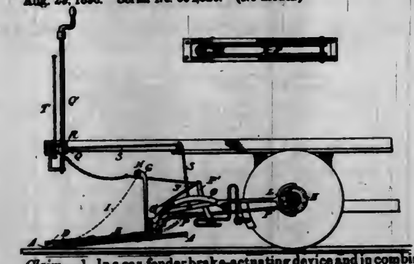
2. The handle-bar, its handle, a ball-and-socket joint connecting them, the ball member being hollow, approximately a hemisphere, provided with a slot at its outer end, and removably connected at its inner end to the adjacent part, and a clamp to hold them relatively immovable, the same comprising a bolt or spindle secured to the socket member, adapted to pass through the said slot and provided with a removable head to engage the inner surface of the ball member, all the parts being arranged and combined so that the clamping means is entirely inclosed, substantially as described.

3. The handle-bar, its handle, a ball-and-socket joint connecting them, the ball member being hollow, approximately a hemisphere, provided with a slot at its outer end, screw-threaded at its inner end for the purpose of being joined to the handle, and a clamp to hold said joint members relatively immovable, the same comprising a screw-threaded bolt or spindle secured to the socket member on the handle-bar, adapted to pass through the said slot, and provided with a head convexed on its under side to engage the inner surface of the ball member whereby the clamping means is entirely inclosed, substantially as described.

4. The handle-bar, its handle, said handle being provided at its inner end with a ferrule shouldered and externally screw-threaded at its outer end, a ball-and-socket joint connecting them, the ball member being hollow, approximately a hemisphere, provided with a slot at its outer end, screw-threaded at its inner end for the purpose of being joined to the handle, and a clamp to hold said joint members relatively immovable, the same comprising a screw-threaded bolt or spindle secured to the socket member, adapted to pass through the said slot, and provided with a head convexed on its under side to engage the inner surface of the ball member, whereby the clamping means is entirely inclosed, substantially as described.

5. The handle-bar, its handle, said handle being provided at its inner end with a ferrule shouldered and externally screw-threaded at its outer end, a spindle extending from said ferrule axially through the handle, and provided at its projecting end with a nut in threaded engagement therewith, a ball-and-socket joint connecting the handle and handle-bar, the ball being hollow, approximately a hemisphere, provided with a slot at its outer end, screw-threaded at its inner end for the purpose of being joined to the handle, and a clamp to hold said joint members relatively immovable, the same comprising a screw-threaded bolt or spindle secured to the socket member, adapted to pass through the said slot, and provided with a head convexed on its under side to engage the inner surface of the ball member, whereby the clamping means is entirely inclosed, substantially as described.

594,940. CAR-FENDER BRAKE-ACTUATING MECHANISM. WILLIAM C. FERGUSON and GEORGE P. GLENN, Jacksonville, Fla. Filed Aug. 29, 1896. Serial No. 604,329. (No model.)



Claim.—1. In a car-fender brake-actuating device and in combination with the track-guard, brake actuating and releasing mechanism, a tubular fender-frame composed of three longitudinal portions supported partially by said track-guard and one transverse front portion rigidly united to the said longitudinal portions, a roller-bearing case carrying vertical and horizontal rollers which operate along the middle tube of said fender-frame, a rigid triangular frame attached to said roller-bearing case and having its front side extended, a duplicated system of folding arms pivotally connected with said track-guard, likewise connected respectively with the two outer branches of said fender-frame and united by ruler-joints with each other in duplicate and likewise with the outer angles of said triangular frame, a rectangular pilot-rack composed of one front transverse portion and several longitudinal portions each rigidly secured to said transverse portion and attached by spring-hinges to the extended front side of said triangular frame, a spring coiled about and operating along the middle tube of said fender-frame between said track-guard and said roller-bearing case, two or more vertically-extending brackets fixed upon and rising from said track-guard, a transverse net-bearing tube supported by said brackets, and a hammock-formed netting extending from the front transverse portion of said fender-frame to the said transverse net-bearing tube and secured to each, substantially as specified.

2. In a car-fender brake-actuating device and in combination with the truck-frame, wheel, axle, and the roller-bearing case of the fender, a cable-winding brake-clutch sliding in journal relation upon said axle and composed of two pairs of semicircular parts, bolted together with diametric seams at right angles, the outer pair being provided with horizontally-projecting spurs, a clutch-shifting yoke having a spring-arm with shouldered base fixed rigidly to said truck-frame and provided with inwardly-projecting studs operating diametrically opposite each other in the circular groove formed in the circumference of said brake-clutch, two studs radiating diametrically from the inner hub of said car-wheel and adapted to make clutching contact with the spurs of said brake-clutch, and a yoke-operating cable attached to and extending via directing-palleys from said roller-bearing case to the clutch-operating yoke and attached thereto, substantially as specified.

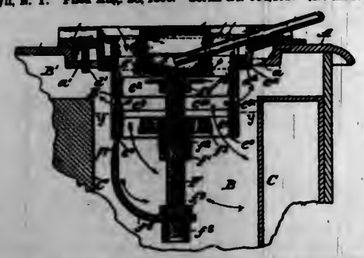
3. In a car-fender brake-actuating device and in combination with the truck-frame, the track-guard, the brake-clutch and brake-lever, a composite pulley-frame constructed with two inner, upwardly-

flexing pulley-arms pivotally connected with two outer rigid curved arms rectangularly connected and firmly seated upon said truck-frame and said track-guard, a cable-directing pulley with axis journaled into said inner arms and extended into the long slotted bearings constructed in each of said outer arms to receive said axis, and a braking-cable attached to said brake-clutch by swivel-joint and extending therefrom, via said pulley, to said brake-lever and attached thereto, substantially as specified.

4. In a car-fender brake-actuating device and in combination with the brake-windlass and the composite pulley-frame, a cable-winding drum operating about said brake-windlass and provided with a clutching-spur, a stud radiating from said brake-windlass and adapted to make clutching contact with said clutching-spur, a lifting-rod suitably located and adapted to put said cable-winding drum in clutching contact with said stud, a clevis-loop pivotally connected to the flexing joints of the inner arms of said pulley-frame, and a releasing-cable attached by swivel-joint to said winding-drum and extending therefrom to said clevis-loop and connected therewith, substantially as specified.

5. In a car-fender brake-actuating device and in connection with the car-body, the roller-bearing case, the triangular frame attached to said case, the tripping-cable attached to said car-body convenient to the motorman and extending therefrom via directing-pulleys to said roller-bearing case and attached thereto, the pilot-rack attached to said triangular frame, and the double system of folding arms attached to said triangular frame to the frame of said car-fender to the track-guard and to each other, substantially as specified.

594,941. HYDROCARBON-FURNACE. JOHN H. FOSTER, Brooklyn, N. Y. Filed Aug. 23, 1896. Serial No. 604,152. (No model.)



Claim.—1. In a hydrocarbon-furnace, the combination of a substantially vertical retort-tube and means to supply a hydrocarbon at the upper, open end of said retort-tube and permit it to drop into said retort-tube.

2. In a hydrocarbon furnace, the combination of a substantially vertical retort-tube with its mouth upward and a supply-tube for the hydrocarbon terminating above the upper, open end of said retort-tube and permitted to drop into said retort-tube.

3. In a hydrocarbon-furnace, the combination of a substantially vertical retort-tube having its mouth upward, a chamber inclosing said retort-tube open at the top for the admission of air and at the bottom for the exit of burning gases and means to supply a hydrocarbon at the upper, open end of the retort-tube and permit it to drop into said retort-tube.

4. In a hydrocarbon-furnace, the combination of a substantially vertical retort-tube having its mouth upward, a cup surrounding the upper end of said retort-tube and means to supply hydrocarbon at the upper, open end of said retort-tube and permit it to drop into said retort-tube.

5. In a hydrocarbon furnace, the combination of a substantially vertical retort-tube, having its mouth upward, a cup surrounding the upper end of said retort-tube, a cap to cover said cup and means to supply a hydrocarbon beneath said cap and at the open, upper end of said retort-tube and permit it to drop into said retort-tube, an opening being left between said cup and said cap.

6. In a hydrocarbon furnace, the combination of a chamber, a burner located in said chamber, said chamber being open at one end for the admission of air and at the other end for the exit of the burning gases and having an intermediate, lateral opening and means to supply a hydrocarbon to said burner.

7. In a hydrocarbon-furnace, the combination of a chamber, a burner located in said chamber, said chamber being open at one end for the admission of air and at the other end for the exit of the burning gases and having an intermediate, lateral opening, said lateral opening having an area substantially eighty per cent. of the area of said opening for the admission of air and means to supply a hydrocarbon to said burner.

8. In a hydrocarbon-furnace, the combination of a retort-tube formed with or having a burner at one end, a chamber surrounding said retort-tube and burner, said chamber being open at one end for the admission of air and at the other end for the exit of the burning gases and having an intermediate, lateral opening and means to supply a hydrocarbon to said retort-tube.

9. In a hydrocarbon-furnace, the combination of a substantially vertical retort-tube having a burner at its upper end, a chamber surrounding said retort-tube and burner, said chamber being open at its upper end for the admission of air and at its lower end for the exit of burning gases and having an intermediate, lateral opening, and means to supply a hydrocarbon to said retort-tube.

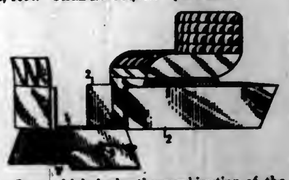
10. In a hydrocarbon-furnace, the combination of a retort-tube, means to supply a hydrocarbon to said retort-tube, a chamber surrounding said retort-tube, and a cup carried by said chamber, said retort-tube being tapped into the bottom of said cup, substantially as shown and described.

11. In a hydrocarbon-furnace, the combination of a chamber composed of a series of sections, a cup carried by one of said sections, a retort-tube exteriorly screw-threaded and tapped into the bottom of said cup, a nut mounted upon said tube and a bridge-piece resting upon said nut and in contact with the end section of said chamber, whereby all of said sections are held firmly together, substantially as shown and described.

12. In a hydrocarbon-furnace the combination of a burner, means to supply a hydrocarbon to said burner, a chamber surrounding said burner and composed of a series of sections superimposed one upon another, one of the intermediate sections having its walls cut away to form lateral openings and means to secure said sections together, substantially as shown and described.

13. In a hydrocarbon-furnace, the combination of a substantially vertical retort-tube having a burner at its upper end, a chamber surrounding said burner and open at its upper end above said burner for the admission of air and at its lower end for the exit of burning gases, and a spreader mounted upon said retort-tube and surrounding the same below said burner and within said chamber, substantially as shown and described.

594,942. VEHICLE-BODY. JOEL H. FRENCH, Pluto, Miss. Filed July 16, 1897. Serial No. 644,778. (No model.)



Claim.—In a vehicle-body, the combination of the bottom, the side and end pieces secured thereto, portions of said sides hinged to said bottom, the latch-cases 4 secured to the inner sides of said hinged portions, the movable plungers and latches mounted in said cases, the coiled springs 7 surrounding said plungers within said cases, the plate 8, the rods 11 having one of their ends pivoted to said plate, their opposite ends being pivoted to said plungers, the knob 9 secured to one side of said plate, the shank 10 projecting from the opposite side; said shank being provided with a knob 9', all arranged as shown and adapted to operate as set forth.

594,948. SUPPORT FOR CARRIAGE-TOPS. EDGAR GALLAWAY, Marietta, Tex., assignor of one-half to J. C. Martin, Naples, Tex. Filed Feb. 2, 1897. Serial No. 621,606. (No model.)



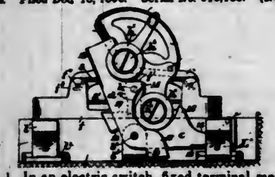
Claim.—1. A support of the kind specified consisting of a tube or socket having a spring, longitudinal slots in said tube or socket, a movable yoke secured to said tube or socket and having side pieces situated opposite said slots, and a transverse pin extending between said side pieces and through said slots and resting upon said springs.

2. A holder of the kind specified consisting of a tube or socket having upper and lower springs, supports for said springs rigid with said tube or socket, slots in the upper and lower end portions of said tube or socket, a yoke or slide embracing said tube or socket and resting upon the upper of said springs and a bolt or pin secured to the side of said yoke or slide and extending through the lower of said slots and resting upon the lower of said springs.

3. The combination with the shifting rail of a vehicle body, of a tube or socket having an opening to receive the same and side wings or braces resting upon said shifting rail, springs situated within said

tube or socket, and a movable yoke or slide carried by said tube or socket and bearing upon said springs and provided at its upper end with a flexible cap.

594,944. ELECTRIC SWITCH. FREDERICK A. GILBERT, Brookline, Mass. Filed Dec. 18, 1896. Serial No. 616,183. (No model.)



Claim.—1. In an electric switch, fixed terminal members, a co-operating two-part member, the mechanically-unconnected parts of which are electrically connected and independently movable, and an actuator for said two-part member, substantially as described.

2. In an electric switch, fixed terminal members, a cooperating circuit-controller comprising two independently-movable members in electrical connection, and an actuator to engage said members successively and positively move one after the other to effect complete engagement of one with its terminal before disengagement of the other member from its terminal, substantially as described.

3. In an electric switch, fixed terminal members, a cooperating circuit-controller comprising two independently-movable members, an actuator therefor, adapted to have a rolling contact with and to move one after another of said members, to effect complete engagement of one with its terminal before disengagement of the other member with its terminal, and a spring to effect rapid final movement of both the actuator and circuit-controller, substantially as described.

4. In an electric switch, fixed terminal members, a normally-locked cooperating circuit-controller comprising two independently-movable members, an actuator manually operated to effect its initial movement, to unlock and effect complete engagement of one with its terminal by such initial movement, and a spring to complete the movement of the actuator, to lock said first member and cause the actuator to engage and move and thereby effect quick disengagement of the other member from its terminal, substantially as described.

5. In an electric switch, fixed terminal members, a cooperating two-part circuit-controller the parts of which are mechanically disconnected and independently movable, and means to move said parts positively at different speeds, to effect complete engagement of one with its terminal before effecting disengagement of the other with its terminal, substantially as described.

6. In an electric switch, fixed terminal members, a cooperating circuit-closer comprising two independently-movable members having a common fulcrum and provided each with a cam-surface, and an independently-mounted actuator provided with insulated rolls, to engage said cam-surfaces successively and effect the movement of one of said members into engagement with its terminal and to thereafter disengage the other member from its terminal, substantially as described.

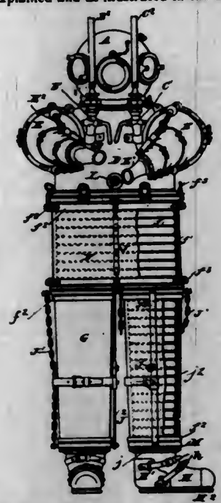
7. In an electric switch, a circuit-controller comprising two pivotally-mounted, independently-movable members, each having a cam-surface at one side of its fulcrum and a toe at the other side, and a rocking actuator for said controller, having two insulated rolls, movement of said actuator in either direction causing engagement of a roll with the cam-surface of one member, to move it gradually into operative position, and to thereafter engage the toe of the other member and move it into inoperative position, substantially as described.

8. In an electric switch, a two-part circuit-controller, the independently-movable parts thereof having a common fulcrum and being electrically connected, a stop to limit the movement of each member in one direction, and an actuator to operate said circuit-controller, each member thereof having a locking-recess, to cooperate with and be held in operative position by the actuator, substantially as described.

9. A binding-post for electric wires, having an opening therein for the wire, an offset binding-screw to act upon one side of the wire, and a second binder to bear directly upon the top of the wire, substantially as described.

594,945. DIVING APPARATUS. ALEXANDER GORDON, Strahan, Tasmania. Filed Dec. 5, 1896. Serial No. 614,626. (No model.) Patented in Queensland Aug. 26, 1893, No. 2,443; in Victoria Aug. 30, 1893, No. 10,776; in Western Australia July 12, 1894, No. 535; in England July 31, 1894, No. 14,673; in British Guiana Sept. 19, 1894, No. 1, and in India July 9, 1895, No. 340.

Claim.—1. In a diving apparatus the body-piece, arms, and legs of the dress or the portions thereof where considerable motion is required constructed of several folds of waterproof material secured together with india-rubber or other solution or cement and having a metallic spiral-wire core firmly embedded between the folds and secured to the connection-rings by toothed metal bands and said flexible parts being furnished with distance-pieces, spring-stays and hinged or articulated links to resist compression substantially as herein described and explained and as illustrated in the drawings.



2. In combination, the body D, the helmet, the arm-pieces D' rigidly fixed to the body and with the arm-openings facing frontwise, the flexible arm portions E with their gauntlets E', and the spring F^3 extending along said arms and connected at the opposite ends thereof, substantially as described.

3. In combination, the body D having the arm-pieces D', the helmet connected with the body, and the air and exhaust pipes, the latter at its upper end provided with an air-outlet valve, each of said pipes being connected with the rear of the helmet and extending therefrom under one of the arm-pieces and up in front of the body and helmet, the cocks one for each of said pipes, and the flexible arm extensions connected with the arm-pieces, substantially as described.

4. In a diving apparatus the body-piece F of the dress having the flexible part and having a metallic ring for connection by hinge-bolts f^6 to the metallic jacket as D and a crutch-piece as F^3 supporting distance-pieces as F' and at its bottom two screwed rings for connection to the leg-couplings substantially as herein described and explained and illustrated in the drawings.

5. In a diving apparatus the legs G of the dress having the flexible part and furnished with articulated or hinge links to resist compression and each having a metallic screw-ring at its top end for connection to the ring or crutch-piece F^3 and at bottom a screw-ring for connection to the metallic boot substantially as herein described and explained and as illustrated in the drawings.

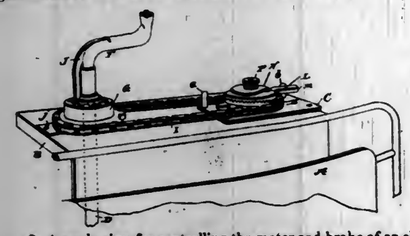
6. In a diving apparatus the metallic boot as H of the dress having a screw connection at its top for attachment to the bottom of leg in combination with the weighted slipper H' H^2 H^3 and the straps A substantially as herein described and explained and as illustrated in the drawings.

7. In combination with the dress having the flexible body portion, the crutch-plate connected therewith, the legs connected to the crutch-piece at its lower end and being free from connection at its upper end, said piece extending within the flexible body, substantially as described.

594,946. CONTROLLER FOR MOTORS AND BRAKES OF ELECTRIC CARS. ADOLPHE GROSSMAN, New Orleans, La. Filed Aug. 31, 1897. Serial No. 650,156. (No model.)

Claim.—1. A mechanism for controlling the motor and brake of an electric car, comprising a rotary brake-staff, a handle so connected with the staff that it will turn in one direction with said staff and in the opposite direction loose on the same, a gear-wheel loosely mounted on the staff, a suitable means for holding said gear-wheel against casual rotation, suitable means for detachably connecting said gear-wheel with the handle, and a rheostat or switch shaft connected by gearing with said gear-wheel, substantially as specified.

2. A mechanism for controlling the motor and brake of an electric car, comprising a suitable support, a rotary brake staff, a crank for turning said staff, a gear-wheel loosely mounted on the staff and clutched to the support, means for fixing said gear-wheel to the crank, and a rotary rheostat or switch shaft connected by gearing with the gear-wheel on the brake-staff, substantially as specified.



3. A mechanism for controlling the motor and brake of an electric car, comprising a support, a rotary brake-staff, a stop on the support, a rotary rheostat or switch shaft provided with means for engaging said stop, and a gear-wheel loosely mounted on and clutched to the rheostat or switch shaft and connected by gearing with the brake-staff, substantially as specified.

4. A mechanism for controlling the motor and brake of an electric car, comprising a support, a rotary brake-staff, a rotary rheostat or switch shaft, stops arranged on the support at opposite points with respect to the rheostat-shaft, a gear-wheel loosely mounted on the rheostat or switch shaft and connected by gearing with the brake-staff, a plate mounted on the rheostat-shaft so as to turn therewith and adapted to engage the stops on the support, and coacting clutches on said plate and the gear-wheel, substantially as specified.

5. A mechanism for controlling the motor and brake of an electric car, comprising a suitable support, a rotary brake-staff, a crank for turning said staff, a gear-wheel loosely mounted on the staff and clutched to the support, means for fixing said gear-wheel to the crank, a stop arranged on the support, a rotary rheostat or switch shaft provided with means for engaging said stop, and a gear-wheel loosely mounted on and clutched to the rheostat or switch shaft and connected with the brake-shaft, substantially as specified.

6. A mechanism for controlling the motor and brake of an electric car, comprising a suitable support, a rotary brake-staff, a crank for turning said staff, a sprocket-wheel loosely mounted on the staff, an adjustable device for detachably fixing said sprocket-wheel to the crank, coacting clutch-faces on the support and sprocket-wheel, a rotary rheostat or switch shaft, stops on the support at opposite points with respect to said shaft, a sprocket-wheel loosely mounted on the shaft, a plate mounted on said shaft so as to turn therewith and adapted to engage the stops on the support, coacting clutch-faces on said plate and sprocket-wheels, and an endless chain connecting the sprocket-wheels of the brake-staff and rheostat-shaft, substantially as specified.

7. A mechanism for controlling the motor and brake of an electric car, comprising a rotary brake-staff, a rotary rheostat or switch shaft, a wheel loose on the brake-staff and connected by gearing with the rheostat-shaft, a handle for turning the brake-staff and means for detachably fixing said handle to the loose wheel, substantially as specified.

8. A mechanism for controlling the motor and brake of an electric car, comprising a rotary brake-staff, a rotary rheostat or switch shaft, a wheel loose on the brake-staff and connected by gearing with the rheostat-shaft, a crank for turning the brake-staff, and a detent on said crank for engaging the loose wheel and fixing it to the crank; said detent being normally held out of engagement with the wheel, substantially as specified.

9. A mechanism for controlling the motor and brake of an electric car, comprising a rotary brake-staff, a rotary rheostat or switch shaft, a sprocket-wheel on said rheostat-shaft, a sprocket-wheel loose on the brake-staff, a handle for turning the brake-staff, means for detachably fixing said handle to the sprocket-wheel, and an endless sprocket-chain connecting the sprocket-wheels of the brake-staff and rheostat-shaft, substantially as specified.

10. A mechanism for controlling the motor and brake of an electric car, comprising a rotary brake-staff, a rotary rheostat or switch shaft, a wheel loose on the brake-staff and connected by gearing with the rheostat-shaft and having an interiorly-toothed annular flange on its upper side, a crank for turning the brake-staff, a spring-pressed detent-lever fulcrumed on the crank and normally held out of engagement with the toothed flange of the gear-wheel, and a plunger arranged in the crank and adapted when depressed to hold the detent-lever in engagement with the toothed flange of the gear-wheel, substantially as specified.

11. A mechanism for controlling the motor and brake of an electric car, comprising a brake-staff, a stop, a rheostat or switch shaft provided with means for engaging the stop, whereby said stop is enabled to arrest its rotation, and a gear-wheel so connected with the rheostat-shaft that it will turn with said shaft until the rotation thereof is stopped and will then turn thereon; said gear-wheel being also connected by gearing with the brake-staff, substantially as specified.

12. A mechanism for controlling the motor and brake of an electric car, comprising a support, a rotary brake-staff, a rotary rheostat or switch shaft, a stop arranged on the support, a plate mounted on the shaft so as to turn therewith and having an arm to engage the stop and also having a clutch-face, a gear-wheel loosely mounted on the shaft and having a clutch-face engaging that of the plate, a spring for pressing said plate and gear-wheel together, and a connection between said gear-wheel and brake-staff, substantially as specified.

13. A mechanism for controlling the motor and brake of an electric car, comprising a support, a rotary brake-staff, a rotary rheostat or switch shaft, a gear-wheel loosely mounted on the brake-staff and having a clutch-face, a clutch member fixed on a spring connected to the support and having a clutch-face engaging that of the gear-wheel, and a conpection between said gear-wheel and the rheostat-shaft, substantially as specified.

14. A mechanism for controlling the motor and brake of an electric car, comprising a support, a rotary brake-staff, a rotary rheostat or switch shaft, a stop on the support, a plate mounted on the shaft so as to turn therewith and having an arm to engage the stop and also having a clutch-face, a sprocket-wheel loosely mounted on the shaft and having a clutch-face engaging that of the plate, a spring for pressing said plate and sprocket-wheel together, a sprocket-wheel loosely mounted on the brake-staff and having a clutch-face, a clutch member fixed on a spring connected to the support and having a clutch-face engaging that of the sprocket-wheel, a sprocket-chain connecting the sprocket-wheels of the staff and shaft, a crank for turning the brake-staff and means for detachably fixing the sprocket-wheel of the staff to said crank, substantially as specified.

15. A mechanism for controlling the motor and brake of an electric car, comprising a stop, a rheostat or switch staff provided with means for engaging the stop whereby said stop is enabled to arrest its rotation, a gear-wheel so connected with the rheostat-shaft that it will turn with said shaft until the rotation thereof is stopped and is then free to turn thereon, a brake-staff, a gear-wheel loosely mounted on said staff and connected with the gear-wheel on the rheostat-shaft, a handle so connected with the brake-staff that it is adapted to turn in one direction with the staff and in the opposite direction on the same, and a suitable means for detachably connecting the handle with the gear-wheel on the brake staff, substantially as specified.

594,947. BICYCLE-BRAKE. LINCOLN C. HALL, Burlington, Iowa. Filed July 18, 1896. Serial No. 599,616. (No model.)



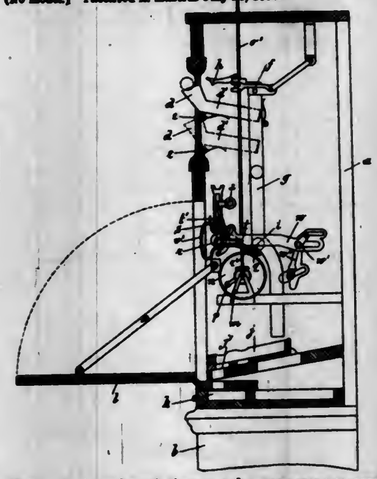
Claim.—1. In a bicycle-brake, the combination with the main sprocket-wheel of a bicycle having a supplemental rim thereon, of a brake-shoe slidingly mounted upon the lower line tube of the bicycle-frame and adapted to be thrown into engagement with said supplemental rim, and a pair of pitmen pivoted at their outer ends to said brake-shoe and to said tube respectively and at their inner ends to each other, substantially as described.

2. In a bicycle-brake, the combination with the main sprocket-wheel of the bicycle having a supplemental rim forged or cast thereon, of a sleeve slidingly mounted on the lower line tube of the bicycle-frame, a brake-shoe secured to said sleeve and adapted to be thrown into engagement with said supplemental rim, a pair of pitmen pivoted at their outer ends to said sleeve and to said tube respectively and at their inner ends to each other, a spring for normally holding said brake-shoe out of engagement with said supplemental rim, and a foot-piece connected to said pitmen at their pivotal point, substantially as described.

594,948. MANUFACTURE OF ZINC PIGMENTS. WILHELM HAMPE, Clausthal, Germany. Filed Apr. 6, 1897. Serial No. 631,021. (No specimens.)

Claim.—The herein-described method or process of obtaining pigments, consisting in preparing an intimate mixture of dehydrated sulfate of zinc and of one or more of the sulfates of such metals whose oxids are capable of imparting a color other than white to zinc oxid, commingling the mixture of sulfates so prepared with finely-comminuted carbon, and subjecting the whole to a carefully-gaged temperature of 650° centigrade substantially as described.

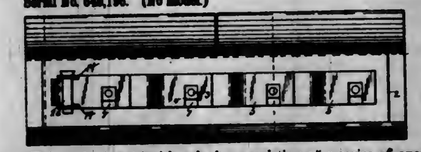
594,949. WORKMAN'S TIME-RECORDER. SIGMUND HELLER, Saaz, Austria-Hungary. Filed Aug. 13, 1897. Serial No. 648,021. (No model.) Patented in Austria July 23, 1897.



Claim.—1. A workman's time-recorder, comprising in combination the following devices, namely, a casing, a number of tubes pivotally suspended therein and through which checks inserted from the outside can pass, each tube having a beat portion provided with a slot therein through which the check may project, swinging chutes into which the checks are first inserted having each a tube opening into one of these tubes, a catch to hold each chute after its inserted check has passed from its tube into one of the suspended tubes, a printing-lever carrying a stamp and depressed by such projecting check, a roller, carrying cards to be printed and clock-work for actuating the same, a receptacle for the checks provided with an inclined bottom and a series of compartments, a drawer beneath the same into which the checks may pass, and a printing-lever provided with a button and adapted to be pressed upon the card to print upon it an indication of the time the workman leaves his work, all substantially as shown and described.

2. In a time-recorder the combination with the tubes *g*, chutes *d*, and hooks *h*, of the handle *v*, rod *v'*, and levers *w* and *w'*, for swinging the tubes back to release the chutes from the hooks, an inking-roller *x*, and levers *i* and *i'*, adapted to swing to come into contact with said inking-roller, all substantially as shown and described.

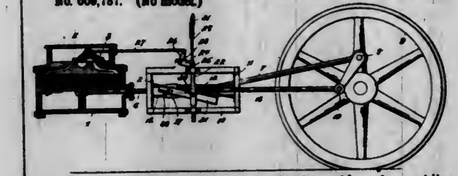
594,950. NUT-LOCK. WILLIAM A. HOUSEKER, Tougaloo, Miss., assignor of one-half to T. D. Johnson, same place. Filed Aug. 23, 1897. Serial No. 649,196. (No model.)



Claim.—1. A nut-locking device consisting of a series of overlapping plates each of which forms a lock for a nut and a washer for the succeeding bolt, the last of said nut-lock and washer plates having outwardly and horizontally extending ears on its rear end, and a terminal plate to lock the last nut in the series the rear end of which plate fits between the said ears and is provided with shoulders to engage their inner edges, and a locking-key extending through said ears and engaging the front face of the terminal plate, substantially as described.

2. A nut-locking device consisting of a series of overlapping plates each of which forms a lock for a nut and a washer for the succeeding bolt, the last of said nut-lock and washer plates having outwardly and horizontally extending ears on its rear end, and a terminal plate to lock the last nut in the series, the rear end of said plate being reduced in width to fit between said ears and provided with shoulders to engage the edges of said ears, and the extreme rear end of said plate being bent inwardly to engage the rear end of the last nut-lock and washer plate, and a locking-key extending through said ears and engaging the front face of the terminal plate, substantially as described.

594,951. VALVE-GEAR. JOHN D. HOOD, Columbia, Pa., assignor of one-third to Samuel J. Baily, same place. Filed Oct. 23, 1896. Serial No. 609,787. (No model.)



Claim.—1. In a valve mechanism, slidable guide-rods, an oblique rod connected thereto, a stud carried by the cross-head and slidable on the oblique rod, a block guided on the guide-rods, a slipper secured on said block, means for sliding the block, a slipper-block fitted on the slipper, a post carrying said slipper-block, and means for transmitting the motion of the post to the valve.

2. A valve mechanism, consisting of a slipper guided parallel with the movements of the cross-head, a connecting-rod for moving said slipper, a block fitted to the slipper, a post to which said block is pivoted, said post being so guided as to receive vertical reciprocations from the block, means for turning the block to any angle within certain limits, and means for transmitting the motions of the post to the valve, as specified.

3. A valve mechanism, consisting of guide-rods adapted to move vertically, an oblique rod connected to the first-named rods and so connected to the cross head as to receive a vertical reciprocation therefrom, a block guided upon the first-named rods, a slipper pivoted to said block, means for imparting longitudinal reciprocations to the block, a block 21 fitted to the slipper, a post to which said block is pivoted, a crank-rod so arranged as to determine the angle at which the last-named block shall stand, and a rock-shaft through which the motions of the post are transmitted to the valve, substantially as and for the purpose set forth.

4. In combination with a valve, a rock-shaft connected thereto by a stem, a post pivoted to one arm of the rock-shaft, a reversing-block pivoted to the post, a crank-rod attached to the post and adapted to turn and hold the block at any desired angle, a slipper fitted to said block, said slipper being pivoted to a slide-block 17, guide-rods upon which the last-named block slides, plates in which said rods are journaled, pinions secured upon the ends of the rods, rack-bars with which said pinions mesh, an oblique rod secured between the plates, a stud through which said rod passes, said stud being carried by the cross-head, and a connecting-rod 18 for imparting longitudinal reciprocations to the block 17, all arranged substantially as and for the purpose set forth.

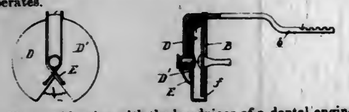
5. In combination with a valve mechanism of the character described, a frame 36 arranged to slide vertically, a lever 37 pivoted thereto, a rod 40 carried by the lever, a stud 41 projecting from the cross-head and through which the rod 40 passes, a segmental worm-wheel formed with the lever, a worm meshing with said wheel, and means for revolving the worm, substantially as and for the purpose set forth.

6. In a device of the character described, a frame, a guide thereon, a cross-head slidable on the guide, a second frame slidable in the first frame, a rod on the second frame at an angle to the guide, a stud on the cross-head slidable on said rod and means connected with the second frame to operate a valve, as and for the purpose described.

7. In a device of the character described, a guide, a block slidable thereon, means for operating the block, a slipper pivoted to the block, a slipper-block slidable on the slipper, a valve-post to which the slipper-block is pivoted, a crank-rod journaled on the valve-post and connected to the slipper-block and means for turning the crank-rod to adjust the position of the slipper-block, substantially as described.

594,952. DENTAL-TOOL GUARD. FRANK F. HOYER, Owosso, Mich. Filed Mar. 11, 1897. Serial No. 626,979. (No model.)

Claim.—1. The combination with the handpiece of a dental engine, and a rotary tool therefor, of a guard-casing for said tool, and carried by said handpiece and a rotary movable segment secured to said casing, adapted to vary the size of opening through which the tool operates.



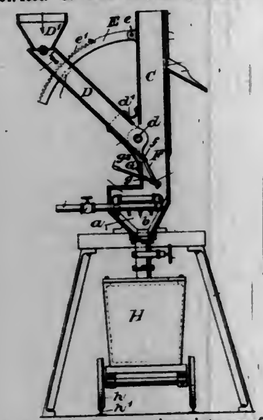
2. The combination with the handpiece of a dental engine and a rotary tool therefor, of a surrounding guard-casing for said tool, secured to said handpiece and provided with a movable segment and a spring tending to close said segment.

3. The combination with a handpiece of a dental engine and a rotary tool therefor, of a surrounding guard-casing for said tool, provided with a movable segment and a spring tending to close the same, and a shank to which said casing is attached, longitudinally adjustably secured to said handpiece.

4. The combination with the handpiece of a dental engine and a rotary tool therefor, of a guard-casing for said tool comprising two segments, a shank to which said segments are pivoted, adjustably secured to said handpiece, and a spring tending to close said segments

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594,953. SEPARATOR. ELISHA F. HURT, New York, N. Y., and GARLAND N. WHISTLER, Pompton, N. J., assignors, by mesne assignments, to the Manhattan Concentrator Company, Charleston, W. Va. Filed Dec. 31, 1896. Serial No. 617,620. (No model.)

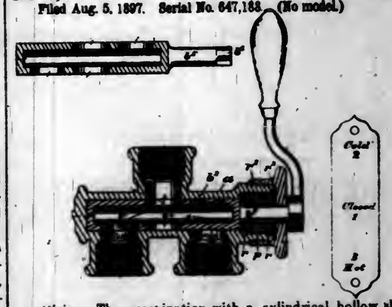


Claim.—1. A machine for separating substances of different specific gravities, comprising a control-chamber, water-feeding means therefor, a receptacle communicating with the control-chamber for receiving the material of heavier specific gravity, a trunk or compartment uprising from the control-chamber and having a suitable outlet for the upwardly-flowing current of water and substances of lighter specific gravity, a chute for feeding the material to be separated, hinged to the said trunk, and means for adjusting the inclination of the chute, substantially as set forth.

2. In a separator, a control-chamber a trunk uprising therefrom and provided with a suitable outlet for the upwardly-flowing current of water and substances of lighter specific gravity, a chute for directing the material to be operated upon into the trunk, means for feeding water under head or pressure into the control chamber, a gate hinged at the discharge end of the chute within the trunk and means for adjusting the free lower end of the gate in different positions across the interior of the trunk to adjust the action of the separator to materials of varying specific gravities with precision, substantially as set forth.

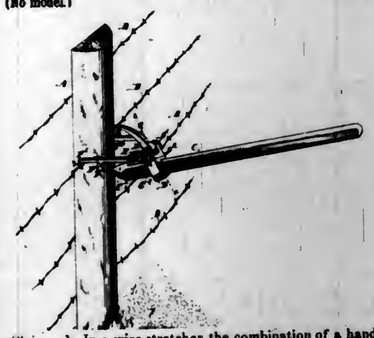
3. In a separator, a control-chamber provided with converging inclined bottom walls, a trunk uprising from the chamber and provided with a suitable outlet for the upwardly-flowing current of water and substances of lighter specific gravity, a chute for directing the material to be operated upon into the trunk, means for controlling the passage of the material into and the passage of the water from the control-chamber and a water-feed pipe within the control-chamber provided with downwardly-directed discharge-openings at intervals above the inclined bottom walls for causing the currents of water to impinge the said inclined walls and material thereon to prevent clogging, substantially as set forth.

594,954. WATER GATE OR VALVE. EMIL JENDIS, Chicago, Ill. Filed Aug. 5, 1897. Serial No. 647,188. (No model.)



Claim.—The combination with a cylindrical hollow shell with three openings whereof two are on the same side of the axis and in the same axial plane with the third opening which is diametrically opposite to said two openings and midway between them, of a cylindrically hollow and revoluble plug with diagonally opposite entrance-openings in the same axial plane, and diametrically and directly opposite discharge-openings midway between said entrance-openings, and in the same plane as said entrance-openings, substantially as specified.

594,955. WIRE-STRETCHER. EDWIN S. JOHNSTON and JOHN N. KYLE, Mount Vernon, Iowa. Filed Sept. 13, 1897. Serial No. 651,568. (No model.)



Claim.—1. In a wire-stretcher, the combination of a hand-lever provided with a head suitably pointed to engage a fence-post, and having a shank portion of uniform size, a fulcrum adapted to slide on said shank and to grip it tightly when turned at a slight angle thereto, and a pair of hooks pivoted to said fulcrum and adapted to engage the fence-wire each side of the post, as set forth.

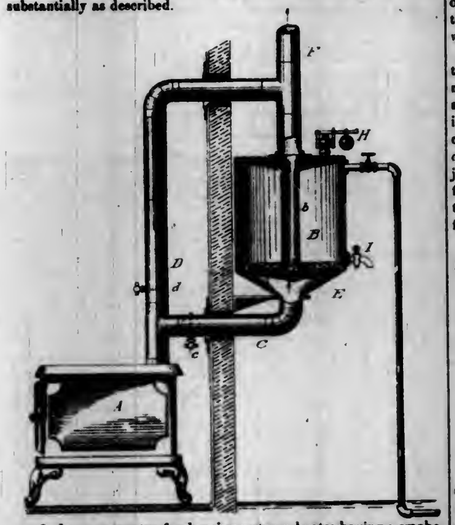
2. In a wire-stretcher, the combination of a hand-lever adapted to engage the fence-post at one end, a fulcrum mounted to slide on the shank portion of said lever and to grip it when tilted slightly thereon, a pair of hooks pivotally connected with said fulcrum, and a pivoted pawl to hold the take-up, substantially as and for the purpose set forth.

3. In a wire-stretcher, the combination of a hand-lever having a pointed head a little wider than the shank, a fulcrum mounted to slide on the shank of the lever, and to grip the same when tilted slightly, a pair of hooks and a take-up pawl pivotally connected with said fulcrum and stops to limit the drop of said hooks and pawl, as described.

594,956. APPARATUS FOR DRAWING WATER. WILLIAM B. LIVERMORE, Fresno, Cal. Filed Jan. 28, 1897. Serial No. 621,068. (No model.)

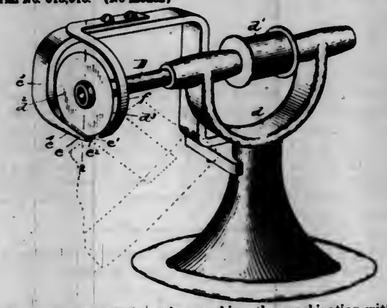
Claim.—1. In an apparatus for drawing water and in combination, a heater, a discharge-pipe for the products of combustion, a tank, a heating-chamber adjacent to the tank and communicating with said discharge-pipe, a valve or damper for cutting off the supply of heat, a smoke-tube passing through the tank from the heating-chamber whereby the air or water within the tank is heated, a water-supply pipe entering the tank, and an exit from said tank, substantially as described.

2. In an apparatus for drawing water, a heater, a smoke-pipe leading from said heater, and having a damper, a heating-chamber into which said smoke-pipe extends, a tank supported above said heating-chamber, a smoke-tube extending from the heating-chamber through said tank, an escape-valve on said tank opened by internal pressure and automatically closed, and a water-supply pipe entering said tank, substantially as described.



3. In an apparatus for drawing water, a heater having a smoke-pipe provided with a damper, a branch extending from said smoke-pipe and having a damper, a tank having a smoke-tube communicating with said branch whereby the products of combustion from the heater pass through said tank, an air-escape from the tank and a water-supply pipe entering the tank, substantially as described.

594,957. MACHINE FOR REMOVING GORE-PIECES FROM LININGS OF SHOES. FREDERICK W. LYNN, Natick, Mass., assignor of one-half to William E. Rollins, same place. Filed Nov. 21, 1896. Serial No. 613,018. (No model.)



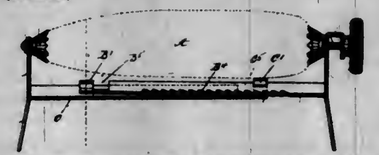
Claim.—1. In a cloth-cutting machine, the combination with a supporting base or standard, of a cutter mounted therein, and a thin or narrow separating-foot and cutter-guard having an unobstructed space beneath it and being thus adapted to be inserted between two thicknesses of material so as to determine the position of the cut in the thickness to be severed and prevent injury to the other thickness from the cutter.

2. In a cloth-cutting machine, the combination with a supporting base or standard, of a cutter mounted therein, and a thin or narrow separating-foot and cutter guard, said foot or guard having an extension beyond the cutting edge of said cutter, said foot or guard having an unobstructed space beneath it and being thus adapted to be inserted between two thicknesses of material so as to determine the position of the cut in the thickness to be severed and prevent injury to the other thickness from the cutter.

3. In a machine for cutting gore-pieces from shoe-linings, the combination with a suitable base, of a rotary cutter mounted therein, and a foot consisting of the two members *e*, *e'*, disposed on either side of said rotary cutter so as that they lap the same and guard the edge thereof, said members *e*, *e'* having ends which project beyond the edge of said rotary cutter and being formed thin or narrow so as to permit the lining to be severed close to the gore-seam and the cutter to be guided by said seam, the lower surfaces of the said foot members being unobstructed; whereby a thickness of material fed upon one surface of the said foot members is adapted to be cut while the thickness upon the other surface may be fed without being cut and without obstruction.

4. In a machine for cutting gore-pieces from the lining of shoes, the combination with a supporting base or standard, of a cutter mounted therein, one or more thin or narrow feet extending both above and below the severing edge of the cutter and in close proximity to the same, so as to permit trimming action by said cutter close to a gore-seam, said feet projecting beyond the cutting edge of the cutter and a shield, as *f*, in front of said cutter and closely adjacent to the projecting ends of said feet so as to permit not only the feeding of one of two thicknesses of material to the cutter and guard the other thickness from mutilation but also to protect the operator from injury.

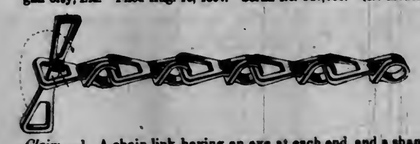
594,958. CORN-HOLDER. ADOLF J. MARSCHALL and CHARLES NIELSEN, Little Falls, N. Y. Filed May 1, 1897. Serial No. 634,682. (No model.)



Claim.—1. In a corn-holder, the combination of two sheet-metal slides having their longitudinal side portions bent at an angle to their main portions, each of the slides being provided with two lugs running at right angle to the longitudinal direction of the slides and situated adjacent to the inwardly-extending end portions thereof, said lugs being adapted to overlap the longitudinal side portions of the slides and limit the lateral movements of the slides, two slots located on each slide adjacent to the said lugs, said slots being adapted to form an opening through which the lugs may drop out and disengage the slides, the outwardly-extending end portions of each slide being provided with an upwardly-directed head, and with two downwardly-directed legs or standards, the under side of the upper slide being provided with a series of indentations, an upwardly-directed tongue located at the inwardly-extending end of the under slide normally engaging said indentations and thus locking the slides, two cups having serrated edges at their large ends revolubly mounted in the heads, an operating-handle connected with one of the cups, substantially as described and for the purpose set forth.

2. A corn-holder comprising two trough-shaped metal slides, said slides being suitably joined together and capable of tilting in a vertical direction, the upper slide being provided with a series of indentations or notches, and the inwardly-extending end portion of the lower slide terminating in an upwardly-projecting tongue adapted to engage the said notches of the upper slide when the slides are caused to tilt, the outwardly-extending end portion of each slide being provided with an upwardly directed head and means for supporting the slides, two cups or prongs mounted in said heads, one of said cups being provided with an operating-handle, substantially as described and for the purpose set forth.

594,959. CHAIN AND CHAIN-LINK. HENRY B. MORRIS, Michigan City, Ind. Filed Aug. 10, 1897. Serial No. 647,709. (No model.)



Claim.—1. A chain-link having an eye at each end, and a shank connecting the eyes and passing through one of them.

2. A chain link having an eye at each end, and a shank connecting the eyes which is bent to form a loop and to pass through one of the eyes.

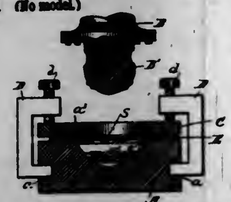
3. A chain-link having a wide perforated portion at each end, constituting an eye, and a relatively narrow portion connecting the eyes which is bent to form a loop at right angles to the eyes and to pass through one of the eyes.

4. A chain composed of links each of which has eyes at opposite ends connected by a shank which is bent to pass through one of the eyes of its own link, and also through an eye of the next adjacent link.

5. A chain-link having an eye at each end, and a shank formed with a stop to prevent slipping and passing through one of the eyes.

6. A chain-link having an eye at each end, and a shank of reduced thickness which passes through one of the eyes.

594,960. DEVICE FOR STAMPING OR SHAPING METALLIC ARTICLES. WILLIAM MCAUSLAND, Taunton, Mass., assignor to the Reed & Barton Corporation, same place. Filed Apr. 30, 1897. Serial No. 634,630. (No model.)

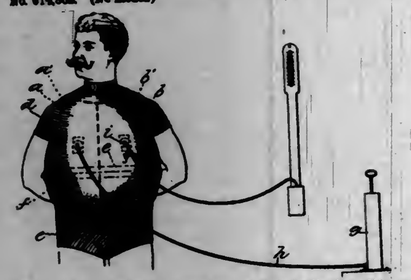


Claim.—1. A device for shaping hollow metallic articles from sheet metal, consisting of the pieces A, E, and C rigidly connected together in combination with the piece B, all arranged and operated substantially as described.

2. In a device for shaping hollow metallic articles from sheet metal, a piece A and a piece C in combination with a piece E rigidly held between the pieces A and C, all arranged substantially as described.

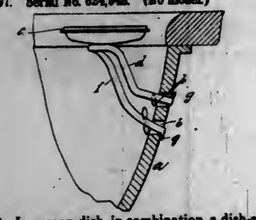
3. In a device for shaping hollow metallic articles from sheet metal, a die provided with a piece E having its inner edge rounded over substantially as shown and described.

594,961. DEPURATOR. THOMAS H. MCLEAN, Elizabeth, N. J., and CALVIN B. MCLEAN, Stamford, Conn. Filed Dec. 7, 1896. Serial No. 614,802. (No model.)



Claim.—In combination, a rigid frame in longitudinal partible sections adapted to form the framework of a chamber substantially encompassing the chest and abdomen of the human body, a flexible and elastic overlapping cover adapted to form an air-tight connection with the neck and arms, another flexible and elastic overlapping cover adapted to form an air-tight connection with the legs separately, and a means for partially removing atmospheric pressure from said chamber, all substantially as described and for the purposes set forth.

594,962. SOAP-DISH. HENRY MCMANUS, Hartford, Conn. Filed Feb. 25, 1897. Serial No. 624,948. (No model.)



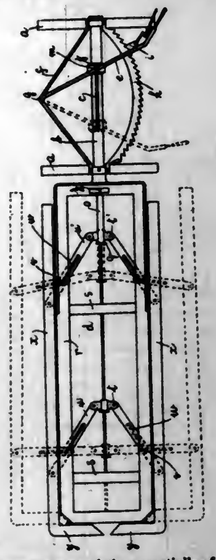
Claim.—1. In a soap-dish, in combination, a dish-shaped holder, spring-arms secured to the holder and provided at their outer ends with an offset or shoulder whereby the dish may be secured in place.

2. In combination with a bowl or like part having perforations, a dish-shaped holder, spring-arms secured to the holder and extending therefrom into engagement with said perforations.

3. In combination with a bowl or like part having perforations, a dish-shaped holder with perforations through the bottom of the holder, spring-arms secured to the under side of the holder and projecting downward and rearward therefrom and having offsets on the ends of said arms, in engagement with said perforations.

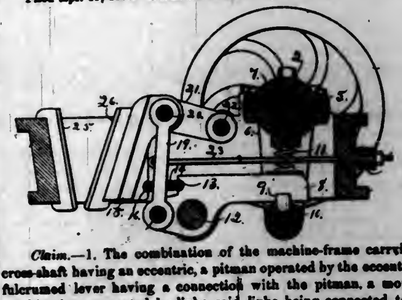
4. In combination with a bowl or like part having perforations, a dish-shaped holder with perforations in the bottom thereof, spring-arms secured to the under side of the holder and projecting downward and rearward therefrom, and offsets on the ends of said arms projecting in opposite directions, and engaging said perforations.

594,968. APPARATUS FOR MENDING AND CLEANING SACKS. JOHN H. ORPEN, Stowmarket, England. Filed June 14, 1897. Serial No. 640,796. (No model.) Patented in England July 2, 1896, No. 12,752.



Claim.—The apparatus consisting essentially of a frame the width of which can be varied so as to accommodate itself to and retain thereon a sack or the like, the said apparatus comprising the standards *a*, the tubular shaft *b*, provided with the slot *c*, the spindle *d*, the lever *e*, the frame *f*, the rack *h*, the spring-catch *i*, the collar *j*, the pin *k*, the block *l*, the roller *m*, the stud *n*, the tubular sleeve *o*, the spiral spring *p*, the table *r*, the cross-bars *s*, the eared lugs *t* and *t'*, the arms *u* and *u'*, provided with the slots *w*, the bottoms *x*, the return ends *y*, and the pins *z*, the whole substantially as described and illustrated.

594,964. CRUSHING-MACHINE. LEROY S. PYCOTT, Canton, Ohio. Filed Apr. 13, 1896. Serial No. 587,354. (No model.)



Claim.—1. The combination of the machine-frame carrying a cross-shaft having an eccentric, a pitman operated by the eccentric, a fulcrumed lever having a connection with the pitman, a movable crushing-jaw supported by links, said links being connected to the fulcrumed lever and to the crushing-jaw, a toggle-lever having its bearing between the lever and crushing-jaw and above the pivoted connection of the lever, and an arm or bar loosely connected to the machine-frame and to the crushing-jaw, substantially as described.

2. The combination of the supporting-frame provided with a cross shaft having an eccentric, a pitman carrying a lever at its lower portion, springs located between the upper side of the lever and the upper portion of the pitman, and links pivotally connected to the lever in front of the pivotal connection of said lever, a toggle-lever located between said lever and the crushing jaw, and an arm connected to the crushing-jaw and to the machine-frame, substantially as and for the purpose specified.

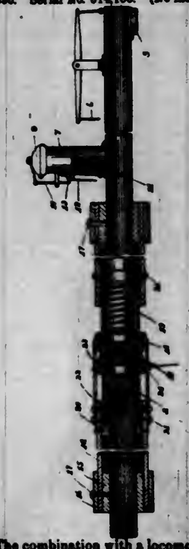
3. In an ore-crushing machine, the combination with the frame thereof, of a crushing-jaw linked to said frame, a horizontal rod connected to the crushing-jaw and to the said frame, a fulcrumed lever having a linked connection with the crushing-jaw, a toggle-lever located between the crushing-jaw and fulcrumed lever and means for rocking the latter-named lever, substantially as described.

4. In an ore-crushing machine, the combination with the frame thereof, of a crushing-jaw having a linked connection between its upper portion and the frame of the machine, a rocking lever, vertically-arranged links connecting said lever and crushing-jaw, and a toggle-lever between the crushing-jaw and rocking lever, substantially as described.

5. In an ore-crushing machine, the combination with the supporting-frame provided with a cross shaft carrying an eccentric, of a slotted pitman operated by the eccentric, a lever pivoted near one end to the supporting-frame and having its rear end located in the slotted portion of the pitman, a crushing-jaw, a cross-shaft 22 mounted upon the supporting-frame, arms journaled upon said shaft and having their forward ends connected to the crushing-jaw, a connection between the short arm of the rocking lever and the upper portion of the crushing-jaw, and a toggle-lever bearing against the lower portion of the crushing-jaw, and against the rocking lever, substantially as described.

6. In a crushing-machine the combination of the frame provided with a cross-shaft having an eccentric, a slotted pitman, a lever having its free end located in the slotted portion of the pitman and seated therein, springs located above the lever, and the lever fulcrumed to one side of the pitman, and a movable crushing-jaw linked to the machine-frame and lever, substantially as and for the purpose specified.

594,965. SMOKE-CONDUCTOR. JOSEPH PILAUD, Covington, La. Filed Dec. 1, 1896. Serial No. 614,106. (No model.)

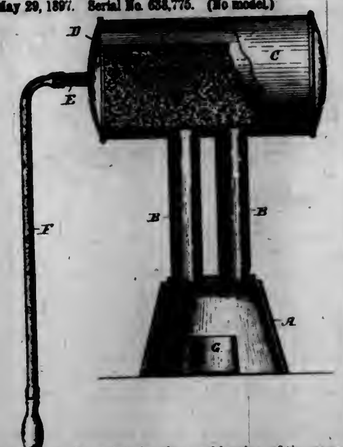


Claim.—1. The combination with a locomotive, of a pipe or passage leading from the stack thereof to the rear end of the locomotive, an opening at the forward end of said pipe or passage, a valve controlling said opening, an upwardly-extending branch leading from said pipe or passage, a hinged cover for controlling said branch, and a valve in said pipe or passage in the rear of said branch.

2. A pipe or passage provided at its end with a sliding collar, and overlapping arms having longitudinal slots to receive pins upon said sliding collar and to which said collar is permanently fastened.

3. A pipe or passage provided at one end thereof with a concentric surrounding sleeve, a ring between said pipe and sleeve, longitudinally-extending slotted arms upon said sleeve, a sliding collar situated between said pipe and sleeve and having pins entering the slots of said arms, and springs situated between said collar and said ring.

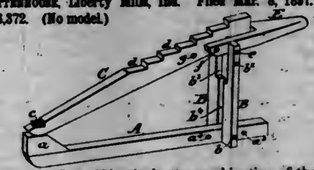
594,966. INHALER. JOHN A. RAFTER, Holton, Kans. Filed May 29, 1897. Serial No. 638,775. (No model.)



Claim.—1. In an inhaler the combination of the open bottomed heating-chamber adapted to cover or inclose the cup G, and to serve as a support for the device, with the cylinder C, provided with the holder D, for inclosing medicinal compounds and healing agents, and an inhaling-tube F, projecting from said cylinder C, and the tubes B, B, projecting upwardly from the heating-chamber and supporting the chambers C, and D, and interiorly connecting the said chambers substantially as described.

2. In an inhaler, the open-bottomed heating-chamber adapted to serve as a support, and to inclose the metal cup G, the cylinder C provided with a holder D, for medicinal agents, and a nipple E projecting from the cylinder C, and an inhaling-tube F, secured to, and projecting from the nipple E, and the tubes B, B, interiorly connecting the chamber A, to the cylinder C, and the holder D, all connected and arranged as is shown in the drawing, so that the vapor or fumes generated in the cup and heating-chamber will pass through the tubes into the cylinder, and there combine with the vapors and fumes from the medicinal agents contained in the holder, and from thence pass through the nipple and inhaling-tube into the organs of respiration, and hearing, substantially as described.

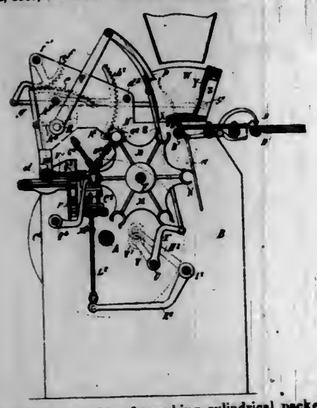
594,967. LIFTING-JACK. SILAS B. RITTENHOUSE and JAMES F. RITTENHOUSE, Liberty Mills, Ind. Filed Mar. 8, 1897. Serial No. 626,372. (No model.)



Claim.—1. In a lifting-jack, the combination of the shoe-beam, the lifting-beam hinged thereto at its front end, two parallel standards hinged to the rear end on the outside of the shoe-beam and having their upper portions farther apart than their lower portions, a hand-lever having its front end mortised lengthwise thereof and its branches received between the upper portions of the standards, a bolt *e* passing through the standards and through the branches of the hand-lever, and adapted to support and constitute a rest for the bottom of the lifting-beam, and a pin *f* passing through the front ends of the branches of the hand-lever and through the lifting-beam, substantially as described.

2. In a lifting-jack, the combination of the shoe-beam, the lifting-beam having its front end provided with a tapering hole wider at the bottom, a bolt passing vertically through said hole and shoe-beam, two parallel standards hinged to the rear end of the shoe-beam and having their upper portions farther apart than their lower portions, the hand-lever E having its front end mortised lengthwise, the bolt *e* passing through the standards and through the branches of the hand-lever, and the pin *f*, passing through the front end of said branches and adjustably through the lifting-beam substantially as described.

594,968. MACHINE FOR WRAPPING AND SECURING TOBACCO IN PACKETS. WILLIAM ROSE, Gainsborough, and HENRY H. WILLS, London, England, assignors, by mesne assignments, to the Wright's Automatic Tobacco-Packing Machine Company, Lynchburg, Va. Filed Dec. 30, 1892. Serial No. 456,754. (No model.) Patented in England Sept. 12, 1885, No. 10,837, and in Germany Aug. 26, 1886, No. 38,546.



Claim.—1. In a machine for making cylindrical packets of tobacco or similar material, a mold-wheel provided with a series of partly-cylindrical mold boxes or recesses in which the packets are formed, wrapper-feeding mechanism adapted to feed wrappers in position over the mold-boxes, and devices for intermittently and simultaneously operating the mold-wheel and wrapper-feeding devices, substantially as set forth.

2. In a machine for forming cylindrical packets of tobacco or similar material, a mold-wheel provided with partly-cylindrical mold boxes or recesses, devices for feeding wrappers intermittently to the mold-boxes and devices for holding such wrappers in position over the mold-boxes during the operation of the packing devices, substantially as set forth.

3. In a machine for forming cylindrical packets of tobacco or similar material, a mold-wheel provided with partly-cylindrical mold-recesses, devices for feeding wrappers to such mold-recesses and devices for retaining such wrappers in position, and mechanism for feeding tobacco or similar material onto the wrappers in the mold-recesses.

4. In a machine for forming cylindrical packets of tobacco or similar material, a mold-wheel provided with partly-cylindrical mold-recesses, devices for feeding wrappers to such mold-recesses and devices for retaining such wrappers in position, mechanism for feeding tobacco or similar material onto the wrappers in the mold-recesses, and a plunger for compacting the material to be wrapped into cylindrical shape, substantially as set forth.

5. In a machine for forming cylindrical packets of tobacco or similar material, the combination with a mold-wheel provided with partly-cylindrical mold boxes or recesses and wrapper and tobacco feeding mechanism, of a plunger for compacting the tobacco or similar material and movable pistons adapted to be inserted into the ends of the mold-recesses to compress the tobacco endwise and be withdrawn therefrom at each partial revolution of the mold-wheel, substantially as set forth.

6. In a machine for forming tobacco or similar material into cylindrical packets, the combination with hollow rotating plungers having pistons fitted to slide therein for pressing the tobacco into packets of the required length, of a mold-box and means for nipping the ends of the wrapper while the plungers are being rotated for the purpose of rolling the tobacco in the mold-box, substantially as hereinbefore described.

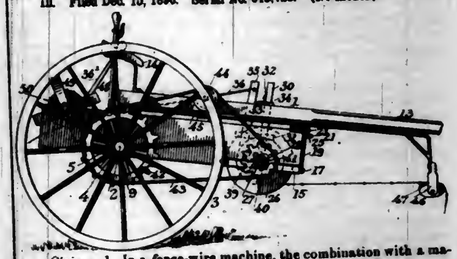
7. In combination with the partly-cylindrical mold-boxes of a machine for forming packets of tobacco or similar material, wrapper-folding devices consisting of a flat plate for folding down the first edge of the wrapper and an arm provided with a concave folding-foot for folding the second edge of the wrapper down upon the already-folded edge, substantially as shown and described.

8. The combination with mold-boxes, as N, having open sides, of plates, as A and c, the former operating to press one edge of the wrapper upon the tobacco and the latter to fold the opposite edge of the wrapper over the pressed-down edge, and means for afterward rolling the tobacco and wrapper in one of the mold-boxes, substantially as shown and described.

9. In combination with a mold-box having an open side and adapted to contain a charge of tobacco unsecured by a wrapper, to form a partially-wrapped packet, of devices for engaging the ends of the wrapper and means for rotating such devices to cause the packet to be rolled in the mold box for the purpose of smoothly fitting the wrapper to the tobacco, substantially as set forth.

10. In combination with mold-boxes having open sides and adapted to contain charges of tobacco for packets, of wrapper and tobacco feeding devices, devices for folding the wrappers around the tobacco, devices for folding in the ends of the wrappers, automatically-operating devices for applying adhesive or sealing material to the last end of the wrappers and devices for pressing such end folds against the previously-made folds to complete the packets, substantially as set forth.

594,969. FENCE-WIRE MACHINE. FRANK SCHMITT, Carlyle, Ill. Filed Dec. 15, 1896. Serial No. 615,726. (No model.)



Claim.—1. In a fence-wire machine, the combination with a machine-frame and traction-wheels therefor, of members hinged to the said frame at opposite sides thereof and having their free portions terminating at the ends of the frame, locking members hinged to the aforesaid members and extending against the ends of the frame, said locking members being provided with eyes, independent apertured projecting pieces secured to the frame and adapted for reception in the eyes of the locking members, and a single locking-bar passing through the apertured pieces and securing the locking members in position.

2. In a fence-wire machine, the combination with a machine-frame and traction-wheels, of a winding-drum journaled in said frame, an operative connection between said drum and the traction-wheels, a rock-shaft journaled to the frame, a wire-guide carried by the rock-shaft, and means for holding the rock-shaft in adjusted position.

3. In a fence-wire machine, the combination with a machine-frame and traction wheels, of a winding-drum carried by said machine-frame, an operative connection between said winding-drum and the traction-wheels, a longitudinally-extending rock-shaft, a sheave-block carried by said rock-shaft, a sheave mounted in said sheave-block, which sheave and block constitute a wire-guide, and a controlling-lever connected to the rock-shaft.

594,970. BOTTLE. RICHARD M. SEIBEL and DAVID C. MCCARROLL, Kansas City, Mo. Filed Dec. 1, 1896. Serial No. 614,107. (No model.)



Claim.—1. In a bottle of the class described, the combination with the neck thereof, of a loosely-fitting stopper adapted to be inserted into said neck, a compressible cork arranged within said neck above the stopper, and means for compressing the cork to lock the latter upon the stopper, said cork forming a cushion for the stopper and adapted to prevent displacement of the latter from its seat, substantially as described.

2. In a bottle of the class described, the combination with the neck thereof, of a loosely-fitting stopper adapted to be inserted into said neck, a compressible cork arranged within the neck above said stopper, and a locking-disk also arranged within the neck above the cork, said locking-disk being adapted to compress the cork within the neck to lock the stopper therein, said cork forming a cushion for the stopper and adapted to retain the latter upon its seat, substantially as described.

3. In a bottle of the class described, the combination with the neck thereof provided with an inner annular groove, of a loosely-fitting stopper adapted to be inserted in said neck, a compressible cork arranged within the neck and above said stopper, and a spring locking-disk also arranged within the neck and disposed above said cork, said locking-disk being adapted to engage the annular groove of the neck and compress the cork therein, whereby said cork is adapted to form a cushion for the stopper and thereby retain the same upon its seat, substantially as described.

4. In a bottle of the class described, the combination with the neck thereof provided with an interior annular groove and an exterior groove, the latter being adapted to permit the neck being fractured, of a loosely-fitting stopper adapted to be inserted into said neck, a compressible cork arranged within the neck above said stopper, and a locking-disk also arranged within the neck and disposed above said cork, said locking-disk being adapted to engage the interior annular groove of the neck and compress the cork therein, whereby said cork is adapted to form a cushion for the stopper and retain the latter upon its seat, substantially as described.

5. In a bottle of the class described, the combination with the neck thereof provided with an interior annular groove, of a loosely-fitting stopper adapted to be inserted into said neck, a compressible cork arranged within the neck above said stopper, and a compressing locking-disk also arranged within the neck above said cork, said locking-disk having two of its opposite sides formed with continuous straight edges, whereby the diameter of said disk is slightly less than the diameter of the mouth to facilitate insertion of the disk therein, said disk being adapted to compress the cork within the neck so as to form a cushion for retaining the stopper upon its seat, substantially as described.

594,971. AUTOMATIC SPRINKLER FOR FIRE-EXTINGUISHERS. CAMPBELL B. SHAW, Kirkwood, Mo. Filed Jan. 23, 1897. Serial No. 620,461. (No model.)



Claim.—1. In an automatic sprinkler, the combination of a valve, a sectional strut arranged to hold said valve to its seat, a thermostatic chamber provided with a flexible wall, and a connection between said flexible wall and strut, through means of which the members of said strut are locked together and released by the flexing of said wall in thermostatic action, substantially as set forth.

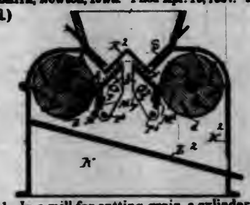
2. In an automatic sprinkler, the combination of a valve, a sectional strut arranged to hold said valve to its seat, a spray-disk, a screw-stem carried by said disk and arranged to engage the outer end of said strut, a thermostatic chamber provided with a flexible wall, and a connection between said flexible wall and strut, through means of which the members of said strut are locked together and released by the flexing of said wall in thermostatic action, substantially as set forth.

3. In an automatic sprinkler, the combination of a valve, a sectional strut arranged to hold said valve to its seat, a thermostatic chamber provided with a flexible wall, and a key arranged to lock the members of said strut together, said key being so disposed as to be acted upon in the flexing of said wall whereby it is released from said strut, substantially as set forth.

4. In an automatic sprinkler, the combination of a valve, a sectional strut arranged to hold said valve to its seat, a thermostatic chamber provided with a flexible wall, a spring seated against said wall, a key forming a connection between said wall and said strut arranged to lock the members of said strut together, and a loop carried by said spring arranged to engage the edge of said key, substantially as set forth.

5. In an automatic sprinkler, the combination of a valve, a strut arranged to hold said valve to its seat, a thermostatic chamber provided with a flexible wall, and a connection between said flexible wall and strut, through means of which the members of said strut are locked together and released by the flexing of said wall in thermostatic action, substantially as set forth.

594,972. MILL FOR CUTTING GRAIN. ELVAH C. SMITH and JAMES O. SMITH, Newton, Iowa. Filed Apr. 10, 1897. Serial No. 631,514. (No model.)



Claim.—1. In a mill for cutting grain, a cylinder having straight slots extending from end to end longitudinally and tangentially to a circle within that of the cylinder, straight cutters fitted in said slots and having tapering extensions at their ends, a shaft extended from the ends of the cylinder and portions thereof screw-threaded, collars having external screws and beveled at the edge on their inner ends to engage the inner edges of the tapering extensions of the said cutters fitted to the screw-threaded portions of the shaft, locking-collars fitted on the collars on the shaft and beveled at their inner ends to engage the outside edges of the tapering extensions of the adjustable cutters, and means for fastening the movable collars in fixed positions relative to the shaft and cylinder, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a mill for cutting grain, a cylinder having straight slots extending from end to end longitudinally and tangentially to a circle within that of the cylinder, straight cutters fitted in said slots and having tapering extensions at their ends, a shaft extended from the ends of the cylinder and portions thereof screw-threaded, collars having external screws and beveled at their outside inner edges to engage the inner edges of the tapering extensions of the said cutters fitted to the screw-threaded portions of the shaft, locking-collars fitted on the collars on the shaft and beveled at their inner ends to engage the outside edges of the tapering extensions of the adjustable cutter, and means for fastening the movable collars in fixed positions relative to the shaft and cylinder, rings fixed to the ends of the cylinder and provided with annular flanges extending at right angles to cover the concentric collars on the shaft, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a mill for cutting grain, a cutter-support consisting of a metal frame having a flat straight central part and an inclined flange at its top edge, right-angled end portions provided with curved slots and straight cutters adjustably fixed to the central portion, in combination with the parallel sides of a frame or case, and a cylinder carrying adjustable cutters mounted upon said frame or case, arranged and combined to operate in the manner set forth, for the purposes stated.

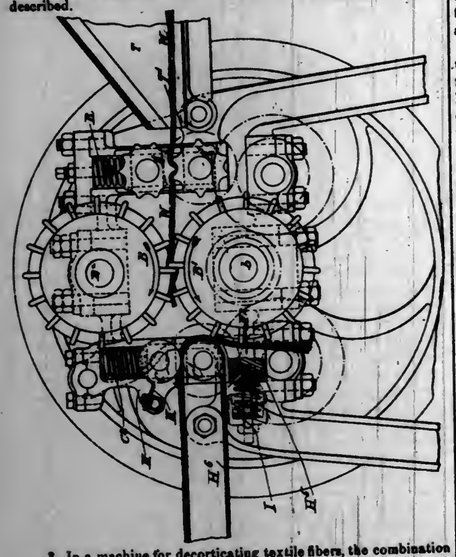
4. A mill for cutting grain, comprising a frame or case having an inclined bottom, a hinged top or cover, a hopper fixed to the cover, a bottom in the hopper inclined in reverse ways from its center, two cylinders mounted in parallel position on opposite sides of the hopper, adjustable cutters having internal tapering extensions at their ends fitted in slots extended tangentially to the circles within those of the cylinders, collars having beveled edges to engage said extensions for adjusting and locking said cutters in the cylinders, cutter-supports, having straight cutters adjustably fixed thereto, adjustably connected with the parallel sides of the frame or case to extend parallel with the cutters carried by the cylinders, and means for rotating the cylinders toward each other, all arranged and combined to operate in the manner set forth, for the purposes stated.

594,973. APPARATUS FOR TREATING FIBROUS PLANTS. GUSTAVE R. H. I. R. SUSSA, London, England, assignor of one-half to Walter Smith, same place. Filed Aug. 12, 1895. Serial No. 559,054. (No model.)

Claim.—1. In a machine for decorticating fibrous materials, the combination of a pair of beating-drums having beater-blades, a driving-gear fixed upon the shaft of one of said drums, a disk fixed upon the shaft of the other drum and provided at opposite points with abutments or stops, and a loose gear upon said latter shaft having a concentric groove or slideway receiving said stops, said groove or slideway having corresponding abutting stops and being provided with springs and adjusting devices therefor, substantially as described and shown.

2. In a machine for decorticating fibrous materials, the combination of a pair of beating-drums, each having longitudinal blades,

and the blades of one drum extending into the spaces between the others, a loose gear fixed upon the shaft of one drum, and provided at diametrically opposite points with abutting stops, and having concentric grooves, springs located in the grooves, a disk on the same shaft having corresponding stops which enter the grooves, and a driving-gear fixed upon the shaft of the other drum, substantially as described.



3. In a machine for decorticating textile fibers, the combination of a pair of beating-drums having longitudinal blades, a pair of receiving-rolls located beyond said drums and a receiving-belt, and a spring-pressed anvil adjacent and between the lower roll and drum and having its operative face concaved, substantially as shown and described.

4. In a machine for disintegrating fibrous materials, the combination of a pair of feed-rolls, a pair of drawing-off rolls, an intermediate set or pair of beating rolls or cylinders, and means for producing a rubbing action of the beating-blades upon the material, substantially as shown and described.

5. In a machine for disintegrating fibrous materials, the combination of a pair of feed-rolls, a pair of drawing-off rolls, and an intermediate set or pair of beating-rolls, each provided with blades, with the blades of one cylinder touching those of the other, and means for imparting to one of said rolls a circumferential yielding action, substantially as described.

594,974. RANGE OR STOVE. LAWSON TAIT, Birmingham, England. Filed Apr. 26, 1897. Serial No. 634,031. (No model.)

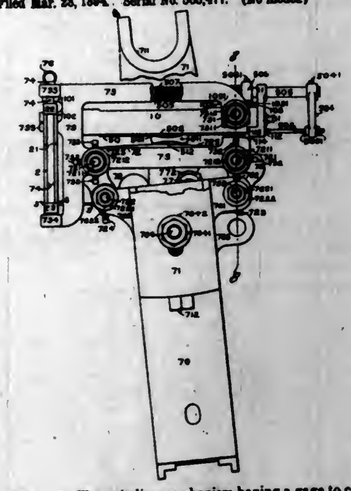


Claim.—1. The combination of the outer casing with removable top, the two ovens within the casing, the fire-box between the ovens and extending from front to back of the casing, the side walls of the fire-box continued to the top and bottom of the casing, the space below the fire-box forming the ash-pit, the flue-spaces at the back and on the outer sides and above and below the ovens and above the fire-box, the opening from the lower part of the fire-box into the space at the back of the oven and the openings from the spaces at the back of and below the ovens into the lower part of the ash-pit, and means for normally covering or closing these openings, so that by removing the top of the casing and uncovering said openings into the ash-pit the whole interior of the range can be cleaned with facility.

2. The combination of the outer casing with removable top, the fire-box inclining downward and extending from front to rear of the casing, the side walls of the fire-box continued to top and bottom of the casing, the space below the fire-box forming the ash-pit, the oven at one side of the fire-box, the flue-space at the back of the oven, the exit for the products of combustion from the fire-box to pass into this space, the spaces at the outer side of and above and below the oven and above the inclined fire-box opening one into another in such way that the products of combustion from the fire pass first to the back of the oven then up its outer side and over its top and afterward over the top of the inclined fire-box.

3. The combination of the outer casing, having a removable top, the centrally-located fire-box closed at the top and inclined from the front downwardly, the ovens, one on each side of the fire-box and having spaces around them for the circulation of the products of combustion, a passage connecting one end of the circulating-space that is around one oven with the fire-box, a passage across the closed top of the fire box connecting the other end with one end of the circulating-space around the second oven and a passage connecting the other end of said last-named circulating-space with the outlet or chimney.

594,975. GRINDING MECHANISM FOR FLATS OF TRAVELING-FLAT CARDING-ENGINES. CHANNING WHITAKER, Tyngsborough, Mass., assignor to the Lowell Machine Shop, Lowell, Mass. Filed Mar. 28, 1894. Serial No. 505,477. (No model.)



Claim.—1. Flat-grinding mechanism having a gage to coöperate with the shoe of a flat, a support for said gage, and means operated by the moving flat to draw the said gage against the shoe of said flat, whereby to give the proper inclination to the flat while being ground, substantially as described.

2. Flat-grinding mechanism having a gage to coöperate with the shoe of a flat, a movable support on which said gage is adapted to slide, and means operated by the moving flat to draw the said support toward the flat and press the said gage against the shoe of said flat, whereby to give the proper inclination to the flat while being ground, substantially as described.

3. Flat-grinding mechanism having a gage to coöperate with the shoe of a flat, a support for said gage, means operated by the moving flat to draw the said gage against the shoe of said flat, whereby to give the proper inclination to the flat while being ground, and a stop to determine the limit of the movement of the gage as the latter is moved against the shoe, substantially as described.

4. Flat-grinding mechanism having a gage to coöperate with the shoe of a flat, a movable support on which said gage is adapted to slide, means operated by the moving flat to draw the said support toward the flat and press the said gage against the shoe of said flat, whereby to give the proper inclination to the flat while being ground, and a stop to determine the limit of the movement of the support as the gage is moved against the shoe, substantially as described.

5. Flat-grinding mechanism having a yielding table over which the flats pass successively, a gage to coöperate with the shoe of a flat, a support for said gage, and devices whereby pressure exerted by a flat against the table is transmitted and caused to move the gage against the shoe of the said flat to thereby give the proper inclination to the flat while being ground, substantially as described.

6. Flat-grinding mechanism having a yielding table over which

the flats pass successively, a slide to engage with the shoe which is formed at the end of each flat, a movable support on which said slide is free to be moved through its engagement with the flat bearing against the table, and devices intermediate the table and the support whereby pressure exerted by a flat against the table is transmitted to the support and moves the latter to bear the slide into engagement with the shoe of the said flat, substantially as described.

7. Flat-grinding mechanism having a table with which the flats of a traveling-flat carding-engine engage successively as they pass the grinding device, a slide which is engaged by an advancing flat, and means to bear said slide with a yielding pressure toward the said table and to return the same to its original position after becoming disengaged from the flat by which it has been moved, substantially as described.

8. Flat-grinding mechanism having a yielding table over which the flats pass successively, a slide to engage with the shoe which is formed at the end of each flat, a movable support on which said slide is free to be moved through its engagement with the flat that is upheld by the table, and means intermediate the said table and said support whereby when a flat passes onto the table the support is depressed to bear the slide against the shoe of such flat and when the flat passes the table the support is raised, substantially as described.

9. Flat-grinding mechanism having a table over which the flats pass successively, the blade-spring 3 fixed at one end thereof and borne upon at an intermediate point in its length by the table, the slide to coöperate with the shoe which is formed at the end of each flat, a movable support on which the slide is free to move, and connections intermediate the free end of the spring and the said support whereby to transmit movement to the support, substantially as described.

10. Flat-grinding mechanism having a table pivoted at one end thereof and over which the flats pass successively, the blade-spring 3 fixed at one end thereof, and borne upon at an intermediate point in its length by the free end of the table, the slide to coöperate with the shoe which is formed at the end of each flat, a slide-support pivoted at one end thereof and on which the slide is free to move, and connections intermediate the free end of the spring and the said slide-support whereby when the table is depressed by the pressure of a flat thereagainst the slide-support is moved to carry the slide into engagement with the shoe of the flat, substantially as described.

11. Flat-grinding mechanism having the table pivoted at one end thereof and over which the flats pass successively, the blade-spring 3 fixed at one of the ends therpof and borne upon at an intermediate point in its length by the free end of the table, the slide to coöperate with the shoe which is formed at the end of each flat, a slide-support pivoted at one end thereof and on which the slide is free to move, and a sliding link having one end thereof engaged with the free end of the spring and the other end thereof engaged with the slide-support, whereby when the table is depressed by the pressure of a flat thereagainst the slide-support is moved to carry the slide into engagement with the shoe of a flat, substantially as described.

12. Flat-grinding mechanism having a yielding table over which the flats pass successively, a slide to coöperate with the shoe which is formed at the end of each flat, a movable slide-support on which said slide is free to be moved through its engagement with the flat that is in contact with the table, a retractor for returning the slide to its original position on the support after being moved thereon by a flat, and means acting to move the said support to maintain the slide in close contact with the shoe of the flat while the latter continues upheld by the table, substantially as described

13. Flat-grinding mechanism having a yielding table over which the flats pass successively, a slide to coöperate with the shoe which is formed at the end of each flat, a movable slide support on which said slide is free to be moved through its engagement with the flat upheld by the table, a retractor for returning the slide to its original position on the support after being moved thereon by a flat, and devices intermediate the table and the slide-support whereby pressure exerted by a flat against the table is transmitted to the slide-support and the latter is caused to carry the slide into engagement with the shoe of the flat, substantially as described.

14. Flat-grinding mechanism having a table pivoted at one end thereof and over which the flats pass successively, the blade-spring 3 fixed at one end thereof and borne upon at an intermediate point in its length by the free end of the table, the slide to coöperate with the shoe which is formed at the end of each flat, a movable slide-support on which the slide is free to move, connections intermediate the free end of the spring and the said slide-support whereby when the table is depressed by the pressure of a flat thereagainst the slide-support is moved to carry the slide into engagement with the shoe of the flat, and a retractor for returning the slide to its original position on the support after being moved thereon by a flat, substantially as described.

15. Flat-grinding mechanism having a table pivoted at one end thereof and over which the flats pass successively, the blade-spring 3 fixed at one of the ends thereof and borne upon at an intermediate point in its length by the free end of the table, the slide to coöperate with the shoe which is formed at the end of each flat, a slide-support pivoted at one end thereof and on which the slide is free to move, connections intermediate the free end of the spring and the said slide-support whereby when the table is depressed by the pressure of a flat thereagainst the slide-support is moved to carry the slide into engagement with the shoe of the flat, and a retractor for returning the slide to its original position on the support after being moved thereon by a flat, substantially as described.

16. Flat-grinding mechanism having a table pivoted at one end thereof and over which the flats pass successively, the blade-spring 3 fixed at one of the ends thereof and borne upon at an intermediate point in its length by the free end of the table, the slide to coöperate with the shoe which is formed at the end of each flat, a slide-support pivoted at one end thereof and on which the slide is free to move, a sliding link having one end thereof engaged with the free end of the spring and the other end thereof engaged with the slide-support, whereby when the table is depressed by the pressure of a flat thereagainst the slide-support is moved to carry the slide into engagement with the shoe of the flat, and a retractor for returning the slide to its original position on the support after being moved thereon by a flat, substantially as described.

17. The improved table for grinding mechanism for the flats of traveling-flat carding-engines, comprising the body portion 13, a cover-piece provided with the raised surface 121, and means for securing the said cover piece adjustably in position upon the body portion, substantially as described.

18. The improved table for grinding mechanism for the flats of traveling-flat carding-engines, comprising the body portion 13, the cover-piece provided with the raised surface 121, and the screws 1221 and 1231 passing through the ends of the cover-piece and bearing in the ends of the body-piece, substantially as described.

19. The combination with a shaped piece with which the shoe at the end of a flat may contact during the grinding of the card-clothing of the flat, and a support for the said shaped piece, of a table on which the flat may bear comprising the body portion 13, a cover-piece provided with a raised surface for holding the flat against the shaped piece aforesaid, and means for securing the cover-piece adjustably upon the body portion, substantially as described.

20. The combination with the pivoted table, a blade-spring for sustaining the free end of the said table, and a support for the spring, of devices for adjusting the spring, substantially as described.

21. The combination with the pivoted table, a blade-spring for sustaining the free end of the said table, and a support for the spring having a fulcrum on which the spring bears, of adjusting-screws on opposite sides of the said fulcrum whereby to adjust the spring, substantially as described.

22. The combination with the table pivoted at one end thereof and over which the flats pass successively, the blade-spring 3 borne upon at an intermediate point in its length by the free end of the table, the support for the said spring, and means for adjusting the spring to vary its action, of the slide, the slide-support pivoted at one end thereof, and connections intermediate the free end of the spring and the said slide-support for operating the latter from the spring, substantially as described.

23. The combination with the table pivoted at one end thereof and over which the flats pass successively, the blade-spring 3 borne upon at an intermediate point in its length by the free end of the table, a support for the spring having a fulcrum on which the spring bears, and adjusting-screws on the opposite sides of the said fulcrum whereby to adjust the spring, of the slide, the slide-support pivoted at one end thereof, and connections intermediate the free end of the spring and the said slide-support whereby the latter is operated from the spring, substantially as described.

24. The combination with the pivoted table, the blade-spring borne upon at an intermediate point in its length by the free end of the table, the slide, and the slide-support pivoted at one end thereof, of a link or connection located intermediate the spring and the slide-support, and taking bearings on the said spring and slide-support at points in line with the longitudinal axis of each, substantially as described.

25. The combination with a slide which is engaged by an advancing flat, means for supporting said slide and guiding the same in its movement, and means for retracting the slide after its release from a flat, of devices for effecting an angular adjustment of the said supporting and guiding means and thereby varying the direction in which the slide moves, substantially as described.

26. The combination with a slide which is engaged by an advancing flat, a support along which the said slide moves when advancing with a flat, and means for retracting the slide after its release from a flat, of set-screws for effecting an angular adjustment of the said support and thereby varying the direction in which the slide moves, substantially as described.

27. The combination with a slide to be engaged and moved for-

ward by an advancing flat, of guiding means for said slide, a support for such guiding means, and devices for effecting adjustment of said support universally in a vertical plane, substantially as described.

28. The combination with a slide which is engaged by an advancing flat, and a slideway along which the said slide moves when advancing with a flat, of a fixed guide for the support of the flats opposite the slide and slideway, and means for setting said slideway and fixed guide relatively to each other, including provisions for angular adjustment and also for adjusting the distance of the slideway and fixed guide apart without change of relative angular position, substantially as described.

29. The combination with a slide to be engaged and moved forward by an advancing flat, of guiding means for said slide, a support for such guiding means, and devices for effecting adjustment of said support in a direction lengthwise of the slide, substantially as described.

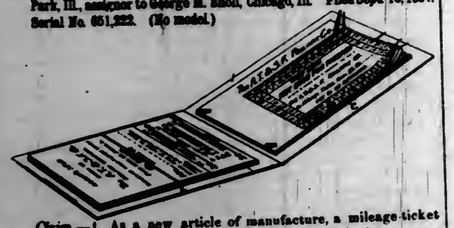
30. The combination with the movable slide support, and the slide mounted thereon and engaged and moved by a flat in the travel of the latter, of the connection 503, the arm 504, the rod 505 mounted in guides on the slide-support, the spring 507 surrounding the rod, and the collar 506 on the rod, substantially as described.

31. The combination with the pivoted table 12, and a spring by which the free end thereof is sustained, of the stud or bolt 77 on which the table is pivoted, and means for setting and holding said stud or bolt in the desired position of adjustment, substantially as described.

32. The combination with the guide 72 on which the ends of the flats slide, the support thereof, the part having the gage which cooperates with the shoe of each flat in turn, a support for such part, and the yielding table 12, of means for securing the guide 72 to the support thereof with capacity for adjustment relatively to said other parts, substantially as described.

33. Flat-grinding mechanism having a yielding table over which the flats pass successively, a slide to cooperate with the shoe which is formed at the end of each flat, a slide support formed adjacent to one end thereof with a bearing 104 composed of plane faces, a pivotal stud 731 received in the said bearing, a fixed support for the said stud, a stop mounted on a fixed support and engaging with the free end of the slide-support to arrest the slide-support in the intended position as it is drawn toward the table, and devices intermediate the table and the slide-support whereby pressure exerted by a flat against the table is transmitted to the slide-support and moves the latter to bear the slide into engagement with the shoe of the said flat, substantially as described.

594,976. RAILWAY-TICKET. WILLIAM F. WHITE, Highland Park, Ill., assignor to George M. Sholl, Chicago, Ill. Filed Sept. 10, 1897. Serial No. 651,222. (No model.)



Claim.—1. As a new article of manufacture, a mileage-ticket good for transportation over more than one road and bearing coupons representing fractional parts of the total number of miles for which the ticket is good for transportation, a stub or cover, and a separate record-blank for each road over which the ticket is good, substantially as set forth.

2. As a new article of manufacture, a mileage-ticket good for transportation over more than one road and bearing coupons representing fractional parts of the total number of miles for which the ticket is good for transportation, a stub or cover, and a separate record-blank for each road over which the ticket is good for transportation, said record-blanks being attached to the stub or cover, substantially as set forth.

3. As a new article of manufacture, a mileage-ticket good for transportation over more than one road and bearing coupons representing fractional parts of the total number of miles for which the ticket is good for transportation, a stub or cover, and a separate record-blank for each road over which the ticket is good, each of said blanks being provided with numbers representing fractional parts of the total number of miles aforesaid, substantially as set forth.

4. As a new article of manufacture, a mileage-ticket good for transportation over more than one road and bearing coupons representing fractional parts of the total number of miles for which the ticket is good for transportation, a stub or cover, and separate record-blanks bearing the names, respectively, of the roads over which the ticket is good for transportation, substantially as set forth.

5. As a new article of manufacture, a mileage-ticket good for transportation over more than one road and bearing coupons representing fractional parts of the total number of miles over which the ticket is good for transportation, a stub or cover, and separate record-blanks bearing the names of the roads over which the ticket is good for transportation, respectively, each blank bearing also numbers representing fractional parts of the total number of miles for which the ticket is good for transportation, substantially as set forth.

6. As a new article of manufacture, a mileage-ticket good for transportation over more than one road and bearing coupons representing fractional parts of the total number of miles for which the ticket is good for transportation, a stub or cover, and separate record-blanks for the roads over which the ticket is good for transportation, respectively, each blank being on a separate slip and all of said slips being attached to the stub or cover, substantially as set forth.

594,977. WIRE-UNWINDING DEVICE. HARRY C. WILLIAMS, Stockbridge, Mich. Filed Sept. 3, 1897. Serial No. 650,463. (No model.)



Claim.—1. In a wire-unwinding device, a bail in the form of a rectangle, having one side loosely connected at one end and the other adapted to be engaged to complete the rectangle, one end of said rectangle arranged to be inserted in the eye of a spool of wire, and the other adapted to form a handle, substantially as described.

2. As a new article of manufacture, a wire-unwinding device consisting of a U-shaped bail having one end terminated in the form of an eye, a side bar having one end adapted to loosely engage said eye, and the other end arranged to engage the opposite end of said bail, substantially as described.

594,978. TYPE-WRITING MACHINE. EDWIN R. BARNEY, Groton, N. Y., assignor of one-half to Frank J. Tanner, same place. Filed Jan. 11, 1897. Serial No. 618,692. (No model.)



Claim.—1. In a type-writing machine the combination with a type-bar bifurcated or notched to create two arms upon its lower end, the rod connected to one of said arms, and the key-lever having an angular upward extension to which said rod is also connected, whereby when said lever is operated to swing said type-bar, its other arm will strike against said rod and arrest said type-bar.

2 In a type-writing machine, the combination with a pivoted type-bar bifurcated longitudinally creating diverging arms upon its lower end, of a rod connected to one arm by a slot-and-pin connection, and a key-lever connected to said rod to reciprocate it longitudinally, whereby said type-bar when operated moves independently a fixed distance before striking its blow, and at the same time swings its other arm into engagement with said rod to arrest the swing of said type-bar.

3. In a type-writing machine a quadrant and type-bars mounted thereon in, combination with an impression-platen, its carriage, and a stationary upper track and a vertically-movable lower one and means to raise said quadrant and lower said carriage and platen simultaneously to shift from lower to upper case or vice versa.

4. In a type-writing machine a quadrant and type-bars mounted thereon, in combination with a carriage and impression-platen mounted therein and means to simultaneously shift said quadrant and carriage in opposite directions to shift from one printing-case to another.

5. In a type-writing machine the combination of a vertically-reciprocating carriage, and platen mounted therein, a vertically-reciprocating ribbon-guide and a ribbon mounted therein, and a vertically-reciprocating quadrant and type-bars mounted thereon.

6. In a type-writing machine, a rock-shaft and arms thereon projecting toward the front of the machine in combination with a quadrant mounted upon said arms and type-bars mounted upon said quadrant, a crank-arm secured to said rock-shaft and projecting forward and downward therefrom and means to swing said crank to rotate said shaft to reciprocate said quadrant and type-bars vertically

7. In a type-writing machine, a rock-shaft, upward and downward arms thereon, in combination with a quadrant mounted upon the upward arms, type-bars mounted upon said quadrant, a carriage-rail mounted upon the downward arms, a carriage mounted upon said track and a stationary track, an impression-platen mounted in said carriage, and means to rock said shaft and shift said quadrant and carriage simultaneously in opposite direction.

8. In a type-writing machine, a rock-shaft having upward and downward arms thereon, a quadrant mounted upon the upward arms, type-bars upon the quadrant, a carriage carried by the downward arms, a platen mounted upon said carriage, in combination with a vertically-reciprocated ribbon-guide and a ribbon mounted therein, and means to reciprocate said quadrant, carriage and ribbon-guide simultaneously to change from one printing-case to another.

9. In a type-writing machine a bank of key-levers, a universal bar mounted and adapted to swing forward and back upon its supporting-arms, a rod connecting it to a bell-crank, a bell-crank connected to a ribbon-guide in combination with a ribbon-guide vertically reciprocated in the same plane by the operation of a key-lever, and its engagement with said bar.

10. In a type-writing machine a bank of key-levers, a universal bar mounted and adapted to swing forward and back upon its supporting-arms, a rod connecting it to a bell-crank, a bell-crank connected to a ribbon guide in combination with an impression-platen, and a ribbon-guide which is vertically reciprocated in the same plane in front of said platen by the operation of a key-lever, and its engagement with said bar.

11. In a type-writing machine a bank of key-levers, a series of type-bars operatively connected thereto, a universal bar mounted and adapted to swing forward and back upon its arms, a rod connecting it to a bell-crank, and a bell-crank connected to a ribbon-guide, in combination with an impression-platen, and a ribbon-guide which is vertically reciprocated in the same plane into and out of the path of the type of each type-bar by the operation of a key-lever, and its engagement with said bar.

12. In a type writing machine the combination with the impression-platen and its carriage mounted upon and traversing suitable tracks and a tappet upon said carriage, of a rock-shaft having an arm in position to be engaged by said tappet, a counterbalance-weight upon said shaft and a pivoted shaft carrying an arm and a hook the weight engaging the arm normally holding said hook up, and releasing it when said tappet engages with said shaft-arm to raise said weight.

13. In a type-writing machine a swinging universal bar, a series of key levers each adapted to swing said bar, a traversing carriage, and a tappet thereon, in combination with a weighted rock-shaft, a key-locking hook normally held open by the weight on said shaft, and released by the engagement of said tappet with the arm of said shaft, whereby said weight is raised and said hook released to fall and lock said universal bar.

14. In a type-writing machine the combination with a universal bar adapted to be swung upon its mounting, and a gravity locking-hook engaging with it, of a key-lever having an arm which engages with said hook to raise it, and release said bar when said lever is operated.

15. In a type-writing machine, a traversing carriage and a platen mounted therein, and provided with a ratchet, a swinging arm on said carriage provided with a pawl engaging with said ratchet, in combination with a swinging lever having a limited movement, a rock-shaft adapted to be manually rocked, and intermediate connections whereby said lever is swung and the platen is rotated for line-spacing by the partial rotation of said shaft, and said carriage retracted by its further rotation.

16. In a type-writing machine the combination with the carriage, and spring-wheel connected thereto, of a pinion upon said wheel, a rack engaging therewith, and a lever mechanism extending to the front of the machine whereby said carriage is drawn back into position to start a line of printing.

17. In a type-writing machine, the combination with the carriage, and spring-wheel connected thereto, of a pinion upon said wheel, a traversing rack engaging therewith, a draw-bar connected thereto, a crank-arm connected to said draw-bar and a rock-shaft whereby the carriage is retracted by the rocking of said shaft.

18. In a type-writing machine the combination with a traversing carriage, a platen mounted thereon, a ratchet thereon, and a line-spacing pawl engaging with said ratchet and mounted upon a swinging lever, of a bar across the machine, a bell-crank lever mounted thereon, a draw-bar connected thereto, a crank-arm connected to said draw-bar, and a rock-shaft whereby said bell-crank is swung and the platen rotated for line-spacing.

19. In a type-writing machine, the combination with a traversing carriage, a platen mounted thereon, a ratchet thereon, and line-spacing pawl engaging with said ratchet and mounted upon a swinging lever, of a bar across the machine, a bell-crank mounted thereon, a rack-bar suspended from and traversing said bar, a draw-bar connected thereto by a "lost-motion" connection and engaging with said bell-crank, a crank-arm connected to said draw-bar, a rock-shaft carrying said crank-arm, a spring-wheel connected to said carriage, and a pinion on said wheel engaged by said rack, whereby the rotation of said shaft first rotates the platen for line-spacing and thereafter retracts the carriage.

20. In a type-writing machine a traversing carriage, a spring-wheel connected to both ends thereof, and a pinion upon said wheel, in combination with a traversing rack-bar engaging with said pinion and means to retract said rack-bar and thereby retract said carriage.

21. In a type-writing machine, a main frame a quadrant and type-bars mounted to be vertically reciprocated thereon in combination with a carriage-frame, and an impression-platen mounted to be vertically reciprocated therein, substantially in equipoise with said quadrant and type-bars.

22. In a type-writing machine a carriage, a platen-frame connected thereto, and a platen mounted in said frame, in combination and substantially in equipoise with a quadrant and type-bars mounted thereon, a key lever and intermediate actuating mechanism connected to said quadrant whereby the downward movement of said quadrant raises said platen and frame.

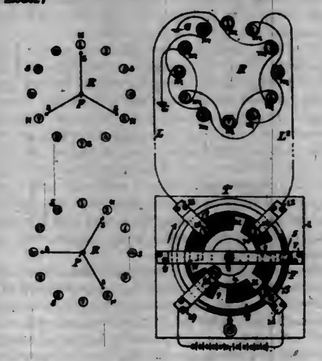
23. In a type-writing machine, the combination with a quadrant, type-bar-guiding fins mounted thereon in radial lines, and elongated type-bar guides mounted upon its upper portion creating converging slots, of bifurcated type-bars mounted astride of said fins and doubly guided by them and by the converging walls of said slots when operated by a suitable key-lever action.

24. In a type-writing machine the combination with a suitably-mounted type-bar, and a rod connected to its heel, of a bell-crank key-lever slotted to create arms to one of which said rod is connected, and whereby the relations of said lever and rod to each other can be adjusted.

25. In a type-writing machine the combination with a type-bar suitably mounted upon a fulcral bearing, forked below said bearing, of a rod directly connected to one arm of said type-bar to operate it, and engaging with it for a part of its movement and engaging with the other arm thereof at the end of said movement

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594,979. TELEPHONIC SELECTIVE SIGNALING. JOHN A. BARRETT, Brooklyn, N. Y., assignor to the American Telephone and Telegraph Company, of New York. Filed Mar. 1, 1897. Serial No. 625,630. (No model.)



Claim.—1. The combination in a signaling-circuit, of a motor receiving instrument comprising a fixed system of armature-coils surrounding a core or series of cores, and a permanent rotary-field magnet mounted within the space surrounded by said cores, and of two or more circuit-conductors connecting said coils, the number of circuits being less than the number of coils, with an electric-current generator and a selective-signal and current-controlling transmitter, comprising means for creating different relations between the ends of said conductors and the poles of said generator, and for combining any two of said conductors into a circuit and sending currents of either direction through said circuit, thereby establishing magnet-poles at desired points on said armature-core, substantially as described.

2. An electromagnetic motor comprising a fixed armature composed of a ring-core of iron, a plurality of exciting-helices wound thereover, and formed into a closed circuit with each other, a series of polar faces symmetrically arranged around the said ring-core, and branch conductors extending outward from the closed-coil circuit or main circuit connections, in combination with a permanently-polarized rotary-field system adapted to move between different points of said armature, and consisting of a permanent inducing-magnet, a rotary shaft journaled or hung to move freely in the center of the armature-ring, and pole-pieces carried by the said shaft, and mounted in the space between the poles of said polarizing magnet to receive a constant magnetization therefrom; substantially as specified.

3. The combination in a signaling-circuit, of a motor signal-receiver comprising a fixed armature system having an iron ring-core, a continuous winding therefor and a plurality of polar surfaces adapted to constitute selectively-placed consequent poles, and a movable-field system having permanently-magnetized poles, suspended centrally within the ring and adapted to revolve, and to set itself in line with any of the said selectively-established poles; with a source of current; main-circuit conductors extending therefrom to connections with the said armature-windings at points dividing the same into substantially equal parts; and a circuit and current controlling transmitter placed between the poles of said source and the terminals of said conductors, and consisting of a plurality of keys controlling a like number of different combinations of said poles and terminals, and different combinations of current; whereby the armature-poles of said motor-receiver may be selectively established in any predetermined polar surfaces, and the field caused to move into a corresponding predetermined position, according to the particular key operated.

4. The combination in a signaling-circuit, of a motor signal-receiver consisting of a fixed ring-armature with closed-circuit coils associated with the main circuit, and a permanently-magnetized rotary field arranged to revolve freely within the armature-ring; a call-signal device actuated by said rotary field when moved to a definite position in the said ring; a generator of current; main conductors for the said circuit extending between said generator and said motor-receiver; and a circuit and current controlling transmitter consisting of a series of keys each controlling a separate combination of the conductor and generator terminals, and each organized to transmit to the armature-coils of said motor, a definite current combination, adapted to rotate the field system of said motor to a particular position differing for each key within the ring thereof; whereby the signal controlled by said field system may be selectively operated.

5. A rotary motor-selector, consisting of a number of coils in a closed circuit with branches therefrom for connection with the main-circuit conductors; an iron ring-core surrounded by such coils and having inwardly-projecting pole-pieces; a rotary field magnet journaled or hung in the center of the coils and permanently polarized by a permanent inducing-magnet; an automatic brake or damper to check the oscillations of the said field-magnet mounted on the shaft thereof; and a means for operating an indicator or an alarm, also mounted upon said shaft; as described herein.

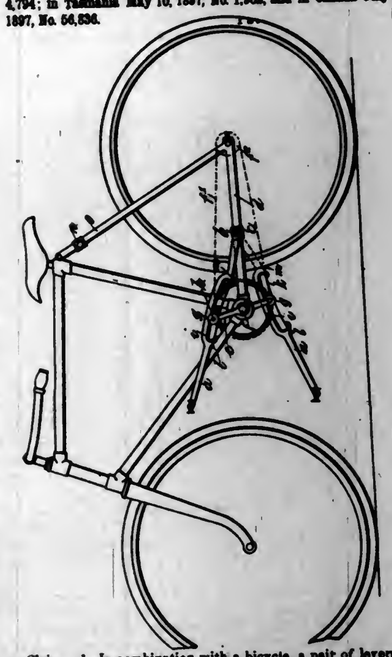
6. In a signaling-circuit, the combination of a source of electrical current; and a multiple-circuit controller consisting of a number of keys or switches each adapted to introduce in the circuit a prescribed direction and distribution of current from said source; with a series of motor signal-receivers connected in the main circuit, each consisting of a plurality of coils in a closed circuit encircling an iron ring-core having pole-pieces, and holding such relation to the main circuit that definite and different predetermined polarities may be established in the said pole-pieces by each of said keys; and a polarized field magnet centrally placed between the coils in inductive relation thereto, and having a limited rotary movement differing in position for each motor, the said field-magnet being adapted when operated to actuate an indicator or an alarm.

7. In a selective call-circuit, a source of electricity, a multiple-circuit controller, and a plurality of rotary motor selectors or receivers; the controller consisting of a number of keys or switches each adapted to introduce in the circuit a prescribed polarity and distribution of current; each receiver comprising a fixed element consisting of a plurality of electromagnetic coils in series, in such relation to the main circuit that definite and different predetermined polarities may be selectively established in the cores of the coils, and a movable element consisting of permanent-magnet poles hung in the center of the group of coils; a circuit-closing device actuated by said movable part; and a local circuit controlled thereby and including a battery and a bell; whereby upon the manipulation of any one of said keys or switches the corresponding circuit-closing device and no other, operates to close its own local circuit, and operate the bell included therein.

8. The combination in a signaling-circuit, of a battery; and a circuit-controller consisting of a plurality of keys adapted to introduce in the circuit prescribed polarities and distribution of the current supplied by said battery; with a plurality of motor signal-receivers, each consisting of a plurality of coils in a closed circuit upon an iron ring in such relation to the main circuit, that upon the manipulation of any key two definite predetermined consequent poles of opposite polarity differing for each key will be selectively established in the said ring; and a rotary polarized magnet in inductive relation with said ring adapted to arrange itself in line between said established poles; as and for the purposes set forth.

9. The combination in a signaling-circuit, of a battery; and a circuit-controller consisting of a plurality of keys adapted to transmit currents varying in direction and distribution; with a plurality of motor signal-receivers one for each key, each consisting of a plurality of coils in a closed circuit, upon an iron ring, with branches extending from between the said coils to the main circuit, and a rotary polarized field magnet in inductive relation with the said coils, adapted to operate an indicator or an alarm; whereby upon the manipulation of any key two definite predetermined consequent poles of opposite polarity will be selectively established in the said rings of the said motors and an indication or an alarm given by the one corresponding to said key, as set forth.

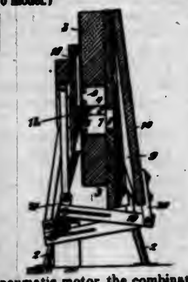
594,980. CYCLE-PROPELLING MECHANISM. GEORGE T. BOOTH and WILLIAM SCOTT, Christchurch, New Zealand. Filed Aug. 13, 1897. Serial No. 648,009. (No model.) Patented in New South Wales Apr. 22, 1897, No. 7,416; in Victoria Apr. 23, 1897, No. 14,121; in Queensland Apr. 26, 1897, No. 3,855; in South Australia Apr. 26, 1897, No. 4,794; in Tasmania May 10, 1897, No. 1,902, and in Canada July 23, 1897, No. 56,536.



Claim.—1. In combination with a bicycle, a pair of levers having their rear ends pivoted to the rear forks of the bicycle-frame and their forward ends provided with foot-pedals, curved guides secured to the intermediate portions of said levers and having forked or divided ends, flanged rollers carried by the cranks adapted to travel in said guides, guards *k* pivoted to the levers at one end and passing through between the forked or divided ends of the guides and spring-bolts for detachably securing the opposite ends of the guards in place, substantially as described.

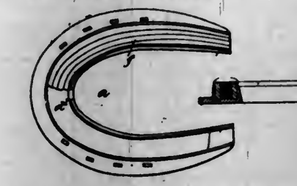
2. In combination with a bicycle, a pair of treadle-levers pivoted to the rear forks of the bicycle-frame, rollers journaled upon the cranks adapted to be pressed upon by the levers, guards for the rollers adapted to be removed to permit the levers to be raised from contact with the rollers and clips carried by the frame for holding the levers in their raised position, substantially as described.

594,981. PNEUMATIC MOTOR FOR MUSICAL INSTRUMENTS. THEODORE P. BROWN, Worcester, Mass. Filed Mar. 17, 1897. Serial No. 627,990. (No model.)



Claim.—In a pneumatic motor, the combination with a channel-board having main and supplemental air-channels, each opening outward through the front face of the board, of three or more bellows arranged upon the rear face of the channel-board and each bellows having an air-passage leading to one of the supplemental air-channels, a crank-shaft having a number of crank-arms corresponding to the number of bellows, an independent pitman connecting each crank-arm and bellows, slide-valves each having a recess adapted to move over the openings in the face of the channel-board, and an independent pitman connection between each slide-valve and crank-arm, substantially as described.

594,982. SOFT-TREAD HORSESHOE. JOHN H. CAREY, Hartford, Conn., assignor to Mary A. Carey, same place. Filed Sept. 3, 1896. Serial No. 604,657. (No model.)



Claim.—1. In combination in a horseshoe, a plate having a continuous socket in the under surface open at its ends and tapering from the wider portion at the toe to the narrower portion at the heels, and a non-metallic cushion built up in part of fibrous material tightly fitting the socket removable and reinsertible and held therein by the wedging action in use, all substantially as described.

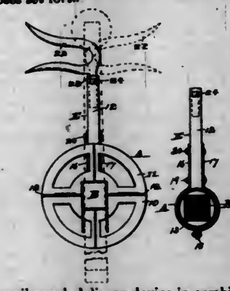
2. In combination in a horseshoe, a plate having a socket in the under surface open at the ends and a cushion of non-metallic material secured within the socket, the said cushion being composed of strips of rawhide and of fibrous material firmly pressed and held within the socket in edgewise presentation, the cushion extending beyond the lower edges of the walls of the socket, all substantially as described.

3. In combination in a horseshoe, a plate having a continuous socket in the under surface tapering from the wider portion at the toe to the narrower portion at the heel, and a removable non-metallic cushion having a center of fibrous material and with strips of rawhide on each side thereof.

594,988. MAIL-POUCH-DELIVERY DEVICE. BLANCHARD CHAMBERLAIN, Bellefontaine, Ohio. Filed July 10, 1897. Serial No. 644,094. (No model.)

Claim.—1. In a mail-pouch-delivery device, a collar supported upon a standard in combination with a catcher-hook socketed in the end of a catcher-arm mediately mounted upon the collar, as and for the purposes set forth.

2. In a mail-pouch-delivery device, a collar supported upon a standard in combination with a catcher-hook reversely socketed in the end of a catcher-arm mediately mounted upon the collar, as and for the purposes set forth.



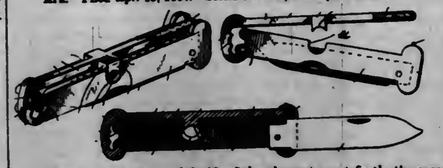
3. In a mail-pouch-delivery device in combination a collar having flanges and an annular way supported upon a standard, a catcher-arm rotarily mounted upon the collar and a catcher-hook socketed in the catcher-arm, as and for the purposes set forth.

4. In a mail-pouch-delivery device a catcher-arm mediately supported upon a standard and adapted to freely rotate about and project horizontally from the standard, in combination with the supporting-standard, as and for the purposes set forth.

5. In a mail-pouch delivery device, an upper and lower mail-pouch holder attached to the car side in combination with a link attached to the holders, a pin upon the link operating in a slot in the end of a slot-lever attached to a bar located upon the side of the car and having a handhold, as and for the purposes set forth.

6. In a mail-pouch delivery device means for holding a mail-pouch to be delivered by a moving train comprising the upper and under holders attached to the car side, in combination with a catcher-hook for the reception of the mail-pouch socketed in the end of a catcher-bar mediately attached to a collar upon a standard resting upon the earth, as and for the purposes set forth.

594,984. MINER'S KNIFE. WILLIAM A. CHAPMAN, Yellville, Ark. Filed Apr. 13, 1897. Serial No. 631,884. (No model.)



Claim.—1. In a miner's knife of the character set forth, the combination of a frame having recesses therein, a knife-blade movably mounted in said frame and adapted to have a portion of its cutting edge exposed through said recesses, and a movable pressure device engaging the said frame exteriorly thereof and coacting with the said exposed portion of the knife-blade for the purpose of cutting a fuse, substantially as described.

2. In a miner's knife of the character set forth, the combination of a frame having recesses therein, a knife-blade in coaction with said frame having a portion thereof exposed by said recesses, a shank carrying a bifurcated lug and engaging said recesses and knife-blade for the purpose of cutting a fuse, and a back spring as specified, substantially as and for the purposes specified.

3. In a miner's knife of the character set forth, the combination of a frame having recesses therein, a blade mounted in said frame and having a portion thereof exposed by said recesses, a shank pivotally attached to said frame and having a bifurcated lug coacting with said recesses for the purpose of cutting a fuse, means for holding the said shank close against the back of the knife, and a depressed and slotted back spring, substantially as and for the purposes specified.

4. In a miner's knife of the character set forth, the combination of a knife-frame having end grooves forming double crimping edges and recesses in the back thereof, a shank continuous from the crimping-head, the latter having crimping edges to coact with the edges formed by the grooves in the end of the knife, and the said shank being also provided with a bifurcated lug to engage the recesses in the back of the knife frame, a blade mounted in the said frame and having a portion thereof exposed by said recesses, means for holding the said shank close against the knife-back, and a back spring, substantially as described.

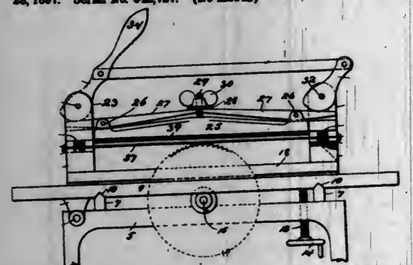
5. In a miner's knife of the character set forth, the combination

of a frame having grooves at one end thereof forming and exposing double edges, and a crimping-head coacting with said grooves having double edges and carried by a shank adapted to be locked against the back of the frame, substantially as and for the purposes specified.

5. In a miner's knife of the character set forth, the combination with a frame having recesses therein and provided with a cutting-blade which has a cutting edge exposed through the said recesses when closed into the frame, of a shank pivotally connected to the frame at one end and provided with pressing-arms to aline with the said recesses, and a back spring also having a slot depressed therein, substantially as and for the purposes specified.

7. In a miner's knife of the character set forth, the combination with a frame, of a blade mounted therein, said frame being formed with recesses at the back thereof and grooves at one end, a crimping-head pivotally attached to said knife-frame and having crimping edges coacting with the grooves in the end thereof and provided with a shank having a bifurcated lug operating in connection with the recesses in the back of the frame and also with a borer and seater at the free end, means for holding the said shank close against the back of the knife, and a back spring having a slot and depression therein, substantially as and for the purposes specified.

594,985. MACHINE FOR TRIMMING ELECTROTYPE PLATES AND BLOCKS. WILLIAM C. DALBEY, Battle Creek, Mich. Filed June 23, 1897. Serial No. 642,727. (No model.)



Claim.—1. In a machine for trimming electrotype plates and blocks, the combination with a suitable base-plate, of a frame-supporting plate, a frame mounted on the said plate and adapted to slide thereon, standards on said frame, a vertically-movable cross-head, cams for depressing said cross-head, means for operating said cams, and means attached to said cross-head whereby the degree of pressure exerted by said cams may be regulated, a shaft mounted in bearings on said base-plate and a saw rigidly mounted thereon, substantially as described.

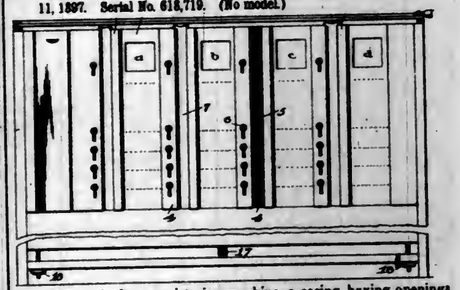
2. A machine for trimming electrotype plates and blocks, said machine consisting of a suitably-supported base-plate, a frame-supporting plate mounted thereon, a frame mounted on the said last-named plate and adapted to slide thereon, a shaft supported centrally and transversely of the base-plate, a saw connected therewith at one end, upwardly-directed standards connected with said frame at the front side thereof adjacent to said saw, a vertically-movable cross-head mounted in said standards, and means for depressing said cross-head, consisting of levers pivotally connected with said standards, and the lower ends of which are provided with cam-heads, said levers being connected at their upper ends by a cross rod or bar, and levers pivotally connected with said cross-head near the opposite ends thereof, the outer ends of which extend beneath said cam-heads, and the inner ends of which bear upon the under side of a plate mounted on a bolt secured to said cross head, said bolt being provided above said plate with a thumb-nut, substantially as shown and described.

3. A machine for trimming electrotype plates and blocks, consisting of a suitably-supported base-plate, a shaft mounted transversely of the top thereof and provided at one end with a circular saw, cross-bars mounted on said base-plate, a frame-supporting plate mounted on said cross-bars, a frame mounted on said last-named plate and adapted to slide thereon, said frame being provided at the opposite ends of the front thereof with upwardly-directed standards, a spring-supported vertically-movable cross-head mounted in said standard, a gage-wire connected with the front of said standards, and means for depressing said cross head, substantially as shown and described.

4. A machine for trimming electrotype plates and blocks, consisting of a suitably-supported base-plate, a shaft mounted transversely of the top thereof and provided at one end with a circular saw, cross-bars mounted on said base-plate, a frame-supporting plate mounted on said cross-bars, a frame mounted on said last-named plate and adapted to slide thereon, said frame being provided at the opposite ends of the front thereof with upwardly-directed standards, a spring-supported vertically-movable cross-head mounted in said standards, a gage-wire connected with the front of said standards, and means for depressing said cross-head, and said frame-supporting plate being pivoted to the base-plate at one end, and said base-plate being also provided with means for raising and lowering the opposite end of said frame-plate, substantially as shown and described.

5. A machine for trimming electrotype plates and blocks, consisting of a suitably-supported base-plate, a shaft mounted transversely of the top thereof and provided at one end with a circular saw, cross-bars mounted on said base-plate, a frame-supporting plate mounted on said cross-bars, a frame mounted on said last-named plate and adapted to slide thereon, said frame being provided at the opposite ends of the front thereof with upwardly-directed standards, a spring-supported vertically-movable cross head mounted in said standards, a gage-wire connected with the front of said standards, and means for depressing said cross-head, and said frame-supporting plate being pivoted to the base-plate at one end, and said base plate being also provided with means for raising and lowering the opposite end of said frame-plate, and said cross-bars being projected in front of the machine, and provided with a supplemental plate, substantially as shown and described.

594,986. VOTING-MACHINE. CLEMENT DE CROES, Westport, Ind., assignor of one-half to Thomas Ketchum, same place. Filed Jan. 11, 1897. Serial No. 618,719. (No model.)



Claim.—1 In a registering-machine, a casing having openings and keyholes therein, a longitudinally-sliding bar situated adjacent said keyhole, notches and fingers at the lower edge of said bar, and a movable platform in front of said casing and connected with said bar for moving the same.

2. In a registering-machine, a casing having a front piece provided with a plurality of keyholes and openings, rollers situated adjacent said keyholes and provided with bands and toothed wheels, longitudinally-movable bars situated adjacent said keyholes, heads or pins opposite said keyhole and a movable platform connected with said operating-bars for elevating the same.

3. In a registering-machine, a casing provided with a plurality of keyholes and openings, rollers situated adjacent said keyholes and provided with bands and toothed wheels, longitudinally-movable bars situated adjacent said keyholes and provided with notches at their lower edges, heads or pins situated opposite said keyholes, and a movable platform connected with said operating-bars for raising the same.

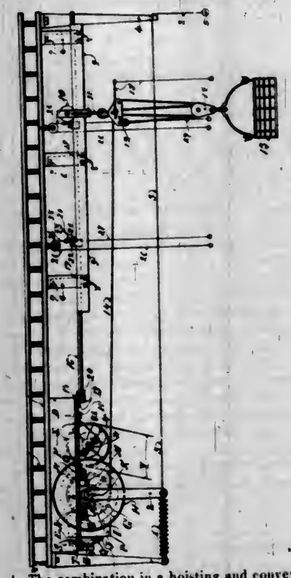
4. In a registering-machine, a casing provided with a plurality of keyholes and openings, rollers situated adjacent said keyholes and provided with bands and toothed wheels, a main operating-bar situated adjacent the upper set of keyholes and provided adjacent said keyholes with notches and fingers, a connection between said main operating-bar and a plurality of operating-bars for raising the latter by the movement of the former, and a movable platform connected with said operating-bar for raising the same.

5. In a registering-machine, a casing provided with a plurality of keyholes and openings, rollers situated adjacent said keyholes and provided with bands and toothed wheels, a longitudinally-movable main operating-bar situated adjacent to the upper sets of keyholes and provided with notches adjacent said keyholes, depressions in the upper edge of said main operating-bar, a movable platform connected with said operating-bar for raising the same, a frame having projections resting upon the upper edge of said main operating-bar adjacent said depressions, a plurality of guides situated in said frame and provided with notches adjacent the lower sets of keyholes and heads or pins opposite said keyholes.

6. In a registering-machine, a casing provided with a plurality of keyholes and openings, heads or pins opposite said keyholes, a longitudinally-movable main operating-bar adjacent the upper sets of keyholes and provided with depressions in its upper edge and with a shoulder and notches in its lower edge, a movable spring-pressed platform in front of said casing connected with said main operating-bar for lifting the same, and a spring-pressed follower for moving said operating-bar longitudinally, connected with said movable platform.

7. In a registering-machine, a casing provided with a plurality of keyholes, heads or pins opposite said keyholes, a longitudinally-movable operating-bar adjacent the upper sets of keyholes and provided with notches at its lower edge adjacent said keyhole, a movable spring-pressed platform for lifting said operating-platform, a plurality of longitudinally-movable bars carried by a frame connected with said operating-bar, notches in said bars situated adjacent the lower sets of keyholes, a sliding plate situated adjacent said operating-bar and provided with fingers adjacent said notches therein, a downwardly-extending arm upon said sliding plate situated over the end of said frame and over the ends of said bars, and a spring-pressed follower situated opposite the said arm and a shoulder on said operating-bar and connected with said movable platform.

594,987. HOISTING AND CONVEYING APPARATUS. JOHN H. EMPSON, Longmont, Colo. Filed Feb. 4, 1897. Serial No. 621,977. (No model.)



Claim.—1. The combination in a hoisting and conveying apparatus, of a friction winding-drum and operative friction-pinion mounted loosely on an eccentric-shaft, a lever connected to an eccentric portion of said shaft, a brake operatively connected to said winding-drum, a spring connected to said lever adapted to normally hold said winding-drum in contact with said brake, and an operative rope connected to said lever adapted to move the lever to throw the winding drum against said friction operating-pinion, with a common form of safety hoisting-blocks connected to said winding-drum, a trolley and a supporting-track, substantially as described.

2. The combination in a hoisting and conveying apparatus, of the safety hoisting-blocks, the friction hoister and means connected with said hoister including an eccentric-shaft, a lever depending therefrom, a spring-controlled brake and an operative rope for operating said safety hoisting-blocks, substantially as described.

3. The combination with the safety hoisting-block, of the friction winding-drum, the overhead track, the combined trolley-wheel and hook thereon supporting said safety hoisting-blocks, the brackets supporting said track and a support extending along the track approximately parallel with it, and a two-armed lever arranged on the said support and adapted to be manually moved at will into and out of the path of said trolley and across the track and away from it, substantially as described.

4. The combination of a winding-drum having a friction-band and loosely mounted upon a shaft having eccentric ends, a bed-plate for supporting said winding-drum and shaft, a lever secured to said shaft, a friction-pinion mounted on said bed-plate in operative relation to said friction-band, an adjustable brake secured to said bed-plate in operative relation to said friction-band, a contracting-spring connected at one end to the lower end of said lever and at the opposite end to a fixed support and adapted to normally hold said friction-band against said brake and means for manually throwing said winding-drum into operative engagement with said friction-pinion, with the safety hoisting-blocks, the track, the trolley and the stopping-dogs, substantially as described.

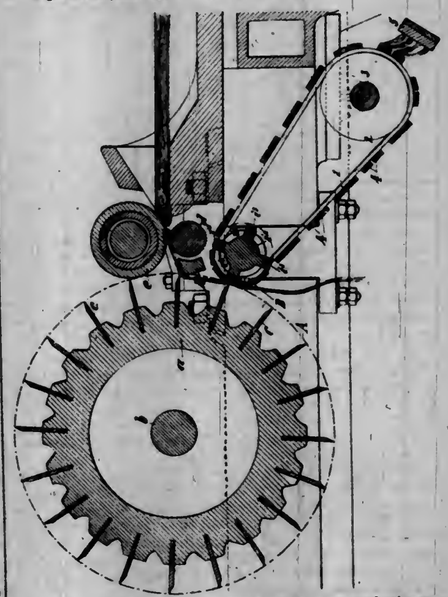
5. The combination of the hangers and the track with a pipe or rod supported by said hanger and arranged parallel with said track, with one or more two-armed levers secured to said pipe or rod, having two pull-ropes fastened to one arm, one of which depends from the arm and the other passes over a pulley placed above the arm and then depends below the arm within reach of an operator, whereby said lever is partially rotated and the opposite arm is thrown on or off from the track, substantially as described.

6. The combination of a hoisting and conveying apparatus for a canning factory, of the hangers, the track, the trolley and the trolley-stops and supporting-rod, with the safety hoisting block, and the friction winding-drum operatively connected to said hoisting-blocks, the automatic brake and means for starting the winding-drum to raise a crate of canned goods and convey the same to a predetermined point along said track, substantially as described.

7 The combination in a trolley and track of a pair of sheaves, a frame pivotally connecting said sheaves together, a hook depending from said frame, a two-armed lever or bell-crank pivoted between said sheaves having on one end of said lever a wedge-shaped end arranged in proximity to the tread of the track and the rear sheave and oppositely-disposed pull-ropes and suitable supporting-standards arranged to move the lever when one rope is pulled to raise said wedge-shaped end of said lever away from the tread of said sheave and rail and when the opposite rope is pulled to throw the wedge-shaped end in contact with the tread of the sheave and track, substantially as described.

8. The combination of the double-sheaved trolley with the track, the hoisting-blocks, the winding-drum, the locking-lever having the wedge end and the oppositely-arranged and supported pull-ropes substantially as described.

594,988. DECORTICATING-MACHINE. ALFRED DIEUDONNÉ ESTIENNE, Marseilles, France. Filed Mar. 6, 1897. Serial No. 626,266. (No model.) Patented in France Oct. 1, 1894, No. 229,095; in Belgium Oct. 12, 1894, No. 112,217; in Germany Nov. 7, 1894, No. 84,738; in India Dec. 6, 1894, No. 336; in Turkey Dec. 21, 1894 No. 277; in Italy Dec. 31, 1894, LXXIII, 427; in Spain Jan. 10, 1895, No. 16,523, and in Argentine Republic Apr. 1, 1895, No. 1,582.



Claim.—1. In a machine for decorticating ramie and other textile materials, the combination of a beater-cylinder provided with beater-blades, a bed-cylinder cooperating therewith and provided with grooved ribs receiving and coinciding with an edge of the beater-blades between which ribs and the beater-blades the filaments are

nipped and scraped, a counter-shaft, an endless series of stripper-slats running around the bed-cylinder and the counter-shaft, the said slats during the operation of the machine lying between the said ribs of the bed-cylinder, substantially as and for the purposes specified.

2. In a machine for decorticating ramie and other textile materials, the combination of a beater-cylinder provided with beater-blades, a bed cylinder or roller provided with grooved ribs, beds of elastic material lying in the grooves, the said beater-cylinder and bed-cylinder being so arranged that the filaments will be nipped between the blades of the beater-cylinder and the ribs of the bed-cylinder and thereby scraped, a counter-shaft, an endless series of stripper-slats running around the bed-cylinder and the counter-shaft, and a stationary brush adapted to reach contact with and keep the slats clean during operation of the machine.

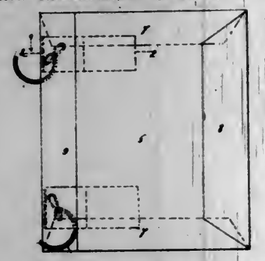
594,989. SPOOL. WILLIAM A. FISH, Brooklyn, N. Y., assignor of one-third to Francis H. McCormack, same place. Filed Feb. 8, 1896. Serial No. 578,436. (No model.)



Claim.—1. A new article of manufacture, a spool having a head provided with an annular flange cooperating with said head to form a bight, to receive and grip the thread, substantially as described.

2. A new article of manufacture, a spool provided on the face of one of its heads, with an annular flange beveled under and internally at an acute angle to the face of said head, to form a bight to receive and hold the loose end of the thread, substantially as described.

594,990. FILE-CASE. EDWIN FOWLER, Kansas City, Kans. Filed Mar. 20, 1897. Serial No. 628,461. (No model.)



Claim.—1. A file-casing constructed as herein described, the same consisting of a blank, which is folded transversely to form a front and a back, said casing being provided with clamps which are pivotally connected with the back thereof, adjacent to the fold, and which are adapted to turn so as to hold the front and back together, substantially as shown and described.

2. A file-casing constructed as herein described, the same consisting of a blank which is folded transversely to form a front and a back, said casing being provided with clamps which are pivotally connected with the back thereof, adjacent to the fold and which are adapted to be turned so as to hold the front and back together, said back being provided with folding end flaps, substantially as shown and described.

3. A file-casing constructed as herein described, the same consisting of a blank, which is folded transversely to form a front and a back, said casing being provided with clamps which are pivotally connected with the back thereof, adjacent to the fold, and which are adapted to turn so as to hold the front and back together, said back being provided with folding end flaps, and with a folding side or front flap, substantially as shown and described.

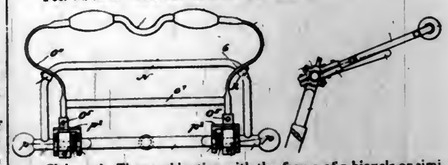
4. A file-casing constructed as herein described, the same consisting of a blank, which is folded in the center to form a front and a back, said casing being provided with clamps which are pivotally connected with the back thereof, adjacent to the fold, and which are adapted to turn so as to hold the front and back together, said back being provided with folding end flaps, and with a folding side or front flap, said pivoted clamps being circular or segmental in form, substantially as shown and described.

5. A file-casing constructed as herein described, the same consisting of a blank which is folded in the center to form a front and a back, said casing being provided with pivoted clamps, which are passed through the back adjacent to the fold and provided with ears, which limit the movement thereof, said ears operating in connection with said fold, substantially as shown and described.

6. A file-casing constructed as herein described, the same consisting of a blank which is folded in the center to form a front and a back, said casing being provided with pivoted clamps, which are passed through the back adjacent to the fold and provided with ears, which limit the movement thereof, said ears operating in connection with said fold, and said back being also provided with strips which are secured thereto, and folded over said ears, substantially as shown and described.

7. A file-casing constructed as herein described, the same consisting of a blank which is folded to form a front and a back, said casing being provided with pivoted clamps which are passed through the back adjacent to the fold and provided with ears, said back being also provided with strips which are secured thereto and folded over said ears, and said ears operating in connection with the fold in said strips to limit the motion of the clamps, substantially as shown and described.

594,991. BICYCLE. JOEL M. GILBERT, Clinton, Conn. Filed Feb. 24, 1896. Serial No. 580,482. (No model.)



Claim.—1. The combination with the frame of a bicycle or similar vehicle, of a guiding mechanism, which consists of a cross-bar rigidly secured to a vertical rod which is adjustably connected with the forward fork of the machine, said cross-bar being provided with a backwardly-directed yoke which is adapted to support a handle-bar which is provided with curved spring-arms which are connected with the ends of the cross-bar, and which rest upon the backwardly-directed yoke, substantially as shown and described.

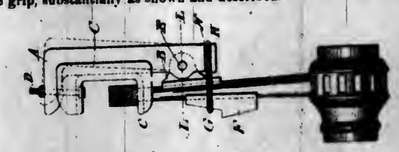
2. The combination with the frame of a bicycle or similar vehicle, of a guiding mechanism which consists of a cross-bar rigidly secured to a vertical rod which is adjustably connected with the forward fork of the machine, said cross-bar being provided with a backwardly-directed yoke which is adapted to support a handle-bar which is provided with curved spring-arms which are connected with the ends of the cross-bar, and which rest upon said backwardly-directed yoke, the arms of said handle-bar being connected with clamps or bands which are mounted on the ends of the cross-bar, and the ends of said cross-bar being also provided with jaws between which said clamps or bands are mounted, said jaws being connected by cross-heads which limit the movement of the handle-bar, substantially as shown and described.

3. The combination with the frame of a bicycle or similar vehicle, of a guiding mechanism which consists of a cross-bar rigidly secured to a vertical rod which is adjustably connected with the forward fork of the machine, said cross-bar being provided with a backwardly-directed yoke which is adapted to support a handle-bar which is provided with curved spring-arms, which are connected with the ends of the cross-bar, and which rest upon said backwardly-directed yoke, the arms of said handle-bar being connected with clamps or bands which are mounted on the ends of the cross-bar, and the ends of said cross-bar being also provided with jaws between which said clamps or bands are mounted, said jaws being connected by cross-heads which limit the movement of the handle-bar, and each of said clamps or bands being provided with springs one end of which is secured thereto, and the other rigidly connected with one of said jaws, or with the cross-bar, substantially as shown and described.

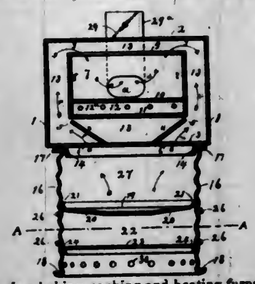
4. The combination with a bicycle or similar vehicle, of a steering or guiding mechanism consisting of a cross-bar rigidly secured to the forward vertically-adjustable rod, of the frame, said cross-bar being provided with a backwardly-directed yoke, and a handle-bar which is adapted to rest thereon, said handle-bar being provided with spring-arms which extend across said yoke and which are connected with said yoke being provided with rings or clamps which are provided with projections or locking devices which are adapted to engage with said spring-arms and from which said spring arms are adapted to be disconnected, as and for the purpose set forth, and substantially as shown and described.

594,992. TIRE-TIGHTENER. WILLIAM P. GOODMAN, Los Angeles, Cal., assignor of one-half to Joshua G. Wickersham, same place. Filed Oct. 28, 1896. Serial No. 610,383. (No model.)

Claim.—The combination in a tire-tightener of a shoe B, jointed to an iron standard made with three sides leaving a recess (or hollow) open at one side, in which the shoe is pivoted forming a fulcrum for the standard whereby the standard is made to act as a lever, its lower end drawing directly on the link G, when the bolt D, is tightened, clamping the spoke between the wedge F, and shoe B, with a vise like grip, substantially as shown and described.



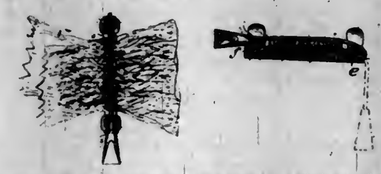
594,993. BAKING, COOKING, AND HEATING FURNACE. OWEN K. HARRY, Dallas, Tex. Filed Aug. 21, 1896. Serial No. 603,500. (No model.)



Claim.—1. In a baking, cooking and heating furnace combined, having a baking-oven with side walls 1, top 2, bottom 3, with wing-shaped flanges 4, 4, provided with a baking-apartment 7, having side walls 8, cover 9, bottom 10, false bottom 11, cold-air chamber 12, air-holes 12ª, hot-air chambers 13, and a draft-pipe 29ª with a damper 29, all for a purpose as substantially set forth.

2. In a baking, cooking and heating furnace combined, having a furnace, with corrugated side walls 16, with curved rim 17, curved base 18, concave fire-grate 19, having holes 20, and curved flanged edges 21, supported by one of the corrugations of the side walls 16, ash-chamber 23, with curved flanged edges 24, supported by corrugated walls 16, with a sliding door 25, which is engaged in between the corrugated side walls 16, and two wires or bands 26, which encircle the outer surface of corrugated walls 26, fire-box 27, and draft-holes at the top of furnace 28 and vent-holes 30, all for a purpose as substantially set forth.

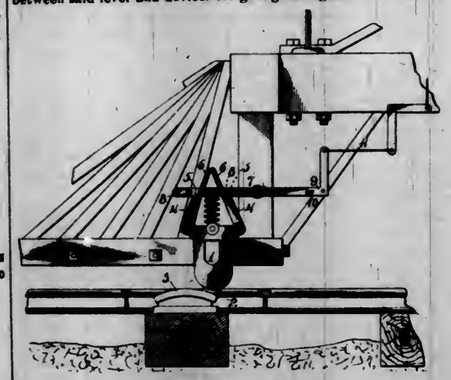
594,994. VEIL-CLAMP. EDWIN S. HINES, Jersey City, N. J. Filed Apr. 6, 1897. Serial No. 630,979. (No model.)



Claim.—As a new article of manufacture, a veil-clamp adapted for handy application and free from liability to tear or become entangled with the veil; the said veil-clamp consisting of a rigid bar having suitable apertures at its ends and provided at one end with a flaring socket: an extensible and resilient cord secured to the end of said rigid bar beneath said socket and adapted when stretched to extend therefrom longitudinally across said bar through a suitable aperture at the opposite end thereof and back to said socket, and having its free extremity adapted to be detachably fastened in said socket for the purpose of enabling the bunched end of a veil to be readily placed across said bar and to be conveniently clamped in position by the resilient action of said cord.

594,995. AUTOMATIC SIGNAL. CHARLES B. HUNTER, Poughkeepsie, N. Y. Filed Jan. 15, 1897. Serial No. 619,343. (No model.)

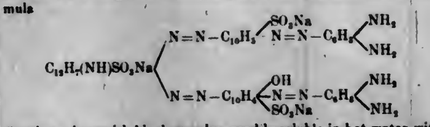
Claim.—A locomotive provided with a pivoted hanger having a roller at its lower end, pivoted arms connected with the upper end of said hanger and provided with upwardly-facing shoulders and fingers, a pivoted lever having slots to receive said fingers and connections between said lever and devices for giving the signal.



594,996. BLACK AZO DYE. MYRTIL KAHN and FRIEDRICH RUNKEL, Elberfeld, Germany, assignors to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Aug. 6, 1897. Serial No. 647,330. (Specimens.) Patented in England Dec. 4, 1894, No. 23,584; in France Apr. 20, 1895, No. 246,760, and in Italy June 30, 1895, XXX, 38,758, LXXVI. 51.

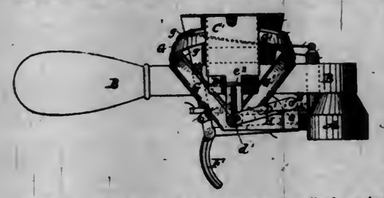
Claim.—1. The process for producing a black azo dyestuff which process consists in combining equimolecular proportions of tetrazotized paradiamidodiphenylaminsulfonic acid with alphanaphthylaminbetasulfonic acid 1.6 or 1.7, coupling the intermediate product thus obtained with one molecular proportion of amidonaphtholsulfonic acid G, rediazotizing the disazo compound thus obtained and finally combining with two molecular proportions of a metadiamin, such as metaphenylenediamin or metatoluylenediamin, substantially as described.

2. As a new article of manufacture the black azo dyestuff derived from the diazotized mixed azo body from paradiamidodiphenylaminsulfonic acid, alphanaphthylaminbetasulfonic acid 1.6 or 1.7, and amidonaphtholsulfonic acid G by combination with two molecular proportions of a metadiamin, such as metaphenylenediamin and metatoluylenediamin, having when metaphenylenediamin is employed the formula



forming a brownish-black powder, readily soluble in hot water with a violet-black color, in a twenty-per-cent. ammonia liquor with a bluish-black color, insoluble in alcohol, in a strong soda-lye (35° Baumé) and in concentrated hydrochloric acid, soluble in concentrated sulfuric acid (66° Baumé) with a black color, which turns into bluish black on the addition of a small quantity of ice, while a violet black precipitate is separated on the addition of a larger quantity of ice to the sulfuric-acid solution, yielding on unmordanted cotton deep bluish-black shades which are fast to acids, to alkalies and to light, substantially as described.

594,997. LASTING-HAMMER. JOSEPH E. LEMYRE, Manchester, N. H. Filed Mar. 29, 1897. Serial No. 629,718. (No model.)



Claim.—1. In a device of the character described, a suitable receptacle for tacks, raceways leading from each end of said receptacle to a point of union, one with the other, and means whereby said tacks may be dropped consecutively with their heads up and then struck, substantially as set forth.

2. The combination with a tack-receptacle, of a tube, a raceway leading from the receptacle to the tube, a carrier within the receptacle, means for feeding the tacks singly to the tube, a spring-actuated spindle within the tube, and means for simultaneously operating the feeding mechanism, moving the spindle against the spring, and operating the carrier, substantially as set forth.

3. The combination with a tack-receptacle, of a tube, a spring-actuated spindle therein, a raceway leading from the receptacle to the tube, a separator and a feeding-bar for feeding the tacks singly to the tube, a feeding-dog for feeding the tacks along the raceway, and means for simultaneously moving the spindle against the spring and for operating the separator, the feeding-bar, and the feeding-dog, substantially as set forth.

4. The combination with a tack-receptacle, of a tube, a spring-actuated spindle therein, raceways communicating with the opposite sides of the receptacle and with the tube, a carrier within the receptacle between the ends of the raceways, a separator, a feed-bar, and means for simultaneously moving the spindle against the spring and operating the separator, the feed-bar, and the carrier, substantially as set forth.

5. The combination with a tack-receptacle, of a tube, a spring-actuated spindle therein, a raceway leading from the receptacle to the tube, a separator, and a feed-bar, a bell-crank lever, provided with a shoulder for engaging with the feed-bar, and means for simultaneously moving the spindle against the spring and operating the lever, substantially as set forth.

6. The combination with a tack-receptacle, of a tube, a spindle therein, a spring connected with the spindle, a bell-crank lever engaging with the intermediate portion of the spring, and means for feeding tacks to the tube, and a trigger provided with means for simultaneously operating said mechanism, and for operating the lever, substantially as set forth.

7. The combination with a tack-receptacle provided with exits and a slotted extension, of a tack-driver, a raceway leading from each of the openings to the driver, a carrier within the receptacle, the upper end of which is provided with means for delivering tacks to the opening and the lower end is adjacent to the slotted extension, means for feeding the tacks singly to the driver, and a lever provided with means for engaging with the carrier at the slot of the extension and for operating the feeding mechanism and the driver, substantially as set forth.

594,998. CONDUIT FOR ELECTRIC WIRES. ROBERT W. LYLE, Perth Amboy, N. J. Filed Oct. 1, 1897. Serial No. 653,675. (No model.)



Claim.—1. A conduit for electric wires having longitudinal and transverse scorings in its body to facilitate the removal of sections thereof.

2. The combination with a conduit such as described of a U-shaped hood adapted to set over and cover any broken-away section of the conduit.

3. The combination with a conduit such as described of a metallic connector having spurs which set into holes made near the adjacent ends of two lengths of conduits.

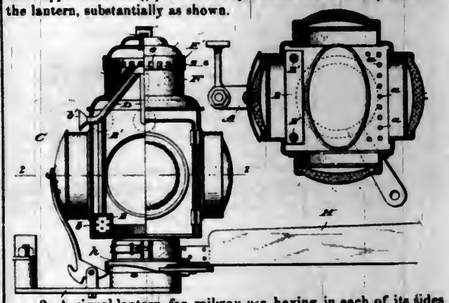
4. A condait for electric wires consisting of a pipe or casing having partitions therein, said partitions being scored to facilitate the removal of sections thereof.

5. As a new article of manufacture, a U-shaped hood adapted to cover broken portions of a conduit, said hood being provided with scorings to facilitate the removal of sections thereof to provide wire-openings therethrough.

6. The combination with two adjacent conduits, of a cross-shaped metallic connector having spurs at its ends adapted to set into holes in said conduits whereby they are locked together.

594,999. RAILROAD SIGNAL-LAMP AND BLADE-SIGNAL. THOMAS W. MCNALLY, Bristol, Pa., assignor of one-sixth to John Woodhouse, Rahway, N. J. Filed Apr. 20, 1897. Serial No. 633,074. (No model.)

Claim.—1. In a signal-lantern for railroad use the combination of a pair of air-supply tubes, the ends thereof projecting through different sides of the lantern-casing and communicating with an open-ended box, of tubes D, having their outer ends similarly disposed, their upper ends being positioned adjacent to the central portion of the lantern, substantially as shown.



2. A signal-lantern for railway use having in each of its sides lenses, of air-induction pipes, the ends of which project beyond the sides of the lantern-body so as to be disposed at right angles to each other, a pair of the pipes extending near the base of the lantern, a pair of pipes, the upper ends of which are positioned centrally within the lantern, a conical section positioned within the top of the lantern, a band having a series of perforations and a revolnble cap-piece with perforations for the purpose set forth.

3. In a signal-lantern for railroad use having a rectangular body portion, the lower portion of said lantern having a box or chest with open ends, of induction-tubes extending therefrom upwardly, the upper ends being bent so as to pass through the lantern-casing and project at right angles to each other, of tubes having their outer ends similarly disposed the inner ends extending upward to a point near the center of the lantern, substantially as set forth.

4. In a signal-lamp the combination of a casing, of a box supported by the base of the casing and provided with perforated ends *b*, tubes B', extending upward therefrom and in a direction at right angles with each other through the sides of the casing substantially as shown.

595,000. METAL FASTENING DEVICE. GEORGE G. WYLAND, Williamsport, Pa. Filed Mar. 29, 1897. Serial No. 629,698. (No model.)



Claim.—1. A sheet-metal fastening device comprising two legs, each having its central portion formed of obtuse angles to increase the width at the center of the device, substantially as and for the purpose set forth.

2. A sheet-metal fastening device comprising two legs, each tapering or flaring at its ends to give to the sharpened edge a greater length than its opposite edge and at their central portion formed of obtuse angles to increase the width at its center, substantially as and for the purpose specified.

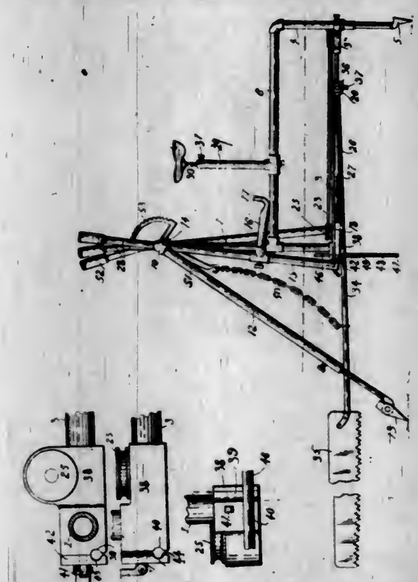
3. A sheet-metal fastening device comprising two legs, each tapering at its ends and provided respectively with sharpened and serrated edges and their central portion formed with obtuse angles to increase the width thereof, substantially as and for the purpose specified.

595,001. MILKING-PAIL. THOMAS J. PEARSON, Vienna, Va. Filed Apr. 9, 1896. Serial No. 586,845. (No model.)



Claim.—An attachment for milking-pails, comprising a pair of oppositely-located holders fitted to the exterior of the pail and disposed longitudinally thereof, each of said holders having a straight bar portion with a rounded outer face, and a pair of outwardly-disposed upper and lower jaws 3 and 4, projected from the extremities of said bar portion and provided with inner angular faces adapted to have a wedging fit on the leg of the milker, substantially as set forth.

595,002. SAWING-MACHINE. GEORGE E. POOLER, Cedar Bluff, Iowa. Filed June 24, 1897. Serial No. 642,135. (No model.)



Claim.—1. In a sawing-machine of the character described, the combination with the frame, the pointed foot at the rear, the adjustable legs and the pointed pivoted feet, of the transverse shaft, the sleeves journaled thereon, the hand and foot levers secured thereto, the straps, the pulleys, the sliding cross-head, the pitman, the seat and adjustable support, substantially as specified.

2. In a sawing-machine, the combination with the frame, the pointed foot at the rear, the adjustable legs, and the pointed pivoted feet, of the transverse shaft, the sleeves journaled thereto, the hand and foot levers, the adjustable seat, the straps connected with said foot-levers, the pulleys, the movable cross-head, the pitman, the adjustable bar at the front of the machine and the tension-spring connected therewith and with the pitman, substantially as specified.

3. In a sawing-machine of the character described, the combination with the frame, the hand and foot levers, the straps connected with said foot-levers, the pulleys and the movable cross-head, of the pitman, the adjustable bar, the tension-spring connected therewith and with the pitman, and the elbow-lever connected with said pitman, substantially as specified.

4. In a sawing-machine of the character described, the combination with the hand and foot levers, the straps connected with said foot-levers, the pulleys and the movable cross-head, of the reversible pitman, the studs secured to said cross-head and at right angles to each other, with which said pitman is adapted to engage, the grooved block, the stud, the grooved clamping-plate, the cam-lever, the reversible bar, and the tension-spring connected therewith and with the pitman, substantially as specified.

5. In a sawing-machine of the character described, the combination with the frame, the pointed foot at the rear, the transverse shaft, the inclined adjustable legs having pivoted pointed feet, the sleeves journaled to said shaft, the hand and foot levers secured thereto, the adjustable seat, the straps connected with said foot-levers, the pulleys, the movable cross heads, the studs secured thereto at right angles to each other, the guide-rod and the guide-slide, of the reversible pitman, the adjustable reversible bar, the tension-spring, the elbow-lever and the chain connected therewith and with the pitman, substantially as specified.

595,003. NON-REFILLABLE BOTTLE AND STOPPER. GEORGE W. SEALER, Wellington, New Zealand, assignor of one-half to Walter Ernest Hall and William Edward Woods, same place. Filed May 14, 1897. Serial No. 636,559. (No model.)

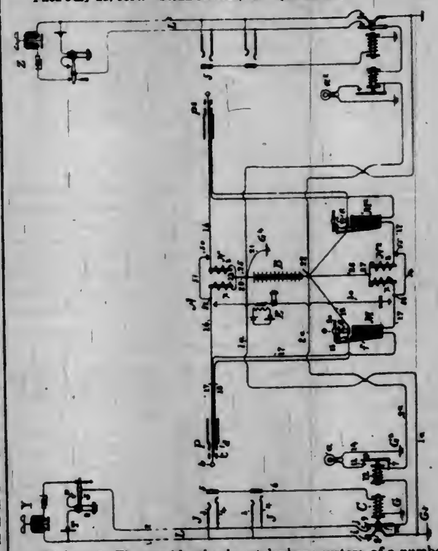


Claim.—1. In a bottle-stopper, in combination, a valve-seat, a valve, a weight movable upon balls running in conical recesses and apertures through the sides of the stopper, substantially as and for the purposes set forth herein.

2. In a bottle-stopper, in combination, a valve-seat, a valve, a weight movable upon balls running in conical recesses, apertures through the sides of the stopper and ribs upon the upper surface of the same, substantially as and for the purposes set forth herein.

3. In a bottle-stopper, in combination, a valve-seat, a valve, a weight movable upon balls running in conical recesses and having points to give small surfaces of contact, and apertures through the sides of the stopper, substantially as and for the purposes set forth herein.

595,004. TELEPHONE-CIRCUIT. GEORGE K. THOMPSON, Malden, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed July 23, 1897. Serial No. 645,720. (No model.)



Claim.—1. The combination in a telephone system, of a number or group of substation-circuits, each extending to switch connections upon the switchboard-sections at a central station; a line-signal, and signal and circuit controlling devices for each circuit; with a switch-cord circuit having two main-circuit and one local-circuit conductors, a supervisory signal in the local-circuit conductor, an electromagnet controlling by a shutter or like device the display of said signal in one of the said main-circuit conductors, a bridge uniting the said three conductors, and a battery included therein, and provided with separate normal connections between its poles and the ends of the main conductors of the several substation-circuits, whereby the said battery is enabled to supply current for all of the several circuits and signals concerned, substantially as described.

2. The combination of a substation-circuit provided with spring-jacks at the switchboard-sections, and adapted for the operation of automatic signals, current in the line from a central source being determined by the telephone-switch at the substation, a line lamp-signal, a controlling device therefor, and a circuit-controlling device and test-circuit, the conductors of said circuit terminating at the poles of a battery; with a cord-circuit comprising three conductors, a bridge between the conductors including said battery, and supervisory lamp-signals in one, and electromagnets for controlling the same in another of the said cord conductors, whereby upon the removal of the telephone from its switch at the substation, the line-signal is lighted; and upon the insertion of the answering-plug the line signal is extinguished, a test-circuit established, a supervisory signal lighted and its rays shielded, as set forth.

3. In a telephone-exchange system, the combination of a substation-circuit, having at the central station spring-jack switches at switchboard-sections, and at the substation a telephone-switch controlling its conductive continuity; with a plug-and-cord-connection circuit comprising two main conductors with the said battery bridged between them, and a third conductor in a local signal and test-circuit of said battery, a supervisory or disconnecting signal-lamp contained in said local and test circuit, and adapted for illumination whenever the plug is in the spring-jack switch of any line; and a shutter or screen for said lamp-signal controlled by an electromagnet in one of said main cord conductors, the said magnet being arranged to operate the said screen, and conceal said lamp when the substation-telephone is in use, but to remove the same, and display the said lamp when the telephone is replaced, and its hook-switch thereby actuated to open the main circuit, substantially as described.

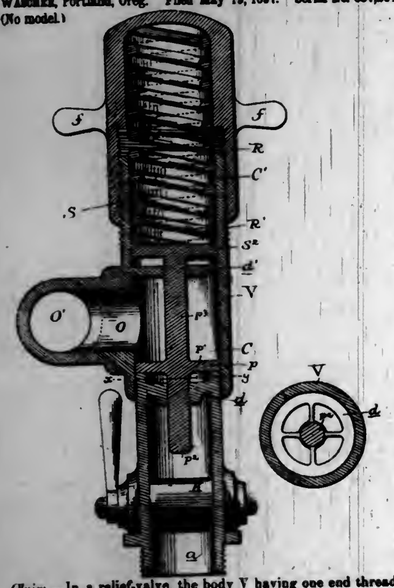
4. In a cord-circuit the combination of two plugs each provided with three contacts which are respectively connected with each other by separate conductors; a bridge between the said conductors including a battery, and repeating impedance-coils as set forth; supervisory lamp-signals in each side of the bridge in one of the conductors, and electromagnets in another of the conductors, provided with armatures controlling screens for the said lamps, the said lamps being in local circuits at the central station, and the said electromagnets being in the main circuit, when their respective plugs are inserted in line-switches or spring-jacks, substantially as set forth.

595,005. HAND-STAMP. MATTHEW TINKER, Baltimore, Md. Filed May 24, 1896. Serial No. 590,534. (No model.)



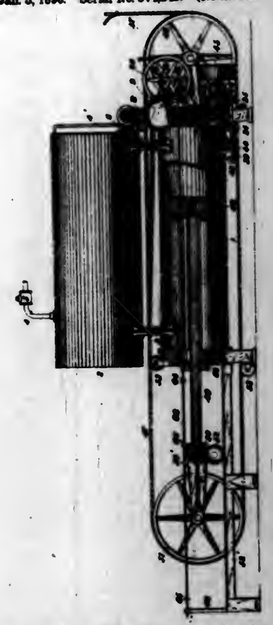
Claim.—As an improved article of manufacture, a hand-stamp comprising a solid block of wood having longitudinal grooves in the sides thereof and heavy rounded portions along each top side extending the length thereof and a plane under face, a thin elastic covering secured to the under face, a type-holding plate fitted to the head over the elastic, formed with integral vertical side ears between which the head-block is arranged, and having integral downwardly-extending side flanges 5, 6, and central integral flange 7, fastenings through the side ears, and elastic types between the flanges.

595,006. RELIEF-VALVE FOR FORCE-PUMPS. WILLIAM WASCHER, Portland, Oreg. Filed May 19, 1897. Serial No. 637,264. (No model.)



Claim.—In a relief-valve, the body V having one end threaded externally and its other end internally and provided with an outlet O and guide ring d', the cap R internally threaded and screwed on the body V, and the inlet-section provided with cock K, a guide-ring d, and a valve-seat formed on the end of said section in combination with the plunger p' having upper and lower rods p^3 and p^2 and spring-seat S^2, and a spring having one end bearing against the spring seat and the other against the cap, substantially as described.

595,007. ELEVATOR. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Jan. 3, 1896. Serial No. 574,243. (No model.)



Claim.—1. The combination with a hydraulic cylinder and piston and a supply-tank, of means for connecting the piston with an elevator-car, a cut-off and reversing valve and a rotary eccentric-piston pump between said tank and cylinder and a single actuating means for moving said valve and varying the eccentricity of said pump.

2. The combination with a cylinder and its piston, of a supply-tank connected with said cylinder, a rotary eccentric-piston pump and a cut-off valve between said tank and cylinder and means operated by the piston at the ends of its stroke for actuating said valve and pump to stop the flow of water between the tank and cylinder.

3. The combination with a cylinder and its reciprocating piston, a supply-tank connected with said cylinder, and a pump comprising a casing, a rotatable drum provided with sliding piston-blades, and a transversely-movable cylinder, of means actuated by the reciprocating piston at each end of its stroke to move said cylinder into a position concentric with said drum.

4. The combination with an elevator-car, a hydraulic cylinder, its piston, and sheaves and ropes for transmitting motion from said piston to said car, of a supply-tank for said cylinder, a conduit, a rotary pump and a cut-off and reversing valve in said conduit and means for simultaneously adjusting the pump-cylinder and the cut-off and reversing valve, whereby the direction of movement and speed of the elevator-car are controlled.

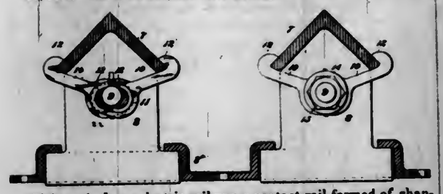
5. The combination with a hydraulic cylinder and its piston, a supply-tank and a conduit between the same and the cylinder, of a rotary pump and a cut-off valve in said conduit, gearing between said valve and the cylinder of said pump and means for operating said gearing whereby the eccentricity of the pump-cylinder and the position of the cut-off valve may be simultaneously varied.

6. The combination with a hydraulic cylinder and its piston, of means for connecting the piston with an elevator-car, a pump for forcing water into said cylinder comprising a casing, a transversely-movable cylinder and a drum provided with piston-slides located therein, a cut-off valve and means for simultaneously moving the cut-off valve and the pump-cylinder.

7 The combination with a hydraulic cylinder and its piston, of a pump having a transversely-adjustable cylinder, a rotatable drum and piston-slides, a conduit leading from one side of the pump-casing to the hydraulic cylinder, a supply-conduit connected to the opposite side of the pump-casing, a cut-off valve in the latter conduit and means for simultaneously moving said valve and the pump-cylinder.

8. A rotary pump or motor comprising a rotatable drum provided with piston-slides, a transversely-movable cylinder surrounding said drum and piston-slides, a casing having inlet and outlet ports, a valve for closing one of said ports and a connection between said valve and the transversely-movable cylinder whereby a movement of the latter to a position concentric with its drum closes the port and movement to an eccentric position in either direction opens the port.

595,008. ELECTRIC RAILWAY. GEORGE WESTINGHOUSE, Pittsburg, Pa., and WILLIAM CHAPMAN, Washington, D. C., assignors to the Electro-Magnetic Traction Company, Washington, D. C. Filed Oct. 31, 1896. Serial No. 610,750. (No model.)



Claim.—1. In an electric railway, a contact-rail formed of channel or angle iron, in combination with insulating supporting-blocks and longitudinally-extending rods or bolts, one for each block, provided with laterally-extending clamping devices, whereby the rail is held against lateral movement.

2. An electric railway provided with a plurality of lines of sectional, inverted, trough-shaped contact-rails, the sections of which are insulated from each other, stationary, insulating supporting-blocks for said rail-sections and clamps for holding said sections against lateral displacement.

3. In an electric railway, a contact-rail formed of channel or angle iron and insulating-supports therefor each of which has a bolt or rod extending longitudinally through it, in combination with clamping devices connecting the ends of said bolt or rod with the sides or edges of said contact-rail.

4. In an electric railway, a contact-rail formed of angle-iron in combination with insulating supporting-blocks therefor each of which is provided with a rod or bolt projecting from its ends, a pair of clamping-dogs connecting each end of said rod or bolt with the respective lower edges of the contact-rail and wedges interposed between the inner ends of said dogs and said rod.

5. In an electric railway, a contact-rail formed of angle-iron in combination with supporting blocks each of which is provided with a screw-threaded rod projecting from its ends, a pair of clamping-dogs at each end of each supporting-block the inner ends of which are provided with elongated eyes for the reception of said rod and the outer ends of which grip the respective lower edges of the contact-rail, wedges inserted in said eyes and nuts on said rod for forcing said wedges inward.

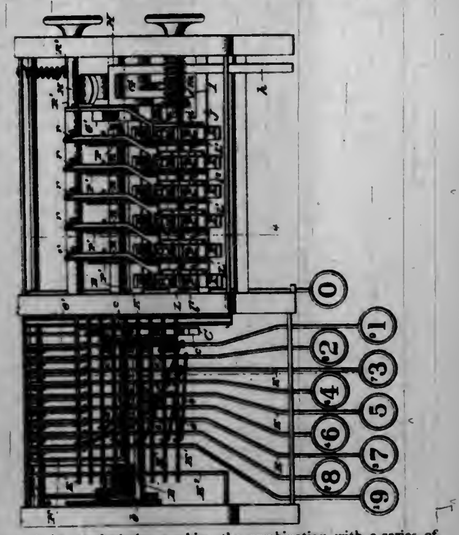
6. A clamping dog provided with an approximately pear-shaped eye at one end and with a gripping projection at its other end.

595,009. CALCULATING-MACHINE. ELMER V. WILLIAMS, EDWIN G. WILLIAMS, and CHARLES I. DICKERSON, Clinton, Ill., assignors of one-fourth to Richard A. Lemon, same place. Filed Nov. 12, 1896. Serial No. 611,895. (No model.)

Claim.—1. In a calculating-machine, the combination of a shaft, a controlling-wheel mounted thereon, a gear-wheel held in sliding engagement with said shaft, digit-wheels mounted so as to be engaged by said gear-wheel; together with keys which when depressed will actuate mechanism to release the controlling-wheel and permit a rotation of the shaft and digit-wheel engaged by the gear-wheel thereon, substantially as shown and for the purpose set forth.

2. In a calculating-machine, the combination of a shaft, a spring for turning the same, a controlling-wheel mounted on the shaft and provided with laterally-movable pins, a gear-wheel longitudinally movable on the shaft, digit-wheels with which the gear-wheel engages; together with keys and mechanism for engagement with the controlling-wheel and pins thereof, for the purpose set forth.

3. In a calculating-machine, the combination with a shaft, of a controlling-wheel mounted thereon, a gear-wheel meshing with registering mechanism, said gear-wheel being movable longitudinally on the shaft which carries the controlling-wheel, pins carried by the controlling-wheel so as to be movable beyond the faces thereof, releasing and stop mechanism engaged by said pins and actuated by key-levers, substantially as shown and for the purpose set forth.



4. In a calculating-machine, the combination with a series of key-levers, of a corresponding series of levers pivoted at right angles thereto and having depending members, a bell-crank lever having an anvil and a projecting portion, a shaft connected with means for rotating the same when released by the depression of the key-lever, a controlling-wheel mounted on said shaft and provided with laterally-movable pins which are projected in one direction by being engaged by the depending members of one of the sets of levers, and in an opposite direction by the anvil of the bell-crank lever, and a gear-wheel laterally movable on the shaft carrying the controlling-wheel for engagement with rotary digit-wheels for the purpose set forth.

5. In a calculating-machine, a plurality of keys, a shaft having mounted thereon a controlling-wheel laterally-movable pins carried by said controlling-wheel, means for changing the position of the pins by the depression of one of the keys, said key operating a bell-crank lever to move one of the keys laterally and release the controlling-wheel and another pin in an opposite direction to effect a stoppage of said controlling-wheel and shaft for the purpose set forth.

6. The combination in a calculating-machine, of a series of key-levers each having a corresponding touch and limit of movement, said key-levers when depressed actuating pivoted levers; of a shaft having mounted thereon a controlling-wheel, laterally-movable pins carried by the controlling-wheel, means for moving one of the keys in one direction by the depression of a key-lever and another in an opposite direction simultaneously, the upward movement of the key moving one of the levers out of the path of the controlling-wheel to permit the partial rotation of the same, and a gear-wheel mounted on the power-driven shaft so as to rotate therewith and actuate the registering mechanism.

7. In a calculating-machine, the combination, of a shaft, a controlling-wheel rigidly secured thereto and provided with pins, key-levers and intervening mechanism for actuating the pins, a stop-block positioned in the path of the pins when projected, a lever for moving the pin out of the path of the stop-block and holding the controlling-wheel against rotation; together with the key-levers and registering mechanism actuated by the rotation of the shaft, substantially as shown and for the purpose set forth.

8 In a calculating-machine, the combination, of the shaft, a controlling-wheel mounted thereon and provided with a series of stop-pins, said controlling-wheel having a peripheral groove and springs which contact with the stop-pins, for the purpose set forth.

9. In a calculating-machine having a series of nine keys and levers actuated by the depression of said keys, a controlling-wheel having ten projecting arms and ten stop-pins, a shaft upon which said controlling-wheel is mounted, a gear-wheel also mounted on the shaft having ten teeth, a series of digit-wheels having peripheral recesses corresponding in number to the number of teeth on the gear-wheel mounted on the rotary shaft, a lever, means for moving the same in the path of the controlling-wheel by a depression of the keys to project one of the stop-pins carried thereby and lock said controlling-

wheel, said lever being spring-actuated in an opposite direction to release said controlling-wheel, substantially as shown.

10. In combination with the key and registering mechanisms, of a shaft having a controlling-wheel mounted thereon, said controlling-wheel having projecting points and stop-pins, a stop block mounted adjacent to one side of the controlling-wheel, and a lever D spring-actuated in one direction and moved against the action of its spring by the depression of one of the keys, said lever when depressed locking the controlling-wheel and retracting one of the previously-projected pins so that the power-driven shaft will be permitted to turn when the key is released.

11. In a calculating-machine, the combination with the key-levers, of a spring-supported frame having a projecting member, a bell-crank lever, one of the members thereof being engaged by the projecting member of the frame, the key-levers being positioned above a cross-bar of the frame, levers connected to the key-levers and provided with depending members, a controlling-wheel mounted on a shaft, a series of pins carried by the controlling-wheel with which the depending members of the levers engage when the key-levers are depressed, the depression of the key-levers also actuating the bell-crank lever to move the same in the path of the controlling-wheel, the controlling-wheel being released by the upward movement of the key-levers to permit a rotation of the power-driven shaft; together with registering mechanism actuated by said power-driven shaft.

12. The combination with a series of digit-wheels mounted on a shaft, means for adjusting said digit-wheels thereon, of a series of pawls having laterally-extended portions for engagement with recesses in the digit-wheels and enlarged ends adapted to ride on the faces of the digit-wheels, the shaft upon which the pawls are mounted having means for elevating said pawls in unison and moving the same laterally to effect the disengagement of the laterally-bent ends of said pawls from the grooves in the digit-wheels.

595,010. ROOF. WILLIAM J. WOODS, Cold Spring, N. Y. Filed Apr. 24, 1897. Serial No. 633,617. (Model.)



Claim.—1. The herein-described improvement in the roofs of buildings and other structures which consists in providing the corners with diamond-shaped frames which extend below the lower edge of the main side of the roof and which are constructed, substantially as shown and described.

2. A diamond-shaped frame for the corners of roofs of buildings and other structures, consisting of a central rafter or support, a plurality of parallel rafters secured to each side thereof, and arranged in the form of a diamond, the lower or outer ends of said rafters being secured to inclined plates or supports, substantially as shown and described.

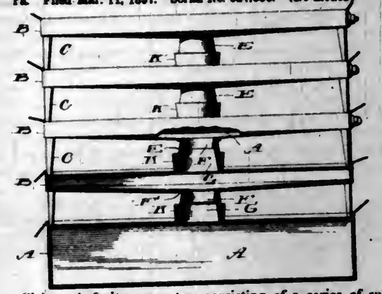
3. A diamond-shaped frame for the corners of roofs of buildings and other structures, consisting of a central rafter or support, a plurality of parallel rafters secured to each side thereof and arranged in the form of a diamond, the lower or outer ends of said rafters being secured to inclined plates or supports, and said frame being provided with sheeting which is secured thereto transversely of the central rafter, and the parallel inclined rafters which are secured thereto, substantially as shown and described.

4. A frame for the corners of the roofs of buildings which is diamond shaped in form, and which consists of a central piece A, which extends in a line from the intersection of two gables at the corner of the building and to the opposite sides of which are secured parallel inclined rafters as B, the lower ends of which are secured to inclined plates or supports as C, substantially as shown and described.

5. A frame for the corners of the roofs of buildings which is diamond-shaped in form, and which consists of a central piece A, which extends in a line from the intersection of two gables at the corner of the building and to the opposite sides of which are secured parallel inclined rafters as B, the lower ends of which are secured to inclined plates or supports as C, said frame being also provided with a sheeting which is secured thereto transversely of the central piece and said rafters, substantially as shown and described.

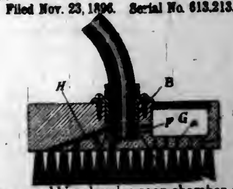
6. A roof for dwelling and other structures, the angles or corners of which have a diamond-shaped form, and consist of a frame constructed as herein described.

595,011. FRUIT-EVAPORATOR. HARRY M. ANGE, Rainsburg, Pa. Filed Mar. 11, 1897. Serial No. 627,090. (No model.)



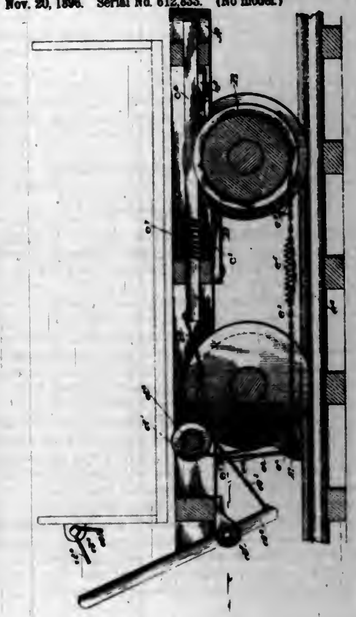
Claim.—A fruit-evaporator, consisting of a series of superimposed trays, each tray being provided on its upper surface with a tapering band G apertured near its lower edge and surrounded by a band K, combined with a tapering band secured about the periphery of a central, bottom aperture in the tray, and a flanged hoop telescoping therein, leaving a slight space between the walls of each to receive a hoop G, substantially as shown and described.

595,012. SCRUBBING-BRUSH. PATRICK F. BARRETT, San Francisco, Cal. Filed Nov. 23, 1896. Serial No. 613,213. (No model.)



Claim.—In a scrubbing-brush a soap-chamber connected by passages with the brush portion, a hollow handle connected with the soap-chamber by a hollow swivel-joint, and adapted to be reversed so as to connect it with or disconnect it from the soap-chamber, and a locking mechanism adapted to lock it in either position, substantially as described.

595,013. RAILROAD-BRAKE. JOHN BRAY, Boston, Mass. Filed Nov. 20, 1896. Serial No. 612,833. (No model.)



Claim.—1. In a car-brake, the combination with a winding-drum loosely mounted upon one of the car-axles, a clutch also mounted on said axle and adapted to engage said drum, a sliding bar mounted in the frame, a lever having one end pivotally connected to the frame and engaging said drum to move it back and disengage it from the clutch, a link pivotally connecting the free end of the lever and the sliding bar, whereby the movements of the latter are imparted to said lever, brake-shoes, and means connecting said brake-shoes and the drum, whereby the former is caused to engage the wheels upon the rotation of the latter, substantially as described.

2. In a car-brake, the combination with a winding-drum loosely mounted upon one of the car-axles, of a clutch also mounted on said axle and adapted to be engaged by said drum, a sliding spring-pressed bar mounted in the frame, means connecting said bar to the drum for moving the latter, a shaft journaled in the truck-frame and carrying a winding-drum, a chain connecting said latter drum and the sliding bar, a lever pivoted on the frame, and a chain connecting said lever and the winding-drum for rotating the latter, substantially as described.

595,014. DISCHARGE-NOZZLE AND VALVE THEREFOR. CLARENCE E. DOOLITTLE, Aspen, Colo. Filed Apr. 7, 1897. Serial No. 631,190. (No model.)



Claim.—1. In a discharge-nozzle the combination with a pair of gate-plates working in opposite directions over the end thereof, of side arms supporting each of said plates pivotally connected to the nozzle in a plane passing through its longitudinal axis, substantially as described.

2. In a discharge-nozzle having a curved extremity, the combination with a pair of gate-plates working in opposite directions over the end thereof, of a pair of side arms supporting each of said plates pivotally connected to the nozzle in a common plane passing through the axis of the nozzle, and suitable gearing for rocking each pair of side arms with their respective gate-plates in reverse directions, substantially as described.

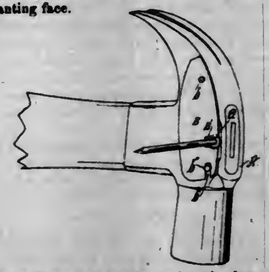
3. In a discharge-nozzle having a curved extremity, the combination with a pair of gate-plates working in opposite directions over the end thereof, of a pair of side arms supporting each of said plates pivoted upon the nozzle in a plane passing through its longitudinal axis as also at points coincident with the center of curvature described by said nozzle extremity, and suitable gearing interposed between said side arms for rocking them in reverse directions, substantially as described.

4. In a discharge-nozzle, the combination with a pair of gate-plates working in opposite directions over the end thereof, of a pair of side arms supporting each of said plates, a coacting pair of studs upon which said arms are journaled projecting from sides of the nozzle in a plane which passes through its axis, and suitable gearing interposed between said side arms for rocking them in reverse directions, substantially as described.

5. In a discharge-nozzle, the combination with a pair of gate-plates working in opposite directions over the end thereof, of a pair of side arms supporting each of said plates pivotally connected to the nozzle in a common plane passing through its axis, a segment-gear in communication with each pair of side arms, and a rotatable gear-wheel in mesh with the segment-gears for actuating them in reverse directions, substantially as described.

595,015. NAIL OR TACK HOLDING AND SETTING HAMMER. JOHN H. DRILLER, Los Angeles, Cal. Filed July 26, 1897. Serial No. 646,086. (No model.)

Claim.—1. A nail and tack holding and setting hammer comprising a hammer-head provided at its side with a slanting face which slopes toward the eye of the hammer-head; a sheet of spring metal having one edge extending over the sloping face and having a slot extending from such edge inward beyond the sloping face and over the face of the side of the hammer-head and over a portion of the flat face of the side of the hammer-head to receive the body of the nail, one end of said plate being fastened to the plain face of the hammer-head at one side of said slanting face and the other end of said plate being held in place by a suitable guide at the other side of said slanting face.



2. In a nail and tack holding and setting hammer, the combination set forth of the body provided upon one side with a slanting face; a spring-metal plate secured upon the side of the hammer-body by means of a pin passing through one end of the plate and into the body and having its other end secured to the body by a stud seated in a slot in the plate and adapted to allow the plate to spring away from the side of the head, the plate being provided with a slot extending over the slanting face of the hammer.

595,016. ELECTRICAL IGNITER FOR GAS-ENGINES. BENJAMIN W. GREEF and EDMUND CHILLOUS, Philadelphia, Pa., assignors to the Pennsylvania Iron Works Company, same place. Filed Aug. 21, 1896. Serial No. 603,524. (No model.)



Claim.—1. An electrical igniting device for gas or other explosive engines, having two normally separated and oscillatory electrodes, a spring for each electrode, connections from the engine for moving one into contact with the other and an automatic releasing mechanism; in combination with means for limiting the motion produced by the springs and so placed as to allow the contact to be broken.

2. An electrical igniting device for gas or other explosive engines, having two normally separated and oscillatory electrodes arranged at an angle to each other to produce a drawing motion of the contact-points of the electrodes, a spring for each electrode and means connected with the engine for moving one electrode into contact with the other; in combination with an automatic releasing mechanism and means for arresting the electrodes and so placed as to allow the contact to be broken.

3. An electrical igniting device for gas or other explosive engines, having two opposing electrodes movable on their axes and each provided with a spring, means for moving the electrodes in combination with an automatic releasing mechanism secured to the shaft of one of the electrodes and stops for arresting the electrodes and so placed as to allow the contact to be broken.

4. An igniting device for gas or other explosive engines having opposing oscillatory electrodes one of which is operated positively by a liberating mechanism controlled by the engine, in combination with a resisting mechanism connected to the other electrode and a

hand device operating on said resisting mechanism for separating the electrodes to start the engine.

5. An igniting device for gas or other explosive engines having opposing electrodes, one of which is provided with a releasing mechanism, consisting of an arm secured to the end of the shaft of the electrode, a spring connected to said arm and to the engine-cylinder, an oscillating disk operated by the engine, a hook supported by said disk and engaging the arm on the shaft of the electrode and a tripping device.

6. An igniting device for gas or other explosive engines having opposing electrodes, an operating-arm attached to the shaft of one of said electrodes, a spring for operating said arm and an eccentric cam engaging the arm for the purpose set forth.

595,017. APPARATUS FOR CUTTING AND ORNAMENTING HOLLOW GLASS BODIES. BERNHARD GRUHL, Dresden, Germany. Filed June 8, 1896. Serial No. 594,778. (No model.) Patented in Germany Oct. 6, 1894, No. 86,483.



Claim.—1. In an apparatus of the character described, the combination with a mandrel adapted to support the body to be cut, of a plurality of radially-movable cutters adapted when moved inwardly to operate upon and completely encircle the body to be cut whereby said body is cut entirely around at one operation of the cutters, and points and recesses on and in the cutters, the points adapted to fit or engage in the recesses when the cutters are moved inwardly, wholly to surround the article as specified.

2. In an apparatus of the character described, the combination with a mandrel adapted to support the body to be cut, of a plurality of radially-movable cutters, each of said cutters being provided with a projection or point and a recess immediately adjacent to said point whereby the cutters are adapted to engage when moved inwardly, each of the cutters having a cutting edge eccentric to the circumferential surface of the body to be cut, for the purpose specified.

3. In an apparatus of the character described, the combination with a mandrel adapted to support the body to be cut, of a radially-movable cutter, adapted to cut the edge of the body, and a second cutter carried by the first cutter in a plane above the same and adapted to move radially simultaneously with the latter, for the purpose of ornamenting the surface of the body simultaneously with the cutting of the edge of the latter.

4. In an apparatus of the character described, the combination with a hollow mandrel adapted to support the body to be cut, of a radially-movable cutter adapted to cut the edge of the body, and a second cutter carried by the first cutter in a plane above the same and adapted to move radially simultaneously with the latter, the hollow mandrel being provided circumferentially with an opening with which the second cutter is adapted to coöperate and through which opening the pieces of glass cut out of the body fall within the mandrel.

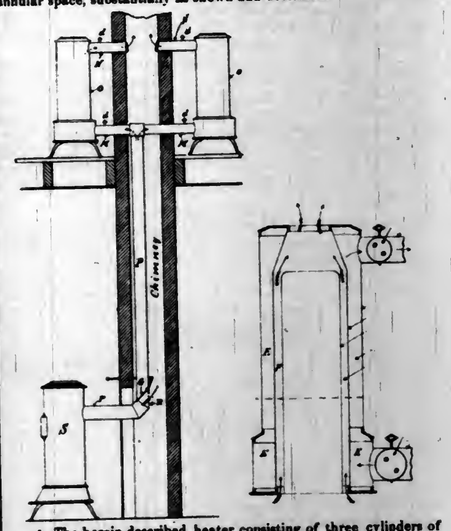
5. In an apparatus of the character described, the combination with a mandrel adapted to support the body to be cut, of radially-movable cutters, each provided with a projecting stud or roller, a revoluble ring provided with cam-slots into which the said studs or rollers project, the said slots being so shaped as to cause in one movement of the ring, one pair of diametrically opposite cutters to be moved inwardly and another pair of cutters, outwardly, and a reverse movement of the cutters when the ring is moved in the opposite direction, as specified.

595,018. HEATER. CHARLES HERLE, Annapolis, Md. Filed July 6, 1897. Serial No. 643,547. (No model.)

Claim.—1. The herein-described heater consisting of three cylinders of different diameter, forming between them two annular spaces, the outer annular space being closed at the top and bottom, having openings provided for the admission of heat into said space and for its escape from the same, the inner cylinder being spaced from the middle one so as to provide an unobstructed passage for the air, substantially as described.

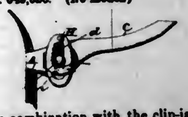
2. The herein-described heater consisting of three cylinders of different diameter, arranged so as to form between them two annular spaces, the middle cylinder being surmounted by the frustum of a cone, the outer annular space being closed at the top and bottom, having openings provided for the admission of heat into said space and for its escape from the same, the inner cylinder being spaced from the middle one so as to provide an unobstructed passage for the air, substantially as described.

3. The herein-described heater consisting of three cylinders of different diameter, arranged to form two annular spaces, the outer cylinder being made larger at the lower end by an offset, the outer annular space being closed at the top and bottom while the inner annular space is open at the top and bottom, with suitable means for the admission of the heat into and escape of the same from the outer annular space, substantially as shown and described.



4. The herein-described heater consisting of three cylinders of different diameter, arranged to form two annular spaces, the outer cylinder being made larger at the lower end by an offset, while the middle cylinder is shaped at the upper end like the frustum of a cone, the outer annular space being closed at the top and bottom while the inner annular space is open at the top and bottom, with suitable means for the admission of the heat into and escape of the same from the outer annular space, substantially as described.

595,019. POLE OR THILL COUPLING. CHARLES M. HOFFMAN, Lebanon, N. H., assignor of one-half to Isaac N. Perley. Filed Aug. 26, 1897. Serial No. 649,620. (No model.)



Claim.—1. The combination with the clip-jaws and draw-head, of a draw-bolt with transverse grooves at one end, a slotted, wedge-shaped locking-plate engaging with said grooves, and a latch closing over said plate and under the end of said bolt projecting outside of the plate, as set forth.

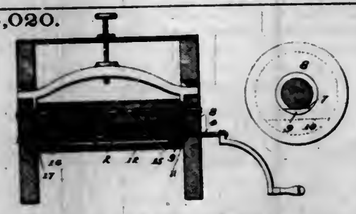
2. The combination with the clip-jaws and draw-head, of a draw-bolt with transverse grooves at one end, a locking-plate wedge-shaped or partially inclined on its outer face and having a keyhole-shaped slot engaging said grooves in the draw-bolt, and a latch closing over said plate and under the end of said bolt projecting beyond the plate, as set forth.

3. The combination with the clip-jaws and draw-head, of a draw-bolt having at one end an enlarged, grooved head and at the other end transverse grooves, a locking-plate wedge-shaped on its outer face and having a keyhole-shaped slot engaging with said grooves in the draw-bolt, and a latch provided on its rear face with a knob adapted to lock into said keyhole-shaped slot when the latch is closed, as set forth

595,020. WRINGER-ROLL. ROBERT P. HORNBAKE, Washington, Pa. Filed Nov. 16, 1896. Serial No. 612,276. (No model.)

Claim.—In a wringer roll, the combination with a spindle having cut-away portions, of sleeves slipped over the spindle and provided with keys which fit in said cut-away portions, one of said sleeves being provided with an additional cut-away portion, and a tube slipped over the sleeves and provided with a key which engages with the said additional cut-away portion.

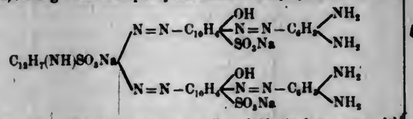
595,020.



595,021. BLACK AZO DYE. MYRTIL KAHN and FRIEDRICH RUNKEL, Elberfeld, Germany, assignors to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Aug. 6, 1897. Serial No. 647,231. (Specimens.) Patented in England Dec. 4, 1894, No. 23,584; in France Apr. 20, 1895, No. 246,760, and in Italy June 30, 1895, XXX, 38,758, LXXVI, 51.

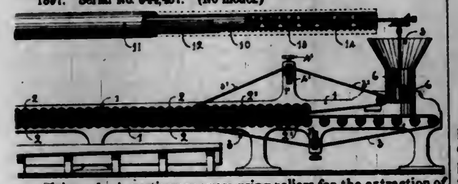
Claim.—1. The process for producing a black dyestuff which process consists in combining one molecular proportion of tetrazotized paradiamidodiphenylaminsulfonic acid with two molecular proportions of amidonaphtholmonosulfonic acid G in an alkaline solution, rediazotizing the diazo dyestuff thus obtained and further combining the so-formed tetrazo compound thereof with two molecular proportions of a metadiamin, such as metaphenylenediamin or metatoluylenediamin, substantially as described.

2. As a new article of manufacture the black azo coloring-matter derived from the tetrazo compound of paradiamidodiphenylaminmonosulfonic acid and amidonaphtholsulfonic acid G by combination with a metadiamin, such as metaphenylenediamin and metatoluylenediamin, having when metaphenylenediamin is employed the formula



forming a brownish-black powder, easily soluble in hot water with a reddish brown-black color and in caustic ammonia (twenty per cent.) with a violet-black color, insoluble in alcohol, in concentrated hydrochloric acid and in strong soda-lye (35° Baumé), soluble in concentrated sulfuric acid (66° Baumé) with a reddish violet-black color, which turns into violet-black on the addition of a small quantity of ice, while a brownish-black precipitate is obtained on the addition of a larger quantity of ice to the sulfuric-acid solution, yielding on unmordanted cotton deep-black shades which are fast to light, to acids and to alkalies, substantially as described.

595,022. ROLLER-PRESS FOR EXTRACTING OIL FROM COTTON-SEED, &c. PIERRE LELARDOUX, Denison, Tex. Filed July 13, 1897. Serial No. 644,437. (No model.)

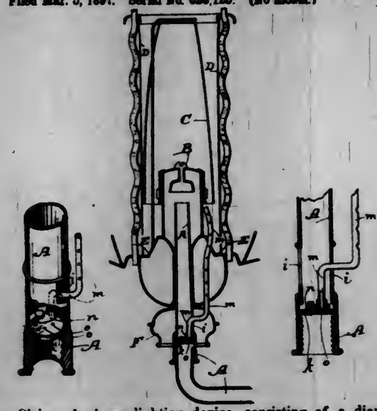


Claim.—1. A continuous press using rollers for the extraction of oil from seeds, which is composed of a frame, 1, forming the two sides of the press: of crushing-rollers, 2, having interior heating-chambers, H, and placed in series between the two sides of the frame and across the press, and of compressing rollers, 2', 2², also placed in series and similarly arranged between the two sides of the frame, the upper and lower series of crushing and compressing rollers being in planes normal to each other and slightly convergent toward the outer end of the press, and so that the space between the upper and lower series of crushing-rollers and between the upper and lower belts covering the compressing-rollers becomes gradually smaller toward the outer end of the press; of a lower belt, 3, and an upper belt, 3', to convey the meal from the hopper to the crushing-rollers, and between which belts the meal is compressed to the density of cake, such belts being provided with tightening-boxes; of an adjustable leveling and regulating gage; of adjustable pivoted scrapers extending from side to side of the press and bearing against the belts or rollers; of plates, 17, extending from side to side of the press and forming supports for the cake between scrapers and next rollers; of a system of pipes supplying, in circulation, the heating agent to the interior of the crushing-rollers through packing-boxes and the hollow shafts of the rollers; of a hopper receiving the meal from the cooking and feeding apparatus, and containing a vertically-working helical blade to force the meal down to the lower belt; of a cooking and feeding apparatus adapted to deliver the prepared meal to the hopper of the press in a continuous manner, having a helical conveyer fitted with paddles, 14, and working in a cooking-chamber, 10, surrounded by a heating-chamber, 11, and an interposing air-chamber, 12; and of a frame provided with channels to drain the oil from the top of the cake; all substantially as described and for the purposes set forth.

2. In a continuous press using rollers for the extraction of oil from seeds, the combination with the frame forming the two sides of the press, and the conveying-belts 3 and 3', of an adjustable gage composed of a stationary part, 7, bolted to the frame, and fitting the upper belt, 3', and of an adjustable part, 7', having plates, P, extending downward and upward to cover the slots in sides of press and keep the meal away from them; said adjustable part being fastened to rods, 8, threaded at their upper ends and adapted to move up and down in recesses provided in the sides of the press and worked by set-nuts, 9; the stationary and adjustable parts of the gage forming horizontally an angle forward and against the motion of the belt and meal; substantially as described and for the purposes set forth.

3. In a continuous press using rollers for the extraction of oil from seeds, the combination with the rollers and the adjustable scrapers, of the plates, 17, extending from side to side of the press, fastened to the frame and fitted to the rollers and to the adjustable scrapers by segmental surfaces, having their centers of generation along the centers of the rollers and along the centers of the pivots, 15, respectively, and forming, in combination with the scrapers a continuous support for the cake from one crushing-roller to the other; substantially as described and for the purposes set forth.

595,023. DEVICE FOR LIGHTING GAS. COLEMAN T. LYND, San Francisco, Cal., assignor of one-half to Belle M. Miller, same place. Filed Mar. 5, 1897. Serial No. 626,125. (No model.)

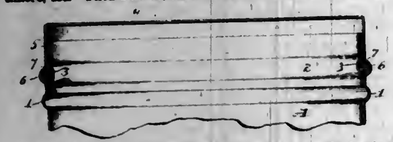


Claim.—1. A gas-lighting device, consisting of a diaphragm placed across the interior of the gas pipe, at some point between the ordinary gas-cock and burner, said diaphragm having two or more perforations through it, in combination with a perforated lighting-tube having its lower end adapted to be placed in connection with one of said perforations and to be disconnected therefrom after the gas is lighted, said tube passing out through the gas-pipe below the burner and extending upward outside the burner so as to terminate at or near the burner-tip, substantially as described.

2. A gas-lighting device consisting of a diaphragm placed across the interior of the gas-pipe at some point between the ordinary gas-cock and the burner having two or more perforations through it; a swivel-arm pivoted to the diaphragm and adapted to have its free end swing over one of said perforations; and a perforated lighting-tube connected at its lower end with the free end of the swivel-arm and adapted to pass through an opening in the gas-tube and thence to the burner-tip, substantially as described.

3. A lighting device for gas-burners, consisting of a diaphragm having two or more gas-passages through it placed across the interior of the gas-pipe, and a lighting-tube connected at its lower end with said diaphragm by a swivel-arm and adapted to swing into line with one of said passages and means for moving the lighting-tube to disconnect it from the passage after the gas is lighted, substantially as described.

595,024. SHEET-METAL RECEPTACLE. GEORGE MILLER, Baltimore, Md. Filed Feb. 23, 1897. Serial No. 624,506. (No model.)



Claim.—The combination with a can or receptacle having an outwardly-projecting annular bead 1 and bent inwardly above this bead to form the annular groove 3, of a cover the flange of which is adapted to encircle the upper portion of the can or receptacle and rest at its edge upon the bead 1, said flange provided with an outwardly-bent annular bead 6 located opposite the groove 3 when the cover is in place, and a depression 7 above said bead 6 forming a guide for the can-opener and the space adapted to receive its end.

595,025. CULTIVATOR. WILLIAM H. PERKINSON, Brocton, Ill. Filed Jan. 23, 1897. Serial No. 620,359. (No model.)



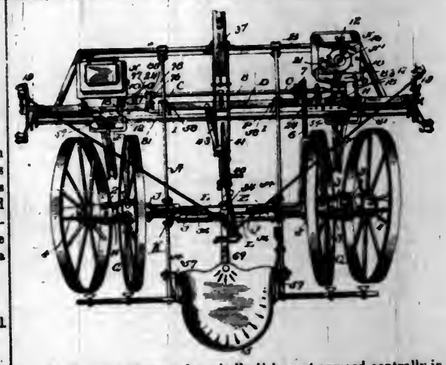
Claim.—1. In a cultivator, the combination with the bent axle, of the plows pivotally mounted thereon, springs *a* secured to the said axle, the crank-arm adjustably held to the plow-stocks, and chain connections between said arms and the springs, substantially as shown and described.

2. In a cultivator, the combination with the bent axle of the plows, pivoted to said axle, the crank-arms *b* mounted horizontally in the plow-stocks, adjusting-nuts on the said arms, of the springs *a* secured at their inner ends to the said axle, and hooked at their free ends, and the chains *a'* connecting the said hooked ends of the crank-arms, as set forth.

595,026. CORN-PLANTER. LEWIS E WATERMAN, Moline, Ill., assignor to the Rock Island Plow Company, Rock Island, Ill. Filed Sept. 5, 1896. Serial No. 604,951. (No model.)

Claim.—1. In a corn-planter, the combination of a rotating shaft 8, journaled on the front or runner frame thereof, provided with a beveled pinion 24 and adapted to engage and actuate seeding mechanism, the runner F provided with a seed-duct R, the hopper N seated on said frame and communicating with said seed-duct, the driving-wheels G journaled on the rear frame, and provided respectively with the beveled gears 3 adapted to intermesh, the sprocket-wheel 5 journaled on the hub of one of said wheels, the sprocket-wheel 7 journaled on the shaft 8 and the interconnecting sprocket-chain 6 substantially as shown and for the purpose described.

2. In a corn-planter, the driving-wheels G G journaled on a common spindle, and provided on the inner ends of their hubs with the beveled gear 3 respectively, adapted to intermesh and thus unite the traction of both of said wheels in the operation of said seeding mechanism, substantially as shown and for the purpose described.



3. In a corn-planter, the spindle H bowed upward centrally in a vertical plane transversely of the machine, cross-bars L, sleeve J held rigidly between said bars and extended over said spindle, and the bolt K, substantially as shown and for the purpose described.

4. In a corn-planter, a seed-hopper N provided with a central hollow post N' extending below the base thereof, a bolt 13 projecting downwardly through said post and a thumb-nut 14 seated on said bolt, and seed-plates having variant-sized openings adapted to be held in place on the base of the seed-hopper by said post, bolt and thumb-nut, and thereby be removable from said base exteriorly of said hopper, substantially as set forth.

5. In a seed-planter, a seed-hopper provided with discharging mechanism, of a seed-conduit leading therefrom, a movable shelf at the lower end of the conduit, and means for locking said shelf in or out of alinement with the end of the conduit, and a scraper for moving the seed from the shelf, substantially as set forth.

6. In a seed-planter, the combination, with a seed-hopper, provided with discharging mechanism, of a seed-conduit leading therefrom, a movable shelf at the end of the conduit, a lock for optionally securing said shelf in or out of alinement with the end of the conduit, and a scraper between the end of the conduit and the shelf, said scraper being provided with a forward projection for closing the end of the conduit simultaneously with its movement across the shelf, substantially as set forth.

7. In a corn-planter, the combination of the seed-duct R, the lever 31 provided with an opening 32, and projection 33, means for oscillating said lever in the line of the machine, an arm 27 provided with a stop 29 adapted to be held in and out of the line of the seed-duct R, and a toggle 30 secured to the arm and adapted to engage with the duct, substantially as shown and for the purpose described.

8. In a corn-planter, consisting of two frames hinged together, the combination of a hand-lever 34 pivotally seated on the front or runner frame and provided with an arm 38 projected toward the rear or wheel frame, a post 39 hinged to the wheel-frame at one end and to the arm 38 at the other end, and the foot-lever 40 suitably locked against downward movement on the rear extremity of arm 38, whereby said foot and hand levers can be manually operated jointly or separately to control said front frame, substantially as shown and for the purpose described.

9. In a corn-planter consisting of two frames mutually hinged, the combination of a hand-lever 34 seated on the front or runner frame and pivotally connected by a movable joint to the rear or wheel frame, and a foot-lever 40 pivotally connected to said movable joint and projected rearwardly therefrom, whereby said front frame may be raised or depressed by the manual use of said levers jointly or separately, substantially as shown and for the purpose described.

10. In a corn-planter, the combination of a lever 34 pivoted intermediately on the front or runner frame and having downward projection 71, shaft P, crank arms 73 and 74 extending oppositely from said shaft and rigidly seated thereon, pitman 72 connecting projection 71 and arm 73 and coiled spring 60 connecting arm 74 to the rear portion of said pitman, substantially as shown and for the purpose described.

11. In combination with a corn-planter, a foot drop-lever pivoted on said machine, the rock-shaft P suitably connected with the seeding mechanism of said planter, projecting arms 73 and 74 seated rigidly on said shaft and projected respectively upwardly and downwardly therefrom, a pitman connecting one of said arms with the working end of said lever and a contracting spring, substantially as shown and for the purpose described.

12. In a corn-planter, the combination of two frames mutually hinged, a reel-frame journaled on the rear frame of said planter, a lever seated on the front frame thereof and means substantially as shown of drawing the said reel-frame snugly against the driving-wheels of said planter to increase the friction thereon, for the purpose set forth.

13. In a corn-planter, the combination of the front frame supported by furrow-openers, and provided with front cross-bar B, and rear cross-bar D, plates C seated in pairs on said cross-bar D, and provided with vertical slots 1, a rear frame supported on the covering-wheels G, rear frame-axle E, longitudinal parallel bars A, A, hinged respectively at their forward ends in a vertical plane to the front cross-bar B of the front frame and projected through the slots 1 and attached to said axle L of the rear frame, latches 58 pivotally seated on the bar D in position to be turned up under the bars A respectively when the latter are at the upper end of the vertical slot 1 in plate C, seat-bow 69, reversible lock 75 pivotally seated in seat-bow 69, in position to be turned down on said axle L and thereby stop said bow, wire-reel 54 provided with friction-wheels 56 and lever 34 adapted to draw the top of the rear frame forward and force the wheels 56 against the inner wheels G, substantially as shown and for the purpose described.

14. In a corn-planter the rock-shaft 76 journaled lengthwise thereof, and provided at its front end with a crank-arm 77 having, at its extremity, fork 78, provided at its opposite end with the lateral projection 81, the shaft 8, pinions 24 seated thereon, collar 80 keyed on said shaft and provided with the annular recess 79 adapted to receive said fork 78, and the bar A adapted to press down upon the end 81 when the front frame of said planter is elevated and thereby withdraw the pinions 24 from engagement with the seeding mechanism substantially as shown and for the purpose described.

15. In a corn-planter consisting of two frames mutually hinged, a transverse shaft journaled on the front or runner frame and provided with beveled gear adapted to engage the seeding mechanism of the machine and provided with a collar having the external annular recess, and a rock-shaft journaled longitudinally on said runner frame and provided at one end with a crank-arm and at its extremity with a fork adapted to engage said annular recess, said rock-shaft being provided at its opposite end with a lateral projection adapted to be engaged by a suitable part of the rear frame when the runner-frame is raised, whereby said transverse shaft is shifted laterally to disengage said beveled pinions and a suitable spring adapted to restore said shaft to its original position when the pressure of the rear frame is removed, substantially as shown and for the purpose described.

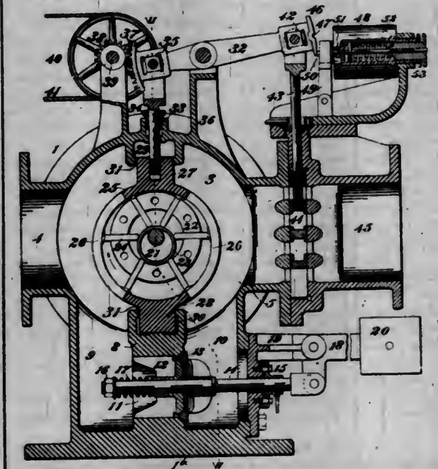
16. In a corn-planter, the combination of two frames, a hand-lever 34 seated on the rear end of the tongue of the machine having a rearwardly-extending arm 38, the tongue pivotally attached to the front bar B of the front frame and extending rearwardly beyond said front frame, bars A, pivoted at their front ends to the bar B and extending to the rear beyond the axle of the rear frame and rigidly attached to said axle, vertical plates C seated on the rear bar D of said front frame and provided with vertical slots 1 through which said bars A pass, latches 58 seated respectively on the bar D in position to be thrown under the bars A and fill up the lower portion of said slots 1 respectively, and thereby render the connection of the bars A to the front frame a rigid one, the seat-bow 69 a driver's seat and the wire-reel frame mounted thereon, and provided with wheels 56 said bow being bifurcated at its lower end with its rear bifurcation sleeved between the bars L, L, and its front bifurcation pivoted to the post 39, a lock 75 pivotally connected with the rear bifurcation of the bow and adapted to be optionally turned down to engage the bars L or upwardly to permit said rear bifurcation of the seat-bow 69 to freely pass downwardly between the bars L, and the post 39 pivotally connected at its upper end to the rear end of the arm 38 and its lower end to the bifurcation 63 whereby the backward movement of the lever 34 throws the wheels 56 over on the covering-wheels G, substantially as shown and for the purpose described.

17. The combination of a front frame supported by the furrow openers or runners and having the front cross-bar B and the rear parallel cross-bar D, the rear frame, longitudinal bars A suitably fastened to the axle of the rear frame and projected forwardly through the vertical slots 1 on said bar D and hinged at their forward ends to the said bar B, the plates C seated on said bar D and provided with the vertical slots 1, a suitable tongue supported at its forward end by the necks of the team, hinged intermediately on the bar B and projected some distance in the rear of said front frame, latches 58 pivoted on bar D in position to be thrown up under bars A at said plates C, a hand-lever 34 having a rearward-projecting arm 38 and pivotally seated at its angle on the rear end of the tongue, a seat-bow 69 adapted to carry the wire-reel and to have free vertical movement between the bars L, and a post 39 pivotally connected at its upper end to the rear end of the arm 38 and its lower end to the lower end 63 of the forward bifurcation of the lower portion of said seat-bow whereby in the backward movement of the lever 34, the interconnection of the front and rear frames is rendered rigid and a flection obtained at the bars L, which causes said rear movement of the lever 34 to depress the seat-bow 69 and throw the reel-rollers against the carrying-wheels G with any desired force, substantially as shown and for the purpose described.

18. In a corn-planter, the combination, with the seed-boxes, of a seed-disk in each box, a shaft provided with means for operating the disks, and means for moving the shaft longitudinally and throwing it into or out of engagement with the seed-operating mechanism, when the frame is raised or lowered, substantially as set forth.

19. In a corn-planter, the combination, with the seed-boxes, each of which is provided with a seed-disk, of a longitudinally-movable shaft provided with means for operating the disks, a rock-shaft connected with the first-mentioned shaft, and means for automatically operating the rock-shaft when the frame of the machine is raised or lowered, substantially as set forth.

595,027. HYDRAULIC PUMPING AND MOTOR APPARATUS. GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed Apr. 12, 1897. Serial No. 631,782. (No model.)



Claim.—1. In a rotary pump or motor, the combination with a casing and a rotatable drum provided with piston-slides, of a transversely-movable cylinder, provided with ports and inclosing said drum and piston-slides, means for subjecting either side of the cylinder to the action of fluid-pressure and means for simultaneously withdrawing pressure from the opposite side whereby the position of the cylinder may be adjusted at will.

2. A rotary fluid pump or motor comprising a casing, a rotatable drum provided with piston-slides, a cylinder provided with ports in its sides and inclosing said drum and piston-slides, means for admitting fluid under pressure between said cylinder and casing at either the top or the bottom and means for withdrawing the fluid at either the top or the bottom.

3. A rotary pump or motor comprising a casing having guide-chambers, a transversely-movable cylinder having ports and provided with guide-pieces located in said guide-chambers, passages leading from the high-pressure side of the pump or motor casing into the guide-chambers and a valve corresponding to each guide-chamber whereby the fluid may be discharged from either of said guide-chambers at will.

4. In a rotary pump or motor, the combination with a rotatable drum provided with piston-slides, of a transversely-movable cylinder surrounding said drum and piston-slides and provided with external guide-pieces, a casing surrounding said cylinder and having guide-chambers for said guide-pieces provided with inlet and outlet passages, valves in said outlet-passages and means for actuating said valves.

5. A rotary pump or motor embodying a rotatable drum provided with piston-slides, a transversely-movable cylinder surrounding the same, in combination with inlet and outlet passages, a by-pass and a safety-valve located therein, said valve comprising two concentric parts movable in opposite directions.

6. A rotary pump or motor comprising a rotatable drum provided with piston-slides and a transversely-movable cylinder surrounding the same, in combination with inlet and outlet pipes or passages, a

by-pass and a two-part safety-valve in said by-pass, the said parts being independently movable in opposite directions.

7. A rotary pump or motor comprising a rotatable drum provided with piston-slides, a transversely-movable cylinder surrounding the same and a casing, in combination with inlet and outlet pipes or passages, a by-pass and a two-part safety-valve in said by-pass, the two parts being yieldingly held in position by separate means which exert predetermined pressures in opposite directions.

8. A rotary pump or motor comprising a rotatable drum provided with piston-slides, a transversely-movable cylinder surrounding said drum and slides and a casing having inlet and outlet ports, a by-pass, a two-part safety-valve in said by-pass, the said parts being independently movable in opposite directions, and means for yieldingly holding each to its seat with a definite pressure.

9. In a rotary pump or motor, the combination with a rotatable drum having piston-slides, of a transversely-movable cylinder surrounding the same, a casing provided with inlet and outlet ports, a valve in one of said ports, means for moving the cylinder, means connecting said valve and said cylinder whereby they are simultaneously operated, and means for automatically locking the cylinder in its middle or concentric position.

10. In a rotary pump or motor, the combination with a transversely-movable cylinder and a cut-off valve, a rocking arm or lever connecting the said parts and means for automatically locking said parts in their intermediate positions.

11. In a rotary pump or motor, the combination with a transversely-movable cylinder, of fluid-pressure-actuated means for moving the same, automatically-operating means for locking it in its middle or concentric position, and an electromagnet acting, when energized, to release said cylinder.

12. In a rotary pump or motor, the combination with a transversely-movable cylinder, of fluid-pressure-actuated means for moving the same, a spring-actuated armature for locking said cylinder in its middle or concentric position, an electromagnet for withdrawing said armature, and means located at a distance for making and breaking the circuit containing the coil of said magnet.

13. In a rotary motor or pump, the combination with a rotatable drum provided with piston-slides, of a transversely-movable cylinder inclosing said drum and piston-slides, means for applying fluid-pressure to either side of said cylinder, valves for shifting the pressure from one side to the other and electromagnets for actuating said valves in one direction.

14. The combination with a hydraulic cylinder and its piston; of a rotary, eccentric piston-pump for forcing liquid into said cylinder and provided with a by-pass, a safety-valve in said by-pass and means actuated by the piston at the end of its stroke to open said safety-valve.

15. The combination with an elevator-car, of a hydraulic cylinder and its piston, sets of sheaves at the respective ends of said cylinder one of which is carried by the piston, cables passing over said sheaves and connected to the car, a rotary pump having a transversely-movable cylinder and a casing provided with inlet and outlet ports and a by-pass containing a safety-valve and means actuated by the hydraulic piston at the end of its stroke to unseat the safety-valve and thus open the by-pass.

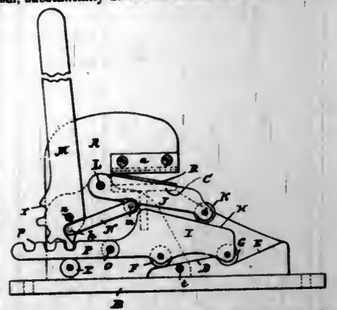
16. The combination with a hydraulic cylinder and its piston and means for connecting said piston with an elevator-car, of a rotary pump having a transversely-movable cylinder, pipes connecting the inlet and outlet ports of the pumps with the respective ends of the hydraulic cylinder, a cut-off valve in one of said pipes and means actuated by the piston of the hydraulic cylinder at the end of its stroke to simultaneously move the valve to the cut-off position and the pump cylinder to its middle or concentric position.

17. The combination with an elevator car or platform, of a hydraulic cylinder and piston, connecting means between said piston and said car or platform, a rotary pump embodying a cylinder movable transversely by fluid-pressure, valves for controlling said fluid-pressure, electromagnets for actuating said valves and means carried by the car for controlling the action of said magnets.

18. The combination with an elevator-car, of a hydraulic cylinder and its piston and a cable or cables connecting said car and said piston, a rotary pump for driving said piston, means for driving said pump; mechanism actuated and controlled by fluid pressure and electromagnetism for regulating the output of said pump independently of its driving means, and means carried by the car for controlling the pump-regulating mechanism.

595,028. COLD-IRON SHEARS. JAMES BURGESS, Indianapolis, Ind., assignor to Thomas Higham, Joseph W. Jackson, and Frank W. Ballanger, same place. Filed May 11, 1897. Serial No. 636,122. (No model.)

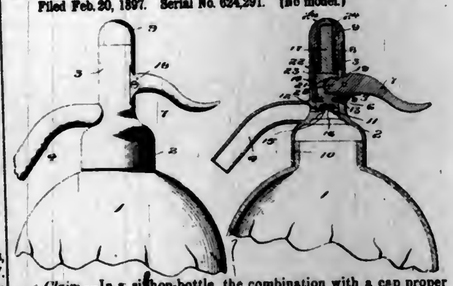
Claim.—1. In shears for cutting metals consisting of a frame provided with a base, said frame having a table and a stationary blade rigidly secured thereto, two incline planes placed tandem with the incline on the outer plane greater than the inner plane, said planes preferably integral with said frame, an arm pivoted to said frame at one end and the opposite end provided with a friction-roller, a cutting-blade secured to said arm, a slidable block having friction-rollers on its lower end traveling in said incline planes of the frame, the top of said block having an incline tapering upward toward its center on which said roller K travels, a friction-roller on said frame, a rack having teeth slidable on said roller and pivotally connected to said incline block, an operating-lever pivoted to said frame and having teeth on its lower end engaging with the teeth in said rack to advance said rack when said lever is pulled downward thereby raising said pivoted arm to close said knives, a lever connecting said lever and arm to pull said arm downward when said lever is in a vertical position, and a plate on one side to cover said mechanism, substantially as shown and described.



2. The herein-described shears for cutting iron and other metals, consisting of a main frame or support having a base and two incline planes placed tandem with the outer incline at a greater angle than the inner one, a block having friction-rollers traveling on said inclines, said block having an incline on its top, an arm pivoted to said frame at one end and a roller at its opposite or outward end traveling on said incline, said arm having a cutting-blade a roller journaled to said frame, a rack slidable on said roller and pivoted to said incline block, an operating-lever pivoted to said frame and having teeth on its lower end engaging with said rack, a lever connecting said lever to said arm to pull said arm to open position and a plate on one side to cover said mechanism substantially as shown.

3. The combination of the frame A, having the base B table C and cutting-blade *a*, the inclines D and E preferably made integral with said frame, the block I having the incline H on its top edge, and rollers F and G traveling on the inclines D and E respectively, the arm J pivoted to said frame at L and having the cutting-blade R, and roller K traveling on said incline H, the roller T journaled to said frame, the rack P pivoted to said block I at O, and slidable on said roller, the operating-lever M pivoted to the frame at *n* and having the teeth *r* on its lower end and engaging with the teeth *p* of the rack P, to advance said rack and press said pivoted arm upward, the connecting-lever N pivoted to said operating-lever at *h* and to said arm at *m* to pull said arm downward when said lever is in a vertical position and the plate S secured to the side of said frame by means of suitable bolts substantially as shown and described.

595,029. SIPHON-HEAD. GERMAIN MORENCY, Cincinnati, Ohio. Filed Feb. 20, 1897. Serial No. 624,291. (No model.)



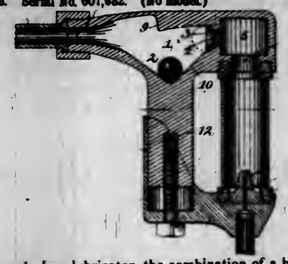
Claim.—In a siphon-bottle, the combination with a cap proper having a tubular vertical extension provided with a valve seat, an annular shoulder located above said valve-seat, and a spout having an outlet-opening between said valve-seat and shoulder, of a spring-pressed valve mounted in the tubular extension and having an end recess, and an annular channel formed therein, a vertical shank upon the upper end of said valve, a flexible packing mounted in the recess at the lower end of the valve, a flexible packing-ring mounted in the annular channel of the valve and adapted to rest upon the shoulder of the hollow extension, a tube mounted in the hollow extension about the valve and adapted to bear upon the annular flexible packing, a coil-spring surrounding said shank, a screw-cap mounted in the upper end of the vertical tubular extension and adapted to bear against the upper end of the spring and the upper end of the tube surrounding the valve to force the tube down upon the flexible ring, and an operating-handle pivoted in the tubular extension and engaging the valve for moving the same upward to unseat it, substantially as described.

595,080. GATE-LATCH. JOHN R. TURLEY, Murphy, Tex. Filed June 7, 1897. Serial No. 639,751. (No model.)



Claim.—A gate latch, comprising in combination with the squared bar, screw-threaded at one end, the gravity latch-bar, pivoted to one side of the said bar, thence inwardly bent, thence downwardly and vertically, forming the gate-engaging portion, the said latch passed through an elongated aperture in the bar, its upper end bent upon itself, then bent at right angles to the bar, forming a stop, and a handle, whereby the latch may be raised, substantially as shown and described.

595,081. LUBRICATOR. WALTER F. VAN GUTFELD, Albany, N. Y., assignor of three-fifths to Frederick Tillinghast, same place. Filed Oct. 2, 1896. Serial No. 607,682. (No model.)



Claim.—1. In a lubricator, the combination of a head having a lubricant-passage formed longitudinally therein and a cushioned seat around its outlet-opening; said head having an arm pendent between its opposite ends, a removable arm attachable to the lower end of said pendent arm having a recess adapted to receive the pendent arm and having a standing flange fitted to bear against the after side of said pendent arm: said removable arm having a cushioned seat on its upper face, a glass tube which is securable between said head and removable arm and is fitted to bear upon said cushioned seats, and means substantially as set forth for securing the removable arm to the pendent arm, as herein specified.

2. In a lubricator, the combination of a head provided with a longitudinal chamber whose lower surface is made to form an obtuse V-shaped depression and whose upper surface is provided with a deflecting-shoulder arranged directly over said depression; the said chamber having an outlet-passage provided with a valve-seat near its outer end, and a ball-valve which—being larger than either the inlet or outlet passage—is irremovable from said chamber and is adapted to automatically close—by the pressure of the escaping steam—said outlet-passage, as herein specified.

3. In a lubricator, the combination of a head having a lubricant-passage formed therein and provided with an arm that is pendent therefrom, a removable arm which is attachable to said pendent arm, a glass tube secured between said head and removable arm, and a screw-bolt inserted in said pendent arm and adapted to press the removable arm against the end of the glass tube, as herein specified.

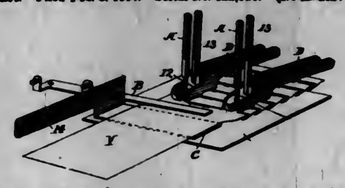
595,082. CLAMP FOR GARMENT-SUPPORTERS. CHARLES M. ALLEN, San Francisco, Cal. Filed Apr. 23, 1897. Serial No. 633,492. (No model.)

Claim.—1. In a garment-supporter, a plate having a boss and having a portion turned over substantially parallel with the body portion and serving substantially as a resilient member, said plate having a slot near its upper portion and a second slot substantially in the bight of the turned-over portion, in combination with an elastic passed through the upper slot and having its end passed through the lower slot and confined between the turned-over portion and the body of the plate, a clamp adapted to surround said boss and encompass the garment about the same and means for closing and compressing the clamp.



2. In a garment-supporter, a plate having a projection or boss centrally upon one side, a fold or bend at one end serving substantially as a resilient member adapted to receive the end of the supporting elastic or strip, between itself and the body of the plate, teeth formed in the bent-over portion which engage the end of said strip when inserted, a transverse slot formed at the opposite end of the plate through which the strip is passed, a clasp adapted to surround the projecting head, said clasp having a transverse loop at the upper end through which the suspending-strip is passed after passing through the slot at the upper end of the plate and again returned through said slot whereby it serves as a hinge about which the clasp is turnable, diverging extensions from the clasp and a button slidable upon said extensions whereby the clasp is closed to bind or clamp the fabric about the projecting head.

595,088. PLAITING DEVICE FOR SEWING-MACHINES. HENRY S. AYERS, McGrawville, N. Y., assignor to Albert P. McGraw, same place. Filed Feb. 8, 1897. Serial No. 622,529. (No model.)



Claim.—1. The combination of feed devices and two blades adapted to receive a fabric between them, means for reciprocating one of the blades transversely to the line of feed, and means for reciprocating the other blade in the line of feed to bring it upon the first-mentioned blade, substantially as described.

2. In a machine for folding fabrics, the combination of feed devices and two blades adapted to receive a strip between them, means for moving one blade back and forth upon the second blade in the direction of the line of feed, and means for raising and lowering the second blade and for reciprocating it longitudinally in a direction transverse to that in which the first blade moves, substantially as described.

3. In a machine for forming successive folds in a fabric strip, the combination of two blades adapted to receive a strip between them, means for moving one blade back and forth upon the second blade, devices for reciprocating the second blade in a direction transverse to that in which the first blade moves and means for holding the folds after they are formed, substantially as described.

4. In a machine for forming successive folds in a fabric strip, the combination with strip-feeding devices, of a blade, means for folding the strip around the blade, and means for reciprocating the blade transversely to the direction in which the strip is fed, substantially as described.

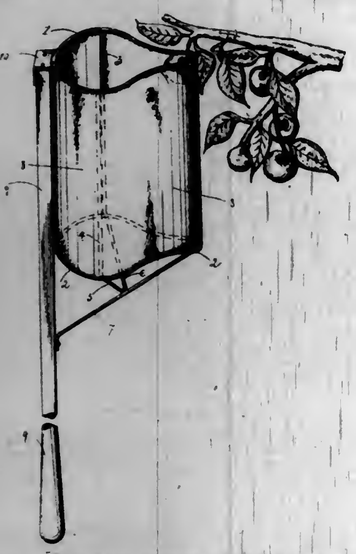
5. In a machine for folding fabrics, the combination of two blades adapted to receive a strip between them, means for reciprocating one blade back and forth upon the second blade, devices for varying the extent of such reciprocation, and means for reciprocating the second blade in a direction transverse to that in which the first blade is reciprocated, substantially as described.

6. In a machine for folding fabrics, the combination with strip-feeding mechanism, of two blades, means for reciprocating them at right angles to each other, and devices for regulating the reciprocation of one of the blades whereby the strip is formed into folds of different widths, substantially as described.

7. In a machine for folding fabrics, the combination of two blades adapted to receive a strip between them, means for reciprocating one

blade back and forth upon the second blade, devices for reciprocating the second blade in a direction transverse to that in which the first blade is reciprocated, mechanism for sewing the folded strip, and devices for feeding said strip to the sewing mechanism, substantially as described.

595,034. FRUIT-PICKER. ROBERT BEATTY, Tarentum, Pa. Filed Nov. 27, 1896. Serial No. 613,510. (No model.)



Claim.—A fruit-picker consisting of a pole having attached thereto a light framework, a covering for said framework, the said framework comprising the upper portion 1 and lower portion 2, one end being in semicircular form and adapted to be attached to the pole, the other end being gradually reduced in width, the vertical brace-rods 3 and 4, and the brace-rods 5, 6 and 7, said brace-rod 7 having one end secured to the said pole, substantially as described.

595,035. CONSTRUCTION OF BICYCLE-FRAMES. EMILE BERANGER and ALFRED CHOBERT, Brussels, Belgium. Filed July 6, 1896. Serial No. 598,120. (No model.) Patented in Belgium May 8, 1894, No. 109,867, and in France June 25, 1894, No. 239,561.



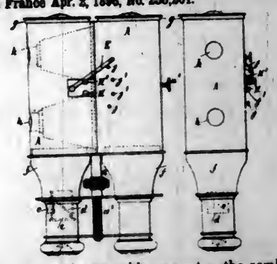
Claim. 1. As a new article of manufacture, a sheet-metal blank for forming tubes for velocipede, bicycle and similar frames, having dovetailed longitudinal edges and a pair of tongues having their free ends placed crosswise with reference to said dovetailed edges and adapted to be joined together when bent around a connecting member of a frame, substantially as set forth.

2. A sheet-metal tube for velocipede, bicycle and similar frames, consisting of a blank bent into tubular form with its longitudinal edges joined by dovetailed connections and provided at its end with a pair of integrally-formed tongues bent to form an eyelet adapted to receive and hold a connected tube, the axis of such eyelet being placed crosswise with reference to such longitudinal joint, substantially as set forth.

3. The combination with a sheet-metal tube having a longitudinal dovetailed connecting-joint and a pair of tongues at its end integral with the blank and bent to form an eyelet, of another tube inserted through said eyelet with the joint between the tongues soldered, said joint placed in a plane running crosswise to and intersected by a plane in which said dovetailed joint is located, substantially as set forth.

4. In tubes for velocipede, bicycle and similar frames, made out of flat metal blanks with dovetailed longitudinal edges, a pair of tongues *b b'* at the end of the blank, intended to be bent over another tube, which has to be connected with the first one, so as to form an eyelet for this second tube, and an auxiliary shoulder *c* for further supporting said second tube, substantially as set forth.

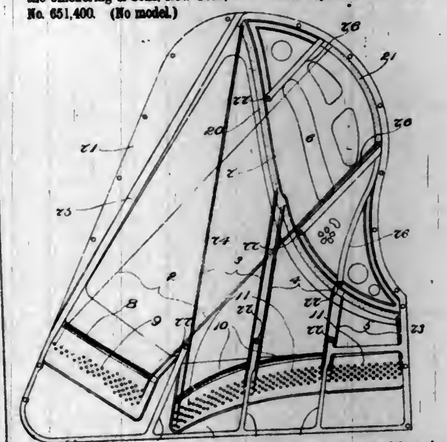
595,036. PHOTOGRAPHIC CAMERA. EDMOND BLOCH, Paris, France. Filed Oct. 26, 1896. Serial No. 610,059. (No model.) Patented in France Apr. 2, 1896, No. 256,361.



Claim.—1. In a photographic apparatus, the combination of a case formed as a binocular, a storage-compartment for sensitized plates in one tube of the binocular, main parallel lenses in the other tube of the binocular having their focal axes perpendicular to the longitudinal axis of the binocular, a finder and an ocular as described, a shutter C formed as a section of a cylinder and rotating about the longitudinal axis of said last-named tube, an adjustable spring adapted to throw said shutter at varying rapidity, and dogs adapted to hold the shutter at the extreme limits of its motion in either direction, substantially as described.

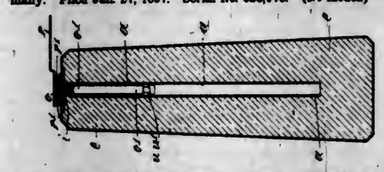
2. The combination in photographic apparatus, of a case shaped as a binocular, lenses *h*, *h* in one tube of the binocular with their focal axes perpendicular to the longitudinal axes of said binoculars, a storage-compartment for sensitized film in the other tube of the binocular directly behind said lenses *h*, *h*, a flexible pocket X' at one end of said compartment, a separating-wall between the compartment and the pocket having openings at the top and bottom for the outward and inward passage of the sensitized plates, a spring adapted to clamp the plates in said compartment, and a slide adapted to transfer the plates from the compartment to the pocket through one of said openings, substantially as described.

595,037. PIANO. ROBERT S. BOWEN, Boston, Mass., assignor to the Chickering & Sons, New York, N. Y. Filed Sept. 13, 1897. Serial No. 651,400. (No model.)



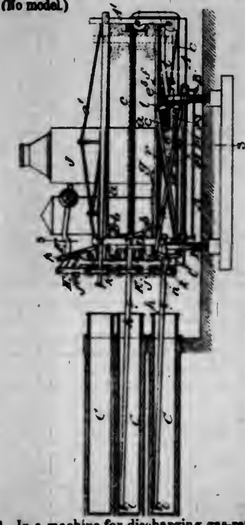
Claim.—The improved string-support or plate comprising the webs or web portions 7, 71, and 72, and having the central unobstructed space 74, also having the strings applied to the webs or web portions 7, 72, with one portion overstrung with relation to the remainder, and also having the agraffes for the front portions of the said strings mounted on the web or web portion 72 with those for the overstrung strings disposed in a line or series at an angle to the line of agraffes of the remaining strings and approximately at right angles to the group of overstrung strings, substantially as described.

595,038. BOUNDARY-STONE. CARL BRANDIS, München, Germany. Filed Jan. 27, 1897. Serial No. 620,978. (No model.)



Claim.—A boundary-stone having a vertical tube adapted to receive a surveying pole or staff, a plate adapted to rest upon the top of said stone, and a rod secured to said plate, and reaching down into said tube; said rod having at its lower end a reduced portion o^2, a portion o^3 projecting from said reduced portion, and an incline o^4 forming part of said portion o^1; the tube having an inner projection, such as *n'*, for the purpose as described.

595,039. MACHINERY FOR DISCHARGING GAS-RETORTS. GASTON A. BROUSSE, New York, N. Y. Filed May 20, 1897. Serial No. 637,321. (No model.)



Claim—1. In a machine for discharging gas-retorts, the combination of a rake-lifting bar and a counterbalance-lever from which said bar is suspended and the fulcrum of which is movable with the rake, substantially as herein described.

2. In a machine for discharging gas-retorts, the combination of a rake, a rake-carrier, a rake-lifting bar, a counterbalance-lever from which said bar is suspended and the fulcrum of which is movable, mechanism for moving the said carrier toward and from the retorts, mechanism for moving the said fulcrum, and a connection between the carrier-moving mechanism and fulcrum-moving mechanism whereby the said two mechanisms operate together for the shifting of the said fulcrum with the backward and forward movement of the rake-carrier, substantially as herein described.

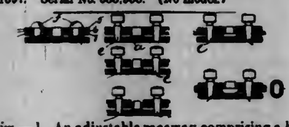
3. In a machine for discharging gas-retorts, the combination of a carriage, two or more rakes, a carrier for said rakes and means for moving said carrier backward and forward on said carriage, a lifting-bar on said carriage common to the several rakes, a counterbalance-lever from which said lifting-bar is suspended and the fulcrum of which is movable, mechanism for moving the said fulcrum, means for connecting said rakes with the said carrier and carriage whereby one or more of them may be moved with the carrier while the other or others are held stationary on the carriage and a detachable connection between the fulcrum-moving mechanism and the carrier-moving mechanism, all substantially as and for the purpose herein described.

4. The combination with the rake-lifting bar, the main frame or carriage and the counterbalance-lever connected at one end with said bar, of a lever as H having its fulcrum on the main frame or carriage and carrying the fulcrum *p* of the counterbalance-lever and the swinging links *s s* by which the latter lever is connected with its fulcrum, substantially as herein described.

5. The combination of the rake-lifting bar, the main frame or carriage, the counterbalance-lever connected at one end with said bar and having a movable fulcrum supported on said frame or carriage, and a guide for said bar consisting of rollers pivoted in the frame or carriage in front of and behind the said bar to receive the lateral thrust of said bar, substantially as herein described.

6. The combination with the rake-carrier and the mechanism for moving the same, of a piston connected with said mechanism and a hydraulic cylinder in which said piston works and between the ends of which on opposite sides of the piston there is a passage with several ports at each end, the said cylinder being counterbored at each end, the several ports being at different distances from the cylinder-heads, the ports nearest the cylinder-heads being within the counterbore and the other ports being within the range of the piston to be successively closed thereby, substantially as herein described.

595,040. EYELET-DELIVERING MECHANISM FOR EYELETING-MACHINES. HERBERT H. BUFFUM, Abington, Mass. Filed May 10, 1897. Serial No. 635,935. (No model.)

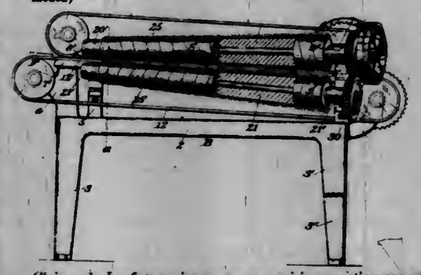


Claim.—1. An adjustable raceway comprising a base-plate forming the bottom of a guiding-channel, guides on said base-plate forming the side walls of said channel and adjustable relatively to each other, and guide-adjusting means comprising orifices in the base-plate, orifices in the guides having a different arrangement from those in the base-plate, whereby different orifices are caused to coincide by changes in the relative positions of the guides, and spacing pins or studs formed to enter the coinciding orifices.

2. An adjustable raceway comprising a base-plate forming the bottom of a guiding-channel, two adjustable guides forming the side walls of said channel, guide-adjusting devices comprising orifices in the base-plate, orifices in the guides having a different arrangement from those in the base-plate, and spacing pins or studs formed to enter coinciding orifices in the guides and base-plate, and independent means for securing the guides in the different positions to which they may be adjusted.

3. An adjustable raceway comprising a base-plate forming the bottom of the guiding-channel, two guides forming the side walls of said channel and each composed of a plurality of independently-adjustable sections, and means for adjusting the said sections to vary the shape of the cross-section of said channel.

595,041. TOBACCO-LEAF-STEMMING MACHINE. WILLIAM H. BUTLER, Harrison, N. Y. Filed Oct. 3, 1896. Serial No. 607,733. (No model.)



Claim.—1. Leaf-stemming means comprising coacting opposing surfaces adapted in operation to work with a wiping action upon the leaf, portions of one or both of said surfaces being of different efficiencies; and means for operating one or both of said surfaces.

2. Leaf-stemming means comprising coacting opposing surfaces adapted in operation to work with a wiping action upon the leaf, portions of each of said surfaces being of different efficiencies; and means for operating said surfaces.

3. Leaf-stemming means comprising coacting opposing brush-like working surfaces adapted in operation to work with a wiping action upon the leaf, portions of each of said surfaces being of varying efficiencies; and means for operating said surfaces.

4. Leaf-stemming rolls having coacting opposing surfaces adapted in operation to work with a wiping action upon the leaf, portions of each of said roll-surfaces being of different efficiencies; combined with means for operating said rolls.

5. Leaf-stemming rolls having coacting opposing working surfaces portions of each of which are of different efficiencies, and of different peripheral velocities, adapted in operation to work with a wiping action upon the leaf; combined with means for operating said rolls.

6. In combination with feed mechanism, leaf-stemming means comprising coacting opposing surfaces adapted in operation to work with a wiping action upon the leaf, portions of each of said surfaces being of varying efficiencies; and means for operating said surfaces.

7. A leaf-stemming machine, comprising coöperative stemming-rolls having brush-like surfaces of decreasing rigidity from the entrant end toward the exit end thereof, and means for rotating said rolls, the construction being such that the rolls operate upon the leaf with a wiping action of decreasing pressure when said leaf is passed between and from the entrant ends toward the exit ends of said rolls.

8. A leaf-stemming machine, comprising coöperative stemming-rolls, one of which has a spiral brush-like surface of decreasing rigidity in the direction of the length of the rolls, the construction of the rolls being such that the same will operate upon the leaf with a wiping action of decreasing pressure when said leaf is passed between and from the entrant ends toward the exit ends of said rolls.

9. In a leaf-stemming machine, the combination, with suitable feed mechanism, of stemming-rolls having coöperative brush-like surfaces whose successive portions are of relatively different elasticities and are adapted to act upon successive portions of the leaf with a wiping action of varying pressures.

10. In a leaf-stemming machine, stemming-rolls having circumferential teeth arranged in opposing spirals, the teeth of one roll relatively to those of the other roll, and of decreasing rigidity from the entrant ends toward the exit ends of said rolls, the construction being such that the rolls will operate upon the leaf with a wiping action of gradually-decreasing pressure when the same is passed between and from one end toward the other end of said rolls.

11. In a leaf-stemming machine, stemming mechanism embodying a stemming-roll having a brush-like surface which is inclined with relation to the axis of said roll, and the successive portions of which are adapted to act with a progressive wiping action upon successive portions of the leaf with different peripheral velocities as the same is passed from one toward the other end of said rolls; combined with complemental stemming and leaf-feeding devices.

12. A leaf-stemming mechanism comprising a stemming-roll having a brush-like surface inclined from end to end relatively to the axis of said roll and of gradually-increasing flexibility in the direction of the length thereof, whereby the leaf is subjected to a progressive wiping action of varying efficiency; a complemental stemming device in operative relation with said roll; and means for feeding the leaf longitudinally of said rolls.

13. In a machine of the class specified, a stemming-roll having a conical surface composed of spirally-disposed teeth; combined with a complemental stemming device; means for feeding the leaf in the direction of the length of the rolls; and means for rotating the roll, whereby successive portions of the roll will have a wiping action upon the leaf of varying peripheral velocities.

14. In a machine of the class specified, a stemming-roll having resilient teeth of increasing lengths from the entrant toward the exit ends of the roll; combined with means coöperating with said stemming-roll, to cause the leaf to be operated on with a wiping action of gradually-decreasing pressure when the same is passed between said stemming-roll and coöperating means.

15. In a machine of the class specified, the combination, with suitable leaf-feeding mechanism, of stemming members having intermeshing teeth of decreased density or rigidity from the entrant ends toward the exit ends of said members; and means for actuating said members, whereby said teeth will operate upon the leaf with a wiping action of decreasing pressure, when the same is advanced by the feeding mechanism, from the entrant toward the exit ends of said members.

16. In a machine of the class specified, leaf-stemming rolls each having a brush-like surface of increasing pliability in the direction of the length thereof, operating upon the leaf with a progressive wiping action, and one of said rolls having one end of smaller diameter than the opposite end thereof; combined with means for rotating said rolls; and means for feeding the leaf between, and in the direction of said rolls.

17. In a leaf-stemming machine, the combination, with stemming mechanism embodying stemming-rolls having coöperative brush-like faces of gradually-increasing resiliency from the entrant ends toward the exit ends thereof, said faces operating with a progressive wiping action upon the leaf, of feeding mechanism comprehending instrumentalities for engaging the stem of, and for advancing, the leaf in the direction of the length of the rolls and simultaneously drawing said leaf through the rolls in a plane transverse to the longitudinal axis of the rolls; and means for rotating the rolls and for actuating the feed mechanism.

18. In a leaf-stemming machine, the combination, with two conical stemming-rolls set with their axes at acute angles to the line of feed, and also having brush-like wiping-surfaces of increased pliability in the direction of their lengths; combined with leaf-feeding mechanism located at one side of, and in close proximity to, the smaller ends of the stemming-rolls and effective for engaging the stem of, and for feeding, the leaf in the direction of the length of said rolls.

19. In a leaf-stemming machine, the combination, with suitable feed mechanism, of stemming mechanism comprising two stemming-rolls set with their adjacent surfaces in relatively divergent lines vertically, and at acute angles horizontally, with relation to the line of feed, and having intermeshing, circumferential, resilient teeth which are of gradually-decreased rigidity in the direction of the length of the rolls, said teeth operating with a wiping action upon the leaf.

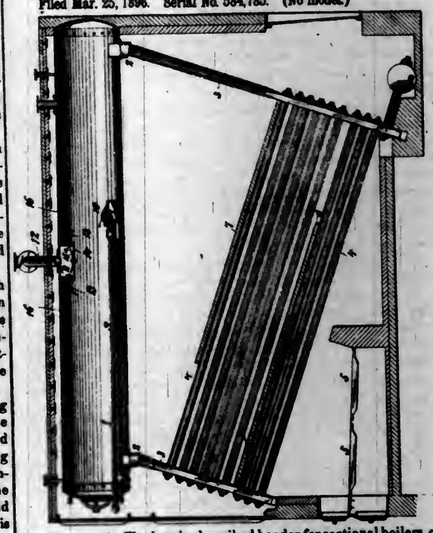
20. In a leaf-stemming machine, the combination of rotative stemming-rolls for separating the body of the leaf from the stem by a wiping action and arranged with their axes at acute angles to the line of feed, and having their leaf-engaging surfaces of gradually-increased pliability in the direction of the length of the rolls; mechanism for rotating said rolls; and means for feeding the leaf in a line transverse to the plane of rotation of said rolls.

21. In a leaf-stemming machine, the combination of stemming mechanism including stemming-rolls having oppositely-spiraled brush-like surfaces for advancing one end of the leaf in unison with the feed mechanism and longitudinally of the rolls and for simultaneously removing by a wiping action the body of the leaf from the stem; and leaf-feeding mechanism constructed and organized to engage and advance the opposite end of the leaf in the direction of the length of the rolls and to simultaneously draw said leaf longitudinally through the rolls in a plane intersecting the longitudinal axis of said rolls.

22. In a leaf-stemming machine, the combination, with continuously-progressive feed mechanism comprehending instrumentalities for engaging and advancing the leaf in the direction of the length of the stemming-rolls; of stemming-rolls supported with their axes at acute angles with relation to the line of feed and having their coöperative faces of increased pliability in the direction of the length of the rolls, and also having their operative surfaces formed in oppositely-arranged spirals for advancing the body of the leaf in unison with the feed mechanism, said teeth operating with a wiping action upon the leaf; mechanism for rotating said rolls; and means for adjusting the rolls, to change the relation of their coöperative surfaces.

23. In a leaf-stemming machine, the combination, with feed mechanism for advancing the leaf, of coöperative stemming-rolls supported with their axes in divergent lines vertically with relation to each other, and at an acute angle horizontally with relation to the line of feed, and having coöperative, resilient surfaces, the successive portions of which are of relatively varying rigidities and operate with a progressive wiping action upon the leaf.

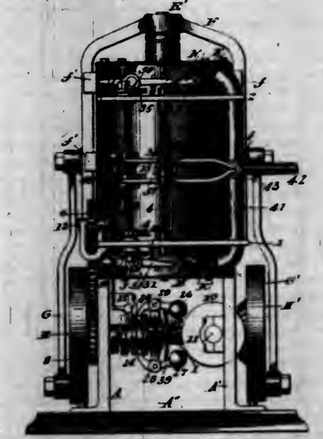
595,042. STEAM-BOILER. ROLLA C. CARPENTER, Ithaca, N. Y. Filed Mar. 25, 1896. Serial No. 584,785. (No model.)



Claim.—1. The herein-described header for sectional boilers, consisting of a wrought-metal tube, round at one end for insertion into the steam and water drum, and closed at the other end, and flattened for a portion of its length and having in its flattened portion holes for the reception of the generating-tubes, substantially as described.

2. In a sectional boiler, the combination, with a steam and water drum, of generating-tubes below said drum, and headers connecting the ends of said generating-tubes with the steam and water drum, formed of metal tubing, flattened for a portion of their length and having in such flattened portions holes for the reception of the ends of the generating-tubes, and expanded into holes in said steam and water drum, substantially as described.

595,043. GAS-ENGINE. JOHN O. CHASE, Dayton, Ohio. Filed May 28, 1896. Serial No. 593,477. (No model.)



Claim.—1. In a gas-engine, the combination of a cylinder provided at its opposite ends with supply and compression chambers, a piston-head with double concave surfaces, duplicate inlet and exhaust valves, the air-supply pipe connected with the supply-chambers at either end of the cylinder, a normally-closed inlet-valve arranged within the air-supply pipe, a valve-spray connection with the hydrocarbon-pipe, duplicate levers to actuate the valve in the gas and air supply pipe, and means for automatically opening the inlet and exhaust valves at the opposite ends of the cylinder at the limit both of the downward and upward strokes of the piston, according to the requirements of the engine substantially as herein set forth.

2. In a gas-engine, the combination of the cylinder provided at its opposite ends with supply and compression chambers, a pistod head and rod, a sliding cross-head over and along the sides of the cylinder to actuate the piston rod and head, pitman-bars pivotally connecting the sliding cross-head, a crank-shaft suitably journaled in framework, suitable fly-wheels, a counter-shaft, duplicate valve-shafts, suitably journaled in the framework, and means whereby the counter-shaft makes one revolution to two revolutions of the crank-shaft automatically and the inlet and exhaust valves at the limit both of the downward and upward strokes of the piston, alternating with a like opening of the exhaust-valves, substantially as set forth.

3. In a gas-engine, the combination of the cylinder provided at its opposite ends with supply and compression chambers, a piston head and rod, a sliding cross-head over and along the sides of the cylinder to actuate the piston rod and head, pitman-bars pivotally connecting the sliding cross-bar, a counter-shaft and suitable connecting-gearing, whereby the counter-shaft makes one revolution to two revolutions of the crank-shaft, disks at either end of the counter-shaft, a lug on each oppositely placed with respect to each other, a cam on each disk oppositely placed with respect to the lugs, to automatically cause an electric spark, and open the exhaust-valves at the opposite ends of the cylinder alternately at the limit of both the downward and upward stroke of the piston, alternating with a like opening of the inlet-valves for the purposes described and set forth.

4. In a gas-engine, in combination with the framework, a cylinder B provided at its opposite ends with supply and compression chambers C and D, a piston-head E', rod E, sliding cross head F, pitman-bars G G', crank-shaft 1, counter shaft 3, bevel-wheels 5 and 17, cog-wheels 6 and 8, idle-wheel 7, wheel 5 in diameter half that of wheel 8 whereby counter-shaft 3 makes one revolution to two of crank-shaft 1, duplicate disks 35, duplicate projections 50, lugs 51, projections 36, spring-levers 31 and 32, upper and lower shafts 4, duplicate arms M and N, levers 37 and 38, valve connections J and K, pipes 41 and 42, valve 43, collar 14, cams 15 and 16 and governor connection, lever 49, rod 19, crank 23, shaft 20, lug 53, collar 54, bracket 30, spring-arms 39 and 40, for the purposes described and set forth.

595,044. WATCH-PLATE DRILLING AND TAPPING MACHINE. DUANE H. CHURCH, Newton, Mass. Filed July 1, 1897. Serial No. 643,107. (No model.)



Claim.—1. In a machine of the character described, the combination with a tool-epindle and means for automatically operating the same, of work-holding means variously movable at right angles to the said spindle, and means for automatically establishing predetermined differential adjustments of said work-holding means to successively present different irregularly-spaced portions of the work to the action of the tool.

2. In a machine of the character described, the combination with a tool-epindle and means for intermittingly operating the same; of a slide movable in a plane at right angles to the axis of said spindle; a second slide carried by the first slide and movable at right angles thereto, and having work-holding means; and means for establishing predetermined differential positions of said slides to present different irregularly-spaced portions of the work to the action of the tool.

3. In a machine of the character described, the combination with a tool-spindle and means for intermittently operating the same; of a slide movable in a plane at right angles to the axis of said spindle; a second slide carried by the first slide and movable at right angles thereto, and having work-holding means; means for yieldingly impelling the said slides, and variable abutments to determine differential positions of the slides by checking their movements under impulse of such yielding means for the purpose of presenting different irregularly-spaced portions of the work to the tool.

4. In a machine of the character described, the combination with a tool-spindle and means for intermittently operating the same; of a slide movable in a plane at right angles to the axis of said spindle and having an abutment; a movable support having a series of abutments for coaction with that on the slide and varying in extent of projection from their support; means for moving the latter step by step; a second slide carried by the first slide and movable at right angles thereto and having work-holding means, said second slide also provided with an abutment; a movable support on the first slide, having a series of abutments for coaction with that on the second slide; means for moving said support step by step: and means for yieldingly impelling the slides.

5. In a machine of the character described, the combination with a tool-spindle and means for intermittently operating the same; of a slide movable in a plane at right angles to the axis of said spindle and having an abutment; a movable support having a series of abutments for coaction with that on the slide and varying in extent of projection from their support; means for moving the latter step by

step; a second slide carried by the first slide and movable at right angles thereto and having work-holding means, said second slide being also provided with an abutment; a movable support on the first slide, having a series of abutments for coaction with that on the second slide; means for moving said support step by step; and fluid-pressure apparatus for impelling said slides.

6. In a machine of the character described, the combination with a tool-spindle and means for intermittently operating the same; of a slide movable in a plane at right angles to the axis of said spindle and having an abutment; a movable support having a series of abutments for coaction with that on the slide and varying in extent of projection from their support; means for moving the latter step by step; a second slide carried by the first slide and movable at right angles thereto and having work-holding means, said second slide also provided with an abutment; a movable support on the first slide, having a series of abutments for coaction with that on the second slide; means for moving said support step by step; fluid-pressure apparatus for impelling said slides; and means for automatically controlling the said fluid-pressure apparatus.

7. In a machine of the character described, the combination with a tool-spindle and means for intermittently operating the same; of a slide movable in a plane at right angles to the axis of said spindle and having an abutment; a movable support having a series of abutments for coaction with that on the slide and varying in extent of projection from their support; means for moving the latter step by step; a second slide carried by the first slide and movable at right angles thereto and having work-holding means, said second slide also provided with an abutment; a movable support on the first slide, having a series of abutments for coaction with that on the second slide; means for moving said support step by step; and cam-controlled fluid-pressure apparatus for impelling the slides.

8. In a machine of the character described, the combination with a longitudinally movable driving-spindle, a movable support, a series of tool-spindles rotatively and longitudinally movable therein, the said driving-spindle and tool-spindles having clutch members, means for shifting the movable support to bring its tool-spindles severally into alinement with the driving-spindle, and means for automatically moving the latter longitudinally; of work-holding means variously movable at right angles to the axes of the spindles, and means for automatically establishing predetermined adjustments of said work-holding means to successively present different portions of the work to the action of the tools.

9. In a machine of the character described, the combination with a longitudinally-movable driving-spindle, a movable support, a series of tool-spindles rotatively and longitudinally movable therein, the said driving-spindle and tool-spindles having clutch members, means for shifting the movable support to bring its tool-spindles severally into alinement with the driving-spindle, means for automatically reversing the directions of rotation of the latter, and means for automatically moving the same longitudinally; of work-holding means variously movable at right angles to the axes of the spindles, and means for automatically establishing predetermined adjustments of said work-holding means to successively present different portions of the work to the action of the tools.

10. In a machine of the character described, the combination with a tool-spindle, and means for automatically operating the same with provisions for automatically reversing its direction of rotation; of work-holding means variously movable at right angles to the said spindle, and means for automatically establishing predetermined adjustments of said work-holding means to successively present different portions of the work to the action of the tool.

11. In a machine of the character described, the combination with a longitudinally-movable driving-spindle, a rotary support, a series of tool-spindles rotatively and longitudinally movable therein, the said driving-spindle and tool-spindles having clutch members, means for automatically turning the support and locking it at different positions to aline the tool-spindles severally with the driving-spindle, and means for automatically moving the latter longitudinally; of work-holding means variously movable at right angles to the axes of the spindles, and means for automatically establishing predetermined adjustments of said work-holding means to successively present different portions of the work to the action of the tools.

12. In a machine of the character described, the combination with a tool-spindle and means for automatically operating the same, of work-holding means variously movable at right angles to the said spindle, a system of variable abutments and fluid-pressure apparatus operating in conjunction with said abutments to establish predetermined adjustments of said work-holding means for successively presenting different irregularly-spaced portions of the work to the action of the tool.

13. In a machine of the character described, the combination with a tool-spindle, and fluid-controlled means for operating the same with provisions for reversing its direction of rotation; of work-holding means variously movable at right angles to the said spindle, and means for automatically establishing predetermined adjustments of said work-holding means to successively present different portions of the work to the action of the tool.

14. In a machine of the character described, the combination of a rotary support, a series of tool-spindles therein, an oscillating actuator having means of engagement with said support to turn it in one direction a piston in gear with said actuator, and a cylinder inclosing the piston and having provisions for alternate inlet and egress of fluid-pressure on opposite sides of the piston.

15. In a machine of the character described, the combination of a rotary support; a series of tool-spindles therein: an automatic lock to determine different positions of the support; an oscillatory actuator having lock-displacing means and means engaging the support for turning the same in one direction; a piston in gear with said actuator, and a cylinder inclosing the piston and having provisions for alternate inlet and egress of fluid-pressure on opposite sides of the piston.

16. In a machine of the character described, the combination with a tool-spindle and means for intermittently operating the same; of a slide movable in a plane at right angles to the axis of said spindle, and having an abutment; a rotary support having a circular series of abutments for coaction with that on the slide and varying in extent of projection from the support; means for turning the latter step by step; a second slide carried by the first slide and movable at right angles thereto and having work-holding means said second slide also provided with an abutment; a rotary support in the first slide having a circular series of abutments for coaction with that on the second slide; means for turning said support step by step; and means for yieldingly impelling the slides.

17. In a machine of the character described, the combination with a tool-spindle and means for intermittently operating the same; of a slide movable in a plane at right angles to the axis of said spindle, and having an abutment; a movable support having a series of abutments for coaction with that on the slide and varying in extent of projection from their support; fluid-pressure means for moving said support step by step; a second slide carried by the first slide and movable at right angles thereto, and having work-holding means, said second slide also provided with an abutment; a movable support on the first slide having a series of abutments for coaction with those on the second slide; fluid-pressure means for moving said support step by step; and means for yieldingly impelling the slides.

18. In a machine of the character described, a transferring mechanism comprising a longitudinally movable and oscillatory shaft carrying a work-holding arm, a piston on the shaft, a cylinder inclosing the piston with provisions for inlet and egress of fluid-pressure alternately on opposite sides of the piston, and means for oscillating the shaft.

19. In a machine of the character described, a transferring mechanism comprising a longitudinally movable and oscillatory shaft carrying a work-holding arm, a piston geared to the said shaft with provision for longitudinal movement thereof, a cylinder inclosing said piston with provisions for inlet and egress of fluid-pressure alternately on opposite sides of the piston, and means for longitudinally reciprocating the shaft.

20. In a machine of the character described, a transferring mechanism comprising a longitudinally movable and oscillatory shaft carrying a work-holding arm, a piston geared to the shaft with provision for longitudinal movement thereof, and a cylinder inclosing this piston with provisions for inlet and egress of fluid-pressure alternately on opposite sides thereof.

21. In a machine of the character described, a transferring mechanism comprising a longitudinally movable and oscillatory shaft carrying a transverse bearing and a cylinder with a fluid-pressure inlet, a work-holder journaled in said bearing and carrying an oscillatory piston in said cylinder, means for oscillating the shaft, and means for longitudinally reciprocating the same.

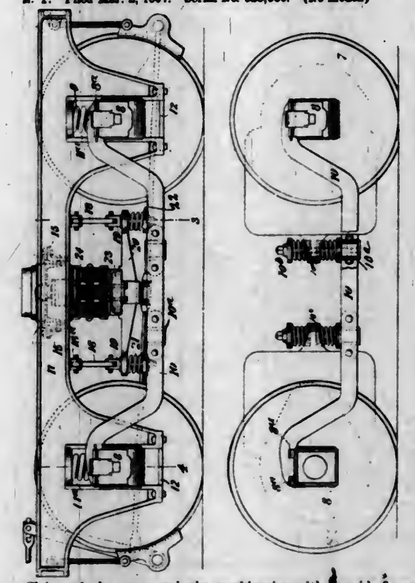
22. In a machine of the character described, a transferring mechanism comprising a longitudinally movable and oscillatory shaft carrying a transverse bearing and a cylinder and having an axial passage communicating with said cylinder and an elongated port opening out of the side of the shaft, a bearing for said shaft having a fluid-pressure-supply passage adapted to register with said port in various positions of longitudinal adjustment of the shaft, a work-holder journaled in the transverse bearing on the shaft and carrying an oscillatory piston in said cylinder, means for oscillating the shaft, and means for longitudinally reciprocating the same.

23. In a machine of the character described, the combination of a line of tool-spindles and means for intermittently driving and feeding the same, a series of work-holders with provisions for automatically establishing various predetermined positions of the work with respect to the tool-spindle, and reciprocatory work-transferrers for taking the work from one holder to another.

24. In a machine of the character described, the combination of a line of tool-spindles and means for intermittently driving and feeding the same, a series of work-holders with provisions for automatically establishing various predetermined differential positions of the work with respect to the tool-spindles, and work-transferrers for taking the work from one holder to another, one of said transferrers being automatically reversible, substantially as described.

25. In a machine for drilling watch-movement plates, the combination of a line of tool-spindles and means for driving and feeding the same; plate-holders automatically adjustable to establish various predetermined positions of the work with respect to the tool-spindles; a reciprocatory plate-transferrer arranged to automatically carry plates one by one from a magazine to one of the holders, and reciprocatory plate-transferrers operating automatically to carry the plates from one holder to another.

595,045. CAR-TRUCK. William R. Cooke, Kingston, N. Y., assignor to the Peckham Motor Truck and Wheel Company, New York, N. Y. Filed Mar. 2, 1897. Serial No. 625,689. (No model.)



Claim.—1. In a car-truck the combination with the side frames, of links pivoted to said frames, eyebolts to which the links are pivoted, bars through which the eyebolts extend, springs on the eyebolts below said bars whereby the bars are elastically supported, a cross-beam supported by said bars, one or more springs thereon, and a car-supporting bolster supported by the springs.

2. In a car-truck the combination with the side frames, of links pivoted to said frames, eyebolts to which the links are pivoted, bars through which the eyebolts extend, spiral springs 21 on the eyebolts below said bars, cup-shaped washers against which the spiral springs press, and a car-supporting bolster suitably supported on said beams.

3. The combination with the truck-frame and the journal-boxes, of motor-frames arranged outside the truck-frame and supported on the journal-boxes wholly independent of the truck-frame.

4. The combination with the truck-frame and the journal-boxes, of a pair of motor-frames arranged at the respective sides of the truck-frame and having depressed central portions at the wheel-base, and elevated end portions adapted to rest on the tops of the journal-boxes outside of the truck-frame and appliances supported by said motor-frames for sustaining the motor independently of any connection with the truck-frame.

5. In a car-truck, the combination with the journal-boxes and the truck frame, of a motor-sustaining frame at each side of the truck, supported at each end on the journal-boxes and having a depressed portion between said ends, a cross-beam 10 connecting the two motor-frames and supported thereby, spring-equipped standards mounted on said cross-beam, and adapted to sustain the motor independently of any connection with the truck-frame.

6. In a car-truck, the combination with side frames provided with openings near their ends to receive or straddle the journal-boxes, and springs arranged between the tops of said openings and the journal-boxes, whereby said frames are cushioned on the journal-boxes, of a car-body-supporting bolster elastically suspended from the side frames, and independent motor-sustaining frames supported at their ends on the journal-boxes outside of the main frames of the truck and depressed at the wheel-base of the truck, and elastic appliances supported by said motor-frames to sustain the weight of the motor.

595,046. LOCK FOR FIREARMS. James C. Critchett, Clint, Tex. Filed Apr. 13, 1897. Serial No. 632,066. (No model.)



Claim.—1. In a firearm-lock, the combination with the hammer or firing device, of a toggle-lever with its members respectively hinged thereto and to the lock-frame or other part of the lock, one member of the toggle-lever having a trigger integral therewith.

2. In a firearm-lock, the combination with the hammer or firing device, of a rule-joint toggle-lever with its members respectively hinged thereto and to the lock-frame or other part of the lock, one member of the toggle-lever having a trigger integral therewith.

595,047. SPUR. Henry R Curry, Troy, W. Va. Filed Apr. 23, 1897. Serial No. 633,422. (No model.)



Claim.—1. The combination with a stirrup, of a spur consisting of a containing-case with sides and top continuous, of a reversible shank pivoted to shut into the case, the shank carrying a rowel at its free end, of an interior spring, and of a rowel-pivot having a projecting finger-hold, substantially as and for the purpose shown and described.

2. The combination with a stirrup, of a spur consisting of a containing-case, pivoted reversible shank, carrying a rowel at its free end, a spring, a rowel-pivot with a finger-holder, and with an opposing plate and bolts, substantially as and for the purpose shown and described.

595,048. THILL-COUPLING. John C. Dale, Manhattan, Kans. Filed Apr. 12, 1897. Serial No. 631,788. (No model.)

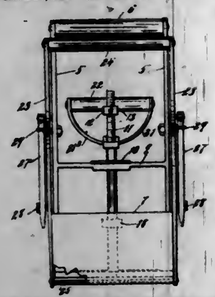


Claim.—1. In a thill-coupling, the combination of a clip having lug-eyes, a thill-iron having an eye interposed between the lug-eyes of the clip, and a connecting device comprising a bolt extending through the eyes of the clip and thill-iron and having a head at one end, an angular thumb-latch pivotally connected with the head of the said bolt, and a locking-bar extending parallel to the bolt and having an arm at one end pivotally connected with the thumb-latch and an arm at its opposite end adapted to engage one of the lug-eyes of the clip, substantially as specified.

2. In a thill-coupling, the combination of a clip having lug-eyes, a thill-iron having an eye interposed between the lug-eyes of the clip, and a connecting device comprising a bolt extending through the eyes of the clip and thill-iron and having a bifurcated head at one end and a beveled portion *b*, at its opposite end, an angular thumb-latch pivotally connected with the head of the bolt and arranged in the bifurcation thereof, and the locking-bar extending parallel to the bolt and having an arm at one end pivotally connected with the thumb-latch and an arm at its opposite end provided with a beveled end and adapted to be interposed between the beveled portion of the bolt and one of the lug-eyes of the clip, substantially as specified.

3. As an improved article of manufacture, a connecting and anti-rattling device for thill-couplings, comprising a bolt having a head at one end, an angular thumb-latch pivotally connected with the head of said bolt, and a locking-bar extending parallel to the bolt and having an arm at one end pivotally connected with the thumb-latch and an arm at its opposite end adapted to engage one of the lug-eyes of the clip, substantially as specified.

595,049. DEVICE FOR CUTTING, WEIGHING, AND MEASURING BUTTER, &c. LUMAN H. DAVIS, Ridgefield, Conn. Filed Dec. 30, 1896. Serial No. 617,449. (No model.)



Claim.—1. The herein-described device for weighing, cutting or measuring butter, comprising a frame composed of two similar side plates or bars connected at the upper end by a cross-rod or handle and a casing secured to the lower end thereof, said casing consisting of two similar side plates and front and back plates, a cross-bar mounted centrally between the side plates of the said frame, provided with a forwardly-directed arm to which is secured an upwardly-directed scale-rod on which is mounted a slide adapted to be held in place by a set-screw, said cross-bars being provided with a bore through which passes a shaft the lower end of which is provided with a plunger adapted to fit the interior of said casing and being free to slide therein, the upper end of said shaft being provided with an outwardly-projecting arm having a vertical opening therein, through which the said scale-rod passes, a vertically-adjustable collar or sleeve mounted on the shaft 14 below the plate 9, said collar being provided with a set-screw, and the arm 16 is connected with the said shaft by means of a collar provided with upwardly-curved arms the upper ends thereof being provided with a cross-rod or handle, and levers which are pivotally connected with the outer end of each of the bars of the frame, and a cross-rod or handle connecting the said levers at the outer end thereof, the lower ends being connected by a small wire and adapted to be drawn across the bottom of said casing, and a spring to engage the said levers and return them to their normal position, as set forth.

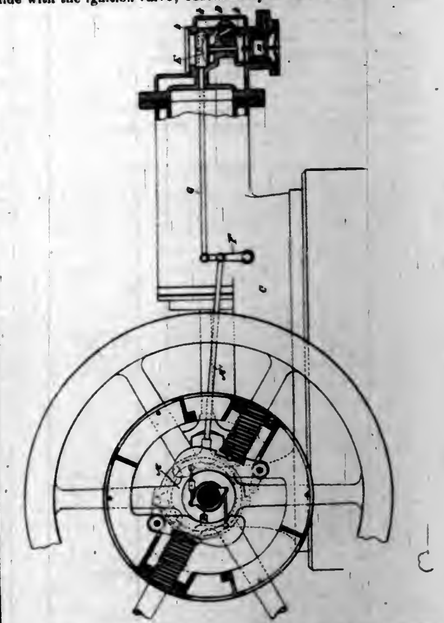
2. The herein-described device for weighing or measuring butter, the same comprising a frame which consists of side plates 5, and cross-rod 6, the lower ends of said side plates being connected with a rectangular casing 7 which consists of side plates 8 and front and back plates 9, a cross-bar 9' having an arm 10 which is provided with a scale-rod 11 having a slide 12 and a set-screw 13, a shaft 14 vertically mounted in the cross-plate 9', and provided with a plunger 15, and an arm 16 having an opening 17, said shaft being also provided with a sleeve 18, having a set-screw 19, and a collar 20, and also having arms 21 which are connected by a cross-rod 24, and a wire 25; said bars 5 being each provided with a spring 27 adapted to engage a lug 28, all substantially as shown and described and for the purpose set forth.

595,050. DISTRIBUTING AND IGNITING DEVICE FOR GAS-ENGINES. HERMANN EBBS, Magdeburg, Germany, assignor to the Fried. Krupp Grusonwerk, same place. Filed Nov. 6, 1895. Serial No. 568,126. (No model.) Patented in Germany Oct. 12, 1892, No. 72,852, and in England Jan. 12, 1894, No. 752.

Claim.—1. A gas or petroleum engine comprising a mixing-valve, a clap-valve located over the mixing-valve and adapted to open toward the cylinder, a passage for the explosive mixture, connecting the mixing-valve with the clap-valve, a cock or turning slide interposed in the passage between the mixing-valve and the clap-valve, for regulating the quantity of the collected gas mixture as also the gas and the air which are drawn in, and means for opening and closing the cock or turning slide at each revolution of the fly-wheel: substantially as described.

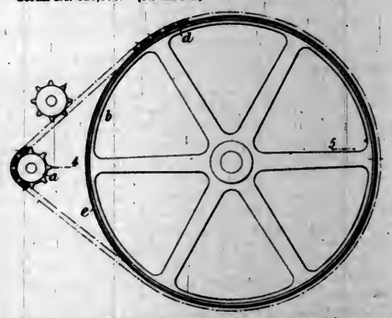
2. A gas or petroleum engine comprising a mixing-valve, a clap-valve, a passage connecting the mixing-valve with the clap-valve, a governor, an igniting-valve, a cock or turning slide located in the passage between the mixing-valve and the clap-valve, devices for connecting the cock or turning slide with the governor and devices for connecting the cock or turning slide with the ignition-valve; substantially as described.

3. A gas or petroleum engine comprising a mixing-valve, a clap-valve, a passage connecting the mixing-valve with the clap-valve, a governor, an eccentric having a rod and connected with the governor, an ignition-valve, a cock or turning slide having a crank and located in the passage between the mixing-valve and the clap-valve, a lever with which the eccentric-rod is connected, a draw-rod connecting the crank with the lever and devices for connecting the cock or turning slide with the ignition-valve; substantially as described.



4. A gas or petroleum engine comprising a mixing-valve, a clap-valve, a passage connecting the mixing-valve with the clap-valve, a governor, an ignition-valve, a cock or turning slide located in the passage between the mixing-valve and the clap-valve, devices for connecting the cock or turning slide with the governor, and devices for connecting the cock or turning slide with the ignition-valve, consisting of an arm fixed to the cock or turning slide, a spring-controlled piece, having a pin with which the arm engages, and a rod for operating the ignition-valve; substantially as described.

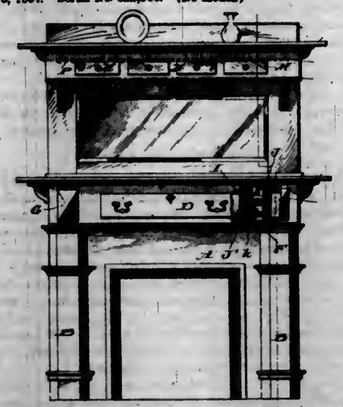
595,051. POWER-TRANSMITTER FOR USE UPON CARRIAGES, &c. CHARLES OVITT P. ELLISON, London, England. Filed Mar. 15, 1897. Serial No. 627,650. (No model.)



Claim.—1. A power-transmitting device comprising a sprocket-chain having its edges provided with lateral projections adapted to frictionally engage plain portions of a pulley, substantially as described.

2. In power-transmitting mechanism, the combination with a wheel provided with sprocket-teeth and a pulley having its periphery provided with a central annular recess and lateral plain portions, of a sprocket-chain adapted to engage the said sprocket-teeth and the recess of the said pulley and provided with laterally-projecting devices for frictionally engaging the plain portions of said pulley, substantially as described.

595,052. MANTEL. ANDREW J. FAIR, Walnut Cove, N. C. Filed Feb. 8, 1897. Serial No. 622,560. (No model.)



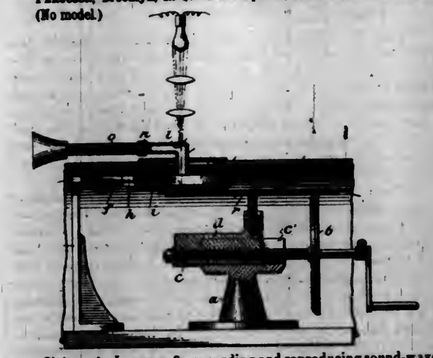
Claim.—1. The combination with a mantel having a sliding drawer, of a removable portion forming a secret compartment, and means operated by the drawer for locking the compartment in position until the drawer is removed, substantially as specified.

2. The combination with the mantel and a sliding drawer, of a sliding receptacle located parallel therewith, a spring-actuated bolt mounted to slide between the drawer and receptacle and to engage said drawer to automatically lock the receptacle until the drawer is withdrawn, substantially as specified.

3. The combination with a mantel and a series of sliding drawers, of a board above said drawers supported and held in position thereby and prevented from removal until all of the drawers are removed, substantially as specified.

4. The combination with a mantel and a series of sliding drawers therein, of a board adapted to be supported by said drawers and having its rear edge beveled and fitted in a corresponding groove in the rear wall, substantially as shown and described.

595,053. MACHINE FOR REPRODUCING SOUND. ARTHUR C. FERGUSON, Brooklyn, N. Y. Filed Apr. 17, 1897. Serial No. 632,646. (No model.)



Claim.—1. In means for recording and reproducing sound-waves, the combination of a gradually-progressive rotating sensitized film or plate, a recording-diaphragm in proximity to said film or plate, and having a central opening, and means for directing a ray or beam of light onto the plate through the opening, substantially as described.

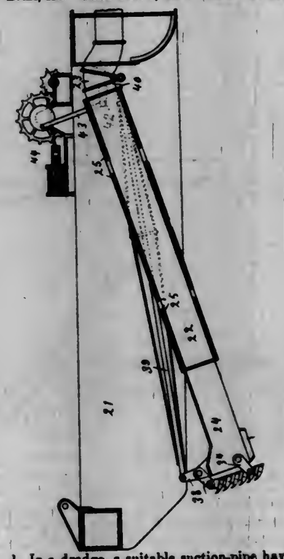
2. In means for recording and reproducing sound-waves, the combination of a gradually-progressive rotating sensitized film or plate, a recording-diaphragm in proximity to said film or plate, and having a central opening, a tube leading from the diaphragm and having an opening coinciding with the opening in the diaphragm, and means for directing a ray or beam of light onto the plate through the openings, substantially as described.

3. In means for recording and reproducing sound-waves, the combination of a gradually-progressive rotating disk, a sensitized plate or disk held thereon, a recording-diaphragm in proximity to said film or plate, and having a central opening, means for directing a ray or beam of light onto the plate through the opening, and means for directing sound-waves onto the diaphragm, substantially as described.

4. In means for recording and reproducing sound-waves, the combination of a gradually-progressive rotating sensitized film or plate, a recording-diaphragm in proximity thereto having a central opening, means for directing a ray or beam of light onto the plate through the opening, and means for directing sound-waves onto the diaphragm, substantially as described.

5. In means for recording and reproducing sound-waves, the combination of a gradually-progressive rotating sensitized film or plate, a recording-diaphragm in proximity to said film or plate and having a central opening, a speaking-tube leading from the diaphragm and having a coinciding opening closed by a glass plate, and means for directing a ray or beam of light onto the plate through said openings, substantially as described.

595,054. MECHANICAL AGITATOR FOR DREDGES. EDWARD PLAD, St. Louis, Mo. Filed Feb. 1, 1897. Serial No. 621,453. (No model.)



Claim.—1. In a dredge, a suitable suction-pipe having an inlet-opening, a suitable frame situated adjacent to said opening, two or more pairs of links pivotally carrying said frame, knives or cutters mounted on said frame, a shaft to which one of said pairs of links is rigidly secured, and means for actuating said shaft to impart a reciprocating motion to said frame.

2. In a dredge, a suitable suction-pipe having an inlet-opening, a frame situated adjacent to said opening, knives or cutters carried by said frame, a pair of links pivotally connecting said frame to said suction pipe, a pair of links pivoted to said frame at one end and rigidly secured to a shaft at the other, and means for actuating said shaft to impart a reciprocating motion to said frame.

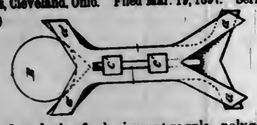
3. In a dredge, a suitable suction-pipe having an inlet-opening, a frame situated adjacent to said inlet opening, knives or cutters carried by said frame and pivoted to yield in one direction, and means for imparting a reciprocating motion to said frame.

4. In a dredge, a suitable suction-pipe having an inlet-opening, a frame situated adjacent to said opening, knives or cutters carried by said frame, means for imparting a reciprocating motion to said frame, a chamber having outlet-openings below said inlet-openings, and means for forcing water into said chamber and through said outlet-openings.

5. In a dredge, a suitable suction-pipe having two inlet-openings, frames situated adjacent to said inlet-openings, knives or cutters carried by said frames, means for imparting a reciprocating motion to said frames, a valve in said suction-pipe and closing one of said inlet-openings, and means for shifting said valve from one of said openings to the other.

6. In a dredge, a suitable suction-pipe having two inlet-openings, frames pivotally connected to said pipe and situated adjacent to said openings, knives or cutters carried by said frames, means for imparting a reciprocating motion to said frames, a valve in said suction-pipe and closing one of said inlet-openings, and means for shifting said valve from one of said openings to the other.

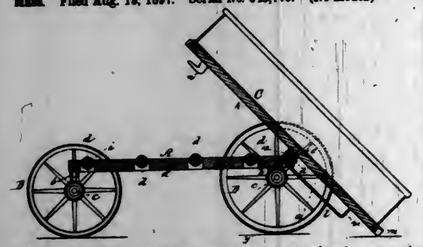
595,055. DEVICE FOR LAYING OUT REGULAR POLYGONS. JOHN J. FOSS, Cleveland, Ohio. Filed Mar. 19, 1897. Serial No. 628,259 (No model.)



Claim.—1. In a device for laying out regula. polygons, the combination with a bar provided with two straight edges forming an interior angle of a regular polygon, of a second bar provided with two similar straight edges forming an interior angle of a regular polygon having a number of sides varying from that of the first-named polygon, said two bars being longitudinally adjustable upon each other, the vertices of said angles always lying in the same plane perpendicular to the plane of one of said angles, substantially as set forth.

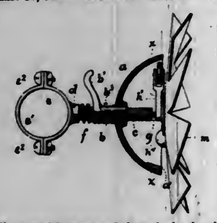
2. In a device for laying out regular polygons, the combination of a bar provided with two straight edges forming an interior angle of a regular polygon, of a second bar provided with similar straight edges forming an interior angle of the second polygon having a number of sides varying from that of the first-named polygon, each of said bars formed with a central longitudinal slot and longitudinally adjustable upon each other, and a bolt adapted to slide within said slot and provided with means for clamping said two bars together, the vertices of said angles always lying in the same plane perpendicular to the plane of one of said angles, substantially as set forth.

595,056. DUMPING-WAGON. WALTER L. FRENCH, Brockton, Mass. Filed Aug. 19, 1897. Serial No. 648,779. (No model.)



Claim.—The truck with its parallel longitudinal stringers *a*, the friction-rolls *d*, *d'*, the guide-rolls *h h*, their axial rod *e* and the rods *i i*, in combination with the body having longitudinal sills *k* corresponding in number to that of the stringers, and sheathed with metal on their under sides, guide-rods *l l*, a pair of wedge-shaped hooks *n n* and a vertical bolt *p* for keeping the body in its horizontal or loading position, as set forth.

595,057. BICYCLE-BELL. FREDERICK A. GLINES, Cambridge, Mass. Filed Mar. 17, 1897. Serial No. 627,933. (No model.)



Claim.—1. The combination of the wind-wheel and hammer, the stud revolubly supporting the same and adapted to be secured to a vehicle, and the gong longitudinally movable upon said stud and thereby removed from or put into contact with said hammer, substantially as and for the purpose specified.

2. The combination of the wind-wheel and hammer, the stud revolubly supporting said wheel and hammer, the sleeve movable upon said stud, the gong mounted on said sleeve and having rib normally contacting with said hammer, a spring for retaining said gong in said normal position, and a lock for fastening the said sleeve and gong away from the normal position, substantially as and for the purpose specified.

3. The combination of the wind-wheel and hammer, the stud revolubly supporting said wheel and hammer, the sleeve movable upon said stud and having finger-piece, b', and locking-slot, b^3, a pin, b^2, projecting from said stud into said slot, the gong mounted on said sleeve and the spring for normally retaining said gong and hammer in retroacting position, substantially as and for the purpose specified.

4. In a bicycle-bell, the combination of the clamp, *e*, having socket, d^2, the stud, *e*, secured in said socket, the shaft, *g*, rotatable in said stud and having bearing-head, g^2, the wind-wheel and hammer mounted on said shaft, and the gong adapted to be rung by said hammer, substantially as and for the purpose specified.

5. In a bicycle-bell, the combination of the gong, the wind-wheel and hammer, the shaft, *g*, shoulder, k', and the nut, k, and the counterweight, k^4, substantially as and for the purpose specified.

595,058. MANUFACTURE OF MERCHANTABLE STARCH. CHARLES A. GORDON, Cincinnati, Ohio, assignor to James B. Mooney, Decatur, Ala. Filed Oct. 7, 1896. Serial No. 608,092. (No specimens.)

Claim.—1. In the process of making starch the step which consists in taking the starch as it comes from the runs and submitting the same to direct pressure whereby the excess of moisture is expelled and the starch reduced to a powdered state, substantially as described.

2. In the process of making starch the subprocess of treating the aforesaid "run" or "wet" starch which consists in submitting the same to direct pressure as set forth, to expel the excess of moisture, then stirring and heating it whereby it is reduced to a fine, homogeneous, coherent powder, substantially as described.

3. The process of treating starch which consists in heating powdered starch containing the proper amount of moisture, pressing the heated starch by direct pressure and allowing it to cool under such pressure, substantially as described.

4. The process of making lump-starch from "run" starch which consists in first compressing the starch as it comes from the "runs" until the proper amount of moisture is expelled, second heating the starch, third applying direct pressure, and fourth allowing it to cool under such pressure, substantially as described.

5. A step in the process of making lump-starch which consists in causing the compressed heated starch to cool under pressure by which it comes out in the form of a solid cake which is entirely free from lumps of even fine grain, free from air bubbles or blow-holes, substantially as described.

595,059. RIBBON-HOLDER. WILLIAM GRAHAM, Newaygo, Mich., assignor of one-half to Charles K. Carter, same place. Filed Apr. 2, 1897. Serial No. 630,342. (No model.)



Claim.—In a ribbon-holder, the combination of a case formed of two semicylindrical sections inserted one within the other and provided with projecting rim-flanges forming a guideway, said sections being also provided in their side walls with coincident openings, and a spool within the case consisting of a solid core formed with flanges at each side thereof of substantially the inner diameter of the case, whereby the flanges of said spool may be grasped through the said openings in the side walls of the case and the case revolved on said flanges, substantially as described.

2. In a ribbon-holder, the combination of a case consisting of two semicylindrical sections fitted one within the other and provided in the periphery thereof with a transverse slot, rim-flanges forming a guideway and openings in the side wall thereof, a spool within said case adapted to be held immovable through said openings, and a ribbon-clasp consisting essentially of a substantially semicircular piece of spring metal extending partially around the peripheral guideway of the case and secured thereto so as to hold the two sections together by its spring tension, said clasp being formed at its terminal end with a downwardly-projecting transversely-extending bearing-loop adapted to press upon the ribbon end and flanges of the case-sections and maintain the same in position, and a spring-coil in rear of the said bearing-loop to press the same downwardly, substantially as described.

595,060. ANTIFRICTION-BEARING. GEORGE O. GRIDLEY, Springfield, Mass. Filed Jan. 25, 1897. Serial No. 620,515. (No model.)



Claim.—1. A bearing of the character specified, comprising an inclosing member, an inclosed member concentric therewith, two sets of ball-tracks adjacent to the ends of said members and including means for adjusting the balls radially, thrust abutments between said members and between the two sets of ball-tracks, and thrust-supporting balls interposed between said abutments.

2. A bearing of the character specified, comprising an inclosing member, an inclosed member concentric therewith, a grooved ball-track on one of said members consisting of two conical collars one being adapted to be moved toward the other to take up wear, a cylindrical ball-track on the other member, balls interposed between said tracks, thrust-abutments between said members, having faces arranged at right angles to the axis of rotation, and thrust-supporting balls between said abutments, a dust-guard consisting of a thin plate bearing against the movable collar and fitting and movable within the outer end of the inclosing member, and means for pressing the center of the dust-guard against the said movable collar.

3. A bearing of the character specified, comprising an inclosing member, an inclosed member concentric therewith, a grooved track on one of said members consisting of two conical collars one being adapted to be moved toward the other to take up wear, a cylindrical track on the other member, balls interposed between said tracks, two pairs of thrust-abutments, one abutment of each pair being affixed to the inclosing member, and the other to the inclosed member, each abutment presenting a ball-supporting face which is in a plane at right angles to the axis of rotation, thrust-supporting balls interposed between said abutments, a dust-guard consisting of a thin plate bearing against the movable collar, and movable within the outer end of the inclosing member, and means for pressing the center of the dust-guard against the said movable collar.

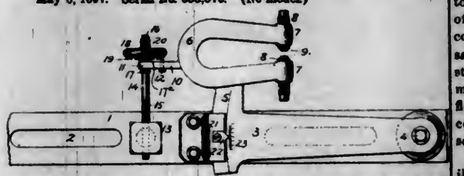
595,061. VALVE. CHARLES GULLAND, Pittsburg, Pa. Filed June 17, 1897. Serial No. 641,175. (No model.)



Claim.—1. In combination, the valve-seat, the loose ball-valve, guides for the ball, the diaphragm above the ball, the wear-plate carried by said diaphragm, the chamber above the diaphragm having inlet and exhaust ports, and the supplemental valves controlling said ports, substantially as described.

2. In combination the valve-seat, the loose ball-valve, guides therefor, the diaphragm adapted to bear on the ball, the chamber above the diaphragm having inlet and exhaust ports at opposite sides thereof, the reciprocating valve-stem, and the supplemental valves carried by said stem and adapted to open and close said inlet and outlet ports, substantially as described.

595,062. SAW-GUIDE. THOMAS A. HALCOMB, Neosho, Ky. Filed May 6, 1897. Serial No. 635,376. (No model.)



Claim.—1. In a saw-guide, the combination with a base provided with slots therein, of an arm pivotally attached to said base, jaws formed upon said arm, guide-blocks on the outer ends of said jaws, a swivel-block attached to said base, an extension formed upon said jaws, an adjusting-screw passing through said swivel-block and said extension, means for operating said screw, and means for locking the same, substantially as described.

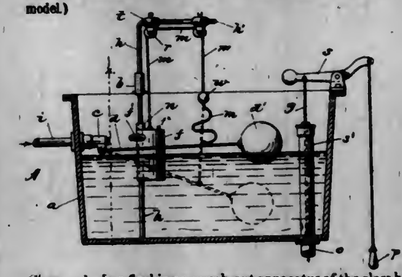
2. In a saw-guide, the combination with a base provided with slots therein, of an arm pivotally attached to said base, jaws formed upon said arm, guide-blocks on the outer ends of said jaws, a swivel-block attached to said base, an extension formed upon said jaws, an adjusting-screw passing through said swivel-block and said extension, a handle-wheel held upon said screw, lugs upon said handle-wheel, a set-screw extending through the extension of said jaws, and a spring normally holding said lugs in engagement with said set-screw, substantially as described.

3. In a saw-guide, the combination with a base provided with slots therein, of an arm pivotally attached to said base, jaws formed upon said arm, guide-blocks on the outer ends of said jaws, a swivel-block attached to said base, an extension formed upon said jaws, an adjusting-screw passing through said swivel-block and said extension, a handle-wheel held upon said screw, lugs upon said handle-wheel, a set-screw extending through the extension of said jaws, a spring normally holding said lugs in engagement with said set-screw, and means for measuring the amount of adjustment, substantially as described.

4. In a saw-guide, the combination with a base-plate provided with slots therein, of an arm pivoted to said base-plate, guide jaws formed upon said arm, extensions formed at the ends of said guide-jaws, guide-blocks passing through said extensions, washers held upon said guide-blocks, an extension formed upon said jaws provided with an expanded portion having spherical sides and an opening therethrough, a screw passing through the expanded portion of said extension and through said swivel-block, a shoulder and a collar upon said screw adapted to engage the expanded portion of said extension, a hand-wheel having a plurality of lugs thereon slidably mounted upon said screw, a spring mounted upon said screw to normally hold said lugs in contact with the aforesaid set-screw, and means to measure the amount of adjustment of the arm, substantially as described.

5. In a saw-guide, the combination with a base-plate having slots therein, of an arm pivoted to said base-plate, guide-jaws formed upon said arm, extensions formed at the ends of said guide-jaws, guide-blocks passing through said extensions, washers held upon said guide-blocks, an extension formed upon said jaws provided with an expanded portion having spherical sides and an opening therethrough, a set-screw passing through said extension, a screw passing through the expanded portion of said extension and through said swivel-block, a shoulder and a collar upon said screw adapted to engage the expanded portion of said extension, a hand-wheel having a plurality of lugs thereon slidably mounted upon said screw, a plate extending over on the aforesaid arm attached to said base, a pointer extending from said plate, and a scale formed upon said arm, substantially as described.

595,063. BALL-COCK FOR WATER-CLOSET CISTERNS. THOS. HAND, Pawtucket, R. I. Filed Apr. 14, 1897. Serial No. 632,104. (No model.)



Claim.—1. In a flushing or wash-out apparatus of the class herein described, the combination with a suitably-mounted ball-cock adapted to be made operative substantially as usual by changes in the height of water contained in the cistern or tank, of an auxiliary hollow float connected to said ball-cock, and communicating with the water of said tank, and means for limiting the movements of the float, constructed and arranged whereby in case the water rises to a predetermined point above the normal level it then flows into said auxiliary float, thus sinking or depressing the latter and preventing the ball-cock from again opening until the float is readjusted, substantially as set forth.

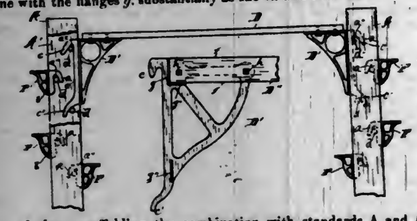
2. The combination with a ball-cock, of a vertically-guided auxiliary float provided with an inlet-opening for water, and a suitable connection uniting said float and the arm of the ball-cock, substantially as described.

3. In an apparatus of the class described, provided with a suitable cistern or tank, as *a*, the combination with the usual ball-cock mounted in said cistern, of a vertically-guided auxiliary hollow float *f*, a suitably-mounted counterweighted flexible connection uniting said float and the arm of the ball-cock, and means for adjusting the position of the float, substantially as described and for the purpose set forth.

595,064. SCAFFOLDING. FRANK M. HERBST, Dayton, Ohio. Filed June 28, 1897. Serial No. 642,722. (No model.)

Claim.—1. The combination with standards A A' having spaces B; a plurality of pins *d* mounted in said standards across said spaces, each alternate pin being out of line with the preceding and succeed-

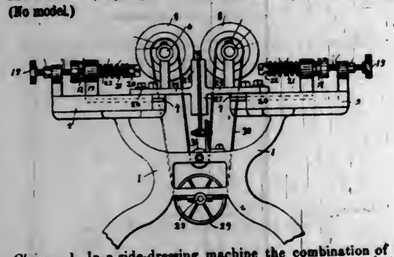
ing pins; of brackets having tongues *c* adapted to hook over said pins, and a lower tongue *c'*, adapted to rest against the inner side of one of said pins in a vertical line with the pin over which the hook or tongue *c* fits, horizontal and vertical flanges *g* and *g'* projecting from each side of said brackets near the upper edge, and a lower vertical flange *g''* projecting from the lower sides of said brackets in line with the flanges *g*, substantially as shown and described.



2. In a scaffolding, the combination with standards A and A' having an intervening space, and a plurality of pins mounted in said standards across said spaces, the positions of said pins alternating inwardly and outwardly, of a plurality of brackets provided with outwardly and downwardly projecting tongues *a* supportable on said pins on two sides of the standards, a series of larger brackets having upper tongues *c* and lower tongues *c'* adapted to engage with two of said pins in the same vertical line, the spaces between the tongues *a* and *c*, and the bodies of said brackets being essentially of a smaller area at their upper terminals so that the said brackets will become rigidly connected with the pins when weight is placed on said brackets, as herein shown and described.

595,065. MACHINE FOR SIDE-DRESSING TEETH OF SAWS.

RICHARD JONES, Bay City, Mich. Filed Jan. 20, 1897. Serial No. 619,839. (No model.)



Claim.—1. In a side-dressing machine the combination of the frame, the bed-plate mounted thereon and provided with ways arranged transversely with the saw, a frame arranged for sliding on said ways and carrying a shaft parallel with the saw, and a grinding-wheel mounted on said shaft, a rod arranged transversely with the saw for adjusting the location of said grinding-wheel in relation to the saw, and provided with a solid collar, a cam for operating against said collar for moving said grinding-wheel toward the saw independently of the adjusting-screw, and a spring for moving said grinding-wheel away from the saw, substantially as set forth.

2. In a machine for side-dressing the teeth of saws the combination of the frame having a bed-plate mounted thereon and provided with ways arranged transversely with the saw; a bracket or frame arranged to slide on the ways and carrying a shaft parallel with the saw; a grinding-wheel having a slightly-beveled grinding-surface mounted on said shaft; a rod arranged transversely with the saw, having near its outer end a thread engaging a projection in the bed-plate, for adjusting the grinding-wheel relatively to the saw: having also a fixed collar and a cam which can be rotated between the collar and a fixed cam-face on the bracket, for adjusting the bracket horizontally, said rod having at its inner end a spring for maintaining close contact between the face of the collar, the cam, and the cam-face on the bracket; all arranged for the purpose described and substantially as set forth.

3. In a side-dressing machine the combination of the bed-plate provided on its outer portion with an upwardly-projecting support having a screw-threaded transverse opening, a frame mounted for sliding on said bed-plate transversely with the saw and provided on its rear portion with an upwardly-projecting support having a transverse opening and a cam-face on its outer side around said opening, an adjusting-rod having its outer portion provided with a screw-thread and passed into said threaded opening in the support on the bed-plate and with its middle portion passed through the support on said frame and provided with a solid collar on the portion of the rod between the supports, a cam mounted on the rod between said collar and the support on the frame and provided with a cam-face engaging with said cam-face on said support, for moving said frame toward the saw, and a coiled spring upon the inner portion of said rod for actuating said frame away from the saw, substantially as set forth.

595,066. COATING WALLS OR OTHER SURFACES.

ADOLF W. KEIM, Grünwald, Germany, assignor to the Fabrik Keim'scher Farben der Steingewerkschaft Offenstetten, Aktiengesellschaft, Munich, Germany. Filed July 14, 1894. Serial No. 517,604. (No specimens.) Patented in England June 1, 1893, No. 10,746, and in France Sept. 29, 1893, No. 233,123.

Claim.—1. The herein-described process of plastering or painting walls which consists in adding to the mortar or paint, to be used as the coating, alkali silicate and carbonate of barium, then applying the composition to the wall or surface to be coated, and then treating the same with sulfate of ammonium and water whereby silica is precipitated and barium sulfate formed as a cementing and indurating medium, substantially as set forth.

2. The herein-described process of plastering or painting walls which consists in adding to the mortar or paint forming the coating, alkali silicate and carbonate of barium, then applying the composition to the wall or surface to be coated and then treating the same with sulfate of ammonium, ammonia-alum and water, whereby an indurating and cementing medium combined of the precipitated silica and barium sulfate is formed, substantially as set forth.

3. The herein-described process of plastering or painting walls which consists in mixing china-clay, chalk, potassium silicate, powdered glass and sodium sulfid in substantially the proportions specified, then grinding and firing the same, then mixing therewith carbonate of barium, then mixing the whole with marble-sand and water, then applying the composition to the wall or surface to be coated and applying water and silico-fluoric acid to the coating, and finally treating the same with sulfate of ammonia, all substantially as set forth.

4. The herein-described process of plastering or painting walls which consists in combining china-clay, chalk free from iron or calc-spar, potassium silicate, powdered glass, and sodium sulfid, in substantially the proportions specified, then firing the same, then grinding and mixing therewith carbonate of barium, then adding water and finally adding a suitable reagent for producing insoluble compounds, substantially as set forth.

5. The herein-described process of plastering or painting surfaces which consists in combining china-clay, chalk free from iron or calc-spar, potassium silicate, powdered glass and sodium sulfid in substantially the proportions specified, then firing the same, then grinding and mixing with carbonate of barium, then mixing the whole with marble-sand, quartz-sand and water, then applying this composition as a coating, then treating the coating with water and silico-fluoric acid and finally treating the same with sulfate of ammonia, substantially as set forth.

595,067. CAR-COUPLING.

JOHN LA BURT, Brooklyn, N. Y., assignor, by mesne assignments, to the New York Coupler Company, of New York. Filed Mar. 5, 1897. Serial No. 625,932. (No model.)



Claim.—1. A car coupling comprising a head, a swinging knuckle therein, a locking-latch pivoted in the head having a chamber communicating with a restricted upper and outward opening, and a downward outward opening at one end, and a lifting-bolt having a head portion to move in said chamber, and to engage against the shoulders formed by the restricted opening substantially as specified.

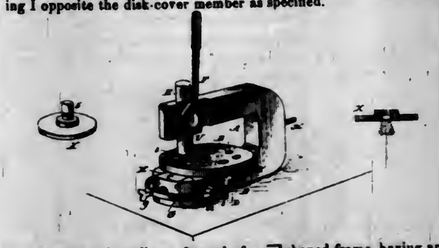
2. The combination with a coupling-head, a swinging knuckle, and a lifting-bolt, of a locking-latch pivoted in the head, and having a longitudinally-disposed chamber, provided with a restricted opening through the top of the latch, and an opening at one end through the bottom of the latch substantially as specified.

595,068. DENTAL APPLIANCE.

WILLIAM T. LYON, Portland, Oreg. Filed Sept. 15, 1896. Serial No. 605,894. (No model.)

Claim.—1. A dental appliance comprising a main frame having a chambered portion to receive the molten metal, one wall having a pouring-opening, a detachable and adjustable cover-plate for one end of the chamber, and means for holding the tooth-form projected through the other end of the said chamber for the purposes specified.

2. A dental appliance having at one end an opening I, a detachable disk having means for holding a tooth-form projected into the opening, a pouring-aperture communicating with the opening I and an adjustable slide-plate for covering all or part of the end of opening I opposite the disk-cover member as specified.



3. A dental appliance formed of a ⌐-shaped frame having an opening in one of its parallel members, and a plunger-shaft connected to its opposite member, a slide-plate movable over the under side of the aforesaid opening, a detachable centrally-apertured disk adapted to be held over the top of the opening in the aforesaid parallel member, and a shank to connect such disk to the plunger-shaft substantially as shown and for the purposes described.

4. A dental appliance comprising a main frame having a casting-chamber open at each end, an adjustable slide operating over the under side thereof and a disk having a stem adapted to fit over the top side of such chamber, a plunger-shaft and a lever for operating such shaft all arranged substantially as shown and described.

5. A dental appliance comprising a ⌐-shaped frame having means for holding it either on one of its long arms or base, the lower one of such arms having an aperture I, a detachable section C having a pouring-aperture, the slide-plate L' the disk X having stem 5, the plunger-shaft E having a lock device to engage the stem 5, and projections T and U and the lever F all arranged substantially as shown and for the purposes described.

6. In a dental appliance as described, the combination of the main frame, the plunger-shaft and the dies, the plunger-shaft having a spring-held device for holding the dies to the shaft, and trip means on the main frame adapted to engage such spring-holder as the shaft is elevated to release the die as specified.

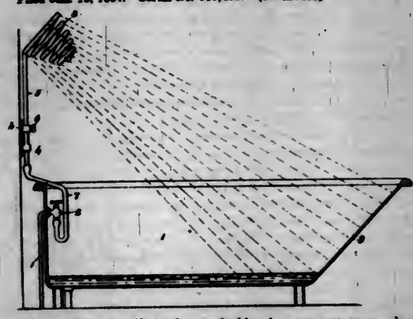
7. In a dental appliance as described, the combination of the main frame having a circular-shaped opening I and a detachable section C having a pouring-opening, the clamp G the detachable rotary disk B having a series of concentric openings of a gradually-decreasing diameter, the shaft E and the lever F all being arranged substantially as shown and for the purposes described.

8. A dental appliance comprising the main frame, the tooth-form-holding disk X and stem 5, said frame having an opening I, and detachable section C having a pouring-opening, the clamp G the slide-plate L' the detachable apertured disk B, the sliding plunger E and the lever mechanism F all being arranged and combined for the purposes and substantially in the manner described.

9. A dental appliance, comprising means for pressing a metal disk into a cup shape, a matrix-forming chamber having a pouring-opening and a supplemental tooth-form holder, all arranged and combined in the manner substantially as shown and described.

595,069. NEEDLE-BATH.

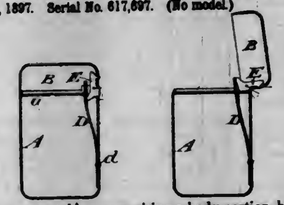
HARRY D. NESBIT, St. Louis, Mo. Filed Jan. 16, 1897. Serial No. 619,466. (No model.)



Claim.—In a needle-bath, a suitable pipe open at one end and adapted to be temporarily connected to the supply-faucet of the tub, an upper extension or continuation of the pipe, said extension being in the form of a spiral coil with the base of the coil adjacent to the pipe and its apex removed from the pipe, and with the axis of the spiral (or cone) inclined at an angle to the general length of the pipe, the said spiral being provided with perforations for spraying the water against the tub and the bather seated therein, substantially as set forth.

595,070. BOX.

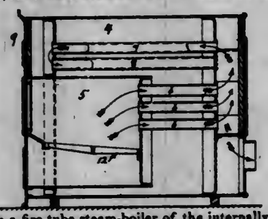
ERNST OLDENBURGH, Jersey City, N. J., assignor to the William Schimper & Company, Hoboken, N. J. Filed Jan. 2, 1897. Serial No. 617,697. (No model.)



Claim.—A metal box comprising a body portion, having its open edge reduced to form an abutment, a cover adapted to overlap said reduced portion when closed, a hinge-pintle passing through the overlapping edges of the two parts at the back of the box for hinging them directly together, the back of the cover being cut away and the sides of the reduced open end portion at the hinge connection being still further brought together, whereby the cover is allowed a free swinging movement, substantially as set forth.

595,071. STEAM-BOILER.

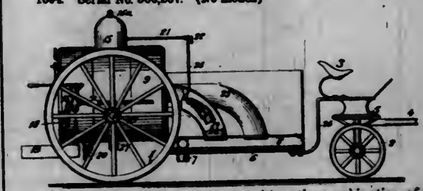
JAMES A. PALMER, Philadelphia, Pa. Filed Mar. 1, 1897. Renewed Nov. 10, 1897. Serial No. 658,066. (No model.)



Claim.—In a fire-tube steam-boiler of the internally-fired type, the combination with a plain cylindrical shell fire-box provided with a grate, and having a plain circular tube-sheet attached to the chimney end of said shell; heating-surface tubes, suitably arranged for three passes of the furnace-gases in series between the furnace and chimney, and submerged below the water-surface line; front and rear fire-gas chambers, of which the rear one is provided with a partition, for separating said heating-surface tubes into groups; with a plain cylindrical shell steam and water drum, provided with circular tube-sheets, and inclosing end walls, attached to the front and rear ends of said shell; all substantially as shown and described.

595,072. SNOW-MELTING MACHINE.

AUGUSTUS P. SMITH, New York, N. Y., assignor to William M. Speer, same place. Filed Apr. 4, 1894. Serial No. 506,267. (No model.)



Claim.—1. In a snow-melting machine, the combination of the steam-boiler, the furnace for said steam-boiler, the melting-chamber, the smoke flues which lead from the furnace to said melting-chamber, and the steam-pipe which discharges the steam from said boiler directly into said flues for the double purpose of creating a draft in the furnace and also of raising the temperature of the melting-chamber into which said steam is ultimately discharged, substantially as described.

2. In a snow-melting machine, the combination of the steam-boiler, the furnace for said steam-boiler, the melting-chamber, the smoke-flues which lead from the furnace to said melting-chamber, and the steam-pipe which discharges the steam from said boiler directly into said flues for the double purpose of creating a draft in the furnace and also of raising the temperature of the melting-chamber

into which said steam is ultimately discharged, together with means for controlling the force of said steam whereby the greatest possible amount of draft may be obtained and the same modified at will, substantially as described.

3. In a snow-melting machine the combination of the steam-boiler, the furnace for said steam-boiler, the melting-chamber, the grating arranged in said melting-chamber at a short distance from the lower portion thereof, the smoke-flues which lead from the furnace to said melting-chamber and which discharge beneath the aforesaid grating and the steam-pipe which discharges the steam from said boiler directly into said flues for the double purpose of creating a draft in the furnace and also of raising the temperature of the melting-chamber into which said steam is ultimately discharged, substantially as described.

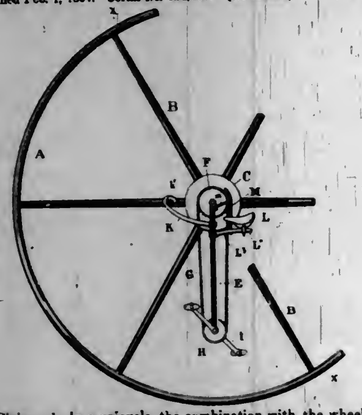
4. In a snow-melting machine the combination of the steam-boiler, the furnace for said steam-boiler arranged internally of said boiler, the melting-chamber, the smoke-flues which lead from the furnace to said melting-chamber, and the steam-pipe which discharges the steam from said boiler directly into the said flues for the double purpose of creating a draft in the furnace and also of raising the temperature of the melting-chamber into which said steam is ultimately discharged, substantially as described.

5. In a snow-melting machine the combination of the steam-boiler, the furnace for said steam-boiler, the melting-chamber, the flues which deliver the hot gases and vapors from said boiler or furnace into the melting-chamber and the boiler-feed apparatus which draws its supply from the bottom of the melting-chamber thereby employing the water formed by the melting snow, all substantially as described.

6. In a snow-melting machine the combination of the steam-boiler, the furnace for said steam-boiler, the melting-chamber, the flues which deliver the hot gases and vapors from said boiler or furnace to the melting-chamber and the boiler-feed apparatus supplied by water formed by melting snow with heat furnished by the snow-melting machine itself substantially as described.

595,073. UNICYCLE. WILLIAM T. PARSONS, Boston, Mass.

Filed Feb. 1, 1897. Serial No. 621,406. (No model.)



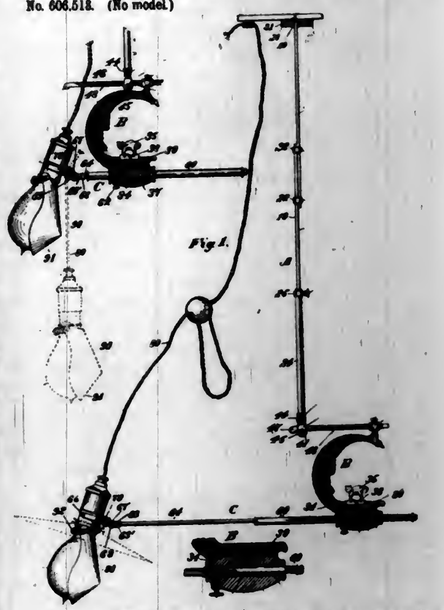
Claim.—1. In a unicycle, the combination with the wheel having offset-spokes and shaft, D, rigidly connected therewith, of the sprocket-gear fixed upon said shaft near its end, the twin bars, E, journaled on said shaft, one at each side of said gear, but immovably joined the one to the other, the pedal-shaft journaled at the lower end of said twin bars, the sprocket-gear mounted thereon between said twin bars, sprocket-chain joining said gears, the forked saddle-post adjustably supported by said twin bars, the saddle mounted thereon, having split pommel, the guard, and the handle-bars also adjustably supported by said twin bars, the whole so arranged that the person riding the machine shall have his arms and upper portion of his body above said shaft, D, while his feet and legs shall come below the same and counterbalance said upper portion of his body, substantially as and for the purpose set forth.

2. In a unicycle, the combination with the wheel having shaft, D, of the sprocket mounted on said shaft, the saddle, L, depending from said shaft in line with said sprocket and having split pommel, L', and the guard, M, for the purpose set forth.

3. In a unicycle, the combination with the wheel having the shaft, D, of the twin bars journaled on said shaft, the sprockets and chain located between said bars, the forked saddle-post, L'', adjustably secured to said bars, and the guard, M, having brace, *m*, and adjustable connection with said saddle-post, substantially as and for the purpose set forth.

595,074. SUPPORTING MEANS OR BRACKET FOR LAMPS.

REINHART W. FITTMAN, Hartford, Conn. Filed Sept. 21, 1896. Serial No. 606,513. (No model.)



Claim.—1. The combination with a telescopic weight-supporting device, of a laterally-sliding counterbalance supported thereby; and a telescopic lamp-carrying device.

2. The combination of a pendulous, telescopic weight-supporting instrumentality, one of the members thereof comprehending a plurality of longitudinally-adjustable members; a laterally-sliding counterbalance supported thereby and adjustable relatively thereto; and a lamp-carrying instrumentality supported by said weight.

3. The combination of an adjustable supporting instrumentality; a main weight supported thereby, and adjustable laterally relatively thereto; a supplemental weight carried by said main weight, and adjustable thereon to augment or increase the effectiveness of said main weight to thereby support different weights and sizes of lamps; and an adjustable lamp-carrying instrumentality, adjustable transversely of the main weight and the supporting instrumentality.

4. The combination of a suspension member; a weight having a bar or arm adjustable relatively to said suspension member, and said weight having an adjustment longitudinally relatively to said bar or arm; and a lamp-carrying member adjustable relatively to the weight.

5. The combination of a suspension member; a main weight; a bar or arm adapted to support said main weight and having an adjustment relatively to the suspension member; a supplemental weight carried by said main weight and adjustable relatively thereto to augment the effectiveness of the main weight; and a lamp-carrying member adjustable relatively to said weight.

6. The combination of a suspension member; a weight having a rack bar or arm adjustable relatively to and transversely of said suspension member; and a lamp-carrying member adjustable relatively to the weight.

7. The combination of a suspension member; a weight having a rack bar or arm adjustable relatively to said suspension member, and said weight having an adjustment on said rack bar or arm toward and from the suspension member; and a lamp-carrying member adjustable relatively to the weight.

8. The combination with a longitudinally-adjustable suspension device having a coupling at its lower end, of a weight carried by said coupling and having a sliding connection therewith; and an adjustable lamp-carrying device supported by said weight.

9. In a bracket of the class specified; the combination of a suspension member; a coupling secured thereto and embodying a swivel; a weight having a rack bar or arm adjustably supported by said swivel for movement in a horizontal circular path relatively to said suspension member; and a lamp-carrying member longitudinally adjustable relatively to said weight and adapted to support a lamp.

10. In a device of the class specified; the combination of a suspension member; a coupling secured thereto and embodying a bifurcated bracket; a spring intermediate of said bracket and suspension member; a weight supported by said coupling and transversely adjustable relatively to the suspension member; and a lamp-carrying member supported by said weight.

11. In a device of the class specified, the combination of a suspension member; a coupling secured thereto and comprising a bifurcated bracket, a stud or bolt, adapted to secure said bracket to the lower end of the suspension member, a spring intermediate of said bracket and suspension member, and a transversely-extending stud or pin secured to said bracket; a weight having a bar or arm adjustable on said transversely-extending stud or pin; and a lamp-carrying member adjustable relatively to said weight.

12. The combination, with a suspension device, of a laterally-sliding weight supported thereby; a lamp-carrying device consisting of a sleeve carried by said weight; a rod adjustable in said sleeve, and a device carried by the rod and adjustable to set the lamp in the desired position.

13. The combination of an adjustable suspension member, a laterally-sliding weight supported thereby; a lamp-carrying member supported by said weight, and comprising a sleeve having a longitudinal slot, and also having a longitudinal adjustment relatively to said weight; and a rod or bar sliding in said sleeve, and having a transversely-extending pin projecting into said slot.

14. A lamp-bracket comprehending an upright pendulous suspension member; a weight comprising a main weight having a bar or arm attached to such suspension member, and a supplemental weight supported by and adjustable on said main weight to augment or increase the effectiveness of said main weight.

15. A weight for a lamp-bracket comprising a main weight having a bar or arm adapted for attachment to a suspension member, and on which bar or arm said weight is adjustable; and a supplemental weight supported by, and adjustable on said main weight to augment or increase the effectiveness of the main weight.

16. A lamp-bracket weight comprising a substantially semicircular or quarter-moon-shaped weight having a horizontal way; and a supplemental weight adjustable thereon to increase or augment the effectiveness of said main weight.

17. A weight for a lamp-bracket consisting of a semicircular body having a slideway, and a supplemental weight adjustable on said slideway.

18. An incandescent-lamp-holding instrumentality comprising clamping means adapted to be secured to a lamp-carrying member, and a slotted stud or member carried by said clamping means, and having its slot opening intermediate thereof, and adapted to carry the conducting cord or wire of a lamp.

19. The combination of a lamp-supporting bracket or means comprehending a plurality of telescopic instrumentalities, and a weight for equalizing and supporting a lamp to permit said lamp to have a perpendicular or an up-and-down adjustment, a plurality of horizontal transverse adjustments relatively to its perpendicular or up-and-down adjustment, a rotary adjustment in a horizontal plane, a rotary adjustment in a plane transverse to the plane of its horizontal rotary adjustment, and a swinging adjustment also transversely of the plane of its horizontal adjustment.

20. The combination of a suspension member, comprising two members adjustable relatively to each other and carrying a coupling; a weight secured to said coupling and having a horizontal movement in the path of a circle and also having a transverse adjustment relatively to the suspension member; a supplemental weight carried by said main weight and adjustable thereon to augment or increase the effectiveness of said main weight; a lamp-carrying member comprising two members, one adjustable relatively to the other, and both adjustable transversely of the weight and also having a rotative adjustment relatively to the weight; and adjustable spring clamping-arms pivotally carried by said lamp-carrying member for supporting a lamp.

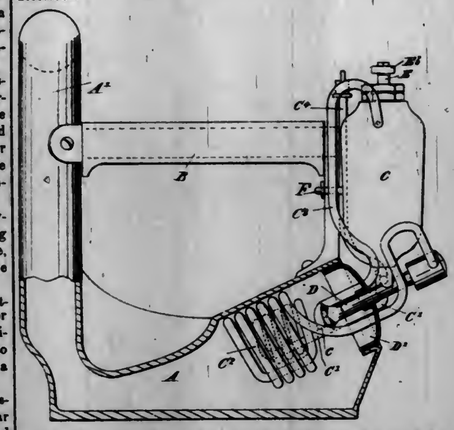
21. An incandescent-lamp-holding member comprising a pair of spring clamping-arms adapted to be secured to a lamp-carrying member; and a slotted stud or member carried by said arms and having its slot opening intermediate of said arms, and adapted to carry the conducting cord or wire of a lamp.

595,075. SMOOTHING-IRON. GEORGE POLL, Melbourne, Victoria.

Filed July 3, 1897. Serial No. 643,894. (No model.)

Claim.—1. In combination the iron box having an open end, a reservoir outside of said box, a burner tube extending therefrom within the box, and an initial heating-cup on said burner-tube adapted to close the opening in the iron box, substantially as described.

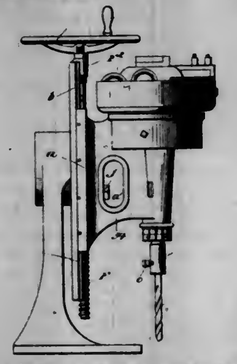
2. In combination with the iron box, the handle therefor comprising the central core, the two layers of asbestos, the inner layer being of loose fibers while the outer layer is of sheet asbestos, the said inner layer being surrounded by a wire-gauze, substantially as described.



3. The improved smoothing-iron heated by gas generated from kerosene or other oil or spirit consisting essentially of the box A, tubular coil C^2, burner D, cup D' reservoir C and return-pipe C^3 substantially as herein described and shown in the drawings.

595,076. DRILLING-MACHINE. ANNIE F. REGAN, Brooklyn, N. Y., administratrix of Daniel S. Regan, deceased, assignor to the Power Transmitter Company, Jersey City, N. J.

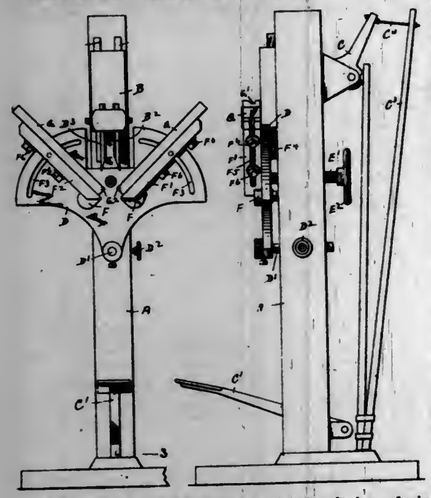
Filed Mar. 20, 1896. Serial No. 584,118. (No model.)



Claim.—1. In a drilling-machine, the combination with a vertically-adjustable drill-carrying frame and its standard, of an oil-tight casing formed integral with the frame and having shaft-bearings on the opposite sides thereof, the driving-shaft supported in one of said bearings, an electric motor supported on said casing and applying its power for the rotation of said driving-shaft, an eccentric fixed on the driving-shaft and revolving therewith, a combined external and internal gear-wheel revolving upon and driven by the eccentric, a driven shaft supported in the other shaft-bearing and connected with the driving-shaft, and a controlling device attached to the driven shaft, substantially as described.

2. In a drilling-machine, the combination of a standard or support, a vertically-adjustable drill-carrying frame which is movable up and down upon said stationary standard, an adjusting screw for the movable frame, an oil-tight casing integral with the movable frame, an electric motor supported upon the said casing, a reduction-gearing arranged within the casing and consisting essentially of a combined external and internal gear-wheel mounted revolubly upon an eccentric provided driving-shaft, which shaft is actuated by the motor, and a driven shaft actuated by the combined gear-wheel, together with the drilling device carried by the driven shaft, substantially as described.

595,077. MACHINE FOR JOINTING BARS OF WINDOW-SASHES. THOMAS E. RICH and CHARLES T. RICH, Barre Plains, Mass. Filed Feb. 9, 1897. Serial No. 622,710. (No model.)

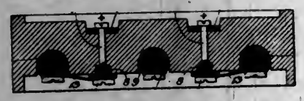


Claim.—1. An organized machine for jointing the bars of window-sash and comprising in combination the following instrumentalities a supporting-frame provided with ways for a reciprocating knife, a vertically-reciprocating knife, a vertical plate held by said frame and horizontally adjustable whereby the face of said plate is carried toward or away from the path of said knife, a table having one edge resting against the face of said plate and pivoted at one end to said plate, means for holding said table at an oblique angle to the path of the knife, a wooden bed-piece lying on the upper side of said table, means for adjusting said bed-piece longitudinally whereby its end is carried into the path of the reciprocating knife, and means for imparting a vertically-reciprocating motion to said knife, substantially as described.

2. In a machine for jointing sash-bars, the combination of an upright stand provided with vertical ways for a reciprocating knife, a reciprocating knife, a spindle held in said stand and adjustable in a horizontal plane, a vertical plate attached to said spindle, a table pivoted at one end upon the front side of said vertical plate, means for bolding said table at an oblique angle to the path of said knife, a wooden bed-piece held on said table and longitudinally adjustable thereon, and means for reciprocating said knife past said wooden bed-piece, substantially as described.

3. The combination of the upright stand A provided with ways for a reciprocating knife, a spindle D' held in said stand, a vertical plate D attached to said spindle and located behind the path of said knife, means for moving said plate toward or away from the path of the knife, a table F' pivoted at one end to said plate, means for holding the opposite end of said table in a fixed position, said table having a longitudinal slot, a wooden bed-piece resting on said table, bolts held in said bed-piece and extending through said slot and tightening-nuts carried by said bolts and means for reciprocating said knife past said wooden bed-piece, substantially as described.

595,078. MULTIPLE-CIRCUIT BLOCK. DUDY A. SCHUTT, Peru, Ind., assignor to the Peru Electric Manufacturing Company, same place. Filed Apr. 16, 1897. Serial No. 632,440. (No model.)

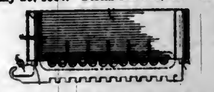


Claim.—1. A circuit-block for use in making branch electrical connections consisting of two or more sections of insulating material secured together by metallic bars at the back, main-wire sockets with fusible electrical connections to the bars, and branch connections through the block and to binding-screws at the side, substantially as set forth.

2. A three-wire-circuit block consisting of two or more sections of insulating material secured together by a central metallic bar at the back and a similar bar at each side, countersunk, main wire bushings secured on one of the sections with fusible electrical connections to the bars, electrical connection through the block from the side bars to binding-screws at the sides of the block, and electrical connections through the block from the center bar to cross-bars provided with means for making electrical connection to the binding-screws, substantially as set forth.

3. A three-wire-circuit block consisting of two or more sections of insulating material secured together by a central metallic bar at the back and a similar bar at each side, countersunk, main-wire sockets secured to one of the sections with fusible electrical connections to the bars, electrical connection through the block from the side bars to binding-screws at the sides of the block, and electrical connections through the block from the center bar to cross-bars provided with means for making electrical connection to the binding-screws, with separating extended ridges on the face of the block, substantially as set forth.

595,079. METHOD OF AND MEANS FOR MAKING MATRIX-BARS FOR LINE-CASTING MACHINES. WILBUR S. SCUDDER, Brooklyn, N. Y., assignor to the Monoline Composing Company, Washington, D. C. Filed July 29, 1897. Serial No. 646,292. (No model.)



Claim.—1. The method herein described of making a matrix-bar, which consists in constructing a primary master-matrix, reproducing the character-face thereof in relief on the edge of a plate, adjusting the relief character-face to the recessed edge of a matrix-blank, insulating these parts except where an electrodeposit is to be made, and electrodepositing a metal to produce in intaglio in the recessed edge of the blank the relief character-face of said plate, substantially as set forth.

2. The method herein described of making a matrix-bar, which consists in fixing relief characters in a plate, adjusting this plate with its relief characters relatively to recesses in the edge of a primary-master-matrix blank, insulating the parts except where an electrodeposit is to be made, electrodepositing a metal to produce in intaglio in the recessed edge of the master-matrix blank the relief characters of the plate to obtain a primary master-matrix, casting from this master-matrix a type line or slug having relief characters, fitting the relief characters of the type line or slug relatively to recesses in the edge of a matrix-blank, insulating these parts except where an electrodeposit is to be made, and electrodepositing a metal to produce in intaglio in the recessed edge of the matrix-blank the relief characters of the type line or slug, to obtain a completed matrix-bar bearing in one edge a plurality of intaglios, substantially as set forth.

3. A type bar or slug having a solid line of relief characters on one edge and provided with gage-lugs to position the type bar or slug, lengthwise and sidewise, with relation to the recessed edge of a matrix-blank, substantially as set forth.

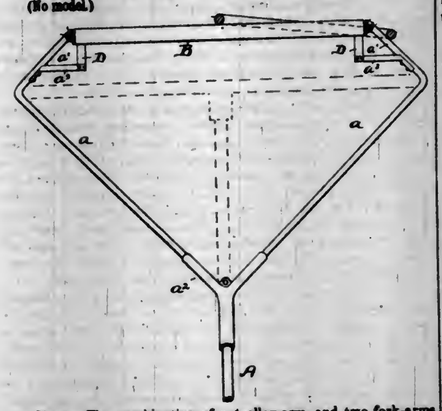
4. The method herein described of making a matrix-bar, which consists in obtaining a primary master-matrix by electrodeposition of metal from relief characters of types or dies, casting a type bar or slug from the primary master-matrix, fitting this type bar or slug to the edge of a recessed matrix-blank, and obtaining a completed matrix-bar by electrodeposition of metal in the recesses of the matrix-blank about the relief characters of the type bar or slug, substantially as set forth.

5. The method herein described of making a matrix-bar, which consists in preparing a primary master-matrix by fixing relief characters in a plate having gage lugs, fitting a recessed blank lengthwise and sidewise relatively to the plate through the medium of said gage-lugs, electrodepositing metal in the recesses of the blank about the relief characters to reproduce the latter in intaglio and obtain the primary master matrix, casting from said master-matrix a type bar or slug bearing a solid line of relief characters, positioning this type bar or slug lengthwise and sidewise relatively to the recessed edge of a matrix-blank, insulating the parts, except where an electrodeposit is to be made, and electrodepositing a metal to produce in intaglio in the recessed edge of the matrix-blank the relief characters of the type bar or slug, to obtain a completed matrix-bar bearing in one edge a plurality of intaglios, substantially as set forth.

6. A type bar or slug having a line of relief characters and gage-lugs on one edge and formed integral at its end portions with thickened pillars or posts, substantially as and for the purposes set forth.

7. A type or die holder, consisting of a plate having spaced, transverse grooves and opposing gage-lugs on one edge, and cameo type fixed in said grooves with their cameo characters located centrally between said opposing gage-lugs, substantially as and for the purposes set forth.

595,080. TROLLEY-ARM FOR ELECTRIC RAILWAYS. SIDNEY H. SHORT, Cleveland, Ohio. Filed Sept. 30, 1896. Serial No. 607,113. (No model.)



Claim.—The combination of a trolley-arm, and two fork-arms with the Y-shaped connection a^3 uniting said arm and fork-arms, and a roller mounted in the upper ends of said fork-arms, substantially as and for the purpose specified.

595,081. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. SIDNEY H. SHORT, Cleveland, Ohio. Filed Mar. 12, 1897. Serial No. 627,170. (No model.)



Claim.—1. A separating-lamina for a dynamo-electric armature, having peripheral teeth the ends of which are bent at right angles, substantially as specified.

2. A separating-lamina for a dynamo-electric armature formed of sheet metal having integral teeth which are bent transversely to the body of the sheet, substantially as specified.

3. An armature-lamination of sheet metal having dents poked into it from opposite directions, whereby integral projections are formed on each side of it without cutting, said lamination being adapted to be introduced into an armature core between ordinary laminæ and form an air-space on each side of itself, substantially as described.

4. In an armature-core, a lamination occupying the center of an air-duct in the armature-core, and having integral spacing projections on both sides, substantially as specified.

5. In an armature-core, a spacing-lamination occupying the center of an air-duct of an armature-core, and secured to the armature-hub at one or more places, substantially as specified.

6. In an armature-core, a spacing-lamination occupying the center of an air-duct of said core and having peripheral teeth which are twisted and thereby project to each side of said spacing-lamination, substantially as specified.

7. An armature for a dynamo-electric machine having its core made up of a plurality of ordinary laminæ and one or more separating-laminæ occasionally introduced between the ordinary laminæ, said separating-lamina consisting of a sheet of metal having integral lateral projections on both sides, and peripheral teeth which are twisted at substantially right angles to the sheet, substantially as specified.

8. An armature for a dynamo-electric machine, having its core made up of a plurality of segmental laminæ dovetailed to the armature-hub and occasionally separated by a segmental lamina provided with integral projections extending from it to the adjacent laminæ, the separating-laminæ being attached to the armature-hub, in the same manner as the other laminæ, substantially as specified.

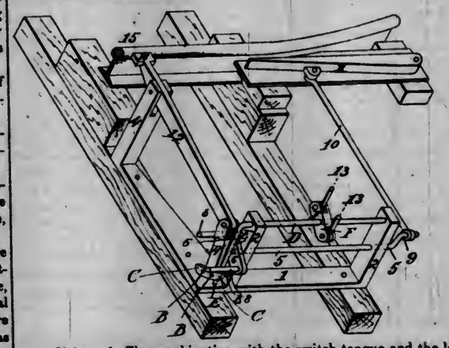
9. In an armature for a dynamo-electric machine, the combination of a plurality of laminæ and of a segmental lamina, with integral projections on both sides, not attached to the adjacent laminæ, but held in place by being attached to the armature-hub, substantially as specified.

595,082. FIRE-ESCAPE. JAMES E. SHOOT, Concord, N. C. Filed May 14, 1896. Serial No. 591,533. (No model.)



Claim.—The combination with an elevated balcony, having a balustrade, of a windlass journaled in the projecting end of the balcony outside of the balustrade, a flexible ladder adapted to be wound upon the windlass, suitable gearing for operating the windlass, a hinged casing adapted to cover the windlass and ladder and to conceal the same, and a flexible connection attached at one end to said casing and having its opposite end arranged within reach of a person standing on the balcony, substantially as described.

595,083. DEVICE FOR OPERATING RAILWAY-SWITCHES. CHARLES W. SQUIRES, Springfield, Mass. Filed Nov. 5, 1896. Serial No. 611,115. (No model.)



Claim.—1. The combination with the switch-tongue and the lever 12 adapted to be moved by the wheel of a passing car, a rock-shaft 5 having a crank-arm, and provided with the double crank 6, a connecting-rod between the first crank-arm and the switch-tongue, a part pivotally supported on the said wheel-operated lever and having two members which may engage either of the members of the said double crank, and a rocking rod or shaft D having an arm which engages said part which is pivotally supported by the said

wheel operated lever and having the two members which are extended to different positions relative to said rod D, all arranged for operation substantially as and for the purpose set forth.

2. The combination with the switch-tongue and the lever 12 adapted to be moved by the wheel of a passing car, of a rock-shaft 5 having a crank-arm 9 and also provided with the double cranks, a connecting-rod between the first crank-arm and the switch-tongue, a part pivotally supported on the said wheel-operated lever and adapted to engage either of the members of the said double crank and a device adapted to be impinged against from the car and serving to insure engagement between said pivotally-supported part and one or the other of said crank-arms as the lever is swung, substantially as and for the purpose set forth.

3. In a device for operating railway-switches in combination, a switch-point, a horizontal lever operated by the wheel of a passing car, a member movably mounted on and adapted to be shifted relatively to said car-wheel-operated lever, a mechanism intermediate between the said lever and the switch-point having two parts of contact one or the other of which may be engaged by said lever-supported pivoted member, and means actuated from the car for shifting said lever-supported movable member, whereby the latter will engage as the lever is swung, one or the other of the contact parts in the said intermediate mechanism, substantially as described.

595,084. CLOTH-CUTTING MACHINE. GERARD SWOPE, Chicago, Ill. Filed Feb. 27, 1897. Serial No. 625,304. (No model.)



Claim.—1. A cloth-cutting machine comprising a flat, vertically-reciprocating cutter, two motor-coils, arranged one above the other, a reciprocating core or plunger to the lower end of which the cutter is rigidly attached, a flat, horizontal base-plate, and a thin, vertical standard which rises from the base-plate and supports the parts of the machine above the same, said standard being provided with a vertical groove which extends inwardly from its front edge and in which the cutter slides or moves.

2. A cloth cutting machine comprising a reciprocating cutter and an electric motor consisting of two motor-coils arranged with their central axes in alinement with each other and with a space between them, a core to which the cutter is rigidly attached, and a switch located in said space between the coils, said switch embracing a pivoted vibrating lever, which passes through a longitudinal slot in the core, the ends of which slot form contact-surfaces which engage and move the lever as the core approaches each end of its throw.

3. A cloth-cutting machine comprising a reciprocating cutter, two motor-coils, a core to which the cutter is attached, and a switch comprising a pivoted switch-lever which is actuated by the said core, two insulated contact-plates and spring-clips adapted to engage the said lever at opposite limits of its throw.

4. A cloth-cutting machine comprising a reciprocating cutter two motor-coils, a core to which the cutter is attached, and a switch comprising a pivoted switch-lever, which is actuated by the said core, two insulated contact-plates, and a guide for the lever constructed to hold the same in position for contact with said plates.

5. A cloth-cutting machine comprising a reciprocating cutter, two motor-coils, a core to which the cutter is attached and a switch comprising a pivoted switch lever which is actuated by the said core, two insulated contact-plates, a guide for the lever, holding the same in position to engage said plates, and two spring-clips, adapted to engage the lever when the same is at opposite limits of its throw.

6. A cloth-cutting machine comprising a reciprocating cutter, two motor-coils, a core to which the cutter is attached and a switch comprising a pivoted switch-lever, two insulated contact-plates, and spring-clips located in position to engage the lever at opposite limits of its movement, said core being provided with contact-shoulders which engage and move the switch-lever.

7. A cloth-cutting machine comprising a flat, vertically-reciprocating cutter, two motor-coils located one above the other, spools for said coils attached to each other, a flat, horizontally-arranged base-plate, a standard which rises from the base-plate and is attached at its upper end to the lowermost spool, said standard being made flat or thin, with a groove which extends inwardly from the front edge of the standard and in which the cutter slides or moves, a reciprocating core or plunger provided at its lower end with a depending stem, to the lower end of which the cutter is rigidly attached, said plunger having at its upper end an upwardly-extending guide-stem and a guide for said guide-stem attached to the upper spool.

8. A cloth-cutting machine, comprising a base-plate, a standard thereon having a horizontal flange at its top, a reciprocating cutter moving vertically in the standard, two motor-coils located one above the other and separated by a space, iron spools for the coils rigidly attached to each other and to the top of the standard, a switch located in the space between the spools, a guide-plate attached to the top of the uppermost spool, and an endwise-reciprocating armature-core which has operative connection with and operates the switch, said core having on its lower end a stem which slides in the standard to which the reciprocating cutter is rigidly attached and having at its upper ends a stem which slides in said guide-plate.

595,085. CARD-FILE. ROYAL L. VILAS, Cincinnati, Ohio, assignor to the Globe Company, same place. Filed Feb. 20, 1897. Serial No. 624,434. (No model.)



Claim.—1. In a card-file, the combination of a filing-case provided with bearings for the filing-rod, a card-filing rod adapted to be inserted therein and provided with a lock-engaging shoulder, locking mechanism controlled by a key and adapted to engage said shoulder and lock said rod from longitudinal withdrawal, and a spring for said rod put under tension thereby when locked in place and adapted to partially project the rod when unlocked, substantially as described.

2. In a card-file, the combination of a filing-case provided with bearings for the card-filing rods, a plurality of card-filing rods adapted to be inserted therein and each provided with a lock-engaging shoulder, locking mechanism controlled by a key adapted to engage said shoulders and lock said rods from longitudinal withdrawal, and a spring for each of said rods put under tension thereby when locked in place and adapted to partially project the rods when unlocked, substantially as described.

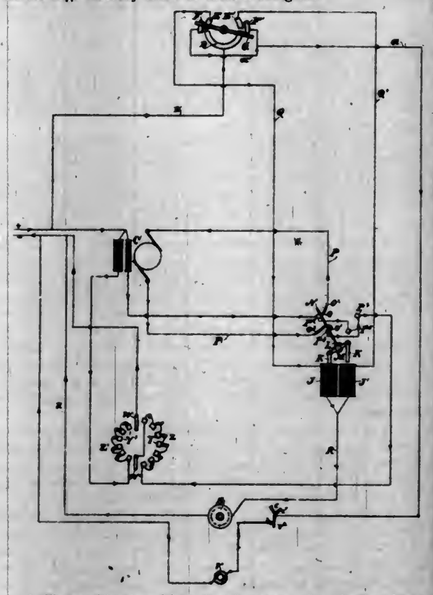
3. In a card-file the combination of a filing-case provided with bearings for the card-filing rods, a plurality of card-filing rods F, having enlarged forward ends with inclines *j*, and grooves *h*, a spring locking-bolt *e*, controlled by a key, a locking-bar *f*, with grooves *g*, pivoted to the bolt *e*, and stops *l* therefor, substantially as described.

595,086. ELECTRIC ELEVATOR-CONTROLLER. CHARLES M. WEYMANN, San Francisco, Cal., assignor to the Cahill & Hall Elevator Company, same place. Filed Jan. 27, 1897. Serial No. 620,880. (No model.)

Claim.—1. The combination with an electric motor and an elevator mechanism moved thereby, of a mechanism comprising solenoids having movable cores and mechanism actuated by the cores whereby contacts are produced and the direction of the motor first established, a controlling device whereby both armature and field resistance are varied proportionately to the desired motor-speed, and an automatically-operating device comprising an electric clutch within the circuit which is established through the solenoids and intermediate mechanism whereby the controller is disengaged and returned to its normal position.

2. The combination with an electric motor, resistance-coils having one end connected with the armature and the other end to the field of the motor, a dial-arm forming a switch-contact movable over the contact-points which are connected with the resistance so that the resistances in the field and armature circuits are varied inversely, and an automatically-operating mechanism comprising an electric clutch and intermediate mechanism connecting the clutch with the dial-arm whereby the dial-arm is moved.

3. The combination with an electric motor and an elevator-cage driven thereby, of a mechanism whereby contacts are produced and the direction of motion of the motor is first established, comprising solenoids having movable cores, and mechanism connected therewith and actuated by one or the other of the cores in opposite directions whereby the contacts are formed to establish the direction of the motor, an electric clutch within the circuit which is established through the solenoids which is energized at the same time the direction of rotation of the motor is established, and connections between the solenoids and the cage whereby either of them is energized.



4. The combination with an electric motor and mechanism driven thereby, of resistance-coils connecting respectively with the armature, and the fields of the motor whereby the resistance of the electric current through the motor is varied, a dial-arm movable over and forming contact successively with switch-points whereby the resistance-coils are thrown into or out of the circuit and an electric clutch and intermediate mechanism whereby the clutch engages and moves the dial-arm or is disengaged therefrom to allow the dial-arm to return to its normal position.

5. The combination with an electric motor and mechanism driven thereby, of resistance-coils, a mechanism whereby said coils are thrown into or out of the circuit, consisting of switch points or segments connecting respectively with the armature and field resistance-coils, a dial-arm pivoted so as to move over the segments and successively throw in or cut out the resistance-coils, an electric clutch connecting with the shaft by which the dial is turned, means for energizing and deënergizing the clutch, a mechanism by which the clutch is rotated when energized and the dial-arm carried thereby, and means for returning the dial-arm to its normal position when the clutch is deënergized.

6. The combination with an electric motor and mechanism driven thereby, of resistance-coils connecting respectively with the armature and fields of the motor, switch-points arranged in segments, one series being connected with the armature and the other with the field-circuit, a dial arm pivoted centrally with relation to the segments and movable over them so that one end passes over the armature-resistance switch-points, and the other over the field-resistance switch-points, a shaft upon which the dial-arm is mounted and with which it is turnable, a pulley fixed upon the shaft with a weight whereby the dial-arm is held or returned to its normal position, an electric clutch, one member of which is fixed to the dial-shaft and the other member to a sleeve turnable loosely upon said shaft, a mechanism whereby the clutch when energized is turned so as to rotate the dial-shaft, and means for deënergizing the clutch so that the dial-shaft is released and the opposing weight acts to return the dial-arm to its normal position.

7. The combination with an electric motor and a mechanism moved thereby, of resistance coils connecting respectively with the armature and fields of the motor, switch-points arranged in circular segments and connecting with the resistance-coils, a dial-arm mounted upon a shaft centrally journaled between the switch-points, whereby the dial-arm is movable over said points to increase or decrease the resistance in the motor-circuit, an electromagnetic clutch, one member of which is fixed to the shaft of the dial-arm, and the other member to a sleeve which is loosely revoluble upon said shaft whereby the two are united to move in unison when the clutch is energized, and allowed to move independently when it is deënergized, a weight acting to return the dial-arm to its normal position when the clutch is deënergized, a worm-gear connecting with the sleeve and the outer member of the clutch, and a motor whereby the gear is driven so as to rotate the clutch and the dial-arm.

8. The combination with an electric motor and a mechanism driven thereby, of resistance-coils connecting respectively with the armature and fields of the magnet, segmentally-disposed switch-points upon opposite sides of a circle connecting respectively with the resistance of the armature, and that of the fields, a dial-arm mounted upon the central journal-shaft and turnable so as to successively connect or cut out the resistance-coils, a weight by which the dial-arm is normally retained out of contact, a magnetic clutch one member of which is fixed to the dial shaft and the other to a sleeve loosely revolnble thereon, said sleeve being connected through the magnetic clutch when the latter is energized, so as to cause the dial-shaft to rotate with it, and disconnected therefrom when the clutch is deënergized to allow the weight to return the dial-arm to its normal position.

9. The supplemehtal motor with wires connecting it with the switchboard of the elevator-cage whereby the motor may be thrown into or out of the circuit, and a worm-gear driven by said motor and connecting with the magnetic clutch so as to rotate the latter and the dial-arm while the motor is energized.

10. The combination with an electric motor and mechanism driven thereby, switch-points arranged in segments upon opposite sides of a circle and connecting with the resistance-coils respectively of the armature and fields, a dial-arm fixed upon a shaft which is journaled centrally between the segmental switch-points, whereby the opposite ends of the dial-arm are movable over the respective switch-points of the armature and field circuits to throw them out of and into the circuit, a magnetic clutch connecting with the shaft of the dial-arm to move the dial-arm in one direction over the switch-points when the clutch is energized, and a weight by which the dial-arm is returned to its normal position when the clutch is deënergized, a supplemental motor and intermediate mechanism whereby the clutch and dial-arm are turned so that the latter moves over the resistance switch-points to reduce the resistance in the main motor circuit, an arm fixed upon the dial-shaft and a switch so fixed with relation to the said arm that the latter will move it when the dial-arm has reached the limit of its movement and disconnect the motor by which the clutch and dial-arm are actuated.

11. A rheostat having segmentally-disposed switch-points connected with the resistance-coils of the armature and the field, a dial-arm pivoted and movable over the switch-points, an electromagnetic clutch mechanism by which the dial-arm is advanced over the switch-points when the clutch is energized, and means by which the dial-arm is returned to its normal position, when released, and a spring-actuated tip pivoted to the end of the dial-arm to maintain full contact with the conductor until the end of the dial-arm has passed, the spring acting to suddenly break the circuit and restore the tip to its normal position relative to the arm.

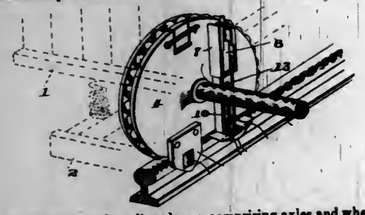
12. The dial-arm movable over the contact-plates of the armature and field circuits, a yielding extension of the dial-arm, and a stop by which it is maintained rigid with the arm when advancing, a contact-point connecting with the first contact-plate of the series of resistance-coils, and yielding to allow the extension of the dial-arm to pass when advancing, said extension itself yielding when it contacts with the point on its return, and maintaining a circuit through the point until it is broken suddenly by the action of its spring.

13. The dial-arm with its opposite ends movable over the contact-plates of the armature and shunt circuits respectively, a pin or stop connected with a plate of the shunt-circuit, against which that end of the dial-arm rests when it is in its normal position, whereby the field-circuit is first cut out when the arm returns to its position and a reconnection is instantly made with the field-circuit.

595,087. RUNNING-GEAR. WILLIAM D. WIDDESS, Fairland, Ind. Ter. Filed Apr. 7, 1897. Serial No. 631,111. (No model.)

Claim.—1. A running-gear for railroad-cars, comprising axles, and wheels carried by said axles, the said wheels being flattened for a portion of their circumference and provided with annular grooves to receive a series of antifriction-balls, rollers carried by the said wheels to prevent lateral movement thereof, and means arranged upon said wheels to prevent an upward movement of the axles, substantially as described.

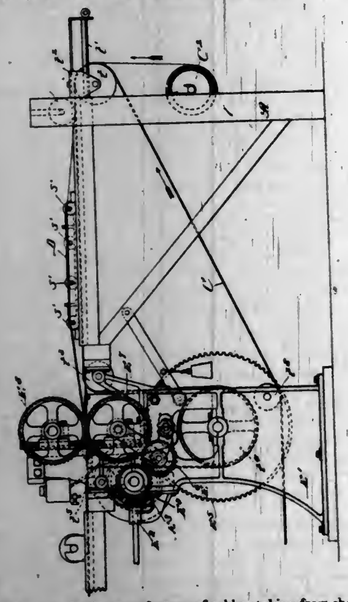
2. A running-gear for railroad-cars, comprising axles and wheels, the said wheels being flattened for a portion of their circumference and provided with annular grooves to receive a series of antifriction-balls, and guideways mounted upon each side of the wheels in which guide-blocks are arranged, the said guide-blocks being provided with grooved rollers adapted to normally engage the side edges of the rail, substantially as described.



3. A running-gear for railroad-cars, comprising axles and wheels, the said wheels being flattened and provided with annular grooves to receive a series of antifriction-balls, guideways mounted upon each side of said wheels, slotted guide-blocks adapted to work in said guideways, and arms provided at their upper ends with a lip or projection, and at their lower ends with a grooved roller, the said arms being pivotally connected to said guide-blocks, substantially as described.

4. A running-gear for railroad-cars, comprising axles and wheels, the said wheels being flattened for a portion of their circumference, and provided with annular grooves to receive a series of antifriction-balls, the said grooves having an enlargement to admit the balls into the grooves, and a cover to close said enlargement, guideways mounted on each side of said wheels and provided with slots, guide-blocks adapted to work in said guideways, the lower ends of which are provided with hoods, arms pivotally mounted in said guide-blocks, the lower ends of the said arms carrying a grooved roller and the other ends being provided with a lip or projection, and a spring adapted to engage behind the said lips or projections, substantially in the manner and for the purpose described.

595,088. MANUFACTURE OF RUBBER TUBING. BERTRAM G. WORK, Akron, Ohio, assignor to the B. F. Goodrich Company, same place. Filed Apr. 21, 1897. Serial No. 633,130. (No model.)



Claim.—1. In the manufacture of rubber tubing from sheets, the means for forming the joint without increasing the thickness of the tube which comprises, in combination, means for folding the sheet, means for shearing the meeting edges and simultaneously pressing said edges together to cause their union at the extreme corner, means for deflecting the joined edges toward the median longitudinal line of the flattened tube, and means for exerting upon the tube at the joined edges pressure whereby the joint may be perfected, substantially as described.

2. In a machine for making rubber tubing from sheets cut into strips, the combination with a folder, of a shear-cutter, a deflector, whereby the meeting edges are brought toward a median line in the flattened tube, and pressers, whereby the meeting edges are brought together, substantially as described.

3. In a machine for making tubing from sheets cut into strips, the combination with the folder, of a shear-cutter operating to shear off the meeting edges and join the inner corners of said edges under pressure, a solution-applying device operating to solution said edges, and rollers operating upon the tube to force said edges together and perfect the joint, the parts being arranged as set forth, whereby the solution may be permitted to dry before said edges are pressed together, substantially as described.

4. In a machine for making tubing from rubber strips, the combination of folding, shearing and solutioning mechanisms, and joint forming and completing mechanisms, said mechanisms being driven simultaneously, and a carrier operating to convey the partially-formed tube from the first series of mechanisms to the latter series and serving to permit the solution to dry, substantially as described.

5. In a machine for making tubing from rubber strips, the combination with a carrier for the tube in process of manufacture, of tube forming, shearing and solutioning mechanisms at one end of the carrier, and joint forming and completing mechanisms at the other end of the carrier, all driven simultaneously, substantially as described.

6. In a machine for forming tubes from rubber strips, the combination with the carrier and means for folding the strip, of coacting shear cutting-disks F F', operating to cut a strip off both edges of the sheet to leave a tube of the intended dimension and at the same time to join together the opposite corners of said sheet, substantially as described.

7. In a machine for making tubes from rubber strips, the combination with means for advancing the strip and with means for folding it into tubular form, of rotary shear-cutters F F', and guide-rollers cooperating with the shear cutters to guide the folded strips through and away from said shear-cutters, substantially as described.

8. In a machine for forming tubes from rubber strips, the combination with means for advancing the strip and for folding the same and of means for cutting the edge of the strip to produce a tube of the intended dimension, of a rotary solution-brush engaging the cut edges of the strip and guides for conveying said folded strip to and away from the solution-brush, substantially as described.

9. In a machine for forming tubes from rubber strips, the combination with the folding device for folding the strip into a tubular form, a cutting device for cutting off the edges of the strip, and a solutioning device for solutioning said edges, of a conveyor for conveying the folded and solutioned strip away from the solutioning device to permit the solution thereon to dry, substantially as described.

10. In a machine for forming tubes from rubber strips, the combination with a strip-folder, and edge-cutting means and a solutioning device, and with a carrier to convey the strip away from said solutioning device to permit the solution thereon to dry, of a deflector operating to twist the partially-formed tube to change the joint therein from the side toward a median line, and means for closing the joint, substantially as described.

11. In a machine for forming tubes from rubber strips, the combination with means for partially forming the tube into a folded strip with its edges adjusted and solutioned, and with means for deflecting the partially-formed tube whereby it shall become twisted to present the joined edges at the middle thereof, of converging rollers engaging the tube on opposite sides of the joint and operating to press the meeting edges of the joint together, substantially as described.

12. In a machine for making tubes from rubber strips, the combination with means for folding the strip, cutting off and adjusting the meeting edges and solutioning said edges, of a deflector operating to bring the meeting edges to the longitudinal center of the tube, converging rollers engaging the tube on both sides of said edges and operating to form the joint, and pressure-rollers operating to complete the joint by pressure thereon, substantially as described.

13. In a machine for making tubes from rubber strips, the combination with folding mechanism, edge-cutting mechanism and joint-forming mechanism, of means, substantially as described, for applying to the tube in the course of manufacture and after the formation of the joint of a reinforcing-strip, substantially as set forth.

14. In a machine for forming tubing from rubber sheets, the combination with the conveying-belt, of the folder D, shear-cutters F F', solutioner G, deflector H, vertical rollers I, converging rollers K, and compression-rollers L L', substantially as and for the purpose described.

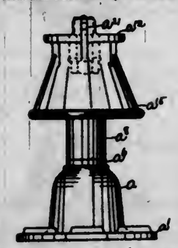
15. In a machine for forming tubing from rubber sheets, the combination with the carrier C, of the strip-folding mechanism, shear-cutters F F' operating to shear the strip y from the tube and to join the inner corners of the meeting edges of the tube, guides r r', rotary solutioning-brush G, deflector H, converging rollers K and cam-actuated spring-controlled transversely-arranged shears M M', substantially as described.

16. In a machine for forming tubing from rubber strips, the means for completing the joint of the opposite edges, comprising the vertical rollers I, and converging rollers K, arranged to operate substantially as described.

17. In a machine for forming tubing from rubber strips, the means for severing off lengths of tubing, comprising, in combination, the transverse spring-controlled shearing-knives M M', the hammer N' operative to force the cutting-knives toward each other, and a rotary cam connected with and operating said hammer, substantially as described.

18. In a machine for forming rubber tubing, the means for cutting the tube into lengths, comprising the transverse coacting spring-controlled knives M M', the hammer N' having the swinging nose-piece p^3, the guide-standard G', the rotary cam P and a connection between the cam and the hammer for actuating the latter, the parts being arranged to operate substantially as described.

595,089. THIRD-RAIL INSULATOR. ALBERT ANDERSON, Boston, Mass., assignor of one-half to Johan M. Anderson, same place. Filed July 23, 1897. Serial No. 645,640. (No model.)



Claim.—1. In an insulating-support, the combination with a metallic hood provided with longitudinal sockets on its inner side, of a metal bolt having its head and shank enveloped by a covering of insulating material, longitudinal ribs on the insulated head engaging the longitudinal sockets in said hood, and a base to which said bolt is secured, substantially as described.

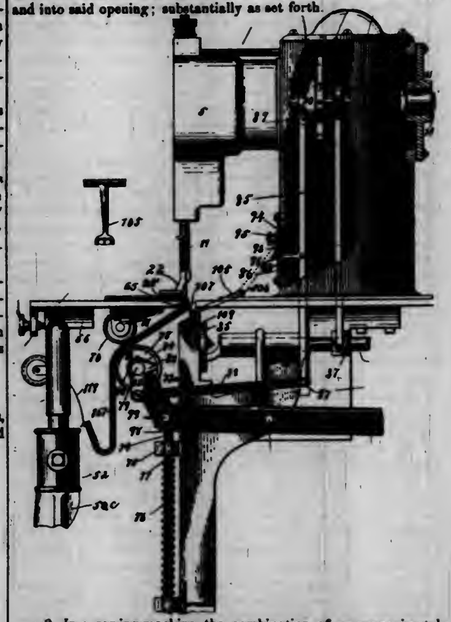
2. In an insulating-support, the combination with a metallic hood provided with a skirt and with normally straight locking-lugs depending from its under side, of a metal bolt having its head and shank enveloped by a covering of insulating material, longitudinal ribs on the insulated head engaging longitudinal sockets in the hood, and a base to which said bolt is secured, substantially as described.

3. In an insulating-support, the combination with the metal base a provided with a threaded opening in its top, a bolt comprising a head and shank having a flange or collar to rest on the top of the base a, and with a threaded end to engage the threaded opening in the said top, a covering of insulating material enveloping said shank and head and provided with longitudinal ribs a^3, a metal hood having longitudinal grooves into which the said ribs extend when the insulated head is inserted into said hood, lugs or ears on the under side of the hood adapted to engage the under side of the insulation covering the head of said bolt, and means to secure the conductor to the metal hood, substantially as described.

4. In an insulating-support, the combination with the metal base a, a bolt secured thereto and provided with a covering of insulating material enveloping the head and shank of said bolt, a metal hood fitted over the insulation enveloping the head of the bolt and provided with a lug or ear a^{21} at one side, and with an offset or ear a^{22} at the other side having an opening for the reception of a bolt provided with a bent finger, and means to lock said hood and insulated bolt together against rotary and longitudinal movement, substantially as described.

595,090. MACHINE FOR BLINDSTITCHING. JOSEPH ARAM, New York, N. Y. Filed Apr. 17, 1897. Serial No. 632,608. (No model.)

Claim.—1. A sewing-machine comprising stitch-forming mechanism, a cloth-supporting plate consisting of two parts separated in the path of the needle and forming a transverse opening extending from side to side of the machine, the supports for said cloth-plate and the other operative parts of the machine being disposed to permit the free and unobstructed insertion of the work from either side of the machine, and mechanism for feeding the work transversely to and into said opening; substantially as set forth.



2. In a sewing-machine, the combination of an approximately U-shaped frame, with suitable stitch-forming mechanism, a cloth-supporting plate formed in two separate parts mounted respectively upon the arms of said U-shaped frame, and the two parts of the plate being supported by said frame to form a free and unobstructed cloth opening or slot between them in the path of the needle, which cloth-opening extends transversely to the direction of feed of the cloth and from side to side of the machine to permit insertion of the cloth from either side, and suitable cloth-feeding mechanism, substantially as set forth.

3. In a sewing-machine, the combination with suitable stitch-forming mechanism, of a cloth-supporting plate formed in two parts, an approximately U-shaped supporting and connecting frame arranged at one side of the machine, and having arms extending toward the plane of feed, the arms of said U-shaped frame being connected respectively with the two parts of the cloth-supporting plate and supporting said parts in proper relation to form a free and unobstructed cloth-opening between them in the path of the needle extending transversely to the direction of cloth-feed from side to side of the machine, and suitable cloth-feeding mechanism; substantially as set forth.

4. In a sewing-machine, the combination with stitch-forming mechanism, a machine-table, and a machine-supporting frame, of an auxiliary approximately U-shaped frame having one of its arms secured to the main supporting-frame, an auxiliary cloth-plate supported upon the other arm of said U-shaped frame to form a part of the machine-table with a free and unobstructed transverse opening between the cloth-plate and machine-table, and suitable means for feeding cloth over said cloth-plate into the cloth-opening, as set forth.

5. In a sewing machine, the combination with stitch-forming mechanism, and a machine-supporting frame, of an auxiliary approximately U-shaped frame arranged at one side of the machine and having arms extending toward the plane of feed, one of which arms is secured to the machine-supporting frame, an auxiliary feed-plate or cloth-plate supported upon the other arm of said auxiliary frame adjacent to and forming part of the machine-table, the machine-table and cloth-plate being separated to form a cloth-opening between them in the path of the needle, and suitable cloth-feeding mechanism; substantially as set forth.

6. In a sewing-machine, the combination with stitch-forming mechanism, a machine-table, and a machine-supporting frame, of an auxiliary U-shaped frame supported upon the machine-frame by one of its arms, a vertically-adjustable arm mounted upon the other arm of said U-shaped frame and carrying an auxiliary cloth-plate forming a part of the machine table, whereby said auxiliary cloth-plate may be adjusted vertically with relation to the machine-table, and suitable cloth-feeding mechanism, as set forth.

7. In a sewing-machine, the combination with stitch-forming mechanism, a machine-table, and a machine-supporting frame, of an auxiliary approximately U-shaped frame secured to the machine-supporting frame, a vertically-adjustable arm mounted upon said auxiliary frame, an auxiliary cloth-plate mounted upon said vertically-adjustable arm and supported thereby adjacent to the machine-table with a transverse unobstructed cloth-opening extending between them from side to side of the machine, means for adjusting the auxiliary plate toward and away from the stitch-forming mechanism, and a suitable cloth-feeding device, as set forth.

8. In a sewing-machine, the combination of stitch-forming mechanism, a sewing-machine table, an adjustable cloth-plate projecting toward the edge of the machine-table and forming between them a cloth-opening in the path of the stitch-forming mechanism, extending from side to side transversely of the machine, means for adjusting the cloth-plate toward and away from the stitch-forming mechanism, and suitable feeding mechanism constructed to feed cloth over the adjustable plate around its end and down into the cloth-opening; substantially as set forth.

9. A sewing-machine comprising stitch-forming mechanism, a cloth-supporting plate consisting of two parts separated in the path of the needle and forming a transverse opening extending from side to side of the machine, a guide-roll journaled in one of said parts, and cooperating feed-rolls for feeding cloth over and under said part of the feed-plate in which the guide-roll is journaled, causing the cloth to pass toward and away from the point of stitching, substantially as set forth.

10. A sewing-machine comprising stitch-forming mechanism, a cloth-supporting plate consisting of two parts separated in the path of the needle and forming a transverse opening extending from side to side of the machine, a guide-roll journaled in the forward edge of one of said parts in advance of the plane of the needle of the stitch-forming mechanism, and means for feeding the cloth over and under said guide-roll and part of supporting-plate in which it is journaled, toward and away from the point of stitching, substantially as set forth.

11. In a sewing-machine, the combination of stitch-forming mechanism, a feed or cloth plate projecting toward the point of stitching, a rubber-faced feed-roll journaled beneath the feed-plate, a cooperating rubber-faced feed-roll journaled in a movable spring-pressed support, and means for intermittently operating said feed-rolls; substantially as and for the purposes set forth.

12. In a sewing-machine, the combination of a stitch-forming mechanism, a feed-plate projecting toward the point of stitching, a feed-roll journaled beneath the feed-plate, a movable head or support mounted below said feed-roll, a cooperating feed-roll journaled in said movable head, springs for holding said head in elevated position, an operating-lever engaging said head for depressing it and throwing the feed-rolls apart, and means for operating the feed-rolls, substantially as and for the purpose set forth.

13. In a sewing-machine, the combination of stitch-forming mechanism, a feed-plate projecting toward the point of stitching, a suitable vertically-movable spring-pressed head or support mounted below the feed-plate, a feed-roll journaled in said head or support, a cooperating feed-roll journaled in stationary bearings, a presser-foot, means for elevating and lowering the presser-foot, means for intermittently operating the feed-rolls when the presser-foot is elevated, and means for depressing the movable head or support to throw the feed-rolls apart; substantially as set forth.

14. In a sewing-machine, the combination of stitch-forming mechanism, a feed-plate projecting toward the point of stitching, a feed-roll journaled beneath the feed-plate, a vertically-movable head carrying a second feed-roll, springs moving said head upwardly, a lever engaging said head, and a foot lever or treadle connected with said lever, means for operating the feed-rolls, substantially as set forth.

15. In a sewing-machine, the combination of stitch-forming mechanism, a pair of feed-rolls adapted to engage and feed a piece of cloth between them, a ratchet-wheel carried by one of the feed-rolls, an oscillatory arm carrying a pawl engaging said ratchet-wheel, a cam, a lever connected with said oscillatory arm and engaging and operated by said cam, an arm projecting from said lever, and an adjustable notched plate adapted to engage said arm for regulating the stroke of the pawl; substantially as set forth.

16. In a sewing-machine, the combination of stitch-forming mechanism, a feed-plate projecting toward the point of stitching, a spring-actuated roller beneath the feed-plate, a tape wound upon said roller and provided with cloth-engaging means, said tape being adapted to be passed around the end of the feed-plate and attached to the cloth and feed it over and around the end of the plate, substantially as and for the purposes set forth.

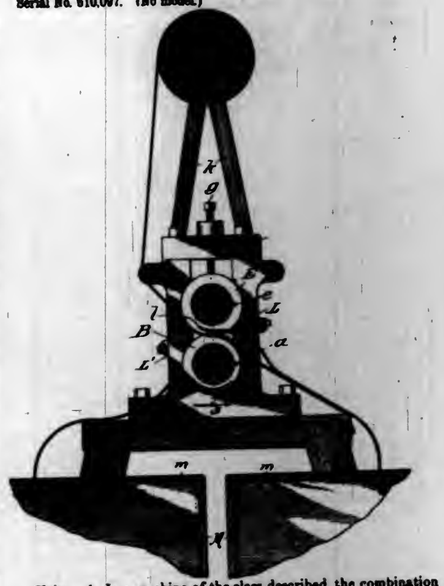
595,091. SOLDER-BLOCK. FREDERICK M. BENNETT, New York, N. Y., assignor to Moses Lowenstein, same place. Filed Mar. 12, 1897. Serial No. 627,142. (No model.)

Claim.—1. A plate of solder provided with an orifice and also formed in the similitude of a continuous strip by being provided within its contour with a dividing-line extending in a substantially spiral course from the orifice to the periphery of the block, along which line the tensile strength of the material is less than on either side of the same, whereby the end of the strip may be torn from the main body on the said line of division, all of the strips so formed being integral.



2. As a new article of manufacture a cast block or piece of solder having formed therein a line or web extending in a substantially spiral course from the central portion of the piece to its peripheral edge, and along which the tensile strength of the material is less than that on either side thereof, whereby there is formed a continuous rip-strip from the periphery to the center of the piece, substantially as set forth.

595,092. MACHINE FOR CUTTING FLEXIBLE MATERIAL INTO STRIPS. DANIEL W. BOSLEY, Chicago, Ill. Filed Oct. 26, 1896. Serial No. 610,097. (No model.)



Claim.—1. In a machine of the class described, the combination of a spindle, a set of circular cutters mounted thereon so as to have a common rotary motion but independent longitudinal motions, a second spindle arranged in line and parallel with the first spindle, a second set of cutters mounted on the second spindle so as to have a common rotary motion but independent longitudinal motions and adapted to enter the space formed by the opposite set of cutters, mechanism for adjusting the position of the cutters simultaneously and automatically, a set of comb-shaped strippers for stripping the strips of the cut material from one set of cutters and a second set of comb-shaped strippers for stripping the strips of material from the other set of cutters alternately to each side of the machine, and means for operating the parts, substantially as described.

2. In combination with a machine for cutting a sheet of rubber into narrow strips, a box provided with a multiplicity of rectangular chambers formed of and by a set or sets of partitions to receive the cut strips of rubber, substantially as described.

595,098. SEAL-LOCK. ARTHUR W. COFFIN, San Francisco, Cal. Filed July 28, 1897. Serial No. 646,172. (No model.)

Claim.—1. A car lock and seal consisting of circular disks, a central pivot uniting them whereby they are turnable with relation to each other, a catch or latch by which they are allowed to turn in one direction only, a loop or staple formed of sections, one of which projects from each of the disks, the ends of said sections adapted to unite to form a continuous loop, and hooks projecting from said sections turning outwardly, and a slotted metallic strip adapted to fit over the ends of said hooks and be locked thereby when the loop or staple is closed





2. A car lock or seal consisting of disk-sections pivoted and turnable upon each other with a two-part staple composed of sections, one of which is secured to each part of the disk, a locking device to prevent the disks from being turned back after the ends of the staple are united, outwardly-carving hooks upon the two parts of the staple, and a slotted metal strip fitting upon said hooks and locked thereby when the staple-sections are in line.

3. A seal-lock consisting of members pivoted together and a staple formed of sections adapted to open away from each other, said sections having hooks adapted to engage and secure a slotted seal, and a locking device to prevent the members from being turned back after the ends of the staple-sections are united.

4. A seal-lock consisting of a folded strip of flexible sheet metal having its central bight adapted to be passed through the hasp of a door and the ends slotted and brought together, pivoted members carrying staple-sections adapted to open away from each other and having hooks to engage the slots in the ends of the strip, and a locking device to prevent the members from being turned back after the ends of the staple-sections are united.

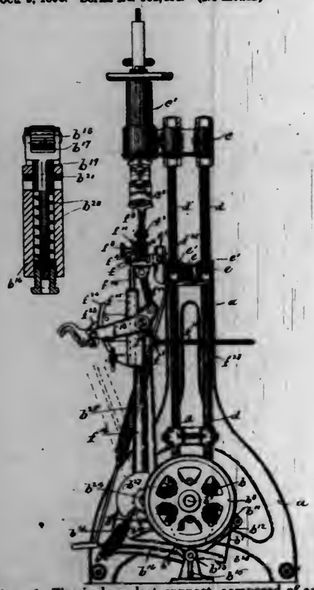
595,094. CROSS-TOOLING AND CRANDALLING MACHINE. MONTGOMERY DENNIS, Newark, N. J. Filed Feb. 21, 1896. Serial No. 580,174. (No model.)

a
a'
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consists of an end plate 44, angle-plate 45 connected by transverse bars or bolts 46, said plate 45 being provided with an extension 47 having jaws 48, an armature 50 pivotally connected therewith, the lower end of which is adapted to operate in connection with the core of the said magnet, a spring 51 secured to said plate 45, the upper end of which bears against the said armature and adapted to hold the same out of contact, a transverse rod or bar 52, secured to the casing in which the said magnet is mounted, and provided with an arm 53 to which is secured a plate 54 having spring-arms 55, an arm 56 secured to the end of said rod or bar 52 and which projects in a direction opposite to that of the arm 53 and provided with a cross-head 57 adapted to operate in connection with the lower end of the armature 50, said magnet being connected with a suitable battery and when the said armature is actuated by the said magnet, the said plate 53 is adapted to fall by gravity and close the circuit through the conductors 32 and 37, substantially as and for the purpose set forth.

2. The herein-described electric alarm device comprising an electrical alarm-bell, a thermometer adapted to close the circuit when the mercury reaches a predetermined point, and a circuit-closing device consisting of an electromagnet 43 mounted in a casing which consists of an end plate 44, angle plate 45 connected by transverse bars or bolts 46, said plate 45 being provided with an extension 47 having jaws 48, an armature 50 pivotally connected therewith, the lower end of which is adapted to operate in connection with the core of the said magnet, a spring 51 secured to said plate 45, the upper end of which bears against the said armature and adapted to hold the same out of contact, a transverse rod or bar 52, secured to the casing in which the said magnet is mounted, and provided with an arm 53 to which is secured a plate 54 having spring-arms 55, an arm 56 secured to the end of said rod or bar 52 and which projects in a direction opposite to that of the arm 53 and provided with a cross-head 57 adapted to operate in connection with the lower end of the armature 50, said magnet being connected with a suitable battery and when the said armature is actuated by the said magnet, the said plate 53 is adapted to fall by gravity and close the circuit through the conductors 32 and 37, substantially as and for the purpose set forth.

595,097. SOLE-LAYING MACHINE. CHARLES S. GOODING, Brookline, Mass., assignor to E. C. Judd and H. E. Cilley, Boston, Mass. Filed Oct. 9, 1896. Serial No. 608,401. (No model.)



Claim.—1. The jack or last support, composed of an arm, f^{16}, having a vertical slide f^{14} thereon, provided with two standards, f, f', one having a jack-spindle f^{2} and the other a toe-rest f^{3}, a lever f^{16} pivoted to said arm and connected by toggle-links f^{22}, f^{23} with the vertical slide f^{14} whereby the slide may be moved up or down upon the arm, substantially as described for the purpose specified.

2. The jack or last support, composed of an arm f^{16}, having a vertical slide f^{14} thereon, provided with two standards f, f' one having a jack-spindle f^{2} and the other a toe-rest f^{3} adjustable simultaneously toward or away from each other, a lever f^{16} pivoted to said arm and connected by toggle-links f^{22}, f^{23} with the vertical slide f^{14} and means for locking the slide against downward movement upon the arm, substantially as described for the purpose specified.

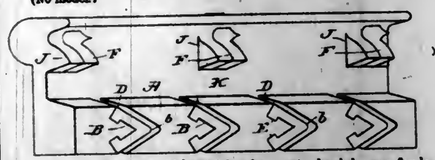
3. The jack or last support composed of an arm f^{16} having a vertical slide f^{14} thereon provided with two standards f, f' one having a jack-spindle f^{2} and the other a toe-rest f^{3}, adjustable simultaneously toward or away from each other, and also capable of adjustment upon said slide while maintaining their relative distance apart, a lever f^{16} pivoted to said arm and connected by toggle-links f^{22}, f^{23} with the vertical slide and means for locking the slide against downward movement upon the arm, substantially as described for the purpose specified.

4. In a sole-laying machine, a sole presser, a crank-shaft, an arm f^{16} pivoted to the crank shaft, a slide f^{14} provided with two standards f, f' one having a jack-spindle f^{2} and the other a toe-rest f^{3}, a lever f^{16} pivoted to said arm and connected by toggle-links f^{22}, f^{23}, with a vertical slide f^{14} whereby the slide may be moved up or down upon the arm substantially as described for the purpose specified.

5. In a sole-laying machine, a sole-presser, a crank-shaft, an arm f^{16} pivoted to the crank-shaft, a slide f^{14} provided with two standards f, f', one having a jack-spindle f^{2} and the other a toe-rest f^{3} adjustable simultaneously toward or away from each other, a lever f^{16} pivoted to said arm and connected by toggle-links f^{22}, f^{23} with the vertical slide f^{14} and means for locking the slide against downward movement upon the arm, substantially as described for the purpose specified.

6. In a sole-laying machine a sole-presser, a crank-shaft, an arm f^{16} pivoted to the crank-shaft, a slide f^{14} provided with two standards f, f' one having a jack-spindle f^{2} and the other a toe rest f^{3}, adjustable simultaneously toward or away from each other, and also capable of adjustment upon said slide while maintaining their relative distance apart, a lever f^{16} pivoted to said arm and connected by toggle-links f^{22}, f^{23} with the vertical slide f^{14} and means for locking the slide against downward movement upon the arm, substantially as described for the purpose specified.

595,098. BRAKE-SHOE AND WHEEL-DRESSER. WILLIAM R. GORTON, Corning, N. Y., assignor to the Corning Brake Shoe Company, Corning and Buffalo, N. Y. Filed Aug. 13, 1897. Serial No. 648,121. (No model.)



Claim.—1. In a combined brake-shoe and wheel-dresser for locomotives, a body formed of cast-iron having cutting-tools of steel or chilled cast-iron set therein substantially as shown and described, said cutting-tools having their edges arranged at an angle to the shoe in cross-section and the apex of said angle pointing in a direction opposed to the ordinary travel of the wheel, as and for the purpose set forth.

2. In a combined brake-shoe and wheel-dresser, the brake-shoe body A formed of cast-iron, with integral cutting or dressing tools F attached to, and supported by, the brake-shoe body substantially as shown and described, and extending down over the flange into the throat of the wheel, as and for the purposes set forth.

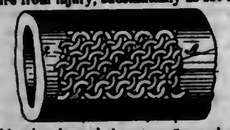
3. In a combined brake-shoe and wheel-dresser, the brake-shoe body A formed of cast-iron, with integral cutting or dressing tools F formed of a harder metal than the body of the shoe and secured in the shoe as shown and described with the supporting shoulders or backs J, the said tools and their supporting-shoulders extending down over the flange into the throat of the wheel, as and for the purposes set forth.

4. In a combined brake-shoe and wheel-dresser, the brake-shoe body A formed of cast-iron, slots or V-shaped channels D, trimming-tools B formed and located as shown and having shoulders d for locking and retaining the tools and projections E embedded in the softer metal A, all arranged substantially as and for the purposes set forth.

595,099. ARMOR FOR CYCLE-TIRES. EDWIN H. GRAVES, Hoboken, N. J. Filed June 23, 1897. Serial No. 641,894. (No model.)

Claim.—1. The chain armor for cycle-tubes composed of flat links of sheet metal, each link having an opening approximately equal to

half its diameter, so that the adjacent links of the armor passing through the openings close, or nearly so, the interstices so as to prevent the penetration of any sharp instrument, and thereby protect the pneumatic tire from injury, substantially as set forth.



2. The combination in a chain armor for cycle-tubes, of plate-links forming a flat chain and smaller edge-links, whereby the tension upon the armor-chain by the inflation of the cycle-tube is taken principally upon the edge-links for holding the armor upon the inflated tube, substantially as set forth.

3. An armor for inflated cycle-tires, composed of circular thin plate-links, each link having an opening through it that is approximately twice the measurement of the width of the metal, the links being laid together so that the metal of four adjacent links passes through the opening in each link, and edge-links that are smaller and receive through them the metal of the three adjacent links and upon which edge-links the principal tension comes as the tire is inflated, substantially as set forth.

595,100. FASTENING DEVICE FOR POCKET-BOOKS. HENRY HELLER, New York, N. Y. Filed June 15, 1897. Serial No. 640,870. (No model.)



Claim.—1. In a purse, the combination with a two-part hinged frame, having an open hinge-pivot, of a spring-pressed lever pivoted therein and having its lower end guided through the said open pivot, a push-button connected with said lever and located on the outside of said open pivot and a locking-catch fixed in the frame and adapted to be engaged by said lever, substantially as set forth.

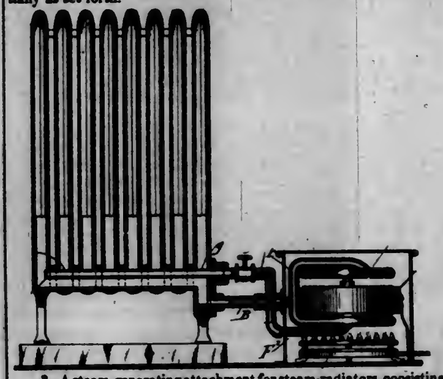
2. In a purse, the combination with a two-part hinged frame having open hinge-pivots, of a spring-pressed lever pivoted therein and having its lower end guided through the open pivot, a push-button connected with the lower end of said lever and located on the outside of the open pivot, a loop on the upper end of the lever, a guide-catch fixed in the frame, and a locking-catch fixed in said frame and having an upturned end adapted to engage said loop, substantially as set forth.

3. In a purse the combination of the two-part hinged frame having open hinge-pivots, of an L-shaped lever pivoted in said frame and having its lower end guided through the said open pivot and provided with a push-button, a loop on the extremity of the upper arm, a guide-catch fixed in the frame and located back of the said loop, a spring bearing on the upper part of said upper arm and a catch fixed in said frame and provided with an upturned end adapted to receive said loop, substantially as set forth.

595,101. CLOSED CONTINUOUS SYSTEM FOR GENERATING STEAM. HENRY HERRIS, Paterson, N. J. Filed Aug. 11, 1897. Serial No. 647,811. (No model.)

Claim.—1. In a closed continuous system for generating steam, the combination with a radiator, of a steam-generating attachment connected therewith, the same consisting of an outlet pipe attached to the radiator, a water-heating chamber connected with said pipe, an expansion-coil arranged above the water-heating chamber and connected with the same, a superheating-coil arranged below the water heating chamber and connected with the expansion-coil, and a steam-inlet pipe connecting the superheating-coil with the radiator at a point above the said outlet-pipe of the radiator, substantially as set forth.

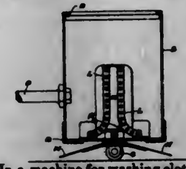
2. A steam-generating attachment for steam-radiators, consisting of a water-heating chamber, an expansion-coil connected with the water-heating chamber and arranged above it, a superheating-coil connected with the expansion-coil and arranged below the water-heating chamber, and inlet and outlet pipes connected respectively with the water-heating chamber and the superheating-coil, substantially as set forth.



3. A steam-generating attachment for steam-radiators, consisting of a water-heating chamber, a pipe leading into the same and provided with a check-valve adapted to close the passage in said pipe against back pressure, an expansion-coil connected with the water-heating chamber and arranged above the same, a superheating-coil arranged below the water-heating chamber and connected with the expansion-coil, and a steam-pipe leading from the superheating-coil, substantially as set forth.

4. A steam-generating attachment for steam-radiators, consisting of a water-heating chamber provided with vertical tubes extending through the same, an expansion-coil arranged above the water-heating chamber and connected with it, a superheating-coil arranged below the water-heating chamber and connected with the expansion-coil, pipes connected respectively with the water-heating chamber and the superheating-coil, and means arranged below the superheating coil for subjecting said parts to heat, substantially as set forth.

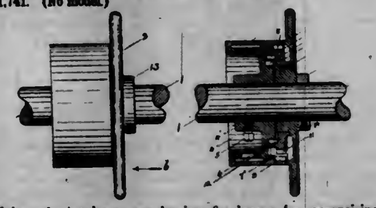
595,102. MACHINE FOR WASHING CLOTHES. JAMES HESELWOOD, Leeds, England. Filed June 14, 1897. Serial No. 640,690. (No model.)



Claim.—1. In a machine for washing clothes, a tank for containing water, a cage and rollers for supporting the same within the tank, a central perforated partition in the cage, and deflecting-plates at each side and below the cage, substantially as set forth.

2. In a machine for washing clothes, the combination with the tank for holding water, of a cage having open-work sides and a perforated bottom and means for reciprocating the same, and a double central open-work partition, deflecting-plates below the cage and a hinged deflecting-plate for throwing the water alternately through the opposite walls of the partition, substantially as set forth.

595,103. TAKE-UP MECHANISM. GEORGE F. HUTCHINS and WILLIAM D. THOMPSON, Worcester, Mass., assignors to the Crompton & Knowles Loom Works, same place. Filed Apr. 12, 1897. Serial No. 631,741. (No model.)

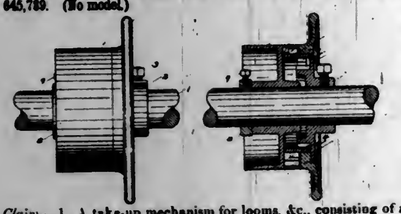


Claim.—1. A take-up mechanism for looms, &c., comprising a metal shell to be secured on a shaft, the periphery of the shell having an opening therein for access to the bolt, which secures the hub

of the shell on the shaft, and external gear-teeth on said hub, a drum or take-up roll mounted loosely on the periphery of said shell, and having internal gear-teeth on the edge thereof, a gear-rim extending loosely within said gear-teeth, and provided with external gear-teeth meshing therewith, and internal gear-teeth meshing with the teeth on the shell, and a hand-wheel having an eccentric hub or portion which extends within the central opening in the gear-rim, which opening is concentric with the gear-teeth on said rim, substantially as shown and described.

2. A take-up mechanism for looms, &c., comprising a metal shell to be secured on a shaft, and having external gear-teeth on its hub, a drum or take-up roll mounted loosely on the periphery of said shell, and having internal gear-teeth on the edge thereof, a gear-rim extending loosely within said gear-teeth, and provided with external gear-teeth meshing therewith, and internal gear-teeth meshing with the teeth on the shell, and a hand-wheel having an eccentric hub or portion which extends within the central opening in the gear-rim, which opening is concentric with the gear-teeth on said rim, substantially as shown and described.

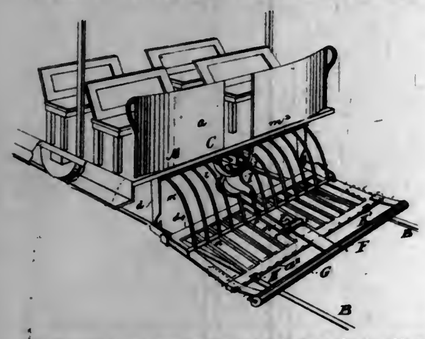
595,104. TAKE-UP MECHANISM. GEORGE F. HUTCHINS and WILLIAM D. THOMPSON, Worcester, Mass., assignors to the Crompton & Knowles Loom Works, same place. Filed July 24, 1897. Serial No. 645,739. (No model.)



Claim.—1. A take-up mechanism for looms, &c., consisting of a flanged gear to be secured on a shaft, a pulley or roll to be loosely mounted on a shaft, and having internal gear-teeth on the edge thereof, a gear-rim extending loosely within said teeth, and having external gear-teeth to mesh therewith, and internal gear-teeth to mesh with the teeth on said flanged gear, and a hand-wheel loosely mounted on said flanged gear, and having an eccentric opening therein to receive the concentric portion of the gear-rim, substantially as shown and described.

2. The combination with a driven shaft, of a flanged gear fast thereon, a pulley or roll loosely mounted on said shaft, and having internal gear teeth, a gear-rim having external gear-teeth to mesh therewith, and internal gear-teeth to mesh with the teeth on said flanged gear, and a hand-wheel loosely mounted on said flanged gear, and having an eccentric opening therein, into which extends the concentric portion of the gear-rim, and means for holding the several parts in place, substantially as shown and described.

595,105. CAR-FENDER. OSCAR F. JARVIS and HARRY C. JONES, St. Louis, Mo. Filed Aug. 3, 1897. Serial No. 647,000. (No model.)



Claim.—1. The combination with the platform of a car of hangers secured to the said platform, and on both sides, a fender-frame pivotally connected at its rear end with said hangers, and having a vertically-movable forward end, a sliding bar in suitable guides on said fender-frame, and a keeper for the rear end of said bar, and a yielding plate retaining said end of said bar in said keeper, as and for the purpose described.

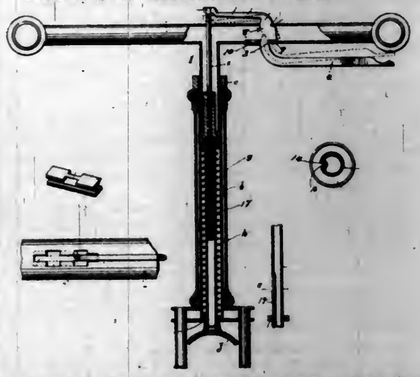
2. The combination with the platform of a car of hangers secured to said platform upon both sides, a fender-frame pivotally connected at its rear end with said hangers, a movable releasing-bar upon said frame within suitable antifriction-guides, and having a longitudinally-slotted rear end, a keeper-plate connected with the platform of said car extending downwardly within the slot in said bar, and having a recess for the rear end of said bar and a spring-plate connected at one end with said keeper-plate, and the other end bearing upon the rear end of said sliding bar, as and for the purpose described.

3. The combination with the platform of a car, of hangers secured to said platform and upon both sides a fender-frame pivotally connected at its rear end with said hangers, a sliding fender-releasing bar upon said frame within suitable antifriction-guides, and having a longitudinally-slotted rear end and a keeper-plate connected with the platform of said car, and extending downwardly within the slot in said bar, having a recess for the rear end of said sliding bar and separate upwardly and rearwardly inclined guides for the rear end of said sliding bar, one of said guides having a yielding surface, as and for the purpose described.

4. The combination with the platform of a car, of hangers secured at both sides and to the bottom of said platform, a fender-frame pivotally connected at its rear end with said hangers, a sliding fender-releasing bar in suitable guides upon said frame, having a longitudinally-slotted rear end portion and a roller in said end, and an auxiliary fender-bar upon its forward end, a keeper for said sliding bar in rear of the pivoted supports for the fender-frame, connected with the platform and extending within the slot in said sliding bar, and having a recess for the roller, the end of said sliding bar and a rearwardly, and upwardly inclined guiding-surface extending from said recess, and a spring having one end bearing upon said roller, and the other end curved outwardly and connected with the rear edge portion of said keeper-plate, as and for the purpose described.

5. The combination with a car-platform of hangers on both sides, a horizontally-extended car-fender frame pivotally connected at its rear end to said hangers, a sliding bar in suitable guides upon said frame, and an auxiliary fender-bar connected with the forward end of said sliding bar, and a keeper upon said car in the path of the rear end of said sliding bar, and a frame composed of upwardly-extended outwardly-curved wires having a supporting-rod pivotally connected with the rear end of said car-fender frame, for the purpose described.

595,106. BICYCLE-BRAKE. OTTO KRAUS, New York, N. Y. Filed Nov. 16, 1896. Serial No. 612,191. (No model.)



Claim.—1. A brake-lever formed with a handle, an arm and with an intermediate portion adapted to extend through the handle-bar tube and provided with an offset or shoulder forming a bearing adapted to contact with the inner surface of the handle-bar and with bearing-surfaces, substantially as described.

2. The combination with a handle-bar having oppositely-placed slots, of a brake-lever extending through said slots and provided with an offset or shoulder forming a fulcrum about which said lever turns, and with two bearing-surfaces engaging the inner end of the upper slot and with the bottom of the handle-bar tube and a brake placed in connection with the brake-lever, substantially as described.

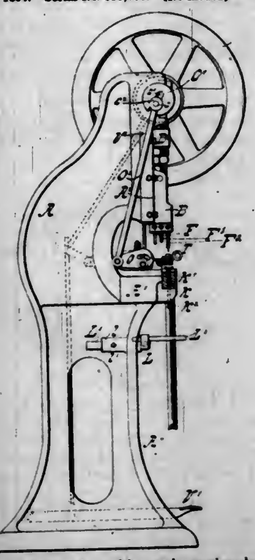
3. The combination with a handle-bar having oppositely-placed slots, of a brake-lever extending through said slots and provided with an offset or shoulder forming a fulcrum about which said lever turns, and with two concentric bearing-surfaces engaging the inner end of the upper slot and with the bottom of the handle-bar tube, a locking-lug partially closing the lower slot and a brake placed in connection with the brake-lever substantially as described.

4. In a velocipede, the combination of the handle bar, the steering-head tube, the fork stem or tube, an adjustable brake-plunger provided with a longitudinal recess, a disk fitted to the fork-stem and provided with a projection engaging said recess, a brake-shoe attached to said plunger, and a brake-lever extending through the handle bar and engaging the upper end of the brake-plunger, substantially as described.

5. The combination with a tubular handle-bar having oppositely-placed slots, of a brake-lever extending through said slots and provided with a shoulder or offset forming a fulcrum, and with a concentric bearing-surface adapted to engage with the inner end of the upper slot a locking-lug partially closing the lower slot, and a brake placed in connection with the brake lever, substantially as described.

6. In a velocipede, the combination of a tubular handle-bar, a brake-lever passing through said handle bar and having its fulcrum within the latter, a brake and a brake-rod having its upper end forked for the reception of the arm of the brake-lever, substantially as described.

595,107. MACHINE FOR MAKING AND APPLYING PERIPHERALLY-TOOTHED SPOKE-WASHERS. AXEL LEVEDAHL, Aurora, Ill., assignor to the Aurora Automatic Machinery Company, same place. Filed June 7, 1897. Serial No. 639,755. (No model.)



Claim.—1. A machine for making spoke-washers having toothed edges, comprising coacting cutting and bending dies which sever the teeth from the blank and bend said teeth outwardly from the plane of the blank at right angles with the same while leaving the margin of the same connected with the blank between the teeth, a second set of dies consisting of cutting-dies acting to sever the finished washer from the blank between the teeth, and means for intermittingly feeding the blank to advance the same from the first to the second set of dies.

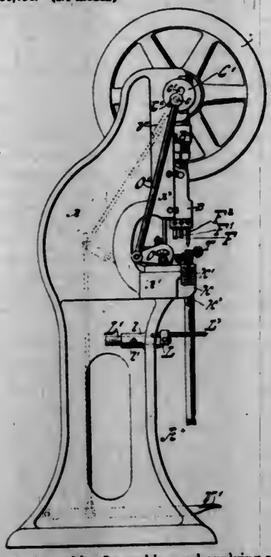
2. A machine for making and applying spoke-washers having toothed edges comprising coacting cutting and bending dies which sever the edges of the teeth from the blank and bend the same outwardly at right angles to the plane of said blank while leaving the margin of the washer connected with the blank between the teeth, and a second set of dies consisting of cutting dies embracing an apertured die-plate and a punch which coacts with the plate to sever the finished washer from the blank between the teeth and also carries the finished washer through the die-plate and applies it to the rim and means for intermittingly feeding the blank to advance the same from the first to the second set of dies.

3. Dies for forming teeth on spoke-washers comprising a punch having annularly-arranged punching and bending prongs a die-plate and a die fitting in a hole in the plate, said die-plate being provided in its edges around said die with angular recesses in which are formed cutting edges which coact with the edges of the punching-prongs and the edges of the die together with the inner edges of the punching-prongs forming bending-surfaces.

4. Dies for forming margical teeth on spoke-washers consisting of a punch provided with annularly-arranged prongs each having at its end two outer cutting edges at an angle with each other and an inner inwardly-facing bending edge, and a die provided with recesses to receive said prongs, said recesses having two outer angular cutting-faces and an inner, outwardly-facing bending edge corresponding with those on the prongs of the punch and recesses and prongs having adjacent parallel faces perpendicular to the faces of the die which faces are laterally separated to form spaces to receive the prongs.

5. The combination with dies for forming margical teeth one of which is provided with cutting and bending prongs and the other with recesses having cutting edges which coact with said prongs to sever the washer from the blank along the edges of the teeth and bending-dies which coact with those on the prongs to bend the severed teeth at right angles to the plane of the blank, of cutting-dies consisting of an apertured die-plate and a plunger, said plate and plunger being made of such size as to sever the blank at the margin of the washer between the teeth thereof and the plunger being constructed to pass through the die-plate to apply the washer to the rim and a support for sustaining the rim opposite the punch and die which sever the finished washer from the blank.

595,108. MACHINE FOR MAKING AND APPLYING SPOKE-WASHERS. AXEL LEVEDAHL, Aurora, Ill., assignor to the Aurora Automatic Machinery Company, same place. Filed June 7, 1897. Serial No. 639,756. (No model.)



Claim.—1. A machine for making and applying spoke-washers, comprising means for cutting and shaping the washers from a blank strip, means for feeding the blank strip to the cutting devices, a support for the wheel-rim and means for pressing the finished washers against the wheel-rim.

2. A machine for making and applying spoke-washers comprising washer cutting and shaping dies, means for feeding a blank strip to the dies, a support for the wheel-rim, and means for pressing the finished washers upon the wheel-rim.

3. A machine for making and applying spoke-washers comprising means for cutting and swaging the washers from a blank strip, and a support for a rim located in operative relation thereto, said cutting and shaping devices embracing a reciprocating punch acting to finally sever the washer from the blank strip and to press it against the rim.

4. A machine for making and applying centrally-apertured spoke-washers comprising cutting and shaping means embracing a reciprocating punch and an apertured, stationary die for severing the finished washer from the blank, said punch being adapted to pass through the die, in order to carry to and force against a rim held opposite said die, the washers cut from the blank by the punch, and being provided with a centering pin or projection which engages the aperture of the washer.

5. A machine for making and applying spoke-washers, comprising combined punching and bending dies consisting of a punch pro-

vided with a plurality of punching and bending prongs and a die having punching and bending recesses, constructed to cut a plurality of teeth from the blank and bend the same outwardly, and cutting-dies for severing the finished washers consisting of a stationary apertured die-plate and a punch which passes through said die-plate to force the several washers into contact with a rim held opposite the said die.

6. A machine for making and applying spoke-washers comprising combined punching and bending dies, consisting of a punch provided with a plurality of prongs and a die having a plurality of recesses which coact with the prongs to cut a plurality of teeth from the blank and to bend the same outwardly, swaging-dies which give concave form to the blank and cutting-dies for severing the finished washers, consisting of a stationary, apertured, die-plate and a punch which passes through said die-plate to force the severed washers into contact with the wheel-rim.

7. A machine for making and applying spoke-washers comprising stationary cutting and bending dies, movable cutting and bending punches and a reciprocating head or plunger carrying said punches, the die upon which the washer is finished being apertured and the punch which cuts the finished die from the blank being constructed to pass through its coacting die to press the washer against the wheel-rim, and a centering pin or projection on said last-mentioned punch which engages the aperture of the washer.

8. A machine for making and applying spoke-washers, comprising stationary cutting bending and swaging dies, movable cutting, bending and swaging punches, a reciprocating head or plunger carrying said punches, means for feeding a blank strip between the stationary dies and plungers one of said coacting dies and punches acting to sever the finished washer from the blank and a support for sustaining the rim opposite the punch and die which severs the finished washer from the blank.

9. A machine for making and applying toothed spoke-washers comprising a die and punch which coact to both cut and bend the teeth of the washers, a swaging die and punch for giving concave shape to the washer and a cutting die and punch for severing the finished washer, said dies and punches being arranged in a straight line, a head or plunger carrying the said punches, means for feeding the blank strip between said dies and punches and a support for sustaining the rim opposite the punch and die which severs the finished washer from the blank.

10. A machine for making spoke-washers comprising coacting cutting and bending dies which act to sever from the blank the edges of a plurality of teeth or prongs and also to bend the same outwardly from the plane of the blank, and cutting-dies which sever the blank to detach the finished washers.

11. A machine for making spoke-washers comprising coacting cutting and bending dies which act to sever from the blank the edges of a plurality of teeth or prongs, and also to bend the same outwardly from the plane of the blank, and cutting-dies which sever the blank outside of the teeth, to form the finished washer.

12. Dies for forming teeth on spoke-washers, one of which is provided with cutting and bending prongs and the other with recesses to receive said prongs, said prongs and recesses having coacting, angular cutting edges which act to sever the edges of the washer from the blank along the margins of the teeth and having inner and outer concentric coacting bending edges and parallel adjacent faces perpendicular to the faces of the dies which are laterally separated to form spaces to receive the thickness of the metal of the prongs.

13. Dies for forming teeth in spoke-washers, comprising a punch having annularly-arranged punching and bending prongs, a die-plate and a die fitting in a hole in the die-plate, the said die being externally grooved to form cutting edges which coact with those on the punching-prongs and the edges of the hole in the die-plate together with the outer edges of the punching-prongs forming bending-surfaces.

14. Dies for forming teeth on spoke-washers, comprising a punch having annularly arranged punching and bending prongs a die-plate and a die fitting in a hole in the die-plate, the adjacent surfaces of the die and die-plate being shaped to form recesses to receive the prongs, which recesses are provided with cutting and bending edges which cooperate with those on the prongs.

15. Dies for forming teeth on spoke-washers comprising a punch having annularly arranged prongs each having at its end two inner oblique cutting edges, and an outwardly-facing bending edge, and a die provided with recesses to receive said prongs, said recesses having each two inner, oblique cutting edges and an outer bending edge corresponding with those on the prongs of the punch.

16. The combination with a punch having cutting and bending prongs and a die having cutting and bending recesses of a blank-lifter having fingers which extend through the recesses in the die.

17. The combination with a vertically-movable punch having cutting and bending prongs and a stationary die having cutting and bending recesses, of a vertically-movable blank-lifter having fingers which extend upwardly through the recesses of the die, and means for giving vertical reciprocating motion to said blank-lifter.

18. The combination with a vertically-movable punch having cutting and bending prongs, and a stationary die having cutting and bending recesses, of a vertically-movable blank-lifter having fingers which extend upwardly through the recesses in the die, a plunger to which the said punch is attached, and means for actuating the blank-lifter from the plunger, consisting of a rock-shaft having an arm which engages the blank-lifter, and an arm provided with a cam-slot, which is engaged by a stud on the plunger.

19. The combination with cutting and bending dies and punches, and a reciprocating plunger carrying the punches, of feed-rollers for a blank strip and means for actuating the feed rollers comprising a reciprocating feed-arm, a ratchet-wheel which drives the feed-rollers, an oscillating pawl-plate carrying pawls which act on the ratchet-wheel, and stops on the said feed arm and pawl-plate which are adjustable relatively to each other to vary the feed of the blank strip.

20. The combination with washer forming and applying mechanism, of an anvil for the wheel-rim, said anvil being provided with a centering-stud to engage the spoke-holes in the wheel-rim.

21. The combination with washer forming and applying mechanism, of an anvil for supporting the wheel-rim, and adjustable stops located at the front and rear of the rim to limit the rearward and forward inclination of the same.

22. The combination with washer forming and applying mechanism, of an anvil for supporting the wheel-rim and adjustable stops at the front and rear and also at the sides of the rim, to determine the front and rear as well as lateral inclination of the wheel-rim.

595,109. DEVICE FOR SECURING BAILS IN FILING-RECEPTACLES. HARRY I. MAXON, Chicago, Ill., assignor to the Commercial Letter File Company, same place. Filed Dec. 12, 1896. Serial No. 615,590. (No model.)



Claim.—1. In a filing-receptacle, having a recess in the inner face of its rear wall, the combination with a bail-arm pivotally mounted in said recess and provided with a crank adjacent its point of bearing, of a plate covering said recess, a U-shaped spring mounted on said plate below the pivotal bearing of the bail-arm and a link connecting the free end of the spring with the crank of said arm whereby said crank will be actuated by said spring.

2. In combination with a filing-receptacle having a recess in the inner face of one of its walls, of a plate mounted in said recess, a bail-arm pivotally secured in said plate, provided near its pivotal bearing with a crank portion, a U-shaped spring mounted upon said plate, operative connections between the free arm of the spring and said crank portion and a guide on the plate engaging said free arm to prevent lateral movement of the same on the plate.

3. As a new article of manufacture, the device for securing the swinging arm of a bail to a filing-receptacle, consisting of a plate of generally rectangular form, provided near one end with two parallel bail-supporting members, extending at right angles to the plate, a clip near the center thereof adapted to support the bail-actuating spring, and with a guard on its opposite end to prevent lateral movement of the actuating-spring, said parts being stamped from a single piece of metal.

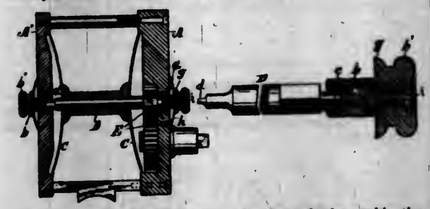
4. In a filing-receptacle, the combination with the inner face of the rear wall thereof, of a plate secured to said wall and adapted to cover the recess provided with integral rearwardly-extending members to which the bail-arm is pivotally connected, and a clip integral with said plate, a U-shaped spring mounted in said clip and a link extending between the free end of the spring and the bail-arm.

5. In combination with a filing-receptacle provided with a recess in the inner face of its rear wall, of a plate mounted in said recess, a bail-arm pivotally secured to the plate, a U shaped spring mounted on the plate below the pivotal bearing of the bail-arm, and a connecting-link between the free end of the spring and bail-arm, said free end of the spring being formed with a downwardly-extending hook to prevent said link from slipping therefrom when tension is put upon the spring.

6. In combination with a filing-receptacle provided with a recess in the inner face of one of its walls, of a plate mounted in said recess, a bail-arm pivotally secured to said plate, a U-shaped spring mounted on the plate below the pivotal bearing of the bail-arm, a stop on the plate adjacent the point of connection with the spring therewith, to prevent longitudinal movement of the spring, and operative connections between the opposite arm of the spring and the bail-arm.

7. In combination with a filing-receptacle provided with a recess in the inner face of one of its walls, of a plate mounted in said recess, a bail-arm pivotally secured to said plate, a U-shaped spring mounted on the plate below the pivotal bearing of the bail-arm and secured thereto by an integral clip struck up from the plate which engages one of the arms of the spring, a stop also struck up from the plate adjacent the said integral clip to prevent longitudinal movement of the spring upon the plate and operative connections between the free arm of the spring and the bail-arm.

595,110. PIVOT BALL-BEARING FOR FISHING-REELS. AUGUST F. MEISSELBACH and WILLIAM MEISSELBACH, Newark, N. J. Filed May 20, 1897. Serial No. 637,354. (No model.)



Claim.—1. In a pivot ball-bearing for fish-reels, the combination, with a socket having a race with series of balls fitted therein, and an annular recess, larger than the race, forming a shoulder adjacent to the outer sides of the balls, of a compressible ring fitted to the shoulder in such recess to retain without cramping the balls in the race, substantially as herein set forth.

2. In a pivot ball-bearing for fish-reels, the combination, with a pivot having tapering sides hollowed to rest on the balls and a cylindrical point smaller than each of the balls, of a socket having a race with series of balls therein fitted to such pivot-point, the socket having an annular recess adjacent to the outer sides of the balls, with a compressible ring fitted to such recess and extended over the outer parts only of the balls, substantially as herein set forth.

3. In a pivot ball-bearing, the combination, with the frame for supporting the shaft, of a pivot-point upon the shaft, a screw-threaded socket fitted to a nut in the frame and having a ball-race with series of balls fitted to such pivot-point, a collar upon the external end of such socket, and a spring-washer between each collar and the frame to hold the socket by friction when adjusted, substantially as herein set forth.

4. In a fishing-reel, the combination, with the frame-plates A, A' having threaded apertures *a*, of the spool C having the spindle D with tapering pivots at opposite ends, the threaded sockets fitted each to the aperture *a* and having the ball-races, the series of balls, and retaining-ring upon its inner end, and provided each with the collar *g* having the cup-shaped star-spring *h* inserted between the same and the frame to hold the socket when adjusted, substantially as herein set forth.

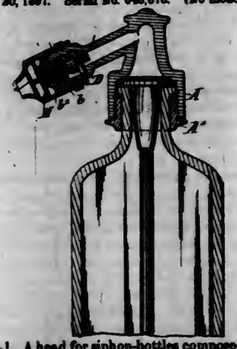
595,111. SADDLE. HARRY A. PERRY, Chicago, Ill. Filed Feb. 1, 1897. Serial No. 621,487. (No model.)



Claim.—1. In a pneumatic saddle, the combination of a base-plate or tree substantially underlying the entire cushion intended to be arranged thereon, and bent upwardly at its rear portion under a substantial part of the cushion, an inflatable bag substantially of a size and shape to entirely overlie the base-plate or tree and provided in its rear portion with a transverse slit extending partially across the saddle for dividing the rear portion into two parts each opening into the interior of the inflatable bag, and an inclosing case or cover for the whole, substantially as described.

2. In a pneumatic saddle, the combination of a base-plate or tree substantially underlying the entire cushion intended to be arranged thereon, and bent upwardly at its rear portion under a substantial part of the cushion, an inflatable bag substantially of a size and shape to entirely overlie the base-plate or tree and provided in its rear portion with a transverse crescent-shaped dividing-slit extending partially across the saddle for dividing the rear portion into two substantially oval parts each opening into the interior of the inflatable bag, an inclosing case or cover for the whole, and a single valve for filling all portions of the inflatable bag, substantially as described.

595,112. SIPHON-HEAD. ALEXIUS POSSAY, New York, N. Y. Filed Aug. 20, 1897. Serial No. 648,873. (No model.)

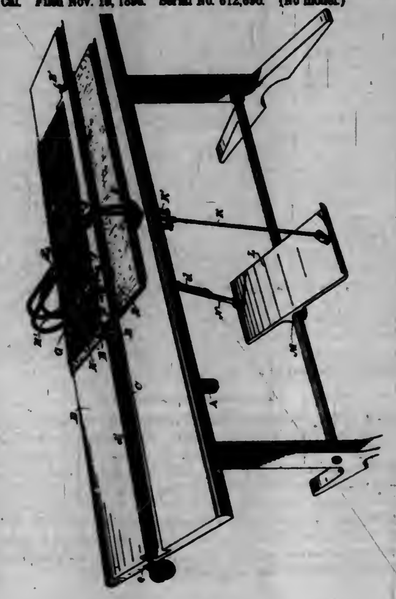


Claim.—1. A head for siphon-bottles composed of a cap, a valved nozzle extending in downward direction from the upper end of said cap, a sliding valve arranged in the enlarged nozzle portion proper, and a sliding sleeve guided on the nozzle and adapted to engage and open the valve, substantially as set forth.

2. A head for siphon-bottles, consisting of a cap having a contracted upper portion, a downwardly-extending sectional nozzle formed of a stationary and a detachable portion, a valve in said nozzle, and an exterior sleeve guided on the valved portion of the nozzle provided with a transverse pin for engaging the spindle of the valve in opening the same, substantially as set forth.

3. A head for siphon-bottles, consisting of a cap, a downwardly-inclined nozzle on said cap, a valve in said nozzle, a sleeve provided with a conical spout, and a transverse pin in said spout for engaging and opening the valve, and means for guiding said sleeve on the nozzle, substantially as set forth.

595,118. RUG-MAKING MACHINE. OLIVER RICE, East Oakland, Cal. Filed Nov. 19, 1896. Serial No. 612,690. (No model.)



Claim.—1. In a rug-making machine, the combination of a table, having a guide or channel in its top, a clamp or carrier, movable in said guide and adapted to hold the fabric of the rug while it is being moved across the table, a slotted yoke extending transversely across the table and forming a horizontal guide, a looper slidable in said slotted yoke, a feed mechanism, a needle-carrier having a needle working upwardly through the fabric, a treadle and means connecting the opposite portions of the same with the looper and needle-carrier respectively.

2. In a rug-making machine, the combination of a table having a longitudinal guide or channel in its top, a clamp or carrier fitted to slide in said guide and adapted to hold the fabric of the rug while it is being moved across the table, a slotted yoke extending transversely across the table and forming a horizontal guide above the fabric, a looper slidable in the slotted yoke and having a horn which passes through the loop of the thread when the looper is advanced, a reversible feed mechanism, a needle-carrier having a needle working upwardly through the fabric, a treadle and means connecting the opposite portions of the same with the looper and needle-carrier respectively.

3. In a rug-making machine, the combination of a channeled table, a clamp or carrier slidable therein and adapted to secure the rug-base, a double oppositely-toothed rack fixed to the clamp or carrier and a double-ended pawl pivoted with relation to the rack so that the ends may be made to engage with either one or the other of the racks, to move the clamp or carrier alternately to one side and the other of the table, a slide carrying said pawl, a treadle and intermediate mechanism connecting it with the slide, a needle-carrier having a needle working upwardly through the fabric, and connected with the treadle, a slotted yoke extending transversely across the table, a looper slidable in the yoke and having a horn which passes through the loop of the needle-thread when the looper is advanced, a bell-crank lever mounted in the yoke, a connection from one arm of said lever to the looper and a connection from the other arm of the lever to the treadle.

4. In a rug-making machine, a channeled table, a guide and clamp for holding the rug adapted to travel therein, a reversible reciprocating mechanism whereby the rug is carried alternately to one side and the other of the table, fingers or comb-teeth projecting horizontally from the front of the clamp above the fabric, a vertically-reciprocating needle adapted to move through the fabric and to carry a thread, a tension apparatus whereby said thread is drawn taut, a horizontally-movable looper having the horn which passes through the loop of the needle-thread when the looper is advanced, supporting-spurs upon which the horizontal yarn of the fabric is laid, and a tilting arm and hook pivoted within the horn, said hook adapted to engage the yarn and draw it through the needle-thread when the looper is withdrawn, said loop being tied by the needle-thread when the needle is withdrawn through the fabric.

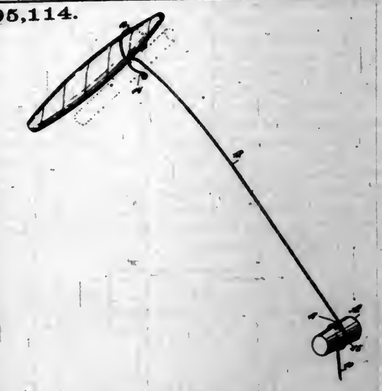
5. In a rug-making machine, a slidable clamp and carrier having teeth projecting forwardly therethrough and a mechanism by which it is reciprocated so as to present the spaces between the teeth successively to a vertically-movable thread-carrying needle, a horizontally-movable looper, mechanism by which the needle-bar and the looper are connected with the opposite end of a treadle whereby the two are movable in unison and a reversible feed mechanism connected with the same treadle so as to operate in conjunction with the needle-bar and the looper.

6. In a rug-making machine, a channeled table, a rug clamp and carrier and mechanism whereby it is moved alternately to one side and the other of the table, teeth projecting forwardly from the clamp above the fabric, a vertically-reciprocating needle movable through the fabric and a thread carried thereby, a tension device whereby the thread is drawn down and the needle is returned, a horizontally-movable looper having a projecting horn, a tilting hooked arm fulcrumed within said horn, supports for the horizontal yarn which is introduced upon the supports and beneath the horn so as to be engaged by the hook when the looper is advanced and withdrawn through the needle-loop when the looper is retracted, an arch S extending across the looper-guide adapted to engage the hook-arm and tilt it when retracted so as to disengage the hook from the arm and leave the yarn-loop within the needle-loop.

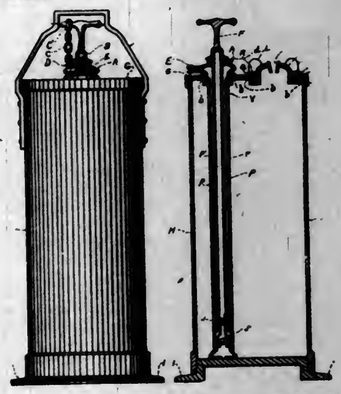
595,114. CIGAR OR CIGARETTE HOLDER. GEORGE R. SCHMIDT, New York, N. Y. Filed Mar. 10, 1897. Serial No. 626,832. (No model.)

Claim.—A device for supporting cigars, cigarettes, or other light articles, comprising a base, a pin passed through the base, the base being also provided with an eye in its upper surface, and an arm consisting of a spring-rod coiled around the base in such a manner as to turn thereon, an end of the coil being passed through the eye on the base, the outer free end of the said arm being bent upon itself to form a spring-socket adapted to receive and hold the article to be supported, as and for the purpose set forth.

595,114.

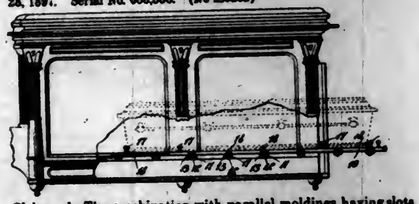


595,115. FIRE-EXTINGUISHING APPARATUS. JOSEPH O. BARNING, New York, N. Y., assignor to Mary Emeline Yost, Rutherford, N. J. Filed Mar. 26, 1896. Renewed July 26, 1897. Serial No. 646,040. (No model.)



Claim.—A retaining vessel provided with a cap having an aperture therein, the rim surrounding the aperture extending downward and terminating in two spiral extensions, a pump having a head carrying a packing-ring and having lugs fitting underneath said spirals, a collar attached to said pump-head having a chain terminating in a ring, the pump being composed of an outer cylinder having a hole near its top and an inner piston-cylinder, all arranged and located as set forth.

595,116. HEARSE. JAMES BURNS, Cincinnati, Ohio. Filed May 28, 1897. Serial No. 638,530. (No model.)



Claim.—1. The combination with parallel moldings having slots therein, of a full table movable between the moldings, brackets carried by the table, and rollers held in the brackets and running in the slots.

2. The combination with parallel moldings having guideways, of a full table movable between the moldings, brackets carried by the table, and rollers carried by the brackets and respectively running in the guideways.

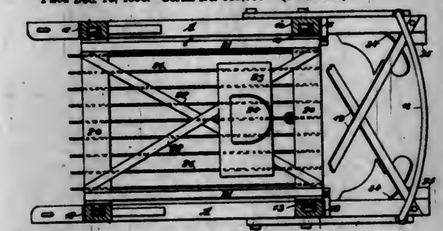
3. A hearse having rigid moldings run parallel with each other at the sides of the hearse, each molding having a groove therein, a full table located between the moldings, brackets secured to the table, and two rollers carried by each bracket, one roller of each bracket running in a respective slot, and the second roller of each bracket bearing against the inner faces of the moldings.

4. The combination with moldings laid parallel with each other and having grooves therein, of a full table movable between the moldings, brackets carried by the table, and two rollers carried by each bracket, one roller of each bracket having a horizontal axis, and the second roller of each bracket having a vertical axis, the rollers with horizontal axes running in the grooves and the rollers with vertical axes bearing against the inner faces of the moldings.

5. A hearse having two moldings respectively at the sides thereof, each molding having a plurality of inclined grooves formed therein, a full table located between the moldings, and rollers carried by the table and respectively running in the grooves whereby the table may slide with a combined up-and-down and forward-and-rearward movement.

6. A hearse having side members running longitudinally with the hearse and separated from each other, and a full table mounted between and supported by the side members, the table running in guideways having a downward and rearward inclination whereby the table moves forward and rearward in and out of the hearse and downward as it approaches its outer position.

595,117. CLOD-CUTTER. PETER R. CAMPBELL, Brierfield, Miss. Filed Dec. 10, 1896. Serial No. 615,060. (No model.)



Claim.—1. In a clod-cutter or like machine, runners, saw-cutters located between the said runners, and shares placed adjacent to the said runners and back of the said saw-cutters, as and for the purpose set forth.

2. A clod-cutter consisting of runners, cutters longitudinally suspended between the runners, and removable shares having their moldboards facing inward and located at the inner sides of the runners at the rear of the cutters, as and for the purpose set forth.

3. In a clod-cutter or like machine, the combination, with runners, an adjustable frame carried between the said runners, cutting-blades located in the said frame, extending substantially parallel with the runners, and removable bearings for the said frame, as and for the purpose specified.

4. In a clod-cutter or like machine, the combination, with runners, a frame suspended between the runners, cutting-blades removably supported in the said frame, said cutting-blades being provided with saw-teeth, and the blades being in series substantially parallel with the runners, drag-bars pivotally attached to the runners, and locking devices for the said drag bars, as and for the purpose set forth.

5. In a clod-cutter or like machine, the combination, with runners, slideways produced vertically in the said runners, bearing-blocks removably placed in the said slideways, and shares removably connected with the inner faces of the runners at their rear, of a frame having movement in the slideways of the runners, cutters carried by the said frame, and a device, substantially as described, for raising and lowering the cutter-frame, as set forth.

6. The combination with a frame of vertically-movable cutters extending longitudinally with the frame, and two plowshares carried by the frame and throwing furrows inward toward each other, substantially as described.

7. The combination of two runners having means for rigidly connecting them, a series of cutting-blades extending longitudinally between the runners and movable vertically, and a plowshare carried by the rear portion of each runner, the plowshares facing each other and serving to throw the furrows inward, substantially as described.

8. The combination with a frame, of a series of longitudinally-extending connecting-blades having saw-teeth, the blades running parallel with each other and capable of being raised and lowered to engage and disengage the ground, substantially as described.

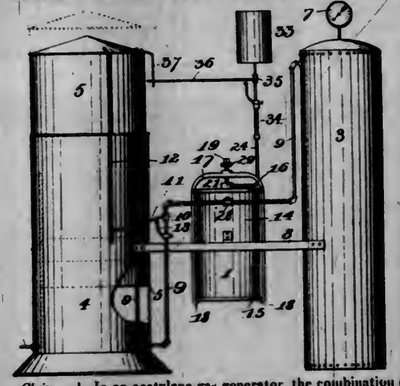
9. The combination with a frame having two runners and standards rising from the runners, the standards having their adjacent faces grooved, and a cutter-frame having portions respectively projecting into the grooves of the standards and movable vertically between the same, substantially as described.

595,118. STOVEPIPE-HOLDER. HARRY P. CHASE and GEORGE GRISWOLD, Salem, Oreg. Filed June 8, 1897. Serial No. 639,902. (No model.)



Claim.—A stovepipe-holder consisting of two adjustable bands and means for connecting them, an adjusting-screw connecting the ends of one of the bands, a lever connected with one end of the opposite band, and a link connected with the opposite end of this latter band and also with said lever.

595,119. ACETYLENE-GAS GENERATOR. JAMES H. COUPER, Atlanta, Ga. Filed July 8, 1896. Serial No. 598,450. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a gasometer and a holder capable of sustaining a high tension, a pipe entering the gas-space of both, a valve located between the generator-inlet and the gasometer and means for opening and closing said valve operated by the gasometer at predetermined points of its path of motion, a gas generator connected to said holder and means for automatically starting the generator upon the reduction of the gas-pressure in the gasometer below a given point as and for the purpose specified.

2. In an acetylene-gas generator the combination of a gasometer and a holder capable of sustaining a high tension, a pipe entering the gas-space of both, a gas-generator connected to said holder and a valve in said pipe located between the generator-inlet and the gasometer and means for opening and closing said valve operated by the gasometer at predetermined points of its path of motion.

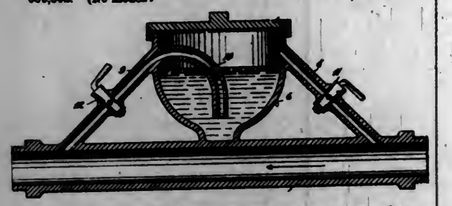
3. In an acetylene-gas generator the combination of a gasometer and a holder capable of sustaining a high tension, a pipe entering the gas-space of both, a gas-generator connected to said holder, a valve in said pipe located between the generator-inlet and the gasometer and means for opening and closing said valve operated by the gasometer at predetermined points of its path of motion and a supply of water delivering its fluid to the generator and provided with a valve controlled by the motion of the gasometer.

4. In an acetylene-gas generator, a gasometer, and a holder capable of sustaining a high tension, a pipe entering the gas-space of both, a gas-generator connected to said pipe, a valve in said pipe located between the gas-generator inlet and the gasometer, and means for closing said valve when the gasometer has received a desired quantity of gas and opening it when the gasometer has fallen to a desired point, said valve being operated by the gasometer with a supply of water delivering its fluid to the generator and provided with a valve controlled by the motion of the gasometer, said valves being so adjusted that when the gasometer descends, the gas-supply valve will open a desired period prior to the water-supply valve, substantially as described.

5. In an acetylene-gas generator, a generator and a cap therefor,

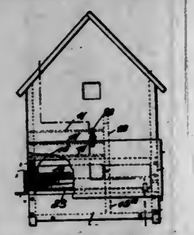
a clamp provided with a screw polygonal head, and adapted to secure said cap in place, a pipe leading from said generator to a holder, a valve in said pipe, a crank on the stem of said valve, a movable wrench adapted to engage the head of the clamp-screw, and means for operatively connecting said crank and wrench, for the purpose specified.

595,120. APPARATUS FOR CLEANING WATER-HEATERS. GEORGE J. DEER, Iron Mountain, Mich. Filed June 4, 1897. Serial No. 639,392. (No model.)



Claim.—An apparatus for cleaning water-heaters, comprising a length of pipe designed for connection with a feed-pipe, a vessel on said pipe for containing a compound, a removable cover for the vessel, an inlet leading from the pipe into the vessel near its top, an outlet leading from the upper portion of the vessel to the pipe, the said outlet having a downwardly-turned portion within the vessel and extending nearly to the bottom thereof, and valves for the inlet and outlet.

595,121. ROOSTING DEVICE FOR FOWLS. FRED D. DIMOCK, National City, Cal. Filed Dec. 16, 1896. Serial No. 615,903. (No model.)

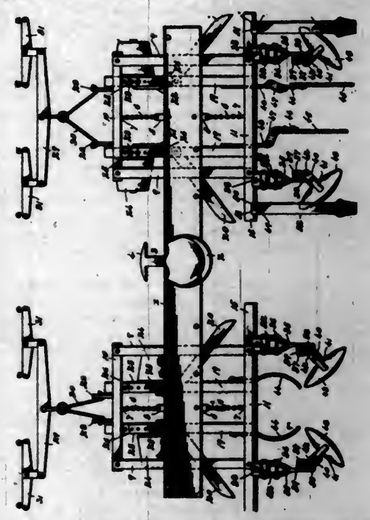


Claim.—1. The combination with an inclosure, roosting-poles arranged in a tier within the inclosure, an endless apron longitudinally adjustable below the roosting-poles, and a scraper-blade bearing with one edge against the lower side of the apron near one end; of supports projecting from the inclosure below said scraper-blade and having shoulders near their outer ends, and a receptacle for the scrapings resting upon said supports and retained thereon by said shoulders, one of said supports being pivoted to turn laterally and release the receptacle, as and for the purpose set forth.

2. The combination, in a device of the character described with the inclosure, and the plurality of roost-poles arranged in a tier within the inclosure; of the pair of parallel rollers supported to rotate in a plane below the said poles, one within and the other without the said inclosure, an endless apron mounted on said rollers and extending through an aperture in the side of the inclosure, a scraper-blade having journal ends in loose engagement with the support for the roller outside the inclosure, being located below said roller, a spring pressing the upper edge of said blade into contact with said apron, arms secured to the inclosure below said scraper-blade and one of which is pivoted to turn laterally, a receptacle having its ends resting upon said arms and arranged to be detached therefrom by turning the pivoted arm, and means for moving said apron, as and for the purpose described.

3. A roosting device for fowls, comprising the inclosure, supports for the roosting-poles, roosting-poles arranged in a tier and detachably secured on said supports, two parallel rollers supported to rotate in a plane below said poles and located one within and the other without said inclosure, a contractible endless apron mounted to revolve on said rollers and passing through an aperture in the side of the inclosure, a rocking scraper-blade located below the outer roller and having its upper edge spring-pressed into engagement with said apron, arms projecting from the inclosure below said scraper-blade and having shoulders on their upper outer edges, one of said arms being pivoted to turn laterally, a receptacle resting upon said arms, being retained by the shoulders thereon and removable from the inclosure by turning said pivoted arm outward, and a cover protecting the apron, scraper-blade, and receptacle, as and for the purpose described.

595,122. CULTIVATOR. RALPH L. FARNSWORTH, Palmer, Kans. Filed Oct. 12, 1896. Serial No. 608,638. (No model.)



Claim.—1. In a lister-cultivator, the combination with runners supporting the frame and the operating parts attached thereto, of frusto-conical rollers applied directly to the runners with their smaller bases outward and their larger bases adjacent to the runners for centralizing the cultivator between rows, lightening its draft and crushing clods, and means for adjusting the rollers vertically with respect to the runners and securing them in an adjusted position, substantially as specified.

2. In a lister-cultivator, the combination with runners supporting the frame and the operating parts carried thereby, of crank-axles having pivotal connection at one end with the runners at a point between their ends, frusto-conical rollers mounted upon the spindles of the crank-axles and adapted to centralize and lighten the draft of the machine and crush clods, and means applied to the runners for securing the crank-axles near their spindle or outer ends in an adjusted position, whereby the relative elevation of the rollers with respect to the runners may be regulated, substantially as and for the purpose set forth.

3. In a lister-cultivator, the combination with runners, of crank-axles having pivotal connection with the runners, rollers mounted upon the spindles of the crank-axles, bracket-segments secured to the runners, and means for positively securing the spindles of the crank-axles in an adjusted position, substantially as and for the purpose set forth.

4. In a cultivator, the combination with runners, standards secured at their lower ends to the runners, a bar connecting the upper ends of the standards, bars secured at their lower ends to the standards and inclining forwardly and upwardly, and having a series of openings in their length, and braces connecting the upper ends of the inclined bars with the upper ends of the standards, of a draft-bar, and hounds having their rear ends hooked and adapted to make adjustable connection with the aforesaid inclined bars, substantially as and for the purpose set forth.

5. In a cultivator, the combination of the frame having a T-bar connected therewith, a bracket-casting slidably mounted upon the cross-head of the T-bar and provided with means for securing it in an adjusted position, and an arm bearing a cultivating device and having adjustable connection with the bracket-casting, substantially as and for the purpose set forth.

6. In a cultivator, the combination with an arm, of a coupling having adjustable connection with the arm, and a plate bearing a part to travel upon the ground and having adjustable connection with the said coupling, substantially as and for the purpose set forth.

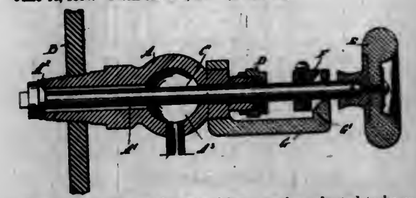
7. In a cultivator, the combination of the frame, a bracket-casting having adjustable connection with the frame, an arm vertically adjustable with respect to the bracket-casting, a coupling having adjustable connection with the arm, and a plate bearing a cultivating device and having adjustable connection with the coupling, substantially in the manner and for the purpose set forth.

8. In a cultivator, the combination of an arm, a coupling having adjustable connection with the arm, a plate having adjustable

connection at one end with the coupling and provided at its opposite end with a bearing-sleeve, and a cultivating-disk mounted in the bearing-sleeve, substantially as set forth.

9. In combination, a series of cultivators, a coupling-board for connecting the cultivators, and draft-chains interposed between the coupling-board and connecting it with the front and rear portions of the cultivator-frame, substantially as set forth.

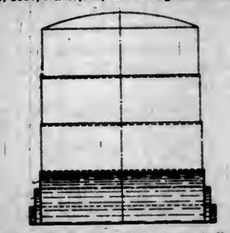
595,123. GAGE-COCK. GEORGE JOHNSON, Allenport, Pa. Filed June 16, 1897. Serial No. 641,007. (No model.)



Claim.—1. A gage-cock, comprising a casing adapted to be secured to a boiler, and formed at its inner end with a valve-seat, a valve adapted to be seated on the said seat by pressure from within the boiler, the stem of the valve extending through a stuffing-box in the casing, a cam on the said stem, and a bracket carried by the said casing, and having a cam-surface adapted to be engaged by the said cam, to impart a sliding motion to the said valve-stem, substantially as shown and described.

2. A gage-cock, comprising a casing adapted to be screwed to a boiler, and formed with a bore terminating at its inner end in a chamber having an outlet, a valve seat on the inner end of the said casing, a valve adapted to be seated on the said seat, a valve-stem carrying the said valve, and extending loosely through the said bore and the said chamber, and through a stuffing-box on the outer end of the said casing, a handle on the said stem, a cam secured on the said stem, and a bracket screwed on the said casing, and formed with a cam-surface adapted to be engaged by the said cam, to slide the said valve-stem in the said casing, substantially as shown and described.

595,124. RECEIVER FOR GASES OR LIQUIDS. RUDOLF KELTING, Bockwalde 2, Germany. Filed Mar. 5, 1897. Serial No. 626,175. (No model.) Patented in Germany Mar. 5, 1896, No. 93,144; in France Feb. 20, 1897, No. 264,345; in Belgium Feb. 20, 1897, No. 126,466; in Austria Feb. 20, 1897, No. 23,525, and in England Feb. 20, 1897, No. 4,676.



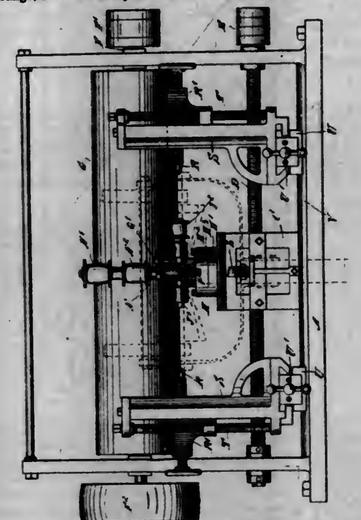
Claim.—1. The combination of the inner shell forming the outer wall of a receiver, and the outer shell of less height than the inner shell and arranged at a distance therefrom forming a space for the reception of a suitable filling substance, the two shells being connected by a solid bottom preventing a communication between the interior of the receivar and said space substantially as described.

2. The combination of the inner shell forming the outer wall of a receiver, and the outer shell of less height than the inner shell and surrounding the base thereof at a distance therefrom, forming a space for the reception of a suitable filling, the two shells being connected by a solid bottom preventing a communication between the interior of the receiver and said space substantially as described.

3. In receivers for gases or liquids, the combination with an inner mantle, of an outer mantle of smaller height than the inner mantle, the space between said mantles being adapted to be filled with a suitable liquid or filling mass, the mantles being connected by a solid bottom so that the several spaces and the interior of the receptacle do not communicate with one another substantially as described and for the purpose set forth.

4. In receivers for gases or liquids, the combination with an inner mantle, of outer mantles surrounding concentrically the inner mantle and decreasing in height toward the outside, the space between said mantles being adapted to be filled with a suitable liquid or filling mass, the mantles being connected by a solid bottom so that the several spaces and the interior of the receptacle do not communicate with one another substantially as described and for the purpose set forth.

595,125. GRINDING-MACHINE. GEORGE W. KIRSTEN, West Orange, N. J. Filed Apr. 17, 1897. Serial No. 632,563. (No model.)



Claim.—1. A grinding machine provided with a carriage adapted to travel forward and backward, a head held adjustably thereon, a holder carrying the grinding-wheel and mounted to be turned in the said head, and means for adjusting the said holder laterally in the said head, substantially as shown and described.

2. In a grinding-machine, the combination with a carriage, and a head held thereon, of a holder loosely mounted in the head and having its rear end screw-threaded, a nut on the holder and mounted in the bearing of the holder, and a set-screw for locking the holder in its bearing, substantially as described.

3. A grinding-machine provided with a carriage adapted to travel forward and backward, a head held adjustably thereon, a holder carrying the grinding-wheel and mounted to be adjusted axially and laterally in the said head, and means substantially as described for rotating the said grinding-wheel journaled in the holder, substantially as set forth.

4. A grinding-machine comprising a carriage, a feed-screw for the said carriage, a head held adjustably on the said carriage, a grinding-wheel holder held adjustably in the said head, centers for supporting the work in front of the said grinding-wheel; and means for adjusting the said centers vertically and transversely, as set forth.

5. A grinding-machine provided with a work-holder comprising longitudinal guideways, carriages held longitudinally adjustably thereon and adapted to be secured thereto, standards held laterally adjustably on the said carriages, bearings held vertically adjustably on the said standards, and centers longitudinally adjustable in the said bearings, substantially as shown and described.

6. In a grinding-machine, the combination of a holder mounted to turn, a grinding wheel mounted in said holder, and provided with a pulley on its spindle, pulleys carried by the holder, means for operating the pulleys, and a belt passing from one of the said pulleys to the pulley on the spindle of the grinding-wheel, substantially as described.

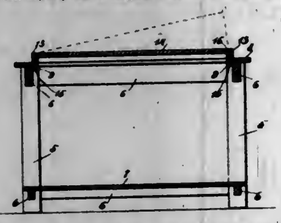
7. In a grinding-machine, the combination with a support, of a holder mounted in the support and provided with a stud projecting through a slot of the bearing of said holder, a grinding-wheel mounted in the holder and provided with a pulley on its spindle, a pulley on the stud of the holder, means for operating the said pulley, and a belt passing around the pulley and the pulley of the grinding-wheel, substantially as described.

8. In a grinding-machine, the combination with a driving-shaft, a carriage, and a feeding device for the carriage operated from the driving-shaft, of a holder mounted to turn in a bearing in the carriage and provided with a laterally-projecting stud extending through a slot in said bearing, a grinding-wheel mounted in the holder and provided with a pulley on its spindle, pulleys on the stud of the holder,

a belt passing around one of the pulleys and a pulley on the driving-shaft, and a belt passing around the other pulley of the said stud and the pulley on the grinding-wheel spindle, substantially as described.

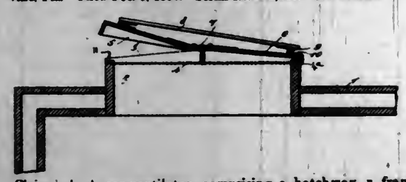
9. A grinding-machine, comprising a supporting-frame, a driving-shaft mounted therein, a carriage mounted on the frame, means for moving the carriage from the driving-shaft, a grinding-wheel holder mounted in the carriage and held laterally and axially adjustable therein, a grinding-wheel mounted in the holder, means for operating the grinding-wheel from the driving-shaft, adjustable centers in front of the grinding-wheel, and a horn between the centers and the grinding-wheel, substantially as herein shown and described.

595,126. IRONING-TABLE. WILLIAM R. MURRAY and EDWARD N. MURRAY, Parramatta, New South Wales. Filed Feb. 17, 1897. Serial No. 623,828. (No model.) Patented in New South Wales Oct. 16, 1896, No. 6,973; in Queensland Nov. 6, 1896, No. 3,613; in Victoria Nov. 16, 1896, No. 13,699, and in England Dec. 23, 1896, No. 29,593.



Claim.—A table having four legs, bars rigidly joining the legs with each other, a rectangular ledge supported at the upper portions of the legs and forming part of the top of the table, two cleats secured respectively at the ends of the ledge and in the space inclosed thereby, two bars respectively rested on the cleats, and a leaf hinged to one bar and bearing down on the other bar whereby the leaf is held raised above the ledge and whereby said leaf may serve as an ironing-board.

595,127. CAR-VENTILATOR. ANDREW J. MCARTHUR, Gainesville, Fla. Filed Feb. 9, 1897. Serial No. 622,619. (No model.)



Claim.—1. A car-ventilator, comprising a hatchway, a frame having hinge connection at one side of the hatchway, a screen secured to said frame, a cover consisting of two sections hinged to swing one section relatively to the other, and means for holding either one of said sections in an open position, substantially as specified.

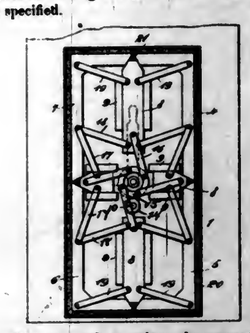
2. A car-ventilator, comprising a hatchway having its walls extended above the roof of the car, a frame hinged to said hatchway, a screen carried by the frame, a cover consisting of two sections hinged to swing one relatively to the other, means for removably securing said sections to the frame, and a rod having a hinge connection with one section of the cover, and having a hook at its free end to engage with a hook on the other section of the cover, substantially as specified.

3. A car-ventilator, comprising a hatchway having its walls extended above the roof of the car a frame having a hinge connection with a wall of said hatchway, a cover consisting of two sections hinged to swing, one relatively to the other, staples on the frame designed to extend through openings in the cover-sections, pins for engaging through said staples to secure the cover-sections to the frame, a rod having swinging connection with one of the cover-sections, and means for engaging the free end of said rod with the other section of the cover, substantially as specified.

595,128. REFRIGERATOR-DOOR. ANDREW J. MCARTHUR, Gainesville, Fla. Filed Feb. 9, 1897. Serial No. 622,620. (No model.)

Claim.—1. In a refrigerator, a door-casing, a door mounted therein, packing-bars on the door having horizontal portions and vertical portions, means for forcing the bars radially outward, and a packing between the bars and casing, substantially as specified.

2. In a refrigerator, a door-casing, a door mounted to swing therein, a packing between the jamb of the casing and the door, packing-bars on the inner side of the door, the said packing-bars having horizontal portions and vertical portions, packing carried by the packing-bars, and means for forcing said packing-bars radially outward, substantially as specified.

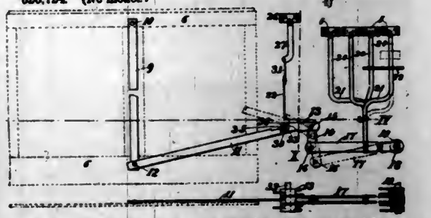


3. In a refrigerator, a door-casing, a door mounted to swing therein, a tubular rubber packing between the jamb of the casing and the door, L-shaped packing-bars mounted to move on the inner side of the door, the ends of said packing-bars being beveled, expanding blocks movable in guideways on the inner side of the door and having beveled portions to engage the beveled ends of the packing-bars, and means for simultaneously moving said expanding blocks longitudinally, substantially as specified.

4. In a refrigerator, a door-casing, a door mounted to swing therein, L shaped packing bars mounted to move radially on the inner side of the door, packing material carried by said bars, sliding blocks having beveled portions to engage the beveled ends of the packing-bars, a rotary gear on the inner side of the door, links extended from said rotary gear to the several blocks, and links having pivotal connection with the blocks and with the packing-bars, substantially as specified.

5. In a refrigerator, a door-casing, a door mounted to swing therein, a shaft extended through the door, a handle on the outer end of said shaft, a gear on the inner end of said shaft, a gear mounted to rotate on the inner side of the door and meshing with the first-named gear, L-shaped packing-bars on the inner side of the door, packing material carried by said bars, expanding blocks mounted to slide on the inner side of the door and having beveled surfaces to engage the beveled ends of the packing-bars, links extended from the last-named gear to the expanding blocks, and links extended from the expanding blocks to the packing-bars, substantially as specified.

595,129. SIGNATURE-REGISTER AND MACHINE-INDEX. MARTIN C. NEUNER, Los Angeles, Cal. Filed Jan. 26, 1897. Serial No. 620,724. (No model.)



Claim.—1. A name-register and machine-index comprising a case, a series of vertically-movable card-frames located in the case, the vertical bars pivoted to the upper part of the card-frames and on which the latter are suspended, the arms pivoted at one end to the lower ends of the vertical bars, and mechanism connected with the other end of the arms for causing them to operate the vertical bars; substantially as described.

2. A name-register and machine-index comprising a case, a series of vertically-movable card-frames located in the case, the vertical bars pivoted to the upper part of the card-frames and on which the latter are suspended, the arms pivoted at one end to the vertical bars, the pivoted dogs to which the other ends of the arms are secured, the retaining and releasing bar adapted to engage the dogs, and mechanism connected with the dogs for raising and lowering the arms; substantially as described.

3. A name-register and machine-index comprising a case, a series of vertically-movable card-frames located in the case, the pivoted dogs having notches and overhanging lips, connections between the card-frames and dogs, mechanism for operating the dogs, a retaining and releasing bar for engaging the lips of the dogs, and a key-lever and a link for operating the retaining and releasing bar; substantially as described.

4. A name-register and machine-index comprising a series of vertically-moving card-frames, vertical bars whereby the card-frames are suspended, arms pivoted at one end to the vertical bars, pivoted dogs to which the other ends of the arms are secured, key-levers, links whereby the dogs are connected with the key-levers, and rows of keys whereby the key-levers are operated; substantially as described.

5. A name-register and machine-index comprising a series of vertically-moving card-frames, vertical bars whereby the card-frames are suspended, arms pivoted at one end to the vertical bars, pivoted dogs to which the other ends of the arms are secured having notches and overhanging lips, key-levers, links whereby the dogs are connected with the key-levers, and a retaining and releasing bar; substantially as described.

595,130. VEHICLE-WHEEL. PHILIP J. PARKER, Brooklyn, N. Y. Filed Feb. 20, 1897. Serial No. 624,335. (No model.)



Claim.—1. A vehicle-wheel comprising a rim, a tire formed of a series of tubular sections having closed ends, an air-tube within the circumference of the rim and provided with openings from which ports lead into the tube, valves secured in the sections of the tire and provided with tubes projecting into the openings of the air-tube, and caps movable on the valve-tubes and provided with ports adapted to register with the parts of the air-tube, substantially as described.

2. A vehicle-wheel, comprising a rim, a tire consisting of a series of inflatable sections forming the tread of the tire, valve-tubes extended through the rim and into said sections, the said tubes being exteriorly threaded, interiorly and exteriorly threaded caps engaging with the threads of said tubes, the said caps being provided with ports, and an air-tube extended around within the circumference of the rim and having screw-threaded openings to be engaged by the exterior screw-threads of the caps, the said air-tube being provided with ports for registering with the ports of the caps, substantially as specified.

595,131. SPRING-CUSHION TIRE FOR VEHICLES. HANS ALLEN, Red Wing, Minn. Filed Apr. 10, 1897. Serial No. 631,648. (No model.)

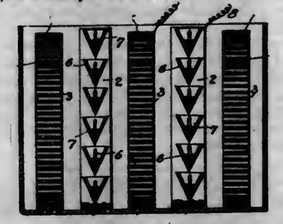


Claim.—In a cushion-tire for wheeled vehicles, the combination with a wheel-rim provided with annularly-grooved flanges, of a surrounding metallic plate provided with similar annularly-grooved flanges, a series of springs interposed between said rim and plate, protecting or housing strips having incased bands disposed in the annular grooves of the rim and plate flanges, and grooved clamping-rings for confining said bands in said grooves, substantially as described.

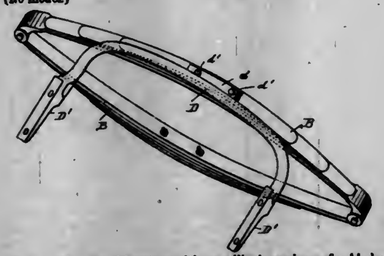
595,132. SECONDARY BATTERY. RALPH ASHLEY, Port Republic, N. J., assignor, by direct and mesne assignments, to the Guarantor Electric Company, of New Jersey. Filed Oct. 9, 1896. Renewed July 17, 1897. Serial No. 644,994. (No model.)

Claim.—1. In a secondary or storage battery, the combination with the cell, the negative electrodes located therein, consisting of the U-shaped conducting-frames, the series of superimposed troughs provided with integral end pieces, and the conductors located in said troughs and their ends connected with the frame, of the positive electrodes consisting of a number of superimposed lead plates having their ends bent backward onto and secured to the main portion, so as to form spaces between said plates, substantially as described.

2. A positive electrode for a secondary or storage battery consisting of a number of thin flat plates having their ends bent over upon the main portion and superimposed upon and secured to each other and the surfaces of said plates formed with a large number of small interstices, substantially as described.

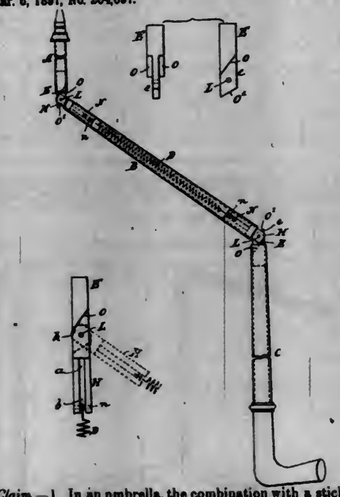


595,133. BODY-HANGER FOR CARRIAGES. SAMUEL R. BAILEY, Amesbury, Mass. Filed Mar. 18, 1897. Serial No. 628,107. (No model.)



Claim.—The combination with an elliptic spring, of a U-shaped body-loop provided centrally with a forwardly-projecting lateral flange or lip secured to the upper leaf of the spring intermediate the ends of the latter, said body-loop being arranged in rear of and clear of said spring so as not to contact therewith and the ends of said loop terminating in approximately vertical depending hangers provided with horizontally-extending brackets constructed for attachment to the body of the vehicle, substantially as described.

595,134. UMBRELLA. HENRY BASTIDE, Paris, France. Filed July 1, 1897. Serial No. 643,130. (No model.) Patented in France Mar. 6, 1897, No. 264,697.

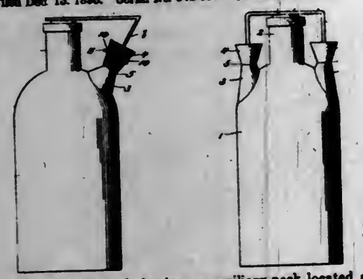


Claim.—1. In an umbrella, the combination with a stick consisting of three tubular sections, A, B, C, of plugs H arranged to move lengthwise in the ends of the section B and forked or bifurcated at their opposite ends, a spring D inclosed within said section and attached at its opposite ends to said plugs whereby the latter are normally drawn into said section B, and plugs E fitted into the ends of

the sections A, C, and provided with tenons *e* pivoted between the forked ends of the plugs H, said plugs E having inclined shoulders O and the tenons having corresponding inclined ends O′, for limiting the pivotal movement of the plugs, substantially as described.

2. In an umbrella, the combination with a stick consisting of three tubular sections A, B, C, of plugs H movably arranged in the ends of the section B and slotted lengthwise at their inner ends, as at *a b*, pins *n* fastened in the inner ends of said plugs transversely of said slots, pins N, fixed in the tubular sections and passing through said slots, a coiled spring D attached at its opposite ends to the pins *n*, plugs E, fitted in the ends of the sections A and C and pivoted to the plugs H and stops for limiting the pivotal movement of the plugs, substantially as described.

595,185. **STOPPER-FASTENER.** JOHN W. BEARCE, Bowling Green, Ky., assignor of one-half to George M. Bedinger, same place. Filed Dec. 13, 1895. Serial No. 572,087. (No model.)



Claim.—1. The bottle having an auxiliary neck located at one side of the bottle-neck, and the stopper contained in the bottle-neck, of a rigid yoke or fastener secured within the auxiliary neck and extending over the stopper, substantially as specified.

2. The bottle having an auxiliary neck located at the side of the bottle-neck, said auxiliary neck being reduced between its ends to form a break-point and above the same provided with a cavity, combined with a stopper located in the bottle-neck and a yoke extending over the stopper and depending into the auxiliary neck, and means for permanently securing same in said cavity, substantially as specified.

3. The bottle having the auxiliary neck at the side of its bottle-neck, said auxiliary neck being reduced between its ends to form a break-point and above the same provided with a cavity having its wall oppositely perforated, combined with a stopper in the bottle-neck, a yoke depending into the auxiliary neck and extending over the stopper, a pin passed through the perforations in the auxiliary neck and depending portion of the yoke, and a filling of cement within the cavity, substantially as specified.

4. The bottle having the plurality of auxiliary necks surrounding the bottle-neck, each of said necks having a cavity in its upper end and an intermediate break-point combined with a stopper, the yoke ranged upon the stopper and provided with depending ends permanently secured within the cavities, substantially as specified.

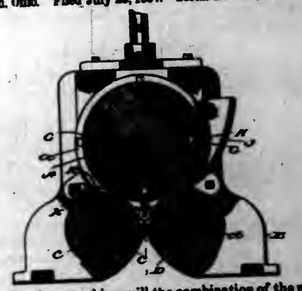
595,186. **MEANS FOR SECURING GLASS IN SASHES OF WINDOWS, &c.** WILLIAM J BEEB, Wellington, Kans. Filed June 23, 1897. Serial No. 641,909. (No model.)



Claim.—1. A sash-frame adapted to receive a pane or sheet of glass, in combination with a glass-confining frame consisting of two members hinged at opposite sides of the sash-frame, one of said members provided with integral arms at its ends which extend across to and overlap the ends of the other member, and means for locking said glass-confining frame, substantially as described.

2. A sash-frame adapted to receive a pane or sheet of glass, in combination with a glass-confining frame consisting of two members hinged at opposite sides of the sash-frame, one of said members provided with bevel-faces at its ends and the other of said members provided with integral arms extending from its ends across to and overlapping the bevel ends of the other member, and means for locking said glass-confining frame, substantially as described.

595,187. **MAGUEY-CRUSHING MILL.** CHARLES S. BELL, Hillsborough, Ohio. Filed July 29, 1897. Serial No. 646,380. (No model.)



Claim.—1. In a crushing-mill the combination of the main frame, the crushing-roll A journaled therein having radial slots in its periphery substantially as described, radially-movable blades in said slots having their ends projecting beyond the ends of the roll, and a hopper beside said roll; with a plain crushing-roll below the hopper coacting with roll A and stationary race-camways attached to the frame and adapted to engage the projecting ends of said blades so as to cause the latter to project in the hopper but retract when passing the plain roll, substantially as described.

2. In a crushing-mill the combination of a pair of crushing-rolls, a shield lying therebetween, a combined crushing and feeding roll overlying and contacting both of said rolls, having radial slots substantially as described; with feed-blades working in the slots of said roll and means for automatically projecting and retracting said blades so as to cause them to force material in the hopper to the first rolls, and to subsequently force material off the shield to the second rolls, but to withdraw out of the way in passing the lower rolls, substantially as and for the purpose described.

3. The combination of the rolls A, B, C, arranged substantially as described, the hopper J and the shield F, said roll A having two or more peripheral radial slots; with the feed-blades H in said slots projecting beyond the ends of roll A, and the stationary race-camways *i* engaged by friction-rollers on the projecting ends of said blades, for the purpose and substantially as described.

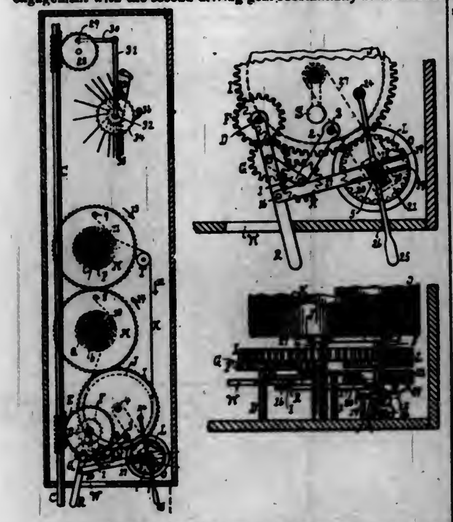
595,188. **STATION-INDICATOR.** ADOLPH BLACK and LUTHER R. GREGORY, New York, N. Y. Filed Feb. 20, 1897. Serial No. 624,480. (No model.)

Claim.—1. A driving drum or roller and carrying-rollers, combined with actuating-springs for the carrying-rollers, and winding-gears for the springs loosely connected to the carrying-rollers each of said springs being attached at one end to one of the winding-gears and at its other end to the corresponding carrying-roller, substantially as described.

2. A driving drum or roller and carrying-rollers, combined with a driving-gear for the driving-roller, actuating-springs for the carrying-rollers, and spring winding-gears loosely connected to the carrying-rollers and actuated by the gear of the driving-roller substantially as described.

3. A driving drum or roller and a pair of actuating or driving gears for the roller, combined with a pair of connecting-gears between the actuating-gears, a movable arm for supporting one of the connecting-gears in permanent engagement with one of the driving-gears and for carrying said connecting gear toward and from the second driving-gear, and a toggle joint or links actuated by the movable arm for carrying the second connecting-gear toward and from said second driving-gear while supporting said second connecting-gear in permanent engagement with the first connecting-gear substantially as described.

4. A driving drum or roller and a pair of actuating or driving gears for the roller, combined with a pair of connecting-gears between the actuating-gears, a movable arm for supporting one of the connecting-gears in permanent engagement with one of the driving-gears and for carrying said connecting-gear toward and from the second driving-gear, a toggle joint or links actuated by the movable arm for carrying the second connecting-gear toward and from said second driving-gear while supporting said second connecting-gear in permanent engagement with the first connecting-gear, a brake, and a cam made to hold the brake in action when the connecting-gears are in intermediate position or disengaged from the second driving-gear and to free the brake when either of the connecting-gears is in engagement with the second driving gear substantially as described.



5. A driving drum or roller and a pair of actuating or driving gears for the roller, combined with a pair of connecting gears between the actuating-gears, a movable arm for supporting one of the connecting-gears in permanent engagement with one of the driving-gears and for carrying said connecting-gear toward and from the second driving-gear, a toggle joint or links actuated by the movable arm for carrying the second connecting-gear toward and from said second driving-gear while supporting said second connecting-gear in permanent engagement with the first connecting-gear, a brake, a cam made to hold the brake in action when the connecting-gears are in intermediate position or disengaged from the second driving gear and to free the brake when either of the connecting-gears is in engagement with the second driving gear, a spring for holding the cam toward the brake and a releasing or retracting handle or lever for the spring substantially as described.

6. A driving drum or roller, carrying-rollers, and a train of gears made to actuate said rollers, combined with a driving-shaft for said gears, a gear-wheel actuated by said driving-shaft, a link eccentrically pivoted at one end to said gear-wheel and at its other end pivotally connected to the end of an arm journaled on a shaft, a series of advertising-leaves carried by said shaft, a ratchet fixed on the shaft, and a pawl carried by the said arm and engaging said ratchet to impart to the shaft a step-by-step rotation, to successively expose the leaves, substantially as described.

595,189. **ATTACHMENT FOR BABY-CARRIAGES.** COLLINS BLAKELY, Elsinore, Utah. Filed Apr. 22, 1897. Serial No. 633,261. (No model.)

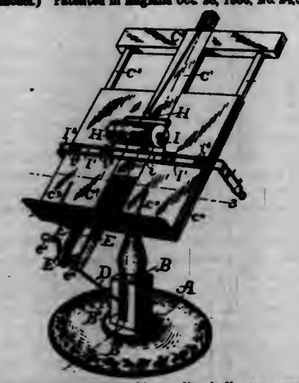


Claim.—1. The combination with a baby-carriage and its springs, of a plate secured to the under side of the carriage-body and provided with a groove for the reception of the end of the spring, and with a threaded opening communicating with said groove, and a thumb-nut passing through an opening in the spring into said threaded opening, substantially as described.

2. An attachment for baby-carriages consisting of a plate provided with intersecting grooves arranged at a right angle to each other, and means to secure the plate to the carriage-body, the groove extending longitudinally of the body being adapted to receive the carriage-spring and that extending transversely to receive the top rail of a rocker, or other device, substantially as described.

3. An attachment for baby-carriages, consisting of a plate provided with intersecting grooves arranged at a right angle to each other for the purpose described, spaced perforated ears at opposite ends of the plate to afford a means of attachment to the carriage-body, and a central threaded opening for the reception of a locking-screw, substantially as described.

595,140. **COPY-HOLDER FOR TYPE-WRITERS, &c.** CHARLES E. BROOKS, London, England. Filed Apr. 10, 1897. Serial No. 632,446. (No model.) Patented in England Oct. 28, 1896, No. 24,043.

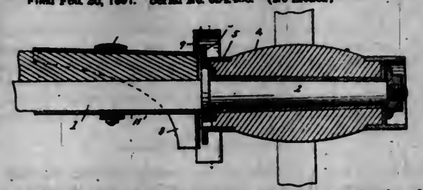


Claim.—1. In a copy-holder, a line-indicator consisting of two parallel tubes, wires bent at right angles and secured in said tubes, a heavy roller, wires connecting said tubes and roller and a wire loop loosely fastened to the axis of said roller, in combination with means connected to said loop to hold said indicator in any desired position, substantially as described.

2. In a copy-holder, the combination with a centrally-apertured standard; an extensible copy-rest; guide-pulleys mounted upon said standard and said copy-rest; and a winding-reel mounted upon the lower end of said copy-rest; of a line-indicator having extensible end frames thereon bent at right angles thereto; a heavy roller connected to said line-indicator; and a cord passing from said winding-reel around said guide-pulleys and connected to the axis of said roller, substantially as described.

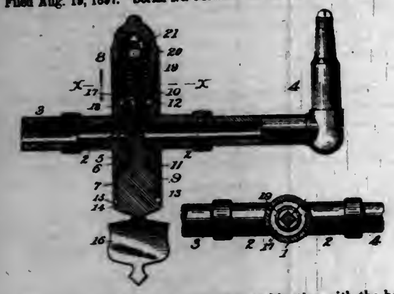
3. In a copy-holder, the combination with a centrally-apertured standard; a pulley mounted in said aperture; an extensible copy-rest mounted upon said standard; a guide-pulley mounted upon the upper portion of said copy-rest; and a winding-reel mounted upon the lower portion of said copy-rest; of a longitudinally-extensible line-indicator: a roller connected to said line-indicator: and a cord passing from said winding-reel around said guide-pulleys and connected to the axis of said roller, substantially as described.

595,141. **MUD-GUARD FOR VEHICLE-HUBS.** JOSEPH H. BROWN, Richland, Ga., assignor of one-half to Hugh O. Overby, same place. Filed Feb. 20, 1897. Serial No. 624,408. (No model.)



Claim.—The combination with a vehicle wheel and axle, of a hood secured to the axle and projecting over and partially surrounding the inner end of the hub, a sleeve fitted upon the inner end of the hub and having at its inner edge a circumferential flange operating within the rim of the hood, and a scraper secured at one end to the inner surface of the rim of the hood and bearing at its free end against the outer surface of the sleeve on the hub, substantially as described.

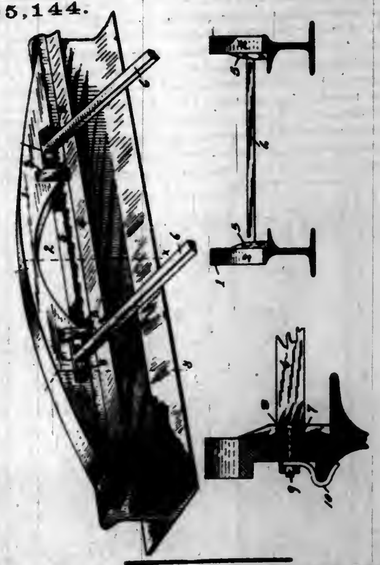
595,142. SAFETY GAS-COCK. RUDOLPH BOSSE, Bethlehem, Pa. Filed Aug. 19, 1897. Serial No. 648,817. (No model.)



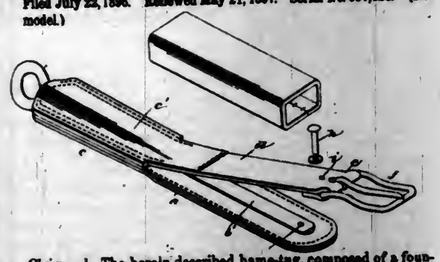
Claim.—1. In a safety gas-cock, the combination with the body of the cock provided with a bore enlarged at each end, and a series of teeth at one end, of a valve seated in said bore and having a head at one end to fit in one of the enlarged portions of the bore, and a series of teeth to interlock with the teeth on the body of the cock, a washer loosely fitted over the other end of the valve to turn therewith within the other enlarged portion of the bore, antifriction-balls between the washer and a seat within the body, a coiled spring fitted over the valve and resting upon the washer, and a device secured to the valve to engage the other end of the spring, substantially as and for the purpose specified.

2. In a safety gas-cock, the combination with the body of the cock provided with a bore, enlarged at each end, and a series of teeth at one end, of a valve seated in said bore and having a head at one end to fit in one of the enlarged portions of the bore, said head having an annular flange at its outer end provided with teeth to interlock with the teeth on the body of the cock, and the other end portion of the valve being angular and extending into the other enlarged portion of the bore, a washer fitting loosely over the angular portion of the valve to turn therewith, antifriction-balls between the washer and a seat within the body, a coiled spring fitted over the valve and resting on the washer, and a nut on the valve to engage the other end of the spring, substantially as described.

595,144.



595,145. HAME-TUG. WILLIAM J. CAMPBELL, Dayton, Va. Filed July 22, 1896. Renewed May 21, 1897. Serial No. 637,624. (No model.)



Claim.—1. The herein described hame-tug, composed of a foundation containing a pocket, a facing forming with the foundation a second pocket, a tongue extending from the facing through the trace-loop, a buckle-loop adjacent to the said tongue, a trace-loop, and a clip having limbs or arms of equal length, one of which is arranged in the foundation-pocket and the other of which extends beneath the facing and the tongue, the tongue and the last-named clip-limb extending through the loop and serving to hold it in place, and a metal fastening passed through the buckle-loop, the limbs of the clip and the foundation, and forming the medium whereby the buckle is attached to its loop, the trace-loop attached to the tug and the buckle, clip and loop united to the foundation, substantially as specified.

2. A hame-tug of substantially the character described, having one limb of its clip incased, and the other limb partly incased, with the remainder passed through the trace-loop and covered therein by means of the buckle-receiving piece, substantially as set forth.

595,148. ART OF FASTENING HEADS TO POSTS OF COLLAR-BUTTONS. ROBERT R. BYERS, Providence, R. I. Filed Aug. 24, 1896. Serial No. 603,302. (No model.)



Claim.—1. The herein-described improved button having a tubular shank, a head, and an independent pyramidal spreader between said head and shank provided with raised cutting edges adapted to split the end of the latter when pressure is applied thereto, as and for the purpose set forth.

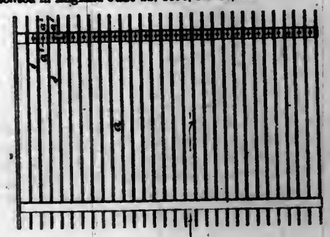
2. The herein-described improved button having a tubular shank, a head, and an independent pyramidal spreader between said head and shank provided with concaved sides and intermediate cutting edges adapted to split the end of said shank, as and for the purpose set forth.

3. The herein-described improved button having a tubular shank, a cap-lining through which said shank is projected, a spreader having raised cutting edges adapted to split the end of said shank whereby the latter is secured to said cap-lining, and a cap-plate adapted to be secured to said cap-lining, all of said parts being united by pressure, said spreader being located between said cap-plate and said shank, as stated.

595,144. HOSE-BRIDGE. JAMES S. CAMPBELL and JAMES W. SHIELDS, Pittsburg, Pa. Filed Mar. 25, 1897. Serial No. 629,155. (No model.)

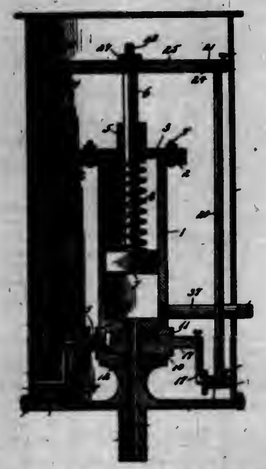
Claim.—A hose-bridge consisting of the bridge proper, having an inclined face tapering from the center to each end, said bridge provided with a cut-away portion to receive the hose, supporting-standards for said bridge, combined with the connecting-braces having T ends to receive the fastening-bolts and clamps carried by said bolts to engage the rail, substantially as shown and described.

595,146. VENETIAN BLIND. REGINALD CHURCHILL, Burton-on-Trent, England. Filed Dec. 23, 1896. Serial No. 616,766. (No model.) Patented in England June 22, 1896, No. 13,771.



Claim.—In a Venetian blind or shutter, the combination with the slats or laths thereof each having cord-openings therein near their opposite ends; of a hanger for said slats comprising a series of inwardly-folding hinge plates a^3, a^4, connected to the opposite sides of the slats by removable pins, each of said hinge plates being provided with a cut-away portion to provide a central opening, which openings register with the cord-openings in the slats when the hinge-plates are folded, and stop-knuckles on the hinge-joints between the slats to normally hold them out of a vertical line to facilitate the folding operation, substantially as described.

595,147. FLUID-PRESSURE REGULATOR. GEORGE G. CLARK, Galveston, Tex., assignor to Hilliary Eldridge, Sylvain Blum, and Daniel J. Clark, same place, and Sam Lazarus, Sherman, Tex. Filed Feb. 3, 1897. Serial No. 621,879. (No model.)



Claim.—1. In a gas-pressure regulator, the combination with a cylinder adapted to be connected to the source of gas-supply to receive gas therefrom, and a controlling-valve in the conduit between the cylinder and the source of supply, of a spring-actuated piston working in the cylinder directly in line with the flow of gas from the source of supply to the cylinder, connections between the piston and the valve to transmit movement from the former to the latter, and a service-pipe of less interior diameter than the cylinder leading laterally from the receiving end of the cylinder, substantially as described.

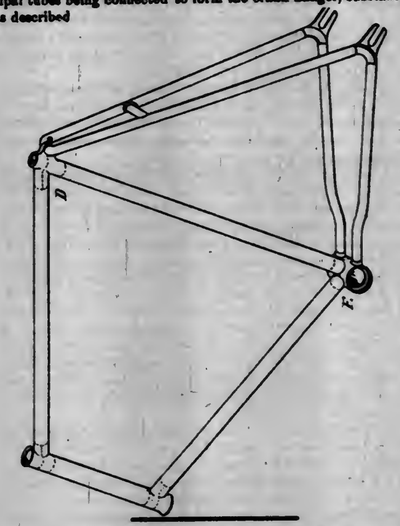
2. In a gas-pressure regulator, the combination with a cylinder adapted to be connected to the source of supply to form a straight continuation of the supply-conduit, and a turning-plug valve in the conduit between the cylinder and source of supply, of a spring-actuated piston working in the cylinder, a service-pipe of less interior diameter than the cylinder leading laterally from the receiving end of the cylinder, a crank on each end of the turning-plug, a cross-bar on the piston-rod, and rods connecting the cranks with the respective ends of the cross-bar, whereby the movement of the piston turns the valve in its seat, substantially as described.

3. In a gas-pressure regulator, a casting having a cylinder at its upper end, a threaded lower end for connection to the source of gas-supply, and an annular flange between the threaded end and the lower end of the cylinder and provided with a gas-conduit leading from the cylinder out through its threaded end, and a turning-plug valve in said conduit below the cylinder, combined with a spring-actuated piston in the cylinder, connections between the piston and the valve, a casing detachably connected to the flange on the casting and inclosing the working parts of the device, and a service-pipe of less diameter than the cylinder leading from the cylinder out through the casing, substantially as described.

595,148. FRAME FOR BICYCLES. LYMAN H. COBB, Portland, Me., assignor to the Lovell Cycle and Ether Motor Company, same place. Filed Sept. 30, 1896. Serial No. 607,423. (No model.)

Claim.—1. The frame connection consisting of two tubes of metal, each tube having one or more semitubular arms attached at one end, each tube with its arms being secured to its complementary tube with its arms, to form the connection, substantially as described.

2. The bicycle crank-hanger consisting of two tubes of metal, each tube having two or more semitubular arms attached at one end and each tube being perforated and having said perforation surrounded by a smaller tube integral with the principal tube, the principal tubes being connected to form the crank-hanger, substantially as described



595,149. TREE-PROTECTOR. CHARLES C. COULSON, Riverside, Cal. Filed Jan. 30, 1897. Serial No. 619,868. (No model.)



Claim.—1. A protector for trees or large shrubs, consisting of frames arranged to rest on the ground and pivoted at their lower ends, canopies carried by the frames, and devices for controlling the movement of the frames, as set forth.

2. A protector for trees or large shrubs, consisting of a series of frames arranged to straddle a row of plants or trees, the bottom of said frames having pivotal connection with a support, canopies carried by the frames, stakes located at one end of the row of frames and

devices at the opposite end of the said row of frames for the purpose of raising and lowering the said frames, as and for the purpose set forth.

3. A protector for trees or shrubs, consisting of a series of frames having pivotal connection with the ground, the said frame straddling the rows of trees or plants, canopies carried by the frames, being adjustably supported thereby, and devices for raising the said frames from a lower to an upright position, and devices for limiting the movement of the frames substantially as described.

4. A protector for trees or shrubs, consisting of frames arranged to straddle a row, the bottoms of the said frames being adapted for pivotal engagement with the ground, tracks connecting the various frames, and means for simultaneously raising and lowering the connected frames, as and for the purpose specified.

5. A protector for trees or shrubs, consisting of frames arranged to straddle a row, the bottoms of the said frames being adapted for pivotal engagement with the ground, tracks connecting the various frames, means for simultaneously raising and lowering the connected frames, and canopies adapted to extend from one frame to the other, the canopies being mounted to travel on the aforesaid tracks, and devices for stretching the canopies, as and for the purpose specified.

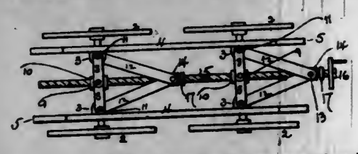
6. A tree-protector, consisting of uprights pivotally supported on the ground, canopies on said uprights, and means for holding said uprights in raised or lowered position, substantially as set forth.

7. A support for a tree or shrub protector, consisting of a frame adapted to span a row of plants or trees, the said frame comprising uprights and a cross-bar, the uprights being arranged for hinged connection with the ground or a support adjacent thereto, as and for the purpose specified.

8. A frame for a tree or shrub protector, consisting of uprights, a cross-bar connecting the uprights, feet located at the lower ends of the uprights, and stakes arranged for engagement with a side surface of the said feet, whereby the frames may be raised or lowered without danger of slipping, as and for the purpose set forth.

9. A protector for trees and other shrubs, consisting of a series of frames, tracks connecting the frames, canopies adapted to slide upon said tracks, foot-blocks resting on the ground and supporting said frames, and stakes engaging said foot-blocks, whereby the frames may be rocked to a recumbent or an upright position, substantially as set forth.

595,150. FOLDING CHILD'S CARRIAGE. JOHN I. CROWLEY, Boston, Mass., assignor of one-half to Timothy J. Lehan, same place. Filed Aug. 9, 1897. Serial No. 647,653. (No model.)



Claim.—1. In a folding child's carriage, the screw-threaded spindle 15 in combination with the pivot-pin blocks 10 and 14, and coacting with the same as specified, and the sectional axles 8 and sectional actuating-rods 12, pivotally connected with said blocks 10 and 14, and the side rails 4 substantially as herein set forth.

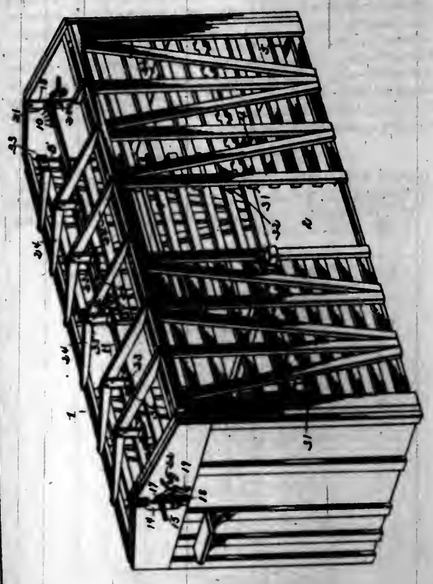
2. In a folding child's carriage, the axles 8 made of two pivotally-connected members in combination with pivot-pin blocks 10, actuating-rods 12, and pivot-pin blocks 14, and screw-threaded spindle 15 operating as set forth as and for the purposes herein set forth.

3. In a child's carriage, a folding running-gear consisting essentially of the combination of the side rails, 4, axle-supporting blocks carried thereon, pivotally-joined axles, 8, pivotally connected to said axle-supporting blocks, pivotally-joined actuating-rods, 12, also pivotally connected to said axle-supporting blocks, screw-spindle 15, pivot-blocks 10 carrying the said axles at their pivotal points, pivot-blocks 14 carrying the said actuating-rods at their pivotal points, and collars 17, substantially as herein set out.

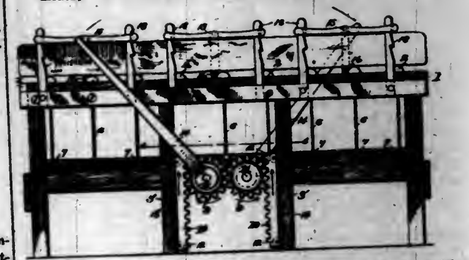
595,151. STOCK-CAR. ITHAMAR DAVISSON, Lost Creek, W. Va. Filed Mar. 16, 1897. Serial No. 627,796. (No model.)

Claim.—A stock-car comprising the vertically-adjustable bottom 2, in combination with the longitudinal shaft 11, provided with the radial hooks 10, the pinions 17 17 fixed thereon, the converging chains 3, 4, 5 and 6, having their lower ends fixed to said bottom 2 and their upper ends secured in a ring 9, a chain 8 having its upper end detachably secured to said radial hook, the pawls 19 and 20, the latter provided with a lateral arm 22, projecting through a slot in the end of the car, and pinions 18 18 fixed on the outer ends of said longitudinal shaft, substantially as shown and described.

595,151.



595,152. MATTRESS-TUFTING MACHINE. EDWARD B. DIXON, Grantsborough, N. C. Filed July 14, 1897. Serial No. 644,564. (No model.)



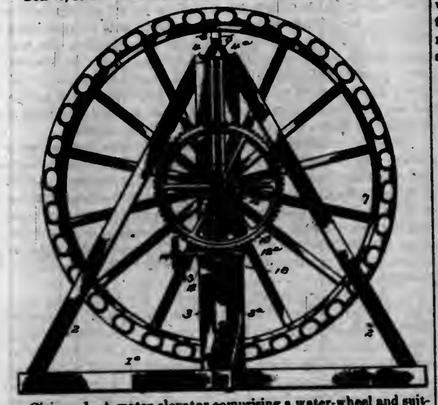
Claim.—1. In a mattress-tufting machine, the combination with a table having a series of perforations, of a vertically-adjustable frame arranged under such table, and carrying the needles as specified, two sets of rack-bars attached to opposite sides of such movable frame, two sets of connected gears which mesh with said racks and with each other, as shown, and a lever connected with one of the sets of gears, as shown and described, to operate as specified.

2. The improved mattress-tufting machine, comprising the fixed frame 1, the perforated cross-bars 2, held thereon, the vertically-movable frame 8, arranged beneath such mattress-table, or support, and carrying a series of pairs of needles; a pair of rack-bars attached and arranged vertically on each side of such movable frame; vertical fixed guides 3'; a pair of gears arranged between the rack-bars and meshing with them and with each other; two parallel shafts whereon the gears are keyed; and lever-arms for rotating the gears; as shown and described.

3. In a mattress-tufting machine, the combination, with the perforated table, of the adjustable mechanism for securing mattresses of different thicknesses, the same consisting of the posts 16, which are adjustable vertically, means for securing them in any adjustment, the clamping-bars hinged to said posts, and the vertical catches having a series of shoulders, or notches, for engaging and holding the said bars at different heights, as shown and described.

4. In a mattress tufting machine, the combination, with the perforated table, of the vertically-adjustable posts; vertical guide-grooves for the same; a bar or plate 20, spanning such grooves; a series of clamping-screws working in said plate, and adapted to bear upon the posts; clamping-bars hinged to the posts; and catches having a series of notches, for engaging the free ends of the clamping-bars; as shown and described.

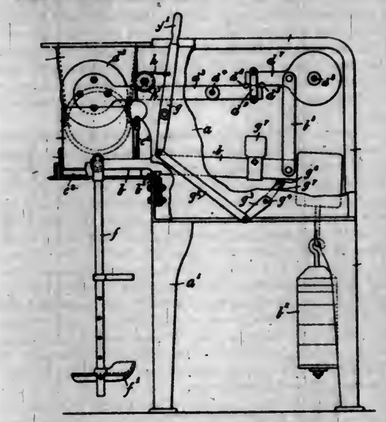
595,153. WATER-ELEVATOR. JOHN F. DURHAM, Caldwell, Idaho, assignor of three-fourths to Perry A. Groves and Edward D. Wood, same place, and William H. Martin, Silver City, Idaho. Filed Dec. 23, 1896. Serial No. 616,903. (No model.)



Claim.—1. A water elevator comprising a water-wheel and suitable means for driving the same, said wheel having a peripheral series of buckets, said buckets each consisting of cylindrical or tubular sections arranged obliquely to the wheel and meeting at the central plane thereof, substantially as described.

2. A water-elevator comprising a water-wheel and suitable means for driving the same, said wheel having a peripheral series of buckets, said buckets each consisting of cylindrical or tubular sections arranged obliquely to the wheel and meeting at the central plane thereof, and said buckets having an air-outlet at the apex, substantially as described.

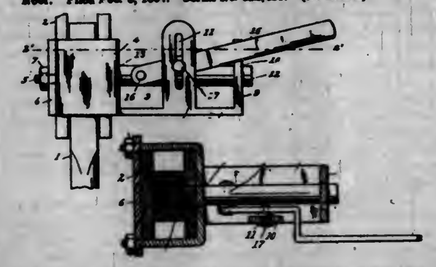
595,154. AUTOMATIC WEIGHING AND BAGGING MACHINE. WILLIAM J. ELLIOTT, Wilmington, Del., assignor of one-half to Vincent C. Walker and Robert T. Elliott, same place. Filed Aug. 21, 1897. Serial No. 648,985. (No model.)



Claim.—1. In a machine of the character described, a scale-beam, a feed-hopper and a drip-hopper, both of which are stationary, valves controlling the outlets of each hopper, a shifting-lever directly controlling the outlet-valve of the drip-hopper, a detent resting beneath the weighted end of the scale-beam and connected with said shifting-lever, and mechanism controlled directly by the scale-beam and adapted to open and close the feed-hopper valve, all arranged so that when the shifting-lever is operated to open the outlet of the drip-hopper, the roll or detent will be actuated to permit the scale beam to open the outlet from the feed-hopper, substantially as and for the purposes described.

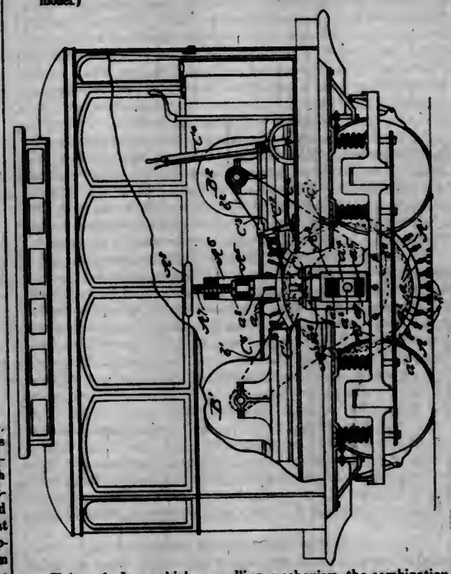
2. In a machine of the character described, a feed-hopper and its outlet-valve, a drip-hopper and its outlet-valve, a weighted arm normally adapted to close the drip-hopper valve, a scale-beam adapted to directly operate the feed-hopper valve, a detent or roll resting beneath the weighted end of the scale-beam, and intermediate mechanism connecting the detent with the weighted arm controlling the drip-hopper valve, all arranged so that when the weighted end of the scale-beam falls, the detent or roll will be depressed and the weighted arm will be raised to open the drip-hopper valve and when the weighted end of the scale-beam rises the detent or roll will be raised and the weighted arm lowered to close the drip-hopper valve, substantially as and for the purposes described.

595,155. LOCKING PIN OR BOLT. FRANK ERELENEN, Wayne, Nebr. Filed Feb. 8, 1897. Serial No. 622,665. (No model.)



Claim.—In windmill-pumps, the combination with the two plunger-rod members thereof, of a three-sided locking-bolt frame having two of said sides arranged parallel with each other and provided with threaded ends, a clamping-plate adapted to engage said threaded ends, an extension 8 projecting laterally from said frame and having an end flange and a side standard provided with a vertical slot, a locking-bolt moving in openings in the said frame and end flange of the lateral extension and adapted to be thrown into and out of engagement with the said plunger-rod members to secure the same together, and a lever pivoted to said bolt and having a projection passing through and operating in said slot in the side standard of the locking-frame extension, substantially as shown and for the purpose described.

595,156. VEHICLE-PROPELLING MACHINE. CHARLES B. FAIRCHILD, New York, N. Y. Filed Feb. 18, 1896. Serial No. 579,730. (No model.)



Claim.—1. In a vehicle-propelling mechanism, the combination with a suitable motor or motors, carried on said vehicle, of a trac-

tion-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth capable of endwise compression, said traction-wheel being so supported that the free ends of said teeth will engage the road-bed and driving connection between said motor or motors and said traction-wheel, substantially as described.

2. In a vehicle-propelling mechanism, the combination with a motor or motors, carried on said vehicle, of a traction-wheel, consisting of a rigid hub or body in which are secured spiral rows of resilient teeth capable of endwise compression, said traction-wheel being so supported that the free ends of said teeth will engage the road-bed and driving connection between said motor or motors and said traction-wheel, substantially as described.

3. In a vehicle-propelling mechanism, the combination with a motor or motors, carried on the vehicle, of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth, formed of strands of cable tempered a mild spring-temper, said traction-wheel being so supported that the free ends of said teeth will be in engagement with the road-bed and driving connection between said motor or motors and said traction-wheel, substantially as described.

4. In a vehicle-propelling mechanism, the combination of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth capable of endwise compression, said traction-wheel being supported upon the car in such position that the free ends of the teeth will be in contact with the road-bed, and means to impart rotary movement to said traction-wheel, substantially as described.

5. In a vehicle-propelling mechanism, the combination of a traction-wheel, consisting of a rigid hub or body and a plurality of resilient teeth capable of endwise compression secured in spiral rows therein, said traction-wheel being so supported that the free ends of the teeth will be in contact with the road-bed, and means to impart rotary movement to said traction-wheel, substantially as described.

6. In a vehicle-propelling mechanism, the combination of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth, corrugations or projections formed in the road-bed, said traction-wheel being so supported that the free ends of the teeth will engage said corrugations or projections, and means to impart rotary movement to said traction-wheel, substantially as described.

7. In a vehicle propelling mechanism, the combination of a traction-wheel, consisting of a rigid hub or body in which are secured spiral rows of resilient teeth capable of endwise compression, a bar or rail secured to the road-bed in which are formed corrugations or projections, said traction-wheel being so supported that the free ends of said teeth will engage the corrugations or projections in said bar or rail, and means to impart rotary movement to said traction-wheel, substantially as described.

8. In a vehicle-propelling mechanism, the combination with a suitable motor or motors, carried on the vehicle, of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth capable of endwise compression, corrugations or projections formed in the road-bed, said traction-wheel being so supported that the free ends of said teeth will engage said corrugations or projections, and driving connection between said motor or motors and said traction-wheel, substantially as described.

9. In a vehicle-propelling mechanism, the combination of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth capable of endwise compression, said traction-wheel being so supported that the free ends of the teeth will engage the road-bed and being yieldingly supported so as to be bodily movable toward and from the road-bed, and means to impart rotary movement to said traction-wheel, substantially as described.

10. In a vehicle-propelling mechanism, the combination with a motor or motors carried on the vehicle, of a traction-wheel, consisting of a rigid hub or body in which are secured spiral rows of resilient teeth capable of endwise compression, a bar or rail secured to the road-bed, in which are formed corrugations or projections, said traction-wheel being supported in such position that the free ends of said teeth will engage said corrugations or projections and being yieldingly supported so as to be bodily movable toward and from the road bed, and driving connection between said motor or motors and said traction-wheel, substantially as described.

11. In a vehicle propelling mechanism, the combination of a traction wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth capable of endwise compression, said traction-wheel being supported in such position that the free ends of said teeth will engage the road-bed, means to impart rotary movement to said traction-wheel and a brake applied thereto, substantially as described.

12. In a vehicle-propelling mechanism, the combination of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth capable of endwise compression, said traction-wheel being supported in such position that the free ends of said teeth will engage the road-bed, means to impart rotary movement to said traction-wheel, a brake-disk rigidly connected thereto, a cable adjusted to a peripheral groove formed in said brake-disk, one end of which is anchored and the other end connected to a brake-lever, substantially as described.

13. In a vehicle-propelling mechanism, the combination with a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth capable of endwise compression, a bar or rail secured to the road-bed in which are formed corrugations or projections, said traction-wheel being so supported that the free ends of said teeth will engage said corrugations or projections, means to impart rotary movement to said traction-wheel, a disk rigidly connected to said traction-wheel, a V-shaped groove formed in the periphery of said disk, a wire rope or cable adjusted to said groove, said wire rope or cable being anchored at one end and connected at its opposite end to a brake-lever, substantially as described.

14. In a vehicle-propelling mechanism, the combination with a traction-wheel, consisting of a rigid hub or body in which are secured rows of resilient teeth, a bar or rail secured to the road-bed in which are formed corrugations or projections, the pitch of said corrugations being one-half that of the rows of traction-teeth, said traction-wheel being supported in such position that the free ends of said teeth will engage said corrugations or projections in the road-bed and means to impart rotary movement to said traction-wheel, substantially as described.

15. In a vehicle-propelling mechanism, the combination of a motor or motors carried on the vehicle and having elastic connection with the rigidly-supported parts of the said vehicle, a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of brush-teeth capable of endwise compression, said traction-wheel being so located that the free ends of the teeth will be in engagement with the road-bed and driving connection between said motor or motors and said traction-wheel, substantially as described.

16. In a vehicle-propelling mechanism, the combination with a suitable motor or motors carried on said vehicle, of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth capable of endwise compression, said traction-wheel being bodily movable toward and from the road-bed and being supported in such position that, when depressed, the free ends of the teeth will be in contact with the road-bed, means to raise and lower said wheel so as to effect engagement or disengagement of the traction-wheel with the road-bed and driving connection between said motor or motors and said traction-wheel, substantially as described.

17. In a vehicle-propelling mechanism, the combination with a suitable motor or motors, carried on said vehicle, of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth, rigidly secured to a suitable shaft the ends of which are supported in blocks, movable toward and from the road-bed in suitable guide slots or ways, a rigid beam connecting said block, a second rigid beam supported in fixed position above said beam, connecting the said movable blocks, a screw-shaft threaded through said fixed beam and secured against longitudinal movement in said lower beam, means to manipulate said screw-shaft and driving connection between said motor or motors and said traction-wheel, substantially as described.

18. In a vehicle-propelling mechanism, the combination with a suitable motor or motors, carried on said vehicle, of a traction-wheel, consisting of a rigid hub or body in which are secured a plurality of resilient teeth, rigidly secured to a suitable shaft, the ends of which are supported in journal-blocks, a^4, fitted to and movable toward and from the road-bed in guide slots or ways, a^3, formed in other blocks, A^3, which are, in turn, movable toward and from the road-bed in suitable guide slots or ways formed in standards secured to or formed integral with the side bars of the truck-frame, springs inserted between the journal-block a^4, and the ends of the slots in the blocks, A^3, a rigid beam, A^5, connecting said blocks, A^3, a second rigid beam, A^6, supported in fixed position above said beam, A^5, a screw-shaft threaded through the beam, A^5, and secured against longitudinal movement in the beam, A^6, means to manipulate said screw-shaft and driving connection between said motor or motors and said traction-wheel, substantially as described.

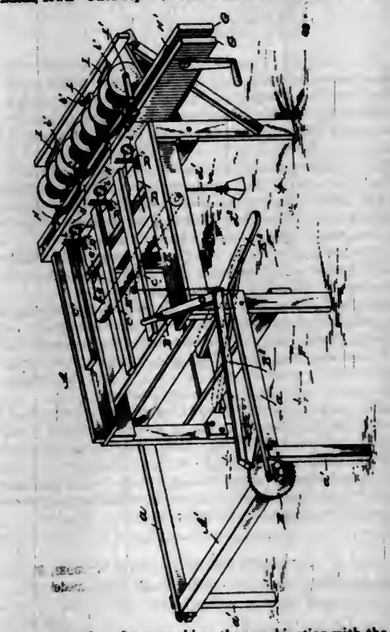
595,157. MUSIC-BLOCK GAME. EVELYN A. FLETCHER, Toronto, Canada. Filed Apr. 13, 1897. Serial No. 631,970. (No model.)

Claim.—A game device for teaching music comprising a series of blocks representing the musical characters, and a pair of bars connected only by a series of flexible strips representing a music-scale, said bars being adapted to be laid upon a flat surface a distance apart to stretch said strips upon said surface with the surface as a background, when the device is in use said strips being also adapted to be wound around one or both of said bars when out of use, substantially as described.

595,157.



595,158. FENCE-MAKING MACHINE. JOHN H. FOREMAN, St. Lucas, Iowa. Filed Sept. 1, 1897. Serial No. 650,265. (No model.)



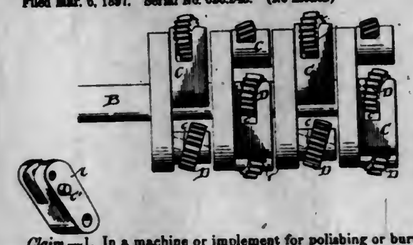
Claim.—1. In a fence-machine, the combination with the main frame having a series of twister-heads connected to sprocket-wheels, spool-carrying frames connected to the twister-heads, the spool-carrying frames and twister-heads being journaled on a line with each other, a draw-board reciprocally mounted on the main frame and provided with forks positioned opposite the twister-heads, means for holding the draw board normally adjacent to the twister-heads, a rock-shaft having arms connected to the draw-board and an arm connected to a foot-lever, a roller upon which the fencing is wound carried by the main frame and a lever for engaging said roller, the lever for operating the roller, foot-treadle for operating the rock-shaft and crank-handle for operating the twister-heads being positioned adjacent to each other so as to be within reach of a single operator, substantially as shown and for the purpose set forth.

2. In a fence-making machine, the combination of the twister-heads made up of two sections *g g'*, sprocket-wheels H, said parts having registering apertures, bolts for connecting the parts to each other, and spool-carrying frames attached to the twister-heads by the connecting-bolts, substantially as shown and for the purpose set forth.

3. In a fence-making machine constructed substantially as described, a reciprocating draw-board, a guided flexible connection weighted at one end to hold the draw-board normally adjacent to the twister-heads, forks carried by the draw-board, a rock-shaft connected with the draw-board and with a foot-lever so that a depression of the foot-lever will move the draw-board out of the position which is normally held by the weight, substantially as shown and for the purpose set forth.

4. In a fence-making machine, the combination with the parallel beams G, G, having journal-bearings for a series of twister-heads, a sprocket wheel having a crank-handle journaled between said beams, a chain for engagement with the sprocket-wheels, hinges for connecting the ends of the beams to the beams opposite the main frame so that said beams may be folded when not required for use, substantially as shown and for the purpose set forth.

595,159. MEANS FOR BURNISHING OR POLISHING INTERIORS OF PIPES OR TUBES, &c. WILBER D. FORSYTH, Pittsburg, Pa. Filed Mar. 6, 1897. Serial No. 626,243. (No model.)



Claim.—1. In a machine or implement for polishing or burnishing the interiors of pipes and tubes, a head or carrier, arms pivoted thereto to swing in planes at right angles to the axis of said head or carrier and carrying each a pin or stud which is inclined with respect to said axis and whose plane of inclination is oblique with respect to any plane which can be taken longitudinally through the said axis, and polishing or burnishing wheels loosely journaled to said pins or studs, substantially as specified.

2. In a machine or implement for polishing or burnishing the interiors of pipes and tubes, a head or carrier, adapted to be moved through the pipe or tube to be operated upon and having a plurality of arms pivoted thereto, said arms being arranged in sets, and polishing or burnishing wheels journaled to the free end portions of the said arms in inclined planes, no two arms of any one set having their wheels in the same plane or in parallel planes of inclination, substantially as specified.

3. In a machine or implement for polishing or burnishing the interiors of pipes and tubes, a plate or disk adapted to be moved through the pipe or tube to be operated upon, movable sections or arms loosely connected to the said plate or disk, and polishing or burnishing wheels journaled to the free end portions of said arms in inclined planes and having broad non-sharpened peripheral teeth, no two of said arms having their wheels in the same plane or in parallel planes of inclination, substantially as specified.

4. In a machine or implement for polishing or burnishing the interiors of pipes or tubes, a disk or plate adapted to be moved through the pipe or tube to be operated upon, a number of arms pivoted to the said disk or plate, and polishing or burnishing wheels journaled to the free portions of the said arms and having each peripheral teeth of broad non-sharpened form and longitudinally convexed, no two of said arms having their wheels in the same plane or in parallel planes of inclination, substantially as specified.

5. A device for polishing or burnishing the interiors of pipes and tubes, comprising a shaft, a head carried thereby, a number of arms pivoted to the said head to swing outward therefrom in planes at right angles to the said shaft and carrying each a pin or journal which is inclined with respect to said shaft and whose plane of inclination is oblique with respect to all planes which can be taken longitudinally through the axis of said shaft, and burnishing or polishing wheels loosely mounted on the said pins or journals and formed with peripheral teeth having longitudinally curved or convex working edges, substantially as specified.

6. In a tool or implement for the purpose described, the combination with a head or carrier, of an arm pivoted thereto and having a slot extending into its free end portion in an oblique direction, a pin extending obliquely across the said slot, and a polishing or burnishing wheel mounted loosely on said pin, substantially as specified.

595,160. FRUIT-GATHERER. FRANK F. FUNK, Kinross, Iowa. Filed Apr. 2, 1897. Serial No. 630,441. (No model.)

Claim.—1. The combination with a handle, or pole, a yoke-shaped

frame secured to the upper end thereof, and a flexible casing having its mouth secured to said yoke-shaped frame, of a rocking limb-holder, a rocking fruit support and detacher movable through the limb-holder for detaching the fruit while the limb-holder holds the limb, and means for operating the limb-holder and the fruit support and detacher, substantially as and for the purposes described.



2. The combination in a fruit-gatherer, of a handle, or pole, a frame secured to one end thereof, a flexible casing attached to said frame, a rocking limb-holder and a rocking fruit support or detacher, both journaled upon a part of said frame, a part of the fruit support and detacher being movable through the limb-holder after the latter has been engaged with the limb, a yielding connection between the limb-holder and the fruit support and detacher, and means for rocking the limb-holder and the fruit support and detacher, substantially as and for the purposes described.

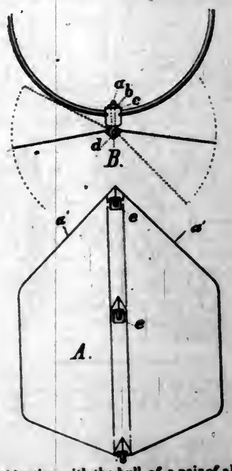
3. The combination in a fruit-gatherer, of a handle, or pole, a yoke-shaped frame secured to one end of the handle, or pole, a flexible casing attached to said yoke-shaped frame, a rocking yoke-shaped limb holder journaled upon said frame, a rocking right-angular-shaped fruit support and detacher also journaled upon said frame, a yielding connection between the limb-holder and said fruit support and detacher, a rod or wire connected with one extremity of the rocking fruit support and detacher, and means for operating said rod or wire to rock the limb-holder and the fruit support or detacher, substantially as and for the purposes described.

4. The combination in a fruit-gatherer, of a handle, or pole, a yoke-shaped frame secured to one end thereof, a flexible casing attached to the yoke-shaped frame, a rocking yoke-shaped limb-holder journaled upon said frame, a right-angular-shaped fruit support and detacher also journaled upon said frame, a spring having two extremities connected, respectively, with the limb-holder and the fruit support and detacher, a rod or wire connected with a part of the fruit support and detacher, and means for operating said rod or wire to rock the limb-holder and the fruit support and detacher, substantially as and for the purposes described.

5. The combination with the flexible casing, of a fruit-gatherer having a handle, or pole, of a diagonal or oblique sleeve-like extension provided on the lower end of said casing and having zigzag lines of stitching or fastenings to provide a continuous zigzag passage-way through said sleeve-like extension for retarding passage of the fruit therethrough, substantially as and for the purposes described.

595,161. CENTERBOARD FOR BOATS, &c. JAMES W. GIBB, Chicago, Ill. Filed Sept. 13, 1895. Serial No. 562,305. (No model.)

Claim.—1. The combination with the hull, of a self-adjusting centerboard adapted to automatically shift its angle to the keel with the list of the hull so as to oppose the direction of drift, and accessory means acting automatically in response to the shift to stay the centerboard at each extreme of shift against the resistance of the drift.



2. The combination with the hull, of a pair of alternately-acting, self-adjusting centerboards, each adapted to automatically shift its angle to the keel with the list of the hull and accessory means acting automatically in response to the shift to stay the centerboard at one extreme of its movement in a position of resistance against the drift.

3. The combination with the hull of two resistance-blades pivotally mounted to oscillate in unison upon longitudinally-extending axes, each blade being free to oscillate away from the vertical keel plane of the boat, but positively limited in its movement toward the latter when brought into position to resist the drift.

4. The combination with a boat of a centerboard comprising two blades rigidly united with each other at their inner margins and pivotally connected with the keel of the boat.

5. The combination with a boat of a centerboard comprising two blades rigidly united so as to extend in divergent relation to each other and pivotally suspended from the keel of the boat, said blades being free to oscillate upwardly into contact with a part of, or upon the boat, whereby, when either blade is in a position of resistance, the other will act as a stop to hold it in this position.

6. The combination with a boat of a centerboard comprising two blades rigidly united so as to extend in divergent relation to each other and pivotally suspended from the keel of the boat, said blades being free to oscillate upwardly into contact with a part of, or upon the boat, whereby, when either blade is in a position of resistance, the other will act as a stop to hold it in this position, the front margins of said blades being of wedge form.

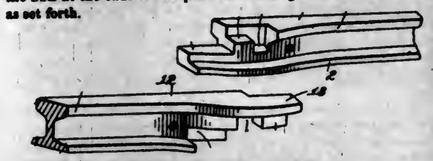
595,162. SHOE-LACE HOLDER. LOUIS C. W. GOEDDEL, Pittsburg, Pa. Filed Feb. 20, 1897. Serial No. 624,313. (No model.)



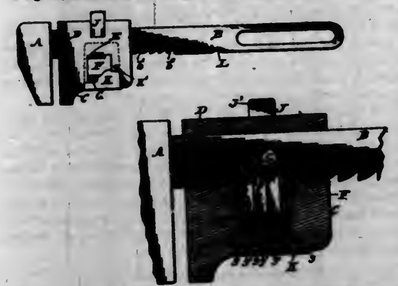
Claim.—A lace-holder consisting of a plate *a*, carrying at its one end prongs *b*, *b*, and at its other end prongs *c*, *c*, extending outwardly at an angle thereto in combination with a continuous piece of wire forming an elongated coil *d*, provided at its forward end with a tongue *e*, and at its rearward end a loop *e'*, a central piece d^3, extending parallel with and between the sides *d'*, *d'*, said piece having formed therein a shoulder or hump *f*, the free ends of said elongated coil *d*, passing through apertures *c'*, *c'* of the plate *a*, all parts being constructed, substantially as described and for the purpose set forth.

595,163. RAILWAY-RAIL JOINT. TILMAN C. GRAY, Grayridge, Mo. Filed Sept. 18, 1897. Serial No. 652,162. (No model.)

Claim.—The combination with the interlocking rail ends having one side arched, of a spring-plate bowed over the arch and bearing upon the side joists of the said interlocking ends and the bolts and the nuts at the ends of said plate for securing the latter to the rails, as set forth.



595,164. WRENCH. THOMAS GREEN, Davenport, Iowa. Filed Aug. 19, 1897. Serial No. 648,782. (No model.)



Claim.—1. The herein-described improved nut-wrench, comprising the bar or shank having the fixed jaw and the series of ratchet-teeth upon its inner edge, the slide carrying the movable jaw, the pawl-carrier seated in a slot or mortise of the said slide, and two or more independent spring-pressed pawls seated in said carrier and adapted to engage the said teeth, said pawls being arranged differentially with respect to the teeth, together with means for actuating said pawl-carrier to retract the said pawls, substantially as specified.

2. In a nut-wrench, the combination with the bar or shank having the fixed jaw and the series of ratchet-teeth upon its inner edge, of the slide formed with the movable jaw and having a through-slot or mortise therein, the slotted pawl-carrier movably seated in said slot or mortise, the independent spring-pressed pawls seated in the said carrier and adapted to engage the said teeth, adjacent pawls being separated from each other by a distance less than the distance between adjacent teeth, and the movable push-yoke seated in the said slide and impinging upon or engaging the said pawl-carrier, substantially as specified.

3. In a nut-wrench, the combination with the bar or shank having the fixed jaw and the series of ratchet-teeth upon its inner edge, of the slide formed with the movable jaw and with the through-slot or mortise, the independent spring-pressed pawls seated in the said carrier and adapted to engage the said teeth, adjacent pawls being separated from each other by a distance less than the distance between adjacent teeth, the movable push-yoke seated in said slide and engaging the said pawl-carrier, and the removable cover or guard inclosing the said pawl-carrier and pawls, substantially as specified.

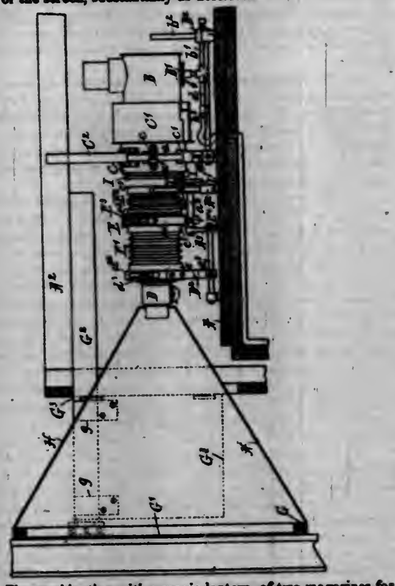
595,165. MAGIC LANTERN. WILLIAM M. GREEN, Evanston, and FRED W. SMITH, Chicago, Ill. Filed Jan. 31, 1895. Serial No. 536,657. (No model.)

Claim.—1. The combination, with objective lenses consisting of two elements which are fixed relatively to each other, of condensing-lenses, and a double-convex lens interposed between the objective and condensing lenses, said objective lenses and the double-convex lens being adjustable relatively to each other and to the condensing-lenses, substantially as described.

2. The combination, with objective lenses consisting of two elements which are fixed relatively to each other, of condensing-lenses, a double-convex lens located between and adjustable relatively to the condensing and object lenses, and endwise expansible and contractible tubular inclosures located between the objective lenses and the double-convex lens and between the double convex lens and the condensing-lenses, substantially as described.

3. The combination, with an object-lens tube, condensing-lenses, and a slide-support, of a double-convex magnifying-lens located between the object-lens tube and the slide-support, said magnifying-lens being adjustable relatively to the condensing and object lenses, and a tubular inclosure, consisting of bellows-sections extending between the slide-support and the magnifying-lens and between said magnifying-lens and the object-lenses, substantially as described.

4. An optical projecting apparatus, comprising a lamp or source of light, condensing-lenses, object-lenses consisting of two elements fixed relatively to each other, an intermediate slide-support, a double-convex lens located between and adjustable relatively to the slide-support and the object-lenses, endwise expansible and contractible tubular inclosures between said magnifying-lens and the condensing and object lenses, a screen of semitransparent or translucent material supported opposite the object-lenses and near the latter, and a housing or inclosure extending from the tube of the object-lens to the margins of the screen, substantially as described.



5. The combination with a magic lantern, of two magazines for holding picture-slides located at opposite sides of the lantern and extending to the rear of the illuminating devices thereof, means at the forward ends of the magazines for feeding the slides from one magazine to the other in a path intersecting the optical axis of the lantern, and means at the rear ends of the magazines for transferring the pictures back from the receiving to the delivery magazine, substantially as described.

6. The combination with the lenses and the illuminating device of a magic lantern, of two magazines located at opposite sides of the illuminating device, guideways connecting both ends of the magazines, one of said guideways constituting the slide-holder of the lantern and the other being located at the rear of the illuminating device, and means for transferring the slides from one magazine to the other at both the front and rear ends of the magazines, substantially as described.

7. The combination with a magic lantern, of two magazines, one located at each side of the same, guideways connecting the magazines with each other at both ends of the magazines, one of said guideways constituting the slide-holder of the lantern and the other being located at the rear of the lantern, and reciprocating slide-carriers moving in the guideways at both ends of the magazines, substantially as described.

8. The combination, with a magic lantern, of two magazines, at opposite sides of the said lantern and extending to the rear of the illuminating device thereof, of a guideway connecting the magazines, and forming the slide-holder of the lantern and a reciprocating slide-carrier, the stroke of which is one-half the distance between the magazines, whereby one slide is carried from one magazine to a point in the optical axis of the lantern, and another slide from the same point to the other magazine at each stroke of the slide-carrier, substantially as described.

9. The combination, with a magic lantern, of two magazines, located at opposite sides of the lantern and extending past the rear end of the same, guideways at both ends of said magazines, means for transferring the slides from one magazine to the other at both ends of the same, and means for moving the slides longitudinally through the magazines, substantially as described.

10. The combination with a magic lantern, of two magazines located at opposite sides of the lantern and extending past the rear

end of the same, guideways connecting said magazines at both ends, means for transferring the slides from one magazine to the other at both ends thereof, and means for moving the slides longitudinally through the magazines comprising pressers movable in a direction endwise of the magazines and means for giving reciprocatory motion to said pressers, substantially as described.

11. The combination, with a magazine and means for delivering slides thereto, of a reciprocating presser having the form of a flat plate, and which is movable in a direction endwise of the magazine for thrusting the slides forward through the magazines, and means for actuating the presser constructed to retract one edge of the presser in advance of the other edge, whereby the presser is held in an inclined position to guide the incoming slides, substantially as described.

12. The combination with a magazine for lantern-slides and transverse guideways at the receiving end thereof, of a presser having the form of a flat plate and which is movable in a direction endwise of the magazine, means for giving reciprocatory motion to the presser having pivotal connection with said presser, and a spring applied between the presser and its actuating devices to yieldingly hold the presser in an inclined position when retracted.

13. The combination, with a magazine and guideways at the receiving end thereof, of a reciprocating presser, a rock-shaft provided with a rigid arm, a link connecting the arm with the presser, and a spring attached to the link and acting on the presser to throw the same into an inclined position, substantially as described.

14. The combination, with a magazine and a reciprocating presser, of means for actuating the presser comprising a spring applied to hold the presser in an inclined position when retracted, and a link connecting the presser with the frame of the magazine to restore the presser to its parallel position when advanced, substantially as described.

15. The combination, with a magazine and guideways at the receiving end of the magazine, of a reciprocating presser, means applied to the presser for throwing it into an inclined position when retracted, and spring-detents on the magazine for holding the slides when thrust forward by the presser, substantially as described.

16. The combination, with a magazine and receiving and delivery guideways connected with opposite ends of the magazine, of a presser at the receiving end of the magazine movable endwise of the magazine for advancing the slides through the same, means for giving reciprocatory motion to the said presser in a direction lengthwise of the magazine and spring-detents located at the receiving and of the magazine adapted to engage the entering slides and hold the same from backward movement after they have been moved forward by the presser, substantially as described.

17. The combination, with a magazine, of feeding and delivery guideways at both ends of said magazine, means for moving the slides longitudinally through the magazines comprising reciprocating pressers, and an auxiliary feeding device for the delivery end of the magazines comprising a reciprocating spring-finger adapted to engage the margins of the slides, substantially as described.

18. The combination, with a magazine and a presser for moving the slides longitudinally through the magazine and an auxiliary feeding device at the delivery end of the magazine consisting of a longitudinally-movable rod carrying a spring-finger, and means for actuating the presser and spring-finger comprising an upright rock-shaft provided with an arm acting on said rod, and a spring for holding the rod against the arm, substantially as described.

19. The combination with two magazines, of guideways connecting said magazines at both ends of the magazines, carrying devices for transferring slides from one magazine to the other at both ends of the magazine, pressers having a reciprocatory movement endwise of the magazines for carrying the slides longitudinally through the same, and actuating means connected with the slide-carriers and also with the pressers for giving reciprocatory motion to said parts, substantially as described.

20. The combination, with two magazines, of guideways connecting said magazines at both ends of the magazines, devices for transferring the slides from one magazine to the other at both ends of the magazines, reciprocating pressers for carrying the slides longitudinally through the magazines, and actuating devices for the slide-carriers, embracing an oscillating disk, and connections between said oscillating disk and the carriers consisting of gear-segments on the disk, rock-shafts having gear-wheels intermeshing with the gear-segments and crank-arms on the rock-shafts connected with said carriers, substantially as described.

21. The combination, with two magazines, guideways connecting the magazines at their opposite ends, reciprocating slide-carriers, reciprocating pressers, an oscillating disk through which motion is given both to the slide-carriers and pressers, and means for transmitting motion to the pressers comprising rock-shafts having two rigid arms one connected with the presser and the other with the disk, the connection with said disk being by means of connecting devices affording lost motion between the parts, substantially as described.

22. A feeding device for magic-lantern slides, comprising a magazine, a reciprocating presser, an oscillating disk through which motion is given to the presser, and means for transferring motion from the disk to the presser comprising a rock-shaft provided with three arms, means connecting one of said arms with the presser, a chain connecting another of said arms with the disk, and a spring acting on the third arm to hold the presser retracted, substantially as described.

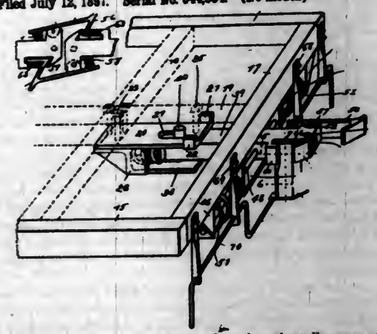
23. The combination, with a magazine, of a reciprocating presser and an auxiliary feeding-finger at the delivery end of the magazine, and means for actuating said parts comprising an oscillating disk, a rock-shaft provided with four arms, means connecting one of said arms with the presser, a chain connecting another of said arms with the disk, a spring acting on the third arm to hold the presser retracted, and a rod extending from the fourth arm to the feeding-finger for actuating the latter, substantially as described.

24. A cut-off device, comprising two shutters mounted on oscillating arms, a link connected with said arms at opposite sides of the pivots thereof, a lever-arm to move the shutters in one direction, and an oscillating arm acting on said lever-arm to move the shutters in the opposite direction, substantially as described.

25. A cut-off device, comprising two shutters mounted on oscillating arms, a link connected with said arms at opposite sides of the pivots thereof, a lever-arm attached to one of said arms, a spring acting on said lever-arm to move the shutters in one direction, a cam-arm acting on the said lever-arm to move the shutters in the opposite direction, an oscillating actuating member, as the disk Q, provided with a cam-plate, and a rock-shaft having two arms, one of which acts on said cam-plate, and the other against said lever-arm, substantially as described.

595,166. CAR-COUPLING. CHARLES J. GREINER, St. Louis, Mo.

Filed July 12, 1897. Serial No. 644,334. (No model.)



Claim.—1. In a car-coupling, a draw-bar pivotally connected to the bed of the car, a buffer at the rear end of the draw-bar, buffers upon opposite sides of the forward end of the draw-bar, a spring-actuated hook attached to one side of the forward end of the draw-bar, and a vertically-sliding hook attached to the opposite side of the forward end of the draw-bar, the spring-actuated hook of one draw-bar being designed to engage the sliding hook of another draw-bar as required to make an automatic coupling, substantially as specified.

2. In a car-coupling, a draw-bar, a hook yieldingly mounted upon one side of the draw-bar, a hook slidingly mounted upon the opposite side of the draw-bar, the yielding hook of one draw-bar engaging the sliding hook of another draw-bar, and means of operating said hook, substantially as specified.

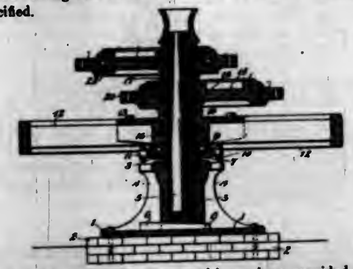
3. In a car-coupling, a draw-bar, a hook yieldingly mounted upon one side of and attached to the draw-bar, a hook slidingly mounted upon the opposite side of and attached to the draw-bar, the yielding hook of one draw-bar being designed to engage the sliding hook of another draw-bar and said sliding hook being constructed to disengage itself from the yielding hook by being elevated, and means of elevating said sliding hook, substantially as specified.

595,167. PUMPING POWER. GEORGE W. GRIMM, Bluffton, Ind.

Filed Aug. 18, 1897. Serial No. 648,640. (No model.)

Claim.—1. A well-pumping power, comprising a post, a base having a socket in which the lower end of the post engages, eccentrics mounted to rotate on the post, a power-wheel mounted to rotate on the post, a bearing-plate between the socket and the hub of the power-wheel, and adjusting-screws passing through holes in the bearing-plate and engaging with the upper end of the socket, substantially as specified.

2. A well-pumping power, comprising a post, eccentrics mounted to rotate on said post, a power-wheel mounted to rotate on said post with the eccentric, a base having a socket in which the lower end of the post engages, a bearing-plate adjustable on the upper end of said socket and having an annular channel in its upper surface, an upper bearing-plate upon which the hub of the power-wheel rests, the said upper bearing-plate being provided with an annular channel or raceway, and bearing-balls in these channels or raceways, substantially as specified.



3. A well-pumping power, comprising a base provided with a socket, a bearing-plate adjustable vertically with relation to the socket, a post mounted in the socket and extended through the bearing-plate, a power-wheel mounted on the post, an upper bearing-plate between the first named bearing-plate and the bottom of the power-wheel hub, antifriction-balls between these bearing plates, eccentrics mounted to rotate on the post, a drum mounted to rotate on the upper end of said post, and tie-rods extended through the lugs on the drum and lugs on the top bearing-plate, substantially as specified.

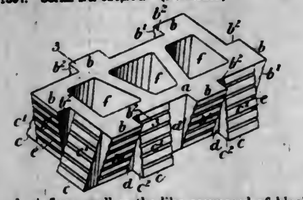
595,168. PROCESS OF MANUFACTURING MOLDABLE MASS OR ARTICLES FROM ASBESTOS. LUDWIG GROTE, London, England.

Filed Dec. 18, 1896. Serial No. 616,215. (No specimens.) Patented in England Dec. 17, 1896, No. 24,163; in Germany Dec. 24, 1896, No. 89,543, and in France Mar. 20, 1896, No. 258,737.

Claim.—1. The process of treating asbestos fiber, which consists in steeping asbestos fiber in a mixture of solutions of water-glass, glue and formaldehyde and subsequently steeping the same in a solution of an alumina, baryta or strontia salt, whereby the asbestos fiber assumes a parchment-like state, substantially as described.

2. The process for the manufacture of a moldable mass of asbestos fiber, which consists in steeping asbestos in a bath composed of a solution of glue, soluble glass and formaldehyde in the proportions specified, thereafter compressing said asbestos to free the same from superfluous moisture, subjecting the dried fiber to a bath of a salt of alumina, then drying and pulverizing the same to the form of a powder, compressing such powder into the form desired, drying such compressed form first in the open air and then in an oven, substantially as described.

595,169. METHOD OF CONSTRUCTING FIREPROOF FLOORS, FLATS, WALLS, &c. JOHN T. HANSON, London, England, assignor to the Hanson's Fire-Proof Floor Syndicate, Limited, same place. Filed Mar. 6, 1897. Serial No. 626,294. (No model.)



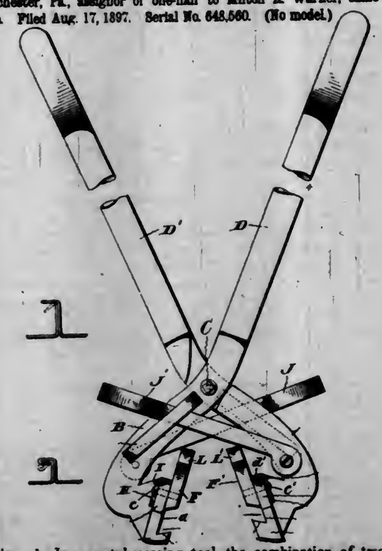
Claim.—1. A floor, wall or the like composed of blocks having upon the sides and ends oppositely-inclined projections *b*, *c* so arranged that the inclines *b*, *b* of one block are adjacent to or in contact with the incline *c*, *c* of adjacent blocks, substantially as described.

2. Blocks for the manufacture of fireproof floors and the like, constructed with oppositely-inclined projections, that is, with the set of projections *c*, inclining inwardly, and the set of projections *c'*, inclining outwardly, and whereby the inclines *b'*, of one such block may be placed adjacent to or in contact with the inclines *c'*, of a similar block or blocks.

3. Blocks for the manufacture of fireproof floors or the like, having the oppositely-inclined projections *b*, *c*, as set forth, and having recesses *f*, *f*, in the body of the block, substantially as and for the purpose described.

4. A fireproof floor or wall made with blocks having the inclined projections *b*, *b*, of one block adjacent to or in contact with the oppositely-inclined projections *c*, *c*, of adjacent blocks, and with a first row or series of such blocks built into the wall of a building, leaving some of the inclined projections extending beyond the face of the wall for interlocking with the next adjacent row, and the successive rows being similarly disposed, the blocks of one row breaking joint with those of its adjacent row or rows.

595,170. METAL-SEAM-TURNING TOOL. DANIEL B. HARTMAN, Manchester, Pa., assignor of one-half to Milton B. Warner, same place. Filed Aug. 17, 1897. Serial No. 648,560. (No model.)



Claim.—1. In a metal-seaming tool, the combination of two hinged jaws each formed with a longitudinally-extending groove formed with an inclined bottom, the groove in one jaw being in a higher plane than the groove in the other jaw, a sliding plate to each jaw having an inclined lower face corresponding to the inclined bottom of the grooves, levers for operating the jaws, and foot-levers for actuating the sliding plates, substantially as and for the purposes described

2. In a metal-seaming tool, the combination of two hinged jaws each provided with a longitudinally-extending groove, the groove in one jaw being in a different plane from the groove in the other jaw, a vertically-sliding plate for each jaw, a spring for normally holding each plate in a raised position, foot-levers for actuating the sliding plates, said levers being arranged so that one can be operated to actuate its sliding plate without affecting the other plate, and levers for actuating the jaws, substantially as and for the purposes described.

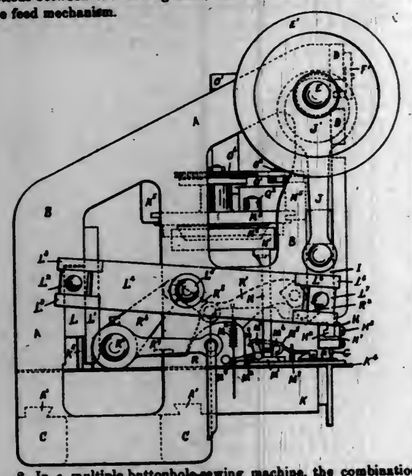
3. In a metal-seaming tool, the combination of two jaws each formed with a longitudinally-extending groove, the groove in one jaw being in a different plane from the groove in the other jaw, arms to which the jaws are attached, hand-levers extending from the arms, a vertically-sliding plate for each jaw provided with shoulders or extensions out of line with each other, and foot-levers pivoted to the arms and arranged so as to bear against the shoulders or extensions on the sliding plates to enable one plate to be depressed without affecting the other, substantially as and for the purposes described.

4. In a metal-seaming tool, the combination of two jaws each provided with a longitudinally-extending groove and with upwardly-extending slotted ears, vertically-sliding plates, each having pins projecting through the slotted ears of the jaws, springs for normally retaining said plates in a raised position, arms to which the jaws are attached, hand-levers extending from the arms to operate the jaws, and foot-levers pivoted to the arms and arranged to bear one against each of the sliding plates for the purpose of actuating one plate without affecting the other, substantially as and for the purposes described.

595,171. MULTIPLE-BUTTONHOLE-SEWING MACHINE. HERBERT E. HAWES, Brooklyn, N. Y., assignor to Colby & Co., same place.

Filed Jan. 11, 1897. Serial No. 618,804. (No model.)

Claim.—1. In a multiple-buttonhole-sewing machine, the combination, with a plurality of shuttles, a plurality of buttonhole work-clamps, and a buttonhole feed mechanism operating the several work-clamps, of a plurality of needles, a vertically-reciprocating needle-carrier carrying the several needles, guides for the needle-carrier, a driving-shaft, actuating connections between the driving-shaft and the needle-carrier, a vertically-reciprocating cross-head, guides therefor, actuating connections between the cross-head and the several shuttles to operate the shuttles simultaneously, and actuating connections between the driving-shaft, the cross-head and the buttonhole feed mechanism.



2. In a multiple buttonhole-sewing machine, the combination, with a plurality of shuttles and their shafts, a plurality of buttonhole work-clamps and a buttonhole feed mechanism operating the several work-clamps, of a plurality of needles, a vertically-reciprocating needle-carrier carrying the several needles, guides for the needle-carrier, a driving-shaft, actuating connections between the driving shaft, the needle-carrier and the buttonhole feed mechanism, a vertically-reciprocating cross-head, guides therefor, actuating connections between the cross-head and the shuttle-shafts, and beam-levers connecting the needle-carrier and the cross-head.

3. In a multiple-buttonhole-sewing machine, the combination, with a plurality of stitch-forming mechanisms, and a buttonhole feed mechanism comprising a reciprocating and transversely-vibrating guide-plate, of a bar carried by said guide plate, extending across the several stitch-forming mechanisms, a pivot-rail extending along said bar, and a plurality of work-clamps adjustable along said bar, the presser-feet arms of said work-clamps having bearings adjustable along said pivot-rail.

4. In a multiple-buttonhole-sewing-machine, the combination, with a plurality of shuttles and their shafts, a reciprocating cross-head, a plurality of needles, and a reciprocating needle-carrier, a plurality of buttonhole work-clamps, a buttonhole feed mechanism, and means for operating the several needles, work-clamps, and cross-head in unison, of actuating connections between the cross-head and the shuttle-shafts including a link for each shuttle-shaft and means for adjusting the said links along the cross-head.

595,172. FENCE. ISAAC K. HOLLINGER, Greenville, Ohio. Filed Mar. 26, 1897. Serial No. 629,423. (No model.)



Claim.—The herein-described wire fence consisting essentially of the following elements, viz: the plurality of runner-wires arranged in the same vertical plane, the stay formed of sheet metal and bent into channel form in cross-section and having the rounded corner and also having the longitudinal edges parallel throughout their length and open notches *a* in one edge receiving the runners and its opposite edge plain and bearing against all of the runners, and the tie-wires straddling the stay and coiled on the runners at opposite sides of the stay, all as and for the purpose set forth.

595,173. FENCE. BENNETT T. HOSHALL, Shamburg, Md. Filed Apr. 23, 1897. Serial No. 633,467. (No model.)



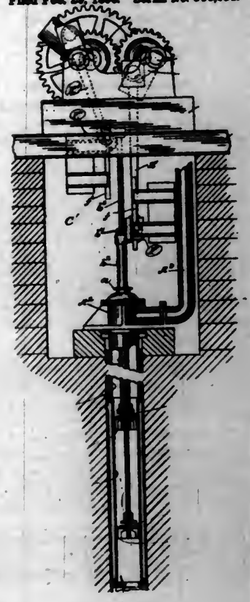
Claim.—In a fence the combination of the post, the rails of the adjacent panels lapping at their ends against said post, and the wire ties passing over each of such rails near their extremities, thence under the other rail of the pair and having a portion passed around the post, substantially as described.

595,174. DEVICE FOR PRESERVING PERISHABLE ARTICLES. JOSEPH S. JOHNSON, San Francisco, Cal. Filed Dec. 14, 1896. Serial No. 615,631. (No model.)



Claim.—Means for exhausting air from containing vessels and thereafter sealing the same, consisting of the cover of the vessel having a conical projection on its inside, provided with a downwardly-contracting opening, a suction-pipe adapted to be connected with an exhaust apparatus at one end, a flap secured to the opposite end of the suction and having a flanged portion of flexible material adapted to circumscribe the opening in the cover and to be drawn down closely on said cover, and to be held thereto by the exhaustion to prevent the ingress of air, a tube loosely fixed in the suction-pipe and corrugated to form passages for the escape of air from the vessel and a plunger within the corrugated tube adapted to carry sealing material upon its end, said plunger being advanced to hermetically close the contracted opening after exhaustion is completed.

595,175. PUMPING MACHINERY. EDWARD B. JOHNSON, Chicago, Ill., assignor to Wakeman B. Hanson and Charles W. Hubbell, same place. Filed Feb. 29, 1896. Serial No. 581,231. (No model.)



Claim.—1. An actuating mechanism for double-plunger pumps, comprising rotative crank elements connected with the plungers, separate rotative driving parts, each arranged eccentric to the crank element driven thereby, and rotating sliding means applying the driving power between each driving part and its crank element in a circular orbit concentric with the axis of the one and eccentric to the axis of the other.

2. An actuating mechanism for double-plunger pumps, comprising rotative crank elements connected with the plungers, separate rotative driving parts each arranged eccentric to the crank element driven thereby, and driving connections between each driving part and its crank element consisting of a wrist-pin on the one and a groove in the other into which the wrist-pin projects.

3. An actuating mechanism for double-plunger pumps, comprising rotative crank elements connected with the plungers, separate rotative driving parts, each arranged eccentric to the crank element driven thereby, and provided with intermeshing gears of equal diameter, and driving connections between each driving part and its crank element whereby the latter moves alternately slower and faster in each revolution, the parts being adjusted to effect the idle or return movement of one plunger during the working stroke of the other plunger.

4. A pump provided with two single-acting plungers, rotative crank elements connected with the plungers, separate rotative driving parts, each arranged eccentric to the crank element driven thereby, gearing for rotating said driving parts at equal speeds, and driving connections between each driving part and its crank element consisting of a wrist-pin on the one and a groove in the other into which the wrist-pin projects.

5 A pump provided with two single-acting plungers, rotative crank elements connected with the plungers, separate driving-shafts each arranged eccentric to the crank element driven thereby and provided with intermeshing gears of equal diameter, and driving connections between each driving-shaft and its crank element consisting of a wrist-pin on the one and a groove in the other into which the wrist-pin projects.

6. An actuating mechanism for double-plunger pumps, comprising rotative crank-shafts connected with the plungers, rotative driving parts each arranged eccentric to the crank-shaft driven thereby, a grooved crank on each crank-shaft adjacent to its driving part and wrist-pins on the driving parts engaging the grooves, substantially as described.

7. An actuating mechanism for double-plunger pumps, comprising rotative crank-shafts connected with the plungers, intergeared rotative driving-shafts each arranged eccentric to the crank-shaft driven thereby, grooved cranks on the crank-shafts, and a wrist-pin on each driving-shaft engaging the grooved crank of the crank-shaft driven thereby.

8. An actuating mechanism for double-plunger pumps, comprising rotative crank elements connected with the plungers, separate rotative driving parts each arranged eccentric to the crank element driven thereby and upon an axis located in the same plane with and between the axes of the crank elements, and driving connections between each driving part and its crank element consisting of a wrist-pin on the one and a groove in the other engaged by said pin.

9. An actuating mechanism for double-plunger pumps, comprising rotative crank elements connected with the plungers, separate rotative driving parts each arranged eccentric to the crank element driven thereby, and driving connections between each driving part and its crank element consisting of a wrist-pin on the one and a groove on the other into which the wrist-pin projects, the relative angular arrangement of the parts being such as to retard the initial working movement of the plunger.

10. The combination with a pump plunger of a crank element connected therewith, a rotative driving part arranged eccentrically to said crank element, and driving connections between the crank element and driving parts, consisting of a groove on the one and a wrist-pin on the other engaging said groove, said groove being arranged angularly in advance of the crank-pin and on a line intersecting the radial plane of the crank between the crank-pin and its center of rotation, substantially as described.

11. The combination with a pump-plunger of a crank element connected therewith, a rotative driving part arranged eccentrically to the crank element and driving connections between the crank element and driving part, consisting of a groove on the one and a wrist-pin on the other which engages said groove, said groove being arranged angularly in advance of the crank-pin on a line intersecting the radial plane of the crank approximately at the point occupied by the wrist-pin at the innermost end of its travel within the groove, substantially as described.

12. An actuating mechanism for double-plunger pumps, comprising rotative crank elements connected with the plungers, rotative driving parts each arranged eccentric to the crank element driven thereby, and driving connections between each driving part and its crank element consisting of a wrist-pin on the one and a groove on the other engaged by said wrist-pin, each groove being arranged angularly in advance of the connected crank element, substantially as described.

13. An actuating mechanism for double-plunger pumps, comprising rotative crank elements connected with the plungers, rotative driving parts arranged eccentrically to the crank elements and driving connections between the crank elements and driving parts, consisting of wrist-pins on the one and grooves on the other into which the wrist pins project, said grooves being arranged angularly in advance of the crank-pins on lines which intersect the radial planes of the cranks between the crank-pins and their center of rotation.

14. The combination with two valved plungers arranged within a single cylinder, of rotative crank elements connected with the plungers, separate rotative driving parts, each arranged eccentric to the crank element driven thereby, and rotating sliding means applying the driving power between each driving part and its crank element in a circular orbit concentric with the axis of the one and eccentric to the axis of the other.

15. The combination with two valved plungers arranged within a single cylinder, of rotative crank elements connected with the plungers, separate rotative driving parts each arranged eccentric to the crank element driven thereby, and driving connections between each driving part and its crank element consisting of a wrist-pin on the one and a groove in the other into which the wrist-pin projects.

16. The combination with two valved plungers arranged within a single cylinder, of rotative crank elements connected with the plungers, separate rotative driving parts, each arranged eccentric to the crank element driven thereby, and provided with intermeshing gears of equal diameter, and driving connections between each driving part and its crank element whereby the latter moves alternately slower and faster in each revolution, the adjustment being such as to effect the idle or return movement of one plunger during the working stroke of the other plunger.

17. The combination with two valved plungers arranged within a single cylinder, of rotative crank-shafts connected with said plungers, secondary grooved cranks on said crank-shafts, separate rotative driving parts each arranged eccentric to one of the crank-shafts, and a wrist-pin on each driving part engaging the grooved crank of the adjacent shaft.

18. The combination with two valved plungers arranged within a single cylinder, of rotative crank-shafts connected with said plungers, separate intergeared driving parts each arranged eccentric to the crank-shaft driven thereby, and a coacting groove and wrist-pin operatively connecting each driving part and crank-shaft.

19. The combination with two valved plungers arranged within a single cylinder, of crank shafts connected with said plungers, secondary grooved cranks on said crank-shafts, separate driving parts each arranged eccentric to the crank-shafts upon axes located between and in the same plane with the crank-shafts, and a wrist-pin on each driving part engaging the adjacent grooved crank.

20. The combination with two valved plungers arranged within a single cylinder, of rotative crank elements connected with the plungers, separate driving parts, each arranged eccentric to the crank element driven thereby, and driving connections between each crank element and its driving part, comprising a wrist-pin on the one and a groove in the other into which the wrist-pin projects, the groove being arranged angularly in advance of the connected crank element.

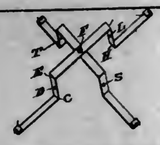
21. The combination with two valved plungers arranged within a single cylinder, of rotative crank elements connected with said plungers, rotative driving elements arranged eccentrically to said crank elements, driving connections between the crank elements and driving parts comprising wrist-pins on the one engaging grooves on the other, said grooves being arranged angularly in advance of the crank-pins upon lines intersecting the radial planes of the cranks between the crank-pins and their center of rotation.

22. An actuating mechanism for double-plunger pumps, comprising rotative crank elements connected with the plungers, separate rotative driving parts, each arranged eccentric to the crank element driven thereby, and driving connections between each driving part and its crank element, consisting of a wrist-pin on the one and a non-radial groove in the other into which the wrist-pin projects.

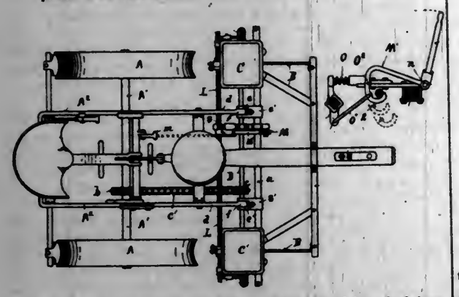
595,176. HAT-SHAPE SUSTAINER. JOSEPH L. JOHNS, Cincinnati, Ohio. Filed Jan. 13, 1897. Serial No. 619,096. (No model.)

Claim.—A hat-shape sustainer comprised of two or more pliable non-elastic metal strips pivotally secured together at their central portions by means of an eyelet, and provided at intermediate portions thereof with apertures, and at their outer ends with clamps whereby the said strips may be secured to a hat and adapted to be bent to change the shape thereof.

595,176.



595,177. CORN-PLANTER. SILVESTER H. JONES and ELMER E. TOWLE, Richmond, Ind., assignors to the Hoosier Drill Company, same place. Filed June 21, 1897. Serial No. 641,660. (No model.)



Claim.—1. In combination with a continuously-driven shaft journaled to the front frame of a corn-planter, a seed-plate supported in a mutilated gear which is intermittingly driven by a main gear on said shaft and means for bringing the sections of the mutilated gear successively into mesh with the main driven gear, substantially as specified.

2. In combination with a continuously driven shaft journaled to the front frame of a corn-planter a seed-plate supported upon a mutilated gear located in the bottom of the seedbox and which is intermittingly driven by a main gear on said shaft and a shipping-pawl adapted to engage with lugs on said mutilated gear and lever mechanism for operating said shipping-pawl to move the mutilated gear into engagement with the main gear, whereby an intermitting discharge of seed by a positive gear rotation of the seed-wheel is obtained, substantially as specified.

3. In a corn-planter employing a continuously-driven shaft journaled upon the front frame, and carrying a main driving-gear, a mutilated gear supported in the seedbox, a pawl mounted on said seedbox adapted to engage and move the mutilated gear a predetermined distance, a rock-shaft journaled to said frame to which the shipping-lever is hinged by a connecting-rod, lever mechanism for operating said rock-shaft and a spring connected to the arm of said rock-shaft for retracting said rock-arm, substantially as specified.

4. In a corn-planter the seeding mechanism composed of a mutilated gear and its seed-plate supported in a seedbox, a continuously-driven shaft and main gear, a pawl, a rock-shaft operated by a lever connected thereto, a shipping-lever connected to said rock-shaft adapted to automatically engage and disengage with the mutilated gear and a spring connected to the pawl-operating mechanism for retracting the movement of the rock-shaft and shipping lever, substantially as specified.

5. In a corn-planter the seeding mechanism for hill-dropping, consisting of the continuously-driven shaft and a main gear, a mutilated gear and seed-plate, a pawl for bringing the two said gears into engagement, a valve mechanism in the heel of the runner, a rock-shaft to which the valve and shipping-lever are each connected and means for operating said rock-shaft to throw the valve and pawl in time movements to each other, substantially as specified.

6. In combination with the frame-piece *a*, the clamp-plates *e*, *e'*, secured thereto, the frame-arms *d* provided with an eye *g*, and the segmental bearing *f*, supporting the driving-shaft D, substantially as herein specified.

7. In a corn-planter, the combination of the rock-shaft L, the tripping arm N, the connecting-rod O', the bell-crank lever supported upon the runner-frame, the retractile spring O, and means for changing the pivotal attachment of said connecting-rod with the free arm of said bell-crank lever, substantially as specified.

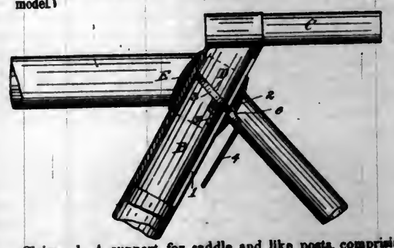
595,178. PROCESS OF MAKING NITRITES. ADOLF KNOP, Rheinau, Germany. Filed Mar. 18, 1897. Serial No. 628,212. (No specimens.)

Claim.—1. The herein-described process of manufacturing alkali nitrites, which consists in subjecting to the action of heat, a mixture of a nitrate of the same alkali, the caustic alkali of the same element, and carbon, substantially as set forth.

2. The herein-described process of manufacturing alkali nitrites, which consists in subjecting to the action of heat, a mixture of a nitrate of the same alkali, the caustic alkali of the same element, and coke, substantially as set forth.

3. The herein-described process of manufacturing nitrites, which consists in subjecting to the action of heat, a mixture of a nitrate, a caustic alkali, and carbon substantially as described.

595,179. SEAT-POST AND HANDLE-BAR FASTENER. OTTO KRAUS, New York, N. Y. Filed July 11, 1896. Serial No. 598,853. (No model.)

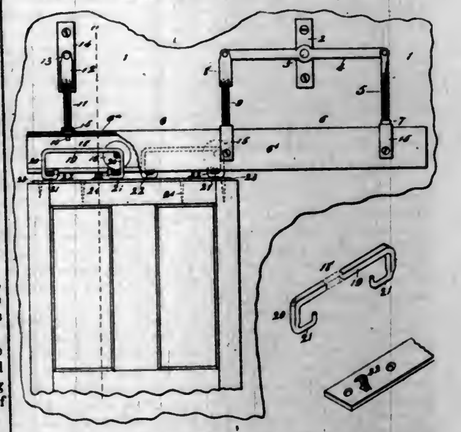


Claim.—1. A support for saddle and like posts, comprising a tubular post, a tubular member receiving said post, and a wedging-piece placed within the said post and provided with an arm or handle extending exterior to the tubular member; said piece being of greater length than the distance across the corresponding portion of the post and supported by the tubular member, substantially as described.

2. A support for saddle and like posts, comprising a tubular post, a tubular member receiving said post, a wedging piece placed within the said post and provided with an arm or handle extending exterior to the tubular member; said piece being of greater length than the distance across the corresponding portion of the post and supported by the tubular member, and a spring acting on the wedging-piece for pressing the same upwardly, substantially as described.

3. A support for saddle and like posts, comprising a tubular, slotted post, a tubular member receiving said post and provided with a passage or opening, and a wedging-piece composed of an inner tongue of greater length than the diameter of the tubular post and a handle extending through said slot and passage, substantially as and for the purpose specified.

595,180. ADJUSTABLE MOUNTING FOR SLIDING DOORS. JOHN A. KUSTER, Plymouth, Wis. Filed Mar. 11, 1897. Serial No. 627,040. (No model.)



Claim.—1. In a sliding door, a track for the same, pivoted, screw-threaded loops, and threaded bolts connecting the loops and the track for adjusting the track, as set forth.

2. In a sliding door, a track for the door, pivoted loops, and adjusting devices connected directly to the loops and attached to the track, as set forth.

3. In sliding doors, a track for the same, adjustable supports at each end of the track, one of the supports consisting of a pivoted lever having a loop carrying a screw-bolt pivoted thereto at one end, and a pivoted screw bolt at the other end, as set forth.

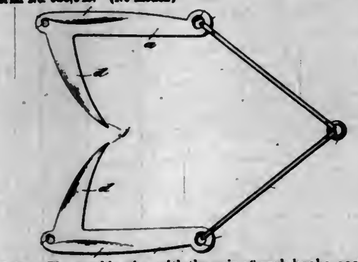
4. In sliding doors, a track provided with pivoted loop-supports and rollers, said supports including a pivoted lever carrying adjusting devices at each end thereof attached to the track, as set forth.

5. In sliding doors, a track adjustably supported at each end, one of said supports consisting of a pivoted lever carrying a pivoted screw-bolt at one end and a pivoted loop at the other end carrying a screw-bolt, and devices connecting said screw-bolts to the track, as set forth.

6. In sliding doors, a track, pivoted loops carrying adjusting devices connected to the track, as set forth.

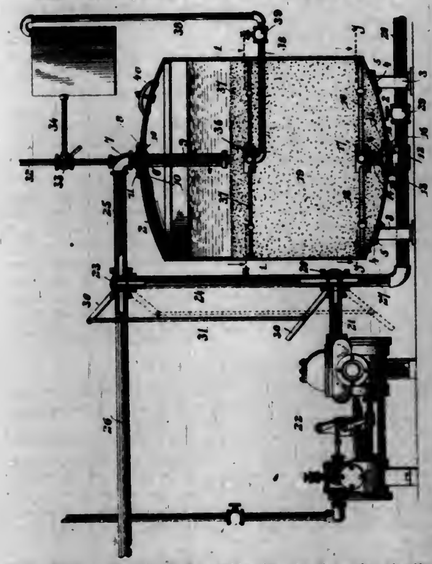
7. In sliding doors, a track having screw-threaded attachments, pivoted supports consisting in part of screw-threaded links, and screw-bolts connecting the links and the track, all combined as set forth.

595,181. GRAB-HOOK. DAVID H. LANGAN, Leetonia, Pa., assignor of one-half to Charles M. Shaut, same place. Filed Jan. 25, 1897. Serial No. 620,645. (No model.)



Claim.—The combination with the pair of grab hooks, each consisting of a shank having an eye at its front end and at its rear end having a projecting, perforated ear, immediately in front of which latter is located an angularly-disposed driving-tooth, said shank being widened above its tooth for the purpose of producing an increased impact-surface, of a draft device connected with the eyes at the front ends of the shanks, substantially as specified.

595,182. FILTER. HENRY LARDNER and CHARLES BRENT, Niles, Mich. Filed May 7, 1897. Serial No. 635,531. (No model.)



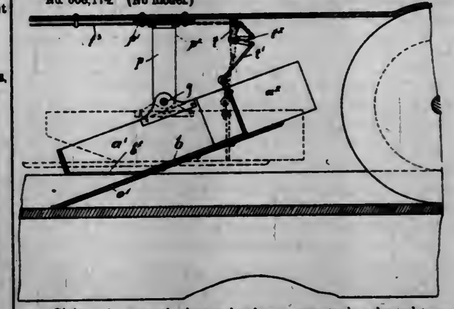
Claim.—1. In a filter, the combination with the casing, the filtering material contained therein, a water-supply pipe, a perforated pipe connected to the supply-pipe and extending into the casing at its upper end above the filtering material, a branch pipe having a valve connection to the supply-pipe, a series of radiating perforated pipes seated in the filtering material near the bottom of the casing, a discharge-pipe for the filtered water with which the series of radiating perforated pipes communicate, a pipe leading from the discharge-pipe and having a valve connection with the supply-pipe, and means to operate the valves to reverse the normal flow of water and cause it to enter the filter through the discharge-pipe, and pass therefrom with impurities from the filtering material through the perforated pipe, the supply-pipe and the branch pipe connected to the supply-pipe, substantially as described.

2. In a filter, the combination with the casing, and the filtering material contained therein, of a storage-tank for compressed air, a series of radiating perforated pipes seated in the filtering material near its upper surface, a hollow head from which said pipes radiate, and a valved pipe connection between the air-tank and the hollow head, whereby the compressed air may be discharged into the filtering material to agitate it, substantially as described.

3. In a filtering apparatus, the combination with the casing, the filtering material contained therein, and the supply-pipe through which the water is conveyed to the filter, of a pump connected to the supply-pipe, a valved opening in the suction-pipe in close proximity to the pump-chamber for the admission of air, a compressed-air reservoir, a valved pipe leading from the water-supply pipe to the said reservoir, a series of radiating perforated pipes seated in the filtering material near its upper surface, a hollow head from which said pipes radiate, and a valved pipe connecting the air-reservoir and the hollow head, substantially as described.

4. In a filter, the combination of the casing, the filtering material contained therein, inlet and outlet pipes at the opposite ends of said casing, a supply-pipe, pipe connections between the supply-pipe and said inlet and outlet pipes, a discharge-pipe connected to the inlet-pipe at the upper end of the casing and through which the impurities in the filtering material are discharged when the latter is cleansed, controlling-valves interposed in the pipe connection between the supply-pipe and said inlet, outlet and discharge pipes, levers on the valve-plugs, and a rod connecting said levers, substantially as described.

595,183. TRACK-CLEANING DEVICE FOR STREET-TRAMWAYS. LOUIS LEGE, Hanover, Germany. Filed Oct. 7, 1896. Serial No. 608,174. (No model.)



Claim.—1. A track-cleaner having a receptacle adapted to receive material from the track, the receptacle having two rearwardly and outwardly extending branches for delivering the said material, the branches running oppositely to each other and delivering the material respectively on the sides of the track, and a tongue carried by the receptacle and projecting forwardly thereof, the tongue being capable of running in the groove of the rail so as to deliver material from said groove to the receptacle, substantially as described.

2. A track-cleaner having a receptacle formed of a bottom with rearwardly and oppositely extended delivering branches projected respectively on opposite sides of the track, the front portion of the bottom having a recess, a tongue secured to the bottom and projecting past said recess so as to deliver material into the receptacle through the recess, and sides secured to the edges of the bottom and arising therefrom, substantially as described.

3. The combination of a plate having a curved flange, a post with an annular groove received by the flange whereby the post is mounted to turn, and a track-cleaner carried by the post, substantially as described.

4. A rail-cleaner having a receptacle or body portion capable of discharging material laterally therefrom, and a tongue projecting forward from the receptacle or body portion and capable of running in the groove of a rail to remove material therefrom and carry the material to the receptacle or body portion.

595,184. STEM WINDING AND SETTING WATCH. GEORGE A. LOCKWOOD and JAMES R. LOCKWOOD, Charlton, Iowa. Filed Apr. 22, 1897. Serial No. 633,267. (No model.)



Claim.—1. In a watch-movement, the combination of a pivoted yoke bearing idlers at its ends, a stem, intermediate mechanism between the stem and idlers for rotating the latter, a lever operated by means of the stem and normally engaging with the yoke, a spring for holding the said lever and yoke in a normal position, and a spring-arm applied to and movable with the said lever and having connection with the yoke, substantially as and for the purpose set forth.

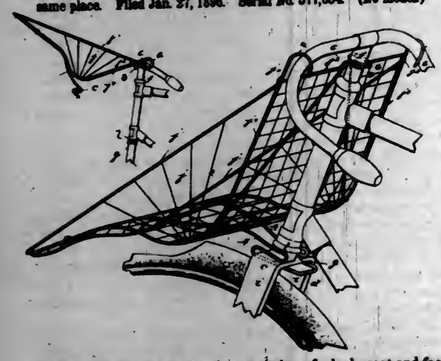
2. In a watch-movement, the combination of a pivoted yoke bearing the hands-setting and spring-winding mechanisms and having a protuberant part, a lever having a shoulder normally engaging with the protuberant part of the yoke, and formed with a projection to extend over the part engaged by the aforesaid shoulder, and a spring-arm applied to and movable with the lever and connected with the yoke, substantially as and for the purpose set forth.

3. In a watch-movement, the combination of a pivoted yoke bearing the hands-setting and spring-winding mechanisms, a stem, a lever having an extension to be operated upon by the winding stem or arbor, an arm applied to the lever, and a link having pivotal connection with the yoke and a limited sliding connection with the said lever, substantially as and for the purpose set forth.

4. In a watch-movement, the combination of a pivoted yoke bearing the hands-setting and spring-winding mechanisms, a pin projecting laterally from the yoke through the plate, a lever having a bifurcated or slotted end to receive the projecting end of the pin, and a second lever having loose connection with the first-mentioned lever and adapted to engage with a tooth of a wheel applied to the seconds-hand staff, substantially as set forth.

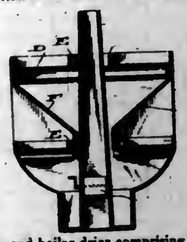
5. In combination, a pivoted yoke bearing the hands-setting and spring-winding mechanisms, a lever controlled by means of the stem and having a shoulder to engage with a protuberant portion of the yoke and a projection to extend thereover, a link having pivotal connection with the yoke and slotted at its outer end, a spring-arm applied to the lever and provided with a lateral extension operating in the slot of the pivoted link, and having a portion overlapping the sides of the slot, a pin projecting laterally from the yoke, a lever having a bifurcated end to receive the projecting end of the pin, and a second lever having loose connection with the bifurcated lever and having a bent end to engage with the toothed wheel applied to the seconds hand staff, substantially as set forth.

595,185. LUGGAGE-CARRIER FOR BICYCLES. WILLIAM H. LOGAN, Louisville, Ky., assignor to the Dow Wire Works Company, same place. Filed Jan. 27, 1896. Serial No. 577,054. (No model.)



Claim.—A carrier for bicycles consisting of a body-seat and foot-rest composed of wire-netting having outer wires conforming to the curvature of the carrier and hooked to the handle-bar, side wires extending from the foot-rest to the top of the outer wires and attached thereto, central spring-arms clamping the vertical post, and arms extending over the top and underneath the fork crown clamping the same, said arms being attached to the body of the carrier, as set forth.

595,186. EVAPORATOR. SAMUEL P. LOYD, Ascalon, Ga. Filed July 1, 1897. Serial No. 643,127. (No model.)



Claim.—A pan and boiler drier comprising in combination with the casing having a boiler at its lower portion, the upper end of which is open, the smoke-pipe running centrally and vertically through the boiler, the regulating-damper in the said smoke-pipe, the trays sliding on guide-pieces, the abutting strips, limiting the inner movement of the trays, and located with a space intervening between same and the smoke-pipe, and the inclined partitions between the trays, all arranged substantially as shown and described.

595,187. PLANTER. JOHN G. MASON and JAMES G. MASON, Baldwyn, Miss. Filed Feb. 20, 1897. Serial No. 624,294. (No model.)



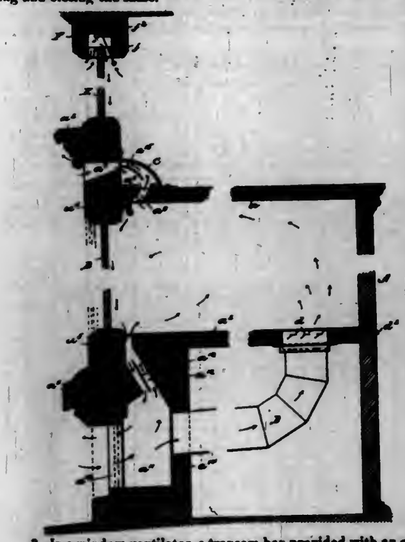
Claim.—1. In a planter, the combination with a supporting-frame, furrow opening and closing devices, a hopper interiorly divided into compartments, a seed-slide bed provided with terminal openings or notches, a reciprocatory seed-slide provided with seed-openings adapted to be alternately arranged in communication with the compartments of the hopper and in registration with said openings or notches of the bed, yielding means for holding the slide in its normal position, brushes for removing surplus seed from the slide, an operating or ground wheel having a peripheral series of sockets, and actuating-pins removably fitted in the desired sockets and projecting radially from the periphery of the operating or ground wheel, to successively engage a depending projection on the seed-slide to advance the same in opposition to said yielding means, whereby the required number and distribution of pins may be secured, substantially as specified.

2. In a planter, the combination with a supporting-frame, a hopper, and a reciprocatory seed-slide yieldingly held in its normal position, of an operating or ground wheel provided with spaced pairs of transversely opposite peripheral actuating-pins adapted to engage a beveled shoulder or projection upon the seed-slide to move the latter in opposition to the means whereby it is yieldingly held in its normal position, and a cooperating scraper or cleaner supported by the frame-work and terminally arranged to operate upon the periphery of the wheel between the planes of said transversely opposite pins, substantially as specified.

595,188. VENTILATING SHOW-WINDOW. STILES R. MAXON, Portland, Oreg., assignor of one-half to Thomas Varwig, same place. Filed Mar. 23, 1897. Serial No. 628,911. (No model.)

Claim.—1. In a window-ventilator, a transom-bar provided with an opening, a ceiling provided with an opening, a cap or hood secured to the transom bar and to the ceiling on the upper portion thereof and above the said openings, a deflecting plate arranged below the cap or hood and in line with the opening through the transom-bar, and means for closing the opening in the ceiling, substantially as described.

2. In a window-ventilator, the combination with the lower sash-rail and with the bulkhead of the window, of an air-space formed between the same and terminating in a constricted channel opening into the window-casing, a grating, an air-dividing plate arranged in the channel, and a flue opening from the air-space into the window-casing near the rear wall thereof, and provided with means for opening and closing the same.



3. In a window-ventilator, a transom-bar provided with an opening, a ceiling provided with an opening, a cap or hood secured to the transom-bar and to the ceiling on the upper portion of the latter and above the said openings, an air-space formed between the lower sash-rail and the bulkhead of the window, and terminating in a channel opening into the window-casing, a grating, an air-dividing plate arranged in the channel, and a flue opening from the air-space into the window-casing near the rear wall thereof, and provided with means for opening and closing the same, substantially as described.

4. In a window-ventilator, a transom-bar provided with an opening, a ceiling provided with an opening, a cap or hood secured to the transom-bar and to the ceiling on the upper portion of the latter and above the said openings, a deflecting-plate arranged below the cap or hood, an air-space formed between the lower sash-rail and the bulkhead of the window and terminating in a channel opening into the window-casing, a grating, an air-dividing plate arranged in the channel, and a flue opening from the air-space into the window-casing near the rear wall thereof, and provided with means for opening and closing the same, substantially as described.

5. In a window-ventilator, a transom-bar provided with an opening, a ceiling provided with an opening, a cap or hood secured to the transom-bar and to the ceiling on the upper portion of the latter and above the said openings, a deflecting-plate arranged below the cap or hood, an air-space formed between the lower sash-rail and the bulkhead of the window and terminating in a channel having its discharge end constricted and opening into the window-casing, a grating, an air-dividing plate arranged in the channel, and a flue opening from the air-space into the window-casing near the rear wall thereof, and provided with means for opening and closing the same, substantially as described.

595,189. TESTING-PLUG. JOHN P. MEEK, New York, N. Y., assignor to Michael J. Drummond, same place. Filed Mar. 20, 1897. Serial No. 628,513. (No model.)



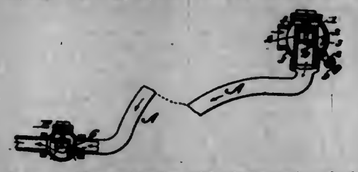
Claim.—1. In a testing-plug, the combination of relatively movable parts, the inner part having a passage extending inward toward the center from its outer edge, thence deflected outwardly toward the other part, a vent-pipe passing loosely through the outer part and across the space between the two parts and communicating with the inner end of the said passage, and having a cut-off valve, a compressible packing placed between the parts, and a short pipe centrally disposed and provided with means for drawing the parts together to expand the said packing and serving as a means for charging the part to be tested, substantially as described.

2. In a testing-plug, the combination of relatively movable parts having an outwardly-flaring seat formed between them, a compressible packing fitted in the said seat, a short pipe provided with means for drawing the movable parts together and serving as a means for charging the part to be tested, and a vent-pipe operating loosely through an opening in the outer part, extending across the space between the two parts, and connecting at its inner end with a passage formed in the inner part, and which passage extends through the edge portion of the part in which it is formed, substantially as and for the purpose set forth.

3. In a testing-plug comprising relatively movable parts having a seat or channel formed between them, a groove provided in the inner face of one of the said parts, a flange formed on the inner face of the other part and movable within the said groove, a compressible packing fitted in the said seat, and means for drawing the parts of the plug together, substantially in the manner and for the purpose set forth.

4. In a testing-plug composed of relatively movable parts having the outer portions of their inner or opposing faces oppositely flaring, forming a seat, a groove in the inner face of one part, a flange projecting from the inner face of the other part and operating in the said groove, and providing an inner wall to the said seat, a compressible packing located in the aforesaid seat, a pipe rigidly connected with the inner part of the plug and passing loosely through the other part, a nut mounted upon the said pipe for drawing the parts together, a passage extending inward from the edge of the inner part, and a valve-controlled pipe passing loosely through the other part and forming a continuation of the said passage, substantially as set forth.

595,190. BOILER ATTACHMENT. WILLIAM I. MILLER, Atchison, Kans. Filed July 20, 1897. Serial No. 645,210. (No model.)



Claim.—1. The combination, with a boiler, tank, and a feed-pipe connecting them as specified, of the automatic, main or boiler check-valve, a passage through the tubular seat and guide of said valve, a controllable stem-valve for closing or opening said passage, and the automatic, intermediate check-valve, having a lateral passage through its tubular valve seat and guide, both said automatic valves being attachments of the feed-pipe, as shown and described.

2. The combination, with the boiler check-valve casing, and the tubular seat and guide for said valve, having a small lateral passage through it, of the adjustable valve, having a threaded stem working through the valve-casing and provided with an alined prong that projects into said passage when the valve is seated, the stem being adapted to withdraw the prong when screwed back, thereby completely opening the passage, as shown and described.

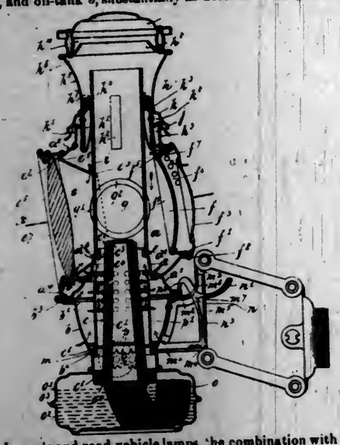
595,191. CYCLE-LAMP. CHARLES A. MILLER and FREDERICK J. MILLER, Birmingham, England. Filed Feb. 16, 1897. Serial No. 623,642. (No model.) Patented in England Sept. 19, 1896, Nos. 20,740 and 20,741.

Claim.—1. In cycle and road-vehicle lamps, the combination with the lamp-body *a* provided with the burner-cone *d* and chimney *i*, of the gallery *b*, and the foot *a'* attached to the under side of the lamp-body and hinged to the gallery, substantially as described.

2. In cycle and road-vehicle lamps, the combination of the gallery *b* provided with wick-tubes *c*, *c'*, the lamp-body *a*, the foot *a'* fixed to the under side of the lamp-body and hinged to the gallery, the burner-cone *d* fixed to the upper open end of the foot *a'*, and the chimney *i* fitted on the burner-cone whereby, when the lamp-body is swung from off the gallery the wick-tubes are exposed, substantially as described.

3. In a lamp for cycles and road-vehicles, the combination with a spherical body part *a*, pierced with openings *e'*, *f''*, *g'*, h^{11} and *a''*, fitted respectively with a cone *e*, reflector *f*, side lights *g*, head parts *h*, and foot *a'*, and supporting at its upper part a^9, inner and outer rings h', h^3, chimney-clips h^3, guard-ring *k*, sleeve h^4, breaker h^5 and cowl h^6, of a

gallery *b*, hinged at a^{10}, to the said foot *a'*, and carrying the wick-casings *c*, *c'*, and oil-tank *o*, substantially as described and set forth.

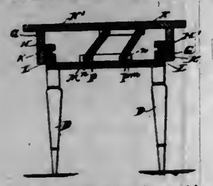


4. In cycle and road-vehicle lamps, the combination with a spherical body part *a*, pierced with openings *c'*, *f'*, *g'*, h^{11}, and a^7, fitted respectively with a cone *c*, reflector *f*, side lights *g*, head parts *h*, and foot *a'*, and supporting at its upper part a^8, the inner and outer rings *k'*, k^9, chimney-clips k^3, guard-ring *k*, sleeve k^2, breaker k^5, and cowl k^6, of a gallery *b*, hinged at a^{10} to the foot *a'* and carrying the wick-casings *c*, *c'*, baffle-tube *p'*, and oil-tank *o*, and supported by bracket-plates *m'*, m^2, in connection with a back-strap m^3, substantially as described and set forth.

5. In a cycle or road-vehicle lamp, the combination with the bracket-arms *m'*, m^2 and back-strap m^3, of a fastening-catch *n*, *n'*, n^2, and clearance-gage m^6, m^7, for the same, substantially as described and set forth.

6. In cycle and road-vehicle lamps, the combination with a glass reflector f^2, of a pierced and hollow back f^3, closed around the back edges of pierced sides f^4, and a shoulder f^5, turned over the edges of said reflector f^2, substantially as described and set forth.

595,192. EXTENSION-TABLE. SYLVESTER L. MCADAMS, Beaver Falls, Pa., assignor of one-half to Charles A. Curl, same place. Filed July 19, 1897. Serial No. 645,068. (No model.)



Claim.—1. In an extension-table, the combination with the main or relatively stationary frame, of the extension-frame sliding laterally from the main frame and having a supporting-bar, M, and an extension-leaf formed in two sections, N, N', the section N being connected to the support M by a "parallel-rule" joint, and the section N' being connected to the section N by one or more links, the ends of the sections being beveled; substantially as set forth.

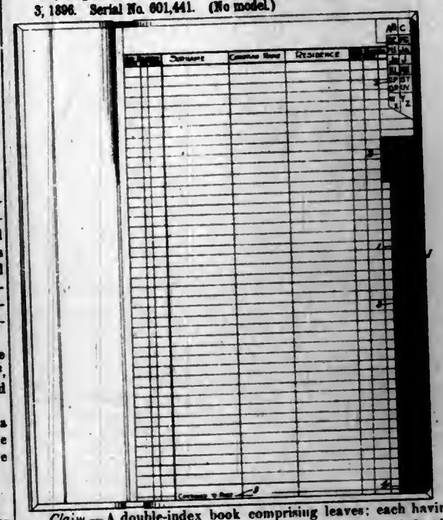
2. In an extension-table, the combination with the relatively stationary body part, of the laterally-adjustable extension-board, it having a support as at M, and an extension-leaf formed in two sections, N, N', hinged together at adjacent ends, means for rigidly supporting the inner end of one section upon the inner end of the other, and a "parallel-rule" joint connecting the section N to the supporting-bar M, whereby the leaf-sections are movable to and from each other on planes transverse to the table, and the leaf, as a whole, is movable both transversely and vertically of the table in the same planes; substantially as set forth.

595,193. NUT-LOCK. JOHN T. MCMURRAY, Conneaut, Ohio. Filed Feb. 25, 1897. Serial No. 625,059. (No model.)

Claim.—In a nut-lock, the combination with the rails, the fish-plates, the bolt and the nut, of the lock consisting of a spring-metal horizontal rod or bar having its ends bent downwardly and then inclined backwardly, at an angle to said horizontal arm and the extremities bent into coils embracing the bolt and confined between the nut and fish-plate and the upper sides of the nut bearing against said horizontal arm, substantially as described.

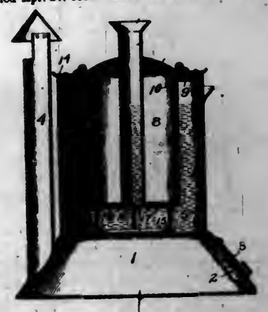


595,194. DOUBLE INDEX. MARTIN C HEUSER, Los Angeles, Cal., assignor of one-fourth to James E. Knight, same place. Filed Aug. 3, 1896. Serial No. 601,441. (No model.)



Claim.—A double-index book comprising leaves: each having printed thereon vertical columns for the date when recorded, for the surname, for the first or Christian name, for the residence, and for where recorded, all in the order named, a surname main index having divisions arranged in double vertical columns on the right-hand margin of each of the leaves commencing in front at a point near the upper part of the leaves and extending downward on the succeeding leaves to the back leaf, and the series of first or Christian name subindexes each having divisions arranged in double vertical columns on the right-hand margins of the leaves in alinement with the columns of the surname main index commencing at the upper part of the leaves of each series and extending downward: a series of first or Christian name subindex-leaves being arranged in front of each divisional leaf of the surname main index and each one of the leaves of each series having located thereon the abbreviation of the divisional leaf the series of leaves represents; substantially as described.

595,195. POWDER-THAWER. THEODORE R. NEWMAN, Rossland, Canada. Filed Apr. 27, 1897. Serial No. 634,131. (No model.)

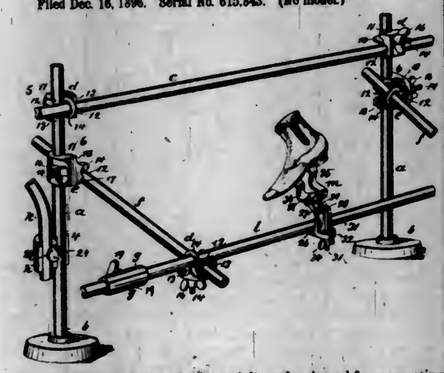


Claim.—1. In a heater for explosives, the combination of a boiler, a receptacle for the explosive removably fitted within the boiler and forming a close joint therewith at its upper end, a tube extending through the receptacle and having its upper end flared, and a cover slidably mounted upon the projecting portion of the tube, substantially as specified.

2. In a heater for explosives, the combination of a boiler having an inner flange at its upper end, a receptacle for the explosive removably fitted within the boiler leaving a space between its bottom and sides and the corresponding parts of the boiler, and having an outer flange at its upper end to overlap the inner flange of the boiler, a tube extending centrally through the receptacle and opening through the bottom thereof, a cover slidably mounted upon the upper portion of the tube for closing the receptacle, and fastenings applied to the inner flange of the boiler and adapted to extend over the rim of the cover and hold it and the receptacle in position, substantially as set forth.

3. The herein-described device for thawing or heating explosives, consisting of a heater of frusto-conical form provided with a smoke-pipe and a door having a damper-controlled opening, a boiler mounted upon the heater, a receptacle removably fitted within the boiler leaving a space between its bottom and sides and the corresponding parts of the boiler, a centrally-disposed tube extending through the receptacle and the bottom thereof and having its upper end flared, a cover slidably mounted upon the upper portion of the tube, fastenings for securing the cover and receptacle in place, and a stand interposed between the bottom of the receptacle and the boiler, substantially as set forth for the purpose described.

595,196. DISPLAY-STAND. SAMUEL NEWMAN and HENRY R. BOTHWELL, Cincinnati, Ohio; said Bothwell assignor to said Newman. Filed Dec. 16, 1896. Serial No. 615,843. (No model.)



Claim.—1. A fitting *d* substantially yoke-shaped for connecting rod-sections of display-stands at an angle, having rod-bearings 12, 12, in its projecting members 13, 13 and a rod-bearing 11 in the deepest part between said members 13, 13, and an eye-screw 14 the screw-shank of which also enters between said members and the eye of which receives the rod occupying bearings 12, 12, thereby connecting the same to the fitting, with the rod occupying seat 11 clamped between them.

2. A fitting substantially cup-shaped for connecting rod-sections of display-stands at an angle, having a number of rod-bearings cut in edgewise in its raised or projecting margin, being all in one plane and a rod-bearing 11 at a deeper plane from the outside of said margin, the difference in depth being substantially equal to the thickness of the rods and an eye-screw 14 adapted to connect the rod occupying one of the outer or higher bearings of the fitting with the other rod clamped between.

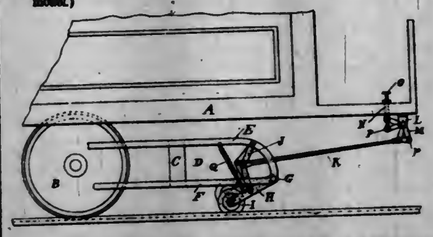
3. A fitting for display-stands consisting of a clamping device having two members, connected in a manner to have a reciprocatory adjustment on each other which constitutes the clamping action, said members having also an independent pivotal adjustment on each other in each position of the reciprocal adjustment and one of said members being provided with a supporting device adapted to carry articles to be displayed which latter device has a rotary adjustment of the member which carries it and which adjustment is independent of the reciprocal as well as pivotal adjustment of said member and one screw connection whereby all parts, that is the members of the clamping device as well as the supporting device are secured in their adjusted positions.

4. A fitting for display-stands consisting of the two clamping members 26 and 27, a bent screw 31 whereby they are connected in a manner to have a reciprocatory as well as pivotal adjustment on each other and a supporting device 35 provided on one of the clamping members.

5. A fitting for display-stands consisting of the two clamping members 26 and 27, a bent screw 31 whereby they are connected in a manner to have a reciprocatory as well as pivotal adjustment on each other and a supporting device 35 secured to one of the clamping members in a manner to have an independent pivotal adjustment thereon.

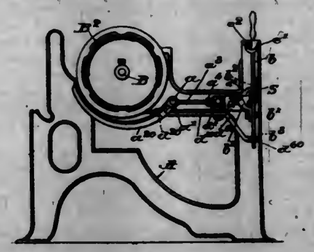
6. A fitting for display-stands consisting of the two clamping members 26 and 27, a suitable supporting device 35, a pivot 37 whereby this latter is secured to one of the clamping members and the shank of which pivot is seated in a bore in such clamping member and the bent locking-screw 31, 29 which connects all parts in the manner and for the purpose described.

595,197. DEVICE FOR OPERATING SWITCHES. SHERWOOD B. NORRIS, Auburn, Me. Filed Nov. 12, 1896. Serial No. 611,573. (No model.)



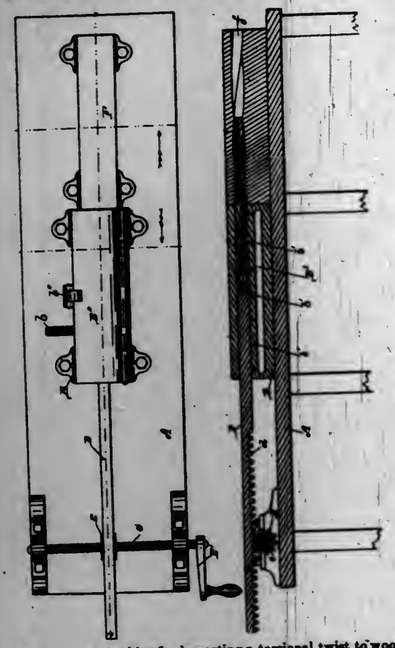
Claim.—In a device for operating switches, in combination, trucks, rigid arms attached thereto and extending outwardly therefrom, said arms being connected at their top and bottom by suitable rods, pairs of lever-arms pivotally connected to said braces at each side and extending rearwardly and diagonally downward, said lever-arms being provided with forked extremities, wedge-shaped wheels adapted to revolve on said axle, springs interposed between the arms of said forked extremities and wedge-shaped wheels and surrounding said axles to allow said wedge-shaped wheels a lateral movement, toggle-joints, one member of which is pivoted at its extremity to the upper portion of said rigid brace, the other member of which is pivoted at its extremity to the lever-arm, rods connecting said toggle-joints and extending to the car-platform, bell-crank levers pivotally mounted on the bottom of the car-platform, foot-levers in connection with and pivotally attached to one of the arms of said bell-crank lever, the other arm of said bell-crank lever being connected with said rods, which, when drawn forward, straighten said toggle-joints and force said wedge-shaped wheels downwardly upon the track, retracting-springs extending from said lever-arms to the upper portion of said rigid brace for the purpose of normally holding said wheels out of engagement with the track, substantially as and for the purposes set forth.

595,198. LOOM. JAMES H. NORTHROP and MYRON J. BICKLOW, Hopedale, Mass., assignors to the Draper Company, same place and Portland, Me. Filed May 22, 1897. Serial No. 637,651. (No model.)



Claim.—In a loom, a driving-shaft having fast and loose pulleys thereon at one side of the loom, a belt-fork adjacent said pulleys, means to support it, and a shipper-handle having slots therein above and below its fulcrum, combined with a reversible bent lever at the same side of the loom as the shipper-handle and adapted to be connected at its rear end with the belt-fork and at its front end to enter one or other of the slots of the shipper handle, whereby the belt-fork is positively operated by movement of the shipper-handle in either direction, substantially as described.

595,199. MACHINE FOR TWISTING WOOD. OSCAR H. ORDWAY, South Framingham, Mass., assignor to Albert H. Ordway, same place. Filed Mar. 29, 1897. Serial No. 629,673. (No model.)



Claim.—1. A machine for imparting a torsional twist to wooden bars or rods having an angular shape in cross-section, consisting of a twister-die having a longitudinal bore of angular shape in cross-section, the walls of which are twisted torsionally along their length, and means for guiding and forcing the bars or rods to be shaped into said twister-die, said guiding means being arranged to hold one end of the said rod or bar against rotation while being forced into the said twister-die.

2. A machine for imparting a torsional twist to wooden bars or rods having a polygonal shape in cross-section, said machine consisting of a twister-die having a longitudinal bore of uniform diameter throughout its length and of polygonal shape in cross-section, the inner walls of said bore being twisted torsionally along their length, and means for guiding and forcing the rods or bars to be shaped into said twister-die, said guiding means being arranged to hold one end of the bar or rod against rotation while being forced into the twister-die.

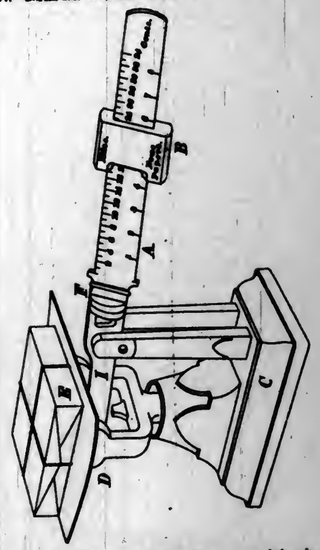
3. A machine for imparting a torsional twist to wooden bars or rods having an angular shape in cross-section, consisting of a longitudinally-grooved guide-block, said groove being of angular shape in cross-section and having a hinged cover by which access may be had to said groove, said guide-block being adapted to hold the rods or bars against rotation, a twister-die having a longitudinal bore of angular shape in cross-section, the inner walls of said bore being twisted torsionally along their length, and a driver or plunger for forcing the bars or rods to be shaped through the said guide-block and into the twister-die.

4. The herein-described machine for shaping wooden rods or bars, consisting of a twister-die having a longitudinally-twisted bore through which the green or steamed wooden bar is forced and in which it is allowed to remain until it retains its twisted form and means for holding one end of the bar or rod against rotation while it is being forced into the twister-die, substantially as and for the purpose set forth.

5. The herein-described machine for shaping wooden rods or bars, consisting in combination a longitudinally grooved or perforated guide-block, said groove being angular in cross-section, and adapted to hold one end of the bar or rod against rotation, a twister-die having a longitudinal twisted bore or perforation in alinement with the guide-groove in the guide-block, and a reciprocating driver or plunger for forcing the green or steamed bar through the guide-block and twisted bore or perforation in the twister-die, substantially as and for the purpose set forth.

6. The herein-described machine for shaping wooden rods or bars consisting in combination a guide-block having a longitudinal perforation for receiving the green or steamed wooden bar, a steam-jacket in said guide-block for forcing steam in contact with the wooden bar or rod, a twister-die having a twisted bore or perforation in alinement with the groove in the guide-block and a reciprocating driver or plunger for forcing the wooden bar through the guide-groove and through the twisted bore or perforation in the twister-die, substantially as and for the purpose set forth.

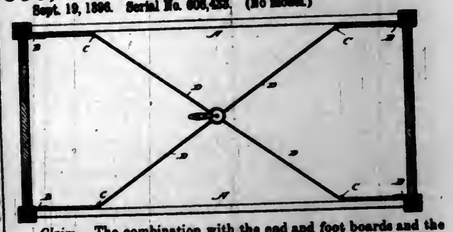
595,200. SCALE. HARVEY PADDOCK, St. Johnsbury, Vt., assignor to the E. & T. Fairbanks & Company, same place. Filed Apr. 27, 1897. Serial No. 634,142. (No model.)



Claim.—1. A postal scale comprising a revolving beam having figures on both sides indicating money values of different classes of postal matter and a poise sliding on said beam and having readings on both sides, indicating the character of article weighed, said readings being arranged adjacent to the line of figures which indicate the amount of postage required for the article in that particular class which is being weighed, substantially as described.

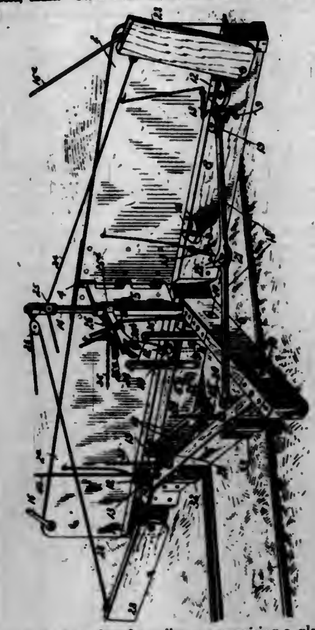
2. A postal scale comprising a revolving beam having figures on both sides indicating money value of different classes of postal matter and having markings upon the edge indicating divisions of pound and a poise sliding on said beam and having readings on both sides indicating classes of mailable articles, substantially as described.

595,201. BED-BRACE. SAMUEL R. PAYNE, Biddleton, Tenn. Filed Sept. 19, 1896. Serial No. 606,423. (No model.)



Claim.—The combination with the end and foot boards and the side rails of a bedstead, of the end posts thereto, the hooks B B secured in said end posts, the staples, C C fixed to said side rails near said end posts, the crossed brace-wires D D, detachably secured to said hooks and staples, the casting-piece E, provided with a central bearing-orifice *a*, circumferential ratchet teeth *b*, and lateral guide-lugs *c*, the disk F provided with the integral lever-handle *f*, the eccentric hub *g*, provided with the lateral pins *i i* and a spring-actuated pawl mounted in said handle and adapted to engage the teeth on the casting-piece E, substantially as shown and described.

595,202. SNOW-PLOW. HENRY PEARSON and GEORGE S. WEBB, Springfield, Mass. Filed Mar. 15, 1897. Serial No. 627,514. (No model.)



Claim.—1. A snow-plow for railways comprising a platform, a truck therefor, plowing devices on each end of said platform, triangular frames supporting said plowing devices, and adapted to have a vertical sliding movement on said platform toward and from the road-bed, and means for imparting said movement thereto consisting of two transverse shafts near the ends of said platform, flexible connections between said triangular frames and said shafts, a tight and loose flexible connection between said shafts and means for rotating said shafts together or separately, and means for disconnecting said shaft-rotating devices from either shaft, substantially as described.

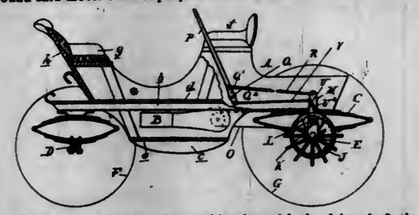
2. A snow-plow for railways comprising a platform, a suitable truck therefor, a detachable triangular frame supported on said platform and truck, plowing devices on the end of said platform consisting of two parts hinged together at a point longitudinally central with said platform and adapted to be swung the one relative to the other in a horizontal plane, whereby said two parts may be brought into the same plane and diagonally disposed relative to the end of the said platform and folding braces for each of said hinged parts consisting of two arms 8, hinged together at 21, and having the abutting lugs 22, the opposite ends of said arms being respectively hinged one to said triangular frame and one to one of said hinged parts of the plow, substantially as described.

3. A snow-plow for railways comprising a platform mounted on suitable trucks, a triangular frame on each end of said platform and vertically movable thereon, a plowing device consisting of two parts hinged together at the forward ends of said frames, and longitudinally central with said platform, a vertical post supported near the points of said triangular frames, supports for the outer end of said two hinged parts secured thereto and to said post, a scraper pivoted by one end to each of the outer ends of said hinged parts, flexible connections from said scrapers to said platform, and means for adjusting as a whole said triangular frames and the parts secured thereto, either one of them, singly, or both of them together, from either end of said platform, substantially as described.

595,203. MOTOR-VEHICLE. BARTON L. PECK, Detroit, Mich. Filed Mar. 24, 1897. Serial No. 628,955. (No model.)

Claim.—1. In a motor-vehicle, the combination with the body of the vehicle and the motor secured beneath the same, of a box surrounding said motor open at its forward and rear ends for the purpose described.

2. In a motor-vehicle, the combination with the body of the vehicle and the motor secured beneath the same, of a front or dash board for said body inclined rearward from top to bottom and the downward side extensions *c* and bottom *c* forming an open-ended box around said motor for the purpose described.



3. In a motor-vehicle, the combination with the drive-shaft, the driven wheel, and its axle, of a rock-frame pivoted on said axle, a shaft journaled in said rock-frame, having a gear connection with said wheel, and a belt connection with said drive-shaft, and means for rocking said frame to tighten or loosen the belt.

4. In a motor-vehicle the combination with the drive-shaft, the driven wheel and its axle, of a rock-frame pivoted to said axle, a shaft journaled in said rock-frame having a gear connection with said wheel and a belt connection to said drive-shaft, a brake for said wheel, and connections whereby said rock-shaft may be rocked in one direction to tighten said belt and when rocked in the opposite direction will apply the brake.

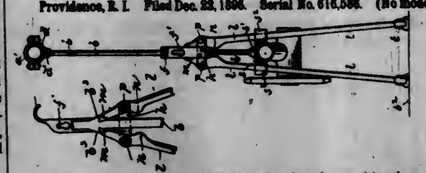
5. In a motor-vehicle, the combination with the drive-shaft and the driven wheel, of an intermediate shaft having a belt connection to said drive-shaft, and a gear connection to said wheel, and a yielding bearing in which said shaft is journaled permitting the gears under sufficient pressure to throw out of mesh.

6. In a motor-vehicle the combination with the drive-shaft, the driven wheel and its axle, of a rock-frame pivoted upon said axle, a shaft journaled in said rock-frame, having a pivoted bearing at its inner end, and a yielding spring-pressed bearing at its outer end, a pinion at the outer end of said shaft, meshing with a gear-wheel on said wheel, a pulley at the inner end of said shaft, a pulley on the drive shaft, a belt connecting said pulleys and means for rocking said frame to tighten or loosen said belt.

7. In a motor-vehicle, the combination with the drive-shaft, the driven wheel and its axle, of a rock-frame pivoted to said axle, a shaft journaled in said rock-frame, having a belt connection with said drive-shaft, an internal gear-wheel secured to said driven wheel meshing with the pinion on said shaft, a brake-strap extending around the periphery of said internal gear, and connections between said brake-shaft and rock-frame and means for rocking the latter, whereby the rocking in one direction tightens the belt and in the opposite direction tightens the brake-strap.

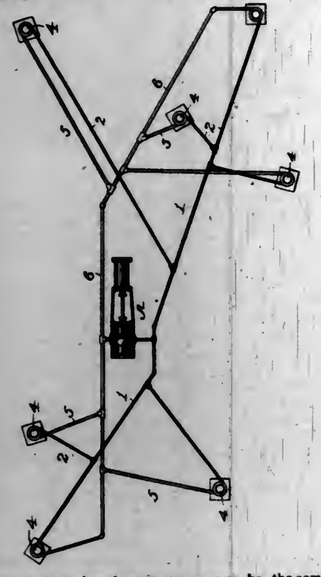
8. In a motor-vehicle, the combination with the drive-shaft, the driven wheel and its axle, of a rock-frame pivoted to said axle, a shaft journaled in said rock-frame having a belt connection with said drive shaft, an internal gear-wheel secured to said driven wheel meshing with the pinion on said shaft, a brake-strap extending around the periphery of said internal gear-wheel, a lever pivoted to said rock-frame to which the ends of said brake-strap are secured on the opposite sides of the fulcrum, a controlling-lever and a connections between said controlling-lever and said rock-frame, and a lever pivoted thereto, whereby a movement in one direction will tighten the belt and in the opposite direction will apply the brake.

595,204. SUPPORT FOR BICYCLES. GEORGE W. PRENTICE, Providence, R. I. Filed Dec. 22, 1896. Serial No. 616,586. (No model.)



Claim.—In a supporting device for bicycles, the combination with the upper and lower holders or couplings secured to the corresponding members of the bicycle-frame, of the vertical rod *b* rigidly mounted in said couplings, a cross-head slidable on said rod, a pair of oppositely-arranged supports or legs *l* pivoted at their upper ends to the cross-head, fixed guides a^3 having the said legs passing downwardly therethrough arranged to automatically spread the latter apart while they are being dropped into position for use, and having the ends of the legs, above the pivots, arranged to engage a notch or recess formed in the rod *b*, substantially as hereinbefore described and for the purpose set forth.

595,205. DEVICE FOR OPERATING SERIES OF PUMPS. MILES W. QUICK, Titusville, Pa. Filed Aug. 19, 1895. Serial No. 559,795. (No model.)

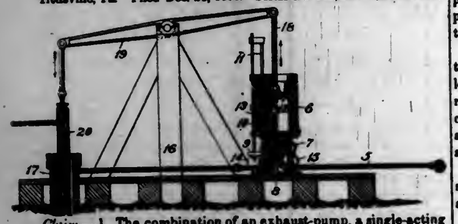


Claim.—1. In a plant for operating pumps, &c., the combination of a fluid-compressor, a cylinder, pipes connecting the cylinder to the discharge and inlet ports of the compressor, valve mechanism controlling the flow of fluid-pressure to and from the cylinder, and a pump-rod or other load connected to the piston of the cylinder and adapted to be raised by fluid-pressure and in its descent to deliver the fluid to the compressor at a pressure higher than atmospheric pressure, substantially as set forth.

2. In a plant for operating pumps, &c., the combination of a fluid compressor, a single-acting cylinder, pipes connecting the closed end of the cylinder with the discharge and inlet ports of the compressor, valve mechanism controlling the flow of fluid-pressure to and from the cylinder and a pump-rod or other load connected to the piston of the cylinder, whereby the pump-rod or other load may be raised by fluid-pressure in the cylinder and the fluid so used may be delivered by the descent of the rod to the compressor at a pressure higher than atmospheric pressure, substantially as set forth.

3. In a plant for operating pumps, &c., the combination of a fluid-compressor, a series of two or more independent cylinders, pipes connecting the cylinders to the discharge and inlet ports of the compressor, valve mechanisms controlling the flow of fluid to and from the cylinders and a series of two or more pump-rods connected to the pistons of the cylinders and adapted to be raised by fluid-pressure in the cylinders and in their descent to deliver the fluid to the compressor at a pressure higher than atmospheric pressure, substantially as set forth.

595,206. PLANT FOR OPERATING MOTORS. MILES W. QUICK, Titusville, Pa. Filed Dec. 21, 1896. Serial No. 616,514. (No model.)



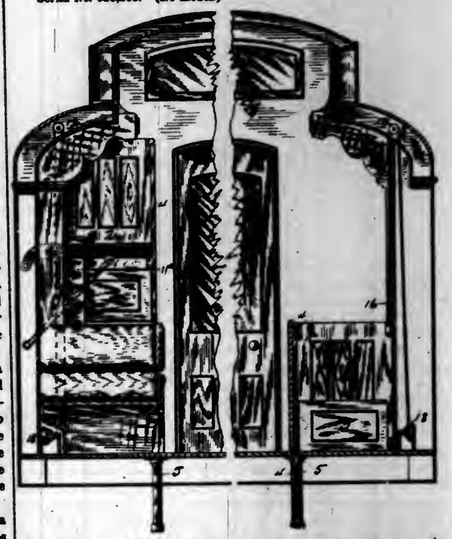
Claim.—1. The combination of an exhaust-pump, a single-acting cylinder connected to the exhaust-pump, and a valve mechanism controlling the connection between the cylinder and exhaust-pump and constructed to permit the inflow of fluid in such quantity as to only partially destroy the vacuum in the cylinder, substantially as set forth.

2. The combination of an exhaust-pump, a single-acting cylinder connected to the exhaust-pump, a pump-rod or other weight connected to the piston of the cylinder, and a valve mechanism controlling the connection between the cylinder and exhaust-pump and constructed to permit only such inflow of fluid to the cylinder as will reduce the vacuum to a point where the weight will shift the piston against atmospheric pressure, substantially as set forth.

3. The combination of an exhaust-pump, a single-acting cylinder connected to the exhaust-pump, and to a gas-supply, a pump-rod or other weight connected to the piston of the cylinder and a valve mechanism controlling the connection between the cylinder, the exhaust-pump and the gas-supply, substantially as set forth.

4. In a plant for pumping oil-wells, the combination of a central exhaust apparatus, two or more single-acting cylinders located at the wells to be pumped, and connected to the exhaust apparatus, the pump-rods of said wells being connected to the pistons of the cylinders, valve mechanisms controlling the flow of fluid from and to the cylinders, and connections from one or more of the cylinders to a gas-supply, substantially as set forth.

595,207. SLEEPING-CAR SECTION-PARTITION. FRANKLIN T. REBER and CHARLES A. WILLIS, Carnegie, Pa. Filed Mar. 19, 1897. Serial No. 628,293. (No model.)



Claim.—1. The combination with a casing arranged between the seats, of a partition adapted to rest within said casing and automatic means for elevating said partition to separate the berths, substantially as shown and described.

2. The combination with a sleeping-car, of a partition formed in sections, adapted to fold within a casing between the backs of the seats, and automatic means for elevating said partition to separate the berths, substantially as shown and described.

3. In a partition for sleeping-cars and the like, the combination of the partition proper, composed of sections, a casing to receive said partition, a counterbalance spring, connections between the spring and partition, a guide for said partition, and means for holding the partition within the casing, substantially as shown and described.

4. A partition for sleeping-cars and the like, consisting of sections connected together in a manner to extend to their greatest length when elevated, a casing arranged between the seat-backs to receive said partition, means for holding said partition within the casing, and means whereby the partition is automatically elevated and extended when released from its casing, substantially as shown and described.

5. A partition formed in sections connected together in a manner to extend to their greatest length when elevated, and means for automatically elevating said partition

6. A partition formed in sections connected together in a manner to extend to their greatest length when elevated, a casing for said partition, means for holding said partition within the casing, and means whereby the said partition is elevated when the partition is released from its casing, substantially as shown and described.

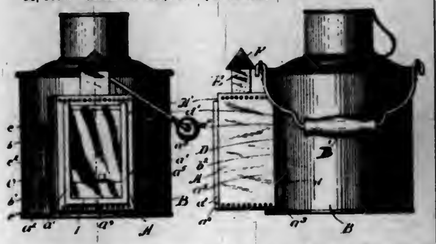
595,208. STORAGE BATTERY. JOHN D. RIVELY, Pittsburg, Pa., assignor, by direct and mesne assignments, to the Electro-Storage Company of North America, of West Virginia. Filed Feb. 19, 1897. Serial No. 624,104. (No model.)



Claim.—1. In a storage battery, the combination of the series of electrodes arranged horizontally within said casing, a vertically-arranged insulating-plate in the casing dividing said series into cells, a metallic perforated feed pipe connecting said cells and forming a path for the current from one cell to the other and suitable connection between said electrodes and the binding-post carried by the casing substantially as described.

2. In a storage battery consisting of a casing, a series of plates of rubber, asbestos, aluminium and active material arranged horizontally within said casing, a vertically-arranged insulating-plate dividing said series into cells, a metallic perforated feed-pipe passing through the asbestos and forming a path for the current from one cell to another, and connections between said aluminium plates and binding-post carried by said casing.

595,209. LANTERN. JOHN J. ROACH, Butte, Mont. Filed Mar. 30, 1897. Serial No. 630,006. (No model.)

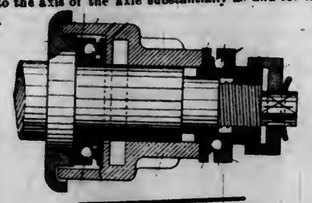


Claim.—1. The combination with the pail B having the sleeves or sockets b and b' and the sleeve b^3 secured to the sides thereof: of a lantern having an open front provided with a transparency therein, and being entirely open at the back: vertical side flanges at the back thereof; a wire soldered along one of said flanges and bent at its upper end to form a hook, and at its lower end to form a stud adapted to engage said sleeves b and b'; a pair of sleeves secured to the other of said flanges a short distance apart; and a wire rod or key adapted to pass through said pair of sleeves and through said sleeve b^3 on the pail, and thus hold the lantern firmly thereon, substantially as described.

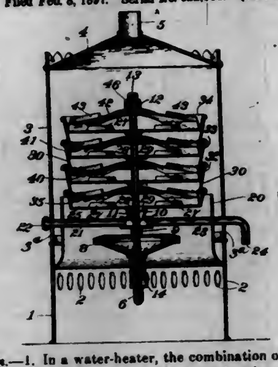
2. The combination with the pail B having the sleeves or sockets b and b', and the sleeve b^3 secured to the sides thereof: of the lantern A having open front provided with a transparency therein, and being entirely open at the back; vertical side flanges a^3 and a^4 at the back thereof; hooks upon one of said flanges adapted to engage in said sleeves or sockets b and b' and form a hinge-joint; a pair of sleeves upon the other flange a short distance apart, and a wire rod or key adapted to pass through said pair of sleeves and through said sleeve b^3 on the pail, and thus lock the lantern-body thereto; a candle-socket mounted upon the floor of said lantern, and an oil-reservoir having a socket or chamber in its under side adapted to fit over said candle-socket, resting in the lower part of the said lantern, and provided with a suitable burner, substantially as and for the purposes described.

595,210. BALL-BEARING FOR AXLES. MARCHIRE ROUSSELLE, Verviers, and VICTOR SEUTSEL and JEAN SEUTSEL, Brussels, Belgium. Filed Apr. 13, 1896. Serial No. 587,406. (No model.) Patented in Belgium Jan. 4, 1895, No. 113,513, and in France Jan. 17, 1895, No. 244,286.

Claim.—The combination of an axle and an axle-box, a cup surrounding said axle having one end plane and perpendicular to the axis of the axle and having in the other end a ball-race, a loose ring surrounding said axle and having its two end faces plane and perpendicular to the axis of said axle, perpendicular bearing-faces on said axle-box and axle respectively for said cup and ring and balls in said ball-race having contact with the race and with the ring respectively at points at opposite ends of diameters through said balls parallel to the axis of the axle substantially as and for the purpose set forth.



595,211. WATER-HEATER. EMANUEL I. SCHNEIDER, Ann Arbor, Mich. Filed Feb. 8, 1897. Serial No. 622,558. (No model.)

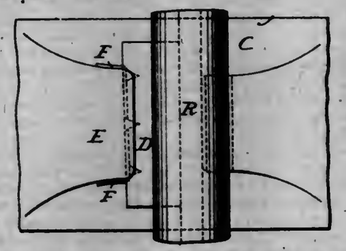


Claim.—1. In a water-heater, the combination of a pan having a discharge-opening through the central portion thereof, and flanged openings 27, an outlet-pipe leading from said discharge-opening, a metal form supported in said pan and having a central portion arranged to cover the discharge-opening of said pan, and distributing portions adapted to cover said flanged openings, piping for supplying water to said form, and a burner adapted to heat the pan and form, substantially as described.

2. In a water-heater, the combination of a pan having a discharge-opening through the central portion thereof, and flanged openings 27, an outlet-pipe leading from said discharge-opening, a metal form 42 supported in said pan having a central portion arranged to cover the discharge-opening of said pan, and distributing portions adapted to cover said flanged openings, the distributing portions of said form provided with transverse corrugations, piping for supplying water to said form, and a burner adapted to heat the pan and form, substantially as described.

3. A water-heater, comprising a series of pans, each pan having a discharge opening, flanged openings 27 and a flanged rim, the pans being connected by walls 30, each wall adapted to form a seat for a pan above and being provided with a flange at its lower portion adapted to rest upon the flanged rim of the pan below, an outlet-pipe leading from the discharge-opening of the lowest pan, piping for supplying water, and a burner adapted to heat said pans, substantially as described.

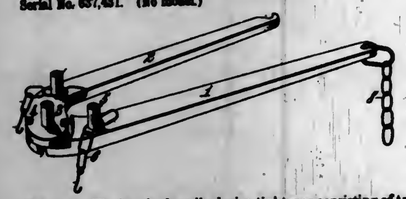
595,212. FASTENING FOR RAILWAY-RAILS. FREDERICK W. SCHRODER, Newtown, New South Wales. Filed July 15, 1897. Serial No. 644,723. (No model.)



Claim.—The combination of the rail, the chair and the wedge employed to secure the rail in the chair, substantially as described:

with a thin bar or strip F of iron or steel having one of its sides rounded and provided with sharp studs *f* projecting at intervals from this rounded side, said strip being held or partly embedded in the wedge so that the studs *f* are firmly engaged in the wedge, and, after the wedge and the attached strip are driven in place, the ends of said strip being bent back against the sides of the jaw of the chair, all substantially as and for the purpose set forth.

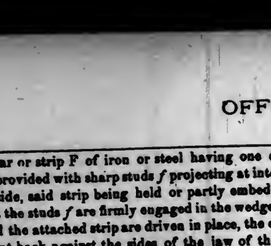
595,213. WIRE-TIGHTENER. WILLIAM A. SHORT, Baird, Tex., assignor of one-half to B. L. Russell, same place. Filed May 20, 1897. Serial No. 637,431. (No model.)



Claim.—1. The herein-described wire-tightener consisting of two arms pivoted together at one end and provided with upwardly projecting pins, chains attached to said pins and carrying hooks to be engaged with a slackened fence-wire at opposite sides of a fence-post, the heel or pivotal end of the implement being adapted to bear against the said fence-post and serve therewith as a fulcrum, whereby the closing together of the implement-arms will strain the fence-wire partly around the fence-post, and means attached to the free ends of said arms for holding them in closed or partly-closed position to permit attachment of the strained fence-wire to the fence-post, substantially as specified.

2. The herein-described wire-tightener consisting of two arms pivoted together at one end and provided with the described upwardly-projecting pins, chains adjustably attached to two of said pins and carrying hooks to be engaged with a fence-wire, and a fastening device adapted to secure together the free ends of the closed arms, substantially as specified.

595,214. SHAFT-BEARING. JOHN W. SMITH, Columbia, Fla., assignor to himself and George L. Drew, same place. Filed Oct. 26, 1896. Serial No. 610,093. (No model.)



Claim.—1. A shaft-bearing, comprising a journal and a ring or housing, one adapted to rotate relatively to the other, the said journal having peripheral annular channels and the ring or housing having transversely-inclined planes, main bearing-balls engaging in the channels and against the inclined planes, a channeled ring loosely seated in a groove in the ring or housing, interposing balls movable in the ring-channel and engaging with the main bearing-balls, and small interposing balls serving to separate the first-named interposing balls, substantially as specified.

2. A shaft-bearing, comprising a journal having peripheral annular channels for said bearing-balls, a ring or housing having transversely-inclined planes, main-bearing-balls engaging in said channels and against the inclined planes, a loose ring having an annular channel, large interposing balls movable in said channel and bearing against the main bearing-balls, and small interposing balls movable in a channel and serving to separate the large interposing balls, substantially as specified.

3. In a ball-bearing comprising a shaft having two ball-races in close proximity to each other, a boxing through which said shaft passes and having a race opposite each of the races on the shaft, a row of balls between each of the two races, a third row of balls between the aforesaid row of balls and in engagement with both of said rows, and a ring held loosely in the boxing and inclosing the third row of balls, having an inner concave surface adapted to fit the surface of the balls of the third row, substantially as described.

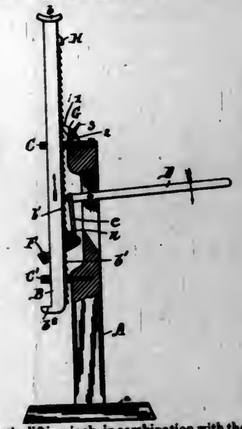
595,215. NUT-LOCK. WILLIAM R. SMITH, Grenada, Miss., assignor of two-fifths to R. R. Moore, same place. Filed July 30, 1897. Serial No. 645,243. (No model.)



Claim.—1. A nut-lock comprising a bolt, a nut arranged on the bolt and having a convex inner face provided with a series of substantially convex enlargements, and a washer having a concave outer face and a convex inner face and provided in its outer face with a series of substantially concave recesses or depressions adapted to receive the enlargements of the nut, substantially as and for the purpose described.

2. A nut-lock comprising a bolt, a nut arranged on the bolt and having a convex inner face provided with a series of substantially convex enlargements, and a substantially concavo-convex washer constructed of resilient material and provided in its outer or concave face with a series of depressions receiving the enlargements of the nut, said washer being adapted to spring sufficiently to permit the nut to be forced over it, substantially as described.

595,216. LIFTING-JACK. JOSEPH W. SHELL, Jr., Chicago, Ill. Filed Feb. 12, 1897. Serial No. 623,130. (No model.)



Claim.—1. In the lifting-jack, in combination with the supporting-post A, the lever-detent G, said detent having the lips 1 and 2 and side handle-lever 3, the main bar B provided with ratchets *b'*, concave *b*, enlargements *b*[3] and tip H, the two guide-collars engaging main bar, the tongue F provided with tip *n* and perforations for entrance of main bar B, and means for raising main bar above supporting-post substantially as described.

2. In the lifting-jack, the combination of the supporting-post A, perforated guide-collars C C', the main bar B having ratchets *b'* and being rabbeted each side of ratchets *b'* to fit the perforations in guide-collars C and C', the balanced lever-detent G pivoted to guide-collar C, tongue F engaging main bar and also having sliding connection therewith and provided on its upper inner surface with tip *n*, said tip engaging in ratchets *b'* of bar B, substantially as described.

3. In a lifting-jack, in combination with the supporting-post A, main bar B having ratchets *b'*, and lever D with connecting-link *e*, tongue F having tip *n* on inner surface engaging with ratchets *b'* of main bar, and having a backwardly-extending lug, link *e* by which tongue is connected to lever D, the lever-detent G pivoted to guide-collar C, having lip 1 which engages in ratchets of main bar, under lip 2 for throwing said detent back, and thumb-lever 3 on top of lever-detent, substantially as described.

595,217. FENCE-POST. HERBERT R. SPRYER, Chicago, Ill., assignor of one-half to Burtred G. Bracey, same place. Filed May 11, 1897. Serial No. 636,062. (No model.)

Claim.—1. In a fence-post, the combination with the cylinder of terra-cotta formed with radial ribs and with a central angular opening extending from end to end thereof of the angle-post inserted in said opening and a filling of grouting or cement interposed between said post and the sides of the opening, substantially as described.

2. In a fence-post the combination with the terra-cotta cylinder having openings in its sides, the central core having an angular opening, and the radial ribs with openings therein, of the angle bar or post, fitting in the opening in the core, substantially as described.

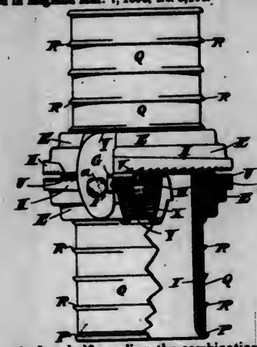


595,218. HANDLE AND SOCKET FOR PARASOLS. ELLA A. STAUFFER, Chicago, Ill. Filed Mar. 25, 1897. Serial No. 629,134. (No model.)



Claim.—An attachment or socket for supporting an umbrella or parasol consisting of a tube or cylinder closed at its lower end, bands 2 and 3 rigidly secured thereto and provided with curved depending fingers 4 and 5, a cap or ring 7 sliding upon the socket and having an opening which is brought into engagement with the end of the finger on the lower band, and a spring-catch pivoted to the tube or cylinder, the latter having an opening through which the head of the catch passes to engage a recess in the stick of the umbrella or parasol, substantially as shown and for the purpose set forth.

595,219. COUPLING FOR FIRE-HOSE, &c. ALFRED R. STOVE, London, England. Filed Apr. 2, 1897. Serial No. 630,443. (No model.) Patented in England Mar. 7, 1896, No. 5,196.

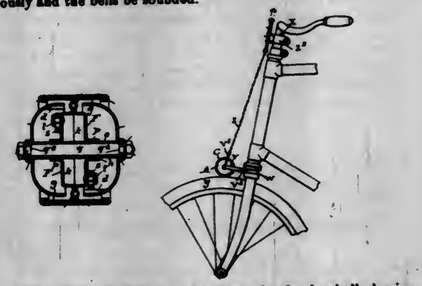


Claim.—1. In a half-coupling, the combination of a neck I having a shoulder M, a coupling-ring E fitted over said neck and supported on said shoulder, said ring having interior annular recesses C, D, and provided with means for locking to a similar half-coupling, an annular band A seated in said recesses and provided with an interior annular recess S, and a yielding packing-ring U seated in the recess S, substantially as described.

2. The combination with the half-coupling provided with toothed and wedge-shaped circumferential flanges and with undercut lugs F for engaging the flanges of a corresponding half-coupling, two catches V, Z, arranged to reciprocate in said lugs, bolts *a* arranged to slide transversely in said lugs and provided with beveled recesses, said bolts at one end projecting beyond the faces of the lugs for engagement by a spanner, and a spring operating to project the catches V, Z, respectively into engagement with the toothed flanges and recessed bolts, substantially as described and for the purpose specified.

595,220. BICYCLE-BELL. AUGUSTUS I. TAYMAN, Baltimore, Md. Filed Nov. 14, 1896. Serial No. 612,071. (No model.)

Claim.—1. In a bicycle-bell, the combination of two bells having position with their cup sides confronting each other; two struck-up disks secured together and mounted between said two bells; a circular rim larger than said bells and secured to the said two disks; and loose or movable hammers operated by the revolution of said two disks, whereby the circular rim and two disks may revolve continuously and the bells be sounded.



2. In a bicycle-bell, the combination of a fixed spindle having each end reduced and a shoulder where the reduction commences; two bells, each secured on one of the reduced ends of the spindle and bearing against the said shoulders; two disks secured together and revoluble on said spindle between the bells; a circular rim larger than said bells and secured to the disks; and hammers to strike the bells, said hammers being operated by the revolution of the circular rim and disks.

3. In a bicycle-bell, the combination of a fixed spindle; two bells each secured on an opposite end of the spindle; two cup-shaped disks each having a hub part and a rim larger than said bells and mounted on the spindle; and hammers which are caused to strike the bells by the revolution of the said disks.

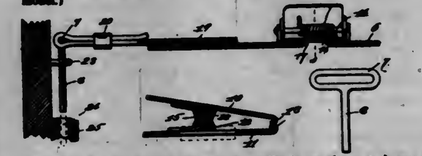
4. In a bicycle-bell, the combination of a fixed spindle; two bells each secured on an opposite end of the spindle; two cup-shaped disks each having a hub part and a rim larger than said bells and mounted on the spindle; a band or tire having on each circular edge a hook which takes over the rim edge of said disks and thereby covers and unites them; and hammers which are caused to strike the bells by the revolution of the said disks.

5. In a bicycle-bell, the combination of a fixed spindle; two bells each secured with their cup sides confronting each other on an opposite end of the spindle; two cup-shaped disks each having a hub and a raised surface, *i*, centrally around said hub; hammers mounted on said raised surface; and a circular rim secured to said disks, said rim being larger than the bells.

6. A sheet-metal bell formed into shape and having on its rim a lug bent inward by forming on the exterior of the rim a depression in combination with a revoluble circular rim larger than said bell, and a hammer carried by the said rim to strike against the said lug.

7. In a bicycle-bell, the combination of a spindle; two bells each at an opposite end of the spindle; two disks between the bells each mounted on the spindle and of greater diameter than said bells; and a band or tire which covers the rims of said two disks.

595,221. DEVICE FOR HOLDING COVERS ON BEDS. HENRY D. VIBBS, St. Louis, Mo. Filed Mar. 1, 1897. Serial No. 626,851. (No model.)



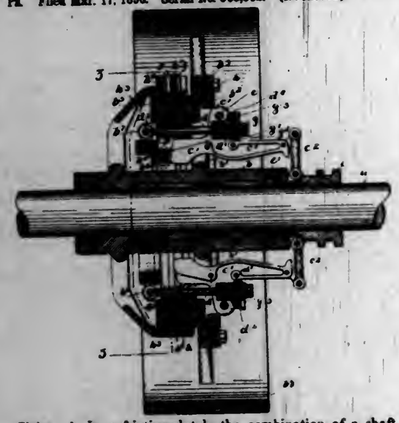
Claim.—In a device of the class described, an elongated metal loop 7, the strap 6 having one of its ends passed through said loop, folded upon itself and stitched, the arm 8 formed integral with said loop, the spring-clasps 9 slidingly mounted upon said strap 6, the strap 19 attached to the opposite end of the strap 6 from the first-mentioned loop 7, a second loop 7, through which said strap 19 is inserted, a second arm 8 projecting from said second loop 7 and the screw-eyes 23 projecting inwardly from the side pieces of the bed, said arms 8 being inserted downwardly through said screw-eyes, substantially as specified.

595,222. FAUCET. NATHAN S. WAKEFIELD, Pomona, Cal. Filed Jan. 7, 1897. Serial No. 618,322. (No model.)

Claim.—A faucet constructed substantially in the manner set forth, comprising a casing having an inner and an outer flange at its inner end, the outer flange serving to secure the casing to a receptacle, and the inner flange forming a valve-seat, a side spout near the inner end of the casing, and having a vent-opening and a vent-pipe in its side between its ends and transversely alining, a valve fitting tightly within the casing and normally closing the side vent-pipe and vent-opening, and provided with a peripheral groove, an operating-stem having loose connection with the valve and a screw-threaded connection with the cap of the casing for unseating the valve and bringing its peripheral groove in register with the vent-opening and vent-pipe, and a cap having positive and adjustable connection with the outer end of the casing, substantially as specified.



595,228. **FRICTION-CLUTCH.** EDWARD WALDRON, Philadelphia, Pa. Filed Mar. 17, 1896. Serial No. 583,582. (No model.)



Claim.—1. In a friction-clutch, the combination of a shaft, a sleeve movable lengthwise on said shaft, a clutch-ring carrier b^3, a clutch-ring loosely connected at its outer edge, to said carrier, clutching members b^3 and b^4 for grasping said ring on opposite sides thereof, the member b^3 nearer the sleeve being rigidly connected to the hub b and the member b^4 which is farthest from the sleeve, having freedom of lateral motion, levers fulcrumed to the fixed clutching member b^3 and linked to said sleeve, swiveling guide-blocks fitted to said levers, tension-bolts d passing through said guide-blocks and pivoted to the clutching member b^4.

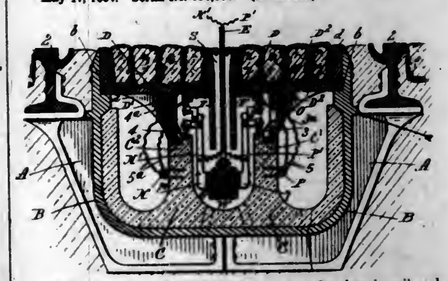
2. In a friction-clutch the combination of a shaft, a sleeve movable lengthwise on said shaft, a clutch ring carrier firmly secured to said shaft, a clutch-ring having freedom of lateral motion but held to rotative motion by said carrier, clutching members b^3 and b^4 for grasping said ring on opposite sides thereof, the member b^3 nearer the sleeve being rigidly connected to the hub b, a pulley secured substantially as shown to said member b^3, levers fitted with swiveling guide-blocks and fulcrumed to said member b^3 and linked to the sleeve, tension-bolts passing through said guide-blocks and pivoted to the clutching member b^4, substantially as set forth.

3. In a friction-clutch the combination of a shaft, a sleeve movable lengthwise on said shaft, a clutch-ring carrier firmly secured to said shaft, a clutch-ring loosely connected at its outer edge to said carrier, clutching members b^3 and b^4 for grasping said ring on opposite sides thereof, the member b^3 nearest the sleeve being rigidly connected to the hub b and the member b^4, which is farthest from the sleeve, having freedom of lateral motion, levers fulcrumed to the fixed clutching member b^3 and linked to said sleeve, swiveling guide-blocks fitted to said levers, tension-bolts pivoted to clutching member b^4 and passing through said guide-blocks, nuts g having flanges g' and recesses g^2 on said tension-bolts, screws g^3 fitted into said guide-blocks and the heads of said screws engaging recesses g^2 in the flanges of the nuts g, substantially as set forth.

4. In a friction-clutch the combination of a shaft, a sleeve movable lengthwise on said shaft, a clutch-ring carrier provided with recesses h^1, a clutch-ring provided with projections h' extending through said recesses and with projections h^2 in contact with the inner side of the rim of said carrier, clutching members b^3 and b^4 for grasping said ring on opposite sides thereof, the member b^3 nearest the sleeve being rigidly connected to the hub b and the member b^4 which is farthest from the sleeve having freedom of lateral motion, levers fulcrumed to the fixed clutching member b^3 and linked to said sleeve, swiveling guide-blocks fitted to said levers, tension-bolts pivoted to the member b^4 and passing through said guide-blocks, substantially as set forth.

5. In a friction-clutch the combination of a shaft, a clutch-ring carrier, a clutch-ring, members for clamping the opposite sides of said ring, lever mechanism for causing said members to clamp and release said ring, projections h^4 extending from one of said members and having a sliding contact on three sides, with projections b^4 extending from the other of said members, substantially as set forth.

595,224. **UNDERGROUND-TROLLEY SYSTEM.** LOUIS E. WALKER, Springfield, Mass., assignor to Fred C. Wright, same place. Filed May 17, 1897. Serial No. 636,869. (No model.)



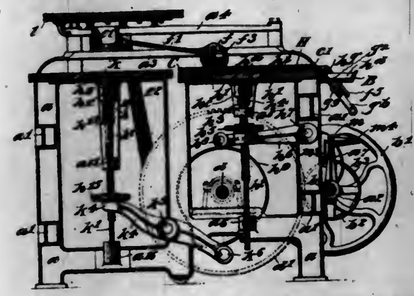
Claim.—1. An underground-trolley system for electric railroads comprising a conduit, suitable frames for supporting said conduit, rails supported on said frames, a cover for said conduit secured to the edges thereof and having a continuous longitudinally-central slot therein, an insulating material for lining said conduit and for forming longitudinal partitions therein, supports for said cover between the top of said partitions and said cover, guard-plates of insulating material extending from the under side of said cover near opposite edges of said slot, downward, to a point beyond the upper edge of said partitions, insulated trolley-rails on said partitions and the under side of said cover, a trolley-carriage for said rails having trolley-arms extending therefrom upward through the said slot in the cover for connection with a motor of an electric car, line-wires in separate compartments of said conduit, and connections from said line-wires to the trolley-rails on one of said partitions and from said trolley-carriage to a motor and return, and from said trolley-carriage to the rails on the other of said partitions, substantially as described.

2. An underground-trolley system for electric railroads consisting of a suitably-supported conduit divided in longitudinal compartments by the partitions C', C^2, of insulating material, a cover for said conduit having a slot longitudinally central with the compartment between said two partitions, guard-plates secured to said cover extending from the edges of said slot downward to a point beyond the top of said partitions, trolley-rails laid on the upper edge of said partitions, a line-wire P and N, in each of the compartments respectively between said partitions C', C^2, and the walls of said conduit, a metal connection between said line-wire P, and the rails on one of said partitions, and a metal connection between the line-wire N, and the rails, on the other of said partitions, a trolley-carriage running on said rails and electric connection from said rails on one of said partitions through part of said trolley-carriage to a motor of an electric car, and from said motor through a part of said carriage to the rails on the other of said partitions, and a suitable track and car therefor, substantially as described.

3. An underground-trolley system for electric railroads consisting of a suitably-supported conduit having three insulated longitudinal compartments therein, a cover for said conduit secured to the edges thereof, the insulated partitions between said compartments for supporting said cover, a longitudinal slot in said cover centrally over the middle one of said compartments, a trolley-carriage in the latter supported on rails located on the upper edges of said partitions, an insulated trolley-arm on said carriage extending upward through said slot, guard-plates secured to said cover and extending downward into said middle compartment, a line-wire P, in one of the side compartments in said conduit, and a line-wire N, in the other said side compartments, electric connections from said lines P and N, to the said trolley-rails, and an electric connection from the rails on one of said partitions to the rails on the other, through the trolley-carriage and an electric motor with which said trolley-carriage may be connected in combination with an electric car and a suitable track therefor, substantially as described.

4. An underground-trolley system for electric railroads consisting of a conduit divided into three compartments by two longitudinally-disposed partitions, suitable insulation for the interior of said conduit and partitions, a cover for said conduit having a slot therein centrally located over the central one of said compartments, a trolley-carriage located in said compartment, supports for said carriage consisting of two lower and two upper rails, the former on said partitions, the latter on said cover and vertically over said lower rails, wheels on said carriage engaging the lower rails, and wheels on upwardly-spring-pressed arms pivoted on said carriage engaging the upper rails whereby a yielding contact between said trolley wheels and said rails is maintained, a line-wire in each of the side compartments of said conduit, and electric connections between one of said wires and one set of said upper and lower rails through said carriage and through an electric motor to which it is connected, and back through said carriage to the other set of said upper and lower rails, and from thence to the other of said line-wires, combined with a track and car therefor, substantially as described.

595,225. **MACHINE FOR PRINTING UPON TEXTILE FABRICS.** ROGGERDALE WALLWORK, Manchester, England. Filed Mar. 8, 1897. Serial No. 626,499. (No model.) Patented in England Aug. 23, 1892, No. 15,186.



Claim.—1. In a printing-machine for printing upon textiles folded in the piece, a platen and an inking-in table arranged side by side, a type-carrier, mechanism operating to positively impart a rectilinear vertical reciprocating motion intermittingly to said platen and table alternately, and mechanism operating to positively impart to said type-carrier an intermittent rectilinear motion above and across the path of said platen and inking-in table, for the purpose set forth.

2. In a printing-machine such as described, a platen and inking-in table arranged side by side, a type carrier, mechanism operating to positively impart a rectilinear vertical reciprocating motion intermittingly to said platen and table alternately, mechanism operating to positively impart to said type-carrier an intermittent rectilinear motion above and across the path of said platen and inking-in table, and adjusting devices for adjusting the platen and inking-in table relatively to the line of travel of the type-carrier, for the purpose set forth.

3. In a printing-machine such as described, a platen and an inking-in table arranged side by side, a type-carrier, mechanism operating to positively impart a rectilinear vertical reciprocating motion intermittingly to said platen and table alternately, mechanism operating to positively impart to said type-carrier an intermittent rectilinear reciprocating motion above and across the path of the platen and table and a continuously-revoluble shaft controlling the operation of said mechanisms, for the purpose set forth.

4. In a printing-machine such as described, a platen, an inking-in table and color-receptacle arranged side by side in the order named, a type-carrier and an ink-distributing device connected with said carrier, mechanism operating to positively impart a rectilinear vertical reciprocating motion intermittingly to said platen and table alternately, and mechanism operating to positively impart to the type-carrier an intermittent rectilinear reciprocating motion above and across the path of said platen and table and through said type-carrier a like motion to the ink-distributing device to and from the ink-receptacle across the path of the inking-in table, for the purpose set forth.

5. In a printing-machine, a platen, an inking-in table, mechanism for imparting a rectilinear vertical reciprocating motion intermittingly and alternately to said platen and table, and an ink-receptacle having motion with said table; in combination with a type-carrier, an ink-distributer, and mechanism for imparting to said carrier a rectilinear traversing motion to and from points in the path of the aforesaid platen and inking-in table, and to the ink-distributer to and from the ink-receptacle across the path of said inking-in table, for the purpose set forth.

6. In a printing-machine, a platen and an inking-in table arranged side by side, mechanism for imparting a rectilinear vertical reciprocating motion intermittingly and alternately to said platen and table, and a yielding or elastic support for each; in combination with a type-carrier having an intermittent rectilinear traversing motion from and to a point in the path of the platen to and from a point in the path of the inking-in table, for the purpose set forth.

7. In a printing-machine such as described, the combination with the platen k and inking-in table k each provided with pendent socket and guide-brackets, partially screw-threaded supporting-rods projecting into said sockets, a hand-wheel working on the threaded portion of said rods and supporting-springs at the upper end of said rods for the platen and table; of actuating-levers adapted to move the rods up and down, said levers having bearing on the aforesaid hand-wheels, substantially as and for the purpose set forth.

8. In a printing-machine, the combination with the platen its supporting-rods, the inking-in table and its supporting-rods, of the cam-shaft d, the cams k^3 thereon, levers operated by said cams and operating on the aforesaid rods, and means for continuously revolving said shaft in one and the same direction, substantially as and for the purpose set forth.

9. In a printing-machine, the combination with a platen and inking-in table arranged side by side, and mechanism for imparting a vertical rectilinear reciprocating motion alternately and intermittingly to said platen and table; of a horizontal guide-track above the same, a type-carrier having motion on said track, a brush carriage articulated to the carrier, the rock-levers e^3 connected with said carrier, the cam-shaft d, cams e^5 thereon operating said levers, and means for continuously revolving said shaft in one and the same direction, substantially as and for the purpose set forth.

10. In a printing-machine, a type-carrier consisting of a bar or rail U-shaped in section and provided with a longitudinal bottom slot or slots and undercut or dovetailed grooves in its outer vertical faces, and clamping-bolts adjustable along said grooves; in combination with a printing block or blocks provided with vertically-slotted brackets for the passage of the aforesaid bolts, and with a clamping-bolt projecting through the longitudinal slot, and suitable clamping-nuts for said bolts, substantially as and for the purpose set forth.

11. In a printing-machine, the combination with the type-carrier, and a brush-carriage articulated thereto and carrying a flat brush-supporting rail f; of a brush or brushes each provided with a bracket or brackets g' having a downwardly-projecting arm forming a slot for the reception of the brush-bar, and a clamping-bolt working in said arm, substantially as and for the purpose set forth.

12. In a printing-machine, the combination with an ink-pad consisting of a plurality of layers of flexible material, as felt, and of a top layer of an elastic liquid-proof material, as rubber; of an ink-receptacle by the side of said pad, the upper layer of which projects beyond the pad into said ink-receptacle, an ink-distributer as a brush, adapted to move across the pad into and out of the ink-receptacle, for the purpose set forth.

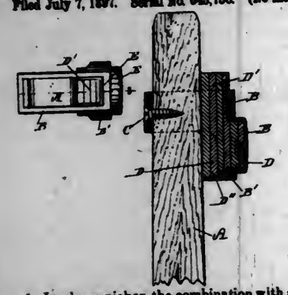
13. In a printing-machine, the combination with an ink receptacle or trough, of an ink-pad having a liquid-proof inking-in surface, the end of which dips into said trough, for the purpose set forth.

14. In a printing-machine, the combination with a platen, an ink-pad, and an ink-receptacle located side by side, said pad having a top layer of elastic liquid-proof material, as rubber, projecting from said pad into the ink-receptacle, and mechanism for imparting to the platen and pad a rectilinear vertical reciprocating motion intermittingly and alternately; of a type-carrier, a wheeled brush-carrier connected with said type-carrier, and mechanism for imparting to the type a horizontal reciprocating motion from a point above the platen to a point above the pad, and therethrough a like motion to the brush-carrier to and from the ink-receptacle across the ink-pad, substantially as and for the purpose set forth.

15. In a printing-machine, the combination with a plurality of ink-troughs, of an ink-pad divided into fields corresponding in number with the number of ink-troughs and having a liquid-proof upper surface, one edge of which overlaps the pad and dips into the ink-troughs, and an ink-distributer consisting of a brush-carrier and brushes corresponding in number to the aforesaid number of ink-pad fields, for the purpose set forth.

16. In a printing-machine, the combination with a vertically-reciprocating ink-pad, and an ink-receptacle having motion with said pad, of a type-carrier, an ink-distributing appliance, and mechanism for imparting to the carrier and distributing device a traversing motion across the path of said pad and receptacle, for the purpose set forth.

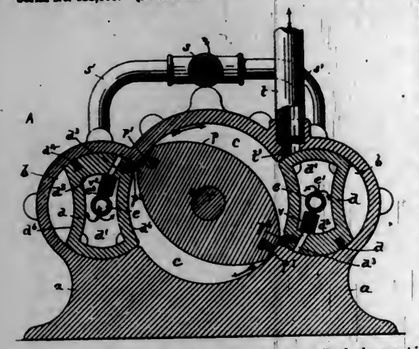
595,226. LOOM-PICKER. FRANK A. WARDWELL, Methuen, Mass. Filed July 7, 1897. Serial No. 643,750. (No model.)



Claim.—1. In a loom-picker, the combination with a picker-staff, of a metallic loop or binder adapted to be secured to the picker-staff and comprising the body portion B, and integral open-ring portion B', a filling arranged within said loop and ring and a portion thereof projecting out through the said open ring beyond the face thereof, and a flexible covering inclosing the said filling and retained in position within the loop or binder, substantially as described.

2. In a loom-picker, the combination with a picker-staff, of a metallic loop or binder adapted to be secured to the staff and comprising the body portion B, and integral open-ring portion B', a filling arranged within said loop and ring and having a lower projection D", upon which the said ring rests when in position, a part of the said filling projecting out through the said open ring beyond the face thereof, and a rawhide covering inclosing the said filling, and all retained in position within the loop or binder.

595,227. ROTARY-PISTON ENGINE. LUTHER H. WATTLES, Providence, R. I., assignor, by mesne assignments, to the Wattles Steam and Gas Engine Company, same place. Filed Apr. 26, 1897. Serial No. 633,895. (No model.)



Claim.—1. In a rotary engine of the class described, the combination with a rotating piston and its adjunctive devices, of a movable hollow abutment forming the live-steam chest and having a port therethrough arranged to open into the steam-cylinder, and a mechanically-actuated valve mounted in said steam-chest and in direct engagement with its port, substantially as described.

2. In a rotary engine, the combination with a rotating piston and the steam-cylinder therefor, of a cylindrical chamber, as *b*, arranged parallel with and intersecting said steam-cylinder, an oscillatory ported steam-chest or hollow abutment *d* mounted in said chamber having a concave side coextensive with the bore of the steam-cylinder, and a mechanically-actuated steam-valve mounted in the steam-chest and controlling the port-opening, substantially as described.

3. In a rotary engine, a mechanically-actuated ported hollow abutment or steam-chest having a hollow stem or trunnion in continuous communication interiorly with the steam-supply, and an independently-movable cut-off valve mounted within the abutment having a hollow stem in continuous communication with the steam-supply, said valve-stem being provided with an opening through which the steam passes into the abutment-chamber *d'*, substantially as described.

4. The combination, with the steam-cylinder and a revoluble piston mounted therein, of a ported oscillatory steam-chest or abutment having a concave side forming the complement of the bore of said cylinder and arranged in the path of the piston, and further provided with means for maintaining steam-tight the surfaces of the piston and steam-chest when in engagement with each other, and a mechanically-actuated cut-off or steam valve mounted in the said steam-chest for closing the port thereof, substantially as described.

5. In a rotary engine, the combination with a suitably-mounted elliptical-shaped driving-piston, as *p*, adapted to rotate continuously in one direction, of an oscillating steam-chest, as *d*, having a port through its wall for admitting steam from the chest directly into the steam-cylinder to actuate the piston, arranged whereby the movement of the chest uncovers the said port into the cylinder after the piston has traveled past the steam-chest, and a mechanically-actuated cut-off valve mounted in the steam chest adapted to close the port thereof, substantially as described.

6. In a rotary-piston engine, the combination of an oscillatory steam-chest provided with a port through which live steam flows into the cylinder to actuate the piston, a hollow stem c^6 rigidly secured to one end of said steam-chest for conducting steam into it, a valve mounted in the steam-chest and adapted to close the port of the latter, a hollow stem *c* extending through the opposite end of the steam-chest also adapted to conduct live steam thereto and having said valve secured thereon, and independent mechanisms connected with the said two hollow stems for actuating the steam-chest and valve, substantially as described.

7. In a rotary engine, a suitably-mounted oscillatory combined steam-chest and abutment adapted to receive live steam through both ends thereof, thus equalizing the pressure within it, a port extending through the steam-chest wall through which steam flows into the steam-cylinder, and a governor-controlled valve mounted in the steam-chest adapted to close said port automatically, substantially as set forth.

8. In a rotary engine, the combination with a ported steam-chest in continuous communication with the steam-supply, and mechanism for intermittingly oscillating the steam-chest an invariable angular distance, of a valve mounted in said steam-chest, and mechanically-actuated liberating valve-gear adapted to close said port through the medium of said valve at various points within its range of action.

9. In a rotary-piston engine, the combination with an oscillating steam-chest provided with an outlet-port, and a central hollow stem or trunnion, as c^6, secured to the chest and in direct communication both with the steam-supply and the interior of the chest, of a valve *v* mounted within the said steam-chest and arranged to overlap the port thereof, and a central hollow stem or trunnion, as c, secured to the valve and in direct communication both with the steam-supply and the interior of the chest, the said valve-stem extending through an end of and capable of being actuated independently of the steam-chest.

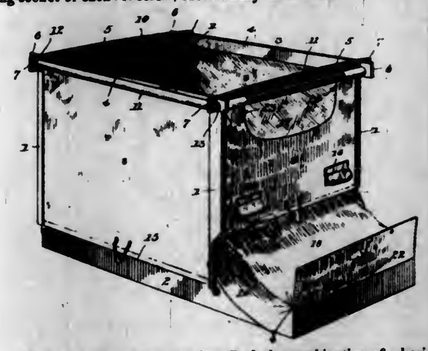
10. In a rotary-piston engine, the combination with a pair of suitably-mounted transversely-separated pistons geared together and revolving in unison in one direction, of an oscillatory combined steam-chest and abutment *d* in continuous communication with the steam-supply interposed between and communicating with both the said pistons, oppositely-located steam-ports formed in the chest-walls through which steam enters the steam-cylinders simultaneously, a pair of oppositely-arranged valves *v* mounted within the steam-chest adapted to close said steam-ports, and independent mechanisms for actuating said steam-chest and its valves, substantially as described.

11. In a steam-engine, the combination with the cylinder thereof and an oscillatory steam-chest communicating therewith, of a revoluble non-cylindrical piston mounted in said cylinder, the piston having fixed at each end thereof a circular flange, as p^3, fitting the bore of the cylinder, and an inclosed annular collar, as c^5, mounted exteriorly to the end of the steam-chest and adapted to turn freely on the latter's journal or hub, the edges or peripheries of the said flange and collar being in frictional engagement, thus forming steam-tight joints at the ends of the piston, substantially as described.

12. In a steam-engine, the combination with a pair of laterally-separated rotary elliptical pistons *p* having circular flanges, as p^3, at the opposite ends thereof whose diameters are substantially the same as the length of the major axes of the pistons, of an oscillating steam-chest or abutment *d* located centrally between and parallel with said pistons, and having the two end portions of said abutment provided with circular flanges counterbored into the corresponding heads or covers and in engagement with the periphery of said piston-flanges, substantially as hereinbefore described and for the purpose specified.

595,228. VEHICLE-TOP. DOUGLAS WEST, Vergennes, Ill., assignor of one-half to Josh Palmer, same place. Filed May 13, 1897. Serial No. 636,236. (No model.)

Claim.—1. In a device of the class described, the combination of a horizontal frame composed of longitudinal and transverse bars secured together near their ends and forming projecting arms arranged in pairs at the sides, front and back of the frame, brackets mounted on the inner faces of one arm of each pair, set-screws passing through threaded openings of the other arm of each pair and provided at their outer ends with heads and at their inner ends with bearing-sockets, and curtains provided with spring-rollers having one journal arranged in each bracket and the other journal arranged in the bearing-socket of each set-screw, substantially as set forth.



2. In a device of the class described, the combination of a horizontal frame, vertical guides supporting the same and each constructed of a single piece of metal and consisting of tubular side portions provided with vertical slots, and a central web connecting the tubular side portions, and curtains mounted on the frame and provided with bars engaging the slots, substantially as described.

3. In a device of the class described, the combination with a vehicle, of a transversely-disposed spring-roller mounted at the front of the vehicle and disposed transversely of the top thereof, a front curtain connected with and adapted to wind up on the spring-roller, a boot secured to the free edge of the curtain, provided at its front with a pocket and having side flaps, the latter being adapted to fold on the inner face of the boot, said boot being adapted to fold against the inner face of the front curtain, and fastening devices for securing the side flaps to the inner face of the boot and for attaching the latter to the front curtain, whereby both the front curtain and the boot are adapted to roll up together on the said roller, substantially as described.

4. In a device of the class described, the combination of the horizontal top frame having the forwardly-projecting portions 6, vertical guides supporting the front of the frame, a horizontal roller journaled between the projecting portions 6, the vertical front curtain mounted in the said guides and connected at its upper edge to the roller, the boot 18 secured to the lower edge of the front curtain, provided with a pocket and having side flaps, said side flaps being adapted to fold against the inner face of the boot, and the latter being adapted to be arranged against the inner face of the front curtain, and fastening devices for securing the side flaps to the boot and for attaching the free edge of the latter to the front curtain, whereby the boot is held in position to wind up on the roller with the front curtain, substantially as described.

595,229. SEWING-MACHINE. ELBERT D. WEYBURN, Chicago, Ill., assignor, by mesne assignments, to the Union Special Sewing Machine Company, same place. Filed Oct. 26, 1896. Serial No. 610,072. (No model.)

Claim.—1. The combination with a sewing-machine, comprising a stitch-forming mechanism, and a feeding mechanism; of a removable, rotatable work-holder supported upon the bed-plate of the machine, and having means for folding the body and presenting said folded body and the edge of the work directly to the action of the stitch-forming mechanism; substantially as described.

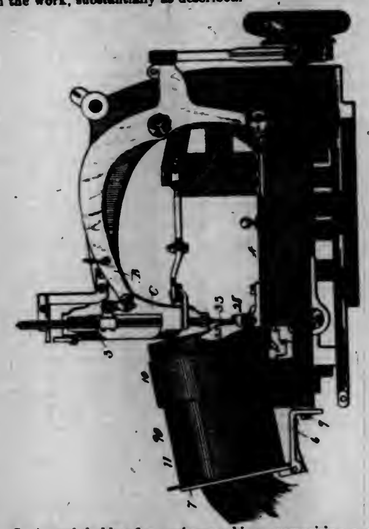
2. A work-holder for sewing-machines, comprising a cylinder; an annular, sliding band; and means for retaining the band upon the cylinder and for limiting its sliding movement thereon, substantially as described.

3. A work-holder for sewing-machines, comprising a cylinder carrying impaling-pins, and an annular sliding band for cooperating with the pins to hold the work, substantially as described.

4. A work-holder for sewing-machines, comprising a cylinder having pivoted impaling-pins, and means for actuating said pins to project them into the work, substantially as described.

5. A work-holder for sewing-machines, comprising a cylinder having pivoted impaling-pins, and means within the cylinder for actuating the pins to project them into the work and to withdraw them therefrom, substantially as described.

6. A work-holder for sewing-machines, comprising a cylinder having pivoted impaling-pins, means to actuate said pins to project them into the work, and independent means for withdrawing them from the work, substantially as described.



7. A work-holder for sewing-machines, comprising a cylinder having pivoted impaling-pins, and means for actuating said pins including two truncated-cone-shaped slides arranged within the cylinder and joined at their planes of truncation, substantially as described.

8. A sewing-machine comprising stitch-forming mechanism; a feeding mechanism including a feed-dog having its gripping-surface inclined with respect to the horizontal plane in which it has its feed movement; a presser-foot; and a work-supporting cylinder having its axis arranged at an angle corresponding to the inclination of the feed-dog's surface, substantially as described.

9. A sewing-machine comprising stitch-forming mechanism; a feeding mechanism including a feed-dog having its gripping-surface inclined with respect to the horizontal plane in which it has its feed movement; a presser-foot having its coöperating surface similarly inclined; and a work-supporting cylinder carried by the machine-frame with its axis arranged at an angle corresponding to the inclination of the feed-dog's surface and in position to coöperate with said foot and dog for feeding the work, substantially as described.

10. In combination with an organized sewing-machine; an adjustable bracket secured thereto; a work-holder supported by said bracket and sewing-machine bed in operative relation to the stitching and feeding mechanisms; and means for preventing displacement of said holder during the operation of the machine, consisting of a pivoted spring controlled, clamping-plate, engaging the rear end of said holder, substantially as described.

11. In combination with an organized sewing-machine, a work-holder for presenting the work to the stitching mechanism; and means arranged in advance of the stitching mechanism for smoothing and uncurling the edges of the work and also for guiding and inturning said edges, substantially as described.

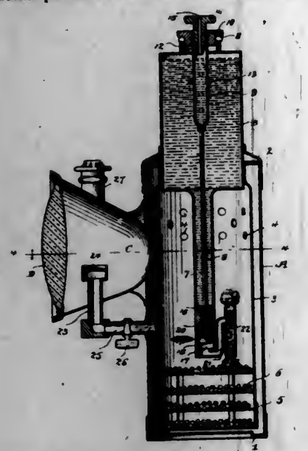
12. In combination with an organized sewing-machine; a cylindrical work-holder; and a guide arranged in advance of the stitching mechanism and curved to conform to the periphery of the holder, and having means for smoothing and uncurling the edges of the work and also for guiding and inturning said edges, substantially as described.

13. The combination with a sewing-machine, comprising a stitch-forming and a feeding mechanism; of a cylindrical, rotatable work-holder supported upon the bed-plate of the machine and having means for folding the body and presenting said folded body and the edge of the work directly to the action of the stitching mechanism; and an automatic stop mechanism controlled by said holder, substantially as described.

595,230. COMBINED LAMP AND ACETYLENE-GENERATOR. LOUIS D. WHITTEMORE, Jr., Stamford, Conn. Filed Jan. 8, 1897. Serial No. 618,451. (No model.)

Claim.—1. The combination with a gas-generator having a removable top and bottom, of a water-tank having a contracted portion

extending down into the gas-generator and having means at its outlet end to prevent its being clogged by the gas-producing material, said contracted portion having also a valve adapted when in one position to stop the flow of water during the escape of excess of gas and when in another position to admit water to the said gas-chamber.



2. A lamp comprising in its construction a chamber for containing gas-producing material, an elevated liquid-reservoir, a single double-acting valve for controlling the flow of liquid into said chamber, said valve being adapted when in one position to permit the escape of an excess of gas when the flow of water is shut off, and when in another position to prevent the inflow of liquid by the pressure of the gas and a burner connected with the chamber.

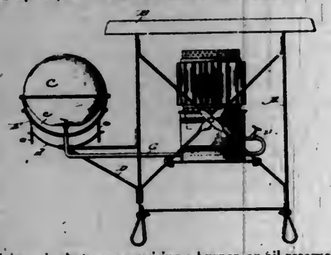
3. The combination with a gas-generating chamber, of a liquid-tank having an opening within said chamber, a valve-chamber below said opening and having an outlet, and a single double-acting valve adapted to close the passage to or from said valve-chamber.

4. The combination with a gas-generating chamber, of a liquid-tank having an opening within said chamber, said opening being provided with a casing and a double-acting valve therein and an outlet-pipe from the valve-casing having a filling or packing adapted to permit the passage of water and to prevent the clogging of said opening or valve.

5. The combination with the generator-casing having the removable bottom 1 and removable cap 2, of the inner shell 3 having a removable bottom 5 to facilitate cleaning the interior of the casing and shell.

6. The combination with the generator-casing having the removable bottom 1 and removable cap 2, of the inner shell 3 having a removable bottom 5, and a plurality of partitions 6 carried by said bottom 5.

595,231. OIL-STOVE. WILLIAM H. WILDER, Gardner, Mass. Filed Apr. 19, 1897. Serial No. 632,859. (No model.)



Claim.—1. A stove comprising a burner, an oil-reservoir in communication with said burner and having a maintained oil-level and means for raising or lowering one of said parts in relation to the other the other part being fixed, substantially as described.

2. A stove comprising a fixed burner, an oil-reservoir in connection with said burner and having a maintained oil-level, and means for adjusting the height of the said maintained oil-level in its relation to the burner substantially as described.

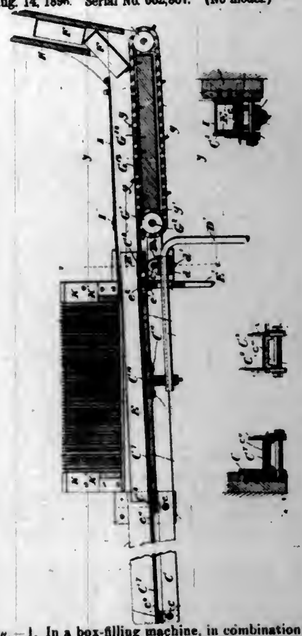
3. A stove comprising a circular burner, an oil-reservoir in connection therewith, and having a maintained oil-level, and means for raising or lowering one of said parts in relation to the other, the opposite part being fixed, substantially as described.

595,232. STIRRUP. WILLIAM H. WILSON, Mocona, Tex. Filed Feb. 15, 1897. Serial No. 623,416. (No model.)



Claim.—The improved stirrup herein described having a tread-bar, and a strap-bar offset with respect to the tread-bar and rigidly connected therewith, substantially as described, whereby the strap-bar is relatively in advance of the tread-bar and will be held from binding against the leg or instep of a rider who has his boot inserted to cause the heel to bear against the tread-bar, substantially as described.

595,233. BOX-FILLING MACHINE. JACOB P. WRIGHT, New Haven, Conn., assignor to the Diamond Match Company, Chicago, Ill. Filed Aug. 14, 1896. Serial No. 602,907. (No model.)



Claim.—1. In a box-filling machine, in combination with means for feeding the boxes to be filled, means for giving the boxes a series of short to-and-fro movements, and means for jarring them up and down in a direction substantially at right angles to their to-and-fro movements, substantially as and for the purpose specified.

2. In a box-filling machine, in combination with means for feeding the boxes to be filled, a support over which the boxes are fed, means for reciprocating such support, and means for jarring it in a direction substantially at right angles to its reciprocation, substantially as and for the purpose shown.

3. In a box-filling machine, in combination with means for feeding the boxes, a reciprocating trough through which the boxes are fed, means for giving such trough a series of short reciprocations while the boxes are passing through it, and means for giving it a series of short upward jars, substantially as and for the purpose set forth.

4. In a box-filling machine, in combination with means for feeding the boxes, a reciprocating trough, through which the boxes are fed, a support for the trough, means for reciprocating the trough thereon, and means for giving the support a series of short upward vibrations, substantially as and for the purpose described.

5. In a box-filling machine, in combination with a source of supply of the boxes, a support over which the boxes are fed, means for reciprocating such support, a second support over which the box-support reciprocates, and means for giving such second support a series of short sharp upward vibrations, substantially as and for the purpose specified.

6. In a box-filling machine, in combination with a source of supply of the boxes, a support over which the boxes are fed, a lever connected with such support so as to reciprocate it, a second support over which the box-support reciprocates, a swinging piece provided with a striker, means for receiving the blows of the striker and transmitting their force to the second support, and means for actuating the striker-carrying piece and the lever, substantially as and for the purpose shown.

7. In a box-filling machine, in combination with a source of supply of the boxes, a support over which the boxes are fed, adapted to afford an extended bearing-surface, to engage the bottoms of the boxes and support them while being fed along, a swinging rod carrying a striker, a cam engaging a bearing connected with such rod, a spring also connected with the rod, and means for receiving the blows of the striker and transmitting their force to the box-support, substantially as and for the purpose described.

8. In a box-filling machine, in combination with a source of supply of the boxes, a support over which the boxes are fed, a second support below the other, a swinging rod carrying a striker, to strike and jar the second support, and means for swinging such rod, substantially as and for the purpose specified.

9. In a box-filling machine, in combination with a source of supply of the boxes, a support over which the boxes are fed, a metal plate upon which such support rests, a wooden plate or strip attached to such plate, and a striking device, to give a series of jars to the connected wooden and metal plates, substantially as and for the purpose shown.

10. In a box-filling machine, in combination with a source of supply of the boxes, and a support over which they are fed, a metal plate upon which such support rests, a wooden plate or strip attached to the plate, a cushion on the wooden plate, and a striker to deliver jarring blows upon the cushion, substantially as and for the purpose set forth.

11. In a box-filling machine, in combination with a source of supply of the boxes, and a support over which they are fed, a lever connected with such support, to reciprocate it, a swinging rod carrying a striker, a cam, a bearing on the rod engaging the cam, a spring connected with the rod, connections between such bearing and the lever, and means for receiving the blows of the striker, and transmitting them to the box-support, substantially as and for the purpose described.

12. In a box-filling machine, in combination with means for supplying, in a stream, the material with which the boxes are to be filled, the toothed chains to feed the boxes along and cause them to move across the stream of material, means for moving such chains, a rotary device from which the power to move the chains is derived, and connections between such device and the chains, including a speed-regulating mechanism, whereby the speed with which the chains are moved may be varied as desired, substantially as and for the purpose set forth.

13. In a machine for filling boxes with matches and the like, in combination with a carrier for the matches, and means for causing the matches to be discharged therefrom, in a stream, so that a box passed through the latter will receive its supply of matches gradually, as it moves along, means for passing boxes across the stream of falling matches, and means for giving the boxes a series of upward jars, as they are passing across the stream and being filled therefrom, substantially as and for the purpose set forth.

14. In a machine for filling boxes with matches and the like, in combination with a means for supplying the material to be boxed, means for passing boxes across the stream of material from such supply, a yielding support upon which a series of boxes can rest, and over which such boxes are fed, and means for giving the yielding support a series of short upward movements, to jar the boxes, during their passage across the stream of matches, substantially as and for the purpose described.

15. In a machine for filling boxes with matches and the like, in combination with the carrier for the matches, and means for causing the latter to be discharged from the carrier, means for passing the boxes across the stream of falling matches, and means for giving the boxes a series of reciprocations while they are passing across the stream and being filled therefrom, and means for giving them, at the same time, a series of upward jars, substantially as and for the purpose described.

16. In combination with a moving match-carrier, provided with means for holding the matches, from which the matches are ejected at a certain point in the travel of the carrier, a series of fingers in line with the spaces between the adjoining matches on the carrier, adapted to engage only the sticks and not the heads of any crooked or inclined matches, so as to straighten the latter up toward parallelism with the adjoining match-sticks, before the matches are ejected from the carrier, substantially as and for the purpose specified.

17. In combination with a moving match-carrier, provided with means for holding the matches, a series of stationary fingers to pass between adjoining matches on the carrier, having their ends projecting rearward with reference to the travel of the carrier beveled on opposite sides, substantially as and for the purpose shown.

18. In combination with a moving match-carrier, provided with means for holding the matches, a series of stationary fingers to pass between adjoining matches on the carrier, having their ends projecting rearward with reference to the travel of the matches with the carrier beveled on their opposite sides, and also downwardly and outwardly with reference to the face of the carrier substantially as and for the purpose set forth.

19. In combination with a moving match-carrier, provided with means for holding the matches, the series of match separating and straightening fingers, adapted to engage the sticks of any crooked or inclined matches, so as to straighten such matches up toward parallelism with the adjoining matches, as the carrier moves along and the series of dividing-plates situated between the paths of adjoining matches carried by the moving carrier, substantially as and for the purpose described.

20. In combination with a moving match-carrier, provided with means for carrying the matches, the stationary slotted plate having slots, to guide the matches, as they are moved along by the travel of the carrier, such slots having open ends provided with flaring mouths for the entrance of the matches as the latter are moved along by the carrier, substantially as and for the purpose specified.

21. In combination with a moving match carrier, provided with means for carrying the matches, the stationary slotted plate having slots with flaring mouths, and the dividing-plates, parallel with these slots, substantially as and for the purpose shown.

22. In combination with a moving carrier, provided with means for holding the matches, a series of stationary fingers past which the matches are carried, adapted to engage the sticks of any crooked or inclined matches, so as to straighten such matches up toward parallelism with the adjoining matches, such fingers standing close to the carrier, and having their ends projecting rearward with reference to the travel of the carrier, provided with inclined faces, extending outward and forward with reference to the travel of the carrier, such fingers being about equal in width to the spaces between the inner portions of the match-sticks, which are held in the match-holding means of the carrier, so that they will straighten up toward parallelism with the adjoining matches and crooked or inclined matches moved along by the carrier substantially as and for the purpose set forth.

23. In combination with a moving carrier provided with means for holding the matches in rows, means for causing the discharge of the matches from the carrier, when, by the motion of the latter, they have been brought to a certain point, and a series of dividing-plates on opposite sides of which the matches pass, adapted to separate each match from the adjoining matches, on opposite sides of it, as the matches are brought to the point of their discharge from the carrier.

24. In combination with a moving carrier provided with means for holding matches in rows, means for causing the discharge of the matches from the carrier, when, by the motion of the latter, the matches have been brought to a certain point, and a series of dividing-plates for separating each match from the adjoining matches on opposite sides of it, as the matches are brought to the point of their discharge from the carrier, such plates being arranged parallel with the lines of the travel of the matches and extending out from the carrier, so as to stand between the sticks of the matches and not between their heads: substantially as and for the purpose described.

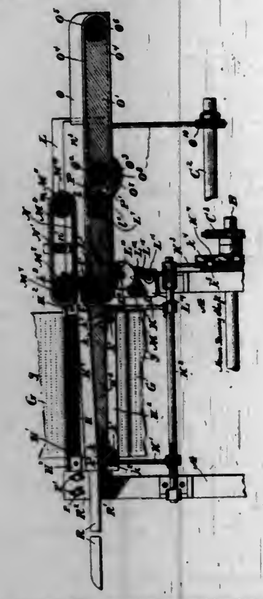
25. In combination with a moving carrier, provided with means for holding the matches, a series of dividing-plates, between which the matches are carried by the carrier, having their edges, which are rearward with reference to the travel of the carrier, inclined outward and forward with reference to such travel, substantially as and for the purpose described.

26. In combination with a moving carrier, provided with means for holding the matches, means for causing discharge of the matches from the carrier, when they reach a given point, and the series of dividing-plates, between which the matches are moved by the carrier, situated so as to divide adjoining matches from each other after they have been discharged from the carrier, substantially as and for the purpose specified.

27. In combination with a moving carrier, provided with means for holding the matches, means for causing the discharge of the

matches from the carrier, at a given point, means for feeding boxes along below such point, and across the stream of matches discharged from the carrier, and a series of dividing-plates, between which the matches are moved by the carrier, extending down below the point of discharge of the matches from the carrier, substantially as and for the purpose shown.

595,284. **BOX-FILLING MACHINE.** JACOB P. WRIGHT, New Haven, Conn., assignor to the Diamond Match Company, Chicago, Ill. Filed Apr. 1, 1897. Serial No. 630,290. (No model.)



Claim.—1. In a box-filling machine, in combination with a trough through which the boxes are fed, guiding-pieces attached to the trough and engaging guide-pins extending in a direction transverse to the trough, pins on the guide-pieces, swinging arms engaging the latter pins, a rock-shaft carrying the arms, another arm on the shaft, a cam engaging a bearing on this arm, and a spring pressing the arm toward the cam, substantially as and for the purpose shown.

2. In a box-filling machine, in combination with means for feeding the boxes, a sidewise-shaking trough receiving the boxes from the feeding means, and having yielding guiding-tongues projecting on opposite sides of the path of the boxes issuing from the box-feeding means, and means for shaking the trough, substantially as and for the purpose set forth.

3. In a box-filling machine, in combination with means for feeding the boxes, and guiding-plates on opposite sides of the feeding devices, a sidewise-shaking trough receiving the boxes from the feeding devices, and having yielding tongues projecting out beyond the outer sides of the guiding-plates, and means for shaking the trough, substantially as and for the purpose described.

4. In a feeding mechanism, a feed-belt having its outer face provided with a series of transverse slits or cuts extending part way through the belt made so as to be substantially closed when the belt is straightened out, in combination with means for supporting such belt, substantially as and for the purpose specified.

5. In a feeding mechanism, a feed-belt of leather having its outer face provided with a series of transverse cuts or slits extending part way through the belt, in combination with means for supporting such belt, substantially as and for the purpose shown.

6. In a feeding mechanism, a feed-belt of leather, having its flesh side outward, slit or cut transversely, with the slits or cuts extending part way through the belt, and means for supporting the belt, substantially as and for the purpose set forth.

7. In a feeding mechanism, in combination with a driving-roller and means for turning the same, a supporting-roller and a belt running over such rollers, having, in its outer face, a series of transverse cuts or slits extending part way through it adapted to be substantially closed, when the belt is straightened out, substantially as and for the purpose described.

8. In a feeding mechanism, in combination with two parallel belts, each having, in its outer face, a series of transverse cuts or slits extending part way through it adapted to be substantially closed, when the belt is straightened out, driving and supporting rollers for the two belts, and means for rotating the driving-rollers, substantially as and for the purpose specified.

9. In a feeding mechanism, in combination with the two feed-belts, each having an inner and an outer roller, to support the belt at the delivery and receiving ends, respectively, of the feeding mechanism, adjustable bearings for the inner roller of one belt and the outer roller of the other, each adapted to allow the respective roller to be set nearer to or farther from the adjoining roller of the other belt, means for driving the unadjustable inner roller of one belt, an adjustable frame carrying a gear-wheel driven from any suitable source of power, and gearing supported on the adjustable support of the inner roller of the other belt, adapted to be driven by the gear-wheel on the adjustable frame, substantially as and for the purpose specified.

10. In a machine for filling boxes with strips or sticks of material, in combination with means for supplying the material to be boxed in a substantially continuous stream of loosely-falling material, such stream having a width greater than the length of one of the boxes to be filled, means for feeding the boxes across such stream, the rate of feed of the material being so proportioned to the speed of travel of the boxes, that the latter will be gradually filled from such stream, as they pass across it, and means for giving the boxes a series of sidewise shakes, transverse to their travel and substantially in the direction of the greatest dimension of the strips or sticks of the material to be boxed, while the boxes are passing through the stream of material, substantially as and for the purpose specified.

11. In a machine for filling boxes with strips or sticks of material, in combination with means for supplying the material which is to be boxed, in a substantially continuous loosely-falling stream, of a width greater than the length of a box to be filled, a trough extending across such stream, means for feeding boxes through such trough, the rate of supply of material to be boxed being so proportioned to the speed of travel of the boxes, that the latter will be gradually filled from the stream, as they pass across the same, and means for giving the trough a series of transverse shakes substantially in the direction of the greatest dimension of the strips or sticks of material to be boxed, while the boxes are passing across the stream of material, substantially as and for the purpose specified.

12. In a machine for filling boxes with matches, in combination with means for supplying the matches in a substantially continuous loosely-falling stream, of a width greater than the length of a box to be filled, feeding devices to cause the boxes to travel across such stream with a speed so proportioned to the rate of supply of the material, that the boxes will become gradually filled from such stream, as they pass across it, and means for giving the boxes, while passing across the stream, a series of transverse shakes, in a direction substantially parallel to the matches, as they are to lie in the filled boxes, substantially as and for the purpose set forth.

13. In a machine for filling boxes with matches, in combination with means for supplying the matches in a substantially continuous loosely-falling stream, of a width greater than the length of a box to be filled, a shaking trough through which the boxes are passed, extending in a direction transverse to such stream, means for feeding the boxes to and through such trough at a speed so proportioned to the rate of supply of the matches, that the boxes will become gradually filled from the stream of matches as they pass across it, and means for shaking the trough transversely from side to side, while the boxes are passing through the same, the direction of shaking of the trough being substantially parallel to the matches as they are to lie in the filled boxes, substantially as and for the purpose described.

14. In a machine for filling boxes with matches, in combination with a source of supply of matches, delivering the same in a series of rows or layers closely following each other, so as to form a stream of such rows or layers, of a width greater than the length of one of the boxes to be filled, means for passing a series of boxes to be filled across the stream of matches in a direction substantially at right angles to the matches, and means for giving the boxes, as they pass across the stream of matches, a series of sidewise shakes, in a direction substantially parallel to the position which the matches are to have in the filled boxes, substantially as described.

15. In a machine for filling boxes with matches, in combination with a source of supply of the matches, means for causing such matches to assume positions in parallel planes, means for passing the boxes to be filled across below the path of the matches, as the latter pass beyond the means for causing them to assume the positions in parallel planes, and means for giving the boxes, as they pass along, a series of sidewise shakes, in a direction substantially parallel to the position which the matches are to have in the filled boxes, substantially as described.

16. In a machine for filling boxes with matches, in combination with a source of supply of matches, and a series of division-plates, between which the matches pass, means for passing the boxes to be filled below the division-plates, feed devices for feeding the boxes along, and means for giving the boxes, as they pass along, a series of sidewise shakes, in a direction substantially parallel to the division-plates, substantially as and for the purpose shown.

17. In a machine for filling boxes with matches, in combination with a carrier for the matches, means for ejecting the matches from the carrier, guides to straighten up into parallelism with the other matches any matches which may be inclined to one side or the other, while in the carrier, adapted to act upon the matches before they reach the point of ejectment, means for passing boxes across the stream of matches falling from the carrier, and means for giving such boxes a series of sidewise shakes, as they move across the path of the falling matches, substantially as and for the purpose set forth.

18. In a machine for filling boxes with matches, in combination with a carrier for the matches and ejecting mechanism to eject the matches from the carrier, guide-fingers on opposite sides of which the matches are carried by the carrier, before and until they reach the point of ejectment, means for feeding the boxes across the stream of falling matches, and means for giving the boxes a series of sidewise shakes toward and from the plane of travel of the match-carrier, while they are passing across the stream of matches, substantially as and for the purpose specified.

19. In a machine for filling boxes with matches, in combination with a traveling carrier for the matches, and ejecting mechanism to eject the matches when they reach a given point, guide-fingers close to the carrier, on opposite sides of which the matches in the carrier are carried before they reach the point of ejectment, such fingers having their ends extending rearward with reference to the travel of the carrier beveled off on opposite sides, feed devices for feeding boxes across the path of the matches ejected from the carrier, and means for giving such boxes a series of sidewise shakes, while passing across such path, substantially as and for the purpose described.

20. In a machine for filling boxes with matches, in combination with a source of supply of matches, means for insuring that the matches coming from the source of supply shall lie in substantially parallel vertical planes, means for passing the boxes across the path of the matches in a direction substantially at right angles to such vertical planes, and means for giving the boxes, while so passing, a series of shakes transverse to the line of their travel, substantially as and for the purpose specified.

21. In a machine for filling boxes with matches, in combination with a carrier for the matches and means for ejecting the matches from such carrier, a series of division-plates for dividing and guiding the matches, means for passing the boxes across the stream of matches, and means for giving the boxes a series of sidewise shakes as they are passing across the stream, substantially as and for the purpose shown.

22. In a machine for filling boxes with matches, in combination with a carrier for the matches, and means for ejecting the matches therefrom, a series of upright, parallel division-plates between which the matches in the carrier are moved by the latter before they are ejected therefrom, means for feeding boxes along under such plates, and means for giving the boxes while passing under the plates a series of sidewise shakes transverse to their line of travel, substantially as and for the purpose set forth.

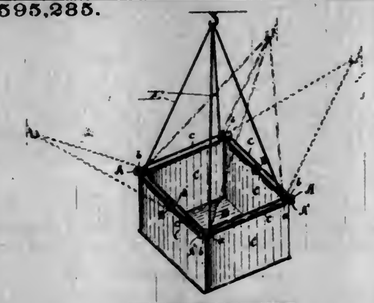
23. In a machine for filling boxes with matches, in combination with a carrier for the matches, and means for causing them to leave the carrier, a series of upright parallel division-plates down between which the matches are carried by the carrier before they leave the same, such plates extending below the point where the matches leave the carrier, feeding devices to cause the boxes to be filled to pass along under the series of plates, and means for giving the boxes while so passing a series of sidewise shakes in a direction transverse to the line of travel of the boxes, substantially as and for the purpose described.

24. In combination with a series of upright division-plates and means for causing the matches or other articles to be boxed to pass and fall down between such plates, a shaking support for the boxes extending along under the series of plates, and means for shaking such support transversely, substantially as and for the purpose specified.

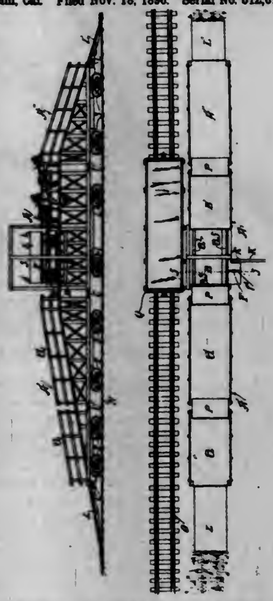
595,285. **PORTABLE NURSERY.** EDWARD S. ANDROCK, Waltham, Mass. Filed Feb. 5, 1897. Serial No. 622,113. (No model.)

Claim.—As a new article of manufacture a portable nursery consisting of a frame having two rigid bars and two bars hinged in the center, a square canvas bag or receptacle having a square bottom to rest upon the floor, the upper ends of the bag or receptacle having pockets to receive the bars of the frames, and ropes secured to the rigid bars for supporting the nursery from a hook or hooks substantially as set forth.

595,285.



595,236. **LOAD-DUMPING APPARATUS.** TIMOTHY CARROLL, Anaheim, Cal. Filed Nov. 18, 1896. Serial No. 612,619. (No model.)



Claim.—1. The combination of a pivoted vehicle-dumping frame pivoted on a fixed axis to tilt sidewise; a stop to hold the frame aslant; a lever pivoted to the dumping-frame; a holder carried by the lever; means for moving the lever to throw the holder against the side of a vehicle on the dumping-frame; and means for holding the holder stationary.

2. The combination of a vehicle-dumping frame having a track thereon and pivoted to tilt sidewise; a lever pivoted to the frame at one side thereof and projecting above the same; a holder carried by the lever; an operating-lever pivoted to the frame; a rod connecting the holder lever with the operating-lever; and means for holding the operating-lever.

3. The combination of a vehicle-dumping frame pivoted to dump sidewise; two levers pivoted to the frame below the top thereof and extending above the top of the frame; a holder fastened to the upper ends of the levers; a rocking beam pivoted to the under side of the frame and provided with two arms; connecting-rods connecting the arms with the levers; an operating-lever pivoted to the frame and extending above and below the top thereof; a connecting-rod connecting the operating-lever with the rocking beam to operate the same; and means for holding the operating-lever.

4. The dumping-section with trucks; the incline sections with trucks and coupled to the dumping-section; flaps or aprons at the lower ends of the inclines; and bridges for the spaces between the sections

5. The combination with a vehicle-dumping frame which is pivoted on a fixed axis to dump sidewise and is provided with means for dumping and returning, of a vehicle-holder carried by a lever which

is pivoted to the frame and is arranged to move the holder toward and from the vertical axial plane of the frame, an operating-lever carried by the frame and connected with the holder-lever for operating the holder-lever and means for holding the said operating-lever.

6. A dumping apparatus comprising a tilting vehicle-supporting platform which is pivoted to tilt sidewise and supports the vehicle; means for tilting said platform sidewise; a stop for holding the platform aslant; a holder carried by the tilting platform and arranged at the height of the vehicle-hubs to engage the hubs or ends of the axles of the vehicle on the platform; and means for moving the holder to and from the hubs or axle ends.

7. In a dumping apparatus for dumping a vehicle sidewise, a holder carried by a tilting vehicle-supporting platform at a height to engage the hubs or ends of the axles of the vehicle on said platform, and means for moving the holder to and from the hubs or axle ends.

595,237. DOUBLE-SHOVEL PLOW. JOHN T. DRUMMOND, Asheville, N. C. Filed Apr. 14, 1897. Serial No. 632,140. (No model.)



Claim.—1. The combination, in a double-shovel plow, of a main beam, opposite plow beams, parallel-motion bars pivoted to the main beam and to the plow-beams, each plow-beam having at its front end portion a forwardly-projecting arm, and a locking-block mounted on the plow-beam and having means to engage the forwardly-projecting arm of either plow-beam, substantially as and for the purposes described.

2. The combination, in a double-shovel plow, of a central main beam, opposite plow-beams, parallel-motion bars pivoted to the main beam and to the plow-beams, a vertically-swinging locking-block pivoted to the main beam and having locking-lugs to engage the front end portion of either plow-beam, and a lever for swinging the locking-block vertically, substantially as and for the purposes described.

3. The combination, in a double-shovel plow, of a central main beam, opposite plow-beams, parallel-motion bars pivoted to the main beam and to the plow-beams, a vertically-swinging locking-block pivoted to the main beam and having two pairs of pendent locking-lugs for engaging the front end portion of either plow-beam, and a lever for swinging the locking-block vertically, substantially as and for the purposes described.

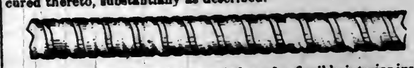
4. The combination, in a double-shovel plow, of a main beam, plow-beams having inwardly-projecting portions at their front ends which are provided with forwardly-extending arms adapted to lie against opposite sides of the main beam, parallel-motion bars pivoted to the main beam and to the said inwardly-extending portions of the plow-beams, a locking-block carried by the main beam and having lugs for engaging and disengaging said inwardly and forwardly extending portions of the plow-beams, and means for operating the locking-block, substantially as and for the purposes described.

5. The combination, in a double-shovel plow, of a main beam, opposite plow-beams having forwardly-extending arms at their front end portions, parallel-motion bars pivoted to the main beam and to the plow-beams, a vertically-swinging locking-block pivoted to the main beam and provided with offset pendent locking-lugs and secondary pendent lugs in rear of said offset lugs, and a lever pivoted to the locking-block for swinging the same vertically, substantially as and for the purposes described.

6. The combination with the plow-beams, and the plows having bolt-holes 37, of the detachable clip-plates 34 connected with the plow-beams and constructed with an approximately cylindrical socket 36, and bolts 33 passing through the plows and through the cylindrical sockets of the clip-plates, said clip-plates being adapted to be secured to either side of the plow-beams for varying the distance apart of the plows, substantially as and for the purposes described.

595,238. ARMORED CONDUIT. EDWIN T. GREENFIELD, New York, N. Y. Filed July 27, 1897. Serial No. 646,099. (No model.)

Claim.—1. An armored conduit consisting of a flexible interior insulating-tube and one or more spirally-wound layers of metal secured thereto, substantially as described.



2. An armored conduit consisting of a flexible interior insulating-lining and a spirally-wound coating of metal secured thereto, substantially as described.

3. An armored conduit consisting of a flexible insulating-lining and a metallic armor surrounding the same and secured thereto, the successive parts of said metallic coating being separated from each other by definite spaces whereby the armor and its coating are rendered flexible, substantially as described.

4. An armored conduit consisting of a flexible insulating-lining and one or more surrounding metallic protecting-armors, the successive parts of said armor or armors being disconnected from each other and all united to the insulating-lining, substantially as described.

5. An armored conduit consisting of a flexible insulating-lining and alternate layers of spirally-wound strips of metal separated from each other by layers of insulating material and all united together, substantially as described.

6. An armored conduit-tube consisting of an insulating-lining surrounded by alternate layers of metal armor and insulating material, the entire structure being of a flexible nature, substantially as described.

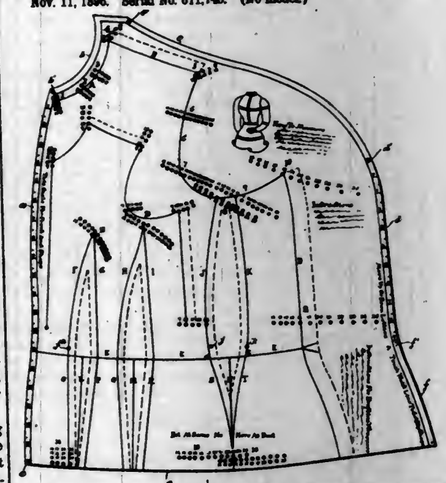
7. An armored conduit consisting of an insulating-lining surrounded by alternate layers of spirally-wound armor and spirally-wound insulating material, the outer winding of armor being corrugated and so located about the winding of insulating material which it surrounds as to compress it against the next succeeding inner layer, all of said parts being united together so as to constitute a flexible conduit, substantially as described.

8. An armored conduit consisting of alternate layers of spirally-wound insulating material and metal armor breaking joints with each other and united together so as to constitute a water-tight flexible conduit, substantially as described.

9. An armored conduit consisting of alternate layers of spirally-wound insulating material and metal armor, all of said windings being united together by a waterproof adhesive agent, substantially as described.

10. An armored conduit consisting of alternating layers of spirally-wound sheet-rubber or rubber cloth and metal armor, said layers being united together by the process of vulcanization, substantially as described.

595,239. DRESS-CHART. MARY D. LEU, Wauseon, Ohio. Filed Nov. 11, 1896. Serial No. 611,745. (No model.)



Claim.—1. A dress-chart having a front chart member provided with a curved neck-rule having an initial point designated by a suitable character, and a plurality of neck-scales radiating from the curve of said neck-rule, respectively at the lower extremity or initial point of the rule and at intermediate points thereof, substantially as specified.

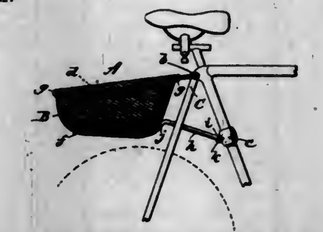
2. In a dress-chart, the combination with a front chart member having scales 12 and 13 for determining the positions of the upper ends or points of the darts to agree with the bust measurement, of a dart-rule having curved and straight edges for laying off the dart-lines, and provided with transverse scales 17, 18 and 19 for determining the widths and intervals between the darts proportionate to the front-form scales, substantially as specified.

3. In a dress-chart, the combination with a front chart member having scales 12 and 13 for determining the positions of the upper ends or points of the darts to agree with the bust measurement, of a dart-rule having curved and straight edges for laying off the dart-lines and provided with a scale 17 graduated in accordance with bust measurements to determine the width of the first dart, a scale 18 of which the numerals represent the difference between waist and bust measurements to determine the interval between the darts proportionately to said measurements, and a scale 19 relative to the scale 18 for determining the width of the second dart, substantially as specified.

4. A dress-chart having a back chart member provided with a back measure a^3, an initial point 1 set back the distance of a seam-lap from the back measure, a scale 2 arranged relatively to the point 1 to determine a preliminary neck-line and the point of intersection of a preliminary shoulder-line with said neck-line, other scales for determining the positions and lengths of shoulder, armhole, side, and waist lines, and a neck measure b^3, intersecting and having an initial point coincidental with that of the back measure, for determining the position and length of the rectified neck-line and the position of the upper end of the shoulder-line, from the upper end of the back-line, determined in position at its lower end by the waist-line measurement and measured through the said point 1, substantially as specified.

5. A dress-chart having a back chart member provided with a waist-rule, an intersecting back-rule, a point 1 offset from the upper end of the back-rule, a point 9 contiguous to the waist-rule and offset from the back-rule, and a graduated neck-rule b^3 intersecting the back-rule at its upper end, the back measurement being made upon a line through the points 9 and 1, and the neck-line being laid off by means of the neck measurement when the back-rule is positioned by means of said points 9 and 1, substantially as specified.

595,240. LUGGAGE-CARRIER FOR BICYCLES. ISAAC N. LINCOLN, Providence, R. I. Filed Apr. 30, 1897. Serial No. 634,628. (No model.)



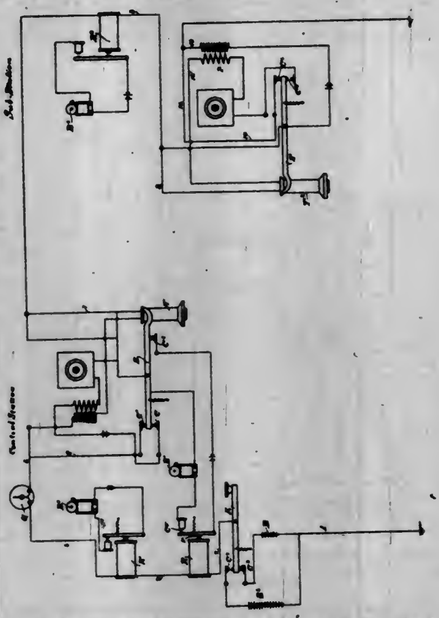
Claim.—1. In a luggage-carrier for bicycles, the combination consisting of the top rod *d d* having eyes *e e* formed on its ends, adapted to be secured to the outer sides of the forks *c* by the bolt *b*, as shown, with a tie-rod *d'*, and having a central supporting-strip *f* fastened thereon, said strip provided with a brace rod *h* having an eye *k* to engage with the clamp *c* by the bolt *i*, substantially as shown and described.

2. In a luggage-carrier for bicycles, the combination consisting of the top rod *d d* having eyes *e e*, the connecting tie-rod *d'*, with the central supporting-strip *f* secured to said rods, the brace-rod *h* fastened to said strip and provided with an eye K, the canvas B having its upper edge stitched over the top rods *d d d d'*, the whole arranged and adapted to be secured to the rear of a bicycle-frame by the bolt *b* and clamp *c*, substantially as shown and described.

3. In a luggage-carrier for bicycles, the combination consisting of the top rod *d d* having eyes *e e*, the connecting tie-rod *d'*, with the central supporting-strip *f* secured to said rods, the canvas B having its upper edge stitched over the top rods *d d d d'*, with the vertical supporting-rods *r r* having their upper ends secured to the rear end of the rod *d* and their lower ends forked to engage on the bolt *m*, adapted to be attached to the rear portion of a bicycle-frame by the bolt *b* and *m*, respectively, as shown and described.

595,241. CENTRAL-STATION COMBINED TELEGRAPH AND TELEPHONE SYSTEM. ARTHUR C. ROBBINS, San Francisco, Cal., assignor to Edward C. Hughes, same place. Filed Mar. 26, 1897. Serial No. 629,346. (No model.)

Claim.—1. An improved telegraph and telephone signal system consisting of a central station, a fulcrumed lever at said station, a suspended removable receiver and contacts at opposite portions of said lever, alternately made and broken by the suspension or removal of the receiver, an alarm and a local battery-circuit at the central station for operating the same, a relay actuated by the main-line current and controlling-contacts in said local circuit, and an independent contact with which the said lever engages said last-named contact being closed when the receiver is suspended and open when the receiver is removed, substantially as herein described.



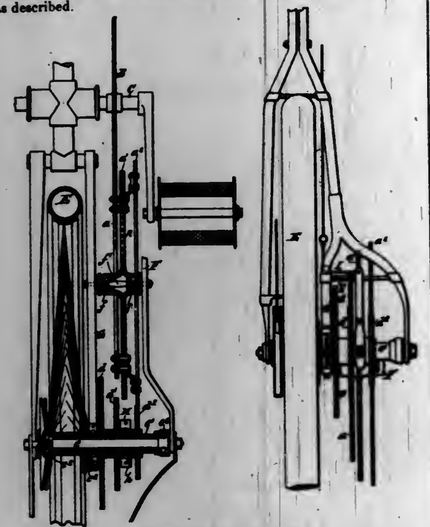
2. In a central-station combined telegraph and telephone signal system, open and closed circuit-batteries of different strength at the central station, a transmitter whereby the weaker battery is normally maintained in continuous connection with the line to the substation, a relay at the substation through which the current passes, a galvanometer the index of which is by said current caused to show a normal deflection, a second relay at the central station and a relay at the substation, the armatures of which are not attracted by the current of the weaker battery, an increased resistance through the receiver of the substation which is thrown into the line when said receiver is removed from its suspending-hook, whereby the resistance is so increased as to release the armature of the first-named relay, a contact made by the releasing of said armature whereby the galvanometer deflection is reduced and an alarm sounded at the central station.

3. In a central-station combined telegraph and telephone signal system, batteries of different strengths, the weaker one of which is in normal connection with the main line, a telephone-receiver and a lever by which it is suspended and through which contacts are made when the lever is in its normal position, two of said contacts being broken by the removal of the receiver, whereby the central telephone is thrown into circuit, a transmitting-key with contacts, one of which normally connects the weaker battery with the main line, said contact being broken and the weaker battery cut out by the depression of the key, and the other contact which is made at the same time with the breaking of the first-named contact acting to connect the stronger battery with the line, relays at the central and sub stations having bell or alarm connections which are normally non-acting when the weaker battery is in connection with the line, the armatures of said relays being attracted by the action of the stronger battery when the latter is in line, whereby the alarms are sounded at both central and sub stations.

595,242. VARIABLE-SPEED DRIVING-GEAR FOR VELOCIPEDES. CHARLES E. D. USHER, Malvern, Victoria. Filed Dec. 11, 1896. Serial No. 571,788. (No model.) Patented in England Oct. 9, 1895, No. 18,964.

Claim.—In a velocipede, the combination with a driving-shaft of

a sleeve keyed thereon upon one side of the wheel and capable of longitudinal adjustment, a series of speed-gears mounted on said sleeve at substantially equal intervals each gear having an increased diameter relatively to the preceding gear, a corresponding number of intermediate gears separated from each other by unequal intervals and capable of rotation upon a spindle supported by one of the forks and by a bracket mounted on the frame, a driving-gear fixed upon a crank-shaft and meshing with the intermediate gear of least diameter, a spring pressing the sleeve and speed gears in one direction, and a cord led over pulleys to a point accessible to the rider, to enable the rider to adjust said sleeve against the tension of the spring, the intermediate gears being composed of a single ordinary gear having gear-rings a and a^2 bolted upon either side thereof, substantially as described.



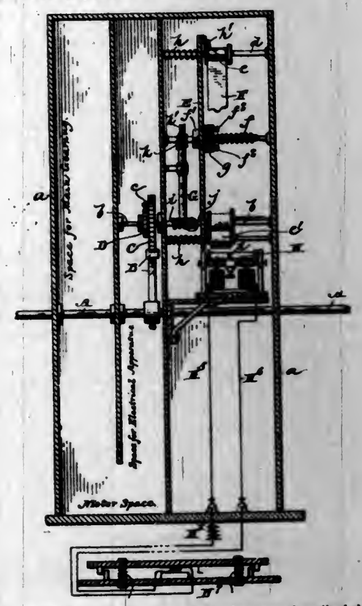
595,243. AUTOMATIC RECORDER FOR ELECTRICALLY-OPERATED RAILWAY GATES AND SIGNALS. JAMES M. WILLIAMS, Danville, Va., assignor of three-fourths to Thomas P. Kinney and James A. Henderson, same place, and Harry W. Kinney, Lynchburg, Va. Filed July 28, 1897. Serial No. 646,257. (No model.)

Claim.—1. In an automatic recorder for electrically-operated railroad-gates and block-signal systems, the combination, with the shaft thereof, of the endless ribbon, sheet or strip, means for carrying said ribbon, an electrical recording or marking device for acting upon said ribbon, means for moving the ribbon both longitudinally and laterally for receiving a spirally-arranged record and a circuit make and break device, and electrically connected to said recording or marking device, substantially as set forth.

2. In an automatic recorder for electrically-operated railroad-gates and block-signal systems, the combination, with the shaft thereof, of the endless ribbon, sheet or strip, means for carrying said ribbon, a follower or moving plate to engage therewith, means for transmitting from said shaft a sliding movement to said follower and for revolving the means carrying said ribbon, an electrical recorder adapted to act on said ribbon, and a circuit make and break device substantially as set forth.

3. In an automatic recorder for electrically-operated railroad-gates and block-signal systems, the combination, with the shaft thereof, of the segmental rack secured upon said shaft, spools or reels mounted in said recorder, a sliding plate or follower adapted to move said spools laterally, an endless ribbon of paper or other suitable material, compassing said spools, a loose gear-wheel, having a pawl engaging a ratchet, a shaft, carrying said loose gear-wheel said ratchet and one of said spools the supporting rods or shafts for said plate being compassed by springs pressing said plate, an electrically-actuated marking device adapted to act upon said ribbon of paper, and a circuit make and break device electrically connected to said marking device, substantially as set forth.

4. In an automatic recorder for electrically-operated railroad-gates and block-signal systems, the combination, with the shaft thereof, of the screw-threaded shaft adapted to be actuated from the shaft aforesaid intermittently, the sliding plate or follower, spools compassed by an endless ribbon of paper or other suitable material, the upright worm-shaft having a gear-wheel on its lower end gearing with a worm on said screw-threaded shaft, a second screw-threaded shaft geared to said upright shaft and engaged by a nut secured to said follower, a recording or marking device adapted to act upon said ribbon and a circuit make and break device electrically connected to said marking device, substantially as set forth.



5. In an automatic recorder of the character described the combination with a shaft geared to a railroad gate or signal device, of the moving plate or follower and mechanism adapted to transmit motion from said shaft to said follower, an endless ribbon of paper, sheet, or strip compassing spools or rolls positively connected with the recorder proper, comprising a peripherally-grooved roll an electrically-actuated stylus, pen or pencil to act upon said paper or sheet, and a make-and-break device at the railroad-crossing electrically connected to said recorder, substantially as described.

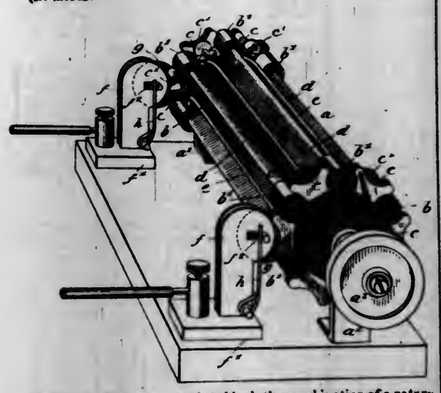
6. In an automatic recorder for railway gates or signals, the combination with the shaft thereof, of an endless ribbon, sheet or strip, an electrically recording or marking device for acting upon the said ribbon, means for carrying the ribbon both longitudinally and laterally whereby the marking device is adapted to produce a spirally-arranged record upon the said ribbon, a circuit make and break device connected with the said recording device, spaces indicated upon the said ribbon to receive the markings whereby the exact position of the gate or signal when the said circuit make and break device is closed may be indicated upon the said ribbon, substantially as described.

7. In an automatic recorder for railway gates and signals, the combination with the operating mechanism thereof, of a recording-ribbon, a marking device adapted to act upon the said ribbon, means for moving the ribbon both longitudinally and laterally whereby the marking device is adapted to produce a spirally-arranged record upon the said ribbon, a circuit make and break device connected with the said recorder comprising a platform adapted to be operated by a passing team or animal, the construction being such that the record made upon the ribbon is adapted to indicate the position of the gate or signal when a team or animal crosses the platform, substantially as described.

8. In a railway gate or signal system, the combination with suitable gates, of track instruments connected therewith whereby the same may be electrically operated from a locomotive, signals for indicating the position of the said gate to the engineer, a platform connected with the said signals whereby the imprisoning of a team or animal between the gates may be indicated to the engineer, and other track instruments so located that they may be operated upon from the locomotive to open the gates after the engineer has been informed of the imprisonment by the said signals, substantially as described.

9. In an automatic recorder for railway gates or signals, the combination with the shaft thereof, of an endless ribbon, a marking device adapted to produce a record upon said ribbon, and means connected with the gate or signal for moving the ribbon laterally and longitudinally simultaneously when the gate or signal is operated whereby the record produced upon the ribbon will be arranged spirally thereon, substantially as described.

595,244. MAGAZINE FUSE-BLOCK. WILLIAM EHRHARDT, Union Hill, N. J., assignor to himself, and William B. Thom and George A. Connor, New York, N. Y. Filed Aug. 10, 1897. Serial No. 647,715 (No model.)

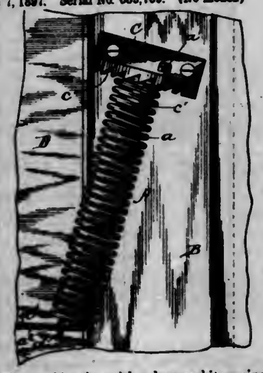


Claim.—1. In a magazine fuse-block the combination of a rotary cylinder or shaft provided with star-shaped end pieces, the arms of which terminate in rounded formations of insulating material, contact-clips to which the fusible strips are connected located between the said rounded projections and spring-mounted rotating disks adapted to make connection with said contacts and to roll over said rounded projections when the block is shifted.

2. In a magazine fuse-block, the combination of a plurality of pairs of contact-clips c arranged between the arms of a star-shaped carrier and a rolling, spring-mounted, contact-disk adapted to roll out of contact with one pair of clips and into contact with the next and over the intervening arm of the carrier, substantially as described.

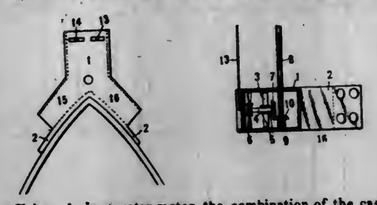
3. The combination of a disk g, the two spring-plates f between which it is clamped, said plates being provided with slots in which the shaft of the disk is located, a spring h bearing against the shaft of the disk and a rotating body carrying a plurality of contact-clips separated by projections of insulating material, said clips being adapted to be brought successively into contact with the disk, substantially as described.

595,245. DOOR-SPRING. WILLIAM HARGROVE, Chicago, Ill. Filed June 7, 1897. Serial No. 639,769. (No model.)



Claim.—The combination with a door and its casing, of a bracket adapted to be secured to the door and provided on its under side with ratchet-teeth and a depending lug, a coil-spring, the upper coils embracing said lug, and having an arm extended outwardly from the uppermost coil and bent upon itself to form a spring-lever, one arm of which rests upon the upper face of the bracket, the other arm engaging the ratchet teeth, and means for securing said spring to the door casing, consisting of the arm a^2 extended outwardly from the lowermost coil thereof and having an eyelet d, secured in the casing, and through which said arm may be passed and held in place, substantially as shown and described.

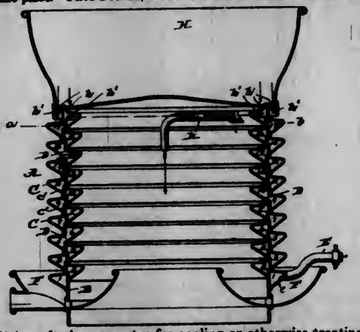
595,246. WATER-MOTOR. CHARLES W. HORTON, Blakeslee, Ohio. Filed Apr. 15, 1897. Serial No. 632,241. (No model.)



Claim.—1. In a water-motor, the combination of the casing 1, having bifurcated hollow portions 15 and 16 formed integral therewith, perforated attaching-plates 2 forming a portion of said bifurcated portions, the framework 3 located in said casing, said framework having a counter-shaft 4 journaled therein, the propeller-wheel 6 at the forward end of said counter-shaft and the miter-gear at the rear end thereof, the post 9 rising from the bottom of the casing, the vertical shaft 8, the lower end of said shaft journaled in said post 9, and the miter-gear secured to said vertical shaft in such position as to normally mesh with gear 7, substantially as shown and described.

2. In a water-motor, the combination of the Y-shaped casing, the framework 3 therein, the counter-shaft journaled in said framework, a propeller-wheel at the forward end of said counter-shaft and the miter-gear at the rear, collars 5 secured to said shaft at the sides of said framework, the gear 10 and shaft 8 for transmitting power from said counter-shaft and propeller, and the damper-like valve in front of said propeller, said valve consisting of parts 11 and 12, and the cables 13 and 14 connected with the movable member of said valve, all substantially as shown and described for the purpose set forth.

595,247. APPARATUS FOR TREATING MILK, &c. JOHAN L. JÖNSSON, Stockholm, Sweden, assignor to the Aktiebolaget Separator, same place. Filed Dec. 22, 1896. Serial No. 616,610. (No model.)

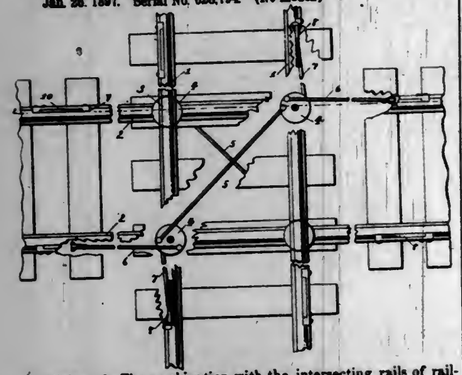


Claim.—1. An apparatus for cooling or otherwise treating milk and the like, comprising a casing having an internal and an external corrugated shell, the space between the shells being formed into annular chambers in pairs, one in the external shell and the other in the internal and passages connecting the chambers, one shell being arranged in position obliquely with reference to the chambers in the other shell.

2. An apparatus for cooling or otherwise treating milk and the like, having a casing formed of two corrugated shells, the corrugations of one shell being out of alinement with the corrugations in the other shell, annular chambers formed in each shell and connections between the annular chambers of one shell and those of the other, an inlet to one of the chambers and an outlet from another chamber.

3. An apparatus for cooling or otherwise treating milk and the like, consisting of an inner series of corrugated rings one above the other, and an outer series of corrugated rings one above the other, the two series of rings being out of alinement with each other, the two series being secured together, there being openings or passages between corresponding rings.

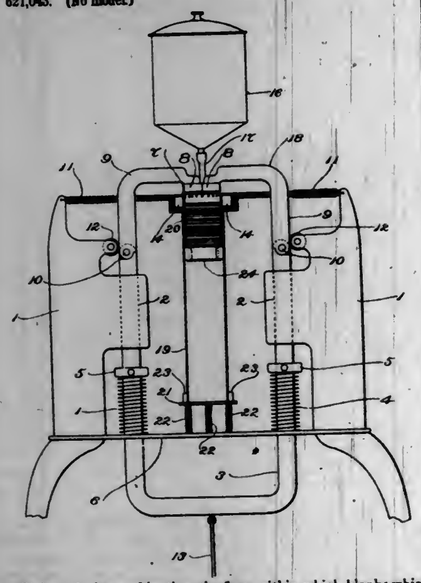
595,248. AUTOMATIC CONTINUOUS RAIL. JESSE S. MALIN, Portland, Ind., assignor of one-half to Isaiah D. Wiest, same place. Filed Jan. 26, 1897. Serial No. 620,794. (No model.)



Claim.—1. The combination with the intersecting rails of railroad-crossings, said rails being cut away at their points of intersection, pivoted rail-sections at the points of intersection of said rails, the diagonally opposite pivoted rail-sections being connected with each other so that they move in unison, and pivoted levers situated at the side of each rail of the track and at each side of the crossing, each of said levers being connected with a pivoted rail-section whereby each of said pivoted rail-sections is connected with two of said levers.

2. The combination with a rail, of a cut-away portion at one side thereof, a pivoted lever situated within said cut-away portion and pivoted between the rail and a side plate situated within said cut-away portion and flush with the upper side of the rail and secured thereto.

595,249. MACHINE FOR MANUFACTURING HEELS. ELBRIDGE S. MANSELL, Lynn, Mass. Filed Jan. 28, 1897. Serial No. 621,043. (No model.)



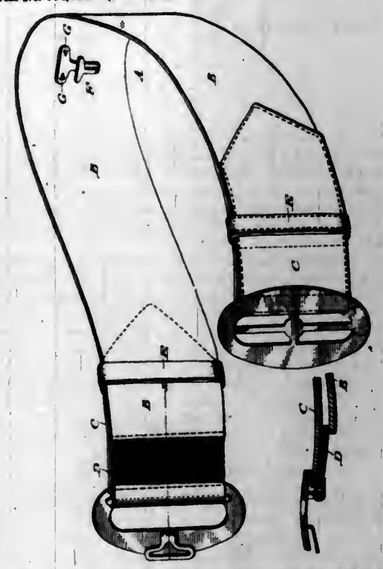
Claim.—1. In combination, the form within which blanks which are to be united to one another are placed successively, a yielding support for the united blanks as they move through the form, a sectional plunger, and means for actuating the said sectional plunger, the said means including provisions for laterally retracting the said sections from the form and afterward bringing them together in position to drive the blank into the latter, substantially as described.

2. In combination, the form within which blanks which are to be united together are placed successively, the said form having provisions for discharging paste onto the surfaces of the said blanks, a plunger whereby to force the blanks together and thereby unite them, means to actuate the said plunger, and a yielding support for the united blanks as they move through the form, substantially as described.

3. In combination, the form within which blanks which are to be united together are placed successively, the said form being provided with passages for discharging paste onto the blanks which are introduced into the same, a plunger and actuating means therefor whereby to force the blanks together within the said form and thereby unite them to one another, a tubular guide to receive the bar of united blanks as it issues from the form, a yielding follower within the said guide, and means to offer a yielding resistance to the movement of the said follower, substantially as described.

4. In combination, the form and its provisions for discharging paste onto the blanks that are placed within the same, a plunger and actuating means therefor whereby to force the blanks together within the said form and thereby unite the same to one another, the removable tube to receive the bar of united blanks, the follower within the said tube, and frictional devices whereby to oppose a yielding resistance to the movement of the follower within the tube, substantially as described.

595,250. BELT. FRANK C. MISSIMER, Philadelphia, Pa., assignor of one-half to William G. Earle, same place. Filed May 4, 1897. Serial No. 634,584. (No model.)



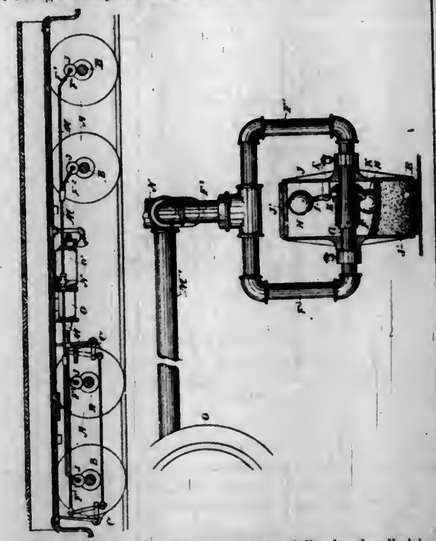
Claim.—1. A belt comprising a main portion provided near each end with a guide-loop, separate end sections guided through the loops and located on the outside of said main portion, buckle-sections attached to the adjacent ends of the end sections, and elastic connections secured to said end sections, and to the forward ends of said main portion.

2. A waist-belt consisting of the main section B, the separate outer sections C, and elastic pieces D connected with said main section and the outer ends of said outer sections, fastening devices on said outer sections, and loops on said main section forming guides for the overlapping ends of said outer sections.

595,251. AIR-BRAKE GOVERNOR. ALEXANDER C. RUMBLE, Oakland, Cal., assignor of five-eighths to Jos. H. Thompson and W. D. Huntington, same place. Filed Jan. 21, 1897. Serial No. 620,153. (No model.)

Claim.—1. An automatic air-brake governor consisting of a substantially closed cylindrical casing journaled with its periphery in continuous contact with a car-axle, tubular journal connections with said casing and a relief-valve contained therein adapted to be opened and closed by the varying speed of rotation of the car-wheels.

2. An air brake governor consisting of a substantially closed cylindrical casing, a tubular shaft connecting with the brake-cylinder and upon which the casing is journaled with its periphery in continuous contact with a car-axle, a relief-valve connected with the tubular shaft within the casing and a centrifugally-acting governor within the casing whereby the valve is actuated.



3. In an air-brake governor, a substantially closed cylindrical casing journaled and revoluble upon a pipe in constant communication with the brake-cylinder, said casing having a constant peripheral contact with a revoluble portion of the car-wheel axle, openings formed in the tubular journal-shaft within the casing, a valve controlling said openings and a centrifugally-acting governor contained within the casing and connected with the valve.

4. In an air-brake governor, a substantially closed cylindrical casing journaled upon a tubular shaft which connects with the air-brake cylinder, and having constant peripheral contact with a revoluble car-axle, a valve controlling escape-passages in the tubular shaft and a centrifugally-acting governor connected to operate said valve, both inclosed within the casing.

5. An air-brake governor consisting of a valve connecting with the brake-cylinders of the air-brake mechanism of a car, centrifugally-acting weights connecting with said valve to close it when the wheels are revolving at a normal rate of speed and to open the valve when the revolution of the wheels is checked or ceases, all contained within a cylindrical journaled casing having its periphery in continuous contact with the revoluble car-axle, and a pressure-retaining valve exterior to the casing, connecting with the air-brake cylinder and closable when the pressure within the brake-cylinder has decreased to a determined point.

6. An air-brake governor consisting of a pipe connecting with the brake-cylinder of an air-brake mechanism, a sleeve slidable on said pipe, openings formed in the pipe closable by the sleeve when the latter is moved in one direction and opened when the sleeve is moved in the opposite direction, a cylindrical casing inclosing the valve, journaled about the pipe having its rim in continuous contact with the wheel-axle, centrifugally-acting weights fulcrumed within the casing with lever-arms engaging the movable sleeve whereby the latter is moved to open the escape-ports when the rotation of the car-wheels is checked, and closing said ports when the wheels again revolve.

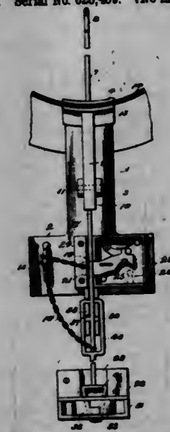
7. An air-brake governor consisting of a cylindrical casing journaled with its periphery adapted to make contact with a car-axle and be rotated thereby, a tubular shaft upon which the casing is turnable, said shaft having a tapering seat with relief-passages, a valve slidable thereon having the interior adapted to fit over and close said passages, or to open them when withdrawn, fulcrumed weighted levers, one end of which engages the valve and closes it when the weights are thrown outward by centrifugal action, said weights acting in conjunction with the interior air-pressure to open the valve when the centrifugal force decreases.

595,252. WRENCH. EBEN B. SANKEY, Salem, Mo. Filed Mar. 29, 1897. Serial No. 629,790. (No model.)

Claim.—In a wrench the combination of a jaw having a shank 3 with a long series of serrations and a jaw having a shank 4 with a short series of serrations, straps 5, extending from the shank 4, a locking-block journaled to the straps 5 by means of a pin fitting in a diagonal slot made in the block, substantially and for the purpose set forth.



595,253. COAT AND HAT RACK. EBEN B. SANKEY, Salem, Mo. Filed Mar. 1, 1897. Serial No. 625,439. (No model.)



Claim.—1. In a hat and coat rack, the combination with a back plate or body portion provided with a rigid clamping-flange at the upper end thereof, of a clamping member pivotally mounted on the body portion below said flange and adapted to be turned up so as to confine a portion of the hat between it and the said flange, a garment-suspending device carried by said body portion, a device to engage the garment, a locking-bar carrying said garment-engaging device and adapted to be interposed between the body portion and the base or inner end of the pivoted clamp, and means for locking the bar and garment-engaging device to maintain both in a locked position, substantially as described.

2. In garment-hooks, the combination with a body portion of a garment-suspending hook carried thereby, a removable locking-bar carrying a chain adapted to be passed through the sleeves of the garment, and a locking device adapted to engage the said locking-bar and the free end of the chain to hold the same in locked position, substantially as described.

3. In a hat and coat rack, the combination of a back plate or body portion provided with a rigid clamping-flange at the upper end thereof, a hat-clamping device pivoted at its lower end to said body portion and having the upper end adapted to bear against one side of the hat to hold the same clamped against the said clamping-flange,

a coat-suspending hook below the said hat clamp, a locking-bar adapted to engage the lower pivoted end of the hat clamp to hold the same in clamped position and provided with a connection adapted to pass through the sleeves of the coat, said connection carrying a locking-plate at the free end thereof, and a locking device adapted to engage said locking-plate and locking-bar, substantially as described.

4. In a garment rack, the combination with a back plate or body portion; of a garment-suspending hook projecting therefrom, a locking-bar provided at the lower end thereof with a chain adapted to be passed through the sleeves of the garment, said chain provided at its free end with a locking plate, and a locking device to engage the said locking-bar and locking-plate and hold the same in locked position, substantially as described.

5. In a garment-rack, the combination of a body portion having a projecting clamping-flange curved on the lower face thereof and hooks or eyes 5 on the back thereof, a hanger-wire having its lower end inserted in said hooks or eyes and provided with a forwardly-projecting upper extremity formed with suspending means, a pivoted clamping member having a clamping-face curved correspondingly to the said clamping-flange, and a locking device to hold the said clamping member in clamped position, substantially as described.

6. In a hat and coat rack, the combination with a hat-clamping device and a coat-suspending device, of a locking-bar adapted to engage said hat-clamping device and hold it in clamped position and provided with a chain adapted to be passed through the sleeves of the coat and a locking-plate, and a locking device adapted to engage the said locking-plate and locking-bar and hold the same in locked position, substantially as described.

7. In a hat and coat rack, the combination of a back plate or body portion having an enlarged base or horizontal portion, a rigid projecting clamping-flange, a hat-clamp pivoted thereto and provided with an outer clamping-face adapted in conjunction with the said flange to clamp the hat, a coat-suspending hook, a lock-inclosing case, a keeper on said body portion, and a locking-bar adapted to be passed between said locking-plate and keeper to engage with the pivoted hat-clamp to hold the same in a clamped position, a chain attached to the lower end of the said locking-bar and adapted to be passed through the sleeves of the garment and provided with a locking-plate, and locking mechanism in said locked case adapted to engage the said locking-bar and locking-plate, substantially as described.

8. In combination with a hat and coat rack provided with a locking-bar, an umbrella-holder comprising clamps to receive and hold the umbrella, an operating-rod to open and close said clamps, and a suspending-bar projecting from the hat and coat rack and adapted to receive and hold the said operating-rod, and coact with the said locking device of the hat and coat rack whereby the said operating-rod is held against movement in order that the jaws may be held closed about the umbrella, substantially as described.

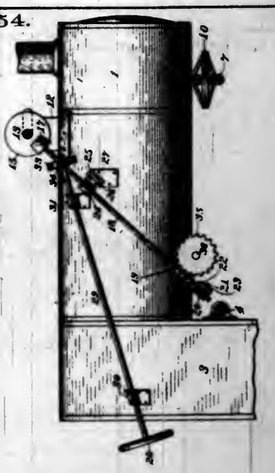
9. In combination with a hat and coat rack provided with a locking-bar, an umbrella-holder comprising pivoted clamps to receive and hold the umbrella, an operating rod adapted to open and close said clamps and adjustably connected with the rack, the said operating-rod being adapted to be held in locked position by the said locking-bar, substantially as described.

10. In combination with a hat and coat rack, provided with a locking-bar, and a suspending-bar provided with a series of notches, an umbrella-holder comprising two clamping members adapted to receive and hold the umbrella, said clamps being provided with notched edges, and an operating-rod provided with a head or loop engaging said notched edges of the clamps and adapted to open and close the same and also with a loop adapted to be adjustably engaged with the said notched suspending-bar, and retained therein by the lower end of the said locking-bar, substantially as described.

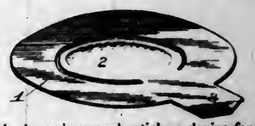
595,254. STEERING DEVICE FOR MOTOR-VEHICLES. WILBERT R. SCHREIBER, Floyd's Knobs, Ind., assignor of one-half to August Sperzel and Albert F. Sperzel, Galena, Ind. Filed July 6, 1897. Serial No. 643,622. (No model.)

Claim.—In a steering device for motor vehicles, the combination of a winding-shaft, a pivoted axle, a chain encircling said shaft and having its ends connected to said axle, a worm-wheel attached to said shaft, a shaft having a worm constructed to engage said worm-wheel, a journal-box 20 having a pin 21, a bracket 22 bored to receive said pin and adapted to support said journal-box pivotally near said worm-wheel, a flanged pillow-block 25, a bracket 27 having groove 26 in which said pillow-block may be reciprocated, said pivoted box 20 and sliding block 25 affording bearings for said worm-shaft, a driving or crank shaft, friction-disks fixed upon said crank-shaft, a friction-cone secured to said worm-shaft and situated between said disks, a hand-wheel, a hand-wheel shaft, and an eccentric upon said hand-wheel shaft having a rod pivotally connected with the worm-shaft, substantially as described.

595,254.



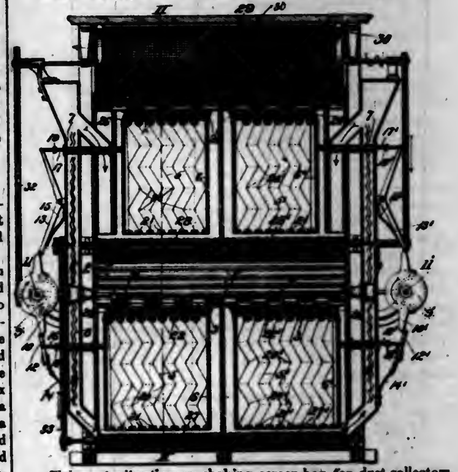
595,255. DEVICE FOR SEPARATING WHITES AND YOLKS OF EGGS. FREDERICK M. THOMPSON, Jackson, Mich., assignor to George S. Wilson, same place. Filed June 7, 1897. Serial No. 639,746. (No model.)



Claim.—1. As an improved article, a device for separating the whites and yolks of eggs, consisting of the outer flat plate or disk, and the inner downwardly-extending concave plate inclined at an angle to said flat ring or plate and connected therewith by an integral strip, substantially as described.

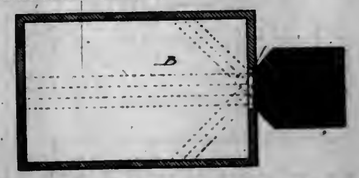
2. As an improved article, a device for separating the whites and yolks of eggs, consisting of the flat plate or disk, the inner downwardly-inclined concave plate connected therewith by an integral strip, and formed with a central hole, and the pointed handle formed integral with said outer plate, substantially as described.

595,256. DUST-COLLECTOR. JOSEPH W. WILSON, Salt Lake City, Utah. Filed Sept. 12, 1896. Serial No. 605,660. (No model.)



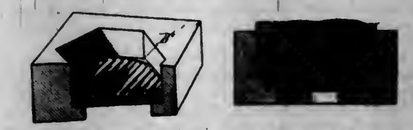
Claim.—A vibrating or shaking screen-box for dust-collectors comprising end walls provided with series of vertical rows of perforations, the wires supported in the said holes, the inverted-V-shaped slats forming the bottom of the box, the series of journal-boxes mounted on the end walls, the series of adjustable shafts mounted in the journal-boxes, set-screws for securing the shafts to their adjustment, the series of irregular or zigzag screens secured to the inclines of the slats and passed back and forth between the vertical rows of wires, and secured at their upper ends to the shafts, and the flexible connection whereby the screen-box is suspended; substantially as described.

595,257. CANOPY. OLIN H. BASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Aug. 23, 1897. Serial No. 649,226. (No model.)



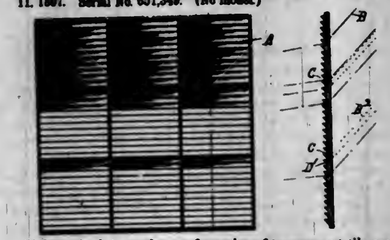
Claim.—A prism-plate for windows, comprising a series of prism-lights and a frame associated therewith so as to form the prism-plate, said prisms arranged in groups adapted to throw the light through the window, whether the prisms of such group are in front of the window or not, suitable supports to retain the prism plate in position, all of the prism-lights in substantially the same plane, and some of them projecting beyond the side margin of the window through which the light is to be thrown.

595,258. MOLD FOR PRISM-LIGHTS. OLIN H. BASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Apr. 19, 1897. Serial No. 632,713. (No model.)



Claim.—A mold for forming prism-lights so that the body of such prism-light shall have a non-circular periphery, while the body of prisms thereon shall be in the shape of an inscribed circle, comprising a two-part mold, one part adapted to hold and form the non-circular prism-light body, the other part adapted to hold and form the inscribed circularly-outlined body of prisms, said two parts movable with reference to each other about a vertical central axis passing through both, and means for securing them in any desired position so as to form the prisms at any desired angle with any edge of the non-circular body.

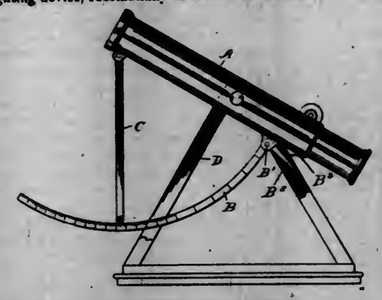
595,259. FRAMING TILES. OLIN H. BASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Sept. 11, 1897. Serial No. 651,349. (No model.)



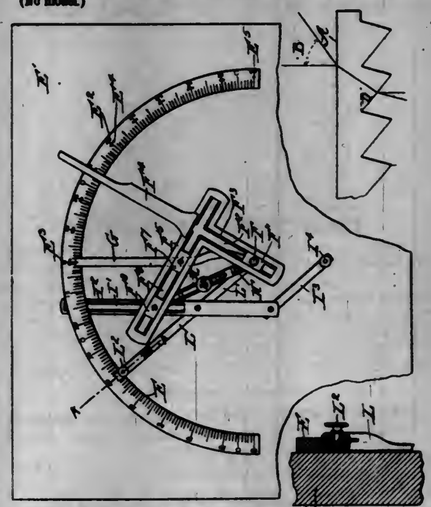
Claim.—A plate made up of a series of transparent tile-sections bound together and separated by intervening strips, some of the edges of said sections being beveled, so that when placed together the spaces between them are inclined, the intervening strips being placed in these inclined spaces and so positioned as to allow the light to pass without being obstructed thereby.

595,260. ANGLE-MEASURING DEVICE. OLIN H. BASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, of West Virginia. Filed Feb. 9, 1897. Serial No. 622,648. (No model.)

Claim.—An angle-measuring device comprising a frame, a sighting device pivoted on such frame, an arc-shaped scale pivoted on such frame, a spring device associated therewith tending to move the arc-shaped scale toward the sighting device, a pointer pivoted on the sighting device and substantially equal in length to the distance between the pivotal connections of such pointer and scale with the sighting device, substantially as shown and described.



595,261. DEVICE FOR SELECTING PRISMS HAVING PROPER ANGLES. OLIN H. BASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 7, 1897. Serial No. 654,372. (No model.)



Claim.—1. A device for finding the angles of prisms, comprising an indicating device adapted to be set so as to indicate the index of refraction of the glass, a second indicating device adapted to be set so as to indicate the angle at which the light is received, a third indicating device adapted to be set so as to indicate the angle at which the light leaves the prism and a pointer associated with said indicating devices adapted, when the indicating devices are set, to indicate the angle of the prism to be used.

2. A device for finding the angles of prisms which will throw the light toward a given point when it is received from a given direction, comprising a series of indicating devices adapted to indicate upon suitable scales the conditions to be met, a pointer adapted to indicate upon a suitable scale the angle of the prism, said pointer provided with two slots substantially at right angles to each other and connected with said indicating devices by a series of sliding blocks working in said slots.

3. A prism-angle-indicating device provided with a series of indicating devices adapted to indicate the conditions to be met, said indicating devices comprising a pointer adapted to indicate upon a suitable scale the angle at which the light is received, a pointer adapted to indicate the angle of the prism, and a parallel-moving arm connecting said two pointers together.

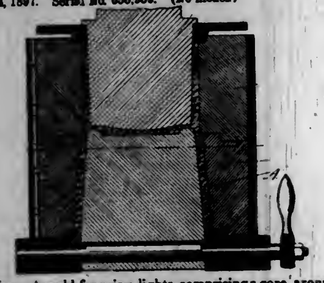
4. A device for finding the angles of prisms, comprising a graduated arc, a series of indicating devices pivotally connected at the center about which the arc is described, a pointer adapted to point out

the angle of the prism to be used on said graduated arc and connected with the center about which the arc is described, said pointer connected with said indicating devices so as to be controlled thereby.

5. A device for finding the angles of prisms, comprising a graduated arc divided into degrees, a pointer connected with the center about which said arc is described and adapted to be moved along said arc to indicate the angle at which the light is received, a second pointer pivotally connected with the center about which said arc is described and adapted to indicate on the arc the angle at which the light leaves the prism, a pointer connected with both of said pointers and adapted to indicate on a suitable scale the index of refraction of the glass of which the prism is made, and an indicator connected with said pointers and adapted to move along said arc and indicate the angle of the prism when the pointers are set for given conditions.

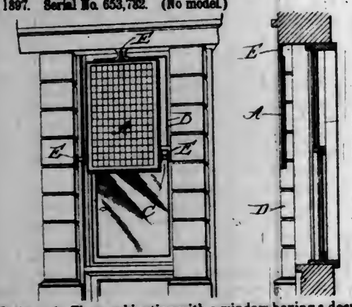
6. A device for measuring the angles of prisms, comprising a graduated arc, two pointers or indicators pivotally connected with the center about which said arc is described and adapted to move along a common scale, one of said pointers adapted to indicate the angle at which the light is received and the other the angle at which it leaves the prism, a device for indicating the index of refraction of the glass connected with said pointers and an indicator for indicating the angle of the prism when said pointers are set.

595,262. MOLD FOR PRISM-LIGHTS. KRAFT BOOTH, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 4, 1897. Serial No. 653,959. (No model.)



Claim.—A mold for prism-lights, comprising a core, around which the prism-lights are formed, a surrounding part inclosing said core and movable with relation thereto, a series of recesses between said core and surrounding part, in which the prism-lights are formed, the opposed surfaces of the core and surrounding part inclined so that a relative movement of said core and surrounding part varies the distance between said opposed surfaces, and means for forcing the material from which the prism-lights are formed into said recesses.

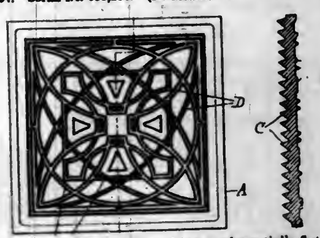
595,263. PRISMATIC WINDOW. JOHN M. EWEN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 2, 1897. Serial No. 653,782. (No model.)



Claim.—1. The combination with a window having a deep reveal of a prism-plate consisting of a series of prism-lights provided with prisms systematically arranged to produce an increased illuminating effect, said prism-plate suspended near the outer face of the wall surrounding the reveal and being smaller in dimensions than said reveal, so that when in position there is an intervening space between its outer boundary and the edges of the reveal, whereby the artistic effect due to the reveal remains substantially unchanged.

2. A prism-plate for windows, comprising a bar secured in the window-opening somewhat below the upper edge of such opening, two other bars secured to and suspended from the first-mentioned bar, a prism-plate attached to such bars and lower supports or attachments at the corners of the prism-plate, substantially as shown and described.

595,264. FIGURED PRISM-LIGHT. JOHN M. EWEN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Sept. 27, 1897. Serial No. 653,236. (No model.)



Claim.—1. A prism-light comprising a substantially flat and thin body of transparent material with a series of small prisms on one side thereof, systematically arranged to produce an increased illuminating effect and distributed in a substantially uniform manner over the prism side and a grid-like design on a part of the receiving side formed of lines produced in the transparent material and extending over a considerable portion of such receiving-surface, so as to leave no relatively large unbroken surfaces thereon, said lines formed of the substance of the prism-light.

2. A prism-light comprising a substantially flat and thin body of transparent material with a series of small prisms on one side thereof, systematically arranged to produce an increased illuminating effect and distributed in a substantially uniform manner over the prism side and a grid-like design on a part of the receiving side formed of lines produced in the transparent material and extending over a considerable portion of such receiving-surface, so as to leave no relatively large unbroken surfaces thereon, said lines formed of the substance of the prism-light and slightly elevated above the general surface of the receiving side.

3. A prism-light comprising a substantially flat and thin body of transparent material with a series of small prisms on one side thereof, systematically arranged to produce an increased illuminating effect and distributed in a substantially uniform manner over the prism side and a grid-like design on a part of the receiving side formed of lines produced in the transparent material and extending over a considerable portion of such receiving-surface, so as to leave no relatively large unbroken surfaces thereon, said lines provided with edges in planes substantially perpendicular to the receiving-surface, said lines formed of the substance of the prism-light.

4. A prism-light comprising a substantially flat and thin body of transparent material with a series of small prisms on one side thereof, systematically arranged to produce an increased illuminating effect and distributed in a substantially uniform manner over the prism side and a grid-like design on a part of the receiving side formed of lines produced in the transparent material and extending over a considerable portion of such receiving-surface, so as to leave no relatively large unbroken surfaces thereon, said lines of thin and of practically uniform cross-section, said lines formed of the substance of the prism-light.

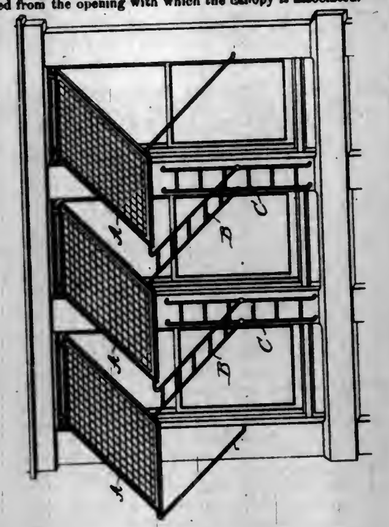
5. A prism-light comprising a substantially flat and thin body of transparent material with a series of small prisms on one side thereof, systematically arranged to produce an increased illuminating effect and distributed in a substantially uniform manner over the prism side and a grid-like design on a part of the receiving side formed of lines produced in the transparent material and extending over a considerable portion of such receiving-surface, so as to leave no relatively large unbroken surfaces thereon, said lines produced in the transparent material and slightly elevated above the general surface of the receiving side and provided with edges which are in planes substantially vertical to the receiving-surface, said lines formed of the substance of the prism-light.

595,265. SUPPORT FOR PRISM-LIGHT CANOPIES. JOHN M. EWEN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 2, 1897. Serial No. 653,781. (No model.)

Claim.—1. The combination of a canopy with a supporting device, said supporting device comprising a ladder by which the canopy is made accessible for cleaning or other purposes.

2. A support for canopies, comprising a rigid ladder-like part permanently connected with the canopy and so positioned that the canopy can be reached by climbing thereon.

3. The combination with a prism-light canopy of a permanent support therefor, said support comprising a rigid ladder-like part permanently connected with the canopy and so positioned as to be easily reached from the opening with which the canopy is associated.

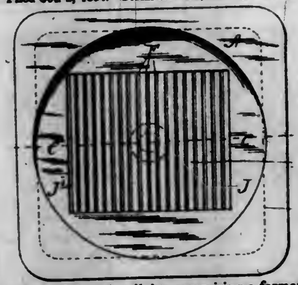


595,266. PROTECTED PRISM-LIGHT CANOPY. LEWIS H. JORDAN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Sept. 27, 1897. Serial No. 653,253. (No model.)

Claim.—1. A folding canopy comprising a canopy proper, two short supporting-arms pivotally connected at the sides of the canopy near one end thereof, two longer supporting-arms pivotally connected to the sides of the canopy between the ends and the middle of said canopy, all of said arms being pivotally connected to a fixed part, said longer arms provided with projecting parts, a screen pivotally connected to said projecting parts, and links at the lower end to movably support the screen, the whole so arranged that the screen and canopy may be folded so as to be out of the way.

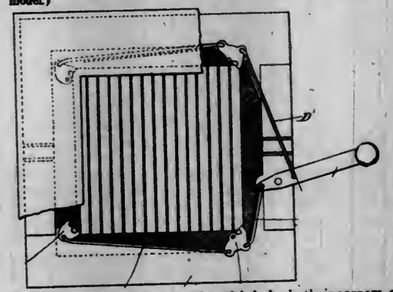
2. The combination of an adjustable prism-plate and a screen mounted thereover, arms connecting the two together movably with reference to each other, and supports for the plate whereby it is held at different angles of inclination, the supports and the arms related in such manner that as the prism-plate moves toward a perpendicular position the screen moves toward the plate and as the plate is moved to an inclined position the screen is moved away from the plate.

595,267. MOLD FOR PRISM-LIGHTS. WILLIAM S. MACHARG, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 2, 1897. Serial No. 653,774. (No model.)



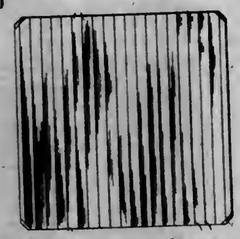
Claim.—A mold for prism-lights comprising a former, ridged or grooved, each ridge having two glass-forming sides in combination with a surrounding ring or case having inwardly-projecting portions on opposite sides to coact with the opposed surfaces of the outer ridges on the former proper, thus to produce outer prisms on the prism-lights, each of which shall have two sides, as described.

595,268. MEANS FOR INDENTING CORNERS OF TILE. WILLIAM S. MACHARG, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Sept. 7, 1897. Serial No. 650,733. (No model.)



Claim.—A mold for forming tiles with holes in their corners, consisting of a mold having corners, openings in the corners of the mold, pins pivoted in the corners of the mold each provided with a part to project in the mold through a corner opening, a controlling device connected with the pins, that they may be simultaneously moved into and out of the mold, to form the holes in the corners of the tiles.

595,269. TILE WITH PARTIALLY-REMOVED CORNERS. WILLIAM S. MACHARG, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Aug. 23, 1897. Serial No. 649,213. (No model.)

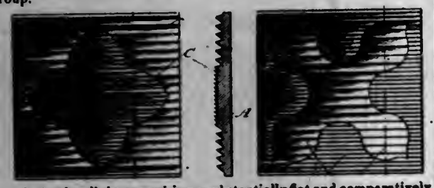


Claim.—A prism-light cut away at the corners, said corners provided with a projecting part intermediate between the two faces of the prism-light.

595,270. ORNAMENTAL PRISM-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Sept. 7, 1897. Serial No. 650,700. (No model.)

Claim.—1. A prism-light comprising a substantially flat and comparatively thin body of transparent material provided with series of prisms running parallel to each other and all arranged systematically

to produce an increased illuminating effect, the series of prisms arranged in groups so that the ends of the prisms of one group abut against but do not register with the ends of the prisms of another group.



2. A prism-light comprising a substantially flat and comparatively thin body of transparent material provided with series of prisms running parallel to each other and all arranged systematically to produce an increased illuminating effect, the series of prisms arranged in groups so that the ends of the prisms of one group abut against but do not register with the ends of the prisms of another group, and the prisms of one series being smaller or the grooves between them shallower than the prisms and grooves of another group.

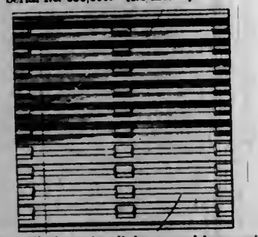
595,271. PRISM-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 11, 1897. Serial No. 654,855. (No model.)



Claim.—1. A prism light comprising a substantially flat and relatively thin body of transparent material with a series of comparatively small prisms systematically arranged on one side thereof to produce an increased illuminating effect, and a series of comparatively narrow flat-surfaced ridges crossing the prism-grooves on the prism side and having sides substantially perpendicular to the receiving-surface of the prism-light, and outer edges or surfaces substantially flush with the outer edges of the prisms.

2. A prism-light comprising a substantially flat and relatively thin body of transparent material with a series of comparatively small prisms systematically arranged on one side thereof to produce an increased illuminating effect, and a series of comparatively narrow flat-surfaced ridges crossing the prism-grooves on the prism side and having sides substantially perpendicular to the receiving-surface of the prism-light, and outer edges or surfaces substantially flush with the outer edges of the prisms, and duplicates of said ridges raised on the receiving-surface of the prism-light.

595,272. VENTILATED PRISM. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Sept. 7, 1897. Serial No. 650,699. (No model.)

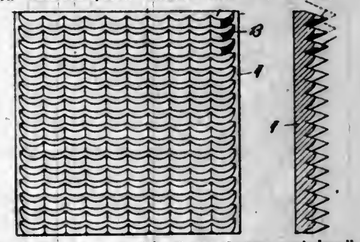


Claim.—1. A ventilating prism-light, comprising a series of prism-bars separated by ventilating-spaces, a series of shorter intermediate prisms integral therewith and connecting the prism-bars so as to form a prism-light.

2. A ventilating prism-light comprising a series of prism-bars separated by ventilating-spaces, and a series of shorter intermediate parts integral therewith and connecting the prism-bars so as to form a prism-light.

3. A ventilating prism-light comprising a series of prism-bars separated by ventilating-spaces, a series of shorter intermediate bars integral therewith, and connecting the ends of the prism-bars, and a series of short bars integral with the prism-bars and intermediate between the end bars and the prism-bars so as to form a complete prism-light.

595,273. LENTICULAR WINDOW-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 4, 1897. Serial No. 653,940. (No model.)



Claim.—1. As a new article of manufacture, a window-light or the like, comprising a substantially flat relatively thin body portion of transparent homogeneous material provided on one side with a substantially flat surface and on the other with a series of cone like projecting lenses systematically arranged so as to produce an increased illuminating effect and placed so that the lines of their bases intersect each other, thus to cover substantially all of such surface with such cone-like projections.

2. As a new article of manufacture, a window-light or the like, comprising a substantially flat relatively thin body portion of transparent homogeneous material provided on one side with a substantially flat surface and on the other with a series of cone-like projecting lenses systematically arranged so as to produce an increased illuminating effect and placed so that the lines of their bases intersect each other, thus to cover substantially all of such surface with such cone-like projections, the upper side of each of said cones cut away, substantially as shown and described.

595,274. MOLD FOR FORMING PRISM-LIGHTS. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Aug. 23, 1897. Serial No. 649,233. (No model.)



Claim.—A device for forming prism-lights, comprising a mold provided with a series of metallic prisms loosely placed therein, said prisms of various sizes and being built up so as to form a design, some of said metallic prisms provided with extending parts which project from the mold, holding-pieces on the side of the mold beneath which said projecting parts extend, and a clamping device adapted to clamp the several prisms so as to hold them in a fixed relative position while the prism-light is being formed.

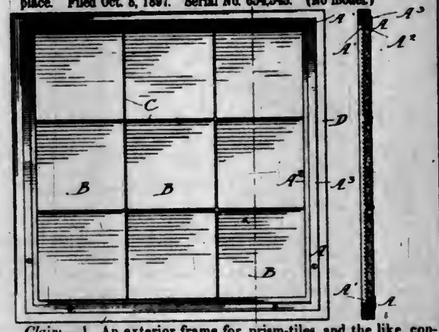
595,275. PRISM-PLATE. WILLIAM H. WINSLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Mar. 9, 1897. Serial No. 626,634. (No model.)



Claim.—A prism-plate comprising a series of prism-lights substantially uniform in size, with a series of long framing-pieces extending parallel to each other from end to end of the plate between the rows of prism-lights and at the edges of the outer rows of lights,

and a series of short strips each substantially of the same length as the distance between the long strips, and each provided at one end with two lugs secured upon the edge of said strip and projecting beyond its sides and beyond its end, one of such strips lying between the prism-lights in a given row to form the frame, the parts being all electroglazed together, substantially as shown and described.

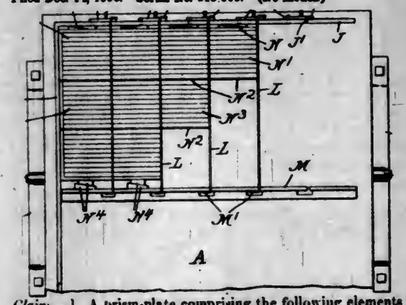
595,276. FRAMING PRISM-LIGHTS. WILLIAM H. WINSLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 8, 1897. Serial No. 654,543. (No model.)



Claim.—1. An exterior frame for prism-tiles and the like, consisting of thin metal borders or strips about the edge of the prisms in the plane of the prism-plate, a flange on each strip one to overlap one edge of the prism-lights, and a corresponding flange to project in the opposite direction, the two strips united together.

2. An exterior frame for prism-tiles and the like, consisting of a thin sheet-metal border or strip folded so as to present a double thickness about the edge of the prisms in the plane of the prism-plate, and a flange to overlap one edge of the prism-lights and a corresponding flange to project in the opposite direction.

595,277. PRISM-PLATE. WILLIAM H. WINSLOW, Chicago, Ill., assignor to the Luxfer Prism Patents Company, of West Virginia. Filed Dec. 14, 1896. Serial No. 615,669. (No model.)



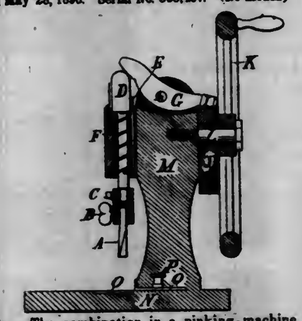
Claim.—1. A prism-plate comprising the following elements: a series of sections of glass or prism lights, metallic framing-strips between their opposed edges, overhanging metallic strips secured about the exterior edges of the marginal sections or prism-lights, so as to form a sort of marginal groove, a filling substance in such marginal groove, provided with a conducting-surface and electrodeposited metal about all the strips and the filling substance and between the interposed strips and the edges of the glass sections.

2. A prism-plate comprising the following elements: a series of sections of glass or prism lights, metallic framing-strips between their opposed edges, overhanging metallic strips secured about the exterior edges of the marginal sections of glass or prism lights, so as to form a sort of marginal groove, a filling substance in such marginal groove provided with a conducting-surface, electrodeposited metal about the overhanging strips and the filling substance and between the interposed strips and the edges of the glass sections, and overhanging ledges of deposited metal on the framing-strips, so as to form each of them into a sort of I-beam.

3. A prism-plate comprising the following elements: a series of sections of glass or prism lights, metallic framing-strips between their opposed edges, overhanging metallic strips about the exterior edges of the marginal sections of glass or prism lights, so as to form a sort of marginal groove, a filling substance in such marginal groove, provided with a conducting-surface connecting devices at the corners of the sections, which overhang such corners and are secured to the framing-strips, and electrodeposited metal about all the strips and the filling substance and between the interposed strips and the edges of the glass sections.

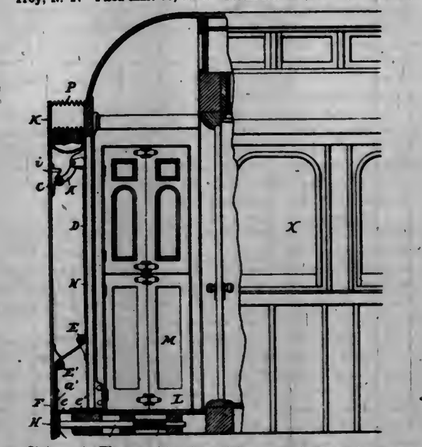
4. A prism-plate comprising the following elements: a series of sections of glass or prism lights, metallic framing-strips between their opposed edges, overhanging metallic strips secured about the exterior edges of the marginal sections of glass or prism lights, so as to form a sort of marginal groove, a filling substance in such marginal groove provided with a conducting-surface connecting devices at the corners of the sections which overhang such corners and are secured to the framing-strips, electrodeposited metal about the overhanging strips and the filling substance and between the interposed strips and the edges of the glass sections, and overhanging ledges of deposited metal on the framing-strips, so as to form each of them into a sort of I-beam, and electrically-deposited metal about such connecting devices.

595,278. PINKING-MACHINE. THEODORE P. COLBY, Boston, Mass. Filed May 28, 1896. Serial No. 593,457. (No model.)



Claim.—The combination in a pinking-machine, of the body which is composed of the base-plate N, and standard M, a balance-wheel K with cam J permanently affixed thereto, said balance-wheel attached to said standard by stud L upon which it has free play, said cam acting upon a lever G, which is provided with an antifriction-roll I at the point of contact with said cam, said lever supported and held in place in slot at the upper part of said standard by a pin A, a spindle D which is depressed by said lever, and raised by spring F resting upon a shoulder in the hole bored for said spindle in said standard, said spindle provided with key E to prevent turning, a beam C with set-screws B, attached to said spindle, the irons or cutters A adjustable in said beam, gage Q, thumb-screws P, and plate O, all substantially as indicated, specified and set forth.

595,279. VESTIBULE FOR RAILWAY-CARS. THOMAS L. MCKEEN, Easton, Pa., assignor to the Trojan Car Coupler Company, Troy, N. Y. Filed Mar. 11, 1897. Serial No. 627,045. (No model.)



Claim.—1. The combination with a car-platform, its frame N, face-plate K, and springs, and connections for forcing out the lower

end of the face-plate, of levers between the face-plate and frame N, guide-pulleys, and cables connected with the levers passing around said guide-pulleys, and springs arranged to take up slack in said cables, substantially as and for the purpose set forth.

2. The combination of the platform, face-plate, and bearings C having inclined faces, of levers bearing on said faces and cables connected with the said levers, substantially as set forth.

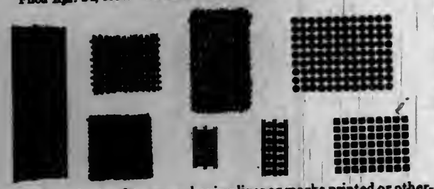
3. The combination of the platform, frame N, face-plate, and levers pivoted between the frame and the face-plate, the short ends of the levers having curved faces, and cables extending over said curved faces, and secured at their lower ends to a part of the structure, substantially as set forth.

595,280. **PLUNGER-ELEVATOR.** GEORGE H. REYNOLDS, Chicago, Ill., assignor to The Crane Elevator Company, same place. Filed Apr. 30, 1897. Serial No. 634,547. (No model.)



Claim.—In a plunger-elevator, the combination of two vertical guide-rails, a sheave arranged to move vertically between said rails, and a circumferential groove in the face of said sheave constructed to straddle said rails, substantially as described.

595,281. **SAFETY-PAPER.** JOHN C. YETTER, Chicago, Ill., assignor of two-thirds to Edward R. Cooper and Charles F. Slaughter, same place. Filed Apr. 24, 1897. Serial No. 633,667. (No model.)



Claim.—1. A safety-paper having lines or marks printed or otherwise impressed thereon, said lines or marks being microscopically fine and divided into sets of different colors, and so closely relatively disposed as to alternate said colors and bring them into such close juxtaposition as to convey to the eye the impression of a color differing from the colors of any of said sets of lines or marks, substantially as described.

2. A safety-paper having sets of lines or marks of different colors printed or otherwise impressed thereon, said lines or marks being microscopically fine and so closely relatively disposed as to alternate said colors and bring them into such close relative juxtaposition as to convey to the eye the impression of a color differing from the colors of either of said sets of lines or marks, and a space between each two of said lines or marks, substantially as described.

3. A safety-paper having sets of lines or marks of different colors printed or otherwise impressed thereon, said sets of lines of different colors being respectively deleble and indelible and microscopically fine, and so closely relatively disposed as to alternate said colors and bring them into such close relative juxtaposition as to convey to the eye the impression of a color differing from the colors of either of said sets of lines or marks, and a space adjacent each of said lines or marks, substantially as described.

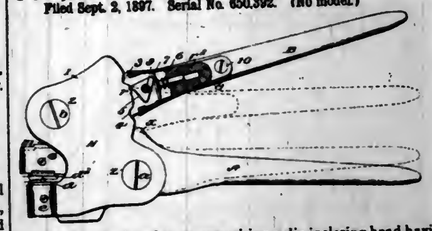
4. A safety-paper having sets of parallel lines of different colors printed or otherwise impressed thereon, said lines being microscopically fine and alternated in such a manner as to bring said different colors into such close juxtaposition as to convey to the eye the impression of a color differing from the colors of either of said sets of lines, substantially as described.

5. A safety-paper having sets of parallel lines, of different colors printed or otherwise impressed thereon, said lines of different colors being microscopically fine and alternated so as to bring one line of one color between two lines of a color or colors differing therefrom, whereby the impression of a color differing from the colors of either of said sets of lines or marks is conveyed to the eye, and a space between each two of said lines, substantially as described.

6. A safety-paper having sets of parallel lines of different colors printed or otherwise impressed thereon, said lines of different colors being microscopically fine and alternated so as to bring one line of one color between two lines of a color or colors differing therefrom, whereby the impression of a color differing from the colors of either of said sets of lines or marks is conveyed to the eye, and a space of a width not greater than said lines between each two thereof, substantially as described.

7. A safety-paper having sets of parallel lines of different colors printed or otherwise impressed thereon, said sets of lines of different colors being respectively deleble and indelible and microscopically fine, said lines being alternated in such a manner as to bring one line of one color between two of another color or colors, and a space alternated with said lines, whereby an impression of a color differing from the colors of either of said sets of lines or marks is conveyed to the eye, substantially as described.

595,282. **SEAL-PRESS.** EDWARD J. BROOKS, East Orange, N. J. Filed Sept. 2, 1897. Serial No. 650,392. (No model.)



Claim.—1. A seal-press comprising a die-inclosing head having a pair of cheeks which support a pair of fulcrum-pins, one of said cheeks carrying an arc-shaped ratchet-rack concentric with one of said pins, a pair of lever-handles fulcrumed on said pins and provided respectively with the movable die and with a die-closing cam, and a pawl, carried by the lever-handle last named, reversing on a pivot parallel to said fulcrum-pins, and coacting with said ratchet-rack, to insure fully closing the dies at each pressing operation.

2. The combination, in a seal-press, of a die-inclosing head having a pair of cheeks, one of which carries on its edge an arc-shaped ratchet-rack having reversing-notches at its ends, a pair of lever-handles one of which carries a die-closing cam and is fulcrumed on a pin concentric with said rack, a rack-engaging pawl carried by the lever-handle last named and reversing on a pivot parallel to said fulcrum-pin, and a pawl-inclosing housing having a flange at its outer side which overlaps said rack-carrying cheek, substantially as hereinbefore specified.

3. The combination, in a seal-press, of a recessed head provided internally with a bed-die, a pair of lever-handles fulcrumed separately within said head and provided respectively with the movable die and with a die-closing cam, and a die-opening spring or springs, within said head, acting on the die-carrying end of the lever-handle first named, substantially as hereinbefore specified.

4. The combination, in a seal-press, of a recessed head containing a bed-die and provided with a hammer-face and a spring-seat behind the same and perpendicular thereto, and a pair of lever-handles fulcrumed within said head and provided respectively with the movable die and with a die-closing cam, and a spring or springs within said spring-seat, acting on the die-carrying end of the lever-handle first named, substantially as hereinbefore specified.

595,288. **PUZZLE.** GEORGE T. SMALLWOOD, Washington, D. C. Filed Sept. 20, 1897. Serial No. 652,298. (No model.)



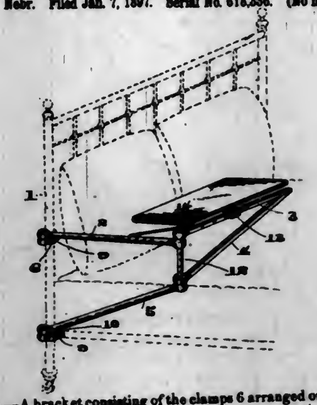
Claim.—1. In a toy or puzzle, the combination of a wheel hung to turn on an axis and having a weight located at one side of said axis, with a movable tire having a counterbalancing-weight connected thereto, substantially as described.

2. In a toy or puzzle, the combination of a wheel hung to turn on an axis and having a weight connected to its rim, with a tire divided into circumferential halves adjustable on said rim and having weights attached thereto, substantially as described.

3. In a toy or puzzle, the combination of a wheel hung to turn on an axis and having a weight connected to its rim, with a tire divided into circumferential halves adjustable on said rim, and a weight on each half of the tire, the weight on one half of the tire being equal to the sum of the weights on the rim and the other half of the tire, substantially as described.

4. In a toy or puzzle, a body hung to turn on an axis, in combination with visible and invisible weights for balancing the same on said axis, substantially as described.

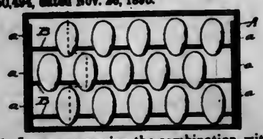
595,284. **COMBINATION TABLE AND DESK.** HELEN BAUM, Omaha, Nebr. Filed Jan. 7, 1897. Serial No. 618,396. (No model.)



Claim.—A bracket consisting of the clamps 6 arranged one above the other and consisting of two pivoted members 7 and 8 having apertured lugs 9 and a set-screw 10 extending through said lugs, one member of each of said clamps being provided with a projection 11 having an opening therein, an inner arm 2 having a pintle situated within the opening in the projection 11 of the upper clamp 6, a brace-rod 5 having a pintle situated within the opening in the projection 11 of the lower clamp 6, an outer arm 3 and a brace-rod 4 connected together at their outer ends, the outer ends of the inner arm 2 and brace-rod 5 and the inner ends of the outer arm 3 and brace-rod 4 being pivoted together by means of an upright rod 12, a plurality of openings in said inner arm 2, a bar pivoted to said outer arm 3 and provided with a hook end to enter said opening in the arm 2, the said outer arm 3 being square in cross section, a sliding block 13 having a square opening through which the outer arm 3 extends, a clutch member 15 carried by said block 13, a table or board 14 having a clutch member 15 on its lower side, a thumb-screw passing through said clutch members 15 and serving as a pivot, and means for holding said clutch members 15 in engagement with each other.

REISSUES.

11,640. **EGG-CARRIER.** THOMAS S. FERGUSON, Omaha, Nebr., assignor, by direct and mesne assignments, to the Ferguson Company, Limited, same place. Filed July 27, 1896. Serial No. 600,730. Original No. 560,494, dated May 26, 1895.



Claim.—1. In an egg-carrier, the combination, with a case A, of the series of egg holding and supporting trays, each consisting of the horizontal body portion B provided with the egg-seatings *i* shaped to receive, fit, and support the eggs and arranged in the manner specified, and the transverse end pieces *a a* secured to the opposite ends of the body B, the series of such trays being arranged in the case A one above the other in the reverse order described and supported one upon another by means of their end pieces *a a*, whereby the trays are separated a suitable distance from each other and whereby the egg-seatings of the adjacent trays are caused to stand out of vertical line with each other so that the eggs supported in the seatings in one tray may not contact with the eggs in the seatings of the trays above and below it, as set forth.

2. In an egg-carrier, the combination, with a case A, of the series of egg holding and supporting trays, each tray consisting of the horizontal body portion B, of less width than the case and provided with the egg-seatings *i* shaped to receive, fit and support the eggs and arranged in the manner specified, and the transverse end pieces *a a* secured to the opposite ends of the body B and projecting laterally beyond it at one edge, the series of such trays being arranged in the case A one upon another in the reverse order described and supported one upon another by their end pieces *a a*, whereby the trays are separated a suitable distance from each other and the egg-seatings of the adjacent trays are caused to stand out of vertical line with each other so that the eggs therein may not contact, and whereby a free passage is provided for the circulation of air back and forth between the trays from the top to the bottom of the series, substantially as and for the purpose set forth.

11,641. **SHEET-METAL CAN.** FREDERICK WESTERBECK, St. Louis, Mo. Filed Nov. 13, 1897. Serial No. 658,504. Original No. 590,029, dated Sept. 14, 1897.



Claim.—1. A sheet-metal can comprising a body, a cover, and a band adapted to be turned over the cover and which is beaded to the body so as to be held from vertical movement thereon without being soldered thereto; said band having its ends soldered together, and one end of which is provided with a tearing-tongue for disengaging said ends and thereby releasing the cover; substantially as set forth.

2. A sheet-metal can comprising a body formed with an outwardly-projecting annular bead, with a plain cylindrical portion surmounting the bead, with an annular groove located above the cylindrical portion and with a plain cylindrical portion surmounting the groove having an inturned curl, a cover seating on the inturned curl, and a cover retaining band formed with a plain cylindrical portion having its lower edge seating on the bead of the body, with an annular bead fitting in the groove of the body and with a plain cylindrical portion located above its bead and having its upper edge extending above the body and adapted to be rolled over the edge of the cover; the cover-retaining band being soldered at its ends only; substantially as described.

3. A sheet-metal can comprising a body formed with an outwardly-projecting annular bead, with a plain cylindrical portion surmounting the bead, with an inwardly-projecting annular groove located above the cylindrical portion and with a plain cylindrical portion surmounting the groove having an inturned curl, a cover seating on the inturned curl, and a cover-retaining band formed with a plain cylindrical portion having its lower edge seating on the bead of the body, with an inwardly-projecting annular bead fitting in the groove of the body and with a plain cylindrical portion located above its bead and having its upper edge extending above the body and adapted to be rolled over the edge of the cover; the cover-retaining band being soldered at its ends only; substantially as described.

4. A sheet-metal can-cover having its edge curled inward so as to provide a horizontal flange, and a horizontal folded packing-strip fitting over the flange; substantially as described.

DESIGNS.

27,929. **BADGE.** THOMAS BRUNSON STEPHENSON, Bristol, Conn. Filed Aug. 28, 1897. Serial No. 649,887. Term of patent 3½ years.



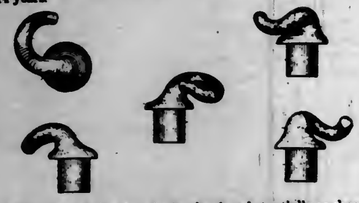
Claim.—A design for a badge substantially as herein shown and described.

27,930. **RING.** CHARLES F. KNAPP, Brooklyn, N. Y. Filed Oct. 23, 1897. Serial No. 656,214. Term of patent 3½ years.



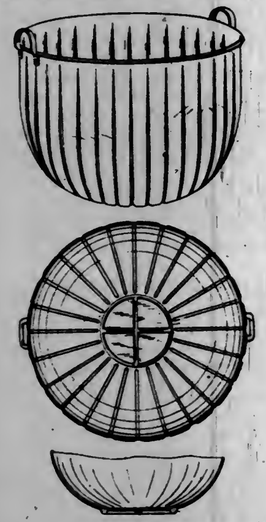
Claim.—The design for a ring as herein shown and described.

27,931. LACING-HOOK FOR GLOVES. HARRISON H. EATON, Cleveland, Ohio. Filed Oct. 11, 1897. Serial No. 654,892. Term of patent 14 years.



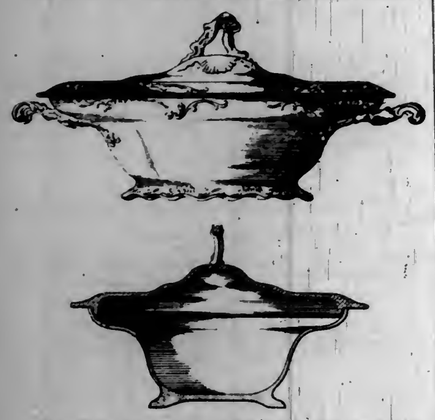
Claim.—The design for a lacing-hook, substantially as shown and described.

27,932. BASKET. GEORGE S. M. RUTTER, Canton, Ohio. Filed Sept. 20, 1897. Serial No. 652,387. Term of patent 14 years.



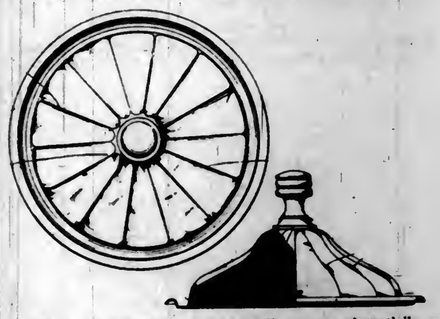
Claim.—The design for a basket, substantially as herein shown and described.

27,933. COVER-DISH. ROBERT LEWIS JOHNSON, Hanley, England. Filed Oct. 23, 1897. Serial No. 656,219. Term of patent 3½ years.



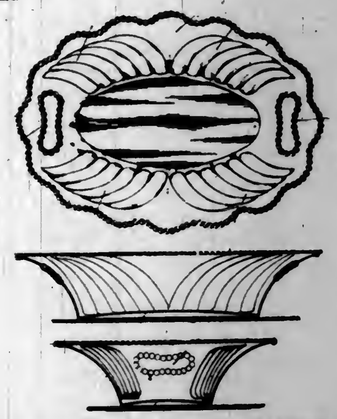
Claim.—The design for a cover-dish herein shown and described.

27,934. COVER. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,859. Term of patent 3½ years.



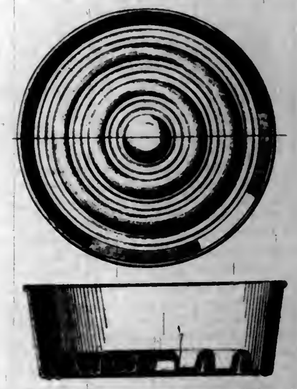
Claim.—A design for a cover for hollow ware, substantially as herein shown and described.

27,935. BREAD OR CAKE TRAY. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,862. Term of patent 3½ years.



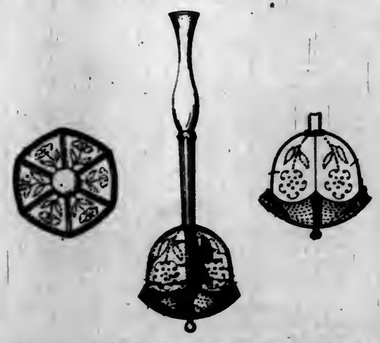
Claim.—A design for a bread or cake tray, substantially as herein shown and described.

27,936. CAKE-PAN. CHARLES E. SCHMIDT, New York, N. Y. Filed Oct. 23, 1897. Serial No. 656,215. Term of patent 7 years.



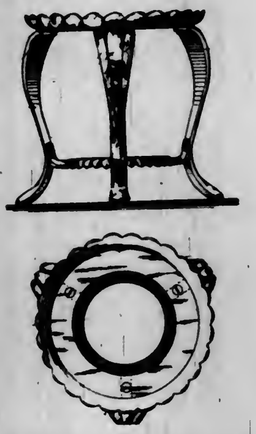
Claim.—The design for a cake-pan, substantially as herein shown and described.

27,937. TEA-HOLDER. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,863. Term of patent 3½ years.



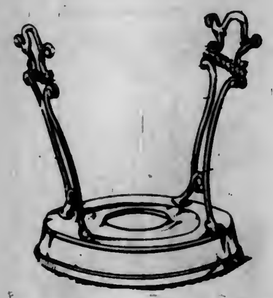
Claim.—A design for a tea-holder, substantially as herein shown and described.

27,938. STAND FOR POTS OR KETTLES. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,854. Term of patent 3½ years.



Claim.—The design for a stand for pots and kettles and the like substantially as herein shown and described.

27,939. STAND FOR TEA-KETTLES. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,855. Term of patent 3½ years.



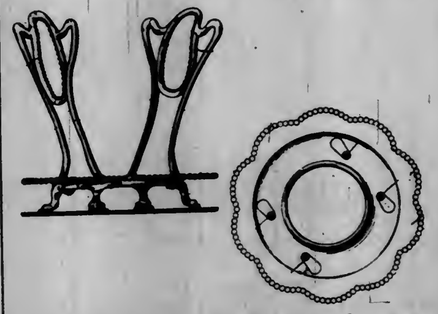
Claim.—The design for a stand for tea-kettles, substantially as herein shown and described

27,940. STAND FOR TEA-KETTLES. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,856. Term of patent 3½ years.



Claim.—The design for a stand for tea-kettles, substantially as herein shown and described.

27,941. STAND FOR TEA-KETTLES. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,857. Term of patent 3½ years.



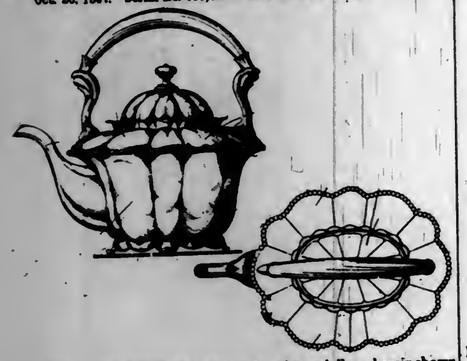
Claim.—The design for a stand for tea-kettles, substantially as herein shown and described.

27,942. TEA-KETTLE. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,860. Term of patent 3½ years.



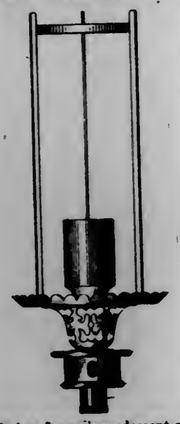
Claim.—The design for a tea-kettle, substantially as herein shown and described.

27,948. TEA-KETTLE. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,861. Term of patent 3½ years.



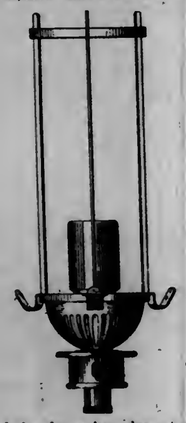
Claim.—The design for a tea-kettle, substantially as herein shown and described.

27,944. GAS-BURNER FIXTURE. ERNST LIEBHER, Brooklyn, N. Y. Filed Oct. 22, 1897. Serial No. 656,107. Term of patent 7 years.



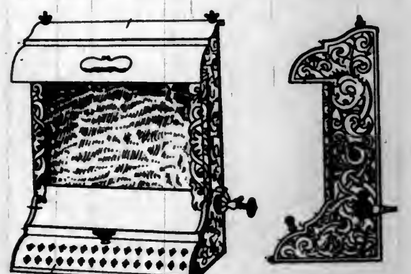
Claim.—The design for an incandescent-gas-burner fixture substantially as shown.

27,945. GAS-BURNER FIXTURE. ERNST LIEBHER, Brooklyn, N. Y. Filed Oct. 22, 1897. Serial No. 656,108. Term of patent 7 years.



Claim.—The design for an incandescent-gas-burner fixture substantially as shown.

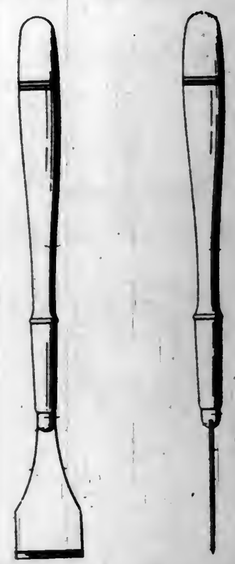
27,946. GAS HEATING-STOVE. EDSIC C. WARREN, Cleveland, Ohio, assignor to Reineke, Wilson & Co., Pittsburg, Pa. Filed Sept. 27, 1897. Serial No. 653,200. Term of patent 7 years.



Claim.—1. In a gas heating-stove, the design for the figured side plates, substantially as shown and described.

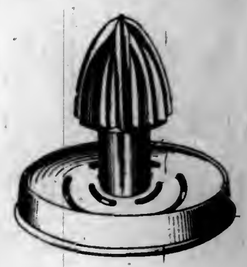
2. The design for a gas heating-stove, substantially as shown and described.

27,947. ICE-SHAVER. HENRY M. NORTON, Chester, Conn. Filed Aug. 27, 1897. Serial No. 649,783. Term of patent 7 years.

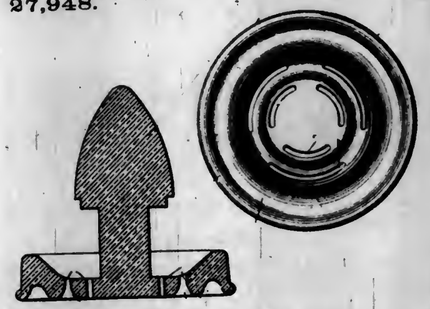


Claim.—The design for an ice-shaver substantially as herein shown and described.

27,948. LEMON-SQUEEZER. GEORGE R. BLAKE, Winchester, Va. Filed Aug. 6, 1897. Serial No. 647,385. Term of patent 7 years.



27,948.



Claim.—The design for a lemon-squeezer herein shown and described.

27,949. HAMMER. JOHN L. SOMMER, Newark, N. J. Filed Aug. 9, 1897. Serial No. 647,940. Term of patent 7 years.



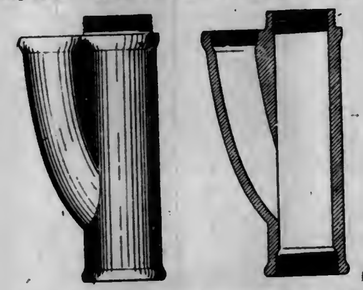
Claim.—The design for a hammer substantially as herein shown and described.

27,950. TACKLE-BLOCK. THOMAS R. FERRALL, Somerville, Mass. Filed Aug. 16, 1897. Serial No. 648,729. Term of patent 14 years.



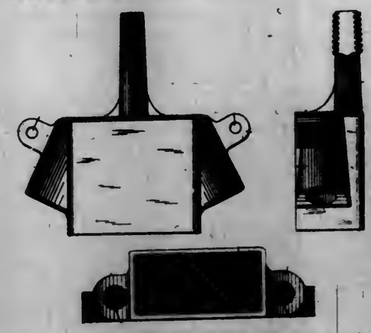
Claim.—The design for a tackle-block as herein shown and described.

27,951. PUMP-FROG. SYLVESUS PERRELL, Girard, Ohio. Filed Aug. 18, 1897. Serial No. 643,654. Term of patent 14 years.



Claim.—The design for a pump-frog herein shown and described.

27,952. HOLDER FOR FUSIBLE CUT-OUTS. FERDINAND SCHWEDTMANN, St. Louis, Mo. Filed Oct. 9, 1897. Serial No. 654,723. Term of patent 7 years.



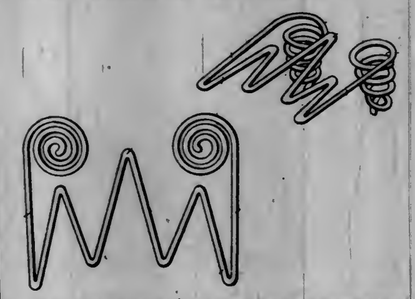
Claim.—The design for a holder for fusible cut-outs substantially as shown and described.

27,953. ROENTGEN RAY TUBE. IRWIN W. HOWELL, Newark, N. J., assignor to the General Electric Company, of New York. Filed Aug. 26, 1897. Serial No. 649,649. Term of patent 14 years.



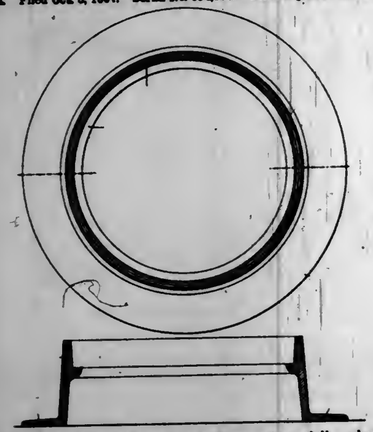
Claim.—The design for a Roentgen-ray tube as herein shown and described.

27,954. BED-SPRING. ELMER E. RICE, Copeville, Tex. Filed July 15, 1897. Serial No. 644,732. Term of patent 3½ years.



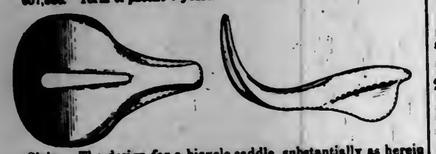
Claim.—The design for a bed-spring herein shown and described.

27,955. MANHOLE-FRAME. THOMAS P. GREGER, Philadelphia, Pa. Filed Oct. 8, 1897. Serial No. 654,596. Term of patent 14 years.



Claim.—The design for a manhole-frame, substantially as herein shown and described.

27,956. BICYCLE-SADDLE. JOSEPH SERSON, Chicago, Ill., assignor of one-half to James Cisler, same place. Filed Nov. 8, 1897. Serial No. 657,888. Term of patent 7 years.



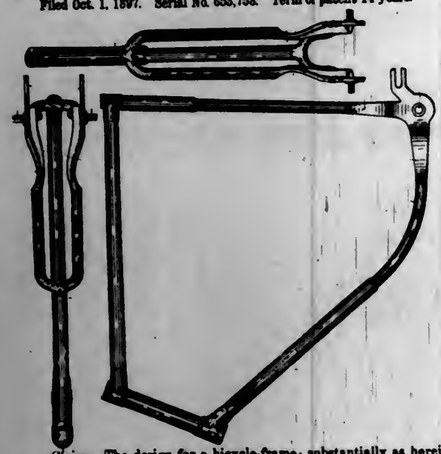
Claim.—The design for a bicycle-saddle, substantially as herein shown and described.

27,957. LINK FOR BICYCLE-CHAINS. PHILIP BURNS, Norwich, Conn. Filed May 27, 1897. Serial No. 638,473. Term of patent 3½ years.



Claim.—The design for a link for bicycle-chains as herein shown and described.

27,958. BICYCLE-FRAME. MARION A. ANDREWS, Syracuse, N. Y. Filed Oct. 1, 1897. Serial No. 653,758. Term of patent 14 years.



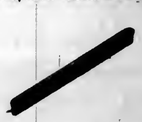
Claim.—The design for a bicycle-frame, substantially as herein shown and described.

27,959. CAKE OF SOAP. HARRY R. CURTIS, Grafton, W. Va. Filed Apr. 17, 1895. Serial No. 546,133. Term of patent 14 years.



Claim.—The design for a cake of soap substantially as herein shown and described.

27,960. SEAM-WELTING STRIP. FRANK W. MERRICK, Boston, Mass. Filed June 28, 1897. Serial No. 642,754. Term of patent 14 years.



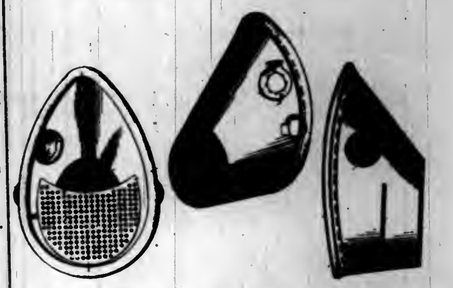
Claim.—The design for a seam-welting strip, substantially as shown.

27,961. VAMP-STAY FOR SHOES. JOSEPH WALDEN, Orange, N. J. Filed Sept. 11, 1897. Serial No. 651,383. Term of patent 14 years.



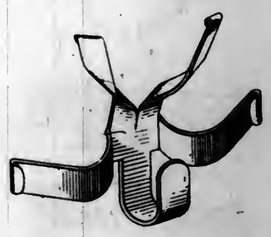
Claim.—The design for a vamp-stay for shoes, as herein shown and described.

27,962. DUST-PROTECTOR. HARVEY S. COVER, South Bend, Ind. Filed Oct. 6, 1897. Serial No. 654,298. Term of patent 7 years.



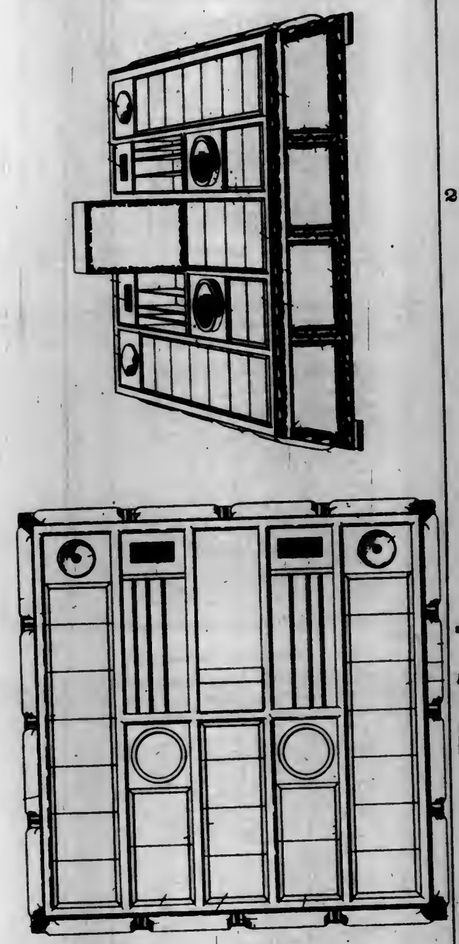
Claim.—The design for a dust-protector substantially as herein shown and described.

27,963. COAT, HAT, AND UMBRELLA HOOK. WILLIAM WALKER, Summit, N. J. Filed Oct. 27, 1897. Serial No. 656,591. Term of patent 7 years.



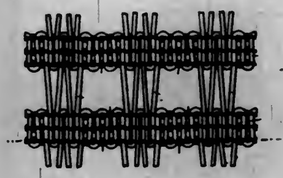
Claim.—The design for a combined hat, garment and umbrella hook, substantially as herein shown and described.

27,964. HOTEL-CABINET. DAVID B. LINCOLN, Aurora, Ill. Filed June 11, 1897. Serial No. 640,390. Term of patent 7 years.



Claim.—A design for a hotel-cabinet substantially as shown and described.

27,965. FABRIC FOR HANGINGS, PORTIÈRES, &c. JOSEPH P. McHUGH, New York, N. Y. Filed May 28, 1897. Serial No. 638,630. Term of patent 7 years.

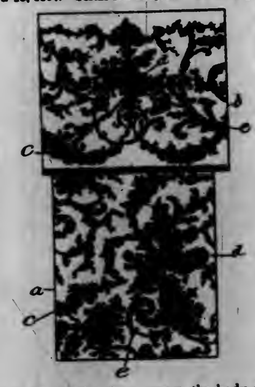


27,965.



Claim.—The design for a fabric as herein shown and described.

27,966. CARPET. ARTHUR MIDDLETON ROSE, Yonkers, N. Y. Filed Sept. 15, 1897. Serial No. 651,737. Term of patent 3½ years.



Claim.—1. In a design for a carpet, the body *a*, substantially as shown.

2. In a design for a carpet, the border *b*, substantially as shown.

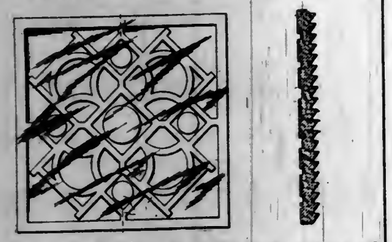
3. The design for a carpet consisting of the body *a*, and border *b*, substantially as shown.

27,967. RUG. JOHN S. TRAVIS, Paterson, N. J., assignor to the Lamond & Robertson Company, same place. Filed Oct. 29, 1897. Serial No. 656,959. Term of patent 3½ years.



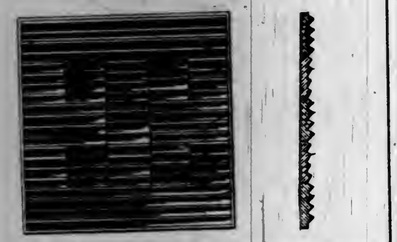
Claim.—The design for a rug substantially as herein shown and described.

27,968. PRISM-LIGHT. JOHN MEIGGS EWEN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 656,563. Term of patent 14 years.



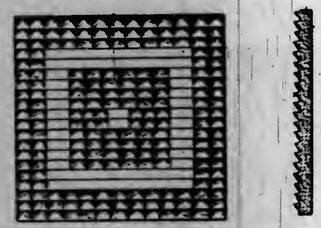
Claim.—A design for a prism-light, substantially as shown and described.

27,969. PRISM-LIGHT. OLIN H. RASQUIN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,223. Term of patent 14 years.



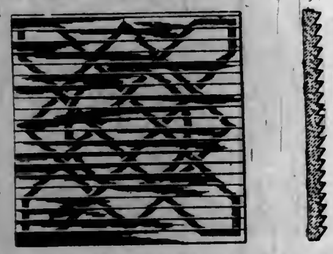
Claim.—The design for a prism-light, substantially as shown and described.

27,970. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Nov. 1, 1897. Serial No. 657,104. Term of patent 14 years.



Claim.—A design for a prism-light, substantially as shown and described.

27,971. PRISM-LIGHT. HENRY F BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Nov. 1, 1897. Serial No. 657,105. Term of patent 14 years.



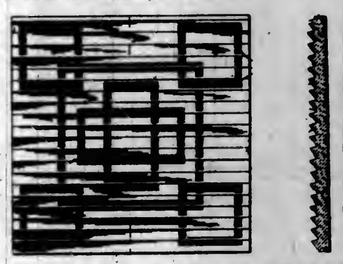
Claim.—A design for a prism-light, substantially as shown and described.

27,972. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Nov. 1, 1897. Serial No. 657,106. Term of patent 14 years.



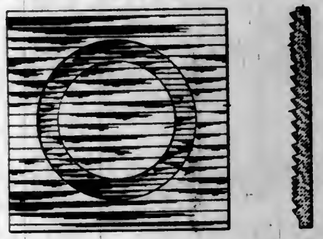
Claim.—A design for a prism-light, substantially as shown and described.

27,973. PRISM-LIGHT. HENRY F. BELCHER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Nov. 1, 1897. Serial No. 657,107. Term of patent 14 years.



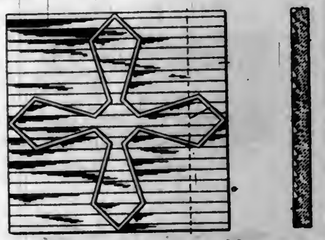
Claim.—A design for a prism-light, substantially as shown and described.

27,974. PRISM-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Nov. 1, 1897. Serial No. 657,101. Term of patent 14 years.



Claim.—A design for a prism-light, substantially as shown and described.

27,975. PRISM-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Nov. 1, 1897. Serial No. 657,102. Term of patent 14 years.



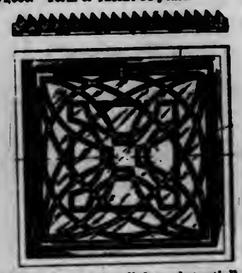
Claim.—A design for a prism-light, substantially as shown and described.

27,976. PRISM-LIGHT. FRANK C. SOPER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Nov. 1, 1897. Serial No. 657,108. Term of patent 14 years.



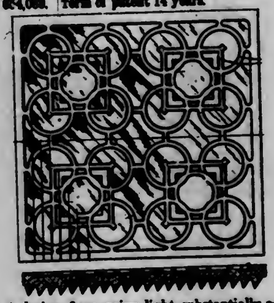
Claim.—A design for a prism-light, substantially as shown and described.

27,977. PRISM-LIGHT. FRANK I. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 4, 1897. Serial No. 654,083. Term of patent 14 years.



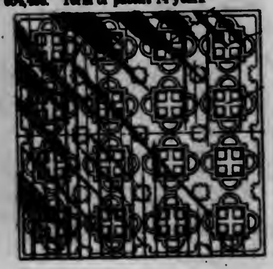
Claim.—A design for a prism-light, substantially as shown and described.

27,978. PRISM-LIGHT. FRANK I. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 4, 1897. Serial No. 654,089. Term of patent 14 years.



Claim.—A design for a prism light substantially as shown and described.

27,979. PRISM-LIGHT. FRANK I. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 7, 1897. Serial No. 654,468. Term of patent 14 years.

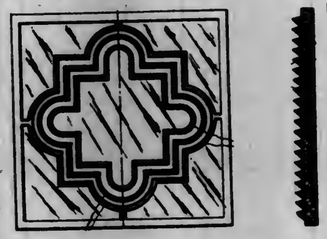


27,979.



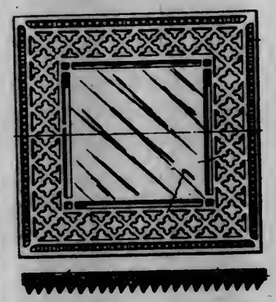
Claim.—A design for a prism-light, substantially as shown and described.

27,980. PRISM-LIGHT. FRANK I. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 4, 1897. Serial No. 654,090. Term of patent 14 years.



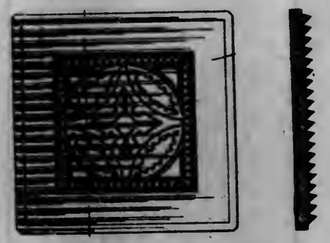
Claim.—A design for a prism-light, substantially as shown and described.

27,981. PRISM-LIGHT. FRANK I. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 4, 1897. Serial No. 654,091. Term of patent 14 years.



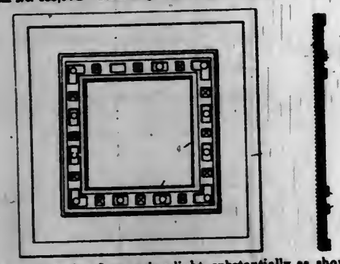
Claim.—A design for a prism-light, substantially as shown and described.

27,982. PRISM-LIGHT. FRANK I. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 20, 1897. Serial No. 655,850. Term of patent 14 years.



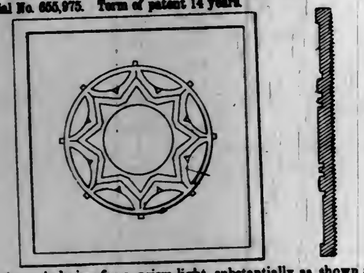
Claim.—A design for a prism-light substantially as shown and described, comprising a body portion provided on one side with a series of projecting ribs or prisms and on the other side with an ornamental design or figure surrounded by a plain border.

27,988. PRISM-LIGHT. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,974. Term of patent 14 years.



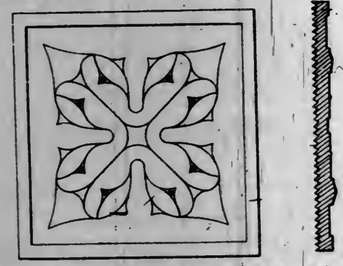
Claim.—A design for a prism-light, substantially as shown and described.

27,984. PRISM-LIGHT. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,975. Term of patent 14 years.



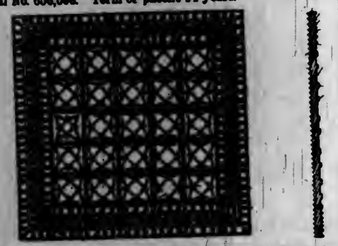
Claim.—A design for a prism-light, substantially as shown and described.

27,985. PRISM-LIGHT. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,976. Term of patent 14 years.



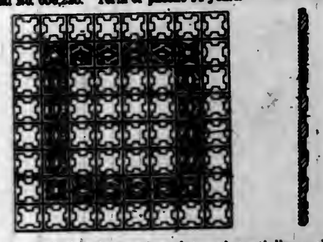
Claim.—A design for a prism-light, substantially as shown and described.

27,986. PRISM-LIGHT. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 22, 1897. Serial No. 656,086. Term of patent 14 years.



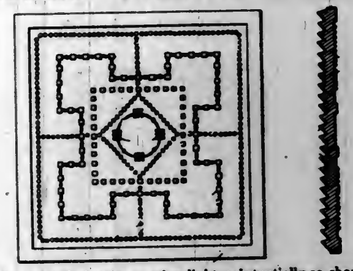
Claim.—A design for a prism-plate, substantially as shown and described.

27,987. PRISM-LIGHT. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 22, 1897. Serial No. 656,230. Term of patent 14 years.



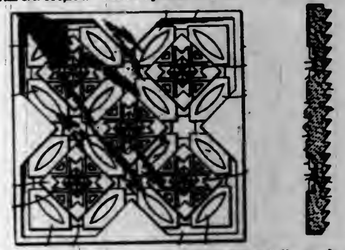
Claim.—A design for a prism-plate, substantially as shown and described.

27,988. PRISM-LIGHT. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 22, 1897. Serial No. 656,231. Term of patent 14 years.



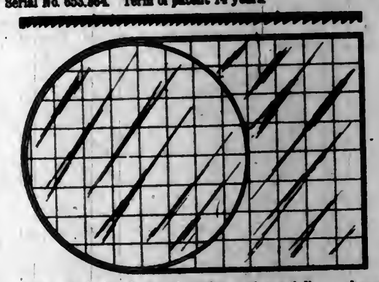
Claim.—A design for a prism-light, substantially as shown and described.

27,989. PRISM-LIGHT. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 22, 1897. Serial No. 656,232. Term of patent 14 years.



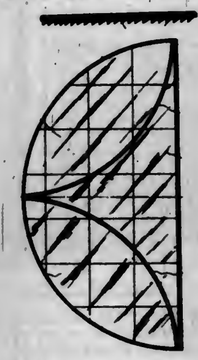
Claim.—A design for a prism-light, substantially as shown and described.

27,990. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 2, 1897. Serial No. 653,864. Term of patent 14 years.



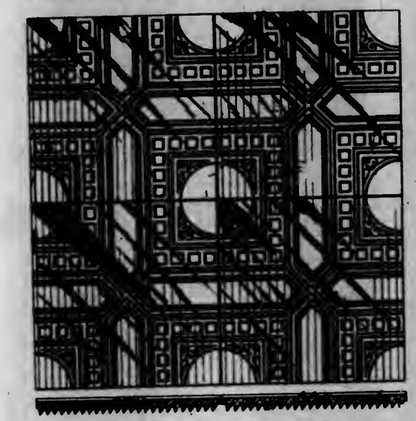
Claim.—A design for a prism-plate substantially as shown and described.

27,991. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 2, 1897. Serial No. 653,865. Term of patent 14 years.



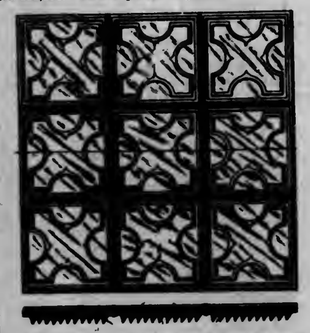
Claim.—A design for a prism-plate substantially as shown and described.

27,992. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 7, 1897. Serial No. 654,467. Term of patent 14 years.



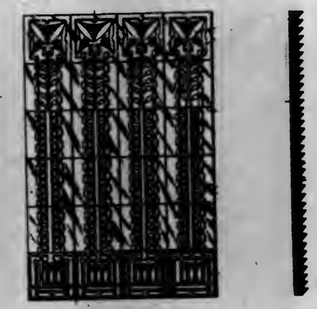
Claim.—A design for a prism-plate, substantially as shown and described.

27,993. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 20, 1897. Serial No. 655,851. Term of patent 14 years.



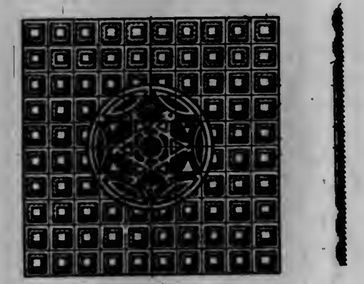
Claim.—A design for a prism-plate, substantially as shown and described.

27,994. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,007. Term of patent 14 years.



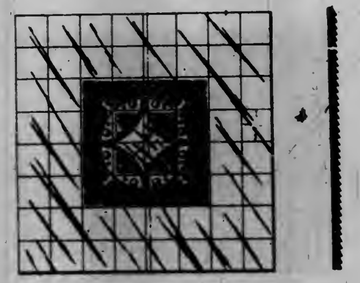
Claim.—A design for a prism-plate, substantially as shown and described.

27,995. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,972. Term of patent 14 years.



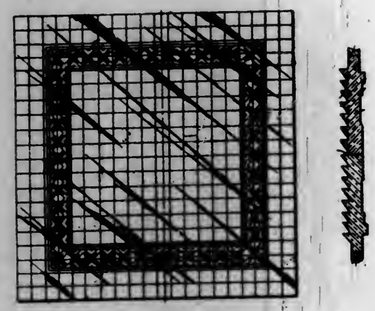
Claim.—A design for a prism-plate, substantially as shown and described.

27,996. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,973. Term of patent 14 years.



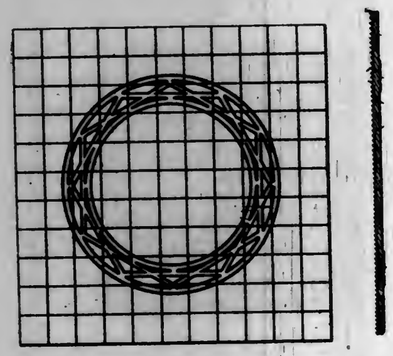
Claim.—A design for a prism-plate, substantially as shown and described.

27,997. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,234. Term of patent 14 years.



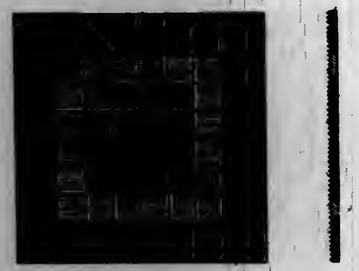
Claim.—A design for a prism-plate, substantially as shown and described.

27,998. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,236. Term of patent 14 years.



Claim.—A design for a prism-plate, substantially as shown and described.

27,999. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,977. Term of patent 14 years.



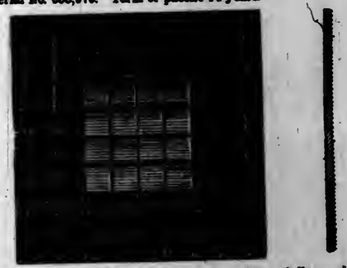
Claim.—A design for a prism-plate, substantially as shown and described.

28,000. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,978. Term of patent 14 years.



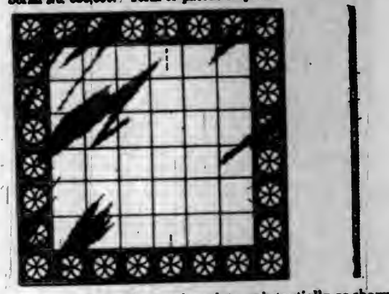
Claim.—A design for a prism-plate, substantially as shown and described.

28,001. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,979. Term of patent 14 years.



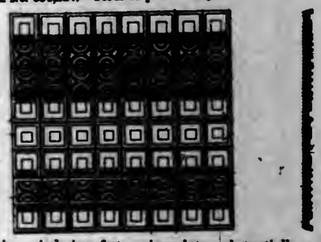
Claim.—A design for a prism-plate, substantially as shown and described.

28,002. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 22, 1897. Serial No. 656,099. Term of patent 14 years.



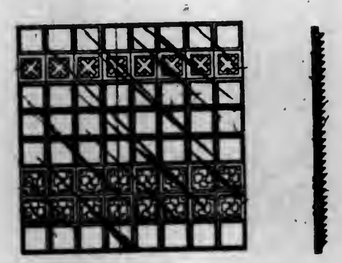
Claim.—A design for a prism-plate, substantially as shown and described.

28,003. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,227. Term of patent 14 years.



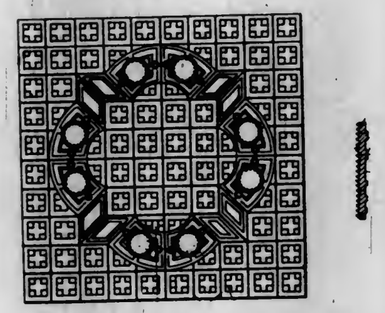
Claim.—A design for a prism-plate, substantially as shown and described.

28,004. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,223. Term of patent 14 years.



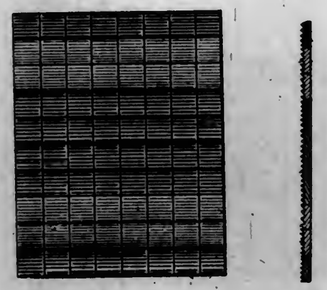
Claim.—A design for a prism-plate, substantially as shown and described.

28,005. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,229. Term of patent 14 years.



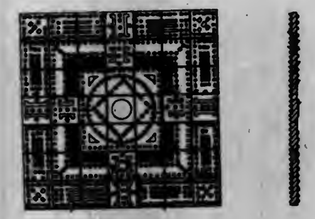
Claim.—A design for a prism-plate, substantially as shown and described.

28,006. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,230. Term of patent 14 years.



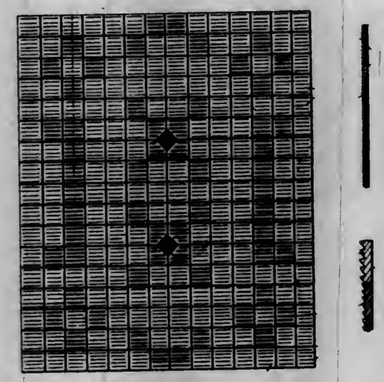
Claim.—A design for a prism-plate, substantially as shown and described.

28,007. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 22, 1897. Serial No. 656,100. Term of patent 14 years.



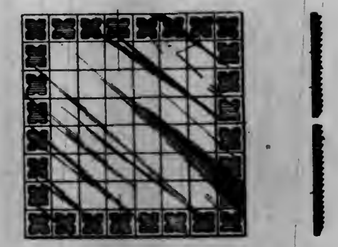
Claim.—A design for a prism-plate, substantially as shown and described.

28,008. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,233. Term of patent 14 years.



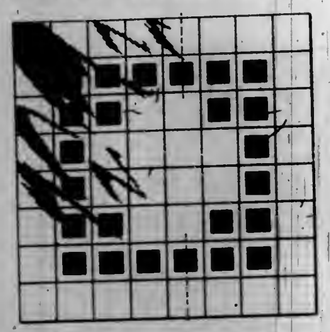
Claim.—A design for a prism-plate, substantially as shown and described.

28,009. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,234. Term of patent 14 years.



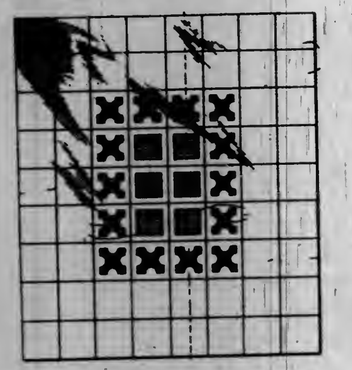
Claim.—A design for a prism-plate, substantially as shown and described.

28,010. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,235. Term of patent 14 years.



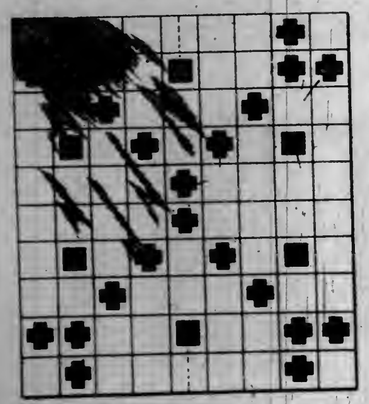
Claim.—A design for a prism-plate, substantially as shown and described.

28,011. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,236. Term of patent 14 years.



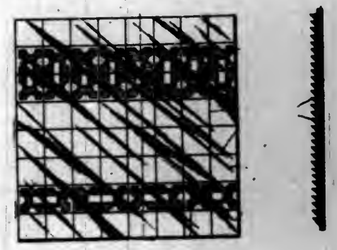
Claim.—A design for a prism-plate, substantially as shown and described.

28,012. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,237. Term of patent 14 years.



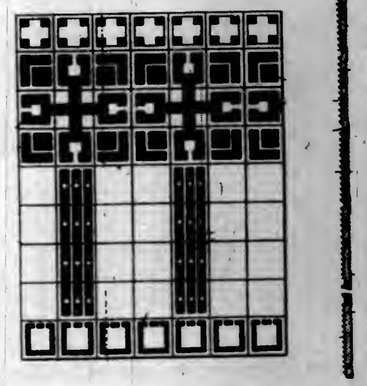
Claim.—A design for a prism-plate, substantially as shown and described.

28,013. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,238. Term of patent 14 years.



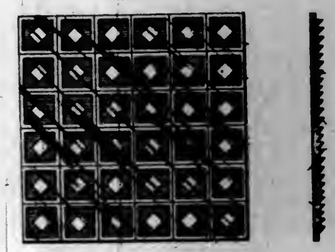
Claim.—A design for a prism-plate, substantially as shown and described.

28,014. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,239. Term of patent 14 years.



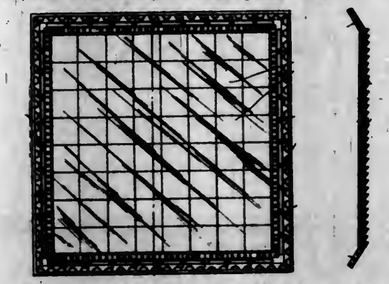
Claim.—A design for a prism-plate, substantially as shown and described.

28,015. PRISM-PLATE. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 23, 1897. Serial No. 656,240. Term of patent 14 years.



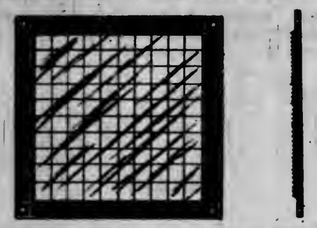
Claim.—A design for a prism-plate, substantially as shown and described.

28,016. PRISM-PLATE. EDWARD G. WALLER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 21, 1897. Serial No. 655,971. Term of patent 14 years.



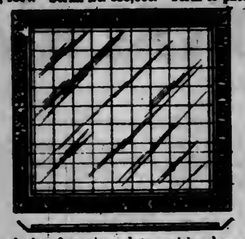
Claim.—A design for a prism-plate substantially as herein shown and described.

28,017. PRISM-PLATE AND BORDER. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 13, 1897. Serial No. 655,068. Term of patent 14 years.



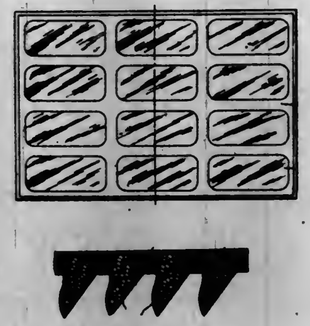
Claim.—A design for a prism-plate and border, substantially as shown and described.

28,018. PRISM-PLATE AND BORDER. EDWARD CARSON WALLER, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 13, 1897. Serial No. 655,066. Term of patent 14 years.



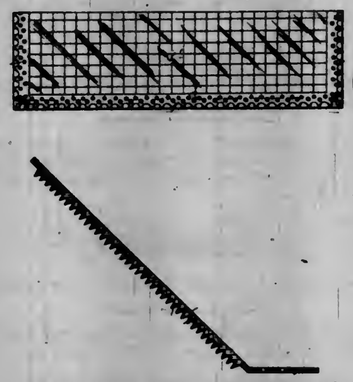
Claim.—The design for prism-plate and border, substantially as shown and described.

28,019. PRISM PAVEMENT-PANEL. JOHN MEIGGS EWEN, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 2, 1897. Serial No. 653,861. Term of patent 14 years.



Claim.—A design for a prism pavement-panel, substantially as shown and described.

28,020. PRISM-CANOPY. FRANK L. WRIGHT, Chicago, Ill., assignor to the Luxfer Prism Patents Company, same place. Filed Oct. 13, 1897. Serial No. 655,069. Term of patent 14 years.



Claim.—A design for a prism canopy and border, substantially as shown and described.

TRADE-MARKS

REGISTERED DECEMBER 7, 1897.

80,930. HOLDERS FOR VELOCIPEDES. Robert Graham Woodward, New York, N. Y. Filed Nov. 6, 1897.

DUBLEOOK

Essential feature.—The word "Dubleook." Used since October 27, 1897.

80,931. WOMEN'S AND CHILDREN'S CORSETS AND WAISTS. A. Harburger & Sons, Los Angeles, Cal. Filed Nov. 8, 1897.

ROYAL REGENT.

Essential feature.—The words "Royal Regent." Used since May 6, 1897.

80,932. GLOVES. Thomas Andrews, Sr., Gloversville, N. Y. Filed Nov. 3, 1897.

THE GLOVE FULTON

Essential feature.—The words "The Glove Fulton." Used since March 1, 1897.

80,933. ADHESIVE CLOTH OR ADHESIVE TAPE FOR USE BY ELECTRICIANS, SURGEONS, BICYCLISTS, AND OTHERS. The Ozonite Company, Limited, New York, N. Y., and London, England. Filed Oct. 27, 1897.

Manson

Essential feature.—The word "Manson." Used since 1888.

80,934. PHOTOGRAPHS AND PHOTOGRAPHIC PICTURES. Theodore G. Marchau, San Francisco, Cal. Filed Sept. 24, 1897.

RENAISSANCE

Essential feature.—The word "Renaissance." Used since May, 1897.

80,935. ARTIFICIAL DIAMONDS, RUBIES, PEARLS, AND OTHER ARTIFICIAL GEMS. Isaac C. Nicholson and Augustus F. Way, New York, N. Y. Filed Sept. 23, 1897.

EGERIA

Essential feature.—The word "Egeria." Used since October, 1895.

80,936. PLATED JEWELRY. McRae & Kehler, Attleborough, Mass. Filed Oct. 20, 1897.

GOLDYKE

Essential feature.—The word "Goldyke." Used since June 11, 1897.

80,937. WATCH-MOVEMENTS. Hampden Watch Company, Canton, Ohio. Filed Apr. 5, 1897.

Menlo Park

Essential feature.—The words "Menlo Pap." Used since April 1, 1880.

80,938. POLISHING MATERIAL FOR METAL GOODS AND ARTICLES OF VARIOUS KINDS AND CLASSES. William T. Eichbohm, New York, N. Y. Filed Oct. 23, 1897.

& R. D. POLISH

Essential feature.—The letters, character, and word "R & D Polish." Used since April 15, 1897.

80,939. WOOD PRESERVATIVES. Samuel Cabot, Brookline, Mass. Filed Nov. 2, 1897.

CONSERVO

Essential feature.—The word "Conservo." Used since June 7, 1897.

80,940. PITCH FOR PITCHING BEER-KEGS, BARRELS, BEER-MUGS, BOTTLES, AND VATS. Anchor Pitch Co., Cincinnati, Ohio. Filed Aug. 9, 1897.

Prosit

Essential feature.—The word "Prosit." Used since July 8, 1896.

80,941. MEDICINAL PREPARATION FOR THE CURE OF INDIGESTION. John M. Creed, Sydney, and William J. Green, Croydon, New South Wales. Filed Oct. 18, 1897.

Yaala

Essential feature.—The word "Yaala." Used since November, 1896.

80,942. CERTAIN NAMED ARTICLES AND PREPARATIONS FOR THE TEETH, HAIR, AND SKIN. Dresdener Chemisches Laboratorium Lingner, Dresden, Germany. Filed Dec. 3, 1895.

Odol

Essential feature.—The word "Odol." Used since February 2, 1893.

80,943. BREAKFAST FOOD. Cream of Wheat Company, Minneapolis, Minn. Filed May 18, 1897.

CREAM OF WHEAT

Essential feature.—The words "Cream of Wheat." Used since March 1, 1895.

80,944. WHEAT-FLOUR. Cargill & Fall, Houston, Minn. Filed Nov. 8, 1897.

PURE GOLD.

Essential feature.—The words "Pure Gold." Used since October 21, 1881.

80,945. FLOUR. Sands, Taylor & Wood, Boston, Mass. Filed Jan. 13, 1896.

KING ARTHUR

Essential feature.—The words "King Arthur." Used since October, 1896.

80,946. CANNED SALMON. Alaska Packers Association, San Francisco, Cal. Filed Sept. 2, 1897.

ENSIGN

Essential feature.—The word "Ensign." Used since January 1, 1888.

80,947. CANNED SALMON. Alaska Packers Association, San Francisco, Cal. Filed Oct. 19, 1897.

INITIAL

Essential feature.—The word "Initial." Used since January 1, 1888.

80,948. CANNED SALMON. Alaska Packers Association, San Francisco, Cal. Filed Oct. 19, 1897.

RAVEN

Essential feature.—The word "Raven." Used since January 1, 1887.

80,949. SARDINES IN OIL. La Manna, Arena & Farman, New York, N. Y. Filed Oct. 13, 1897.

MARIE ELISABETH.

Essential feature.—The words "Marie Elisabeth." Used since May 1, 1893.

80,950. SPECIALLY-PREPARED PRODUCT FOR USE AS A SUBSTITUTE FOR AND CONTAINING THE CONSTITUENTS OF EGGS AND BAKING-POWDER. George Lewis & Co., Chicago, Ill. Filed Aug. 23, 1897.



Essential feature.—The representation of an egg with the letters "ine" placed thereon. Used since July 30, 1897.

80,951. SPECIALLY-PREPARED PRODUCT USED AS A SUBSTITUTE FOR AND CONTAINING THE CONSTITUENTS OF EGGS AND BAKING-POWDER. George Lewis & Co., Chicago, Ill. Filed Aug. 23, 1897.

EGGINE

Essential feature.—The word "Eggine." Used since July 30, 1897.

80,952. TOMATO CATCHUP. Garret Bergen, New York, N. Y. Filed Nov. 9, 1897.

PRIDE OF LONG ISLAND

Essential feature.—The words "Pride of Long Island." Used since October 31, 1889.

80,953. MINT-SAUCE. Laura R. Bryan and Blanche R. Black, Vincentown, N. J. Filed Nov. 5, 1897.



Essential feature.—The representation of an animal of the sheep family holding a spear or spray of mint in its mouth. Used since June 1, 1897.

80,954. OLIVES. Seville Packing Company, New York, N. Y. Filed Aug. 26, 1897.



Essential feature.—The word "Capitol" or the pictorial representation of the Capitol building at Washington. Used since March 1, 1897.

80,955. ROASTED COFFEE. EDWIN J. GILLIES & Co., New York, N. Y. Filed Nov. 5, 1897.

MAJESTIC

Essential feature.—The word "MAJESTIC." Used since November 24, 1894.

80,956. SPECIAL PREPARATION OF MALT FOR A BEVERAGE. SOUTH CHICAGO BREWING CO., South Chicago, Ill. Filed June 29, 1897.

MALT CREAM

Essential feature.—The words "MALT CREAM" in red letters shaded with white upon a gilt or gold background which is scroll-shaped and the scroll provided with a red strip along its edges. Used since November 14, 1895.

80,957. BEER. THE AMERICAN BREWING COMPANY, St. Louis, Mo. Filed Nov. 8, 1897.



Essential feature.—The pictorial representation of a fish. Used since January 1, 1893.

80,958. BEER. THE AMERICAN BREWING COMPANY, St. Louis, Mo. Filed Nov. 8, 1897.

BLACK BASS BRAND

Essential feature.—The words "BLACK BASS BRAND." Used since January 1, 1893.

80,959. WHISKY. WILLIAM TEACHER & SONS, Glasgow, Scotland, and London and Manchester, England. Filed Nov. 5, 1897.



Essential feature.—The representation of a crested cockatoo. Used since December 31, 1889.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the District of Columbia.

UNITED STATES, *ex rel.* WEDDERBURN, *v.* BLISS, SECRETARY OF THE INTERIOR.

Decided November 16, 1897.

1. AGENTS OR ATTORNEYS—CONSTRUCTION OF ACT OF JULY 4, 1884.

Section 4 of the act of July 4, 1884, applies to agents or attorneys before the Patent Office, as well as before the other Bureaus of the Interior Department.

2. DISBARMENT OF AGENTS OR ATTORNEYS—NOTICE OF CHARGES AND HEARING BEFORE DISBARMENT—CONSTRUCTION OF SECTION 487, REVISED STATUTES.

The proper construction of section 487 of the Revised Statutes is that a person to be disbarred is entitled to notice of the charges against him and an opportunity in some form to be heard in relation thereto prior to any decision of the Commissioner or approval by the Secretary. Any other construction would render the section void, as being in conflict with that part of the fifth amendment to the Constitution which provides that no person shall "be deprived of life, liberty or property without due process of law," and this is the construction very properly given that section by the Commissioner of Patents and the Secretary, as shown by the practice under it.

3. SAME—SECTION 487, REVISED STATUTES, AND SECTION 5 OF THE ACT OF JULY 4, 1884, COMPARED.

The only difference between section 487 of the Revised Statutes and section 5 of the act of July 4, 1884, is that the act of July 4, 1884, directs that the order disbarring an agent or attorney from practicing before the Patent Office shall be made by the Secretary of the Interior, while section 487 provides that it shall be made by the Commissioner of Patents, with the approval of the Secretary. The only substantial difference between the two sections is that section 5 applies to all the Bureaus of the Interior Department, while the section of the Revised Statutes applies only to the Patent Office.

4. SAME—"DUE PROCESS OF LAW."

Where an agent was furnished with a copy of charges made against him before the Commissioner of Patents as to why he should not be disbarred from practicing as a patent agent, and he had a hearing before the Commissioner of Patents on these charges and the Commissioner recommended that he be disbarred from further practicing as an agent or attorney, and the Secretary approved the reasons given by the Commissioner of Patents without affording the agent a hearing before him in person, *Held* that the refusal of the Secretary to hear oral argument was not arbitrary, oppressive, or unjust and the proceeding before him was conducted under "due process of law."

5. SAME—TRIBUNALS EXERCISING QUASI-JUDICIAL POWERS—"DUE PROCESS OF LAW."

The proceeding before executive and ministerial officers and special tribunals exercising quasi-judicial powers in order to constitute due process of law need not be as formal as in courts of justice or conducted after the manner of proceedings in such courts. What would be due process of law before such officers and tribunals might not be considered such in a court of justice. What is due process of law in a particular case depends largely upon the nature and object of the proceeding, the duties and the jurisdiction of the officer or tribunal, and the nature of the right or immunity to be affected by the proceeding. If the mode of procedure be such that the party to be affected has an opportunity of presenting to the officer or tribunal in any reasonable way his contention as to the facts and merits of the question to be determined, the proceeding is due process of law; but if the determination be made in an arbitrary, oppressive, or unjust manner, so that the party to be affected has no reasonable opportunity for hearing, then the proceeding and determination are void because not due process of law.

6. SAME—MANDAMUS FOR HEARING BEFORE THE SECRETARY—DEMURRER—PETITION DISMISSED.

Upon a demurrer to the petition for writ of mandamus to compel the Secretary to grant a hearing in person to a patent agent whom the Commissioner had recommended to the Secretary for disbarment, the reasons for which recommendation the Secretary had approved without a hearing before him in person, *Held* that the demurrer should be sustained, the rule to show cause discharged, and the petition for writ of mandamus dismissed.

STATEMENT OF THE CASE.

Upon charges being filed against John Wedderburn, the relator, for misconduct, the Commissioner of Patents issued an order or rule on the relator to show cause why he should not refuse to further recognize the relator as a patent agent. The relator answered, and after a hearing before the Commissioner of Patents the Commissioner recommended to the Secretary of the Interior that the relator, under section 487 of the Revised Statutes, be disbarred from practice before the Patent Office as a patent agent. The reasons given by the Commissioner for refusing to further recognize the relator were approved by the Secretary of the Interior without giving the relator a hearing before the Secretary, and the order disbarring the relator from further practice as a patent agent was issued by the Commissioner on September 30, 1897. The relator petitioned the Supreme Court of the District of Columbia for a writ of mandamus commanding the respondent to set aside his order of approval and to grant the relator a hearing on the ground that the respondent had approved the reasons of the Commissioner of Patents without notice to the relator and without affording him an opportunity to show respondent in person why the reasons given by the Commissioner should not be approved; that, having been admitted in accordance with the rules of the Department of the Interior promulgated under the act of July 4, 1884, and duly registered as an attorney to practice as such before all the Bureaus of the said Department, he had been deprived of his legal and property right without due process of law. The respondent demurred to the petition, setting up that, being an officer of the executive branch of the Government, the court, which is a part of another branch of the Government, had, for want of constitutional authority, no jurisdiction to interfere with the respondent in the exercise of his official acts; that, the judicial and executive departments being made distinct and independent, one is not responsible to the other for the discharge of duties involving the exercise of judgment or discretion

and neither can enforce or command or control the performance of such duties by the other or the manner of performing such duties; that section 487 of the Revised Statutes of the United States imposed no duty upon the respondent to give the relator a hearing before him in person before he approved the reasons of the Commissioner of Patents for refusing, for gross misconduct, to further recognize the relator as a patent agent; that, the relator's petition showing that such discretionary power had been exercised by the respondent, the mandamus could not issue; that the act of July 4, 1884, section 5, Statutes at Large, Vol. 23, page 101, under which the relator alleges that he was recognized as an agent before the Department of the Interior and the Bureaus thereof, did not apply to the Patent Office, as it related solely to claimants, and especially to pension claimants, and that the relator was disbarred under section 487 of the Revised Statutes and under that section alone; that if the act of July 4, 1884, did apply the relator was not deprived of his legal rights without a proper hearing, as under that statute the respondent had issued certain rules governing the disbarment of agents or attorneys, and that the proceedings leading to the disbarment of the relator were conducted under Rule 9 of said rules.

Mr. J. M. Wilson and *Mr. R. Ross Perry* for the relator.

Mr. Wm. A. Megrath for the respondent.

COLE, *J.:*

The petition prays the writ of mandamus requiring the respondent to vacate his order of approval of the finding and decision of the Commissioner of Patents, that relator be disbarred from practice before the Interior Department, and to give him a hearing upon the question of approval, upon the ground claimed by relator, that the respondent had and has no jurisdiction or power to make such approval except upon notice to him and a hearing before the Secretary upon that question, and that he has had no such notice and hearing.

There are two statutes upon this subject. One is section 487 of the Revised Statutes of the United States, and provides that:

Sec. 487. For gross misconduct the Commissioner of Patents may refuse to recognize any person as a patent agent, either generally or in any particular case; but the reasons for such refusal shall be duly recorded, and be subject to the approval of the Secretary of the Interior.

This section is silent as to notice or hearing before either the Commissioner or Secretary; but it was stated in argument for the respondent that the practice under that section in cases like the present is for notice to be given the practitioner to show cause before the Commissioner of Patents why he should not be disbarred, and for a hearing to take place before him upon evidence and argument, if desired, by the practitioner, whereupon the Commissioner reports the evidence and his decision to the Secretary, who, upon consideration thereof, approves or disapproves, and, if he approves, the order of disbarment is made by the Commissioner.

The other statute is section 5 of the act of July 4, 1884, and is as follows:

Sec. 5. That the Secretary of the Interior may prescribe rules and regulations governing the recognition of agents, attorneys, or other persons representing claimants before this Department, and may require of such persons, agents or attorneys, before being recognized as representatives of claimants, that they shall show that they are of good moral character and in good repute, possessed of the necessary qualifications to enable them to render such claimants valuable service, and otherwise competent to advise and assist such claimants in the presentation of their claims; and such Secretary may, after notice and opportunity for a hearing, suspend or exclude from further practice before his Department any such person, agent or attorney, shown to be incompetent, disreputable, or who refuses to comply with the said rules and regulations, or who shall with intent to defraud, in any manner deceive, mislead, or threaten any claimant or prospective claimant, by word, circular, letter, or by advertisement.

This section does not in terms say that the hearing shall be before the Secretary in person. The Secretary has made a rule governing proceedings for disbarment under this section, which is as follows:

Rule 9. Whenever an attorney or agent is charged with improper practice in connection with any matter before a Bureau of this Department, the head of such Bureau shall investigate the charge, giving the attorney or agent due notice, together with a statement of the charge against him, and allow him an opportunity to be heard in the premises. When the investigation shall have been concluded all the papers shall be forwarded to the Department, with a statement of the facts and such recommendation as to disbarment from practice as the head of the Bureau may deem proper, for the consideration of the Secretary of the Interior. During the investigation the attorney or agent will be recognized as such, unless for special reasons the Secretary shall order his suspension from practice.

This rule was in force at the time of the proceedings complained of in the petition in this case and prescribed a course of proceeding substantially such as is the practice under section 487 and such as seems to have been pursued in this case.

It is contended on behalf of the respondent in support of the demurrer to the petition that section 5 of the act of 1884 applies only to attorneys and agents for claimants for pensions, it being found in an act relating wholly to pensions; but section 4 of the act of July 4, 1884,* relates to the Land Office, among other matters, and, besides, the language of section 5 is broad enough to and by necessary intendment does include all the Bureaus of the Interior Department, and that is the construction placed upon it by the Secretary, as shown by his letter recognizing the relator as an agent or attorney, as also by the language of Rule 9, above referred to.

There is nothing in the latter act inconsistent with the former, and both should be read and construed together as part of the same act, and both apply to the case of the relator.

It is also contended by counsel for the respondent in further support of his demurrer that, as neither

*Chap. 181. An act making appropriations for the payment of invalid and other pensions of the United States for the fiscal year ending June thirtieth, eighteen hundred and eighty-five, and for other purposes.

* * * * * * *

Sec. 4. That section forty-seven hundred and eighty-six of the Revised Statutes is hereby amended so as to read as follows:

Sec. 4786. The agent or attorney of record in the prosecution of the case may cause to be filed with the Commissioner of Pensions, duplicate articles of agreement, without additional cost to the claimant, setting forth the fee agreed upon by the parties, which agreement shall be executed in the presence of and certified by some officer competent to administer oaths. In all cases where application is made for pension or bounty land, and no agreemet is filed with the Commissioner as herein provided, the fee shall be ten dollars and no more. And such articles of agreement as may hereafter be filed with the Commissioner of Pensions are not authorized, nor will they be recognized except in claims for original pensions, claims for increase of pension on account of a new disability, in claims for restoration where a pensioner's name has been or may hereafter be dropped from the pension-rolls on testimony taken by a special examiner, showing that the disability or cause of death, on account of which the pension was allowed, did not originate in the line of duty, and in cases of dependent relatives whose names have been or may hereafter be, dropped from the rolls on like testimony, upon the ground of non-dependence, and in such other cases of difficulty and trouble as the Commissioner of Pensions may see fit to recognize them: Provided, that no greater fee than ten dollars shall be demanded, received or allowed in any claim for pension or bounty land granted by special act of Congress, nor in any claim for increase of pension on account of the increase of the disability for which the pension had been allowed. And provided further, that no fee shall be demanded, received, or allowed in any claim for arrears of pension or arrears of increase of pension allowed by any act of Congress passed subsequent to the date of the allowance of the original claims in which such arrears of pension or of increase of pension, may be allowed.

The articles of agreement herein provided for shall be in substance as follows, to wit:

* * * * * * *

And if in the adjudication of any claim for pension in which such articles of agreement have been, or may hereafter be, filed, it shall appear that the claimant had, prior to the execution thereof, paid to the attorney any sum for his services in such claim, and the amount so paid is not stipulated therein, then every such claim shall be adjudicated in the same manner as though no articles of agreement had been filed, deducting from the fee of ten dollars allowed by law such sum as claimant shall show that he has paid to his said attorney.

Any agent or attorney or other person instrumental in prosecuting any claim for pension or bounty land, who shall directly or indirectly contract for, demand or receive or retain any greater compensation for his services or instrumentality in prosecuting a claim for pension or bounty land than is herein provided, or for payment thereof at any other time or in any other manner than is herein provided, or who shall wrongfully withhold from a pensioner or claimant the whole or any part of the pension or claim allowed and due such pensioner or claimant, or the land-warrant issued to any such claimant, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall for every such offense be fined not exceeding five hundred dollars, or imprisoned at hard labor not exceeding two years, or both, in the discretion of the court.

of these sections in express terms requires the Secretary to give the relator in person or by counsel a hearing before him, whether he has a right to such a hearing is a question of construction of the statutes, and that it became and was the duty and province of the Secretary to construe them in that particular, and that he has done so, holding that the relator has no such right, and that his construction is conclusive and cannot be controlled by mandamus, and he cites *Dunlap* v. *Black* (128 U. S., 40) and other cases in support of his argument.

The Supreme Court did hold in the case of *Dunlap* v. *Black*, and perhaps in some other cases, that where an executive officer in the performance of his duties in ascertaining the rights of an individual against the Government is required to consider and construe a statute, that is the exercise of discretion, and it cannot be controlled by mandamus; but the Supreme Court has also decided that where an executive officer, in deciding upon his own powers and jurisdiction, construes a statute and holds that he has, and attempts to exercise, a power which he does not possess or that he has not and refuses to exercise a power which is conferred by the statute his decision and action may be reviewed by the court and controlled by injunction or mandamus. *Butterworth* v. *Hoe*, (29 O. G., 615; 112 U. S., 50,) *Noble* v. *Union River Logging Company*, (147 U. S., 165,) and other cases which are as much in point as those might be cited.

The present case falls under the latter class. The Secretary has held that he has the power and jurisdiction, by virtue of the statutes in question, to approve the finding and judgment of the Commissioner of Patents without according the relator an oral hearing before him in person or by counsel, and has made such approval without such hearing. If he is in error about this, he has assumed to exercise a power which he does not possess and his action is void and may be controlled by mandamus.

It is necessary, therefore, for the court to construe the statutes and determine whether the Secretary has the power to approve the decision of the Commissioner of Patents without having first granted the relator, in person or by counsel, such hearing.

Undoubtedly the proper construction of section 487 of the Revised Statutes of the United States is that a person to be disbarred is entitled to notice of the charges against him and an opportunity in some form to be heard in relation thereto prior to any decision of the Commissioner or approval by the Secretary. Any other construction would render the section void, as being in conflict with that part of the fifth amendment to the Constitution which provides that no person shall "be deprived of life, liberty or property without due process of law," and this is the construction very properly given that section by the Commissioner of Patents and the Secretary, as shown by the practice under it.

Section 5 of the act of 1884 simply makes explicit what is clearly implied by section 487, Revised Statutes, by enacting that notice and an opportunity for a hearing shall precede any order suspending or excluding a recognized practitioner from further practice. The only difference between the two sections in this particular is that the act of 1884 directs that the order of exclusion shall be made by the Secretary, while section 487, Revised Statutes, provides that it shall be made by the Commissioner of Patents, with the approval of the Secretary—a difference in form, but not in substance. The only substantial difference between the two sections, so far as that of 1884 relates to the disbarment of an attorney, is that section 5 applies to all the Bureaus of the Interior Department, while the section of the Revised Statutes applies only to the Patent Office.

The Secretary's Rule 9, above referred to, makes the proceeding under the act of 1884 substantially the same as had been the practice under section 487, so that the real question in controversy in this case is whether the said Rule 9, the provisions of which have been substantially followed in this case, constitutes "due process of law."

Undoubtedly both sections above referred to concur in vesting in the Secretary exclusively the power of deciding whether a practitioner shall be excluded from further practice. And this is a quasi-judicial duty which he cannot assign to or confer upon his subordinates, but must perform personally, though he may bring to his aid in making such determination the services of his subordinates, as provided in section 487, Revised Statutes, and in said Rule 9, so that he reserves to himself and exercises the power of final judgment upon a hearing that constitutes "due process of law." That the Secretary cannot delegate such a duty to his subordinates is apparent from the opinion of the Supreme Court in the case of *Butterworth* v. *Hoe*, where that Court said, speaking of a similar power:

If the Secretary is charged by law with the performance of such a duty, he is bound to fulfil it. It is imperative, not discretionary. He cannot discharge it, according to the intention of the statute, in a manner either arbitrary or perfunctory. (112 U. S., 57.)

And it is perfectly apparent from the petition and exhibits that the Secretary has not attempted to delegate this important power with the exercise of which the law charges him personally, but has personally performed it, not in a perfunctory manner, but after investigation and deliberation. There is no allegation in the petition that the Secretary acted in a perfunctory manner or without deliberation, and the order of the Secretary addressed to the Commissioner of Patents, which is made an exhibit with the petition, is in the following language:

I have examined with great care your decision and the report of Assistant Commissioner Greeley in the John Wedderburn and John Wedderburn & Co. case, and herewith return them, expressing my full approval of both.

The report of the Assistant Commissioner and the decision of the Commissioner are also exhibits, and they, combined, profess to contain all the evidence both for and against the petitioner and the reasons for the conclusion of the Commissioner. It is therefore clear that the Secretary exercised his judgment upon the whole case, the grounds of exclusion, and the evidence pro and con in support and denial of them. This would be the presumption even if it did not affirmatively appear.

The question, therefore, upon which the case hinges is whether the relator had such a hearing before the Secretary as gratifies the constitutional requirement of "due process of law." If he has had such a hearing, there is no ground for a mandamus. If he has not, it is the duty of the court to aid him in securing that right, and mandamus is the proper remedy.

It appears from the petition that a copy of the charges made against the relator before the Commissioner of Patents was furnished him, and he was notified to show cause before the said Commissioner why he should not be disbarred; that the relator did appear in person and by counsel and filed an answer to said charges, and after evidence was given in support of them relator was permitted to introduce such evidence as he chose in refutation thereof, and that his counsel were heard orally upon the evidence and law arising thereupon before the Commissioner and Assistant Commissioner of Patents; that said counsel were also invited to file a brief, but did not do so; that the Assistant Commissioner made up a report containing a synopsis of the evidence, and the Commissioner of Patents rendered a decision thereon, all of which was laid before the Secretary, and he approved the decision of the Commissioner of Patents in the language above quoted. Did this proceeding constitute "due process of law?"

The Supreme Court has had occasion in quite a variety of cases to determine whether certain proceedings amounted to "due process of law," but it has never attempted a general definition of those words, applicable to all cases. In the case of *Davidson* v. *New Orleans* (96 U. S., 97) the question was whether a certain proceeding resulting in a special assessment upon property constituted "due process." The Court said:

It must be confessed, however, that the constitutional meaning or value of the phrase "due process of law" remains to-day without that satisfactory precision of definition which judicial decisions have given to nearly all the other guarantees of personal rights found in the constitutions of the several States and of the United States.

In another part of the opinion in that case, speaking of the decisions in the case of *Murray's Lessee et al.* v. *Hoboken Land and Improvement Company*, (18 How., 272,) the Court said:

A most exhaustive judicial inquiry into the meaning of the words "due process of law," as found in the fifth amendment, resulted in the unanimous decision of this Court that they do not necessarily imply a regular proceeding in a court of justice, or after the manner of such courts.

In *ex parte Wall*, (107 U. S., 289,) which was a summary proceeding for the disbarment of an attorney, the Court said:

It is a mistaken idea that due process of law requires a plenary suit and a trial by jury in all cases where property or personal rights are involved.

* * * * * * *

In all cases that kind of procedure is due process of law which is suitable and proper to the nature of the case, and sanctioned by the established customs and usages of the courts. Perhaps no definition, says Judge Cooley, is more often quoted than that given by Mr. Webster in the *Dartmouth College Case:* "By the law of the land is most clearly intended the general law; a law which hears before it condemns; which proceeds upon inquiry, and renders judgment only after trial. The meaning is that every citizen shall hold his life, liberty, property, and immunities under the protection of the general rules which govern society."

In *Hurtado* v. *California*, (110 U. S., 537,) where the question was whether an information, instead of an indictment, for murder, under the laws of California, was "due process of law," the Court said:

It follows that any legal proceeding enforced by public authority, whether sanctioned by age and custom, or newly devised in the discretion of the legislative power, in furtherance of the general public good, which regards and preserves these principles of liberty and justice, must be held to be due process of law.

In *Hagar* v. *Reclamation District No. 108*, (111 U. S., 708-9,) where the question was whether due process had been observed in making a special assessment, it was said:

It is sufficient to observe here that by "due process" is meant one which, following the forms of law, is appropriate to the case and just to the parties to be affected. It must be pursued in the ordinary mode prescribed by the law; it must be adapted to the end to be attained; and wherever it is necessary for the protection of the parties, it must give them an opportunity to be heard respecting the justice of the judgment sought. The clause in question means, therefore, that there can be no proceeding against life, liberty or property which may result in the deprivation of either without the observance of those general rules established in our system of jurisprudence for the security of private rights.

* * * * * * *

As stated by Mr. Justice Bradley in his concurring opinion in *Davidson* v. *New Orleans:* "In judging what is 'due process of law' respect must be had to the cause and object of the taking, whether under the taxing power, the power of eminent domain, or the power of assessment for local improvements, or some of these: and if found to be suitable or admissible in the special case it will be adjudged to be 'due process of law,' but if found to be arbitrary, oppressive, and unjust it may be declared to be not 'due process of law.'"

This last quotation perhaps comes nearer to a general statement furnishing a test for all cases than any other declaration made by the Supreme Court; but even this is so general that it leaves a wide range for the exercise of discretion in determining whether a given law or proceeding is "due process."

But the foregoing utterances of the Court may be fairly said to establish the following conclusions: that before executive and ministerial officers and special tribunals exercising quasi-judicial powers in a summary way in order to constitute due process of law the proceeding need not be as formal as in courts of justice or conducted after the manner of proceedings in such courts; that what would be "due process of law" before such officers and

tribunals might not be considered such in a court of justice; that what is "due process of law" in a particular case depends largely upon the nature and object of the proceeding, the duties and the jurisdiction of the officer or tribunal, and the nature of the right or immunity to be affected by the proceeding; that if the mode of procedure be such that the party to be affected has the opportunity of presenting to the officer or tribunal in any reasonable way his contention as to the facts and merits of the questions to be determined the proceeding is "due process of law," but if the determination be made in an arbitrary, oppressive, or unjust manner, so that the party to be affected has no reasonable opportunity for a hearing, then the proceeding and determination are void because not "due process of law.

Did the relator have a hearing or a reasonable opportunity to be heard before the respondent prior to the order of approval by the latter of the decision of the Commissioner of Patents?

He was furnished with a written copy of the charges or complaints made against him to the Commissioner of Patents, which he answered, not only denying many matters alleged against him, but specifying grounds and reasons why the matters alleged did not amount to gross misconduct. His counsel were present before the Commissioner of Patents and the Assistant Commissioner during all the time evidence was being taken, and offered in his behalf such evidence as they desired, and submitted oral arguments before those officers upon the law and evidence, and were invited to file briefs or written argument, which they declined to do. All these matters, including a report by the Assistant Commissioner and a decision by the Commissioner of Patents, were laid before the Secretary for his consideration and by him considered before he made his approval.

In consideration of these proceedings it cannot be said that the relator did not have a hearing before the Secretary. His contention upon the merits of the controversy was laid before the Secretary and considered by him. The present contention of relator seems to be that he had a right to an oral hearing before the Secretary in person or by counsel. The statute says he shall have notice and an opportunity for a hearing. It does not provide what kind or manner of hearing. It is therefore left to the discretion of the Secretary to accord such an one as may seem to him most proper and convenient, so that, in the language of Mr. Justice Bradley, above cited from the case of *Davidson* v. *New Orleans*, "it be not arbitrary, oppressive, and unjust."

Relator had full opportunity to present to the Secretary any argument or consideration he deemed advisable. The Secretary did not refuse to consider anything in the records sent to him by the Commissioner of Patents, and that contained all the showing made by the relator, and if he desired to make further showing he had ample opportunity to put it into that record.

The report of the Commissioner of Patents to the Secretary and his decision are not in the nature of a complaint by that officer to the Secretary against the relator upon which he is entitled to notice and a hearing. It is the decision of an impartial officer upon evidence which he laid before the Secretary for his consideration and approval or disapproval. The latter had before him all upon which the former acted, unless it was the oral argument of relator's counsel before the Commissioner, and he had the opportunity to put this in writing and have it forwarded to the Secretary with the record.

It is not claimed or pretended that the relator had or has further evidence which he desired to present to the Secretary. The sole ground of complaint seems to be that the Secretary declined to hear oral argument upon the record as presented to him by the Commissioner of Patents. Oral argument is undoubtedly a matter of right in some proceedings in courts of justice, the denial of which would be considered the denial of due process of law; but before an executive officer it cannot be said to be a right unless expressly so declared by statute.

The court cannot say that the refusal of the Secretary to hear oral argument was arbitrary, oppressive, and unjust, and the proceeding before him must therefore be held to be due process of law.

The case of *Hoover* v. *McChesney*, a case in the Circuit Court of the United States for Kentucky, which was called to the attention of the court after the oral argument, does not apply here, for there there was no notice at all and no attempt at any hearing.

The conclusion I have reached is that the relator had a hearing such as amounted to due process of law before the Secretary of the Interior, and therefore his petition must be denied.

Order Sustaining Demurrer, Discharging Rule, and Dismissing Petition at Relator's Costs.

SUPREME COURT OF THE DISTRICT OF COLUMBIA.

UNITED STATES OF AMERICA ON THE RELATION OF JOHN WEDDERBURN, RELATOR, *v.* CORNELIUS N. BLISS, SECRETARY OF THE INTERIOR OF THE UNITED STATES, RESPONDENT.

This cause coming on to be heard upon the petition for a writ of mandamus, the rule to show cause, and the demurrer of respondent filed herein, and after hearing counsel for the respective parties hereto, it is considered that the demurrer be, and the same is hereby, sustained; that the rule to show cause be discharged, and the petition be, and the same is, dismissed at the costs of the relator.

(Signed) CHAS. C. COLE,
Associate Justice.

COMMISSIONER'S DECISIONS.

EX PARTE NEALON.

Decided October 19, 1897.

REJECTION—ONE EXAMINER REVIEWING THE ACTION OF HIS PREDECESSOR—CONSTRUCTION OF RULE 144.

While a claim deemed allowable by one Examiner is always subject to rejection by his successor upon references or reasons not before considered, and it may be, in exceptional cases, on the references previously considered, the spirit of Rule 144 would seem to indicate that the favorable action of an Examiner should be at least extremely persuasive upon his successor.

ON petition.

HOSE-SUPPORTER.

Application of John J. Nealon filed December 29, 1894, No. 533,264.

Mr. Harold Binney and *Mr. Percy B. Hills* for the applicant.

GREELEY, *Acting Commissioner:*

Two claims in this case were appealed to the Examiners-in-Chief on November 15, 1895. Previous to the hearing on the appeal a third claim was submitted, which was considered by the Examiners-in-Chief on the hearing. In their opinion the third claim was substantially the same as the other two in scope, but "defines the invention more clearly than the other claims." For this reason it was recommended in their decision that the appealed claims should be abandoned and the other claim substituted therefor. Subsequently, without objection by the then Examiner, the applicant canceled the first of the appealed claims and made the second appealed claim claim 1, making the suggested claim claim 2. Interference was afterward declared in two cases, in each of which the issue was the then first claim of Nealon. On July 6, 1897, the Examiner, in accordance with the decision of the Examiners-in-Chief, required the elimination of claim 1. This requirement was repeated on July 19, 1897, and this petition was then brought.

The petitioner represents that he has been put to great trouble, delay, and inconvenience on account of the interferences and that by reason of the acquiescence of the then Examiner in the retention of the first claim the question of the patentability of that claim cannot now be opened by the Examiner. The Examiner now in charge of the case states that by permitting the retention of original claim 2 as claim 1 the then Examiner exceeded his jurisdiction. He further states that in his opinion it was not the intention of the Examiners-in-Chief to allow applicant any other claim than claim 3. He makes no recommendation in his statement.

While a claim deemed allowable by one Examiner is always subject to rejection by his successor upon references or reasons not before considered, and it may be, in exceptional cases, on the references previously considered, the spirit of Rule 144 would seem to indicate that the favorable action of an Examiner should be at least extremely persuasive upon his successor.

In this case the claim now required to be removed, having been deemed allowable by the then Examiner and having been twice made the issue in interferences, and consequently subjected to the close scrutiny of adverse parties, would seem to have received full and careful consideration. Whether or not the then Examiner was technically correct in permitting the claim to remain in the case, notwithstanding the recommendation of the Examiners-in-Chief, it is not now necessary to inquire. There is no doubt that he would have been authorized to do so had he requested such authority.

Under all the circumstances I am of opinion that the requirement for the removal of claim 1 is not well taken, and the claim should be permitted to remain.

To this extent the petition is granted.

HUNTER *v.* WIGHTMAN.

Decided November 22, 1897.

1. DECLARATION OF INTERFERENCE—DIVISIONAL APPLICATION—ERROR IN STATEMENT OF PRIMARY EXAMINER—DUTY OF EXAMINER OF INTERFERENCES TO AID IN CORRECTING ERROR.

Where in the statement prepared by the Primary Examiner and forwarded to the Examiner of Interferences the Primary Examiner omitted to state that an application involved in the interference was a division of an earlier application, the Examiner of Interferences might, without any showing, have justified his action in deciding the case on the record, yet such fact did not justify him in adhering to his decision when his attention was called to the omission. In such case it was his plain duty to take such step as might have been necessary to correct the error in the most expeditious manner.

2. ERRORS ON THE PART OF THE OFFICE—DUTY OF THE TRIBUNALS IN CORRECTING THEM.

Whenever it is found that the rights of a party to an interference or the rights of any party before this Office have been prejudiced by an error of any tribunal of the Office, all tribunals of this Office should coöperate to remedy the error with as little delay or formality as is consistent with a due regard to the proper keeping of the records.

APPEAL on motion.

ELECTRIC RAILWAY.

Application of Rudolph M. Hunter filed October 4, 1889, No. 325,957. Patent granted Merle J. Wightman September 17, 1889, No. 411,313.

Mr. Rudolph M. Hunter pro se.
Mr. H. C. Townsend for Wightman.

GREELEY, *Acting Commissioner:*

After the declaration of this interference judgment of priority in favor of Wightman was rendered by the Examiner of Interferences upon the record, Hunter, the junior party, not having filed any preliminary statement. Thereupon Hunter filed a motion to vacate judgment upon the record upon the ground that it is not in accordance with the facts of the case, since Hunter was in reality the senior party, his application in interference being a division of a parent case filed in 1887. The Examiner of Interferences denied this motion upon the ground that he was bound substantially by the statement furnished him by the Primary Examiner, and in that statement there was no reference to the fact that the present application of Hunter was a division of a former one. He held that if the Primary Examiner erred in declaring the interference the parties thereto have a remedy by a motion to dissolve or by a motion to change the burden of proof, and such motion is for the determination of the Primary Examiner.

The Examiner of Interferences on it being stated to him that Hunter's application involved in the interference is a division of an earlier application and therefore entitled to a record date earlier than that of Wightman, and on ascertaining that to be the fact either by inspection of the file or by reference to the Primary Examiner, should have vacated his judgment awarding priority to Wightman on the record.

While the fact that in the statement prepared by the Primary Examiner and forwarded to the Examiner of Interferences the Primary Examiner omitted to state that Hunter's application was a division of an earlier application might without any further showing have justified the action of the Examiner of Interferences in deciding the case on the record, such fact did not justify him in adhering to his decision when attention was called to the omission. In such case it was his plain duty to take such steps as might have been necessary to correct the error in the most expeditious manner possible.

Whenever it is found that the rights of a party to an interference or the rights of any party before this Office have been prejudiced by an error of any tribunal of the Office, all tribunals of this Office should coöperate to remedy the error with as little delay or formality as is consistent with a due regard to the proper keeping of the records.

The Examiner of Interferences is directed to vacate his judgment awarding priority to Wightman and refer the case to the Primary Examiner for correction of the statement of June 25, 1897.

To this extent the decision of the Examiner of Interferences is reversed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 11. TUESDAY, DECEMBER 14, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
CHANGES IN CLASSIFICATION	1789
REGISTRATION OF ATTORNEYS	1789
ISSUE OF DECEMBER 14, 1897	1790
APPLICATIONS UNDER EXAMINATION	1790
PATENTS GRANTED	1791
REISSUE	None.
DESIGNS	1921
TRADE-MARKS	1927
LABELS	None.
PRINTS	None.
COMMISSIONER'S DECISIONS—	
Stevens *v.* Field *v.* Seher	1929
Kelly *et al. v.* Park *et al.*	1931
DECISIONS OF THE U. S. COURTS—	
Stevens *et al. v.* Seher	1932

Changes in Classification.

(ORDER No. 1,165.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., December 7, 1897.

The following changes in classification are hereby directed:

In Division XXI, Class 66, Knitting and Netting, the following subclasses are abolished:

1. Burs and sinkers.
Circular—
2. Circular machines,
18. Independent needles,
11. Looper pin and hook machines.
Straight—
15. Cams and stops,
13. Fashioning-machines,
14. Looper pin and hook machines,
8. Straight machines,
16. Warp-machines.

The following subclasses are established in the same class:

19. Circular machines—
20. Dial.
21. Independent needles—
22. Dial—
23. Fashioning,
24. Fashioning,
25. Looper pin and hook.
26. Loopers, sinkers, and web-holders.
27. Rotary burs and sinkers.
28. Straight machines—
29. Cams and stops,
30. Fashioning,
31. Looper pin and hook.
32. Transferring devices.
33. Traverse warp-machines.
34. Warp and weft machines.

In Division XXIII, Class 73, Measuring Instruments, the following subclasses are abolished:

7. Calculators.
35. Registers—
58. Passenger,
59. Fare.

The following subclasses are established in the same class:

Calculators—
124. Adding-pencils,
125. Belt,
126. Miscellaneous,
127. Motor-actuated,
128. Parallel-axis—
129. Gear,
130. Recording,
131. Single-axis—
132. Concentric-disk,
133. Spiral,
134. Traveling-carriage.
Cash-registers—
135. Pocket.
Fare-registers—
136. Belt,
137. Cab fare-indicating,
138. Dial and cylinder,
139. Electrically-operated,
140. Miscellaneous,
Fare-registers—
141. Operating devices,
Parallel-axis—
142. Cylinder,
143. Disk,
144. Registering-boxes,
145. Registering-punches,
Single-axis—
146. Concentric-disk,
Single-axis—
147. Cylinder,
148. Dial and hand.
149. Passenger-registers.
Recorders—
150. Cartographic,
151. Signal.
Registers—
152. Belt,
153. Electrically-operated,
154. Gate and turnstile,
Registers—
155. Liquid-discharging,
156. Miscellaneous,
157. Package-operated,
Parallel-axis—
158. Cylinder,
159. Dial and hand,
160. Disk,
161. Gear,
162. Platform,
163. Registering-boxes,
164. Single-axis—
165. Concentric-disk,
166. Differential-gear,
167. Stamp,
168. Type-writer,
169. Slide-rules.

A. P. GREELEY,
Acting Commissioner.

Registration of Attorneys.

RULE 17. * * * A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of persons in the following classes will, upon their written request, be entered upon this register:

(*a*) Any person who at the date of the approval of the present Rules of Practice, June 18, 1897, was engaged as attorney or agent in the active prosecution of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(*b*) Any attorney-at-law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of such clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(*c*) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*d*) Any person not an attorney-at-law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*e*) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(*f*) Any firm not entitled to registration under the preceding sections which shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are

each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

AFTER JANUARY 1, 1898, NO PERSON NOT REGISTERED IN ACCORDANCE WITH THIS RULE WILL BE PERMITTED TO PROSECUTE APPLICATIONS BEFORE THE PATENT OFFICE.

Issue of December 14, 1897.

Patents	400	No. 595,285 to No. 595,684, inclusive.
Designs	26	No. 28,021 to No. 28,056, inclusive.
Trade-Marks	25	No. 30,960 to No. 30,984, inclusive.
Labels	None.	
Prints	None.	
Reissues	None.	
Total issue	461	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	5	----	New Hampshire	1	----
Arizona Territory	----	----	New Jersey	16	1
Arkansas	2	----	New Mexico Territ'y	1	----
California	8	----	New York	71	8
Colorado	5	----	North Carolina	2	----
Connecticut	15	1	North Dakota	1	----
Delaware	2	----	Ohio	27	----
District of Columbia	1	----	Oklahoma Territory	1	----
Florida	1	----	Oregon	1	----
Georgia	2	----	Pennsylvania	48	3
Idaho	----	----	Rhode Island	3	1
Illinois	46	2	South Carolina	----	----
Indian Territory	----	----	South Dakota	----	----
Indiana	17	----	Tennessee	1	----
Iowa	9	----	Texas	9	----
Kansas	3	----	Utah	----	----
Kentucky	1	----	Vermont	1	----
Louisiana	6	----	Virginia	4	----
Maine	----	----	Washington	3	----
Maryland	3	1	West Virginia	----	----
Massachusetts	28	5	Wisconsin	6	----
Michigan	15	----	Wyoming	----	----
Minnesota	10	----	U. S. Army	1	----
Mississippi	1	----	U. S. Navy	1	----
Missouri	14	2	Total to citizens of the United States	396	24
Montana	1	----			
Nebraska	3	----			
Nevada	----	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Mexico	----	----
Australia	----	----	Netherlands	----	----
Austria-Hungary	1	----	Newfoundland	----	----
Barbadoes	----	----	New South Wales	1	----
Belgium	----	----	New Zealand	----	----
Bermuda	----	----	Norway	----	----
Brazil	----	----	Portugal	----	----
Canada	5	----	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile, Republic of	----	----	Russia	1	----
China	----	----	Scotland	1	----
Colombia	----	----	Siam	----	----
Cuba	----	----	South African Republic	----	----
Denmark	----	----	South Australia	----	----
Egypt	----	----	Sweden	----	----
England	9	1	Switzerland	----	----
Finland	----	----	Tasmania	----	----
France	8	----	Victoria	1	----
Germany	13	----	Total to citizens of foreign countries	40	1
India	----	----			
Ireland	----	----			
Italy	----	----			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business December 7, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Between one and two months.			
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Oct. 8	Nov. 27	198
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 11	Nov. 23	177
106	II. Farm Stock, Products, etc.	Oct. 7	Nov. 23	337
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 8	Nov. 22	197
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Oct. 14	Nov. 20	159
255	XII. Mechanical Engineering, Steam-Service, etc.	Oct. 9	Nov. 19	198
250	VIII. Furniture, Beds, Stone Furniture, etc.	Oct. 7	Nov. 11	418
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Oct. 22	Nov. 9	172
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Oct. 11	Oct. 29	353
	Between two and three months.			
120	IX. Hydraulics, Fire-Extinguishers, etc.	Sept. 15	Nov. 30	159
253	X. Carriages and Wagons	Sept. 9	Nov. 27	283
102	XIX. Stoves and Furnaces	Sept. 8	Nov. 27	301
93	XXI. Textiles, etc	Sept. 11	Nov. 20	229
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Oct. 1	Nov. 18	344
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Sept. 8	Nov. 16	191
80	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Sept. 13	Nov. 15	420
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 20	Nov. 10	161
215	XVII. Paper Manufactures and Printing.	Sept. 27	Nov. 9	218
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 8	Nov. 2	312
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Sept. 27	Oct. 13	251
	Between three and four months.			
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 16	Dec. 2	168
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Aug. 25	Nov. 29	306
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Aug. 23	Nov. 27	215
248	XVIII. Steam-Engineering, etc.	Sept. 1	Nov. 26	284
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Aug. 16	Nov. 16	552
240	VII. Velocipedes	Aug. 25	Oct. 15	1150
246	I. Tillage and Fences	Aug. 30	Oct. 4	268
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Aug. 30	Oct. 2	591
	Between four and five months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	July 19	Nov. 13	475
221	XXIII. Instruments of Precision, Acoustics, etc.	July 12	Sept. 20	396
	Between five and six months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	June 23	Nov. 27	678
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Oct. 21	180
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	Aug. 13	369
	Total number of applications awaiting action			10,707
	Under one month.			
	Designs	Nov. 15	Nov. 20	150
	Trade-Marks	Dec. 3	Dec. 3	20

PATENTS

GRANTED DECEMBER 14, 1897.

595,285. MAGAZINE-CAMERA. PETER BERGGREN, Lake City, Minn. Filed Mar. 26, 1897. Serial No. 629,389. (No model.)



Claim.—1. A camera, comprising an outer casing, a partition within the same dividing it into two compartments, reservoirs positioned in the respective compartments, said reservoirs communicating with each other through the partition, racks upon the reservoirs, levers pivoted to the inner side of the casing, dogs carried by the levers and adapted to engage the notches of the racks, and means for operating the levers to cause the dogs to successively engage the teeth of the rack for moving the reservoirs, substantially as and for the purpose set forth.

2. A camera, comprising an outer casing, a partition within the casing dividing the same into two compartments, reservoirs positioned within the respective compartments, the upper reservoir having no bottom wall and the lower reservoir being open at its top, the partition provided with an opening through which communication is established between the two reservoirs, racks upon the reservoirs, levers pivoted at one end to the inner side of the casing, dogs pivoted at the opposite ends of the levers and adapted to engage the teeth of the racks, push-rods pivoted at one end to the levers intermediate their ends and extending to the exterior of the casing, whereby the dogs are caused to successively engage the teeth of the rack-bars by the movement of the push-rods, and means for returning the levers and dogs to their normal positions, the parts operating substantially as set forth.

3. A camera comprising a casing, a partition within the casing dividing the same into an upper and lower compartment, reservoirs within the respective compartments, the upper reservoir being open at its bottom and front end and the lower reservoir being open at its top, racks secured to the sides of the reservoir, the teeth in the racks being a distance apart equal to the thickness of the plate and plate-holder, levers pivoted at one end to the inner sides of the casing, dogs pivoted to the opposite ends of the levers and adapted to engage the teeth of the rack-bars, springs for holding the dogs in engagement with the rack-bar, springs attached at one end to the levers and at their opposite ends to the casing for turning the levers to their normal positions, the reservoirs provided with a communication through the partition just in advance of the focusing-point of the camera, and means for operating the levers to cause the dogs to successively engage the notches of the rack-bars for moving the reservoirs, the parts operating substantially as set forth.

4. A camera comprising a casing, a partition dividing the same into two compartments, reservoirs positioned within the compartments, the upper reservoir being open at its bottom and front end, the lower reservoir open at its top grooves upon the inner surfaces of the sides of the reservoirs corresponding in shape to the plate-holders to be positioned therein, rack-bars upon the reservoirs, the teeth in the rack-bars being a distance apart equal to the thickness of the plate-holders and plates, the partition provided with an opening establishing communication between the upper and lower compartments, notches upon the inner surface of the top and bottom of the casing, pawls or dogs pivoted to the reservoirs and adapted to engage the notches, springs holding the dogs in engagement therewith, levers pivoted at one end to the inner side of the casing, dogs pivoted to the levers and adapted to engage teeth in the rack-bars, push-rods pivoted to the levers and extending through the outer wall of the casing, and means for returning the levers to their normal positions after being operated by the push-bar, the parts operating substantially as set forth.

5. A camera comprising an outer casing, a partition within the same dividing it into two compartments, reservoirs adapted to move within the compartments, lids in the top and bottom of the casing through which the reservoirs may be inserted and withdrawn, the sides of the reservoirs provided with indicating-numerals which are adapted to move behind transparent openings in the wall of the outer casing, a slide for closing the openings, rack-bars upon the reservoirs, dogs engaging the rack-bars, levers to which the dogs are pivoted, the reservoirs communicating through the partition, push-rods for operating the levers, and means for returning the levers to their normal positions after being operated by the push rods or bars, the parts operating substantially as set forth.

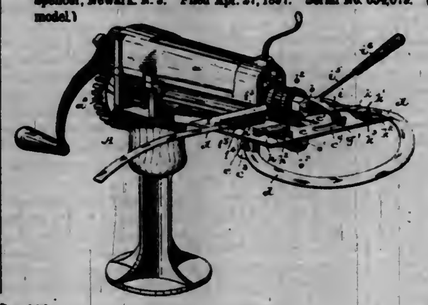
595,286. BUTTON. EDOUARD CANDEL, Paris, France, assignor to La Société Edouard Candel et Cie., same place. Filed Feb. 13, 1897. Serial No. 623,209. (No model.) Patented in France Oct. 29, 1896, No. 260,831; in Germany Jan. 14, 1897, No. 93,416; in England Jan. 23, 1897, No. 2,336; in Belgium Jan. 23, 1897, No. 126,036; in Italy Feb. 10, 1897, LXXXVI, 259, and in Austria Mar. 16, 1897, No. 47/903.



Claim.—1. In a button or similar article, the combination with a hollow head portion having a neck of reduced diameter, and a conical cap arranged within the head portion and neck in the manner described, of a pronged grip portion the prongs of which are adapted to be passed through the material to which the button is to be secured and to enter between the flanged neck and the cap, and a spring arranged to force the cap toward the base of the grip portion, for the purpose set forth.

2. In a button or similar article, the combination with a hollow head portion having a neck of reduced diameter, and a conical cap arranged within the head portion and neck in the manner described, of a pronged grip portion the prongs of which are adapted to be passed through the material to which the button is to be secured and to enter between the flanged neck and the cap, a spring arranged to force the cap toward the base of the grip portion, and the said base being provided with an opening for the insertion of an instrument to press the cap inward toward the head for the purpose set forth.

595,287. DEVICE FOR FORMING ANNULAR SHEET-METAL RINGS. JOHN A. CARLSTEDT, Brooklyn, N. Y., assignor to George Frink Spencer, Newark, N. J. Filed Apr. 27, 1897. Serial No. 634,079. (No model.)



Claim.—1. In a beading or similar machine, the combination, with the rollers thereof, of a device for forming annular flat rings from a strip of sheet metal, comprising a table or plate, adapted to be attached to said machine, a guide on said table or plate, an upwardly-extending guiding edge on said guide, and a lip or flange at a right angle to said guiding edge and approximately parallel to the face of the table or plate, whereby said strip of sheet metal can be laid on its flat side on said table and fed beneath said lip or flange, and means directly back of said rolls for deflecting said metal strip to one side to form a flat circular bead, substantially as and for the purposes set forth.

2. In a beading or similar machine, the combination, with the rollers thereof, of a device for forming annular flat rings from a strip of sheet metal, comprising a table or plate, adapted to be attached to said machine, a guide on said table or plate, an upwardly-extending guiding edge on said guide, and a lip or flange at a right angle to said guiding edge and approximately parallel to the face of the table or plate, whereby said strip of sheet metal can be laid on its flat side on said table and fed beneath said lip or flange, and a ⊃-shaped guide-plate directly back of said rolls for deflecting said metal strip to one side and prevent it from buckling, to form a flat circular band, substantially as and for the purposes set forth.

3. In a beading or similar machine, the combination, with the rollers thereof, of a device for forming annular flat rings from a strip of sheet metal, comprising a table or plate, adapted to be attached to said machine, a guide on said table or plate, an upwardly-extending guiding edge on said guide, and a lip or flange at a right angle to said guiding edge and approximately parallel to the face of the table or plate, whereby said strip of sheet metal can be laid on its flat side on said table and fed beneath said lip or flange, and an adjustable ⊃-shaped guide-plate directly back of said rolls for deflecting said metal strip to one side and prevent it from buckling, to form a flat circular band, substantially as and for the purposes set forth.

4. In a beading or similar machine, the combination, with the rollers thereof, of a device for forming annular flat rings from a strip of sheet metal, comprising a table or plate, adapted to be attached to said machine, a guide on said table or plate, an upwardly-extending guiding edge on said guide, and a lip or flange at a right angle to said guiding edge and approximately parallel to the face of the table or plate, an adjustable guide *h* on said table having a ⊃-shaped guiding portion *h'*, whereby the strip of sheet metal can be laid on its flat side on said table and fed beneath the lip or flange of the one guide and between the ⊃-shaped guiding portion of said adjustable guide, to prevent buckling of the sheet metal, and means directly back of said rolls for deflecting said metal strip to one side and prevent it from buckling, to form a flat circular band, substantially as and for the purposes set forth.

5. In a beading or similar machine, the combination, with the rollers thereof, of a device for forming annular flat rings from a strip of sheet metal, comprising a table or plate adapted to be attached to said machine, a guide on said table or plate, an upwardly-extending guiding edge on said guide, and a lip or flange at a right angle to said guiding edge and approximately parallel to the face of the table or plate, an adjustable guide *h* on said table having a ⊃-shaped guiding porton *h'*, whereby the strip of sheet metal can be laid on its flat side on said table and fed beneath the lip or flange of said one guide and between the ⊃-shaped guiding portion of said adjustable guide, to prevent buckling of the sheet metal, and a ⊃-shaped guide-plate directly back of said rolls for deflecting said metal strip to one side and prevent it from buckling, to form a flat circular band, substantially as and for the purposes set forth.

6. The herein-described device or apparatus for forming annular rings of flat metal, consisting, essentially, of a table or plate *c*, having an opening *c'*, a scale on said table or plate, a guide pivotally connected with said table or plate, an index-point on said guide, and means for adjusting said guide, substantially as and for the purposes set forth.

7. The herein-described device or apparatus for forming annular rings of flat metal, consisting, essentially, of a plate or table *c* having an opening *c'*, a guide *f* on said table, a guiding edge f^2 thereon, a bearing portion f^4 and a guiding-flange f^3 at a right angle to said edge f^2 and approximately parallel to the upper surface of said table, whereby a strip of sheet metal can be laid on its flat side on said table and fed beneath said flange f^3, and a guide at the opposite side of said opening *c'*, pivotally connected with said table or plate, substantially as and for the purposes set forth.

8. The herein-described device or apparatus for forming annular rings of flat metal, consisting, essentially, of a plate or table *c* having an opening *c'*, a guide *f* on said table, having a guiding edge f^2, a bearing portion f^4 and guiding-flange f^3, a scale on said table or plate, a guide pivotally connected with said table or plate, an index-point on said guide, and means for adjusting said guide, substantially as and for the purposes set forth.

9. The herein-described device or apparatus for forming annular rings of flat metal, consisting, essentially, of a table or plate *c* having an opening *c'*, a guide *f* on said table, having a guiding edge f^2, a bearing portion f^4 and guiding-flange f^3, slots c^3 and c^4 in said table or plate *c*, and a guide at the opposite side of said opening *c'*, adjustably arranged above said slots, comprising a pair of plates *i* and *j*, a pair of guide-plates i^7 and i^8 having a connecting guiding-surface i^9, and a post on said plate i^3 for pivotally arranging said guide on the table or plate *c*, substantially as and for the purposes set forth.

10. The herein-described device or apparatus for forming annular rings of flat metal, consisting, essentially, of a table or plate *c* having an opening *c'*, a guide *f* on said table, having a guiding edge f^2, a bearing portion f^4 and guiding-flange f^3, slots c^3 and c^4 in said table or plate *c*, and a guide at the opposite side of said opening *c'*, adjustably arranged above said slots, comprising a pair of plates *i* and *j*, a pair of guide-plates i^7 and i^8 having a connecting guiding-surface i^9, and a post on said plate i^3 for pivotally arranging said guide on the table or plate *c*, an index-point i^7, and a scale on said table or plate *c*, substantially as and for the purposes set forth.

11. The herein-described device or apparatus for forming annular rings of flat metal, consisting, essentially, of a table or plate *c* having an opening *c'*, a guide *f* on said table or plate, and means on said guide for retaining the flat metal strip horizontally in said guide an adjustable guide *h*, both at one side of said opening, a guide at the opposite side of said opening, said guide being hinged directly to said guide *f*, and a guide *k*, all arranged, substantially as and for the purposes set forth.

12. The herein-described device or apparatus for forming annular rings of flat metal, consisting, essentially, of a table or plate *c* having an opening *c'*, a guide *f* on said table or plate, an adjustable guide *h*, both at one side of said opening, a guide at the opposite side of said opening, a scale on said table or plate, a guide pivotally connected with said table or plate, an index point on said guide, means for adjusting said guide, and a guide *k*, all arranged, substantially as and for the purposes set forth.

13. The herein-described device or apparatus for forming annular rings of flat metal, consisting, essentially, of a table or plate *c* having an opening *c'*, a guide *f* on said table, having a guiding edge f^2, a bearing portion f^4 and guiding-flange f^3, an adjustable guide *h*, both at one side of said opening *c'*, slots c^3 and c^4 in said table or plate *c*, a guide at the opposite side of said opening *c'*, adjustably arranged above said slots, comprising a pair of plates *i* and *j*, a pair of guide-plates i^7 and i^8 having a connecting guiding surface i^9, a post on said plate i^3 for pivotally arranging said guide on the table or plate *c*, and a guide *k*, all arranged, substantially as and for the purposes set forth.

14. The herein-described device or apparatus for forming annular rings of flat metal, comprising, essentially, a table or plate *c* having an opening *c'*, a guide *f* on said table, having a guiding edge f^2, a bearing portion f^4 and guiding-flange f^3, an adjustable guide *h*, both at one side of said opening *c'*, slots c^3 and c^4 in said table and a guide adjustably arranged above said slots, comprising a pair of plates *i* and *j*, a pair of guide-plates i^7 and i^8 having a connecting guiding-surface i^9, a post on said plate i^3 for pivotally arranging said guide on the table or plate *c*, and said guide having an index-point i^7, a scale on said plate or table *c*, and a guide *k*, all arranged, substantially as and for the purposes set forth.

595,288. LATHE-SLIDE. WALTER L. CHENEY and WILLIAM R. COMSTOCK, Meriden, Conn. Filed Mar. 18, 1897. Serial No. 628,142. (No model.)

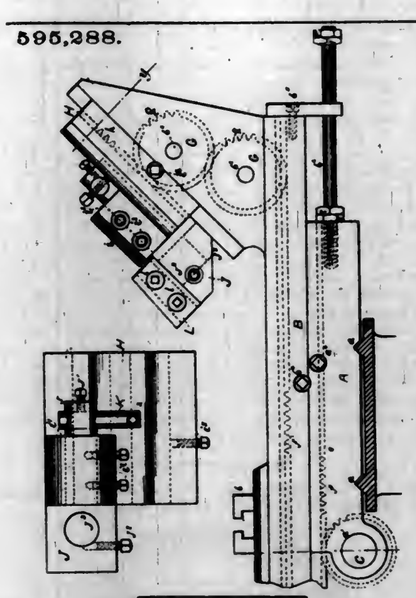
Claim.—1. In a lathe in combination, a cross-slide, means at the front end of said slide for securing a tool-post, an inclined bed at the rear end of said cross-slide, a forming-slide adapted to forward-and-downward movement on said bed and means substantially as described to produce such motion of said forming-slide.

2. In a lathe-slide in combination a cross-slide, an inclined bed on said cross-slide, a forming-slide adapted to forward-and-downward movement on said bed and means as racks in said cross-slide and said forming-slide, pinions meshing therewith and a shaft at the front end of said cross-slide whereby an operator is enabled to produce such motion of said forming-slide, substantially as described.

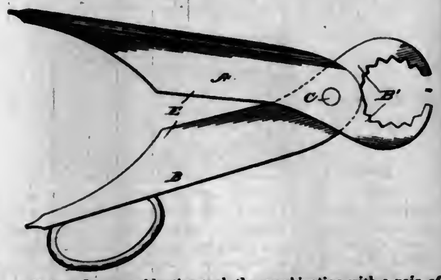
3. In a lathe-slide in combination a cross-slide, means as a fixed rack on said cross-slide and a shaft and pinion meshing therewith to move said cross-slide, a forming-slide adapted to forward-and-downward movement on an inclined bed on said cross-slide and means as a rack on said forming-slide, a loose rack in said cross-slide, pinions meshing with said racks and a shaft whereby said forming-slide may be moved independently of said cross-slide, substantially as described.

4. In a lathe forming-slide in combination a slide-body, a tool-post holder provided with a shank adapted to rotary motion in said body, a cross-stud in the free end of said shank and a set screw in the free end of said stud and bearing on said body, substantially as described.

595,288.



595,289. COMBINATION-WRENCH. WILLIAM DEVAUX, Southport, N. C. Filed Sept. 3, 1896. Serial No. 604,787. (No model.)



Claim.—In a combination-tool, the combination with a pair of pivoted levers having segmental ends provided with lateral corrugations for forming a pipe-wrench to one side of their pivot and straight cutting portions having concave cutting edges to the opposite side of their pivot and screw-driver ends, of a pivot-pin connecting said levers, and a handle or loop mounted on the side of one of said levers away from the screw-driver end and adapted to receive the hand whereby one of said levers may be lifted by a portion of the fingers while the remainder are free to operate the opposing lever, substantially as described.

595,290. LOCK. THOMAS DOWNAN, Chester, Ill. Filed Nov. 23, 1896. Serial No. 613,165. (No model.)



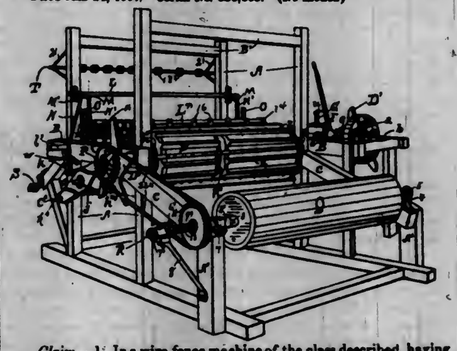
Claim.—1. In a lock-fastening device, the combination with a suitable casing, of a plunger mounted therein and provided with a washer rigidly mounted thereon, a coil-spring surrounding said plunger and bearing with one end against said washer and the opposite end against the end of the casing so as to normally force the plunger forward to engage a suitable aperture formed in the bolt, an operating-lever mounted on the protruding end of the plunger and adapted to engage the casing to withdraw said bolt against the tension of the spring, substantially as described.

2. In a lock-fastening device, the combination with a suitable attaching-casing, of a plunger mounted in the same and adapted to project through the door into a suitable aperture formed in the bolt, a spring connecting said plunger and casing for normally projecting the former into the aperture of the bolt, and a handle having a circular enlargement and eccentrically pivoted upon the outer end of said plunger so that its periphery engages the outer end of the casing and withdraws the plunger therefrom against the tension of the spring, substantially as described.

3. In a lock-fastening device, the combination with a suitable casing, of a plunger mounted therein and adapted to project through the door into a suitable aperture formed in the bolt, a coil-spring surrounding said plunger and forcing the same normally inward, and an operating-handle having a circular enlargement and eccentrically pivoted upon the outer end of said plunger so that its periphery engages the outer end of the casing to withdraw the plunger therefrom against the tension of the spring, substantially as described.

4. In a lock-fastening device, the combination with a suitable attaching-casing, of a spring-pressed plunger mounted in the same and adapted to project through the door into a suitable aperture formed in the locking-bolt, and an operating-handle having a circular bifurcated head that is eccentrically pivoted upon the outer end of said plunger-rod so that the respective peripheries of said bifurcated portion engage the outer end of the casing upon each side of the plunger-rod to withdraw the latter from the casing against the tension of its spring, substantially as described.

595,291. WIRE-FENCE MACHINE. JOHN W. DWIGGINS, Anderson, Ind., assignor to the Dwiggins Wire Fence Company, same place. Filed Jan. 21, 1897. Serial No. 620,005. (No model.)



Claim.—1. In a wire-fence machine of the class described, having a loosely-mounted power-wheel provided with a projecting hub adapted to engage a friction-clutch whereby the machine is set in motion, the combination of a pivotally-mounted bent lever M, having the forked end *n*, to engage a groove in a sliding collar *p*, and the roller *k'*, mounted upon the other end and adapted to travel in an eccentric groove in the periphery of the wheel *g*, whereby an oscillating movement is imparted to said lever, for the purpose of sliding said collar *p*, upon its shaft, with the reversible twisting mechanism, the automatically-operated endless carrier, and the automatically-tensioned fence-winding reel, substantially as shown and described.

2. In a wire-fence machine of the class described, having a loosely-mounted band-wheel provided with a projecting hub, adapted to engage a friction-clutch whereby the machine is set in motion, the combination of the sliding collar *p*, having the teeth *r*, and the groove *o*, and the wheel *g*, having an eccentric groove in its periphery, said wheel and collar being operatively connected by means of a pivoted bent lever *m*, with the automatically-operated wire-holding device, the automatically-operated endless carrier, the automatically-reversible wire-twisting devices, and the tensioned fence-winding reel, substantially as shown and described.

3. In a wire-fence machine of the class described, the combination of the operating-arms *j*, having the rollers *k*, adapted to engage the radial arms of the star-feed D', and thereby automatically rotate the shaft P, carrying the endless carrier formed by the sprocket-chain 22, and the bars V, with the power-distributing mechanism, the alternately-reversible twisting mechanism, and the reeling mechanism, as shown and described.

4. In a wire-fence machine of the class described, the combination of the star-feed D', having the radial arms adapted to be engaged by operating-arms *j*, provided with friction-reducing rollers *k*, with

the power supplying and regulating mechanism, the alternately-reversible wire-twisting device, the wire holding and supporting devices, and the spring-tensioned fence-reel, as set forth.

5. In a wire-fence machine of the class described, having an alternately-reversible wire-twisting mechanism, the combination of the reel-tension device consisting of the shaft R, the friction-disks 9, and 9', with the sprocket-wheel 11, the coil-spring 13, and the tension-nut 6', with the reel Q, the endless carrier comprising the sprocket-chains 22, the bars V, the wire-holding mechanism and the power supplying and distributing mechanism, substantially as shown and described.

6. In a wire-fence machine of the class described, the combination of the automatically-operated wire-holding mechanism, consisting of the rod L, the arms M, and M', the connecting-rods N, and N', the guide-posts O, the guides *x*, the slotted bar L', and the wire-holders *y*, with the cam-lever *w*, mounted on the shaft K, the alternately-reversible twisting mechanism, the endless carrier, the reel-tensioning device and the power connecting and distributing mechanism, as shown and described.

7. In a wire-fence machine of the class described, having a power connection and suitable power-distributing mechanism, the combination of the pivotally-mounted frame H, carrying twisters J, the shafts I, and the small bevel-wheels *v'*, with the automatic reversing mechanism, consisting of the bevel-wheel *f*, on the power-shaft *b*, the bevel-wheels *f'*, and *f'''*, and the sliding collar *p*, on the shaft D, the pivotally-mounted lever *m*, the eccentrically-grooved wheel *g*, on the shaft E, and the cams *w'*, mounted on the shaft K, substantially as set forth.

8. In a wire-fence machine of the class described, provided with an automatic alternately-reversible wire-twisting mechanism, the combination of the endless carriers consisting of the sprocket-chains 22, and the bars *v*, provided with the wire-guides 23, and the picket-holders 24, with the sprocket-wheels *k''*, and *k'''*, the open drum having the projecting portions *z*, the wire-tension devices 17, and the reel Q, substantially as shown and described.

9. In a wire-fence machine of the class described, having an automatically-operated reversible wire-twisting mechanism, the combination of the eccentric wheel *s*, mounted on the shaft D, having ears *t*, and *t'*, with the trip-arm *i*, mounted on the shaft E, having the rollers *k''*, on the ends thereof, said rollers *k''*, adapted to engage said ears *t*, and *t'*, as set forth.

10. In a wire-fence machine of the class described, having an automatically-operated endless carrier, an alternately-reversible wire-twisting mechanism, and means for feeding and reeling the wire and fencing, the combination with the wire-holders *y*, of the device whereby the woven fencing is prevented from lifting, consisting of the end frames 14, the slotted bars L'', the hangers 15, and the bars 16, having rounded ends, as shown and described.

11. The combination in a wire-fence machine of the class described, of the reversible wire-twisting mechanism, with a pivotally-mounted frame carrying the wire-twisting mechanism, and adapted to be raised and lowered by means of cams mounted upon a shaft beneath it, thereby causing the wire-twisters mounted on said frame to alternately engage and release the horizontal wires, between which the pickets are being twisted, substantially as set forth.

12. A wire-fence machine of the class described, having an automatic reversible actuated wire-twisting mechanism, in combination with the means for carrying the wire through the machine consisting of the endless carrier and the sprocket-wheels *k''*, mounted on the shaft P, in conjunction with the sprocket wheels *k'''*, and 25, and the arms *j*, engaging the star-feed D', by which said shaft P, is rotated, substantially as set forth.

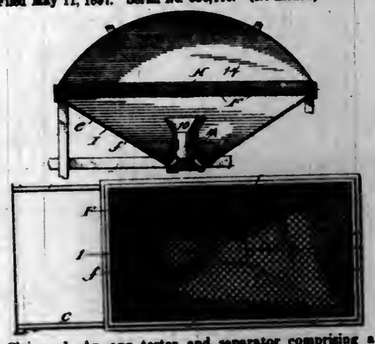
13. The combination in a wire-fence machine of the class described, of the tension devices 17, consisting of the grooved spools 18, the tightening-bolt 19, and the securing-plate 20, bolted to the slotted bars S, and S', with the automatically-operated endless carrier, consisting of the sprocket-chains 22, and the bars V, having the wire-guides 23, and the picket-holders 24, as set forth.

14. In a wire-fence machine of the class described, the combination of the reel Q, supported by the set-screw 5, the end of which enters the depression 2, in the reel-shaft on one end, and by the clutch 3, which enters the clutch 3', on the other end, with the reel-tensioning device, consisting of the friction-disk 9, having the sleeve 10, fixedly mounted on the shaft R, the sprocket-wheel 11, mounted on the sleeve 10, the friction-disk 9', mounted on the shaft R, and adapted to be held against the sprocket-wheel 11, by means of a coil-spring 13, the tension of which is regulated by the set-nut 6', substantially as shown and described.

15. In a wire-fence machine operated by power other than hand-power, and having an automatically-operated endless carrier, a series of alternately-reversible wire-twisters and a tensioned wire-fence reel, the combination of the shaft K, having the cams *w'*, whereby the twister-frame H, is raised and lowered, and the cam-lever *w*, with the automatically-actuated wire-holding devices consisting of the holders *y*, the slotted bar L', the guide-post O, the guides *x*, the rod L, the cams M, and M', and the connecting-rods N, and N', as shown and described.

16. In combination in a wire-fence machine of the class described, the band-wheel *a*, having the projecting hub *d*, loosely mounted on the shaft *b*, the cog-wheel *e*, and bevel-gear *f*, fixedly mounted on said shaft; the shaft *b'*, carrying the large cog-wheel *e'*, and the bevel-gear *f'''*; the shaft P, carrying the star-feed arms, the open drum, the sprocket-wheels *k''*, and the sprocket-wheel *k'''*; the shaft D, carrying the eccentric wheel *s*, having the ears *t*, and *t'*, the friction-block F, the loosely-mounted bevel-gears *f'*, and *f''*, the sliding collar *p*, and the fixedly-mounted bevel-gears *v*; the shaft E, carrying the trip-arm *i*, the operating-arms *j*, having the rollers *k*, the eccentrically-grooved wheel *g*, the large bevel-gear *f''''*, and the sprocket wheel *k*; the shaft K, carrying the sprocket-wheel *k'*, the cams *w'*, and the cam-lever *w*; the shaft U, carrying the sprocket wheels *k''*; the shaft W, carrying the small sprocket wheels 25; the bent lever M, pivotally mounted on the bar *l*; the twister-frame H, carrying the twisters J, and the shaft I, upon which are mounted the bevel-gears *v'*; the wire-tension devices 17, mounted on the slotted bars S, and S'; the reel Q and the reel-tension consisting of the friction-disks 9, and 9', the spring 13, the regulating-nut 6', and the sprocket-wheel 11, mounted on the sleeve 10, of the disk 9, said sprocket-wheel 11, being connected with the sprocket-wheel *k'''*, by the sprocket chain 22*, all substantially as and for the purpose shown and described.

595,292. EGG-TESTER. BERA EDWARDS, Webster City, Iowa. Filed May 11, 1897. Serial No. 636,119. (No model.)



Claim.—1. An egg tester and separator comprising a frame adapted to support a hopper, a table at one end of the frame adapted to support a basket or egg-case, a hopper fixed in the frame and provided with an opening at its bottom and one in its side, means for closing said openings, a wire screen fitted in the top of the hopper, a candle-holder detachably connected with the open bottom of the hopper and a cover fitted over the top of the hopper and frame and provided with an opening at its central portion, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a device of the class described, the combination of the supporting-frame, a hopper in said frame, an artificial-light-producing means in the bottom of said hopper, a screen in the upper portion of said hopper, a cover over the screen and a gate in the bottom of the hopper.

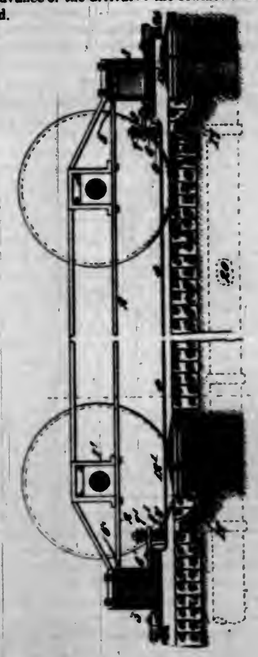
3. In a device of the class described, the combination of a supporting-frame, a hopper in said frame, a lamp in said hopper, a frame H in the upper portion of said hopper, a screen fixed to said frame H, an opaque cover fixed to the frame H and arched above the screen, means of access to the interior of the cover and a gate in the bottom of the hopper.

595,293. ELECTRIC RAILWAY. JOHN R. FARMER, St. Louis, Mo., assignor of seven-eighths to Otto M. Schmidt, Michael Schaller, and D. H. Lohse, same place. Filed Mar. 2, 1896. Serial No. 581,496. (No model.)

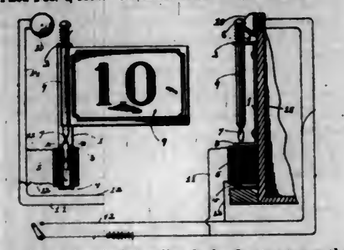
Claim.—1. In an electric railway employing surface contacts and a bridging-shoe carried by the car having means for rendering it magnetic to operate a circuit-closer in the road-bed; the herein-described contact device having a magnetic contact exposed on the surface and having a projecting horn also of magnetic material and extending in the direction from which the car approaches, whereby a preliminary effect is produced on the circuit-closer, substantially in the manner and for the purpose set forth.

2. In a closed-conduit electric railway, automatic circuit-closing and current-supplying devices along the road, constructed for operation substantially as explained and having their action initiated by a source of magnetic influence carried by the vehicle and magnetic

horns or projections extending from said devices in the direction from which the vehicle comes, to receive the initial energy from said vehicle in advance of the arrival of the contact over the said devices, as explained.



595,294. RAILWAY-SIGNAL. WILLIAM J. FAWCETT, Pittsburg, Pa. Filed Feb. 4, 1897. Serial No. 622,056. (No model.)



Claim.—In an electrical signaling device for street-cars, the combination with the bracket mounted on the car, the solenoid-magnet supported thereon, of the vertically-movable spiral armature-bar, designed to work within said magnet, a slotted bracket-arm through which the spiral portion of the armature-bar reciprocates to cause a rotary movement thereto, a signal-board mounted on the bar and a spring to return the latter to its normal position.

595,295. SNOW-GUARD. MOSES FOX and NATHANIEL SNYDER, East Bangor, Pa. Filed Sept. 8, 1897. Serial No. 650,927. (No model.)



Claim.—1. A device of the character described comprising a bar having a broadened lower end, a fender or guard having a recess or slot in its lower portion for the reception of said bar, said slot or recess being so shaped that the downward movement of the fender or guard is limited by engagement with the edges of the broadened portion of the bar, and means for securing the bar to the roof, substantially as described.

2. In a device of the character described, the combination with a bar having a broadened lower portion having oppositely-inclined side edges, a guard or fender having a recess therein formed with depending side flanges having oppositely-inclined shoulders adapted to engage the inclined shoulders upon the side edges of the broadened portion of said bar whereby the downward movement of the fender is limited, and means for securing the device to the roof, substantially as described.

3. In a device of the character described, the combination with a bar adapted to be secured to the roof and having the lower broadened portion formed with oppositely-inclined side edges, a fender provided at its lower end with a right-angular portion recessed throughout its length and having depending side flanges formed with oppositely-inclined shoulders adapted to engage the inclined side edges of the bar, and means for securing the device to the roof, substantially as described.

4. In a device of the character described, the combination with a bar having a lower broadened portion formed with oppositely-inclined side edges and a series of inclined recesses in the narrowed portion thereof for the purpose specified, of a fender or guard having a right-angular portion at the bottom thereof, said portion being recessed throughout its entire length and formed with depending side flanges having oppositely-inclined shoulders therein adapted to engage the inclined edges of said bar, substantially as described

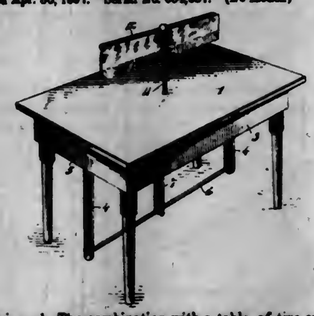
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595,296. PROCESS OF MAKING EXTRACTS. LUDWIG FROMM and RUDOLF SCHMIDT, Dresden, Germany. Filed Dec. 7, 1896. Serial No. 614,826. (No specimens.)

Claim.—1. A process for the extraction of fatty and albuminous substances from vegetables containing oil, consisting in finely grinding the vegetable substances and converting the mass into a paste with cold water, in which is dissolved from five to ten per cent. of chlorid of sodium, then thoroughly kneading or mixing the mass, converting the same into an emulsion with water, freeing the liquid of impurities, and finally reducing the substance to a thick mass by steam in a vacuum.

2. A process for the extraction of fatty and albuminous substances from vegetables containing oil, consisting in finely grinding the vegetable substances and converting the mass into a paste with cold water, containing a solvent adapted to render the albumen soluble, then thoroughly kneading or mixing the mass, converting the same into an emulsion with water, freeing the liquid of impurities and finally reducing the substance to a thick mass by steam in a vacuum, as described.

595,297. REVOLVING FAN. LEVI A. GIBSON, Thornton, Tex. Filed Apr. 30, 1897. Serial No. 634,637. (No model.)

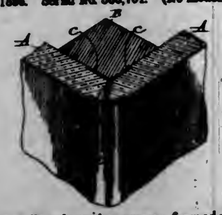


Claim.—1. The combination with a table, of two swinging bars pivoted at their upper ends to the table at opposite points and extending down adjacent to the floor, a horizontal bar connecting the swinging bars at their lower ends, a vertical lever pivoted intermediate its ends to a support attached to the table intermediate the swinging bars, the lower end of the lever being connected to the horizontal bar to move with it, a cross-head secured to the upper end of the lever, a vertical fan-shaft supported to rotate adjacent to the cross-head, and connections between the cross-head and the shaft to translate oscillatory movement of the former into rotative movement of the latter, substantially as described.

2. The combination with a table, of two swinging bars pivoted at their upper ends to the table at opposite points and extending down adjacent to the floor, a horizontal bar connecting the lower ends of the swinging bars, a vertical lever pivoted intermediate its ends to a support attached to the table intermediate the swinging

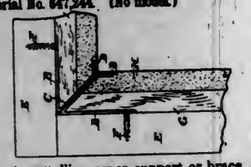
bars, the lower end of the lever being connected to the horizontal bar to move with it, a cross-head secured to the upper end of the lever, a horizontal lever pivoted intermediate its ends to the table and connected at one end to the upper end of the vertical lever, a cross-head secured to the other end of the horizontal lever, vertical fan-shafts supported to rotate adjacent to the respective cross-heads, and connections between each cross-head and its adjacent shaft to translate oscillatory movement of the former into rotative movement of the latter, substantially as described.

595,298. PLASTERING-CORNER. LEWIS GOODWIN, Boston, Mass. Filed Apr. 8, 1896. Serial No. 586,701. (No model.)



Claim.—A metallic plastering-corner, formed with the outer surface *a* of double thickness of metal, part *b* also double in thickness and extended inward from part *a*, and the double-inclined parts *c*, *c*, arranged to be secured to the supporting plastering-corner, all substantially as described.

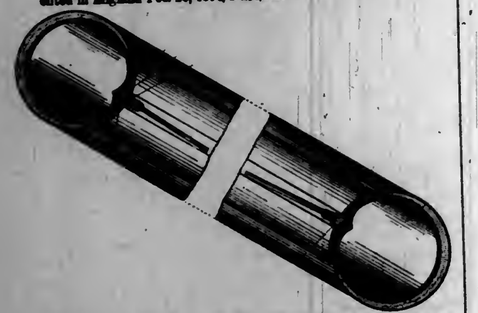
595,299. CORNER BRACE OR SUPPORT FOR PLASTERING. LEWIS GOODWIN, Boston, Mass. Filed May 22, 1896. Renewed Aug. 5, 1897. Serial No. 647,244. (No model.)



Claim.—1. A metallic corner support or brace, composed of a strip or piece of thin, flexible metal, bent and folded into form to adapt it to support the plastering of reëntrant angles or corners and comprising wings B B; arm C; and branches D D, arranged substantially as described, and for the purpose specified.

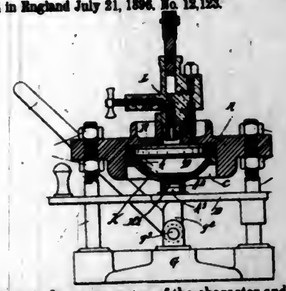
2. A metallic corner-support, composed of a strip of flexible metal, bent and folded into form so as to comprise an attaching-wing B: an arm C: and branches D D: all arranged and adapted to support the plastering of reëntrant angles or corners, substantially as shown and described.

595,300. BICYCLE-TIRE. WILLIAM A. D. GRAHAM, Owen Sound, Canada, assignor of one-half to Arthur Pratt Jameson, South Dumfries, Canada. Filed Feb. 5, 1894. Serial No. 499,219. (No model.) Patented in England Feb. 28, 1894, No. 4,245.



Claim.—In a tire for cycles the combination of the wheel-rim having a recess located in the periphery thereof, the air-tube; a covering for the air-tube consisting of a strip of flexible material having on opposite sides of its edges abrupt enlargements, both said enlargements gradually becoming less in thickness and terminating in the extreme edges of the cover, said enlargements adapted to interlock with each other and in so doing adapted to cause an edge of the inner enlargement to extend into the air-tube when the same is inflated; a flange located on the outer side of the covering, said flange adapted to rest in the recess of the rim; the inner extending enlargement of the cover, the point of junction of the two enlargements, and the flange on the outer side of the cover, all being substantially in the same perpendicular line when the parts are in position and the air-tube inflated, as set forth.

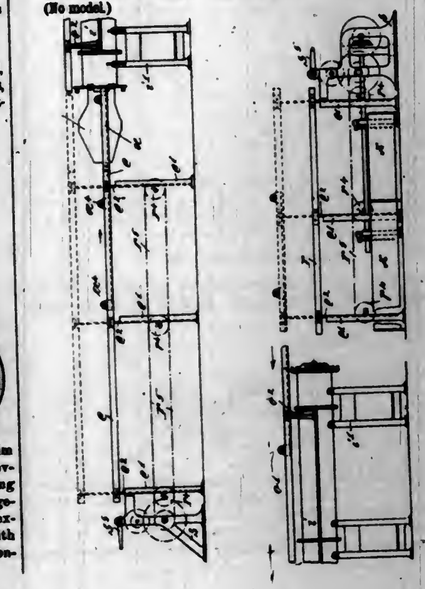
595,301. DENTAL APPARATUS. CHARLES D. GRUNDY, Batley, England. Filed July 20, 1897. Serial No. 645,272. (No model.) Patented in England July 21, 1896. No. 12,123.



Claim.—1. In an apparatus of the character and for the purpose herein described, the combination with a suitable base, of pillars or columns connected therewith, a top plate or casting adjustably mounted thereon, said top plate or casting being provided in its under side with a circular chamber in which is placed a movable rubber diaphragm, a cup which is adapted to enter said chamber, and press upon said diaphragm, a lever or bracket revolubly connected with one of said pillars or columns, a liquid-press mounted above said casting or top plate, and in communication with said chamber, and means for raising the lever or bracket, substantially as shown and described.

2. In an apparatus of the character and for the purpose herein described, the combination with a suitable base, of pillars or columns connected therewith, a top plate or casting adjustably mounted thereon, said top plate or casting being provided in its under side with a circular chamber in which is placed a movable rubber diaphragm, a cup which is adapted to enter said chamber, and press upon said diaphragm, a lever or bracket revolubly connected with one of said pillars or columns, and in communication with said chamber, and means for raising the lever or bracket, consisting of a cam mounted on the base and provided with a crank-lever, substantially as shown and described.

595,302. APPARATUS FOR WASHING WARP. OTTO HALLENLEBEN, Hilden, Germany. Filed May 17, 1897. Serial No. 634,966. (No model.)



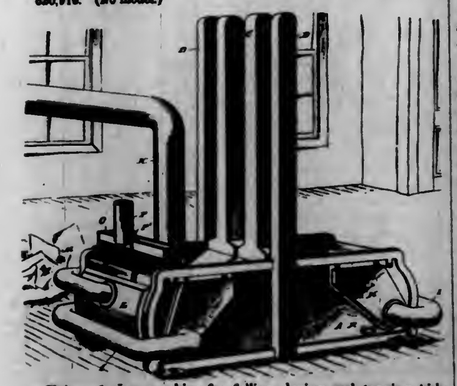
Claim.—1. In an apparatus for steaming and washing the colored threads intended for the production of Smyrna carpets and the like, the combination with two pairs of rails extending in one direction and located in one plane, means for supporting said rails, and a wheeled frame supported by the same, of a steaming box or chest arranged between said two pairs of rails in line with the same; two other pairs of rails arranged one inside, the other outside of, and parallel to, said chest, and means for displacing the first two pairs of rails so as to bring them in line with the last-mentioned pair; said wheeled frame being adapted to receive the threads, and the said chest being adapted to receive the said frame, for the purpose as described.

2. In an apparatus for steaming and washing the colored threads intended for the production of Smyrna carpets and the like, the combination with two pairs of rails extending in one direction and located in one plane, displaceable racks supporting said rails, standards guiding said racks, shafts supported by said standards, pinions secured to said shafts and gearing with the racks, means for rotating the shafts, and a wheeled frame supported by the rails, of a steaming box or chest arranged between said two pairs of rails in line with the same; two other pairs of rails arranged one within, the other above, and parallel to, said chest; said wheeled frame being adapted to receive the threads, and the said chest being adapted to receive the said frame, for the purpose as described.

3. In an apparatus for steaming and washing the colored threads intended for the production of Smyrna carpets and the like, the combination with two pairs of rails extending in one direction and located in one plane, displaceable racks supporting said rails, standards guiding said racks, shafts supported by said standards, pinions secured to said shafts and gearing with the racks, chain-wheels also secured to the shafts, a chain connecting all the chain-wheels belonging to one of said pairs of rails, another chain connecting all the chain-wheels belonging to the other pair of rails, means for driving said chain-wheels, and a wheeled frame supported by the same, of a steaming box or chest arranged between said two pairs of rails in line with the same; two other pairs of rails arranged one inside, the other outside of, and parallel to, said chest; said wheeled frame being adapted to receive the threads, and the said chest being adapted to receive the said frame, for the purpose as described.

4. In an apparatus for steaming and washing the colored threads intended for the production of Smyrna carpets and the like, the combination with two pairs of rails extending in one direction and located in one plane, means for supporting said rails, and a wheeled frame supported by the same, of a steaming box or chest arranged between said two pairs of rails in line with the same, and a washing-trough arranged near and parallel to the second pair of said rails; two other pairs of rails arranged one inside, the other outside of, and parallelly to, said chest, and means for displacing the first two pairs of rails so as to bring them in line with the last-mentioned pair: movable hook-like holders hanging down into said trough, and means for oscillating said holders, for the purpose as described.

595,303. APPARATUS FOR MANUFACTURING LEATHER. DANIEL HAYS, Gloversville, N. Y. Filed Jan. 27, 1897. Serial No. 620,916. (No model.)



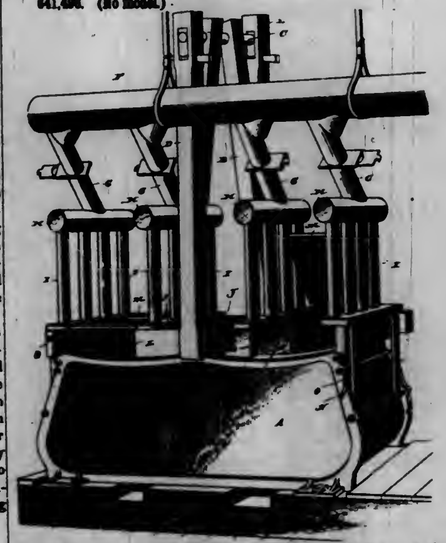
Claim.—1. In a machine for fulling, drying and tanning hides and skins, a stationary vat or stock having the perforated sides and ends, the air-trunks covering the said perforated portions, and the air-supply pipes leading to the said air-trunks, substantially as shown and described.

2. In an apparatus for fulling, drying and tanning hides and skins, a stationary vat or stock having the perforated sides, ends and bottom, the air-trunks covering the said perforated portions, and the air-supply pipes leading to the said trunks, substantially as shown and described.

3. In an apparatus for fulling, drying and tanning skins, and hides, a stationary stock or vat having the perforated sides, ends and bottom, the air-trunks covering the said perforated portions, the air-supply pipes, and the heating-coil arranged in the main air-supply pipe for the purpose of maintaining the air at a proper temperature, substantially as shown and described.

4. In an apparatus for fulling, drying and tanning hides and skins, the combination of a stock or vat having the perforated ends, sides and bottom, and the air-trunks covering the said perforated portions, the air-pipes leading to the said trunks, the distributing-trough and oil-tank, all arranged and adapted to operate substantially as shown and described.

595,304. APPARATUS FOR MANUFACTURING LEATHER. DANIEL HAYS, Gloversville, N. Y. Filed June 19, 1897. Serial No. 641,466. (No model.)



Claim.—1. In an apparatus for manufacturing leather, a stationary stock or vat having beaters or hammers operating therein, a top or cover fitted upon said stock or vat and having an opening at the center to permit the movement of the beaters or hammers, the aprons attached to the edges of said opening and depending into the stock, and the air-pipes leading into the stock or vat through the top or cover, substantially as described.

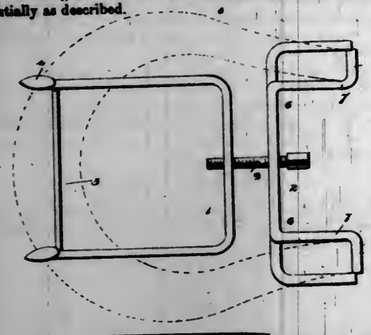
2. In an apparatus for manufacturing leather, a stationary stock or vat having beaters or hammers operating therein, a top or cover fitted upon said stock or vat and having an opening at the center to permit the movement of the beaters or hammers, said cover or top having one or more hinged lids or portions, the aprons attached to the edges of the central opening and depending into the stock, and the air-pipes leading into the stock or vat through the top or cover, substantially as described.

595,305. HORSESHOE ATTACHMENT. FERDINAND HUBOP, Detroit, Mich. Filed Jan. 20, 1897. Serial No. 619,858. (No model.)

Claim.—1. A horseshoe attachment consisting of a front and rear member, the front member comprising two longitudinal blades connected at their rear ends by a transverse blade and at their front ends by a brace-rod, upwardly-extending projections at the front ends of said longitudinal blades, the said rear member consisting of a transverse blade having rearwardly-extending blades provided with arms having lugs, and a tightening device connecting the transverse blades of said members, substantially as described.

2. An attachment for horseshoes consisting of a front and a rear member, the front member comprising two longitudinal blades connected at their rear ends by a transverse blade and at their front ends by a brace-rod, upwardly-extending projections at the front ends of said longitudinal blades, the rear member consisting of a transverse blade having rearwardly-extending longitudinal blades, said

transverse blade being provided with forwardly-extending shoulders 6 to fit between the rear end portions of the horseshoe, arms 7 extending rearwardly from said shoulders and provided with outwardly-extending lugs to engage the heels of a horseshoe, and a tightening device extending between the transverse blades of said members, substantially as described.



595,806. SAND PUMP AND BAILER. FREDERICK JACKSON, Kane City, Pa. Filed Aug. 28, 1897. Serial No. 649,833. (No model.)



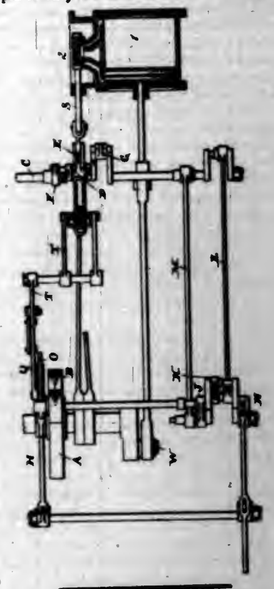
Claim.—1. In a pump, the combination with a suitable tube, of a valve removably mounted at the lower end of the same and provided with a plurality of apertures, spring-pressed studs mounted on the lower end of said tube and adapted to enter said apertures to hold the valve in position, and a piston mounted in said tube, substantially as described.

2. In a pump, the combination with a suitable tube, of springs located at the lower end of said tube and carrying plungers or studs which normally project through the wall of said tube, a valve comprising a hollow casing formed with a plurality of openings adapted to be engaged by said studs, and a valve proper mounted on said casing, substantially as described.

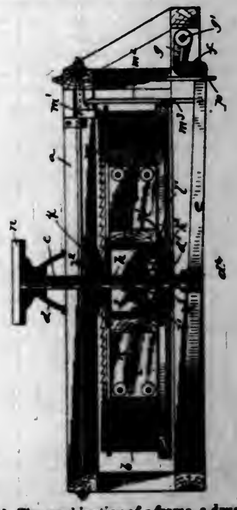
3. In a pump, the combination with a suitable tube, of springs located at the lower end of the same and provided with studs or plungers which project through the walls of said tube, a valve-casing provided with apertures adapted to be engaged by said studs, a valve mounted on said casing, a piston mounted in said tube, a piston-rod connected to said piston, a head at the upper end of said tube, and a coiled spring interposed between said head and said piston, substantially as described.

595,807. VALVE-GEAR. JOHANN H. F. JACOBY, Saargemünd, Germany. Filed Nov. 20, 1895. Serial No. 569,543. (No model.)

Claim.—The combination with the driving-shaft and slide-valve of an engine, of a two-part pitman, an eccentric-pin connecting said two-part pitman, and means operated by the driving-shaft to rotate said eccentric pin to vary the throw of the valve, substantially as described.



595,808. HOISTING-DRUM. ULYSSES S. JAMES, Helena, Mont., assignor of one-half to Lewis H. Graves, same place. Filed Apr. 15, 1897. Serial No. 632,304. (No model.)

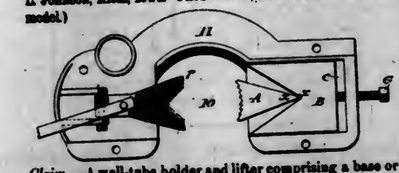


Claim.—1. The combination of a frame, a drum journaled therein and having its hub made hollow, an endwise-movable shaft journaled in the frame, means for adjusting said shaft endwise, a two-part clutch inclosed within the hub, one part of the clutch being attached to the hub and the other part carried by the shaft, substantially as described.

2. The combination of a frame, a vertical shaft journaled therein, bearings supporting said shaft, a lever carrying one of said bearings, means for raising and lowering said lever, a drum journaled in the frame and provided with a ratchet, a two-part clutch, one part carried by the shaft and the other part by the drum, a pawl engaging the ratchet on the drum, a trip-rod connected to the pawl and adapted to be engaged by the movable lever carrying the shaft-bearing, substantially as described.

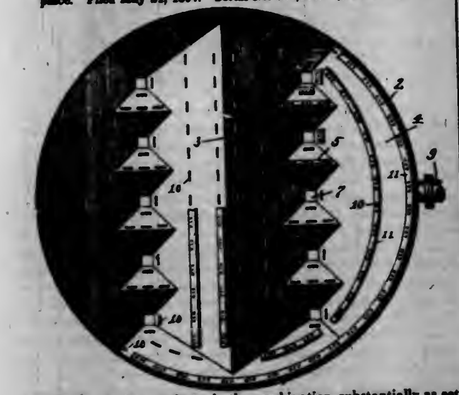
3. The combination of a frame, a vertical shaft and means for endwise supporting and adjusting said shaft, bearings *d' d'* supporting said shaft, the lower bearing *d'* having an upward tubular extension, a drum having a hollow hub, said hub having upper and lower tubular extensions or trunnions, the upper one embracing the shaft and the lower one embracing the upward tubular extension on the lower shaft-bearing, a bearing *k* attached to the frame and embracing the upper trunnion, and a two-part clutch inclosed within the hub, one part being carried by the hub and the other part by the shaft, substantially as described.

595,809. PIPE HOLDING AND HOISTING MACHINE. FRANK L. JOHNSON, Albia, Iowa. Filed June 4, 1896. Serial No. 594,330. (No model.)



Claim.—A well-tube holder and lifter comprising a base or frame adapted to lie flat at the top of a well, a block having a triangular-shaped cavity at its inner end slidingly connected with one end portion of said frame, a triangular-shaped dog fitted in said cavity, a screw for adjusting the sliding block seated in the end of the frame and connected with the block, a clamp hinged to the other end portion of the frame to swing vertically, and a bar pivoted to said clamp for lifting and locking the clamp, all arranged and combined as and for the purposes stated.

595,810. GRAIN-TANK. EDGAR D. JOHNSTON, Connersville, Ind., assignor to the Steel Storage and Elevator Construction Company, same place. Filed May 21, 1897. Serial No. 637,507. (No model.)



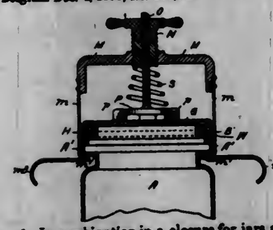
Claim.—1. In a grain-tank, the combination, substantially as set forth, of a foundation, a vertically-disposed tank wall resting thereon and having an air-tight bottom, a hollow ridge diametrically disposed over the bottom of the tank, walls sloping angularly upward from near the base of said ridge into air-tight conjunction with the peripheral wall of the tank, hollow ridges disposed transversely between said first-mentioned ridge and said wall, gated openings at the bases of the ridges and angular walls, air-tight communicating chambers formed below the ridges and angular walls and communicating with the interior of the tank through ports in said angular walls and in the walls of the ridges, and a compressed-air inlet from the exterior of the tank to said chambers.

2. In a grain tank, the combination, substantially as set forth, of a foundation, a vertically-disposed tank-wall resting thereon, intersecting ridges at the base of the tank having sloping walls converging to gated outlet-openings, air-chambers below said sloping walls and communicating with the interior of the tank through ports in said sloping walls, hoods projecting outwardly over and above said ports, and a compressed-air inlet from the exterior of the tank to said chambers.

3. In a grain-tank, the combination, substantially as set forth, of a foundation, a vertically-disposed tank-wall resting thereon, intersecting ridges at the base of the tank having sloping walls converging to gated outlet-openings, air-chambers below said sloping walls and communicating with the interior of the tank through ports in said sloping walls, and a compressed air inlet from the exterior of the tank to said chambers.

4. In a grain-tank, the combination, substantially as set forth, of a foundation, a vertically-disposed tank-wall resting thereon, intersecting ridges at the base of the tank having sloping walls converging to gated outlet-openings, air-chambers below said sloping walls and communicating with the interior of the tank through ports in said sloping walls, strips secured to the upper surfaces of said sloping walls over and above said ports and each comprehending a series of said ports, and a compressed-air inlet from the exterior of the tank to said chambers.

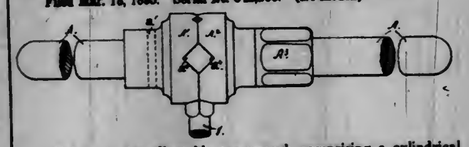
595,811. STOPPERING AND HERMETIC CLOSING FOR JARS, &c. FREDERICK JOYNSON and WILLIAM HARRISON, Warrington, England. Filed Apr. 21, 1897. Serial No. 633,202. (No model.) Patented in England Feb. 24, 1896, No. 4,158; in France Dec. 4, 1896, No. 261,837, and in Belgium Dec. 4, 1896, No. 124,949.



Claim.—1. In combination in a closure for jars and the like, the jar having a horizontal seating-face with a groove therein, the cap B having also a horizontal seating-face with a groove therein and with the flange B' fitting down outside of the horizontal seating-face on the jar, said flange having a lateral opening therein connecting with the groove in the horizontal face of the cap, and the rubber packing in the grooves and between the horizontal faces of the cap and jar, substantially as described.

2. In combination with the flanged jar, its cover, arms to engage under the flange, a presser to engage the cover at two or more points, a spring thereon, a yoke connected with the arms and a handled screw-nut passing through the yoke and pressing upon the spring of the presser-plate whereby the arms with the yoke will be moved upwardly while the presser will be forced downwardly, substantially as described.

595,812. TAP-WRENCH. HENRY B. KEPNER, Lancaster, Pa. Filed Mar. 16, 1895. Serial No. 542,263. (No model.)



Claim.—1. An adjustable tap-wrench comprising a cylindrical shaft with a smooth central portion having screw-threads at the ends thereof and of greater diameter than the rest of the shaft; abutting collars, with oppositely-disposed V-shaped indentations in their adjacent faces, mounted on said central portion, one collar with internal screw-threads engaging the threads on one end of said central portion and a pin passing through said collar and shaft and the other collar movable back and forth thereon with a key seated in the body of the shaft to engage a groove in the inner face of said movable collar, guide-pins secured in the abutting face of one collar to engage corresponding sockets in the adjacent face of the other collar, and a nut engaging the threads on the adjacent end of said central portion, all substantially as described and for the purpose hereinbefore set forth.

2. The herein-described tap-wrench consisting of the shaft A with the smooth central portion *a* and the screw-threads a^2 a^2 on the ends thereof, the collar A' with the internal screw-threads engaging the threads a^2 and the pin *a'* passing through said collar and shaft, the collar A^3 movable back and forth on the central portion, and the nut A^4 in engagement with the threads a^2, the V-shaped indentations a^4 in the adjacent faces of said abutting collars, and the pins a^5 a^5 secured into the abutting face of the one collar engaging corresponding sockets in the adjacent face of the other, all substantially as and for the purpose set forth.

3. In an adjustable tap-wrench of the character described, in combination, the central shaft A having the central portion *a* with the threaded ends a^2 a^2, the collar A' with the internal screw-threads on the threads a^2 and the pin *a'* passing through the collar and shaft,

the collar a^2 sleeved on said central portion with the nut A^3 on the screw-threads a^3; the V-shaped indentations a^4 registering in pairs in the adjacent faces of said collars, and the key a^4 seated in the body of the shaft and engaging the groove a^5 in the inner face of the collar A^2 all substantially as and for the purpose set forth.

595,313. SANITARY CUSPIDOR. WILLIAM C. KERRIGAN and THOMAS J. KERRIGAN, New York, N. Y. Filed Feb. 23, 1897. Serial No. 624,651. (No model.)



Claim.—1. In combination with a car or the like, a slide fitted to move to and fro upon the floor, a cuspidor secured thereon, the lower end of which registers with a hole through the floor when in one position, and means for bringing about the movements of the slide, as specified.

2. In combination, a slide A fitted to move upon the floor of a car or the like, a cuspidor secured upon said slide its lower end adapted to register with a hole through the car-floor, a guard for protecting said cuspidor, and mechanism for moving the slide to and fro, as specified.

3. The herein-described combination of a slide fitted upon the floor of a car, a cuspidor mounted thereon whereby it may be carried beneath the seat or from under the same, its lower end adapted to register with a hole through the floor of a car when in position for use, a crank-rod and arm carried by said rod, and a link for connecting said arm with the slide whereby the latter is put under control of the crank-rod, as specified.

4. The herein-described combination of the slide A, a cuspidor fitted thereon, the lower end of which passes through said slide and is adapted to register with a hole in the car-floor, a guard for protecting the cuspidor, a crank-rod journaled back of the seat, an arm secured to the lower end thereof, a link connecting said arm and slide, and a cord attached to the slide and passing over suitable guide-pulleys within easy access of the conductor or other attendant of the car, substantially as and for the purpose set forth.

595,314. TRACK AND SWITCH FOR BEEF-HOUSES. CHARLES A. KOHS, Providence, R. I. Filed Feb. 3, 1897. Serial No. 622,193. (No model.)



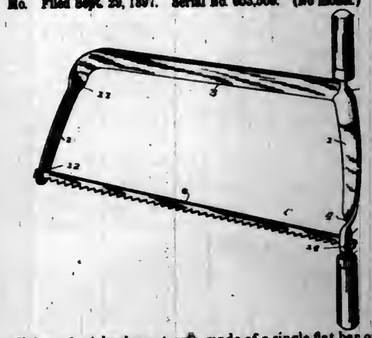
Claim.—1. A conveyer-switch, consisting of a hinged section, a section pivoted thereto, and means for elevating the last-named section and swinging the two sections, as specified.

2. In combination, a main rail, a number of branch rails, a switch-rail hinged to the main rail, a section pivoted to the switch-rail, sockets for receiving the end of the pivoted section, so as to cause it to aline with the branch rails, and a toggle-joint adapted to elevate the free end of the pivoted section as it is swung into alinement with either of the branch rails, as specified.

3. In combination, a main rail, a number of branch rails, a switch-rail hinged to the main rail, a section pivoted to the switch-rail, sockets for the reception of the free end of said section, a toggle-jointed lever connected to said pivoted section, a rod to which the upper end of said lever is secured, and an operating-lever also secured to the rod and adapted to swing it upon its axis to move it lengthwise, substantially as and for the purpose set forth.

4. In a conveyer, a number of branch rails, a main rail, a switch-rail hinged thereto to swing into alinement with the branch rails, a section pivoted to the switch-rail, and means for holding the section in alinement with the branch rails, substantially as described.

595,315. BUCKSAW-FRAME. EDWARD T. LADD, Marionville, Mo. Filed Sept. 23, 1897. Serial No. 653,509. (No model.)



Claim.—1. A bucksaw-frame, made of a single flat bar of spring-steel arranged edgewise and bent to form a handle-bar, an end bar, and a connecting-bar, the handle-bar being given a half-twist near its lower end and provided with a vertically-disposed slot to receive one end of the saw-blade, and the end bar being given a half-twist near its upper end to form a spring and provided with a vertically-disposed slot near its lower end, to receive the other end of the saw-blade, substantially as described.

2. A bucksaw-frame made of a single flat bar of spring-steel arranged edgewise and bent to form a handle-bar, an end bar, and a connecting-bar, the handle-bar being given a half-twist near its lower end and provided with a vertically-disposed slot to receive one end of a saw-blade, and being reduced below the slot to form a handle-shank, and the end bar being given a half-turn near its upper end to form a spring and provided with a vertically-disposed slot near its lower end to receive the other end of the saw-blade, combined with a saw-blade having a transverse hole at each end, pins to fit in said holes and engage the outer faces of the handle and end bars, a handle secured to the shank of the lower end of the handle-bar, and a handle secured to the handle-bar near its upper end, substantially as described.

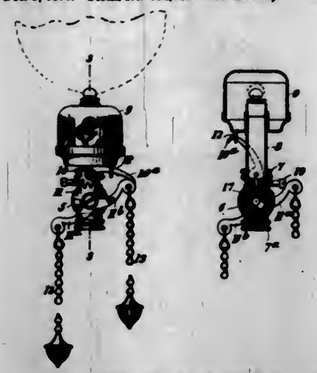
595,316. FOLDING CHAIR. IRA G. LEEK, San Francisco, Cal. Filed Feb. 25, 1897. Serial No. 625,013. (No model.)



Claim.—1. In an adjustable folding chair a seat, a back hinged thereto, means to control the inclination of the back and to hold it in desired position, links connecting the rear corners of the seat with the side rails of the back at a point above their low ends and sliding loops adapted to either confine the body of the links in line with the side rails, or to free them therefrom whereby the back may be folded in a long sweep over the seat, substantially as described.

2. In an adjustable folding chair a seat, a back hinged thereto, links connecting the corner of the seat with the side rails of the back at a distance above their lower ends, sliding loops on the side rails of the back adapted to confine the links parallel with the side rails, a leg-support hinged to the front of the seat, links connecting the rear corners of the leg-support with the side rail of the seat and means for adjusting and supporting the leg-support at the desired angle, substantially as described.

595,317. GAS-BURNER. ERNST LEUPNER, New York, N. Y. Filed Dec. 3, 1896. Serial No. 614,308. (No model.)



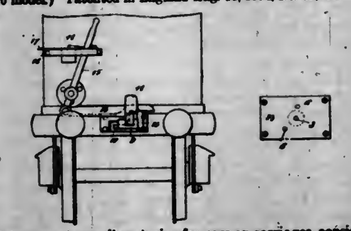
Claim.—1. The combination with the casing of a gas-cock and its plug, of a segment-gear connected to the end of said plug and adapted to move with the plug and provided with a pair of operating-arms, and a second segment-gear pivoted to the casing of the cock to intermesh with the first-mentioned segment-gear and provided with an arm adapted to lift a hood which slides on said arm.

2. In a gas-cock provided with a burner, the combination with a hood adapted to slide on the burner, of a segment-gear pivoted to the casing of the cock and provided with an arm upon which said hood is adapted to rest and by which the hood is elevated by sliding on said arm, and a second segment-gear connected to the end of the plug of the cock and meshing with said first-mentioned gear and provided with a pair of operating-arms.

3. In a gas-cock provided with a burner, the combination with a hood adapted to slide on the burner and provided with a loop, as 12, of a segment-gear pivoted to the casing of the cock and provided with an arm passing through said loop on the hood, and a second segment-gear connected to the end of the plug of the cock and meshing with said first-mentioned gear and provided with operating-arms.

4. As a new article of manufacture, a gas-cock consisting of a casing and a plug, a segment-gear secured to one end of the plug to turn therewith and provided with a pair of operating-arms, and a companion segment-gear pivoted to the casing to intermesh with the first-mentioned segment-gear and provided with an arm having a rounding or curved top surface.

595,318. CAR-COUPLING. BERNARD C. DE LEELE and GEORGE P MAIN, Loughborough, England. Filed Feb. 24, 1897. Serial No. 624,860. (No model.) Patented in England Aug. 10, 1894, No. 15,235.



Claim.—1. A coupling device for cars or carriages, consisting of an oblong frame mounted beneath the end of the car or carriage, a sliding box mounted therein, and held in position by springs at each end thereof, a coupling-bar which passes through said box, and said frame, said coupling-bar being provided with a catch-hook at its outer end, and a projecting arm, and the outer end of said bar being turned upwardly and slotted vertically, a vertically-slotted bracket secured to the end of the car or carriage, a locking-lever mounted therein, a notched lever operating in a slot formed in said bracket and adapted to engage said locking-lever, and a hand-lever connected with said notched lever, said parts being constructed, combined and arranged, substantially as shown and described.

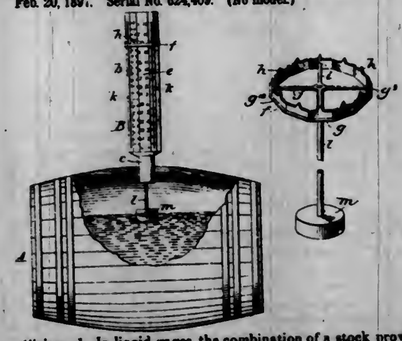
2. A coupling device for carriages or cars, consisting of an oblong frame mounted beneath the end of the car or carriage, a sliding box mounted therein, and held in position by springs at each end thereof, a coupling-bar which passes through said box, and said frame, said coupling-bar being provided with a catch-hook at its outer end, and a projecting arm, and the outer end of said bar being turned upwardly and slotted vertically, a vertically-slotted bracket secured to the end of the car or carriage, a locking-lever mounted therein, a notched lever operating in a slot formed in said bracket and adapted to engage said locking-lever, and a hand-lever connected with said notched lever, and a bracket through which said hand-lever passes, said bracket being provided with a stud and a spring, substantially as shown and described.

3. A coupling device for carriages or cars, consisting of an oblong frame mounted beneath the end of the car or carriage, a sliding box mounted therein, and held in position by springs at each end thereof, a coupling-bar which passes through said box, and said frame, said coupling-bar being provided with a catch-hook at its outer end, and a projecting arm and the outer end of said bar being turned upwardly and slotted vertically, a vertically-slotted bracket secured to the end of the car or carriage, a locking-lever mounted therein, a notched lever operating in a slot formed in said bracket and adapted to engage the said locking-lever, and a hand-lever connected with said notched lever, and a bracket through which said lever passes, said bracket being provided with a stud and a spring, and said coupling-bar being pivotally connected with a sliding bar which is suitably supported, and provided with a spring at its rear end, and a set and a lock nut by which said spring is held in position, substantially as shown and described.

595,319. PROCESS OF MANUFACTURING STEEL. CÂNDIDO DE BETEVE LLATAS, Paris, France. Filed May 27, 1897. Serial No. 638,426. (No specimens.)

Claim.—In the manufacture of cast-steel of various grades from that containing 0.150 per cent. of carbon, 0.625 per cent. of manganese and 0.025 per cent. of silicon for mild steel to that containing 1.000 per cent. of carbon, 0.200 per cent. of manganese and 0.450 per cent. of silicon for hard steel, the herein-described method of treating the charge, which consists in varying the proportions of carbon, manganese and silicon in the definite ratios set forth according to the grade of steel required: the proportion of the manganese being diminished 0.025 per cent. and that of the silicon being increased 0.025 per cent. for each increase of 0.050 per cent. in the proportion of the carbon.

595,320. WATER-GAGE. JOSEPH S. LOWE, Pursell, Mo. Filed Feb. 20, 1897. Serial No. 624,409. (No model.)

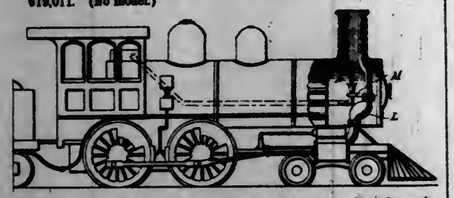


Claim.—1. In liquid-gages, the combination of a stock provided with a reduced stem adapted to fit within a vessel-opening, said stock being provided also with a series of angularly-disposed indicating-faces each bearing two columns of gage-numerals reading downward, one being a reversal in figures of the other, a float projecting below the stem, a rod extending up from the float, and an indicating-band surrounding the stock and provided with pointers, said band being connected with the float-rod, substantially as described.

2. In liquid-gages, the combination of a stock provided with a reduced stem adapted to fit within a vessel-opening, said stock being provided also with a series of angularly-disposed indicating-faces each bearing two columns of gage-numerals reading downward, one

being a reversal in figures of the other, and longitudinal slots, a float below the stem and limited in movement thereby, a rod projecting up from the float and carrying at its upper end two cross-bars *i*, *j*, whose ends project through said slots, and an indicating-band corresponding in configuration to and surrounding the stock and provided with indicating-pointers, said pointers being connected with the ends of the cross-bars, substantially as described.

595,321. FUEL-SAVING DEVICE FOR LOCOMOTIVES. CHAS. B. LORD, Long Island City, N. Y. Filed Jan. 12, 1897. Serial No. 619,011. (No model.)



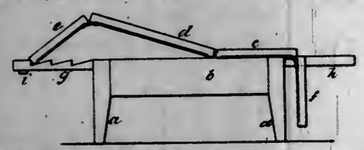
Claim.—1. In a locomotive, an exhaust-pipe extending from the saddle through the smoke-stack and to the top of the stack and enlarged, within the smoke-box, to form an expansion-chamber, in combination with a live-steam blower partly around the exhaust-pipe and supported from said exhaust-pipe, all substantially as set forth.

2. In a locomotive, in combination, the boiler-head, a draft-nozzle located below the stack, a pipe leading from the boiler to the nozzle, and a spring-operated detachable connection between the pipe and nozzle, all substantially as set forth.

3. In a locomotive, the combination with the pipe leading from the boiler-head, having holes through its sides near the end, the blower-pipe having holes or notches registering with the holes or the steam-pipe when they are jointed together, and the springs secured to the steam-pipe and carrying pins or tongues to pass through the holes in the sides of the steam-pipe and enter the holes in the blower-pipe, all substantially as set forth.

4. The combination with the triangular-shaped blower provided with a series of jet-nozzles, the notched or recessed collar carried by the said blower, the pipe and sleeve and spring carrying the locking tongues or pins, all arranged and adapted to operate, substantially as shown and described.

595,322. SURGEON'S OPERATING-TABLE. FREDERIC W. LOUGHRAN, New York, N. Y., assignor to Sydney H. Carragan, Brooklyn, N. Y. Filed Apr. 5, 1897. Serial No. 630,730. (No model.)

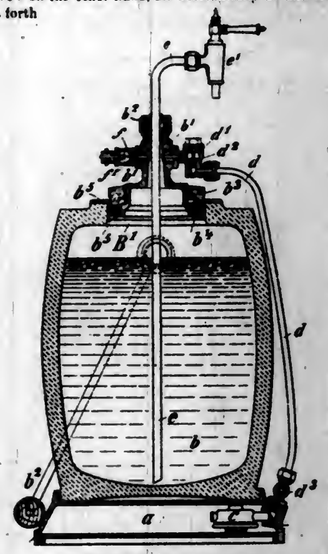


Claim.—1. In a surgeon's operating-table, a top comprising a fixed and a hinged leaf; in combination with end leaves hinged to the opposite ends of said top; a slidable notched bar adapted to support one of said end leaves in horizontal position and to engage in its notches the outer edge of said end leaf to support the same and the movable top portion in angular position; and slidable braces adapted to support the opposite end leaf in horizontal position, substantially as described.

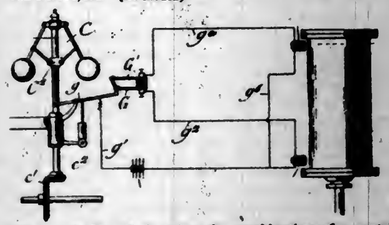
2. In a surgeon's operating table, a top comprising a fixed and a hinged leaf; in combination with an end leaf hinged to said fixed portion and provided at its upper edge with slots or openings; an opposite end leaf hinged to the movable portion of the top; a notched slidable bar adapted to support said end leaf in horizontal position and to engage in its notches the outer edge of said end leaf to support the same and the movable top portion in angular position; and slidable bars arranged at the opposite end of the table and provided with stirrups, said bars being adapted to be extended through the slots or openings in the end leaf, while the latter is in lowered position, and also to support said leaf in its horizontal position, substantially as described.

595,323. PORTABLE VESSEL FOR RETAILING LIQUIDS. EMIL LYCHENHEIM, Schwartau, Germany. Filed Sept. 15, 1896. Serial No. 605,884. (No model.)

Claim.—In combination, a reservoir *a* for carbonic-acid gas forming a seat for a liquid-receptacle and provided at its interior with a reduction-valve *c*, an adjustable conduit *d* leading to a detachable dome *b'* tightly connected to or forming the cover of the liquid-receptacle and designed to receive the tap-pipe *e* with tap *e'*, the safety-valve *f''* and the non-return valve *d' d²*, the latter communicating with the interior of the liquid-receptacle, on the one hand, and with the reservoir *a* through the medium of the conduit *d* and the reduction-valve *c* on the other hand, all substantially as and for the purpose set forth



595,324. FUEL-ENGINE. CARL E. MACFADDEN, Chicago, Ill., and ERNEST F. LLOYD, Fort Wayne, Ind. Filed May 14, 1896. Serial No. 591,474. (No model.)



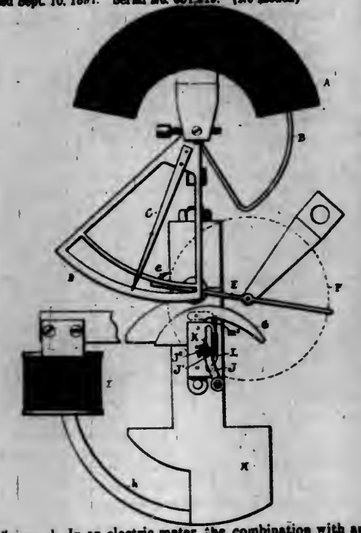
Claim.—1. In a fuel-engine, the combination of a centrifugal governor, a cylinder provided with a reciprocating piston, a valve for admitting fuel to the cylinder and arranged to be kept normally closed, mechanical means for positively opening such valve, and an electric circuit embracing an electromagnet for connecting such valve with the mechanical means, such circuit being arranged to be opened and closed by the movements of the governor, substantially as described.

2. In a fuel-engine, the combination of a centrifugal governor, a cylinder provided with a reciprocating piston, a valve for admitting fuel into the cylinder, a vibrating lever arranged to be actuated by mechanical means, and an electric circuit embracing an electromagnet arranged to bring the valve mechanism into contact with the vibrating lever so that such valve may be opened by positive mechanical means, such circuit being arranged to be opened and closed by the movements of the centrifugal governor, substantially as described.

3. In a fuel-engine, the combination of a centrifugal governor, a cylinder provided with a reciprocating piston, a valve for admitting fuel into the cylinder and provided with a projecting pivotal stem portion, said pivotal stem provided with or forming the armature for the electromagnet, mechanical means for positively acting on the valve-stem to open the valve and hold it open a predetermined time, and an electromagnet for bringing the pivotal valve-stem into the working range of the mechanically-operating mechanism, substantially as described.

4. In a fuel-engine, the combination of a centrifugal governor, a cylinder provided with a reciprocating piston, a valve for admitting fuel into such cylinder and arranged to be normally closed and provided with a pivotal stem portion forming the armature-lever of an electromagnet, a vibrating lever arranged to be operated by the movements of the engine, an electric circuit embracing an electromagnet arranged when energized to bring the pivotal armature-lever of the valve into operative connection with the vibrating lever, such circuit being arranged to be opened and closed by the movements of the centrifugal governor, and spring mechanism for normally holding the pivotal stem away from the maguet and vibrating lever, substantially as described.

595,325. ELECTRIC METER. WILLIAM D. MARKS, Philadelphia, Pa., assignor to the American Electric Meter Company, same place. Filed Sept. 10, 1897. Serial No. 651,219. (No model.)



Claim.—1. In an electric meter, the combination with an oscillating electric motor or pendulum and an oscillator actuated thereby for driving a register, of a circuit-controller for periodically opening and closing the motor-circuit, comprising a contact-plate carried by the oscillator, a second contact pivoted to a stationary support eccentrically to the oscillator and capable of movement independently of the oscillator, and an insulating-guard on said oscillator for limiting the movement of said pivoted contact, substantially as and for the purpose set forth.

2. In an electric meter, the combination with an oscillating electric motor or pendulum and a pivoted driving device for operating a register, of a circuit-controller for periodically opening and closing the motor-circuit, comprising a contact-plate carried by the driving device, a second contact carried by an overbalanced arm pivoted to a stationary support eccentrically to the driving device and capable of movement independently of the driving device, and an insulating-guard on said driving device for limiting the movement of said pivoted contact, substantially as and for the purpose set forth.

3. In an electric meter, the combination with an oscillating electric motor or pendulum and a pivoted driving device for operating a register, of a circuit-controller for periodically opening and closing the motor-circuit, comprising a contact-plate carried by the driving device, a pin projecting into the path of movement of said driving device and adapted to make contact with said plate, said pin being carried by an arm pivoted to a stationary support eccentrically to the driving device and capable of movement independently of the driving device, and a guard for limiting the movement of said pivoted contact-pin, substantially as and for the purpose set forth.

4. The combination with a circuit-controller having two relatively movable contacts adapted to periodically open and close a circuit, of a device cooperating therewith for maintaining regularity and proper duration of contact at the circuit controller, substantially as set forth.

5. The combination with a circuit-controller having two relatively movable contacts adapted to periodically open and close a circuit, of a device held under spring-pressure cooperating with said contacts for maintaining regularity and proper duration of contact at the circuit-controller, substantially as set forth.

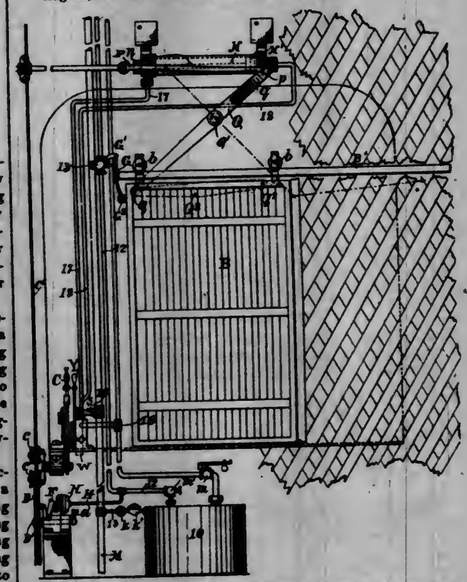
6. The combination with a circuit-controller having two relatively movable contacts adapted to periodically open and close a circuit, of a pivoted arm having a projection in the path of movement of one of said contacts for forcing said contact against the other contact at a uniform point, substantially as set forth.

7. In an electric meter, the combination with an oscillating electric motor or pendulum, of a circuit-controller for periodically opening and closing the circuit, comprising a contact-plate movable with the pendulum a second contact pivoted eccentrically to the pendulum and capable of movement independently of the pendulum to periodically open and close the circuit, and a device cooperating with the circuit-controller for maintaining the regularity and proper duration of contact at the circuit-controller, substantially as set forth.

8. In an electric meter, the combination with an oscillating electric motor or pendulum, of a circuit-controller for periodically opening and closing the circuit, comprising a contact-plate movable with the pendulum, a second contact carried by an overbalanced arm pivoted eccentrically to the pendulum, and capable of movement independently of the pendulum to periodically open and close the circuit, and a device cooperating with the circuit-controller for maintaining the regularity and proper duration of contact at the circuit-controller, substantially as set forth.

9. In an electric meter, the combination with an oscillating electric motor or pendulum, of a circuit-controller for periodically opening and closing the circuit, comprising a contact-plate movable with the pendulum, a second contact carried by an overbalanced arm pivoted to a stationary support eccentrically to the pendulum and capable of movement independently of the pendulum to periodically open and close the circuit, an insulating-guard for limiting the movement of said pivoted contact, and a device cooperating with the circuit-controller for maintaining the regularity and proper duration of contact at the circuit-controller, substantially as set forth.

595,326. AUTOMATIC CONTROL DEVICE FOR ELEVATORS. EDWIN C. MERRILL and BARTHOLOMEW J. FOLEY, Pittsburg, Pa. Filed Aug. 22, 1896. Serial No. 603,633. (No model.)



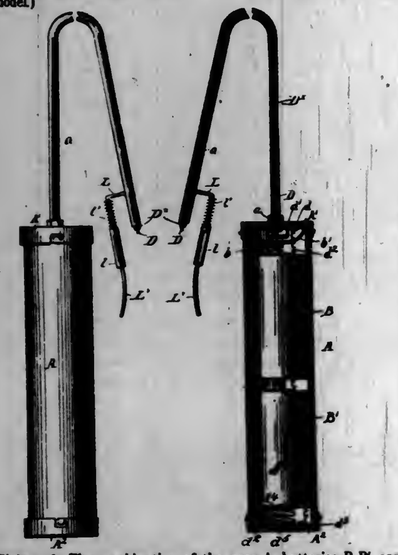
Claim.—1. The combination of the controller-wheel carrying two stops, an abutment cooperating with said stops to limit the movement of the wheel, a locking-piece movable between said stops when the wheel is in a central position, and pneumatic actuating mechanism for said locking-piece operated by the opening of a door in the elevator-shaft, substantially as described.

2. In an elevator system, the combination with a door of the elevator-shaft, and with a lock for the hoisting mechanism, of devices actuated by compressed air for opening and closing the door, means for operating said devices from the car, and mechanism, operated by the exhaust-air from door operating devices, for actuating said lock, the lock-actuating mechanism being controlled by the position of the door, substantially as described.

3. In an elevator system, the combination with an elevator-door,

of a lock for the hoisting-mechanism, pneumatic mechanism for operating said lock, a low-pressure tank and piping for supplying air to said mechanism, a lock-control valve operated by the door, pneumatic mechanism for opening and closing the door, comprising a cylinder, a piston connected with the door, and a door-controlling valve, a supply-pipe leading to the valve, an exhaust-pipe leading from said valve to said low-pressure tank, and means for regulating the pressure in said tank, substantially as described.

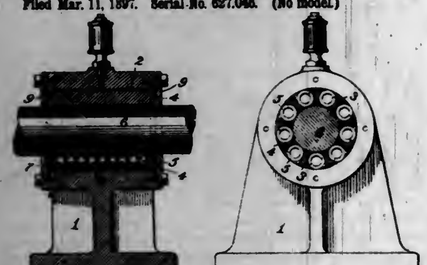
595,827. ELECTRICAL LIGHTER FOR BURNERS. SVEND M. MEYER, Brooklyn, N. Y., assignor to the Empire Self Lighting Oil Lamp Company, of New Jersey. Filed Nov. 6, 1896. Serial No. 611,379. (No model.)



Claim.—1. The combination of the case A, batteries B B', conductors d, d', d^2, d^4, a and L with the metallic lamp-cone G G' and the resistance-coil E in the circuit which is closed by the application of the lighter to the lamp-burner, substantially as herein described.

2. The combination of the conductors a, L and D and a conducting-rod l L' of variable length to adapt the apparatus to form contact with separate parts of the lamp-burner for the purpose of closing a circuit through the resistance-coil E, substantially as described.

595,828. ROLLER-BEARING. WILLIAM L. MILLER, Pittsburg, Pa., assignor of one-half to Charles A. Backstrom, New York, N. Y. Filed Mar. 11, 1897. Serial No. 627,046. (No model.)



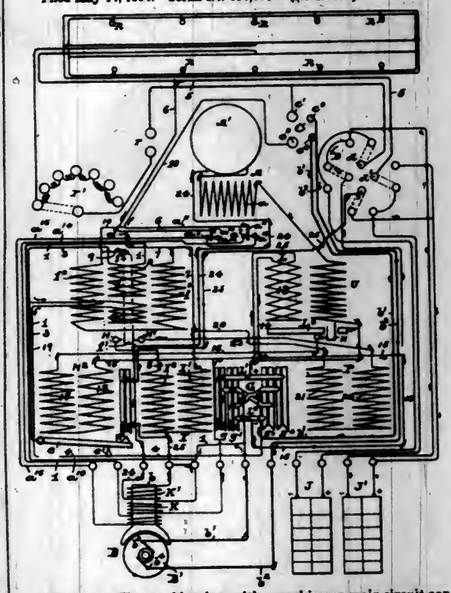
Claim.—1. A roller adapted to form part of a roller-bearing, and provided with spaces and a helical groove adapted to automatically resist endwise movement and to retain the roller in position, substantially as set forth.

2. A roller having a helically-formed space on its outer surface, and an oppositely-formed groove, tending to resist endwise movement of the roller, substantially as set forth.

3. A roller formed of a helically-coiled strip of metal and having a groove oppositely formed to the winding of the strip, substantially as set forth.

4. The combination, in a roller-bearing, of a series of cylindrical rollers each formed of a helically-coiled strip of metal, adapted to be engaged by, and to support a rotating shaft, and each having a helical groove formed therein, to resist the tendency of the roller to endwise movement, substantially as set forth.

595,829. MEANS FOR GENERATING ELECTRICITY FROM CAR-WHEEL AXLES. MORRIS MOSKOWITZ, Newark, N. J., assignor to the National Electric Car Lighting Company, of West Virginia. Filed May 17, 1897. Serial No. 636,878. (No model.)



Claim.—1. The combination, with a working or main circuit containing lamps or other electrical translating devices, of a dynamo in said circuit, wound with a main exciting shunt-coil around the field thereof, a series coil wound in the opposite direction around the field of said dynamo, a high-resistance shunt-coil fed from the dynamo, and an automatic regulating device A, comprising a series coil and a make-and-break device connected therewith, for regulating the flow of the electricity through the coils on the field of the dynamo, substantially as and for the purposes set forth.

2. The combination, with a working or main circuit containing lamps or other electrical translating devices, of a dynamo in said circuit, wound with a main exciting shunt-coil around the field thereof, a series coil wound in the opposite direction around the field of the dynamo, a high-resistance shunt-coil fed from the dynamo, and an automatic regulating device A, comprising a series coil and a make-and-break device connected therewith, for regulating the flow of electricity through the coils on the field of the dynamo, and a pole-changer in the main dynamo-circuit, substantially as and for the purposes set forth.

3. The combination, with a dynamo having its armature in circuit with a high-resistance shunt-coil which tends to cut down the field magnetism, of a reversible driving power, and a pole-changer responsive to the reversal of said power, a main circuit connected with said dynamo and wound around the field thereof, and coacting with said high-resistance coil, and an automatic regulating device A, comprising a series coil and a make-and-break device connected therewith, for regulating the flow of electricity through the coils on the field of the dynamo, substantially as and for the purposes set forth.

4. The combination, with a dynamo having its armature in circuit with a high-resistance shunt-coil which tends to cut down the field magnetism, of a reversible driving power, and a pole-changer responsive to the reversal of said power, a main circuit connected with said dynamo and wound around the field thereof, and coacting with said high-resistance coil, and an automatic regulating device A, comprising a series coil and a make-and-break device connected therewith, for regulating the flow of electricity through the coils on the field of the dynamo, consisting, essentially, of a plunger a', connected with a pair of pivoted arms a^2 and a^3, normally acting against a tension-spring, and contact-arms a^3 and a^4 connected with said plunger, and movable against certain contacts connected in circuit with a coil on the field of the dynamo, substantially as and for the purposes set forth.

5. The combination, with a dynamo mounted on a car-truck and driven from the car-wheel axle, said dynamo having its armature in circuit with a high-resistance shunt-coil which tends to cut down the field magnetism, a main circuit connected with said dynamo and wound around the field thereof, and coacting with said high-resistance coil, and an automatic regulating device A, comprising a series coil and a make-and-break device connected therewith, for regulating the flow of electricity through the coils on the field of the dynamo, substantially as and for the purposes set forth.

6. The combination, with a dynamo mounted on a car-truck and driven from the car-wheel axle, said dynamo having its armature in circuit with a high-resistance shunt-coil which tends to cut down the field magnetism, a main circuit connected with said dynamo and wound around the field thereof, and coacting with said high-resistance coil, and an automatic regulating device A, comprising a series coil and a make-and-break device connected therewith, for regulating the flow of electricity through the coils on the field of the dynamo, consisting, essentially, of a plunger a', connected with a pair of pivoted arms a^2 and a^3, normally acting against a tension-spring, and contact-arms a^3 and a^4 connected with said plunger, and movable against certain contacts connected in circuit with a coil on the dynamo-field, substantially as and for the purposes set forth.

7. A dynamo-electric machine, subject to variable armature speed, having a self-excited field-coil in shunt with its armature, an opposing high-resistance coil, a series coil wound in the opposite direction around the field of said dynamo, and an automatic regulating device A, comprising a series coil and a make-and-break device connected therewith, for regulating the flow of electricity through the coils on the field of the dynamo, substantially as and for the purposes set forth.

8. A dynamo-electric machine, subject to variable armature speed, having a self-excited field-coil in shunt with its armature, an opposing high-resistance coil, a series coil wound in the opposite direction around the field of said dynamo, and an automatic regulating device A, comprising a series coil and a make-and-break device connected therewith, for regulating the flow of electricity through the coils on the field of the dynamo, consisting, essentially, of a plunger a', connected with a pair of pivoted arms a^2 and a^3, normally acting against a tension-spring, and contact-arms a^3 and a^4 connected with said plunger, and movable against certain contacts connected in circuit with a coil on the dynamo-field, substantially as and for the purposes set forth.

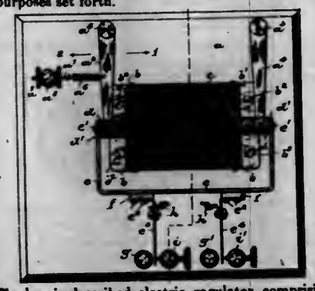
9. The combination, with a working and a lamp circuit, containing lamps or other translating devices, and a battery, of a dynamo operated under varying speeds and subject to armature reversal, a pole-changer, and an automatic electric regulator A adapted to regulate the flow of electricity through the dynamo, said dynamo being excited from said battery at a slow speed, and said dynamo, at a fast speed, having its field self-excited and regulated by said regulator A, substantially as and for the purposes set forth.

10. The combination, with a working and a lamp circuit, containing lamps or other translating devices, of a pair of storage batteries, a dynamo operated under varying speeds and subject to armature reversal, a switch connecting one of said batteries directly in circuit with the dynamo, and the other of said batteries in circuit with the lamp-circuit, a pole-changer in said main dynamo-circuit, and an automatic regulator A adapted to regulate the flow of electricity through the dynamo, said dynamo being excited from the battery in circuit with the dynamo, at a slow speed, and at a high speed, said dynamo having its field self-excited and regulated by said regulator A, substantially as and for the purposes set forth.

11. The combination, with a working and a lamp circuit, containing lamps or other translating devices, of a pair of storage batteries, a dynamo operated under varying speeds and subject to armature reversal, a switch connecting one of said batteries directly in circuit with the dynamo, and the other of said batteries in circuit with the lamp-circuit, a pole-changer in said main dynamo-circuit, and an automatic regulator A adapted to regulate the flow of electricity through the dynamo, consisting, essentially, of a plunger a', connected with a pair of pivoted arms a^2 and a^3, normally acting against a tension spring, and contact-arms a^3 and a^4 connected with said plunger, and movable against certain contacts connected in circuit with a coil on the field of the dynamo, substantially as and for the purposes set forth.

595,830. ELECTRIC REGULATOR. MORRIS MOSKOWITZ, Newark, N. J., assignor to the National Electric Car Lighting Company, of West Virginia. Filed May 26, 1897. Serial No. 638,185. (No model.)

Claim.—1. The herein-described electric regulator, comprising, in combination, with a coil e, a movable plunger in said coil, a frame e connected with the ends of said plunger, a pair of contact-arms e^3 and e^4 connected with said frame e, contact-posts g and i, and g' and i', between which said arms e^3 and e^4 are adapted to vibrate, substantially as and for the purposes set forth.

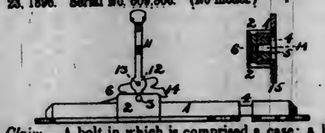


2. The herein-described electric regulator, comprising, in combination, with a coil e, a movable plunger in said coil, a frame e connected with the ends of said plunger, a pair of contact-arms e^3 and e^4 connected with said frame e, contact posts g and i, and g' and i', between which said arms e^3 and e^4 are adapted to vibrate, and mechanical means connected with said frame, to cause contact between said arms e^3 and e^4 and the contact-posts g and i, when there is no current of electricity passing through said coil e, substantially as and for the purposes set forth.

3. The herein-described electric regulator, comprising, in combination, with a coil e, a movable plunger in said coil, a frame e connected with the ends of said plunger, a pair of contact-arms e^3 and e^4 connected with said frame e, contact-posts g and i, and g' and i', between which said arms e^3 and e^4 are adapted to vibrate, and mechanical means connected with said frame, to cause contact between said arms e^3 and e^4 and the contact-posts g and i, when there is no current of electricity passing through said coil e, said means consisting, essentially, of a pair of arms a^3 and a^4 pivotally connected with said plunger d, and also pivotally arranged on posts on the frame or base of the device, and a tension-spring connected with one of said arms and with a post on said base, substantially as and for the purposes set forth.

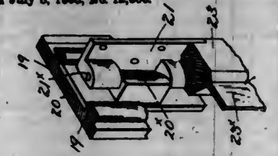
4. The herein-described electric regulator, comprising, in combination, with a coil e, a movable plunger in said coil, a frame e connected with the ends of said plunger, a pair of contact-arms e^3 and e^4 connected with said frame e, contact-posts g and i, and g' and i', between which said arms e^3 and e^4 are adapted to vibrate, and mechanical means connected with said frame, to cause contact between the arms e^3 and e^4 and the contact-posts g and i, when there is no current of electricity passing through the coil e, said means consisting, essentially, of a pair of arms a^3 and a^4 pivotally connected with said plunger d, and also pivotally arranged on posts on the frame or base of the device, and an adjustable tension-spring connected with one of said arms and with a post on said base, substantially as and for the purposes set forth.

595,831. BOLT. WILLIAM MURPHY, New York, N. Y. Filed Oct. 23, 1896. Serial No. 609,806. (No model.)



Claim.—A bolt in which is comprised a case: a bolt proper arranged to slide therein: a moving and catch piece pivoted in a slot in said bolt proper and extending therethrough; a spring engaging with the moving and catch piece, and a handpiece pivoted at the sides of the case and to the moving and catch piece, substantially as shown and described.

595,832. WINDOW. WILLIAM F. MCINTOSH, Dundee, Scotland. Filed Mar. 12, 1897. Serial No. 627,230. (No model.) Patented in England July 3, 1895, No. 12,806.



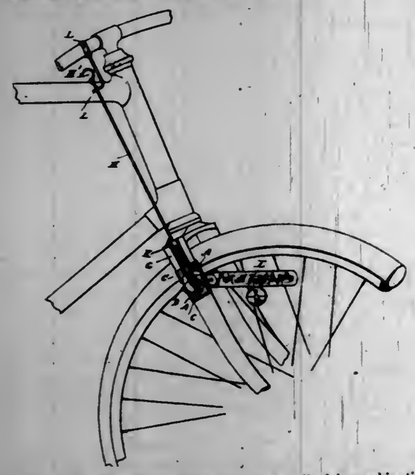
Claim.—In combination, the frame having the guides, the sliding plate moving in the guides and having the projection 20×, the sash, and the right-angular hinge member 21 carried by the sash and pivoted to the projection 20×, substantially as described.

595,333. RIM AND TIRE FOR VEHICLE-WHEELS. HARMON R. OSBORN, Granville, N. Y. Filed Feb. 2, 1897. Serial No. 621,600. (No model.)



Claim.—In combination, a rim Y-shaped in cross-section, the flanges thereof being perforated, a tire having its inner surface of a shape to fit between the flanges of the rim and a semicircular tread-surface, a wall on the inside of the tire formed with the surface against the rim and extending around concentric with the tread forming a cylindrical tube surrounded by an air-compartment, said compartment being of uniform height throughout its width, valves leading to each of the compartments, the pressure of the air forcing the inner surface of the tire into the perforations of the flanges, substantially as and for the purpose described.

595,334. BICYCLE-ALARM. GUSTAVUS J. PAESTZ, San Francisco, Cal., assignor of three-fourths to Richard E. Kelly, Alameda, Cal. Filed Mar. 20, 1897. Serial No. 628,590. (No model.)

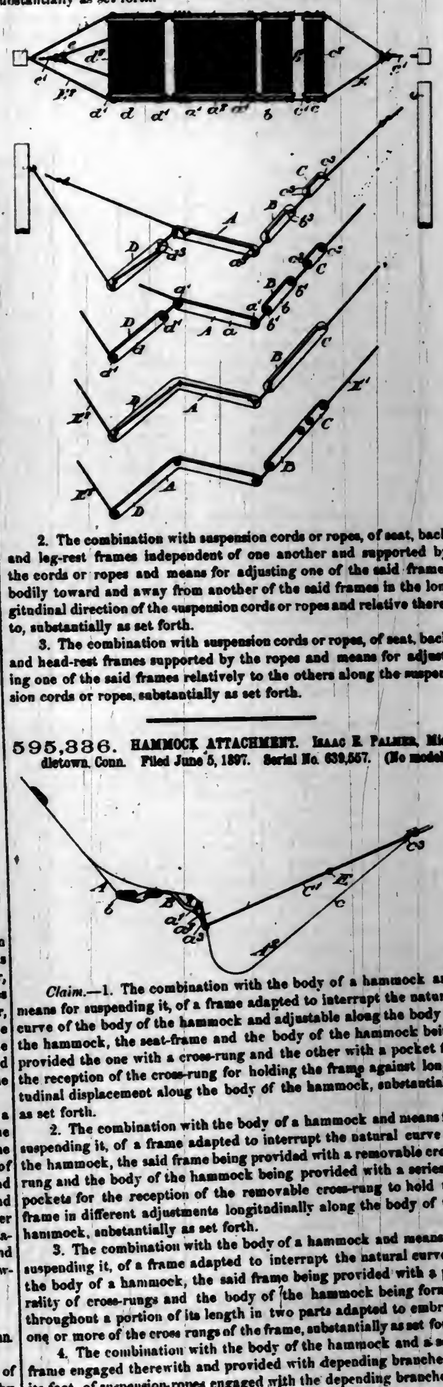


Claim.—1. In a bicycle-alarm, such as described, in combination with a rotatable bar adapted to be mounted in bearings on the forks of the bicycle, of a resilient vibrator-blade, mounted on the said bar, the free end of which is adapted to throw into the path of the spokes of the wheel, a spiral slot cut in the end of the said rotatable bar, and a drawing-rod extending to near the handle-bar of the bicycle and provided with a pull-handle at the upper end and a pin in the lower to extend into the said slot, and a tubular bearing for the said rotatable rod having a perpendicular slot to engage the end of the pin and guide its movement, substantially as described.

2. In a bicycle-alarm, such as described in combination with a rotatable bar adapted to be mounted in bearings on the forks of the bicycle, of a resilient vibrator-blade, mounted on the said bar, the free end of which is adapted to throw into the path of the spokes of the wheel, a spiral slot cut in the end of the said rotatable bar, and a drawing-rod extending to near the handle-bar of the bicycle and provided with a pull-handle at the upper end and a pin in the lower to extend into the said slot, and a tubular bearing for the said rotatable rod having a perpendicular slot to engage the end of the pin and guide its movement, and a spiral spring mounted on the said drawing-bar to depress the same, substantially as described.

595,335. HAMMOCK. ISAAC R. PALMER, Middletown, Conn. Filed Feb. 11, 1897. Serial No. 622,933. (No model.)

Claim.—1. The combination with suspension cords or ropes, of seat and back frames independent of one another and supported by the suspension cords or ropes and means for adjusting one of the said frames bodily toward and away from the other in the longitudinal direction of the said suspension cords or ropes and relative thereto, substantially as set forth.



2. The combination with suspension cords or ropes, of seat, back and leg-rest frames independent of one another and supported by the cords or ropes and means for adjusting one of the said frames bodily toward and away from another of the said frames in the longitudinal direction of the suspension cords or ropes and relative thereto, substantially as set forth.

3. The combination with suspension cords or ropes, of seat, back and head-rest frames supported by the ropes and means for adjusting one of the said frames relatively to the others along the suspension cords or ropes, substantially as set forth.

595,336. HAMMOCK ATTACHMENT. ISAAC R. PALMER, Middletown, Conn. Filed June 5, 1897. Serial No. 639,557. (No model.)

Claim.—1. The combination with the body of a hammock and means for suspending it, of a frame adapted to interrupt the natural curve of the body of the hammock and adjustable along the body of the hammock, the seat-frame and the body of the hammock being provided the one with a cross-rung and the other with a pocket for the reception of the cross-rung for holding the frame against longitudinal displacement along the body of the hammock, substantially as set forth.

2. The combination with the body of a hammock and means for suspending it, of a frame adapted to interrupt the natural curve of the hammock, the said frame being provided with a removable cross-rung and the body of the hammock being provided with a series of pockets for the reception of the removable cross-rung to hold the frame in different adjustments longitudinally along the body of the hammock, substantially as set forth.

3. The combination with the body of a hammock and means for suspending it, of a frame adapted to interrupt the natural curve of the body of a hammock, the said frame being provided with a plurality of cross-rungs and the body of the hammock being formed throughout a portion of its length in two parts adapted to embrace one or more of the cross rungs of the frame, substantially as set forth.

4. The combination with the body of the hammock and a seat-frame engaged therewith and provided with depending branches at its foot, of suspension-ropes engaged with the depending branches of the frame and a foot-rest suspended from said hammock suspension-ropes, substantially as set forth.

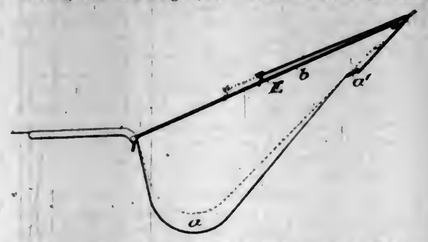
5. The combination with the body of the hammock and the seat-frame engaged therewith, of suspension-ropes leading from the foot of the seat-frame and suspension-cords leading from the foot of the hammock-body and having a sliding engagement with the said suspension-ropes, substantially as set forth.

6. The combination with the body of the hammock and the seat-frame engaged therewith and comprising side rails connected by a cross-piece, of suspension-ropes leading from the foot of the seat-frame and a foot-bar suspended by the said suspension-ropes, substantially as set forth.

7. The combination with the body of the hammock and the seat-frame engaged therewith and comprising side rails connected by a cross-piece, of the suspension ropes engaged with the seat-frame and a foot-bar adjustably secured to said suspension-ropes, substantially as set forth.

8. The combination with the body of a hammock and means for suspending its head end, of a seat-frame consisting of side rails and one or more cross-slats connecting the side rails, the body of the hammock being formed throughout a portion of its length in two parts adapted to embrace the cross slat or slats and suspension-ropes leading from the foot end of the side rails of the frame to interrupt the natural curve of the body of the hammock to form a seat, substantially as set forth.

595,337. HAMMOCK ATTACHMENT. ISAAC R. PALMER, Middletown, Conn. Filed Aug. 10, 1897. Serial No. 647,689. (No model.)



Claim.—1. The combination with the body of a hammock, a seat-frame engaged therewith and suspension-cords therefor, of an adjusting-cord leading from the foot of the hammock around the bearing and from thence to a point within the reach of the occupant of the hammock and means for securing the cord in its several adjustments for regulating the height of the foot portion of the hammock, substantially as set forth.

2. The combination with the body of the hammock, the seat-frame engaged therewith and suspension-cords for supporting the hammock, of a loop extending from the foot of the hammock through a suitable bearing, an adjusting-cord connected with the loop and extending back into a position within reach of the occupant of the hammock and means for securing the adjusting-cord in its different adjustments, substantially as set forth.

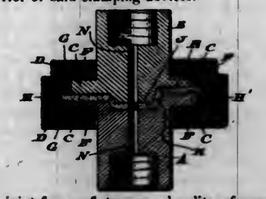
3. The combination with the body of the hammock, the seat-frame engaged therewith and suspension-cords for supporting the hammock, of an adjusting-cord extending from the foot of the hammock through a bearing and from thence to a point along one of the suspension-cords within reach of the occupant and means for securing the adjusting-cord at different positions along the suspension-cord, substantially as set forth.

4. The combination with the body portion of the hammock, a seat-frame engaged therewith and suspension-cords for supporting the hammock, of an adjusting-cord leading from the foot of the hammock through a suitable bearing extending back in a position within reach of the occupant and a sliding clamping-hook secured to the adjustable cord and engaged with one of the suspension-cords for securing the said adjustable cord in any desired position along the suspension-cord, substantially as set forth.

595,338. INSULATED JOINT FOR GAS-FIXTURES. JOSEPH W. PARKIN, Philadelphia, Pa. Filed Jan. 11, 1897. Serial No. 618,717. (No model.)

Claim.—1. In a joint for gas-fixtures, a plurality of members, peripheral flanges on adjacent ends of said members, an insulating-plate between said ends and flanges, insulating-rings on the outer sides of said flanges and sectional sleeves one of which is adapted to fit within the other, whereby the same are held in position.

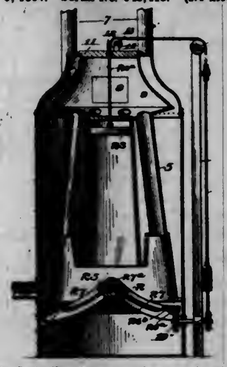
2. In a joint for gas-fixtures, a plurality of members having flanges attached thereto, insulation intermediate said members, sectional clamping devices which are adapted to fit each other telescopically, whereby the same are held in position, insulating-rings and washers intermediate said flanges and clamping devices, and means for cementing the interior of said clamping devices.



3. In a joint for gas-fixtures, a plurality of members, the same being provided with flanges, sleeves for holding said members in juxtaposition, one of said sleeves fitting within the other, whereby the same are held in position, an insulating-ring intermediate said flanges, insulating-rings adjacent said flanges, metal rings intermediate said sleeves and rings, and offsets located oppositely to each other and forming locking devices.

4. In a joint for gas-fixtures, a plurality of members, one of which is provided with the nose J and the other with the recess K, flanges C on said members having locking devices thereon, the insulating-plate E between said flanges, the insulating-rings F adjacent said flanges, the rings G of metal or other suitable material adjacent said insulating-rings, sleeves D, one of which is adapted to enter the other, said sleeves holding said members in position and means located in the space intermediate said sleeves and flanges for sealing the parts.

595,339. BOILER-FURNACE. AUGUST RANNER, Villisca, Iowa. Filed July 3, 1897. Serial No. 643,415. (No model.)



Claim.—1. In boiler-furnaces, the combination of a furnace having a grate and a coal-magazine above said grate, a follower to press the said coal down upon the grate, and means actuated by the said follower for moving the grate and clearing the same of clinkers and ashes, substantially as described.

2. In boiler-furnaces, the combination of a furnace having a grate, a coal-magazine above the same, and a door for supply of coal to said magazine, a follower in the magazine to press the coal down upon the grate, and mechanism actuated by the said follower to cause the rotation of the grate, substantially as described.

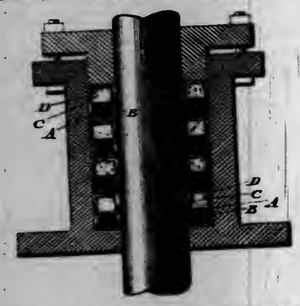
3. In boiler-furnaces, the combination of a furnace having a grate and a coal-magazine above the same, a standard alongside the exterior wall of the furnace, a follower within the coal-magazine and adapted to press the coal down upon the grate, means for effecting the rotation of the grate, and a chain or rope passing around pulleys on the said standard and having one end connected with the said follower and the other end thereof adapted to operate the said grate-rotating mechanism, substantially as described.

4. In boiler-furnaces, the combination of a furnace provided with a coal-magazine and a grate below the same, a coffer closing the top of the furnace and provided with an opening, a standard on the exterior side of the furnace, a follower within the coal magazine to press the coal down upon the grate, a connection between the said standard and the grate for effecting the rotation of the latter, and a chain or cord having one end passed through the said opening in the coffer and connected with the said follower, and the other end thereof passing around pulleys on the said standard and provided with a counterbalancing-weight adapted to effect the operation of the said grate-rotating mechanism, substantially as described.

5. In boiler-furnaces, the combination of the furnace provided

with a coal-magazine and a door for replenishing the same, a coffer-plate closing the opening to the furnace above said magazine and provided with an opening, a grate-support in the ash-box provided with a pivot, a cone-shaped grate formed with an opening at the apex thereof by which it is mounted on said pivot and having a base or rim formed with gear-teeth, a standard extending alongside of the furnace and provided with a cross-shaft projecting through the furnace-wall and having a gear meshing with the teeth on the grate-rim, a weighted follower within the coal-magazine and adapted to press the coal down upon the grate, and a cord or chain passed through the said opening in the coffer-plate and having one end connected with said follower and the other end thereof passed over pulleys on the said standard and connected with the said cross-shaft, whereby a given coal-forcing movement on the part of the follower will effect a corresponding rotating movement of the grate, substantially as described.

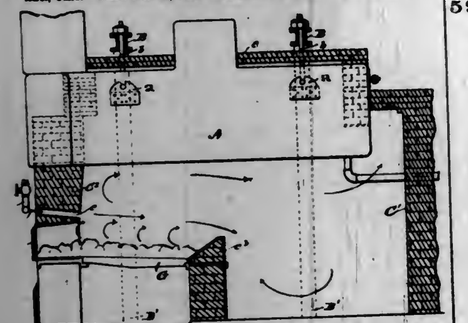
595,340. PACKING. CLEMENT J. RESTEIN, Philadelphia, Pa. Filed Mar 26 1897. Serial No. 629,310. (No model.)



Claim. 1. A packing, composed of sections having their contiguous faces adapted to slide on each other, said sections being composed of materials having different densities, whereby buckling and improper bulging of the sections are prevented, in combination with a cushion of yielding, non-combustible material, said cushion and sections being inclosed in a casing of fibrous material.

2. A packing consisting of the angular sections A and B, said sections being composed of materials of different densities, and a cushion of asbestos located adjacent one of said sections, said cushion and sections being inclosed in a casing of fibrous material.

595,341. STEAM-BOILER FURNACE. CHARLES T. ROGERS, Detroit, Mich., assignor of one-half to George F. Klotter & Co., Cincinnati, Ohio. Filed Mar. 5, 1896. Serial No. 581,899. (No model.)

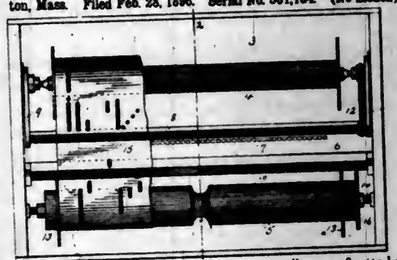


Claim.—1. In a steam-boiler furnace, the combination of a fire-door, a relatively low grate extending rearwardly from the fire-door, a relatively low bridge-wall, an enlarged combustion-chamber in rear of and below the bridge-wall, an air-blast apparatus, arranged above the fire-door to discharge rearwardly above the grate at a downward inclination over and adjacent to the top of the bridge-wall and produce eddies behind and in front of the same, substantially as set forth.

2. In a steam-boiler furnace, the combination of a perforated dead-plate immediately in rear of the fire-door, a relatively low grate extending thence rearwardly with a downward inclination, a relatively low bridge-wall, an enlarged combustion-chamber, in rear of and below the bridge-wall, and a series of air-blast nozzles above the dead-plate, arranged to discharge rearwardly at a downward inclination across and adjacent to the top of the bridge-wall and produce eddies in rear and front of same, substantially as set forth.

3. The improved steam-boiler furnace and setting, embodying a boiler suspended independently between side walls, relatively high above the grate, a grate inclined downwardly, a relatively low bridge-wall, a combustion-chamber in rear of the bridge-wall, and a series of air-inlets through the front wall over the fire-door opening, and steam-jet pipes arranged to discharge in said air-openings and direct the blast downwardly over and adjacent to the top edge of the bridge-wall and produce a downward eddy in the combustion-chamber and eddies in front of the bridge-wall, substantially as set forth.

595,342. MUSICAL INSTRUMENT. WILLIAM H. ROLLINS, Boston, Mass. Filed Feb. 28, 1896. Serial No. 581,184. (No model.)



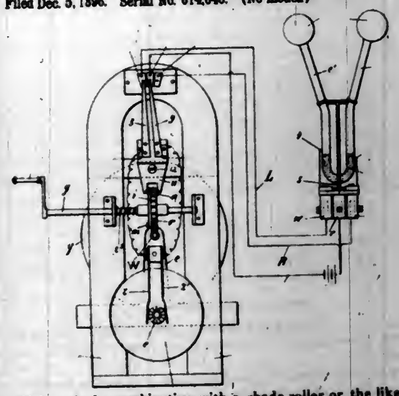
Claim.—1. In a musical instrument, two rolls, a perforated sheet to be coiled and uncoiled about said rolls, and a tracker-board, combined with a tracker-board roll, and mechanism adapted to revolve said roll at a different rate of rotation from that of the movement of the perforated sheet on which said roll rests, substantially as described.

2. The combination with two rolls mechanically actuated, a tracker-board, and a perforated sheet adapted to be alternately coiled about said rolls, of a tracker-board roll longitudinally of the tracker-board and means for rotating said roll, reversely of the movement of the perforated sheet substantially as specified.

3. In a mechanical musical instrument the combination with two rolls, a perforated sheet to be coiled and uncoiled about said rolls, and a tracker-board with tracker-holes therein, of a tracker-board roll to rotate oppositely of the moving sheet, and a belt from the delivery-roll to the tracker-board roll, substantially as stated.

4. In a mechanical musical instrument, a tracker-board, a traveling perforated sheet to cooperate with the tracker-board, and revoluble receiving and delivery rolls, combined with a spindle to support the delivery-roll and having right and left screw-threads at its ends, adjustable caps at the extremities of said rolls, and collars or guides affixed to the caps, all operating substantially as set forth.

595,343. BLIND RAISED OR LOWERED BY MEANS OF ELECTRICITY AND SOLAR RAYS. EUGEN ROTH, Osnabrück, Germany. Filed Dec. 5, 1896. Serial No. 614,646. (No model.)



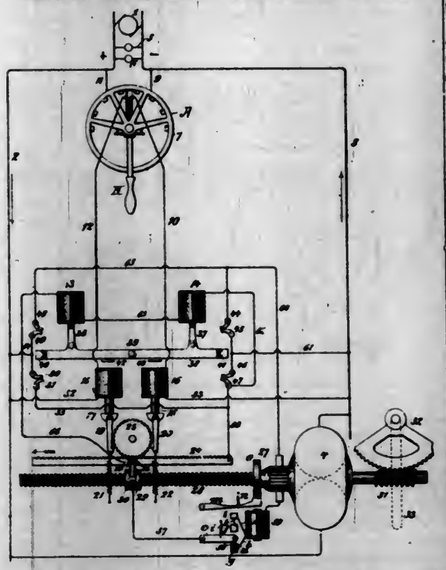
Claim.—1. In combination with a shade-roller or the like, the motor for operating the same, the sunshine-operated circuit-closer comprising the U-shaped tube containing a circuit-closing fluid, the three switch-plates, the circuit-wires extending from said switch-plates to the circuit-closer, and adapted to form two circuits, the switch having electrical connection with the motor and having two arms adapted to contact with two of the switch-plates, and means for automatically

shifting said switch at the limit of the movement of the shade-roller in either direction to reverse the polarity of the armature and field with relation to each other, substantially as described.

2. In combination, the magnet and armature, the driving-shaft operated from said armature, the second shaft operated from said driving-shaft, the switch-shifting device carried by said second shaft, the two-armed switch-piece operated by said shifting device to reverse the polarity of the armature and field with relation to each other, and having electric connections to the armature, the three switch-plates, the sunshine-operated circuit-closer, and the electric connections from the switch-plates to said circuit-closer, substantially as described.

3. In combination, the magnet and armature, the driving-shaft operated from said armature and adapted to be connected to a shade-roller, the second shaft arranged at right angles to the driving-shaft, and the worm on the driving-shaft engaging a worm-wheel on the second shaft, the switch-shifting device carried by said second shaft, the switch operated thereby to reverse the polarity of the armature and field with relation to each other, the switch-plates, the sunshine-operated circuit-closer, and the electric connections from the circuit-closer to the switch-plates, substantially as described.

595,344. CONTROLLING DEVICE FOR ELECTRIC MOTORS. FRANK J. RUSSELL, New York, N. Y., assignor of one-half to Horace See, same place. Filed Apr. 22, 1897. Serial No. 633,234. (No model.)



Claim.—1. The method of controlling an electric motor, which consists in establishing in an electromagnetic circuit-closing device a succession of current impulses corresponding in direction to the deviation of the controlling-lever and thereby causing the armature of said motor controlled by said device to move in a direction corresponding to the direction of said current impulses and to an extent depending upon the number of current impulses, substantially as described.

2. The method of controlling an electric motor, which consists in transmitting to an electric magnetic controlling device the unweakened current on the mains as successive impulses, and thereby causing said controlling device to actuate mechanism to establish circuit from said mains through the motor-armature for a period corresponding to the aggregate number of said impulses, substantially as described.

3. The combination of an electric motor, supply-mains therefor, an electromagnet in circuit with said mains, means for producing successive closings of circuit through said magnet and mechanism actuated by said magnet for establishing circuit in said motor-armature, and causing a definite extent of motion thereof for each closing of circuit through said magnet, substantially as described.

4. The combination of an electric motor, supply-mains therefor, two electromagnets in circuit with said mains, a movable lever, means controlled by said lever for producing successive closings of circuit through one magnet or the other as said lever is deviated to a greater degree in one or the other direction, and mechanism actuated by said magnets respectively for establishing current in said motor-armature in direction corresponding to the deviation of the lever and for uniform periods corresponding to the number of successive closings of circuit, substantially as described.

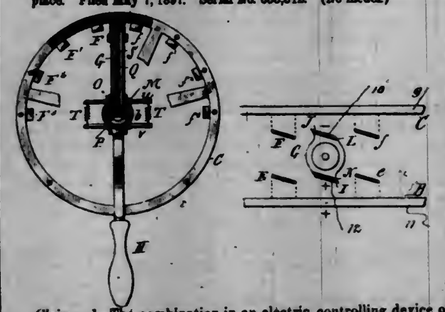
5. The method of electrically controlling or adjusting from a distance a ship's rudder, turret, gun, signal apparatus or other adjustable mechanism by introducing into the circuit of the controlling device of an electric motor actuating said mechanism a succession of current impulses of substantially uniform strength and corresponding in direction to the deviation of the controlling-handle and in number to the extent of said deviation, substantially as described.

6. The combination with an electric motor, supply-mains and a controlling device having a movable lever such as H, an electromagnet 16, two contact-pieces as 26 and 30, a circuit-breaker constructed to break the armature-circuit of said motor when said pieces 26 and 30 are in contact, contact-piece 24, mechanism actuated by said electromagnet for breaking contact between pieces 30 and 26 and establishing contact between pieces 30 and 24, and mechanism actuated by the motor-armature for breaking contact between pieces 30 and 24 and establishing contact between pieces 30 and 26, whereby when said lever H is moved in definite direction circuit is broken through contacts 30 and 26 and closed through contacts 30 and 24, and circuit established through said last-named contacts to the motor-armature, and thereafter through the rotation of said armature-circuit is automatically broken between contacts 30 and 24 and closed through contacts 30 and 26, substantially as described.

7. The combination with an electric motor, supply-mains and a controlling device having a movable lever such as H, of electromagnets 15 and 16, two contact-pieces as 26 and 30, a circuit-breaker constructed to break the armature-circuit of said motor when said pieces 26 and 30 are in contact, contact-bar 24, mechanism actuated by electromagnets 15 and 16 respectively for moving said bar in opposite directions, thereby breaking contact between pieces 30 and 26 and establishing contact between pieces 30 and 24, and mechanism actuated by the motor-armature for moving piece 30 out of contact with bar 24 and into contact with piece 26; whereby when said lever is moved in one direction one magnet as 15 actuates said bar to break contact between pieces 30 and 26 and establish contact between piece 30 and said bar, and when said lever is moved in the other direction, the other magnet as 16 actuates said bar to move in the opposite direction, so that circuit is established through said contacts 30 and 26 and the motor-armature and thereafter through the rotation of said armature said piece 30 is returned into contact with piece 26, substantially as described.

8. The combination with an electric motor supply-mains and a controlling device having a movable lever such as H, of electromagnets 15 and 16, bar 24 of conducting material, mechanism between said bar and said magnets whereby said magnets operate respectively to move said bar longitudinally in opposite directions, insulated contact 26 on said bar, a reversing-switch actuated by said magnets, magnets 13 and 14 acting upon said switch to place same in position to break circuit, mechanism actuated by the armature of said motor for causing said contact 30 to travel along bar 24, and circuit connections, substantially as described.

595,345. ELECTRICAL CONTROLLING MECHANISM. FRANK J. RUSSELL, New York, N. Y., assignor of one-half to Horace See, same place. Filed May 7, 1897. Serial No. 635,512. (No model.)



Claim.—1. The combination in an electric controlling device of two fixed contact-plates F, *f*, movable contact-plate J the faces of said plates being inclined and substantially parallel and a body L of insulating material on one face of plate J, substantially as described.

2. The combination in an electric controlling device of the fixed contact-plates F, E, *f*, *e*, the contact-plates J, I and movable support therefor, the faces of said plates being inclined and substantially par-

allel and the insulating-blocks L, N carried by said support, substantially as described.

3. The combination in an electric controlling device of the spider C, fixed contact-plates as *f*, *f'*, *f²*, &c., secured thereto, contact-plate J, block of insulating material L on one face thereof, and movable arm G supporting said plate J; the said arm when moved in one direction carrying said plate J into contact with said plates *f*, *f'* successively and when moved in return direction carrying said block L into contact with said plates, substantially as described.

4. The combination in an electric controlling device of the spider C, fixed contact-plates *f*, *f'* *f²*, &c., and F, F' F², &c., secured thereto, contact-plate J, block of insulating material L on one face thereof, and movable arm G supporting said plate J, substantially as described.

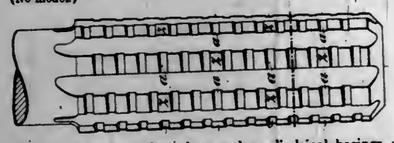
5. The combination in an electric controlling device, of the spiders B and C, fixed contact-plates as E, E', &c., and *e*, *e'*, &c., on spider B, and F, F', &c., and *f*, *f'*, &c., on spider C, contact-plate J, block of insulating material L on one face thereof, contact-plate I, block of insulating material N on one face thereof, and a movable support G for said plates J and I, substantially as described.

6. The combination in an electric controlling device of a contact-plate as F and support therefor, journal D, half-hubs O and P thereon, springs acting upon said hubs to retain them with their opposing faces in juxtaposition, a lever or handle H on half-hub P, a rod G on half-hub O, and a locking device associated with rod G and controlled by lever H and operating to hold said rod G in definite position until after said lever H shall have been moved a predetermined extent, substantially as described.

7. The combination in an electric controlling device of a fixed contact-plate as F, and support therefor, journal D, half-hubs O and P thereon, springs acting upon said hubs to retain them with their opposing faces in juxtaposition, a lever or handle H on half-hub P, a hollow rod G carrying a contact-plate and projecting from half-hub O, a bolt in rod G provided with a spiral spring and adapted to engage with said fixed contact-plate support, and mechanism between said bolt and said half-hub P whereby when said half-hub P is tilted by the movement of said lever, as set forth, said bolt is disengaged from said support, substantially as described.

8. The combination in an electric controlling device of a contact-plate as F and support therefor, journal D, half-hubs O and P thereon, arms *u*, *v*, on said hubs, springs T between said arms *u*, *v*, a lever or handle H on half-hub P, a hollow rod G on half-hub O, a bolt in rod G having its inner end headed and engaging in a cavity in half-hub P, and its outer end protruding from said hollow rod G and adapted to engage with said contact-plate support, and a spiral spring S acting upon said rod to protrude the same; whereby when said half-hub P is tilted by the movement of said lever H, as described, said bolt is disengaged from said support and said rod G by the action of a spring T is moved so as to cause said contact-plate on said rod to meet and pass over said fixed contact-plate, substantially as described.

595,346. REAMER. PAUL SAACKE, Pforzheim, Germany, assignor to Gebrüder Saacke, same place. Filed Oct. 12, 1896. Serial No. 608,594. (No model.)

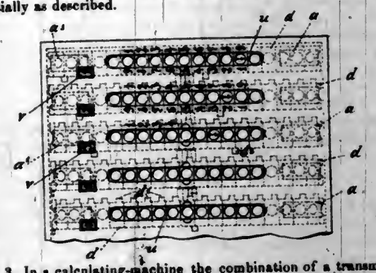


Claim.—A reamer adapted to make cylindrical borings, comprising a body of cylindrical form having cutting-teeth, interrupted by intermediate spaces, the cutting-teeth of one series being displaced with respect to those of the other series so that a cutting-tooth of one series will be opposite a space of the adjacent series, the said teeth being double the width of the spaces lying opposite them and said teeth having a lower slant edge and being arranged in longitudinal rows with grooves running longitudinally of the tool between the teeth, substantially as described.

595,347. CALCULATING-MACHINE. ABRAHAM SCHABADT, Minsk, Russia. Filed Sept. 22, 1896. Serial No. 606,662. (No model.)

Claim.—1. A calculating-machine, consisting of link bands placed side by side and running over rollers *a*, *a'*, said link bands having on one side an uninterrupted row of teeth *d'*, and on the other side transmission-teeth d^2 adjusted to some of the links only; each link *d* of the link bands bearing a numeral of the respective ranks; of devices for stretching the link bands, devices for automatically holding the link bands in place while the figures are being set, and devices for the transmission from a link band of the lower rank to that of the next higher rank substantially as described.

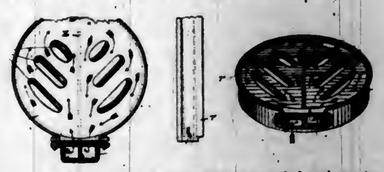
2. In combination, the link bands, the rollers *a a'* over which they pass, said roller *a'* being in the form of a ratchet, and a locking device therefor comprising a roller *f* arranged within the circuit of the band and pressing on the roller *a'*, the block f^3 carrying the roller *f*, the spring push-rod f^4, and the walls *e* and *g* forming guides for the axle of the roller and for the push-rod f^2 respectively, substantially as described.



3. In a calculating-machine the combination of a transmission device consisting of a small toothed wheel *b*, loosely journaled and displaceable on a horizontal axle, a spring *m* keeping said toothed wheel *b* out of gear with the teeth *d'*, two bent levers *c* rocking on vertical axles *c'*, one leg c^2 of which levers is in touch with *b* and the other leg c^3 is in the way of a projection d^3 at the link bands, both legs c^2 in touch with *b*, facing each other, substantially as described and for the purpose as stated.

4. In combination in a calculating-machine, the link bands, the continuous row of teeth *d'* on one band, the transmission-teeth d^2 on the other band, and transmitting means between the bands comprising the toothed wheels, substantially as described.

595,348. WATER-HEATER. OLIVER SCHLEMMER, Cincinnati, Ohio. Filed Jan. 9, 1897. Serial No. 618,663. (No model.)



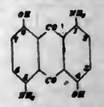
Claim.—1. A section for a water-heater of the character indicated, embodying a shallow cylinder divided nearly across by a diametrical partition separating the exit-port from an adjacent inlet-port occupying different levels, thus producing a return-passage of continuous upward inclinations from front to rear and from rear to front, said passage being pierced by vertical smoke-flues dividing the water-passage, substantially as set forth.

2. In a water-heater of the character indicated the combination of lateral heating-sections with inlet and outlet orifices independently adjacent at one side, and a partitioned distributing-casing connecting all the receiving-posts of the sections in one channel and all the discharge-posts of the sections in a second channel, both channels communicating with the circulating-pipe of the distributing system, substantially as set forth.

3. In a water-heater of the character indicated, the combination of a series of superimposed water-heating sections each having adjacent inlet and outlet ports at different levels and a return water-passage inclined upwardly from the inlet-port to the rear and from the rear to the outlet-port, and a vertical shell covering all of said ports and constituting a single water-distributing column, substantially as set forth.

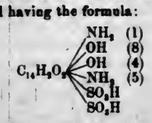
595,349. ANTHRARUFIN DYE. ROBERT E. SCHMIDT, Elberfeld, Germany, assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Aug. 11, 1897. Serial No. 647,910. (Specimens.)

Claim.—1. The process for producing a blue-alizarin dyestuff, being the disulfo-acid of paradiamidoanthrarayn having the formula:



which process consists in treating paradinitroanthrarufin-disulfo-acid with reducing agents such as stannous chlorid and hydrochloric acid, substantially as described.

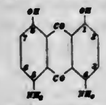
2. As a new article of manufacture the blue-alizarin dyestuff hereinbefore described having the formula:



being a dark-blue powder, readily dissolving in water with a pure blue color from which solution it is precipitated by the addition of strong acids, soluble in diluted soda-lye with a pure greenish-blue color, in concentrated sulfuric acid with a yellow color the color of the sulfuric-acid solution changing into greenish blue on the addition of boric acid, the solution exhibiting in this state a characteristic absorption spectrum, dyeing unmordanted wool in acid-baths intense pure and even blue shades, yielding on chromium mordants even greenish-blue shades which are fast to light and to fulling, substantially as described.

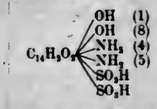
595,350. BLUE DYE FROM CHRYSAZIN. ROBERT E. SCHMIDT, Elberfeld, Germany, assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Aug. 11, 1897. Serial No. 647,911. (Specimens.)

Claim.—1. The process for producing a blue alizarin dyestuff, being a disulfo-acid of the paradiamidochrysazin having the formula



which process consists in treating chrysazin with sulfonating agents, such as fuming sulfuric acid of twenty per cent. SO_3, and then subjecting the thus obtained disulfo-acid of chrysazin to agents of nitration, such as a mixture of concentrated sulfuric and concentrated nitric acid, and finally converting the produced disulfo-acid of dinitrochrysazin into the disulfo-acid of diamidochrysazin by agents of reduction, such as stannous chlorid and muriatic acid, substantially as described.

2. As a new article of manufacture the alizarin dyestuff hereinbefore described having the formula:



representing, when dry, a dark-violet powder with a copper-like luster, soluble in water with comparative ease, being precipitated from the watery solution by adding mineral acids, soluble in concentrated hydrochloric acid with a yellow color from which solution it is precipitated by the addition of water, soluble in concentrated sulfuric acid with a yellow color which is not changed on the addition of boric acid, soluble in alkalies with a pure greenish blue color, insoluble in glacial acetic acid and in benzene, dyeing wool in acid-baths beautiful even and fast-blue shades and yielding on chrome mordanted fibers greenish-blue shades substantially as described.

595,351. CAR-COUPLING. THOMAS H. SIMPSON, Detroit, Mich. Filed Aug. 20, 1897. Serial No. 648,915. (No model.)



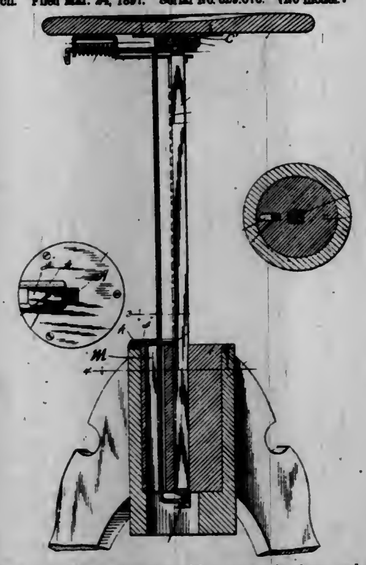
Claim.—1. A draw-bar or coupler head constructed with a mouth, and with double walls on each side of the mouth to strengthen the head, the inner of said walls extending continuously from the forward portion of the outer wall to the rear thereof, for the purpose set forth.

2. A draw-bar or coupler head constructed with a mouth and provided with double walls on each side the mouth, the inner of said walls extending continuously and unbroken from the forward portion of the corresponding outer wall inward and rearward to the rear of the corresponding outer wall of the head, substantially as set forth.

3. A draw-bar or coupler head constructed with a mouth, and with double walls on either side of the mouth, said double walls united by a horizontal connecting diaphragm or brace intermediate the top and bottom of said walls, for the purpose set forth.

4. A draw-bar or coupler head constructed with a mouth and provided with double walls on each side of the mouth, the double walls on each side the mouth united by an inner horizontal connecting diaphragm or brace interhediate the top and bottom of said walls, for the purpose set forth.

595,352. STOOL OR CHAIR. JOSEPH W. SHELL, Jr., Bay Port, Mich. Filed Mar. 24, 1897. Serial No. 629,076. (No model.)



Claim.—1. The combination with a supporting-base, and a serrated standard vertically movable thereon and supporting a top such as a stool or chair seat, of a vertical rod pivoted at its lower end to said standard, a horizontally-movable pull-lever engaged with the upper end of said rod, means for normally retaining said rod in proximity to said standard, and a detent sliding in guides in said base and controlled in its movement by said rod for engaging with the serrations in said standard and to retain the same in any adjusted position, substantially as described.

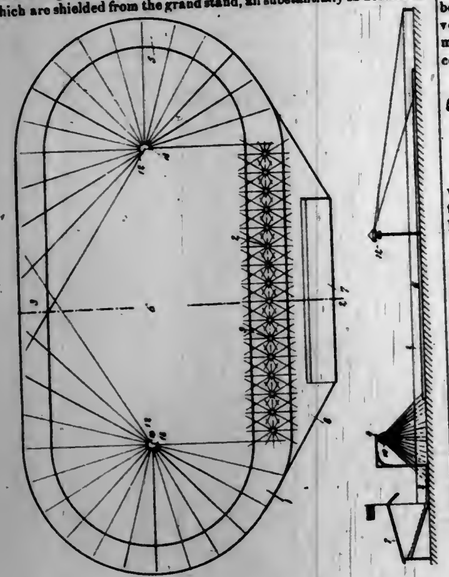
2. The combination with a supporting-base, a serrated standard vertically movable therein and supporting a top such as a stool or chair seat, and a horizontal arm or bracket supported by said standard near its upper end, of a vertical rod pivoted at its lower end to said standard, a pull-lever movable in said arm or bracket and pivoted to the upper end of said vertical rod, a spring engaged with said pull-lever for normally retaining said vertical rod in proximity to said serrated standard, and a detent sliding in guides in said base and controlled in its movement by said vertical rod for engaging with the serrations in said standard to retain the same in any adjusted position, substantially as described.

595,353. DEVICE FOR LIGHTING RACE-TRACKS. ERNEST G. SOLOMON and LORENZO V. MORSE, Omaha, Nebr. Filed Dec. 5, 1896. Serial No. 614,648. (No model.)

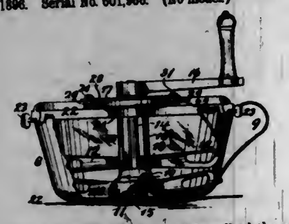
Claim.—1. An apparatus for illuminating a race-track or the like consisting of a reflective wall located along the outer edge of the track, a series or cluster of lights arranged to illuminate the opposite ends and the back-stretch of the track within the reflective wall, means located at the sides of the lights to prevent radiation of light upon the home-stretch, and a series of lights arranged along the home-stretch, the direct rays of which are shielded from the grand stand, all substantially as specified.

2. An apparatus for illuminating a race-track or the like consisting of a reflective wall located along the outer edge of the track, a series or cluster of lights arranged in an arc concentric with the turns at the opposite ends of the track within the reflective wall, means located at the sides of the lights to prevent radiation of light upon the home-stretch, and a series of lights arranged along the home-stretch, the direct rays of which are shielded from the grand stand, all substantially as specified.

3. An apparatus for illuminating a race-track or the like, consisting of a reflective wall arranged in a substantially elliptical form and closely surrounding the track, series or clusters of lights arranged in arcs concentric with the turns at the opposite ends of the track and within the reflective wall, opaque plates located at the sides of the lights to prevent radiation of light upon the home-stretch, and a series of lights arranged along the home-stretch, the direct rays of which are shielded from the grand stand, all substantially as described.



595,854. MIXER. BERNARD J. SPILKER, Cincinnati, Ohio. Filed Aug. 7, 1896. Serial No. 601,966. (No model.)



Claim.—1. In a mixer of the kind described the combination of a vessel, a frame having a central circular bearing 21 and arms 22 reaching to the upper edge of the vessel thereby supporting the frame, an internal gear-wheel 17 closed on its under side and having a hub 19 projecting therefrom and fitted into bearing 21, a central shaft 14 fitted into a central opening through the closed side of gear-wheel 17, a plate 28 which covers the open side of the latter and is fixedly secured to the frame, a pinion 24 on shaft 14, an intermediate gear-wheel 26, a stud 27 depending from plate 28 to hold it in place, gear-wheel 26 being in mesh with pinion 24 and gear-wheel 17 for the purpose of transmitting motion from the former to the latter, an operating-handle on shaft 14 and beaters connected to the latter and to the hub of wheel 17.

2. In a mixer of the kind described, the combination of a vessel, a frame having a central circular bearing 21 and arms 22 reaching to the upper edge of the vessel thereby supporting the frame, lugs depending from arms 22 and screws 23 whereby to secure the frame to the vessel, an internal gear-wheel 17 closed on its under side and having a hub 19 projecting therefrom and fitted into bearing 21, a central shaft 14 fitted into a central opening through the closed side of gear-wheel 17, a plate 28 which covers the open side of the latter and projecting in part beyond it, bosses 29 on the frame upon which these projecting parts rest and to which they are secured by screws, a pinion 24 on shaft 14, an intermediate gear-wheel 26, a stud 27 depending from plate 28 to hold it in place, gear-wheel 26 being in mesh with pinion 24 and gear-wheel 17 for the purpose of transmitting motion from the former to the latter, an operating-handle on shaft 14, a set of beaters connected to the lower end of the latter, another set of beaters above the set first mentioned and rods 18 connecting the latter set to the hub of internal gear-wheel 17.

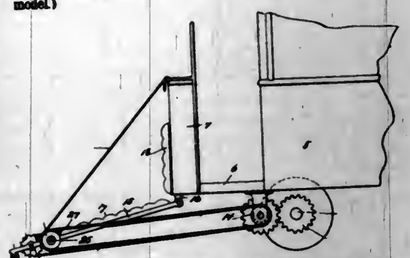
3. In a mixer of the kind described, the combination of a vessel, an internal gear-wheel supported centrally above the former by means of a frame resting upon the edges of the vessel, a centrally-supported operating-shaft having an operating-handle and passing loosely through the center of the internal gear-wheel which forms its upper bearing, a lower bearing secured to the center of the bottom of the vessel, a pinion on the operating-shaft, an intermediate gear for transmitting the motion from the pinion to the internal gear and beaters connected to the latter and to the operating-shaft.

595,855. PYROXYLIN COMPOUND. JOHN H. STEVENS, Newark, N. J., assignor to The Celluloid Company, New York, N. Y., a Corporation of New Jersey. Filed May 11, 1892. Serial No. 432,597. (No specimens.)

Claim.—1. The art of manufacturing pyroxylin compounds which consists in treating pyroxylin with one or more members of the herein-described group of ketones beginning with methyl-ethyl ketone, substantially as described.

2. A pyroxylin compound consisting of pyroxylin and one or more members of the group of herein-described ketones beginning with methyl-ethyl ketone, substantially as described.

595,856. FENDER OR GUARD FOR TRAM-CARS. OWEN A. SUTHERLAND, Keeler, Cal. Filed July 3, 1897. Serial No. 643,331. (No model.)



Claim.—1. The combination with the shaft or axle of a car, of a gear-wheel mounted thereon, a supplemental shaft mounted in front of said shaft or axle, and provided with a gear-wheel, and with sprocket-wheels at its opposite ends, a fender or guard pivotally suspended from beneath the platform of the car, and provided at its front end with a roller, the shaft of which is provided with a sprocket-wheel which is geared in connection with one of the sprocket-wheels on the supplemental shaft, and a supplemental roller mounted in the rear of the first-named roller, and the shaft of which is also provided with a sprocket-wheel which is geared in connection with one of the sprocket-wheels, on the supplemental shaft, substantially as shown and described.

2. The combination with the shaft or axle of a car, of a gear-wheel mounted thereon, a supplemental shaft mounted in front of said shaft or axle, and provided with a gear-wheel, and with sprocket-wheels at its opposite ends, a fender or guard pivotally suspended from beneath the platform of the car, and provided at its front end with a roller, the shaft of which is provided with a sprocket-wheel which is geared in connection with one of the sprocket-wheels on the supplemental shaft, and a supplemental roller mounted in the rear of the first-named roller, and the shaft of which is also provided with a sprocket-wheel which is geared in connection with one of the sprocket-wheels on the supplemental shaft, and means for supporting the front end of the fender or guard, substantially as shown and described.

3. The combination with the forward end of the platform of a car, of a fender or guard pivotally suspended beneath the same, and provided with supports for the front end thereof, rollers mounted in the front end of said fender or guard, the shafts of which are provided at opposite ends with sprocket-wheels, a supplemental shaft mounted in front of one of the shafts or axles of the car, and geared in connection therewith said supplemental shaft being provided at its opposite ends with sprocket-wheels which are geared in connection with those on said rollers, substantially as shown and described.

595,857. MACHINE FOR WORKING CLAY, &c. GEORGE B. TAYLOR, Austin, Minn., assignor of one-half to Fay B. Smith, same place. Filed Oct. 15, 1896. Serial No. 609,008. (No model.)

Claim.—1. A machine for working clay, comprising a plurality of grate-rings, a shaft located within the rings, a plurality of cutters carried by the shaft, each cutter having a portion adapted to work between the said rings and an inclined face for imparting longitudinal movement to the clay, a hopper at one end of the machine, and a discharge-gate at the opposite end, substantially as described.



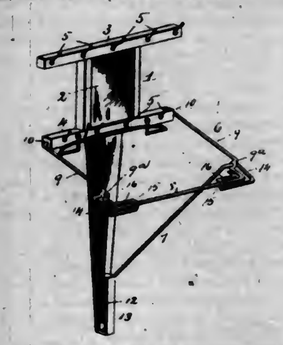
2. A machine for working clay, comprising a plurality of grate-rings, a shaft located within the rings, a plurality of cutters carried by the shaft, each cutter having its outer end adapted to work between the grate-rings and its intermediate portion beveled on one side, a hopper at one end of the machine, and a discharge-gate at the opposite end, substantially as described.

3. A machine for working clay, comprising a plurality of grate-rings rigidly supported upon a frame, a head arranged at each end of the frame and closing the end grate-rings, a shaft journaled in the heads and located within the grate-rings, knives or cutters carried by the shaft and having their outer ends adapted to work between the grate-rings and their intermediate portions to constitute, at once, cutters and transmitters, a hopper at one end of the machine, and a discharge-gate at the opposite end, substantially as described.

4. A machine for working clay, comprising a plurality of grate-rings supported upon a suitable frame and having their lower portions reduced, heads for closing the end grate-rings, one of said heads being provided with an escape-opening, a shaft journaled in the heads and located within the grate-rings, a plurality of knives or cutters carried by the shaft, and having their extremities adapted to work between the grate-rings and their intermediate portions formed to constitute cutters and transmitters, a hopper at one end of the machine, and a gate loosely mounted on the shaft, and having an opening adapted, when in one position, to register with the opening in the head at the discharge end of the machine, and, when moved to another position, to close the said opening, substantially as described.

5. As a new article of manufacture, a cutter for clay-working machines, comprising a hub and a blade, the outer extremity of the latter being substantially rectangular in cross-section, and the intermediate portion approximately a right-angle triangle in cross-section—that is to say, having one flat face and one beveled face, substantially as described.

595,858. COAT-SUPPORT. JAMES D. WATTS, Florence, Ala. Filed Dec. 23, 1896. Serial No. 616,801. (No model.)

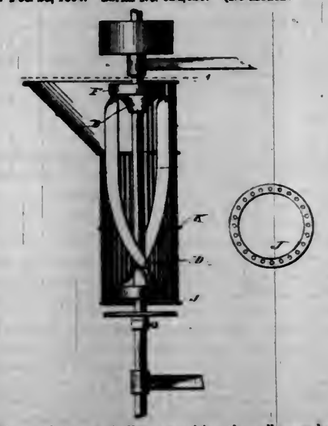


Claim.—1. The herein-described support, consisting of a frame pivotally connected to a fixed support, and a second frame connected pivotally to the first-named frame and having its opposite end arranged to engage directly with a rack, the said frames being provided adjacent to their point of connection with opposing portions adapted to engage with a coat-collar, substantially as and for the purpose described.

2. A coat-support, consisting of two wire frames, one of said frames being substantially U-shaped or three-sided and pivotally connected to a fixed support, the other frame being substantially V-shaped and having its extremities embracing the central or connecting portion of the first frame, and a rack for engaging the lower end or vertex of the lower frame, the two frames being so related as to form opposing portions or jaws adapted to grip an article of wearing-apparel and suspend the same, substantially as and for the purpose described.

3. The herein-described coat-support comprising a substantially U-shaped wire frame pivoted to a fixed support, a V-shaped wire frame having its terminals bent to embrace the free end of the pivoted frame, and provided at its lower end or vertex with a bend or offset forming a catch, and a rack with which said catch is adapted to engage for regulating the position of said frames, the connecting portions of said frames forming opposing jaws adapted to engage with and support a coat or other garment, substantially as described.

595,859. CORN-SHELLER. CHARLES A. WHITE, Towanda, Ill. Filed Feb. 23, 1897. Serial No. 624,629. (No model.)



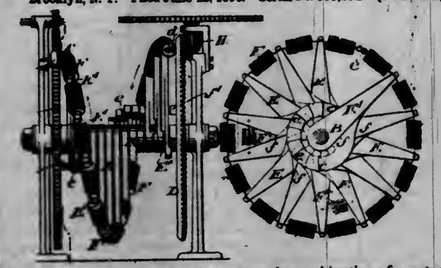
Claim.—1. A corn-sheller comprising the collars or hubs carried thereby, the slots in the periphery of the same, and the blades or bars curved as described and adapted to have their ends secured therein as set forth.

2. A corn-sheller consisting of the shaft carrying the hubs or collars on their rear portions, the slots formed therein as described, the curved blades or bars having the reduced ends to enter the said slots and a band surrounding said hub or collar, for the purpose set forth.

3. A corn-sheller consisting of the shaft carrying the collars or hubs at its ends, the slots formed on the outer periphery as described, the curved blades or bars provided with the twisted and reduced ends adapted to enter the slots of the hub or collar, and a band surrounding said collar and the ends of the curved bar resting in the slots for the purpose set forth.

4. A corn-sheller consisting of the shaft carrying the collars or hubs formed integral near the end portions thereof and provided with the slots, the curved bars or blades having the twisted and reduced ends, the flattened or reduced ends being adapted to enter said slots, and a band surrounding the hub or collar to hold the blades in the desired position, substantially as set forth.

595,860. ROTARY SPRING-MOTOR. MICHAEL H. WILSON, Brooklyn, N. Y. Filed June 12, 1896. Serial No. 595,254. (No model.)



Claim.—1. In a rotary spring-motor, the combination of a motor-shaft, a winding device and a power-transmitting device upon said shaft, and a helical spring connected with said winding and power-transmitting devices and having the axis of its primary helix arranged in the form of a secondary helix around said shaft between said devices, substantially as herein described.

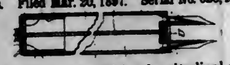
2. In a rotary spring-motor, the combination of a shaft, a series of separate spring-carriers arranged side by side along the said shaft to turn separately thereon, and spring-sections arranged between and

connected with the adjacent carriers of the series to form a spring-train running around the said shaft in spiral relation thereto, substantially as herein described.

3. In a rotary spring-motor, the combination of a shaft, a winding-gear and a power-transmitting gear arranged independently on said shaft, spring-carriers arranged side by side along the said shaft to turn separately thereon, and coil-spring sections arranged between and alternating with said carriers and between said gears and their adjacent spring-carriers with the axes of their coils transverse to the said shaft and connected to said carriers and gears, substantially as herein described.

4. In a rotary spring-motor, the combination of a shaft, spring-carriers arranged side by side along said shaft to turn separately thereon, spring-sections interposed between and alternating with and connected to said carriers with their length transverse to the shaft, means for turning said carriers on the shaft to apply tension to said spring-sections, and stops on said carriers to check the said spring-sections at a maximum limit of tension, substantially as herein described.

595,361. FOUNTAIN-PEN. THOMAS ANDREW, Sydney, New South Wales. Filed Mar. 20, 1897. Serial No. 628,497. (No model.)



Claim.—1. In combination with a longitudinal reservoir having a partition forming two chambers lying side by side, an independent nib for each chamber both located at the same end of the pen means for controlling the vent to the chambers and means for controlling the escape of ink from the chambers to the nibs whereby the ink may be supplied to the nibs independently and alternately as desired.

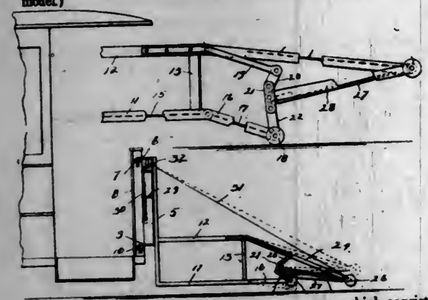
2. In combination with a reservoir having a partition forming two chambers, a pair of nibs at the same end of the reservoir facing in different directions whereby upon turning the reservoir in the fingers the different nibs may be brought into action successively.

3. In combination the reservoir having the partition forming the two chambers, the two nibs therefor both arranged at the same end of the pen and facing in different directions and arranged at different radial points about the axial line of the pen, and the feed-tubes extending from the chambers to the nibs, substantially as described.

4. In a reservoir pen, provided with a divided chamber adapted to store two different kinds of writing fluids and having two writing-nibs, and feeding-tubes a feed regulating, device consisting of an S-shaped piece, the ends of which pass through said feeding-tubes, and control the alternate passage of the fluid through the tubes, substantially as described.

5. In a reservoir-pen the combination with the reservoir-tube, of two writing-nibs, and feeding-tubes, a cap provided with feed-holes, and a revolving disk placed on top of said cap and provided with vent-holes, and a feed-hole to admit of a passage of air or writing fluids into said divided reservoir, substantially as herein described.

595,362. FENDER OR GUARD FOR TRAMWAY-CARS. JOHN F. AYERS, Alloway, N. J. Filed Apr. 7, 1897. Serial No. 630,311. (No model.)



Claim.—1. A fender or guard for tramway-cars which consists of a main frame provided with upright side bars, by which it is connected with the dashboard, said main frame or the forward portion thereof being provided at the top and bottom and at each side with pivoted bars which project forwardly, the bottom bars being connected by a cross-plate, and the forward ends of said pivoted bars at each side being connected by separate links, and a supplemental frame which is pivotally connected with the forward part of the main frame, at the top thereof, and which projects forwardly of said pivoted bars, and said supplemental frame being also provided at its forward end with backwardly-directed side bars which are pivotally connected therewith, and with said links, substantially as shown and described.

2. A fender or guard for tramway-cars which consists of a main frame provided with upright side bars, by which it is connected with the dashboard, said main frame or the forward portion thereof being provided at the top and bottom and at each side with pivoted bars which project forwardly, the bottom bars being connected by a cross-plate, and the forward ends of said pivoted bars at each side being connected by separate links, and a supplemental frame which is pivotally connected with the forward part of the main frame, at the top thereof, and which projects forwardly of said pivoted bars, and which is provided at its forward end with a backwardly-directed elastic spring plate or frame which is secured thereto, and said supplemental frame being also provided at its forward end with backwardly-directed side bars which are pivotally connected therewith, and with said links, and cords, ropes or similar devices which are connected with the forward portion of said supplemental frame, and carried backwardly, and passed over pulleys, and the ends of which are connected with spring-depressed bolts, substantially as shown and described.

3. A fender or guard for tramway-cars, comprising a main frame, which consists of two side portions provided with upright bars by which it is connected with the dashboard, said main frame being provided with a bottom portion and the back thereof with a cross-plate, and said main frame being also provided at each side, and at the forward end thereof with top and bottom bars, which are pivotally connected therewith, and which project forwardly, said bottom bars being also connected by a bottom portion or plate, and being provided at their forward ends with rollers, and said top and bottom bars at each side being connected by separate links, and a supplemental frame which is pivotally connected with the forward upper portion of the main frame, and which projects forwardly of said pivoted bars, and the forward end of which is provided with side bars which are pivotally connected therewith, and with said links, substantially as shown and described.

4. A fender or guard for tramway-cars, comprising a main frame, which consists of two side portions provided with upright bars by which it is connected with the dashboard, said main frame being provided with a bottom portion and the back thereof with a cross-plate, and said main frame being also provided at each side, and at the forward end thereof with top and bottom bars, which are pivotally connected therewith, and which project forwardly, said bottom bars being also connected by a bottom portion or plate, and being provided at their forward ends with rollers, and said top and bottom bars at each side being connected by separate links, and a supplemental frame which is pivotally connected with the forward upper portion of the main frame, and which projects forwardly of said pivoted bars, and the forward end of which is provided with side bars which are pivotally connected therewith, and with said links, substantially as shown and described.

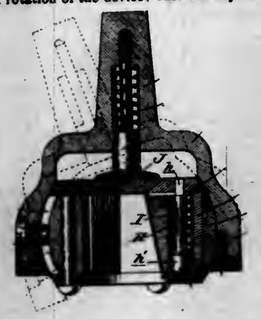
5. A fender or guard for tramway-cars, comprising a main frame, which consists of two side portions provided with upright bars by which it is connected with the dashboard, said main frame being provided with a bottom portion and the back thereof with a cross-plate, and said main frame being also provided at each side, and at the forward end thereof with top and bottom bars, which are pivotally connected therewith, and which project forwardly, said bottom bars being also connected by a bottom portion or plate, and being provided at their forward ends with rollers, and said top and bottom bars at each side being connected by separate links, and a supplemental frame which is pivotally connected with the forward upper portion of the main frame, and which projects forwardly of said pivoted bars, and the forward end of which is provided with side bars which are pivotally connected therewith, and with said links, and the forward portion of said supplemental frame being also provided with rollers, and with cords or similar devices which extend therefrom upwardly and backwardly, to the rear portion of the upright bars by which the main frame is connected with the dashboard, substantially as shown and described.

595,363. CHUCK. LA ROY BARTLETT, St. Louis, Mo. Filed May 24, 1897. Serial No. 637,909. (No model.)

Claim.—1. In a chuck, the combination with a suitable casing, of a universal jaw-block carrying gripping-jaws, and means which constantly exercise a tendency to keep said jaw-block in line with the axis of rotation of the chuck; substantially as described.

2. In a chuck, the combination with a suitable casing, of a jaw-block arranged therein and having a universal connection with said casing, and gripping-jaws rotatably mounted in said jaw-block, the gripping-faces of said jaws being eccentrically disposed to the axis of rotation thereof, and arranged on an incline relative to said axis of rotation of the jaws; substantially as described.

3. In a chuck, the combination with a suitable casing, of a jaw-block universally mounted therein, gripping-jaws yieldingly mounted in said jaw-block, and a bearing-block which yieldingly presses against the rear face of said jaw-block for normally holding the same in line with the axis of rotation of the device; substantially as described.



4. In a chuck, the combination with a suitable casing, of a jaw-block formed with a central aperture and pockets or wells, a back plate, a front ring, gripping-jaws arranged in said pockets or wells and between the back plate and ring; and springs cooperating with said gripping-jaws for normally holding them open substantially as described.

5. In a chuck, the combination with a suitable casing, of a jaw-block having a central aperture, gripping-jaws arranged in pockets around said aperture and projecting into said central aperture, and torsional springs engaging said gripping-jaws, said springs tending to normally keep said jaws open; substantially as described.

6. In a chuck, the combination with a suitable casing, of a jaw-block formed with a central aperture and pockets or wells around said aperture, apertured gripping-jaws arranged in said pockets, spindles passing through the apertures in said gripping-jaws, torsional springs engaging the spindles and gripping-jaws, and a back plate, in which said spindles are fixedly mounted; substantially as described.

7. The combination with a suitable casing, of a universal jaw-block mounted therein, transversely-disposed grooves in the periphery of said jaw-block, a ring I threaded into the front end of the casing to hold said jaw-block in place, screws passing through the casing and ring to present independent rotary movement thereof, and projections on said screws which extend into said grooves; substantially as described.

8. In a chuck the combination with a suitable casing, of a universal jaw-block mounted therein, a threaded ring for holding said jaw-block in position, screws which engage said ring and casing to prevent the ring from unscrewing, grooves in the periphery of said jaw-block, projections of the screws which fit into said grooves, a back plate forming an end wall of said grooves, and a front ring forming a front wall of said grooves; substantially as described.

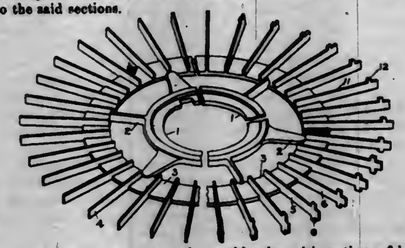
9. In a chuck, the combination with a suitable casing, of a universal jaw-block mounted therein, a notched threaded ring for holding said jaw-block in position, screws passing through the casing and engaging the notches on said ring, yielding gripping-jaws carried by said jaw-block, grooves in the periphery of said jaw-block, a back plate for closing the rear end of said grooves, a ring for closing the front end of said grooves, projections which extend into said grooves for causing the rotation of said jaw-block with the casing and preventing its displacement, and a spring-pressed block having a flat face for engaging the back plate, said flat face tending to constantly keep the bearing block in line with the axis of rotation of the casing; substantially as described.

595,364. SPACE-BLOCK FOR ARMATURE-CORES. ASA F. BATCHELDER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Sept. 16, 1897. Serial No. 651,731. (No model.)

Claim.—1. A space-block for armature-cores, consisting of an internal support or spider, a circumferential ring mounted on the arms of the spider, and radial arms consisting of thin strips of metal mounted on said circumferential ring, as set forth.

2. A space-block for armature-cores, consisting of an internal support or spider, a circumferential ring mounted on the arms of the spider, and radial arms consisting of thin strips of metal mounted on said circumferential ring and having lateral projections adjacent to their outer ends, as set forth.

3. In an armature-core, the combination with sections of built-up laminæ, of a space-block consisting of an internal support or spider, a circumferential ring mounted on the arms of the spider, and radial arms consisting of thin strips of metal mounted on said circumferential ring, the space-block being located between two sections of built-up laminæ, and the radial arms being secured at their outer ends to the said sections.



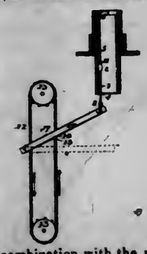
4. In an armature-core, the combination with sections of built-up laminæ, of a space-block located between two sections of built-up laminæ, the laminæ adjacent to the space-block being provided with slots, and the space-block consisting of an internal support or spider, a circumferential ring mounted on the arms of the spider, and radial arms consisting of thin strips of metal mounted on the circumferential ring and having lateral projections adjacent to their outer ends, engaging the slots in the laminæ adjacent to the space-block, as set forth.

5. A space-block for armature-cores, consisting of an internal support or spider, a flat ring mounted on the arms of the spider, and radial arms consisting of thin metallic strips mounted on the flat ring, as set forth.

6. In an armature-core, the combination with sections of built-up laminæ having radial arms forming a toothed structure, of a space-block consisting of an internal support or spider, a circumferential ring mounted on the arms of the spider, and radial arms consisting of thin strips of metal mounted on said circumferential ring, the space-block being located between two sections of built-up laminæ, and its radial arms corresponding in number to and in alinement with the radial arms of the built-up laminæ, as set forth.

7. In an armature-core, the combination with sections of built-up laminæ having radial arms forming a toothed structure, of a space-block consisting of an internal support or spider, a circumferential ring mounted on the arms of the spider, and radial arms consisting of thin strips of metal mounted on said circumferential ring, the space-block being located between two sections of built-up laminæ and its radial arms corresponding in number to and secured to and in alinement with the radial arms of the built up laminæ, as set forth.

595,365. HEEL-HOOK FOR KNITTING-MACHINES. ADOLPH BOEHMER, Rockford, Ill. Filed Jan. 19, 1893. Serial No. 459,009. (No model.)



Claim.—1. The combination with the needle-cylinder of a circular-knitting machine, of a single-heel tension device engaging the center of the heel-web upon the outside of the same as it is being knit, whereby a tension is exerted upon the needles in operation from the device as a center, substantially as described.

2. The combination with the needle-cylinder of a circular-knitting machine, of a single-heel tension-hook engaging the center of the heel-web on the outside of the same as it is being knit, whereby a tension is exerted upon the needles in operation from the hook as a center, substantially as described.

3. The combination with a needle cylinder having a support and a guide for a heel-hook secured to the inner side of the same, of a heel-hook engaging said support and guide, the said construction including provisions for throwing the heel-hook toward the center of the cylinder to engage the outside of the stocking and to cause the same to clear the support and guide as it descends, substantially as described.

4. The combination with a needle-cylinder having a support and guide for a heel-hook secured to the inner side of the same, of a heel-

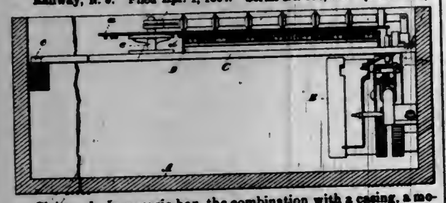
hook engaging said support and guide said heel-hook being provided with means engaging said guide whereby it is forced toward the center of the cylinder in passing said guide, substantially as described.

5. The combination with the heel-hook for a knitting-machine having the pin extending on opposite sides of the shank of the hook, of means for elevating the hook and the guide for giving the hook a lateral movement, substantially as described.

6. The combination with the heel-hook for a knitting-machine having a pin extending on opposite sides of the shank of the hook, of the bracket through which the shank passes, means for elevating the hook and the guide for giving a lateral movement to the hook, substantially as described.

7. A hook for knitting-machines provided with teeth near its upper end, a collar near its lower end, and a pin through the shank portion, a grooved incline and guideways secured to the needle-cylinder, a pivoted lever, and an endless chain provided with a projection which engages the pivoted lever.

595,866. MUSICAL INSTRUMENT. GUSTAV A BRACHHAUSEN, Rahway, N. J. Filed Apr. 1, 1897. Serial No. 630,239. (No model.)



Claims.—1. In a music-box, the combination with a casing, a motor secured thereto and a bed-plate with a sounding device supported thereon, said bed-plate being wholly supported by the motor at one end and by the casing at the other end, whereby the bed-plate is free to vibrate intermediate of its ends.

2. In a music-box, the combination with a casing, a motor secured thereto and a bed-plate with a sounding device and its operating mechanism supported thereon, said bed-plate being wholly supported by the motor at one end and by the casing at the other end, whereby the said bed-plate is free to vibrate intermediate of its ends.

3. In a music-box, the combination with a casing, a motor secured thereto, a bed-plate with a sounding device supported thereon, a note-disk and means for securing the same in operative position, said note-disk and the securing means therefor being supported by the bed-plate, said bed-plate being wholly supported by the motor at one end and by the casing at the other end, whereby the bed-plate is free to vibrate intermediate of its ends.

595,867. JOINT FOR ELECTRIC CABLES. WILLIAM M. BROWN, Johnstown, Pa. Filed Aug. 10, 1897. Serial No. 647,669. (No model.)



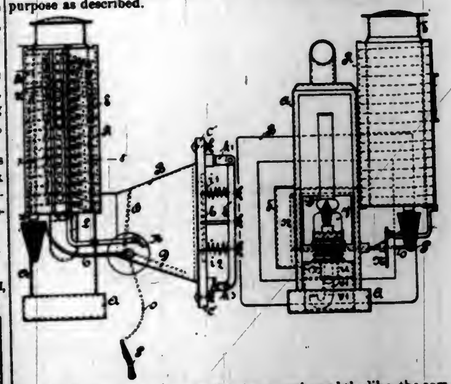
Claim.—1. A T for electric cables comprising, in combination, a central member surrounding and secured about naked portions of the cables, insulating material surrounding the said central member and naked portions and a metal covering surrounding said insulators.

2. A T for electric cables comprising a metallic T-core uniting the naked ends of the cables, in combination with insulating material and a cover of soft metal for protecting the core and said naked ends.

3. As a new article of manufacture, a soft-metal T inclosing short sections of conductors and insulating material between said conductors and the metal shell the naked ends of each of said conductors extending beyond the edges of the metal shell.

595,868. TIMING APPARATUS FOR PHOTOGRAPHIC PRINTING. EMIL BÜHLER, Schriesheim, Germany. Filed July 27, 1897. Serial No. 646,108. (No model.)

Claim.—1. In a copying apparatus for photographs and the like, the combination with a casing; a lamp arranged within said casing; another casing located in front of the burner of said lamp; a flap arranged in said other casing; and adapted to keep the light emitted by the lamp off the other casing; a third casing forming a spiral way; a ball adapted to roll down upon said spiral way, and a lever connected to said flap, and extending below the exit of the spiral way, for the purpose as described.



2. In a copying apparatus for photographs and the like, the combination with a casing; a lamp arranged within said casing; another casing located in front of the burner of said lamp; a third casing forming a spiral way; a ball adapted to roll down upon said spiral way; a lever terminating below the exit of said way, and adapted to catch the said ball; a flap arranged in said other casing, and secured to the axle of said lever; and means for keeping the ball back within the casing until said flap is opened so as to allow of the light emitted by the lamp passing into the said second casing, for the purpose as described.

3. In a copying apparatus for photographs and the like, the combination with a casing; a lamp arranged within said casing; another casing located in front of the burner of said lamp; a copying-frame attached to the outer end of said other casing; a flap arranged within the latter, and adapted to keep the light emitted by the lamp off said frame, a third casing forming a spiral way; a ball adapted to roll along the latter; a lever connected to said flap, and terminating below the exit of said spiral way; and a vertical series of openings located at the outer side of said third casing, and serving for the introduction of the ball into the spiral way, for the purpose as described.

4. In a copying apparatus for photographs and the like, the combination with a casing; a lamp arranged within said casing; another casing located in front of the burner of said lamp; a flap arranged in said other casing, and adapted to keep the light emitted by the lamp off the other casing; a third casing forming a spiral way; a ball adapted to roll down upon said spiral way, and a lever connected to said flap, and extending below the exit of the spiral way, said spiral way being composed of descending parts and ascending ones, for the purpose as described.

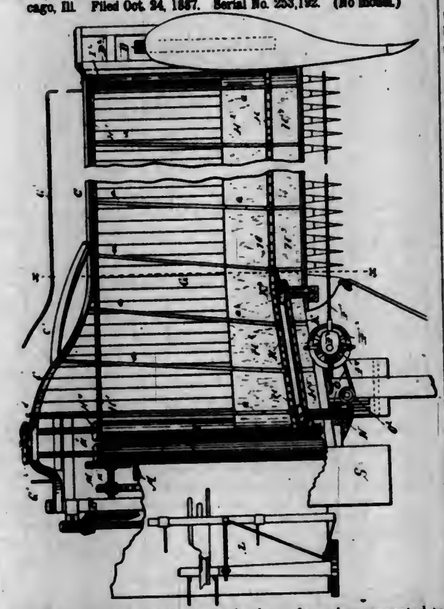
5. In a copying apparatus for photographs and the like, the combination with a casing; a lamp arranged within said casing; another casing located in front of the burner of said lamp; a flap arranged in said other casing, and adapted to keep the light emitted by the lamp off the other casing; a third casing forming a spiral way; a ball adapted to roll down upon said spiral way, and a lever connected to said flap, and extending below the exit of the spiral way, the outer wall of said spiral way being formed by a layer of felt, for the purpose as described.

6. In a copying apparatus for photographs and the like, the combination with a casing; a lamp arranged within said casing; another casing located in front of the burner of said lamp; a flap arranged in said other casing, and adapted to keep the light emitted by the lamp off the other casing; a third casing forming a spiral way; a ball adapted to roll down upon said spiral way, and a lever connected to said flap, and extending below the exit of the spiral way; the basin of said lamp having a lower compartment for the reception of the oil and an upper compartment for the reception of water; a reservoir for the water, and pipes connecting said reservoir with said upper compartment so as to allow of a circulation of the water, for the purpose as described.

7. In a copying apparatus for photographs and the like, the combination with a casing; a lamp arranged within said casing; another casing located in front of the burner of said lamp; a copying-frame attached to the outer end of said other casing; a flap arranged within the latter, and adapted to keep the light emitted by the lamp off said frame; a third casing forming a spiral way; a ball adapted to roll along the latter; a lever connected to said flap, and terminating below the exit of said spiral way; and a vertical series of openings located at the outer side of said third casing, and serving for the introduction of the ball into the spiral way; a vertical axle arranged at the side of said series of openings and having pins adapted to take into the spiral way and to keep said ball back until said axle is turned, and means connecting said axle with the flap, substantially as described.

8. In a copying apparatus for photographs and the like, the combination with a casing; a lamp arranged within said casing; another casing located in front of the burner of said lamp; a copying-frame attached to the outer end of said other casing; a flap arranged within the latter, and adapted to keep the light emitted by the lamp off said frame; a third casing forming a spiral way; a ball adapted to roll along the latter; a lever connected to said flap, and terminating below the exit of said spiral way; and a vertical series of openings located at the outer side of said third casing, and serving for the introduction of the ball into the spiral way, and a slide adapted to be moved along upon said series of openings, and having an opening adapted to afford access to one of said openings, substantially as described.

595,869. HARVESTING-MACHINE. WILLIAM W. BURSON, Chicago, Ill. Filed Oct. 24, 1887. Serial No. 253,192. (No model.)



Claim.—1. A harvester-frame having a finger-bar connected to the master-wheel frame at one end and to the grain-wheel frame at the other end, a rear bar fastened at one end to the master-wheel frame, then bent upward to the height of the elevator, then bent to a horizontal position and extended to the grain-wheel side, then bent downward to and fastened on said grain-wheel frame, a brace fastened to the master-wheel frame and bent upward to said rear bar, in combination with a cutting and elevating mechanism, substantially as set forth.

2. The combination of an elevator and a grain-receiving platform the rear side of which is raised about to the height of the elevator, the front side being on a level with the cutting apparatus back to the foot of the elevator and then inclined upward so as to permit the cut product to be passed over the master-wheel, and mechanism for elevating such cut product to a level to pass over such wheel, and for operating such elevator.

3. The combination of a cutting apparatus, a conveyer and a rod fastened adjustably to the harvester-frame and extending back of and across the length of the conveyer, whereby the rod may be moved back and forth to support the tops of the grain, substantially as specified.

4. A grain-conveying mechanism formed of a front and a rear chain and cross-bars connecting from one to the other chain, the front chain being longer than the rear chain and moving in the plane of the cutting apparatus to the end of the cutting mechanism and then inclined upward so as to deliver the cut grain over the master-wheel, and the rear chain extending horizontally to an upper elevator-roller from the grain-wheel side, combined with an operating mechanism, substantially as set forth.

5. The combination of a cutting apparatus, a grain-conveying mechanism, the front side of which is in the plane of the cutting apparatus and the rear side on a level with the top of the elevator, and an elevator, whereby the grain is cut and conveyed to the elevator and the butts raised to the height of the tops and all passed over the master-wheel, substantially as described

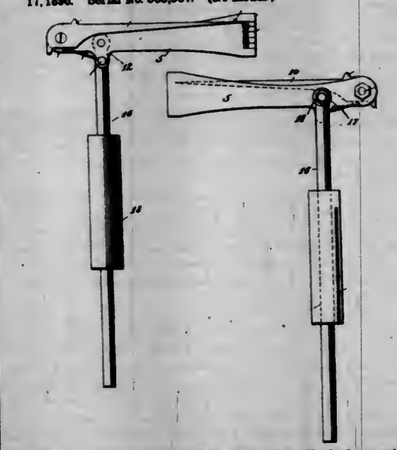
6. A grain-conveying mechanism formed of two parts jointed in line of their movement near the front edge, the front part adapted to move in the plane of the finger-bar and the rear edge inclined upward toward the plane of the top of the elevator, and an elevator, whereby the tops of the grain are held from falling to the horizontal plane, and the butts of the grain furnished a horizontal support while being moved toward the elevator, substantially as specified.

7. A grain-conveying mechanism formed of a front and rear chain, cross-bars connecting the two chains, a belt or narrow canvas attached to the front chain and extending forward from it toward the cutting apparatus, and a wider portion extending rearward at an upward inclination, whereby the grain shall be conveyed toward the elevator, substantially as set forth.

8. A grain-conveying mechanism inclined upward at the rear to the height of the elevator, an elevator adapted to engage the butts below and above and to raise them over the master-wheel, substantially as specified.

9. The driver's seat attached to a support which extends backward over the elevator and is fastened on the front upright frame, without any rear support, provided with a brace-support in front of said fastening, whereby an unobstructed passage-way is permitted to the grain under and rearward of the seat, substantially as set forth.

595,870. GAGE. EDGAR H. BYER, Hagerstown, Md. Filed Mar. 17, 1896. Serial No. 583,587. (No model.)



Claim.—1. In a device of the class described the combination with a dial-plate pivotally supported intermediate of its ends, of an index-finger pivoted to the dial-plate, one of said ends being arranged to traverse a dial on the plate, the other end of said finger having projections extending beyond opposite sides of the plate whereby the dial-plate and finger may be inserted withie a body for the purposes set forth.

2. In a device of the class described comprising a dial-plate having a supporting-bar pivoted thereto intermediate of its ends, a movable clamping-block on said bar, and an index-finger pivoted to the plate, one end of said finger being adapted to traverse a dial on the plate, a projection on the finger intermediate of its dial end and pivot and a second projection on the finger beyond its pivot, for the purpose set forth.

595,871. BARREL-HEAD. ALFRED H. CLARK, Athens, Mich. Filed June 24, 1896. Serial No. 596,816. (No model.)

Claim.—1. In a barrel-head, the combination with a plurality of sections, of staples securing said sections rigidly together and each comprising a single piece of wire formed into a loop, which is passed through the respective adjoining edges of the sections and

provided with extended arms bent down and driven into the wood upon the opposite sides of the joints between the sections, substantially as described.

2. In a barrel-head, the combination with two semicircular sections, of staples for securing said sections rigidly together, each consisting of a single piece of wire formed into a loop, the respective tines of which are passed through said sections and bent down and driven into the wood of the opposite section from that through which they pass, substantially as described.

595,372. GAME APPARATUS. ROBERT S. CROOKS and FRANK R. CROOKS, San Francisco, Cal. Filed Apr. 12, 1897. Serial No. 631,723. (No model.)



Claim.—1. In a game apparatus, the combination with a swinging casing or frame composed of two or more shuffling-boxes connected together, the cutting ribs or partitions secured within the lower portion of the shuffling-boxes so as to provide display-compartments, and a shuffling-chamber in the upper portion of the boxes, of a series of rotating shuffling-fingers extending into said chamber, and mechanism for imparting rotary movement to said fingers as the casing or frame is swung over or rotated.

2. In a game apparatus, the combination with the casing or frame, having a card shuffling chamber formed therein within which the cards are shuffled and intermixed, the movable shuffling device extending into said chamber, and of mechanism for imparting motion to said shuffling device.

3. In a game apparatus, the combination with a swinging frame or casing, having a card shuffling and display chamber formed therein within which cards are shuffled and intermixed, and a series of agitating or shuffling devices extending into said chamber, of mechanism for imparting motion to said devices during the movement of the casing or frame, and of suitable lock mechanism for controlling the swing or movement of the frame or casing.

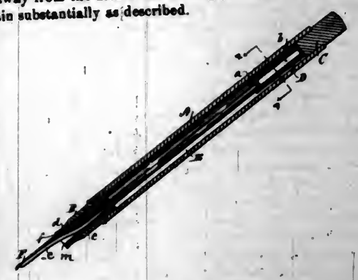
4. In a game apparatus, the combination with the swinging frame or casing, of the disk-controlled lock mechanism for controlling the movement of the frame or casing, a chamber formed therein within which cards are shuffled and intermixed, a series of rotating shuffling-fingers working within the said chamber, the reciprocating rod for imparting rotary motion to the shuffling-fingers, a fulcrumed rack-lever, gear connection between said lever and the reciprocating rod, a shaft upon which the frame or casing is mounted to swing, and a cam secured to said shaft with which the outer end of the fulcrumed rack-lever engages as the frame or casing is swung over.

5. In a game apparatus, the combination with a swinging shuffling and display box, of a chamber formed therein within which cards to be displayed are shuffled and intermixed, the movable card-shuffling devices extending within said chamber, of mechanism for imparting motion to said devices during the swinging movement of the frame or casing, and of a disk-controlled lock mechanism for controlling the movement of the swinging frame or casing.

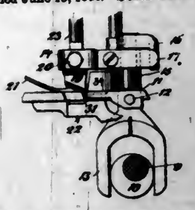
595,373. FOUNTAIN-PEN. ALONZO T. CROSS, Providence, R. I. Filed Sept. 2, 1896. Serial No. 604,661. (No model.)

Claim.—1. In a fountain-pen, the combination of the ink-reservoir, the pen-section, and the writing-pen, with the loosely-held weighted feed-bar adapted to drop to its position for use when the fountain is held in its proper position for writing, and to drop away from the nibs of the writing-pen upon the reversal of the fountain, substantially as described.

2. In a fountain-pen, the combination of the ink-reservoir, the pen-section, and the writing-pen, with the weighted feed-bar loosely held in the pen-section and adapted to drop to its position for use when the fountain is held in its proper position for writing, and to drop away from the nibs of the writing-pen upon the reversal of the fountain substantially as described.



595,374. TRIMMING ATTACHMENT FOR SEWING-MACHINES. FRANK CURTIN, Gloversville, N. Y., assignor to James L. Northrup, same place. Filed June 15, 1897. Serial No. 640,813. (No model.)



Claim.—1. The combination, in a sewing-machine, of a knife, a shearing edge and a shutter constructed and arranged to vibrate with the ascent and descent of the knife in a plane at right angles to the plane in which the knife oscillates.

2. The combination, in a sewing-machine, of a shearing edge, a knife and a shutter constructed and arranged to vibrate with the ascent and descent of the knife in a plane at right angles to the plane in which the knife oscillates, the depth of the shearing edge being as great as the extent of the vibrating motion of said shutter.

3. In a sewing-machine, the combination of a knife and a shearing edge, said knife being supported on a pivot in a plane parallel with the plane in which the knife oscillates and a spring by means of which it is constantly pressed toward said shearing edge.

4. The combination, in a sewing-machine, of a knife, a shearing edge, said knife being supported on a pivot in a plane parallel with the plane in which the knife oscillates, an adjustable projection carried on said pivot and a spring abutting against said projection for pressing the knife toward the shearing edge.

5. In a sewing-machine, the combination of a shearing edge, a knife, a pivot about which said knife oscillates in the plane of the shearing edge to cut the goods and a pivot at right angles thereto about which it oscillates to and from the shearing edge laterally.

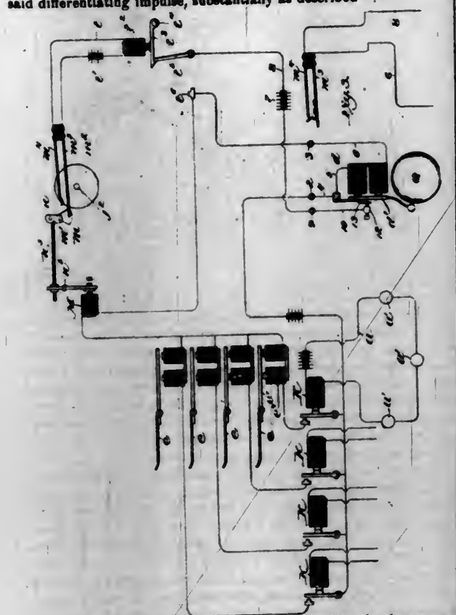
595,375. ELECTRIC SIGNALING APPARATUS. WILLIAM E. DECROW, Boston, Mass. Filed July 17, 1897. Serial No. 644,908. (No model.)

Claim.—1. In an electric signaling apparatus, a signal-box having means for transmitting two classes of signals, one of which is accompanied by a differentiating impulse, a message-recording instrument for receiving the signals of both classes, and a bell constructed and arranged to respond successively to the impulses of one class of signals, and to respond continuously upon the reception of a signal of the other class, substantially as described.

2. In an electric signaling apparatus, a signal-box having means for transmitting two classes of signals, one of which is accompanied by a differentiating impulse, a message-recording instrument and a bell for receiving the signals of both classes, means for continuously ringing said bell, and a device controlled by said differentiating impulse for setting said means in operation, substantially as described.

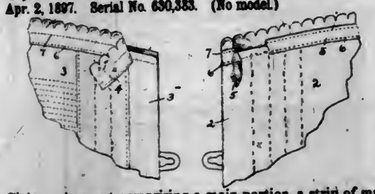
3. In an electric signaling apparatus, a signal-box having means for transmitting two classes of signals, one of which is accompanied by a differentiating impulse, a message-recording instrument for receiving the signals of both classes, a bell also responsive to the signals of both classes, a short circuit for said bell, a circuit-closer for said short circuit, and means for operating said circuit-closer controlled by said differentiating impulse, substantially as described.

4. In an electric signaling apparatus, a signal-box having means for transmitting two classes of signals, one of which is accompanied by a differentiating impulse, a message-recording instrument for receiving the signals of both classes, a bell connected in circuit therewith and responsive to all signals received by it, a short circuit for said bell, a circuit-closer for said short circuit adapted to be manually reset, and means for operating said circuit-closer controlled by said differentiating impulse, substantially as described



5. In an electric signaling apparatus, a signal-box having means for transmitting two classes of signals, one of which is accompanied by a differentiating impulse, a message-recording instrument for receiving the signals of both classes, a bell, the operating-magnet of which is connected in circuit with said recording instrument to respond concurrently therewith, a short circuit for said bell, a vibrating circuit-closer therefor actuated by said operating-magnet, and another circuit-closer for said short circuit, and a device operated by said differentiating impulse for operating said last named circuit-closer, substantially as described.

595,376. CORSET. CARROLL W. DODGE, Worcester, Mass. Filed Apr. 2, 1897. Serial No. 630,383. (No model.)

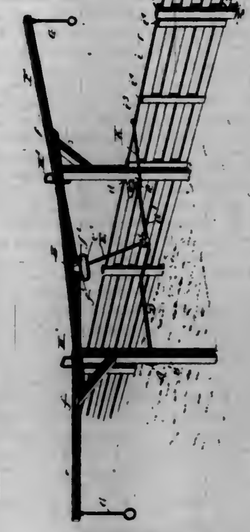


Claim.—A corset comprising a main portion, a strip of material upon the inner side of the upper edge thereof and projecting above the same, an edging upon the outer side of the upper edge of the main portion, and projecting above the same, a row of stitching securing the strip and the edging to the main portion, and a second row of stitching securing the strip and the edging together above the upper edge of the main portion, substantially as set forth.

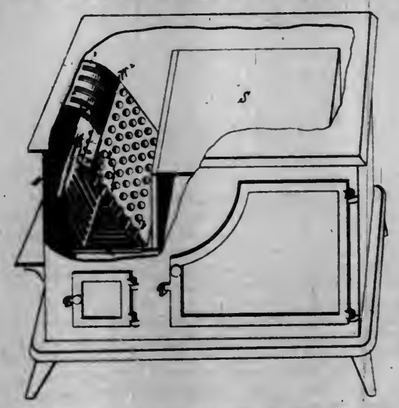
595,377. GATE. ALEXANDER G. DUNCAN, Ryan, Iowa. Filed Nov. 30, 1896. Serial No. 613,961. (No model.)

Claim.—1. An improved gate of the class described, comprising the hinge-post, the gate hinged thereto, the outer post relatively mounted with the hinge-post on an approximately transverse plane with relation to the gate, the shaft mounted upon and extending between the hinge-post and outer post and provided with the central or intermediate crank, the operating-levers fulcrumed upon said posts, the connecting-rod extending from the crank of the shaft to the operating-levers, and a connecting-rod extending from the crank of the shaft to latch mechanism upon the gate, substantially as and for the purpose set forth.

2. An improved gate of the class described, comprising the hinge-post B, the gate hinged thereto, the outer post B', the crank-shaft D having the crank d' and mounted between said posts, the crank-shaft being at approximately right angles to the gate and at one side of the latter, the levers F fulcrumed at the top of said posts, the connecting-rod E extending from the crank d' to the inner ends of the levers, the spring-rod or plate-latch I, and the connecting-rod K extending between the crank d' and the end of the latch-plate, substantially as and for the purpose set forth



595,378. HEATING APPARATUS. ELLIS F. EDGAR, Woodbridge, N. J. Filed May 21, 1896. Serial No. 592,469. (No model.)



Claim.—1. In a heating apparatus, the combination of an inclosed fire-space, bounded by a grate at the bottom, two walls front and back, one of which diverges from the other downward, the rear wall being provided with perforations, inclined upward and outward, leading from the fire-space into the draft-exit, the front wall being provided with air-inlets, and a covering-wall provided with apertures, above the line of intended ignition, opening into the draft-space beyond the fire-space, together with a slide arranged to alternately cover and uncover said apertures in the covering-wall, all substantially as set forth.

2. In a heating apparatus, the combination of a fire-pot consisting of a grate (as G) a fire-clay slab (as W') inclined toward a front wall (as W) and terminating near the top of the stove, leaving a space at or near the top between the two walls for the introduction of fuel, and apertures in the rear wall inclined in an opposite direction to the incline of the wall W', all substantially as set forth.

3. In a heating apparatus, the combination of a fire-pot consisting of a grate (as G) a wall (as W') with apertures through the same inclined as shown, a grate or wall (as W) arranged substantially as shown and nearer the apertured wall than the height of said wall, whereby but a thin body of fuel can be accommodated between the front and rear walls, substantially as set forth.

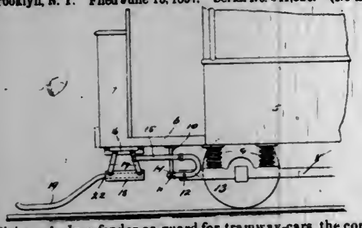
4. In a heating apparatus, an inclosed fire-space with inlets for the introduction of air (as apertured wall W) outlets for the draft (as *p*) a wall apertured above the line of intended ignition (as W^2) a slide (as *s*) arranged to alternately cover and uncover said apertures (as *a*) which open into the draft-space without the fire-space and an air-inlet (as that covered by D) leading into the fire-space above the line of intended ignition, all substantially as set forth.

5. In a heating apparatus, an inclosed fire-space with inlets for the introduction of air (as apertured wall W) outlets for the draft (as *p*) a wall apertured above the line of intended ignition (as W^2) a slide (as *s*) arranged to alternately cover and uncover said apertures (as *a*) which open into the draft-space without the fire-space and an air-inlet (as that covered by D) leading into the fire-space above the line of intended ignition, and provided with means (as D) for closing it, all substantially as set forth.

6. In a heating apparatus, an inclosed fire-space with inlets for the introduction of air (as apertured wall W) outlets for the draft (as *p*) a wall apertured above the line of intended ignition (as W^2) a slide (as *s'*) arranged to alternately cover and uncover a portion of said outlets for the draft (as *p*) and at the same time alternately (but reversely) uncover and cover the said apertures (as *a*) which open into the draft-space without the fire-space and an air-inlet (as that covered by D) leading into the fire-space above the line of intended ignition, all substantially as set forth.

7. In a heating apparatus, an inclosed fire-space with inlets for the introduction of air (as apertured wall W) outlets for the draft (as *p*) a wall apertured above the line of intended ignition (as W^2) a slide (as *s'*) arranged to alternately cover and uncover a portion of said outlets for the draft (as *p*) and at the same time alternately (but reversely) uncover and cover the said apertures (as *a*) which open into the draft-space without the fire-space and an air-inlet (as that covered by D) leading into the fire-space above the line of intended ignition and provided with means (as D) for closing it, all substantially as set forth.

595,379. CAR-FENDER. JAMES A. FARLOW and JOHN STRAYER, Brooklyn, N. Y. Filed June 18, 1897. Serial No. 641,326. (No model.)

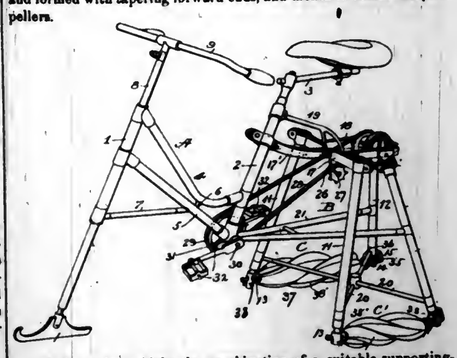


Claim.—1. In a fender or guard for tramway-cars, the combination with the end of the truck-frame, of yokes pivoted to the sides thereof, the sides of which are directed forwardly, hangers connected with the platform of the car, and pivotally connected with the lower sides of said yokes, rods pivotally connected with the upper sides of said yokes, and extending forwardly, hangers connected with the forward end of the platform of the car at the opposite sides thereof, links or bars pivotally connected with said hangers at each side, and with a fender or guard frame support, one of said last-named links or bars at each side being pivotally connected with said yokes, and a fender or guard frame pivotally connected with said supports, substantially as shown and described.

2. The combination with the platform of a car, of a fender or guard frame suspended therefrom by means of pivoted links or bars, yokes pivotally connected with the sides of the truck-frame, the separate sides of which are directed forwardly, hangers suspended from the platform of the car, and pivotally connected with the lower sides of said yokes, and rods which are pivotally connected with the upper sides of said yokes, and with the suspending devices of the fender or guard frame, substantially as shown and described.

595,380. ICE-VEHICLE. JOHN F. FISHER, Atchison, Kans. Filed Apr. 9, 1897. Serial No. 631,382. (No model.)

Claim.—1. In an ice-vehicle, the combination with suitable steering mechanism and a saddle-supporting frame, of oppositely-disposed propellers comprising a shaft, a tubular body on the shaft, and a plurality of spirally-arranged blades extending the length of the body and formed with tapering forward ends, and means to rotate the propellers.



2. In an ice-vehicle, the combination of a suitable supporting-frame embracing side frames having front and rear standards of pipe metal, propellers journaled in the lower ends of the standards, bevel-gears on the rear ends of the propellers, shafts journaled and inclosed in the said rear standards, bevel-gears on the lower ends of the said shafts to engage with the gears on the propellers, bevel-gears on the upper ends of said shafts, a suitably-mounted double-faced bevel-gear to engage with the upper gears on the said shafts, and means substantially as described, to propel the said gears.

3. In an ice-vehicle, the combination with the steering-frame, of the propeller-frame comprising side frames having front and rear hollow standards suitably connected at their upper ends, a supporting-bracket at the top of the frame, a shaft in the bracket, a double-faced bevel-gear on the shaft, shafts in the rear standards of the side frames, having bevel-gears secured to the respective ends, propellers journaled in the lower ends of the standards, and bevel-gears on the rear ends of the propellers, and means substantially as described for imparting motion to the double-faced gear, the shafts and gears thereon, and the propellers.

4. The ice-vehicle herein described, comprising a steering and saddle frame, duplicate supporting-frames composed of side frames having front and rear standards, and the said rear standards being hollow, a double-faced bevel gear-wheel supported and journaled in said frames, shafts jonrnaled in the said rear standards of the frame, bevel-gears on the upper ends of said shafts to mesh with the double-faced bevel-gear, bevel-gears on the lower ends of said shafts, propellers jonrnaled in the lower ends of the standards of the frame, said propellers consisting of spirally-arranged blades tapering or conical at their front ends, and bevel-gears at the rear ends of the propellers.

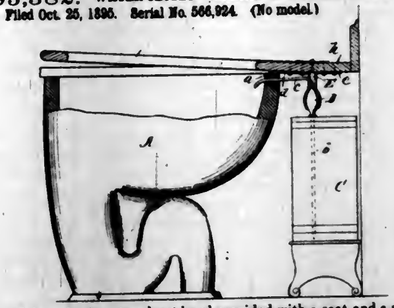
595,381. INCUBATOR. HARLOW R. FOSTER, Ashby, Mass. Filed Mar. 26, 1897. Serial No. 629,427. (No model.)



Claim.—1. An incubator comprising a lower chamber and a superimposed heating-tank or boiler, having a longitudinally-disposed flue in the boiler or tank and a vertical flue at one end of said boiler or tank, an automatically-movable tubular deflector having depending pivoted arms adapted to communicate with said flues in alternation, and a thermostat for operating said deflector substantially as described.

2. In an incubator, the combination with a boiler or tank having a longitudinally-disposed flue therein provided with a smoke-exit at one end and a lower opening at the opposite end, of a vertical flue located at the end of the said boiler or tank adjacent to the said lower opening having a lip or guard-flange depending from the inner lower side thereof, an automatically-operating tubular deflector adapted to communicate with said opening in the flue in the boiler and also with the said vertical flue and having a pair of depending arms with the lower portions thereof journaled in opposite sides of the casing of the incubator, the said deflector being in the form of a frustum of a quadrangular pyramid, and into the upper end thereof projects the lip of the said vertical flue, and a thermostat for operating said deflector, substantially as described.

595,382. WATER-CLOSET. CHARLES A. FREEMAN, Austin, Ill. Filed Oct. 25, 1895. Serial No. 566,924. (No model.)

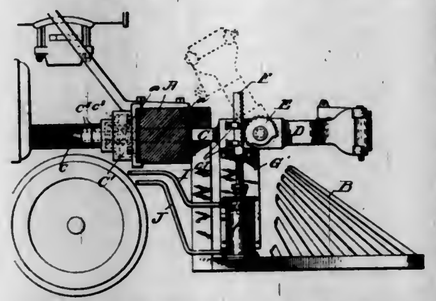


Claim.—1. A water-closet bowl provided with a seat and a seat-frame board in combination with a vessel for containing a disinfecting liquid, a valved bulb, pipes leading therefrom to said bowl and vessel, respectively, and a clamp composed of a stationary and a movable member, the former secured to the seat-frame board and the latter secured to and actuated by the seat, substantially as described.

2. A water-closet bowl provided with a seat, in combination with a vessel for containing disinfecting liquid, a valved bulb, pipes leading therefrom to said bowl and vessel respectively, and a compression device carried and actuated by said seat to press upon said bulb, substantially as and for the purpose described.

3. A water-closet bowl provided with a seat, in combination with a vessel for containing disinfecting liquid, a valved bulb, pipes leading therefrom to said bowl and vessel respectively, and an adjustable clamp actuated by said seat to press upon said bulb, substantially as and for the purpose described.

595,383. PILOT-COUPLING. ROBERT M. GALBRAITH, Pine Bluff, Ark. Filed Sept. 27, 1897. Serial No. 653,190. (No model.)



Claim.—1. The combination with a pivoted pilot-coupler, of a gear-wheel or segment fixed thereto, a cylinder, and a rack which is actuated by said cylinder to throw said coupler into and out of its operative position; substantially as described.

2. The combination with a pivoted pilot-coupler, of a gear-wheel or segment fixed thereto, of a cylinder, a rack which is actuated by said cylinder, said rack being in mesh with said gear-wheel or segment, pressure-pipes leading to the ends of said cylinder, and a valve for admitting pressure through said pipes to either end of said cylinder; substantially as described.

3. The combination with a pivoted pilot-coupler, of a gear-wheel or segment fixed thereto, of a cylinder, a rack which is actuated by said cylinder, said rack being in mesh with said gear-wheel or segment, pressure-pipes leading to the ends of said cylinder, and a valve for admitting pressure through said pipes to either end of said cylinder, said valve exhausting the pressure from the end opposite that in which pressure is admitted; substantially as described.

4. The combination with a suitable source of pressure-supply, of a valve for directing the same into a plurality of pipes if desired, a cylinder to which said pipes lead, a plunger arranged in said cylinder, a rack which is connected to said plunger, a gear-wheel or segment in mesh with the rack, and a pivoted pilot-coupler which is actuated by said gear-wheel or segment; substantially as described.

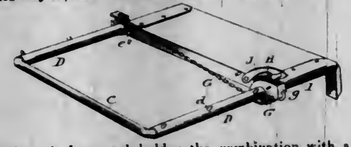
5. The combination with the draw-bar C, of a suitable buffer spring or springs therefor, a pilot draw-bar pivoted to the forward end of said draw-bar C, a cylinder carried on said draw-bar C, a plunger in said cylinder, and means for controlling the positions of said pivoted pilot-coupler actuated by said plunger; substantially as described.

6. The combination with the draw-bar C, of a buffer spring or springs therefor, a cylinder carried by the forward end of said draw-bar, pressure-pipes leading to the ends of said cylinder, a plunger arranged within said cylinder, a rack which forms part of said plunger, a pilot-coupler draw-bar pivoted to the forward end of said draw-bar C, and a gear-wheel or segment fixed to the end of said pivoted draw-bar and meshing with said fluid-actuated rack; substantially as described.

7. The combination with the draw-bar C, of a tail-pin on its rear end, a follower c^3 strung on said tail-pin, and normally resting against the shoulder formed at the enlarged portion of the draw bar, a follower c^4 strung on the tail-pin and normally impinging against nuts threaded on the rear end of said tail-pin, a compression spring arranged between said followers, and a housing for said spring, said housing cooperating with the follower c^4; substantially as described.

8. The combination with the draw-bar C, which is rectangular in cross-section, of a tail-bolt c arranged on its rear end, a follower c^3 which cooperates with the shoulder on the draw-bar and a timber through which said draw-bar passes, a housing c^7 formed with an inturned flange c^8, a follower c^4 strung on the tail-bolt, nuts c^5 which are threaded on the rear end of the tail-bolt, and which normally impinge against the follower c^4, and a buffer-spring c^6 arranged around the tail-bolt and between the followers c^3 and c^4; substantially as described.

595,384. SACK-HOLDER. FRANK H. GILBERT, Ridgefield, Wash. Filed July 27, 1896. Serial No. 600,657. (No model.)



Claim.—1. In a sack-holder, the combination with a bracket having depending arms and hooks, sleeves having projections, an arm secured to the rear end of one of the sleeves and having a lateral portion, a chain having one end connected with said lateral portion, an arm secured to the other sleeve and having a lug attached to the other end of said chain, and a collar on said sleeve between which and the arm said chain is wound, and a spring about said sleeve with one end secured to the arm and the other to said bracket, substantially as described.

2. In a sack-holder, the combination with a bracket having depending arms and hooks, sleeves having projections, an arm secured to the rear end of one of the sleeves and having a lateral portion, a chain having one end connected with said lateral portion, an arm secured to the other sleeve and having a lug attached to the other end of said chain, and a collar on said sleeve between which and the arm said chain is wound, and a spring about said sleeve with one end secured to the arm and the other to said bracket, said collar having a notch with a cam portion, and a pivotally-mounted detent adapted to engage the same and hold the sleeve against rotation, substantially as described.

595,385. HAY-CARRIER. RICHARD GREGG, Randolph, Ind. Filed June 18, 1891. Serial No. 396,713. (No model.)

Claim.—1. The body of a hay-rack having its bearing-surface composed of longitudinal bars and trailing skids pivoted to said bars, each skid having a broad lower surface resting on the ground, and a blade projecting below said lower surface, acting as guide in backing and as a guide to the hay, substantially as described.

2. A hay-vehicle having inclined skids at the rear and a drawing-tackle, and a separate pole to which the drawing-tackle is directly attached, said pole having a detachable connection to the permanent pole of the vehicle, in combination substantially as described.

3. The combination with a hay-carrying vehicle having inclined skids at the rear, and a drawing-tackle, of a detachable pole, drawing-trees connected to said pole, and rigid tugs or draw-bars connected to said trees and to the harness of the team, so as to hold the pole at about the same height whether attached to or detached from the vehicle, substantially as described.

4. The vehicle having inclined skids and a draft-tackle the false tongue attached to the draft-tackle, the trees attached to the tongue, and rigid tugs attached to the trees and extending to the harness, said tugs locking to the trees by a bayonet-coupling, substantially as described.

5. The hay-vehicle having a draft-tackle consisting essentially of a pulley, a rope passing through a channel in said pulley, thence around a sheave on the vehicle, and thence around the sheave on the

channeled pulley, and a tie-cord attached to the pulley rope and to a detaching-hook on the channeled pulley, all substantially as described.

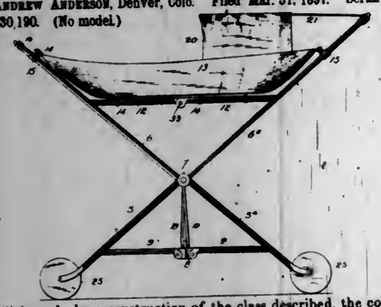


6. The hay-needle having a hook at one end and a loosely-sliding cone surrounding the needle near said hook, the other end of the needle being sharpened, substantially as described.

7. A hay-carrying vehicle having a rack consisting essentially of longitudinal bars, with skids hinged at the rear of the bars and trailing therefrom, said vehicle having a drawing-tackle and a separate pole to which the drawing-tackle is attached, said drawing-tackle extending backward along the line of the bars and skids, the pole being detachable from the main pole of the vehicle, and having suitable trees and connections for attachment of the team to the pole, all substantially as described.

8. The hay-carrying vehicle having a body provided with a drawing-tackle, the tackle consisting essentially of a channeled pulley-block, a rope connected at one end to the draft mechanism of the team and passing thence around the pulley in the block, thence around a projection on the carrier-body, and thence through the channel of the block, and thence to tie-cords or like appliances embracing the hay cock or shock, said block having a pawl bearing on the rope, and a detaching-hook by which the tie-cord may be attached, all substantially as described.

595,386. **FOLDING CARRIAGE.** BURROUGHS R. HALL and ANDREW ANDERSON, Denver, Colo. Filed Mar. 31, 1897. Serial No. 630,190. (No model.)



Claim.—1 In a construction of the class described, the combination of the two pairs of side frame-bars each pair being crossed and pivoted together at the point of intersection, the transverse end bars connecting the side frames at the top, said bars being hinged and adapted to fold, a central block located below the pivotal point of the sides, brace-bars hinged to said block and connected with the frame-bars by ball-joints, and braces hinged to said central block, their free extremities being detachably connected with the side frames.

2. The combination of two side frames each composed of two bars crossed and pivoted together at their points of intersection, hinged end bars connecting the side frames at the top, and means for connecting the side frames below their pivoted joints, comprising a central block and four brace-bars each being hinged to said block at one extremity and connected with one of the frame-bars at the opposite extremity by means of a ball-joint, and two braces each being hinged to the block at one extremity and detachably connected with the side frames at the opposite extremity.

3. The combination of two side frames each composed of two bars crossed and pivoted together at their points of intersection, the hinged end bars connecting the side frames at the top, means for connecting the side frames below their pivoted joints, said means comprising a central block and four brace-bars each being hinged to said block at one extremity and connected with one of the frame-bars at the opposite extremity by means of a ball-joint, two braces each being hinged to the block at one extremity and detachably connected with the side frames at the opposite extremity, and a suitable flexible receptacle mounted on the folding frame.

4. The combination of two side frames each composed of two bars crossed and pivoted together at their points of intersection, the hinged end bars connecting the said frames at the top, means for connecting the side frames below their pivotal joints, said means comprising a central block and four brace-bars each hinged to said block at one extremity and connected with one of the frame-bars at the opposite extremity by means of a ball-joint, two braces each hinged to the block at one extremity and detachably connected with the frames at the opposite extremity, and a suitable flexible receptacle mounted on the folding frame, a flexible canopy attached thereto, and suitable means for supporting the canopy, substantially as described.

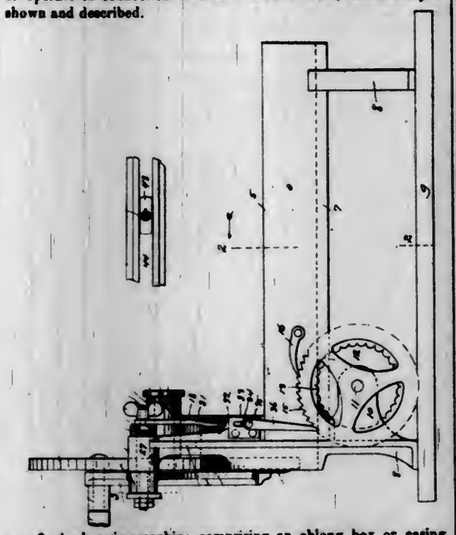
5. The combination of two side frames each composed of two bars crossed and pivoted at their points of intersection, the hinged end bars connecting the side frames at the top and arranged to allow the mechanism to fold, means for connecting the side frames below the said points of intersection, said means comprising a central block and four brace-bars each hinged to said block at one extremity, and movably connected with one of the frame-bars at the opposite extremity, two braces each hinged to the block at one extremity and detachably connected with the side frames at the opposite extremity, a suitable flexible receptacle mounted on the folding frame, a flexible canopy attached thereto and suitable means for supporting the canopy comprising a rod detachably connected with the folding frame and having an arm pivoted thereon at some distance from its free extremity.

6. A folding carriage comprising two side frames each composed of two crossed bars pivotally connected at their points of intersection, the transverse end bars connecting the side frames and arranged to permit the construction to fold, means for connecting the side arms below the joints, comprising a central block and four brace-bars hinged thereto, the opposite extremity of each brace-bar being connected with the frame-bar by a ball-joint, braces hinged to the said block and having their opposite extremities detachably connected with the bars of the side frames, and a flexible receptacle suitably supported on the frame.

595,387. **CHOPPING-MACHINE.** JULIUS C. HALL, Wallingford, Conn. Filed Apr. 16, 1897. Serial No. 632,402. (No model.)

Claim.—1. A chopping machine comprising an oblong box or casing which is open at one end, and provided with suitable supports, said box or casing being also provided at one end with a frame which is projected above the same, and which is provided at one side with a laterally-projecting arm, and at the other side with an upwardly-directed extension, a wheel supported by said arm, and provided with a crank-rod, and a triangular frame connected with said crank-rod, and the upper portion of which consists of a bar in which is formed a longitudinal slot, and the lower portion thereof being provided with a cutting-blade, a shaft mounted in said upwardly-directed portion of the frame, and passing through the slot in the triangular frame, and on one end of which is an oblong head, and said frame being provided with a feed-roller which is mounted below the end of the box or casing, and which projects upwardly through the bottom thereof, a ratchet-wheel mounted on the shaft of said feed-roller, at one side of the box or casing, said ratchet-wheel and said oblong head being in operative connection, substantially as shown and described.

2. A chopping-machine consisting of an oblong box or casing which is open at one end, and suitably supported, said box or casing being also provided at the open end with a frame which is projected upwardly, and provided at one side with an arm, and at the opposite side with an upwardly-directed extension, a wheel supported by said arm and provided at one side with a crank-rod, a triangular frame connected with said crank-rod, and provided at the lower side thereof with a cutting-blade, and at the upper side thereof with a longitudinal slot, a shaft mounted in the upper end of the said extension of the frame and projecting through said slot and provided at one end with an oblong head, a feed-roller mounted below the box or casing and projecting upwardly through the bottom thereof, a ratchet-wheel mounted on one end of the shaft of said feed-roller, a rod connected with the oblong head of the shaft which passes through the slot in the triangular frame, a bar connected with the lower end of said rod and vertically movable in a keeper secured to said frame, and a pawl pivotally connected with said rod and adapted to operate in connection with said ratchet-wheel, substantially as shown and described.



3. A chopping-machine comprising an oblong box or casing, which is open at one end, and a feed-roller mounted beneath the open end of said box or casing and projecting upwardly through the bottom thereof, a frame connected with said end of said box or casing and provided at one side with an arm, and at the opposite side with an upwardly directed extension, a wheel supported by said arm and provided at one side with a crank-rod, a triangular frame connected with said wheel and provided in its upper side with a longitudinal slot, and at its lower side with a cutting-blade, a shaft passing through said slot and through the upwardly-directed extension of the frame, and provided at one end with an oblong head, and operative devices connecting said head and said feed-roller whereby the latter is given an intermittent motion, substantially as shown and described.

595,388. **BICYCLE-PEDAL ATTACHMENT.** JOSEPH W. HAMON, Boston, Mass. Filed July 29, 1897. Serial No. 646,236. (No model.)

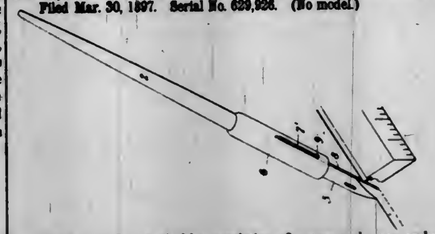


Claim.—1. The combination of a ring adapted to be secured to the sole of the shoe, said ring having projecting lugs formed on its inner edge; of a plate having corresponding outwardly-projecting radial lugs, whereby the ring and the plate may be interlocked by a twisting movement in either direction.

2. A pedal attachment comprising a ring having a series of upturned flanges on its inner edge and a series of inwardly-projecting lugs; a plate having a series of radial outwardly-projecting lugs adapted to interlock with the lugs of the ring; and an angular clip extending transversely of the pedal, and serving to fasten the said plate to the pedal.

3. A pedal attachment comprising a ring, having inwardly-projecting lugs and upturned flanges formed at its inner edge; a plate, and means for securing said plate to the pedal, said plate having a series of radial lugs offset from the plane of the rest of the plate and adapted to form an interlocking engagement with the lugs of the ring from either side and having also a series of upturned ears adapted to abut against the inner edge of the ring to serve as a guide.

595,389. **PENHOLDER.** CHARLES W. HARMON, Pittsburg, Pa. Filed Mar. 30, 1897. Serial No. 629,926. (No model.)

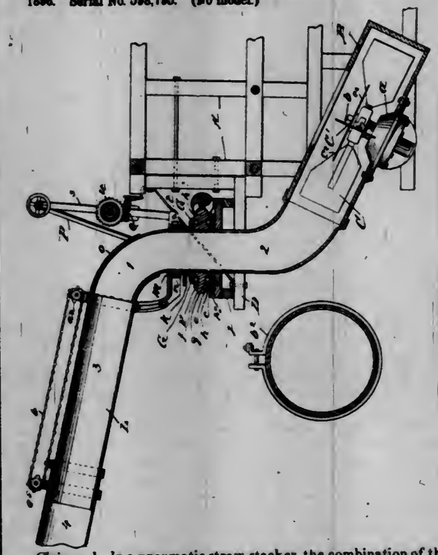


Claim.—1. In a penholder consisting of a stem and a pen-embracing ferrule flush with the outer surface of the stem; an outer cylindrical ferrule provided with an internal longitudinal channel slotted through for part of its length and an extensible guide-rod mounted in such channel in the body of the ferrule with a lug extending through the slot, substantially as set forth.

2. A penholder consisting of a stem, a pen-embracing ferrule mounted on the end thereof, an outer ferrule inclosing the point-ferrule and part of the stem and provided with an internal longitudinal channel and an extensible guide-rod mounted in such channel in the body of the ferrule, substantially as set forth.

3. A penholder consisting of a stem, a pen-embracing ferrule mounted on the end thereof, an outer ferrule inclosing the point-ferrule and part of the stem provided with an extensible guide-rod mounted in the body of the ferrule and provided with an operating-lug extending through a slot in the side of the ferrule, substantially as set forth.

595,390. **PNEUMATIC STACKER.** CHARLES O. HEGGEM, Massillon, Ohio, assignor to the Russell & Co., same place. Filed July 11, 1896. Serial No. 598,795. (No model.)



Claim.—1. In a pneumatic straw-stacker, the combination of the hood W, band Z, that forms a track for grooved wheels *d*, band X that supports said wheels, and grooved wheels *d*, by which the hood is held in revoluble relation with the discharge pipe.

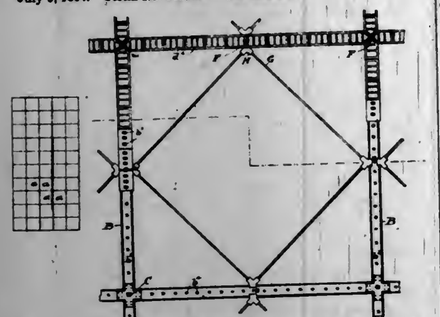
2. In a pneumatic straw-stacker, the combination of a discharge-pipe having a telescoping section, the equalizer-bar A^2 secured to the forward section of the discharge-pipe and having sheave-wheels b^2 at its ends, wheel *x* on the telescoping section, rope A′, rove about said wheels and a rotatable hood W to which the rope is attached.

3. In combination in a pneumatic straw-stacker, a discharge-pipe having a telescoping section, the rope A^4 having its ends secured to the rear end portions of the discharge-pipe and telescoping section, the sheaves *w*, S, *r*, rope R, and a winding mechanism whereby the rear end of said pipe may be raised or lowered.

4. In a pneumatic straw-stacker, having a telescoping section, rotatable hood W, carried by said section, rope A′ and equalizer A^2, to operate the hood W, and ropes A^4 and R, chain-wheels A^5, a^7 and

chain *b* whereby the discharge-pipe may be lengthened or shortened without affecting the hood or moving the pipe vertically.

595,391. GRAIN-ELEVATOR. ERNEST V. JOHNSON, Chicago, Ill., assignor of one-half to James L. Record, Minneapolis, Minn. Filed July 9, 1897. Serial No. 643,995. (No model.)



Claim.—1. A grain-elevator comprising a series of bins having a network of walls composed of a series of layers of tilework and of steel beams, the steel beams of each layer being united together at the corners of the bins, and the vertical walls or layers of tilework between the layers of steel beams being of a double vertical arch-acting construction against lateral or bulging pressure in either direction, substantially as specified.

2. In a grain-elevator comprising a series of bins having a network of walls composed of a series of layers of tilework and of steel beams, the steel beams of each layer being united together at the corners of the bins, and the vertical walls or layers of tilework between the layers of steel beams being of a double vertical arch-acting construction against lateral or bulging pressure in either direction, and the layer of steel beams being connected together by vertical tie-rods, substantially as specified.

3. In a grain-elevator comprising a series of bins having a network of walls composed of a series of layers of tilework and of steel beams, the steel beams of each layer being united together at the corners of the bins, and the vertical walls or layers of tilework between the layers of steel beams being of a double vertical arch-acting construction against lateral or bulging pressure in either direction, the layer of steel beams being connected together by vertical tie-rods, and horizontal tie or brace rods, substantially as specified.

4. In a grain-elevator comprising a series of bins having a network of walls composed of a series of layers of tilework and of steel beams, the steel beams of each layer being united together at the corners of the bins, and the vertical walls or layers of tilework between the layers of steel beams being of a double vertical arch-acting construction against lateral or bulging pressure in either direction, the tile being hollow with the hollows or chambers thereof extending vertically, substantially as specified.

5. In a grain-elevator comprising a series of bins having a network of walls composed of a series of layers of tilework and of steel beams, the steel beams of each layer being united together at the corners of the bins, and the vertical walls or layers of tilework between the layers of steel beams being of a double vertical arch-acting construction against lateral or bulging pressure in either direction, the layer of steel beams being connected together by vertical tie-rods and horizontal brace-rods, and coupling-blocks connecting said horizontal tie-rods with the braces, substantially as specified.

6. A grain-elevator comprising a series of bins having a network of walls composed of tilework provided at intervals with layers of steel beams and joint-plates at the corners of the bins connectiog the beams, substantially as specified.

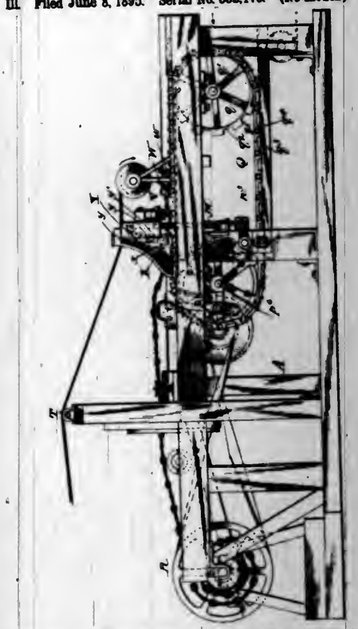
7. A grain-elevator comprising a series of bins having a network of walls composed of tilework provided at intervals with layers of steel beams and joint-plates at the corners of the bins connecting the beams, and vertical tie-rods uniting the layers of steel beams, substantially as specified.

8. A grain-elevator comprising a series of bins, the walls whereof are composed of layers of tilework and layers of steel beams, the layers of tilework between the layers of beams being each composed of a double key-course and double vertical arch-acting courses against lateral pressure, substantially as specified.

9. A grain-elevator comprising a series of bins, the walls whereof are composed of layers of tilework and layers of steel beams, the layers of tilework between the layers of beams being each composed of a double key-course and double vertical arch-acting courses against lateral pressure, the upper and lower tile courses of each layer of tilework being composed of grooved tile D^3 fitting said steel beams, substantially as specified.

10. A grain-elevator comprising a series of bins having a network of walls composed of a series of layers of tilework and of steel beams, the steel beams of each layer being united together at the corners of the bins, and the vertical walls or layers of tilework between the layers of steel beams being of a double vertical arch acting construction against lateral or bulging pressure in either direction, the upper and lower courses of tile of each tilework layer being provided with grooves d^3 to fit the steel beams, substantially as specified.

595,392. FENCE-MACHINE. WILLIAM A. KILMER, Newburg, N. Y., assignor, by mesne assignments, to Ernest L. Camburn, Chicago, Ill. Filed June 8, 1895. Serial No. 552,170. (No model.)



Claim.—1. The combination of the shaft A' and its pinion *a'*; the shaft B and its bar C; the gear-wheel *b'* engaging the pinion *a*, loose on the shaft B and provided with a clutch and trip-arm; and the tripper *b*³, as set forth.

2. The combination of the shaft B; the crank-arm D; the connecting-rod E secured to such crank-arm at one end; the cross-head secured to the connecting-rod at the other end; the rack-bar F engaging such cross head; the cross-bar G, and the twisters K; the twisters being journaled in the cross-bar G, and the rack-bar F being in the cross-bar G and engaging said twisters, as set forth.

3. The combination of the guide-post L; the cross-bar G; the rods M; the rock-shaft *n*; the crank-arms at each end of such rock-shaft and engaging the lower ends of the rods M; the cam-wheel P, and the connections between such wheel and one of the crank-arms, as set forth.

4. In the fence-machine shown and described, the combination of the endless picket-conveyer and its cross-bars and wire-guides, the means for driving said conveyer, the twisters, the rack-bar for operating said twisters, and the means for reciprocating said rack-bar, the transverse bar for carrying said rack bar and twisters, the means for vertically reciprocating said transverse bar with said rack-bar and twisters, and the means for conducting the fence-wires through the machine, all arranged to operate substantially as and for the purpose set forth.

5. In the fence-machine shown and described, the combination of the endless picket-conveyer, the vertically-reciprocating cross-bar arranged above and across said endless conveyer, the series of twisters journaled in said cross-bar, the reciprocating rack-bar arranged in said cross-bar and in mesh with said twisters, and the means for operating said parts, and for conducting the fence-wires through the machine, all arranged to operate substantially as and for the purpose set forth.

6. In the fence-machine shown and described, the combination of the rack-bar, the twisters, and the mechanism for turning the twisters slightly backward after a full throw of the rack-bar to release the twisters from the twisted strand-wires so the twisters may be easily removed from contact therewith, substantially as and for the purpose set forth.

595,393. PROCESS OF ANNEALING IRON CASTINGS. RICHARD KING, Belleville, Ill., assignor, by mesne assignments, to the King Annealing Process Company, same place. Filed Jan. 4, 1897. Serial No. 617,982. (No specimens.)

Claim.—1. The process of annealing iron castings which consists in embedding them in a packing containing metallic manganese or an alloy thereof and a refractory material such as sand, mill-scale or the like, and subjecting the whole to sufficient heat to anneal the casting

2. The process of annealing iron castings, consisting in packing them with an alloy of iron and manganese and a refractory material, and subjecting the whole to sufficient heat to anneal the castings.

3. The process of annealing iron castings, consisting in packing them with metallic manganesian substance, a refractory material and a readily-combustible substance, and subjecting the whole to sufficient heat to anneal the castings.

4. The process of annealing iron castings, consisting in packing them with metallic manganesian substance, a refractory material, a readily-combustible substance, and a volatile substance, and subjecting the whole to sufficient heat to anneal the castings.

5. The process of annealing iron castings, consisting in packing them with metallic manganesian substance, a refractory material, a readily-combustible substance, a volatile substance, and an acidiferous substance, and subjecting the whole to sufficient heat to anneal the castings.

6. The process of annealing iron castings, consisting in packing them with metallic manganesian substance, a refractory material, a readily-combustible substance, a volatile substance, an acidiferous substance and a greasy substance, and subjecting the whole to sufficient heat to anneal the castings.

7. The process of annealing iron castings, consisting in coating the casting with an adhesive substance, then applying thereto a coating of metallic manganesian substance, and then inserting said castings in a mass of refractory material, and subjecting the whole to sufficient heat to anneal the castings.

8. The process of annealing iron castings, consisting in coating the castings with an adhesive substance, then applying thereto a coating of metallic manganesian substance, then inserting said castings in a mass of refractory material, containing a readily-combustible substance, and subjecting the whole to sufficient heat to anneal the castings.

9. The process of annealing iron castings, consisting in coating the castings with an adhesive substance, and then applying thereto a coating of metallic manganesian substance then inserting said castings in a mass of refractory material, containing a readily-combustible substance, and a volatile substance, and subjecting the whole to sufficient heat to anneal the castings.

10. The process of annealing iron castings, consisting in coating the castings with an adhesive substance, then applying thereto a coating of metallic manganesian substance, then inserting said castings in a mass of refractory material containing a readily-combustible substance, a volatile substance, and an acidiferous substance, and subjecting the whole to sufficient heat to anneal the castings.

11. The process of annealing iron castings, consisting in coating the castings with tallow or beef suet, or analogous substance, then applying thereto a coating of metallic manganesian substance, then inserting said castings in a mass of refractory material, containing sawdust, turpentine, and vinegar, and subjecting the whole to sufficient heat to anneal the castings.

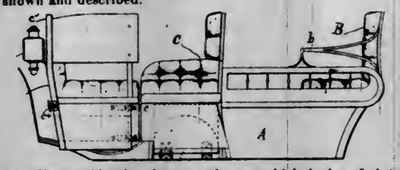
12. The process of annealing iron castings, consisting in packing them in a mass of refractory material, containing metallic manganesian substance, sawdust, turpentine, vinegar and tallow or beef suet, or analogous substance, and subjecting the whole to sufficient heat to anneal the castings.

13. The process of annealing iron castings, consisting in packing them with metallic manganesian substance and a refractory material, and subjecting the whole to sufficient heat to anneal the castings.

14. The process of manufacturing iron articles, which consists in first casting the article of iron designated as combined carbon iron, then annealing such article in a packing containing manganese in metallic state and a refractory substance, to render it suitable for use, substantially as herein explained.

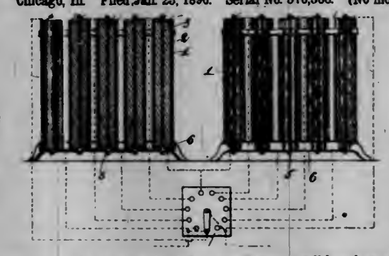
595,394. VEHICLE BODY AND SEAT. AUGUSTUS L. KNOBLAUCH, Cincinnati, Ohio. Filed Feb. 10, 1896. Serial No. 578,633. (No model.)

Claim.—1. In a two-seat vehicle, the combination of the undercut body, the fixed half of the front seat secured therein, the swinging half-seat pivotally connected at its front edge to the fixed half-seat, and the hinged foot-board adapted to be thrown down when the swinging seat is thrown in front of the rigid half-seat to afford easy access to the rear seat of the vehicle, and to be thrown to the vertical position against the inner end of the rigid seat and retained in its vertical position by the swinging seat when brought to its normal position, to permit the wheel to turn under the body, substantially as shown and described.



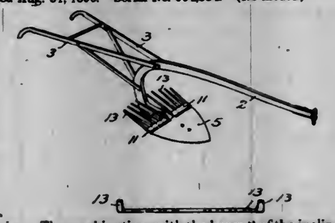
2. The combination, in an undercut vehicle-body, of the fixed half of the front seat, the swinging half-seat hinged to the front edge thereof, the pintle or journal of said hinge extending below the hinge-straps and the straps upon the swinging half secured to the pintle, a bevel-pinion upon the lower end of said pintle, a longitudinal shaft journaled in bearings secured to the body, a pinion secured upon the forward end of said shaft to mesh with the pinion upon the hinge-pintle, and straps fixed upon said longitudinal shaft the arms of which are secured to the folding foot-board, and the folding foot-board adapted to be turned to the vertical position when the swinging seat is brought to its normal position, and thrown to the horizontal position when the swinging seat is thrown to the front of the carriage to permit of easy access to the rear of the carriage, substantially as shown and described.

595,395. RHEOSTAT OR ELECTRIC HEATER. FRANK KRAENER, Chicago, Ill. Filed Jan. 23, 1896. Serial No. 576,588. (No model.)



Claim.—In an electric rheostat or heater, solid carbon sticks of a high resistance completely embedded in a plastic material composed of barite or its equivalent and silicic acid.

595,396. POTATO-DIGGER. ADOLPH G. LABO, South Haven, Minn. Filed Aug. 31, 1896. Serial No. 604,354. (No model.)

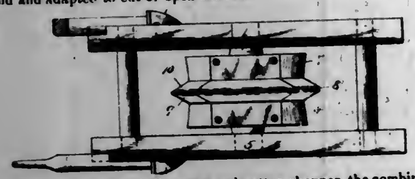


Claim.—The combination, with the beam 2 of the inclined pointed plate 5 secured to said beam by the bolts 9, the wheels 15 mounted upon said beam, in the rear of the plate 5, and provided with pins 21 and having the sleeves 23, the plates 11 hinged to the rear edge of the shovel 5 and provided with a series of fingers 13, said plates being adapted to be vibrated by said wheels and pins, the outer fingers 13 being raised above the other fingers, all substantially as described.

595,397. COTTON-CHOPPER. JOAB S. LAUDERDALE, Kellyton, Ala. Filed Aug. 28, 1896. Serial No. 604,167. (No model.)

Claim.—1. In a combined drill-opener and cotton-chopper, the combination with a frame, of a wheel journaled therein which has a broad, flat, circular tread-band and a narrow peripherally-disposed

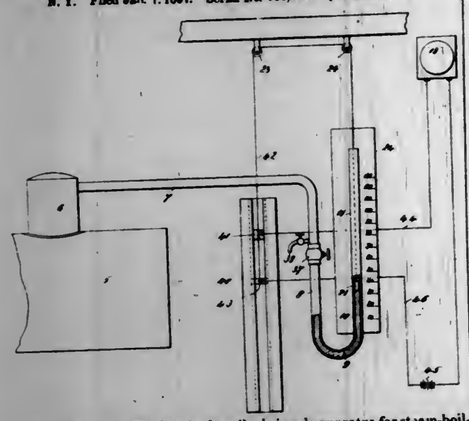
flange located approximately intermediate the side edges of the said band and adapted to cut or open the soil.



2. In a combined drill-opener and cotton-chopper, the combination with a frame, of a wheel journaled in said frame and provided with a flange, and a series of chopping-teeth, located in alinement with the flange, adapted to cut or open the soil.

3. In a combined drill-opener and cotton chopper, the combination with the frame, of a wheel journaled in said frame which comprises a tread-band and a narrowed cutting or drill-opening flange, said wheel having a portion of its band and flange detachable from the remainder of the wheel.

595,398. ELECTRIC ALARM DEVICE. FEDOR LOUIS, Brooklyn, N. Y. Filed Jan. 7, 1897. Serial No. 618,236. (No model.)



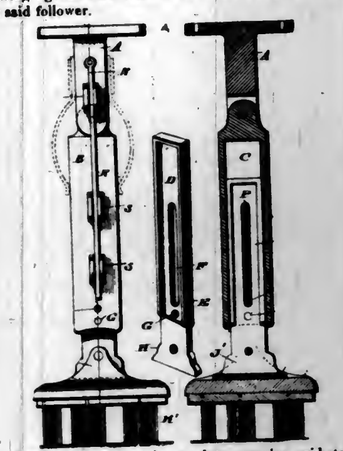
Claim.—1. The herein-described signal apparatus for steam-boilers, said apparatus consisting of a steam-pipe which is connected with said boiler, and provided with a downwardly-directed loop or bend in which is placed quicksilver or similar material, a vertically-movable float suspended in the upwardly-directed arm of said loop or bend by means of a cord or similar device which passes over pulleys and to the end of which is secured a weight which moves in a vertical guide or casing, an electrical alarm device, a battery in connection therewith, and devices which are adapted to be operated by said weight for closing an open circuit in which said battery and said alarm device are placed, substantially as shown and described.

2. The combination with a steam-boiler, of a steam-pipe which is connected with the drum thereof, and provided with a downwardly-directed loop or bend in the bottom of which is placed mercury, the upwardly-directed arm of said loop or bend being provided with a float which is suspended therein by a cord or other device which is passed over pulleys, and the opposite end of which is provided with a weight which moves in a vertical guide or casing, and devices which are adapted to be operated by said weight for closing an open circuit in which said electrical alarm device and said battery are placed, and a clock, which is supported adjacent to said device, and which is adapted to be stopped thereby, substantially as shown and described.

595,399. TRACK BRUSH AND SCRAPER. LORD C. MARTIN, Philadelphia, Pa. Filed Jan. 6, 1897. Serial No. 618,118. (No model.)

Claim.—1. A track scraper and cleaner having a hanger, a sleeve pivoted thereto, a follower guided in said sleeve, a brush depending from and pivotally connected with said follower, a cushion between said follower and the head of said brush and a spring attached to said hanger, and bearing against said sleeve.

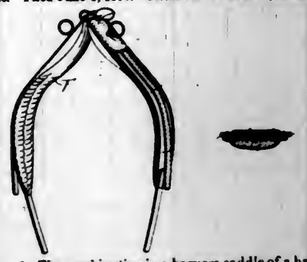
2. A track scraper and cleaner consisting of a hanger, a sleeve pivoted thereto, a follower in said sleeve having a slot, a pin passing through openings in the side walls of the sleeve and said slot, a brush-head pivoted to said follower, and a spring attached to said hanger and bearing against said sleeve, said brush being vertically adjustable on said follower.



3. Brushing slats or strips, a plate carrying said strips, and a head to which said plate is secured, said plate having its material cast around the ends of the strips within the same.

4. In a track-scraper, a brush having a head, a plate thereon having slots in its under face extending alternately from the opposite sides thereof and strips with ends secured in said slots, said strips being parallel with each other and having overlapping inner ends.

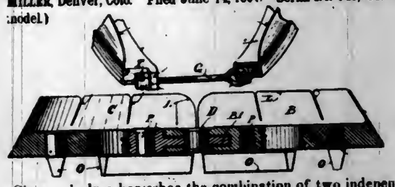
595,400. SADDLE FOR HARNESS. CHARLES W. MILLER, Canton, Ohio. Filed June 3, 1897. Serial No. 639,269. (No model.)



Claim.—1. The combination in a harness-saddle of a harness-tree, skirts having the body thereof raised above the plane of the edges, supporting-pads, or filling, conforming in shape to the raised body of the skirts, welts attached to the edges of the skirts, and pads attached to the under side of the skirts, substantially as described and for the purpose set forth.

2. A skirt for harness-saddles having the body raised above the plane of the edges thereof, a filling conforming in shape to the raised body of the skirt and held in position by means of a pad attached to the under side of the skirt, substantially as described and for the purpose set forth.

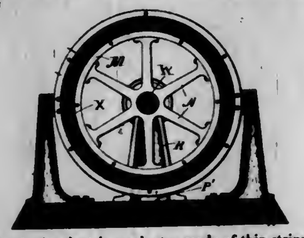
595,401. NAILLESS CLAMPING HORSESHOE. JOHN J. A. MILLER, Denver, Colo. Filed June 14, 1897. Serial No. 640,751. (No model.)



Claim.—1. In a horseshoe the combination of two independent tread-pieces pivotally secured together at their toe ends by a rivet inserted in a rivet-hole countersunk on both sides of the shoe, each tread having an integral clamping-band arranged to stand at an acute angle to the top surface of the tread and registering substantially with the angle of the surface of the horse's hoof, two vertical slits in said band at predetermined points extending from the top edge to near its union with the treads; a bolt having an eye at one end, a ring formed in the heel of one of the tread-pieces and coupled to the eye of said bolt, a projecting lip on the heel of the opposite tread-piece, a hole through said projecting lip adapted to freely receive the end of said bolt and a suitable thread and nut on the free end of said bolt, substantially as described.

2. The combination in a horseshoe, of two independent tread-pieces each forming one-half of the horseshoe, a suitable pivotal joint formed partially in each at their toe ends, and pivotally connected together to swing apart or together, an integral yielding clamping-band arranged to stand vertically at the outer edges of said tread-pieces and at an angle registering approximately with the angle of the horse's hoof, two or more vertical slits in each of said clamping-bands, an eye in the heel of one of said tread-pieces, a projecting lug containing an aperture on the heel of the opposite tread-piece, a bolt pivotally linked to said eyepiece and passing through said lug, and a suitable lock-nut on the end of said bolt, substantially as described.

595,402. CONDUCTOR FOR ELECTRICAL APPARATUS. JOHN MILLIS, U. S. Army. Filed Mar. 27, 1897. Serial No. 629,554. (No model.)



Claim.—1. An electric conductor made of thin strips or laminations of material which is both a conductor of electricity and also capable of being affected by, and of readily transmitting magnetic force or influence, and having the laminæ separated by insulating material, substantially as described.

2. An electric conductor composed of strips or laminæ of iron or soft steel separated by an insulating substance, and so arranged as to afford uninterrupted paths for electric currents only in directions along the length of the conductor, while the transverse magnetic stresses are afforded nearly or quite free paths through the metal of the conductors, substantially as described.

3. An electric conductor composed of laminations of material which is both a conductor of electricity and also capable of being affected by, and of readily transmitting, magnetic force or influence, an insulating substance separating the laminæ of said conductor and the said laminæ so disposed as to afford uninterrupted paths for electric currents only in directions along the length of the conductor, while the transverse magnetic stresses are afforded nearly or quite free paths through the metal of the conductor, substantially as described.

4. Electrical apparatus dependent upon the direct electromagnetic inductive effects of its active parts, in which the parts between which said inductive effects takes place, are all conductors of electricity and magnetic in their action, substantially as described.

5. In a dynamo-electric machine having an armature whose coils are both conductors of the electric current and magnetic in their action, and the field of said machine being composed of coils similar to the armature-coils substantially as described.

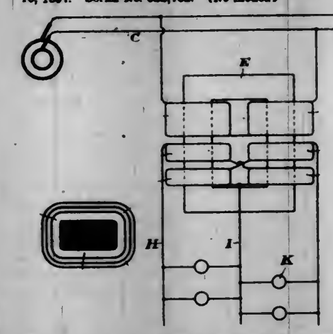
6. In a dynamo-electric machine or motor, the combination with a movable conductor composed of laminations of material, which is both a conductor of electricity and magnetic in its action, and having the laminæ of said conductor separated from each other by insulating material, of a stationary conductor of similar structure mounted near and parallel or nearly so to said movable conductor, and the laminated conductor so arranged as to afford uninterrupted paths for the electric currents only in directions along their lengths, while the transverse magnetic stresses are afforded nearly or quite free paths through the metal of each conductor, substantially as described.

7. In a dynamo-electric machine or motor, the combination with a plurality of movable conductors, composed of laminations of material which is both a conductor of electricity and magnetic in its action, and having the laminæ of said conductor separated from each other by insulating material, of a plurality of stationary conductors of similar structure, mounted near and parallel or nearly so to said movable conductors, and the laminæ of all the said conductors so arranged as to afford uninterrupted paths for electric currents only in directions along the lengths of the conductors while the transverse magnetic stresses are afforded nearly or quite free paths through the metal of the conductors, substantially as described.

8. In a dynamo-electric machine the combination with a plurality of conductors composed of laminations of material which is both a conductor of electricity and magnetic in its action, and the laminæ of said conductor separated by insulating material, a shaft and means for securing said conductors at intervals from each to and around the said shaft, a frame having bearings in which said shaft is journaled, a plurality of stationary conductors of similar structure secured in a frame and inclosing and concentric with the movable conductor and the laminæ of all the said conductors so arranged as to afford uninterrupted paths for electric currents only in directions along the lengths of the conductors, while the transverse magnetic stresses are afforded nearly or quite as free paths through the metal of the conductors, substantially as described.

9. An electric conductor constructed in whole or in part of magnetic material, properly insulated and designed for use as the active parts of the general class of electromagnetic or magneto-electric machines, instruments and apparatus, in which the desired results are produced by the direct electromagnetic inductive effects between different conductors or between different parts of the same conductor, either with or without dynamic action and relative motion of the conductors or parts of conductor, substantially as described.

595,403. TRANSFORMER. WALTER S. MOODY, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Feb. 10, 1897. Serial No. 622,782. (No model.)



Claim.—1. In a transformer, the combination of a core, a winding mounted thereon, and a winding in inductive relation to the first-named winding and connected to a three-wire circuit comprising a plurality of coils connected to each side of the three-wire circuit, said coils being so arranged on the core that they receive substantially equal induction from the first-mentioned winding under balanced and unbalanced loads.

2. The combination in a transformer of a core having a single magnetic circuit, a primary comprising a plurality of coils, each mounted upon a separate part of the core, a secondary subdivided into a number of coils and connected to a three-wire circuit, the coils which are connected to each side of the three-wire circuit being mounted on separate parts of the core, and receiving induction equally from all of the primary coils.

3. The combination in a transformer of a laminated core, primary coils mounted on separate parts of the core, a subdivided secondary set of coils connected to a three-wire circuit and superimposed upon the primary coils, the arrangement being such that the secondary coil which lies next the primary on one part is farther removed on the other.

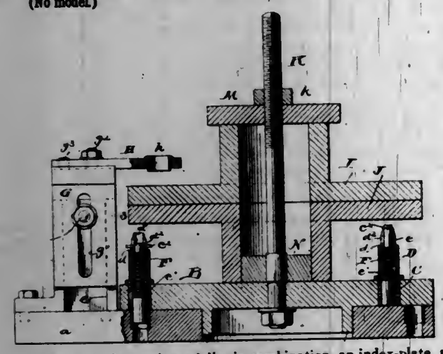
4. The combination in a transformer of a laminated core having a single magnetic circuit, primary coils mounted on separate parts of the core and connected in series, a three-wire secondary circuit, and a set of secondary coils for each branch of the three-wire circuit which are connected in series and are arranged on the core so that the coils connected across each of the different branches of the circuit are in substantially similar inductive relation to each of the primaries, as set forth.

5. The combination in a transformer for three-wire circuits, of a core having a single closed magnetic circuit, primary coils arranged at different points on the core, secondary coils located on the core adjacent to the primary coils, and connections between the secondary coils and the three-wire circuit, such that a part of the secondary winding for each branch of the circuit lies adjacent to each of the primary coils, and the total secondary winding for each of the different branches of the circuit is in a substantially similar inductive relation to each of said primary coils.

6. The combination in a transformer, of a core having a single closed magnetic circuit, primary coils located at different points on

the core and adapted to be connected in series in the primary circuit, secondary coils connected in series in pairs or sets, and arranged on the core with the different coils of each set located respectively adjacent to the different primary coils, in such a manner that said pairs or sets of coils collectively considered are in substantially the same inductive relation to the different primary coils.

595,404. **JIG FOR DRILLING BOLT-HOLES.** MICHAEL H. MCARTHEY, Cleveland, Ohio. Filed Nov. 18, 1896. Serial No. 612,617. (No model.)



Claim.—1. In a universal jig, in combination, an index-plate, a substantially circular relatively-rotatable carrier-plate, an axially-disposed rod extending from said carrier-plate, means for causing said rod to clamp to said carrier plate a flange-coupling surrounding said rod, and a latching device carried by one plate and adapted to engage at regular circumferential intervals with the other plate, substantially as described.

2. In a universal jig, in combination, an index-plate, a relatively-rotatable carrier-plate, means for clamping a flanged coupling axially upon said carrier-plate, means for holding a tool in proper position to engage with the flange of the coupling so held, and a latching device adapted to temporarily hold the carrier-plate in the desired position, substantially as described.

3. In a universal jig, in combination, two relatively-rotatable horizontal plates, means whereby the devices to be drilled may be clamped axially to the top plate, a latching device for temporarily connecting said plates at regular circumferential intervals, a laterally-projecting arm on the lower plate, a standard secured thereto, and an inwardly-extended horizontal drill-guide arm, secured to said standard, substantially as and for the purpose specified.

4. In a universal jig, in combination, two relatively-rotatable horizontal plates, means whereby the devices to be drilled are clamped to the top plate, a latching device for connecting said plates at regular intervals, a vertically-adjustable support, means for holding the same stationary with respect to the bottom plate, and a drill-guide arm secured to said support, substantially as and for the purpose specified.

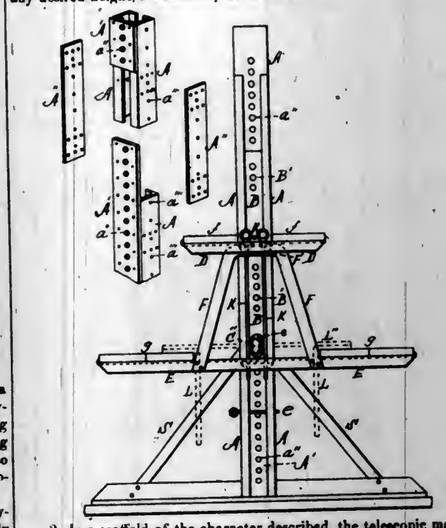
5. In a universal jig, in combination, the bottom index-plate having an annular row of evenly-spaced holes, a carrier-plate mounted on the index-plate axially with respect to said row of holes, a spring-latched pin carried by the carrier-plate, means for clamping the devices to be drilled upon said carrier-plate, a fixed drill-guide arm, and means for supporting the same in desired relation to the devices to be drilled, substantially as and for the purpose specified.

6. In a universal jig, in combination, the bottom index plate having an annular row of evenly-spaced holes, and a laterally-extended arm, a standard secured to said arm, a vertically-adjustable support mounted upon the standard, a drill-guide arm secured to said support, a carrier-plate pivoted to the index-plate, a spring-actuated latch-pin carried thereby, and a clamping device, substantially as and for the purpose specified.

7. In a universal jig, in combination, an index-plate, a carrier-plate pivoted thereon, an axially-disposed rod carried by said carrier-plate, a removable and exchangeable collar thereon, a latch for connecting said plates at regular intervals, a fixed drill-guide arm, and means for holding the same stationary with respect to the index-plate, substantially as and for the purpose specified.

595,405. **SCAFFOLD.** HEBERIAN MCLAUGHLIN, Boston, Mass. Filed May 11, 1897. Serial No. 635,989. (No model.)

Claim.—1. In a scaffold of the character described, the telescopic main posts each comprising a pair of stationary channel-beams set vertically and with the flanges of one beam facing those of another but not in contact therewith, whereby vertical spaces are produced between the oppositely-arranged flanges, a vertically-arranged sliding channel-beam placed within and between said stationary beams and with its web opposite one of said spaces, and a vertical bar or plate bolted exteriorly to two opposite flanges extending from the webs of the stationary beams; means for raising and lowering the inner sliding beam; and means for holding said inner sliding beam at any desired height, substantially as described.



2. In a scaffold of the character described, the telescopic main posts each comprising a pair of stationary channel-beams set vertically and with the flanges of one beam facing those of another but not in contact therewith, whereby vertical spaces are produced between the oppositely-arranged flanges, a vertically-arranged sliding channel-beam placed within and between said stationary beams and with its web opposite one of said spaces, and a vertical bar or plate bolted exteriorly to two opposite flanges extending from the webs of the stationary beams, said vertical plate or bar being provided with a series of substantially vertically arranged perforations a'', and the web of said sliding channel-beam being provided with a plurality of substantially vertically arranged perforations B'; a dog pivotally hung in the sliding beam and adapted to drop by gravity into engagement with said perforations a'' in the vertical plate or bar; and means for lifting said sliding beam within the stationary beams, substantially as set forth.

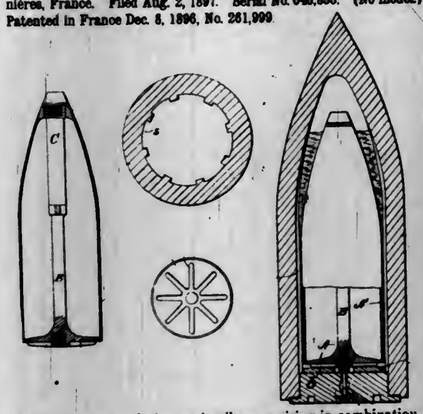
3. In a scaffold of the character described, an external, stationary hollow post, provided with a series of substantially vertically arranged perforations a''; an internal telescopically-arranged sliding post provided with a series of substantially vertically arranged perforations B' opposite said perforations a'' and also with a relatively large opening e opposite said perforations a''; and the dog C provided with the pointed engaging end C' and protuberance or weighted portion C'', said pointed end dropping by gravity into one of said perforations a'' and said protuberating or weighted portion extending into the large opening e, substantially as described.

4. In a scaffold of the character described, the telescopic main posts each comprising a pair of stationary channel-beams set vertically and with the flanges of one beam facing those of another but not in contact therewith, whereby vertical spaces are provided between the oppositely-arranged flanges, a vertically-arranged sliding channel-beam placed within and between said stationary beams and with its web opposite one of said spaces, and a bar or plate rigidly connecting said stationary channel-beams on one side; horizontal blocks or extensions projecting from the web of the inner sliding beam and extending through the space a between the flanges of the stationary beams opposite said vertical plate or bar, and placed one above the other, and provided at their outer ends with the horizontal supporting-plates H; and a pair of brackets D E set one above the other and rigidly connected together and supported by the said plates H, substantially as set forth.

5. In a scaffold of the character described, the combination with a telescopic vertical supporting-post comprising a stationary upright beam and a sliding upright beam; the brackets D E set one above the other and rigidly connected with said sliding beam; rods or bars extending from the lower to the upper bracket; and the removable bolts K, extending through vertical openings in the two brackets, substantially as described.

6. In a scaffold of the character described, telescopic upright posts; platform-supporting brackets rigidly secured to the vertically-moving elements in said posts and extending on opposite sides thereof; and the suppiemental hanging scaffolds consisting of the vertical portions L connected at their lower ends to receive a platform, the outwardly-extending horizontal flanges L' for overlapping the inner edges of the platforms g supported by the brackets on opposite sides of the posts, and a suitable connecting-bar L'', all substantially as set forth.

595,406. **HIGH-EXPLOSIVE SHELL.** JOSEPH J. PÉRIÉ, Asnières, France. Filed Aug. 2, 1897. Serial No. 646,833. (No model.) Patented in France Dec. 8, 1896, No. 261,999.



Claim.—1. An explosive projectile comprising in combination a shell, an inclosed cartridge independent of the shell and of similar shape but shorter than the chamber of the shell so as to leave a free space between the forward end of the cartridge and the shell, and a cushion in said space for retarding the forward motion of said cartridge the latter being initially held at the rear or base of the shell, substantially as described.

2. An explosive projectile comprising in combination a shell, an inclosed cartridge of less length than the shell, and composed of a relatively thick rigid disk composing the bottom, thin side walls and a central stiffening-rod, and means for retarding the movement of the cartridge from the rear to the front of the shell, the cartridge being held initially at the rear or base of the shell, substantially as described.

3. The combination of the inclosing shell, the cartridge of less length than the shell, so as to leave a space through which it moves relatively to the shell after impact, a retarding-cushion occupying said space; and a soft-metal plate or disk against which the base of the cartridge bears, substantially as described.

4. The combination of the shell, the inclosed cartridge shorter than the chamber of the shell so as to leave a space between the forward end of the cartridge and shell, and a fluid retarding-cushion filling said space, the cartridge being initially held at the base or rear of the shell, substantially as described.

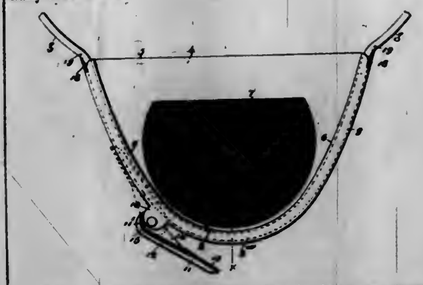
5. The combination of the shell, the inclosed cartridge shorter than the chamber of the shell, the cartridge being initially held at the base of the shell, and a liquid retarding-cushion in the space between the shell and cartridge, substantially as described.

6. The combination of the shell, the inclosed catridge of less length than the chamber containing it, said cartridge being initially held at the base of the shell, the latter being provided with longitudinal contracted channels, and the liquid retarding-cushion occupying the space between the shell and cartridge, the construction constituting a hydraulic brake retarding the forward movement of the cartridge after impact substantially as described.

7. In an explosive projectile the combination of the shell, the rigid inclosed cartridge of less length than the shell, the base of the cartridge having radial ribs, a disk of soft metal between the cartridge and base of the shell, and a fragile connection between the shell and cartridge adapted to be ruptured upon impact of the projectile, substantially as described.

595,407. **DETACHABLE STRAINER FOR MILK-PAILS.** PHILIP PFEIL, Chicago, Ill., assignor of one-half to Hermann Rendtorff, same place. Filed Mar. 9, 1897. Serial No. 626,636. (No model.)

Claim.—1. In a milk-strainer, a suitable plate having a rear transverse edge, a forward edge having a curvature approximating the curvature of the pail-spout, and a locking-arm pivoted to and carried by the curved edge, said arm adapted to sweep or swing in a line substantially parallel to the upper edge of the spout and to engage the bead of the pail by which the strainer-plate is carried, substantially as set forth.



2. In a milk-strainer, a suitable plate having a rear transverse edge, a forward edge having a curvature approximating the curvature of the pail-spout, an outwardly-projecting lug forming a part of or carried by the curved edge, and a locking-arm pivoted to the lug and adapted to sweep or swing in a line substantially parallel to the upper edge of the spout and engage the bead forming a part of said spout, substantially as set forth.

3. In a milk-strainer, a suitable plate having a rear transverse edge, a forward edge having a curvature approximating the curvature of the pail-spout, a continuous wall following the curved edge of the plate, a flange projecting from said wall adapted to rest on the wired edge of the spout, suitable lugs carried by the rear of the strainer each lug having a toe adapted to engage the bead of the pail from the outside at the juncture of the spout and pail proper, a lug carried by the strainer-flange, and a locking-arm pivoted to said lug and adapted to sweep in a line parallel to the upper edge of the spout and engage the base of the bead forming a part of said spout, substantially as set forth.

4. In a milk-strainer, a suitable plate having a rear transverse edge, a forward edge having a curvature approximating the curvature of the pail-spout, a locking-arm pivoted to the curved edge, said arm comprising a suitable ledge adapted to engage the under side of the bead of the spout, a vertical wall deflected from said ledge and being approximately of a depth equal to the thickness of the bead, and a wing deflected from the vertical wall and parallel to the engaging ledge of the arm, the pivot of the arm passing through the base of the wing, the parts operating substantially as and for the purpose set forth.

5. In a milk-strainer, a suitable strainer-plate, a locking-arm for the same, said arm comprising a suitable horizontal member forming a ledge adapted to engage the under side of the bead of the spout of the pail, a vertical wall deflected from the horizontal member, a terminal lug forming a portion of the vertical wall, a horizontally-deflected wing forming a part of the vertical wall, the wing being substantially triangular, the base of the triangle serving as the pivotal point for the arm, and a scooped-out portion formed at the meeting-point between the vertical wall and triangular wing to enable the arm to swing freely about the bead, the depth of the vertical wall being substantially that of the thickness of the bead whereby the horizontal member of the arm can snugly engage the under surface of the bead of the spout, substantially as set forth.

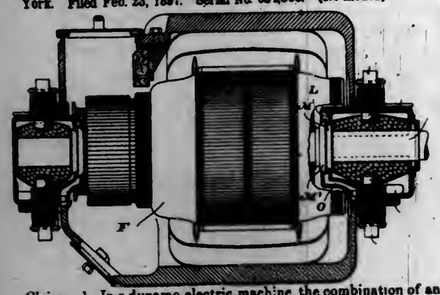
6. In a milk pail, a strainer made in one piece, and one or more locking-arms pivoted along the outer curved edge of the same, said arms being adapted to sweep or swing in a plane substantially parallel to the edge of the strainer and to engage the under surface of said bead, substantially as set forth.

595,408. **METHOD OF TREATING STARCH.** CHARLES POPE, Chicago, Ill. Filed Apr. 6, 1896. Serial No. 544,787. (No specimens.)

Claim.—1. Taking moist, crude starch, pouring it into molds and submitting it to a pressure in the molds, pressing out the water and impurities; pressing the starch into solid, compact cakes, and then drying it.

2. Taking moist, crude starch, pouring it into molds; submitting it to a pressure while in the molds, pressing the water and impurities from the starch; then after removing the cakes of starch from the molds, submitting them to a second pressure in a hydraulic or other powerful press, further expressing the moisture and impurities and reducing the size of the cakes; and then drying the cakes.

595,409. **ELECTRIC RAILWAY-MOTOR.** EDWARD D. PRIEST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Feb. 23, 1897. Serial No. 624,566. (No model.)



Claim.—1. In a dynamo-electric machine, the combination of an armature, a shaft therefor, a field-magnet inclosing the armature, boxes mounted in cut-away portions of the field-magnet and separable therefrom, armature-shaft brasses mounted in boxes, and means for securing the boxes to the magnet-frame.

2. In an electric motor, the combination of an armature, a shaft therefor, a field-magnet inclosing the armature, boxes separable from the field-magnet in which the armatnre-shaft is mounted in cut-away portions of the field-magnet and separable therefrom, armature-shaft brasses mounted in the boxes, and bolts for securing the boxes to the magnet.

3. In an electric motor, the combination of an armature, a shaft therefor, a field-magnet inclosing the armature, boxes separable from and mounted in cut-away portions of the field-magnet, armature-shaft brasses mounted in the boxes, adjusting-bolts mounted in lugs integral with the boxes and situated above and below the brasses, and rounded ends on the bolts fitting sockets in the brasses, as set forth.

4. In an electric railway-motor, the combination of a field-magnet centered on a car-axle, an armature mounted within the field-magnet, a shaft therefor, mounted in cut-away portions of the field-magnet, armature-shaft brasses mounted in the boxes, means for securing the boxes to the field-magnet, lugs within the boxes supporting and guiding the brasses, bolts for adjusting the brasses, and lugs on the box in which the bolts are mounted.

5. In a dynamo-electric machine, the combination of an armature, a shaft therefor, armature-shaft brasses, boxes separable from the field-magnet in which the brasses are mounted, chambers on both sides of the shaft adapted to be filled with oil and waste, and an auxiliary chamber or passage connecting with the exterior of the motor, for conveying oil away from the armature.

6. In an electric motor, the combination of a field-magnet, an armature, a shaft therefor, armature-shaft brasses, boxes separable from the field-magnet in which the brasses are mounted, chambers for oil and waste located on both sides of the shaft, an oil-thrower mounted on the armature-shaft, and an auxiliary chamber in close proximity to the oil-thrower, for receiving the oil therefrom and conveying it to the outside of the motor.

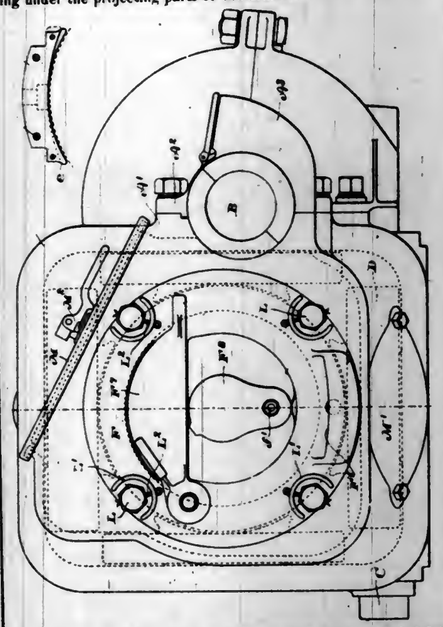
7. In an electric motor, the combination of an armature, a shaft therefor, armature-shaft brasses, boxes separable from the field-magnet in which the brasses are mounted, the brasses being situated above and below the shaft and partially surrounding it, chambers on both sides of the shaft filled with oil and waste, the waste engaging with the sides of the shaft, an oil-thrower mounted on the armature-shaft for conveying oil from the shaft to the chambers, an auxiliary chamber connecting with the exterior of the motor, and a second oil-thrower arranged in proximity to the first for conveying oil to the auxiliary chamber.

8. As an article of manufacture, a bearing-box having projections formed integral therewith and located at the top and bottom of the box for supporting and guiding the bearing-brasses, lugs on the outside of the box for supporting it, closed chambers on both sides of the projections connected by a passage, and an auxiliary chamber connected with the outside of the box for carrying away oil.

9. In an electric motor, the combination of a field-magnet, an armature, a shaft therefor, brasses mounted above and below the shaft and partially encircling it, supports and guides for the brasses, means for adjusting the brasses, chambers on both sides of the shaft, and waste in the chambers engaging with the sides of the shaft.

595,410. **ELECTRIC MOTOR.** EDWARD D. PRIEST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Apr. 13, 1897. Serial No. 631,914. (No model.)

Claim.—1. In an electric railway-motor, the combination of a field-magnet frame, a bearing for maintaining the field-magnet in alinement with the car-axle, a separate frame-head at one end of the motor, said field-magnet and head forming an inclosed structure protecting the armature and commutator, and armature bearings extending under the projecting parts of the armature.



2. In an electric motor, the combination of an iron-clad field-magnet frame inclosing the armature and commutator; with an armature having a winding of the barrel form with ends projecting beyond the body of laminæ and supports for the projecting ends of the winding, and an inwardly-projecting armature-bearing on the gear end of the motor beneath the adjacent winding-support, as set forth.

3. In an electric motor, the combination of a field-magnet frame, an armature having a winding with an overhanging end, a coil-support for the overhanging end of the winding, a commutator having an outwardly-flaring shell, and armature-bearings projecting under the coil-support and commutator-shell.

4. In an armature, the combination of a body of laminæ, a sleeve to which the laminæ are secured, a shaft rotating with the sleeve, and an oil thrower or throwers formed integral with the sleeve.

5. In a commutator for a dynamo-electric machine, the combination of a shell which is rigidly secured to a moving part of the machine, a clamping device formed integral therewith, an adjustable clamp, and an outwardly-flaring flange on the shell acting as an oil-thrower.

6. In an electric motor, the combination of a field-magnet frame cast in one piece and supported by suitable bearings upon the car-axle, an armature, circular removable frame-heads, armature-bearings mounted therein, and a receptacle or chamber on the frame-head adapted to receive the oil which works outward from the bearing.

7. In an electric motor, the combination of a field-magnet frame cast in one piece, a sleeve upon which the armature-laminæ are supported, a shaft rigidly connected to the sleeve, a flange formed on the sleeve against which the laminæ abut, a coil-support formed integral with the sleeve, an oil-thrower also formed on the sleeve, and a removable frame-head provided with a bearing which projects under the end of the sleeve and coil-support.

8. In a dynamo-electric machine, the combination of a cast field-magnet, and laminated removable pole-tips secured thereto, the laminæ consisting of counterpart punchings each having one half of its face concentric with the armature and the other half carved on a larger radius toward the pole-tip.

9. In a dynamo-electric machine, the combination of a cast field-magnet, laminated removable pole-pieces bolted thereto, the laminæ consisting of counterpart punchings each having one half of its face concentric with the armature, and the other half describing an arc of a circle which is non-concentric with the armature, the laminæ being assembled so that non-concentric ends of certain laminæ are between the concentric ends of adjacent laminæ.

10. In a dynamo-electric machine, the combination of an inclosing field-magnet, an armature, removable frame-heads inclosing the end of the motor, projections upon the heads forming supports for the armature-bearings, a ring mounted for rotary movement upon one of the heads, and brush-holders carried by the ring.

11. In a dynamo-electric machine, the combination of an inclosing field-magnet frame, an armature, removable frame-heads forming supports for the armature-bearings, a ring mounted for rotary movement upon one of the heads, elliptical brush-holder studs secured to the ring, and surrounded by insulation, and brush-sockets shrunk upon the studs.

12. In a brush-holder, the combination of an elliptical stud, a support therefor, a brush-socket, a lug thereon for securing the socket to the stud, spiral springs engaging with the brushes mounted in the sockets, and a stud to which the springs are secured.

13. In a device for removing armatures from motors, the combination of a base, tracks upon the base, a motor-carriage adapted to travel on the tracks, standards secured to the base, a fixed center mounted in one of the standards and adapted to extend through the motor when the armature is removed, and an adjustable center mounted in the other standard, the arrangement of centers being such that the motor-armature is supported between them when the motor-frame is moved in a direction to uncover the armature.

14. In a dynamo electric machine having a removable pole-piece, the combination of an energizing-coil and a support therefor consisting of a sheet-metal punching having upwardly-extending pieces formed integral therewith, the pieces protecting the inner portion of the coil from the pole and the main body of the punching the bottom of the coil.

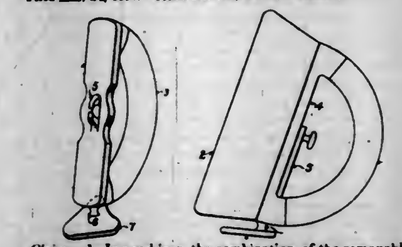
15. An electric motor having an iron-clad field-magnet frame, an armature and commutator having overhanging surfaces at opposite sides of the motor, and bearings for the armature-shaft extending inward and underneath the overhanging portions of the armature and commutator, whereby space in the direction of the armature-shaft is economized, as set forth.

16. In an electric motor of the iron-clad type, the combination of an armature having an overhanging end projecting from the core, a field-magnet, and a bearing for the armature-shaft extending inward and underneath said overhanging end of the armature.

17. In an electric railway-motor, the combination of a field-magnet, bearings for maintaining it in alinement with the car-axle, separate frame-heads at the ends of the motor, armature bearings extending under the projecting parts of the armature, and separated therefrom by a space, and an oil conveyer or thrower located between the bearings and the armature.

18. In a brush-holder, the combination of a metal stud, a layer of insulation surrounding the stud, a metal sleeve surrounding the insulation, a brush box shrunk upon the stud, and a spring for applying pressure to the brush.

595,411. **SAD-IRON SUPPORT.** HOWARD RENO, Folsom, N. Mex. Filed Mar. 24, 1897. Serial No. 628,940. (No model.)

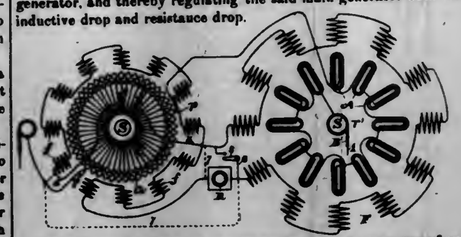


Claim.—1. In a sad-iron, the combination, of the removable handle, having an integral extension at its rear end, said extension terminating in a flaring or spreading base, forming an obtuse angle with said handle, and alone forming the stand or support for the handle and iron when in an upright position, and separated from the end of the iron by an air-space, substantially as described.

2. The combination, with the sad-iron handle, of a spreading base or foot, serving as a stand for the handle and the iron thereon when upright, said base being arranged on an extension of the lower or rear end of the handle, whereby an air-space is formed between the iron proper and said base to retard the conduction of heat from the former to the latter, for the purpose set forth.

595,412. **REGULATING ALTERNATING-CURRENT DYNAMO-ELECTRIC MACHINES.** EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the Thomson-Houston Electric Company, same place. Filed Oct. 26, 1894. Serial No. 527,031. (No model.)

Claim.—1. The combination of an alternating-current generator, an exciter having an armature and field-magnet independent of the corresponding elements of the generator, means for driving said exciter, and means for superposing upon the current in the armature of the exciter a current of a magnitude and phase varying in accordance with the magnitude and phase of the current from the main generator, and thereby regulating the said main generator both for inductive drop and resistance drop.



2. The combination with an alternating-current generator of an exciter therefor, and means for superposing upon the current in the armature of the said exciter a current varying in magnitude and phase in accordance with the current in the main generator, the connections by which the said current enters and leaves the exciter-armature being made at such points that any increase in the lag of the current in the main circuit will add to the exciter-voltage.

3. The combination of a dynamo-electric machine, comprising field-magnets and a commutated armature having a single armature-winding, with a source of alternating currents, and means for passing through said armature alternating currents from said alternating source, whose alternations are synchronous with the magnetic phases induced in said armature by its field-magnets, substantially as set forth.

4. The combination of a dynamo-electric machine having an armature which revolves in a magnetic field, a source of alternating current, and means for connecting said source of current with the armature-winding of said dynamo-machine at such points that the polarities induced in the armature by the alternating current are of opposite sign to the adjacent field-magnet poles and somewhat ahead of the magnetization induced in the armature by its own field-magnets, substantially as set forth.

5. The combination with the field-magnets and armature of an alternating-current machine of an exciter-machine comprising an armature, field-magnets and a commutator, the commutator being connected to the armature-winding of the exciter and delivering current to the field-magnet systems of both the main alternator and exciter, and connections from the armature of the main alternator to that of the exciter for passing the current of the main machine through the armature of the exciter, substantially as set forth.

6. The combination of an alternating-current dynamo-electric machine, with an exciter having a commutated armature connected with the field-coils of the main machine, and a transformer whose windings are respectively in circuit with the external circuit of the main machine and with the armature of the exciter.

7. The combination of an alternating-current dynamo-electric machine, with an exciter-machine, and inductive apparatus connecting indirectly the armature-circuits of the two machines, and means for varying the current through said inductive apparatus, substantially as set forth.

8. The method of regulating an alternating-current dynamo-electric machine which consists in causing the main current to strengthen the exciting-current with an increase of lag, and to weaken it with an increase of lead.

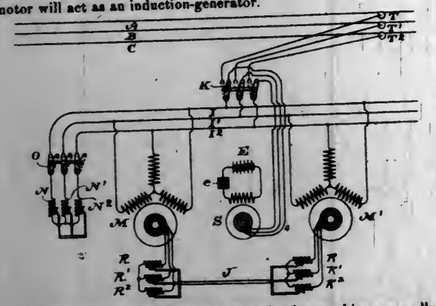
9. The method of regulating an alternating-current dynamo-electric machine, which consists in automatically increasing its internal electromotive force with any positive increase of lag of the current passing through the machine, and decreasing its internal electromotive force with any negative increase of lag.

10. The method of regulating a dynamo electric machine, which consists in automatically increasing its field-magnet excitation with any increase of load and with any increase of lag, and decreasing its field-magnet excitation with any decrease of load and with any decrease of lag.

11. The combination with a dynamo-electric machine, of a source of current supplying exciting-coils on its field-magnets, and electro-responsive means controlled by the circuit of the machine for increasing the exciting-current with an increase of lag or a decrease of lead, and decreasing it with a decrease of lag or an increase of lead.

595,413. **BRAKING ALTERNATING-CURRENT INDUCTION-MOTORS.** EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 6, 1897. Serial No. 626,287. (No model.)

Claim.—1. The method of braking the load connected to an induction-motor, which consists in connecting the motor with a circuit capable of absorbing energy, and passing through its inducing member an alternating magnetizing-current, of a frequency such that the motor will act as an induction-generator.



2. The combination of one or more induction-machines normally supplied with power and working as motors, with a phase-setter and means for cutting off the power-circuit and connecting a circuit capable of absorbing energy and the phase-setter to the terminals of the induction-machine, whereby the induction-machine will be driven as a generator, and brake the mechanism to which it is connected, as described.

3. The combination of one or more induction-motors for propelling a car or vehicle, with a phase-setting machine and means for cutting off the power-supply, and connecting a circuit capable of absorbing energy, and the phase-setting machine, to the primaries of said motor, the whole being so arranged that the induction-motor will be driven above synchronism and act as a generator, for the purpose set forth.

4. The combination of one or more induction-motors, a driven mechanism, a synchronous machine, means for cutting off the power-supply and connecting the induction and synchronous machines in a local circuit, for braking purposes, as set forth.

5. The combination in an electric traction system, of a car, a multiphase induction-motor for normally driving the car, a synchronous machine carried on the car, means for cutting off the power-circuit from the induction-machine, and for connecting the synchronous machine, the induction-machine and a non-inductive resistance in multiple in a closed local circuit, the whole being so arranged that upon braking the car the synchronous and induction machines are both driven by the car-axles, and the induction-machine driven above synchronism, for the purpose set forth.

6. The combination in an electric traction system of an induction-motor for propelling the car, a synchronous machine of comparatively small power but of high voltage relatively to the voltage of the power-circuit, means for cutting off the power-circuit, and for coupling the synchronous and induction machines in a closed local circuit, the synchronous and induction machines being so designed and arranged that the induction-machine is driven above synchronism as a generator delivering energy to the local circuit, as set forth.

7. The combination in an electric traction system of means for braking an electrically-driven car comprising an alternating-current motor geared to the axle of the car, and having its primary winding closed through a non-inductive resistance, and means for causing the motor to act as an induction-generator driven above synchronism.

8. The combination in an alternating-current traction system of an alternating-current induction-motor, having its primary winding connected in a local circuit with a phase setting machine and with a non-inductive resistance, the said motor being so arranged as to be driven by the car above synchronism, as set forth.

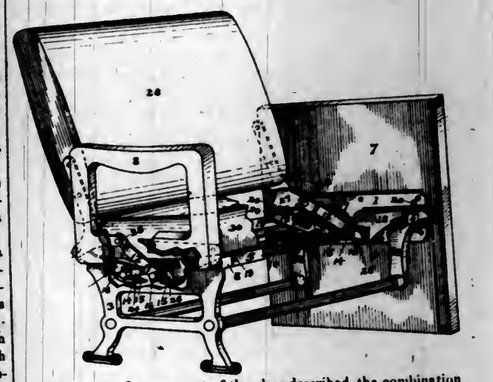
595,414. NURSING-BOTTLE. JAMES C. ROACH, Bath Beach, N. Y., assignor of one-half to Richard J. Keeffe, New York, N. Y. Filed Feb. 18, 1897. Serial No. 623,922. (No model.)

Claim. 1. As a new article of manufacture, a nursing-bottle having a passage or opening therethrough; in combination with a ring adapted to engage the neck of the bottle, said ring having flexible cords extended therefrom connected to a nipple adapted to pass through said opening and engage the mouth of the bottle, said ring, cords and nipple being integral, thereby forming a loop attachment of the nipple to the bottle, substantially as shown and described.

2. In a nursing-bottle of the character described and embodying an aperture through the upper portion thereof; a nipple adapted to engage the mouth of the bottle and provided with flexible cords extended from opposite sides thereof and attached to an elastic ring adapted to engage the neck of the bottle, said cords passing through the aperture, and the nipple, ring and cords being integral, whereby the said nipple is secured in engagement with the body of the bottle and the neck thereof, substantially as shown and described.



595,415. CAR-SEAT. ROBERT ROCHESTER, Dayton, Ohio, assignor to the Barney & Smith Car Company, same place. Filed Nov. 2, 1896. Serial No. 610,829. (No model.)



Claim.—1. In a car-seat of the class described, the combination of a frame, consisting of a pair of end plates having sockets formed thereon, and a pair of rails, the ends of which are held in said sockets, a pair of shiftable rockers, a detachable cushion-frame carried by said rockers, guides formed on said sockets to retain said rockers in line, a shiftable back, mechanism connecting said back with said rockers, whereby the latter is shiftable horizontally of the seat by the movement of the former, and arms formed on said rockers to prevent their displacement when the cushion-frame is removed, substantially as set forth.

2. In a car-seat of the class described, the combination of a frame, consisting of a pair of end plates having sockets formed thereon; and a pair of rails, the ends of which are held in said sockets, a pair of shiftable rockers, a detachable cushion frame carried by said rockers, guides formed on said sockets to retain said rockers in line, a shiftable back, mechanism connecting said back with said rockers, whereby the latter are shiftable horizontally of the seat by the movement of the former, arms formed on said rockers to prevent their displacement when the cushion-frame is removed, pins formed on said rockers and projecting upwardly therefrom, and holes in the under side of said cushion-frame to engage said pins, substantially as set forth

3. In a car-seat of the class described, the combination of a frame, consisting of a pair of end plates having sockets formed thereon; and a pair of rails, the ends of which are held in said sockets, a seat-back, a pair of lever-arms, substantially equal in length, pivotally connected, at or near their upper extremities to each end of the back at or near the bottom thereof, and having their lower extremities pivoted to said end plates near the center thereof, the said upper pivotal connections being arranged at an angle to the plane of the back, a pair of shiftable rockers operated by the movement of the back, guides located on said sockets for retaining the said rockers in line, arms formed on said rockers to prevent their displacement, and stops for limiting the movement of said lever-arms, substantially as described.

4. In a car-seat of the class described, the combination with a back, and a frame consisting of a pair of end plates having sockets formed thereon; and a pair of rails, the ends of which are held in said sockets, of a pair of lever-arms substantially equal in length, pivotally connected near their upper extremities to each end of the back at or near the bottom thereof, the said upper pivotal connections being arranged at an angle to the plane of the back, a pair of shafts pivotally mounted in the said end plates and to the ends of which the lower extremities of the said lever-arms are attached, whereby the said shafts are rotated by the movement of the back, a pair of shiftable rockers, and a cushion-frame carried by the said rockers, guides located on the said sockets for retaining the said rockers in line, arms formed on the said rockers for preventing their displacement, and means for operating the said rockers by the movement of the back, substantially as described.

5. In a car-seat of the class described, the combination of a back, and a frame consisting of a pair of end plates having sockets formed thereon; and a pair of rails whose ends are held in said sockets, of a pair of lever-arms substantially equal in length and arranged substantially parallel with each other, the said lever-arms being pivotally connected, at or near their upper extremities, to each end of the back, at or near the bottom thereof, and to the said end plates at or near their lower extremities, each of said lever-arms having a hub projecting at an angle thereto, and a cam projecting at an angle to said hub, a pair of rockers, a detachable cushion-frame, holes in the under side of said cushion-frame, pins projecting upwardly from said rockers and adapted to engage said holes, the said rockers being shiftable horizontally of the seat through the medium of ears attached thereto or formed integral therewith, and projecting from the inner sides of said rockers at an angle thereto, and which said cams impinge said ears, whereby the shifting of the back imparts a rocking movement to the said rockers thereby causing the said cushion-frame to automatically move with the back, guides located on the said sockets for retaining the said rockers in line, arms attached to, or formed integral with the said rockers for preventing their displacement when the cushion-frame is removed, and a stop for limiting the downward movement of the back, substantially as set forth.

6. In a car-seat of the class described, the combination of a shiftable back, and a frame consisting of a pair of end plates having sockets formed thereon; and a pair of inclined-surfaced rails, the ends of which are held in said sockets, of a pair of rockers having inclined surfaces corresponding with those of said rails, pins projecting upwardly from said rockers, a cushion-frame carried by the said rockers and having holes adapted to engage the said pins, the said rockers being automatically shifted to and fro, on, and up and down the inclined surfaces of the said rails by suitable mechanism connecting the said rockers with the said back, guides located on the said sockets for retaining the said rockers in line, and arms attached to or formed integral with the said rockers, whereby displacement of the latter, when the cushion-frame is removed, is prevented, substantially as set forth.

7. In a car-seat of the class described, a shiftable back, and a frame consisting of a pair of end plates having sockets formed thereon; and a pair of rails, the ends of which are held in said sockets, a plurality of lever-arms pivotally connecting the back with the frame, each of the said lever-arms having a projecting hub formed on the inner side thereof at or near their lower ends and each hub being provided with a cam, a pair of shafts rotatably mounted in said frame and passing through said hubs and lever-arms and to which the said shafts are secured, the said hubs and lever-arms being split to form a spring fit around the shafts, in combination with a pair of rockers provided with ears which cooperate with the said cams and shift the rockers by the movement of the back through the medium of the lever-arms, substantially as set forth.

595,416. LOOM-SHUTTLE. JAMES C. SERGESON, Philadelphia, Pa. Filed Apr. 24, 1897. Serial No. 633,671. (No model.)



Claim.—1. In a shuttle, a tension-adjusting sleeve open throughout having a throat in its side toward the spindle, a recess on its upper wall or edge and shoulders rising from said wall at the terminals of said recess, and means on the body of the shuttle adapted to engage either of said shoulders.

2. In a shuttle, a tension-adjusting sleeve open throughout having a throat in its side toward the spindle, a recess on its upper wall or edge and shoulders rising from said wall at the terminals of said recess, in combination with a screw which is connected with the body of the shuttle and having its head adapted to overlap said recess and engage either of said shoulders

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595,417. LOOM. PETER C. STADLER, Paterson, N. J., assignor to the William Strange Company, of New Jersey. Filed July 16, 1897. Serial No. 644,752. (No model.)



Claim. 1. In a loom, the combination of the batten, the shuttle rack-bar and means for operating the latter, with antifriction guide devices placed upon opposite sides of and in contact with said rack-bar between which antifriction guide devices the rack-bar is adapted to reciprocate, and means for regulating the degree of pressure of said antifriction guide devices upon said rack-bar, substantially as shown and described.

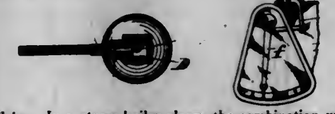
2. In a loom, the combination of the batten, the shuttle rack-bar and means for operating the latter, with a stationary antifriction guide-roller placed upon the batten on one side of the rack-bar and in contact therewith, and a similar movable roller on the opposite side of said rack-bar and means for pressing said last mentioned roller against the rack-bar, substantially as shown and described.

3. In a loom, the combination of the batten, the shuttle rack-bar and means for operating the latter, with a stationary antifriction guide-roller placed on the batten on one side of the rack-bar and in contact therewith, a sliding plate secured to the batten on the opposite side of said rack-bar, an antifriction guide-roller mounted on said plate, and means for moving said sliding plate toward said rack-bar, substantially as shown and described.

4. In a loom the combination of the batten A, the shuttle rack-bar R and means for operating the latter, the antifriction guide-rollers F, F', the sliding plate G on which is mounted the roller F', and means for regulating the degree of pressure between said rollers and the rack-bar, substantially as shown and described.

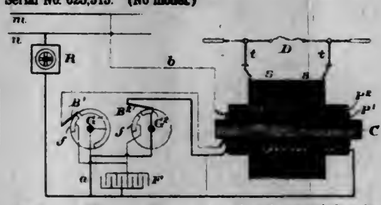
5. The combination of the following elements in a loom, viz., the batten A, the shuttle rack-bar R and means for operating the latter, the stationary antifriction guide-roller F, the antifriction guide-roller F' mounted on the sliding plate G, the said sliding plate G, and the spring S, which latter is adapted to move said sliding plate toward the rack-bar, substantially as shown and described.

595,418. WATER-INDICATOR AND ALARM FOR STEAM-BOILERS. LEOPOLD STRICKRT, Cincinnati, Ohio. Filed May 12, 1897. Serial No. 636,202. (No model.)



Claim.—In a steam-boiler alarm, the combination, with a shell or chamber connected with the boiler, of two alarm devices thereon, a rock-shaft between the alarms provided with an arm at one end and with an upright between the alarms and adapted to engage with either one of them, a rock-shaft journaled in the shell or casing, the inner end of which is provided with a float and the outer end is provided with an indicating-finger, and a pivoted rod connecting the finger with the arm on the first-mentioned rock-shaft, substantially as set forth.

595,419. METHOD OF AND APPARATUS FOR CONVERTING ELECTRIC CURRENTS. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Feb. 27, 1897. Serial No. 625,315. (No model.)



Claim.—1. The art of converting electric energy herein set out, which consists in energizing a coil at relatively high potential, breaking the circuit of the coil and at about the same time closing the circuit of a low-potential coil in inductive relation thereto, and then interrupting the current-flow in the second coil, thereby setting up in another coil the desired electromotive forces.

2. The art of converting electric energy herein set out, which consists in energizing by continuous current a coil at relatively high potential, breaking the circuit of the coil at the time of maximum current-flow, at about the same time closing the circuit of another coil in inductive relation thereto, and breaking the circuit of the second coil when it attains its maximum energy, thus setting up in another coil the desired electromotive forces.

3. An inductive device for converting electric energy, consisting of a primary wound for relatively high potentials, a secondary of low resistance, and another coil wound for high potentials, with means for suitably interrupting in sequence the circuits of the first two coils.

4. An inductive device comprising a core, a primary coil wound for moderately high potentials, a secondary coil of low resistance, and a third coil wound for high potentials, the primary coil and the third coil being electrically connected so that the entire finer winding of the coil is utilized to generate a high-potential charge.

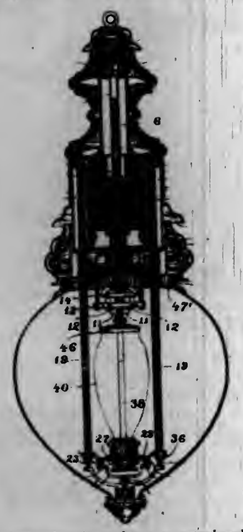
5. In combination, mains carrying continuous current of relatively high potential, an inductive device comprising a primary fed from the mains, a secondary in inductive relation to the primary, and a third coil in inductive relation to the other two, with means for interrupting the primary circuit and closing the normally open secondary circuit at about the same time.

6. In combination, mains carrying continuous current of relatively high potential, an inductive device comprising a primary fed from the mains, a secondary of low resistance and a third coil, the three coils in inductive relation on a common core, with means for breaking the primary circuit and closing the normally open secondary circuit at about the same time, and for subsequently opening the secondary circuit.

7. In combination, mains carrying continuous current of relatively high potential, an inductive device comprising a primary fed from the mains, a secondary of low resistance and a third coil, the three coils in inductive relation on a common core, with means for breaking the primary circuit closing the normally open secondary circuit at about the same time, subsequently opening the secondary circuit, and for connecting a condenser across the terminals of the primary and secondary circuits at desired times.

8. An inductive device of the class described, comprising a core with three substantially independent windings thereon, means for opening and closing the circuits of two of the coils in succession, and means for throwing a condenser across the terminals of each coil as it is opened.

595,420. **ELECTRIC-ARC LAMP.** ELIHU THOMSON, Swampscott, and CHARLES R. HARTRAN, Lynn, Mass., assignors to the General Electric Company, of New York. Filed June 12, 1897. Serial No. 640,472. (No model.)



Claim.—1. In an electric-arc lamp, a central carbon-carrying device, a yoke secured thereto, dash-pots suspended from said yoke parallel with the carbon-carrying device, and pistons engaging said dash-pots, as set forth

2. In an electric-arc lamp, the combination, with a tube for receiving and permitting vertical play therein of the upper carbon, of a clutch consisting of a yoke secured to said tube, vertical guide-rods, a cross-piece mounted to slide on said guide-rods, bell-crank levers pivoted to said cross-piece and pivoted at their upper ends to said yoke, and bent so that one bell-crank lever passes on one side of said tube and the other bell-crank lever passes on the other side of said tube, and clamping-jaws pivoted to the lower ends of said bell-crank levers and adapted to clamp the carbon, as set forth.

3. In an electric-arc lamp, a solenoid located centrally in the lamp and having a tubular solenoid-core, a vertically-movable tube extending through said solenoid-core to which the latter is attached, a clutch mechanism connected to said tube, a carbon vertically movable in said tube, a casing surrounding the magnet-coil, a second casing surrounding the magnet-coil casing, and an air-space between said two casings, and vertical guide-rods for the outer globe extending between said casings, as set forth.

4. In an arc-lamp, a central vertically-movable tube for carrying the upper carbon, a pair of dash-pots yoked to said tube, and pistons for said dash-pots mounted on the main frame, as set forth.

5. In an arc-lamp, a centrally-located inclosed solenoid, a resistance arranged adjacent to and about said solenoid, an outer casing with an air-space between it and the solenoid-casing and having a hood at its bottom, and a second outer casing below the first outer casing and ventilated at its top and bottom.

6. In an electric-arc lamp, a clutch mechanism consisting of a fixed yoke, vertical guide-rods, a cross-piece vertically movable on said guide-rods, bell-crank levers pivoted to said cross-piece and having horizontal upper portions pivoted to the yoke and bent on opposite sides to the carbon to clear the latter, and rocking clutching jaws pivoted to the lower ends of the bell-crank levers, as set forth.

7. In an electric-arc lamp, a central vertically-movable support for the upper carbon, in combination with parallel dash-pots yoked to said carbon-support, and arranged on the sides of said support, as set forth.

8. In an electric-arc lamp, a centrally-located movable carbon-carrying tube, a yoke secured thereto, dash-pots suspended from said yoke and parallel with the carbon-carrying device, and pistons engaging said dash-pots; in combination with a solenoid located centrally in the lamp and having a tubular solenoid-core attached to the said vertically-movable carbon-carrying tube which extends through said solenoid-core, a clutch mechanism connected to said tube, a carbon vertically movable in said tube, a casing surrounding the magnet-coil, a second casing surrounding the magnet-coil casing and forming an air-space between said casings, and vertical guide-rods for the outer globe extending between said casings, as set forth.

9. In an electric-arc lamp, a magnet-coil, a tube extending centrally through said coil, and suspended from its dash-pot, an upper carbon located in said tube, and a tubular solenoid-core surrounding said tube and secured thereto; in combination with a clutch mechanism consisting of a fixed yoke, vertical guide-rods, a cross-piece vertically movable on said guide-rods, bell-crank levers pivoted to said cross-piece and having horizontal upper portions pivoted to the yoke and bent on opposite sides to the carbon to clear the latter, and rocking clutching-jaws pivoted to the lower end of the bell-crank levers, as set forth.

10. In an arc-lamp, a centrally-located movable tube for carrying the upper carbon, having an opening in its side permitting of access to and removal of the carbon when broken, as set forth.

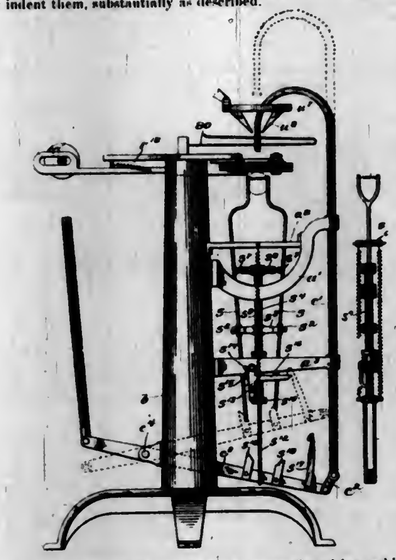
595,421. **WRAPPING-MACHINE.** SETH D. TRIPP, Lynn, Mass. Filed July 31, 1896. Serial No. 601,167. (No model.)

Claim.—1. In a wrapping-machine, a set of corrugating or indenting jaws consisting of two piles of plates, the plates of each pile being separated to provide spaces in which the plates of the other pile work, one of said piles of plates comprising several two-armed plates connected together at the junction of the arms thereof, leaving the extremities of the arms free to work in the spaces of the other pile, substantially as described.

2. In a wrapping-machine, a set of corrugating or indenting jaws consisting of two piles of two-armed plates, the plates of each pile being connected together at the junction of the arms thereof, leaving the extremities of the arms free and separated to receive between them the arms of the other pile, and means for moving said piles of plates toward and from each other, substantially as described.

3. In a wrapping-machine, a set of corrugating or indenting jaws consisting of two piles of plates, means for holding the plates of each pile together and separated short distances apart to provide spaces in which the plates of the coöperating pile work, and a yielding device for each pile of plates constructed and arranged to permit the plates of each pile to separate more or less as required, substantially as described.

4. In a wrapping-machine, a holder, means for raising and lowering it, means for forcing the article with its wrapper into said holder when the latter is in its elevated position, a set of corrugating or indenting jaws, means for separating them to provide an opening for the passage of the holder, and means for thereafter closing them together as the holder resumes its lowermost position to gather in the edges of the wrapper, jam them together and more or less corrugate or indent them, substantially as described.



5. In a wrapping-machine, a holder, means for raising and lowering it, means for forcing the article with its wrapper into said holder when the latter is in its elevated position, a set of jaws, means for separating them to provide an opening for the passage of the holder, and means for thereafter closing them together as the holder resumes its lowermost position to gather in the edges of the wrapper, substantially as described.

6. In a wrapping-machine, a set of corrugating or indenting jaws consisting of two piles of separated plates yieldingly connected together, the plates of each pile being cut to present arms projecting at substantially right angles with relation to each other, and means for moving said piles of plates toward and from each other, substantially as described.

7. In a wrapping-machine, a set of corrugating or indenting jaws consisting of two piles of plates, the plates of each pile being formed to present arms projecting at substantially right angles to each other and said piles of right-angular plates being placed opposite each other, a bolt connecting the plates of each pile together at the junction of the right-angularly-projecting arms, leaving the extremity of the arms of each pile free and separated to receive between them the arms of the other pile, and means for moving said piles of plates toward and from each other, substantially as described.

8. In a wrapping-machine, a set of jaws adapted to gather in the edges of the wrapper and jam said gathered-in edges together, rack-bars connected to said jaws, two pinions in engagement therewith, and means substantially as described for revolving said pinions in opposite ways, substantially as described.

9. In a wrapping-machine, a holder having at its upper end an expansible unbroken ring-like opening into the grasp of which the orange or other article and its wrapper are forced, and by which said wrapper is more or less gathered about the article, substantially as described.

10. In a wrapping-machine, a rising-and-falling holder having at its upper end an expansible ring-like opening into the grasp of which the orange and its wrapper are forced and by which said wrapper is more or less gathered about the article, substantially as described.

11. In a wrapping-machine, a holder consisting of arms connected together at their upper ends by spiral springs to thus form an expanding ring-like opening down through which the orange or other article and its wrapper are forced and by which said wrapper is more or less gathered about the article, substantially as described.

12. In a wrapping-machine a holder consisting of a pair of arms connected together at their upper ends to form a ring-like opening thereat, into the grasp of which the orange or other article is forced with its wrapper, and means for separating said arms for the discharge of the wrapped article, substantially as described.

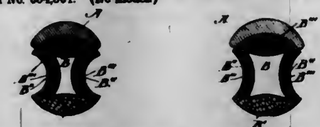
13. In a wrapping-machine, a holder consisting of arms having an expansible ring-like opening at their upper ends, means for raising and lowering said arms, and means for separating them for the discharge of the wrapped article, substantially as described.

14. In a wrapping machine, a holder consisting of yielding arms, means for raising said arms, means for forcing the article with its wrapper into the grasp of said arms, means for lowering the arms, and means for separating them for the discharge of the wrapped article, substantially as described.

15. In a wrapping machine, a holder consisting of yielding arms, means for raising them, means for forcing the article with its wrapper into the grasp of said arms, means for lowering the arms, carrying the article and its wrapper, a locking device for holding them in their lowermost positions, means for separating them for the discharge of the wrapped article, and means for releasing said locking device, substantially as described.

16. In a wrapping-machine, a holder consisting of yielding arms, means for raising them, means for forcing the article with its wrapper into the grasp of said arms, means for lowering the arms, a locking device for holding them in their lowermost position, gathering-in devices for the edges of the wrapper operative while the article is thus held by the arms, means for then separating said arms for the discharge of the wrapped article, and means for releasing said locking device for the return of the arms, substantially as described.

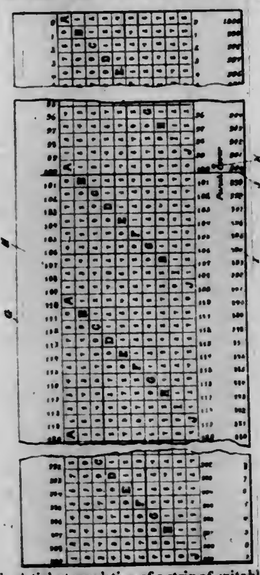
595,422. **PNEUMATIC TIRE.** EDWIN G. VAN ZANDT, St. Louis, Mo., assignor to F. R. Niesen, trustee, same place. Filed Apr. 29, 1897. Serial No. 634,361. (No model.)



Claim.—1. A tire for bicycles or other vehicles, the same comprising a base portion adapted to fit in a concaved rim, a tread portion, and inwardly-curved side walls which move inwardly toward each other when the tread portion is pressed inwardly by contact with the ground; substantially as described.

2. The combination with a concaved rim A, of a tire B having a base portion fitting in the concavity of said rim, a tread B', and side walls B'' which are curved inwardly, said curved portions being regularly curved from the tread to the base portion; substantially as described.

595,423. **MILEAGE-TICKET AND COVER THEREFOR.** HUGH M. WRIGHT, Ravenna, Ohio. Filed July 8, 1896. Serial No. 598,384. (No model.)

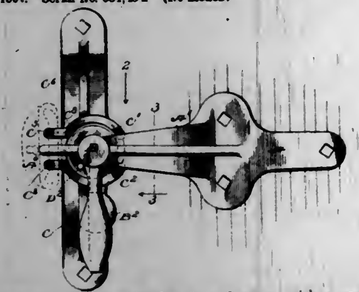


Claim.—1. A ticket consisting of a strip of suitable material having longitudinal lines inscribed thereon so as to form ten spaces, said

spaces being divided into squares by cross-lines, said squares being designated by numbers and letters, as described, the columns of squares being designated from "0," to any number in one direction and from "1," to any number in the opposite direction, lines of greater width than those forming the squares so located as to determine every hundred squares lengthwise of the ticket and arbitrary signs placed at intervals along the strip in combination with a cover in which the ticket is secured having similar arbitrary signs placed thereon, substantially as and for the purpose set forth.

2. In a device of the character described, a ticket consisting of a strip of suitable material having inscribed thereon longitudinal lines so as to form ten spaces, vertical lines dividing said spaces into squares said squares of each space being designated in series from "1" to "9," each tenth square being designated by a letter or arbitrary sign, the same sign being used throughout each space, but no two spaces using the same sign, the numbers in each vertical column starting from the number of the upper square in that column and proceeding downwardly consecutively, the vertical columns being designated in the margin from "0" to any number on one side in one direction and from "1" to any number on the margin of the other side in the opposite direction, vertical lines of greater width than those forming the squares so located as to determine every hundred squares lengthwise of the ticket, arbitrary signs placed at intervals along the strip in combination with a cover in which said ticket is secured, composed of two sections secured together so as to open and close, an angular strip secured on the end of one section and adapted to be pressed against the end of the other, said cover having a series of arbitrary signs similar to those on the strip, as and for the purpose described.

595,424. LATCH. AUSTIN ADAMS, New York, N. Y. Filed Apr. 9, 1897. Serial No. 631,454. (No model.)



Claim.—1. The combination, in a fastener, with a projecting bracket provided with a locking-arm projecting therefrom and carrying a handle and a preferably weighted lever, of retaining means provided with a jaw narrowed toward its extremity, the said jaw being provided upon its outer face with a fastening device, as an eye, and also of means, as a locking-bar, whereby the said parts may be directly engaged with each other and the movement of the parts prevented.

2. The combination, in a fastener, with a projecting bracket carrying a handle and a preferably weighted lever, of a keeper consisting of a retaining-jaw and a forwardly-arched bracket and means for securing said bracket in position, said means located in vertical line with said jaw, whereby any strain upon said jaw is in line with the securing means for said bracket, as specified.

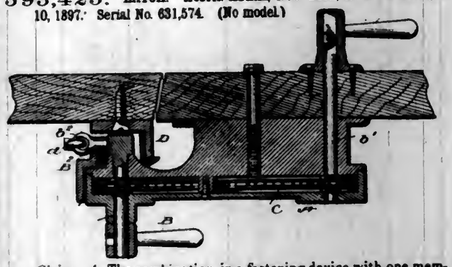
3. In a fastening device, the combination, with one member consisting of a latching device, of another member constituting a keeper, the two members being respectively secured to a door and jamb of a compartment, one of the said members being permanently provided with a secondary and independently manually-operated device, as a handle, located in a part of said member so that their relative positions may always be the same, the said secondary handle extending within the compartment.

4. In a fastening device, the combination, with one member consisting of a self-latching device, as a pivoted or swinging latch, of another member constituting a keeper, the two being respectively secured to a door and jamb of a compartment and being constructed and arranged to become automatically engaged upon the door being closed, the keeper, attached to the jamb, being permanently provided with a secondary and independent manually-operated device, as a handle, located in a part of said member, so that their relative positions may always be the same, the said secondary handle extending within the compartment, whereby the members may also be disengaged.

5. In a latching device, to be applied to a door, &c. of a wall, the combination, with a rotating or swinging latch, and with a keeper having an inclined edge or way engaged by said latch, of a rotating shaft axially disposed as regards the said keeper and passing to the opposite side of the wall, said shaft being permanently located in a part of said member so that their relative positions may always be the same and provided at its forward end with an operating-finger or projection and at its opposite end with an operating-handle, whereby the latch may be fastened or released from either side of the wall

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595,425. LATCH. AUSTIN ADAMS, New York, N. Y. Filed Apr. 10, 1897. Serial No. 631,574. (No model.)



Claim.—1. The combination, in a fastening device with one member constituting a keeper provided with spirally inclined edges or ways, of another member constituting a latching device and provided with two actuating handles located a distance apart, and projecting from different sides of said member

2. The combination, in a fastening device, with one member constituting a keeper, of another member constituting a latching device and provided with two actuating-handles located a distance apart and projecting from different sides of said member, and also with intermediate connecting means whereby the said handles are constructed and arranged to act in unison, when either handle is operated.

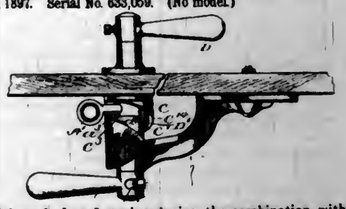
3. The combination, in a fastening device, with one member constituting a keeper, of another member constituting a latching device and provided with two actuating-handles located a distance apart and projecting from opposite sides of said member, and also with intermediate connecting means consisting of a sprocket-chain, whereby the handles act in unison, when either handle is operated.

595,426. LATCH. AUSTIN ADAMS, New York, N. Y. Filed Apr. 10, 1897. Serial No. 631,575. (No model.)



Claim.—The combination, in a fastening device, with a fixed projection, of a rotatory latching device, and a handle for actuating the same, said latching device consisting of a hub provided with a spirally-inclined edge or way extending around the periphery of the same, whereby the projection may have free ingress and egress to said spiral way when the latch is in its normal inoperative position, without impinging the latchway, as specified.

595,427. LATCH. AUSTIN ADAMS, New York, N. Y. Filed Apr. 20, 1897. Serial No. 633,059. (No model.)



Claim.—1. In a fastening device, the combination, with a tubular keeper, the longitudinal axis of which is substantially at right angles to the plane or face of the support thereof, provided with a spirally-inclined edge and a spiral slot having a downwardly and rearwardly inclined anterior face, of a relatively movable latch consisting of a pivoted or swinging arm whereby a door may be crowded into its frame by means of the engagement of the pivoted latch with the anterior face of said slot.

2. In a fastening device, the combination, with a pivoted or swinging latch, of a tubular keeper the longitudinal axis of which is substantially at right angles to the plane or face of the support thereof, provided with a spiral slot the rear edge of which inclines downwardly and rearwardly, against which the latch works, whereby upon releasing the latch, the door is forced open, substantially as described.

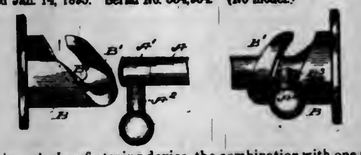
3. In a latching device the combination, of a pivoted or swinging latch, of a tubular keeper, the longitudinal axis of which is substantially at right angles to the plane or face of the support thereof provided with a spiral slot extending rearwardly, said latch engaging the anterior and posterior edges of said slot, whereby in locking the latch the door is crowded into its seat and, in releasing such latch, the door is forced open, as specified.

4. In a latching device the combination, with a rotating or swinging latch, a tubular keeper having a spiral slot engaged by said latch of a rotating shaft passing axially through said tubular keeper to the opposite side of the door, said shaft provided at its forward end with an operating finger or projection, and at its opposite end with an operating-handle, whereby the latch may be fastened or released from either side of the door, as specified.

5. A latch keeper having attaching means and a tubular portion provided with a spirally-inclined edge and a spiral slot cut through the wall thereof and extending rearwardly and downwardly, the longitudinal axis of said tubular portion extending substantially at right angles to the plane or face of the support thereof, as specified.

6. In a latch consisting of two members respectively secured to a door and jamb, the combination, with a keeper provided with a spirally-inclined edge and a spiral groove, of a pivoted or swinging latch, and a handle having a limited rotary movement with respect to said latch, as specified.

595,428. HOLDER FOR DOORS. AUSTIN ADAMS, New York, N. Y. Filed Jan. 14, 1895. Serial No. 534,934. (No model.)



Claim.—1. In a fastening device, the combination with one member, provided with an upwardly and rearwardly inclined spiral edge or way, terminating in a downwardly and forwardly inclined edge or way, of another relatively movable member, and means for retaining said movable member in engagement with said latter edge or way whereby the members may be engaged by a forward movement of the object to be fastened, and unlocked by a slight forward-and-backward movement of the said object.

2. In a fastening device consisting of two relatively movable members, the combination with one member provided with a pivoted or swinging latch of another member comprising a hollow tubular keeper provided with an upwardly and rearwardly inclined spiral edge terminating in a downwardly and forwardly inclined slot or way whereby the movable member may become locked by a forward movement of the same and unlocked by a slight forward-and-backward movement of the said member.

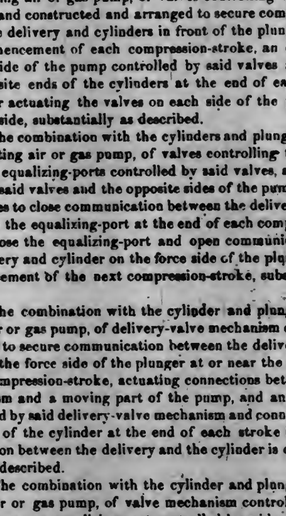
3. A hollow tubular keeper provided with an upwardly and rearwardly inclined spiral edge terminating in a downwardly and forwardly inclined slot.

4. A hollow tubular keeper provided with an upwardly and rearwardly inclined spiral edge and terminating in a downwardly and forwardly inclined slot, and also formed with an intermediate depression or recess between said spiral edge and inclined slot, as specified.

595,429. AIR OR GAS PUMP OR COMPRESSOR. LOUIS R. ALBERGER, New York, N. Y., assignor to the Henry R. Worthington, Elizabeth, N. J. Filed Aug. 6, 1894. Serial No. 519,560. (No model.)

Claim.—1. A duplex direct-acting air or gas pump provided with means for securing communication between the opposite ends of the respective cylinders at the end of each stroke, and for admitting fluid to the cylinders from another source to increase the pressure in front of the plungers above the suction-pressure at or near the commencement of each compression stroke, substantially as described.

2. A duplex direct-acting air or gas pump provided with means for securing communication between the opposite ends of the respective cylinders at the end of each stroke and securing communication between the delivery and the respective cylinders in front of the plungers at or near the commencement of each compression-stroke, substantially as described.



3. A duplex direct-acting air or gas pump provided with means for admitting fluid to the cylinders in front of the plungers at or near the commencement of each compression-stroke from a source of pressure substantially equal to that of the delivery, whereby substantially the delivery-load upon the plunger is secured during the first part of the stroke, substantially as described.

4. A duplex direct-acting air or gas pump provided with means for securing communication between the delivery and the respective cylinders in front of the plunger at or near the commencement of each compression-stroke, substantially as described.

5. The combination with the cylinders and plungers of a duplex direct-acting air or gas pump, of delivery-valves constructed and arranged to secure communication between the delivery and the respective cylinders on the force side of the plungers at or near the commencement of each compression-stroke, and actuating connections between said valves and moving parts of the opposite side of the pump, substantially as described.

6. The combination with the cylinders and plungers of a duplex direct-acting air or gas pump, of valves controlling the suction and delivery, and constructed and arranged to secure communication between the delivery and cylinders in front of the plungers at or near the commencement of each compression-stroke, an equalizing port on each side of the pump controlled by said valves and connecting the opposite ends of the cylinders at the end of each stroke, and means for actuating the valves on each side of the pump from the opposite side, substantially as described.

7. The combination with the cylinders and plungers of a duplex direct-acting air or gas pump, of valves controlling the suction and delivery, equalizing-ports controlled by said valves, and connections between said valves and the opposite sides of the pump for actuating said valves to close communication between the delivery and cylinder and open the equalizing-port at the end of each compression-stroke, and to close the equalizing-port and open communication between the delivery and cylinder on the force side of the plunger before the commencement of the next compression-stroke, substantially as described.

8. The combination with the cylinder and plunger of a direct-acting air or gas pump, of delivery-valve mechanism constructed and arranged to secure communication between the delivery and the cylinder on the force side of the plunger at or near the commencement of the compression-stroke, actuating connections between said valve mechanism and a moving part of the pump, and an equalizing-port controlled by said delivery-valve mechanism and connecting the opposite ends of the cylinder at the end of each stroke before the communication between the delivery and the cylinder is opened, substantially as described.

9. The combination with the cylinder and plunger of a direct-acting air or gas pump, of valve mechanism controlling the suction and delivery, an equalizing-port controlled by said valve mechanism, and connections between said valve mechanism and a moving part of the pump for actuating said valve mechanism to close communication between the delivery and cylinder in front of the plunger and open the equalizing-port at the end of each stroke, and to close the

equalizing-port and open communication between the delivery and cylinder on the force side of the plunger at or near the commencement of the next compression-stroke, substantially as described.

10. The combination with pump-cylinder C having ports *h*, of oscillating valve *i* provided with equalizing-port 1, and constructed to connect ports *h* through the equalizing-port 1, when the delivery is closed and open the delivery to one end of the cylinder when the equalizing-port is closed and at or near the commencement of the compression stroke, of actuating connections between said valve and a moving part of the pump, substantially as described.

11. The combination with duplex pump-cylinders C, D having ports *h*, of oscillating valves *i*, *k* provided with equalizing-ports 1, 2, and constructed to connect ports *h* through the equalizing-ports 1, 2 in the respective cylinders when the delivery is closed and open the delivery to one end of the cylinder when the equalizing-port is closed and at or near the commencement of the compression-stroke, of actuating connections between each of said valves and the opposite side of the pump, substantially as described.

12. The combination with duplex pump-cylinders C, D having ports *h*, of oscillating valves *i*, *k*, controlling said ports, and connections between said valves and the opposite sides of the pump for shifting said valves to open the delivery on the force side of the plunger for the next stroke before the stroke is commenced, substantially as described.

13. The combination with duplex pump-cylinders C, D having ports *h*, of oscillating valves *i*, *k*, controlling said ports, and having equalizing-ports 1, 2, and constructed to connect ports *h* through the equalizing-ports when the delivery is closed, and connections between said valves and the opposite sides of the pump whereby said valves are actuated, substantially as described.

595,430. CHECKREIN-HOOK. JOHN T. ANDERSON, Ada, Minn. Filed June 5, 1897. Serial No. 639,531. (No model.)



Claim.—In combination, a base having a threaded shank, upper and lower recessed extensions extending from the base, an arm having a way formed on its surface, said arm being pivoted in the recess of the lower extension and lying in the recess of the upper extension and a spring secured in the base and extending up and lying in the recess of the arm and adapted to lie in the recess of the upper extension upon the removal of the arm, as and for the purpose described.

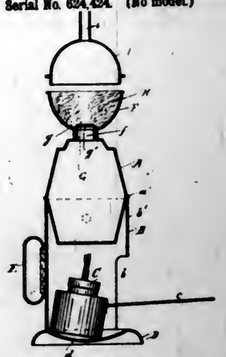
595,431. RIVETING-TOOL. WARREN J. BALL, Salem, Ohio. Filed May 6, 1897. Serial No. 635,679. (No model.)



Claim.—1. The combination of the housing or head 1, provided with the integral handle 2, the plunger-head 5 provided with the guide-flanges 6, and the parallel flanges 7 and 8, the pivoted handle 9, having its inner end loosely located between the flanges 7 and 8, ways formed in the housing, the plunger 11 located above the inner end of the handle 9, and the arm 3 provided with an adjustable die, substantially as and for the purpose specified.

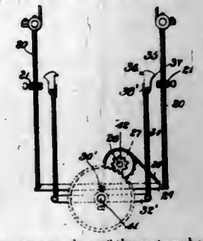
2. The combination of the housing 1, having located therein the plunger-head 5, said plunger-head guided in the grooves or ways 4 and flanges 6, the flanges 7 and 8 formed upon the head 5, the plunger 11 located above the head 5, the pivoted handle 9 loosely connected to the head 5 between the flanges 7 and 8 and below the plunger 11 and an arm provided with an adjustable die, substantially as and for the purpose specified.

595,432. VAPORIZER. GEORGE H. BELL, Brooklyn, N. Y. Filed Feb. 20, 1897. Serial No. 624,424. (No model.)



Claim.—In a vaporizer, the combination, with a boiler provided with a short pipe at its top, of an urn secured to the said pipe in close proximity to the boiler and provided with an annular recess *g* for medicament and a raised bottom portion G having a pin-hole *g'* in it for forming a steam-jet, substantially as set forth.

595,433. STOP-MOTION. JOHN A. BOLES, Fall River, Mass. Filed June 4, 1897. Serial No. 639,407. (No model.)



Claim.—1. In a stop-motion of the nature herein described, the combination with a belt-shipper, and a releasing mechanism therefor including a movable toothed member, of a pawl for actuating said member, the builder mechanism, and connections between the pawl and the builder mechanism.

2. In a stop-motion of the nature herein described, the combination with a belt-shipper, means for operating the same, and a releasing device for the shipper including a vertically-movable rack, of the builder mechanism, and a pawl operatively connected with the builder mechanism and adapted to be thrown into engagement with the rack.

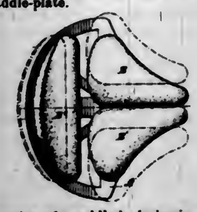
3. In a stop-motion of the nature herein described, the combination with the builder mechanism, and a swinging lever, a pawl-rod mounted on the lever, and a pawl on said rod, of a movable toothed member adapted to be engaged by the pawl, means for engaging the pawl with the member, and a belt-shipper-releasing device connected with said toothed member.

4. In a stop-motion, the combination with a belt-shipper, reciprocally mounted, and having a locking-finger, a pivoted locking device for engaging the finger, a vertically-movable rack, and a connection between the rack and the locking device, of a lever pivoted in the lower portion of the machine, a rod mounted on said lever, a pawl carried by the rod, and means whereby the pawl may be moved into engagement with the rack.

5. The combination with a reciprocal belt-shipper having an upwardly-extending lip, the standard 15 mounted adjacent thereto, the bell-crank lever having the arm 16 with the finger 17, for engaging the lip of the belt-shipper, and the arm 18, the chain 19, and the rack 23 vertically movable and having the pin 25 for engaging the chain, of the pivoted lever 32, means for operating the same, the rod 34 pivoted on the lever, the pawl 35 having the tooth 36 and the cam 37, mounted on the rod 34, the lifter-rod 20, and the collar 21 adjustably secured thereon, as described.

595,484. BICYCLE SADDLE. JOHN H. H. BURGE, Brooklyn, N. Y. Filed Oct. 20, 1896. Serial No. 609,390. (No model.)

Claim.—1. In a saddle, the combination of a saddle-plate, curved upward at the rear thereof, a plurality of triangular pads adjustably connected to the saddle-plate, forming the front of the saddle, and a rear pad adjustable longitudinally of the saddle on the curved portion of the said saddle-plate.

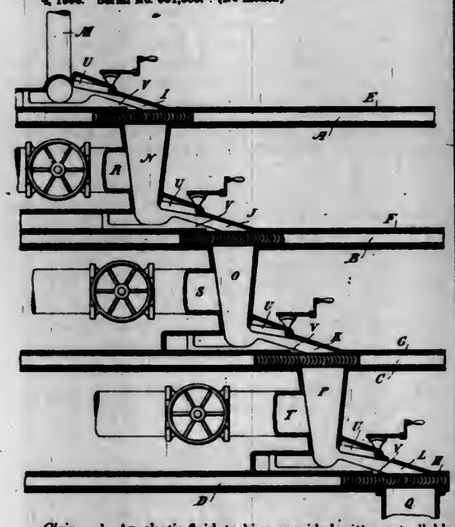


2. The combination of a saddle body having a curved rear portion substantially as described, combined with adjustable pads, the rear one of said pads conforming in shape to the curved rear portion of the saddle, whereby the rear portion of the saddle and the rear saddle pad will cooperate to center the said pad, as and for the purposes set forth.

3. A velocipede-saddle having a seat portion comprising three or more sections having substantially radial adjustments from the seat-center.

4. In a bicycle-saddle, the combination of a saddle-body, front pads extending longitudinally of the saddle-body and adjustable laterally with respect thereto, and a rear pad extending laterally of the saddle-body and adjustable longitudinally thereof.

595,485. ELASTIC-FLUID TURBINE. CHARLES G. CURTIS, New York, N. Y., assignor to the Curtis Company, same place. Filed Aug. 4, 1896. Serial No. 601,603. (No model.)



Claim.—1. An elastic-fluid turbine provided with controllable passages whereby the elastic fluid may be caused to act upon movable vanes a greater or less number of times in succession so as to secure different rates of speed economically, substantially as set forth.

2. An elastic-fluid turbine wherein the pressure of the elastic fluid is converted by expansion into velocity, and the velocity converted into mechanical motion, by stages, such turbine being provided with means for varying the number of expansion stages while maintaining practically the same total expansion, so as to obtain different speeds economically, substantially as set forth.

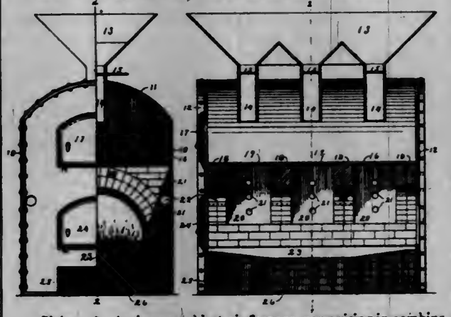
3. In an elastic-fluid turbine, the combination with two or more sets of rotating vanes, of passages whereby the elastic fluid may be passed through different numbers of movable vanes in succession and different rates of speed may be secured, substantially as set forth.

4. In an elastic-fluid turbine, the combination with a number of rotating wheels, of expansion nozzles or passages delivering the fluid to the wheels in succession, and connections whereby the fluid may be delivered to different numbers of such wheels, substantially as set forth.

5. In an elastic-fluid turbine, the combination of a number of rotating wheels and a number of expansion-nozzles delivering the elastic fluid to the several wheels in series or succession, such nozzles being adjustable to vary their cross-sectional area and also to vary the ratio of conversion of pressure into velocity, and exhaust connections from each wheel, whereby the number of wheels through which the fluid is passed may be varied and the speed changed, substantially as set forth.

6. In an elastic-fluid turbine, the combination of two or more wheels A, B, &c., two or more expansion-nozzles I, J, &c., having adjustable pieces U for varying the ratio of expansion and tongues V for varying the cross-sectional area of the nozzles, one or more connecting-passages N, &c., and one or more exhaust connections R, &c., substantially as set forth.

595,486. HOT-AIR FURNACE. SIMON DEWHIRST, Des Moines, Iowa. Filed Apr. 10, 1897. Serial No. 631,655. (No model.)



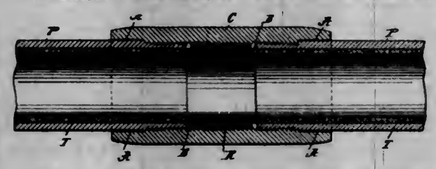
Claim.—1. An improved hot-air furnace, comprising in combination, inclosing walls, a grate extending longitudinally of the furnace from one end to the other, said inclosing walls having an opening at one end of the grate through which access may be had to the grate, and having at the other end of the grate an opening through which the heat and products of combustion pass, a series of transverse arches above the grate having spaces between them, a platform smaller than the interior of the furnace resting upon the central portions of the arches and designed to receive coal which when coked may be stoked through the spaces between the arches to the grate, said inclosing walls being air-tight above said platform, and means for supplying coal to the said platform, substantially as and for the purposes stated.

2. The combination with a furnace having inclosing walls and a grate, of a horizontal partition directly above the grate, and a series of arches, having openings between them, extending from the sides of the furnace and supporting the said partition.

3. The combination with a furnace having inclosing walls, a grate, and means for providing access to the interior of the furnace, of a horizontal partition directly above the grate and of approximately the length of but narrower than the furnace, a series of arches extending from the sides of the furnace and supporting the partition, the said arches having openings between them, perforated plates placed within the said openings, and pipes leading from the said perforations to points without the furnace to thereby provide air-passages, substantially as and for the purposes stated.

4. A slack-burning furnace, comprising sheet-metal sides, top, and ends, a grate, a horizontal partition 16 near the upper part of the furnace above the grate, a series of arches 18 supporting the said partition and having openings between them, perforated metal plates placed within the openings, pipes leading from the said perforations to points outside of the furnace, a hopper above the furnace, a number of pipes leading therefrom to the interior of the furnace, valves in said pipes, suitable doors at one end of the furnace, and a passage-way at the opposite end of the furnace leading from the combustion-chamber below the said partition, all arranged and combined substantially in the manner set forth and for the purposes stated.

595,437. PIPE OR TUBE COUPLING. EDWIN T. GREENFIELD, New York, N. Y. Filed Mar. 5, 1897. Serial No. 626,110. (No model.)



Claim.—1. A pipe or tube coupling screw-threaded interiorly and having projecting sleeves at its opposite ends, in combination with an

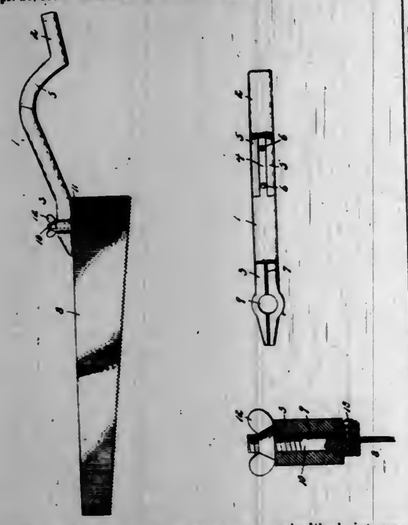
insulating-thimble secured near its central portion, substantially as described.

2. A pipe or tube coupling screw-threaded interiorly and provided with an insulating-thimble near its central portion, said coupling having projecting sleeves at its opposite ends, in combination with a pair of pipes or tubes screw-threaded at their adjacent ends and provided with insulating-linings adapted to abut against the ends of the thimble, the projecting sleeves of the coupling being adapted to fit snugly about the outer faces of the united pipes or tubes, substantially as described.

3. A pair of metal conduit-tubes P P screw-threaded at their adjacent ends and provided with insulating-linings T T, in combination with a screw-threaded coupling C having secured near its center an insulating-thimble R, said coupling being provided with projecting sleeves A A adapted to fit snugly about the body portions of the united tubes P P and all acting, substantially as and for the purpose described.

4. A pair of metal conduit-tubes screw-threaded at their adjacent ends and provided with insulating-linings of oil-cloth or other pliable material, in combination with a screw-threaded coupling having secured near its center an insulating-thimble, said coupling being provided with projecting sleeves adapted to fit snugly about the body portions of the united tubes, all of said parts being adapted to be bent without rupturing either the insulating-lining or the screw-threaded junctions, substantially as described.

595,438. SAW-HANDLE. SAM N. HALL, Holly Grove, Ark. Filed Apr. 29, 1897. Serial No. 634,315. (No model.)



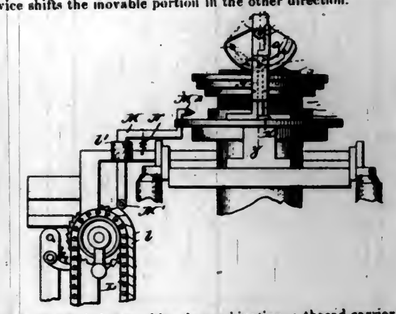
Claim.—1. A saw-handle composed of an arched body intermediate the saw seat and the handle, the handle thereof projecting from the rear end of the body and having an upward inclination relative to the plane of the saw-seat, substantially as described.

2. In a saw-handle, the combination with the curved or arched body portion 1 thereof, of the saw seat or socket 3 at one end of said body portion, and means for securing the saw therein, and a handpiece 2 at the opposite end of said body portion, the latter extending in a right line rearwardly and upwardly from the body portion relative to the plane of the saw-seat at the opposite end thereof, substantially as described.

595,439. KNITTING-MACHINE. HARRY A. HOUSEMAN, Philadelphia, Pa., assignor to the Standard Machine Company, of Pennsylvania. Filed Mar. 30, 1896. Serial No. 585,319. (No model.)

Claim.—1. In combination, in a knitting-machine, a thread-carrier, having a portion carrying a plurality of independent threads movable upon the main portion of the thread-carrier to bring the respective threads in and out of operative position, a cam moving with the thread-carrier and connected with the movable portion of the thread-carrier, a device adapted at predetermined points to be brought in line of movement of said cam whereby when said last-mentioned device strikes the cam the movable portion of the thread-carrier is shifted.

2. In a knitting-machine, in combination, a thread-carrier having a movable portion carrying a plurality of independent threads, a cam having a double surface, moving with the thread-carrier and connected with the movable portion of the thread-carrier, a device having two positions, one position in line of movement of one surface, the other in line of movement of the other surface, of the cam-operating mechanism for the knitting-machine, connection between said device and the operating mechanism whereby the position of the device is, at predetermined points, shifted, the cam being of such character that one surface striking said device shifts the movable portion of the thread carrier in one direction, and the other surface striking said device shifts the movable portion in the other direction.

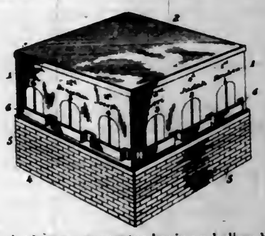


3. In a knitting-machine, in combination, a thread-carrier, consisting essentially of a frame, a plate secured upon a shaft having a bearing in said frame, a pinion on said shaft, a rack meshing with said pinion, an arm carried by and movable in the thread-carrier frame, and secured to or forming part of the rack, a cam on said arm, and a cam having two operative positions controlled by mechanism operated by the operating mechanism of said machine in the line of movement of said pinion-arm cam and adapted in the two positions to move said arm oppositely.

4. In a knitting-machine, in combination, a thread-carrier, consisting essentially of a frame, a plate secured upon a shaft having a bearing in said frame, a pinion on said shaft, a rack meshing with said pinion, an arm carried by and movable in the thread-carrier frame and secured to or forming part of the rack, a cam on said arm, a secondary arm, a cam on said arm and a roller on the other end of said arm, a pattern-chain having high and low portions against which chain said roller rests, the cam being in line of movement of said rack-arm cam.

5. In a knitting-machine, a thread-carrier consisting essentially of a frame H, a plate fixed to said frame having springs attached to it, a second plate having a plurality of independent thread-orifices, said last-mentioned plate being movably mounted upon said frame and adapted to move upon said first-mentioned plate.

595,440. BIBLICAL GAME APPARATUS. WILL S. JAMES, Waco, Tex. Filed Oct. 5, 1895. Serial No. 564,798. (No model.)



Claim.—1. A game apparatus having a hollow base or receptacle, a plurality of foldably-connected plates equal in number with the sides of the base or receptacle and provided with pockets for the reception of cards, and a lid or cover adapted to fit the top of the base or receptacle, or the upper edges of said plates when arranged vertically with their lower edges in the base and contiguous to the several walls thereof, and cards arranged in the pockets, substantially as specified.

2. A game apparatus having a hollow base or receptacle, a plurality of plates hinged together at their contiguous lateral edges and adapted to fold in parallel planes, each plate being approximately equal in area to the bottom of the base or receptacle, whereby the folded plates may be arranged wholly within the base, and a lid or cover adapted to fit the base or receptacle, or the upper edges of the plates when the latter are arranged vertically in the base respectively in contact with the sides thereof, and cards to fit in pockets on the plates, substantially as specified.

3. A game apparatus having a hollow cubic structure comprising a hollow open-topped base, a plurality of hingedly-connected pocket-carrying plates arranged vertically in contact respectively with the sides of the base, a removable lid or cover, and cards to fit in the pockets, substantially as specified.

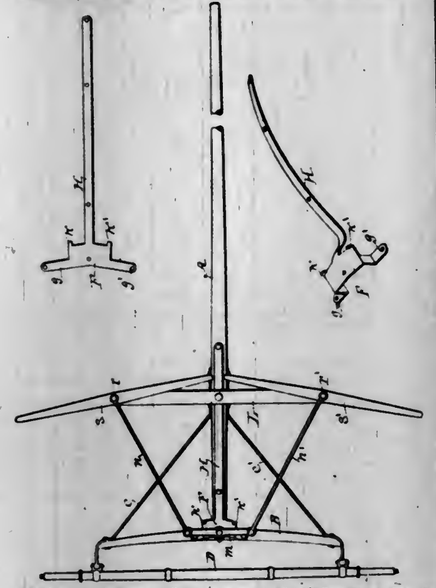
4. A game apparatus having a cubic structure comprising a hollow base provided with a swivel including a stationary socket and a spindle mounted therein, and a plurality of connected pocket-carrying plates arranged vertically in contact with the sides of the base, and cards for the pockets, substantially as specified.

5. A game apparatus having side walls provided with pockets for the reception of playing-cards, said pockets being designated, respectively, by distinguishable characters, and cards adapted to be arranged respectively in the pockets and divided into groups designated by characters corresponding with those of the pockets, substantially as specified.

6. A game apparatus having a base, upright walls provided with a plurality of distinguishably-designated pockets or receptacles, and a plurality of distinguishable cards, of greater number than the pockets or receptacles, adapted to be arranged in groups or books for insertion in said pockets, the several cards belonging to each group being distinguishably designated from the cards of the other groups by a character or characters corresponding with or having reference to the designating characters of the pockets or receptacles, substantially as specified.

7. The herein-described game apparatus comprising a hollow base or receptacle having rectangular walls and a bottom pivotally mounted upon a support, an inner rectangular structure consisting of hinged sections fitting within the base, extending above it, and provided with a cover, and a series of named or designated pockets formed in a continuous strip arranged upon the outside of each section, and a number of groups of cards, each card of any group having a designation corresponding to that of the pockets and adapted for insertion therein, substantially as described.

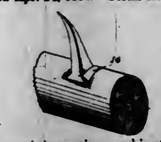
595,441. EVENER FOR BUGGY-POLES. MATHEW KERNS, Cushing, Iowa. Filed July 24, 1897. Serial No. 645,811. (No model.)



Claim.—1. A support for an evener and reinforcement for the pole of a two-horse vehicle consisting of the metal plate F having integral feet *g* and *g'* at its rear corners for fastening the plate and retaining it elevated and also having integral stops *k* and *k'* at the front corners and a forward extension H, for the purposes stated.

2. An evener for a two-horse vehicle comprising an evener-support F having integral feet *g* and *g'* at its rear corners, upward-projecting stops *k* and *k'* at its front corners and a forward-extending strap H, fixed to the top and rear end portion of a pole and a cross-piece fixed to the rear end of the pole, a doubletree, two singletrees, an evener pivoted on top of the support F, rods connected with the ends of the evener and with the singletrees and doubletree, and stay-rods fixed to the pole and the ends of the cross-piece at the rear end of the pole and the axle of a vehicle, all arranged and combined as and for the purposes stated.

595,442. REVOLVING SAND-DRAG. JAMES MURPHY, San Antonio, Tex. Filed Apr. 24, 1897. Serial No. 633,792. (No model.)



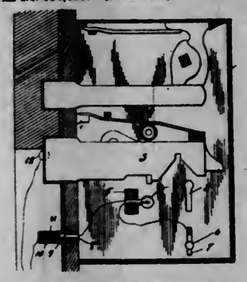
Claim.—In a sand-drag, the combination of a floating vessel, a frame hinged thereto, a shaft journaled in the lower end of said frame, staves surrounding said shaft, a cylinder encircling said staves and tightly fitted thereon, said cylinder provided on its surface with a series of dovetail sockets having diverging walls, a series of detachable teeth having dovetailed inner ends corresponding in shape to the sockets, and tightly fitted therein, and means for revolving said shaft, substantially as described.

595,443. CONDUCTOR-HOOD FOR STOVES OR RANGES. SIMEON F. PUTNEY, Cleveland, N. Y. Filed Aug. 17, 1897. Serial No. 648,553. (No model.)



Claim.—The combination with a stove or range and its pipe provided with a draft-orifice 6, of the plate 2, provided with a clamp 3, the pipe 5, the damper 7, pivoted in said pipe, and the bracket 10, the spring-lever 11, fulcrumed in said bracket and formed at its outer end with an eye 12, the hood 8, hinged to said plate 2, the bracket 15, fixed to said hood, and the link 14, fulcrumed in said bracket and having its looped end pivoted to the eye 12 on the outer end of the spring-lever 11, substantially as shown and described.

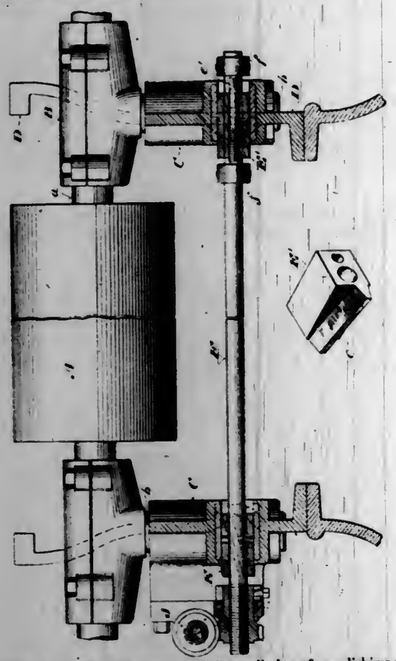
595,444. ILLUMINATING DEVICE FOR KEYHOLES. FREDERICK W. ROLL and FRANK WALTHAM, Denver, Colo. Filed May 20, 1897. Serial No. 637,325. (No model.)



Claim.—In a device for illuminating keyholes, the combination with the lock-casing, of a lamp supported therein, a push-button projecting through the lock-casing and door to make and break the cur-

rent; together with an angle-piece connected to one of the wires from the lamp and extending through the lock-casing from which it is insulated, the other wire for the lamp being connected to the lock-casing, a spring-actuated pin located within the door-jamb to engage the outer end of the angle-piece, and a block located within the keeper to contact with the shooting-bolt, the block and pin being connected by wires to the source by which the electric current is generated, substantially as shown and for the purpose set forth.

595,445. CYLINDER ADJUSTMENT FOR SANDERS. FREDERICK E. SCHMITT, Green Bay, Wis., assignor to the Milwaukee Sander Manufacturing Company, same place. Filed July 6, 1897. Serial No. 643,551. (No model.)



Claim.—1. The combination with a cylinder of a polishing-machine and its journal-boxes which have vertical stems fitted in sleeves or sockets of the frame, of blocks fitted in transverse openings in the frame and having inclined tongues engaging corresponding transverse grooves in said stems and means for moving said blocks endwise whereby the boxes and the cylinders carried thereby are adjusted, substantially as and for the purposes set forth.

2. The combination with a cylinder of a polishing-machine and its journal-boxes which have vertical stems fitted in sleeves or sockets of the frame, of a bar arranged parallel with the cylinder, and provided with blocks which are fitted and movable endwise in transverse openings in the frame and have longitudinally-inclined tongues engaging corresponding grooves in the box-stems, and means of adjusting said bar lengthwise, substantially as and for the purposes set forth.

3. The combination with a cylinder of a polishing-machine and its journal-boxes which have vertical stems fitted in sleeves or sockets of the frame, of a longitudinally-adjustable bar arranged parallel with the cylinder, blocks mounted on said bar, fitted in transverse openings in the frame and having inclined tongues which engage corresponding grooves in the box-stems, one of said blocks being adjustable lengthwise of said bar independently of the other, substantially as and for the purposes set forth.

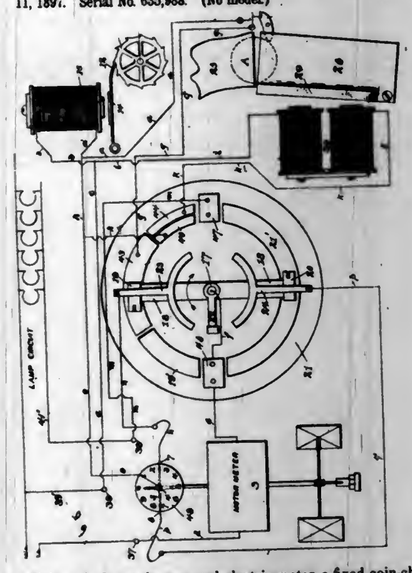
4. The combination with a cylinder of a polishing-machine and its journal-boxes which have vertical stems fitted in sleeves or sockets of the frame, of a longitudinally-adjustable bar parallel with the cylinder and obliquely-tongued blocks mounted upon said bar and engaging corresponding grooves in the box-stems, one of said blocks being provided with an adjusting-screw passing through it parallel with said bar and engaging at its ends with fixed collars or shoulders on said bar, substantially as and for the purposes set forth.

5. The combination with a cylinder of a polishing-machine and its journal boxes which have vertical stems fitted in sleeves or sockets of the frame, of blocks fitted in transverse openings in the frame and having longitudinally-inclined and transversely-beveled tongues which engage corresponding grooves in the box-stems, means of adjusting said blocks endwise, and means of adjusting them toward said stems to take up wear and play between the tongues and the grooves with which they engage, substantially as and for the purposes set forth.

6. The combination with a cylinder of a polishing-machine and its journal-boxes which have stems fitted in vertical sleeves or sockets of the frame, of blocks fitted to slide endwise in transverse openings in the frame and having longitudinally-inclined and transversely-beveled tongues which engage with corresponding grooves in the box-stems, plates bearing against the backs of said blocks and adjusting-screws for advancing said plates toward the box stems and taking up wear or play between said tongues and the grooves in which they work, substantially as and for the purposes set forth.

7. The combination with a cylinder of a polishing machine and its journal-boxes which have stems fitted in vertical sleeves or sockets of the frame, of a longitudinally-movable bar supported parallel with the cylinder and provided with inclined tongues which engage corresponding grooves in the box-stems, a worm-gear threaded on said bar and having a bearing on the frame which restrains it from endwise movement, and a worm engaging said worm-gear and mounted on a shaft arranged lengthwise of the machine, substantially as and for the purposes set forth.

595,446. PREPAYMENT ATTACHMENT FOR ELECTRIC METERS. JOHN STRACHAN and JAMES NIVEN, Saginaw, Mich. Filed May 11, 1897. Serial No. 635,988. (No model.)

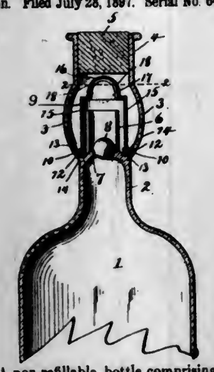


Claim.—1. In a coin-operated electric meter, a fixed coin-chute, a pivoted coin-chute, a lever projecting into said pivoted coin-chute, in the path of the coin; a train of spring-actuated gearing carrying a rotating switch-bar forming part of the lighting-circuit, and controlled by a pawl operated by a solenoid, and means substantially as described for energizing said solenoid by the action of said coin-actuated lever, as and for the purpose set forth.

2. In a coin-operated electric motor-meter, a recording-meter, a revolving contact-arm operated by said motor, a train of spring-actuated gearing, controlled by a solenoid in series with said revolving contact-arm, a coin-chute, a lever projecting into said coin-chute and adapted to open and close said solenoid-circuit, and a switch bar operated by said train of gearing and adapted to open and close the lighting-circuit, substantially as and for the purpose set forth.

3. In a coin operated electrid meter, a fixed coin-chute, a pivoted coin-chute, a lever projecting into the path of said pivoted chute, a circuit-closing device arranged in the path of one end of said lever, a spring-operated switch located in the lighting-circuit, an electromagnet shunted in said circuit, and adapted to operate said pivoted coin-chute to release the coin, substantially as and for the purpose set forth.

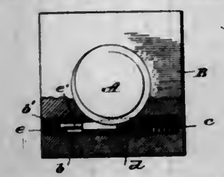
595,447. NON-REFILLABLE BOTTLE. WILLIAM T. STRAMER, Danbury, Conn. Filed July 28, 1897. Serial No. 646,259. (No model.)



Claim.—1. A non-refillable bottle comprising the integral neck 2, chamber 3 and mouth 4, and provided with the integral internal concentric neck 6 formed with the valve-seat 7, in combination with the ball-valve 8 and the perforated cage 9 encompassing said neck 6 and valve 8, substantially as shown and described.

2. A non-refillable bottle, comprising the cylindrical neck 2, the integral chamber 3 and mouth 4, and the integral concentric neck 6 formed with the valve-seat 7, the ball-valve 8 engaging said seat, and the perforated cage 9 formed with corrugated pocket 16, and permanently fixed in place so as to encompass said neck 6 by the pins 10 10, substantially as and for the purpose set forth.

595,448. NUT-LOCK. WILLIAM E. WALDRON, Washington, Pa. Filed Oct. 2, 1897. Serial No. 653,792. (No model.)



Claim.—1. In a nut-lock a nut provided with an aperture closed at one end and threaded at the other a longitudinally-tapered locking-dog positioned in the aperture and a spring also located in the aperture to effect a movement of the locking-dog toward the open end of the aperture; together with a screw for moving the locking-dog toward the spring substantially as shown.

2. In a nut-lock the combination with a bolt of a nut provided with a recess a locking dog or bolt which is tapered longitudinally and provided with angular sides which are adapted to engage with the thread of the bolt, a spring for effecting a movement of the locking-dog in one direction and a closure for the aperture as a screw for moving the locking-dog in an opposite direction from which it is moved by the spring.

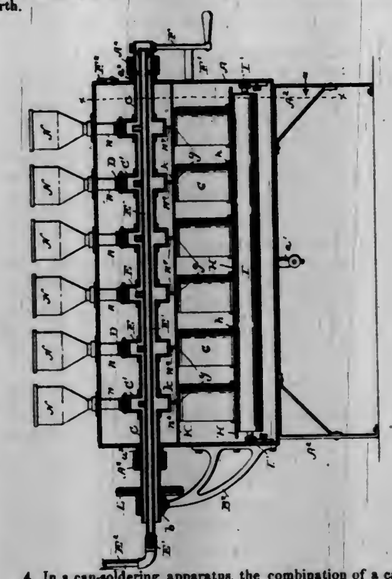
3. In a nut-lock a nut provided with an aperture *b* closed at one end and threaded at the other a spring *c* located at one end of the aperture a screw having a reduced end *c'* and a locking dog or bolt positioned in the aperture between the spring and screw, said locking-dog being tapered longitudinally and provided with converging sides with roughened faces said sides being of the same angle as the angle of the threads of the bolt substantially as shown and for the purpose set forth.

595,449. SOLDERING-MACHINE. HORACE L. WALKER and EDWARD G. MINNEMEYER, Chicago, Ill., assignors of one-half to James Frake, same place. Filed Nov. 2, 1896. Serial No. 610,882. (No model.)

Claim.—1. In a can-soldering machine, the combination of a shell or casing, a movable can-support mounted in said casing, means for moving said support, a wiper arranged in the path of a can on said support, means adapted to be actuated by the can for depositing flux on the can-top, and a soldering-point adapted to contact with the can-top, substantially as set forth.

2. In a can soldering machine, the combination of a movable can-support, means for moving said support, a rotatable wiper arranged in the path of a can, on said support, means for heating said wiper, and a soldering point or tip arranged in the path of the said can, substantially as set forth.

3. In a can-soldering machine, the combination of a movable can-support, an elevated tank or receptacle for flux having a depending tube, a valve in said receptacle, a rod for actuating said valve extending into the path of a can on the said can-support, and a soldering-iron arranged to contact with the said can, substantially as set forth.



4. In a can-soldering apparatus, the combination of a can-support, a horizontally-rotatable tubular spindle having a radially-projecting soldering-tip formed thereon or secured thereto, a gas or vapor burner arranged within said spindle in line with the said tip, and means for rotating said spindle, substantially as set forth.

5. In a vacuum-can-soldering machine, the combination with a casing, and an air-pump connected with the interior of said casing, of a can-support within the casing, a tubular spindle arranged within said casing, and having a soldering-tip secured thereon, means for rotating said spindle, and a gas or vapor burner arranged within the spindle for heating said soldering-tip, substantially as set forth.

6. In an apparatus for the purpose described, the combination of a support for a series of cans, a rotary soldering-tool mounted on a horizontal axis above each can on said can-support a handle or crank connected with one of said tools, and means connecting all of said tools whereby the entire series will be simultaneously rotated when said handle is turned, substantially as set forth.

7. In a can soldering apparatus, the combination with a can-support, of a horizontally-rotary spindle carrying a soldering-tip, a gas or vapor burner, means for normally holding the rotary spindle stationary and the soldering-tip in position to be heated by the flame from said burner, and means for rotating said spindle to move the soldering-tip out of the path of the flame of the burner and into contact with a can on said can support, substantially as set forth.

8. In an apparatus for the purpose described, the combination of a can-support, a spindle arranged above the can-support and having a soldering-tip projecting radially therefrom, a gas or vapor burner, means for normally holding the spindle stationary and the soldering-tip in the path of the flame of said burner, and means for rotating said spindle to move the soldering-tip from said position into contact with a can on the said can-support, substantially as set forth.

9. In an apparatus for the purpose described, the combination of a can-support, a tubular spindle, having a soldering-tip projecting radially therefrom, a gas or vapor burner stationarily mounted within said spindle in the planes of said soldering-tip, means for normally holding said tip in the path of the flame of said burner, and means for rotating said spindle to bring the soldering-tip into contact with a can on said can-support, substantially as set forth.

10. In a can-soldering machine, the combination of a support adapted to sustain a series of cans, a tubular spindle extending across a series of cans on said support, and having a radially-projecting soldering-tip in line with each can, a gas or vapor pipe arranged in and extending longitudinally of said spindle, a burner on said vapor-pipe in line with each of said soldering-tips, means for normally holding said spindle stationary and said tips in the paths of the flames from said burners, and means for rotating said spindle to bring the

tips thereon into contact with the cans on said support, substantially as set forth.

11. In a can-soldering apparatus, the combination of a vertically-adjustable can-support, an apertured stop plate mounted above said support, a rotatable soldering-tool mounted above said plate, means for heating said tool, and means for rotating the tool to contact with a can on said can-support through an aperture in said stop-plate, substantially as set forth.

12. In a can-soldering apparatus, the combination with a can-support, of a rotatable spindle consisting of sections coupled together by a coupling of greater diameter than the body of the spindle, a soldering-tip secured on said coupling, means for heating said tip, and means for rotating said spindle and tip, substantially as set forth.

13. In a can soldering apparatus, the combination with a can-support, of a tabular sectional spindle, a tubular coupling of greater diameter than the body of the spindle connecting the ends of adjacent sections of the spindle, a soldering-tip on said coupling, a gas or vapor burner arranged within the coupling, and means for rotating said spindle to bring the soldering-tip into contact with a can on said can-support, substantially as set forth.

14. In a can-soldering apparatus, the combination with a can-support, of a rotatable spindle, a soldering-tip pivotally connected to said spindle, a spring for holding said tip in proper position relative to said spindle, a vapor-burner, means for holding the spindle stationary and the tip in the path of the flame of the burner, and means for rotating the spindle to bring the said tip into contact with a can, substantially as set forth.

15. In a can-soldering apparatus, the combination of a horizontally-movable can-support, an elevated receptacle for rosin or similar material, means adapted to be actuated by a cam on the support for automatically depositing material from said elevated receptacle on said can, as the latter is advancing, a soldering-tip mounted above said support, a burner for heating said tip, and means adapted to move the tip from the path of the flame of the burner and into contact with the can, substantially as set forth.

16. In a can-soldering apparatus, the combination of a horizontally-movable can-support, a horizontally-rotatable spindle arranged above said support, a soldering-tip carried by said spindle, a burner, means for normally holding said spindle stationary and maintaining the tip in an elevated position above a can on said support and in position to be heated by the flame of the burner, and means for rotating the spindle to move the said tip downwardly and across the top of the can, substantially as set forth.

17. In a can-soldering apparatus, the combination of a can-support, a shaft or spindle, a soldering-tip pivotally supported on and rotatable with said spindle and adapted to contact with a can on said support, and a burner for heating the tip, substantially as set forth.

18. In a can-soldering apparatus, the combination of a can-support, a horizontally rotatable shaft or spindle mounted above said support, a soldering-tip carried by and projecting radially from said spindle, a burner adapted to heat the tip, means for rotating the spindle to cause the tip to travel across the top of a can on the support, and means for yieldingly pressing said tip against the can, substantially as set forth.

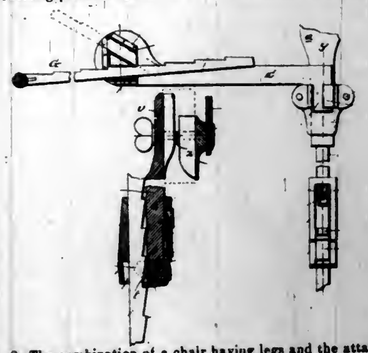
19. In a can-soldering apparatus, the combination of a can-support, a rotatable shaft or spindle mounted above said support, a soldering-tip, detachably connected to said spindle, a burner, means for normally holding the spindle stationary and the tip in position to be heated by the flame of said burner, and means for rotating the spindle to move the tip thereof into contact with a can on the support; substantially as set forth.

20. In a soldering apparatus, the combination of a rotatable spindle, a soldering-tip rotatable with said spindle and independently adjustable about an axis extending parallel to the axis of the spindle, and means for heating said tip; substantially as set forth.

21. In a soldering apparatus, the combination of a rotatable spindle, a soldering-tip supported on the spindle and adapted to move therewith and adapted to rock about an axis at one side of the spindle, means for normally holding the forward end of the tip in contact with the surface of the spindle and the rear end thereof out of contact with said surface, whereby said tip will be caused to contact with the surface over which it is moved with increasing force, and means for heating the tip; substantially as set forth.

595,450. CHAIR ATTACHMENT. IRA B. ARCHER, North San Juan, Cal. Filed July 19, 1897. Serial No. 645,113. (No model.)

Claim.—1. In a support, the combination of a lower toothed member, an upper member, a guide receiving the members and connected to the upper member, the dog formed in one piece and disposed below the guide and receiving and loosely connected to the lower end of the upper member so as to enable it to move in the direction of its length on the same and having the bottom wall adapted to engage the teeth of the lower member and the opening in said wall loosely receiving said lower member, and a spring connected to the guide and exerting pressure against the dog, substantially as specified.



2. The combination of a chair having legs and the attachments detachably connected to the legs of the chair and respectively comprising a lower toothed member, an upper member, a guide receiving the members and connected to the upper member, the dog formed in one piece and disposed below the guide and receiving and loosely connected to the lower end of the upper member so as to enable it to move in the direction of its length on the same and having the bottom wall adapted to engage the teeth of the lower member and the opening in said wall loosely receiving said lower member, and a spring connected to the guide and exerting pressure against the dog, substantially as specified.

3. In a support, the combination of a lower toothed member, an upper member, a pin arranged in and having its ends extending from opposite sides of the upper member, a guide receiving both members and connected to the upper member, a dog receiving the upper member and receiving and adapted to engage the teeth of the lower member; said dog having elongated seats in its side walls receiving the ends of the pin in the upper member whereby the dog is enabled to move in the direction of its length, and a spring connected to the guide and exerting pressure against the dog, substantially as specified.

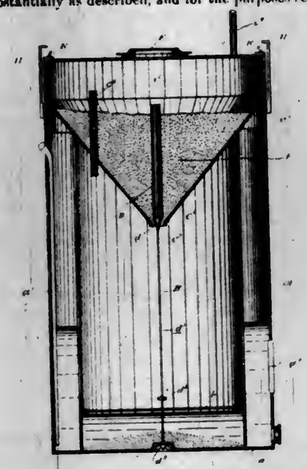
4. In a support, the combination of a lower toothed member, an upper member having transverse apertures and a removable pin with extended ends arranged in one of said apertures and adapted to be removed and placed in the other aperture, a guide connected to the upper member and receiving the lower member, and a dog receiving the upper member and receiving and adapted to engage the teeth of the lower member; the said dog having seats in its side walls adapted to receive the extended ends of the removable pin when the same is in one transverse aperture of the upper member so as to hold the dog in engagement with a tooth of the lower member and also having other seats in its side walls adapted to receive the extended ends of the removable pin when the same is in the other transverse aperture of the upper member so as to permit of the dog being moved out of engagement with the teeth of the lower member when desired, substantially as specified.

5. The combination of a chair having legs, attachments connected to said legs and adapted to support the chair in a raised position, and a foot-rest comprising arms having inner sections detachably connected to the front supporting attachments and provided with sleeves and outer sections toothed on their upper sides and extending through the sleeves of the inner sections, and a cross-bar connecting said outer sections, substantially as specified.

6. The combination of a chair having legs, attachments connected to said legs and adapted to support the chair in a raised position, and a foot-rest comprising arms having inner sections detachably connected to the front supporting attachments and provided with boxes having horizontal and inclined sleeves, and removable outer sections toothed on their upper sides and adapted to extend through the sleeves of the inner sections, and a cross-bar connected in a hinged manner to the outer sections of the arms, substantially as specified.

595,451. ACETYLENE-GAS GENERATOR. CHARLES P. CHOQUETTE and ANTOINE M. MORIN, St. Hyacinthe, Canada. Filed June 11, 1896. Serial No. 595,184. (No model.) Patented in England June 13, 1896, No. 13,115; in France June 20, 1896, No 244,818, and in Canada Feb. 12, 1897, No. 54,976.

Claim.—In an acetylene-gas generator, the combination, of an outer tank to contain water in the bottom, means for introducing this water, a small rod *d'* surmounted by a larger rod or stopper D having its point of junction with the rod *d'* conical in shape, means for regulating the length of the whole, and secured to its bottom, and means for regulating the amount of rise of the inner tank with an inward tank or holder having its top formed by means of a tank or chamber to contain the pulverized or granulated carbid of calcium, and having a funnel-shaped bottom provided with an opening at its lower extremity, of just sufficient size to freely slide over the rod or stopper D, means of introducing the carbid of calcium into the funnel-shaped chamber, means for the escape of the gas to the point of consumption, and means to guide the inward tank or holder into the outward tank, substantially as described, and for the purposes set forth



595,452. RAILROAD-TIE. JOHN H. CONNELL, Staunton, Va. Filed Sept. 20, 1897. Serial No. 652,320. (No model.)



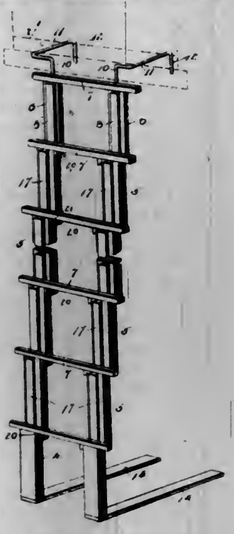
Claim.—1. A railroad-tie consisting of a shell composed of side sections, each section composed of a long and a short parallel strip connected by an end strip, said sections having their ends connected in break-joint fashion, a bottom piece, a top piece, a filling of plastic material, and means for connecting the sections, substantially as set forth.

2. A railroad-tie consisting of a shell composed of side sections, each section composed of a long and a short parallel strip connected by an end strip, said sections having their ends connected in break-joint fashion, a bottom piece, a top piece, a filling of plastic material, and vertical and transverse bolts, the former connecting the top and bottom pieces and the latter the side sections, substantially as set forth.

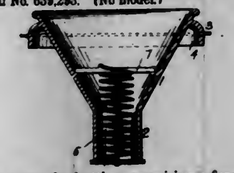
595,453. FIRE-ESCAPE. WILLIAM FISCHER, Watertown, N. Y. Filed May 14, 1897. Serial No. 636,494. (No model.)

Claim.—1. In a fire-escape, the combination of a series of extensible sections provided with tongue-and-groove connections and movable on one another, and each section also provided at top and bottom with stop devices adapted to abut against corresponding stop devices on the adjoining sections to limit the movement thereof, base-blocks on the lower section adapted to rest upon the ground and grapple-irons swiveled in keepers on the upper section and having their upper ends bent to form grapples adapted to rest upon the window-sill and their lower ends provided with hooks forming stops adapted to abut against the keepers, substantially as described.

2. In fire-escapes, the combination of top and bottom sections, the former provided at the rear side thereof with pivoted grappling-irons adapted to engage the window-sill and the latter having at its lower ends base-blocks adapted to rest upon the ground when the device is extended and a series of intermediate extensible sections each provided at one side with tongues and at the opposite side with grooves, said tongues and grooves being adapted to engage with corresponding grooves and tongues on the adjoining sections, and each section also being provided with stop blocks and stop-plates at the lower end of their grooved guideways, substantially as described.

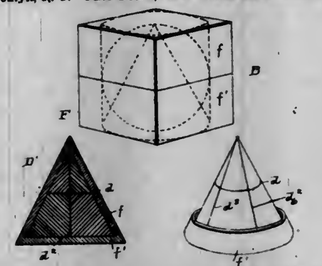


595,454. KETTLE COVER. HARRY H. FOREMAN, Mazeppa, Minn., assignor of one-half to William Foreman, same place. Filed June 3, 1897. Serial No. 639,293. (No model.)



Claim.—A cover for kettles comprising a funnel-shaped body, a valve to close the neck of the funnel-shaped body, a spring having one end connected with the valve, and a strip secured within the body and provided with tongues struck up from the strip, one extending downwardly and the other upwardly, and bent around the upper end of the spring, substantially as set forth.

595,455. EDUCATIONAL APPLIANCE. MINNIE M. GLIDDEN, Brooklyn, N. Y. Filed Dec. 5, 1896. Serial No. 614,584. (No model.)



Claim.—1. The herein-described set of devices for use in teaching the qualities or incidents of a mathematical form it consisting of a device of the desired form divided by axial planes into a series of separable elemental forms, another device of the same aggregate form divided by transverse planes into another series of separable elemental forms, another device of the same aggregate form divided by planes parallel to the planes of the exterior surface of the aggregate form, forming a series of separable divisions fitted one within the other and each of the same shape as the aggregate form and another device having the same aggregate form divided both by transverse planes and by a series of planes parallel to the planes bounding the aggregate form to provide another set of separable

elemental forms, all of the said aggregate forms being the same size, substantially as set forth.

2. The herein described set of devices for use in teaching the qualities or incidents of a mathematical form it consisting of an aggregate body of the desired form divided by transverse planes, an aggregate body of the said form divided by planes parallel to the sides of the form into a series of parts fitted one within the other, and an aggregate body of the same form as those referred to and divided both on transverse planes and by a series of concentric forms one within another, the said aggregate forms being all of the same size and each being inclosed within a divisible shell, F, the said several shells being also of equal dimensions, substantially as set forth.

3. The herein-described set of devices for use in teaching the qualities or incidents of a mathematical form it consisting of a body of the desired form divided by axial planes, another body of the same form divided by transverse planes, another body of the same form divided by planes parallel to the sides of the aggregate form into a series of parts fitted one within the other, a body of the same form divided both on transverse planes and into a series of forms concentric with the aggregate form one within another, and a body of the same form divided to provide a series of interior divisible forms concentric with the aggregate form and gradually diminishing in height and diameter, said aggregate forms being all of the same diameter and height, substantially as set forth.

4. The herein-described set of devices for use in teaching the qualities or incidents of a series of mathematical forms and the relation of each of such aggregate forms to every other form in the series, it consisting of a series of devices, A, B, C, D, each composed of a series of separable elemental forms obtained by dividing the aggregate form by intersecting horizontal and vertical planes, a series of devices A', B', C', D', each comprising a series of separable elemental forms obtained by dividing the aggregate form by transverse planes, the aggregate forms A^2, B^2, C^2, D^2 divided by planes parallel with the side walls of the forms, and the aggregate forms, A^3, B^3, C^3, D^3, divided both on transverse planes and by a series of planes parallel with the bounding planes of the figure, the said aggregate forms being all of the same height and width at their widest part, substantially as set forth.

5. The herein-described set of devices for use in teaching the qualities or incidents of a series of mathematical forms in relation to each other as the cube, sphere, cylinder and cone it consisting of a device of each of the said forms of such dimensions that one can be inscribed within another and each divided into a number of component parts which can be put together to form an aggregate corresponding to said form, and a series of casings or shells each conforming in size and shape to one of said forms and adapted for permanently holding together all the component parts of that form, but adapted to permit them to be separated from each other, substantially as set forth.

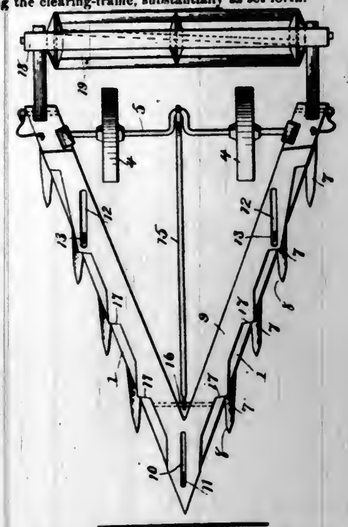
6. The herein-described set of devices for use in teaching the qualities or incidents of a mathematical form, it consisting of a series of devices each representing the form to be considered and each divided into a series of separable parts representing the elements of said form, the subdivisions of each aggregate device differing from those of every other such device in the series, and a detachable holder, illustrating the said mathematical form, adapted to receive each of said sets of separable parts and retain the same in their assembled position, substantially as set forth.

7. The herein-described set of devices for use in teaching the qualities or incidents of a series of mathematical forms and the relation of each of said forms to every other form in the series, it consisting of a series of devices each representing one of the said forms, and composed of a series of separable parts and a shell or casing adapted to normally hold said separable parts together, all of said shells or casings being of equal corresponding dimensions, whereby the composite representations of each of the forms of the series which can be considered as inscribable within any of the other forms of the series can be placed within the shell or casing of such containing-form, substantially as set forth.

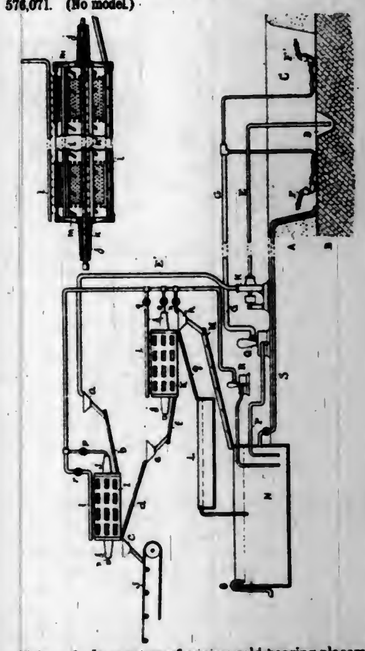
595,456. COTTON-STALK PULLER. JESSE HALL, Surrency, Ga. Filed June 8, 1897. Serial No. 639,866. (No model.)

Claim.—1. The combination with a wheeled frame provided with puller-arms at its sides and with upwardly-projecting studs, of a clearing-frame provided with shoulders and with slots extending obliquely to the length of the clearing-frame, and with a longitudinal slot, said studs projecting through said slots, a pitman connected with the crank-axle of the drive-wheels and with the puller-frame for reciprocating it, substantially as set forth.

2. The combination with a wheeled frame triangular in outline, and having its sides beveled or undercut at predetermined distances apart to form gripping edges, and puller-arms secured to the side pieces immediately at the rear of the gripping edges, and a triangular puller-frame having shoulders adapted to move over the puller-arms and disengage therefrom the extracted stalks, and means for reciprocating the clearing-frame, substantially as set forth.



595,457. SYSTEM OF MINING GOLD-BEARING PLACERS. WILLIAM P. LAY, New York, N. Y. Filed Jan. 20, 1896. Serial No. 576,071. (No model.)



Claim.—1. In a system of mining gold-bearing placers or similar sedimentary deposits, where a natural head of water is not available, the combination of a pit excavated in the placer to the bed-rock and a sump therein formed in the bed-rock, with one or more disintegrating-nozzles for disintegrating the placer material and washing it along the surface of the bed-rock into the sump, a force pump or pumps for supplying water under pressure to the said nozzle or nozzles, a suction-pipe opening in said sump, a centrifugal pump connected with said suction-pipe for elevating the mixed water and placer material from said sump, and means for supplying water to said pit independently of the said disintegrating-nozzles, substantially as set forth.

2. In a system of mining gold-bearing placers or similar sedimentary deposits, wherein a natural head of water is not available, the combination of a pit excavated in the placer to the bed-rock and a sump therein formed in the bed-rock with one or more disintegrating-nozzles for disintegrating the placer material and washing the same along the surface of the bed-rock into the sump, a force pump or pumps for supplying water under pressure to said nozzle or nozzles, a suction-pipe opening in said sump, a centrifugal pump connected with said suction-pipe for elevating the mixed water and placer material from said sump, a revolving screen I to which the mixed water and placer material are delivered and by which the heavy debris is separated, a discharge from said screen for receiving the water and separated gold-bearing residuum, a second revolving screen to which such water and gold-bearing residuum are delivered and by which the water is separated from the gold-bearing residuum, and means for subsequently extracting the gold from said residuum, substantially as set forth.

3. In a system of mining gold-bearing placers or similar sedimentary deposits, wherein a natural head of water is not available, the combination of a pit excavated in the placer to the bed-rock and a sump therein formed in the bed-rock, with one or more disintegrating-nozzles for disintegrating the placer material and washing the same along the surface of the bed-rock into the sump, a force pump or pumps for supplying water under pressure to said nozzle or nozzles, a suction-pipe opening in said sump, a centrifugal pump connected with said suction-pipe for elevating the mixed water and placer material from said sump, a revolving screen I to which the mixed water and placer material are delivered and by which the heavy debris is separated, a discharge from said screen for receiving the water and separated gold-bearing residuum, a second revolving screen to which the water and gold-bearing residuum are delivered and by which the water is separated from said gold-bearing residuum, an amalgamating-table for extracting the gold from the gold-bearing residuum, and a regulated independent water-supply for washing the gold-bearing residuum on the said amalgamating-table, substantially as set forth.

4. In a system of mining gold-bearing placers or similar sedimentary deposits, wherein a natural head of water is not available, the combination of a pit excavated in the placer to the bed-rock and a sump therein formed in the bed-rock, with one or more disintegrating-nozzles for disintegrating the placer material and washing the same along the surface of the bed-rock into the sump, a force pump or pumps for supplying water under pressure to said nozzle or nozzles, a water-reservoir N for supplying said force pump or pumps, a suction-pipe opening in said sump, a centrifugal pump connected with said suction-pipe for elevating the mixed water and placer material from said sump, a revolving screen I above said reservoir to which the mixed water and placer material are delivered and by which the debris is separated, a discharge from said screen for receiving the water and separated gold-bearing residuum, a second revolving screen K to which such water and gold-bearing residuum are delivered and by which the water is separated from the residuum, a discharge for the water separated by said second screen, a settling-tank L connected with the said discharge and having an overflow to the reservoir, a second discharge from said screen K receiving the gold-bearing residuum therefrom, an amalgamating-table M connected to the latter discharge, an independent water-supply for washing the residuum on said table, and a pump R for supplying said water-supply and connected to said reservoir, substantially as set forth

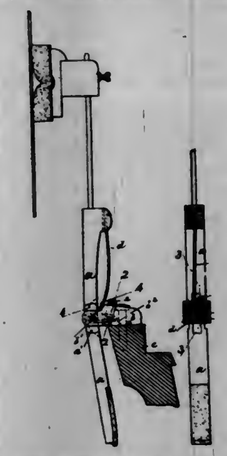
5. In a system of mining gold-bearing placers or similar sedimentary deposits, where a natural head of water is not available, the combination of a pit excavated in the placer to the bed-rock, a sump formed in the bed-rock, one or more disintegrating-nozzles at the pit for disintegrating the placer material and washing it along the surface of the bed-rock to said sump, a suction-pipe opening in said sump at the pit for elevating the mixed water and placer material from the pit, one or more force-pumps at the mill for supplying the said nozzles, a water-reservoir from which the force-pumps take their supply, a centrifugal pump at the mill connected with the said suction-pipe, separating apparatus to which the centrifugal pump delivers the mixed water and placer material for separating the large percentage of worthless debris from the small percentage of gold-bearing residuum, means for disposing of the debris, means for extracting the gold from the valuable residuum, means for supplying to the separating apparatus from said reservoir water in addition to that which is supplied with the placer material by the centrifugal pump, means for collecting the water from the separating apparatus in said reservoir, and means for delivering water to said pit independently of the said disintegrating nozzle or nozzles, substantially as set forth.

6. In a system of mining gold-bearing placers or similar sedimentary deposits, where a natural head of water is not available, the combination of a pit excavated in the placer to the bed-rock and a sump therein formed in the bed-rock, a storage-reservoir adjacent to the pit and above the level of the sump, a force pump or pumps connected with said reservoir, one or more disintegrating-nozzles for disintegrating the placer material and washing the same along the surface of the bed-rock into the sump, said nozzles receiving water under pressure from said force-pump, a suction-pipe opening into said sump, a centrifugal pump connected with said suction-pipe for elevating the mixed water and placer material from said sump, separating apparatus above the reservoir and to which the mixed water and placer material are delivered by said centrifugal pump, and a discharge from said separating apparatus for conveying the water therefrom back to said reservoir, substantially as set forth.

7. In a system of mining gold-bearing placers or similar sedimentary deposits, where a natural head of water is not available, the combination of a pit excavated in the placer to the bed-rock and a sump therein formed in the bed-rock, a storage-reservoir adjacent to the pit and above the level of the sump, a force pump or pumps connected with said reservoir, one or more disintegrating-nozzles for disintegrating the placer material and washing the same along the surface of the bed-rock into the sump, said nozzles receiving water under pressure from said force-pump, a suction-pipe opening into said sump, a centrifugal pump connected with said suction-pipe for elevating the mixed water and placer material from said sump, separating apparatus above the reservoir and to which the mixed water and placer material are delivered by said centrifugal pump, a discharge from said separating apparatus, a settling-tank connected with said discharge for receiving the same and for allowing solid materials to separate from the water therein, and an overflow for conveying the water from said settling-tank back to the reservoir, substantially as set forth.

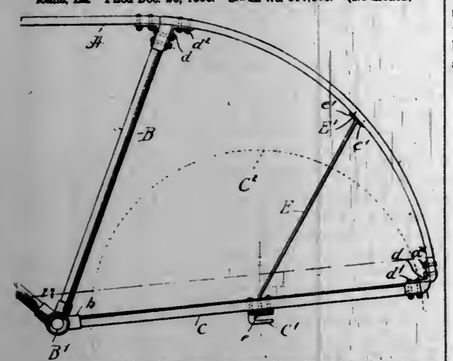
8. In a system of mining gold-bearing placers or similar sedimentary deposits, where a natural head of water is not available, the combination of a pit excavated in the placer to the bed-rock and a sump therein formed in the bed-rock, a storage reservoir adjacent to the pit and above the level of the sump, a force pump or pumps connected with said reservoir, one or more disintegrating-nozzles for disintegrating the placer material and washing the same along the surface of the bed rock into the sump, said nozzles receiving water under pressure from said force-pump, a suction-pipe opening into said sump, a centrifugal pump connected with said suction-pipe for elevating the mixed water and placer material from said sump, separating apparatus above the reservoir and to which the mixed water and placer material are delivered by said centrifugal pump, a discharge from said separating apparatus for conveying the water therefrom back to said reservoir, an amalgamating-table adjacent to said reservoir for receiving the gold-bearing residuum from the separating apparatus, and an independent water-supply for said amalgamating-table, whereby water may be pumped upon said amalgamating-table and from thence will flow to the reservoir, substantially as set forth.

595,458. PIANO-DAMPER. ADAM NICKEL, New York, N. Y. Filed July 23, 1897. Serial No. 645,684. (No model.)



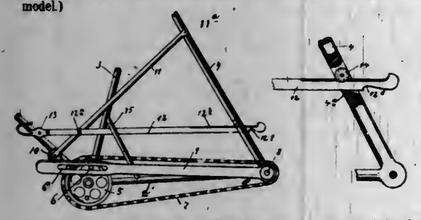
Claim.—A piano-damper provided with a grooved lever, a grooved damper-flange pivotally connected thereto, a spring engaging the lever and having a forwardly-extending arm that projects into the groove of the flange, and a regulating-screw passing through the flange and having a contracted neck to receive the spring-arm, which bears permanently against the lower side of such neck, substantially as specified.

595,459. FRAME FOR BICYCLES. ALBERT H. PETTIT, New Orleans, La. Filed Dec. 26, 1896. Serial No. 617,070. (No model.)



Claim.—In a bicycle-frame, the combination with the bottom-fork members thereof, said fork members being extended rearwardly beyond the rear-wheel axle and the seat-post member, of a resilient spring removably mounted in said frame and secured at one end to the rear ends of said bottom members and at its opposite end to the upper end of said seat-post member and a brace extending between said bottom-fork members and spring, said brace being made of a single rod attached at its opposite ends to said fork members and engaging between its ends a bracket secured to said spring.

595,460. BICYCLE-PROPELLING MECHANISM. HENRY SCHAFER, Utica, N. Y. Filed July 29, 1897. Serial No. 646,326. (No model.)



Claim. 1. In a bicycle-propelling device, a crank-shaft having a crank, a crank-bar pivoted at one end, engaging with the crank and having a track thereon at the other, a treadle-bar having a treadle at one end and slidingly engaged with the frame at the other, and a treadle hanger-bar pivoted to the frame at one end and having a roller adapted to engage on the track of the crank-bar at the other end and pivoted between to the treadle-lever combined, substantially as set forth.

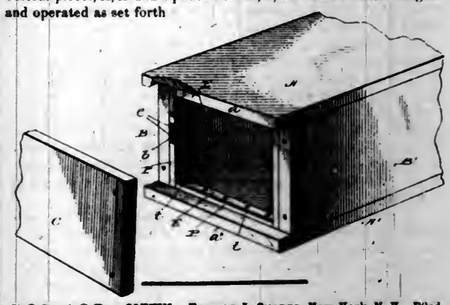
2. In a bicycle-propelling device, a crank-shaft and a crank, a crank-bar 9 pivoted to the frame at one end and engaging with the crank by a slot at the other and having a track 9^a thereon, a treadle-lever 12 slidingly connected with the frame at one end and provided with a treadle at the other and a treadle hanger-bar 11 pivoted to the frame at 11^a and to the treadle-lever at 12^a and provided with a roller running on the track 9^a of the crank-bar combined, substantially as set forth.

3. The combination in a bicycle-driving mechanism of the crank-bar 9, pivoted to the frame and engaging with the crank, the treadle-bar 12 and treadle hanger-bar 11, pivoted together as shown, the treadle-bar being slidingly engaged with the frame and the hanger-bar being pivotally engaged with the frame and a roller connection between the crank and treadle mechanism, substantially as set forth.

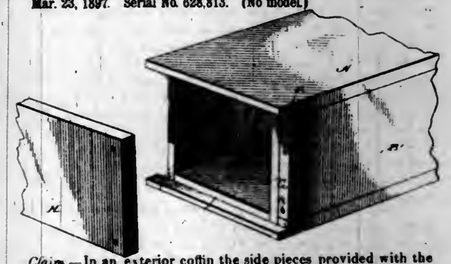
4. The combination in a bicycle-driving mechanism of the crank, a crank-bar 9, pivoted to the frame and engaging with the crank, a treadle-lever 12 slidingly engaging with the frame and provided with a treadle, and a treadle hanger-bar 11 pivoted to the frame and pivoted to the treadle-bar and having a roller connection between itself and the crank-bar, the treadle-bar having a hook adapted to engage with the frame and support the treadle mechanism and treadle out of operative position, substantially as set forth.

595,461. COFFIN. EDWARD L. SNADER, New York, N. Y. Filed Mar. 23, 1897. Serial No. 628,512. (No model.)

Claim.—The open-end case, having the interior edges of the ends of the side pieces rabbeted at *b*, *b'*, to receive gaskets P, and its top and bottom pieces extending beyond the sides as described, in combination with a metallic lining having its side ends attached to the rabbeted ends, and its bottom and top ends soldered to and combined with the metal bars, E, bolted or otherwise secured to the top and bottom pieces, A, A' and a packed cover, C, all constructed, arranged and operated as set forth

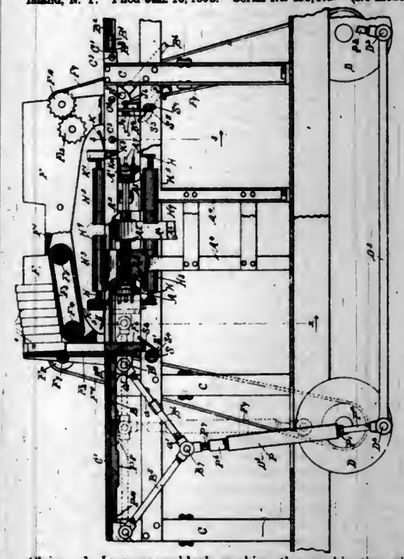


595,462. COFFIN. EDWARD L. SNADER, New York, N. Y. Filed Mar. 23, 1897. Serial No. 628,513. (No model.)



Claim.—In an exterior coffin the side pieces provided with the rabbeted interior edges, and the top and bottom pieces provided with the extended recessed ends, so cut as to form a recess around the entire opening, in combination with the interior metallic lining arranged as described, the gasket, removable head, bolts and inserted nuts, all constructed, arranged and operated as described.

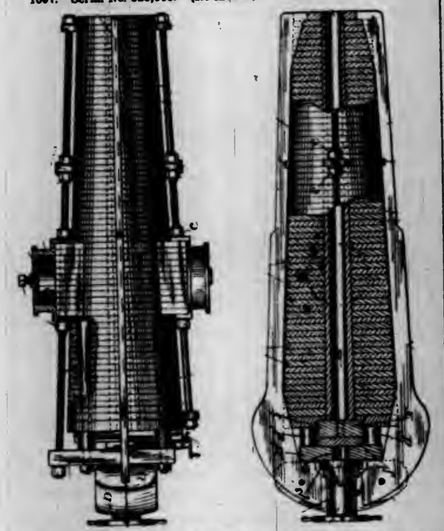
595,463. CORNER-BLOCK MACHINE. EMERSON BELDEN, Green Island, N. Y. Filed Jan. 16, 1893. Serial No. 458,472. (No model.)



Claim.—1. In a corner-block machine, the combination with a rotary endwise-fixed cutter-head and spindle, of a block-supporting carrier, carrier-supporting ways parallel with the axial line of the spindle and leading approximately to the head, reciprocatory mechanism and means for reciprocating the same, a yielding connection between such reciprocatory mechanism and the carrier, and stops for limiting the movements of the carrier, whereby intermittent reciprocating movements may be imparted to the carrier, substantially as described.

2. In a corner-block machine, having a rotary cutter-head and a block-carrier movable in axial line with the head to and from the head, a plurality of yielding steady and push stops located in the path of a carried block, and adjustable radially to the axial line of the cutter-head and carrier, substantially as described.

595,464. CANNON. EDWIN J. BLOOD, Chicago, Ill. Filed Mar. 1, 1897. Serial No. 625,609. (No model.)



Claim.—1. A cannon comprising layers or plates provided with a central opening tapering toward the muzzle, means for securing the plates together, the disks or plates in the rear portion of the cannon having openings tapering rearwardly, a removable tube or barrel located in the central opening and correspondingly tapered on its outer surface, rods tapering rearwardly located in said rearwardly-tapering openings and means for securing said rods therein, substantially as described.

2. A cannon comprising layers or plates provided with a central opening tapering toward the muzzle, means for securing the said disks or plates together, the disks or plates in the rear portion of the cannon having openings tapering rearwardly, a tube or barrel located in the central opening and correspondingly tapered on its outer surface, rods tapering rearwardly located in and extending through said rearwardly-tapering openings, a cross head secured on the extension of said rods at a distance from the rear disk or plate, substantially as described.

3. A cannon comprising layers or plates provided with a central opening tapering toward the muzzle, means for securing the said layers or plates together, the disks or plates in the rear portion of the cannon having openings tapering rearwardly, a tube or barrel located in the central opening and correspondingly tapered on its outer surface, rods tapering rearwardly located in and extending through said rearwardly-tapering openings, a cross-head secured on the extension of said rods, and a breech-block carrying a firing mechanism interposed and operating between the cross-head and rear disk or plate of the cannon, substantially as described.

4. A cannon comprising layers or plates provided with a central opening tapering toward the muzzle, means for securing the said layers or plates together, the disks or plates in the rear portion of the cannon having openings tapering rearwardly, a tube or barrel located in the central opening and correspondingly tapered on its outer surface, rods tapering rearwardly located in and extending through said rearwardly-tapering openings, a cross-head secured on the extension of said rods, a breech-block interposed and operating between the cross head and rear part of the bore, a firing mechanism on said breech-block, and an inclined adjustable piece between the breech-block and cross-head, substantially as described.

5. A cannon comprising a body, a cross-head secured to the body at a distance from the rear of the bore in the body and having an opening in alinement with the bore for the insertion of a projectile, the inner end of said opening being located a sufficient distance from the rear end of the bore to admit of the insertion of a breech-block between it and the bore, the cross-head forming a support for the breech-block when the gun is fired, substantially as described.

6. A cannon comprising a body a cross-head secured to the body at a distance from the rear of the bore in the body and having an opening in alinement with the bore for the insertion of a projectile, the inner end of said opening being located a sufficient distance from the rear end of the bore, a breech-block located between the inner end of the opening in the cross-head and the rear end of the bore of the gun, the cross-head being formed to support the breech-block, when the gun is fired, substantially as described.

7. A cannon comprising a body, a removable inner barrel located therein, a cross-head secured to the body at a distance from the rear end of the bore of said barrel and having an opening in alinement with said bore for the insertion of a projectile, a breech-block located between the inner end of the opening in the cross-head and the rear end of the bore in the barrel, the cross-head being formed to support the breech-block when the gun is fired, substantially as described.

8. A cannon comprising layers or plates provided with a central opening tapering toward the muzzle, means for securing the said layers or plates together, a correspondingly-tapered tube or barrel located in said opening, reinforcing-ribs engaging the disk at the muzzle end of the cannon and extending past the rear end thereof, a cross-head secured to the rear end of the cannon at a distance therefrom, bearing-pieces secured to the rear ends of the ribs and having in their adjacent surfaces annular recesses provided with annular enlargements adjacent to the cross-head, a sleeve having on its inner end an annular flange and located in said recesses, a tubular shaft having on its inner end an inclined annular flange, said shaft located in said sleeve, and a flange thereof interposed between the bearing-pieces and the cross-head, substantially as described.

9. A cannon comprising layers or plates provided with a central opening tapering toward the muzzle, means for securing the said layers or plates together, a correspondingly-tapered tube or barrel located in said opening, reinforcing-ribs engaging the disk at the muzzle end of the cannon and extending past the rear end thereof, a cross-head secured to the rear end of the cannon at a distance therefrom, bearing-pieces secured to the rear ends of the ribs, and having in their adjacent surfaces annular recesses provided with annular enlargements adjacent to the cross-head, a sleeve having on its inner end an annular flange and located in said recesses, a tubular shaft having on its inner end an inclined annular flange, said shaft located in said sleeve, and the flange thereof interposed between the bearing-pieces and the cross-head, a breech-block carrying a firing mechanism, an inclined piece adjustably secured on said block, said piece and block adapted to be interposed between the cross-head and rear of the bore in the cannon, substantially as described.

595,465. VELOCIPEDE. PATRICK H. BERNHAM, Syracuse, N. Y. Filed May 21, 1896. Serial No. 592,471. (No model.)



Claim.—1. The combination of a supporting-standard having its lower end formed hollow and its upper end provided with an eye and an opening extending outwardly from the inner face of the eye through the outer peripheral face of said eye, a handle-bar mounted in the eye and provided with a substantially upright perforation extending from front to rear and formed of greater length than width, a clamping-piece provided with an aperture and having one end arranged in said opening and formed with a concave lower face for engaging the handle-bar, and its opposite end formed with a substantially flat upper face, a bolt for operatively engaging the clamping-piece with the handle-bar, said bolt being passed through the aperture in the clamping-piece and the perforation in the handle-bar, and having one end engaged with the upper face of the clamping-piece and its opposite end extended into the hollow portion of the standard, and a nut adjustable lengthwise on the bolt within the hollow portion of the standard, said nut being connected to the standard, substantially as and for the purpose described.

2. The combination of a supporting-standard having an expansible inner end, and an eye at its outer end provided with an opening extending outwardly therefrom, a handle-bar mounted in the eye, a clamping-piece arranged within said opening for engaging the handle bar, a nut supported within the inner end of the standard and operating, to expand said end, and a revoluble operating-piece for

actuating the clamping-piece and the nut, substantially as and for the purpose specified.

3. The combination of a supporting-standard having a portion thereof expansible, a substantially cylindrical expansion-plug arranged within the expansible portion of the standard and provided with outwardly-movable portions or arms having engaging faces, a nut for forcing said portions or arms outwardly, a revoluble operating-piece within the standard engaged with the nut for elevating the same, and a spring for forcing the nut against said engaging faces, substantially as and for the purpose set forth.

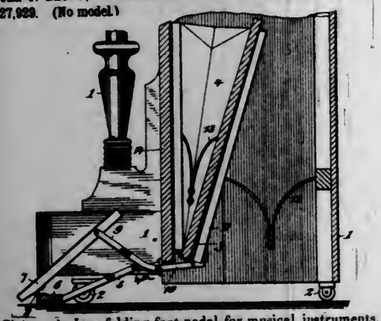
4. The combination of a supporting-standard having a portion thereof expansible, a substantially cylindrical expansion-plug arranged within the expansible portion of the standard and provided with outwardly-movable portions or arms having engaging faces, a nut for forcing said portions or arms outwardly, a revoluble operating-piece within the standard engaged with the nut for elevating the same, a spring for forcing the nut against said engaging faces, and a screw-plug movable lengthwise in the expansion-plug for supporting the spring, substantially as and for the purpose specified.

5. The combination of a supporting-standard having a portion thereof expansible, a substantially cylindrical hollow expansion plug arranged within the expansible portion of the standard, and having its lower end formed with an annular shoulder engaged with the standard for limiting the upward movement of the plug, the upper end of said plug being provided with outwardly-movable portions or arms having engaging faces projecting upwardly and inwardly toward each other, a nut having the outer surface of its upper end inclined upwardly and inwardly for engaging said faces and forcing the movable portions or arms of the plug outwardly, and an operating-piece within the standard engaged with the nut for elevating the same, substantially as and for the purpose described.

6. The combination of a supporting-standard having a portion thereof expansible, a substantially cylindrical expansion-plug arranged within the expansible portion of the standard, and having its lower end formed with an annular shoulder engaged with the standard for limiting the upward movement of the plug, the upper end of said plug being provided with outwardly-movable portions or arms having engagiug faces projecting upwardly toward each other, a nut having a tapering upper end for engaging said faces and forcing the movable portions or arms of the plug outwardly, an operating-piece within the standard engaged with the nut for elevating the same, and a spring for normally elevating the nut, substantially as and for the purpose described.

7. The combination of a supporting-standard having a portion thereof expansible, and being provided at its upper end with an eye and an opening extending upwardly therefrom, an expansion-plug arranged within the expansible portion of the standard and provided with outwardly-movable portions or arms having engaging faces, a nut having one end engaged with said faces, a handle-bar mounted in the eye, a clamping-piece arranged in the opening extending upwardly from the eye, and formed with an aperture extending therethrough, said clamping-piece having its lower face engaged with the handle-bar, and an operating-piece having one end engaged with the nut and its other end passed through the aperture in the clamping-piece and engaged therewith, substantially as and for the purpose set forth.

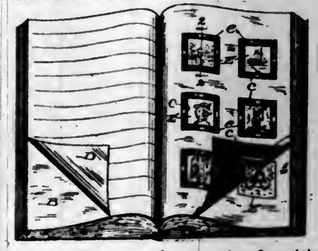
595,466. FOOT-PEDAL FOR MUSICAL INSTRUMENTS. THEODORE P. BROWN, Worcester, Mass. Filed Mar. 17, 1897. Serial No. 627,929. (No model.)



Claim.—1. In a folding foot-pedal for musical instruments, the combination with the case thereof, of two outwardly-extending arms pivoted to the said case, a cross-rail connecting the outer ends of said arms, foot pedals hinged to said cross-rail, rearwardly-extending yoke-shaped links each pivoted at its yoked end to one of the said pedals, and bracket-arms rigidly secured at their rear ends to a movable part of the instrument and having their forward ends pivoted to the lower ends of the said links, substantially as described.

2. In a foot-pedal device for musical instruments, the combination with the case thereof, of the forwardly-projecting brackets 4^a, secured to said case above its base, an arm 5, pivoted to each bracket and extending outward therefrom, a cross-rail 6, connecting the outer ends of said arms, foot-pedals 7, hinged at their lower ends to said cross-rail, rearwardly-extending yoke-shaped links 9, each pivoted at its yoked end near the upper end of each pedal, and bracket-arms 10, rigidly secured at their rear ends to a movable part of the instrument and having their forward ends pivoted to the lower ends of the said links, substantially as described.

595,467. ALBUM. WILLIAM BRUHS, Chicago, Ill. Filed Apr. 17, 1897. Serial No. 632,556. (No model.)



Claim.—1. An album, comprising a series of retaining or supporting leaves having diagrams on one or both of their surfaces, and a series of mat-sheets provided with apertures corresponding and adapted to register with the diagrams on the retaining or supporting sheets, said mat-sheets adapted to be superimposed on and secured to the retaining sheets, so as to cover and protect the edges of the pictures, substantially as described.

2. An album, comprising a series of retaining or supporting sheets provided with diagrams on one or both of their surfaces, said diagrammatical portions of the retaining-sheets being provided with a coating of adhesive material, and a series of mat-sheets provided with apertures corresponding and adapted to register with the diagrams on the retaining or supporting sheets, said mat-sheets having on their surfaces adjacent to the retaining-sheets a coating of adhesive material and adapted to be secured to the retaining-sheets, substantially as described.

3. An album, comprising a series of retaining or supporting sheets provided with diagrams on one or both of their surfaces, said diagrammatical portions of the retaining-sheets being provided with a coating of adhesive material, a series of mat-sheets provided with apertures corresponding and adapted to register with the diagrams on the retaining-sheets, said mat-sheets having on their surfaces adjacent to the retaining-sheets, a coating of adhesive material and adapted to be secured to the retaining-sheets, and a number of blank sheets located throughout the album, substantially as described.

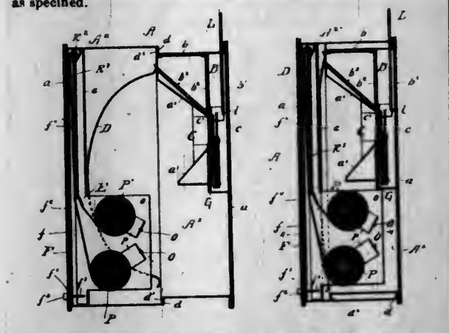
4. An album comprising a series of retaining or supporting leaves having diagrams on one or both of their surfaces, said diagrams comprising a coating of visible adhesive material, and a series of mat-sheets provided with apertures corresponding and adapted to register with the diagrams on the retaining or supporting sheets, said mat-sheets adapted to be superimposed on and secured to the retaining-sheets, so as to cover and protect the edges of the pictures, and provided around their apertures on the exposed surface with embellishments or ornamental designs, substantially as described.

595,468. PHOTOGRAPHIC CAMERA. WILLIAM F. COOK, Ivy Mills, Pa. Filed May 12, 1896. Renewed June 30, 1897. Serial No. 643,007. (Model.)

Claim.—1. The combination in a camera, of the casing formed of two main sections A', A^2, the section A' being adapted to slide telescopically within the section A^2, a lens, shutter and focusing device carried by the section A', a removable film-carrying frame carried by the section A^2, film-rolls journaled in said frame, and devices for guiding said film to a point in line with the lens, substantially as specified.

2. The combination in a camera, of the casing formed of two main sections A', A^2, the section A' being adapted to slide telescopically within the section A^2, springs normally tending to separate said sections, a lens, shutter, and focusing device carried by the section A' at a point within and at the upper portion of said section, and film-carrying rolls provided in the section A^2 at the lower portion of said section, so that when the sections are closed the operative parts

may pass each other and be confined in a small space, substantially as specified.



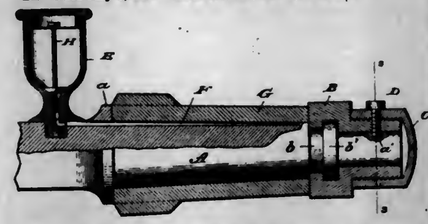
3. The combination in a camera, of the casing formed of two main sections A', A^2, an inwardly-turned flange *d* on the section A^2, an outwardly-turned flange on the section A', a removable frame E, for the support of the film-carrying frame or dry-plate in the section A^2, a chamber B formed in the section A', a shutter mechanism in said chamber, an operating-lever L extending from said shutter mechanism through a slot in the section A', and a lens and focusing device carried by the section A', substantially as specified.

4. The combination with the camera, of a plate holder comprising a main body portion adapted to carry the sensitive plate, a slide or cover normally protecting the plate from exposure, a sliding operating device guided in the rear portion of the camera-frame, a pin connecting the operating device to the slide or cover, and an operating-pin on the sliding operating device extending through a slot in the camera-frame, substantially as specified.

5. The combination with the frame, of a plate-holder comprising a backing-plate S having one edge flanged to protect the edge of the sensitive plate, a second plate S' also flanged to protect the remaining edges of the plate, a spring *s* situated between the plates S, S', and a removable slide or cover T guided in the flanged edges of the plates S, S', substantially as specified.

6. The combination with the frame or casing having a slot *f*, of a slide F adapted to guides on the casing, a pin f' carried by said slide and extending through the slot *f*, a plate-holder having a removable slide or cover T and a pin f^2 on said slide F adapted to engage in an opening formed in said slide or cover, substantially as specified.

595,469. VEHICLE-AXLE. ADOLPHE C. G. DUPUIS, New Orleans, La. Filed July 8, 1896. Serial No. 598,442. (No model.)



Claim.—1. In combination with the axle-spindle of a divided nut or washer which is adapted to embrace and be retained upon the end of the spindle by means of a cap-nut having internal threads, for engagement with external threads on the divided nut or washer, and a set-screw or locking-bolt which passes through the aforesaid parts and engages with the reduced end of the spindle substantially as shown.

2. In combination with the axle spindle and box, the spindle having a recess *b*, collar *b'* and portion with flattened sides located beyond the collar *b'*, of a divided nut or washer B shaped to correspond internally with the external configuration of the end of the spindle, the outer ends of the divided nut or washer being threaded; together with a nut C, and means for holding the nut C, against rotation upon the nut or washer B, substantially as shown and for the purpose set forth.

595,470. COMB-GAGE ATTACHMENT FOR SCISSORS OR SHEARS. SIMON GOLDNER, New York, N. Y. Filed Feb. 26, 1897. Serial No. 625,229. (No model.)

Claim.—The combination with a scissors or like device, of a pair of combs secured to its blades, the teeth of which are set at sloping angles and toward each other and from each of the blades, and adapted to draw the hair, or other substance being clipped, into a vertical position between the cutting edges of the blades, substantially as specified.



595,471. RAILWAY CATTLE-GUARD. ALBERT A. GRAHAM, Topeka, Kans. Filed Feb. 3, 1897. Serial No. 621,842. (No model.)



Claim.—1. A railway cattle-guard, comprising pairs of movable jaws extended parallel with the track-rails, each jaw consisting of a substantially vertical portion and a base at an inner and upward angle to the vertical portion and counterbalances for moving and sustaining said jaws in their normal position, substantially as specified.

2. A railway cattle-guard, comprising pairs of pivoted jaws, each jaw consisting of a substantially vertical portion and a base portion at an inward and upward angle to the vertical portion, the jaws of a pair having link connection, and a counterbalance for each pair of jaws, substantially as specified.

3. A cattle-guard, comprising a series of pivoted jaws, each jaw consisting of a vertically-disposed portion and a portion extended at an inward and upright angle from the lower edge of the vertically-disposed portion, the top edges of the vertically-disposed portions being serrated or toothed, serrations or teeth on the lower portion, and counterbalance-weights for operating and supporting the jaws in their normal position, substantially as specified.

4. A cattle-guard, comprising a series of jaws arranged in pairs, each jaw being substantially L shape in cross-section, trunnions on the jaws, housings having inclined walls, the said trunnions having bearings in the inner side walls of said housings, arms extended from the trunnions within the housings, the arms of a pair of jaws being linked together, and a counterbalance weight on the arm of one jaw of a pair, substantially as specified.

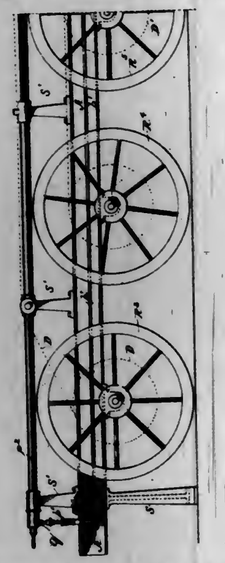
5. A cattle-guard, comprising pairs of jaws connected together to swing, one pair independent of another pair, and a counterbalance for each pair, substantially as specified.

595,472. MECHANISM FOR LINING METAL TUBES WITH PLIABLE MATERIAL. EDWIN T. GREENFIELD, New York, N. Y. Filed Apr. 29, 1897. Serial No. 634,362. (No model.)

Claim.—1. Mechanism for lining tubes with pliable or fibrous material consisting of means for forming a tube from strips thereof, means for inserting said tube within the tube to be lined and then inflating it, a carriage for carrying said tube and a controlling-valve for regulating the operation of said parts, in combination with valve-controlling means carried by the carriage, substantially as described.

2. Mechanism for lining tubes with pliable or fibrous material such as paper, consisting of means for forming the tube-lining of the pliable material, and additional means consisting of an expansible

mandrel or tube for causing the previously-formed tube to adhere to the inner wall of the tube to be lined, in combination with regulating or governing mechanism for regulating the speed at which the mechanism shall operate, substantially as described.



3. Tube-lining mechanism consisting of means for inserting a previously-formed tube of pliable or fibrous material such as paper within a tube to be lined, in combination with additional means for holding or maintaining the lining in its tubular form while it is being formed and inserted into the tube to be lined, substantially as described.

4. In a tube-lining machine a series of eyes or rings adapted to surround the lining as it is being drawn, said rings being joined together but having independent movement, substantially as described.

5. Mechanism for forming a tube of pliable or fibrous material, such as paper, consisting of a die adapted to give to said material a tubular shape or conformation as it is drawn forward, means for heating this completed tube so as to iron it into shape, means for coating additional strips of fibrous material with paste and additional means for giving to the additional strips a tubular form, in combination with means for cooling the first-named tube so as to delay the action of the adhesive agent, substantially as described.

6. In a tube-lining machine means for constructing the lining from pliable or fibrous material and inserting it into a tube to be lined, in combination with means for causing the inserting mechanism to partially advance the lining within the tube before the latter is forced forward to its extreme limit around the lining whereby a waste of lining material is avoided and each tube supplied with the required length thereof, substantially as described.

7. In a tube-lining machine an expansible sleeve provided with means for preventing injury thereto, substantially as described.

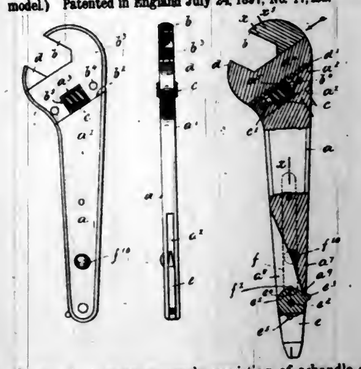
8. In a tube-lining machine an expansible sleeve secured at its opposite ends to a hollow perforated piston, in combination with protecting means surrounding said sleeve and expansible therewith and adapted to protect the same from injury, substantially as described.

9. A tube-lining machine consisting of pneumatically-controlled mechanism adapted to form and expand a lining of pliable or fibrous material within a tube to be lined, in combination with a carriage adapted to carry said tube over the lining and means operatively connected with the carriage adapted to govern the speed at which the lining-tube shall be drawn, substantially as described.

10. A tube-lining machine consisting of pneumatically-controlled mechanism for forming and lining a tube with pliable or fibrous material, in combination with pneumatically-controlled governing mechanism adapted to control the speed at which the tubular lining shall be drawn, substantially as described.

11. A tube-lining machine consisting of pneumatically-controlled mechanism adapted to form a tubular lining and expand the same within a tube to be lined, in combination with a single controlling-valve and a pneumatically-controlled speed-governor, all of said parts being controlled in their movement by said valve, substantially as described.

595,473. ADJUSTABLE SPANNER-WRENCH. ROBERT F. HALL, Birmingham, England. Filed Sept. 4, 1897. Serial No. 650,651. (No model.) Patented in England July 24, 1897, No. 17,432.

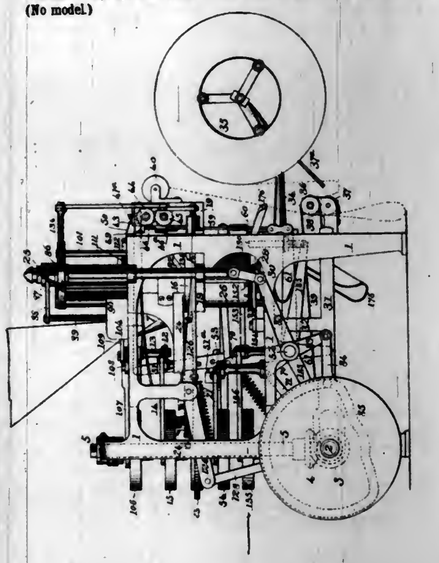


Claim.—1. A spanner-wrench, consisting of a handle *a*, having a tongue a^2 on one end, a fixed jaw *b* having a head b^3 constructed with a groove b' receiving said tongue, means for rigidly attaching the head of the fixed jaw to the tongue, said tongue and the grooved part of the head of the fixed jaw having recesses or gaps, a worm-nut *c* lying in said recesses or gaps, and a movable jaw *d* constructed with a diagonal bar d^4 slidable centrally in the head of the fixed jaw and having a rack d^2 engaging the worm-nut, substantially as described.

2. An adjustable spanner-wrench, consisting of a handle, a fixed head having a tongue on one end, a fixed jaw having a head constructed with a groove receiving said tongue, means for attaching the head of the fixed jaw to the tongue, said tongue and the grooved part of the head of the fixed jaw having coincident recesses or gaps, a worm-nut *c* fitted in the said recesses or gaps, and a movable jaw mounted on the head of the fixed jaw and having a rack engaging the worm-nut, substantially as described.

3. An adjustable spanner-wrench, consisting of a handle having a tongue on one end, a fixed jaw having a head constructed with a groove receiving said tongue, the tongue and the grooved part of the head of the fixed jaw having coincident recesses or gaps and the recess or gap in the tongue having seats for the journals or pivots of a worm-nut, a worm-nut fitted in the recesses or gaps and having journals or pivots lying in said seats, and a movable jaw having a rack engaging the worm nut, substantially as described.

595,474. CIGARETTE-MACHINE. GEORGE H. HAYDEN and FRANK D. HAYDEN, Richmond, Va., assignors to the Hayden Cigarette Machine Company, same place. Filed June 1, 1897. Serial No. 638,983. (No model.)



Claim.—1. In a paper-feeding mechanism for cigarette-machines, the combination of a continuous web-feeding device, an intermittent web-feeding device, a cutting mechanism, and a vibrating wrapper-feeding device, substantially as set forth.

2. In a cigarette-machine, the combination of a duplex paper-feeding device, consisting of a continuous and an intermittent feeding mechanism, a cutting device, a tube former, and a vibrating wrapping-feeding device for delivering the severed wrapper to the tube-former, substantially as described.

3. In a cigarette-machine, the combination of a paper-web-feeding mechanism, means for severing a wrapper from the said web, a tube-former, a vibrating wrapping-feeding device and means for forming the tube from the wrapper, and tucking one end thereof, substantially as described.

4. In a cigarette-machine, the combination of a feeding mechanism, a vibrating carrier, a tube-forming mechanism and means for delivering the wrapper from the carrier to the tube-forming mechanism, substantially as described

5. In a cigarette-machine, the combination of a vibrating wrapper-carrier having a flat bed, a frictionally-operated roller mounted thereon, a positively-operated roller mounted on the main frame and adapted to coact with the roller on the vibrating carrier to deliver the wrapper to the tube-forming mechanism, substantially as described.

6. In a cigarette-machine, the combination of wrapper-feeding mechanism, a vibrating carrier, a tube-forming mechanism, means for delivering the wrapper from the carrier to the tube-forming mechanism, and means for tucking one end of the tube, substantially as described.

7. In a cigarette-machine, a wrapper-former, the same consisting of a rod having a slot in one side, the said slot being wider at one end than at the other, and means for giving the rod both a longitudinal and a rotary movement, substantially as described.

8. In a cigarette-machine, a wrapper-tube-forming rod having a longitudinal slot therein of greater width at one end than at the other, in combination with means for introducing the wrapper into the wide portion of the slot, means for moving the tube longitudinally until the wrapper enters the narrow portion of the slot, and means for rotating the rod, substantially as described.

9. In a cigarette-machine, a wrapper-tube-forming rod having a longitudinal slot from end to end, one end of the slot being narrower than the other end, in combination with a pinion adapted to rotate the rod, the latter being adapted to slide freely endwise through the said pinion, substantially as described.

10. In a cigarette-machine, the combination of a wrapper-tube-forming rod having a slot in one side wider at one end than at the other, a plate, through an opening in which the rod passes and in which the wrapper-tube is formed, the said plate having a slot opposite the slot in the rod, and means for delivering the wrapper to the rod, substantially as described.

11. In a cigarette-machine, the combination of a slotted wrapper-tube-forming rod, one end of which is of reduced diameter, a vibrating wrapper-carrier, means for delivering the wrapper from the carrier to the wrapper-rod, and a plate having a socket for the wrapper-rod and open on one side for the passage of the wrapper, substantially as described.

12. In a cigarette-machine, the combination of a wrapper-tube-forming mechanism, means for tucking one end of the wrapper-tube to form a shell, a perforated cylinder, means for introducing the wrapper-tube former and shell into one of the perforations of the cylinder, and means for retaining the shell within the opening while the tube-former is withdrawn, substantially as set forth.

13. In a cigarette-machine, a fixed vertical shaft, a cylinder rotating thereon having a series of longitudinal openings therethrough, and means for intermittently rotating the cylinder, in combination with mechanism for forming shells from wrappers, means for delivering the shells to the openings in the cylinder, and means for holding the shells in place during the withdrawal of the delivering means, substantially as set forth.

14. In a cigarette-machine, the combination of a vertical shaft, a longitudinally-perforated intermittently-rotatable cylinder turning thereon, means for delivering the shells to the perforations in the cylinder, means for filling, packing and tucking the shells while in the cylinder, and means for holding the shells open while being filled and packed, substantially as set forth.

15. In a cigarette machine, a longitudinally-perforated cylinder, having an elastic substance forming the walls of the upper ends of the said perforations, substantially as set forth.

16. In a cigarette-machine, a cylinder for carrying the wrapper-shells in longitudinal perforations while being filled and folded, the upper ends of the said perforations having yielding walls, in combination with means for intermittently rotating the said cylinder, substantially as described.

17. In a cigarette-machine, the combination of a secondary hopper, a slide having an opening therethrough adapted to reciprocate below the outlet of the said hopper, vertically-disposed rods, and means for operating the same, said rods being adapted to enter the hopper, stir the tobacco therein and force it into the opening in the slide, substantially as described.

18. In a cigarette-machine, the combination of a hopper, a perforated agitator below and in advance of the hopper, means for operating the agitator a perforated cylinder below the agitator, and a plate having an opening therethrough, adapted to slide forward and backward, whereby the said opening is brought alternately above the agitator and below the outlet of the hopper, substantially as described.

19. In a cigarette-machine, the combination of a hopper having a curved outlet, an agitator below and in advance of the hopper and having a series of cells or openings therethrough, means for operating the agitator, a longitudinally-perforated cylinder below the agitator, the said perforations registering with the cells in the agitator, and a plate having through it a curved opening and adapted to slide from the hopper to and above the agitator, substantially as described.

20. In a cigarette-machine, an agitator having a series of cells or openings therethrough decreasing in size from above downwardly, means for vibrating the agitator in combination with a cylinder beneath the agitator having near its periphery a series of openings, the cells in the agitator being arranged in a curved line and registering with the openings in the cylinder, substantially as described.

21. In a cigarette machine, the combination of a hopper, an agitator having cells or openings therethrough, means for vibrating the agitator, the division-walls between the cells of the agitator being brought to a knife-edge and equally spaced, a cylinder below the agitator having perforations near its periphery, and a slide provided with an opening adapted to hold sufficient tobacco for one cigarette, whereby, when the slide is advanced over the agitator, the tobacco will be divided by the knife-edge walls into as many portions as there are cells in the agitator, substantially as described.

22. In a cigarette-machine, an agitator adapted to be vibrated in a horizontal plane, means for vibrating the agitator, cells or openings being formed therethrough and arranged in a curved line, the division-walls between the cells being brought to knife-edges, substantially as described.

23. In a cigarette-machine, the combination of the main frame, a vertical shaft fixed thereto, a longitudinally-perforated cylinder rotating thereon, a plate surrounding the shaft and adapted to slide vertically thereon, packing-rods secured to the plate and projecting downwardly, an agitator above the cylinder having openings or cells, and means for depressing the plate to carry the rods through the agitator into the openings in the cylinder, substantially as described.

24. In a cigarette-machine, the combination of a cylinder adapted to hold wrapper-shells, means for packing tobacco therein, and fingers for positively holding open the mouth of the shell, substantially as described.

25. In a cigarette-machine, the combination of a perforated cylinder adapted to hold wrapper-shells, means for feeding tobacco thereto, means for packing tobacco therein, means for positively holding the mouths of the shells open, and a yielding wall provided in each opening of the perforated cylinder, substantially as described.

26. In a cigarette machine, the combination of a perforated cylinder, the perforations thereof being adapted to hold wrapper-shells, means for feeding tobacco to said shells, means for subdividing the tobacco into a predetermined number of portions and delivering it to an equal number of wrapper-shells, and packing-rods of progressively-decreasing length, substantially as described.

27. In a cigarette-machine, the combination of a longitudinally-perforated cylinder, pairs of fingers adapted to enter the perforations, and packing rods also adapted to enter the said perforations between pairs of fingers, substantially as described.

28. In a cigarette-machine, the combination of a cylinder having a series of openings therethrough adapted to hold wrapper-shells, means for raising the open end of a shell a short distance above the upper surface of the cylinder, and means for closing the said open end of the said shell substantially as described.

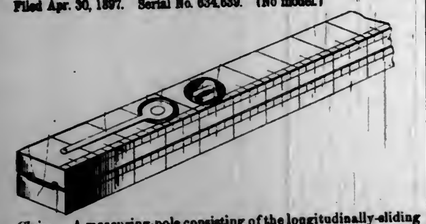
29. In a cigarette-machine, the combination of a cylinder to hold wrapper-shells, means for filling and packing the shells with tobacco, means for slightly elevating the open end of a shell above the end of the cylinder, and means for closing the said open end, substantially as described.

30. In a cigarette-machine, the combination of means for holding and carrying wrapper-shells each having a closed end, means for filling and packing the said shells with tobacco, means for presenting the open end of each shell to folding or tucking mechanism, the said tucking mechanism, and means for intermittently rotating the devices for holding and carrying the shell, substantially as described.

31. In a cigarette-machine, the combination of an intermittently-rotating cylinder adapted to carry wrapper-shells in suitable openings

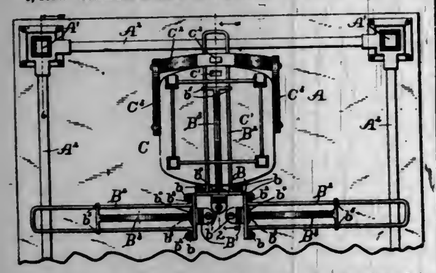
therein, means for filling and packing tobacco in the shells while in the openings, a device for raising the open end of a filled shell above the surface of the cylinder, and for locking said device against movement, a tucking or folding mechanism, and an ejector for the completed cigarette, substantially as described.

595,475. MEASURING-POLE. REUBEN HEGARTY, Madera, Pa. Filed Apr. 30, 1897. Serial No. 634,639. (No model.)



Claim.—A measuring-pole consisting of the longitudinally-sliding members secured together and provided with a detent for holding the same immovable at intervals, and a thumb-screw passing through one of said members and adapted to engage the other of said members, the head of said thumb-screw being situated within a recess in the member to which it is secured.

595,476. TABLE ATTACHMENT. CHARLES HELLER, Annapolis, Md., assignor of one-half to John R. Strange, same place. Filed Apr. 8, 1897. Serial No. 631,293. (No model.)



Claim.—1. The combination with a table, of a plurality of depending brackets mounted upon the under side of the top thereof; a bent metallic rod pivoted upon each of said brackets; and a bent metallic spring also mounted upon each of said brackets, and pressing said bent rods upward, substantially as described.

2. In a table attachment of the character described, the combination with a metallic bracket, and means for securing said bracket to the under side of the table-top; of a frame pivoted upon said bracket; and a bent metallic spring fixed at one end upon said bracket, and at the opposite end adapted to bear upon said pivoted frame, as and for the purposes described.

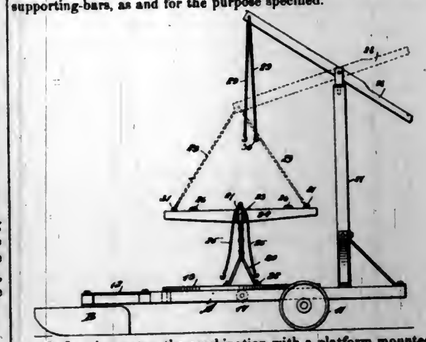
3. In a table attachment of the character described, the combination with a bracket provided upon its base with lugs for the passage of screws; a brace fixed upon one side of said bracket; a frame comprising two parallel arms pivoted upon said bracket; and a bent metallic spring fixed at one end upon said bracket, and at the opposite end adapted to bear upon said frame, substantially as and for the purposes described.

4. In a table attachment of the character described, the combination with a bracket provided with means for attaching said bracket to the table, and having a pair of cleats thereon; of a frame comprising a bent metallic rod having two parallel legs pivoted in said cleats; and a spring fixed upon said bracket and adapted to bear upon said legs, substantially as and for the purposes described.

595,477. CORN-HARVESTER. FRANK HILSON, Ashland, Ohio. Filed May 7, 1897. Serial No. 635,460. (No model.)

Claim.—1. In a corn-harvester, a platform, uprights secured to the said platform, one of the uprights being fixed and the other capable of dropping from an upright position, a supporting-bar carried by the two uprights, a second supporting-bar crossing the first bar and carried thereby, a hoisting device, and means for connecting the said device with one of the said supporting-bars, as and for the purpose specified.

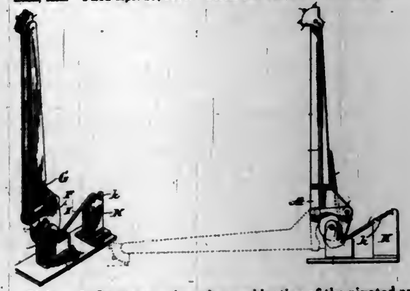
2. In a corn-harvester, the combination with a platform carrying knives, of a platform mounted to turn and provided with uprights, one of said uprights being connected with the revoluble platform by a hinge so that it can be dropped to a horizontal position, supporting-bars arranged at angles to each other and removably carried by the revoluble platform, binding devices carried by the said supporting-bars, and a lift-lever supported by the frame of the machine and held to turn thereon, the said lift-lever being provided with pendent members adapted to engage with keepers on one of the said supporting-bars, as and for the purpose specified.



3. In a harvester, the combination with a platform mounted to revolve, standards carried by the platform, and a shock-supporting bar connected with the standards, of a second shock-supporting bar arranged approximately at right angles to the bar sustained by the standards and having a loose engagement therewith, the said supporting-bars intersecting at a point above the center of the revoluble platform, binding-cords secured to one of the shock-supporting bars, keepers for the cords carried by the other supporting-bar, and a lifting device for one of the bars, substantially as described.

4. In a harvester, the combination with a wheel-supported platform, knives secured to said platform, a second platform mounted to turn upon the wheel-supported platform, and a fixed and a hinged standard carried by the rotary platform, of a shock-supporting bar sustained by said standards, a second shock-supporting bar having a loose interlocking engagement with the sustained bar, binding-cords connected with one bar, keepers carried by the other bar adapted to receive the loose portions of the cords and a lifting device for the loosely-mounted bar, substantially as described.

595,478. TYPE-WRITER ARM. WILLIAM B. HOPKINS, Birmingham, Ala. Filed Apr. 25, 1896. Serial No. 589,044. (No model.)



Claim.—1. In a type-writer, the combination of the pivoted arm, a type-carrying head pivoted thereto, having a plurality of type, a lever attached to the arm, and an abutment for said lever, swinging on an axis extending in the same direction as the axis of the arm, substantially as and for the purpose described.

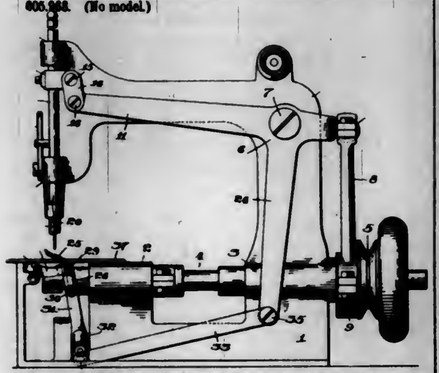
2. In a type-writer, the combination of the pivoted arm, a type-carrying head pivoted thereto having a plurality of type, a lever attached to and moving with the arm, and an abutment pivoted concentric with the latter and movable into and out of the path of the lever as it moves with the arm, substantially as and for the purpose described.

3. In a type-writer, the combination of the pivoted arm, a type-carrying head pivoted thereto, having a plurality of type, a lever attached to and moving with the arm, a rod extending from the lever to the head, an abutment swinging on an axis extending in the same direction as the arm-axis, and a spring attached to the arm and acting to move the head, substantially as and for the purpose described.

4. In a type-writer, the combination of the movable arm, a type-carrying head pivoted thereto, having a plurality of type, means for yieldingly holding such head in position to print from one of the type, a lever carried by the arm, connections between the same and the head, and a plate having a number of projections one less than the number of type on the head, that are adapted to be successively placed in position to engage said lever, substantially as and for the purpose described.

5. In a type-writer, the combination of the pivoted arm, a type-carrying head, pivoted thereto, having a plurality of type, a spring for yieldingly holding such head in position to print from one of the type, a lever carried by the arm, connections between the same and the head, and a swinging plate having a number of projections, one less than the number of type on the head, that are different distances, in a radial direction from the axis of the plate, substantially as and for the purpose described.

595,479. SEWING-MACHINE. WILLIAM H. HUGG, Palmyra, N. J., and CONRAD SCHÜTZ, Philadelphia, Pa. Filed Sept. 16, 1896. Serial No. 605,968. (No model.)



Claim.—1. In a sewing-machine, in combination, a reciprocating needle, a curve-pointed looper which oscillates in a curved path and has its point directed outwardly from said curved path, a link to which said looper is attached, an arm having one end pivoted to said link and the other end pivoted to a fixed support, an oscillating lever fulcrumed in a fixed support and pivoted to said link, a throat-plate, and mechanism connecting said needle and looper mechanism, whereby they are adapted to operate in unison, substantially as and for the purposes specified.

2. In a sewing-machine, in combination, a reciprocating needle, a throat-plate having a tongue, an oscillating curve-pointed thread-carrying looper, means to cause said looper to enter the thread-loop formed by said needle upon the under side of said throat-plate and to carry it to the edge of said plate, and passing farther thereinto to yield a loop of its own thread to form a purl on the edge or border of the fabric, said means comprising a link to which said looper is attached, an arm having one end pivoted to said link and the other end pivoted to a fixed support, an oscillating lever fulcrumed to a fixed support and pivoted to said link, and mechanism connecting said needle and looper, substantially as and for the purposes specified.

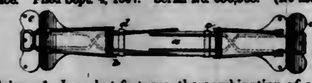
3. In a sewing-machine, a curve-pointed looper provided with two eyes, said looper oscillating in a curved path and having its point directed outwardly from said curved path, a link to which said looper is connected an arm having a movable connection with said link at one end and with a fixed support at the other end, a lever having one of its ends connected with said link, and means for actuating said lever thereby causing said looper to oscillate, substantially as and for the purposes specified.

4. In a sewing-machine, in combination, a revolving shaft, a pitman connected with and oscillated by said shaft, a bell-crank connected with and oscillated by said pitman, a needle connected with and oscillated by said bell-crank, a link, and a looper fixed thereon, an arm having one end pivoted to said link and the other end pivoted to a fixed support, a lever fulcrumed to a fixed support and having one end pivoted to said link, and a second link connecting said fulcrumed lever with said bell-crank, substantially as and for the purposes specified.

5. In a sewing-machine, in combination, a reciprocating needle, a throat-plate, a looper and means to oscillate it in a curved path through said throat-plate and around the edge of the fabric, said looper comprising a plain shank and a point which is turned toward the outside of said curved path and forms an obtuse angle with said shank, and mechanism connecting said needle and looper, whereby they are operated in unison, as specified.

6. In a sewing-machine, in combination, a reciprocating needle, a throat-plate, a looper and means to oscillate it in a curved path through said throat-plate and around the edge of the fabric, said looper comprising a plain shank and a point which is turned toward the outside of said curved path and forms an obtuse angle with said shank, said point being also inclined to the plain of said curve, and mechanism connecting said needle and looper, whereby they are operated in unison, as specified.

595,480. HAT-FASTENER. HARRY INGRAM, Brooklyn, N. Y., assignor of one-half to Charles P. Fay and Thaddeus Firth, Jr., same place. Filed Sept. 4, 1897. Serial No. 650,585. (No model.)



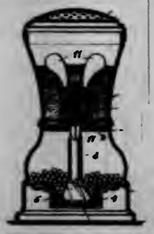
Claim.—1. In a hat-fastener, the combination of a plurality of sections each provided with means for securing it to a hat and slidably connected to each other, and a compound hair-pin sliding in each section and comprising a plurality of members joined so as to move in unison.

2. In a hat-fastener, the combination of a plurality of independent sections each provided with means for securing it to a hat and slidably connected together, and one or more compound hair-pins sliding in the sections and consisting of a plurality of members secured to each other by a pivotal connection whereby the said hair-pin sections will be moved together.

3. In a hat-fastener, the combination of a plurality of sections each provided with means for securing it to a hat and slidably connected together, a compound hair-pin sliding in each section and comprising a plurality of members or hair-pins placed one above the other extending in the same general direction and moving in unison.

4. In a hat-fastener, the combination of a plurality of sections each provided with means for securing it to a hat and slidably connected to each other and provided with compound hair-pins comprising a plurality of hair-pins sliding in each section and diverging from a common center or axis.

595,481. CONDIMENT-BOX. ADOLPH JENATSCHKE and ERNST C. FISCHER, New York, N. Y. Filed July 30, 1897. Serial No. 646,504. (No model.)



Claim.—1. A condiment-box, comprising two independent receptacles mounted to rotate one relatively to the other, a perforated cover for one receptacle, a grinding part carried by one receptacle, and a grinding part carried by the other receptacle and coacting with the first-named grinding part, substantially as specified.

2. A condiment-box, comprising two receptacles separated by the bottom of one of the receptacles mounted to rotate one relatively to the other, a ring carried by one receptacle and having an interior grinding-surface flared outward, and a grinding-cone carried by the other receptacle and engaging with the grinding-ring, substantially as specified.

3. A condiment-box, comprising two receptacles separated by the bottom of one of the receptacles mounted to rotate one relatively to the other, a grinding-ring carried by one receptacle and having an interior grinding-surface flared outward, a grinding-cone engaging in the ring, and a stem connecting the grinding-cone to the other receptacle so that the grinding-cone may be rotated with said other receptacle, substantially as specified.

4. A condiment-box, comprising two receptacles mounted to rotate one on the other, a grinding-ring carried by one of the receptacles, a grinding-cone engaging in the grinding-ring, a stem extended from the cone through the bottom of the other receptacle, means for preventing rotary motion of the stem relatively to said other receptacle, and a thumb-nut engaging the stem within the said other receptacle, the said thumb-nut being provided with wings, substantially as specified.

5. A condiment-box, comprising a pepper-receptacle, a salt-receptacle mounted to rotate thereon, a perforated cover for the salt-receptacle, a grinding ring secured to the bottom of the pepper-receptacle, the said bottom being provided with an opening registering with the ring, a grinding-cone engaging in the grinding-ring, a stem extended from the cone and having an angular portion engaging in an angular hole formed in the bottom of the salt-receptacle, and outwardly-extended wings on said thumb-nut, substantially as specified.

595,482. LACING-STUD. ELEAZER KEMPHALL, Hartford, Conn., assignor, by mesne assignments, to the Boston Fast Color Eyelet Company, Boston, Mass. Filed Oct. 9, 1890. Serial No. 367,517. (No model.)



Claim.—1. A lacing-stud, consisting of a body, provided with a plate A; and of a head-covering B, fastened to the body by an anchor extending from one and anchored in the other; all substantially as described.

2. A lacing-stud, consisting of a body, provided with a plate A; and of a head-covering B, fastened to the body by an anchor extending from the body and anchored in the head-covering; all substantially as described.

3. A lacing-stud, consisting of a body, provided with a plate A, and with a central upward overhanging anchor E; and of a head-covering fastened to that body by means of that anchor; all substantially as described.

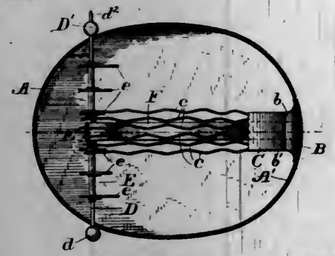
4. A lacing-hook comprising in its construction a neck, an attaching device at the inner end of the neck, a head at the outer end of said neck, an upwardly-projecting inwardly-inclined rib or shoulder formed on the top of said head, and a covering of pyroxylin material molded about the top of said head and interlocked with said shoulder, whereby said head is protected by said covering, and the latter securely anchored to said head.

5. A lacing-stud consisting of a body provided with a plate A, an anchor formed on the top of said plate, and having a wall arranged at an angle to the plane of the plate, and overhanging the latter, and a covering B of plastic material, molded about the top of said plate and interlocked with said anchor, whereby said plate is protected by said covering, and the latter securely anchored to said plate.

6. A lacing-hook comprising a securing member, a head, a centrally-located undercut stud or projection on said head, and a covering of plastic material molded about said head and interlocked with said stud, whereby said head is protected by said covering and the latter is securely anchored to said head by interlocking with said stud.

7. An ornamental lacing-hook having a head, an attaching member, and a neck connecting said head and member, the upper face of the head being provided with an undercut wall and a covering of plastic material molded about the top of said head and retained in position by the undercut wall.

595,483. HAT-FASTENER. JOSEPH D. KING and MATTHEW A. BURNS, Menominee, Mich. Filed Aug. 9, 1897. Serial No. 647,600. (No model.)



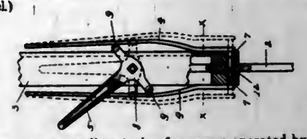
Claim.—1. In a hat-fastener, the combination with a flattened rod passing through the hat, and means for holding the said rod in the hat, of a sleeve mounted upon the flattened portion of the said rod and having a squared portion; curved fingers secured upon the said sleeve; means whereby said sleeve may be turned; and a flat spring-arm bearing on the squared portion of said sleeve and adapted to hold the same against accidental turning, substantially as described.

2. In a hat-fastener, the combination with a rod passing through the hat; a sleeve mounted on said rod; curved fingers secured to the said sleeve; means whereby said rod and sleeve may be turned, and means for holding the said sleeve against accidental turning; fingers c hinged to the inner edge of the hat and adapted to engage the hair and close upon said sleeve, substantially as described.

3. In a hat-fastener, the combination with a rod passing through the hat; a sleeve mounted on said rod; curved fingers secured to the said sleeve; means whereby said sleeve may be turned; of a plate B secured to the inner side of the hat; a spring-arm secured to the said plate B and partially inclosing the said sleeve; and fingers hinged to the said plate B and adapted to pass through the hair and to close upon the said sleeve, substantially as described.

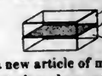
4. In a hat-fastener, the combination with a rod passing through the hat, a sleeve having a squared portion mounted on the said rod; curved fingers secured to the said sleeve, and means whereby said sleeve may be turned; of a plate B secured to the inner side of the hat; a curved spring-arm F secured to said plate B and partially inclosing the squared portion of said sleeve; a plate F secured to the said spring-arm and adapted to engage the said squared portion of the said sleeve; and fingers hinged to the said plate B and adapted to pass through the hair and to close upon the said sleeve, substantially as described.

595,484. COUPLING FOR WINDMILL-PUMPS. JOSEPH M. KLOPFENSTEIN, Leo, Ind. Filed Feb. 11, 1897. Serial No. 622,949. (No model.)



Claim.—In a coupling device for pumps operated by windmills, the combination with the pump-rod of a coupling, comprising a hollow metallic piece 3, having an integral back and sides and at its lower end having its front part integrally united to the sides with a vertical slotted opening in the end for receiving the pump-rod; the spring-plates 4, 4, having the lateral pins 7, 7, adapted to engage in the perforations in the lower part of the pump-rod slide; the pivoted operating-lever 5 having a plurality of arms adapted to release the engagement of the pins 7 from the pump sucker-rod when the free arm of the lever is in a vertical position, and when in its normal position to securely hold the plate pressed against the slide and thereby prevent disengagement; all arranged as described and shown.

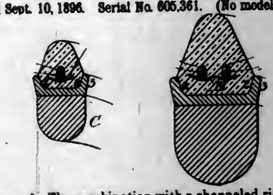
595,485. MOSAIC TILE. CHARLES R. LAMB, New York, N. Y. Filed Aug. 6, 1896. Serial No. 601,847. (Specimens.)



Claim.—1. As a new article of manufacture a tile consisting of a backing, a transparent glass plate and an interposed layer of metallic foil firmly united into one composite structure by the action of heat, substantially as shown and described.

2. As a new article of manufacture a tile consisting of two glass plates of different colors and an interposed layer of metallic foil having their contiguous surfaces united throughout by the action of heat, substantially as shown and described.

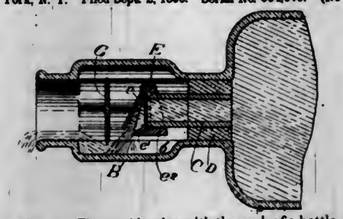
595,486. RUBBER TIRE. WOODBURN LANGMUIR, Toronto, Canada. Filed Sept. 10, 1896. Serial No. 605,361. (No model.)



Claim.—1. The combination with a channeled rim having flanges which confine the base of the tire, of a rubber tire adapted when in a longitudinally-compressed state to fit the circumferential length of said rim and having one or more longitudinal wire-holes located above or substantially on a line with the outer edges of the flanges of the rim so as to contain a radially and laterally compressible mass of rubber within the circle of the wire, a longitudinal adhering band incorporated in the tire across the bases of said holes, and one or more holding-wires extending through said holes around the circumference of the tire and contracted upon said band to a circumferential length whereby the adjacent body of rubber at the sides and base of the tire is massed and compressed by means of said wires and band into said channeled rim with force exceeding the radial expanding tendency produced by said longitudinal compression of the tire and intimately uniting the surface of the rubber with the whole surface of the rim-channel by mechanical pressure.

2. The combination with a channeled rim having flanges which confine the base of the tire, of a rubber tire having one or more longitudinal wire-holes located above or substantially on a line with the outer edges of the flanges of the rim so as to contain a radially and laterally compressible mass of rubber within the circle of the wire, a longitudinal adhering band incorporated in the tire across the bases of said holes, and one or more holding-wires extending through said holes around the circumference of the tire and contracted upon said band with force sufficient whereby the adjacent body of rubber at the sides and base of the tire is massed and compressed by means of said wires and band into said channeled rim and intimately united with the whole surface of the rim-channel by mechanical pressure.

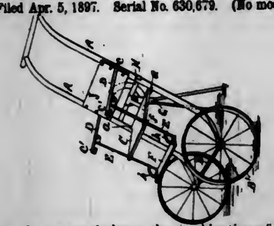
595,487. NON-REFILLABLE BOTTLE. JAMES R. LATHAM, New York, N. Y. Filed Sept. 2, 1896. Serial No. 604,679. (No model.)



Claim.—1. The combination with the neck of a bottle, of an exit-tube secured therein, the said exit tube having a circumferential guide thereon, and a weighted gravity closing device engaging the said guide on the tube and having a free rotary movement around the same, the said gravity closing device being located in position to automatically close the end of said tube except when the bottle is inverted, substantially as set forth.

2. The combination with the neck of a bottle, of an exit-tube secured therein, said exit-tube having a circumferential guide thereon, and a gravity closing device loosely retained at the end of the tube by the said guide in position to close the end of the tube, the said gravity closing device comprising a loose collar weighted upon one side, having a free rotary movement around the end of the tube and a valve hinged to the said collar at a point opposite its weighted portion, substantially as set forth.

595,488. PERAMBULATOR. GEORGE D. LEADBETTER, Detroit, Mich. Filed Apr. 5, 1897. Serial No. 630,679. (No model.)

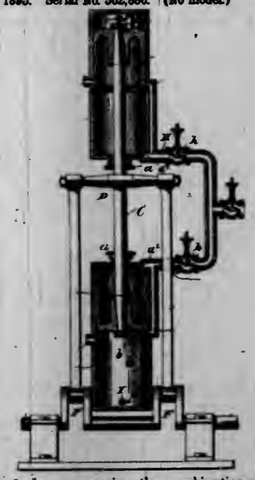


Claim.—1. In a perambulator, the combination of the two parallel uprights forming the supports or frame, the transporting-wheels secured directly to the lower ends of said uprights, the seat pivoted to said uprights, the arms also pivoted to said uprights above said seat, the rods E pivoted to said arms and to said seat and extending below the latter, the folding foot-rest on the lower ends of said arms, the locking-joint between said rod and arms and arranged to permit said parts to fold upward as described.

2. In a perambulator, the combination of the parallel uprights forming the frame, transporting-wheels attached directly to the lower ends of said uprights, the pivoted arms, seat, and foot-rest, mounted directly on said uprights, the pivoted supporting-leg adapted to swing in the arc of a circle, and means for locking said leg.

3. In a perambulator, the combination of the uprights forming the frame and handle, the transporting-wheels mounted on the lower ends of said uprights, the seat and arms pivoted thereto, the rods carrying the foot-rest pivoted to said seat and arms, the supporting-leg pivoted to a cross-piece mounted on said uprights, the slotted opening in said leg, the notched circle-bar lying in said opening, and the spring-actuated locking-bolt carried by the leg adapted to engage the notches in said bar.

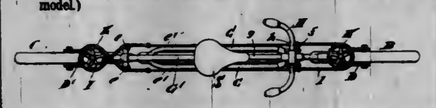
595,489. GAS-ENGINE. EDWIN MEREDITH, Batavia, Ill. Filed Sept. 18, 1895. Serial No. 562,886. (No model.)



Claim.—1. In a gas-engine, the combination of a cylinder and piston, a rock-shaft extending through the cylinder-wall from the interior to the exterior, a radial arm forming an electrode, on the shaft within the cylinder, an electrode carried by the piston, adapted to engage and pass by said radial arm, and an arm on the shaft outside the cylinder, resting against a piece forming part of the electric circuit, and free to be moved therefrom, substantially as and for the purpose described.

2. In a gas-engine, the combination of a cylinder and piston, a rock-shaft extending through the cylinder-wall from outside to inside, a radial arm, forming an electrode, on the shaft within the cylinder, an electrode carried by the piston, adapted to engage and pass by said radial arm, and a spring-arm on the shaft, outside the cylinder, resting against a piece forming part of the electric circuit, and free to be moved therefrom, substantially as and for the purpose specified.

595,490. THREE-WHEELED CYCLE. THEOPHILUS E. MONTGOMERY, Wilmington, Del. Filed Nov. 12, 1896. Serial No. 611,875. (No model.)



Claim.—1. In a three-wheeled cycle, the combination of a front frame, a drive-wheel mounted therein, a steering-wheel also mounted in the frame in front of the drive-wheel, a rear frame pivoted to the front frame about midway between its ends, said rear frame carrying the saddle, a steering-wheel mounted in the rear frame, and means for simultaneously operating the steering-wheels, substantially as and for the purpose set forth.

2. In a three-wheeled cycle, the combination of a frame comprising two sections pivoted together by a horizontal pivot, one section carrying two wheels and the other one wheel and a saddle-support, the wheels being arranged tandem and one of the said wheels being a steering-wheel, a steering-head on the section carrying one wheel and at the pivoted end thereof, a handle-bar mounted in said head, and a flexible connection between the axis of the handle-bar and the steering-wheel fork, substantially as described.

3. In a three-wheeled cycle, the combination of a front frame, a drive-wheel mounted in the frame, a steering-wheel mounted in said frame in front of the drive-wheel, a rear frame pivoted to the front frame about midway between its ends, a wheel mounted in the rear end of the rear frame, a steering-head carried by the rear frame and arranged directly over the pivot connecting said frame with the front frame, a handle-bar mounted in said head, and a connection between the handle-bar and steering-wheel, substantially as described.

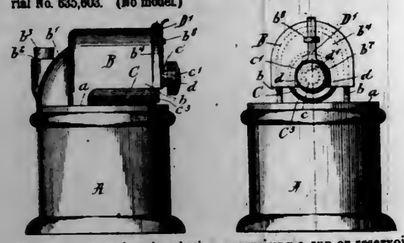
4. In a three-wheeled cycle, the combination of a frame formed of two sections pivoted together by a horizontal pivot, a drive-wheel and steering-wheel mounted in the front section, a steering-wheel in the rear section, a sprocket-wheel on the upper end of the fork of each steering-wheel, a steering-head on the rear section at the pivoted end thereof, a handle-bar mounted in the steering-head and provided with a cross-bar at its lower end, a chain passing around the sprocket-wheel of the front steering-wheel, and having its ends secured to the cross-bar of the handle-bar, a chain passing around the sprocket-wheel of the rear steering-wheel and crossed, and rods secured to the chain and to the cross-bar of the handle-bar, substantially as described.

5. In a three-wheeled cycle, the combination of a frame composed of two sections, one section being supported upon two wheels, one of them provided with a steering-fork, the other section supported upon a third wheel by a steering-fork and upon the first section to which it is pivoted by a horizontal pivot, chain-wheels upon each steering-fork, with chains passing over the same, and connections therefor, which are crossed between the wheels, and steering-handles having a cross-bar attached to opposite sides of the chain, substantially as described

6. In a three-wheeled cycle, the combination of a frame composed of two sections, one section being supported upon two wheels, one of them provided with a steering-fork, the other section supported upon a third wheel by a steering-fork and upon the first section to which it is pivoted by a horizontal pivot, chain-wheels upon each steering-fork, chains passing over said wheels, and connections therefor which are crossed between the wheels, and a steering-handle having its axis in line with the frame-pivot, and having a cross-bar upon its end which bar is attached to opposite sides of the chain, substantially as described.

7. A frame for cycles having three wheels arranged tandem, consisting of the front section formed of the inclined bars F F', the horizontal bar F^2, the vertical bar F^3, forming a steering-head, and the inclined bar F^4, and the rear section hinged to the front section by the horizontal pivot *f* and formed of the horizontal bars G' carrying a head at their rear ends for the rear fork, the inclined bars G' G^2 at the apex of which the saddle-support is formed, the bars *g* projecting forwardly from the bar G^2, and the steering-head G^3 carried by the said bars *g* and in which the handle-bar is mounted, substantially as herein shown and described.

595,491. MOISTENER FOR ENVELOPS, &c. WILLIAM M. MOSELEY, Elgin, Ill. Filed Mar. 20, 1895. Renewed May 7, 1897. Serial No. 635,603. (No model.)



Claim.—1. A moistening device, comprising a cup or reservoir, a roller of absorbent material, and a wick attached to the roller and depending into the cup, substantially as described.

2. A moistening device, comprising a cup or reservoir, a roller mounted above said cup and provided with an envelop of absorbent material, and a wick in contact with said absorbent envelop, said wick extending down into the cup, substantially as described.

3 A moistening device, comprising a reservoir, a roller provided with a surface of absorbent material, an aperture in the end of the roller, and a wick passing through said aperture and connected at one end with the absorbent surface of the roller and having the other end extending down into the reservoir, substantially as described.

4. A moistening device comprising a cup or reservoir, a roller mounted above said cup and capable of free vertical movement, said roller being provided with a surface of absorbent material, and a wick in contact at one end with said absorbent surface and having its other end depending within the cup, substantially as described.

5. A moistening device, comprising a cup or reservoir provided with a top wall having a hood thereon, a roller loosely mounted within the hood normally resting on said top wall, the lower portion of the walls of the hood being cut away adjacent to the roller to permit the introduction of papers beneath the roller, an aperture in said top wall, and a wick secured to the roller and depending through said aperture into the cup, substantially as described.

6 A moistening device, comprising a cup or reservoir, a roller mounted upon said cup, a ratchet mechanism for normally limiting the rotary movement of said roller to one direction, and a wick attached to the roller and depending within the cup, substantially as described.

7. A moistening device, comprising a cup or reservoir, having a hood thereon, a roller loosely mounted within said hood, an end wall of said hood consisting of a sliding plate, a recess in the lower edge of said plate, a spindle on the end of the roller projecting through said recess, ratchet-teeth on said spindle, and a ratchet-pawl on the face of the plate normally engaging said ratchet-teeth, substantially as described.

8. A moistening device, comprising a reservoir to contain a suitable liquid, a movable moistening-roller having a surface of suitable absorbent material, a wick extending from said reservoir and in contact with said absorbent surface, a hood integral with the reservoir overhanging said roller, substantially as described.

9. In a moistening device, a reservoir having a top wall, a roller mounted above the latter and covered with absorbent material, a wick extending from the reservoir to and in contact with said absorbent covering, and a raised surface above said top wall and in contact with the roller, substantially as described.

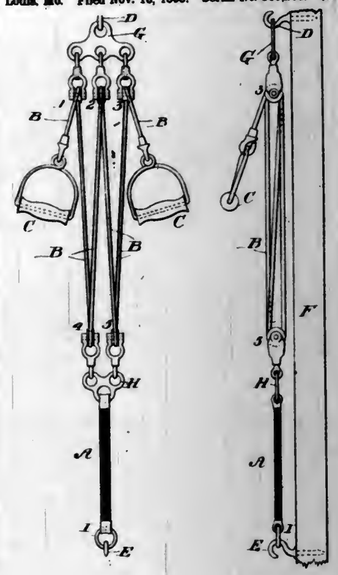
10. In a moistening device, the combination of a reservoir, a rotating roller having its operative surface above the top wall of said reservoir, of a moistening-roller mounted above said first-mentioned roller and having a covering of absorbent material, and a wick extending from the reservoir to and in contact with said covering, substantially as described.

11. In a moistening device, the combination, with a reservoir, of a cylindric core provided with an annular flange at one end and also with a longitudinal groove throughout a portion of its length, of a washer engaging the unflanged end of said core, a slot in said washer communicating with an aperture therethrough, an absorbent covering or envelop on said core, and a wick passing through said aperture and extending within the longitudinal slot of the core in contact with the absorbent covering thereof, substantially as described.

12. The housing for a moistening device, comprising a hollow cup or reservoir having a top wall, as *a*, and an aperture therethrough, as *a'*, a hood, as B, overhanging said top wall and provided at its rear end with a nozzle, all one integral structure, substantially as described.

13. A moistening device, comprising a cup or reservoir having a hood thereon, a roller loosely mounted within the hood, and provided with a surface of absorbent material, and a wick in contact with said surface and depending within the cup, substantially as described.

595,492. EXERCISING APPARATUS. BERNARD A. MCFADDEN, New York, N. Y., assignor, by mesne assignments, to Harvey P. Miller, St. Louis, Mo. Filed Nov. 18, 1895. Serial No. 569,261. (No model.)



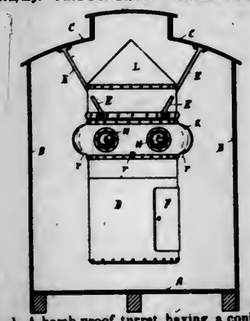
Claim.—1. An exercising apparatus comprising a spring having a pulley or pulleys secured thereto and adapted for attachment to a fixture, so that said pulleys may move as the spring is distended and contracted, a plurality of pulleys adapted for attachment to a suitable support arranged at a distance from said fixture, and an unattached non-elastic single cord passing about said movable and fixed pulleys and having both extremities free and provided with handles, whereby the cord may be distended with free-running movement between said spring and support, substantially as described.

2. An exercising apparatus comprising an elastic spring adapted for attachment at one end to a fixture and carrying at its other end a pair of movable pulleys, together with a holder adapted for attachment to a suitable support remote from said fixture and having three fixed pulleys attached thereto, and a single unattached non-elastic cord passing about said movable and fixed pulleys and having both extremities free and provided with handles, said non-elastic cord being adapted to be distended with free-running movement between said spring and holder, substantially as described.

3. An exercising apparatus comprising an elastic spring carrying a ring at one end for attachment to a fixture, and having at its opposite end a holder to which are attached two pulleys, a second holder adapted for attachment to a support at a distance from said movable pulleys, and having three pulleys connected thereto, and a single unattached non-elastic cord passing about the several movable and fixed pulleys from one to the other and having both extremities thereof free and provided with handles; said cord being adapted to be distended with free-running movement between said holders, so as to connect the same and adapt the movable pulleys to be drawn toward or recede from the pulleys attached to the fixed support, substantially as described

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595,493. BOMB-PROOF TURRET FOR CARS. EARL H. MCLEOD, Covington, Ky. Filed Feb. 11, 1897. Serial No. 622,961. (No model.)



Claim.—1. A bomb-proof turret having a conical top and suspended from the top of a compartment by anchor-arms E attached to the vertical walls of the turret and to the top of the compartment, and a sphere universally journaled in a socket in the wall of the turret and having a loophole therein, substantially as described.

2. A bomb-proof turret suspended within a compartment and having an annular, convex shell K formed in its walls and projecting radially beyond the same, and a sphere universally journaled in a socket formed in said shell and having a loop and sight hole, substantially as described.

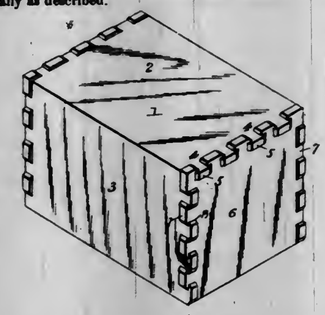
3. The combination with a bomb-proof turret suspended within a compartment and having an annular convex shell formed in its walls and projecting radially therefrom, of a sphere universally journaled in a segmental socket in the said shell and having a loophole, and a door provided with bolt mechanism arranged upon its inner side, substantially as described

4. The combination with an armor-proof turret, of a sphere universally journaled in a segmental socket formed in the walls of the turret and having a loophole and a hinged door for closing the loophole, substantially as described.

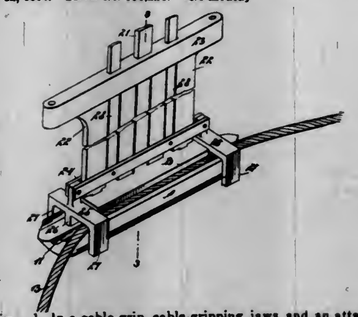
5. In combination with a bomb proof turret a ball journaled in the wall of said turret, a loophole pierced in said ball, a door hinged to the said ball in juxtaposition to the outside of the loophole and a spring attached to said ball and bearing against said door whereby the loophole is held normally closed, substantially as specified.

595,494. ANNEALING-POT. MICHAEL J. O'MEARA, Anderson, Ind. Filed Mar. 25, 1897. Serial No. 629,191. (No model.)

Claim.—As an improved article, an annealing-pot, consisting of the central plate having its ends bent upward at approximately right angles, and the side and bottom edges formed with alternating tongues and mortises, and the rectangular end plates having coinciding tongues and mortises engaging therewith and the tongues projecting through the mortises beyond the plates and having the corners swaged down overlapping the sides of the mortises and welded to the plates, substantially as described.



595,495. CABLE-GRIP. JOSEPH S PEDEN, New York, N.Y. Filed May 12, 1897. Serial No. 636,220. (No model.)



Claim.—1. In a cable-grip, cable-gripping jaws and an attachment for one of said jaws, arranged to operate independently of said jaw, the said attachmeot consisting of guides extending at the sides of the opposing jaw of the grip, forming normally a barrier to the outward passage of the cable from between the jaws, and means for raising and lowering the guides independently of the movement of the gripping-jaws, for the purpose set forth.

2. In a cable-grip, the combination, with the gripping-jaws, of guides located at the end portions of said jaws, independent of the latter and arranged to extend past the gripping-surfaces of said jaws, as specified.

3. The combination, with a cable-grip, of cable-guides consisting of transverse and vertical members, the latter being arranged to extend across the gripping-surfaces of the jaws, and means for raising and lowering the guides independently of the movable jaw of the grip, as specified.

4. The combination, with a cable-grip, of a guide attachment for the cable, consisting of shoes arranged to extend across the cable and likewise across the gripping-surfaces of the jaws of the cable-grip, the said guide attachment being independent of the movement of the jaws of the grip.

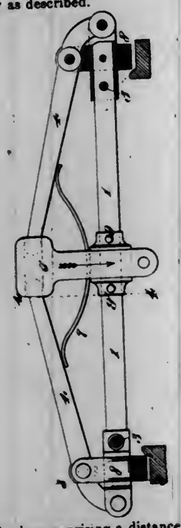
595,496. RAILWAY-BRAKE. CHARLES K. PICKLER, St. Louis, Mo., assignor to J. J. McCarthy, Chicago, Ill. Filed June 30, 1897. Serial No. 642,948. (No model.)

Claim.—1. A railway-brake comprising a distance-bar, a draw-bar arranged transversely thereto, levers pivotally fastened to said distance-bar and operatively connected to said draw-bar, and brake-heads near the ends of said distance-bar and pivotally connected to the respective levers, substantially as set forth.

2. A railway-brake comprising a distance-bar, a draw-bar arranged transversely thereto, inwardly-turned levers pivotally fastened to the ends of said distance-bar and having their inner ends operatively connected to said draw-bar, and brake-heads near the ends of said distance-bar on the side opposite the levers and extending back across said distance-bar and pivotally fastened to the respective levers, substantially as set forth.

3. A railway-brake comprising a distance-bar, rods suspending

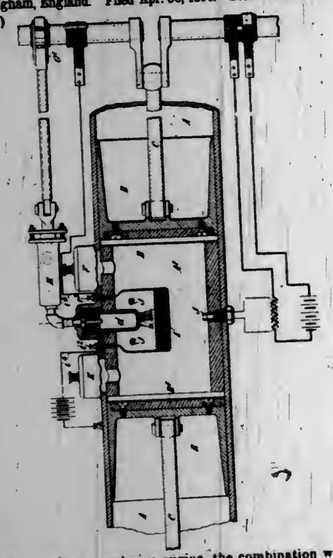
said bar from the truck, guides near the end of said bar for sliding brake-heads and a guide at the middle for a draw-bar, and levers pivotally connected to the ends of said distance-bar and operatively connected to the draw-bar and having the brake-heads pivotally connected thereto, substantially as described.



4. A railway-brake comprising a distance-bar, flexible rods suspending said bar from the truck, guides near the middle and ends of said bar, and levers pivotally connected to the ends of said bar and operatively connected to a draw-bar and having brake-heads pivotally connected thereto, said brake-heads and draw-bar being arranged to slide transversely in said guides, substantially as described.

5. A railway-brake comprising a distance-bar, a draw-bar arranged transversely thereto, levers pivotally fastened to said distance-bar and operatively connected to said draw-bar, and brake-heads near the ends of said distance-bar and pivotally connected to the respective levers, and means for automatically retracting the draw-bar, substantially as described.

595,497. **OIL, GAS, OR LIKE ENGINE.** WALTER ROWBOTHAM, Birmingham, England. Filed Apr. 30, 1896. Serial No. 589,775. (No model.)



Claim.—1. In an explosive-engine, the combination with a cylinder having a vaporizing-chamber and means for introducing oil therein, of an electrically-heated body arranged in said chamber, and means for making and breaking the circuit of said electrically-heated body with a rapidity corresponding to the speed of the engine, whereby the maximum temperature of the said body is prevented from being raised sufficiently to cause it to become incandescent, substantially as described.

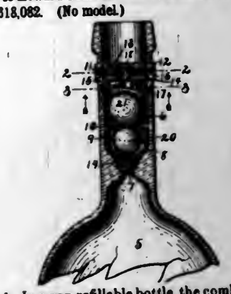
2. In an explosive-engine, the combination with a cylinder having a vaporizing-chamber, of a non-incandescent electrically-heated body and a make-and-break electric igniting device, said electrically-heated body and igniting device being included in a circuit common to both, substantially as described.

595,498. **CRAYON-HOLDER.** FANNIE M. RUGHLEY, Lampasas, Tex. Filed June 24, 1897. Serial No. 642,147. (No model.)



Claim.—A crayon-holder comprising a tubular staff, a follower-staff adapted to be inserted within said tubular staff, a rack on the follower-staff, a dog attached to the tubular staff and adapted to engage with the rack of the follower-staff, the separate crayon-holding jaws having broad bearing-surfaces and connected by springs to the tubular shaft, substantially as shown and described.

595,499. **BOTTLE.** DAVID R. SAUNDERS, Houston, Tex., assignor of one-half to Howard Franklin Smith, same place. Filed Jan. 5, 1897. Serial No. 618,082. (No model.)



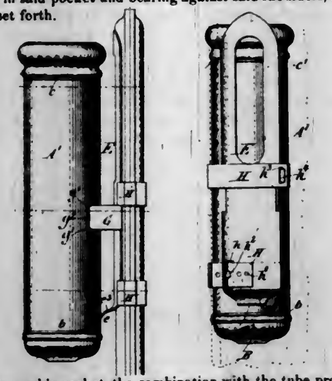
Claim.—1. In a non-refillable bottle, the combination with a neck having an inverted conical chamber 9 therein the lower end of which opens through a contracted passage 7 into the body of the bottle, and at the upper end of which the neck of the bottle is provided with an internal annular rib 10; of a small spherical float-valve 19 fitting in said conical chamber and adapted to close said contracted opening 7; a larger heavy ball 20 adapted to pass closely through said annular rib 10 into said conical chamber and to bear upon said float-valve 19; a third and still larger heavy ball 21 adapted to fit into the neck of the bottle above said annular rib and to bear through the reduced opening formed by said annular rib 10 upon said ball 20, and hold the latter in said conical chamber; and a locking-plug provided with a central opening therein, fitting in said bottle-neck above said ball 21, and adapted to confine said ball therein, substantially as described.

2. In a non-refillable bottle, the combination with a neck having an inverted conical chamber 9 therein, the apex of which opens through a contracted passage 7 into the body of the bottle, and at the base of which the neck of the bottle is provided with an internal annular rib 10; of a small spherical float-valve 19 fitting in the apex of said conical chamber and adapted to close said contracted opening 7; a larger heavy ball 20 of approximately the same diameter as the opening through said annular rib, fitting in the base of said inverted conical chamber, and adapted to bear upon said float-valve 19; a second heavy ball of somewhat greater diameter than the diameter of the opening through said annular rib, adapted to fit into the neck of the bottle above said annular rib and bear through said opening upon said ball 20 and hold the latter in said conical chamber; and means for locking said second heavy ball in the bottle-neck, substantially as described.

595,500. **WHIP-SOCKET.** WILLIAM G. SHAW and RUFUS P. REDMOND, Buffalo, N. Y., assignors to William Henry Comstock, Brockville, Canada. Filed May 6, 1896. Serial No. 590,414. (No model.)

Claim.—1. In a whip-socket, the combination with the tube, of an annular cap having its outer portion secured to the upper end of the tube and its inner portion curved inwardly, downwardly and outwardly forming an annular pocket, an annular slot, and shoulders

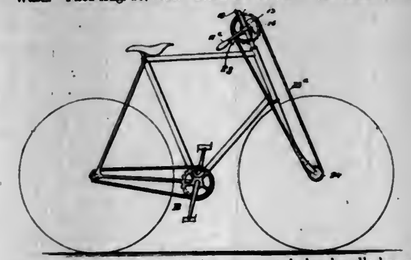
along the inner sides of said slot, and an elastic retaining-ring having a web arranged in said slot and an annular flange or enlargement arranged in said pocket and bearing against said shoulders, substantially as set forth.



2. In a whip-socket, the combination with the tube provided in its lower portion with a horizontal slot and in its central portion with a vertical slot, of a frame provided at its lower end with a lip consisting of a central portion arranged in the horizontal slot, an upper portion bearing against the outer side of said tube above the horizontal slot and a lower portion bearing against the inner side of the tube below the horizontal slot, and an arm formed on the upper portion of the frame and provided with a lip passing through said vertical slot and engaging against the inner side of the tube and with a shoulder engaging against the outer side of the tube, substantially as set forth.

3. In a whip-socket, the combination with the tube and the supporting-frame provided with a lip, of a strap whereby the frame is fastened to the dashboard and which is attached at one end to the frame and provided at its other end with an opening adapted to receive the lip of the frame, substantially as set forth.

595,501. **BICYCLE DRIVING-GEAR.** JESSE E. STOOPS, Dayton, Wash. Filed Aug. 25, 1896. Serial No. 603,887. (No model.)



Claim.—1. In a bicycle driving-gear, a tubular handle-bar provided with two independent shafts journaled therein and mounted to turn independently of each other, each shaft having a hand-lever attached thereto at its outer end, a ratchet-wheel secured to each shaft near its inner end, a driving-wheel loosely mounted on the inner ends of the shafts between the ratchet-wheels, dogs located on the driving-wheel and engaging with the ratchet-wheels, and a driving connection between the said driving-wheel and a supporting-wheel of the machine, as and for the purpose specified.

2. In a bicycle driving-gear, a tubular handle-bar provided with two independent shafts journaled therein and mounted to turn independently of each other, each shaft having a hand-lever at its outer end, a yoke secured to the said handle-bar, a driving-wheel loosely mounted on the inner ends of the two shafts, an independent driving connection between each of said shafts and the said driving-wheel, the said driving-wheel and driving connections being contained within the said yoke, a driving connection between the said driving-wheel and a supporting-wheel of the machine, and brake-jaws carried by the said yoke and adapted to engage the said driving-wheel, the said brake-jaws being operated from one of the hand-levers, as and for the purpose specified.

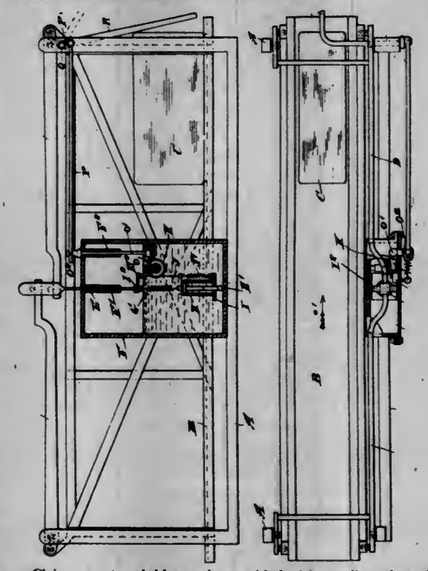
3. In a bicycle driving-gear, a tubular handle-bar provided with two independent shafts journaled therein, each shaft having a hand-lever at its outer end, a driving-wheel loosely mounted on the inner ends of the shafts, an independent driving connection between each of said shafts and the said driving-wheel, a yoke connected with the handle-bar and within which the said driving-wheel and driving connections are arranged, the said yoke serving to strengthen the handle-bar and prevent lateral movement of the gearing, and a driving connection between the said driving-wheel and a supporting-wheel of the machine, as and for the purpose set forth.

4. In a hand driving-gear for bicycles, the combination, with a handle-bar, shafts loosely mounted in the handle-bar, having independent movement, a hand-lever attached to each shaft at its outer end, and a ratchet-wheel secured to each shaft at its inner end, of a yoke attached to the handle-bar, within which yoke the ratchet-wheels are contained, a driving-wheel adapted for connection with a supporting-wheel of the machine, the driving wheel being loosely mounted upon the inner face of the aforesaid shafts, and dogs carried by the driving-wheel and engaging with the ratchet-wheels, as and for the purpose set forth.

5. In a hand driving gear for bicycles, the combination, with a handle-bar, shafts loosely mounted in the handle-bar, having independent movement, a hand-lever attached to each shaft at its outer end, and a ratchet-wheel secured to each shaft at its inner end, of a yoke attached to the handle-bar, within which yoke the ratchet-wheels are contained, a driving-wheel adapted for connection with a supporting-wheel of the machine, the driving-wheel being loosely mounted upon the inner face of the aforesaid shafts, and dogs carried by the driving-wheel and engaging with the ratchet-wheels, each ratchet-wheel comprising an inner and an outer section and an interposed section of yielding material, arranged to be engaged by the dogs, whereby the operation of the hand-gearing will be substantially noiseless, as and for the purpose set forth.

6. In a hand driving-gear for bicycles, the combination, with a handle-bar, shafts loosely mounted in the handle-bar and having independent movement, a hand-lever attached to each shaft at its outer end, and a ratchet-wheel secured to each shaft at its inner end, of a yoke attached to the handle-bar, within which yoke the ratchet-wheels are contained, a driving-wheel adapted for connection with a supporting-wheel of the machine, the driving-wheel being loosely mounted upon the inner ends of the aforesaid shafts, dogs carried by the driving-wheel and engaging with the ratchet wheels, each ratchet-wheel being provided with a surface of a yielding material, arranged to be engaged by the dogs, whereby the operation of the hand-gearing will be substantially noiseless, and a brake carried by the yoke, adapted for engagement by the driving-wheel, and means for operating the said brake from one of the hand-levers, as and for the purpose specified

595,502. **WEIGHING-SCALE.** ELMER A. TERPENING, Genesco, Ill., assignor of one-half to Harry Houston Clarke, New York, N. Y. Filed Oct. 3, 1896. Serial No. 607,749. (No model.)



Claim.—1. A weighing-scale, provided with a pulley adapted to be turned from the weighing-beams, a registering device, a clutch mechanism for actuating the registering device from said pulley, and

a tripping device controlled by the merchandise, for throwing the clutch mechanism out of engagement with the said pulley, substantially as shown and described.

2. A weighing-scale, comprising a platform, weighing-beams carrying the said platform, a spring-pressed rod connected with the said beams, a rope and pulley connected with the said rod for turning the pulley, upon the beams being actuated by the merchandise passing over the platform and a registering device operated from said pulley, substantially as shown and described.

3. A weighing-scale, comprising a platform, weighing-beams carrying the said platform, a spring-pressed rod connected with the said beams, a rope and pulley connected with the said rod for turning the pulley, upon the beams being actuated by the merchandise passing over the platform, a weight-registering device, a clutch mechanism adapted to engage the said pulley and adapted to actuate the registering device, and a tripping-lever in the path of the merchandise as the latter leaves the platform, the said tripping-lever controlling the said clutch mechanism, substantially as shown and described.

4. A weighing-scale, provided with a rod connected with the weighing-beams supporting the platform, a spring connected with the said rod and attached to a dash-pot piston, a spring-pressed cord carried by the said rod, a pulley engaged by the said cord, and a clutch mechanism for actuating the registering device and adapted to engage the said pulley to be rotated by the latter, substantially as shown and described.

5. A weighing-scale, provided with a rod connected with the weighing-beam supporting the platform, a spring connected with the said rod, a dash-pot having its piston connected to said spring, a spring-controlled cord carried by the same rod, a pulley engaged by the said cord, a registering device engageable with said pulley to be rotated thereby, and a tripping-lever in the path of the merchandise actuated to disconnect the pulley and registering mechanism by the passage of the merchandise, substantially as described.

6. A weighing-scale provided with a weighing-platform, a registering device, operative connections between the platform and registering device, and a tripping device controlled by the merchandise passing over the platform and temporarily breaking said operative connections, substantially as shown and described.

7. A weighing-scale provided with a weighing-platform, a registering device normally connected to move with the said platform, and a tripping device controlled by the merchandise passing over the said platform and serving to release the said registering device, substantially as shown and described.

8. A weighing-scale provided with a rod connected with the weighing-beam supporting the platform, a spring connected with the said rod, a dash-pot having its piston connected to said spring, a spring-controlled cord carried by the said rod, a pulley engaged by the cord, a registering device, a clutch mechanism normally connecting the pulley and registering device, and a tripping-lever in the path of the merchandise actuated by the passage of the merchandise, and connections from said lever to the clutch for disengaging it from the registering mechanism, substantially as described.

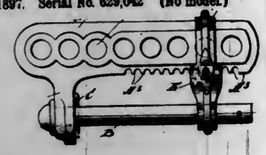
9. A weighing-scale, having a registering device controlled jointly by a spring and the weight of the article being weighed, said spring, and means for automatically breaking the operative connection to said registering device by the removal of the article from the scale, substantially as described.

10. A weight-registering device for scales, comprising a member having a forward and return movement and operated by depression of the scales, a cumulative indicator operated thereby, and means for automatically releasing the same during its return movement by the removal of the article from the scale, substantially as described.

11. A weighing-scale provided with a cumulative registering device normally connected to the weighing mechanism, and a tripping device actuated by the article passing over the scale to disconnect the registering device as the article leaves the scale, substantially as described.

12. A weighing-scale provided wit a registering device normally connected to the weighing mechanism, and a tripping device actuated by the article in passing over the scale, to temporarily disconnect the registering device as the article leaves the scale, whereby the registration becomes cumulative, substantially as described.

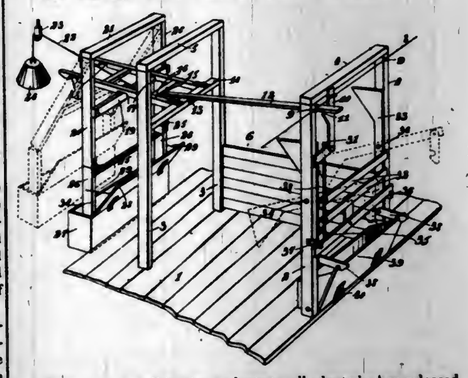
595,503. CROSS-CLEVIS. JOHN L. THOMAS, Osceola, Mo. Filed Mar. 24, 1897. Serial No. 629,042. (No model.)



Claim.—1. A cross-clevis comprising a clevis-body, a pin held removable on a lug of the said body, an arm fitted to slide on the said body and adapted to receive the free end of the clevis pin and means for locking the said arm in place on the said body, substantially as shown and described.

2. A cross-clevis, comprising a clevis-body, a clevis-pin held removably on the said clevis-body, an arm held adjustably on the clevis-body and forming a bearing for the free end of the clevis-pin, and a cotter-pin extending through the said arm and engaging one of a series of recesses formed in the inner edge of the said clevis-body, to lock the arm in place on the body, substantially as shown and described.

595,504. ANIMAL-STALL. WILLIAM M. UNDERHILL, Underhill, Wis. Filed Apr. 7, 1896. Serial No. 586,500. (No model.)



Claim.—1. A stall having a pivoted wall adapted when released to swing pivotally to an open position, a beam to lock the wall in its closed position, a bar normally held in one position, and adapted when released to actuate said beam to release the wall, and a latch to hold said bar against movement, substantially as set forth.

2. In a stall, the combination of a tilting frame pivoted at its upper part, a locking frame arranged to engage the tilting frame to hold the same in a lowered position, a pivoted bar arranged when released to fall, and connected to and adapted to disengage the locking frame from the tilting-frame, and a latch to hold said bar against movement, substantially as set forth.

3. In a stall, the combination of a pivotally-mounted front wall having means to swing it to an open position when released, a beam centrally pivoted on the front wall, keepers at opposite sides of the front wall to be engaged by said beam to lock the front wall in its closed position, a pin guided longitudinally and arranged to engage the beam, a bar normally held raised and adapted when released to strike said pin and swing said beam out of engagement with the keepers, and a latch to hold the bar raised, substantially as set forth.

4. In a stall, the combination of a tilting frame pivoted at its upper part and having side bars formed of pivotally-connected sections, means to hold the tilting frame in a closed position, means to release said frame and permit the same to swing to an open position, and a box or trough carried on the lower end of the said frame and arranged to stand transversely across the rear part of the stall when said frame is in its lowered position, substantially as set forth.

5. In a stall, the combination of a tilting frame pivoted at its upper part, means to lock and release said frame, a box carried by the frame and arranged when the frame is lowered to stand transversely across the rear part of the stall, a chute-board extending in a forward inclined position from the front of said box, and a netting over the box and chute-board, substantially as set forth.

6. The combination of a box or trough, a chute-board hinged at its edge to one edge of the box and adapted to stand in an inclined position, extensions at the ends of the box, and flexible connections between said extensions and the chute-board, substantially as set forth.

7. In a stall, the combination of a tilting frame, pivoted at its upper part and provided with a cross-bar, a locking-frame having side bars, means to actuate said locking-frame, and notched plates adjustable in the locking-frame, to engage said cross-bar of the tilting frame, substantially as set forth.

8. A stall having a tilting frame and a hinged chute-board movable with the tilting frame, the chute-board being capable of bearing directly against the animal and of moving independently of the tilting frame by direct contact with the animal, substantially as described.

9. A stall having a tilting frame pivoted near its upper portion, a trough or box carried by the tilting-frame, a chute-board hinged to the trough or box, and a flexible connection attached to the chute-board and limiting the movement thereof, substantially as described.

10. A stall having a tilting frame adapted when released to move to an open position, a beam capable of locking the tilting frame in its closed position, a bar capable of movement to actuate the beam to release the frame, and means for actuating the bar, substantially as described.

11. In a stall, the combination of a tilting frame, means for locking said frame in a closed position, a pivoted wall for the stall, a lock for the wall, and a bar operatively connected to the tilting frame and pivoted wall and capable of movement to simultaneously release the tilting frame and the pivoted wall, substantially as described.

12. In a stall, the combination of a tilting frame, means tending to raise said frame, a locking device for holding the tilting frame closed, a bar connected to the locking device, a pivoted wall for the stall, the wall having a tendency to open, a locking device for holding the wall in a closed position, and a latch capable of supporting the bar and of permitting the same to simultaneously release each locking device, substantially as described.

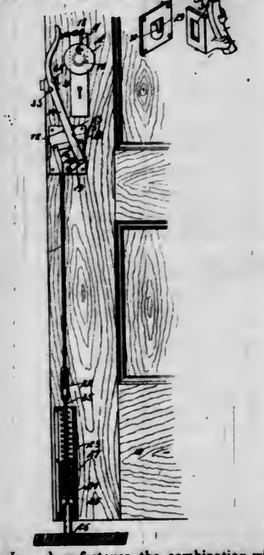
13. In a stall, the combination of a tilting frame having a tendency to rise, means for locking the tilting frame in a closed position, a bar connected with said means and capable of movement to release said frame, a pivoted wall, and means capable of holding said wall in a locked position, the bar being capable of operating the locking means for the front wall and said locking means being capable of operation independent of the bar, substantially as described.

14. A stall having a pivoted chute-board extending transversely at the rear portion of the stall, a receptacle at the rear of the chute-board, and flexible connections attached to the chute-board and limiting the forward movement thereof, the chute-board being adapted to fall forward by its own weight against the animal confined in the stall and being adapted to be forced back by its contact with the said animal to nearly an upright position when the animal pushes or backs against the chute-board, substantially as described.

15. A stall having a hinged chute-board, and a flexible connection attached to the free portion of the chute-board the connection being capable of limiting the movement of the chute-board and the chute-board bearing by gravity against the animal and being moved rearward on its hinge as the animal backs against the chute board, substantially as described.

16. The combination of a box or trough, a chute-board hinged at its edge to one edge of the box and adapted to stand in an inclined position, an extension at one end of the box and a flexible connection between said extension and the chute-board, substantially as described.

595,505. DOOR-FASTENER. AUGUST H. WEHLING, St. Louis, Mo. Filed June 30, 1897. Serial No. 642,843. (No model.)



Claim.—1. In a door-fastener, the combination with a spring-controlled bolt and a rod connected with said bolt, of an angle-lever connected at one end to said rod, a main lever pivoted to the other end of the angle-lever, guide-pins on each side thereof, said main lever having an edge recess adapted to receive one of the guide-pins when raised, and operating connections from the door-knob to said main lever, substantially as described.

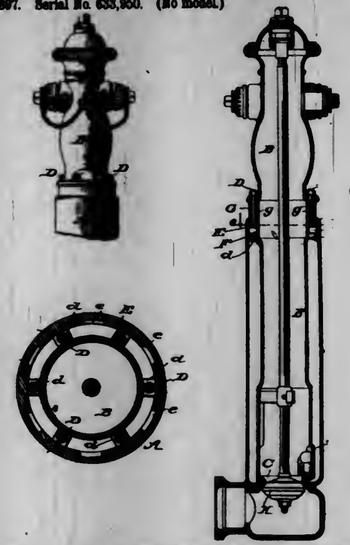
2. In a door-fastener, the combination with a spring-controlled bolt, a rod connected with said bolt and means for controlling the tension of the spring by the manipulation of said rod, of a casing, an angle-lever pivoted in the casing and connected with the said rod, a main lever pivoted to the other end of the angle-lever and adapted to be operated from a door-knob, the said main lever being provided with a recess, and guide-pins forming guides for the said lever, one of which is adapted to enter the recess therein and lock the device, substantially as described.

3. In a door-fastener, the combination with a spring-controlled bolt, a rod connected with the said bolt and means for controlling the tension of the spring by the manipulation of the said rod, of a casing, an angle-lever pivoted in the casing and connected at one end with the said rod, a main lever pivoted to the other end of the angle-lever and adapted to be operated from a door-knob, said lever being provided with a recess, guide-pins on each side of the lever, one of said pins being adapted to enter said recess, and a locking-latch adapted for engagement with the heel of the main lever, substantially as described.

4. In a door-fastener, the combination, with a casing, a rod having sliding movement in the casing, a nut loosely fitted in the casing and mounted to travel on the said rod, and a spring held within the casing, having bearing against said nut, the rod being provided with a turnbuckle, of an angle-lever pivoted to the said rod, a main lever pivoted to the angle-lever, guides through which the main lever passes, said lever having an opening to receive one of said guides, the main lever being likewise provided with means for attachment to a knob-spindle.

5. In a door-fastener, the combination, with a locking-bolt and a lever for operating the said bolt, of a plate having an opening through which the bolt of a lock may pass, the plate being also provided with gripping-arms arranged to grasp the said lever.

595,506. FIRE-PLUG. EDGAR C. WILEY, Lynchburg, Va., assignor of one-half to Henry R. McWane, same place. Filed Apr. 26, 1897. Serial No. 633,950. (No model.)

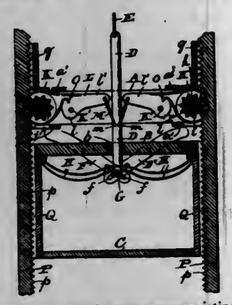


Claim.—A plug comprising the casing having internally near its upper end upper and lower flanges forming a seat for the bolt, the upper flange being slotted for the passage of the bolt-heads, the standpipe having on its outer side a ring-like projection provided with openings for the bolts, and the bolts passed through said openings and fitted to engage with the seat of the casing, substantially as described.

595,507. AUTOMATIC STOP FOR ELEVATORS. ROBERT T. WITHERS and BENJAMIN E. BLACKMAN, New Castle, Pa. Filed Jan. 22, 1897. Serial No. 620,332. (No model.)

Claim.—1. An automatic stop for elevator-cars consisting of a cross-head normally supported by the car, gear-wheels having teeth meshing with teeth in vertical racks on the sides of the elevator-shaft

and journaled in the ends of said cross head, and means for preventing the revolution of said gear-wheels by the weight of the descending car if the hoisting-cable breaks, substantially as shown and described.



2. An automatic stop for elevator-cars consisting of a cross-head normally supported by the car, gear-wheels journaled in the ends of said cross-head, the circumferences of said gear-wheels provided with toothed sections meshing with the teeth of vertical racks on the sides of the elevator-shaft and with plain sections, friction-bands passing around said plain sections and means for drawing said bands in braking contact with said gear-wheels and preventing their revolution, by the weight of the descending elevator-car, in case the hoisting-cable breaks, substantially as shown and described.

3. An automatic stop for elevator-cars consisting of a cross-head normally supported by the car, gear-wheels journaled in the ends of said cross-head, the circumferences of said gear-wheels provided with toothed sections meshing with teeth of vertical racks on the sides of the elevator-shaft and with plain sections, friction-bands passing around said plain sections, levers fulcrumed in said cross-head and connected with said friction-bands, and means for depressing said lever and drawing said friction-bands in braking contact with said plain sections and preventing the revolution of said gear-wheels by the weight of the descending car in case said hoisting-cable breaks, substantially as shown and described.

4. In automatic stops for elevator-cars, the combination with said car, of a cross-head normally supported by the car, gear-wheels journaled in the ends of said cross-head, the circumferences of said wheels provided with toothed sections meshing with the teeth of vertical racks on the sides of the elevator-shaft and with plain sections, friction-bands surrounding said plain sections, levers fulcrumed in said cross-head and connected with said friction bands and means for drawing said levers down and bringing said bands in braking contact with said gear wheels, substantially as shown and described.

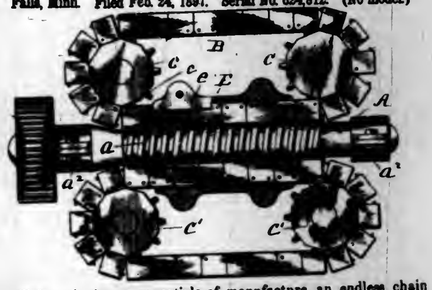
5. An automatic stop for elevator-cars consisting of a cross-head normally supported by the car, gear-wheels journaled in the ends of said cross-head, the circumferences of said gear-wheels provided with toothed sections meshing with teeth of vertical racks on the sides of the elevator-shaft, and plain sections, friction-bands passing around said plain sections, levers fulcrumed in said cross-head and connected with the ends of said friction-bands, loops connected to the inner ends of said levers and a supporting-rod attached at its upper end to the hoisting-cable and at its lower end to the car and means to pull said levers down drawing the friction-bands in braking contact with said gear-wheels, substantially as shown and described.

6. An automatic stop for elevator-cars consisting of a cross-head normally supported by the car, gear-wheels journaled in the ends of said cross-head, the circumferences of said wheels provided with toothed sections meshing with the teeth of vertical racks on the sides of the elevator-shaft and with plain sections, friction-bands passing around said plain sections, levers fulcrumed in said cross-head having their outer ends attached to said friction-bands on their upper faces, loops connected with the inner ends of said levers, a supporting-rod attached at its upper end to the hoisting-cable, and two pairs of tilting levers fulcrumed to the sides of a cross-head secured to the elevator-car, and having their lower ends slotted and pivotally connected to said supporting-rod by a pin passing through said slots, substantially as shown and described.

7. An automatic stop for elevator-cars consisting of a cross-head normally supported by the car, gear-wheels journaled in the ends of said cross-head, the circumferences of said wheels provided with toothed sections meshing with the teeth of vertical racks on the sides of the elevator shaft and with plain sections, friction-bands passing around said plain sections, levers fulcrumed in said cross-head and attached at their outer ends on their upper faces to said friction-bands, loops connected with the inner ends of said levers, a supporting-rod connected with said loops and attached at its upper end to the hoisting-cable, two pairs of tilting levers fulcrumed to the sides of a cross-head secured to the car and having their lower ends slotted and pivotally connected with said supporting-rod by a pin passing through said slots, and springs for holding said supporting-rod normally depressed, substantially as shown and described

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595,508. ENDLESS SCREW-CHAIN. JOHN WOLANDER, Cannon Falls, Minn. Filed Feb. 24, 1897. Serial No. 624,812. (No model.)



Claim.—1. As a new article of manufacture, an endless chain formed of sections screw-threaded on their outer faces and having sprocket-seats for engagement with the teeth of a sprocket-wheel.

2. An endless chain having link-blocks with a longitudinal groove in their outer faces and internal screw-threads therein, with interfitting parts to secure true registration of thread-sections, in combination with sublinks recessed in and coupled to the link-blocks, as and for the purpose set forth.

3. The combination with a worm-shaft, of a pair of screw-threaded link sprocket-chains on opposite sides of the worm-shaft, and sprocket-wheels driven by the respective sprocket-chains, as and for the purpose set forth.

595,509. COIN-BOX. BENJAMIN F. WYMAN, Lancaster, Mass. Filed Feb. 3, 1897. Serial No. 621,782. (No model.)



Claim.—1. A coin-box provided with a series of coin-slots, in combination with a friable protection for said slots adapted to be mutilated by the insertion of a coin therein substantially as and for the purpose set forth

2. A box for offertory purposes provided with a multiplicity of coin-slots, such slots being covered by an easily-friable material and dated substantially as specified.

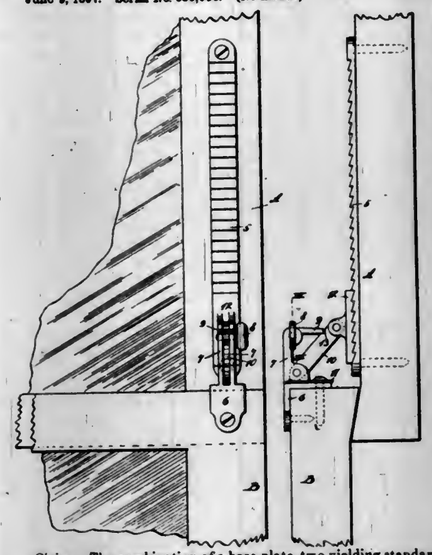
595,510. CORSET-STIFFENER. ADELBERT A. ADAMS, Cambridge, Mass. Filed Feb. 13, 1897. Serial No. 623,270. (No model.)



Claim.—1. As an article of manufacture, a stiffener or stay consisting of two or more lengths or pieces of whalebone or analogous material having their meeting ends interlocked in the central longitudinal plane of the stiffener whereby the joint or interlocking portions are contained within the marginal edges of the pieces, and said pieces being of substantially uniform width and thickness whereby when united to form the stiffener, the sides and edges of the several pieces are in line and substantially flush one with the other, and an outer covering for the stiffener adhering thereto throughout the length thereof.

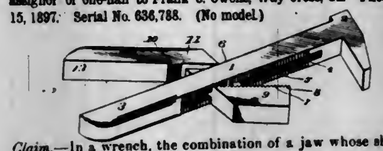
2. As an article of manufacture, a stiffener or stay consisting of two or more lengths or pieces of whalebone or analogous material having their meeting ends interlocked at points inside of the marginal edges of the pieces said pieces being of substantially uniform width and thickness whereby when united the sides and edges of the pieces are flush and form substantially smooth and continuous surfaces; a transverse wrapping of thread and an adhesive material about the interlocked portions and an outer braided or plaited covering adhering to the pieces throughout the length thereof.

595,511. SASH-LOCK. JOHN N. AHRENS, Union, N. J. Filed June 9, 1897. Serial No. 639,980. (No model.)



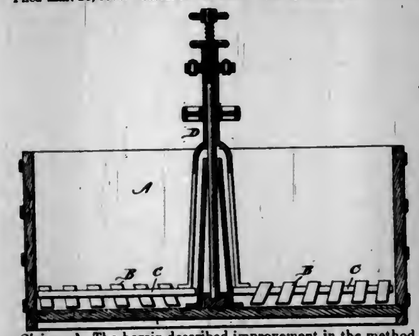
Claim.—The combination of a base-plate, two yielding standards mounted thereon, a screw passed through the standards, a pawl pivoted on the screw between the standards and capable of being clamped friction-tight between the standards by the action of the screw, a link pivoted between the lower portions of the standards, a leaf-spring held on the base-plate and pressing the link, the link being engaged at its free portions by the pawl, and a shoe carried by the link.

595,512. WRENCH. GEORGE W. ANDERSON, Wainright, Ga., assignor of one-half to Frank C. Owens, Way Cross, Ga. Filed May 15, 1897. Serial No. 636,788. (No model.)



Claim.—In a wrench, the combination of a jaw whose shank is longitudinally slotted and provided with notches upon both sides, with a second jaw connected to its shank by a web which passes through the slotted shank, said jaw and shank being notched for engagement with the adjacent portions of said slotted shank, substantially as described.

595,513. METHOD OF PREPARING ZINC ORES AND ZINKIFEROUS ORES FOR SMELTING. EDGAR A. ASHCROFT, Grays, England. Filed Mar. 20, 1896. Serial No. 584,057. (No specimens.)



Claim.—1. The herein-described improvement in the method of preparing zinc ores and zinkiferous lead ores for smelting, which consists in leaching the finely-ground ore with a hot solution of ferric sulfate thereby dissolving out the zinc and precipitating the iron as ferric hydrate in the residue to serve as a flux in the smelting operation as specified.

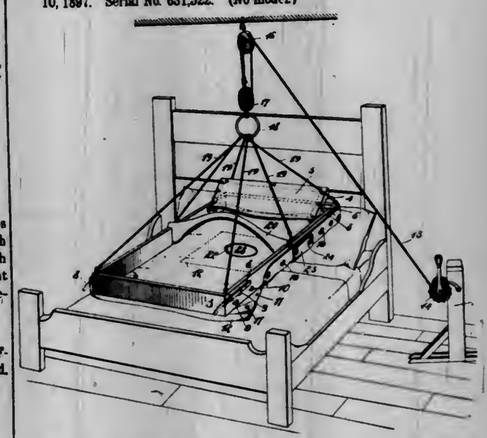
2. The herein-described improvement in the method of preparing zinc ores and zinkiferous lead ores for smelting, which consists in first converting the zinc sulfid present in the ore to neutral or basic zinc sulfate and zinc oxid, grinding the ore, and then leaching the finely-ground ore with a hot solution of ferric sulfate to dissolve out the zinc and precipitate the iron as ferric hydrate in the residue to serve as a flux in the subsequent smelting operation as specified.

3. The herein-described improvement in the method of preparing zinc ores and zinkiferous lead ores for smelting, which consists in first roasting the ore to convert the zinc sulfid present in the ore to neutral or basic zinc sulfate and zinc oxid, grinding the ore, and then leaching the finely-ground ore with a hot solution of ferric sulfate to dissolve out the zinc and precipitate the whole of the iron as ferric hydrate in the residue to serve as a flux in the subsequent smelting operation as specified.

4. The herein-described improvement in the method of preparing zinc ores and zinkiferous lead ores for smelting, which consists in leaching the finely-ground ore with a hot solution of ferric sulfate and subjecting the mixture to continuous agitation during the leaching process, thereby dissolving out the zinc and precipitating the iron as ferric hydrate in the residue to serve as a flux in the smelting operation, substantially as specified.

5. The herein-described improvement in the method of preparing zinc ores and zinkiferous lead ores for smelting, which consists in first converting the zinc sulfid present in the ore to neutral or basic zinc sulfate and zinc oxid, then leaching the finely-ground ore with a hot solution of ferric sulfate and subjecting the mixture to agitation during the leaching process, thereby dissolving out the zinc and precipitating the whole of the iron as ferric hydrate and then separating the zinc solution from the mixture leaving the ferric hydrate disseminated through the residue to serve as a flux in the smelting operation, substantially as specified.

595,514. INVALID'S BED. STEPHEN C. ATTKISSON, Salem, Ind., assignor of seven-eighths to Daisy Attkisson, same place. Filed Apr. 10, 1897. Serial No. 631,522. (No model.)

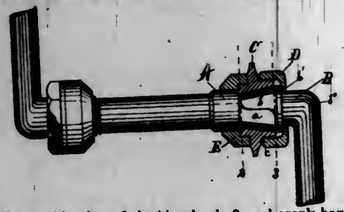


Claim.—An invalid's bed having a frame, hooks secured to the outer faces of the side rails of said frame, a cloth sheet stretched between the lower edges of the frame and having eyelets attached to the hooks thereof, the cloth sheet having an opening therein, a strip of cloth laid against the sheet to close the opening therein and having eyelets receiving the hooks of the frame, a hoisting apparatus in connection with the frame to support the same horizontally, a knee engaging the side rails of the frame and extending upward over the cloth sheet, a head-frame pivoted to the side rails of the frame adjacent to one end of the frame, and an arm pivoted to the head-frame and capable of engaging with the main frame to hold the head-frame at various inclinations.

595,515. MEANS FOR CONNECTING BICYCLE-CRANKS AND SPROCKET-WHEELS WITH SHAFTS. FREDERICK C. AVERY, Toledo, Ohio. Filed Dec. 15, 1896. Serial No. 615,746. (No model.)

Claim.—1. The combination of a bicycle shaft and crank having reduced and oppositely-tapered polygonal tenons, a motor-wheel hav-

ing a bore adapted to fit such tenons when lapped as specified, and a nut for engaging said wheel, and causing it to hold the tenons in unyielding contact, substantially as shown and described.



2. The combination of the bicycle shaft and crank having longitudinally-halved, polygonal tenons which are tapered in opposite directions, so that when lapped they form a tapered part as specified, a sprocket-wheel having a hub which is tapered and polygonal corresponding to such jointed part, and has an exterior screw-thread, and a flanged nut which engages a collar on the crank and has an internal screw-thread for connecting with the aforesaid hub, whereby the latter may be forced on the tapered and lapped members to clamp them rigidly together, as specified.

3. The combination of bicycle shaft and crank tenons which are longitudinally halved and tapered in opposite directions but provided with two parallel straight sides, as specified, a sprocket-wheel hub having a bore which is similarly provided with inclined and parallel sides, and a nut for engaging the wheel-hub and holding it in clamping engagement with the shaft and crank, as shown and described.

4. The combination of the bicycle shaft and crank tenons which are made polygonal and tapered in opposite directions, one of them being provided with an axial extension or pilot-pin and the other with a corresponding axial socket, a sprocket-wheel whose hub fits on the tapered members when lapped, and a nut applied to the crank and hub of said wheel, as and for the purpose specified.

595,516. FOLDING DISPLAY RACK AND TRAY. JAMES S. BAIRD, Golden, Colo., assignor to William Everett Fairbrother and Sarah Baird, same place. Filed Mar. 2, 1897. Serial No. 625,743. (No model.)



Claim.—1. A folding display-rack, comprising an end frame composed of bars pivoted to each other to form lazy-tongs, and having common central pivot-bars connecting the two end frames, means for locking the frames in their extended position, trays having hooks upon their inner edges engaging the connecting-bars, and means upon the outer ends of the end-frame bars for supporting the outer sides of the trays, substantially as described.

2. In a folding display-rack, the combination with end frames composed of bars pivoted to each other to form lazy-tongs, the end pivots projecting slightly toward the center, and the central pivots consisting of bars connecting the two side frames, of trays having hooks adapted to engage the bars forming the central pivots, and having notches in their ends adapted to engage the projecting end pivots, substantially as described.

3. In a folding display-rack, the combination with end frames composed of bars pivoted to each other to form lazy-tongs, the end pivots projecting slightly toward the center, and the central pivots consisting of bars connecting the two frames, and means for locking the end frames in an extended position, of trays having hooks adapted to engage bars forming the central pivots, and having notches in their ends adapted to engage the projecting end pivots, substantially as described.

4. In a folding display-rack, the combination with end frames composed of bars pivoted to each other to form lazy-tongs, the end pivots projecting slightly toward the center, and the central pivots consisting of oars connecting the two frames, a bar pivoted to one of the bars of the end frame, a pin attached to another of the bars, and means for engaging the said bar and pin to lock the frame in an extended position, of trays having hooks adapted to engage the bars forming the central pivots and having notches in their ends adapted to engage the projecting end pivots, substantially as described.

5. In a folding display-rack, the combination with end frames composed of bars pivoted together to form lazy-tongs, and trays or racks supported between the same, of a pivoted handle, locking means for retaining the frames in an extended position, and means for controlling said locking means by the handle, substantially as described.

6. In a folding display-rack, the combination with end frames composed of bars pivoted to form lazy-tongs, and trays or racks supported between the same, of a handle pivoted upon the upper central pivot of the end frames, a locking-bar pivoted upon the same pivot and having a notch in the side thereof at the free end, the central pivot next below the upper one projecting to form a catch for said locking-bar, and a pin upon the locking-bar and located near its pivot, but at one side and near one end thereof, and adapted to be engaged by the side of the handle to throw the locking-bar into or out of engagement with its catch, substantially as described.

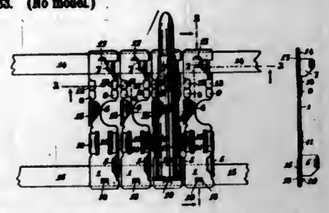
7. In a folding display-rack, the combination with end frames composed of bars pivoted to form lazy-tongs, and trays or racks supported between the same, of a handle pivoted upon the upper central pivot of the end frames, a locking-bar pivoted to the same pivot and having a notch in the side thereof at the free end, a central pivot next below the upper one and projecting to form a catch for said locking-bar, said locking-bar and handle having a limited pivotal connection, whereby the locking-bar is caused to engage or release the locking-pin by the raising or lowering of the handle, substantially as described.

595,517. LUGGAGE-CARRIER FOR BICYCLES. HAROLD J. M. BAKER, Port Townsend, Wash. Filed Mar. 13, 1897. Serial No. 627,361. (No model.)



Claim.—As an improved article of manufacture, the wire luggage-carrier hereinbefore described, the same having a central horizontal bend or open loop, for embracing the bicycle head or post, arms extending laterally from such loop, and the vertical loops *a*, *a*, formed at the ends of said arms and projecting forward, so as to hang on the handle-bar, and their terminal portions extending downward below the middle loop, and having hooked ends *a'*, as shown.

595,518. CARTRIDGE-FEED BELT. LAURENCE V. BENET and HENRI A. MERCIÉ, Paris, France, assignors to the Hotchkiss Ordnance Company, Limited, London, England. Filed Sept. 7, 1897. Serial No. 650,833. (No model.)



Claim.—1. A cartridge-carrier formed of a blank, bent over upon itself at the ends and secured together, and having clips to hold the cartridge, substantially as described.

2. A cartridge-carrier formed of a blank having clips to hold the cartridge, and lips at the ends thereof, the said blank being bent over upon itself near the ends, and the said lips bent over the central portion of the blank to hold the ends down, substantially as described.

3. A cartridge-carrier formed of a blank having clips to hold the cartridge, lips at and near the ends thereof, and slots in the central portion; the said blank being bent over upon itself near the ends, and the said lips being bent over the edges of the central portion of the blank, and two of the lips entering the said slots to hold the ends down, substantially as described.

4. A cartridge-carrier formed of a blank having clips to hold the cartridge, and lips at and near the ends thereof, the said blank being bent over upon itself near the ends, and the said lips being bent over the edges of the central portion of the blank to hold the ends down, and one of the said lips being bent up against one of the said clips to reinforce the same, substantially as described.

5. In a feed-belt for automatic machine-guns, the combination with two bands; of cartridge-carriers formed of blanks bent over upon themselves and secured together, and having clips to hold the cartridge; the said cartridge-carriers being placed upon the said bands, and means for securing the carriers to the said bands, substantially as described.

6. In a feed-belt for automatic machine-guns, the combination with two bands; of cartridge-carriers formed of blanks having clips

to hold the cartridges and lips near the ends thereof; the said blanks being bent over upon themselves and the said lips bent over the central portion thereof; the said carriers being placed upon the said bands; and means for securing the said carriers to the said bands, substantially as described.

7. In a feed-band for automatic machine-guns, the combination with two bands; of cartridge-carriers formed of blanks having clips to hold the cartridges and lips near the ends thereof; the said blanks being bent over upon themselves and the said lips bent over the central portion thereof; one of the said lips being bent against one of the clips to reinforce the same; the said carriers being placed upon the said bands and means for securing the said carriers to the said bands, substantially as described.

8. In a feed-band for automatic machine-guns, the combination with two bands; of cartridge-carriers formed of blanks having clips to hold the cartridges and lips near the ends thereof; the said blanks being bent over upon themselves and the said lips bent over the central part thereof; the said carriers being placed upon the said bands; means for securing the said carriers to the said bands, and a lug 19 formed on the carriers, substantially as described.

9. In a feed-band for automatic machine-guns, the combination with two bands; of cartridge-carriers formed of blanks having clips to hold the cartridges and lips near the ends thereof; the said blanks being bent over upon themselves and the said lips bent over the central part thereof; the said carriers being placed upon the said bands; means for securing the said carriers to the said bands, and a flexible band 23 secured to the said belt, substantially as described.

10. A feed-belt for automatic machine-guns, consisting of two bands: distinct cartridge-carriers secured to the said bands; each of said carriers being formed of a blank doubled over upon itself, and having clips to hold the cartridges: and a lip laid against one of the said clips for reinforcing the latter, substantially as described.

11. A feed-belt for automatic machine-guns, consisting of two bands; distinct cartridge-carriers secured to the said bands; each of said carriers being formed of a blank doubled over upon itself, and having clips on the central portion to hold the cartridge, and slots also in the central portion and lips on the bent-over portions to engage the said slots, substantially as described.

12. A feed-belt for automatic machine-guns, consisting of two bands: distinct cartridge-carriers secured to the said bands; each of said carriers being formed of a blank doubled over upon itself, and having clips on the central portion to hold the cartridge; and lips on the bent-over portion to engage the central portion, one of the said lips being laid against one of the said clips, substantially as described.

13. A feed-belt for automatic machine-guns, consisting of two bands, distinct cartridge-carriers secured to the said bands; each of said carriers being formed of a blank doubled over upon itself, and having clips to hold the cartridges; a lip laid against one of the said clips, and a flexible band 23 secured to one end of the belt, substantially as described.

595,519. FOOT-WARMER. JOHN P. BERCHEM, St. Paul, Minn. Filed Feb. 6, 1897. Serial No. 622,370. (No model.)



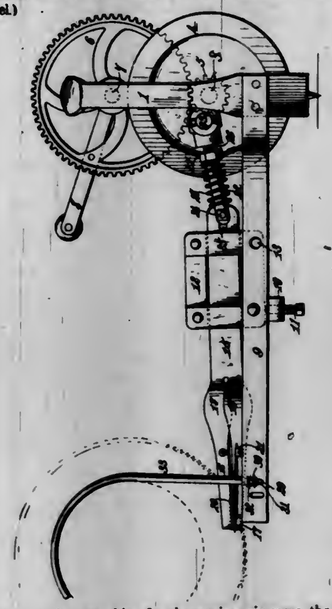
Claim.—1. In a foot-warmer, the combination of the wooden case A, having the skeleton cover C, provided at its under side with the metallic register L, O; a metallic heating-pan suspended within the case A, and adapted to hold the source of heat; a secondary pan interposed between the woodwork and the heating-pan and having its edges extended above the edges of the latter, an air-space being thus formed between the two pans and between the outer pan and the woodwork, said case A, being also lined inside with asbestos or similar fireproof material, substantially as and for the purpose set forth.

2. In a foot-warmer, the combination with the wooden case A, of the hooks Y, projecting from the inside of its walls, of the pan W, suspended on said hooks, the heating-pan U, having the hooks V, suspending it from holes in the upper edges of the pan W, and within the latter, and a cover provided with adjustable air-holes, covering the top of the case, substantially as set forth.

3. In a foot-warmer, the combination with the wooden case A, of the hooks Y, projecting from the inside of its walls, of the pan W, suspended on said hooks, the heating-pan U, having the hooks V, suspending it from holes in the upper edges of the pan W, and within the latter, said pans being wider near the top than at the bottom.

4. In a foot-warmer, the combination with the wooden case A, and the fire-pan U, suspended therein, of the cover C, being formed of the end bars H, and side bars I, of even thickness, and the interior foot-supporting bars K, extending only partly down between the side bars, the adjustable metallic register secured to the lower side of the side and end bars of the cover with an asbestic or other fireproof strip interposed between the metallic and the wooden parts, substantially as and for the purpose set forth.

595,520. MACHINE FOR SHARPENING GIN-SAWS. JAMES M. BRADLEY, Hillside, Tex. Filed Apr. 13, 1897. Serial No. 631,994. (No model.)



Claim.—1. In a machine for sharpening gin-saws, the combination with a frame, of a reciprocating slide-bar, two crossed and vertically and laterally yielding file-holders carried by the slide-bar, files carried by said holders, and a stop arranged in the forward end of said frame and operating to arrest the downward thrust of the file-holders, substantially as described.

2. In a machine for sharpening gin-saws, the combination with a frame, of a reciprocating slide-bar, two crossed and vertically-yielding file-holders carried by the slide-bar, files carried by said holders, and a vertically-adjustable stop arranged in the forward end of said frame and operating to arrest the downward thrust of the file-holders, substantially as described.

3. In a machine for sharpening gin-saws, the combination with a frame, of a reciprocating slide-bar, two crossed and vertically and laterally yielding file-holders carried by the slide-bar, files carried by the holders, and a vertically-adjustable roller arranged in the forward end of said frame and operating to arrest the downward thrust of the file-holders, substantially as described.

4. In a machine for sharpening gin-saws, the combination with a frame having two horizontal and approximately parallel arms, a guide-block secured between said arms, a slide-bar fitted to reciprocate in said guide-block and provided at its forward end with two crossed and vertically and laterally yielding file-holders, files arranged in said holders, driving mechanism for reciprocating the slide-bar, and hangers attached to the forward end of the frame for suspending the same from the arbor of the saws to be sharpened, substantially as described.

5. In a machine for sharpening gin-saws, the combination with a frame having two horizontal and approximately parallel arms, a guide-block adjustably secured between said arms, a slide-bar fitted to reciprocate in said guide-block and provided at its forward end with two crossed and vertically and laterally yielding file-holders, files arranged in said holders, driving mechanism for reciprocating the slide-bar, and a vertically-adjustable roller arranged in the forward end of the said arms beneath the file-holders and operating to limit the downward thrust of the file-holders, substantially as described.

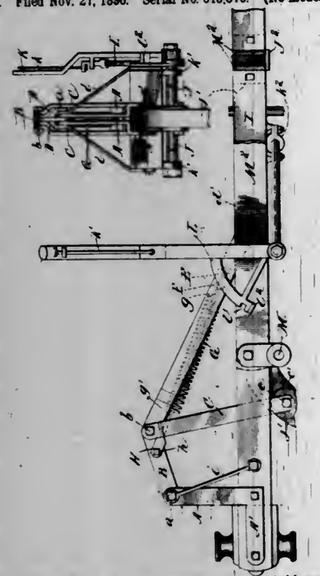
6. In a machine for sharpening gin-saws, the combination with a frame, of a reciprocating slide-bar, two crossed and vertically and laterally yielding file-holders carried by said slide-bar, files carried by said holders, a stop arranged in the forward end of said frame and operating to arrest the downward thrust of the file-holders, a pitman yieldingly connected to the slide-bar, and mechanism for driving the pitman, substantially as described.

7. In a machine for sharpening gin-saws, the combination with a frame having two horizontal and approximately parallel arms, a guide-block secured between said arms, a slide-bar fitted to reciprocate in said guide block and provided at its forward end with two crossed and vertically and laterally yielding file-holders, files arranged in said holders, a driven crank-wheel, and a yielding pitman connecting said crank-wheel and slide-bar, substantially as described.

8. In a machine for sharpening gin-saws, the combination with a frame having two horizontal and approximately parallel arms, a guide block secured between said arms, a slide-bar fitted to reciprocate in said guide-block and provided at its forward end with two crossed and vertically and laterally yielding file-holders, files arranged in said holders, a driven crank-wheel, a pitman eccentrically connected at one end to said crank-wheel and loosely journaled in an elongated slot in the rear end of the slide-bar, a coiled spring surrounding said pitman and an adjusting-nut threaded on the pitman, said spring bearing at one end against said nut and at its other end against the rear end of the pitman, substantially as described.

9. In a machine for sharpening gin-saws, the combination with a guide-block, of a slide-bar fitted to reciprocate therein and bifurcated or forked at its forward end to form two file-holders, said holders being crossed at their forward ends and at their rear ends flattened and tempered to form vertically and laterally yielding springs, as shown, means for clamping files to said holders, a stop arranged to arrest the downward thrust of the file-holders, and mechanism for reciprocating said slide-bar, substantially as described.

595,521. WHEELED PLOW. WILLIAM T. M. BRUNNEMER, Bradley, Ill., assignor to The David Bradley Manufacturing Company, same place. Filed Nov. 27, 1896. Serial No. 613,570. (No model.)



Claim.—1. A lifting device consisting of two rigid members pivotally connected together, a support for one of said members, and a spring acting to move said members to change their relative angular position, substantially as described.

2. A lifting device consisting of two pivotally-connected members, one suitably fulcrumed and the other connected to the object to be lifted and a spring acting to move said members to change their relative angular position, substantially as described.

3. The combination with a machine-frame, and a furrow-opener beam, of a member pivotally supported on said frame, a member pivoted to the first member and connected with the furrow-opener beam, and a spring which acts to move said members to change their relative angular position, substantially as described.

4. The combination, in a plow, of a machine-frame, a furrow-opener pivotally carried by said frame, means for preventing downward inclination of the furrow-opener, and separate means for holding the furrow-opener down in operative position, substantially as described.

5. The combination, in a plow, of a machine frame, a beam carried by said frame, a furrow-opener carried by said beam, a limit-stop carried by the frame and acting to prevent downward inclination of the furrow-opener, and means for locking the furrow-opener beam to said stop, substantially as described.

6. The combination, in a plow, of a machine-frame, a beam pivotally supported by said frame, a plow carried by said beam, a rigid stop carried by the frame, and means for holding the plow-beam down upon said stop, substantially as described.

7. In combination, in a plow, of a machine-frame adapted to be connected to the draft device, a furrow-opener connected to said frame, the draft being transmitted through the frame to the furrow-opener, means for lifting the furrow-opener, and means independent of the lifting mechanism for preventing downward inclination of the furrow-opener, substantially as described.

8. The combination, in a plow, of a machine-frame, adapted to be connected to the draft device, a plow-beam pivotally supported by said frame, the draft being transmitted through said machine-frame to said plow-beam, means for lifting the plow and beam, and a stop independent of the lifting mechanism for preventing downward motion of the front end of the plow-beam, substantially as described.

9. The combination, in a plow, of a frame, a draft device connected to the frame, a furrow-opener, a beam carrying the furrow-opener and pivotally mounted upon the frame, means for raising and lowering the furrow-opener, and means for rigidly locking the beam and the frame together when the furrow-opener is in operative position, whereby downward inclination thereof is limited and the draft is transmitted thereto through the frame and beam, substantially as described.

10. In a wheeled plow, the combination of a fulcrum-post, a lifting lever pivoted thereon, forward and rearward lifting-links pivoted at a common pivot to the lifting-lever, a lifting spring connected at its forward end with the forward lifting-links and at its rear end to the lifting-lever, and a plow-beam pivotally connected with the lifting-links, substantially as described.

11. In a wheeled plow, the combination of a lifting-lever pivotally mounted on a fulcrum-post, front and rear lifting-links pivotally connected to the lifting-lever, a spring connected with the forward lifting-links by a pivot block or bar and at its rear end to the lifting-lever by a pivoted connection, a plow-beam pivotally connected to the lifting-links, and a hand-lever connected with the beam and frame, substantially as described.

12. In a wheeled plow, the combination of a fulcrum-post, a lifting-lever pivotally mounted thereon, front and rear lifting-links pivotally connected with the lifting-lever and with the plow-beam, a spring connected at its forward end with the forward lifting-links and at its rear end with the lifting-lever, a hand-lever attached to the frame and provided with a crank or bail connected with the plow-beam, the sector L provided with engaging notches for the latch, and a limit-stop for limiting the backward movement of the lever, substantially as described.

13. In a wheeled plow, the combination of a fulcrum-post, a lifting-lever pivotally mounted thereon, front and rear lifting-links pivotally connected with the lifting-lever and with the plow-beam, a spring connected at its forward end with the forward lifting-links and at its rear end with the lifting-lever, a hand-lever attached to the frame and provided with a crank or bail connected with the plow-beam, the sector L provided with engaging notches for the latch, a limit-stop for limiting the backward movement of the lever, and a limit-stop for limiting the downward movement of the plow-beam, substantially as described.

14. In a wheeled plow, the combination of a lifting lever pivotally mounted on the frame of said plow, lifting-links pivotally connected with the lifting-lever and the plow-beam, and a spring connected with the forward lifting-links and with the lifting-lever, said spring moving with the forward lifting-links giving the spring a less movement than that of said links in raising or lowering the plow-beam, substantially as described.

15. In a wheeled plow, the combination of a fulcrum-post, a lifting-lever, a spring connected with said lever in rear of the link-pivot, links, as D, with the spring attached thereto, whereby during the movement of the parts the spring moves bodily a less distance than the movement of said links, substantially as described.

16. As an improved lifting device, the combination of a fixed fulcrum, and lifting-lever, with one or more pivoted links, a bodily-moving spring having a shorter limit of travel than the link or links, and a weight-lifting beam or bar, whereby a short contraction or expansion of the spring is obtained, substantially as described.

17. The combination with a supporting-frame and an object to be lifted, of a lifting device consisting of two pivotally-connected members, the first suitably pivoted upon the frame and the second connected with the object to be lifted, and a spring which acts to change the angular position of said first member with reference to the frame and to the second member, substantially as described.

18. The combination with a supporting-frame, an object to be lifted and a rocking support for the object to be lifted, of a lifting device consisting of two pivotally-connected members, the first suitably pivoted upon the frame and the second connected with the object to be lifted, and a spring which acts to change the angular position of said first member with reference to the frame and to the second member, substantially as described.

19. The combination with a supporting-frame, an object to be lifted, a rocking support for the object to be lifted and a lever for rocking said support, of a lifting device consisting of two pivotally-connected members, the first suitably pivoted upon the frame and the second connected with the object to be lifted, and a spring which acts to change the angular position of said first member with reference to the frame and to the second member, substantially as described.

20. The combination with a supporting-frame, a plow-beam, of a lifting device consisting of a lever H, one or more links D connected to said lever and to the plow-beam, a crank supporting the plow-beam on the frame and a spring connected to the lever H and with the links D, substantially as described.

21. The combination with a frame, a furrow-opener beam supported thereby, of a rigid stop carried by the frame in position to intercept the front portion of the beam when the furrow-opener is in operative position, substantially as described.

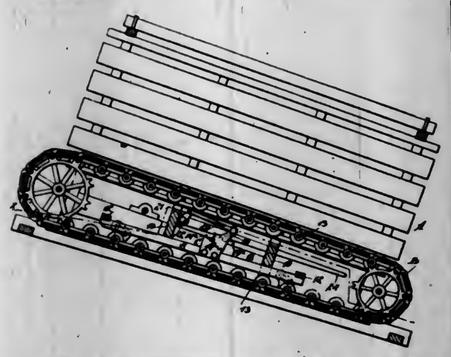
22. The combination with a frame and a furrow-opener beam, of a crank supporting said beam on said frame, the front end of the beam extending forward of said crank and a rigid stop carried by the frame in position to intercept the front end of the beam, substantially as described.

23. The combination with a frame having a stop J^2, of a furrow-opener beam having a projecting end j and means for raising and lowering the beam, substantially as described.

24. The combination with a frame having a stop J^2, of a furrow-opener beam having a projecting end j, a crank J upon which the beam is mounted and means for raising and lowering the beam, substantially as described.

25. The combination in a plow, of a machine-frame, a plow-beam supported by said frame and a rigid stop carried by the frame and adapted to intercept a portion of the plow-beam to limit the downward inclination of the plow, substantially as described.

595,522. BRAKE FOR HORSE-POWER MACHINES. THOMAS P. CHAMBERS, Newtown, Pa. Filed Apr. 16, 1897. Serial No. 632,473. (No model.)



Claim.—1. The combination with the tread-floor of a horse-power machine and the base supporting the same, of the brake-frame provided with bars arranged for engagement with the stretch of the floor, and an operating device carried by the said base, said device engaging said bars and by which the latter are moved into and out of engagement with the floor.

2. The combination, with the tread-floor of a horse-power machine, a brake-frame located over the rollers on the lower stretch of the floor, and means for limiting the upward movement of the brake frame, of a crank-shaft, means for operating the crank-shaft, projections from the brake-frame having inclined toothed surfaces, toothed segments engaging with the toothed surfaces of said projections, and a connection between the segments and the crank-shaft.

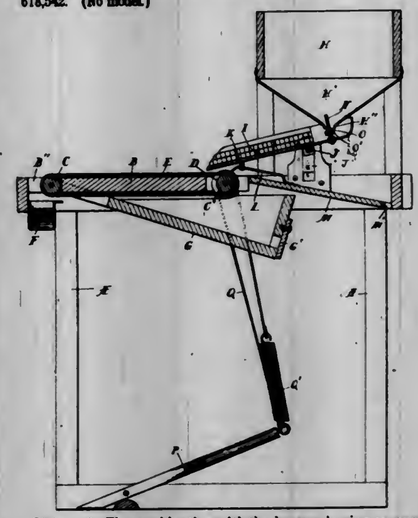
3. The combination, with the tread-floor of a horse-power machine, of brakes located over and adapted for engagement with the lower stretch of said tread-floor, a shaft, means for operating the shaft, crank-arms projected from said shaft, extensions from the brakes having inclined toothed upper surfaces, toothed segments engaging with said inclined toothed surfaces of the brakes, being connected with said crank-arms, and stationary guides for the brakes, having an inclination corresponding to that of the toothed extensions from the brakes.

4. The combination, with the tread-floor of a horse-power machine, a brake-frame held for engagement with the lower stretch of said floor, and means for limiting the upward movement of the brake-frame, of a rock-shaft, extensions from the brake-frame, having their upper surfaces toothed and inclined in direction of the inclination of said floor, and toothed and pivoted segments operating upon the toothed surfaces of said extensions, being operated from said shaft.

5. The combination, with the tread-floor of a horse-power machine, a brake-frame held for engagement with the lower stretch of said floor, and means for limiting the upward movement of the brake-frame, of a rock-shaft, extensions from the brake-frame, having their upper surfaces toothed and inclined in direction of the inclination of said floor, toothed and pivoted segments operating upon the toothed surfaces of the said extensions, being operated from the said shaft, stationary guide-hangers having slots therein, and inclined correspondingly to the inclination of the extensions from the said brake-frame, and pins extending from the brake-frame, into the slots of the said guide hangers.

6. The combination with a tread-floor of a horse-power machine and the base supporting the same, of the brake located between the stretches of said floor, a shaft carried by said base, an operating device on said shaft and engaging said brake to move into and out of engagement with the stretch of said floor, means for operating said shaft and a stop device on said base and by which the movement of brake away from the stretch of the floor is limited.

595,523. BEAN-PICKING MACHINE. EDWARD H. CHERRY and FLORENCE A. CHERRY, Owosso, Mich. Filed Jan. 9, 1897. Serial No. 618,542. (No model.)



Claim.—1. The combination with the hopper, having an opening in its bottom, and a pivoted vibrating screen beneath said hopper, a device carried by said screen for alternately covering and uncovering said opening as the screen is vibrated, and an adjustable bearing for the pivots of said screen.

2. In combination, a hopper having an inverted conical bottom and an opening therein, a screen beneath said opening, vertically-adjustable pivots supporting said screen, a stud attached to said screen and projecting through said opening and an adjustable cone on said stud beneath said opening, substantially as described.

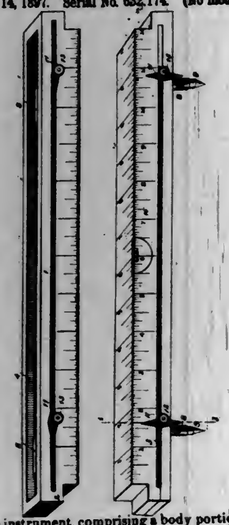
3 In a bean-picking machine the combination with the driving-roll having a pulley, a pivoted treadle and a pivoted screen, of a ratchet on said roll, a belt engaging the pulley and treadle and having an elastic section in one of its sides and a pawl fixed at one of its ends and engaging said ratchet at its other end to prevent motion of the roll in one direction, said pawl being connected between its ends

to said screen and serving thereby also to vibrate the latter, substantially as described.

4. In combination with an endless apron, a vibrating screen and a hopper having a discharge-opening and feed mechanism, a roll engaging said apron, ratchets and pulleys on said roll, pawls engaging said ratchets and screen, pivoted treadles, belts having both ends attached to said treadles and an elastic section near one end, and engaging said pulleys to rotate said roll, substantially as described.

5. The combination of a table having side and end openings, rolls near each end of said table, an endless apron on said rolls, spouts beneath said openings, ratchets and pulleys on one of said rolls, pawls engaging said ratchets, pivoted treadles, belts having elastic sections, and attached to said treadles and engaging said pulleys, an inclined screen vibrated by said pawls, a hopper above said screen having a discharge-opening, a stud attached to the screen and extending through said opening and a cone on said stud, substantially as described.

595,524. COMBINATION-TOOL. WILLIAM CLOUGH, Rockland, Del. Filed Apr. 14, 1897. Serial No. 632,174. (No model.)



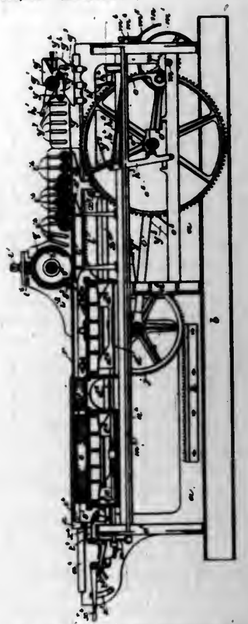
Claim.—1. An instrument, comprising a body portion, having one or more of its faces ruled and having a longitudinal socket in one face, and crayon or point holders held to slide in such socket and pivotally connected in such a manner as to fold completely within such socket when not in use, as specified.

2. An instrument as described, comprising a body member having one or more of its faces ruled, a longitudinal socket in its bottom, having guide-slots in its sides communicating with socket bonnets or slides fitting the sockets and crayon or point holders pivotally connected and longitudinally movable within the socket therewith, as specified.

3. In an instrument as described, the combination with the body having one or more of its outer faces ruled, and having its bottom formed with a longitudinal socket, and having guide-slots in the sides thereof communicating with the socket, of a bonnet or guide longitudinally movable in the socket, having a base portion adapted to the upper part of the socket, and lateral flanges 6 7 fitting in the guide-slots, said flanges having cut-out portions adapted to form seats for a transverse pivot-bolt, one of such cut-out portions extending upward as at 7^b, a pivot-bolt extending through the guide-slots and fitting the seats of the flanges 6 7, said bolt having a keyway, a feather 14 held therein, the ends of the bolts having threads, the thumb-nuts and indicators held thereon, and the pencil-holders, said holders having non-circular apertures to receive the bolt and key, all being arranged substantially as shown and described.

4. A combination instrument comprising a body member formed in sections, having one or more of its faces ruled, and having a longitudinal socket in its bottom, a pair of crayon or point holders pivotally held within the socket and longitudinally adjustable therein, said body having one face countersunk centrally, and provided with a segmental scale, and a gravity pointer, and a slide or lip plate detachably held over such countersunk portion having its outer face ruled, all being arranged substantially as shown and for the purposes described.

595,525. MACHINE FOR TAKING PRINTS FROM PREPARED LITHOGRAPHIC STONES. COSMAN H. COHEN and SAMUEL MARK, London, England; said Mark assignor to said Cohen. Filed Sept. 19, 1896. Serial No. 606,430. (No model.)



Claim.—1. In a machine of the character herein described, for taking prints or impressions from prepared lithographic stones, engraved blocks and the like and setting off such prints or impressions upon glass or other rigid material, the combination of a plate *c* on which the ink is distributed, a support *d* for the design, a feed-table *e* to support the work or material on which an impression from the design is to be set off, a damping-table *f*, the said parts *c*, *d*, *e* and *f* being stationary and all supported in substantially the same horizontal plane, the rotatable cylinder *i* for conveying an impression from the inked design to the work, a traveling carriage in which said cylinder is mounted, automatically-controlled mechanism for actuating the said cylinder and its carriage in such manner that the cylinder will normally rotate while its carriage travels forward over the stationary design and stationary work and travel back without rotating, and lever mechanism for controlling the cylinder to prevent its rotation on forward movement, substantially as set forth.

2. In a machine of the character herein described, for taking prints or impressions from prepared lithographic stones, engraved blocks and the like and setting off such prints or impressions upon glass or other rigid material, the combination of a plate *c* on which the ink is distributed, a support *d* for the design, a feed-table *e* to support the work, a damping-table *f*, the said parts being stationary and the supports *d* and *e* being provided with means for vertical adjustment, the controllably-rotatable cylinder *i* for conveying an impression from the inked design to the work, a traveling carriage in which said cylinder is mounted, ink-rollers mounted in a separate carriage, automatically-controlled mechanism for actuating the said cylinder and its carriage in such manner that the cylinder will normally rotate only while its carriage travels forward over the stationary design and stationary work, and lever mechanism for controlling the said cylinder to prevent its rotation on said forward movement, substantially as set forth.

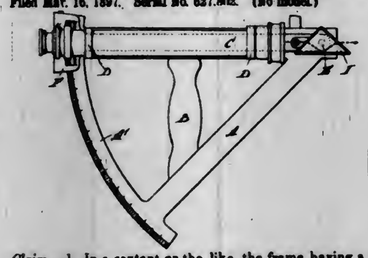
595,526. CASTER. WILLIAM H. COLDWELL, Newburg, N. Y. Filed Aug. 17, 1897. Serial No. 648,562. (No model.)

Claim.—1. In a caster the combination with the hollow shell or body provided with a slot in its upper wall, and with a roller, of a plate pivoted in the lower part of said shell by a horizontal pivot and forming the bottom wall of the same, the shank secured to said plate and extending upward through the said slot in the shell, a non-rolling support secured to said shank below said plate, and a spring interposed between said shell and a part connected with said shank, substantially as described.

2. In a caster the combination with the hollow shell or body provided with a slot in its top wall and with a roller, of a plate pivoted in the lower part of said shell by a horizontal pivot, and forming the bottom wall of said shell, a sleeve formed integrally with said plate and extending upwardly through said slot in the shell, a shank extending through said sleeve having a shoulder engaging the sleeve at its upper end, a non-rolling support secured to said shank below said plate, and a spring secured at one end to said shell and having its other end engaging said sleeve above said horizontal pivot, substantially as described



595,527. SEXTANT. FREDERICK J. R. CORDNER, U. S. Navy. Filed Mar. 16, 1897. Serial No. 627,802. (No model.)



Claim.—1. In a sextant or the like, the frame having a graduated arc, an index-arm pivoted at one end to the said frame and an isosceles prism carried by said arm near its pivot, the axis of the said prism being parallel to the pivot of the said index-arm, substantially as described.

2. In a sextant or the like, the frame having a graduated arc, the index-arm pivoted at one end to said frame and a right-angled prism carried by said arm at its pivot end, the axis of the said right-angled prism being parallel to the pivot of said arm, substantially as described.

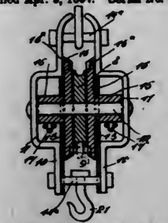
3. In a sextant or the like, the frame having a graduated arc, a telescope or equivalent device for direct observation, an index-arm pivoted at one end to said frame and adapted to swing between the frame and the telescope, the said index-arm being provided near its pivot with an isosceles prism rigidly secured to said arm, the end surface of the said prism bisecting approximately the field of the telescope, the axis of the said prism being parallel to the pivot of the said index arm, substantially as described.

4. In a sextant or the like, the combination with the frame having a graduated arc, and a telescope or equivalent device for direct observation, the said telescope being arranged at one side of the said frame and secured thereto, of the index-arm pivoted at one end to said frame and adapted to swing between the frame and the telescope, an isosceles prism rigidly secured to the pivot end of the said arm, the end surface of the said prism bisecting approximately the field of the telescope, the axis of the said prism being parallel to the pivot of said index-arm, and absorbing-glasses hinged to the frame and adapted to be swung between the prism and the adjacent end of the telescope, substantially as described.

5. In a sextant or the like, the frame having a graduated arc and a telescope or equivalent device for direct observation in combination with the index-arm pivoted to the frame and adapted to swing between the frame and the telescope, the said index-arm carrying near its pivot a prism whose axis is parallel to the pivot and whose free end surface is within the field of the telescope, the telescope and prism being adjustable in relation to each other in a direction parallel to the pivot of the index-arm to increase or diminish the size of that portion of the prism which is within the field of the telescope, substantially as described.

6. In a sextant or the like, a frame having a graduated arc, a telescope or equivalent device for direct observation, the said telescope being arranged at one side of the frame and secured thereto by means of straps, an index-arm pivoted to the said frame at a point adjacent to the object-glass end of the telescope, the said arm being adapted to move over the graduated arc and arranged to swing between the frame and the telescope, means for securing the index-arm to the arc, means for adjusting the said arm, and an isosceles prism secured to the pivot end of the said index-arm, the axis of the said prism being parallel to the pivot of the index-arm, the length of the said prism being about equal to the aperture of the telescope, and the end surface of said prism bisecting approximately the field of the telescope, substantially as described.

595,528. DUMPING APPARATUS. JAMES G. DELANEY, New York, N. Y. Filed Apr. 9, 1897. Serial No. 631,411. (No model.)



Claim.—1. The combination with a frame, of a winding-drum mounted therein, a sheave mounted adjacent to the winding-drum, the sheave being capable of carrying a cable and being freely movable in each direction independently of the winding-drum, and the winding-drum being capable of connection directly with the cable, whereby it is operated by the cable, substantially as described.

2. The combination with a frame, of a winding-drum mounted on the frame, and a sheave mounted on the frame adjacent to the winding-drum and capable of turning freely in each direction independently of the winding-drum, the winding-drum having a member in connection therewith, such member being located adjacent to the sheave and being capable of locking with the element that engages the sheave, whereby motion is transmitted directly from said element to the winding-drum irrespective of the operation of the sheave, substantially as described.

3. The combination with a frame, of a winding-drum mounted thereon, a plate or disk fixed to the winding-drum, and a sheave mounted to turn freely in both directions independently of the winding-drum, the sheave being located adjacent to coact with the means by which the frame is supported, the plate or disk being capable of engaging directly with an element having movement relative to the frame, whereby the winding-drum is operated directly from said relatively-moving element irrespective of the movement of the sheave, substantially as described.

4. The combination with a frame, of a shaft mounted therein, a winding-drum mounted to turn freely on the shaft, a sheave mounted on the shaft, and a plate or disk in rigid connection with the winding-drum and located adjacent to the sheave, the sheave and winding-drum being each operative independently of each other, substantially as described.

5. The combination with a frame, of a shaft mounted therein, a winding apparatus carried by the shaft, and means also carried by the shaft for engaging an element by which the frame may be supported, a winding apparatus and said means being independently operative, and the winding apparatus being capable of directly engaging a part having movement relative to the frame, whereby to operate the winding apparatus from said part irrespective of said means, substantially as described.

6. The combination of two frame-plates having rigid connection with each other, and each having an outwardly-extending intermediate portion, a cheek-piece adjacent to each frame-plate, a shaft extending transversely between the outwardly-extending portions of the frame-plates, a sheave mounted loosely on the shaft, two drums mounted loosely on the shafts and respectively on the sides of the sheave, the drums respectively extending into the outwardly-extending portions of the frame-plates, and a plate or disk attached to the inner portion of each drum and respectively lying adjacent to the sides of the sheave and inside of the cheek-pieces, substantially as described.

7. The combination with a frame, of a shaft mounted therein, two cheek-pieces carried by the frame and through which the shaft extends, a sheave mounted on the shaft between the cheek-pieces, two drums mounted on the shaft and respectively on the sides of the sheave, and a plate or disk carried by the inner end of each drum and respectively adjacent to the sides of the sheave, substantially as described.

8. The combination with a frame, of a shaft carried thereby, a sheave loose on the shaft, a winding-drum also loose on the shaft, and a member carried by the winding-drum and located adjacent to the sheave, the member having portions projected beyond the periphery of the sheave and provided with notches capable of being engaged by a chain passing over the sheave, substantially as described.

9. A dumping apparatus mounted to travel, and having a winding device adapted for connection with a load-receptacle, and a strand

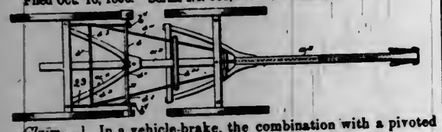
passing adjacent to the winding device and having means to engage the winding device and turn the same directly by the relative movement of the strand and dumping apparatus, substantially as described

10. A dumping apparatus having a device adapted to turn, and having means for affording connection with a load-receptacle, and an engaging device in the path of the device to be turned, to effect the turning, substantially as described.

11. A dumping apparatus, comprising a sheave, a winding device having appurtenant parts adjacent to the sheave, and a strand serving to directly engage the said appurtenant parts, to directly operate the winding device substantially as described.

12. The combination of the carrier, tripping devices toward and from which the carrier travels, and a winding device mounted on the carrier and adapted to be tripped by the said tripping device when the carrier in its travel reaches the said tripping devices.

595,529. WAGON-BRAKE. ROBERT M. DEYOUNG, Ryland, Ala. Filed Oct. 10, 1896. Serial No. 608,465. (No model.)

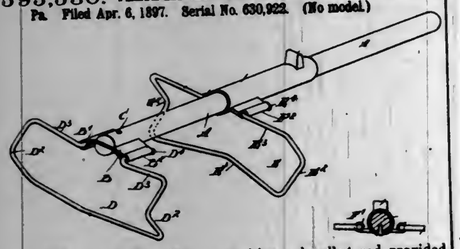


Claim.—1. In a vehicle-brake, the combination with a pivoted crank-shaft carrying brake shoes, pendent levers mounted on said shaft, an auxiliary shaft pivoted on the frame of a vehicle, double levers carried by said latter shaft, connecting-rods connecting said levers and the levers of the crank-shaft, springs connecting said double levers and the frame, whereby the brake-shoes are normally held away from the wheels, and means connecting the double brake levers with the neck-yoke, whereby the backing of the draft-animals will apply the brake, substantially as described.

2. In a vehicle-brake, the combination with pulleys attached to the opposite sides of the front of the pole, of flexible cords passed over said pulleys and adapted to be connected to the neck-yoke, a movable cross-bar connected to said flexible cords, a crank-shaft carrying brake-shoes, pivoted levers connected to said crank-shaft, and means for connecting the cross-bar with said pivoted levers, substantially as described.

3. In a vehicle-brake, the combination with pulleys attached to the respective sides of the pole, of flexible cords passed over said pulleys and adapted to be connected to the neck-yoke, a movable cross-bar, means connecting said cords and cross-bar, a pivoted crank shaft carrying brake-shoes, levers mounted on said shaft, an auxiliary pivoted shaft, springs connected to the auxiliary shaft for normally holding the brake-shoes out of contact with the wheels, and means connecting the auxiliary shaft with the movable cross-bar, whereby the backing of the draft-animals will apply the brakes, substantially as described.

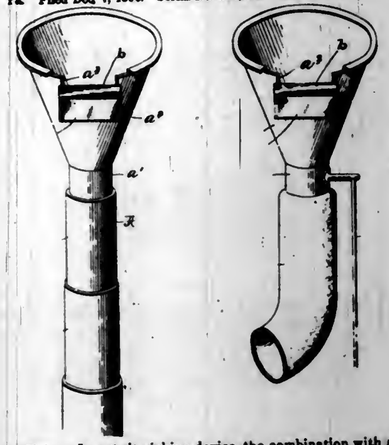
595,530. PLATE-LIFTER. ELAM D. DIFFENDERFER, West Milton, Pa. Filed Apr. 6, 1897. Serial No. 630,922. (No model.)



Claim.—1. A plate-lifter, comprising a handled rod provided with flanges extending laterally therefrom at its forward end and formed with eyes, an outer jaw secured in said eyes, a sleeve fitted to slide longitudinally on the said rod and held against turning thereon, said sleeve being formed with eyes in its sides, and an inner jaw secured in the eyes of said sleeve, substantially as described.

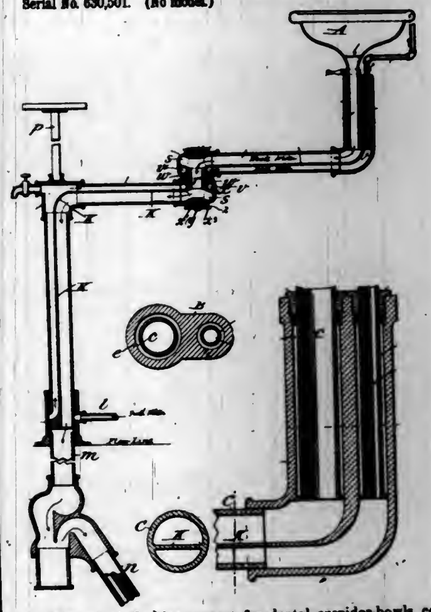
2. A plate-lifter, comprising a handled rod formed with a transverse slot at its forward end and with a longitudinally-extending groove, a doubled-up metal flange, secured in said slot and formed with eyes, an outer jaw having its ends secured in said eyes, a sleeve fitted to slide longitudinally on said rod and provided with a tongue engaging the groove in said rod, said sleeve being provided with eyes formed on its sides, an inner jaw having its ends secured in said eyes, and means substantially as described for holding said sleeve in a forward position to lock said inner jaw in position on the plate, as and for the purpose set forth.

595,531. FRUIT-PICKER. JOHN W. DOWNEY, Edgewood Park, Pa. Filed Dec. 7, 1896. Serial No. 614,855. (No model.)



Claim.—In a fruit-picking device, the combination with a chute having a rigid flaring mouth at its upper end formed with a rectangular knife-receiving recess, of a knife having grooves formed in its ends and bottom and adapted to be slipped down into the knife-recess, so that the walls of the same enter said grooves, and means for supporting the chute in position, substantially as described.

595,532. DENTAL CUSPIDOR. DENNIS S. DOYLE, Philadelphia, Pa., assignor to William W. Doyle, same place. Filed Apr. 3, 1897. Serial No. 630,501. (No model.)



Claim.—1. A flushing support for dental cuspidor-bowls, comprising a stand-pipe having separate passages for the inflow of fresh water to the bowl and for the outflow of waste water therefrom, and a supplemental conduit carrying the bowl and having like passages, said conduit having a movable joint upon which the bowl may be revolved laterally without disturbing the stand-pipe.

2. A flushing-support for dental cuspidor-bowls, comprising a conduit having separate passages for the inflow of fresh water to the bowl and for the outflow of waste water therefrom, said conduit having a movable joint upon which the bowl may be revolved laterally, and said joint having a core with external annular recesses and a central bore communicating therewith in the line of passage of the waste

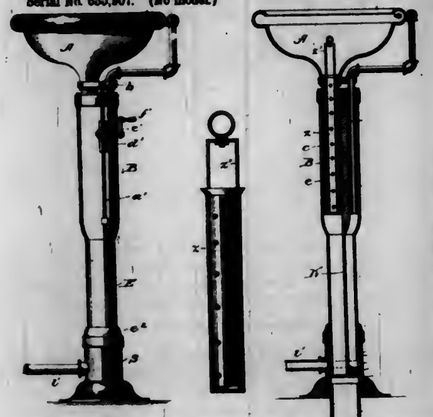
water, and having external annular recesses connected with each other by ports exterior to the central bore and in the line of passage of the fresh water.

3. The combination with double-conduit pipe-sections, of a movable joint connecting the same, said joint consisting of a core or plug having annular grooves or recesses at its ends and a central passage communicating with said grooves by radial ports, and having annular grooves or recesses intermediate of the ends and communicating with each other by ports exterior to the central passage, said core or plug tapering conically from its center toward its ends, and having sleeves or jackets to which the pipe-sections are coupled.

4. In flushing apparatus for dental cuspidor-bowls the combination with the bowl having an exit-pipe and an inlet-pipe, of a double conduit in which said pipes fit and in which they are vertically movable and adjustable, and means for retaining them in the desired adjustment.

5. A flushing support for dental cuspidor-bowls comprising a vertical pipe-section, a horizontal pipe-section coupled thereto, and a pipe-section supporting the bowl and coupled to the preceding section by a movable joint, the said pipe-sections and the joint being all provided with separate inlet and outlet conduits or passages.

595,533. DENTAL CUSPIDOR. DENNIS S. DOYLE, Philadelphia, Pa., assignor to William W. Doyle, same place. Filed May 10, 1897. Serial No. 635,907. (No model.)



Claim.—1. Dental cuspidor apparatus, consisting of a standard, a double conduit supported by said standard, an inlet-pipe for one division of the conduit, an exit-pipe for the other division of the conduit, and a bowl having depending tubes or pipes telescopically arranged within the upper portions of said divisions; substantially as described.

2. Dental cuspidor apparatus, consisting of a standard, a double conduit supported by said standard, an inlet-pipe for one division of the conduit, an exit-pipe for the other division of the conduit, a bowl having depending tubes or pipes telescopically arranged within the upper portions of said divisions, and gearing for positively raising or lowering the bowl; substantially as described.

3. The combination with a dental cuspidor-bowl having an exit or waste pipe, and a water-supply inlet-pipe, of a double conduit in which said pipes fit and in which they are vertically movable and adjustable, a rack connected to the bowl, and a pinion for operating the rack; substantially as described.

4. The combination with a dental cuspidor-bowl having an exit or waste pipe, and a water-supply inlet-pipe, of a double conduit in which said pipes fit and in which they are vertically movable and adjustable, a rack connected to the bowl, a pinion for operating the rack, and a tool-shelf attached to the bowl and moving with it; substantially as described.

5. The combination with a dental cuspidor-bowl having an exit or waste pipe, and a water-supply inlet-pipe, of a double conduit in which said pipes fit and in which they are vertically movable and adjustable, a rack connected to the bowl, a pinion for operating the rack, a tool-shelf attached to the bowl and moving with it, and a guide-rod upon which the tool-shelf bracket is in part supported.

6. The combination with the standard, of the pipe having an enlarged end fitting with the standard, said enlarged end having an annular channel, a water inlet-pipe communicating with said channel through the side of the standard, a screw-cap, and packing between the screw-cap and said enlarged end; substantially as described.

7. The combination with the standard having an internal shoulder, of packing resting upon said shoulder, the pipe having an enlarged end resting upon said packing, said enlarged end having an annular channel, a water inlet-pipe communicating with said channel through the side of the standard, a screw-cap, and packing between the screw-cap and said enlarged end; substantially as described.

595,534. BALE-TIE. THOMAS C. EDMONSTON, Houston, Tex. Filed Dec. 29, 1896. Serial No. 617,342. (No model.)



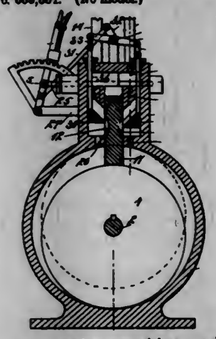
Claim.—A bale tie provided with a locking-plate formed with an aperture near each end, longitudinal grooves running into one of said apertures and diametrically opposed on opposite faces of the said plate, a bayonet slot in one of its sides and an angular slot on the opposite side, and a wire having one end extending through said grooved aperture and bent or doubled back through the other aperture, the other end of said wire being bent through said slots and transversely around said plate and forming a loop engaging the doubled-up part of the wire, as and for the purpose set forth.

595,535. BICYCLE-CRANK. JOHN E. EDWARDS, Melbourne, Victoria. Filed Sept. 5, 1896. Serial No. 605,004. (No model.)



Claim.—In a crank attachment for cycles, bicycles, &c., the combination of a crank, a pedal-carrier pivoted at the end of the crank, a pedal mounted on the end of said carrier, a spring secured to said carrier and to a point on said crank for throwing the pedal inwardly toward the crank, an arm extending at right angles from said carrier and provided with a screw-threaded aperture, and a set-screw in said aperture arranged to abut against the said crank and adjust the extent of the vibrations of said carrier.

595,536. ROTARY ENGINE. RILEY D. FASSETT, Harris, Mo., assignor to himself and Groves R. Strong, same place. Filed June 8, 1897. Serial No. 639,831. (No model.)



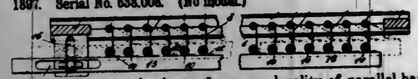
Claim.—1. A rotary engine comprising a cylinder, a shaft extended through the cylinder, a circular piston eccentrically mounted on the shaft, a slide-valve for controlling ports leading into the cylinder, an expansion-regulating valve, a lever having connection with both of said valves whereby they may be operated together and an abutment held against the piston, substantially as specified.

2. A rotary engine, comprising a cylinder, a shaft extended through the same, piston disks eccentrically mounted on the shaft, a partition-disk mounted to rotate with the shaft between the pistons, a housing on the cylinder, abutments movable vertically in said housing and engaging with the pistons, a partition dividing the housing into compartments, the said partition having ports extended through it, a slide-valve for regulating said ports, expansion-regulating valves at opposite sides of the abutments, a lever, and connections between said lever and slide-valve and also between the lever and regulating-valves, whereby all of the valves are operated together by said lever, substantially as specified.

3. A rotary engine, comprising a cylinder, a shaft extended

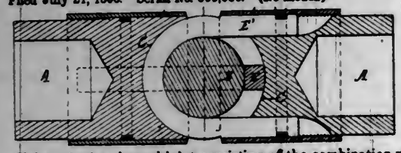
through the same, piston-disks eccentrically mounted on the shaft, a housing on the cylinder, abutments movable in said housing and engaging with the pistons, the said abutments being provided with steam-ways on their opposite sides, a partition dividing the housing into two chambers, the said partition having vertical ports providing communication between the chambers and also having cross-ports providing communication between the chambers, a slide-valve having ports adapted to register with the first-named ports, a lever with which said slide-valve is connected, expansion-regulating valves at opposite sides of the abutments, walking-beams with which said regulating-valves are connected, an arm extended from the shaft of said walking-beams, and a connection between said arm and the slide-valve-operating lever, substantially as specified.

595,537. SIEVE. HENRY FOESKE, Crofton, Nebr. Filed May 25, 1897. Serial No. 638,006. (No model.)



Claim.—A screen having a frame, a plurality of parallel bars held rigidly by the frame, a plate for each bar, the plates having their upper edges tubulated to loosely receive the bars whereby the plates are hung pendent from the bars, a series of additional bars the lower edges of the plates being tubulated respectively to loosely receive the bars, a rod run transversely with reference to the bars, a series of clips attached to the rod and loosely receiving intermediate portions of the last-named bars, and means for holding the rod adjusted with reference to the frame.

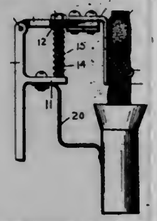
595,538. UNIVERSAL JOINT. LEVI S. GARDNER, New Orleans, La., assignor to the Gardner Motor Company, Limited, same place. Filed July 21, 1896. Serial No. 599,986. (No model.)



Claim.—1. A universal joint consisting of the combination with the two adjacent ends of the shaft each of said ends having a concave surface, of a ball between said concave shaft ends, each shaft held to the ball by a U-shaped strap passing around the ball and detachably engaged to the end of the shaft, each strap being in a plane at right angles to the other, substantially as described.

2. A universal joint consisting of the combination with the two adjacent ends of the shafts each of said ends having a concave surface, a ball between said shaft ends and fitting the concave surface of each, each shaft held to the ball by a U shaped strap passing around the ball and countersunk therein, the open end of said U-shaped strap being engaged to the shaft and each strap being in a plane at right angles to the other substantially as described.

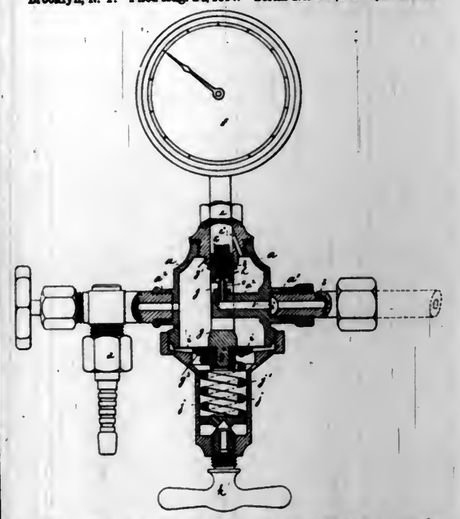
595,539. OILING DEVICE FOR PILE-WIRES OF LOOMS. JOSEPH S. GILES, Worcester, Mass., assignor to Matthew J. Whittall, same place. Filed Sept. 26, 1896. Serial No. 607,093. (No model.)



Claim.—1. The combination in a loom of the wires, the hook for catching and withdrawing the same, a distributing-wheel interposed in the path traveled by said wires, in a position to engage the under sides thereof, an oil fountain or can, wicking for raising the oil from the oil-fountain to said wheel, and means for moving the wheel from its normal position so that the same will clear the hook, substantially as described.

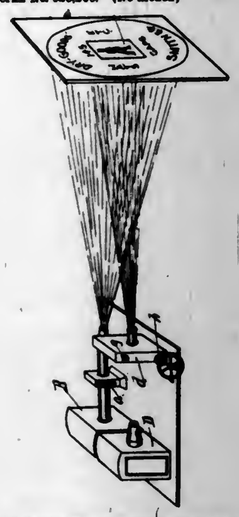
2. In a loom, the combination of the wires, a hook for catching and withdrawing the same, a distributing-wheel having a fibrous covering or bushing, a spring for normally holding said distributing-wheel in position to engage the wires as they are withdrawn, a cam mounted on the carriage of the loom for depressing said distributing-wheel, an oil fountain or can having a drip-flange for catching surplus oil, and a double strand of wicking for transferring oil from the oil-fountain to the distributing-wheel, substantially as described.

595,540. FLUID-PRESSURE REGULATOR. AUGUST HEITKOKER, Brooklyn, N. Y. Filed Aug. 24, 1897. Serial No. 649,292. (No model.)



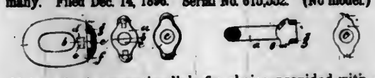
Claim.—In a pressure-regulator, the combination of a valve-casing with a nozzle, a diaphragm, a yoke connected thereto and having a tubular stem, an interior screw engaging such stem, a valve secured to the screw, a tubular guide surrounding the yoke-stem, and a spring seated upon such stem, substantially as specified.

595,541. ADVERTISING APPARATUS. JAMES H. HOLLEN, Providence, R. I., assignor to William L. Plaisted, Johnston, R. I. Filed Mar. 19, 1897. Serial No. 628,260. (No model.)



Claim.—An advertising apparatus consisting of a magic lantern with slides or views having dark spaces reserved on them, a screen therefor, in combination with an auxiliary lantern having a belt of films with views on them to be projected on the dark spaces on the screen, with means for moving said belt of films, substantially as described.

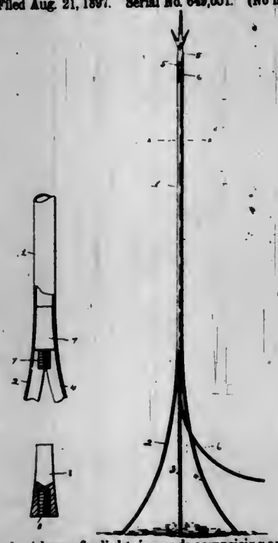
595,542. CONNECTING-LINK. OTTO KLATTE, Neuwied, Germany. Filed Dec. 14, 1896. Serial No. 615,552. (No model.)



Claim.—1. A connecting-link for chains provided with projections and with corresponding grooves to receive said projections, combined with means for holding the link together, the same comprising a screw and a nut or internally-screw-threaded portion, the link when closed having substantially the form of an ordinary chain-link.

2. A connecting-link for chains, one reinforced or strengthened end of which being split and having formed thereon a bipartite screw-threaded projection, combined with a winged nut screwed upon said projection the cut surfaces of the link being secured together by dovetailing or tongue-and-groove connections.

595,543. TUBULAR TRIPOD-BRACE FOR LIGHTNING-RODS. GEORGE R. KEBBS, Pittsburg, Pa., assignor to D. W. Dearing, same place. Filed Aug. 21, 1897. Serial No. 649,051. (No model.)



Claim.—1. A brace for lightning-rods comprising an upright tube incasing the end of the conductor-cable and legs at its lower end whereby it is secured to the building, substantially as set forth.

2. A brace for lightning-rods comprising an upright tube incasing the end of the conductor-cable with legs formed at its lower end whereby it is secured to the building, substantially as set forth.

3. A tripod-brace for lightning-rods which comprises an upright tubular body having legs formed at its lower end, said body and legs being formed of one piece, substantially as set forth.

4. A tripod-brace for lightning-rods, which comprises an upright tubular body having legs formed at its lower end and a bur-plug secured within the said tubular body whereby connection is made with the conductor-cable, substantially as set forth.

595,544. SINK. WILLIAM LOVE, Bryn Mawr, Pa. Filed Apr. 14, 1897. Serial No. 632,177. (No model.)



Claim.—1. A sink cast in a single piece consisting of bottom, front and side walls, and a back extending upwardly at right angles to the bottom and above the other walls, vertical casings formed on the back to inclose the water-pipes, said casings being cut away from the back near their tops, couplings having flat rear walls, each also having a vertical passage therethrough with a second passage leading from the first-named passage, the ends of the passages being screw-threaded, a downwardly projecting flange formed on the coupling and inclosing the top of the casing, the top of the casing fitting against a shoulder in the coupling, plugs threaded in the upper ends of the vertical passages, and means for securing the couplings to the back of the sink, as and for the purpose described.

2. In a device of the character described, a sink body and back formed together, said back having ways formed therein for inclosing water-supply pipes, the wall at the top of the ways being recessed or cut away to form a shoulder, couplings having flat rear walls fitting in the recess, said rear walls of the coupling being of greater length than the front walls of the coupling, a shoulder formed on the boss at the front of the coupling fitting against the end of the casing, as and for the purpose set forth.

595,545. RANGE-BOILER. EDWARD J. MCCABE, Paterson, N. J. Filed May 19, 1897. Serial No. 637,199. (No model.)



Claim.—1. A boiler consisting of a cylindrical body provided near its end with an annular shoulder, a strengthening-ring in the end portion of the boiler, a cap on said end portion and bearing with its annular flange upon said end portion and with its inwardly-bent flange against the shoulder in the body of the boiler, said annular flange and inwardly-bent flange of the cap conforming to the shape of the end portion of the boiler and its shoulder respectively, and an annular band or ring surrounding the cap and conforming to the shape of latter and provided with an inwardly and downwardly bent flange bearing against the inwardly-bent flange of the cap and against the adjoining portion of the cylindrical body of the boiler respectively, substantially as and for the purposes described.

2. A boiler consisting of a cylindrical body provided near its end with an annular shoulder, a strengthening-ring in the end portion of the boiler, a cap on said end portion and bearing with its annular flange upon said end portion and with its inwardly-bent flange against the shoulder in the body of the boiler, said annular flange and inwardly-bent flange of the cap conforming to the shape of the end portion of the boiler and its shoulder respectively, an annular band or ring surrounding the cap and conforming to the shape of the latter and provided with an inwardly and downwardly bent flange bearing against the inwardly-bent flange of the cap and against the adjoining portion of the cylindrical body of the boiler respectively, and a layer of solder covering the bottom of the cap and having the end portion of the boiler embedded therein, substantially as and for the purposes described.

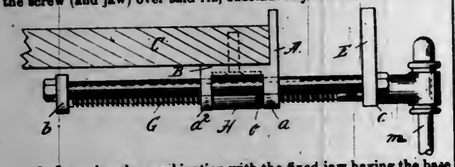
3. A range-boiler consisting of a cylindrical body provided near its end with an annular shoulder, a strengthening-ring within the end portion of the boiler and conforming to the shape thereof, a cap on the said end portion and bearing with its inwardly-bent flange against the annular shoulder of the boiler, an annular ring projecting inwardly from said head or cap and engaging between the end portion of the boiler and the strengthening-ring, substantially as and for the purposes described.

4. A range-boiler consisting of a cylindrical body provided near its end with an annular shoulder, a strengthening-ring within the end portion of the boiler and conforming to the shape thereof, a cap on the said end portion and bearing with its inwardly-bent flange against the annular shoulder of the boiler, an annular ring projecting inwardly from said head or cap and engaging between the end portion of the boiler and the strengthening-ring, and a band or ring surrounding said cap or head and conforming to its shape and bearing with its annular flange against the body of the boiler, substantially as and for the purposes described.

595,546. QUICK-ACTING VISE. WILLIAM J. O'BRIEN, Holyoke, Mass. Filed Sept. 25, 1897. Serial No. 652,949. (No model.)

Claim.—1. In a vise, the combination with the fixed jaw, of the movable jaw and guides and supports therefor, the feed-screw engaged and bodily movable with the movable jaw and having a longitudinal groove, the threaded segment or half-nut movable transversely relative to the screw, and having the rib *i* so arranged that as the nut moves from engagement with the screw, the said rib will assume its position within said groove of the screw, substantially as described.

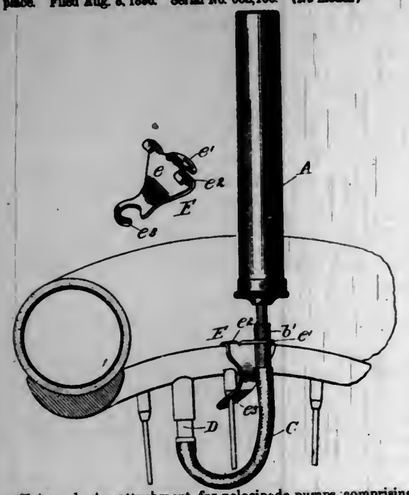
2. In a vise, the combination with the fixed jaw having base B provided with an abutment member *a*, of the movable jaw and guides and supports therefor, the feed-screw engaged to move bodily with the movable jaw and to rotate relative thereto and provided with the spline-groove *d* of ratchet form, the threaded segment or half-nut movable and adapted to engage and disengage the screw, and having its end against said abutment member, and provided with the rib ranging parallel with the screw, and adapted on the disengagement of the threads of the nut from the screw to have said rib assume a position in said groove, preventing the turning of the screw in reverse of its jaw-closing direction, but permitting the sliding of the screw (and jaw) over said rib, substantially as described.



3. In a vise, the combination with the fixed jaw having the base B formed with the depression *n* in its under side provided with the opposite sets of ear-lugs *a* a^3, of the movable jaw and the guide-rods D D movable through holes therefor in said ear-lug, the feed-screw engaged to move bodily with the movable jaw, and to rotate relative thereto, and provided with the spline-groove *d* of ratchet form, the threaded segment or half-nut movable on the base of said depression *n*, and adapted to engage and disengage the screw, and having its end against one of said ear-lugs *a*, and provided with the rib ranging parallel with the screw, and adapted, on the disengagement of the threads of the nut from the screw to have said rib assume a position in said groove, substantially as and for the purposes set forth.

4. In a vise, the combination with the fixed jaw, of the movable jaw and guides and supports therefor, the feed-screw engaged and bodily movable with the movable jaw and having a longitudinal groove, the threaded segment or half-nut movable transversely relative to the screw, and having the rib *i* so arranged that as the nut moves from engagement with the screw, the said rib will assume its position within said groove of the screw, and a spring for forcing said nut in a direction away from the screw, substantially as described.

595,547. ATTACHMENT FOR VELOCIPEDE-PUMPS. ELWOOD C. PHILLIPS, Chicago, Ill., assignor of one-half to Giles A. Stanley, same place. Filed Aug. 8, 1896. Serial No. 602,166. (No model.)



Claim.—1. An attachment for velocipede-pumps comprising a pump-supporting portion adapted to form an abutment in opposition to the forward end thrust of the pump; and a clip or clamping portion arranged to engage the wheel and bind thereon so as to oppose both the longitudinal movement and side swinging motion of the pump when the latter and said attachment are in use.

2. An attachment for velocipede-pumps having a bearing portion adapted to engage the wheel-rim; a pump-supporting portion forming an abutment in opposition to the forward end thrust of the pump when the pump and attachment are in use; and a portion formed to engage a spoke of the wheel or the nipple of the tire.

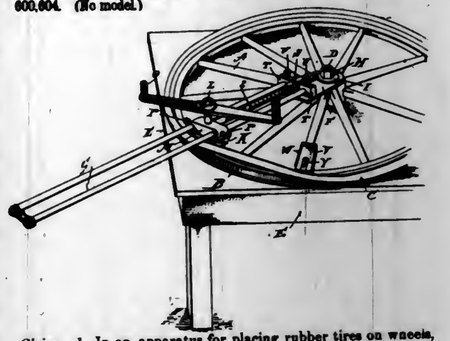
3. The combination with a pump for inflating velocipede-tires, of an attachment therefor comprising a pump-supporting portion engaging the nozzle end of the pump and forming an abutment in opposition to the forward end thrust of the pump, and a clip or clamping portion arranged to engage the wheel and bind thereon so as to oppose both the longitudinal movement and the side swing of the pump when in use.

4. A pump attachment for the purpose set forth comprising a plate provided with claws for engaging the wheel-rim, an eye for engaging a spoke or the tire-nipple, and an aperture for receiving a threaded end of the piston or a threaded nozzle on the pump-barrel.

5. An attachment for velocipede-pumps comprising a pump-supporting portion adapted to form an abutment in opposition to the forward end thrust of the pump; a bearing portion adapted to engage the outer edge of the wheel-rim, so as to oppose the longitudinal movement on the part of the pump; and a portion engaging the wheel-rim at a point within its outer edge, and forming a brace against the tendency on the part of the pump to swing from side to side, as set forth.

6. The combination with a pump for inflating pneumatic tires on wheels, of an attachment comprising a clip adapted for engaging the wheel-rim and forming a support for the pump, said clip being formed to engage and bear upon the wheel-rim and to extend under the same.

595,548. APPARATUS FOR PLACING TIRES ON WHEELS. JAMES G. ROGERS, Springfield, Ohio. Filed July 27, 1896. Serial No. 600,604. (No model.)



Claim.—1. In an apparatus for placing rubber tires on wheels, the combination with a lever adapted to be mounted on a central stud and to be swung along the wheel-rim and having a wheel to engage the tire, of a stationary stop-block detachably secured to the outer part of the wheel and arranged to hold against the inner side of the tire and prevent the springing of the tire from out of the rim, substantially as shown and described.

2. In an apparatus for placing rubber tires on wheels, a lever adapted to be mounted on a central stud, a wheel mounted on the lever, and means to positively rotate said wheel on its own axis as the lever is swung on said center, and a stationary stop-block adapted to resist the springing of said tire out of the rim.

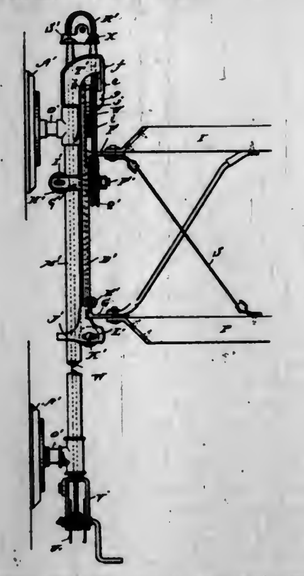
3. In an apparatus for placing rubber tires on wheels, the combination with a lever having a slidable head, means to fix the same, and an adjustable screw-shaft, a wheel mounted on the shaft carried by said head, and a crank on said shaft to rotate said wheel, the lever being adapted to be mounted on a central stud, of a stop-block having a hook to engage with the vehicle-wheel and a plate to engage with the spoke and adapted to resist a tire.

4. In an apparatus for placing rubber tires on wheels, the combination with a lever consisting of a plate, projections on the plate, rods carried by said projections, a head slidable on the rods, a shaft rotatable in the head, a crank on one end of the shaft and a wheel on the other, a screw-threaded shaft engaging with the head and having a nut engaging with the projections on the plate, of a stop-block having a hook to engage with the channel-iron, and a plate to engage with a spoke, to resist the tire.

595,549. EXHIBITING APPARATUS. PETER ROUSE, Jr., and HENRY ROUSE, Greenfield, Ohio. Filed Dec. 14, 1896. Serial No. 615,585. (No model.)

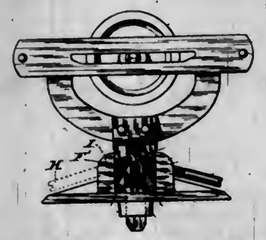
Claim.—1. In a display apparatus, the combination with a fixed bracket and a movable bracket mounted thereon and adapted to swing sidewise and carrying upper and lower plates, of an upper set of arms and a lower set of arms pivoted to said plates respectively and braces from the upper arms to the lower plate and from the lower arms to the upper plate.

2. In a display apparatus, the combination with a fixed bracket and a movable bracket mounted thereon and adapted to move up and down and to swing sidewise, a windlass, a rope and suitable sheaves therefor to adjust the movable bracket, a hook and a cam construction to automatically engage and disengage the movable bracket with and from the hook, and upper and lower plates carried by the movable bracket, of an upper set and a lower set of arms pivoted to said plates, and suitable braces for said arms.



3. In a display apparatus, a rack or arm, a background-sheet carried thereby, and cords supported by said arm and adapted at one end to be secured to goods supported by and displayed on said arm so as to raise said goods and form folds therein.

595,550. DOOR-HANGER. PHILIP L. SHERIDAN, Milwaukee, Wis., assignor to the Stowell Manufacturing and Foundry Company, same place. Filed Aug. 9, 1897. Serial No. 647,514. (No model.)

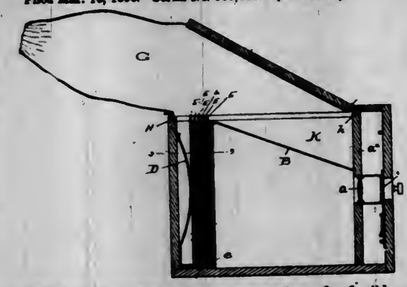


Claim.—1. The combination, of a hanger-frame having a downwardly-extending stem formed on its face with an inclined lug, a plate adapted to be connected to the top edge of a door, and provided with upwardly-extending wings between which the stem passes, and a screw adapted to turn through one of said wings and bear against the inclined lug.

2. The combination, of a hanger-frame having a downwardly-extending stem provided with oppositely-inclined lugs, a plate adapted to be secured to the top edge of a door, said plate provided with upwardly-extending wings, between which the stem is adapted to fit, and a screw adapted to turn through either of said wings, and to bear against either of the inclined lugs.

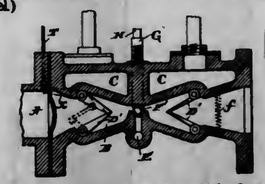
3. The combination, of a hanger-frame, having a downwardly-extending stem, provided on one face with oppositely-inclined lugs converging toward, and meeting at, their upper ends, to form an inverted-V shape, a plate adapted to be secured to the top edge of a door, said plate provided with upwardly-extending wings between which the stem is adapted to fit, and a screw adapted to turn through either of said wings, and to bear against either of the inclined lugs.

595,551. PHOTOGRAPHIC CAMERA. JOHN I. ATWATER, Western Springs, Ill., assignor to the Vive Camera Company, Chicago, Ill. Filed Mar. 16, 1896. Serial No. 583,391. (No model.)



Claim.—The combination in a camera-box of a flexible changing-sleeve open at both ends, the inner end attached to the box under the lid, with the lid adapted to shut down over the sleeve when the latter is drawn out so as to exclude the light while inserting the hand into the sleeve or withdrawing it therefrom, substantially as specified.

595,552. GASOLENE-MOTOR. DONÁT BÁNKI and JOHN CSONKA, Buda-Pesth, Austria-Hungary. Filed Nov. 30, 1896. Serial No. 614,020. (No model.)

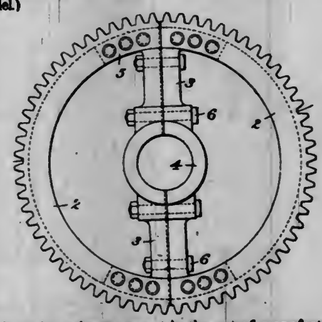


Claim.—1. In a gasolene-engine, having the Otto circle, an atomizer, which is placed in the air-inlet and characterized by one or more openings in the air-pipe for the introduction of gasolene having the level of the fluid at a constant height, the efflux area of which is regulated by adjustable cones, having longitudinal borings through which atomizing-air is brought into the fluid by the suction.

2. In an explosive-engine, the combination with the air-supply pipe or inlet of an atomizer therein for introducing gasolene, and a check-valve in the air-pipe in rear of said atomizer comprising the pivoted plates having extensions or arms, and the spring connecting said arms for holding the plates together to close the opening and permitting them to separate under pressure of the air, substantially as described.

3. In an explosive-engine, the combination with the air-supply pipe or inlet, of the atomizer for the injection of gasolene therein, the spring-pressed pivoted plates forming a check-valve in rear of said atomizer, and the pivoted plates in front of said atomizer forming a throttle-valve and adapted to be operated by a suitable governor, substantially as described.

595,553. MANUFACTURE OF GEAR-WHEELS. DAVID S. RUSSELL, Pittsburg, Pa. Filed Feb. 15, 1897. Serial No. 623,399. (No model.)



Claim.—As an improvement in the art of manufacturing gear-wheels, the method herein described, which consists in shaping a blank by rolling or forging, having a body portion with flanges along its edges, cutting the blank into sections of desired length, heating

said sections and bending them to the desired curvature, securing the flanges to a centering-support as the hub and spokes and finally forming teeth in body portion forming the rim or felly, substantially as set forth.

595,554. CORSET. IDA M. BOND, Montclair, N. J. Filed Mar. 22, 1897. Serial No. 628,699. (No model.)



Claim.—1. As a new article of manufacture, a corset having a yielding hip portion, comprising a recessed hip-section, two or more pieces of elastic material arranged diagonally with respect to each other, and secured along the edges of said recess, the lines of draft of said pieces against the adjacent edges of the corset-body diagonally crossing each other.

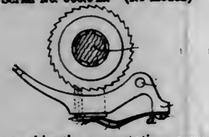
2. As a new article of manufacture, a corset having yielding hip portions, comprising recessed hip-sections, the inner edge of each recess being curved upwardly, a plurality of elastic pieces secured in said recessed sections along the side and inner edges thereof, said elastic pieces being arranged diagonally with respect to each other, so that the lines of draft of the several pieces against the adjacent edges of the corset-body will diagonally cross each other.

595,555. STORE-SERVICE TROLLEY TRACK. STEPHEN J BRENNAN, Holyoke, Mass. Filed Dec. 10, 1896. Serial No. 615,212 (No model.)



Claim.—A store-service trolley-track comprising one or more wire tracks, anchor-brackets for each end of said tracks, a ladder and trolley secured thereto for engagement with said tracks, and means applied between the said anchor-brackets for tightening said wires consisting of the arm 7, pivoted by one end above said tracks, and the opposite end thereof engaging said tracks, and means for forcibly moving said arm from an inclined position relative to said tracks to a position more nearly at right angles thereto, substantially as described.

595,556. PAWL. HERBERT H. BUFFUM, Abington, Mass. Filed Sept. 25, 1896. Serial No. 606,942. (No model.)

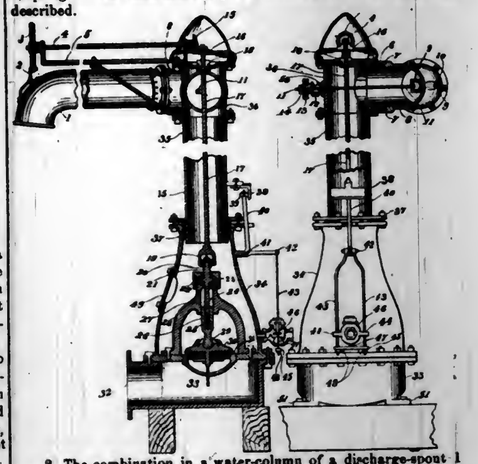


Claim.—1. In combination, a rotating screw-shaft, a ratchet having internal threads to receive the screw-shaft, a pivoted pawl, movable toward and from said ratchet, a spring for drawing said pawl yieldingly toward the ratchet, a series of differentially-spaced teeth slidably mounted in said pawl, and a spring for said teeth, substantially as described.

2. In combination, a rotating screw-shaft, a ratchet having internal threads to receive the screw-shaft, a pivoted pawl, movable toward and from said ratchet, a spring for drawing said pawl yieldingly toward the ratchet, a series of differentially-spaced slides mounted in said pawl with their faces longitudinally thereof, each slide having two or more teeth to engage two or more teeth of the ratchet, and a spring for said slides, substantially as described.

595,557. WATER-COLUMN. EPHRAIM D. CAIN, Weatherby, Mo. Filed Apr. 26, 1897. Serial No. 633,930. (No model.)

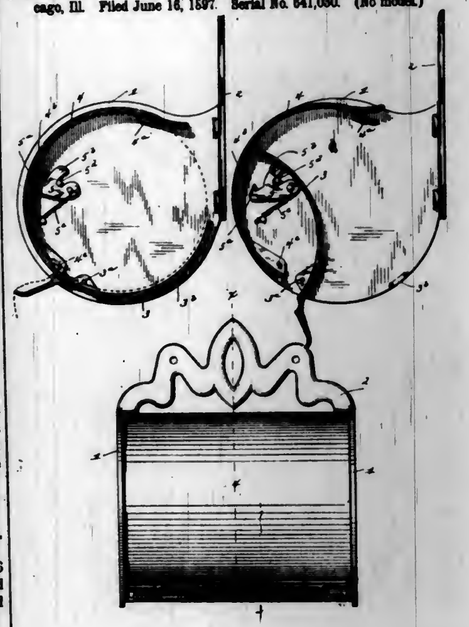
Claim.—1. In a water-column the combination with the T 36 of the discharge-spout 1 arranged to have its delivery end raised and lowered and its elbow 8 to rotate in joint 6 said joint being provided with packing 7 and held in place and elastically tightened by swivel 9, spring 50 and intermediate parts, substantially as set forth and described.



2. The combination in a water-column of a discharge-spout 1 with inside elbow 8 rotating in swing-joint 6 with packing 7, swivel 9 engaging rod 11, spring 50 for the purpose of automatically taking up the wear on joint 6 and packing 7, together with wheel 3 and hook 2 for disengaging the delivery end of spout 1, bracket 5 and shaft 4 carrying miter-gear 15 engaging miter-gear 16 and driving vertical shaft 17 passing through stuffing-box 18 and having square socket-wrench 19 rotating nut 20, driving valve-stem 21 held in place by shoulder 22 rotating in bonnet-nut 23, the threaded end of valve-stem 21 engaging perforation 25 in the square valve-nut 26, square perforation 27, yoke 28, seat 31 and valve 30, ball-joint 29, valve-chamber 34 and the upright main pipe 35 and T 36, substantially as described and for the purpose specified.

3. In a water-column a horizontal discharge-spout with delivery end that may be raised or lowered at will in combination with T 36, main pipe 35 and valve-chamber 34, and check 47 with connecting mechanism for automatically controlling the drainage, substantially as described and for the purpose specified.

595,558. TOILET-PAPER HOLDER. WALTER H. CLARKE, Chicago, Ill. Filed June 16, 1897. Serial No. 641,090. (No model.)

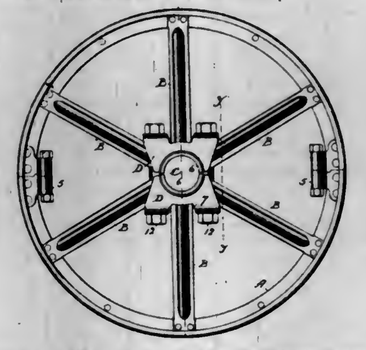


Claim.—1. A toilet-paper holder comprising two movable parts adapted to inclose a roll or package of the paper, and a latch to lock one of the said parts to inclose the roll that is accessible only when the holder is empty or the roll therein is reduced in size.

2. A toilet-paper holder comprising side pieces, two movable parts 3 and 4 to inclose a roll pivoted between said side pieces, and a latch to lock one of said parts operative by the other only when the roll is exhausted or greatly reduced in size.

3. A toilet-paper holder comprising two side pieces, a back piece, a bottom piece pivoted to said side pieces, and a lid or top piece also pivoted to said side pieces, a latch adapted to lock the lid within the side pieces, adapted to be operated by the bottom piece, substantially as described.

595,559. PULLEY. THOMAS CORSCADEN, New Britain, Conn., assignor to the American Pulley Company, Philadelphia, Pa. Filed May 11, 1897. Serial No. 636,000. (No model.)

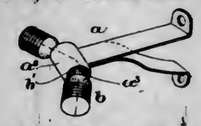


Claim.—1. The herein-described hub-clamp, having a central perforation to receive the spoke-arm, and two bearing ends adapted to bear respectively upon the opposite ends of the pulley-hub, substantially as described and for the purpose specified.

2. In a divided pulley, the combination of the hub and spoke-arms with the straddle hub clamps secured upon said arms, to span the length of the hub and clamp the hub upon its ends, outside of the spokes, substantially as described and for the purpose specified.

3. The combination of a pulley having spoke-arms arranged in pairs, separated from each other near the hub, and the clamps adapted to span the hub and bear upon the opposite ends thereof, and bolts for said hub-clamps passing through the ends thereof and between the two members of the spokes, substantially as described and for the purpose specified.

595,560. CURTAIN-ROD BRACKET. ELMER H. CRAM, Wakefield, Mass. Filed Mar. 31, 1897. Serial No. 630,105. (No model.)

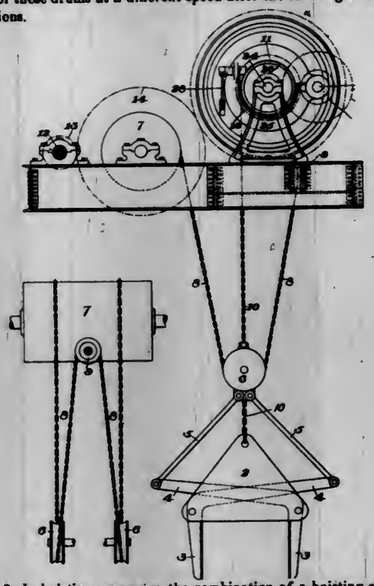


Claim.—An appliance of the character specified, comprising, first, a bracket formed at one end for attachment to a wall or casing and having at its other end a socket provided at opposite points with mouths or orifices which are smaller than the interior of the socket; and secondly, two terminal members having means for attachment to the ends of rods or poles, and substantially spherical enlargements of greater diameter than said orifices, the said enlargements being located within the socket and adapted to turn therein, and bearing against each other to prevent inward displacement of either enlargement.

595,561. HOISTING DEVICE. ALVA C. DINKEY, Munhall, Pa. Filed Nov. 23, 1896. Serial No. 613,724. (No model.)

Claim.—1. In hoisting apparatus, the combination of a hoisting-chain, a hoisting-drum over which the said chain passes, a carrying mechanism entirely supported by the hoisting-chain, an auxiliary operating-chain connected to and actuating the carrying mechanism, a winding-drum over which the operating-chain passes, actuating connections between the two drums, and means for changing the speed of one of these drums to draw or slacken the operating-chain.

2. In hoisting apparatus, a hoisting-chain, a hoisting-drum over which said chain passes, a carrying mechanism entirely supported by the hoisting-chain, an auxiliary operating-chain connected to and actuating the carrying mechanism, a winding-drum over which the operating-chain passes, actuating connections between the two drums, means for severing said actuating connections, and means for driving one of these drums at a different speed after the severing of the connections.



3. In hoisting apparatus, the combination of a hoisting-chain, a hoisting-drum over which the said chain passes, an operating-chain, a winding-drum over which the operating-chain passes, said winding-drum being loose upon its shaft, actuating connections between the hoisting-drum and the winding-drum shaft, a clutch arranged to connect the winding-drum with its shaft, and a motor arranged to drive the winding-drum when the clutch connection is severed.

4. In hoisting apparatus, a hoisting-chain, a hoisting-drum over which said chain passes, an operating-chain, a winding-drum over which the operating-chain passes, said winding-drum being loose upon its shaft, gear connections between the main drum and the winding-drum shaft, a rotary electric motor secured to the winding-drum shaft, said motor having a clutch connection with its armature-shaft, and actuating connections between the armature-shaft and the winding-drum.

595,562. CHANGE-GEAR LATHE. ERNEST J. FLATHER, Nashua, N. H. Filed June 11, 1897. Serial No. 640,317. (No model.)

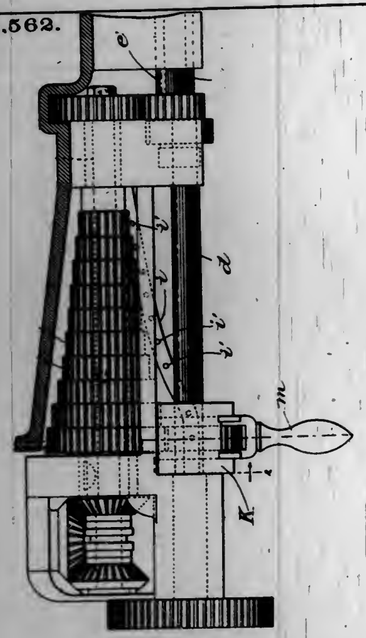
Claim.—1. In combination, a cone-gear, a driving-shaft, a driving-pinion on said shaft, an idler-gear in constant mesh with said pinion, and an eccentric lever for throwing the idler into and out of mesh with the cone-gear, the said lever having a pivot which moves concentrically with the driving-shaft, and a fulcrum which moves concentrically with the idler-gear.

2. In combination, a cone-gear, a fixed diagonal rib or guide, a driving-shaft, a frame arranged to slide on said shaft and permanently engaged with said rib, a sliding gear splined to said shaft and embraced by the frame, an idler-gear embraced by said frame, and an eccentric or cam having a shifting bearing in said frame, and arranged to throw said idler-gear into and out of mesh with the cone-gear.

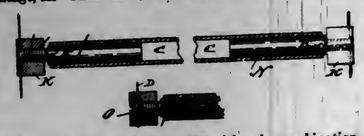
3. In combination, a cone-gear, a driving-shaft, a sliding frame, a gear splined to said shaft and embraced by said frame, an idler-gear, a handle provided with an eccentric, or cam, for throwing said idler-gear into and out of mesh with the cone-gear, and means for locking the sliding frame in successive positions, said means comprising a series of sockets, a pin carried by the frame and adapted to enter any of said sockets, and a cam actuated by the handle and adapted to force said pin into the sockets.

4. In combination, a cone-gear, a driving-shaft and a sliding traveler comprising a frame provided with fixed guides, a gear splined to the driving-shaft and embraced by said frame, an idler-gear, a forked handle lever embracing said idler-gear, eccentrics affixed to the forks of said handle-lever, and studs or trunnions projecting laterally from the said forks and having a bearing in slots formed in the sliding frame, whereby the oscillation of the handle-lever throws the idler-gear into and out of mesh with the cone-gear.

595,562.



595,563. SHADE OR CURTAIN FIXTURE. HENRY H. FORSYTH, Chicago, Ill. Filed Dec. 1, 1896. Serial No. 614,056. (No model.)

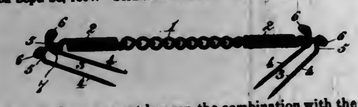


Claim.—1. A curtain-fixture, comprising in combination a metallic head having a vertical aperture to receive an operating band or cord, a second aperture bisecting the former, and a shank having a threaded portion protruding into said bisecting aperture and adapted to impinge the band or cord, whereby to clamp it to the head, substantially as described.

2. In a curtain-fixture, the combination with a tubular shade-stick of an endless operating-cord, an apertured head having the extremities of the cord overlapped and clamped therein, and a second head carried by the opposite end of the shade-stick and having an open slot and a clamping means, whereby it may be detachably connected with an opposite strand of said cord, substantially as described.

3. In a curtain-fixture, the combination with a head having an aperture to receive an operating cord or band and a movable clamping device adapted to be moved into contact with one side of said band or cord and the clamping-surfaces being of such contour as to deflect the portion of the cord embraced between them, substantially as described.

595,564. GARMENT-HANGER. CHARLES H. GARRIGUS, Bloomington, Ill., assignor of one-half to Matilda C. Garrigus, same place. Filed Sept. 20, 1897. Serial No. 652,331. (No model.)



Claim.—1. In a garment-hanger, the combination with the chain 1, of two coiled springs 2 attached at their inner ends to the ends of the chain, and double-pointed pins 3 provided with eyes 7, the outer ends of said coiled springs being fastened to said eyes, substantially as described.

2. In a garment-hanger, the combination with two pins each consisting of two parallel pointed shanks 4 having angular portions 5 and lateral bends or loops 6 and eye 7 formed parallel to said shanks, of a flexible and longitudinally yielding connection attached at its opposite ends to said eyes, substantially as described.

595,565. BARREL-MACHINE. LOUIS M. GREIF, Cleveland, Ohio. Filed Mar. 1, 1897. Serial No. 625,588. (No model.)



Claim.—1. In a machine for setting up and trussing kegs or the like, the combination with a vertically-movable platform, of a head-supporter also vertically movable and a bilge-supporter expansible and contractible, substantially as shown and described.

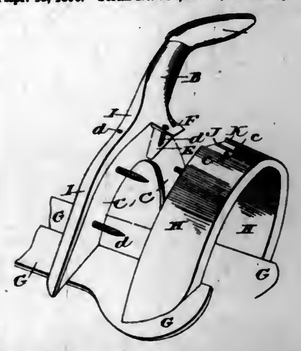
2. In a barrel-machine of the character described, the combination of a lower supporting-platform, an intermediate bilge-supporter adapted to be contracted or expanded, a head-supporter vertically adjustable, and a cable for surrounding the upper edge of the keg or barrel, said cable being operated so as to draw together the upper ends of the container and hold them in position until hooped.

595,566. CHECKREIN-HOOK. JOSEPH R. GUMP, Milan, Mich. Filed Dec. 14, 1896. Serial No. 615,668. (No model.)



Claim.—In a checkrein-hook, the combination with a base and securing means, of a substantially U shaped frame thereon, a shouldered locking-spring at or near one end of the frame, and a substantially C-shaped hook pivotally secured to the opposite branch of the frame, one end having a locking-shoulder thereon arranged to engage the shoulder of the spring and the opposite end being formed of a length sufficient to carry its end outward to a point to engage the said spring-shoulder and rest thereagainst when the hook is in its open position, substantially as described.

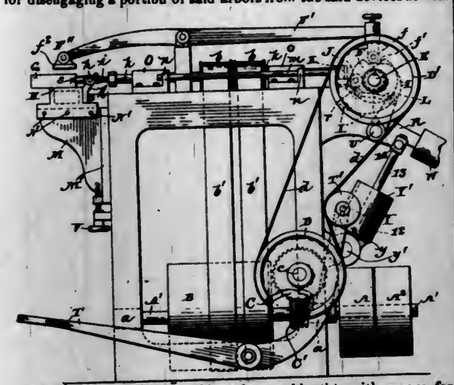
595,567. SADDLE-HORN. JAMES W. HAGGARD, Portland, Oreg. Filed Apr. 13, 1896. Serial No. 587,435. (No model.)



Claim.—An improvement in saddle-horns, as applied to riding-saddles, combining as set forth above, saddle-horn hollow, disk or projection, F, with rib or flange, E, in front of saddle-horn: rib or flange, D, in rear of saddle-horn: with legs or forks of saddle-horn, C, C, substantially as is hereinabove set forth and described.

595,568. BORING-MACHINE FOR DOWEL-DOORS. ELI B. HAYES, Oshkosh, Wis. Filed Mar. 12, 1896. Renewed June 26, 1897. Serial No. 642,531. (No model.)

Claim.—1. In a gang boring-machine, the combination of reciprocating bit-arbors, devices for reciprocating said arbors, and means for disengaging a portion of said arbors from the said devices at will.



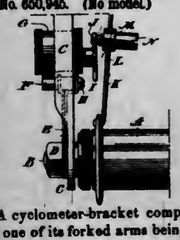
2. In a gang boring-machine, the combination with means for applying the power, of a stile or rail supporting table, reciprocating bit-arbors, devices for reciprocating said arbors, and means for disengaging a portion of said arbors from said devices at will, substantially as described.

3. In a gang boring-machine, the combination with means for applying the power and revolving the bits, of a gage-table and parallel rod attached to the same, spring-stops adjustably mounted on said rod, and an automatic clamping device operating to clamp rails or stiles securely against the table, substantially as described.

4. In a gang boring-machine, the combination with means for adjusting and clamping the rail or stile, of a bit-arbor-supporting frame, a cross-head adapted to be moved horizontally forward and back upon ways, arbors mounted on the cross-head and passing through the supporting-frame and carrying suitable bits, and means for disconnecting a portion of said arbors from the cross-head at will, substantially as described.

5. In a gang boring-machine, the combination with means for applying the power of a stile or a rail supporting table, a clamping device to hold the stile or rail upon the table, a bit-arbor-supporting frame, a reciprocating cross-head, bit-arbors carrying bits and connected to the cross-head, means for revolving the arbors and bits, a cam operating at each revolution to move the cross-head forward and cause the bits to enter the stile or rail, and means for disconnecting a portion of the bits from the cross-head at will, substantially as described.

595,569. CYCLOMETER. WILLIAM C. HOMAN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Sept. 8, 1897. Serial No. 650,945. (No model.)



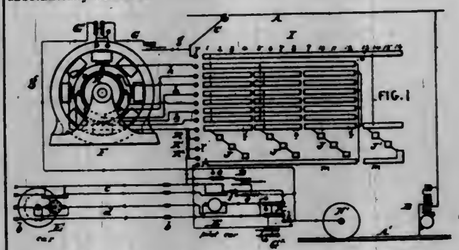
Claim.—1. A cyclometer-bracket comprising a bifurcated supporting member, one of its forked arms being offset at a greater distance than the other arm.

2. A supporting means for a barrel-cyclometer, comprising, a carrier projecting from one side of the barrel-body, a slot in said carrier and a bifurcated supporting-arm embracing that part of the carrier to one side of said slot.

3. A supporting means for a barrel-cyclometer, comprising, a carrier projecting from one side of the barrel body, a slot in said carrier about midway in its length, a bifurcated supporting-arm embracing that part of the carrier to one side of said slot, one of said forked arms being offset farther than the other, and a set-screw

595,570. CONTROLLING DEVICE FOR ELECTRIC RAILWAYS. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Oct. 12, 1897. Serial No. 654,937. (No model.)

Claim.—1. The combination of one or more electric motors, electric circuits leading from a source of electric energy and connecting with said motors for supplying current thereto, and a regulator in series with the motor or motors consisting of a counter-electromotive-force generator, comprising an armature revolving in fixed relation to field-magnets, one or more resistances, and a hand-switch for varying the counter electromotive force of the generator at intervals and then during the intervals inserting and removing from the circuit the said resistances while maintaining the counter electromotive force substantially constant.



2. The combination of one or more electric motors, electric circuits leading from a source of electric energy and connecting with said motors for supplying current thereto, a regulator in series with the motor or motors consisting of a counter-electromotive-force generator, one or more resistances, and a hand-switch for varying the counter electromotive force and inserting and removing from the circuit the said resistances, and means independent of said hand-switch for also varying the counter electromotive force.

3. The combination of one or more electric motors, electric circuits leading from a source of electric energy and connecting with said motors for supplying current thereto, a regulator in series with the motor or motors consisting of a counter-electromotive-force generator, one or more resistances, and a hand-switch for varying the counter electromotive force and inserting and removing from the circuit the said resistances, and a reversing-switch for simultaneously reversing one of the elements of all of the motors.

4. The combination of a motor-circuit containing a series of motors in parallel, means for simultaneously reversing one of the elements of each of the motors, a counter-electromotive-force generator interposed in the motor-circuit and comprising a series of separate coils moving in a magnetic field and in which are generated independent counter electromotive forces, a hand-controlled switch for coupling up the coils of the generator in series or parallel to vary the counter electromotive force, and means for varying the strength of the field of the counter-electromotive-force generator.

5. The combination of a motor-circuit containing a series of motors in parallel, means for simultaneously reversing one of the elements of each of the motors, a counter-electromotive-force generator interposed in the motor-circuit and comprising a series of separate coils moving in a magnetic field and in which are generated independent counter electromotive forces, a hand controlled switch for coupling up the coils of the generator in series or parallel to vary the amount of counter electromotive force, and one or more resistances adapted to be put into and out of circuit with the motors and in series with the counter-electromotive-force generator.

6. The combination of a motor-circuit containing a series of motors in parallel, means for simultaneously reversing one of the elements of each of the motors, a counter-electromotive-force generator interposed in the motor-circuit and comprising a series of separate coils moving in a magnetic field and in which are generated independent counter electromotive forces, a hand-controlled switch for coupling up the coils of the generator in series or parallel to vary the amount of counter electromotive force, one or more resistances adapted to be put into and out of circuit with the motors and in series with the counter-electromotive-force generator, and means under the control of the hand-switch for inserting and removing the said resistances successively with each change in the counter electromotive force.

7. The combination of a motor-circuit, one or more motors supplied with current thereby, a counter-electromotive-force regulator in the motor-circuit, and a hand-switch for varying the counter electromotive force and also cutting it out of circuit by completing the motor-circuit around the counter-electromotive-force generator when generating a counter electromotive force.

8. The combination of a motor-circuit, one or more motors supplied with current thereby, a counter-electromotive-force regulator in the motor-circuit, a hand-switch for varying the counter electromotive force and also cutting it out of circuit by completing the motor circuit around the counter-electromotive-force generator, and independent resistances adapted to be cut in and out in series with the

motor both when the counter-electromotive-force generator is in and out of operative circuit with the motors.

9. A motor-circuit supplying current to one or more motors, a counter-electromotive-force generator consisting of an armature revolving in a magnetic field the said armature comprising separate windings, a hand-switch for connecting the separate windings of the armature in series or parallel, and means for varying the strength of the field in which the armature-windings revolve.

10. In an electric railway, the combination of one or more cars, electric circuits arranged thereon and extending end to end and terminating in couplings, one or more electric motors on said cars having the armatures and field-magnets connected in separate circuits, a pilot-car provided with a motor-circuit leading from a source of energy and connecting with the circuits on the cars, a counter-electromotive-force regulator comprising an armature having a series of windings moving in a magnetic field on the pilot-car, and a hand-switch for coupling up the separate windings of the armature of the counter-electromotive-force generator in series or parallel to vary the current supplied to the motors.

11. In an electric railway, the combination of one or more cars, electric circuits arranged thereon and extending end to end and terminating in couplings, one or more electric motors on said cars having the armatures and field-magnets connected in separate circuits, a pilot-car provided with a motor-circuit leading from a source of energy and connecting with the circuits on the cars, a counter-electromotive-force regulator comprising an armature having a series of windings moving in a magnetic field on the pilot-car, a hand-switch for coupling up the separate windings of the armature of the counter-electromotive-force generator in series or parallel to vary the currents supplied to the motors, and a reversing-switch upon the pilot-car for simultaneously reversing one of the elements of each of the motors on the cars.

12. In an electric railway, the combination of one or more cars, electric circuits arranged thereon and extending end to end and terminating in couplings, one or more electric motors on said cars having the armatures and field-magnets connected in separate circuits, a pilot-car provided with a motor-circuit leading from a source of energy and connecting with the circuits on the cars, a counter electromotive-force regulator comprising an armature having a series of windings moving in a magnetic field on the pilot-car, one or more resistances on the pilot-car, and a hand switch for coupling up the separate windings of the armature of the counter-electromotive-force generator in series or parallel and to cut in and out the said resistances with the several changes of the counter electromotive force to vary the currents supplied to the motors whereby a large variety of changes in speed is secured.

13. In an electric railway, the combination of one or more cars, electric circuits arranged thereon and extending end to end and terminating in couplings, one or more electric motors on said cars having the armatures and field-magnets connected in separate circuits, a pilot-car provided with a motor-circuit leading from a source of energy and connecting with the circuits on the cars, a counter-electromotive-force regulator comprising an armature having a series of windings moving in a magnetic field, a hand-switch on the pilot-car for coupling up the separate windings of the armature of the counter-electromotive-force generator in series or parallel and also to cut the counter-electromotive-force-generator windings out of operative electric circuit by completing the motor-circuit around them, finally to remove the resistances to the flow of the current through the motors after their speed has been attained, the whole operating to vary the currents supplied to the motors.

14. In an electric railway, the combination of one or more electric motors on a train supplied with current from a source of energy by a motor-circuit, a counter-electromotive-force generator arranged in the motor-circuit and consisting of field-magnets in which an armature revolves, hand-controlled devices for varying the counter electromotive force generated in the armature, and means to independently limit the speed of the armature.

15. In an electric railway, the combination of one or more electric motors on a train supplied with current from a source of energy by a motor-circuit, a counter-electromotive-force generator arranged in the motor-circuit and consisting of field-magnets in which an armature revolves, hand-controlled devices for varying the counter electromotive force generated in the armature, and means to limit the speed of the armature consisting of power-transmitting connections between the axle of the train and the shaft of the armature.

16. In an electric railway, the combination of one or more electric motors on a train supplied with current from a source of energy by a motor-circuit, a counter-electromotive-force generator arranged in the motor-circuit and consisting of field magnets in which an armature revolves, hand-controlled devices for varying the counter electromotive force generated in the armature, means to limit the speed of the armature consisting of power-transmitting connections between the axle on the train and the shaft of the armature, and hand-controlled devices for governing said connection whereby the possible speed of the armature may be varied at will.

17. In an electric railway, the combination of one or more electric motors on a train supplied with current from a source of energy by a motor-circuit, a counter-electromotive-force generator arranged in the motor-circuit and consisting of field-magnets in which an armature revolves, hand-controlled devices for varying the counter electromotive force generated in the armature, means independent of the hand-controlled devices to limit the speed of the armature, and hand-controlled devices for controlling said means whereby the possible speed of the armature may be adjusted or varied.

18. In an electric railway, the combination of one or more electric motors on a train supplied with current from a source of energy by a motor-circuit, a counter-electromotive-force generator arranged in the motor-circuit and consisting of field-magnets in which an armature revolves, hand-controlled devices for varying the counter electromotive force generated in the armature, and means to limit the speed of the armature consisting of power-transmitting connections between the axle on the train and the shaft of the armature, and means for causing said armature-shaft to revolve independently of the power-transmitting connection with the axle of the train.

19. In an electric railway, a car provided with one or more electric motors, a motor-circuit connecting the motors with the source of electric energy, a counter-electromotive-force generator consisting of field-magnets and an armature having several independent coils coupled in the motor-circuit, a power transmitting connection between the armature of the counter-electromotive-force generator, and one of the axles of the car to control the speed of rotation of the armature, and a hand-switch for coupling the coils of the armature in series or parallel to vary the counter electromotive force interposed in the motor-circuit.

20. In an electric railway, a car provided with one or more electric motors, a motor-circuit connecting the motors with the source of electric energy, a counter-electromotive-force generator consisting of field-magnets and an armature having several independent coils coupled in the motor-circuit, a power-transmitting connection between the armature of the counter-electromotive-force generator and one of the axles of the car to control the speed of rotation of the armature, one or more resistances and a hand-switch for coupling the coils of the armature in series or parallel and successively introducing and cutting out the resistances with each change of the connections of the armature-coils when varying the counter electromotive force interposed in the motor-circuit.

21. In an electric railway, a car provided with one or more electric motors, a motor-circuit connecting the motors with the source of electric energy, a counter-electromotive-force generator consisting of the field-magnets and an armature having several independent coils coupled in the motor-circuit, a power-transmitting connection between the armature of the counter-electromotive-force generator and one of the axles of the car to control the speed of rotation of the armature, one or more resistances, and a hand-switch for coupling the coils of the armature in series or parallel and successively introducing and cutting out the resistances with each change of the connections of the armature-coils, and finally to cut out the armature-coils and complete the motor-circuit through the resistances to vary the counter electromotive force interposed in the motor-circuit.

22. In an electric railway, a car provided with one or more electric motors, a motor-circuit connecting the motors with the source of electric energy, a counter-electromotive-force generator consisting of the field-magnets and an armature having several independent coils coupled in the motor-circuit, a power-transmitting connection between the armature of the counter-electromotive-force generator and one of the axles of the car to control the speed of rotation of the armature, one or more resistances, a hand-switch for coupling the axles of the armature in series or parallel and successively introducing and cutting out the resistances with each change of the connections of the armature-coils to vary the counter electromotive force interposed in the motor-circuit, and means for varying the strength of the field-magnets of the counter-electromotive-force generator.

23. The combination of a motor-circuit, an electric motor receiving current therefrom, and means interposed in the motor-circuit for controlling the currents supplied to the motor consisting of a counter-electromotive-force generator comprising a revolving armature moving in a magnetic field, hand-controlled devices for governing the speed of rotation of the armature in the magnetic field, and hand-controlled devices independent of the speed of the armature for varying the counter electromotive force thereof interposed in the motor-circuit.

24. The combination of a motor-circuit, an electric motor receiving current therefrom, and means interposed in the motor-circuit for controlling the currents supplied to the motor consisting of a counter-electromotive-force generator comprising a revolving armature moving in a magnetic field, hand-controlled devices for governing the speed of rotation of the armature in the magnetic field, hand-controlled devices independent of the speed of the armature for varying the counter electromotive force thereof interposed in the motor-circuit, and ohmic resistances arranged in series with the armature of the counter-electromotive-force generator adapted to be inserted in and removed from the motor-circuit with each material variation in the counter electromotive force of the armatures of the generator.

25. The combination of a motor circuit, an electric motor receiving current therefrom, and means interposed in the motor-circuit for controlling the currents supplied to the motors consisting of a counter-electromotive-force generator comprising a revolving armature moving in a magnetic field, hand-controlled devices for governing the speed of rotation of the armature in the magnetic field, hand-controlled devices independent of the speed of the armature for varying the counter electromotive force thereof which is interposed in the motor-circuit, and means for varying the strength of the magnetic field in which the armature of the counter-electromotive-force generator rotates to also vary the counter electromotive force of the generator.

26. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, and means for cutting the motors out of circuit with the source of energy and completing a closed circuit through the motors and counter-electromotive-force generator.

27. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for reversing the polarity of one of the elements (field-magnets or armature) of the motors, and means for cutting the motors out of circuit with the source of energy and completing a closed circuit through the motors and counter-electromotive-force generator.

28. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for reversing the polarity of one of the elements (field-magnets or armature) of the motors, means to maintain a separately-excited field for the counter-electromotive-force generator, and means to reverse the polarity of the field of said generator relatively to the armature.

29. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for reversing the polarity of one of the elements (field-magnets or armature) of the motors, means for maintaining a magnetic field for the counter-electromotive-force generator, and hand-controlled devices for varying the said field independent of the current generated in the motors when acting as generators.

30. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, and means for cutting the motors out of circuit with the source of energy and completing a closed circuit through the motors and counter-electromotive-force generator and finally short-circuiting the motors when acting as the generators around said counter-electromotive-force generator.

31. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for cutting the motors out of circuit with the source of energy and completing a closed circuit through the motors and counter-electromotive-force generator and finally short-circuiting the motors when acting as the generators around said counter-electromotive-force generator, and means to insert and remove ohmic resistances in the circuit of the short-circuited motors.

32. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand controlled device for varying the counter electromotive force of the generator, means for reversing the polarity of one of the elements (field-magnets or armature) of the motors, means for cutting the motors out of circuit with the source of energy and completing a closed circuit through the motors and counter-electromotive-force generator, and means to insert and remove ohmic resistances in the circuit of the short-circuited motors.

33. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for maintaining the field-magnets in the motors in electric connection with the source of energy, and means for short-circuiting the armatures of the motors through the counter-electromotive-force generator.

34. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for maintaining the field-magnets in the motors in electric connection with the source of energy, means for short-circuiting the armatures of the motors through the counter-electromotive-force generator, and means for reversing the polarity of one of the elements (armatures or fields) of the motors.

35. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for maintaining the field-magnets of the motors in electric connection with the source of energy, and means for short-circuiting the armatures of the motors through the counter-electromotive-force generator and varying the electromotive force produced by the generator.

36. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand controlled device for varying the counter electromotive force of the generator, means for maintaining the field magnets of the motors in electric connection with the source of energy, means for short-circuiting the armatures of the motors through the counter-electromotive-force generator and varying the electromotive force produced by the generator and simultaneously with said operation inserting variable ohmic resistances with each change of the electromotive force of the generators.

37. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for maintaining the field-magnets of the motors in electric connection with the source of energy, means for short-circuiting the armatures of the motors through the counter-electromotive-force generator, ohmic resistances, and means for closing the armature-circuits of the motors when acting as generators through the ohmic resistances and cutting the counter-electromotive-force generator out of circuit.

38. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for maintaining the field magnets of the motors in electric connection with the source of

energy, ohmic resistances, and means for short-circuiting the armatures of the motors through the counter-electromotive-force generator and through the ohmic resistances and subsequently reducing the said ohmic resistances in circuit.

39. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for maintaining the field-magnets of the motors in electric connection with the source of energy, means for short-circuiting the armatures of the motors through the counter-electromotive-force generator, and power-transmitting connections between the counter-electromotive-force generator and the axle whereby it acts as a motor to drive the car or train while generating the counter electromotive force for regulating the speed.

40. The combination of one or more cars, electric motors on said cars to propel them, electric circuits connecting with the several motors on the cars and leading to a source of energy, a counter-electromotive-force generator arranged in the electric circuits for generating a counter electromotive force opposed to the electromotive force of the source of energy, a hand-controlled device for varying the counter electromotive force of the generator, means for maintaining the field-magnets of the motors in electric connection with the source of energy, means for short-circuiting the armatures of the motors through the counter-electromotive-force generator, means for reversing the polarity of one of the elements (armatures or fields) of the motors, and power-transmitting connections between the counter-electromotive-force generator and the axle whereby it acts as a motor to drive the car or train while generating the counter electromotive force for regulating purposes.

41. A controller device for electric motors consisting of a counter-electromotive force generator, a series of resistances, and a hand-switch device for alternately varying the counter electromotive force of the generator and inserting resistances and successively removing the resistances while maintaining the counter electromotive force.

42. A controller device for electric motors consisting of a counter-electromotive-force generator, a series of resistances, and a hand-switch device for varying the counter electromotive force of the generator and inserting and successively removing the resistances after each change in the counter electromotive force and while maintaining it temporarily constant.

43. A controller device for electric motors consisting of a counter-electromotive-force generator, a series of resistances, a hand-switch device for varying the counter electromotive force of the generator and inserting and successively removing the resistances, and means under the control of the hand-switch for finally short-circuiting the counter-electromotive-force generator while the resistances are maintained in circuit whereby the generator is put out of operative circuit.

44. A controller device for electric motors consisting of a counter-electromotive-force generator, a series of resistances, and a hand-switch device for varying the counter electromotive force of the generator and inserting and successively removing the resistances and further completing a circuit through the resistances around the counter-electromotive-force generator and finally successively short-circuiting the resistances.

45. In a regulator for electric motors, the combination of a series of magnetic fields, a series of moving electric conductors traversing said fields and in which are generated electromotive forces, and a hand-switch for coupling the terminals of said electric conductors so as to connect the conductors in series, series multiple or parallel whereby the electromotive force may be varied by hand regulation.

46. In a regulator for electric motors, the combination of a series of magnetic fields, a series of moving electric conductors traversing said fields and in which are generated electromotive forces, and a hand-switch for coupling the terminals of said electric conductors so as to arrange the conductors in series, series multiple or parallel whereby the electromotive force may be varied by hand regulation, a series of resistances, and means governed by the hand-switch for inserting and successively cutting out said resistances when the conductors moving in the several magnetic fields are connected in series, series multiple or parallel.

47. In a regulator for electric motors, the combination of a series of magnetic fields, a series of moving electric conductors traversing said fields and in which are generated electromotive forces, and a hand-switch for coupling the terminals of said electric circuits so as to connect the conductors in series, series multiple or parallel whereby the electromotive force may be varied by hand regulation, a series of resistances, and means governed by the hand-switch for inserting and successively cutting out said resistances when the conductors moving in the several magnetic fields are connected in series, series multiple or parallel and also insert and remove successively said resistances simultaneously with the insertion of a short circuit about the said conductors.

48. In a regulator for electric motors, the combination of a magnetic field, moving conductors therein for producing an electromotive force, a series of resistances, and a hand-switch to couple said resistances with the moving conductors, then successively cut the resistances out of circuit while maintaining the moving conductors in circuit, then insert the resistances again and cut the moving conductors out of circuit and finally to successively cut the resistances out of operative circuit.

49. In a regulator for electric motors a series of magnetic fields, a series of separate armature coils moving in said magnetic fields and electrically communicating with fixed terminals, a single shaft carrying all of said separate armature-coils so that they all move with the same speeds, a series of resistances, and a hand-switch for coupling the several armature-coils in series or parallel and inserting and removing the resistances with each of said changes.

50. In a regulator for electric motors a series of magnetic fields, a series of separate armature-coils moving in said magnetic fields and electrically communicating with fixed contacts, a single shaft carrying all of said separate armature-coils so that they all move with the same speeds, a series of resistances, and a hand-switch for coupling the several armature-coils in series, series multiple or parallel and inserting and removing the resistances with each of said changes and finally cutting out the coils of the armature and inserting the resistances and subsequently successively cutting out said resistances.

51. The combination of a series of motors having the field-magnet coils in series with the armature, a source of electric energy, a motor-circuit for supplying electric current to said motors and causing it to first pass through all of the field magnets and then through all of the armatures or vice versa, a suitable regulator for simultaneously controlling the current delivered to both the field-magnets and armatures of all of the motors, and hand-controlled devices for shunting more or less current around the field-magnets of all of the motors and supplying it to the armatures together with the current passing through the field-magnets for increasing the current delivered to the armatures over that which would be permitted to pass through the field-magnets and while retaining the motors as series motors.

52. The combination of one or more motors, a source of electric energy, a motor-circuit for supplying electric current to said motors, a suitable regulator for controlling the current delivered to the motors, and additional hand-controlled devices for increasing the current flowing in the field-magnets relatively to the armature.

53. The herein-described method of regulating an electrically-driven car or train which consists in supplying to the motor or motors a current of constant potential, interposing a variable counter electromotive force to the current supplied to the motors, varying the counter electromotive force by hand, and interposing variable ohmic resistances to the current supplied to the motors to vary the said current intermediate of material changes in the counter electromotive force.

54. The herein described method of regulating an electrically-driven car or train which consists in supplying to the motor or motors a current of constant potential, interposing a variable counter electromotive force to the current supplied to the motors, varying the counter electromotive force by hand regulation, interposing variable ohmic resistances to the current supplied to the motors to vary the said current intermediate of material changes in the counter electromotive force while maintaining in circuit the ohmic resistance for regulation.

55. The herein-described method of regulating an electrically-driven car or train which consists in supplying to the motor or motors a current of constant potential, interposing a variable counter electromotive force to the current supplied to the motors, varying the counter electromotive force by hand regulation, interposing variable ohmic resistances in series with the motors to vary the current supplied to the motors intermediate of material changes made in the counter electromotive force, reversing the current in one of the elements (field-magnets or armatures) of the motors, and cutting said motors out of operative circuit with the source of energy and short-circuiting them through the ohmic resistances whereby said motors act as generators and their current regulated.

56. The herein-described method of regulating an electrically-driven car or train which consists in supplying to the motor or motors a current of constant potential, interposing a variable counter electromotive force in the current supplied to the motors, varying the counter electromotive force by hand regulation, interposing variable ohmic resistances in series with the motors to vary the current supplied to the motors intermediate of material changes made in the counter electromotive force, reversing the current in one of the elements (field-magnets or armatures) of the motors, cutting said motors out of operative circuit with the source of energy and short-circuiting the motors through the ohmic resistances whereby said motors act as generators and their current regulated, and transmitting the power produced by the production of the counter electromotive force to the axle on the car or train.

57. The herein-described method of regulating an electrically-driven car or train which consists in supplying to the motor or motors a current of constant potential, interposing a variable counter electromotive force in series with the motors, varying by hand regulation the counter electromotive force, interposing variable ohmic resistances in series with the motors and to vary the current supplied to the motors intermediate of material changes in the counter electromotive force, ultimately annulling the counter electromotive force while maintaining in the motor-circuit the ohmic resistance for regulation, and transmitting the power produced by the generation of the counter electromotive force to the axle on the car or train.

58. The herein-described method of regulating an electric current which consists in passing a current of constant potential through an electric circuit containing translating devices, producing by induction a series of separate counter electromotive forces, coupling said counter electromotive forces in series or parallel by hand-controlled devices, impressing the sum of said counter electromotive forces so coupled upon the electromotive force flowing in the line-circuit, and varying the current thus permitted to flow by interposing variable ohmic resistances in the circuit.

59. The herein-described method of regulating an electric current which consists in passing a current of constant potential through an electric circuit containing translating devices, producing by induction a series of separate counter electromotive forces, coupling said counter electromotive forces in series or parallel by hand-controlled devices, impressing the sum of said counter electromotive forces so coupled upon the electromotive force flowing in the line-circuit, varying the current thus permitted to flow by interposing variable ohmic resistances in the circuit, and ultimately annulling the counter electromotive forces while maintaining the ohmic resistance in opposition to the current in the line.

60. The herein described method of regulating the current in a circuit including translating devices which consists in maintaining a magnetic field of force, generating by induction a series of counter electromotive forces, suitably grouping said counter electromotive forces to vary their sum total, opposing them to the electromotive force of the current in the line, and varying the said counter electromotive forces by varying the magnetic field of force.

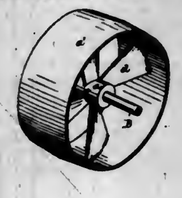
61. The herein-described method of regulating the current in a circuit including translating devices which consists in maintaining a magnetic field of force, generating by induction a series of counter electromotive forces, suitably grouping and opposing them to the electromotive force of the current in the line, varying by the said counter electromotive forces by varying the magnetic field of force, and interposing in series with said counter electromotive forces a variable ohmic resistance.

62. In a counter-electromotive-force regulator for controlling a current delivered to a motor or other translating devices, consisting of multiple field-magnets having pole-pieces arranged alternately of opposite polarity, a revolving armature adapted to said field-magnets and provided with a series of armature-coils, terminal circuits, and a hand-controlled switch for coupling up the several coils of the armature in series or parallel with the terminal circuits to vary the counter electromotive force produced.

63. A controller device for electric motors consisting of a motor-circuit, a generator for generating a variable counter electromotive force, a series of resistances, and means for introducing the generator into the motor-circuit to oppose its variable counter electromotive force to the electromotive force of the current in the motor-circuit, and while maintaining said generator in the motor-circuit to cut the resistances into or out of the motor-circuit to assist the generator in regulating the flow of current to the motors.

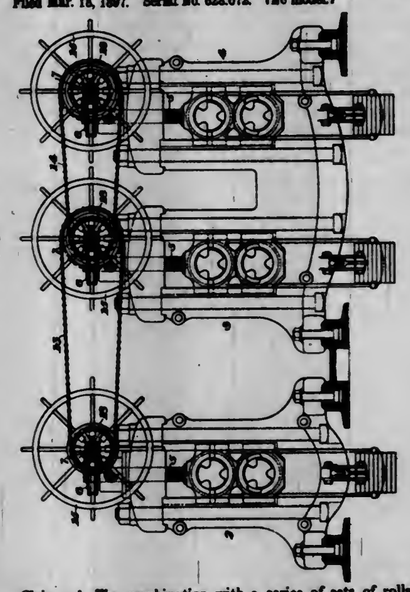
64. The combination of a motor-circuit, one or more motors supplied with current thereby, a counter-electromotive-force regulator in the motor-circuit, and a hand-switch for varying the counter electromotive force and also cutting it out of circuit by completing the motor-circuit around the counter-electromotive-force generator through an ohmic resistance.

595,571. ROTARY FAN. WILLIAM H. JOHNSEN, Philadelphia, Pa. Filed June 26, 1893. Serial No. 478,908. (No model.)



Claim.—In a combined pulley and fan, the combination of the hub, the rim adapted to receive a belt, spokes connecting the rim to the hub, said spokes being inclined in one direction so that on the rotation of the pulley a current of air will pass therethrough the rim acting as a flue, substantially as described.

595,572. ROLLING-MILL. JULIAN KENNEDY, Pittsburg, Pa. Filed Mar. 18, 1897. Serial No. 628,072. (No model.)



Claim.—1. The combination with a series of sets of rolls arranged in tandem, of driving mechanism arranged to drive the sets at different speeds, each set having adjusting mechanism and said adjusting mechanism having connections arranged to operate the same to different amounts corresponding to the different speeds of the sets of rolls.

2. The combination with a series of sets of rolls arranged in tandem, and having adjusting mechanisms, of connections between these adjusting mechanisms, and means for severing said connections, so that each adjusting mechanism may be operated independently of the others.

3. The combination with a series of sets of rolls, arranged in tandem, and having connected adjusting mechanisms, of means for adjusting one set of rolls independently of the other, and means for adjusting one end of one roll of a set relatively to its other end.

4. The combination with a series of sets of rolls arranged in tandem, of screw-shafts for the rolls of each set, worm-gears engaging said screw-shafts, two hand-wheels arranged to operate said worm-gears, means for connecting the hand-wheels, and connections between the hand-wheels of the several sets.

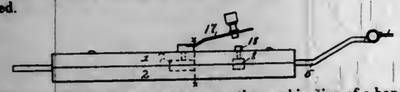
5. The combination with a series of sets of rolls arranged in tandem, each set having worm-gear adjusting mechanism, of a hand-wheel arranged to operate said mechanism, a sprocket-wheel having a clutch connection with the hand-wheel, and sprocket-chains connecting the sprocket-wheels of the several sets of rolls.

6. The combination with a series of sets of rolls, arranged in tandem, each set having adjusting screw-shafts, a transverse shaft having a worm keyed thereto and a worm rotating loosely thereon, two hand-wheels upon the shaft, one of said wheels rotating loosely upon the shaft and connected to the loose worm, the other hand-wheel rotating with but slidable endwise from the shaft, and a sprocket-wheel having clutch connections with the two hand-wheels; of chains connecting the sprocket-wheels of the several sets.

595,578. GALVANO-CAUTERY INSTRUMENT. CHARLES MACGREGOR, Dayton, Ohio. Filed Oct. 16, 1897. Serial No. 655,236. (No model.)

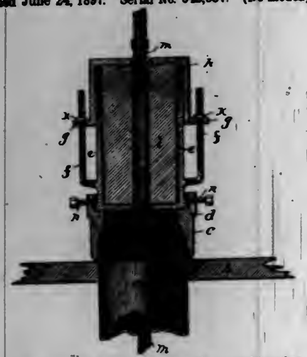
Claim.—1. A galvano-cautery instrument comprising a two-part handle each of said parts provided with longitudinal grooves, and cavities therein, a continuous and a disconnected electrode inclosed in said longitudinal grooves, contact-blocks loosely seated in said cavi-

ties, and having screw-threaded engagement with the inner ends of the disconnected electrode, and walls of insulating material between said blocks and the continuous electrode, as herein shown and described.



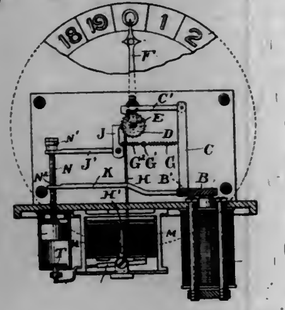
2. In a galvano-cautery instrument, the combination of a handle consisting of two parts of non-conducting material each of said parts having angular cavities, and longitudinal grooves in their meeting sides, electrodes adapted to fit into said grooves, and angular contact-blocks to which the inner ends of the disconnected electrode is affixed, the said blocks being loosely inclosed in the cavities in said handle, and prevented from becoming detached from the ends of the electrode, as herein shown and described.

595,574. CASING-HEAD PACKER. JOHN E. MARTIN, Sturgeon, Pa. Filed June 24, 1897. Serial No. 642,037. (No model.)



Claim.—In a casing-head packing, the combination of a collar engaging the casing, said collar being provided with a beveled internal face and provided near its upper end with an internal groove, a cup or shell resting in said groove, said cup or shell being provided with outwardly and upwardly extending screw-threaded rods carrying adjusting-nuts, a cap fitting over said cup or shell, and provided with outwardly-extending lugs engaging the screw-threaded rods carried by the said cup, a packing-ring arranged within said cup and projecting above the same and adapted to be engaged by the cap, an aperture through said packing to receive the tubing, and means carried by the collar for holding the cup in position, substantially as shown and described.

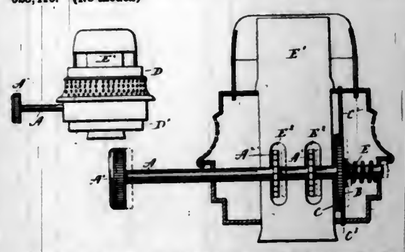
595,575. ELECTRIC SIGNAL-INDICATOR. MAURRELL MERCHER, Manchester, England. Filed Mar. 3, 1897. Serial No. 625,829. (No model.)



Claim.—1. In a device of the character specified, the combination of an indicating member, an electromagnet having an armature adapted to actuate said member, means controlled by a dash-pot for automatically returning said indicating member to its initial position after a predetermined period of time, and a secondary electromagnet adapted to operate upon said dash-pot to cause an immediate return of the indicating member.

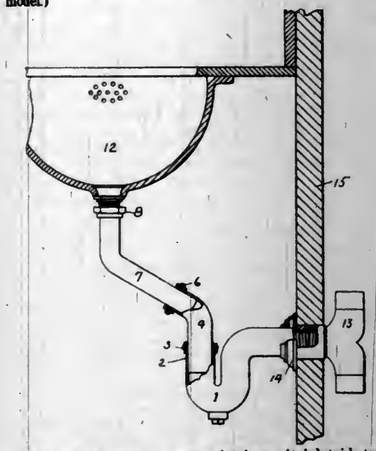
2. In a device of the character specified, the combination of a rotary indicator mounted on an arbor or spindle and having a ratchet-wheel on said arbor, the said indicator being normally actuated in a backward direction, an electromagnet having an armature, a pawl connected with said armature and adapted to engage the ratchet-wheel to actuate the indicator in a forward direction, a dash-pot and a close-fitting piston therein, an arm connected with the aforesaid armature and adapted to raise the piston, a detent adapted to engage the ratchet-wheel and engaged by the piston, and a secondary electromagnet having an armature adapted to engage a valve in the dash-pot, all for the purposes set forth.

595,576. LAMP-BURNER. JOHN C. MILLER and ALBERT T. BOOTH, Waterbury, Conn., assignors to the Matthews & Willard Manufacturing Company, same place. Filed Feb. 27, 1897. Serial No. 625,416. (No model.)



Claim.—In a burner, the combination with a longitudinally-movable spindle, of one or more wheels mounted thereupon in position to engage directly with the wick for raising and lowering the same, a relatively large supplemental or locking wheel mounted upon the spindle, a vertically-arranged locking-plate having its upper and lower ends secured to the burner and formed with a locking-recess sufficiently larger in diameter than the diameter of the locking-wheel to adapt it to receive the said wheel the edge of which engages with the edge of the recess which is corrugated for the locking of the locking-wheel in any desired position within the said recess, whereby the said locking-wheel and locking plate coact to lock the spindle against rotation; and a spring for normally holding the locking-wheel in its locked position in the said recess, substantially as and for the purpose set forth.

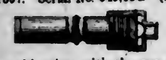
595,577. TRAP-FIXTURE FOR WASHBASINS. CHARLES H. MOORE, New York, N. Y. Filed Dec. 26, 1896. Serial No. 617,050. (No model.)



Claim.—1. A waste-water trap having on its inlet side two curved upper sections adjustable upon each other in the direction of their length and the lower section being adjustable rotarily and in the direction of its length in the water-section of the trap and coupling-nuts to complete the connection, substantially as described.

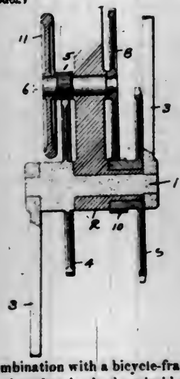
2. A waste-water trap having on its inlet side two curved upper sections adjustable upon each other rotarily and in the direction of their length, and the lower section being adjustable rotarily and in the direction of its length in the water-section of the trap and coupling-nuts to complete the connection, substantially as described.

595,578. BICYCLE-VALVE. MARION A. MORRIS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Aug. 23, 1897. Serial No. 649,164. (No model.)



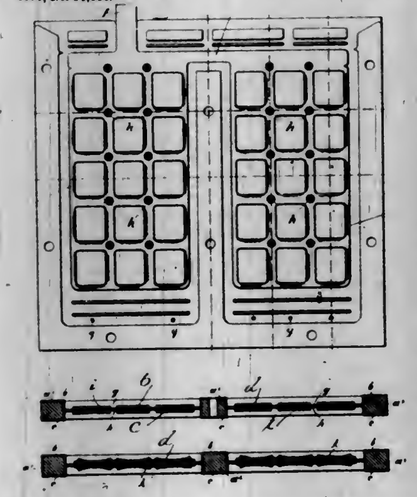
Claim.—The combination with the cap of a bicycle-valve, of a rubber packing located within the said cap, and a cup like sheet-metal retaining-shell located in the bottom of the said cap and formed with a plurality of spreading prongs which enter the edges of the said packing and force the said edges outward against the inner walls of the cap and secure a hold on the packing which is thereby held firmly within the cap.

595,579. DRIVING MECHANISM FOR BICYCLES. ANDREW PAPPARDAKIS, New Haven, Conn. Filed Apr. 17, 1897. Serial No. 632,534. (No model.)



Claim. The combination with a bicycle-frame provided with an outwardly-projecting boss forming both an inside and an outside bearing, of the crank-axle mounted in the inside bearing of said boss and carrying the gear 4, gear-shaft 6 carrying the pinion 5, balance-wheel 11 and gear 8, and chain-wheel 9 supported upon the outside bearing of said boss and carrying pinion 10, substantially as described and for the purpose set forth.

595,580. SECONDARY BATTERY. PAUL F. RIBBE, Berlin, Germany. Filed Apr. 7, 1896. Serial No. 586,533. (No model.) Patented in Norway Mar. 16, 1896, No. 5,309; in Spain May 22, 1896, No. 18,807; in Hungary Oct. 30, 1896, No. 6,533; in Denmark Feb. 10, 1897, No. 963; in Sweden Apr. 8, 1897, No. 7,762, and in Canada July 15, 1897, No. 56,660.

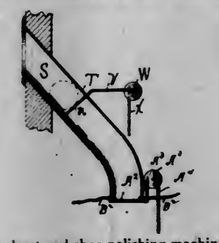


Claim.—1. In an electrode for secondary batteries, the combination with a wooden frame of two celluloid plates, connected with each other by dissolved celluloid, said plates having openings with upturned edges, active material in said openings and a lead plate between the celluloid plates substantially as herein shown and described.

2. In an electrode for secondary batteries, the combination with a lead plate having apertures, of a celluloid plate on each side of said lead plate, which celluloid plates have projections extending into the apertures in said lead plate and thereby forming contact, at which contacts they are united and active material held on the lead plate by said celluloid plates, substantially as herein shown and described.

3. In a storage battery the combination with a series of electrodes formed each of a lead plate, a celluloid plate on each side of the lead plate and active material held on the lead plate by the celluloid plates and which electrodes have apertures alternately at the top and bottom, of end plates forming compartments with the outermost plates of the electrodes, tubes communicating with said compartments and bolts for holding the electrodes and end plates together, substantially as herein shown and described.

595,581. BOOT OR SHOE SHINING MACHINE. WILLIAM RINKER, Allegheny, Pa. Filed Dec. 28, 1896. Serial No. 617,200. (No model.)



Claim.—1. In a boot and shoe polishing machine, the combination of the foot-rests, a blacking-receptacle operated by said foot-rests, rotary and reciprocating brushes operating in conjunction and means for communicating motion to said brushes, substantially as shown and described.

2. In a blacking-machine, reciprocating brushes placed upon opposite sides of the foot, reciprocating slides to which the brushes are secured, and spring-yokes for connecting the slides, the slides upon one side of each foot being provided with teeth: combined with the shafts a' provided with brushes, and the wheels a^2 upon their lower ends for meshing with the reciprocating slides, and a motor for operating the slides, substantially as set forth.

3. In a boot and shoe polishing machine, two separate and independent sets of vertical brushes o, a motor by which they are operated, spring-actuated plates upon which the feet are placed, a suitable blacking-receptacle provided with spring-actuated valves for controlling the ports through which the liquid blacking pours: and means for connecting the plates with the valves of said receptacle, combined with two sets of endwise-reciprocating brushes, connections for connecting the front ends of each pair of brushes, reciprocating toothed slides, toothed gears for engaging with the slides, the operating brushes secured to the shafts of the tooth-gears, and means for connecting the slides with the motor, substantially as specified.

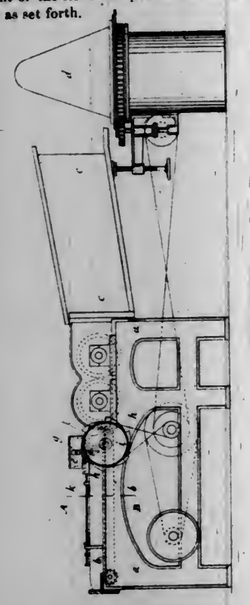
595,582. APPARATUS FOR MANUFACTURING FUR HAT-BODIES. EDWARD T. ROBINSON, Denton, England; Charlotte L. J. Robinson executrix of said Edward T. Robinson, deceased. Filed Nov. 27, 1893. Renewed Sept. 27, 1897. Serial No. 653,223. (No model.) Patented in England Nov. 12, 1892, No. 20,459.

Claim.—1. An apparatus for forming fur hat-bodies, consisting of a hat-forming cone, and feeding mechanism for feeding forward a layer of fur toward the hat-forming cone, in combination with devices for dropping short fur onto said layer as it is fed forward, and exhausting mechanism to draw the combined fur onto the forming-cone and form a hat-body therefrom, substantially as described.

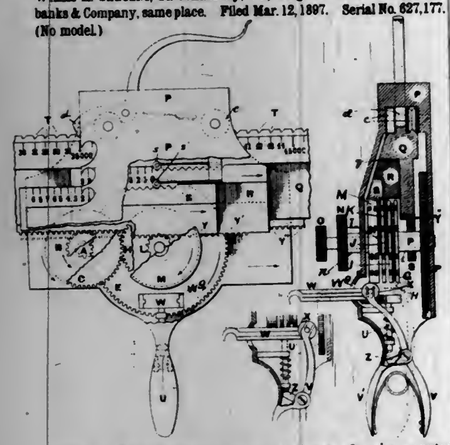
2. An apparatus for forming fur hat-bodies, consisting of a hat-forming cone, feeding mechanism for feeding forward toward the hat-forming cone, a layer of long fur, in combination with mechanism for dropping short fur onto the moving layer until a certain quantity of mixed long and short fur has been fed forward, devices for stopping the feed of short fur while continuing the feed of long fur and exhausting mechanism to draw the fur as fed forward onto the hat-forming cone and form a hat therefrom, substantially as and for the purpose set forth.

3. In apparatus for forming fur hat-bodies, the combination of the perforated forming-cone, exhausting mechanism to draw the fur onto said cone, and a traveling apron for feeding forward a layer of fur, with a sieve above the said apron, means for imparting to the sieve a jolting motion, and means for stopping and starting the jolt-

ing movement of the sieve independent of the driving mechanism, substantially as set forth.



595,583. **PRINTING-REGISTER FOR WEIGHING-SCALES.** WILLIS H. SARGENT, St. Johnsbury, Vt., assignor to the E. & T. Fairbanks & Company, same place. Filed Mar. 12, 1897. Serial No. 627,177. (No model.)



Claim.— 1. The combination with a scale-beam, of a poise mounted thereon and provided with a poise-slide parallel with the beam, a shaft journaled in the poise and having a series of type-wheels and gears thereon, and a second shaft provided with gear-wheels, one of which is geared to the beam and the other meshing with the type-wheels, the gear on the type-wheel shaft meshing with the poise-slide: substantially as described.

2. The combination with the scale-beam having a rack, of a poise movable along the beam and provided with parallel poise-slides each having a rack, a shaft D provided with gears A, B, C, the gear B being in mesh with the beam-rack, the shaft F having a large gear E loose thereon, meshing with the gear A and carrying a type-wheel, a second loose gear H meshing with the gear C and also carrying a type-wheel, a fixed gear on the shaft F meshing with the heavier poise-slide and provided with a type-wheel, a loose gear on the shaft F meshing with the lighter poise-slide and having a type-wheel, and means for operating the parts; substantially as described.

3. The combination with the scale-beam having a rack on its lower edge, of a poise sliding on the beam and provided with a poise-slide parallel with the beam and having a rack, independent type-wheels geared to the said two racks, means for operating the poise-slide gear and type-wheel from the exterior of the poise, an inking-roll engaging the type-wheels and a platen mechanism for moving the ticket against the type-wheels, substantially as described.

4. The combination with the scale-beam having a rack thereon, of a poise sliding on the beam and provided with independently-adjustable slides each having a rack, independent type-wheels geared to said racks, the poise-slide gears and type wheels having independent thumb-pieces exterior to the poise, and means for forcing the tickets toward the type-wheels, substantially as described.

5. The combination with the scale-beam having a rack, of a poise movable along the beam and provided with parallel poise-slides each having a rack, a shaft D provided with gears A, B, C, the gear B being in mesh with the beam-rack, the shaft F having large gear E loose thereon, meshing with gear A and carrying a type-wheel, a second loose gear H meshing with gear C and also carrying a type-wheel, a fixed gear on shaft F meshing with the heavier poise slide and provided with a type-wheel, a loose gear on shaft F meshing with the lighter poise slide and having a type-wheel and an external operating thumb-piece N, said shaft F also having a thumb-piece O, and mechanism for inking the type-wheels and moving the tickets thereagainst, substantially as described.

6. The combination with the beam, its poise provided with slides and the type-wheels geared to said beam and slides, of a horizontally-sliding and vertically movable platen mounted in the poise below the type-wheels, substantially as described.

7. The combination, with the beam having a rack, of a poise having parallel poise-slides provided with racks, type-wheels geared to the beam and slide-racks respectively, a horizontally-movable platen under the type-wheels, handles therebelow, one of which is pivoted and connected at its upper end to the inner end of the platen, said pivoted handle also having a lug between its ends, a vertically-movable rod engaged at its lower end by said lug, and an inking-roll at the inner end of the platen; all combined substantially as herein described and for the purposes set forth.

595,584. **INCANDESCENT-LAMP SOCKET.** DUBY A. SCHUTT, Peru, Ind., assignor to the Peru Electric Manufacturing Company, same place. Filed Apr. 16, 1897. Serial No. 632,437. (No model.)



Claim.—1. A three-part socket composed of insulating material comprising a base provided with a securing-bush, a lamp-socket, a rigid metallic intervening connecting-post, and an intervening movable knurled-edge shifting ring provided with wire connections, and contact-springs arranged to make electrical connection with terminals in the lamp-socket, substantially as set forth.

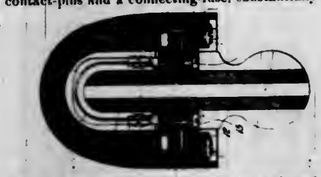
2. A three-part socket composed of insulating material comprising a securing-base, a lamp-receiving socket, a rigid metallic intervening connecting-post provided with means for attachment of a lamp within the socket comprising a normally-closed terminal, and a terminal mounted in the socket designed to contact with the base of a lamp, with an intervening movable shifting ring provided with binding attachments for circuit-wires, and contact-springs for transmitting the current to the terminals, substantially as set forth.

3. In a three-part socket composed of insulating material, a rigid metallic intervening post connecting the securing-base with the lamp-socket, provided with a threaded securing-screw in the lamp-socket for attachment of the lamp, and a contact-spring secured to the intervening movable ring and embracing a rounded portion of the post, substantially as set forth.

4. In a three-part socket composed of insulating material comprising a securing-base and a lamp-socket held together by a rigid metallic intervening connecting-post and an intervening movable shifting ring provided with a contact-spring in engagement with the post: a projection on the ring and a corresponding recess in the base provided with abutting ends for limiting the movement of the ring, substantially as set forth.

595,585. **FUSE-BLOCK.** DUBY A. SCHUTT, Peru, Ind., assignor to the Peru Electric Manufacturing Company, same place. Filed Apr. 16, 1897. Serial No. 632,439. (No model.)

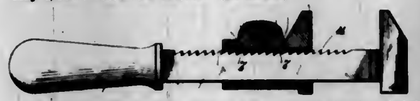
Claim.—1. A fuse-block comprising a circular dome-shaped hollow body of insulating material, internal annular pin-retaining flanges integral therewith on the opposite inside faces thereof with intervening openings, an annular space above the flanges with oppositely-located contact-springs therein provided with connections for feed-wires and an insertible plug of insulating material provided with oppositely-located contact-pins and a connecting-fuse, substantially as set forth



2. A fuse-block consisting of a circular dome-shaped hollow body of insulating material provided with a securing-bracket, internal annular pin-retaining flanges integral therewith on the opposite inside faces thereof with intervening openings, an annular space above the flanges with oppositely-located contact-springs therein midway of the flanges connected to binding-posts mounted on the outer face of the flanges, substantially as set forth.

3. The combination of a fuse-block consisting of a circular dome-shaped hollow body of insulating material having internal annular pin retaining flanges integral therewith on the opposite inside faces thereof with intervening openings, an annular space above the flanges with oppositely-located contact-springs therein midway of the flanges with feed-wire connections thereto, and a cylindrical plug having a hollow center, contact-pins secured thereto at opposite sides and a connecting-fuse joining the contact pins, substantially as set forth.

595,586. **WRENCH.** WILLIAM F. SELLERS, Gallitzin, Pa. Filed May 4, 1897. Serial No. 635,046. (No model.)



Claim.—1. A nut-wrench, consisting of the usual shank and rigid jaw, the said shank being provided with ratchet-teeth, a sliding jaw mounted on the said shank, a U-shaped locking-block movably mounted in said sliding jaw and having oppositely-disposed gripping lugs or projections provided with corrugations and formed with a central aperture having an annular shoulder therein, a bolt passing through the said central aperture of the U-shaped block, and a coiled spring surrounding said bolt and bearing upon said annular shoulder, substantially as described.

2. A nut-wrench, consisting of a rigid jaw having a shank extending therefrom provided with ratchet-teeth, a sliding jaw mounted on the said shank, a spring-pressed locking-block movably mounted in said sliding jaw and adapted to engage the ratchet-teeth on the shank, said locking-block being provided with a central perforation having an annular shoulder at the inner portion thereof, a bolt passing through the said central perforation, and a coiled spring surrounding said bolt and adapted to bear upon the said annular shoulder, substantially as described.

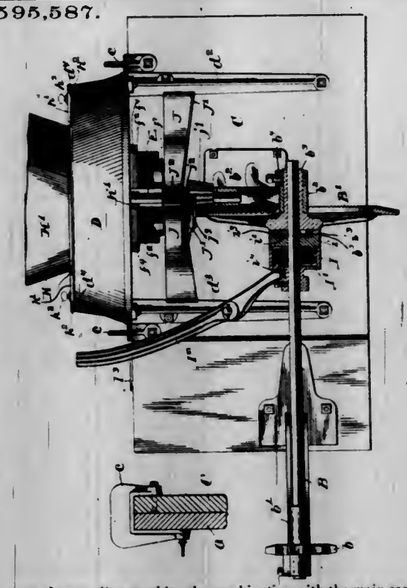
595,587. **SEEDING-MACHINE.** IRVING D. STEVENS, Joliet, Ill. Filed Mar. 24, 1897. Serial No. 629,032. (No model.)

Claim.—1. In a seeder, the combination with a frame, C, adapted to support the seeder, of clamps, *c*, secured to the top of said frame and set-screws threaded in said clamps, said clamps being adapted to be hooked over the top of an end-gate of a wagon and the set-screws to impinge upon the same and clamp the frame thereto whereby the seeder may be supported and fastened to the end-gate by said clamps, but may be adjusted along the same at will; substantially as described.

2. In a seeding-machine the combination with a casing, hopper and hopper-retaining ring, of clamps for securing the hopper-retaining ring to the casing comprising substantially the clamps, A', engaging the ring and formed with engaging lugs, A^2, coacting lugs, d^4, formed upon the casing and adapted to embrace the lugs, A^2, upon the clamps and hold the latter in a fixed position with reference to the ring and the set-screws, A^3, passing through the clamps and threaded in the casing and adapted to crowd the clamps down upon the hopper-retaining ring; substantially as described.

3. In a seeding-machine a main driving-shaft, B, provided with suitable means for rotation, a gear-wheel having a sleeve encircling said shaft and journaled in a suitable support, said gear being geared to the operating mechanism of the seeder and formed on its rear face with teeth, b^5, and a clutch fast upon the shaft and having teeth, to engage the teeth, b^5, upon the gear; substantially as described.

595,587.



4. In a seeding-machine the combination with the main casing, a hopper and suitable feed-wheels, mounted upon a suitable shaft, of a second shaft, E, a worm-gear, *j*, fast upon said second shaft, worm-wheels, K', engaging the feed-wheels and meshing with the worm-gear, *j*, and suitable means for rotating said second named shaft; substantially as described.

5. In a seeding-machine, an oscillating seed-chamber for receiving the seed having an outlet through which the seed may escape, a pocketed feed-wheel journaled in said chambers and a distributing-fan for receiving the seed and throwing it away therefrom, the oscillation of the chamber being adapted to alter the position of the outlet with respect to the fan; substantially as described.

6. In a seeding-machine, a casing, a plate, F, forming the bottom of a hopper and capable of suitable oscillating motion, a distributing-fan beneath said plate for scattering the seed, said plate being formed with hollow brackets, f, f', open at the top and bottom, and the feed-wheels, F', journaled in said brackets and formed with the circular sides, f^3, and wings, f^4; substantially as described.

7. In a seeding-machine, a casing, a plate, F, resting upon said casing and capable of suitable oscillating motion, said plate being formed with depending seed-chambers having outlets, f^7, opening out upon a suitable distributing-fan near its center, and pocketed feed-wheels in said chambers for discharging the seed therefrom, said plate being adapted to be oscillated to change the position of the outlet, f^7, with respect to the fan; substantially as described.

8. In a seeding-machine, a distributing-fan, a shaft, E, carrying said fan, an oscillating plate, F, formed with seed-chambers opening out upon the fan, feed-wheels journaled therein and having the gears, k', and a worm, j, upon the shaft, E, in mesh with said gears, the plate, F, being pivoted upon the shaft, E, and adapted to be oscillated thereon to change the position of the outlets in the seed-chambers with respect to the fan; substantially as described.

9. In a seeding-machine, the combination with a hopper of two independent seed-chambers, each communicating with the main hopper and each having a separate discharge-opening, an independent valve for each seed-chamber adapted to limit the flow of seed into the same, or entirely shut off the flow, a dial, pointers upon the valves and set-screws adapted to secure either of them at any position desired whereby each may be operated independently of the other; substantially as described.

10. In a seeding-machine, a plate, F, formed with the dependent hollow brackets, f', the feed-wheels, F', formed with the circular sides, f^3, and wings, f^4, and the caps, f^3, formed with the outlet-openings, f^7, secured to the brackets and adapted to serve as casings around the lower half of the feed-wheel; substantially as described

11. In a seeding-machine, a shaft, E, a worm-gear upon said shaft, a worm-wheel in mesh with said worm-gear, a feed-wheel engaging said worm-wheel and a suitable seed-chamber inclosing said feed-wheel and provided with inlet and outlet openings; substantially as described.

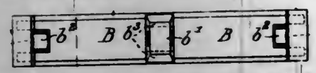
12. In a seeding-machine a main driving-shaft, a gear-wheel having a sleeve encircling said shaft, but loose with respect to the latter, a clutch mechanism for locking said shaft to the gear-wheel, said clutch mechanism being fast upon the shaft and moving the same with it when itself is moved; substantially as described.

13. In a seeding-machine, a casing, D, formed with the ledge, d', having an annular opening therein, a plate, F, resting upon said ledge and formed with depending seed-chambers extending through said opening, a shaft, E, journaled in said casing and carrying a suitable distributing-fan near one end, and a worm-gear, j, near its upper end, feed-wheels in said chambers having gears, k', in mesh with said worm-gear, and suitable gearing between the shaft, E, and the wheel of a wagon, the plate, F, being pivoted upon the shaft E, whereby it may be oscillated thereon to change the position of the seed-chambers with respect to the distributing-fan without throwing the feed-wheels out of gear with the shaft, E; substantially as described.

14. In a seeding-machine a main driving-shaft, B, a sprocket-wheel rigidly mounted upon the outer end of said shaft, suitable gearing for its rotation, a beveled gear-wheel, B', having a sleeve, b^4, loosely mounted upon the opposite end of said shaft, and a bracket, b^3, said sleeve being journaled in the bracket and the gear-wheel adapted to drive the mechanism of the machine; substantially as described.

15. In a seeding-machine a main driving-shaft, a sprocket-wheel, k, rigidly mounted thereon and adapted to be geared to a wheel of a wagon a beveled gear-wheel, B', loosely mounted upon the shaft, a distributing-fan, J, a pinion, j', meshing with the beveled gear, B', and connected with the fan and a clutch adjacent to the rear face of the gear-wheel, B', said gear being formed with a sleeve encircling the shaft and journaled in a suitable bracket; substantially as described.

595,588. **BRAKE-SHOE.** ALFRED L. STRETER, Chicago, Ill. Filed Mar. 23, 1897. Serial No. 628,333. (No model.)

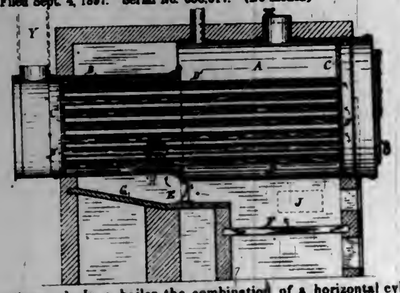


Claim.—1. A brake-shoe comprising attaching and guide lugs formed integral with the body of the shoe and a strengthening plate or plates secured in the body of the shoe, adjacent to the back thereof, said plate or plates being cut away or notched at their sides and ends to form a connection of desired strength between said attaching and guide lugs and the body of the shoe, substantially as described

2. A brake-shoe comprising attaching and guide lugs formed integral with the body of the shoe and a strengthening plate or plates secured in the body of the shoe in such position that the back or backs of said plate or plates will be substantially flush with the back of the shoe, said plate or plates being cut away or notched at their sides and ends to form a connection of desired strength between said attaching and guide lugs and the body of the shoe, substantially as described.

3. A brake-shoe comprising attaching and guide lugs formed integral with the body of the shoe and a strengthening plate or plates secured in the body of the shoe in such position that the back or backs of said plate or plates will be substantially flush with the back of the body of the shoe, said plate or plates being cut away or notched at their sides and ends to form a connection of desired strength between said attaching and guide lugs and the body of the shoe and the extreme ends of said strengthening plate or plates being entirely covered or inclosed by the body of said shoe, substantially as described.

595,589. **STEAM-BOILER.** JAMES R. VANCE, Geneva, N. Y. Filed Sept. 4, 1897. Serial No. 650,617. (No model.)



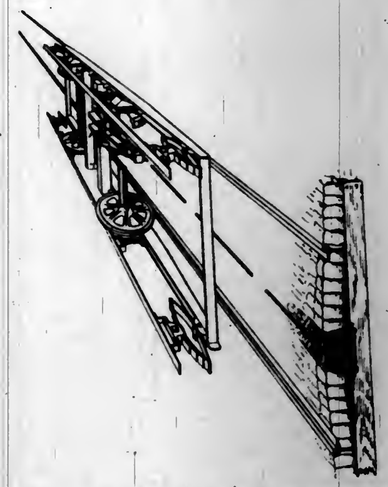
Claim.—1. In a boiler, the combination of a horizontal cylindrical shell, a smaller horizontal shell oblong in cross section projecting from one end of the large shell, the axis of the small shell being below the axis of the large shell, fire-tubes extending through each shell, a chamber at one end of the large shell communicating with all the tubes, one end of each of the tubes in the larger shell opening into the furnace, and a chamber at the end of the smaller shell communicating with its tubes and the chimney substantially as described and shown.

2. In a boiler, the combination of a horizontal cylindrical shell, a smaller horizontal shell having flat sides projecting from one end of the large shell, the axis of the small shell being below the axis of the large shell, long fire-tubes extending through both shells, short fire-tubes on opposite sides of the long tubes extending through the large shell, a chamber at one end of the large shell communicating with all the tubes, one end of each of the tubes in the larger shell opening into the furnace, and a chamber at the end of the smaller shell communicating with its tubes and the chimney, substantially as described and shown.

3. In a boiler, the combination of a horizontal cylindrical shell, a smaller horizontal shell having flat sides projecting from one end of the large shell, return-pipes having their flanges riveted to the said flat sides, long fire-tubes extending through both shells, short fire-tubes extending through the large shell divided by the long tubes into two groups, the supply-pipe, a chamber at one end of the large shell communicating with all the tubes, one end of each of the tubes in the larger shell opening into the furnace, and a chamber at the end of the smaller shell communicating with its tubes and the chimney, substantially as described and shown.

4. In a boiler, the combination of a horizontal cylindrical shell, a smaller horizontal shell, oblong in cross section with flat sides and curved on top and bottom riveted to one end of the larger cylinder, return-pipes leading from the said flat sides, one or more supply-pipes, long fire-tubes extending through both shells, short fire-tubes on opposite sides of the long tubes extending through the large shell, a chamber at one end of the large shell communicating with all the tubes, one end of each of the tubes in the larger shell opening into the furnace, and a chamber at the end of the smaller shell communicating with its tubes and the chimney, substantially as described and shown.

595,590. **ELECTRIC-RAILWAY SYSTEM.** MERLE J. WIGHTMAN, Scranton, Pa. Filed Aug. 10, 1896. Serial No. 602,271. (No model.)



Claim.—1. In an electric railway employing disconnected sections of working conductor and a continuous flexible current-conveyer adapted by magnetic attraction to close the circuit between said sections and the source of supply, a plurality of downward projections on each of said conductor-sections against which the flexible conveyer contacts when magnetically actuated.

2. The combination with a pair of disconnected sections of working conductor, a continuous flexible current-conveyer beneath said sections, a magnet having one pole over each section, and means for providing a plurality of transverse paths through the current-conveyer under each of the said sections.

3. In an electric railway employing a continuous flexible conductor in circuit with the source of supply and adapted to be lifted by magnetic attraction to close the circuit between the source of supply and disconnected working conductors, the combination with the closed conduit containing the flexible conductor and beneath the working conductor, of a traveling magnet and a plurality of magnetizable members passing downward from each working conductor and passing through the walls of the conduit.

4. In an electric railway employing a continuous flexible conductor adapted to be lifted by magnetic attraction to close the circuit between the source of supply and discontinuous working conductors, and a traveling magnet for lifting said flexible conductor, the combination with the conduit and the working conductor outside the said conduit, of a plurality of magnetic conductors connecting each section of the working conductor with the interior of the conduit.

5. In an electric railway a continuous conduit containing a current-conveyer, in combination with a conductor-rail above and outside of said conduit, downward projections therefrom passing through the wall of the conduit and terminating above one side of the current-conveyer, and longitudinal magnetic conductors within the conduit, opposite the line of downward projections and above the other side of the current-conveyer.

6. The combination of a ribbon, a conduit surrounding the same, alternately-arranged longitudinal magnetic conductors and vertical magnetic conductors above each side of the ribbon, discontinuous magnetic conductors outside of the conduit, magnetically connected with the vertical magnetic conductors and a traveling magnet having poles in longitudinal alinement with each other.

7. In an electric railway a traveling magnet having poles in longitudinal alinement and a magnetic path to be bridged by said poles comprising in the order named a rail, vertical projections therefrom into the interior of the conduit, a continuous current-conveyer arranged to contact at one side with the terminals of the downward projections, longitudinal members within the conduit with which the other side of the current-conveyer contacts, the current-conveyer again, other longitudinal members with which the first-mentioned side of the current-conveyer contacts, vertical projections with which the said other side of the current-conveyer contacts, and a second rail to which said last-mentioned projections are connected.

8. The combination of the top, side and base members composing the conduit, the insulated cables resting directly on the bottom member thereof, the insulators I supported on recesses in said side members, and a flexible bared conductor resting on said insulators and held thereby from contact with the conduit proper.

9. A section-box for electric railways of the class described, said box comprising a frame having means for rigidly securing the end of one of the flexible-conductor terminals and means whereby an even tension may be maintained on the adjoining terminal.

10. In an electric-railway system in combination, a continuous closed conduit adapted to contain a flexible conductor, a continuous flexible conductor within said conduit and a tension device adapted to maintain the conductor under a fixed tension.

11. In an electric railway of the system described, in combination a continuous closed conduit, a flexible conductor within said conduit, a stationary clamp at one end of the conductor adapted to rigidly hold the same and a device at the other end of the conductor adapted to hold the same and maintain therein a fixed tension.

12. In an electric railway of the system described, in combination with the adjacent ends of two sections of the conduit, a section-box interposed between them, said section-box containing a fixed terminal adapted to hold rigidly the end of one section of conductor and a tension-compensating device adapted to hold the end of the other section of conductor.

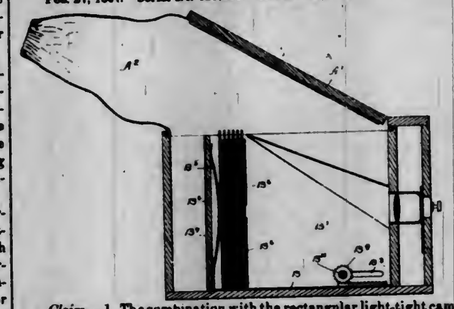
13. A conduit and continuous flexible conductor therein adapted to be lifted by magnetic attraction and rigidly secured at one end by a suitable clamp and at the other end wound about a weighted roller.

14. The combination with feeders in connection with the source of supply, a closed conduit, section-boxes through which said conduit passes, a flexible conductor within said conduit, each section of which has terminals in different section-boxes and a connecting-board within the section-box for electrically connecting the feeders and flexible conductor.

15. The combination of a magnet, a collecting-shoe carried between the poles thereof, disconnected contact-sections, a closed conduit below said sections, members passing through the walls thereof connecting the contact-sections electrically and magnetically with the interior of the conduit, and a continuous conductor in circuit with the source of supply and adapted to be raised into contact with said members.

16. The combination of a contact-rail, insulating members engaging the lower portions thereof, the conduit consisting of the four insulating members inclosing a longitudinal passage and secured to the rail, and to a base member, the yokes engaging the rail and base member, and the insulating material surrounding the whole.

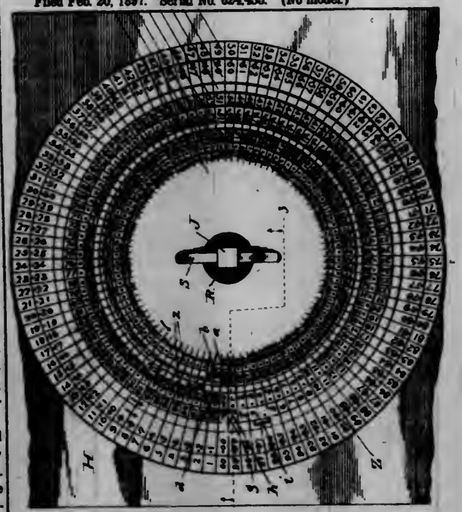
595,591. **MAGAZINE-CAMERA.** JOHN L. ATWATER, Western Springs, Ill., assignor to the Vive Camera Company, Chicago, Ill. Filed Feb. 27, 1897. Serial No. 625,260. (No model.)



Claim.—1. The combination with the rectangular light-tight camera-box of the character indicated, of the three-sided metal shell formed with a groove for a rigid backing-plate and containing said backing-plate provided with a spring, and formed with a shoulder at each side for the plates to abut against, and means for moving said shell to and from the lens from the exterior, substantially as specified.

2. The combination with the rectangular light-tight camera-box of the character indicated, of the three-sided metal shell formed with a groove for a rigid backing plate and containing said backing-plate provided with a spring, and formed with a shoulder at each side for the plates to abut against, and means for moving said shell to and from the lens from the exterior, said means consisting of a rack on the bottom of the shell, a shaft extending through the camera-box and the shell, and an exterior key or index-finger and an index-plate, substantially as specified.

595,592. **ADDING-MACHINE.** GEORGE L. AULT, Bartlett, N. D. Filed Feb. 20, 1897. Serial No. 624,453. (No model.)



Claim.—1. In an adding-machine, a plurality of stationary plates provided with scales, a plurality of sets of rotatable disks mounted upon said plates and provided with scales, and gearing between said sets of disks to cause each succeeding set of disks to move an interval for each revolution of the preceding disk set.

2. In an adding-machine, a plurality of stationary plates having scales, rotatable computing-disks mounted upon each of said plates and provided with scales, an idler-disk situated between the lower computing-disk and the adjacent stationary plate situated above the same, connections between said idler and computing disks, and a gear-wheel mounted upon said plates and geared to the disks situated below the same and in the path of a pin carried by the disks situated above the same.

3. In an adding-machine, a plurality of stationary plates provided with scales, rotatable computing-disks resting upon each of said plates and provided with scales, an idler-disk situated between the

lower computing-disks and the adjacent stationary plates situated above the same, gearing between the said computing-disks and said idler-disks to cause the latter to move once during each revolution of the former, and connections between the adjacent idler and rotatable disks to cause the latter to move in one direction with the former and to allow the latter to be moved in the same direction without moving the former.

4. In an adding-machine, a plurality of stationary plates provided with scales, a plurality of rotatable computing-disks mounted upon the lower stationary plate, a plurality of idler-disks situated between each of said lower computing-disks and the plate situated above the same, a pin upon the upper computing-disks, a gear-wheel carried by each of said plates and situated in the path of said pins, racks upon said idler-disk intermeshing with said gear-wheel, a spring-pressed detent upon each of said upper plates engaging with said toothed racks upon the idler-disks, and spring-pressed ratchets carried by each of said idler-disks and engaging ratchet-racks in the upper face of the computing-disks.

5. In an adding-machine, a stationary plate provided with a scale, a gear-wheel mounted in said plate and projecting above and below the same, a computing-disk smaller than said plate and provided with a pin situated to engage said gear-wheel, a scale upon said disk, another plate situated below said first-mentioned plate and provided with a scale, a computing-disk resting upon said last-mentioned disk and provided with a scale, a spring-pressed detent mounted upon said first-mentioned plate to engage a rack upon an idler-disk situated between the lower computing-disk and said first-mentioned plate, and a spring-pressed ratchet carried by said idler-disk and engaging a ratchet-rack in the lower computing-disk.

6. In an adding-machine, a stationary plate having a circular scale, a recess near the outer edge of said plate, said recess having an inclined bottom beginning at the surface of the plate and ending at an abrupt wall, the abrupt wall being opposite one number in a scale upon said plate, a rotatable disk mounted upon said plate to rotate concentrically with the scale thereon and provided itself with a circular concentric scale, and a circular concentric line of openings in said rotatable disk, one opening being opposite each number of the scale therein, and said openings being situated to pass over the said recess of the plate.

7. In an adding-machine, a base-plate provided with a circular trunnion and an uprising post, a plurality of plates having central apertures to receive said post and to which they are secured against rotation, the lower plate resting upon the trunnion of said base-plate, uprising trunnions concentric with said plates, the uppermost plates resting upon the upper ends of the trunnion of the plates below the same, sets of disks having concentric apertures to receive said trunnions of the base-plate and plates, each set being situated between two of said plates, a spring connected with the upper end of said post and bearing against the uppermost disks, scales upon said plates and disks, and gearing for causing the relative rotation of said disks.

595,593. FLUE-STOPPER. HENRY H. BALTELEY, Assumption, Ill., assignor of one-half to Charles S. Clark, same place. Filed Apr. 8, 1897. Serial No. 631,238. (No model.)

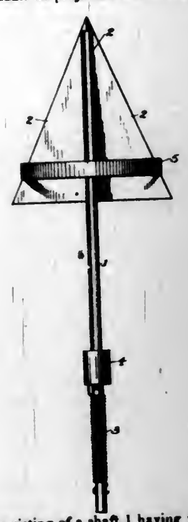


Claim.—A flue-stopper comprising a cap-plate, a semicircular flange-holding plate secured thereto, and a flange having right-angular tongues adapted to pass beneath the flange-holding plate, the length of the flange being less than the circumference of that portion of the cap-plate to which it is attached.

595,594. RING-TWIRLING TOY. CASSIUS M. BARTHOLOMEW, Columbus, Ohio. Filed Feb. 27, 1897. Serial No. 625,264. (No model.)

Claim.—1. A toy consisting of a shaft having wings adapted to support loosely an open cylindric ring on its edge, and a spring attached to said shaft whereby the latter may be placed under lateral and longitudinal tension so that when released it shall project and twirl said ring, substantially as set forth.

2. A toy consisting of a shaft 1 having wings 2 adapted to support loosely an open cylindric ring on its edge, a loose collar 4 on said shaft, a spring attached to said collar and shaft whereby the latter may be placed under lateral and longitudinal tension so that when released the ring shall be projected and twirled, substantially as set forth.



3. A toy consisting of a shaft 1 having wings 2 tapered toward the end of said shaft adapted to support loosely an open cylindric ring on its edge, and a spring attached to said shaft whereby the latter may be placed under lateral and longitudinal tension, so that when released it shall project and twirl said ring, substantially as set forth.

4. A toy comprising a rod or shaft having wings meeting at a point at their upper ends adapted to support a loose ring, a collar on said shaft or rod, a spring attached to the collar and to the shaft, and a ring adapted to be supported upon, projected from and caught upon said wings.

5. In a body-projecting toy, a shaft, a movable sleeve or collar on said shaft, a spring attached to said shaft and to said collar or sleeve, and a cord 6 attached to said shaft above the sleeve or collar and engaging said collar and the shaft at a point near the shaft below the collar for the purpose explained.

595,595. MINER'S CAP. JOHN BECK, Carnegie, Pa. Filed June 24, 1896. Serial No. 596,765. (No model.)



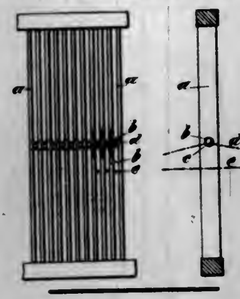
Claim.—1. In combination with a cap, a disk adapted to be secured to the crown thereof by stitching, a strap *h*, hinged to the disk, a frame *k* hinged to the strap, a netting secured to the frame, the said strap and frame being adapted to fold within the cap, substantially as described.

2. In combination with a cap, a disk *g*, secured to the crown thereof, a strap *h*, hinged to the disk, a frame *k* hinged to the strap and a netting *l* secured to the frame, substantially as described.

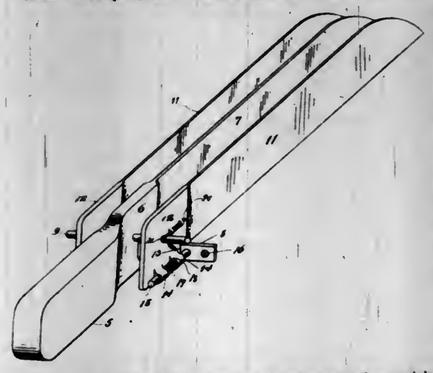
595,596. REED FOR LOOMS. EDMOND M BERGHER, Paris, France. Filed Mar. 18, 1897. Serial No. 628,148. (No model.) Patented in France July 17, 1896, No. 258,158, and in Germany July 27, 1896, No. 91,324.

Claim.—1. The herein-described reed for looms whereby to effect the twisting together of warp-threads, said reed consisting of a series of equally-spaced apertured dents in combination with perforated spherical warp-thread guides loosely held in the apertures of the dents so as, while guiding or retaining the warp-threads which pass through them, they may turn freely and give passage between them and the dents to the other warp-threads passing between the same dents as specified.

2. The herein-described reed for looms whereby to effect the twisting together of warp-threads, said reed consisting of a series of recessed dents spaced apart in combination with annular warp-thread guides interposed between adjacent dents and entering the recesses in the said adjacent dents so as to retain one set of warp-threads in the annular guides and to give passage to the other set of warp-threads past the said guides, substantially as and for the purposes set forth.



595,597. BREAD-KNIFE. GEORGE H. BLANCHARD, Davenport, Iowa. Filed Apr. 7, 1897. Serial No. 631,053. (No model.)



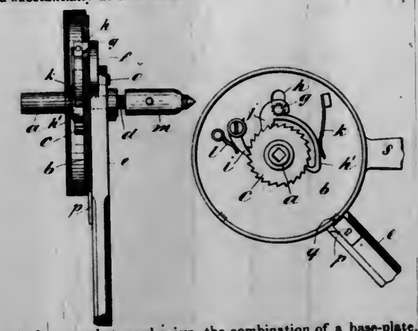
Claim.—1. A knife for cutting bread, cake and other articles, comprising a handle, a blade connected therewith, by means of a shank which is formed on or connected with the handle, a bar passing through said shank and provided with holes or openings, a shaft passing through said shank, supplemental blades provided with shanks through which said shaft and bar also pass, and bolts connected with the shanks of the supplemental blades and adapted to enter the holes or openings formed in said bar, substantially as shown and described.

2. A knife for cutting bread, cake and other articles, comprising a handle, a blade connected therewith, by means of a shank which is formed on or connected with the handle, a bar passing through said shank and provided with holes or openings, a shaft passing through said shank, supplemental blades provided with shanks through which said shaft and bar also pass, and bolts connected with the shanks of the supplemental blades and adapted to enter the holes or openings formed in the bar, said bolts being spring-operated, and being mounted in keepers formed on or secured to the shanks of the supplemental blades, substantially as shown and described.

595,598. RATCHET MECHANISM. ERNEST BOENING, Yonkers, N. Y., assignor of three-fourths to William D. Baldwin, same place, and James H. Walling, Brooklyn, N. Y. Filed Mar. 3, 1897. Serial No. 625,840. (No model.)

Claim.—1. In ratchet mechanism, the combination of a base-plate, a ratchet-wheel mounted for rotation on said base-plate for transmitting motion, a lever pivoted in the axis of said ratchet-wheel, a pawl-carrying stud reciprocating radially to the said axis, a pawl attached to said stud and adapted to actuate the ratchet-wheel, and a link coupling said pawl-carrying stud to the short arm of the lever in a toggle-joint adapted to work each way across the line of movement of the pawl carrying stud substantially as described.

2. In ratchet mechanism, the combination of a base-plate, a socket or shaft pivoted on said base-plate for rotation on its axis, a ratchet-wheel attached to said socket or shaft for turning it, a lever pivoted in the axis of said socket or shaft, a pawl-carrying stud reciprocating radially to the said axis, a pawl attached to said stud and adapted to actuate the ratchet-wheel, and a link coupling said pawl-carrying stud to the short arm of the lever in a toggle-joint adapted to work each way across the line of movement of the pawl-carrying stud substantially as described.

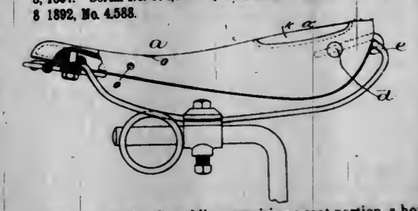


3. In a ratchet mechanism, the combination of a base-plate, a socket or shaft pivoted on said base-plate for rotation on its axis, a ratchet-wheel attached to said socket or shaft for turning it, a lever pivoted in the axis of said socket or shaft, a pawl-carrying stud reciprocating radially to the said axis, a pawl attached to said stud and adapted to actuate the ratchet-wheel, a link coupling said pawl-carrying stud to the short arm of the lever in a toggle-joint adapted to work each way across the line of movement of the pawl-carrying stud, means to lock the lever in either of its positions at rest, and the locking pawl for the ratchet-wheel on the ratchet-wheel-actuating pawl substantially as described.

4. In a ratchet mechanism, the combination of a base-plate, a socket pivoted on said base-plate for rotation on its axis, a ratchet-wheel attached to said socket for turning it, a lever pivoted in the axis of said socket, a pawl-carrying stud reciprocating radially to the said axis, a pawl attached to said stud and adapted to actuate the ratchet-wheel, a link coupling said pawl-carrying stud to the short arm of the lever in a toggle-joint adapted to work each way across the line of movement of the pawl-carrying stud, and a feed-screw, substantially as described.

5. In a ratchet mechanism, the combination of a base-plate, a socket pivoted on said base-plate with a ball-bearing of its end against said base plate, a ratchet-wheel attached to said socket for turning it, a lever pivoted in the axis of said socket, a pawl-carrying stud reciprocating radially to the said axis, a pawl attached to said stud and adapted to actuate the ratchet-wheel, a link coupling said pawl-carrying stud to the short arm of the lever in a toggle-joint adapted to work each way across the line of movement of the pawl-carrying stud and a feed-screw substantially as described.

595,599. BICYCLE-SADDLE. CHARLES F. BROWN, Reading, Mass., administrator of James Alfred Lamplugh, deceased. Filed Oct. 8, 1897. Serial No. 654,517. (No model.) Patented in England Mar. 8 1892, No. 4,588.



Claim.—1. A bicycle-saddle comprising a seat portion, a horn or pommel projecting forward therefrom and having an elastic cushion at the central portion thereof, the portion of the saddle at the rear of said cushion being of comparatively unyielding construction, relatively to said cushion.

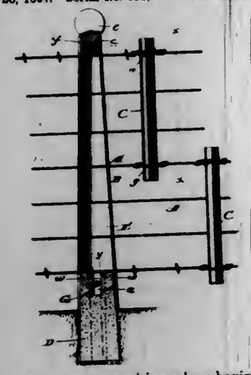
2. A bicycle-saddle comprising a seat portion, a horn or pommel having a flexible casing or pouch extending lengthwise of the pommel, and an elastic cushion in said casing; the portion at the rear of said cushion being of a comparatively unyielding construction, relatively to said cushion.

3. A bicycle-saddle having a top composed of two layers of material, a strong and stiff under layer, and a thinner and more flexible upper layer, and one or more air-cushions between the layers; the

portion of the saddle not occupied by a cushion being of a comparatively unyielding construction, relatively to said cushion.

4. A bicycle-saddle comprising a seat portion, a horn or pommel with an opening extending longitudinally of the horn for the greater portion of its length, and an elastic cushion arranged in said opening; the portion at the rear of said cushion being of a comparatively unyielding construction, relatively to said cushion.

595,600. FENCE-POST. HENRY BUCK, North Manchester, Ind. Filed Sept. 20, 1897. Serial No. 652,278. (No model.)



Claim.—1. A fence-post comprising a base having a diametrical kerf in its upper end, a U-shaped strap receiving said base, a hollow metallic section having its lower end arranged over the base and strap, and a bolt extending through the metallic section and the ends of the strap and resting in the kerf of the base, substantially as specified.

2. In a fence, the combination of a lower barbed wire and upper plain wires, and a post comprising a base sunk in the ground and having a kerf in its upper end, a U-shaped strap receiving the base and having its ends extended above the same, an upper metallic section having its lower end arranged over the base and strap and provided with notches receiving the lower barbed wire, and apertures at intermediate points of its length receiving the plain wires, and a bolt extending through said section and the end portions of the strap and arranged in the kerf of the base, substantially as specified.

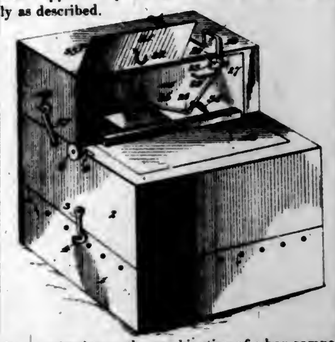
3. In a fence, the combination of upper and lower barbed runner-wires and intermediate plain runner-wires, and a post comprising a base sunk in the ground and having a kerf in its upper end, a U-shaped strap receiving the base and having its ends extended above the same, an upper, hollow metallic section having its lower end arranged over the base and strap and provided with notches receiving the lower barbed wire, and apertures at intervals in its length receiving the plain wires and also provided with notches in its upper end receiving the upper barbed wire, a bolt extending through said section and the end portions of the strap and arranged in the kerf of the base, and a plug arranged and secured in the upper end of the metallic section, substantially as specified.

4. In a fence, the fence-post comprising a base sunk in the ground, a U-shaped strap receiving said base, a hollow metallic section arranged over the base and having apertures at intervals in its length, and a bolt extending through the metallic section and the ends of the strap, the runner-wires extending through the apertures of the metallic section of the post, and a stay comprising the upright, sheet-metal sections I, J, of concavo-convex form in cross-section having notches in their edges at intervals in their length receiving the runner-wires; the said section J, being smaller than the section I, and having its edges arranged in said section I, or between the edges thereof, and a suitable means for connecting the upper and lower ends of the sections, substantially as specified.

5. In a fence, a post comprising a terra-cotta or baked-clay base buried in the ground, a hollow metallic section having its lower end arranged over the upper end of the base and also having apertures at intervals in its length, runner-wires extending through the apertures of said section, and a U-shaped metallic strap receiving the base and connected to the upper metallic section and serving to connect the base and upper section and also adapted to ground the electric current when the fence is struck by lightning and thereby prevent breakage of the base, substantially as specified.

595,601. ANIMAL-TRAP. SETH W. BUCK, Hoxie, Kans. Filed Apr. 14, 1897. Serial No. 632,133. (No model.)

Claim.—1. In an animal-trap, an open-top box, an open-front casing supported on the upper end of the box to close substantially one-half of its open top, a shaft journaled to rotate in said box and having a series of radiating wings adapted to successively close the open front of said casing and also the open top of said box, a catch pivoted on the casing to engage the wings, and a treadle pivoted on the wing and having an arm to engage said catch, combined with an overhanging plate secured to said casing above the treadles, and a bait-hook supported by said plate directly over the treadle, substantially as described.



2. In an animal-trap, the combination of a box composed of two superposed sections detachably connected together, a sliding cover for the lower section adapted to be withdrawn when the sections are secured together, and means to throw the animals into the box, substantially as described.

3. In an animal-trap, the combination of a series of plates radiating from a rotative shaft at opposite points, a catch pivoted on the trap to engage the plates and prevent the shaft from turning, an angle-lever pivoted on each of said plates, the vertical arms of which are adapted to engage the catch to lift it out of engagement with the plates, a treadle-plate on the horizontal arm of the lever, and a spring connecting the vertical arm of the plate and normally holding the treadle-plate elevated, substantially as described.

595,602. BURIAL-CASKET. OSCAR D. BYERS, Syracuse, N. Y. Filed June 15, 1896. Serial No. 595,662. (No model.)



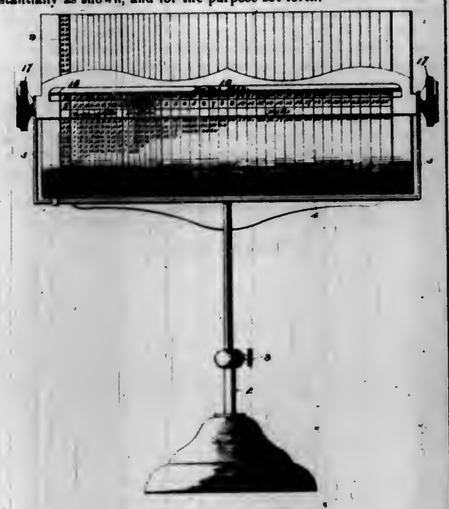
Claim.—1. The combination with the casket-body, of a cove divided longitudinally into sections disposed one upon the other and hinged together at the outer edge of their joint, and means sustaining the top section in an upwardly-projecting and outwardly-sloping position upon the bottom section resting in its normal position upon the casket-body, and the lid supported upon the upper section of the cove in its closed position, as set forth.

2. The combination, with a casket-body, of a cove mounted detachably on said body and having its main portion ogee-shaped and the exterior of its base convexed, said cove being divided longitudinally in a horizontal plane at the junction of the main portion and base and the sections hinged together at the outer edge of the joint, and the lid hinged to the top of said cove, substantially as set forth and shown.

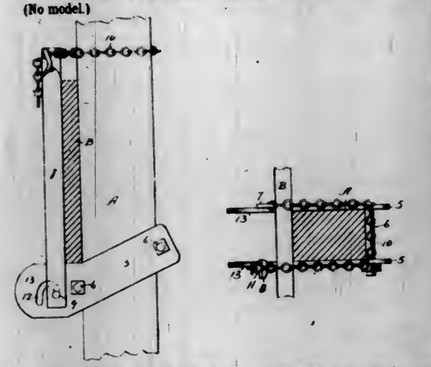
595,603. CALCULATING-MACHINE. JOHN BYERS, Minden, Nebr. Filed Mar. 15, 1897. Serial No. 627,457. (No model.)

Claim.—1. In a calculating-machine, the combination of a frame having uprights at its ends; a cylinder having stub-shafts bearing in said uprights, an indicator extending across the cylinder and provided with arms which bear on the stub-shafts, the indicator having a slot above which is a channel or holder made by bending up the metal removed to form said slot, and an inclined brace extending from the forward ends of the arms to the lower ends of the uprights, substantially as shown, and for the purpose set forth.

2. In a calculating-machine, the combination with a suitably-supported frame presenting uprights 5 5 slotted at their upper ends, of a cylinder having stub-shafts journaled in said slots, an indicator extending across the cylinder and provided with arms having slots which engage the stub-shafts, the uprights having keyhole-slots at their lower ends, and inclined brace-bars 12 pivoted to the forward ends of the arms and having at their free ends inwardly-projecting headed pins adapted to engage the keyhole-slots; together with the milled wheels or knobs secured at the ends of the stub-shafts of the cylinder, substantially as shown, and for the purpose set forth.



595,604. SUPPORT FOR SCAFFOLD LEDGER-BOARDS. JOHN F. CAUFIELD, New Britain, Conn. Filed Mar. 9, 1897. Serial No. 626,598. (No model.)



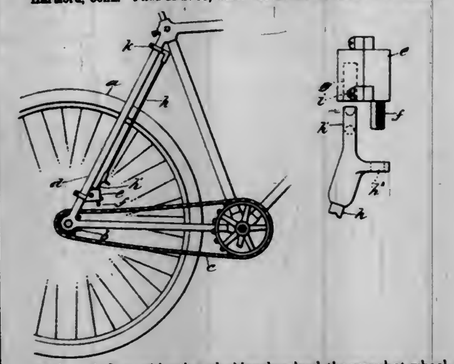
Claim.—1. The bracket-plates 5, 5, arranged in pairs and having projecting ends 13 provided with ledger board supporting seats, bolts 6 for securing said bracket-plates to the uprights, the holding-arms 7, 8, secured by their lower ends to the projecting ends 13 of said bracket-plates, and the chain 10 for securing the upper ends of said holding-arms in place, substantially as described.

2. A ledger-board-supporting bracket having a seat for the lower edge of the ledger-boards, means for securing the same to an upright, a holding-arm for extending across that broad face of the ledger-board which is farthest from the upright, the lower end of said holding-arm being secured to the said supporting-bracket while the upper end of said arm that projects above the top edge of the said ledger-board is provided with independent means for holding said arm to said upright, substantially as described.

3. The pair of clamping bracket-plates having holding-arms hinged to their bracket ends, said ends being provided with the curved slot for adjusting the said hinged arms for one or two thicknesses of board by moving the pivot-pin to the respective ends of said slots, substantially as described.

4. The pair of clamping bracket-plates having holding arms hinged to their bracket ends, a fastening-chain secured to one of said arms by one end and the companion arm having the slot 11 for receiving and holding the other end of said chain substantially as described.

595,605. BICYCLE LOCK AND SUPPORT. IRVING S. COVELL, Hartford, Conn. Filed Mar. 13, 1897. Serial No. 627,303. (No model.)

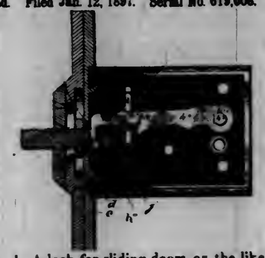


Claim.—1. In combination, the bicycle-wheel, the sprocket-wheel fixedly attached to said bicycle-wheel, the endless chain adapted to drive said sprocket-wheel, the fork-half rising from the shaft of said bicycle-wheel, the piece bearing pin and socket attached to said fork-half, and the separable obliquely-extending leg equipped with corresponding pin and socket adapted to cooperate with the first-mentioned pin and socket in grasping the chain, all substantially as described and for the purposes set forth.

2. In combination, the bicycle-wheel, the sprocket-wheel fixedly attached to said bicycle-wheel, the endless chain adapted to drive said sprocket-wheel, the fork-half rising from the shaft of said bicycle-wheel, the piece bearing pin and socket attached to said fork-half, the separable obliquely-extending leg equipped with corresponding pin and socket adapted to cooperate with the first-mentioned pin and socket in grasping the chain, and the lock for the last-mentioned pin, all substantially as described and for the purposes set forth.

3. In combination, the bicycle-wheel, the sprocket-wheel fixedly attached to said bicycle-wheel, the endless chain adapted to drive said sprocket-wheel, the fork-half rising from the shaft of said bicycle-wheel, the piece bearing pin and socket attached to said fork-half, the separable obliquely-extending leg equipped with corresponding pin and socket adapted to cooperate with the first-mentioned pin, and the spring-catch attached to the upper part of said fork-half, all substantially as described and for the purposes set forth.

595,606. LOCK. LUTHER CROUCH and WILLIAM E. STOKES, Wabash, Ind. Filed Jan. 12, 1897. Serial No. 619,008. (No model.)



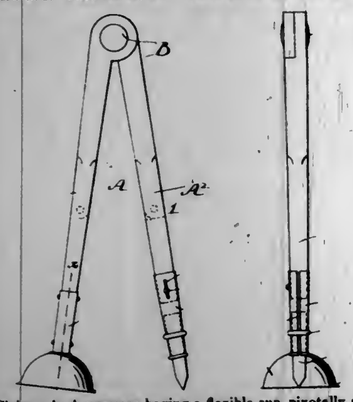
Claim.—1. A lock for sliding doors or the like having the two face-plates, a casing carried by one of said plates, a spring-controlled bolt having a lug at its end in close proximity to the face-plate for the purpose described, the other or stationary face-plate having ribs on its inner side, a sliding block movably adjustable between said ribs, a screw-threaded catch or staple carried by said block, a nut on said screw-threaded catch adapted to lock said catch in the desired position substantially as described.

2. The combination in a lock of the casing, the pivoted bolt, a spring controlling said bolt, the longitudinally-adjustable catch or staple adapted to engage said bolt, a sliding block carrying said catch or staple and a way in which said block moves, substantially as described.

3. A keeper for door-locks, consisting of the face-plate having a recess in its face, guideways on its back cast integral therewith, a movable catch or staple slotted for the reception of a bolt at one end,

and screw-threads at the other, a nut adapted to slide in said way, and screwed on said catch or staple, and a check-nut adapted to move in said recess also screwed on said catch or staple, for retaining the catch or staple in a fixed position when the doors are adjusted, substantially as described.

595,607. DRAFTING-COMPASS. FREDERICK COYKENDALL, New York, N. Y. Filed Feb. 23, 1897. Serial No. 624,663. (No model.)

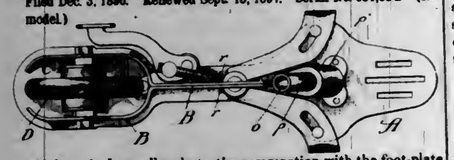


Claim.—1. A compass having a flexible cup pivotally attached to the lower end of one of the legs thereof, said cup adapted to be secured to a surface by atmospheric pressure, and a clamping device for holding a pencil or crayon secured to the end of the other leg, substantially as shown and described.

2. In a compass, the combination of a ferrule attached to one leg thereof and a revoluble flexible air-tight cup having an annular flange thereon, and a clamping device secured to the other leg of the compass, comprising a split collar and a ring for closing the collar around a pencil or crayon, substantially as shown and described.

3. In dividers of the character described having two pivoted members, an attachment comprising a flexible cup pivotally attached to the end of one member and adapted to adhere to a surface by the pressure of external atmosphere when the air has been exhausted therefrom, substantially as shown and described.

595,608. ROLLER-SKATE. TAYLOR R. DANIELS, Chicago, Ill. Filed Dec. 3, 1896. Renewed Sept. 13, 1897. Serial No. 651,534. (No model.)



Claim.—1. In a roller-skate, the combination with the foot-plate and front roller of a journal connection between the two upon which the front roller is supported to turn axially in a horizontal plane, and a torsion-spring connected with the journal, substantially as described.

2. In a roller-skate, the front roller having a journal connection with the foot-plate, and a torsion-spring in the journal and affording the fastening medium between the journaled parts, substantially as described.

3. In a roller-skate, a foot-plate having a hollow journal extending from its base, a bracket having a socket-head surrounding said journal, said bracket being connected with the roller-axle, and a torsion-spring confined in said journal and socket, substantially as described.

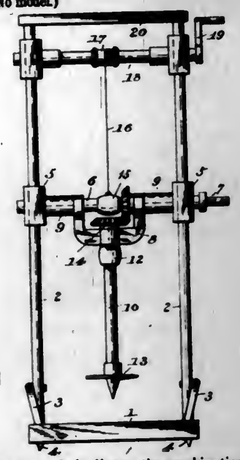
4. In a roller-skate, a foot-plate having a hollow journal *p* inclining backward from its base and having its opening constricted and of angular form toward its upper end, a bracket having a socket-head surrounding said journal, said bracket being connected with the roller-axle and the socket-opening being constricted and angular toward its lower end, and a torsion-spring in said journal and socket and confined at its opposite ends in the constricted portions of their openings, substantially as and for the purpose set forth.

5. In a roller-skate, the combination of a roller having a ring *i*, the annular tire-rim sections A and A' fastened together about said ring, and forming the rim D', and a rubber tire D seated in the rim, substantially as described.

6. A roller-skate comprising, in combination, the foot-plate A, the truss B thereon having the rear rubber-tired roller C journaled in it and provided with a ball-bearing, a rubber-tired front roller provided with a ball-bearing and having a journaled connection with the foot-plate, and a spring for resiliently controlling the turning of the front roller on said journal connection, substantially as described.

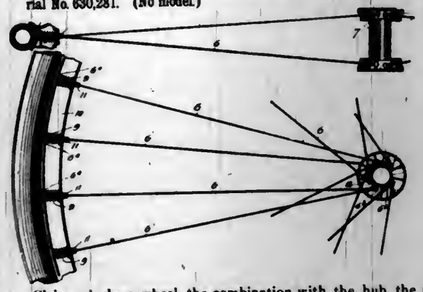
7. A roller-skate comprising, in combination with a foot-plate, a rear rubber-tired roller C provided with a ball-bearing, a front rubber-tired roller provided with a ball-bearing, a hollow journal *p* extending from the foot plate, a bracket fastened to the axle of the front roller and having a socket surrounding said journal, and a spring *l* confined in said journal and socket and forming the connecting medium between them, substantially as described.

595,609. POST-HOLE DIGGER. STEPHEN G. DAVIS, Indianola, Ill., assignor, by direct and mesne assignments, of two-thirds to Benjamin C. Richie, Georgetown, Ill. Filed Mar. 10, 1897. Serial No. 626,860. (No model.)



Claim.—In a post-hole digger, the combination with the rectangular frame, the rods secured thereto, the vertically-movable cross-heads, the driving-shaft, the miter-wheel secured thereto, the yoke journaled to said shaft, the drill or auger shaft, the miter-wheel at the upper end thereof, the shaft located above said driving-shaft the spool or drum, the cord or rope and the loose collar on the driving-shaft, of the horizontal rods bolted to said upright rods having their ends bent downwardly and passed through said frame forming feet therefor, substantially as described.

595,610. WHEEL. DAVID M. DEARING, Jackson, Mich., assignor of one-half to Guilford S. Wood, Denver, Colo. Filed Apr. 1, 1897. Serial No. 630,231. (No model.)



Claim.—1. In a wheel, the combination with the hub, the rim having a plate, and jacket-cones through the latter; of the spokes connected with the hub and passing through the cones, stops at their outer extremities, and expansive springs between said stops and cones, as set forth.

2. In a wheel, the combination with the hub, the hollow rim having inner and outer plates pierced with registering apertures respectively small and large, and headed jacket-cones whose bodies fit the smaller apertures and whose heads may be passed through the

larger ones only; of spokes leading from the hub through said cones, stops at their outer extremities within the rim, and expansive springs between the stops and the heads of the cones, as and for the purpose set forth.

3. In a wheel, the combination with the hollow rim having holes through its inner plate, and a stop consisting of a continuous strip inclosed within the hollow rim; of the hub, spokes leading therefrom loosely through the holes in the inner plate and connected with the stop, and expansive springs between the latter and the inner plate, as and for the purpose set forth.

4. In a wheel, the combination with the hollow rim having holes through its inner plate, jacket-cones seated in said holes, and a stop consisting of a continuous strip inclosed within the rim; of the hub, spokes leading therefrom loosely through said cones and connected with said stop, and expansive springs between the latter and the cones, as and for the purpose set forth.

5. The combination with one member, a jacket-cone seated therein and having a head with a cup-shaped face, a second member passing loosely through the cone, and a stop thereon; of a pneumatic ball resting in said cup and having a tubular core surrounding the second member between the cup and stop, as and for the purpose set forth.

6. In a wheel, the combination with the hub, the rim having a plate, and jacket-cones through the latter having cups in their outer ends; of the spokes leading from the hub and passing through the cones, stops at their outer extremities, and expansive springs consisting of pneumatic balls with diametric cores surrounding the spokes between said stops and cones and resting in the cups of the latter, as and for the purpose set forth.

7. In a wheel, the combination with the hub, the hollow rim having an inner plate pierced with apertures, and headed jacket-cones whose bodies fit the apertures and whose heads have cups in their outer faces; of spokes leading from the hub through the cones, stops at their outer extremities, and expansive springs consisting of pneumatic balls between the stops and the heads of the cones and resting in the cups of the latter, as set forth.

8. In a wheel, the combination with the rim, and the spokes; of a hub having radial plates through which the spokes pass obliquely, a stop at the inner extremity of each spoke, and a spring between the stop and plate, substantially as described.

9 In a wheel, the combination with the rim and spokes; of a tubular hub having enlarged box-shaped ends with interior radial plates, each spoke passing obliquely through the box and one of the plates and having a stop at its inner extremity, and a spring surrounding the spoke between the stop and plate as and for the purpose set forth.

10. In a wheel, the combination with the rim, the spokes, a hub having enlarged tubular box-shaped ends closed at their outer extremities by caps, and radial plates within said boxes forming compartments, the spokes passing through such plates; of stops at the inner ends of the spokes, and expansive springs each within one compartment of the box-hub and embracing one spoke between its stop and the adjacent plate, as and for the purpose set forth.

11. In a wheel, the combination with the hub member having plates, and the rim member having a plate; of the spokes extending through the plates of said members, stops at the extremities of the spokes, and springs consisting of pneumatic balls surrounding the spokes at both ends between their stops and the adjacent plates, as and for the purpose set forth.

12. In a wheel, the combination with the rim, the spokes, a tubular hub having boxes at its ends containing fixed radial plates forming compartments therein, and caps closing the outer ends of such boxes and compartments; of nuts at the inner ends of the spokes, the bodies of the latter passing through both the rim of the boxes and the plates, and expansive springs surrounding the spokes between their nuts and the plates through which they pass, as and for the purpose set forth.

595,611. DRAW-BENCH. FERDINAND DENING, Waterbury, Conn., assignor, by mesne assignments, to George H. Clowes, same place. Filed Dec. 24, 1895. Serial No. 573,223. (No model.)



Claim.—1. In a draw-bench, the combination with a bulkhead having a plurality of cylinders attached thereto, a blank-holder adapted to be united to the outer end of the piston-rods operating in said cylinders, a punch rigidly secured to the piston-rod and provided with means for holding the blank to be drawn concentric with the bore in the said bulkhead while approaching the said bulkhead, a piston-carriage to support the outer end of the said piston-rod, a friction-shaft rigidly secured at one end to the said blank-holder, an oscillating friction-arm pivotally secured to the said piston-carriage and means for operating said oscillating arm so that the said friction-shaft may be rigidly secured to the said piston-carriage and whereby the said punch and blank-holder may be operated synchronously, substantially as described.

2. In a draw-beech, the combination with the vertically-disposed bulkhead 1 carrying a female die, as 2, and having the cylinders 3 3 projecting horizontally from its front side, at opposite sides of said die, said cylinders carrying pistons and having the piston-rods 13 projecting from their rear ends, of blank-holder 9, movable in a horizontal plane toward and away from said bulkhead, said blank-holder being provided with holes to receive said piston-rods 13, means, as the keys 15, for locking said piston-rods from withdrawal from said blank-holder, the horizontally-disposed drawing punch 8 and its actuating mechanism, and friction connections between said punch and said blank-holder, whereby they are caused to move in unison until the blank-holder is brought into contact with the bulkhead, arranged and operating substantially as described.

3. In a draw-bench the combination with the bulkhead of two or more rolls or drums to support the externally-threaded nuts in said bulkhead while being brought to a tightened position, the periphery of said rolls and that of the threaded recess in said bulkhead being tangent to each other, and a shaft upon which said rolls rotate secured to the said bulkhead, substantially as described.

4. An extension cross-head for a draw-bench having a longitudinal slot in the center of its upper portion and two holes parallel to, and equally distant from, said slot for the purposes as herein set forth in combination with a vertical shaft supported in bearings which project from and are integral with the said cross-head; the lower end of said shaft being provided with a pinion permanently secured thereto; the upper end being adapted to receive means whereby the said shaft and pinion may be rotated, substantially as described.

5. In a draw-bench the combination of an extension cross-head having a longitudinal slot in its upper portion adapted to receive a stripping device and two holes parallel to and equally distant from said slot adapted to receive extension-rods, of a vertical pinion-shaft supported in bearings which are integral with and project from said cross-head, of a pinion whose teeth mesh into the teeth of a rack integral with the base-plate, of a base-plate having a rack formed integral with one side thereof, and a T-slot extending longitudinally throughout its entire length, of one or more bolts the heads of which are fitted into the T-slots of the base-plate aforesaid and by means of the nut upon their upper ends are adapted to securely fasten said cross-head in any intermediate position, substantially as described.

6. In a draw-bench the combination with a blank-holder, of a horizontal friction-shaft permanently secured thereto, of a friction device substantially as set forth whereby the piston-carriage and blank-holder may be actuated synchronously, and means for operating said friction device, substantially as described.

7. In a draw-bench the combination with a blank-holder substantially as described, of a friction device comprising a fixed upper bearing and a lower bearing integral with an oscillating arm, said oscillating arm supported upon one end by a shaft in a fixed eared bracket the opposite end of which is adapted to receive a vertical shaft and a fixed nut whereby it may be actuated, substantially as described.

8. In a draw-bench the combination with a blank-holder having a horizontal friction-shaft permanently attached thereto and extending therefrom, of a friction device comprising a fixed upper bearing 26, a lower bearing 27 integral with the oscillating arm 30, an eared bracket 34 and fulcrum-shaft 37 therein; vertical shaft 39 and fixed nut 40, all substantially as described.

9. In a draw-bench, the combination with a vertically-disposed bulkhead carrying a female die, of a blank-holder movable in a horizontal plane toward and away from said bulkhead and having a central opening concentric with said female die, of a horizontally-disposed punch, concentric to the opening in said blank-holder and to said die, said punch being located in rear of said blank-holder and having at its front end a centrally-located fixed stud or tip which projects through the opening in the blank-holder a sufficient distance to receive and support a centrally-perforated blank, at the front side of said holder, as the punch moves toward the bulkhead, and means for causing said punch and blank-holder to approach the bulkhead simultaneously and for advancing the punch independently of the blank-holder when the latter is brought into contact with the bulkhead, arranged and operating substantially as described, whereby the stud or tip on the punch is caused to perform the double function of centering the blank and supporting the same as it is moved toward the bulkhead.

10. In a draw-bench a punch for centering shells which encircle the male die or punch one end of which is adapted to receive said shells and the other to be secured to the blank-holder, substantially as described.

11. In combination with a draw-bench as herein described an extension cross-head and extension-rods adapted to be secured to the said cross head and to the bulkhead of said draw-bench, for the purposes as herein set forth substantially as described.

12. A blank-holder for a draw-bench having a central bore of greater diameter than the punch of said draw-bench, and a rest or support adapted to be secured to said blank-holder within said bore for supporting the said punch in said blank-holder, substantially as described.

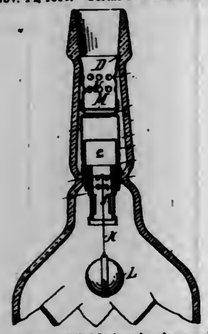
13. The combination of the blank-holder 9 having a central bore and two or more smaller bores diametrically opposite each other and parallel with said central bore, support 16 secured to said blank-holder within said bore, shoes 11 11 rigidly secured to the sides of said blank-holder, substantially as described.

14. In combination with the piston-rod of a draw-bench, means to support said piston-rod upon its outer end, the said means comprising a piston-support adapted to slide upon the horizontal rods of the said bench and having one or more concave upper faces upon which the said piston-rod rests, substantially as described.

15. In a draw bench, a piston-carriage comprising a base supported by the horizontal rods, a block secured to the top of said base and having one or more concave faces adapted to receive the end of said piston-rod, substantially as described.

16. In a draw-bench, the combination of a piston-rod, a piston-carriage to support the outer end of said piston-rod and a blank-holder: with means for securing the said blank-holder and the said piston carriage together by a frictional connection, substantially as described.

595,612. NON-REFILLABLE BOTTLE. CLEMENT A. DUNBAR, Detroit, Mich., assignor to the Dunbar Manufacturing Company, same place. Filed Nov. 14, 1896. Serial No. 612,083. (No model.)



Claim. 1. In a non-refillable bottle, the combination with a bottle-neck, of a valve mechanism for permitting the outflow and prohibiting the inlet of liquid, and comprising a ported casing, a buoyant piston-valve for governing the ports of the casing, and provisions whereby the valve may have an extended reciprocating movement while acting to close the ports, and a counteracting weight.

2. In a non-refillable bottle a buoyant elongated piston-valve, an elongated seat over which the valve has to move to be opened and a counteracting weight suspended by a flexible cord within the bottle.

3. In a non-refillable bottle, the combination with a cylindrical casing within the neck of the bottle provided with an annular valve-seat at its inner end, of a buoyant piston-valve slidingly secured in said cylindrical casing and having outlet-ports adapted to be disclosed by the outward movement of said piston, a head on said piston adapted to seat on said annular seat and a weight within the bottle suspended from said valve for holding it in its closed position.

4. In a non-refillable bottle, the combination with a cylindrical casing within the neck of the bottle, of a piston-valve slidingly secured in said cylindrical casing and having outlet-ports adapted to be disclosed by the outward movement of the valve, a float secured to said valve and a weight within the bottle suspended from said valve for the purpose described.

595,613. FRICTION-PIVOT FOR MIRRORS OR TRANSOMS. CHARLES P. DYER, Somerville, Mass. Filed Apr. 22, 1897. Serial No. 633,395. (No model.)

Claim.—1. A friction supporting device for mirrors, transoms and the like, consisting of a vertical U-shaped socket having inclined or dovetailed sides and a pivot-pin or pintle divided axially to form two diverging spring branches at its outer end for engagement with said socket in such manner that the turning of the pin within the socket from one position to another will cause the diverging spring ends of said pin to be compressed and forced toward each other to produce increased friction between the pin and socket, substantially as described.

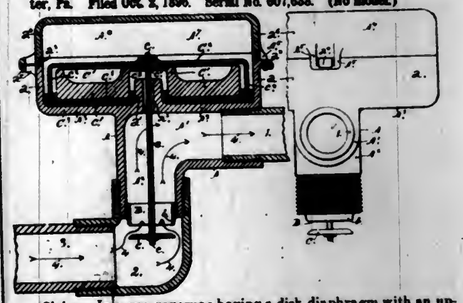


2. A friction supporting device for mirrors, transoms and the like, comprising a vertical U-shaped socket having inclined or dovetailed sides and being provided with a rearwardly extending shank adapted to be driven into the article to which the socket is to be attached, and a pivot-pin or pintle, divided axially to form two diverging spring branches at its outer end for engagement with said socket in such manner that the turning of the pin within the socket from one position to another will cause the diverging spring ends of said pin to be compressed and forced toward each other to produce increased friction between the pin and socket, substantially as described.

3. A friction supporting device composed of two leaves or members, one member consisting of an axially-divided holder adapted to be driven into the article to which it is to be attached and containing a pivot-pin or pintle divided axially to form two diverging spring branches, and the other member consisting of a vertical U-shaped socket for the reception of the separated spring ends of the pivot-pin, said socket having inclined or dovetailed sides and being provided with a rearwardly-extending shank adapted to be driven into the article to which the socket is to be attached, the turning of the pivot-pin within the socket from one position to another causing the diverging ends or branches of said pin to be compressed and forced toward each other to produce increased friction between the pin and socket, substantially as described.

4. In a friction supporting device, the combination with the axially-divided holder c, of the pivot-pin or pintle b' axially divided to form two diverging spring branches projecting beyond the ends of its holder, and means for preventing said pin from turning within said holder and being withdrawn longitudinally from the same, substantially as set forth.

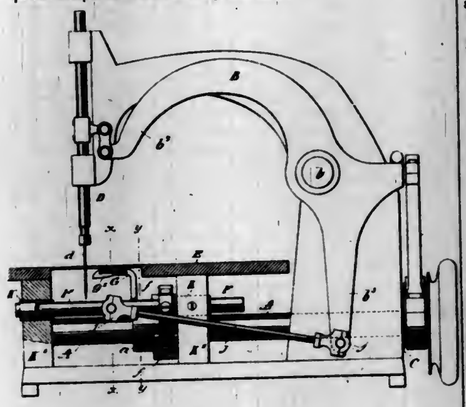
595,614. FLUID-PRESSURE REGULATOR. PARR ERB, Lancaster, Pa. Filed Oct. 2, 1896. Serial No. 607,638. (No model.)



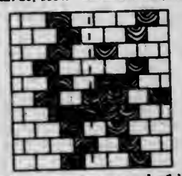
Claim.—In a gas-governor having a disk diaphragm with an upwardly-projecting peripheral ring-wall and a prescribed column at the center thereof having an axial bore through its body rigidly secured to the top of a tubular portion having an inlet branch and an outlet branch perpendicular to each other with a valve adapted to open and close said inlet branch and an inverted cup with a stem through said axial bore connecting the cup and valve with a quantity of mercury flooding said diaphragm between its peripheral wall and central column and immersing the open end of said inverted cup, a disk weight or float lying independently or unattached on top of said mercury, whereby the gas-pressure coming between the cup and weight in raising the former will depress the latter and displace the mercury from underneath said weight, substantially as described and for the purpose hereinbefore set forth.

595,615. LOOPER-OPERATING MECHANISM FOR SEWING-MACHINES. JOHN R. PEPEL, New York, N. Y. Filed Jan. 14, 1897. Serial No. 619,144. (No model.)

Claim.—In a sewing-machine the combination of a needle and its actuating mechanism, of a rotating shaft having an elongated eccentric surface thereon, and a reciprocating cylindrical looper-bar carrying the looper and provided with a laterally-projecting fork embracing said elongated eccentric surface, whereby the forked extension will continue in engagement with the eccentric surface throughout the travel of the looper-bar, and the latter will partake of a compound reciprocal and oscillatory movement.

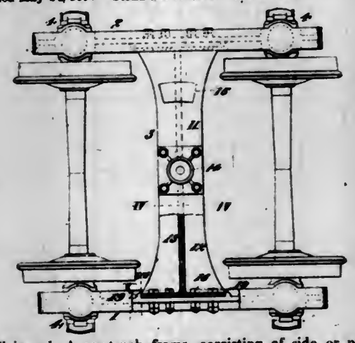


595,616. WOOD PAVEMENT. HEINRICH FREESE, Berlin, Germany. Filed Mar. 25, 1897. Serial No. 629,222. (No model.)



Claim.—A wood pavement composed of blocks placed on end having the fiber running in a vertical direction and having the butt-end of the tree on the base of the street and the top end of the tree directed upwardly and having the heart side of the wood pointed in the direction from which the hoofs of horses are liable to attack the pavement, substantially as described.

595,617. CAR-TRUCK. THOMAS M. GALLAGHER, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed May 24, 1897. Serial No. 637,863. (No model.)



Claim.—1. A car-truck frame, consisting of side or pedestal members of I-beam form, and a cross or transom member; said cross member having integral ends resting upon the lower integral chords of the side members and formed to fit against the webs of the side members and bolted thereto, substantially as set forth.

2. A car-truck frame, consisting of side or pedestal members of I-beam form, a cross or transom member; said cross member having integral ends formed to fit against the webs of the side members and bolted thereto, and having shoulders 18 that fit against the inner edges of the upper or compression chords of the side members, substantially as set forth.

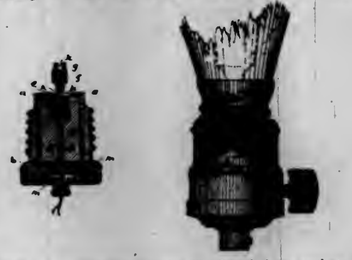
3. A car-truck frame, consisting of side or pedestal members of I-beam form, and a cross or tension member, said cross member having integral ends formed to fit between and bear against the upper and lower integral chords of the side members; and to bear against the webs of the side members to which they are bolted, substantially as set forth.

595,618. SLATE ROOFING. PAUL GAMBS, Burkhart, Ohio. Filed Feb. 20, 1895. Serial No. 539,159. (No model.)



Claim.—A roof consisting of square main plates or members arranged in diagonal courses parallel with similarly-disposed purlins, and auxiliary right-angled-triangular border or bounding plates or members with their hypotenuse edges in alinement with the contiguous edges of the roofed surface, and having right-angularly-disposed edges of different lengths, the initial or first-laid auxiliary plates at one corner of the roofed surface being arranged with the shorter of the right-angularly-disposed edges of one plate overlapping the longer of the right-angularly-disposed edges of the other plate, and the lapped portion of each plate being equal with the difference in length between the long and short right-angularly-disposed edges of the auxiliary plates, substantially as specified.

595,619. COMBINATION ATTACHMENT-PLUG. JACOB F. GATES, Pittsburg, Pa. Filed Feb. 19, 1897. Serial No. 624,189. (No model.)



Claim. 1. A combination-plug for electric-lamp sockets, consisting of a plug proper, having a detachable reversible contact-pin provided with heads of differential sizes, substantially as shown and described.

2. In a combination plug, the plug connections therewith and a detachable reversible contact-pin in said plug whereby the same can be made to accommodate different sockets, substantially as shown and described.

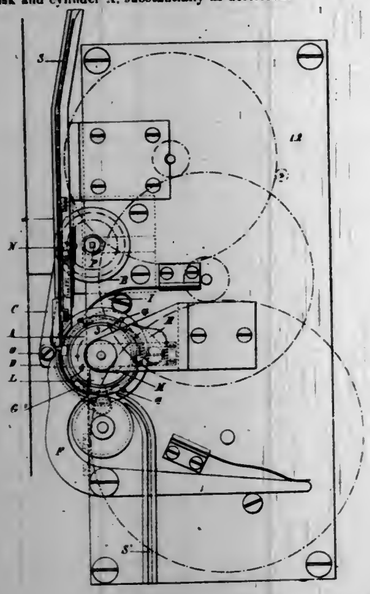
3. A combination-plug, consisting of a casing, insulating material and base-cap, a post within said insulating material, connections therewith, and with the casing, said post carrying an interiorly-screw-threaded cup to receive a detachable contact-pin, substantially as shown and described.

595,620. KINETOGRAPHIC CAMERA. PAUL GAUTIER, Paris, France. Filed Mar. 3, 1897. Serial No. 625,811. (No model.) Patented in Belgium Jan. 11, 1896, No. 125,671; in France Sept. 11, 1896, No. 259,599, and in England Jan. 4, 1897, No. 212.

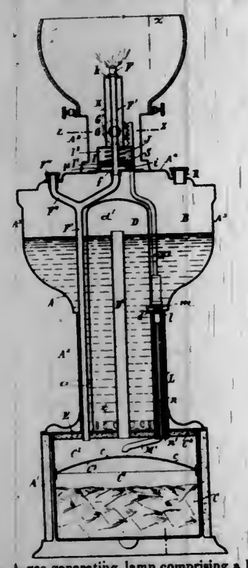
Claim.—1. In intermittently-moving apparatus for taking or displaying photographs, the combination of clockwork driving a crank having a link connected to a pawl-lever engaging a ratchet-wheel on the axis of a pinned cylinder moving the film, the pawl-lever being arranged to disengage, as the link ascends, a second lever having a pawl which engages an oppositely-toothed wheel on the axis of the cylinder and operating as the link descends to move the cylinder one tooth to a position in which during the ascent of the link it is held by the second pawl and by a third pawl preventing back movement, substantially as described.

2. In combination the feeding-passages S and S', the cylinder A adapted to engage the film to draw it through the passage, a disk B,

means for rotating the same, and an operating connection between the disk and cylinder A, substantially as described.



595,621. ACETYLENE-GAS-GENERATING LAMP. ANDRE GOSSON, Paris, France. Filed Mar. 15, 1897. Serial No. 627,603. (No model.)



Claim.—1. A gas generating lamp comprising a lamp-body reservoir, a generator at the base thereof, within the lamp-casing a cover-plate and absorbent pad to which the lamp is fitted, a bell-gasometer having holes at its base secured to the cover-plate and a central tube extending from said plate upwardly within the gasometer-bell, a water-supply pipe connecting the latter with the generator, a burner, and a gas-supply pipe connecting the said burner with the generator, substantially as described.

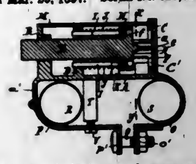
2. A gas-generating lamp comprising a lamp-body, a reservoir and a generator connected therewith, a liquid-supply pipe connecting the generator and reservoir, a gas-burner and gas-tube supplied from the generator, a supplemental burner-tube connected with said gas tube and a regulating-valve to control the openings in a supplemental burner-tube and gas-tube, substantially as described.

3. A gas-generating lamp comprising a combined lamp-body, a reservoir and generator, a bell-gasometer connected to the reservoir and generator, a liquid-supply pipe connecting the middle part of the gasometer, reservoir and generator, and a valve controlling the aperture of said pipe, a gas pipe and burner, a tap and a rod connecting said tap and valve, substantially as described.

4. In a gas-generating lamp the combination with the lamp-body of the reservoir, the generator, the bell-gasometer, the pipe connecting said generator and gasometer, a second parallel pipe leading to the bottom of the lamp-reservoir, and communicating therewith by a connecting-aperture, a porous plug arranged to cover said aperture, and a rod connected to said plug and passing through said parallel pipe, substantially as described.

5. In a gas-generating lamp the combination with the lamp-body of the reservoir, the generator, the gasometer, the supply-pipes therefrom respectively, to the generator and to the burner, the liquid-supply valve leading to the generator, the gas-burner, the burner-tap, a segment-disk secured thereto, and a sector-disk having a segment-block to engage with said segment, and a rack-bar connected to said liquid-supply valve, substantially as described.

595,622. SAFETY-BOLT FOR CYCLES. ANDRE GOSSON, Paris, France. Filed Mar. 29, 1897. Serial No. 629,655. (No model.)

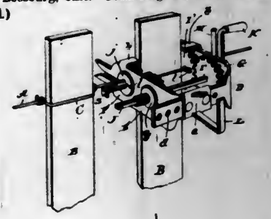


Claim.—1. In a bicycle lock, a lock-case and base-plate adapted to be secured to the frame adjacent to the gear-wheel of the driving-axle, a bolt inclosed and guided therein adapted to be rotated and projected longitudinally therein to engage transversely to and with said gear-wheel, suitable key-seats and apertures respectively in the end of the bolt and the lock-case and means engaging the key-apertures in the end of the bolt for locking the same, a spring for retracting the bolt and suitable means for engaging the rotative bolt with a fixed part of the casing to prevent its retraction, substantially as described.

2. In a lock, a base-plate, a locking-bolt guided and having a longitudinal movement thereon, springs for holding the bolt in a retracted position, a projection upon the base plate, an annular enlargement upon the bolt having a cut-away portion, whereby when the bolt is projected and revolved the enlargement bears against the projection to hold the bolt in a projected position.

3. In a bicycle-lock, in combination with a bicycle, a base-plate secured thereto, side walls projecting upwardly from the base-plate, a partition projecting upwardly from the base-plate intermediate the side walls, a locking-bolt guided by one of the side walls and the partition, and having a longitudinal movement therein, an annular enlargement upon one end of the bolt, a movable disk arranged upon the bolt intermediate the enlargement and the partition, orifices in the opposite sides of the partition, disk and enlargement respectively, rods secured in the orifices of the disk, one end extending through the orifices of the partition, the opposite ends projecting into the orifices in the enlargement when the said orifices are in alinement therewith, manual means for projecting the bolt and mechanical means comprising springs upon the rods bearing upon the partition and the disk respectively for retracting the bolt.

595,623. WIRE-AND-PICKET-FENCE MACHINE. JAMES T. GUTHRIE, Leesburg, Ohio. Filed Aug. 24, 1897. Serial No. 649,303. (No model.)



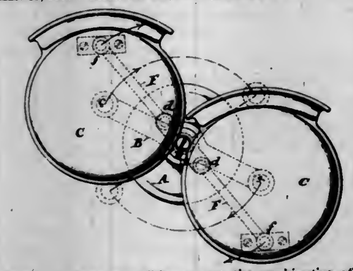
Claim.—1. In a fence-machine, the combination of a frame comprising two members having notches in their ends; said members being adjustably connected together whereby they may be fixed at various distances apart, twister-wheels, with peripheral gear-teeth, journaled in said members and having notches extending from their centers to their peripheries and also having transverse apertures arranged off their centers, a crank-shaft of angular form in cross-section journaled in the frame, and gear-wheels meshing with the gear twister-wheels and mounted on the crank-shaft so as to turn therewith, substantially as specified.

2. In a fence-machine, the combination of a frame comprising two members having notches in their ends; said members being adjustably connected together whereby they may be fixed at various distances apart, twister-wheels, with peripheral gear-teeth, journaled in said members and having notches extending from their centers to their peripheries and also having transverse apertures arranged off their centers, a gear-wheel I journaled in one frame member and meshing with one gear twister-wheel and having a central angular aperture, a crank-shaft of angular form in cross-section journaled in one frame member and extending loosely through the central aperture of the gear-wheel, and a gear-wheel I' fixed on said shaft and meshing with the contiguous gear twister-wheel, substantially as specified.

3. In a fence-machine, the combination of the frame comprising a member F having a notch in one end and an angularly-disposed arm at its opposite end carrying a loop, a member G having a notch in one end and an angularly-disposed arm at its other end extending through the loop and provided with transverse apertures at intervals in its length, and removable bolts extending through registered apertures of the loop and the apertured arm, gear twister-wheels journaled in the members of the frame and having notches extending from their centers to their peripheries and also having transverse apertures arranged off their centers, a gear-wheel journaled in one frame member and meshing with one gear twister-wheel and having a central angular aperture, a crank-shaft of angular form in cross section journaled in one frame member and extending loosely through the central aperture of the gear-wheel, and another gear-wheel fixed on said shaft and meshing with the contiguous gear twister-wheel, substantially as specified.

4. In a fence machine, the combination of a frame having arms provided with notches in their ends to receive a runner-wire and also provided with the inwardly-directed picket-holding lugs *z*, twister-wheels journaled in said arms and having notches extending from their centers to their peripheries and adapted to register with the notches in the frame-arms and receive the runner-wire, and also having transverse apertures arranged off their centers and adapted to receive a tie-wire, and a suitable means for rotating said twister-wheels in concert, substantially as specified.

595,624. CAR-SEAT. HENRY S. HALE, Philadelphia, Pa. Filed Mar. 13, 1897. Serial No. 627,272. (No model.)



Claim.—1. In a reversible car-seat, the combination of two independent pivoted seats, a common support therefor adapted to move the seats as entireties in the arc of a circle and in opposite directions, and means for simultaneously revolving the seats upon their pivots while they are moving as entireties through the arcs of the circles.

2. In a reversible car-seat, the combination of a pedestal or base, a support pivoted thereto and having two projecting arms, two seats or chairs respectively pivoted upon the ends of the arms of the support, and connecting devices between the respective seats and the pedestal or base whereby the movement of the pivoted support through the arc of a circuit will automatically reverse the seats.

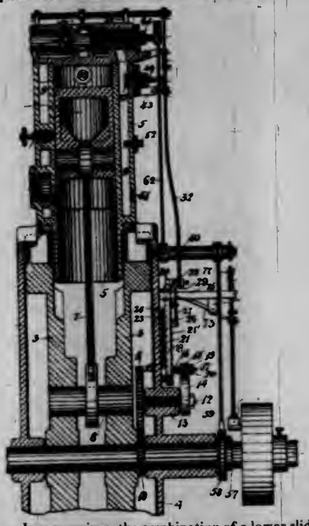
3. In a reversible car-seat, the combination of a stationary pedestal or base, a support pivoted thereto at a point intermediate of its ends, two independently-rotating seats or chairs respectively pivoted upon the ends of the support, links each having one end connected with one of the chairs and having the other end held close to the pivot connections of the support whereby the movement of the support through the arc of a circle will shift the position of the two seats within the car and at the same time reverse them upon their pivots.

4. In a reversible car-seat, the combination of a stationary pedestal or base, a support pivoted thereto at a point intermediate of its ends, two independently-rotating seats or chairs respectively pivoted upon the ends of the support, two links connected to the pedestal or base at their inner ends and having their outer ends respectively connected one to the rear portion of one seat and the other to the forward portion of the other seat whereby a movement of the support through an arc of a circle will cause the seats to be reversed upon their pivots.

5. In a reversible car-seat, the combination of a fixed pedestal or base, a movable support pivoted thereto and adapted to move through an arc less than a semicircle, two independent seats or chairs movably connected upon the ends of the support and arranged upon each side of its pivot, and connecting devices between the chairs or seats and the pedestal or base for reversing the seats upon the movable support whereby they are completely reversed and at the same time are caused to be brought into an oblique line to the side of the car so that the corresponding seat has a position always in advance of the other.

6. In a car-seat, the combination of a stationary pedestal or base, a support pivoted thereto at its middle, two independent seats or chairs independently pivoted upon the ends of the support, connecting devices between the car-seats and pedestal or base whereby each of the seats is acted upon at two points to induce their rotation and the seats are transferred alternately to opposite sides of the pivot of the support so that they are alternately shifted from the aisle to the window side, and vice versa.

595,625. GAS-ENGINE. ALBERT L. HARBISON, New Brighton, Pa. Filed Apr. 25, 1896. Serial No. 589,042. (No model.)



Claim.—In gas-engines, the combination of a lower slide reciprocated by a positive connection with the main shaft and an upper slide suitably connected with a gas-inlet valve; a catch-block on a pivoted link adapted to bring said upper and lower slides in operative engagement when inserted between them; a pivoted knocker in contact with said swinging link; an eccentric-rod actuating said knocker and the governor on the main shaft controlling the throw of said eccentric-rod.

595,626. COTTON-STALK PULLER. BENJAMIN F. HARWOOD, Cooper, Tex. Filed Dec. 23, 1896. Serial No. 616,748. (No model.)

Claim.—In a stalk-pulling machine, the combination with a supporting-frame, of a hollow cylinder, contiguous longitudinal series of separate stalk-pulling fingers projecting from the surface of the cylinder, said pulling-fingers being tapered toward their outer ends, being arranged in series with their inclined sides in contact and intersecting contiguous to the surface of the cylinder, and having concaved sharpened upper edges, each pulling-finger also having a

threaded stem fitted in a perforation in the wall of the cylinder and engaged by a nut bearing against the inner surface of the cylinder, fixed cutting fingers or knives arranged in a series parallel with and in rear of the cylinder, and respectively in the planes of the spaces between contiguous pulling-fingers, operating devices for the cylinder, and an interiorly-accessible hood or casing covering the cylinder and the cutting fingers or knives, substantially as specified.



595,627. CHURN. ASA HASELTON, Middletown, Mo. Filed May 26, 1897. Serial No. 638,285. (No model.)



Claim.—1. In a churn, the combination with a dasher having an open center and a surrounding series of blades supported by upper and lower spaced cross-heads, and means for operating said dasher, of a tempering-can of less length than the interval between the cross-heads, arranged within the space surrounded by the blades and between the cross-heads, and means for detachably securing the can to the dasher, said means consisting of interlocking pins and sockets, the pins at the upper and lower ends of the can being of different lengths, substantially as specified.

2. In a churn, the combination of a dasher and operating mechanism therefor, said dasher having upper and lower cross-heads and connecting-blades, of a tempering-can of less length than the interval between the cross-heads arranged concentric with the dasher in the space inclosed by the paths of the blades, and provided at its upper and lower extremities with pins of unequal lengths fitting in sockets formed in the facing sides of said cross-heads and adapted to be disengaged by axially moving the can, substantially as specified.

3. In a churn, the combination with a supporting-frame, and a churn-receptacle provided with breaker-strips, of a dasher having its staff mounted in bearings on said frame, operating mechanism for the dasher-staff, the dasher comprising upper and lower armed cross-heads connected by spaced blades arranged in a series surrounding the axis of the dasher, and said upper and lower cross-heads being provided respectively with sockets, and a tempering-can of less length than the interval between the cross-heads arranged axially in the dasher, within the space inclosed by the paths of the blades, and provided at its extremities with pins to engage said sockets in the cross-heads, duplicate pins being arranged at one end of the can to cause rotation of the can with the dasher, and the pins at the upper and lower ends being of different lengths to provide for moving the can axially to unseat the pin at one end, substantially as specified.

595,628. FOLDING UMBRELLA. CALVIN J. HOLMAN, Chicago, Ill. Filed Feb. 13, 1897. Serial No. 623,274. (No model.)



Claim.—1. In a folding umbrella, the combination with a staff having a series of pivotal supports near its tip, of a series of double strands each having two parallel wires formed into hooks at one end to engage the said pivotal supports and bent at the other end into an eye standing at an angle to said wires, a sliding clasp mounted on each double strand, a single strand movably arranged in said eye and fixed to said clasp, and a spreader pivoted to a lug on the clasp and to a collar on a ferrule movable on the staff, substantially as described.

2. In a folding umbrella, the combination with a staff composed of two telescoping sections, of a detachable tip and handle, a flexible connection such as a cord between said handle and tip and passing through the telescoping sections, a spring coiled in one of said telescoping sections and attached at its opposite ends to said cord, said spring exerting its tension to hold the tip and handle in place when the staff is extended, and means for holding the staff in its extended position, substantially as described.

3. In a folding umbrella, the combination with a staff composed of two telescoping sections, one of said sections having a bayonet-slot and the other section provided with a pin engaging said slot to hold the staff extended, of a detachable tip and handle, a flexible connection such as a cord between said handle and tip and passing through the telescoping sections, a spring coiled in one of said telescoping sections and attached at its opposite ends to said cord, said spring exerting its tension to hold the tip and handle in place when the staff is extended, substantially as described.

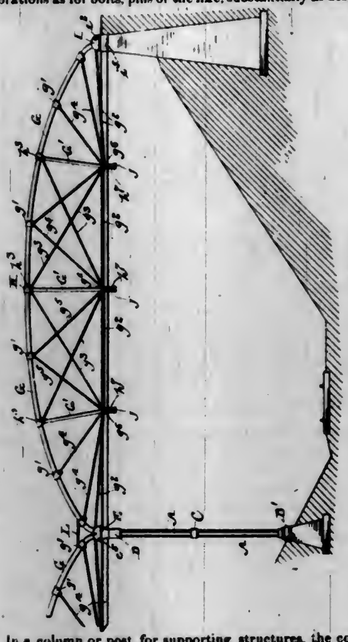
595,629. TRUSS AND BRIDGE. CHARLES M. HORTON, Duluth, Minn. Filed Nov. 19, 1896. Serial No. 612,735. (No model.)

Claim.—1. In a truss the combination of top-chord beams, hooked clips hung from the edges of the said beams and adapted to secure posts, supports and braces to said top-chord beams without passing bolts or pins through the same and thereby weakening them, substantially as described.

2. In a truss the combination of top-chord beams, splicing-clips applied thereon for locking them in place, and adapted to secure suitable posts, supports and braces to said beams without weakening the same by bolt-holes and vertical webs formed upon said clips for strengthening them, substantially as described.

3. In a truss the combination of arched I-beams, forming a top-chord beam, splicing-clips adapted to fit the contour of said beams for locking the ends of the same in place, vertical webs formed upon the said clips for strengthening them, and means for securing posts, supports, tie-rods and braces to said clips, the construction being such that the arched beams are not weakened by perforations for bolts, pins or the like, substantially as described.

4. In a truss, the combination of arched I-beams, hooked clips adapted to fit upon the flanges of said I-beams and be locked thereon and means for attaching supports, posts, and braces, the said clips, the construction being such that the arched beams are not weakened by perforations as for bolts, pins or the like, substantially as described.



5. In a column or post for supporting structures, the combination of a plurality of angle-beams, meeting at a central point and divided clips adapted to be bolted together so as to inclose the said beams for holding them together, the construction being such that the said angle-beams are not perforated as for bolting and thereby weakened, substantially as described.

6. In a column for supporting structures, the combination of a plurality of angle-irons, the legs of which meet at a central point, a base-plate provided with grooves adapted to fit the end contour of said angle-irons and laterally-extending ears upon said base-plate for receiving and securing the end of the brace-rods, and divided clips adapted to be bolted together so as to inclose the said beams and bind the said irons together without perforating them for bolting, substantially as described.

7. In a supporting column or post the combination of a plurality of angle-irons, the legs of which meet at a central point, grooved plates for holding the ends in position and sleeves formed of divided clips provided with external bolting-ears, the said clips being adapted to be bolted together so as to inclose said irons and bind them together without perforating them for bolting, substantially as described.

8. In a support for bridges, viaducts or the like, the combination of columns comprising a plurality of T-beams having their leg portions turned toward each other, end plates having grooves for holding the ends of said beams in place, sleeves consisting of divided clips having external bolting-flanges whereby the clips are adapted to inclose said beams and to bind them together, projections on said clips adapted to engage notches in the edge of flanges of the beams to prevent slipping and means secured to said plates and sleeves for bracing the said columns laterally, the construction being such that the said T-beams are not perforated as for bolting or riveting, and consequently weakened, substantially as described.

9. In a column for bridges, viaducts or the like, the combination of a plurality of angle-irons meeting at the center, means for binding said angle-irons together without passing bolts through the same, a cap-plate adapted to fit upon the upper ends of said irons, and provided with a channel or recess upon its upper surface adapted to receive rollers, and a shoe resting upon said rollers, adapted to receive and support the end of a truss-beam, without bolting, substantially as described.

10. In a column for supporting adjacent spans or trusses the combination with a suitable cap-plate, of a shoe or trunnion box for supporting the ends of the top-chord beam of said spans, roller-bearings interposed between the said cap-plate and shoe, overhanging flanges upon said shoe completely covering the rollers and the cap-plate for keeping out water or ice, and trunnion-plates upon said shoe adapted to support the end bottom-chord links of said spans, substantially as described.

11. In a truss the combination with a top-chord beam, of panel-posts adapted to connect the said top-chord beam with the floor-beam of the said truss, clips having bolting-flanges adapted to inclose and be secured to the web of said panel-posts, ears at right angles to said flanges for securing the same to the top and bottom tie-bolts, substantially as described.

12. In a truss the combination with a top-chord beam, of hooked clips hung from the opposite edges of the same, depending ears upon said clips extending below the top-chord beam and adapted to receive a connecting-bolt, for locking them in place, said bolt being adapted to support the panel-posts, braces and wind-braces, substantially as described.

13. In a truss the combination of arched top-chord beams having a continuous curved form, roller-bearings having shoulders and inclined surfaces upon their upper sides adapted to receive and support the ends of said top-chord beams and means for securing posts, supports, braces and beams to said top-chord beams, substantially as described.

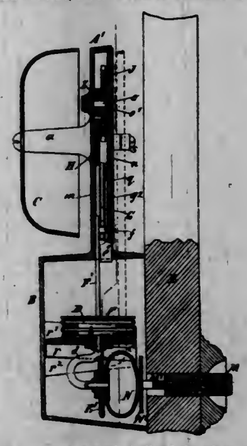
14. In a truss for bridges the combination with top-chord beams of shoes having inclined upper surfaces and shoulders thereon adapted to receive the shore ends of said beams, channel base-plate secured to the shoe-abutments, and rollers interposed between said shoes and channel-plates, substantially as described.

15. In a truss for bridges the combination with top-chord beams and bottom-chord links, of shoes adapted to receive the shore ends of said beams having inclined surfaces upon the said shoes for receiving the end thrusts of said beams, channel-plates secured to the shore-abutments, rollers interposed between said shoes and channel-plates, and trunnion-plates formed on said shoes adapted to have secured to them the shoe ends of the bottom-chord links of the truss, substantially as described.

16. In a truss the combination with top-chord beams, of panel-posts secured thereto, clips having bolting-flanges adapted to inclose and be secured to the webs of said panel-posts, and ears at right angles to the said flanges, bolts passed through the lower ends of said posts and said ears, I-beams for supporting the floor of the truss, yokes passing over the said tie-bolts and passing through the flanges of the said floor I-beams and means for securing the said yokes to the said flanges, substantially as described.

17. In a truss-bridge or viaduct the combination with top-chord beams, of panel-posts, I-beams for supporting the floor of the truss, yokes at the lower end of said panel-posts passing through the flanges of the said I-beams for securing the floor-beams of said bridge, or viaduct to said posts, and diagonal brace-rods interposed between said floor beams, and having bifurcated ends adapted to embrace the flanges of said floor-beams, the said bifurcated ends having apertures to receive the said yokes for laterally bracing the bridge, substantially as described.

595,630. PNEUMATIC DOOR-BELL. JOHN HUNT, New York, N. Y. Filed June 27, 1891. Serial No. 397,674. (No model.)



Claim.—1. In a pneumatic bell of the character described, the flat mechanism-case A' formed with a front plate *m* and back plate *n*,

the one formed with a projecting stud *o* and the other with a flat projection *o'*, combined with a hammer mounted on a spindle *k* passing through a hole in the front plate, an anchor K fixed on said spindle within the mechanism case, and an escapement-wheel J and pinion I fixed together and turning on said stud, substantially as specified.

2. In a pneumatic bell of the character described, the combination with the bell-hammer and escapement of the pinion I, sector H meshing therewith, lever G to which said sector is eccentrically pivoted, and a mechanism case A' comprising a front and back plate between which said sector and lever are arranged flatwise, and by which they are guided, one of said plates formed with a projecting stud *g* on which said lever is pivoted, and the other with a flat projection *g'* adapted to hold the pivotal end of said lever in engagement with said stud.

3. In a pneumatic bell of the character described, the combination with the bell-hammer and escapement of the pinion I, sector H meshing therewith, lever G to which said sector is eccentrically pivoted, sliding bar F' engaging said lever, and a mechanism case comprising front and back plates between which the sector, lever and bar are confined, one of said plates formed with an elongated projection *g²* adapted to guide the lever in its vibratory movement.

4. In a pneumatic bell, the combination with the bellows-box thereof of a freely-removable plate fitting into said box and unattached thereto, and the bellows attached to said plate, whereby the bellows may be readily removed from and replaced in said box.

5. In a pneumatic bell, the combination with the casing or bellows-box thereof formed with internal ribs, of a removable plate fitting thereinto formed with lateral flanges engaging between said ribs, and the bellows attached to said plate.

6. In a pneumatic bell, the combination with the bellows-box thereof open at the back and formed internally with converging ribs on opposite sides, of the removable plate E formed with vertical side flanges *r r* tapering from back to front and adapted to enter and fit between said converging ribs, and the bellows D attached to said plate.

7. In a pneumatic bell having a casing or bellows-box, a removable plate fitting in said box formed with horizontal and vertical portions, the bellows mounted on the horizontal portion of said plate, a compressible bulb mounted against the vertical portion thereof, and a tube connecting the bulb and bellows, whereby the bellows, bulb and communicating tube may be readily removed from the bell-casing by withdrawing said removable plate.

595,631. ENGINE OR PUMP. LEWIS S. JOB, Warren, Ohio, administrator of Daniel Job, deceased. Filed May 18, 1897. Serial No. 637,056. (No model.)



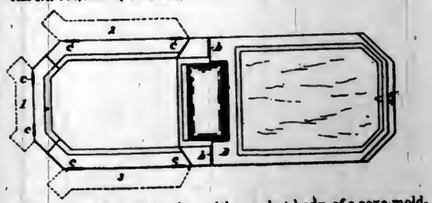
Claim.—1. A pump or engine comprising a casing having parallel inlet and outlet chambers, a cylinder, and two sets of ports, one set connecting said inlet-chamber with said cylinder, and the other set connecting said inlet and outlet chambers, a piston in said cylinder, and valves in said inlet-chamber, for opening and closing said sets of ports, substantially as set forth.

2. A pump or engine comprising a casing having upper inlet and outlet chambers arranged parallel with each other, and having, respectively, centrally-disposed inlet and outlet openings, a lower cylinder, ports leading from said inlet chamber to said cylinder and from said inlet-chamber to said outlet-chamber, a piston movable in said cylinder, and valves in said inlet-chamber for alternately opening and closing said ports, substantially as set forth.

3. The combination with the two casings, each having upper, parallel inlet and outlet chambers, a lower cylinder parallel with said chambers, and ports leading from said inlet-chamber to said cylinder, and from said inlet chamber to said outlet-chamber, of the pistons in said cylinder on a common rod, a tappet on said piston-rod, valves in said inlet-chambers, a rod or rods therefor designed to move said valves in unison, tappets on said latter rod or rods, and a lever designed to be engaged by said tappet of said piston-rod and caused to strike said tappets of said valve rod or rods, substantially as set forth.

4. The combination with the two casings, each having upper, parallel inlet and outlet chambers, a lower cylinder parallel with said chambers, and ports leading from said inlet-chamber to said cylinder, and from said inlet-chamber to said outlet-chamber, the pistons in said cylinder, a rod common to said pistons, and the valves provided with rods connected together, of the tappets secured on said rods, a guide therefor, a lever pivoted between said tappets and provided with a slot, a tappet on said piston rod engaging with said slot, and a weight adjustably secured upon the upper part of said lever substantially as set forth.

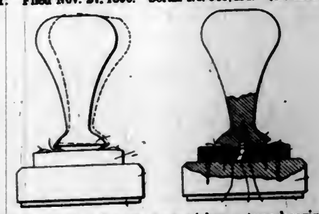
595,632. BURIAL-CASKET. WILLIAM S. JONES, Owosso, Mich., assignor to Oscar D. Byers, Syracuse, N. Y. Filed May 11, 1896. Serial No. 591,061. (No model.)



Claim.—1. The combination, with a casket-body, of a cove-molding divided longitudinally and having the sections thereof hinged together at their outer edges, and the lid supported on the upper section of said molding.

2. The combination with the casket-body, of a cove-molding having the portion around the head of the casket divided longitudinally in a horizontal plane and the upper portion thereof severed vertically into a head section 1 and side sections 2 and 3 and hinged to the outer edges of the lower portions of the cove-molding substantially as set forth.

595,633. HANDLE FOR STAMPS. WESLEY KIMBALL, Brooklyn, N. Y. Filed Nov. 27, 1896. Serial No. 613,481. (No model.)



Claim.—1. A hand-stamp comprising a type-bearing block, an elastic cushion secured to the type-block, and a handle attached to the elastic cushion, said handle being provided with a convex end where it rests on the cushion, whereby any movement of the handle will not be imparted to the printing-surface of the type.

2. In a hand-stamp, the combination of a block carrying the type, and a rocking handle mounted upon a flexible cushion, said block being provided with a bearing-plate for the handle, said cushion being secured to the upper surface of the block and to the handle, substantially as shown and described.

3. As a hand-stamp, the combination of the handle having a convex lower end and the rubber cushion and screw connecting the same to the handle; with the type-carrying block of a stamp, said block having a bearing-plate for the screw-head, and means for connecting the cushion to the block, substantially as shown and described.

4. As a new article of manufacture, a handle for hand stamps or dies, comprising a rubber cushion and a handle projected centrally from the upper surface thereof, said handle having a convex lower end for contact with the said rubber cushion, and a spindle or screw for connecting the two parts to each other, substantially as shown and described.

595,634. ARTIFICIAL LIMB. JAMES H. KING, Pittsburg, Pa. Filed Feb. 27, 1897. Serial No. 625,243. (No model.)

Claim.—1. In an artificial limb, the combination with an attaching-sleeve, of a leg pivotally connected to the same, a foot pivotally mounted on said leg, independent springs applied upon each side of the pivot-point of the leg and foot portions so that their respective opposite ends engage the bottom of said leg portion and the top of said foot portion, thus holding the latter normally at right angles to the leg portion, and means connecting the attaching portion to the foot for tipping it either one way or the other against the tension of the springs upon the movement of the knee-joint, substantially as described.

2. In an artificial limb, the combination with an attaching-sleeve, of a leg pivotally mounted upon the same, a foot pivotally mounted upon said leg, and a plurality of rods pivotally connected to the attaching portion just above its pivot-point and to the foot portion upon opposite sides of the pivot-point of the latter so that the movement of the knee-joint will tip said foot back and forth, substantially as described.

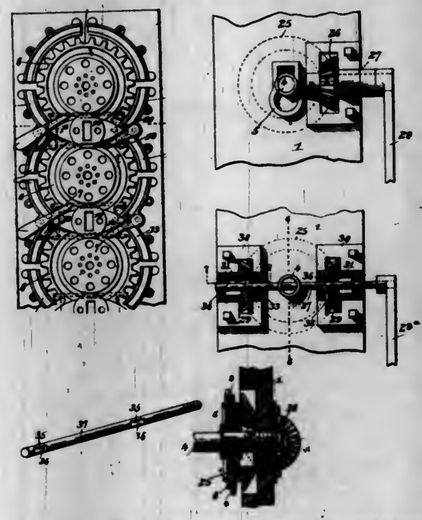


3. In an artificial limb, the combination with an attaching-sleeve, of a leg hinged thereto, a foot pivoted on said leg, springs for normally holding said foot at right angles to the leg portion, and rods connecting said attaching-sleeve with said foot whereby the latter is tipped upon the movement of the knee-joint, substantially as described.

4. In an artificial limb, the combination with an attaching-sleeve, of hinge-arms pendent from the same, a leg portion, hinge-arms mounted on the same and pivotally connected to the first-mentioned arms, a foot pivotally mounted on the leg portion, and a plurality of rods connected respectively to the hinge-arms of the attaching-sleeve and the pivoted foot, substantially as described.

5. In an artificial limb, the combination with an attaching-sleeve, of hinge-arms pendent from the same, a leg portion, hinge-arms mounted on the same and pivotally connected to the first-mentioned arms, a foot pivotally mounted on the leg portion, a plurality of rods connecting the attaching-sleeve and the foot portion upon opposite sides of the pivot-point of the latter, so that the movement of the knee-joint will tip said foot, and coil-springs surrounding said rods and adapted to bear against the under side of the leg portion and said foot to hold the latter normally in a horizontal position, substantially as described.

595,635. WIRE-FABRIC MACHINE. ALVA L. KITSELMAN, Ridgeville, Ind. Filed July 22, 1896. Serial No. 600,150. (No model.)



Claim.—1. In a wire-fabric machine, a series of intermeshing cogged twister-wheels, spool-carriers detachably engaging with said wheels, circular guides arranged adjacent to the peripheries of the wheels, gravity switch points or fingers arranged at opposite sides of and between each pair of twister-wheels, and means for reversing the rotation of the twister-wheels to effect a transfer of the spool-carriers from one wheel to the adjacent wheels, substantially as set forth.

2. In a wire-fabric machine, a series of intermeshing cogged twister-wheels, spool-carriers engaging with said wheels, circular guides arranged adjacent to the peripheries of the wheels, pivotal gravity switch points or fingers arranged at opposite sides of and between each pair of wheels, the switch points or fingers at opposite sides of the vertical center of the series of wheels being normally disposed by gravity in opposite directions, and means for reversing the rotation of the twister-wheels, substantially as set forth.

3. In a wire-fabric machine, the combination of an aliced series of intermeshing twister-wheels, spool-carriers engaging with said wheels, switch points or fingers pivotally arranged at opposite sides of and between each pair of wheels, the directly and diametrically opposite points or fingers being normally disposed by gravity in opposite directions, and means for reversing the rotation of the twister-wheels, substantially as set forth.

4. In a wire-fabric machine, a series of intermeshing cogged twister-wheels, spool-carriers engaging with said wheels, circular guides arranged adjacent to the peripheries of the wheels, oscillatory gravity switch points or fingers pivotally mounted at opposite sides of and between each pair of wheels, the switch points or fingers at one side of the vertical center of the series of wheels being normally disposed downward by gravity, and the opposite series of switch points or fingers being normally disposed in a reverse upward direction and provided at one side of their pivotal supports with weight extensions, means for limiting the movement or oscillation of the switch points or fingers, and means for reversing the rotation of the twister wheels, substantially as set forth.

5. In a wire-fabric machine, a series of intermeshing cogged twister-wheels one of which carries at one side a master beveled gear-wheel, spool-carriers engaging with said twister-wheels, circular guides arranged adjacent to the peripheries of the wheels, reversely-disposed switch points or fingers pivotally arranged at opposite sides of and between each pair of twister-wheels, a drive-shaft mounted for a fixed rotation, oppositely-arranged gear-pinions loosely mounted on the shaft and respectively meshing with the master gear-wheel at diametrically opposite sides of its axis and means for temporarily connecting either of said gear-pinions with the shaft for rotation therewith, substantially as set forth.

6. In a wire-fabric machine, an upright frame-board, a series of intermeshing cogged twister-wheels mounted at one side of the board and one of which wheels carries a master gear-wheel, suitable spool-carrier guides, reversely-disposed switch points or fingers pivotally arranged at opposite sides of and between each pair of twister-wheels, oppositely-arranged bearing-brackets mounted at one side of the frame-board, a pair of diametrically opposite gear-pinions respectively meshing with the master gear-wheel at diametrically opposite sides of its axis and provided in their shaft-openings with key-seats having convexed side edges, and a longitudinally-movable drive-shaft loosely fitting in the shaft-openings of the gear-pinions and mounted for a fixed rotation in said bearing-brackets, said drive shaft being provided at one side with a pair of spaced key-lugs having concaved sides and spaced a greater distance apart than the key-seats of the opposite pinions, substantially as set forth.

7. In a wire-fabric machine, the combination of a series of twister-wheels geared for simultaneous rotation, spool-carriers rotated witl said wheels, shifting devices for deflecting the spool-carriers from one twister-wheel to adjacent wheels when the rotation of the wheels is reversed, a single drive-shaft carrying at one end a crank-handle, and means for causing motion to be transmitted from the drive-shaft to the twister-wheels for turning the latter in either direction by the same forward motion of the drive-shaft, substantially as set forth.

8. In a wire-fabric machine, a series of rotating wheels or plates having surrounding and communicating ways, spool-carriers movable in said ways and carried by the wheels or plates, and oppositely-moving switch-fingers at opposite sides of the wheels or plates for switching said carriers from one wheel or plate to the adjacent wheel or plate by revolving the wheels or plates in opposite directions, substantially as set forth.

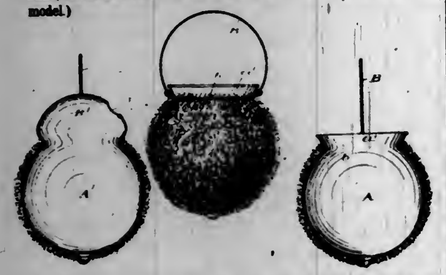
9. In a wire-fabric machine, a series of rotating wheels or plates, spool-carriers carried by the wheels or plates, oppositely-moving switch-fingers arranged at opposite sides of the plates and automatically moved in one direction by the contact of the spool-carriers therewith, and means for reversing the rotation of the wheels or plates to effect a transfer of the spool-carriers, substantially as set forth.

10. In a wire-fabric machine, a series of rotatable twister wheels or plates geared to rotate in opposite directions, ways surrounding the wheels or plates and communicating at the intersections thereof, spool carriers movable in said ways and carried by the wheels or

plates, switch-fingers arranged at opposite sides of the intersecting points of the wheels or plates and extending across the ways, the directly opposite or adjacent fingers being adapted to freely move in opposite directions and locked against movement in the other direction, and means for reversing the rotation of the wheels or plates, substantially as set forth.

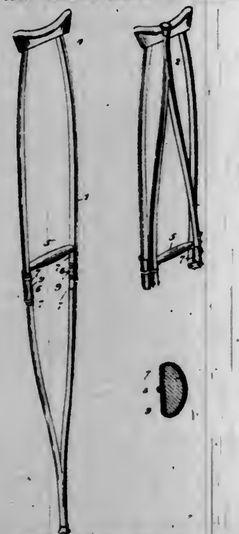
11. In a wire-fabric machine, a series of intermeshing twister-wheels, spool-carriers engaging the said wheels, guides arranged to retain the spool-carriers in engagement with the wheels, gravity switch-fingers arranged at opposite sides and between each pair of twister-wheels, and means for reversing the rotation of the twister-wheels, substantially as set forth.

595,636. LAMP-GLOBE COVER AND PROTECTOR. Hugo KUHNERT, Berlin, Germany. Filed Mar. 15, 1897. Serial No. 627,613. (No model.)



Claim.—As an article of manufacture, an illuminating-lamp adapted to be hung from any suitable support comprising a glass globe open at or near the top, a neck, a hanger and a mat of laminated metal, threads embracing the body of the globe to the neck, and tangled together to completely cover the globe to protect and give to the globe an iridescent or glistening cover, substantially as described.

595,637. FOLDING CRUTCH. EMMA O. KUHNER, Covington, La. Filed Dec. 23, 1896. Serial No. 616,767. (No model.)

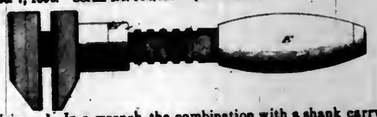


Claim.—1. A folding crutch, comprising sections having squared ends pivotally connected to each other and adapted to fold flatwise upon each other, in combination with longitudinally-slotted links connecting said sections and engaging projecting studs thereon, and locking means for rigidly connecting said sections so as to prevent the breaking of the joints, substantially as described.

2. A crutch divided on a transverse line intermediate its ends and provided adjacent to the division with stud-plates, in combination with slotted links engaging said stud-plates and pivotally connecting the sections of the crutch while at the same time allowing a limited relative longitudinal movement thereof while the sections are in alinement, and a locking device for holding the sections of the crutch rigidly in longitudinal alinement, substantially as described.

3. A crutch embodying jointed sections having squared meeting ends, in combination with spaced keepers of different relative sizes located at each side of the joint, and a tapering locking-slide wedge movable beneath the said keepers and provided at one end with a laterally-projecting lip forming a finger-hold, substantially as described.

595,638. WRENCH. MARCUS M. LE MAY, Town Creek, Ala., assignor of one-half to Manoah Bostick Hampton, Leighton, Ala. Filed Dec. 7, 1896. Serial No. 614,755. (No model.)

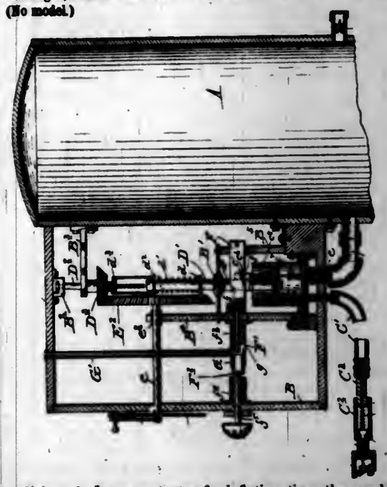


Claim.—1. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon diametrically opposite sides of said shank, a sliding jaw mounted on said shank and provided upon diametrically opposite sides with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon diametrically opposite sides with racks, said sleeve being adapted to lock either with the shank carrying the rigid jaw or the racks of the sliding jaw.

2. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed on opposite sides of said shank, a sliding jaw mounted on said shank and provided with pendent arms having racks formed thereon, a rotatable sleeve mounted on said pendent arms and formed with racks adapted to engage either the racks of the shank or the racks of the pendent arms, and a stop-sleeve mounted on the lower ends of the pendent arms and adapted to limit the rotation of the first-mentioned sleeve so as to cause the engagement of its racks with the engagement of the racks of either the shanks or the pendent arms, substantially as described.

3. In a wrench, the combination with a shank having a rigid jaw, of racks formed upon diametrically opposite sides of said shank, a handle mounted on said shank, a sliding jaw also mounted on said shank, pendent spaced arms mounted on said jaw and adapted to lie against the smooth sides of said shank, racks formed on said arms, a rotatable sleeve mounted on said arms and shank and formed upon diametrically opposite sides with racks adapted to engage the before-mentioned racks respectively, a sleeve rigidly secured to the lower ends of said pendent arms and formed with a segmental recess, and a projection mounted on the rotatable sleeve and adapted to play in said recess to limit the rotation of said rotatable sleeve and cause its racks to exactly engage with the respective racks of the shank or pendent arms.

595,639. COIN-CONTROLLED TIRE-INFLATER. JOHN B. LIGON, Jackson, Miss., assignor of two-thirds to Newton Lafayette Wingo, same place, Charles T. Cates, Jr., Knoxville, Tenn., and Victor Cameron Barringer, San Antonio, Tex. Filed July 31, 1897. Serial No. 646,577. (No model.)



Claim.—1. In an apparatus for inflating tires, the combination of an air-storage tank, a chamber connected thereto by a valve-controlled port, a connection leading from said chamber to the tire,

mechanism for operating said valve which becomes operative upon the insertion of a coin, and mechanism for regulating the air-pressure in said chamber to different degrees, substantially as set forth.

2. In a coin-controlled tire-inflating apparatus, the combination of the storage-tank, the piston-chamber, the port between them, the valve in said port, a piston in said chamber, a spring arranged to normally hold said piston against the air-pressure in said chamber, gearing connected with an indicator on the outside of said casing, means operated by said gearing for regulating the pressure of said spring, and means for operating said valve which requires the insertion of a coin to render it operative, substantially as set forth.

3. In a coin-controlled tire-inflating apparatus, the combination of the air-storage tank, the piston-chamber connected therewith by a valve-controlled port, a tube leading from said chamber and provided with means for attachment to the tire-nipple, the piston mounted in said chamber and provided with the stem, the spring on said stem, means for controlling the pressure of said spring connected with an indicator on the outside of the casing, the sliding support F formed with an offset in its top and an incline in its lower edge, an engaging part on said piston-stem which rests on said top edge and one on the valve-stem which rests in the incline in its lower edge, the spring for normally holding said support in position to keep the valve closed, the two-part operating-stem arranged with their adjacent ends at each side of the coin-receiving opening, the coin-receiving tube and conduit, all substantially as set forth.

4. In a coin-controlled tire-inflating apparatus, the combination of the storage-tank, the piston-chamber connected therewith by a valve-controlled port, means for connecting said chamber with the tire-nipples, a piston in said chamber, a pressure-regulating device connected with said piston, a two-part operating device the adjacent ends of which are on each side of the coin-receiving point, and means for returning the parts to their normal positions after being operated, substantially as set forth.

5. In a coin-controlled tire-inflating apparatus, the combination of the tank, the piston-chamber, the piston and its stem, means for exerting, regulating and indicating a pressure upon said piston, a support upon which a part of the piston-rod rests, which support is formed with an offset with an abrupt angle just at the point which will come under the part which rests on said support when it is pushed into operative position, whereby the pressure upon said stem will force it down and the support back somewhat beyond the limit of the movement by the push-bar, a two-part push-bar connected with said support the end of its outer part extending outside the casing and the adjacent ends of the two parts being positioned normally each side of the coin receiving point, the coin-receiving tube, the valve-controlled port leading from the tank to the piston-chamber, the stem of said valve being connected to and operated by said support to be opened, and closed by the springs, and means for connecting the tire-nipples with said chamber, substantially as set forth.

6. In a coin-controlled tire-inflating apparatus, the combination of the storage tank, the inflating apparatus including a piston under controlled pressure, means for supporting said piston normally, a notch in said support in front of the point where it is normally connected with said piston which notch has an abrupt shoulder, whereby when said support is operated it is given a sudden jerk at the point where it is desired to deposit the coin, substantially as set forth.

7. In a coin-controlled tire-inflating apparatus, the combination of the storage-tank, the chamber connected thereto by a valve-controlled port means for regulating the pressure in the chamber to different degrees, as desired and coin-controlled operating mechanism, substantially as set forth.

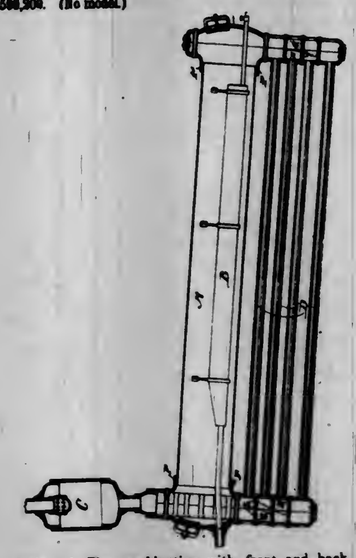
8. In a coin-controlled tire-inflating apparatus, the combination of the storage-tank, the chamber connected therewith by a valve-controlled port, a connection to lead to the tire, mechanism for controlling and operating the apparatus which requires the insertion of a coin to become operative, and includes a push-bar formed in two parts arranged to receive the coin between them, and a separate spring-operated part arranged to jerk one part of said push-bar away from the other to release the coin at the end of its movement, substantially as set forth.

595,640. TONGUE-IRON. FRED LUNNEMEIER, Fairmont, Minn., assignor of one-half to Matthew Pfeiffer, same place. Filed Mar. 18, 1897. Serial No. 628,130. (No model.)

Claim.—A pole-tip comprising a securing-plate, a holdback-arm extending forwardly from the securing-plate and having its extremity curved downwardly, an arm extending rearwardly from the opposite end of the plate but terminating short of the holdback-arm, said arm being slotted adjacent its extremity, a short arm or latch having its end reduced and extending within the slotted end of the arm where it is pivoted, and having its opposite end curved to conform to the contour of the curved downwardly-extended extremity of the holdback-arm, said latch adapted to close the space between said arms, and a spring secured at one end upon the upper surface of the arm to which the latch is pivoted and extending across the meeting ends of said arm and latch to hold the latter normally closing the space between the two arms, substantially as described.



595,641. STEAM-GENERATOR AND HOT-WATER HEATER. EDWARD D. MEIER, St. Louis, Mo. Filed July 15, 1896. Serial No. 599,209. (No model.)



Claim.—1. The combination with front and back water-legs whose upper ends are formed with an opening having a flanged edge, of a drum fitting in said opening and secured to the flanged edge, and water-tubes between the lower ends of said legs: substantially as described.

2. The combination with a water-leg whose upper end is formed with an opening in one side, said opening having a flanged edge, of a drum whose end fits in said opening and is secured to said flanged edge, and a bulge in the other side or wall of the water-leg, said bulge being in line with the drum: substantially as described.

3. The combination with the front and back water-legs which are connected at their lower ends by water-tubes, and a drum connecting the upper ends of the water-legs and opening thereinto with its full end area, said legs being bulged in line with the drum to strengthen the water-legs: substantially as described.

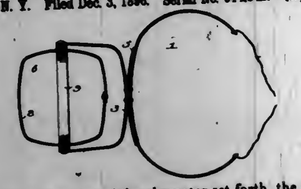
4. The combination with the water-legs, of water-tubes connecting the lower ends of the same, a drum connecting the upper ends of the same, said water-legs being bulged in line with the drum to give them strength, rings around said bulged portion and drum-flange, and stay-bolts; substantially as described.

5. The combination with front and back water-legs, the upper ends of whose inner plates are formed with openings having flanged edges, of a drum fitting in said openings and secured to the flanged edges thereof, the lower ends of said inner plates being formed with tube-openings having flanged edges, and water-tubes secured in said flanged tube-openings, substantially as described.

6. The combination with the outer plate of a water-leg which is formed with series of inwardly-flanged hand-holes, the flanges of which afford raised seats for the hand-hole plates, of an inner plate formed with outwardly-flanged holes to afford extended bearings for

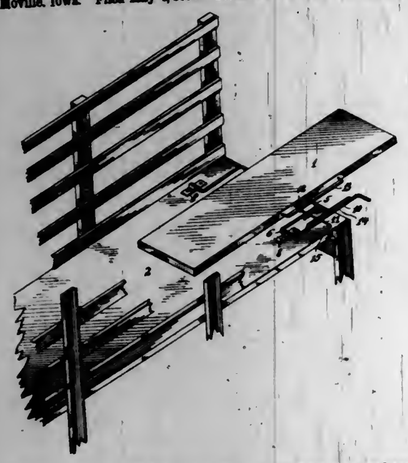
the water-tubes, water-tubes in the outwardly-flanged openings of the inner plate, and stay-bolts connecting said outer and inner water-leg plates; substantially as described.

595,642. BERRY-BASKET HOLDER. NATHAN R. MILLER, Medina, N. Y. Filed Dec. 3, 1896. Serial No. 614,342. (No model.)



Claim.—In a device of the character set forth, the combination of a band adapted to be passed aroond the waist of an operator, means for tightening and fastening the free ends thereof, a strip of metal riveted or otherwise secured to said band having arms at each end which extend forwardly therefrom, and a berry-basket holder made up of an endless band of sheet metal, and a strip secured thereto at diametrically opposite points whose ends extend upwardly from said band and are pivoted to the forward ends of said arms, and whose central part extends downwardly beneath said band forming a bottom support for the berry-basket, substantially as and for the purpose described.

595,648. STOCK-CHUTE. JAMES W. MOHLER and JACOB L. FOLTZ, Moville, Iowa. Filed May 4, 1897. Serial No. 635,076. (No model.)



Claim.—1. The combination with a stock-chute or analogous structure, of an extensible platform disposed longitudinally of the chute and having a limited direct longitudinal movement, whereby it is adapted to project beyond the stock-chute to bridge the space between the same and a car and is also adapted to be moved inward entirely over the chute, the parallel link connections between the platform and the chute, said link connections being arranged to swing longitudinally of the platform, and means for swinging the platform inward and outward, substantially as described.

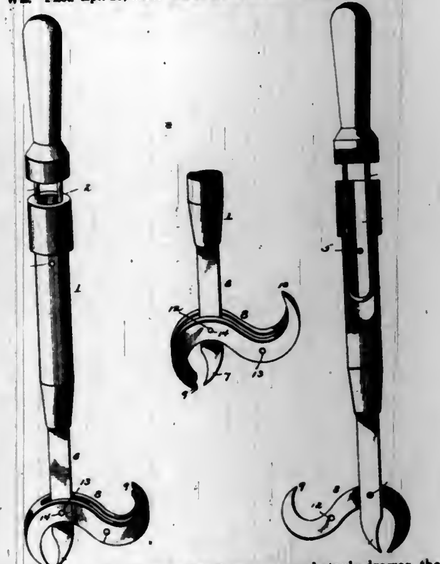
2. The combination of a stock-chute, a platform, a rock-shaft journaled on the platform and provided with a rectangular link or bend connected with the platform, the rectangular link 7 arranged parallel with the link or bend of the rock-shaft and hinged to the chute and to the platform, and a handle connected with the rock-shaft, substantially as described.

3. The combination with a stock-chute, and a movable platform capable of lateral adjustment, of the parallel link connections hinged to the chute and the platform and having a sliding connection with the latter, a handle for manipulating the link connections provided with a longitudinal opening, and an operating-rod passing through the opening of the handle and connected to the platform, substantially as described.

4. The combination with a stock-chute, of an extensible platform adapted to bridge the space between the chute and a car, the parallel link connections between the platform and the chute, said platform being slidingly mounted on the link connections and capable of lateral adjustment, and means for moving the platform longitudinally and transversely, substantially as described.

5. The combination with a stock-chute, a transverse rock-shaft journaled on the chute and provided with a rectangular bend, a handle connected with the rock-shaft and having a longitudinal opening, a link hinged to the chute, a platform slidingly connected with the bend and the link and provided at one side with a longitudinal loop or keeper, and an operating-rod passing through the opening of the handle and slidingly connected with the loop or keeper, substantially as described.

595,644. NAIL-EXTRACTOR. CHARLES M. MORRISON, Viroqua, Wis. Filed Apr. 29, 1897. Serial No. 634,465. (No model.)



Claim.—1. In a combined nail-extractor and staple-drawer, the combination with the lever-bar having a curved lower end, of the adjustable and reversible S-shaped jaw bifurcated at one end forming two claws, and the other end formed with a single point and formed with two pivot-holes at opposite sides of the center and the pivot-pin connecting said jaw with the lever-bar, substantially as described.

2. The combination with the lever-bar, having a central recess at the upper end, the transverse pin, the hammer, the guide-arms consisting of a metal rod bent at the center and having the ends secured to said hammer and the lower end of said bar formed with a curved point, of the S-shaped jaw bifurcated at one end forming two clamps, and the other end formed with a solid point, and said jaw formed with two holes at opposite sides of the center and the pivot-pin connecting said jaw with the lever-bar, substantially as described.

595,645. HOSE-BRIDGE. JAMES F. MORRISON, Pittsburg, Pa. Filed Mar. 10, 1897. Serial No. 626,764. (No model.)

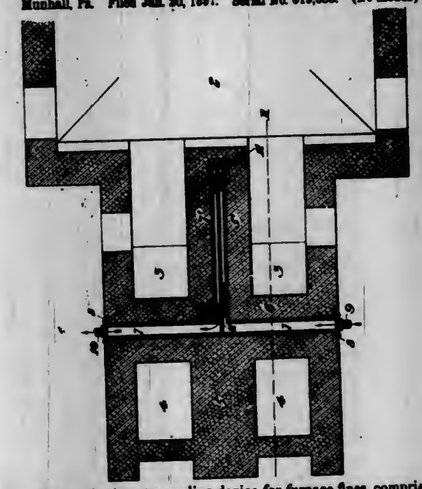


Claim.—1. A hose-bridge comprising the arc-shaped frames, having flanged bottoms adapted to fit over the rails of a railway-track, the tops of said frames being of the same shape as a railway-track, openings in each frame for the reception of the hose, dogs attached to each of said frames adapted to engage with the pavement, adjusting-rods attached to each frame, and rods for securing said frames together, substantially as shown and described.

2. A hose-bridge constructed of frames of iron or steel or any suitable material, the said frames being the arc of a circle, the said arc being at an angle to the rail, the chord of which has a groove and flange to fit over the heads of the street-rails, the flange between the arc and the chord of the said circle, having thereon series of arched openings by which the hose is arched over, of the vertical and horizontal slots in the walls of the arched openings for which the double-T-headed tie-rods are fastened, of the slotted dogs by which the said bridge is held from any forward movement when the car strikes the said bridge of the wedge having one smooth and one rough surface for wedging between the groove in the arc and head of the rail-frame as described and substantially set forth.

3. A hose-bridge constructed of frames of iron or steel or any suitable material, the said frames being the arc of a circle, the said arc being at an angle to the rail, the chord of which has a groove and flange to fit over the heads of the street-rails, the flange between the arc and the chord of the said circle, having therein series of arched openings by which the hose is arched over, of the vertical and horizontal slots in the walls of the arched openings for which the double-T-headed tie-rods are fastened, of the slotted dogs by which the said bridge is held from any forward movement when the car strikes the said bridge of the wedge having one smooth and one rough surface for wedging between the groove in the arched frame and head of the rail, in combination with the double-headed tie-rods, of the spreaders having adjusting nuts and collar and rod bent as shown, of the lugs projecting from the arched frames for fastening the slotted dogs by means of bolts of the lugs projecting from the arched frames having square and round recesses therein for the ends of the spreaders as described and substantially set forth.

595,646. METALLURGICAL FURNACE. NIVEN MCCONNELL, Munhall, Pa. Filed Jan. 20, 1897. Serial No. 619,855. (No model.)



Claim.—1. A water-cooling device for furnace-flues, comprising a T-shaped plate or casing, the legs of which are provided with communicating chambers, two of the legs having water-passages at their ends, and the third having means for providing a water circulation therein.

2. A water-cooled plate of T form, hollow throughout having a partition in the middle branch, and water inlet and outlet, the partition being arranged to act as a baffle-plate to give a circulation in the middle branch.

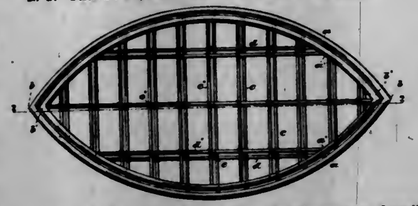
595,647. MANHOLE-COVER. JOHN J. O'BRIEN, St. Louis, Mo., assignor to the John O'Brien Boiler Works Company, same place. Filed July 19, 1897. Serial No. 645,100. (No model.)



Claim.—1. A cover for the manholes, hand-holes, &c., of boilers having a socket to receive the head of the retaining-bolt, and having an opening 6 of less width in one direction than the head of the bolt and extending from the outer face of the cover to the socket through which the head of the bolt is introduced edge first, substantially as set forth.

2. In a cover for the manholes, hand-holes, &c, of boilers having a socket to receive the head of the retaining-bolt, and an opening 6 of less width in one direction than the head of the bolt and extending from the outer face of the cover to the socket and through which the head of the bolt is introduced edge first, the inner wall of the hole being rounded as shown at 8 to permit the head to turn into the socket and its outer edge to pass through the opening, substantially as set forth.

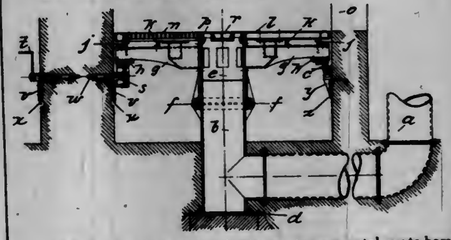
595,648. DRYING-FRAME. PATRICK O'TRAYER, New York, N. Y. Filed Feb. 9, 1897. Serial No. 622,615. (No model.)



Claim.—1. An ovaloid drying-frame for the purpose described, comprising a plurality of similar sections, each consisting of the bars *a* joined at *b* and having the curved longitudinal and transverse bars *d c*.

2. An ovaloid drying-frame, wherein one section fits into the other so as to adapt the frame to stretch a portion of a garment between the said sections, comprising ovaloid sections each consisting of the curved bars *a* joined at *b*, and curved bars secured at each of their ends to the curved bars *a*, substantially as described and for the purposes set forth.

595,649. HOLLOW BLAST REVOLUBLE GRATE. WALTER E. PAYNE and FREDERIC L. JOUBERT, New Orleans, La. Filed Nov. 20, 1896. Serial No. 612,853. (No model.)



Claim.—1. In a revoluble circular grate, segmental grate bars, of hollow box-section, hollow branches projecting laterally at largest end of bars; perforations being provided at proper intervals along the upper corners of box and branches, for the discharge of air-blast, said openings having an upward inclination toward outside of bar; each bar being provided with perforated blast-recesses, and covers *m* therefor, openings being provided at lower side of bars for the introduction of air from hollow radial arms *g*, said openings having a faced jointing-strip all round, making air-tight joints with a corresponding strip on hollow arms when these are bolted together: substantially as set forth.

2. In a revoluble circular grate a central hollow cylinder or hub *c*, said hub supporting at its outer surface, hollow radial arms *g*, said radial arms being bolted thereto, making air-tight joints; openings being provided for the entrance of air-blast into said hollow arms; a grooved flange being provided at lower end of cylinder, said flange forming with a collar on post *d*, the receptacle for spherical bearing-rollers; inner surface at lower end of cylinder being recessed, said recess with projecting end of post *b* forming an air-tight movable joint: substantially as set forth.

3. In a circular revoluble grate, radial arms forming at one end a hollow box with flange at open end, arms being bolted to a central cylinder *c* at corresponding air-passages therein, making therewith air-tight rigid joints; hollow branches projecting upward from each side of box; said branches being connected rigidly to under sides of hollow grate-bars, opposite air entrances therein, making air-tight rigid joints therewith; remaining portion of radial arms being of a T-section; a foot being provided at lower edge of vertical web of T, said feet carrying a circular rack and rail and bolted thereto; horizontal web carrying circular rails supporting grate-bars: substantially as set forth.

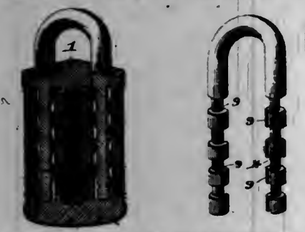
4. In a circular revoluble grate, the circular cover-plate *p* pro-

vided at outer edge with a cylindrical crown, said crown being perforated at intervals with blast-holes; an annular space being provided between inner ends of grate-bars and outer edge of plate, allowing passage of air-blast; provision being made for rigidly attaching cover-plate to cylindrical hub *e*; a hand-hole being provided at center of plate; a cylindrical crown being formed at edge of hand-hole, a continuous collar being formed near lower edge of crown at its inner surface; a notched collar situated above continuous collar at inner surface of crown, said collars constituting means for supporting and attaching hand-hole cover *r*: substantially as set forth.

5. In a circular revoluble grate, the circular hand-hole cover, *r*, said cover being formed of two parallel circular disks of unequal diameters, and radial webs perpendicular to the plane of and converging at the center of said disks, webs being notched, said notches fitting around a corresponding collar in the crown of hand-hole in cover-plate *p* for locking cover in place; projecting lugs being formed around the edge of larger disk to keep cover-plate centrally in position in hand hole, and permitting passage of blast: substantially as set forth.

6. In combination with a circular revoluble grate, a pinion fixed at one end of a shaft, said shaft being supported by suitable bearings; pinion being provided with a projecting rim, diameter of said rim coinciding with pitch diameter of pinion-teeth; both rim and pinion-teeth corresponding to, and engaging with rim and rack-teeth forming part of circular rack and rail: substantially as set forth.

595,650. COMBINATION-PADLOCK. HENRY A. REDMAN, Guthrie, Okla., assignor of one-half to H. R. Thurston and Julia A. Thurston, Rock, Okla. Filed Aug. 30, 1897. Serial No. 650,006. (No model.)



Claim.—1. A lock having a frame comprising spaced terminal caps connected by side cheeks and provided respectively with shackle-leg openings and a corresponding number of alined sockets, a series of revoluble tumblers permanently mounted in the frame between said caps in alinement, respectively, with the alined shackle-leg openings and sockets, and having their contiguous ends connected by interlocking joints, and a double or hair-pin shackle having legs adapted to fit axially in the tumblers, and provided with circumferentially kerfed or notched enlargements for engagement by inwardly-extending locking-tongues on the tumblers, substantially as specified.

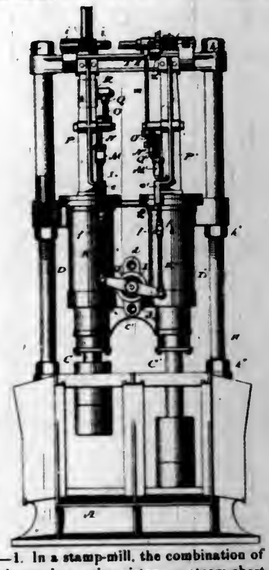
2. A lock having a frame or body portion, a series of alined tumblers permanently mounted in the frame, and each provided with an inwardly-extending lug and exterior combination characters, and a shackle having a leg adapted to pass axially into the bores of the tumblers and having notched or kerfed enlargements, said enlargements consisting of sleeves independently mounted for revoluble adjustment upon the shackle-leg, and means for securing each sleeve at the desired adjustment, substantially as specified.

3. A lock having a frame or body portion, a series of alined tumblers permanently mounted in the frame, and each provided with an inwardly-extending lug and exterior combination characters, and a shackle having a leg adapted to pass axially into the bores of the tumblers, and having notched or kerfed enlargements for engagement by the lugs of the tumblers, said enlargements consisting of split sleeves revolubly mounted upon the shackle-leg, and independent set-screws for locking said sleeves at the desired rotary adjustment, substantially as specified.

4. A lock having a frame or body portion, a series of alined tumblers permanently mounted in the frame, and each provided with an inwardly-extending lug and exterior combination characters, and a shackle having a leg adapted to pass axially into the bores of the tumblers, and having notched or kerfed enlargements for engagement by the lugs in the bores of the tumblers, said enlargements consisting of split sleeves mounted for revoluble adjustment upon the shackle-leg, and independent set-screws threaded in the sleeves for terminal impingement upon the surface of the shackle-leg, the shackle-leg being provided in the plane of each set-screw with a circumferential groove or depression, substantially as specified.

5. A lock having a frame, a series of alined rotary tumblers mounted in the frame and having exterior combination characters, a shackle having a leg extending axially through the bores of the tumblers, interlocking means carried respectively by the shackle-leg and tumblers, the means which are carried by the shackle-leg being spaced apart to suit the interval between the tumblers and being mounted for independent rotary adjustment upon the shackle-leg, and locking devices for securing said shackle-carried members of the interlocking means at the desired adjustment, substantially as specified.

595,651. STAMP-MILL. EDWIN REYNOLDS and EDWARD CHESHIRE, Milwaukee, Wis. Filed Mar. 13, 1897. Serial No. 627,340. (No model.)



Claim.—1. In a stamp-mill, the combination of a pair of cylinders containing reciprocative pistons, a steam-chest, a rocker-valve operative in the steam-chest to control passages communicating with the lower ends of the cylinders, a double lever having rigid connection midway of its length with the valve-stem, jointed links having extremities thereof coupled to the ends of the lever and provided at their other extremities with covered sockets, tappet-bars provided with end flanges having sliding play in the sockets, levers coupled to the tappet-bars, and pivotal lever-guides connected to rods extending from the pistons.

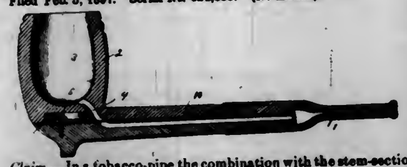
2. In a stamp-mill the combination of a pair of cylinders, a single steam-chest in communication with both cylinders, a rocker valve operative in the steam-chest to control its communication with the cylinders, pistons reciprocative in said cylinders, actuating mechanism for the valve cooperative with rods extending from the pistons, stamps in rod connection with said pistons, and suitable mechanism arranged to impart automatic intermittent rotary movement to each piston, whereby the faces of the stamps are varied with respect to the material in the mortars of the mill.

3. In a stamp-mill, the combination of a pair of cylinders, a single steam-chest communicating with both cylinders, an automatically-actuated valve controlling admission and exhaust of steam with respect to said cylinders, vertically-reciprocative pistons in the cylinders, worm-wheels having their hubs arranged in suitable bearings, piston rods in spline connection with the worm-wheel hubs, a shaft mounted in bearings and provided with worms in mesh with the aforesaid wheels, a ratchet-wheel fast to the shaft, a lever-controlled pawl operative in connection with the ratchet-wheel, and an automatic lever-actuating mechanism.

4. In a stamp-mill the combination of a pair of cylinders containing reciprocative pistons, a single valve arranged to control steam-passages leading into the cylinders, a double lever having rigid connection midway of its length with the valve-stem, jointed links having extremities thereof coupled to the ends of the lever and provided at their other extremities with covered sockets, tappet-bars provided with end flanges having sliding play in the sockets, levers coupled to the tappet-bars, pivotal lever-guides connected to piston-rods, worm-wheels having their hubs arranged in suitable bearings and in spline connection with the aforesaid piston-rods, a shaft mounted in bearings and provided with worms in mesh with the aforesaid wheels, a ratchet-wheel fast to the shaft, a lever-controlled pawl operative in connection with the ratchet wheel, and a link connecting the pawl-lever with one of the tappet-bar levers.

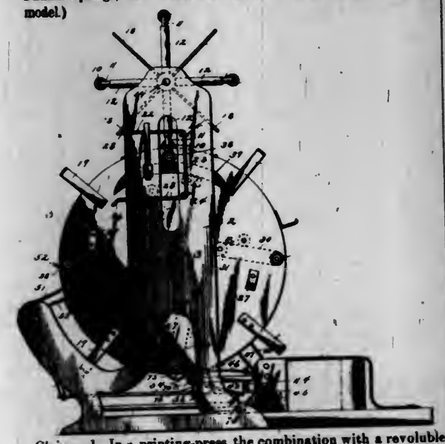
5. In a stamp-mill, the combination of vertical rods, supports adjustable on the rods, a pair of cylinders having apertured lugs engaged by the rods and at rest on the adjustable supports, rod-encircling pipes at rest on the lugs, a horizontal rail supported by the pipes and engaged with said rods, brackets connected at their ends to cylinder-heads and the rail, a valve controlling steam passages in communication with the cylinders, pistons reciprocative in the cylinders, a valve-gear in connection with the brackets and rods extending from the pistons, and rail-supported mechanism that operates in conjunction with the valve-gear to impart rotation to the piston-rods.

595,652. TOBACCO-PIPE. LUTELLAS RICHARDS, Allegheny, Pa. Filed Feb. 3, 1897. Serial No. 621,855. (No model.)



Claim.—In a tobacco-pipe the combination with the stem-sections and bowl integral with one of same, of the hollow screw-threaded plug 6 designed to be fitted into a recess in the under flat surface of the bowl, of the screw-head carried by the under stem-section, and adapted to engage in a keyhole-slot in the end of the said screw-threaded plug, and means for holding the outer ends of the stem-sections together, substantially as shown and described.

595,653. COLOR-PRINTING PRESS. LOUIS D. ROBINSON, De Funiak Springs, Fla. Filed Dec. 18, 1896. Serial No. 616,175. (No model.)



Claim.—1. In a printing-press, the combination with a revoluble cylinder, and a series of type-beds carried thereby, of a revoluble ink-roller carriage, a series of inking-rollers carried thereby, and cooperating means on said cylinder and carriage, whereby the inking-rollers are automatically shifted into operative relation to their respective beds, substantially as described.

2. The combination with a revoluble cylinder carrying a series of type-beds, of a revoluble ink-roller carriage, a series of inking-rollers carried thereby, a spider comprising a series of radially-disposed arms connected to the hub of said carriage, and a corresponding series of fingers carried by the cylinder and acting on said arms for rotating said carriage, substantially as and for the purpose described.

3. In a printing-press, the combination with a revoluble cylinder carrying a series of type-beds, of a revoluble ink-roller carriage, a series of inking-rollers carried thereby, means on the cylinder for actuating said carriage, a ratchet-disk fast on the carriage, and a detent engaging said disk for preventing retrograde movement thereof, substantially as described.

4. In a printing-press, a revoluble ink-roller carriage, comprising a series of radiating tubular arms connected to a common hub at spaced points, a corresponding series of plungers slidingly mounted in said arms and provided at their inner ends with heads for engaging annular shoulders within said arms, a series of inking-rollers journaled at the ends of said plungers, and springs arranged behind the inner ends of said plungers within the arms for pressing the rollers outward, substantially as described.

5. In a printing-press, a revoluble cylinder carrying a series of type-beds, in combination with a shiftable series of inking-rollers, a corresponding series of inking-belts carried by the cylinder and adapted to carry ink to the inking-rollers, means for intermittently moving said belts while the inking-rollers are in contact therewith, and means on the cylinder for supplying ink to said belts, substantially as described.

6. In a printing-press, a revoluble cylinder carrying a series of type-beds, in combination with a shiftable series of inking-rollers, a corresponding series of endless belts for supplying ink to said rollers, a series of ink-cups carried by the cylinder, and a series of gravity-rollers suspended within the cylinder and adapted to take up ink from the cups and apply the same to the belts, substantially as described.

7. In a printing-press, the combination with a revoluble cylinder carrying a type-bed, and an inking-roller operating over said bed, of an endless inking-belt carried by the cylinder and running over spaced rollers, a friction-wheel connected to one of said rollers and intermittently operated by means of a segmental track secured to the machine-frame, an ink cup carried by the cylinder, and a gravity-roller suspended within the cylinder and adapted to take up ink from the cup and apply the same to the said belt, substantially as described.

8. In a printing-press, the combination with a revoluble cylinder carrying a series of type-beds, of a reciprocating platen, a lever mounted on the machine-frame, a connecting-rod interposed between said lever and the platen, a series of fingers on the cylinder for moving the platen once for each type-bed, and a second series of fingers on the cylinder cooperating with said lever for returning the platen to its initial point of stroke, substantially as described.

9. In a printing-press, the combination with a revoluble cylinder, and a series of type-beds carried thereby, of a reciprocating platen, means for giving said platen a complete movement for each type-bed, a paper-gripper connected to the platen, and means on the cylinder for operating said gripper to release the paper at each complete revolution of the cylinder, substantially as described.

10. In a printing-press, the combination with a revoluble cylinder, and a series of type-beds carried thereby, of a reciprocating platen, means for giving said platen one complete movement for each type-bed, a paper-gripper connected to the platen, a rock-shaft for operating said gripper, a crank-arm on said rock-shaft, and a projection on the cylinder cooperating with said crank-arm for vibrating the gripper at each complete revolution of the cylinder, substantially as and for the purpose described.

11. In a printing-press, the combination with a revoluble cylinder, of a revoluble series of inking-rollers, a spider connected to the carriage of the inking-rollers and comprising a series of radiating arms, a detent mounted on the machine-frame and having its extremity normally arranged in the path of said arms, projections on the cylinder for moving said detent out of the path of said arms, and fingers on the cylinder adapted to engage with said arms for shifting the inking-rollers, substantially as described.

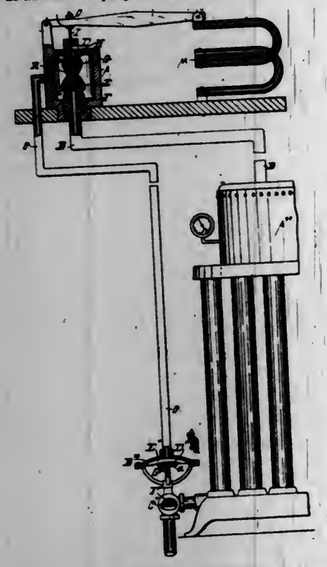
12. In a printing-press, the combination with a machine-frame, and a revoluble cylinder journaled therein and carrying a series of type-beds, of a revoluble ink-roller carriage journaled in the frame, a series of inking rollers carried thereby, a series of radiating arms on said carriage, a spring-actuated detent on the machine-frame, normally projecting into the path of said arms, projections on the cylinder for moving said detent out of the path of said arms at timed intervals, and fingers carried by the cylinder and adapted to cooperate with said arms for imparting a partial revolution to the ink roller carriage, substantially as and for the purpose described.

595,654. AIR-CONTROLLING DEVICE. ALFRED ROESCH, Brooklyn, N. Y., assignor to the Davis & Roesch Temperature Controlling Company, of New Jersey. Filed Jan. 6, 1897. Serial No. 618,160. (No model.)

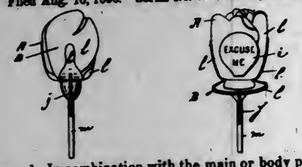
Claim.—1. In a device for controlling compressed air, the combination of an air-chamber provided with inlet and outlet air-ducts; a double or two-faced elastic valve located between, and adapted to simultaneously close the ports of said inlet and outlet ducts; an open side duct communicating from said air-chamber, both to and from a steam-controlling valve; a valve-supporting stem connecting with said double or two-faced valve within said air chamber, from the exterior; and means for actuating said elastic valves, substantially as and for the purpose specified.

2. In a device for controlling compressed air, the combination of an air-chamber provided with inlet and outlet air-ducts; a double or two-faced elastic valve located between, and adapted to simultaneously close the ports of said inlet and outlet ducts, a valve-supporting stem connected with said double two-faced valve, within said

chamber, provided with a flange secured to said stem at its center, and two side flanges adapted to hold and compress said double elastic valves, said elastic valves being loosely fitted upon their supporting-stem, and separated from each other by said central flange, substantially as and for the purpose specified.



595,655. BOUTONNIÈRE, BADGE, &c. CHARLES ROSIN, Newark, N. J. Filed Aug. 10, 1896. Serial No. 602,265. (No model.)



Claim.—1. In combination with the main or body petal-supporting plate of metal having petal-shaped arms, bent up substantially as described from the center portion, said center portion being slotted as at *c*, a hinged metal piece *d*, having a tongue inserted through said slot and turned to form a hinge-eye, ornamental petals inclosing said metal parts, a spring, means for drawing the hinged piece away from the body-frame and petals, and a pin or stem rigidly fastened to the body supporting plate or frame, substantially as set forth.

2. The combination with the main or body petal-supporting plate or frame of metal having concavous arms bent up substantially as described from the center portion, said center portion being perforated and having hinged bearings, a piece hinged upon said frame or plate and having a tongue *h*, struck up out thereof, an elastic cord knotted and extending through the perforation of the body-plate and under the tongue *h*, a stem rigidly secured to the body-plate and ornamental petals, all arranged and combined and operating, substantially as set forth.

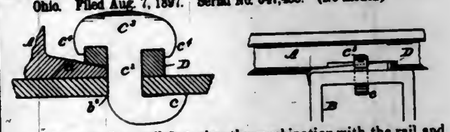
3. In a badge, the combination with the body-plate having a perforated center portion with a rigid stem and arms *b*, *b*, *b*, bent up from said center portion, a hinged petal-shaped piece and an elastic cord fastened to said perforated body-plate and hinged piece, substantially as set forth.

4. The improved badge or boutonnière comprising a pin or means of attachment to the garment, a body-plate fixed to said pin and having a collection of rigid or unhinged arms extending in lines substantially parallel with the axial line of said pin, a plate hinged to said body-plate and normally standing in a line substantially parallel with said rigid arms, a spring for holding said hinged arm in said position, a cord attached to said hinged plate for drawing it down from its erect normal position, and ornamental petals held upon and covering said arms and maintaining a permanent relation to one another and ornamental petals covering said hinged plate and movable to and from the permanently-arranged petals to disclose the interior of the flower, substantially as set forth.

5. The improved badge or boutonniere comprising a pin or means of attachment to the garment, a body-plate fixed to said pin and having rigid or integral arms disposed around the point of attachment to said pin and bent to lie in lines approximately parallel with one another, a hinged plate, a spring attached to said hinged plate and body-plate to hold said hinged plate normally in a line approximately parallel with the rigid arms, means attached to said hinged plate to draw it away from the rigid arms, ornamental covering-petals attached to the rigid arms and hinged plate to conceal the same from view and a legend or inscription plate seated on the rigid ornamental petals adapted to be uncovered and revealed when the hinged plate and its coverings are drawn down, substantially as set forth.

6. In a boutonniere, a collection of ornamental petals permanently arranged in fixed relation to one another and their supporting-plate and together forming a seat for a legend-plate, and spring-controlled covering-petals, movable in relation to said fixed petals, means for drawing said movable petals away from said fixed petals to uncover and reveal said legend-plate, and said legend-plate fastened to said fixed petals, substantially as set forth.

595,656. RAIL-FASTENING. GEORGE W. SAVAGE, Norwalk, Ohio. Filed Aug. 7, 1897. Serial No. 647,403. (No model.)



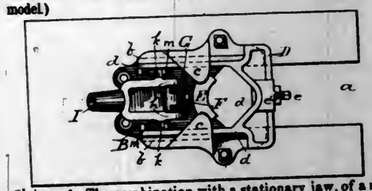
Claim.—1. In a rail-fastening the combination with the rail and perforated tie, of headed studs passing through said perforations and bearing against the rail-flange, a hook on said stud engaging the under side of the tie, and a wedge of substantially U shape driven under the head of the stud, one leg of the wedge passing each side of the shank of the stud, and one of said legs being clenched, substantially as described.

2. In a rail-fastening the combination with the rail and perforated tie having hooked lugs against which the rail-flange abuts, of headed studs engaging the perforations of the tie and having a hooked end which engages the under side of the tie, and a wedge of substantially U shape driven under the head of the stud, one leg of the wedge passing on each side of the shank of the stud, and one of said legs being clenched, substantially as described.

3. In a rail-fastening the combination with the rail and the perforated tie having hooked lugs against which the rail-flange abuts, of headed studs engaging the perforations of the tie and having a hooked end which engages the under side of the tie, and a wedge of substantially U shape driven under the head of the stud, one leg of the wedge passing between the head of the stud and the rail-flange and the other leg passing on the opposite side of the shank of the stud and being clenched, substantially as described.

4. In combination with the rail and perforated tie, the hooked stud having a head provided with downturned lips, and a double wedge having its legs adapted to pass between the body of the stud and said lips, substantially as described.

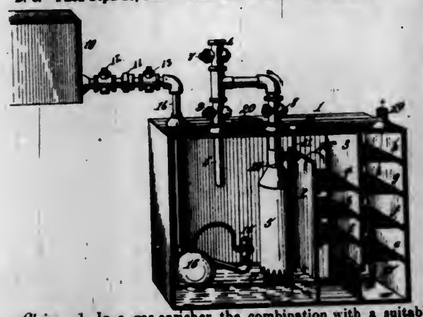
595,657. PIPE-HOLDER. TIMOTHY STEBBINS, Davenport, Iowa. Filed Jan. 2, 1896. Renewed May 15, 1897. Serial No. 636,815. (No model.)



Claim.—1. The combination with a stationary jaw, of a movable jaw having parallel legs extending therefrom and moving in guideways in the supporting-frame of said stationary jaw, a lever, an adjustable nut in which said lever is fulcrumed and a bolt tapped through said nut whereby the adjustment thereof is accomplished; said lever, engaging said legs when depressed and thereby drawing the movable jaw toward said stationary jaw.

2. The combination with a stationary jaw, of a movable jaw having parallel legs extending therefrom and moving in guideways in the supporting frame of said stationary jaw and provided with lugs *m* a lever having cam-lugs *k*, an adjustable nut in which said lever is fulcrumed, and a bolt tapped through said nut whereby the adjustment thereof is accomplished; the lugs *k* engaging lugs *m* when said lever is depressed and thereby drawing the movable jaw toward said stationary jaw.

595,658. CARBURETER. NATHANIEL Z. SKITT, Washington, D. C. Filed Sept. 29, 1896. Serial No. 607,306. (No model.)



Claim.—1. In a gas-enricher, the combination with a suitable tank provided with vertical partitions on its interior to divide the same into a number of communicating compartments, the communicating passages between said compartments being on different planes, a series of horizontal screens of varying degrees of fineness arranged between said vertical partitions, an inlet-pipe leading into the first one of said compartments, and an outlet-pipe leading from the last compartment, substantially as described.

2. In a gas-enricher, the combination with a tank having vertical partitions therein dividing the same into a series of communicating compartments, the communicating passages between the latter being on different planes, a main gas-inlet pipe leading into the first compartment in the tank, a branch pipe leading from said main pipe and opening into the said same compartment, separate cocks for each of said pipes, an independent pipe extension telescoped on the main gas-pipe and adjustable thereon to and from the bottom of the tank, a series of horizontally-arranged screens of varying degrees of fineness placed between the vertical partitions in the tank, and an outlet-pipe leading from the last compartment, substantially as described.

3. In a gas-enricher, the combination with the tank provided with two partitions dividing the tank into an independent enriching-chamber, a receiving-chamber and a refining-chamber, and covered apertures in the top of the tank whereby access may be had to said chambers, an oil-supply tank arranged above the enricher and having a communicating pipe or passage with the lower portion of the enriching-chamber, means for conducting a uniform flow of oil to said enriching-chamber, a main gas-supply pipe leading into the enriching-chamber, an independent adjustable pipe extension telescoped on the end of the main gas-pipe, a branch pipe leading from the main gas-pipe and adapted to conduct gas into the upper portion of the enriching-chamber, valves for each gas-pipe, a series of screens arranged within the receiving and refining chambers, and an outlet-pipe for enriched gas leading from the refining-chamber, substantially as described.

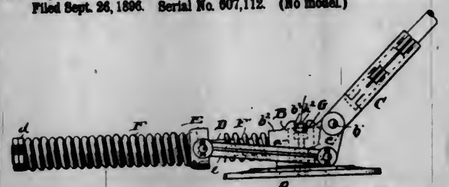
4. In a gas enricher or carbureter, the combination with a suitable tank, of a gas-inlet pipe leading into said tank, a pipe extension telescopically connected to said inlet-pipe and adjustable to and from the bottom of the tank, a laterally-extending lip on the pipe extension, a threaded rod having its lower end portion passed through a threaded hole in said lip, and its upper end passed through a stuffing-box in the top of the tank, and a removable cap screwed to the tank and covering the projecting end of the threaded rod, substantially as described.

5. In a gas enricher, the combination with a suitable tank divided into compartments and provided with a pipe for conveying oil to one of said compartments, a main gas-inlet pipe entering the oil-compartment, an adjustable pipe extension upon the end of the main gas-inlet pipe, a branch pipe leading from the main gas-pipe and delivering gas into the tank, an independent valve for each gas-inlet pipe, a body of absorbent material secured to the bottom of the tank and extending upward within the pipe extension, and a gas-outlet pipe for conducting the enriched gas from the tank after it has passed through all the compartments in the tank, substantially as described.

6. In a gas-enricher, the combination with a suitable tank, of a gas inlet pipe leading to the interior of said tank, a pipe extension telescoped on the end of said inlet-pipe and adjustable to and from the bottom of the tank, a series of wick-supporting wires or rods secured to the bottom of the tank and extending upward within the pipe extension, a cap to which the upper ends of said wires are secured, and an absorbent wick placed over and supported by said wires, substantially as described.

7. In a gas-enricher, the combination with the tank or chamber having two partitions therein dividing the enricher into three compartments each of which communicates with the other, said communicating passages being on different planes, of an oil-supply pipe leading to one of said compartments, a main gas-inlet pipe leading to said oil-compartment, a branch pipe leading also to said chamber, an adjustable pipe extension connected to the main gas-inlet pipe, an absorbent wick or wicks leading from the lower portion of the tank upward within the pipe extension, a series of screens of different mesh placed within two other compartments of the tank, and a gas-outlet pipe for conducting the enriched gas from the tank after it has passed through all the compartments in the tank, substantially as described.

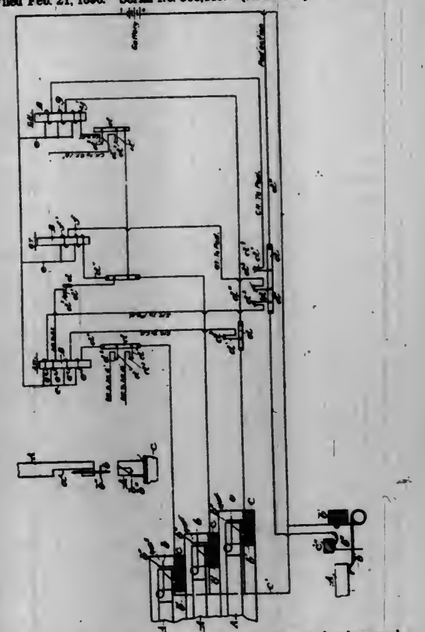
595,659. TROLLEY-STAND. SIDNEY H. SHORT, Cleveland, Ohio. Filed Sept. 26, 1896. Serial No. 607,112. (No model.)



Claim.—1. In a trolley stand, the combination of a base, a trolley-arm support pivoted thereto on a vertical axis, and a spring-carrying rod secured to said support, with a trolley-arm pivoted upon a horizontal pivot to said support, a collar movable upon said rod, links connecting said collar and downward extensions of the trolley-arm, and a spring which embraces said rod, and lies between the collar and a flange or nut on the end of the rod, substantially as and for the purpose specified.

2. In a trolley-stand, the combination of a base A, a trolley-arm support B mounted on a vertical axis upon said base, and a trolley-arm pivoted on a horizontal pivot to said support, with the rod D secured to said support, the collar E which slides upon said rod, the links *e e* and the two springs F F', which embrace the said rod, substantially as and for the purpose specified.

595,660. PIPE-ORGAN. ERNEST M. SKINNER, Boston, Mass. Filed Feb. 21, 1896. Serial No. 580,183. (No model.)



Claim.—1. In a pipe-organ a series of keys A having each a side recess a^2 combined with spring-contact wires *b b''* secured to supporting-blocks *b'* as and for the purpose set forth and described.

2. In a pipe-organ a series of keys A having each a side recess a^3 combined with spring-contact wires b b'' secured to supporting-blocks b', and wires having switch-plates d, switches d^2 and electro-magnets in the circuit substantially as and for the purpose set forth and described.

3. In a pipe-organ action electromagnets having a plurality of independent windings, an independent energizing-circuit for each winding, including a key-contact and an intermediate switch plate or switch, a return-wire common to all the independent energizing-circuits, and a suitable source of electric energy, substantially as described.

4. In a pipe-organ action, electromagnets having cores which are provided with multiple windings, a common return-wire to which all of said windings are connected, an independent energizing-wire for each winding, a key-contact and an intermediate switch or switch-plate interposed in said wire, and a suitable source of electric energy to the opposite poles of which the common return-wire and the independent energizing-wires are respectively connected, substantially as described.

5. In a pipe organ action magnets having cable windings composed of two or more insulated strands of wire in electrical circuit with the various keys or stops of the organ-action substantially as and for the purpose set forth and described.

6. In an organ action, an electrical crescendo device, consisting of a movable switch-lever combined with a contact leading to and through a battery or electric generator, and a succession of contacts, each in series with a magnet controlling one of the various stops and couplers of the organ-action, substantially as described.

7. In a pipe-organ, in combination, a magnet-box containing an electromagnet an armature-block above said box a perforated veneer interposed between said box and block and a movable armature-valve arranged in said perforated veneer substantially as and for the purpose set forth and described.

8. In a pipe-organ in combination a magnet-box containing an electromagnet, an armature-block above said box, a perforated veneer interposed between said box and block and a movable armature having a central valve adapted to close an opening leading to the exit-opening, substantially as and for the purpose set forth and described.

9. In a pipe-organ action in combination a magnet-box containing an electromagnet, a magnet-plate secured to said box and metal circuit-plates arranged between said box and magnet-plate for the purpose of establishing electrical connection between the inside and outside of said box as herein set forth and specified.

10. In a pipe-organ action, the combination with a battery or other generator of electricity, of an electromagnet, a winding q for the same, a resistance-coil S'' in series with the winding, an intermediate return R'' common to said winding and resistance-coil and connected to a return-plate q'', a return-circuit for said electromagnet, a pneumatic-diaphragm S' and contact-springs q^2 and r, on the return-plate, whereby the resistance-coil S'' in the return-circuit is normally shunted through the intermediate return R'', but is thrown in series with the winding q while the intermediate return R'' is opened at q^2, r as soon as the pneumatic operates, substantially as described.

11. In an organ-action, the combination with a valve t, of a pneumatic diaphragm or bellows T, to control said valve, a magnet-chamber T'' containing magnets controlling stops or couplers, and an automatic device to break the return-wire of said magnets simultaneously with the exhaustion of said chamber by said valve t, substantially as described.

12. In an organ-action the combination with a pneumatic-diaphragm, U, of an air-passage V, having a small vent, or air-passage V'' and a pair of electromagnets u, u', and armature-valves, serving in turn to exhaust and inflate the air-passage V, substantially as described.

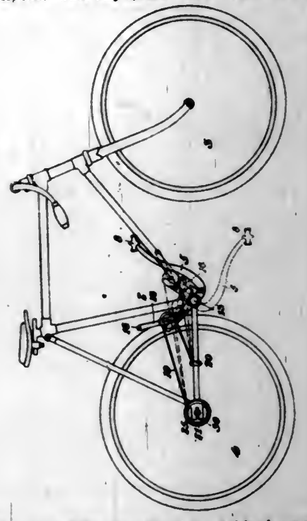
13. In an organ-action a pneumatic-diaphragm U and channels V V' and a pair of electrically-operated armature-valves serving respectively as exhausting and inflating devices for the pneumatic-diaphragm U, in combination with a vent or windway V'' serving as a communication between channels V and V' substantially as and for the purpose set forth and described.

14. In an organ-action a pneumatic-diaphragm U and channel V and a pair of electrically-operated armature-valves serving respectively as exhausting and inflating devices for the pneumatic-diaphragm U, and a vent V'' combined with the electrical connections V^3 and V^4 and pneumatically-controlled contact-spring W substantially as and for the purpose set forth.

15 In an organ-action the combination with a diaphragm or equivalent pneumatic U and a valve U^3 connected thereto, of an air-passage V controlling said pneumatic, a channel V' controlled by said valve, and a means of communication V'', between said passage and channel, substantially as and for the purpose set forth.

16. In an organ-console pivotal doors Z Z having grooves for the reception of the roll or lid Z', and containing and supporting within themselves the draw-stops or registers and their suitable contact devices substantially as and for the purpose set forth.

595,661. BICYCLE DRIVING MECHANISM. William D. Smith, Denver, Colo. Filed July 1, 1896. Serial No. 597,675. (No model.)



Claim.—1. A safety-bicycle having a rocking lever provided with two arms of unequal length, a pedal secured to the forward-projecting longer arm, a roller connected to the rear and shorter arm, and a flexible connection passing over the roller and secured to the driving drum, the other end of said connection being attached at a stationary point.

2. A safety-bicycle having a rocking lever provided with two arms of unequal length, a pedal secured to the forwardly-projecting longer arm, a pivoted extension-piece secured to the rear and shorter arm, a roller mounted upon said extension and arranged to move in an arc above the horizontal, and a flexible connection attached at one end at a stationary point, said connection passing over the roller and being secured to the driving-drum.

3. In a safety-bicycle driving mechanism, a two-arm driving-lever, with a foot-pedal at the extremity of one arm, and on the other arm a swinging extension-piece carrying a pulley for the strap or flexible connection between the driving-lever and the clutch on the driving-wheel, both the short arm of the lever and the extension-piece having several pivot-holes so as to afford a larger scope for variation of the relative gear of the driving-wheel and driving-lever, to suit the exigencies of travel, substantially as described.

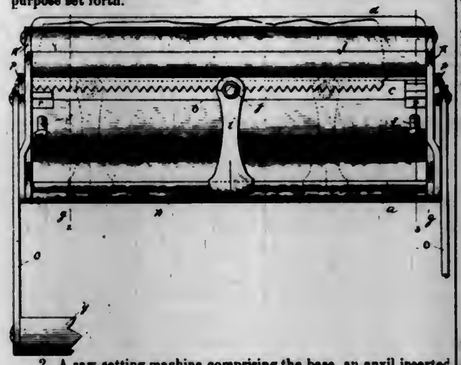
4. A safety bicycle having a rocking lever provided with two arms of unequal length, a pedal secured to the forwardly-projecting longer arm, a roller connected to the rear and shorter arm, said roller being arranged to move above the horizontal line, and a flexible connection secured to the driving-drum and passing over the roller, said connection having at the other end an attachment to a stationary point arranged to give a multiplying motion, and means for changing said point of attachment arranged to give a direct connection and a non multiplying motion.

5. In a safety-bicycle driving mechanism, the device for changing the gear, consisting of the combination of driving-lever, having rearwardly-extending short arm, and a pulley pivoted thereto, a friction-clutch on the axle of the driving-wheel, a flexible strap or cord attached to the clutch at one end, and at the other to a pivoted trigger engaging a spring-bolt, which when compressed gives to the cord a rigid point of attachment and when released allows it to follow the motions of the driving-lever; substantially as and for the purpose described.

6. A safety-bicycle having a rocking two-armed lever, on one arm of which is the pedal and on the other arm of which is a roller, and a flexible connection attached at one end to the frame, and passing around the roller to the driving-drum, said roller-carrying arm being constructed to move in an arc of a circle above the horizontal line and in a forward direction while pulling on the flexible connection.

595,662. SAW-SET. Frank W. Steele, Terre Haute, Ind. Filed Aug. 11, 1897. Serial No. 647,836. (No model.)

Claim.—1. In a saw setting machine the combination of the base having an anvil inserted therein, an eccentrically-pivoted table, a jaw cooperating with said table and having the semi-elastically-lined face, means for operating said jaw and adjusting guides or gages for the purpose set forth.



2. A saw-setting machine comprising the base, an anvil inserted in said base, a movable table pivoted in said base, adjusting means for said table, a jaw, guides for a saw having adjusting means, a handle operating said jaw, and a set movably mounted upon a part of the machine, for the purpose set forth.

3. In a saw-setting machine the combination of the anvil, the adjustable table, adjusting means therefor, guides, a spring for moving the guides in one direction, a screw for adjusting said guides in opposite direction, a jaw adapted to clamp the saw upon the adjustable table, a handle operating said jaw and a set movably mounted upon the machine, substantially as set forth.

4. The combination in a saw-set of the base a, extending the entire length of the machine, the anvil c, inserted therein, also extending the length of the base, the pivoted table d, the pivoted clamp or jaw l, and the pivoted arm carrying the set adapted to travel the length of the anvil, substantially as set forth.

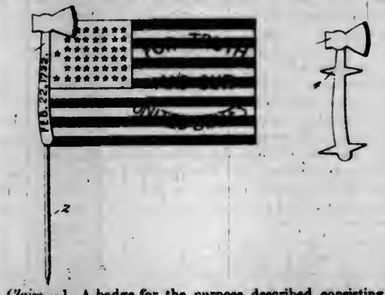
5. The combination in a saw-set of the base, the anvil therein, the pivoted and adjustable table, the pivoted jaw, said table and jaw forming a vise or clamp to hold the saw, and the cam-lever n, pivoted to the base and jaw l, and the cam-lever o, for operating the vise, substantially as set forth.

6. The combination in a saw-set of the base, the anvil inserted therein, the pivoted table, the set-screw f, for adjusting table, the gages r pivoted within the base, the set-screw for adjusting the gage, the cam-lever n, the pivoted jaw l, and the lever o, substantially as set forth.

7. The combination in a saw-setting machine of the base provided with a recess for the anvil, the anvil arranged in said recess, the adjustable table pivoted to said base, the eccentric pivoted to base and vise-jaw, the punch or saw-set pivoted to the base, the gages r arranged at the ends of the table, the longitudinal guide-rod for carrying the punch or saw-set arm, and the cam-lever o for operating the jaw, for holding the saw in position while being set, substantially as set forth.

8. The combination in a saw-setting machine of the base the anvil therein, the adjustable table, the pivoted jaw, the eccentric-link and eccentric-lever for operating the jaw against the face of the table for holding the saw in the required position while being set, substantially as set forth.

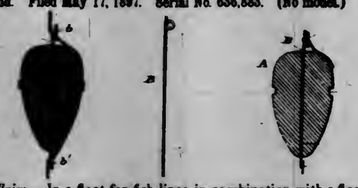
595,663. BADGE. Sallie Thomas, Nashville, Tenn. Filed Feb 5, 1897. Serial No. 622,209. (No model.)



Claim.—1. A badge for the purpose described, consisting of a flag, a staff to which the flag is secured, and a clip or fastener in the form of a hatchet provided with prongs whereby it is secured to the staff and also assists in securing the flag to the staff, substantially as described.

2. The herein described badge, consisting of a flag, a staff therefor, and a hatchet formed from sheet material and provided as to its handle with oppositely-located prongs adapted to pass through the flag and to be clenched upon the reverse side of the staff, substantially as described.

595,664. FISHING-FLOAT. Gustav H. Wenger, South Bend, Ind. Filed May 17, 1897. Serial No. 636,883. (No model.)



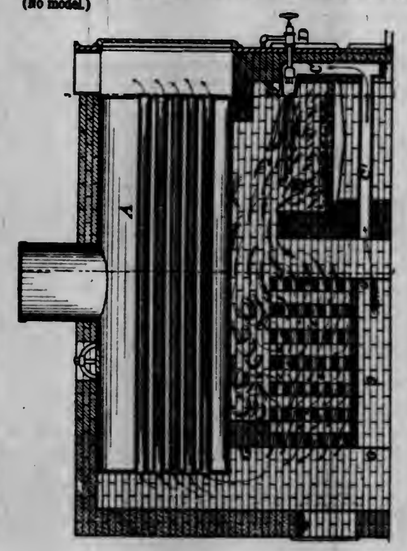
Claim.—In a float for fish-lines, in combination with a float-body having a wire extending longitudinally through the same and looped at each end, of a transverse circumferential groove in the body at a point intermediate its length, and an elastic band arranged in the groove, substantially as and for the purpose set forth.

595,665. ROTARY STEAM-ENGINE. Louis A. Wirchmeyer, North Dover, Ohio. Filed Mar. 5, 1897. Serial No. 626,062. (No model.)



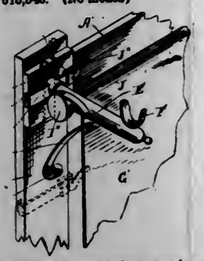
Claim.—In a rotary steam-engine, a cylinder, the ports K, L, M, arranged in the relation to each other, as shown, combined with a slide-valve which is adapted to alternately close a port at diagonally-opposite corners of the steam-chest, and a rotary piston provided with two separate sets of cavities, and which cavities communicate with two sets of ports, substantially as shown.

595,666. STEAM-BOILER FURNACE. David Young and William D. Lewis, Cleveland, Ohio, assignors of one-half to A. W. Getchell and R. R. Jones, same place. Filed July 17, 1897. Serial No. 644,889. (No model.)



Claim.—In combination with a boiler-furnace of the checker-work situated beneath the rear half of the boiler and a short distance back of the bridge-wall and supported on arches open between the space back of the bridge-wall and the space at the rear of the boiler, said checker-work being also the same height as the bridge-wall; a baffle-wall on the rear end of the checker-work supporting the rear end of the boiler; and a pipe C' in the ash-pit, extending through the bridge-wall and in communication with the space back of the bridge wall and the arch under the checker-work; a vertical pipe C set in the front wall of the furnace and connected with the pipe C' and provided with a nozzle projecting over the fire and a steam-jet in said nozzle, the arrangement being such that hot air is injected over the fire and commingles with the gases for enhancing combustion, substantially as described.

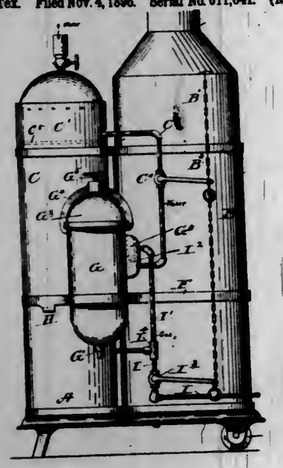
595,667. **SHADE-BRACKET.** GEORGE BELL, Muncie, Ind., assignor of one-fourth to Charles S. Lynn, same place. Filed Nov. 24, 1896. Serial No. 613,346. (No model.)



Claim.—1. A bracket for supporting curtain-poles or shade-rollers, consisting of a plate adapted to be secured to a window-casing, a screw-threaded socket slidingly adjustably secured on the plate passing through the socket, and an arm having its inner end adapted to bear against the plate and provided with a screw-threaded inner portion engaging the threads in the socket, the screw-threads so arranged that the inner end of the arm is adapted to be screwed up against the plate, whereby the arm acts as a set-screw for locking the arm and socket in their adjusted position, substantially as described.

2. A device for supporting a window-shade, consisting of a pair of brackets secured to a window-casing, a shade-roller having one end rotatably supported on one bracket, a spring casing provided with an axle extending through the opposite bracket and rotatably supported thereon, the axle being secured to the roller and adapted to rotate therewith, a sleeve extending from the bracket surrounding the axle and formed with a rib on its outer surface, a spring having one end secured to the casing and the opposite end secured to the bracket, and a pawl on the casing adapted to engage the rib on the sleeve to lock the shade-roller and casing in their adjusted position, substantially as described.

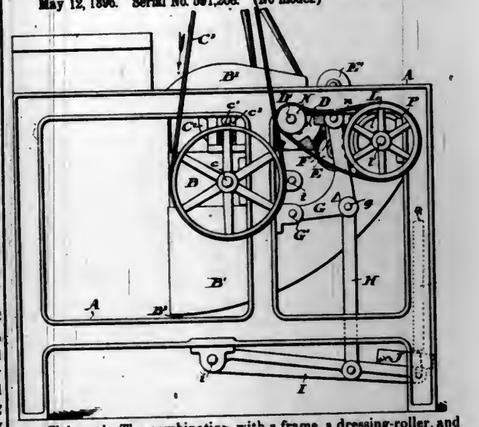
595,668. **ACETYLENE-GAS MACHINE.** HENRY BRYANT, Aransas Pass, Tex. Filed Nov. 4, 1896. Serial No. 611,041. (No model.)



Claim.—1. In combination a generator adapted to form gas from a carbid and water, and provided with a service-pipe, with two tanks, connecting with such generator and pipe, one adapted to expand and contract to accommodate variations between the generation and use of the gas, at a pressure near that intended for the service-pipe, and the other adapted to receive and feed the excesses of gas at varying pressures, and with four valves, two turn-valves with means for operating them from excess of gas in the charging-tank, adapted one to control the admission of gas to such tank and the other of water to the generator, and two check-valves adapted to prevent outlet of gas from the generator by the water-passage, and from the gas-holder to the generator, substantially as set forth.

2. A generator constructed to form gas from a carbid and water, having a removable cell to facilitate charging and discharging, a removable cap having a stirrup and screw-holder, and two passages in the wall of the generator each provided with a ball or check valve adapted to allow the passage of water inward by one, and of gas outward by the other, while preventing the escape of gas by reverse passage, in combination with an expansible and a non-expansible gas-tank and service-pipes connecting the generator and the tanks, and provided with automatically-controlled valves, substantially as set forth.

595,669. **LEATHER-DRESSING MACHINE.** SAGER CHADWICK, Philadelphia, Pa., assignor to Robert K. McNeely, same place. Filed May 12, 1896. Serial No. 591,208. (No model.)



Claim.—1. The combination, with a frame, a dressing-roller, and a roller engaging the dressing-roller and supplying the dressing material thereto, of a feed or carrying roller movable toward and from the dressing roller and means for rotating the feed or carrying roller when moved away from the dressing roller, substantially as described.

2. The combination, with a frame, an oil or dressing receptacle thereon, a roller journaled in said receptacle, and a second roller contacting with the first roller, of a dressing-roller contacting with the said second roller and supplied therefrom with dressing, and a pair of feed or carrying rollers movable toward the dressing-roller to hold the skin thereto and movable away therefrom to permit the entrance of a skin, substantially as described.

3. The combination of a dressing-roller; means substantially as set forth for supplying dressing material thereto; a pair of freely-mounted carrying-rollers arranged adjacent to said dressing-roller; a shifting frame supporting said carrying-rollers; and actuating mechanism (as disks, L, L',) arranged with relation to the extreme outward position of said carrying-rollers, substantially as set forth.

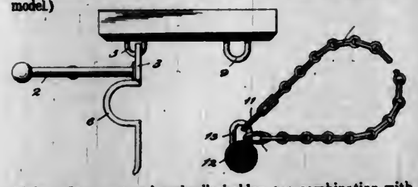
4. The combination, with a frame, and a dressing-roller, of a pair of carrying-rollers to hold the skin to the dressing-roller, bell crank levers pivoted to the frame and to which the yokes or arms carrying the feed or carrying rolls are pivoted and a treadle mechanism connected with said bell-cranks to move the feed or carrying rollers toward and from the dressing-roller, substantially as described.

5. The combination with a dressing-roller and means for rotating it, of a normally-adjacent carrying-roller free to rotate in either direction to permit the operator to pull the skin outwardly for successive actions by said dressing-roller, a driving means beyond and at that side of the carrying-roller opposite the dressing-roller, and means for moving said carrying-roller away from the dressing-roller and into contact or mesh with said driving means whereby the said carrying-roller will then become a positively-driven roll to feed the skin inwardly into position for action by the dressing-roller, substantially as described.

6. A leather-dressing machine, comprising a frame, a dressing-roller, dressing contacting supply-rollers, one of which engages the dressing-roller and the other of which enters a dressing-receptacle, feed or carrying rollers movable toward and from the forward side of the dressing-roller, means for rotating the feed or carrying rollers when moved outwardly, and a beater rotating beneath the dressing-roller, substantially as described.

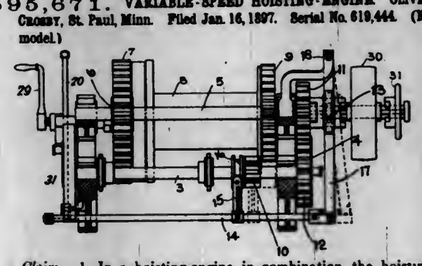
7. A leather-dressing machine, comprising the frame, a dressing-roller, a dressing-trough, rollers for conveying the dressing from the trough to the dressing-roller, feed or carrying rollers in front of the dressing-roller to hold the skin thereto, means for moving the feed or carrying rollers toward and from the dressing-roller, a drive-shaft in the outward path of the feed-rollers to rotate the same when moved away from the dressing-roller, a beater under the dressing-roller and the large inclosing tank, substantially as set forth.

595,670. **COAT AND UMBRELLA SUSPENDING RACK.** JAMES H. CHAMBERS, Apollo, Pa. Filed Feb. 6, 1897. Serial No. 622,273. (No model.)



Claim.—In a coat and umbrella holder, the combination with a base-block, of a hook member having a horizontally-arranged, substantially T-shaped plate hinged or pivoted by its vertical cross portion to the said base and carrying a hook, and having its horizontal extension provided at its end with a slot, and at the center with an outwardly-projecting loop to receive and confine an umbrella, a staple projecting from said base and adapted to extend through the said slot, a padlock adapted to engage the said staple to hold the plate in locked position, and a chain adapted to be passed through the sleeve of a coat and the ends thereof engaged by the hasp of the padlock, substantially as described.

595,671. **VARIABLE-SPEED HOISTING-ENGINE.** OLIVER CROSBY, St. Paul, Minn. Filed Jan. 16, 1897. Serial No. 619,444. (No model.)



Claim.—1. In a hoisting-engine, in combination, the hoisting-drum, the driving-shaft, the intermediate shaft, the gear-and-clutch mechanism for connecting it to the drum, the alternate differential-speed gears between said shafts, and the common shifting mechanism by means of which either set of said gears is thrown out of connection as the other is thrown in.

2. In a hoisting-engine, in combination the driving-shaft, the driven shaft, the double-faced clutch upon the driven shaft, the loose gear upon one side of said clutch, and the loose belt-pulley upon the other, adapted to be alternately engaged by said clutch.

3. In a hoisting-engine, the combination with the driven and driving shafts, of the fixed gears upon each adapted respectively to engage, the one a slip-gear, and the other a loose, clutch-driven gear upon the other shaft, the slidable bar, the connections between said bar and slip-gear and clutch whereby the sliding of the bar in one direction throws one of said parts into gear and the other out, and the reverse movement of the bar throws the first-named part out of gear, and the second into gear, and the crank for throwing said slidable bar, adapted to lock the same at either extreme position by passing the dead-center.

4. In a hoisting-engine, the combination with the driving-shaft and the parallel driven shaft, of the fixed gear upon said driving-shaft, the loose gear upon said driven shaft, the sliding clutch on said driven shaft adapted to engage said loose gear, the fixed gear upon the driven shaft, and the slidable gear upon the driven shaft adapted to be thrown into or out of engagement with said fixed driven-shaft gear, the reciprocating shifting-bar, the arm upon said bar engaging said slidable gear upon the driving-shaft, the lever operatively connected to said shifting-bar, and said clutch, said parts being so arranged that said slidable gear and clutch are thrown, the one into gear when the other is thrown out of gear, the offset slotted arm upon said shifting-bar, and the crank engaging said slotted arm, and adapted to shift said bar from one extreme position to the other, and to lock the same in either such position by assuming the dead-center position.

5. In a hoisting-engine, in combination, the driving-shaft, the parallel driven shaft, the belt-pulley upon the driven shaft, the hoisting-drum, the friction clutch detachably connecting said drum with said driven shaft, the variable-speed gear intermediate of the driving and driven shafts, and the common shifting attachment for throwing off one speed connection when the other is thrown on.

595,672. **ARTIFICIAL FUEL.** JOHN T. DAVIS, San Francisco, Cal., assignor of one-half to Charles W. Kohlsaat, New York, N. Y. Filed May 6, 1897. Serial No. 635,423. (No specimens.)

Claim.—1. A composition of matter for artificial fuel, composed of divided coal, saccharine matter, and lime partially slaked by a solution of sulfate of iron, substantially as described.

2. A composition of matter for artificial fuel, composed of divided coal, saccharine matter, and lime partially slaked by a hot solution of sulfate of iron, substantially as described.

3. The herein-described process of making an artificial fuel which consists in mixing together coal, saccharine matter, and lime partially slaked by a hot solution of sulfate of iron, and completing the slaking of the lime by the moisture in the saccharine matter, substantially as described.

4. A composition of matter for artificial fuel, composed of the following elements by weight: one hundred parts of coal-dust, eight parts of lime partially slaked by a hot solution of sulfate of iron, and eight parts of saccharine matter, substantially as described.

595,678. **ARTIFICIAL FUEL.** JOHN T. DAVIS, San Francisco, Cal., assignor of one-half to Charles W. Kohlsaat, New York, N. Y. Filed June 14, 1897. Serial No. 640,590. (No specimens.)

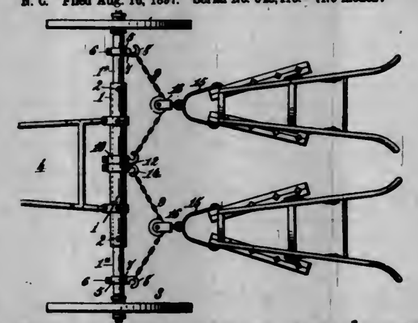
Claim.—1. The process of making an agglomerate fuel, which consists in adding to finely-divided coal, a solution of gelatin, and, then, a solution of bichromate of potash, substantially as described.

2. The process of making an agglomerate fuel, which consists in adding to finely-divided coal, a solution of gelatin, then a solution of bichromate of potash, and then heating the mass to 150° Fahrenheit, more or less, substantially as described.

3. A composition of matter for artificial fuel, composed of finely-divided coal, a solution of gelatin, and a solution of bichromate of potash, in about the proportions specified, substantially as described.

4. A composition of matter for artificial fuel, consisting of the following ingredients, by weight: finely-divded coal about two thousand parts, slaked lime eighty parts, gelatin six to ten parts, bichromate of potash, one part, substantially as described.

595,674. **DOUBLE CULTIVATOR.** JAMES K. DEATON, Concord, N. C. Filed Aug. 16, 1897. Serial No. 648,418. (No model.)



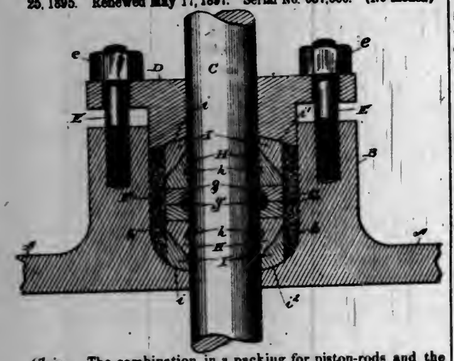
Claim.—1. A cultivator consisting of a wheeled axle provided with cuffs having means for attaching the ends of chains or other flexible connections to the ends of arms projecting from said cuffs, and a plurality of plows, each having a pulley connecting it to one of said chains or connections, substantially as described.

2. In a cultivator, the combination with a wheeled axle consisting of a central piece and two end extensions, of cuffs arranged on said parts and capable of longitudinal and rotary adjustment, each

cuff having a rigid arm projecting from it provided with a suitable attaching device at its end, suitable flexible connections such as chains attached to said devices, a plurality of cultivating plows each having a pulley which rides upon one of said flexible connections, and means for fastening the cuffs when adjusted, substantially as described.

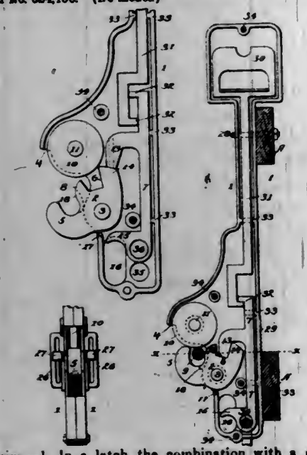
3. In a cultivator, the combination with an axle supported by wheels of separate cuffs having longitudinal and rotary adjustment thereon, a plurality of cultivating-plows each having a pulley connected to its forward end, slack flexible connections having connection to arms projecting rigidly from said cuffs each connection having one of the pulleys riding thereon, and means for locking the cuffs upon the axle, substantially as described.

595,675. PISTON-ROD PACKING. JOHN W. DUDLEY, Chicago, Ill., assignor to the Dudley Packing Company, same place. Filed Nov. 25, 1895. Renewed May 17, 1897. Serial No. 637,006. (No model.)



Claim.—The combination in a packing for piston-rods and the like, of the split rings H, and I, having inclined meeting faces and placed around the piston-rod, the rings H, having the grooves *h*, for a lubricant, with the rings G, provided with the grooves *g*, for a lubricant placed between the rings H, and an elastic packing-sleeve composed of cork or analogous material located outside said rings against the walls of the packing-box, substantially as described.

595,676. GATE-LATCH. JAMES A. GREEN, Milldale, Va., assignor of one-half to Amos Richard Simpson, Paris, Va. Filed Feb. 19, 1897. Serial No. 624,158. (No model.)



Claim.—1. In a latch, the combination with a gravity-acting tumbler having a hook 5, an arm 8, a recess 6 back of said arm and a seat 14 back of and terminating in said recess, of a gravity latch-bar having a hook adapted to rest upon said seat in the open position of the tumbler and to automatically drop from said seat into engagement with the tumbler recess in the closing movement of the tumbler, and a casing or housing for said parts having an opening with which the hook cooperates in its latching function and means for lifting said latch-bar.

2. In a gate-latch the combination, with a tumbler having a hook 5, cam-arm 8, recess 6 and surface seat 14, of a loosely-mounted disk above the tumbler, and a latch-bar having a hook and a thumb-piece, and a casing or housing for said parts, secured to the gate whereby in closing the gate the tumbler and the disk are caused to roll into fastening engagement with the post-pin or keeper.

3. The combination in a gate-latch of a housing or casing secured to the gate having coincident wall-openings 16 at its lower end, a tumbler above said openings having a hook, a cam-arm, a recess and a surface seat standing from the upper side thereof, the said surface seat being at its inner end and the hook at its outer end, a latch-bar arranged in vertical position back of the tumbler, and having a hook or detent 13 above the tumbler and a thumb-piece accessible through said case-openings, whereby the latch-bar is suspended upon the tumbler in its closed and in its open position.

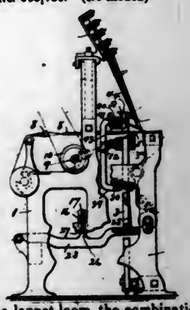
4. The combination of a gravity-acting tumbler having a hook, an arm, a recess back of said arm and a seat back of said recess, of a gravity-acting latch-bar of two parts coupled for movement together or independent of each other, the lower part having a hook or detent adapted to automatically engage said recess, the upper coupled part having a handle at its upper end and the lower coupled part having a thumb-piece at its lower end whereby either latch part may be raised to unlock the tumbler.

5. In a gate latch, the combination with a gravity-acting tumbler having a hook on its outer end standing upward, a casing or housing having an opening with the upper edge of which, the said hook cooperates for engaging and releasing the post-pin or keeper, and a vertically-sliding latch-bar of two parts coupled for movement, the lower part independent of the upper part, the said lower part having a hook or detent adapted to engage and release said tumbler, and the said coupled parts each having means for rasing it.

6. In a gate-latch, a gravity-acting tumbler having a hook on its outer end standing upward, a vertically-sliding latch-bar having a hook or detent standing downward, and a casing or housing for said parts, having an opening adapted to cooperate with said tumbler-hook, in combination, with a post-pin, or keeper, means for vertically adjusting said housing upon the gate and means for adjusting said pin or keeper upon the post whereby the latch-engaging parts may be adjusted in relation to each other.

7. The combination, in a gate-latch, of a tumbler having a hook on its outer end standing upward, a housing having an opening with which said hook cooperates, a vertically-sliding latch-bar having a hook, adapted to engage said tumbler, and a thumb-piece at its lower end, the said housing having coincident openings 16, for access to said thumb-piece and openings 35 coincident with an opening 36 in said latch-bar, whereby the latch and the housing may be locked together when the gate is latched.

595,677. LOOM FOR LAPPET-WEAVING. STEPHEN A. LEAVENS, JAMES M. HARVEY, and WALTER A. CHANDLER, Grafton, Mass.; said Chandler assignor to Austin G. Kempton, same place. Filed Sept. 14, 1896. Serial No. 605,759. (No model.)



Claim.—1. In a lappet-loom, the combination with a needle-bar having beveled edges, clamp-pieces having beveled faces adapted to lie in contact with said bar edges, a needle passing through holes in said clamp-pieces, and means for holding said clamp-pieces in forcible contact with said bar, substantially as described.

2. In a lappet-loom, the combination with a needle-bar having beveled edges, clamp-pieces having beveled faces adapted to lie in contact with said bar edges, a needle having a screw-threaded shank passing loosely through holes in said clamp-pieces and two nuts engageable with said needle and adapted to force said clamp-pieces into contact with said bar edges, substantially as set forth.

3. In a lappet-loom, the combination of a needle-bar mounted at its ends in journals so as to be capable of a rocking motion therein, having an offset and a tubular extension in a plane parallel with said bar, a second needle-bar mounted and longitudinally movable in said tubular extension, and a screw or pin passing from one of said bars to the other, substantially as specified.

4. In a lappet-loom, the combination of two parallel needle-bars, one of which is pivotally mounted at its ends in journals so as to be capable of a rocking motion, and the other is mounted and supported thereon and connected and movable therewith, substantially as described.

595,678. MAIL-BOX. CHARLES O. LUCAS and ALBERT D. HARRISON, Greenville, Ohio. Filed Jan. 25, 1897. Serial No. 620,866. (No model.)



Claim.—1. In a mail-box, a casing having a suitable aperture through which mail matter may be introduced, a pocket pivotally supported within said casing and comprising a front wall and two side walls, the rear side of the pocket being open, and a curved plate pivotally secured in rear of the pocket, said plate being adapted to form the rear wall of the pocket when the parts are moved into operative position and a top for the pocket when the parts are allowed to assume the normal positions, whereby unlawful abstraction of the mail matter in the box is effectively prevented.

2. In a mail-box, a casing having a suitable aperture through which mail-matter may be introduced, a pocket pivotally supported within said casing and comprising a front wall and two side walls, the rear side of the pocket being open, and a curved plate pivotally secured in rear of the pocket, said plate being adapted to form the rear wall of the pocket when the parts are in the operative positions and to move backward away from the pocket when the parts are allowed to resume the normal positions, whereby mail-matter deposited in the pocket is guided into the lower portion of the box by the plate.

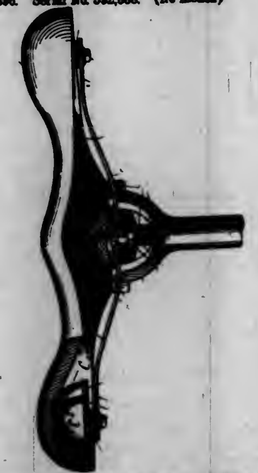
3. In a mail-box, a casing having an aperture through which mail-matter may be introduced, a pocket pivotally supported within the casing and comprising a front wall and two side walls, the rear side of the pocket being open, a vertical curved plate pivotally secured in rear of the pocket and extending across the interior of the casing, and a series of teeth secured across the lower end of the plate, said teeth being adapted to move beneath the lower end of pocket when the parts are in the operative positions, whereby the introduction of an instrument to unlawfully abstract mail-matter from the box when the parts are in positions to receive mail-matter is prevented.

595,679. IMPLEMENT FOR EXTRACTING NAILS OR TACKS. EDWARD W. PRATT, Menominee, Mich. Filed June 12, 1897. Serial No. 640,516. (No model.)



Claim.—In a nail or tack extractor the combination of a shank having a handle on one end, the other end being flattened and curved off the line of center, the end of which is curved up and provided with a claw, a longitudinal slot in the said flattened portion, a curvilinear gripping-jaw secured within the upper end of the said slot, having a claw in the free end thereof, and provided with a curved fulcrum secured to its center the said fulcrum projecting down through the said slot, having a coil-spring mounted thereupon, substantially as shown and for the purpose set forth.

595,680. SEAT FOR BICYCLES. CASSIUS M. RICHMOND, New York, N. Y., assignor to the Universal Trading Company, same place. Filed May 23, 1896. Serial No. 592,883. (No model.)



Claim.—1. A seat or saddle for bicycles and similar vehicles, which is adapted to be connected with the vehicle in the usual manner, and which comprises a support, a plurality of hollow, elastic cushions or pads mounted on said support, and filled with air under normal pressure and hermetically sealed, and a seat proper which is mounted on and supported by said cushions or pads, said cushions or pads being plano convex in form, and the flat surface of each being directed downwardly, and provided with a base-plate or support to which they are secured, substantially as shown and described.

2. A seat or saddle for bicycles and similar vehicles, which is adapted to be connected with the vehicle in the usual manner, and which comprises a support, a plurality of hollow, elastic cushions or pads mounted on said support, and filled with air under normal pressure and hermetically sealed, and a seat proper which is mounted on and supported by said cushions, or pads, said cushions or pads being plano convex in form, and the flat surface of each being directed downwardly and provided with a base-plate or support to which they are secured, said pads being also composed of two parts one of which is placed within the other, and said seat being vertically movable and provided with cavities which receive the convex surface of said cushions or pads, substantially as shown and described.

3. A seat or saddle for bicycles and similar vehicles, comprising a triangular spring support which is adapted to be secured to the frame of a vehicle in the usual manner, and to the upper side of which are secured a plurality of hollow elastic cushions or pads, filled with air under normal pressure and hermetically sealed, said cushions or pads being plano-convex in form, and the flat surface of each being directed downwardly and provided with a base-plate or support, said pads being also composed of two parts which are similar in form, and one of which is placed within the other, and a seat proper which is mounted on said cushions or pads and secured to said spring-support, said seat being vertically movable, substantially as shown and described.

4. A seat or saddle for bicycles and similar vehicles, comprising a triangular spring-support which is adapted to be secured to the frame of a vehicle in the usual manner, and to the upper side of which are secured a plurality of hollow elastic cushions or pads, filled with air under normal pressure and hermetically sealed, said cushions or pads being plano-convex in form, and the flat surface thereof being directed downwardly and provided with base-plates or supports, and a seat proper which is mounted on said cushions or pads and secured to said spring-support, said seat being vertically movable, and said cushions or pads being composed of a flexible bottom portion,

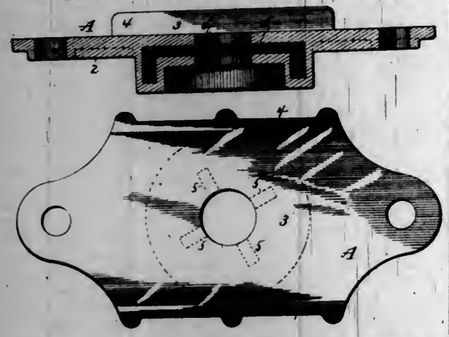
and two hollow flexible portions, one of which is placed within the other, and each of which is hermetically sealed to the flexible bottom portion, substantially as shown and described.

5. A seat or saddle for bicycles and similar vehicles comprising a spring-support which is adapted to be secured to the frame of the vehicle, said support being provided with spring-arms to each of which is secured a plate to which is secured a plano-convex cushion or pad, and the flat portion of said pads being directed downwardly, and supported by said plates, each of said pads being filled with air under normal pressure and hermetically sealed, and the convex surfaces of said pads being directed upwardly, and a seat proper which is provided on its under surface with circular cavities which are adapted to receive the convex surfaces of the cushions or pads, substantially as shown and described.

6 A seat or saddle for bicycles and similar vehicles, the same consisting of a suitable spring-support, which is adapted to be secured to the frame of the vehicle, said spring-support being provided with spring-arms on which are mounted disks or plates to which are secured hollow, plano-convex cushions or pads, which are filled with air under normal pressure, and hermetically sealed, the convex surface of said cushions or pads being directed upwardly, and each being composed of an outer and an inner or reinforcing part, each of which is sealed or secured to a flexible bottom piece, and a seat proper which is provided with circular cavities on its under side which are adapted to receive the convex surfaces of said cushions or pads, said seat proper being mounted on said pads, and secured in place, substantially as shown and described.

7. The herein-described seat or saddle for bicycles and similar vehicles, the same consisting of a rod provided with a tripod-head, and a metal plate connected with said tripod head as described, and provided with upwardly and outwardly directed spring-arms, said spring-arms being each provided with a cushion or pad which is mounted thereon, and filled with air under normal pressure and hermetically sealed, and the seat proper being mounted on said pads, and supported thereby, and said seat being also connected with said metal plate, and being vertically movable, substantially as shown and described.

595,681. CENTER-PLATE FOR CARS. JAMES TIBBS, Columbus, Ohio, assignor to the Buckeye Malleable Iron and Coupler Company, same place. Filed Feb. 4, 1897. Serial No. 622,037. (No model.)



Claim.—1. A center-plate for cars comprising a flat top plate and a hollow depending annular seat on its lower side, the plate provided with a central hole for one king-bolt, and the hollow annular seat opening into the said king-bolt hole.

2. A center-plate for cars comprising a flat top plate, and a hollow depending annular seat on its lower side, said seat provided with internal posts, the plate provided with a central hole for the king-bolt, and the hollow annular seat opening into the said king-bolt hole.

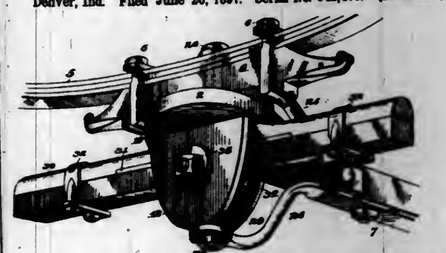
595,682. GLOBE, CHIMNEY, AND SHADE SUPPORT. GEORGE F. WEBB, Rochester, Pa., assignor to the Phœnix Glass Company, of West Virginia. Filed July 22, 1897. Serial No. 645,609. (No model.)

Claim.—1. The combination with a gas-globe consisting of a cylindrical body of glass, having a shoulder formed near its upper edge, and a contracted portion above such shoulder, constituting a chimney, of a gasket of non-conducting refractory material resting upon such shoulder and a glass shade having a neck which is of less diameter than the body of the chimney and which rests directly upon said gasket, the gasket being unattached to the globe or shade, substantially as described.

2. The combination with a globe consisting of a cylindrical body of glass having a wide body portion to inclose the flame, a contracted chimney above said body portion and an intermediate shoulder rounded into both body and chimney, of a shade having a neck of less interior diameter than the body and concentric with the curvature of the shoulder of the globe, and a non-conducting refractory gasket composed of a flexible band fitted to the shoulder so as to conform to the curvature of the latter and the coincident curvature of the shade-neck, said gasket being unattached to the shade or globe, substantially as shown and described.



595,683. FIFTH-WHEEL FOR VEHICLES. SAMUEL M. WRIGHT, Denver, Ind. Filed June 26, 1897. Serial No. 642,470. (No model.)



Claim —1. In a fifth-wheel for vehicles, the combination of a bolster, a coupling-box connected thereto, an axle received in said box, bearing-plates connected to the axle on opposite sides thereof and located against the sides of the coupling-box, and a coupling-bolt passing through said coupling-box and the axle and bearing-plates.

2. In a fifth-wheel for vehicles, the combination of a bolster, a coupling-box connected thereto, an axle made in two parts, a separate strip located between the parts of the axle, bearing-plates secured to said strip and located on opposite sides of the axle, fastening devices for securing the parts of the axle together, said axle being fitted in the coupling-box and the bearing-plates being located against the sides of the box, and a coupling-bolt passing through the axle and the coupling-box.

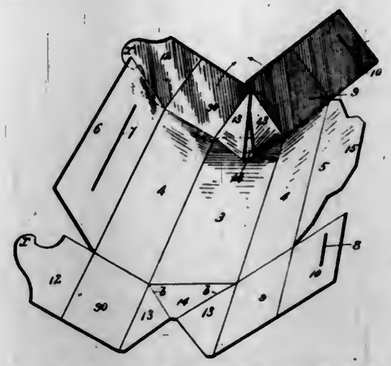
3. In a fifth-wheel for vehicles, the combination with a bolster, of a coupling-box having an opening, a cap fitted in said opening, an axle extending through the coupling-box, and a coupling-bolt passing through the cap and the axle.

4. In a fifth-wheel for vehicles, the combination with a bolster, of a coupling-box connected thereto and having a circular opening, a washer and a cap fitted in said opening, an axle extending through the coupling-box, bearing-plates secured to the axle and one of which rests against the washer, and a coupling-bolt passing through the cap, washer and axle.

5. The combination in a fifth-wheel for vehicles, of an upper bearing-plate provided with an annular flange, a coupling-box having a circular bearing adapted to fit within the flange of the upper bearing-plate, a king-bolt whereby the coupling-box and upper bearing-plate are adapted to connect with a vehicle-bolster; the lower part of the coupling-box provided with a vertical recess, an axle having side bearing-plates, and a bolt whereby the axle and bearing-plates are pivotally secured within the coupling-box recess, as set forth.

595,684. PAPER BOX. GEORGE R. WYMAN, Walpole, Mass., assignor to F. W. Bird & Son, same place. Filed June 3, 1897. Serial No. 639,205. (No model.)

Claim.—1. A blank for a paper box, comprising a bottom and two side sections, and two interengaging cover-sections, and parts for each end of the box comprising three triangular sections at the end of the bottom section, two rectangular end flaps, one at the end of each side section, an infolding rectangular section on the end of one of the said end flaps having a hook-receiving slit therein, and a hook-bearing end flap on the end of the second of said end flaps, said hook being thus located for engagement in said slit, whereby the end flaps are held side by side in coinciding positions, to the end that said hook and slit containing sections may be folded against the inner side of the end of the box, substantially as described.



2. A blank for a paper box, comprising a bottom and two side sections, and two interengaging cover-sections, and parts for each end of the box comprising three triangular sections at the end of the bottom section, two rectangular end flaps, one at the end of each side section, an infolding rectangular section on the end of one of said end flaps having a hook-receiving slit therein, and a hook-bearing end flap on the end of the second of said end flaps, said hook being thus located for engagement in said slit, whereby the end flaps are held side by side in coinciding positions, to the end that the main flap 9 of the blank shall solely constitute the outer sides of the ends of the box, thereby providing a clear face for printing thereon, and that said hook and slit containing sections may be folded against the inner side of the end of the box, substantially as described.

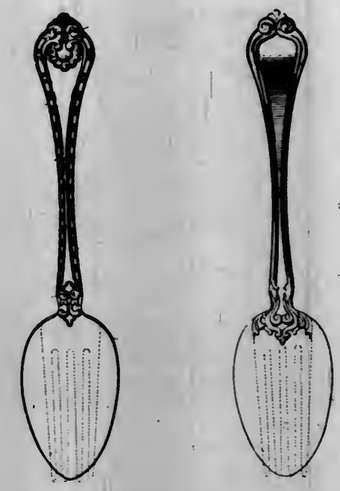
DESIGNS.

28,021. BRUSH-BACK. FRANK H. OSBORNE, New York, N. Y., assignor to the Gorham Manufacturing Company, Providence, R. I. Filed Oct. 4, 1897. Serial No. 654,061. Term of patent 7 years.



Claim.—The design for a brush-back or similar article herein shown and described.

28,022. SPOON OR FORK HANDLE. DANIEL A. LOSSER, Sag Harbor, N. Y. Filed Oct. 5, 1897. Serial No. 654,187. Term of patent 7 years.



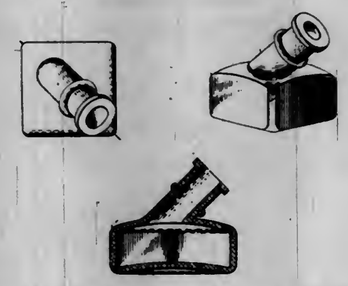
Claim.—The design for a spoon or fork handle substantially as herein shown and described.

28,023. CORN-HOLDER. ERNEST A. THOMPSON, Englewood, N. J. Filed Sept. 21, 1897. Serial No. 652,496. Term of patent 7 years.



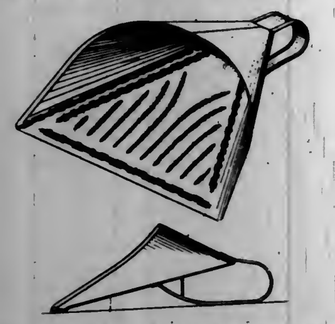
Claim.—The design for a holder for corn-ears, substantially as shown and described.

28,024. BOTTLE. HERMANN EBER, Hoboken, N. J. Filed Aug. 31, 1897. Serial No. 650,200. Term of patent 14 years.



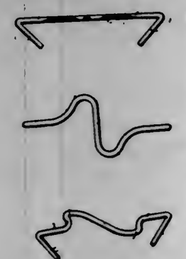
Claim.—The design for a bottle substantially as shown and described.

28,025. DUST-PAN. WILLIAM H. PAYNE, South Haven, Mich. Filed Oct. 26, 1897. Serial No. 656,374. Term of patent 14 years.



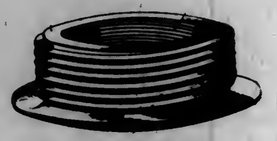
Claim.—A design for a dust-pan substantially as described and shown.

28,026. JAR-FASTENING BAR. JOHN SCHEIB, Anderson, Ind. Filed Oct. 26, 1897. Serial No. 656,372. Term of patent 14 years.



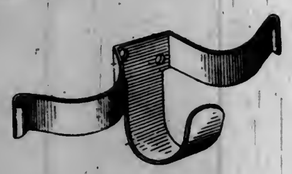
Claim.—The design for a jar-fastening bar, as herein shown and described.

28,027. LOWER MEMBER FOR BUSHINGS. GODFREY STAIGER, Toledo, Ohio. Filed Sept. 21, 1896. Serial No. 606,596. Term of patent 14 years.



Claim.—The design for the lower member of a bushing for bungs substantially as shown and described.

28,028. GARMENT AND UMBRELLA HOOK. WILLIAM WALKER, Summit, N. J. Filed Oct. 27, 1897. Serial No. 656,592. Term of patent 7 years.



Claim.—The design for a combined garment and umbrella hook, substantially as herein shown and described.

28,029. MUSIC-TIME-DIVISION BLOCK SET. EVELYN ASHTON FLETCHER, Toronto, Canada. Filed July 1, 1897. Serial No. 643,156. Term of patent 7 years.



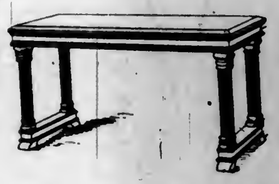
Claim.—The design for a music-time-division block set substantially as herein shown and described.

28,030. PEDESTAL FOR PIANO-STOOLS. PHINEAS H. YORK, Chicago, Ill., assignor to the Tonk Manufacturing Company, same place. Filed Nov. 1, 1897. Serial No. 657,109. Term of patent 7 years.



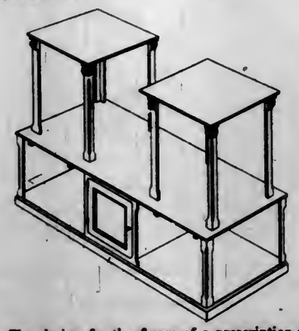
Claim.—The design for a pedestal for piano-stools, substantially as herein shown and described.

28,031. DUET-BENCH. PHINEAS H. YORK, Chicago, Ill., assignor to the Tonk Manufacturing Company, same place. Filed Nov. 1, 1897. Serial No. 657,108. Term of patent 7 years.



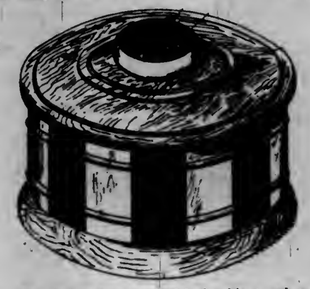
Claim.—The design for a duet-bench, substantially as herein shown and described.

28,032. FRAME FOR PRESCRIPTION-CABINETS. JOSEPH M. WORTHINGTON, Annapolis, Md. Filed Oct. 2, 1897. Serial No. 653,862. Term of patent 14 years.



Claim.—The design for the frame of a prescription-cabinet as herein shown and described.

28,033. CYLINDRICAL CABINET. EDWARD H. ELLIS, Pasadena, Cal. Filed Aug. 17, 1897. Serial No. 648,608. Term of patent 3½ years.



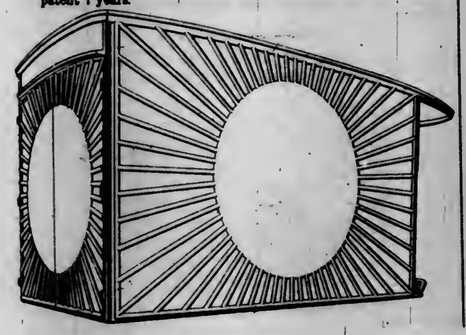
Claim.—The design for a cylindrical cabinet, substantially as herein shown and described.

28,034. CULTIVATOR-SHOVEL. THOMAS H. RANEY, Aurora, La. Filed Oct. 30, 1897. Serial No. 656,971. Term of patent 14 years.



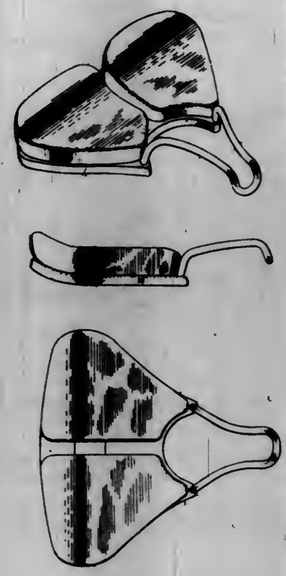
Claim.—The design for a cultivator-shovel, as herein shown and described.

28,035. BODY FOR DELIVERY-WAGONS. GEORGE W. KNADLER, Philadelphia, Pa. Filed Oct. 23, 1897. Serial No. 656,216. Term of patent 7 years.



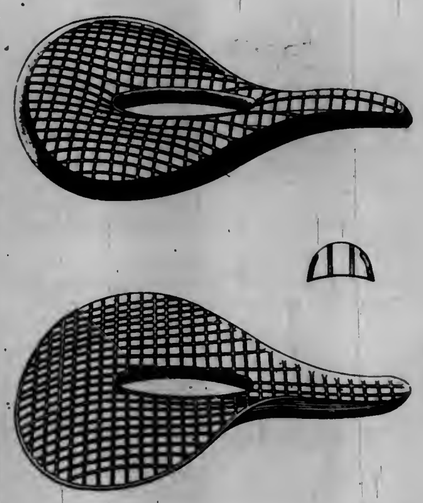
Claim.—The design for the body of a delivery-wagon, substantially as herein shown and described.

28,036. VELOCIPEDE-SADDLE. ALFRED ERNEST AMES, Toronto, Canada. Filed July 23, 1897. Serial No. 645,740. Term of patent 14 years.



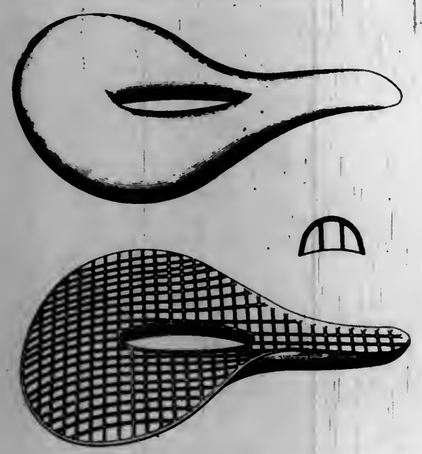
Claim.—The design for a velocipede-saddle, substantially as herein shown and described.

28,037. SADDLE-CUSHION. WILLIAM I. BUNKER, La Grange, Ill. Filed July 26, 1897. Serial No. 646,045. Term of patent 14 years.



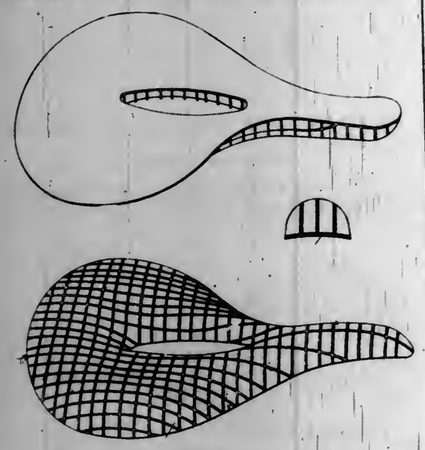
Claim.—The design for a saddle-cushion, substantially as shown and described.

28,038. SADDLE-CUSHION. WILLIAM I. BUNKER, La Grange, Ill. Filed July 26, 1897. Serial No. 646,046. Term of patent 14 years.



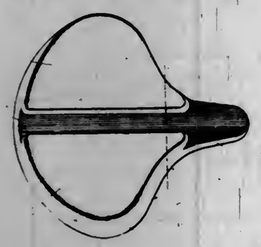
Claim.—The design for a saddle-cushion, substantially as shown and described.

28,039. SADDLE-CUSHION. WILLIAM I. BUNKER, La Grange, Ill. Filed Oct. 27, 1897. Serial No. 656,587. Term of patent 14 years.

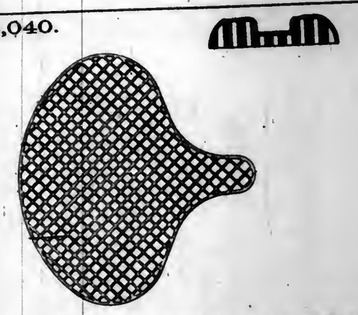


Claim.—The design for a saddle-cushion, substantially as shown and described.

28,040. SADDLE-CUSHION. WILLIAM I. BUNKER, La Grange, Ill. Filed Nov. 1, 1897. Serial No. 657,114. Term of patent 14 years.

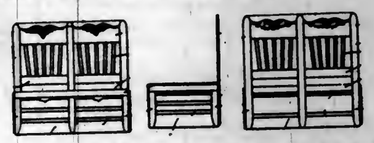


28,040.



Claim.—The design for a saddle-cushion, substantially as shown and described.

28,041. PAPER BOX. FRANK R. JOHNS, Kirkwood, Ill. Filed Oct. 16, 1897. Serial No. 655,481. Term of patent 3½ years.



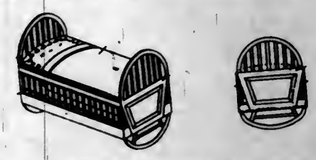
Claim.—The design for a paper box substantially as herein shown and described.

28,042. PAPER BOX. FRANK R. JOHNS, Kirkwood, Ill. Filed Oct. 16, 1897. Serial No. 655,482. Term of patent 3½ years.



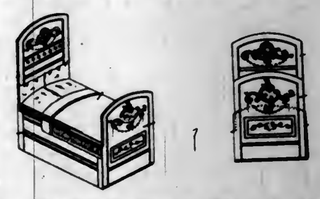
Claim.—The design for a paper box substantially as herein shown and described.

28,043. PAPER BOX. FRANK R. JOHNS, Kirkwood, Ill. Filed Oct. 16, 1897. Serial No. 655,483. Term of patent 3½ years.



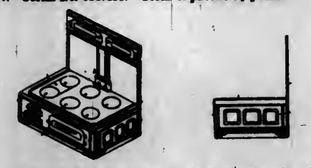
Claim.—The design for a paper box substantially as herein shown and described.

28,044. PAPER BOX. FRANK R. JOHNS, Kirkwood, Ill. Filed Oct. 16, 1897. Serial No. 655,484. Term of patent 3½ years.



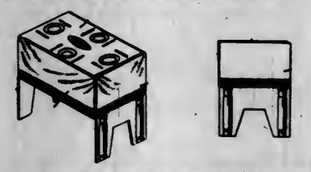
Claim.—The design for a paper box substantially as herein shown and described.

28,045. PAPER BOX. FRANK R. JOHNS, Kirkwood, Ill. Filed Oct. 16, 1897. Serial No. 655,485. Term of patent 3½ years.



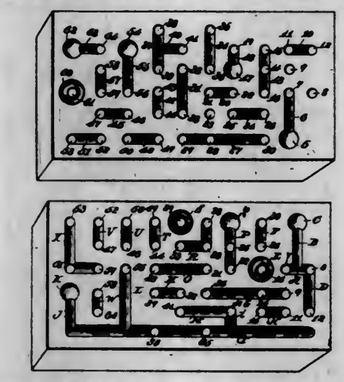
Claim.—The design for a paper box substantially as herein shown and described.

28,046. PAPER BOX. FRANK R. JOHNS, Kirkwood, Ill. Filed Oct. 16, 1897. Serial No. 655,486. Term of patent 3½ years.



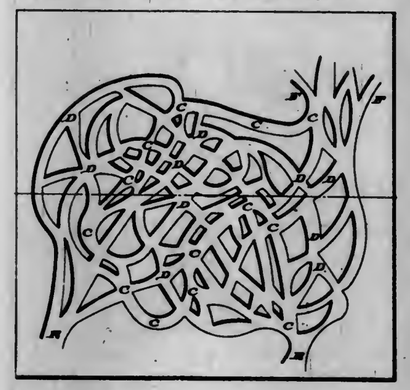
Claim.—The design for a paper box substantially as herein shown and described.

28,047. PUZZLE-BLOCK. GEORGE H. FARRINGTON, Waltham, Mass. Filed Nov. 1, 1897. Serial No. 657,115. Term of patent 7 years.



Claim.—The design for a puzzle-block herein shown and described.

28,048. GAME-BOARD. EMMA A. TOURNY, Philadelphia, Pa. Filed Oct. 4, 1897. Serial No. 654,063. Term of patent 3½ years.

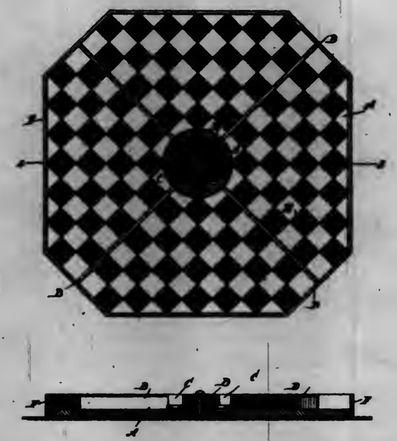


28,048.



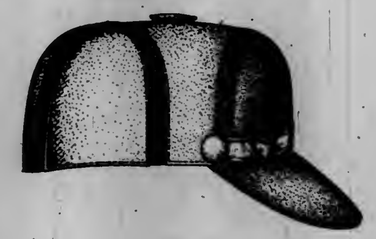
Claim.—The design for a game-board substantially as shown and described.

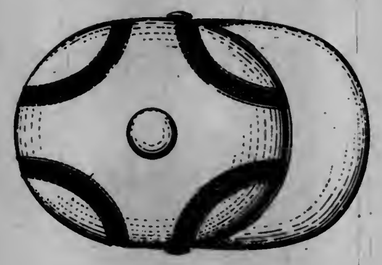
28,049. GAME-BOARD. DALLAS DU BOIS, Montclair, N. J. Filed Oct. 26, 1897. Serial No. 656,471. Term of patent 3½ years.



Claim.—The design for a game-board herein shown and described.

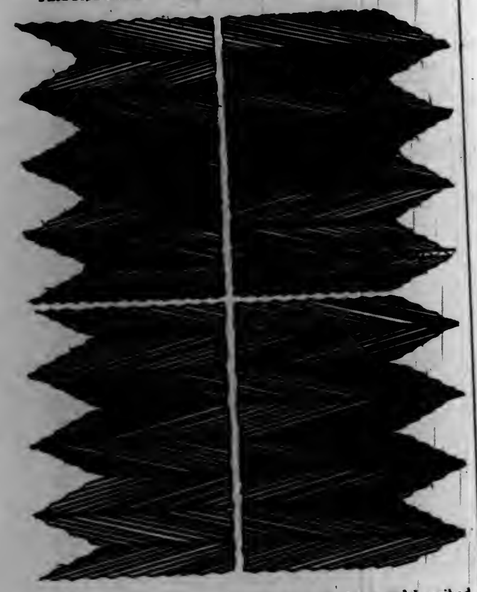
28,050. CAP. ELIAS ISRAEL, New York, N. Y. Filed Nov. 1, 1897. Serial No. 657,131. Term of patent 3½ years.





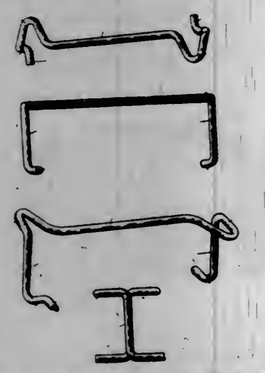
Claim.—The design for a cap substantially as shown and described.

28,051. PLAITED FABRIC. PAUL GUMBINNER, New York, N. Y. Filed Sept. 30, 1897. Serial No. 653,649. Term of patent 3½ years.



Claim.—The design for plaited fabric, herein shown and described.

28,052. JAR-LID CLAMP. JACOB BOSSERT, Redkey, Ind. Filed Oct. 30, 1897. Serial No. 656,972. Term of patent 14 years.



Claim.—The design for a jar-lid clamp, substantially as herein shown and described.

28,053. CARD-CASE ATTACHMENT. WILLIAM P. ORDWAY, Boston, Mass. Filed Oct. 29, 1897. Serial No. 656,844. Term of patent 14 years.



Claim.—The design for an attachment to card-cases herein shown and described.

28,054. STATUETTE. JOHN G. HICKS and JOHN MCGREER, Chicago, Ill. Filed Sept. 22, 1897. Serial No. 652,655. Term of patent 3½ years.



Claim.—The design for a statuette as herein shown and described.

28,055. STATUETTE. JOHN G. HICKS and JOHN MCGREER, Chicago, Ill. Filed Sept. 22, 1897. Serial No. 652,656. Term of patent 3½ years.



Claim.—The design for a statuette as herein shown and described.

28,056. STATUETTE. JOHN G. HICKS and JOHN MCGREER, Chicago, Ill. Filed Sept. 22, 1897. Serial No. 652,657. Term of patent 3½ years.



Claim.—The design for a statuette as herein shown and described.

TRADE-MARKS

REGISTERED DECEMBER 14, 1897.

30,960. GASKETS AND STEAM AND OTHER PACKING. LA FAVORITE RUBBER MANUFACTURING COMPANY, Paterson, N. J. Filed Sept. 9, 1897.



Essential feature.—The words "THE CLEANER GASKET," encircled by a representation of a section of gasket which forms an ellipse around the words, the representation of a section of packing arranged in a circle upon each side of the ellipse, and the whole surrounded by a representation of a section of gasket in the form of an ellipse, with its ends overlapping and secured by a binding-strip. Used since August 1, 1897.

30,961. SAFETY BACKWATER AND SEWER-GAS TRAPS. CHAS. R. HIGGINS, New York, N. Y. Filed Nov. 16, 1897.

SANOS

Essential feature.—The word "SANOS." Used since September 1, 1897.

30,962. SILVER-PLATED SPOONS, FORKS, AND KNIVES. THE CARTER-CRUME COMPANY, Niagara Falls, N. Y. Filed Nov. 11, 1897.

R. S. Mfg. Co.

Essential feature.—The letters and abbreviations "R. S. MFG. CO." Used since October 1, 1893.

30,963. ORGANS. THE MASON & RISCH VOCALION COMPANY, LIMITED, Worcester, Mass., and Toronto, Canada. Filed Sept. 30, 1897.

"ORPHÈON"

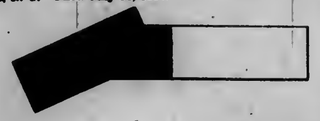
Essential feature.—The word "ORPHEON." Used since May 11, 1897.

30,964. TALKING-BOARDS. CHARLES W. KENNARD, Baltimore, Md. Filed Nov. 9, 1897.

IGILI

Essential feature.—The word "IGILI." Used since October 26, 1897.

30,965. TYPE-WRITER RIBBONS. JOHN R. KRATINGER, New York, N. Y. Filed July 31, 1897.



Essential feature.—The representation of a bar or band on the end of a piece of type-writer ribbon, the same being of a color different from that of the ribbon. Used since March 1, 1897.

30,966. BOOKS, PAMPHLETS, AND OTHER PRINTED MATTER. ADAM DENT, Philadelphia, Pa. Filed Oct. 13, 1897.



Essential feature.—The pictorial representation of a die—*i. e.*, a small cube with spots. Used since March, 1887.

30,967. PHOTOGRAPHIC PAPERS AND CHEMICALS. NEPERA CHEMICAL COMPANY, Yonkers, N. Y., Chicago, Ill., and Paris, France. Filed Nov. 15, 1897.

NEPERA

Essential feature.—The word "NEPERA." Used since January 4, 1894.

30,968. UNDERWEAR AND STOCKINGS. LAWRENCE MANUFACTURING COMPANY, Boston and Lowell, Mass. Filed Nov. 10, 1897.



Essential feature.—The representation of an eagle with outstretched wings above the words "LAWRENCE MANF'G COMP'Y" and branches partially encircling said words. Used since June 4, 1872.

30,969. SWEATERS, CARDIGAN JACKETS, BATHING-SUITS, LEGGINGS, AND ANALOGOUS ARTICLES OF APPAREL. JOSEPH WERTHEIMER, New York, N. Y. Filed Nov. 12, 1897.



Essential feature.—The device of a red seal and the words "THE PROGRESS." Used since January 1, 1892.

30,970. BOOTS, SHOES, AND SLIPPERS. W. L. DOUGLAS SHOE COMPANY, Brockton, Mass. Filed Sept. 9, 1897.



Essential feature.—The representation in plan view of the bottom or sole of a boot or shoe bearing the imprint of the head of a man on the face thereof. Used since July 1, 1897.

30,971. RUBBER BOOTS, SHOES, AND OVERSHOES. GEO. WATKINSON & Co., Philadelphia, Pa. Filed Nov. 16, 1897.

KLONDIKE

Essential feature.—The word "KLONDIKE." Used since August 2, 1897.

30,972. INSOLES. WM. H. WILEY & SON, Hartford, Conn. Filed Oct. 7, 1897.

Capitol

Essential feature.—The word "CAPITOL." Used since April, 1897.

30,973. CALF, KIP, COW, HORSE, GOAT, AND SHEEP LEATHER. W. H. EISENDRATH & COMPANY, Chicago, Ill. Filed Sept. 3, 1897.

YUKON

Essential feature.—The word "YUKON." Used since August 1, 1897.

30,974. SHOE-DRESSING. HERRIOTT BROS. & Co., St. Louis, Mo. Filed Aug. 3, 1897.

KING

Essential feature.—The word "KING." Used since July 1, 1895.

30,975. PLANT-FERTILIZERS. BOWKER FERTILIZER COMPANY, Boston, Mass. Filed Nov. 8, 1897.

BONE AND WOOD-ASH FERTILIZER B.W.A.

Essential feature.—The letters "B. W. A." and the words "BONE AND WOOD-ASH FERTILIZER" printed across said letters. Used since January 1, 1897.

30,976. SULFATE OF COPPER. WARD & HUNTINGTON, New York, N. Y. Filed Oct. 30, 1897.

ROYAL BLUE

Essential feature.—The words "ROYAL BLUE." Used since September 11, 1895.

30,977. SOAP. JOHN SHEPARD, Jr., Providence, R. I. Filed Nov. 17, 1897.

CLEANER RIGHT

Essential feature.—The words "CLEANER RIGHT." Used since July 1, 1897.

30,978. WASHING COMPOUND IN THE FORM OF CAKES. ALFRED E. BARREAU, Chicago, Ill. Filed Oct. 1, 1897.



Essential feature.—The word "VICTORINE" and a hand holding a crown immediately above the letter "V" in the word "Victorine." Used since September 1, 1897.

30,979. MEDICAL COMPOUND USED ON WOUNDS AND SORES OF ALL DESCRIPTIONS. WILSON BROS., New York, N. Y. Filed Oct. 15, 1897.

LIN-ENT

Essential feature.—The compound word "LIN-ENT." Used since September 1, 1897.

30,980. CATARRH REMEDIES. ALONZO FRANK RICHARDSON, New York, N. Y. Filed Nov. 3, 1897.



Essential feature.—A pictorial representation of the eyes, nose, and mouth of a human face, with a hand at the left thereof holding a nasal-tube the nozzle of which is inserted in the nose, and another hand at the right, one finger of which is pressed against the outside of the nose. Used since November 1, 1897.

30,981. LEAF-LARD. WHITE, PEVEY, DEXTER COMPANY, Worcester, Mass. Filed Nov. 6, 1897.

SUCH AS MOTHER USED TO MAKE

Essential feature.—The phrase "SUCH AS MOTHER USED TO MAKE." Used since January 1, 1895.

30,982. COFFEE, TEA, AND COCOA. ASTON & Co., London, England. Filed Sept. 2, 1897.

DULCEMONA

Essential feature.—The word "DULCEMONA." Used since May, 1893.

30,983. WHISKY. DAVID NEITZEL & Co., Philadelphia, Pa. Filed Nov. 5, 1897.

The Telegram Rye

Essential feature.—The words "THE TELEGRAM RYE." Used since June 15, 1897.

30,984. CIGARS. HUGO NITTINGER, St. Louis, Mo. Filed Oct. 1, 1897.

HN

Essential feature.—The monogram comprising the letters "H N." Used since June, 1890.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

STEVENS *v.* FIELD *v.* SEHER.

Decided July 9, 1896.

INTERFERENCE—PRIORITY.

Upon reviewing the evidence in the case, *Held* that priority should be awarded to Seher and the decision of the Examiners-in-Chief reversed.

APPEAL from Examiners-in-Chief.

MANUFACTURE OF COMPOUNDS OF PYROXYLIN.

Application of John H. Stevens filed May 11, 1892, No. 432,597. Application of Walter D. Field filed April 9, 1892, No. 428,501. Patent granted August Seher March 8, 1892, No. 470,451.

Messrs. Betts, Hyde & Betts for Stevens.

Messrs. Hallock & Halleck and *Mr. J. D. Gallagher* for Field.

Mr. Anthony Gref for Seher.

FISHER, *Acting Commissioner:*

This is an appeal by Seher from the decision of the Examiners-in-Chief adjudicating priority in favor of Stevens.

Field has taken no testimony and is no longer a party to the interference.

The interference was originally declared July 25, 1892, between the application of Stevens and the patent to Seher. The time for filing preliminary statements was fixed for August 16, 1892. Stevens filed a statement August 6, 1892, and Seher August 15, 1892. Both statements were opened August 20, 1892, and both were immediately sealed against inspection, and on August 22, 1892, a letter was written to each party calling for an amended preliminary statement, in view of certain defects in the original, on or before September 7, 1892. On that day Seher filed an amended statement. On September 10, 1892, Seher's second statement was opened and immediately sealed against inspection, and a letter calling for an additional amended statement and extending the time for filing such statement to September 28, 1892, was sent to Seher. On the same day another letter was sent to Stevens notifying him of that extension. September 16, 1892, the Primary Examiner requested a suspension of the interference for the purpose of adding a new party—Field. The interference was suspended September 17, 1892, and redeclared October 7, 1892. The time for filing statements was fixed in the new notices for November 2, 1892. Seher and Field filed their statements November 1, and Stevens filed no further statement, but relied upon the one filed August 6, notwithstanding the objections made to it by the Examiner of Interferences and the restrictions which in view of such objections it imposed upon him (Stevens) as to the date of conception and disclosure. In his first and second statements Seher gave as the date of his disclosure September 15, 1890. In his third statement the date of disclosure was given as "on or about the 15th day of August, 1889." Stevens was restricted by the Examiner of Interferences to January, 1890, as to conception and disclosure.

Counsel for Stevens contends that Seher should be restricted to September 15, 1890, as the date of his disclosure, and a motion to strike out Seher's third statement was made by Stevens at the hearing, notice of his intention to make such motion having been given orally before the taking of any testimony, and also on March 13, 1895, in writing. He states in his brief that—

> it does not seem equitable or just that he (Seher) should be allowed to alter these dates and make a difference of nearly a year in his favor in his third statement after he or his attorneys, or his attorneys' correspondents in Washington, had an opportunity of inspecting the preliminary statement of his adversary; and there is nothing in the testimony to repel the presumption that when the third preliminary statement of Seher was filed he or his attorneys had at least some information of the dates given by Stevens in his preliminary statement.

Seher contends that the motion should not be entertained because he gave notice to Stevens that unless such motion was brought before any testimony was taken he would consider the objection to his third statement waived. His attorney has also stated that at the time he first discovered the error in his first and second statements the interference had been suspended, and that he could not therefore bring a motion to correct such error, and that when another party was added the interference became a new interference. His third contention is that—

> neither Seher nor * * * any one in any way connected with Seher had any knowledge or information whatsoever of the contents of Stevens's preliminary statement.

The Examiner of Interferences adjudicated priority in favor of Stevens, and stated in his decision that—

> the conclusion herein reached renders it unnecessary to pass upon Stevens's motion to strike out the third preliminary statement filed by Seher.

This would have been good practice had the Examiner of Interferences been the final tribunal, but under the circumstances it would have been better to have passed upon that motion. The Examiners-in-Chief sustained the Examiner of Interferences,

and hence there was no direct need for them to consider this question, and, in fact, their decision contains no reference to it. There may be no necessity for the Commissioner to decide the question, and, again, it may be of vital importance, for, if admitted, the statement changes the chronological relation of Seher and Stevens as to alleged disclosure. The best and strictest practice would require me to remand the case to the Examiner of Interferences for consideration of this question, with permission for the usual recourse by appeal, and Seher's counsel should have insisted upon the determination of this question by the Examiner of Interferences before his first appeal. The Examiners-in-Chief, if they had considered the question one over which they had jurisdiction, might have remanded the case before their decision. Since, however, Stevens's motion was brought too late (Rule 113) and since at no time prior to the approval of the final statements of the three parties was the statement of either of the others open to any of them under Rule 108, I shall admit Seher's third statement without remanding the case back to the Examiner of Interferences.

The issue of the interference is:

A pyroxylin compound consisting of pyroxylin and one or more members of the group of herein-described ketone solvents.

This is the second claim of Stevens's application and involves his first claim, which is in the words of the issue except that the word "ketones" is used instead of "ketone solvents."

Seher's claim is:

As an improvement in the manufacture of pyroxylin or nitrocellulose, the solvents propion, butyron, valeron, capron, methyl-ethyl ketone, (acetyl-ethyl,) methyl-propyl ketone, methyl-butyl ketone, methyl-valeral, ethyl-butyl ketone, and methyl-amyl ketone, as and in the manner specified.

The facts in Seher's case, which may be accepted as established, are substantially as follows: He discovered in 1883 that the residual oily liquid remaining from the rectification of wood-alcohol would dissolve pyroxylin. He made some attempts to rectify this residuum, but does not seem to have been aware of its composition and does not claim to have disclosed it until 1887, in which year he showed it to Amend, Balzer, and Jarrett. This is before the date of disclosure set up in his preliminary statement and has no effect beyond helping to establish conception. He made in the interval between 1883 and 1887 experiments which tended to show him that this residuum consisted of ketones. On Seher's behalf it is contended that the fact that such residuum responded to the chloroform and iodoform tests, taken with its boiling-point and its peculiar odor, proves that it consisted of ketones. This cannot be conceded. It seems, however, just to Seher to allow that these tests indicate commercially and practically the existence of ketones in the fluid examined in large quantity and the probability that the solvent action of the liquid was due to the ketones present—that is, Seher was at that time aware that probably one or more ketones other than acetones were solvents of pyroxylin. On August 16, 1889, it appears that some solvent was shown to Waldstein, with explanations of its character, and that Waldstein submitted it to certain tests, but did not analyze it. This solvent, Seher explained at the time to Waldstein, was obtained by the destructive distillation of crude acetate of lime. Seher stated that he obtained it in this manner, and as the possible truth of this statement is supported by Waldstein's experiments and by quotations from text-books it may be taken as a fact. It does not appear that Seher or any one at any time for him separated any single ketone from either the wood-alcohol residuum or from the acetate-of-lime distillation. What he did was to produce the solvent itself—the result.

Stevens has set up the following state of facts: November 8, 1889, he dictated to Axtell a memorandum of certain ketones which he was desirous of trying as solvents of pyroxylin. Owing to a defect in his preliminary statement he is restricted to January, 1890, for his date of conception. This point is not material, since November 8, 1889, and January, 1890, are both subsequent to Seher's disclosure. March 3, 1890, a number of ketones appear to have been ordered from Merck & Co. These were slow in coming, and during the summer of the same year Axtell, acting under Stevens's directions and while the latter was in Europe, made a number of the ketones which had been previously ordered from Merck & Co. These ketones were made by methods known to chemists and were about three hundred in number. (Stevens's record, p. 36.) Subsequent experiments showed that all ketones between methyl-ethyl ketone and dipentyl ketone should be embraced in the list of solvents. (Stevens's record, p. 88.) They were tested singly and in combination with others for the purpose of ascertaining their solvent effect upon pyroxylin. His entire series of experiments does not appear to have been concluded until after Seher's patent issued, and, in fact, some of his tests were suggested by that patent.

I have assumed that the statements made by the various parties are true. Stevens's statements are corroborated quite fully, and there has been no very serious effort to discredit the statements of Seher, and such effort as has been made in this direction by Stevens does not amount to a warrant for throwing any of them out, especially in view of Seher's position as patentee prior to the filing of Stevens's application. The attack made by Seher upon the diligence exhibited by Stevens will not be considered in detail, and it is sufficient to state here that Stevens exhibited a disposition at all times from November, 1889, to perfect his discovery in all its parts with all the means readily at his command. It cannot be said of him, however, that he used such extraordinary diligence either before or after the issue of Seher's patent as would be necessary, other things being equal, to overcome Seher's position as a patentee.

Stevens asserts that Seher never made the invention for which he obtained a patent, and this is really the whole question to be considered. There can be no reasonable doubt but that Seher conceived substantially the solvent of the issue before

Stevens, and the question is whether what he did with it amounts to a reduction to practice anterior to Stevens's exhaustive researches. Neither Seher nor Waldstein, however, ever actually produced an individual ketone and as such tried it as a solvent. It is true that Mr. Simon appears to have made a fractionation of the distillate from commercial acetate of lime some time in 1887; but this fractionation, which was made before the date of Seher's alleged disclosure, was not carried so far, apparently, as to separate out the individual ketones, and these fractions were not tried by Seher separately, but were poured together, and with the resultant mixture Seher made a test for dissolving pyroxylin. (Seher, X-Q. 266.)

Seher never tried any individual ketones as solvents. He never deliberately and definitely tried any two or more, although he certainly tried mixtures of them. Stevens tested numbers of them individually and tested some in combination with other solvents; but that he tested all possible combinations of these ketones with each other and with other solvents is not stated and would be, in fact, entirely improbable.

These two men approached the question of dissolving pyroxylin from different points. Seher was trying to get a cheap and efficient solvent, no matter what it was. Stevens was trying to ascertain how many solvents he could discover and the characteristics of all such solvents. (Stevens's record, p. 87.) One approached the question with the instincts of a business man, the other with the instincts of a scientist. Seher's discovery was in a measure accidental, Stevens's the inevitable result of an exhaustive system of experiments. One took a comparatively cheap material—crude acetate of lime—for the source of his solvent, the other tried expensive and little-known chemicals; but neither ever made a complete reduction to practice of the issue in the sense of having made solutions of pyroxylin in ketones in all the variations possible under it.

Stevens states that he reduced the invention to practice in June and July, 1890. At that time he was in Europe; but Mr. Axtell from June 20 to July 15, acting under his direction, produced—

various ethereal liquids which are strong solvents of soluble pyroxylin. (Stevens's record, p. 24.)

These liquids he identified with more or less certainty, and they were obtained by—

distilling various mixtures of the fatty-acid salts of barium and calcium.

Seher had previously distilled such a salt and had produced at least one such solvent, but had not established by analysis or fractionation the composition of said solvent.

I cannot agree with the statement of the Examiners-in-Chief that Seher never made the disclosure set forth and claimed in his patent, and I cannot reconcile this statement with the presumption which necessarily follows therefrom that Stevens did make all the discoveries possible under his claim. Seher discovered a solvent for pyroxylin. That solvent is the one covered by the issue. He did not by chemical analysis show absolutely the composition of such solvent; but from tests which he and others made and from consultation with authorities he came to a reasonably accurate knowledge of its character. That he was aware of the whole scope of his discovery does not seem probable; but he was in a position earlier than Stevens to give to the world the essential features of the issue to an extent sufficient to meet the requirements of practical working, and the progress of science and the useful arts is promoted effectively when an inventor meets such requirements.

Priority is adjudicated in favor of Seher, and the decision of the Examiners-in-Chief is reversed.

KELLY *et al.* v. PARK *et al.*

Decided December 6, 1897.

1. WITNESSES—JURISDICTION OF THE COMMISSIONER OF PATENTS.
   The Commissioner of Patents has no judicial power over the production and conduct of witnesses in interference proceedings, but this whole matter is left in the hands of the Federal courts of the district in which the testimony is being taken. (*Wright* v. *Daggett*, 44 O. G., 943; *Osgood* v. *Badger* v. *Bennett*, 44 O. G., 1065.)
2. SAME—FAILURE OF PARTY TO APPLY TO COURT.
   Where a party fails to avail himself of his right to apply to the court for the control of a refractory witness, the Commissioner will not interfere, except in an unusual case, but will, in passing upon the question of priority, give to the testimony of such witness only such weight as is justified by the circumstances.
3. VOLUNTEER WITNESS—REFUSAL TO ANSWER PROPER QUESTIONS.
   The fact that the witness is a volunteer witness does not relieve him from the jurisdiction of the Federal court, and the remedy from his refusal to answer proper questions is by application to the judge of such court.
4. SAME—APPLICATION TO COURT—DELAY IN PRESENTING.
   Where the taking of testimony has been closed, the printed record filed, and the day set for final hearing has passed, application for leave to apply to the court comes too late.

APPEAL on motion.

FLUID-PRESSURE BRAKES.

Application of Edmund F. Kelly and Chas. K. Pickles filed July 13, 1891, No. 399,341. Application of Harvey S. Park filed March 7, 1890, No. 343,047. Application of Wm. H. Clarke filed November 7, 1892, No. 451,132. Application of James T. Hayden filed January 30, 1894, No. 498,434. Applications of Murray Corrington filed October 23, 1893, No. 488,849; May 18, 1893, No. 474,616; November 16, 1892, No. 452,182.

Mr. S. C. Sweet and *Mr. W. F. Rogers* for Kelly and Pickles.

Mr. Geo. H. Christy and *Mr. J. Snowden Bell* for Park.

Mr. C. H. Howard for Clarke.

Messrs. Raymond & Omohundro for Hayden.

Mr. Robert H. Read for Corrington.

GREELEY, *Acting Commissioner:*

This is an appeal by Kelly and Pickles from the decision of the Examiner of Interferences denying their motion to suppress certain testimony of the witnesses Park and O. W. Bond taken in the above-entitled interference. The appellants ask further, as an alternative remedy, in case the testimony is not suppressed, that the counsel for Park be re-

quired to reproduce his witness for further cross-examination, without cost to the moving party.

The ground alleged for the motion is that these witnesses failed and refused to answer competent, relevant, and material questions while under oath and examination and that the witness Park failed and refused to produce for examination papers, drawings, and blue-prints believed to be competent and relevant to the issue.

It is well settled that the Commissioner of Patents has no judicial power over the production and conduct of witnesses in interference proceedings, but that this whole matter is left in the hands of the Federal courts of the district in which the testimony is being taken. (*Wright* v. *Daggett*, 44 O. G., 943; *Osgood* v. *Badger* v. *Bennett*, 44 O. G., 1065.) The parties to an interference have the right to apply to the district judge for orders controlling the conduct of witnesses. The statutes point to such judge and not to the Commissioner of Patents as the proper party to whom application should be made, and when a party fails to avail himself of his right to make such application the Commissioner will not interfere, except in an unusual case.

The Commissioner undoubtedly has the ultimate decision on the materiality of the examination when the case finally comes before him; but during the examination the court or judge having jurisdiction of the witness for the purpose of compelling him to testify and for punishing a refractory witness must determine the materiality of the questions asked and must be applied to for orders controlling the conduct of the witness.

The appellants contend, however, that this is an unusual case and should be made an exception to the rule for the reason that the witnesses Park and Bond were volunteer witnesses and as such, they contend, could not be compelled to answer proper questions under the provisions of section 4908, Revised Statutes. It is stated that the counsel for the appellants has been unable—

to find a reported case wherein a court has held that it had jurisdiction to compel the testimony of a volunteer witness, in a cause not pending before that court, under the express provisions of section 4908, Revised Statutes.

The appellants may not have discovered an affirmative ruling on this subject; but they have not cited any ruling to the contrary, and in the absence of such contrary ruling it must be held that the appellants' remedy was by application to the court. It would be a curious state of affairs if a witness could avoid all jurisdiction of the Federal court of his district in the proceedings by merely appearing in the first instance as a volunteer witness. Counsel for the appellants virtually admits that an application to the court was one of the remedies open to him, for he says in the conclusion of his brief:

The witnesses, Park and Bond, should be reproduced, in order that the moving party may apply to the Federal court for a determination of the question under section 4908 of the Revised Statutes.

In the case of *Rueter* v. *Frist*, (58 O. G., 386,) where a witness refused to answer certain questions, Commissioner Simonds allowed the moving party thirty days within which to apply to the court, and this practice has been followed in some later decisions.

In the present case, however, the taking of testimony has been closed, the printed record for some of the parties has been filed, and the day set for final hearing has passed. In view of these facts the application of the appellants for leave to apply to the court comes too late. Application should have been made to the court at the time, and if an extension of time for this purpose was necessary application should have been made to this Office for such extension.

In view of the circumstances of this case the only remedy that can now be offered to the appellants is to consider, in determining the case on its merits, the pertinency, materiality, and relevancy of the questions which were not answered and to give to the testimony of these witnesses whatever weight is justified by the conclusions reached on this question.

The decision of the Examiner of Interferences is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

STEVENS *et al.* *v.* SEHER.

Decided October 4, 1897.

1. APPEAL—PATENT OFFICE RECORD FOR USE IN COURT—TAXING COST.

Where on appeal from the decision of the Commissioner of Patents a record was allowed to be filed in the case by appellee upon assurance that it would have some material bearing upon the question of the issue presented by the appellee, but on consideration it was found that the record had no such bearing, *Held* that the record so introduced must be at the cost of the appellee.

2. INTERFERENCE—AMENDING PRELIMINARY STATEMENT—CHANGING DATES.

It is of the utmost importance that strictness be observed as to the dates furnished in preliminary statements required in cases of interferences, for if parties were allowed to vary their dates at pleasure as to the time of discovery, invention, or disclosure it would inevitably lead to the imputation of deception and bad faith practiced on the part of the party so changing his dates.

3. SAME—SAME—COMPLYING WITH RULE TO AMEND STATEMENT.

If any material error occurs in the preliminary statements, or other statements made to the Office, through inadvertence or mistake, the statement may be corrected on motion upon showing to the satisfaction of the Commissioner that the correction is essential to the ends of justice, and the motion to correct the statement must be made, if possible, before the taking of any testimony and as soon as practicable after the discovery of the error. It is only upon complying with this rule that the correction of any material error in preliminary statements can be made.

4. SAME—EXPERIMENTAL TESTS—REDUCTION TO PRACTICE.

On the proof, *Held* that the claim of Seher is not sufficiently and definitely established to maintain his patent, it having, as it can have, only *prima facie* effect; that he has failed to show that he has fully and completely established by experimental tests so as to enable persons reasonably skilled in the science of chemistry to determine whether or not the composition made and claimed by him as new and valuable in the arts really possesses those properties which he claims as the essential character as an operative means, for no invention or discovery in such case as the present can be regarded as complete until such tests have been applied and have been successfully maintained.

5. SAME—SAME—SAME—DEFINITE DESCRIPTION IN PATENT.

In a case like the present the patent should state and fully disclose the component parts of the composition claimed with clearness and precision and not leave a person attempting to use the discovery to find it out by experiment. If the description be so vague and uncertain that no one can tell with certainty, except by independent experiment, how to apply the discovery and what exact result may be expected therefrom, the patent is void. (*Wood* v. *Underhill*, 5 How., 1, 5; *Tyler* v. *Boston*, 7 Wall., 327, 330; *The Incandescent Lamp Patent*, 73 O. G., 1289; 159 U. S., 465, 474-5.)

6. SAME—DECISION REVERSED.

The decision of the Acting Commissioner of Patents in awarding priority to Seher reversed.

ALVEY, *J.*:

This case is brought here by an appeal from the Commissioner of Patents. The appeal is taken by John H. Stevens and the Celluloid Company, as assignee, from the decision of the Acting Commissioner of Patents in a matter of alleged interference of the claim of the appellant Stevens with an existing patent granted to the appellee, August Seher, relating to certain solvents of pyroxylin. The issue of the interference, as defined in the Patent Office, is as follows:

A pyroxylin compound consisting of pyroxylin and one or more members of the group of herein-described ketone solvents.

This issue constitutes the second claim of the appellant and involves his first claim, as made in his specification, and it also involves the first and second claims of an application of Walter D. Field for a patent for a pyroxylin solution or compound and the claim in Patent No. 470,451, granted to August Seher, the appellee, for the manufacture of compounds of pyroxylin.

The Field claim is not involved on this appeal. There was no attempt to support that claim to priority by proof, and Field has not joined in this appeal and has not had his record printed. His claim must therefore be considered as withdrawn, at least so far as this appeal is concerned. The record of the case of Field's application was, upon the motion of Seher, the appellee, allowed to be filed in this case upon the assurance of counsel that it would appear to have some material bearing upon the question of the issue presented by this appeal; but that record would seem to have no material relation to the question here involved, and the record thus introduced must therefore be at the cost of the appellee.

Before proceeding to consider the main question of the appeal, that of priority of discovery, there is a question of practice of the Patent Office presented and insisted upon that is proper to be noticed because of its great importance, as it may affect the integrity and good faith of the proceedings of the Patent Office and the interest of the public.

To state fully this question of practice, it may be proper to state the course of proceeding as it occurred in the Patent Office in this case, and this can be best done by stating such course of proceeding in the language of the Acting Commissioner of Patents. He says, in the final opinion in that Office, stating the facts of the case, that—

the interference was originally declared July 25, 1892, between the application of Stevens and the patent to Seher. The time for filing preliminary statements was fixed for August 16, 1892. Both statements were opened August 20, 1892, and both were immediately sealed against inspection, and on August 22, 1892, a letter was written to each party calling for an amended preliminary statement, in view of certain defects in the original, on or before September 7, 1892. On that day Seher filed an amended statement.

On September 10, 1892, Seher's second statement was opened and immediately sealed against inspection, and a letter calling for an additional amended statement, and extending the time for filing such statement to September 28, 1892, was sent to Seher. On the same day another letter was sent to Stevens, notifying him of that extension. September 16, 1892, the Primary Examiner requested a suspension of the interference for the purpose of adding a new party—Field. The interference was suspended September 17, 1892, and redeclared October 7, 1892. The time for filing statements was fixed in the new notices for November 2, 1892. Seher and Field filed their statements November 1, and Stevens filed no further statement, but relied upon the one filed August 6, notwithstanding the objections made to it by the Examiner of Interferences, and the restrictions which, in view of such objections, it imposed upon him as to the date of conception and disclosure. In his first and second statements Seher gave as the date of his disclosure September 15, 1890. In his third statement the date of disclosure was given as on or about the 15th day of August, 1889. Stevens was restricted by the Examiner of Interferences to January, 1890, as to conception and disclosure.

Counsel for Stevens contends that Seher should be restricted to September 15, 1890, as the date of his disclosure, and a motion to strike out Seher's third statement was made by Stevens at the hearing, notice of his intention to make such motion having been given orally before the taking of any testimony, and also on March 13, 1895, in writing. He states in his brief that "it does not seem equitable or just that he (Seher) should be allowed to alter these dates and make a difference of nearly a year in his favor in his third statement, after he or his attorneys, or his attorneys' correspondents in Washington, had an opportunity of inspecting the preliminary statement of his adversary; and there is nothing in the testimony to repel the presumption that when the third preliminary statement of Seher was filed he or his attorneys had at least some information of the dates given by Stevens in his preliminary statement."

Seher contends that the motion should not be entertained, because he gave notice to Stevens that unless such motion was brought before any testimony was taken he would consider the objection to his third statement waived. His attorney has also stated that at the time he first discovered the error in his first and second statements the interference had been suspended, and that he could not therefore bring a motion to correct such error, and that when another party was added the interference became a new interference. His third contention is that neither Seher nor any one in any way connected with him had any knowledge or information whatever of the contents of Stevens's preliminary statement.

The Examiner of Interferences adjudicated priority in favor of Stevens, and stated in his decision that "the conclusion herein reached renders it unnecessary to pass upon Stevens's motion to strike out the third preliminary statement filed by Seher." This [says the Acting Commissioner] would have been good practice had the Examiner of Interferences been the final tribunal, but under the circumstances it would have been better to have passed that motion. The Examiners-in-Chief sustained the Examiner of Interferences, and hence there was no direct need for them to consider this question, and in fact their decision contains no reference to it. There may be no necessity for the Commissioner to decide the question, and again it may be of vital importance, for, if admitted, the statement changes the chronological relation of Seher and Stevens as to alleged disclosure. The best and strictest practice [says the Acting Commissioner] would require me to remand the case to the Examiner of Interferences for consideration of this question, with permission for the usual recourse by appeal, and Seher's counsel should then have insisted upon the determination of this question by the Examiner of Interferences before his first appeal. The Examiners-in-Chief, if they had considered the question one over which they had jurisdiction, might have remanded the case before their decision. Since, however, Stevens's motion was brought too late (Rule 113) and since at no time prior to the approval of the final statements of the three parties was the statement of either of the others open to any of them under Rule 108, I shall admit Seher's third statement without remanding the case back to the Examiner of Interferences.

It thus appears that both the Examiner of Interferences and the Board of Examiners-in-Chief decided the question of priority in favor of Stevens, without regard to the change of date of disclosure set up by Seher in his third preliminary statement, interjected into the case without authority. These two tribunals did not regard the change of date as being material in passing upon the question of priority, and hence they attached no importance to it.

Treating the new date insisted upon by Seher as properly in the case, they decided against him upon the facts of the case; but on appeal to the Commissioner, and when a different view of the

facts was taken, the question of the change of dates in the preliminary statement of Seher became of prime importance. It was then that the right of Stevens under his motion to strike out the third preliminary statement of Seher became material to be considered; but that motion the Acting Commissioner overruled and admitted Seher's third statement without remanding the case back to the Examiner of Interferences, and in thus ruling we think the Acting Commissioner erred, and if there was nothing else in the case on which to predicate error we should reverse the decision and remand the case, that regular proceeding should be observed and maintained. It is of the utmost importance that strictness be observed as to the dates furnished in preliminary statements required in cases of interferences, for if parties were allowed to vary their dates at pleasure as to the time of discovery, invention, or disclosure it would inevitably lead to the imputation of deception and bad faith practiced on the part of the party so changing his dates. If any material error occurs in the preliminary statements, or other statements made to the Office, through inadvertence or mistake, the statement may be corrected on motion upon showing to the satisfaction of the Commissioner that the correction is essential to the ends of justice, and the motion to correct the statement must be made, if possible, before the taking of any testimony and as soon as practicable after the discovery of the error. (Rule 113.) It is only upon complying with this rule that the correction of any material error in preliminary statements can be made. That rule was wholly ignored in this case in respect to the third statement of Seher. But there is other ground for reversal of the decision appealed from, besides the matter of practice just referred to, involving the merits of the case.

The application of Seher upon which his patent issued was filed December 23, 1891, and the patent thereon was issued March 8, 1892. The discovery for which the patent issued is described therein as, first, that certain ketones described are individually solvents of pyroxylin; second, that a mixture of any two or more of them is a solvent of pyroxylin, and, third, that a mixture of any one of them with any then known direct or indirect solvent of pyroxylin is a solvent of pyroxylin. The claim as broadly asserted by the patent is as for—

an improvement in the manufacture of pyroxylin or nitrocellulose, the solvents propion, butyron, valeron, capron, methyl-ethyl ketone, (acetyl-ethyl,) methyl-propyl ketone, methyl-butyl ketone, methyl-valeral, ethyl-butyl ketone, and methyl-amyl ketone, as and in the manner specified.

The application of Stevens was filed May 11, 1892, more than two months after the issue of the patent to Seher; but the specification of Stevens would appear fully to cover the alleged discovery described in Seher's patent, and we may suppose that the specification of Stevens was intended to raise an issue of interference with that patent.

In his application Stevens states that his improvements are applicable to the manufacture of the entire class of materials which are well known in trade as "pyroxylin compounds;" and the distinctive novelty of his invention or discovery he states to be the employment, in combination with pyroxylin, of certain substances which he had discovered to possess the property of dissolving or of aiding the conversion of the pyroxylin into a condition suitable for applications in commerce or the arts; and after referring to previous patents obtained by him for solvents of pyroxylin he proceeds to state that it is the object of his present invention to still further extend the list of substances which can be employed to dissolve or convert pyroxylin or form with it useful combinations, and it is based upon a series of experiments in which he had demonstrated that certain liquid members of the fatty-acid group of "ketones" are useful solvents of pyroxylin, and can be employed in various ways, some of which are thereinafter described, in the manufacture of pyroxylin compounds for practical use. He distinguishes these members of the fatty-acid group of ketones from acetone, known as a practical solvent of pyroxylin, and he furnishes a list of the more prominent group of solvents, consisting of the simple ketones and of the compound ketones, acting as solvents of pyroxylin, all of which, he says, are known to chemistry as ketones derived from fatty acids, corresponding to the monohydric alcohols. He has furnished quite a full exposition of his methods of discovery of ketones in his application and preliminary statement.

There is really no great diversity of facts or complication shown in the proof, but the question would seem to be one rather of the construction of facts and the proper conclusion to be drawn therefrom. The Examiner of Interferences has furnished a very clear and fair summary of the evidence, showing the methods of experimental investigation of the parties in making their discoveries and how they arrived at results, and as we agree in his reasoning and conclusions we cannot do better than adopt his summary of the evidence. He says:

In his preliminary statement Stevens alleges conception in January, 1890, and reduction to practice in June and July, 1890. In the testimony offered in support of his claim of priority the date of conception is fixed as of November 8, 1889, but under the well-settled practice he cannot be accorded an earlier date than that set up in his preliminary statement. It appears that on November 8, 1889, Stevens dictated to Mr. Axtell, a chemist in the employ of the Celluloid Manufacturing Co., the memorandum in evidence as "Axtell Memorandum," wherein Axtell is instructed to produce members of the "acetone family" other than acetone itself, in order "to further extend the list of useful solvents" of pyroxylin. On March 13, 1890, under instructions from Stevens, Axtell gave an order to Merck & Co., wholesale dealers in chemicals in New York city, for a large number of substances, among which were several of the ketones embraced within the limits of this controversy—viz., butyron, (dipropyl ketone,) diethyl ketone, methyl-ethyl ketone, methyl-hexyl ketone, methyl-propyl ketone, and valeron. Being unable at this time to procure these ketones—and in fact they were not received until December, 1890—Axtell, in June and July, 1890, proceeded to carry out the instructions of Stevens to produce the ketones and to examine them for solvent properties. Mr. Stevens was absent from this country from June 14, 1890, until late in the fall, and during his absence, in June and July, Axtell, as shown by his memorandum made in July 16, 1890, had succeeded in making valeron, propion, butyron, suberone, and phorone, and also some of the compound ketones resulting from the distillation of the fatty-acid salts of barium and calcium. He further states that he produced at this time the members of the group beginning with acetone or dimethyl ketone to methyl-nonyl ketone and from diethyl ketone (propion) to ethyl-nonyl ketone. These were tested at this time and found to be solvents of pyroxylin.

Upon the return of Stevens from abroad, in the latter part of 1890, he personally took up the study of the ketones of the fatty-acid group, the results of which are shown in his memoranda of February 6, 1891. Being, as he states, extremely busy, he was unable to take up the subject again until April, 1892, when an

elaborate series of experiments were conducted with a large number of the members of the series which he had not before personally examined. The result of these experiments appears in Stevens's record, pages 88 to 107. Stevens is, however, entitled to carry the date of his discovery of the solvent properties of the ketones of the fatty-acid group higher than acetone back to the investigations of Axtell in June and July, 1890. The idea that was original with Stevens was communicated to Axtell, who carried out the instructions given, produced some of the members of the group of ketones suggested by Stevens, and by tests demonstrated their powers as solvents of pyroxylin. The record of Stevens presented in this case shows that prior to the filing of his application the ketones to which this controversy is limited had been thoroughly and exhaustively studied, and that he possesses a complete and comprehensive knowledge of the whole matter.

In strong contrast to the case presented by Stevens stands that of Seher. He filed his application for patent December 28, 1891, and admits that he never tried a single one of the substances claimed by him in his patent to determine its property as a solvent of pyroxylin and cannot state positively that he has ever seen any one of them. In view of this admission, the case of Seher is confined within comparatively narrow limits. The position taken on his behalf is that he used as a solvent of pyroxylin a certain oily liquid obtained in the distillation of wood-alcohol, and also a portion of the distillate arising from the distillation of crude acetate of lime. It is contended that these bodies contained only the ketones named by Seher in his patent, and that when he used them to dissolve pyroxylin it followed as a matter of course that he made the invention in issue and reduced it to practice.

In 1888 Seher was in the employ of Chas. Cooper & Co., manufacturing chemists, Newark, N. J. At that time he was making acetone from wood-alcohol, and the substance which he alleges he found to be a solvent of pyroxylin was an oily liquid passing over in the distillation of the wood-alcohol a little below 100° centigrade, at which point the distillation was stopped. A small portion of this oily liquid he took to his home and after dehydrating (?) submitted it to distillation, using the distillate in his experiments. He states that the largest amount passed over between 95° and 140° centigrade. Nothing further was done with this oily liquid until after August, 1887, as he considered it of no importance, and then it was, as he alleges, that he discovered that it consisted of ketones. He determined this by the fact "that with the alkaline solution of iodin they would yield iodoform, and that with a dilute solution of hydrochlorite of lime they would yield chloroform." But it is a known fact, and Seher admits, that the iodoform and chloroform tests are in no wise indicative of the precise nature of this substance, much less that the product obtained by him contained nothing but the ketones named in his patent. There was no fractional separation and no analysis of any kind made to determine what this substance contained, and no definite information is given even of the boiling-point of the distillate that he used. In the absence of such proof and from the further fact that there is no corroboration of Seher as to anything alleged to have been done by him, and his own testimony was given solely from memory and after a lapse of ten years, it cannot be found as a fact that the solvent power of this 1888 product was due exclusively to the ketones named in his patent, or that Seher had any knowledge that such was the fact.

The next step taken by Seher in connection with the ketones of the issue was in 1887, when it is alleged he obtained a solvent containing such ketones by the destructive distillation of crude acetate of lime. This fact, however, if proved, can have no earlier date than that named in his preliminary statement, to wit, August 16, 1889. Seher was familiar at this time with the process described in the patent of Michaelis, No. 322,194, of July 14, 1885, for the manufacture of chloroform and of purified acetates, and he testifies that he was experimenting with this process to determine the yield of acetone in order to produce chloroform. In the spring of 1887 he distilled a few pounds of crude acetate of lime, the several products being run over and collected together, which distillate he sent to Dr. Simon, a chemist in the employ of Cooper & Co., to be subjected to a fractional distillation in order to ascertain the yield of acetone. Dr. Simon testifies that he fractionated this substance and found that a part of it was acetone, but that the greater part had a boiling-point much higher than acetone. These fractions were put into bottles and labeled and delivered to the office. Seher states that he obtained these fractions, poured the liquids together, except the acetone, and put in some pyroxylin and found that it was dissolved.

The witnesses Amend and Jarrett are brought forward to corroborate Seher in his allegation that he had this solvent in 1887, but their testimony proves nothing. They have no knowledge of their own as to what the substance was that it is claimed was shown them, and they admit that all they know about its constitution is what was told them by Seher. Amend's test of rubbing some of the liquid on the hand and smelling is of as little value as the iodoform and chloroform tests.

Nothing more seems to have been done by Seher until a visit of Dr. Waldstein some time in 1889, the precise date of which is in doubt. However, all that occurred at the time of this visit was the exhibition by Seher to Waldstein of a substance which the former said he had produced by the dry distillation of crude acetate of lime. The matter was not again reverted to until some time after August, 1890, when Waldstein's firm purchased an interest in Seher's factory, after which time it is alleged a large number of distillations were made. This, however, was subsequent to the date of Axtell's investigations.

The difficulty with the testimony on behalf of Seher is that it is too vague and indefinite and lacks that exact information which is of such importance when dealing with an art of this nature. Taking the evidence together, it falls far short of establishing the fact that the solvent which Seher had consisted exclusively of ketones of this group higher than acetone, as the whole case rests upon oral testimony given after the lapse of several years and unsupported by a single note or memorandum of anything that is alleged to have been done. Dr. Simon, who made the fractional distillation in 1887, has no recollection of the number of fractions or even of the boiling-point of any one of them. Seher is equally as ignorant of these matters. He made no analysis of this substance and never became aware of its constituents.

The only attempt at identification of this distillate was the iodoform and chloroform tests; but the fact that chloroform and iodoform can be made does not prove that the distillate contained ketones exclusively, much less that it contained nothing but the ketones named in Seher's patent.

While it is undoubtedly true that by the dry distillation of crude acetate of lime Seher would obtain some, if not all, of the ketones named in his patent, it is equally true that he would obtain also other bodies. Thus acetone, the lowest member of this particular group, a powerful and well-known solvent of pyroxylin, is present in such distillate, and the naked allegation of Seher that he employed his solvent free of acetone can hardly be accepted as conclusive of the fact when we recall Simon's testimony and the circumstances under which Seher testified and the further fact that Seher never made any test to determine that the distillate was free of acetone; also Dr. Waldstein's testimony that he determined that no acetone was present by boiling some with a thermometer has no weight in view of the fact that he gives no information upon which he bases such a conclusion. Merely heating to the boiling-point of acetone, if this is what he did, would not remove all the acetone.

Again, the distillate obtained by Seher undoubtedly contained aldehydes, some of which respond to the iodoform and chloroform tests and which Dr. Waldstein claims are solvents of pyroxylin; but there is no evidence that these were removed, and hence it cannot be said with certainty that the solvent action was due to the ketones higher than acetone, a small number of which Seher has named in his patent. This was the thing to be determined, assuming Seher's contention to be the correct one, not that some compound body obtained in the manner stated by him, of whose precise composition he was ignorant, was a solvent of pyroxylin.

The Examiner cannot give his assent to the contention of Seher, that even if he had discovered that the product arising from the destructive distillation of crude acetate of lime was a solvent of pyroxylin that he thereby discovered that the ketones named in his patent alone were solvents. Seher has made no analysis of such substance and no separate tests of the solvent power of any of his named ketones. The discovery that such a compound body was a solvent does not justify the conclusion that each constituent of that body is a solvent, for the solvent power of the mixture might be due to certain ones and not to others, or to other constituents of whose presence he was ignorant, or to a certain mixture of two or more. One member of a group may be a solvent and the next one or one closely allied not, an example of which is furnished by methyl and ethyl alcohol. The former is a solvent of pyroxylin and the latter is not.

It was through Dr. Waldstein that Seher filed his application for patent. The former prepared the specification in December, 1891, and as he had never examined the product that had been obtained by the distillation of crude acetate of lime he resorted to Fehling's *Handwörterbuch der Chemie* for a list of ketones which he assumed would or ought to be present, and in so doing included methyl-valeral among the list, which is an aldehyde and not a ketone.

Upon a review of the whole record the Examiner feels justified in holding that Seher did not make the discovery that the ketones of the fatty-acid group higher than acetone are solvents of pyroxylin, at least prior to the date which has been accorded Stevens. The latter has fully sustained the burden upon him and is justly entitled to a patent, notwithstanding the grant to Seher.

On appeal to the Board of Examiners-in-Chief that tribunal, upon full examination of the evidence, concluded with the Examiner of Interferences that—

a discovery in the useful arts cannot be made by conjecture, assumption, or reasoning; that it can only be attained by an accomplished fact. That it must be a discovery not of the mind, but by the actual use of physical means to develop a physical result. That the testimony had disclosed that Seher never made the discovery or discoveries set forth and claimed in his patent; and that Stevens made each and all of them, and is not merely the prior inventor of them, but is the first and only inventor of them.

From this decision Seher appealed to the Commissioner of Patents, and the Acting Commissioner reversed the decision and adjudged priority to Seher, and from which latter decision Stevens has appealed to this court.

The Acting Commissioner says that he has assumed that the statements made by the parties are true; that the statements made by Stevens are corroborated quite fully, and that there had been no very serious effort made to discredit the statements of Seher, and that such effort as had been

made did not amount to a warrant for throwing any of them out, especially in view of Seher's position as patentee prior to the filing of Stevens's application.

The Acting Commissioner then proceeds to state the grounds of his dissent from the decisions of the Examiner of Interferences and of the Examiners-in-Chief. He says:

Stevens asserts that Seher never made the invention for which he obtained a patent, and this is really the whole question to be considered. There can be no reasonable doubt [says the Acting Commissioner] but that Seher conceived substantially the solvent of the issue before Stevens, and the question is whether what he did with it amounts to a reduction to practice anterior to Stevens's exhaustive researches. Neither Seher nor Waldstein, however, ever actually produced an individual ketone, and as such tried it as a solvent. It is true that Mr. Simon appears to have made a fractionation of the distillate from commercial acetate of lime some time in 1887, but this fractionation, which was made before the date of Seher's alleged disclosure, was not carried so far, apparently, as to separate out the individual ketones, and these fractions were not tried by Seher separately, but were poured together, and with the resultant mixture Seher made a test for dissolving pyroxylin.

Seher never tried any individual ketones as solvents. He never deliberately and definitely tried any two or more, although he certainly tried mixtures of them. Stevens tested numbers of them individually, and tested some in combination with other solvents; but that he tested all possible combinations of these ketones with each other, and with other solvents, is not stated, and would be, in fact, entirely improbable.

These two men [says the Acting Commissioner] approached the question of dissolving pyroxylin from different points. Seher was trying to get a cheap and efficient solvent, no matter what it was. Stevens was trying to ascertain how many solvents he could discover, and the characteristics of all such solvents. One approached the question with the instincts of a business man, the other with the instincts of a scientist. Seher's discovery was in a measure accidental; Stevens's, the inevitable result of an exhaustive system of experiments. One took a comparatively cheap material—crude acetate of lime—for the source of his solvent, the other tried expensive and little known chemicals, but neither ever made a complete reduction to practice of the issue in the sense of having made solutions of pyroxylin in ketones in all the variations possible under it.

Stevens states that he reduced the invention to practice in June or July, 1890. At that time he was in Europe, but Mr. Axtell, from June 20 to July 15, acting under his direction, produced "various ethereal liquids which are strong solvents of soluble pyroxylin." These liquids he identified with more or less certainty, and they were obtained by "distilling various mixtures of the fatty-acid salts of barium and calcium." Seher had previously distilled such a salt and had produced at least one such solvent, but had not established by analysis or fractionation the composition of said solvent.

I cannot agree [says the Acting Commissioner] with the statement of the Examiners-in-Chief that Seher never made the disclosure set forth and claimed in his patent, and I cannot reconcile this statement with the presumption, which necessarily follows therefrom, that Stevens did make all the discoveries possible under his claim. Seher discovered a solvent for pyroxylin. That solvent is the one covered by the issue. He did not by chemical analysis show absolutely the composition of such solvent, but from tests which he and others made, and from consultation with authorities, he came to a reasonably accurate knowledge of its character. That he was aware of the whole scope of his discovery does not seem probable, but he was in a position earlier than Stevens to give to the world the essential features of the issue to an extent sufficient to meet the requirements of practical working, and the progress of science and the useful arts is promoted effectively when an inventor meets such requirements.

He therefore reversed the decision of the Examiners-in-Chief and adjudged priority in favor of Seher, holding that Seher had discovered and disclosed his invention prior to June or July, 1890, the time when it is conceded Stevens had completed and reduced to practice the invention or discovery of the issue, and which time was prior to the date of Seher's application for his patent. The patent has only *prima facie* effect on this interference and is subject to be rebutted.

But on the facts taken as true by the Acting Commissioner we think the conclusion reached by him should have been the reverse of what it was. It is clear, we think, that on the proof the claim of Seher is not sufficiently and definitely established to maintain his patent, it having, as it can have, only *prima facie* effect; that he has failed to show that he has fully and completely established by experimental tests so as to enable persons reasonably skilled in the science of chemistry to determine whether or not the composition made and claimed by him as new and valuable in the arts really possesses those properties which he claims as the essential character as an operative means, for no invention or discovery in such case as the present can be regarded as complete until such tests have been applied and have been successfully maintained. (Rob. on Pats., sec. 198.) This is a principle settled and insisted upon in all the cases. In a case like the present the patent should state and fully disclose the component parts of the composition claimed with clearness and precision and not leave a person attempting to use the discovery to find it out by experiment. If the description be so vague and uncertain that no one can tell with certainty, except by independent experiment, how to apply the discovery and what exact result may be expected therefrom, the patent is void. (*Wood* v. *Underhill*, 5 How., 1, 5; *Tyler* v. *Boston*, 7 Wall., 327, 330; *The Incandescent Lamp Patent*, 73 O. G., 1289; 159 U. S., 465, 474–5.)

We entirely agree with the Acting Commissioner that upon the evidence it is clear neither Seher nor Waldstein ever actually produced an individual ketone and as such tried it as a solvent. The fractionation made by Simon of the distillate from commercial acetate of lime was not carried so far as to separate out the individual ketones, and such fractions were not tried by Seher separately, but were poured together, and with the resultant mixture Seher made a test for dissolving pyroxylin. As said by the Acting Commissioner, Seher never tried any individual ketones as solvents. He never deliberately and definitely tried any two or more, although he did try mixtures of them. Seher never did by chemical analysis show with positive certainty the composition of any such solvent as he supposed he had discovered and the relative component parts thereof, but he arrived at his conclusion by what he supposed to be a reasonable deduction from the experiments that he had made. This is not sufficient.

Concurring fully with the reasoning and conclusion of both the Examiner of Interferences and the Examiners-in-Chief, we must dissent from the conclusion of the Acting Commissioner, and therefore reverse the decision appealed from.

The clerk of this court will certify this opinion and the proceedings in the cause to the Commissioner of Patents, to be entered of record in his Office, according to law, and it is so ordered. Ruling appealed from reversed.

[Vol. 81. No. 11.]

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 12. TUESDAY, DECEMBER 21, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
REGISTRATION OF ATTORNEYS	1937
ATTORNEYS	1937
MONEY BY MAIL	1937
PRICE OF PRINTED COPIES OF SPECIFICATIONS AND DRAWINGS	1938
ISSUE OF DECEMBER 21, 1897	1938
APPLICATIONS UNDER EXAMINATION	1938
PATENTS GRANTED	1939
REISSUES	2074
DESIGNS	2075
TRADE-MARKS	2080
LABELS	None.
PRINTS	None.
COMMISSIONER'S DECISIONS—	
Shiels *v.* Lawrence and Kennedy	2085
Ex parte Coe	2086
Bechman *v.* Wood	2087
Hien *v.* Buhoup	2088
DECISIONS OF THE U. S. COURTS—	
Hien *v.* Buhoup	2088

Registration of Attorneys.

RULE 17. * * * A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of persons in the following classes will, upon their written request, be entered upon this register:

(*a*) Any person who at the date of the approval of the present Rules of Practice, June 15, 1897, was engaged as attorney or agent in the active prosecution of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and, is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(*b*) Any attorney-at-law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of such clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(*c*) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*d*) Any person not an attorney-at-law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*e*) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(*f*) Any firm not entitled to registration under the preceding sections which shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

AFTER JANUARY 1, 1898, NO PERSON NOT REGISTERED IN ACCORDANCE WITH THIS RULE WILL BE PERMITTED TO PROSECUTE APPLICATIONS BEFORE THE PATENT OFFICE.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 10, 1897.

SIR: The Secretary of the Interior has ordered that B. F. Beers, of Port Henry, N. Y., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 10, 1897.

SIR: The Secretary of the Interior has ordered that Walter Middleton, of Washington, D. C., be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

Price of Printed Copies of Specifications and Drawings.

It is hereby ordered, pursuant to an amendment of section 498 of the Revised Statutes, entitled "An act amending the statutes relating to the sale of printed copies of patents," approved May 19, 1896, that the price to be paid for uncertified printed copies of specifications and drawings of patents shall be, for single copies, or any number of unclassified copies, five cents each; for copies by subclasses, three cents each; by classes, two cents each, and for the entire set of patents issued, in one order, one cent each.

This order will be in effect on and after July 1, 1896.

Issue of December 21, 1897.

Patents	362—No. 595,685 to No. 596,046, inclusive.
Designs	30—No. 28,057 to No. 28,086, inclusive.
Trade-Marks	55—No. 30,985 to No. 31,039, inclusive.
Labels	None.
Prints	None.
Reissues	1—No. 11,642.
Total issue	448

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	4		New Hampshire		
Arizona Territory			New Jersey	21	6
Arkansas			New Mexico Territ'y		
California	9	1	New York	91	14
Colorado	3		North Carolina	1	
Connecticut	15	3	North Dakota	1	
Delaware	1		Ohio	21	1
District of Columbia	4		Oklahoma Territory		
Florida			Oregon		
Georgia	3		Pennsylvania	51	3
Idaho			Rhode Island	7	
Illinois	29	8	South Carolina	1	
Indian Territory			South Dakota	1	
Indiana	6		Tennessee		
Iowa	4		Texas	6	
Kansas	4		Utah		
Kentucky	2		Vermont		
Louisiana	2		Virginia		2
Maine	4		Washington	6	
Maryland	2		West Virginia	2	1
Massachusetts	25	5	Wisconsin		
Michigan	13	3	Wyoming		
Minnesota	5	1	U. S. Army		
Mississippi			U. S. Navy		
Missouri	8				
Montana			Total to citizens of the United States	359	48
Nebraska	2				
Nevada					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries	Patents and Designs.	Trade-Marks and Prints.
Argentina			Mexico		
Australia			Netherlands		
Austria-Hungary	1		Newfoundland		
Barbadoes			New South Wales		
Belgium			New Zealand	1	
Bermuda			Norway		
Brazil			Portugal		
Canada			Queensland	1	
Cape Colony			Roumania		
Chile, Republic of			Russia		
China			Scotland	1	
Colombia			Siam		
Cuba			South African Republic		
Denmark			South Australia		
Egypt			Sweden	1	
England	9	4	Switzerland	1	
Finland			Tasmania		
France	7	1	Victoria	1	
Germany	9	1			
India			Total to citizens of foreign countries	55	7
Ireland	1	1			
Italy					

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business December 14, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Between one and two months.			
106	II. Farm Stock, Products, etc.	Oct. 19	Dec. 2	357
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Oct. 30	Nov. 29	135
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 18	Nov. 29	169
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 15	Nov. 26	211
255	XII. Mechanical Engineering, Store-Service, etc.	Oct. 27	Nov. 19	187
250	VIII. Furniture, Beds, Store Furniture, etc.	Oct. 14	Nov. 18	408
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Oct. 30	Nov. 17	180
248	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Oct. 8	Nov. 8	372
	Between two and three months.			
153	XX. Saddlers' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Oct. 11	Dec. 6	190
120	IX. Hydraulics, Fire-Extinguishers, etc.	Sept. 25	Dec. 6	146
102	XIX. Stoves and Furnaces	Sept. 18	Dec. 6	291
93	XXI. Textiles, etc	Sept. 15	Dec. 2	238
258	X. Carriages and Wagons	Sept. 15	Dec. 1	249
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Oct. 4	Nov. 29	324
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Sept. 24	Nov. 27	211
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 30	Nov. 26	183
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Sept. 20	Nov. 23	448
215	XVII. Paper Manufactures and Printing.	Oct. 1	Nov. 9	216
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 18	Nov. 8	289
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Oct. 4	Oct. 30	285
	Between three and four months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 21	Dec. '8	182
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Aug. 30	Dec. 6	319
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Aug. 24	Dec. 1	609
248	XVIII. Steam-Engineering, etc.	Sept. 7	Nov. 30	276
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Sept. 11	Nov. 18	193
249	VII. Velocipedes	Sept. 1	Nov. 1	1136
245	I. Tillage and Fences	Sept. 2	Oct. 30	256
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Sept. 1	Oct. 5	588
	Between four and five months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	July 21	Nov. 13	505
	Between five and six months.			
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	June 30	Dec. 4	655
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Dec. 3	185
221	XXIII. Instruments of Precision, Acoustics, etc.	July 12	Oct. 6	401
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	Aug. 13	386
	Total number of applications awaiting action			10,780
	Under one month.			
	Designs	Nov. 15	Dec. 3	211
	Trade-Marks	Dec. 10	Dec. 11	17

PATENTS

GRANTED DECEMBER 21, 1897.

595,685. PACKING-BASKET. ABRAHAM ABRAHAM, Brooklyn, N. Y. Filed Mar. 15, 1897. Serial No. 627,453. (No model.)



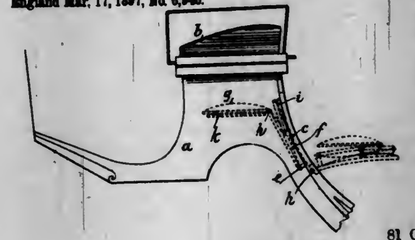
Claim.—The combination of a packing-basket with a cover therefor consisting of a strip of material of uniform width, joined at the ends and attached near the edge of the basket-opening on the outside of the basket, said cover having openings therein for the handles of the basket, a binding-wire for retaining said cover in place and a running cord passing through eyelets in the unattached edge of said strip, substantially as set forth.

595,686. SUPPORTING-STAND. MARTIN ALLGAUER, Port Chester, N. Y. Filed Apr. 22, 1897. Serial No. 633,236. (Model.)



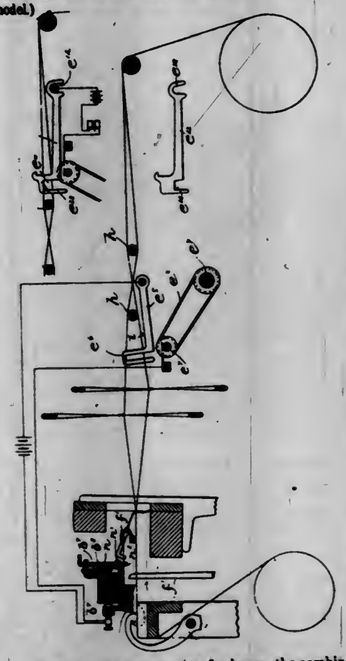
Claim.—A support comprising the members A, A, A, A, each of said members having the depressions *a*, *b*, and projections *c*, *d*, enabling them to unite together, substantially as set forth.

595,687. CARRIAGE. AUGUSTA E. ANDREAE, London, England. Filed Aug. 28, 1897. Serial No. 649,836. (No model.) Patented in England Mar. 17, 1897, No. 6,946.



Claim.—In combination with the seat *b* having a space beneath it, the seat *c* hinged to the body of the vehicle in rear of the seat *b*, a collapsible back extending up from the pivoted end of the seat *c* alongside of the frame in rear of the seat *b* and the supports below the seat *b* for the collapsible seat, substantially as described.

595,688. WARP STOP-MOTION FOR LOOMS. WILLIAM H. BAKER, Pawtucket, R. I., assignor, by direct and mesne assignments, to Fred M. Armstrong, same place. Filed Mar. 6, 1896. Serial No. 582,090. (No model.)



Claim.—1. In a warp stop-motion for looms, the combination of a shipper, means for vibrating or reciprocating the same to clutch and unclutch the driving mechanism of the loom, a controlling member movable on the shipper to permit and to prevent an unclutching movement of the latter, a detent engaging said controlling member to hold it in position to prevent unclutching of the driving mechanism, an armature compounded with said detent, an electromagnet, a circuit embracing the same, and a warp-controlled circuit-closer whose operation causes the said magnet to attract the armature and thereby displace the detent and release the shipper-controller allowing the latter to move to position permitting unclutching of the mechanism, substantially as described.

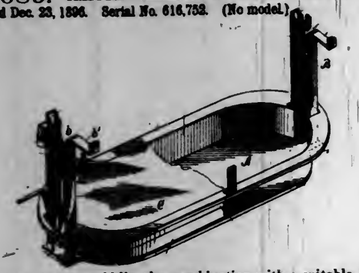
2. In a warp stop-motion for looms, the combination with a clutch-lever and actuator therefor exerting itself to move the lever to unclutching position, of a latch on the lever, a detent for engaging the latch, a holding-bar engaging the latch to hold the clutch-lever in clutching position when said latch is engaged by the detent, an electromagnet arranged to attract the detent, a circuit embracing said magnet, and a warp-controlled circuit-closer.

3. In a warp stop-motion for looms, the combination with a clutch-lever and actuator therefor exerting itself to move the lever to unclutching position, of a latch pivoted at one end to the lever, a detent pivoted to the lever and arranged to engage the opposite or free end of the latch, a holding-bar engaging the latch and acting thereagainst in opposition to the aforesaid actuator to hold the lever in clutching position, an electromagnet carried by the lever in position to influence the detent, a circuit embracing said magnet, and a warp-controlled circuit-closer.

4. In a warp stop-motion for looms, the combination with a clutch-lever and actuator therefor exerting itself to move the lever to unclutching position, of a latch pivoted at one end to the lever and having a loop on the side toward the lever, a holding-bar projecting into said loop, a detent on the lever and arranged to engage the free end of the latch, an electromagnet carried by the lever in position to influence the detent, a circuit embracing said magnet, and a warp-controlled circuit-closer.

5. In an electrical warp stop-motion for looms, the combination with the thread-supported circuit-closers, of a rotary contact-bar for said circuit-closers to engage, a circuit embracing said bar and closers, and electrically controlled clutch-shipping mechanism.

595,689. GRIDDLE. CHARLOTTE C. BANCROFT, Manistee, Mich. Filed Dec. 23, 1896. Serial No. 616,752. (No model.)



Claim.—1. In a griddle, the combination with a suitable base-plate, of spaced standards mounted upon the same and each having a vertical slot formed therein, rigid supporting projections mounted on said standards so as to project into the slots of the same, and pans provided with trunnions adapted to slide in said slots and be supported upon said projections, substantially as described.

2. In a griddle, the combination with a suitable base-plate, of slotted standards mounted on the same, projections mounted in said standards, springs also mounted on said standards and adapted to engage said projections, and pans having trunnions mounted in said slots and adapted to be supported on said projections, substantially as described.

3. In a griddle, the combination with a suitable base-plate, of slotted standards mounted on the same, two pans adapted to be applied together and each provided with trunnions mounted in the slots of said standards, and operating crank-handles pivotally mounted on said trunnions and adapted to elevate or lower the pans at will, substantially as described.

4. In a griddle, the combination with a suitable base-plate, of slotted standards mounted on the same, projections mounted upon said standards, springs engaging said projections, two pans adapted to be applied together and each provided with trunnions adapted to slide in said standards, and lifting-handles pivotally mounted on said trunnions, substantially as described.

595,690. BOTTLE-STOPPER. CHARLES BILD, Washington, D. C. Filed May 20, 1897. Serial No. 637,322. (No model.)



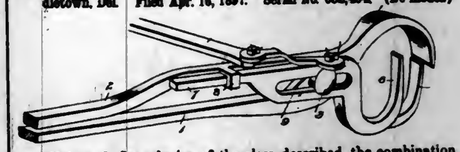
Claim.—In a bottle-stopper, a metallic, or other suitable cap, provided with a screw-threaded recess in its under side, combined with a shouldered cork which is screwed into this recess, and a flexible washer that is secured in position between the cap and the shoulder on the cork, and which washer is made to bear upon the top edge of the bottle, and a suitable mechanism connected to the neck of the bottle for compressing the washer between the mouth of the bottle and the cap, substantially as shown and described.

595,691. FISH-HOOK. CHARLES A. BRACKLO, New York, N. Y. Filed Aug. 21, 1897. Serial No. 649,060. (No model.)



Claim.—In a fish-hook, the combination of a main shank provided with a barb, an auxiliary spring-actuated barb, and a link connecting a loop in said main shank with a latch on said auxiliary barb, said latch being provided with a ratchet whereby the tension on said spring may be regulated, substantially as shown and described.

595,692. HORSESHOE-EXTRACTOR. JAMES W. BROCKSON, Middletown, Del. Filed Apr. 16, 1897. Serial No. 632,404. (No model.)



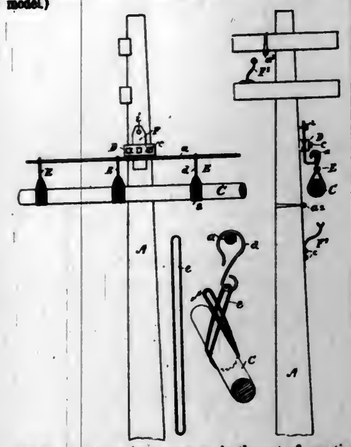
Claim.—1. In a device of the class described, the combination with members pivoted together and having jaws, one of which is of less width than the other, of an extracting-jaw movable lengthwise of the members and sliding beside the narrower jaw and adapted to form in connection therewith a jaw of practically the same width as the broader jaw, and means for shifting said extracting-jaw.

2. In a device of the class described, the combination with members pivoted together and having jaws, of an extracting-jaw slidable longitudinally of the members, a lever, and a connection between the lever and the extracting-jaw.

3. In a device of the class described, the combination with members pivoted together and having jaws, of an extracting-jaw slidable longitudinally of the members, a lever pivoted to one member, and a pitman connected to the lever and to the extracting-jaw.

4. In a device of the class described, the combination with members pivoted together on a bolt and having jaws, an extracting-jaw movable longitudinally of the members and having a slot in which the bolt works and also working in a guide connected to one member, a pivoted lever, and a pitman connecting the lever with the extracting-jaw.

595,698. SUSPENSION OF AERIAL CABLES. GEORGE CAMERON, Boston, Mass. Filed July 24, 1897. Serial No. 645,785. (No model.)



Claim.—1. As an improvement in the art of erecting aerial cables, the method herein described which consists in continuously drawing the cable up and along a single suspension-wire without obstruction or interruption to a horizontal position while suspended from the said wire by permanent hangers which are successively attached to the cable and wire as the former is brought into proximity with the latter during its movement.

2. As an improvement in the art of erecting aerial cables the method herein described which consists in continuously drawing the cable along the suspension-wire without obstruction or interruption to its position while suspended from the said wire by permanent hangers which are successively attached to the cable and wire as the former is brought into proximity with the latter during its movement and then removing the suspension-wire with the cable suspended therefrom from its temporary supports and securing the same to permanent supports.

3. The combination of an overhead cable-line consisting of a plurality of poles, of a cable and a supporting-wire therefor, the cable being suspended from the wire by hangers with supports for said wire attached to each pole, having an arm provided with a rest or guide; whereby when the cable is pulled along the wire, the hangers are maintained in position upon the cable and are adapted to move past the said supports successively without obstruction.

4. The combination of an overhead cable-line consisting of a plurality of poles, of a cable and a supporting wire therefor, the cable being suspended from the wire by hangers consisting of a hook and a flexible insulating cord or band with supports for said wire attached to each pole, having an arm provided with a rest or guide; whereby when the cable is pulled along the wire, the hangers are maintained in position upon the cable and are adapted to move past the said supports successively without obstruction.

5 The combination in an overhead cable-line of a plurality of poles, a cable and a supporting-wire therefor attached to each pole; with hangers between the said wire and cable consisting of a hook and a flexible insulating cord or band wound around the cable, as set forth.

6. A cable-hanger consisting of a hook, and a flexible insulating cord or band adapted to be wound around a cable, as set forth.

7. A cable-hanger consisting of a hook, and a flexible insulating cord or band of fibrous material adapted to be wound around a cable.

8. A cable-hanger consisting of a hook and a flexible insulating cord or band of fibrous material saturated with preservative material adapted to be wound around a cable, as set forth.

9. A cable-hanger consisting of a hook of wire bent into the form of an S with the larger eye at the top and nearly closed, and a flexible insulating cord or band adapted to be wound around a cable, as set forth.

10. The combination of an overhead cable-line consisting of a series of poles, of a cable and a supporting-wire therefor, the cable being suspended from the wire by hangers; with supports for said wire attached to the poles provided with a rest or guide; whereby the said wire is supported without clamps or ties, and when the cable is pulled along the wire the hangers are maintained in position upon the cable and are adapted to move past the said supports successively without obstruction.

11. A cable supporting wire extending to a plurality of poles or supports, and supported at the intermediate poles or supports by an arm provided with a rest or guide, and clamped or otherwise secured to the terminal poles only.

12. A cable-supporting wire extending to a plurality of poles or supports and supported at the poles or supports by brackets; whereby when the cable is drawn along the said wire no obstruction is offered to the passage of the clips or hooks by which the cable is attached to said wire.

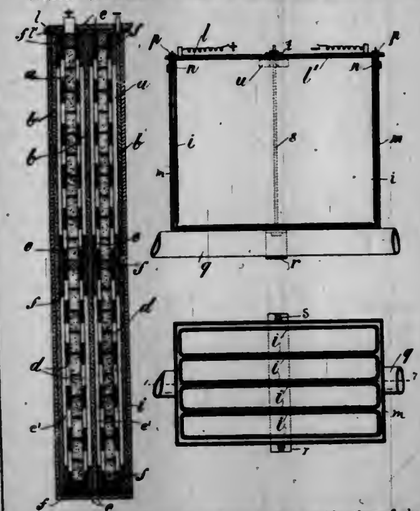
595,694. MULTIPLE GEARING. LEWIS C. CARY, El Paso, Tex., assignor of two-thirds to T. H. Conklin and C. R. Morehead, same place. Filed July 29, 1897. Serial No. 646,310. (No model.)



Claim.—1. A multiple gearing for bicycles, vehicles, and traction devices, comprising a framework, an axle mounted therein, a traction-wheel having an inner cogged rim, mounted upon said axle by means of spokes connecting said rim with a sleeve upon said axle, a sprocket and gear wheel secured together and rigidly mounted upon said axle to revolve with the same, an endless chain connecting said sprocket-wheel with a motive power to revolve the same, a series of gear-wheels mounted upon one side of said framework, equidistant apart, and having pins or lugs to mesh with the first gear-wheel, and provided with cogs or teeth upon their outer circumferences, a gear-wheel having teeth or cog surfaces upon its exterior and interior surfaces, mounted upon a sleeve upon said axle, adjacent to the first sleeve and between the latter and the first sprocket-wheel, a series of gear-wheels mounted in said framework, at points equidistant, and beyond the circumference of the last-mentioned wheel, and having pins or lugs upon their outer surfaces engaging the teeth upon the circumferences of the latter wheel, said latter series of wheels having teeth meshing with teeth upon said rim of the traction-wheel, substantially as described and set forth.

2. A multiple gearing for a bicycle comprising a framework, a traction-wheel having a cogged rim upon its inner surface, an axle having two loose sleeves d, d^2 mounted thereon adjacent to each other, said traction-wheel being supported on sleeve d, and two rigid wheels secured together and locked to revolve with said axle, one of said wheels being a sprocket-wheel connected by an endless chain with a motive power, and the second wheel meshing with a series of wheels mounted, equidistant apart in the side of said framework adjacent to said sprocket-wheel, a second gear-wheel having teeth or cogs upon both its exterior and interior surfaces, mounted upon sleeve d^2 by means of spokes, said second gear-wheel meshing with said series of wheels, a second series of gear-wheels mounted near the circumference of said framework, equidistant apart, and alternately with respect to the first series of wheels, said second series meshing with gear-wheel G, and the latter series having teeth or cogs in mesh with teeth or cogs upon the rim of said traction-wheel, substantially as described and set forth.

595,695. ELECTRIC ACCUMULATOR. CLOVIS P. F. CLERC and ADOLPHE G. PINGAULT, Paris, France. Filed Dec. 5, 1896. Serial No. 614,535. (No model.) Patented in Belgium Aug. 8, 1896, No. 122,957.



Claim.—In an electric accumulator, the combination of plates a carrying active material, perforated non-conductive coverings d surrounding plates a on their sides and bottoms, whereby when plates a and coverings d are lifted out any active material which may have become loosened from the plates will be taken out also, an insulating-cell i inclosing said parts, an inclosing case m having a cover l, a caoutchouc or similar sheet on the lower side of the cover, said sheet and cover pressing against the end of said cell i and forming a cover for it also.

595,696. ROLLER-BEARING. GEORGE J. S. COLLINS, Chicago, Ill. Filed July 30, 1896. Serial No. 601,043. (No model.)

Claim.—1. The combination with an axle, of a cone thereon having a bearing-surface arranged at an angle to the longitudinal axis of the axle, a nut on said axle provided with an oppositely-arranged bearing-surface, said two bearing-surfaces being arranged on different angles and forming a ball-race, a ball-cup provided with a bearing-surface opposed to said oppositely-arranged surfaces and formed at an angle with respect to the longitudinal axis of the axle equal to one-half the difference between the angles of the other two bearing-surfaces, a plurality of roller elements, a roller-separating device between each pair of roller elements, and means for securing each roller-separating device with its longitudinal axis parallel with the plane of the bearing-surface of the cup-bearing, substantially as described.

2. The combination with an axle, of a cone thereon having a bearing-surface arranged at an angle to the longitudinal axis of the axle, a nut provided with a bearing-surface arranged opposite to the bearing-surface of the cone and at a different angle, said two bearing-surfaces forming a ball-race, a ball-cup provided with a bearing-surface opposed to said oppositely-arranged surfaces and formed at an angle with respect to the longitudinal axis of the axle equal to one-half the difference of the angles between the cone and nut, a plurality of roller elements, roller-separating devices, one between each pair of roller elements located inside of a line passing through the center of the roller elements and means for securing said parts in operative relation, substantially as specified.



3. The combination with an axle, of a cone thereon having a bearing-surface arranged at an angle to the longitudinal axis of the axle, a nut provided with an oppositely-arranged bearing-surface, said two bearing-surfaces being arranged at different angles and forming a ball-race, a ball-cup provided with a bearing-surface opposed to said oppositely-arranged surfaces and formed at an angle to the longitudinal axis of the axle equal to one-half the difference between the angles of the cone and nut, a plurality of roller elements, roller-separating devices, one between each pair of roller elements, and means for securing said parts in operative relation, comprising a pair of housing-plates between which the separating devices are secured at suitable intervals, and having suitable apertures therein for the reception of the roller elements, substantially as described.

4. In a ball-bearing, a housing for the roller elements comprising two annular plates, means for securing the same together, and at a suitable distance apart, a plurality of roller elements located intermediate of the plates, and a rotatable ball-separating device between adjacent roller elements and located inside of a line passing through the centers of the roller elements.

5. In a ball-bearing, a housing for the ball or roller elements comprising two annular or ring plates, means for securing the same together at suitable distances apart, a plurality of roller elements located intermediate said plates between oppositely-arranged recesses therein, a rotatable ball-separating device between adjacent roller elements and recesses, substantially as described.

6. In a ball-bearing, a housing for the ball or roller elements, comprising two annular plates, means for securing the same together but at a suitable distance apart, a plurality of roller elements located intermediate said plates between oppositely-arranged recesses therein, and a rotatable ball-separating device between adjacent roller elements, said roller elements being so located in said recess that their inner surfaces will lie inside of a circumferential line passing through the ball-separating devices.

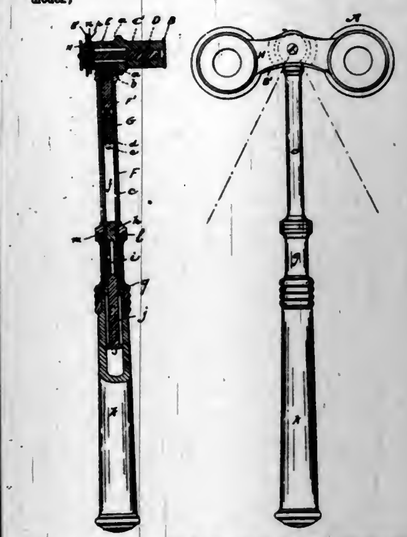
7. In a ball-bearing, a housing for the ball or roller elements, comprising two annular ring-plates, means for securing the same together but at a suitable distance apart, a plurality of roller elements located intermediate said plates between oppositely-arranged recesses therein, and a rotatable ball-separating device between adjacent roller elements, the diameter of said roller elements being greater than the distance between adjacent separating devices whereby they may be simultaneously removed from or placed in the bearing.

8. A housing for the roller elements of a ball-bearing comprising two ring-plates, a plurality of ball-separating devices rotatably secured at intervals between the plates at or near their inner margins, said rings being provided with a socket or recess between each separating device, a plurality of roller elements in said sockets and means for securing the plates at a suitable distance apart whereby said roller elements may partially project beyond the plane of the outer surfaces of said plates and also project peripherally between them as and for the purpose specified.

9. In a ball-bearing, a housing comprising two ring-plates having suitable corresponding recesses, roller-bearing elements in said recesses, a roller-separating device between each pair of roller elements, and means for securing said parts in operative relation comprising rivets passing through adjacent and engaging marginal parts of the ring-plates, each plate having an annular bend therein, substantially as and for the purpose specified.

10. In a roller-bearing, the combination with an axle provided with suitable bearing-surfaces, a hub provided with a ball-cup and roller elements located in the race formed thereby, ball-separating devices between the roller elements of a housing for confining the roller elements whereby said housing and roller elements may be removed from the bearing without disturbing the relation of the balls to each other.

595,697. OPERA-GLASS AND HANDLE THEREFOR. AUGUSTUS S. CRANE, Newark, N. J. Filed July 6, 1896. Serial No. 598,096. (No model.)



Claim.—1. In a handle for an opera-glass, the combination with the hinged and telescopic sections of the handle, adapted to be folded, of a rotatable sleeve having a cogged extremity adapted to intermesh with a cooperating cogged gearing upon the opera-glass, the said rotatable sleeve serving the double function of covering the joint in the handpiece extension to hold the members thereof in alinement and transmitting motion to the lens-operating screw, substantially as set forth.

2. The combination with an opera-glass having the male and female lens-adjusting screws, provided with annular series of cogs, of an extensible handle having a rotatable sleeve provided with cogs at one end to engage those on the screws and a finger-piece adapted to couple with said sleeve, whereby the hand grasping the handle may turn the said finger-piece and with it the rotatable sleeve and transmit motion to one of the screws, substantially as set forth.

3. In an opera-glass the combination with the lens-adjusting screws and a jointed handle attached to one of said screws, of a rotatable sleeve engaging one of said screws and holding the joined sections in alinement.

4. The combination with the opera-glass, having a cogged gearing of a handle, the sections of which are hinged together and have an extensible relation, substantially as described, a sleeve having cogs to engage those of the opera-glass, and a finger-piece separable from the sleeve and adapted to enter into clutched relation thereto.

5. The combination with the opera-glass having a focusing-screw and a bridge, said screw being rotatable in its relation to said bridge, of a collar arranged around said screw and adjustable in its relation to the bridge, a handle carrying said collar, and a sleeve rotatable on said handle and adapted to engage the focusing-screw to turn the same, substantially as set forth.

6. The combination with the opera-glass having a handle with folding sections, the sections of which, when in operative relation to said opera-glass, are in rigid alinement and are adapted to hold the glass in position for service, said sectional handle extending laterally away from the lens-adjusting screw of said glass, of a rotatable sleeve on said handle, which sleeve engages said adjusting-screw and extends to an exposed hand-receiving portion of the handle and being uncovered from end to end and free of access to the hand, substantially as set forth.

7. The combination with the opera-glass having lens-adjusting means of a handle the members of which have a folding or hinged and a telescopic relation to one another and a sectional and rotary sleeve holding said members in rigid relation and adapted to communicate power to the lens-adjusting means, substantially as set forth.

8. The combination with the opera-glass and its lens-adjusting means, of the folding handle having a sleeve and finger-piece adapted to be separated to admit a folding of the handle, and to be brought together to form a continuous sleeve extending to the said lens-adjusting means to operate the same and to hold the members of the folding handle in alinement.

9. The combination with the opera-glass having lens-focusing means and a collar having a frictional connection to said glass to permit a relative adjustment of said glass and the handle, of said handle extending from said collar and having an exterior sleeve adapted to be turned by hand to transmit motion to the focusing means, substantially as set forth.

10. The combination with the opera glass having lens-focusing means, of a handle having hinged members extending from said opera-glass and having a fixed relation thereto and a sleeve adapted to fix said members in alinement and turn on said handle and transmit motion to said focusing means whereby the individual holding the handle may turn said sleeve with the fingers and effect a turning of the focusing means.

11. The combination with the opera-glass having lens-adjusting means, of a jointed handle parts of which fold into parallel or approximately parallel relation one to another and slide telescopically to cover the joints and hold the parts in rigid alinement and an exterior sleeve arranged on said jointed handle and movable to and from engagement with said lens-adjusting means, substantially as set forth.

12. The combination with the opera-glass, having lens-adjusting means, of a jointed handle having pivotal joints near the opera-glass and at a distance therefrom admitting of sections of the handle folding into parallel relation with one another and with the glass, and a sectional sleeve adapted to rotate on said handle to effect an adjustment of the lens, the sleeve-sections being exteriorly disposed on said handle and movable with the sections to and from engagement with one another and with the lens-adjusting means, substantially as set forth.

13. The combination with the opera-glass having a lens-adjusting screw and a bridge B', of a collar frictionally fastened to said bridge but admitting of a limited movement of said collar on said bridge and arranged around the lens-adjusting screw so as to engage the same should the parts be abnormally strained, and a handle permanently attached to said collar, substantially as set forth.

14. The combination with the opera-glass having the adjusting-screw and bridge, of a collar adjustably clamped to said bridge around said screw and carrying a handle, the clamp admitting a turning of the glass with respect to the handle and a change of inclination of said handle with respect to said glass, substantially as set forth.

15. The combination with the opera-glass, having the adjusting-screw C, with its bevel-gear *a*, a bridge B', flanged sleeve E, having a sectional handpiece extension at one side and a clamp *n*, of a geared sleeve and finger-piece arranged on said sectional shank and adapted to be clutched together or separated from one another, and a handle, all substantially as set forth.

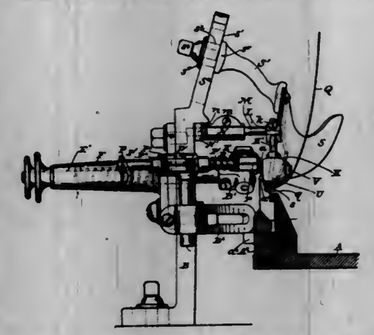
16. The combination with the opera-glass having the male and female focusing or adjusting screws and a bridge, of a collar arranged around the female screw and in frictional engagement with said bridge, means for holding said collar in such frictional engagement with said bridge whereby sufficient friction is obtained to hold said opera-glass to its handle with sufficient security to admit of use after adjustment, a lateral extension or shank of said collar to which the handle is joined or connected, the collar, bearing against the female screw when abnormal strain is brought to bear on said parts and serving to provide increased strength and permitting a free adjustment in relation to the handle whereby the glass may be turned into proper coincidence with the eyes, substantially as set forth.

17. The improved opera-glass having folding and telescopic sections which are pivotally jointed at a plurality of points to enable said sections to fold in relation to the glass and in relation to one another, the joint nearer the glass permitting the folded sections to fold upon the side of the glass and the double joint more distant from the glass having a link pivoted at its opposite ends upon said sections, the male telescopic section and the link moving longitudinally into the female section to effect a fixed alinement of the sections, the said parts being arranged and adapted to enable the operator to unfold and bring the sections of the handle into fixed alinement with one another and in operative relation to the glass by a continuous operation with one hand while the other hand holds the glass, substantially as set forth.

18. The improved opera-glass having folding and telescopic sections which are pivotally jointed at a plurality of points to enable said sections to fold in relation to the glass and in relation to one another, the joint nearer the glass permitting the folded sections to fold upon the side of the glass and the double joint more distant from the glass having a link pivoted at its opposite ends upon said sections, the male telescopic section and the link moving together into the female section into fixed alinement, the said sections having gear-wheels at their opposite ends which are brought into engagement when the said sections are thus moved into fixed alinement, the said parts being arranged and adapted to enable the operator with one hand on the glass and the other on the handle to unfold said handle and bring the sections thereof into fixed alinement and the gear-wheels into engagement by one continuous pivotal and sliding operation, substantially as set forth.

19. The improved opera-glass handle, comprising a series of sections, one of which is the hand-receiving portion or section, another an internal non-revoluble section *f*, attached to the opera-glass and connected to said hand-receiving portion and an external revoluble sleeve arranged between the hand portion and opera-glass and free to permit a turning at any point between and provided with a gear-wheel to engage the adjusting-screw of the opera-glass, substantially as set forth

595,698. KNITTING-MACHINE. GEORGE W. CUMMINGS, Cohoes, N. Y. Filed Feb. 25, 1896. Serial No. 580,712. (No model.)



Claim.—1. In a knitting-machine, the combination with the needles of a revolving cylinder, of an adjustable spindle supported and arranged within the needles and at an angle or incline in direction toward the direction of the motion of said revolving cylinder, of a cup, and a landing bur or wheel contained in said cup and mounted on the lower end of said spindle and adapted to operate with the backing-thread received by said needles, substantially as and for the purposes set forth.

2. In a knitting-machine, the combination with a landing bur or wheel arranged with its axis of revolution at an angle in relation to the needles of a revolving cylinder, and in place between the cast-off portion of the finished fabric and the inner sides of the needles, of a landing-bur cup inclosing both the lower end portion and the inner peripheral portion of said landing bur or wheel and supported from the spindle on which said bur revolves, for intervention between the latter and the finished fabric, substantially as and for the purposes set forth.

3. In a knitting-machine the combination with a landing bur or wheel arranged with its axis of revolution at an angle in relation to the needles of a revolving cylinder and in position between the inner sides of the needles and the finished fabric, of a guard arranged in position between said landing bur or wheel and said fabric substantially as and for the purposes set forth.

4. In a knitting-machine the combination with a landing bur or wheel and the landing-bur cup open at its outer side for projection of the burs or blades of said landing-bur among the inner sides of the needles, of a cup-guard calculated to prevent the said cup engaging with any perforations which may accidentally be produced in the fabric, substantially as and for the purposes set forth.

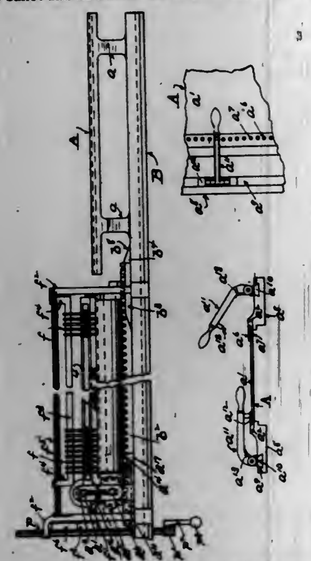
5. In a knitting-machine the combination with a landing bur or wheel arranged between the inner side line of the circular row of needles of a revolving cylinder and the later-finished portion of the fabric and a cup receiving said landing-bur, of a push-down device having a rigid support from a stationary adjunct of the machine and provided with an opening for receiving the major portion of the landing-bur and its cup, with the lower side edge of said push-down device calculated to have bearing on the lower margin portion of the fabric at the needles and progressively crowd down the finished fabric below the lower side of the landing bur or wheel, between the latter and the needles, substantially as and for the purposes set forth.

595,699. APPARATUS FOR REGISTERING VOTES. JAMES J. CUNNINGHAM and EUGENE H. MULLEN, Lynn, Mass., assignors to Josiah Q. Bennett, trustee, Cambridge, Mass. Filed Jan. 28, 1896. Serial No. 577,157. (No model.)

Claim.—1. In an apparatus for registering votes, the combination with a perforated stencil-ballot, of a movable tally-sheet, and a marking device arranged to mark the tally-sheet through the perforations in the stencil-ballot.

2. In an apparatus for registering votes, the combination, with a perforated stencil-ballot, of a perforated carrier therefor, certain of the perforations in which register with the perforations in the ballot,

a movable tally-sheet, and a series of markers arranged to pass through the ballot and its carrier and to mark the tally-sheet.



3. In an apparatus for registering votes, the combination, with a perforated stencil-ballot, of a perforated carrier therefor certain of the perforations in which register with the perforations in the ballot, a movable tally-sheet, and a series of yielding movable markers arranged to enter the perforations in the carrier and to pass through the same onto the tally-sheet where not held by non-perforated portions of the ballot.

4. In an apparatus for registering votes the combination, with associated parts, of a ballot-carrier, and a series of depositing-rolls vertically movable with relation to each other to allow the ballot to be carried between the same by the carrier and mechanism actuated by the carrier for actuating the rolls.

5. In an apparatus for registering votes the combination, with a perforated stencil-ballot, of a reciprocating perforated carrier therefor, a tally-sheet movable transversely to the path of the carrier, a series of markers arranged to pass through the perforations in the ballot and its carrier and mark the talley-sheet, and mechanism actuated by the carrier for actuating the talley-sheet.

6. In an apparatus for registering votes, the combination, with associated parts, of a series of depositing-rolls, and a ballot-carrier provided with a series of open-ended slots which receive the rolls and permit them to come in contact with and grip the ballot on such carrier, substantially as set forth and shown.

7. In an apparatus for registering votes, a perforated carrier-plate as a', having at one end a flange as a^3 and at the other end the open slots as $a^\times$ $a^\times$, $a^\times$, $a^\times$, $a^\times$ with side flange to which are attached retaining-plates as a^2, perforated to register with similar perforations in said plate a', substantially as shown and described.

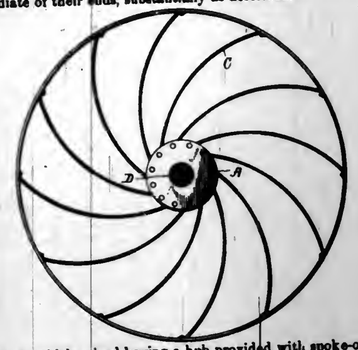
595,700. VEHICLE-WHEEL. JOHN T. DAVIS, San Francisco, Cal., assignor of one-half to Charles W. Kohlsaat, New York, N. Y. Filed Dec. 23, 1896. Serial No. 616,781. (No model.)

Claim.—1. A vehicle-wheel having a hub provided with spoke-openings arranged or disposed in lines substantially tangential to the axle opening, and spokes having their inner ends seated in the openings, and held in place therein by means of the peculiar disposition of the said openings, and by frictional contact with the walls thereof, substantially as described.

2. A vehicle-wheel having a hub provided with elastic spokes arranged or disposed in lines substantially tangential to the axle, the said spokes being reduced or weakened intermediate of their ends, substantially as described.

3. The combination, in a vehicle-wheel, of a hub, a rim, and elastic spokes connecting the hub and the rim, said spokes being reduced or weakened intermediate of their ends, substantially as described.

4. A vehicle wheel having a hub provided with spoke openings disposed in lines substantially tangential to the axle-opening, in combination with curved resilient spokes having their inner ends seated in the said openings, the said spokes being reduced or weakened intermediate of their ends, substantially as described.



5. A vehicle-wheel having a hub provided with spoke-openings disposed in lines substantially tangential to the axle-opening, and with ribs in lateral alinement with the openings, in combination with curved spokes having their inner ends seated in the said openings and the sides of these end portions held between the said ribs, the said spokes being reduced or weakened intermediate of their ends, substantially as described.

6. A vehicle-wheel having a hub provided with spoke-openings disposed in lines substantially tangential to the axle-opening, and with curved ribs in lateral alinement with the openings, in combination with volute-shaped spokes having their inner ends seated in the said openings with the sides of these end portions held between the said ribs, and their intermediate portions weakened and bolts or the like for holding the sections of the hub assembled, substantially as described.

7. A vehicle-wheel having a hub provided with spoke-openings disposed in lines substantially tangential to the axle-opening and with curved ribs in lateral alinement with the openings, and in its axle-opening with circumferential grooves or ways for ball-bearings, in combination with volute-shaped spokes having their inner end portions seated in the said openings, with the sides of these portions held between the said ribs, and having their intermediate portions weakened, bolts or the like for holding the parts of the hub assembled, and a rim secured to the outer ends of the spokes, substantially as described.

595,701. NUT-LOCK. JOHN W. DONALDSON, Bowerston, Ohio. Filed Apr. 12, 1897. Serial No. 631,791. (No model.)



Claim.—1. The bolt 1, and the nut 2, provided with the radial orifice 3, in combination with the removable pawl 4, the bar 5 to which said pawl is secured, and which is provided with a hinge-joint 8 and threaded orifice 15, the yoke 10 provided with the orifice 12, and the bolt 13 connecting the yoke 10 and the bar 5, substantially as shown and described.

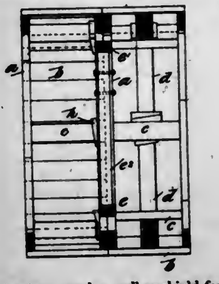
2. The bolt 1 and the nut 2 provided with the radial orifice 3, in combination with the removable pawl 4, provided with the V-shaped teeth 7, the bar 5 to which the outer end of said pawl is secured and which is formed with a hinge-joint 8, and threaded orifice 15, the yoke 10 provided with the orifice 9, and the orifice 12 having the communicating recess 18, the bolt 13 provided with the integral flange 16 having the slots 17 and the removable key 19, substantially as shown and described.

595,702. WALL OR LINING FOR SHIELD-TUNNELING AND FOR SHAFT-SINKING. GEORGE H. DUNLOP, South Melbourne, Victoria. Filed July 8, 1897. Serial No. 643,863. (No model.)

Claim.—1. A wooden wall or lining for tunneling composed of ribs as a and laggings as b and struts as c having a strengthening-set as e, e', e^2, longitudinal pieces as f and segments as d all secured together and arranged substantially as herein described and shown in the drawings.

2. In shield-tunneling a wall or lining consisting of ribs a laggings b and masonry x and struts as c built substantially as described and shown in the drawings.

3. A wooden wall or lining for tunneling consisting of the rings each made up of ribs at each end, one rib being smaller than the other and the overlapping laggings carried by the ribs, substantially as described.



4. In combination in a wooden wall or shield for tunneling, the ribs a, the laggings b, and the struts c said struts being arranged between the ribs.

5. In combination in a wooden wall for tunneling, the ribs a, the laggings b carried thereby, the struts c between the ribs and the segments d between the struts, substantially as described.

595,708. GEARED HOIST. CHARLES I. HARLL, New York, N. Y. Filed May 5, 1897. Serial No. 635,149. (No model.)



Claim.—1. In a hoisting mechanism, the combination with framework, and with a train of sun-and-planet gearing, of a lifting-drum carrying the planet-wheels, said lifting-drum having its winding part on one side and a bearing on the other side of the plane of the driving-pinion of said train of gearing.

2. In a geared hoist, the combination with framework, of a lifting drum having a bearing on a part of said framework; means for imparting motion to said lifting-drum, and embodying sun-and-planet gearing, and having the driving-pinion of said gearing located between the winding portion of said drum and its bearing with said framework.

3. In a geared hoist, the combination with framework, of an internal gear fixedly secured thereto; a lifting-drum supported at each end by said framework; driving mechanism for said drum, and embodying a pinion located between the lifting portion of said drum and one of the ends thereof supported by said framework, and a planet gear-wheel mounted on said drum and meshing with said driving-pinion and internal gear.

4. In a geared hoist, the combination with a pair of connected end frames, of an internal gear fixedly secured to one of said frames; a lifting-drum supported at each end by said frames and having a bore; a driving-shaft journaled in said bore; a pinion mounted thereon at one end and located between the lifting portion of said drum and one of its ends supported by said framework; a driving-wheel carried at the other end of said shaft; and a gear-wheel mounted on said drum, and comprising a pair of gears, one meshing with said pinion and the other with said internal gear.

5. In a geared hoist, the combination with framework, of a lifting-drum carried thereby; a friction-ring journaled in said framework and mounted on said drum; driving means for said drum; and means for connecting said friction-ring with said driving means during the lowering of the load.

6. In a device of the class specified, the combination with framework, of a lifting-drum carried thereby; a friction-ring journaled in said framework; driving means for said drum; and means for connecting the friction-ring with said driving means, thereby to turn in unison therewith during the lowering of the load.

7. In a geared hoist, the combination with framework of a lifting-drum carried thereby; a chambered or apertured friction-ring journaled in said framework and mounted on said drum; driving means for said drum; and means carried in the chamber of said friction-ring for engaging said driving means during the lowering of the load.

8. In a geared hoist, the combination with a pair of end frames, one having a hollow hub; of a lifting-drum having a journal extending into said hub; a friction-ring disposed within said hub and mounted on said journal; driving means for said drum, and embodying a driving-wheel carrying a ratchet; and a ratchet pin or pawl carried by said ring and adapted to engage said ratchet during the lowering of the load.

9. In a geared hoist, the combination with a pair of connected end frames, each having a hub; of an internal gear fixedly secured to one of said end frames; a lifting-drum having a bearing on one of said hubs and a journal extending into the other hub of said end frames, said drum having an axial bore; a driving-shaft journaled in said bore, and carrying a driving-wheel at its outer end and a pinion at its inner end located between the lifting portion of said drum and one of its bearings with one of said end frames; a planet gear-wheel mounted on said drum, and meshing with said pinion and also with said internal gear of the end frame; a friction-ring disposed within the hub of one of the end frames and mounted on the journal of said drum, and provided with means for connecting the same with the driving-wheel during the lowering of the load.

10. In a geared hoist, the combination with a pair of end frames, one having an inwardly-extending hub and the other a hollow hub; of an internal gear fixedly secured to one of said end frames, and concentric with said inwardly-extending hub; a lifting-drum having a bearing on said inwardly-extending hub and a journal extending into said hollow hub, said drum having a bore; a driving-shaft journaled in said bore; a driving-wheel mounted on the outer end of said shaft and provided with a ratchet; a pinion secured to the inner end of said shaft and located between the lifting portion of said drum and its bearing with said inwardly-extending hub; planet gear-wheels mounted on said drum, and comprising a pair of gears of different diameters, the larger gear located between the plane of the lifting portion of said drum and its bearing with said inwardly-extending hub, and meshing with said pinion, and the smaller gear located in the same plane with said inwardly-extending hub and concentric and meshing with said internal gear; a friction-ring journaled in said hollow hub and mounted on the journal of said drum, and a spring-pressed pin or pawl for engaging said driving-wheel ratchet during the lowering of the load.

11. In a geared hoist, the combination with framework, of a lifting-drum comprising a winding portion and an extension comprehending a pair of plates, the outer plate having a bearing on said framework; and means for imparting motion to said lifting-drum and embodying a pinion disposed between said plates.

12. In a geared hoist, the combination with a pair of end frames, of a lifting-drum comprising a winding portion and an extension comprehending a pair of plates rigidly secured to said drum, the outer plate having a bearing with one of the end frames; and means for imparting motion to said lifting-drum and embodying sun-and-planet gearing disposed between said plates.

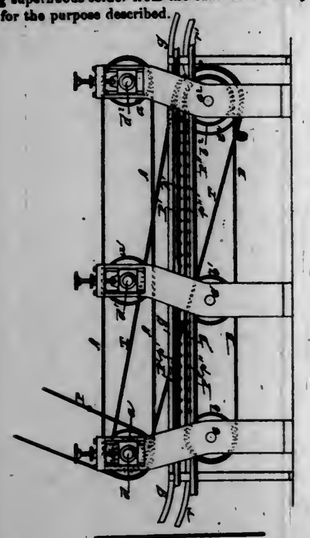
13. In a geared hoist, the combination with a pair of connected end frames, of an internal gear fixedly secured to one of said end frames; a lifting-drum having an extension comprising a pair of plates, the outer plate having a bearing with one of the end frames; means for imparting motion to said lifting-drum, and embodying a pinion and a planet gear-wheel disposed between said plates, said gear-wheel comprehending gears of different diameters, one meshing with said pinion and the other with said internal gear.

595,704. MEANS FOR REMOVING SUPERFLUOUS SOLDER FROM SHEET-METAL CANS. OLIN S. FELLOWS, Middletown, N. Y. Filed May 10, 1897. Serial No. 635,904. (No model.)

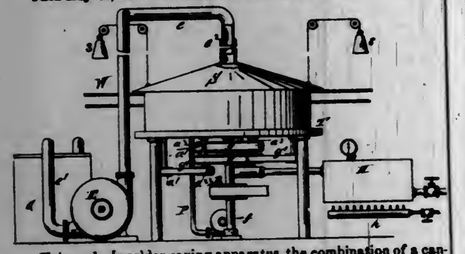
Claim.—1. In a solder-saving device, the combination of an endless traveling surface and an opposed can-support arranged to receive the cans between them, means for producing a relative motion between said traveling surface and opposed can-support whereby the cans are simultaneously rotated axially and forwarded, and means for directing fluid under pressure against the cans between said traveling surface and opposed can-support for the purpose of removing superfluous solder from the cans substantially in the manner described.

2. In a solder-saving device, the combination of two endless belts with opposed surfaces arranged to receive the cans between them, said opposed surfaces traveling in opposite directions and at different speeds, whereby the cans are spaced and forwarded by the faster-moving belt while the slower belt increases the axial rotation of the cans, and means for directing fluid under pressure against the cans rotating between said opposed traveling surfaces for the purpose of

removing superfluous solder from the cans substantially in the manner and for the purpose described.



595,705. MEANS FOR REMOVING SUPERFLUOUS SOLDER FROM SHEET-METAL CANS. OLIN S. PELLOWS, Middletown, N. Y. Filed May 10, 1897. Serial No. 635,905. (No model.)



Claim.—1. In solder-saving apparatus, the combination of a can-forwarding surface, a can-retarding wheel moving in a direction opposite to that of the said can-forwarding surface, and means for effecting the removal of superfluous solder from the cans while rotating between said opposed traveling surfaces, substantially in the manner and for the purpose described.

2. In solder-saving apparatus the combination of a can-forwarding wheel, an opposed auxiliary wheel revolving in the opposite direction, and means for effecting the removal of superfluous solder from the cans while rotating between said opposed wheels, substantially in the manner and for the purpose described.

3. In solder-saving apparatus the combination of a can-forwarding wheel, opposed concentric rails, and means for manipulating the cans for the removal of superfluous solder, substantially as described.

4. In solder-saving apparatus the combination of a can-forwarding surface, and an opposed auxiliary wheel revolving in the opposite direction for the purpose of retarding the advance of the cans and increasing their axial rotation, substantially in the manner and for the purpose set forth.

5. In solder-saving apparatus the combination of a can-forwarding surface, opposed rails, and an opposed auxiliary wheel revolving in the opposite direction for the purpose of retarding the advance of the cans, substantially in the manner and for the purpose set forth.

6. In solder-saving apparatus the combination of a can-forwarding surface, an opposed auxiliary wheel revolving in the opposite direction for the purpose of retarding the advance of the cans and increasing their axial rotation, and means for projecting jets of vapor against said cans, substantially in the manner and for the purpose described.

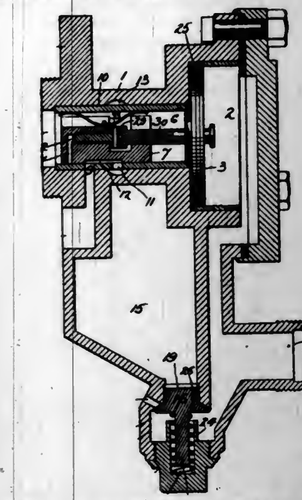
7. In solder-saving apparatus the combination of a can-forwarding surface, an opposed auxiliary wheel revolving in the opposite direction for the purpose of retarding the advance of the cans, and means for projecting jets of superheated steam against said cans, substantially in the manner and for the purpose described.

8. In solder-saving apparatus the combination of a can-forwarding surface, an opposed auxiliary wheel rotating in the opposite direction for the purpose of retarding the advance of the cans, and a brush arranged to act against a can while the latter is between the said forwarding wheel and said opposed auxiliary retarding-wheel, substantially in the manner and for the purpose described.

9. In solder-saving apparatus the combination of a can forwarding surface, an opposed auxiliary wheel rotating in the opposite direction for the purpose of retarding the advance of the cans, and means for projecting a cooling blast into a can while between said forwarding-wheel and auxiliary retarding-wheel, substantially in the manner and for the purpose described.

10. The combination of apparatus for removing the superfluous solder from cans, a hood surrounding said solder-removing apparatus, an exhausting device for withdrawing the air from said hood and injecting it into a receiving-chamber, and said receiving-chamber provided with means for retaining the solid particles of matter carried over to it by the air, substantially in the manner and for the purpose described.

595,706. AUTOMATIC FLUID-PRESSURE BRAKE. JAMES J. FINNEY, Chicago, Ill., assignor to Joseph H. Chandler, same place. Filed Apr. 27, 1896. Serial No. 589,235. (No model.)

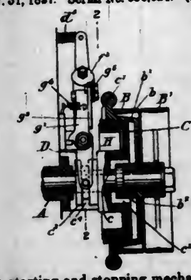


Claim.—1. A valve mechanism for fluid-pressure brakes having in combination a train-pipe, an air-storing chamber independent of and disconnected with the triple-valve mechanism, a passage leading into said chamber from said train-pipe, a piston fitting in and closing said passage and having a laterally-projecting conical flange constituting a valve, and a valve-seat surrounding said passage and having exhaust-ports formed therein and adapted to be closed by said conical flange, said chamber having a restricted by-pass passage comprising its sole ingress and egress whereby the pressure in said chamber will unseat said valve, and said valve and piston being provided with means for returning them to their normal position, substantially as set forth.

2. A valve mechanism for fluid-pressure brakes having in combination a train-pipe, an emergency exhaust-valve for discharging directly from the train-pipe, a piston for controlling said valve, said valve and piston being subjected on opposite sides to direct and indirect train-pipe pressure, and an atmospheric exhaust-port closed by said valve and being located below the level of the train-pipe whereby when the valve is opened by an excessive reduction of pressure in the train-pipe, the train-pipe will be drained of the waters of condensation, substantially as set forth.

3. A valve mechanism for fluid-pressure brakes, having in combination a train-pipe, an air-storing chamber independent of and disconnected with the triple-valve mechanism, a passage leading into said chamber from the train-pipe, a piston fitting in and closing said passage and having a laterally-projecting conical flange constituting a valve, a valve-seat surrounding said passage and having exhaust-ports formed therein and adapted to be closed by said conical valve, said chamber being closed save for a restricted by-pass passage whereby the pressure therein will unseat said valve, and a spring for seating said valve, substantially as set forth.

595,707. STARTING AND STOPPING MECHANISM. CHARLES H. FOSS, Hyde Park, Mass., assignor to James W. Brooks, principal trustee, Petersham, and John Brooks, associate trustee, Cambridge, Mass. Filed Mar. 31, 1897. Serial No. 630,031. (No model.)



Claim.—1. In a starting and stopping mechanism, the combination of a driving clutch member, a driven clutch member, a lever D connected therewith, a spring d^3 to act upon the lever, a cam E, a releasing bolt or pin F carried by the lever, a spring to move it in one direction, means for alternately engaging said pin to move the same and disengaging the same.

2. The combination, in a starting and stopping mechanism, of a driving member of a clutch, a driven member, a lever D to move the driven member, a spring g^3, the releasing and stop cam E, the releasing bolt or pin F carried by the lever, its spring f', a head or shoulder thereon, the engaging arm g^4, means for moving the same and a swinging arm or support g' upon which said arm g^4 is mounted, the spring g^5 and the stop g^2, as and for the purposes described.

3. The combination of the driven member of a clutch having the recess A and conical surface A', the stationary disk H having the conical surface A^2, the lever D connected with the said driven member, the cam E, as and for the purposes described.

4. The combination of the driving member of a clutch having the recess and inclined surface b', a driven member of a clutch having the exterior conical surface c', the side recess and interior conical surface k', the disk H having the conical surface A^2, the lever D engaging the driven member of the clutch, its spring d^3, cam E, releasing pin or bolt F, its spring f' and bolt moving and tripping devices.

595,708. CORE FOR FLEXIBLE SHAFTING. WILBER D. FORSYTH, Pittsburg, Pa. Filed Dec. 21, 1896. Serial No. 616,555. (No model.)

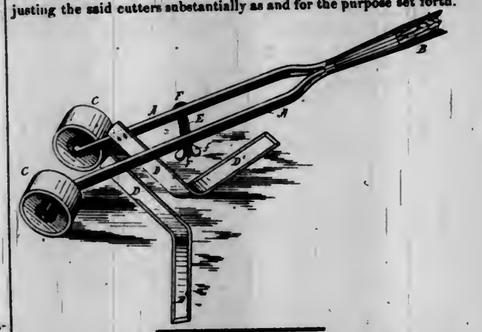


Claim.—1. A core-section for flexible shafting, consisting of a short piece having a cylindrical or rounded middle portion, and reduced at each end portion upon two sides, one of such end portions being formed into a hook, and the other end portion having a slot or opening therethrough at right angles to the plane of the hook, said hook having its inner bearing portion eccentric with respect to the slot leading thereto, the unreduced surfaces of said end portions being of convex or rounded form and included in and coincident with the superficial plane of the said middle portion, substantially as specified.

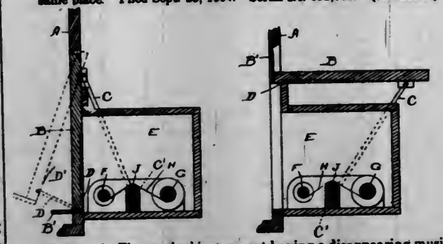
2. The herein-described flexible shafting, comprising an outer cylindrical non-rotary case or covering, and a core formed of a series of short end-jointed sections each having a circular or rounded middle portion and end portions reduced upon two sides, one of such portions having a hook and the other a slot or opening therethrough at right angles to the plane of said hook, said rounded or central middle portion forming a rolling bearing for the section within said case or covering, the unreduced surfaces of the said end portions being of convex or rounded form and included within the superficial plane of said middle portion, substantially as specified.

595,709. WEED-CUTTER. SOLOMON FULLER, Danvers, Mass. Filed Mar. 5, 1897. Serial No. 625,998. (No model.)

Claim.—A weed-cutter consisting in combination, a handle, a laterally expansive and adjustable bifurcated frame attached to said handle, guide rollers or shoes arranged at the forward ends of said bifurcated frame, inclined and outwardly-flaring cutters attached to the members of the said bifurcated frame and means for laterally adjusting the said cutters substantially as and for the purpose set forth.



595,710. MUSIC-RACK FOR PIANOS OR ORGANS. FREDERICK W. HEDELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed Sept. 25, 1897. Serial No. 652,906. (No model.)



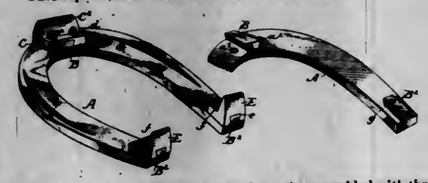
Claim.—1. The musical instrument having a disappearing music-rack hinged at its top to a swinging frame and movable into the case in a horizontal direction, substantially as specified.

2. The musical instrument having a disappearing music-rack hinged at its top to a swinging frame and movable into the case in a horizontal direction, said rack also having a ledge adapted to close the opening through which the rack enters the case, substantially as specified.

3. The combination in a self-playing instrument of a disappearing music-rack and a traveling music-sheet, said music-sheet being concealed by the rack when the latter is normally positioned, and the rack being movable into the case above the sheet, substantially as specified.

4. The combination in a self-playing instrument, of a disappearing music-rack hinged so it may be swung into a horizontal position and be then pushed into the case, said rack also having a ledge B' acting to close the opening in the case, and a traveling music-sheet normally concealed by the rack and exposed by raising the rack, substantially as specified.

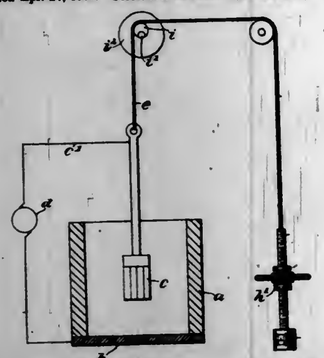
595,711. HORSESHOE-CALK. PAUL HELD, St. Cloud, Minn. Filed Sept. 23, 1897. Serial No. 652,716. (No model.)



Claim.—1. In combination with a horseshoe provided with three tapering dovetailed tongues having their long axes parallel with the long axis of the shoe, angular calks, each having a tapering dovetailed groove adapted to straddle and engage each tongue, and screws having their heads received in holes countersunk in the body of the calk and engaged with the shoe, substantially as described.

2. In combination with a horseshoe provided at the toe with a tapering dovetailed tongue having its long axis parallel with the long axis of the shoe, an angular calk having a chisel-shaped spur on its outer face, and in its inner face having a tapering dovetailed groove adapted to straddle and engage the dovetailed tongue, and screws having their heads received in holes countersunk in the body of the calk, substantially as described.

595,712. ELECTRIC FURNACE. JAMES E. HEWES, Philadelphia, Pa. Filed Apr. 27, 1897. Serial No. 634,065. (No model.)



Claim.—1. In combination a receptacle provided with an electrode, a second electrode mounted in the receptacle and having a space around it for the introduction of material, circuit connections for the electrodes, a regulator for said second electrode, and means interposed between the regulator and second electrode for imparting longitudinally-reciprocatory motion to the latter, substantially as described.

2. In combination an electric furnace, electrodes and their circuit connections, a cord for suspending one of said electrodes, an eccentric operating on said cord, and means for rotating said eccentric, substantially as described.

595,713. APPARATUS FOR HOISTING AND CONVEYING BOULDERS. FRANK W. JACOBS, Plymouth, Iowa. Filed Nov. 28, 1896. Serial No. 613,840. (No model.)

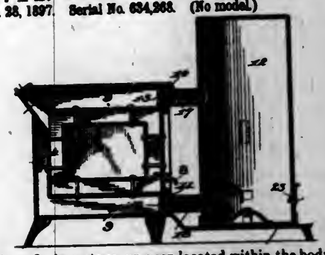


Claim.—1. In a machine for moving boulders and the like, the carriage-frame consisting of an arched axle, a straight beam fixed across its top, a short front axle, a post pivotally connected therewith by means of a swivel-coupling, a swivel-coupling, beams fixed to the post at their front ends and to the ends of the beam on the rear axle to extend horizontally and braces fixed to the top of the post and the rear end corners of the carriage-frame, all arranged and combined for the purposes stated.

2. In a machine for moving boulders and the like, the carriage-frame consisting of an arched axle, a straight beam fixed across its top, a short front axle, a post pivotally connected therewith by means of a swivel-coupling, a swivel-coupling, beams fixed to the post at their front ends and to the ends of the beam on the rear axle to extend horizontally and braces fixed to the top of the post and the rear end corners of the carriage-frame, a winch in bearings fixed to the horizontal beams to extend at an angle relative to the rear axle and means for operating the winch, all arranged and combined for the purposes stated.

3. A machine for moving boulders and the like comprising a carriage consisting of a short front axle A, wheels on its ends and a pole at its center, a post A^2 pivotally connected with the axle, a swivel-coupling A^3, an arched axle B and wheels on the ends of the axle, a beam B^2 fixed on top of the arched axle, beams B^3 fixed to the pivoted post and to the beam on the rear axle, braces fixed to the top of the pivoted post and the rear corners of the carriage-frame, a winch C mounted on the frame to extend at an angle to the rear axle, a wheel C^2, fixed blocks C^3 on its side faces, a spring-actuated bar D in bearings D^2 fixed to the beams B^2 to engage the said blocks and a lever for operating said bar, and a rope for operating the winch, all arranged and combined in the manner set forth for the purposes stated.

595,714. STOVE. ANDREW P. JOHNSON, Brooten, Minn. Filed Apr. 28, 1897. Serial No. 634,268. (No model.)

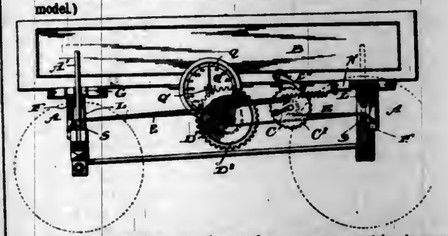


Claim.—1. In a stove, an oven located within the body and having a space surrounding it on four sides, plates subdividing the top, bottom and rear spaces, forming an upper, a lower and a back hot-air space and a water-space, which, with the front space, surrounds the oven on the said four sides, and stay-bolts connecting the walls of the oven with corresponding plates forming the outer walls of the surrounding water-space, substantially as described.

2. In combination, a stove provided with an oven having a surrounding space, plates subdividing the said surrounding space into hot-air and water spaces, the latter surrounding the oven on four sides, and the former extending at the top, bottom and rear of the said water-space, a spout for supplying water to the water-space, extending through the hot-air space, a longitudinal partition dividing the upper portion of the hot-air space, a smoke-pipe having communication with the hot-air space upon one side of the longitudinal partition, and a straw-burner having damper-controlled communication at its upper end with the hot-air space upon the opposite side of the said longitudinal partition and like communication at its lower end with the lower portion of the hot-air space, substantially as set forth.

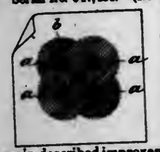
3. In a stove for burning straw and light fuel, a magazine having a draft-opening in its side, and a damper for closing the draft-opening pivoted at one end to the magazine and having its opposite end formed with an inclined portion notched in its lower end, substantially as shown for the purpose set forth.

595,715. WAGON WEIGHING ATTACHMENT. GEORGE G. KAISER, Johnson, Wash. Filed May 28, 1897. Serial No. 638,596. (No model.)



Claim.—A weighing attachment for wagons, comprising in combination with the bolsters and bolster-blocks mounted on springs, the pulley-carrying members secured to the said blocks, antifriction-rollers journaled on the bolsters, the shaft C, the winding-drum thereon, the ratchet-wheel keyed to the said shaft, the winding-crank and pawl, the shaft D' carrying the drum f', the geared wheel D^3, dial and indicating-pointer, the stub-shaft carrying said pointer and geared wheel Q', the spring S^2 having one end secured to the wagon-box, the pulley D^2, the rope S^4 having one of its ends secured to said spring and the other end fastened to the said pulley D^2, and the rope E, having its ends secured to the drum f on opposite sides of a disk, and wound about the drums f and f' and over the antifriction-rollers and through the eyes, as shown and described.

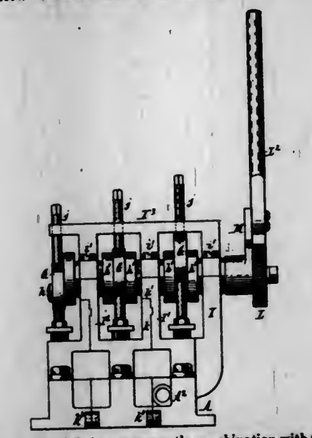
595,716. PROCESS OF PRINTING ON TWO-COLOR LITHOGRAPHIC PRESSES. FERDINAND J. KALLENBACH, Brooklyn, N. Y. Filed Aug. 7, 1897. Serial No. 647,481. (No specimens.)



Claim.—1. The herein-described improvement in the art of printing on two-color, lithographic presses, which consists in first selecting two colors or tints, one darker or stronger than the other, which may be superimposed in printing while wet, without injury to the darker color, and then transferring the darker color to the first stone or plate of the press and the lighter to the second stone or plate thereof, substantially as set forth.

2. The herein-described improvement in the art of printing on two-color, lithographic presses, which consists in first selecting the colors or tints to be used and arranging them in pairs for application to the picture to be printed, each pair consisting of two colors or tints, one darker than the other, which may be superimposed in printing without injury to the darker color, and then transferring the darker colors to the first stones or plates to be used on the two-color press and the lighter colors to the second stones or plates to be used, substantially as set forth.

595,717. LUBRICATOR. PATRICK H. KANE, Buffalo, N. Y. Filed Mar. 1, 1897. Serial No. 626,487. (No model.)



Claim.—1. In a lubricator-pump, the combination with the pump-plunger having an actuating-yoke, of an adjustable follower arranged in the yoke and held against turning therein, and a rotary adjusting-screw engaging in a screw-threaded opening formed in the yoke and connected with said follower, substantially as set forth.

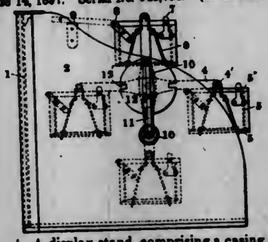
2. In a lubricator, the combination with a pump and its plunger and a shaft from which the plunger is actuated, of a ratchet-wheel mounted on said shaft, an oscillatory carrier pivoted on the shaft and having a stop, and a pawl pivoted on said carrier and arranged to come in contact with said stop during its return stroke, substantially as set forth.

3. In a lubricator, the combination with a pump and its plunger and a shaft from which the plunger is actuated, of a ratchet-wheel mounted reversely on said shaft, an oscillatory carrier pivoted on the shaft and having a central stop and symmetrically-arranged pivot-openings located on opposite sides of said stop, and a reversible pawl having its pivot arranged in one of said openings and adapted to come in contact with said stop during its return stroke, substantially as set forth.

4. In a lubricator, the combination with a pump and its plunger and a shaft from which the plunger is actuated, of a ratchet-wheel mounted on said shaft, an oscillatory carrier journaled on the shaft and having a stop, means for yieldingly holding the carrier against turning on the shaft, and a pawl pivoted to said carrier and adapted to engage with the ratchet-wheel and arranged to come in contact with said stop during its return stroke, substantially as set forth.

5. In a lubricator, the combination with a pump and its plunger and a shaft from which the plunger is actuated of a ratchet-wheel mounted on said shaft, an oscillatory carrier journaled on the shaft and having a stop, a retarding-spring seated in the hub of the carrier and arranged to force the same against an opposing surface, and a pawl pivoted to said carrier and adapted to engage with said ratchet-wheel and arranged to come in contact with said stop during its return stroke, substantially as set forth.

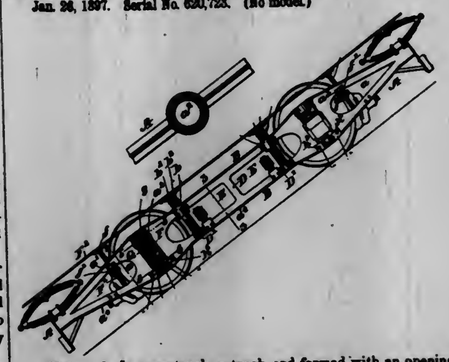
595,718. DISPLAY-STAND. REINHOLD KOEHIG, La Porte, Ind. Filed June 14, 1897. Serial No. 640,738. (No model.)



Claim.—1. A display-stand, comprising a casing open at the top and in front; a forwardly-facing mirror forming the rear wall of said casing; a rotatable rack supported on a substantially horizontal axis in the side walls of said casing; a plurality of show-cases, pivotally hung to said rack so as to preserve their upright position when said rack is rotated, and having their front and rear walls of glass, and having covers secured thereon; a stop for retaining any of the show-cases at a fixed place in its course in the casing; and means for balancing such show-case, at such place, providing additional support therefor, when its cover is opened; substantially as described.

2. A display-stand, comprising a casing open at the top and in front; a forwardly-facing mirror forming the rear wall of said casing; a rotatable rack supported on a substantially horizontal axis in the side walls of said casing; a plurality of show-cases pivotally hung to said rack so as to preserve their upright position when said rack is rotated, having their front and rear walls of glass, and having covers, pivoted at the rear; the projections 9 on said casing for supporting the covers in an open position: and a stop for retaining any of the show-cases at a place in its course, where its cover, when opened, will rest upon said projections, substantially as described.

595,719. CAR-TRUCK. GEORGE W. LACY, Kingston, N. Y. Filed Jan. 26, 1897. Serial No. 620,723. (No model.)



Claim.—1. In a car-truck, a truck end formed with an opening to receive a journal-box and related parts, the lower portion of said opening having horizontal recesses or ways, in combination with a compression-piece formed with lateral wings and transverse horizontal lugs engaging said recesses or ways, substantially as specified.

2. An improved car-truck frame, having converging end pieces, integral connecting transversely-braced truss members, journal-box openings therein, having horizontal recesses or ways in the lower portion thereof, and compression-pieces formed with lateral wings and transverse horizontal lugs fitting said ways, substantially as specified.

3. An improved car-truck frame having converging flanged end pieces, integral connecting flanged truss members, transversely braced, journal-box openings therein, open spaces between the inner sides of the truss members, and between the inner sides of the converging end pieces, horizontal ways in the lower portion of the said journal-box openings, and compression-pieces having lugs fitting said ways, substantially as specified.

4. The combination of a bolster-plate, a truck-frame having converging flanged end pieces with integral connecting flanged truss members, transversely braced, journal-box openings having horizontal ways in the lower portion thereof, chambered enlargements in the said openings for the reception of the axle boxes, sockets in the end pieces for the reception of the bolster-plate supports, spring-receiving sockets with suitable springs between the bolster-plate and the upper connecting truss member, and compression-pieces with horizontal lugs fitting the corresponding ways in the lower portion of the journal-box openings, substantially as specified.

5. The improved car-truck frame, having converging flanged end pieces, springs mounted thereon, integral connecting flanged truss members, with connecting-braces and intervening open spaces, journal-box openings therein, with chambered enlargements at the upper ends thereof, for the reception of the axle-boxes, horizontal ways in the lower portion thereof, winged compression-pieces in said openings, with horizontal lugs fitting said ways, and perforated spring-receiving sockets on the under side of the said end pieces, with collared rods attached to the bolster-plate passing through said sockets, and springs seated in said sockets surrounding said rods, with a bearing against said collars, substantially as specified.

6. In a car-truck, the combination with suitable truck ends and connecting-bars of transverse tubular connecting members the upper connecting member having a chambered enlargement with which the opening of the transverse tubular member communicates; a bolster-plate, springs socketed in said chambered enlargement; and a rod from the bolster-plate centering said spring and playing in the opening of said tubular member.

595,720. BUG-EXTERMINATOR. CHARLES D. LOOMIS, Austerlitz, N. Y. Filed Oct. 29, 1896. Serial No. 610,453. (No model.)



Claim.—1. A potato-bug exterminator with cultivator attachment comprising rolls having their faces substantially in contact, means for rotating said rolls, and means for collecting and conveying vermin from vines to the rolls, said rolls being yieldingly placed with relation to each other so that the distance between their faces can be varied and a hopper having laterally-adjustable plates carrying collectors, substantially as described.

2. A potato-bug exterminator with cultivator attachment comprising means for exterminating vermin, means for collecting vermin from vines and feeding the same to said exterminating means, the collecting members carried by plates within the hopper and being laterally adjustable, substantially as described.

3. A potato bug exterminator with cultivator attachment comprising means for exterminating vermin, and means for collecting vermin from vines and feeding the same to the exterminating means, said collecting members carried by plates within the hopper, said members being adjustable both vertically and laterally, substantially as described.

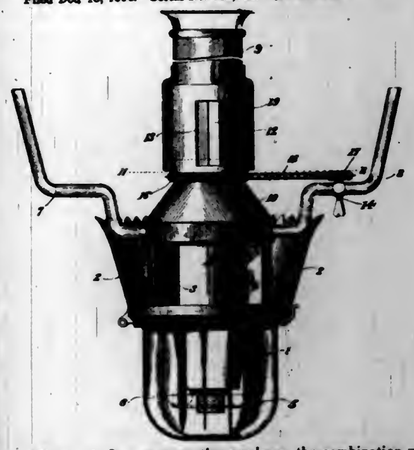
4. A potato-bug exterminator with attachment for cultivators comprising means for exterminating vermin, a hopper above said means, and means upon said hopper for collecting vermin from vines and depositing the same upon the hopper, said collecting mechanism being carried by plates laterally adjustable upon said hopper, substantially as described.

5. A potato-bug exterminator with attachment for cultivators comprising means for exterminating vermin, a hopper above said means, said hopper having plates laterally adjustable thereon, and collectors for the vermin carried by said plates, substantially as described.

6. A potato-bug exterminator with attachment for cultivators comprising means for exterminating vermin, a hopper, collectors for the vermin carried by plates within the hopper and operating over the edges of said hopper, and aprons extending from the edges of the hopper over which the collectors operate, substantially as described.

7. In a potato-bug exterminator with cultivator attachment, a frame composed of beams having a space between them, a roll journaled upon each of said beams, said rolls having their faces in contact or approximately so at a point over the space between the beams, one of said rolls being yieldingly located, the other of said rolls having its shaft extended and provided at its end with a gear, a wheel journaled to rotate in the space between the beams, said wheel being provided with a gear in mesh with the gear upon the roll-shaft, gears between the rolls, brushes journaled in suitable supports upon the frame, sprockets upon said brushes, sprockets upon the shaft of the fixed roll, and chains connecting the sprockets, a hopper having plates adjustable laterally, and collectors for the vermin carried by said plates, substantially as described.

595,721. LAMP. CHARLES M. LUDGREN, Bayonne, N. J., assignor to The Safety Car Heating and Lighting Company, New York, N. Y. Filed Dec. 15, 1896. Serial No. 615,781. (No model.)



Claim.—1. In a regenerative gas-lamp, the combination with a gas-supply pipe, and gas-key therein, of a draft-controlling chimney on the lamp, and mechanism operatively uniting the chimney and the gas-key, whereby the chimney-draft is varied in proportion to the movement of the gas-key, substantially as set forth.

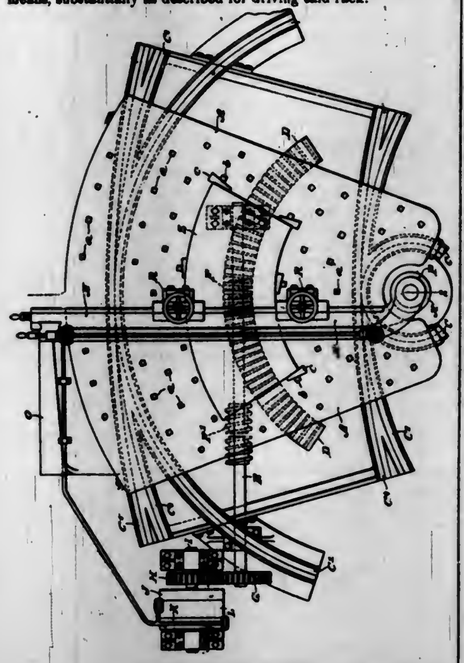
2. In a regenerative gas-lamp, the combination with a gas supply pipe, and gas key therein, of a chimney to the lamp, apertures in the lower portion of the chimney, a sleeve surrounding the apertures and provided with apertures which register with those in the chimney, and mechanism operatively uniting the sleeve and the gas-key, whereby the sleeve may be actuated by the movement of the gas-key to open and close the openings in the chimney, substantially as specified.

3. In a gas lamp of the inverted regenerative type, the combination with the burner, the chimney, and the gas-supply key, of a draft-controller for the chimney in substantially the same plane as the gas-key, and connecting mechanism between the gas-key and such chimney-draft controller, substantially as set forth.

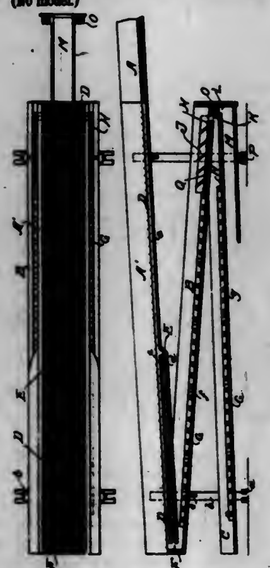
595,722. PLANING-MACHINE. JAMES MANN, Philadelphia, Pa. Filed Feb. 25, 1897. Serial No. 624,962. (No model.)

Claim.—The combination in a planing-machine of a base-casting in which are formed two or more sets of tracks or guides, each pair

of which have the form of arcs of concentric circles and all of which lie substantially in the same horizontal plane, removable bed-plates furnished with one pair of guides corresponding in curvature with and adapted to engage one pair of the tracks or guides in the base, a rack concentric with said guides and secured to said bed-plate, and means, substantially as described for driving said rack.



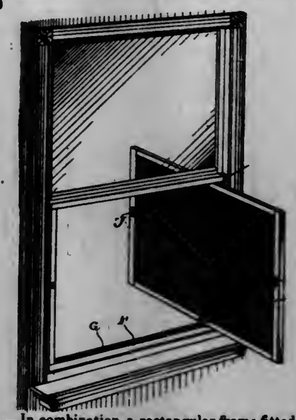
595,723. GOLD WASHING AND SEPARATING MACHINE. GABRIEL S. MEALS, Colorado Springs, Colo. Filed Dec. 23, 1896. Serial No. 616,805. (No model.)



Claim.—1. The combination in a gold-washing machine of three sluice-boxes, one above the other, securely fastened in their supporting-standards at varying pitches, the upper sluice-box having a heavy woven-wire screen of large mesh and the same mesh throughout securely fastened at each side of the sluice-box near enough to the bottom thereof to leave an open space about an inch in depth between the under side of such screen and the bottom of the sluice-box, a single, narrow transverse opening across the bottom of the sluice-box midway between its respective ends, a false bottom covered with galvanized iron fastened to each side of the sluice box and extending from the lower edge of the opening in the bottom of the sluice to within a few inches of the lower end of the sluice-box, such false bottom being an equal distance from the wire screen above it and the real bottom below it, a wooden bottom lined with galvanized iron to such sluice-box, the lower section of such bottom sunk lower than its upper section, such bottom being shorter than the sides of the sluice-box leaving a small portion of the lower part of the sluice-box without a bottom, the lower end of the sluice-box open to allow the gangue and water passing over the screen to go out on the dump, substantially as described.

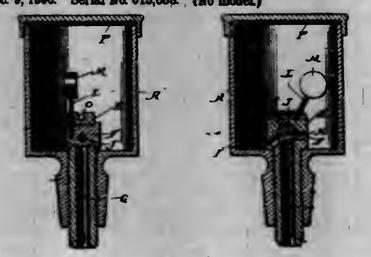
2. The combination in a gold-washing machine of the sluice-box A' having the woven-wire screen D, false bottom *e*, opening E, real bottom *d*, open space F, with a sluice-box having the bottom near either end lined with galvanized iron, and a series of bars transversely across it extending from the galvanized iron at one end to the galvanized iron at the other end, the bars having their under edges hollowed out, with a woven-wire screen of small mesh attached to a transverse bar at the bottom of the sluice-box, with a loose frame in the lower portion of the sluice-box, such frame having secured in it slanting cross-bars, the bottom of the sluice-box shorter than the sides of the box, and the lower end of such sluice-box open to allow the water and gangue passing over the screen to escape to the dump, substantially as described.

595,724. ADJUSTABLE WINDOW-SCREEN. DENNIS F. MOONEY, Jr., Brooklyn, N. Y. Filed Feb. 23, 1897. Serial No. 624,653. (No model.)



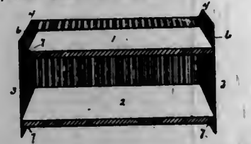
Claim.—In combination, a rectangular frame fitted in a window-frame to be moved vertically, said frame having longitudinal grooves formed in the upper and lower rails thereof and sockets near the center of the grooves of greater depth than the grooves, a second rectangular frame adapted to fit within the first-named frame, spring-pressed bolts secured in the second frame, said bolts being adapted to fit in the sockets in the first-named frame and by retracting said bolts to slide in said grooves, and a suitable netting secured on the second frame, latches for securing the frames in the same plane, substantially as described.

595,725. LUBRICATOR. JAMES MCGINLEY, Kingston, Pa. Filed Dec. 9, 1896. Serial No. 615,038. (No model.)



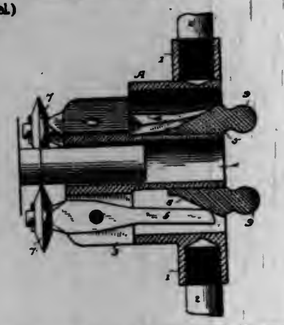
Claim.—In a device of the character described, a cup, a plug fitted therein having a vertical passage, a valve seated in the passage-way, said valve and plug having an inclined passage-way therethrough leading from the bottom of the cup, a flange on one end of the valve and a pendulum on the other end of the valve adapted to reciprocate within a slot of the plug and be limited in its movement by striking the walls of said slot, as and for the purpose described.

595,726. PACKING-BOX. JOHN W. NEUHANN, Louisville, Ky. Filed July 16, 1897. Serial No. 644,817. (No model.)



Claim.—In a tobacco-box, the combination of sides 3, made of sheet metal or other material corrugated vertically, top and bottom pieces 1 and 2, the sheet siding creased at 6, 6 to each edge to form a locking device to lock the top and bottom pieces 1 and 2 in place by pressing the serrations formed by the corrugated edges into the surface of said top and bottom pieces, all substantially as and for the purpose specified.

595,727. TOOL FOR CUTTING OFF GAS-PIPE OUTLETS. JOHN L. OEFINGER, Chicago, Ill. Filed Aug. 19, 1897. Serial No. 648,808. (No model.)



Claim.—1. A tool of the character described comprising a body having a central opening or passage for the pipe to be cut off and an externally-threaded sleeve, levers pivoted to the body and carrying at their outer ends cutting-off tools adapted to engage the pipe, and a cone threaded to engage the sleeve and adapted to tilt the levers and move the cutters toward each other in operation.

2. A tool for cutting off gas-pipe outlets, comprising a body having a central opening or passage for the pipe to be cut off, and having lugs and an externally-threaded sleeve, levers pivoted to the lugs and carrying cutting-off tools at their forward ends and a cone threaded to engage the sleeve and adapted to be rotated thereon whereby the levers are tilted and the cutters moved inward in contact with the pipe.

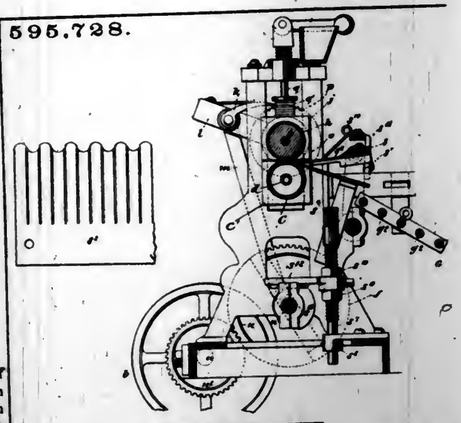
3. A tool of the character described comprising a body, lugs, and a central sleeve formed in a single piece and having a central passage from end to end, levers pivoted to the lugs and carrying cutting-off tools at their forward ends and a cone for engaging the levers and threaded to engage the sleeve substantially as described, for the purpose set forth.

595,728. PLAITING-MACHINE. FRIEDRICH W. PAHDE, New York, N. Y., assignor to the Kursheedt Manufacturing Company, same place. Filed Jan. 22, 1897. Serial No. 620,221. (No model.)

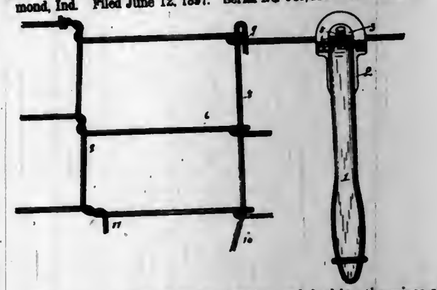
Claim.—1. In a machine for forming wavy-edged plaiting, the combination of a blade for forming the plaits, the plait-forming edge thereof being of a continuously-undulating outline and the waves in the edge being of such depth as to impart a wavy edge to the plaits and means for permanentizing the plaits imparted to the fabric by the said edge.

2. In a machine for forming wavy-edged plaiting, the combination of a blade for forming the plaits, the plait-forming edge thereof being of a continuously-undulating outline and the waves in the edge being of such depth as to impart a wavy edge to the plaits, and pressing-rolls for permanentizing the plaits imparted to the fabric by the said edge.

595,728.



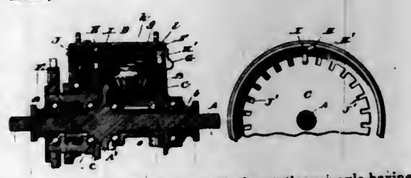
595,729. WIRE-LOOPING TOOL. WILLIAM H. PARRISH, Richmond, Ind. Filed June 12, 1897. Serial No. 640,446. (No model.)



Claim.—1. An implement for looping and locking the wires of wire fences, comprising two pivotally-united members, one of which has an engaging end rounded and terminated in a bend or hook adapted to receive a wire, and the other of said members having an engaging end provided with an opening into which said wire may be drawn, and a recessed or beveled side against which the wire is held, substantially as shown and described.

2. In an implement for the attachment of the horizontal and vertical wires of a fence, a member having an enlarged end provided with an opening therein the edges of which on one side of said member are beveled outwardly, in combination with a second member fulcrumed thereon and having an engaging end rounded and terminating in a curve adapting it to engage a wire, the said engaging end being inclosed in the opening in the first-mentioned member, substantially as and for the purpose specified.

595,730. GEARING. JOSEPH D. PANTELLO and HENRY B. ROSENBERG, St. Joseph, Mich. Filed Apr. 2, 1897. Serial No. 630,490. (No model.)



Claim.—1. The combination with the stationary axle having a fixed bevel-gear, of a sprocket-wheel turning on the axle, having a casing inclosing said fixed gear, and provided with small bevel-gears in mesh with said fixed gear, a rotary wheel-hub inclosing the said casing and gears and having end bearings on the said axle, and the hub of the sprocket respectively, and a bevel-gear within the hub at one end thereof for rotating it and meshing with the small bevel-gears at their sides opposite said fixed bevel-gear; substantially as described.

2. The combination with the stationary axle having a fixed bevel-gear, of a sprocket-wheel turning on the axle, having a casing inclosing said fixed bevel-gear, and provided with small bevel-gears in mesh with said fixed gear, a rotary wheel-hub inclosing said casing and gears and having end bearings on the sprocket-hub respectively, a loose bevel-gear within the wheel-hub and in mesh with the small bevel-gears at points opposite said fixed bevel-gear and means for locking said loose bevel-gear to the wheel-hub and releasing it therefrom; substantially as described.

3. The combination with the stationary axle provided with a fixed bevel-gear, of a driving-sprocket turning on said axle and provided with a casing inclosing said bevel-gear, and flattened beyond the gear at opposite points, a ring within the open end of said casing and provided with opposite axles *k* secured at their ends to said flattened portions, bolts securing the ring and casing together at points at right angles to said axle, small bevel-gears on said axle and meshing at one side with said stationary gear, a wheel-hub inclosing said casing and gearing and having end bearings on the stationary axle and the hub of the sprocket respectively, and a bevel-gear at the inner side of the hub and meshing with the small gears opposite to said fixed bevel-gear; substantially as described.

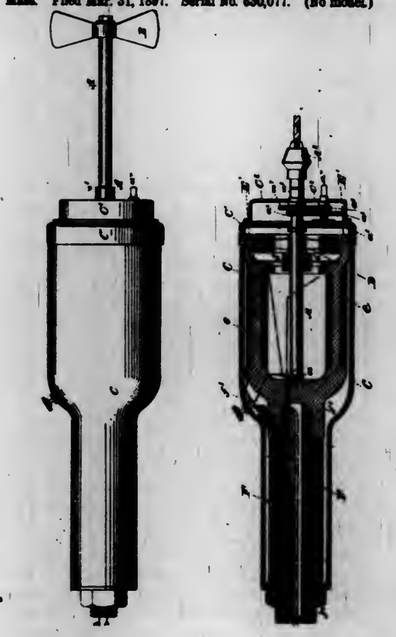
4. In the herein-described device, the external rotatable casing, a gear carried thereby, a second rotatable casing, with means for operating it, gear connections between the second casing and the gear on the external casing and means for detaching said gear from the casing and simultaneously uniting the two casings, substantially as described.

5. In the herein-described device, the fixed axle, the stationary gear thereon, the rotatable casing D, the loose gears B carried thereby and meshing with the stationary gears, the external casing F, the gear C adapted to rotate therewith, and in mesh with the gears B, means for releasing the gear C from engagement with the casing F and for locking said casings D and F together, substantially as described.

6. In the herein described speed-changing device, the member D having notches, the rotating gear C having notches, the member F, and an oscillating rod having dogs or projections arranged thereon, to engage at alternate periods the notches on the respective parts whereby the members D and F may be locked together, or the gear C and members F, substantially as described.

7. In the herein-described device, the member D having notches, the member F, the rotating gear C having notches, and an oscillating rod having dogs or projections arranged thereon, to engage at alternate periods the notches on the respective parts whereby the members D and F may be locked together on the gear C and member F, and a latch as G, on the rod outside said casing, substantially as described.

595,781. ELECTRIC MOTOR. MAURICE B. PRESCOTT, Cambridge, Mass. Filed Mar. 31, 1897. Serial No. 630,077. (No model.)



Claim.—1. In a portable motor for small work, the combination of a bottle-shaped casing C, a field-magnet comprising a head f^3, pole-pieces E' branched therefrom, regulator-coils F carried upon an extension of the head and an armature working between the pole-pieces.

2. In a motor, the combination of a field-magnet having a plurality of poles with inner opposed faces, a movable ring seated in the said inner opposed faces of the field-magnet so as to be supported by both of the said poles, and brushes carried by the said ring and extending inward to the commutator.

3. In a motor for small work, the combination of a field-magnet comprising a head f^3, pole-pieces E' branching therefrom, a ring-armature interposed between the pole-pieces, a pinion a^3 carried by the shaft of the motor, a shaft a^4 carrying a pinion a^5 meshing with the pinion a^3 and a pinion a^6, a sleeve a^8 surrounding the shaft of the motor and carrying a gear a^7, the said shaft of the motor-sleeve a^8 and shaft a^4 being prismatic for a part of their lengths, substantially as described and for the purposes set forth.

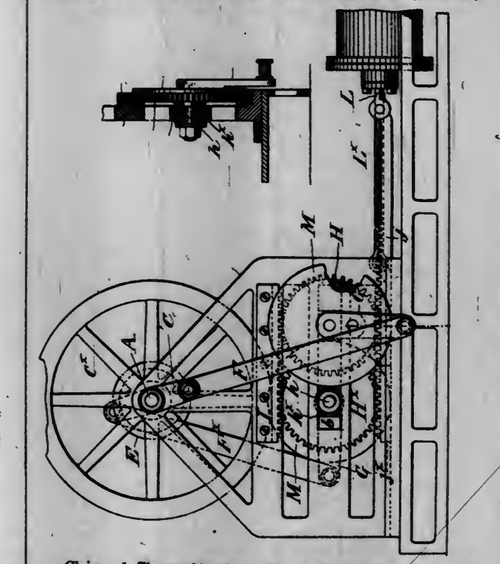
4. In a motor for small work, the combination of a bottle-shaped casing C, a head f^3, pole-pieces E' branched from the said head in one direction, an extension f^7 of less diameter than the said head and projecting from the said head in an opposite direction into the narrow portion of the bottle-shaped casing, a regulator-coil F surrounding the said extension and contained within the casing, an armature, an armature-shaft interposed between the pole-pieces, and a brush-adjusting device comprising a rotary ring seated in the inner faces of the pole-pieces and carrying brushes projecting inward, substantially as described and for the purposes set forth.

5. A portable electric motor for small work combined with a plurality of independent tool-engaging means rigidly secured thereto so that the motor and tool-engaging means constitute one rigid structure, individual tool-engaging means being driven at different rates of speed by the said motor, substantially as described.

6. The combination of a portable motor for small work, a casing enveloping and surrounding the same, and a plurality of independent tool-engaging means extending outside of the casing through apertures therein, and means for driving individual tool-engaging means at different rates of speed, the said means intervening between the motor and tool-engaging means, substantially as described.

7. In a portable motor for small work, the combination of a bifurcated field-magnet having a head uniting the pole-pieces and provided with an extension carrying resistance-coils, an armature-carrying shaft stepped upon the said head and extending between the pole-pieces, and a bearing for supporting the outer end of the said shaft, substantially as described and for the purposes set forth.

595,732. MECHANICAL MOVEMENT. WILLIAM A. PITT, Manhasset, N. Y. Filed Jan. 13, 1897. Serial No. 619,087. (No model.)



Claim.—1 The combination, with a crank-shaft, a crank thereon, and means for producing a reciprocating movement, of an intermediate mechanism for converting said reciprocating movement into ro-

tary motion of said crank shaft, such mechanism comprising a fixed rack, a toothed fulcrum wheel mounted in a guide and in gear with said fixed rack, said wheel being moved to and fro in its guide by said reciprocating means, the guide for said wheel, a radial arm on said wheel and of greater length than the crank, and a connecting-rod coupling the crank on the shaft to said arm, the axis of said crank-shaft being parallel with but in a different horizontal plane from that of the fulcrum-wheel, substantially as set forth.

2. The combination, with a crank-shaft, a crank thereon, and means for producing a reciprocating movement, of an intermediate mechanism for converting said reciprocating movement into rotary motion of said crank-shaft, such mechanism comprising a fixed rack, a guide arranged parallel with said rack, a rotatable, toothed fulcrum-wheel, in gear with said rack and mounted in said guide, said wheel being moved to and fro in the guide by said reciprocating means, a radial arm carried by said fulcrum wheel and of substantially twice the length of the crank, and a connecting-rod coupling said arm to the crank, the axis of the crank-shaft being parallel with but in a different horizontal plane from that of the fulcrum-wheel, substantially as set forth.

3. The combination with a crank-shaft and the crank thereon, of means for rotating the said shaft, said means comprising a fixed rack, a guide parallel with said rack, a fulcrum-wheel rotatively mounted in said guide and in gear with said rack, whereby when said wheel is moved along its guide it is compelled to rotate, a radial arm carried by said fulcrum-wheel and of double the length of the crank on the shaft, and a connecting-rod which couples the said arm to said crank, the axis of said crank-shaft being parallel with but in a different horizontal plane from that of the fulcrum-wheel, substantially as set forth.

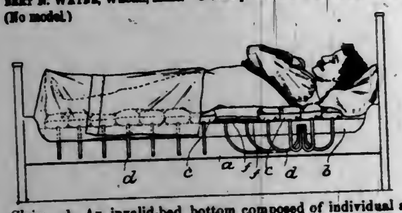
4. The combination with a crank-shaft, two like cranks fixed and set oppositely thereon, and two like reciprocating devices adapted for operation on the respective cranks, of two like intermediate converting mechanisms, one between each reciprocating device and its crank, each such converting mechanism comprising a fixed rack arranged transversely to the said crank-shaft, a fulcrum-wheel in gear with said rack and provided with an arm of substantially double the length of the said crank, and a connecting rod coupled at one end to the crank and at the other end to the arm on the fulcrum-wheel, the axis of said crank-shaft being parallel with but in a different plane from the axes of the fulcrum-wheels, substantially as set forth.

595,733. HORSESHOE. JACOB W. FORCHER, Port Washington, Ohio. Filed Mar. 25, 1897. Serial No. 629,260. (No model.)



Claim.—In combination with a shoe having the recesses 3 and 4 in the edges thereof, the calk-plate with the hooks engaging recesses 3 and the said shoe, the pintle-lugs on said plate, and the hooked dog engaging the recess 4 and the shoe and pivoted to the pintle-lugs by a pin, substantially as described.

595,734. INVALID-BED BOTTOM. EDWIN M. RAND and HERBERT N. WAYNE, Waban, Mass. Filed Apr. 2, 1896. Serial No. 585,968. (No model.)

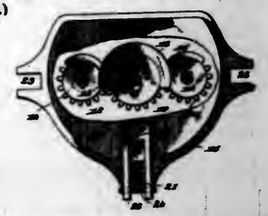


Claim.—1. An invalid-bed bottom composed of individual air-inflatable cushions or sections, *c*, extended across the bed from side to side, each of the said cushions or sections being provided with a small flexible inflating and deflating tube, *d*, extending from each section to an appreciable distance beyond the bed proper, substantially as and for the purpose set forth.

2. An invalid-bed bottom composed of individual air-inflatable cushions or sections, *c*, extended across the bed from side to side, each of the said cushions or sections being provided with a small flexible inflating and deflating tube, *d*, connected with its ends, and extending from each section to an appreciable distance beyond the bed proper, substantially as and for the purpose set forth.

3. An invalid-bed bottom composed of individual air-inflatable cushions or sections, *c*, extended across the bed from side to side, each of said cushions being provided with inflating and deflating means, as described, and certain of said cushions having half-round spaces or indentations in their meeting or opposing sides and at opposing points, whereby, when the two sections are brought or laid together, a substantially round opening in the bed-bottom will be formed, all as and for the purposes set forth.

595,735. SWITCH-STAND. OLIN H. ROUND, GEORGE A. SAMMIS, and CRISS KERR, Lemars, Iowa. Filed Mar. 16, 1897. Serial No. 627,844. (No model.)



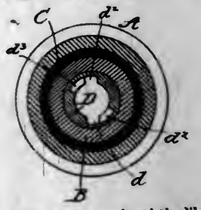
Claim.—In a switch-stand, the combination with two switch-operating shafts and an intermediate lever-shaft, of a mutilated gear on the lever-shaft, a gear on each of the switch-shafts, a segmental flange on the lever-shaft gear overlapping the gears on the switch-shafts, and disks on the switch-shafts above the gears, each provided with a curved recess with which the said flange is adapted to engage, substantially as described.

595,736. HAT-HANGER. OTTO SAGER, Rochester, N. Y. Filed Dec. 17, 1896. Serial No. 616,016. (No model.)



Claim.—A device for hanging hats and similar articles, comprising the wire clamp A, flattened at both ends, collars B upon the arms of the clamp, a coiled spring located between the arms, in combination with a plate E having a sheath *c* for clamp A, said plate having a flexible connection to the clamp, substantially as shown and described.

595,737. BUNG. SIMON SCHLAMME, Chicago, Ill. Filed Nov. 11, 1896. Serial No. 568,528. (No model.)



Claim.—1. In a bung for a barrel and the like, the combination of a bung-body formed in two parts or sections, the outer section being a substantially hollow cylinder or sleeve having internal screw-threads and the inner section being a cup shaped plug having external screw-threads engaging the threads of the outer section and also having oppositely-disposed slots d d' communicating with oppositely-arranged keyways d^3 d^3 substantially at the bottom of the cup-shaped plug for receiving a key-wrench for the purpose of screwing one section upon the other, a ring of flexible material interposed between the outer section of the sides of the bung-hole, and a disk swiveled upon the inner section to force the ring against the sides of the bung-hole when the sections are rotated or screwed together but not adapted to rotate in such operation

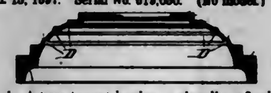
2. A bung, comprising a sleeve having internal screw-threads, a ring of flexible material interposed between the sleeve and the sides of the bung-hole when the bung is in place, a bung-body adapted to be received by the threads of the sleeve and provided with a stem and a disk swiveled on the stem.

3. In combination with a bung-bushing, a sleeve having internal screw-threads, a cup-shaped piece of flexible material receiving the sleeve and provided with a central aperture, a plug screwing into the sleeve and provided with a central stem passing through said aperture and a disk swiveled upon the stem.

4. The combination of a bung-bushing A, a sleeve B having internal screw-threads and external corrugations, a ring C of flexible material engaged by the corrugations of the sleeve, a bung body or plug D adapted to be received by the threads of the sleeve and provided with a stem D', a disk E swiveled upon the stem and a plate or cap *e* tightly secured to the disk.

5. The combination of a bung-bushing A, a sleeve B, a bung body or plug D screwing into the sleeve and provided with a stem D', a rubber ring C surrounding the sleeve and interposed between it and the bushing, and a plate or disk E swiveled upon the stem D', said plug having slots to receive a key-wrench whereby it may be rotated and the bung locked in the bushing or withdrawn as desired.

595,738. TRAP-TARGET. ELISHA SHERMAN, Leavenworth, Kans. Filed Jan. 13, 1897. Serial No. 619,080. (No model.)



Claim.—1. A trap-target having a plurality of raised ribs circularly arranged on the outer surface thereof, and corresponding circularly-arranged grooves in the inner surface thereof, as and for the purpose set forth.

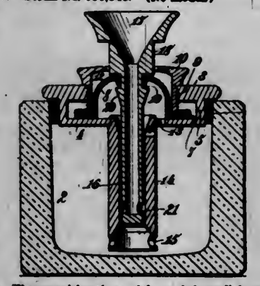
2. A trap-target having a plurality of raised ribs concentrically arranged on the outer surface of the body thereof, and corresponding concentrically-arranged grooves on the inner surface of such body, each of said grooves nearly but not quite penetrating the body of such target, as and for the purpose set forth.

3. A trap-target having a body part, a rim, and a top, the walls of said rim and top being thicker than the wall of the body part, said body part provided with a plurality of concentric raised ribs on the outer surface thereof, and corresponding grooves on the inner surface thereof, each of said grooves nearly but not quite penetrating the wall of such body, as and for the purpose set forth.

4. A trap-target comprising a body part, a thickened rim, and a top, the inner surface of the joint between such rim and body part being curved, and annular raised ribs on the exterior surface of the body part, and annular grooves on the inner surface of the body part, each of said grooves nearly but not quite penetrating the wall of such body part, as and for the purpose set forth.

5. A trap-target having a plurality of raised ribs on the outer surface thereof and grooves on the inner surface thereof, said grooves corresponding and arranged adjacent to said ribs, and nearly but not quite penetrating the wall of the target, as and for the purpose set forth.

595,739. INKSTAND. CHARLES R. SMITH, Elizabeth, Pa. Filed Apr. 5, 1897. Serial No. 630,548. (No model.)



Claim.—1. The combination with an ink-well having a stopper-receiving mouth at its top portion, of a stopper constructed with a diaphragm-containing chamber and fitted air-tight into the mouth of the ink-well, a tube suspended from the chambered stopper, a diaphragm housed within said stopper, and a vertically-movable tubular stem engaged with the diaphragm, extending through the stopper into the pending tube, having a suitable dip-cup at its upper end and provided with a perforated lower end housed within said suspended tube, substantially as described.

2. The combination with an inkstand having a stopper-receiving mouth at its top portion, of a stopper constructed with a perforated bottom wall and a diaphragm-containing chamber and fitted air-tight into the mouth of the ink-well, a tube suspended from the perforated bottom wall of the chambered stopper, a diaphragm housed within said stopper, and a vertically-movable tubular stem engaged with the diaphragm, extending through the stopper into the pendent tube, having a suitable dip-cup at its upper end and provided with a perforated lower end housed within the suspended tube, substantially as described.

3. The combination with an ink-well, of a stopper fitted to the mouth of the ink-well and constructed with a perforated bottom wall and a diaphragm-containing chamber, a dome-shaped diaphragm housed within the chamber of said stopper, a plug detachably secured in the stopper and clamping the base of the diaphragm against the bottom of said stopper, and a vertically-movable tubular stem detachably engaged with the diaphragm and having a suitable dip-cup at its upper end, substantially as described.

4. The combination with an ink-well, of a stopper fitted to the mouth of the ink-well and constructed with a perforated bottom wall and a diaphragm-containing chamber, a tube suspended from the perforated bottom wall of the chambered stopper, a diaphragm housed within said stopper, a plug detachably secured in the top wall of the stopper, and a vertically-movable tubular stem extending through said plug into the suspended tube, engaged with the diaphragm, and having a suitable dip-cup at its upper end, substantially as described.

5. The combination with an ink-well, of a stopper fitted to the ink-well and constructed with a diaphragm-containing chamber, and a screw-threaded orifice in its top wall, a diaphragm housed within said stopper, a screw-threaded plug screwed into said orifice and clamping a marginal portion of the diaphragm against the bottom of the stopper, and a vertically-movable tubular stem extending through the plug, engaged with the diaphragm and having a suitable dip-cup at its upper end, substantially as described.

595,740. PROPELLER. THOMAS W. SOUTHINGTON, Locust Valley, N. Y., assignor of one-half to James Tilley Mitchell, same place. Filed Mar. 12, 1897. Serial No. 627,097. (No model.)



Claim.—1. A propeller provided with blades which project radially from the hub thereof, and which are secured obliquely thereto, said blades being curved in cross-section as described, and being split at their ends, and the wings or parts thus formed being turned in opposite directions, substantially as shown and described.

2. A propeller provided with blades which project radially from the hub thereof, and which are set obliquely to said hub, said blades being bent centrally and longitudinally to form a forwardly-directed portion, at each side of which they are segmental in form in cross-section, the edges thereof being directed forwardly, substantially as shown and described.

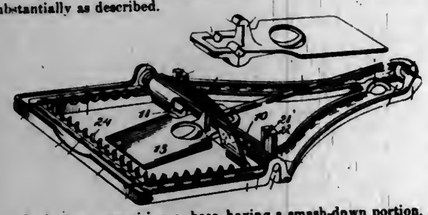
3. A propeller the blades of which project radially from the hub thereof, and are curved in cross-section so as to form a forwardly-directed central portion, the sides of each blade adjacent to said central portion being segmental in form, in cross section with the edges thereof directed forwardly, and the outer end of each blade being also split for a portion of its length, and the separate parts thus formed being turned in opposite directions, substantially as shown and described.

4. A propeller, comprising a hub 5 and blades 6, each of which is set diagonally of said hub, and at different points longitudinally of the same; each blade being provided with a curved portion 7 and curved portions 8, and each being provided with wings 11 which are curved in opposite directions, substantially as and for the purpose described.

595,741. TRAP. NELSON R. STRENTER, Groton, and JOSIAH ARNSTICK, Rochester, N. Y. Filed Dec. 1, 1896. Serial No. 614,111. (No model.)

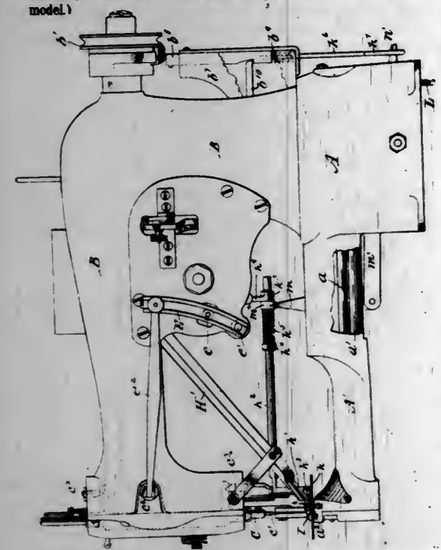
Claim.—1. A trap comprising a base having a smash-down portion, a spring-actuated smash-down bail coacting therewith, a pivotal rod for the bail, and a bait or trip platform resting upon said base below said pivotal rod and having shoulders engaging said rod.

whereby the platform is held in place by the pivotal rod and base, substantially as described.



2. A trap comprising a base having a smash-down portion, a spring-actuated smash-down bail, a pivotal rod therefor, a bait-platform projecting forward within the smash-down bail, the rear ends of the platform being pivotally supported, and a U-shaped yoke projecting upward and over the rear end of the bait-platform and spanning the rear end of the smash-down portion of the base, the yoke forming a guard to prevent the animal springing the trap and a bearing-point for the thumb in raising the forward end of the smash-down bail, substantially as described.

595,742. MACHINE FOR SEWING ON BUTTONS. JOHN J. SULLIVAN, Ipswich, Mass. Filed Mar. 15, 1895. Serial No. 541,860. (No model.)



Claim.—1. In a button-sewing machine, the combination with a stitch-forming mechanism and an automatic feeding mechanism for advancing the work to space the buttons, of a fixed or stationary button chute or guideway the lower end of which extends to a point closely adjacent to the work-plate, and a pedal-actuated button-feeding device located at said lower end of said chute and by means of which the operator may transfer buttons from said chute to sewing position.

2. In a button-sewing machine, the combination with a stitch-forming mechanism, of an automatic feeding mechanism for advancing the work to space the buttons, button-feeding appliances comprising a stationary or fixed button chute or guideway and a button-feeding device for transferring buttons from said chute to sewing position, and an automatic stop-motion mechanism normally acting to suspend the operation of the machine after each button has been attached.

3. In a button-sewing machine, the combination with a stitch-forming mechanism, of an automatic feeding mechanism for advancing the work to space the buttons, button-feeding appliances comprising a stationary or fixed button chute or guideway and a button-feeding device for transferring buttons from said chute to sewing position, an automatic stop-motion mechanism normally acting to suspend the operation of the machine after each button has been attached, and a controlling device by which the operator may, when desired, suspend the action of the said stop-motion mechanism so that the machine will run continuously to sew on a series of buttons.

4. In a button-sewing machine, the combination with a stitch-forming mechanism, of an automatic feeding mechanism for advancing the work to space the buttons, a stationary or fixed button chute or guideway, a non-automatic or operator-actuated button-feeder for transferring buttons from said chute or guideway to sewing position and an automatic stop-motion mechanism normally acting to stop the machine after each button has been attached.

5. In a button-sewing machine, the combination with a stitch-forming mechanism, of an automatic feeding mechanism for advancing the work to space the buttons, a stationary or fixed button chute or guideway, a pedal-operated button feeder for transferring buttons from said chute or guideway to sewing position, and an automatic stop-motion mechanism normally acting to stop the machine after each button has been attached.

6. In a button-sewing machine, the combination with a stitch-forming mechanism, of an automatic feeding mechanism for advancing the work to space the buttons, a button chute or guideway, a non-automatic or operator-actuated button feeder for transferring buttons from said chute or guideway to sewing position, an automatic stop-motion mechanism normally acting to stop the machine after each button has been attached, and a controlling device by which the operator may, when desired, suspend the action of the said stop-motion mechanism so that the machine will run continuously to sew on a series of buttons.

7. In a button-sewing machine, the combination with a stitch-forming mechanism, of an automatic feeding mechanism for advancing the work to space the buttons, a stationary or fixed button chute or guideway the lower end of which extends to a point closely adjacent to the work-plate, a button-feeder located at the lower end of said button-chute, and means whereby said feeder may be actuated by the operator to transfer buttons from said chute or guideway to sewing position relative to the needle and work-plate.

8. In a button-sewing machine, the combination with a stitch-forming mechanism and a fixed or stationary button chute or guideway, of a horizontally-movable, pedal-operated button-feeder located at the lower end of said chute and serving to transfer buttons from the latter to sewing position, and an automatic feeding mechanism for advancing the work to space the buttons.

9. In a button-sewing machine, the combination with button-feeding devices, of a stitch-forming mechanism comprising a horizontally-movable needle-bar and needle and an automatic feeding mechanism, independent of said needle-bar and needle, for advancing the work to space the buttons, of an automatic mechanism acting to suspend the horizontal movements of the needle and the work-advancing action of the feed alternately, to form overseaming or button-attaching stitches when the work is at rest and plain stitches between the buttons.

10. In a button-machine, the combination with a stitch-forming mechanism comprising a needle and means for imparting vertical and horizontal movements thereto, of an independent automatic work-feeding mechanism, automatic devices for presenting buttons to the said needle, a needle-bar-controlling cam by which lateral movements are imparted to the needle-bar and needle, when desired, and which also serves to suspend the said horizontal movements, and a feed-controlling cam to throw the feed into and out of operation, said cams being so timed relative to each other that when the horizontal movements of the needle are suspended the feeding mechanism is operative, and when the feeding mechanism is inoperative, horizontal movements will be imparted to the said needle bar and needle.

11. In a button-sewing machine, the combination with a stitch-forming mechanism, of a button receptacle or hopper having a curved slot or recess in its bottom and within the periphery of the latter, for the reception of the shanks of the buttons, a button-chute having also a button-shank groove or recess into which the said slot or recess in the bottom of the hopper opens, and a button-stirring device or pusher within said hopper serving to force the buttons outward from said hopper into said chute with their shanks in the groove or recess of the latter.

12. In a button-sewing machine, the combination with a stitch-forming mechanism, of an automatic feeding mechanism for advancing the work to space the buttons, a stationary or fixed button-chute, a button-feeder controlled by the operator and serving to transfer the buttons successively from said chute to the needle, and a start-motion device connected with said button-feeder and acting to set the machine in operation by a continuation of the same movement which feeds up a button.

13. In a button-sewing machine, the combination with a stitch-forming mechanism comprising a horizontally-movable needle-bar and needle, of a button-feeding mechanism which brings the buttons to such position relative to said needle that the latter will pass through the eye of a button when the needle is in one of its horizontal positions, but will pass outside of the said eye when in its other horizontal position, an automatic feeding mechanism independent of the needle-bar and needle for advancing the work, and means for alternately suspending and throwing into action the horizontal movements of the needle and the operation of the feed, the needle being in such position, when the feed is operating, as to pass outside of the eye of a button-shank which is in sewing position.

14. In a button-sewing machine, the combination with a stitch-forming mechanism, of a fixed or stationary button-chute, as H', the horizontally-movable button-feeder k for transferring buttons from the lower end of said chute to the needle, the rod k^3 for operating said feeder, the lever m, the link m', the rock-shaft N having arms n and n', and the treadle-rod L connected to said arm n'.

15. In a button-sewing machine, the combination with a stitch-forming mechanism, of a fixed or stationary button-chute, the horizontally-movable button-feeder k located at the lower end of said chute and serving to transfer buttons from the latter to the needle, the rod k^3, the lever m yieldingly connected to said rod by an interposed spring, the rock-shaft N having arms n and n', a treadle-rod L connected to said arm n', and a start-motion device constructed and arranged to be actuated to set the machine in operation, by a continuation of the same movement of the said arm n' which is required to operate the said button-feeder in feeding a button to the needle.

16. In a button-sewing machine, the combination with a stitch-forming mechanism comprising a horizontally-movable needle-bar and needle, of the intermittingly-rotated cam-wheel D having a feed-controlling cam, as d', and having also a needle-bar-controlling cam consisting of a concentric or non-operative cam-groove, or part d and a serpentine or operative groove or part d^2, connections between said cam-wheel and needle-bar whereby the latter may be moved laterally when desired, a feeding mechanism, and connections between the latter and said feed-controlling cam, the latter acting to set the feed into action and to suspend its operation, alternately.

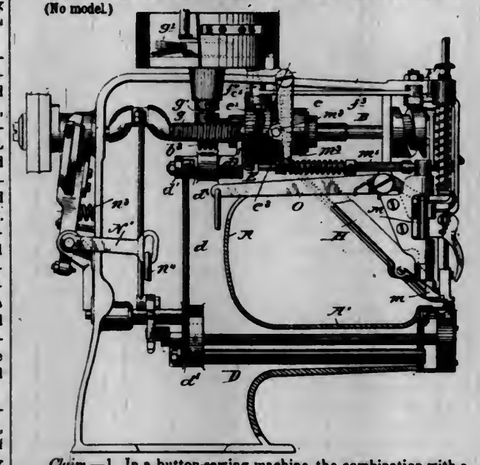
17. In a button-sewing machine, the combination with the driving shaft thereof, a stitch-forming mechanism operated from said shaft, and button-feeding appliances, of a stop-motion device consisting of the loose pulley b' having the flange b^4, the spring-pressed clutch-dog b^3, the wheel or hub b^2 fixed to said shaft and in which said clutch-dog is mounted, the stop-bar b^8, a spring for forcing the latter toward the path of movement of said clutch-dog, a locking rod or bolt serving to hold said stop-bar away from said dog, a spring which presses said locking rod or bolt toward said stop-bar, and an automatic tripping device acting in opposition to the stress of the locking rod or bolt pressing spring and by which said bolt may, at proper times, be withdrawn from said stop-bar.

18. In a button-sewing machine, the combination with the driving-shaft thereof, a stitch-forming mechanism operated from said shaft, and button-feeding appliances, of a stop-motion device consisting of the loose pulley b' having the flange b^4, the spring-pressed clutch-dog b^3 engaging said flange, the wheel or hub b^2 fixed to said shaft and in which said clutch-dog is mounted, the stop bar b^8, a spring for forcing the latter toward the path of movement of said clutch-dog, a locking rod or bolt serving to hold said stop-bar away from said dog, a spring which forces said rod or bolt toward said stop-bar, an automatic tripping device acting in opposition to the stress of the locking rod or bolt pressing spring and by which said rod or bolt may, at proper times, be withdrawn from said stop-bar, and a buffer-spring, as b^{12}, to cushion the impact and lessen the jar when the machine is stopped.

19. In a button-sewing machine, the combination with the driving-shaft thereof, a stitch forming mechanism operated from said shaft, and button-feeding appliances, of a stop and start motion device consisting of the loose pulley b' having the flange b^4, the spring-pressed clutch-dog b^3 engaging said flange, the wheel or hub b^2 fixed to said shaft and in which said clutch-dog is mounted, the stop-bar b^8, a spring for forcing the latter toward the path of movement of said clutch-dog, the locking rod or bolt b^{10} adapted to engage said stop-bar and hold the latter away from said clutch-dog, a spring which forces said rod or bolt toward said stop-bar, the tripping-lever b^{11} connected to one end of said locking rod or bolt, a rotary device to engage said tripping-lever and move the same in opposition to the pressure of the said last-named spring when the machine is to be stopped, and means, controlled by the operator, whereby said stop-bar may be withdrawn from engagement with said clutch-dog when the machine is to be started.

20. In a button-sewing machine, the combination with the driving-shaft thereof, a stitch-forming mechanism operated from said shaft, and button-feeding appliances, of a stop and start motion device consisting of the loose pulley b' having the flange b^4, the spring pressed clutch-dog b^3, the wheel or hub b^2 fixed to said shaft and in which said clutch-dog is mounted, the stop-bar b^8 provided with a rod b^9 having the loop or part b^{13}, a spring for forcing said stop-bar toward the path of movement of said clutch-dog, the locking rod or bolt b^{10} adapted to engage said stop-bar and hold the latter away from said clutch-dog, a spring which forces said rod or bolt toward said stop-bar, the tripping-lever b^{11} connected to one end of said locking rod or bolt, a rotary device to engage said tripping-lever and move the same in opposition to the stress of said last-named spring when the machine is to be stopped, the rock-shaft N having the arm n' to engage said loop or part b^{13}, and a treadle-operated rod L for actuating the said arm n'.

595,743. MACHINE FOR SEWING ON BUTTONS. JOHN J. SULLIVAN, Ipswich, Mass. Filed May 14, 1896. Serial No. 591,542. (No model.)



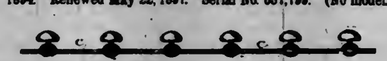
Claim.—1. In a button-sewing machine, the combination with a stitch-forming mechanism comprising a needle and a loop-taking device cooperating therewith in the formation of stitches, of an automatic button-feeding mechanism for successively presenting buttons to said stitch-forming mechanism and for holding the same in place while being sewed to the work, and an automatic thread-cutting device for severing the needle-thread after each button has been attached.

2. In a button-sewing machine, the combination with stitch-forming and button feeding and holding mechanisms, of an automatic stop-motion device, and an automatic thread-cutting device for severing the needle-thread after each button has been attached and just before the machine is stopped by the said stop-motion device.

3. In a button-sewing machine, the combination with a stitch-forming mechanism comprising a needle and a loop-taking device cooperating therewith in the formation of stitches, of a button-feeding mechanism serving to successively present buttons to said stitch-forming mechanism and to hold them in place while being attached to the work, an automatic thread-cutting device, for severing the needle-thread after each button has been attached, and an automatic thread-nipping device for holding the end of the needle-thread when severed.

4. In a button-sewing machine, the combination with a stitch-forming mechanism comprising a needle and a loop-taking device cooperating therewith in the formation of stitches, of a button-holding device which retains the buttons in place while being attached to the work, an automatic thread-cutting device for severing the needle-thread after each button has been attached, and an automatic thread-nipping device for holding the ends of the needle-thread when severed.

595,744. SEAM FOR ATTACHING BUTTONS TO SHOES OR OTHER ARTICLES. JOHN J. SULLIVAN, Ipswich, Mass. Filed Oct. 24, 1894. Renewed May 22, 1897. Serial No. 637,799. (No model.)

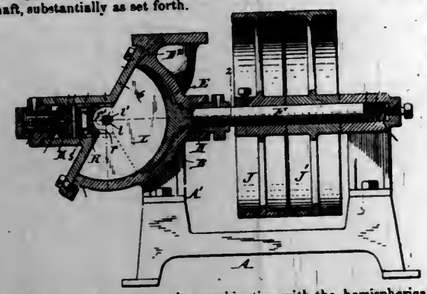


Claim.—The herein-described seam, consisting of the combination with a shoe or other article, of a series of buttons, a series of overseaming-stitches passing through and outside of the eye of the shank of each button, and through the material, and a series of connecting-stitches formed in continuity with each other and passing through the material between each button and joining the button-attaching stitches and forming, with the latter, a continuous seam in the material of the article to which the buttons are attached.

595,745. ROTARY PUMP. BENJAMIN F. TABER, Buffalo, N. Y. Filed Dec. 10, 1895. Serial No. 571,637. (No model.)

Claim.—1. In a rotary pump, the combination with a hemispherical case having an oblique head, and a conical diaphragm ar-

ranged in the case and carrying an oscillating piston, of a rotary shaft carrying said diaphragm, at its front end and having its rear end journaled in a bearing arranged in rear of said case and a spring arranged in said bearing and operating against the rear end of said shaft, substantially as set forth.



2. In a rotary pump, the combination with the hemispherical case having an oblique head and the rotary conical diaphragm arranged in said case and bearing with its conical surface against said head, of a longitudinally-movable driving-shaft carrying said diaphragm, a spring tending to force said shaft and diaphragm forwardly, an oscillating piston capable of sliding in said diaphragm toward and from the oblique head of the case, and a spring which tends to move said piston against said oblique head, substantially as set forth.

3. In a rotary pump, the combination with a hemispherical case, of an oblique head closing the front end of the case and having on its outer side a bearing which is provided at its outer end with a gland or stuffing-box, a rotary conical diaphragm arranged in the case and carrying an oscillating piston capable of sliding in the diaphragm toward and from the oblique head, and a spring tending to draw said piston against the head of the case and arranged within the bearing of the head, whereby the spring is accessible upon removing the gland of said bearing, substantially as set forth.

4. The combination with the hemispherical case having an oblique head and the rotary conical diaphragm arranged in the case, of an oscillating piston arranged in a slot or recess of the diaphragm and capable of sliding in the diaphragm toward and from the oblique head of the case, a spring arranged in the front side of said oblique head, and a longitudinally-movable coupling connecting the pivot of the oscillating piston with said spring, substantially as set forth.

5. The combination with the hemispherical case having an oblique head and the rotary conical diaphragm arranged in the case, of an oscillating piston arranged in a slot or recess of the diaphragm and capable of sliding in the diaphragm toward and from the oblique head of the case, a sleeve carrying the pivot of said piston and capable of sliding lengthwise on the shaft of the diaphragm, and a spring-bolt sliding on said shaft and connected with said sleeve, substantially as set forth.

6. The combination with the hemispherical case having an oblique head and the rotary conical diaphragm arranged in the case, of an oscillating piston arranged in a slot or recess of the diaphragm and capable of sliding in the diaphragm toward and from the oblique head of the case, a sleeve carrying the pivot of said piston at its inner end and capable of sliding on the shaft of the diaphragm, a block attached to the outer end of said sleeve, a sliding bolt arranged in a socket in the outer end of said shaft and connected with the block of said sleeve, and a spring surrounding said sliding bolt between its head and the bottom of said socket, substantially as set forth.

7. The combination with the hemispherical case having an oblique head and the rotary conical diaphragm arranged in the case, of a driving-shaft carrying said diaphragm and provided on the front side of the diaphragm with a longitudinal slot, an oscillating piston arranged in a recess of said diaphragm and provided on the front side of its pivot with a convex knuckle, and a yielding packing-block arranged in the slot of the driving-shaft and bearing against said knuckle, substantially as set forth

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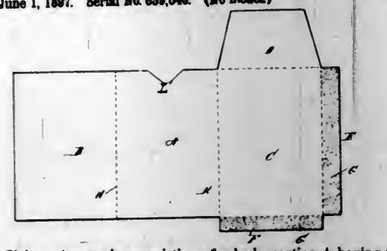
595,746. NUT-LOCK. HENRY THEIS, Lawrenceburg, Ind. Filed Mar. 10, 1897. Serial No. 626,796. (No model.)



Claim.—1. In a nut-lock, the combination with the fish-plate having an oval aperture therein, the screw-bolt, the concave key provided with lugs at the ends overlapping the sides of the fish-plate, and the washer having a central opening with an intersecting recess and formed with an annular flange, of the screw-nut formed on its inner face with an annular groove and a tapering boss, substantially as described.

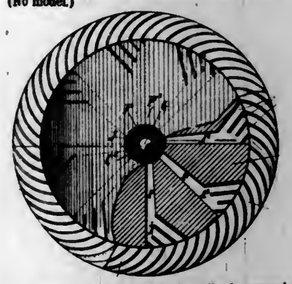
2. In a nut-lock, the combination with the bolt, and the washer having an outwardly-projecting tapering flange extending entirely around the edge or rim, of the screw-nut provided on its inner side with a continuous circular groove, the opposite sides of which are inclined at an angle to the axis of the nut, substantially as described.

595,747. ENVELOP. RICHARD WEBER, Brooklyn, N. Y. Filed June 1, 1897. Serial No. 639,046. (No model.)



Claim.—An envelop consisting of a body portion A having two similar side portions B and C, and having a notch at one end, said side C being provided with a side flap E and end flap F having sealing material on the inner surface thereof, and being also provided with a large end flap D, said envelop being formed by folding the side B upon the body portion A, the side C upon the side B, and sealing the end flap F, and side flap E to the side of the body portion A, substantially as and for the purpose described.

595,748. STEAM OR GAS TURBINE. GUSTAF M. WESTMAN, New York, N. Y. Filed Apr. 16, 1896. Renewed Feb. 18, 1897. Serial No. 624,079. (No model.)



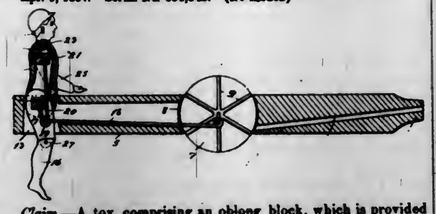
Claim.—1. A turbine of the class described, comprising a horizontally-disposed turbine wheel provided with buckets discharging the motive agent at their outer ends approximately tangential to the periphery of the wheel, and a stationary disk connected with the motive-agent supply, and having a series of passages each terminating at its outer end in a series of channels discharging the motive agent to the inner ends of said buckets, said channels standing at angles to the said passages and approximately at right angles to the walls of the buckets, substantially as shown and described.

2. A turbine of the class described, comprising a horizontally-disposed turbine wheel provided with buckets, larger at their inner ends than at their outer, discharge ends, said buckets being arranged to discharge the motive agent approximately tangential to the periphery of the wheel, a stationary disk having a central opening connected with the motive-agent supply, a series of passages leading from said opening, and a series of channels leading from the inner end of each passage at angles thereto, to discharge at their outer ends into the inner ends of said buckets, substantially as shown and described.

3. A turbine of the class described, comprising a horizontally-disposed turbine wheel provided with buckets, larger at their inner ends than at their outer, discharge ends, said buckets being arranged to discharge the motive agent approximately tangential to the periphery of the wheel, a stationary disk having a central opening connected with the motive-agent supply, a series of passages leading

from said opening, a series of channels leading from the inner end of each passage at angles thereto, to discharge at their outer ends into the inner ends of said buckets, and a distributing-cone held in said opening, substantially as shown and described.

595,749. FIGURE TOY. GEORGE WOUDERS, Johnstown, Pa. Filed Apr. 9, 1897. Serial No. 631,343. (No model.)



Claim.—A toy, comprising an oblong block, which is provided centrally with a vertical transverse opening, a wheel mounted therein, and provided with radial plates or vanes, said block being provided at one end with a mouthpiece, and with a longitudinal bore which extends therefrom, and which communicates with the opening in which said wheel is mounted, and said block being also provided with a longitudinal chamber through which the shaft of the wheel extends, and in the end thereof, opposite the mouthpiece with a vertical opening in which is mounted a toy figure, said figure being secured in said opening, and the legs thereof, being connected with a block which is pivoted in said opening, and which is in operative connection with said wheel, said figure being also provided in the upper part of the body thereof, with a block which is pivoted therein, and with which the arms of the figure are connected, said last-named block and that with which the legs are connected being also in operative connection, and the head of the figure being connected with the block with which the arms are connected, substantially as shown and described.

595,750. INSECT-EXTERMINATOR. CASPER ZIMMERMAN, Santa Rosa, Cal. Filed Sept. 1, 1897. Serial No. 650,241. (No model.)



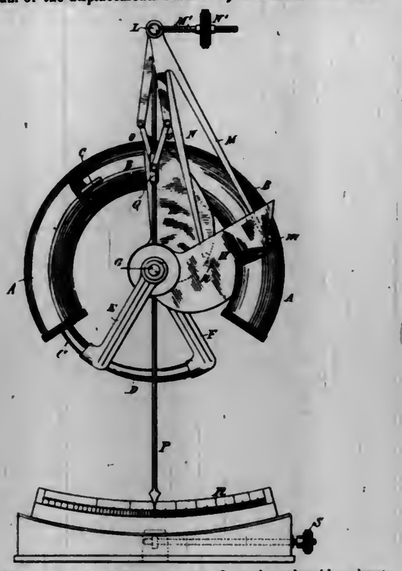
Claim.—An automatic insect-exterminator comprising the casing 1, formed with the closed curved hood 2, the segmental wire-netting 4 connected to said hood, the spring-actuated shaft 16, in combination with the reticulated cylinder 9 fixed on the sleeve 10 mounted on said shaft 16 and provided with the radial curved wing 12 and the hinged blade 7 mounted in said casing parallel with said cylinder and in the path of the wing 12, substantially as described.

595,751. WATTMETER. ERNEST K. ADAMS, New York, N. Y. Filed Sept. 11, 1897. Serial No. 651,266. (No model.)

Claim.—1. The combination in a wattmeter of a device capable of movements corresponding to the amperes, and a device capable of movements corresponding to the volts of the current in a circuit to be measured, means for converting these movements into displacements corresponding in extent to the logarithms of the numbers of the amperes and volts, respectively, which produce them, and a pointer or arm moved thereby through angles proportionate to the sum of such displacements, as set forth.

2. The combination in a wattmeter of a series solenoid, a shunt-solenoid and cores therefor which are displaced according to the amperes and volts respectively, in the circuit with which the solenoids may be connected, means for converting the movements of said cores into displacements corresponding in extent to the logarithms of the numbers of amperes and volts respectively which produce them, and an arm or pointer moved thereby through angles proportionate to the sum of such displacements, as set forth.

3. The combination in a wattmeter of a series solenoid, a shunt-solenoid and cores therefor which are displaced according to the amperes and volts, respectively, in the circuit with which the solenoids may be connected, logarithmic cams moved by said cores, an arm and levers operated by said cams and connected with the arm in such manner as to move the same through angles proportionate to the sum of the displacements effected by said cams, as set forth.

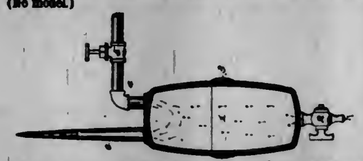


4. The combination in a wattmeter of a series solenoid, a shunt-solenoid and cores therefor, which are displaced according to the amperes and volts respectively in the circuit with which the solenoids may be connected, logarithmic cams moved by said cores, levers bearing on the cams, an arm and links between the levers and said arm and having a sliding connection with the latter, whereby the angular movement of the arm will be proportional to the sum of the displacements of the two levers, as set forth.

5. The combination in a wattmeter with an arm capable of displacements proportional to logarithms of the number of watts in the circuit to be measured, an index or marker, and means for converting the displacements of the said arm into displacements of the index or pointer proportionate to the number of watts, as set forth.

6. The combination in a wattmeter of a series solenoid, a shunt-solenoid, and cores therefor which are displaced according to the amperes and volts respectively in the circuit with which the solenoids may be connected, logarithmic cams moved by the said cores, an arm and a system of levers intermediate thereto and said cams, by means of which the said arm is moved through angles proportionate to the sum of the displacements effected by the cams, an index or marker moved by the arm which is formed as a cam with a curve of such character that the displacements of the index or marker will be proportionate to the number of watts.

595,752. APPLIANCE FOR STEAMING COLLARS. JAMES A. ANDERSON, Kansas City, Mo. Filed June 20, 1896. Serial No. 553,421. (No model.)



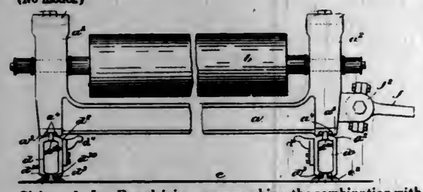
Claim.—1. An appliance for steaming collars and other starched articles and rendering them flexible, and therefore susceptible of bending easily upon any desired line, comprising a shell or casing, a steam-supply pipe leading thereto, and a steam-escape pipe communicating with said casing and provided with a nozzle having a long and narrow passage through which the steam escapes in a thin stream, substantially as set forth.

2. An appliance for steaming collars and other starched articles, and rendering them flexible, and therefore susceptible of bending easily on any desired line, comprising a shell or casing provided with a drip-cock at its lower end, a valve-controlled steam-supply pipe communicating with said shell or casing, and a tube communicating

with the upper end of said shell or casing and terminating in a nozzle having a long and narrow passage through which the dry steam escapes in a thin stream, substantially as set forth.

595,758. SHAKE-RAIL FOR FOURDRINIER MACHINES.

CHARLES E. BARRETT, Lawrence, Mass., assignor to the J. H. Horne & Sons Company, same place. Filed Nov. 27, 1896. Serial No. 613,633. (No model.)

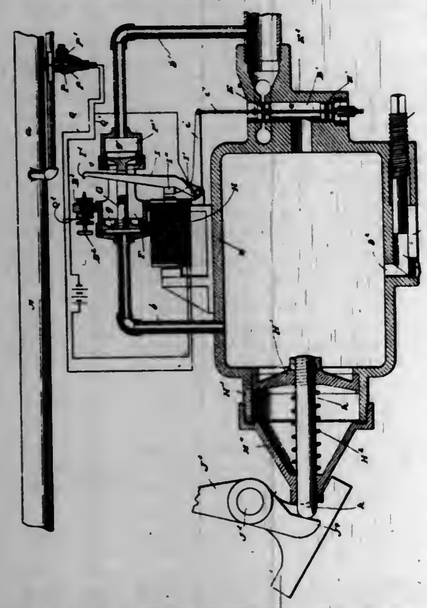


Claim.—1. In a Fourdrinier paper machine, the combination with the shake-frame and shake-rails pivotally secured thereto at one end, and pivotally connected at their opposite ends to a stationary support, of stationary supporting plates or shoes for said frame, and movable supporting members having cylindrical upper and lower surfaces, said members being interposed between said frame and said plates and provided with engaging portions cooperating with said frame and the stationary supporting-plate, substantially as described.

2. In a Fourdrinier paper-machine, the combination with the shake-frame, and means for producing a lateral vibratory movement thereof, of a rolling support therefor, and horns or projections from said support adapted to engage said frame during a movement thereof beyond its normal lateral movement, and prevent further lateral movement thereof, substantially as described.

595,754. SUBSTATION SENDING APPARATUS FOR PNEUMATIC-DESPATCH-TUBE SYSTEMS.

BIRNEY C. BATCHELLER, Brooklyn, N. Y., assignor to the United States Mail Package and General Pneumatic Delivery Company, Philadelphia, Pa. Filed June 23, 1896. Serial No. 596,630. (No model.)



Claim.—1. In a pneumatic-despatch-tube system, the combination with a main transit-tube, of an intermediate or substation sending apparatus, whereby a carrier can be injected into the transit-tube, a lock for said substation sending apparatus, and lock-setting apparatus actuated by the passage of a carrier or carriers in the main tube on their way toward the substation, said lock-setting apparatus being provided with a time-escapement whose initial movement is inaugurated simultaneously with the setting of the lock and completed a definite time thereafter without further action of the carrier.

2. In a pneumatic-despatch-tube system, the combination with a substation sending apparatus, of means for locking said sending apparatus, and devices operated by the difference in pneumatic pressure in front of and behind a moving carrier and controlling the operation of said locking means, substantially as described.

3. In a pneumatic-despatch-tube system, the combination with a substation sending apparatus, of means for locking said sending apparatus, an electric circuit controlling the operation of said locking means, and means operated by the difference in pneumatic pressure in front of and behind a moving carrier to close a switch in said electric circuit before the carrier reaches the substation, substantially as described

4. In a pneumatic-despatch-tube system, the combination with a substation sending apparatus, of means for locking said sending apparatus, an electric circuit controlling the operation of said locking means, and means operated by the difference in pneumatic pressure in front of and behind a moving carrier to close a switch in said electric circuit before the carrier reaches the substation, and to open said switch after the carrier passes the substation, substantially as described.

5. In a pneumatic-despatch-tube system the combination with a substation sending apparatus of means actuated by the difference in pneumatic pressure in front of and behind the passing carrier to lock said sending apparatus before the carrier reaches the substation substantially as described.

6. In a pneumatic-despatch-tube system the combination with a substation sending apparatus of means actuated by the difference in pneumatic pressure in front of and behind a passing carrier to lock said sending apparatus before the carrier reaches the substation and to unlock the same after the carrier has passed the substation, substantially as described.

7. In a pneumatic-despatch-tube system, the combination of a circuit-closing means, an air-chamber, a valve for controlling the admission of air thereinto, a rod-carrying disk at the opposite end of the chamber, a locking device operated by said rod-carrying disk, and the electromagnet arranged in connection with the air-chamber, substantially as described.

8. The combination of a circuit-closing device, an air-chamber, an inlet-valve for said chamber controlled by the circuit-closer, and a locking rod operated by the pressure within said air-chamber for the purpose of engaging means for locking the sending apparatus, substantially as described.

9. The combination with the main tube, of an air-chamber, an inlet-valve therefor, an electric circuit which is automatically closed and opened by the passing of a carrier through the main tube, an electromagnet on the air-chamber, leverage mechanism connected to the inlet-valve and operating in connection with the electromagnet, a differential double piston engaging said leverage mechanism and operated by air-pressure from within the air-chamber on the one side and from the source of air-supply on the other side, and a locking-rod operated by the pressure within the air-chamber, substantially as described.

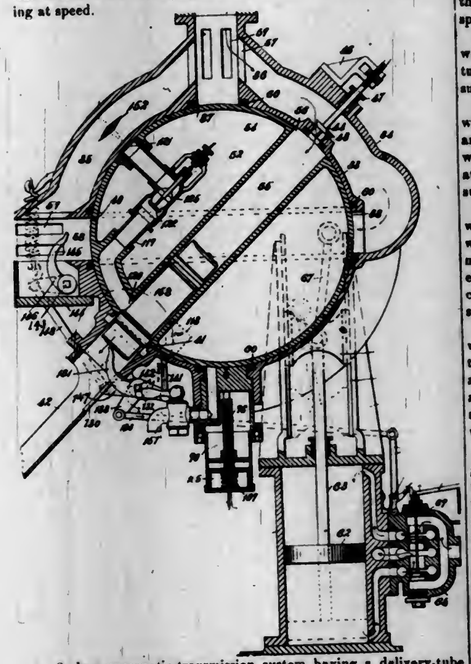
10. The combination in a pneumatic-despatch system, of the main tube, a circuit-closing device operated by the passage of a carrier along the main tube, an air-chamber, an inlet-valve therefor, an electromagnet, a leverage mechanism operating to open the inlet-valve when the electromagnet is excited, a differential piston engaging said leverage mechanism to close the inlet-valve at the proper time, an air-conduit leading from a source of air-supply and connecting with the air-chamber, an auxiliary air-passage connecting with the air-chamber and the aforesaid supply-conduit, in which latter auxiliary air-passage the differential piston is arranged, so that the air-pressure may operate upon both sides thereof, and a locking-rod carried by a disk whose face is exposed to the air-pressure within the air-chamber, substantially as described.

11. In a pneumatic-despatch system, the combination with the main tube, of circuit-closing means operated by the passage of the carrier through said tube, an air-chamber, an inlet-valve therefor, an electromagnet, means operating in connection with said magnet for automatically opening and closing the said inlet-valve, and means operated by the pressure within the air-chamber for automatically locking the sending apparatus, substantially as described.

595,755. PNEUMATIC-DESPATCH-TUBE SYSTEM.

BIRNEY C. BATCHELLER, New York, N. Y., assignor to the United States Mail Package and General Pneumatic Delivery Company, Philadelphia, Pa. Filed Sept. 3, 1896. Serial No. 605,066. (No model.)

Claim.—1. In a pneumatic-transmission system having a delivery-tube and two or more receiving-tubes or discharge-passages connectible therewith, a device for delivering a carrier coming from the delivery tube into one of the receiving-tubes or discharge-passages, in combination with mechanism for actuating said device arranged to be set in actuation by a carrier, and means for checking the motion of the carrier in advance of its reaching said actuating mechanism so as to avoid the impingement of the carrier thereon while moving at speed.



2. In a pneumatic-transmission system having a delivery-tube and two or more receiving-tubes or discharge-passages connectible therewith, a device for delivering a carrier coming from the delivery-tube into one of the receiving-tubes or discharge-passages in combination with mechanism for actuating said device arranged to be set in actuation by a carrier, mechanism for governing the motion and arrest of the device for delivering the carrier also operated by the carrier and means for checking the motion of the carrier in advance of its reaching said actuating mechanisms so as to avoid the impingement of the carrier thereon while moving at speed.

3. In a pneumatic-transmission system the combination with a delivery-tube of one or more receiving or discharge passages, a transfer-tube adjustably supported so as to be movable into registry with each tube in turn, automatic means arranged to check and stop a carrier as it is received from the delivery tube into the transfer-tube and means for moving the transfer-tube into registry with any receiving-tubes or discharge passage.

4. In a pneumatic-transmission system the combination with a delivery-tube of one or more receiving-tubes or discharge-passages, a transfer-tube adjustably supported so as to be movable into registry with each tube in turn, automatic means arranged to check and stop a carrier as it is received from the delivery-tube into the transfer-tube and automatic means for moving the transfer-tube into registry with any receiving tube arranged to be actuated by the entrance of the carrier into said transfer-tube and to be impinged upon by said carrier after its motion is checked.

5. In a pneumatic-transmission system the combination of a delivery and one or more receiving or discharge tubes, of a transfer-apparatus casing into which said tubes lead, a transfer-tube open at both ends and adapted to register in turn with the delivery and receiving tubes but not with two tubes simultaneously said tube moving on the casing aforesaid and having its far end closed thereby when in registry with the delivery-tube, mechanism for moving the transfer-tube into registry with the receiving or discharge tubes and a trip for putting said mechanism into operation arranged to be engaged by a carrier after it has entered the transfer-tube.

6. The combination with conveying-tubes out of line and a discharge-chute, of a receiving and-transferring tube movable into line with either of the conveying-tubes or the chute, and stop mechanism designed to stop the receiving and transferring tube opposite the discharge-chute or conveying-tube, substantially as specified.

7. In an apparatus of the character described, the combination with a suitable casing and transfer-frame provided with a receiving-tube, of transfer frame-actuating mechanism, an electrically-actuated valve controlling said mechanism, a carrier, and means for closing the electric circuit by the movement of the carrier, substantially as specified.

8. In an apparatus of the character described, the combination with a suitable casing, and transfer-frame provided with a receiving-tube, of a discharge-gate and discharge-gate-actuating mechanism, substantially as specified.

9. In an apparatus of the character described, the combination with a suitable casing, a discharge-gate, and valve-controlled mechanism for actuatiug the discharge-gate, of a transfer-frame provided with a receiving-tube designed to receive a carrier, and valve-actuating mechanism adapted to be brought into operation by a carrier, substantially as specified.

10. In an apparatus of the character described, the combination with a suitable casing, discharge-gate and transfer-frame provided with a receiving-tube, of valve-controlled transfer-frame-actuating mechanism, valve-controlled discharge-gate-actuating mechanism, electrical valve-actuating mechanism for each of said valves, and circuit-closing mechanism operated by the movement of the carrier, substantially as specified.

11. In an apparatus of the character described, the combination with a suitable casing and transfer-frame provided with a receiving-tube designed to receive a carrier, of valve-controlled transfer-frame-actuating mechanism, means for actuating the valve in one direction, and a finger operatively connected to the valve through intermediate mechanism and located in the path of the carrier for actuating the valve in the opposite direction, substantially as specified.

12. The combination with a casing, transfer-frame, discharge-gate, and valve-controlled discharge-gate-actuating mechanism, of means for actuating the valve in one direction, and a finger operatively connected with the valve and located in the path of the carrier, designed to actuate the valve in the opposite direction, substantially as specified.

13. In an apparatus of the character described, the combination with a casing, conveying-tubes, a discharge-gate and a movable transfer-frame, of valve-controlled transfer-frame-actuating mechanism, valve-controlled discharge-gate-actuating mechanism, means for actuating the valves in one direction and interdependent fingers operatively connected with the valves and adapted to actuate the valves in the opposite direction, said fingers being located adjacent to the discharge-gate and to the entrance of the conveying-tube, respectively, substantially as specified.

14. In an apparatus of the character described, the combination with a casing, transfer-frame provided with a receiving-tube, and valve-controlled transfer-frame-actuating mechanism, of a valve-lever provided with an armature, a magnet, a transfer-circuit including said magnet, and a contact-needle designed to be actuated by a carrier to close the transfer-circuit, substantially as specified.

15. In an apparatus of the character described, the combination with a transfer-frame provided with a receiving-tube designed to receive a carrier, of a discharge-gate, electrically-controlled transfer-frame-actuating mechanism, electrically-controlled discharge-gate-actuating mechanism, a transfer-circuit, and a discharge-circuit, and a plurality of movable needles in electrical connection with the circuits, substantially as specified.

16. In an apparatus of the character described the combination with an electric circuit, and a plurality of needles mounted upon a reciprocatory needle-support, and means for reciprocating the same, substantially as specified.

17. In an apparatus of the character described, the combination with an electric circuit, of a plurality of contact-needles, a needle-support, a piston designed to actuate said support, and means for directing fluid-pressure against the piston for actuating it in one direction, substantially as specified.

18. In an apparatus of the character described, the combination with a transfer-frame, and a transfer-frame cylinder provided with a controlling valve, of a contact-needle, needle-support, a cylinder, a piston within said cylinder designed to actuate the needle-support, and means for admitting fluid within the cylinder by the actuation of the valve controlling the transfer-frame cylinder, substantially as specified.

19. In an apparatus of the character described, the combination with a reciprocatory needle-support, of a plurality of contact-needles yieldingly supported thereby, substantially as specified.

20. In a carrier, the combination with a cylindrical casing, of a concave end piece, a filling of felt or the like, an insulating-disk superimposed upon the felt, an internally and externally threaded bolt piercing the insulating-disk, felt and end piece, the interior bore of the bolt being designed for the reception of the shank of a detachable disk, substantially as specified.

21. A carrier for pneumatic-despatch tubes having on its forward end an insulated plate of electrical conducting material, substantially as described.

22. A carrier for pneumatic-despatch tubes having on its forward end an adjustable insulated plate of electrical conducting material, substantially as described.

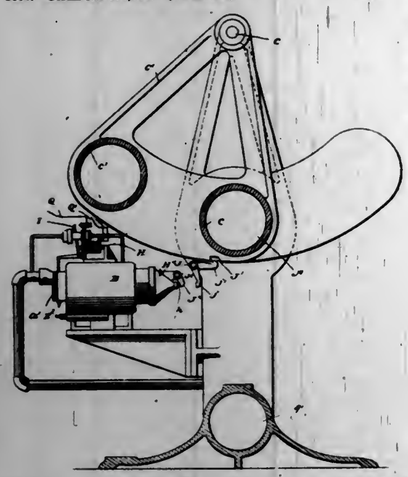
23. In a pneumatic-despatch-tube system, a despatch-tube having substations intermediate its terminals, means at each substation for receiving and arresting each carrier passing through the tube, and adjustable selecting devices on the carriers and in the receiving and arresting apparatus whereby the carrier may be automatically ejected or continued in its journey substantially as described.

24. In a system of pneumatic transmission, apparatus at each station arresting each carrier in its flight, devices operating in connection with said arresting apparatus and causing it to eject or forward the carrier, and selecting means automatically actuated by the carrier when arrested to determine the ejecting or forwarding action of the arresting apparatus substantially as described.

25. In a pneumatic despatch-tube system, a despatch-tube, intermediate carrier receiving and transferring apparatus operating to arrest each carrier in its flight, air-cushions in said carrier receiving and transferring apparatus, and valve-actuating mechanism controlling the operation of said carrier receiving and transferring apparatus and set in operation by the arrested carrier substantially as described.

26. The combination of pneumatic-despatch tubes, carrier receiving and arresting apparatus located at intermediate stations on said tubes and automatically operating selecting devices actuated by the arrested carriers, whereby the carriers intended for a station are ejected at that station and the others returned to the tube and forwarded to the next station substantially as described.

595,756. SENDING APPARATUS FOR PNEUMATIC-DESPATCH-TUBE SYSTEMS. BIRNEY C. BATCHELLER, Brooklyn, N. Y., assignor to the United States Mail Package and General Pneumatic Delivery Company, Philadelphia, Pa. Filed June 23, 1896. Renewed Oct. 22, 1897. Serial No. 656,065. (No model.)



Claim.—1. In a pneumatic-despatch-tube system, the combination with the main tube, of two or more tube-sections, a swinging support therefor, fluid-pressure means for shifting said swinging support for the purpose of placing one or the other of the tube-sections in alinement with the main tube, and a lever for controlling said fluid-pressure motor, together with an automatically-yielding connection between the lever and the fluid-pressure motor, substantially as described.

2. The combination with a pneumatic-despatch tube, of two or more tube sections, a supporting-frame therefor, and means for shifting said supporting-frame for the purpose of introducing one or the other of said tube-sections into alinement with the main tube; the same consisting of a cylinder, a piston therein whose piston-rod operates to shift the supporting-frame, a valve-chamber on the cylinder, valve mechanism within the same, an operating-lever for said valve mechanism, a yielding connection between said lever and the valve mechanism, and locking devices for restraining the operation of said valve mechanism when a carrier happens to be passing through the main tube opposite to the substation where the sending apparatus is locked.

3. In a pneumatic-despatch-tube system, the combination with the main tube, of two or more tube-sections, a swinging support therefor, fluid pressure means for shifting said swinging support to place one or the other of the tube-sections in alinement with the main tube, valve mechanism controlling said fluid-pressure motor, a lever for operating said valve mechanism, and spring connection between the operating-lever and the valve mechanism, substantially as described.

4. In a pneumatic-despatch-tube system, the combination with the main tube, of two or more tube-sections, a swinging support therefor, fluid-pressure means for shifting said swinging support to place one or the other of the tube-sections in alinement with the main tube, valve mechanism controlling said fluid-pressure motor, a lever for operating said valve mechanism, a spring interposed between the valve-stem and the operating-lever, means locking the valve-stem against movement when a carrier is passing in the main tube opposite the substation, but allowing the spring to be put under tension by the lever, substantially as described.

5. In a pneumatic-tube system, the combination at a substation of a sending apparatus, a lock therefor, restraining the apparatus from movement when a carrier is in the main tube opposite the substation, a motor for shifting said sending apparatus, and means restraining said motor from action when the sending apparatus is locked, substantially as described.

6. In a pneumatic-tube system, the combination at a substation of a sending apparatus, a lock therefor, restraining the apparatus from movement when a carrier is in the main tube opposite the substation, a motor for shifting said sending apparatus, a manually-operated lever controlling the valve mechanism of said motor, means locking the valve mechanism when a carrier is passing the substation, a yielding tension device between said lever and the stem of said valve mechanism, whereby said yielding tension device will be put under tension if the operating-lever is moved while the valve mechanism is locked, and will automatically shift the valve mechanism when the same becomes unlocked, substantially as described.

7. In a pneumatic tube system, a motor for shifting the sending apparatus, means locking the valve mechanism of said motor when the sending apparatus is locked, manually-operated means for positively shifting said valve mechanism when unlocked, and a tension device between said manually-operated means and the valve mechanism, which will be put under tension if said last-named means are operated when the valve mechanism is locked, and automatically shift the valve mechanism upon the same being unlocked, substantially as described.

8. In a pneumatic-tube system, the combination at a substation of a sending apparatus, a motor for shifting said sending apparatus, and means restraining said motor from action when a carrier is in the main tube opposite the substation, substantially as described.

595,757. CHOPPING-BOARD. JAMES B. BULL, Hima, Wash. Filed May 3, 1897. Serial No. 634,923. (No model.)

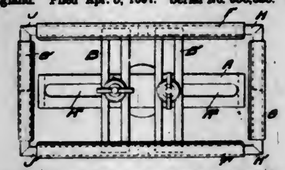


Claim.—1. In a device of the character described, a frame having side pieces with pointed ends, cross-bars connecting the side pieces upon different horizontal planes, and a plank removably supported by said cross-bars, substantially as specified.

2. In a device of the character described, a metallic frame having side pieces pointed at one end and cross-bars connecting the side pieces upon different planes, hooks upon the side pieces, and chains provided with dogs adapted to engage in a tree, all substantially as shown and described.

3. The combination with the frame having side pieces with pointed ends and connecting cross-bars upon different planes, of the plank adjustably supported by the cross-bars, the hooks on the side pieces and the chains having one end provided with dogs adapted to engage in a tree, substantially as specified.

595,758. BOX-COVERING MACHINE. THOMAS BISHOP, Birmingham, England. Filed Apr. 5, 1897. Serial No. 630,825. (No model.)



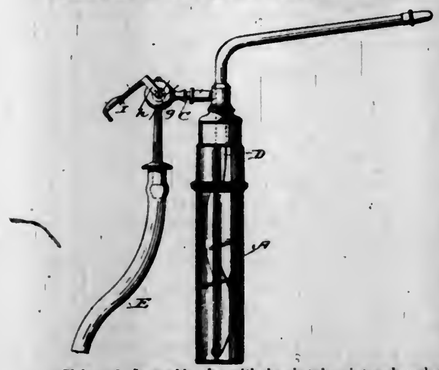
Claim.—1. The combination in a segmental block for a box-covering machine of slotted arms as B B' and C C' so mounted in pairs upon a slotted bridge-piece or carrier A that the two pairs can be caused to recede from or approach each other in one straight line direction, and the two arms of each pair to recede from or approach each other in a straight-line direction at right angles to the movement of the arms in pairs, substantially as described.

2 In combination, the bridge-piece having a slot, the two pairs of slotted arms thereon adjustable toward and from each other, the segments carried by the said arms, and the central segments telescoping therewith, substantially as described.

3 In combination, the bridge piece, the two pairs of arms adjustable thereon toward and from each other, said arms of each pair being adjustable relatively to each other, the angular segments carried by said arms, the central segments telescoping with the angular segments, and the stops for limiting the movement of the segments, substantially as described

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595,759. ATOMIZER. WILLIAM BORKEL and JULIUS BORKEL, Philadelphia, Pa. Filed July 29, 1897. Serial No. 646,307. (No model.)



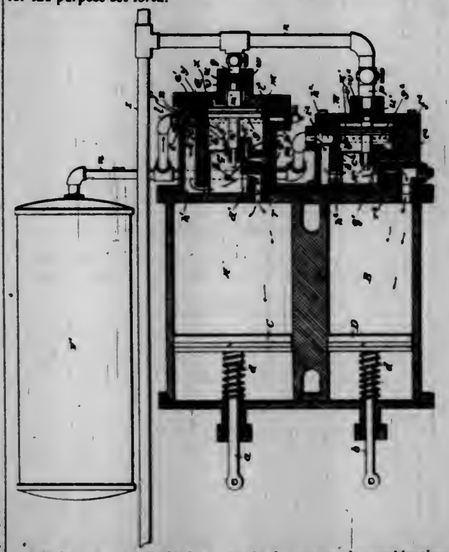
Claim.—1. In combination with the air-tube, air-nozzle and plug-casing of an atomizer, a rotary plug extending through the said casing and provided with a longitudinal groove or passage that registers with the said nozzle and extends through the end of the said plug making immediate connection with the outer air substantially as set forth.

2. In combination with the plug casing of an atomizer having an air inlet and outlet, a plug turning in said casing and extending through it at both ends, the said plug having a longitudinal groove formed therein, which extends through both ends of the said plug and thereby makes a double connection with the outer air, while simultaneously communicating with the outlet substantially as set forth.

3. In combination with a liquid-receptacle and a spraying-nozzle connected thereto, an air-nozzle discharging into the same, a cut-off plug for regulating the supply of air to said air-nozzle, and a lever for operating the said plug, the latter being provided with a longitudinal groove which extends to the ends of the said plug flush with the outer face of the casing and thereby directly connects the interior of the air-nozzle and bottle with the outer air when in position to cut off the supply of air from the said bottle substantially as set forth.

595,760. AUTOMATIC FLUID-PRESSURE BRAKE APPARATUS. WILLIAM P. BOTHWELL, Jersey City, N. J. Filed Nov. 4, 1897. Serial No. 657,635. (No model.)

Claim.—1. In an automatic fluid-pressure brake system, the combination of an auxiliary reservoir, a train-pipe, two brake-cylinders A, B, a triple valve having a valve-chamber, train-pipe, auxiliary-reservoir and exhaust openings or ports communicating with the valve-chamber and also having an opening or port communicating with the valve-chamber and the brake-cylinder A, a valve in said chamber adapted to control communication between the exhaust and brake-cylinder openings or ports and between the valve-chamber and brake-cylinder opening or port, a piston to operate said valve, a check-valve adapted to control communication between the auxiliary-reservoir port or opening and that part of the valve-chamber in front of the piston, a passage connecting the auxiliary-reservoir opening or port and the valve-chamber on the side of the piston with which the brake-cylinder port or opening communicates, a passage connecting the auxiliary reservoir port or opening and the valve-chamber on the side of the piston with which the train-pipe port or opening communicates, and a check-valve arranged in this latter passage and adapted to permit air to pass through the passage to the auxiliary reservoir port or opening and prevent its return through the passage, and a second triple valve having a valve-chamber, train-pipe, auxiliary-reservoir, and exhaust openings or ports communicating with the valve-chamber and also having an opening or port communicating with the valve-chamber and the brake-cylinder B, a valve in said chamber adapted to control communication between the exhaust and brake-cylinder openings or ports and between the valve-chamber and brake-cylinder opening or port, a piston to operate said valve, a check-valve adapted to control communication between the auxiliary-reservoir port or opening and that part of the valve-chamber in front of the piston, and a passage connecting the auxiliary-reservoir opening or port and the valve-chamber on the side of the piston with which the brake-cylinder port or opening communicates, substantially as and for the purpose set forth.



2. In an automatic fluid-pressure brake system, the combination of an auxiliary reservoir, a train-pipe, two brake cylinders A, B, a triple valve H, having a valve-chamber, train-pipe, auxiliary-reservoir and exhaust openings or ports communicating with the valve-chamber and also having an opening or port communicating with the valve-chamber and the brake-cylinder B, a valve in said chamber adapted to control communication between the exhaust and brake-cylinder openings or ports and between the valve-chamber and brake-cylinder opening or port, a piston to operate said valve and a spring backing the piston, and a second triple valve G, having a valve-chamber, train-pipe, auxiliary-reservoir and exhaust openings or ports communicating with the valve-chamber and also having an opening or port communicating with the valve-chamber and the brake-cylinder A, a valve in said chamber adapted to control communication between the exhaust and brake cylinder openings or ports and between the valve-chamber and brake-cylinder openings or ports, a piston to operate said valve, and a spring backing said piston; said spring being of less strength than the spring backing the piston of the triple valve H, substantially as specified.

3. In an automatic fluid-pressure brake system, the combination of an auxiliary reservoir F, a train-pipe, two brake-cylinders A, B, a triple valve H, connected with the train-pipe, auxiliary reservoir and brake-cylinder B, and having an exhaust port or opening, and adapted to effect communication between the auxiliary reservoir F, and the brake-cylinder B, communication between said brake-cylinder and

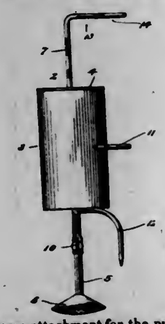
an exhaust and communication between the train-pipe and the auxiliary reservoir F, and a triple valve G, connected with the train-pipe, auxiliary reservoir F, and brake-cylinder A, and adapted to effect communication between the auxiliary reservoir F, and the brake-cylinder A, communication between said brake-cylinder and an exhaust and communication between the train-pipe and the auxiliary reservoir F, and embodying such a construction that a greater pressure in the train-pipe is necessary to move its valve than is necessary to move the valve of the triple valve H, substantially as and for the purpose set forth.

4. In an automatic fluid-pressure brake system, the combination of an auxiliary reservoir, a train-pipe, two brake-cylinders and two triple valves connected with the auxiliary reservoir and the train-pipe and each connected with one of the brake-cylinders and each having an exhaust and a spring backing its pistou; one of said springs being stronger than the other and the valve which is provided with the weaker spring having a passage for affording an escape for the train-pipe pressure, substantially as specified.

5. In an automatic fluid-pressure brake mechanism, the combination with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders, of valve mechanism operative by a partial reduction of train-pipe pressure for automatically supplying fluid-pressure to one or more of the brake-cylinders according to the rapidity of the variations in train-pipe pressure between certain limits above the atmosphere and also operative by an increase of train-pipe pressure for exhausting fluid-pressure from one or more of the brake-cylinders according to the variations in train-pipe pressure, substantially as specified.

6. In an automatic fluid-pressure brake mechanism, in which applications of the brake may be effected by varying the pressure in the train pipe between certain limits above the pressure of the atmosphere, the combination with a train-pipe, an auxiliary reservoir, and a plurality of brake-cylinders: of valve mechanism whereby fluid under pressure is admitted to one of the brake-cylinders on a moderate or gradual reduction of the train-pipe pressure and to both brake-cylinders on a more rapid reduction of train-pipe pressure, and whereby fluid-pressure is exhausted from one brake-cylinder on a moderate or gradual increase of train-pipe pressure and from both cylinders on a greater or more rapid increase of train-pipe pressure, substantially as specified.

595,761. SPRAYING ATTACHMENT FOR BROOMS. HENRY BROCKMANN, Santa Rosa, Cal. Filed May 25, 1897. Serial No. 638,115. (No model.)



Claim.—A broom attachment for the purpose described, consisting of a tank provided with a discharge-pipe having a spraying-head and a controlling-valve, a piston, means for exerting a downward pressure upon the piston to force the fluid contained in the tank through the spraying-head, a loop 11 secured to the side of the tank and one secured to the upper end of the piston-rod, said loops adapted to slip over the handle of the broom, and a pair of outwardly and downwardly projecting prongs or arms adapted to penetrate the shoulder of the broom and support the tank, substantially as set forth.

595,762. GAS-BURNER. FRANK M. BROOKS, Brooklyn, N. Y. Filed Apr. 10, 1897. Serial No. 631,517. (No model.)



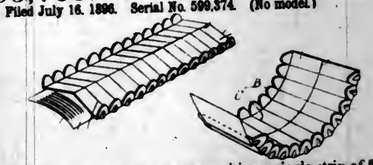
Claim.—1. A gas-cock for a Welsbach burner, embodying a plug having a passage through it for supplying gas to a Bunsen burner, another passage in the plug which permanently supplies gas to a pilot-jet, and an auxiliary passage connecting with the last-named passage, which increases the supply of the pilot-jet upon cutting off the supply to the Bunsen burner, for the purposes set forth.

2. A gas-cock for a Welsbach or like burner embodying two gas-passages below the plug for supplying gas to the pilot-jet, and two channels or passages in the plug one of which at all times engages with one of said passages in the body, and the other engages with the other supply-passage only when the main supply of gas is turned off, for the purposes set forth.

3. A gas-cock for a Welsbach or like burner embodying a plug having a passage for the supply of gas to a Bunsen burner, and also passages for the permanent supply of gas to the pilot-jet made in its periphery, connected together at one end, and at the other separated, and passages in the body of the cock one of which is in permanent connection with one of the said passages in the plug and the other makes connection with the other upon turning off the main supply, for the purposes set forth.

4. A gas-cock for a Welsbach or similar burner having a plug provided with a passage-way for supplying gas to a Bunsen burner, and in its exterior surface, two passages for supplying gas to the pilot-jet, one of them adapted to engage permanently with a source of gas-supply and the other to make such engagement during the time the main supply of gas is turned off, for the purposes set forth.

595,763. COIN-WRAPPER. ROBERT L. CHOPE, Detroit, Mich. Filed July 16, 1896. Serial No. 599,374. (No model.)



Claim.—1. A coin-wrapper, comprising a single strip of flexible material, provided with transverse creases or scores, and upturned marginal teeth or flanges each provided with a stiffening-rib, and means for securing the strip about the coin, substantially as described.

2. A coin-wrapper comprising a strip of articulated sections, upturned marginal flanges on said sections, each provided with a stiffening rib or bead, and means for securing the strip about the coin, substantially as described.

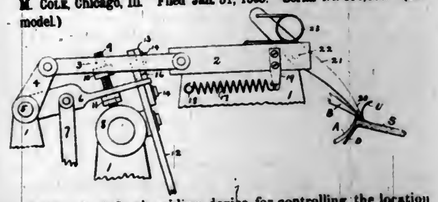
3. A coin-wrapper comprising a strip formed with upturned marginal teeth or flanges each formed with a stiffening bead or rib, substantially as described.

4. A coin-wrapper comprising a strip provided along its opposite edges with teeth or flanges having provision for maintaining the same at substantially right angles to the strip, and also provided with a crease or score extending in a direction parallel with said teeth or flanges, whereby the strip can be bent for nesting purposes.

5. In a coin-wrapper, a strip bent or folded upon itself and cemented, and provided with transverse scores or creases, and a longitudinal crease, and upturned marginal teeth or flanges, between the transverse scores or creases and extending at right angles to the strip, substantially as and for the purposes set forth.

6. A coin-wrapper comprising a single strip, of parts folded upon itself and cemented, and provided with transverse creases or scores and upturned marginal teeth or flanges each of which is formed with a bead or rib, and means for securing the strip about the coin, substantially as described.

595,764. ROUNDING AND CHANNELING MACHINE. EDWARD M. COLE, Chicago, Ill. Filed Jan. 31, 1895. Serial No. 536,809. (No model.)



Claim.—1. A fixed guiding device for controlling the location of a shoe while being operated upon by rounding and channeling tools, an adjustable guiding device adapted to interpose so as to force the shoes farther from said tools, and means for advancing and retracting said adjustable guiding device while the tools are in operation.

2. A fixed guiding device for controlling the inward location of a shoe operated upon by rounding and channeling tools, an adjustable guiding device for pushing the shoe outward, stops for limiting the movement of the adjustable guiding device, and means for shifting the position of said adjustable guiding device.

3. In a rounding and channeling machine, a stationary gage, an adjustable gage, mounted on the top of said stationary gage, and devices for advancing and retracting said adjustable gage.

4. A fixed guiding device and an adjustable guiding device, means for advancing and retracting the latter, stops for limiting its movement, and a catch for holding it at a position intermediate its extremes.

5. In a rounding and channeling machine, an adjustable guiding device, means for advancing and retracting said device, stops for limiting its movement, a catch for holding it at intermediate position, and means for adjusting said catch to different intermediate positions.

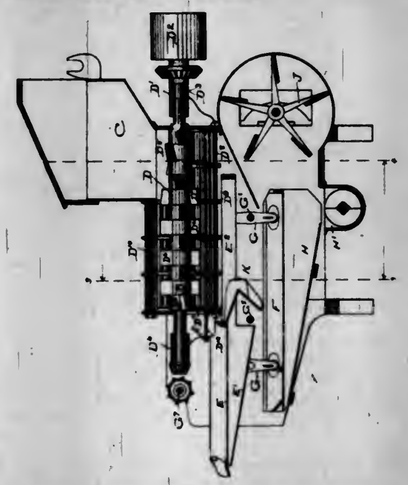
6. In a rounding and channeling machine, an adjustable guiding device and means for moving it, adjustable stops for limiting such movement, a device for holding said guiding device at an intermediate position, means for adjusting said holding device, and a lever for releasing said holding device.

7. A stationary gage, an adjustable gage movable on the top thereof, operating devices for reciprocating said adjustable gage, and adjustable stops for regulating the movement of said operating devices.

8. In a machine for operation upon the soles of boots and shoes, two independent guides, one working along the shank portion and the other around the fore part.

9. In a rough rounding and channeling machine the combination with the rough-rounding knife, of a fixed gage, a movable gage mounted adjacent thereto and movable transversely to the direction of the feed, and mechanism for actuating the movable gage during the operation of the machine.

595,765. CORN-SHELLER. WILLIAM COLWELL, Chillicothe, Ill., assignor to the Joliet Manufacturing Company, Joliet, Ill. Filed Feb 24, 1896. Serial No. 580,487. (No model.)



Claim.—1. The corn-sheller having shelling devices operating on the principle of shelling the corn by suojecting the ears of corn to a rapid beating, tumbling and stirring action in a confining-chamber in which the corn-ears are loose and free to be knocked, stirred and tumbled in different directions, and comprising in combination a cylindrical casing or grating having a large unobstructed chamber or interior to receive and confine the corn-ears in a loose condition and free to be knocked, stirred and tumbled in different directions by action of rapidly-revolving beaters, and a rapidly-rotating shaft extending centrally in and lengthwise of said casing and provided with a series of radial arms or beaters located at intervals longitudinally along said shaft and at intervals radially about said shaft with wide open spaces between them longitudinally and radially of the shaft to permit the corn ears to pass in different directions between contiguous beaters longitudinally or radially the open space between the shaft and said casing or grating being large and unobstructed to permit the corn-ears to be freely knocked, stirred and tumbled in different directions by action of said beaters, whereby the corn is rapidly and perfectly shelled without mutilation of the kernels or grains, said beaters or arms being in a number of separate pieces from said shaft and having a series of hubs surrounding the shaft to secure the same thereto, substantially as specified.

2. The corn-sheller having shelling devices operating on the principle of shelling the corn by subjecting the ears of corn to a rapid beating, tumbling and stirring action in a confining-chamber in which the corn-ears are loose and free to be knocked, stirred and tumbled in different directions, and comprising in combination a casing or grating having a large unobstructed chamber or interior to receive and confine the corn-ears in a loose condition and free to be knocked, stirred and tumbled in different directions by action of rapidly-revolving beaters, and a rapidly-rotating shaft extending centrally in and lengthwise of said casing and provided with a series of radial arms or beaters located at intervals longitudinally along said shaft and at intervals radially about said shaft with wide open spaces between them longitudinally and radially of the shaft to permit the corn ears to pass in different directions between contiguous beaters longitudinally or radially, the open space between the shaft and said casing or grating being large and unobstructed to permit the corn-ears to be freely knocked, stirred and tumbled in different directions by action of said beaters, and the open space or distance between the outer ends of said beaters and said surrounding casing or grating being large and sufficient to permit corn-ears to pass between the same, whereby the corn is rapidly and perfectly shelled without mutilation of the kernels or grains, substantially as specified.

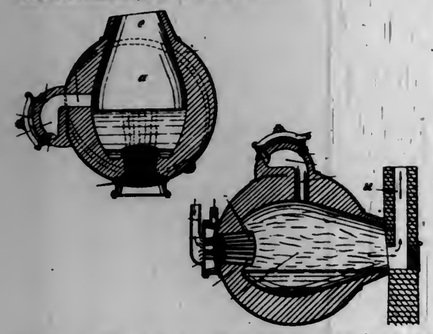
3. The corn-sheller having shelling devices operating on the principle of shelling the corn by subjecting the ears of corn to a rapid beating, tumbling and stirring action in a confining-chamber in which the corn-ears are loose and free to be knocked, stirred and tumbled in different directions, and comprising in combination a casing or grating having a large unobstructed chamber or interior to receive and confine the corn-ears in a loose condition and free to be knocked, stirred and tumbled in different directions by action of rapidly-revolving beaters, and a rapidly-rotating shaft extending centrally in and lengthwise of said casing and provided with a series of radial arms or beaters located at intervals longitudinally along said shaft and at intervals radially about said shaft with wide open spaces between them longitudinally and radially of the shaft to permit the corn ears to pass in different directions between contiguous beaters longitudinally or radially, the open space between the shaft and said casing or grating being large and unobstructed to permit the corn-ears to be freely knocked, stirred and tumbled in different directions by action of said beaters, and the open space or distance between the outer ends of said beaters and said surrounding casing or grating being large and sufficient to permit corn-ears to pass between the same, whereby the corn is rapidly and perfectly shelled without mutilation of the kernels or grains, substantially as specified.

4. The corn-sheller having shelling devices operating on the principle of shelling the corn by subjecting the ears of corn to a rapid beating, tumbling and stirring action in a confining-chamber in which the corn-ears are loose and free to be knocked, stirred and tumbled in different directions, and comprising in combination a cylindrical casing or grating having a large unobstructed chamber or interior to receive and confine the corn-ears in a loose condition and free to be knocked, stirred and tumbled in different directions by action of rapidly-revolving beaters, and a rapidly-rotating shaft extending centrally in and lengthwise of said casing and provided with a series of radial arms or beaters located at intervals longitudinally along said shaft and at intervals radially about said shaft with wide open spaces between them longitudinally and radially of the shaft to permit the corn-ears to pass in different directions between contiguous beaters longitudinally or radially, the open space between the shaft and said casing or grating being large and unobstructed to permit the corn-ears to be freely knocked, stirred and tumbled in different directions by action of said beaters, whereby the corn is rapidly and perfectly shelled without mutilation of the kernels or grains, said surrounding casing or grating having an opening at its end for the discharge of the cobs, and one pair of said beaters adjacent to said opening having their faces at an angle to said shaft to aid in discharging or forcing the cobs through said opening, substantially as specified.

5. The corn-sheller having shelling devices operating on the principle of shelling the corn by subjecting the ears of corn to a rapid beating, tumbling and stirring action in a confining-chamber in which the corn-ears are loose and free to be knocked, stirred and tumbled in different directions, and comprising in combination a casing or grating having a large unobstructed chamber or interior to receive and confine the corn-ears in a loose condition and free to be knocked, stirred and tumbled in different directions by action of rapidly-revolving beaters, and a rapidly-rotating shaft extending centrally in and lengthwise of said casing and provided with a series of radial arms or beaters located at intervals longitudinally along said shaft and at intervals radially about said shaft with wide open spaces between

them longitudinally and radially of the shaft to permit the corn-ears to pass in different directions between contiguous beaters longitudinally or radially, the open space between the shaft and said casing or grating being large and unobstructed to permit the corn ears to be freely knocked, stirred and tumbled in different directions by action of said beaters, whereby the corn is rapidly and perfectly shelled without mutilation of the kernels or grains, a portion of said beaters at the feeding ends of said casing or grating having their faces inclined to the shaft, and the beaters at the middle portions of said casing or grating having their faces parallel to the shaft, said surrounding casing or grating having an opening at its end for the discharge of the cobs, and one pair of said beaters adjacent to said opening having their faces at an angle to said shaft to aid in discharging or forcing the cobs through said opening, substantially as specified.

595,766. PROCESS OF AND APPARATUS FOR OBTAINING PURE COPPER IN SINGLE OPERATIONS. PAUL DAVID, Eguilles, France. Filed Apr. 10, 1897. Serial No. 631,501. (No model.) Patented in France Aug. 26, 1896, No. 259,214.



Claim.—1. The herein-described process of treating copper mattes containing foreign metals, which consists in heating the same in a reverberatory furnace or a converter in the presence of an air-blast to a high temperature, to thereby decompose the said matte, separating the foreign metals from the matte by gravity, and in thereupon separating the said foreign metals at the bottom of the matte from the remainder of the matte without allowing the matte to cool, whereby pure copper will be obtained in a single operation.

2. The herein-described process of producing pure copper in a single operation, which consists in heating a matte containing copper and foreign metals to a state of fluidity in a reverberatory furnace or converter in the presence of an air-blast, separating the heavy foreign metals from the matte by gravity, and thereupon turning the furnace or converter into a position where the heavy foreign metals may be drawn off without disturbing the pure copper, meantime keeping the matte in a state of fluidity

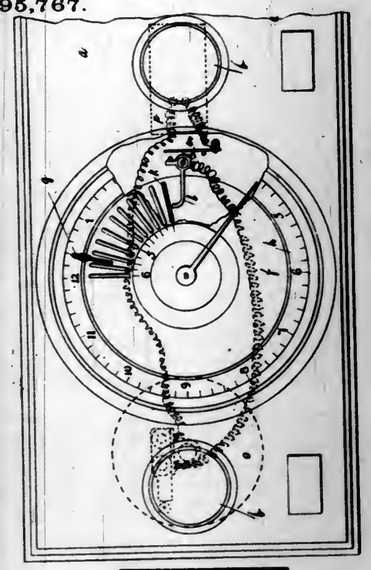
3. For the treatment of copper matte a reducing vessel provided with twyers and the said vessel being mounted to rotate on an axis and combined with a lateral chamber or pocket provided with a tapping-hole and communicating with the reducing vessel by a channel leading into the upper part of the pocket so that by rotating the vessel about its axis the fluid contents may run into the pocket but cannot return to the reducing vessel when the latter is turned back for continuing the reducing operation as described.

4. For the treatment of copper matte, a reducing vessel provided with twyers rising therein above the level of the bottom of the reducing vessel, the said vessel being mounted to rotate on an inclined axis and combined with a lateral chamber or pocket provided with a tapping-hole and communicating with the reducing vessel by a channel leading into the upper part of the pocket so that by rotating the vessel abouts its axis the fluid contents may run into the pocket but cannot return to the reducing vessel when the latter is turned back for continuing the reducing operation as described.

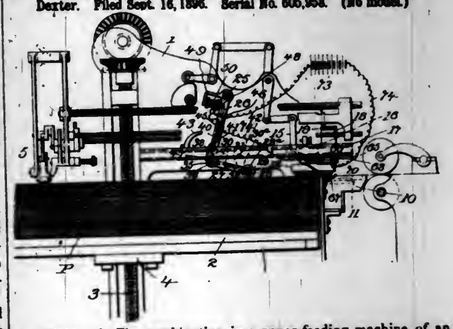
595,767. PROGRAM-CLOCK. JOHN DAVIDSON, London, England, assignor of one-half to the Automatic Memorandum Clock Company, Limited, same place. Filed Dec. 9, 1896. Serial No. 615,063. (No model.)

Claim.—A memorandum-clock comprising a rotary drum having radial pockets extending vertically through the same at or near its periphery, the said periphery being open laterally, the contact extending into said open periphery and into the path of the tablets and the pointer and dial, substantially as described.

595,767.



595,768. ELECTRIC CONTROLLING DEVICE FOR PAPER-FEEDING MACHINES. TALBOT C. DEXTER, Pearl River, N. Y., and CLARENCE RAMSON, Jersey City, N. J.; said Ramson assignor to said Dexter. Filed Sept. 16, 1896. Serial No. 605,958. (No model.)



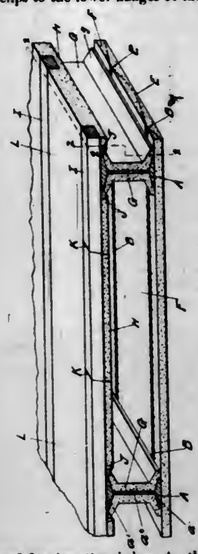
Claim.—1. The combination, in a paper-feeding machine, of an electrically-controlled paper-feeding device, a double-armed electric contact-lever supported above the path of the paper upon suitable bearings and insulated from its support, one of said arms projecting into the path of the paper to be operated thereby, an insulated block located beneath the path of the paper and supporting said paper-operated arm, and a cup of mercury into which the other of said arms dips, substantially as set forth.

2. The combination, in a paper-feeding machine, of an electrically-controlled paper-feeding device, a double-armed electric contact-lever supported above the path of the paper upon suitable bearings and insulated from its support, a grooved insulated block supported beneath the plane of feed of the paper, one arm of said contact-lever resting in the groove of said block in the path of the paper and adapted to be moved out of the groove by a passing sheet, and a cup of mercury into which the other of said arms dips substantially as set forth.

595,769. FIREPROOF FLOORING. THOMAS J. FOSTER, Chicago, Ill. Filed Feb. 10, 1896. Serial No. 578,712. (No model.)

Claim.—1. In a fireproof flooring, the girders, A; the beams, B; clips adapted to attach the said beams to the lower surfaces of the girders, A; a wire-netting, E, suspended over the said beams, B; and a layer of plastic material, F, supported by the said netting and the said channel-irons.

2. In a fireproof flooring, the girders A; the beams, B; clips, C, adapted to engage with the upper flange of the beams, B; and means for attaching the clips to the lower flanges of the said girders, A.



3. In a fireproof flooring, the girders, A; the channel-irons, B; the clips, C; and the wedges, D, constructed and arranged substantially as described, and for the purpose specified.

4. In a fireproof flooring, the girders A; a wire-cloth, H, supported by and spread over the said girders continuously in both directions; transverse continuous beams laid upon the said girders and wire-cloth; and a layer of cementing material, L, filling in between and beneath the said transverse beams, between the girders, and supported by the wire-cloth H.

5. In a fireproof flooring, the girders, A; the wire-cloth, H, supported thereby; transverse beams supported by the said girders; the spacing-blocks, J; and a layer of cementing material filling in between and beneath the transverse beams, and supported by the said wire-cloth.

6. In a fireproof flooring, the girders, A; the wire-cloth, H, supported thereby; transverse beams supported by the said girders; the spacing-blocks, J; wires arranged to support those portions of the wire-cloth, H, between the girders; and a layer of cementing material filling in between the transverse beams, and supported by the said wire-cloth.

7. In a fireproof flooring, the girders, A; the wire-cloth, H, supported by the said girders; the transverse beams, I', and cross-strips, M; the supporting-wires, K^3; and a layer of cementing material, L, filling in between the beams, I', and strips, M, and supported by the said wire-cloth, H.

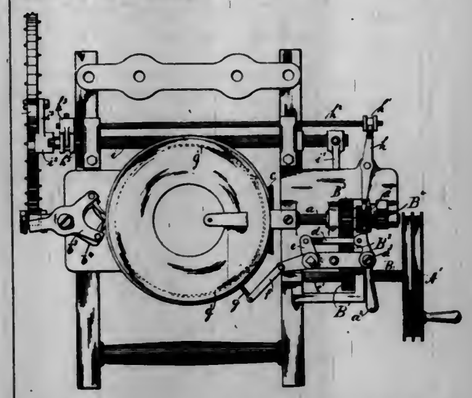
8. In a fireproof flooring, the girders, A, the wire-cloth, H, supported therefrom, transverse beams resting upon the said girders; wires adapted to form a concave lower or arched surface, H', in the wire-cloth, H; and a layer of cementing material, L, supported by the wire-cloth, H, and filling in between the said transverse beams.

595,770. KNITTING-MACHINE. GEORGE R. FRINK, Pawtucket, R. I., assignor to the R. Jonckes Manufacturing Company, same place. Filed Mar. 9, 1892. Renewed Mar. 12, 1897. Serial No. 627,224. (No model.)

Claim.—1. The combination with a motion-changing mechanism embodying a shaft, a rotary pinion on said shaft, an oscillating pinion on said shaft, a clutch for connecting either of said pinions to said shaft, and means for shifting said clutch to change the motion from rotary to reciprocating and vice versa of mechanism controlled by said clutch-shifting means for effecting the narrowing and widening.

2. The combination with mechanism for changing the motion from rotary to reciprocating or vice versa embodying a shifting clutch, of mechanism controlled by the shifting of said clutch for rendering a portion of the needles not required in narrowing and widening operative or inoperative.

3. The combination with a motion-changing mechanism embodying a shaft, a rotating pinion, an oscillating pinion, a clutch for connecting either of said pinions to said shaft, and means for shifting said clutch to change the motion from rotary to reciprocating and vice versa, of mechanism for throwing individual needles out of operation, and means connected with said clutch for controlling the operation of said mechanism.



4. The combination with motion-changing mechanism embodying a rotating pinion, an oscillating pinion, a clutch for engaging either of said pinions, and means for shifting said clutch to change the motion from rotary to reciprocating and vice versa, of mechanism for controlling the operation of individual needles in narrowing and widening and means for controlling the operation of said mechanism from said clutch-shifting means.

5. The combination with mechanism for changing the motion from rotary to reciprocating, or vice versa embodying a shifting clutch, of mechanism for throwing the needles not required in narrowing and widening out of and into operation, mechanism for effecting the narrowing and widening, and means for controlling both of said mechanisms from said clutch.

6. In a knitting-machine, the combination with the main shifting clutch and the segmental cam-slide for controlling the operation of a portion of the needles not required in the operation of narrowing and widening, of mechanism, substantially as described, for connecting said shifting clutch and said cam-slide, whereby the shifting of said clutch will serve to operate said cam-slide in the proper direction, substantially as described.

7. In a knitting-machine the combination with the main shifting clutch, a pattern-wheel, a pawl for operating said pattern-wheel, and devices for actuating said pawl, of mechanism for connecting said shifting clutch with said pawl-actuating devices, whereby the shifting of said main clutch in one direction or the other will serve to throw said pattern-wheel pawl out of or into operation, substantially as described.

8. The combination with the main-shifting clutch and the segmental cam slide for controlling the operation of a portion of the needles not required in narrowing and widening, of mechanism for connecting said shifting clutch with said segmental cam-slide, a pattern-wheel for controlling the automatic throwing out or in of individual needles in the operation of narrowing and widening, a pawl for operating said pattern-wheel, devices for actuating said pawl, and mechanism for connecting said main clutch with said pawl-actuating devices, whereby the shifting of said clutch will serve not only to change the machine from rotary to reciprocating motion, or vice versa, but also to throw a portion of the needles simultaneously out of or into operation, and at the same time to throw said pattern-wheel into or out of operation, substantially as described.

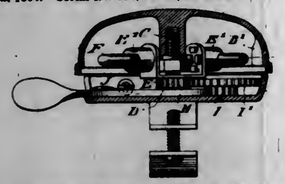
9. The combination with the main shifting clutch, of mechanism for controlling the operation of a portion of the needles not required in narrowing and widening, and means for connecting said mechanism with said main shifting clutch, whereby the shifting of said clutch will serve not only to change the machine from rotary to reciprocating motion and vice versa, but also to throw a portion of the needles simultaneously out of or into operation, substantially as described.

10. The combination with the main shifting clutch, of pattern mechanism for controlling the operation of individual needles in narrowing and widening, devices for operating said pattern mechanism, and means for connecting said operating devices with said main shifting clutch, whereby the shifting of said clutch will serve not only to change the machine from rotary to reciprocating motion or vice versa, but also to throw said pattern mechanism into or out of operation, substantially as described.

11. The combination with the main shifting clutch, of mechan-

ism for controlling the operation of a portion of the needles not required in narrowing and widening, means for connecting said mechanism with said main shifting clutch, pattern mechanism for controlling the operation of individual needles in narrowing and widening, devices for operating said pattern mechanism, and means for connecting said operating devices with said main shifting clutch, whereby the shifting of said clutch will serve not only to change the machine from rotary to reciprocating motion or vice versa but also to throw a portion of the needles simultaneously out of or into operation, and at the same time to throw said pattern mechanism into or out of operation, substantially as described.

595,771. BICYCLE-BELL. JOHN H. GOSS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed Sept. 22, 1897. Serial No. 652,546. (No model.)

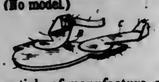


Claim.—1. A striker means for a bell, comprising a rotatable frame centrally mounted, sockets carried thereby, elongated slots in the outer ends of said sockets, strikers carried by said sockets, the outer ends of said strikers moving in a path to impinge against a lug carried by the bell.

2. A striker for a bell, comprising a rotatable frame centrally mounted, sockets carried thereby, horizontally-arranged elongated slots at the outer ends of said sockets, strikers having ball enlargements at one end, said enlargements being located within said sockets, the smaller ends of said strikers projecting through said slots and moving in a path to impinge against a lug carried by the bell.

3. In a bell, a centrally-mounted, rotatable frame, sockets carried thereby horizontally-arranged elongated slots in the outer ends of said sockets, strikers having enlargements at their inner ends, said enlargements being located within said sockets, the outer ends of said strikers projecting through said slots and moving into a path to impinge against a lug carried by the bell, a spring within said sockets pressing against the inner ends of said strikers, and means for rotating said frame.

595,772. COMBINED DETACHABLE ICE-CREEPER AND HEEL-PLATE. CHARLES R. GREEN, Grand Rapids, Mich. Filed Mar. 8, 1897. Serial No. 626,397. (No model.)



Claim.—1. As an article of manufacture, a heel-plate having attached a rough rubber covering a portion of said plate, and detachable slides on the remainder of said plate, and means for detachably securing said plate to the heel of a shoe, substantially as described.

2. As an article of manufacture, a heel-plate having a downwardly-turned flange at the rear, transverse dovetail ways across the front, detachable plates, one having a rubber face and one having spurs, and held by said ways, a rough rubber in the chamber formed by said flange and the rear way, and means for securing said plate to a shoe, substantially as described.

3. In a heel-plate, a plate of substantially the outline of the heel of a shoe, having a downwardly-turned flange at the rear and openings in the front side, a transverse plate having folded dovetail edges and covering said openings, detachable slides held by said folded edges, a rubber facing within said flange, rubber facing and spurs on said slides, arms having heads pivoted in said openings, and flanges on said arms to engage the front and sides of a heel, and a stud on said plate, substantially as described.

4. In a heel-plate, a plate having a rubber facing at the rear, and openings at the front, arms pivoted in said openings, one of said arms having flanges and a spur to engage the heel of a shoe, the other of said arms having a flange and a pivoted lever to engage the heel of a shoe, a plate covering said openings to which plate said arms are pivoted, and having folded edges forming channels, slides detachably held in said channels, and a stud on said plate having a head adapted to engage a plate on the heel of the shoe, substantially as described.

5. In combination with a shoe, a plate attached to the heel and having an elongated opening narrower at the forward end, a plate substantially of the outline of the heel, and having a stud to engage said opening, and openings in the forward side, a plate covering said openings and having folded edges, slides detachably secured by said edges and having rubber faces and spurs, arms pivoted to said plate in said openings, a plate attached to the front of the heel having an upturned end, a lever pivoted to an arm having a notch engaging said plate, a flange and spur on the other arm and engaging the heel, substantially as described.

6. The combination of a shoe having an opening in the heel, a heel-plate having a stud having a head, means for securing said plate in place on the heel, a plate having an elongated opening adapted at one end to admit the head of the stud and narrower at the other end, a movable plate to close said opening, and a spring to yieldably hold said plate in place, substantially as described.

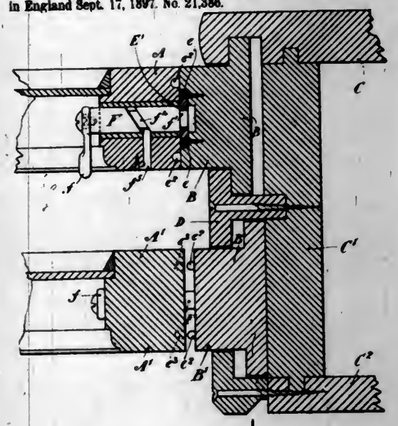
7. In combination, a shoe having a cavity in the heel, a plate having an elongated opening narrower at one end and covering said cavity, a heel-plate having a stud to engage the said opening, arms pivoted to said plate, one of said arms having flanges and a spur to engage the heel and the other arm having a flange and a pivoted lever, said lever having a notched end, and a plate having an upturned end and attached to the heel and engaging the notch in the lever, substantially as described.

595,773. FIRE-LIGHTING ATTACHMENT FOR CLOCKS. WILLIAM GUILMET and JOSEPH LE BLANC, Lewiston, Me. Filed July 6, 1897. Serial No. 643,647. (No model.)



Claim.—In a device for lighting fires, in combination, a plate attached to the rotatable shaft of the alarm mechanism of a clock, said plate being provided on its outer surface with a rim, a portion of which is cut away, a lever-arm provided with a hook on its end adapted to engage the rim of said revolving plate, the lever-arm capable of being detached from said revolving plate when its hooked end registers with the cut-away portion in the rim of the revolving plate, said lever-arm being also provided with fingers for holding a match or other easily-ignitible article, an abrasive plate placed in the path traveled by the match on said lever-arm, a spring surrounding the lower end of said lever-arm to give the same a lateral movement substantially as and for the purposes set forth.

595,774. WINDOW-SASH. JOSEPH HAYTON, Lancaster, England. Filed Oct. 9, 1897. Serial No. 654,656. (No model.) Patented in England Sept. 17, 1897, No. 21,386.



Claim.—1. In window-sashes or the like, the combination of the sash-stiles A, the loose rabbeted stile B, the locking-bolts F, mounted in the sash-stiles A, one end of each of the bolts F being provided with a groove and thrust-collar to engage the loose stiles B, the helical grooves f^4, the pins f^5, and the thumb-pieces f by which the bolts F may be partially rotated, substantially as described and shown.

2. In window-sashes or the like, the combination of the sash-stiles A, the loose rabbeted stiles B, the snugs c^3, projecting from one side of the loose stiles B to engage corresponding recesses in the sash-stiles, the locking-bolts F mounted in the sash-stiles A, one end of each of the bolts F being provided with a groove and thrust-collar, to engage the loose stiles B, the helical grooves f^4, the pins f^5, and the thumb-pieces f, substantially as shown and described.

3. In window-sashes or the like, the combination of the sash-stiles A, the loose rabbeted stiles B, the rabbeted parting slips or laths D to keep the upper and lower sashes apart, the projecting snugs c^3, the locking-bolts F, one end of each of which is provided with a groove and thrust-collar to engage the loose stiles B, the helical grooves f^4, the engaging pins f^5 and the thumb-pieces f, substantially as shown and described.

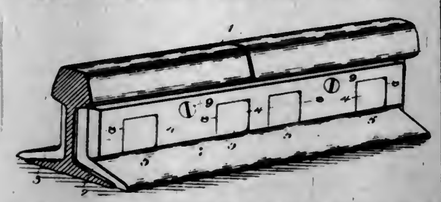
4. In window-sashes or the like, the combination of the sash-stiles A, the loose rabbeted stiles B, the rabbeted parting slips or laths D, the rabbeted portions C, C^3 of the window-lining, the projecting snugs c^3, the locking-bolts F each provided with a groove and thrust-collar to engage the loose stiles B, the helical grooves f^4, the engaging pins f^5 and the thumb pieces f, substantially as shown and described.

5. In window-sashes or the like the combination of the sash-stiles A the loose rabbeted stiles B, the rabbeted parting slips or laths D, the rabbeted portions C, C^3, of the window-lining, the projecting snugs c^3, the locking-bolts F, the divided recessed sets of plates f^3, f^3, each set provided with semicircular holes to engage grooves formed on the ends of each of the bolts F, the helical grooves f^4, the engaging pins f^5, and the thumb-pieces f, substantially as shown and described.

6. In window-sashes or the like, the combination of the sash-stiles A, the loose rabbeted stiles B, the rabbeted parting slips or laths D, the rabbeted portions C, C^3, of the window-lining, the projecting snugs c^3, the locking-bolts F, the slots e' in the plates E to engage grooves formed on the ends of each of the bolts F, the helical grooves f^4, the engaging pins f^5 and the thumb-pieces f, substantially as described and shown.

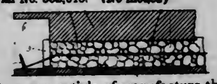
7. In window-sashes and the like, the combination of the sash stiles A, the loose rabbeted stiles B, the rabbeted parting slips or laths D, the rabbeted portions C, C^3 of the window-lining, the projecting snugs c^3, the locking-bolts F, the slots e' in the plates E to engage grooves formed on the ends of each of the bolts F, the helical grooves f^4, the engaging pins f^5 and the thumb-pieces f, with the doubly or step rabbeted meeting bars or rails G, G', substantially as shown and described.

595,775. BOLT-LOCK FOR RAILWAYS. LEMUEL HERRIN, Timpson, Tex. Filed Jan. 9, 1897. Serial No. 618,593. (No model.)



Claim.—The rails 1 1 and the fish-plates 2 3, in combination with the bolts 4 4 formed with the rectangular head 5, and having their threaded ends provided with parallel plane faces 6 6, in combination with the locking-plate 7, formed with a series of rectangular recesses 8 8 in one edge, and the screws 9 9 adapted to removably secure said locking-plate 7 to the contiguous fish-plate 2, the whole constructed and arranged, substantially as shown and described.

595,776. SHEET MATERIAL OF CORK AND MECHANISM FOR PRODUCING SAME. HARRY D. HOLBROOK, Utica, N. Y. Filed Dec. 17, 1894. Serial No. 532,015. (No model.)

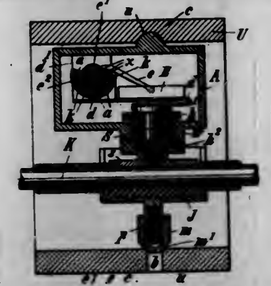


Claim.—1. As a new article of manufacture the flexible, elastic sheet material herein described consisting of a homogeneous body of granulated cork and elastic cement molded under pressure, and threads running through the body of the material and having the protuberances of the granulations of the cork removed to the general surface of the sheet, substantially as set forth.

2. A mold for forming sheet material consisting of a plain base having vertically-slitted walls and a cover having a die portion adapted to operate within the walls, substantially as set forth.

3. A mold for forming sheet material consisting of a plain base having vertically-slitted walls and projecting pins at the outer side of the walls and a cover having a plain die portion adapted to fit within the walls, substantially as set forth.

595,777. ELECTRIC SWITCH. HANS F. KLEINSCHMIDT, Hamburg, Germany. Filed Nov. 16, 1896. Serial No. 612,358. (No model.)



Claim.—1. In combination, a channeled rail-conductor, a main conductor or feeder extending along the channel of said rail conductor and a switch-box supported by the feeder, said parts braced against the upper and lower flanges of the rail-conductor, for the purpose set forth.

2. In combination, a channeled rail-conductor, a switch-box in the channel thereof, a main conductor or feeder below the box and a clamping device for clamping the feeder to the box and the latter to the upper flange of the rail-conductor, for the purpose set forth.

3. In combination a channeled rail-conductor, a switch-box whose cover is provided with a projection fitting a recess in the under side of the upper rail-flange, a main conductor or feeder, and a clamping device interposed between it and the lower rail-flange to clamp the feeder to the box and the latter to the upper rail-flange, for the purpose set forth.

4. In combination, a channeled rail-conductor, a switch-box in the channel thereof, a main conductor or feeder below and supporting said switch-box, and a ball-and-socket connection between the switch-box and upper rail-flange and between the feeder and lower rail-flange, for the purpose set forth.

5. In combination, a channeled rail conductor, a switch-box in the channel thereof, a main conductor or feeder, an insulation bearing therefor from which the said box is supported, a ball-and-socket connection between the switch-box and upper flange of the rail-conductor, and a like connection between the feeder-bearing and lower rail-conductor flange, an electric circuit including the feeder, the cover of the switch-box and the rail-conductor, and a magnetic switch in said box adapted to be operated by magnetic energy acting on the upper rail-conductor flange, said switch interposed in said electric circuit for the purpose set forth.

6 In combination a channeled rail-conductor provided in the under side of its upper flange with a hemispherical socket, a switch-box whose cover is provided with a boss or projection fitting said recess, a main conductor or feeder supporting said box, a support for said feeder having a screw-threaded shank, and a conical nut thereon fitting a seat in the lower flange of the rail-conductor, for the purpose set forth.

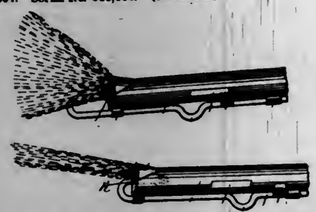
7. In combination, a channeled rail-conductor provided in the under side of its upper flange with a hemispherical socket, a switch-box whose cover is provided with a boss or projection fitting said recess, a main conductor or feeder supporting said box, a support for said feeder having a screw-threaded shank, a conical nut thereon fitting a seat in the lower flange of the rail-conductor, and means for locking said nut against accidental rotation, for the purposes set forth.

8. In combination, a channeled rail conductor, a switch-box of insulating material and a non magnetic but electrically conductive cover for said box, a main conductor or feeder, a non-conductive bearing therefor provided with an extension fitting a seat in the bottom of said box, a clamping device acting upon the lower flange of the rail conductor to clamp the feeder to the box and the latter to the upper rail-flange, a stud or bolt electrically connected with the feeder and a non-magnetic but electrically conductive armature hav-

ing a motion on said bolt and adapted to make contact with the cover of the switch-box when attracted by a magnetic current set up in the upper rail-flange and the box-cover to close the electric circuit from the feeder to the rail-conductor, substantially as and for the purpose set forth.

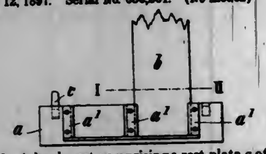
9 The combination with the channeled rail-conductor U provided with the seat u, the box A of insulated material, its cover of non-magnetic but electrically conductive material, the conductive stud or shaft S, connected with but insulated from said box-cover, and the armature E', having motion on said stud and adapted to form an electrical connection between the box-cover and shaft S, of the main conductor K seated in two half-bearings of insulated material, the upper half-bearing provided with a tubular projection fitting a seat in the bottom of the switch-box, into which tubular projection the aforesaid shaft S extends, and a clamping device consisting of a headed screw-bolt and a nut thereon having its lower end coned, said bolt interposed between the lower half-bearing for the main conductor and the lower flange of the rail conductor, said conical end of the nut seating in a recess in said lower flange, substantially as and for the purpose set forth.

595,778. SPRINKLER. ERNEST A. KNOOP, Monterey, Cal. Filed Jan. 6, 1897. Serial No. 618,167. (No model.)



Claim.—A tube, having a bore of uniform diameter, the mouth of which is expanded by a flaring lip and into which is fitted a movable stopper, composed of one or more plates, substantially as described and operated in the manner set forth.

595,779. BOOK-REST. CARL H. KOERNER, Hamburg, Germany. Filed May 12, 1897. Serial No. 636,261. (No model.)



Claim.—1. A book-rest comprising a rest-plate *a* of a length substantially equal to the width of an open book, a retaining-plate *b* adapted to be shifted from one side to the other of the longitudinal center of said rest-plate, the latter provided near each end with a retaining-groove and a finger *c* fitting either of said grooves, substantially as and for the purpose set forth.

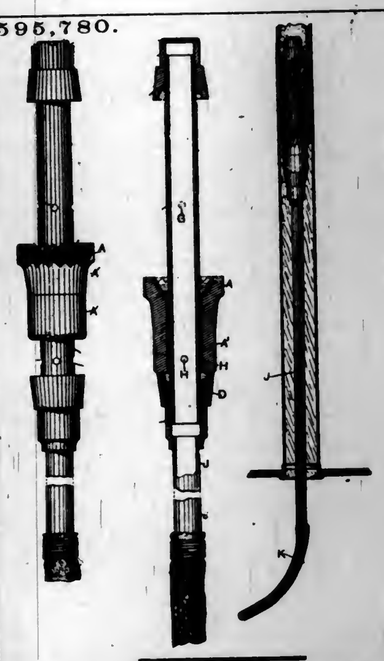
2. A book-rest comprising a rest-plate *a*, of a length substantially equal to the width of an open book, said plate composed of two plates hinged together, a retaining-plate *b*, shiftable from one to the other side of the hinge joint of said rest-plate, the latter provided near each end with a retaining groove and a finger fitting either groove, substantially as and for the purpose set forth.

3. A book-rest comprising a rest-plate *a* of a length substantially equal to the width of an open book, a retaining-plate *b*, shiftable from one to the other side of the longitudinal center of said rest-plate, the latter provided near each end with a retaining-groove and a finger fitting either groove, in combination with the stepped rest *d*, substantially as and for the purpose set forth.

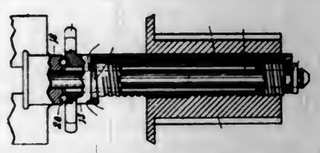
595,780. WATER-TUBE CLEANER FOR STEAM-BOILERS. IGNATZ KRIBAN, Chicago, Ill. Filed Aug. 15, 1896. Serial No. 602,916. (No model.)

Claim.—In a water-tube cleaner for steam-boilers, a handle hollow throughout its length and in communication at one end with a water-supply, and at the opposite end portion provided with two stops mounted thereon and between which stops and at the outer end of the handle, beyond the outer stop, are openings leading into the hollow portion of the handle, in combination with an abrading-tool having angularly-disposed peripheral cutters mounted upon the handle between the stops, and adapted to slide and to revolve thereon, in the manner and for the purpose stated.

595,780.



595,781. REVOLVING CHAIR. JAMES M. MORGAN, Port Washington, Wis. Filed Apr. 23, 1897. Serial No. 634,189. (No model.)



Claim.—1. In a revolving chair, the combination, of a hub, a screw-threaded spindle engaging the threaded bore of the hub, a revolving part turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub, provided with a lateral projection, mechanism between the lateral projection and the screw-threaded spindle, whereby the locking-bar, under normal conditions, is releasably locked to the screw-threaded spindle to prevent said spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the locking mechanism to permit the screw-threaded spindle and the rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

2. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, a revolving part turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub, and provided with a lateral projection, said projection provided with a projecting nib or lug, a part having a recess or recesses therein with which the nib or lug is adapted normally to releasably engage, to prevent the screw-threaded spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the nib or lug from the recess which it engages, to permit the screw-threaded spindle and the rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby said locking-bar is moved vertically with said mechanism.

3. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, said spindle having a portion thereof provided with a recess or recesses, a revolving portion turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub, and provided with a lateral projection having a nib or lug extending therefrom and adapted normally to engage a recess of the screw-spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the nib or lug from the recess which it engages, to permit the screw-threaded spindle and rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

4. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, said spindle having a portion thereof provided with a recess or recesses, a revolving portion turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub and provided with a lateral spring projection having a nib or lug extending therefrom and adapted normally to engage a recess of the screw-spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the nib or lug from the recess which it engages, in order to permit the screw-threaded spindle and rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

5. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, said spindle having a portion thereof provided with a recess or recesses, a revolving portion turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub and provided at opposite ends with lateral projections, one of said projections provided with a nib or lug adapted normally to engage a recess in the screw-threaded spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, and the other lateral projection engaging the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism, and means for disengaging the nib or lug from the recess which it engages, to permit the screw-threaded spindle and rotatable part to be adjusted together.

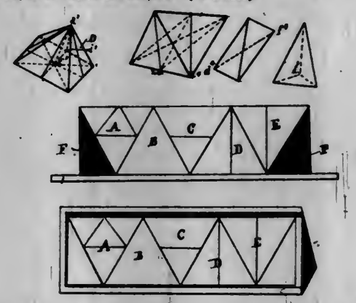
6. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, said spindle formed with a hand-wheel and with a part provided with a recess or recesses, a revolving portion turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub, and provided with a lateral projection having a nib or lug extending therefrom, and adapted normally to engage a recess of the screw-threaded spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

7. In a revolving chair, the combination, of a hub, a screw-threaded spindle engaging the threaded bore of the hub, a pivot-spindle, a seat-iron revoluble with or about said pivot-spindle, a locking-bar fitted in a slot in the hub, and provided with a lateral projection, mechanism between the lateral projection and the screw-threaded spindle, whereby the locking-bar, under normal conditions, is releasably locked to the screw-threaded spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the locking mechanism, to permit the screw-spindle and rotatable part to be adjusted vertically, and a connection between the locking bar and the vertically-adjustable mechanism, whereby said bar is moved vertically with said mechanism.

8. In a revolving chair, the combination, of a hub, a screw-spindle engaging the hub, said spindle provided with a hand-wheel having a downwardly-extending enlargement provided with a recess or recesses on its under side, a seat-iron, rotatable on the hand-wheel, and provided with a depending pivot-spindle extending into the threaded spindle, and a locking-bar provided at opposite extremities with lateral projections, the upper lateral projection being a spring projection, and adapted to engage beneath the depending enlargement of the hand-wheel, and provided with an upwardly-extending nib or lug, adapted to engage with a recess on the under edge of said enlargement, and the lower lateral projection adapted to engage with the vertically-adjustable mechanism, whereby the locking-bar is movable vertically with said mechanism.

9. In a revolving chair, the combination, of adjusting mechanism consisting of an inner part and an outer part, one of said parts having a threaded connection with the other so as to be raised or lowered, and one of said parts provided with a vertical passage, a rotatable part adapted to be supported by and to rotate on or about the adjustable mechanism, a locking-bar fitted in the vertical passage, and provided with a lateral projection, mechanism between the lateral projection and the adjustable part, whereby the locking-bar, under normal conditions, is releasably locked to the adjustable part to prevent said adjustable part from being turned on its threads by the friction of the rotatable part, means for disengaging the locking mechanism to permit the adjustable mechanism to be raised or lowered, and a connection between the locking mechanism and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

595,782. SECTIONAL MODEL FOR STEREOMETRIC REPRESENTATION. WILLIAM F. C. MORRELL, Philadelphia, Pa. Filed Dec. 31, 1895. Serial No. 573,962. (No model.)



Claim.—1. A composite block having the shape of a prism with the interfacial angle at the edge substantially seventy-one degrees and the interfacial angles at the other two edges substantially fifty-four degrees thirty minutes each and consisting of a series of blocks alternately of the shape of a regular tetrahedron and a regular pentahedral prism, one of said tetrahedral-shaped blocks being subdivided into four substantially equal and identically shaped blocks and one of said pentahedral-shaped blocks being divided into eight substantially equal and identically-shaped blocks each of said four blocks being equal in volume but of a different shape from the said eight blocks all substantially as described.

2. A composite block having the shape of a prism and having the interfacial angle at one edge substantially seventy-one degrees and the interfacial angles at the other edges fifty-four degrees thirty minutes each and consisting of a series of blocks alternately of the shape of a regular tetrahedron and of a regular pentahedral pyramid, all of said blocks having all of their edges of equal length and all of their faces of equal area, and the face angles formed by these edges all equal to sixty degrees, one of said tetrahedral-shaped blocks being divided into four smaller blocks substantially identical in shape and volume each to each, and one of the pyramidal-shaped blocks being divided into eight smaller blocks substantially identical each to each in form and volume, each of the latter being equal in volume to each of the former though differing therefrom in shape substantially as described

3. A tetrahedral block having all of its faces equal right-angled triangles, the length of one side about the right angle being in the ratio of 1 to the $\sqrt{2}$ to the other side about the right angle substantially as described.

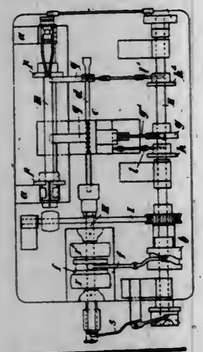
4. A prism-shaped block having one interfacial angle substantially seventy-one degrees and the other interfacial angles fifty-four degrees thirty minutes each, and formed of a block having the shape of a regular tetrahedron and a block having the shape of a regular pentahedral pyramid lying adjacent each to each said tetrahedral-shaped block being divided into four smaller blocks on the line of planes at right angles with each other through one edge and the middle point of the opposite edge, and the pyramid-shaped block being divided into eight smaller blocks by division on planes passed at right angles with each other through the apex and opposite side edges and on planes passed at right angles with each other and through the apex and through the middle points of the opposite lower edges substantially as described.

5. The combination of three tetrahedral blocks, two of which are right and left mates, similar in all respects except right and left position and being the eighth part of a right pentahedral pyramid, and a third tetrahedral block having two faces which are adapted to fit two like faces of the pair when the three are placed together to form a right-angular triangular prism substantially as described.

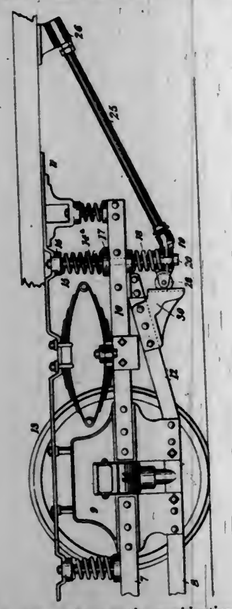
595,788. MACHINE FOR SCREW-THREADING RODS OR WIRES. CARL R. B. NAUMANN, Dresden, Germany. Filed June 1, 1897. Serial No. 638,043. (No model.)

Claim.—1. In a machine for screw-threading rods or wires such as cycle-wheel spokes or the like, the combination of a main shaft, a feeding device connected therewith consisting of a cam provided on the shaft and means for connecting the cam with the feeding-shaft and a pair of notched disks mounted on the latter, a locking and a reversing device consisting of a second cam keyed on the main shaft, a lever and a friction-roller mounted on the cutter-spindle and a device for reciprocating the spindle, substantially as and for the purpose set forth.

2. In a machine for screw-threading rods or wires such as cycle-wheel spokes or the like, the combination of a main shaft, a feeding device connected therewith consisting of a cam provided on the shaft and means for connecting the cam with the feeding-shaft and a pair of notched disks mounted on the latter, a locking and a reversing device consisting of a second cam keyed on the main shaft, a lever and a friction-roller mounted on the cutter-spindle and a device for reciprocating the spindle consisting of a cam and a spring connecting the main shaft with the spindle, substantially as and for the purpose set forth.



595,784. TRUSS-BRACE FOR RAILWAY-CARS. EDGAR PECKHAM, Kingston, N. Y. Filed Mar. 24, 1896. Serial No. 584,590. (No model.)



Claim.—1. In a brace for cars, the combination with the truck-frame, a diagonal brace attached at one end to the car-body and a vertical bracing-support secured at one end to the car-body, of a casting fixed to the lower end of said vertical support, a ball-and-socket joint connecting the lower end of said diagonal brace and casting together and a bearing between said casting and the truck-frame, substantially as set forth.

2. The casting 19 provided with a vertical opening, spiral grooves on its external surface and a socket at one side, and having at its opposite side a divided extension, substantially as set forth.

3. In a bracing for cars, the combination with a truck-frame and a diagonal brace attached to the car-body, of a vertical bracing-support secured at one end to the car body or sill, a casting attached to the bottom of said vertical bracing-support and connected at one side to said diagonal brace, and a movable bearing between said casting and the truck-frame and journaled in said casting.

4. In a bracing for cars the combination with a truck-frame and a diagonal brace attached to the car-body, of a vertical bracing-support secured at one end to the car body or sill, a casting attached to the lower end of said vertical bracing-support and connected at one side to the lower end of said diagonal brace by a ball-and-socket joint, and a movable bearing between said casting and the truck-frame and connected to said casting, substantially as set forth.

5. The combination with a truck-frame and a brace attached to the car-body, of a roller journaled in the brace and bearing against the truck-frame, substantially as set forth.

6. In a bracing for cars, the combination with a truck-frame and vertical and diagonal bracing members attached to the car body or sill and joined together at their lower ends, of a roller journaled in a bracket fixed at the juncture of said bracing members and a bracket secured to the truck-frame and furnishing a bearing surface for said journaled roller, substantially as set forth.

7. In a bracing for cars, the combination with a truck-frame and vertical and diagonal bracing members attached to the car body or sill and connected together at their lower ends, of a roller provided at the juncture of said bracing members and a bracket secured to the truck-frame and grooved to receive said roller, substantially as set forth.

8. In a bracing for cars, the combination with a truck-frame and vertical and diagonal bracing members attached to the car body or sill and connected together at their lower ends, of a revoluble bearing between the juncture of said bracing members and the truck-frame and a tension-spring surrounding the lower end of said vertical bracing member, substantially as set forth.

9. The combination with a truck-frame and a diagonal brace attached to the car-body, of a vertical bracing-support secured at one end to the car body or sill, a casting attached to the lower end of said vertical bracing member and connected at one side to the lower end of said diagonal brace, a bearing between the opposite side of said casting and the truck-frame and a tension-spring surrounding said vertical bracing-support between said casting and truck-frame, substantially as set forth.

10. The combination with a truck-frame and a diagonal brace attached to the car-body, of a vertical bracing-support secured at one end to the car body or sill, a casting attached to the lower end of said vertical bracing-support and connected at one side to the lower end of said diagonal brace, a revoluble bearing between the opposite side of said casting and the truck-frame and a tension-spring surrounding said vertical bracing-support between said casting and truck-frame, substantially as set forth.

11. The combination, in a car-brace, of vertical member 14ª attached to the car-sill, diagonal member 25 attached at one end to the car-sill, casting 19 connecting the bottoms of said vertical and diagonal members, the said casting provided with a roller as 28, and a bracket as 30 provided with a vertical groove to receive said roller, substantially as set forth.

12. The combination with a truck-frame and a diagonal brace attached at one end to the car-body, of a vertical member secured at one end to the car-body, a casting at the lower end of said vertical member, a roller interposed between the said casting and the truck frame and a yielding socketed joint connecting said casting with the lower end of the diagonal member, substantially as set forth.

595,785. PNEUMATIC NON-PUNCTURABLE TIRE. CHARLES A. PETTIE, Brooklyn, N. Y., assignor to Emma C Pettie, same place, and Frederick W. Barker, Nyack, N. Y. Filed June 9, 1897. Serial No. 640,067. (No model.)



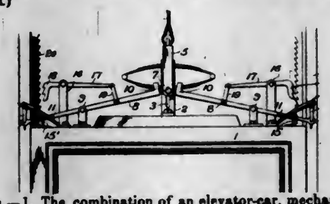
Claim.—1. A pneumatic tire having a flat-tread portion of substantially the width of the tire, the central portion of said flat tread being provided with a narrow longitudinal rib projecting slightly above the tread.

2. In a tire, a tread portion comprising an envelop, and a series of members therein having concaved sides, together with a series of rounded bodies which form pivots between the concaved sides of said members, substantially as set forth.

3. In a tire, a tread portion comprising a series of members having concaved sides and tapered ends and placed side by side to form an endless band, a series of rounded bodies having pointed ends and arranged one between each pair of members, a covering of textile fabric for said endless band and a bed of rubber within said covering, to form a socket for the tapered ends of the members and for the pointed ends of the rounded bodies; together with an outer envelop of rubber confining the aforesaid parts, the whole being adapted to be placed around the periphery of a pneumatic tire to form an impenetrable tread portion or shoe therefor, substantially as set forth.

4. In a pneumatic tire, an armor comprising a series of members having concavo-convex abutting edges extending out to the opposite sides thereof, and an inclosing envelop.

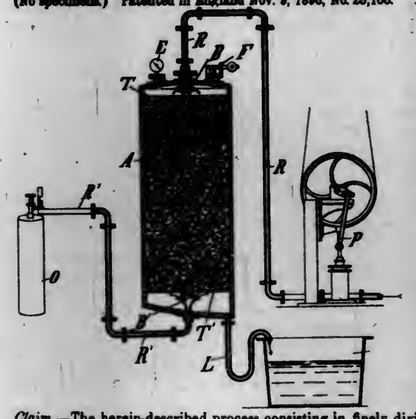
595,786. ELEVATOR SAFETY APPLIANCE. WILLETT R. ROGERS, Essex, N. Y. Filed June 3, 1897. Serial No. 639,322. (No model.)



Claim.—1. The combination of an elevator-car, mechanism for operating the same, a spring loosely secured to the top of the car, levers pivoted to the car and adapted to engage the spring at their inner ends, said levers being bifurcated at their outer ends, the bifurcated portions adapted to move on the opposite side of the beams of the elevator-shaft, spikes loosely secured at their upper ends to the car and adapted to be engaged by the ends of the bifurcations of the levers, and a connection between the spring and the hoisting-cable whereby said spring is normally raised, thus holding the inner ends of the levers raised and their outer ends holding the spikes out of engagement with the beams, said spring regaining its natural position when the hoisting-cable becomes broken, said movement of the spring causing the levers to move the spikes into position to engage the beams of the shaft which they are caused to do by the downward movement of the car, substantially as set forth.

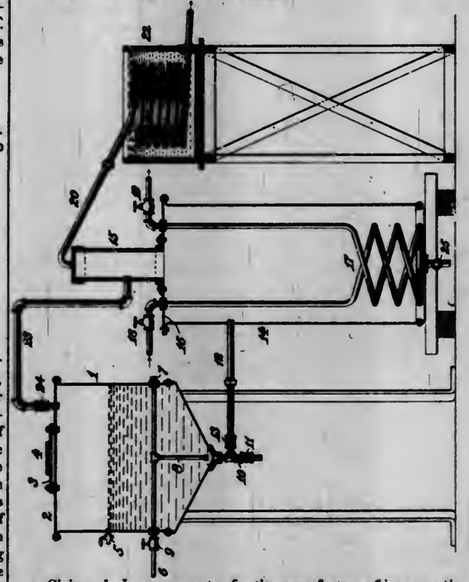
2. The combination of an elevator-car, a bracket secured to its central portion and slotted longitudinally, an elliptical spring secured to the car by said bracket, a U-shaped strip movable upon the securing-bracket by means of a bolt or pin passing through the slotted wall thereof, said pin or bolt passing beneath the lower portion of the elliptical spring, the elevator rope or cable secured to the upper end of the U-shaped strap, levers pivoted to the top of the elevator-car and engaging the spring at their inner ends, said levers being curved at their outer ends, said curved ends extending to the opposite sides of the beams of the shaft and having guides formed upon their extremities, brackets secured at one end to the car, and spikes pivoted between the outer ends of said brackets and extending loosely through the guides, the parts operating, substantially as set forth.

595,787. PURIFICATION OF CRUDE ACETIC ACID. ADOLF SCHMIDT, Cassel, Germany. Filed Nov. 30, 1896. Serial No. 613,991. (No specimens.) Patented in England Nov. 9, 1896, No. 25,100.



Claim.—The herein-described process consisting in finely dividing or distributing the acetic acid in contact with coal or coke and in forcing pure oxygen gas through the bed of coal in an opposite direction.

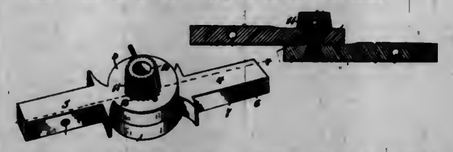
595,788. APPARATUS FOR MANUFACTURING BENZENE. HENRY J. SMALL and HOWARD STILLMAN, Sacramento, Cal. Filed Jan 6, 1897. Serial No. 618,159. (No model.)



Claim.—1. In an apparatus for the manufacture of benzene, the combination, substantially as set forth, of an agitator, a compressed-air supply pipe, a steam-still, a condenser, and valved connections from the agitator to the still, from the agitator to a point of discharge, and from a source of compressed air to the agitator.

2. In an apparatus for the manufacture of benzene, the combination, substantially as set forth, of an agitator, a perforated and valve-controlled air-supply pipe discharging thereinto, a still provided with an internal steam-heating coil, a valve-controlled pipe connecting the upper portions of the agitator and still, a pipe controlled by a drain-valve and leading from the bottom of the agitator to a point of discharge, a valve-controlled pipe leading from the bottom of the agitator to the still, and a condensing-coil connected to the top of the still.

595,789. FENCE-COUPLING. CHAUNCEY P. SMITH, Broadway, Ohio. Filed Mar. 24, 1897. Serial No. 629,080. (No model.)



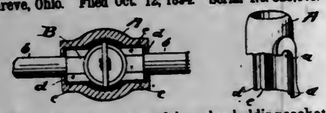
Claim.—1. The herein-described fastening device for adjustably connecting adjoining fence-panels, consisting of two bars, one provided with a toothed cone projection and the other with a toothed socket to engage therewith, and a fastening device for holding the parts connected, substantially as described.

2. The herein-described fastening device for adjustably connecting adjoining fence-panels, consisting of two bars, one provided with an enlarged head formed with a toothed cone projecting therefrom, and a shoulder in rear of the head, and the other bar provided with a head formed with a toothed socket to engage said cone and shoulders in rear of its head, the said shoulders on the bars serving as stops to limit their movement, and a fastening-pin passing through the cone to secure the socket-bar thereon, substantially as described.

3. In a fence, the combination of two panels or sections thereof, fastening means for connecting said panels comprising a bar on one panel having a cone projection provided with teeth, and a socket-bar on the other panel having a socket provided with teeth adapted to engage the said cone and whereby the fastening devices may be set at an angle relatively to each other in order that the fence-panels

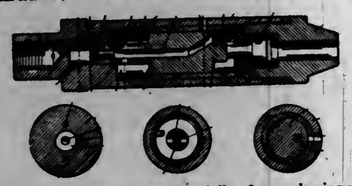
may be adjusted correspondingly, and a pin or other fastening device passing through the said cone and preventing disconnection of the same from the socket-bar, substantially as described.

595,790. STREET WATER OR GAS BOX. JONATHAN W. SMITH, Shreve, Ohio. Filed Oct. 12, 1894. Serial No. 525,673. (No model.)



Claim.—The combination of the valve-holding socket A, provided with the diametrically opposite openings *a*, and the flanges *d* and *e*, the valve-housing B, located within the socket A, the polygonal extensions *c*, the sections E and F, adjustably attached together, and the collar G, all arranged as shown and described and for the purpose specified.

595,791. TOOL. WILLIAM H. SOLEY, Philadelphia, Pa., assignor, by mesne assignments, to John Evans, same place. Filed Dec. 22, 1896. Serial No. 616,591. (No model.)



Claim.—1. A tool consisting essentially of a case having a chamber, a passage leading to one end of said chamber adapted to convey the pressure-supply, a port through said case, a striker the body of which at opposite ends is of different areas, and the end of less area being provided with a contracted stem portion having a port, the end of less area and the contracted portion of the striker being in that portion of the chamber communicating with the pressure-supply, a passage in said striker, leading from said port, opening into the end of the chamber opposite to the pressure-supply, and a contracted portion of the casing in which the stem moves and is adapted in its reciprocations to cover the port.

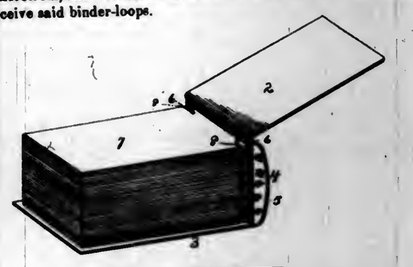
2. A tool consisting essentially of a case having a chamber, a passage leading to one end of said chamber adapted to convey the pressure-supply, a port through said case, a striker the body of which at opposite ends is of different areas, and the end of less area being provided with a contracted stem portion having a port, the end of less area and the contracted portion of the striker being in that portion of the chamber communicating with the pressure-supply, a passage in said striker, leading from said port, opening into the end of the chamber opposite to the pressure-supply, and a contracted portion of the casing in which the stem moves and is adapted in its reciprocations to cover the port, there being an exhaust-port beyond the closed end of the contracted portion.

3. A tool consisting of a case, a chamber in said case, a striker in said chamber having the body at the striking end of greater area than the opposite end, a contracted stem beyond said last-mentioned end, a port in said stem, a passage through the body of said striker to the striking end and connecting with said port, a contracted portion of the case in which said stem moves, adapted in the reciprocations of the stem to cover said port, and a passage leading to that portion of the chamber adjacent to the portion of the body of the striker of less area adapted to convey the pressure-supply.

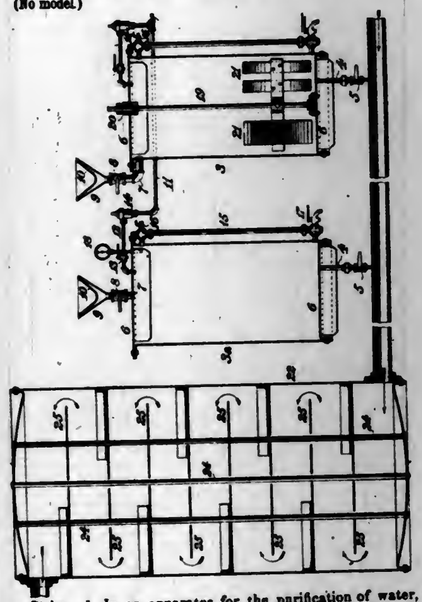
4. A tool consisting essentially of a case, a chamber in said case, a striker in said chamber having the body at the striking end of greater area than the opposite end, a contracted stem beyond said last-mentioned end, a port in said stem, a passage through the body of said striker to the striking end connecting with said port, a contracted portion of the case in which said stem moves adapted in the reciprocations of the stem to cover said port, and a passage leading to that portion of the chamber adjacent to the portion of the body of the striker of less area adapted to convey the pressure-supply, and an opening through the case in the striking end of said chamber adapted to be covered and uncovered in the reciprocations of the striker.

595,792. TEMPORARY BINDER. FRANK J. STANTON, Norwich, N. Y. Filed Sept. 27, 1897. Serial No. 653,106. (No model.)

Claim.—A book or album, comprising a front and back cover, and a back connecting them, in combination with a binder-back permanently bound into said cover-back, and rigid binder-loops secured in said binder-back at points intermediate of its length and projecting therefrom, and a series of leaves notched in their opposite edges to receive said binder-loops.



595,793. APPARATUS FOR PURIFYING WATER. HOWARD STILLMAN, Sacramento, Cal. Filed Jan. 6, 1897. Serial No. 618,197. (No model.)



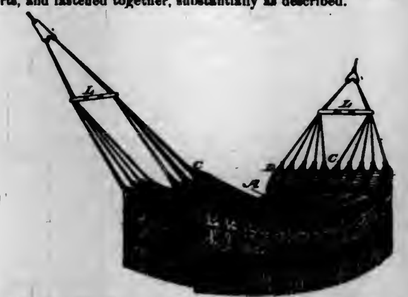
Claim.—1. In an apparatus for the purification of water, the combination, substantially as set forth, of a water-supply main, a chemical tank, an air-supply pipe leading into the chemical-tank, and a pressure-regulating valve controlling the air-supply pipe.

2. In an apparatus for the purification of water, the combination, substantially as set forth, of a water-supply main, a chemical-tank connected thereto, an air-supply pipe leading into the chemical-tank, a pressure-regulating valve controlling the air-supply pipe, a circulating-tank connected to a section of the supply-main on the delivery side of the chemical-tank connection, means for effecting the traverse of water from the supply-main in alternately-reversed directions through the circulating-tank, and an outlet supply-main section leading from the circulating-tank to a connection with a settling or precipitating tank.

595,794. HAMMOCK. FREDERICK W. SUTTON and JOSEPH H. MAHLAND, Philadelphia, Pa. Filed June 24, 1897. Serial No. 642,058. (No model.)

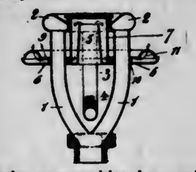
Claim.—1. A hammock having a body and a valance composed of an integral woven fabric, the same weft-threads entering into the weaving of both the body and the valance, the valance showing the figured Jacquard weave in combination with a detachable pillow or bolster and a spreader composed of two parts, an upper and a lower, the upper part having a longitudinal groove in its bottom or under side into which the lower part of the spreader fits, clamping one end of the body of the hammock between them and fastened together, substantially as described.

2. In combination with a hammock, a spreader composed of two parts, an upper and a lower, the upper part having a longitudinal groove sunk into its under side, into which groove the lower section fits, clamping one end of the body of the hammock between the two parts, and fastened together, substantially as described.



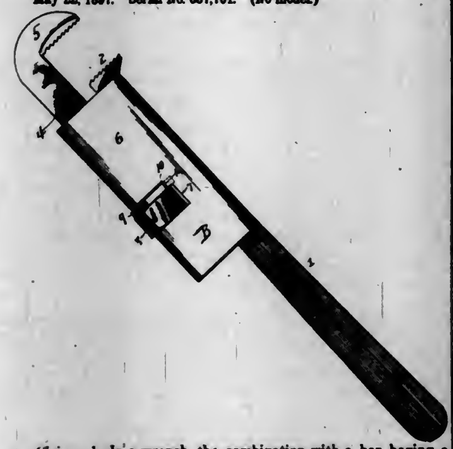
3. In combination, a spreader composed of two sections, an upper and a lower, the upper part having a longitudinal groove sunk into its under side, into which groove the lower section of the spreader fits, clamping one end of the hammock-body between the two parts and rigidly fastened together and a detachable pillow substantially as described.

595,795. VAPOR-BURNER FOR PETROLEUM-STOVES. JOHAN V. SVENSON, Stockholm, Sweden. Filed June 12, 1897. Serial No. 640,572. (No model.)



Claim.—A vapor-burner comprising the vaporizing-chamber, the nozzle, the tubes extending from the vaporizing-chamber to the nozzle, the tube 5 above the nozzle, the tube 7 surrounding the tube 5 and closed at the top, the plates 6 and 9 extending annularly about the lower parts of the tubes 5 and 7 and having a space between them for receiving the vapor from the space between the tubes 5 and 7 and the perforated burner-ring at the outer edges of said plates, said ring being arranged at a point below the vaporizing-chamber, substantially as described.

595,796. WRENCH. LE GRAND TERRY, Horseheads, N. Y. Filed May 22, 1897. Serial No. 637,761. (No model.)

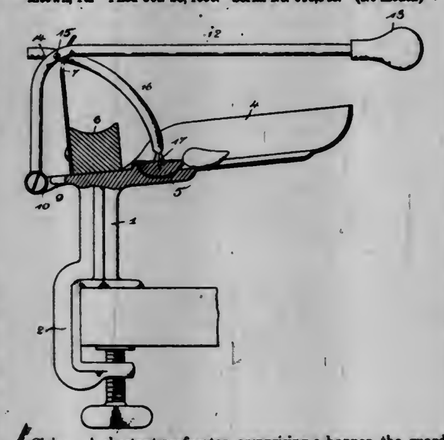


Claim.—1. In a wrench, the combination with a bar having a handle at one end and a fixed jaw at the other end, of a yoke on said bar for the reception of the shank of a movable jaw, said yoke having a mortise, a movable jaw having its shank projecting into said yoke, a nut in said mortise through which the screw-threaded portion of said shank passes, and a washer also in said mortise and serving as a fulcrum for said shank, substantially as set forth.

2. In a wrench, the combination with a bar having a handle at one end and a fixed jaw at the other end, of a yoke between the ends of said bar, said yoke being elongated in cross-section, and having a mortise at a point between its ends, a movable jaw having a shank projecting into said yoke and adapted to have a sliding and a lateral movement therein, a nut in said mortise through which the screw-threaded portion of the shank passes, a washer also in said mortise and serving as a fulcrum for said shank, and a spring secured to said bar and bearing against said shank whereby to maintain the movable jaw in its normal position, substantially as set forth.

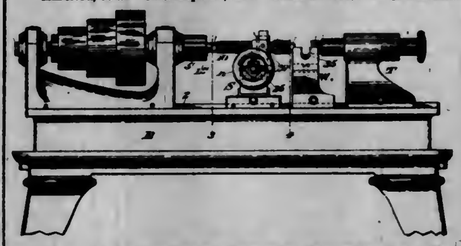
3. In a wrench, the combination with a bar having a handle at one end and a fixed jaw at the other end, of a yoke constructed by bending a plate of metal upon itself, the free edges of the respective members of said yoke being secured to said bar in rear or above the fixed jaw, said yoke having a mortise, a movable jaw having a shank to project into said yoke and having a sliding and pivotal movement therein, a nut in said mortise through which the screw-threaded portion of said shank passes, a washer also mounted in said mortise and serving as a fulcrum for said shank and a spring for maintaining said shank and jaw thereon, in their normal positions, substantially as set forth.

595,797. CHESTNUT-PERFORATOR. WILLIAM H. THOMAS, Jenkintown, Pa. Filed Oct. 23, 1896. Serial No. 610,340. (No model.)



Claim.—A chestnut-perforator, comprising a hopper, the guard formed with the fingers 7 7, in combination with the pivoted arm 16 having its free end terminating in a double spear-point 17, the individual converging blades of which are formed with blunt right-angular shoulders 18, substantially as shown and described.

595,798. THREAD-CUTTING MACHINE. WILLIAM W. TUCKER, Hartford, Conn. Filed Sept. 27, 1897. Serial No. 653,175. (No model.)



Claim.—1. In a screw-tapping machine, the combination, with a rotary driver, of a cutter-carrier in the form of a lead-screw having a reduced shank which is freely movable longitudinally in said driver; a thread-cutter on said carrier; a resistance-driver with which the lead-screw engages; a work-holder; and a dead-spindle movably mounted on the bed of the machine.

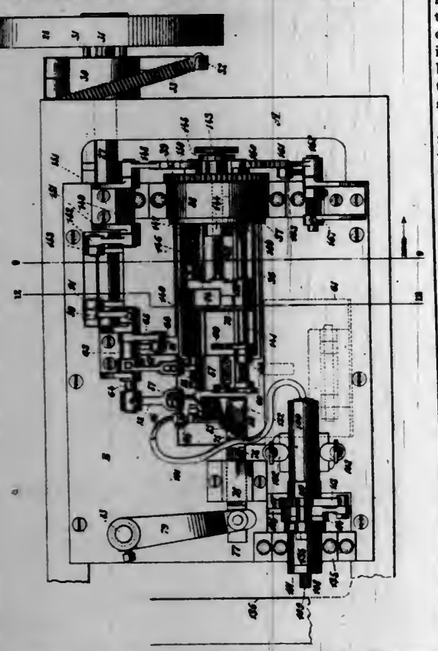
2. In a screw-tapping machine, the combination, with a live-spindle, of a tap-carrier having a tap at its forward end, a lead-screw of less diameter than the tap, and a reduced shank adapted to be fitted into, and gradually withdrawn from, said spindle; a separable nut with which the lead-screw part of said spindle engages; and a work-holder constructed to prevent the work from rotating while it is being threaded.

3. In a tapping-machine, the combination, with a rotary driving member, of a fixed carrier; an internally-threaded jaw on said carrier and constituting a resistance-driver; a lead-screw supported for rotation in unison with the rotary driving member and movable longitudinally relatively thereto and to said jaw, and having a shank of small diameter and a body portion of larger diameter externally screw-threaded to correspond to, and engage, the internal threads of the jaw; a tap secured to, and of larger diameter than, the lead-screw and having cutting-teeth of the same pitch as the threads of the lead-screw; and a work-holder for supporting the work and preventing rotation thereof.

4. In a tapping-machine, the combination, with a rotary driving member, of a fixed carrier; an internally-threaded jaw on said carrier and constituting a resistance-driver; a lead-screw supported for rotation in unison with the rotary driving member and movable longitudinally relatively thereto and to said jaw, and having a shank of small diameter and a body portion of larger diameter externally screw-threaded to correspond to, and engage, the internal threads of the jaw; a tap secured to, and of larger diameter than, the lead-screw and having cutting-teeth of the same pitch as the threads of the lead-screw; a work-holder for supporting the work and preventing rotation thereof; a tail-stock; and a slidable work-centering dead-spindle adapted to be pushed out of the work by the tap at the end of the tapping operation.

5. A tap-carrier provided with a short reduced portion at one end on which a removable tap is mounted, a lead-screw, and a reduced shank portion at the opposite end, the lead-screw being of less diameter than the tap.

595,799. **CIGAR-MAKING MACHINE.** JOHN R. WILLIAMS, East Orange, N. J., assignor to the John R. Williams Company, New York, N. Y. Filed July 15, 1897. Serial No. 644,594. (No model.)



Claim.— 1. In a machine of the character described, the revoluble frame for carrying or holding a cigar, and means for holding the cigar in said frame, combined with the thimble receiving the head end of said cigar and at its outer side cut off at an angle to the longitudinal center of the cigar, the wrapper-trimming knife arranged to move along the angular side of said thimble and means for operating said knife; substantially as set forth.

2. In a machine of the character described, the revoluble frame for carrying or holding a cigar, and means for holding the cigar in said frame, combined with the thimble in line with said frame and receiving the head end of the cigar, a knife coöperating with said thimble for trimming the projecting part of the wrapper, means for operating said knife and means for moving said thimble inward toward the said revoluble frame to receive the head end of the cigar and outward therefrom to release the finished cigar; substantially as set forth.

3. In a machine of the character described, the revoluble frame to receive the cigar, means for holding the cigar in said frame and the thimble adjacent to the end of said frame to receive the head end of the cigar, combined with the knife for trimming the projecting portion of the wrapper, means for operating said knife and the paste-nozzle adjacent to said thimble for supplying paste to the exposed upper side of said wrapper adjacent to the head of the cigar; substantially as set forth.

4. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, and the thimble adjacent to the end of said frame to receive the head end of the cigar and having a side opening, combined with the knife for trimming the wrapper at said thimble, means for operating said knife and the paste-nozzle adjacent to said thimble and having a widened discharge end for supplying paste to the exposed upper surface of the wrapper adjacent to the head of the cigar and in close proximity to the opening in said thimble; substantially as set forth.

5. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, and the thimble adjacent to the end of said frame to receive the head end of the cigar, combined with the knife for trimming the wrapper at said thimble, means for operating said knife, the movable paste-nozzle adjacent to said thimble, means for supplying paste to said nozzle and means for moving said nozzle downward adjacent to the thimble to supply the paste to the exposed upper surface of the wrapper; substantially as set forth.

6. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, and the thimble adjacent to the end of said frame for receiving the head end of the cigar, combined with the knife for trimming the wrapper at the thimble, means for operating said knife, the pivoted paste-nozzle, means for supplying paste to said nozzle, and means intermediate said knife and nozzle whereby upon the descent of said knife to trim the wrapper said nozzle will also descend to supply paste to the exposed upper surface of the wrapper on the thimble; substantially as set forth.

7. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, and the thimble adjacent to the end of said frame for receiving the head end of the cigar, combined with the pivoted knife, means for operating said knife to trim the wrapper, the pivoted paste-nozzle, means for supplying paste to said nozzle, the spring normally maintaining the discharge end of said nozzle in its upward position, and the pin extending from said nozzle over the shank end of said knife whereby the upward movement of said shank end due to the depression of the blade of the knife will turn the discharge end of said nozzle downward to deliver the paste upon the exposed upper surface of the wrapper on the thimble; substantially as set forth.

8. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, and the thimble adjacent to the end of said frame for receiving the head end of the cigar, combined with the pivoted knife for trimming the wrapper, means for operating said knife, means for applying paste to the wrapper while on said thimble, and means for moving said thimble toward the end of said revoluble frame to receive the head end of the cigar and away from said revoluble frame to release the cigar; substantially as set forth.

9. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, the thimble adjacent to the end of said frame to receive the head end of the cigar, and means for moving said thimble toward said frame to receive the head end of the cigar and away from said frame to release the cigar, combined with the pivoted knife for trimming the wrapper at said thimble, means for operating said knife, and the paste-nozzle adapted to discharge the paste upon the upper exposed surface of the wrapper on said thimble; substantially as set forth.

10. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, and the thimble adjacent to the end of said frame to receive the head end of the cigar, combined with the knife for trimming the wrapper overhanging said thimble, means for operating the knife, and means for applying paste to the upper exposed surface of the wrapper on said thimble; substantially as set forth.

11. In a machine of the character described, the revoluble frame for receiving the cigar, the clamp carried by said frame for holding the cigar thereon, the driving-shaft, and means intermediate said clamp and the driving-shaft for operating said clamp, combined with the thimble adjacent to the end of said frame for receiving the head end of the cigar, the knife for trimming the wrapper overhanging said thimble, means intermediate said knife and the driving-shaft for operating the knife, means for applying paste to the wrapper held on said thimble, and means intermediate said frame and the driving-shaft for operating the frame from the said shaft; substantially as set forth.

12. In a machine of the character described, the revoluble frame for carrying or holding a cigar, the clamp carried by said frame for retaining the cigar in said frame, the ejector carried by the frame below the surface of the portion thereof which receives the cigar, the driving-shaft and means for operating said clamp and ejector from the driving-shaft, combined with the thimble adjacent to the end of said frame for receiving the head end of the cigar, and means for moving said thimble toward said frame to receive the head end of the cigar and away from said frame to release the finished cigar; substantially as set forth.

13. In a machine of the character described, the revoluble frame for carrying or holding a cigar, the clamp retaining the cigar in said frame, the ejector carried by said frame below the surface of the portion thereof which receives the cigar, the driving-shaft and means for operating said revoluble frame, clamp and ejector from the main driving-shaft, combined with the thimble adjacent to the end of said frame, the knife for trimming the leaf overhanging said thimble, means for operating said knife from the driving-shaft, and means also operated from the driving-shaft for applying paste to the wrapper on said thimble; substantially as set forth.

14. In a machine of the character described, the revoluble frame for holding the cigar, the clamp for retaining the cigar in said frame, the trimming-knives carried by said frame for trimming the tuck end of the cigar, one of said knives being stationary and the other movable, the driving-shaft, and means for operating the movable one of said knives from the driving-shaft, combined with the thimble adjacent to the end of said revoluble frame to receive the head end of the cigar, the knife for trimming the wrapper overhanging said thimble, and means for operating said knife from the driving-shaft; substantially as set forth.

15. In a machine of the character described, the revoluble frame for carrying or holding a cigar, the clamp for retaining the cigar in said frame, the slide carried by said frame, the stationary knife carried by said slide, the movable knife carried by said slide for coöperating with the said stationary knife to trim the tuck end of the cigar, the driving-shaft, means intermediate said movable knife and the driving-shaft for operating the former from the latter, and means for adjusting said slide in said frame in accordance with the various lengths of cigars, combined with the thimble adjacent to the end of said frame to receive the head end of the cigar, and the knife for trimming the wrapper overhanging said thimble; substantially as set forth.

16. In a machine of the character described, the revoluble frame for carrying or holding a cigar, the clamp carried by said frame for retaining the cigar therein, the ejector carried by said frame below the surface of the portion thereof which receives the cigar, the driving-shaft, means for operating said clamp and ejector from the driving-shaft, the stationary knife carried by said frame, the coöperating movable knife carried by said frame, and means intermediate said movable knife and the driving-shaft for operating the former from the latter, combined with the thimble adjacent to the end of said frame to receive the head end of the cigar, and means for moving said thimble toward said frame to receive the head end of the cigar and away from said frame to release the cigar; substantially as set forth.

17. In a machine of the character described, the revoluble frame for holding the cigar, the clamp carried by said frame for retaining the cigar therein, the ejector carried by said frame below the surface of the portion thereof which receives the cigar, the driving-shaft, means for operating said frame, clamp and ejector from the main driving-shaft, the stationary cutter carried by said frame, the movable coöperating cutter carried by said frame for trimming the tuck end of the cigar, and means for operating said movable cutter from the driving-shaft, combined with the thimble at the end of said frame to receive the head end of the cigar, the knife for trimming the wrapper overhanging said thimble, a paste-nozzle adjacent to said thimble for supplying paste to the wrapper thereon, means for operating said wrapper trimming knife from the main driving-shaft, means for forcing the paste from said nozzle from the main driving shaft, and means for moving said thimble toward said revoluble frame to receive the head end of the cigar and away from said frame to release the cigar; substantially as set forth.

18. In a machine of the character described, the revoluble frame for holding the cigar, the clamp carried by said frame for retaining the cigar therein, the ejector carried by said frame below the surface of the portion thereof which receives the cigar, the adjustable slide in said frame, the cutters, one being movable and the other stationary, carried by said slide for trimming the tuck end of the cigar, means for adjusting said slide, the driving-shaft and means for operating the movable one of said cutters, said revoluble frame, said clamp and said ejector from the driving shaft, combined with the thimble adjacent to the end of said frame to receive the head end of the cigar, the pivoted knife for trimming the wrapper overhanging said thimble, means for operating said knife from the driving-shaft, the pivoted paste-nozzle adapted to discharge the paste upon the upper side of the wrapper on said thimble, means for operating said nozzle and means operated from the driving-shaft for forcing the paste through said nozzle; substantially as set forth.

19. In a machine of the character described, the revoluble frame for holding the cigar, the clamp carried by said frame, the ejector also carried by said frame, the shaft carried by said frame and upon which said ejector is mounted, the driving-shaft, means for operating said frame from the driving-shaft, and independent means intermediate the said shaft carried by the said frame and the main driving-shaft for operating said shaft and through it said ejector, combined with the thimble adjacent to the end of said frame to receive the head end of the cigar; substantially as set forth.

20. In a machine of the character described, the revoluble frame to receive the cigar, the clamp carried by said frame for holding the cigar therein, the ejector carried by said frame below the surface of the portion thereof which receives the cigar, the driving-shaft, the parallel shafts carried by said frame and upon which said clamp and ejector are respectively mounted, means for operating said frame from the driving-shaft, the slide mounted on said shafts within said frame, the cutters, one being movable and the other stationary, carried by said slide for trimming the tuck end of the cigar, and the movable one of which is mounted on one of said parallel shafts, means for adjusting said slide, and independent means for operating from the driving-shaft the two shafts carried by said frame and through them said movable cutter and ejector, combined with the thimble at the end of said frame to receive the head end of the cigar, and means for operating said clamp from the driving-shaft; substantially as set forth.

21. In a machine of the character described, the revoluble frame to receive the cigar and being cylindrical at one end, the bearing for said end of said frame, the gear-wheel upon said end of said frame, and means for holding the cigar in said frame, combined with the thimble adjacent to the end of said frame to receive the head end of the cigar, the driving-shaft, gearing intermediate the said gear-wheel and the driving-shaft of the machine whereby said revoluble frame is caused to have a more rapid revolution than said driving-shaft and to stop before said driving-shaft has reached the end of its revolution, and means for stopping said driving-shaft at the end of each of its revolutions; substantially as set forth.

22. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, the thimble adjacent to the end of said frame to receive the head end of the cigar, the driving-shaft and means intermediate said revoluble frame and the driving-shaft of the machine for operating the latter from the former and imparting to said frame from said driving-shaft a more rapid revolution than that of the shaft and stopping said frame before the driving-shaft comes to a stop, and means for stopping said shaft at the end of each revolution; substantially as set forth.

23. In a machine of the character described, the revoluble frame for holding the cigar, the clamp carried by said frame for retaining the cigar therein, the ejector carried by said frame for ejecting the finished cigar, the driving-shaft and the thimble adjacent to the end of said frame for receiving the head end of the cigar, combined with means intermediate said frame and the main driving-shaft for imparting a rapid revolution to said frame and then to stop said frame before the said driving-shaft comes to a stop, means for stopping said driving-shaft at the end of its proper movement, and means intermediate said clamp and said driving-shaft for operating said clamp after said frame has come to a stop, and means intermediate said ejector and said driving-shaft for operating said ejector after said frame has come to a stop and after said clamp has been released from the cigar; substantially as set forth.

24. In a machine of the character described, the revoluble frame for holding or carrying a cigar, the clamp carried by said frame for retaining the cigar therein, the ejector carried by said frame for discharging the finished cigar therefrom, the driving-shaft and the cutter carried by said frame for trimming the tuck end of the cigar, combined with the thimble adjacent to the end of said frame for receiving the head end of the cigar, means intermediate said revoluble frame and the main driving-shaft for imparting a more rapid revoluble motion to said frame than that of said shaft and then stopping said frame before said shaft comes to a stop, means for stopping said driving-shaft at the end of its proper movement and means intermediate said clamp, ejector and cutter and said shaft for operating the same from the shaft after said frame has come to a stop and before said shaft has come to a stop; substantially as set forth.

25. In a machine of the character described, the revoluble frame for carrying or holding a cigar, the clamp carried by said frame for

retaining the cigar therein, the ejector carried by said frame for discharging the finished cigar therefrom, the driving-shaft and the thimble adjacent to the end of said frame for receiving the head end of the cigar, combined with means intermediate said thimble and the driving shaft of the machine for moving said thimble toward the frame to receive the head end of the cigar and then outward therefrom to release the finished cigar, means intermediate said driving-shaft and said revoluble frame for imparting a more rapid revolution to said frame than that of said shaft and stopping said frame before said shaft comes to a stop, means for stopping said shaft at the end of its proper movement, means intermediate said clamp and said shaft for operating said clamp from the shaft after said frame has come to a stop, and means intermediate said ejector and said shaft for operating said ejector from the shaft after the said frame has come to a stop; substantially as set forth.

26. In a machine of the character described, the revoluble frame to receive the cigar, the clamp carried by said frame to retain the cigar therein, and the knife carried by said frame for trimming the tuck end of the cigar, combined with the thimble adjacent to said frame to receive the head end of the cigar, the driving-shaft, means intermediate said frame and the driving-shaft for imparting a more rapid revolution to said frame than that of said shaft, means intermediate said knife and said shaft for operating the former from the latter to trim the tuck end of the cigar, means intermediate said clamp and said shaft for releasing said clamp from the cigar after said frame has come to a stop and before the driving-shaft has come to a stop and means for stopping said driving-shaft at the end of its movement; substantially as set forth.

27. In a machine of the character described, the revoluble frame for receiving the cigar, the clamp carried by said frame for retaining the cigar therein, the ejector carried by said frame for discharging the finished cigar therefrom, the thimble adjacent to said frame to receive the head end of the cigar, the driving-shaft and the knife for trimming the wrapper overhanging said thimble, combined with means intermediate said revoluble frame and the driving-shaft for imparting to the former a more rapid revolution than that of the shaft and stopping said frame prior to the stoppage of the shaft, means for stopping said shaft at the end of its proper movement, means intermediate said knife and shaft for operating the former from the latter, means intermediate said clamp and shaft for operating the former from the latter, means intermediate said ejector and said shaft for operating the former from the latter after said revoluble frame has come to a stop; substantially as set forth.

28. In a machine of the character described, the revoluble frame to receive the cigar, means for holding the cigar therein, the thimble adjacent to the end of said frame to receive the head end of the cigar, the driving-shaft and the cutters carried by said frame for trimming the tuck end of the cigar, one of said cutters being movable and the other stationary, combined with means intermediate said frame and the driving-shaft for revolving the said frame from the said shaft, and means intermediate the movable one of said cutters and the driving-shaft for operating the said movable cutter from the said shaft; substantially as set forth.

29 In a machine of the character described, the revoluble frame for carrying or holding a cigar, the ejector carried by said frame for ejecting the finished cigar, the clamp carried by said frame for holding the cigar therein, the slide carried by said frame and adjustable therein, and the cutters carried by said slide for trimming the tuck end of the cigar, one of said cutters being stationary and the other movable, combined with the thimble adjacent to said frame for receiving the head end of the cigar, the knife for trimming the leaf overhanging said thimble, means for operating said knife, means for moving said thimble toward said frame to receive the head end of the cigar and then from said frame to release the cigar, the driving-shaft, means intermediate said frame and the driving-shaft for imparting a more rapid revolution to said frame than that of said shaft and then stopping said frame before said shaft comes to a stop, means for stopping said shaft at the end of its proper movement, means intermediate the movable one of said cutters and said shaft for operating the former from the latter, means intermediate said clamp and said shaft for operating the former from the latter, and means intermediate said ejector and said shaft for operating the former from the latter and after said frame has come to a stop; substantially as set forth.

30. In a machine of the character described, the revoluble frame for holding the cigar, the clamp carried by said frame for holding the cigar therein, the ejector carried by said frame for ejecting the finished cigar therefrom, the parallel shafts in said frame, the slide mounted on said shafts, means for adjusting said slide on said shafts, the stationary cutter carried by said slide, and the movable cutter carried by said slide and keyed to one of said shafts, the other of said shafts being connected to said ejector, combined with the thimble adjacent to the said frame to receive the head end of the cigar, the driving-shaft, means intermediate said revoluble frame and the driving-shaft for imparting a more rapid revolution to said frame than that of said shaft and stopping said frame prior to the stoppage of said shaft, means for stopping said shaft at the end of its proper movement, independent means intermediate said parallel shafts and said driving-shaft for operating the former from the latter, and means intermediate said clamp and the driving-shaft for operating the former from the latter; substantially as set forth.

31. In a machine of the character described, the revoluble frame for carrying or holding a cigar, a clamp for holding the cigar in said frame, and the thimble adjacent to the end of said frame to receive the head end of the cigar, the said thimble having its outer side at an angle to the longitudinal center of the cigar-clamp, combined with the knife for trimming the wrapper overhanging the outer angular edge of said thimble, the driving-shaft, means for operating said knife from the driving-shaft, means for operating said revoluble frame from the driving-shaft, means for applying paste to the wrapper on said thimble and means for operating the paste mechanism from the driving-shaft; substantially as set forth.

32. In a machine of the character described, the revoluble frame for carrying or holding a cigar, a clamp for holding the cigar in said frame, the driving-shaft, means for revolving said frame from the driving-shaft, and the thimble adjacent to the end of said frame to receive the head end of the cigar, the outer side of said thimble being at an angle to the longitudinal center of the cigar-clamp, combined with the knife for trimming the wrapper overhanging the outer angular edge of said thimble, means for operating said knife from the main driving-shaft, a nozzle for applying paste to the upper exposed surface of the wrapper on said thimble, a paste-reservoir, a flexible tube connecting said nozzle and said reservoir, and means intermediate said reservoir and the driving-shaft for forcing the paste therefrom through said flexible tube and said nozzle to the wrapper on said thimble; substantially as set forth.

33. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, the driving-shaft, means for revolving said frame from the main driving-shaft and the thimble adjacent to the end of said frame to receive the head end of the cigar, combined with the knife for trimming the wrapper overhanging the edge of said thimble, means for operating said knife from the main driving-shaft, means for moving said thimble toward said frame to receive the head end of the cigar and then from said frame to release the finished cigar, the pivoted paste-nozzle adjacent to said thimble, means for moving the discharge end of said nozzle downward to deliver the paste upon the wrapper on the thimble and then upward therefrom, the paste-reservoir, the flexible tube connecting said nozzle and said reservoir, and means intermediate said reservoir and the main driving-shaft for forcing the paste from said reservoir through said flexible tube and nozzle to the wrapper on said thimble; substantially as set forth.

34. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, the driving-shaft, means for revolving said frame from the driving-shaft, the thimble adjacent to the end of said frame to receive the head end of the cigar, the knife for trimming the wrapper overhanging the edge of said thimble, and means for operating the said knife from the driving-shaft, combined with a paste-nozzle to direct the paste to the wrapper on said thimble, the reservoir connected with said nozzle for supplying paste to the same, the piston in said reservoir and acting against the body of paste therein, the threaded stem carried by said piston, the threaded sleeve engaging said threaded stem, the ratchet on said stem and loosely keyed thereto, and means for imparting to said ratchet an intermittent motion from the driving-shaft of the machine, whereby said ratchet is caused to turn said threaded stem and said threaded sleeve is enabled to move said threaded stem and its piston against the paste in said reservoir; substantially as set forth.

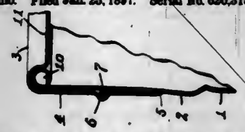
35. In a machine of the character described, the revoluble frame for carrying or holding a cigar, and means for holding the cigar in said frame, combined with the thimble receiving the head end of the cigar, the table on said thimble to receive the projecting portion of the wrapper, said table being inclined downward from a point above the longitudinal center of the point of the cigar and means for moving said thimble and table toward said frame to receive the head end of the cigar and said portion of the wrapper and then away from said frame to release the finished cigar; substantially as set forth.

36. In a machine of the character described, the revoluble frame for carrying or holding a cigar, and means for holding the cigar in said frame, combined with the thimble receiving the head end of the cigar, the table on said thimble to receive the loose portion of the wrapper, means for locking said table in its lower position to facilitate the introduction of the head of the cigar to the cavity in said thimble, means for freeing said table after the cigar is in position, and means for elevating the outer end of said table in order that said table may elevate the projecting portion of the wrapper on a line extending downward from the outer end of said thimble; substantially as set forth.

37. In a machine of the character described, the revoluble frame for holding a cigar, and means for holding the cigar in said frame, combined with the thimble receiving the head end of the cigar, the table on said thimble to receive the projecting portion of the wrapper, a spring imparting a normal upward tension to the outer end of said table, the catch for holding the outer end of said table in its lower position, the trimming knife for cutting off the wrapper overhanging the edge of said thimble and adapted to engage said catch and free the same from said table in order that the latter may spring upward, and means for operating said knife; substantially as set forth.

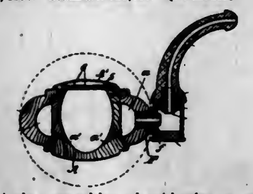
38. In a machine of the character described, the revoluble frame for carrying or holding a cigar, means for holding the cigar in said frame, and the thimble receiving the head end of the cigar, combined with the table on said thimble to receive the projecting portion of the wrapper, the catch for holding said table in its lower position to facilitate the introduction of the head of the cigar to said thimble, the spring imparting an upward tension to the outer end of said table, means for moving said thimble toward said frame to receive the end of the cigar and away from said frame to release the end of the cigar, means for engaging the outer end of said table with said catch when said thimble has moved outward from said revoluble frame, and means for freeing said table from said catch in order that its outer end may spring upward when said thimble is at its inward position adjacent to said revolable frame and has received the head end of the cigar; substantially as set forth.

595,800. SHEET-METAL VESSEL. George Ackermann, Cincinnati, Ohio, assignor to the Albert Fischer Manufacturing Company, Hamilton, Ohio. Filed Jan. 23, 1897. Serial No. 620,318. (No model.)



Claim.—The combination of a vessel having an inwardly-turned rim and an outward swell below the rim, a cap or cover having a top depression and an exterior annular semicircular ridge fitting the inwardly-turned rim, the vertical deep flange of said cover extending downwardly into contact with said outward swell and being provided with an interadiate rib and counter-depression, and a ripping-wire having an end projecting through a hole in the flange and its body bearing expansibly against the walls of said counter-depression, whereby the said wire is held securely in said depression during the operations preliminary to sealing.

595,801. TOBACCO-PIPE. Anders Akerson, Providence, R. I. Filed Feb. 12, 1897. Serial No. 623,089. (No model.)



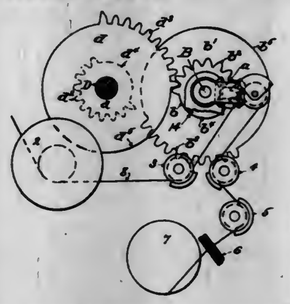
Claim.—1. A pipe, comprising a bowl having an annular recess formed therein which communicates with the interior of the bowl by means of small inclined channels and a hollow plug leading into the said annular compartment, said plug carrying at its outer end a swiveled stem, substantially as shown and described.

2. As a pipe, the combination of a bowl having an annular compartment formed therein, said compartment surrounding the body of the bowl and having inclined channels leading therefrom into said bowl, there being an opening in said compartment, a hollow plug located in said opening carrying upon its outer end a swiveled cylinder to which the pipe-stem is connected, whereby the bowl may be maintained in a horizontal or perpendicular position with relation to the stem, substantially as shown and described.

595,802. TAKE-UP MECHANISM. Frederick I. Alley, Lynn, Mass. Filed Oct. 20, 1896. Serial No. 609,472. (No model.)

Claim.—1. In a take-up mechanism, a take-up movable about a center, means to actuate the take-up, a movable thread-guard on said take-up and means to maintain the thread guard in a substantially fixed angular position relative to the center of motion of the take-up, substantially as described.

2. In a take-up mechanism, a take-up movable about a center, means to actuate the take-up, and a thread-guard on said take-up movable about the center of motion of the take-up, and about a center of motion of its own removed from the center of motion of the take-up, substantially as described.

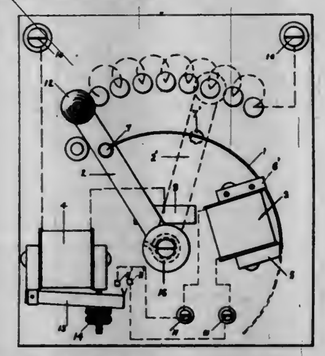


3. In a take-up mechanism, a take-up, and means to rotate it about a fixed axis, and a rotating thread-guard on said take-up, movable about the axis of rotation of the take-up and about its own axis, substantially as described.

4. In a take-up mechanism, a take-up and means to rotate it, and a movable thread-guard upon said take-up and gear connections between said thread-guard and a fixed portion of the machine, whereby upon a rotation of the take-up the thread-guard will retain a substantially fixed angular position relative to the center of motion of the take-up, substantially as described.

5. In a take-up mechanism, the combination with a take-up arm movable about a center and means to actuate said arm, of a thread-roll on the outer end of said arm, a thread-guard on said arm and movable therewith, and means to maintain the thread-guard over and above the thread-roll during the movement of the take-up arm, substantially as described.

595,803. AUTOMATIC SWITCH FOR ELECTRICAL APPARATUS. Samuel L. Barrett, New York, N. Y. Filed Sept. 9, 1897. Serial No. 651,154. (No model.)

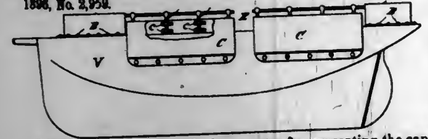


Claim.—1. In a switch for electric apparatus in combination with an arm moving over successive contact-points, and an electromagnet having a curved segmental band-armature, which acts to maintain said arm in contact with any one of said contact-points against the action or force tending to return the arm to off position, substantially as described.

2. In a switch for electric apparatus in combination with an arm moving over successive contact-points and a magnet having a curved segmental band-armature holding the arm upon any one of said contact-points, means for automatically releasing and returning said arm upon an abnormal flow of current allowing the arm to return from any position to off position, substantially as described.

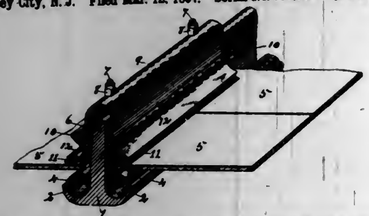
3. In a switch for electric apparatus in combination with a movable arm, a segmental band-armature, suitable means for holding the arm in any desired position, a mechanism to short-circuit the retaining-electromagnet upon an excessive flow of current, a mechanism adapted to release the arm upon a cessation of a flow of current, allowing the arm to return to the off position, substantially as described.

595,804. APPARATUS FOR PREVENTING CAPSIZING OF BOATS. WILLIAM H. BRADFORD, Chester, England. Filed Sept. 17, 1896. Serial No. 606,152. (No model.) Patented in England Feb. 10, 1896, No. 2,959.



Claim.—The herein-described apparatus for preventing the capsizing of boats, comprising air-receptacles mounted at each end of the boat and transversely of the gunwales, said receptacles being wider than the ends of the said boat, cork bodies secured to the side of said boat beneath said receptacles, and said receptacles being also secured to said cork bodies, substantially as and for the purpose described.

595,805. GLAZED STRUCTURE. EDGAR W. CUNNINGHAM, Jersey City, N. J. Filed Mar. 12, 1897. Serial No. 627,165. (No model.)



Claim.—1. In a glazed structure, the combination with overlapping panels, of a binding device, formed from a single strip of yielding sheet metal, and comprising a curved portion, a straight portion arranged at an angle thereto, and a portion 14', arranged at an angle to the straight portion, the said curved portion being interposed between the overlapping edges of said panels, as herein shown and described.

2. In a glazed structure, the combination of overlapping panels, a binding device, comprising a curved portion, a straight portion arranged at an angle thereto, and a portion 14', arranged at an angle to the straight portion, said curved portion being interposed between the overlapping edges of said panels, thereby forming a gutter, and suitably-disposed, disjoined, tabular cushions, supporting said panels, the gutter named being arranged to communicate with said cushions, as herein shown and described.

3. In a glazed structure, in combination with a glazing-support, provided with a vertical web, suitably-disposed panels, a continuous cap, straddling said web, yielding sheet-metal binding-strips, one secured along its upper edge to each of the depending sides of said cap, and arranged so that its lower edge portion may be pressed against the panel, through downward movement of said cap and means for urging said cap downward, as herein shown and described.

4. In a glazed structure, in combination with a glazing support, suitably-disposed panels, a cap, straddling said support, and having its depending sides each folded upon itself to form a rib, a yielding binding-strip, held at its upper edge between the opposing walls of said rib, and in contact, at its lower edge, with the panels aforenamed, and means for urging the cap downward, as herein shown and described.

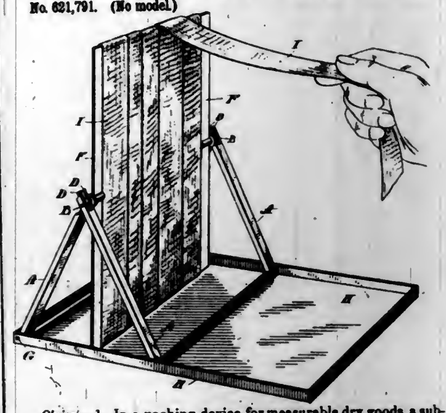
595,806. ENVELOP. SAMUEL M. EDWARDS, Los Angeles, Cal. Filed Jan. 8, 1897. Serial No. 618,667. (No model.)



Claim.—1. An envelop folded to form a tearing edge of single thickness and a tearing-strip of double thickness cemented on the outside of the back of the envelop, one end of the tearing-strip being uncemented and free from the back of the envelop to adapt it to be readily grasped by the fingers.

2. An envelop comprising a body provided with an end flap; a back piece folded upon the body; a main flap adapted to fold upon the back piece; the end flap being folded twice upon itself and the inner fold being pasted or otherwise secured to the back piece, but having one end uncemented and free from the back piece to adapt it to be readily grasped by the fingers.

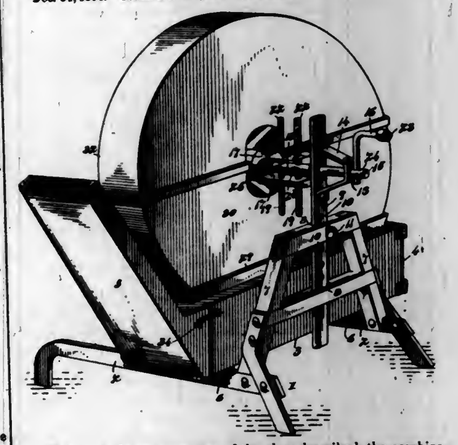
595,807. PACKING DEVICE FOR MEASURABLE DRY GOODS, &c. ANNIE M. GALLAND, New York, N. Y. Filed Feb. 3, 1897. Serial No. 621,791. (No model.)



Claim.—1. In a packing device for measurable dry goods, a substantially rectangular frame, comprising two pivotally-connected sections, stationary stops for limiting the swing of said frame-sections in one direction, and manually-controlled locks for limiting the swing of said frame-sections in the opposite direction, when both sections are in the same plane, a revoluble reel-card carried by said frame, the axis of rotation of the reel-card being substantially coincident with the pivotal connections between said frame-sections.

2. A packing device for measurable dry goods, comprising, a substantially rectangular frame formed of two sections pivotally connected to each other, a revoluble reel-card carried by said frame, the axis of rotation of said reel-card being substantially coincident with the pivotal connection between said frame-sections, in combination with a box surrounding said frame, said box being reinforced and strengthened by said frame when both sections of the frame are in the same plane.

595,808. OIL-BATH FOR WHEEL-RIMS. JOSEPH M. GOFF, Ruston, La., assignor of one-half to J. Mack Smith, same place. Filed Dec. 31, 1896. Serial No. 617,626. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a heating device, an oil trough or receptacle and wheel-supporting devices, of a hood adapted to receive and inclose a wheel during the immersion of its rim in the contents of the trough or receptacle, substantially as specified.

2. In an apparatus of the class described, the combination with a heating device, an oil trough or receptacle and wheel-supporting devices, of a hood removably seated in the top of said trough or receptacle and adapted to receive and inclose a wheel, substantially as specified.

3. In an apparatus of the class described, the combination with a heating device, an oil trough or receptacle and wheel-supporting devices, of a sectional hood divided upon a diametrical line and seated upon the trough or receptacle to receive and inclose a wheel during the immersion of the rim thereof in the trough or receptacle, substantially as specified.

4. In an apparatus of the class described, the combination of a heating device, an oil trough or receptacle provided at its top with a seat having an upright exterior wall or flange, wheel-supporting devices, and a hood removably fitted to the seat at the top of the trough or receptacle with its lower edge inclosed by said upstanding wall or flange, to prevent the escape of liquid by splashing through the joint between the hood and the trough, substantially as specified.

5. In an apparatus of the class described, the combination with a stationary supporting-frame and means for mounting a wheel thereon, of a heating device, an oil trough or receptacle, a hood carried by the trough to inclose the wheel and means for simultaneously adjusting the trough and hood laterally with relation to the wheel-supporting devices, substantially as specified.

6. In an apparatus of the class described, the combination with a stationary supporting-frame having a standard and a hub-seat, of a furnace carrying an oil trough or receptacle and a wheel-inclosing hood and mounted upon the supporting-frame for adjustment toward and from the plane of said standard parallel with the hub-seat, substantially as specified.

7. In an apparatus of the class described, the combination of a supporting-frame having horizontal parallel guides, a standard supporting a hub-seat, and a furnace carrying an oil trough or receptacle and provided with clips or ears engaging said guides and adapted to be moved thereon to vary the position of the furnace with relation to the standard, substantially as specified.

8. In an apparatus of the class described, the combination with a supporting-frame and an oil trough or receptacle, of a spindle, an expansible and contractible hub-seat carried by the spindle, and means for adjusting the hub-seat to fit hubs having bores of different diameters, substantially as specified.

9. In an apparatus of the class described, the combination with a supporting-frame and an oil trough or receptacle, of a spindle, and a sectional hub-seat carried by the spindle and having adjusting devices to vary the relative positions of its sections to fit hubs having bores of different diameters, substantially as specified.

10. In an apparatus of the class described, the combination with a supporting-frame and an oil trough or receptacle, of a spindle, a sectional hub-seat having opposite members adapted to be adjusted toward and from a common intermediate point, and right and left threaded adjusting-screws swiveled in the spindle and engaging the hub-seat sections respectively at opposite sides of the plane of the spindle, whereby the relative positions of said sections may be varied to fit hubs having bores of different diameters, substantially as specified.

11. In an apparatus of the class described, the combination with a supporting-frame and an oil trough or receptacle, of a standard mounted for vertical adjustment upon the supporting-frame, a spindle mounted for rotation upon the standard, a sectional hub-seat carried by the spindle and including right and left threaded adjusting-screws engaging the hub-seat sections and adapted to be turned to vary the relative positions of said sections, said adjusting-screws being provided with wrench-seats, and a crank removably engaged with said spindle and provided with a terminal wrench-head, substantially as specified.

595,809. LASTING-MACHINE. EDWARD F. GRANDY, Boston, Mass. Filed Dec. 21, 1896. Serial No. 616,384. (No model.)

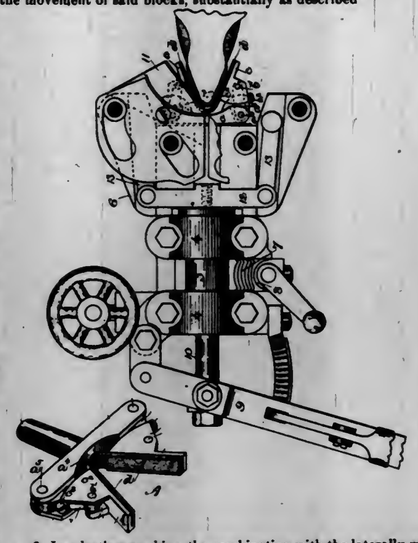
Claim.—1. In a lasting-machine, the combination with a carrier-head, of laterally-movable arms mounted thereon at each end, pressing-blocks pivotally mounted upon the laterally-movable arms, and a pad secured along the inner faces of the pressing-blocks, substantially as described.

2. In a lasting-machine, the combination with a carrier-head, of laterally-movable arms mounted thereon at each end, pressing-blocks mounted on said arms to move therewith and to have an independent movement on said arms, and a pad secured along the inner faces of said blocks, substantially as described.

3. In a lasting-machine, the combination with a carrier-head, of laterally-movable arms mounted thereon, at each end, pressing-blocks carried by said arms, and a continuous pad secured along the inner faces of said blocks, substantially as described.

4. In a lasting-machine the combination with the pivoted pressing-blocks and the pad secured thereto, of stops to limit the movement of said blocks, substantially as described.

5. In a lasting-machine, the combination with the pivoted pressing-blocks and the pad secured thereto, of adjustable stops to limit the movement of said blocks, substantially as described



6. In a lasting-machine, the combination with the laterally-movable arms, of the pivoted pressure-blocks and pad mounted thereon and suitable-placed stops carried by the arms to limit the movement of the pressure-blocks, substantially as described.

7. In a lasting-machine, the combination with the carrier-head of the pad-carrying arms movably connected thereto, and extended rests or bearings on said head over which the arms are movable, substantially as described

8. In a lasting-machine, the combination with a last band or clamp, its carrier and actuating mechanism therefor, of a positively-interlocking coupling device for removably connecting the last band or clamp and its carrier to the actuating mechanism, substantially as described.

9. In a lasting-machine, the combination with the carrier-head having a supporting-stem, of an actuating-rod for said carrier-head and a spring-controlled coupling connecting said rod and stem, substantially as described.

10. In a lasting-machine, the combination with the lasting-plates or wipers, and a last band or clamp, of reciprocating rods to actuate the lastlug-plates or wipers and the last band or clamp, and connected mechanism to impart a positive reciprocation to one rod and a yielding reciprocation to the other rod, substantially as described.

11. In a lasting-machine, the combination with the lasting-plates or wipers, of a last band or clamp and a reciprocating rod to actuate the same, of connected mechanism to actuate the lasting-plates or wipers and the reciprocating rod, arranged to impart a rapid movement to said rod relatively to the lasting-plates or wipers, substantially as described.

12. In a lasting-machine, the combination with the lasting-plates or wipers, of a last band or clamp and connected mechanism for actuating the lasting-plates or wipers and the last band or clamp, acting to impart a relatively rapid movement to the last band or clamp, substantially as described.

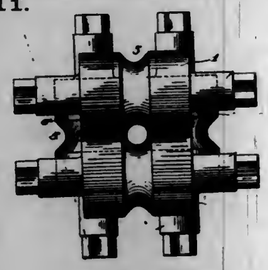
13. In a lasting-machine, the combination with the last band or clamp and its actuating mechanism, of a detachable spring connection between the same substantially as described.

14 In a lasting-machine, the combination with the last band or clamp comprising a carrier-head provided with a hollow cylindrical stem, of an actuating-rod therefor having a split pin engaging the stem, substantially as described.

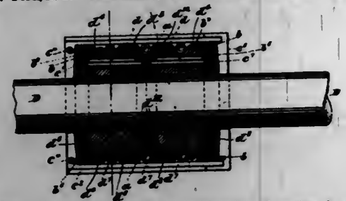
595,810. TUBE-MAKING MACHINE. WALTER GREGG, JOSEPH F. DONAGHY, and JOHN HUMPHREY, Ellwood City, Pa. Filed Jan. 20, 1897. Serial No. 619,853. (No model.)

Claim.—In a tube-rolling machine, the combination with a pair of rollers having circumferential grooves each formed with a curvilinear base and straight sides disposed at right angles to each other and tangential to the base, of another pair of similar rollers arranged at right angles to the first-mentioned rollers, substantially as described.

595,811.



595,811. METALLIC RING PACKING. LEOPOLD KATZENSTEIN, New York, N. Y. Filed Mar. 3, 1897. Serial No. 625,830. (No model.)

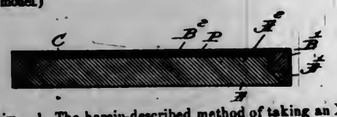


Claim.—1. In a packing, the combination of sectional end rings *b*, intermediate sectional rings *d* recessed for the reception of sectional metal pieces d^8, the rings *d* being beveled at each end and recessed peripherally, springs for holding the rings *d* firmly around the piston-rod, a triangular spring expansion-ring *a* intervening between the rings *d d* and a pin or pins for holding said rings in alinement, adjacent sectional rings breaking joints with each other from end to end of the packing.

2. In a packing, the combination of inside conical flanged end rings *b*, intermediate sectional rings *d* recessed for the reception of segmental pieces d^8, the said rings *d* being beveled at one end to enter the flanged end rings *b* and at the other end to form a triangular groove, a triangular spring expansion-ring a^1 between the rings *d*, means for preventing the rings from turning one on the other, the said rings breaking joints with each other from end to end of the packing.

3. In a packing, the combination of flanged end rings, intermediate sectional spring-rings beveled at one end to enter the flanged end rings and at the other end to form a V-shaped groove, the said intermediate rings being recessed for the reception of segmental pieces d^8 and provided with flanges d^{12} and a sectional spring-ring *a* intervening between the intermediate rings.

595,812. METHOD OF AND APPARATUS FOR CONVERTING X-RAYS INTO LIGHT FOR PHOTOGRAPHIC PURPOSES. THOMAS B. KERRAIDE, Boston, Mass. Filed Jan. 15, 1897. Serial No. 619,302. (No model.)



Claim.—1. The herein-described method of taking an X-ray radiograph, which consists of interposing the object to be copied and a photographic plate or substance between the source of the X-rays and a surface or converter which transforms the invisible X-rays into light, substantially as described.

2. The herein-described method of taking an X-ray radiograph, which consists of placing a sheet of photographic substance upon an X-ray-converting surface, and interposing between said photographic substance and the source of the X-rays the object to be radiographed, substantially as described.

3. An X-ray apparatus comprising a base, and a plane surface thereon translucent to X-rays, said surface having a coating or composition of material capable of transforming the invisible X-rays into visible actinic light, substantially as described.

4. An X-ray apparatus comprising a base, a translucent surface thereon, said surface having a coating thereon of material capable of transforming the invisible X-rays into visible actinic light, and a removable cover therefor, substantially as described.

5. An X-ray apparatus comprising a base, a translucent surface thereon, said surface having a coating thereon of material capable of transforming the invisible X-rays into actinic light, and a cover therefor, said cover having a flexible rest, substantially as described.

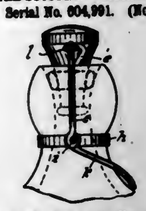
6. A fluorescent surface for use in X-ray work comprising a layer of non-sensitive material translucent to the X-ray, and a layer containing a substance united therewith capable of transforming the invisible X-rays into visible actinic light, substantially as described.

7. A fluorescent surface for X-ray work comprising a sheet of celluloid, and a backing united thereto containing material capable of transforming the invisible X-rays into actinic light, substantially as described.

8. A fluorescent surface for X-ray work, comprising a sheet of celluloid, and a composition of gelatin and a substance united therewith capable of transforming the invisible X-rays into actinic light, substantially as described.

9. In X-ray apparatus, a surface, comprising a gelatin vehicle and a substance carried thereby capable of transforming the invisible X-rays into visible actinic light, substantially as described.

595,813. BOTTLE-STOPPER. GUSTAVE KOCH, New York, N. Y. Filed Sept. 5, 1896. Serial No. 604,991. (No model.)



Claim.—1. A stopper for hermetically closing the neck of a bottle or of a similarly-shaped vessel, the stopper comprising a plug, having a concavely tapered body with a flange on its lower end and a head on its upper end, a *T*-shaped slot, forming a slideway and a shoulder in the body of the plug; an elastic packing, slid on the plug and adapted to roll thereon, and a bow passed through the slot of the plug pivotally attached to the neck of a bottle, the bow being composed of two integral parts coacting as a spring, in forcing the bridge of the bow upon the shoulder of the plug when the stopper is pressed into the mouth of the bottle.

2. In a bottle-stopper the combination with a *T*-slotted plug, the slot forming a slideway and a shoulder in the body of the plug, and with an elastic packing, slid on the plug, of a bow, pivotally attached to the neck of a bottle and composed of two integral parts, one of which is passed through the slot of the plug and the other adapted to engage with the body of the bottle and to act as a spring, forces the bridge of the bow upon the shoulder of the plug when the stopper is pressed into the mouth of the bottle.

3. In a bottle-stopper the combination with a bow, pivotally attached to the neck of a bottle and with a plug, provided with a *T*-shaped slot, forming a slideway and a shoulder in the body of the plug, of a spring, formed integral with the bow and forcing it in its seat upon the shoulder, formed by the *T*-slot in the body of the plug when the plug is pressed in its position closing the neck of a bottle.

595,814. BOTTLE-STOPPER. GUSTAVE KOCH, New York, N. Y. Filed Feb. 1, 1897. Serial No. 621,595. (No model.)



Claim.—1. A stopper for hermetically closing the mouth of a bottle or similar vessel, comprising a conically-shaped plug, concavely tapering toward its flanged end and provided with a groove near its lower flanged end, an elastic packing-ring, having a flange on its inner periphery, secured in the groove, a longitudinal slot in the body of the plug, horizontal slots in the head of the plug connecting with the vertical slot and forming segmental shoulders, a band rotatably secured on the neck of the bottle and a bow, pivotally secured to the band and passing through the slot of the plug.

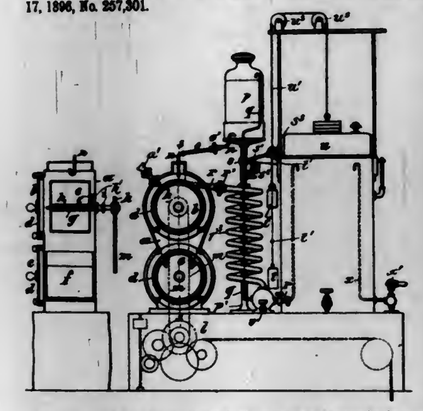
2. In a bottle-stopper for hermetically closing the neck of a bottle or similar vessel, the combination with a conical plug concavely tapered toward its flanged end, and having a vertical slot through its top, segmental slots communicating with the vertical slot and forming shoulders on the opposite upper edges thereof, a groove near its flanged end, and with an elastic packing, slid on the body of the plug and secured by its flange in the groove, of a band, set turnably on the neck of the bottle and of a bow, pivotally secured to the band and passing through the vertical slot of the stopper, and adapted to

be slid on the segmental shoulders thereof for the purpose of locking the stopper in the mouth of the bottle

3. In a stopper for hermetically closing the neck of a bottle or similar vessel, the combination with a conically-shaped plug, concavely tapered toward its flanged end and having a groove, adapted to receive and hold the flanged rim of a packing, of an elastic packing-ring, circular in section having a flange around its inner periphery on the level with its upper surface, the packing-ring being secured by this flange in the groove in the body of the plug in such position, that when the stopper is pressed inward into the neck of a bottle, the flange is drawn and reacts as a spring when the pressure upon the plug is released.

595,815. WITHDRAWN.

595,816. APPARATUS FOR PRODUCING ACETYLENE GAS. GUSTAVE LEBRUN and FERNAND CORNAILLE, Paris, France. Filed Jan. 9, 1897. Serial No. 618,541. (No model.) Patented in France June 17, 1896, No. 257,301.



Claim.—1. In the herein described apparatus for producing acetylene gas, the combination with the generator, of a closed water chamber or reservoir placed at a higher level than the generator and connected at its upper part by a pipe with the gas-discharge pipe from the generator so as to render the flow of water dependent on the gaseous pressure in the water-chamber, a gas-holder, a pipe leading from the generator to the holder, a valve actuated by the gas-holder so as to arrest the admission of gas and consequently the supply of water to the generator when the holder rises and a conduit connecting the water-chamber and the generator, as described.

2. In an apparatus for making acetylene gas, the combination of a revolving perforated drum or cage containing calcium carbid, means for removing the gas as generated, a gas-holder for receiving the gas, means for supplying liquid to the perforated cage, comprising a closed water-chamber, a pipe connecting the water chamber with the generator, a pipe connecting the water-chamber and gas-holder whereby gas-pressure from the gas-holder may be introduced into the water-chamber to force water therefrom to the generator, and means for controlling the flow of gas through the said pipe controlled by the movement of the gas-holder, substantially as described and for the purposes set forth.

595,817. DOOR-HANGER. BERNARD W. MASTERSON, Sunset Depot, Tex., assignor of one-half to Henry Small, same place. Filed May 7, 1897. Serial No. 635,529. (No model.)



Claim.—1. A reversible hanger of the class described, having a continuous runway and antifriction balls or rollers, mounted in the runway, and exposed respectively at the upper and lower sides of the hanger, for contact with a track, substantially as specified.

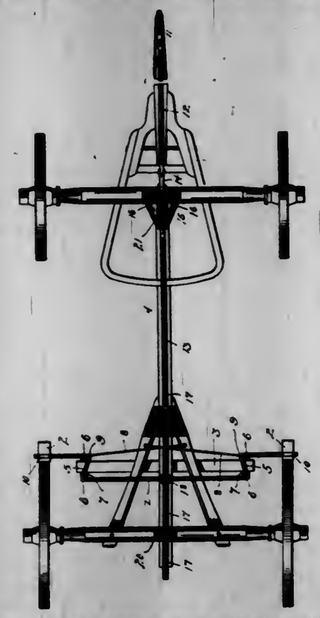
2. A reversible hanger of the class described, having a continuous runway inclosed by an exterior shell, said shell being provided at upper and lower sides of the hanger with longitudinal slots, and a series of antifriction balls or rollers, mounted in said runway, and exposed through said slots in the shell for contact with a track, substantially as specified.

3. A reversible hanger of the class described, having a sectional body portion, comprising front and rear parts or members provided in their edges, and at their contiguous faces, with a groove forming a continuous runway, a series of antifriction balls or rollers mounted in said runway, and a shell, consisting of a band or strap, closing the outer side of the runway, to retain the balls or rollers therein, and provided, at the upper and lower sides of the body portion, with longitudinal slots through which the balls project for contact with a track, substantially as specified.

4. In a hanger of the class described, a blade or shank adapted to be mortised in a door for vertical adjustment, a longitudinally-slotted, horizontally-adjustable wedge engaging a transverse opening in the blade or shank, guide-screws engaging the slots of the wedge, and means for adjusting the wedge, substantially as specified.

5. In a hanger of the class described, the combination with a member having exposed antifrictioo-rollers and adapted to be carried by a door, of a track having upper and lower rests, the latter being longitudinally grooved to receive the balls, and the former having a depending guard, substantially as specified.

595,818. AUTOMATIC VEHICLE-BRAKE. JOHN MUELLER, Lisbon, N. D. Filed Mar. 13, 1897. Serial No. 627,375. (No model.)



Claim.—1. In an automatic vehicle-brake, the combination of a running-gear provided in advance of its rear axle, a transverse brake-rod located beneath the running-gear and provided at opposite sides thereof with angular bends offsetting the outer portions from the central portion, links arranged in pairs, depending from the ends of the transverse bar and connected with the brake-rod at the said bends, the transverse braces inclining downward from the rear bounds to the brake-rod and secured at their lower terminals to the same at the bends thereof, said brace-rods being crossed directly beneath the reach, and a yoke-operated connecting-rod attached to the brake-rod, substantially as described.

2. In an automatic vehicle-brake, the combination with a running-gear, of a transverse brake-rod suspended from the running-gear and carrying brake-shoes, a longitudinal connecting-bar provided with a series of notches adapted to receive the brake-rod, plates

mounted on the brake-rod and embracing the connecting-rod, and a transverse pin or bolt passing through the plates and locking the brake-rod in a notch of the connecting-rod, substantially as described

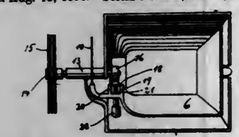
3. The combination with a running-gear, of a transverse brake-rod suspended therefrom, a connecting-rod extending forward from the brake rod to the front of the pole and adapted to be operated by a neck-yoke, said connecting-rod being provided in advance and in rear of the front axle with hinge-joints forming an intermediate section, an open guide-frame provided with eyes receiving the intermediate section of the connecting-rod, and a spring disposed on the connecting-rod, bearing against the back of the guide-frame and engaging the connecting-rod to hold the brake shoes off the wheel, substantially as described.

4. In an automatic vehicle-brake, the combination with a running-gear, of a transverse brake-rod, a connecting-rod extending therefrom to the front of the pole, a loop mounted on the latter at the front end thereof, a slide arranged within the loop, provided with upper and lower flanges and pivoted to the connecting-rod, a projection depending from the slide and adapted to be engaged by a neck-yoke, and a dog mounted on the slide and arranged to engage a notch of the loop, substantially as described.

5. In a vehicle-brake, the combination of a brake-rod provided with perforations, a longitudinally-adjustable brake-shoe mounted directly upon the rod, and the substantially U-shaped clip disposed transversely of the brake-shoe, receiving the same and having threaded sides extending through the perforations of the rod, said clip being provided with nuts engaging the lower face of the rod, whereby the brake-shoe is mounted thereon and is also secured at any desired adjustment, substantially as described.

595,819. FEEDING MECHANISM FOR GRINDING-MILLS.

COUNTCIL MUNSON, Utica, N. Y.; Florence Adela Munson, executrix of said Countcil Munson, deceased, assignor to Munson Brothers, same place. Filed Aug. 15, 1896. Serial No. 602,880. (No model.)



Claim.—1. In a grinding-mill a feed-shaker, a buffer thereon consisting of a flexible face-piece held by two rigid separated projections and a backing-spring between the projections in combination with a cam or eccentric operating on the flexible face-piece between the said projections, substantially as set forth.

2. In a grinding-mill a feed-shaker, a buffer therefor consisting of fixed projections 19 and 20, a flexible face-piece 18 stretched between and held by said projections, a backing-spring 21 located between said projections, in combination with a cam or eccentric operating on the said flexible face piece between the projections, substantially as set forth.

3. In a grinding-mill, a feed-shaker pivoted at one end on a vertically-adjustable pivot and supported at the other end by a diagonally-extending cord attached to a support above the free end of the shaker and having a buffer thereon consisting of fixed projections 19 and 20, a flexible piece 18 secured to said fixed projections in combination with a cam mounted on a horizontal shaft operating against the piece 18 between said projections, substantially as set forth.

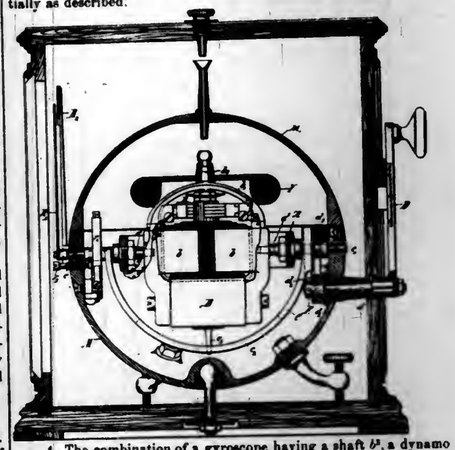
595,820. GYROSCOPIC-CONTROLLED FIRING MECHANISM FOR SHIPS' GUNS.

LUDWIG OBRY, Pola, Austria-Hungary. Filed Sept. 28, 1895. Serial No. 564,044 (No model.) Patented in Austria May 1, 1895, No. 45/2,629; in Hungary June 7, 1895, No. 5,579; in France July 6, 1895, No. 248,723; in Italy July 13, 1895, LXXVII, 112; in England July 13, 1895, No. 13,496, and in Germany Aug. 13, 1895, No. 86,586.

Claim.—1. An apparatus for automatically discharging ships' guns when one or both of the main axes of the ship are in a horizontal position, consisting of a gyroscope mounted so as to be free to retain its position irrespective of the movements of the ship, a contacting device in the igniting-circuit to the guns and means for utilizing the relative motion of the ship and gyroscope to operate the said contacting device so as to make contact when the vessel is in a horizontal position in the manner and for the purpose substantially as described and shown.

2. The combination of a gyroscope, mounted so as to be free to retain its position irrespective of the movement of the ship, a contacting device in the igniting-circuit to the guns, and means for utilizing the relative motion of the ship and gyroscope to operate the said contacting device when one of the main axes of the vessel is in a horizontal position substantially as described.

3. The combination of a gyroscope having a shaft b^3, a dynamo to drive said shaft, suspended in cardanic rings and having its armature b' keyed to the gyroscope-shaft, a contacting device in the ignition-circuit to the guns and means for utilizing the relative motion of the ship and gyroscope to operate said contacting device substantially as described.



4. The combination of a gyroscope having a shaft b^3, a dynamo to drive said shaft having pole-plates b b, a ring A to support said dynamo by means of diametrically opposite pivots a' a', exterior diametrically opposite pivots a a to said ring arranged at right angles in the same plane to the pivots a' a' a casing to support said pivots a a which are fast on the said ring A a contacting device in the ignition-circuit to the guns and means for operating said contacting device to close the circuit at the moment specified, from the pivot a substantially as described

5. The combination of a gyroscope, a dynamo to drive same, a ring A to support said dynamo as specified, pivots a a fast on said ring and a casing M M' to support said pivots, a bow C supported on pivots c c' in said casing and having its line of suspension parallel to that of suspension of the dynamo a slot c^2 in said ring and a pin at the lower part of the dynamo to engage said slot in the manner and for the purpose substantially as described.

6. The combination of a gyroscope and a dynamo to drive same, a ring A and means for supporting said dynamo in said ring as specified, pivots fast on said ring and a casing M M' to support said ring-pivots, a bow C mounted as specified on pivots fast on the same, and a contacting device R and S operated respectively by the said pivots c and a and suitable connections between said contacting devices and the igniting-circuit of the guns substantially as described.

7. The combination of a gyroscope and a dynamo mounted as specified and a stationary casing to contain same, a contacting device to admit current to the dynamo consisting of a spindle d penetrating the casing below the bow-pivot, a drum d' on the interior end of said spindle having contacting surface, contact-springs d^2 d^3 an insulated block d^4 to support same and means for turning the spindle d to break contact between the two said springs substantially as described.

8. The combination of a gyroscope and a dynamo suspended within suitable casing as specified, a spindle d having drum d', with contact-surface d^2, contact-springs d^3 d^3 to touch said drum, and means in connection with said spindle to arrest the motion of the suspended parts when the contact between the said springs is broken substantially as described.

9. The combination of a gyroscope and a dynamo to operate same and means for suspending the parts as specified, a spindle d having contacting device d' d^2 d^3 d^4, a lever f fast on said spindle to engage under the suspension-ring A having arm f' with surfaces f^2 to contact with the sides of the bow C above and below its pivot and arrest same substantially as described.

10. The combination of a gyroscope and a dynamo to drive same and means for suspending said gyroscope so that the same may be free to move irrespective of the movements of the ship a contact device connected with one of the pivots of said suspending mechanism and consisting of two contact-springs r' r' bent inwardly at their upper ends and pivoted to a stationary support r^4 at their lower ends, said springs being bulged out at about or below their middle to embrace the said pivot and a tongue on said pivot extending upwardly between said springs and adapted to operate the same in the manner and for the purpose substantially as described.

11. The combination of a gyroscope and a dynamo to drive same said parts being suspended in a stationary casing as specified and a contacting device in connection with said suspension mechanism and operated by one of the pivots thereof consisting of the pivoted contact-springs r' r' spring-pressed toward each other, a tongue r on the pivot of the bow C extending upwardly between said springs, said springs being adapted to bear at their lower parts against a bifurcated upward extension of the support-block, a conical boring through said bifurcated part and a screw having conical end to extend into said boring and adjustable from the outside of the casting substantially as described.

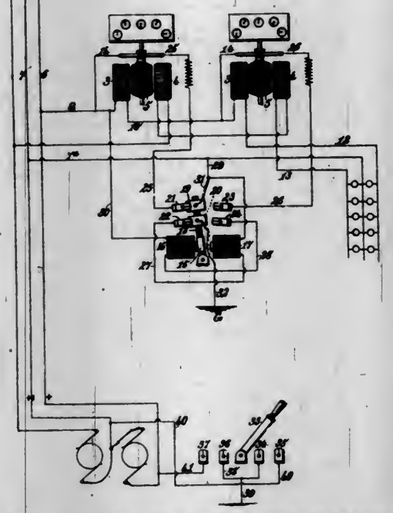
12. The combination of a gyroscope and a dynamo to drive same, means for suspending the parts in suitable casing as specified, a contacting device R operated by one of the pivots of the said suspension means, and means for connecting up the said contacting device and the source of electricity of the igniting-circuit in series, and the firing-pins of the guns parallelly, substantially as described.

13. The combination of a gyroscope and a dynamo a ring A to support same in suspension as specified pivots to said ring a contacting device S operated from one of said pivots, and means for connecting up the said contacting device together with the source of electricity of the igniting-circuit of the guns in the said circuit in series and the firing-pins of the several guns parallelly substantially as described.

14. In combination with a gyroscope and a battery and means for suspending the same as specified contacting devices R and S operated from the suspension means of the said parts and means for connecting up both apparatuses with the source of electricity in the circuit for discharging the guns in series and at both sides of the said source of electricity and means for connecting up the firing-circuits parallelly in the manner and for the purpose substantially as described and shown.

595,821. METHOD OF AND APPARATUS FOR MULTIPLE METERING OF ELECTRIC CURRENTS.

EUSTACE OXLEY, Washington, D. C. Filed Oct. 25, 1897. Serial No. 656,351. (No model.)



Claim.—1. In a system of electrical distribution, the method set forth of controlling the metering or registering devices, which consists in electrically operating a control apparatus from a single point by circuits composed of one or the other of the mains of the system in conjunction with the ground, substantially as described.

2. In a system of electrical distribution, the combination with metering or registering devices arranged at a plurality of points of consumption, of a control apparatus therefor, circuits for the same composed of one or the other of the mains of the system in conjunction with the ground, and means arranged at a single point for closing either circuit momentarily, substantially as described.

3. In a system of electrical distribution, the combination with a series of metering or registering devices, at a series of points where current is consumed, of a series of control mechanisms, one for each of said points, two circuits for said mechanisms, each composed of one of the mains of the system in conjunction with the ground, and means at a single point for momentarily closing one or the other of said circuits, substantially as described.

4. In a system of electrical distribution, the combination with a series of outlying stations of a series of metering or registering mechanisms arranged at said stations, a series of electromagnetic devices suitably located with relation to said metering or registering mechanisms, and control-circuits each consisting of one of the mains and the ground, substantially as described.

5. In a system of multiple-rate metering, the combination with a series of outlying stations, of a series of metering or registering mechanisms at said stations, a series of electromagnetic devices each suitably arranged with relation to the metering or registering mechanism and consisting of an armature pivoted between independent electromagnets and clips for knives carried by an armature-bar, a circuit for each electromagnet including one of the mains of the system and the ground, and a switch at a suitable point to momentarily close either circuit, to control the action of the metering mechanism, substantially as described.

595,822. MILK-CAN.

ADDISON V. SMITH, Cortland, N. Y. Filed Apr. 9, 1897. Serial No. 631,462. (No model.)



Claim.—1. A milk-can comprising a shell, and a flared bottom which is provided with a central depression, forming a receptacle in vertical alinement with the open mouth of the can, combined with a dipper having its cup fitted in the receptacle and serving as a means for removing any contents of the can which may drain thereto, substantially as set forth.

2. In a milk-can, a bottom provided with a central depression forming a chamber, and united to the shell of the can on a line considerably above the lower edge thereof, to provide a marginal flange that depends below the bottom and its depression to form a base whereon the can may rest, combined with a dipper arranged within the can to have its cup fit the central depression in the bottom, whereby all the contents of the can may be removed without tilting or inverting the can, as and for the purpose described.

3. A milk-can consisting of a body portion having a neck at its upper part and provided with a bottom extending across its lower portion above its lower edge, the lower edge of the body portion projecting below said bottom and forming a base or foot whereon the can rests, and said bottom being formed with a central cup-like depression or chamber extending down within the space inclosed by said base or foot, in combination with a dipper having a cup of a size and form to fit within said cup-like depression and of a depth such that its upper edge is substantially flush with the bottom of the can, and a handle secured to said cup and arranged to extend up adjacent to the mouth of the can, substantially as set forth.

595,823. DUST-PAN.

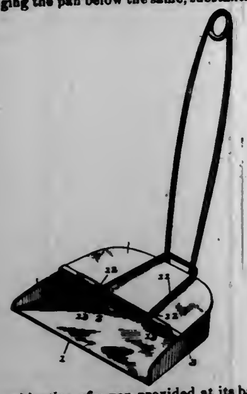
MARY L. STANDISH, Coolidge, Kans. Filed Sept. 13, 1897. Serial No. 651,495. (No model.)

Claim.—1. The combination of a pan provided at its back with eyes, a loop extending from the back of the pan and located above the eyes, and a detachable handle extending through the loop and provided with opposite compressible lugs or projections engaging the eyes, substantially as described.

2. The combination of a pan provided at its back with eyes, a loop extending from the back of the pan and located above the eyes, and a substantially U-shaped handle provided at its top with a spring-coil, and having projections or lugs at the lower ends of its sides for engaging the eyes, substantially as described.

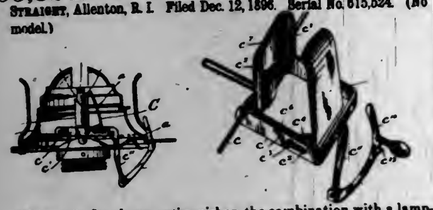
3. The combination of a pan, a loop hinged to the top of the

pan, extending rearward beyond the back of the same and adapted to swing forward, and a detachable handle extending through the loop and engaging the pan below the same, substantially as described.



4. The combination of a pan provided at its back with eyes and having eyes at opposite sides of its top or hood at the front thereof, a substantially U-shaped loop having the terminals of its sides bent outward and detachably engaged with the eyes at the top of the pan, and a substantially U-shaped handle extending through the loop and having the terminals of its sides bent outward and engaging the eyes at the back of the pan, substantially as described.

595,824. LAMP-BLAZE-EXTINGUISHING BURNER. GEORGE H. STRAIGHT, Allenton, R. I. Filed Dec. 12, 1896. Serial No. 615,524. (No model.)



Claim.—1. In a lamp-extinguisher, the combination with a lamp-burner proper, of a sliding tube surrounding the wick-tube, a pivoted plate connected to said sliding tube so as to move therewith, means for forcing said tube and plate upward so as to cause the latter to close over the top of the former to cut off the supply of air thereto, and a catch for holding said tube adapted to be engaged and held down by the chimney, substantially as described.

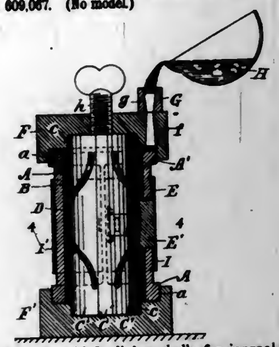
2. In a lamp-extinguisher, the combination with a lamp-burner, of a sliding tube mounted upon the wick-tube, a pivoted plate connected to said sliding tube so as to move therewith and having a lip at its upper end adapted to lap over and close the upper end of the sliding tube when the tube and plate are forced upward, a spring for forcing said tube and plate upward to bring them together above the wick-tube, and a pivoted catch adapted to hold said tube and plate down against the tension of the spring and be engaged by the lamp-chimney so that upon the latter being tipped or moved said catch will be released, substantially as described.

3. In a lamp-extinguisher, the combination with a lamp-burner proper, of an extinguishing device connected to the wick-tube, a pivoted catch connected to said extinguishing device for holding the same normally down out of the way, a shoulder formed on said catch and adapted to normally engage the under side of the lamp ring, and a lateral arm also mounted on said catch and adapted to be engaged by the chimney when the latter is in position; the construction being such that the pivoted catch is disengaged from the lamp-ring upon the application of the chimney and held from rising by the latter, substantially as described.

4. In a lamp-extinguisher, the combination with a lamp-burner proper, of a yoke pivotally mounted in the same, a spring connecting said yoke and the burner for normally forcing the former upward, a tube surrounding the wick-tube and connected to said yoke, a pivoted plate also connected to said yoke and projecting through the top of the perforated burner-plate, and a pivoted catch connected to said yoke and adapted to be normally held down by the lamp-chimney, so that when the latter is removed said catch will be released to permit the tube and pivoted plate to rise, and come together before the wick-tube to extinguish the blaze, substantially as described.

5. In a lamp-extinguisher, the combination with a burner proper, of a spring-pressed yoke pivoted in the same and provided with elongated slots, a tube adapted to surround the wick-tube and provided with apertured arms, an extinguishing-plate adapted to project through the top of the perforated burner-plate and provided with laterally-projecting pins that pass through the apertured arms of the tube and enter the elongated slots of the yoke, a catch pivotally mounted on said yoke and provided with a shoulder adapted to engage the under side of the burner-ring, and so constructed as to be normally held down by the lamp-chimney, substantially as described.

595,825. MOLD FOR LINING SHELLS OF JOURNAL-BEARINGS. CHARLES F. UEBELACKER, Newark, N. J. Filed Oct. 16, 1896. Serial No. 609,067. (No model.)



Claim.—1. In a mold for lining shells for journal-bearings, the combination, with the shell, of a mandrel, caps fitted to the ends of the shell and provided with recesses to center the opposite ends of the mandrel within the shell, one of said caps having a pouring-hole with vent-hole adjacent thereto, and the bar G hinged upon the cap and formed with the hopper *g* and vent-hole *g'*, and movable transversely to the pouring-hole, as and for the purpose set forth.

2. In a mold for babbitting the shells of journal-bearings, the combination, with the shell, of caps fitted to the ends of the shell and recessed to center the opposite ends of a mandrel, and a mandrel having ribs formed with integral pins d^3 inserted in the exterior of the mandrel to hold the ribs thereon, substantially as herein set forth.

3. In a mold for lining half-shells of journal-bearings, the combination, with a back plate, of half-caps secured movably upon the plate near opposite ends of the same, the screws *h'* upon the plate to adjust the said caps, and a half-mandrel fitted to the plate concentric with the half-caps, substantially as herein set forth.

4. In a mold for lining half-shells of journal-bearings, the combination, with a flat back plate, of half caps fitted at the ends of such plate to center the half-shell, and a mandrel having a core attached to the plate with lateral segments secured in position by the pins *d'* fitted to holes *d'* in the plate, as and for the purpose set forth.

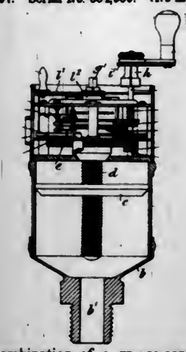
5. In a mold for lining half-shells of journal-bearings, the combination, with a flat back plate, of half-caps secured movably to the plate at opposite ends, with means for moving them toward one another to center the shell, a mandrel having a core attached to the plate with lateral segments secured in position by the pins *d'* fitted to holes *d'* in the plate, and one of the caps having the pouring-hole *f* and vent-hole *f'*, and provided with the bar G pivoted upon the cap, and having the hopper *g* and vent-hole *g'*, as and for the purpose set forth.

6. In a mold for lining half-shells of journal-bearings, having each the oiling-aperture E, the combination with a back plate, of half caps secured movably upon the plate near opposite ends of the same, a half-mandrel fitted to the plate, the bar E^2 having stud E' fitted to aperture E, and the brace M hinged to one of the caps and secured detachably to the other cap, and provided with the set-screw N to press upon the bar E^2, as and for the purpose set forth.

7. In a mold for babbitting shells of journal bearings, the combination, with the shell, of caps provided with annular flanges to engage the opposite ends of the shell and recessed to fit the opposite ends of a mandrel, and the mandrel made of suitable length to hold one of the caps away from the end of the shell to cast a collar upon the end of the babbitt lining, substantially as herein set forth.

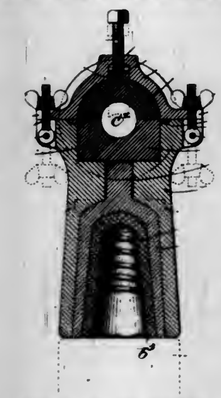
8. In a mold for babbitting shells of journal-bearings, the combination, with a mandrel having superficial segments and a tapering core of greater length than such segments, of caps provided with annular flanges to engage the opposite ends of the shell, and formed with apertures to fit the opposite ends of the mandrel and perforations to permit the projection of the core, the whole being adapted to cast the lining in the shell with the core projecting through the ends of the mandrel, substantially as herein set forth.

595,826. LUBRICATOR. GUSTAV WALCH, Wiesbaden, Germany. Filed May 3, 1897. Serial No. 634,939. (No model.)



Claim.—The combination of a grease-container, a piston by which the grease is expelled therefrom, a screw which propels the piston, a toothed wheel *e* operatively connected with the screw, a clockwork that normally drives the screw, an endwise-movable axis and two pinions thereon, one permanently engaged with said toothed wheel and the other normally engaged with a toothed driving-wheel of the clock-train, whereby when the axis is moved endwise one of the pinions passes out of engagement with the toothed wheel of the clock-train while the other remains engaged with the wheel connected with the screw and permits of the operation of the piston independently of the clock-train, substantially as set forth.

595,827. INSULATOR-BRACKET. CHARLES A. WOOLSEY, Brooklyn, N. Y. Filed Mar. 29, 1897. Serial No. 629,781. (No model.)



Claim.—1. A device of the kind described, comprising a base adapted to be permanently secured, provided with a seat for the wire, pipe or other material to be supported, a removable cap to cooperate with said seat, and means permanently mounted on said base to move said cap and seat relatively toward each other into fixed clamping adjustment, substantially as described.

2. A device of the kind described, comprising a base adapted to be permanently secured, provided with a seat for the wire, pipe or other material to be supported, a removable cap to cooperate with said seat, means to move said cap and seat relatively toward each other into fixed clamping adjustment, and an auxiliary clamp movable in and relatively to said cap to clamp the wire or other thing supported, substantially as described.

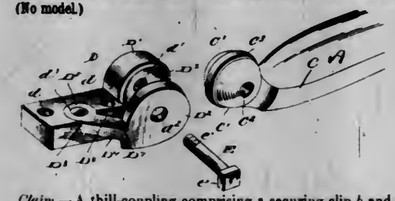
3. In a device of the kind described, a removable cap, a slot therein, a clamping-jaw movable out and in in said slot, and a clamping-bolt having threaded engagement with the cap and swiveled engagement with said jaw, substantially as described.

4. An insulator-bracket for wires, pipes, &c., comprising a base adapted to be permanently secured, a removable cap, a seat between said cap and base for the wire, pipe or other material to be supported, and means to clamp said base and cap together, said means consisting of ears on one, a threaded bolt pivoted on the other to swing between said ears, and a nut on said bolt and extending laterally to bear on said ears, substantially as described.

5. In a device of the kind described, a base, comprising a body-piece, and a removable securing portion provided with means for securing the base to a support, said portion having threaded engagement with said body-piece, whereby the body-piece and the parts carried thereby may be quickly removed from said securing portion as desired, without disturbing the latter, substantially as described.

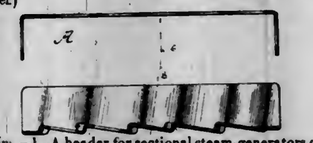
6. In a device of the kind described, a base, comprising a shell-like body-piece, and a removable securing portion adapted to fit within the body-piece provided with means for securing the base to a support, said portion having threaded engagement with said body-piece, whereby the body-piece and the parts carried thereby may be quickly removed from said securing portion as desired, without disturbing the latter, substantially as described.

595,828. THILL-COUPLING. JOHN B. ESSELBURN and LEWIS ESSELBURN, West Salem, Ohio. Filed May 14, 1897. Serial No. 636,533. (No model.)



Claim.—A thill-coupling comprising a securing-clip *b* and a stationary socket-plate D provided with clip-apertures *d*, a circular pivoting-recess having an opening of less diameter than the recess between said apertures, a supporting-seat D^4 within the body of the plate and having a vertical wall D^7 and a shoulder D^8 and a horizontal supporting portion provided with an inclined front wall d^4, of a movable socket member D^2 provided with a pivoting-arm D^4, head portion D^5 located in the pivoting-recess of the stationary socket-plate flush with the surface thereof to contact with an axle and with an inclined wall d^5 upon the lower portion of the socket member, a ball member having a peripheral flange and provided with a central aperture and located between said sockets, and a clamping-bolt passing through said socket and ball members, substantially as specified.

595,829. SECTIONAL STEAM-GENERATOR. CAMPBELL P. HIGGINS, Roselle, N. J. Filed Mar. 13, 1897. Serial No. 627,399. (No model.)



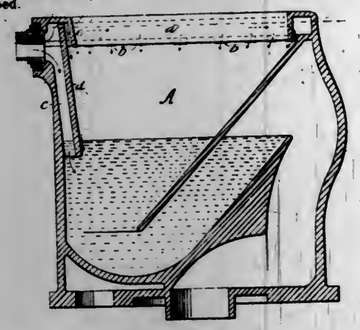
Claim.—1. A header for sectional steam-generators composed of a trough-shape part having sinuous sides and a bottom constructed with a series of perforated transverse angular steps or depressions, and a second part having a perforated face and bent ends to fit the trough and secured to it, substantially as described.

2. A serpentine header for sectional steam-generators, having one of its faces constructed with a series of transverse angular steps or depressions perforated to receive inclined water-tubes singly or in clusters as shown, said depressions being formed in line at right angle to the center of the perforation or tube-opening, and the opposite face of the header provided with hand-holes in line with the tubes and through which all of said tubes are accessible for placing, securing, cleaning or removal, as set forth.

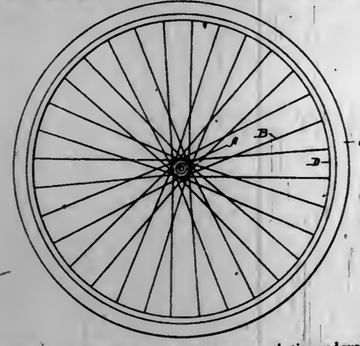
595,830. WATER-CLOSET BOWL. HARRY S. MADDOCK, Trenton, N. J. Filed June 11, 1897. Serial No. 640,324. (No model.)

Claim.—A water-closet bowl having a siphon-leg opening into its lower part, and an annular flushing-chamber around its rim, said chamber having at its rear portion a water-inlet passage, and passages for the outlet of water all around the inner periphery of the bowl, the rim of the chamber in front of the inlet-passage being extended down on the inner side of the bowl to form a jet-partition for driving the bowl's contents toward and into the mouth of the siphon-leg, an opening in said partition opposite the inlet-passage into the chamber, and a short supplemental partition overlying said opening

and a portion only of the length of the jet-partition and forming a fan to wash the front surface of said partition only: substantially as described.



595,831. BICYCLE-WHEEL. GEORGE W. MARBLE, Plymouth, Ind., assignor to the Indiana Novelty Manufacturing Company, same place. Filed June 4, 1897. Serial No. 639,381. (No model.)



Claim.—1. The combination with a pneumatic tire and suspension-spokes, of a wood rim having at its joint or meeting ends a series of interfitting tongues and a splice-piece extending longitudinally of the joint, said splice-piece having double dovetail side edges, substantially as specified.

2. The combination with a pneumatic tire and suspension-spokes, of a wood rim having at its joint or meeting ends a series of interfitting tongues and a dovetail splice-piece extending longitudinally of the joint, substantially as specified.

3. The solid-piece wood rim D having interfitting tongues *d* at its meeting ends, and a dovetail splice piece extending longitudinally of the joint, substantially as specified.

4. The wood rim D having interfitting tongues *d d* on its meeting ends and provided with a longitudinally or tangentially extending dovetail groove formed partially in each of the two meeting ends of the rims, and a dovetail splice-piece F fitting in said dovetail groove, said splice-piece having on its outer face the double curvature of the rim, substantially as specified.

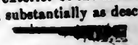
5. A wood rim for a bicycle-wheel having a longitudinally or tangentially extending dovetail groove formed partially in each of the meeting ends of the rim, and a dovetail splice-piece fitting in said groove, substantially as specified.

6. A wood rim for a bicycle-wheel having a longitudinally or tangentially extending dovetail groove formed partially in each of the meeting ends of the rim, and a dovetail splice-piece fitting in said groove, said groove having double dovetail depressions at its side edges and splice-pieces having double dovetail projections at its side edges, substantially as specified.

595,832. FASTENING DEVICE. JAMES H. MCELROY, Middletown, N. Y. Filed June 17, 1896. Serial No. 595,907. (No model.)

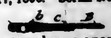
Claim.—1. A fastening device comprising the folded-over edge having a series of holes in its outer portions and a corresponding series of eyelet-holes in its folded-over portion in rear of said series of holes whereby said eyelet-holes are invisible from the exterior of the article, but communicate with the holes in the outer portion thereof, substantially as described.

2. A fastening device comprising the folded-over edge having a series of holes formed at the bend of the fold and a corresponding series of eyelet-holes in the folded-over portion, said eyelet holes being invisible from the exterior of the fabric but communicating with the holes at the bend, substantially as described.



3. In a boot or shoe, the quarter folded over and secured to a reinforcing-piece, a series of eyelet-holes passing through the reinforcing-piece and folded-over portion of the quarter and a corresponding series of holes formed only in the quarter at the bend thereof, substantially as specified.

595,833. BOOT OR SHOE. JAMES H. MCELROY, Middletown, N. Y. Filed June 17, 1896. Serial No. 595,908. (No model.)

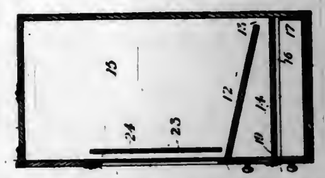


Claim.—1. In a boot or shoe, a quarter, a fold located at the edge of the quarter, a stay-piece extending longitudinally through the fold, a series of eyelets inside of the stay-piece extending through the inner ply of the fold, and a series of openings through the outer ply of the fold coinciding with the eyelets, substantially as described.

2. In a boot or shoe, a quarter, a folded supplemental piece at the edge of the quarter, provided in its outer ply with a series of openings and in its inner ply with a series of coinciding eyelets, and a stay-piece extending longitudinally through the fold of the supplemental piece, substantially as described.

3. In a boot or shoe, a quarter having a folded supplemental piece, said supplemental piece being provided with a stay-piece having hooks and being also provided with eyelets, and a reinforcing-piece secured upon the inside of the quarter and overlapping the supplemental piece, substantially as described.

595,834. CABINET FOR GROCERIES. JAMES A. OWEN, Chester, S. C. Filed May 1, 1897. Serial No. 634,681. (No model.)



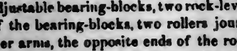
Claim.—1. A cabinet comprising one or more bins or receptacles for groceries, said receptacles being provided with downwardly and rearwardly inclined bottoms having passage-ways at the rear for the passage of the contents of the receptacles, horizontal partitions arranged below the inclined bottoms and provided at the front edge with openings, receptacles located below said horizontal partitions, and doors in the front of the bins to permit access to the material on the horizontal partitions.

2. A cabinet comprising one or more bins or receptacles for groceries, said receptacles having transparent fronts or face-plates and vertical partitions in the rear of said plates forming sample-compartments, and having also downwardly and rearwardly inclined bottoms provided with throatways at the back through which the contents of the receptacle feed downwardly into a space below the bottom whence they may be removed, a space being left at the lower edge of the vertical partition for the sample-compartments to automatically discharge their contents when the receptacles are emptied.

3. A cabinet comprising one or more bins or receptacles for groceries, said receptacles being provided with downwardly and rearwardly inclined bottoms, having passage-ways at their rear for the passage of their contents, horizontal partitions arranged below the inclined bottoms of the receptacles and provided at their front edges with openings leading to receptacles below, doors in the front of the bins to permit access to the material on the horizontal partitions, and sliding drawers beneath said partitions to catch the material falling through the openings at the front.

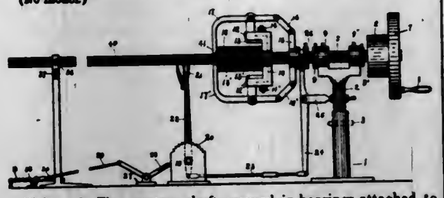
595,835. COMBINATION LOCK AND FOOT-SUPPORT FOR BICYCLES. JOHN PEROTTI, Brooklyn, N. Y. Filed Mar. 30, 1897. Serial No. 630,007. (No model.)

Claim.—1. In a lock for bicycles and similar vehicles a cylinder mounted upon each arm of the fork in which one of the wheels is mounted, and adapted to be projected inwardly or outwardly, and means for supporting the same in a horizontal position, said cylinders being adapted to be locked together when projected inwardly, one of said cylinders being provided with a central tubular casing on which is provided a plurality of rings having inwardly-directed flanges, in which are formed notches or recesses, and said rings being provided with letters or numbers on their perimeters, and said tubular casing being provided with a slot which projects through the cylinder in which it is mounted, and the other cylinder being provided with a central longitudinally-movable plug or key which is provided with an extension which projects through the slot in the side of the cylinder, said plug or key being also provided at one side with lugs or projections which correspond in number with said rings, substantially as shown and described.



2. A lock for bicycles and similar vehicles, consisting of two clamps which are adapted to be connected with the sides of one of the forks of the vehicle, said clamps being each provided at one end with a cylinder which is pivotally connected therewith, said cylinders being adapted to be turned inwardly or outwardly, and to be supported in a horizontal position, and said cylinders being adapted to be locked together when turned inwardly, one of said cylinders being provided with a central tubular casing on which is mounted a plurality of rings having inwardly-directed flanges in which are formed notches or recesses, and said rings being provided with letters or numbers on their perimeters, and said tubular casing being provided with a slot which projects through the cylinder in which it is mounted, and the other cylinder being provided with a central longitudinally-movable plug or key which is provided with an extension which projects through the slot in the side of the cylinder, said plug or key being also provided at one side with lugs or projections which correspond in number with said rings, substantially as shown and described.

595,836. FLUE-WELDING MACHINE. JAMES F. QUINN and ROBERT E. LEE, Birmingham, Ala. Filed May 26, 1897. Serial No. 638,241. (No model.)



Claim.—1. The rotatory shaft secured in bearings attached to the head of a stand, the fixed head attached to the shaft, the end of the shaft extending beyond the head to form a mandrel, two adjustable bearing-blocks attached to the head, two rock-lever arms journaled in the heads of the bearing-blocks, two links connecting the arms with a sliding head, mounted on the rotatory shaft, two welding-rollers journaled at one end in the rock-lever arms, the opposite end of the rollers journaled in the adjustable bearing-blocks, and means to rotate the shaft, substantially as and for the purpose described.

2. The rotatory shaft secured in bearings attached to a stand, the fixed head attached to the shaft, the end of the shaft extended beyond the head to form a mandrel, the removable end attached to the mandrel, the removable collar, and the enlarged mandrel end, in combination with the welding-rollers journaled in a revolving head, substantially as described.

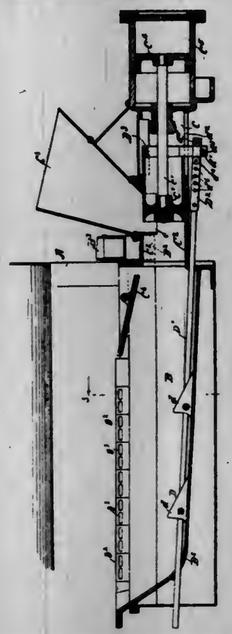
3. The rotatory shaft secured in bearings attached to the head of a stand, the fixed head attached to the rotatory shaft, the head carrying two adjustable bearing-blocks, two rock-lever arms journaled in the heads of the bearing-blocks, two rollers journaled at one end in the rock-lever arms, the opposite ends of the rollers journaled in the bearing-blocks, two links pivotally connecting the rock-lever arms with a sliding head, the sliding head mounted on the rotatory shaft and operated by a hand-lever, substantially as and for the purpose described.

4. The foot-lever journaled in the stand, the connecting-rod connecting the foot-lever to the bell-crank lever, the bell-crank lever connected to the pivoted jaw of the tube-vise, the spring connected to the bell-crank lever, and the stop to control the movement of the bell-crank lever, substantially as and for the purpose described.

595,837. FURNACE. JOHN M. ROE, Austin, Ill., assignor to the Jogada Furnace Company, of Oregon. Filed Oct. 15, 1895. Serial No. 565,719. (No model.)

Claim.—1. In a mechanical stoker, the combination of a retort or fuel-magazine provided with twyers adjacent to its upper inner edges, means to supply air to said twyers, a primary feed mechanism and an auxiliary feed mechanism located is said retort, substantially as described.

2. In a mechanical stoker, the combination with a retort or fuel-magazine and a primary feed mechanism, of an auxiliary feed mechanism, comprising a rod or bar, which extends longitudinally of said retort or fuel-magazine and is supported, adjacent to its ends in suitable bearings formed in the front and rear walls of said retort; lateral projections from said rod or bar and means to impart a reciprocating movement thereto, substantially as described.



3. In a mechanical stoker, the combination with a retort or fuel-magazine of substantially uniform depth and a primary feed mechanism, of an auxiliary feed mechanism, comprising a rod or bar, which extends longitudinally of said retort or fuel-magazine and is supported, adjacent to its ends in suitable bearings formed in the front and rear walls of said retort, lateral projections from said rod or bar and means to impart a reciprocating movement thereto, substantially as described.

4. In a mechanical stoker, the combination with a retort or fuel-magazine and a primary feed mechanism, of an auxiliary feed mechanism, located in said retort, adjacent to the bottom thereof, and comprising a rod or bar supported and longitudinally movable in bearings formed in the front and rear ends of said retort, lateral projections on said rod or bar, means to impart a reciprocating movement to said rod or bar and means to vary the travel thereof, substantially as described.

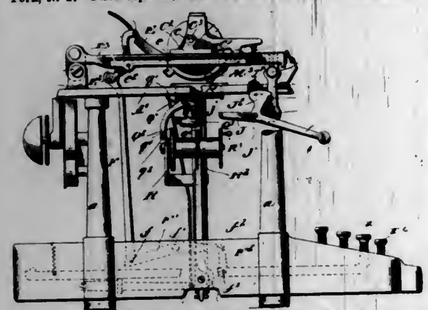
5. In a mechanical stoker, the combination with a retort or fuel-magazine and a feed-ram, of an auxiliary feed mechanism, located in said retort, adjacent to the bottom thereof, and comprising a rod or bar supported and longitudinally movable in bearings formed in the front and rear ends of said retort, lateral projections from said rod or bar and driving connection between said feed-ram and said rod or bar, said driving connection comprising a link secured to the end of said rod or bar, the free end of which is supported adjacent to a rigid projection or lug on said feed-ram, pins secured in said link, which project into the path of said projection on the feed-ram, said pins being interchangeable in a series of holes formed in said link, whereby the travel of said rod or bar may be varied, substantially as described.

6. In a mechanical stoker, the combination with a retort or fuel-magazine of substantially uniform depth and a feed-ram, of an auxiliary feed mechanism, located in said retort, adjacent to the bottom thereof, and comprising a rod or bar supported and longitudinally movable in bearings formed in the front and rear ends of said retort, lateral projections from said rod or bar and driving connection between said feed-ram and said rod or bar, said driving connection comprising a link secured to the end of said rod or bar, the free end of which is supported adjacent to a rigid projection or lug on said feed-ram, pins secured in said link, which project into the path of said projection on the feed-ram, said pins being interchangeable in a series

of holes formed in said link, whereby the travel of said rod or bar may be varied, substantially as described.

7. In a mechanical stoker, the combination with a retort of substantially uniform depth and a feed-ram, of an auxiliary feed mechanism, located in said retort, adjacent to the bottom thereof, and comprising a rod or bar supported and longitudinally movable in suitable bearings formed in the front and rear ends of said retort, lateral projections from said rod or bar, a forked link pivoted to the end of said rod or bar, which projects without the furnace, a ring secured in the inside of the feed-ram adjacent to the end thereof remote from said furnace, a rigid projection therefrom, which projects through a slot in the ram-cylinder, the forked end of the link, pivoted to the auxiliary feed rod or bar, embracing said rigid projection on the feed-ram and resting on a transverse pin secured therein, a series of holes formed in said link and pins interchangeably secured in said holes, one on each side of the projection on the feed-ram, substantially as described.

595,838. TYPE-WRITING MACHINE. CHARLES SPIRO, New York, N. Y. Filed Sept. 11, 1896. Serial No. 605,519. (No model.)



Claim.—1 The combination with the platen and the front guide-rod and a vertically-movable support therefor, of mechanism engaging the support of said guide-rod for moving the latter vertically; substantially as and for the purpose specified.

2. The combination with the platen and the front guide-rod having its pivotal support mounted for vertical movement, of means for engaging said support to move it vertically; substantially as described.

3. The combination with the platen and the front guide-rod, of a pivoted bail having cam portions for elevating said rod; substantially as described.

4. The combination with the platen and the front guide-rod, of a pivoted bail having cam-slots in which the pivot of the front guide-rod works, and supporting-lugs for the pivots of the bail having vertical slots for the passage of the pivot of the guide-rod; substantially as described.

5. The combination with the top of the frame having depending lugs with vertical slots, of the front guide-rod and its supports, a rod connecting said supports and passed through the slots of the lugs, and a bail having vertical portions pivoted on said lugs and having cam-slots engaging the pivot-rod of said supports; substantially as described.

6. The combination with the platen and its front guide-rod and a vertically-movable support therefor, of means engaging the support of said guide-rod for elevating said rod and automatically holding it in its adjusted position to compensate for varying thicknesses of paper upon the platen; substantially as described.

7. The combination with a carriage and platen; of a pivoted cradle having bearings for concentric pintles and eccentric bearings for the platen, and a paper-table pivotally connected to the cradle, substantially as specified.

8. The combination of a pivotally-mounted paper-table and a pivotally-mounted cradle pivoted thereto, of an eccentrically-mounted platen having its eccentric pintles permanently supported in said cradle; substantially as described.

9. The combination of a pivoted paper-table, a pivotally-mounted cradle pivoted to said table, a platen mounted to revolve therein, and pintles disposed eccentrically with relation to the axis of said platen and supported in lugs on the carriage; substantially as described.

10. The combination of a paper-table, a pivotally-mounted cradle and a platen having concentric journals and eccentric pintles, and means acting upon the paper-table to tilt the same; substantially as described.

11. The combination with the carriage, of a cradle mounted on pintles eccentric with the axis of the platen, and a platen mounted in said cradle and a paper-table pivotally connected with the cradle; substantially as described.

12. The combination of a carriage, the pivoted paper-table and the cradle jointed thereto and mounted on pintles eccentric with the axis of the platen, and stops having rounded bearings and projecting upward from the carriage for engaging the ends of the cradle; substantially as described.

13. The combination with the paper-table and the cradle pivotally connected to tilt in opposite directions, and a platen concentrically mounted and having eccentric pintles, of the bail mounted in the carriage and pivotally connected with the table, and a key-lever and connections for actuating said bail; substantially as described.

14. The combination with the paper-table and the cradle pivotally connected to tilt in opposite directions, of the bail mounted in the carriage and pivotally connected with the table, a key-lever and connections for actuating said bail, and stops having rounded bearings and projecting upward from the carriage for limiting the downward movement of the cradle; substantially as described.

15. The combination with the pivoted paper-table, a cradle pivotally connected therewith, of a bail pivotally connected with the paper-table, a rock-shaft, and connections between the same and said bail and with a key-lever: substantially as as described

16. The combination with the paper-table and the cradle pivotally connected to tilt simultaneously in opposite directions, of a bail pivotally supported in the carriage and pivotally connected with the paper-table, a key-lever, a rock-shaft, a link connecting the rock-shaft with the key-lever, and a hooked rod connected with the rock-shaft and engaging said bail; substantially as described.

17. The combination with the front guide-rod and its pivoted vertically-movable supports, of a pivoted lever and means connected therewith for moving said supports on their pivot: substantially as specified.

18. The combination with the front guide-rod and its pivoted vertically-movable supports, of a pivoted lever, means connected therewith for moving said supports on their pivot, and devices for holding the lever in its adjusted position; substantially as described.

19. The combination with the front guide-rod and its pivoted vertically-movable supports, of a pivoted lever, means connected therewith for moving said supports on their pivot, devices for holding the lever in its adjusted position, and connections between said lever and a key-lever; substantially as described.

20. The combination with the front guide-rod and pivoted supports, of a plate mounted on one of said supports having a vertical slot, a pivoted lever provided with a pin working in said slot, and a spring secured to said plate and having its ends overlapping the slot at its ends to be engaged by said pin; substantially as described.

21. The combination with the front guide-rod and its pivoted supports, of a pivoted lever, means for holding said pivoted supports in any position, and an adjusting-screw for limiting the movement thereof; substantially as described.

22. The combination with the front guide-rod and its pivoted supports, of a plate mounted on one of the supports and having a vertical slot, a lever pivotally mounted and having a lateral pin working in said slot, said lever being disposed between the support and the plate, and a spring secured centrally to said plate and having its ends extended into the slot and bent to be engaged by said lateral pin; substantially as described.

23. The combination with the front guide-rod and its pivoted supports, of a plate mounted on one of the supports and having a vertical slot, a lever pivotally mounted and having a lateral pin working in said slot, said lever being disposed between the support and the plate, a spring secured centrally to said plate and having its ends extended into the slot and bent to be engaged by said lateral pin, a bell-crank lever upon which said lever is pivoted, and a connection between the same and a key-lever substantially as described.

24. The combination with the front guide-rod and its pivoted supports, of a plate mounted on one of the supports and having a vertical slot, a lever pivotally mounted and having a lateral pin working in said slot, said lever being disposed between the support and the plate, a spring secured centrally to said plate and having its ends extended into the slot and bent to be engaged by said lateral pin, a bell-crank lever upon which said lever is pivoted, a connection between the same and a key-lever, and a spring around the pivot of the bell-crank lever; substantially as described.

25. The combination with the platen and the rod parallel therewith, of spring-guides secured to the said rod and having spring portions at the sides separated from the body portion by longitudinal slits and supporting the pivot of a roller; substantially as described

26. The combination with the platen and the rod parallel therewith, of the spring-guides secured to the rod and having spring-lugs separated from the body portion by longitudinal slits, levers pivoted in said lugs, and rollers carried by the lower ends of the levers to press the paper against the platen; substantially as described.

27. The combination with the platen and the rod parallel therewith, of the spring-guides secured to the ends of the rod and having slots, and spring-lugs at the sides separated from the body portion by

longitudinal slits and bent upon themselves, levers pivotally mounted in said spring-lugs, and rollers mounted on the lower end of the levers, and working through said slots to press the paper against the platen; substantially as described.

28. The combination with the platen and the cradle, of the bail having right-angled portions engaging lateral pins on the end pieces of the cradle, and a roller mounted in said end pieces parallel with the platen; substantially as described.

29. The combination with the platen and the cradle, of the bail having right-angled portions engaging lateral pins on the end pieces of the cradle, and a roller mounted in said end pieces parallel with the platen, and springs connecting the end pieces of the bail with the end pieces of the cradle; substantially as described.

30. The combination with the platen and the cradle having its end pieces formed with slots, of a bail having right-angled end portions fulcrumed on the pin projecting from the end pieces of the cradle, and a roller mounted in the end pieces of the bail; substantially as described.

31. The combination with the platen and the cradle having its end pieces formed with slots, of a bail having right-angled end portions fulcrumed on the pin projecting from the end pieces of the cradle, a roller mounted in the end pieces of the bail, and a spring secured at one end to the end pieces of the cradle and at the other end to the end pieces of the bail between the fulcrum and the pintles of the roller; substantially as described.

32. The combination with the paper-table and the cradle pivotally connected therewith to tilt simultaneously in opposite directions, of the bail having a catch to engage a pin on the paper-table; substantially as described

33. The combination with the paper-table and the cradle pivotally connected therewith to tilt simultaneously in opposite directions, of the bail having a catch to engage a pin on the paper-table, and having a forwardly-extending arm having loose connection with the paper-table; substantially as described.

34. The combination with the paper-table and the cradle pivotally connected together to tilt simultaneously in opposite directions, of the bail pivotally mounted on the carriage and having a hooked arm extended to engage a pin on the paper-table, a forwardly-extending arm above its pivot having an elongated slot, and a projection on the paper-table working in said slot; substantially as described.

35. In a type-writing machine, a column-bar having open-ended slots at each end combined with means for forcing the said bar endwise; substantially as described.

36. In a type-writing machine, a column bar having open-ended slots at each end, one of which is cut away to form a shoulder combined with means for forcing said bar endwise; substantially as described.

37. The combination with the top of the frame and the lugs rising therefrom, of the column-bar having open-ended slots at each end, screws passed through said slots into the lugs, and a spring-actuated part passed through one of the lugs parallel with the bar; substantially as described.

38. The combination with the top of the frame and the lugs rising therefrom, of the column-bar having open-ended slots at each end, screws passed through said slots into the lugs, and a spring-actuated part passed through one of the lugs parallel with the bar and having a head to engage one end of the bar; substantially as described.

39. The combination with the top of the frame and the lugs rising therefrom, of the column-bar having open-ended slots at each end, screws passed through said slots into the lugs, a spring-actuated part passed through one of the lugs parallel with the bar and having a head to engage one end of the bar, and a spring on the opposite side of the lug; substantially as described.

40. The combination with the top of the frame and the lugs rising therefrom, of a column-bar having open-ended slots at each end and at one end a reduced portion in shoulder, headed screws passed through said slots into the lugs, and a headed rod mounted to slide through one of the lugs parallel with the column-bar; substantially as described.

41 The combination with the top of the frame and the lugs rising therefrom, of a column-bar having open ended slots at each end and at one end a reduced portion in shoulder, headed screws passed through said slots into the lugs, a headed rod mounted to slide through one of the lugs parallel with the column-bar, and a spring around said rod between its inner end and the inner face of the lug; substantially as described.

42. The combination with an automatic ribbon-feed-reverse mechanism, of a ribbon, and a ribbon-fastener comprising a plate adapted to project from the face of the ribbon and provided with prongs for the connection of the plate with the ribbon, substantially as specified.

43. The combination with ribbons of different characters and with ribbon-feed-reverse mechanism, of a plate provided with attaching-prongs whereby it serves a double function of connecting said ribbons and operating the feed-reverse mechanism, substantially as specified.

44. The combination with the frame having ribbon-receiving slots having notches, of a vibratory ribbon-spool bail having projections to engage said notches; substantially as described.

45. The combination with the frame having ribbon-receiving slots with notches, of the ribbon-spool bail and the ribbon-guides carried thereby and provided with projections to engage said notches; substantially as described.

46. The combination with the frame having ribbon-receiving slots and notches, of a vibratory ribbon-spool bail having projections to engage said notches, and vertical and horizontal ribbon-guides; substantially as described.

47. The combination with the frame having ribbon-receiving slots and the vibratory ribbon-spool bail, of means for holding the latter in its adjusted positions, and ribbon-guides carried by the upper ends of the vertical portions of the bail; substantially as described.

48. The combination with the vibratory ribbon-spool bail, of levers pivotally mounted thereon, connections whereby said levers are moved simultaneously in opposite directions, pawls arranged in the path of the upper ends of said levers, and rocking levers to which said pawls are connected and ribbon-spools operated by said pawls; substantially as described.

49. The combination with the ribbon-spool bail, of the levers mounted upon the vertical portions thereof, and having offsets opposite the pivots of said bail; substantially as described.

50. The combination with the ribbon-spool bail, of the levers mounted upon the vertical portions thereof, and having offsets opposite the pivots of said bail, and their upper ends provided with stops to engage the vertical portions of the bail; substantially as described.

51. The combination with the ribbon-spool bail, of the levers mounted upon the vertical portions thereof, and having offsets opposite the pivots of said bail, and their upper ends provided with lateral portions; substantially as described.

52. The combination with the ribbon-spool bail and the lever pivotally mounted beneath the horizontal portion thereof, of the levers mounted on the vertical portions of the bail and adapted to be actuated by the end of the first-mentioned lever; substantially as described.

53. The combination with the ribbon-spool bail and the ribbon-spool and its ratchet, of a lever pivotally mounted on the bail, and a lever mounted on said lever and at its free end carrying a pawl adapted to engage said ratchet; substantially as described.

54. The combination with the ribbon-spool bail and the ribbon-spool and its ratchet, of a lever pivotally mounted on the bail, a lever mounted on said lever and at its free end carrying a pawl adapted to engage said ratchet, and a lever pivoted on the vertical portion of the bail and extending in the direction of the length thereof and having a lateral portion to engage the lever carrying the pawl to move it away from its ratchet; substantially as described.

55. The combination with the ribbon-spool bail and the ribbon-spools and their ratchets, of the levers pivotally mounted on the vertical portions of said bail, means for moving them simultaneously in opposite directions, and interposed devices between their upper ends and the ratchets of the ribbon-spools for automatically reversing the feed of the ribbon; substantially as described.

56. The combination with the ribbon-spool bail and the ribbon-spools and their ratchets, of the levers pivotally mounted on the vertical portions of said bail, means for moving them simultaneously in opposite directions, interposed devices between their upper ends and the ratchets of the ribbon-spools for automatically reversing the feed of the ribbon, and a clutch between the spool and its ratchet; substantially as described.

57. The combination with the ribbon-spool bail and the ribbon-spools and their ratchets, of the levers pivotally mounted on the vertical portions of said bail, means for moving them simultaneously in opposite directions, interposed devices between their upper ends and the ratchets of the ribbon-spools for automatically reversing the feed of the ribbon, and a clutch between the spool and its ratchet, and an arm connected with the vertical lever of the bail and engaging the movable portion of said clutch; substantially as described.

58. The combination with the ribbon-spool bail the ribbon-spools and their ratchets and the levers mounted on the side portions thereof and having lateral portions at their upper ends, of means for moving said levers simultaneously in opposite directions, and levers pivotally mounted at the upper ends of the vertical portions of the bail and having pawls pivotally supported therefrom; substantially as described.

59. The combination with the ribbon-spools, their ratchets, the ribbon-spool bail and the levers mounted on the side portions thereof and having lateral portions at their upper ends, of means for moving said levers simultaneously in opposite directions, levers pivotally mounted at the upper ends of the vertical portions of the bail and having pawls pivotally supported therefrom, and the universal bail connected with the upper levers; substantially as described.

60. The combination with the ribbon-spools and their ratchets, the ribbon-spool bail and the levers mounted on the side portions thereof and having lateral portions at their upper ends, of means for moving said levers simultaneously in opposite directions, levers pivotally mounted at the upper ends of the vertical portions of the bail and having pawls pivotally supported therefrom, the universal bail connected with the upper levers, and portions on the upper ends of the vertical levers to engage the vertical portion of the bail; substantially as described.

61. The combination with the ribbon-spools and the ribbon having an obstruction near each end, of the vibratory ribbon-spool bail having right-angled portions to seize and guide the ribbon at the end of the machine, and mechanism supported therefrom for engagement with the obstruction on the ribbon to reverse the feed thereof; substantially as described.

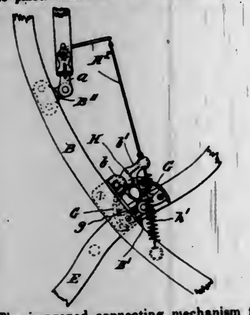
62. The combination with the ribbon-spool bail and the ribbon-spools and their ratchets, of a ribbon having an obstruction near each end lying flat against the outer face thereof, pivoted pawls engaging said ratchets, and mechanism mounted for movement by contact therewith of said obstruction to throw one of the pawls out of engagement and the other into engagement with the spool-ratchets; substantially as described.

63. The combination with the ribbon-spool bail and the ribbon-spools and their ratchets, of a ribbon having an obstruction near each end lying flat against the outer face thereof, pivoted pawls engaging said ratchets, mechanism mounted for movement by contact therewith of said obstruction to throw one of the pawls out of engagement and the other into engagement with the spool-ratchets, and connections with the universal bail for giving the ratchets a step-by-step movement; substantially as described.

595,839. PROCESS OF MANUFACTURING INCANDESCIBLE MATERIAL. WILLIAM I. VOELKER, Elizabeth, N. J., assignor to the Voelker Light Company, of New Jersey. Filed May 1, 1897. Serial No. 634,772. (No specimens.)

Claim.—The process hereinbefore described for manufacturing incandescible materials, consisting in reducing the oxids of magnesium and calcium to salts together, then decomposing the salts and reconverting them into the oxids, then fusing the resultant mass and finally cooling to a solid state.

595,840. LOCKING DEVICE FOR ADJUSTABLE CHAIRS, &c. THEODORE W. WASHBURN, Baldwinsville, Mass., assignor to Gilman Waite, same place. Filed Nov. 30, 1896. Serial No. 613,892. (No model.)

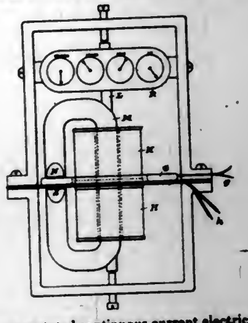


Claim.—The improved connecting mechanism for the crossed legs B and E, comprising a base-plate carrying notched segment G and hub *g*, secured to leg E; a base-plate carrying projections B' and *b* secured to leg B; pawl H pinned to projection *b*; and a pivot-pin connecting hub *g* and projection B', combined substantially as described.

595,841. ELECTRIC METER. WILLIAM S. WESTON, Chicago, Ill. Filed May 24, 1897. Serial No. 637,818. (No model.)

Claim.—1. In an electric meter, the combination with a registering-train, of an electric motor for driving the train having armature-loops composed each of a primary circuit and two or more separated derived or divided circuits, the latter being of material whose conductivity is varied or affected by the magnetic field, thus producing a state of unequilibrium between the accelerating impulse caused by the current flowing in one direction through the primary circuit, and the opposite or retarding impulse caused by the current flowing in the opposite or return direction through the several derived or divided circuits of the loop, as each loop is brought within the influence of the field, substantially as specified.

2. In an electric meter, the combination with a registering-train, of an electric motor for driving the train having a stationary non-commutated armature, a stationary field-coil and a rotary pole-piece, the armature-loops being composed each of a primary circuit and two or more separated derived or divided circuits, the latter being of material whose conductivity is varied or affected by the magnetic field, thus producing a state of unequilibrium between the accelerating impulse caused by the current flowing in one direction through the primary circuit, and the opposite or retarding impulse caused by the current flowing in the opposite or return direction through the several derived or divided circuits of the loop, as each loop is brought within the influence of the field, substantially as specified.



3. A non-commutated continuous-current electric motor, having armature-loops composed each in part of a primary-circuit wire through which the current flows in one direction and in part of two or more divided or derived circuit wires through which the current returns or flows in the opposite direction, the latter being of material whose conductivity is affected by the magnetic field, substantially as specified.

4. A non-commutated continuous-current electric motor, having armature-loops composed each in part of a primary-circuit wire through which the current flows in one direction and in part of two or more divided or derived circuit wires through which the current returns or flows in the opposite direction, the latter being of material whose conductivity is affected by the magnetic field, said motor having a rotative pole-piece and non-rotative field-coil and armature, substantially as specified.

5. An electric motor having armature-loops furnished each with a greater number of paths or circuit-wires for the current flowing in one direction than for the current flowing in the opposite direction, substantially as specified.

6. An electric motor having armature-loops furnished each with a greater number of paths or circuit wires for the current flowing in one direction than for the current flowing in the opposite direction, the conductivity of the material composing the former being modified by the magnetic field, substantially as specified.

7. An electric motor having armature-loops furnished each with a greater number of paths or circuit-wires for the current flowing in one direction than for the current flowing in the opposite direction, the conductivity of the material composing the former being modified by the magnetic field, said motor having a rotating pole-piece and a non rotating field-coil and armature, substantially as specified.

8. A non-commutated continuous-current motor, whose action is the resultant effect of passing a definite quantity of current across the lines of force of the magnetic field one or more times in one direction and of returning that current each time across and around the same lines of force by a divided circuit, having fixed connections, whose conductivity varies with its position relative to the magnetic field, substantially as specified.

9. A non-commutated continuous-current motor having a compound armature-circuit, of variable conductivity constructed to give a greater number of amperes of current for cutting the lines of force of the magnetic field in one direction than for cutting the same lines in the opposite direction, substantially as specified.

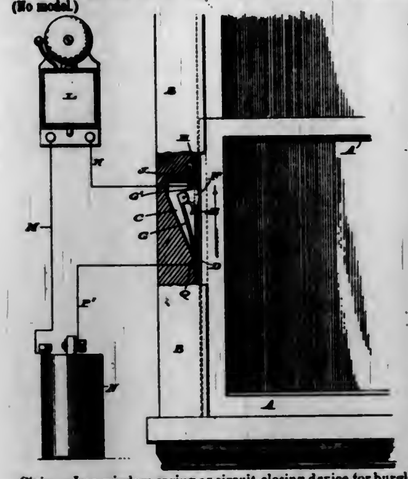
10. A motor having fixed field and armature coils and movable pole-pieces in which movement is maintained by an unbalanced current condition induced in the armature-coils by reason of their conductivity being modified in the presence of the magnetic field of the moving pole-pieces, substantially as specified.

11. A motor having a non-commutated armature-circuit continuous with the external circuit in which the unbalanced current condition producing the motion is produced and maintained by the action of the magnetic field in the conductivity of the armature-circuit, substantially as specified.

12. The combination with a field-magnet of an armature having

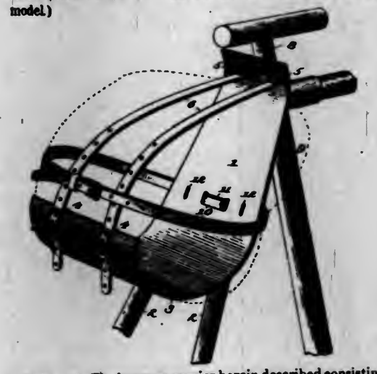
loops with a greater number of paths or circuit-wires for the current flowing in the one direction than for the current flowing in the other direction, the conductivity of the former being modified when in the presence of the magnetic field, substantially as specified.

595,842. CIRCUIT-CLOSING DEVICE FOR BURGLAR-ALARMS. ELMER R. WILSON, Blackwood, N. J., assignor of one-half to Partrick & Carter Co., Philadelphia, Pa. Filed Aug. 18, 1897. Serial No. 648,670. (No model.)



Claim.—In a window-spring or circuit-closing device for burglar-alarms, a plate having an opening therein, a spring secured at one end to said plate, a cam pivoted to the other end of said spring and projecting through said opening, a contact-piece having one limb secured to, but electrically insulated from said plate and its other limb adapted to be in contact with the said cam, when the latter is raised by an upward movement of a sash, and an electric circuit having an alarm therein and connections with said contact piece and plate.

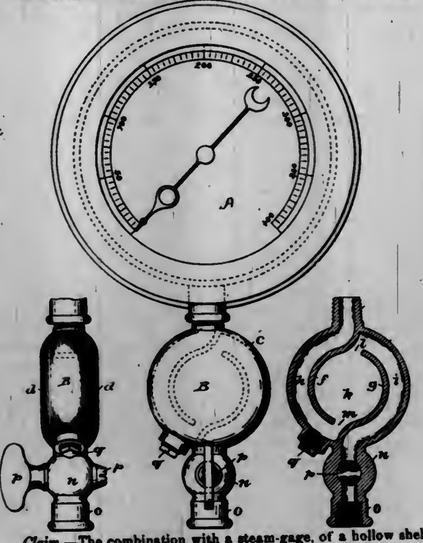
595,843. LUGGAGE-CARRIER FOR BICYCLES. GEORGE R. ADAMS, New York, N. Y. Filed Oct. 20, 1896. Serial No. 609,392. (No model.)



Claim.—1. The luggage-carrier herein described consisting of the sack-back widest at its lower end to form a pocket, its upper end having holes, and a loop in the middle of its length, and having buckles at its widest end near each corner, the strap passing through the upper holes forming the suspending-loop and for engaging the buckles and the loop-forming cross buckle-strap for engaging the middle sack-loop, the seat-post and buckling over the suspending-strap, the wide end of the sack-back forming a pocket with the suspending-strap as shown.

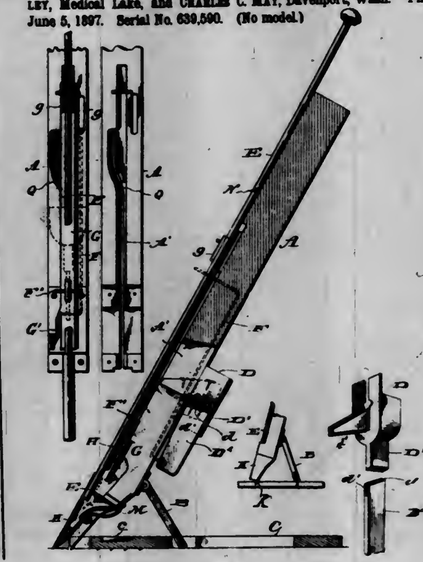
2. In a luggage-carrier the combination, with a sack-back having holes or slits at its upper end and others in the middle of its length, of a strap passing through the upper holes to form a suspending-loop for engaging preferably the seat post, the free ends passing down over the contained bundle and engaging the buckles on the lower end of the sack-back drawing the lower end of the latter up, thereby forming a pocket for the bundle, a strap having a buckle on one end, passing through the middle holes, each end engaging a tang of the rear forks of the bicycle-frame and buckling around the contained bundle to hold it from lateral displacement.

595,844. STEAM-GAGE. DARWIN ALMY and FRANK D. ALMY, Providence, R. I. Filed Jan. 19, 1897. Serial No. 619,724. (No model.)



Claim.—The combination with a steam-gage, of a hollow shell, of approximately circular form, having two oppositely-disposed openings, and partitions, dividing the interior into the passages *i* and *x*, extending along the outer periphery of the shell and the central circular space *k*, whereby the water of condensation is collected in the central space, the channel connecting with the gage connects with the central water-space at the lowest part of the shell and the steam acts on the water in the central space at the highest part of the shell, as described.

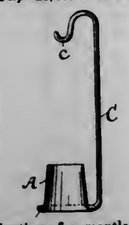
595,845. CARPET STRETCHER AND TACKER. GEORGE W. AMBLEY, Medical Lake, and CHARLES C. MAY, Davenport, Wash. Filed June 5, 1897. Serial No. 639,590. (No model.)



Claim.—1. In combination with the stretcher recessed as at c on its upper face, the tacker having a spur at its lower end designed to engage with the shouldered end of the said recess, and the link B pivoted at one end to the tacker, its other end pivoted to the stretcher, substantially as shown and described.

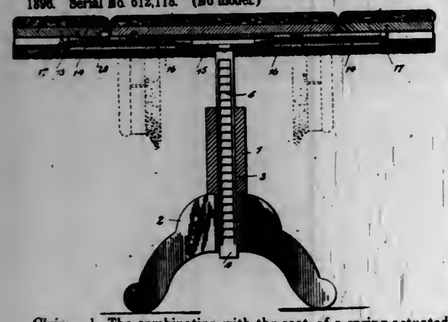
2. In combination with the tacker channeled as described and containing the tack-receiving receptacle and member D^3 for raising the tacks therefrom, the plate H, the tack-feeding disk pivoted thereto, the strip G, the upturned ears *g* thereon, the hooked rod G' secured to said strip G, the driving-rod E, the cross-pins N and F' carried by said rod, all adapted to be operated substantially as shown and described.

595,846. HOLDER FOR INCANDESCENT MANTLES. GEORGE H. CHINNOCK, Brooklyn, N. Y., assignor to the Voelker Light Company, of New Jersey. Filed Apr. 20, 1897. Serial No. 632,946. (No model.)



Claim.—The combination of a mantle-support C, a ring on the lower end thereof, a ferrule A inserted tightly in said ring and adapted to fit removably on a burner, and the edge of said ferrule A being turned over said ring, substantially as and for the purpose described.

595,847. PIANO-STOOL. THOMAS CLYNE, Detroit, Mich.; Ellen Clyne administratrix of said Thomas Clyne, deceased. Filed Nov. 14, 1896. Serial No. 612,118. (No model.)



Claim.—1. The combination with the seat, of a spring-actuated plunger, a hinged wing secured to said seat and provided with a depending hook or finger situated in the path of said plunger, substantially as described.

2. The combination with a seat provided with a spring actuated plunger and with a spring-catch, of a pivoted wing situated in the path of said plunger and provided with a projection to engage said spring-catch, substantially as described.

3. The combination with a seat, of a wing hinged thereto, said hinged connection between said wing and seat consisting of eyes upon said wing situated within guide-grooves upon said seat, and engaged by guide-rods situated within said guide-grooves, substantially as described.

595,848. BURNER FOR BURNING RICH GASES, ESPECIALLY ACETYLENE GAS. EDWARD J. DOLAN, Philadelphia, Pa., assignor, by mesne assignments, to the Acetylene House Lighting Company, of West Virginia. Filed Apr. 29, 1897. Serial No. 634,376. (No model.)



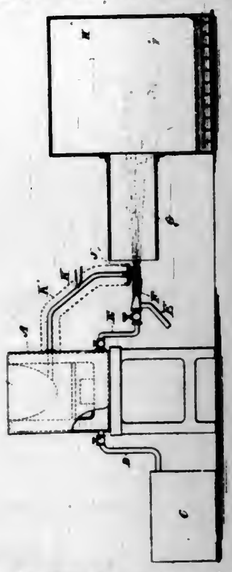
Claim.—1. The combination in a gas-burner of two gas-jets inclined toward each other and located at or near the bottom of a horizontal slot, substantially as described.

2. The combination in a gas-burner of two gas-jets inclined toward each other and located at or near the bottom of a horizontal slot, and having an opening to the atmosphere at or about the level of the burner-openings, substantially as described.

3. The combination in a gas-burner of two jets inclined toward each other and located at or near the bottom of a horizontal slot, and a transverse slot intersecting the first slot at or about its middle, substantially as described.

4. The combination in a gas-burner of two jets inclined toward each other and located at or near the bottom of a horizontal slot, and a transverse slot intersecting the first slot at or about its middle, both of said slots having openings to the atmosphere at about the level of the burner-openings, substantially as described.

595,849. PROCESS OF MAKING WHITE LEAD. ARTHUR H. EYLES, Pelhamville, and HENRY S. RAPELYE and ADDISON APPLEGATE, Mount Vernon, N. Y. Filed May 15, 1897. Serial No. 636,608. (No specimens.)



Claim.—1. The herein-described process of manufacturing carbonate of lead, the same consisting in oxidizing the lead by feeding the same in a molten state closely approaching volatilization into a stream of fluid at high temperature and pressure and carrying the same along in the stream, whereby the lead is oxidized to different degrees of oxidation, dropping the said mixture of oxids into a fluid whereby the said oxids will not become fixed, and subsequently converting the said mixture of oxids into a uniform state of protoxid and thereupon carbonating the protoxid so produced.

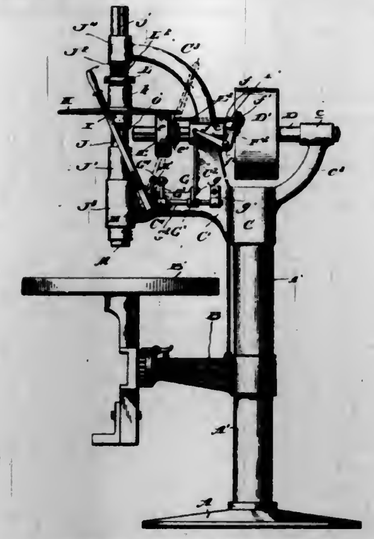
2. The herein-described process of manufacturing protoxid of lead, which consists in heating the lead to a molten condition closely approaching volatilization, feeding the said lead while in such highly-heated condition into a stream of fluid at high temperature and pressure and carrying the same along in the stream, thereby oxidizing the lead to different degrees of oxidation, dropping the said mixture of oxids into a fluid which will prevent said oxids from becoming fixed and thereupon heating the said mixture of oxids and simultaneously agitating the same to convert the said mixture of oxids into a uniform protoxid of lead.

595,850. DRILLING-MACHINE. WILLIAM W. FLICKINGER, Cochranton, Pa. Filed Dec. 14, 1896. Serial No. 615,651. (No model.)

Claim.—1. The combination with the drill-spindle and its rotating mechanism, of a lever, means connected therewith for starting and feeding the spindle, and means connected with said lever for increasing or diminishing the speed of said rotating mechanism, substantially as described.

2. The combination with the drill-spindle and its rotating mechanism, of a single lever and connections substantially as described constructed and arranged to start, feed and stop said spindle and increase or diminish its speed; substantially as described.

3. The combination with the drill-spindle and friction devices for rotating the same, of a single lever and interposed pivotal connections substantially as described between said lever and one of the elements of the friction driving mechanism, whereby the single lever serves to stop, start and feed the spindle, and connections between said lever and the friction driving mechanism to regulate the speed thereof; substantially as described.



4. The combination with the drill-spindle and the friction-disk mounted thereon for rotary movement therewith and for movement lengthwise of the spindle, of the friction-wheel mounted for rotation with and endwise movement upon its shaft, a pivotally-mounted bell-crank lever, an operating-lever connected therewith, and a connection between the bell-crank lever and the hub of the friction-pulley; substantially as described.

5. The combination with the drill-spindle and the friction-disk mounted thereon for rotary movement therewith and for movement lengthwise of the spindle, of the friction-wheel mounted for rotation with and endwise movement upon its shaft, a pivotally-mounted bell-crank lever, an operating-lever connected therewith, a connection between the bell-crank lever and the hub of the friction-pulley, and a pinion on the shaft of said operating-lever, and a quill around the drill-spindle having a rack portion engaging said pinion; substantially as described.

6. The combination with the drill-spindle and the friction-disk having a hub mounted on the spindle for rotary movement therewith and for endwise movement thereupon, and a coöperating friction-wheel, adapted to move radially to the axis of said disk, of a projection on the spindle adapted to engage the hub of the friction-disk to move the same away from the friction-wheel; substantially as described.

7. The combination with the drill-spindle and the friction-disk having a hub mounted on the spindle for rotary movement therewith and for endwise movement thereupon, and a coöperating friction-wheel, adapted to move radially to the axis of said disk, of a projection on the spindle adapted to engage the hub of the friction-disk to move the same away from the friction-wheel, and means for increasing the friction between said disk and wheel; substantially as described.

8. The combination with the drill spindle and the friction-disk and its hub, and a coöperating friction-wheel adapted to move radially to the axis of said disk, of a collar having a threaded portion engaged by said hub, a sleeve supported in the frame and through which the drill-spindle passes, and a spring around the spindle between said collar and sleeve; substantially as described.

9. The combination with the drill-spindle and the friction-disk and its hub, of a collar having a threaded portion engaged by said hub, a sleeve supported in the frame and through which the drill-spindle passes, a spring around the spindle between said collar and sleeve, and a projection on the drill-spindle adapted to engage the under side of the hub of the friction-disk; substantially as described.

10. The combination with the sliding collar G^4 and the strap disposed in an annular groove thereof, of the operating-lever connected with said collar, the friction-wheel mounted for endwise movement on its shaft, the bell-crank lever and connections between the said sliding collar and the bell-crank lever and between the bell-crank lever and the hub of the friction-wheel; substantially as described.

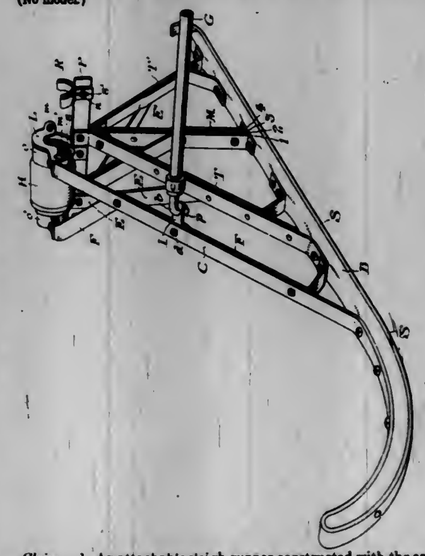
11. The combination with the sliding collar G^4 and the strap disposed in an annular groove thereof, of the operating-lever connected with said collar, the friction-wheel mounted for endwise movement of its shaft, the bell-crank-lever connections between the said sliding collar and the bell-crank lever and between the bell-crank lever and the hub of the friction-wheel, and a pinion on the shaft of the sliding collar, and a sleeve having a rack portion to engage said pinion; substantially as described.

12. The combination with the friction-wheel mounted for endwise movement on its shaft, of the sliding collar G^4, its shaft, the operating-lever connected with the collar, the bell-crank lever connected with the sliding collar by an interposed pivotal and rocking connection, and a connection between the bell-crank-lever and the hub of the friction-wheel; substantially as described.

13. The combination with the friction-wheel mounted for endwise movement on its shaft, of the sliding collar G^4, its shaft, the operating-lever connected with the collar, the bell-crank lever connected with the sliding collar, a connection between the bell-crank lever and the hub of the friction-wheel, and a spring on the shaft of the sliding collar to counterbalance the drill-spindle; substantially as described.

14. The combination with the friction-wheel mounted for endwise movement on its shaft, of the sliding collar, its shaft, the operating-lever connected with the collar, the bell-crank lever connected with the sliding collar, a connection between the bell-crank lever and the hub of the friction-wheel, and a spring on the shaft of the sliding collar to counterbalance the drill-spindle the said shaft having a slot, in which the end of the operating-lever is received and pivoted; substantially as described.

595,851. ATTACHABLE SLEIGH-RUNNER. JOHN E. HOBBS, North Berwick, and BARTON M. WENTWORTH, Berwick, Me.; said Wentworth assignor to said Hobbs. Filed Nov. 9, 1891. Serial No. 411,415. (No model.)



Claim.—1. An attachable sleigh-runner constructed with the cap-bar depressed to the base-bar immediately in front of the hub or axle attachment and continued along said base-bar and over the nose of said base-bar, substantially as shown and described.

2. In an attachable sleigh-runner the combination of a cup shaped axle-rest with a stalk or stem having a vertical slot to receive a bolt, as described, and the cross-bar P, and a bolt with nut, passing through both the cross-bar and the stem of the axle rest, and means for tightening same, substantially as set forth.

3. As a new article of manufacture the combined standard and brace M, composed of the four steel bars, 1, 2, 3, 4, bolted together; the outer pair being bent and bolted to P, and the inner pair bent and bolted to truss T, T', substantially as set forth.

4. The combination of sectional hub-hoops, formed in two sections, with lugs or ears fitted to engage the cap-bars, cross-bars and tie-bars of attachable runners, at the ends of the sections, and the hubs to which they are fitted, substantially as set forth.

5. In an attachable sleigh-runner the combination of the adjustable loose-jointed, connecting-rod, G, eye, I, cap-bar, C, tie-bar, F, double truss, T, T', combined standard and brace, M, cross-bar, P, and recessed hub, H, substantially as described.

6. In an attachable sleigh-runner, the combination of the adjustable, loose jointed, connecting-rod, G, eye, I, cap-bar, C, tie-bar, F, double truss, T, T', combined standard and brace M, cross-bar, P, recessed hub, H, with the sectional hub-hoops, o, o', substantially as described.

7. In an attachable sleigh-runner the combination of the recessed hub, H, cross-bar, P, combined standard and brace, M, double truss, T, T', tie-bar, F, cap-bar, C, elongated, elliptic, base-bar, B, adjustable connecting-rod, G, and eye, I, substantially as described.

8. In an attachable sleigh-runner the combination of the recessed hub, H, the sectional hub-hoops, o, o', cross-bar, P, combined standard and brace, M, double truss, T, T', tie-bar, F, cap-bar, C, elongated, elliptic base-bar, B, adjustable connecting-rod, G, and eye, I, substantially as described.

9. In an attachable sleigh-runner having a hub mounted thereon to receive the spindle of an axle, the combination with said hub, of a tie bar secured at its upper end to said hub, said tie-bar abruptly depressed from the point where secured to said hub to said runner and secured thereto, at a point forward of the means for supporting said hub, substantially as shown and described.

10. In an attachable sleigh-runner the combination with said runner of a hub to receive the spindle of an axle, said hub mounted longitudinally on a cross-bar supported by standards and braces secured to said runner, said hub provided with a latch pivotally secured at one of its ends to the inner end of said hub to engage with an axle, the free end of said latch provided with a slot, a bolt secured in said hub to receive the slotted end of said latch thereon and rigidly hold said latch in contact with said axle and said hub, substantially as shown and described.

11. In an attachable sleigh-runner, the combination with a hub mounted longitudinally on a cross-bar supported by standards and braces secured to said runner to receive the spindle of an axle, of a circular rest secured to said cross-bar near its inner end to receive an axle, the inner end of said hub provided with an upwardly-curved latch to engage with said axle, said latch pivotally secured at one of its ends to said hub, the opposite end of said latch provided with a slot to engage with a bolt in the end of said hub to secure said latch in rigid contact with the end of said hub, substantially as shown and described.

12. In an attachable sleigh-runner provided with means to receive the spindle of an axle, said means secured to a cross-bar supported on the apex of a truss consisting of converging standards attached to said runner, of a standard rising vertically from said runner to the point of convergence of said standards forming said truss and secured to the inner side of each of said standards, said vertical standard having arms secured to each side thereof and projecting outwardly and upwardly and secured on opposite sides of said cross-bar and thereto at a point intermediate of the middle and the outer end of said cross-bar, substantially as shown and described.

13. An attachable sleigh-runner having means mounted and supported on converging standards secured to the base of said runner for receiving and supporting the spindle of an axle, a tie-bar secured to said spindle-support, said tie-bar depressed from its point of attachment to said spindle-support to the base-bar of the runner and secured thereto at a point back of the beginning of the upward curve of the forward end of said runner and forward of said standards, substantially as shown and described.

14. An attachable sleigh-runner provided with means for receiving the spindle of an axle, said means supported longitudinally on a cross-bar secured near its inner end between the upper ends of two standards attached to said runner at a distance thereon from each other and converging to the sides of said cross-bar, the outer end of said cross-bar supported by braces secured on each side thereof, said braces diverging laterally from said cross-bar and transversely and downwardly in the direction of said runner and secured to said converging standards at a point intermediate of the ends of said standards, substantially as shown and described.

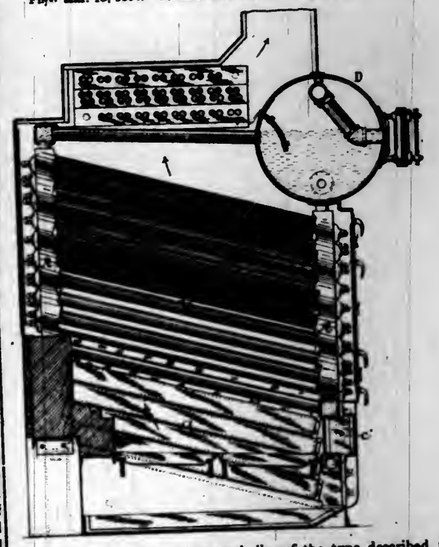
15. An attachable sleigh-runner having means to receive the spindle of an axle, said means supported longitudinally on a cross-bar secured near its inner end between the upper ends of the outer plates of a truss formed of converging standards attached at their lower ends to said runner, said cross-bar resting on the crown or apex of the inner plates of said truss, said inner plates being secured to the outer plates forming said truss, the outer end of said cross-bar supported, between arms rising laterally from the sides of a vertical standard resting on the base-bar of said runner and secured thereon and the upper end of said vertical standard secured to said truss under the apex thereof, substantially as shown and described

16. An attachable sleigh-runner having a hub to receive the spindle of an axle mounted on a cross-bar supported above said runner by converging standards secured to said runner and to the inner end of said bar, a combined standard and brace rising vertically from said runner to the inner apex of said converging standards and secured thereto, said standard having braces projecting outwardly and secured to the outer end of said cross-bar, a tie-bar secured to the inner end of said hub and to said runner back of the beginning of the upward curve thereof, a guard-brace attached to the outer end of said hub and carried down and transversely to said tie-bar and secured thereto, substantially as shown and described.

17. In an attachable sleigh-runner having a hub mounted thereon to receive the spindle of an axle, the combination with said hub, of a tie bar secured to said hub at the inner end thereof, said tie-bar depressed from its point of attachment with said hub to said runner at a point back of the beginning of the upward curve of the forward end of said runner and rigidly secured thereon, said tie-bar provided with an eye at a distance from said hub to receive the end of an adjustable extension-rod to hold said runner parallel with a complemental runner of like construction to which the opposite end of said rod is attached when said runners are secured to the spindles of an axle, substantially as shown and described.

18. In attachable sleigh-runners, the combination with a sleigh-runner having a low, curved front end, of means for receiving and supporting the spindle of an axle supported above said runner by standards secured at their lower ends to said runner, and converging at their upper ends and supporting a cross-bar on which said spindle-support is mounted, a combined standard and brace secured at its lower end to said runner and rising vertically therefrom attached at its upper end to the inner side of each of said standards at their apex, braces projecting from said vertical standard and secured at their outer ends to said cross-bar, a tie-bar attached to said spindle-support and carried downward and secured to said runner at a point back of the beginning of the curved front end thereof, substantially as shown and described.

595,852. STEAM-BOILER. WILLIAM D HOXIE, Brooklyn, N. Y. Filed Mar. 13, 1897. Serial No. 627,382. (No model.)



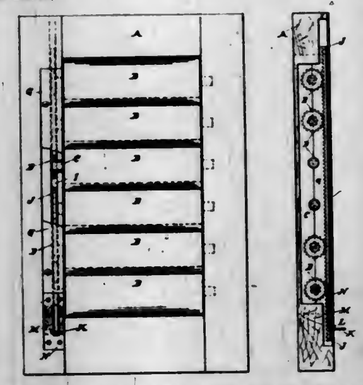
Claim.—In a sectional steam-boiler of the type described, the combination with the reversed inclined water-tubes of a transverse steam and water drum, located at the front of the boiler in the space above said tubes, as shown and described.

595,853. BADGE. AUGUSTUS J. KEIL, Newark, N. J., assignor to the Whitehead & Hoag Company, of New Jersey. Filed Aug. 2, 1897. Serial No. 646,755. (No model.)

Claim.—A badge, comprising a ribbon, a medallion, and means for attaching the same to said ribbon, said medallion having a central opening, a shell or button adapted to be arranged against the back of said medallion, said shell or button having an annular rim or bead d' and on its face a flexible covering c^3, bearing an inscription, emblem, design or the like, the annular edge of said covering being bent over said rim or bead d', a reinforcing-ring c^4 in the back of said shell or button for securing said covering in position, and means on said medallion for securing said shell or button and its covering against the back of said medallion, consisting, of holding prongs or lugs d^3 formed integral with said medallion and contiguous to the annular edge of said opening, and adapted to be arranged around the annular rim of said shell or button, substantially as and for the purposes set forth.

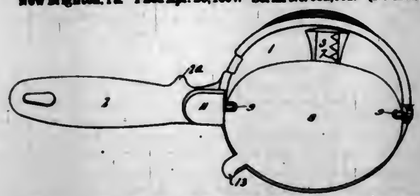


595,854. BLIND-SLAT OPERATOR AND FASTENER. JOHN R. LARSEN, Bridgeport, Conn. Filed June 30, 1897. Serial No. 642,966. (No model.)



Claim.—A blind-slat fastener consisting of gear-wheels attached to the tenons of the slats and set in a cavity in the framework of the blind and arranged so that when the wheels are rotated the slats will also rotate and open and close and having a rack-bar meshing with the teeth on the gear-wheels, said bar lying in a covered recess in the framework of the blind, the recess having a covering-plate, as G, covering the recess and its contents; the rack-bar having at one of its ends a resilient device terminating in a finger-piece protruding from the framework; the resilient device when in its normal position being arranged to stand away from the rack-bar, and having a projection thereon, one end of the recess having a covering-plate, as N, provided with a slot, as P, and projections on the under side of the plate; the resilient device protruding through the opening in the plate and arranged so that the projection on the resilient device will catch against the projections on the plate when the rack-bar and spring are moved longitudinally and hold the rack-bar in any predetermined position substantially as described.

595,855. SELF-EMPTYING ICE-SHREDDER. JOHN H. LOGAN, Allegheny, Pa., assignor to the Logan & Stewbridge Iron Company, New Brighton, Pa. Filed Apr. 20, 1897. Serial No. 632,993. (No model.)

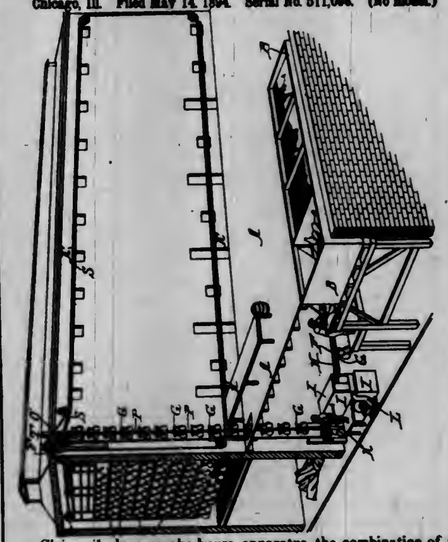


Claim.—1. In ice-shredders, the combination of a vessel; an opening in the bottom of said vessel; a cutting surface adjacent to said opening and a reversible cover for said vessel.

2. In ice-shredders, the combination of a vessel; an opening in the bottom of said vessel; a combing about said opening, one side of said combing being inclined; a serrated blade mounted on said inclined side, and projecting beneath said opening, and a cover of less diameter than the rim of said vessel, journaled in said rim and capable, by its reversal, of emptying said vessel.

3. In ice-shredders, the combination of a semispherical vessel; an opening in the bottom of said vessel; an inclined blade projecting beneath said opening, and a circular cover of less diameter than said vessel, journaled in the rim of said vessel and capable of reversal.

595,856. SMOKE-HOUSE APPARATUS. GEORGE A. LOWRY, Chicago, Ill. Filed May 14, 1894. Serial No. 511,098. (No model.)



Claim.—1. In a smoke-house apparatus, the combination of a soaking-tank, a stringing-table, with a washing apparatus and an inclined track passing from the stringing-table to and through the washing apparatus: substantially as and for the purpose set forth.

2. In a smoke-house apparatus the combination with a soaking-tank, a stringing-table, and a washing-receptacle containing perforated pipes and a force-pump, of an inclined track extending from the stringing-table to and through the washing apparatus; substantially as and for the purpose set forth.

3. In a smoke-house apparatus a washing apparatus comprising a closed receptacle containing a series of perforated pipes and a force-pump connected therewith, in combination with an inclined track passing to and through the receptacle for conveying the meat suspended from a hooked gambrel and an automatic stop to retain the gambrel and meat suspended therefrom within such washing-receptacle until it is properly cleansed; substantially as and for the purpose set forth.

4. In a smoke house apparatus the combination of a soaking-tank having an inclined bottom and hinged front, of a stringing-table with a washing apparatus containing a series of perforated pipes connected to a force-pump and an inclined track leading therethrough and a hinged lever normally resting upon such track but capable of being lifted therefrom, whereby the meat may be detained in the washing apparatus until cleansed, and then allowed to slide through and beyond the same; substantially as and for the purpose set forth.

5. In a smoke-house apparatus, the combination with an elevating device provided with a projecting arm of a gambrel for supporting the meat, having a hook engaging such arm, a discharging-arm arranged in the path of travel of the elevating device in position to engage the gambrel and discharge the same, and the track adjacent to such elevating device upon which the gambrel may be received, substantially as and for the purpose set forth.

6. In a smoke-house apparatus the combination of an elevating device having a projecting arm adapted to receive the hook of the gambrel supporting the meat, of a pivoted discharging-arm arranged in the path of travel of the elevating apparatus and having a forked end in position to engage the hook of the gambrel and gradually move the same laterally as the pivoted discharging-arm is lifted and a track adjacent to the upper end of the elevating apparatus for receiving the hook of the gambrel when the discharging-arm has forced it off the elevating apparatus, substantially as and for the purpose set forth.

7. In a smoke-house apparatus the combination of an endless power-driven chain provided with angular projecting arms adapted to support the hook of a gambrel for carrying meat with a pivoted discharging-arm having a forked end arranged in the path of the elevating-chain and in position to embrace the sides of the projecting arm and to move the hook of the gambrel laterally as the discharging-arm is lifted, and the track having an inclined end adjacent to the elevating-chain and adapted to receive the hook of the gambrel when the same is moved off the projecting arm of the chain; substantially as and for the purpose set forth.

8. In a smoke-house apparatus the combination of a track extending along the side of the smoke-house, and adapted to receive hooked gambrels for supporting meat, such track having hinged sections and inclined branch tracks also having hinged sections which latter tracks communicate with the smoke-house, and power mechanism consisting of endless belts with projecting arms for engaging the hooks of the gambrels and feeding the same along the main track and delivering the same to said inclined tracks; substantially as and for the purpose set forth.

9. In a smoke-house apparatus the combination of two or more gravity-ladders for supporting the meat arranged within the smoke-house, with tracks arranged outside of the smoke-house and having switches or branches leading between the ladders; substantially as and for the purpose set forth.

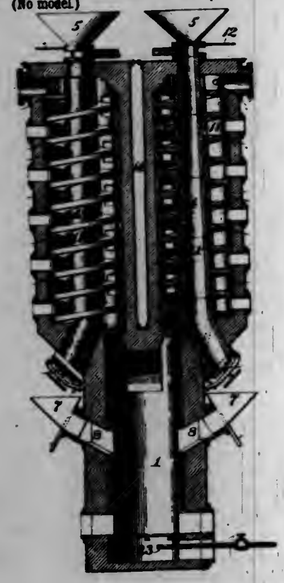
10. The combination with a smoke-house, of a gravity-operated ladder arranged therein comprising an endless chain or apron provided with slats for sustaining the meat to be hung thereon, a brake mechanism for maintaining the ladder in any desired position, and a hand-operated device for releasing said brake mechanism; substantially as and for the purpose set forth.

11. In a smoke-house apparatus, a smoke-house, an endless chain or apron arranged therein and having slats from which the meat may be hung, and the position of the slats may be changed by the gravity of the meat, in combination with devices for retaining the gravity-ladder in any desired position, a platform adjacent to the upper end of the ladder, and a device within reach of the operator standing on said platform for releasing the ladder from the influence of the stop devices; substantially as and for the purpose set forth.

12. In a smoke-house apparatus a smoke-house an endless chain or apron arranged therein and having slats from which the meat is hung and adapted to revolve by gravity of the meat so hung, in combination with a weight-actuated brake for retaining the gravity-ladder in any desired position, and a cord within reach of the operator for releasing the brake; substantially as and for the purpose set forth.

13. In a smoke-house apparatus the combination of a washing apparatus an inclined track leading therethrough a gambrel having a hook traveling upon such track and supporting the meat to be washed, an elevating apparatus adjacent to the end of such inclined track and engaging the gambrel and thereby elevating the meat to the smoke-house, a discharging-arm in the path of the elevating apparatus, a track along the side of the smoke-house, and adjacent to the top of the elevating apparatus upon which the gambrels having the meat are discharged, inclined branch tracks or switches communicating with the interior of the smoke-house and gravity-ladders arranged in such smoke-house upon which the meat is hung; substantially as and for the purpose set forth.

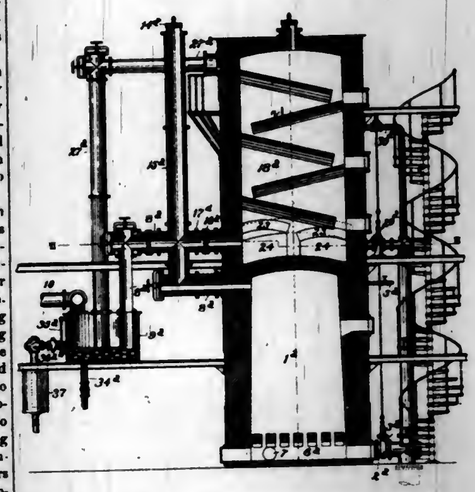
595,857. GAS-GENERATOR. COMMODORE R. MILLER, Pittsburg, Pa., assignor, by mesne assignments, to the W. J. McClurg Gas Construction Company, same place. Filed Mar. 17, 1894. Serial No. 504,033. (No model.)



Claim.—1. In a gas-generator, the combination of a fire-chamber or furnace, two chambers or compartments arranged above the fire-chamber and connected thereto and with each other at points above the normal fuel-level, and provided with spirally-arranged passages and pipes for introducing oil into and for conducting gas away from the upper portions of said chambers, substantially as set forth.

2. In a gas-generator, the combination of a fire-chamber, two cooking-retorts above the fire-chamber, two chambers each inclosing one of the retorts and provided with spirally-arranged passages, substantially as set forth.

595,858. GAS-PRODUCER. COMMODORE R. MILLER, Pittsburg, Pa., assignor, by direct and mesne assignments, to the W. J. McClurg Gas Construction Company, same place. Filed May 11, 1895. Serial No. 548,941. (No model.)



Claim.—1. A gas-producer having in combination two generators having a valved connection with each other at their lower ends, pipes for injecting steam into the upper and lower ends of the generators, blast-pipes for forcing air into the lower ends of the generators, two carbureting-chambers connected at their lower ends, valved connections from each generator to one of the carbureting-chambers, pipes for injecting oil into the upper ends of the carbureting-chambers, and valved connections from the upper ends of the carbureting chambers to the place of use or storage, substantially as set forth.

2. A gas-producer having in combination two generating-chambers having a valved connection with each other at their lower ends, pipes for injecting steam into the upper and lower ends of the generators, blast-pipes for forcing air into the lower ends of the generating-chambers, valved connections from the upper ends of the generating-chambers to the place of use or storage, two carbureting-chambers connected at their lower ends and each having a valved connection to one of the generating-chambers, pipes for injecting oil into the upper ends of the carbureting-chambers, valved connections from the upper ends of the carbureting-chambers, to the place of use or storage, and a valved escape opening at or near the upper ends of the carbureting-chambers, substantially as set forth.

3. A gas-producer having in combination a shell having a partition-wall, thereby forming two generating-chambers having independent ash-pits, a valved opening connecting the ash-pits, pipes for injecting steam into the ash-pits and the upper ends of the generating-chambers, blast pipes for injecting air into the ash-pits, and valved connections from the upper ends of the generating-chambers to the place of storage or use, substantially as set forth.

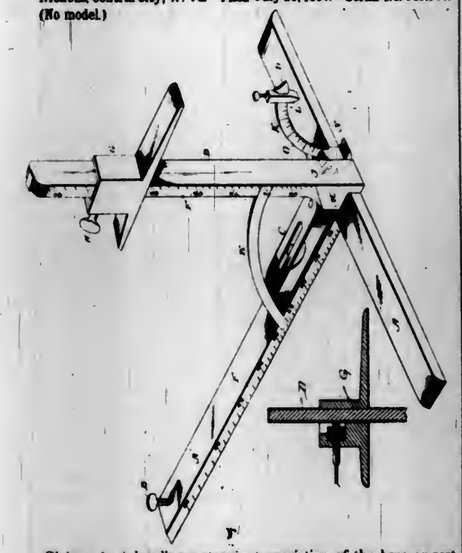
595,859. SCREW-DRIVER. FRANK B. MILLER, Unionville, Conn. Filed Sept. 7, 1897. Serial No. 650,885. (No model.)

Claim.—The two leaves adapted at the ends to engage a screw-slot and elastically pressing toward each other in combination with the bevel-edged shaft adapted to slide between the two leaves and with the spring adapted to press said shaft forward, all substantially as described and for the purposes set forth.

595,859



595,860. MASON'S AND BUILDER'S IMPLEMENT. EUGENE G. NICHOLS, Central City, W. Va. Filed July 29, 1897. Serial No. 646,377. (No model.)



Claim.—1. A leveling instrument consisting of the base or rest composed of the transversely and longitudinally disposed bars, the level carried by the longitudinal bar, the upright or standard rising from the rest, graduated scales on the standard and longitudinal bars, and an adjustable head on the upright.

2. A leveling instrument consisting of the base or rest composed of the transversely and longitudinally disposed bars, the level carried by the longitudinal bar, the upright or standard rising from the rest, graduated scales on the standard and longitudinal bars, an adjustable head on the upright, and the arm pivoted to the upright provided with a scale and having an adjustable marker mounted thereon.

3. A leveling instrument consisting of the T-shaped base, the standard rising therefrom and carrying a scale, an adjustable head slidably mounted thereon and having a short and long arm and means to hold the head at any adjustment, the spirit-level mounted on the long arm of the base, and the pivoted arc-arm secured to the standard and carrying a marking means.

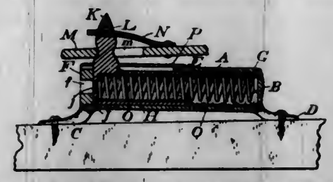
4. A leveling instrument consisting of the T-shaped base, a level mounted on the long arm of said base, means to raise and lower said long arm so as to find the level of the object, a standard rising from the base where the short and long arms are joined together having a graduated scale marked thereon, an adjustable head secured on said standard and having means to hold it at any height on the standard, and a pivoted arm secured at the base of said standard and having a marker adjustably mounted thereon.

595,861. CATAMENIAL SACK. ELIZABETH PARKER, Philadelphia, Pa. Filed Dec. 7, 1896. Serial No. 614,775. (No model.)



Claim.—A sack consisting of a single thickness of thin waterproof material having tapered extensions at the ends thereof, a soft fabric lining on the inner faces of said extensions, hems along the opposite edges of the sack and extending over the edges of the soft lining, an elastic band located within the hems, elastic loops secured at their opposite ends along said hems, an absorbent pad secured by said loops, and a belt provided with straps designed to be detachably secured to the tapered extensions of the sack, substantially as specified.

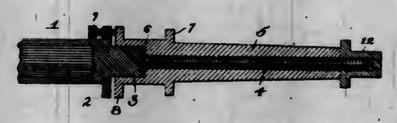
595,862. THILL AND TRACE CONNECTOR. MARTIN PAYNE, Troy, N. Y. Filed Apr. 28, 1897. Serial No. 634,227. (No model.)



Claim.—1. In a thill and trace connector, the combination of a suitable casing adapted to be fixed upon a thill, said casing having a longitudinal slot and an interior bore closed at both ends, one of the end closures of said bore being removable, a hollow piston-thimble constructed to fit said bore movably, a trace hook connected with the thimble through the slot in said casing, a spring, and orifices opening into said casing, substantially as described.

2. In a thill and trace connector, the combination of the closed casing A adapted to be fixed upon a thill and having an interior bore and perforated stopper F, said casing provided with a longitudinal slot, the hollow piston-thimble H having one open and one perforated end, the trace-hook K provided with a slot-cover and joined to said thimble through said slot, and a coiled spring, substantially as described.

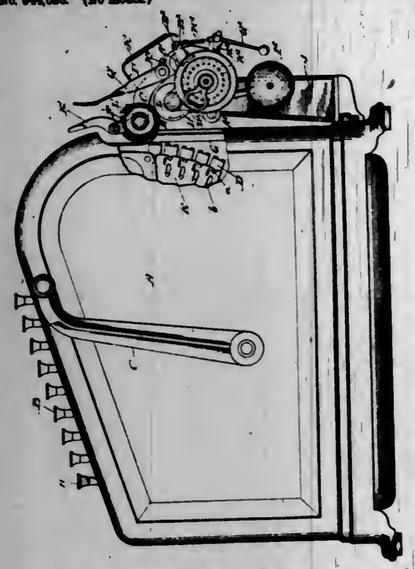
595,863. VEHICLE-SPINDLE. FRANCIS H. PEACOCK, Clintonville, Ala. Filed May 6, 1897. Serial No. 635,393. (No model.)



Claim.—1. A vehicle-axle comprising the spindle 4, integral cylindrical boss 3, the collar 2, in combination with the sleeve 5, provided with the cylindrical socket 6, with an external polygonal face 10 and integral parallel collars 7 and 8 and the removable nut 12, substantially as shown and described.

2. The rectangular axle 1, provided with the integral collar 2, the integral longitudinal cylindrical boss 3, and the threaded spindle 4, in combination with the internally-threaded sleeve 5 formed with the integral cylindrical socket 6 and the parallel collars 7 and 8, the adjustable screw-stud 9, mounted in said collar 2 and having one end abutting against the contiguous face of the collar 8 on the sleeve, substantially as shown and described.

595,864. PRINTING ATTACHMENT FOR CALCULATING-MACHINES. WILLIAM H. PIKE, Jr., St. Louis, Mo., assignor to the American Arithmometer Company, same place. Filed July 9, 1897. Serial No. 644,083. (No model.)



Claim.—1. The combination of two or more type arranged to print side by side, a support for a sheet of paper to be printed adapted to be set in different positions opposite the printing-type, and means for moving the paper longitudinally on its support whereby parallel longitudinal columns may be printed upon the paper, substantially as described.

2. The combination of two or more series of type, means for bringing any one type of a series into position to print side by side with those of other series, a rotary platen adapted to support a sheet of paper and to be moved longitudinally and set in different positions opposite the type, and means for intermittently rotating the platen in any position in which it is set whereby parallel longitudinal columns may be printed upon the paper, substantially as described.

3. The combination of two or more series of type, means for bringing any one type of a series into position to print side by side with those of other series, a platen adapted to support a sheet of paper and to be moved longitudinally and set in different positions opposite the type, devices for locking the platen in any position in which it is set, and means for intermittently moving the platen to feed the paper longitudinally whereby parallel columns may be printed upon the paper, substantially as described.

4. The combination of two or more series of type, means for actuating any one type of each series to print side by side with those of other series, a rotary platen adapted to support a sheet of paper, a driving-roller for rotating the platen, and means for intermittently rotating the driving-roller whereby successive transverse series of impressions are made upon the paper one directly beneath the other, substantially as described.

5. The combination with a series of type and their operating devices, of a platen adapted to support a sheet of paper, a driving-roller adapted to frictionally rotate the platen, and means actuated through the type-operating devices for positively rotating the driving-roller after each printing action, substantially as described.

6. The combination with a series of type and their operating devices, of a platen adapted to support a sheet of paper, a sectional driving-roller adapted to frictionsly rotate the platen, and means actuated through the type-operating devices for positively rotating the driving-roller after each printing action, substantially as described.

7. A series of printing-type and operating devices therefor in combination with supports for a sheet of paper, means for adjusting the same to different lateral positions in respect to the type, devices for locking the supports in such positions, and devices for automatically feeding the paper in each position longitudinally to print parallel columns, substantially as described.

8. In a machine of the character described, the combination with the printing-types and operating mechanism therefor, of a feed-roller mounted in fixed bearings and advanced at each operation thereof, and a laterally-adjustable paper-carriage carrying a platen-roller cooperating with said feed-roller and with the types, substantially as described.

9. In a machine of the character described, the combination with the printing-types and operating mechanism therefor, of a feed-roller adapted to be advanced at each operation of the type, and a laterally-adjustable and backwardly and forwardly movable paper-carriage carrying a platen-roller adapted to be moved into and out of contact with the feed-roller, substantially as described.

10. In a machine of the character described, the combination with the printing-types and operating mechanism therefor, of a paper-carriage mounted to swing backwardly and forwardly and move laterally upon supports, and carrying a platen roller cooperating with the types and adapted to have a sheet of paper passed over it and adjusted laterally of the printing-line, to effect the printing in parallel vertical columns, and means for advancing the sheet of paper automatically, substantially as described.

11. The combination with the feed-roller and means for turning the same, of the platen-roller mounted to move longitudinally independently of the feed-roller and to be swung into and out of contact therewith, for the purpose described.

12. The combination with the feed-roller and means for turning the same, of the platen-roller mounted to move longitudinally of the feed-roller and to be swung into and out of contact therewith, and means for preventing movement of the platen-roller longitudinally of the feed-roller while in contact therewith.

13. The combination with the feed-roller and means for turning the same, of the platen-roller adapted to be moved longitudinally of the feed-roller and to be swung into and out of contact therewith, and means for preventing movement of the platen-roller toward and from the feed-roller except in certain positions longitudinally of the feed-roller.

14. The combination with the feed-roller and means for turning the same, of the platen-roller adjustable longitudinally of the feed-roller and adapted to be swung into and out of contact therewith, means for preventing movement of the platen roller longitudinally of the feed-roller while in contact therewith, and means for preventing the said platen-roller from being swung toward and from the feed-roller except when in certain positions longitudinally of the latter.

15. In a machine of the character described, the combination with the printing-types and operating mechanism therefor, of a feed-roller mounted in a fixed frame and means for automatically turning the feed-roller at each operation of the machine, and a platen-roller mounted to be moved longitudinally of the feed-roller, and to be swung into and out of contact therewith, for the purpose described.

16. In a machine of the character described, the combination with the printing-types and operating mechanism therefor, of a feed-roller mounted in a fixed frame, and means whereby it is automatically advanced at each operation of the machine, a platen-roller movable longitudinally of the feed-roller and adapted to be swung into and out of contact therewith, and means for preventing movement of the platen-roller longitudinally of the feed-roller while in contact with the latter.

17. In a machine of the character described, the combination with the printing-types and operating mechanism therefor, of a feed-roller mounted in a fixed frame and automatically turned at each operation of the machine, a platen-roller movable longitudinally of the feed-roller and adapted to be swung into and out of contact therewith, means for preventing movement of the platen-roller longitudinally of the feed-roller while in contact with the latter, and means for preventing the platen-roller from being moved toward or from the feed-roller except when in predetermined positions longitudinally of the latter.

18. In a machine of the character described, the combination with the printing-types and operating mechanism therefor, of a feed-roller mounted in a fixed frame and means whereby it is automatically advanced at each operation of the machine, a paper carriage mounted to swing upon and slide longitudinally of a support in said fixed frame and carrying a platen-roller adapted to be swung into and out of contact with the feed-roller, and paper-guides for directing a sheet of paper between the feed-roller and platen-roller and for supporting it about the latter, for the purpose described.

19. In a machine of the character described, the combination, with the printing-types and operating mechanism therefor, of a feed-roller mounted in a fixed frame, a paper-carriage mounted to move longitudinally of said feed-roller and carrying a platen-roller adapted to be swung into and out of contact with the feed-roller and to cooperate therewith and with the types, and means for holding the paper carriage in its different adjusted positions longitudinally of the feed-roller.

20. In a machine of the character described, the combination with the printing types and operating mechanism therefor, of a feed-roller mounted in a fixed frame, a paper-carriage mounted to move longitudinally of said feed-roller and carrying a platen-roller adapted to be swung into and out of contact with the feed-roller and to cooperate therewith and with the types, means for holding the paper-carriage in its different adjusted positions longitudinally of the feed-roller, and means for preventing movement of the platen-roller toward and from the feed-roller except when in certain positions longitudinally of the latter.

21. The combination with the printing-types and operating mechanism therefor, of the fixed frames J, K, the feed-roller M, means whereby it is automatically advanced at each operation of the machine, the paper-carriage and a support therefor, said carriage being mounted to swing backwardly and forwardly upon and be moved longitudinally of said support, the platen-roller F mounted in said paper-carriage and adapted to be swung into and out of contact with the feed-roller M, and the paper-guides for directing a sheet of paper between the feed-roller M and platen-roller F and supporting it about the latter.

22. The combination with the printing-type and operating mechanism therefor, of the feed-roller journaled in a fixed frame, a paper-carriage, a support for the carriage mounted in the frame provided with grooves or notches, said carriage being adapted to swing back and forth upon and to be moved longitudinally of its support, a platen-roller journaled in the paper-carriage and adapted to be swung into and out of contact with the feed-roller and a latch mounted upon the paper carriage and cooperating with the grooves of the carriage-support, substantially as described.

23. The combination with the feed-roller M and means for advancing the same, of the fixed support A′ provided with the longitudinal groove S′ and transverse grooves or notches M′, the paper-carriage mounted to swing upon and move longitudinally of the support A′, the locking-plate T′ carried by the paper-carriage and cooperating with the grooves M′ and S′ in the support A′, and the platen-roller F journaled in the paper-carriage and cooperating with the feed-roller M.

24. The combination with the feed-roller M and means for advancing the same, of the fixed support A′ provided with the grooves M′, the paper-carriage mounted to swing upon and move longitudinally of the support A′, the rock-shaft O′ journaled in said paper-carriage and provided at one end with the latch-arm N′ cooperating with the grooves M′ in the support A′ and at its opposite end with the operating-handle Q′, the spring surrounding the shaft O′ and pressing the latch-arm N′ toward the support A′, and the platen-roller F journaled in the paper-carriage and cooperating with the feed-roller M.

25. The combination with the feed-roller M and means for advancing the same, of the platen-roller F adapted to be swung into and out of contact with the roller M, and the paper-guide G projecting over the platen-roller and provided at points intermediate its length with the fingers G″, for the purpose described.

26 The combination with the feed-roller M and means for advancing the same, of the platen-roller F adapted to be swung into and out of contact with the roller M, the paper-guides G′ and I′ above and below the roller F, and the spring-guides H′ passing around the forward side of said roller from the upper guide G′ to the lower guide I′.

27. In a machine for printing columns of figures, the combination of a feed-roller, and means whereby it is automatically actuated to advance the paper, a platen-roller mounted to swing toward and from the feed-roller and be moved to different positions longitudinally thereof and adapted to be automatically turned by the feed-roller when in contact therewith and to be turned backward by hand when swung out of contact therewith, and means for supporting a sheet of paper about the platen-roller, whereby a column of figures may be printed upon such sheet of paper while the platen-roller is in contact with the feed-roller, and the platen-roller be then swung out of contact with the feed-roller and turned backward to reset the sheet of paper for the printing of another column of figures, and be shifted laterally into position therefor and swung back into contact with the feed-roller.

28. The combination with a series of type and their actuating devices, of a rotary platen adapted to support a sheet of paper opposite the type, means for automatically rotating the platen step by step, and adjustable alarm or signaling devices cooperating with the platen adapted to be set to indicate when the platen has been moved any predetermined number of steps, substantially as described.

29. In a machine for printing columns of figures, the combination with a feed-roller, and means whereby it is automatically actuated at each operation of the machine to advance the paper at the printing-point, of a gong and a striker therefor, a revoluble trip for the striker adapted to be thrown into and out of gear with the feed-roller, and means for resetting the trip to initial position after it has been turned forward by the movement of the feed-roller to trip the striker and sound the gong.

30. In a machine for printing columns of figures, the combination with a feed-roller, and means whereby it is automatically actuated at each operation of the machine to advance the paper at the printing-point, of a gong and a striker therefor, a revoluble trip for the striker adapted to be thrown into and out of gear with the feed-roller, a resetting-spring for the trip put under tension by its forward movement under the action of the feed-roller, and means for throwing the trip out of gear with the feed-roller and permitting the spring to reset it to initial position.

31. In a machine for printing columns of figures, the combination with a feed-roller, of a gong and a striker therefor, a wheel adapted to be geared to and ungeared from the feed-roller, an adjustable trip carried by said wheel and cooperating with the gong-striker to sound the gong at the end of a predetermined number of movements of the feed-roller, and means for ungearing the wheel from the feed-roller and returning it to initial position after the trip has sounded the gong.

32. In a machine for printing columns of figures, the combination with a feed-roller, of a gong and a striker therefor, a wheel adapted to be geared to and ungeared from the feed-roller, an adjustable trip carried by said wheel and cooperating with the gong-striker to sound the gong at the end of a predetermed number of movements of the feed-roller, a resetting-spring for the wheel and trip put under tension by their forward movement, and means for ungearing the wheel from the feed-roller after the gong has been sounded and permitting the spring to reset it to initial position.

33. In a machine for printing columns of figures, the combination with a feed-roller, of a gong and a striker therefor, a wheel adapted to be geared to and ungeared from the feed-roller, and provided with an index or dial, an adjustable trip turning with said wheel and adapted to be adjusted about the dial thereof at different distances from the gong-striker to cause it to cooperate with the latter at different predetermined numbers of movements of the feed-roller, as desired, and means for ungearing the wheel from the feed-roller after the gong has been sounded by the trip and resetting the wheel and trip to initial position.

34. In a machine for printing columns of figures the combination with a feed-roller, a gong and a striker therefor, a wheel adapted to be geared to and ungeared from the feed-roller, and provided with an index or dial an adjustable trip turning with said wheel and adapted to be adjusted about the dial thereof at different distances from the gong-striker, to cause it to cooperate with the latter at different predetermined numbers of movements of the feed-roller, as desired, a resetting-spring for the wheel and trip put under tension by their forward movement, and means for ungearing the wheel from the feed-roller after the gong has been sounded by the trip and permitting the spring to reset it to initial position.

35. The combination with the feed roller M, of the gong I^3 and the striker G^3 therefor, the wheel K^3 mounted upon a movable support adapting it to be moved into and out of gear with the feed-roller M, the pointer D^3 spring-pressed against the face of the wheel K^3 and provided with fingers H^3 cooperating with the toothed periphery of said wheel, and projecting at its outer end beyond the periphery of said wheel to constitute a trip for the gong-striker, and the spring X^3 for resetting the wheel K^3 when ungeared from the feed-roller M.

36. The combination with the feed-roller M provided with the pinion L^3, of the gong I^3 and striker G^3 therefor, the gear-wheel K^3 mounted upon the shaft O^3 fixed in a movable support B^3 adapting the wheel K^3 to be thrown into and out of mesh with the pinion L^3, and said wheel being provided upon its outer side with the extended hub or sleeve S^3 surrounding the shaft O^3, and upon its opposite side with the spring-casing T^3, the coiled spring X^3 confined in the casing T^3 and connected at its inner end to the shaft O^3 and at its outer end to the wheel K^3, the sleeve E^3 surrounding the sleeve S^3 and provided with the enlargement or housing F^3 containing the spring G^3 confined by the disk V^3 secured to the end of the shaft O^3, and the pointer D^3 carried by the sleeve E^3 and projecting at its outer end beyond the periphery of the wheel K^3 and provided with fingers H^3 fitting between the teeth of the wheel K^3 for the purpose described.

37. The combination of the shaft O^3, the gear-wheel K^3 mounted thereon and provided with the spring-casing T^3, the friction-ring Y^3 fitting within said casing, and the spring X^3 located within the ring Y^3 and connected at its outer end to said ring and at its inner end to the shaft O^3, for the purpose described

38. In a machine for printing columns of figures, the combination of means for supporting and automatically advancing a sheet of paper at the printing-point, and shifting it transversely from the position of one column to another, an alarm or signaling device, and means whereby it is automatically sounded at the end of a predetermined number of operations of the machine, and means for automatically resetting the signaling device at the shifting of the sheet of paper from one column-printing position to another.

39. In a machine for printing columns of figures, the combination of means for supporting and automatically advancing a sheet of paper at the printing-point, and shifting it transversely from the position of one column to another, an alarm or signaling device, and

means whereby it is automatically sounded at the end of a predetermined number of operations of the machine, means for varying at will such predetermined number of operations of the machine necessary to the sounding of the signal, and means for automatically resetting the signaling device at the shifting of the sheet of paper from one column-printing position to another.

40. In a machine for printing columns of figures, the combination of a feed-roller automatically actuated at each operation of the machine, a platen-roller movable longitudinally of the feed-roller and provided with means for supporting a sheet of paper about it and causing it to be automatically advanced at each operation of the machine by the action of the feed-roller, a signaling device automatically sounded at the end of a predetermined number of movements of the feed-roller, and means for automatically resetting the signaling device when the platen-roller is moved longitudinally of the feed-roller to shift the sheet of paper from one printing column to another.

41. In a machine for printing columns of figures, the combination of a feed-roller, a platen-roller movable longitudinally of the feed-roller and provided with means for supporting a sheet of paper about it and causing it to be automatically advanced at each operation of the machine by the action of the feed-roller, a signaling device, and means whereby it is automatically sounded at the end of a predetermined number of movements of the feed-roller, means for adjusting the signaling device to vary at will such predetermined number of movements of the feed-roller necessary to the sounding of the signal, and means for automatically resetting the signaling device when the platen-roller is moved longitudinally of the roller to shift the sheet of paper from one printing column to another.

42. In a machine for printing columns of figures, the combination of a feed-roller, a laterally-adjustable and backwardly and forwardly movable paper-carriage carrying a platen-roller adapted to be moved into and out of contact with the feed-roller, means for supporting a sheet of paper in the paper-carriage and directing it around the platen-roller in position to be automatically advanced by the action of the feed-roller when the paper-carriage is in position for the platen-roller and feed-roller to cooperate with each other, a gong and a striker therefor, a revoluble trip for the striker adapted to be geared to and ungeared from the feed-roller, a resetting-spring for the trip, and means automatically operated at the shifting of the paper-carriage laterally from one printing column to another to ungear the trip from the feed-roller and permit its spring to reset it to initial position.

43. In a machine for printing columns of figures, the combination of a feed-roller, a laterally-adjustable and backwardly and forwardly movable paper-carriage carrying a platen-roller adapted to be moved into and out of contact with the feed-roller, means for supporting a sheet of paper in the paper-carriage and directing it around the platen-roller in position to be automatically advanced by the action of the feed-roller, a gong and a striker therefor, a revoluble trip for the striker adapted to be geared to and ungeared from the feed-roller and adjusted in relation to the gong-striker to cause it to cooperate therewith at different predetermined points in its forward movement, a resetting-spring for the trip, and means automatically operated at the shifting of the paper-carriage laterally from one column to another to ungear the trip from the feed-roller and permit its spring to reset it to initial position.

44. In a machine for printing columns of figures, the combination of a feed-roller, a paper-carriage mounted to be moved longitudinally of a support parallel with the feed-roller and carrying a platen-roller adapted to be swung into and out of contact with the feed-roller, means for supporting a sheet of paper in the paper-carriage and directing it around the platen-roller in position to be automatically advanced by the action of the feed-roller when the two rollers are in contact, a gong and a striker therefor, a wheel mounted upon a movable support adapting it to be thrown into and out of gear with the feed-roller and carrying a trip cooperating with the gong-striker to sound the gong, a resetting-spring for the wheel, and means intermediate the paper-carriage and movable support for the wheel for causing the latter to be thrown out of gear with the feed-roller when the paper-carriage is moved longitudinally of its support from one printing column to another, to thereby release the wheel and permit its spring to reset it to initial position.

45. In a machine for printing columns of figures, the combination of a feed-roller, a paper-carriage mounted to be moved longitudinally of a support parallel with the feed-roller, and carrying a platen-roller adapted to be swung into and out of contact with the feed-roller, means for supporting a sheet of paper in the paper-carriage and directing it around the platen-roller in position to be automatically advanced by the action of the feed-roller when the two rollers are in contact, a gong and a striker therefor, a wheel mounted on a movable support adapting it to be thrown into and out of gear with the feed-roller, a trip carried by said wheel and adjustable around the wheel to different positions relatively to the gong-striker, and adapted to cooperate with the striker to sound the gong, a resetting-spring for the wheel put under tension by its forward movement under the action of the feed-roller, and means intermediate the paper-carriage and the movable support for the wheel for causing the latter to be thrown out of gear with the feed-roller when the paper-carriage is moved longitudinally of its support, to release the wheel and permit its spring to reset it to initial position.

46. In a machine for printing columns of figures, the combination of a feed-roller, a paper-carriage mounted to move longitudinally upon a support parallel with the feed-roller and carrying a platen-roller adapted to be swung into and out of contact with the feed-roller, means for supporting a sheet of paper in the paper-carriage and directing it around the platen roller in position to be automatically advanced by the action of the feed-roller when the two rollers are in contact, a gong and a striker therefor, a movable frame extending longitudinally of the paper-carriage and its support, a wheel mounted upon said frame and adapted to gear with and be ungeared from the feed-roller, and provided with an index or dial, a trip for the gong-striker carried by said wheel and adjustable around its index or dial to different positions relatively to the gong striker, a resetting-spring for the wheel, and means intermediate the paper-carriage and movable frame for moving the latter and throwing the wheel out of gear with the feed-roller when the paper-carriage is moved longitudinally upon its support, for the purpose described.

47. In a machine such as described, the combination of a feed-roller mounted in a fixed frame, a paper-carriage mounted to slide longitudinally of a support in said fixed frame and carrying a platen-roller adapted to be swung into and out of contact with the feed-roller, paper-guides for directing a sheet of paper between the feed-roller and platen-roller and supporting it about the latter, a swinging frame hung upon an axis parallel with the feed-roller and paper-carriage support and provided with a bar extending longitudinally of the latter, a gong and striker therefor, a gear-wheel mounted upon said movable frame and adapted to be moved into and out of gear with a pinion on the feed-roller, a spring yieldingly holding the movable frame in position for the gear-wheel to mesh with the pinion, a trip for the gong-striker carried by the gear-wheel and adjustable about an index on said wheel to different positions relatively to the gong-striker, a resetting-spring for the gear-wheel put under tension by its forward movement imparted by the feed-roller, and means intermediate the paper-carriage and longitudinal bar of the movable frame for causing the latter to be moved by the paper-carriage when the platen-roller is swung backward away from the feed-roller and the paper-carriage slid longitudinally of its support, to ungear the wheel from the pinion on the feed-roller and permit the spring to reset the wheel and trip to initial position.

48. The combination of the feed-roller M and means for advancing the same, the paper-carriage mounted to swing backward and forward and slide longitudinally upon the support A′ parallel to the feed-roller, and carrying the platen-roller F adapted to be swung into and out of contact with the feed-roller, the paper-guides for directing and supporting a sheet of paper about the roller F, the spring-pressed swinging frame having the bar D^3 extending longitudinally of the support A′, the gear-wheel K^2 mounted upon one end of said frame and adapted to be carried into and out of mesh with the platen I^2 on the feed-roller shaft when said frame is moved to different positions, the gong and gong-striker, the pointer D^3 movable over the index upon the wheel K^2 and engageable with said wheel in its different adjusted positions, and operating as a trip for the gong-striker, the resetting-spring X^2 for the gear-wheel, and a projection upon the movable frame, such as the lug K^3, adapted to contact with and move the swinging frame when the paper-carriage is swung backward from the feed-roller and moved longitudinally of its support, to disengage the wheel K^2 from the pinion I^2 and permit the spring to reset the wheel and pointer D^3 to initial position.

49. The combination with the feed-roller and the paper carriage and platen-roller, of the spring-pressed swinging frame having the bar D^3 extending longitudinally of the paper-carriage and provided with the notches J^3, the gear-wheel of the signaling device mounted upon said frame and cooperating with the pinion on the feed-roller, and the projection on the paper-carriage adapted to enter one of the notches J^3 in the bar D^3 when the paper-carriage is swung backward, and to move said bar when the paper-carriage is then moved longitudinally thereof, for the purpose described.

50. The combination with a series of printing-type and their operating devices, of a driving-roller, means actuated through the type-operating devices for rotating the same after each printing action, and means whereby the platen roller may be moved into and out of driving contact with the driving-roller, substantially as described.

595,865. LENS-MEASURE. WILLIAM H. REISNER, Hagerstown, Md. Filed Apr. 28, 1897. Serial No. 634,203. (No model.)

Claim.—1. In a lens-measure, the combination of an exterior casing, a graduated dial, an inner casing, devices for moving the inner with respect to the outer casing, relatively fixed and movable pins borne by said inner casing, superior and inferior hands arranged to sweep said dial independently, mechanism supported by said inner casing and adapted to operate said superior hand, said inferior hand being attached to said inner casing, said pins, mechanism and hands partaking of the movement of said inner casing as a whole, substantially as described.

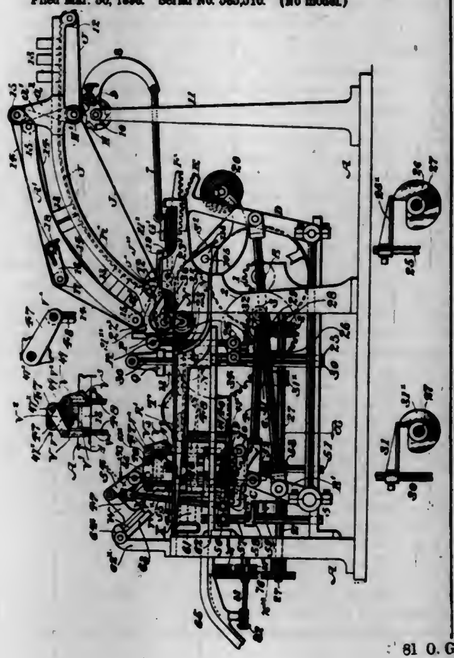


2. In a lens-measure, the combination of a cylindrical exterior casing, a graduated dial attached to said exterior casing and having a central orifice, a cylindrical inner casing, devices for moving the inner with respect to the exterior casing, fixed pins borne by said inner casing, and a relatively-movable central pin borne by said inner casing, said dial arranged to face one open end of said cylindrical exterior casing and said pins to project beyond the opposite end, superior and inferior hands placed to sweep said dial-face independently, mechanism supported by said inner casing and adapted to operate said superior hand, said inferior hand being attached to said inner casing, said pins, mechanism and hands partaking of the movement of said inner casing as a whole, substantially as described.

3. In a lens-measure, a dial having a circumference divided into two semicircumferences each marked in degrees and numbered in the same direction around the dial beginning from opposite ends of a given diameter, in combination with a hand arranged to sweep said dial, a casing, fixed and movable points borne by the casing, and mechanism adapted to operate said hand, substantially as described.

4. In a lens-measure, the combination of an exterior casing, a suitable dial attached to said casing, an inner casing having orifices and central depression, devices for moving the inner with respect to the exterior casing, pins secured to said inner casing, a collar centrally secured to said inner casing and provided with a set-screw, a movable pin or plug fitting said collar, said movable pin having a central bore, a longitudinal slot and a flange provided with a set-screw, said pins having bearing-points, a spiral spring and a cupped bearing-block movable within said pin-bore, a worm-spindle, superior and inferior hands, all said parts other than exterior casing and dial being borne by said inner casing and partaking of its movement, the whole constructed and arranged substantially as described.

595,866. MACHINE FOR WRAPPING, PRINTING, AND BOXING CAKES OF YEAST, CARAMELS, &c. JAMES J. SULLIVAN, Brooklyn, N. Y., assignor of one-half to Benjamin Bleier, New York, N. Y. Filed Mar. 30, 1896. Serial No. 585,510. (No model.)



Claim.—1. A feed-chute carrying an endless apron, and guide-rollers therefor, said chute being axially supported at one end whereby it may be raised with said apron and rollers and displaced.

2. A feed chute having mounted above the same, an arm carrying an endless apron, and guide-rollers therefor, said apron being adapted to bear upon the articles fed on said chute said chute and arm being adapted to be simultaneously raised, and the arm to be raised independently of said chute.

3. A feed-chute and an endless apron thereon for conveying the articles, in combination with an arm which is mounted on said chute, an endless apron on said arm adapted to press against said articles, and a crank which is pivotally connected with said arm, a spring attached to said arm and crank for throwing out the latter, and a roller on said crank bearing outwardly on said pressure-apron.

4. An arm mounted on a feed-chute and provided with an endless apron adapted to press upon the articles on said chute, said arm being adapted to be raised independently of said chute, and said chute to be raised simultaneously with said arm.

5. A cross-bar, means for moving the same in opposite directions, a swinging arm connected with said bar, a pawl on said arm, and a ratchet and feed-roller mounted on the frame of the machine, in combination with a chute having a feed-roller and an endless apron which passes between said feed-roller and the feed-roller on the frame of the machine.

6. In a wrapping-machine, a rising-and-falling cutter, a table with an opening for the passage of said knife, and a bed-knife below said table adjacent to said opening, said bed-knife being connected with a swinging arm which is mounted on the same, and having an advancing spring bearing against it.

7. In a wrapping-machine, a floor, a feed-chute leading to said floor, an arm on said chute, endless aprons on said chute and arm, a tension device on the arm for the endless apron thereof, a plunger for advancing on said floor the article to be wrapped, and feed-rollers for advancing the wrapping material, in combination with a stamp or die, means for raising and lowering the latter, bars on which said article and material may be temporarily supported, and a sunken floor below said bars adapted to receive the partially-wrapped article.

8. The grippers R consisting of the parallel bars R′, pivotal links connected therewith, a block carrying said links, toothed segments on the shafts of said links, and a slide with racks engaging said segments.

9. The folders T consisting of concave and converging plates, one of the walls thereof overhanging the corresponding wall of the other plate, in combination with a table below said folders, the movable grippers R between said folders and table in the space aside of the article to be wrapped placed on said table, means for laterally moving said grippers, and means for advancing the same.

10. A block carrying a pair of grippers, corner-folders, and gearing for said grippers and folders, and a slide provided with racks for operating said gearing and moving said block in opposite directions.

11. A block carrying a pair of grippers, corner-folders, and gearing for said parts, and provided with the friction plate A^4 and the spring A^5 bearing against the same, in combination with the part A^3 of the frame A, on which said plate A^4 moves.

12. The folders U mounted on the block S and consisting of flat-sided heads, gearing on the shafts of said heads for imparting rotary reciprocating motions thereto, and a slide carrying said block adapted to operate said gearing.

13. The folders V, the radial arms 47 on the shafts of the same, the rods 48 connected with said shafts, the ears 49 on which the axes of said arms are mounted, and means for operating said rods 48.

14. The ear 49, in combination with the folders V, the radial arms 47 mounted on said ear and having shafts at their outer ends from which said folders depend, means for raising said arms, the presser-foot V′ freely suspended from said folders, and a spring pressing downwardly on said foot.

15. The folders V, and means for raising and lowering the same, in combination with the upturned lip V^2 on the side of one of said folders.

16. A movable block, and a follower for operating the same, gripper-bars and corner-folders carried by said block, operating devices for said bars and folders likewise on said block, and a stationary table on which the articles are engaged by said bars and folders, in combination with a printing-head, means for operating said head, and the frame of the machine having a vertical passage therein below said head, and a sunken table at the base of said passage.

17. A swinging printing-head, and means for raising and lowering the same, in combination with a swinging inking-pad, and a standard therefor on the frame of the machine, said pad having near its axial end a shoulder against which said head strikes to raise the face of said pad against the face of said head, in combination with the frame having a vertical passage therein below said head, a table at the top of said passage, and a table at the base thereof.

18. The printing-head W, and means for operating the same, the frame having a vertical passage therein, the vertical wall 60 at one side of said passage, a spring in said passage opposite to said wall, one limb of said spring projecting upwardly and serving with said wall to support the ends of the covering material on which the material to be wrapped is rested while being printed.

19. The frame having a stationary table thereon, movable grippers and corner-folders, gearing for said grippers and folders, and a block carrying said grippers, folders and gearing, in combination with a slide which is provided with racks adapted to operate said gearing and move said block, and a toothed segment adapted to engage one of the racks of said slide for moving the latter in opposite directions.

20. Feed-chutes each having an oscillating discharge-spout, in combination with the coupling-rod 78 pivotally attached to the two spouts, the pitman 79 connected with said rod the crank-wheel 80 on whose wrist pin said pitman is mounted, and means for imparting intermittent motion to said wheel.

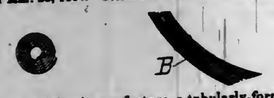
21. A machine for wrapping articles, provided with a plate adapted to be controlled by the articles on the feed-chute of the machine, a shipper bar or rod, and mechanism intermediate of said plate and bar, said feed-chute having an opening in its side, the same being primarily occupied by said plate.

22. A stop-motion for an empty feed chute consisting of a plate adapted to be controlled by the articles on said chute, a swinging arm carrying said plate, a bar with which said arm engages, a link connected with said bar, a sliding rack with which said link may interlock, and gearing engaging with said rack and a shipper rod or bar.

23. A stop motion when the wrapping material fails, consisting of a shoe adapted to enter a slot in a bed in which said material is supported, a rock-shaft carrying said shoe, a toothed segment freely mounted on said shaft, a rack meshing with said segment, a link connected with the rod which carries said rack, a sliding rack with which said link may interlock, and gearing engaging said rack, and a shipper rod or bar.

24. In a stop-motion operative on the failure of wrapping or covering material, a shoe, a rock-shaft carrying the same, a toothed quadrant on said shaft, a rack-bar engaged by said quadrant, a rod carrying said rack, a spring bearing against the latter, and mechanism connected with said rod, and a shipper bar or rod, said quadrant having a slot in the end on the rock-shaft, and the latter having a pin which freely occupies said slot.

595,867. GASKET. HARRISON F. WATSON and CASSIUS MCCREARY, Erie, Pa. Filed Mar. 25, 1897. Serial No. 629,196. (No model.)



Claim.—1. As an article of manufacture, a tubularly-formed gasket with its ends arranged over a core, B, of rubber compounded to melt and cure with heat.

2. As an article of manufacture, a tubular gasket formed of a fabric of asbestos and rubber with its ends arranged over a solid elastic core, said core extending but a short distance each side of the joint.

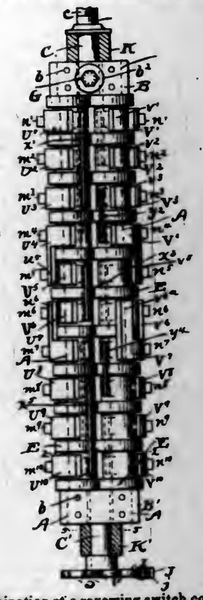
3. As an article of manufacture, a tubular gasket formed of a fabric of asbestos and rubber with its ends arranged over a solid core, B, of rubber compounded to melt and cure with heat.

4. As an article of manufacture, a gasket formed of an asbestos fabric having an end provided with rubber or similar material in an uncured state and compounded to melt and cure with heat, whereby when the ends are brought together in a joint subjected to heat, the ends of the gasket are united.

595,868. REVERSING AND CUTTING-OUT SWITCH FOR ELECTRIC MOTORS. THORSTEN VON ZWEIGBERGK, Cleveland, Ohio, assignor to the Walker Company, same place. Filed Sept. 20, 1897. Serial No. 652,308. (No model.)

Claim.—1. The combination of a controller, a plurality of motors, and a switch in the circuit between the controller and motors, said switch governing in sets the individual connections of different motors and said controller governing the connections between the sets collectively, substantially as described.

2. The combination of a controller, a plurality of motors, and a reversing and cutting out switch in the circuit between the controller and motors, and adapted to reverse the motors or cut out some of them, said switch having two series of contact-fingers and two series of contact-plates, one series of plates and fingers connecting up a portion of the motors, and the other series another portion, and said controller adapted to connect in different manners those motors which are connected with one series of contact fingers and plates with those motors which are connected with the other series, substantially as described.



3. The combination of a reversing-switch consisting of two series of contact-fingers, and a movable member having two series of contact-plates adapted to be engaged by said contact-fingers, a plurality of motors, connected a portion with one series of contact-fingers and the remainder with the other series, and a controller adapted to govern the connection between the motors connected with one series of contact-fingers and the motors connected with the other series, substantially as described.

4. The combination of four motors, two sets of contact-fingers, one set connected with two motors and the other set with the other two, and a relatively movable member carrying two series of contact-plates, one series of contact-plates governing the two motors connected with either series of contact-fingers, combined with a controller governing the connection between the set of motors which one series of contact-plates govern, and the set of motors which the other series of contact-plates govern, substantially as described.

5. The combination of a reversing-switch composed of two homologous semicylinders and two series of contact-fingers adapted to engage with the same, motors connected with said contact-fingers and a controller adapted to connect the motors governed by one semicylinder in series or in parallel with those governed by the other semicylinder, substantially as described.

6. In a reversing-switch, two series of contact-fingers, in combination with a relatively movable member carrying two homologous series of contact-plates, each of said series of plates being adapted to contact with either series of contact-fingers, substantially as described.

7. In a reversing-switch, a movable member carrying two series of contact-plates, the plates of one series being coupled together in a different manner from the plates of the other series, in combination with two series of contact-fingers, each series adapted to engage with either series of contact-plates, and one series of contact-fingers sustaining the same relation to one series of plates that the other series of contact-fingers do to the other series of plates, substantially as described.

8. A reversing and cutting-out switch comprising, in combination, a moving surface having a plurality of contact-plates arranged in two series, one series adapted to pass the current in the forward direction, and the other series to pass it in the reverse direction, and two series of contact fingers arranged in the path traversed by the moving contact-plates, and having electrical connections with the circuit in which motors are operated, there being certain positions of said moving surface in which some of said contact-fingers are out of contact with the plates with which they are adapted to contact in other positions, whereby certain of the motors are cut out when the moving surface is in certain positions, substantially as described.

9. A reversing-switch comprising in combination, a cylinder adapted to be turned on its axis, and having on its periphery a plurality of contact-plates arranged in two series, one series adapted to pass the current in the forward direction, and the other to pass it in the reverse direction, corresponding points on said two series of plates being diametrically opposite, and two series of contact-fingers arranged on diametrically opposite sides of said cylinder, substantially as described.

10. A reversing-switch having two homologous series of contact-plates, one of the series having consecutive plates connected together and the other series having alternate plates connected together, and two series of contact-fingers, each series adapted to engage with either series of contact-plates, the relative disposition of said contact-plates and fingers being such that when one series of contact-fingers are in engagement with one series of plates, the other series of contact-fingers are in engagement with the other series of plates, there being provision for relative movement between the contact-plates and contact-fingers, substantially as described.

11. The combination with the fields and armatures of four motors, the leading in and out conductors therefor, and two series of contact-fingers, one series connected with two of the motors and the other series with the other two, with a movable switch adapted to occupy at least four different operative positions relative to the fingers and having thereon two series of contact-plates, arranged substantially as described, whereby in one position the motors connected with one series of contact-fingers are connected together in series, and the motors connected with the other series of contact fingers are connected together in series, and in another position, the motors connected with each series of contact-fingers are connected together in parallel, and in two other positions the motors are connected as hereinbefore mentioned but reversed, substantially as described.

12. A reversing and cutting-out switch for four motors, having two series of contact-fingers, each connected substantially as described with the terminals of the fields and armatures of two motors and with leading in or out wires, and a relatively movable member, having two homologous series of contact-plates, each series being adapted to contact with either series of contact-fingers and electrically connect said contact-fingers, the plates of one series being adapted in one position to connect together in consecutive pairs all of the contact fingers of one series, in another position to connect together in consecutive pairs a portion of said series of contact-fingers, and in another position to connect together in consecutive pairs another portion of said series of contact-fingers, the other series of contact-plates simultaneously connecting together in alternate pairs similar portions of the other series of contact-fingers, substantially as described.

13. The combination with two series of contact-fingers, each adapted to be connected with two motors, of a relatively movable member carrying two homologous series of contact-plates, each of said series being adapted to contact with either series of contact-fingers, and each adapted to connect the motors connected with the contact-fingers with which it is engaging, in series, in parallel, or cut out either of them, the one series of contact-plates being connected together alternately with respect to the other series, whereby, when the contact-fingers which were in engagement with one series of plates are brought into similar position on the other series of plates, the motors are connected as formerly but reversed, substantially as described.

14. A reversing and cutting-out switch consisting of a relatively movable member carrying two series of plates combined with two series of contact-fingers, one series of contact-fingers being adapted to engage with one series of plates while the other series of contact-fingers are in engagement with the other series of plates, each series of contact-fingers being adapted to contact with either series of said plates, said switch being adapted to stand in eight positions, one of which is adapted to connect motors connected to each series of contact-fingers in series, another of which is adapted to connect the same motors in parallel, another of which is adapted to cut out one motor connected with each series of contact-fingers, and another of which is adapted to cut out another motor connected with each series of contact-fingers, the four other positions connecting the motors in the same manner but reversed, substantially as described.

15. In a reversing or other switch, a movable member composed of two series of contact-plates, each built up upon a rod A, which rods are connected together by cross-heads B and B', there being shafts C and C' projecting from said cross-heads and forming journals for the said movable member, and two series of contact-fingers adapted to engage with corresponding points on the two series of contact-plates, substantially as described.

16. In a reversing or other switch, in combination, two rods A connected together and journaled on the same axis, insulating-sleeves D surrounding each of the rods, and contact-plate sections surrounding the sleeves and carrying contact-plates the curvature of which is an arc of a circle about said axis, substantially as described.

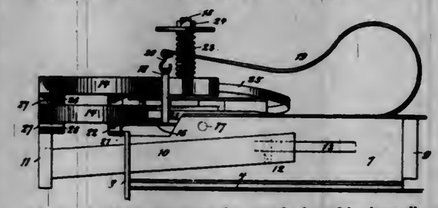
17. The combination in a reversing switch of the two rods A A connected together and journaled on the same axis, insulating-sleeves D surrounding each of these rods, contact-plate sections surrounding the sleeves, cross-connections as y', &c., connecting the contact-plate sections of one shaft A in consecutive pairs, and cross-connections as x', &c., connecting the contact-plate sections on the other shaft A in alternate pairs, substantially as described.

18. In a reversing or cutting-out switch or similar device, in combination, the shaft A, flattened on one side, the insulating-sleeve D similarly flattened on one side, the contact-plate sections carried by said insulating-sleeves, and consisting of the sleeve F, likewise flattened on the side at f, the web f' and curved contact-plate carried thereby, the arm f^3 projecting therefrom, and cross-connections joined to the arms f^3 of different contact-plate sections, substantially as described.

19. In an electric switch, the combination of two series of contact-plates and two series of contact-fingers, there being provision for relative movement between the plates and fingers, and each series of plates being adapted to contact with either series of fingers, substantially as described

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595,869. CAR-FENDER. ANTHONY F. BARBO, New York, N. Y. Filed May 17, 1897. Serial No. 636,571. (No model.)



Claim.—1. The combination in a car-fender of horizontally-arranged swinging arms, a framework upon which said arms are mounted, a sliding frame mounted, and arranged to slide in, and be guided by, said framework, said sliding frame being adapted under pressure to trip said swinging arms substantially as specified.

2. In a car-fender the combination of a tilting frame, horizontally-arranged swinging arms, mounted upon said tilting frame, and means for tripping said tilting frame and said swinging arms substantially as and for the purpose set forth.

3. In a car-fender the combination of a tilting frame, horizontally-arranged swinging arms mounted upon said tilting frame, a sliding frame engaging said tilting frame and said swinging arms and adapted upon its movement to release said tilting frame and said swinging arms substantially as and for the purpose set forth.

4. The combination with a car-fender of a supporting-rail secured to the car, the forward end of said supporting-rail being hinged, and a track secured to the car-fender and adapted to engage the supporting-rail, substantially as specified.

5. In a car-fender the combination of a tilting frame, horizontally-arranged swinging arms normally held open against spring tension mounted upon said tilting frame, means for adjusting the force of movement of said swinging arms, and means for automatically releasing said swinging arms substantially as and for the purpose set forth.

6. In a car-fender the combination of a tilting frame, and horizontally-arranged spring-pressed swinging arms mounted upon said tilting frame, with a sliding frame, lugs on said sliding frame and upon said swinging arms whereby the movement of the sliding frame will release the swinging arms substantially as specified.

7. In a car-fender the combination of a tilting frame, horizontally-arranged spring-pressed swinging arms mounted upon said tilting frame, a sliding frame, lugs on said sliding frame engaging with lugs upon the swinging arms, whereby the movement of the sliding frame will release the swinging arms, and an engagement between the sliding frame and the tilting frame whereby the movement of the former will cause the tilting of the latter substantially as specified.

595,870. FRUIT-GATHERER. CALVIN BLAIR, Leatherwood, Pa. Filed Nov. 23, 1896. Serial No. 613,193. (No model.)

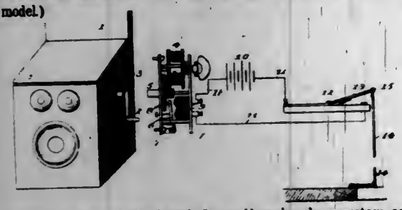
Claim.—1. In a fruit-gatherer, the combination with a flexible sheet adapted to be applied about a tree, of a plurality of high poles and a plurality of low poles arranged alternately about the periphery of said sheet, whereby a plurality of channels are formed in said sheet for the discharge of the fruit that drops upon the same into suitable receptacles arranged about the periphery of said sheet, substantially as described.

2. In a fruit-gatherer, the combination with a flexible sheet adapted to be applied about a tree, of a plurality of supporting-poles of different lengths and arranged alternately about the periphery of said sheet so as to form a plurality of discharge-channels therein, and

a protecting-apron arranged about the periphery of said sheet substantially as described.

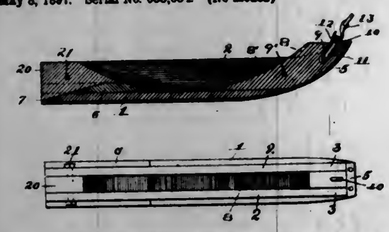


595,871. ELECTRIC BURGLAR AND FIRE ALARM. CHARLES J. BUKOUTZ, Lamoille, Ill. Filed Apr. 19, 1897. Serial No. 632,717. (No model.)



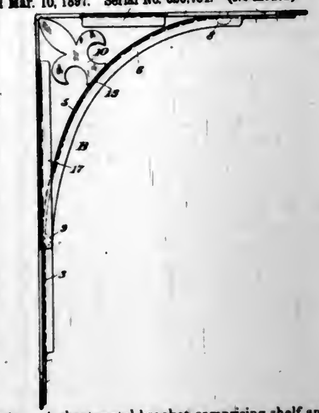
Claim.—An automatic electric fire and burglar alarm system, comprising the telephone-call 1, provided with the shaft 3 and crank-arm 2, the spool or drum 17 loosely mounted on said shaft and provided with the cord 18 and weight 19, the removable pin 20, the pivoted pawl 21 adapted to project into the path of said arm 2, and the spring 23 connected to said pawl, in combination with the combustible cord 25, having one end fixed to said pawl and the other end connected to a door, window or other suitable point within the premises, substantially as and for the purpose set forth.

595,872. SLED-RUNNER. ARON M. CARLSON, Pierre, S. D. Filed May 8, 1897. Serial No. 635,654. (No model.)



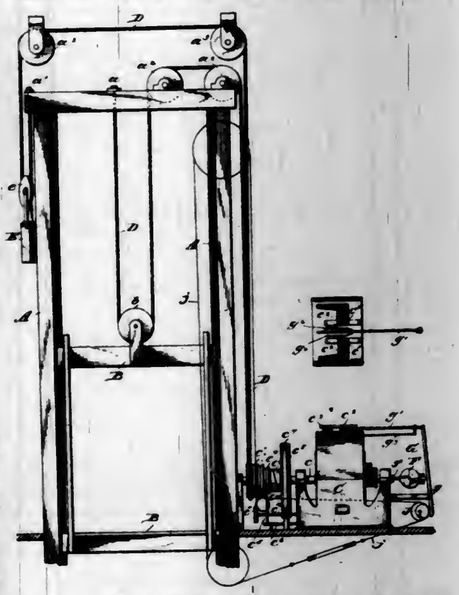
Claim.—In detachable sleigh-runners for vehicle-wheels, the combination of the base-plate 1, having the longitudinal, parallel guide-flanges 2 2, the transverse cleat 6 provided with the rearwardly-inclined groove 7, the longitudinal brace 8 secured between the forward ends of said flanges and provided with the curved seat 8', the link 10 secured in said brace, the auxiliary doubletree 14 fulcrumed on the bevel-face block 17 fixed to the under side of the tongue, the chain 13 connecting said link and doubletree, a chock-block 20 occupying the groove 7, and a transverse pin 21 passing through the longitudinal flanges and holding the block secured, substantially as described.

595,873. BRACKET. CHARLES F. DOEHLER, Hartford, Conn. Filed Mar. 10, 1897. Serial No. 626,731. (No model.)



Claim.—A sheet-metal bracket comprising shelf and wall plates in one piece and bent to form an angle, each of said plates having intermediate its ends and at opposite sides thereof longitudinal strengthening ribs which are cut and bent up from said parts; a main brace secured, respectively, to said plates at points relatively remote from said angle, and curved, said main brace having along its opposite edges longitudinal strengthening-ribs curved for the major part of the length, and also having at its opposite ends extended flat portions which snugly fit against the adjacent faces of the shelf and wall plates, respectively, said extended portions having openings which register with corresponding openings formed in the two plates; and an auxiliary brace transversely disposed to the main brace and having at its opposite ends projecting lugs which pass through openings formed in the main brace and at the angle of the two plates, respectively.

595,874. ELECTRIC ELEVATOR. AUGUSTUS L. DUWELIUS, Cincinnati, Ohio. Filed Feb. 18, 1892. Serial No. 421,925. (No model.)



Claim.—1. The combination with a constant-potential line-circuit of a series motor, an electric switch adapted to disconnect the line-circuit and close an independent circuit including the armature in series with a field of variable magnetic strength, thereby converting the motor into a self-excited generator adapted to be driven by the movement of the elevator, substantially as and for the purpose set forth.

2. In an electric elevator, the combination with the motor, of an electric switch adapted to disconnect the motor from the line-circuit, and substitute connections which complete an independent circuit, including the armature in series with a field of variable magnetic strength controlled by the shifting cable or its equivalent, adapted to retard the movement of the elevator, substantially as and for the purpose set forth.

3. The combination with an electric elevator, of an electric switch controlled by the shifting cable or its equivalent, and provided with circuit-closing contacts adapted to alternately make or break electrical connections by the initial portion of the direct or reverse movement of the shifting cable and maintain the makes or breaks during the continued movement of the shifting cable, substantially as and for the purpose specified.

4. The combination in an electric elevator of a shifting cable, a connection between the cable and a switch adapted to make or break the required connections and a connection between the cable and the elevator-brake whereby the brake is applied after the electrical connections are broken or released after the electrical connections are made, substantially as and for the purpose specified.

5. The combination with an electric elevator of a rock-shaft adapted to be actuated by the shifting cable or its equivalent, a working beam intermediately connected with and adapted to be rocked by the rock-shaft, a series of plates serving as electric contact-terminals, and a series of contact-closers at the end of the working beam adapted to make and break electric connections between the plates, substantially as and for the purpose specified.

6. The combination with an electric elevator of a rock-shaft controlled by the shifting cable, or its equivalent, a carrier movably mounted on a stationary bearing, a working beam pivotally mounted on the carrier, a crank-arm upon the rock-shaft, a second crank-arm extending from the working beam, a rocking connection between the crank-arms, a series of plates serving as contact-terminals for the electrical connections, a series of insulated contact-closers at each end of the working beam adapted to make or break electrical connections between two or more contact-terminals at the initial movement of the rock-shaft, and mechanism whereby the carrier engages with the crank-arm of the rock-shaft after the initial movement, and is moved thereby, substantially as and for the purpose specified.

7. The combination with an electric elevator of a rock-shaft controlled by the shifting cable, or its equivalent, a carrier movably mounted on a stationary bearing, a working beam pivotally mounted on the carrier, a crank-arm upon the rock shaft and a second crank-arm extending from the working beam, a rocking connection between the crank-arms, a series of plates serving as contact-terminals for the electrical connections, a series of insulated contact-closers at each end of the working beam adapted to make or break electrical connections between two or more contact-terminals at the initial movement of the rock shaft, mechanism whereby the carrier engages with the crank-arm of the rock-shaft after the initial movement and is moved thereby, and a connection between the shifting cable and the elevator-brake whereby the latter is actuated during the subsequent movement of the carrier, substantially as and for the purpose specified.

8. The combination with an electric elevator of a rock-shaft controlled by the shifting cable, or its equivalent, a carrier movably and adjustably mounted on a stationary bearing, a working beam pivotally mounted on the carrier, a crank-arm upon the rock-shaft, a second crank-arm extending from the working beam, a rocking connection between the crank-arms, a series of plates serving as contact-terminals for the electrical connections, a series of insulated contact-closers at each end of the working beam adapted to make or break electrical connections between two or more contact terminals at the initial movement of the rock-shaft, mechanism whereby the carrier engages with the crank-arm of the rock-shaft after the initial movement and is moved thereby, and a connection between the shifting cable and the elevator-brake whereby the latter is actuated during the subsequent movement of the carrier, substantially as and for the purpose specified.

9. The combination in an electric elevator of a rock-shaft controlled by the shifting cable, or its equivalent, a fixed insulating-bushing surrounding the rock-shaft, a series of plates adapted to serve as electrical contact-terminals mounted upon the bushing, a carriers movably mounted on the bushing, a working beam pivotally mounted on the carrier, one or more electrical contact-closers at each end of the working beam, a connection between the rock-shaft and the working beam whereby the latter may be rocked by the motion of the rock-shaft, thereby bringing one or more of the contact-closers into engagement with contact-terminals and the carrier during the rocking motion of the working beam, substantially as and for the purpose specified.

10. The combination in an electric elevator of a rock-shaft controlled by the shifting cable, or its equivalent, a fixed insulating-bushing surrounding the rock-shaft, a series of sector-formed plates adapted to serve as electrical contact-terminals mounted upon the bushing, a carrier movably mounted on the carrier, one or more electrical contact-closers at each end of the working beam, a connection between the rock-shaft and the working beam whereby the latter may be rocked by the motion of the rock-shaft thereby bringing one or more of the contact-closers into engagement with contact-terminals and the carrier during the rocking motion of the working beam, substantially as and for the purpose specified.

11. The combination with the shifting cable of the rock-shaft I; the insulating-bushing A', the plates A carried thereby, the carrier A^2 movably mounted on the bushing, the working beam A^3 pivotally mounted on the carrier and carrying contact-closers A^6, the crank-arm A^7 upon the rock-shaft, the crank-arm A^8 upon the working beam, the slot A^9 and pin A^{10}, substantially as and for the purpose specified.

12. In an electric elevator the combination of a motor, its field-coils provided with sectional short-circuiting terminals, a centrifugal governor actuated by the rotation of the armature-shaft and adapted to electrically connect the sectional short-circuiting terminals of the field-coils before and until the armature-shaft shall have attained its normal speed, and to electrically disconnect the same when the armature-shaft exceeds its normal speed, substantially as and for the purpose set forth.

13. In an electric elevator the combination of a motor having its field-coils provided with short-circuiting terminals, a governor actuated by the rotation of the armature-shaft, a lever actuated by the governor, and contact-plates actuated by the lever and adapted to electrically connect the sectional short-circuiting terminals of the field-coils before and until the armature-shaft has attained its normal speed, and to electrically disconnect the same when the armature-shaft exceeds the normal speed, substantially as and for the purpose set forth.

14. A field-magnet governor for electric elevators consisting of a shaft, a carrier mounted thereon, weights of sector form pivoted to the carrier, an end-thrust guided by the carrier, an equalizer thereon and a connection between the equalizer and each of the weights, substantially as and for the purpose specified.

15. A field-magnet governor for electric elevators consisting of a shaft, a carrier mounted thereon, weights of double-sector form pivoted to the carrier, an end-thrust guided by the carrier, an equalizer thereon and a connection between the equalizer and each of the weights, substantially as and for the purpose specified.

16. In an electric elevator, the field-magnet governor F, consisting of shaft f^2, the weights f pivotally mounted thereon, the end-thrust f^3, the equalizer f^4, the links f^5 and the springs f^6, or their equivalent, combined and arranged substantially as and for the purpose specified.

17. In an electric elevator, the combination with line circuit terminals, of an electric motor for driving the elevator cab or cage, said motor having its field-coils and armature-coils in series with each other, an adjustable rheostat, and circuit-controlling devices operable from the elevator-cage and adapted to connect the field coils and armature-coils in series with each other and to the line-circuit terminals and to cut out the rheostat, or to disconnect the field-coils and armature-coils from the line-circuit terminals and include said field-coils and armature-coils in series with each other and the rheostat in an independent circuit; substantially as and for the purpose set forth.

18. In an electric elevator, the combination with line circuit terminals, of an electric motor for driving the elevator cab or cage, said motor having terminals for its field coils, and separate terminals for its armature-coils, an adjustable rheostat and circuit-controlling devices operable from the elevator-cage and adapted to connect the field-coils and armature-coils in series with each other to the line-circuit terminals, and cut out the rheostat, or to disconnect the field-coils and armature-coils from the line-circuit terminals, reverse the direction of current-flow in the armature-coils and include said field-coils and armature coils in series with each other and with the adjustable rheostat in an independent circuit; substantially as and for the purpose set forth.

19. In an electric elevator, the combination with a series motor, of substantially non-retarding multiplying-rigging connecting said motor to the elevator-cab, whereby the load imposed upon the motor during ascent is substantially that of the cab and its contents only, and an electric switch adapted to disconnect the line-circuit and close an independent circuit including the armature in series with a field of variable magnetic strength, whereby the necessary retardation for the cab on its descent is furnished by converting the motor into a self-excited generator adapted to be driven by the descent of the elevator; substantially as and for the purpose set forth.

20 The combination with an electric elevator-cab, of an electric motor therefor, and non-retarding rigging between the cab and electric motor, said rigging being operated directly from the latter; substantially as and for the purpose set forth.

21. The combination in an electric elevator of an electric motor, an electric switch adapted to break the line-circuit and close a circuit, including the motor, thereby converting the motor into a dynamo, adapted to be driven by the movement of the elevator, with rigging adapted to multiply the power, substantially as and for the purpose set forth.

22. The combination in an electric elevator of an electric motor, an electric switch adapted to break the line-circuit and close a circuit, including the motor, thereby converting the motor into a dynamo, adapted to be driven by the movement of the elevator, with a hoisting-cable and a counterweight carried thereby, and arranged to travel relatively thereto, substantially as and for the purpose set forth.

23. The combination in an electric elevator of an electric motor, an electric switch adapted to break the line-circuit and close a circuit, including the motor, thereby converting the motor into a dynamo, adapted to be driven by the movement of the elevator with a hoisting-cable engaging with a sheave or other power-transmitting device on the motor-shaft, and taking under a sheave on the cab, and a counterweight carried by the cable and traveling relatively thereto, substantially as specified.

24. The combination in an electric elevator of an electric motor, an electric switch adapted to break the line-circuit and close a circuit, including the motor, thereby converting the motor into a dynamo, adapted to be driven by the movement of the elevator, with a motor-shaft, a sheave or other power-transmitting device thereon, one or more sheaves on the superstructure, a sheave on the cab, a hoisting-cable, and a counterweight carried by the cable and traveling relatively thereto, arranged and operating substantially as and for the purpose specified.

25. The combination in an electric elevator of an electric motor, an electric switch adapted to break the line-circuit and close a circuit, including the motor, thereby converting the motor into a dynamo, adapted to be driven by the movement of the elevator, with a sheave or other power-transmitting device, two or more sheaves on the cab, a counterweight provided with two or more sheaves and a hoisting-cable arranged to engage the transmitting device on the motor-shaft and to engage the sheaves on the cab and counterweight, substantially as and for the purpose specified.

26. The combination with an electric elevator of an electromagnetic circuit-breaker adapted to break the line-circuit when the supply of current exceeds the predetermined limit, a swinging lever adapted to reset the switch, a rock-shaft adapted to be actuated by the shifting cable or its equivalent, and a cam upon the rock-shaft adapted to actuate the swinging lever, substantially as and for the purpose specified.

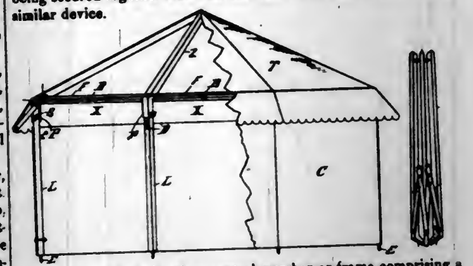
27. The combination with an electric elevator of an electromagnetic circuit-breaker consisting of a magnet in electrical connection with the line circuit, a contact-arm carried by the armature of the magnet, a second contact-arm electrically connected with the line-circuit and normally in contact with the arm carried by the armature, but adapted to be disengaged by the movement of the armature, a swinging lever adapted to engage with the second arm and restore it to its normal position, a rock-shaft adapted to be actuated by the shifting cable or its equivalent, and a cam on the rock-shaft adapted to actuate the swinging lever, substantially as and for the purpose specified.

28. The combination with an electric elevator of an electromagnetic circuit-breaker consisting of a magnet in electrical connection with the line-circuit, a contact-arm carried by the armature of the magnet, a second contact-arm electrically connected with the line-circuit and normally in contact with the arm carried by the armature, but adapted to be disengaged by the movement of the armature, a swinging lever adapted to engage with the second arm and restore it to its normal position, a rock-shaft adapted to be actuated by the shifting cable or its equivalent, a cam on the rock-shaft, and a cam actuated thereby adapted to actuate the swinging lever, substantially as and for the purpose specified.

595,875. TENT OR BOOTH. JUAN W. ERNERT, Los Angeles, Cal.
Filed Sept. 19, 1893. Serial No. 486,767. (No model.)

Claim.—1. In a tent or booth, a central member or frame comprising a series of rafters pivotally connected together at one of their ends, so that the ends impinge against and brace each other, and a series of braces or bars forming a circuit at the other end of the rafters, the end of said braces or bars being lapped upon the rafters, and attached thereto with pins or bolts, the braces being of a length to hold the rafters elevated at the center, thus forming a strong self-supporting frame.

2. In a tent or booth, a central member or frame comprising a series of rafters pivotally connected at one of their ends and adapted to fold upon themselves, a series of braces or bars in pairs pivotally attached at one of their ends to the outer ends of rafters the other ends being detachably attached to the next rafter when the frame is expanded, forming a complete circuit of the ends of the rafters and swinging up parallel with the rafters when folded, said braces or bars being secured together near one end thereof by a shoulder-rivet or similar device.



3. In a tent or booth, a central member or frame comprising a series of rafters pivotally connected at one of their ends so that they may bear against and brace each other and adapted to fold upon themselves, and a series of braces or bars which are provided with pieces of metal projecting at their ends, to lap upon the rafters, said braces being attached thereto with pins or bolts through their lapping ends to the rafters, and when expanded forming a circuit of braces and constituting a self-supporting frame, substantially as and for the purpose set forth.

4. In a tent or booth, a central member or frame comprising a series of rafters pivotally connected at one of their ends and adapted to be held rigid at the apex thereof by bracing against each other when extended, a series of metal angle-braces and sockets attached at the other end thereof, and a series of braces forming a circuit at the outer end of the rafters when expanded, the ends of said braces or bars being lapped upon the rafters and attached thereto with pins or bolts, the braces being of a suitable length to hold the rafters elevated at the center, and said angular braces also being suitably braced thus forming a frame that is self-supporting, substantially as and for the purpose set forth.

5. In a tent or booth, a central member or frame comprising a series of rafters pivotally connected at one of their ends and adapted to fold upon themselves, and when expanded to rise to an apex in their center, a series of suitable braces the ends of which lap upon the rafters and are attached thereto with pins or bolts, said braces connecting the rafters and forming a circuit near the outer ends thereof and attached to the outer end of each rafter is a metal angle-brace, provided with sockets and a series of legs removably attached to said sockets, substantially as and for the purpose set forth.

6. A tent or booth comprising the combination of a suitable skeleton frame of rigid material with a side covering of flexible material extending almost to the eaves and a flexible top covering extending over the eaves to connect with the said side covering to inclose the tent, and provided with strips of rigid material each of which is provided at one end thereof with a small hole or opening by which it is secured to the outer edge of said top, the opposite end being provided with a slot in the end thereof and a keyhole adjacent thereto, said slot and keyhole being adapted to engage the shanks of screws or bolts which are partially inserted in said rafters adjacent to the outer ends thereof whereby the outer edge of the top covering may be held out to provide means for ventilating and lighting the interior and for a better exterior appearance.

7. In a tent or booth, a central member or frame comprising a series of rafters pivotally connected at one of their ends and adapted to fold upon themselves, and when expanded to rise to an apex in their center, the outer ends of said rafters being provided with a series of suitable braces the ends of which lap upon the rafters and are attached thereto with pins or bolts, said braces connecting the rafters and forming a circuit, and a series of metal braces angling near the center of their length and rectangular in transverse section, one end of which is provided with threaded bolts for removably attaching a series of legs and to rigidly hold them to the rafters, substantially as and for the purpose set forth.

8 The combination in a tent or booth, of the central member or frame comprising a series of rafters pivotally connected at one of their ends, to fold upon themselves, and when extended to rise to an apex at the pivotal connection, the outer ends of said rafters being provided with metal braces with sockets angular in cross-section, a series of braces or bars connecting the free ends of the rafters and forming a circuit and a series of legs adapted to engage with sockets and to support the frame.

9. In a tent or booth, the combination of a series of rafters pivotally connected at one of their ends to fold upon themselves and a series of metal braces with sockets which are angular in cross-section, said braces being bent centrally to form an obtuse angle and each being provided with a threaded bolt or thumb-screw to removably attach one end with a suitable leg, the other end being attached to the outer end of one of said rafters.

10. The combination in a tent or booth of a series of rafters upon the outer ends of which are secured metal angle-braces with sockets provided with screw-threaded bolts, the other ends of said rafters being pivotally connected with a central ring and adapted to fold upon themselves, a series of legs adapted to enter said sockets, and a number of panels or sections of rigid material extending from one leg to the next, and being detachably secured thereto, substantially as and for the purpose set forth.

11. A tent or booth comprising the combination of a series of rafters pivotally connected at one of their ends, a series of legs adapted to support said rafters, a series of metal angle-braces with angular sockets adapted to detachably unite said legs and rafters, and a series of bars or long braces adapted to grip the outer end of rafters between the ends of braces, substantially as and for the purpose set forth.

12. A tent or booth comprising the combination of a series of rafters pivotally connected at one of their ends and a hole through their other ends, of a series of braces connecting said rafters, a series of metal keys consisting of a rod with a handle formed at one end thereof and a shoulder adjacent to said handle, the other end being provided with a lug or projection, and a washer having a circular inclined plane adjacent to an opening formed therein, to impinge the end of braces against the rafters by the operation of said key upon the circular inclined plane.

13. In a tent or booth, a flexible top covering and thin strips or bars of rigid material provided with attaching-holes whereby one end of said bar may be attached to the top covering of the tent or booth, and the other end being provided with a slot in the end thereof and a keyhole adjacent thereto, said slot and keyhole being adapted to engage the shanks of screws or bolts suitably mounted on the central member, whereby means is provided to hold the flexible top cover extended at its edge.

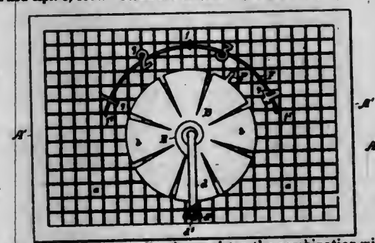
14. In a tent or booth, a series of suitable legs and a side covering of flexible material, extending nearly to the eaves, and which is provided with eyelets at the lower edge thereof and with rings, loops or holes at the upper edge; said legs having a pin or projection at their lower ends adapted to engage the eyelets attached to the lower edge of the side covering, and having a strap, rope or thong attached near the upper ends of legs to engage the rings, loops or holes near the upper edge of side covering, substantially as and for the purpose set forth.

15. In a tent or booth, an angular brace the same being provided with a leg socket and a rafter-socket, said sockets being rectangular in transverse section, the rafter-socket being adapted to be secured to a rafter by screws or bolts, and the leg-socket being adapted to be secured to a leg by a thumb-screw, substantially as and for the purpose described.

16 In a tent or booth, folded braces pivoted to suitable rafters near their outer ends and extending successively from one rafter to the next, and folding between the rafters when packed for shipping but when extended for use holding the rafters rigidly fixed and bracing against each other, substantially as and for the purpose set forth.

17. In a tent or booth, a flexible top covering and thin strips or bars of rigid material provided with attaching-holes whereby one end of said bar may be attached to the top covering of the tent or booth and the other end provided with suitable means for detachably attaching it to the frame of the tent to hold the flexible top covering to the frame and extend it beyond the sides of the tent.

595,876. SELF-INDICATING REGISTER. GEORGE E. GAY, Malden, Mass., assignor of one-half to Albert B. Franklin, Melrose, Mass.
Filed Apr. 5, 1897. Serial No. 630,690. (No model.)



Claim.—1. In a self-indicating register, the combination with the frame adapted to be attached to an air-supply register, of a shaft journaled in said frame, the wind-wheel mounted on said shaft and formed with obliquely-bent vanes, the pointer fixed upon said shaft, figures in the field of said pointer arranged to indicate the number of individuals for whom the register is to furnish fresh air, and a spring connected to said shaft and frame and adapted to hold said shaft and wind-wheel against the pressure of the inflowing air, substantially as and for the purpose set forth.

2. The combination with an air-supply register, of a series of figures indicating different numbers of individuals who may occupy the room to which the register supplies air, a pointer movable in the field of said figures, and an actuating device for said pointer adapted to be operated by the pressure of the inflowing air and to bring said pointer to that particular figure which indicates the number of individuals for whom the register is at that instant supplying the proper quantity of air, substantially as and for the purpose set forth.

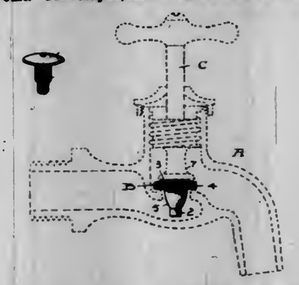
3. In a self-indicating register, the combination of the bifurcated frame, D, having finger, d^3, and ear, d^2, the bolt, d^5 and cross-bar, d^4, the shaft, C, revolubly mounted in said frame, and the wind-wheel fixed upon said shaft, substantially as and for the purpose set forth.

4. In a self-indicating register, the combination with the pointer, of the wire, F, secured to the register-netting, and the figures, g, having catches, g', substantially as and for the purpose set forth.

5. In a self-indicating register, the combination of the pointer, the air-actuated wheel carrying the same, and the dial having figures adjustably mounted thereon, substantially as and for the purpose set forth.

6. In a self-indicating register, the combination of the pointer and air-actuated wheel carrying the same, the wire, F, having recurved fingers, f^2, and the latch, f, for attaching said wire to the register-netting, and the figures mounted on said wire, as and for the purpose set forth.

595,877. VALVE FOR FAUCETS, &c. JOSEPH H. GLAUBER, Cleveland, Ohio.
Filed May 22, 1897. Serial No. 637,679. (No model.)



Claim.—1. As a new article of manufacture, a valve for faucets consisting of a short central stem and a head integral therewith highest at its center and having a substantially flat under surface, a flexible seat for the valve next beneath said head and a tapered guide bearing against said seat and extending substantially to the lower end of the stem, substantially as described.

2 A valve for faucets consisting of a short central stem having a head integral therewith highest at its center and substantially flat on its under surface, a flexible seating portion next beneath said head and a tapered guide next beneath said seating portion and extending substantially to the lower end of the said stem, in combination with a faucet in which said valve is secured, and a stem arranged to bear on said valve, substantially as described.

595,878. NAILING-MACHINE. WILLIAM GODDU, Winchester, Mass.
Filed Aug. 5, 1897. Serial No. 647,168. (No model.)



Claim.—1. In a nailing-machine, the combination with a body portion provided with a driver-passage and with a nail-delivering passage communicating with said driver passage, of a movable head carrying a nail-receptacle, a roadway, a separator, and a driver, and a cam on said body portion to operate said separator, substantially as described.

2. In a nailing-machine, the combination with a movable driver, of a receptacle for loose nails movable therewith, and provided with a roadway having a slot for the passage of the said loose nails out of said receptacle, and a separator cooperating with said roadway, substantially as described.

3. In a nailing-machine, the combination with a body portion provided with a driver-passage and with a nail-delivering passage communicating with said driver-passage, of a movable head carrying a nail-receptacle provided with a roadway having a slot for the passage of the nails adapted to communicate with the nail-delivering passage in the said body portion, means to transfer the nails from the roadway into said delivering-slot, and a driver movable with said head, substantially as described.

4. In a nailing-machine, the combination with a driver, of a nail-receptacle movable therewith to agitate the nails therein, and a roadway extended into said receptacle to receive the agitated nails, substantially as described.

5. In a nailing-machine, the combination with a driver, a nail-receptacle movable therewith to agitate the nails therein, a roadway exteuded into said receptacle to receive the agitated nails, and a separator movable with the driver and coöperating with said roadway, of a body portion provided with a passage into which said nails are transferred by said separator, and a cam attached to said body portion to operate said separator, substantially as described.

6. In a nailing-machine, the combination with a body portion provided with a driver-passage and with a nail-delivering passage communicating with said driver-passage, of a head movable toward and from said body portion and provided with a driver-bar, a driver attached thereto, a roadway carried by said head and adapted to communicate with the nail-delivering passage in said body portion, a separator carried by said head and coöperating with said roadway, and a cam attached to the body portion to operate said separator, substantially as described.

7. In a nailing-machine, the combination with a movable driver, of a roadway movable therewith, a separator coöperating with said roadway, a body portion in which said driver is movable, a cam attached to said body portion to operate said separator to close the said roadway when the driver is moved in one direction and means independent of the separator, to close said roadway when the driver is moved in the opposite direction, substantially as described.

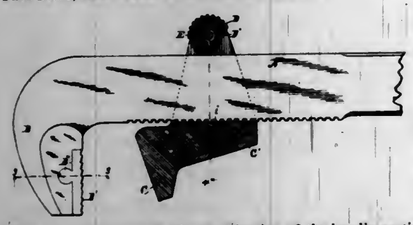
8. In a nailing-machine, the combination with a body portion provided with a nose having a passage for the reception of the naile to be driven, of a driver movable in said passage, a driver-bar, a roadway movable with said driver-bar and having a slot for the passage of the said nails, a separator coöperating with said roadway, means to operate said separator to remove a nail from the slotted roadway, and a passage to convey the separated nail into the passage in the nose, substantially as described.

9. In a nailing-machine, the combination of the following instrumentalities, viz: a reciprocating driver, a slotted roadway movable therewith and located above said driver, a separator coöperating with said roadway, a nose having a passage for the said driver, means to connect the slot in the roadway above the driver with the driver-passage in said nose, and means to operate said separator, substantially as described.

10. In a nailing-machine, the combination of the following instrumentalities, viz: a reciprocating driver, a roadway movable therewith and located above said driver, a separator coöperating with said roadway, a nose having a passage for the said driver, means to connect the roadway above the driver with the driver-passage in said nose, means to operate said separator, and means to close the driver-passage, substantially as described.

11. In a nailing-machine, the combination with a body portion provided with a nose having a driver-passage, of a reciprocating driver-bar provided with a driver movable in the passage in the said nose, a nail-receptacle movable with the driver-bar, a nail-delivering passage to connect the nail-receptacle with the driver-passage in the nose, and means to transfer the nails from the said receptacle to said nail-delivering passage, substantially as described.

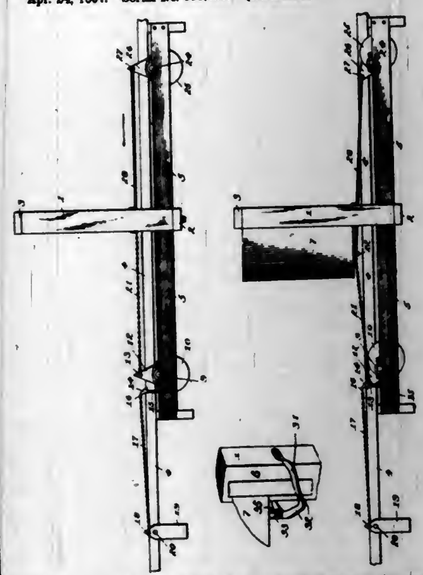
595,879. PIPE-WRENCH. GEORGE L. IVES, Kalamazoo, Mich. Filed Dec. 5, 1895. Serial No. 571,120. (No model.)



Claim.—1. In a wrench, the combination of the handle portion A, with a jaw B, at its outer end; a tooth-piece B', with a cylindrical rib B" on its back, inserted in a corresponding groove in jaw B; a movable jaw C, with teeth on the shank thereof, to engage corresponding teeth on the handle A, a band C', around the shank of said jaw, extending by each side of the handle; a pivot through the projecting portions, joining them together back of the handle; a lock D, substantially cylindrical in form on said pivot, with flattened portions toward the handle adjacent to each other and at different radial distances from the pivot; a sprnig D' on the pivot to throw the lock so that the flattened surface farthest from the center, shall strike the handle and lock the jaw, and so arranged that the lock can be turned against the spring onto the other flattened surface, and release the jaw of the wrench as specified.

2. In a wrench, the combination of the handle portion with a jaw at its outer end: a movable jaw with teeth to engage corresponding teeth on the handle, and having portions secured thereto, extending by each side of the handle; a lock substantially cylindrical in form, with flattened portions toward the handle, adjacent to each other at different radial distances from the center, the said lock being pivoted between the projecting portions back of the handle, so that the flattened surfaces are toward the handle; a spring to throw the lock so that the flattened surface farthest from the center shall strike the handle and lock the jaw, and so that the lock can be turned against the spring onto the other flattened surface and release the jaw as specified.

595,880. MINE-GATE. GEORGE G. LEWIS, Athens, Ohio. Filed Apr. 24, 1897. Serial No. 633,739. (No model.)



Claim.—1. An automatic gate, arranged transversely across a railway-track, an operating-arm pivoted in the path of the car traveling on said track, and in operative connection with said gate, a stud fixed on said arm, and a detent arranged in the path of said stud and adapted to engage said stud and lock the gate in an open position, substantially as shown and described.

2. An automatic gate, arranged transversely across a railway-track, an operating-arm pivoted in the path of the car and in operative connection with said gate, a retaining-stud fixed on said arm, a detent arranged in the path of said stud, a trip-lever projecting into the path of the car and in operative connection with said detent and adapted to release said retaining-stud by the movement of a passing car, substantially as shown and described.

3. The combination with the horizontal gate-panels, the weighted disks fixed on an oscillating shaft and provided with integral arms in operative connection with said gate panels and with each other, and the retaining-stud fixed on one of said integral arms, of the detent arranged in the path of said retaining-stud and adapted to engage the same and secure the gate-panels in an open position subtantially as shown and described.

4. The railway-track, the pivoted gate-panels, extending across said track, the fixed side bars 5 5, extending parallel with said track, the rectangular shafts 8, and 23, journaled in said bars, the weighted disks 10 10' and 25 25' eccentrically fixed on said shafts, and connected by the parallel rods 29 30, integral arms 12 and 26 fixed on said disks and projecting above said track into the path of the car-wheels and in operative connection with said gate-panels, a lateral retaining-stud 13 fixed on the arm of the disk 10, the spring-arm 15 having an integral detent 14 projecting into the path of said stud 13, and the weighted trip-lever 19 projectiog into the path of the car-wheels and in operative connection with said spriog-arm 15, substantially as shown and described.

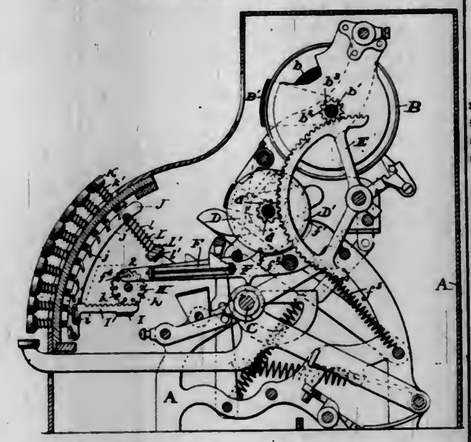
595,881. REIN-HOLDER. LUTE L. LEWIS and SAMUEL WILLIAMS, Bucklin, Mo. Filed Apr. 15, 1897. Serial No. 632,244. (No model.)



Claim.—1. In an attachment for harness, the combination with a hook, of a split ring or sectional loop located in the rear thereof and comprising a stationary member, a pivoted member adapted to swing away from the stationary member and having a free end which is extended above the adjoining end of said stationary member, and a spring for normally closing the pivoted member upon the stationary member, substantially as shown and described.

2. In an attachment for harness, the combination of a hook having a slot therein, and a spring-actuated angle-piece pivoted to the shank and adapted to close the said hook, together with a split ring or sectional loop comprising a stationary member and a pivoted member, the latter being spring-actnated to close upon the stationary member, substantially as shown, and for the purpose set forth.

595,882. CASH-REGISTER. ALVAN MACAULEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed May 7, 1897. Serial No. 635,481. (No model.)



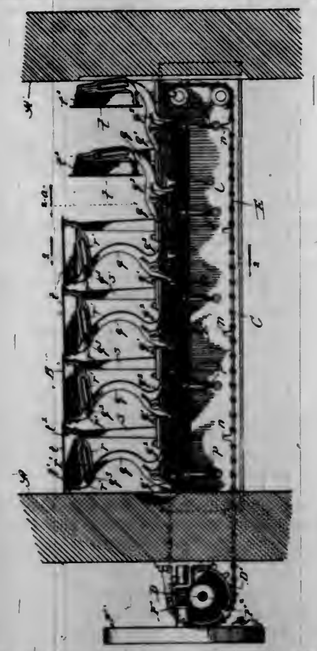
Claim.—1. In a device of the class described the combination with the key-lever, of a gear arranged to vibrate the key-lever, a reciprocating rack normally in engagement with and arranged to drive the gear, a pivoted spring-pressed key-bar to which the rack is connected at one end, and a series of keys coöperating with the key-bar substantially as described.

2. In a device of the class described the combination with the pivoted key-lever, of the gear arranged when turned to vibrate the key-lever, the rack arranged to drive the gear, the spring-pressed key-bar having a slotted connection with the rack, and a series of keys coöperating with the key-bar substantially as described.

595,883. DUMPING MALT-FLOOR. CHRISTIAN MACHER, HERMAN W. KUKEL, and OTTO MEINHAUSEN, Chicago, Ill. Filed May 12, 1897. Serial No. 636,217. (No model.)

Claim.—1. In a malt-floor, the combination of floor-sections, stationary supports upon which said sections are pivotally mounted, movable props for maintaining the floor-sections in a substantially horizontal plane, and mechanism for upsetting the props to permit dumping of the sections, substantially as and for the purpose set forth.

2. In a malt-floor, the combination of floor-sections, stationary supports upon which said sections are pivotally mounted, movable props for maintaining the floor-sections in a substantially horizontal plane, and mechanism for flexing and extending the props to dump and right the floor-sections, substantially as and for the purpose set forth.



3. In a malt-floor, the combination of pivotally-supported floor-sections, movable props for maintaining the floor-sections in a substantially horizontal plane and traveling dumping and righting mechanism for the sections operating to engage the sections consecutively, substantially as and for the purpose set forth.

4. In a malt-floor, the combination of upsetting floor-sections, supports upon which the said sections are pivotally mounted toward one side, movable props for the opposite sides of said sections, and means for upsetting the movable props, comprising traveling support-engaging shoulders, substantially as and for the purpose set forth.

5. In a malt-floor, the combination of floor-sections, supports upon which said sections are pivotally mounted toward one side, guides upon the under sides of the sections, pivotal props for the swinging edges of said sections movable in the guides, and means for engaging and upsetting said pivotal props, substantially as and for the purpose set forth.

6. In a malt-floor, the combination of upsetting floor-sections, stationary supports upon which the floor-sections are pivotally mounted, pivotal props for the floor-sections, cams upon the props, a traveling carrier, and a cam-engaging shoulder on the carrier, whereby in the movement of the carrier the shoulder acts to engage and move a prop, substantially as and for the purpose set forth.

7. In a malt-floor, the combination of upsetting floor-sections, supports upon which the sections are pivotally mounted, pivotal props for the said sections having downward-extending cams, a carrier-chain extending below said floor-sections, a cam-engaging shoulder upon the chain, and means for moving the chain, substantially as and for the purpose set forth.

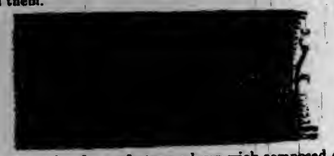
8. In a malt-house having side walls, the combination of beams extending between the walls, stationary supports upon the beams, upsetting floor-sections pivotally mounted toward one edge upon said supports, guides on the under sides of the floor-sections, props pivotally mounted toward their lower ends upon said beams and movable at their upper ends in said guides, traveling carriers movable along the beams, shoulders upon the carriers, cams on the props in paths of the shoulders, and propelling means for the carrier beyond one of said side walls, the whole being constructed to operate substantially as and for the purpose set forth.

595,884. LAMP-WICK. CHARLES L. MARSHALL, Cedar Grove, N. J. Filed Apr. 3, 1897. Serial No. 630,584. (No specimens.)

Claim.—1. As an article of manufacture, a lamp-wick composed of two sets of fibers, one set weakened by distillation and carbonization, and the other set not susceptible to such weakening.

2. As an article of manufacture, a lamp-wick having one set of

fibers weakened by the abstraction of oleaginous and gummy matters and another set of fibers interwoven with said weakened fibers to strengthen them.



3. As an article of manufacture, a lamp-wick composed of interwoven carbonized and asbestos fibers.

4. As an article of manufacture, a lamp-wick having a warp and weft of carbonized fibers and asbestos fibers twisted about the strands of said weft.

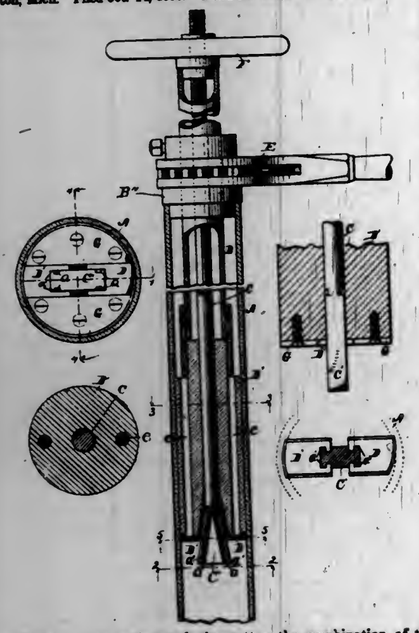
5. As an article of manufacture, a lamp-wick composed of a warp and weft of carbonized fibers, and asbestos fibers twisted about the strands of said warp and weft.

6. The method of manufacturing lamp-wicks which consists in subjecting a wick composed of two sets of fibers, one of a refractory material and the other of a non-refractory material, to a weakening ameliorative process which acts on one of said sets of fibers and does not affect the other.

7. The method of manufacturing lamp-wicks which consists in subjecting a wick composed of two sets of fibers, one of a refractory material and the other of a non-refractory material, to a heating process which acts on one of said sets of fibers and does not affect the other.

8. The method of manufacturing lamp-wicks which consists in subjecting a wick composed of two sets of fibers, one of a refractory material and the other of a non-refractory material, to a carbonization process which acts on one of said sets of fibers and does not affect the other.

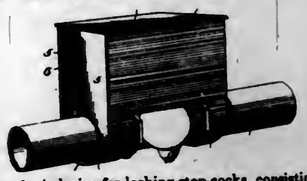
595,885. INTERNAL PIPE-CUTTER. CHARLES W. MORLEY, Lawton, Mich. Filed Oct. 14, 1896. Serial No. 608,874. (No model.)



Claim.—1. In an internal pipe-cutter, the combination of the cylindrical block B', guide plate or blade D', and cutting plate or blade D, supported by suitable guide-plates G, G, at the bottom of said cylinder B', the said cylinder containing oil-holes *e*, *e*, therethrough, extending out over the blades to the edge thereof; a suitable pipe B, attached to said block B', and extending to the end of the pipe; a collar B'', on the end of the pipe B, to rest against the end of the pipe to be cut; a wedge-shaped block C', pointing upwardly into the bottom of the cylindrical block B', having dovetails or ridges *a*, *a*, which engage in corresponding slots on the inner ends of the blades D, D'; a rod C, secured to wedge-shaped piece C', and extending upwardly through the pipe B, and terminating in a screw at the top; and a hand-wheel F, screw-threaded to fit against the top or outer end of the pipe B, all coacting together substantially as described for the purpose specified.

2. In an internal pipe-cutter, the combination of a cylindrical block B', adapted to fit within a pipe; having suitable guideways on its lower end to receive the cutter-blades and having oil-receptacles formed within it with grooves leading along the guideways for the cutter-blades; cutter and guide blades within the guideways at the bottom of said block so positioned that the oil from the receptacles in the block can pass out upon the same to lubricate them for the purpose specified.

595,886. LOCK FOR STOP-COCKS. ROBERT B. MULLEN, Tacoma, Wash., assignor of one-third to F. T. Crowe, same place. Filed Apr. 13, 1897. Serial No. 631,903. (No model.)



Claim.—1. A device for locking stop-cocks, consisting of a casing comprising opposing sections pivotally connected and adapted to embrace a stop-cock, and a wedge removably inserted between said sections, substantially as and for the purpose specified.

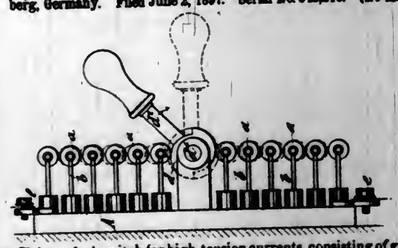
2. A device for locking stop-cocks, consisting of a box comprising opposing sections pivotally connected for adapting said sections to embrace a stop-cock, a wedge for insertion between the sections of the box, and means for retaining said wedge in place.

3. A device for locking stop-cocks, consisting of a sectional and folding box adapted to embrace a stop-cock, a wedge fitted movably between the sections of the box, and means for locking said wedge in place, substantially as described.

4. A device for locking stop-cocks, consisting of a box embodying pivoted sections, said sections being provided with hooks for engaging around a service-pipe adjacent to a stop-cock, and a wedge carrying locking mechanism and adapted to be removably inserted between the sections of the box, substantially as described.

5. A device for locking stop-cocks, consisting of a box comprising opposing sections pivotally connected together and adapted to be placed over a stop-cock, said locking-case being provided with an interiorly-arranged socket, a lock-case of wedge shape adapted for insertion between the sections of the box, and a bolt mounted in said lock-case and adapted to engage the socket in the box, substantially as described.

595,887. HIGH-TENSION SWITCH. HERMANN MÜLLER, Nuremberg, Germany. Filed June 2, 1897. Serial No. 642,216. (No model.)



Claim.—1. A switch for high-tension currents, consisting of groups of contact-rollers made from easily-oxidizable non-arcing metal, said groups of rollers being mounted on spring-arms, each roller being normally out of contact with the others, and means for forcing the rollers into contact with each other, while simultaneously a turning motion is imparted to the same, substantially as set forth.

2. A switch for high-tension currents, formed of a group of contact-rollers made of easily-oxidizable non-arcing metal, said rollers being mounted on spring-arms and normally out of contact with each other, intermediate eccentric cams operated by a hand-lever and adapted to place the contact-rollers of each group in contact with each other, substantially as set forth.

595,888. CAR-AXLE BOX. WILLIAM A. PALMER, Mobile, Ala. Filed Sept. 1, 1897. Serial No. 650,274. (No model.)

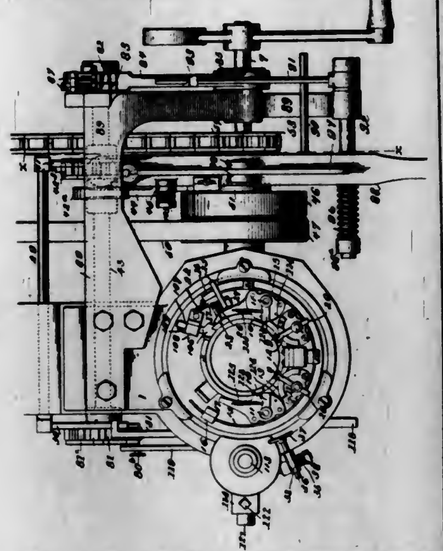
Claim.—1. In a device of the class described, the combination with an axle-box, and a journal, of a removable and reversible stop-bar interlocked with the axle-box and extending across the end of the journal, and a bearing-sleeve detachably arranged on the stop-bar and adapted to be rotated to bring its faces successively opposite the end of the journal, substantially as described.



2. In a device of the class described, the combination with an axle-box, and a journal having a central indentation in its end, of a stop-bar extending across the end of the journal and carrying a bearing-face disposed opposite the axle, said bearing-face being provided with a central opening registering with the central indentation of the journal, whereby the formation of a bur or projection on the bearing-face is prevented and an oil-hole provided, substantially as described.

3. In a device of the class described, the combination with an axle-box, and a journal, of a stop-bar extending across the end of the journal and interlocked with the sides of the axle-box, said stop-bar being removable and reversible, a polygonal sleeve removably arranged on the stop-bar and adapted to be partially rotated to bring its various faces successively opposite the journal, said sleeve being provided with holes arranged centrally of its faces, substantially as and for the purpose described.

595,889. CIRCULAR-KNITTING MACHINE. JOHN R. PAXTON and ELLIS I. O'NEILL, Philadelphia, Pa. Filed Oct. 15, 1896. Serial No. 565,783. (No model.)



Claim.—1. The combination, with a cam-carrier, its knitting-cams, a needle-picker, and means tending to maintain said picker normally in action, of a slide provided with a recessed or cam surface so constructed as to engage the picker and maintain it out of action, when in one position, and, when in another position, to release the picker and permit it to return to action, substantially as described.

2. The combination, with a cam-carrier, its knitting-cams, a needle-picker, and means tending to maintain said picker normally in action, of a slide provided with a recessed or cam surface so constructed as to engage the picker and maintain it out of action, when in one position, and, when in another position, to release the picker and permit it to return to action, means tending to maintain said slide normally in one position, substantially as described.

3. The combination, with a cam-carrier, its knitting-cams, a needle-picker, and means tending to maintain said picker normally in action, of a slide provided with a recessed or cam surface so constructed as to engage the picker and maintain it out of action, when in one position, and, when in another position, to release the picker and permit it to return to action, means tending to maintain said slide normally in one position, means to lock the slide temporarily in the other position, substantially as described.

4. The combination, with a cam-carrier, its knitting-cams, a needle-picker, and means tending to maintain said picker normally in action, of a slide provided with a recessed or cam surface so constructed as to engage the picker and maintain it out of action, when in one position, and, when in another position, to release the picker and permit it to return to action, means tending to maintain said slide normally in one position, means to lock the slide temporarily in the other position, and means for automatically unlocking the slide, substantially as described.

5. The combination, with a cam-carrier, its knitting-cams, a set of needle-lifters, a set of needle-depressors, and means tending to maintain said lifters and depressors normally in action, of a slide provided with recessed or cam surfaces so constructed that in one position the slide engages the lifters holding them inactive while the depressors are active, and in another position it engages the depressors holding them inactive while the lifters are active, substantially as described.

6. The combination, with a cam-carrier, its knitting-cams, a set of needle-lifters, a set of needle-depressors, and means tending to maintain said lifters and depressors normally in action, of a slide operatively connected with said lifters and depressors and provided in its upper edge at points adjacent to the respective lifters, with V-shaped recesses, and, in its lower edge, adjacent to the respective depressors, with step-like recesses composed each of two portions on different horizontal planes, substantially as described.

7. The combination, with a cam-carrier, its knitting-cams, a set of needle-lifters, a set of needle-depressors, and means tending to maintain said lifters and depressors normally in action, of a device for controlling the idle or active positions of said lifters and depressors at predetermined intervals, a spring to maintain said device in one position, a vibratory latch-arm supported in proximity to said device and adapted to engage it and lock it in another position, and automatic mechanism for disengaging said arm, substantially as described.

8. The combination, with a cam-carrier, its knitting-cams, a set of needle-lifters, a set of needle-depressors, and means tending to maintain said lifters and depressors normally in action, of a device to cause and maintain the active or inactive positions of said lifters or depressors at predetermined intervals, means to maintain said device in one position, a latch-arm supported in proximity to said device and adapted to engage it and lock it in another position, a vibratory lever, a head thereon movable into and out of the path of said latch-arm, a pattern mechanism, and operative connections intermediate said mechanism and lever, substantially as described.

9. In a circular-knitting machine, the combination, with the cam-cylinder, its knitting-cams, and the needle-cylinder, of a shaft geared with said cam-cylinder, continuously-operating mechanism for driving said shaft, means for throwing said mechanism into and out of gear with the shaft, a sprocket-wheel loosely mounted on said shaft, a second shaft, a sprocket-wheel thereon, a chain connecting said wheels, means for continuously reciprocating the sprocket-wheel on said second shaft, and means for operatively connecting the sprocket-wheel first named with its shaft, substantially as described.

10. In a circular-knitting machine, the combination, with the cam-cylinder, its knitting-cams, and the needle-cylinder, of a shaft geared with said cam-cylinder, continuously-operating mechanism for driving said shaft, a pattern-chain, its supporting and operating parts, means actuated by the chain at predetermined intervals to effect the disengagement of said mechanism from the shaft, a sprocket-wheel loosely mounted on said shaft, means whereby it may be operatively engaged therewith, a second shaft, a sprocket-wheel thereon, a chain connecting the sprocket-wheels, and means for continuously reciprocating the sprocket-wheel on said second shaft, substantially as described.

11. In a circular-knitting machine, the combination, with the cam-cylinder, its knitting-cams, and the needle-cylinder, of a shaft geared with said cam-cylinder, fast and loose pulleys on said shaft, a continuously-driven belt, means for driving the same, means for automatically transferring said belt from the fast to the loose pulley at predetermined intervals, a sprocket-wheel loosely mounted on said shaft, means for engaging it with the fast pulley when the belt is on the loose pulley, a second shaft, a sprocket-wheel thereon, a chain connecting the sprocket-wheels, and means for continuously reciprocating the sprocket-wheel on said second shaft, substantially as described.

12. In a circular-knitting machine, the combination, with the cam-cylinder, its knitting-cams, and the needle-cylinder, of a shaft geared with said cam-cylinder, fast and loose pulleys on said shaft, a

continuously-driven belt, means for driving the same, a belt-shipper frame, a spring tending to maintain the same normally adjacent to the loose pulley, a latch-arm constructed and arranged to maintain said frame adjacent to the fast pulley, a reciprocable pin engaged with the arm and adapted to operate the same, a lever in proximity to said pin, and pattern mechanism adapted to actuate said lever at predetermined intervals, substantially as described.

13. In a circular-knitting machine, the combination, with the cam-cylinder, its knitting-cams, and the needle-cylinder, of a shaft geared with said cam-cylinder, fast and loose pulleys on said shaft, a continuously-driven belt, means for driving the same, a belt-shipper frame, a spring tending to maintain the same normally adjacent to the loose pulley, a slotted latch-arm pivotally connected with said frame, means engaged by said arm to maintain the frame adjacent to the fast pulley, a vertically-reciprocable pin extending through the slot in, and engaging with, said arm, and means for depressing the pin, substantially as described.

14. In a circular-knitting machine, the combination, with its driving-shaft, of mechanism for imparting thereto continuous rotary motion, means for maintaining said mechanism normally inactive, devices to maintain said mechanism temporarily in action to effect the continuous rotary movement of said shaft, a second shaft, pattern mechanism thereon, operative connections intermediate the same and said devices, a ratchet-wheel on said second shaft, a pawl to coact with said wheel, means for reciprocating the pawl, mechanism for imparting to the driving-shaft reciprocating rotary motion when the first-named mechanism is inactive, a device for throwing the reciprocating mechanism into action, and means on said device for thereupon moving the pawl out of action, substantially as described.

15. In a circular-knitting machine, the combination, with its driving-shaft, of mechanism for imparting thereto continuous rotary motion, automatic shifting means for rendering said mechanism inactive at certain times, a second shaft, a pattern device thereon, operative connections between said device and the shifting means, a ratchet-wheel on said latter shaft, a pawl to coact with said wheel, means for reciprocating the pawl, mechanism for imparting to the driving-shaft reciprocating rotary motion when the mechanism first named is inactive, a device for throwing the reciprocating mechanism into action, and means on said device for thereupon moving the pawl out of action, substantially as described.

16. In a circular knitting machine provided with narrowing and widening mechanism, the combination, with the driving-shaft, of mechanism for imparting thereto continuous rotary motion, and means for rendering said mechanism inactive at certain times, mechanism for imparting to the driving-shaft reciprocating rotary motion when the first-named mechanism is inactive, a device for throwing the reciprocating mechanism into action, a second shaft, pattern mechanism thereon for controlling said narrowing and widening mechanism, a ratchet-wheel on said shaft, a pawl to coact with said ratchet-wheel, means for reciprocating said pawl, and means on said device for throwing the pawl into and out of action, substantially as described.

17. In a circular-knitting machine provided with narrowing and widening mechanism, the combination, with the driving-shaft, of mechanism for imparting thereto continuous rotary motion, means for rendering said mechanism inactive at certain times, mechanism for imparting to the driving shaft reciprocating rotary motion when the first-named mechanism is inactive, a lever for throwing the reciprocating mechanism into action, a second shaft, pattern mechanism thereon for automatically controlling said narrowing and widening mechanism, a ratchet-wheel on said shaft, a pawl to coact with said wheel, means for reciprocating the pawl, and a latch-arm on said lever adapted to support the pawl and move it out of and into action, substantially as described.

18. In a circular knitting machine, provided with narrowing and widening mechanism, the combination, with the driving-shaft, of mechanism for imparting thereto continuous rotary motion, means for rendering said mechanism inactive at certain times, mechanism for imparting to the driving-shaft reciprocating rotary motion when the first-named mechanism is inactive, a hand-lever for throwing the reciprocating mechanism into action, a spring tending to maintain said lever in a normal position, a latch-lever mounted on the hand-lever, provisions whereby said latch-lever holds the hand-lever in opposition to the spring, a vibratory arm depending from said latch-lever, a pawl on said arm, means for actuating the arm, a second shaft, a pattern-chain thereon for controlling the said narrowing and widening mechanism, and a ratchet-wheel on said shaft adapted to be operated by the pawl, substantially as described.

19. The combination, with a cam-carrier and its cams, of a diagonally-disposed needle-deflecting cam movable into and from the interior of the carrier, and means tending to maintain said cam normally retracted, the acting edge of said cam being so inclined in respect to its path of movement that when it is moved into the carrier the cam will engage the needle-heels in its path and be locked temporarily in action thereby, substantially as described.

20. The combination, with a cam-cylinder and its cams, of a diagonally-disposed needle-deflecting cam movable into and from the interior of the cylinder in a path eccentric to the axis of said cylinder, the forward or acting edge of the cam being beveled radially in relation to the latter, and a spring tending to maintain said cam normally retracted, substantially as described.

21. The combination, with a cam-cylinder, its cams, a needle-cylinder and its needles, of an eccentric head, means for supporting the same, means operatively connecting said head with the needle-cylinder, a lever connected with said head, one arm of which lever constitutes a handle, a pattern mechanism for actuating the other arm of the lever, and adjustable means for limiting the movement of said lever, substantially as described.

22. The combination, with a cam-cylinder, its cams, a needle-cylinder and its needles, of an eccentric head, means for supporting the same, means operatively connecting said head with the needle-cylinder, and automatic mechanism for turning said head, substantially as described.

23. The combination, with a cam-cylinder, its cams, a needle-cylinder and its needles, of an eccentric head, a vertically-adjustable support for said head, means for securing said support in positions of vertical adjustment, and means operatively connecting said head with the needle-cylinder, substantially as described.

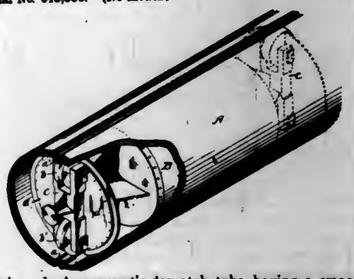
24. The combination, with a cam-cylinder, its cams, a needle-cylinder and its needles, of an eccentric head, a support therefor, operative connections between said head and the needle-cylinder, a lever on the shaft of the eccentric, and pattern mechanism for actuating said lever, substantially as described.

25. The combination, with a cam-cylinder, its knitting-cams, and a needle-depressor including a picker-arm, of a plate in rear of the said arm, a support for said plate, and a spring to hold the plate yieldingly toward and adjacent to said arm, substantially as described.

26. The combination, with a cam-cylinder, its knitting-cams, and a needle-depressor embodying a spring-actuated picker-arm and a fixed rearward cam with which it coacts, of a movable plate having its forward edge inclined like the cam and supported adjacent thereto, and means tending to hold said plate yieldingly beyond the cam, substantially as described.

27. The combination, with a cam-carrier, its knitting-cams, the needle-support and its needles, of a series of loosely-mounted vibratory sinkers, arranged to alternate with and work between the needles, each of said sinkers being provided with an inwardly-extending stitch-engaging portion at its upper end, and with an outwardly-extending cam-engaging portion, and normally fulcrumed at its lower inner side, and spring means acting upon the said sinkers to perform the double function of holding them yieldingly against the stitches and yieldingly against their normal fulcra, whereby during the ordinary operation of the machine the sinkers will rock upon their normal fulcra when actuated by the cam or by the spring means, but when a sinker engages thick or irregular thread it will be rocked upon the thread as a fulcrum and the lower portion of the sinker will move outwardly by actuation of the cam and the thread will not be cut by the sinker, substantially as described.

595,890. **PNEUMATIC-DESPATCH TUBE.** CHARLES F. PIKE, Philadelphia, Pa., assignor to the United States Pneumatic Despatch Company, Burlington, N. J. Original application filed May 31, 1895, Serial No. 551,219. Divided and this application filed Dec. 14, 1896. Serial No. 615,553. (No model.)



Claim.—1. A pneumatic-despatch tube, having a smooth bore and trackways consisting of longitudinally-disposed rails integral with the walls of the tube, protruding a short distance inwardly in the tube presenting a clearance in the bore of the tube for the passage of the carrier approximately equal to the area of the bore of the tube in cross-section.

2. A pneumatic-despatch tube having a smooth circular bore and trackways consisting of two longitudinally-disposed rails formed in the walls of the tube integral therewith, protruding a short distance inwardly in the tube, diametrically opposite each other in a vertical line, the bore of the said tube having a clearance for the passage of the carrier approximately equal to the area of the bore of the tube in section, substantially as described.

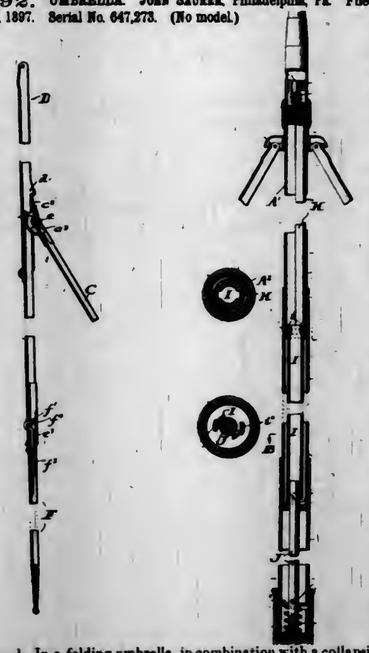
3. A pneumatic-despatch tube consisting of a carrier-chamber circular in cross-section, and trackways semicircular in cross-section formed in the walls of the tube opposite each other in a vertical line with said walls and protruding a short distance within the line of the bore of the tube the bore of the said tube being unobstructed for the passage of the carrier and its wind-diaphragms save by the said inwardly-projecting trackways, substantially as described.

595,891. **BICYCLE-STAND.** DAVID R. ROBERTSON, Kirkcaldy, Scotland. Filed Mar. 20, 1897. Serial No. 628,388. (No model.)



Claim.—The improved automatic bicycle-stand, comprising the base-frame A, the pivoted supporting-levers B, swiveled forked pins D, and lever-locking pin E, all for the purpose of supporting a bicycle in either its normal upright position or in its inverted position.

595,892. **UMBRELLA.** JOHN SAURER, Philadelphia, Pa. Filed Aug. 5, 1897. Serial No. 647,273. (No model.)



Claim.—1. In a folding umbrella, in combination with a collapsible stick, a series of ribs pivotally connected thereto, each of said ribs being formed of three sections assembled in telescopic relationship, spreaders extending from said stick to said ribs, devices disposed in connection with the joints between the first and second sections of the ribs and operative in connection with devices carried by the spreaders to lock said first and second sections of the ribs in extended position when the umbrella is open, and devices disposed in connection with the joints between the second and third sections of the ribs which automatically lock said sections, when extended, in their extended positions, the arrangement of the parts being such that when the ribs are lowered pressure applied to their outer ends causes, first, the second sections to slide within the first sections, and, second, the tripping and release of the locking devices at the joints between the second and third sections to enable the third sections to be forced within the second sections, substantially as set forth.

2. In a folding umbrella, a rib having two sections composed of sheet metal of U-shaped section, and telescopically related, the uppermost of which is pivotally secured to the notch of the umbrella, a stop flange, formed on the lower end of said section, a projecting lug formed on the second section above said stop flange, a spreader pivotally connected to said projection, a ratchet tooth formed on the uppermost of said sections, a locking plate carried by the spreader and adapted to engage said tooth, a spring which constantly forces said locking plate against said tooth, a finger mounted upon the upper end of said spreader and adapted when the umbrella is closed to encounter said locking plate and elevate it out of contact with the tooth, substantially as set forth.

3. An umbrella stick composed of a series of sections assembled in telescopic relationship, the upper section being provided with an internal rotatable stem, and a second section being provided with an internal fixed stem of non-circular cross section, a key-plate mounted on the lower end of the stem of the upper section, said key-plate having an aperture corresponding to the cross section of the tubular stem of the second section, substantially as set forth.

4. An umbrella stick composed of a series of sections assembled in telescopic relationship, the upper section being provided with an internal rotatable stem, and a second section being provided with an internal fixed stem of non-circular cross-section as to its body, but of circular section in the vicinity of its upper end, and a key-plate mounted on the lower end of the stem of the upper section, said key-plate having an aperture corresponding to the cross-section of the tubular stem of the second section, and being seated upon the circular portion of the tubular stem of the second section, substantially as set forth.

5. An umbrella stick composed of a series of sections assembled in telescopic relationship, the upper section being provided with an internal rotatable stem, and a second section being provided with an internal fixed stem of non-circular cross-section as to its body, but of circular section in the vicinity of its upper end, a key plate mounted on the lower end of the stem of the upper section, said key-plate having an aperture corresponding to the cross-section of the tubular stem of the second section, and being seated upon the circular portion of the tubular stem of the second section, and a spring which normally maintains the stem of the upper section in a position in which the aperture of its key-plate is rotated out of registry with the non-circular body of the stem of the second section, substantially as set forth.

6. An umbrella stick composed of a series of sections assembled in telescopic relationship, the upper section being provided with an internal rotatable stem, and a second section being provided with an internal fixed stem of non-circular cross-section as to its body, but of circular section in the vicinity of its upper end, and a key plate mounted on the lower end of the stem of the upper section, said key-plate having an aperture corresponding to the cross-section of the tubular stem of the second section, and being seated upon the circular portion of the tubular stem of the second section, a spring which normally maintains the stem of the upper section in a position in which the aperture of its key-plate is rotated out of registry with the non-circular body of the stem of the second section, a rotatable device mounted upon the exterior of said upper section, a slot formed in the wall of said upper section, and a stud passing through said slot, and connecting said rotatable device with said internal rotatable stem, substantially as set forth.

7. An umbrella stick composed of a series of sections assembled in telescopic relationship, the upper section being provided at its lower end with an internal key-plate, a rotatable stem mounted in said upper section, and provided at its lower end with a key-plate resting upon the key-plate first mentioned, non-circular apertures formed in said key-plates, a tubular non-circular stem mounted in the second section and extending as to its upper end through the apertures of said key-plates above which it is provided with a flange, that portion of said stem which exists within the key-plate of the stem of the upper section being so formed as to be of circular cross-section, the cross-section of the non-circular body of the tubular stem of the second section and the non-circular apertures in the key-plates being all of the same outline, substantially as set forth.

8. An umbrella stick composed of a series of sections assembled in telescopic relationship, the upper section being provided at its lower end with an inturned key-plate, a rotatable stem mounted in said upper section, and provided at its lower end with a key-plate resting upon the key-plate first mentioned, non-circular apertures formed in said key-plates, a tubular non circular stem mounted in the second section and extending as to its upper end through the apertures of said key-plates above which it is provided with a flange, that portion of said stem which exists within the key-plate of the stem of the upper section being so formed as to be of circular cross-section, the cross-section of the non-circular body of the tubular stem of the second section and the non-circular-apertures in the key-plates being all of the same outline, a spring which normally maintains the stem of the upper section in a position in which the aperture of its key-plate is out of registry with the aperture of the key-plate of the upper section, substantially as set forth.

9. An umbrella stick composed of a series of sections assembled in telescopic relationship, the upper section being provided at its lower end with an inturned key-plate, a rotatable stem mounted in said upper section, and provided at its lower end with a key-plate resting upon the key-plate first mentioned, non-circular apertures formed in said key-plates, a tubular non-circular stem mounted in the second section and extending as to its upper end through the apertures of said key-plates above which it is provided with a flange, that portion of said stem which exists within the key-plate of the stem of the upper section being so formed as to be of circular cross-section, the cross-section of the non-circular body of the tubular stem of the second section and the non-circular apertures in the key-plates being all of the same outline, a spring which normally maintains the stem of the upper section in a position in which the aperture of its key-plate is out of registry with the aperture of the key-plate of the upper section, and a manually operated device mounted upon the exterior of said upper section and connected to the internal stem of said upper section, by which rotation may be imparted to the stem of said upper section against the stress of its spring, substantially as set forth.

10. An umbrella stick composed of a series of sections, assembled in telescopic relationship, the lower-most section being provided with a central stem having projecting lugs, a second section which is adapted to slide within said lower-most section, being formed as a double walled structure the inner wall of which constitutes a tubular stem having wings, the stem of the lower-most section being adapted to fit within the body and its studs to fit within the wings, of said tubular stem, substantially as set forth.

11. An umbrella stick composed of a series of sections, assembled in telescopic relationship, the lower-most section being provided with a central stem having projecting lugs, a second section which is adapted to slide within said lower-most section, said second section being formed as a double walled structure the inner wall of which constitutes a tubular stem having wings, the stem of the lower-most section being adapted to fit within the body and its studs to fit within the wings, of said tubular stem, the lower end of said tubular stem having openings through the lower ends of the wings, and slots in its side body, substantially as set forth.

12. An umbrella stick composed of a series of sections, assembled in telescopic relationship, the lower-most section being provided with a central stem having projecting lugs, a second section which is adapted to slide within said lower-most section, said second section being formed as a double walled structure the inner wall of which constitutes a tubular stem having wings, the stem of the lower-most section being adapted to fit within the body and its studs to fit within the wings of said tubular stem, the lower end of said tubular stem having openings and slots as described, the stem of the lower-most section being adapted for slight longitudinal and rotary motion independent of said lower-most section, so that it may be drawn down to carry its studs out of the wings of the tubular stem, and turned to carry them into engagement with the slots, substantially as set forth.

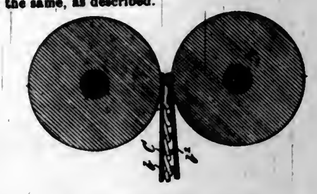
13. In combination, in an umbrella stick composed of a series of sections arranged in telescopic relationship, a lower-most section having a stem provided with studs, a second section adapted to slide within said lower-most section, and provided with a tubular stem embodying wings and slots, the stem of the lower-most section protruding through the ends of said section and being equipped with a manipulating thimble, substantially as set forth.

14. In combination, in an umbrella stick composed of a series of sections arranged in telescopic relationship, a lower-most section having a stem provided with studs, a second section adapted to slide within said lower-most section, and provided with a tubular stem embodying wings and slots, the stem of the lower-most section protruding through the end of said section and being equipped with a manipulating thimble, a stop mounted on said stem, and a spring interposed between said stop, and the lower end portion of said lower-most section, substantially as set forth.

15. In combination, in an umbrella stick composed of a series of sections arranged in telescopic relationship, a lower-most section having a stem provided with studs, a second section adapted to slide within said lower-most section, and provided with a tubular stem embodying wings and slots, the stem of the lower-most section protruding through the end of said section and being equipped with a manipulating thimble, a stop mounted on said stem, and a spring interposed between said stop and a lower end portion of said lower-most section, an L-shaped slot formed in the wall of the lower-most section, and an arm passing through said slot, and connecting said stem to said manipulating thimble, substantially as set forth.

595,898. APPARATUS FOR FINISHING KNIT FABRICS. PAUL SCHLOSSMANN, Philadelphia, Pa. Filed Dec. 5, 1896. Serial No. 614,566. (No model.)

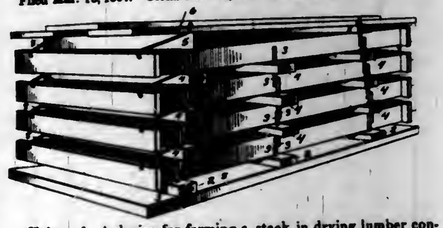
Claim.—An apparatus for finishing knit fabrics, comprising two non-yielding carriers wholly independent of each other between which the fabric is placed, and two feed-rollers between which said carriers are wholly supported and impelled to assume successively converging parallel and diverging positions with respect to each other and the fabric to cause the faces of said fabric to be subjected to attrition to finish the same, as described.



595,894. PROCESS OF PRODUCING DIAZONAPHTHALENE ON FIBER. HERMANN SEYBERTZ and MORITZ VON GALLOIS, Höchst-on-the-Main, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Feb. 12, 1897. Serial No. 623,179. (No specimens.)

Claim.—The process herein described of producing diazonaphthalene for the production of a claret-red color on the fiber, which consists in stirring pulverized alpha-naphthylamin sulfate in water, applying the pasty solution to the fiber, and then diazotizing the same, substantially as set forth.

595,895. LUMBER-RACK. SELIG SOLOMON, Au Sable, Mich. Filed Mar. 18, 1897. Serial No. 628,060. (No model.)



Claim.—1. A device for forming a stack in drying lumber consisting of a cross-bar having a longitudinal series of pins on one side, and pins projecting from the ends of the opposite side, substantially as shown and for the purpose set forth.

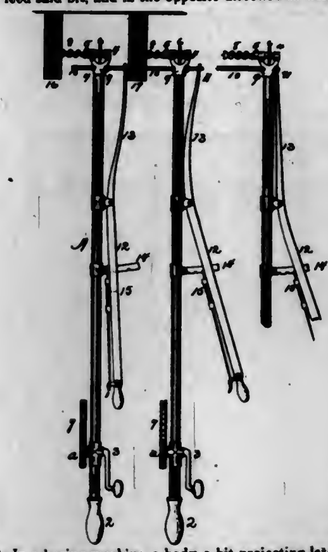
2. Devices for forming a stack in drying lumber consisting of cross-bars having upright pins projecting from one side and pins projecting in the opposite direction from the other side at the ends thereof, together with strips or cross-pieces having rods connected to the ends thereof and formed into eyes to engage the pins of the cross-bars, substantially as shown and for the purpose set forth.

3. Devices for forming a stack in drying lumber consisting of cross bars having a longitudinal series of upright pins on one side of a distance apart corresponding with the thickness of the lumber to be stacked, and pins projecting from the opposite side of the cross-bar at the ends thereof; together with a second series of cross-bars having pins projecting from opposite sides at the ends of said cross-bars, and a series of strips or pieces having rods connected thereto which are formed into eyes at their outer ends, substantially as shown and for the purpose set forth.

4. The combination with the base or foundation, the upper surface of which is located a suitable distance above the surface of the ground, of cross-bars rigidly secured thereto and having a longitudinal series of upright pins spaced at a distance apart corresponding with the thickness of the lumber to be dried, a series of detachable cross-bars having a longitudinal series of upright pins on one side and pins projecting from the ends of the opposite side, a set of cross-bars having pins projecting from opposite sides of the ends, and a cover or shed having openings to receive the upright pins of the upper cross-bars; together with strips or cross-pieces having rods extending therefrom formed into eyes at their outer ends, substantially as shown and for the purpose set forth.

595,896. BORING-MACHINE. CHARLES R. VAN DUSEN and ADOLPH R. ROVER, Binghamton, N. Y. Filed Sept. 13, 1897. Serial No. 651,469. (No model.)

Claim.—1. In a boring-machine, a body, a transverse bit-shaft, a bit thereon, and a reciprocating feed-bar parallel to said shaft, combined with a spring connected to said feed-bar, and means to produce a tension thereon to exert its force in one direction through said feed-bar to feed said bit, and in the opposite direction to withdraw it.



2. In a boring-machine, a body, a bit projecting laterally therefrom, a bar parallel to it, a spring engaging with said bar, and means to shift said spring to put tension on said bar one way to support said body, and bit, and in the opposite direction to retract said bit.

3. In a boring-machine, a body, a crank and sprocket, a head, a transverse shaft and sprocket and a driving-chain, combined with a bit upon said shaft, a sliding bar parallel to said shaft, and a lever connected to said bar to shift it in opposite directions.

595,897. PROCESS OF MAKING PARAMIDOPHENOL. HENRI R. VIDAL, Paris, France. Filed July 24, 1897. Serial No. 645,857. (No specimens.) Patented in France Feb. 27, 1897, No. 264,511, and in England Mar 3, 1897, No. 5,097.

Claim.—The process of obtaining paramidophenol unmixed with other bodies, by reducing oxyazobenzol by the action of sulfid of sodium in presence of a caustic alkali, substantially as described.

595,898. ELECTRIC MOTOR. FREDERIC E. WHIPPLE and CHARLES A. STAUFFER, Philadelphia, Pa.; said Stauffer assignor to Joseph C. Donnelly, same place. Filed May 1, 1896. Serial No. 589,839. (No model.)

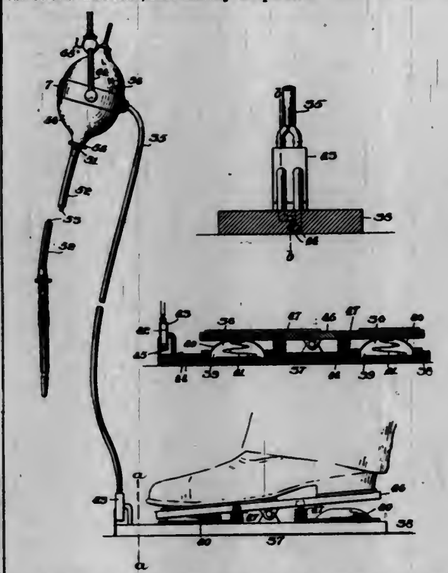
Claim.—1. In an electric motor, a stationary external armature having three or more electrically-disconnected coils, a common terminal, means for establishing an electrical connection between one end of each of said coils and the said common terminal, and a central revolving field, substantially as specified.

2. In an electrical motor, a stationary external armature having three or more electrically-disconnected coils, a common terminal and a switch whereby either end of each coil may be electrically connected to or disconnected from the said terminal, together with a central revolving field, substantially as specified.

3. In an electrical motor, a stationary external armature having three or more electrically-disconnected coils, a common terminal, means whereby one end of each coil may be connected to or disconnected from said terminal, a commutator, and means for completing electrical connections between said commutator and the opposite ends of the said coils, substantially as specified.

4. In an electrical motor, a stationary armature having three or more independent coils, insulated contacts to which said coils are connected at one end, other insulated contacts to which they are connected at the opposite ends, a common terminal ring, a switch whereby said ring may be brought into electrical connection with one series of said contacts, a commutator, means for electrically connecting said commutator with the other series of said contacts, a central revolving field, and means for supplying current thereto, substantially as specified.

5. In an electrical motor, a stationary armature having three or more similarly-wound independent coils, two sets of insulated contacts to which both ends of all the coils are respectively connected, a common terminal ring, a movable support for the contacts, whereby all those of either set may be brought into engagement with said ring, means for operating said support, a commutator having means for engagement with all the contacts of either set, a central revolving field, and means for supplying a current of constant polarity to the coils of said field, substantially as specified.



6. In an electrical motor, a stationary external armature consisting of a ring with inwardly-projecting teeth wound with armature-coils, a common terminal ring provided with clips, contacts arranged adjacent to said clips, a support for said contacts, a commutator, clips thereon arranged in close relation to the studs, a field-magnet, electrical connections between the same and the commutator, and means for shifting the contact-support in relation to the clips, substantially as described.

7. In an electric motor, the combination of the armature, the field-magnet, the commutator and their complementary electrical connections, of pneumatic devices for changing the relation of the contacts between the commutator and the armature-coils so as to reverse the direction of flow of the current through said coils, substantially as described.

8. In an electric motor, the combination, with a contact-support, of means for shifting the same, to reverse the direction of flow of the current through the coils, said means comprising a cylinder, a piston therein connected with said support, a pneumatic compression device, and a tube leading therefrom to the cylinder, substantially as described.

9. In an electric motor, the combination, with a contact-support, of means for shifting the same, comprising a cylinder, a piston therein connected with said support, an expansible sack intermediate the cylinder-head and the piston, a pneumatic compression device, and a tube leading therefrom to said sack, substantially as described.

10. In an electric motor, the combination, with a contact-support, of means for shifting the same, comprising two oppositely-disposed cylinders, pistons therein connected with said support, a pneumatic compression device, and connections between said device and the cylinders, substantially as described.

11. In an electric motor, the combination, with a contact-support, of means for shifting the same, comprising two oppositely-disposed cylinders, pistons therein connected with said support, a pneumatic compression device provided with two chambers, and independent connections between said chambers and the cylinders, substantially as described.

12. In an electric motor, the combination, with a contact-support, of means for shifting the same, comprising two oppositely-disposed cylinders, pistons therein connected with said support, a base, normally-expanded flexible caps thereon forming air-cells, a lever fulcrumed upon the base so as to extend above said caps, and independent connections between the said cells and the pistons, respectively, substantially as described.

13. In an electrical motor, the combination of the armature, the

field-magnet, a partially-rotatable ring provided with contact-studs to which the armature-coils are connected, a commutator to which the field-coils are connected, clips on said commutator extending into the path of the said studs, a terminal ring provided with clips also extending into their path, means for normally holding the ring with its studs out of contact with the clips, and means for turning the ring in either direction, as desired, substantially as described.

14. In an electrical motor, the armature, the field-magnet, the commutator, and the rotatable rheostat, all concentrically mounted, as described, in combination with their complementary electrical connections, and means for rotating the rheostat, substantially as described.

15. In an electrical motor, the combination of the supporting-frame, the stationary armature, therein, the rotatable field, the central shaft therefor, the commutator, the rotatable rheostat on said support, the contact-plate therefor, the complementary electrical connections, the flexible shaft connected with the central shaft, the sheath for said flexible shaft, and operative connections between said sheath and the rheostat, substantially as described.

16. In an electric motor, the combination with the supporting-frame, of the armature, the field-magnet, the commutator, the rheostat, and the central shaft, all concentrically mounted within the frame as described, the contact-plate for said rheostat, the complementary electrical connections, the flexible shaft connected with the central shaft, the sheath for said flexible shaft, the sleeve connected with the rheostat, the coupling connecting said sleeve and the sheath, and the lock-nut on said coupling, substantially as described.

17. In an electric motor, the combination with the supporting-ring, the spiders secured thereto, the armature held by and between said spiders, the field-magnet, the central shaft to which it is secured, the commutator, the rotatable rheostat mounted on a boss on one of said spiders, a contact-ring fixed to and insulated from said spider, a contact-ring on the rheostat coacting with the former ring, a contact-plate coacting with the rheostat, the complementary coils and electrical connections, and means for turning the rheostat in relation to the said contact-plate, substantially as described.

18. The combination with a support, of an electrical motor pivotally mounted therein, and contact devices on the axes or pivots adapted to effect the making of the circuit when the motor is in one position, and the breaking thereof when the motor is in another position, substantially as described.

19. The combination, with a yoke, carrying insulating-studs, a motor having a supporting-ring pivoted on said studs, contact-plates on said studs, and contact-plates on the motor, said plates being so relatively arranged that when the motor is in its normal position the plates are out of contact, but when the motor is swung on its axes said plates are brought into electrical contact, substantially as described.

20. In an electrical motor, the combination with the armature, the field-magnet, the commutator, the central shaft, the sleeve on the latter adjacent to the commutator, the brushes in said sleeve coacting with the commutator, the springs bearing against said brushes, and provided with studs or projections which enter recesses in the ends of the brushes together with the complementary coils and electrical connections, for the parts stated, substantially as described.

21. In an electrical motor, the combination of the supporting-ring, the casing thereon, the motor within said casing, its central shaft, the flexible shaft connected therewith, its sheath, the rheostat in said casing, the fixed contact-plate therefor, the connection between said sheath and rheostat, the lock-nut, and the pointer thereon extending in proximity to graduations on the casing, substantially as described.

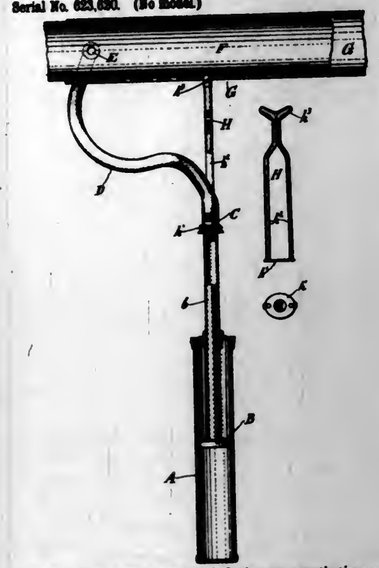
22. In an electric motor, the combination of a stationary external armature having a plurality of pole-pieces, their coils, a common insulated terminal for one end of each of the said coils, electrical connections with the opposite ends of the said coils whereby the pole-pieces thereof are made alternately of north and south polarity and whereby certain of the coils are rendered active and inactive with respect to the field, and a central revolving field consisting of a field-magnet of constant polarity, substantially as specified.

23. In an electric motor, the combination with a stationary external armature having a plurality of pole-pieces, their coils, and a common insulated terminal for one end of each of the said coils, of a central revolving field consisting of an electromagnet of constant polarity, and electrical connections for the said armature-coils whereby certain of them are rendered active and inactive with respect to the field and whereby each of the pole-pieces is made alternately of north and south polarity, the active coils being connected in series with the coils of the field through said common terminal, substantially as specified.

24. In an electric motor, the combination of an armature, a field-magnet, a rotatable rheostat, and the complementary electrical connections whereby the rotation of said rheostat controls the speed of the motor, substantially as specified.

25. In an electric motor, the combination with a supporting-frame and a casing, of a motor therein, its shaft, the rheostat in said casing, a contact member therefor, and means for effecting relative adjustment between said rheostat and contact member, together with the complementary electrical connections, substantially as described.

595,899. AIR-PUMP FOR INFLATING PNEUMATIC CYCLE-TIRES. EDOUARD WICKY, Lausanne, Switzerland. Filed Feb. 16, 1897. Serial No. 623,690. (No model.)



Claim.—1. A hand-pump for inflating pneumatic tires, consisting of a movable cylinder, a piston in said cylinder, a hollow piston-rod, a flexible tube adapted to connect the outer end of the piston-rod with the air-valve, and a forked support attached rigidly to and in line with the piston-rod at both sides of the flexible tube, said support being provided with a head adapted to be applied to the rim of the wheel, substantially as set forth.

2. A hand-pump for inflating pneumatic tubes, consisting of a movable cylinder, a piston therein, a hollow pistou-rod provided with a threaded end, a joining-tube threaded in the end of the piston, a forked support rigidly secured to said piston-rod by means of said joining-tube, a flexible air-tube attached to said joining-tube and extending between the arms of the support and a pronged head on the end of said support adapted to be applied to the rim of the wheel, substantially as set forth.

595,900. CULTIVATOR. ELLIOTT D. BARLING, Pontiac, Mich. Filed Aug. 14, 1896. Serial No. 602,692. (No model.)

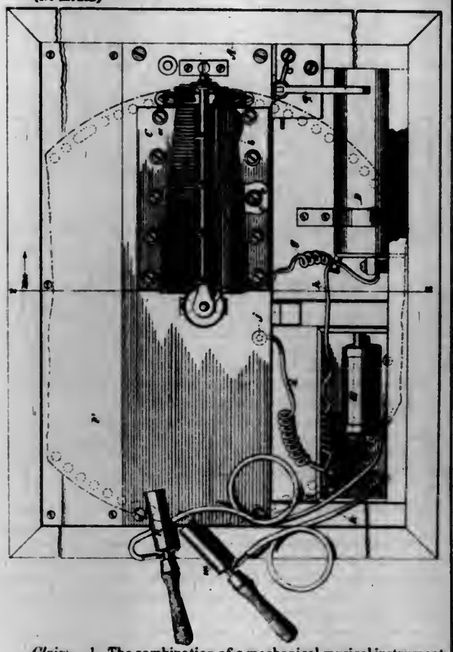


Claim.—1. In a harrow, the combination of a mid rib and side wings hinged thereto in pairs, and harrow-teeth provided each with two journals and adapted to be journaled to both members of a wing whereby the axis of the teeth is not turned when the wing is adjusted, substantially as described.

2 In a harrow, the combination of a mid-rib, a wing composed of two members arranged as parallel bars, a harrow-tooth provided with two journals adapted to engage bearings on the bars of the side wing, and means for adjusting the spread of the wing-bars, substantially as described.

3. In a harrow-tooth, the combination of the blade and a shank provided with two journals adapted to be engaged in separate bearings, substantially as described.

595,901. ELECTRICAL MUSICAL INSTRUMENT. GUSTAV A. BRACHHAUSEN, Rahway, N. J. Filed July 3, 1897. Serial No. 643,326. (No model.)



Claim.—1. The combination of a mechanical musical instrument, and an electrical shocking device, the operation of the said electrical shocking device being governed from an element of the music-playing devices of the musical instrument.

2. In a mechanical musical instrument, the combination of music-playing devices, an induction-coil, a circuit-manipulator in the primary of the induction-coil intermittently operated from an element of the music playing devices, and current-applying devices in the secondary of the induction-coil.

3. The combination of an automatic musical instrument, an electrical shocking device, the said electrical shocking device being governed from an element of the mechanical musical instrument, whereby music may be played and electrical shocks simultaneously administered by the operation of the musical instrument.

4. The combination of an automatic musical instrument and an electrical shocking device and a circuit-breaker for the said electrical shocking device governed from an element of the musical instrument substantially as described and for the purposes set forth.

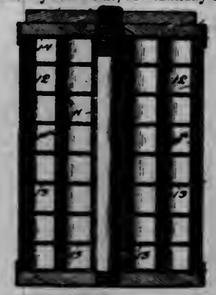
5. In an automatic musical instrument, the combination of music-playing devices, comprised in part by star-wheels and an electrical shocking apparatus governed by the star-wheels.

6. In an automatic musical instrument, the combination of music-playing devices, an electrical shocking apparatus comprised in part by means for cooperating with the music-playing devices to make and break a circuit and means for intermittently operating the music-playing devices, whereby the music-playing devices and the electrical shocking apparatus may be synchronously operated.

7. In an automatic musical instrument, the combination of current-appliers, means for generating a supply of electrical current for the current-appliers and music-playing devices governing the generation of the current, substantially as described.

595,902. SHIPPING-CRATE. GEORGE T. BROWN, Portland, and ROBERT H. MORROW, Sedalia, Mo. Filed July 22, 1896. Serial No. 600,133. (No model.)

Claim.—A shipping-crate having a cylindrical open-ended shell, terminal flanged heads removably fitted upon opposite ends of the shell, an axial stem connecting the centers of said heads, the same being secured to one of the heads, extending through an opening in the other head and engaged by a locking device, and a series of trays approximately equal in diameter with the interior of the shell, provided with central openings threaded upon the axial stem and snugly fitting the same to hold the peripheries of the trays out of contact with the shell, and having their interiors divided by partitions to form cells, and loose separating disks also centrally threaded upon the stem and interposed between contiguous trays, the trays being closed at their opposite sides by said disks, substantially as specified.



595,903. SPINDLE-BEARING. EDGAR J. CARROLL, Worcester, Mass., assignor to the Sawyer Spindle Company, Portland, Me. Filed July 12, 1897. Serial No. 644,174. (No model.)

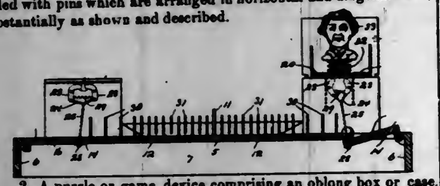


Claim.—1. A bolster-case, combined with a bolster held loosely therein and longitudinally slotted near its lower end, a vertically-adjustable step-support carried by the bolster, and a removable step square in cross-section and having a plurality of bearing-faces, adapted to be loosely held in the slot of the bolster between the end of the spindle and the step-support, substantially as described.

2. A bolster-case, combined with a bolster held loosely therein, slabbed off near its lower end and longitudinally slotted, a removable spindle-step having a plurality of bearing-faces, adapted to be loosely inserted in the slot, an adjustable step-support carried by the bolster, and a projection within the case to engage the flattened portion and thereby prevent rotation of the bolster, substantially as described.

595,904. GAME DEVICE. WILLIAM J. COGGSHALL, Rochester, N. Y., assignor of one-half to James H. Lord, same place. Filed June 3, 1897. Serial No. 639,810. (No model.)

Claim.—1. A puzzle or game device comprising an oblong box or case, the top of which is provided at each side of the center thereof with longitudinal grooves at the ends of which are pivoted plates, said box or case being also provided centrally thereof with a backwardly-directed extension, the top of which is forwardly and downwardly inclined, and boxes which are placed at each side of said extension, and provided with spring-hinged covers, depressible springs mounted in said boxes, and provided with figures at their upper ends, and devices in operative connection with said pivoted plates for holding the covers of said boxes in the closed position, and said box or case and the top of said backwardly-directed extension being provided with pins which are arranged in horizontal and diagonal rows, substantially as shown and described.

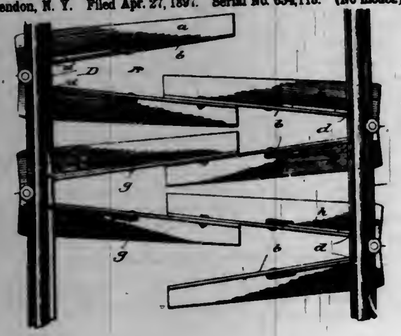


2. A puzzle or game device comprising an oblong box or case, the top of which is provided at each side of the center thereof with longitudinal grooves at the ends of which are pivoted plates, said box or case being also provided centrally thereof with a backwardly-directed extension, the top of which is forwardly and downwardly inclined, and boxes which are placed at each side of said extension, and provided with spring-hinged covers, depressible springs mounted in said boxes, and provided with figures at their upper ends, and devices in operative connection with said pivoted plates for holding the covers of said boxes in the closed position, and said box or case and the top of said backwardly-directed extension being provided with pins which are arranged in horizontal and diagonal rows, and the outer ends of said pivoted plates being weighted, substantially as shown and described.

3. A puzzle or game device comprising an oblong box or case, said case being provided centrally thereof with a backwardly-directed extension, the top of which is inclined forwardly and downwardly, and at each side of said extension with boxes which are provided with spring-hinged covers, expansive spiral springs mounted in said boxes, and supporting figures or heads, said oblong box or case being also provided with longitudinal grooves in the top thereof, at the outer ends of which are openings in which are mounted pivoted plates, pivoted spring-operated jaws mounted within said boxes and adapted to operate in connection with pins secured to said hinged covers, and a rod in operative connection with said jaws, and passing downwardly and provided with an extension which passes beneath the inner ends of said pivoted plates, substantially as shown and described.

4. A puzzle or game device comprising a main oblong box or case, said case being provided centrally thereof with a backwardly-directed extension the top of which is inclined forwardly and downwardly, and at each side of said extension with boxes which are provided with hinged covers, expansive spiral springs mounted in said boxes, and supporting figures or heads, said main oblong box or casing being also provided in front of said boxes with openings in which are placed pivoted plates, operative devices in connection with said pivoted plates and the hinged covers of said boxes, and the downwardly and forwardly inclined top of the backwardly-directed extension of the main oblong box or case being also provided with a plurality of pins which are arranged, substantially as shown and described.

595,905. **RAILROAD TIE AND CLAMP.** CHARLES A. COLE, Clarendon, N. Y. Filed Apr. 27, 1897. Serial No. 634,113. (No model.)



Claim.—1. A railroad tie-piece constructed of angle-iron having the horizontal flange thereof cut through substantially centrally of its length and the vertical flange bent to form a V-shaped tie-section, substantially as described.

2. A railroad tie-piece constructed of angle-iron having the horizontal flange thereof cut through substantially centrally of its length, and the vertical flange bent to form a V-shaped section, said vertical flange having slots at opposite sides adjoining the bend, substantially as described.

3. A railroad-tie comprising a series of V-shaped angle-iron pieces, having their bends arranged alternately in opposite directions, and each tie-piece having its arms connected to a different tie-piece at opposite sides thereof, substantially as described.

4. The combination with a rail, of a series of railroad-ties formed of angle-iron in approximately V shape, and a fastening device comprising a ratchet cam-wheel and a pivoted dog or pawl on the tie, said pawl having a head to engage the rail and an arm to engage said cam ratchet-wheel, substantially as described.

595,906. **BRIDGE.** ALEXANDER S. DANDRIDGE, Brooklyn, N. Y. Filed Mar. 3, 1897. Serial No. 625,879. (No model.)



Claim.—1. In a suspension-bridge, the combination, with the main suspension-cables, a roadway and the usual truss structure, of an auxiliary truss independent of said truss structure superimposed upon said main cables, substantially as set forth.

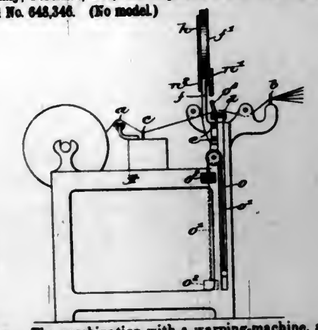
2. In a suspension-bridge, the combination, with the main suspension-cables, and the usual truss structure, of an auxiliary truss separate from and independent of said truss structure, secured upon said cables and a roadway suspended therefrom, substantially as set forth.

3. In a suspension-bridge, the combination of the main suspension-cables, a roadway, cross-girders secured to said cables and an auxiliary truss suitably secured thereon, substantially as set forth.

4. In a suspension-bridge, the combination of the main cables, cross-girders secured thereto, an auxiliary truss secured at its central portion to said cross-girders, and a roadway suspended from the auxiliary truss, substantially as set forth.

5. In a suspension-bridge, the combination of the main cables, a roadway, the usual truss structure and an auxiliary truss independent of said truss structure, superimposed upon said main cables and constructed of a rigid framework having an upper and a lower chord, the curvature of the lower chord conforming with the curvature of the main cables, substantially as set forth.

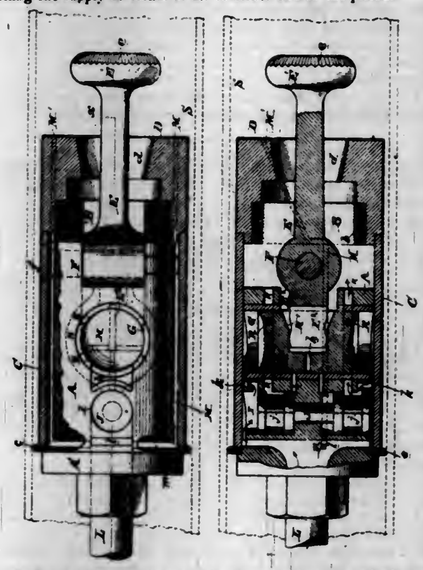
595,907. **REGISTERING MECHANISM FOR WARPING-MACHINES.** RUSSELL W. EATON, Brunswick, Me., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed Aug. 16, 1897. Serial No. 648,346. (No model.)



Claim.—The combination with a warping-machine, and its rise-roll, of registering mechanism, and means between the said rise-roll and the said registering mechanism to actuate the latter a step at each rise of the rise-roll, substantially as and for the purpose described.

595,908. **BOILER-TUBE CLEANER.** FRANK W. EDWARDS, Bayonne, N. J. Filed Apr. 24, 1897. Serial No. 633,652. (No model.)

Claim.—1. In a boiler-tube cleaner, a head attached to the end of a tubular rod or blast-pipe combined with a pivoted vibrating hammer, pivoted to the head and having a rear end beyond the pivot, a transversely-reciprocating piston having a slot extending only part way through the piston into which the rear end of the hammer projects and by which it is operated, and an automatic valve for controlling the supply of steam or air to either end of the piston.



2. In a boiler-tube cleaner, a head attached to the end of a tubular rod or blast-pipe, combined with a pivoted vibrating hammer pivoted to the head and having a rear end beyond the pivot, a transversely-reciprocating piston having a slot extending only part way through the piston into which the rear end of the hammer projects and by which it is operated, an automatic valve for controlling the supply of steam or air to either end of the piston, and blast-ports leading from the cylinder to the forward part of the head so as to direct a strong forward current of steam or air to clear the tube.

3. In a boiler-tube cleaner, a head attached to the end of a tubular rod or blast-pipe, combined with a pivoted vibrating hammer pivoted to the head and having a rear end beyond the pivot, a transversely-reciprocating piston having a slot extending only part way through the piston into which the rear end of the hammer projects and by which it is operated, an automatic valve for controlling the supply of steam or air to either free end of the piston, and obliquely-directed passage ways M′ for directing steam or air under pressure through the forward end of the head so as to act upon the scale in the tube substantially in line with the action of the vibrating hammer and causing it to assume a spiral motion.

4. In a boiler-tube cleaner, a head attached to the end of a tubular rod or blast-pipe, combined with a pivoted vibrating hammer pivoted to the head and having a rear end beyond the pivot, a transversely-reciprocating piston having a slot extending only part way through the piston into which the rear end of the hammer projects and by which it is operated, a removable cylinder or casing for the piston arranged transversely through the head and having a large central opening through which the hammer extends to make connection with the piston.

5. In a boiler tube cleaner, the combination of a cylindrical casting having a recessed or slotted end and a transverse cylinder, a sleeve or casing fitting over the said casting so as to form the heads of the cylinder, a detachable cap securely fastened to the forward end of the cylindrical casting and having an aperture through which the hammer operates, a vibrating hammer pivoted in the slotted end of the head upon an axis transverse to the cylinder and having a rearwardly-extending arm extending into and terminating in the body of the cylinder, a reciprocating piston fitted to said cylinder and having a transverse slot for receiving the rear arm of the hammer, an automatic valve for controlling the supply of steam to either end of the cylinder, and a tubular rod secured to the rear end of the cleaner for supplying steam or air under pressure to the valve and cylinder.

6. In a boiler-tube cleaner, the combination of a cylindrical casting having a recessed or slotted end and a transverse cylinder, a sleeve or casing fitting over the said casting so as to form the heads of the cylinder, a detachable cap securely fastened to the forward end of the cylindrical casting and having an aperture through which the hammer operates, a vibrating hammer pivoted in the slotted end of the head upon an axis transversely to the cylinder and having a rearwardly-extending arm extending into and terminating in the body of the cylinder, a reciprocating piston fitted to said cylinder and having a transverse slot for receiving the rear arm of the hammer, an automatic valve for controlling the supply of steam to either end of the cylinder, a tubular rod secured to the rear end of the cleaner for supplying steam or air under pressure to the valve, and exhaust-ports leading from the cylinder to the forward part of the cylindrical casting so as to project a blast of steam or air in the direction of the vibrating hammer.

7. In a boiler-tube cleaner, the combination of a cylindrical casting having a transverse cylinder, a sleeve or casing fitting over the said casting so as to form the heads of the cylinder, a detachable cap securely fastened to the forward end of the cylindrical casting and having an aperture through which the hammer operates, a vibrating hammer pivoted upon an axis transversely to the cylinder and having a rearwardly-extending arm extending into the body of the cylinder, a reciprocating piston fitted to said cylinder and having a transverse slot for receiving the arm of the hammer, an automatic valve for controlling the supply of steam to either end of the cylinder, a tubular rod secured to the rear end of the cleaner for supplying steam or air under pressure to the valve and cylinder, exhaust-ports leading from the cylinder to the forward part of the cylindrical casting so as to project a blast of steam or air in the direction of the vibrating hammer, and by-passes for steam or air extending from the steam or air ports to the forward end of the cap and directed obliquely to the end of the cap whereby a rotary action is secured to the steam or air at the forward end of the cleaner and adjacent to the hammer-head.

8. In a boiler-tube cleaner, the combination of a cylindrical casting or head having a transverse cylinder detachably secured in a transverse aperture through the cylindrical casting, a sleeve or casing fitting over the said casting so as to form the heads of the cylinder, a detachable cap securely fastened to the forward end of the cylindrical casting or head to hold the sleeve in place and having an aperture through which the hammer operates, a vibrating hammer pivoted in the head upon an axis transversely to the cylinder and having a rearwardly-extending arm projecting through the cylindrical casting and the middle portion of the wall of the cylinder and into and terminating in the interior thereof, a reciprocating piston fitted to said cylinder and having a slot on one side for receiving the arm of the hammer, an automatic valve for controlling the supply of steam to either end of the cylinder, and a tubular rod secured to the rear end of the cleaner for supplying steam or air under pressure to the valve.

9. In a boiler-tube cleaner, a head attached to the end of a tubular rod or blast-pipe, combined with a pivoted vibrating hammer having a free rear extension, a transversely-reciprocating piston having a slot into which the rear extension of the hammer projects and by which it is operated so that the hammer-head and piston simultaneously move in opposite directions, an automatic valve for controlling the supply of steam or air to either end of the piston, and relief exhaust-ports opening through the cylinder near each end and opened and closed by the movement of the piston to permit the escape of steam from the cylinder after a given portion of the stroke has been secured.

10. In a boiler-tube cleaner, the combination of a suitable head, a vibrating hammer provided with an enlarged head having a smooth hammer portion to deliver the blow, and an oblique knife or serrated portion immediately in the front for operating upon the scale adjacent to that upon which the blow is delivered, and power mechanism contained within the head for vibrating the hammer.

11. In a boiler-tube cleaner, the combination of a suitable cleaner-head secured to the end of a tubular rod or blast-pipe, a vibrating hammer-arm pivoted to the head, a removable hammer-head adjustably secured to the arm and having an annular smooth part and an annular serrated or cutting part, and power mechanism contained within the cleaner head for vibrating the hammer-arm.

12. In a boiler-tube cleaner, a head attached to one end of a tubular rod or blast-pipe, in combination with a transversely-reciprocating piston movable in the head, a vibrating hammer pivoted intermediate of its ends in the head between the piston and forward end of the head and having a direct loose connection with the piston, and a valve independent of the hammer controlled by the movements of the piston for governing its reciprocation.

13. In a boiler-tube cleaner, a head attached to one end of a tubular rod or blast-pipe and open at its end, in combination with a transversely-reciprocating piston having a recess in one side adjacent to the open end of the head, a vibrating hammer extending through the open end of the head and pivoted thereto between the piston and end of the head, a mechanical connection between the hammer and recess in the piston whereby the latter vibrates the hammer, and an automatic valve to control the supply of steam or air to either end of the piston consisting of a reciprocating cylindrical valve moved

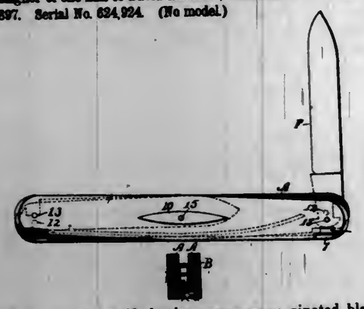
by a difference in pressure of steam on opposite faces, and a relief-port extending transversely through the reciprocating piston for reducing the pressure on either side of the valve to cause its automatic reciprocation with a speed commensurate with that of the piston.

14. In a boiler-tube cleaner, a head attached to one end of a tubular rod or blast-pipe, in combination with a pivoted vibrating hammer, a transversely-reciprocating piston having a mechanical connection with the hammer to vibrate it, and an automatic valve to control the supply of steam or air to either end of the piston consisting of a reciprocating cylindrical valve moved by a difference in pressure of steam on opposite faces, a spring-pressed plate moving with the piston and provided with a relief-port for reducing the pressure on either side of the valve to cause its automatic reciprocation with a speed commensurate with that of the piston.

15. In a boiler-tube cleaner, a head attached to the tubular rod or blast-pipe provided with a pivoted vibrating hammer, a transversely-reciprocating piston for operating said hammer arranged within the head, an automatic reciprocating cylindrical valve for controlling the supply of steam to either end of the piston, and a removable valve-casing having a central transverse perforated diaphragm fitted transversely through the head and having ports communicating with the cylinder in which the reciprocating piston operates and also with the tubular rod or blast-pipe, the diaphragm receiving the end thrusts or blows of the valve in its rapid reciprocation.

16. In a boiler-tube cleaner, the combination of a head secured to the end of a tubular rod or blast-pipe, a hammer pivoted in the head and adapted to vibrate, a transverse cylinder formed in the head, a reciprocating piston for operating the vibrating hammer and provided with a relief-port *h*, a valve-chamber I, a reciprocating cylindrical valve J movable therein and controlling the steam or air through the ports K *k* to or from the main cylinder, means to supply live steam to opposite ends of the cylindrical valve, and relief-ports *i* from the valve-chamber the escape of steam through which is controlled by the relief-port *h* of the piston to relieve the pressure of the steam on portions of the valve to cause the said valve to reciprocate.

595,909. POCKET-KNIFE. CARL R. EVERTS, Brooklyn, N. Y., assignor of one-half to David Eastman, Plainfield, N. J. Filed Feb. 25, 1897. Serial No. 624,924. (No model.)



Claim.—1. In a knife having two or more pivoted blades, the combination with locking devices for holding the blades in fixed positions, of a single releasing device for operating any and all of the locking devices.

2. In a pocket-knife, the combination with the lining and a pivoted blade or blades, of the back-spring adapted to lock said blade or blades in fixed position, and one of the scales of the handle pivoted to the lining and adapted to engage the back-spring and unlock the blade or blades.

3. In a pocket-knife, the combination with the lining and a pivoted blade or blades, of the back-spring adapted to lock said blade or blades in fixed position, one of the scales of the handle pivoted to the lining and adapted to engage the back-spring and unlock the blade or blades, and a spring or springs mounted within the handle and engaging with the blades at their tangs to throw them open when released.

4 In a pocket-knife, the combination with the lining and a pivoted blade or blades provided with locking notches or projections, of a back-spring secured to the lining and provided with lateral projections, and with means for engaging the notches or projections on the blade or blades, and one of the scales pivoted to the lining so that when tilted it will engage the projections on the back-spring and throw it out of engagement with the blade or blades.

5. In a pocket-knife, the combination with the handle having a fixed lining, of blades pivoted in either end of the handle and provided at their tangs with notches for locking the blades in fixed positions, a back-spring provided with legs for engaging said notches and with lateral projections at each end, and one of the scales centrally pivoted to be tilted into engagement with the said projections at either end of the back-spring, as and for the purpose set forth.

6. In a pocket-knife, the combination of the linings provided with recesses at the back edges, the back-spring having projections fitting into said recesses and provided at its ends with catches and lateral projections, blades whose tangs are provided with notches or projections to engage said catches, a scale pivoted to the lining and resting at its ends against the lateral projections upon the back-spring, and a spring located within the handle and having projections resting in the said recesses of the handle and having its ends located under the tangs of the blades, substantially as set forth.

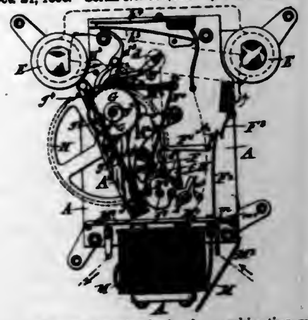
595,910. SLAB OILER OR GREASER FOR CONFECTIONERS. ERNST FILI, Jr., Philadelphia, Pa. Filed May 20, 1897. Serial No. 637,474. (No model.)



Claim.—1. In a device of the character described, the combination of the outer casing having one or more outlet-openings, a layer of absorbent material secured to the bottom of said casing and perforated at the outlet-openings in said casing, and a receptacle adapted to receive the oil placed within the casing and having one or more discharge-outlets registering with the outlet-openings of the casing, substantially as described.

2. In a device of the character described, the combination of the outer casing, a series of tubes projecting upward into the outer casing to constitute outlets therefor, a receptacle adapted to receive oil and placed within the casing, a series of conical ducts or outlets projecting from the bottom of the receptacle and adapted to traverse the tubes thereof, and a layer of felt or similar absorbent material secured to the bottom of the casing and having a series of openings registering with the outlets from said casing, substantially as and for the purposes described.

595,911. ELECTRIC CLOCK. SIGISMUND FISCHER, New York, N. Y., assignor to the Fischer Electric Clock Company, same place. Filed Oct. 21, 1896. Serial No. 609,553. (No model.)



Claim.—1. In an electric clock, the combination with an oscillating pendulum and its crutch, of a main ratchet-wheel for the going train, an arm on the spindle of the crutch, a driving-pawl pivoted to said arm, and a curved check-pawl arranged adjacent to and underneath said driving-pawl, said driving-pawl riding over said check-pawl so as to engage one tooth only of the ratchet-wheel at each driving beat of the pendulum, the pivot of the pawl on the arm causing a toggle action on an excessive stroke of the pendulum which prevents said pawl from pushing the ratchet-wheel more than one tooth.

2. In an electric clock, the combination of an oscillating pendulum, a crutch actuated thereby, a striking-train, the striking-wheel of which is provided with groups of teeth for striking the hours, and with intermediate recesses between said groups of teeth, a striking-arm provided with a tooth for striking the half-hours, means for actuating said striking-arm to bring its tooth opposite said recesses, means connected with the pendulum for operating the striking-wheel for striking the hours, means connected with the arbor of the minute-hand for actuating the striking-arm to operate the striking-wheel for striking the half-hours, a double-toothed check-pawl engaging the teeth of the striking-wheel, and a striking mechanism operated by said check-pawl.

3. In an electric clock, the combination of an oscillating pendulum, a clutch actuated thereby, a striking-train, the striking-wheel of which is provided with groups of teeth for striking the hours and with intermediate recesses between said groups of teeth; a striking-arm provided with a tooth for striking the half-hours, means for actuating said striking-arm to bring its tooth opposite said recesses, means connected with the pendulum for operating the striking-wheel for striking the hours, means connected with the arbor of the minute-hand for actuating the striking-arm to operate the striking-wheel for striking the half-hours, a double-toothed check-pawl engaging the teeth of the striking-wheel, and an electric striking mechanism operated by said check-pawl.

4. In an electric clock, the combination with an oscillating pendulum and its crutch, operated intermittently by electric impulses, of a striking-wheel provided at its circumference with groups of teeth and intermediate recesses between said groups of teeth, a driving-pawl engaging the teeth of the striking-wheel, a striking-arm pivoted to the shaft of the striking-wheel and provided with a single tooth and a cam-shaped portion at its upper end, a fulcrumed striking-finger, a double-toothed push-pawl pivoted to the lower end of the striking-arm, a cam for actuating said striking-arm and push-pawl, and means for locking the striking arm in raised position for permitting the striking of the half-hours by the position of the tooth on the striking-arm adjacent to the recesses between the groups of teeth, substantially as set forth.

5. In an electric clock, the combination with an oscillating pendulum and its crutch, of a driving-pawl, a striking-train the main wheel of which is provided with groups of teeth and intermediate recesses between said groups of teeth, a striking-arm pivoted to the shaft of the striking-wheel, and provided with a single tooth and a cam-shaped portion at its upper end, means for retaining the striking-arm in raised position, a cam-pin on the minute-arbor for releasing the retaining-piece, a striking-finger fulcrumed to the frame and provided with a downwardly-extending arm, a double cam on the minute-hand arbor engaging said arm, a notched wheel placed on the arbor of the going spur-wheel and a striking-finger provided with a pin that drops into the notches of said wheel for permitting the striking of the full hours with slow or retarded strokes, substantially as set forth.

6. In an electric clock, the combination, with an oscillating pendulum and its crutch, of a driving-pawl for the striking-train broader at its lower end, a striking-wheel provided with groups of teeth at its circumference and intermediate recesses between said groups of teeth, a striking mechanism operated by said striking-wheel, a striking-arm pivoted to the shaft of the striking-wheel, a double-toothed push-pawl pivoted to the lower end of the striking-arm, a cam on the minute-arbor engaging the lower end of the striking-arm, and a striking-finger fulcrumed to the frame and provided with a downwardly-extending arm, a double cam on the minute-arbor engaging said arm, the broader lower end of the driving-pawl engaging intermittently the striking-wheel and striking-arm for producing the striking of the full and half hours, substantially as set forth.

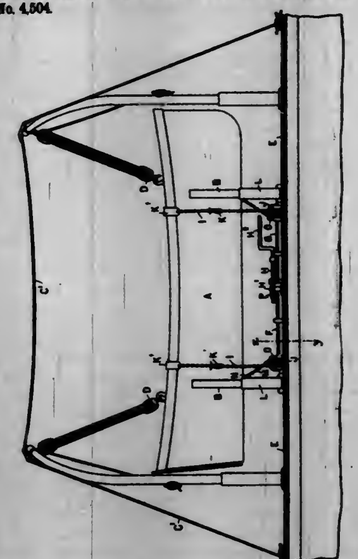
7. In an electric clock, the combination, with an oscillating pendulum and its crutch, of a driving-pawl at its lower end, a striking-wheel of which is provided with groups of teeth at its circumference and intermediate recesses between said groups of teeth, a striking-arm pivoted to the shaft of the striking-wheel and provided with a single tooth and a cam-shaped portion at its upper end, a spring-actuated push-pawl pivoted to the lower end of the striking-arm, a fulcrumed and spring-actuated V-shaped piece engaging intermittently the lower end of the striking-arm, a cam on the minute-arbor, a cam-pin on said arbor dismetrically opposite to said cam, said cam and cam-pin engaging respectively the lower end of the striking-arm and the V-shaped piece of the same for setting the parts in position for striking respectively half and full hours, substantially as set forth.

8. In an electric clock, the combination, with an oscillating pendulum and its crutch, of a driving-pawl, a striking-train consisting of a striking-wheel having groups of teeth at its circumference, and intermediate recesses between said groups of teeth, a striking-arm pivoted to the shaft of the striking-wheel, a striking-finger fulcrumed to the frame and provided with a downwardly-extending arm, a double cam for dropping the striking-finger every half-hour, a notched wheel on the arbor of the main ratchet-wheel of the going train and a pin on the striking-finger adapted to drop intermittently into the notches of the notched wheel, said striking-finger being provided with an enlarged or bulging portion for raising the driving-pawl out of engagement with the striking-wheel and striking-arm, substantially as set forth.

9. In an electric clock, the combination, with an oscillating pendulum and its crutch, of a driving-pawl having a broad lower end, a striking-train consisting of a striking wheel, a striking-arm pivoted to the shaft of said striking-wheel, an electrically-operated striking mechanism, means for operating said striking mechanism by the striking-wheel, a spring-actuated push-pawl pivoted to the lower end of the striking-arm, a pin for arresting the downward motion of the striking-arm, and a pin for engaging the double-pointed push-pawl and withdrawing it from the teeth of the striking-wheel preparatory to striking the full hours, substantially as set forth.

10. In an electric clock, the combination with an oscillating pendulum and its crutch, of a striking-train composed of a striking-wheel having groups of teeth at its circumference and intermediate recesses between said groups of teeth, a striking arm pivoted to the shaft of the striking-wheel, a striking-finger fulcrumed to the frame and provided with a downwardly-extending arm, a double cam on the minute-arbor for actuating the striking-finger, and a double-toothed check-pawl engaging the teeth of the striking-wheel, a circuit-closing device actuated by said check-pawl, a driving-pawl pivoted to an arm on the crutch and being made broad enough to extend over the striking-wheel, striking-arm and striking-finger, a notched wheel on the arbor of the main ratchet-wheel of the going train, said wheel being provided with notched and unnotched portions, a pin on the striking-finger adapted to drop into the notch and move over the unnotched portions of the striking-wheel, a V-shaped piece engaging the lower end of the striking-arm, and a cam-pin on the minute-arbor for moving said V-shaped piece clear of the lower end of the striking-arm, for permitting the striking of the full hours at a slow stroke by the joint action of the striking-wheel, striking-arm and striking-finger on the driving-pawl of the striking-train, substantially as set forth.

595,912. HOLDING AND DISENGAGING GEAR FOR SHIPS' BOATS. LACY T. GASKILL, Liverpool, England. Filed Feb. 26, 1897. Serial No. 625,124. (No model.) Patented in England Feb. 28, 1896, No. 4,504.



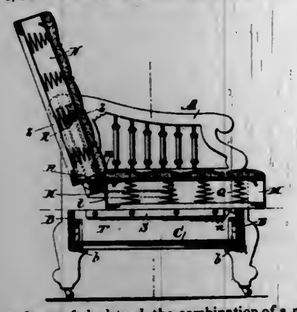
Claim.—1. In a boat raising, holding and lowering gear, the combination therewith of chocks arranged transversely to the boat and hinged at one of their ends to the deck of the vessel, and legs or supports hinged to the deck at the opposite ends of the chocks, and engaging with the chocks, and means for holding said legs in the upright position so as to engage with and support the chocks, substantially as described.

2. In a boat raising, holding and lowering gear, the combination of chocks hinged so that they can fall transversely to the boat, legs hinged to the deck and supporting said chocks, a chain or chains for keeping these legs upright so as to support the chocks, and mechanism for locking the ends of the chain or chains aforesaid so as to keep the boat firmly on the chocks and prevent the chocks from falling, and a hand-lever controlling said locking mechanism, and locking devices for locking said hand-lever.

3. In a boat raising, holding and lowering gear, the combination of chains adapted to be passed transversely around the boat, chocks hinged so that they can fall transversely to the boat, legs supporting said chocks, a chain or chains for keeping these legs upright so as to support the chocks, and mechanism for locking the ends of the chain or chains aforesaid so as to keep the boat firmly on the chocks

and prevent the chocks from falling, and a hand-lever controlling said locking mechanism, and locking devices for locking said hand-lever.

595,918. SOFA-BEDSTEAD. HENRY S. HALE, Philadelphia, Pa. Filed Mar. 5, 1897. Serial No. 625,974. (No model.)



Claim.—1. In a sofa-bedstead, the combination of a main frame having its ends provided with guides occupying more or less upright and horizontal positions, a sofa-seat section movable horizontally in the main frame, and a sofa-back section provided at each end with two guides engaging the guides on the ends of the main frame, so arranged that when the sofa-back section is moved from an upright position to a horizontal position, one of said guides will move upon the upright portion of the guides of the end frames, and the other in the horizontal portion thereof.

2. In a sofa-bedstead, the combination of the main frame provided at its ends with grooved guideways K, K, having more or less horizontal and upright portions, a sofa-seat section movable horizontally on the main frame, and a sofa-back section provided at each end with two guides guided in the grooved guideways K, K, whereby the sofa-back section may be maintained in an upright position and may be moved therefrom into a horizontal position or vice versa.

3. In a sofa-bedstead, the combination of the main frame provided at its ends with grooved guideways K, K, having more or less horizontal and upright portions, a sofa-seat section movable horizontally on the main frame, and a sofa-back section provided at each end with two rollers R guided in the grooved guideways K, K, whereby the sofa-back section may be maintained in an upright position and may be moved therefrom into a horizontal position or vice versa.

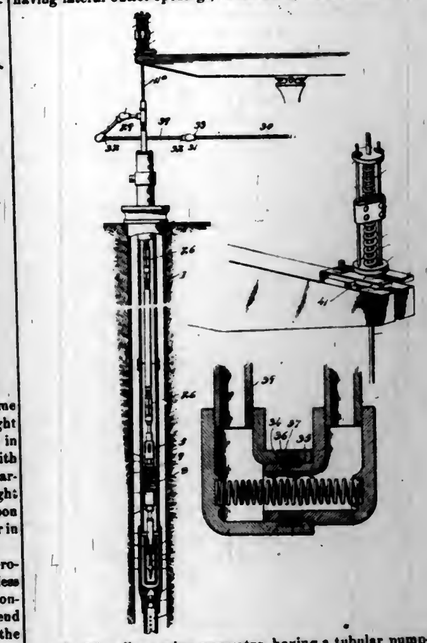
4. In a sofa-bedstead, the combination of the main frame provided at its ends with grooved guideways K, K, having more or less horizontal and upright portions, a sofa-seat section movable horizontally on the main frame, and a sofa-back section provided at each end with two guides guided in the grooved guideways K, K, one of said guides at each end being located at the front edge of the sofa-back section, whereby the sofa-back section may be maintained in an upright position and may be moved therefrom into a horizontal position or vice versa.

5. In a "knockdown" sofa-bedstead, the combination of a main frame, composed of end and side pieces provided with means for detachable connection a sofa seat section supported upon the main frame, a sofa-back section, and guides between the sofa-back section and the main frame, to permit the sofa-back section to be moved from a more or less upright to a more or less horizontal position, and open at one end to permit the sofa-back section to be lifted from engagement with them.

6. In a "knockdown" sofa-bedstead, the combination of the main frame composed of detachable side and end pieces and provided at its ends with grooved guideways K, K, having more or less horizontal portions and upright portions open at their ends, a sofa-seat section movable horizontally on the main frame, and a sofa-back section provided at its ends with guides guided in the grooved guideways K, K, whereby the sofa-back section may be maintained in an upright position and may be moved therefrom into a horizontal position or vice versa and may also be removed from the main frame through the open ends of the upright portions of the guides K, K.

595,914. OIL-WELL PUMPING APPARATUS. WILLIAM R. KARNS, Parker's Landing, Pa. Filed May 15, 1896. Serial No. 591,689. (No model.)

Claim.—1. Oil-well pumping apparatus, having a tubular pump-rod and means for supplying steam thereto, a pump-barrel, a working valve carried by the pump-rod and operating in said barrel, and a suction-pipe having a valved inlet-opening connected by channels with the pump-barrel and provided with a central cavity having lateral outlet-openings, the pump-rod extending into said cavity and having lateral outlet-openings, substantially as specified.



2. Oil-well pumping apparatus, having a tubular pump-rod and means for supplying steam thereto, a pump-barrel, a working valve carried by the pump-rod and operating in the pump-barrel, and a suction-pipe having a valved inlet-opening communicating with opposite cored channels connected with the pump-barrel, and opposite elongated lateral openings equal in length with the stroke of the pump-rod, the pump-rod being extended into the bore of the suction-pipe between and having lateral perforations to discharge through said elongated openings, substantially as specified.

3. Oil-well pumping apparatus, having a tubular pump-rod and means for supplying steam thereto, a pump-barrel, a working valve, a laterally-slotted suction-pipe having a valved inlet-opening connected by channels with the pump barrel, said pump-rod extending into the bore of the suction-pipe and having outlet-perforations, and a stuffing-box through which the pump-rod extends removably seated in the upper end of the suction-pipe, substantially as specified.

4. Oil-well pumping apparatus, having a tubular pump-rod and means for supplying steam thereto, a pump-barrel, a working valve, a laterally-slotted suction-pipe having a valved inlet-opening connected by channels with the pump barrel, said pump-rod extending into the bore of the suction-pipe and having outlet-perforations, and a stuffing-box through which the pump rod extends provided with a tapered extremity removably fitted in a tapered seat in the upper end of the suction-pipe, substantially as specified.

5. Oil-well pumping apparatus, having a tubular pump-rod and means for supplying steam thereto, a pump-barrel, a working valve, a laterally-slotted suction-pipe having a valved inlet-opening connected by channels with the pump-barrel, said pump-rod extending into the bore of the suction-pipe and having outlet-perforations, a stuffing-box removably seated in the upper end of the suction-pipe and projections on the pump-rod above and below the stuffing-box to jar the latter in seating and unseating the same, substantially as specified.

6. Oil-well pumping apparatus, having a tubular pump-rod and means for supplying steam thereto, a pump-barrel, a working valve arranged in operative relation with a valve-seat, said valve-seat being formed upon a coupling connecting contiguous pump-rod sections, a laterally-slotted suction-pipe having a valved inlet-opening connected by channels with the pump-barrel, said pump-rod extending into the bore of the suction-pipe and having lateral outlet-perforations and a projecting head or knocker, and a stuffing-box through which the pump-rod extends removably seated in the upper end of the suction-pipe, whereby said coupling and the head or knocker are arranged respectively above and below the stuffing-box to provide for jarring the stuffing box in seating and unseating the same, substantially as specified.

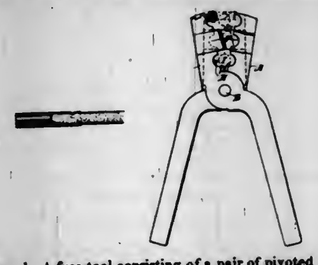
7. Oil-well pumping apparatus, having a tubular pump-rod and means for supplying steam thereto, a pump barrel, a working valve, a laterally-slotted suction-pipe having a valved inlet-opening connected by channels with the pump-barrel, said pump-rod extending into the bore of the suction-pipe and having outlet-perforations, a stuffing-box through which the pump-rod extends removably seated in the upper end of the suction-pipe, yielding catches for engaging and securing the stuffing-box in its seat, and means carried by the pump-rod for disengaging the catches, substantially as specified.

8. Oil-well pumping apparatus, having a tubular pump-rod and means for supplying steam thereto, a pump-barrel, a working valve, a laterally-slotted suction-pipe having a valved inlet-opening connected by channels with the pump-barrel, said pump-rod extending into the bore of the suction-pipe and having outlet-perforations, a stuffing-box through which the pump-rod extends removably seated in the upper end of the suction-pipe, upwardly-convergent spring-catches on the suction-pipe engaging the stuffing-box, and a head on the portion of the pump-rod below the plane of the stuffing-box for engaging and repressing said catches to release the stuffing-box, substantially as specified.

9. Oil well pumping apparatus, having a tubular reciprocatory pump-rod extending below the plane of the working valve, and a pump-barrel connected by suction-channels with a valved inlet arranged below the lower extremity of the pump-rod, of a supply-pipe for a fluid agent adapted to be conveyed by the pump-rod to the bottom of the well, and a flexible coupling between said supply-pipe and the pump-rod whereby the fluid agent may be supplied during the reciprocation of the pump-rod, substantially as specified.

10. Oil well pumping apparatus, having a reciprocatory pump-rod, an operating-lever or walking-beam, a rocking adjuster mounted upon the operating-lever and perforated to receive the pump-rod, a seat carried by the adjuster, a clamp adjustably secured to the pump-rod above said seat, a cushion-spring interposed between the seat and the clamp, lateral guide-rods connected at their upper extremities by a cap, means for adjusting the cap toward and from the clamp, and an auxiliary spring interposed between the cap and the clamp, substantially as specified.

595,915. FUSE-CUTTING TOOL. ERNEST A. LANGFORD, Washington, Cal. Filed Apr. 2, 1897. Serial No. 630,449. (No model.)



Claim.—1. A fuse-tool consisting of a pair of pivoted jaws with actuating-handles, said jaws having corresponding openings made in line between them, and a diagonally-placed blade secured to one of said jaws with relation to said openings whereby the closing of the jaws upon the fuse will make a diagonal cut from one side to the center or powder-channel thereof to prepare the end of the fuse for ignition.

2. A fuse-tool consisting of jaws fulcrumed together and having handles by which they are opened and closed, said jaws having beveled segmental ends and having holes made in line between them, means for severing the fuse into lengths, a diagonally-placed cutter secured to one of said jaws so as to intersect the adjacent hole in a plane extending from the periphery of the opening to the center thereof whereby a diagonal cut is made from the outside to the center of the fuse when the jaws are closed thereon, and a crimper for securing the fuse to the cap.

3. A tool for preparing fuse for ignition consisting of jaws fulcrumed together having handles by which they are opened and closed, beveled segmental ends to said jaws, a hole bored through the ends of said jaws parallel with the axial or pivot pin, the lower end of the bevel intersecting the hole on a line centrally across it, and a cutter-blade fixed to one of said jaws whereby the closing of the jaws upon the fuse will make a diagonal cut from one side to the center or powder-channel thereof.

4. A fuse-tool consisting of jaws pivoted together and having handles by which they are movable about the pivot-pin, semicylindrical openings made through the jaws in line with each other and parallel with the pivot-pin, a cutter-blade fixed with relation to one of said openings whereby the fuse is severed by a straight cut, a pin fixed in one side of one of the openings adapted to indent the cap and compress it upon the fuse after the latter has been inserted into the cap, a diagonally-placed blade secured with relation to a third opening so as to intersect the same in a plane extending from the periphery of the cylindrical opening to the center thereof whereby a diagonal cut is made from the outside to the center of the fuse when the jaws are closed thereon.

595,916. GAS-MIXER. WILLIAM LANGSENKAMP, Jr., Indianapolis, Ind. Filed Dec. 5, 1895. Serial No. 571,187. (No model.)

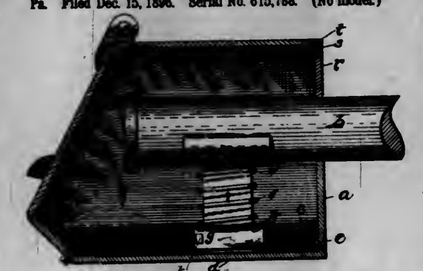


Claim.—1. The combination with a fluid-supplying device having an orifice for the passage of the fluid, of a chilled drill-obstructer cast in place in said device.

2. The combination with a fluid-supplying device having an orifice for the passage of the fluid, of a chilled drill obstructer composed of two frustums of a cone with their bases together.

3. The combination with a fluid-supplying device having an orifice for the passage of the fluid, of a drill obstructer composed of two frustums of a cone with their bases together each of which frustums is supported to independently rotate.

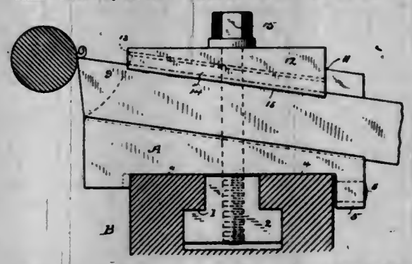
595,917. JOURNAL-LUBRICATOR. GEORGE MEDDINGS, Joint, Pa. Filed Dec. 15, 1896. Serial No. 615,788. (No model.)



Claim.—1. In a journal-lubricator, a slotted supporting-plate placed near the bottom of the box, a slotted plate A, placed upon the supporting-plate, and fastening devices for securing the plate in position, combined with a spring-actuated tube which has a vertical play through the two slotted plates; the concave plate secured to the upper end of the tube, and absorbent material for feeding oil to the axle, substantially as shown.

2. In a journal-lubricator, the supporting-plate placed in the box, and provided with a slot that is larger at one end than the other, the plate A placed thereon and provided with a cover for the outer end of the slot; and a spring-actuated tube which has a vertical play through the two plates, and is provided with a collar upon its lower end, and fastening devices to secure it in place, combined with a concave plate secured to the upper end of the tube, and absorbent material for feeding the lubricant to the axle, substantially as described.

595,918. CUTTING-OFF TOOL. JOSEPH R. MORSE, Bridgeport, Conn. Filed July 20, 1897. Serial No. 645,201. (No model.)



Claim.—1. A holder for cutting-off tools comprising in its construction a carrier having an incline extending downward and backward from the front thereof and adapted to receive a cutter resting

upon said incline, means for locking said cutter in operative position, and independent means for holding the carrier in its adjusted positions, whereby the tool may be removed from or secured in the carrier without disturbing the adjustment of the latter.

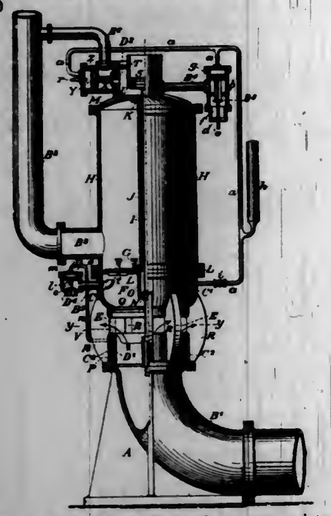
2. A holder for cutting-off tools consisting of a carrier and having inclines extending backward from the front thereof and adapted to receive cutters resting upon said inclines, a holding-block resting upon the cutters, means for locking the holding-block and cutters in operative position, and independent means for holding the carrier in its adjusted positions, whereby the tools may be removed from or secured in the carrier without disturbing the adjustment of the latter.

3. A holder for cutting-off tools consisting of a carrier having inclines extending downward and backward from the front thereof, said inclines being provided with grooves 8 to receive cutters, a holding-block resting upon the tops of the cutters, means for locking the holding-block and cutters in operative position, and independent means for locking the carrier against lateral movement.

4. A holder for cutting-off tools consisting of a carrier having inclines on opposite sides extending backward from the front thereof to receive cutters, a holding-block having a groove 13 to receive the carrier, and side walls 14 which rest upon the cutters, means for locking said holding-block and cutters in operative position, and independent means for locking the carrier against lateral movement.

5. A cutting-off tool consisting of a carrier having inclines extending downward and backward from the front thereof, a recess to receive a fixed block and a depending lug carrying a set-screw to engage the fixed block, cutters resting upon the inclines, a holding-block resting upon the cutters and means for locking the holding-blocks and cutters in operative position.

595,919. WATER-IMPELLING MACHINE. WILLIAM R. PHILLIPS, Seattle, Wash. Filed Feb. 26, 1897. Serial No. 625,164. (No model.)



Claim.—1. In a water-impelling engine or ram, an interrupting main valve, a collecting-chamber above the same, a hydraulic cylinder and piston in alinement with said main valve, a piston-rod connecting said piston and said main valve, a main discharge-pipe, a pipe connection between the main discharge-pipe and the said hydraulic cylinder, a distributing-valve between the said pipe connection and the said hydraulic cylinder, a distributing-valve and wasteway on the other side of the said cylinder, connected therewith, and a pipe connection between the collecting-chamber and the said distributing-valves, substantially as specified.

2. In a water-impelling engine or ram, an interrupting main valve, a hydraulic piston connected therewith, located in a hydraulic cylinder, a main discharge-pipe, distributing valves and pistons on either side of the said hydraulic cylinder, in communication with the same, a collecting-chamber, a pipe connection between the main discharge-pipe and the negative side of the distributing-valve pistons, and a pipe connection between the collecting chamber and the positive side of the distributing-valve pistons, substantially as specified.

3. In a water-impelling engine or ram, an interrupting main valve operated by a hydraulic piston on the stem thereof; an inlet distributing-valve, and a piston of large area connected thereto, so the valve will open when exposed to static pressure between the valve and piston, in the manner substantially and for the purposes described.

4. In a water-impelling engine or ram, an interrupting main valve operated by a hydraulic piston connected thereto; an inlet distributing-valve admitting water to the piston, opened by static pressure in the manner described; an outlet-valve communicating with the same piston and closed by the same pressure, so as to cause an upward or closing stroke of the interrupting-valve, in the manner substantially as described.

5. In a water-impelling engine or ram, an interrupting main valve controlled by a hydraulic piston; distributing inlet and outlet valves for the latter; actuating-pistons connected to the valves, moved in one direction by a static water pressure in the manner described, and in the other direction by counter-pressure from the impinging force of the driving-current, in the manner substantially as described.

6. In a water-impelling engine or ram, an interrupting main valve raised and controlled by a hydraulic piston; distributing inlet and outlet valves for the hydraulic piston, connected to or formed integrally with pistons and of larger area than the valves to which they are attached, operating in one direction by pressure applied between the valves and their pistons, and in the other direction by counter-pressure applied over the whole area of the pistons, in the manner substantially and for the purposes specified.

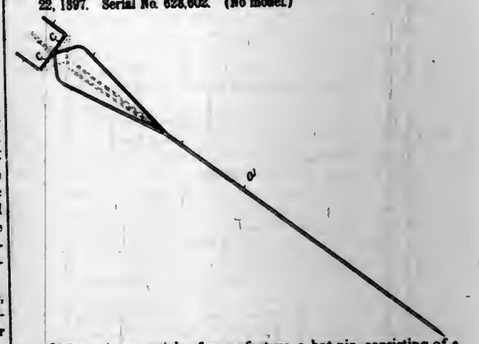
7. In a water-impelling engine or ram, an interrupting main valve raised or controlled by a hydraulic piston; distributing water-valves to operate the piston, supplementary hydraulic pistons to actuate the distributing-valves by difference of area on the two sides of the pistons and independent water connections thereto, in the manner substantially and for the purposes described.

8. In a water-impelling engine or ram, an interrupting main valve and chamber, a superimposed collecting-chamber, a hydraulic cylinder *m*, piston *l*, and air-escape valve D^4, an air-escape pipe between said collecting-chamber and said hydraulic cylinder, and a pipe connection between the main-valve chamber and the said hydraulic air-escape cylinder, substantially as specified.

9. In a water-impelling engine or ram, an interrupting main valve and chamber, having a lateral discharge-way, a superimposed collecting-chamber, a hydraulic cylinder with air-escape valve therein, an air-escape pipe between said collecting-chamber and said hydraulic cylinder, a pipe connection between the main-valve chamber and the said hydraulic air-escape cylinder, and a piston in said hydraulic cylinder connected to the valve therein, having a leakway through the said piston whereby equilibrium is established when the discharge-way is closed, permitting the closure of the said air-escape valve, substantially as specified.

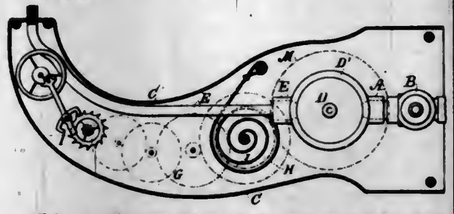
10. In a water-impelling engine or ram, a main supply-pipe, air vessel and interrupting-valve, as herein described: a collecting-chamber above the main valve, and an air-valve therefor, the latter and its actuating-piston connected with the collecting-chamber to permit the escape of air, and the piston connected with the main discharge-way by a pipe in such manner that the pipe will be closed by the interrupting main valve when the latter rises and closes the main discharge, in the manner substantially as described.

595,920. HAT-PIN. EMERY E. RICE, Charleroi, Pa. Filed Mar. 22, 1897. Serial No. 628,602. (No model.)



Claim.—As an article of manufacture, a hat-pin, consisting of a pin proper divided at the upper portion into two parts, each of said parts being bent outward and thence inward thus forming the locking portion of the pin, each of said parts are thence bent outward at right angles to the body portion of the pin, and formed into upwardly-extending loops, whereby pressure on the loops will cause the outwardly-bent portions of the pin to come into contact for the purpose described.

595,921. SELF-CLOSING COCK OR VALVE FOR GAS, &c. JOHN R. RICHARDS, New York, N. Y. Filed Apr. 6, 1897. Serial No. 630,961. (No model.)



Claim.—1. The combination with the cock or valve for admitting gas or other fluid, of a spring and clock-movement directly connected to the plug of the cock so that the spring is wound simultaneously with the opening of the cock and the plug is turned gradually by the spring as the clockwork runs down, and a dial and hand connected to and moving in both directions with the plug of the cock for indicating the period of time during which the fluid will be allowed to pass through the cock before the same is shut off, substantially as set forth.

2. The combination with the gas pipe and cock or valve, of a train of gearing and spring forming a clockwork, gear-wheels connecting the plug of the cock and the arbor of the spring, a key for turning the arbor and winding the spring and simultaneously opening the cock, and a dial and hand moved with the plug of the cock during the opening and closing operations for indicating the period that the fluid will be allowed to pass through the cock, substantially as set forth.

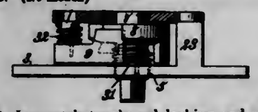
3. The combination with the gas-cock, a spring and train of gearing forming a clockwork, of gearing connecting the plug of the cock to the arbor of the spring, whereby the plug of the cock is turned in one direction in winding the spring and is turned gradually in the other direction as the clock-movement runs down, and a stop for arresting the movement of the plug as the cock is closed, substantially as set forth.

4. The combination with the gas-cock, a spring and train of gearing forming a clockwork, of gearing connecting the plug of the cock to the arbor of the spring whereby the plug of the cock is turned in one direction in winding the spring and is gradually turned in the other direction as the clock-movement runs down, and an adjustable stop for allowing the gas to be entirely shut off or a small flame to remain burning, substantially as set forth.

5. A gas-cock, the plug of which has two peripheral grooves adjacent to and communicating with each other extending around the plug except at the points opposite the supply and discharge pipes where there is sufficient surface on the plug to close them, so that the gasway remains open nearly the entire revolution of the plug and is closed at the end of the movement, substantially as set forth.

6. The combination with the gas-supply pipe and a spring and train of gearing forming a clockwork, of a gas-cock having a plug and gearing connecting the same to the arbor of the spring, such plug having two channels extending almost around the plug, leaving the surfaces of the plug between the ends of the channels for closing the ends of the supply and discharge pipes and connections between the respective channels for allowing the gas to pass from one to the other and for allowing the gasway to remain open during nearly the entire revolution of the plug, substantially as set forth.

595,922. AUTOMATIC LOCKING AND RELEASING MECHANISM FOR TRANSOMS OR WINDOWS. WILLIAM S. ROBINSON and CHARLES A. HAMMELEY, Fancy Farm, Ky. Filed Aug. 31, 1897. Serial No. 650,185. (No model.)



Claim.—1. In a ratchet-and-pawl locking and releasing mechanism, the combination with a ratchet-gear having a guide-groove of a pawl coacting with said ratchet-gear having a tongue adapted to engage with the guide-groove, and means operating by the forward turning of the ratchet-gear to raise said tongue, and with it the pawl, to bring the tongue into engagement with the guide-groove, whereby, in the reverse movement of the ratchet-gear, the pawl is maintained in an elevated position and out of contact with the teeth of the ratchet-gear, substantially as described.

2. In a ratchet-and-pawl locking and releasing mechanism, the combination with a ratchet-gear having a tongue adapted to engage with the guide-groove, a stop operating by the forward turning of the ratchet-gear to raise said tongue, and with it the pawl, to bring the tongue into engagement with the guide-groove, whereby in the reverse movement of the ratchet-gear the pawl is maintained in an elevated position and out of contact with the teeth of the ratchet-gear, and means to return the tongue to normal position and permit automatic reëngagement of the pawl and ratchet-gear, substantially as described.

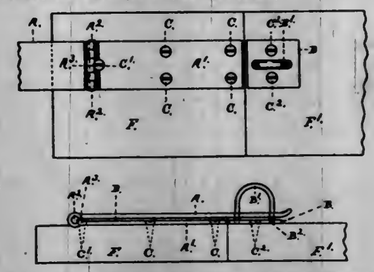
3. In a ratchet-and-pawl locking and releasing mechanism, the combination with a ratchet-gear, of a flange thereon having a guide-groove, a pawl coacting with the ratchet-gear and having an integral depending tongue adapted to engage with the guide-groove, and a stop on said ratchet-gear operating in the forward turning thereof to raise said tongue, to bring it into engagement with the guide-groove, whereby, in the reverse movement of the ratchet-gear, the pawl is maintained in an elevated position and out of contact with the teeth of the ratchet-gear, substantially as described.

4. In a ratchet-and-pawl locking and releasing mechanism, the combination with a ratchet-gear of a flange thereon having a guide, a pawl coacting with the ratchet-gear and having an integral depending tongue carrying a guide-finger adapted to engage with the guide-groove, a stop on said ratchet-gear operating in the forward turning thereof to raise said tongue to bring its guide-finger into engagement with the guide-groove, and means for limiting the forward turning of the ratchet-gear, substantially as described.

5. In a ratchet-and-pawl locking and releasing mechanism, the combination with a ratchet-gear, of a flange thereon having a guide-groove, a pawl coacting with the ratchet-gear and having an integral depending tongue carrying a guide-finger adapted to engage with the guide groove, recesses formed in said flanges to permit the tongue to be raised and lowered, a stop on said ratchet-gear operating in the forward turning thereof to raise said tongue to bring its guide-finger into engagement with the guide-groove, and means for limiting the forward turning of the ratchet-gear, the combination being and operating substantially as and in the manner herein set forth.

6. The combination with the frame and sash of a transom or swinging window, of a locking and releasing mechanism located in said frame and comprising a journal engaged with the sash and turning therewith, a ratchet-gear carried on said journal having a guide-groove, a pawl coacting with the ratchet-gear and having an integral depending tongue adapted to engage with the guide-groove, means on said ratchet-gear operating in the forward turning thereof to raise the tongue into engagement with the guide-groove, and a spring operating on said journal and tending normally to maintain the window or transom closed, substantially as described.

595,923. HASP. WINFRIED A. BÖLKER, Bayonne, N. J. Filed Dec. 29, 1896. Serial No. 617,432. (No model.)

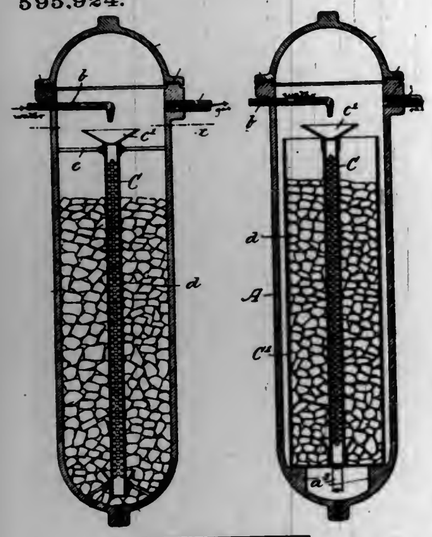


Claim.—A hinged hasp, provided with free end or part A, base A', recessed pivot A^2, and screw C', in combination with the plate B, and staple B', as and for the purpose described.

595,924. ACETYLENE-GAS APPARATUS. WALTER A. ROSE and HENRY S. BURBANK, Philadelphia, Pa. Filed Mar. 26, 1897. Serial No. 629,338. (No model.)

Claim.—A retort for generating gas, comprising a shell or casing having a narrow outlet in the base thereof and a detachable cap or cover applied to the upper part of the same, a water-supply pipe located in the upper portion of said shell and extending into and terminating in a downwardly-projecting tapering outlet-nozzle, a gas-offtake located opposite the water-supply pipe in said shell, a detachable perforated tube or cylinder supported in said retort in a funnel-shaped device, and the upper end of said perforated tube or cylinder having a flaring or funnel-shape mouth, substantially as and for the purposes described.

595,924.



595,925. GLOVE. SOLOMON SCHRECKER, Gloversville, N. Y., assignor to Louis Meyers & Son, New York, N. Y. Filed Sept. 10, 1896. Serial No. 605,365. (No model.)



Claim.—As a new article of manufacture, a glove having its upper or back portion and a part of the finger portions constructed of a comparatively inelastic material, the other part of the finger portions being constructed of a more elastic material, and the palm portion constructed of a comparatively inelastic material provided with an elastic quirk and an elastic slit binding, substantially as described.

595,926. HAIR-RIBBON RETAINER. FRANCIS J. SKILLEN, Reading, Mass., assignor to George W. Capen, same place. Filed Oct. 8, 1897. Serial No. 654,509. (No model.)

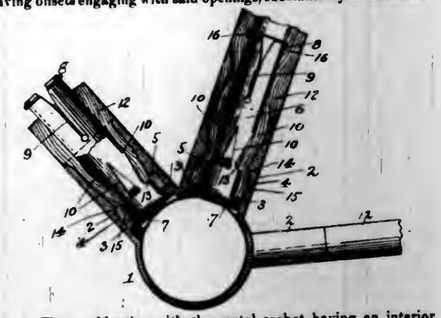


Claim.—A ribbon-retainer comprising a toothed plate having a hook, a flexible strap attached to said plate, and a lever-catch on said strap adapted to engage said hook.

595,927. BICYCLE. ASHEL F. TEMPLE, Muskegon, Mich. Filed Feb. 17, 1897. Serial No. 623,892. (No model.)

Claim.—1. The combination with a metallic socket formed with an interior flange near one end, of the split metal tube or ferrule having flanges at each end, one of which engages with the inner side of the flange in the socket, and the wooden tube having an interior annular groove with which the other flange of said metal tube engages substantially as described.

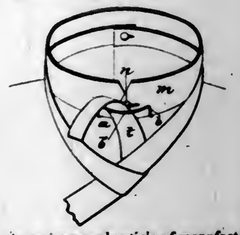
2. The combination with the socket having an interior flange at the inner end thereof, of the split metal tube having a flange at one end engaging with the inner side of the flange of the socket and formed with a number of holes or openings and the wooden tube having offsets engaging with said openings, substantially as described.



3. The combination with the metal socket having an interior flange at the inner end, of the split metal tube or ferrule having a flange at each end one of which engages with the inner side of the flange in the socket, and formed with a number of holes or openings, the wooden tube having offsets engaging with said openings, and formed with an annular interior groove with which the other flange of the tube or ferrule engages, substantially as described.

4. The combination with the metal socket having an interior flange at the inner end, an annular recess and a curved tapering portion, of the metal tube or ferrule having a flange at each end and split or formed with slots at the outer end and formed with a number of openings near the inner end, and the flange at the inner end of said tube or ferrule engaging with the inner side of the flange of the socket, the wooden tube having an annular offset at the inner end, and a series of inwardly-projecting offsets engaging with openings in said tube and formed with an annular interior groove, substantially as described.

595,928. NECKTIE-FASTENER. ALBERT F. VAUGHAN, Providence, R. I., assignor to Cory & Reynolds, same place. Filed Aug. 7, 1897. Serial No. 647,474. (No model.)



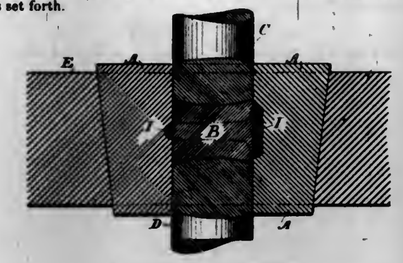
Claim.—1. As an improved article of manufacture, the necktie-retainer, substantially as hereinbefore described, made of wire and comprising the two open downwardly-extending resilient end loops adapted to receive and retain the collar therein, and a loop or inclosed opening arranged in front of and extending at substantially right angles to said end loops to receive an end of the necktie.

2. The improved necktie-retainer *a*, made of a length of wire, the same consisting of the bent front and rear members, b', b^2, the latter being depressed so as to avoid the collar-button, the two downwardly-extending open end loops *b* united by said front and rear members, and having the rear part of the loops *b* extending above the plane of the front member b', and a front loop *a* through which an end of the necktie may be passed, substantially as hereinbefore described.

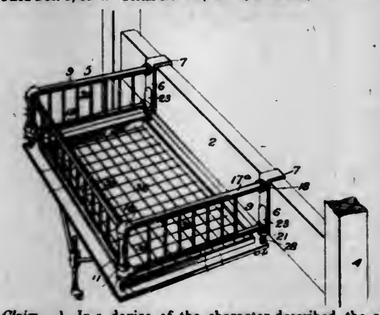
595,929. MANUFACTURE OF FINGER-RINGS. JOSEPH G. WARD, Newark, N. J. Filed Mar. 29, 1897. Serial No. 629,782. (No model.)

Claim.—1. In the manufacture of finger and other rings, the combination with a divided die having an interior surface corresponding to the exterior surface of the finished ring, of punches acting in opposite directions and a separate metallic expansion-plug of greater length than the widest part of the ring and extending through the same, so that the ring will be uniformly expanded into the die by the end pressure of the punches upon the expansion-plug, substantially as set forth.

2. The combination with a divided internal die, having a surface corresponding to the exterior of the ring to be formed, and a die-holder rigidly receiving the tapering exterior of the die, of two punches fitting the cylindrical interior surface of the die and acting in opposite directions, and a separate metallic plug extending through the ring and adapted to be expanded by the end pressure to cause all portions of the ring to uniformly fill the internal die, substantially as set forth.



595,930. BED ATTACHMENT. JOHN W. WILLIS, Springfield, Ill. Filed Feb. 5, 1897. Serial No. 622,185. (No model.)



Claim.—1. In a device of the character described, the combination with hollow bed-posts and movable sections, of spring-supported pistons, movable within the hollow bed-posts and a bottom frame operatively connected to said pistons, substantially as specified.

2. The combination with supporting-plates provided with supporting-hooks, of a bed-frame carried by the plates, and a rigid bottom yieldingly carried by the bed-frame, substantially as specified.

3. In a device of the character described, the combination with supporting-plates and hollow bed-posts of bed-sections carried thereby and a bed-bottom yieldingly supported by the hollow bed-posts and bed-plates, substantially as specified.

4. In a device of the character described, the combination with a pair of hollow bed-posts of folding bed-sections carried thereby supporting-plates secured to a plurality of said sections spring-actuated pistons carried by the bed-posts and supporting-plates respectively and a yielding bed-bottom operatively connected with said pistons, substantially as specified

595,931. AIR-BRUSH. OLAUS C. WOLD, Chicago, Ill., assignor to Henry J. Thayer and Charles H. Chandler, same place. Filed Mar. 1, 1897. Serial No. 625,572. (No model.)



Claim.—1. In an air-brush, the combination with a casing adapted to contain the paint and having an outlet therefor, of a needle for controlling the size of the outlet and thereby the flow of the paint, a reciprocating finger-plate i^3, means for guiding the same in a path practically parallel with the needle, and suitable mechanism intervening between the plate and needle for imparting longitudinal motion to the needle, substantially as described

2. In an air-brush, the combination with a needle for controlling the emission of paint from the brush, of a finger-plate i^3, supporting an eye i^3, a guide i^4 engaging said eye, and suitable mechanism intervening between said plate and needle for imparting longitudinal motion to the needle upon the actuation of the finger-plate, substantially as described.

3. In an air-brush, the combination with a casing adapted to contain the paint and having an outlet therefor, of a needle for controlling the size of the outlet and thereby the flow of the paint, a reciprocating finger-plate i^3, means for guiding the same in a path practically parallel with the needle, a lever *i* fulcrumed at its lower end and linked at i' to the plate i^3, and a back lever *h* fulcrumed at its lower edge and engaging lever *i* near the portion i', said back lever being adapted to impart longitudinal motion to the needle when actuated, substantially as described.

4. In an air-brush, the combination with a casing adapted to contain the paint and having an outlet therefor, of separated bearings *d* and *f*, a sleeve *b* supported by said bearings, a back lever engaging the sleeve interposed between the bearings for imparting longitudinal motion to the sleeve, said bearings serving to direct the sleeve in a uniform line of travel, and a needle removably secured to said sleeve for controlling the size of the outlet and thereby the flow of the paint, whereby said needle may be withdrawn without disorganizing the mechanism, substantially as described.

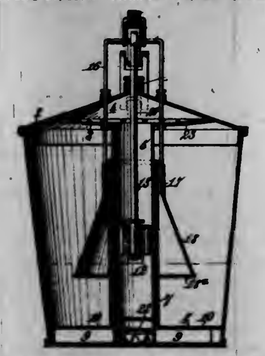
5. In an air-brush, the combination with a casing adapted to contain the paint and having an outlet therefor, of separated bearings *d f*, a sleeve *b* supported by said bearings, means for imparting longitudinal motion to the sleeve, said bearings serving to direct the sleeve in a uniform line of travel, and a needle removably secured to said sleeve for controlling the size of the outlet and thereby the flow of the paint, said needle being thus freed from sliding contact with bearing-surfaces, substantially as described.

6. In an air-brush, the combination with a needle for controlling the emission of paint, a sleeve *b* secured to said needle, a bearing-sleeve *f* in which the sleeve *b* is adapted to reciprocate, a cap-screw f' upon sleeve *f*, a spring *g* tending to thrust the sleeve *b* and needle in one direction, and means for thrusting said needle and sleeve *b* in the other direction, substantially as described.

7. In an air-brush, the combination with a casing adapted to contain the paint and having an outlet therefor, of a needle for controlling the size of the outlet and thereby the flow of the paint, a reciprocating finger-plate i^3, means for guiding the same in a path practically parallel with the needle, a valve for regulating the admission of air under pressure to said casing, a reciprocating pin *l* projecting from the valve, and a lever *i* linked at i' at its upper end to the plate i^3 and engaging the pin *l* at its lower end, substantially as described.

8. In an air-brush, the combination with a casing, of separated bearings *d f*, a sleeve adapted to be longitudinally reciprocated in said bearings, a finger-plate i^3, means for guiding the same in a path practically parallel with the needle, a back lever *h* engaging the sleeve for imparting longitudinal motion thereto, a lever *i* linked at i' to the finger-plate, said back lever engaging lever *i* near the portion i', a valve for controlling the admission of air to the casing, and a valve-pin extending therefrom and engaging the lower end of lever *i*, substantially as described.

595,932. MECHANISM FOR CLEANSING CLOTHING OR TEXTILE FABRICS. JOHN W. WRIGHT and HOWELL H. BURKE, Lampasas, Tex. Filed May 24, 1897. Serial No. 637,945. (No model.)



Claim.—1. A washing-machine comprising a tank, a perforated diaphragm supported a little above the bottom of the tank, a central sleeve opening through and rising from said diaphragm, a pipe removably inclosed by said sleeve, its lower end resting on the tank-bottom and having water-passages in its edge, a valve in the lower

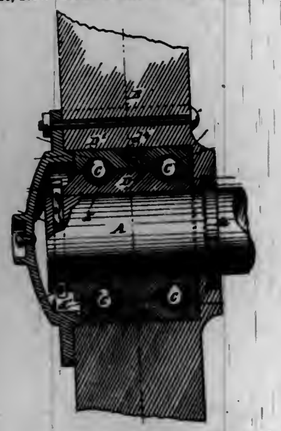
portion of said pipe, a pump-piston in the same having a valve, a cover for the tank having a water-chamber the lower wall of which is perforated and entered by the said pipe, and means for operating the piston to force water from the tank into said water-chamber and spray it through the perforations in the lower wall of the latter downward upon and through the clothes, substantially as described.

2. A washing machine, comprising a tank, a perforated diaphragm having angular walls upon its lower face which support said diaphragm a little above the bottom of the tank, a central sleeve opening through and rising from said diaphragm, a pipe removably inclosed by said sleeve, its lower end resting on the tank-bottom and having water-passages in its edge, a valve in the lower portion of said pipe, a pump-piston in the same having a valve, a cover for the tank having a water-chamber the lower wall of which is perforated and entered by said pipe, a beater surrounding the pipe, a yoke connected to the piston and having parallel rods attached to a ring which carries the beater and means for reciprocating said yoke, substantially as described.

3. In a washing-machine, the combination with a tank of a central pipe rising from the bottom and provided with a valve opening upward, a top, or cover, having a water-chamber provided with a perforated lower wall through which said pipe opens, a piston in said pipe having a valve which opens on the downward stroke, a yoke connected to the piston and having parallel rods passing through the cover, a beater surrounding the pipe and reciprocated by the rods, and means for operating the yoke, substantially as described.

4. In a steam-pump washing-machine, the combination with a tank, of a perforated diaphragm supported above the bottom of said tank, a pipe lying in a sleeve rising from said diaphragm, a top or cover having a water-chamber the lower wall of which is perforated and entered by said pipe, a piston in said pipe having a valve which opens on the downward stroke and closes on the upward stroke of said piston, a beater having the shape of a hollow, truncated cone, its truncated end carried by a ring surrounding the sleeve and pipe, a yoke connected to the piston and having parallel rods which pass through the top and are secured to the said ring, and a lever fulcrumed on a bracket on the top, or cover and having a link connection to the yoke, substantially as described.

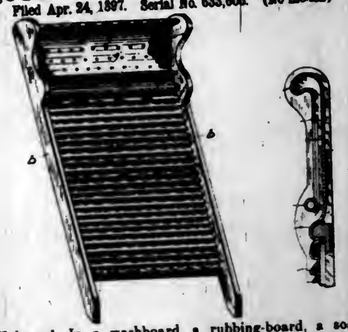
595,933. BALL-BEARING. IRVING BARKER, Springfield, Ill. Filed May 26, 1897. Serial No. 638,255. (No model.)



Claim.—1. In a ball-bearing the combination of an axle, a circumferentially-channeled sleeve detachably connected with and reversible on said axle in such manner that different parts of the surface of said sleeve may be successively subjected to the severest wear, a wheel having a central bore and revoluble around said axle, an internally-channeled shell fitting in the bore of said wheel and changeable therein so as to successively subject different parts of the bearing-surfaces of the channel in said shell to the severest wear of the balls, a detachable cap retaining said shell in said wheel, and balls fitting in ways formed by the juxtaposition of the channels in said shell and said sleeve, as set forth..

2. In a ball-bearing, the combination of an axle provided with a collar; a circumferentially-channeled sleeve detachably connected with said axle, said sleeve and the collar on said axle respectively serving to limit the outward longitudinal movement and the inward longitudinal movement of said wheel on said axle; a wheel revoluble around said axle, and having a central bore, also having an internal flange between said sleeve and the collar on said axle; an internally-channeled shell fitting in the bore of said wheel; balls fitting in transversely-elliptical ways formed by the juxtaposition of the channels in said sleeve and said shell; and a cap connected with said wheel and bearing against and securing said shell in the bore of said wheel, as set forth.

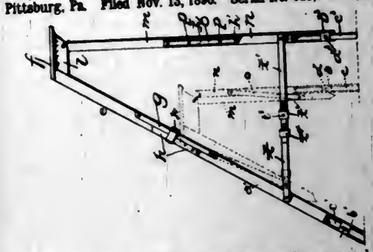
595,934. WASHBOARD. SAMUEL L. BARNDOLLAR, Allegheny, Pa. Filed Apr. 24, 1897. Serial No. 633,603. (No model.)



Claim.—1. In a washboard, a rubbing-board, a soap-holder formed of a single piece of material which is bent upon itself and the front plate thereof being perforated and terminating at its lower edge in a bead, the said plate having an outwardly-bent portion at its top forming a protector, and the rear plate being formed with an incline at its base to carry the water from the soap into direct contact with the top of the rubbing-board, substantially as shown and described.

2. In a washboard, a rubbing-board, said rubbing-board having an upward extension, a portion of said extension bent forward upon itself to form a soap-holder, said soap-holder being provided with openings to drain the water, and the rear portion of said holder being formed with an incline at its base to carry the water into direct contact with the rubbing-board at its top, substantially as shown.

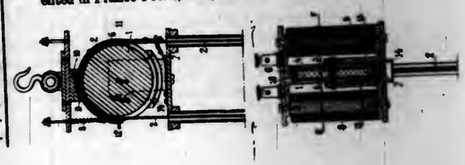
595,935. EXTENSION STEP-LADDER. DANIEL BERNHART, Pittsburg, Pa. Filed Nov. 13, 1896. Serial No. 611,957. (No model.)



Claim.—1. In a step-ladder, the front and rear standards, each made in two parts, the lower portions being provided with stop-braces *h h*, combined with the braces *g*, *o*, pivoted at their ends to the parts of the standards, so as to act as hinges for connecting them, and pivoted latches applied to the standards, and which close over the braces *g*, substantially as described.

2. In a step-ladder, the front and rear standards, each made in two parts, and the lower parts provided with stop-braces, combined with the braces *g*, *o*, pivoted at their ends to the parts of the standards, and which act as hinges to connect the parts, and which are limited in their upward movement by the stop-braces, a hinged catch for catching over the braces, and the braces *l l*, loosely connected at their inner ends, and to the standards at their outer ends, substantially as set forth.

595,936. ELECTRIC-ARC LAMP. ANTOINE BLANNIK, Paris, France. Filed July 10, 1896. Serial No. 598,728. (No model.) Patented in France Feb. 4, 1896, No. 253,707.



Claim.—1. In a regulating apparatus for arc-lamps, the combination with a pulley of two rotary disks formed of magnetic metal and eccentrically supported on each side of the pulley, a flexible band lying upon the peripheries of said pulley and disks, means for applying tension to the band and an electromagnet and armature arranged to exert attraction on the disks proportioned to the variations in the current intensity, substantially as described.

2. In a regulating apparatus for arc-lamps, the combination with a pulley, of two disks of magnetic metals eccentrically supported one on each side of the pulley, a flexible band lying upon the peripheries of the disks and pulley, means for applying tension to said band, an electromagnet and armature to attract said disks and remove more or less of the friction which the band exerts on the pulley, and carbon-carriers supported by the two ends of a cord carried by the pulley, substantially as described.

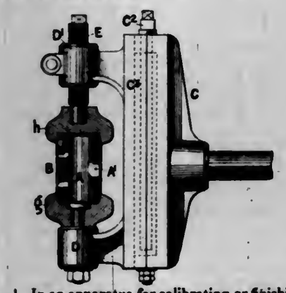
595,937. CHAIN FOR SPROCKET-WHEELS. GEORGE W. BUFFORD, Brooklyn, N. Y. Filed Nov. 5, 1895. Serial No. 568,008. (No model.)



Claim.—1. A chain for sprocket-wheels having links and cross-pivots connecting the links and rigid bearings upon the links, which bearings are farther from the axis of the sprocket-wheel than the pivots of the links and toward the rear ends of the links as they leave the sprocket-wheel so that such bearings only contact with the projections on the sprocket-wheel beyond the chain-pivots and swing back from the projections as the links draw into a straight tangential position, substantially as set forth.

2. The combination with a driven sprocket-wheel, of a chain having plate-links, cross-pins connecting the links of the chain and forming pivots, and rigid bearings across the plate-links and occupying positions triangular to the pivot-pins and farther from the axis of the sprocket-wheel so that such bearings only contact with the projections of the sprocket-wheel beyond the chain-pivots and swing back from the projections as the links draw into a tangential position, substantially as set forth.

595,938. MEANS FOR FINISHING TUBULAR SOCKETS. RUDOLF CHILLINGWORTH, Nuremburg, Germany, assignor to the Standard Weldless Tube and Cycle Components, Limited, London, England. Filed Apr. 21, 1897. Serial No. 633,125. (No model.) Patented in England Dec. 15, 1896, No. 28,694.



Claim.—1. In an apparatus for calibrating or finishing tubes, the combination with a rotating reamer or tool, a divided case adapted to receive the tubular bracket and sockets or similar article and having tapering ends, clamping-heads for receiving and holding the divided case and means for supporting the clamping-heads and presenting the tube or tubular socket to the action of the tool, substantially as set forth.

2. A divided case having lateral openings and adapted to receive a tubular bracket and sockets, such case having tapering ends, in combination with the clamping-heads adapted to receive and support the case, a carriage and means for adjusting the same and a longitudinally-movable shaft for supporting the carriage and a tool for truing the tubular socket, substantially as set forth.

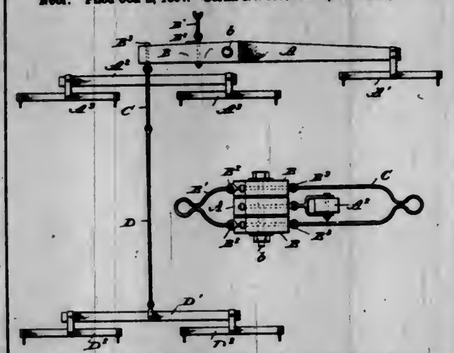
3. The combination with the reaming-tool and means for supporting and rotating the same, of a divided case having tapering ends and adapted to receive the tube with branches or sockets, the clamping-heads adapted to receive the tapering ends of the case, a sliding carriage with bearing-collars and a screw for acting upon the clamping-heads and means for adjusting the parts and bringing the tool into action within the tubular socket, substantially as set forth.

595,939. ATTACHMENT FOR CIGAR-BOXES. CHARLES A. COEY, Fairfield, Wash. Filed Mar. 17, 1897. Serial No. 627,918. (No model.)



Claim.—A clamp or holder for holding the lid of a cigar-box against its back, made up of a single sheet of metal which is stamped or otherwise formed to present three depending tongues parallel with each other, the intermediate or central tongue being tapered and its edges sharpened and the tapered end of the outer tongue turned upon itself, the plate being bent to locate the connecting portions on different planes, substantially as shown and for the purpose set forth.

595,940. DRAFT-EQUALIZER. CHARLEY DAVISON, Stanton, Nebr. Filed Oct. 2, 1897. Serial No. 653,793. (No model.)



Claim.—1. In a five-horse draft-equalizer, an evener-bar A having pivoted thereto evener-bars B B, loops connected to said evener-bars B B, the outer loop extending forwardly and the inner one rearwardly, a singletree connected to the long end of the evener-bar A, and a doubletree to its short end, and a doubletree connected to the loop carried by the outer ends of the evener-bars B B, substantially as shown and for the purpose set forth.

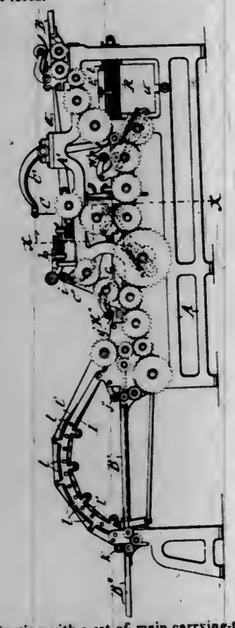
2. In a draft-equalizer, the combination with an evener-bar A provided with means for attaching thereto a singletree and a doubletree, of a pair of short evener-bars pivoted to one side of the center of the evener-bar A, said bars having intermediate eyebolts B^2 for connecting thereto a clevis B', eyebolts B^3 attached adjacent to the outer ends of the short evener-bars, a loop C connected to said eyebolts, the doubletree attached to the evener-bar A passing through said loop C, a rod D connected to the loop C, and a doubletree connected to the forward end of the bar, substantially as shown and for the purpose set forth.

595,941. SHEET ASSEMBLING AND STAPLING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y., assignor to the Dexter Folder Company, New York, N. Y. Filed Mar. 6, 1895. Renewed Mar. 27, 1897. Serial No. 629,573. (No model.)

Claim.—1. A combined paper folding and stitching machine comprising main paper-conveying tapes, tributary conveyers delivering a plurality of sheets to said tapes, a stitching-machine in the path of the main tapes, a gage assembling and alining the sheets on the main tapes in front of the stitching-machine, rollers immediately under the plane of the tapes at the aforesaid gage, drop-rollers over the aforesaid rollers and mechanism imparting intermittent motion to the rollers and timed to stop said motion simultaneously with the descent of the drop-rollers to prevent disturbance of the assembled sheets and subsequently rotate said rollers to pass said sheets collectively and in their alined condition to the stitching-machine as set forth.

2. In combination with a set of main paper-conveying tapes, a wire-stitching machine in the path of said tapes, a plurality of tributary conveyers carrying sheets from different sources to the main conveying-tapes, movable gages in front and rear of the stitching-

machine to aline the sheets in transit, and drop-rollers releasing the sheets from the gages and impelling the sheets to and from the stitching-machine as set forth.



3. In combination with a set of main carrying-tapes, a plurality of feed-boards located at different parts of the machine, paper-folding rollers receiving the sheets from one of said feed-boards, tapes conveying the folded sheets from said rollers to the main conveying-tapes, separate sets of tapes carrying the sheets from the other feed-boards to the main tapes back of the delivery of the folded sheet, a gage gathering and alining the several sheets upon the main tapes, and a wire-stitching machine in the path of the main tapes receiving and stapling the gathered sheets as set forth.

4. In combination with a set of main conveying-tapes, a wire-stitching machine in the path of said tapes, tributary sets of tapes delivering sheets to the main conveying-tapes at different distances from the stitching-machine, an alining-gage at the rearmost point of said delivery, and a gage in front of the stitching-machine and in proximity thereto to collect all the sheets from the aforesaid deliveries and aline said sheets preparatory to being acted upon by the stitching-machine as set forth and shown.

5. In combination with a set of main conveying-tapes, two wire-stitching machines at opposite sides of the center of the path of said tapes, a main feed-board and tributary feed-boards at different parts of the machine, folding-rollers receiving the sheets from the main feed-board, tapes conveying the folded sheets from said rollers to the aforesaid main tapes in front of the stitching-machines, tapes carrying sheets from the tributary feed-boards to the main tapes back of the delivery of the folded sheet, a sheet-alining gage at the delivery of the tributary sheets, a gage at the delivery of the folded sheet collecting and alining all the delivered sheets preparatory to being acted on by the stitching-machines, a cutter dividing the sheets, between the lines of stitches, two sets of folding-rollers folding the divided sheets, and a gage arresting the sheets preparatory to entering between said rollers as set forth.

6. In combination with the set of main tapes and two wire-stitching machines at opposite sides of the center of the path of said tapes, a plurality of tributary tapes delivering sheets from different parts of the machine to said main tapes, movable gages in front of the stitching-machines collecting and alining the group of sheets preparatory to being stitched, a ratchet-wheel attached to one of the main-tape rollers, a pinion pivoted to the axis of said roller, a plate attached to said pinion, a pawl connected to said plate and engaging the ratchet-wheel, a rack engaging the pinion, a rotary cam imparting reciprocating motion to the rack, and drop-rollers over the aforesaid tape-carrying roller as set forth.

7. In combination with the main tapes, two wire-stitching machines at opposite sides of the center of the path of said tapes, tributary tapes delivering sheets from different parts of the machine to said main tapes in front of the stiching machines, a gage alining the sheets thereat, intermittently-operating sheet-propellers in front and rear of the stitching machines and timed with the stitching-machines to arrest the movements of the sheet to stitch the latter at different points along the line of their travel as set forth.

8. In combination with the set of main tapes, two wire-stitching machines at opposite sides of the center of the path of said tapes and in a line at right angles to said path, feed-boards at different parts of the machine, folding-rollers receiving the sheet from one of said feed-boards, tapes delivering the folded sheet from said rollers to the main tapes in front of the stitching-machines, tapes conveying tributary sheets to the main tapes in front of the delivery of the folded sheet, gages arresting and alining the group of sheets preparatory to being stitched, intermittently-operating sheet-propellers in front and rear of the stitching-machines, and timed to arrest the movement of the sheets to be repeatedly acted upon by the stitching-machines, a cutter severing the stitched sheets along the line central between the rows of stitchings, and two sets of folding rollers receiving the severed sheets as set forth.

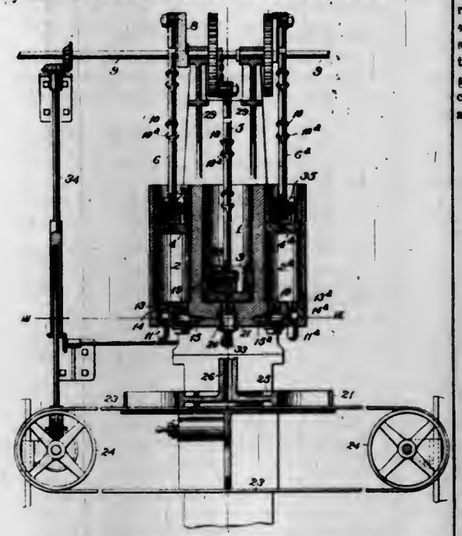
9. In combination with the main tapes, two wire-stitching machines at opposite sides of the center of the path of said tapes, a main feed-board over one end of the machine, folding-rollers receiving the sheet from said feed-board, tapes conveying the folded sheet to the main tapes in front of the stitching-machines, a tributary feed-board at the opposite end of the machine, a supplemental feed-board in front of said tributary feed-board, tape-carrying rollers supported in an arc over the latter feed-board and conveying the sheet from the supplemental feed-board to the delivery end of the tributary feed-board, tapes leading from the tributary table to the aforesaid main tapes and carrying jointly the sheets fed from the top feed-board at said end of the machine, gages alining said sheets on the main tapes in front of the delivery of the folded sheet, gages arresting and alining all of said sheets in front of the stitching-machines, an intermittently-rotating roller carrying the group of sheets to the stitching-machines to receive a plurality of stitches, a cutter severing the stitched sheets along a line central between the rows of stitches, an intermittently-rotating roller passing the stitched sheets to said cutter, and two sets of folding-rollers receiving the divided sheets as set forth.

10. A machine for folding, binding, and separating sheets containing duplicate signatures comprising a set of main paper-conveying tapes, two stitching or stapling machines disposed at opposite sides of the center of the lines of travel of said tapes, a plurality of tributary tapes carrying the duplicate sheets to said main tapes, a gage assembling and alining said sheets in transit to the stitching or stapling machines, mechanisms operating consecutively to arrest the assembled sheets and hold the same in position to receive the stitching or stapling at different points in the lengths of the sheets, a cutter separating the two stitched or stapled sheets central between the lines of stitching or stapling, and two sets of folding-rollers folding the separated sheets as set forth.

11. A paper folding and stitching machine consisting of main conveying tapes, two stitching-machines at opposite sides of the center of the line of travel of said tapes and in line with each other and at right angles to the tapes, a feed-board for the reception of the duplex signature sheets, rollers folding said sheet across its center, tapes conveying said folded sheet to the aforesaid main tapes, gages arresting said sheet at the rear of the stitching-machines, tributary feed-boards for the reception of the insert-sheet and the covering-sheet, tapes conveying the latter two sheets to the aforesaid gages and assembling them with the folded main sheet, an intermittently rotary roller extending across the machine directly under the main tapes at the aforesaid gages, drop-rollers over the aforesaid roller, a coupling between the drop-rollers and gages to remove the latter from the path of the paper simultaneously with the dropping of the rollers, mechanism imparting rotary motion to the lower roller and timed to arrest the motion simultaneously with the descent of the drop-rollers and thereby clamp the assembled sheets between the rollers and subsequently rotate the rollers to advance the assembled sheets to a position to receive the first staples from the stitching-machines and while in this position arrest the motion of the rollers to clamp and hold the sheets stationary in their assembled condition, and then again rotate said rollers to advance said sheets, a similar set of gages and rollers beyond the stitching-machines arresting and holding the aforesaid sheets while receiving the second staples and subsequently propel the stitched sheets, a cutter separating the stapled sheets on a line central between the stitching-machines, and folding-rollers receiving the separated sections of the stitched sheets as set forth.

595,942. APPARATUS FOR MIXING LIQUIDS. WALTER R. DIEHL and GRANT MCCARGO, Pittsburg, Pa. Filed Apr. 3, 1897. Serial No. 631,237. (No model.)

Claim.—1. In an apparatus for mixing liquids, the combination of a series of two or more receiving and measuring cylinders, a mixing-cylinder provided with a discharge-opening and connected with the measuring-cylinders, pistons for forcing the liquids from said cylinders and mechanism for simultaneously moving the piston of the mixing-cylinder in one direction and the pistons of the measuring-cylinders in the reverse direction, substantially as set forth.



2. In an apparatus for mixing liquids, the combination of a mixing-cylinder provided with a discharge-opening, a series of two or more receiving and measuring cylinders, a mixing-chamber connected to the mixing and measuring cylinders, and pistons for forcing the liquids from said cylinders, substantially as set forth.

3. In an apparatus for mixing liquids, the combination of a mixing-cylinder provided with a discharge-opening, a series of two or more receiving and measuring cylinders connected to the mixing-cylinder and pistons having an adjustable length of stroke for forcing the liquids from said cylinder, substantially as set forth.

4. In an apparatus for mixing liquids, the combination of a mixing-cylinder provided with a discharge-opening, a series of two or more receiving and measuring cylinders connected to the mixing-cylinder, and pistons provided with adjustable pitmen for forcing the liquids from the cylinders, substantially as set forth.

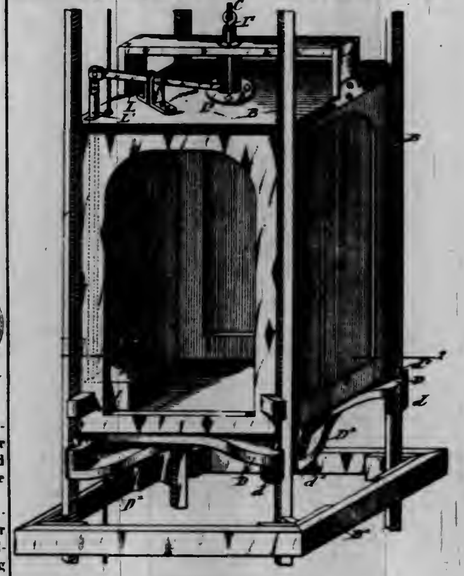
5. In an apparatus for mixing liquids, the combination of a mixing-cylinder provided with a discharge-opening, a series of two or more receiving and measuring cylinders, a mixing-chamber connected to the mixing and measuring cylinders, a stirrer arranged in said chamber, and pistons for forcing the liquids from said cylinders, substantially as set forth.

595,943. SAFETY DEVICE FOR ELEVATORS. ROBERT DORR, New York, N. Y. Filed June 18, 1897. Serial No. 641,380. (No model.)

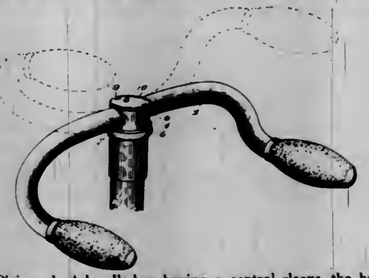
Claim.—1. The combination with an elevator-shaft and an elevator-car guided therein, of upright ways in said shaft, a gripping device pivoted to the frame of the car and adapted to engage said ways, said gripping device being composed of two superimposed gripping-frames each of which is provided with a toothed segment, a pinion engaging said segments and fixed on a rotatable shaft, a gear-wheel fixed to said shaft above said pinion, a spring-actuated gear meshing with said gear-wheel, and a locking device adapted to be thrown into and out of engagement with said spring-actuated gear, substantially as set forth.

2. The combination with an elevator-shaft and an elevator-car guided therein, of upright ways in said shaft, a gripping device pivoted to the bottom of the car and adapted to engage said ways, said gripping device being composed of two superimposed gripping-frames each of which is provided with a toothed segment, a pinion engaging said segments, a rotatable shaft carrying said pinion and extending up through the floor of the car, a gear-wheel fixed to said shaft above said pinion, a fixed shaft carrying a spring-actuated gear meshing with said gear-wheel, a locking-dog fixed to a vertical rod, a lever pivoted to the top of the car and connected with said rod, and a spring-pressed rod attached to the end of said lever and a hoisting-cable attached to said rod, substantially as set forth.

3. The combination with an elevator-shaft and an elevator-car guided therein, of upright ways in said shaft, two superimposed, oppositely-moving gripping-frames pivoted to the bottom of the car and provided with slotted extensions, gripping-dogs pivoted in said slots, toothed segments carried by said gripping-frames, a pinion located between said gripping-frames and engaging the toothed segments, a rotatable shaft extending through the floor of the car and carrying said pinion, a gear wheel fixed to said shaft above said pinion, a fixed shaft adjacent to said rotatable shaft, a spring-actuated gear fixed to the fixed shaft and meshing with said gear-wheel, a locking-dog engaging said gear, a vertical rod carrying said locking-dog, a lever connected to said rod, a spring-pressed rod attached to said lever, and a hoisting-cable connected to said rod, substantially as set forth.



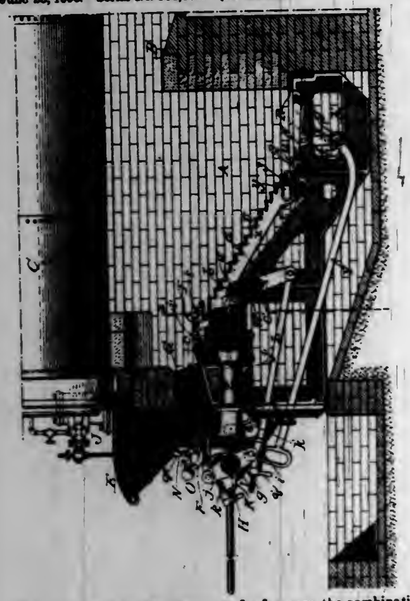
595,944. HANDLE-BAR FOR BICYCLES. PHILIP A. GHIER, Cleveland, Ohio. Filed July 10, 1896. Serial No. 598,700. (No model.)



Claim.—1. A handle-bar having a central sleeve the bore of which is similarly flared at top and bottom, in combination with a fork-stem having a threaded upper end fitting loosely in said sleeve, means to lock the handle-bar to the fork-stem to prevent rotary movement between them, a conical bearing-surface on the fork-stem to fit within the lower flared end of the sleeve, and a cap-nut screwing on the upper end of the fork-stem and having a conical face to engage within the upper flared end of the sleeve, whereby the handle-bar may be reversed and locked on the fork-stem in either position, substantially as described.

2. A handle-bar having a central sleeve the bore of which is similarly flared at top and bottom, in combination with a fork-stem having a threaded upper end fitting in said sleeve, a ball-cup having a split conical portion entering the lower portion of said bore and embracing the fork-stem, and a nut having a conical face screwing upon the upper end of the fork-stem and into the upper end of said sleeve, whereby the handle-bar is made reversible, locked in place and the ball-cup clamped on the fork-stem, substantially as described.

595,945. MECHANICAL STOKER. CHARLES R. GREUTER, Springfield, Mass., assignor to James C. Keough, Holyoke, Mass. Filed June 26, 1896. Serial No. 596,897. (No model.)



Claim.—1. In a stoking apparatus for furnaces, the combination of a downwardly-inclined grate; a fixed bed or fuel-support at the upper end of the grate; a feed-hopper; an upwardly-inclined feeding throat or passage, the lower wall or floor of which extends in a direct line and at a slight upward inclination from the bottom of the feed-hopper to the fixed fuel bed or support; and a reciprocating slide working across the hopper and serving to force material therefrom through the feeding-passage and to deliver it upon the fixed fuel bed or support, substantially as set forth.

2. In combination with the fire box or chamber of a furnace: a fuel-hopper; a reciprocating slide or pusher movable across said hopper; an opening extending across the hopper above the slide; and a gravitating gate bearing upon the slide at the forward or outer side of the hopper, and serving the double purpose of a closure for the opening and a scraper for the slide.

3. In combination with hopper E having lugs *q*, gate N provided with lugs *s*, and levers O provided with links *r*, all constructed and arranged substantially as described and shown.

4. In combination with fuel-hopper E and slide or pusher F, a delivery trunk *c* extending upward therefrom at a slight inclination and of regularly-increasing vertical measurement; and a fuel-bed or supporting-plate T at the rear end of the trunk *c*; all substantially as described and shown.

5. In combination with a feed-hopper, a delivery-slide or pusher; a shaft; a sleeve encircling said shaft and having a radial arm connected with the slide or pusher; a rocking head carried by the shaft, movable relatively to the sleeve and provided with a shoulder to engage the arm of said sleeve; and a screw also carried by the rocking head and adapted to bear upon the arm of the sleeve at a point opposite that at which the shoulder bears; whereby the rocking head is adapted to impart movement to the sleeve, but with lost motion determined by the adjustment of the screw.

6. In combination with shaft I, sleeve H encircling said shaft provided with arms *e*, *e*; slide or pusher F connected with said arms; hopper E; rocker K provided with shouldered rib *j* and screw *l*; sleeve M provided with bolt *n*; arm *f* secured to shaft I; and motor J connected with arm *f*.

7. In combination with a feed-hopper and a feeding-slide or pusher; a rocking sleeve or shaft connected with and serving to reciprocate said slide; a rocking head adapted to receive the power required for oscillating the sleeve or shaft; means for connecting and disconnecting the rocking head with a source of power and an adjustable connection between the rocking head and sleeve or shaft, whereby the extent of movement of the sleeve or shaft may be varied while that of the head remains constant.

8. In combination with hopper E; slide F; shaft I; sleeve H provided with arms *e* for moving the slide F; rocking head K; and means substantially such as described and shown for connecting the sleeve and the rocking head.

9. In combination with a suitable frame, the grate composed of alternate fixed and movable bars *w* and *x*; rock-shaft W provided with removable sleeves *c'* having bosses *b'*; and means for oscillating said shaft.

10. In combination with grate-bars *w* and *x* provided with slots *y*; rollers *z* passing through said slots; and rock-shaft W, having bosses *b'* seated in recesses in the bars *x*.

11. In combination with a series of alternate fixed and movable grate-bars, each provided with a slot *y*; two rollers *z*, passing through said slots and placed in axial alinement, substantially as and for the purpose set forth.

12. In a furnace, the combination of an air-box located at the front of the fire-grate and provided with a series of upwardly-projecting mouths or nozzles for delivery of air; and means for producing a blast or forced draft through said nozzles.

13. In a furnace, an air-box located at the front of the fire-grate, and provided at its top with a series of upwardly-projecting mouths or nozzles for delivery of air.

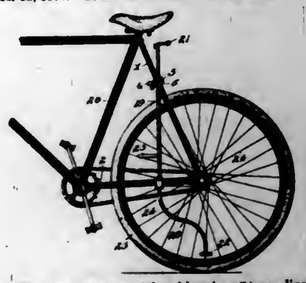
14. In combination with an inclined fire-grate; an air-box at the front thereof provided with openings in its top for escape of air above the grate, and with an opening in its bottom provided with a slide or damper to permit and control delivery of air beneath the grate.

15. In combination with a grate-frame having a toothed bar; and with an inclined grate carried by said frame; a clinker-grate located at the lower side of the inclined grate; and means substantially as described for moving the edge of the clinker-grate past the toothed bar, for the purpose set forth.

16. In combination with a grate-frame provided with a rib *h'*, having an upwardly-turned forward end; a grate V pivoted at a point distant from its front edge; and a supporting-brace X having a roller *g'* arranged to traverse the upwardly-turned portion of the rib and thereby to elevate the front of the grate above its normal plane.

17. In combination with a grate-frame having toothed bar Q and flange or rib *h'* curved as described; swinging grate V; brace X; roller *g'* carried by said brace and arranged to traverse the curved portion of rib *h'*; and bar Y for moving the brace; whereby the free edge of grate V is caused to move upward past the teeth of bar Q and thereby to break and dislodge clinkers there located.

595,946. BICYCLE-SUPPORT. EDMUND HIBBLER, Lehighton, Pa. Filed Feb. 12, 1897. Serial No. 623,173. (No model.)

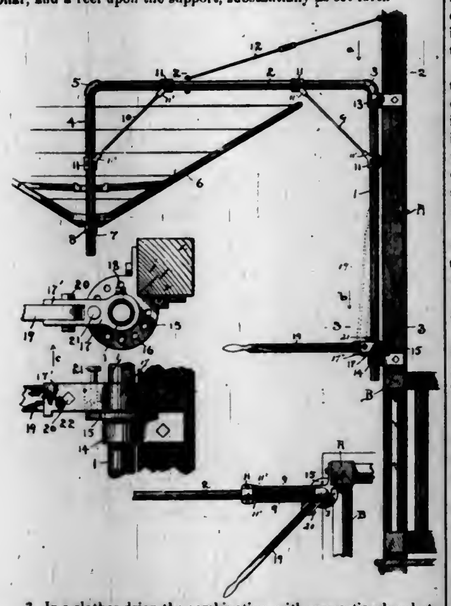


Claim.—The combination with a bicycle, of two clips secured to the frame, one above the other, each having a projection provided with a vertically-disposed opening, a supporting-rod extending through said vertically-disposed openings and adapted to have vertical and turning movement therein, the lower end portion of the support being bent and provided with a foot, and the upper straight portion having a short arm projecting from it and adapted to enter between two spokes of the wheel when the lower bent end of the rod is turned outwardly to its operative position, and a set-screw in one of the projections to lock the supporting-rod in position, substantially as described.

595,947. CLOTHES-DRIER. JOSEPH P. HILL, Worcester, Mass. Filed July 10, 1897. Serial No. 644,096. (No model.)

Claim.—1. In a clothes-drier, the combination, with two supporting-brackets, of an inverted-U-shaped support pivotally mounted therein, one of the legs of the support being provided with means for engaging with the upper bracket to prevent downward movement, means upon said leg for engaging with the lower bracket to control the pivotal movement of the support, and a reel mounted upon the other leg of the support, substantially as set forth.

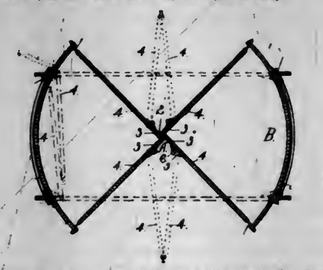
2. In a clothes-drier, the combination, with supporting-brackets, one of which is provided with a circularly-arranged series of stops, of a support pivotally secured within the brackets, a collar secured to the support adjacent to said bracket, a catch in the collar for engaging with the stops in the bracket, a handle pivotally secured to the collar, and a reel upon the support, substantially as set forth



3. In a clothes-drier, the combination, with supporting-brackets, one of which is provided with a circularly-arranged series of holes, a support pivotally secured within the brackets, a collar upon the support adjacent to said bracket, the under side of which is provided with a recess, a pin through the collar, the lower end of which is within the recess, a pin through the lower end of the first-mentioned pin and within the recess, the projecting portion of the first-mentioned pin being adapted to enter either one of the holes in the bracket, a set-screw in the collar, a lever pivotally secured to the collar, and a reel upon the support, substantially as set forth.

4. In a clothes-drier, the combination, with supporting-brackets, of a support pivotally mounted therein, the free end of which extends downward and is provided with openings, means for locking said support against pivotal movement, a flanged collar upon the free end of the support, the lower end of which is provided with notches, a pin through the end of the support, the ends of which engage with the notches of the collar and prevent its rotation, and a reel loosely mounted upon the collar and the end of the support, whereby it may be adjusted vertically and be partially held against rotation by its engagement with the flange of the collar, substantially as set forth.

595,948. REVOLVING DOOR. WALTER W. IPE, St. Paul, Minn. Filed Feb. 24, 1894. Serial No. 501,456. (No model.)



Claim.—1. In a structure of the class described, the combination with the revolving door, of the casement partially inclosing the same, and within which said door closely rotates, consisting of a fixed medial cylindrical part, and extension-pieces hinged to the edges of the fixed part, and constituting when in normal position parts of the casement, but adapted to be turned outward so as to be out of contact with the door, and to widen the aperture through the doorway.

2. In a structure of the class described, the combination with the revolving door, of the casement partially inclosing the same, consisting of a fixed medial part, made up of horizontal curved angle-bars, and vertical wooden strips independently secured thereto, and extension-pieces hinged to the edges of said fixed part, serving when in normal position as part of the casement-wall, but adapted to be thrown back out of use, and to widen the aperture between.

3. In a structure of the class described, the combination with the revolving door, of the cylindrical casement-wall secured in the doorway, proportioned to, and partially inclosing, said door, which is adapted to rotate closely within the same, said casement comprising in combination the curved, metallic, angle-bar frame, the vertical wooden strips independently secured to said frame, and the hinged extensions mounted upon the edges of said frame, and adapted to serve as parts of said wall, or to be thrown out of position to widen the aperture between.

4. In a structure of the class described, the combination with the cylindrical casement-walls, of the door adapted to revolve within said casement, and closely fitted to the same, composed of radiate wings, and means for detachably hinging said wings to the casement-wall to serve as swinging doors to close the aperture between said casements.

5. In a structure of the class described, the combination with the side walls of the doorway, of the extensible hinge members arranged in the space between said walls, and the doors adapted to be supported upon said hinge members when projected out from said walls.

6. In a revolving door of the class described, the combination with the alternating fixed and hinged radiating wings, of the detachable, interposed braces having dovetailed, or wedge-shaped connections for securing the same to said wings.

7 In a revolving door, the combination with the alternating fixed and hinged radiating wings, of the interposed knuckle-jointed braces and the dovetailed tenons and sockets for detachably securing them to said wings.

8. In a revolving door, the combination with the alternating fixed and hinged radiating wings, of the interposed jointed brace, the offset lugs upon the members of the brace having holes registering when the joint is closed, and the securing-pin fitted to said registering holes.

9. In a revolving door, the combination with the alternating fixed and hinged radiating wings, of the detachable braces having dovetailed attachments to the adjacent wings, and the locking device for said attachment.

10. In a revolving door, the combination with the standard, of the fixed conical pivot therefor, the bearing-block upon said standard having a conical seat fitted to said pivot, and an oil-conduit leading to the apex of the seat.

11. In a revolving door, the combination with the standard thereof, of the conical pivot, the oil cup surrounding said pivot, the bearing-block adjustable in said standard and having a conical socket serving as a seat for said pivot, and the oil-conduit leading to the apex of said socket.

12. In a revolving door, the combination with its standard, of the conical supporting-pivot, the oil-cup surrounding the same, the bearing block or shaft arranged in said standard and seated upon said pivot, and the screw for adjusting the bearing block in the standard to raise and lower the same.

13. The combination with the revolving door having a fixed bottom pivot, of the spring-pressed top pivot, and the elastic collar surrounding the bearing thereof.

14. In a revolving door, the combination with the standard and the detachable radiating wings, of the socket-hinge member secured to one part having a guide-groove leading to the socket, and the pintle member connected to the other part and having a beveled point to engage said guide and socket.

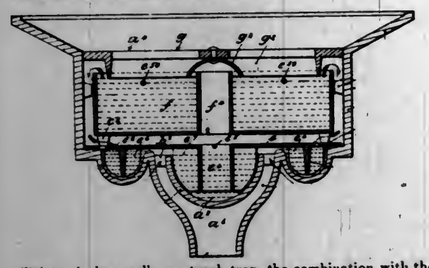
15. In a revolving door, the combination with the pivoted standard and the radiating-wing, of the connecting-hinge therefor, and the interposed elastic cushion.

16. In a revolving door, the combination with the pivoted standard and the radiating wing, of the connecting-hinge, the parts having curved overlapping edges, and the interposed elastic cushion.

17. In a structure of the class described, the combination with the door-wing, of the removable strip adapted to be secured in the rabbeted edge thereof and having a groove on its inner face, the elastic strip having its edge arranged in said groove and extending between the strip and the door, and projecting beyond the edge thereof, and the wedge fitted to said groove.

18. In a structure of the class described, the combination with the revolving door, having radiate wings, of the casement for the same, within which it closely rotates, consisting of a fixed wall in the form of a cylindrical segment, and extension-pieces upon the edges of said fixed wall, having like curvature, and serving normally to further inclose the door, but adapted to be moved out of engagement with the door, and to leave the space between the opposite fixed walls unobstructed.

595,949. GULLY OR STENCH TRAP. JOSEPH JOHNSON, Bilston, England. Filed July 27, 1897. Serial No. 646,131. (No model.) Patented in England May 12, 1896, No. 10,028.



Claim.—1. In a gully or stench trap, the combination with the outer casing having in its bottom an annular water-seal chamber and a central outlet portion, of a water-seal chamber supported in said outlet portion and a cover-plate for said chambers having perforations above and an annular plate projecting into the annular chamber and a depending pipe extending into the central water-seal chamber, substantially as described.

2. In a gully or stench trap, the combination with the outer casing having in its bottom an annular water-seal chamber and a central outlet portion, of a water-seal chamber supported in said outlet portion, a cover-plate for said chambers having perforations above and an annular plate projecting into the annular chamber and a depending pipe extending into the central water-seal chamber, and flanged wings or scrapers carried by said cover-plate and projecting into the water-seal chambers, substantially as described.

3. In a gully or stench trap, the combination with the outer casing having in its bottom an annular water-seal chamber and a central outlet portion, of a water-seal chamber supported in said outlet portion, a cover-plate for said chambers having perforations above and an annular plate projecting into the annular chamber and a depending pipe extending into the central water-seal chamber, and a mud-tank supported above said cover-plate and having an upward-extending stand-pipe therein, substantially as described.

4. In a gully or stench trap, the combination with the outer casing having in its bottom an annular water-seal chamber and a central outlet portion, of a water-seal chamber supported in said outlet portion, a cover-plate for said chambers having perforations above and an annular plate projecting into the annular chamber and a depending pipe extending into the central water-seal chamber, and a mud-tank supported above said cover-plate having an upward-extending stand-pipe therein and affording an annular passage between its wall and the wall of the outer casing, substantially as described.

5. In a gully or stench trap, the combination with the outer casing having in its bottom an annular water-seal chamber and a central outlet portion, of a water-seal chamber supported in said outlet portion, a cover-plate for said chambers having perforations above and an annular plate projecting into the annular chamber and a depending pipe extending into the central water-seal chamber, a mud-tank supported above said cover-plate having an upward-extending stand-pipe therein and affording an annular passage between its wall and the wall of the outer casing and a grid supported by said outer casing having an annular plate projecting into the mud-tank and carrying in its central portion a dome-shaped plate supported above said stand-pipe, substantially as described.

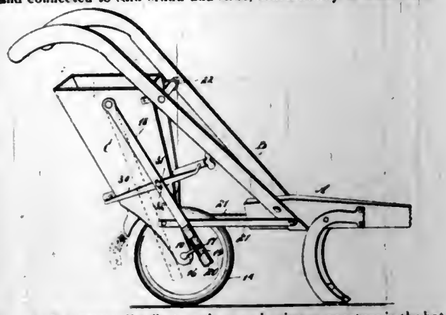
595,950. GUANO-DISTRIBUTER. JOHN B. KIMBELL, Alpharetta, Ga. Filed June 15, 1897. Serial No. 640,815. (No model.)

Claim.—1. The combination of a hopper, a hollow cylindrical slide having openings or pockets, a rod having similar openings or pockets mounted in the slide and adapted to be turned within it to adjust the size of the openings, and means for reciprocating the slide.

2. A feed-slide for dropping-machines consisting of a tube having feed-openings therein, and a rod mounted in the slide and provided with similar openings in register therewith, and means for turning the rod to change the size of the openings.

3. The hopper having an aperture in its bottom, the feed-slide having openings, the rod within the slide provided with registered openings and adapted to be turned to adjust said openings, an arm or bail connected to the slide and extending on the outside of the hopper, a wheel having a cranked axle, and a pitman connected to the crank and the arm or bail for operation, substantially as described.

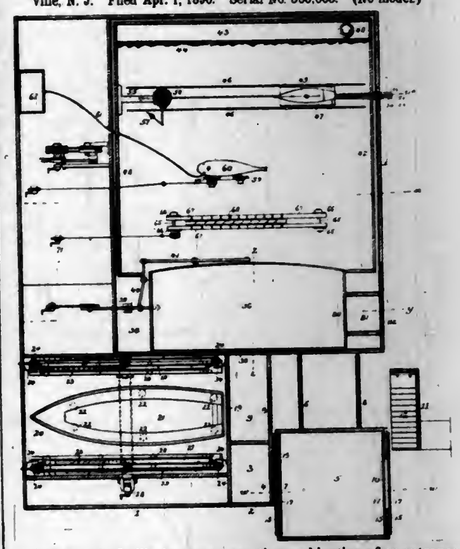
4. A guano-distributer attachment for plows, comprising a hopper the sides of which are extended below the bottom, a wheel journaled between said sides, an apertpre in the bottom of said hopper, a box covering said aperture and provided with openings in the sides thereof, a slide having guano-pockets mounted to move through the box, a crank on the wheel-axle, and a pitman pivoted to the hopper and connected to said crank and slide, substantially as described.



5. In a guano-distributer, a hopper, having an aperture in the bottom thereof, a box covering said aperture, a slide extending through the box, said slide being hollow and provided with feed-pockets, and an adjusting-rod having similar pockets mounted within the slide and rotatable to adjust the size of the feed-pockets, and an operating-wheel for the slide, substantially as described.

6. The combination with a hopper, and a ground-wheel carried thereby and provided with a crank-arm on one end of its axle, of a distributing-slide provided with pockets and having its ends projecting through the hopper, an arm secured to the projecting ends of the slide, and a pitman pivoted to the hopper and connected to the arm of the slide and to the crank-arm, substantially as described.

595,951. ILLUSION APPARATUS. AMARIAH LAKE, Pleasantville, N. J. Filed Apr. 1, 1896. Serial No. 585,805. (No model.)



Claim.—1. In illusion apparatus, the combination of an entrance corridor or vestibule, and a second corridor beyond the same but on the same horizontal plane and separated therefrom, with a room or apartment having a doorway therein, said room or apartment being mounted close to the walls of the corridor structure and so as to be movable in a horizontal plane, whereby its doorway may register either with a doorway in the entrance-corridor or with a doorway in the secondary corridor, substantially as specified.

2. In illusion apparatus, the combination of a room or apartment having a window-opening therein, with a stairway mounted on the outside of said window-opening so as to be movable vertically past the same, substantially as specified.

3. In illusion apparatus, the combination of a room or apartment, with a traveling belt or apron mounted so as to travel upwardly along one side of the room or apartment and downwardly along the other side of the same, substantially as specified.

4. In illusion apparatus, the combination of a room or apartment, with a belt or apron mounted so as to travel upwardly along one side of said room or apartment laterally across the ceiling thereof and downwardly on the opposite side, substantially as specified.

5. In illusion apparatus, the combination of a room or apartment, with an endless belt enveloping two of the opposite sides and the ceiling of said room or apartment so as to have one run on the inside of the room and another run on the outside of the same, substantially as specified.

6. In illusion apparatus, the combination of a room or apartment having a window-opening therein with an endless belt having one run on the inside of the room or apartment and another run on the outside of the same, said endless belt having openings adapted to register with the window-opening and said belt being so mounted that its outer run will travel in a direction the reverse of the inner run, substantially as specified.

7. In illusion apparatus, the combination of a representation of a boat, with an endless apron mounted so as to travel, and also so as to rock or vibrate in order to cause the illusion of a boat traveling ahead and rising and falling in its course, substantially as specified.

8. In illusion apparatus, the combination of a representation of a boat mounted upon springs, with scenic representations mounted so as to rock or vibrate, substantially as specified.

9. In illusion apparatus, the combination of a tank containing water, the representation of a boat mounted therein, an endless apron having thereon relief representations of rock work, partially submerged in the water in the tank, and means for moving said endless apron, substantially as specified.

10. In illusion apparatus, the combination of an endless apron mounted upon vertical drums, with a horizontal carrier-belt traveling beneath and at the same speed as one of the runs of said apron, substantially as specified.

11. In illusion apparatus, the combination of an endless apron having vertical slats or strips thereon, vertical drums upon which said apron is mounted and by which it is driven, and a horizontal carrier-belt supporting the lower ends of the strips of the apron and driven so as to travel at the same speed as said apron, substantially as specified.

12. In illusion apparatus, the combination of a tank containing water, with a suspended box or casing having walls partially submerged in the water in the tank, and means for raising and lowering said suspended box or casing, substantially as specified.

13. In illusion apparatus, the combination of a universally-pivoted deck or platform, a longitudinal lever connected to one end of said deck or platform, a second longitudinal lever connected to the front central portion of said deck or platform, and a transverse lever connecting said longitudinal levers, substantially as specified.

14. In illusion apparatus, the combination of a tank having water therein, a representation of a rock projecting above said water, a representation of a ship, a truck upon which said ship is mounted, and means for moving said truck so as to cause the ship to strike the rock, substantially as specified.

15. In illusion apparatus, the combination of a tank containing water, a representation of a ship mounted upon swinging rods in said tank, and cords whereby said rods may be controlled so as to be swung either forward or rearward, whereby the ship can be carried forward and upward above the level of water in the tank, and downward and rearward below the same, substantially as specified.

16. In illusion apparatus, the combination of a tank containing water, a truck movable back and forth in said tank, and a representation of a ship mounted upon said truck so as to be movable forward and upward, or downward and rearward thereon, substantially as specified.

17. In illusion apparatus, the representation of a ship having hinged upper structures connected together with a rope or cord, whereby said upper structures can be simultaneously permitted to fall, or can be raised again, substantially as specified.

18. In illusion apparatus, the combination of a tank containing water, shafts located below the level of the water, crank-pins operated by said shaft, and a representation of a whale mounted upon said crank-pins whereby, upon turning the shafts, said representation may be caused to rise above or sink beneath the level of water in the tank, substantially as specified.

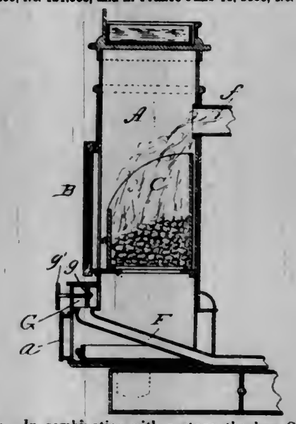
19. In illusion apparatus, the combination of a tank containing water, with a representation of a whale mounted so as to be movable in said tank, an elevated water-tank and a flexible connection between said water-tank and said moving representation of a whale, substantially as specified.

20. In illusion apparatus, the combination of a tank containing water, with an endless belt carrying articulated blocks or plates constituting a representation of a sea-serpent, substantially as specified.

21. In illusion apparatus, the combination of an endless belt having articulated plates or blocks constituting a representation of a sea-serpent, with a cam controlling the upper run of said belt and serving to impart a waving or undulating course thereto, substantially as specified.

22. In illusion apparatus, the combination of a tank containing water, with an endless belt comprising laterally-separated portions with transverse pins and articulated blocks or plates carried by said pins and constituting the representation of a sea-serpent, substantially as specified.

595,952. STOVE. EMILE LAROCHE, Angers, France. Filed Aug. 8, 1896. Serial No. 602,171. (No model.) Patented in Belgium Apr. 27, 1896, No. 121,088, and in France June 10, 1896, No. 253,040.



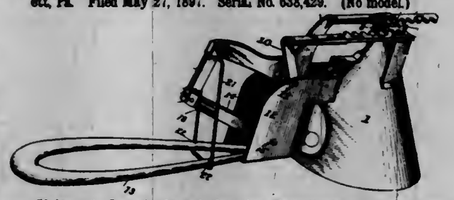
Claim.—In combination with a stove, the box G beneath the fire-box thereof, the air supply pipe communicating with said box, the plate movable in said box to regulate the passage of air therethrough, and the screw for operating said plate, substantially as described.

595,953. NEEDLE-THREADER. CHARLES LAURENCE, Kingston-upon-Hull, England. Filed Aug. 17, 1897. Serial No. 648,571. (No model.)



Claim.—In a needle-threader, the combination with a casing, of a movable block mounted therein and having a slot across the head thereof for the reception of the needle and thread, a spring adapted to resist the movement of said block in said casing, a threading-rod passing through the said block and adapted to project into said slot when said block is depressed, a detent-pin extending across said slot when the said block is not depressed and a rod adapted to engage said detent-pin and to cause its withdrawal from said slot when said block is depressed, substantially as described.

595,954. ICE-CREAM DISHER. ARTHUR W. LOCKWOOD, Everett, Pa. Filed May 27, 1897. Serial No. 638,429. (No model.)



Claim.—1. In a device of the class described, the combination with a mold, and a handle, of a shaft journaled on the mold and provided with cutters or blades, a pinion mounted on the shaft and located on the exterior of the mold, a reciprocating rack-bar mounted in suitable guides, and operating mechanism connected with and adapted to reciprocate the rack-bar and arranged adjacent to the handle, whereby it is adapted to be operated without removing the hand therefrom, substantially as described.

2. In a device of the class described, the combination with a mold, and a handle, of a shaft journaled on the mold and provided with cut-

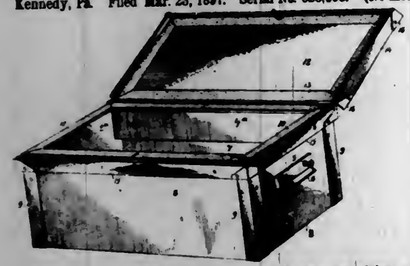
ters or blades arranged within the mold, an exterior pinion mounted on the shaft, a pair of oppositely-disposed reciprocating rack-bars mounted in suitable guides and meshing with the pinion, upper and lower bell-crank levers, the upper lever being connected directly to one of the rack-bars, a lever fulcrumed between its ends and connecting the other rack-bar with the other bell-crank lever, and means for reciprocating the bell-crank levers simultaneously, substantially as described.

3. In a device of the class described, the combination with a mold, and a handle, of a shaft carrying cutters or blades and journaled on the mold, a pinion mounted on the shaft, oppositely-reciprocating rack-bars meshing with the pinion, upper and lower bell-crank levers connected with the rack-bars and reciprocating the same, the lower bell-crank lever being provided in its lower arm with a longitudinal slot, a link rigidly connected with the upper bell-crank lever and provided with an opening receiving the lower bell-crank lever, and a fastening device passing through the link and arranged in said slot, substantially as described.

4. In a device of the class described, the combination with a mold, and a handle provided at opposite sides with notches, upper and lower bell-crank levers connected with each other, a shaft journaled on the mold and provided with blades or cutters, gearing connecting the bell crank levers with the shaft, and a loop embracing the handle and having its sides sliding in the notches thereof said loop being connected with the bell-crank levers, substantially as described.

5. In a device of the class described, the combination with a mold, and a handle, of a shaft journaled on the mold and carrying cutters or blades, a pair of brackets mounted on the mold at opposite sides of the shaft and provided with guides, a pinion mounted on the shaft, rack-bars mounted in said ways and meshing with the pinion, a support connected with the handle and the mold, upper and lower bell crank levers fulcrumed on the support, the upper lever being connected directly to one of the rack-bars, a lever fulcrumed between its ends on the support and connecting the other slide and the other bell-crank lever, a link connecting the bell-crank levers, and a sliding loop mounted on the handle and connected with the levers, substantially as described.

595,955. CHEST. ALEXANDER LOUGHIN and ELLIS L. FOX, Port Kennedy, Pa. Filed Mar. 23, 1897. Serial No. 628,893. (No model.)



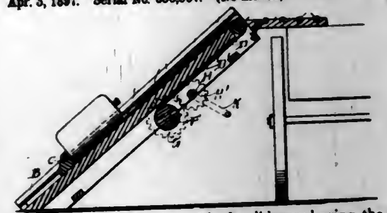
Claim.—1. A chest having a skeleton frame comprising a bottom, end boards, and parallel lock and hinge rails connecting the end boards and terminally let into seats therein, veneer strips arranged in contact with the inner surfaces of the lock and hinge rails and extended terminally into the seats for said rails, side veneers extending from said rails to the bottom a bottom veneer equal in length to the interval between the inner surfaces of the end boards, end veneers arranged in contact with the inner surfaces of the end boards and bearing at their lower edges upon the upper surface of the bottom veneer to secure the latter in place and an exterior sheath overlapping the edges of the end and side walls, substantially as specified.

2. A chest having a skeleton comprising a bottom, end walls, and connecting lock and hinge rails, bottom and end veneers arranged in contact with the inner surfaces of the bottom and end boards, side veneers arranged below the planes, respectively, of the lock and hinge rails and flush at their outer surfaces therewith, a metallic sheath inclosing the bottom, side and end walls, and overlapping the same at its upper edges, a top or cover having a metallic covering corresponding with said sheath, and packing interposed between the contiguous edges of the chest and said top or cover, substantially as specified.

3. The herein-described chest having a skeleton frame comprising a bottom, end boards, and lock and hinge rails, cedar veneers covering the inner surfaces of the parts of said frame, side veneers extending from the rails to the plane of the bottom, a metallic sheath secured exteriorly to the frame and having sealed joints and corner-protecting braces, a top or cover having an interior cedar veneer lining and an exterior sheath-plate, an asbestos packing-strip covering the upper edges of the side and end walls of the chest, a similar packing-strip countersunk into the inner surface of the top veneer, and break-joint and cap strips respectively secured exteriorly to the top or cover and the side and end walls of the chest, and arranged at their contiguous edges in contact, in a plane below that of the meeting surfaces of said packing-strips, substantially as specified.

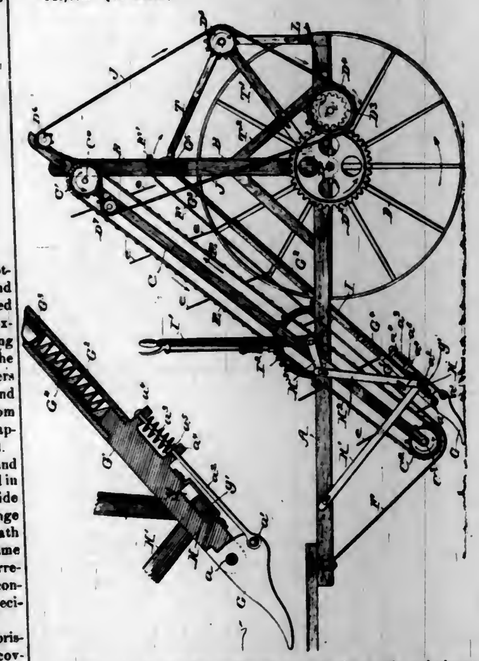
4. A chest having a skeleton frame, a veneer, lining the inner surfaces of the frame members and filling the spaces therebetween to complete the walls of the chest, and an exterior sheath of fireproof sheet metal completely covering the chest, substantially as specified.

595,956. MEANS FOR ELEVATING SACKS OF GRAIN OR THE LIKE ONTO WAGONS. JOHN LEBT, New Washington, Ohio. Filed Apr. 3, 1897. Serial No. 630,587. (No model.)



Claim.—The combination with the slideway having the closed back or bottom portion and the lateral guides, together with an idle-roller journaled transversely at its upper end, and winding mechanism upon its under side, of the transverse slide-block whose end portions slidingly engage the said guideways, the two ropes connected at one end to the said slide-block and at the opposite end to said winding mechanism, passing intermediately over said idle-roller, and cross ropes connecting the first-named ropes at intervals and upon which the object being elevated is placed with its lower end against the said slide-block, substantially as described.

595,957. HORSE-RAKE ATTACHMENT FOR GRAIN-BINDERS. JOHN M. LYTLE, White Hall, Md. Filed July 28, 1897. Serial No. 646,218. (No model.)

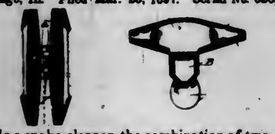


Claim.—1. A rake for gathering grain in the swath, and elevating it for binding, comprising an endless elevator provided with tines, a series of guard-rods in rear of the same, and a series of rake-teeth in rear of the guards, said rake-teeth being constructed with yielding knuckle-joints, and having shanks with tubular extensions, and spiral springs and rods arranged within said tubular extensions, and means for raising and lowering said rake-teeth together substantially as shown and described.

2. The rake-tooth shank G′ having slot *g*, keeper *g′*, and lugs a^4 a^4, in combination with the articulated tooth G, the rod a^3 with collar a^5, the spiral spring a^3 between the lugs, and the cross-bar H running through the slot *g* and adjusting the rake-teeth substantially as shown and described.

3. The combination of the triangular frame A B C, elevator-shafts C^3 C^4 with sprocket-wheels arranged in the bar C and carrying an elevator-belt with tines, a series of rake-teeth G with spring-seated shanks having tubular extensions, the cross-bar H loosely connected with all the shanks and having hanger-bars H′ H^2, a rock-shaft and hand-lever for raising the rake teeth, guards F arranged between the elevator and the rake-teeth, and a driving-gear for the elevator connected to and deriving motion from the running-wheels substantially as and for the purpose described.

595,958. SPOKE-CLEANER FOR BICYCLES. ALBERT G. MACGREGOR, Chicago, Ill. Filed Mar. 23, 1897. Serial No. 628,928. (No model.)



Claim.—1. In a spoke-cleaner, the combination of two elongated jaws adapted to be pressed into contact, and a longitudinal groove extending across the contacting faces of said jaws, substantially as described.

2. In a spoke cleaner, the combination of two elongated jaws tapering toward the ends and adapted to be pressed into contact, and a longitudinal groove extending across the contacting faces of said jaws, substantially as described.

3. In a spoke-cleaner, the combination of two hinged members each consisting in part of a finger-piece and a jaw, the latter elongated in a direction substantially at right angles to the former, substantially as described.

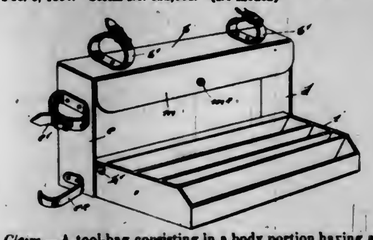
4. In a spoke-cleaner, the combination of two hinged members each consisting in part of a finger-piece and a jaw, the latter elongated in a direction substantially at right angles to the former, and a transverse groove extending across the contacting faces of said jaws at one end thereof, substantially as described.

5. In a spoke-cleaner, the combination of two elongated jaws adapted to be pressed into contact, a longitudinal groove extending across the contacting faces of said jaws, and a similar transverse groove at one end thereof, substantially as described.

6. In a spoke-cleaner, the combination with two hinged jaws of a pin for securing them movably together, the jaws being elongated in a direction substantially parallel to the pin, substantially as described.

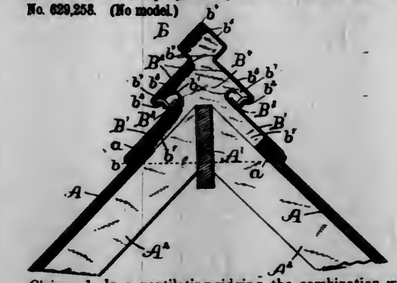
7. In a spoke-cleaner, the combination of two elongated jaws adapted to be pressed into contact, a groove extending across the contacting faces thereof, and a depression upon the outer surface of each of said jaws, substantially as described.

595,959. TOOL-BAG. MARK R. MARSHALL, Jr., Bunkie, La. Filed Feb. 9, 1897. Serial No. 622,611. (No model.)



Claim.—A tool-bag consisting in a body portion having an open side, a tray fitting removably within the body portion and hinged to the lower edge thereof whereby the tray may swing in and out of the body portion, means for holding the tray extended in a horizontal position out of the body portion, loops at the upper portion of the tray whereby to suspend the tool-bag from a horizontal bar, a loop at one vertical edge of the tool-bag, and an arm attached rigidly to the same vertical edge of the body and extending outward therefrom, the arm being located at the lower portion of the edge and serving to engage a support and hold the body vertical against the eccentric action of the tray when the same is extended.

595,960. VENTILATOR OR VENTILATING-RIDGING FOR ROOFS OF BUILDINGS. EDWIN A. MAY, Troy, N. Y., assignor to the Globe Ventilator Company, same place. Filed Mar. 25, 1897. Serial No. 629,258. (No model.)



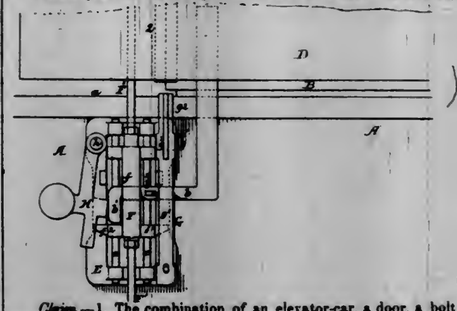
Claim.—1. In a ventilating-ridging, the combination with the side base-plates B′ B′ having inwardly-curved lower edges *b b* and outwardly-curved flanges *b′ b′* at their upper edges; and open between said flanges; of an upper member or cover having sloping sides B^3 B^3 provided with inwardly and downwardly curved lower edges b^3 b^3, extending over said flanges *b′ b′* on the said plates B′ B′, and mounted upon struts B^3, said struts being mounted upon said plates B′ B′; and end plates B^4 B^4 secured upon the ends of said ridging, and closing said ends, substantially as described.

2. In a ventilating-ridging, the combination with the side base-plates B′ B′ having inwardly-curved lower edges *b b* and outwardly-curved flanges *b′ b′* at their upper edges; with openings between said flanges; guides mounted upon the under side of said base-plates; an inverted-V-shaped slide mounted in said guides and adapted to open or close said openings; and means for operating said slide; of an upper member or cover having sloping sides B^3 B^3 provided with inwardly and downwardly curved lower edges b^3 b^3, extending over said flanges *b′ b′* on the said plates B′ B′, and mounted upon strute B^3, said struts being mounted upon said plates B′ B′; and end plates B^4 B^4 secured upon the ends of said ridging, and closing said ends, substantially as described.

3. In a ventilating ridging, the combination of the stringers *a* projecting above the plane of the roof, the side base-plates B′ B′ having inwardly-curved lower edges *b b* and outwardly-curved flanges *b′ b′* at their upper edges; and open between said flanges; of an upper member or cover having sloping sides B^3 B^3 provided with inwardly and downwardly curved edges b^3 b^3, extending over said flanges *b′ b′* on the said plates B′ B′, and mounted upon struts B^3, said struts being mounted upon said plates B′ B′; and end plates B^4 B^4 secured upon the ends of said ridging, and closing said ends, substantially as described.

4. In a ventilating-ridging, the combination of the stringers *a* projecting above the plane of the roof, the side base-plates B′ B′ having inwardly-curved lower edges *b b* and outwardly-curved flanges *b′ b′* at their upper edges; with openings between said flanges; guides mounted upon the under side of said base plates; an inverted-V-shaped slide mounted in said guides and adapted to open or close said openings; and means for operating said slide; of an upper member or cover having sloping sides B^3 B^3 provided with inwardly and downwardly curved lower edges b^3 b^3, extending over said flanges *b′ b′* on the said plates B′ B′, and mounted upon struts B^3, said struts being mounted upon said plates B′ B′; and end plates B^4 B^4 secured upon the ends of said ridging, and closing said ends, substantially as described.

595,961. ELEVATOR LOCKING MECHANISM. JOHN S. MUCKLE, Philadelphia, Pa. Filed Aug. 5, 1897. Serial No. 647,221. (No model.)



Claim.—1. The combination of an elevator-car, a door, a bolt thereon, a controller, a lock connected to the controller, a latch nor-

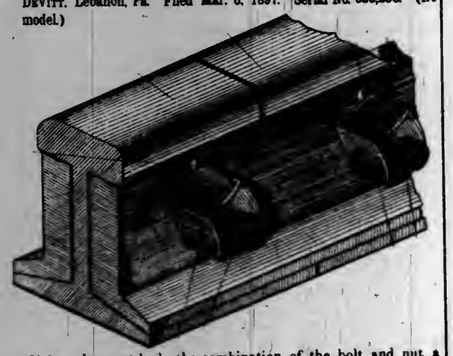
mally out of the path of the car said latch being moved into the path of the car when the controller unlocks the bolt from the main lock so that the car may release the bolt and free the door, substantially as described.

2. The combination of an elevator-car, two or more doors, a bolt on each door, locking mechanism at each door, controlling mechanism connected to all the locking mechanisms, so that when the car is brought to a stand said locking mechanisms will release all the doors, an auxiliary latch at each door adapted to engage the door-bolt when the locks are actuated on the stopping of the car, and a shoe on the car which actuates the auxiliary latch of the landing-door at which it is at rest so as to release the bolt from said auxiliary latch to allow the door to be opened, substantially as described

3. The combination of an elevator-car, two or more elevator-doors, a bolt on each door, locking mechanism at each door, controlling mechanism connected to all the locking mechanisms, an auxiliary two-armed pivoted latch at each landing-door, one arm adapted to engage with the door-bolt, and a shoe on the car adapted to strike the other arm of that latch of the door opposite to which the car is standing so that the bolt can be withdrawn and the door opened, substantially as described.

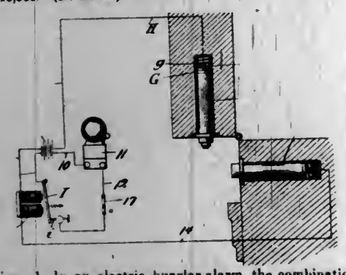
4. The combination of the car D, the shoe *d* thereon, the elevator-door B having a bolt b^2 with an L-shaped end b', a locking-block F connected to the controlling mechanism of the car, a lug *f* on the said block F, a lug b^2 on the bolt *b*, a pivoted auxiliary latch G adapted to engage the lug b^2 on the bolt and to be actuated by the projection *f'* on the block when the said block is raised, said auxiliary latch having a projecting arm extending in the path of the shoe on the car when released from the control of the projection on the block, substantially as described.

595,962. NUT-LOCK. MICHAEL E. MURPHY and WILLIAM MCDEVITT, Lebanon, Pa. Filed Mar. 6, 1897. Serial No. 626,250. (No model.)



Claim.—In a nut-lock, the combination of the bolt and nut, a body having a recess or recesses therein within the radius of the nut, and a ball-fastening seated within the pocket and compressed between the overlying surface of the body and nut to lock the nut, all substantially as and for the purpose set forth.

595,963. ELECTRIC BURGLAR-ALARM. DAVID W. MCCAUGHEY, Chicago, Ill., assignor of seven-tenths to Marion L. Somers, Eugene R. Cox, and Warner E. Jones, same place. Filed Nov. 27, 1896. Serial No. 613,585. (No model.)

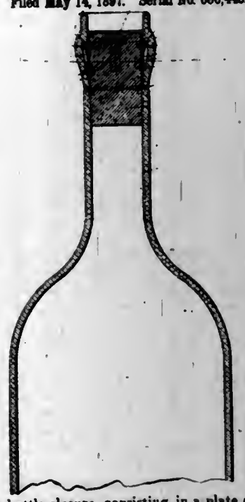


Claim.—1. In an electric burglar-alarm, the combination of a terminal or contact point, a longitudinally-movable insulating-block in which it is mounted, a hard metallic sleeve for protecting one end of the insulating-block, and an outer hard metallic tube in which the parts are mounted for protecting the same, substantially as described.

2. In an electric burglar-alarm, the combination of a terminal or contact point, a longitudinally-movable insulating-block in which it is mounted, a hard metallic sleeve secured to one end of the insulating-block to protect the same, a thimble in which the insulating-block and sleeve are mounted, spring mechanism inserted between the thimble and the insulating-block to keep the block with its terminal point at an outer limit, and an outer encompassing hard metallic sleeve, substantially as described

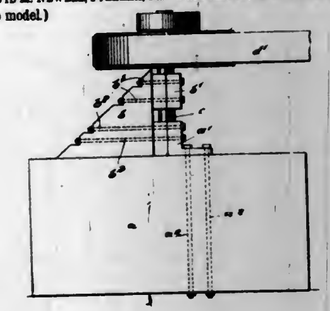
3. In an electric burglar-alarm, the combination of a terminal or contact point, a longitudinally-movable insulating-block in which it is mounted, a hard metallic sleeve secured to one end of the insulating-block to protect the same, a thimble in which the insulating-block is mounted, a helical coiled spring inserted between the thimble and the block to normally hold the insulating-block at its outer limit of motion, an outer encompassing hard metallic sleeve for holding the parts in position and protecting the same, an insulating-plug in the end of the tube opposite the terminal point, an adjusting-screw connected with the circuit-wire in such insulating-block, and a cushioning-spring on the inner end of the terminal wire arranged to contact the adjusting-screw and close the circuit when the parts are in their inner position, substantially as described.

595,964. BOTTLE-CLOSURE. ALEXANDER MCLEOD, Brisbane, Queensland. Filed May 14, 1897. Serial No. 636,440. (No model.)



Claim.—A bottle-closure, consisting in a plate capable of lying flat against the top of a cork to prevent piercing the cork from the top, the plate having arms projecting therefrom, the arms of reduced width adjacent to the plate and slitted lengthwise from the reduced ends to a point short of the outer ends, thereby forming on each arm an integral spring tongue, the tongues running upward and inward alongside their respective arms, and the outer end of each arm being wider than the main portion each of said outer ends having a point, the spring-tongues being capable of engaging the bottle and the points being capable of piercing the cork.

595,965. PUMPING APPARATUS. CHARLES E. NEWELL and DAVID M. NEWELL, Franklin, Pa. Filed Jan. 19, 1897. Serial No. 619,766. (No model.)



Claim.—1. A power transmitting apparatus having a base, a block seated on the base and having a side perpendicular to the base, bearings located one above the other and against the vertical side of the block, the lower bearing having two sections one of which directly engages the vertical side of the block, and the other of which has right-angular form with one member arranged against the first-named section of the bearing and with the other member lying against the upper side of the base, tie-rods passed through the base and through the said second member of the outer section of the lower bearing, additional tie-rods passed through the bearing and through both sections of the lower bearing, the upper bearing consisting in two sections the inner of which lies directly against the vertical side of the block and the outer of which lies against the inner section, tie-rods passed through the block and through both sections of the upper bearing, a vertical shaft held revolubly in the boxes, and means carried by the shaft, for receiving and transmitting movement therefrom, substantially as described.

2. A power-transmitting apparatus having a base, a block standing on the base, a first bearing engaging against the block and against the base, two rods for the said first bearing, one of said rods running through the base and having connection with the said first bearing, and the second of said rods running through the block and having connection with the said first bearing, a second bearing in line with the said first bearing and engaging the block, and an additional rod run through the block and connected with the said second bearing.

595,966. BICYCLE HANDLE. EDWARD O. NORTON, Daphne, Ala. Filed July 10, 1896. Serial No. 598,666. (No model.)



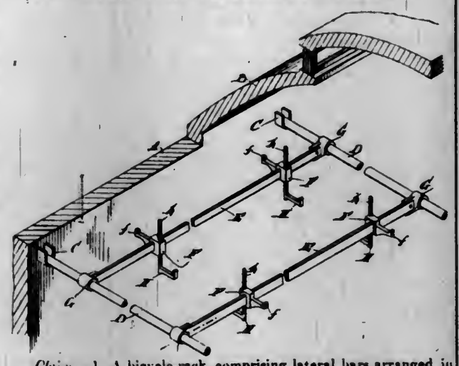
Claim.—1. A bicycle handle-bar provided with a finger rest comprising a wire or rod frame and a finger plate or plates held therein substantially as shown and described.

2. A finger rest or bearing for bicycle handle-bars comprising a finger plate or plates and a wire frame holding the same and bent forming clamps to engage the bicycle and hold the rest in place substantially as shown and described.

3. The finger rest or bearing for bicycle handles consisting of the plate or plates and the wire or rod bent between its ends forming a frame holding said plate or plates and at its ends to form the clamps for engagement with the bicycle substantially as shown and described.

4. A finger-rest for bicycle handle-bars having a flat upper surface and provided therein with individual depressions forming seats for the tips of the fingers when extended horizontally substantially as described.

595,967. BICYCLE-RACK. WALTER G. PARSONS, Englewood, N. J. Filed Apr. 13, 1897. Serial No. 632,016. (No model.)



Claim.—1. A bicycle-rack, comprising lateral bars arranged in pairs and supports therefor at each end, longitudinal bars having eyes in each end, fitting and sliding upon the lateral bars, and hooks supported to slide without turning upon the longitudinal bars, substantially as described.

2. A bicycle-rack, comprising lateral bars arranged in pairs and supports therefor at each end, longitudinal bars having eyes at each end fitting and sliding upon the lateral bars, blocks fitted to slide without turning upon the longitudinal bars and having a vertical threaded hole, and hooks having threaded shanks fitting said holes, substantially as described.

3. A bicycle-rack, comprising lateral bars arranged in pairs and supports therefor at each end, longitudinal bars having eyes at each end fitting and sliding upon the lateral bars, blocks fitted to slide without turning upon the longitudinal bars, having each a horizontally-extending hook fixed thereto, and also having a vertical threaded hole, and hooks having threaded shanks fitting said holes, substantially as described.

4. A bicycle-rack, comprising lateral bars, U-shaped blocks supporting the ends thereof, longitudinal bars of a polygonal section, eyes fitting and sliding upon the lateral bars, having a socket in one side to receive the end of the longitudinal bars, and hooks upon the longitudinal bars fitted to slide thereon without rotation, substantially as described.

5. A bicycle-rack, comprising two lateral bars, supports for each end thereof, longitudinal bars of a non-circular section, eyes fitting and sliding on the lateral bars, having a socket in one side to receive the ends of the longitudinal bar, hooks upon the longitudinal bars fitted to slide thereon without rotation and having vertical threaded holes therein, and hooks having threaded shanks fitting therein, substantially as described.

6. A bicycle-rack, comprising two lateral bars, supports for each end thereof, longitudinal bars of a non-circular section, eyes fitting and sliding on the lateral bars, having a socket in one side to receive the ends of the longitudinal bar, hooks upon the longitudinal bar fitted to slide thereon without rotation and hooks attached thereto adjustable in height and in angular position, substantially as described.

595,968. MECHANICAL MOVEMENT. WILLARD P. PARSONS, Hoosick Falls, N. Y. Filed Apr. 14, 1896. Serial No. 587,571. (No model.)



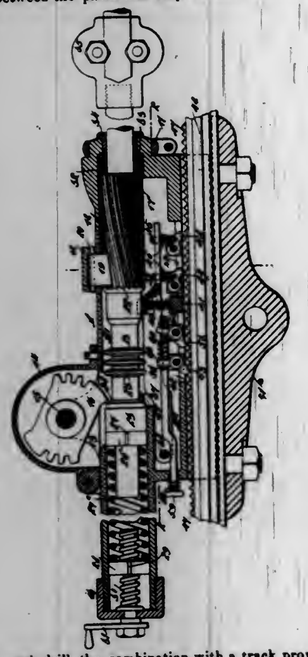
Claim.—The combination of a shaft, two gears thereon differing as to their number of teeth and meshing together, a cylinder upon which one of said gears is mounted and which forms an inclined bearing for said gear, said cylinder having a bearing upon the axis of the other gear, and a yoke or controlling device whose axis of motion intersects the axis of the cylinder at a common point, substantially as and for the purpose described.

595,969. ROCK-DRILL. ALBERT M. PLUMB, Colorado Springs, Colo., assignor to the Plumb Rock Drill Company, same place. Filed Mar. 2, 1897. Serial No. 625,773. (No model.)

Claim.—1. In a rock-drill, the combination with a casing, of a plunger adapted to carry a drill and having end movement in the casing, the plunger having its forward end enlarged and provided with spiral grooves to form a ratchet-surface, and provided with a head adjacent to the reduced rear end and teeth between the head and ratchet-surface, a collar on the reduced end of the plunger, a second collar in the casing, a screw passing through the end of the casing and engaging said second collar, a spring between the said collars, a mutilated gear comprising oppositely-located toothed segments engaging the head and teeth of the plunger, and a dog pivoted in the casing and normally engaging the ratchet-surface of the plunger, substantially as described.

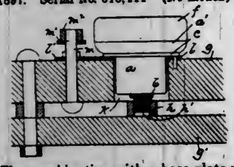
2. In a rock-drill, the combination with a track provided with teeth, a casing held to slide upon the track and having an opening in its bottom, and a plunger having end movement in the casing, of a pivoted lever in the casing and having an upwardly-projecting inclined surface between its ends, said inclined surface being adapted to be engaged by the plunger to operate the lever, pawls pivoted in the casing and adapted to engage the teeth of the track, links pivoted to the pawls and projecting through the lever and provided with stops at their ends, and springs coiled on the links between the pawls and the lever, substantially as described.

3. In a rock-drill, the combination with a track provided with teeth, a casing held to slide upon the track and having an opening in its bottom, and a plunger having end movement in the casing, of a pivoted lever in the casing and having an upwardly-projecting inclined surface adapted to be engaged by the plunger, pawls pivoted in the casing and connected with said lever, a second set of oppositely-arranged pawls pivoted in the casing and having upwardly-projecting arms, a shifting rod loosely connected with the arms of the pawls and extending out through the casing, and springs on the shifting rod between the pawls and stops on said rod, substantially as described.



4. In a rock-drill, the combination with a track provided with teeth, a casing held to slide on the track and having an opening in its bottom, and a plunger having end movement in the casing, of a pivoted lever having one end bifurcated and formed with an inclined surface at the juncture of the bifurcated portion with the single portion, pawls pivoted in the casing and adapted to engage the teeth of the track, links pivoted to the pawls and projecting through the lever and provided with stops at their ends, springs surrounding the links, a second set of oppositely-arranged pawls pivoted in the casing and provided with upwardly-projecting apertured arms, a shifting rod projecting through the arms of the said pawls and extending out through the casing, said shifting rod being provided with laterally-projecting stops, one on each side of the arms of the pawls and one between the said pawls, and springs on the rod between the stops and the pawl-arms, substantially as herein shown and described.

595,970. PLUG CUT-OUT. FREDERIC S. RICHMOND, Chicago, Ill. Filed Jan. 8, 1897. Serial No. 618,444 (No model.)



Claim.—1. The combination with a base-plate provided with an opening or socket, of a contact-terminal in the bottom of said socket, a terminal resting against the front face of said base-plate, a plug carrying the cut out and provided with a shouldered portion at one end and with an insulating body portion extending beyond said shouldered portion and adapted to fit within said opening or socket, a ring mounted upon said shouldered portion and adapted to engage the contact-terminal on the face of the base-plate, and a contact provided in the end of said projecting body adapted to engage the contact in the bottom of said socket mechanically as well as electrically to hold the plug in place, whereby the projecting insulating-body of the plug rests in the opening or socket to separate and isolate the oppositely-charged terminals, substantially as described.

2. The combination with a base-plate provided with an opening or socket, of a contact-terminal situated in the bottom of said socket and provided with a tapped hole, a terminal in the form of a ring mounted upon the front face of said base-plate and surrounding said opening or socket, a plug inclosing the cut-out and provided at the end with a removable cap or cover and carrying a shouldered portion near the end supporting the cap, and provided with an insulating body portion extending beyond said shouldered portion and adapted to fit within said opening or socket, a ring mounted upon said shouldered portion and adapted to engage the ring on the face of the base-plate, and a threaded contact-terminal mounted upon the end of said projecting body adapted to engage the tapped hole in the terminal situated in the bottom of the socket, whereby the projecting insulating-body of the plug rests in the opening or socket to separate and isolate the oppositely-charged terminals, substantially as described.

3. In a cut-out plug, the combination with an insulating-body carrying the cut-out, said plug being provided with a shouldered portion and with an insulating body portion extending beyond said shouldered portion, of a terminal mounted against the face of said shouldered portion, and a threaded terminal mounted upon the end of said extending body portion, substantially as described.

4. In a cut-out plug, the combination with the insulating hollow body provided with a shouldered portion *a'* and a body portion *a* extending beyond the same, of a cover *f* fitting upon said hollow body and inclosing the cut-out, a threaded contact *b* passing through the end of said body portion *a*, and a ring *c* resting against said shouldered portion *a'*, substantially as described.

5. In a cut-out plug, the combination with the body *a*, of the threaded contact *b* passing through the end thereof and provided with a square head fitting in a recess in said body, the lock-nut b^3, the ring *c* resting against a shoulder on the body of the plug, the screws passing through said shoulder and engaging said ring, and the cover fitting upon said body, substantially as described.

6. In a cut-out plug, the combination with the insulating-body provided with a shouldered portion *a'* and a body portion *a* extending beyond the same, and adapted to fit in the plug-socket, a threaded contact mounted upon the end of said body portion, a ring-contact resting against said shouldered portion, and a fuse-wire carried by the plug and connected between said ring-contact and said threaded contact, substantially as described.

7. In combination, a base-plate provided with an opening or socket, a contact-terminal in the bottom thereof having a tapped hole, a ring-terminal mounted on the face of said base-plate, a plug carrying the cut-out having a shoulder at one end and an insulating body portion extending beyond the same and adapted to fit in said socket, a threaded contact on the end of said body portion engaging the tapped hole of the socket and a ring-contact on said shoulder engaging the ring-contact of the socket, substantially as described.

595,971. FLUE-CLEANER. GEORGE E. R. ROTHENBOCHER, Bloomfield, N. J. Filed Nov. 18, 1896. Serial No. 612,640. (No model.)

Claim.—1. A flue-cleaner, provided with a scraper having segmental jaws, some of the said jaws being perpendicular to the scraper's axis, and spaced from each other to receive between them other jaws spaced from the adjacent perpendicular jaws and arranged obliquely at an angle to the scraper's axis, each of said oblique jaws being partly on one side of the plane of the perpendicular jaws and partly on the other side of such plane, substantially as described.

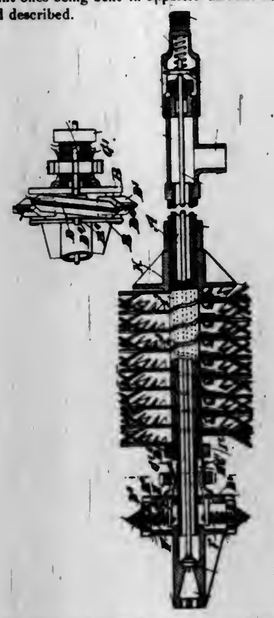
2. A flue-cleaner, having transversely-arranged cutters or jaws provided with bevels inclined forwardly and rearwardly of the flue-cleaner, some of the jaws being provided with teeth rigid therewith and located on that bevel which faces toward the front end of the flue-cleaner, substantially as described.

3. A flue cleaner or scraper having spaced jaws arranged in a plane perpendicular to the scraper's axis and provided with teeth on that side which faces the front end of the scraper, and oblique jaws arranged between said perpendicular jaws, substantially as described.

4. A flue-cleaner, provided with a scraper having a head, segmental jaws fitted to slide in the said head, springs supporting the said jaws individually, and levers each carrying one of the said springs, and adapted to be adjusted for increasing or decreasing the tension of the springs, substantially as shown and described.

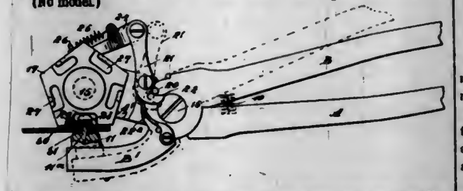
5. A flue-cleaner, provided with a scraper, comprising a head, segmental jaws fitted to slide in the said head, springs supporting the said jaws, levers fulcrumed on the said head and carrying the said jaws, and a nut screwing on the hub of the said head and engaging the said levers, substantially as shown and described.

6. A flue-cleaner, provided with a brush comprising a rod having a spiral groove, a series of spiral disks fitted into the said groove, each disk being formed with bristles, some of which extend radially, the adjacent ones being bent in opposite directions, substantially as shown and described.



7. A flue cleaner, provided with a central pipe, a head secured on the outer end of the said pipe and formed with a nozzle and a valve-seat, a valve adapted to engage the said seat and having its valve-rod extending through the said pipe, an inlet connected with the said pipe and formed with a stuffing-box for the said valve-rod, a spring for closing the valves and a lever engaging the outer end of the said rod for moving the valve off its seat, substantially as shown and described.

595,972. FASTENER-SETTING APPARATUS. WILLIAM SCHEUER, New York, N. Y. Filed Jan. 7, 1897. Serial No. 618,245. (No model.)



Claim.—1. The combination, with pivotally-connected handles having an interposed spring, each handle terminating in a jaw, the jaws being placed one above the other, a head mounted to revolve upon one of the said jaws, the head being provided with recesses in one of its faces, which recesses extend through the periphery of the head, and a clenching or anvil block carried by the opposing jaw, of a lever carried by the jaw of one handle, being operated by the opposing handle, a ratchet-wheel attached to the said head, a dog pivoted to the said lever, having a head arranged for engagement with the aforesaid ratchet-wheel, a spring controlling the movement of the dog in one direction, and a second spring operating upon the aforesaid lever, as and for the purpose specified.

2. The combination, with pivotally-connected handles terminating in jaws, the jaws being arranged one above the other, a revolving head having pockets for the reception of articles carried by one of the said jaws, and a ratchet-wheel attached to the said head, of a pin secured upon one of the handles, a lever fulcrumed upon the opposite handle, terminating in a hook-like extremity engaged by the aforesaid pin, a spring having bearing against the hook-like extremity of the lever, and a dog connected with the said lever and arranged for engagement with the aforesaid ratchet-wheel, as and for the purpose set forth.

3. The combination of two pivoted handles, an anvil-block on one handle, a rotary head mounted on the second handle and coacting with the anvil-block, a lever fulcrumed on the handle that has the head and rocked by the movement of the other handle, a dog pivoted to the lever and coacting with the head to turn the same, and a spring actuating the dog.

4. The combination of two pivoted handles, a rotary head mounted on one handle, a lever fulcrumed on that handle which has the head and operated by movement of the remaining handle, a dog carried by the lever and coacting with the head to turn the same, and a spring actuating the lever.

5. The combination of two pivoted handles, a rotary head mounted on one handle, a lever fulcrumed on one handle, a projection on the remaining handle, the projection engaging the lever upon the movement of the said remaining handle whereby to swing the lever, and a dog pivoted to the lever and coacting with the head to turn the same.

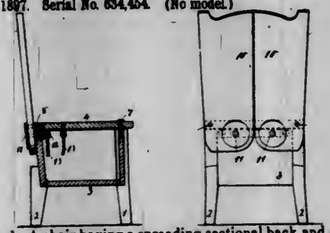
6. The combination of two pivoted handles, a rotary head mounted on one handle, a lever fulcrumed on one handle and having a bent end, a projection carried on the remaining handle and engaging the bent end of the lever to swing the lever, and a dog pivoted to the lever and coacting with the head to turn the same.

7. The combination of two handles pivoted to each other, a lever fulcrumed on one handle and having a bent end, a projection carried by the remaining handle and engaging the bent end of the handle to swing the lever, a dog pivoted to the lever, and a member operated by the movement of the lever.

8. The combination of two handles pivoted to each other, a rotary head mounted on one handle and having ratchet-teeth, a detent pivoted to the handle which carries the head, a spring pressing the detent so that one side thereof will engage with the teeth of the head, and means for turning the head upon the movement of the handles.

9. A head for fastener-sets, the head having a series of flat peripheral faces, the front surface of the head having a pocket adjacent to each peripheral face of the head, the pockets extending respectively through the said peripheral faces and each peripheral face also having an aperture passing into the respective pockets.

595,973. FIRE-ESCAPE. MAX SCHMIDT, Brooklyn, N. Y. Filed Apr. 29, 1897. Serial No. 634,454. (No model.)



Claim.—1. A chair having a spreading sectional back and a seat made to engage or hold the back closed, and a ladder or support connected to the chair substantially as described.

2. A chair having a spreading sectional back, a box, a seat made to close the box and to engage or hold the back closed, and a ladder or support adapted to be stored in the box and connected to the chair and to the seat substantially as described.

3. A chair having a spreading sectional back and a seat made to engage or hold the back closed, and a ladder or support connected to the chair, said chair having perforated legs and the seat being correspondingly perforated for the engagement of lugs or fastenings substantially as described.

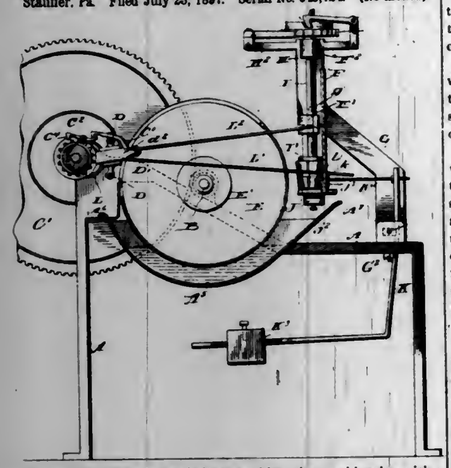
4. A legged chair provided with a box, back-sections jointed to the chair, and a seat adapted to close or cover the box and provided with lugs or holders for engaging the back-sections, said box being provided with a ladder or support connected to the seat, and said seat being adapted to be secured to the chair-legs substantially as described.

5. A chair-body provided with a box, back-sections jointed to the chair, and a seat adapted to close or cover the box and provided with lugs or holders for engaging the back-sections, said box being provided with a bar or plate, and a ladder or support connected to said bar and to the seat substantially as described.

6. A chair provided with a box, a seat adapted to close the box, an attaching-plate at said box, a ladder or support connected to the plate and to the seat, bolts or fastenings for securing the plate, and back-sections pivoted by said bolts substantially as described.

7. A chair having a spreading sectional back and a seat made to engage or hold the back closed, a ladder or support connected to the chair-body and to the seat, and a bag or receptacle at said seat, the side or wall of said bag being supported by the ladder substantially as described.

595,974. GLASS-GRINDING MACHINE. HENRY C. SCHRADER, Stauffer, Pa. Filed July 23, 1897. Serial No. 645,724. (No model.)



Claim.—1. In a glass-grinding machine, the combination with a power-shaft and grinding-wheel driven thereby, of a glass-holding frame pivotally mounted at an angle to the axis of said power-shaft, an auxiliary shaft provided with normally inoperative means for intermittently swinging said glass-holding frame away from said grinding-wheel, a connecting device between said means and the swinging frame, a traveling device positively connected with said auxiliary shaft to intermittently throw into operation the frame-swinging means, means to automatically return said device to its initial position, means for automatically moving said frame toward the grinding-wheel, and means for producing a step-by-step rotation of an article held in said swinging frame, substantially as specified.

2. In a grinding-machine, the combination with a power-shaft and grinding-wheel driven thereby, of a shaft parallel with said driving-shaft and provided with a worm or screw, an eccentric loosely mounted upon said parallel shaft, means for actuating said eccentric, a sliding device operated by said worm to effect the engagement of the eccentric-actuating means, a swinging glass-holding frame pivoted at an angle to said shafts, connecting devices between said eccentric and swinging frame, a connecting device between said sliding device and the swinging frame to disengage the sliding device from the worm when the frame is swung in one direction, and means for automatically swinging said frame toward the grinding-wheel, substantially as specified.

3. In a glass-grinding machine, the combination with the grinding-wheel, of a swinging frame, a glass-holding spindle rotatably mounted in said frame, stops carried by said frame at its side opposite to the grinding-wheel to prevent a lateral movement of the glass, and means for intermittently rotating said glass-holding spindle, substantially as specified.

4. In a glass-grinding machine, the combination with the grinding-wheel, of a stationary standard provided with oppositely-located arms, a swinging frame between said arms, a glass-holding spindle rotatably mounted in said frame, a ratchet-wheel located upon said spindle, a collar having a recess or seat carried by said spindle adjacent to said ratchet-wheel a feed-pawl mounted upon one arm of said standard and adapted to rotate said ratchet-wheel when the frame is moved in relation to said arms, and a detent pivoted upon the opposite arm of said standard in a different plane from the ratchet-wheel and adapted to engage the recess in said collar; substantially as specified.

5. In a glass-grinding machine, the combination with a grinding-wheel, of a stationary standard provided with bifurcated arms, a swinging frame vertically pivoted between said arms, a rotatable glass-holding spindle mounted in said frame, a ratchet-wheel located upon said spindle, a collar projecting from said ratchet-wheel at an angle to the teeth thereof and provided with a recess therein, a vertically-pivoted pawl carried by one of said arms in alinement with the teeth of said ratchet-wheel, and a horizontally-pivoted detent upon the opposite arm adapted to travel upon the surface of said collar and to engage said recess; substantially as specified.

6. In a glass-grinding machine, the combination with a grinding-wheel, of a pivoted frame, means for supporting and rotating a glass therein, an adjustable base for said frame, provided with a seat and having upwardly-extending arms, and means to adjustably secure said arms to said frame; substantially as specified.

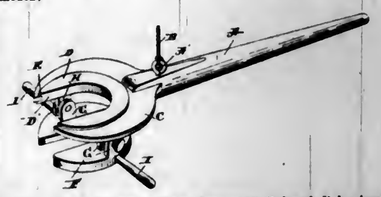
7. In a glass-grinding machine, the combination with a grinding-wheel, of a pivoted frame, means for supporting and rotating a glass therein, an adjustable base for said frame provided with slotted vertical extensions, and clamping-nuts passing through the frame to secure said base at its adjusted position, substantially as specified.

8. In a glass-grinding machine, the combination with a grinding-wheel, of a pivoted frame, means for supporting and rotating a glass therein, a pivotally-mounted weighted lever and a connection between said frame and lever to permit movement of the former independently of the latter, substantially as specified.

9. In a glass-grinding machine, the combination with a grinding-wheel, of a swinging glass-holding frame, a rotating shaft carried thereon, a worm, a ratchet-wheel, an eccentric loosely mounted upon said shaft and provided with extension upon which a pivoted pawl adapted to engage said ratchet-wheel is mounted, a latch supported upon a stationary member and adapted to normally hold said pawl out of contact with said ratchet wheel, a sliding dog adapted to be fed by said worm and to release said latch, and means connecting said eccentric and sliding dog with the swinging frame, substantially as specified.

10. In a glass-grinding machine, the combination with a grinding-wheel, of a swinging glass-holding frame, a rotating shaft carried thereon, a worm, a ratchet-wheel, an eccentric loosely mounted upon said shaft and provided with an extension upon which a pivoted pawl adapted to engage said ratchet-wheel is mounted, a latch supported upon a stationary member and adapted to normally hold said pawl out of contact with said ratchet-wheel, a sliding dog provided with a sleeve, a spring extending from a stationary support to retract said dog to its initial position, a sliding pin located in said sleeve and provided with a retracting-spring to throw said pin into engagement with said worm, and means connecting said eccentric and sliding dog with the swinging frame, substantially as specified.

595,975. WRENCH FOR OIL-WELL TOOLS. LEONARD D. SHRYOCK, Marietta, Ohio. Filed Aug. 7, 1897. Serial No. 647,456. (No model.)



Claim.—1. The combination of support C, head D horizontally rotatable therein, and wrench F beneath and in line with head D and secured thereto by horizontally-jointed connections, whereby the wrench is adapted to oscillate vertically with respect to the head, substantially as shown and described.

2. An improved implement of the character described, including a horizontally-rotatable support, and a wrench beneath and paralleling the support and pivotally united therewith so as to oscillate vertically with respect thereto, substantially as shown and described.

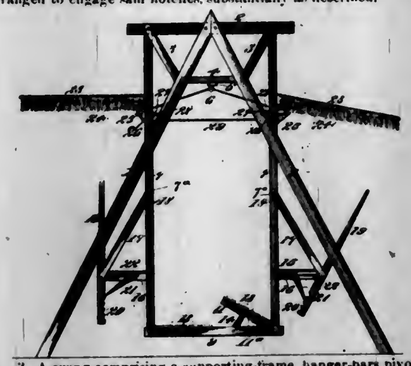
3. An improved wrench comprising a head or support, a carrier rotatably mounted therein, lugs depending from the carrier, a wrench, lugs projected from the upper side thereof, and pivots uniting the lugs of the wrench and carrier, substantially as shown and described.

4. An improved hinge connection for an implement of the character described, comprising the overlapping lugs having alined apertures, a uniting-bolt grooved longitudinally and adjacent to its head grooved circumferentially, and a screw or pin extended through one of the lugs and into the slot of the bolt and adapted to limit the longitudinal movement of the same, and also lock it against longitudinal movement when engaging the circumferential groove, substantially as shown and described.

595,976. LAWN-SWING. HENRY H. SMITH, Smithborough, Ill. Filed Mar 27, 1897. Serial No. 629,549. (No model.)

Claim.—1. A swing comprising a supporting-frame, hanger-bars pivotally connected to said frame, a seat pivotally connected to said hanger-bars at its inner end, a back pivoted to the outer end of said seat, and having a free end extending below said seat, and means carried by said seat arranged to engage the free lower end of said back for the purpose of adjusting its position relatively to the seat, substantially as described.

2. A swing comprising a supporting-frame, hanger-bars pivotally connected to said frame, a seat pivotally connected to said hanger-bars at its inner end, a back pivoted to the outer end of said seat, and having a free end extending below said seat provided with series of notches, and downwardly-extending pawls pivoted to said seat and arranged to engage said notches, substantially as described.



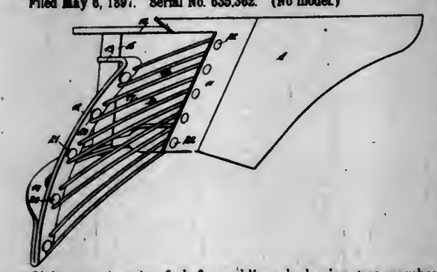
3. A swing comprising a supporting-frame, hanger-bars pivoted to said frame, seats carried by said hanger-bars, shafts journaled to said hanger-bars, fans carried by said shafts, pulleys on said shafts, and a cord secured at its ends to said frame and passing over said pulleys for the purpose of rotating said fans in the actuation of the swing, substantially as described.

4. A swing comprising a pair of supporting-frames, an upper rectangular frame to which the supporting-frames are rigidly connected, the paired hanger-bars pivoted to the upper rectangular frame, the lower rectangular frame to which the lower ends of the hanger-bars are pivoted, the seats pivoted at their inner ends to the hanger-bars, the seat-supports pivoted at their lower ends to the outer ends of the seats and at their upper ends to the hanger-bars, the seat-backs pivoted intermediate of their ends to the seat-supports and having series of notches beneath the seats, and the downwardly-projecting pawls pivoted to the seats and adapted to engage the notches of the backs; substantially as described

5. A swing comprising a pair of supporting-frames, an upper rectangular frame to which the supporting-frames are rigidly connected, the paired hanger-bars pivoted to the upper rectangular frame, the lower rectangular frame to which the lower ends of the hanger-bars are pivoted, the seats pivoted at their inner ends to the hanger-bars, having side bars each formed with a slot, the seat-supports pivoted at their lower ends to the outer ends of the seats and at their upper ends to the hanger-bars, the seat-backs pivoted intermediate of their ends to the seat-supports and having series of notches beneath the seats, and the downwardly-projecting pawls pivoted in the slots of the side bars and adapted to engage the notches of the backs; substantially as described.

6. A swing comprising a pair of supporting-frames, an upper rectangular frame to which the supporting-frames are rigidly connected, the paired hanger-bars pivoted to the upper rectangular frame, the lower rectangular frame to which the lower ends of the hanger-bars are pivoted, the seats supported on the hanger-bars, the transverse bar secured to the supporting-frames, the shafts journaled to the hanger-bars, having pulleys and fan-blades, and the cord passed around the pulleys and secured to the transverse bar; substantially as described.

595,977. MOLDBOARD. SAMUEL A. SMITH, McKinney, Tex. Filed May 6, 1897. Serial No. 635,362. (No model.)



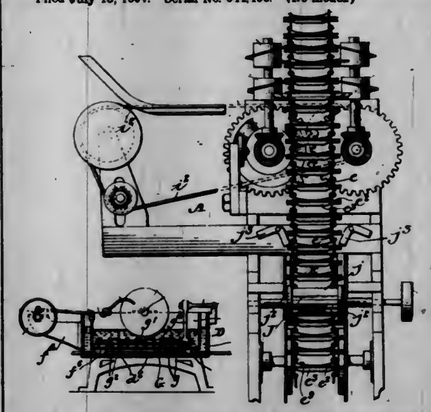
Claim.—1. A spring-fork for moldboards, having two members connected by a bend, one of said members being provided with an indentation adjacent to said bend, forming an eye, substantially as described.

2. A spring-fork for moldboards, having two members connected by a bend, the free end of one of the members being coiled to form an eye, one of the members being further indented adjacent to the bend, forming another eye, substantially as described.

3. A moldboard consisting of a bottom plate, an upper bar and a body portion, the said body comprising a series of spring-forks or open loops, each of which has an eye formed at its return portion, arranged for attachment to the bottom plate or bar, and a spring-eye formed at the free end of one of its members, arranged for attachment to the top plate or bar.

4. A moldboard consisting of an upper bar or support, a lower bar or support, and separate spring-forks connecting said supports, each of said forks having one end secured to one of said supports, the extremity of the other fork member being free, and the central portion or bend of the fork being secured to the other support, substantially as described.

595,978. MATCH-MACHINE. BERNARD T. STEBER, Utica, N. Y. Filed July 13, 1897. Serial No. 644,406. (No model.)



Claim.—1. In a match-making machine, the combination with means for cutting match-splints, of a chain adapted to receive the said splints comprising groups of fixed and movable slats, pairs of cams for feeding the chain forward, one of each pair being provided with flanges located so as to spread the slats to receive the splints and to feed the chain forward and the other pair of cams being adapted to engage the outer surfaces of the groups of slats to serve as an auxiliary feed, and means for rotating said cams, substantially as described.

2. In a match-making machine, the combination with a suitable means for cutting match-splints, of a chain consisting of a series of fixed and movable slats for holding the said splints, pairs of cams, one of each pair located to engage between the slats and open and feed them forward and the other to engage the rear of the slats to serve as an auxiliary feed, and means for rotating the said cams, substantially as described.

3. In a machine for making matches, the combination with a suitable cutter for cutting match-splints, a chain comprising fixed and movable slats, means for providing the splints with igniting-heads, and pairs of worm cams, one of each pair located to engage between the slats at the end of the machine whereby the completed matches may be ejected from the chain and the other adapted to engage the slats to serve as an auxiliary feed, substantially as described.

4. In a machine for making matches, the combination with a suitable cutter for cutting match-splints, a chain having cooperating fixed and movable slats, means for receiving the splints, means for providing the splints with igniting-heads, pairs of worm-cams, one of each pair located to engage between the slats at the end of the machine to open them, whereby the completed matches may be ejected and the other adapted to engage the slats, but not opening them, to serve as an auxiliary feed, and shafts for supporting and rotating the said cams, substantially as described.

5. In a machine for making matches, the combination with a chain for receiving the same, cooperating fixed and movable slats on the chain, and pairs of worm-cams at the end of the machine, one of each pair being provided with wide flanges to engage between the slats for opening and feeding them forward whereby the matches may be ejected and the other pair having thin flanges whereby they may engage between the slats without opening them yet serving as an auxiliary feed, substantially as described.

6. In a machine for making matches, the combination of a cutter for cutting match-splints, a carrier-chain adapted to receive the said splints, means for ejecting the completed matches from the chain and

a cutter-head mounted below the ejecting means consisting of a head carrying blades adapted to knock out any splints or matches which may escape the ejecting means and disks upon the ends of said head for holding the blades away from the said chain, substantially as described.

7. In a machine for making matches, the combination of a carrying-chain, means for placing match-splints therein, and means for ejecting the completed matches therefrom, a cutter-head adapted to knock out any matches which have escaped the ejecting means and means for preventing a retrograde movement of the chain consisting of pivoted dogs adapted to engage the said chain whereby the chain is free to move forward but cannot move back, again, substantially as described.

8. In a machine for making matches, the combination with a suitable cutter, of a chain consisting of links pivoted together, groups of smooth and grooved slats mounted in said links, springs also mounted in the said links and adapted to bear upon the said smooth slats for holding them against the grooved slats, the grooved slats of each group being thickened to strengthen them and being provided with tapering end portions whereby the said grooved slats will not occupy more space in the links than the smooth ones, substantially as described.

9. In a machine for making match splints, the combination with a suitable cutter of a chain carrier consisting of a series of slats for holding the match-splints, links pivotally secured together and provided with central apertures, one portion of the said apertures being adapted to receive the reduced ends of the said slats and the other portion of the said apertures being enlarged whereby the whole slat may be withdrawn through the said enlarged portion and means for holding the said slats together substantially as described.

10. In a machine for making matches, the combination with a splint-cutting mechanism, of a chain for receiving the said splints, means for providing igniting heads for said splints comprising a vat adapted to hold water, an inner movable vat adapted to stand in the water, means for reciprocating the said movable vat, a stationary agitator mounted in the said movable vat and a roller for carrying the composition upward against the match-splints, substantially as described.

11. In a machine for making matches, the combination with a suitable splint-cutting mechanism, of a chain for receiving and carrying the same, a vat for supplying igniting material to said splints comprising a reciprocating vat adapted to hold a suitable igniting composition, rollers upon said vat for movably supporting the same, a pitman secured to said vat at one end and to a crank at the other, whereby a reciprocating motion may be imparted to said vat and a roller for carrying the composition to the ends of the matches, substantially as described.

12. In a match-making machine, the combination with a suitable splint-cutter, of a chain for receiving and carrying the same, a composition-vat comprising an inner movable vat and an outer stationary vat, means for reciprocating the inner vat, a stationary agitator pivotally mounted upon the outer vat whereby the same is adapted to be held stationary in the bottom of the movable vat or may be turned upwardly upon its pivotal point for cleaning the same when desired and a roller for carrying the composition to the ends of the match-splints, substantially as described.

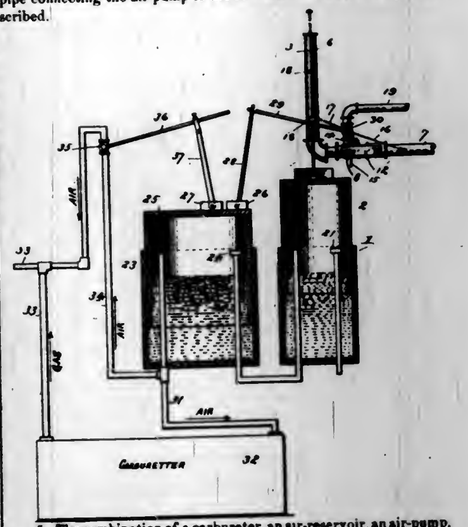
595,979. GAS-MAKING APPARATUS. LAWRENCE W. SWEM, West Liberty, Iowa. Filed Jan. 21, 1897. Serial No. 620,094. (No model.)

Claim.—1. In a gas-machine the combination of an air-pump, an air-reservoir, a carbureter connected to the reservoir, a gas-pipe leading from said carbureter, an air-pipe connecting the air-reservoir to the gas-pipe, a valve in this air-pipe, and means connected to the air-reservoir for moving this valve as the air-reservoir rises or falls, substantially as described.

2. In a gas-machine the combination of an air-pump, an air-reservoir having a movable upper section, a carbureter connected to the reservoir, a gas-pipe leading from the carbureter, an air-pipe connecting this pipe to the air-reservoir, a valve in this pipe, a lever connected to this valve, and means for adjustably connecting this lever with the movable section of the air-reservoir, substantially as described.

3. In an air-pump for a gas-machine, the combination of a two-part pump, a hydraulic cylinder, a piston therein, means for connecting this piston to the movable section of the air-pump, a supply-pipe and a waste-pipe connected to said cylinder, a valve in said waste-pipe, an air-reservoir formed with a movable upper section, means connected to this movable section for moving the valve in the waste-pipe as said section rises or falls, means for controlling the supply of water to the cylinder, and a valved pipe, connecting the air-pump with the air-reservoir, substantially as described.

4. In an air-pump for a gas-machine the combination of a hydraulic cylinder, a piston therein, a two-part air-pump having an upper movable section, means for connecting the piston to this movable section, a supply-pipe and a waste-pipe connected to said cylinder, a valve in the waste-pipe, a lever connected thereto, means for pivotally connecting this lever to the movable section of the air-pump, means for controlling the supply of fluid to the cylinder, and a valved pipe connecting the air-pump to the air-reservoir, substantially as described.



5. The combination of a carbureter, an air-reservoir, an air-pump, a valved pipe connecting the air reservoir and pump and another pipe connecting the reservoir and the carbureter, another pipe connecting the air-reservoir to the gas-pipe leading from the carbureter, a valve in this latter pipe and means for automatically opening and closing the valve by the movement of the air-reservoir, a hydraulic cylinder for operating the air-pump, a waste valve in the waste-pipe leading therefrom, means for automatically opening and closing this waste-valve by the movement of the air-reservoir, as and for the purpose set forth.

6. In an air-pump for a gas-machine the combination of a hydraulic cylinder, a piston therein, an air-pump having a movable upper section, a rod 3 connecting said section to the piston, stops on said rod, a supply-pipe connected to the cylinder, a valve in said pipe, a lateral arm carried by said valve, an oscillating plate adjacent said valve, arms on said plate adapted to engage the arm on the valve during a portion of the movement of said plate, an arm 14 on said plate, a spring 16 connected to said arm and to a rigid support, a chain 17 connected to said arm and to the rod 3 between the stops, substantially as described.

595,980. SELF-RAISING FLOUR. EUSTACE M. TINGLE, Lichfield, England. Filed Dec. 5, 1896. Serial No. 614,652. (No specimens.)

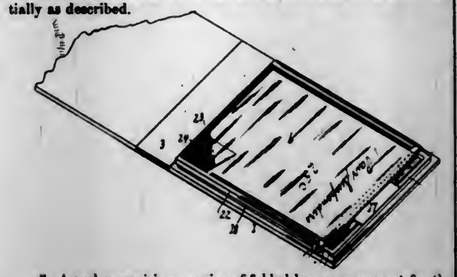
Claim.—1. An egg coloring composition composed of the sodium salt of a mixture of the mono and di sulfonic acids of amidoazo-benzole in powdered form, combined with rice-flour, substantially as and for the purpose set forth.

2. A self-raising compound composed of ordinary flour, carbonate of soda, tartaric acid, cream of tartar, and an egg coloring-matter composed of the sodium salt of a mixture of the mono and di sulfonic acids of amidoazo-benzole combined with rice-flour, substantially as and in about the proportions set forth.

595,981. MANIFOLDING-BOOK. FREDERICK M. TURCK, New York, N. Y., assignor to Philip Hano, same place. Filed May 20, 1897. Serial No. 637,433. (No model.)

Claim.—1. A pad comprising a series of folded leaves, a support for the pad, guides located on opposite sides of the pad, and a carbon-sheet carrier mounted on said guides so as to slide in and out between the sections of each leaf, said carrier being held by said guides in a plane parallel to the faces of the leaves, each of said leaves being folded into sections and said folded leaves being superposed, substantially as described.

2. A pad comprising a series of folded leaves, a support for the pad, a compression-frame for the pad linked to the support, and a carbon or transfer sheet carrier made to slide on the frame substantially as described.



3. A pad comprising a series of folded leaves, a support for the pad, a compression-frame for the pad linked to the support, and a carbon or transfer sheet carrier made to slide on the frame, said frame having a lip made to extend over or press upon the folded edge of the sheet substantially as described.

4. A pad comprising a series of folded leaves, a support for the pad, a compression-frame for the pad linked to the support, and a carbon or transfer sheet carrier made to slide on the frame, said frame having a supporting-plate jointed thereto and said plate being adapted to swing under or support the upper or writing sheet of the pad substantially as described.

5. A case for holding a pad of loose or unbound leaves of paper, said case comprising a support and a frame, and swinging wires connecting the support to the frame so as to leave the latter adjustable to the height or thickness of the pad, said frame being provided with a carbon-carrying slide substantially as described.

6. A case for holding a pad of loose or unbound leaves of paper, said case comprising a support and a frame, and swinging wires connecting the support to the frame so as to leave the latter adjustable to the height or thickness of the pad, and a carbon or duplicating sheet on top of the frame and adapted to be interposed between the leaves, substantially as described.

7. A case for holding a pad of loose or unbound leaves of paper, said case comprising a support and a frame, swinging wires made to severally connect the various sides of the frame to the support so as to cause the frame to collapse or move evenly to the support, a pad or pile of sheets, each of said sheets having been first folded and then laid loosely one on top of the other, and a carbon-sheet adapted to be interposed between the folds of each sheet, substantially as described.

8. A case for holding a pad of loose or unbound leaves of paper, said case comprising a support and a frame, swinging wires connecting the support and the frame so as to leave the latter adjustable to the height or thickness of the pad and free to drop by its gravity onto such pad, and a carbon-carrying slide mounted on top of the frame and adapted to move between the leaves, substantially as described.

595,982. FILING-CASE. THOMAS WARING, Camden, N. J. Filed Feb. 27, 1897. Serial No. 625,270. (No model.)



Claim.—1. The combination of a drawer having on the bottom transverse strips with intervening space, with a file-case mounted so as to slide longitudinally in said drawer and capable of being turned up therein so that its base will enter the space between said transverse strips on the bottom of the drawer, substantially as specified.

2. The combination of a drawer having on the bottom of the same transverse strips with intervening space, with a file-case mounted in said drawer so as to be longitudinally movable therein and so as to be capable of being turned up at right angles to the drawer, said case comprising a base portion adapted to fit into the space between the transverse bars on the bottom of the drawer, and sides one or both hinged to said base portion so as to fall outwardly when the file-case assumes an upright position in the drawer, substantially as specified.

3. The combination of the drawer, with a file-case movable longitudinally in said drawer and free to be turned up at right angles to the drawer, with stops for limiting the longitudinal movement of the file case in the drawer, substantially as specified.

4. The combination of a drawer with a file-case consisting of a base and opposite sides one or both hinged thereto, said file-case being movable longitudinally in the drawer and capable of being turned up at right angles thereto, with stops for limiting the longitudinal movement of the file-case in the drawer, said stops also serving to limit the downward-swinging movement of one side of the case when the latter has assumed the upright position, substantially as specified.

5. The combination of a drawer having on the bottom of the same transverse strips with intervening space, a file-case consisting of a base and sides one or both hinged thereto, said file-case being mounted so as to slide longitudinally in the drawer and capable of being turned up at right angles thereto so that its base will enter the space between the transverse strips on the bottom of the drawer, with stops for limiting the outward movement of the case in the drawer, substantially as specified.

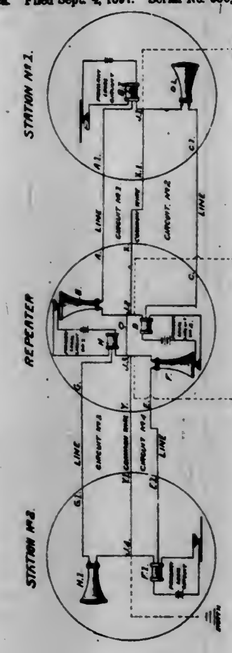
6. The combination of the opposite sides and hinged cover of a file-case, said hinged cover having a hooked catch engaging the upper edge of one of the sides of said case, with a turnbuckle hung to the edge of said side of the case and overlapping the hinged top and retaining the same and its hooked catch in a closed position, substantially as specified.

7. The combination of the opposite sides of a file-case and a cover hinged to one side and having a hooked catch for engaging the other side of the case, with a turnbuckle hung to the edge of said side of the case and overlapping the hinged cover, the hooked catch of the latter projecting beyond the cover so as to prevent the accidental release of the turnbuckle, substantially as specified.

8. The combination of a file-case having a base with recess therein, index sheets having perforated tabs at their inner ends, and a retaining-rod passing through said perforated tabs and bent back upon itself at one end, said bent end terminating in a hook which enters the recess in the base of the file-case, substantially as specified.

9. The combination of a file-case consisting of a base and sides one or both hinged thereto, a series of index-sheets contained in said file-case, and a hinged supporting-plate adjacent to one of the sides of the file-case and having a thumb-piece at the outer end, substantially as specified.

595,983. TELEPHONE-REPEATER. WILLIAM H. M. WEAVER, Macon, Ga. Filed Sept. 4, 1897. Serial No. 650,661. (No model.)



Claim.—A telephone-repeater comprising two or more stations each equipped with a receiver and an induction-coil transmitter, intermediate repeating devices comprising two receivers and two induction-coils with their primary wires extended to and provided with contact devices operated by the diaphragms of the said receivers of the repeating devices, each receiver and induction-coil of the repeating devices being in the main-line circuit of one station and a common return-circuit connecting the main circuit at each station at a point between its receiver and transmitter, with the main circuit between the receivers and induction-coils of the repeating devices and also connecting the main circuits between the receiver and induction-coil of one side of the repeating devices with the main circuit between the receiver and induction-coil on the other side of the repeating devices substantially as and for the purpose described.

595,984. YARN-PRINTING MACHINE. WILLIAM J. WEBB, Yonkers, N. Y., assignor to the Alexander Smith & Sons Carpet Company, same place. Filed May 24, 1897. Serial No. 637,822. (No model.)



Claim.—1. The combination with the drum, carriage and distributing-wheel, of a pair of reversely-movable connected rubbers on opposite sides of the wheel, tripping devices for effecting their engagement alternately with the drum, and other tripping devices, operative when those first named are inoperative, for effecting their movement to a position in which both are inoperative, substantially as described.

2. The combination with the drum, carriage and distributing-wheel, of a pair of reversely-movable connected rubbers on opposite sides of the wheel, tripping devices, adjustable into and out of operative position, for effecting their engagement alternately with the drum, and other tripping devices, operative when those first named are inoperative, for effecting their movement to a position in which both are inoperative, substantially as described.

3. The combination with the drum, carriage and distributing-wheel, of a pair of reversely-movable connected rubbers on opposite sides of the wheel, tripping devices for effecting their engagement alternately with the drum, means carried by the carriage for locking the rubbers when in engagement, and other tripping devices, operative when those first named are inoperative, for effecting the release of the rubbers and their movement to a position in which both are inoperative, substantially as described.

4. The combination with the drum, carriage and distributing-wheel, of a pair of reversely-movable connected rubbers on opposite sides of the wheel, tripping devices, adjustable into and out of operative position, for effecting their engagement alternately with the drum, means carried by the carriage for locking the rubbers when in engagement, and other tripping devices, operative when those first named are inoperative, for effecting the release of the rubbers and their movement to a position in which both are inoperative, substantially as described.

5. The combination with the drum, carriage and distributing-wheel, of a pair of rubbers on opposite sides of the wheel, a rocking frame connecting the rubbers, tripping devices, adjustable into and out of operative position, for rocking the frame into positions to effect the engagement of the rubbers alternately with the drum, other tripping devices, operative when those first named are inoperative, for moving the frame to an intermediate position, in which both rubbers are inoperative, substantially as described.

6. The combination with the drum, carriage and distributing-wheel, of a pair of rubbers on opposite sides of the wheel, a rocking frame connecting the rubbers, tripping devices, adjustable into and out of operative position, for rocking the frame into position to effect the engagement of the rubbers alternately with the drum, means carried by the carriage for locking the frame in such positions, and tripping devices, operative when those first named are inoperative, for effecting the release of the frame and its movement to an intermediate position in which both rubbers are inoperative, substantially as described.

7. The combination with the drum, carriage and distributing-wheel, of a pair of yieldingly-supported rubbers for alternately engaging the drum and means for temporarily depressing the operative rubber as it nears the drum, substantially as described.

8. The combination with the drum, carriage and distributing-wheel, of a rocking frame provided with a pair of rubbers yieldingly supported thereon for alternately engaging the drum, tripping devices for rocking the frame, and means for temporarily depressing the operative rubber as it nears the drum, substantially as described.

9. The combination with the yarn-drum, carriage and distributing-wheel, of a rubber and means for retaining said rubber out of contact with the drum as it passes the edge of the drum and then moving the rubber toward the surface of the drum in a direction substantially at right angles thereto for operation on the yarn, substantially as described.

10. The combination with the yarn-drum, carriage and distributing-wheel, of rubbers on opposite sides of the wheel, and means for effecting their engagement alternately with the drum and for retaining the operative rubber out of contact with the drum as it passes the edge of the drum and then moving it toward the surface of the drum in a direction substantially at right angles thereto for operation on the yarn, substantially as described.

11. The combination with the yarn-drum, carriage and distributing-wheel, of reversely-movable connected rubbers on opposite sides of the wheel, and tripping devices for effecting their engagement alternately with the drum and for effecting the movement of the rubbers to a position in which both are inoperative, and adjustable into and out of the position in which they effect the engagement of the rubbers with the drum, substantially as described.

12. The combination with the drum, carriage and distributing-wheel, of alternately-operating rubbers on opposite sides of the wheel, tripping devices adjustable into and out of operative position for effecting the movement of the rubbers to operative position, and other tripping devices for effecting the movement of the rubbers to a position in which both are inoperative, substantially as described.

13. The combination with the drum, carriage and distributing-wheel, of alternately-operating rubbers on opposite sides of the wheel, and tripping devices for effecting the movement of the rubbers to operative position and to a position in which both of the rubbers are inoperative and adjustable into and ont of the position in which they effect the movement of the rubbers to operative position, substantially as described.

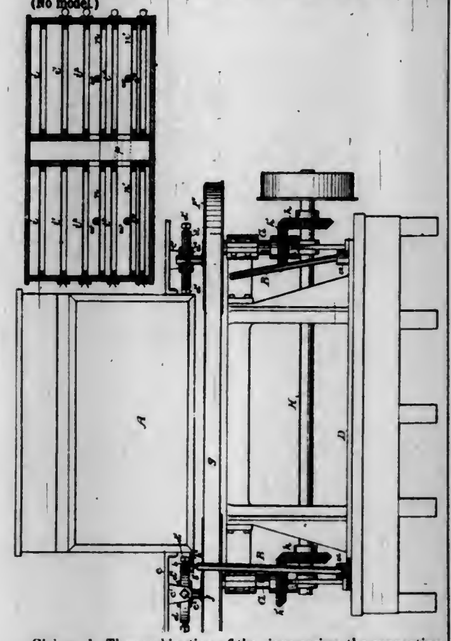
14. The combination with the drum, carriage and distributing-wheel, of rubbers on opposite sides of the wheel adapted to alternately engage the drum, means carried by the carriage for locking the rubbers thereto and retaining them in operative position, and tripping devices for effecting the movement of the rubbers to operative position and for unlocking the rubbers and effecting the movement of the rubbers from operative position to a position in which both are inoperative, said tripping devices being adjustable into and out of the position in which they effect the movement of the rubbers into operative position, substantially as described.

15. The combination with the drum, carriage and distributing-wheel, of a rocking frame provided with a pair of rubbers on opposite sides of the wheel for alternately engaging the drum, tripping devices for rocking the frame, locking devices between the carriage and frame for locking the frame when rocked, other tripping devices for releasing it, and spring mechanism between the carriage and frame tending to move the latter to an intermediate position in which both rubbers are inoperative, substantially as described.

16. The combination with the drum, carriage and distributing-wheel, of rocking frame 25, rubbers 28, 29, movable cams 39, 40, means for moving said cams, and stationary cams 41, 42, substantially as described.

17. The combination with the drum, carriage and distributing-wheel, of rocking frame 25, rubbers 28, 29, tripping devices therefor and depressing-cams 56, 57, substantially as described.

595,985. GYRATING SIEVE OR BOLTING-MACHINE. AUGUSTUS WOLF, Chambersburg, Pa. Filed Nov. 21, 1895. Serial No. 569,712. (No model.)



Claim.—1. The combination of the sieve-casing, the supporting-rods having socket-bearings on said casing and on the base-plate, a pair of disks each having a crank-pin, crank-pin boxes universally pivoted to the sieve-casing and free to rise and fall on the crank-pins, and means for rotating the disks in unison.

2. The combination of the sieve-casing, the supporting-rods having socket-bearings on said casing and on the bed-plate, a pair of disks each having a crank-pin, crank-pin boxes on the sieve-casing, vertical shafts carrying the disks, a transverse driving-shaft, bevel-gearing whereby the vertical shafts are driven therefrom, and a belt passing round disks or pulleys on the two shafts, whereby said disks are positively driven and backlash due to loose mesh of the bevel-gears is prevented, substantially as specified.

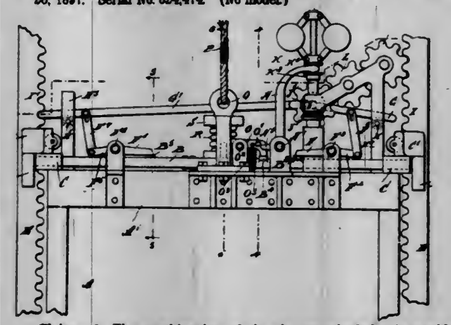
3. The herein-described improvement in bolting-machines, consisting in the combination of the gyratory casing provided with vertical interior partitions forming stops for the sieves, and a central outlet, the vertical series of endwise-discharging sieves insertible and withdrawable laterally toward and from said interior partitions through openings in the outside opposite exterior walls of the casing, and collecting-plates arranged between the sieves of each vertical series and discharging laterally of the sieves into said central outlet through openings in the walls thereof, substantially as described.

595,986. NURSING-BOTTLE. THOMAS W. M. WORLEY, New York, N. Y. Filed Feb. 12, 1897. Serial No. 623,069. (No model.)



Claim.—As a new article of manufacture, the herein described nursing-bottle, having its neck formed with a screw-thread terminating at a point below its upper edge, and an annular bead at such edge, and by which a reduced portion is formed between said bead and thread, and a cap having a portion formed with a thread arranged to engage the thread of the neck, an enlarged portion thereabove of greater diameter than its threaded portion, and a top which extends directly over said bead and which has a central opening of less diameter than the said bead, whereby said top may press directly down upon a nipple expanded over said bead, the enlarged portion of said cap allowing of free expansion of the nipple below the pressed part of the same, as and for the purpose set forth.

595,987. SAFETY DEVICE FOR HOISTED CARRIAGES. HUGH BAINES, Brooklyn, and ALPHONSO E. PELHAM, New York, N. Y.; said Baines assignor of one-third of his right to said Pelham. Filed Feb. 20, 1897. Serial No. 624,474. (No model.)



Claim.—1. The combination of the elevator-shaft having guiding-surfaces and a stationary rack, the carriage having a bar movable into and out of engagement with the rack, mechanism located on the carriage and driven by the movement of the carriage, said mechanism being operatively connected to the said bar to move it in and out from one rack-tooth to another during the normal movement of the car, and a clutch device connected to said bar and operated by the prolonged engagement thereof with the rack when said mechanism fails to act, said clutch device being adapted for engagement with the said guiding-surfaces of the elevator-shaft, substantially as described.

2. The carriage provided with a clutch device, a reciprocating or vibrating bar, mechanism connected to said bar and operated by the normal movement of the carriage for imparting a reciprocating motion to said bar, and a connection between said bar and the clutch device to operate the latter when said mechanism fails to act, substantially as described.

3. The carriage provided with a movable part, mechanism connected to said part and operated by the normal movement of the carriage for imparting a step-by-step movement to said part, and a clutch device connected to said part and operated by the stoppage of the step-by-step movement when the said mechanism fails to act, substantially as described.

4. The carriage provided with a driving mechanism operated by the normal movement of the carriage, a bar or rod connected to said mechanism to receive a reciprocating motion therefrom, said bar being free to swing upwardly in case the driving mechanism fails to act, and a clutch device connected to said bar and operated by the upward swinging thereof, substantially as described.

5. The carriage provided with a driving mechanism operated by the normal movement of the carriage, bars connected to said mechanism to receive a reciprocating motion therefrom, one bar moving inward when the other moves outward, the bars being free to swing upwardly in case the driving mechanism fails to retract them, and a clutch device connected to both bars and operated by the upward swinging of either bar, substantially as described.

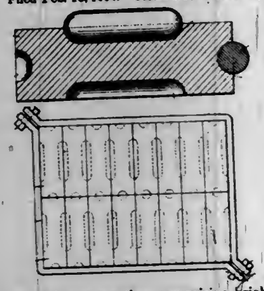
6. The carriage provided with two reciprocating or vibrating bars extending in opposite directions and so connected that one moves outward when the other moves inward, mechanism for giving motion to said bars by the normal movement of the carriage, and a clutch device connected to said bars and operated by them when their reciprocating motion is stopped, substantially as described.

7. The combination of the elevator-guides and the stationary rack, with a carriage having a clutch device adapted to engage said guides, a reciprocating bar adapted to engage the rack-teeth successively by a stepwise motion during the normal travel of the carriage, mechanism for imparting a reciprocating motion to said bar, said mechanism being operated by the normal travel of the carriage, and a connection between the reciprocating bar and the clutch device to actuate the latter when the bar remains in prolonged engage-

ment with a rack-tooth owing to the stoppage of the said mechanism, substantially as described.

8. The combination of the clutch, the clutch-shaft having a crank-arm, the lever adapted to engage the said crank-arm, the movable bar, means for imparting a step by-step movement to said bar by the travel of the car, the bar being also capable of an upward movement, and a connection between the bar and lever to actuate the clutch by the upward movement of the bar, substantially as described.

595,988. BRICK CONSTRUCTION. WILLIAM H. BROCK, Brooklyn, N. Y. Filed Feb. 18, 1897. Serial No. 623,919. (No model.)



Claim.—1. A brick construction, comprising bricks provided in their adjacent faces with recesses having ends removed from the edges of the bricks and vanishing into the faces thereof, forming shoulders, and individual keys fitted into the registering recesses of adjacent bricks and held against longitudinal movement by engagement with the said shoulders, substantially as described.

2. A brick construction, comprising bricks having elongated recesses in their adjacent faces, the recesses extending longitudinally in the sides of the bricks, and transversely in the ends thereof, and keys fitted into the registering recesses of adjacent bricks, substantially as described.

3. A brick construction, comprising bricks provided in their adjacent faces with recesses terminating short of the edges of the bricks, and individual keys fitted in each two registering recesses, substantially as described.

4. A brick construction, comprising bricks provided in their adjacent faces with elongated recesses terminating short of the edges of the bricks said recesses extending longitudinally in the sides of the bricks, and transversely in the ends thereof, and longitudinal and transverse keys fitted into the registering recesses of adjacent bricks, substantially as described.

595,989. LEAD SEAL. FRANKLIN W. BROOKS, New York, N. Y. Filed Mar. 22, 1897. Serial No. 628,724. (No model.)



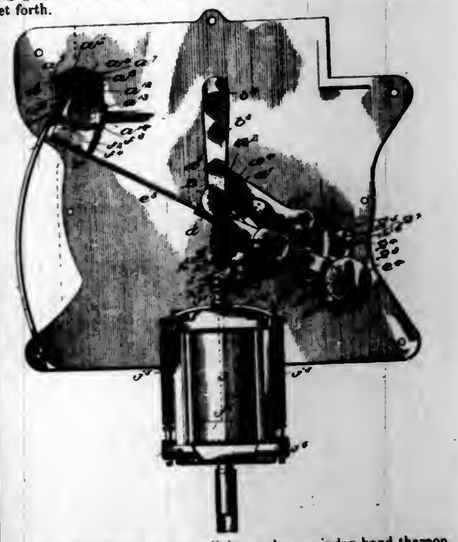
Claim.—1. A soft-metal seal embodying in its organization a comparatively thin and enlarged base portion *a* having rising vertically therefrom a ring-shaped platform *c* of less diameter than the base, a central shank *d* surrounded by a recess or pocket and surmounted by a cap *b*, in combination with a shackle-wire *e*, having one end anchored within the body of the seal and the opposite end adapted to be coiled about the shank *d*, substantially as hereinbefore set forth.

2. A soft-metal seal embodying in its organization a comparatively thin and enlarged base *a*, a smaller vertical platform *c*, a central shank *d*, and cap *b*, in combination with a shackle-wire *e* having one end anchored within the soft-metal body and the other adapted to be coiled about the shank *d*, substantially as described.

595,990. SPIROMETER AND COIN-CONTROLLED MECHANISM THEREFOR. DANIEL A. A. BUCK, New Haven, Conn., assignor, by direct and mesne assignments, to the National Spirometer Company, of New York. Filed May 18, 1897. Serial No. 637,037. (No model.)

Claim.—1. A spirometer having a dial, an arbor and an index-hand on the latter, mechanism for moving said arbor comprising a segment, a pneumatic device for moving said segment, and a pawl for normally holding the latter when gradually moved and for preventing the sudden movement thereof, as set forth.

2. A spirometer having a dial, an arbor and an indicator-hand on the latter, mechanism for moving said arbor comprising a segment engaging said arbor, a pneumatic device for moving said segment, and a weighted pawl having two teeth, one being normally in engagement with said segment and the other being forced into such engagement when the segment is moved too rapidly, substantially as set forth.



3. A spirometer having a dial, an arbor, an index-hand thereon, mechanism engaging said arbor comprising a double segment having opposite toothed portions, one of which engages said arbor, a pawl designed to engage the other toothed portion of said segment and weighted at one end, and a piston for moving said double segment, substantially as set forth.

4. In a spirometer having indicating mechanism comprising a toothed segment, a double-toothed pawl weighted at one end, whereby one tooth of said pawl is normally in engagement with said segment and the other tooth will engage and hold said segment if the latter is moved too suddenly, as set forth.

5. In a spirometer having indicating mechanism comprising a toothed segment, a pawl weighted at one end engaging said segment, a plate on which said pawl is pivoted having an open-end slot, and a single screw holding said plate, substantially as set forth.

6. A spirometer having an arbor carrying the index-hand, means for rotating said arbor, a disk on the latter, a pivoted arm normally bearing on said disk, a cam for releasing said arm from said disk, when said arbor is being reversed, and means for operating said cam, as set forth.

7. A spirometer having an arbor carrying the index-hand, means for rotating said arbor, a disk on the latter, a pivoted arm normally bearing on said disk, and a lever having a cam designed to engage and release said arm from said disk, as set forth.

8 A spirometer having an arbor carrying the index-hand, means for rotating said arbor, a disk on the latter, a pivoted arm normally bearing on said disk, a lever, a cam rotarily adjustable on said lever and having an open-end slot and a curved portion designed to engage said arm and raise it from contact with said disk, substantially as set forth.

9. In a coin-controlled apparatus having indicating mechanism, means for moving such mechanism having a pivoted pawl, and operating means designed to engage said pawl and effect the movement of said mechanism while so engaged, said pawl being so mounted that when once disengaged by said operating means it will move out of the line of movement thereof, as set forth.

10. In a coin-controlled apparatus having indicating mechanism, means for moving such mechanism having a pivoted pawl, and operating means designed to engage said pawl and effect the movement of said mechanism, said pawl being so mounted that when once disengaged by said operating means it will move out of the way thereof, and means for reëngaging said pawl with said arm when the means for moving said mechanism is returned to its normal position, as set forth.

11. In a coin-controlled apparatus having indicating mechanism, means for moving such mechanism having a pivoted pawl, and operating means comprising an arm designed to engage said pawl and move said mechanism, said pawl being so mounted that if said arm is disengaged therefrom it will move out of the line of travel of said arm, substantially as set forth.

12. In a coin-controlled apparatus having indicating mechanism, means for moving such mechanism having a pawl provided with a hooked end and a long arm, and operating means comprising an arm designed to engage said pawl and in its upward travel move said mechanism, and a stop for limiting the movement of said pawl when disengaged from said arm, substantially as set forth.

13. The combination with the index-hand and its arbor having a pinion, of a segment engaging said pinion, a hooked pawl carried by said segment having an arm, two stops, one for limiting the movement of said pawl and the other for turning said pawl, an arm designed to engage the hook of said pawl, and means for elevating said arm, substantially as set forth.

14. The combination with the index-hand and its arbor having a pinion, of a segment engaging said pinion, a hooked pawl carried by said segment having upper and lower arms, a stop on said segment designed to limit the movement of said pawl, a second stop designed to be engaged by said lower arm and move said pawl, an arm designed to engage the hooked end of said pawl, and means for raising said arm, substantially as set forth.

15. The combination with the index-hand and its arbor having a pinion, of a segment engaging said pinion, a pawl on said segment having a hooked end and an arm, a stop for limiting the movement of said pawl, a second stop designed to be engaged by said arm and move said pawl forward, an arm designed to engage the hooked end of said pawl, and a pneumatic device designed to raise said arm, substantially as set forth.

16. The combination with the base, and the index-hand and its arbor carrying a pinion, of a shaft projecting from said base, a segment on said shaft engaging said pinion, a hooked pawl carried by said segment, an arm loose on said shaft having a lateral projection designed to engage said hooked pawl, and a pneumatic device designed to elevate said arm, substantially as set forth.

17. The combination with the index-hand and its arbor having a pinion, of a shaft, a segment thereon engaging said pinion, a pivoted pawl on said segment, an arm loose on said shaft designed to engage said pawl when the latter is moved forward, a disk on said arbor, an arm bearing on said disk, and a coin-controlled lever having a cam designed to engage said arm, and means for moving said segment, substantially as set forth.

18. A spirometer having indicating means, a segment for moving the same, a hooked pawl on said segment, an arm designed to engage with said hooked pawl, a pneumatic device for raising said arm, and a coin-operated lever designed to engage and move said segment in its descent, substantially as set forth.

19. A spirometer having indicating means, a segment for moving the same, a stop carried by said segment, a pivoted pawl having a booked end and an arm, a pivoted arm designed to engage said pawl, a pneumatic device for raising said arm, said pawl when disengaged being held out of the way of said arm against said stop, and a coin-operated lever having an arm designed to engage said stop and return said segment to its normal position, substantially as set forth.

20. The combination with the index-hand and its arbor having a pinion, of a double segment engaging said pinion, a stop and a pawl carried by said segment, the movement of said pawl being limited by said stop, a second stop for tilting said pawl, a pivoted arm designed to engage said pawl, a pneumatic device for raising said arm, a weighted pawl designed to engage said segment having upper and lower teeth for the purpose stated, and a coin-carrying lever having an arm designed to engage said stop of said segment, substantially as set forth.

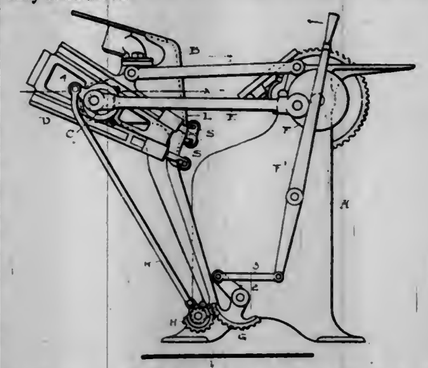
595,991. MOVABLE AND ADJUSTABLE BEARER FOR PLATEN PRINTING-PRESSES. FRANK A. BURNHAM, Cleveland, Ohio, assignor to the Chandler & Price Company, same place. Filed July 22, 1897. Serial No. 645,550. (No model.)

Claim.—1. The bed of the press and the bearer-plates supported movably at the sides thereof, a member engaging said plates, the back shaft and eccentric-bearings thereon and connections arranged to engage said member and operate said plates, substantially as described.

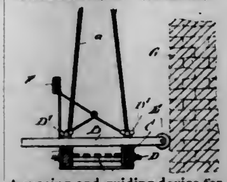
2. The bed of the press and the fixed bearers for the ink-rolls, movable bearer-plates extending in front of said fixed plates and mechanism to adjust said movable plates comprising eccentrics, substantially as described.

3 The bed of the press and the movable bearer-plates thereon, the transverse rod engaging said plates and eccentrics on said rod and bearings to set the plates in working position, substantially as described.

4. The back shaft and means to rotate the same, in combination with the bearer-plates and means to operate said plates comprising eccentrics on said shaft, a rod engaging said plates, and collars on said eccentrics constructed and arranged to engage said rod, substantially as described.



595,992. SCAFFOLD. MARTIN CODY, New York, N. Y. Filed Apr. 7, 1897. Serial No. 631,125. (No model.)



Claim.—1. A spacing and guiding device for swinging scaffolds, comprising a bar having longitudinally-extending slots therein, a clamp having U-shaped arms adapted to embrace the side bars of the scaffold, and a bolt secured to the bend of the clamps and passing through the slots in the cross-bars, whereby said cross-bars may be adjusted upon the scaffold without loosening the attachment of the clamps to the side bars, substantially as described.

2. A spacing and guiding device for swinging scaffolds, comprising a cross bar having longitudinally-extending slots therein, a clamp having U-shaped arms adapted to embrace the side bars of the scaffold, a bolt passing through one of said arms and adapted to engage the side bars, and a bolt secured to the bend of the clamps and passing through the slots in the cross-bars, whereby said cross-bars may be adjusted upon the scaffold without loosening the attachment of the clamps to the side bars, substantially as described.

595,993. CLUTCH. ADDISON A. COE, Brooklyn, N. Y., assignor to Hugh De Haven, same place. Filed Feb. 20, 1897. Serial No. 624,341. (No model.)



Claim.—A clutch formed from a lozenge-shaped blank having one of its narrowing or contracting end portions provided with a double bend to form a shouldered prong, and having its other contracting end portion bent to an angle with the body, said last-named end portion having a partially cut and bent portion forming a barb substantially as described.

595,994. VALVE FOR VAPOR-BURNERS. LUCIUS L. CULVER, St. Louis, Mo. Filed Nov. 25, 1896. Serial No. 613,411. (No model.)

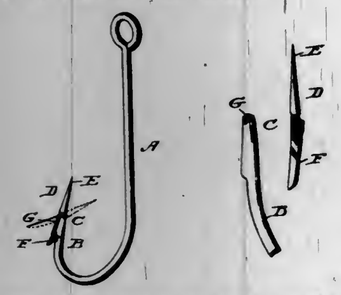


Claim.—1. The combination of a supply-pipe formed with a bulge providing an offset having a cavity of greater dimensions than the passage-way of the supply-pipe, a mixing-tube connected with the bulge, a perforated tube of less diameter than the cavity and having a jet-hole and extending from the mixing-tube across the bulge, leaving a free passage-way around the perforated tube, and a valve-stem having a point for controlling the jet-hole of the perforated tube; substantially as described.

2. The combination of a supply-pipe formed with a bulge having

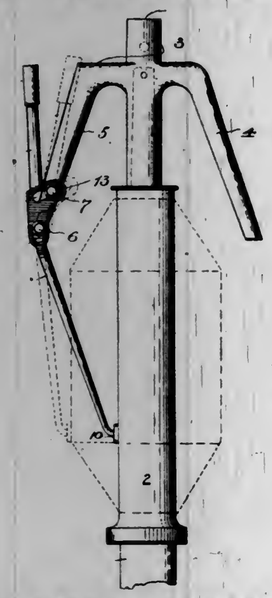
slightly-tapering holes and providing an offset having a cavity of greater dimensions than the passage-way of the supply-pipe, a slightly-tapering perforated tube having a jet-hole and seating in the openings of the bulge, a nut on the perforated tube whereby it is drawn to its seat, and a valve-stem having a point for controlling the jet-hole in the perforated tube; substantially as described.

595,995. FISH-HOOK. JOHN D. DREESE, Halstead, Kans. Filed Jan. 4, 1897. Serial No. 617,938. (No model.)



Claim.—As an improved article of manufacture, a fish-hook having its lower end upwardly bent and terminating in a slot, a widened tapered portion adjacent to the slot, with a recess between its longitudinal walls, combined with the pivoted bar D mounted in the walls of the slotted end and having a contracted portion held normally in the recessed portion with its outer side flush with the edges of the widened portion of the hook, and its lower end forming a barb beyond the shouldered end of the said recessed portion, and the inner sides of the upturned portion of the hook and the bar D being flush, substantially as shown and described.

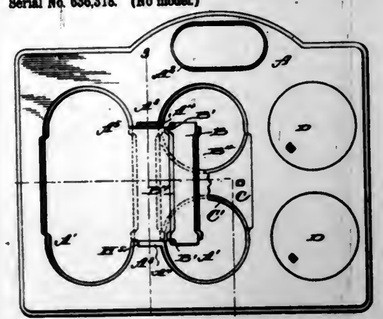
595,996. FLIER FOR ROVING-MACHINES. THOMAS F. DUNN, Hyde Park, Mass. Filed Mar. 10, 1897. Serial No. 626,864. (No model.)



Claim.—1. In a flier of the character described, the combination with the hollow arm, of the presser-finger loosely pivoted thereto and vertically movable thereon, substantially as specified.

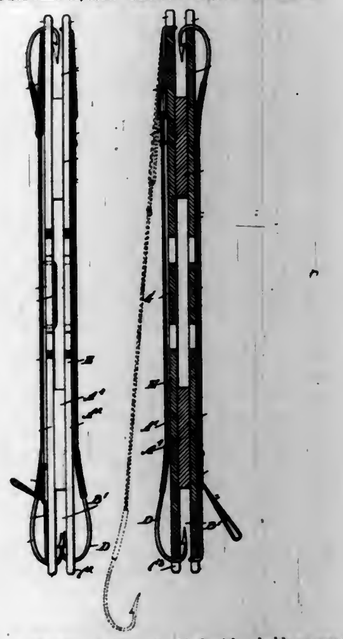
2. In a flier of the character described, the combination with the hollow arm and the studs near the ends thereof, of the presser-finger formed with a slot with which the lower one of said studs engages and an inclined slot with which the upper stud engages, substantially as specified.

595,997. STOVE-TOP. WILLIAM H. FRANCIS, Gallipolis, Ohio, assignor of one-third to R. P. Thompson, same place. Filed May 13, 1897. Serial No. 636,318. (No model.)



Claim.—In a stove-top, the combination with a top plate having a stop thereon, of a long center having horizontal portions interlocking with said plate to permit the center to be slid into position and to prevent vertical movement of said center and provided with stops at one side thereof upon its upper and lower faces to limit the movement of said center in one direction, and a short center bearing against said long center to lock it against movement in the opposite direction, substantially as specified.

595,998. FISH-HOOK HOLDER. HORATIO H. GARLAND, Brooklyn, N. Y. Filed June 10, 1897. Serial No. 640,153. (No model.)



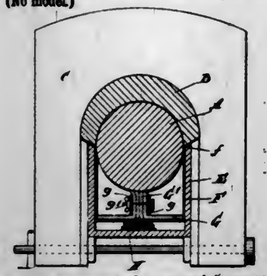
Claim.—1. A fish-hook holder, provided with a holder proper, adapted to carry on one end a hook, the shank of which extends between spaced projections formed at said end, and an elastic band adapted to engage the loop of a snell, and adapted to be hooked or looped upon a projection at the other end of the holder, substantially as shown and described.

2. A fish-hook holder, provided with a holder proper, forked at each end for the reception of the shanks of the hooks, with the hook-points between the members of the forks, and with the bent shank portions resting with their outer edges on the forked members, and projections on the ends of the forked members, for separating adjacent hooks and receiving elastic bands for the snells of the hooks, substantially as shown and described.

3. A holder for fish-hooks, having each end forked and the members of each fork having lugs or projections extending outward from

the said members, and capable of receiving the fish-hooks between them, and of holding means for retaining the fish-hooks.

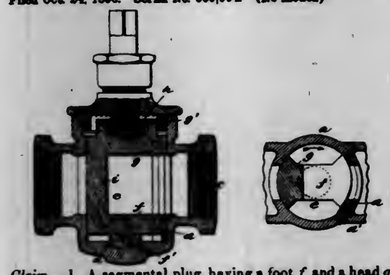
595,999. OIL-RESERVOIR FOR CAR-JOURNALS. CHARLES E. HARRISON, Nebraska City, Nebr. Filed May 10, 1897. Serial No. 635,881. (No model.)



Claim.—1. An oil-reservoir for car and locomotive axles, comprising an oil-holder fitting within the casing and having its upper edges flanged outward and fitting the bottom of the journal and its bearing-brass, a feeding-wick therein engaging the journal, and a spring beneath the cup and holding the same in close contact with the journal at all times, substantially as described.

2. An oil-reservoir for car and locomotive axles, comprising an oil-holder having its upper edges shaped to fit the bottom of the journal and the journal-brass, the said upper edges being flanged outwardly, an oil-feeding device within the same, and means for holding the oil-holder in contact with the journal and brass, substantially as described.

596,000. VALVE. WILLIAM HESTON, Homestead, Pa., assignor to the Homestead Manufacturing Company, Limited, same place. Filed Oct. 24, 1896. Serial No. 609,994. (No model.)



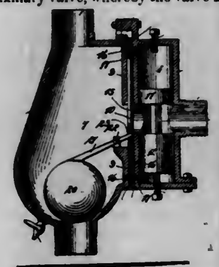
Claim.—1. A segmental plug, having a foot *f*, and a head *g*, both made with their outer vertical ends eccentric, and a vertical face *i*, made concentric with relation to the bore of the casing, combined with said casing and the bushing *d* made eccentric with relation to the bore of the casing and having the edge *d'* projecting into the said bore and intercepting the path of movement of the face of the plug, substantially as described.

2. A segmental plug, having a foot *f*, and a head *g*, both made with their outer vertical ends eccentric, and a vertical face *i*, made concentric with relation to the bore of the casing, combined with said casing and the bushing *d* made eccentric with relation to the bore of the casing and having the edge *d'* projecting into the said bore and intercepting the path of movement of the face of the plug, the said plug having a longitudinal axis of rotation upon which it is shiftable as it is moved toward and from the bushing, substantially as described.

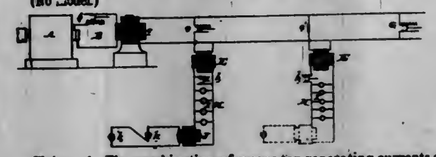
596,001. AUTOMATIC STEAM-VALVE. LYMAN A. HOTCHKISS, Perry, Pa. Filed June 24, 1897. Serial No. 642,126. (No model.)

Claim.—1. A valve having a float-chamber, a main-valve chamber communicating with the float-chamber and having a fluid-outlet, a main valve working in the said valve chamber, and having a disk and a cylinder rigidly connected by a stem, the valve also having two registering auxiliary-valve chambers, each valve chamber being provided with a port communicating with the atmosphere and each valve-chamber being crossed by a port leading between the float-chamber and the main-valve chamber, a compound auxiliary valve working in the auxiliary-valve chambers, each end of the auxiliary valve having a reduced portion and an elongated port, and a float mounted within the float-chamber and having an arm in connection with the auxiliary valve.

2. A valve having a casing with a float-chamber, the casing also having a main-valve chamber communicating with the float-chamber by means of an intermediately-located port, and the casing also having two auxiliary-valve chambers respectively on the sides of said port and in registry with each other, the outer portions of the auxiliary-valve chambers having ports leading to the atmosphere and also having ports running across the auxiliary-valve chambers and establishing communication between the float-chamber and the main-valve chamber, a main valve mounted within the main-valve chamber and having a cylinder and a disk rigidly connected by a stem, a compound auxiliary valve mounted in the auxiliary-valve chambers, each end of the said auxiliary valve having a reduced portion and an elongated port, and a float mounted within the float-chamber and having connection with the auxiliary valve, whereby the valve may be operated.



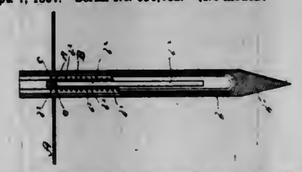
596,002. ELECTRICAL TRANSMISSION OF ENERGY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the General Electric Company, of New York. Original application filed Nov. 9, 1887, Serial No. 254,672. Divided and this application filed July 28, 1891. Serial No. 400,973. (No model.)



Claim.—1. The combination of means for generating currents of electricity, of high tension, a line-circuit leading therefrom to a distant place, induction apparatus for reducing potential of said line-currents, a local circuit supplied with the low-tension induced currents from said induction apparatus, translating or current-consuming devices arranged in the local circuit, an induction-coil having its coarse wire connected with the local circuit and in parallel with the translating or current-consuming devices, and a high-tension circuit connected with the fine wire of the induction-coil and supplying current to a second local circuit insulated from the other.

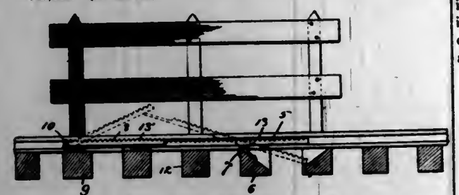
2. The combination of a generator for currents of electricity of alternating increasing and decreasing potential, a short local circuit therefor, a transformer or induction-coil having its coarse wire connected with the short local circuit and its fine wire connected with the line, a line-circuit connected with said fine wire of the transformer or induction-coil and leading to a distant place, induction apparatus for reducing potential of said line-currents, a local circuit supplied with the low-tension induced currents from said induction apparatus, translating or current-consuming devices arranged in the local circuit, an induction-coil having its coarse wire connected with the local circuit and in parallel with the translating or current-consuming devices, and a high-tension circuit connected with the fine wire of the induction-coil and supplying current to a second local circuit insulated from the other.

596,003. WIRE FENCE. THOMAS R. JOHNSON, Luling, Tex. Filed Sept. 7, 1897. Serial No. 650,782. (No model.)



Claim.—A metallic post, for wire-rail fences, provided with the tubular body *b*, vertical slot b^2, solid point b', and cross-notches b^3 whereby it may be used with staples and wire rails in the manner and for the purpose set forth.

596,004. CATTLE-GUARD. CHARLES C. KIEFER, Blue River, and LOUIS J. EVERT, Boscobel, Wis. Filed Aug. 12, 1897. Serial No. 648,016. (No model.)

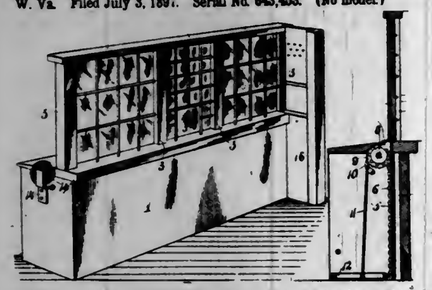


Claim.—1. A cattle-guard comprising a series of tilting plates having upturned edges, a second series of tilting plates having upturned edges and resting at one end upon the adjacent ends of the first-named plates whereby when the first-named plates are tilted they will raise the second plates.

2. A cattle-guard comprising a series of tilting plates having upturned edges provided with serrations, a second series of tilting plates having upturned edges provided with serrations, said second plates each having one end serrated and lying upon its respective first-named plate whereby when the first-named plates are tilted the second-named plates will be raised.

3. A cattle-guard comprising a series of tilting plates having upturned edges, supplemental plates secured thereto having upturned edges, a second series of tilting plates having upturned edges, supplemental plates having upturned edges secured to the second series of plates, one end of each of said second series being serrated and lying upon its respective first-named plate whereby when the first-named plates are tilted the second-named plates will rise.

596,005. CASHIER-PROTECTOR. WERNER MARTIN, Keyser, W. Va. Filed July 3, 1897. Serial No. 643,453. (No model.)



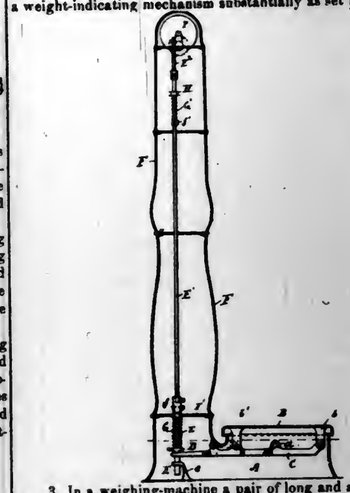
Claim.—1. The combination with a counter having guides in connection with the window-openings thereof, of a series of vertically-adjustable armor-plates provided with racks on the inner surfaces thereof, a spring-actuated shaft having pinions thereon engaging the said racks, and means for releasing the shaft to automatically operate the said armor-plates, substantially as and for the purposes specified.

2. The combination with a counter having slots therein and grooves in opposite portions of the window-posts or uprights, of a series of vertically-adjustable armor-plates having racks on the inner side thereof, a shaft engaged by a spring having pinions thereon to engage said racks, a ratchet on said shaft, a pawl engaging said ratchet, a link connected to the pawl, a foot-rod to one end of which the lower end of the link is secured, a spring bearing against one portion of the foot-rod, and an angular projection at one end of the counter for the purpose set forth, substantially as and for the purposes specified

596,006. AUTOMATIC WEIGHING-MACHINE. ANDREW A. MEYER, Boston, Mass. Filed Apr. 28, 1897. Serial No. 634,224. (No model.)

Claim.—1. In a weighing-machine a pair of long levers and a pair of short levers, each connected at its outer end to lugs on the under side of the platform and a cross-bar resting upon their inner ends, each of said levers being fulcrumed to the sides of the base, the distance from the fulcrum of the long levers to their respective ends and the distance from the fulcrum of the short levers to their respective ends being proportionately the same substantially as set forth.

2. In a weighing-machine a pair of long levers and a pair of short levers, each connected at the outer ends to lugs on the under side of the platform, each of said levers being fulcrumed to the sides of the base, the distance from the fulcrum of the long levers to their respective ends and the distance from the fulcrum of the short levers to their respective ends being proportionally the same, whereby the inner ends of all the levers will be raised equally when the platform is depressed in combination with a cross-bar resting upon the inner ends of said levers and a rod passing through said bar for operating a weight-indicating mechanism substantially as set forth.



3. In a weighing-machine a pair of long and a pair of short levers arranged as described in combination with a cross-bar resting upon their inner ends and a rod passing through said cross-bar, a rack on the upper end of said rod operating a pinion and mechanism for causing a drum or cylinder to rotate and indicate the weight substantially as set forth.

4. In a weighing-machine a drum or cylinder having numbers indicating weights around its periphery and having a hub projecting on one side, a worm on the periphery of said projecting portion, said cylinder being mounted upon a shaft so as to turn and slide thereon and gearing such as described for operating same when a weight is placed upon the platform as set forth.

5. In a weighing-machine a rod operated upon the depression of the platform, a rack on the upper end of said rod, a pinion in gear with said rack, a cog-wheel secured to said pinion, a shaft having a pinion secured thereon, a drum and worm mounted upon said shaft so as to rotate with but slide upon the same and a finger for causing the worm to travel along the shaft as it is rotated substantially as set forth.

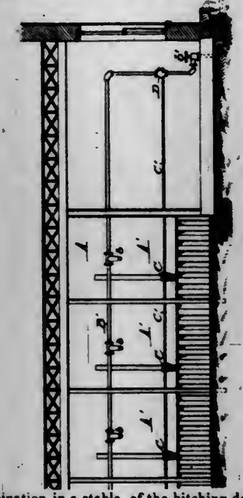
6. In a coin-operating device a lever T, fulcrumed to a bracket *s*, and a spring *t*, for holding its outer end normally in a raised position, a lever U, fulcrumed at *u*, its lower end fitting into a notch t^2 in the lever T, a lever W notched at its inner end, a bar X, resting in said notch, a pin *w*, in end of said lever W, and a trigger Y, the end of which is held in contact with the top of the bar X, by a spring *y*, in combination with a wheel K, having a series of pins *k*, on its inner face and means for causing said wheel K, to be rotated first in one and then in the opposite direction substantially as set forth.

7. In a coin-operated weighing-machine a drum or cylinder P, having numbers spirally arranged upon its periphery, a worm attached thereto, means such as described for causing the drum or cylinder to rotate with and slide upon the shaft in combination with a shield upon the end of a fulcrumed lever and means for causing the shield to be withdrawn to disclose the weight and to again resume its normal position substantially as set forth.

596,007. STABLE. GEORGE P. NEAL, Evansville, Ind., assignor of two-thirds to Henry W. Flentke and Aaron M. Well, same place. Filed Aug. 17, 1897. Serial No. 648,583. (No model.)

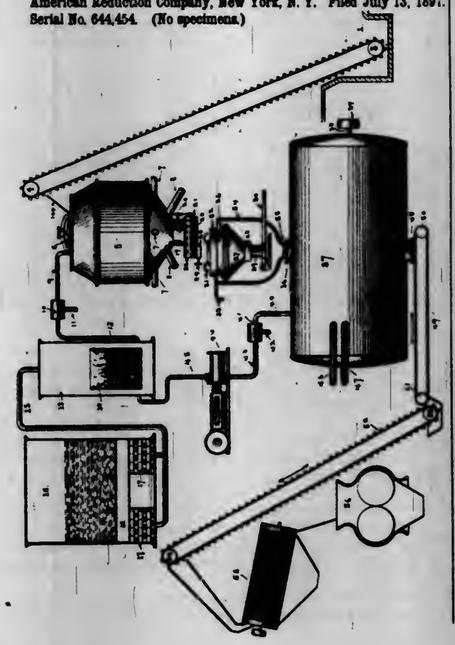
Claim.—1. In an apparatus for unhitching animals and throwing water against them, the combination, of the water-main, a valve therein for turning on and off the water-supply, a pipe leading to the stall and provided with a nozzle, which pipe is connected with said main and is provided with a valve to be lifted by the water flowing through the pipe, the unhitching devices connected to an operating-rod, said operating-rod and a connection between said rod and the stem of said valve, whereby, when the water is turned into said pipe from said main, it operates said second valve and through it the unhitching devices, substantially as set forth.

2. In a stable, the combination, of the hitching devices, the unhitching apparatus consisting of an operating-rod, a pipe connected with a water-main, a valve mounted in said pipe to be lifted by the water flowing through it, a connection between the stem of said valve and said operating-rod, whereby the lifting of said valve operates said unhitching devices, the water-main and a valve therein for turning on and off the water, substantially as set forth.



3. The combination, in a stable, of the hitching devices, the unhitching apparatus connected to be operated by a rod, a water-pipe arranged in the front of the stalls with nozzles pointing into them, a water-main, a valve therein for turning on and off the water, said pipe and main being connected, a second valve mounted in said pipe with a projecting stem, said valve being arranged to be lifted by the water when turned into said pipe from the main, and a connection between said stem and the operating-rod, whereby the lifting of said rod operates said unhitching devices, substantially as set forth.

596,008. PROCESS OF TREATING GARBAGE. LUDWIG RIENMULLER, Philadelphia, Pa., assignor, by mesne assignments, to the General American Reduction Company, New York, N. Y. Filed July 13, 1897. Serial No. 644,454. (No specimens.)



Claim.—1. The unitary method of inoffensively treating waste matters and economically converting the same into merchantable products, which consists in subjecting the same to the following steps: boiling the raw waste with acid in a digester until the structure of the waste is destroyed and the greases rendered therefrom, conveying the gases evolved to a furnace, raising the heat of said gases to a temperature rendering them suitable for combustion, utilizing said gases as fuel and thereby rendering them inoffensive, subjecting the digested waste to centrifugal action, to remove greases therefrom, and drying the residue, substantially as and for the purpose described.

2. The unitary method of inoffensively treating waste matters and economically converting the same into merchantable products, which consists in subjecting the same to treatment by the power and heat generated from fuel supplied by the gases evolved thereby, in connection with producer gases, such treatment consisting in boiling the raw waste with acid in a digester until the structure of the waste is destroyed and the greases rendered therefrom, conveying the gases evolved to a furnace, raising the heat of the gases to a temperature rendering them suitable for combustion, utilizing said gases as fuel and thereby rendering them inoffensive, subjecting the digested waste to centrifugal action to remove greases therefrom, and drying the grease-freed substances, substantially as and for the purpose described.

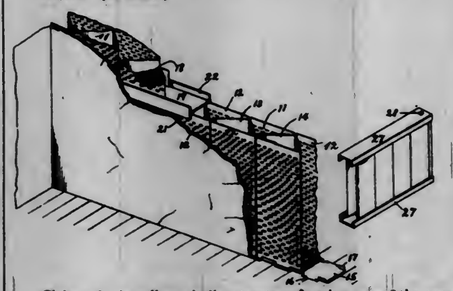
596,009. PNEUMATIC TIRE. JOHN T. TRENCH, Kenmare, Ireland, assignor to the Trench Tubeless Tyre Company, Limited, London, England. Filed Apr. 26, 1897. Serial No. 634,012. (No model.) Patented in England Apr. 17, 1896, No. 8,135.



Claim.—1. The combination, with a divided tire provided with a projection *b* on one of its edges, of a series of binders each consisting of a narrow plate attached at one end to one edge of the tire and provided with a projection at its middle part between the edges of the tire and a hook at the other end for engaging with the projection on the other edge of the tire, substantially as set forth.

2. The combination, with a divided tire provided with projections *b* at its edges, of binders for coupling the edges of the tire together, each said binder having a pointed projection *a'* at its middle part projecting between the projections *b*, and hooks at its ends for engaging with the projections *b*, substantially as set forth.

596,010. CONSTRUCTION OF WALLS, PARTITIONS, CEILINGS, &c., OF SHEET METAL. EMIL F. BAUDE, Cincinnati, Ohio, assignor to Jacob F. Weitzel, Ludlow, Ky. Filed June 12, 1896. Serial No. 595,274. (No model.)



Claim.—1. A wall, or similar structure forming one of the component parts of a building, built up of sections arranged in rows or tiers and consisting of rows of adjoining vertical triangular cells 11 formed of a continuous sheet of metal which is correspondingly shaped and in a manner that the upright sides 12 which are substantially in line form the outer sides or faces of such wall, which sides or faces are connected by the sides 13 of the triangle which sides pass between the outer faces and traverse the thickness of the structure and wire lacing whereby adjoining tiers are connected with each other substantially as shown.

2. A wall or partition built up in rows of sections of equal height and each of which consists of a series of adjoining vertical triangular cells 11, the upright sides 12 of which are substantially in line and form the faces of said walls, the sections being formed of a continuous sheet of metal, flanged rails at top and bottom of such wall or partition and between the adjoining ends of the rows or tiers there-

of, to hold such tiers and sections forming them in position and a layer or partial filling of mortar or concrete applied to the lower part of the cells of each tier as shown at 18 and tamped down before the next higher tier is set up.

3. A sheet of metal having parts perforated and prepared to form lath, the perforated and imperforate parts which are of equal width respectively, forming alternate rectangular fields parallel with the edges of the sheet.

4. An elementary component to be used in the formation of metal structures as here in view, consisting of a section of cells 11 of triangular shape placed side by side, the sections being constructed of a sheet of which parts are perforated, the perforated and imperforate parts which are of equal width respectively, forming alternate rectangular fields parallel with the edges of the sheet, the latter being bent between the fields to form the cells as shown and in a manner to bring the perforated parts of the sheet to the outside and in line to form the outer faces 12 of the sections which, being perforated, form metallic lath and become adapted to receive plaster while the imperforate parts 13 serve to connect them and strengthen the structure.

5. A girder, the vertical part of which consists of adjoining cells of equal height and all connecting and formed of sheets of metal correspondingly shaped, forming a continuous web from end to end of the girder channel-rails to hold the cells in alinement and tie-rods to hold the whole structure together.

6. A girder, the web of which is formed of sections of cells of triangular shape, placed side by side, the sections being constructed of a sheet of which parts are perforated, the perforated and imperforate parts which are of equal width respectively, forming alternate rectangular fields parallel with the edges of the sheet, the latter being bent between the fields as to form the cells as shown and in a manner to bring the perforated parts of the sheet to the outside and in line to form the outside of the girder and being perforated permits the latter to be inclosed by plaster, channel-rails 27 above and below the cells to hold them in alinement and tie-rods to hold the whole structure together.

7. An elementary component to be used in the formation of metal structures as here in view, consisting of a row of cells 11 of triangular shape placed side by side, the sides 12 of the cells being substantially in line forming the outer faces of the parts, which faces are connected by the sides 13 passing between them, the adjoining edges of sides 12 forming also the corners of the cells, being in actual contact or at least so close to each other as to form substantially an unbroken and closed surface.

596,011. NON-REFILLABLE BOTTLE. HENRY E. BEIGHLER, New Castle, Pa., assignor of one-half to Horace G. Dodds, same place. Filed July 29, 1897. Serial No. 646,308. (No model.)



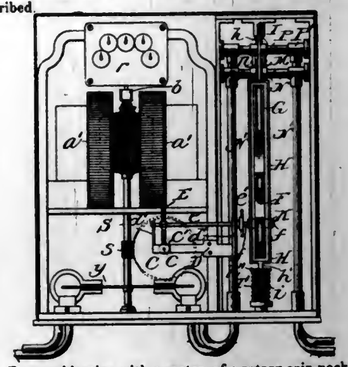
Claim.—A bottle of the kind described having a portion of the neck enlarged, the enlargement having two apartments, the one larger and above the other, and having vertical channels connecting the upper apartment with the chamber beneath, the upper apartment having at its base a shoulder or seat, to receive a guard plate or disk having a solid base and an annular rim or ridge running into guide-posts, permitting the bottle contents to flow down through said vertical channels, the lower apartment having at its base a shoulder or seat, and a pocket or chamber, to receive an auxiliary stopper or stopper-disk with an upward projection, said disk adapted to be suspended by a wire passing through said channels and over and resting upon said guard plate or disk, and to be released and permitted to descend to its seat and chamber, by withdrawing said wire, all substantially as and for the purpose above set forth and described.

596,012. PREPAYMENT COIN-CONTROLLED MECHANISM FOR ELECTRIC METERS. WILLIAM F. BROWNE, New York, N. Y., assignor of one-half to Charles R. Knapp, Somerville, N. J. Filed Oct. 2, 1897. Serial No. 653,798. (No model.)

Claim.—1. The combination with an electric meter, of a rotary coin-pocket wheel and suitable gearing connecting said wheel with a rotary part of the meter, whereby said wheel will be rotated by the operation of the meter and a predetermined quantity or volume of current metered to a customer by insertion of a suitable coin in said pocket-wheel.

2. The combination with the armature-shaft of an electric meter, of a rotary coin-pocket wheel and suitable gearing and connections between said shaft and wheel for rotating the latter for the purpose described.

3. The combination with the rotary shaft of a meter, of a coin-pocket wheel yieldingly supported so that it may rise and fall to make and break electrical contacts in a circuit, and suitable gearing and connections between said moving part of the meter and the coin-wheel for rotating the latter by operation of the meter, substantially as described.



4. The combination with a meter, of a rotary coin-pocket wheel in a yielding support, means connecting said support with a conductor of electricity to be metered for shutting off or admitting current to the meter, and suitable gearing connecting said wheel with a moving part of the meter, whereby current may be metered to a customer by the insertion of a coin in the coin-wheel, substantially as described.

5. The combination with the armature-shaft of an electric meter, of a yieldingly-supported frame, adapted to automatically rise and fall, means connecting said frame to a movable contact or switch in an electric circuit, a rotary coin-pocket in said frame and means connecting with said shaft for rotating said coin-pocket to discharge a coin therefrom.

6. The combination with a meter, of a yieldingly-supported frame, a rotary coin-pocket wheel in said frame, an electric circuit having a movable contact or switch, means connecting said frame to said contact or switch for opening or closing the circuit, and gearing connecting the shaft of the meter to said coin-pocket wheel for rotating it, whereby a coin, inserted in the wheel, will close the circuit, admitting current to the meter, and cause the coin-pocket wheel to rotate, substantially as described.

7. The combination with the rotary shaft of a meter having a worm-gear, of a yieldingly-supported rotary coin-pocket wheel, which is adapted to be raised and lowered, connections from said wheel to a movable contact or switch in an electric circuit, connecting with the meter, suitable gearing connecting with said worm and having a shaft provided with a yielding coupling device, connecting with the rotary coin-wheel, whereby said wheel may be rotated and permitted to rise and fall for the purpose described.

8. In an electric meter, the armature shaft having a worm-gear and motor, in combination with a coin-pocket wheel and intermediate operating-gearing and shafts connecting them, whereby said wheel may be rotated by the operation of the meter, substantially as described.

9. In coin-controlled mechanism, the coin-pocket wheel centrally mounted on a motor-operated shaft and having a pocket made with a curved interior wall or bottom extending, from points in the periphery, inwardly beyond the center of the wheel, the depth being such that the coin may be deposited at the center of the wheel and will descend, during the half-revolution of the wheel, in a vertical line, and therefore exert no leverage on said shaft, substantially as described.

10. In coin-controlled mechanism, the coin-pocket wheel having two adjacent overlapping pockets with opposite circumferential openings and extending inwardly beyond the center of the wheel for receiving and discharging coins.

11. In coin-controlled mechanism, the coin-pocket wheel having two pockets extending from the periphery inward beyond the center of the wheel and provided, each with an interior wall beveled from the periphery inwardly for guiding a coin from the coin-conduit to the bottom of the pocket, substantially as described.

12. In coin-controlled mechanism a yieldingly-supported frame containing a coin-pocket wheel and having guide rods and bearings, means, for automatically raising said frame, and means connecting it to a movable contact or switch in an electric circuit, substantially as described.

13. In coin-controlled mechanism the yieldingly-supported frame, and the coin-pocket wheel therein, in combination with the coin-conduit and a detent projecting at one end into the conduit for retaining the coin, and pivotally connected to the frame so as to be operated thereby to release a coin when the parts are in the proper position substantially as described.

14. The combination with the meter, of a rotary coin-pocket wheel in a yielding support, means connecting said support with an electric conductor or switch for opening and closing the circuit to the meter, suitable gearing connecting said wheel with the moving part of the meter, and means for automatically raising said yielding support, whereby a coin inserted in the wheel will, by its weight, operate said yielding support to close the circuit, and thereby meter current to the customer, substantially as described.

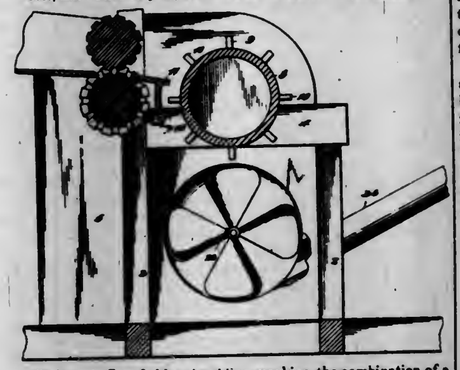
15. The motor-shaft of a meter having a worm-gear and motor, in combination with a yieldingly-supported coin-pocket wheel adapted to be raised and lowered, intermediate operating-gearing, a shaft provided with a yielding coupling connecting said motor-shaft and wheel, whereby said wheel may be rotated by the operation of the meter, substantially as described.

16. In coin-controlled mechanism, the yieldingly-supported coin-pocket wheel, having a suitable coin-pocket and adapted to be moved upward and downward in combination with suitable operating mechanism, substantially as described.

17. In a coin-controlled mechanism the coin-wheel provided with a pocket made with an eccentric edge wall or floor extending beyond the center, and having a steep pitch or incline at the receiving side and a long curved slight pitch or incline at the delivery side for retaining the coin till the wheel has revolved to the proper point of discharge for the coin, substantially as described.

18. In coin-controlled mechanism the coin-wheel provided with an eccentric pocket extending beyond the center, the peripheral opening of the same extending circumferentially from the receiving-lip to the discharge-lip to receive the desired coin, and the interior edge wall or floor having a deep pitch or incline at the receiving side and a long curved slight pitch or incline at the delivery side, whereby the coin may be deposited at the center of the wheel, and will descend, during the half-revolution of the wheel in a vertical line, and therefore exert no leverage around the axis, substantially as described.

596,018. FODDER-SHREDDING MACHINE. JOHN CARREY, De Soto, Mo. Filed May 12, 1897. Serial No. 636,214. (No model.)



Claim.—1. In a fodder-shredding machine, the combination of a rotatable cylinder having rows of teeth alternately inclined, with a bracket formed like an arc of a circle and carrying shredding-bars on its top and bottom, the top bar extending rearward to receive the fodder as set forth.

2. In a fodder-shredding machine, a rotatable cylinder having rows of teeth, feeding-rollers to convey the fodder, a bracket located between the feeding and shredding devices, formed like an arc of a circle and having shredding-bars on its top and bottom, the upper bar extending rearwardly between the feeding-rollers, all combined as set forth.

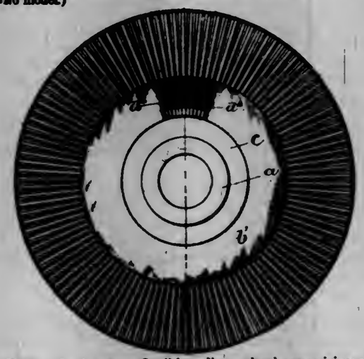
3. In a fodder-shredding machine, a rotatable cylinder having rows of teeth, a bracket formed like an arc of a circle, having cutting-bars on its lower and upper edges, the upper bar being triangular in form and having a rearward extension to feeding-bars, said feeding-bars, and means to operate these parts, all combined as set forth.

4. In a shredding-machine, the combination with a suitable housing of a pair of feeding-rolls, shredding-bars mounted on the delivery side of said rolls, a shredding-cylinder having a series of teeth co-operating with said bars, and a friction-clutch consisting of a cone and sleeve rigidly mounted on the driving-shaft therefor and means to throw the clutch into and out of operative condition, as set forth.

5. The combination with the shredding-cylinder and feeding-rolls arranged in coöperation therewith, of a plurality of shredding-bars disposed between said rolls and cylinder, and means for stopping further rotation of the feeding-rolls, consisting of a cone and sleeve rigidly mounted upon the driving-shaft, a gear-wheel receiving said cone as an axle; a spring for normally holding said gear into frictional contact with said cone; means for regulating the tension of said spring, and an operating-lever so pivoted that a movement of the outer end thereof will overcome the tension of said spring and disconnect said gear from said cone, all operatively combined in the manner and for the purpose set forth.

6. As an article of manufacture, a bracket having shredding-bars on its lower and upper sides, the upper bar having a rearward extension, all integral as set forth.

596,014. FLEXIBLE ROTARY ROLL. ALVIN T. CONDON and JOHN C. HAM, Belfast, Me. Filed May 3, 1897. Serial No. 634,797. (No model.)



Claim.—1. A rotary flexible roll or wheel comprising a hub or holder, and a series of flexible leather strips connected with said hub at their inner ends and having flexible outer portions radiating from the hub, their outer ends being substantially in contact with each other and constituting a practically continuous yielding rubbing-surface made up of independently-yielding sections.

2. A rotary flexible roll or wheel composed of a hub or holder, and a series of groups of flexible leather strips connected with said hub at their inner ends and having flexible outer portions radiating from the hub, each group comprising a longer strip having means at its inner end for engagement with the hub, and a shorter strip attached to the longer strip, the said shorter strips being scarfed or reduced in thickness from their outer ends inwardly, whereby the outer ends of the strips are caused to form a practically continuous yielding surface.

596,015. TRAMWAY TRACK MECHANISM. JOHN H. COOK, Brooklyn, N. Y., assignor to Henry B. Newhall, Plainfield, N. J. Filed Oct. 26, 1896. Serial No. 610,015. (No model.)



Claim.—1. In combination with a hollow track, a hanger or support therefor carrying one or more lugs (such as F F), and a track pierced or bored to receive said lugs at a point between its upper and lower edges, and means (such as bolt H) for locking the said track to said lugs, substantially as and for the purposes herein set forth.

2. In combination with a hanger D and its foot-bracket E and lugs F carried by the same, a hollow track A, B, C having holes through the same between its upper and lower tread edges and mounted upon said lugs, and means for clamping the said rail to the said hanger, substantially as herein set forth.

3. A tramway mechanism composed of two or more sets of grooved wheels, each of which set consists of two wheels one adapted to bear upon the upper edge and the other upon the under edge of a track, each set of wheels being mounted in framework or supports which has independent swivel motion relatively to the other sets, substantially as herein set forth

4. In combination with the grooved wheels I K adapted to run on the upper edge of rail, the underneath flanged wheels P Q adapted to run on the lower edge of said rail, said wheels I and P and the said wheels K and Q being pivotally mounted in the frames J and L,

and said frames being pivotally connected together by the yokes M and N, substantially as set forth.

5. In combination with the hanger D carrying the lugs F F, the tubular track A B C supported upon said lugs, and a tramway mechanism composed essentially of the two grooved wheels I and K carried in frames J and L, and which have swivel connections with crossbars M and N, substantially as herein set forth.

596,016. RING-SPINNING MACHINE. ABRAM W. HARRIS, Providence, R. I. Filed Mar. 19, 1897. Serial No. 628,273. (No model.)

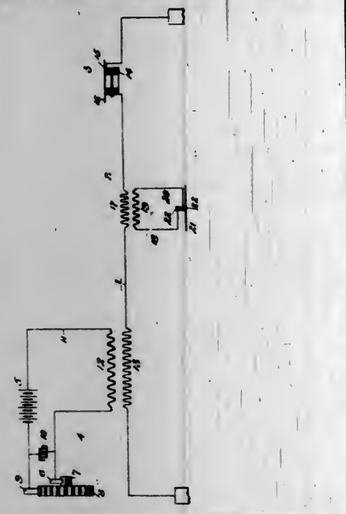


Claim.—1. In a spinning-frame, the combination of a ring-rail, a revoluble ring, a holder for said ring, a whirl attached to said holder, a support attached to the ring-rail to carry said ring-holder, a belt to drive said ring-holder, a series of deflector-whirls held by said ring-rail and arranged to carry the belt in between the ring-holder whirls, vertical end shafts, whirls secured thereon, and means for driving said end shafts, substantially as described.

2. In a spinning-frame, the combination of a ring-rail, a revoluble ring, a ring-holder, a whirl attached to said holder, a belt, and whirls to deflect said belt between said whirls on the ring-holders, substantially as described.

3. In a spinning-frame, the combination of a ring-rail, a belt-tightening device consisting of a frame fastened to said ring-rail, a hub at the outer end of said frame, a spiral spring held in said frame, a rod passing through said spring, a whirl held in one end of said rod, and a screw-nut fitted to screw on the outer end of said rod, substantially as described.

596,017. TELEPHONY AND TELEGRAPHY. MAURICE HUTIN and MAURICE LEBLANC, Paris, France, assignors to the Société Anonyme pour la Transmission de la Force par l'Électricité, same place. Filed Jan. 31, 1893. Serial No. 460,318. (No model.) Patented in France Sept. 3, 1891, No. 215,901, and in England Dec. 27, 1891, No. 23,892.



Claim.—1. The method of transmitting messages, consisting in passing over a line waves of alternating or varying current of such high frequency as only slightly affect the receivers and modifying the amplitudes of these waves in accordance with the desired message, substantially as described.

2. The method of transmitting speech or other sounds, consisting in passing over a line waves of alternating or varying current of such high frequency as will be barely audible in the receivers and varying the amplitudes of these waves by and in accordance with speech or other sounds, substantially as described.

3. The method of transmitting speech, consisting in passing over the line waves of alternating or varying current of slight audibility to the receivers and superposing thereon waves of current corresponding to vocal waves, substantially as described.

4. The method of transmitting speech, consisting in putting upon the line alternating or varying waves of current inaudible, or nearly so, in receivers and inductively superposing waves of current corresponding to the vocal waves received by a transmitter.

5. The method of transmitting speech, consisting in passing over a line or circuit, including the receivers and transmitting devices, waves of electric current incapable or nearly incapable of producing audible tones in the receivers, and modifying the induction between the line-transmitter coil and a local coil in inductive relation thereto through the agency of voice-waves.

6. The method of transmitting speech along a line having receivers and transmitters, consisting in producing induction between a varying or alternating current in the line of such rate as not to produce strongly-audible tones or sounds in the receiver and a local circuit in inductive relation to a coil in the line and modifying the resistance of such local circuit by the vocal waves received by the transmitter.

7. In combination with a telephone-line having receivers thereon of means for producing in said line varying or alternating current impulses of such period as not to produce strongly-audible tones or sounds in receivers, and means such as a local coil in inductive relation to a coil in the line, for superimposing undulations inductively transferred from the local coil to the line-coil, the local coil being provided with a telephone-transmitter in its circuit, whereby the resistance of its circuit may be varied by the waves of the voice communicated to said transmitter.

8. A system of electric transmission of messages, comprising a line, and receiving instruments means for charging the line with alternating currents of such high frequency as will barely actuate the receivers, and a transmitter operating to vary the amplitudes of the alternating currents in accordance with the desired message, substantially as described.

9. In a telephone system in which substantially uniform alternating or varying impulses are passed over the line, an induction-coil the primary of which is in the line and the secondary of which is local to the transmitter and connected to the said transmitter, whereby the variations of resistance set up in the transmitter by sound-waves acting thereon operate inductively upon the primary coil in the line to vary its normal current in accordance with the said sound-waves.

10. The combination, in a telephone system, of an inductorium provided with a primary coil of many turns normally traversed by substantially uniform alternating or varying currents, and also provided with a secondary coil of few turns locally connected through a transmitter for varying the resistance of said local-coil circuit as described, and for the purpose specified.

11. The method of telephoning, consisting in passing over a circuit a substantially uniform alternating or varying current, and inductively modifying said current in correspondence with sound-vibrations.

12. The method of transmitting messages electrically, consisting in passing over a circuit a substantially uniform alternating or varying current, passing said current through a coil of an inductorium, and varying the counter-induction of said inductorium in accordance with the desired message.

13. The method of telephoning, consisting in feeding the line with a substantially uniform electric current of periodically rising and falling potential, passing said current through a counter-inductive device included in the line-circuit, and varying the counter-induction of said device by the agency of sound-vibrations, whereby the said current is made to flow over said line in impulses or waves corresponding to the sound-vibrations.

14. A telephonic transmitter consisting of an inductorium, one circuit of which constitutes a microphone and the other circuit of which is a coil of insulated wire in inductive relation to the first and adapted for insertion in a line, substantially as described.

15. A telephonic transmitter consisting of an inductorium having a circuit of low resistance constituting a microphone and a circuit of high resistance in inductive relation to the first and adapted for insertion in a line, substantially as described.

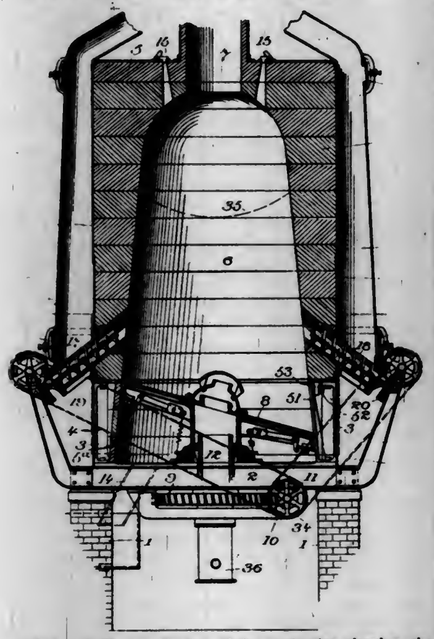
16. In a system of telephony, the combination of a main line charged with alternating currents, with the primary coil of an inductorium included in the main line, and an annular microphone constituting the secondary of the inductorium, substantially as described.

17. A telephonic transmitter consisting of segmental carbon blocks, circularly arranged and superimposed to form a closed circuit of variable resistance, a coil of insulated wire in inductive relation to the circular microphone and adapted to be inserted in a line, and a diaphragm acting upon the microphone, substantially as described.

18. The improvement in the art of telephony which consists in charging a line with substantially uniform alternating currents and varying these currents by and in accordance with sound-waves.

19. The improvement in the art of telephony which consists in charging a line with alternating currents the effects of which are not obtrusibly perceptible in the receiver, and varying these currents by and in accordance with sound waves.

596,018. GAS-PRODUCER. ARTHUR KITSON, Philadelphia, Pa. Filed July 23, 1897. Serial No. 645,709. (No model.)



Claim.—1. The combination of the combustion-chamber, the hearth inclined to the plane of the horizon, but rotating on a vertical axis, and one or more screw conveyers passing through the walls of said combustion-chamber, and terminating at the surface of said walls which discharge fuel into the combustion-chamber below the normal fuel-line substantially as described.

2. The combination of the combustion-chamber, the hearth inclined to the plane of the horizon, but rotating on a vertical axis, and one or more screw conveyers passing through the walls of said combustion-chamber, and terminating at the surface of said walls which are inclined upwardly and discharge fuel into the combustion-chamber below the normal fuel-line substantially as described.

3. The combination of the combustion-chamber, having inwardly-inclined walls, the hearth inclined to the plane of the horizon, but rotating on a vertical axis, and one or more screw conveyers passing through the walls of said combustion-chamber, and terminating at the surface of said walls which discharge fuel into the combustion-chamber below the normal fuel-line substantially as described.

4. The combination of the combustion-chamber, the constantly-rotating hearth, and one or more screw conveyers passing through the walls of said combustion-chamber, and terminating at the surface of said walls which discharge fuel through the walls of the combustion-chamber and below the normal fuel-line substantially as described.

5. The combination of the combustion-chamber, the constantly-rotating hearth, and one or more screw conveyers passing through the walls of said combustion-chamber, and terminating at the surface of said walls which discharge fuel through the walls of the combustion-chamber below the normal fuel-line substantially as described.

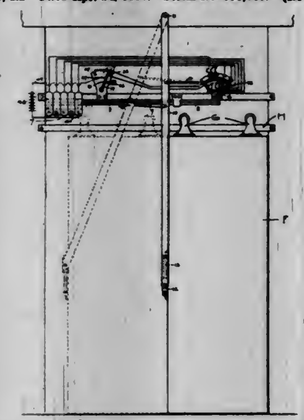
6. The combination of the combustion-chamber, the constantly-rotating hearth, and one or more screw conveyers passing through the walls of said combustion-chamber, and terminating at the surface of said walls which are inclined upwardly and discharge fuel through the walls of the combustion-chamber below the normal fuel-line substantially as described.

7. The combination of the combustion-chamber, the constantly-rotating hearth, the screw conveyers passing through the walls of said combustion-chamber, and terminating at the surface of said walls and below the normal fuel-line which discharge fuel into said combustion-chamber, the driving shaft, and mechanism whereby said driving-shaft rotates both the hearth and the screw conveyers, substantially as described.

8. The combination of the combustion-chamber, the rotating hearth, the driving-shaft, which is geared to the hearth, mechanism for automatically and periodically reversing the direction of rotation of said shaft, one or more pairs of screw conveyers which discharge fuel into said combustion-chamber, and ratchet mechanism which conveys the opposite rotations of said shaft to opposite members of said pairs of conveyers substantially as described.

9. The combination of the combustion-chamber, one or more pairs of screw conveyers which pass through the walls of said combustion-chamber and terminate at the surface thereof below the normal fuel-line, connections whereby fuel is fed to said screw conveyers, and mechanism for alternately operating the opposite members of each of said pairs of screw conveyers, substantially as described.

596,019. DOOR-OPERATING DEVICE. HAROLD ROWNTREE, Chicago, Ill. Filed Apr. 24, 1897. Serial No. 633,785. (No model.)



Claim.—1. The combination of an elevator, a door, electric means for operating the door, and means for decreasing the force of the electric means as the door nears the end of its travel, substantially as described.

2. The combination of an elevator, a door, electric means for operating the door, and means whereby the electric operating means are changed into electric retarding means as the door nears the end of its travel, substantially as described.

3. The combination of an elevator, a door, an electric motor, connections between said motor and door whereby when said motor is actuated said door is moved to open or closed position, and electrically-operated means actuated by the movement of the door for retarding the movement of the door as it approaches the limit of its movement, substantially as described.

4. The combination of an elevator, a door, electric means for operating the door, electric means for retarding the operation of the door and means for increasing the force of the electric retarding means as the door nears the end of its travel, substantially as described.

5. The combination of an elevator, a door, electric means for operating the door, and means for counteracting the force of the electric operating means as the door nears the end of its travel, substantially as described.

6. The combination of an elevator, a door, electric means for operating the door, a rheostat controlling the electric means and connections between the rheostat and the door whereby the rheostat decreases the force of the electric means as the door nears the end of its travel, substantially as described.

7. The combination of an elevator, a door, electric means for operating the door, a rheostat for controlling the electric means and connections between the rheostat and door whereby the electric operating means are changed into electric retarding means as the door nears the end of its travel, substantially as described.

8. The combination of an elevator, a door, electric means for operating the door, electric means for retarding the operation of the door, a rheostat for controlling the electric operating means and the electric retarding means and connections between the rheostat and the door, substantially as described.

9. The combination of an elevator, a door, electric means for operating the door, electric means for retarding the door, a rheostat for controlling the electric operating means and the electric retard-

ing means and connections between the rheostat and door whereby the force of the electric retarding means is increased as the door nears the end of its travel, substantially as described.

10. The combination of an elevator, a door, a solenoid for operating the door, and means for decreasing the operating force of the solenoid as the door nears the end of its travel, substantially as described.

11. The combination of an elevator, a door, a solenoid for operating the door and means whereby the operating force of the solenoid is changed into a retarding force as the door nears the end of its travel, substantially as described.

12. The combination of an elevator, a door, a solenoid for operating the door, a rheostat controlling the solenoid and connections between the rheostat and the door whereby the rheostat decreases the operating force of the solenoid as the door nears the end of its travel, substantially as described.

13. The combination of an elevator, a door, a solenoid for operating the door, a rheostat for controlling the solenoid and connections between the rheostat and door whereby the operating force of the solenoid is changed into a retarding force as the door nears the end of its travel, substantially as described.

14. The combination of an elevator, a door, a solenoid for operating the door, a rheostat for controlling the solenoid and means for counteracting the operating force of the solenoid as the door nears the end of its travel, substantially as described.

15. The combination of an elevator, a door, a movable shoe on the car, electric means for operating the door arranged to be thrown into action by said shoe and means for decreasing the force of the electric means as the door nears the end of its travel, substantially as described.

16. The combination of an elevator, a door, a movable shoe on the car, electric means for operating the door arranged to be thrown into action by said shoe, and means whereby the electric operating means are changed into electric retarding means as the door nears the end of its travel, substantially as described.

17. The combination of an elevator, a door, a movable shoe on the car, electric means for operating the door arranged to be thrown into action by said shoe, and electric means for retarding the operation of the door, substantially as described.

18. The combination of an elevator, a door, a movable shoe on the car, electric means controlled by said shoe for operating the door, electric means for retarding the operation of the door and means for increasing the force of the electric retarding means as the door nears the end of its travel, substantially as described.

19. The combination of an elevator, a door, a movable shoe on the car, electric means controlled by said shoe for operating the door, and means for counteracting the force of the electric operating means as the door nears the end of its travel, substantially as described.

20. The combination of an elevator, a door, a movable shoe on the car, electric means for operating the door, a rheostat controlling the electric means said rheostat actuated by said shoe and connections between the rheostat and the door whereby the rheostat decreases the force of the electric means as the door nears the end of its travel, substantially as described.

21. The combination of an elevator, a door, a movable shoe on the car, electric means for operating the door, a rheostat for controlling the electric means said rheostat actuated by said shoe and connections between the rheostat and door whereby the electric operating means are changed into electric retarding means as the door nears the end of its travel, substantially as described

22. The combination of an elevator, a door, a movable shoe on the car, electric means for operating the door, electric means for retarding the operation of the door, a rheostat for controlling the electric operating means and the electric retarding means said shoe arranged to actuate said rheostat and connections between the rheostat and the door, substantially as described.

23. The combination of an elevator, a door, a movable shoe on the car, electric means for operating the door, electric means for retarding the door, a rheostat for controlling the electric operating means and the electric retarding means said shoe arranged to actuate said rheostat and connections between the rheostat and door whereby the force of the electric retarding means is increased as the door nears the end of its travel, substantially as described.

24. The combination of an elevator, a door, a movable shoe on the car, a solenoid for operating the door, said shoe arranged to control the circuits of said solenoid and means for decreasing the operating force of the solenoid as the door nears the end of its travel, substantially as described.

25. The combination of an elevator, a door, a movable shoe on the car, a solenoid for operating the door said shoe arranged to control the circuits of said solenoid and means whereby the operating force of the solenoid is changed into a retarding force as the door nears the end of its travel, substantially as described.

26. The combination of an elevator, a door, a movable shoe on the car, a solenoid for operating the door, a rheostat controlling the solenoid said shoe arranged to actuate said rheostat and connections between the rheostat and the door whereby the rheostat decreases the operating force of the solenoid as the door nears the end of its travel, substantially as described.

27. The combination of an elevator, a door, a movable shoe on the car, a solenoid for operating the door, a rheostat for controlling the solenoid said shoe arranged to actuate said rheostat and connections between the rheostat and door whereby the operating force of the solenoid is changed into a retarding force as the door nears the end of its travel, substantially as described.

28. The combination of an elevator, a door, a movable shoe on the car, a solenoid for operating the door, a rheostat for controlling the solenoid said shoe arranged to actuate said rheostat and means for counteracting the operating force of the solenoid as the door nears the end of its travel, substantially as described.

29. The combination of an elevator, a door, electric means for operating the door, means normally inoperative while the door is in motion for counteracting the speed of the door, and means actuated by the door-operating means for bringing the counteracting means into operation as the door nears the end of its travel, substantially as described.

30. The combination of an elevator, a door, electric means for operating the door, a rheostat for controlling the electric means, normally inoperative means for counteracting the speed of the door and means actuated by the door-operating means for bringing the counteracting means into operation as the door nears the end of its travel, substantially as described.

31. The combination of an elevator, a door, electric means for operating the door, a movable shoe upon the car, means arranged to be thrown into action by said shoe normally inoperative for counteracting the speed of the door and means for bringing the counteracting means into operation as the door nears the end of its travel, substantially as described.

32. The combination of an elevator, a door, a solenoid for operating the door, means normally inoperative for counteracting the speed of the door and means actuated by the door-operating means for bringing the counteracting means into operation as the door nears the end of its travel, substantially as described.

33. The combination of an elevator, a door, an electric motor for operating the same, connections between said motor and door, a switch for controlling the motor-circuit, said switch arranged to extend into the elevator shaft or well, and means arranged within the control of the elevator-conductor for actuating said switch, as and for the purpose set forth.

34. The combination with an elevator-car, a door, an electric motor and connections between the motor and door, of a switch for controlling the motor-circuit having a projection, a shoe carried by the car and normally held out of alinement with said projection, and means under the control of the car-conductor for moving said shoe into position to engage and actuate said switch, as and for the purpose set forth.

35. The combination with an elevator-car, a door, a sectional solenoid having a movable core, and connections between the door and said core, a rheostat for successively cutting the sections of said solenoid into and out of circuit, and means actuated by the movement of the door for actuating said rheostat and means carried by the car for controlling the circuit, as and for the purpose set forth.

36. The combination with an elevator-car, a door, a sectional solenoid having a movable core, and connections between said core and door, a switch for controlling the circuit through said solenoid-sections, means carried by the car for actuating said switch, a rheostat for successively cutting the solenoid-sections into and out of circuit, and connections between said door and rheostat for moving the latter when the former is moved, as and for the purpose set forth.

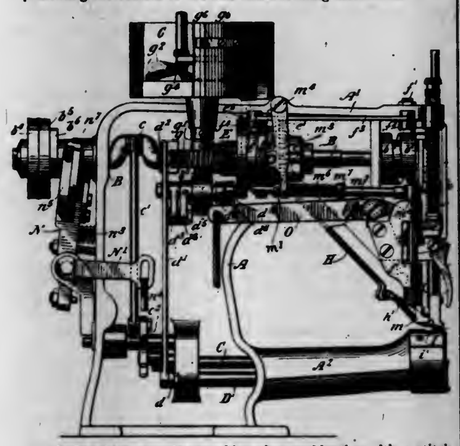
37. The combination with an elevator-car, a door, a solenoid, a movable core therefor, connections between the door and core, a switch, means actuated from the car for operating said switch and means actuated by the movements of the door for cutting in resistances in the circuit of the solenoid, as and for the purpose set forth.

38. The combination of an elevator, a door, a solenoid for operating the door, a rheostat for controlling the solenoid, normally inoperative means for retarding the motion of the door and means for bringing the retarding means into operation as the door nears the end of its travel, substantially as described.

39. The combination of an elevator, a door, a solenoid for operating the door, a movable shoe upon the car for controlling the solenoid-circuits, means normally inoperative for retarding the motion of the door and means for bringing the retarding means into operation as the door nears the end of its travel, substantially as described.

596,020. MACHINE FOR SEWING ON BUTTONS. JOHN J. SULLIVAN, Ipswich, Mass. Filed Jan. 14, 1896. Renewed Nov. 12, 1897. Serial No. 658,340. (No model.)

Claim.—1. In a button-sewing machine, the combination with a stitch-forming mechanism comprising automatic means for changing the relative horizontal positions of the needle and the work for a series of three or more times in succession, to form a series of button-attaching stitches in one place and which pass alternately through the eye of a button-shank and the work and through the work outside of the said eye, of automatic means for periodically suspending the operation of the device which changes the relative horizontal positions of the needle and work during the time required for making a series of successively-disposed stitches, without stopping the machine, and an automatic button-feeding mechanism for successively presenting the buttons to the said stitch-forming mechanism.



2. In a button-sewing machine, the combination with a stitch-forming mechanism comprising means for reciprocating the needle-bar and needle horizontally a series of three or more times in succession while the work remains stationary, to form a series of button-attaching stitches in one place and which stitches pass alternately through and outside of the eye of a button-shank, of automatic means for suspending the horizontal movements of the needle during the time required to make a series of successively-disposed stitches, without stopping the machine, when a predetermined number of button-attaching stitches have been made, and an automatic button-feeding mechanism for successively presenting the buttons to said stitch-forming mechanism.

3. In a button-sewing machine, the combination with a stitch-forming mechanism comprising automatic means for changing the relative horizontal positions of the needle and the work for a series of three or more times in succession, to form a series of button-attaching stitches in one place and which pass through the eye of the button-shank and the work and through the work outside of the said eye, of automatic means for periodically suspending the operation of the mechanism which changes the relative horizontal positions of the needle and work, an automatic button-feeding mechanism for successively presenting the buttons to the said stitch-forming mechanism, and a mechanism for automatically stopping the machine when a desired number of stitches has been formed.

4. In a button-sewing machine, the combination with a stitch-forming mechanism comprising means for reciprocating the needle-bar and needle horizontally a series of three or more times in succession while the work remains stationary, to form a series of button-attaching stitches in one place and which pass alternately through and outside of the eye of a button-shank, of automatic means for suspending the horizontal movements of the needle, during the time required to make a series of successively-disposed stitches, and without stopping the machine, when a predetermined number of button-attaching stitches have thus been formed, an automatic button-feeding mechanism for successively presenting the buttons to said stitch-forming mechanism, and an automatic work-feeding mechanism for advancing the work to space the buttons.

5. In a button-sewing machine, the combination with automatic button-feeding devices, of a stitch-forming mechanism comprising a horizontally-movable needle-bar and needle, and an automatic work-feeding mechanism, independent of said needle-bar and needle, for advancing the work to space the buttons, of an automatic mechanism acting to suspend the work-advancing action of the feed and the horizontal movements of the needle, alternately, and without stopping the machine and during the time required for making a series of button-attaching stitches and a series of plain or successively-disposed stitches, respectively, whereby overseaming or button-attaching stitches will be formed when the work is at rest and plain or successively-disposed stitches will be formed between the buttons.

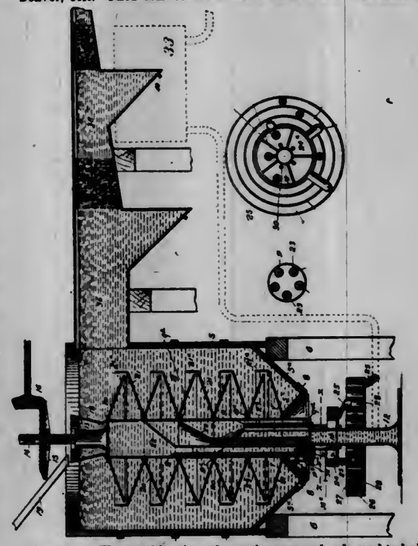
6. In a button-sewing machine, the combination with a stitch-forming mechanism comprising a needle and means for imparting vertical and horizontal movements thereto, of an independent automatic work-feeding mechanism, automatic devices for presenting buttons to the said needle, a needle-bar-controlling cam by which lateral movements are imparted to the needle periodically and which also serves to suspend the said horizontal movements during the time required to make a series of successively-disposed stitches, and a feed-controlling cam to throw the feed into and out of operation, said cams being so timed relative to each other that when the horizontal movements of the needle are suspended the work-feeding mechanism is operative, and when the said work-feeding mechanism is inoperative, horizontal movements will be imparted to the said needle.

7. In a button-sewing machine, a throat-plate provided with a raised portion, to sustain the shank of a button in a level position, and with a level groove or slot adjacent to said raised portion, in combination with stitch-forming, work-feeding and button-feeding mechanism.

8. In a button-sewing machine, the combination with stitch-forming appliances, of a button-hopper having interiorly at its bottom rotating brushes, one or more lifters, at the bottom of said hopper, for raising said brushes so that they may be caused to bear on the buttons to be fed from said hopper, and means for conducting the buttons to said stitch-forming appliances.

9. The combination with the button-hopper G, having the slot g^3 in its bottom of proper size to admit the shanks of the buttons while excluding their heads, of the button-chute H having the button-shank slot h connecting with the said button-shank slot g^3, and the guard p extending into the bottom of said hopper and arranged to overlap the upper end of the said slot h of the button-chute, said guard serving to prevent the buttons whose shanks are not entered in said slot g^3 from clogging the button entrance to the said chute.

596,021. ORE CLASSIFIER AND SLIMER. WILLIAM R. WILD, Denver, Colo. Filed Jan. 15, 1897. Serial No. 619,298. (No model.)



Claim.—1. The combination of a stationary tank adapted to hold liquid, of a hollow column rotatably mounted therein, two or more inclined screens of varying mesh attached to the column one above another, said screens being downwardly inclined from their outer edges which are highest, oppositely-inclined plates also attached to the column and adapted to direct the material to the outer edges of the screens, and suitable means located within the hollow column and communicating with the individual screens for conducting the different grades of material to a suitable receptacle.

2. In an apparatus of the class described, the combination of a stationary tank having an opening in its bottom, a hollow rotatable column located in said tank, projecting through the opening in the bottom thereof and resting upon a suitable support, the tank being

adapted to hold liquid when the column is in place, two or more conical screens attached to the column, one above another, their outer edges being highest, oppositely-inclined plates also attached to the column and adapted to discharge the material to the outer edge of each screen, and conduits located within the hollow column and communicating with the individual screens at their upper extremities, while their lower extremities have outlets at the bottom of the column.

3. In an apparatus of the class described, the combination of a stationary tank having an opening in its bottom, a hollow rotatable column located in said tank, projecting through an opening in the bottom thereof, and resting upon a pedestal underneath, the tank being adapted to hold liquid when the column is in place, a series of conical screens attached to the column one above another, their outer edges being highest, oppositely-inclined plates also attached to the column and adapted to direct the material to the outer edges of the screens, conduits located within the hollow column and communicating respectively with the individual screens at their upper extremities, while their lower extremities have outlets at the bottom of the column, a suitable receptacle attached to the column below the tank and divided into compartments to receive the different grades of material from the respective conduits.

4. In an apparatus of the class described, the combination of a stationary slime-tank having an opening in its bottom, a hollow rotatable column located in said tank, projecting through said opening and resting upon a suitable support underneath, a series of conical screens attached to the column one above another, their outer edges being highest, plates also attached to the column and oppositely inclined from the screens whereby they are adapted to direct the material to the outer edges of the screens, conduits located within the hollow column and communicating respectively with the individual screens at their upper extremities, while their lower extremities have outlets at the bottom of the column, a suitable receptacle attached to the column below the tank and having compartments to receive the different grades of material from the respective conduits, and a valve connected with the lower extremity of each conduit and adapted to control the discharge therefrom.

5. In an apparatus of the class described, the combination of a stationary tank having an opening in its bottom, a hollow rotatable column located therein and projecting through the bottom opening, the tank being adapted to hold liquid when the column is in place, a suitable support or pedestal located below the tank upon which the hollow column is supported, a series of conical screens attached to the column one above another, their outer edges being highest, said screens varying in mesh as described, oppositely-inclined plates also attached to the column and adapted to discharge the material to the outer edges of the screens, conduits located within the hollow column to which they are made fast, said conduits communicating respectively with the individual screens at their upper extremities, while their lower extremities are provided with outlets at the bottom of the column, a suitable receptacle attached to the column below the tank and having compartments to receive the different grades of material from the respective conduits, a conical valve adapted to project into the lower extremity of each conduit, a vertically-movable arm supporting said valve, and suitable means for raising and lowering the arms whereby the valves are adjusted and the discharge from the conduits controlled.

6. In an apparatus of the class described, the combination of a stationary tank having an opening in its bottom, a hollow rotatable column located in said tank and projecting through said opening, a suitable support located below the tank and upon which the column is mounted, a series of conical screens of varying mesh attached to the column one above another, their outer edges being highest, oppositely-inclined plates also attached to the column and adapted to discharge the material to the outer edges of the screens, conduits located within the hollow column and communicating at their upper extremities with the individual screens, while their lower extremities have outlets at the bottom of the column, a suitable receptacle attached to the column below the tank and having compartments to receive the different grades of material from the respective conduits, suitable valve mechanism for controlling the discharge of material from the conduits, and water-pipes connected with a suitable supply source at their lower extremities, their upper extremities opening into the said conduits

7. In an apparatus of the class described, the combination with a stationary slime tank having an opening in its bottom, a hollow rotatable column located in the said tank and projecting through the opening in the bottom thereof, the said tank being adapted to hold liquid when the column is in place, the upper extremity of the column being suitably supported, a series of conical screens attached to the column one above another, said screens being of varying mesh, their outer edges being highest, oppositely-inclined plates also attached to the column and adapted to discharge the material to the outer edges of the screens, conduits located within the hollow column to which they are made fast, the upper extremities of said conduits communicating with the individual screens, while their lower extremities have outlets at the bottom of the column, a suitable receptacle attached to the column below the tank and adapted to receive the different grades of material from the respective conduits a valve for controlling the discharge from the lower extremity of each conduit, a vertically-movable arm supporting said valve, and means for raising and lowering the arms comprising a screw passing through a lug in the arm and engaging a threaded aperture formed in a lug on the column.

8. In a classifier, the combination of a hollow rotatable column, a series of conical screens of varying mesh attached to said column, the mesh of the screens increasing in fineness from the top of the column downward, a series of oppositely-inclined amalgamated plates also attached to the column and adapted to discharge the material to the screens, and a separate conduit located in the hollow column to receive the discharge from each screen.

9. In a classifier, the combination of a stationary tank having an opening in its bottom, a hollow rotatable column located in the tank and projecting through said opening, a series of conical screens of varying mesh attached to the said column, the mesh of the screens increasing in fineness from the top of the column downward, a series of oppositely-inclined plates also attached to the column and adapted to discharge the material to the screens, conduits located in the hollow column and adapted to receive the discharge from the respective screens, said conduits having an outlet at the bottom of each column, a receptacle also attached to the column and located below the tank, said receptacle being divided into compartments to receive the discharge from the respective conduits, a stationary vat located below the said receptacle and divided into circular compartments, and suitable conduits leading from the respective compartments of the rotating receptacle and discharging into the corresponding compartments of the stationary vat.

10. In a combined classifier and slimer, the combination of an upright stationary tank having an inclined bottom provided with a port controlled by a suitable valve, a vertical, hollow, rotatable column located in said tank and projecting through an opening in the bottom thereof, a suitable support below the tank upon which the said column is mounted, two or more conical screens attached to the column one above another and of varying mesh, the uppermost being the coarsest, oppositely-inclined plates also attached to the column and adapted to discharge upon the screens, and suitable means for conducting the several grades of material separately from the screens through the hollow column to separate compartments of a suitable receptacle.

11. In an ore-classifier, the combination of a hollow rotatable column, conical screens attached thereto and surrounding the column, oppositely-inclined plates also attached to the column and adapted to feed the ore to the outer edge of the screens which are provided with upwardly-projecting flanges, conduits located within the hollow column and adapted to receive the material from the respective screens, and pipes projecting upward into the lower extremities of the respective conduits, said pipes being connected with a suitable water-supply source having sufficient pressure to force the water through the said pipes into the conduits.

12. In a combined ore classifier and slimer, the combination of a stationary tank, the rotatable column located therein conical screens of varying mesh attached to the column and located one above another, the uppermost being of the coarsest mesh, and one or more slime-tanks connected with the main tank and adapted to receive the overflow therefrom.

13. In a classifier for ore or other material, the combination of a stationary tank having an opening in its bottom, a hollow rotatable column located in said tank and projecting through the opening in the bottom thereof, a series of screens of varying mesh attached to said column, conduits located within the column, their upper extremities communicating with and being adapted to receive the material rejected by the respective screens, the lower extremities of the conduits having suitable outlets located at or below the opening in the bottom of the tank.

14. In a classifier for ore and other material, the combination of a stationary tank having an opening in the bottom, a hollow rotatable column located in said tank and projecting through said opening in the bottom thereof, the tank being adapted to hold liquid when the column is in place, a series of screens of varying mesh attached to said column, conduits located within and attached to the column, their upper extremities communicating with and being adapted to receive the material from the screens, the lower extremities of the conduits having suitable outlets located at or below the opening in the bottom of the tank, and suitable means for introducing water under pressure into the discharge extremities of the conduits to prevent the slimes from passing downward with the ore.

15. In an ore-classifier, the combination of a stationary tank having an opening in its bottom, of a hollow rotatable column located in said tank and projecting through said opening, suitable classifying or grading mechanism attached to the exterior surface of the column, conduits located within the column and adapted to receive the respective grades from said mechanism, the conduits having outlets below the bottom opening in the tank.

596,022. DENTOMETER. DAVID L. ABER, Pittsburg, Pa. Filed May 22, 1896. Serial No. 592,517. (No model.)



Claim.—1. The combination in a dentometer of the frame, the cross-head sliding in guides and carrying the pointer, the scale forming the guide for the edge of the pointer, one end of the measuring-wire being attached to said cross-head, the other end of the wire being fixed and its loop passing through said frame, whereby when the cross-head is moved it will tighten the wire and indicate on the scale by means of the pointer, the perimeter of the object to be measured, substantially as set forth.

2. The combination of the body or frame having the movable bar or slide B, the cross-head carrying the pointer and wire, and the binding-screw I, the scale in front of said pointer adapted to indicate the distance of travel of said cross-head, and the stop-pin D, to determine the movement of the cross-head and to prevent its pulling the wire through the barrel, substantially as set forth.

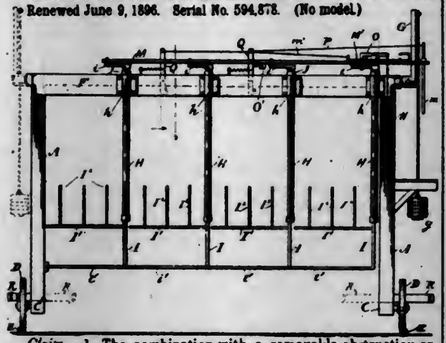
3. The combination in an instrument for measuring irregular bodies, of the body or frame for carrying the movable cross-head, the wire and binding-screw, said cross head sliding between guides and carrying the hollow needle for the wire and the binding-screw I for holding the fixed end of the wire, as set forth.

4. The combination in an instrument for measuring bodies consisting of the frame or body portion having a scale on its face, a sliding cross-head carrying a pointer and wire, and a hollow needle for the wire to pass through and the barrel H, and fixed binding-screw I, all arranged for joint operation as set forth.

5. An instrument for measuring bodies comprising a body portion or frame, having a scale, grooves and ribs on its face, a sliding cross-head having corresponding grooves and ribs to work therein, said cross-head also carrying the hollow needle, and the pointer *n*, and the movable slide B, substantially as set forth.

6. The combination in an instrument for measuring bodies of the handle carrying the scale F, the frame A, the tapering cylinder H, the cross-head A' having the pointer *n*, and projection *h*, the scale F, and means for securing the ends of the wire, all arranged as set forth.

596,023. GATE. ZEPHANIAH A. BARRETT, Chicago, Ill., assignor of one-half to James J. Russell, Muscatine, Iowa. Filed Dec. 16, 1893. Renewed June 9, 1896. Serial No. 594,878. (No model.)



Claim.—1. The combination with a removable obstruction arranged across a track or roadway, of movable supports therefor arranged upon opposite sides of the track or roadway and means for suddenly removing said obstruction, substantially as set forth.

2. The combination with a removable obstruction arranged across the track or roadway and movable in the direction of said track or roadway, of means for moving it in said direction and means for suddenly removing it, leaving the track or roadway clear, substantially as set forth.

3. The combination with a removable obstruction arranged across the track or roadway, of supports therefor arranged upon opposite sides of the track or roadway, means for moving said supports in the direction of the track or roadway and means for suddenly removing the obstruction, leaving the track or roadway clear, substantially as set forth.

4. The combination with a removable obstruction arranged across the track or roadway, of supports therefor arranged upon opposite sides of the track or roadway, ways upon which said supports are movable in the direction of the track or roadway, means for moving said supports, and means for suddenly removing the obstruction, substantially as set forth.

5. The combination, with a movable frame having wheels whereby it is supported and adapted to be moved in the direction of a track or roadway, of a gate carried by said frame and crossing the roadway, substantially as set forth.

6. The combination, with a movable frame having wheels whereby it is supported and adapted to be moved, of parallel tracks upon which said wheels rest, and a gate carried by the frame and occupying, when closed, a plane transverse to the direction of said tracks, substantially as set forth.

7. The combination, with a frame having uprights, and a crosstree crossing the roadway and extending from one of said uprights to the other, of wheels whereby said frame is supported and adapted to be moved in the direction of the roadway, and a gate carried by the frame and crossing the roadway, substantially as set forth.

8. The combination, with a crosstree located above the roadway, of a rock-shaft supported thereby and extending downward therefrom, terminating at its lower end above the roadway, a gate carried by said rock-shaft, and means for partially rotating said rock-shaft, substantially as set forth.

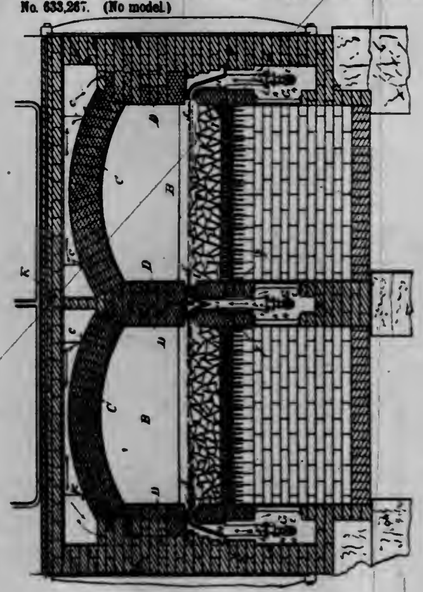
9. The comination, with a suitable support, of a number of tubes H, a rock-shaft located in each of said tubes, a crank-arm on the upper end of each of said rock-shafts and a gate carried by each of said rock-shafts, substantially as set forth.

10. The combination, with a suitable support located above the roadway, of a gate supported thereby and adapted to cross the roadway, and means for elevating said gate far enough above the roadway to leave it unobstructed, said gate being made up of a number of smaller gates adapted to swing horizontally, substantially as set forth.

11. The combination, with a suitable support located above the roadway, of a gate hinged at its upper edge and adapted to swing in a vertical plane, said gate being made up of a number of smaller gates each adapted to swing in a horizontal plane, substantially as set forth.

12. The combination, with a suitable frame, of the rock-shaft F, the weighted lever G secured thereto, the vertical rock-shafts I journaled to the rock-shaft F, the crank-arms *i* at the upper ends of the rock-shafts I, the floating rod M to which said crank-arms are pivotally connected, and a number of gates each secured to one of said vertical rock-shafts, substantially as set forth.

596,024. STEAM-GENERATOR. THOMAS R. BUTMAN, Chicago, Ill., assignor to T. H. Butman, same place. Filed Apr. 22, 1897. Serial No. 633,267. (No model.)



Claim.—1. The combination in a boiler-furnace of the side hollow walls, the arch extending from and resting upon said walls, the top or cover over the arch forming a heating-chamber, the baffle-plate in said chamber for the circulation of air, whereby it is heated to a greater extent, and the conduit leading from said chamber to the hollow walls, substantially as described.

2. A furnace for steam-generators or other purposes consisting of the arch, the hollow side walls having hot-air chambers, the suspended pipes forming conduits for conveying combined air and steam to the furnace, and the flaring mouth nozzles substantially as described.

3. The combination in a steam-boiler furnace, of the hollow walls forming enlarged air-heating chambers, and having an upwardly-extending neck, the suspended pipe smaller in diameter than said neck, and the flaring-mouth conical nozzle having fantail-shaped orifices, substantially as described.

4. The combination in a furnace having hollow walls forming air-heating chambers, the suspended pipes and conical-shaped nozzles, two or more nozzles suspended from said pipe, and a steam-jet pipe opening into said nozzles whereby the steam-jet forces the air into the suspended pipe and through it to the furnace, as set forth.

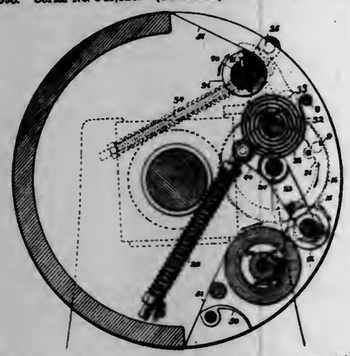
5. A steam-boiler furnace for the more perfect combustion of fuel consisting of the hollow walls forming air-heating chambers, the arch resting on said walls, the hot-air chamber above said arch, the conduits leading to the hollow-wall chambers from said overhead chamber, the suspended pipes in said hollow walls, the nozzles forming orifices leading into the furnace-chamber and means for supplying steam and hot air to said orifices, substantially as set forth.

6. As an article of manufacture the suspended pipe having flanges, the flaring conical-mouthed nozzle adapted to lead to the furnace and secured to said suspended pipe at its upper end, the mixing-nozzles suspended to the lower end of said pipe, and the steam brass extensions leading to the last-named nozzles, as set forth.

7. The combination in a boiler-furnace, of the hollow walls, the suspended pipe having flanges, the flaring-mouthed conical nozzles resting on said flanges, and the removable and renewable liners to which are secured said pipes and nozzles, substantially as set forth.

596,025. TYMPAN MECHANISM FOR PRINTING-MACHINES.

LUTHER C. CROWELL, Brooklyn, N. Y., assignor to Robert Hoe, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Mar. 7, 1895. Serial No. 540,826. (No model.)



Claim.—1. In a printing-machine, the combination with an impression-cylinder, two tympan-carrying rollers mounted to revolve therein and from which the tympan is intermediately stretched over the impression-surface of said cylinder, a spring-actuated mechanism whereby one roller is rotated to wind up and thus shift said tympan, and, automatic means whereby the travel or shifting movement of said tympan is controlled, substantially as described.

2. In a printing-machine, the combination with an impression cylinder, two tympan-carrying rollers mounted to revolve therein and from which the tympan is intermediately stretched over the impression-surface of said cylinder, a spring-actuated mechanism whereby one roller is rotated to wind up and thus shift said tympan, automatic means whereby the travel or shifting movement of said tympan is controlled, and, a tripping mechanism by which the time of said shifting movement is determined, substantially as described.

3. In a printing mechanism, the combination with an impression-cylinder, two tympan-carrying rollers mounted to revolve therein and from which the tympan is intermediately stretched over the impression-surface of said cylinder, of a mechanism for rotating one of said rollers to wind up and thus shift said tympan, and a mechanism whereby the extent of tympan shifted is governed, substantially as described.

4. In a printing mechanism, the combination with an impression-cylinder, two tympan-carrying rollers mounted to revolve therein and from which the tympan is intermediately stretched over the impression-surface of said cylinder, of a mechanism for rotating one of said rollers to wind up and thus shift said tympan, a controlling-roller running in surface contact with the unwinding roll of tympan upon the other roller and a governing mechanism limiting the rotation of the controlling-roller, whereby the extent of tympan unwound is measured and governed, substantially as described.

5. In a printing mechanism, the combination with an impression-cylinder, two tympan-carrying rollers mounted to revolve therein and from which the tympan is intermediately stretched over the impression-surface of said cylinder, of a mechanism for rotating one of said rollers to wind up and thus shift said tympan, a controlling-roller running in surface contact with the unwioding roll of tympan upou the other roller, a governing mechanism limiting the rotation of the controlling-roller, and, a tripping mechanism controlling the time of the operation of the mechaniems, substantially as described.

6. In a printing mechanism, the combination with an impression-cylinder, and two tympan-carrying rollers mounted to revolve therein and from which the tympan is intermediately stretched over the impression-surface of said cylinder, of a mechanism spring-actuated in one direction to rotate one of said rollers and thus wind up and shift said tympan, and means for moving said mechanism in the opposite direction to restore the resilient power of the spring, substantially as described.

7. In a printing mechanism, the combination with an impression-cylinder and two tympan-carrying rollers mounted to revolve therein and from which the tympan is intermediately stretched over the impression-surface of said cylinder, of a mechanism spring-actuated in one direction to rotate one of said rollers and thus wind up and shift said tympan, means for moving said mechanism in the opposite direction to restore the resilient power of the spring, a controlling-roller running in surface contact with the rolled-up tympan on the other roller, and, a governing mechanism limiting the rotation of the controlling-roller and consequent extent of shifting movement of the tympan, substantially as described.

8. In a printing mechanism, the combination with an impression-cylinder and two tympan-carrying rollers mounted to revolve therein and from which the tympan is intermediately stretched over the impression-surface of said cylinder, of a mechanism spring-actuated in one direction to rotate one of said rollers and thus wind up and shift said tympan, means for moving said mechanism in the opposite direction to restore the resilient power of the spring, a controlling-roller running in surface contact with the rolled-up tympan on the other roller, a governing mechanism limiting the rotation of the controlling-roller and consequent extent of shifting movement of the tympan, and a tripping mechanism controlling the time of the operation of the mechanisms, substantially as described.

9. The combination with the impression-cylinder and its two tympan-carrying rollers, of an actuating spring and intermediate gearing transmitting its power to the wind up roller to rotate the same, substantially as described.

10. The combination with the impression-cylinder and its two tympan-carrying rollers, of an actuating-spring, intermediate gearing transmitting its power to the wind-up roller to rotate the same, and, means for reversing said gearing to restore the power of the spring, substantially as described.

11. The combination with the impression-cylinder and its two tympan-carrying rollers, of an actuating-spring and intermediate rotating gearing transmitting its power to the wind up roller to rotate the same, a segment engaging said gearing, a spring operating to swing the segment in the corresponding direction, and, means operating to swing said segment in the opposite direction to restore power to the springs, substantially as described.

12. The combination with the impression-cylinder and its two tympan-carrying rollers, of an actuating-spring, intermediate gearing transmitting its power to the wind-up roller to rotate the same, means for reversing said gearing to restore the power of the spring, a spring-pressed controlling-roller bearing upon the surface of the tympan wound upon the paying-out roller, gearing connecting the controlling-roller with a governing-disk, and a locking-lever controlling the rotation of said disk, substantially as set described.

13. The combination with the impression-cylinder and its two tympan carrying rollers, of an actuating spring and intermediate rotating gearing transmitting its power to the wind-up roller to rotate the same, a segment engaging said gearing, a spring operating to swing the segment in the corresponding direction, means operating to swing said segment in the opposite direction to restore power to the springs, a spring-pressed controlling-roller bearing upon the surface of the tympan wound upon the paying-out roller, gearing connecting the controlling-roller with a governing-disk, and a locking-lever controlling the rotation of said disk, substantially as described.

14. The combination with the impression-cylinder and its two tympan-carrying rollers, of an actuating-spring, intermediate gearing transmitting its power to the wind-up roller to rotate the same, means for reversing said gearing to restore the power of the spring, a spring-pressed controlling-roller bearing upon the surface of the tympan wound upon the delivering-roller, gearing connecting the controlling-roller with a governing-disk, a locking lever controlling the rotation of said disk, and a tripping mechanism to periodically operate said lever to release the disk and set the mechanism into operation, substantially as described.

15. The combination with the impression-cylinder and its two tympan-carrying rollers, of an actuating-spring and intermediate rotating gearing transmitting its power to the wind-up roller to rotate the same, a segment engaging said gearing, a spring operating to swing the segment in the corresponding direction, means operating to swing said segment in the opposite direction to restore power to the springs, a spring-pressed controlling-roller bearing upon the surface of the tympan wound upon the paying-out roller, gearing connecting the controlling-roller with a governing-disk, a locking-lever controlling the rotation of said disk, and a tripping mechanism to periodically operate said lever to release the disk and set the mechanism into operation, substantially as described.

16. The combination with the impression-cylinder and its tympan-rollers 90, 91, of the pinion 13, wheel 14, ratchet-wheel 21, pawl 20, ratchet-wheel 5, pawl 6, pinion 17, segment 18, a spring-rod 27, and means for operating said segment substantially as described.

17. The combination with the impression-cylinder and its tympan-rollers 90, 91, of the spring 36, pinion 13, wheel 14, ratchet-wheel 21, pawl 20, ratchet-wheel 5, pawl 6, pinion 17, segment 18, a spring-rod 27, and means for operating said segment substantially as described.

18. The combination with the impression-cylinder and its tympan-rollers 90, 91, of the pinion 13, wheel 14, ratchet-wheel 21, pawl 20, ratchet-wheel 5, pawl 6, pinion 17, segment 18, an actuating-spring, and cam 30, substantially as described.

19. The combination with the impression-cylinder and its tympan-rollers 90, 91, of the pinion 13, wheel 14, ratchet-wheel 21, pawl 20, ratchet-wheel 5, pawl 6 pinion 17, segment 18, an actuating-spring, cam 30, spring-pressed roller 12, its pinion 15, wheel 16, socketed disk 31, and spring-seated lever 32, and means for tripping said lever substantially as described.

20. The combination with the impression-cylinder and its tympan-rollers 90, 91, of the pinion 13, wheel 14, ratchet-wheel 21, pawl 20, ratchet-wheel 5, pawl 6, pinion 17, segment 18, an actuating-spring, cam 30, spring-pressed roller 12, its pinion 15, wheel 16, socketed disk 31, and spring-seated lever 32 and tripping-bolt 35, substantially as described.

21. The combination with an impression-cylinder and two tympan-carrying rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, and means for driving one of said carrying rollers for winding the tympan thereon, of a controlling-roller acting by surface contact with the tympan to control its shifting movement, substantially as described.

22. The combination with an impression-cylinder and two tympan-carrying rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, and means for driving one of said carrying-rollers for winding the tympan thereon, of a controlling-roller acting by surface contact with the tympan to control its shifting movement and means governing the extent thereof, substantially as described.

23. The combination with an impression-cylinder and two tympan-carrying rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, and means for driving one of said carrying-rollers for winding the tympan thereon, of a controlling-roller acting by surface contact with the tympan to control its shifting movement, means governing the extent of such movement, and means determining the time thereof, substantially as described.

24. The combination with an impression-cylinder and two tympan-carrying rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, of a controlling-roller acting by surface contact with the tympan to control the shifting movement, a spring-actuated driving shaft for the receiving-roller, means acting upon the delivering-roller and operating through the tympan to control the unwinding action of the spring, substantially as described.

25. The combination with an impression-cylinder and delivering and receiving rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, and means for causing the shifting movement of the tympan, of a controlling-roller acting by surface contact with the tympan to control its shifting movement, and a governing-disk limiting the rotative movement of said roller and consequent extent of tympan shifted, substantially as described.

26. The combination with an impression-cylinder and delivering and receiving rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, and means for causing the shifting movement of the tympan, of a controlling-roller acting by surface contact with the tympan to control its shifting movement, a governing-disk limiting the rotative movement of said roller and consequent extent of tympan shifted, and a stop-lever limiting the rotative movement of the governing-disk, substantially as described.

27. The combination with an impression-cylinder and delivering and receiving rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, and means for causing the shifting movement of the tympan, of a controlling-roller acting by surface contact with the tympan to control its shifting movement, a governing-disk limiting the rotative movement of said roller and consequent extent of tympan shifted, a stop-lever limiting the rotative movement of the governing-disk, and a device for tripping said lever, substantially as described.

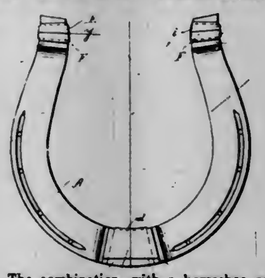
28. The combination with an impression-cylinder and delivering and receiving rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, and means for causing the shifting movement of the tympan, of a controlling-roller acting by surface contact with the tympan to control its shifting movement, a governing-diak limiting the rotative movement of said roller and consequent extent of tympan shifted, gearing intermediate the said roller and governing-disk connecting the two and a stop-lever limiting the rotative movement of the disk, substantially as described.

29. The combination with an impression-cylinder and delivering and receiving rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, and means for causing the shifting movement of the tympan, of a controlling-roller acting by surface contact with the tympan to control its shifting movement, a governing-disk limiting the rotative movement of said roller and consequent extent of tympan shifted, gearing intermediate the said roller and governing-disk connecting the two, a stop-lever limiting the rotative movement of the disk, and a device for tripping said lever, substantially as described.

30. The combination with an impression-cylinder and delivering and receiving rollers journaled within the same for stretching a tympan from one to the other and intermediately over the impression-surface of said cylinder, of a spring-actuated driving-shaft geared with the receiving-roller to rotate it, mechanisms connected with said shaft and operated by the rotation of the cylinder to wind up the spring, means for suspending the rotative movement of the tympan-rollers and a tripping device acting to release said rollers and permit their rotation by the action of the spring to shift the tympan, substantially as described.

596,026. CALK FOR HORSESHOES.

FRANCIS A. DUNCAN, North Baltimore, Ohio, assignor of eleven-twentieths to Daniel W. Reddin, same place. Filed Feb. 12, 1897. Serial No. 623,069. (No model.)



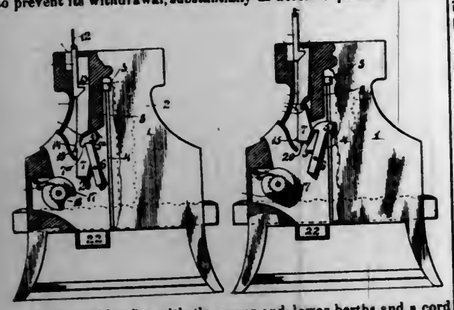
Claim.—The combination, with a horseshoe provided with a wedge-shaped dovetailed socket, of a calk provided with a projection fitting within the said socket and having lips extending across each end of it for engaging with the vertical side portions of the shoe, substantially as described and shown.

596,027. RECORDER FOR SLEEPING-CARS.

WILLIAM C. FLANNERY, Washington, D. C., assignor of two-thirds to De Witt C. Smith, same place, and William S. Barnett, Cape May, N. J. Filed July 13, 1897. Serial No. 644,399. (No model.)

Claim.—1. In a sleeping-car, the combination of a lower berth having parts movable to form the mattress, a check-controlled locking device to prevent the movement of said parts until a check is in-

troduced, an upper berth having a safety-cord, and a device carried by said cord for actuating the locking device; said locking device being constructed to engage the actuating device carried by said cord to prevent its withdrawal, substantially as herein explained.



2. In combination with the upper and lower berths and a cord attached to the upper berth; a locking device for the lower berth, a reciprocating tumbler which controls the locking device and has controlling connection with the cord of the upper berth, and a check-actuating means which releases said locking device through the medium of said tumbler; substantially as and for the purpose set forth.

3. In combination with a sleeping-car seat having a part movable to form a bed; a projection on said movable part, a dog movable in and out of the path of said projection, a tumbler controlling the movement of said dog, mounted to reciprocate relatively thereto and having controlling connection with the upper berth, and engaged by the dog at the inner end of its movement, and a manually-operated check actuating mechanism for releasing the engagement between the dog and the tumbler and having a receptacle into which the check is delivered by the act of releasing the tumbler; substantially as explained.

4. In combination with the berth of a sleeping-car, a barrier to prevent occupancy of said berth, a locking device to prevent the movement of said barrier and a check-controlled means for releasing said locking device, substantially as herein explained.

5. In combination with a sleeping-berth, a barrier movable into and out of a position to prevent occupancy of the berth, a locking device which locks said barrier into or out of said position, a check-controlled device for releasing said locking device, and an additional locking device controlled by the movement of the barrier and constructed to lock the berth against movement when the barrier is moved out of obstructive position, substantially as herein explained.

6. In combination with a sleeping-berth, a barrier consisting of an arm mounted upon an axis which permits it to swing into and out of an obstructive position, locking-arms which lock the berth against movement as the barrier is moved from obstructive position and which are withdrawn as said barrier is returned to said obstructive position, and a check controlled locking device which locks the barrier in either of its positions and thereby requires an insertion of the check for the removal of the barrier and an additional check for withdrawal of the locking-arms when the berth is to be moved, substantially as herein explained.

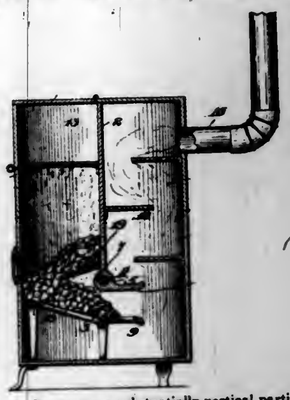
7. In combination with a sleeping-berth, a barrier mounted upon a shaft, and adapted thereby to be moved into and out of obstructive position with relation to said berth, a disk carried by said shaft and provided with notches, a push-bar engaging in notches of said disk when the barrier is in either of its two positions aforesaid, arms for locking the berth against movement, connected with said disk so as to be projected as the barrier is withdrawn from obstructive position and drawn in as said barrier is returned to its obstructive position, and a check-controlled releasing device for the push-bar, substantially as herein explained.

8. In a sleeping-car: the combination of an upper berth, a lower berth, an independent locking device for each of said berths, a safety-cord connected with the upper berth and carrying a device which actuates the locking device of the lower berth and interlocks therewith; and check controlled releasing mechanisms for the independent locking devices of the berths and for said safety-cord; whereby an interlocking system is obtained which necessitates the cooperation of the berths and the employment of a plurality of checks or tokens for the manipulation of either; substantially as explained.

9. In combination with a sleeping-car berth a locking-cord therefor, a check-actuated releasing mechanism for said cord, and a barrier controlled by a check-actuated locking device; substantially as herein explained.

10. In a sleeping-car; the combination of a lower berth, an upper berth, a cord attached to said upper berth, a check-actuated locking device for engaging the end of said cord and holding the upper berth down until released by a check or token, a barrier for preventing occupancy of said upper berth, and a check-actuated locking device for said barrier; the check-actuated locking device for the cord being combined with the moving part of the lower berth so as to control its movement in addition to controlling the cord; substantially as herein explained.

596,028. STOVE. FREDERICK GIETANNER and ALICE GIETANNER, Kansas City, Mo., assignors to the Smokeless Fuel-Saving Stove Company, of New York. Filed Dec. 31, 1896. Serial No. 617,587. (No model.)



Claim.—1. In a stove, a substantially vertical partition dividing the stove-body into a fuel-chamber and a flue, and an inclined grate arranged at the bottom of the fuel-chamber and extending below and spaced a short distance from the lower end of said partition and terminating at the entrance to the flue, whereby a contracted throat is formed between a fuel-chamber and flue, substantially as described.

2. In a stove, a substantially vertical partition extending from the top downward and terminating at a distance above the grate and dividing the interior of the stove into a fuel-chamber and a flue, said chamber and flue being in communication with each other below the partition, said partition having at or near its lower end, an air-duct whereby draft is furnished at a point above the bed of coals, and also having a laterally-projecting ledge substantially as and for the purpose described.

3. In a stove, a partition dividing the interior of the stove into a fuel-chamber and a smoke-flue, said partition terminating above and at a distance from the grate and having an enlarged arched lower edge, said enlarged edge being provided with an opening extending through the same longitudinally and communicating with the outer air through the sides of the stove and also provided with a plurality of draft-openings, and a grate arranged under the bottom edge of the partition and spaced apart therefrom, substantially as described.

4. In a stove, a substantially vertical partition dividing the interior space into a fuel-chamber and a smoke-flue and connecting at its bottom edge with a substantially horizontal ledge or deflector extending into the smoke-flue, in combination with a grate comprising an inclined portion and a substantially horizontal portion, the inclined portion forming the bottom of the fuel-chamber and the horizontal portion being arranged under the bottom edge of the partition and ledge and forming in connection therewith, a contracted throat affording communication between the fuel-chamber and the smoke-flue, substantially as described.

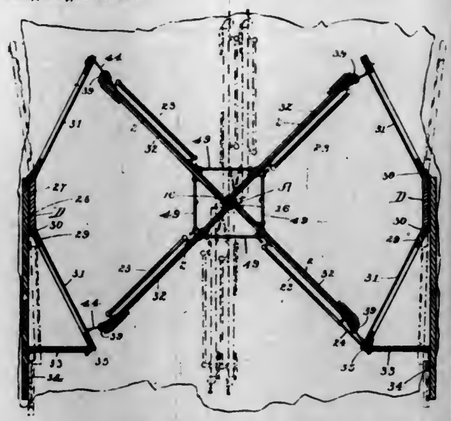
596,029. REVOLVING DOOR. WALTER W. IPE, St. Paul, Minn. Filed Feb. 1, 1897. Serial No. 621,547. (No model.)

Claim.—1. The combination with a revolving door of the class described, having flexible or automatically extensible edge portions, of the concave, oppositely-arranged casements therefor made up of the medial parallel sections, and convergiog sections on each side of said parallel sections.

2. The combination with a revolving door of the class described, of similar, oppositely-arranged concave casements therefor, each made up of a series of substantially plane-surfaced sections, the converging sections being provided with glass panels

3. The combination with a revolving door of the class described, of the adjacent, similar opposed concave casements, each made up of the three substantially plane-surfaced sections, the medial sections of the two casements being parallel, and the side sections converging, and the glass panels arranged in the converging sections flush with their inner faces.

4. In combination with a revolving door of the class described, the oppositely-arranged similar concave casements, each made up of three plane-surfaced sections, the medial sections of the two casements being parallel with each other, and the converging sections being hinged thereto.



5. In combination with a revolving door of the class described, the opposite, similar, concave, polygonal casements, each casement being made up of three sides or sections, the medial section being fixed, and the connected sections hinged thereto, and provided with glass panels flush with their inner faces.

6. In a structure of the class described, the combination with the revolving door, of the three-sided polygonal casement, the medial section or side being fixed, and the others hinged thereto, the springs for normally holding said hinged sections inturned or converging, and the glass panels in said hinged sections arranged flush with their inner faces.

7. In a structure of the class described, the combination with the revolving door, of the opposite, similar, concave, three-sided polygonal casements, the medial section of each being fixed and the side sections hinged thereto, means for elastically holding the hinged sections inturned or converging toward the door, the stop limiting said inturned movement, and the glass panels in said hinged sections flush with their inner faces.

8. In a structure of the class described, the combination with the revolving door, its pivots, and the inclosing door-casements, of the traveling connections or supports for said pivots arranged to yield to a predetermined excess of pressure so as to carry the door bodily out of the casements.

9. In a structure of the class described, in combination the fixed casements, the door arranged to rotate within the same, and the traveler pivots for said door adapted under normal conditions to hold the door in place within the casements, but under excess of pressure to carry the door out from said casements.

10. The combination with the revolving door, of the concave but non-circular casement therefor, the extension-strips upon the wings of said door, and means for holding said strips in constant bearing-contact with the adjacent casement.

11. The combination with the revolving door having radiating wings, of the concave but non-circular casements therefor, and the flexible extension-strips upon the wings of said door adapted to maintain constant contact with the adjacent casement in the operation of the door.

12. In a revolving-door structure, the polygonal concave casements and the spring-controlled hinge connection for the outwardly-projecting parts of said casements tending to hold them in inturned position, but yielding to pressure outwardly.

13. In a structure of the class described, the combination with the revolving door and concave casements therefor, of glass panels arranged in said casements substantially flush with the inner faces thereof.

14. In a structure of the class described, the combination with the hinged casement-sections, of supporting hinged sections or panels interposed between the edges of said casement-sections and the wall of the doorway.

15. In a structure of the class described, the combination with the hinged casement-sections, of bracing-sections interposed between the edges of said casement-sections and the side walls, and provided with glass panels.

16. In a structure of the class described, the combination with the door, of the central ball-caster upon the same, the floor-socket to receive the caster, and the yielding top pivot, whereby the door is adapted to be held under ordinary circumstances in rotative position, but will be unshipped from its pivotal supports under excessive lateral pressure.

17. In a structure of the class described, the combination with the revolving door, of the caster-pivot for the same, made up of a socket-piece upon the door, the ball-caster fitted thereto, and the ball-bearings for the same in said socket.

18. In a structure of the class described, the combination with the revolving door, of the ball-caster secured to the bottom of the same, and adapted to fit into a floor-socket, a pivot-pin fixed in the ceiling of the doorway, and adapted to fit into a socket in the top of the door, and being free to be moved vertically, and the plate or disk carried by said pivot, and standing normally close to the door, whereby the unshipping of the caster from its socket will cause the door to tilt and lift said plate and pivot out of engagement with it, and permit it to be carried out of engagement with the doorway.

19. In a structure of the class described, the combination with the hinged casement-sections, of a supplementary section hinged to the outer edge of one of said sections, and adapted to be folded across the doorway, so as to interlock with the opposite casement-section, and thereby close the doorway.

20. In a structure of the class described, in combination with the wing of the door, of a hollow hand-rail therefor, the locking-bolt working in said hand-rail, and the socket in the casement to receive said bolt, so as to lock said door in fixed position.

21. In a revolving-door structure, the combination with the casement thereof, and the jamb or side wall of the building-doorway, said casement and jamb being so constructed and arranged as to permit the admission of light into the intermediate space, of the section interposed between the inner edge of said casement and said jamb or wall, and provided with a glass panel.

22. In combination with a revolving door of the class described, a wing extension-piece, a spring-restrained hinge connection between it and the wing, and the flexible strip carried by said extension-piece.

23. In a revolving door, the combination with the alternating fixed and hinged radiating wings, of the jointed braces for connecting adjacent wings.

24. In combination with the wing of a door of the class described of a rail hinged to its outer edge, the tension-spring holding the same normally abutting against the edge of the wing, the elastic strip of webbing carried by the same, and the felt edge or binding for said webbing.

25. In combination with a door of the class described, having relatively-movable radiate wings, a jointed brace for connecting the adjacent wings, having pivotal connection with said wings, and a locking device for the joint.

26. In combination with a door of the class described having relatively-movable radiate wings, the interposed jointed brace for adjacent wings, devices engaging the ends of the brace with the wings and the locking device for detachably securing such engagement at one end of the brace to its wing.

27. In combination with a door of the class described, having relatively-movable radiate wings, an interposed brace for adjacent wings having a knuckle-joint, a locking device for said joint to hold the brace extended, the pivotal connections for said brace with the door-wings, and the locking device for detachably securing the free end of the brace to its wings.

28. In combination with a door of the class described, having relatively-movable radiate wings, the jointed braces for connecting adjacent wings, and the means for locking the braces in extended position.

29. In a revolving-door structure, the combination with the concave casements provided with glass panels and the adjacent walls or jambs, of the sections interposed between the inner edges of the casements and said jambs or walls, and provided with glass panels.

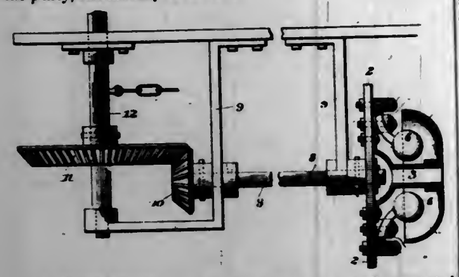
596,030. CAR-SIGNAL. CHRISTOPHER C. JONES, Savannah, Ga., assignor of one-half to J. S. Collins, same place. Filed Feb. 16, 1897. Serial No. 623,637. (No model.)

Claim.—1. In combination, a rotatable support, a plate secured to and rotatable with the said support, a gong-bell carried by the plate, and vibrating hammers carried by the plate and adapted to strike against the gong-bell, substantially as set forth.

2. In combination, a swinging hanger, a plate or pulley journaled upon a spindle at the free end of the hanger, a gong-bell carried by the plate, and vibrating hammers supported by the plate and adapted to strike against the gong bell, substantially as set forth.

3. In combination, an axle, a swinging hanger, a pulley journaled upon a spindle of the swinging hanger, a gong-bell and hammers attached to the pulley, and means for transmitting motion from the axle to the said pulley, substantially as and for the purpose set forth.

4. In combination, a swinging hanger, a pulley journaled upon a spindle of the hanger and bearing a gong-bell and hammers, an axle, and a flanged pulley for transmitting motion from the axle to the pulley, substantially as set forth.



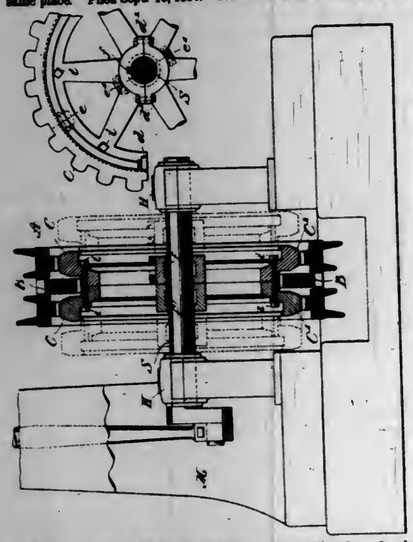
5. In combination, an axle, a swinging hanger, a pulley mounted upon a spindle of the hanger and bearing a gong-bell and hammers, a second swinging hanger, and a flanged pulley mounted upon a spindle of the second hanger and arranged to transmit motion from the axle to the aforesaid pulley, substantially as and for the purpose specified.

596,031. COLLAR-BUTTON. FRANK A. LOVELAND, Boston, Mass., assignor to Invisible Collar Button Co. Filed May 22, 1897. Serial No. 637,683. (No model.)



Claim.—A collar-button having a groove or recess in its head, and a flexible hook or pin secured to the head at one end of the groove and extending lengthwise thereof, the groove being wider than the diameter of the pin, and the pin having a pointed end adapted to be moved outwardly from the groove to engage a necktie, or to lie within the groove to be guarded by the walls thereof.

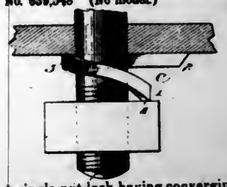
596,032. INDUCTOR-GENERATOR. POMEROY W. POWER, Pittsfield, Mass., assignor to the Stanley Electric Manufacturing Company same place. Filed Sept. 10, 1897. Serial No. 651,175. (No model.)



Claim.—1. In an inductor-generator the combination of a shaft, an inductor carried thereby consisting of two parts separately mounted thereon, the plane of division being at right angles to said shaft, either of said parts being laterally movable on said shaft, and journal boxes supporting said shaft at a considerable distance from said movable parts when the same are in operative position, substantially as described.

2. In an inductor-generator having two crowns of induced coils on the interior of a cylindrical armature, the combination of a shaft, two inductor portions movably mounted thereon, and bearings for said shaft, the space between either of said parts and the bearing nearest thereto being substantially equal to the length of said induced coils, substantially as described.

596,033. NUT-LOCK. HENRY R. ROSBCHUNG, Kalamazoo, Mich., assignor to Henry D. Laughlin, St. Louis County, Mo. Filed June 5, 1897. Serial No. 639,543. (No model.)

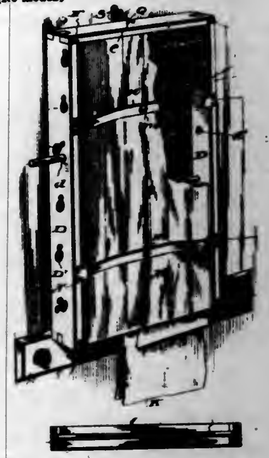


Claim.—1. A single nut-lock having converging free ends which form an acute angle or included wedge-shaped space for the reception of the bolt, one of said free ends having an upward curve, or arranged at an angle to the plane of the other free end, substantially as and for the purposes specified.

2. A single nut-lock having the form of a half-circle terminating in converging tangential free ends which form an acute angle or wedged-shaped space, one of said ends inclined to the plane of the other free end, substantially as and for the purposes specified

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596,034. DEVICE FOR HOLDING AND PRESSING TROUSERS. NATHANIEL TYLER, Jr., and WILLIAM A. LIEBER, Washington, D. C.; said Lieber assignor to said Tyler. Filed May 19, 1897. Serial No. 637,251. (No model.)



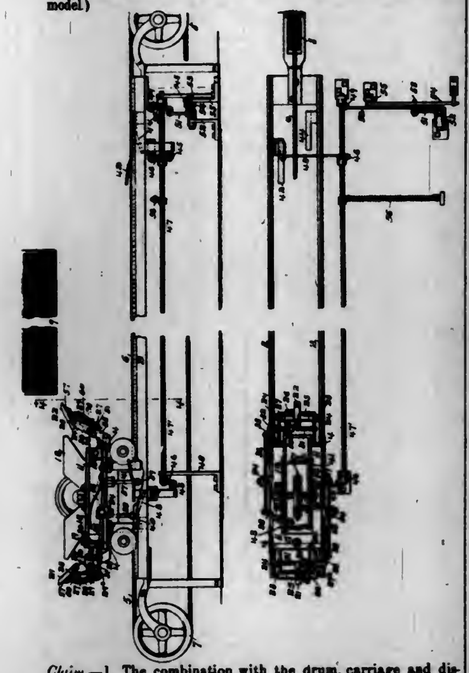
Claim.—1. A device for pressing trousers consisting of a suitable framework, supporting-bars held therein, and a board designed to be held under pressure against the overlapping folds of trousers held on said bars, substantially as set forth.

2. A device for pressing trousers, comprising a framework having a series of removable rounds mounted therein and in vertical parallel planes, combined with a detachable pressing-board and spring-clamps pivoted thereto, substantially as shown and described.

3. As an improved article of manufacture a device for holding and pressing trousers, comprising a knockdown framework having dovetailed connections and binding-screws to retain same, combined with a detachable strip to which the framework is hinged, thumb-screws for attaching the strip to a door, removable trousers-supporting bars and the presser-board, substantially as shown and described.

4. In a device for pressing trousers, the combination with a knockdown frame having dovetailed connections, the strip hinged to the framework, and designed to be attached to a door, of a series of rounds passed through apertures in the side strip of the framework with their inner ends seated in depressions in the opposite side strip, and pivoted spring retaining members designed to be held over the outer ends of the rounds, and means for holding the frame in a vertical position, substantially as shown and described.

596,035. YARN-PRINTING APPARATUS. WILLIAM J. WEBB, Yonkers, N. Y., assignor to the Alexander Smith & Sons Carpet Company, same place. Filed May 28, 1897. Serial No. 638,487. (No model.)



Claim.—1. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances adapted to yieldingly engage the material on the drum and provided with upwardly-inclined rubbing-surfaces engaging the material with progressively-increasing pressure, and means for automatically bringing one of such rubbing appliances into engagement with the material on the drum to rub the color and causing the other to remain out of such engagement therewith, on each reciprocation of the carriage, substantially as described.

2. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances yieldingly supported for engagement with the material on the drum and adapted to yield additionally at their rear edges, said rubbing appliances being provided with upwardly-inclined rubbing-surfaces engaging the material with progressively-increasing pressure, and means for automatically bringing one of such rubbing appliances into engagement with the material on the drum to rub the color and causing the other to remain out of such engagement therewith, on each reciprocation of the carriage, substantially as described.

3. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances yieldingly supported for engagement with the material on the drum, each of said appliances consisting of a block of semiyielding material beveled at its upper end to provide an upwardly-inclined rubbing-surface engaging the material on the drum with progressively-increasing pressure, and means for automatically bringing one of such rubbing appliances into engagement with the material on the drum to rub the color and causing the other to remain out of such engagement therewith, on each reciprocation of the carriage, substantially as described.

4. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances hinged to the carriage and adapted to yieldingly engage the material on the drum, said rubbing appliances being provided with upwardly-inclined rubbing-surfaces engaging the material on the drum with progressively-increasing pressure, and means for automatically bringing one of such rubbing appliances into engagement with the material on the drum to rub the color and causing the other to remain out of such engagement therewith, on each reciprocation of the carriage, substantially as described.

5. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances hinged to the carriage and yieldingly supported for engagement with the material on the drum and adapted to yield additionally at their rear edges, said rubbing appliances being provided with upwardly-inclined rubbing-surfaces engaging the material on the drum with progressively-increasing pressure, and means for automatically bringing one of such rubbing appliances into engagement with the material on the drum to rub the color and causing the other to remain out of such engagement therewith, on each reciprocation of the carriage, substantially as described.

6. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances hinged to the carriage and yieldingly supported for engagement with the material on the drum, each of said appliances consisting of a block of semiyielding material beveled at its upper end to provide an upwardly-inclined rubbing-surface for engaging the material on the drum with progressively-increasing pressure, and means for bringing one of the blocks into engagement with the material on the drum to rub the color and causing the other to remain out of such engagement therewith, on each reciprocation of the carriage, substantially as described.

7. The combination with the drum, carriage and distributing-wheel, of a rubbing appliance consisting of a rearwardly-extending block hinged to the carriage and yieldingly supported for engagement with the material on the drum the upper end of said block being rearwardly beveled to form an upwardly-inclined rubbing-surface for engaging the material on the drum with progressively-increasing pressure, and means for automatically bringing said block into engagement with the material on the drum to rub the color, substantially as described.

8. The combination with the drum, carriage and distributing-wheel, of a rubbing appliance consisting of a rearwardly-extending block of semiyielding material hinged to the carriage and yieldingly supported for engagement with the material on the drum, the upper end of said block being rearwardly beveled to form a yielding rear edge and an upwardly-inclined rubbing-surface for engaging the material on the drum with progressively-increasing pressure, and means for automatically bringing said block into engagement with the material on the drum to rub the color, substantially as described.

9. The combination with the drum, carriage and distributing-wheel, of a pair of rubbers mounted independently of each other on opposite sides of the wheel and adapted to alternately engage the drum, tripping devices, adjustable into and out of operative position, for effecting the movement of the rubbers to operative position, and means carried by the carriage for locking the rubbers thereto and retaining them in operative position, substantially as described.

10. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances mounted independently of each other in the carriage and adapted to yieldingly engage the material on the drum, connections for each, carried by the carriage, for moving it into and out of operative position and for locking it to the carriage and retaining it in operative position, and tripping devices coacting with said connections to automatically effect the reversal of said rubbing appliances, substantially as described.

11. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances hinged independently of each other to the carriage and adapted to yieldingly engage the material on the drum, connections for each, mounted independently in the carriage, for swinging it into and out of operative position and for locking it to the carriage and retaining it in operative position, and tripping devices coacting with said connections to automatically effect the reversal of said rubbing appliances, substantially as described.

12. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances hinged independently of each other to the carriage and adapted to yieldingly engage the material on the drum, operating-levers for each, pivotally mounted in the carriage, for swinging it into and out of operative position and for locking it to the carriage and retaining it in operative position, and tripping devices coacting with said levers to automatically effect the reversal of said rubbing appliances, substantially as described.

13. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances hinged independently of each other to the carriage, operating-levers for each, pivotally mounted in the carriage, for swinging it into and out of operative position and for locking it to the carriage and retaining it in operative position, springs interposed between said levers and their rubbing appliances for yieldingly supporting the latter, and tripping devices coacting with said levers to automatically effect the reversal of said rubbing appliances, substantially as described.

14. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances hinged independently of each other to the carriage, operating-levers for each, pivotally mounted in the carriage, for swinging it into and out of

operative position and for retaining it in operative position, springs interposed between said levers and their rubbing appliances for yieldingly supporting the latter, springs connected to the carriage for retaining said rubbing appliances in inoperative position and tripping devices coacting with said levers to automatically effect the reversal of said rubbing appliances, substantially as described.

15. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances mounted independently of each other in the carriage and adapted to yieldingly engage the material on the drum, tripping devices for effecting their movement to operative position adjustable into and out of operative position and other tripping devices for effecting their movement out of operative position, substantially as described.

16. The combination with the drum, carriage and distributing-wheel, of alternately operating rubbing appliances on opposite sides of the wheel, tripping devices adjustable into and out of operative position for effecting the movement of the rubbing appliances to operative position, and other tripping devices for effecting the movement of the rubbing appliances out of operative position, substantially as described.

17. The combination with the drum, carriage and distributing-wheel, of alternately-operating rubbing appliances on opposite sides of the wheel, tripping devices for effecting the movement of the rubbing appliances to operative position, and other tripping devices for effecting the movement of the rubbing appliances out of operative position, substantially as described.

18. The combination with the drum, carriage and distributing-wheel, of a pair of alternately-operating rubbing appliances hinged independently of each other to the carriage, operating-levers for each, tripping devices for engaging said levers to effect the movement of said rubbing appliances into operative position, said tripping devices being movable into and out of position for engagement therewith and other tripping devices for effecting their movement to inoperative position, substantially as described.

19. The combination with the drum, carriage and distributing-wheel, of the pivoted rubbing appliance 21, rock-shaft 31, connections between said rock-shaft and rubbing appliance, lever 35 pivotally connected to said rock-shaft and tripping mechanism for actuating said lever substantially as described.

20. The combination with the drum, carriage and distributing-wheel, of the rubbing appliance 21, link 27 for engaging the same, a spring interposed between said link and rubbing appliance, lever 35, connections between said lever and link, and tripping devices for actuating said lever, substantially as described.

21. The combination with the drum, carriage and distributing-wheel, of the rubbing appliance 21, link 27 for engaging the same, rock-shaft 31, connections between said rock-shaft and link, lever 35 pivotally connected to said rock-shaft, and tripping devices for actuating said lever, substantially as described.

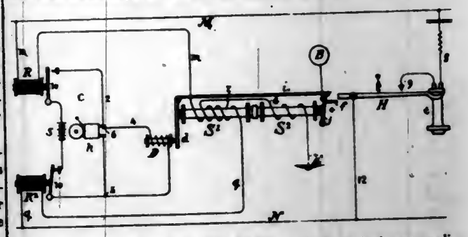
22. The combination with the drum, carriage and distributing-wheel, of the rubbing appliance 21 provided with rearwardly-beveled upper end and rearwardly-inclined support therefor pivoted to the carriage, and means for adjustably connecting said rubbing appliance to its support, substantially as described.

23. The combination with the drum, carriage and distributing-wheel, of the rubbing appliance 21 provided with rearwardly-beveled upper end and rearwardly-inclined support therefor pivoted to the carriage, wedge 57 entering a corresponding recess in the rubbing appliance, and a screw or screws connecting said wedge to said support, substantially as described.

596,086. AUXILIARY APPARATUS FOR SELECTIVE ELECTRICAL SIGNALS. GEORGE W. WHITEHORE, Brooklyn, N. Y., assignor to the American Telephone and Telegraph Company, of New York. Filed Sept. 2, 1897. Serial No. 650,400. (No model.)

Claim.—1. In a party-line telephone system, a telephone lock-out appliance comprising the automatic switch-lever; in combination with an electromagnet having two reversely-wound or connected coils in branches extending from the main-circuit conductors respectively, to a ground connection; a second electromagnet having a single coil contained in said ground connection; an actuating-armature for the said double-wound electromagnet; a hook or detent lever attached thereto; an armature or shutter, for the said single-wound magnet normally held in its forward position by the said hook lever, but adapted to move into its backward position when released therefrom by the operation of the said actuating-armature, and to be restored to its forward position by the direct attraction of the single-wound magnet; and a locking-pin carried by the said shutter-armature, and adapted to lock and unlock the switch-lever, according as the said armature is in its backward or forward positions; substantially as and for the purposes set forth.

2. In a telephone party-line metallic circuit, a lock-out device at each station, consisting of two electromagnets having the same core, or cores in line with each other, one having two reversely-wound or connected hélices, and the other having a single helix grounded at one end, the said two helices being each connected between the remaining end of the said single helix, and the two conductors of the main circuit respectively; an armature-shutter for the single-wound magnet carrying a locking-pin; an automatic telephone-switch moving within range of the said locking-pin, when the shutter carrying the same is in its backward position; an armature for the double-wire magnet; and a hook or detent lever controlled thereby, and normally engaging the said single-wound armature, but adapted to release the same, and lock the telephone switch on the operation of the said controlling-armature; substantially as described.



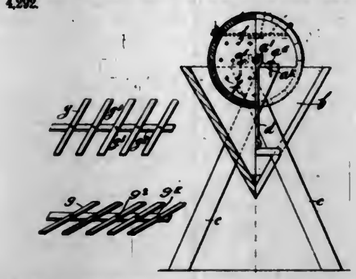
3. In a party-line telephone system, a telephone lock-out appliance comprising the automatic switch-lever; in combination with an electromagnet having two reversely-wound or connected coils, in branches extending from the main circuit-conductors respectively to a ground connection; a second electromagnet having a single coil contained in said ground connection; an armature or shutter for the single-wound electromagnet carrying a locking-pin for the said switch-lever; an actuating-armature for the double-wound electromagnet; and a hook-lever attached to said actuating-armature and engaging by its hook the said locking-pin armature, maintaining the same normally in its unlocking position, but adapted to release it when the said actuating armature is attracted into its forward position; substantially as described.

4. The combination in a two-wire signal and telephone circuit, extending between a central station and a series of substations, of a source of current; and keys to produce different combinations on the conductors of said circuit at the said central station; with lock-out devices at each substation, consisting of a telephone switch-lever controlling the connection of the telephones with the main circuit; locking and unlocking electromagnets having the same core, or longitudinally-adjacent cores, the locking-magnet having two reversely-wound or connected coils in branches between the main conductors respectively and the ground, and being adapted to respond to currents of both directions in either, or to currents of diverse, direction, simultaneously in both main conductors, and the said unlocking electromagnet having a single coil included in the common conductor extending from the locking-magnet coils to ground, and being adapted to operate for the withdrawal of the lock only when currents of like direction simultaneously traverse both main conductors; a shutter carrying a locking-pin for the said switch-lever, constituting an armature for the unlocking-magnet; an armature for the locking-magnet; and an armature-lever attached thereto at one end and having a detent or hook normally engaging the said shutter-armature at its other end; substantially as and for the purposes specified.

5. In a lock-out appliance for the telephones of the substations of a double-conductor party-line telephone and signaling circuit, the combination with an automatic telephone lever-switch; a compound electromagnet, having on a portion of its core two reversely-wound or connected exciting-coils in earth branches of the two main conductors respectively, and on the remaining portion of said core a single exciting-coil in series with both of the others; an armature for the double-wound end of said magnet, and a detent-lever attached thereto; and an armature-shutter at the other end of said magnet controlled by said lever, and controlling a locking-pin for the said switch lever; of means as indicated, for preventing the operation of the telephone lock-out at the particular substation which is being signaled, substantially as specified.

6. In a lock-out appliance for the telephones of the substations of a double-conductor party-line telephone and signaling circuit, wherein each station is signaled by a different current combination, an automatic telephone lever-switch; the compound locking and unlocking magnet S', S^2; the actuating armature *d*; the locking-armature *i* and the locking-pin carried thereby; combined with the station-bell local circuit; and the lock-preventing electromagnet D contained therein, and arranged to act on the said actuating-armature, in a direction opposite to that in which it is acted upon by the said locking-magnet at the station whose particular call-current combination is being transmitted; substantially as and for the purposes specified.

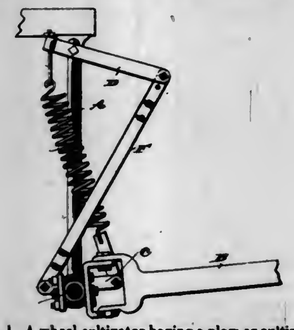
596,087. MACHINE FOR WASHING CLOTHES. ROBERT B. WILLIAMS, Invercargill, New Zealand. Filed Sept. 6, 1895. Serial No. 561,657. (No model.) Patented in New Zealand Feb. 11, 1895, No. 7,421; in New South Wales Sept. 9, 1895, No. 6,045; in Victoria Sept. 11, 1895, No. 12,504; in Queensland Sept. 11, 1895, No. 3,119; in England Oct. 3, 1895, No. 18,500, and in South Australia June 1, 1896, No. 4,292.



Claim.—1. In combination with the rotary cylinder of a washing-machine having an opening, a collapsible grating therein, substantially as described.

2. In combination with the cylinder of a washing-machine, a chain or chains arranged therein among the clothes to produce a rubbing action thereon, substantially as described.

596,088. SPRING FOR CULTIVATOR-BEAMS. WILLIAM D. BRUNDAGE, Albion, Mich. Filed July 3, 1896. Serial No. 597,996. (No model.)



Claim.—1. A wheel-cultivator having a plow or cultivator beam pivoted to move up and down vertically, a spring-balance for holding it in position when lifted or depressed to any point within a certain range of its movement, substantially as described.

2. A wheel-cultivator having a main frame, a plow or cultivator beam pivoted to the main frame to permit said beam to move up and down vertically, a spring and adjusting mechanism therefor balancing said beam to hold it in position when moved to any point within a certain range of its vertical movement, substantially as described.

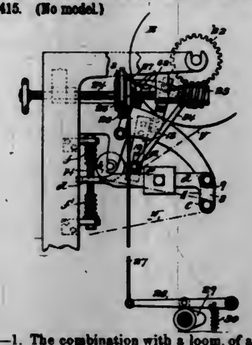
3. In a wheel-cultivator, the combination with the main frame, of a pivoted plow or cultivator beam, and a spring and lever interposed between said beam and the main frame and holding the said beam balanced at any point within a certain range of movement, substantially as described.

4. In a wheel cultivator, the combination with the main frame, of a pivoted plow or cultivator beam, and a spring and lever interposed between said beam and main frame and adjusting means for said spring and lever for holding the said beam balanced in its operative position, substantially as described.

5. A wheel-cultivator having a main frame, a pivoted plow or cultivator beam, a lever pivoted upon the said main frame, a spring between said lever and plow-beam and adjusting mechanism for said spring connected with said lever, whereby the said beam is balanced when brought to different positions in its range of movement, substantially as described.

6. In a cultivator the combination with the main frame and pivoted plow-beam, of a lever pivoted to the main frame, arms connected for vertical movement with said plow-beam and extending on each side of its pivot, a spring connecting the rearwardly-extending arm with the forward end of said lever, and a link connecting the forwardly-extending arm with the rearward end of said lever, substantially as described.

596,089. PATTERN MATCHING MECHANISM FOR LOOMS. ALEXANDER CLAPPERTON, Yonkers, N. Y. Filed Apr. 16, 1897. Serial No. 632,415. (No model.)



Claim.—1. The combination with a loom, of a pattern-matching mechanism provided with a member having a reciprocating movement controlled by the pattern-warp, and means controlled by the movement of said member for varying the rate at which the pattern-warp is taken up in the pattern for the correction of the pattern-registry, substantially as described.

2. The combination with a loom, of a pattern-matching mechanism having a member over which the pattern-warp passes, said member being moved in one direction by the warp as the warp is taken up in the pattern and moved in the opposite direction as the warp is let off, and means controlled by the movement of said member for varying the rate at which the warp is taken up in the pattern for the correction of the pattern-registry, substantially as described.

3. The combination with a loom, of a pattern-matching mechanism having a reciprocating member moved by the pattern-warp, and means controlled by said member for varying the tension of the pattern-warp for the correction of the pattern-registry, substantially as described.

4. The combination with a loom, of a pattern-matching mechanism having a tension-bar for the pattern-warp, and means controlled by the movement of said tension-bar for varying the tension of the pattern-warp for the correction of the pattern-registry, substantially as described.

5. The combination with a loom, of a pattern-matching mechanism having a reciprocating member moved by the pattern-warp and a spring opposing the movement of said member to vary the tension of the pattern warp for the correction of the pattern-registry, substantially as described.

6. The combination with a loom, of a pattern-matching mechanism having a reciprocating member moved by the pattern-warp, and means for opposing and assisting the movement of said member to vary the tension of the pattern-warp for the correction of the pattern-registry, substantially as described.

7. The combination with a loom, of a pattern-matching mechanism having a tension-bar for the pattern-warp, and springs acting upon said bar to oppose and assist its movement by the pattern-warp and brought into action to vary the tension on excess of movement of the bar in either direction, substantially as described.

8. The combination with a loom, of a tension-bar for the pattern-warp, an arm carried by said bar, and springs between which said arm reciprocates as the pattern-warp is let off and taken up in the pattern and acting upon said arm to increase or decrease the pressure on the tension-bar on excess of movement of the arm in either direction, substantially as described.

9. The combination with a loom and its pattern-warp beam, of a roll over which the pattern-warp passes from the warp-beam and adapted to hold the warp against slip, means for rotating said roll intermittently for the advance of the warp from said roll, and means controlled by the pattern-warp between said roll and the pattern to vary the tension of the pattern-warp for the correction of the pattern-registry, substantially as described.

10. The combination with a loom, and its pattern-warp beam of a roll over which the pattern-warp passes from the warp-beam and adapted to hold the warp against slip, a tension-bar over which the warp passes from said roll, means controlled by the movement of said tension-bar to vary the tension on the pattern-warp, means for rotating said roll intermittently for the advance of the warp from said roll, substantially as described.

11 The combination with a loom, its pattern-warp beam, and let off mechanism therefor, of a roll over which the pattern-warp passes from the warp-beam and adapted to hold the warp against slip, a tension-bar over which the warp passes from said roll, means controlled by the movement of said tension-bar to vary the tension

on the pattern-warp, means for rotating said roll intermittently for the advance of the warp from said roll, and means for controlling the warp-beam let-off by the movement of the roll, substantially as described.

12. The combination with a loom, its pattern-warp beam and let-off mechanism therefor, of a second intermittently-operating let-off device to which the warp passes from the beam, means controlled by the pattern-warp after it leaves said second let off device to vary the tension on the pattern-warp for the correction of the pattern-registry, and means for controlling the warp-beam let-off by the action of said device, substantially as described.

13. The combination with a loom, its pattern-warp beam, and let-off mechanism therefor, of a second intermittently-operating let-off device to which the warp passes from the beam, a tension-bar over which the warp passes from said device, and means controlled by the movement of said tension-bar for varying the tension on the pattern warp, substantially as described.

14. The combination with a loom, its pattern-warp beam, and let-off mechanism therefor, of a second intermittently-operating let-off device to which the warp passes from the beam, means controlled by the pattern-warp after it leaves said second let-off device to vary the tension on the pattern-warp for the correction of the pattern-registry, a tension-bar between the warp-beam and said let-off device, and means for controlling the warp-beam let-off by said tension-bar, substantially as described.

15. The combination with a loom, its pattern matching mechanism, and warp-beam and let-off mechanism therefor, of a second intermittently-operating let-off device to which the warp passes from the warp-beam, and means for controlling the warp-beam let-off mechanism by the action of said device, substantially as described.

16. The combination with a loom, its pattern-matching mechanism, and warp-beam and let off mechanism therefor, of a second intermittently-operating let-off device to which the warp passes from the warp-beam, a tension bar for the warp between the warp-beam and let-off device, and means for controlling the warp-beam let-off mechanism by the movement of the tension-bar, substantially as described.

17. The combination with a loom, its pattern-matching mechanism, and warp-beam and let-off mechanism therefor, of an intermittently-operated roll over which the warp passes from the warp-beam adapted to hold the warp against slip, a tension-bar between the roll and pattern-warp beam, and means for controlling the let-off by the movement of said tension-bar, substantially as described.

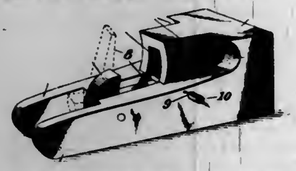
18. The combination with a loom, its pattern-matching mechanism, and warp-beam and let-off mechanism therefor, and a draw-off roll and actuating mechanism therefor, of an intermittently-operated let-off roll over which the warp passes from the warp-beam, means for controlling the warp-beam let-off by the action of said roll, and connections for throwing the roll-actuating mechanism out of operation by the throwing out of operation of the draw-off roll, substantially as described.

19. The combination with beam B, and let-off mechanism therefor having pawl-lever 26 and means for actuating the same, of a catch 31 engaging said lever at the end of a let-off movement to hold it out of operative position, tension-roll *a*, and means actuated by said roll for tripping the catch for the let-off movement, substantially as described

20. The combination with an intermittently-operated let-off, of tension-bar c, arm *d* moving with said bar, and springs *f*, *f'* on opposite sides of said arm, arranged to oppose and assist the movement of the arm by the warp to increase or decrease the warp-tension substantially as described.

596,040. CAR-COUPLING. JAMES C. GRIFFITH, Madison, N. C.

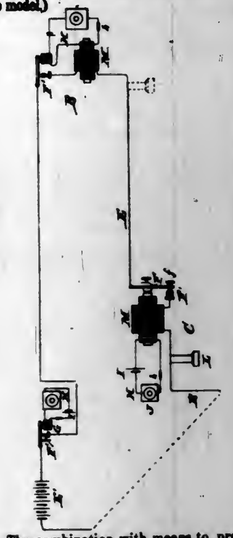
Filed June 1, 1897. Serial No. 638,839. (No model.)



Claim.—1. A draw-head having its forward end reduced, arms formed on said reduced portion, the enlarged portion of the draw-head having cavities formed in its sides, whose bottom walls are a continuation of the upper surface of the arms and reduced portion, said draw-head being formed with a longitudinal passage, a coupler-hook pivoted within said passage, and a pin adapted to be inserted transverse said draw-head to hold the hook in the proper position, to prevent the cars from becoming uncoupled, substantially as set forth.

2. A car-coupler comprising a head having its forward portion reduced, arms projecting from said reduced portion, cavities or recesses formed in the sides of the enlarged portion of the draw-head, the upper surface of the arms and reduced portion, and the bottom walls of the cavity being inclined, and forming a continuation of each other, said draw-head formed with a longitudinal passage, a coupler-hook pivoted in the forward end of said passage and eccentrically thereto, said hook being formed with a stem portion, and means for holding said hook in the proper position to hold the cars coupled, substantially as set forth.

596,041. ELECTRICAL TRANSMISSION OF ENERGY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to George W. K. Stephens, same place. Original application filed Feb. 23, 1893, Serial No. 85,897. Divided and this application filed Oct. 4, 1893. Serial No. 325,968. (No model.)



Claim.—1. The combination with means to produce and maintain a continuous current and means to convert it into high-tension currents of alternately rising and falling potential, of a conductor for conveying said currents, an induction-coil having its fine wire in circuit with the line, a local circuit permanently closed when working including the coarse wire of the induction-coil, and a translating device in said local circuit.

2. A line conductor conveying high-tension currents, of alternately rising and falling potential, a variable resistance in the line-circuit, an induction-coil having its fine wire in circuit with the line, a local circuit including the coarse wire of the induction coil, and a translating device in said local circuit, consisting of an electromagnet to vary said variable resistance.

3. The combination with a source of electricity of one sign and means to convert it into currents of alternately-varying potential, of a line conductor extending between two distantly-located stations and conveying said currents of electricity of alternately-varying potential, an induction-coil at the distant station having its fine wire in circuit with the line, a local circuit permanently closed when working in circuit with the coarse wire of said induction-coil and having generated therein currents of lower potential and greater volume as compared with the currents in the line, but having the same relative variation in potential, and an electromagnetic translating device in said local circuit.

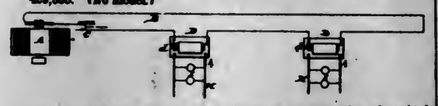
4. A main electric generator or source of supply, and means operating without interrupting the current to vary the potential of the current generated and cause it to alternately rise and fall in potential, a line conductor for conveying said varying-potential current to a distant station, an induction-coil at said distant station having its fine wire in circuit with the line conductor, and a permanently-closed local circuit including the coarse wire of the induction-coil.

5. A line conductor conveying currents of alternately increasing and decreasing potential, a series of local circuits, and corresponding induction-coils each of which has its fine-wire coil energized by the current in the same line conductor, and separate local circuits each connected with the coarse-wire coil of the corresponding induction-coil.

6. The combination of a source of positive electric current, means for transforming said current without interrupting the continuity into a current having an alternately increasing and decreasing potential, a line conductor to convey said alternately increasing and decreasing potential current to a distance, a local circuit permanently closed upon itself when in operation and having a translating device therein, and an induction-coil having its coarse wire in circuit with the local circuit and its fine wire in circuit with the line conductor.

7. The method of transmitting electrical energy consisting in transmitting an electric current of high tension and small volume over a line-circuit and at one or more places on the line-circuit, producing by means of induction-currents of low tension and relatively large volume, and supplying said low-tension currents to one or more translating devices in said local circuits.

596,042. TRANSMISSION OF ELECTRICAL ENERGY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the General Electric Company, of New York. Original application filed June 18, 1887, Serial No. 241,729. Divided and this application filed Apr. 30, 1892. Serial No. 429,836. (No model.)



Claim.—1. The improvement in the art of transmitting electrical energy to and utilizing it at a distance from the source, which consists in generating maintained and practically uniform currents of high tension at one station and sending the same over a line of conductors to another station, and generating maintained and practically uniform currents of lower tension at the second station by the inductive influence of the high-tension currents.

2. The improvement in the art of transmitting electrical energy to and utilizing it at a distance from the source, which consists in generating maintained and practically uniform currents of high tension at one station and sending the same over a line of conductors to another station, generating maintained and practically uniform currents of lower tension at the second station by the inductive influence of the high-tension currents, and converting these maintained low-tension currents into other forms of energy, such as heat, light, &c.

3. The improvement in the art of transmitting electrical energy to and utilizing it at a distance from the source, which consists in generating maintained and practically uniform alternating currents of high tension at one station and sending the same over a line of conductors to another station, and generating maintained and practically uniform alternating currents of lower tension at the second station by the inductive influence of the high-tension currents.

4. The improvement in the art of transmitting electrical energy to and utilizing it at a distance from the source, which consists in generating maintained and practically uniform alternating currents of high tension at one station and sending the same over a line of conductors to another station, generating maintained and practically uniform alternating currents of lower tension at the second station by the inductive influence of the high-tension currents, and converting these maintained low-tension alternating currents into other forms of energy, such as heat, light, &c.

5. The method of transmitting electrical energy consisting in transmitting an electric current of high tension and small volume over a line-circuit and at one or more places on the line-circuit, producing by means of induction maintained and practically uniform currents of low tension and relatively large volume, and supplying said low-tension currents to one or more translating devices in said local circuits.

6. The method of transmitting electrical energy consisting in transmitting an electric current of high tension and small volume over a line-circuit and at one or more places on the line-circuit, producing by means of induction-currents of low tension and relatively large volume and supplying said low-tension currents to one or more translating devices in said local circuits, and regulating the line-current to vary all of the currents in the local circuits simultaneously.

7. The combination of a dynamo-electric generator for generating a varying-potential or interrupted current, a line or primary circuit of high resistance, one or more induction-coils or secondary generators having their fine-wire coils in circuit with the line-circuit, one or more local or secondary circuits of low resistance respectively connected with the coarse-wire coils of the induction-coils, a resistance-changer in the line-circuit to vary the line-current, and switches to cut one or more of the local circuits out of action.

8. The combination of a dynamo-electric generator for generating a primary current of high tension, a line-circuit a secondary generator or induction-coil having its fine-wire coil included in the line or primary circuit, a local circuit including the coarse-wire coil of the secondary generator, an electric lamp or translating device in said local or secondary circuit and means to interrupt the current flowing over the line or primary circuit and through the fine wire of the secondary generator.

9. The combination of a dynamo-electric generator for currents of high tension, a line or primary circuit, a secondary generator having its fine-wire coil in circuit with the line, a local or secondary circuit in series with the coarse-wire coil of the secondary generator, two or more electric lamps or translating devices for currents of low tension in multiple connection with the local or secondary circuit, and a regulator to simultaneously control the current in the line and local circuit.

10. The combination of a dynamo-electric generator for generating currents of high tension, an induction-coil having a magnetic-metal pole, a line or primary circuit including the fine-wire coil, a current-interruper for the line-circuit actuated by the magnetic pole of the induction-coil, a local or secondary circuit of low resistance in circuit with the coarse-wire coil of the induction-coil, and a translating device in said local or secondary circuit.

11. A secondary generator for electrical transmission of energy consisting of the combination of a fine-wire coil, a line-circuit including the said fine-wire coil, an interrupter for the current passing through said fine-wire coil, and a coarse-wire coil wound parallel to the fine-wire coil, and a local circuit including the coarse-wire coil.

12. A secondary generator for electrical transmission of energy consisting of the combination of a fine-wire coil, a line-circuit including the said fine-wire coil, an interrupter for the current passing through said fine-wire coil, a coarse-wire coil wound parallel to the fine-wire coil, a local circuit including the coarse-wire coil, and a frame of magnetic material upon or within which the coils are wound.

13. The combination of a source of interrupted electric current of high tension, a line or primary circuit, a high-resistance coil in circuit with said line-circuit a low resistance coil parallel and in close proximity to the high-resistance coil, a local or secondary circuit including said low-resistance coil, and a frame of magnetic material in close proximity upon which the coils are wound.

596,043. PROCESS OF DISTILLING ACETIC ACID. CARL VON DER LINDE, Crobild, Germany. Filed June 22, 1895. Serial No. 554,248. (No specimens.) Patented in Germany Nov. 20, 1894, No. 82,415; in England Feb. 18, 1895, No. 3,477; in Hungary June 5, 1895; No. 41,525; in France June 9, 1895, No. 246,058; in Belgium July 14, 1895, No. 123,504, and in Austria Aug. 9, 1895, No. 45/2,831.

Claim.—1. The process of directly obtaining pure and colorless acetic acid free from sulfurous acid, acetone and empyreumatic products, by the reaction of a pyroacetate and mineral acid, the simultaneous decomposition of the mixture and distillation of acetic acid being carried on in a closed vessel within which a maximum vacuum is maintained (not less than six hundred millimeters of the mercury column) at a temperature below that at which the mineral acid attacks the tarry matters, and below that at which acetate and the formed acetic acid decompose, substantially as described.

2. The process of directly obtaining pure acetic acid by the reaction of sulfuric acid upon a pyroacetate, the simultaneous decomposition of the mixture and distillation of the acetic acid being effected in a closed vessel in which a maximum vacuum such as specified is maintained, the operation being conducted at a lower temperature than that at which the sulfuric acid attacks the tarry matters of the pyroacetate, substantially as described.

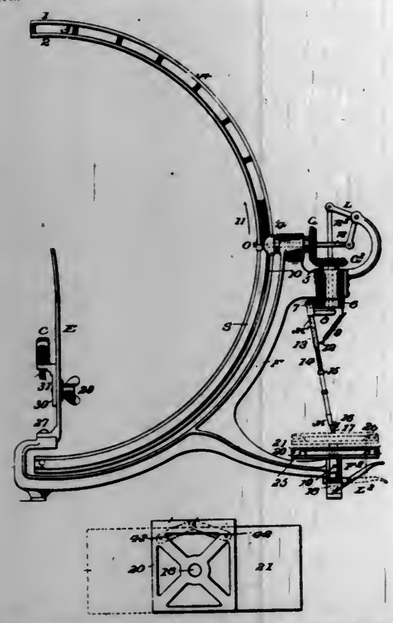
596,044. PERIMETER. EMIL B. MEYROWITZ, Ridgefield, N. J., and FERDINAND BUCHSBOM, New York, N. Y., assignors to the Meyrowitz Manufacturing Company, Ridgefield, N. J. Filed Mar. 26, 1897. Serial No. 629,219. (No model.)

Claim.—1. The combination with a perimetric object and means for converting its movement across the field of vision into a horizontal rearward movement, of a vertical-motion-transmitting rod, means for converting said rearward movement into a downward movement of said rod, a lever-shaped marker-carrier acted on by said rod, a chart-carrying table subjacent to said marker-carrier, and suitable supports for the moving parts, substantially as hereinbefore specified.

2. The combination with a perimetric object and means for converting its movement across the field of vision into a horizontal rearward movement, of a downwardly-pressing lever which receives said movement, a vertical sliding rod acted on by said lever, a lever-shaped marker-carrier acted on by said rod, a subjacent chart-carrying table, and suitable supports for the moving parts, substantially as hereinbefore specified.

3. The combination with a perimetric object and means for converting its movement across the field of vision into a horizontal rearward movement, of a vertical-motion-transmitting rod, means for converting said rearward movement into a downward movement of

said rod, a swinging marker-carrier acted on by said rod, a spring retracting said marker-carrier, a subjacent chart-carrying table, and suitable supports for the moving parts, substantially as hereinbefore specified.



4. The combination with a perimetric object of means for transmitting its movement across the field of vision to a recording-marker comprising a swinging marker-carrier in the form of an L-shaped lever, and a subjacent chart-carrying table, movable upwardly to press the chart against said marker; the vertical arm of said marker-carrier being provided with an open joint and with a pressure-equalizing tensile spring, substantially as hereinbefore specified.

5. In a self-recording perimeter, a chart-carrying table having two positions of rest for diagrams side by side corresponding with the respective eyes, and movable laterally from one position to the other.

6. In a self-recording perimeter, a chart-carrying table comprising a laterally-movable top, a vertically-movable support for said top, and means for elevating said support to press the chart against a marker above the same.

7. A chin-rest composed of a bracket having a fixed support and an eccentric movable chin-piece, supported on said bracket, having a concavity at top the center of which is located to one side of and bears the same relation to the point of fixation in the respective positions of the chin-piece as the chin bears to the eye under examination.

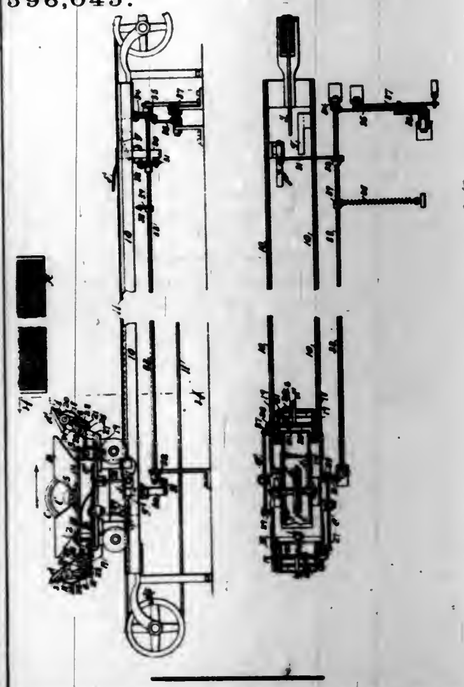
596,045. YARN-PRINTING MACHINE. WILLIAM J. WEBB, Yonkers, N. Y., assignor to the Alexander Smith & Sons Carpet Company, same place. Filed Nov. 1, 1897. Serial No. 657,020. (No model.)

Claim.—1. In an apparatus for printing or coloring yarn or similar material by applying successive streaks of color thereto, the combination with the color-wheel, of a rubber constructed and positioned to act upon only a portion of the stripe of yarn being printed and to overlap and act upon the previously-printed yarn at one side of the stripe, substantially as described.

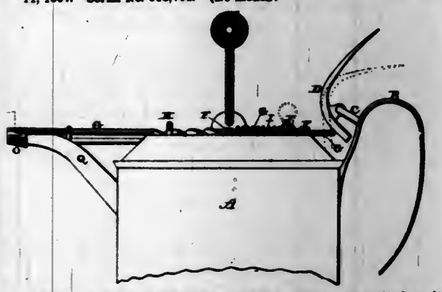
2. In an apparatus for printing or coloring yarn or similar material by applying successive streaks of color thereto, the combination with the color-wheel, of a rubber constructed and positioned to act upon only a portion of the stripe of yarn being printed and to overlap and act upon a portion only of the next previously-printed stripe, substantially as described.

3. In an apparatus for printing or coloring yarn or similar material by applying successive streaks of color thereto, the combination with the color wheel, of a rubber constructed and positioned to act upon more than one-half and less than the whole of the stripe of yarn being printed and to overlap and act upon more than one-half and less than the whole of the next previously-printed stripe, substantially as described.

596,045.



596,046. OIL-CAN. JOHN H. WOLFF, Roseville, Ohio. Filed Jan. 11, 1897. Serial No. 618,761. (No model.)



Claim.—A can provided with a handle, a support attached to the handle, a lever pivoted upon the support, and a spring-actuated endwise-moving and partially-rotating rod placed upon the top of the can, and which rod is formed into or provided with a spiral at a point between its ends, combined with a suitable guide A upon the top of the can, through which the spiral passes for the purpose of causing the rod to partially rotate, an arm projecting from the rod, and carrying a cover to close the vent, suitable guides attached to the can for retaining the rod in position, and a cover upon the outer end of the rod for closing the spout, substantially as specified.

REISSUES.

11,642. DEVICE FOR BRIDGING JOINTS OF RAILWAY-RAILS. THOMAS S. MCKINNIE, Cleveland, Ohio, assignor to the McKinnie Rail Bridge Company, same place. Filed Nov. 1, 1897. Serial No. 657,090. Original No. 561,602, dated June 9, 1896.

Claim.—1. A rail-bridging device having a double-pointed flat top, tapering sides, and a longitudinally-curved bottom, substantially as described.

2. A rail-bridging device having a double-pointed flat top, an intermediately-depending stem, sides tapering from the top surface downward and inward to a common longitudinal line, and a longitudinally-curved bottom, the curve terminating at the apexes of the pointed top, substantially as described.



3. A rail-bridging device having a flat elongated top, and a longitudinally-curved bottom, the curve beginning substantially at the upper edge or top of the ends and extending downward and inward for the purpose described.

4. A rail-bridging device comprising a flat double-pointed top, substantially V-shaped in cross-section, the bottom forming the segment of a longitudinal circle for the purpose described, combined with the rails having registering notches correspondingly shaped in cross-section and longitudinally, substantially as described.

5. A bridging device for rail-joints having a central stem and opposite arms substantially V-shaped in cross-section and flat over its top, in combination with the rails having notches in their ends corresponding to the said arms, whereby when the device is in working position the top surface thereof is made flush with the top of the rails, substantially as described.

6. A rail-bridging device consisting of a double-pointed flat top, having a longitudinally-curved bottom forming the segment of a circle, substantially as described.

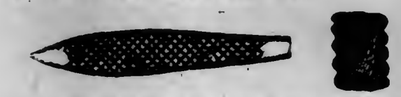
DESIGNS.

28,057. BUTTON OR BADGE. WILLIAM STEELE, Allegheny, Pa. Filed Apr. 6, 1897. Serial No. 631,027. Term of patent 3½ years.



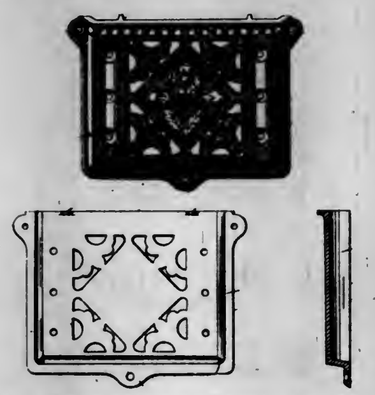
Claim.—The design for a button or badge, substantially as herein shown and described.

28,058. CIGAR. ELIAS WEINREICH, Dayton, Ohio. Filed May 5, 1897. Serial No. 635,264. Term of patent 3½ years.



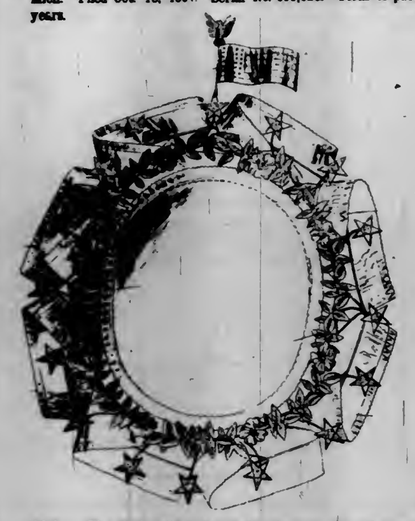
Claim.—The design for a cigar as herein shown and described.

28,059. BRACKET AND PENCIL-HOLDER. EDGAR O. SELBY, Coshocton, Ohio. Filed Oct. 11, 1897. Serial No. 654,895. Term of patent 7 years.



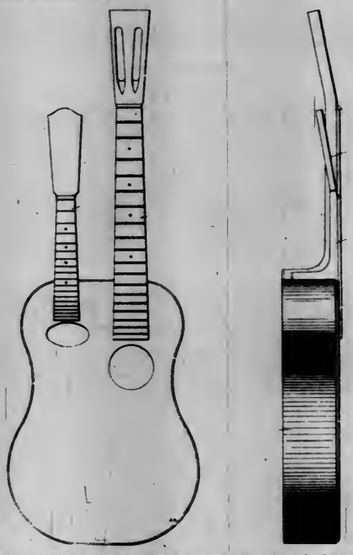
Claim.—The design for a bracket or holder, as herein shown and described.

28,060. FRAME FOR PICTURES. ISAK V. ARVONEN, Calumet, Mich. Filed Oct. 18, 1897. Serial No. 655,628. Term of patent 7 years.



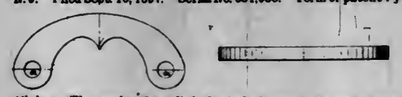
Claim.—The design for a frame for pictures and other objects, herein shown and described.

28,061. FRAME OR BODY FOR MUSICAL INSTRUMENTS. HERMAN C. LEVIN, New York, N. Y. Filed Apr. 9, 1897. Serial No. 631,451. Term of patent 14 years.



Claim.—The design for the frame or body of musical instruments, substantially as herein shown and described.

28,062. LINK FOR BELT-FASTENERS. WILLIAM D. CHAPIN, Wakefield, N. Y., assignor to himself, and J. Hull Browning, Tenafly, N. J. Filed Sept. 16, 1897. Serial No. 651,958. Term of patent 7 years.



Claim.—The design for a link for belt-fasteners herein shown and described.

28,063. BILLET-LOOP. CHARLES ROSELL, Hutchinson, Kans. Filed Nov. 11, 1897. Serial No. 658,214. Term of patent 14 years.



Claim.—The design for a billet-loop herein shown and described.

28,064. SNAP-HOOK. GEORGE M. HUBBARD, New Haven, Conn., assignor to the W. & E. T. Fitch Company, same place. Filed Oct. 18, 1897. Serial No. 655,635. Term of patent 14 years.



Claim.—The design for a snap-hook as herein shown and described.

28,065. SNAP-HOOK. GEORGE M. HUBBARD, New Haven, Conn., assignor to the W. & E. T. Fitch Company, same place. Filed Oct. 18, 1897. Serial No. 655,636. Term of patent 14 years.



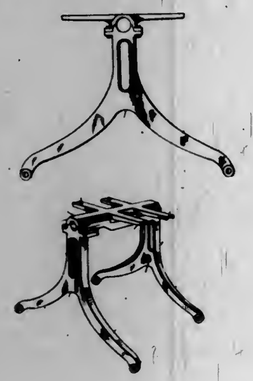
Claim.—The design for a snap-hook as herein shown and described.

28,066. KNIFE-SHARPENING JAW. MICHAEL NIELSEN and THOMAS S. THOMSEN, Greenwich, Conn., assignors of one-third to Martin Bartiff, Port Chester, N. Y. Filed Nov. 8, 1897. Serial No. 657,884. Term of patent 7 years.

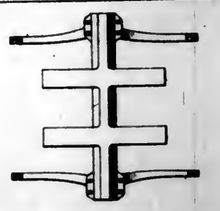


Claim.—The design for a knife-sharpening jaw herein shown and described.

28,067. FRAME FOR SAND-PRESSES. FAY O. FARWELL, Dubuque, Iowa, assignor of one-half to the Adams Company, same place. Filed July 26, 1897. Serial No. 646,042. Term of patent 14 years.

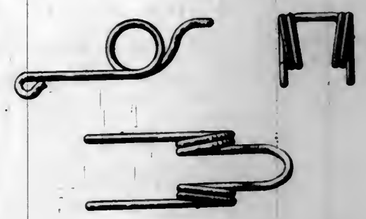


28,067.



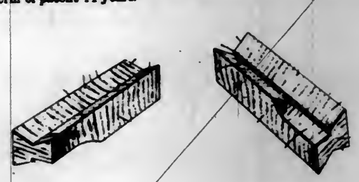
Claim.—A design for a frame for sand-presses as described and shown in the drawings.

28,068. ANTIRATTLER. GEORGE H. FERNALD, North East, Pa. Filed Aug. 6, 1897. Serial No. 647,376. Term of patent 7 years.



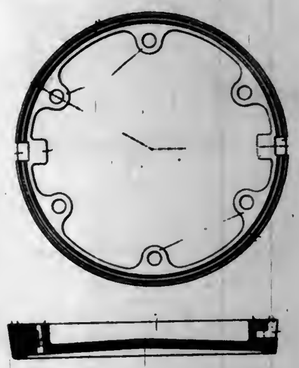
Claim.—The design for an antirattler as herein described and shown.

28,069. BLOCK FOR EXTENSION-TABLE SLIDES. JOHN R. SCHELOSKY, St. Louis, Mo. Filed Sept. 17, 1897. Serial No. 652,076. Term of patent 14 years.



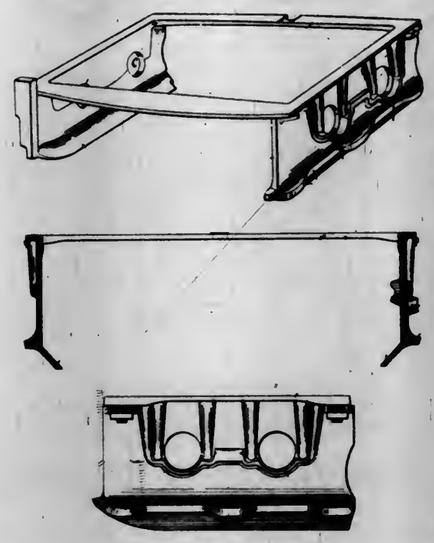
Claim.—The design for a block for extension-table slides, substantially as herein shown and described.

28,070. MANHOLE-COVER. THOMAS P. GERGER, Philadelphia, Pa. Filed Oct. 8, 1897. Serial No. 654,597. Term of patent 14 years.



Claim.—The design for a manhole-cover, substantially as herein shown and described.

28,071. GRATE-FRAME. THOMAS R. KENNEDY, Rochester, N. Y., assignor to the Coöperative Foundry Company, same place. Filed Aug. 23, 1897. Serial No. 649,282. Term of patent 14 years.



Claim.—The design for a grate-frame, substantially as herein shown and described.

28,072. ELECTRIC-RAILWAY CAR. CHARLES H. DAVIS, New York, N. Y. Filed Nov. 2, 1897. Serial No. 657,212. Term of patent 14 years.



Claim.—The design for an electric-railway car substantially as shown and described.

28,073. ELECTRIC-RAILWAY CAR. CHARLES H. DAVIS, New York, N. Y. Filed Nov. 2, 1897. Serial No. 657,213. Term of patent 14 years.



Claim.—The design for an electric-railway car, substantially as shown and described.

28,074. TIRE-BLOCK. THOMAS J. LOVETT, Chicago, Ill. Filed Oct. 11, 1897. Serial No. 654,896. Term of patent 14 years.



Claim.—The design for a tire-block, as herein shown and described.

28,075. TIRE-BLOCK. THOMAS J. LOVETT, Chicago, Ill. Filed Oct. 11, 1897. Serial No. 654,897. Term of patent 14 years.



Claim.—The design for a tire-block, as herein shown and described.

28,076. GONG FOR BELLS. ABNER A. BEVIN, East Hampton, Conn. Filed Oct. 4, 1897. Serial No. 654,065. Term of patent 7 years.



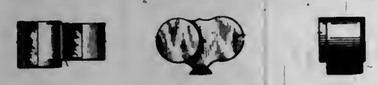
Claim.—The design for a gong for a bell substantially as herein shown and described.

28,077. CASE FOR REGISTERS. CURTIS HUBBEY VEEDER, Hartford, Conn., assignor to the Veeder Manufacturing Company, same place. Filed Oct. 11, 1897. Serial No. 654,898. Term of patent 14 years.



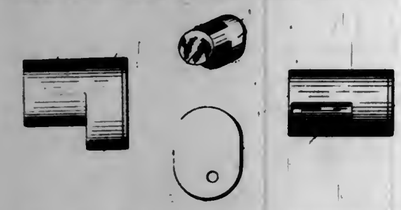
Claim.—A design for a case for registers, substantially as shown and described.

28,078. CASE FOR REGISTERS. CURTIS HUBBEY VEEDER, Hartford, Conn., assignor to the Veeder Manufacturing Company, same place. Filed Oct. 11, 1897. Serial No. 654,899. Term of patent 14 years.



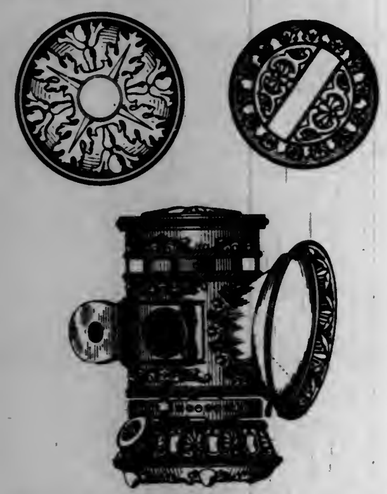
Claim.—A design for a case for registers, substantially as shown and described.

28,079. CYCLOMETER-CASE. CHARLES A. HANEY, Brooklyn, N. Y. Filed Nov. 8, 1897. Serial No. 657,883. Term of patent 7 years.



Claim.—The design for a cyclometer-case, substantially as shown and described.

28,080. BICYCLE-LANTERN. LOUIS HORNEBROEK, Bridgeport, Conn., assignor to The Bridgeport Brass Company, same place. Filed Mar. 26, 1897. Serial No. 629,462. Term of patent 7 years.



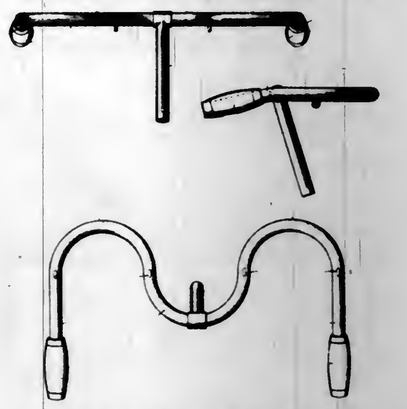
Claim.—1. The design for a bicycle lantern, substantially as shown and described.

2. In a bicycle-lantern the design for the top or cap thereof, substantially as shown and described.

3. In a bicycle-lantern the design for the body thereof, substantially as shown and described.

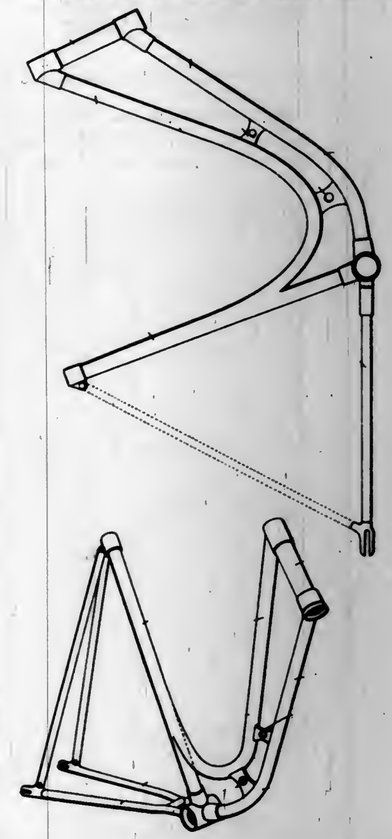
4. In a bicycle-lantern the design for the fount thereof, substantially as shown and described.

28,081. HANDLE-BAR. ALPHONSO S. COMSTOCK, Evanston, Ill. Filed June 5, 1897. Serial No. 639,629. Term of patent 7 years.



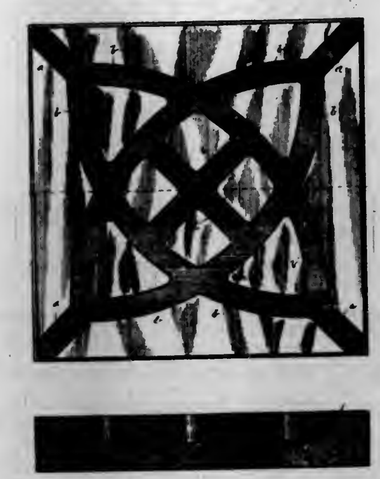
Claim.—The design for a handle-bar substantially as herein shown and described.

28,082. BICYCLE-FRAME. EDMUND J. PHELPS, Minneapolis, Minn. Filed May 22, 1897. Serial No. 637,789. Term of patent 7 years.



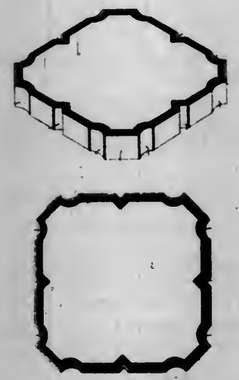
Claim.—The design for a bicycle-frame, as herein shown and described.

28,083. GAME-BOARD. ALBERT BECK, Chicago, Ill. Filed Apr. 5, 1897. Serial No. 630,869. Term of patent 3½ years.



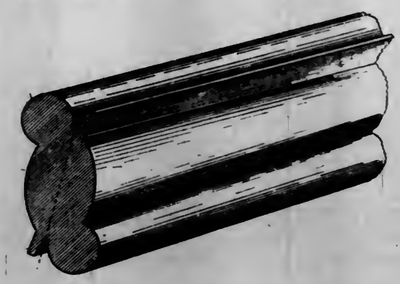
Claim.—The design for a "game-board" herein shown and described.

28,084. TILE. JACOB JACOBS, Brooklyn, N. Y. Filed Nov. 11, 1897. Serial No. 658,212. Term of patent 14 years.



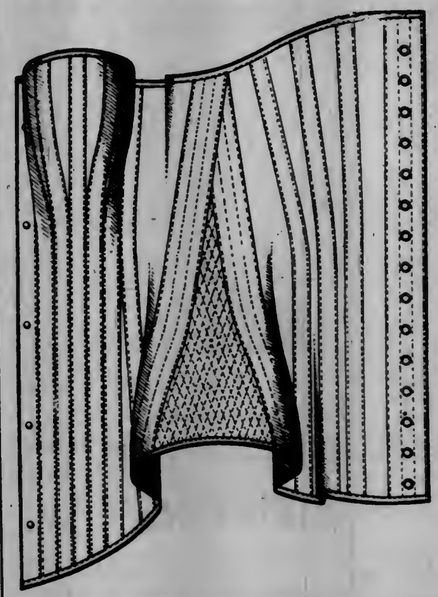
Claim.—The design for a tile, substantially as set forth.

28,085. MOLDING. CHARLES E. SANDSTROM, Chicago, Ill. Filed Sept. 25, 1896. Serial No. 607,265. Term of patent 14 years.



Claim.—The design for a molding herein shown and described.

28,086. CORSET. DE VER H. WARNER, Bridgeport, Conn. Filed Sept. 22, 1897. Serial No. 652,660. Term of patent 14 years.



Claim.—The design for a corset substantially as shown and described.

TRADE-MARKS

REGISTERED DECEMBER 21, 1897.

30,985. HEATING AND COOKING STOVES, RANGES, FURNACES, AND HOT-WATER AND STEAM HEATERS. Dighton Furnace Company, Taunton, Mass. Filed Sept. 16, 1897.

WINTHROP

Essential feature.—The word "Winthrop." Used since January, 1877.

30,986. THILL OR SHAFT AND POLE COUPLINGS. C. C. Bradley & Son, Syracuse, N. Y. Filed Nov. 22, 1897.



Essential feature.—The representation of a hand. Used since September 1, 1896.

30,987. BICYCLE HANDLES OR GRIPS. Abbel F. Temple, Muskegon, Mich. Filed Nov. 19, 1897.

KORKPINE

Essential feature.—The word "Korkpine." Used since September 25, 1897.

30,988. RUBBER TIRES. Mineralized Rubber Company, New York, N. Y. Filed June 19, 1897.



Essential feature.—The representation of a diamond and an anchor arranged therein. Used since 1878.

30,989. IRON PIPING OR TUBING. Interior Conduit and Insulation Company, New York, N. Y. Filed Nov. 10, 1897.



Essential feature.—The word "Wirepipe." Used since August 16, 1897.

30,990. TIN-PLATE. Holbrook, Merrill & Stetson, New York, N. Y. Filed Mar. 17, 1897.

MENLO

Essential feature.—The word "Menlo." Used since January 1, 1893.

30,991. PIANOS. James F. Conover, Chicago, Ill. Filed Nov. 8, 1897.

POMPADOUR

Essential feature.—The word "Pompadour." Used since February 15, 1896.

30,992. DOORS, BLINDS, AND WINDOWS GLAZED AND UNGLAZED, FRAMES, MOLDINGS, SHUTTERS, AND LUMBER ROUGH AND DRESSED. Alonzo Rosebush & Son, Binghamton, N. Y. Filed Nov. 19, 1897.



Essential feature.—A representation of a crescent and a star. Used since November 8, 1897.

30,993. JOINERS', CARPENTERS', AND CARVERS' TOOLS, NOT EDGED. Henry Taylor, Sheffield, England. Filed May 20, 1897.



Essential feature.—The representation of an acorn. Used since 1858.

30,994. BRAIDED SASH-CORD. Geo. R. Carpenter & Co., Chicago, Ill. Filed Nov. 11, 1897.

OLD COLONY



Essential feature.—The words "Old Colony" with the representation of an old colonial mansion. Used since December 1, 1896.

30,995. DRESS-STAYS OR CORSET-STIFFENERS. Alfred C. Clapp, New York, N. Y. Filed Oct. 27, 1897.

PATTERN

Essential feature.—The word "Pattern." Used since October 16, 1897.

30,996. SILK, SATIN, AND VELVET GOODS AND RIBBONS. Pamavant & Co., New York, N. Y. Filed Oct. 23, 1897.

Edisony

Essential feature.—The word "Edison." Used since October 1, 1897.

30,997. HAIRCLOTH. Jules Godet, Paris, France. Filed Nov. 29, 1897.

J.G

Essential feature.—The letters "J. G." Used since January, 1896.

30,998. LADIES' SHOES. George R. Hoyt, Lynn, Mass. Filed Nov. 4, 1897.



THE NEW SHOE FOR WOMEN

Essential feature.—The words "The New Shoe for Women" and the pictorial representation of a shield and a lion. Used since July, 1897.

30,999. BOOTS AND SHOES. Rice & Hutchins, Incorporated, Boston, Mass. Filed Oct. 18, 1897.

AQUATIGHT

Essential feature.—The word "Aquatight." Used since October 8, 1897.

31,000. MANUFACTURED IMITATION LEATHER AND INSULATING MATERIAL. The Pantasote Leather Company, Passaic, N. J. Filed Nov. 11, 1897.

Pantasote

Essential feature.—The word "Pantasote." Used since December 1, 1890.

31,001. CERTAIN NAMED LEATHERS. Standard Leather Company, Newark, N. J. Filed Oct. 26, 1897.



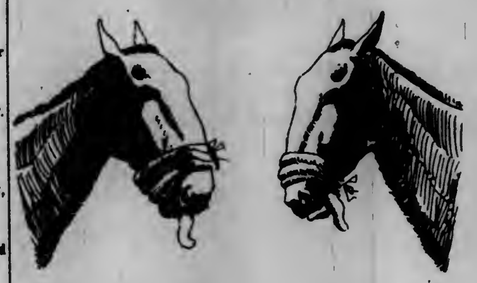
Essential feature.—The words "American" and "Standard" and the representation of a cow, all inside of a circle. Used since August 23, 1897.

31,002. PHOTOGRAPHIC SUPPLIES. Vive Camera Company, Chicago, Ill. Filed Nov. 10, 1897.

VIVE

Essential feature.—The word "Vive." Used since June 1, 1896.

31,003. DENTAL PLUGS OR OTHER FILLING FOR TEETH, EITHER TEMPORARY OR PERMANENT. Edward F. Andrews, Detroit, Mich. Filed Sept. 18, 1897.



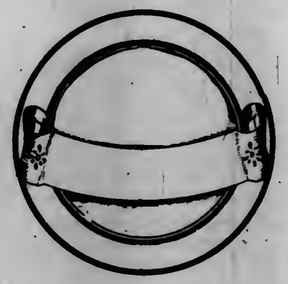
Essential feature.—The representation of two heads of horses or mules facing each other. Used since August 1, 1897.

31,004. FRICTION-MATCHES. The Diamond Match Company, Chicago, Ill. Filed May 14, 1897.



Essential feature.—The representation of two friction-matches crossed in the form of the letter X. Used since June, 1873.

31,005. GUNPOWDER, ORDNANCE-POWDER, AND BLASTING-POWDER. The King Powder Company, Cincinnati, Ohio. Filed Nov. 26, 1897.



Essential feature.—The representation of a circular or ring border traversed by a transversely-arranged band, ribbon, or scroll. Used since October 29, 1895.

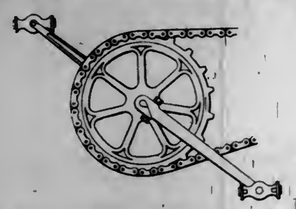
31,006. PRIMERS AND WHITE LEAD. THE BRIDGEPORT WOOD FINISHING COMPANY, New Milford, Conn. Filed Nov. 10, 1897.

LITHOGEN



Essential feature.—The pictorial representation or portrait of Mr. D. E. Breinig and the word "LITHOGEN." Used since 1876.

31,007. GREASES OR LUBRICATING COMPOUNDS. CHARLES GARDNER MILLER, Brooklyn, N. Y. Filed Oct. 7, 1897.



Essential feature.—A pictorial representation of a sprocket-wheel, cranks, pedals, and a portion of the sprocket-chain. Used since May 25, 1897.

31,008. HARNESS AND CARRIAGE SOAP. EDWIN M. TOWLE, Boston, Mass. Filed July 17, 1897.

PARSON'S

Essential feature.—The word "PARSON'S." Used since April 1, 1895.

31,009. WASHING-BLUE. J. & J. COLMAN, LIMITED, London, England. Filed Aug. 9, 1897.



Essential feature.—The phrase "COLMAN'S NO. 1 AZURE BLUE." Used since 1893.

31,010. WASHING-BLUE. J. & J. COLMAN, LIMITED, London, England. Filed Aug. 9, 1897.

Colman's No 1 Azure Blue

Essential feature.—The phrase "COLMAN'S NO. 1 AZURE BLUE J. & J. COLMAN LONDON," the representation of a bull's head, and the words "BULL'S HEAD." Used since 1891.

31,011. DYESTUFFS. FARBENFABRIKEN OF ELBERFELD COMPANY, New York, N. Y. Filed Nov. 22, 1897.

LAZULIN

Essential feature.—The word "LAZULIN." Used since October 1, 1897.

31,012. CHEWING-GUM. VALENTINE SCHRODER, Detroit, Mich. Filed Nov. 23, 1897.

CHICLE TIPS

Essential feature.—The words "CHICLE TIPS." Used since April, 1896.

31,013. CIGARETTES MANUFACTURED FROM ORIENTAL OR EGYPTIAN TOBACCOS. MARGARETA KASH, New York, N. Y. Filed Nov. 13, 1897.

HAREM

Essential feature.—The word "HAREM." Used since 1890.

31,014. COGNAC. KAUFMANN & BLACHE, New York, N. Y. Filed Nov. 11, 1897.

G^VE MOUTET



Essential feature.—The words "GVE. MOUTET" and the representation of three bees with wings outspread. Used since November 18, 1895.

31,015. MALT LIQUOR. THE STOLL BREWING COMPANY, Troy, N. Y. Filed Nov. 11, 1897.

STOLL'S MALT ELIXIR

Essential feature.—The words "STOLL'S MALT ELIXIR." Used since July 1, 1897.

31,016. MINERAL WATER. SILURIAN MINERAL SPRING COMPANY, Chicago, Ill., and Waukesha, Wis. Filed Nov. 15, 1897.

VITALOZED

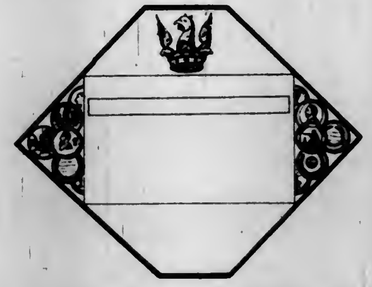
Essential feature.—The word "VITALOZED." Used since October 18, 1897.

31,017. MINERAL WATER. WILLIAM G. TAYLOR, Fonticello and Richmond, Va. Filed Nov. 12, 1897.

"Fonticello

Essential feature.—The word "FONTICELLO." Used since September, 1892.

31,018. MINERAL AND AERATED WATERS OR LIQUIDS. WILLIAM CORRY & CO., LIMITED, Belfast, Ireland. Filed Aug. 26, 1897.



Essential feature.—Hexagonal and square outlines with a winged griffin's head and neck and ducal coronet and pictures of medals. Used since 1877.

31,019. MEDICINAL MINERAL WATER AND THE VARIOUS PREPARATIONS OF NON-ALCOHOLIC BEVERAGES PREPARED THEREFROM. THE PETTICORD MINERAL SPRINGS CO., Cambridge Springs, Pa. Filed Sept. 18, 1897.

PETTICORD

Essential feature.—The word "PETTICORD." Used since June 1, 1887.

31,020. COCOA AND COCOA EXTRACT. ROWNTREE & COMPANY, LIMITED, York, England. Filed Nov. 18, 1897.

ELECT

Essential feature.—The word "ELECT" and the signature "ROWNTREE & Co. LD." Used since 1892.

31,021. COCOA AND ALL KINDS OF CONFECTIONERY, CAKES, AND BISCUITS CONTAINING ALBUMEN OR ALBUMINOUS MATTER. MARIA BEHNO VON DONAT, Berlin, Germany. Filed Apr. 24, 1897.

Alla

Essential feature.—The word "ALLA." Used since October 1, 1894.

31,022. CRACKERS AND CAKES. UNITED STATES BAKING COMPANY, Pittsburg, Allegheny, and Williamsport, Pa.; Cincinnati, Columbus, Zanesville, Dayton, Newark, Cleveland, Toledo, Mansfield, Akron, and Springfield, Ohio; Detroit, Bay City, Jackson, Muskegon, and Lansing, Mich.; Indianapolis, Fort Wayne, Richmond, Evansville, and Terre Haute, Ind.; Wheeling, W. Va.; Buffalo and Rochester, N. Y.; Boston, Mass., and Louisville, Ky. Filed Nov. 20, 1897.

GOLDEN GATE

Essential feature.—The words "GOLDEN GATE." Used since October 1, 1897.

31,023. CRACKERS AND CAKES. UNITED STATES BAKING COMPANY, Pittsburg, Allegheny, and Williamsport, Pa.; Cincinnati, Columbus, Zanesville, Dayton, Newark, Cleveland, Toledo, Mansfield, Akron, and Springfield, Ohio; Detroit, Bay City, Jackson, Muskegon, and Lansing, Mich.; Indianapolis, Fort Wayne, Richmond, Evansville, and Terre Haute, Ind.; Wheeling, W. Va.; Buffalo and Rochester, N. Y.; Boston, Mass., and Louisville, Ky. Filed Nov. 20, 1897.

BABY SODA

Essential feature.—The words "BABY SODA." Used since October 1, 1897.

31,024. FLOUR-LIKE DIGESTIVE PRODUCT IN BAKING WHICH CONVERTS THE STARCH CONTAINED IN FLOUR INTO SUGAR. WM. SCHMIDT BAKING COMPANY, Chicago, Ill. Filed Sept. 10, 1897.

Fermeline

Essential feature.—The word "FERMELINE." Used since April 22, 1897.

31,025. FLOUR. SPRAGUE, WARNER & COMPANY, Chicago, Ill. Filed Oct. 11, 1897.

RICHELIEU

Essential feature.—The word "RICHELIEU." Used since February 20, 1896.

31,026. FLOUR MADE FROM WHEAT. HENRY H. KING, Minneapolis, Minn. Filed Nov. 10, 1897.

THE KING'S BEST

Essential feature.—The words "THE KING'S BEST." Used since 1887.

31,027. BAKING-POWDER. PILGRIM BAKING POWDER CO., Boston, Mass. Filed Nov. 6, 1897.

PILGRIM

Essential feature.—The word "PILGRIM." Used since April 10, 1897.

31,028. CANNED SALMON. ALASKA PACKERS ASSOCIATION, San Francisco, Cal. Filed Oct. 19, 1897.



Essential feature.—A portrait and the word "SEWARD." Used since January 1, 1890.

31,029. PREPARED CURD AND PRODUCTS MADE THEREFROM. THE DAIRY IMPROVEMENT COMPANY, New York, N. Y., and Boston, Mass. Filed Nov. 18, 1897.

FARA

Essential feature.—The word "FARA." Used since November 1, 1897.

31,030. PREPARED FOOD FOR SOFT-BILLED BIRDS. STUMPF & WALTER COMPANY, Newark, N. J., and New York, N. Y. Filed Nov. 22, 1897.



Essential feature.—The representation of a bird and the letters and words "F. E. McALLISTERS FOOD FOR MOCKING BIRDS." Used since 1874.

31,031. PREPARED FOOD FOR GOLDFISH AND OTHER FISH IN AQUARIA OR GLOBES. STUMPF & WALTER COMPANY, Newark, N. J., and New York, N. Y. Filed Nov. 22, 1897.



Essential feature.—The words "SHEPPARD'S GENUINE PREPARED FISH FOOD" and the representation of a fish. Used since 1874.

31,032. BLOOD-PURIFYING BEVERAGE. JULES MAGNAT, Paterson, N. J. Filed Oct. 16, 1897.

Essential feature.—The representation of a black Greek cross upon which appears the sentence "ELLE EST LE SALUT DU MONDE." Used since June 14, 1897.

31,033. CATHARTIC MEDICINE. THE STERLING REMEDY COMPANY, Chicago, Ill. Filed June 10, 1895.

Cascarets

Essential feature.—The word "CASCARETS," with the lower part of the "C" extending in a curve under the remaining letters of the word. Used since April 2, 1895.

31,034. LAXATIVES. THE LAXINE CO., New Brunswick, N. J. Filed Dec. 18, 1896.



LAXINE

Essential feature.—The representation of a spray of orange-blossoms and the word "LAXINE." Used since April 1, 1896.

31,035. LOTIONS. FRANK C. FOWLER, Moodus, Conn. Filed May 22, 1897.



Essential feature.—A picture of a plant rising from the earth and provided with laterally-extended leaves, both plant and earth being inclosed by a line which forms the larger part of a circle. Used since July 1, 1896.

31,036. MEDICINE FOR CERTAIN NAMED DISEASES. JAMES M. HEATH, Appleton, Wis. Filed Nov. 2, 1897.



Essential feature.—The portrait of the proprietor and the signature "HENRY W. LONG M. D." underneath the portrait. Used since 1881.

31,037. ANTISEPTIC MEDICINE. A. W. STEWART & COMPANY, New York, N. Y. Filed Nov. 27, 1897.

Alphasol

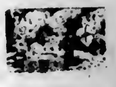
Essential feature.—The word "ALPHASOL." Used since September 27, 1897.

31,038. REMEDIES FOR BILIOUSNESS, CHRONIC CONSTIPATION, SICK HEADACHE, AND SOUR STOMACH. MYRON A. WARRINER, Bridgeport, Conn. Filed June 25, 1897.

CASCA-LAXINE

Essential feature.—The compound word "CASCA-LAXINE." Used since October, 1894.

31,039. INTERNAL REMEDIES FOR MALARIA, CHILLS, AND FEVER. LEWIS C. MILBURN, Cherrydale, Va. Filed Nov. 3, 1897.



Essential feature.—The representation of a burning building. Used since October 2, 1897.

THE NORRIS PETERS CO. PHOTO-LITHO. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SHIELS *v.* LAWRENCE AND KENNEDY.

Decided November 19, 1897.

1. INTERFERENCE—TESTIMONY AS TO MATTERS WHICH OCCURRED ABROAD.

Testimony cannot be taken as to matters which took place in a foreign country tending to prove priority; but the question of originality stands on a different footing. (*Parkin & Wright* v. *Jenness*, 63 O. G., 759.)

2. SAME—SAME—ORIGINALITY OF INVENTION.

Although a party may not be able to prove priority of invention in this country by reason of the fact, appearing from his preliminary statement, that he was not the first to introduce the invention into this country, *Held* that he may nevertheless establish that his opponent is not entitled to an award of priority by proving that such opponent is not an original inventor, but received a disclosure of it from him.

3. SAME—JUDGMENT ON THE RECORD—VACATION OF JUDGMENT.

Judgment of priority may properly be rendered on the record under these circumstances; but where afterward a reasonable suggestion is made that the successful party received a disclosure of the invention from his opponent *Held* that the judgment should be vacated as to matters relating to originality and times set for taking testimony on this question.

APPEAL on motion.

MILKING APPARATUS.

Application of Alexander Shields filed June 23, 1896, No. 596,638. Application of William H. Lawrence and Robert Kennedy filed April 27, 1896, No. 589,263.

Messrs. Richards & Co. for Shiels.

Messrs. Howson & Howson for Lawrence and Kennedy.

GREELEY, *Acting Commissioner:*

This is an appeal by Shiels from the decision of the Examiner of Interferences denying his motion to vacate the judgment of priority on the record in favor of Lawrence and Kennedy rendered June 19, 1897, and to set times for taking testimony.

Both parties reside in Scotland, and the date of introduction into this country by Shiels, as alleged in his preliminary statement, is subsequent to the date of Lawrence and Kennedy's application, and therefore the Examiner of Interferences was justified, in view of the facts before him at that time, in rendering judgment on the record.

In the present motion, however, it is alleged on behalf of Shiels that Lawrence and Kennedy are not original inventors, but that the invention was disclosed to them by him. In support of this his own affidavit is filed and reference is made to the proceedings and the decision in a certain contest between the parties in regard to the issue of a British patent on this invention.

The Examiner of Interferences held that the decision in the above-noted contest did not hold that Lawrence and Kennedy were not original inventors, and the oath to their application was *prima facie* evidence of such originality, and therefore refused to vacate the judgment, citing the rule of law that a case will not be reopened except upon a showing of facts which if conceded to be true would be ground for a different conclusion.

This case does not present the same questions for consideration as an ordinary motion to reopen to take testimony, since it would have been impossible for Shiels to have introduced evidence to establish his present contention prior to the decision, for no time for taking testimony had been set. Under such circumstances it is only necessary for him to make in his showing a reasonable suggestion that his opponents are not original inventors, but received a disclosure of it from him.

There is nothing in the record to prevent Shiels from establishing the fact that he disclosed the invention to Lawrence and Kennedy, and that by reason of such fact Lawrence and Kennedy are not original inventors and not entitled to an award of priority. By reason of the fact that Shiels cannot under the settled practice of the Office take testimony as to matters which took place in a foreign country tending to prove priority (*Parkin and Wright* v. *Jenness*, 63 O. G., 759) his preliminary statement does not allege invention prior to the disclosure of the invention in this country. If the invention had been made in this country, Shiels could have alleged in his preliminary statement all material facts tending to show conception and disclosure of the invention, and could have thus laid the foundation for proving not only that he was the prior inventor but that he disclosed the invention to Lawrence and Kennedy. As the disclosure in this country was made by him subsequent to the filing date of Lawrence and Kennedy's application, judgment on the record was properly entered against him. This judgment cannot be vacated for the purpose of taking testimony as to the question of priority; but as to matters relating to originality it stands on a different footing from what it would had Shiels made the invention in this country.

As above noted, it was through no fault of Shiels that the decision was rendered without giving him

a chance to establish the present contention, and therefore his rights should not be prejudiced by this decision, but he should stand in the same position as if no decision had been rendered.

Although the decision in the above-noted contest in regard to the British patent may not be conclusive of the facts therein decided, that proceeding shows that Shiels at that time contended that he had disclosed the invention embodied in his English patent to Lawrence and Kennedy. The record in that proceeding which has been filed does not make it certain just what combination was in controversy; but it seems to have been held that Shiels had disclosed certain features of the invention to Lawrence and Kennedy, and they were required to insert a certain disclaimer in their patent. That disclaimer is not in the words of the issue, and the affidavit filed by Shiels in support of this motion also fails to identify the issue; but the Attorney-General in the above-noted decision held that Lawrence and Kennedy were not ignorant of what was being done by Shiels at the time when he alleges that he made the present invention. He says they may not have known the details of Shiels's invention, but were aware of the broad idea, and—

that all Messrs. Lawrence and Kennedy are entitled to is a patent for their improvements which are not suggested to be the same or the same arrangement or the same details as those Mr. Shiels has described.

Under all of the circumstances the contention of Shiels is given sufficient probability by the showing made to warrant the taking of testimony to determine the question of originality.

It is true that the oath to Lawrence and Kennedy's application is *prima facie* evidence of originality and must be overcome by proof on the part of Shiels; but the showing is sufficient to entitle him to the right to establish his contention by such proof.

The decision of the Examiner of Interferences is reversed.

EX PARTE COE.

Decided November 19, 1897.

1. APPEAL—SUFFICIENCY OF DESCRIPTION—QUESTIONS FOR EXAMINERS-IN-CHIEF.

   A petition asking that an Examiner be advised that a certain figure and description are sufficiently described and indicated in the original specification and drawing presents an appeal from the sufficiency rather than the propriety of a rejection. This is a question for the Examiners-in-Chief.

2. COMPLAINTS AGAINST EXAMINERS—SEPARATE FROM PETITION.

   A request that an Examiner be instructed in his duty as to his general practice toward applicants and in relation to application should be presented in a complaint against the Examiner and not in a petition.

3. DESIGNS—GENERIC AND SPECIFIC CLAIMS.

   Claims of a design patent are related as generic and specific when one has more elements recited therein than the others.

4. SAME—SPECIES—MODIFICATION—ADDITIONS.

   When an inventor has produced a design, he has produced a single shape or configuration and not a plurality of them. He may make additions to that design, but may not make modifications. Two different manifestations constitute two distinct species of which one is a modification of the other.

ON petition.

DESIGN FOR CONNECTING-LINKS FOR CHAIN FABRICS.

Application of Horace W. Coe filed December 11, 1896, No. 615,416.

Mr. Geo. H. Benjamin for the applicant.

GREELEY, *Acting Commissioner:*

This is a petition in which four things are asked for, which are as follows:

(*a*) That the Examiner in charge of such application be advised that the amendment of September 7 was wholly proper, and that Figure 3 and the description thereof is sufficiently described and indicated in the original specification and drawing.

(*b*) That the Examiner be advised that under the rule laid down by the Commissioner (*ex parte Bark*, 69 O. G., 369; *ex parte Lunken*, 76 O. G., 785) the claims as now found in the case are proper.

(*c*) That the Examiner in charge be advised that it is his duty to aid an applicant before the Office, and not to throw obstacles in his way by writing ambiguous and indefinite letters.

(*d*) That the Examiner be advised that in his first Office letter it is his duty to state all the references at his command, and further, to point out wherein in his opinion such references are anticipatory.

The first of these relates to a question of merits. In his letter of October 29, 1897, the Examiner stated that so much of the amendment as involved Fig. 3 was without warrant, and the amendment in that respect was rejected. This petition does not appear to have been taken from the propriety of such rejection, but from the sufficiency of the rejection as such. That is a question for the Examiners-in-Chief. It is not necessary to pass, therefore, upon the propriety of the course pursued by the Examiner in rejecting; but it may be said in passing that his course seems to have been in accordance with the accepted practice as laid down in *ex parte Zuber*, (C. D., 1894, 47; 67 O. G., 529.)

The third and fourth are not proper grounds for petition, but should have been presented, if at all, in a formal complaint against the Examiner. They are accordingly dismissed.

The amended specification presents two claims, as follows:

1. The design for connecting-links for chain fabrics, substantially as herein set forth.
2. The design for connecting-links for chain fabrics, the central ornamented button and the arms radiating therefrom, substantially as herein set forth.

The Examiner states that these two claims either mean the same thing or that one is generic to the other.

In each figure is shown a central button and arms radiating therefrom. The central button, it is stated in the description, may, however be either "convex" or "ornamented." The Examiner has written a careful and elaborate statement of the grounds of his general objection to the use of generic and specific claims in design patents. To this the applicant has not replied. Two questions are then before me—first, whether the claims in question are actually related as generic and specific or not, and, second, whether, if so related, that relation is a proper one or not.

I think that the two claims in question, viewed in the light of the specification, may be regarded as having a generic and specific relation.

The second question, under the practice recently prevailing, would have to be answered in the affirmative. In *ex parte Smith* (81 O. G., 969) it was stated, however, that the elements of any design should be of an unchanging character. The changeability

considered objectionable in that case was due to a moving part. The article to which the design was to be applied might therefore manifest itself in an infinite number of variations. In this case, so far as the question at bar is concerned, the number of different manifestations, if they are indeed different manifestations of the same design and not different designs, is two. The rule applicable in that case seems applicable in this. When an inventor has produced a design, he has produced a single shape or configuration and not a duality or plurality of such shapes or configurations. He may make additions, but he cannot make modifications without destroying the identity of the design as such.

The petition is denied.

BECHMAN *v.* WOOD.

Decided November 11, 1897.

1. INTERFERENCE—MOTION TO DISSOLVE—REHEARING.

   Where a party fails to make a full presentation of his case on a motion for dissolution, but relies on the case as presented, *Held* that he is bound by the decision rendered and a rehearing will not be granted merely to permit of a further showing, but only on grounds which would warrant a new trial at law.

2. SAME—SAME—RULE 126.

   The Office may of its own motion, under the provisions of Rule 126, take cognizance of matter which would properly constitute a basis for a motion to dissolve without regard to the fact that such motion has been previously made.

3. SAME—SAME—PIECEMEAL MOTIONS.

   All grounds for dissolution should be presented in one motion, since it is contrary to the established practice of the Office to allow a party to make motions to dissolve by piecemeal.

APPEAL on motion.

PRINTING-MACHINES.

Application of Henry F. Bechman filed October 26, 1895, No. 567,020. Application of Henry A. W. Wood filed October 28, 1893, No. 489,355.

Messrs. Alexander & Dowell for Bechman.

Messrs. Southgate & Southgate for Wood.

GREELEY, *Acting Commissioner:*

This is an appeal by Bechman from the decision of the Examiner of Interferences refusing to transmit to the Primary Examiner his motion to dissolve the above-entitled interference.

The grounds upon which the motion is based are as follows:

First. That the machine shown and described in the application of said Wood is wholly useless and impractical for any useful purpose whatever, and inoperative, and therefore said Wood is not entitled to a patent.

Second. Because there is no interference in fact and the same was improperly declared for the reason that the modes of operation of the press described in Bechman's application and covered by the issue of this interference, and the mode of operation of the press shown and described in Wood's application, are radically different, and Wood is not entitled to claim the invention involved in the issue of this interference.

Third. Because there is no interference in fact and the same was improperly declared, for the reason that the application of Wood involved in this interference does not show or describe a novel, useful, or patentable invention in view of prior patents.

It appears from the record that on September 1, 1896, a motion to dissolve was filed, setting forth substantially the same grounds as are set forth in the first and second allegations in the present motion. That motion was denied by the Primary Examiner, and his decision became final without any appeal having been taken. Thereafter testimony was taken, and at the time that the present motion was made all of the testimony had been taken and the case was substantially ready for final hearing.

If the present motion were transmitted to the Primary Examiner, its consideration would amount to a rehearing by him of the questions presented in the first and second grounds. These questions are rendered *res adjudicata* by the former decision, since the allegations are the same, and the only thing not before the Examiner at that time is the additional evidence presented in support of the allegations. (*David Bradley Mfg. Co.* v. *Eagle Mfg. Co.*, 66 O. G., 315.)

The appellant should have made a full presentation of his case at the former hearing, but having failed to do so and having relied on the case as presented he is bound by the decision rendered. (*Hien* v. *Pungs*, 78 O. G., 474; *Bradley Mfg. Co.* v. *Eagle Mfg. Co.*, above.) To allow a party to renew a motion decided against him merely for the purpose of presenting more evidence in support of it would lead to endless contests and would be contrary to all rules of law on the subject.

The Office may of its own motion take cognizance of matter which would properly constitute a basis for such motion under the provisions of Rule 126 without regard to the fact that a motion to dissolve has previously been made; but a motion for a rehearing by one of the parties will not be granted except upon grounds which would authorize a new trial at law. (*Green* v. *Hall* v. *Siemens* v. *Field*, 47 O. G., 1631; *Giant Powder Co.* v. *California Powder Co.*, 6 Saw., 508.) No such grounds are set forth in this case.

The present motion was filed nearly one year after the former motion and was therefore not made with the diligence required in such cases.

The question of operativeness is one which is necessarily given consideration in deciding the question of priority, since priority cannot be awarded to a party if his device is inoperative. (*Fowler* v. *Dodge*, 78 O. G., 2045.) An inoperative device cannot be actually or constructively reduced to practice. In view of this fact and the fact that all of the testimony has been taken the question of operativeness should be postponed until final hearing, aside from the reasons given above for not giving the motion consideration at the present time.

The third question presented relates to the patentability of the invention disclosed by Wood in view of certain patents cited and does not appear to have been before presented to the Primary Examiner for consideration. If the appellant desired to have this question considered, he should have presented it in his former motion, since it is contrary to the established practice of the Office to allow a party to make motions to dissolve by piecemeal. All grounds for dissolution should be presented in one motion. A further reason for refusing to transmit the motion as to this ground is that due diligence has not been exercised in presenting it for consideration.

The decision of the Examiner of Interferences is affirmed.

HIEN *v.* BUHOUP.

Decided November 3, 1896.

INTERFERENCE—PRIORITY—CAR-COUPLING.

On the record it must be held that Buhoup was not only the first to conceive and the first to reduce to practice, but that he actually disclosed the invention to Hien prior to his alleged date of conception. Hien may have forgotten the circumstances of this disclosure; but this cannot overcome the proof submitted on behalf of Buhoup.

APPEAL from Examiners-in-Chief.

CAR-COUPLING.

Application of Phillip Hien filed April 23, 1895, No. 546,872. Application of Harry C. Buhoup filed April 15, 1895, No. 545,780.

Messrs. Raymond & Omohundro for Hien.
Mr. F. W. Ritter, Jr., for Buhoup.

FISHER, *Acting Commissioner:*

This is an appeal by Hien from the decision of the Examiners-in-Chief adjudicating priority of invention in favor of Buhoup.

The issue is as follows:

In a car-coupler the combination with a knuckle, its tailpiece, and lock, of a movable pin or catch arranged back of the advanced position of the lock and within the path of the tailpiece of the knuckle; substantially as and for the purposes specified.

Hien, the junior party, alleges conception of the invention during November, 1893, and disclosure to others, the making of drawings, and the construction of a model on or about December 1, 1893. It is satisfactorily established that the model which is in evidence (marked "Hien Exhibit, Hien Model") was made and disclosed to others during December, 1893, and therefore Hien must be given this as his date of conception of the invention. He does not allege any actual reduction to practice prior to the filing of his application on April 23, 1895.

Buhoup, the senior party, alleges conception of the invention in controversy and disclosure to others in July, 1890, and reduction to practice by actual use of couplers embodying the invention on the Allegheny Valley Railroad on or about October 5, 1894.

It is stated by Kerr that in October, 1892, Buhoup disclosed to him—

a pin something similar to this in question, with a button-head held in place by the locking-block when locked, but which would drop in front of the lock and hold it back until the travel out of the tail of the knuckle would raise the pin allowing the locking-block to return to its normal position.

He states that Klohs was present when this disclosure was made, and Klohs when called as a witness testified that Buhoup disclosed the invention to him at different times between January, 1892, and May, 1893, although he does not remember the date of any specific disclosure as well as Kerr does. The issue in this interference is broad enough to cover the invention disclosed to these witnesses, although this invention may not be the same in details nor set forth in the issue as the specific device disclosed in either party's application as filed.

It is contended on behalf of Hien that the invention conceived by Buhoup embodied a gravity-pin with a round shank and that this device was impractical and inoperative, as was demonstrated by the use on the Allegheny Valley Railroad, and that it was only after Buhoup had seen Hien's model that he was able to overcome the defects in the device by adopting features suggested by Hien's invention. It is shown by the testimony that the device put in use on the Allegheny Valley Railroad in 1894 embodied the pin with a round shank, and that it was not until the early part of 1895 that the pin with the square shank was put in use. The square shank was substituted, after it was found that some of the round pins had broken in use, for the reason that it was thought that the square shank would be an improvement and operate more satisfactorily. The pins with round shanks were used for several months and operated practically, and the fact that Buhoup decided that the pins with square shanks would probably be more satisfactory and less liable to break cannot in any way affect the actual use of the round pins as a reduction to practice of the invention in issue. It is noted that the use of the pins with square shanks was also prior to the date of Hien's application for a patent, although after he had seen Hien's model, and that it has not been satisfactorily established that he received the idea of making the change in the form of the pins from Hien. Hien's model does not disclose pins with square shanks or any other form of gravity-pin, since he uses a gravity-leaf instead.

Buhoup states that he disclosed his invention to Hien prior to the date at which Hien alleges conception of the invention, and as to this statement he is corroborated by both Kerr and Klohs, who state that Hien was present when Buhoup disclosed the invention to them and that Hien upon being asked his opinion as to the invention said that it would not work. It must therefore be held that Buhoup was not only the first to conceive and the first to reduce to practice, but that he actually disclosed the invention to Hien prior to his alleged date of conception. Hien may have forgotten the circumstance of this disclosure; but this cannot overcome the proof submitted on behalf of Buhoup.

The decision of the Examiners-in-Chief adjudicating priority of invention in favor of Buhoup is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

HIEN *v.* BUHOUP.

Decided October 4, 1897.

1. INTERFERENCE—PRIORITY—CAR-COUPLING—CHANGE IN FORM OF A PIN—DEPARTURE.

Where it appears that Buhoup was the first to conceive the invention of a round-shanked gravity-pin and button-head and reduced the invention to practice after he had seen the model of the conception of the device in issue by Hien. *Held* that the subsequent modification of the pin from a round shank to a square shank with an oblong head and the substitution of this modification or form for that previously put into use was not such a departure from the original invention as to disentitle him to the right of priority against Hien, who had conceived subsequently to Buhoup, but not put into practical operation a device of similar principle but of different form and operation from that of the original conception.

2. SAME—SAME—DECISION OF THE PATENT OFFICE AFFIRMED.

The decision of the Assistant Commissioner holding that Buhoup was the first and original inventor affirmed.

3. INVENTION—MECHANICAL SKILL—CHANGE OF FORM OF PIN.

To change the form of a pin from a round shank with a button-head to a square-shanked pin with an oblong head to overcome a defect in operation was simply a matter of variation in construction not affecting the substance of the invention claimed, and such change or variation in form could be made by mere mechanical skill, without the exercise of the faculty of invention, in order to render more perfect the operation of the original device. (*Pickering* v. *McCullough*, 21 O. G., 73; 104 U. S., 319.)

ALVEY, *J.:*

This appeal is from a decision of the Commissioner of Patents in a matter of interference between the application of the appellant, Hien, and that of the appellee, Buhoup, for patents for certain alleged new and useful improvements in car-couplers. The application of the appellant, Hien, was filed in the Patent Office April 23, 1895, being Serial No. 546,872, and that of the appellee, Buhoup, was filed April 15, 1895, being Serial No. 545,780.

The claim of the appellant was adjudged to interfere with the claim of the appellee, and the subject-matter of the interference was reduced to an issue and formulated thus:

In a car-coupler, the combination with a knuckle, its tailpiece, and lock, of a movable pin or catch arranged back of the advanced position of the lock, and within the path of the tailpiece of the knuckle; substantially as and for the purposes specified.

The issue of interference covers claim 5 of the application of the appellant and is claim 5 of the application of the appellee. The question of priority thus raised in the Patent Office as between the appellant and appellee was adjudged by all the tribunals in that Office to be with the appellee, Buhoup.

Hien has appealed to this court and has assigned no less than twelve supposed errors in the rulings of the Patent Office; but the grounds so assigned for reversal may be reduced to three or four questions, and those mainly of fact, the principal question, that of priority of invention, being one of fact merely.

A considerable volume of testimony was taken, but Hien was the only witness examined in support of his claim to priority. There is some conflict between the testimony of Hien and the witnesses examined on the part of Buhoup, the appellee. Without, however, placing much reliance upon this conflict of evidence the officials of the Patent Office seem to have had little or no difficulty in arriving at the conclusion that Buhoup was entitled to the priority of invention of the claim in issue.

As was said by the Examiners-in-Chief, the issue involved in the interference is not limited to any specific form of the movable pin or catch, which is the important feature of the issue so far as this interference is concerned. The parties to the interference show specifically different forms of the generic device, Buhoup's device being a gravity-pin, shown in the drawings as rectangular in cross-section, though not restricted to such form in the specification, and Hien's device being a pivoted arm. There is no question but that the square-shanked gravity-pin with oblong head of Buhoup is as much within the terms of the issue as the pivoted arm of Hien, and the round-shanked gravity-pin with button-head, referred to in the evidence, is equally within the terms of the issue. In this construction of the specifications and issue and the application of the evidence thereto we entirely agree with the officials of the Patent Office. Indeed, we do not understand it to be seriously contended that the terms of the issue of interference are not sufficiently comprehensive to embrace the several forms of the device described in the specifications of the parties—that is to say, the respective claims involved in the issue. The issue, as described in the brief of the appellant, and the operative action of the device of the issue, is stated as being a gravity-pin which rides upon the locking-block when the couplers are coupled and drops in front of and holds back the locking-block when the couplers are uncoupled, this pin being located within the path of the tailpiece of the knuckle and provided with a head on its lower end to receive the blow of the tailpiece. The action of the parts in uncoupling the cars sets the parts of the coupler in position for automatic recoupling.

There is no ground for question but that Buhoup was the first to conceive the invention of the round-shank gravity-pin and button-head, and he reduced that invention to practice in October, 1894, after he had seen the model of the conception of the device in issue by Hien; and the subsequent modification of the pin from a round shank to a square shank with an oblong head and the substitution of this modification of form for that previously put in use was not such departure from the original invention as to disentitle the inventor to the right of priority as against a party who had conceived subsequently to the original invention, but not put into practical operation, a device of similar principle but of different form and operation from that of the original conception.

It is alleged by Hien that the conception of the invention claimed by him was in November, 1893, and that he made disclosure thereof to others and had a model made about the first of December, 1893. The model was made and exhibited in the early part of December, 1893, though he has not alleged or shown in proof that he has ever reduced his invention to practical use. There would seem to be no doubt on the proof that Hien's invention was not earlier than the last of November or the first of December, 1893, while on the part of Buhoup it is alleged that he conceived the device in issue in July, 1890, and made disclosure thereof to others as early as 1892, and this the proof would seem clearly to establish, and it is clearly shown that Buhoup reduced his device to practical use by using the round pin with button-head in couplers on cars of the Allegheny Valley Railroad for more than two months from about October 5, 1894. About the latter part of December, 1894, it was found that some of these round-shanked pins were either bent or broken in the use, and Buhoup then concluded to substitute for the round-shanked pin and but-

ton-head the square-shanked pin with oblong head, and upon substituting the square-shanked pin it became necessary to square the holes in the heads of the couplers to receive the square pin. In March, 1895, couplers having this form of pin were applied to cars on the Cincinnati, Jackson, and Mackinaw Railroad, and have been in constant use ever since.

It is true, while it is not conceded by Hien that Buhoup had a conception of any device involving a gravity-pin of any kind for the purpose of holding back the locking-block when the couplers are uncoupled prior to the time when he saw Hien's model, yet it is argued on the part of Hien that even if Buhoup did have a conception of such a device it was nothing more than the round-shanked pin with button-head, such as was first used on the cars of the Allegheny Valley road, and it was therefore at most but a conception of an inoperative device, and that the use of these couplers with the round pin amounted to nothing more than an unsuccessful experiment and was not in fact and reality a reduction to practice of the device in issue. Hien therefore contends that the earliest date that can be given to Buhoup for conception or reduction to practice of the operative invention of the device in issue is the date of placing the square-shanked pin in the couplers in substitution for the broken or bent pins on the cars of the Allegheny Valley Railroad, and that the principle of this device was derived from seeing the model of Hien. But the testimony in the case would seem to be quite clear that Buhoup did not adopt or pattern after the invention or device of Hien. This is abundantly shown by the testimony of Buhoup himself and by other witnesses, to say nothing of the force of the circumstances of the case. It is a circumstance of much significance that the substitution and use of the pins with square shanks and oblong heads were also prior to the date of Hien's application for a patent or to any attempt on his part to reduce his invention to practical use, although the substitution of the square-shanked pin for the round-shanked pin by Buhoup was after the latter had seen the model of Hien. But that model does not disclose pins with square shanks or any other form of gravity-pins, but a gravity-leaf instead. Hien was shown Buhoup's device of a gravity-pin and he was very decided in his opinion that it would not work. He now insists that Buhoup received the idea as to the oblong inclined head to the square-shanked pin from an inspection of the Hien model of the gravity-leaf, and that therefore the reduction to practice of the device of the square-shanked pin with oblong inclined head should inure to Hien's benefit. But this contention cannot be sustained. As said by the Assistant Commissioner of Patents—

> the only feature of this pin which it is contended that Buhoup adopted from Hien's model is the form of the head on the pin—that is, the inclined surface. It is true that the "cam-surface" of the square-shank pin is of substantially the same shape as that of the wing-leaf of Hien's model, but at the same time it is merely carrying forward of a more mechanically perfect form of the "button-head" pin. As shown, the button-head pin had inclined surfaces and differs from the substituted form only in the angle and the extent of this incline. It is such a change as would naturally be made when it was found that in certain cases the incline on the button-head pin was too abrupt to obtain the best results.

We entirely agree with the Assistant Commissioner, and our conclusion is the same as that reached by the Assistant Commissioner and the Examiners who had previously passed upon the case, that it has not been established that Buhoup appropriated any substantial feature of Hien's invention in making the square-shanked pin with oblong head. To make the change from the round-shanked pin with button-head to that of a square-shanked pin with oblong head to overcome a defect in operation was simply a matter of variation in construction not affecting the substance of the invention claimed by Buhoup, and such change or variation in form could well be made "by mere mechanical skill, without the exercise of the faculty of invention," in order to render more perfect the operation of the original device. (*Pickering* v. *McCullough*, 21 O. G., 73; 104 U. S., 310, 319.)

It being clearly shown that Buhoup was the first to conceive the device of the issue and the first to reduce the invention to practice, and was also the first to make application for a patent, he is therefore entitled to priority of invention of the device involved in the issue of interference. Upon the evidence in the case we discover nothing to support the objection of laches taken to Buhoup's claim.

The decisions of all the tribunals in the Patent Office were in favor of Buhoup's claim, and where such is the case it must clearly and affirmatively appear that there has been some oversight or mistake or wrong construction of material facts or some mistake or misapplication of some controlling principle of law to justify this court in reversing the decision appealed from. In this case we find no such error to exist.

The decision appealed from is therefore affirmed, and the clerk of this court will certify this opinion and the proceedings in the cause to the Commissioner of Patents, as required by law.

[Vol. 81. No. 12.]

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 81—No. 13. TUESDAY, DECEMBER 28, 1897. PRICE—$5 per year.

CONTENTS.

	Page.
REGISTRATION OF ATTORNEYS	2091
CHANGE OF SIGNATURE ON DRAWINGS	2091
COMMUNICATIONS TO THE PATENT OFFICE	2092
ISSUE OF DECEMBER 28, 1897	2092
APPLICATIONS UNDER EXAMINATION	2092
PATENTS GRANTED	2093
REISSUES	2235
DESIGNS	2236
TRADE-MARKS	2242
LABELS	None.
PRINTS	None.
COMMISSIONER'S DECISIONS—	
Prym *v.* Heilbrunner	2245
Ex parte Weidemann	2245
Ex parte Burson	2246
Ex parte Erne and Bridges	2247
DECISIONS OF THE U. S. COURTS—	
Welsbach Light Company *v.* Benedict & Burnham Manufacturing Company	2247
Schultze *v.* Holtz *et al*	2249

Registration of Attorneys.

RULE 17. * * * A register of attorneys will be kept in this Office, on which will be entered the names of all persons entitled to represent applicants before the Patent Office in the presentation and prosecution of applications for patent. The names of persons in the following classes will, upon their written request, be entered upon this register:

(*a*) Any person who at the date of the approval of the present Rules of Practice, June 18, 1897, was engaged as attorney or agent in the active prosecution of applications for patent before this Office, or had been so engaged at any time within five years prior thereto and is not disbarred, or is or was during such period a member of a firm so engaged and not disbarred, provided that such person shall, if required, furnish information as to one or more applications for patent so prosecuted by him.

(*b*) Any attorney-at-law who is in good standing in any court of record in the United States or any of the States or Territories thereof, and shall furnish a certificate of such clerk of the United States, State, or Territorial court, duly authenticated under the seal of the court, that he is an attorney in good standing.

(*c*) Any person who has been regularly recognized as an attorney or agent to represent claimants before the Department of the Interior or any Bureau thereof and is in good standing, provided that such person shall furnish a statement of the date of his admission to practice as such attorney or agent, and shall further show, if required by the Commissioner, that he is possessed of the necessary qualifications to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*d*) Any person not an attorney-at-law who shall file a certificate from a judge of a United States, State, or Territorial court, duly authenticated under the seal of the court, that such person is of good moral character and of good repute and possessed of the necessary qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office.

(*e*) Any firm which at the date of the approval of the present Rules of Practice was engaged in the active prosecution as attorneys or agents of applications for patents before the Patent Office or had been so engaged at any time within five years prior thereto, provided such firm or any member thereof is not disbarred, provided the names of the individuals composing the firm are stated, and provided, also, that such firm shall, if required, furnish information as to one or more applications prosecuted before the Patent Office by them.

(*f*) Any firm not entitled to registration under the preceding sections which shall show that the individuals composing the firm are each and all recognized as patent attorneys or agents or are each and all entitled to be so recognized under the preceding sections of this rule.

The Commissioner may demand additional proof of qualifications and reserves the right to decline to recognize any attorney, agent, or other person applying for registration under this rule.

Any person or firm not registered and not entitled to be recognized under this rule as an attorney or agent to represent claimants generally may, upon a showing of circumstances which render it necessary or justifiable, be recognized by the Commissioner to prosecute as attorney or agent certain specified application or applications; but this limited recognition shall not extend further than the application or applications named.

AFTER JANUARY 1, 1898, NO PERSON NOT REGISTERED IN ACCORDANCE WITH THIS RULE WILL BE PERMITTED TO PROSECUTE APPLICATIONS BEFORE THE PATENT OFFICE.

Change of Signature on Drawings.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 22, 1897.

The attention of the Examiners is called to Order No. 480, relating to the change of signature on the drawing, which they are directed to follow strictly.

A. P. GREELEY,
Acting Commissioner.

(*Order No. 480.*)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., May 28, 1888.

The attention of the Commissioner has been called to the fact that patent solicitors who are appointed attorneys in fact in applications pending in the Office upon revocation of powers of attorney to former solicitors in the same cases are in the habit of erasing from the drawings the names of the solicitors who prepared and signed the drawings at the time they were originally filed.

In *ex parte Wharton* (40 O. G., 917) I called attention to the impropriety of changing in any manner the drawings themselves, and while the signatures of attorneys to such drawings are not of especial importance, circumstances might arise which would make them of very great importance, as, for instance, were a question raised concerning the identity of the drawings.

It is hereby directed that the practice of erasing the names of attorneys, or writing upon the drawings the names of attorneys subsequently appointed, so as to make it appear that their names were present when the drawings were originally filed, shall be discontinued.

Examiners will observe that this order is not violated. They are instructed to report to the Commissioner all instances which come within their knowledge of such violation.

BENTON J. HALL,
Commissioner.

Communications to the Patent Office.

RULE 2. * * * All letters and other communications intended for the Office must be addressed to "The Commissioner of Patents." If addressed to any of the other officers, they will ordinarily be returned.

RULE 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Issue of December 28, 1897.

Patents	420	No. 596,047 to No. 596,466, inclusive.
Designs	26	No. 28,087 to No. 28,112, inclusive.
Trade-Marks	30	No. 31,040 to No. 31,069, inclusive.
Labels	None.	
Prints	None.	
Reissues	3	No. 11,643 to No. 11,645, inclusive.
Total issue	479	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Prints.	States.	Patents and Designs.	Trade-Marks and Prints.
Alabama	1	----	New Hampshire	3	----
Arizona Territory	----	----	New Jersey	12	3
Arkansas	2	----	New Mexico Territory	----	----
California	20	----	New York	77	9
Colorado	2	----	North Carolina	4	----
Connecticut	19	----	North Dakota	3	----
Delaware	1	1	Ohio	18	----
District of Columbia	1	----	Oklahoma Territory	----	----
Florida	----	----	Oregon	----	----
Georgia	5	----	Pennsylvania	40	4
Idaho	----	----	Rhode Island	3	----
Illinois	34	3	South Carolina	1	----
Indian Territory	----	----	South Dakota	----	----
Indiana	9	----	Tennessee	1	----
Iowa	6	1	Texas	9	----
Kansas	1	----	Utah	----	----
Kentucky	6	----	Vermont	----	----
Louisiana	5	1	Virginia	3	----
Maine	3	----	Washington	4	----
Maryland	2	----	West Virginia	4	----
Massachusetts	47	5	Wisconsin	11	----
Michigan	8	1	Wyoming	----	----
Minnesota	9	----	U. S. Army	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	11	----			
Montana	2	----	Total to citizens of the United States	404	28
Nebraska	4	----			
Nevada	1	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Mexico	1	----
Australia	----	----	Netherlands	----	----
Austria-Hungary	----	----	Newfoundland	----	----
Barbadoes	----	----	New South Wales	----	----
Belgium	1	----	New Zealand	----	----
Bermuda	----	----	Norway	----	----
Brazil	----	----	Portugal	----	----
Canada	5	----	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile, Republic of	----	----	Russia	----	----
China	----	----	Scotland	----	----
Colombia	----	----	Siam	----	----
Cuba	----	----	South African Republic	----	----
Denmark	----	----	South Australia	----	----
Egypt	----	----	Sweden	3	----
England	12	1	Switzerland	1	----
Finland	----	----	Tasmania	----	----
France	5	1	Victoria	1	----
Germany	12	----			
India	1	----	Total to citizens of foreign countries	42	2
Ireland	----	----			
Italy	----	----			

APPLICATIONS UNDER EXAMINATION.

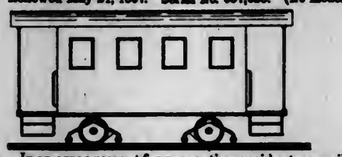
Condition at Close of Business December 21, 1897.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Nov. 22	Dec. 13	118
	Between one and two months.			
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 22	Dec. 9	196
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 25	Dec. 8	173
255	XII. Mechanical Engineering, Store-Service, etc.	Oct. 27	Nov. 27	185
250	VIII. Furniture, Beds, Store Furniture, etc.	Oct. 21	Nov. 25	403
149	III. Metallurgy, Metal-Founding, Coating, Annealing and Tempering, Electro-Chemistry, etc.	Nov. 2	Nov. 19	176
243	XXV. Artesian and Oil Wells, Butchering, Mills and Threshing, Stone-Working, Vegetable Cutters and Crushers.	Oct. 25	Nov. 9	374
	Between two and three months.			
253	X. Carriages and Wagons	Sept. 30	Dec. 14	232
102	XIX. Stoves and Furnaces	Sept. 22	Dec. 9	297
153	XX. Builders' Hardware, Safes, Dentistry, Undertaking, Artificial Limbs, etc.	Oct. 18	Dec. 8	211
106	II. Farm Stock, Products, etc.	Oct. 16	Dec. 8	334
190	IX. Hydraulics, Fire-Extinguishers, etc.	Sept. 30	Dec. 7	166
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Oct. 4	Dec. 6	225
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, Surgery.	Oct. 14	Dec. 4	308
98	XXI. Textiles, etc	Sept. 27	Dec. 2	240
30	IV. Civil Engineering, Fire-Proof Buildings, Fire-Escapes and Ladders, etc.	Sept. 27	Dec. 2	420
251	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Oct. 4	Dec. 1	185
215	XVII. Paper Manufactures and Printing.	Oct. 1	Nov. 11	220
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc	Oct. 6	Nov. 8	282
	Between three and four months.			
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 26	Dec. 15	186
211	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Sept. 1	Dec. 13	327
105	XI. Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting, and Leather-Working Machinery.	Aug. 24	Dec. 7	575
248	XVIII. Steam-Engineering, etc.	Sept. 7	Nov. 30	314
123	XXIV. Sewing-Machines, Apparel, and Toilet.	Sept. 11	Nov. 18	186
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 18	Nov. 15	302
240	VII. Velocipedes	Sept. 9	Nov. 7	1111
246	I. Tillage and Fences	Sept. 14	Nov. 3	257
39	XXXI. Gas, Painting, Hides, Skins and Leather, Alcohol, Oils, Fats, and Glue, etc.	Sept. 11	Nov. 1	594
	Between four and five months.			
35	XXVIII. Pneumatics, Refrigeration, Air and Gas Engines, etc.	July 29	Dec. 8	526
	Between five and six months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	June 25	Dec. 14	171
111	XXXII. Advertising, Aeration and Bottling, Baggage, Packing and Storing Vessels, etc.	June 30	Dec. 11	633
221	XXIII. Instruments of Precision, Acoustics, etc.	July 12	Sept. 24	388
95	XXX. Lamps, Gas-Fittings, Linotyping, Type-Writing Machines, and Optics.	June 21	Aug. 13	370
	Total number of applications awaiting action			10,745
	Under one month.			
	Trade-Marks	Dec. 17	Dec. 21	11
	Between one and two months.			
	Designs	Nov. 20	Dec. 6	206

PATENTS

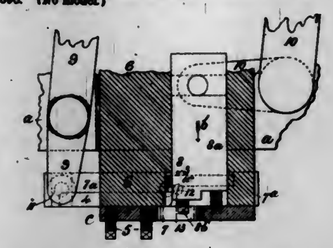
GRANTED DECEMBER 28, 1897.

596,047. ARRANGEMENT FOR PREVENTING ACCIDENTS ON RAILWAYS. HERMANN BIERMANN, Breslau, Germany. Filed Mar. 20, 1896. Renewed May 21, 1897. Serial No. 637,625. (No model.)



Claim.—In an arrangement for preventing accidents on railroads the combination of forked frames provided with rollers and surrounding the wheel-axles and engaging with the rails in case of wheel, axle or spring breaking with an electric circuit in the train and connected with safety and alarm apparatuses; said electric circuit including a contact device adapted to be operated by the forked frame as and for the purpose set forth.

596,048. NAIL CUTTING AND DRIVING MACHINE. JONATHAN BOOTHMAN, Cheetham, England. Filed May 10, 1897. Serial No. 636,896. (No model.)



Claim.—1. In a nail making and driving machine the combination of a reciprocating cutter and its cutter-bar the latter having a driving-hole formed therein, with a fixed cutter, a reciprocating nail-carrier and means for allowing the passage of the nail therefrom out of the machine the said driving-hole, the bore of the nail-carrier and the outlet-passage being arranged to register in a certain position of the reciprocating parts substantially as set forth.

2. In a nail cutting and driving machine the combination of a fixed cutter 4, a rectilinear reciprocating cutter 8ª having a driving-hole 3 therein, a reciprocating slide-bar 7ª and nail-carrier 7 moving therewith and a fixed part having a feed-hole with which the said driving-hole and the bore of the said carrier are arranged to register substantially as set forth.

3. In a nail making and driving machine, a cutter-bar and a nail-carrier reciprocating at right angles to each other and a fixed nozzle having a feed-hole arranged to register with the bore of the said carrier and with a driving-hole in the said cutter-bar substantially as set forth.

596,049. HANDLE. WILLIAM J. BULLOCK, Hartford, Conn., assignor to Frederick C. Rockwell, same place. Filed Sept. 12, 1896. Serial No. 605,591. (No model.)

Claim.—1. A handle consisting of a sectional core, one of which sections of the core is slitted and fitted into another section of the core, parts of the sections being tapering so that the interior diameter will be lessened as they are forced together, with tips or ferrules connected with the core-sections, and a grip held by the core between the tips or ferrules, substantially as specified.

2. A handle consisting of a sectional core the parts of which are connected together by screw-threads, the inner screw-threaded part being slitted and the outer screw-threaded part being solid, so that when the parts are screwed together the central opening will be reduced in diameter, tips or ferrules connected with the core-sections, and a grip held upon the core between the tips or ferrules, substantially as specified.

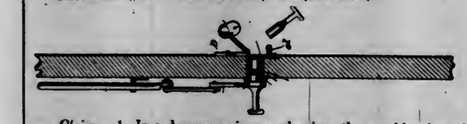


3. A handle consisting of a sectional core, parts of the sections having inwardly-tapering portions and parts of the sections having outwardly-tapering portions which engage each other when the sections are put together, tips or ferrules connected with the core-sections, and a grip held upon the core between the tips or ferrules, substantially as specified.

4. A handle consisting of a core formed of a pair of sleeves bearing tips or ferrules, one of said sleeves having a tapering exterior thread and the other a tapering interior thread, and a grip held upon the core between the tips or ferrules, substantially as specified.

5. A handle consisting of a core formed of a pair of sleeves bearing tips or ferrules, one of said sleeves being slitted for a portion of its length and provided with an exterior thread and the other of said sleeves being provided with an interior thread, and a grip held upon the core between the tips or ferrules, substantially as specified.

596,050. DOOR-FASTENER. EDWARD BYRNES, New York, N. Y. Filed Feb. 4, 1897. Serial No. 621,941. (No model.)



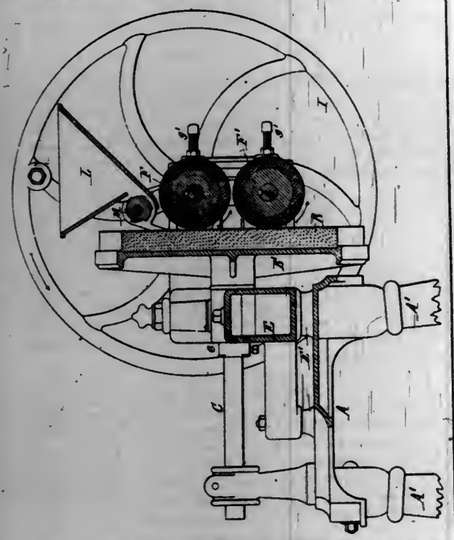
Claim.—1. In a door-securing mechanism, the combination of a flanged tubular bearing secured in an opening made through the door and having a projection, an operating-spindle journaled in said bearing and projecting therefrom on one side of the door where it has a suitable handle for turning purposes, a plate fastened on said spindle adjacent to the tubular bearing and having an arc-shaped recess receiving the projection on the latter whereby the oscillations of the spindle are limited, and locking-bolts operatively connected with said plate, substantially as described.

2. In a door-securing mechanism, the combination with the door having an opening extending transversely through it; of a flanged tubular bearing engaging said opening with its flange extending on the inner side of the door and secured thereto; a spindle engaging said tubular bearing and projecting on the inner side of the door where it has an operating-handle and exposed at the outer side of the door without projecting therefrom, this outer end of the spindle being formed for rotative engagement therewith of a key, and said spindle having a screw-threaded portion; a nut engaging the said screw-threaded portion and bearing against the inner end of the tubular bearing to prevent inward movement of the spindle; one or more locking-bolts on the inner side of the door; and eccentric connections between the same and the spindle.

3. In a door-securing mechanism, the combination with the door having an opening extending transversely through it; of a flanged tubular bearing engaging said opening with its flange extending on the inner side of the door and secured thereto; a spindle engaging said tubular bearing and projecting on the inner side of the door where it has an operating-handle and exposed at the outer side of the door without projecting therefrom, this outer end of the spindle being formed for rotative engagement therewith of a key, and said spindle having a screw-threaded portion; a nut engaging the said

screw-threaded portion and bearing against the inner end of the tubular bearing to prevent inward movement of the spindle; a thimble in the door-opening constituting a bushing for the same between the said nut and the outer end of the opening; one or more locking-bolts on the inner side of the door; and eccentric connections between the same and the spindle.

596,051. RICE-HULLER. CHARLES A. CALVERT, Buffalo, N. Y., assignor to the George L. Squier Manufacturing Company, same place. Filed Dec. 14, 1896. Serial No. 615,656. (No model.)



Claim.—1. In a hulling-machine, the combination with a vertical hulling-disk having a flat hulling-face, of a hulling-roller having its cylindrical face arranged across the flat face of the disk and having its axis arranged non-radial or tangential with reference to the hulling-disk, whereby the flat face of the disk is caused to move past the cylindrical face of the roller in an oblique direction, substantially as set forth.

2. In a hulling-machine, the combination with a vertical hulling-disk having a flat abrasive hulling-face, of an elastic hulling-roller having its cylindrical face arranged across the flat face of the disk and having its axis arranged non-radial or tangential with reference to the hulling-disk, substantially as set forth.

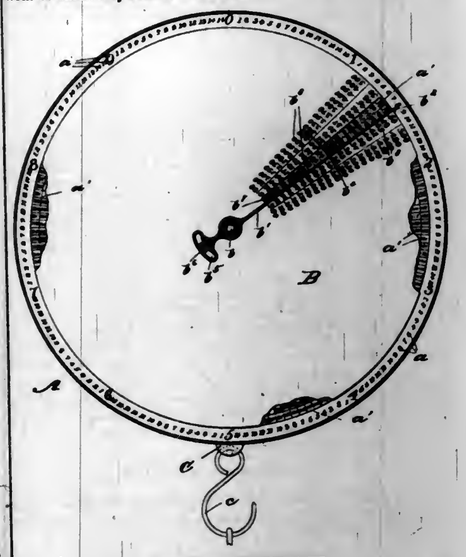
3. In a hulling-machine, the combination with a vertical hulling-disk having a flat abrasive hulling-face, of horizontal hulling-rollers arranged horizontally across the flat face of the disk, one roller above and the other below the center of the disk, whereby the flat face of the disk moves past the upper roller obliquely and outwardly and past the lower roller obliquely and inwardly, substantially as set forth.

4. In a hulling-machine, the combination with the bed, of an upright hulling-disk mounted on a shaft supported on the bed, a worm-wheel mounted on said shaft in front of said disk, a transverse shaft arranged on the front side of said disk and having a worm which meshes with said worm-wheel, an elastic roller mounted on said transverse shaft, and a feed-hopper arranged above said roller, substantially as set forth.

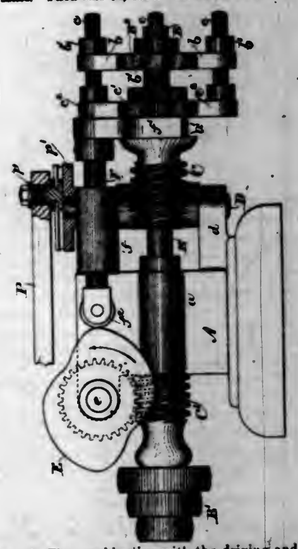
596,052. COMPUTING-SCALE. ARTHUR W. CHURCHILL, Everett, Mass. Filed Apr. 19, 1897. Serial No. 632,839. (No model.)

Claim.—1. In a price-scale or computing device, the combination with the fixed disk A having an annular series of indicating characters *a* at its outer edge and a series of radial concentric computations *a'* on its face, said series of radial computations *a'* being divided into two or more concentric divisions, as at b^4, as and for the purpose set forth, of a revoluble disk B slightly smaller than and pivoted to said fixed disk and having a radial slot b^7 formed therein and through which slot the computations *a'* may be read, one or more rows of figures b^5 placed in reverse order on either side of said slot b^7 and an indicator or pointer b^2 movable with or carried by said disk B.

2. In a price-scale or computing device, the combination with a fixed disk having an annular series of indicating characters near its outer edge, and a series of radial, concentric rows of computations on its face, said series of radial computations being divided into two or more concentric divisions, of a revoluble disk slightly smaller than and pivoted to said fixed disk and provided with a radial slot through which the computations on said fixed disk may be read, two or more radial rows of figures placed in reverse order on either side of said radial slot, the outer rows of said figures giving totals for one or more revolutions of said pivoted disk, and an indicator or pointer movable with or carried by said revoluble disk.



596,058. MECHANICAL MOVEMENT. JOSEPH E. CRISP, Somerville, Mass. Filed Jan. 14, 1897. Serial No. 619,159. (No model.)



Claim.—1. The combination with the driving and driven shafts, of a gear connection between the shafts, means to impart to one member of said gear connection a rotary movement with one of the shafts, and a longitudinal movement independent of said shaft, substantially as described.

2. The combination with the driving-shaft and a worm rotating with and movable along the same, of a driven shaft having a worm-gear meshing with the worm on the driving-shaft, and means to impart a longitudinal movement to the worm along the driving-shaft during the rotary movement of said worm, substantially as described.

3. The combination with the driving and driven shafts, of gear connections between said shafts, and a cam actuated by mechanism independent of said gear connections to longitudinally move one member of said gear connection during the rotary movement thereof, to impart a variable speed to the driven shaft, substantially as described.

4. The combination with the driving-shaft, a worm mounted thereon for longitudinal movement along the shaft, of a driven shaft having a worm-gear meshing with the worm on the driving-shaft, and means actuated by the driving-shaft to impart a longitudinal movement to the worm along said shaft during the rotation of said worm, substantially as described.

5. The combination with the driving and driven shafts, of a worm on the driving-shaft gearing with the driven shaft, and means independent of the gear connection, actuated by the driving-shaft, to impart a longitudinal movement to the worm along the driving-shaft during the rotary movement thereof, substantially as described.

6. The combination with the driving-shaft and driven shaft, of a worm arranged to communicate motion from the driving to the driven shaft, and a cam arranged to move the worm longitudinally along said shaft during the rotary movement thereof, substantially as described.

7. The combination with a shaft of a worm mounted to slide along the same fixed projections carried by the worm and shaft, and a rod carried by one of said projections and movable through a bearing in the other, substantially as described.

8. The combination with a shaft, of a worm mounted to slide along the same, fixed projections carried by the worm and shaft, and a sliding connection between said projections, substantially as described.

9. The combination with the driving and driven shafts, of a gear connection between the shafts comprising a rotating and reciprocating worm, means to positively move said worm in one direction arranged to release said worm and permit its return movement by the load, substantially as described.

10. The combination with the driving and driven shafts, of a worm-and-gear connection between the shafts, one member of which is arranged to have a longitudinal movement independent of its shaft, and a plunger arranged to impart the longitudinal movement thereto, substantially as described.

11. The combination with a driven shaft, of a worm mounted thereon to have a rotary movement therewith and a longitudinal movement thereon, a cam actuated by said driven shaft, and a plunger loosely connected with said worm and acted upon by said cam, substantially as described.

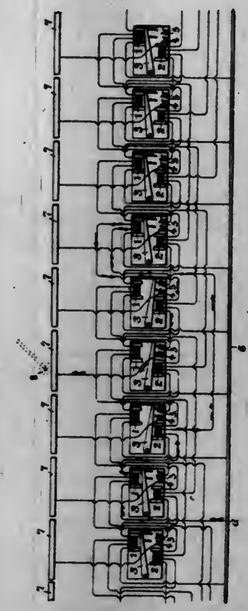
12. The combination with a driven shaft, a worm thereon fixed against longitudinal movement, another worm thereon free to move along said shaft, of a shaft having a gear connection with the fixed worm, a shaft having a gear connection with the longitudinally-movable worm and connections between the shaft driven by the fixed worm and the longitudinally-movable worm, to impart a longitudinal movement to the movable worm, substantially as described.

596,054. ELECTRIC RAILWAY. ESEK C. CROCKER, Bridgeport, Conn., assignor of one-half to Edwin C. Howe, same place. Filed Apr. 23, 1897. Serial No. 633,496. (No model.)

Claim.—1. In an electric-railway system which comprises a supply-conductor, a third rail consisting of insulated sections, and a power-collector carried by the car, the two series of double-wound magnets arranged in horizontally-disposed couplets, the magnets of one series being connected in quarternate pairs in circuit with pairs of alternate magnets of the other series, and connections with said conductor and sections through intermediate circuit closers and breakers operated by the magnets, whereby the section having contact with the collector is in closed circuit while the sections immediately succeeding and preceding are in circuits capable of being closed by the collector, substantially as set forth.

2. In an electric-railway system which comprises a supply conductor, a third rail consisting of insulated sections, and a power-collector carried by the car, the two series of double-wound magnets arranged in horizontally-disposed couplets, said magnets being connected in separate branch circuits whose terminals are respectively connected with the supply-conductor and through switches with the various sections, said switches being operated by the magnets to open and close said circuits as the power-collector comes in contact with the various sections, substantially as set forth.

3. The combination of the supply-conductor and the insulated sections, with the two series of double-wound magnets arranged in horizontally-disposed couplets, the switches between the magnets of each couplet and within the field of both magnets, the two insulated contacts one series of which is connected with said sections, the magnets of one series being in circuit in quarternate pairs with the two intervening alternate magnets of the other series, the terminals of the circuits thus formed being connected respectively with the supply-conductor and with the other series of contacts, substantially as set forth.



596,055. TRAVELING-TRUNK. GEORGE CROUCH, New York, N. Y. Filed Apr. 6, 1897. Serial No. 630,952. (No model.)



Claim.—1. The combination with the trunk and with the slat for the same, of independent ribs at opposite edges of the slat and forming a permanent portion of the wall of the trunk for supporting such slat, substantially as set forth.

2. The combination with the trunk-body having independent ribs and canvas or other material covering and fastened to the ribs and to the surface of the trunk at the sides of the ribs, and slats of a width to set closely between the ribs, and means for fastening the slat permanently to the trunk so that the same is supported laterally by the ribs, substantially as set forth.

3. The combination with the trunk and the slat, of inclosing strips of sheet metal around the edges of the slat and nails passing through the inclosing sheet metal and through the slat and through the wood body of the trunk, without passing through the metal that is between the slat and the trunk, substantially as set forth.

4. The combination with the wooden trunk-body and the wooden slat, of ribs formed of sheet metal with beads at the edges and permanently fastened to the trunk and receiving between the beads the edges of the slats, substantially as set forth.

5. The combination with the wooden trunk-body, of independent ribs permanently fastened to the surface of the trunk at distances apart corresponding to the width of the slats, slats of wood or similar material, and strips of sheet metal upon the edges of the slats forming a binding for the same, and nails passing through the strips of sheet metal and through the slats into the wooden trunk-body, substantially as set forth.

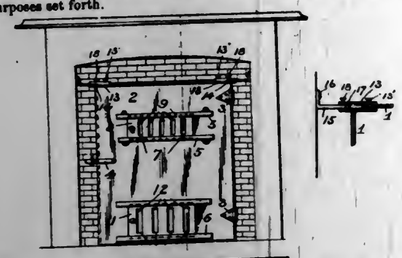
6. The combination with the trunk and slat, of a round rib inclosed in a strip and fastened to the surface of the trunk at the side of the slat, substantially as specified.

596,056. FIREPLACE SCREEN AND BLOWER. WILLIAM F. DANIEL, Lansburg, Ark. Filed June 1, 1897. Serial No. 639,075. (No model.)

Claim.—1. The combination of the frame, consisting of the side and top plates, the side plates being provided at their upper ends with horizontal tubes 13, in which the top plate is adjustably secured, with the elbow-rods 15, one end of which is secured to the jambs of the fireplace, and the other end adjustably secured to the tubes 13, substantially as shown and described and for the purposes set forth.

2. The combination of the frame, consisting of the side and top

plates, the side plates being provided at their upper ends, with horizontal tubes 13, in which the top plate is adjustably secured, with the elbow-rods 15, one end of which is secured to the ends of the fireplace, and the other end adjustably secured to the tubes 13, and a door hinged to one of the upright plates and adapted to close the fireplace-opening, substantially as shown and described, and for the purposes set forth.



596,057. PENHOLDER ATTACHMENT. EMRY DAVIS, New York, N. Y. Filed June 1, 1897. Serial No. 638,992. (No model.)



Claim.—1. A holder for pen-stocks and pens, consisting of an attachment which is adapted to be secured to a desk, table or other support, said attachment comprising a hollow conical portion the base of which is directed upwardly, and which is provided at its lower end with a cylindrical extension, and at the top of said cylindrical extension with an inwardly-directed annular shoulder or projection, substantially as shown and described.

2. A holder for pen-stocks and pens consisting of an attachment which is adapted to be secured to a desk, table or other support, said attachment comprising a hollow conical portion the base of which is directed upwardly, and which is provided at its lower end with a cylindrical extension, and at the top of said cylindrical extension with an inwardly-directed annular shoulder or projection, and also with an outwardly-directed flange or rim, substantially as shown and described.

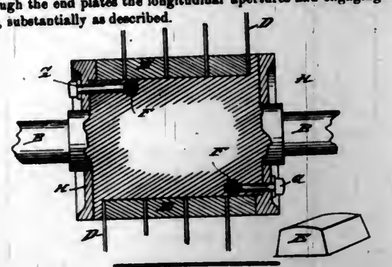
596,058. BOX-FASTENER. WARREN G. DAVIS, Retreat, Wis. Filed Feb. 5, 1897. Serial No. 622,126. (No model.)



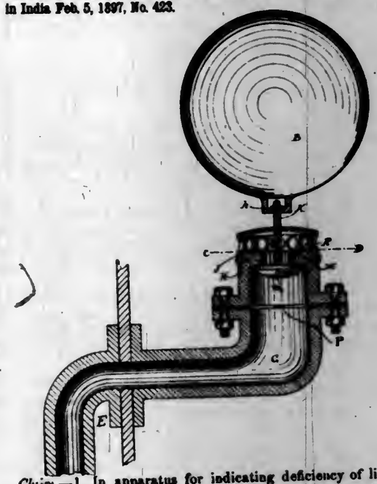
Claim.—A crate or case having grooves in the ends thereof, shoulders at the lower ends of said grooves, transverse cleats near the upper ends of said grooves, a cover provided with end pieces adapted to rest upon said cleats, and a spring-arm having studs that are situated within said grooves, said parts being so arranged that when the studs are in engagement with said shoulders, the end pieces of the cover rest upon said end cleats.

596,059. CYLINDER FOR FODDER-SHREDDERS. JOSEPH DICK, Canton, Ohio. Filed Jan. 19, 1897. Serial No. 619,785. (No model.)

Claim.—The combination with a cylinder for fodder-shredders, said cylinder having grooves the side walls of which are undercut and one end being closed and the other end being open, the open end of one groove alternating with the closed end of the adjacent groove, said grooves having near their open ends inlaid nuts the apertures of which communicate with longitudinal apertures extending from the ends of the cylinder, knives having slanting edges to correspond with the undercut grooves, spacing-blocks having slanting sides to correspond with said grooves, said knives and blocks slipped into said grooves from their open ends and the knives of one groove alternating with those of the adjacent grooves, end plates and bolts inserted through the end plates the longitudinal apertures and engaging the nuts, substantially as described.



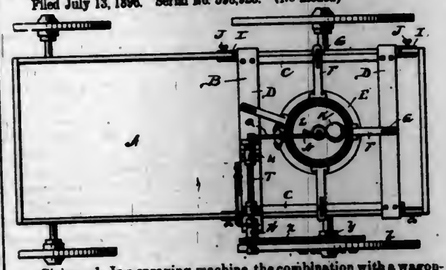
596,060. LOW-WATER ALARM. FREDERIC F. FARLOW, Bombay, India. Filed Apr. 10, 1897. Serial No. 631,603. (No model.) Patented in India Feb. 5, 1897, No. 423.



Claim.—1. In apparatus for indicating deficiency of liquid in tanks, the combination of a float provided with a U-shaped attachment having a hole at its center, a valve-spindle passing through the hole and loosely secured therein, a reversed valve attached to the spindle, a valve-seating covered by a perforated valve-box, a perforated diaphragm beneath the valve, and a tubular connection to the outside of the tank.

2. In apparatus for indicating deficiency of liquid in tanks, a circular valve-seating attached to a discharge-pipe, a reversed valve applied to the said seating, a spindle firmly fixed to the valve at one end and loosely connected to a supporting-float at the other, a perforated valve-box with centrally-perforated cover through which the spindle passes and means for preventing the fall of the valve beyond a fixed distance.

596,061. SPRAYING-MACHINE. DOUGLAS FINE, Siam, Iowa. Filed July 13, 1896. Serial No. 598,923. (No model.)



Claim.—1. In a spraying-machine, the combination with a wagon-box, of a frame carried by the wagon-box, a barrel for holding the insecticide fluid located within the said frame, and inwardly and outwardly adjustable arms secured to the frame and engaging the barrel for preventing lateral movement thereof, substantially as described.

2. In a spraying-machine, the combination with the wagon-box, of a horizontal frame secured to the upper side thereof, a barrel for holding the insecticide fluid located within the said frame, and arms the inner ends of which are serrated and engage the periphery of the barrel and the outer ends of which are secured to the said frame, substantially as described.

3. In a spraying-machine, the combination with the wagon-box of the frame B secured thereto, the barrel for carrying the insecticide fluid located within the frame B, the adjustable arms F secured to the frame B and engaging the barrel, a pump for ejecting the liquid from the barrel, and mechanism connecting the pump with the running-gear of the wagon for operating the pump, substantially as described.

4. In a spraying-machine, the combination with the wagon-box, of a receptacle for carrying insecticide fluid, arms for engaging the receptacle adjustable toward and from the same, means for supporting the arms from the wagon-box, a pump for ejecting the fluid from the receptacle, and mechanism connecting the pump with the running-gear of the wagon for operating the pump, substantially as described.

596,062. DEVICE FOR PREVENTING BURSTING OF FREEZING PIPES. WILLIAM P. FIRST, Roanoke, Va. Filed May 12, 1896. Renewed May 20, 1897. Serial No. 637,463. (No model.)



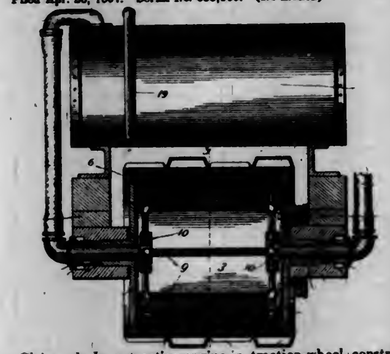
Claim.—1. In a pipe a yielding core located therein, flanges secured to said core and adapted to retain the same in the center of the pipe.

2. In a pipe, a yielding core located therein, said core consisting of a hollow elliptical tube.

3. In a pipe, a yielding core located therein, said core consisting of a hollow elliptical tube, flanges secured to the tube and retaining the tube in the center of the pipe.

4. In a pipe, a yielding core located therein, said core being elliptical in shape about its periphery.

596,063. TRACTION-ENGINE. PHILETUS W. GATES, Chicago, Ill. Filed Apr. 26, 1897. Serial No. 633,883. (No model.)



Claim.—1. In a traction-engine, a traction-wheel constructed with a liquid-containing chamber, and provided with a heater arranged within said chamber and adapted to heat the liquid contained therein, as set forth.

2. In a traction-engine, the combination of a hollow liquid-containing traction-wheel provided interiorly with suitable heating-pipes; and means for circulating a heated fluid through said heating-pipes, as set forth.

3. In a traction-engine, the combination of a hollow liquid-containing traction-wheel provided interiorly with suitable heating-pipes; and an engine utilizing heated gases in its operation and arranged to discharge such heated gases into said heating-pipes, as set forth.

4. In a traction-engine, the combination of a hollow liquid-containing traction-wheel provided interiorly with suitable heating-pipes; a steam-operated exhausting-engine arranged to discharge its exhaust into said heating-pipes; and a condensing-tank connected so as to receive the exhaust-steam after it has circulated through the heating-pipes, as set forth.

596,064. HEELING-LAST. EDWIN L. GODING, Portland, Me. Filed Nov. 25, 1896. Serial No. 613,377. (No model.)

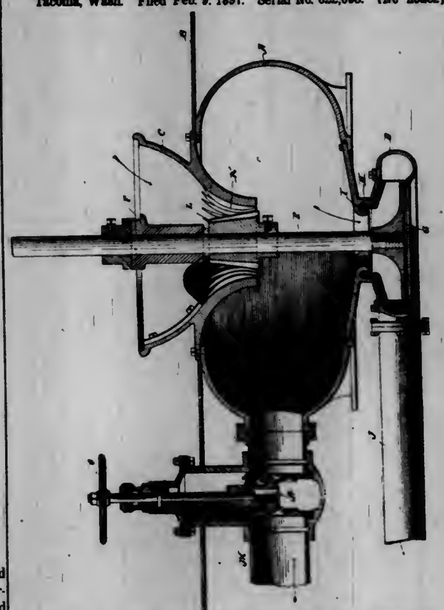


Claim.—1. A heeling-last composed of a spindle adapted to be secured to the spindle of a heeling-machine, and a heel pivotally secured to the end thereof, substantially as and for the purposes set forth.

2. A heeling-last composed of a spindle adapted to be secured to the spindle of a heeling-machine and terminating in a heel pivotally secured thereto, its forward end being adapted to be turned down to a position nearly parallel with said spindle, substantially as and for the purposes set forth.

3. A heeling-last composed of a spindle adapted to be secured to the spindle of a heeling-machine and terminating in a heel pivotally secured thereto, and means for locking said spindle and heel, substantially as and for the purposes set forth.

596,065. EJECTOR FOR ASHES, &c. FREDERICK H. HEATH, Tacoma, Wash. Filed Feb. 9, 1897. Serial No. 622,693. (No model.)

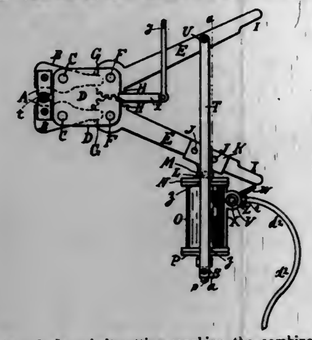


Claim.—1. In a device of the character described, a reservoir, a hopper leading thereto, teeth formed on said hopper, a pump located beneath the reservoir and communicating therewith, a shaft journaled within the hopper for actuating the pump, a toothed eccentric crusher carried by the shaft and adapted to operate in conjunction with the teeth on the hopper, an inlet pipe communicating with the reservoir and an outlet-pipe leading from the pump, as and for the purpose described.

2. An ejector consisting of a reservoir, a hopper leading thereto, teeth formed on the hopper, a shaft journaled in the hopper, a centrifugal pump beneath the reservoir having its blades connected to the shaft and provided with an upwardly-projecting flange fitting in an annular groove of the pump-casing, a toothed eccentric crusher

secured on the shaft and adapted to operate in conjunction with the teeth on the hopper, an inlet-pipe communicating with the reservoir and an outlet-pipe leading from the pump, as and for the purpose described.

596,066. BOLT OR RIVET CUTTER. ANNA HELWIG, St. Paul, Minn. Filed Jan. 25, 1897. Serial No. 620,512. (No model.)



Claim.—1. In a bolt-cutting machine, the combination of the plates D, the jaw-levers B, pivoted between said plates and carrying cutting-knives in their front ends, and the power-increasing levers E, also pivoted between said plates D, and engaging the rear ends of the jaw-levers B, with a cylinder pivotally secured to one of the levers E, and a piston moving in the cylinder and having its rod operatively connected with the other lever E and means for admitting compressed air to press upon the piston, substantially as and for the purpose specified.

2. In a bolt-cutting machine, the combination of the plates D, the jaw-levers B, pivoted between said plates and carrying cutting-knives in their front ends, and the power-increasing levers E, also pivoted between said plates D, and engaging the rear ends of the jaw-levers B, with a cylinder pivotally secured to one of the levers E, and a piston moving in the cylinder and having its rod operatively connected with the other lever E, said levers E, being geared together by the teeth H and means for admitting compressed air, gas or fluid to press upon the piston, substantially as and for the purpose set forth.

3. In a bolt or rivet cutting machine the combination with a pair of cutting-jaws and operating-levers by which the cutting-jaws are actuated, of a cylinder pivoted to one of the operating-levers and having a piston with a piston rod extending out of the cylinder, a cross-head secured on the piston-rod, the two rods T, T, connecting said cross-head with the other one of the operating-levers, substantially as and for the purpose set forth.

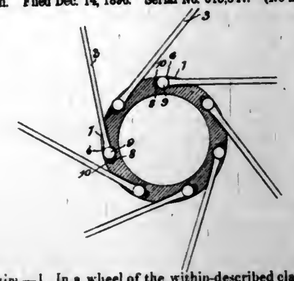
4. In a bolt or rivet cutting machine the combination with a pair of cutting-jaws and operating-levers by which the cutting-jaws are actuated, of a cylinder pivoted to one of the operating-levers and having a piston with a piston-rod extending out of the cylinder, a cross-head secured on the piston-rod, the two rods T, T, connecting said cross-head with the other one of the operating-levers, said rods T, being guided upon the outer sides of the cylinder so as to move parallel with it, substantially as and for the purpose set forth.

5. In a bolt-cutting machine and suitably framed, the combination with a pair of cutting-jaws and levers for operating same, of a cylinder and piston operatively connected with the levers, to open and close them and the cutting-jaws; said cylinder having its ports entering it some distance from the cylinder-heads, so as to form air-cushion chambers near the cylinder-heads, for stopping the piston at the end of its stroke, and means for admitting pressure to either side of the piston, substantially as and for the purpose set forth.

6. In a bolt-cutting machine and suitably framed, the combination with a pair of cutting jaws and levers for operating the same, of a cylinder and piston operatively connected with the levers, to open and close them and the cutting-jaws; said cylinder having its ports entering it some distance from the cylinder-heads so as to form air-cushion chambers near the cylinder-heads, for stopping the piston at the end of its stroke, and auxiliary means for returning the piston from said cushion-chambers, and means for admitting pressure of air, gas or fluid to either side of the piston, substantially as and for the purpose set forth.

7. In a bolt-cutting machine, and suitably framed, the combination with a pair of cutting-jaws and power-increasing levers operating same, of a cylinder and piston operatively connected with the levers, so as to open and close them, said cylinder having in its ends air-cushion chambers for the reception of the piston, beyond the main air-inlet ports *k*, and *l*, the auxiliary ports *n*, *p*, and the spring-held valves *m*, a hand-operated valve having inlet and outlet and communication alternately with the opposite ends of the cylinder, substantially as and for the purpose set forth.

596,067. WIRE-SPOKE WHEEL. ARTHUR L. JACOBS, Hartford, Conn. Filed Dec. 14, 1896. Serial No. 615,547. (No model.)



Claim.—1. In a wheel of the within-described class, in combination, a hub having sockets that extend inwardly from the periphery and having grooves that extend along the periphery from the sockets, and spokes having enlarged heads that fit and fill the sockets and having shanks that lie in and fill the grooves, as specified.

2. In a wheel of the within described class, in combination, a hub having sockets that extend substantially radially inward from the periphery and having grooves that extend substantially tangentially along the periphery from the sockets, and spokes having substantially globular heads that fit and substantially fill the sockets and having shanks that lie in and substantially fill the groove, as specified.

3. In a wheel of the within-described class, in combination, a hub having sockets with openings of smaller size from the sockets to the periphery of the hub and with chambers in the walls of the sockets, and spokes having heads that substantially fill the sockets and are held against movement longitudinally of the spokes by the walls of the sockets, with protuberances from the heads entering the chambers and holding the heads against movement transversely of the spokes, and with shanks that extend through and substantially fill the openings from the sockets, as specified.

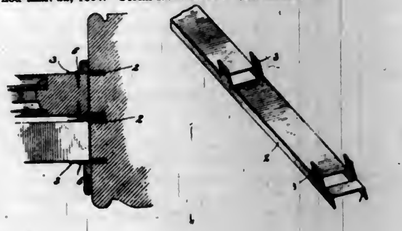
4. In a wheel of the within-described class, in combination, a hub having sockets that extend substantially radially inward from the periphery with chambers extending substantially tangentially from the walls of the sockets and with grooves that extend substantially tangentially along the periphery of the hub from the sockets, and spokes having heads that fit and substantially fill the sockets and are held against movement longitudinally of the spokes by the walls of the sockets with protuberances from the heads entering the chambers and holding the heads against movement transversely of the spokes and with shanks that substantially fill and extend through the grooves, as specified.

5. A spoke for a wheel of the within-described class having a substantially cylindrical body, a shank without bend, a head at the end of the shank and a protuberance projecting from the head, substantially as specified.

6. In a wheel of the within-described class, a hub having sockets that extend substantially radially inward from the periphery and having grooves that extend substantially tangentially along the periphery from the sockets, as specified.

7. In a wheel of the within-described class, in combination, a hub having sockets that extend inwardly from the periphery and having grooves that extend along the periphery from the sockets, and spokes having enlarged heads that fit and substantially fill the sockets and having shanks of oblong cross-section without bend that lie in and substantially fill the grooves, as specified.

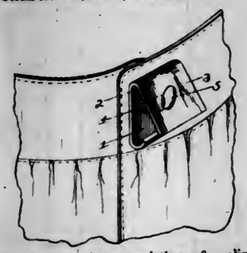
596,068. WINDOW-SASH GUIDE. SAMUEL JOHNSON, Clinton, Mo. Filed Mar. 22, 1897. Serial No. 628,903. (No model.)



Claim.—1. A guiding-strip for window-sashes, screen-frames, &c., formed from a sheet-metal blank in one piece, the said strip comprising a main body portion, a laterally-projecting flange bent at right angles thereto and extending from one side of the body portion, and a series of attaching-ears extending from the opposite side of the body portion and struck from the material composing the strip and adapted to be secured to a sash or frame upon one side, substantially in the manner described.

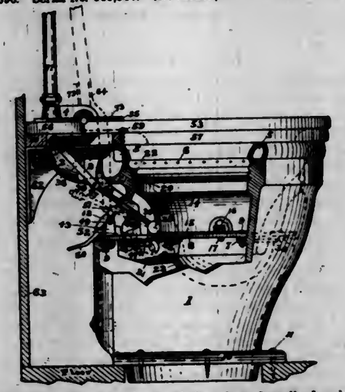
2. A guiding-strip for window-sashes, screen-frames, &c., formed from a single sheet-metal blank in the form of an oblong strip, the same comprising spaced flanges projecting at right angles to the main body of the strip, from one side of the same, and attaching-ears struck from the main body of the strip and forming integral parts thereof and projecting from the opposite side of the same, the said ears being spaced apart and adapted to embrace the edge of a sash or frame, substantially in the manner specified.

596,069. NECKTIE-RETAINER. FRANK S. KAUFFMAN, Depew, N. Y., assignor of one-half to George Lesher, Albion, N. Y. Filed Mar 15, 1897. Serial No. 627,491. (No model.)



Claim.—A necktie-retainer consisting of a clip constructed of sheet metal bent so as to form parallel side plates slightly separated one from the other, and provided with registering openings, the inner of said side plates having an upwardly-extending flange at its lower end, and the outer of said side plates adapted to be opened and closed, substantially as and for the purpose described.

596,070. WATER-CLOSET. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed Oct. 19, 1896. Serial No. 609,317. (No model.)



Claim.—1. In a water-closet of the class described, a hopper adapted to be secured to the floor, a seat or lid mounted above the same, a separable bowl mounted wholly within the hopper, a flushing-conduit formed in the upper end of said hopper and communicating with the interior of said bowl and into which water is discharged, a division-plate mounted within said hopper below the top thereof and at or near the bottom of said bowl, said division-plate being separable from said hopper, and a service-pan operated by the movement of the said seat or lid through the medium of suitable connecting mechanism.

2. In a water-closet of the class described, a hopper adapted to be secured to the floor, a division-plate by which the hopper is divided into upper and lower compartments, a dumping service-pan carried by said division-plate, a bowl mounted within the upper compartment of and separable from said hopper, a flushing-conduit formed in the upper end of said hopper and communicating with the interior of said bowl and into which water for flushing the closet is discharged, a seat or lid mounted above said bowl, said division-plate being separable from said hopper and carried by a support formed on the interior thereof, in combination with mechanism for connecting the service-pan with said seat or lid whereby the former is operated by the movement of the latter.

3. In a water-closet of the class described, a hopper adapted to be secured to the floor, a division-plate separable from said hopper and carried by a support formed on the interior thereof and by which said hopper is divided into upper and lower compartments, a dumping service-pan carried by said division-plate, the latter being provided with a seat for the former to close against, a bowl mounted within the upper compartment of and separable from said hopper, a flushing-conduit formed in the upper end of said hopper and communicating with the interior of said bowl into which water for flushing the closet is discharged, a seat or lip mounted above the hopper and bowl, in combination with mechanism for connecting said service-pan with said seat or lid, whereby the former is operated by the latter.

4. In a sanitary water-closet of the class described, the combination of an earthenware hopper having an internal rib or bearing, a separable bowl mounted wholly within the hopper above said rib or bearing, and a flushing-conduit formed in the hopper above and in open communication with the interior of the bowl, the hopper and bowl being cemented or otherwise joined together at or near their upper ends, thus practically forming a single piece, and whereby the bowl when broken can readily be replaced without loss of or injury to the hopper.

5. As a new article of manufacture, a water-closet hopper having a flushing-conduit formed in the upper end thereof and a rib or support formed on its interior about midway of the height of the hopper, a division-plate separable from said hopper and supported on said rib or support and by which said hopper is divided into two compartments—an upper and lower—in combination with a separate bowl mounted wholly within said upper compartment, and means for flushing the interior of said bowl, substantially as set forth.

6. As a new article of manufacture, a water-closet hopper having an internal rib or bearing, about midway of its height, a division-plate supported by said rib or bearing and by which the said hopper is divided into two compartments—an upper and lower—the upper end of said hopper being provided with an integrally-formed flushing-conduit having an inlet-opening for connection with water supply and discharge outlets leading to the interior of said hopper, in combination with grooves or recesses formed in the wall of said hopper on the inside thereof above the said rib or bearing to receive suitable cement or packing, and an independent separable bowl mounted therein and joined thereto, substantially as and for the purpose set forth.

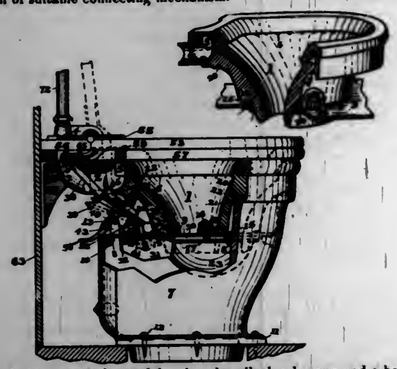
7. In a water-closet, the combination of a hopper having a flushing-conduit formed in its upper end and a rib or bearing formed on its interior about midway of its height, a division-plate separable from said hopper and forming upper and lower compartments therein, said division-plate being supported on said rib or bearing, and a separate bowl mounted within said upper compartment and supported on and provided with means for securing it to said division-plate, said bowl being provided with grooves or recesses in its outer wall at or near its upper end, whereby the same may be united with the hopper by cement or packing, substantially as set forth.

8. In a water-closet, an earthenware hopper having an internal rib or bearing formed integral with the hopper about midway of its height, a separate division-plate carried by said rib or bearing and by which the hopper is divided into upper and lower compartments, a flushing-conduit formed integral with the hopper at the top thereof and having a water-inlet through its outer wall and a series of water-outlets through its inner wall, in combination with a separate bowl mounted wholly within said upper compartment, means for securing the lower end of said bowl to said division-plate, and an external flange at or near the bottom of said hopper, whereby the same may be secured to a support, substantially as set forth.

596,071. WATER-CLOSET. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Original application filed Oct. 19, 1896, Serial No. 609,317. Divided and this application filed May 18, 1897. Serial No. 637,053. (No model.)

Claim.—1. In a water-closet of the class described, a hopper, a bowl separable therefrom and having a portion therein, the upper end of said bowl being of a diameter larger than the inner diameter of the hopper and having a shoulder by which it is mounted directly on and partially above the upper end of the hopper, a flushing-conduit formed in the wall of the bowl at the upper end thereof, and into which water for flushing the closet is discharged, the same being in open communication with the interior of the bowl, a seat or lid mounted

above the bowl, a division-plate mounted within the hopper below the top thereof and at or near the bottom of the bowl, and a service-pan operated by the movement of the seat or lid through the medium of suitable connecting mechanism.



2. In a water-closet of the class described, a hopper, and a bowl separable therefrom; mounted thereon and having a portion therein, said bowl being provided with a flushing-conduit formed integral therewith and communicating with the interior thereof, and into which water for flushing the closet is discharged, a rib or bearing formed on the interior of the hopper below the top thereof, a division-plate separable from said hopper and supported by said rib or bearing at or near the bottom of said bowl, a seat or lid mounted above the bowl, and a service-pan carried by said division plate and operated by the movement of said seat or lid, substantially as set forth.

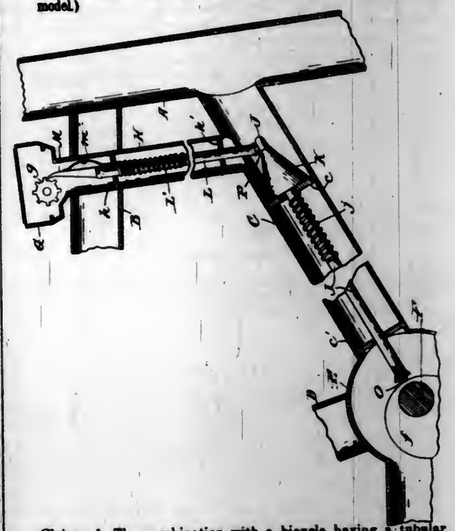
3. In a water-closet of the class described, a hopper, a bowl separable therefrom; mounted on the upper end thereof and having a portion therein, a rib or bearing formed on the interior of the hopper below the top thereof, a division-plate separable from said hopper and supported by said rib or bearing at or near the bottom of said bowl, a seat or lid mounted above said hopper and bowl, a service-pan carried by said division-plate and operated by the movement of said seat or lid through the medium of suitable connecting mechanism, in combination with a trip-pawl adapted to disengage said mechanism, whereby the closet may be used as a dry closet, substantially as set forth.

4. In a water-closet of the class described, a hopper, a bowl having a flushing-conduit formed in the top thereof and a shoulder formed below said conduit and by which the bowl is mounted on the upper end of the hopper with its portion below said shoulder extending into the same, a rib or bearing formed on the interior of the hopper below the top thereof, a division-plate separable from said hopper and carried by said rib or bearing at or near the bottom of said bowl, a dumping service-pan carried by the division-plate, a seat formed on the latter for the service-pan to close against, and a seat or lid mounted above the bowl, in combination with mechanism for connecting the service-pan with said seat or lid, whereby the former is operated by the movement of the latter, substantially as set forth.

5. As a new article of manufacture for water-closets, an earthenware bowl provided with a flushing-conduit formed in the upper end thereof, an opening through its outer wall for the discharge of water into said conduit, a series of perforations through its inner wall for the discharge of water over the inner surface of the bowl, a supporting-shoulder formed around the outer wall of the bowl near the top thereof and below said conduit, said shoulder being adapted to support the bowl on the upper end of a suitable supporting-hopper, and a shoulder formed around the outer wall of the bowl at or near the bottom thereof, in combination with a hopper provided with a rib or bearing formed on its interior below the top thereof, and means for securing the bowl to said hopper, substantially as set forth.

6. As a new article of manufacture for water-closets, an earthenware bowl provided with a flushing-conduit formed in the upper end thereof, an opening through its outer wall for the discharge of water into said conduit, a series of perforations through its inner wall for the discharge of water over the inner surface of the bowl, a supporting-shoulder formed around the outer wall of the bowl near the top thereof and below said conduit, said shoulder being adapted to support the bowl on the upper end of a suitable supporting-hopper, one or more grooves or recesses formed on the under side of said shoulder, and a supporting-shoulder formed around the outer wall of the bowl at or near the bottom thereof, in combination with a hopper provided with a rib or bearing formed on its interior below the top thereof, and means for securing the bowl to said hopper, substantially as set forth.

596,072. BICYCLE. LADISLAUS KUGLER, Chicago, Ill. Filed June 20, 1896. Renewed May 27, 1897. Serial No. 638,453. (No model.)



Claim.—1. The combination with a bicycle having a tubular frame and a crank-shaft, of a tube for carrying a cyclometer, or other indicating instrument, such tube being located back of the front stem of the frame and leading upwardly from the lower main member of the frame, power-transmitting mechanism mounted within the tube and the lower main member of the frame, and means for actuating such mechanism from the crank-shaft.

2. In a bicycle the combination with a tubular frame and a crank-shaft, of a tube leading upwardly from the lower main member of the frame, an eccentric mounted upon the crank-shaft, a thrust-rod within the lower member of the frame and bearing against the eccentric, a cone axially mounted upon said thrust-rod, a thrust-rod within the upwardly-directed tube and bearing upon the face of the cone, a pawl carried by the upper end of said last-named thrust-rod, and an indicating instrument carried by the bicycle-frame and having a ratchet for cooperating with the pawl.

596,078. CORN-HARVESTER. WILLIAM W. MANN, Lincoln, Nebr. Filed July 12, 1892. Serial No. 439,844. (No model.)

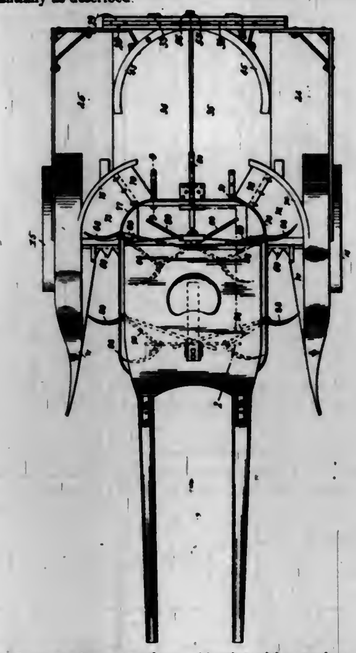
Claim.—1. In a corn-harvester, the combination with a carriage and stationary platforms carried thereby, of tilting platforms carried between said stationary platforms, each of said tilting platforms being loosely pivoted at its forward end at approximately its longitudinal center in such manner as to permit said platforms to tilt and swing laterally, and swinging devices from which the rear ends of the tilting platforms are freely suspended, whereby the rear ends of said swinging platforms when tilted are caused to move in opposite directions in a substantially horizontal plane, substantially as described.

2. In a corn-harvester, the combination with a carriage, and stationary platforms carried thereby, of tilting platforms 35 and 36 arranged between the stationary platforms, each of said platforms being pivoted at its forward end so that it is adapted to swing laterally at its rear, pivotally-suspended rods 43 and 44 supporting the rear ends of the tilting platforms and permitting the same to swing laterally in opposite directions, and a movable stop for supporting the forward inner edges of the tilting platforms to hold them in a horizontal position, substantially as described.

3. In a corn-harvester, the combination with a carriage, and stationary platforms carried thereby, of tilting platforms 35 and 36 between said stationary platforms, each of said platforms being pivoted at its forward end, rods 43 and 44 freely suspended at their upper ends from a frame for supporting said rods, and loosely connected at their lower ends to the rear ends of the tilting platforms, and a movable stop for supporting the forward inner edges of said platforms 35 and 36 to hold them in a horizontal position, substantially as described.

4. In a corn-harvester, the combination with a carriage, stationary platforms carried thereby, and tilting platforms pivoted at their forward ends and freely suspended at their rear ends between said stationary platforms, the rear ends of said platforms being adapted

to swing outward when the platforms are tilted, of a shock-supporting bar, guides adapted to cause said shock-supporting bar to move in a vertical plane, and levers connecting said bar with said tilting platforms, whereby by the swinging of the rear ends of said platforms said shock-supporting bar will be moved in a vertical plane, substantially as described.



5. In a corn-harvester, the combination with a carriage, stationary platforms carried thereby, and tilting platforms arranged between the stationary platforms and having their rear ends adapted to swing laterally in opposite directions when said platforms are tilted, of a vertically-movable shock-supporting bar, guides for causing the shock-supporting bar to move in a vertical plane, and levers connecting the shock-supporting bar with the tilting platforms, whereby the shock-supporting bar is elevated by the movement of the tilting platforms, substantially as described.

6. In a corn-harvester, the combination with a carriage, stationary platforms carried thereby, tilting platforms 35 and 36 between said stationary platforms, and rods 43 and 44 supporting the rear ends of said platforms 35 and 36, of cross-bar 34, guides for said cross-bar, connecting-rods 46 and 47, and levers 48 and 49 connecting said rods 46 and 47 respectively with the platforms 35 and 36 respectively, whereby by the swinging of said tilting platforms said cross-bar will be moved in a vertical plane, substantially as described.

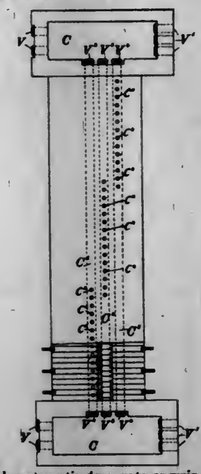
7. In a corn-harvester, the combination with a carriage, stationary platforms carried thereby, and tilting platforms between said stationary platforms, of rearward extensions 55 and 56 adapted to engage the shock as the machine moves away from it, substantially as and for the purpose specified.

8. In a corn-harvester, the combination with a carriage, rear platforms adapted to receive cut stalks, a sickle 69, and curved platforms 72 and 73, of devices for carrying the stalks along said platforms 72 and 73 to the rear platforms, a supporting-bar 80 hinged centrally at the forward end of said rear platforms, and a spring 82 adapted to normally hold said bar in a horizontal position, substantially as described.

596,074. AUTOMATIC DAM, WEIR, OR GATE. WILLIAM L. MARSHALL, Chicago, Ill. Filed Apr. 26, 1897. Serial No. 633,927. (No model.)

Claim.—1. In a bear-trap dam or gate having two leaves detached from each other, but attached to foundation, each leaf along an edge, a toggle-leaf or shoe in contact with the upstream leaf, and in continuation of the downstream leaf, attached to and rotating about the free edge of said downstream leaf, substantially as specified.

2. A movable automatic dam, gate or weir, comprising detached upstream and downstream leaves, a toggle-leaf or shoe in continuation of said downstream leaf at its free edge and a quoin or stop attached to said upstream leaf at or near the free edge thereof to engage with the toe of said toggle-leaf or shoe to rotate the same, substantially as described.



3. A movable automatic dam, gate or weir comprising detached upstream and downstream leaves, a rotating toggle-leaf or shoe in continuation of said downstream leaf, a quoin or stop on the under side of said upstream leaf at or near its free edge, and a drift shield or cover attached to said upstream leaf along its free edge and extending over said toggle-leaf or shoe substantially as described.

4. In combination, an automatic dam, gate or weir, with two leaves, and telescoping tie-rods attached to foundation and downstream leaf of said dam, gate or weir, to limit the motion of said downstream leaf, substantially as described.

5. A movable dam, gate or weir, with two leaves, limited in its motion, and height by telescoping tie-rods attached to said dam, gate or weir, and to the foundation thereof, substantially as specified.

6. In combination a movable dam, gate or weir with two leaves, and automatic hydraulic brakes attached to said dam or gate, and foundation, regulating, restraining and limiting the rise of said dam, gate or weir, substantially as specified.

7. In combination, a movable dam, gate or weir, with two leaves, telescoping tie-rods, and hydraulic brakes regulating, restraining and limiting the rise of said dam, gate or weir, substantially as described.

8. In combination, a movable hydraulic dam, gate or weir, telescoping tension-rods adjustable in length, and hydraulic brakes forming part of said tension-rods attached to said dam or gate, regulating, restraining and limiting the rise of said dam or gate, substantially as described.

9. In combination, a movable dam or gate with two leaves, a toggle-leaf or shoe in continuation of the downstream leaf, a quoin or stop on under side of the upstream leaf at top thereof, and telescoping tie-rods and brakes attached to downstream leaf and foundation of said dam or gate, substantially as described.

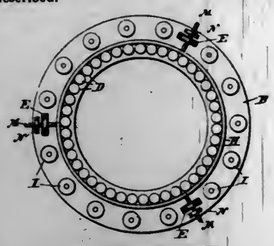
10. In combination, a movable dam or gate of the class specified, a continuous hydraulic chamber subdivided into aliquot parts by imaginary planes at right angles to crest of said dam, and a series of independent conduits each conduit of the series communicating with one such part of said chamber, and through valves at each end thereof, with upper and lower pools, (either, or both simultaneously,) by which combination the supply of water and resulting pressures within the hydraulic chamber may be directed and varied as may be required by the resistances to motion, to make the gate or dam move in such manner as to preserve a level crest in rising and falling, substantially as specified.

596,075. ECCENTRIC. RUSSELL MARVIN, Findlay, Ohio, assignor of one-half to S. H. H. Priddy, same place. Filed July 1, 1895. Renewed May 3, 1897. Serial No. 634,967. (No model.)

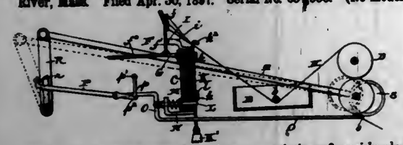
Claim.—1. In an eccentric, the combination of an eccentric body, having a flange G, a ring B surrounding said eccentric body, friction-rolls D interposed between said eccentric and ring, and travelers E mounted upon and supporting said ring, and traveling upon said flange G, substantially as described.

2. In an eccentric, the combination of an eccentric body A, a ring B surrounding said eccentric body, friction-rolls D interposed between

said body and ring, travelers E supporting said ring, and axles carrying said travelers, and mounted in said ring, said axles being provided with longitudinal oil-ducts M adapted to lubricate said ducts, substantially as described.



596,076. STOP-MOTION FOR TWISTERS. JOHN MEEHAN, Fall River, Mass. Filed Apr. 30, 1897. Serial No. 634,563. (No model.)



Claim.—1. A stop-motion for twisters, consisting of a guide-clamp, means for causing said guide-clamp to move when unrestrained to nip the yarn, a detent for said guide-clamp, movable transversely to the line of movement of said clamp, and tripping mechanism for the detent, comprising a rocking drag-bar, and a hook pivotally connected with the detent and adapted to be engaged by said drag-bar, and when so engaged to move the detent as aforesaid and thereby disengage it from the guide-clamp, substantially as described.

2. A stop-motion for twisters, consisting of a guide-clamp, means for actuating the same, a detent for said guide-clamp, movable transversely to the line of movement of said clamp, a hook pivotally connected with the detent, a rocking drag-bar to engage with the hook, and one or more levers controlled by the yarn and adapted to tilt the hook into the path of the drag-bar, whereby the detent will be disengaged from the clamp, substantially as described.

3. A stop-motion for twisters, consisting of a guide-clamp, means for actuating the same, a detent for said guide clamp, a hook connected with the detent, a rocking drag-bar to engage with the hook, a gang of levers one for each strand, and a single lever for the entire yarn, all of said levers controlling the relative positions of the hook and the drag-bar, substantially as described.

4. A stop-motion for twisters, consisting of a guide-clamp, means for actuating the same, a detent-bolt for said guide-clamp, movable transversely to the line of movement of said clamp, a lever fulcrumed in the head of said bolt, and engaging with the yarn, a hook carried by said lever, and a rocking drag-bar to engage with said hook and when so engaged to move the detent as aforesaid and thereby disengage it from the guide-clamp, substantially as described.

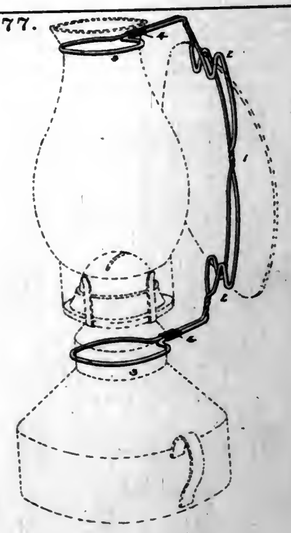
5. A stop-motion for twisters, consisting of a guide-clamp, means for actuating the same, a detent-bolt for said guide-clamp, a lever fulcrumed in the head of said bolt, and engaging with the yarn below the rolls of the twister, a hook hinged to said lever and having an upright arm, elbow-levers having eyes for the strands, and adapted to drop on the upright arm of the hook, and a rocking drag-bar to engage with said hook, substantially as described.

596,077. SUPPORT FOR LAMP-SHADES. RICHARD A. MILLER, Gloucester City, N. J. Filed Mar. 13, 1897. Serial No. 627,281. (No model.)

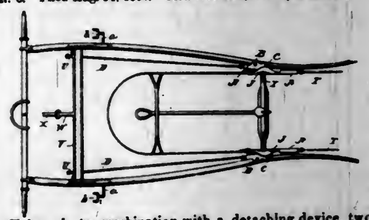
Claim.—1. An attachment for lamps made up of two pieces of wire twisted upon each other centrally from which point they diverge and are formed into hooks, are then again twisted upon themselves and bent at right angles, the terminals being formed into curved jaws or segments constructed to engage the lamp below the burner and also the upper part of the chimney, substantially as shown and for the purpose set forth.

2. An attachment for lamps made up of two pieces of wire twisted upon each other centrally and diverging from the twisted portion to a point where they are formed into hooks, are again twisted upon themselves and bent at right angles, the end portions diverging and terminating in curved jaws or segments constructed to engage the lamp below the burner and also the upper part of the chimney; together with slides in engagement with the diverging portions adjoining the jaws, substantially as shown and for the purpose set forth.

596,077.



596,078. HORSE-DETACHER. LOUIS P. MOORE, Statesville, N. C. Filed Aug. 31, 1897. Serial No. 650,077. (No model.)



Claim.—1. In combination with a detaching device, two housings, one attached to each shaft, a block fitted within each of the housings, a brake-rod carried by the block, a shoe formed upon the end of the rod, means for drawing the block rearward so as to bring the shoe into contact with the wheel-rim, and means for holding said block in its rearward position, as specified.

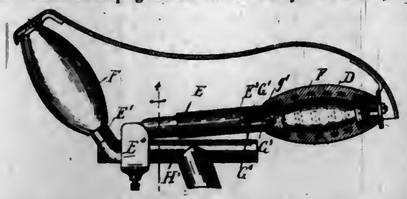
2. The herein-described combination of the casings A attached to the shafts of a vehicle, spring-clips arranged within said casings, rods connected thereto, coil-springs for holding the rods in their normal positions, buckles carried by the harness, bars carried by said buckles adapted to enter into engagement with the casings and be there held by the clips, a cross-rod having arms U to which the first-named rods are attached, a means for revolving said cross-rod upon its axis, housings attached to the shafts, blocks fitted to slide therein, means for connecting said blocks to the cross-rod, brake-rods carried by the blocks, shoes formed upon the ends of the brake-rods, casings N hinged to the buckles, means for swinging said casings outward, and spring-actuated draw-rods fitted within the casings N, substantially as and for the purpose set forth.

3. In combination, a housing secured on each shaft, a block slidably fitted in each housing, rods depending from said blocks, brake-shoes on the lower ends of the rods, a spring-latch secured in each housing to engage notches in the block, connecting-rods extending rearwardly from the blocks and a cross-rod connecting said rods, as and for the purpose described.

596,079. VIBRATION-ABSORBING DEVICE FOR BICYCLES. WILLIAM M. MORSE, Chicago, Ill. Filed May 11, 1896. Serial No. 591,074. (No model.)

Claim.—1. The combination with a bicycle-frame, and a part to be supported thereon, of elastic supporting means, comprising an open-coiled wire spring rigidly attached at one end to the machine-frame and at its opposite end to the part to be supported, said spring having its central axis disposed transversely with respect to the direction in which pressure is applied to the part to be supported, and a mass of yielding material enveloping said spring both exteriorly and interiorly.

2. The combination with one of the main supporting members of a bicycle saddle having at its end a tubular stud or socket, of means for supporting the seat of a saddle thereon comprising a hollow tubular stud secured in said socket, an elongated oval-coiled spring having its central axis disposed transversely to the line of pressure thereon within one end of which the tubular stud is expanded, means for connecting the opposite end of the coil to the seat of the saddle, and a mass of rubber enveloping the coil both exteriorly and interiorly.



3. A bicycle-seat frame comprising a central frame member provided with a plurality of divergent arms, an elongated open-coiled wire spring upon the end of each of said arms arranged to extend in prolongation of the latter and an outer frame supported upon the outer ends of said coils.

4. A bicycle-seat frame comprising a central frame member provided with a plurality of divergent arms each provided at its ends with a rigid stud, an elongated oval-coiled wire spring mounted upon each of said studs and arranged to extend in prolongation of the arm and an outer frame supported upon the outer ends of said coiled springs.

5. The combination with a velocipede-saddle, of an attaching-clip comprising a clip-body provided with a cavity having curved interior walls, a pair of clamping-blocks adapted to fit within said cavity each of said blocks having one of its sides curved to conform to the curvature of the cavity and its opposite side adapted for a seat-standard, and a set-screw tapped through the wall of the clip-body and arranged to act upon one of said clamping-blocks to clamp it against the seat-standard member.

6. The combination with a velocipede-saddle, of an attaching-clip comprising a clip-body provided with a cavity having curved interior walls, a pair of clamping-blocks adapted to fit within said cavity each having one side curved to conform to the curvature of the cavity and its opposite side grooved for the reception of a seat-standard and a set-screw tapped through the wall of the clip-body and arranged to act upon one of said clamping-blocks.

7. The combination with a velocipede-saddle, of an attaching-clip comprising a clip-body provided with a parti-cylindric cavity having curved interior walls, a pair of clamping-blocks adapted to fit within said cavity each having one side of cylindric form to conform to the curvature of the cavity and its opposite side grooved for the reception of a seat-standard and a set-screw tapped through the wall of the clip-body and arranged to act upon one of said clamping-blocks.

596,080. VIBRATION-ABSORBING DEVICE FOR BICYCLES. WILLIAM M. MORSE, Chicago, Ill. Filed Sept. 10, 1896. Serial No. 605,376. (No model.)



Claim.—1. A device for absorbing vibration comprising a supporting-stud adapted to be secured to the vibratory part and a plurality of uncoiled springs extending outwardly from said stud in a general direction parallel with the axis of the stud, the outer ends of said springs being disconnected whereby they may have movement with relation to each other and a covering for said springs.

2. A device for absorbing vibration comprising a supporting-stud adapted to be secured to the vibratory part, a plurality of uncoiled springs projecting from said stud, said springs being curved between their ends and arranged about the axis of said stud to form a hand-grip and a continuous mass of yielding material enveloping said springs.

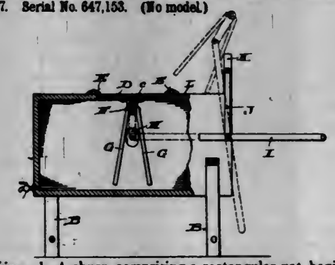
3. A device for absorbing vibration comprising a hollow supporting-stud provided with a plurality of apertures, a plurality of outwardly-extending springs adapted to be secured in said apertures having bent end portions adapted to lie upon the inner side of said stud at right angles to the body portion, means for rigidly securing said springs in position comprising a threaded boss on the stud and a nut on the boss adapted to engage the extreme inner ends of said springs and means for securing said stud to a vibratory part.

596,081. DRIVE-PIPE FOR ARTESIAN WELLS, &c. JOHN MUIRHEAD, Pittston, Pa. Filed July 8, 1897. Serial No. 643,827. (No model.)



Claim.—The shoe A with the neck B thereon having shoulders on opposite sides thereof, the inner and outer pipes E and F secured to the opposite sides of said neck and abutting against said shoulders, the collar H embracing the said inner pipe and supported on the said outer pipe, the pipe L having its lower end abutting against the upper end of the inner pipe E, and a coupling-sleeve K engaging the threaded adjacent ends of said pipes E and L and resting against said collar H.

596,082. CHURN. JOHN R. NOHR, Marion, Wis. Filed Aug. 5, 1897. Serial No. 647,153. (No model.)



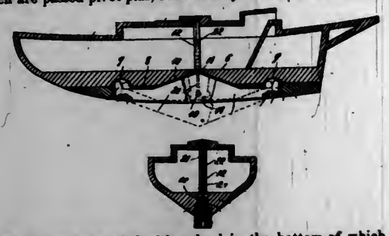
Claim.—1. A churn comprising a rectangular vat having a detachable central top section, a dasher consisting of a transverse bar having journals engageable with corresponding recesses in upper edges of the vat sides midway the length of the latter and a series of diverging slats depending from each side of said bar; cranks in rigid connection with said journals, a yoke having its ends in pivotal connection with the cranks, a riser at one end of said vat above a permanent top section of the same, and links connecting said yoke and riser.

2. A churn comprising a rectangular vat having a detachable central top section, a dasher consisting of a transverse bar having journals engageable with corresponding recesses in upper edges of the vat sides midway the length of the latter and a series of diverging slats depending from each side of said bar; cranks in rigid connection with said journals, bar-fitting plates on the under side of said detachable top section of the vat, a yoke having its ends in pivotal connection with the cranks, a riser at one end of said vat above a permanent top section of the same, and links connecting said yoke and riser.

596,083. CENTERBOARD FOR YACHTS. JOSEPH NORTHUP, Brooklyn, N. Y., assignor of two-thirds to Angevine Northup and Henry E. Northup, same place. Filed May 19, 1897. Serial No. 637,137. (No model.)

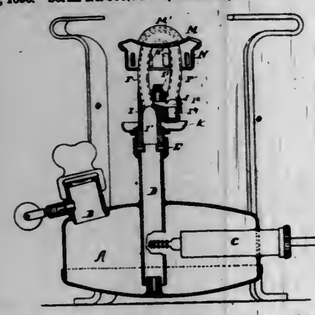
Claim.—1. A yacht provided with a keel in the bottom of which is a longitudinal slot which opens downwardly, said slot being extended upwardly at the center, and at both ends, and a centerboard

composed of two parts which are pivotally connected at their inner ends, and the outer ends of which are provided with upwardly-directed extensions, said outer ends being provided with slots through which are passed pivot-pins, substantially as shown and described.



2. A yacht provided with a keel in the bottom of which is a longitudinal slot which opens downwardly, said slot being extended upwardly at the middle thereof, and at each end, so as to form upwardly-directed cavities or recesses, and a centerboard composed of two parts which are pivotally connected at their inner ends one of said parts being provided with projecting jaws or side pieces at its inner end, between which the inner end of the other part passes, said separate parts being provided at their outer ends with upwardly-directed extensions, and with slots through which are passed pivot-pins, and a rod pivotally connected with the jaws or side pieces of one of said parts, a tube mounted centrally of the yacht and extended upwardly therethrough into which said rod passes, and a rope connected with the upper end of said rod by which said centerboard may be raised or lowered, substantially as shown and described.

596,084. HYDROCARBON-BURNER. CARL R. NYBERG, Stockholm, Sweden, assignor to Will L. Ohmer, Dayton, Ohio. Filed July 18, 1896. Serial No. 599,742. (No model.)



Claim.—In a hydrocarbon-burner, the combination with a tank, and a pipe D extending from said tank, of a burner-head I having two separate and non-communicating chambers I' and I^2, with the former of which the pipe D communicates, a series of pipes each one of which consists of a continuous tube having its upper end curved, and one arranged parallel with the other, and having separate and independent communication with the chambers I' and I^2, a cap M provided with a series of channels M' and M^2 that incluse the rounded ends of the pipes, and a flame-confining ring N surrounding the said pipes, and to which said cap M is attached, the said ring having its lower end projected inwardly and secured to the pipes; and a flame-jet I^3 communicating with the chamber I^2, substantially as shown and described

596,085. ELECTRICAL SIGNAL-BELL FOR STREET-CARS. JAMES P. ORR, Pittsburg, and THEODORE F. GALVIN, McKeesport, Pa.; said Galvin assignor to Geo. H. Fugh, Pittsburg, Pa. Filed Aug. 3, 1896. Serial No. 601,474. (No model.)

Claim.—1. In an electric signal-bell, the combination of a bell-clapper and its arm, a ratchet-wheel having thereon antifriction-rollers adapted to engage the bell-clapper arm and an automatic circuit-opener with a lever C attached to a vibrating armature, a pawl pivotally mounted on the end of the armature which is adapted to engage and propel the wheel D, substantially as described.

2. In an electric signal-bell, the combination of a bell-clapper and its arm, a ratchet-wheel having thereon antifriction-rollers adapted to engage the bell-clapper arm, and an automatic circuit-opener with sleeve E, mounted on insulated pin which is electrically connected with B by circuit-closer F^2 for the purpose specified.

596,085.



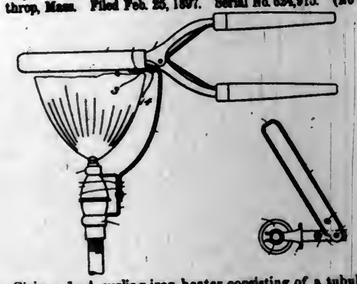
596,086. PETROLEUM-STOVE AND BURNER. CARL R. ORLUND, Stockholm, Sweden, assignor to Will L. Ohmer, Dayton, Ohio. Filed July 18, 1896. Serial No. 599,750. (No model.)



Claim.—1. A burner for petroleum lamps or stoves, formed of a plate or blank having a bulged or outwardly-projecting portion in which there are a series of incisions, the said plate or blank being bent into tubular form, and its edges united, substantially as shown and described.

2. In a petroleum-oil stove, the combination with a tank, and a tube or oil-pipe extending therefrom, having a nipple or jet in its upper end; of a burner forming a continuation of said tube or oil-pipe, and consisting of a bent plate or blank having a bulged or outwardly-projecting annular portion in which there are a series of incisions, the said plate or blank having its edges united as herein shown and described.

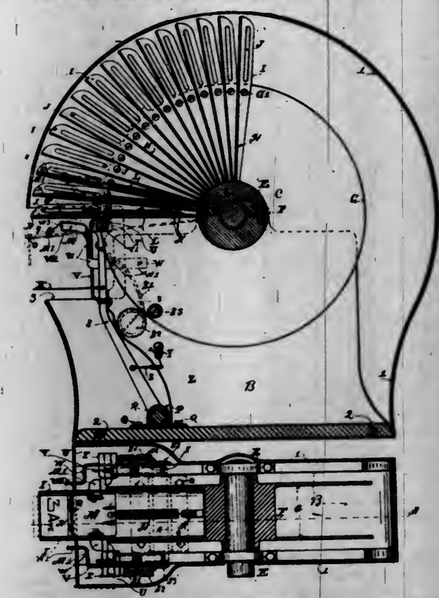
596,087. CURLING-IRON HEATER. HERBERT A. PALMER, Winthrop, Mass. Filed Feb. 25, 1897. Serial No. 624,915. (No model.)



Claim.—1. A curling-iron heater consisting of a tubular holder with a flange extension at one end, a holding-arm with a flange to which said flange extension of the tube is pivoted, a projection on the face of the flange of said arm which engages with the tabular holder when adjusted over the gas-jet, and a clamp which secures the holding-arm to a gas-burner, the tubular holder being capable of switching out of range of the gas, substantially as described.

2 The combination of a curling-iron holder, a supporting-arm for said holder, and a bracket with means for securing the bracket to a gas-burner, the supporting-arm being pivoted to said bracket so as to be rotatable on a horizontal axis, said holder being pivoted to said arm at its upper end so as to be rotatable on a vertical axis at right angles with the axis of rotation of the said supporting-arm, substantially as described.

596,088. STATION-INDICATOR. CONOH I. PASSOVER, Denver, Colo. Filed Mar. 12, 1896. Serial No. 582,969. (No model.)



Claim.—1. The combination with the pedestal and a wheel containing a complete circle of independent leaves having side pieces containing slideways, and arranged at equal distances apart, and a series of street and station indicating cards normally seated between said leaves and the card displaying and operating mechanism, comprising a cross-head pivoted to said cards and having lugs arranged to extend through said slideways in said leaves, a pair of locking-levers, and a double-armed rock-shaft pivoted to said pedestal to swing outward from said wheel's axis and downward from abreast its horizontal center, and adapted to automatically engage said cross-head lugs and thereby move said leaves rotatably around said wheel's axle into operative relation to said locking-levers intermittently and in successive order, and thereby lock them in a fixed position to display said cards and the retracting-spring and the manually-operating pull-rope, substantially as described.

2. The combination of the pedestal and the leaf-wheel, leaves therein, the spring-controlled cross heads, the indicating-cards arranged to swing vertically from the ends of said cross-heads and leaves, the rock-arms having slideways at their ends, the spring-controlled dogs mounted therein and adapted to automatically engage said cross-heads, and means for operating said rock-arms to display said cards in a fixed position from the ends of the said leaves, substantially as described.

3. The combination with the pedestal, the leaf-wheel and leaves therein of the cross-heads, the retractive spring arranged to return said cross-heads in one direction of their movement, the street-indicating cards pivoted to said cross-heads, the slots in said leaves, the lugs on said cross-heads, and means substantially as herein set forth for operating the same to display said cards.

4. The combination of the pedestal and the leaf-wheel, of the leaves detachably secured thereto in a continuous circle at equal distances apart, a cross-head adapted to move reciprocatively in each leaf, a retractive spring connected to said cross-head and adapted to operate it in one direction, a street-indicating card pivotally secured to said cross-head and arranged to be displayed in a fixed position from the end of each leaf, and means substantially as herein set forth for operating said cross-head to display said cards in successive order, substantially as described.

5. In a railway street or station indicator, the combination with the pedestal and the leaf spool-wheel, of the cross-head in each leaf, the springs connected thereto, the street-indicating cards, the lugs on the cross-heads, the rock-arms having a spring-operated dog slidably journaled in their ends, adapted to engage said lugs and to move said cross-head outward in its leaf and to move said leaf downward during its operating stroke, and turn said leaf-wheel on its axis a distance sufficient to bring the leaves above it in successive order into operative relation to said rock-arms and dogs, levers secured to said pedestal and arranged at either side of said leaves in their downward path and in the outward path of the lugs of said cross heads, and adapted to coact with said rock-arm to receive said lugs from said rock-arms and to hold them in a position to display said street indicating cards from the ends of said leaves, and means for manually operating said rock-arms, substantially as described.

6. The combination with the leaf-wheel, of the cross-heads arranged to be reciprocated in the leaves, the street-indicating cards pivoted to said cross-heads, and adapted to be displayed intermittently in successive order from the ends of said leaves, rock-arms adapted to move said leaves rotatively a predetermined distance and to bring them one at a time into operative position to display said cards, the locking-levers coacting with said rock-arms to display said cards in fixed positions for selectable and optional periods of time, and the retracting-springs and pull-rope for operating said rock-arms, substantially as described.

7. The combination with the pedestal, of the spool-wheel having a continuous circle of leaves radiating therefrom, having vertical sides containing oppositely-arranged slots, a cross-head resting on each leaf, lugs on each cross-head extending through and beyond said slots, a retracting-spring arranged to return said cross-head on its backward movement, a street-indicating display-card pivotally attached to the opposite end of said cross-head and resting normally between said leaves, a double-armed rock-shaft pivoted to said pedestal and arranged and adapted through the medium of a manually-operating pull-rope to project said cross-heads and display-cards outward on said leaves one at a time in successive order and thereby display said street indicating cards, and adapted to move the cross-head and leaf with which it is in engagement downward during its outward stroke, a distance sufficient to bring the next leaf above it in operative relation to said rock-arms, and levers arranged to coact with said rock-arms to receive said cross-head from said rock arms and lock it in a fixed position to allow said street-indicating card to hang vertically down over the edge of its respective leaf, substantially as set forth and described.

8. In a railway street and station indicator, the combination of a pedestal having a spool-wheel rotatably journaled therein, a continuous circle of independent leaves secured to said spool-wheel and radiating from its hub, vertical sides to each leaf, a slideway-slot in each side of each leaf, a cross-head having lugs adapted to said slideways and extending through and beyond the side slots, a retractive spring secured to one end of said cross-head and adapted to control its movement in one direction, a street-indicating display-card pivotally secured to the opposite end of each cross-head of each leaf, a rock-shaft pivoted to the base of said pedestal having arms extending upward on either side of said leaves and adapted to swing in an outward and downward curve from abreast the horizontal center of said wheel and to operatively engage the said lugs of said cross-head and move it to exhibit said display-card, a slideway on the end of each arm, a spring-controlled dog in said slideways arranged to engage the lugs of said cross-head, a manually-operated pull-rope secured to said rock-arms, a spring secured to said levers and said pedestal adapted to return said arms to their normal position when said pull-rope is released, and a pair of locking-levers arranged in the path of the lugs of said cross-head to lock said cross-head in a position to display said street-indicating card, substantially as described.

596,089. GAME APPARATUS. JOHN F. PATTERSON, Bath, N. Y. Filed Dec. 3, 1896. Serial No. 614,343. (No model.)

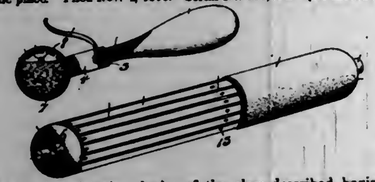


Claim.—1. A game apparatus or puzzle having a tilting case provided near one end with a transverse fulcrum-bar adapted to hold the case normally in an inclined position when arranged upon a flat surface, and a plurality of rolling objects arranged within the case, the floor of the case being provided with a plurality of longitudinal

parallel grooves or guiding-channels, alternate grooves terminating in depressions or sockets spaced from the lower end wall of the case, and the intermediate grooves extending beyond and terminating flush with the floor of the case, substantially as specified.

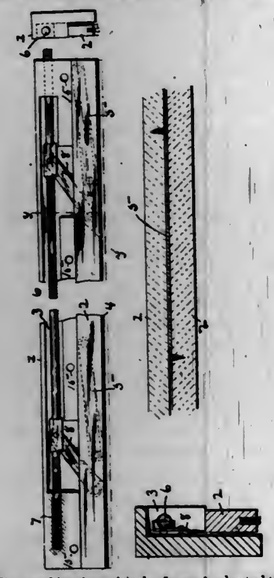
2. A game apparatus or puzzle having a case provided at unequal distances from its ends with a transverse fulcrum-bar upon which the case may be rocked, the floor of the case being provided contiguous to one end, and spaced from the adjacent end wall, with a plurality of depressions or sockets for the reception of rolling objects inclosed by the case, and said floor being further provided with grooves or channels extending through spaces between the depressions or sockets and terminating between the same and the contiguous end wall of the case, substantially as specified.

596,090. LETTER-COPYING ROLLER. HARRY L. ROUX, Galveston, Tex., assignor of two-thirds to Jacob Singer and A. J. A. Chiapella, same place. Filed Nov. 4, 1896. Serial No. 611,064. (No model.)



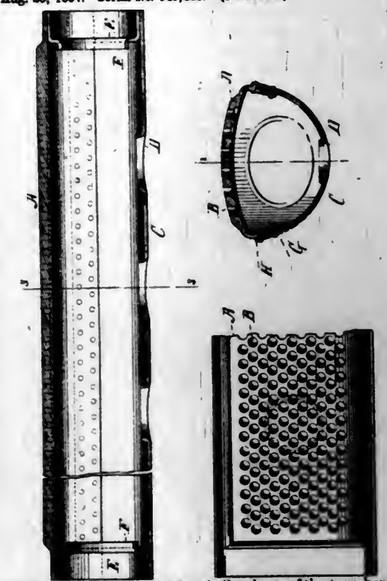
Claim.—A moistening device of the class described, having a hollow roller consisting of terminal and intermediate heads, and longitudinally-disposed strips secured to the peripheries of the heads and spaced apart at their contiguous edges to form longitudinal slots through which interior moisture may escape, an absorbent covering inclosing said roller, and a frame in which the terminal trunnions of the roller are mounted, substantially as specified.

596,091. WEATHER-STRIP. CHARLES F. RUSSELL, New Haven, Conn. Filed July 26, 1897. Serial No. 645,961. (No model.)



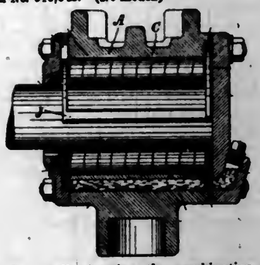
Claim.—The combination with the frame 1 adapted to be secured to the side of a door, said frame being recessed and chambered as described and provided with bearings at its ends, of the rod 6 supported in the bearings on said frame and adapted for longitudinal movement therein, spring 7 pressing said rod in one direction and causing one end thereof to normally project beyond the end of the frame, the vertically-movable strip 2 located within the recess in said frame, below said rod, links 8 pivotally connected at one end to said strip and similarly connected at their opposite end to said rod, and links 5 having a pivotal connection at one end to said strip and at their opposite end to said frame, arranged and operating substantially as described.

596,092. STEAM-BOILER. HORACE SEE, New York, N. Y. Filed Aug. 25, 1897. Serial No. 649,443. (No model.)



Claim.—The combination in a boiler-drum of the type herein set forth of the curved tube-sheet A having inwardly and downwardly inclined flanges G, the curved sheet C having its edges H overlapping the exterior of flanges G, and having an inwardly-flanged or manhole opening D and the tubular heads E within said drum, substantially as described.

596,093. OIL-DISTRIBUTER FOR ROLLER-BEARINGS. THEODORE J. TELLKAMP and CHARLES S. LOCKWOOD, Newark, N. J., assignors to the Hyatt Roller Bearing Company, of New Jersey. Filed Jan. 13, 1897. Serial No. 619,045. (No model.)



Claim.—1. In a roller-bearing, the combination, with a casing having a cylindrical seat for the rolls, and a chamber of greater diameter within the casing at the end of such seat, of a series of rolls fitted to the seat, longitudinal guide-bars extended between the rolls at opposite sides of the casing, with a semi-annular oiling-flange attached to such guides at one end, and extended over the ends of one half of the rolls, and projecting outward within the chamber beyond the periphery of the casing, and operating as described, to raise and distribute the oil, substantially as herein set forth.

2. In a roller-bearing, the combination, with a casing having a cylindrical seat for the rolls, and a chamber of greater diameter within the casing at the end of such seat, of a series of rolls fitted to the seat, longitudinal guide-bars extended between the rolls at opposite sides of the casing with semi-annular yokes attached to the opposite ends of such guides and extended over the ends of one half of the rolls, and the remaining half of the rolls having central holes with pins inserted movably in such holes and auxiliary semi-annular oiling-flange attached to such pins, and extended outwardly into the chamber to lift and distribute the oil when propelled by the rolls, substantially as herein set forth.

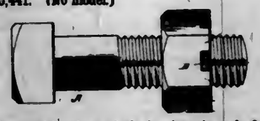
3. In a roller-bearing, the combination, with the casing having a cylindrical seat for the rolls, and a chamber of greater diameter within the casing at the end of such seat, of a series of rolls fitted to the seat, longitudinal guide-bars extended between the rolls at opposite sides of the casing, with semi-annular yokes attached to such guides and extended over the ends of one half of the rolls, and one of such semi-annular yokes projected outwardly into the chamber beyond the casing to serve as a principal semi-annular oiling-flange, the remaining half of the rolls having central holes with pins inserted movably in such holes and an auxiliary oiling-flange attached to such pins and projected outwardly into the chamber, such principal and auxiliary oiling-flanges serving to distribute the oil at opposite ends of the journal, as the flanges are carried around the journal by the rolls, substantially as herein set forth.

4. A roller-bearing having a casing with a cylindrical seat for the rolls, and a chamber of greater diameter within the casing at the end of such seat, a series of rolls fitted to the seat, to revolve around the journal, and a flat oiling-flange propelled by the rolls and projected outwardly into such chamber, and having perforations through the thickness of the flange to form oil-pockets to receive and lift and distribute the oil, substantially as herein set forth.

5. A roller-bearing having a casing with a cylindrical seat for the rolls, and a chamber of greater diameter within the casing, at the end of such seat, a series of rolls fitted to the seat to revolve around the journal, and a flat oiling-flange propelled by the rolls and projected outwardly into such chamber, and having perforations through the thickness of the flange to form oil-pockets, the sides or walls of such perforations next to the journal being inclined upon that side of the flange next the ends of the rolls to discharge the oil from the pockets chiefly upon that side of the flange, substantially as herein set forth.

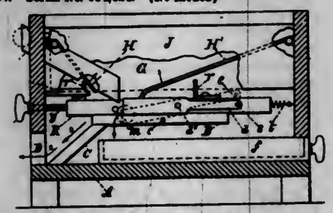
6. A roller-bearing having a casing with a cylindrical seat for the rolls, and a chamber of greater diameter within the casing at the end of such seat, a series of rolls fitted to the seat to revolve around the journal, and a flat oiling-flange propelled by the rolls and projected outwardly into such chamber, and having perforations through the thickness of the flange to form oil-pockets, the sides or walls of such perforations next to the journal being inclined as set forth, and the sides or walls of the pockets next the edge of the flange being concaved, as and for the purpose set forth.

596,094. NUT-LOCK. JOHN A. TEMPLE, Shamokin, Pa., assignor of one-half to William A. Ziegler, Milton, Pa. Filed Mar. 1, 1897. Serial No. 625,441. (No model.)



Claim.—In combination a bolt having threads formed thereon, said threads being intersected by a slot cut at an angle to the diameter of the bolt and forming teeth of the threads adapted to be bent out of position, a nut run upon said thread, projections formed on the nut, said projections having sections of the thread that is formed in the nut formed on their inner faces to engage the teeth when bent out of position, substantially as described.

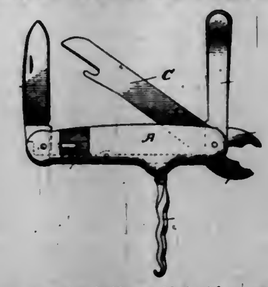
596,095. SLOT-MACHINE. JOHN WAHL, Alton, Ill. Filed Oct. 4, 1897. Serial No. 654,021. (No model.)



Claim.—1. In a slot machine, a stage in connection with an inclined delivery chute, a bottomless drawer having a capacity for one cigar only and constructed so as to slide upon said stage, a locking-lever fulcrumed on a stud secured in the wall of the inclosing box and having one arm provided with a stud which engages with a notch in the side of the bottomless drawer so as to lock the latter when at the rearward end of its travel, the opposite arm of said lever having a deep groove therein for the reception of a coin; an inclined conduit for conducting the coin from the hand of the operator to the groove in the locking lever, a stud secured in the side of the bottomless drawer to prevent the coin falling from the locking-lever until the drawer has been moved outward, all of said parts constructed and combined for united operation substantially as set forth.

2. In a slot-machine for the delivery of cigars, and having a sliding delivery-drawer, the combination with said drawer, of a hopper having the tops of the inclined sides thereof hinged to the inclosing box, the lower free parts being alternately vibrated by brackets secured to the delivery-drawer so as to urge the contents of the hopper downward and prevent the possibility of a jam; all substantially as set forth.

596,096. POCKET-KNIFE. JOHN R. WATTS, Sheffield, England. Filed Apr. 26, 1897. Serial No. 634,242. (No model.)

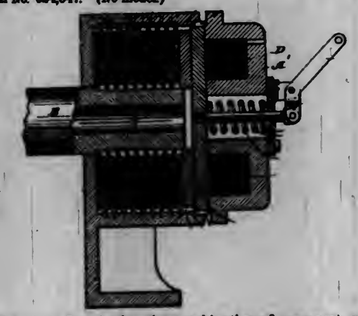


Claim.—1. A pocket-knife provided with a cutting-blade and a tire-lifter, the latter consisting of a flat blade rounded at the edges, and which is slightly bent to one side at the tip and adapted to fold behind one of the side plates or scales of the knife-body, the said plate or scale being provided with an opening to allow the protrusion of the said tip substantially as set forth.

2. In a pocket-knife, the combination of the knife-body having a plier-jaw fixed on one end thereof and a longitudinal slot in one of its side plates, with a stud or slide movable back and forward in the said slot and a lever pivoted to the said body and provided with a movable plier-jaw completing the pair of pliers, the said lever being also constructed with a part adapted to be engaged by the said stud or slide as it is moved forward in the said slot substantially as set forth.

3. In a pocket-knife, the combination of the knife-body, with a lever pivoted thereto, a catch adapted to lock and release the said lever at will and a spring acting on the said lever to open it, the said body and lever being pivoted respectively with the jaws of a pair of pliers arranged and operating substantially as set forth.

596,097. BRAKE. SAMUEL T. WELLMAN, JOHN W. SEAVER, and CHARLES H. WELLMAN, Cleveland, Ohio, assignors to the Wellman-Seaver Engineering Company, same place. Filed Feb. 23, 1897. Serial No. 624,547. (No model.)



Claim.—1. In a brake, the combination of a magnet, an armature, a shaft, means adapted to produce a braking action upon said shaft, means adapted to actuate said armature to directly act upon said braking means to cause said braking action, said magnet adapted to attract and actuate said armature to cause said braking means to release the shaft, and means adapted to cause said release independently of said magnet, substantially as set forth.

2. In a brake, the combination of a magnet, an armature, a shaft, means adapted to produce a braking action upon said shaft, a spring adapted to actuate said armature to directly act upon said braking means to cause said braking action, said magnet adapted to attract and actuate said armature to cause said braking means to release the shaft, and manual means adapted to cause said release independently of said magnet, substantially as set forth.

3. In a brake, the combination of a magnet, an armature, a shaft,

friction-disks adapted to coöperate to produce a braking action upon said shaft, a spring adapted to actuate said armature to directly act upon said disks to cause said braking action, said magnet adapted to attract and actuate said armature to cause said disks to release the shaft, and manual means adapted to cause said release independently of said magnet, substantially as set forth.

4. In a brake, the combination of a magnet, an armature, a shaft, a set of friction-disks rotatively fixed upon said shaft, a second set of disks fixedly mounted in a stationary casing surrounding said shaft and adapted to coöperate with said first-named set to cause a braking action upon said shaft, said armature located between said disks and magnet and adapted to be retracted therebetween relatively to said disks and magnet, a spring adapted to cause said armature to retract and the disks to be brought into contact to cause said braking action, said magnet adapted to attract and move the armature in the opposite direction thereby nullifying said braking action, and manual means adapted to move said armature in the direction in which the magnet is adapted to move it, independently of said magnet, substantially as set forth.

5. The combination of a brake, consisting of alternate fixed and rotatable friction-disks, a shaft rotatable within said brake, said rotatable disks rotatatively fixed to said shaft, a driving-gear loosely mounted upon said shaft, means adapted to engage said gear, said means adapted to rotate said shaft and means adapted to cause said engaging means to operate said brake whereby the braking action is applied to said shaft, substantially as set forth.

6. The combination of a brake-casing, stationary friction-disks within said casing, an armature, friction-disks rotatively fixed upon said armature, a gear provided with electromagnets adapted to cause engagement of said gear and armature, a shaft rotatively fixed to said armature, and means adapted to disengage said gear and armature, whereby said disks are actuated to cause a braking action upon said shaft, substantially as set forth.

7. The combination of a brake-casing, stationary friction-disks within said casing, an armature formed with a flange, alternate friction-disks rotatively fixed upon said flange, a driving-gear provided with electromagnets adapted to cause engagement of said gear and armature, and a shaft rotatively fixed to said armature, and means adapted to disengage said armature from said gear whereby said disks are actuated to cause a braking action upon said shaft, substantially as set forth.

8. The combination of a brake-casing, stationary friction disks within said casing, an armature, friction-disks rotatably fixed upon said armature, a gear provided with electromagnets adapted to cause engagement of said gear and armature, a shaft rotatably fixed to said armature, means adapted to disengage said gear and armature whereby said disks are actuated to cause a braking action upon said shaft, and manual means adapted to cause the engagement of said gear and armature independently of said electromagnets, substantially as set forth.

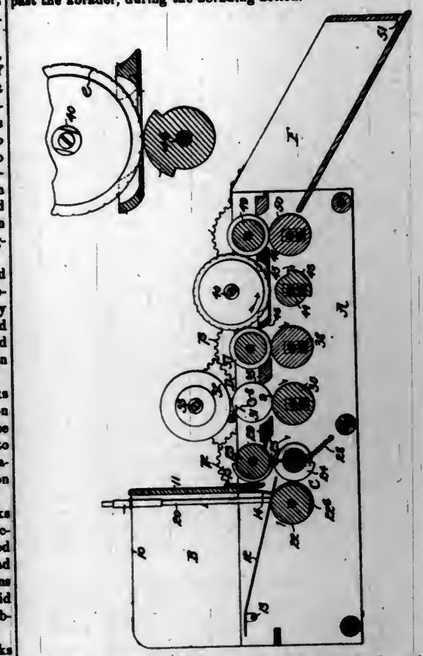
9. The combination of a brake-casing, stationary friction-disks within said casing, an armature formed with a flange, alternate friction-disks rotatably fixed upon said flange, a driving-gear provided with electromagnets adapted to cause engagement of said gear and armature, a shaft rotatably fixed to said armature, means adapted to disengage said armature from said gear whereby said disks are actuated to cause a braking action upon said shaft, and manual means adapted to cause the engagement of said gear and armature independently of said electromagnets, substantially as set forth.

10. The combination of a brake-casing, stationary friction-disks within said casing, an armature, friction-disks rotatably fixed upon said armature, a gear provided with electromagnets adapted to attract said armature and move it to cause engagement of said gear and armature, a shaft rotatably fixed to said armature, means adapted to actuate the latter to disengage it and said gear, whereby said disks are actuated to cause a braking action upon said shaft, manual means connected with said armature and adapted to actuate the latter to enter into engagement with said gear independently of said electromagnets, substantially as set forth.

11. The combination of a brake-casing, a shaft adapted to rotate in said casing, friction-disks adapted to form a brake within said casing, an armature extending into said casing and rotatively fixed to said shaft, alternate friction-plates being fastened to said casing and said armature respectively, a driving-gear rotating upon said shaft and provided with electromagnets adapted to attract said armature whereby said brake may be released, a spring within said shaft adapted to actuate said armature to operate said brake, said armature adapted to rotatively engage said gear, substantially as set forth.

596,098. STAMP-CANCELING MACHINE. ALFRED E. WHITEHEAD, Brooklyn, N. Y. Filed Nov. 21, 1894. Serial No. 529,508. (No model.)

Claim.—1. In a stamp-canceling machine, the combination with an abrader, of feeding devices for carrying individual pieces of mail-matter, said feeding devices being so located with reference to the abrader that they will positively hold and progress the mail-matter past the abrader, during the abrading action.



2. In a stamp-canceling machine, the combination with an abrader, of date-marking mechanism, feeding devices for carrying individual pieces of mail-matter into contact with the abrader and the date-marker, said feeding devices being so located with reference to the abrader that they will positively hold and progress the mail-matter past the abrader, during the abrading action.

3. In a stamp-canceling machine, the combination with an abrader provided with means for determining and regulating the depth of the abrasion effected, of feeding devices for carrying individual pieces of mail-matter, said feeding devices being so located with reference to the abrader that they will positively hold and progress the mail-matter past the abrader, during the abrading action.

4. In a stamp-canceling machine, the combination with an abrader, of feeding devices for carrying individual pieces of mail-matter, said feeding devices being so located with reference to the abrader that they will positively hold and progress the mail-matter past the abrader, during the abrading action, and being further provided with timing and gaging mechanism to present the individual pieces of mail-matter *seriatim* and in proper alinement to the action of the abrader.

5. In a stamp-canceling machine, the combination with an intermittently-acting abrader, of continuously-acting feed-rollers so located with respect to the abrader as to positively hold and progress the mail-matter past the abrader, during the abrading action.

6. In a stamp-canceling machine, the combination with an abrader, consisting of a rotatory abrading bar or tool and an intermittently-coöperating bearer or support, of feeding devices for carrying individual pieces of mail-matter, said feeding devices being so located with reference to the abrader that they will positively hold and progress the mail-matter past the abrader, during the abrading action.

7. In a stamp-canceling machine, the combination with an abrader, consisting of a rotatory abrading bar or tool, an intermittently-coöperating bearer or support, and an intermediate grid for the abrading bar or tool, said feeding devices being so located with reference to the abrader that they will positively hold and progress the mail-matter past the abrader, during the abrading action.

8. In a stamp-canceling machine, the combination with an abrader, a mail-matter-supply receptacle, intermittently-acting separating mechanism for withdrawing and forwarding individual pieces of mail-matter from the receptacle, and continuously-acting feed-rollers receiving the mail-matter from said separating mechanism, and so located with respect to the abrader as to positively hold and progress the mail-matter past the abrader during the abrading action.

9. In a stamp-canceling machine, the combination with an abrader, a mail-matter-supply receptacle having a drop-bottom, a separator-roller, located beneath the drop-bottom and having high and low portions alternately raising and lowering the bottom so as to render the separator-roller alternately operative and inoperative, forwarding-rollers located in advance of the separator-roller, a gage for alining the individual pieces of mail-matter, located at the bite of the forwarding-rollers, and continuously-acting feed-rollers receiving the mail-matter from the forwarding-rollers and carrying it past the abrader.

10. In a stamp-canceling machine, the combination of a series of progressively-acting feeding devices, a continuously-moving bar or abrader, a coöperating support, and mechanism for intermittently moving said support into coöperation with the bar or abrader.

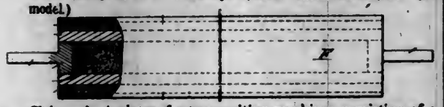
11. In a stamp-canceling machine, the combination of a bar or abrader, mail-matter-feeding devices, carrying and holding said matter into contact with said bar or abrader, and mechanism for moving said bar or abrader in the same direction as and at a greater speed than the feeding devices.

12. In a stamp-canceling machine, the combination with a mail-matter-supply receptacle, of intermittently-acting separating mechanism, an intermittently-acting abrader, and continuously-acting feeding devices for progressing the mail-matter uninterruptedly from the separating mechanism past the abrader.

13. In a stamp-canceling machine, the combination with an abrader, of an inking device located beyond the abrader and adapted to ink the abraded surface.

14. In a stamp-canceling or mail-marking machine, the combination with the mail-receptacle and its separating mechanism, of forwarding-rollers, one of which is provided with peripheral grooves, and a timing-gage coöperating with said forwarding-rollers, said gage comprising a cross bar having depending fingers extending into the grooves.

596,099. TYPE-WRITING-MACHINE PLATEN. HORATIO G. WOOD, Newport, R. I. Filed Apr. 5, 1894. Serial No. 506,404. (No model.)



Claim.—1. A platen for type-writing machines consisting of a hollow core, provided interiorly with a sound deadening filling, and a sheath or covering.

2. A platen for type-writing machines consisting of a hollow core, provided interiorly and exteriorly with sound-deadening fillings, and a sheath or covering.

3. An impression roller for type-writing machines consisting of a hollow cylinder having a plaster-of-paris core therein, and a felt covering thereon, and a semi-elastic outer casing, substantially as shown and described.

4. An impression-roller for type-writing machines consisting of a hollow aluminium cylinder having a plaster-of-paris core and a felt covering thereon, and an outer casing of rubber cloth, substantially as shown and described.

5. A platen for a type-writing machine, consisting of an interior core, a sheath or cover, and a sound-deadening filling intermediate the core and the sheath or cover and in contact with both.

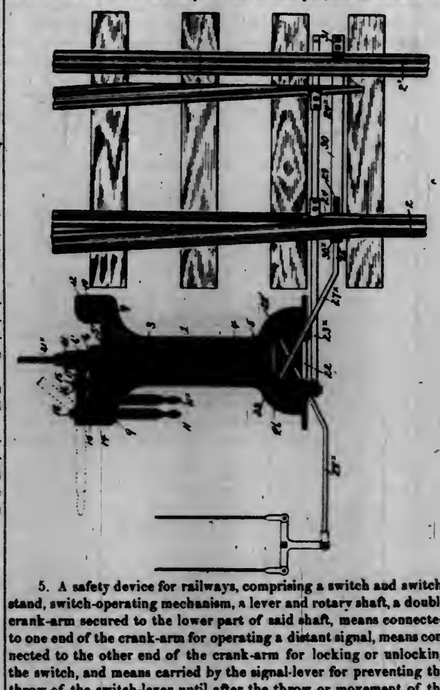
596,100. MECHANICAL SAFETY DEVICE FOR RAILWAY-SWITCHES. HARRY M. ASKENSTEY, Elmira, N. Y., assignor of one-half to H. H. Fulton, same place. Filed Jan. 6, 1897. Serial No. 618,304. (No model.)

Claim.—1. A railway-switch stand formed with a chamber in the base thereof, a partition separating the chamber from the upper portion of the stand, a plurality of wings or extensions integral with and projected from each side of its upper portion, said wings or extensions forming openings to receive and retain a plurality of operating-levers.

2. A switch-stand for railroads, comprising a hollow base, a hollow upright portion, bearings or guideways at the upper portion and near its base, a plurality of wings or extensions integral with and projected from each side of the upper part of said stand, and integral vertical extensions at each side of the stand projecting above the same and serving as a locking or securing medium for the switch-operating lever.

3. A switch-stand for railroads provided with switch and signal operating mechanisms, and having laterally-projected wings or extensions at opposite sides of the stand constructed and arranged to form openings to receive and retain the switch and signal operating levers.

4. A switch-stand for railroads provided at its upper end with laterally-projected wings or extensions at each side thereof, and opposite vertical extensions, each vertical extension being provided with a horizontal slot, substantially as and for the purpose described.



5. A safety device for railways, comprising a switch and switch-stand, switch-operating mechanism, a lever and rotary shaft, a double crank-arm secured to the lower part of said shaft, means connected to one end of the crank-arm for operating a distant signal, means connected to the other end of the crank-arm for locking or unlocking the switch, and means carried by the signal-lever for preventing the throw of the switch-lever until after the throw or movement of the signal-lever.

6. In a switch-stand, the combination of a lever and a rotating solid shaft for operating the switch, a hollow shaft for operating a distant signal and switch-point-locking mechanism, a lever for operating the said hollow shaft, and a lug carried by the last-named lever serving as a stop for the switch-lever.

7. In a switch-stand, the combination of a lever and a rotating shaft for operating the switch, a shaft for operating a distant signal and locking means for the switch-points, a lug secured to the signal-operating lever serving as a stop to prevent the forward movement of the switch-operating lever until after the movement of the signal-lever, and a vertical extension on the switch-stand to prevent the rearward or opposite movement of said switch-lever.

8. In combination with a switch-stand provided at its upper part with a plurality of integral laterally-projected wings or extensions and integral vertical projected extensions at opposite sides thereof, of switch-operating mechanism, and mechanism for simultaneously operating both a distant signal and the means for locking or unlocking the switch-points.

9. In a switch-stand, the combination of a lever and rotating shaft for operating both a distant signal and locking means for the switch-points, a double crank-arm secured to or forming a part of the lower end of said shaft, and a rod connected at one end to the crank-arm and at the other end to a switch-point-locking dog.

10. In combination with a switch-stand, a lever and rotating shaft for operating a distant signal and locking means for the switch-points, a double crank-arm rigidly secured to the lower part of said shaft, a rod for connecting one crank-arm with the distant-signal mechanism, and a rod connecting the other crank-arm with a locking-dog at or near the extreme points of the switch-rails.

11. In combination with a switch stand, distant signal, and switch-point-locking mechanism, a rod connected to a double crank-arm within the switch-stand, said rod being bent outward from the crank-arm and inclined downward and leading away from said switch-stand.

12. A safety device for railroads, comprising a switch-stand and switch-operating and distant-signal-operating mechanisms, and a locking device for the switch-points, said locking device being supported and carried by a slotted bar secured to the stock-rails at or near the extreme point of the switch-rails.

13. In combination with a switch-stand having extensions projected vertically above the top of the stand, each of said projections being provided with a horizontal slot, a switch-operating lever, a T-headed bolt for pivoting said lever, one end of said bolt being adapted to pass through the slot and behind the vertical extension on the stand when the switch-lever assumes a horizontal position, and said end of the bolt being caused to assume a position at right angles to the slot when the switch-lever rests in a vertical position, whereby said lever is secured to the vertical extension on the switch-stand.

14. In combination with a switch-stand, and switch and signal operating mechanisms, a bar secured to the stock-rails in advance of the switch-rod, said bar having a slot and depending lugs, and a locking-dog pivoted to said bar so as to be elevated above or depressed below or on a line with the surface of this bar for locking or unlocking the switch-points.

15. In a safety device for railroads, a slotted bar secured to the stock-rails, one end of said bar being bent over upon the outer side of the base-flange of one of the stock-rails, and the other end of the bar having rigidly connected thereto a plate for clamping the outer side of the base-flange of the other stock-rail.

16. In a safety device for railroads, a slotted bar secured to the stock-rails having lugs depending therefrom, and a dog pivotally secured to said depending lugs, said dog being so pivoted as to be elevated above or depressed below or on a level with the upper surface of the said bar.

17. In a safety device for railroads, a bar connected to the stock-rails, and a pivoted locking-dog carried by said bar, said dog consisting of a depending portion, an upper curved portion, and a laterally-extended portion which latter portion rests against the under side of said bar forming a stop for the dog when the latter assumes the locking position.

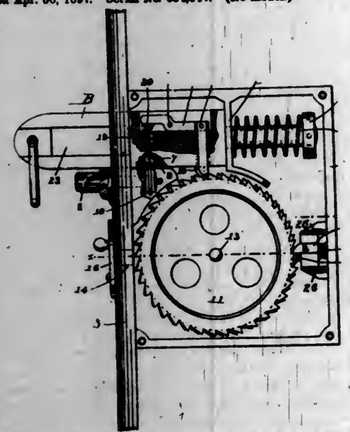
18. In a switch-stand, the combination of a switch-operating shaft and lever, a distant-signal-operating shaft and lever and a vertically-extended lug carried by the last-named lever and forming a stop for the first-named lever, substantially as and for the purpose described.

19. The combination with a switch-stand, of a switch-operating shaft, a shaft for operating a distant signal and switch-point-locking mechanism, and double crank-arms connected to the lower portion of each of said shafts, substantially as shown and described.

20. In a switch-stand, the combination of a switch-operating shaft and lever, a distant-signal-operating shaft and lever, a double crank-arm secured to the lower part of the switch-operating shaft, and a double crank-arm connected to the lower part of the signal-operating shaft, one double crank-arm being located above the other, but both double crank-arms normally resting in a position at right angles to their respective shafts.

21. In combination with a switch-stand and switch-operating shaft, of a casting secured to the upper portion of the shaft, said casting having a bifurcated or slotted extension, an operating-lever pivoted at or near one end of the said extension, and a T-headed bolt secured to said lever and adapted to turn therewith, substantially as and for the purpose specified.

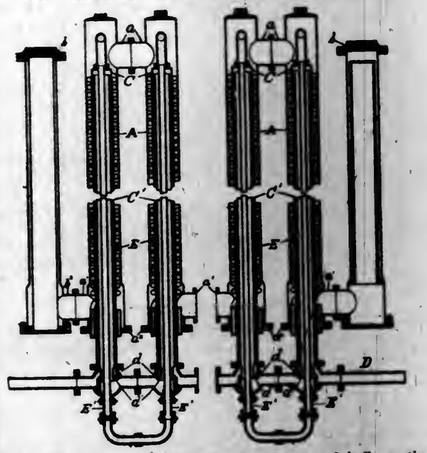
596,101. CAR-DOOR LOCK. JOHN BLANKART, St. Paul, Minn. Filed Apr. 30, 1897. Serial No. 634,517. (No model.)



Claim.—1. In a lock for car-doors, the combination with the plunger provided with an opening to receive the hasp of the door, of the ratchet-wheels arranged within the casing adjacent said plunger and inscribed with designating-marks, the means for locking the plunger in retracted position, the pivoted lever carried by said plunger, the dogs carried by said lever and adapted to engage said wheels to turn them a predetermined distance in the travel of the plunger, and the spring normally holding said dogs in engagement with said wheels.

2. In a lock for car-doors, the combination with the plunger, provided with an opening to receive the hasp of the door, of the ratchet-wheels arranged within the casing adjacent said plunger, and inscribed with designating-marks, the means for locking the plunger in retracted position, the spring-controlled lever pivoted in said plunger, and the dogs carried by said lever and adapted to engage said wheels and turn them a predetermined distance in the travel of the plunger.

596,102. WORT-COOLER. HENRY H. DECHERADE, Cincinnati, Ohio. Filed Jan. 20, 1896. Serial No. 576,060. (No model.)



Claim.—1. A wort-cooler composed of a series of similar sections connected together, each section composed of an outer and inner cylinder forming a wort-jacket between said cylinders, conduits for the cooling liquid in said jacket, around which the wort flows, a strainer at the wort-receiving end of the cooler, and a filter at the wort-discharge end of the cooler, induction and eduction pipes conveying the cooling agent through the sections in the opposite direction from the flow of the wort, combined and arranged substantially as shown and described.

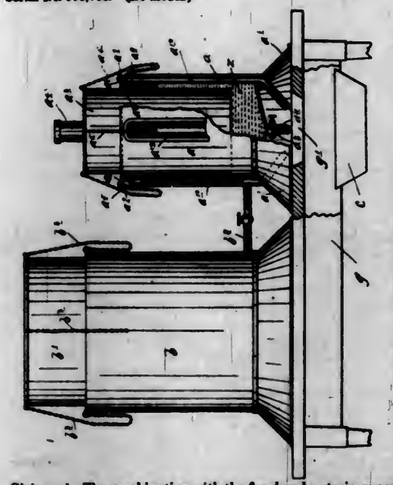
2. The combination, substantially as hereinbefore set forth, of the cooler composed of similar sections containing pipes for the cooling agent, and continuous passage for the wort around said pipes, a strainer connected to the first section of the series, said strainer consisting of an outer cylinder and inner perforated cylinder to receive the wort and strain it before passing into the space between the inner and outer cylinders, a branch from strainer leading to the hop-jack, a filtering cylinder connected to the last section of the series, consisting of an outer cylinder, an inner perforated cylinder closed at the bottom and filtering material such as described within said perforated cylinder, a branch from said strainer leading to an exhaust-pump for drawing the wort through the cooler, substantially as shown and described.

3. The combination in a wort-cooler of a strainer consisting of an outer cylinder provided with a removable head, an inner perforated cylinder sustained within the outer cylinder, leaving the space between the cylinders for the passage of the wort, and a discharge branch leading from said space to the cooler, substantially as shown and described.

4. The combination of the cooler, a filter connected to the wort-discharge end of said cooler, said filter being composed of an outer cylinder, an inner perforated cylinder sustained within said outer cylinder, leaving a space between the two cylinders, said inner cylinder being closed at the top and open at the bottom, filtering material such as described within and supported by said perforated cylinder, a branch for connecting said filter to the cooler at one end, and a branch for conveying the wort from the filter at the opposite end, substantially as shown and described.

5. A section for a wort-cooler consisting of a outer cylinder having an inlet for the wort near one end, and an outlet near the opposite end and upon opposite sides of the cylinder, an inner cylinder for the cooling liquid forming a jacket with the outer cylinder and extending beyond it, a double-coiled pipe forming a spiral path in the jacket between the outer and inner cylinders, having its opposite inner ends communicating with the inner cylinder and its looped end which extends beyond the outer cylinder provided with a coupling to receive either an inlet or outlet pipe for the cooling liquid, substantially as shown and described.

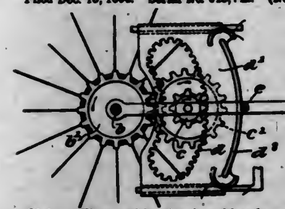
596,103. ACETYLENE-GAS GENERATOR. FRANK D. DEBELL, Minneapolis, Minn., assignor, by direct and mesne assignments, to the American Acetylene Gas Company, same place. Filed July 10, 1896. Serial No. 598,711. (No model.)



Claim.—1. The combination with the fixed and exterior member of a pair of gasometer-sections, of one or more overflow tubes or passages opening from the upper portion thereof, at a point or points above the normal altitudes of the sealing liquid therein contained, the telescopically-movable gasometer-section, liquid-sealed within said fixed section, and a stop device for limiting the upward movement of said movable gasometer-section, whereby overgenerations of gas will first cause said movable tank-section to rise to its limit and will then cause the overflow or escape of the sealing liquid through said overflow tubes or passages, substantially as described.

2. The combination with the tank-section a, provided with the overflow-passages a^9 at its upper end, of the overflow-pipes a^{10} leading from said passages a^9 and terminating in the converging nozzle-sections a^{11}, the movable tank-section a^2, and the flexible connections a^3 secured at their upper ends to said tank-section a^2 and at their lower ends to said tank-section a, substantially as described.

596,104. BICYCLE-GEAR. JOSHUA B. REITZ, Philadelphia, Pa. Filed Dec. 15, 1896. Serial No. 615,743. (No model.)



Claim.—The combination in a bicycle-gear of an endless rack, ways for affording said rack a range of motion, a pedal-lever pivotally supported at one end, a driving-pinion carried by said pedal-lever and meshing with the rack, a roller or projection on said lever, a guide for said roller or projection and spur-wheels interposed between said pinion and the driving-wheel, substantially as described.

596,105. RAIL-JOINT. FRANK BEDMANN, San Francisco, Cal. Filed Sept. 17, 1897. Serial No. 652,003. (No model.)

Claim.—1. In a rail-joint, the combination with rails, of two sections hinged together at their bottoms, engaging the rails at opposite sides thereof and adapted to rest directly upon the cross-ties or other supports, and fastening devices passing through the sections, securing the same to the cross-ties and also serving to lock the sections in engagement with the rails, substantially as described.

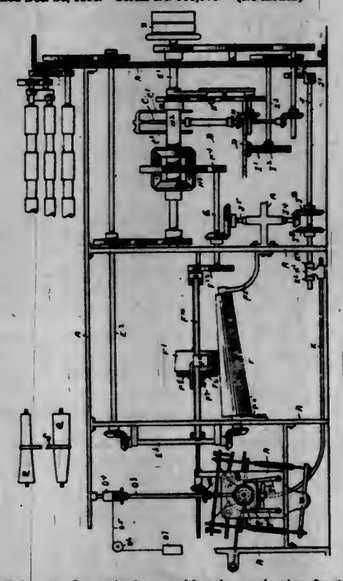


2. In a rail-joint, the combination with rails, of two sections comprising base-plates extending beneath the rails, hinged together at their adjacent edges and adapted to rest directly upon the cross-ties, and fish-plates rigid with the base-plates and adapted to engage the rails, said base-plates being adapted to be secured to the cross-ties by spikes or similar fastening devices, whereby the fish-plates are retained in their engagement with the rails, substantially as described.

3. In a rail-joint, the combination with the rails provided with lugs or projections extending from their webs, of two sections comprising bottom plates hinged together at their inner edges, and rigid fish-plates conforming to the configuration of the rails and provided with sockets for the reception of the lugs or projections, substantially as and for the purpose described.

4. A rail-joint comprising two hinged sections composed of base-plates, and rigid fish-plates conforming to the configuration of and adapted to clamp the rails, said fish-plates being connected with the base-plates between the side edges thereof and the outer portions of the base-plates forming flanges and adapted to be spiked or otherwise secured to cross-ties, substantially as and for the purpose described.

596,106. SPINNING-MACHINE. JOSEPH FOSSEL, Boston, Mass. Filed Dec. 26, 1896. Serial No. 616,978. (No model.)



Claim.—1. In a spinning-machine the mechanism for driving the bobbins with a variable speed and consisting of a conical driving-drum, a conical pulley in frictional contact with said drum, said conical pulley having the ratio between the diameter of its larger end and the diameter of the drum at its contact therewith substantially the same as the ratio between the diameter of the smaller end of the pulley and the diameter of the drum at its contact therewith, independently of its relative position to the driving-drum, means for moving said conical pulley longitudinally on said drum and intermediate connecting mechanism whereby the rotation of said pulley is communicated to the bobbins of the machine, substantially as described.

2. In a spinning-frame the combination of a conical driving-drum, a conical pulley in frictional contact therewith, a pivoted weighted framework carrying said pulley, means for moving said conical pulley longitudinally on said drum and intermediate connecting mechanism, whereby said conical pulley is operatively connected with the bobbins of the machine, substantially as described.

3. In a spinning-machine the combination of a conical driving-drum; a pivoted framework; a shaft journaled in said pivoted frame-

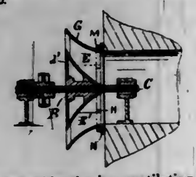
work; a conical pulley carried by said shaft and having a spline connection therewith; a weight carried by said pivoted framework, and applied to hold said pulley in frictional contact with said driving-drum; a rotating shaft parallel with the sides of said drum and operatively connected with the bobbins of the machine; a gear carried on said shaft and having a spline connection therewith; a pinion attached to said conical pulley and engaging said gear; and means by which said gear and said pulley are simultaneously moved longitudinally on said driving-drum, substantially as described.

4. In a spinning-machine the combination with the bobbins of the machine, of a driving mechanism consisting of a rotating conical drum, a pulley in frictional contact with said drum, intermediate connecting mechanism between said pulley and the bobbins of the machine, and means for imparting a variable traversing movement to said pulley longitudinally on said drum, substantially as described.

5. In a spinning-machine the combination with the bobbins of the machine and a variable driving mechanism, comprising a conical driving-drum and conical pulley held in frictional contact therewith, of an actuating-screw by which said pulley is moved along said drum, said screw having a screw-thread of varying pitch in different sections of its length, substantially as described.

6. In a spinning-frame the combination of a conical driving-drum, a swinging frame, a conical pulley supported by said swinging frame and in contact with said conical driving-drum, means for moving said conical pulley longitudinally on said drum and intermediate connecting mechanism, whereby said conical pulley is operatively connected with the bobbins of the machine, substantially as described.

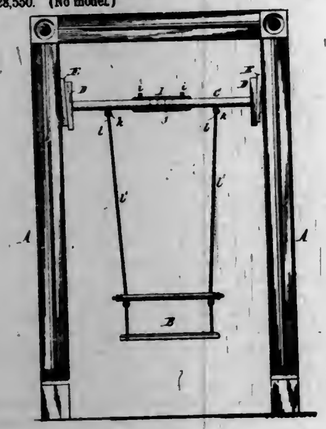
596,107. VENTILATING, EXHAUSTING, OR BLOWING FAN. HARRY FOSTER and AARON BERESFORD, Eckington, England; said Beresford assignor to Frederick Hardwick, same place. Filed Mar. 19, 1897. Serial No. 628,343. (No model.) Patented in England July 7, 1896, No. 14,990.



Claim.—1. The combination in a ventilating blowing or exhausting fan of an inner or central cone fixed to a working spindle and outer conical casing with an intermediate concentric ring and vanes of varying depths said blades or vanes being inclined at the entrance side to an angle of forty-five degrees and at the delivery side to an angle of sixty degrees, the exit-openings between said vanes being in a forward direction substantially as set forth.

2. In a fan for ventilating blowing or exhausting the combination of a double central cone carrying vanes or blades with a double conical outer casing having its delivery edges apart and supported by said vanes substantially as set forth.

596,108. SWING. MAX GASTER, Buffalo, N. Y., assignor to Eugene De Kleist, North Tonawanda, N. Y. Filed Mar. 20, 1897. Serial No. 628,550. (No model.)



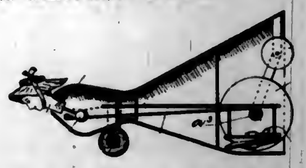
Claim.—1. A support for portable swings, consisting of a pole, inner wedges secured to opposite ends of the pole, outer wedges bearing with their inner faces against the inner wedges, and adapted to bear with their outer faces against a pair of uprights, and connections between said wedges which permit the outer wedges to slide on the inner wedges, substantially as set forth.

2. A support for portable swings, consisting of outer wedges adapted to bear against a pair of uprights, and a pole provided at opposite ends with wedges which bear against said outer wedges, the wedges at the same end of the pole being provided with an engaging tenon and groove whereby the same are retained in alinement with each other, substantially as set forth.

3. A support for portable swings, consisting of a pole provided at opposite ends with inner wedges, outer wedges bearing against said inner wedges and each provided in its front face with a vertical slot and in its rear side with a recess opening into said slot, screws or bolts passing through the slotted wedges and entering the inner wedges, each of the outer wedges having on its rear side a facing which covers the slot and recess thereof, substantially as set forth.

4. A support for portable swings, consisting of a pole composed of adjustable sections each provided at its outer end with a pair of cooperating wedges, a sleeve connecting the inner portions of the pole-sections, and filling-blocks arranged in said sleeve between the adjacent ends of the pole-sections, substantially as set forth.

596,109. TOY. MEAVE T. GEDNEY, New York, N. Y. Filed Apr. 20, 1896. Serial No. 588,239. (No model.)



Claim.—1. A self-propelling toy composed of a body, a propelling-wheel connected with the body, and means for imparting motion to the propelling-wheel, the body of the toy being so arranged that the weight at one side of the shaft of the propelling-wheel shall be greater than that on the other side, whereby the toy is adapted to move a distance in an upright position and be automatically shifted to a horizontal position, substantially as described.

2. A self-propelling toy comprising a figure of a person or animal provided with means for propelling the same, the head pivotally secured to the body of the toy, a weight attached to the head for changing the position of the same when the position of the body of the toy is changed, the body being supported upon suitable wheels, and having its weight so disposed that the toy will proceed a distance in an upright position, and then assume a horizontal position, substantially as described.

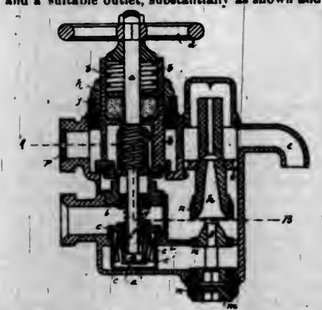
3. A self-propelling toy mounted upon suitable supporting-wheels having arranged in the front portion thereof a bellows, and a reed connected with the bellows, the weight of the toy being greater in advance of the wheels than in the rear thereof, and means for imparting a forward movement to the toy, whereby the toy will be caused to proceed a distance in an upright position and then to assume a horizontal position, bringing the weight of the toy upon the bellows and operating the reed, substantially as described.

4. A self-propelling toy comprising a representation of a lower animal mounted on suitable supporting-wheels, means for propelling the toy, a pivoted head having a weight connected thereto, and a pivoted tail also provided with a weight, the body of the toy being so arranged that the forward part thereof will be greater in weight than the rear part thereof, whereby the toy is caused to proceed a distance in an upright position and then automatically to assume a horizontal position, substantially as described.

5. A self-propelling toy comprising a body in the representation of a person or lower animal, a propelling-wheel mounted in the body, an elastic band wound upon the shaft of the propelling-wheel, supporting-wheels arranged respectively on the lower and the upper forward portions of the toy, the body of the toy being so arranged as to be heavier in front of the shaft of the supporting-wheels than in the rear thereof, whereby the toy will be caused to proceed a distance in a vertical position and then to assume a horizontal position, substantially as described.

596,110. MEANS FOR CONTROLLING SUPPLY OF STEAM TO INJECTORS, EJECTORS, OR OTHER APPLIANCES. GEORGE GLYDON and WILLIAM GAY, Birmingham, England. Filed Apr. 10, 1896. Serial No. 586,920. (Model.) Patented in England Nov. 3, 1894, No. 21,110.

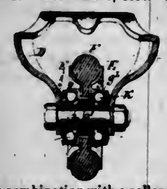
Claim.—1. In an apparatus for controlling the supply of steam, water, or other liquids, or fluids to injectors, ejectors and other apparatus, the combination with a suitable casing, and suitable passages therethrough, of a water-valve, and a steam-valve which control said passages, and which are operated by one screw-spindle, and two springs, said casing and passages being also provided with combining-nozzles, and a suitable outlet, substantially as shown and described.



2. In an apparatus for controlling the supply of steam, water, or other liquids, or fluids, to injectors, ejectors and other apparatus, the combination with a suitable casing, having two ingress ports or passages, and a suitable egress port or passage, and passages extending therethrough, and communicating with said ingress ports or passages and said egress port or passage, of a steam-valve, having a cylindrical casing and side ports therein, in combination with a water-valve, both of said valves being moved, and controlled in opening and closing by one screw-spindle, and two springs, substantially as shown and described.

3. In an apparatus for controlling the supply of steam, water, or other liquids or finids, to injectors, ejectors, and other apparatus, the combination with a casing of a spindle *a;* valve *b;* steam-valve *c;* a water-inlet pipe, a disk mounted therein and having a hole or opening; a steam-inlet pipe below said water-inlet pipe, a mixing-chamber in which is mounted a mixing-nozzle *h,* a diaphragm inclosing said mixing-nozzle and provided with passages *o, o,* a steam-nozzle *g* mounted below said nozzle *h,* and an escape-nozzle *e,* and means for controlling the supply of steam, substantially as shown and described and for the purpose set forth.

596,111. ROLLER-SKATE. ROBERT J. GROVE and FRANKLIN P. LUND, Buffalo, N. Y. Filed June 9, 1897. Serial No. 639,997. (No model.)

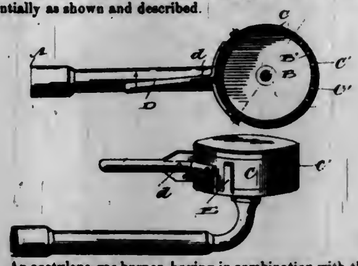


Claim.—1. The combination with a roller-hub composed of a pair of sections connected by a screw-threaded joint and each having an external shoulder or offset on its inner portion, a pair of disks or plates surrounding the sectional hub between said shoulders, and an elastic tire clamped between said disks and projecting beyond the edges of the same, so as to form the tread of the roller, the clamping of the tire due to screwing the hub-sections together being unrestrained except by the tire itself, substantially as set forth.

2. In a roller-skate, the combination with the foot-plate having a depending fork, of a roller journaled in said fork and consisting of a hub composed of sections connected by a screw-threaded joint and each having at its outer end an enlargement or ball-cup forming an external shoulder or offset, a pair of disks or plates mounted on the hub between said shoulders, a tire clamped between said disks, a sleeve passing through said hub and provided on its ends with bearing cones, one of which is removably mounted thereon, balls interposed between said ball-cups and cones, and a clamping-bolt passing through said sleeve and the roller-fork, substantially as set forth.

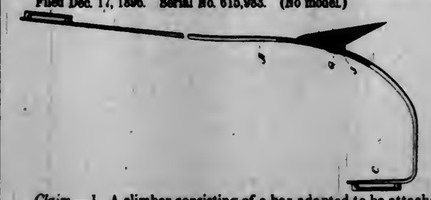
596,112. ACETYLENE-GAS BURNER. LEONARD HENKLE and FREDERICK H. GODDARD, Rochester, N. Y. Filed Apr. 3, 1897. Serial No. 630,639. (No model.)

Claim.—1. A gas-burner consisting of a gas-chamber mounted on and having communication with a supply-pipe, a removable screw-threaded end to said chamber, the apertured band mounted on the said chamber, the bifurcated handle to the arms of which the ends of the band are secured, and the stops secured to the chamber, and against which the ends of the arms are designed to bear, combined substantially as shown and described.



2. An acetylene-gas burner, having in combination with the gas-chamber as described, the band C, with perforations therein, a recessed handle, to the arms of which the said band is secured, and an adjusting-screw passing through the recessed portion of the handle and the ends of the band, whereby the latter may be tightened or loosened, substantially as set forth.

596,113. CLIMBING-SPUR. GEORGE M. HOWARD, Joplin, Mo. Filed Dec. 17, 1896. Serial No. 615,983. (No model.)

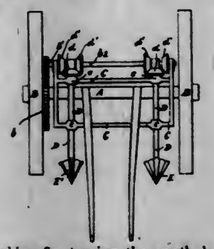


Claim.—1. A climber consisting of a bar adapted to be attached to the foot and leg of a person, a prong of suitable design for action upon the pole to be climbed, a lug formed with the prong arranged to fit within a hole formed in the bar, and a countersunk screw for securing said lug within the hole, as specified.

2. In combination with a bar of a climbing-spur, a prong of the desired shape, a lug formed therewith having a threaded hole therein for securing the prong to the bar, as specified.

3. In a climbing-spur, a bar, a prong, an inclined lug formed on the prong and fitting in a hole in the bar, substantially as described.

596,114. MACHINE FOR TURNING AND BREAKING UP SWATH. THOMAS M. JARMAIN, Tetsworth, England. Filed Aug. 20, 1896. Serial No. 603,429. (No model.) Patented in England Oct. 30, 1894, No. 20,795.

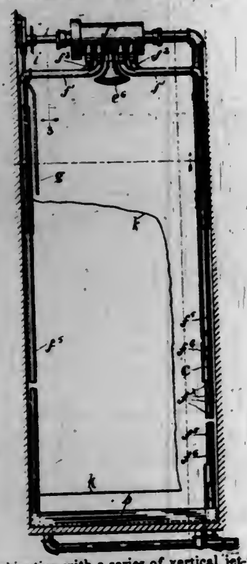


Claim.—A machine for turning the swath having revolnble winged cones E extending forwardly in the line of draft of the machine said cones entering at their forward and pointed ends under the swath so that the swath will be gradually lifted and then turned by the revolving winged cones as the machine is being drawn along the swath substantially as set forth.

596,115. SHOWER-BATH. EMIL JUNDE, Chicago, Ill. Filed Apr. 21, 1897. Serial No. 633,077. (No model.)

Claim.—1. The combination with a series of vertical jet-pipes, and supply-pipes, united into one valve-supplying pipe, of a valve-casing with cylindrical valve, and a series of transverse valve-ports of graded lengths whereof one end of each slotted port is in a line parallel with the valve-axis, and shell-openings for said ports, a valve-

stem with a notched operating-wheel, and operating-lever with spring-bolt to said wheel, substantially as specified.



2. The combination with a series of vertical jet-pipes and supply-pipes, united into one valve-supplying pipe, of a valve-casing and cylindrical valve therein, with round and slot formed ports of graded lengths having one end on a line parallel with the valve-axis, and double shell-openings connecting to said jet-pipes, and mechanism to rotate said valve, substantially as specified.

3. The combination with a valve-shell with one entrance and a series of exit-ports, of a hollow cylindrical, continuously-in-one-direction-revolving multiported valve, said ports cut transverse to cylinder and of varying lengths but starting from a straight line parallel to the valve axis, substantially as specified.

4. The combination with a valve-shell with entrance and exit ports, of a hollow cylindrical continuously in-one-direction-revolving multiported valve, said ports of varying lengths and positions, an oscillating operating-lever, a notched wheel to the valve-stem and a spring-actuated bolt, substantially as specified.

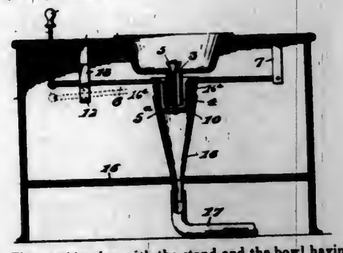
596,116. CHECK-HOOK. AUGUST F. KIEHL, Norfolk, Nebr., assignor of one-half to Fredrick C. Kiehl, Reedsville, Wis. Filed Aug. 12, 1896. Serial No. 602,541. (No model.)



Claim.—The herein-described check-hook comprising the hook 1, having the integral ears 6 and the recess 2 in its shank, and the slot 5 adjacent to the upwardly curved end 4, the guard 7, pivoted between the ears 6 and curved backwardly within the hook 1, and the upper portion of said guard held within the recess 5 by a spring 3, the free outer end of said guard being curved outward and downward reversely to the end of the hook to form a V-shaped opening for the checkrein, said guard being located entirely within the curve of the check-hook, substantially as described.

596,117. VALVE APPARATUS FOR WASHBOWLS OR SINKS. BURTON E. LOADWICK, Harrisville, N. Y. Filed May 14, 1897. Serial No. 636,557. (No model.)

Claim.—1. The combination with the stand or casing and the bowl or sink having outlet-opening in its bottom and a depending tube, of a valve-plug fitted to a seat about said opening, a rod carrying said plug and working through said tube, a horizontally-disposed valve-lever pivotally mounted at one end and formed between its ends with a downwardly-projecting U-shaped portion to the center of which the lower end of said rod is connected, and a vertically-disposed handle-rod connected with the other end of said lever, substantially as specified.

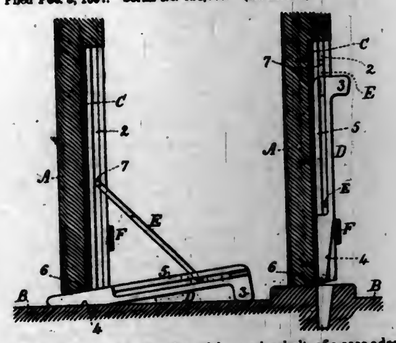


2. The combination with the stand and the bowl having outlet-opening in its bottom, and a depending tube, of a valve-plug fitted to a seat about said opening, a rod carrying said plug and working in said tube, a horizontally-disposed valve-lever pivotally mounted at one end and formed between its ends with a downwardly-projecting U-shaped portion, to the center of which the lower end of said rod is connected, a handle-rod connected with the other end of said lever, and a funnel-shaped eduction-tube receiving the depending tube of the bowl and having slots for the passage of the horizontal portions of the lever upon opposite sides of the central U-shaped portion thereof, substantially as shown and described.

3. In valve apparatus for washbowls or sinks, the combination of a stand or casing, a washbowl set in the top thereof and provided with an outlet-opening and a discharge-tube projecting downward therefrom, a valve-lever pivoted on the interior of the casing and formed intermediate its ends with a substantially U-shaped offset inclosing the said discharge-tube, a valve-rod attached to the said offset and extending through the discharge-tube and carrying a valve-plug controlling the said outlet-opening, a handle connected with the free end of the valve-lever and exposed on the exterior of the casing, and a catch device to hold the valve-plug open, substantially as described.

4. In valve apparatus for washbowls or sinks, the combination of a stand or casing, a washbowl or sink set into the top of said case and provided with an outlet-opening and a discharge-tube projecting downward therefrom, a valve-plug for said opening, a rod carrying the said plug, a horizontally-disposed valve-lever pivotally supported at one end and formed near its center with a downwardly-projecting U-shaped offset portion, a cross-bar on the interior of the casing, a funnel-shaped eduction-tube supported thereby and having its upper flaring end inclosing the offset portion of the valve-lever and the discharge-tube of the basin, and a waste-pipe connected with the lower end of said eduction-tube, substantially as described.

596,118. DOOR-FASTENER. FRED C. LOUMBURY, Plainfield, N. J. Filed Feb. 3, 1897. Serial No. 621,779. (No model.)



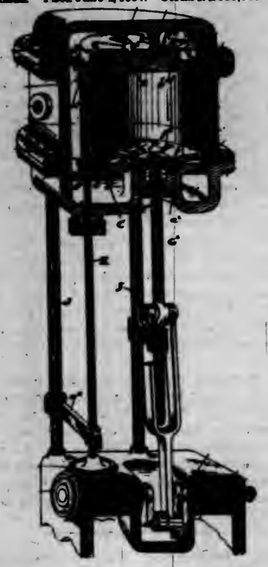
Claim.—1. The combination with a wedge-bolt, of a case adapted to be fastened to the surface of a door and a link connected at one end with the wedge-bolt and sliding at the other end in ways in the case for allowing the bolt to be laid upon the floor to act as a wedge for holding the door, substantially as set forth.

2. The case C having slideways 2 and the flange 6 at the lower end passing under the door, in combination with a wedge-bolt and a spring-link extending from the wedge-bolt to the case, substantially as set forth.

3. A wedge-bolt having a back bar and a slot between the body of the bolt and the back bar, in combination with a spring-link passing through the slot and terminating as outward-projecting ends, a case having slideways receiving the ends of the spring-link and adapted to be fastened to the surface of a door, substantially as set forth.

4. The wedge-bolt having an inclined surface 4 and head 3 and a back bar 5 with a slot between the back bar and the body of the bolt, in combination with a link passing through the slot, a case adapted to receive the upper end of the link and the wedge-bolt when not in use, substantially as set forth.

596,119. AUTOMATIC-CUT-OFF VALVE. JOHAN B. OPSAHL, Toronto, Canada. Filed June 4, 1897. Serial No. 639,379. (No model.)



Claim.—1. In an automatic-cut-off high-speed engine, in combination the cylinder, the piston and piston-rods suitably connected to the shaft, the heads of the cylinder provided with radial steam-ports, the inlet and exhaust chambers dividing the steam-ports into two sections at each end, and the rotary valves common to the ports of both of said sections provided with radial ports suitably driven from the main shaft as and for the purpose specified.

2. In combination, the cylinder, the piston and piston-rod, each head of the cylinder being provided with a series of radial ports, a chamber around the cylinder, a partition therein dividing said chamber into inlet and exhaust chambers, a single valve at each head of the cylinder, and supplemental valves located solely in the inlet-chamber adapted to regulate the inlet-ports in said heads, substantially as described.

3. In combination, the cylinder, the piston and piston rod, each head of the cylinder being provided with a series of radial ports, a chamber around the cylinder, a partition therein dividing said chamber into inlet and exhaust chambers, a single valve at each head of the cylinder, and a supplemental valve located between each of the main valves and the cylinder-heads in the inlet-chamber, substantially as described.

4. In an automatic-cut-off high-speed engine, in combination the cylinder, the piston and piston-rods suitably connected to the shaft, the heads of the cylinder provided with radial ports, the inlet and exhaust chambers dividing the steam-ports into two sections at each end, and the rotary radial valves located to the interior of the heads, the equidistant ports in same and means for rotating such valves as and for the purpose specified.

5. In an automatic-cut-off high-speed engine, in combination the cylinder, the piston and piston-rods suitably connected to the shaft, the heads of the cylinder provided with radial steam-ports, the inlet and exhaust chambers dividing the steam-ports into two sections at each end, the rotary valves located to the interior of the heads, the equidistant rotary ports and means for rotating such valves and the cut-off slide-valves provided with radial ports, slotted arm and link-and-rod connection extending through the wall of the inlet-chamber and means for controlling same as and for the purpose specified.

6. In an automatic-cut-off high-speed engine, in combination the cylinder, the piston and piston-rods suitably connected to the shaft, the heads of the cylinder provided with radial steam-ports, the inlet and exhaust chambers provided with the angular division-wall dividing the steam-ports into a minor number of inlet-ports and a major number of outlet-ports and the rotary valves located to the interior of the heads and means for rotating such valves as and for the purpose specified.

7. In an automatic-cut-off high-speed engine, in combination the cylinder, the piston and piston-rods suitably connected to the shaft, the heads of the cylinder provided with radial steam-ports, arranged in two sets, the ports of each set being equidistant apart and the ends of the sets being unequally separated circumferentially, the inlet and exhaust chambers provided with the angular division-wall dividing the steam-ports into a minor number of inlet-ports and a major number of outlet-ports and the rotary valves located to the interior of the heads and means for rotating such valves as and for the purpose specified.

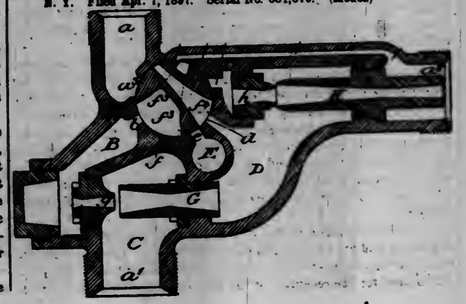
596,120. DETACHABLE SHOVEL-BLADE FOR FORKS. EDWARD P. OVERSON, Nash, N. D. Filed Apr. 30, 1897. Serial No. 634,606. (No model.)



Claim.—1. The combination with a fork having a handle, of a detachable shovel-blade provided with a series of independent recesses to receive the ends of the tines of the fork, a catch having a bifurcated end, and a transverse groove and a yielding bifurcated keeper normally standing out from and over the said catch, substantially as and for the purposes specified.

2. The combination with a fork having a handle, of a detachable shovel-blade provided with a series of independent recesses to receive the ends of the tines, a catch having a bifurcated end and a transverse groove, the opposite portions of the bifurcation being beveled, and a keeper having an upper bifurcated end extending over and standing outward from the said catch, substantially as and for the purposes specified.

596,121. STEAM-INJECTOR. RICHARD PATTISON, New York, N. Y. Filed Apr. 7, 1897. Serial No. 631,079. (Model.)



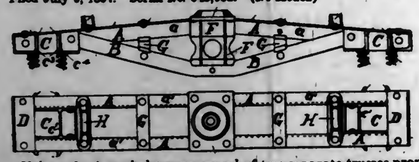
Claim.—1. In an injector, the combination with a casing provided with steam and water inlets and an outlet, a forcing-chamber, an overflow-chamber, a back-pressure chamber, of means for opening and closing communication between the steam-inlet and forcing-chamber, between the forcing-chamber and overflow chamber, and between the back-pressure chamber and overflow-chamber, substantially as set forth.

2. In an injector, the combination with a casing provided with steam and water inlets and an outlet, a lifting-chamber, a forcing-chamber, an overflow-chamber and a back-pressure chamber, of a single valve arranged to open and close communication between the steam-inlet and the lifting-chamber the steam-inlet and the forcing-chamber, the forcing-chamber and the overflow-chamber and the back-pressure chamber and the overflow-chamber, substantially as set forth.

3. In an injector the combination with a casing provided with steam and water inlets and an outlet, a lifting-chamber, a forcing-chamber, an overflow-chamber and a back-pressure chamber, of a single valve for controlling the admission of steam, adapted by successive movements to firstly open communication between the steam-inlet and lifting chamber, the forcing-chamber and overflow-chamber; secondly close communication between the forcing-chamber and overflow-chamber and open communication between the back-pressure chamber and overflow-chamber and finally to open communication between the inlet and the forcing-chamber and close communication between the back-pressure chamber and overflow-chamber, substantially as set forth.

4. In an injector the combination with a casing provided with a valve-seat, a steam-inlet opening into the valve-seat, a steam-chamber opening into the valve-seat, a forcing-chamber having an overflow-port and a steam-inlet port both opening into the valve-seat, a lifting-chamber communicating with the steam-chamber and forcing-chamber and a back-pressure chamber opening into the valve-seat, of a rotary valve provided with a through-port for opening communication between the steam-inlet and the steam-chamber and between the steam-inlet and forcing-chamber and provided with a second through-port adapted to open communication between the forcing-chamber and overflow-chamber and between the back-pressure chamber and overflow-chamber, substantially as set forth.

596,122. BOLSTER FOR CARS. JOHN POINSTEIN, Chicago, Ill. Filed July 9, 1897. Serial No. 643,932. (No model.)



Claim.—1. A car-bolster composed of two separate trusses properly joined together, each truss having separate tension and compression members.

2. A double-trussed car-bolster employing angle-bars, as the compression members thereof.

3. A car-bolster composed of two suitably-joined, similar and parallel trusses, having a common center post or strut member, and employing angle-bars as to the compression members thereof.

4. A car-bolster formed of two separate trusses properly connected together, each truss having for its upper member an angle-bar; the lower member of said truss being a flat bar, so arranged that the flat side thereof stands vertically; the upper and lower members of said truss being braced and connected by suitable means, substantially as set forth.

5. A car-bolster consisting of two separate trusses, employing angle-bars for the compression members thereof, and flat bars for the tension members thereof, said flat bars making a return bend upon the vertical flanges of said angle-bars.

6. A car-bolster composed of two separate trusses, each truss having for its upper member an angle-bar, and for its lower member a flat bar, with the flat side thereof, arranged vertically; the ends of said lower flat bar making a return-bend around the extremity of the vertical flange of the angle-bar; in combination with an end piece having parallel ribs held in place by transverse webs, forming grooves, for the reception of the ends of the trusses; and central braces or struts, connecting said trusses with each other, and also connecting the upper and lower members of said trusses, substantially as described.

7. In combination with a double truss for a car-bolster, having angle-bars and flat bars, an end piece, composed of an underlying flat plate, having two grooves, or channels composed of parallel ribs, properly braced for the reception of the ends of said trusses, whereby the members of said trusses may be riveted and held in position in such manner, that a shearing strain only will be brought upon the rivets, substantially as described.

596,123. ICE-MAKING APPARATUS. LEA PUSEY, Wilmington, Del.; Samuel M. Knox administrator of said Pusey, deceased. Filed Aug. 20, 1895. Serial No. 559,923. (No model.)

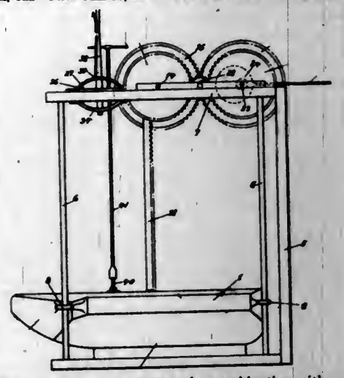


Claim.—1. In an ice-making apparatus of the class recited, the combination with a freezing-tank, a series of pipe-coils therein for the freezing agent, a supply-pipe for said coils, and valved connections whereby uniformity of pressure may be obtained in said coils, an efflux-pipe from said coils, a separator into which said pipe empties, an injector connected to the lower portion of said separator, to the said supply-pipe, and also to the receiver, and means in said injector for regulating automatically the pressure of the discharge therefrom into the influx-pipe, substantially as specified.

2. In an ice-making apparatus of the class recited the combination with the main tank having the freezing-coils therein for the freezing agent, of the separator into which empties the efflux-pipe from the said coils, the injector connected to the lower portion of said separator, to the influx-pipe for said coils, and also to the receiver, and means in said injector for regulating automatically the pressure of the discharge therefrom into said influx-pipe, substantially as specified.

3. In an ice-making apparatus of the class recited, the combination with the main tank having the freezing-coils therein, and the influx and efflux pipes therefor, of the separator into which the efflux-pipe discharges, the injector connected to said separator, and also to said influx-pipe and to the receiver, and a spring-controlled compensatory piston within said injector and arranged to control the inlet thereto from the receiver, and thereby the pressure of the discharge from the injector into the influx-pipe, substantially as specified.

596,124. WAVE-MOTOR. FRANK L. PYLE and JOE MCDONALD, Simi, Cal. Filed Jan. 11, 1897. Serial No. 618,736. (No model.)



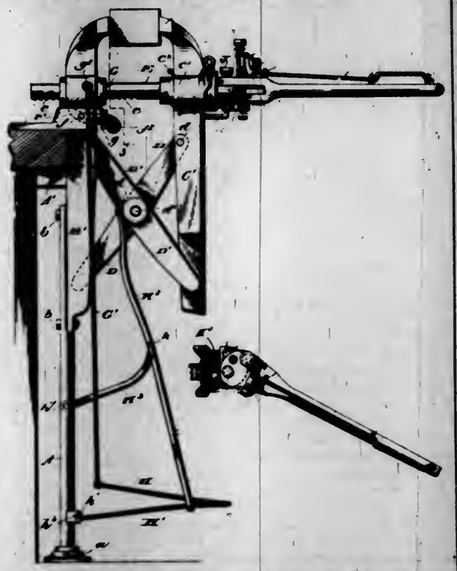
Claim.—1. In a wave-motor, the combination with a series of spaced posts, of a float mounted between said posts and provided at its edges with laterally-projecting frames or bent axles embracing said posts and having angularly-disposed antifriction-rollers journaled thereon, substantially as and for the purpose described.

2. In a wave-motor, the combination with a suitable float, and a vertically-extending rack-bar connected thereto, of a pinion meshing therewith and actuated thereby, ratchet-wheels mounted on opposite sides of said pinion and having reversely-disposed teeth, spur-gears mounted loosely on said shaft outside of the ratchet-wheels, spring-actuated pawls mounted on the inner adjacent sides of said spur-gears and engaging said ratchet-wheels, and a counter-shaft provided with spaced spur gear-wheels directly and indirectly meshing with the spur-wheels on the pinion-shaft, an eccentric on said counter-shaft, and a reciprocating rod connected to and driven by said eccentric, substantially as and for the purpose described.

3. In a wave-motor, the combination with a suitable float, and a rack-bar extending upward therefrom, of power-transmitting mechanism operatively geared to said rack-bar and driven thereby, and a shifting device comprising a bent shaft carrying rollers which bear against said rack-bar on all sides, said device being adapted to move the rack-bar bodily into and out of engagement with said gearing, substantially as and for the purpose described.

4. In a wave-motor, the combination with a suitable float, and a rack-bar actuated thereby, of a system of gearing operatively connected to and driven by said rack-bar, a shifting fork loosely embracing said bar and comprising a bent shaft provided with angularly-disposed antifriction-rollers, and a shifting lever connected to said fork for reciprocating it and moving said rack-bar into and out of action, substantially as and for the purpose described.

596,125. VISE. SANFORD O. ROOT, Ludi, N. Y. Filed Sept. 5, 1896. Serial No. 604,874. (No model.)



Claim.—1. The combination with the jaws and their supporting-standard, of a foot-treadle pivotally mounted on the standard and having an integral foot-lever, the ratchet-rod, its pawl, a crank-shaft arranged beneath the pawl, a connection between the crank-shaft and the foot-lever, the tail end of the pawl being weighted and curved upon its under side; substantially as described.

2. The combination with the jaws and the ratchet-rod, of a pivotally-mounted pawl having a weighted tail portion, a crank-shaft having its crank arranged beneath the weighted end of the tail, a pivoted treadle, and connections between the same and the crank-shaft; substantially as described.

3. The combination with the ratchet-rod and the jaws, of a pawl mounted to engage the ratchet-rod, a collar revolubly mounted on the rod and having a cam-face, and a cam-lever acting upon said collar, as set forth.

4. The combination with the ratchet-rod and the jaws, of a pawl mounted to engage the ratchet-rod, a collar revolubly mounted on the rod and having a cam-face, and a cam-lever acting upon said collar, the movable jaw having a sleeve with a cam-face adapted to coöperate with the cam-face of the collar; substantially as described.

5. The combination with the jaws and their crossed pivoted arms, of the ratchet-rod, its pawl, the collar revolubly mounted on the rod, and a lever having a cam portion acting upon said collar and forming a lock; substantially as described.

6. In a device of the character described, a combined foot-lever and foot-treadle formed of a single piece bent between its ends, with the treadle and lever extending in the same vertical plane at different angles; substantially as described.

7. In a device of the character described, a combined foot-lever and foot-treadle formed of a single piece bent between its ends, with the treadle and lever extending in the same vertical plane at different angles, the foot-lever being resilient; substantially as described.

8. The combination with the jaws and their supporting-standard, of a combined integral treadle and foot-lever pivotally mounted on the standard, a yoke loosely receiving the treadle, a lever near their connecting portion, and a curved lever pivotally mounted on the standard and pivotally connected with the upper end of the yoke; substantially as described.

9. The combination with the movable jaw having an enlargement with an overhanging flange upon its outer face, of a sleeve mounted in said boss, the ratchet-rod, and a collar revolubly mounted on the rod and having a projection whereby it may be revolved; substantially as described.

10. The combination with the movable jaw having an enlargement, of an overhanging flange at the top, of a sleeve in said enlargement having an outer cam-face, the ratchet-rod, and a collar revolubly mounted thereon and having an inner cam-face; substantially as described.

11. In a device of the character described, the combination with the jaws and the ratchet-rod, of means for accomplishing three independent adjustments; substantially as described.

12. The combination with the jaws and the ratchet-rod, and its pawl, of an operating lever having a cam-face and pivotally mounted on the outer end of the ratchet-rod, of a spring connecting the operating-lever with a fixed part on the movable jaw; substantially as described.

13. The combination with the jaws and the ratchet-rod, of an operating-lever pivotally connected with the ratchet-rod and having a cam-face, a collar revolubly mounted on the rod against which the cam-face is designed to act, and a spring having one end connected with the lever near its pivot, and the other end mounted on the shank of the movable jaw; substantially as described.

14. The combination with the ratchet-rod and the operating cam-lever pivotally connected therewith, of a pin mounted in an opening in the lever and engaging the face portion of the rod to which it is pivoted; substantially as described.

15. The combination with the ratchet rod having a flattened portion with rounded face, the operating lever pivotally mounted on said portion, and a pin mounted for movement in an opening in the lever and engaging the rounded portion of the ratchet-rod; substantially as described.

16. The combination with the ratchet-rod and the lever pivotally mounted thereon, of a pin mounted for vertical movement in an opening in the lever, and a rocking rod on the lever for actuating said pin; substantially as described.

17. The combination with the ratchet rod and the operating-lever pivotally mounted thereon, of a pin mounted for vertical movement in said lever and adapted to automatically drop and lock the jaws as the lever is moved; substantially as described.

18. The combination with the ratchet-rod and the operating-lever pivotally mounted thereon, of a pin mounted for vertical movement in the lever, a rocking rod on said lever, and a rocking lever connected with said rod and with said pin; substantially as described.

19. In a vise of the character described, a vertically-movable pin having a portion cut away upon oppositely-disposed inclined lines one of which is toothed, substantially as specified.

20. In a vise of the character described, a vertically-movable pin having a head to be engaged by the means which moves it vertically and having between its ends a portion cut away upon oppositely-disposed inclined lines one of which is toothed and the other untoothed, substantially as and for the purpose specified.

21. In a vise of the class described, the combination with the ratchet-rod and the pivotally-mounted lever, of a pin mounted for vertical movement in the lever and having a portion upon one side cut away and formed with teeth upon an inclined line, and a curved portion inclined in the opposite direction; substantially as described.

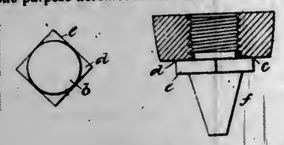
22. The combination with the movable jaw and the ratchet-rod, of the operating-lever pivotally mounted on said rod, and a spring having one end connected with the lever and the other end secured to a pin projecting from the shank of said movable jaw; substantially as described.

23. The combination with the movable and fixed jaws of a vise, of a ratchet-rod, a cam-lever pivoted thereto, a sleeve surrounding the ratchet-rod and having a slot for the fin of said rod, and a locking pin or latch for maintaining the parts in relatively different operative connections; substantially as described.

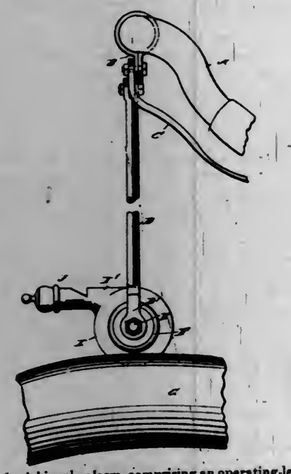
596,126. HORSESHOE-CALK. ALLEN H. ROWE, Hartford, Conn. Filed Mar. 17, 1896. Serial No. 583,566. (No model.)

Claim.—As an improved article of manufacture, the herein-described horseshoe-calk, the same comprising a solid base *c* angular on its exterior and flat on its upper side; a truly cylindrical shank *b* rising from and smaller than the base so as to leave a shoulder *d* on the latter around the former, the shank being threaded from its upper end nearly to the base and there grooved to a depth to make its di-

ameter through the groove less than that through the bottom of the threads; and an integral calk proper, *f*, depending from the base, all as and for the purpose hereinbefore set forth.



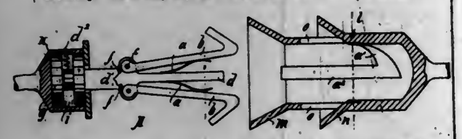
596,127. BICYCLE-ALARM. FRED R. SANDERS, North Bend, Pa.
Filed Jan. 8, 1895. Renewed Nov. 24, 1897. Serial No. 660,239. (No model.)



Claim.—1. A bicycle-alarm, comprising an operating-lever, a rod freely suspended from the said operating-lever, and unrestrained by any other connection so as to be capable of bodily moving upward and downward, a friction-wheel journaled in said rod, and a sounding device actuated by the revolution of the friction-wheel, substantially as described.

2. A bicycle-alarm, comprising an operating-lever fulcrumed on the handle-bar to swing up and down relatively thereto, a rod freely suspended from the said operating-lever, and unrestrained by any other connection so as to be capable of bodily moving upward and downward, a friction-wheel journaled in the lower end of the rod, and adapted to engage the wheel-tire, and a sounding device actuated by the revolution of the friction-wheel, substantially as described.

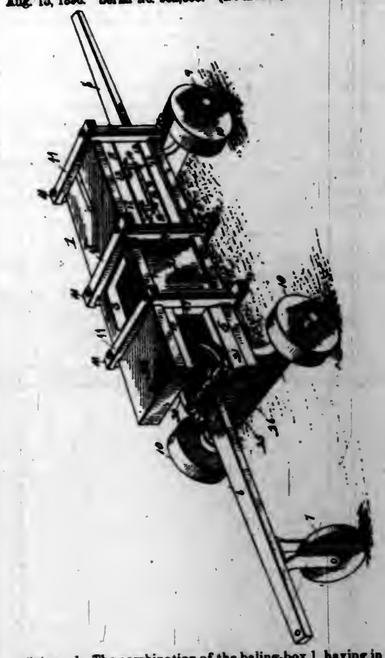
596,128. CAR-COUPLING. WALDEMAR SCHEEL, Schleusendorf, Germany. Filed May 18, 1897. Serial No. 637,119. (No model.)



Claim.—1. In a car-coupler the combination in a coupling part A of the coupling-hooks *b*, pressed outwardly by the springs *a*, the noses *f*, resting against the stops *d'*, these hooks being pivotally fastened on the tenon *d*, the cylindrical part *g* of which, having the groove *i*, rests in the receptacle d^3, the spring *k*, fastened to the cylindrical part *g* within the groove *i* and to the receptacle d^3, said hooks to engage in slots *o*, *o*, in the hollow cylinder *l* of the coupling part B, the slanting groove *c'*, the straight groove a^2 and the two conical rings *m* and *n*, substantially as described.

2. In a car-coupler in combination a coupling part A and a coupling part B, connected by the cross-piece *p*, the threaded tenon *q*, branching off therefrom, the nut *r*, the worm *z*, engaging the worm-wheel formed on the outer surface of said nut *r*, the axle *t*, the drum *u*, the chain *w* and the spring *v*, the axle *t* to be actuated by the handle *x*, substantially as described.

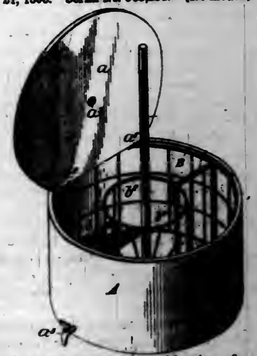
596,129. HAY-PRESS. ISAAC R. STEWART, Hope, Ark. Filed Aug. 15, 1896. Serial No. 602,895. (No model.)



Claim.—1. The combination of the baling-box 1, having in either side longitudinal slots 14; frames 16, one hinged to each side of the box; retainers 15, secured to the frame 16, their free ends pointing slightly rearward, passing through said slots 14, and adapted to hold the compressed material, and means for holding said frame 16, in operative position, substantially as shown and described and for the purposes set forth.

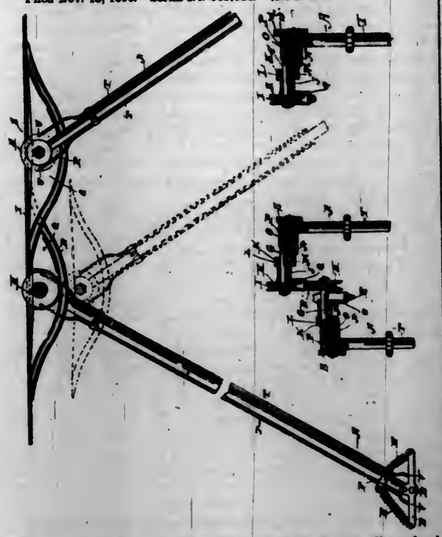
2. A baling press, consisting of the baling-box 1; extensions 4 and 5, secured to the front end of said box; operating-lever 6, pivoted between said extensions, a plunger in the box and operated by said lever; guides 20 and 21, secured to the upper and lower faces of the lever to steady the movement thereof, and braces 25 and 26, securing said guides in place, substantially as shown and described and for the purposes set forth.

596,130. DISH-CLEANER. HERVEY R. STILES, Davenport, Iowa. Filed Sept. 21, 1895. Serial No. 563,233. (No model.)



Claim.—In a dish-washer, the combination of a receptacle, two semicylindrical reticulated dish-holding baskets placed therein, the meeting plane surfaces of each basket being formed with a longitudinal concavity whereby an interior chamber is formed, and a dasher adapted to reciprocate within said interior chamber, substantially as described.

596,131. TROLLEY. ANTONIO TRAVAGLINI, Philadelphia, Pa. Filed Nov. 13, 1896. Serial No. 612,011. (No model.)



Claim.—1. In combination with a trolley-pole, a trolley-wheel carried thereby, a fin adapted to be brought into vertical alinement with the wheel or removed therefrom, and means for automatically operating the fin, substantially as and for the purpose set forth.

2. In combination, a trolley-pole, a spindle carried thereby, a trolley-wheel journaled upon said spindle, a sleeve fitted to the spindle, a fin carried by said sleeve, said fin being of such shape as to cause a trolley-wheel traveling in an opposite direction to pass below and around the first-named trolley-wheel, and means for automatically carrying said fin into and out of an operative position, as specified.

3. In combination, a pole, a spindle carried at the upper end thereof, a trolley-wheel journaled upon said spindle, a sleeve fitted to the spindle, a plate carried by the sleeve, a fin formed with the plate, a sliding block so connected to the sleeve as to move therewith, a screw secured to the pole engaging with threads formed upon the block, and a wheel S for manipulating the screw so as to operate the fin, substantially as and for the purpose set forth.

4. In combination, a bracket, a pole pivoted thereto, a spindle carried at the upper end of the pole, a trolley-wheel journaled upon said spindle, a sleeve fitted to said spindle, a plate formed with the sleeve, a fin carried by said plate, means for moving the fin into or out of vertical alinement with the trolley-wheel, and means connecting the plate and bracket for maintaining the plate in a horizontal position, as specified.

5. In combination, a pole, a spindle carried at the upper end thereof, a trolley-wheel journaled upon said spindle, a sleeve fitted to said spindle, a plate formed with the sleeve, a fin carried by said plate, means for moving the fin into or out of vertical alinement with the trolley-wheel, rods T pivoted to the plate, and a bar against which the lower ends of said rods abut for maintaining the plate in a horizontal position, substantially as and for the purpose set forth.

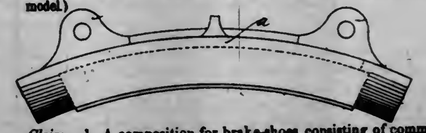
6. The herein-described combination of a bracket C, a bar D carried thereby, a pole pivoted to said bracket, a spindle carried by the upper end of said pole, a trolley-wheel journaled upon the outer end of said spindle, a sleeve fitted to the spindle, a plate Q carried by the sleeve, a fin formed with the plate, a block so attached to the sleeve as to move therewith, a screw secured to the pole engaging with threads upon the block, a wheel S for revolving said screw, said wheel adapted to work in conjunction with a rail W properly located, rods T pivoted to the plate at their upper ends, their lower ends abutting against the bar D, and springs E for giving the trolley-wheel an upward tendency, substantially as and for the purposes set forth.

7. In a device of the character described, a pole, a spindle thereon, a trolley-wheel journaled on the spindle, a sleeve carrying a fin slidable on the spindle and a screw secured to the pole adapted to operate the sleeve, as and for the purpose described.

8. In a device of the character described, a pole, a spindle thereon, a trolley-wheel journaled on the spindle, a sleeve fitted on the spindle, a fin carried by the sleeve, a screw secured to the pole adapted to actuate the sleeve and means for automatically operating the screw, as and for the purpose described.

9. In a device of the character described, a pole, a spindle thereon, a trolley-wheel journaled on the spindle, a sleeve slidable on the spindle, a fin carried by the sleeve, a sliding block having a lug fitting in an annular groove of the sleeve, a screw threaded to the block, a pin securing the screw to the pole and means for operating the screw, as and for the purpose described.

596,132. BRAKE-SHOE. ANDREW J. ALLEN and JAMES F. MORRISON, Chicago, Ill. Filed May 29, 1897. Serial No. 638,792. (No model.)



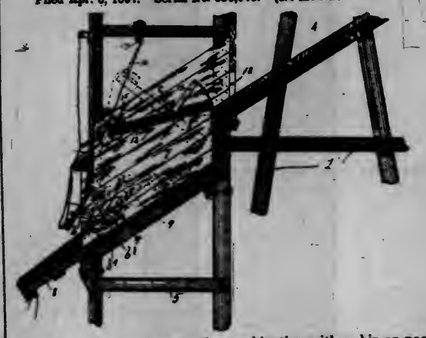
Claim.—1. A composition for brake-shoes, consisting of comminuted iron, asphaltum and Wahsatch rock intermixed in substantially the proportions specified.

2. The combination with the shell of a brake-shoe having enlarged taper chilled ends, the inner surfaces of the walls of the shell sloping from the back to the front thereof, of a composition contained within the shell comprising comminuted iron, asphaltum and Wahsatch rock intermixed in substantially the proportions specified.

3. The combination with the shell of a brake-shoe, having enlarged taper chilled ends, the inner surfaces of the walls of the shell sloping from the back to the front thereof, of a frictional body conforming to the interior of the shell, the frictional area of the body being enlarged as the shoe is worn away to compensate for the decreasing hardness of the chilled ends of the shoe.

4. A composition for brake-shoes, consisting of comminuted iron, asphaltum and an ingredient to counteract the elasticity of the asphaltum, substantially as described.

596,133. COALING-STATION. THOMAS APPLETON, St. Paul, Minn. Filed Apr. 6, 1897. Serial No. 630,973. (No model.)

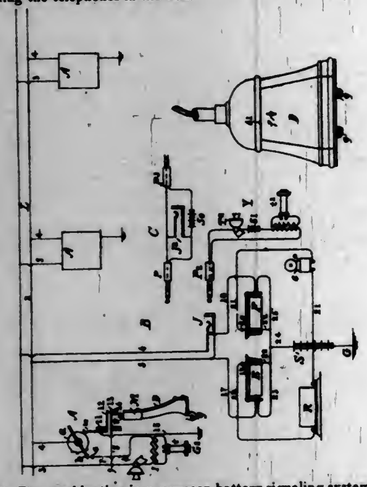


Claim.—In a coal-chute, the combination with a bin or pocket having an inclined floor, of a regulating or cut-off gate controlling the outlet therefrom, which gate is a pivoted segment with a skeleton frame and so mounted as to close upward through the stream of flowing coal, to effect the cut-off, and so that when below the stream of coal, the latter may flow through said skeleton frame.

596,134. SIGNALING-CIRCUIT FOR FIRE AND POLICE SYSTEMS. ALBERT BARRETT, Kansas City, Mo. Filed Sept. 9, 1897. Serial No. 651,048. (No model.)

Claim.—1. The combination in a common-battery signaling system, of a circuit composed of two conductors extending through a plurality of substations or street-boxes, normally open at each station, and terminating in a central station; means in each box operative upon the opening of its door for first, momentarily closing a circuit over one conductor of the main circuit and through the earth to the central station; and second, means for intermittently closing and opening a circuit over the second conductor of the main-line circuit and through the earth to the central station; and third, means for closing the said two conductors to include telephones; with signal-receivers at the central station in circuit with the first conductor consisting of visual and audible instruments, and signal-receivers in circuit with the second conductor consisting of visual and recording instruments, and means for connecting telephonic instruments between the said two conductors.

2. The combination in a fire-alarm and police-signal system of a metallic circuit extending through a plurality of street-boxes and terminating in a central station, both conductors of the said circuit being normally open in each box; each box consisting of a casing with a door hinged thereto adapted to swing outwardly, provided with a lock having a circuit-closing pin, and circuit-closing springs in the path of said pin, a clock-train adapted to be wound by the closure of said door, and to be released by the opening of the same to serially rotate a break-wheel and to operate a circuit-closer, and telephone instruments; signal-receivers at the central station in circuit with one conductor of said main circuit consisting of visible and audible instruments, and signal-receivers in circuit with the second conductor consisting of visible and recording instruments, with means for connecting telephones between the said two conductors; whereby when a box-door is opened a circuit is closed over the first conductor and the signal-receivers included therein operated, and secondly a circuit is closed over the second conductor and the said signal-receivers located therein operated, and finally the metallic circuit is closed including the telephones in the box.



3. The combination in a common-battery signaling system of a metallic circuit extending through a plurality of substations or street-boxes and terminating in a central station, both conductors of the said circuit being normally open in each box; means at each box for first, momentarily closing a circuit over one conductor of the main circuit and through the earth to the central station, and second, means for intermittently closing and opening a circuit over the second conductor of the main circuit and through the earth to the central station, and third, means for closing the said metallic circuit to include telephones; signal-receivers at the central station in circuit with the first conductor consisting of a relay-annunciator adapted to operate a bell, and signal-receivers in circuit with the second conductor consisting of a relay-annunciator adapted to operate a register; a battery common to both conductor circuits; with means for connecting telephonic instruments between the said two conductors consisting of a plug-socket having open terminals from each of said conductors, and a plug whose cords include telephones.

4. The combination in a common-battery fire-alarm and police system of a main metallic circuit, a plurality of street-boxes, a common battery, and a central station; each street-box consisting of a casing with an outwardly-swinging door hinged thereto provided with a lock having a circuit-closing pin, each lock being provided with citizens' keys and officers' keys, circuit-closing springs in the path of said pin, a clock-train adapted to be wound by the closure of said door, and to be released by the opening of the same to operate a circuit-closer, with telephones; separate signal-receivers at the central station in circuit with each conductor of said main circuit, and means for connecting telephone instruments between the said conductors; whereby upon the insertion of a citizen's key into said lock and the opening of the door the key is trapped and a circuit is momentarily closed over one conductor of the said circuit as the said pin passes the said springs and a signal-receiver operated at the central station, the said clock-train released, the circuit closer operated and the telephones in the box included in a metallic circuit.

5. The combination in a common-battery fire-alarm and police system of a main metallic circuit, a plurality of street-boxes, a common battery, and a central station; each street-box consisting of a casing with an outwardly-swinging door hinged thereto provided with a lock having a circuit-closing pin, each lock being provided with citizens' keys and officers' keys, circuit-closing springs in the path of said pin, a clock-train adapted to be wound by the closure of said door and to be released by the opening of the same to serially rotate a break-wheel and to operate a circuit-closer, with telephones; a separate signal-receiver at the central station in circuit with each conductor of said main circuit, and means for connecting telephones between the said conductors; whereby upon the insertion of an officer's key into said lock and the opening of the door a circuit is closed over one conductor of the said circuit by the releasement and rotation of said break wheel and a signal-receiver operated at the central station, the circuit-closer operated and the telephones in the box included in a metallic circuit.

6. The combination in a fire-alarm and police-signal box of a casing; with a door hinged to the same adapted to swing outwardly and provided with a lock, having a concealed circuit-closing pin; circuit-closing springs in the path of said pin; a clock-train adapted to be wound by the closure of the door and to be released by the opening of the same to serially rotate a break-wheel, and to operate a circuit-closer; and telephone instruments; all connected as described, and operating as set forth.

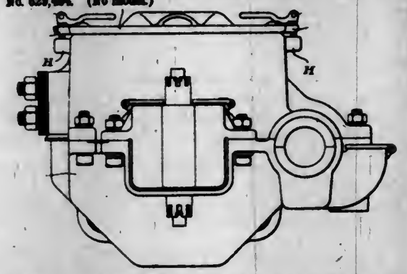
7. The combination in a common-battery fire-alarm and police system of a main metallic circuit, a plurality of street-boxes, a common battery and a central station; each street-box consisting of a casing with an outwardly-swinging door hinged thereto provided with a lock having a circuit-closing pin, each lock being provided with citizens' keys and officers' keys, circuit-closing springs in the path of said pin, a clock-train adapted to be wound by the closure of said door and to be released by the opening of the same to serially rotate a break-wheel and to operate a circuit-closer, with telephones; separate signal-receivers at the central station in circuit with each conductor of said main circuit, and means for connecting telephone instruments between the said conductors; whereby upon the insertion of a key into said lock, and the opening of the door an emergency-signaling circuit is established over one wire of the main circuit, or a police-signaling circuit is established over the second conductor of the main circuit, at will, and a conversation-circuit is afterward established over the two conductors of the said main circuit automatically.

8. The combination in a common-battery fire-alarm and police system of a main metallic circuit, a plurality of street-boxes, a common battery, and a central station; each street-box consisting of a casing with an outwardly-swinging door hinged thereto provided with a lock having a circuit-closing pin, each lock being provided with citizens' keys and officers' keys, circuit-closing springs in the path of said pin, a clock train adapted to be wound by the closure of said door and to be released by the opening of the same to serially rotate a break-wheel and to operate a circuit-closer, with telephones; separate signal-receivers at the central station in circuit with each conductor of said main circuit, and means for connecting telephones between said conductors; whereby either of two independent signaling-circuits may be selectively established between any street-box and the central station and characteristic signals automatically transmitted from the box to the central station, and a conversation-circuit established over the two conductors of the said main circuit.

9. The combination in a common-battery signaling system of a metallic circuit extending through a plurality of substations or street-boxes and terminating in a central station, both conductors of the said circuit being normally open in each box; means at each box for, first, momentarily closing a circuit over one conductor of the main circuit and through the earth to the central office, and second, means for intermittently closing and opening a circuit over the second conductor of the main circuit and through the earth to the central station, and third, means for closing the said metallic circuit to include telephones; signal-receivers at the central station in circuit with the first conductor consisting of a relay-annunciator adapted to operate a bell, and signal-receivers in circuit with the second conductor consisting of a relay-annunciator adapted to operate a register; a battery common to both conductor-circuits; with means for connecting telephonic instruments between the said two conductors consisting of a plug-socket having open terminals from each of said conductors and a plug whose cords include telephones; whereby when the telephones at a box and at the central station are in the metallic circuit, the emergency-signals from other boxes in the circuit are received in the central-station telephone.

10. The combination in a common-battery fire-alarm and police system of a main metallic circuit, a plurality of street-boxes, a common battery, and a central station; each street-box consisting of a casing with an outwardly-swinging door hinged thereto provided with a lock having a circuit-closing pin each lock being provided with citizens' keys and officers keys, circuit-closing springs in the path of said pin, a clock-train adapted to be wound by the closure of said door and to be released by the opening of the same to operate a circuit-closer, with telephones; separate signal-receivers at the central station in circuit with each conductor of said main circuit, and means for connecting telephone instruments between the said conductors; whereby upon the insertion of a citizen's key into said lock and the opening of the door the key is trapped and a circuit is momentarily closed over the second conductor and the box-number recorded, the circuit-closer operated and the telephones in the box included in a metallic circuit.

596,135. SECURING DEVICE FOR COVERS OF DYNAMO-ELECTRIC MACHINES. NORMAN C. RABBETT, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Mar. 27, 1897. Serial No. 629,464. (No model.)

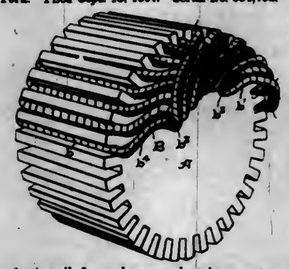


Claim.—1. In a device for securing the cover of a dynamo-electric machine, the combination of a pivoted handle, a screw-threaded bolt upon which the handle is pivoted, a cam on the handle engaging with the cover, and a lug on the under side of the handle engaging with a projection on the base to prevent it from turning.

2. In combination, an inclosing case for a dynamo-electric machine, a removable cover therefor, slots in the cover registering with lugs formed on the case, screw-threaded bolts mounted in the lugs, handles pivotally secured to the bolts, cams on the handles engaging with the cover and working over a center, and means preventing the handles from turning when in their closed position.

3. In combination, an inclosing case for a dynamo-electric machine, a removable cover therefor having slotted ends, screw-threaded supports secured to the case, handles pivotally secured to said supports, and laterally-projecting cams on the handles resting on the cover adjacent to the slots, so arranged that when the handle is thrown to its open position, they are out of the path of the cover so that it can be removed.

596,136. ARMATURE WINDING AND COIL. ASA F. BATCHELDER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Sept. 15, 1897. Serial No. 651,752. (No model.)



Claim.—1. A coil for a dynamo-electric armature, having the sides to be disposed on the armature-face united at least at one end by three end portions, two of which are involutes offset from one another, and the third a spiral.

2. A coil for a dynamo-electric armature, having two parallel sides, the two sides united at one or at both ends by three end portions, two of which are involute curves offset from each other at their joined ends, and the third a spiral joining one end of an involute to one of the parallel sides of the coil.

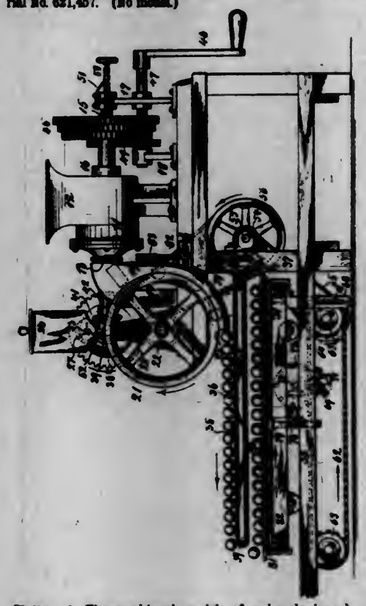
3. An armature-winding composed of detachable coils having offset end connections shaped to fit down over the armature-head, and occupying a space on the head bounded by an inner circle, at the circumference of which the offsets are arranged, and by the periphery of the armature-core, and extending for a certain distance approximately concentric with the periphery of the core, whereby the span between the sides of the coil is greater than the span between the outer ends of the inwardly and outwardly extending portions of the coil ends.

4. An armature-winding consisting of detachable coils having end connections which are in part shaped to fit over the head of the core, forming an inside and outside series in planes approximately transverse to the shaft, and in part shaped to lie in short arcs or chords in paths concentric, or approximately concentric, with the shaft and core.

5. In a dynamo-electric machine, an armature-winding made up of detachable counterpart coils having at their ends a part extending inward toward the shaft to an offset, a second portion extending outward from the offset to or near the circumference of the core, and another portion extending in an arc or chord to the desired polar point occupied by the side of the coil, as set forth.

6. An armature-coil having end portions shaped to form two involutes extending a certain distance inward toward the shaft, and then outward from the shaft, an offset joining the inner ends of said involutes, and a third portion forming a continuation of the outer end of one of the involutes to the corresponding side of the coil, whereby the two sides of the coil are at unequal distances from the offset, as set forth.

596,137. CANDY-FORMING MACHINE. FREDERICK W. BAUER and JOHN C. HEILMANN, Jr., Cincinnati, Ohio. Filed Feb. 1, 1897. Serial No. 621,457. (No model.)



Claim.—1. The combination with a forming device where a plastic mass is rolled into symmetrical equal-sized pieces and which consists of a rotary member 21 having a stationary member 19 fitted against part of its periphery, the contiguous surfaces of the two being shaped to provide the forming-surfaces between which the mass is rolled, a feed device supplying the mass, a rotary knife dividing the latter into equal-sized pieces before passing between the forming-surfaces, a water-tank, and brushes through which the knife passes between operations for the purpose stated.

2. The combination with a forming device where a plastic mass is rolled into symmetrical equal-sized pieces and which consists of a rotary member 21 having a stationary member 19 fitted against part of its periphery, the contiguous surfaces of the two being shaped to provide the forming-surfaces between which the mass is rolled, the lower end of member 19 forming the discharge-opening of the forming device, a removably-supported tray receiving the discharge, and mechanism operating the support of the tray in a manner to have a reciprocatory motion to and from said discharge-opening in one direction and an intermittent progressive one at right angles to the direction of the other motion.

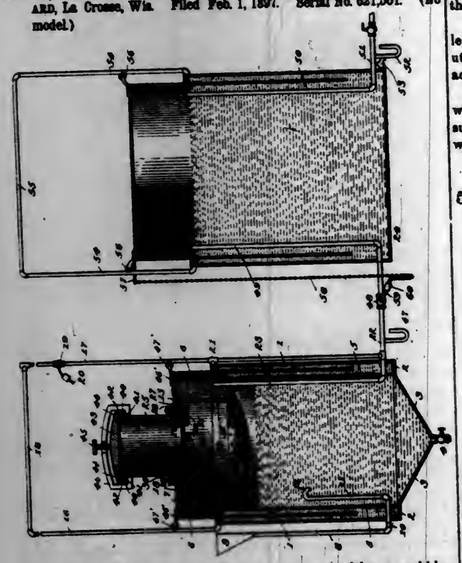
3. The combination with a forming device where a plastic mass is rolled into symmetrical equal-sized pieces and which consists of a

rotary member 21 having a stationary member 19 fitted against part of its periphery, the contiguous surfaces of the two being shaped to provide the forming-surfaces between which the mass is rolled, the lower end of member 19 forming the discharge-opening of the forming device, a carriage 32 having a reciprocatory motion to and from the forming device, a sliding frame 31 supported thereon, mechanism whereby the latter receives an intermittent progressive motion at right angles to the motion of the carriage, such intermittent advance taking place at the terminals of the reciprocatory motion of the carriage and a tray carried by sliding frame 31 for the purpose of receiving the discharge from the forming-machine.

4. In a forming-machine, the combination of a horizontally-disposed cylindrical receiver 11, having a discharge-opening in one of its ends, a feed-screw mounted therein, a forming device consisting of a wheel 21 and a stationary member 19 fitted against the periphery of the same with a space between within which the forming takes place, the receiving-opening to this space being disposed below the discharge-opening of receiver 11, a knife for severing at regular intervals the matter as it issues from receiver 11, two parallel shafts 15 and 42 one receiving motion from the other, one operating the feed-screw, the other the knife, which latter is so mounted on said shaft as to pass between the discharge and receiving openings above mentioned, a shaft 22 disposed at right angles to shaft 42 for operating the forming-wheel and intermediate connection between these two shafts for rotating shaft 22.

5. In a forming-machine, the combination of a horizontally-disposed cylindrical receiver 11, having a discharge-opening in one of its ends, a feed-screw mounted therein, a forming device consisting of a wheel 21 and a stationary member 19 fitted against the periphery of the same with a space between, within which the forming takes place, a knife for severing at regular intervals the matter as it issues from receiver 11, a sprinkling device with a rotary agitator mounted above wheel 21, two parallel shafts 15 and 42 one receiving motion from the other, one operating the feed-screw, the other the knife, which latter is so mounted on said shaft as to pass in front of the discharge-opening above mentioned, a shaft 39 disposed at right angles to shaft 42 for operating the agitator of the sprinkling device and a shaft 22 parallel to shaft 39 and driven from it upon which the forming-wheel 21 is mounted for purposes of its rotation.

596,138. ACETYLENE-GAS GENERATOR. DANIEL R. BLANCHARD, La Crosse, Wis. Filed Feb. 1, 1897. Serial No. 621,501. (No model.)



Claim.—1. An acetylene-gas generator, comprising a carbid or charging chamber, provided with a removable cover and detachable bail, in combination with a pair of horizontal parallel guides, arranged at the bottom of said chamber and provided with laterally-projecting horizontal studs, a slide-valve mounted in said guides and adapted to form a seat on the bottom of said chamber, said valve being provided with inclined lugs adapted to engage said studs and means substantially as described for operating said valve, as and for the purpose set forth.

2. An acetylene-gas generator comprising a stationary tank 1, having an annular horizontal base flange 2, and an inverted conical bottom 3, provided with a discharge faucet 4, an annular cylinder 5, open at the top and fixed at its lower end to the inner edge of the base-flange 2, a gas-cylinder 6, a vertical pipe, 8, secured on the outside of the tank, having a funnel shaped top 9, and extending downward and upward inside of the cylinder 5, where it terminates in a gooseneck 12, in combination with the perforated shelf, suspended from the inside of the top of the gas-cylinder 6, a bottomless charging-chamber 25, fixed in the top of the gas-cylinder 6, and provided with a removable cover 43, and detachable bail 46, having a centrally-disposed clamping-screw 45, the parallel guide-bars 31 31, secured to the lower end of said chamber 25, and provided with grooves 32 32, and lateral studs 39 39, the slide-valve 33, mounted so as to reciprocate in said guide-bars 31 31, and provided with two forwardly-inclined lugs 38 38, adapted to engage said lateral studs and cause the upper face of the valve to form a seat with the bottom of said charging-chamber and means substantially as described for operating said valve from the outside of the cylinder 6, as and for the purpose set forth.

596,139. PROCESS OF GENERATING ACETYLENE GAS. WERNER BOLTON, Leipsic, Germany, assignor, by mesne assignments, to James A. Deuther, Boston, Mass. Filed Oct. 16, 1896. Serial No. 565,895. (No specimens.)

Claim.—1. The process of generating acetylene gas at a regulated rate, which consists in first impregnating carbid of calcium with a substance substantially insoluble in water, and then subjecting the prepared carbid to the action of water, substantially as set forth.

2. A step in the process of generating acetylene gas at a regulated rate, which consists in impregnating carbid of calcium with a substance substantially insoluble in water at a pressure below that of the atmosphere, substantially as set forth.

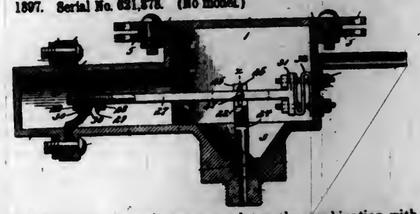
3. Carbid of calcium impregnated with a substance substantially insoluble in water—such as stearin, as a new composition of matter, substantially as set forth.

4. The process of generating acetylene gas slowly and continuously as required for consumption in a lamp, which consists in first impregnating and filling the interstices of porous carbid of calcium at a pressure below that of the atmosphere with a substance substantially insoluble in water, and then subjecting the prepared mass to the action of water, substantially as set forth.

5. As a new article of manufacture for the production of acetylene gas, metallic carbid and an inert substance uniformly distributed throughout the carbid, whereby on exposure to water the reaction will be retarded.

6. The process of generating acetylene gas at a regulated rate, which consists in first impregnating metallic carbid with an inert substance, and then subjecting the prepared carbid to the action of water, whereby the production of acetylene gas is effected gradually.

596,140. FLUID-PRESSURE REGULATOR. GEORGE G. CLARK, Galveston, Tex., assignor to Hilliary Eldridge, Sylvain Blun, and Daniel J. Clark, same place, and Sam Lazarus, Sherman, Tex. Filed Feb. 3, 1897. Serial No. 621,878. (No model.)

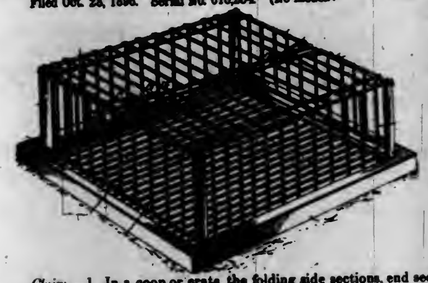


Claim.—1. In a gas-pressure regulator, the combination with a chamber adapted to be connected to the source of gas-supply, and a turning-plug valve in the gas-conduit between the chamber and source of supply, of a lever connected to the plug-valve and having a passage-way formed therein to establish communication between the passage and the plug-valve and the chamber, a rod connected intermediate its ends to the lever and one of its ends being T-shaped, a diaphragm within the chamber to which one end of the rod is connected, a reversely-bent plate-spring secured to the wall of the chamber and to the T-shaped end of the rod, and a service-pipe leading from the chamber substantially as described.

2. In a gas-pressure regulator, the combination with a chamber adapted to be connected to the source of gas-supply, and a turning-plug in the gas conduit between the chamber and source of supply, said plug having a transverse opening threaded at one end, of a lever

secured at one end in the threaded portion of the opening in the plug-valve and having a passage-way formed therein to establish communication between the passage in the plug-valve and the chamber, a diaphragm within the chamber, a rod having a spring-support at one end and connected at its other end to the diaphragm, said rod also having a pin-and-slot connection with the upper end of said lever, and a service-pipe leading from the chamber, substantially as described.

596,141. FOLDING COOP. JESSE M. CORNELIUS, Mooresville, N. C. Filed Oct. 28, 1896. Serial No. 610,264. (No model.)



Claim.—1. In a coop or crate, the folding side sections, end sections pivoted to the ends of said side sections, top sections pivoted to the upper edge of said side sections, a notched plate secured to the end of each of said side sections opposite the end to which the end sections are pivoted and adapted to receive the end portion of the adjacent end section, and means for securing said end and top sections together.

2. In a folding coop or crate, the bottom having the pivoted side sections, the end and top sections pivoted to said side sections, projections upon the free or swinging end of one of said top sections adapted to overlap the other top section, upwardly-extending lugs upon the upper edge of said end sections to engage the top sections, and pivoted arms upon the upper edges of said end sections adapted to engage said top sections and to be secured thereto by suitable fastening devices.

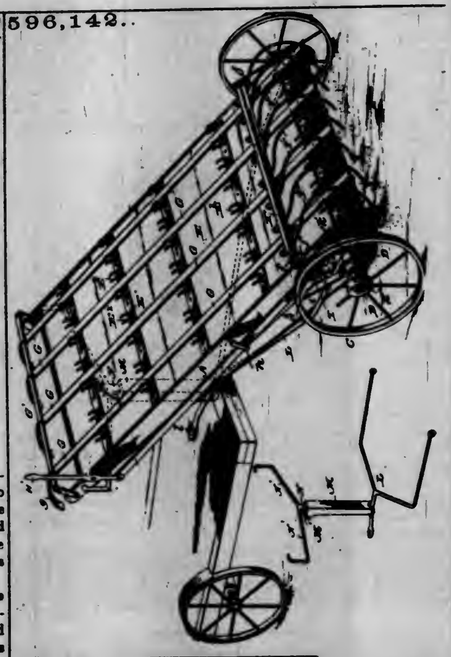
3. In a coop or crate, the bottom having a rabbeted inner and upper edge, catches at one side of said bottom and within the rabbeted portion, side sections having their lower edges pivoted within said rabbeted portions, end sections pivoted to the ends of said side sections, top sections pivoted to the upper edge of said side sections, and projections upon one of said top sections to engage said catches.

596,142. HAY RAKE AND LOADER. WARREN CRAWTON, Waterloo, Iowa. Filed Dec. 28, 1896. Serial No. 617,229. (No model.)

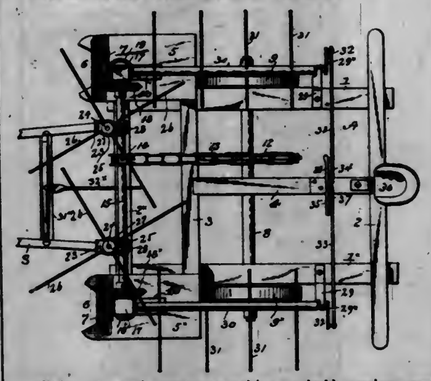
Claim.—1. A combined hay rake and loader comprising, the inclined frame, a shaft or axle B journaled on the lower end of the frame and provided with ground-wheels, a large drum secured on and turning with said ground-wheel shaft or axle, a smaller drum journaled on the upper end of the frame, an apron extending around said two drums and of the same width as the frame and the length of the drum to prevent the hay from getting thereunder, a rake-head journaled above the lower drum and in advance of a vertical line through the axis thereof, rake-teeth F secured to said head, curved directly forward therefrom, then downwardly toward the apron, then extending directly rearward along the apron, then curved concentrically around the rear of the large drum and thence projecting downwardly to the ground-line, and transverse series of pairs of upwardly and forwardly curved teeth F^2 secured to the apron and of a length to straddle the rake-teeth F, from near their points to their head F to thereby exert an upward and forward pull on the hay and relieve the rake-teeth from rearward strain, substantially as set forth.

2. The combination with the frame and endless toothed elevator, the lower drum of which is fast on the ground-wheel axle or shaft, sliding clutch-sections turning with said shaft and engaging clutch-sections on the adjacent ground-wheels, and the rake-head provided with rake-teeth and having depending arms at its end, the clutch-operating levers pivoted between their ends to the frame and engaging the sliding clutch-sections with their lower ends to move the said sections inwardly out of engagement with the other clutch-sections, a sliding rod at one side of the frame, having an operating hand-lever at the upper end of the frame and pivoted at its lower rear end to one rake-head arm, a wedge-like cam or incline on the outer side of the lower end of the sliding rod to engage the inner side of the upper end of one of said clutch-operating levers, and a cam on the other depending arm and engaging the other clutch-operating lever, substantially as described.

596,142.



596,143. CORN-HARVESTER. ALBERT R. DENHAM, Cowling, Ill. Filed Feb. 13, 1896. Serial No. 579,159. (No model.)



Claim.—A corn-harvester comprising a suitable carriage, oppositely-arranged brackets secured on the carriage, bearing-blocks 17 carried by the said brackets, a shaft 15 journaled in said bearing-blocks, and provided with worms, brackets 23 mounted on the carriage, vertical reel-shafts journaled in the said brackets, reels on the reel-shafts, beveled pinions 18, 18× on the ends of the shaft 15, vertical shafts 20, 20× having their upper ends journaled in the bearing-blocks 17, circular cutters on the shafts 20, 20×, recessed plates 5, 5×, guards having their bases recessed to aline with the recesses on said plates 5, 5× and to stand in front of the said pinions, means to rotate the shaft 15, fodder-racks 30 journaled at one end in brackets 29, and the other ends in the bearing-blocks 17, and a centrally-pivoted lever, links connected to the cranks on the ends of the fodder-racks and to the lever at points opposite to its pivot, whereby both racks are simultaneously operated, substantially as set forth.

596,144. BURNER FOR BURNING RICH GASES, ESPECIALLY ACETYLENE GAS. EDWARD J. DOLAN, Philadelphia, Pa., assignor, by mesne assignments, to the Acetylene House Lighting Company, of West Virginia. Filed Apr. 29, 1897. Serial No. 634,375. (No model.)

Claim.—1. The combination in a gas-burner of two jets inclined toward each other and meeting at the point of combustion, and a third jet located in the same plane as the first two jets, in the bottom of a slot at right angles to the plane of said two jets, said third jet intersecting them at their point of junction, each of said jets being provided with an independent air-mixer bringing air in contact with the gas before reaching the point of combustion, substantially as described.



2. The combination in a burner of two jets inclined toward each other and located in the same burner-block with an air-mixing device connecting with each of said jets, substantially as described.

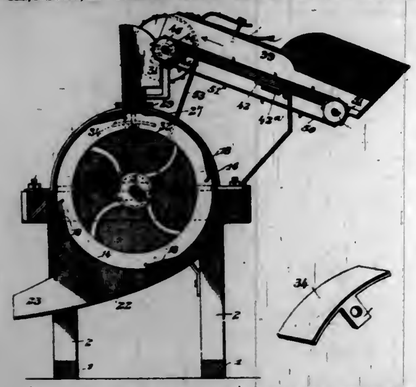
3. The combination of the two jets C C, located in the burner-block B, and the air-mixing openings E E, cut in said block, substantially as described.

4. The combination of the two jets C C, located in the burner-block B, with the converging channels F F, carrying the mingled gas and air toward the point of combustion, substantially as described.

5. The combination in the same burner-block of two inclined gas-channels C C, the air-mixing channels F, F, of greater area than the gas-channels C, C, and a vertical channel G, all located in the same plane, substantially as described.

6. The combination in the same burner-block of two inclined gas-channels C C, and a vertical channel G, all located in the same plane, the gas-jets C being provided with air-mixing openings E E, and the gas-jet G with air-mixing opening H, substantially as described.

596,145. MACHINE FOR CUTTING EAR-CORN. EMMET L. DOLSEN, Bartlett, Ill. Filed Mar. 18, 1897. Serial No. 628,185. (No model.)



Claim.—1. In a machine for cutting ear-corn, the combination of a vertical feed-cup, a stop below the feed-cup to support the ears of corn, a knife-wheel, knives projecting laterally therefrom to cut the corn above the support, and a flange on each knife to remove the cut-off portion from the support, substantially as described.

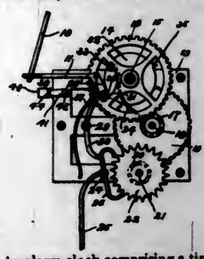
2. In a machine for cutting ear-corn, the combination of a pair of vertical feed-cups, arranged side by side with a space between them, a stop below each feed-cup to support the ears of corn, a vertical knife-wheel mounted to revolve below the feed-cups in the plane of the space between them, knives secured to the periphery of the wheel, equidistant from each other, and projecting laterally therefrom alternately on opposite sides to cut the ears of corn above the respective supports alternately, a flange on each knife to remove the cut-off portions from the supports, and means to feed the ears of corn singly to the feed-cups, substantially as described.

3. In a machine for cutting ear-corn, the combination of the frame, a knife-wheel supported to revolve within the frame, a semi-cylindrical sheet-metal casing fitted over the wheel and secured to the frame, straps secured around the edges of the casing and bolted to the frame, a cross-bar secured to the straps above the casing at its highest point, said cross-bar and the casing having registering openings which lead to the side of the knife-wheel, a feed-cup secured at its lower end in said openings, knives carried by said wheel and extending laterally therefrom below the feed-cup, means to feed the ears of corn to the cup, and a support within the casing for the lower end of the ear of corn, substantially as described.

4. In a machine for cutting ear-corn, a trough having an enlarged rear end to form a hopper, a partition extending longitudinally of the trough, a cap secured at one end to the front end of the partition and having its rear end curved upwardly and loosely fitted over a pin, a spring engaging the cap to permit it to have a yielding vertical movement at its rear end on the pin, and feed mechanism supported by the trough to carry the ears of corn below the cap, substantially as described.

5. In a machine for cutting ears of corn, a knife-wheel having a series of knives supported on its periphery, and projecting laterally therefrom alternately on opposite sides, each knife having a rounded cutting edge and a downwardly-turned rear edge, substantially as and for the purpose specified.

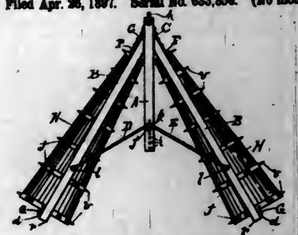
596,146. EIGHT-DAY ALARM-CLOCK. WILLIAM DUPES, Whatcom, Wash. Filed May 28, 1897. Serial No. 638,627. (No model.)



Claim.—1. An alarm-clock comprising a time mechanism and an alarm-movement, with intermediate connections, comprising a bell-crank lever, one arm of which is connected to the time mechanism and the opposite arm is provided with a stud, a verge for the alarm-movement, a pivoted lever having an arm operated by the stud, and a depending arm adapted to contact with said verge and throw off the alarm, and a throw-off lever pivoted to the alarm-frame and having a toe projecting into the path of movement of the crank-lever, substantially as described.

2. An alarm-clock having time and alarm movements and operative connections, a bell-crank let-off lever 11, a stud fixed on its shorter arm, a toothed disk loosely mounted on the main shaft of the alarm mechanism, and provided with a pin, projecting into the path of a spring fixed to said disk, a disk 32 connected to the main shaft, and provided with teeth which throw the let-off lever out of operation, an escape-lever and a stop-lever therefor, the latter lying in the path of the let-off lever, substantially as described.

596,147. ROLLER-HARROW. HOUGHTON D. EDWARDS, Hiseville, Ky. Filed Apr. 26, 1897. Serial No. 633,856. (No model.)



Claim.—1. In a harrow of the class described, the combination of the frame consisting of the center piece A, having openings *i*, the side pieces B, secured to the center piece A, by the hinges C, and provided with depending roller-journals F, and G, said side and center pieces being adjustably secured at their rear ends by means of the pivoted brace-rod consisting of the section B, having a shoulder *n*, with an opening *o*, to receive a pin *j*, and the section E, pivoted to section D; cone-shaped rollers H, having the bands *t*, to which are secured the harrow-teeth *v*, said rollers being provided with the journals *d*, which enter the bearings *e*, in the depending roller-journals F, and G, all substantially as shown and described.

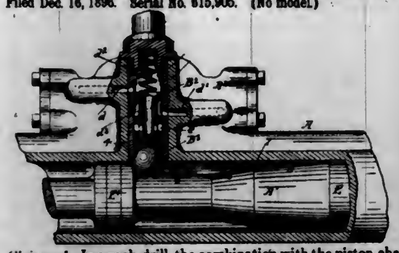
2. The combination in a harrow having an adjustable frame, of the pivoted brace-rod consisting of two sections D, and E, the outer end of each section having an opening whereby they are secured to

the side pieces B, of the frames by the bolts *l*, the inner ends having the openings *m*, to receive the bolt *k*, and the section D, having the shoulder *n*, with the opening *o*, said opening being adapted to receive a pin *j*, which lies therein and in one of the openings *i*, in the center piece A, with said frame, and the conical rollers H, having the bands *t*, and the harrow-teeth *v*, secured thereto, said rollers being connected with the frame by means of the depending roller-journals, substantially as set forth.

3. A roller-harrow having a V-shaped adjustable frame consisting of the center piece A, and the side pieces B, secured to said center piece A, at their front ends by the hinges C, and adjustably secured near their rear ends by the pivoted brace-rod formed as shown in two sections, with the cone-shaped rollers H, having journals *d*, connected with the frame by means of the depending roller-journals F, and G, said rollers carrying bands *t*, to which are attached teeth *v*, as shown and described.

596,148. WITHDRAWN.

596,149. ROCK-DRILL. JOSEPH K. FIRTH, San Francisco, Cal. Filed Dec. 16, 1896. Serial No. 615,905. (No model.)



Claim.—1. In a rock-drill, the combination with the piston chamber, piston, and main valve, of a spring-pressed auxiliary valve, a ball at the end thereof projecting into the piston-chamber and engaging and supported solely by the piston.

2. In a rock-drill, the combination with the piston provided intermediate its ends with a reduced portion, spring-pressed auxiliary valve operated by said piston, a ball in engagement with said valve, and said reduced portion, and adapted to be rotated by the movement of the piston.

596,150. SACK-PIN. MARY FITCH, Sun Prairie, Wis. Filed Mar. 26, 1897. Serial No. 629,377. (No model.)

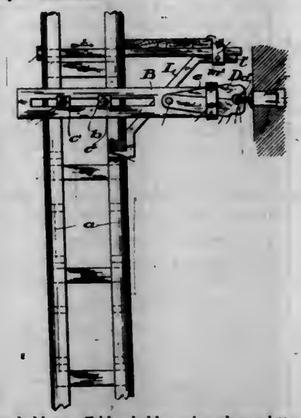


Claim.—1. A sack pin or fastening consisting of a split pin having the outer surfaces of the opposite legs converging, a ring adapted to slip over the same, and a long staple carried by one portion of the pin and holding the ring in inseparable connection with the device, substantially as described.

2. A sack pin or fastening consisting of a pin split throughout the greater portion of its length and having the outer end thereof provided with a flaring mouth and the outer surfaces of the opposing legs converging, a ring adapted to slip over one end of said pin, and a staple carried by a part of the pin and holding the ring in inseparable connection therewith, substantially as and for the purposes specified.

596,151. LADDER-SCAFFOLD. JULIUS FUNCKE, Charlottenburg, Germany. Filed July 6, 1897. Serial No. 643,509. (No model.)

Claim.—1. In a ladder-scaffold, a ladder, a bar clamped thereto extending laterally across the same, oppositely-moving hook-arms pivotally secured to the said arm, and an eyebolt and means for securing the same in a building, the hooks upon the hook-arm extending through the eye of the eyebolt from opposite sides of the same, substantially as described.

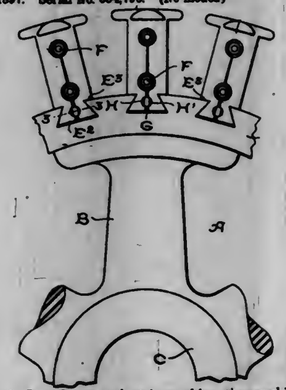


2. In a ladder-scaffold, a ladder, a bar clamped thereto extending laterally across the same, oppositely-moving hook-arms pivotally secured to the said arm, an eyebolt and means for securing the same in a building, the hooks upon the hook-arm extending through the eye of the eyebolt from opposite sides of the same, and a loop slidingly arranged upon the bar for engagement with the hook-arms to hold them in a closed relation in the eye of the eyebolt, substantially as described.

3. In a ladder-scaffold, a ladder, a bar clamped thereto extending laterally across the same, oppositely-moving hook-arms pivotally secured to the said arm, an eyebolt and means for securing the same in a building, the hooks upon the hook-arm extending through the eye of the eyebolt from opposite sides of the same, a loop slidingly arranged upon the bar for engagement with the hook-arms to hold them in a closed relation in the eye of the eyebolt, and a set-screw passing through the loop and bearing against one of the hook-arms to hold the loop in an adjusted position, substantially as described.

4. In a ladder-support, a ladder, an arm adjustably secured thereto, an expansion-bolt carried by the arm comprising a partially-slotted shell, an eyebolt extending into the shell and having a revolution therein, means for adjusting the eyebolt longitudinally in the shell, a wedge-shaped die located in the shell having a screw-threaded extension extending into a screw-threaded bore in the inner end of the eyebolt, whereby when the eyebolt is revolved, the die is either moved forward or backward and the casing expanded or allowed to resume its normal condition, substantially as described.

596,152. DETACHABLE LAMINATED POLE-PIECE FOR DYNAMO-ELECTRIC MACHINES. HENRY GEISENHÖNER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 11, 1897. Serial No. 654,796. (No model.)



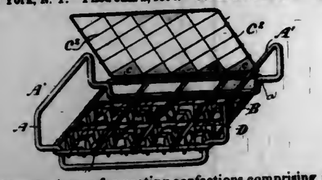
Claim.—1. In a dynamo-electric machine, the combination of a support provided with slots extending parallel to the shaft of the

machine, laminated detachable pole-pieces having projections inserted in the slots, and means for securing the pole-pieces in place by expanding them at the point where they enter the slots.

2. In a revolving field-magnet structure for dynamo-electric machines, the combination of laminated detachable field-poles having split dovetail projections at one end, a support having dovetail slots extending parallel to the shaft of the machine in which the poles are mounted, and wedges for expanding the dovetail projections of the poles.

3. In a revolving field-magnet structure for dynamo-electric machines, the combination of laminated detachable pole-pieces, each pole-piece being slotted and provided with a dovetail projection at one end and an overhanging portion to retain the field-coil at the other, and bolts for securing the laminæ together, a ring or support having dovetail slots in which the pole-pieces are mounted, and a pair of wedges for each pole-piece adapted to be inserted in position from the opposite ends to expand the dovetail portion of the pole.

596,153. CHOCOLATE-DIPPING TRAY. DENIS F. GERKEBEUX, New York, N. Y. Filed Jan. 2, 1897. Serial No. 617,890. (No model.)



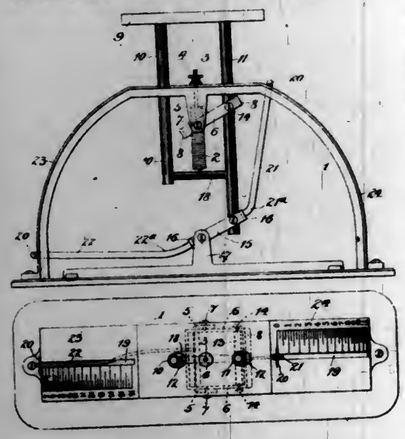
Claim. 1. A tray for coating confections comprising a series of holders secured to a frame and having open bottoms each holder composed of a plurality of fingers engaging each other at the upper surface of the tray, projecting downwardly on convergent lines and having their lower ends free.

2. A tray for coating confections comprising a series of holders secured to a frame and having open bottoms each holder composed of a plurality of fingers engaging each other at the upper surface of the tray and projecting downwardly on convergent lines, and having their lower ends free, each finger being composed of a continuous piece of material.

3. A tray for coating confections comprising a series of holders and a frame to which the holders are attached, said holders composed of wires intersecting each other on the upper surface of the tray, and being bent, between the said points of intersection, to form V-shaped fingers, each holder being composed of two or more of said fingers projecting downwardly and converging; said fingers having their lower ends free.

4. In a tray for coating confections, the combination of the holders F, having open bottoms, the frame β, to which the said holders are attached and the frame A, composed of a continuous piece of material supporting the same and having upwardly-bent portions forming rigid handles and extending beyond the frame.

596,154. WEIGHING-SCALE. BENNETT H. GILFILLAN, Chicago, Ill., assignor to the Gilfillan Scale and Hardware Company, same place. Filed Apr. 13, 1896. Serial No. 587,370. (No model.)

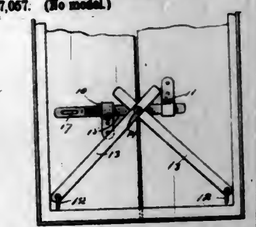


Claim.—1. A scale having in combination, a scale-pan-supporting stem, means for elastically supporting said stem, a pair of pivoted index-arms projecting in opposite directions and being attached to said stem whereby the movement of the latter will cause one to rise and the other to descend, and two scale-plates facing in opposite directions and having the graduations thereon arranged in the reverse order of each other, substantially as set forth.

2. A scale having in combination, a scale-pan-supporting stem, means for elastically supporting said stem, a pair of pivoted index-arms projecting in opposite directions and at an angle to each other and being attached to said stem whereby the movement of the latter will cause one of said arms to rise and the other to descend, and two scale-plates facing in opposite directions and having the graduations thereon arranged in the reverse order of each other, said index-arms being arranged normally one at the upper end of the graduations on one of said scale-plates and the other at the lower end of the gradnations on the other of said scale-plates, substantially as set forth.

3. A scale having in combination, a scale-pan-supporting stem, means for elastically supporting said stem, a pair of pivoted index-arms projecting in opposite directions and being attached to said stem whereby the movement of the latter will cause one to rise and the other to descend, and two scale-plates facing in opposite directions and both being curved on arcs struck from the pivotal point of said index-arms, substantially as set forth.

596,155. SHUTTER WORKER AND FASTENER. JAMES L. GREGORY and JAMES GRIEVE, Brooklyn, N. Y. Filed May 18, 1897. Serial No. 637,057. (No model.)



Claim.—1. A device for opening and closing and locking window-shutters, consisting of bars which are pivotally connected at one end with said shutters, said bars being pivotally connected at their inner or opposite ends and at the same point with a supplemental bar or arm, and said shutters being provided with hooks or other fastening devices which are secured thereto, and in connection with which said supplemental bar or arm operates, substantially as shown and described.

2. The herein-described means for opening, closing and locking window-shutters, consisting of bars which are pivotally connected at one end with said shutters, said bars being pivotally connected at their inner or opposite ends, and at the same point with a supplemental bar or arm, and said shutters being provided with hooks or other fastening devices which are secured thereto, and in connection with which said supplemental bar or arm operates, said supplemental bar or arm being also provided at one end with a slot, and the bottom of the window-frame with a headed pin or bolt which is adapted to pass therethrough, substantially as shown and described.

596,156. COMBINED BADGE, BOUQUET, AND PERFUME HOLDER. JOHN HAMEN, Everett, Wash. Filed May 15, 1897. Serial No. 636,661. (No model.)

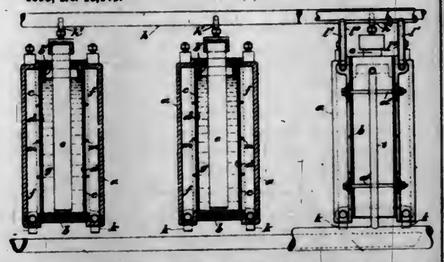


Claim.—1. A combined badge, perfume and bouquet holder comprising a casing formed of two sections, one of said sections having a flange around its edge, said flange being cut at two points and the metal between the cuts being turned inwardly to serve as a clamp and also to form an opening in the flange, and the other section having an integral lug bent inwardly to form a clamp, absorbent pads secured to the sections by said clamps, means to secure the two sections together, and a pin secured to one face of the casing, substantially as described.

2. A combined badge, perfume and bouquet holder comprising a hollow casing formed of two sections detachably connected together, and having an opening in its edge communicating with its interior, each section having an integral inwardly-bent clamping-lug, absorbent pads secured to the sections within the casing by the respective clamping-lugs, and a pin secured to one face of the casing, substantially as described.

3. A combined badge, perfume and bouquet holder comprising a horn-shaped hollow casing formed of two sections, an absorbent pad secured to the inner face of each section, a hook-and-eye connection between the wide upper ends of said sections, a cap removably secured on the lower narrow ends of said sections, and a pin secured to one face of the casing, said casing having an opening in its upper edge communicating with its interior, substantially as described.

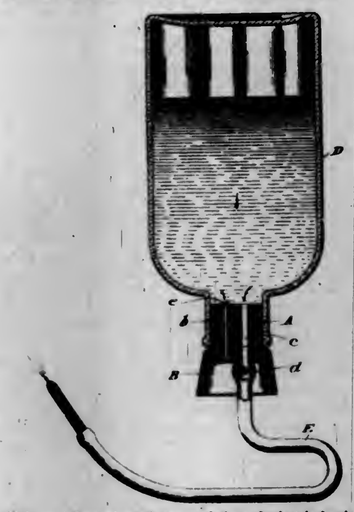
596,157. APPARATUS FOR ELECTROLYTICALLY PRODUCING ALKALIES. JAMES HARGREAVES, Widnes, England. Filed Mar. 16, 1896. Serial No. 583,390. (No model.) Patented in England Sept. 27, 1893, No. 18,173.



Claim.—1. An electrolytic cell having compartments separated by a diaphragm which, although slightly porous, is impermeable as a filter, an anode a cathode of open texture, such as wire-gauze, in contact with the face of the diaphragm remote from the anode, and means, such as a steam-generator, for supplying steam which becomes condensed upon, or for directing a current of steam against, the uncovered face of the cathode, substantially as herein described.

2. The herein-described electrolytic process which consists in providing the chamber containing the electrolyte with a boundary composed of a diaphragm impermeable as a filter in contact with a cathode of open texture, such as wire-gauze, there being directed against the cathode thus exposed a spray or jet of steam which becomes condensed and washes away from the cathode the cathion as rapidly as it is formed.

596,158. FOUNTAIN-SYRINGE. STEVENS T. HARRIS, Carrollton, Ga. Filed Apr. 3, 1897. Serial No. 630,578. (No model.)



Claim.—A fountain-syringe consisting of a bottle having a stopper formed of suitable material, such as described, through which pass parallel tubes of different dimensions, the smaller provided with a check-valve at its inner end, the larger having suitably formed on its outer end a neck for attaching a syringe-pipe, substantially as and for the purposes described.

596,159. HYPODERMIC SYRINGE. GEORGE B. HAYCOCK, Chicago, Ill. Filed Sept. 16, 1897. Serial No. 651,861. (No model.)



Claim.—In a hypodermic syringe, the combination with a barrel having a screw-threaded tenon and an annular collar having an annular recess in its face, of a washer seated in said recess, and a needle-supporting head screwed upon said tenon and provided with an annular integral ring to engage said washer and form an air-tight joint, substantially as set forth.

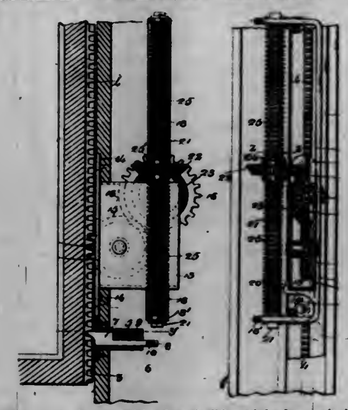
596,160. ELECTRIC HEATER. HUGO HELBERGER, Munich, Germany. Filed Apr. 29, 1896. Serial No. 589,574. (No model.) Patented in Germany June 10, 1894, No. 83,273; in England July 13, 1894, No. 13,594; in Switzerland Oct. 17, 1895, No. 11,058; in Belgium Oct. 29, 1895, No. 118,246; in Italy Oct. 31, 1895, No. 40,045, and in Hungary Nov. 9, 1895, No. 4,847.



Claim. 1. In an electric heater, the combination with a body to be heated, said body being a conductor of electricity, of a wire surrounding the same, a series of beads of refractory material strung upon the wire and in contact with the body to be heated, and a layer of refractory material outside the beads, substantially as set forth.

2. In an electric heater, the combination with a vessel having outward flanged edges, said vessel being a conductor of electricity, of a wire coiled around the outside of said vessel, a series of thin-walled cylindrical beads of refractory material strung upon the wire and in close contact with each other and with the exterior of the vessel, a layer of refractory material surrounding all the beads and filling the exterior depressions between the same, and a casing outside the layer of refractory material and connected to the flanged edge of the vessel, substantially as set forth.

596,161. COMBINED SASH LIFT AND LOCK. GEORGE R. HILL, St. Louis, Mo. Filed June 21, 1897. Serial No. 641,659. (No model.)

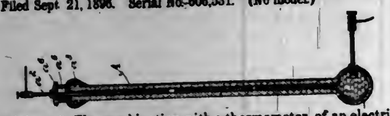


Claim.—1. In a combined sash lift and lock, a suitable sash, a guideway for each side thereof, a rack-bar carried by each side of the sash, a pocket formed in the window-frame opposite the rack, a housing confined in the pocket, a gear-wheel mounted in the housing

and meshing with the teeth of the rack-bar, a second gear-wheel also mounted in the housing and meshing with the first gear-wheel, the said gears rotating in a plane parallel to the plane of the sash, a bevel-gear forming a part of or carried by the second gear-wheel, a second bevel-gear meshing with the first bevel-gear, a rod for supporting said second bevel gear-wheel, a spring for actuating the last-named bevel gear-wheel in one direction whereby the same has a tendency to force or drive the sash to an open position, and means for retaining the sash in a closed or any predetermined position, against the action of said spring, substantially as set forth.

2. In a sash lift and lock, a suitable sash, a rack-bar carried by the same, a pocket formed in the window-frame opposite said rack-bar, a housing mounted in said pocket, a gear-wheel mounted between the walls of the housing and meshing with the rack-bar, a second gear-wheel mounted in the housing and meshing with the first gear-wheel, a spindle for said second gear-wheel projecting through and beyond the wall of the housing, a bracket through which said spindle passes thereby securing said bracket to the housing, a supporting-arm forming a part of the bracket on which the base of the housing rests, terminal outwardly-deflected arms forming a part of the bracket, a rod carried by said arms, a bevel gear-wheel loosely mounted on said rod, a bevel gear-wheel carried by or forming a part of the second gear-wheel mounted in the housing and meshing with the teeth of the bevel gear carried by the rod, a radial slit cut from the body of the bevel-gear mounted on the rod, a coiled spring encircling the rod on each side of the bevel gear-wheel carried by it and having its free ends secured to the arms of the bracket, a medial loop formed in the spring and inserted between the walls of and resting at the base of the slit cut from the bevel-gear mounted on the rod, the said spring being adapted to be wound up with the closing of the sash, whereby upon the release of the sash from its closed or any predetermined position, the tendency of the spring will be to force or drive said sash to an open position, and means for locking the sash in any position against the resiliency of the coiled spring, substantially as set forth.

596,162. THERMOMETER. Ludovic R. Hurt, Somerset, Ky. Filed Sept 21, 1896. Serial No. 606,531. (No model.)



Claim.—1. The combination with a thermometer, of an electrical connector extending into the mercury at the bottom of the same, a cap adapted to fit over and close the upper end of said thermometer and having a screw-threaded split contracting stud, a screw-threaded nut or cap mounted on the split stud and provided with a central aperture, a packing interposed between the top of the stud and under side of the nut or cap, and a contacting rod passing through the split stud and the nut or cap so as to enter the thermometer; the construction being such that the nut or cap jams the split stud and packing against the contacting rod and thus holds it in its adjusted position, substantially as described.

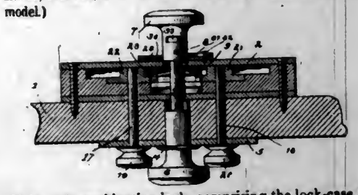
2. The combination with a thermometer-tube having an enlarged upper end, of an electrical connector extending into the mercury at the bottom of the same, a cap mounted upon the upper end of said tube and contracted about the enlarged head, a split screw-threaded stud mounted on said cap, a screw-threaded cap or nut applied on said split stud for contracting the same, and a contacting rod passing through the two caps and screw-threaded stud so as to enter the thermometer-tube; the construction being such that said rod may be clamped in any of its adjusted positions by the split stud, substantially as described.

596,163. SEPARABLE BUTTON. Willard A. Ingalls, South Bend, Wash., assignor of one-half to Theodore Pearson, same place. Filed July 8, 1897. Serial No. 643,824. (No model.)



Claim.—A separable button comprising the back having the integral tubular stem formed at its lower end with a conical seat and at its upper end with an inwardly-projecting continuous annular flange, and with an internal rib provided with inclined sides, and a head provided with a stem tangentially slit longitudinally its length from its upper to its lower end to form a spring-arm terminating at its upper separated end in a tooth adapted to engage the inwardly-projecting flange, the conical end of said stem resting in the conical seat of the shank, whereby lateral or wabbling motion of one part of the button with respect to the other part is prevented, substantially as set forth.

596,164. COMBINATION-LOCK. Elijah Irwin and Launa Irwin, Furches, N. C. Filed Apr. 12, 1897. Serial No. 631,733. (No model.)



Claim.—A combination-lock, comprising the lock-case 2, the reversible bolt 12, the spindle 3, mounted in said case and having a rotary and an end motion and provided with the transverse locking-bar 9, a dial-collar 4, adjustably secured on said spindle, in combination with the fixed escutcheon dial-plate 5, the rotating tumbler-spindles 17 and 18, provided with dial knobs 19 and 20, and the rotary tumblers 21 22 adjustably secured on said spindles 17 and 18 by the set-screws 24, and provided with the radial notches 23, substantially as shown and described.

596,165. MENDING DEVICE. Frank R. Jencks, Syracuse, N. Y. Filed June 21, 1897. Serial No. 641,554. (No model.)



Claim.—1. A mending device provided with an elongated portion or needle formed at its lower end with an engaging shoulder for successively forcing the mending-pieces through the aperture to be plugged, and a hook for simultaneously withdrawing corresponding parts of the mending-pieces through the aperture, said hook having its free end arranged adjacent to the engaging shoulder, substantially as set forth.

2. A mending device provided with an elongated portion or needle formed at its lower end with an elongated eye or slot, an opening extending through one of the lengthwise walls of the eye or slot for permitting the successive entrance of the mending-pieces within the eye or slot, an engaging shoulder at substantially one end of the eye or slot for successively forcing the mending-pieces through the aperture to be plugged, and a second engaging shoulder at the opposite end of the eye or slot for simultaneously withdrawing corresponding parts of the mending-pieces through the aperture, substantially as described.

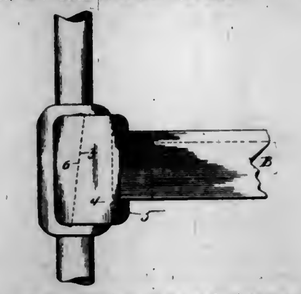
3. A mending device provided with an elongated portion or needle formed at its lower end with an engaging shoulder for successively forcing the mending-pieces through the aperture to be plugged, a hook for simultaneously withdrawing corresponding parts of the mending-pieces through the aperture, said hook having its free end arranged adjacent to the engaging shoulder, and a groove extending upwardly from the engaging shoulder, substantially as and for the purposes specified.

4. A mending device provided with an elongated portion or needle formed at its lower end with an elongated eye or slot, an opening extending through one of the lengthwise walls of the eye or slot for permitting the successive entrance of the mending-pieces within the eye or slot, an engaging shoulder at substantially one end of the eye or slot for successively forcing the mending-pieces through the aperture to be plugged, a second engaging shoulder at the opposite end of the eye or slot for simultaneously withdrawing corresponding parts of the mending-pieces through the aperture, and a groove extending upwardly from the first engaging shoulder, substantially as and for the purpose set forth.

5. A mending device for use with endless mending-pieces, as rubber bands, said device being provided with an elongated portion or needle movable through the endless mending-pieces and formed with an elongated eye or slot in its lower end, an opening extending through one of its lengthwise sides and communicating with the upper end of the eye or slot for permitting the successive entrance of parts of the mending-pieces within the eye or slot, an engaging shoulder at substantially one end of the eye or slot for successively forcing the mending-pieces through the aperture to be plugged, a second engaging shoulder at the opposite end of the eye or slot for simultaneously withdrawing corresponding parts of said mending-pieces through the aperture, and a groove extending upwardly from the first engaging shoulder and formed with a serrated surface for engaging the mending-pieces and preventing undue stretching thereof, substantially as and for the purpose set forth.

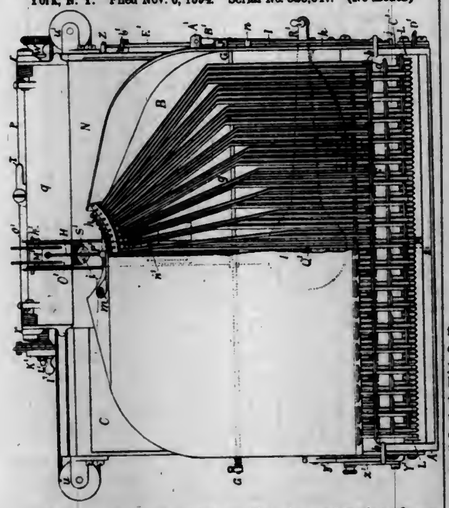
6. A mending device for use with endless mending-pieces, as rubber bands, said device being provided with an elongated portion or needle movable through the endless mending-pieces and formed with an elongated eye or slot in its lower end, an opening extending through one of its lengthwise sides and communicating with the upper end of the eye or slot for permitting the successive entrance of parts of the mending-pieces within the eye or slot, an engaging shoulder at substantially one end of the eye or slot for successively forcing the mending-pieces through the aperture to be plugged, a second engaging shoulder at the opposite end of the eye or slot for simultaneously withdrawing corresponding parts of said mending-pieces through the aperture, and grooves extending upwardly from opposite sides of the first engaging shoulder and formed with serrated inner surfaces for engaging the mending-pieces and preventing undue stretching thereof, substantially as described.

596,166. Ed. John Kaschenbach, Wilkes-Barré, Pa. Filed May 19, 1897. Serial No. 637,247. (No model.)



Claim.—The combination with a post having a curved or cylindrical portion thereon, said curved or cylindrical portion flattened at opposite points and provided with inclined shoulders adjacent to these flattened portions, of a yoke adapted to span this curved or cylindrical portion and provided with inclined shoulders which embrace the shoulders on the post whereby as weight is applied the bed is drawn tighter and tighter together.

596,167. TYPE-WRITING MACHINE. Karl S. Klogel, New York, N. Y. Filed Nov. 6, 1894. Serial No. 528,047. (No model.)



Claim.—1. In a type-writing machine, the combination of type-bars each carrying a single type and arranged in a plurality of straight rows, located in different planes, all made converging to one point, the impressing-point, when moved longitudinally with the type-carrying end, and means effecting the said movement by the depression of finger-keys, whereby the types are brought to the impressing point, with a mechanism for pressing the type-bars transversely with the type carrying end when the type is brought to the impressing-point, whereby the impressions are made on a platen, adapted to receive the impressions, and means, whereby the said mechanism is operated simultaneously with the type-bars by the depression of finger-keys, all substantially as set forth.

2. In a type-writing machine, the combination of type-bars each carrying a single type and arranged in a plurality of straight rows, located in different planes, in an inclined position, all made converging to one point, the impressing-point, when moved longitudinally with the type-carrying end, at the other end flexibly connected directly to levers, arranged to be operated by means of finger-keys, whereby the types are brought to the impressing-point, a mechanism for pressing the type-bars transversely with the type-carrying end when the type is brought to the impressing-point, and means whereby the said mechanism is operated by the depression of the finger-keys, a paper-carriage, having a plane for holding the paper to receive the impressions, and means whereby the proper motion is given to the paper-carriage, all substantially as set forth.

3. In a type-writing machine, the combination with a key and a pivoted lever, arranged to be operated by the key, of a type-bar, at one end carrying the type and guided to move longitudinally, at the other end having an angular bend or arm, provided with a hole, whereby it is pivoted on a transversal bolt to the free end of the said lever substantially as set forth.

4. In a type-writing machine of the class described, the combination with the frame, supporting the type-bars, and a ribbon mechanism, of an angle-lever-shaped plate, pivoted on the said frame and extending one arm over the impressing-point, along which arm the ribbon is conveyed, and at the extremity of the other arm having convenient means, whereby the plate can be moved upon its pivot, substantially as set forth, for the purpose specified.

596,168. MAIL-BAG. Romulus A. Kneeland, Benton Harbor, Mich. Filed Apr. 24, 1897. Serial No. 633,752. (No model.)



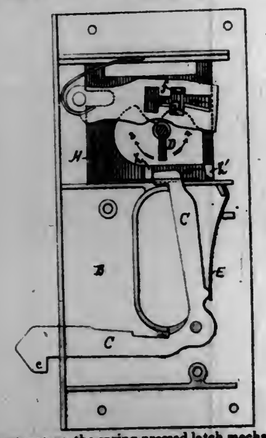
Claim.—The combination of a mail-bag provided with the usual flap, having on a line of the fold a series of openings, and provided on its outer side with metallic stays the ends of which project beyond the edge of the flap, metallic stays secured to the side of the bag near its upper end and having their extended ends projecting through the aforesaid holes, and a supplemental flap secured beyond the last-named stays, provided with a series of holes adapted to receive the extended ends of the first-named stays, and means for locking the flaps and the mouth of the bag together, substantially as set forth.

596,169. SLIDING-DOOR LOCK. George Ladewich, New York, N. Y., assignor to Bayer & Gardner, same place. Filed Apr. 3, 1897. Serial No. 630,580. (No model.)

Claim.—1. In combination with a manually-operated latch mech-

anism, a key-actuated locking and latch-moving mechanism, substantially as set forth.

2. In combination with the latch mechanism, accessible from one side only, a key-actuated locking and latch-operating mechanism, provided with a keyhole accessible from the other side, substantially as set forth.

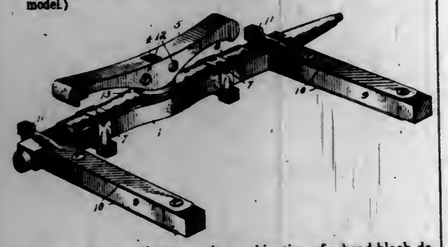


3. In combination, the spring-pressed latch mechanism, the ward bolt or slide H, operating to actuate and to lock said latch mechanism, the key for actuating the said ward bolt or slide, and the tumblers F F', substantially as set forth.

4. In combination, latch mechanism, a ward bolt or slide, and lock mechanism operating to lock and unlock the said latch mechanism, and also to actuate the same, substantially as set forth.

5. In combination, the latch-lever C, the ward bolt or slide H, having points *h h'* between which a portion of the said latch-lever plays, and a key for moving the said ward bolt or slide H, substantially as and for the purposes set forth.

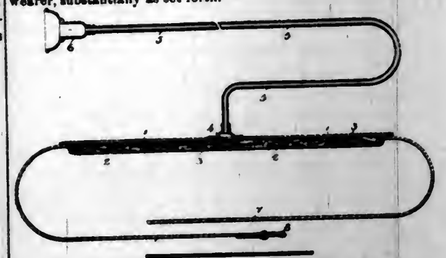
596,170. VEHICLE RUNNING-GEAR. CHARLES LANDFRIED, Ravenswood, W. Va. Filed Sept. 8, 1896. Serial No. 605,177. (No model.)



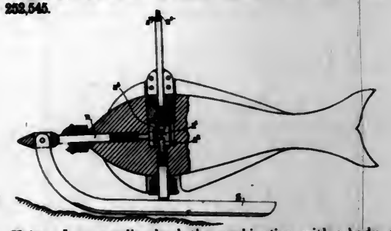
Claim.—In a running-gear, the combination of a head-block designed to support the body of a vehicle and to have the reach secured to it, a stem depending from the head block and provided with a ball, a rocking front axle capable of a limited rotary or rocking movement and provided with a central socket to receive the ball, a plate secured to the upper face of the axle and retaining the ball in the socket, and fastening devices mounted on the axle and adapted to secure a pair of thills or a pole rigidly with the axle, whereby the ordinary thill-coupling and antirattler are dispensed with, substantially as and for the purpose described.

596,171. BANDAGE. HENRY W. MEINHARDT, St. Louis, Mo. Filed Apr. 19, 1897. Serial No. 632,834. (No model.)

Claim.—A pad to be locally applied to the body, comprising an outer layer of leather or similar material, an under layer of silk or the like secured to the outer layer along the edges thereof by stitching or otherwise, a filling of absorbent cotton or wool in a finely-divided state for retaining the warm air forced into the pad from the lungs, a flexible tube leading from a central opening of the outer layer and of sufficient length to reach to the mouth of the wearer, a mouthpiece at the free end of said tube, means forming a part of said tube for stiffening the walls of the tube at a point adjacent to its juncture with the pad, against the collapse of said walls when under extraneous pressure, and suitable straps secured adjacent to the edges of the path for securing the latter about the body of the wearer, substantially as set forth.

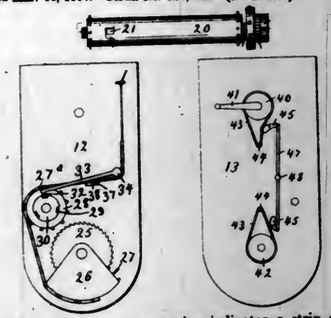


596,172. LEAD FOR ELECTRICAL SOUNDING. JULIUS MOSS, Brandenburg, Germany, assignor of one-half to the Berliner Kunstdruck und Verlags-Anstalt, vormals A. & C. Kaufmann, Berlin, Germany. Filed Sept. 3, 1896. Serial No. 604,804. (No model.) Patented in Germany Feb. 23, 1895, No. 86,628, and in France Dec. 17, 1895, No. 233,545.



Claim.—In a sounding-lead, the combination, with a body, of a pair of contact devices, a shoe pivotally connected to the front end of the body and extending beneath the said body, and means operated by the movement of the shoe for closing a circuit through the contact devices, substantially as described.

596,173. STATION-INDICATOR. JOHN H. MORSE, St. Louis, Mo. Filed Mar. 16, 1897. Serial No. 627,775. (No model.)



Claim.—1. In a street or station indicator, a strip of flexible material having the names of the streets or stations thereon, rollers carrying said strip, means for actuating one of said rollers to wind said strip thereon, a roller actuated by said strip, said roller consisting of two parts adapted to move relatively to each other, and locking devices controlled by said latter-named roller.

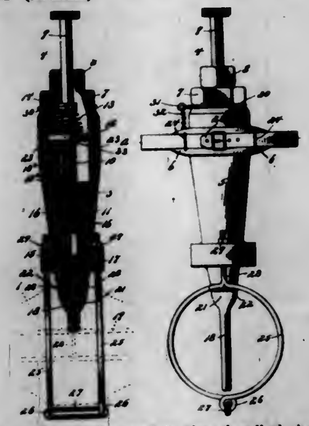
2. In a street or station indicator, a strip of flexible material having the names of the streets or stations thereon, rollers carrying said strip, means for actuating one of said rollers to wind said strip thereon, a suitable shaft, a roller carried by said shaft and actuated by said strip of flexible material, said roller consisting of two parts one of which is rigidly and the other loosely mounted on said shaft, and locking devices controlled by said shaft.

3. In a street or station indicator, a strip of flexible material having the names of the streets or stations thereon, eyelets at each edge of said strip, rollers upon which said strip is carried, means for actuating one of said rollers to wind said strip thereon, a suitable shaft, a roller carried by said shaft and actuated by said strip, said roller consisting of two parts one of which is rigidly and the other loosely mounted on said shaft, pins or pegs carried by each of said

parts and adapted to enter said eyelets, and locking devices controlled by the motion of said shaft.

4. In a street or station indicator, a strip of flexible material having the names of the streets or stations thereon, two rollers upon which said strip is carried, means for actuating one of said rollers to successively exhibit said names, means for rewinding the said strip on the other roller, a wheel or disk carried by each of the said rollers, a friction-belt for each of said wheels or disks, a cam acting on each of said belts, and a rod connecting said cams, said rod being so adjusted that when it is moved to tighten one of said belts the other will be loosened.

596,174. LUBRICATOR. DUNCAN D. MCCALL, Jonesrand, Tex., assignor to Josie McCall, same place. Filed Apr. 7, 1897. Serial No. 631,134. (No model.)



Claim.—1. In a lubricator of the class described, the combination of a body provided with an open, recessed, lower extremity, a nozzle reduced at its upper end to form a stem fitted loosely in said body and provided with an annular ledge, recessed on its upper face to lie opposite to the recess in the lower edge of said body, a cushion-gasket interposed between, and fitted in the recessed faces of, the body and said nozzle, and means for securing the device to a vehicle-wheel and to clamp the nozzle between the wheel-hub and said body, as and for the purposes described.

2. In a lubricator, the combination of a body portion having an oil-reservoir, provided in its bottom with a screw-socket, said body portion having a bottom below the oil-reservoir and adapted for connection therewith by ducts at opposite sides of the screw-socket in the bottom of the reservoir, a screw-stem engaging the screw-socket in the bottom of the reservoir, a diaphragm carried by the stem for forcing the oil from the reservoir when the stem is moved endwise and a nozzle having a duct and provided with a reduced end portion extending into the bottom of the lower part of the body portion, said screw-stem having an axial duct the upper end of which is connected by lateral openings with the oil-reservoir and the lower end of which is open at the end of the stem, said duct being always adapted for connection between the oil-reservoir and the duct of the nozzle, substantially as set forth.

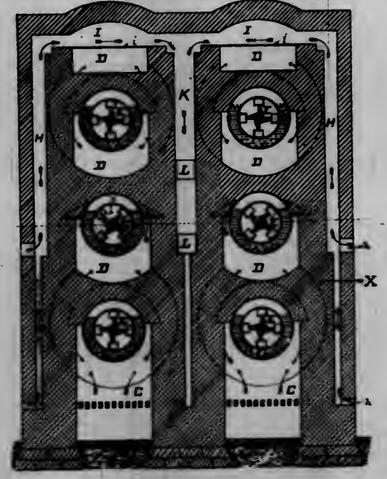
3. In a lubricator, the combination of a body provided with a threaded bearing, a threaded stem adjustably connected to said bearing, a plunger fitting tightly within said body and loosely upon the stem, and a pressure-spring carried by, and adjustable with, said stem, and bearing upon the plunger to force the latter downwardly, as and for the purposes described.

4. In a lubricator, a body provided with spaced chambers which communicate by intermediate ducts in a partition provided with a threaded bearing, combined with an adjustable, threaded stem fitted in said bearing, a diaphragm fitted in tight engagement with the walls of the oil-chamber and arranged loosely on the stem, a collar fast with the stem, and a pressure-spring interposed between said collar and the diaphragm, as and for the purposes described.

5. A lubricator for vehicle-wheels having a body portion provided with eyes at its opposite sides, in combination with rings loosely connected together and adapted to engage over opposite ends of the wheel-hub, rods carried by the rings and passing through the eyes in the body portion of the lubricator, and nuts screwing on said rods, substantially as set forth.

6. A lubricator for vehicle-wheels having a body portion provided with eyes at opposite sides, in combination with rings to engage over the opposite ends of the wheel-hub and provided with alined eyes, a link engaging the eyes and adapted to pass between the spokes of the wheel to hold the rings in place on the hub, rods carried by the rings opposite said eyes on the rings and adapted to pass through the eyes in opposite sides of the body portion of the lubricator, and nuts screwing on said rods, substantially as set forth.

596,175. DRYING APPARATUS. AUGUSTUS F. MCCLATCHEY, Aurora, and CHARLES L. KRUH, Chicago, Ill. Filed Sept. 21, 1896. Serial No. 606,520. (No model.)



Claim.—1. In a drying apparatus, the combination with a combustion-furnace, of a series of material-containing drying-chambers connected with one another in circulating series, and situated above the furnace; an air-chamber connected with the interiors of the drying-chambers; conducting passages for circulating the fumes of combustion from the furnace first about the drying-chambers and then about the air-chamber; and means for inducing a circulation of air from the air-chamber into and through the drying-chambers, as set forth.

2. In a drying apparatus, the furnace C, a series of connected drying-cylinders supported above the furnace; the walls D' arranged above the drying-cylinders; and the passages *d* connecting the opposite ends of each heating-chamber formed by a wall D' and the bottom of the drying-cylinder next above, with the succeeding chambers of the series, substantially as described.

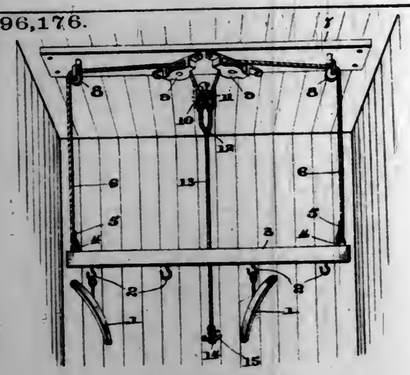
3. In a drying apparatus constructed with a couple of substantially vertical series of drying-chambers, the air chambers I situated above each series of drying-chambers, the duct K arranged between the same, and the flues H situated on the outer sides of said series and communicating with the air-chambers I and with the exterior atmosphere, as set forth.

4. In a drying apparatus constructed with a series of drying-chambers, the combination of a series of closed jackets for said chambers, and suitable steam and water pipes connecting the interiors of the jackets with one another, whereby a uniform steam-pressure and a proper water-level are maintained, and also whereby evaporation is prevented, as set forth.

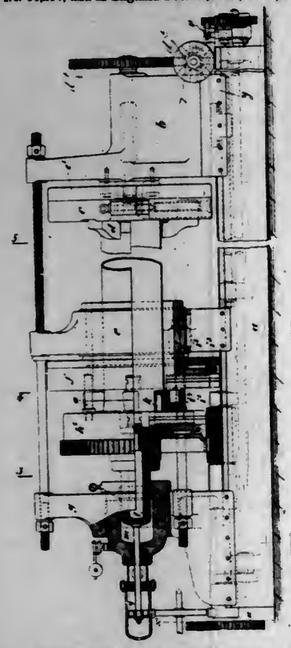
596,176. COAT-HANGER. LIDA H. NAYLOR, Minneapolis, Minn. Filed Jan. 14, 1897. Serial No. 619,166. (No model.)

Claim.—In a garment-support, a common supporting-bar, a series of hooks arranged at intervals thereon and depending therefrom, a plurality of garment-hangers removably suspended upon said hooks, hoisting-ropes attached to the ends of said bar and running over spaced overhead pulleys, a pair of centrally-arranged pulleys rotating on vertical axes above the bar and guiding said ropes, and a double pulley arranged at one side of the vertical plane of said bar and comprising a trifurcated bracket having its three arms arranged in a common plane, the said ropes being merged into a single rope and passing over the wheels of the double pulley on opposite sides of the central arm of the trifurcated bracket, whereby the junction in the ropes coacts with the central arm of the bracket, substantially as and for the purpose specified.

596,176.



596,177. MACHINE FOR BORDERING AND FLANGING PIPES. EDUARD NEUMEISTER, Berlin, and RICHARD SOBOTKA, Magdeburg, Germany, assignors to Eduard Bendel, Magdeburg, Germany. Filed July 19, 1897. Serial No. 645,114. (No model.) Patented in Germany May 7, 1895, No. 90,257, and in England Feb. 25, 1896, No. 4,256.

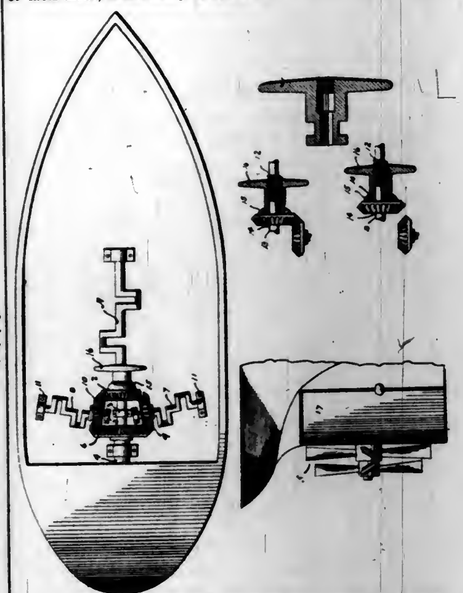


Claim.—A machine for flanging pipe ends having rollers arranged around the middle of a rotary disk, the axes of which run parallel to that of said disk and are fixed to supports movably arranged in radial slits of the disk, which rollers have a cross-section corresponding to the surface of the flange, &c., to be formed, said machine having a second rotary ring provided with rollers corresponding to the inside of the pipe to be flanged, this ring being the top plate of a hydraulic press, substantially as set forth.

596,178. PROPELLING MECHANISM FOR SHIPS, &c. ERNEST R. OHLEVEY, Sacramento, Cal. Filed June 1, 1896. Serial No. 593,865. (No model.)

Claim.—1. A propelling mechanism for ships, consisting of the combination with independently-operating propellers of individual driving-engines for each propeller, and interposed gearing whereby power is transmitted from either set of said engines to both propellers, substantially as described.

2. A propelling mechanism for ships, consisting of the combination with independently-operating propellers adapted to revolve in opposite directions, and at different speeds, of individual driving-engines for each propeller, and interposed gearing whereby power may be transmitted from one set of engines to both propellers or to one of them alone, substantially as described.



3. A propelling mechanism for ships, consisting of the combination with a main propeller-shaft and propeller carried thereby, of a sleeve working loosely on said shaft and carrying a second propeller, individual mechanisms for rotating the shaft and the sleeve, and adjustable gearing interposed between the individual driving mechanisms whereby both propellers may be driven from a single source of power in opposite directions, or may be driven separately, substantially as described.

4. A propelling mechanism for ships, consisting of the combination with a main propeller-shaft and a propeller carried thereby, of a sleeve working loosely on said shaft and carrying a second propeller, said propellers having their blades inclined in opposite directions to each other, bevel-gears carried on the main shaft and on the sleeve, auxiliary shafts each having secured thereto an interposed bevel-gear adapted to mesh with the aforementioned gears, and individual driving-engines for all the shafts, whereby the propellers are adapted to revolve in opposite directions, and mechanism for throwing the gears into and out of mesh with each other so that one propeller may be stopped and the other kept in operation, substantially as described.

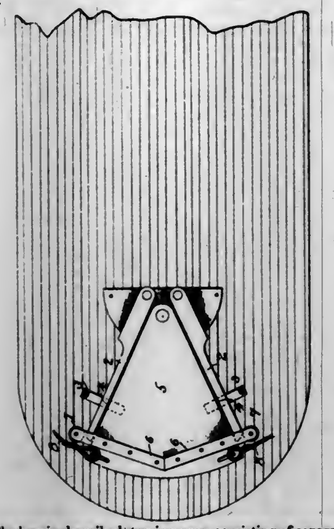
5. The combination with a propeller-shaft having a key, of a gear carried by the shaft and slidable on the key, screw-threads on the shaft, a wheel working on the screw-threads and rotatably connected to the gear and a driving-shaft having a gear, substantially as described.

6. The combination with a propeller-shaft having a screw-threaded portion and provided with a key, of a gear having a keyway which receives the key and also provided with a collar, a hand-wheel received on the screw-threaded portion and provided with a headed sleeve which is received in the collar so as to be freely turned therein and a driving-shaft having a gear, substantially as described.

596,179. STEERING MECHANISM. ERNEST R. OHLEVEY, Sacramento, Cal. Filed Oct. 9, 1896. Serial No. 608,348. (No model.)

Claim.—1. The herein-described steering-gear consisting of separate rudders, separate auxiliary tillers for the rudders, and a main tiller adapted to engage with one auxiliary tiller when moved in one direction and with the other auxiliary tiller when moved in the opposite direction.

2. The herein-described steering-gear, consisting of separate rudders, separate auxiliary tillers for said rudders, and a main pivoted tiller lying between the auxiliary tillers and having its free end adapted to engage with one auxiliary tiller only when swung in one direction and with the other auxiliary tiller only when swung in the opposite direction.



3. The herein-described steering-gear, consisting of separate auxiliary tillers for said rudders, separate catches adapted to engage with the auxiliary tillers and hold the rudders in normal rearwardly-extending position, and a pivoted main tiller adapted to engage with one auxiliary tiller when moved in one direction and disengage the same from its catch, and to engage with the other auxiliary tiller when rocked in the other direction and release the same from its catch.

4. The herein-described steering-gear consisting of separate rudders, separate auxiliary tillers secured to the rudders, separate catches adapted to engage with the auxiliary tillers and hold their rudders in normal rearwardly-extending position, a main pivoted tiller lying between the auxiliary tillers, arms extending out on opposite sides of said main tiller and connected thereto, and rollers journaled to the arms and separated from the main tiller, the ends of the auxiliary tillers being adapted for reception between the rollers and the main tiller, one auxiliary tiller being engaged by the main tiller and sliding against the same when it is rocked, and the other auxiliary tiller being disengaged therefrom

596,180. HUSKING-PIN. HAZEN H. PERKINS, Kewanee, Ill. Filed June 30, 1897. Serial No. 642,945. (No model.)



Claim.—1. The combination with a husking-pin, of a guard-strap doubled on itself to form a finger-stall and secured at the bend to the husking-pin, the terminals of the guard strap being adjustably connected, a loop connected with the ends of the guard-strap, and an adjusting-strap passing loosely through the loop and having its terminals connected with the pin, substantially as described.

2. The combination with a husking-pin, of a guard-strap doubled on itself to form a finger-stall and secured at the bend to the husking-pin, said guard-strap being provided at its terminals with perforations, a loop provided with a projection or hook engaging a perforation of each end of the guard-strap and adjustably connecting the same, and a strap passing loosely through the loop and having its terminals connected with the husking-pin, substantially as described.

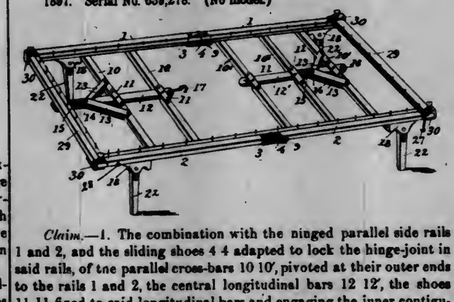
3. The combination with a husking-pin provided at one end with a knob, of a guard-strap doubled to form a finger-stall and secured at its bend to the husking-pin, a loop adjustably connecting the terminals of the guard-strap, and an adjusting-strap passing loosely through the loop and provided at its sides with perforations and adapted to be buttoned over the said knob, substantially as described.

4. The combination of a husking-pin provided at one side adjacent to its point with a clip disposed longitudinally of the pin, a guard-strap provided with a slot receiving the clip and detachably connected to the husking-pin by the same, and means for connecting the terminals of the guard-strap with the rear end of the husking-pin, substantially as described.

5. The combination of a husking-pin, a clip mounted thereon and consisting of a longitudinally-disposed plate secured at its inner end to the pin and having its outer portion offset therefrom and disposed substantially parallel with the same, a guard-strap doubled to form a loop or finger-stall and provided at its bend with a slot receiving the said clip, and an adjusting-strap connecting the terminals of the guard-strap with the rear end of the husking-pin, substantially as described.

6. A husking-pin comprising a sheet-metal body portion having a tubular rear end, and a knob having a shank fitting in the rear end of the body portion of the pin, the rear edge of the body portion forming a shoulder or stop, combined with an adjusting-strap having a perforation to receive the knob and abutting against the said shoulder or stop, substantially as described.

596,181. COMBINED LACE-CURTAIN STRETCHER AND CLOTHES-HORSE. GUSTAF PIERSON, Braddock, Pa. Filed June 3, 1897. Serial No. 639,278. (No model.)



Claim.—1. The combination with the hinged parallel side rails 1 and 2, and the sliding shoes 4 4 adapted to lock the hinge-joint in said rails, of the parallel cross-bars 10 10', pivoted at their outer ends to the rails 1 and 2, the central longitudinal bars 12 12', the shoes 11 11 fixed to said longitudinal bars and engaging the inner contiguous ends of the cross-bars 10 10', substantially as shown and described.

2. The combination with the hinged parallel side rails 1 and 2, the parallel cross-bars and the central longitudinal bars 12 12', of the brackets 18 fixed to the outer ends of said rails and provided with the recess 23, and cross-bar 20, the leg 22, provided with a slot 21, mounted on said cross-bars and having its tapering end 24 adapted to detachably engage the recess in said bracket, substantially as shown and described.

3. The combination with the hinged parallel side rails 1 and 2, the cross-bars 10 10', the central longitudinal bars 12 12', of the bracket 18 fixed at each end of said rails 1 and 2, and provided with the cross-bar 20, and the recesses 23, 25, and the leg 22, provided with a transverse slot 21, pivoted in said bracket and adapted to alternately engage the recesses 23 or 25 in said bracket, substantially as shown and described.

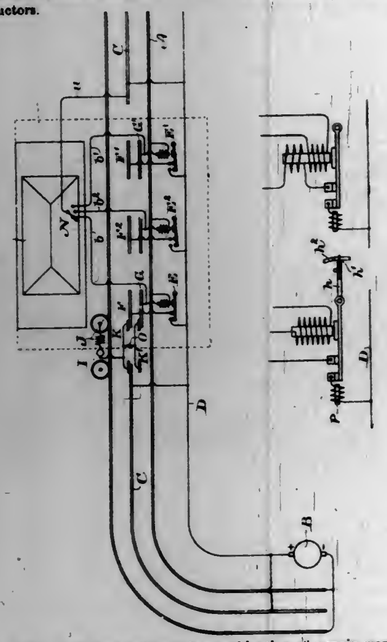
596,182. ELECTRIC RAILWAY. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 18, 1896. Serial No. 612,645. (No model.)

Claim.—1. In an electric railway, the combination of a third or main working conductor connected with a source of supply, the continuity of which is interrupted at predetermined points, a conductor-section located between adjacent ends of the main working conductor and insulated therefrom, a moving vehicle, a contact-shoe carried by the vehicle arranged to complete the circuit between the conductor-section and the source of supply, and means located in any convenient place, for controlling the current supplied to the conductor-section irrespective of the operation of the vehicle.

2. In an electric railway, the combination of a third or main working conductor connected with the source of supply, the continuity of which is interrupted at predetermined points, a set of sectional conductors located between the ends of the main working conductor, switch-magnet coils connected between the secondary sectional conductors and the return-circuit, and a connection extending from each switch, so arranged that the circuit between the source of supply and a sectional conductor can be controlled.

3. In an electric railway, the combination of sectional conductors, switches for closing the circuit between the conductors and a source of supply, means carried by the moving train or vehicle for closing the sections in advance of the train, and additional means independent of the vehicle for closing the circuit between the sectional conductors and the source of supply.

4. In an electric railway, the combination of a sectional working conductor, means carried by the moving vehicle for establishing connection with the working conductor, means for rendering the sections of working conductor inactive after the power has been shut off from the motor, and means independent of the train or vehicle for closing the circuit between the source of supply and the sectional working conductors.



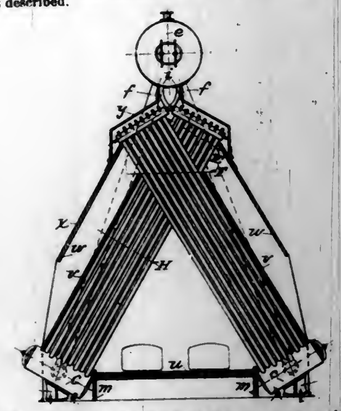
5. In an electric railway, the combination of a main working conductor connected to a source of supply, the continuity of which is interrupted at certain points, sectional conductors substituted at the point of interruption, a main contact-shoe carried by the vehicle making contact with the working and sectional conductors, a secondary sectional conductor also located at the point of interruption of the main working conductor, and a shoe normally idle, but arranged to make contact with the secondary conductor, and acting in conjunction with the main contact-shoe to close the circuit between the source of supply and the secondary conductors.

6. In an electric railway, the combination of a source of supply, sectional working conductors normally disconnected therefrom, switches for connecting the conductors with the source of supply, and locking devices for maintaining the switches in their open and closed position irrespective of the operation of the train.

7. In an electric railway, the combination of a main working conductor connected with the source of supply, the continuity of which is interrupted at certain points, sectional working conductors located between the ends of the main conductor, contact devices carried by the vehicle, switches for closing the circuit between the source of supply and the sectional working conductors, and a lock for each switch to maintain it in its open or closed position irrespective of the operation of the train.

596,183. STEAM-BOILER. ERNEST H. BIEKEN, New Orleans, La. Filed Aug. 8, 1896. Serial No. 602,182. (No model.)

Claim.—1. The combination in a steam-boiler of tubes arranged in rows, each row of tubes being connected at the upper end with a separate manifold header, each of said headers having connection by a tube with a cylindrical steam and water drum situated upward of headers; axes of headers extending at right angles to center line of steam drum and boiler, headers being respectively situated at both sides of center line of boiler; lower ends of tubes being connected with separate cylindrical mud and water drums, the number of tubes entering each drum being determined by relative diameters of said drums and tubes, tubes being suitably curved at their lower ends for entering drums radially, longitudinal axes of said mud-drums being parallel with axes of headers, said mud-drums being arranged in sets on each side of grate, drums in each set having connection with each other by pipes and with steam-drums by suitable downtake-pipes; the successive rows of tubes on each side of boiler forming collectively two clusters of tubes, both clusters of tubes being inclined to and passing from opposite sides through the perpendicular plane parallel to and including the axial line of steam-drum; all successive rows of tubes on each side of and inclined toward said perpendicular plane being parallel, the several rows of tubes being alternately parallel and successively crossing each other; substantially as described.



2. The combination in a steam-boiler of tubes arranged in rows, the successive rows of tubes on each side of boiler forming collectively two clusters of tubes, both clusters of tubes being inclined to and passing from opposite sides through the perpendicular plane parallel to and including the axial line of steam-drum, all successive rows of tubes on each side of boiler being parallel, the several rows of tubes being alternately parallel and successively crossing each other; each row of tubes following a straight line at and above place of said crossing with adjacent rows of tubes, tubes composing each row being offset or crimped below the place of said crossing, tubes being alternately offset to either side of central plane of each row of tubes, tubes in each row assuming a staggered or zigzag order below the place of crossing in contradistinction to straight-row arrangement at and above crossing; upper end of each row of tubes being connected with a separate manifold header, each of said headers having connection by a tube with an upper steam and water drum situated upward of headers, axes of headers extending at right angles to center line of steam drum and boiler, headers being respectively situated at both sides of boiler; lower ends of tubes being connected with separate cylindrical mud and water drums, the number of tubes entering each drum being determined by relative diameters of said drums and tubes, tubes being suitably curved at their lower ends to enter drums radially, longitudinal axes of said drums being parallel with axes of headers at upper ends of tubes, drums being arranged in sets on each side of grate, drums in each set having connection with each other by pipes and with steam-drum by suitable downtake-pipes; substantially as described.

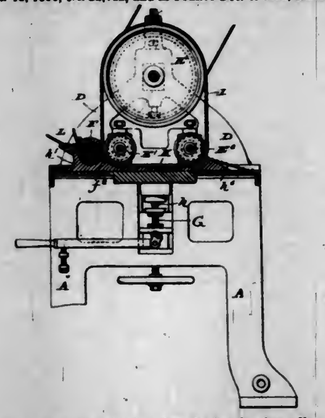
3. In a steam-boiler the combination of cylindrical mud and water drums, said drums being arranged in sets, one set of drums being placed on each side of grate, axes of said drums being parallel with axes of headers at upper ends of tubes, drums in each set being connected together by suitable pipes, each set of drums having an independent connection at each end with upper steam and water drum by suitable downtake-pipes; mud-drums being provided at their upper surface with tube-holes; each set of drums having connection at their lower sides with a suitable blow-off or cleaning pipe; each individual drum being provided at its outer end with manhole and cover: substantially as described.

4. In a steam-boiler the combination of tubes arranged in rows, the several rows of tubes being alternately parallel, and successively crossing each other, upper end of each row of tubes being connected with a separate manifold header, said header having connection at one end by a tube with steam-drum, other end of header being provided with hand-hole and cover; header being formed of a relatively large tube, heads being fastened into ends; saddles being attached to exterior of said tubes, boiler-tubes being connected at holes in said saddles; saddles being attached to interior of tubes directly opposite the tube-holes, said interior saddles being provided with hand-holes of larger diameter than tube-holes; covers with bolts and clamps being provided for closing hand-holes; substantially as described.

5. In a steam-boiler the combination of cylindrical mud and water drums arranged in sets on each side of grate, and being inclined toward same; axes of drums being placed lateral to central plane of steam drum and boiler, drums in each set being suitably connected, each set of drums having connection with steam-drums by suitable downtake-pipes; boiler-tubes having connection at upper ends with headers, said headers having connection with steam-drum, boiler-tubes being connected at their lower ends with set of mud-drums placed on side opposite their upper connection with headers; with the rocking chairs *k* having their upper rests concaved to attach to mud-drums, lower rests being crowned, ridge of crown extending at right angles to axis of mud-drums; said rocking chairs resting on level bases and being anchored thereto by pins or bolts: substantially as described.

6. In a steam-boiler the combination of tubes arranged in clusters on each side of grate; said clusters being inclined to and passing from opposite sides through a perpendicular plane parallel to and including the axial line of steam-drum, tubes having suitable connection at their upper ends with said steam-drum, tubes having connection at their lower ends with suitable mud-drums; with a furnace and casing consisting essentially of an external box of suitable metal, said box being designed to form a smoke passage or flue at each side of boiler below the upper ends of boiler-tubes, each passage having connection at one end of casing with a smoke-stack by means of suitable breeching; provision being made in smoke-flues for the passage through of downtake-pipes of boiler; refractory linings being provided in smoke-flue and breeching; refractory side walls converging upward being provided adjacent to outer boiler-tubes said walls extending upward along a portion of the length of said tubes, said side walls extending completely along the length of said furnace; suitable refractory linings being provided at ends of furnace; suitable refractory shields being provided at inner ends of mud-drums; doors being provided in upper part of casing allowing access to upper tube ends; suitable fire and ash-pit doors being provided at ends of furnace: substantially as described.

596,184. NEEDLE-GRINDING MACHINE. ALBRECHT SCHOENWERK, Iserlohn, Germany. Filed Feb. 23, 1897. Serial No. 624,550. (No model.) Patented in Germany Jan. 30, 1896, No. 90,705; in England Oct. 13, 1896, No. 22,712, and in France Dec. 5, 1896, No. 259,072.



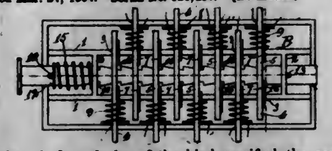
Claim.—1. A machine for dressing the heads of needles consisting of a continuously-revolving feeding-roller provided with longitudinal recesses to receive the needles, an endless belt supported to move horizontally before the feeding-roller, and a grinding-wheel placed sidewise of the belt, substantially as described.

2. In a machine for dressing the heads of needles, the combination with the frame-standards, of the bed-plate, the pedestals, the main belt-pulley, the two lower supporting belt-pulleys, the belt placed in a horizontal plane, the continuously-revolving grooved feed-roller, the track-plate over which the belt is moved and a grinding-wheel adapted to rotate alongside the belt, substantially as described.

3. A machine for dressing the heads of needles comprising a frame, a continuously-moving belt running transversely across the frame, a feeding-roller arranged in front of the belt, peripheral longitudinal grooves in the roller, a hopper leading to the roller and a grinding-wheel placed sidewise of the belt, substantially as described.

4. A machine for dressing the heads of needles consisting of a continuously-revolving feeding-roller provided with longitudinal peripheral recesses to receive the needles, a hopper communicating with the roller, an endless belt supported to move horizontally in front of the feeding-roller, and a flanged grinding-wheel placed sidewise of the belt, substantially as described.

596,185. COMBINATION-LOCK. MELVIN H. SMITH, Galion, Mich. Filed Mar. 27, 1897. Serial No. 629,487. (No model.)

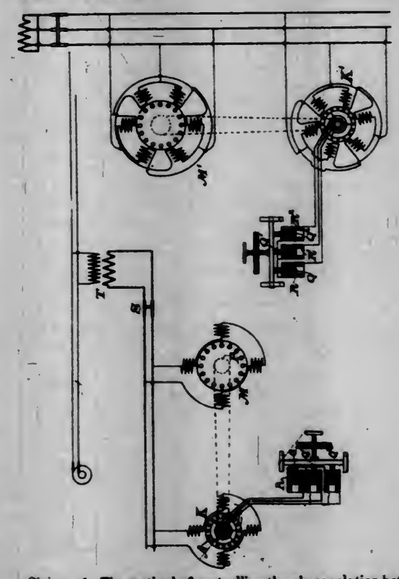


Claim.—1. In a device of the kind specified, the combination with a plurality of keys slidingly mounted in a box or casing and provided with slots, and plates pivotally mounted on said keys and adapted to partially cover said slots, of a bolt adapted to pass through said slots and provided with shoulders adapted to be engaged by said plates when said bolt is at the forward limit of its movement, substantially as described.

2. In a device of the kind specified, the combination with a plurality of keys slidingly mounted in a box or casing and provided with slots, and plates pivotally mounted on said keys and adapted to partially cover said slots, of a bolt adapted to pass through said slots and provided with shoulders adapted to be engaged by said plates when said bolt is at the forward limit of its movement, means for throwing said plates out of engagement with said shoulders, and a spring for causing said bolt to spring back to the rearward limit of its movement, substantially as described.

3. In a device of the kind specified, the combination with a bolt provided with a series of shoulders, of keys provided with slots adapted to receive said bolt, and with plates pivotally mounted thereon and adapted to be turned so that their inner edges are flush with or project over the adjacent ends of said slots, whereby said projecting plates on the inner ends of said keys are thrown into the path of said shoulders to engage said bolt and hold the same at the forward limit of its movement, substantially as described.

596,186. PHASE-REGULATOR. CHARLES P. STEINMETZ, Lynn, and EDWIN W. RICE, Jr., Swampscott, Mass., assignors to the General Electric Company, of New York. Filed Sept. 9, 1893. Serial No. 485,184. (No model.)



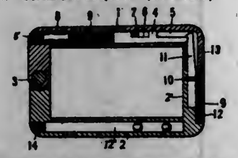
Claim.—1. The method of controlling the phase relation between current and electromotive force in an alternating-current circuit, which consists in revolving a closed secondary conductor relatively to its primary conductor at a rate above or below synchronism according as an acceleration or retardation of the current relatively to

the electromotive force is desired, and varying the self-induction of such secondary member to modify the accelerating or retarding influence thereby secured upon the phase relation of the main current.

2. The combination in an alternating-current circuit of an electrodynamic phase controller having inducing and induced members, means for increasing the self-induction of the induced member, and a source of power driving said controller above its normal speed.

3. The combination in an alternating-current circuit of a phase-controller composed of an inducing member connected to the circuit, and an induced member capable of relative rotation, and means for varying the self-induction of the induced member to vary the phase control.

596,187. LOCK. HARRY A. STEPHENS, Missoula, Mont. Filed Apr. 30, 1897. Serial No. 634,556. (No model.)



Claim.—1. A lock, of the character set forth, consisting of a two-part case hinged together, a bolt in one member and a tumbler in the other, said tumbler adapted to engage said bolt and to be released therefrom by concussion, substantially as set forth.

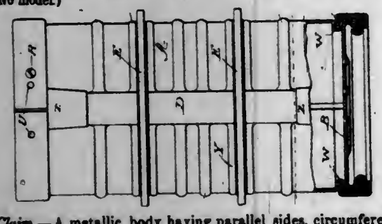
2. A lock consisting of two rectangular members pivoted together, a spring-depressed tumbler in one member, a bolt in the other, said tumbler adapted to engage said bolt and to be released therefrom by concussion, and the gravity-balls adapted to roll in one of said members, substantially as and for the purpose set forth.

3. A lock consisting of two rectangular members pivoted together, said members being channeled substantially as shown, a tumbler and spring in the channel of one of said parts, means for controlling the longitudinal movements of said tumbler, a bolt secured in the other member, said tumbler adapted to engage said bolt and to release it by concussion of the member in which it is located, substantially as and for the purpose set forth.

4. A lock, of the character set forth, consisting of the members 1 and 2, united by a rivet 3, said member 1 being channeled out at 5, the recessed tumbler in said channel 5, the pin 7 extending through the recess of said tumbler, the screw-plug 8 closing the opening of said channel 5, the coiled spring 9 located between said tumbler and said plug, the bolt 11 secured in member 2, said bolt adapted to enter channel 5 of member 1 to be engaged by said tumbler 4 and to be released therefrom by concussion, all substantially as shown and described.

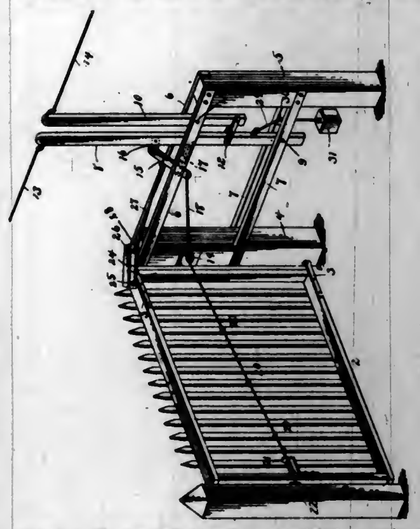
5. A lock, of the character set forth, consisting of the members 1 and 2, united by a rivet 3, said member 1 being channeled out at 5 and 13, the recessed tumbler in said channel 5, the pin 7 extending through the recess of said tumbler, the screw-plug 8 closing the opening of said channel 5, the coiled spring 9 located between said tumbler and said plug, the bolt 11 secured in member 2, said bolt adapted to enter channel 5 of member 1 to be engaged by said tumbler 4 and to be released therefrom by concussion, the plunger located in the channel of member 2 at the side of said bolt and held therein by a recessed pin 10, the coiled spring under said plunger, member 2 being channeled out at 12′ and having a screw-plug 14 closing one end thereof, and the balls within said channel 12′, all substantially as shown and described for the purpose set forth.

596,188. METALLIC BARREL, CASK, OR VESSEL. WILHELM STERR, Antwerp, Belgium. Filed Jan. 11, 1897. Serial No. 618,788. (No model.)



Claim.—A metallic body having parallel sides, circumferential horizontal ribs projecting at intervals from the body, rings arranged in the body near each end thereof, the outer edge of the rings seating in the recesses formed by the ribs near each end of the body, heads arranged within the body, each having a flange projecting over the same, a packing arranged between the flange and the edges of the body and bolts connecting the rings and the heads respectively, substantially as described.

596,189. FARM OR GARDEN GATE. CHARLEY H. STRADLEY, Warrenton, Ill. Filed June 15, 1897. Serial No. 640,835. (No model.)



Claim.—1. The vertically-hinged gate-panel 2, the cross-bar 23, diagonally fixed to said panel so as to extend on each side of its pivotal line, and provided with the notches 25 26, the guide-rod 24 fixed to the cross-bar, and the rod 27 connected at one end to said guide-rod, and means as described for operating said rod 27 from either side of the gate-panel as and for the purpose set forth.

2. The vertically-hinged gate-panel 2, the cross-bar 23, diagonally fixed to said panel so as to extend on each side of its pivotal line, and provided with the notches 25 26, the guide-rod 24 fixed to the cross-bar, and the rod 27 connected at one end to said guide-rod, in combination with the vertical lever 8, and the depending lever 15 fulcrumed thereto and connected to the rod 27, substantially as and for the purpose set forth.

3. The vertically-hinged gate-panel 2, the cross-bar 23, diagonally fixed to said panel so as to extend on each side of its pivotal line, and provided with the notches 25 26, the guide-rod 24 fixed to the cross-bar, and the rod 27 connected at one end to said guide-rod, in combination with the vertical lever 8, the depending lever 15 fulcrumed thereon and connected to said rod 27, the latch-bolt 21, the cord 18 connecting said lever 15 with said bolt 21, and the counterbalance-weight 31 connected to said lever 8, substantially as and for the purpose set forth.

4. The vertically-hinged gate-panel 2, the cross-bar 23, diagonally fixed to said panel so as to extend on each side of its pivotal line, and provided with the notches 25 26, the guide-rod 24 fixed to the cross-bar, and the rod 27 connected at one end to said guide-rod, in combination with the vertical lever 8, the depending lever 15 fulcrumed thereon and connected to said rod 27, the latch-bolt 21, the cord 18 connecting said lever 15 with said bolt 21, the counterbalance-weight 31 connected to said lever 8, and the vertical lever 10 connected to said lever 8 by the strap 12, substantially as and for the purpose set forth

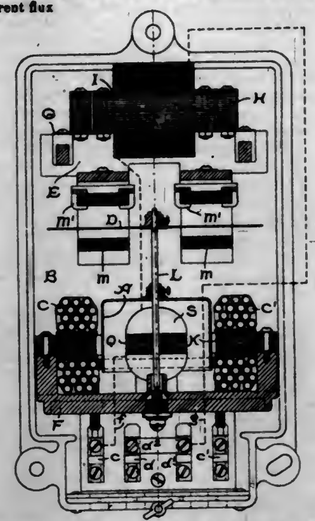
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596,190. INDUCTION-WATTMETER. ELIHU THOMSON, Swampscott, and WILLIAM H. PRATT, Lynn, Mass., assignors to the General Electric Company, of New York. Filed Sept. 7, 1897. Serial No. 650,760. (No model.)

Claim.—1. In an electric meter, the combination of a field-magnet structure forming a closed iron frame with poles for the current and potential fluxes at points ninety degrees apart, a cylindrical armature, and a magnet structure within the armature whose magnetic circuit is completed through certain of the poles on the external frame.

2. The combination in an electric meter, of a closed magnetic field-magnet frame having inwardly-projecting sets of poles for the current and potential fluxes arranged concentrically around a center, and an internal magnet structure constructed and arranged to afford

a much shorter air-gap in the path of the potential flux than in that of the current flux



3. The combination in an electric meter of a closed magnetic frame having two sets of inwardly-projecting poles ninety degrees apart, one set wound with a current-coil, and the second set unwound, a cylindrical armature, and an iron structure within the cylinder on which is wound the potential coil, with its magnetic axis at right angles to that of the current-coil.

4. In an electric meter, the combination of a closed iron frame carrying a current-coil, a magnet structure within and separated from the frame by a space in which the armature turns, and carrying a potential coil, and a closed-circuit winding on the frame arranged to increase the phase difference between the magnetic fluxes energizing the meter.

5. In a motor mechanism for an alternating-current meter, the combination of a stationary laminated field-magnet having two wound poles of opposite polarity and two unwound neutral poles, field-coils included in series with the load-circuit, fine-wire coils mounted on the field-maguet and connected in closed-circuit relation, a fixed laminated magnet mounted within the first and having poles adjacent to the neutral poles of the field-magnet, a fine-wire winding thereon for creating a flux at right angles to that of the wound field-magnet coils, and a cylindrical armature revolving between the magnets.

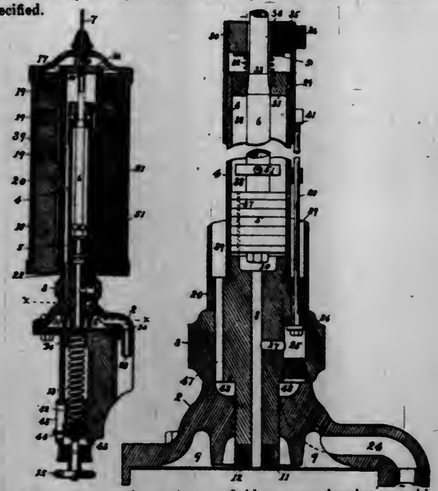
6. In an alternating-current electric meter, the combination of an inductance comprising a closed-circuit laminated-iron core provided with a central opening, a wound core mounted within the first and separated therefrom at all points by an air gap, the arrangement being such that as the air-gap is decreased at one point, it is increased at another, so that the total air-gap is always maintained the same.

7. In an alternating-current electric meter, the combination of an inductance comprising a closed-circuit iron core having a rectangular opening in the center, an H-shaped wound core mounted within the first and separated therefrom at all points by an air-gap, the arrangement being such that as the air-gap is increased at one side or end between the inner and outer core, it is decreased by a like amount at the opposite point, so that the magnetic reluctance is always maintained the same.

8. In an electric meter, the combination of a cast-metal back, a laminated-iron core having an opening therein, a second core mounted in said opening and separated from the core at all points by an air-space, and a non-magnetic plate secure to the back and forming a common support for both cores.

596,191. AUTOMATIC REGULATOR. HAYDEN H. TRACY, San Francisco, Cal. Filed Dec. 24, 1896. Serial No. 616,914. (No model.)

Claim.—1. In an automatic regulator, the combination of a flexible diaphragm, an adjustable spring bearing against the said diaphragm, a chamber on the opposite side of the said diaphragm subjected to fluid-pressure, a nipple having an elastic seat normally pressing against said diaphragm within the said chamber, a passage 8 through the said nipple and elastic seat communicating with a cylinder, a piston in the said cylinder capable of being acted on by the fluid-pressure within the said chamber, a connection from the said piston to the object to be regulated, a chamber 25 communicating with the passage 8, a valve 26 in said chamber 25, a wasteway communicating with chamber 25 when the said valve 26 is opened, and operative means between the said piston and the said valve 26 whereby the latter is opened upon the recession of the piston, substantially as specified.



2. In an automatic regulator, a fluid-pressure chamber, one side of which is closed by an elastic diaphragm, an adjustable spring pressing against the opposite side of the said diaphragm, a pressure-cylinder communicating with said fluid-pressure chamber, a piston and piston-rod within said cylinder connected to the object to be regulated, an elastic valve-seat coöperating with said elastic diaphragm to control the said communication between said pressure-chamber and said cylinder, a wasteway, a valve 26 opening a passage to said wasteway from said cylinder, and means between the said piston and the said valve 26 whereby the latter is opened on the recession of the former due to relaxation of fluid-pressure thereon, substantially as specified.

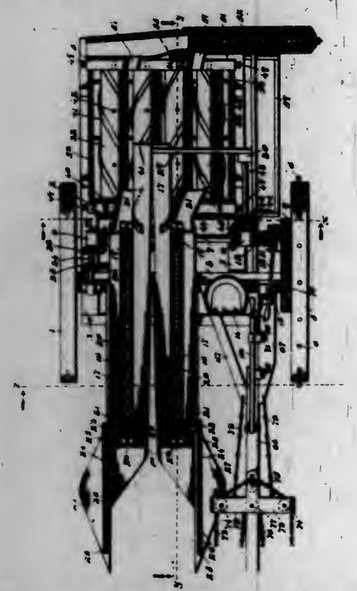
3. In an automatic regulator, the combination of the fluid-pressure chamber, the cylinder, with piston therein, communicating with said fluid-pressure chamber by passage 8, valve-seat at the entrance of said passage 8, flexible diaphragm controlling said entrance of said passage, a piston-rod connected to said piston, tapered at its top, a shell 29 sliding loosely on the said cylinder, a valve and valve-stem connected to said shell, a wasteway communicating with passage 8 by a passage controlled by said valve 26, and frictional means between said sliding shell and said tapered piston-rod, whereby on the recession of the piston the valve is caused to open the passage to the said wasteway, substantially as specified.

4. In an automatic regulator, the combination of the flexible diaphragm forming one side of a fluid-pressure chamber, the perforated nipple provided with passages 8 and 27, and pressing against said diaphragm, spring 13 beneath said diaphragm, pressure-cylinder 4, containing piston 5, piston-rod 6, tube 17, weight 18, sliding shell 29, perforated disk 30, in top of shell 29, perforated disk 31, in top of cylinder 4, spring 32 between said disks, friction-follower 34, valve-stem 28, attached to shell 29, valve 26, operated by said shell, and wasteway 40, substantially as specified.

596,192. CORN PICKER AND HUSKER. EDWARD TURNELL, Elm Creek, Nebr. Filed July 9, 1896. Serial No. 598,383. (No model.)

Claim.—1. In a corn-harvester, the combination of a pair of upwardly-inclined parallel trough-shaped guides having a tapering passage formed between them, and having their front ends oppositely inclining to provide a flaring mouth, guards applied to the outer sides of the guides and having their front ends extending forwardly thereof and made rounding at their lower edges to run upon the ground, laterally-extending wings at the front ends of the guards, sprocket-idlers at the ends of the wings in the plane thereof, endless elevators supported at their front ends upon the sprocket-idlers and located exterior to the front ends of the said guards, endless conveyers operating in the aforesaid guides, transverse shafts at the lower ends of the guides having sprocket-pinions for supporting the endless elevators and conveyers, and fenders for protecting the front ends of the endless conveyers and secured to the lower ends of the guides, substantially as specified.

2. In a corn-harvester, the combination of a pair of upwardly-inclined trough-shaped guides having their lower, forward ends inclined laterally to form a flaring mouth, the longitudinal cutters attached to the adjacent edges of said guides, and arranged in inclined relation, to each other to form a longitudinally-tapering opening or passage between said cutters, the guards attached rigidly to said guides, on opposite sides of the flaring mouth at the lower end thereof, and extending forward beyond said guides, the conveyers forming the bottoms of said trough-shaped guides, a shaft at the upper ends of said guides to support and drive the conveyers, other transverse shafts at the lower ends of said conveyers to be driven thereby, and toothed elevator-chains arranged longitudinally of the guides, out of line with the conveyers, and having their rear ends driven by the transverse shafts and supported by idler-pinions which are located at the forward ends of the guides, substantially as described.

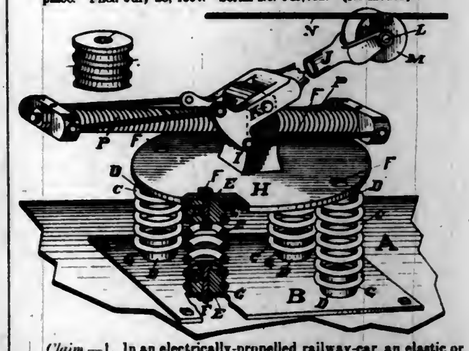


3. In a corn-harvester, the upwardly-inclined trough-shaped guides provided, at their lower ends, with the reversely-inclined opposing faces, forming a flaring mouth to the space between the contiguous inner edges to said guides, and the guards disposed on opposite sides the medial line between said trough-shaped guides and projecting forwardly beyond the flaring mouth formed by the lower ends of said guides, combined with the longitudinal cutters fastened to the inner adjacent edges of the trough-shaped guides, in slightly-inclined relation to each other, and extending from the flaring mouth to the upper rear discharge end thereof, sprocket-wheels 19 on a transverse shaft, short transverse shafts 22 journaled in the guides near their lower, front ends, endless conveyers passing around the sprocket-wheels 19 and similar sprockets on the transverse shafts 22, idler-sprockets 25, carried by the guards, and endless toothed elevators operating around said guards, adjacent to the inner opposing faces thereof, and out of alinement with the conveyers, and passing around the idler-sprockets on the guards and other sprockets on the shafts 22 to be driven thereby, as and for the purposes set forth.

4. In a corn harvester, the combination with upwardly-inclined trough-shaped guides carrying cutter devices and disposed in close inclined relation to form a longitudinally-tapered opening or passage, and endless conveyers operating in said trough-shaped guides, of a shaft 7 which supports one end of, and drives, said conveyers, two pairs of horizontal husking-rolls arranged in close relation to, and on a plane below, the rear discharge ends of said guides and the endless elevators, and each pair of husking-rolls arranged on one side of the medial line of said trough-shaped guides, chutes supported by said rear ends of the guides and inclined stubbleward therefrom, and toward, the pairs of husking-rolls to direct the ears of corn in opposite directions from the guides and conveyers, toward and between the respective pairs of husking-rolls, and direct gearing between said shaft, 7, and the pairs of husking-rolls to drive the latter, as and for the purposes described.

5. In a corn-harvester, the combination with upwardly-inclined trough-shaped guides provided with longitudinal cutters, and endless conveyers operating therein, of a transverse driving-shaft, 7, two pairs of husking-rolls arranged longitudinally and horisontally within the machine-frame, in rear of said upwardly-inclined guides, and in a horizontal plane below, the rear discharge ends of said guides and the conveyers therein, downwardly-inclined chutes carried by the troughs and inclined toward the respective pairs of husking-rolls, a counter-shaft, 43, geared to the shaft, 7, a single sprocket-chain driven by the counter-shaft, 43, and geared to the pairs of husking rolls to rotate in opposite directions the respective members of each pair of husking-rolls, a transverse trough in rear of the husking-rolls, and an upwardly-inclined elevator to receive from said trough and geared to one of the husking-rolls to be driven thereby, as and for the purposes described.

596,193. TROLLEY-BASE CUSHION. WILLIAM G. WAGENHALS, Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed July 23, 1897. Serial No. 645,732. (No model.)



Claim.—1. In an electrically-propelled railway-car, an elastic or yielding cushion consisting of a base-plate, secured to the roof of said car; two pairs of helical springs mounted on said base-plate; and means for securing said springs to said base-plate, in combination with a trolley having a base mounted on and above said springs, substantially as described and for the purpose set forth.

2. In a trolley-base cushion, the base-plate B, the two pairs of helical springs C, the spirally-grooved spring-bushings D, and the bolts F, in combination with a trolley-base mounted on and above said springs, substantially as described and for the purpose set forth.

596,194. BOTTLE, TANKARD, GLASSWARE, OR THE LIKE. ROBERT R. WALES and ALFRED R. WALES, Westover, Canada. Filed Mar. 13, 1897. Serial No. 627,296. (No model.)



Claim.—1. A device of the character described consisting of a rubber base having a dovetail for insertion with a dovetail recess of a bottle or drinking vessel as herein set forth.

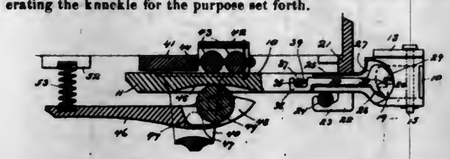
2. A device of the character described consisting of a rubber base as cushion attached to bottles and drinking vessels by means of a tongue and groove and cement as herein set forth.

3. A device of the character described consisting of a rubber base with raised center to fit into a recess formed in the base of the bottle or drinking vessel as herein set forth.

596,195. CAR-COUPLING. ANDRIS S. WEAVER, Joy, N. Y. Filed July 13, 1897. Serial No. 644,389. (No model.)

Claim.—1. In a car-coupler, a knuckle pivotally mounted in the stationary jaw of a draw-head, a curved arm secured thereto and provided with a projecting arm having a cam shaped shoulder or projection formed therein, a locking-lever mounted in said draw-head and adapted to engage said cam-shaped shoulder or projection, and a plate mounted on said knuckle and projecting over said cam-shaped shoulder and the outer end of said locking-lever, and means for operating the knuckle for the purpose set forth.

2. In a car-coupler, a knuckle pivotally mounted in the stationary jaw of a draw-head a curved arm secured thereto provided with a forwardly-directed cam or projection formed on or attached thereto, and also provided with a projecting arm having a cam-shaped shoulder or projection formed therein, a locking-lever mounted in said draw-head and adapted to engage said cam-shaped shoulder or projection, and a plate mounted on said knuckle which is provided with a spring mounted thereon, said plate projecting over said cam-shaped shoulder and the outer end of said locking-lever, and means for operating the knuckle for the purpose set forth.



3. In a car-coupler, a knuckle pivotally mounted in a stationary jaw of the draw-head, a curved arm secured thereto and provided with a projecting arm having a cam-shaped shoulder or projection formed therein, and a locking-lever mounted in said draw-head and adapted to engage said cam-shaped shoulder or projection, said locking-bar being pivotally and slidably mounted in said draw-head and adapted to be raised by the said cam shaped shoulder or projection formed on the curved arm of the knuckle and means for sliding said locking-bar and a plate mounted on said knuckle above said curved arm and locking-lever, and a spring mounted on said plate and adapted to hold the knuckle in an unlocked position, substantially as and for the purpose described.

4. A car-coupler, comprising a coupler-head, provided with two stationary jaws, and a movable jaw pivotally connected with one of the stationary jaws, one of said stationary jaws being also provided with an opening which extends therethrough, and opens forwardly and backwardly, and said movable jaw with an arm which is adapted to be thrown backwardly into said opening, and on which is formed a backwardly directed projection, said coupler-head being also provided with a backwardly-directed shank, and at one side thereof with a longitudinally-movable bar which is provided with a head which is adapted to enter said opening, and to engage with said backwardly-directed projection, and means for operating said longitudinally-movable bar from either side of the car, and a casing connected with the bottom of the car through which the shaft of the coupler-head passes, said casing being provided with friction-rollers which are mounted within the upper side thereof, and with a locking-lever which is provided with a head in which is mounted a friction roller which operates in a groove formed in the bottom of said shank, substantially as shown and described.

5. A car-coupler comprising a coupler-head provided with two stationary jaws, and a movable jaw pivotally connected with one of the stationary jaws, one of said stationary jaws being also provided with an opening which extends therethrough, and opens forwardly and backwardly, and said movable jaw with an arm which is adapted to be thrown backwardly into said opening, and on which is formed a backwardly directed projection, said coupler-head being also provided with a backwardly-directed shank, and at one side thereof, with a longitudinally-movable bar which is provided with a head which is adapted to enter said opening, and to engage with said backwardly-directed projection, and means for operating said longitudinally-movable bar from either side of the car, and a casing connected with the bottom of the car through which the shaft of the coupler-head passes, said casing being provided with friction-rollers, which are mounted within the upper side thereof, and with a locking-lever which is provided with a head in which is mounted a friction-roller which operates in a groove formed in the bottom of said shank, said shank being passed between the rollers mounted in the upper part of said casing, and the roller mounted on the head of said lever, and a spring by which the rear end of said lever is depressed, substantially as shown and described.

6. A car-coupler constructed as herein described and provided with a shank which passes through a casing or support secured beneath the car, said casing being provided with a friction roller or rollers in the upper side thereof, and with a spring-operated lever in one end of which a friction-roller is mounted, and the shank of the coupler being also provided in the bottom thereof with a cam-groove in which said last-named roller operates, substantially as shown and described.

7. A car-coupler constructed as herein described and provided with a shank which passes through a casing or support secured beneath the car, said casing being provided with a friction roller or rollers in the upper side thereof, and with a spring operated lever in one end of which a friction-roller is mounted, and the shank of the coupler being also provided in the bottom thereof, with a cam-groove in which said last-named roller operates, and said car being also provided at the end thereof with a hanger through which the shank of the coupler passes, and with a roller on which said shank rests, substantially as shown and described.

596,196. CAR-FENDER. GEORGE WIENERS, Brooklyn, N. Y. Filed Aug. 31, 1897. Serial No. 650,172. (No model.)



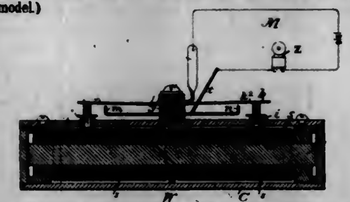
Claim.—1. In a car-fender, the combination with a rectangular frame, comprised of a resilient band, and means whereby its ends are united, of removable resilient cross-bands supported thereby, and means whereby said frame may be attached to the car, substantially as described

2. In a car-fender, the combination with a rectangular frame comprised of a resilient band, and means whereby its ends are detachably united, of removable resilient cross-bands supported thereby, rods attached to the car, and eyelets supported by said rods, said resilient frame being supported by said rods, by being passed through said eyelets, substantially as described.

3. In a car-fender, the combination with a resilient frame, of rods attached to the car, and adapted to support said frame, an auxiliary fender supported by the lower portions of said rod, and resilient removable cross-bands, substantially as shown and described.

4. In a car-fender, the combination with a resilient frame, of rods attached to the car having eyelets by means of which said frame is supported, an auxiliary fender supported by the lower portions of said rods, and resilient removable cross-bands supported by said frame, substantially as shown and described.

596,197. ELECTRICAL PROTECTIVE APPLIANCE. ARTHUR S. WILLIAMS, Newton, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed Aug. 26, 1897. Serial No. 649,597. (No model.)



Claim.—1. In an induction coil or electromagnetic appliance the combination with the fine-wire winding thereof, and an associated protecting appliance, consisting of circuit-changing contact points and springs, a protective or alarm circuit controlled thereby, and a rod or mass of easily-fusible material solid at normal temperature, but fusing or softening under a moderate advance, supported by the said winding and normally maintaining the said circuit-changing springs in their inoperative position, a sheet-metal heat-collecting screen interposed between the said winding and the said easily-fusible mass, and nearly enveloping the former: substantially as specified.

2. The combination of an induction or repeating coil having a fine-wire winding, and a cylindrical iron sheath, and an associated protective appliance comprising a protective or alarm circuit, a spring circuit-controller therefor, and one or more solid rods or pencils of alloy or other material capable of fusing or softening under a moderate rise in temperature, normally maintaining the inoperative relation of the springs and points of the said circuit-controller, with a screen of metal foil interposed between the coil-winding and its iron sheath, and nearly enveloping the former, and metal cups or steps one for each fusible-alloy rod supported on the said metal screen, in recesses or apertures of the said iron sheath, and holding the said rods normally in place, substantially as described.

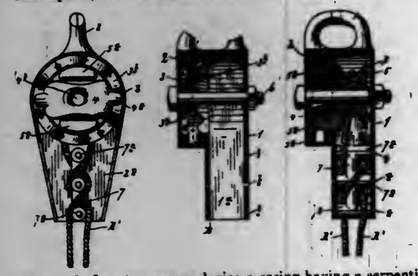
3. The combination in an induction or repeating coil, of the fine-wire winding thereof, a copper foil screen or envelop nearly surrounding the said winding, a circuit-changer comprising contact points or springs mounted on the said coil, protective or alarm devices for the said induction-coil controlled by said circuit-changer, one or more copper cups resting on said copper-foil envelop, and a corresponding

number of rods or pencils of easily-fusible material supported in said cups under pressure of the said contact-springs, and normally maintaining the inoperative condition of said circuit-changer, but adapted to fuse or soften with the heat produced by a current of abnormal strength flowing through the winding and thereupon to yield and permit the operation of said circuit-changer, and the protective devices controlled thereby; substantially as specified herein.

4. In an electromagnetic appliance the combination of the winding thereof, a mass of easily-fusible material in juxtaposition thereto, and suitable circuit-changing protective devices controlled by the said material, with a sheet-metal heat-collector interposed between the said winding and the said fusible mass, to more effectually and promptly conduct heat developed by the former into position to act upon the latter; substantially as and for the purposes set forth.

5. The combination in an electromagnetic appliance, of the winding thereof; a mass of easily-fusible material, contiguous thereto; a sheet-metal heat-collector contiguous to the said winding and also to the said fusible mass; and circuit changing devices, controlling protective connections, substantially as described.

596,198. FIRE-ESCAPE. WILSON C. WILLIAMS, Utica, N. Y. Filed Apr. 12, 1897. Serial No. 631,678. (No model.)



Claim.—1. In a fire-escape device a casing having a serpentine annular groove, a vibrating detent running in the groove and a sheave having arms embracing the detent, substantially as set forth.

2. In a fire escape device a casing having an annular serpentine groove and an outlet, a vibrating detent running in the groove, a sheave having arms receiving the detent, substantially as set forth.

3. In a fire-escape device a casing having a crooked channel around its interior face, a sheave, a vibrating detent and means for connecting the sheave and detent, substantially as set forth.

4. In a fire-escape device, the combination of a shell having a serpentine annular groove and an outlet portion, a vibrating detent having projections engaging in the serpentine groove, a sheave having arms embracing the detent and a friction device in the outlet portion of the casing, substantially as set forth.

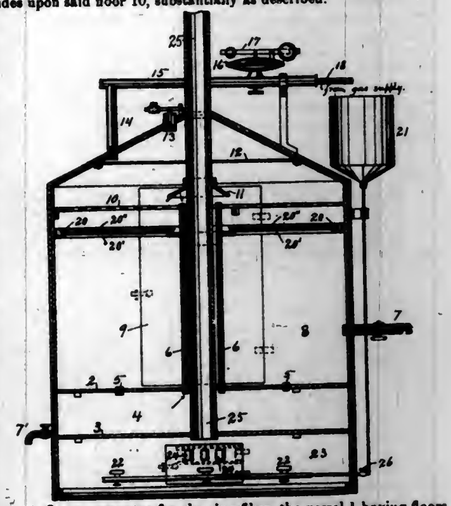
5. The combination in a fire escape device of a casing having a crooked groove 3, a vibrating detent 4 having projections engaging in the groove, a sheave having projecting arms extending upon either side of the detent, and a rope friction device, substantially as set forth.

596,199. FIBER-CLEANSING APPARATUS. SAMUEL B. ALLISON, New Orleans, La. Filed July 27, 1896. Serial No. 600,655. (No model.)

Claim.—1. In an apparatus for cleansing fiber, the vessel 1 provided with a chamber 8 to receive the material and covered by a perforated floor, a water-chamber 4 communicating with said chamber 8 by inlets 5, overflow-pipes 6 whereby the water-chamber and the space above said perforated floor communicate, a perforated steam-condensing floor 12, a steam-escape valve and means to heat the water-chamber, all substantially as described

2. In an apparatus for cleansing fiber, the vessel 1 having a floor 2 provided with outlets 5 and a floor 3 inclosing between itself and floor 2 a liquid-holding chamber 4 said vessel having filtering-pans 20 situated in the upper part of a chamber 8 between a perforated floor 10 and said floor 2, a centrally-situated heating-flue 25, and overflow-pipes 6 adjacent said flue, all substantially as described whereby a liquid can be circulated up through the pipes, and discharged through a strainer into said chamber 8 and drained therefrom.

3. In an apparatus for cleansing fiber, the vessel 1 having a floor 2 provided with outlets 5 and a floor 3 inclosing between itself and floor 2 a liquid-holding chamber 4 said vessel having filtering-pans 20 situated in the upper part of a chamber 8 between a perforated floor 10 and said floor 2, a centrally-situated heating-flue 25, and overflow-pipes 6 adjacent said flue, a perforated floor 10 situated above the filtering-pans and a hood 11 surrounding the heating-pipe and extending over the overflow-pipes and adapted to spread liquid on all sides upon said floor 10, substantially as described.



4. In an apparatus for cleaning fiber, the vessel 1 having floors 2 and 5 inclosing a liquid-chamber 4, a floor 10 situated above said floor 2, filtering devices immediately below said floor 10, a chamber 8 above said floor 2 containing the filters, means for circulating liquid from chamber 4 to the space above floor 10 and a door extending from near the floor 2 to above said floor 10 to give direct access to said floor, to the filters and to the main chamber and to facilitate the drying of the fiber and filters, substantially as described.

5. In an apparatus for cleansing fiber, a vessel, a fiber-holding chamber contained between the floors of the vessel, means for heating its contents, pipes for circulating a liquid through said chamber and discharging it upon said contents, a filter, a draw-off cock, and means for freely circulating air through said chamber, said means comprising the heating devices and an air-passage, substantially as described.

596,200. TACK. JOSEPH BRUNTON and DANIEL V. BRUNTON, Pittsburg, Pa. Filed Feb. 8, 1897. Serial No. 622,522. (No model.)

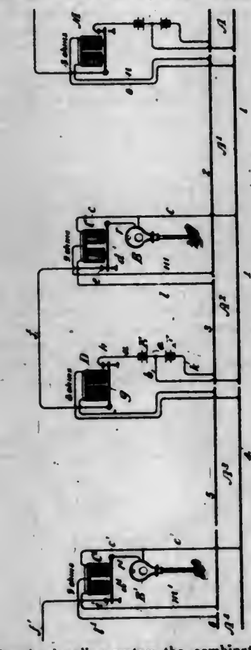


Claim.—A tack for carpet or like material comprising a shank pointed at one end adapted to penetrate carpet or similar material, and bent substantially at right angles to form two portions one adapted to penetrate the floor and the other to lie parallel therewith, said shank portion having at its other end a head extending at right angles to the plane of said shank on both sides thereof to form a stop for the shank after it has penetrated the carpet, substantially as described.

596,201. ELECTRICAL SIGNALING SYSTEM. JOHN P. BUCHANAN, Boston, Mass., assignor to the Hall Signal Company, of Maine. Filed Dec. 27, 1893. Serial No. 494,890. (No model.)

Claim.—1. In an electric signaling system the combination of electric conductors arranged in multiple-arc circuits, each of said arc-circuits including an electromagnet and all of said arc-circuits including a common generator, the magnets being arranged in the same direction from said generator along a railway-track, and circuit-controllers operated by said magnets and signaling mechanism operated or controlled by said circuit-controllers, said arc-circuits adapted to be operated in succession by a passing train and so arranged that when a train operates the first arc-circuit the circuit-controller therefor is affected but not the other circuit-controller, and when the train operates the succeeding arc-circuit both circuit-controllers are affected substantially as set forth.

2. In an electric signaling system for railways the combination of a portion of a track, electric conductors which include the rails of the track and arranged in multiple-arc circuits, each of said arc-circuits including an electromagnet and all of said arc circuits including a common generator, the magnets being arranged in the same direction from said generator, and circuit-controllers operated by said magnets and signaling mechanism operated or controlled by said circuit-controllers, said arc-circuits adapted to be operated in succession by a passing train and so arranged that when a train operates the first arc-circuit the circuit controller therefor is affected but not the other circuit-controller, and when the train operates the succeeding arc-circuit both circuit-controllers are affected substantially as set forth.



3. In an electric signaling system the combination of electric conductors arranged in multiple-arc circuits, each of said arc-circuits including an electromagnet and all of said arc-circuits including a common generator, the magnets being arranged in the same direction from said generator along a railway-track, and separate signal-circuits operated by said magnets and signaling mechanism operated or controlled by said magnets, said arc-circuits adapted to be operated in succession by a passing train, and so arranged that when a train operates the first arc-circuit the signal-circuit therefor is affected but not the other signal-circuit, and when the train operates the succeeding arc-circuit both signal circuits are affected, substantially as set forth.

4. In an electric signaling system for railways the combination of a track divided into sections, electric conductors arranged in multiple-arc circuits including the rails of at least two of said track-sections, and another of said arc-circuits including the rails of at least one of said track-sections, each of said arc-circuits also including an electromagnet operating a circuit-controller, substantially as set forth.

5. In an electric signaling system for railways the combination of a track divided into sections, electric conductors arranged in multiple-arc circuits including the rails of at least two of said track-sections, and another of said arc-circuits including the rails of at least one of said track-sections, each of said arc-circuits also including an electromagnet operating a circuit-controller, and signal-circuits controlled by said circuit-controllers, substantially as set forth.

6. In an electric signaling system the combination of electric conductors arranged in approximately balanced multiple-arc circuits, each of said arc circuits including an electromagnet and all of said arc-circuits including a common generator, the magnets being arranged in the same direction from said generator along a railway-track, and separate normally-closed signal-circuits operated by said circuit-controllers, said arc-circuits adapted to be operated in succession by a passing train and so arranged that when a train operates the first arc-circuit the circuit-controller therefor is affected but not the other circuit-controller, and when the train operates the succeeding arc-circuit both circuit-controllers are affected, substantially as set forth.

7. In an electric signaling system for railways the combination of a track divided into sections, electric conductors arranged in approximately-balanced multiple-arc circuits, one of said arc-circuits including the rails of at least two of said track-sections, and another of said arc-circuits including the rails of at least one of said track-sections, each of said arc-circuits also including an electromagnet operating a circuit-controller, and a normally-closed signal-circuit controlled by each of said circuit-controllers, substantially as set forth.

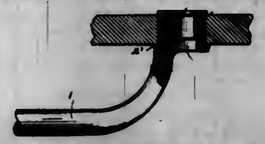
8 In an electric signaling system for railways the combination of two adjoining portions of a track, each comprising a long continuous rail-section and two short corresponding insulated rail-sections, a rail-circuit including an electromagnet and one of said short rail-sections and a corresponding portion of the long rail-section of one of said portions of the track, a second rail-circuit including an electromagnet, a long rail-section and both of the corresponding short rail-sections of the other portion of the track, and a signal-circuit operated by said magnets, substantially as set forth.

9. In an electric signaling system, the combination of a number of multiple-arc circuits, each of which includes the rails of a track, a battery, and a magnet in each of its arc branches, the magnets of a multiple-arc circuit being arranged in the same direction from their common battery and adapted to be successively short-circuited by a passing train, a series of signaling circuits including a plurality of circuit-controllers, one circuit-controller of each signal-circuit being operated by a magnet of a multiple-arc circuit, and another circuit-controller of each signal-circuit being operated by a magnet of a separate multiple-arc circuit, substantially as set forth.

10. In an electric signaling system, the combination of a signaling-circuit including a plurality of circuit-controllers, two multiple-arc circuits, each of which includes separate insulated sections of track, a battery and a magnet in each of its arc branches, the magnets of a multiple-arc circuit being arranged in the same direction from their common battery and adapted to be successively short-circuited by a passing train, one of the magnets of each multiple-arc circuit operating a circuit-controller of the signaling-circuit, substantially as set forth.

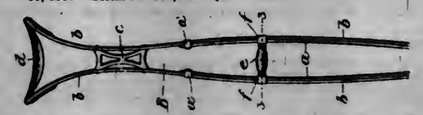
11. A block-signal system having a track-circuit extending along it and having a generator at one end of the block and being provided with a plurality of relays located at different distances from the generator and adapted to be successively short-circuited through a passing train and signaling mechanism having circuits controlled by the said relays.

596,202. RAIL-BOND. FRED H. DANIELS, Worcester, Mass. Filed July 26, 1897. Serial No. 645,901. (No model.)



Claim.—As an improved article of manufacture, a rail-bond comprising a rod, each end of which is reduced and provided with a tubular terminal, the portion of the rod adjacent to the terminal being provided with a longitudinal recess or depression forming a semi-tubular portion in alinement with the tubular terminal, and an annular flange or shoulder between the tubular and semitubular portions, substantially as set forth.

596,203. CRUTCH. EDWIN S. DRAKE, Portland, Me. Filed Nov. 19, 1897. Serial No. 659,066. (No model.)



Claim.—1. In a crutch, the combination of clips encircling the side pieces, oppositely-threaded studs projecting inwardly from each of said clips, a handhold having oppositely-threaded ends screwing upon said studs, and clamping-plates inclosed between the inner side of the clips and the side pieces of the crutch and having projections extending through the clip and adapted to be thrust outward by the ends of the handhold as it is screwed upon the studs.

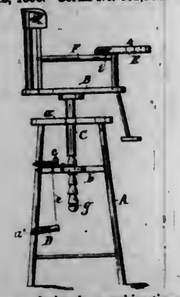
2. In a crutch, the combination of the side pieces *b*, *b*, bowed outwardly at their middle portion, and converging upwardly above such point, the handle *c*, the spacing-block *c*, secured between the side pieces above the handle and at the point below the upper ends of said side pieces where they approach each other, and the flexible strap *d*, suspended between said ends, the side pieces being elastic and flared outwardly above the spacing-block.

3. In an extensible crutch, the combination with the side pieces

of the upper portion, and the side pieces of the lower portion, of guide-loops secured to the side pieces of each portion through which the corresponding pieces of the other portion slide, clips inclosing both side pieces and adjustable lengthwise as to both, said clips having oppositely-threaded studs projecting inwardly from each side of the crutch, a handhold having oppositely-threaded ends screwing upon said studs, and clamping-plates inclosed in the clips and having projections extending through the walls of the same and operated by the handle ends.

4. In an extensible crutch, the combination with the side pieces of the upper portion, and the side pieces of the lower portion, of guide-loops secured to the side pieces of each portion through which the corresponding pieces of the other portion slide, clips inclosing both side pieces and adjustable lengthwise as to both, said clips having oppositely-threaded studs projecting inwardly from each side of the crutch, a handhold inclosing a tube having oppositely threaded ends screwing upon said studs, clamping-plates inclosed in the clips and operated by the ends of the tube, and a slot-and-pin connection between the tube and the handhold.

596,204. NURSERY-CHAIR. S SPENCER ECCLESTON, Syracuse, N. Y. Filed Aug. 12, 1896. Serial No. 602,504. (No model.)



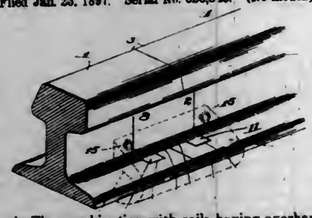
Claim.—In a nursery-chair, the combination of the base, a seat-supporting spindle having angular annular teeth, each having a right-angled under side and a downwardly-inclined upper side, and an annular groove, *g*, at the lower end of the spindle, a cross-piece on the base, a spring-bolt on the cross-piece to engage the spindle, a bifurcated treadle fulcrumed on one of the rounds of the base, and a cord connecting the treadle with the bolt, said cord passing through an aperture in said cross-piece, substantially as described and shown.

596,205. NON-REFILLABLE BOTTLE. CORNELIUS W. GARIS, Easton, Pa. Filed Mar. 1, 1897. Serial No. 625,586. (No model.)



Claim.—The combination with a bottle or vessel of an immovable and impenetrable seal to close its outlet end, of a triangular block having a cutter secured thereto and provided with grooves, and a wire wound around the neck of said bottle and in the grooves in the triangular block and serving to clamp the block to the vessel and permit of its circular motion about the same, substantially as set forth.

596,206. RAIL-JOINT. ALBERT L. GOLDSMITH, New Haven, Conn. Filed Jan. 23, 1897. Serial No. 620,348. (No model.)



Claim.—1. The combination with rails having overhanging extended tread portions projecting longitudinally from their ends, and extended base portions formed with lateral recesses and lying under the extended tread portions, of a joining-piece applied between the ends of the rails in alinement with the vertical webs and having lateral extensions adapted to enter the recesses of the base; the construction being such that the joining-piece lies beneath or supports the overhanging tread portions while the lateral projections prevent the rails from separating longitudinally, substantially as described.

2. The combination with rails having overhanging extended tread portions projecting longitudinally from their ends, of extended base portions lying under said tread portions and each formed with a longitudinal passage and lateral recesses communicating with the same, and a joining-piece applied under the overhanging tread portions between the ends of the rails so that it lies in the longitudinal passages of the base portion, and lateral projections upon said joining-piece adapted to enter the lateral recesses of the base portions, substantially as described.

3. The combination with rails having extended tread portions grooved upon their under sides and laterally-extending slots formed in their bases, of a connecting-piece adapted to enter the slots of the tread portions and support the latter and provided with lateral extensions adapted to enter the lateral recesses of the base, substantially as described.

4. The combination with rails having extended tread portions provided upon their under sides with longitudinal grooves and lateral recesses formed in the base portions, of a connecting-piece having a reduced upper edge adapted to enter the grooves of the treads, and lateral projections adapted to enter the lateral recesses of the base, substantially as described.

5. The combination with rails having extended tread portions formed with longitudinal grooves upon their under sides and extended base portions having longitudinal and lateral slots, of a joining-piece adapted to enter the slots of the treads and support the latter, and having lateral projections adapted to enter the recesses of the bases and prevent any longitudinal movement of the rails, substantially as described.

596,207. FLAGSTAFF-HOLDER. WALTER HART, New York, N. Y. Filed Dec. 7, 1896. Serial No. 614,677. (No model.)



Claim.—1. In combination with a ball-and-socket mechanism for supporting a flagstaff, a plate provided with means of attachment to a support and carrying a cylindrical socket, a ball adjustably seated in the said socket and provided with means for engaging a flagstaff, and locking-screws in the walls of the socket acting to fixedly hold the ball in said socket at various angles of adjustment.

2. In combination with a ball-and-socket mechanism for supporting a flagstaff, a base-plate adapted to be fixed to a support, a cylindrical socket carried by said plate and having its walls recessed substantially as shown, a ball adjustably seated in said socket and carrying by a neck or extension therefrom a flag-pole-supporting device, and locking-screws acting to fixedly hold the ball in the socket in different relative positions.

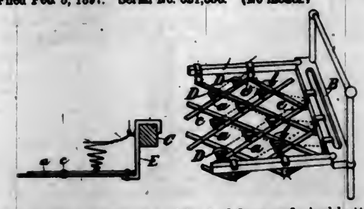
3. In combination with the cylindrical socket E having recesses J and means of attachment to a fixed support, a ball F carrying a pole-supporting bracket, and two or more screws l, threaded in the wall of the socket and adapted to bear upon said ball for the purpose of holding the same locked in the socket.

4. In combination with the cylindrical socket E having recesses J and means of attachment to a fixed support, a roughened or corrugated ball F carrying a pole-supporting bracket, and two or more screws L threaded in the wall of the socket and adapted to bear upon said ball for the purpose of holding the same locked in the socket.

5. In combination with the cylindrical socket E having recesses J and means of attachment to a fixed support, a ball F carrying a pole-supporting bracket, and two or more screws L threaded in the wall of the socket and adapted to bear upon said ball for the purpose

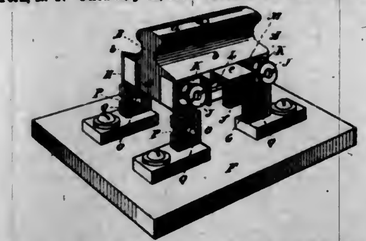
of holding the same locked in the socket, and a screw N or similar adjustable bearing part in the walls of the socket.

596,208. SPRING-BED. FRANK H. HERTHERICH, New Haven, Conn. Filed Feb. 3, 1897. Serial No. 621,858. (No model.)



Claim.—The combination with a bed-frame, of a bed-bottom consisting of a series of diagonal cross-bars arranged in sets, those of one set being parallel and crossing those of the other set and pivotally connected at their crossing portions, the inner bars extending across the frame, supporting-hooks at the ends of the bars having horizontal lower ends pivotally secured to the bars, and spiral springs secured individually to the bars.

596,209. REMOVABLE FUSE-HOLDER. JOHN T. HUNT, New York, N. Y. Filed July 12, 1897. Serial No. 644,229. (No model.)



Claim.—1. The fuse-holder, comprising the portions B, C, each of non-conducting material, the portion B having the end extensions *d* and plate *b*, and the portion C corresponding substantially in outline with and being covered by said plate *b* and having end recesses receiving said extensions *d*, combined with means securing said portions B, C, together to form the body or block, the plates G, H, at the ends of said body, the screws fastening said plates G, H, to said body, the fuses connecting said plates at opposite sides of said body, and the posts for said plates; substantially as set forth.

2. The fuse-holder, comprising the portions B, C, the former having the plate *b* and end extensions *d* and the portion C corresponding substantially in outline with said plate *b* and having the end recesses receiving the extensions *d*, combined with the lateral extensions *e* and shelves *f* at opposite sides of said holder, the plates G, H, at opposite sides of the ends of the holder, the screws securing said plates G, H, in position and the fuses connecting said plates G, H, at opposite sides of the holder and passing within the space outlined by said lateral extensions *e* and shelves *f*; substantially as set forth.

3. The fuse-holder, comprising the upper and lower portions B, C, the former having the handle *a*, base-plate *b* and end extensions *d*, and the portion C having its ends recessed to receive said extensions *d* and corresponding in general outline with the base-plate *b*, combined with the lateral extensions *e* and shelves *f* at opposite sides of said holder, the plates G, H, secured to the ends of said holder and at opposite sides of the latter, the screws retaining said plates G, H, in position and the fuses connecting said plates at opposite sides of said holder; substantially as set forth.

4. The fuse-holder comprising the portions B, C, each of non-conducting material, the portion B having the end extensions *d* and plate *b*, and the portion C corresponding substantially in outline and being covered by said plate *b* and having end recesses receiving said extensions *d*, combined with means securing said portions B, C, together to form the body or block, the plates G, H, at the ends of said body, the screws fastening said plates G, H, to said body, the fuses connecting said plates at opposite sides of said body, the trunnions O carried by said plates H, and the posts Q receiving said plates G, H, and one pair of which is slotted, as at P, to receive said trunnions and permit of the removal of said holder at will; substantially as set forth.

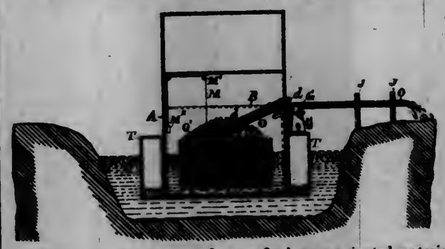
5. The fuse-holder, comprising the parts B, C, the latter having the recessed ends and being formed integral with the lateral extensions *e* and shelves *f*, and the part B being in one integral piece and formed with the handle *a*, base-plate *b* and extensions *d* to enter the recesses of the part C, combined with the plates G, H, secured to the ends of the part C and at opposite sides of the latter, the screws I retaining said plates G, H, in position, the nuts J on said screws, the plates K held on said screws by said nuts and the fuses L connecting said plates K at opposite sides of said holder and being within the space outlined by said extensions *e* and shelves *f*; substantially as set forth.

596,210. BICYCLE-SUPPORT. FRANK JOHNSON, San Francisco, Cal. Filed Aug. 26, 1896. Serial No. 604,004. (No model.)



Claim.—In a bicycle-support, the combination with a frame comprising a main member secured to the steering-tube of the machine, and a horizontal cross-tube connected to the main member, of a hinged frame comprising cross-braces which have bent ends loosely received in the cross-tube and are also bent into rearwardly-extending handle-bars, a bracing member extending from one handle-bar to the other, supporting-legs connected to the bracing member on opposite sides of the bicycle, wheels journaled to the lower ends of said legs, a second brace connected to the bicycle through which the legs freely slide, and automatic mechanism for locking the hinged frame in raised or lowered position.

596,211. PNEUMATIC CONVEYER. SAMUEL H. JOHNS, Newark, N. J. Filed May 15, 1897. Serial No. 636,634. (No model.)



Claim.—1. An apparatus for transferring comminuted material, comprising an air-tight chamber, lateral doors for the introduction of the receptacle containing the material to be transferred, means for supplying the chamber with compressed air, and a discharge-pipe with freely-movable inner end leading from the interior of said chamber and adapted to reach all parts of the said receptacle for the removal of its contained material, substantially as and for the purpose set forth.

2. An apparatus for transferring comminuted material, comprising an air-tight floating chamber, lateral doors for the introduction of the receptacle containing the material to be transferred, means for supplying the chamber with compressed air, and a discharge-pipe with freely-movable inner end leading from the interior of said chamber and adapted to reach all parts of the said receptacle for the removal of its contained material, substantially as and for the purpose set forth.

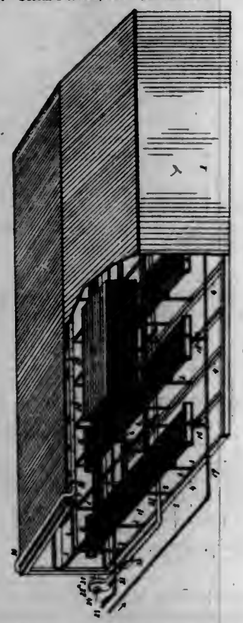
3. An apparatus for transferring comminuted material comprising an air-tight chamber with doors for access thereto, means for supplying the same with compressed air and a discharge-pipe with freely-movable inner end leading from the interior of said chamber, and an agitator projected in advance of its inner end, substantially as and for the purpose set forth.

4. An apparatus for transferring comminuted material comprising an air-tight floating chamber with doors for access thereto, means for supplying the same with compressed air and a discharge-pipe with freely-movable inner end leading from the interior of said chamber, and rapidly-rotating agitator-arms projected in advance of its inner end, substantially as and for the purpose set forth.

5. An apparatus for transferring comminuted material comprising an air-tight floating chamber having a door-frame formed with a door-seat upon the inner side, a pocket above said door-frame and in direct communication with the interior of said chamber, a door adapted to fit said door-seat and suspended from within said pocket and movable vertically in and out of the same adjacent to said door-seat, an air-pump for supplying said chamber with compressed air and means for actuating said pump, and a discharge-pipe with freely-movable inner end leading from the interior of said chamber, substantially as and for the purpose set forth.

6. An apparatus for transferring comminuted material comprising an air-tight floating chamber with doors for access thereto, means for supplying the chamber with compressed air, a discharge-pipe formed of a series of telescopic sections with freely-movable inner end leading from the interior of said chamber, rotary agitator-arms mounted upon spindles and projected in advance of its inner end, an extensible shaft carried by said discharge-pipe and connected with said spindles, and means for actuating said shaft, substantially as and for the purpose set forth.

596,212. DRY-KILN. FRANKLIN KIRK, Kansas City, Mo. Filed Aug. 5, 1896. Serial No. 601,782. (No model.)

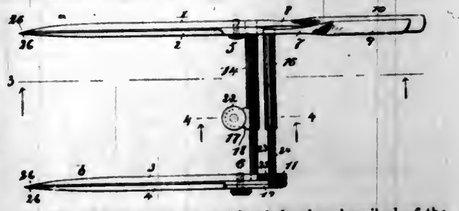


Claim.—1. In a dry-kiln, the combination with a suitable apparatus to heat the lumber therein, of apparatus for introducing dry air into the kiln and exhausting moistened air therefrom, comprising a fan-blower, a pipe connected thereto and provided with a condenser, a pipe extending longitudinally and centrally of the kiln below the heating apparatus, and having perforated branch pipes arranged at the under side of and adapted to discharge upon the said heating apparatus, and a perforated pipe in the upper portion of the kiln to receive the moistened air and pass it back to the fan-blower, substantially as described.

2. In a dry-kiln, the combination of an air-tight structure to receive lumber-carrying trucks, and apparatus for introducing dry air into the kiln and exhausting moistened air therefrom, consisting of a fan-blower, a moist-air-receiving pipe, a pipe connecting the same with the blower and provided with perforations, a trap below and communicating with the pipe through said perforations, conical perforated deflectors 35, within the said pipe adjacent to said perforations, and a discharge pipe connecting the blower with the interior of the structure.

596,213. DUPLEX PARALLEL SHEARS. MAX LOEWENTHAL, New York, N. Y. Filed July 24, 1897. Serial No. 645,756. (No model.)

Claim.—1. The combination in an article of the class described, of the primary shears comprising the blades pivoted between their ends, secondary shears comprising a set of pivoted blades disposed parallel to the primary set, an inflexible connection extending between the outer blade of the primary shears and the inner blade of the secondary shears, and a further inflexible connection extending between the inner blade of the primary shears and the outer blade of the secondary shears, substantially as described.



2. The combination in an article of the class described, of the primary-shears section *a* comprising the blades 1, 2, having extensions 7, 8 and handles 9, 10, said blades being pivotally secured together intermediate their ends, a further set of blades 3, 4, disposed parallel to the blades 1, 2, and having extensions 11, 12, said blades being pivoted together intermediate of their ends, a bar extending between the blades 1, 3, and connecting them together, and a further bar extending between the blades 2, 4, and connecting them together, both bars being located at the rear of the fulcrum of each set of blades, substantially as described.

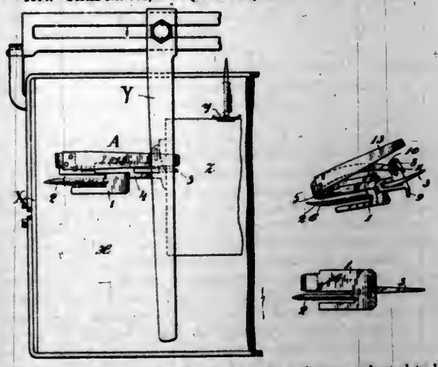
3. The combination with the two separate sets of blades, each set having a separate pivot and disposed parallel to each other, separate lateral extensions from each of the sets of blades, and means for adjustably securing said extensions together, the extensions being located at the rear of said pivots, substantially as described.

4. The combination with the blades 1, 2 pivoted together as at 5 and provided with operating-handles, the longitudinally-apertured bar 14 extending from the blade 1 at the rear of the pivot, a bar 16 extending outwardly from the blade 2 adjacent the bar 14 and to the rear of said pivot, the blades 3, 4 pivoted as at 6 and having extensions 11, 12, a bar 23 extending outwardly from the extension 11 to the rear of said pivot and movably engaging the bar 14, and another bar 24 extending outwardly from the extension 12 and movably engaging the bar 16, and means for securing either of the opposing bars together, substantially as described.

5. The combination with the blades 1, 2 pivoted together as at 5 and provided with operating-handles, the longitudinally-apertured bar 14 extending from the blade 1 at the rear of the pivot, a bar 16 extending outwardly from the blade 2 adjacent the bar 14 and to the rear of said pivot, the blades 3, 4 pivoted as at 6 and having extensions 11, 12, a bar 23 extending outwardly from the extension 11 to the rear of said pivot and movably engaging the bar 14, and another bar 24 extending outwardly from the extension 12 and movably engaging the bar 16, and a clamp comprising the split lips 18, 19, and set-screw 22, for embracing the bar 23, substantially as described.

6. The combination with the paired sets of blades, and bars extending from each of the blades of each of the sets, and a pendent lug extending from one of said bars between said sets of blades, having a rounded under surface, substantially as described.

596,214. SHEET GUARD AND SETTER FOR PLATEN PRINTING-PRESSES. EDWARD L. MEGILL, Brooklyn, N. Y. Filed Apr. 9, 1897. Serial No. 631,377. (No model.)



Claim.—1. An automatic sheet guide and setter adapted to be secured to the tympan-sheet, said guide and setter having a gage adapted to be moved up to the register-line and back therefrom, and means, projecting upwardly from the platen, connected operatively with said gage and adapted for moving the gage up to the register-line when depressed by the closing of the platen in printing and retracting it when the pressure is removed, substantially as set forth.

2. An automatic sheet guide and setter having a base adapted to be secured to the tympan-sheet, a gage adapted to be moved up to the register-line and back therefrom, and a spring device connected operatively with said gage, said spring device projecting up from the platen and adapted to be depressed when the platen closes, whereby the gage is actuated through the medium of said spring device, substantially as set forth.

3. A sheet guide and setter having a base adapted to be secured to the platen, a sliding gage for setting the sheet to the register-mark, and an arched or bow spring, connected at one end to the fixed base and at the other end to said gage, whereby compression of the said spring serves to move the gage to the register-line when the impression is effected, and to retract said gage by its own resiliency when the pressure is removed from said spring.

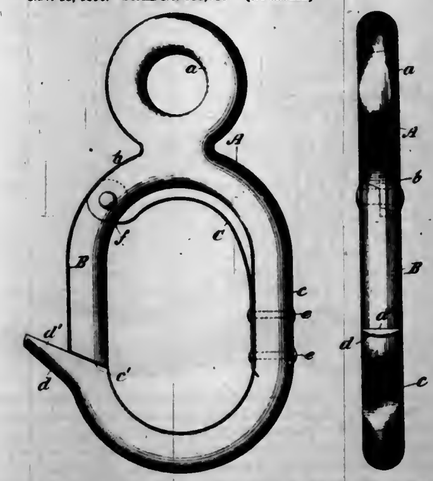
4. A sheet guide and setter adapted to be operated by compression upon it at the time the impression is made, said guide comprising a base adapted to be secured to the platen, a sliding gage mounted in guides on said base and provided with a gage-head, a bow-spring mounted on the base and coupled at its free end to the gage, whereby compression of said spring moves the gage over the tympan-sheet, and a depressor secured to and arranged above said bow-spring to receive the pressure.

5. A sheet guide and setter for a platen-press, comprising a base 1, provided with means for securing it to the platen, with a curved, depressible spring-tongue 3, and with a guide 6 for the sliding gage, the said sliding gage, having an upwardly-curved, depressible gage-head 8, a slot to engage the tongue 3, and a slot 11, the bow-spring 12, connected at its rear end to the base and coupled at its front end to the sliding gage through the medium of the slot 11, and a depressor 13, connected with and arranged above said bow-spring.

6. In a sheet guide and setter for platen-presses, the combination with a base adapted to be secured to the platen, and a bow-spring 12 on said base, of a sliding gage mounted on said base and coupled to the said bow-spring as set forth, whereby the compression of the spring moves the gage over the platen, said sliding gage having a gage-head 8, and a lateral branch 9, adapted to project under the tympan-sheet and play along a slot therein, as set forth.

7. A sheet guide and setter for a platen-press, comprising a base adapted to be secured to the platen, a sliding gage mounted on said base, a depressor or arm, and elastic means between said arm and gage, whereby downward pressure on the arm moves the gage over the platen and the spring retracts said gage when the pressure is removed.

596,215. SNAP-HOOK. ALBERT MORITZ, New York, N. Y. Filed Nov. 11, 1896. Serial No. 611,715. (No model.)

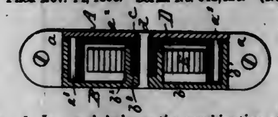


Claim.—1. A snap-hook having a C-shaped body, the lower limb *c* of which terminates in an outwardly-projecting beveled lip, combined with an inwardly-opening tongue pivoted to the upper part of the body and a leaf-spring secured to the inside of the body and engaging by its free end only the tongue, substantially as described.

2. In a snap-hook, the combination of the C-shaped body portion comprising the short limb *b* and long curved limb *c*, an inwardly-opening tongue B pivoted to the limb *b* and meeting the upturned end of the limb *c*, and a bent leaf-spring engaging at its end only the tongue B and limb *c* and located between them, substantially as set forth.

3. In a snap-hook, the combination of the C-shaped body portion comprising the short limb *b* and long curved limb *c* having a beveled lip *d*, an inwardly-opening tongue B pivoted to the limb *b* and meeting the upturned end of the limb *c*, and a bent leaf-spring engaging at its end only the tongue B and limb *c* and located between them, substantially as set forth.

596,216. SASH-BALANCE. CHARLES H. OCUMPAUGH, Rochester, N. Y. Filed Nov. 14, 1896. Serial No. 612,121. (No model.)



Claim.—1. In a sash-balance the combination of the cover-plate A comprising a face-plate *a* and a side plate a^2 integral therewith, and lugs a^3, a^3, also integral with the face-plate, each of said lugs being situated in the angle between the face-plate *a* and the side plate and near the edge of the latter, a hood B having a side plate *b* and integral therewith a rim *b'* said rim abutting against the face-plate adjacent the lugs and also against the side plate adjacent its edge and having a hollow pintle b^3 constituting a bearing for a drum D said drum situated within the casing formed by said cover-plate side plate and face-plate, the drum having a hollow pintle *c* fitting the hollow pintle b^3, and a rivet *d* uniting the main parts of the casing, substantially as described.

2. The combination of the face-plate *a* integral with the side plate a^2, the hood B provided with a spindle b^3 having a shoulder, with the drum having a spindle *c* bearing against the shoulder in said spindle b^3 to constitute a brake, substantially as described.

596,217. COLUMN OR POST. JOHN W. RAPP, New York, N. Y. Filed Dec. 18, 1896. Serial No. 616,227. (No model.)



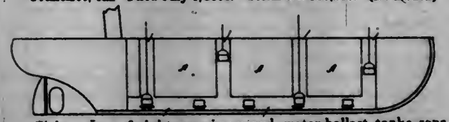
Claim.—1. A column or post comprising a number of T-bars consisting each of a yoke-shaped web and laterally-projecting flanges, two of said bars being arranged with their flanges in juxtaposition, and other bars on an axial line at right angles thereto, substantially as described.

2. A column or post comprising four T-bars consisting each of a yoke-shaped web and laterally-projecting flanges, two of said bars being arranged with their flanges in juxtaposition, and two arranged at right angles to said latter bars and inclosing the flanges thereof, substantially as described.

3. A column or post comprising four T-bars consisting each of a yoke-shaped web and laterally-projecting flanges, two of said bars being arranged with their flanges in juxtaposition, a strengthening-strip inclosed by the web portions of said latter bars, and two bars arranged at right angles to the first-named bars and inclosing the flanges thereof, substantially as described.

4. A column or post comprising four T-bars consisting each of a yoke-shaped web and laterally-projecting flanges, two of said bars being arranged with their flanges in juxtaposition, and two at right angles to the first and inclosing the flanges thereof, and a surrounding casing, substantially as described.

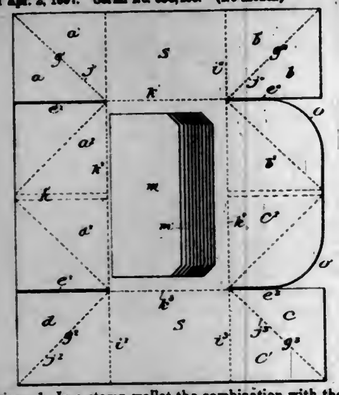
596,218. FREIGHT-CARRYING VESSEL. COLIN SALMOND, San Francisco, Cal. Filed July 6, 1896. Serial No. 598,236. (No model.)



Claim.—In a freight-carrying vessel, water-ballast tanks separated lengthwise the vessel in line with the keel thereof to form a pas-

sage-way between the said tanks, in combination with floors over the separated tanks inclined upward from the said passage-way to the sides of the vessel, an arch constructed across the said passage-way and between the ballast-tanks and provided with closable openings extending upward from the floors over the tanks for the emptying of the contents of the space above the said floors, vertical shafts extending from the deck of the vessel downward into the said passage-way between the tanks to form communication with the tunnel, and a trackway mounted within the said passage-way to shift the unloading devices lengthwise the said passage-way, substantially as described.

596,219. STAMP-WALLET. ARNOLD SCHNEIDER, San Diego, Cal. Filed Apr. 2, 1897. Serial No. 630,469. (No model.)



Claim.—1. In a stamp-wallet the combination with the booklet *m* of the casing, composed of the blank *f*, provided with incisions c', c^2, c^3, c^4, forming the flaps *a*, *b*, *c*, *d*, *h* and *h'*, said flaps *a b c* and *d* being folded over and attached to said flaps *h* and *h'* to form a closure for the inclosed booklet, substantially as and for the purpose specified.

2. In a stamp-wallet, the combination with the booklet *m* of the casing composed of the blank *f*, provided with incisions c', c^2, c^3, c^4 forming the flaps *a*, *b*, *c*, *d*, *h* and *h'*, said flaps *a*, *b*, *c* and *d* being creased and folded diagonally at j', j^2, j^3 and j^4; each of said flaps being thus divided into two triangular parts, one of which is adapted to be pasted to the flaps *h* or *h'* at a^2, b^2, c^2 and d^2 when the blank is folded along the lines *l'* and l^2, to form a receptacle for the booklet *m*, substantially as and for the purpose specified.

596,220. NON-REFILLABLE BOTTLE. CLARK I. SMITH, Ronks, Pa. Filed Feb. 18, 1897. Serial No. 623,961. (No model.)



Claim.—1. A fastening device for bottle-corks consisting of a strip of stiff wire bent at its central point forming a downwardly-projecting loop, and downwardly-extending arms on each side of said loop lying in the same plane therewith and having their lower ends interned, substantially as and for the purpose described.

2. The combination with a bottle, and a cork fitting within the opening in the neck thereof and located beneath the upper edge of the neck, of a fastening device for said cork consisting of a strip of stiff wire having a downwardly-extending loop formed therein projecting down into said neck and engaging the upper end of said cork, and means for clamping the outer ends of said wire to the neck of the bottle, substantially as described.

3. The combination with a bottle having a circumferential groove in the outer surface of the neck thereof, and a cork fitting within the opening in said neck and located beneath the upper edge of the neck, of a fastening device for said cork consisting of a strip of stiff wire bent at its central point forming a downwardly-extending loop which projects down into the neck of the bottle and engages the top surface of said cork, and downwardly-extending arms upon the outside of the neck of the bottle formed with interned ends adapted to fit within said groove, substantially as and for the purpose described.

596,221. FLOWER-HOLDER. JENNIE L. STURTEVANT, Gilroy, Cal. Filed Feb. 18, 1897. Serial No. 623,968. (No model.)



Claim.—1. A holder of the kind specified consisting of pins provided at one end with a cross-piece and a laterally-projecting socket or loop.

2. A holder of the kind specified consisting of two pins provided at one end with a cross-piece consisting of a sheet-metal plate fastened to said pins and provided with a socket or loop.

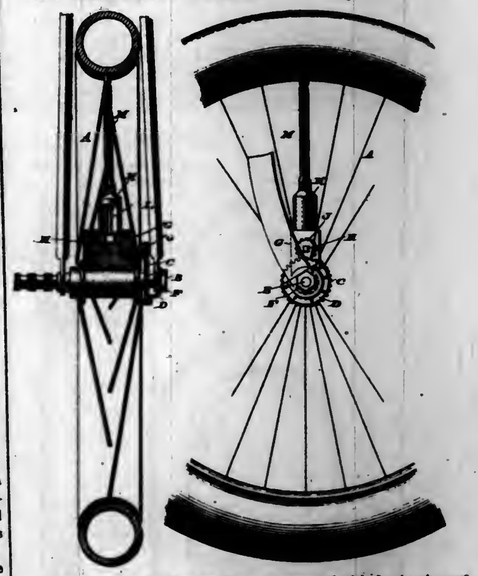
3. A holder of the kind specified, consisting of two pins connected at one end by a cross-piece, said cross-piece being formed intermediate its end with a lateral bend disposed at an angle to the pins, substantially as described.

596,222. BEVERAGE AND PROCESS OF COMPOUNDING SAME. PETER VOGEL and HUBERT HATCHER, Springfield, Mass. Filed May 21, 1897. Serial No. 637,615. (No specimens.)

Claim.—1. The herein-described composition of matter to be used as a beverage, consisting of lager-beer, water, sugar, salt, weinstein (argol) and kraeusen in the proportions substantially as stated.

2. The herein-described method of compounding a beverage consisting of mixing the ingredients herein specified in the proportions substantially as set forth, leaving the same open until fermentation begins, then closing the same, all substantially as shown.

596,223. BICYCLE OR OTHER VEHICLE PUMP. NATHAN R. WICKERSHAM and HARRY A. JAMISON, Philadelphia, Pa. Filed July 9, 1897. Serial No. 643,955. (No model.)

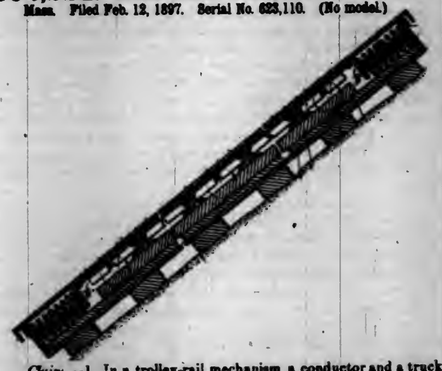


Claim.—1. A wheel having a pump connected with the tire thereof for inflating the same, a box on the hub of said wheel, supporting the barrel of said pump, a crank-shaft mounted on the sides of said box and a shifting pinion on said shaft, in combination with a bracket and a gear-wheel which are stationarily mounted on the axle of the wheel, said bracket and gear-wheel being rigidly connected one with the other, said crank-shaft being formed in sections and having means for fastening the latter.

2. A wheel having a pump connected with the tire thereof for inflating the same, in combination with a crank-shaft which has the pump or piston rod attached thereto and a bearing on the hub of said wheel for said shaft, a pinion on journal of said shaft and a stationary gear-wheel carried by the axle, said crank-shaft having its wrist separate from a side arm of said shaft and provided with a fastening device, a journal of said shaft being laterally movable on the bearings and said arm having a laterally-extending socket, movably receiving said wrist.

3. A pump for inflating the tire of a wheel, a crank-shaft, a box forming a bearing for said shaft, the pump or piston rod being mounted on said shaft, a shifting pinion on one of the journals of said shaft, a gear-wheel with which said pinion meshes and a bracket which is firmly secured to said gear-wheel, said bracket and gear wheel being held stationary on the axle and said crank-shaft formed of separate sections, one of the journals thereof being adapted to move laterally on said box, thus disconnecting said sections.

596,224. TROLLEY-RAIL. WILLIAM A. P. WILLARD, Jr., Hull, Mass. Filed Feb. 12, 1897. Serial No. 623,110. (No model.)



Claim.—1. In a trolley-rail mechanism, a conductor and a truck normally out of electric contact therewith and adapted to have a limited longitudinal movement in either direction into electrical contact with said conductor, said truck being mounted upon rolls and capable of movement upon the contact therewith of a contact-shoe, all as and for the purposes set forth.

2. In a trolley-rail mechanism, in combination, a conductor and a contact-rail normally out of electric contact with said conductor, said contact-rail being suitably supported and capable of a longitudinal movement whereby it may be brought into contact with said conductor and be made part of an electric circuit passing from said conductor through it to a contact shoe, as set forth.

3. In a trolley-rail mechanism, in combination with a conductor, a truck normally insulated therefrom and capable of a limited longitudinal movement into electric contact therewith and a contact rail supported upon said truck and brought into circuit with the conductor, all as set forth.

4. In a trolley-rail, in combination with a conductor and a contact-rail, the truck above described, said truck consisting of two or more eccentrics and a connecting-bar mounted thereon and adapted to form electrical contact with said conductor, all as set forth.

5. In a trolley-rail, in combination with a conductor a contact-rail and a truck-bar mounted upon eccentrics and adapted to carry said truck-bar in substantially a horizontal direction, said eccentrics being notched and supported upon a toothed track, as set forth.

6. In a trolley-rail section, a conduit containing a conductor carrying contact-points, a truck also carrying contact-points and suitably mounted in said conduit and adapted to be moved longitudinally therein, whereby an electric circuit may be established and broken between said truck and conductor and a contact-rail mounted upon said truck and adapted to impart a longitudinal movement thereto, as set forth.

596,225. TROLLEY-RAIL FOR ELECTRIC ROADS. WILLIAM A. P. WILLARD, Jr., Hull, Mass. Filed Mar. 5, 1897. Serial No. 626,172. (No model.)

Claim.—1. The trolley-rail mechanism above described consisting of a contact-rail suitably supported and capable of traveling longitudinally and an electric conductor normally insulated therefrom and means substantially as described whereby, when said rail travels longitudinally, electric contact will be established between the said contact-rail and said conductor, as set forth.

2. The trolley-rail mechanism above described consisting of a contact-rail capable of traveling longitudinally and an electric conductor normally insulated therefrom, in combination with a lever suitably supported between them and engaged with said contact-rail, said lever carrying contact-surfaces adapted to make electric contact between said traveling rail at either extremity of its movement and said conductor, all as and for the purposes set forth.



3. In a trolley-rail mechanism, an electric conductor, a series of friction-rolls and a traveling contact-rail mounted thereon and normally insulated from said conductor and capable of a limited longitudinal movement, in combination with a rocking lever carrying contact-points and adapted to be rocked by the movement of said contact-rail in respect to said conductor and to cause an electric contact between said traveling rail and said conductor, as and for the purposes set forth.

4. In a trolley-rail carrying a conductor, a series of friction-rolls and a trolley-rail mounted thereon and insulated from said conductor, in combination with a rocker suitably supported and adapted to be operated by said contact-rail and carrying a horizontal lever provided at each end with electrical contact-surfaces, all as and for the purposes described.

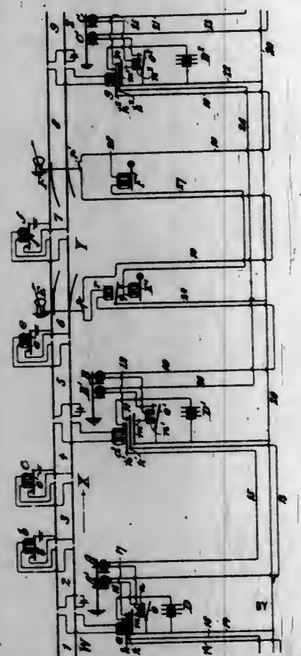
5. In a trolley-rail, a rocker mounted upon but electrically insulated from a conductor, said rocker being grooved on its upper surface and a trolley-rail mounted above said rocker and provided with a downwardly-projecting rib and engaging with the groove in said rocker, said rocker also carrying a lever adapted to make electrical contact between said trolley-rail and said conductor, all as and for the purposes set forth.

596,226. ELECTRIC SIGNALING SYSTEM. ADONIRAM J. WILSON, Port Chester, N. Y. Filed Dec. 21, 1895. Serial No. 572,902. (No model.)

Claim.—1. In an electric signaling system for railways, the combination of a track divided into blocks, home and distant signals normally at "danger" for the blocks, a home signal and a distant signal being located at the entrance of each block, each home and distant signal having a separate motor peculiar to itself, normally-deënergized signal-circuits for the signals and normally-closed rail-circuits controlled by a train for energizing and deënergizing the signal-circuits to operate the signals, the arrangement being such that a home and distant signal may be put to "safety" by a train in the rear of the signals, both of said signals may be put to "danger" by a train in the block guarded by the home signal, and the distant signal may be also put to "danger" by a train in the block in advance of the block guarded by said home signal, substantially as set forth.

2. In an electric signaling system for railways, the combination of a block of a track divided into subsections, home and distant signals for the block normally at "danger," normally-deënergized signal-circuits for the signals, normally-closed track-circuits for the subsections of the block, controlling the electric condition of the signal-circuits, said track-circuits being operated upon by a passing train for operating the home and distant signals, means controlled by a train

in the rear of the signals for energizing their circuits to put the signals to "safety," the arrangement being such that a train may put the home and distant signals to "safety" when in the rear thereof, may put the distant signal to "danger" when in advance thereof and in the rear of the home signal, and may put both signals to "danger" when in the block guarded by the home signal, substantially as set forth.



3. In an electric signaling system for railways the combination of a block of a track divided into subsections, home and distant signals for the block normally at "danger," each home and distant signal having a separate motor peculiar to itself, normally-deënergized signal-circuits for the signals, normally-closed track-circuits for the subsections of the block controlling the electric condition of the signal-circuits, said track-circuits being operated upon by a passing train for operating the home and distant signals, means controlled by a train in the rear of the signals for energizing their circuits to put the signals to "safety," said track-circuits including the rails of the track and so connected that when one of them is operated another is also operated, the arrangement being such that a train may put the home and distant signals to "safety" when in the rear thereof, may put the distant signal to "danger" when in advance thereof and in the rear of the home signal, and may put both signals to "danger" when in the block guarded by the home signal, substantially as set forth.

4. In an electric signaling system for railways, the combination of a track divided into blocks, home and distant signals for the blocks, a home and a distant signal being located at the entrance to each block, each home and distant signal having a separate motor peculiar to itself, signal-circuits for the signals, and normally-closed track-circuits controlled by a train for operating the signal-circuits to put the signals to "danger," the arrangement being such that the home and distant signals at the entrance of a block may be put to "danger" and held there while a train occupies the block immediately in advance of the signals, the distant signal being also held at "danger" while the train is in the next block in advance, substantially as set forth.

5. In an electric signaling system for railways, the combination of a series of blocks divided into subsections, normally-closed track-circuits for the subsections, home and distant signals normally at "danger" for the blocks, a home signal and a distant signal being located at the entrance of each block, each home and distant signal having a separate motor peculiar to itself, normally-deënergized signal-circuits for the signals controlled by the track-circuits, the arrangement being such that a train operates a track-circuit in the rear of a home signal and a distant signal at the entrance of a block to put the signals to "safety," and operates the track-circuits of the block immediately in advance of said signals to put the signals to "danger" and operates one or more track-circuits of the block next in advance to hold the distant signal at "danger," substantially as set forth.

6. In an electric signaling system for railways, the combination of a series of blocks divided into subsections, normally-closed track-circuits for the subsections, home and distant signals for the blocks, a home signal and a distant signal being located at the entrance of each block, signal-circuits for the signals controlled by the track-circuits, the arrangement being such that a train operates the track-circuits of the block immediately in advance of the home and distant signals that are at the entrance of said block to cause them to show "danger" and operates one or more track-circuits of the block next in advance to cause the said distant signal to show "danger," substantially as set forth.

7. In an electric signaling system for railways, the combination of a series of blocks, each divided into subsections, track-circuits for the subsections adapted to be operated by a train and so connected that when one is operated another is also operated, home and distant signals for the blocks, each home and distant signal having a separate motor peculiar to itself, normally at "danger," a home signal and a distant signal being located at the entrance of each block, normally-deënergized signal-circuits for the signals, controlled by the said track-circuits, the arrangement being such that a passing train may put the home and distant signals at the entrance of a block to "safety" when in the rear of said signals, may put said signals to "danger" when in the said block, and may hold the distant signal at "danger" when in the next block in advance, substantially as set forth.

8. In an electric signaling system for railways, the combination of a series of blocks divided into subsections, track-circuits for the subsections so connected that when one is operated another is also operated, home and distant signals for the blocks, a home signal and a distant signal being located at the entrance of each block, signal-circuits for the signals controlled by the track-circuits, the arrangement being such that a train operates the track-circuits of the block immediately in advance of the home and distant signals that are at the entrance of said block to cause them to show "danger" and operates one or more track-circuits of the block next in advance to cause the said distant signal to show "danger," substantially as set forth.

9. In an electric signaling system for railways, the combination of a track divided into blocks, home and distant signals normally at "danger" for the blocks, a home signal and a distant signal being located at the entrance of each block, normally-deënergized signal-circuits for the signals and means controlled by a train for energizing and deënergizing the signal-circuits to operate the signals, each home and distant signal having a separate motor peculiar to itself, the arrangement being such that a home and distant signal may be put to "safety" by a train in the rear of the signals, both of said signals may be put to "danger" by a train in the block guarded by the home signal, and the distant signal may also be held at "danger" by a train in the block in advance of the block guarded by said home signal, the circuits for the home and distant signals at the entrance of a block being so connected that the operation of the circuit for the home signal to put it to "safety" initiates the operation of the circuit for the distant signal to put it to "safety," substantially as set forth.

10. In an electric signaling system for railways, the combination of a series of blocks divided into subsections, normally-closed track-circuits for the subsections, home and distant signals normally at "danger" for the blocks, a home signal and a distant signal being located at the entrance of each block, normally-deënergized signal-circuits for the signals controlled by the track circuits, the arrangement being such that a train operates a track-circuit in the rear of a home signal and a distant signal at the entrance of a block to put the signals to "safety," and operates the track-circuits of the block immediately in advance of said signals to put the signals to "danger" and operates one or more track-circuits of the block next in advance to hold the distant signal at "danger," the circuits for the home and distant signals at the entrance of a block being so connected that the operation of the circuit for the home signal to put it to "safety" initiates the operation of the circuit for the distant signal to put it to "safety," substantially as set forth.

11. In an electric signaling system for railways, the combination of a series of blocks, each divided into subsections, track-circuits for the subsections adapted to be operated by a train and so connected that when one is operated another is also operated, home and distant signals for the blocks, each home and distant signal having a separate motor peculiar to itself, normally at "danger," a home signal and a distant signal being located at the entrance of each block, normally-deënergized signal-circuits for the signals, controlled by the said track-circuits, the arrangement being such that a passing train may put the home and distant signals at the entrance of a block to "safety" when in the rear of said signals, may put said signals to "danger" when in the said block, and may put the distant signal to "danger" when in the next block in advance, the circuits for the home and distant signals at the entrance of a block being so connected that the operation of the circuit for the home signal to put it to "safety" initiates the operation of the circuit for the distant signal to put it to "safety," substantially as set forth.

12. In an electric signaling system for railways, the combination of a track divided into blocks, track-circuits for the blocks, home and distant signals normally at "danger" for the blocks, a home signal and a distant signal being located at the entrance of each block, each home and distant signal having a separate motor peculiar to itself, normally-deënergized signal-circuits for the signals controlled by the track-circuits, the arrangement being such that a train operates the signals in advance to put them to "safety," the train being guarded in the rear by a home signal at "danger" and two distant signals at "danger," substantially as set forth.

13. In an electric signaling system for railways, the combination of a normally-closed track divided into blocks, track-circuits for the blocks, home and distant signals normally at "danger" for the blocks, a home signal and a distant signal being located at the entrance of each block, normally-deënergized signal-circuits for the signals controlled by the track-circuits, the arrangement being such that a train operates the signals in advance to put them to "safety," the train being guarded in the rear by a home signal at "danger" and two distant signals at "danger," the circuits for the home and distant signals at the entrance of a block being so connected that the operation of the circuit for the home signal to put it to "safety" initiates the operation of the circuit for the distant signal to put it to "safety," substantially as set forth.

596,227. RAILWAY-CAR. JAMES ANDREWS, Allegheny, Pa.; the Union Trust Company, Pittsburg, Pa., administrator of said Andrews, deceased. Filed Oct. 20, 1896. Serial No. 609,434. (No model.)



Claim.—1. A car having its frame composed of longitudinal and transverse beams, the latter being bent to the shape the car is to be in cross-section, the longitudinal beams being projected beyond the transverse beams and brought to a point to constitute an antitelescoping device, substantially as described.

2. A car having its frame composed of longitudinal and transverse beams, the latter being bent to the shape the car is to be in cross section, the longitudinal beams being projected beyond the transverse beams and brought to a point, a sheathing inclosing the body portion, and a casing or casting inclosing the pointed portion of the ends, substantially as described.

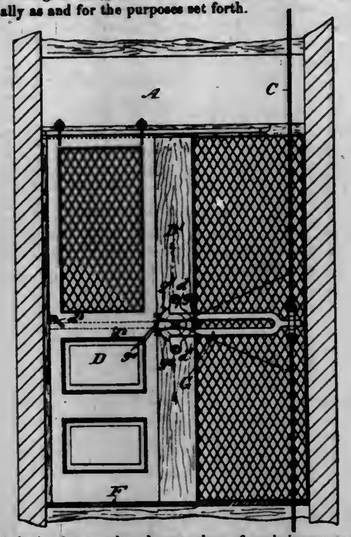
3. A car having its frame composed of longitudinal and transverse beams, the latter being bent to the shape the car is to be in cross-section, the longitudinal beams being projected beyond the transverse beams and brought to a point, a sheathing inclosing the body portion, a casing or casting inclosing the pointed portion of the ends, doors and windows arranged in the sides of the car-body, and a platform extending along each side of the car, substantially as described.

4. A car having its frame composed of longitudinal and transverse beams, the latter being bent to the shape the car is to be in cross section, the longitudinal beams being projected beyond the transverse beams and brought to a point, a sheathing inclosing the exterior and interior of the body portion, and a casing or casting inclosing the pointed portion of the ends, substantially as described.

5. A car having its frame composed of longitudinal and transverse beams, the latter being bent to the shape the car is to be in cross section, the longitudinal beams being projected beyond the transverse beams and brought to a point, an exterior sheathing inclosing the body portion, and an interior sheathing suitably ornamented or upholstered, and spaces arranged between the two sheathings along the bottom of the car to be utilized in heating the same either by arranging steam-pipes therein, or employing them as conduits for hot air, substantially as described.

596,228. LOCKING DEVICE FOR ELEVATOR-DOORS. HENRY BROSTEL and LOUIS FRITZ, Philadelphia, Pa.; said Fritz assignor to George D. Huber, same place. Filed Feb. 16, 1897. Serial No. 623,755. (No model.)

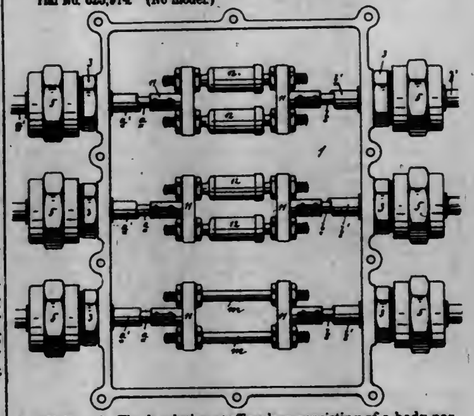
Claim.—1. The combination in an elevator with a car and doors thereof, of a controller for the motive power, a strip secured to each door, a lever hinged near one end thereof to each door-jamb and adapted to butt against the said strip and to register with the same, said lever being connected with its free end to the said controller, substantially as and for the purposes set forth.



2. A device for securing elevator-doors from being opened when the elevator-car is running and releasing the said doors when the said car is at rest, said device comprising a strip on one side of the door, a grooved lever hinged to a door-jamb and means for causing the operation of the elevator-car, said means being connected to the free end of the said lever, substantially as and for the purposes set forth.

3. The combination in an elevator with a car and doors thereof, of a controller for the motive power, a strip on each door, a grooved lever hinged near one end thereof to the wall and connected with its free end to the controller, said lever adapted to receive the said door-strip when the controller is in position to arrest the movement of the car, and projections on opposite sides of the lever adapted to butt against the end of the strip when the controller is in position to cause the movement of the said car, substantially as and for the purposes set forth.

596,229. UNDERGROUND JUNCTION-BOX FOR ELECTRIC CONDUCTORS. WILLIAM P. BOSSERT, Utica, N. Y., assignor to the Bossert Electric Construction Company, same place. Filed Feb. 17, 1897. Serial No. 623,914. (No model.)



Claim.—1. The insulating stuffing-box consisting of a body portion, an insulator-bushing held therein, a cap, an insulator-bushing held therein and an elastic packing between the adjacent ends of the bushings, substantially as set forth.

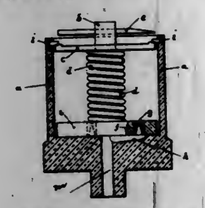
2. The combination of a stuffing-box body, a screw-cap therefor, an insulator-bushing held in the box-body, an insulator-bushing held by the cap and having a shoulder against which the cap acts and elastic packing between the adjacent ends of the bushings, substantially as set forth.

3. The combination of a junction-box, stuffing-boxes constructed and arranged to allow the conductors to move lengthwise therein and affording water-tight insulated entrances for the conductors, and internal extendible and contractible connecting devices for the conductors, substantially as set forth.

4. An extendible electric-conductor coupling consisting of a plunger adapted to be attached to one end of the conductor and a cylinder adapted to be attached to the other conductor end and adapted to receive the plunger and having means to prevent the plunger being withdrawn from the cylinder, substantially as set forth.

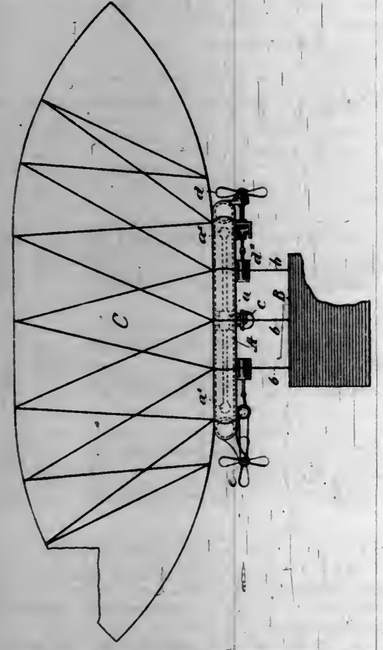
5. An electric-conductor coupling consisting of a plunger 13 and a cylinder 12 and cap combined, substantially as set forth.

596,230. LUBRICATOR. WILLIAM H. PRENDERGAST, Savannah, Ga., assignor of one-half to Charles D. Kline. Filed July 21, 1897. Serial No. 645,430. (No model.)



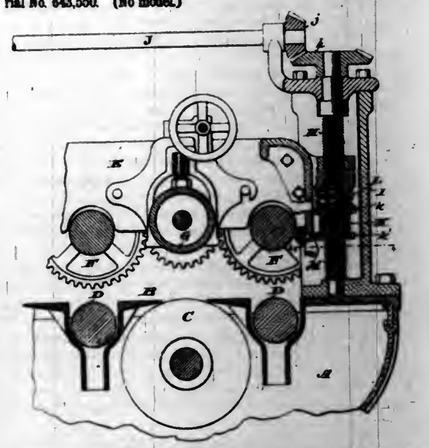
Claim.—A cup *a* having a valve-seat as described in which is formed the port *h* that leads to the oil-channel, the cup having at its top spuds *i i*; the valve *b* with the feed-ports *g* and the valve-spindle; the spring *d* applied to the spindle to keep the valve well pressed on its seat; cross-plate *c* arranged on the spindle to rest under spuds *i i* and compress the spring *d*; and the pointer *e* located upon the valve-spindle for the purpose of indicating when the feed-ports and port *h* are in alinement; as herein substantially described.

596,231. FLYING-MACHINE. JAMES RICHARDSON, New York, N. Y., assignor to himself and Frank E. Heath, same place. Filed Oct. 3, 1896. Serial No. 607,747. (No model.)



Claim.—In a flying-machine, the combination of a fly-wheel mounted to rotate independently of other machinery and a motor adapted to drive the same, substantially as and for the purpose set forth.

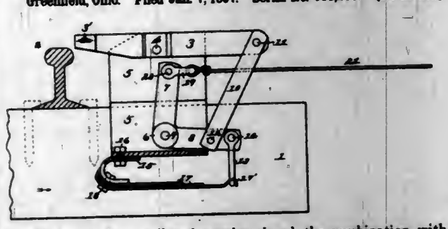
596,232. ROLLER-FRAME ADJUSTMENT FOR SANDERS. FREDERICK E. SCHMITT, Green Bay, Wis., assignor to the Milwaukee Sander Manufacturing Company, same place. Filed July 6, 1897. Serial No. 643,550. (No model.)



Claim.—1. In a sanding-machine the combination with the roller-frame and vertical adjusting-screws engaging the same, of sleeves threaded on said screws and springs interposed between said sleeves and frame, substantially as and for the purposes set forth.

2. In a sanding-machine the combination with the roller-frame and vertical adjusting-screws engaging threaded holes in said frame and supported in bearings in the main frame, of sleeves threaded on said screws, dogs or catches for holding said sleeves from turning on said screws and spiral springs interposed between said sleeves and frame, substantially as and for the purposes set forth.

596,233. RAILROAD-CROSSING SIGNAL. ALEXANDER C. WATT, Greenfield, Ohio. Filed Jan. 7, 1897. Serial No. 618,968. (No model.)

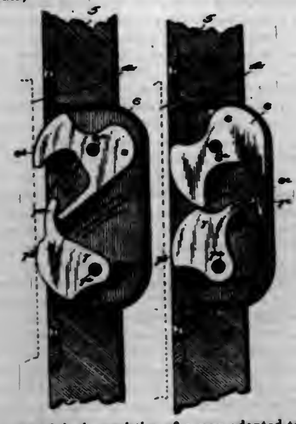


Claim.—1. In a railroad-crossing signal, the combination, with the alarm or gong, of a tripping-lever adjacent to the railroad-rail and adapted to be operated by the car-wheel, a frame or casing supporting said tripping-lever, a bell-crank supported in said frame or casing and having a horizontal and a vertical arm, a link connecting the outer end of the tripping-lever and the outer end of the horizontal arm of the bell-crank, a flat spring beneath said bell-crank and secured to said frame or casing, a link connecting the free end of said spring and the outer end of the horizontal arm of the bell-crank, and a connection between said bell-crank and said alarm or gong, whereby the car-wheel operates the alarm or gong, substantially as set forth.

2. In a railroad-crossing signal, the combination, with an alarm or gong, of a trip-lever adapted to be operated by the car-wheel, a wire stretched along the poles and connecting said bell or alarm and said trip lever, said wire being held up by supporting devices arranged at intervals and suspended from another wire, said supporting devices consisting of inverted-U-shaped pieces provided with rollers upon which the lower wire rests, substantially as set forth.

3. In a railroad-crossing signal, the combination, with an alarm or gong, of a tripping-lever adapted to be operated by the car-wheel, a wire stretched along the poles and connecting said bell or alarm and said tripping-lever, said wire being held up by supporting devices arranged at intervals and suspended from another wire, said supporting devices consisting of inverted-U-shaped pieces provided with rollers upon which the lower wire rests, and having slots through which the screw-eyes extend and pass around the upper wire, the screw-eyes being held in position by nuts upon their threaded shanks, substantially as set forth.

596,234. SASH-HOLDER. EDMUND R. WHITNEY and FREDERICK L. CONNOCK, Gloversville, N. Y. Filed Apr. 26, 1897. Serial No. 634,029. (No model.)



Claim.—A sash-lock consisting of a case adapted to be inserted in the window-casing, in combination with the cams 7 and 8 having cam projections and pivoted to permit the cams to project by gravity through the case-opening, said cams also having arms 7^a and 8^a overlapping each other, the arm 7^a projecting into a cavity between the arm 8^a and its cam projection and the cam 7 being provided with a suitable knob on its pivot which is fixed to said cam, all substantially as described.

596,235. WRENCH. EDWIN LE ROY ANTONY, Cameron, Tex. Filed June 28, 1897. Serial No. 643,601. (No model.)



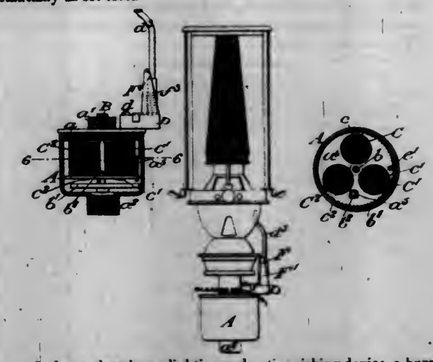
Claim.—1. In a wrench, the combination with the frame or handle comprising the connected arms, one of which is formed with a jaw, a recess and an enlarged portion, and the sleeve embracing said arms and secured to one of the same and formed with lugs at the inner end, of the movable shank having a jaw at the outer end and the other end reduced and formed with rack-teeth, the movable catch or rack-plate provided with lugs adapted to engage with the lugs of the sleeve, and the coiled springs, substantially as described.

2. In a wrench, the combination with the frame or handle comprising the connected arms, one of which is formed with a jaw, a recess and an enlarged portion, and the sleeve consisting of the bent plate embracing said handle and secured thereto and provided with lugs at the inner end, of the movable shank having a jaw at one end and reduced at the other end and formed with rack-teeth, the movable rack-plate or catch provided with lugs, the guide-pins and the coiled springs, substantially as described.

596,236. ELECTRIC GAS-LIGHTING DEVICE. ADRIAN L. BOGART, New York, N. Y., and LE ROY S. WHITE, Waterbury, Conn. Filed May 7, 1897. Serial No. 635,488. (No model.)

Claim.—1. In an electric gas lighting and extinguishing device, a burner, a gas-supply-controlling valve provided with a stem, an armature secured to the said stem, an electromagnet for actuating the armature to open and close the valve, an igniting-tube, an auxiliary gas-supply-controlling valve therefor, the said auxiliary valve being located in position to be engaged and opened by the said armature when the electromagnet is energized and a sparking device under the control of the movement of the auxiliary valve, substantially as set forth.

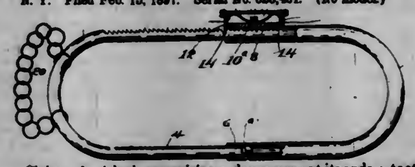
2. In an electric gas lighting and extinguishing device, a burner, a gas-supply-controlling valve provided with a stem, an armature secured to the said valve-stem, an electromagnet for actuating the armature to open and close the valve, an igniting-tube, an auxiliary gas-supply-controlling valve therefor, the said auxiliary valve being located in position to be engaged and opened by the said armature when the electromagnet is energized and a sparking device in electrical circuit with the said electromagnet, the said sparking device being under the control of the movement of the auxiliary valve, substantially as set forth



3. In an electric gas lighting and extinguishing device, a burner, a gas-supply-controlling valve provided with a stem, an armature secured to the said valve-stem, an electromagnet for actuating the armature to open and close the valve, an igniting-tube, an auxiliary gas-supply-controlling valve therefor located in position to be engaged by the said armature, the first portion of the movement of the armature when the electromagnet is energized serving to open the gas-supply-controlling valve for the burner and the latter portion of the movement of the said armature serving to open the auxiliary gas-supply-controlling valve for the igniting-tube, substantially as set forth.

4. In an electric gas lighting and extinguishing device, a burner, a gas-controlling valve therefor, an armature carried by the said valve, an auxiliary gas-supply device comprising an igniting-tube, an auxiliary valve for controlling the supply of gas thereto, an electromagnet in position, when energized, to open the main and auxiliary gas-supply valves, a stop in position to engage the armature when the said electromagnet is deenergized to limit its downward movement whereby the auxiliary valve is permitted to close and the main supply-valve held open and another electromagnet in position, when energized, to release the armature from the said stop and when deenergized to permit the armature to complete its downward movement for closing the main supply-valve, substantially as set forth.

596,237. BICYCLE OR TOURIST LOCK. OSCAR DANON, Buffalo, N. Y. Filed Feb. 15, 1897. Serial No. 623,461. (No model.)



Claim.—1. A lock comprising a sleeve open at its ends, a toothed locking-plate slidably contained in one of the said ends, and a shackle the ends of which are adapted to enter the sleeve ends, one of said shackle ends having teeth to mesh with the said plate-teeth, as set forth.

2. A lock comprising a sleeve open at its ends, a toothed plate contained in one of said ends, a spring engaging the plate, and a shackle one end of which is revolubly held in the other end of the sleeve, and the other shackle end having teeth to mesh with the said plate-teeth, as set forth.

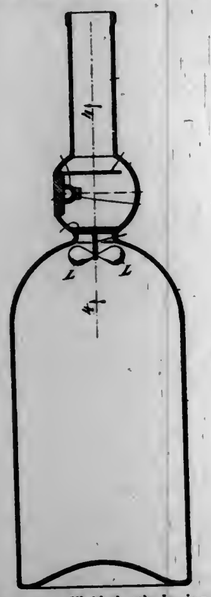
3. A lock comprising a sleeve, a toothed plate slidably contained in one end of the sleeve, a lug or projection upon the inside of the other end of the sleeve, and a shackle having teeth upon one end to mesh with the plate-teeth, and the other end having an L-shaped groove engaged by said lug or projection, as set forth.

4. In a lock the combination with the sleeve, a casing upon one end of the sleeve, and a spring-controlled toothed plate in the casing, of a shackle having teeth upon one end to mesh with said plate-teeth, the other end of the shackle being slidably and revolubly held in the other end of the sleeve, as set forth.

5. In a lock, the combination with the sleeve having flanges formed upon one end, a top or cover on the flanges, and a shackle having teeth upon one end, of a plate slidably contained between said flanges and having teeth adapted to enter the sleeve in the path of the shackle-teeth, and a spring between the said top and the toothed plate, as set forth.

6. In a lock, the combination with the shackle, the sleeve, and the plate in the sleeve, having a hollow screw projection, of a key having an exterior collar a central projection to fit the inside of the said screw projection and prongs to engage the screw-thread of said projection, as set forth.

596,238. NON-REFILLABLE BOTTLE. ALEXANDER S. DEUTSCH, Chicago, Ill., assignor of three-fourths to Louis Deutsch, Joseph Deutsch, and Bertie Deutsch, same place. Filed Aug. 15, 1896. Serial No. 602,856. (No model.)



Claim.—1. In a non-refillable bottle, having a body portion and a neck, an outwardly-opening valve, arranged to close said body portion against the admission of fluid thereto, an opening through the wall of said neck through which said valve may be introduced to its seat without passing through the mouth of said neck, means for permanently closing said opening, means for preventing access to said valve through the mouth of said neck, and a stopper for the mouth of said neck; as and for the purpose set forth.

2. In a non-refillable bottle, having a body portion, a neck and an enlarged chamber intermediate said neck and body portion, a valve arranged to close the communication between said body and chamber against the admission of fluid to said body part, an opening formed in the wall of said chamber and through which said valve is introduced to its seat, a stopper for said opening and means for permanently securing said stopper in said opening; as and for the purpose set forth.

3. In a non-refillable bottle, having a body portion and a neck, a valve arranged to close said body portion against the admission of fluid, said neck provided with an opening through the side thereof through which opening said valve is introduced to its seat, a stopper for said opening, means for permanently securing said stopper in said seat, a plate arranged to project across the line of opening from the mouth of the neck to said valve and a stopper for the mouth of said neck; as and for the purpose set forth.

4. In a non-refillable bottle having a body portion and a neck, a valve arranged to close the body portion of the bottle against the admission of fluid, said neck provided with an opening through the side thereof, through which said valve is introduced to its seat, a stopper for said opening carrying eyelets, bolts arranged to pass through said eyelets, a spring normally acting to project said bolts whereby said stopper is permanently secured in its seat, a plate arranged in said neck to project across the line of opening from the mouth of the neck to said valve and permanent stopper, and a stopper for the mouth of said neck, as and for the purpose set forth.

5. In a non-refillable bottle, a valve arranged to close said bottle against the admission of fluid, said bottle provided through the side thereof with an opening through which said valve is introduced to its seat, a stopper having eyelets, a bow-spring having bolts at the ends thereof arranged to pass through said eyelets and adapted to engage the inner wall of said opening, whereby said stopper is permanently maintained in its seat, means arranged to close the line of opening from the mouth of the neck to said valve and permanent stopper but permitting the flow of fluid through the neck, and a stopper for the mouth of the neck, as and for the purpose set forth.

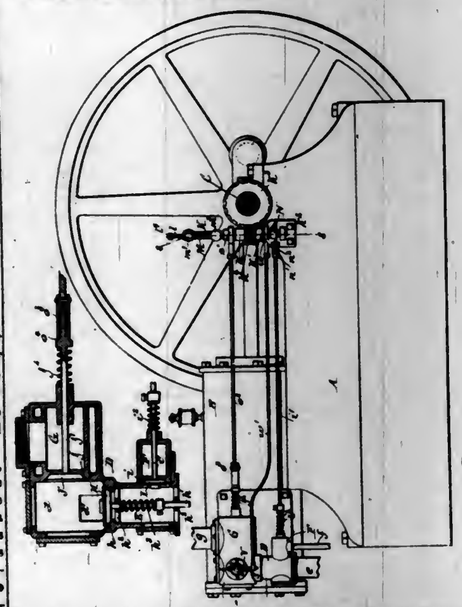
6. In a non-refillable bottle, a valve arranged to close said bottle against the admission of fluid, said bottle provided through the side thereof with an opening having a beveled inner periphery, a stopper adapted to be received in said opening and carrying spring-pressed bolts adapted to engage the inner wall of said opening, whereby said stopper is retained in its seat, means for closing the line of opening from the mouth of the neck to said valve and permanent stopper, but permitting the flow of fluid through the neck, and a stopper for the neck of the bottle, as and for the purpose set forth.

7. In a non-refillable bottle, a body portion, a neck and an enlarged chamber intermediate the two, a valve arranged to close said bottle against the admission of fluid, said enlarged chamber provided through the side thereof with an opening through which said valve is introduced to its seat, a stopper adapted to be received in said opening and carrying spring-pressed bolts arranged to engage the inner wall of said opening, and means for preventing access through the mouth of the neck of said bottle to said bolts and valve and a stopper for said mouth; as and for the purpose set forth.

8. In a non-refillable bottle, a valve, arranged to close said bottle against the admission of fluid, said bottle provided through the side thereof with an opening through which said valve is introduced to its seat, a stopper adapted to be received in said opening and carrying spring-pressed bolts arranged to engage the inner wall of said opening, and a plate interposed between said valve and bolts and the mouth of the neck of said bottle and a stopper for said mouth; as and for the purpose set forth.

9. In a non-refillable bottle, a body portion, a neck and an intermediate enlarged chamber, a valve having a flexible weighted stem, arranged to close said bottle against the admission of fluid, said enlarged chamber having an opening through the side thereof through which said valve is introduced to its seat, and means for permanently closing said opening and a stopper for the mouth of the neck of said bottle; as and for the purpose set forth.

596,239. GAS-ENGINE. JESS B. FRISNER, Buffalo, N. Y., assignor to the J. W. Ruger Manufacturing Company, same place. Filed Jan. 27, 1897. Serial No. 620,857. (No model.)



Claim.—1. In a gas-engine, the combination with the cylinder, the gas and exhaust valves and the horizontal main shaft, of a vertical counter-shaft, intermeshing gear-wheels mounted on the main and counter shafts, an eccentric mounted on the counter-shaft and operating the exhaust-valve, a spindle arranged in the counter-shaft and capable of sliding vertically therein but compelled to turn therewith, a governor mounted on the counter-shaft and engaging with the spindle, a cam arranged on the spindle, and a rock-arm connected with the gas-valve and adapted to be operated by said cam, substantially as set forth.

2. In an electric igniter for gas-engines, the combination with the stationary and movable contacts, of a sliding rod carrying the movable contact and a rotary cam whereby said rod is shifted for engaging the movable contact with the stationary contact and which is journaled concentric with said rod, substantially as set forth.

3. In an electric igniter for gas-engines, the combination with the stationary and movable contacts, of a sliding rod carrying the movable contact, a cam-disk arranged on said rod and provided with an annular row of cam-teeth and a rotary cam-shaft provided with an annular row of cam-teeth engaging with the teeth of said disk, substantially as set forth.

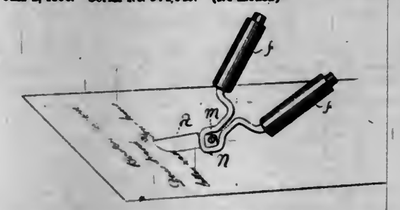
4. In an electric igniter for gas-engines, the combination with the stationary and movable contacts, of a cam-shaft provided with an annular row of cam-teeth, a rod carrying the movable contact and capable of sliding lengthwise in said shaft but held against turning therewith, and a cam-disk secured to the said rod and provided with an annular row of cam-teeth which engage with the teeth of the cam-shaft, substantially as set forth.

5. In an electric igniter for gas-engines, the combination with the stationary and movable contacts, of a cam-shaft provided with an annular row of cam-teeth, a rod carrying the movable contact and capable of sliding lengthwise in said shaft but held against turning therewith, a cam-disk secured to said rod and provided with an annular row of cam-teeth and a spring whereby the teeth of said cam-disk are yieldingly held in engagement with the teeth of the cam-shaft, substantially as set forth.

6. In an electric igniter for gas-engines, the combination with the stationary and movable contacts, of a cam-shaft provided with an annular row of cam-teeth, a rod carrying the movable contact and capable of sliding lengthwise in said shaft but held against turning therewith, a cam-disk secured to said rod and provided with cam-teeth which are yieldingly held in engagement with the teeth of the cam-shaft, a ratchet-wheel secured to said shaft and a rock-lever provided with a pawl engaging with said ratchet-wheel, substantially as set forth.

7. In an electric igniter for gas-engines, the combination with the supporting-head and the stationary and movable contacts, of a cam-shaft journaled in said head and provided at its outer end with an annular row of cam-teeth and at its inner end with a shoulder which bears against a shoulder on the supporting-head, a rod carrying the movable contact at its inner end and capable of sliding lengthwise in said shaft but held against turning therewith, a cam-disk secured to the outer end of the sliding rod and provided with an annular row of cam-teeth engaging with the teeth of the cam-shaft, and a spring whereby the shoulder of the cam-shaft is pressed against the shoulder of the supporting-head, substantially as set forth.

596,240. KNIFE ERASER. WILLIS GRIFFIN, Lynn, Mass. Filed Jan. 2, 1896. Serial No. 574,049. (No model.)



Claim.—1. A device of the character indicated, comprising a body, a blade affixed thereto, and a bifurcated shank extending from said body, the sides of said shank forming a clamp, and handle extensions; substantially as described.

2. A device of the character indicated, comprising a body, a blade affixed thereto, and a bifurcated shank extending from said body, the sides of said shank being normally spring-pressed apart and movable toward each other and having the handle extensions; substantially as described.

3. A device of the character indicated, comprising a body portion, a head having an angular chamber therein and provided at one side of its longitudinal axis with an opening extending through said head and connecting said chamber with the outer face of the head, a rest upon said head on the side of said axial line, a clamp located in said chamber and having an opening corresponding with the opening through the head, said clamp fitting the angular chamber to prevent turning, and a blade passing through the opening in the head and entering said clamp, said blade being supported at an angle of about forty-five degrees to the axial line; substantially as described.

4. A device of the character indicated, comprising a body formed of a piece of wire, the outer portion of which is of curved cross-section, said wire being formed into a substantially circular loop, the free ends of the wire then extending for a distance parallel one to the other, said free ends each then extending outwardly and rearwardly, a slot in the wire in said loop at one side of the longitudinal axis thereof, a blade passing through said opening and secured within said loop, said blade projecting at an angle of about forty-five degrees to the said longitudinal axis, handles fitting upon the rearwardly-extending portions of the wire, and erasive rubbers carried by said handles; substantially as described.

5. A device of the character indicated, comprising a head, a shank and handle of a single piece of wire, the head being substantially a circular loop of said wire, a slot in the wire of said head at one side of the longitudinal axis of said shank, said slot extending from the end face through to the center loop of the head, combined with a blade passing through said slot and projecting forwardly and upwardly from the end face of the head at an angle of about forty-five degrees to said longitudinal axis.

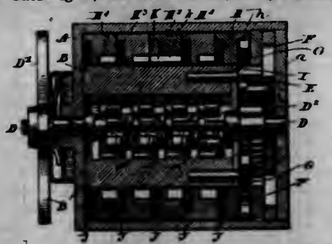
596,241. ROCKING-CHAIR. NILS H. HASSEL, Chicago, Ill. Filed Aug. 11, 1897. Serial No. 647,774. (No model.)



Claim.—1. The combination with a base or pedestal having in its upper portion sockets or bearings, of a chair having on its lower portion projections or lugs to rest in the sockets or bearings of the pedestal, the springs D, secured to the pedestal and to the chair, the rods E, secured to the front and rear portion of the chair, the bell-crank levers H, fulcrumed on the pedestal and connected to the rods or bars E, and the supporting-bars F, pivotally secured at one of their ends to the pedestal and having their other ends outwardly extended over the bell-crank levers, and the foot-board G, secured on the supports F, substantially as described.

2. The combination of the pedestal A, having sockets or bearings in its sides, of a chair having on its lower portion projections to operate in said sockets or bearings, the springs D, secured to the rear portion of the pedestal and the rear part of the chair, the circular rods or bars E, secured to the lower part of the chair at its front and rear, the bell-crank levers H, fulcrumed on the front part of the pedestal and connected to the rods or bars E, the supporting-bars F, pivotally secured at one of their ends to the pedestal and having their other ends extended forwardly, the foot-board G, secured on the forward ends of the bars F, and located above the outer ends of the bell-crank levers, and the arms *g*, provided with the foot-rest G', and adjustably secured to the bars F, substantially as described.

596,242. CYCLOMETER. CHARLES T. HIGGINBOTHAM, Thomaston, Conn., assignor to the Seth Thomas Clock Company, of Connecticut. Filed Aug. 19, 1896. Serial No. 603,194. (No model.)



Claim.—1. In a cyclometer a stationary ring having internal teeth, a revoluble driving-shaft carrying a cross-head, a pinion pivotally mounted thereon, a loose ring as described gearing with said pinion and with the internal teeth in a numeral-ring adjacent to said

pinion, said parts cooperatively acting to transmit motion from the driving-shaft to said numeral-ring, substantially as described.

2. In a cyclometer a stationary ring having internal teeth, a revoluble driving-shaft carrying a cross-head, a pinion pivotally mounted thereon, a numeral-ring having internal gear-teeth, and a loose ring having external and internal gear-teeth, the external diameter of said loose ring being less than the internal diameter of the numeral-ring as determined by the gear-teeth thereon, the internal diameter of said ring being less than the internal diameter of the said stationary ring, all of said gears operating as described to transmit motion from the driving-shaft to the said numeral-ring.

3. In a cyclometer a series of numeral-bearing rings, a stationary ring having internal teeth, a revoluble driving-shaft carrying a cross-head, a pinion pivotally mounted thereon, a numeral-ring having internal gear-teeth, and a loose ring having external and internal gear teeth, the external diameter of said loose ring being less than the internal diameter of the numeral-ring as determined by the gear-teeth thereon, the internal diameter of said ring being less than the internal diameter of the said stationary ring, all of said gears operating as described to transmit motion from the driving-shaft to the said numeral-ring, and means as described for transmitting motion from the first of said numeral-rings to the remainder of the series.

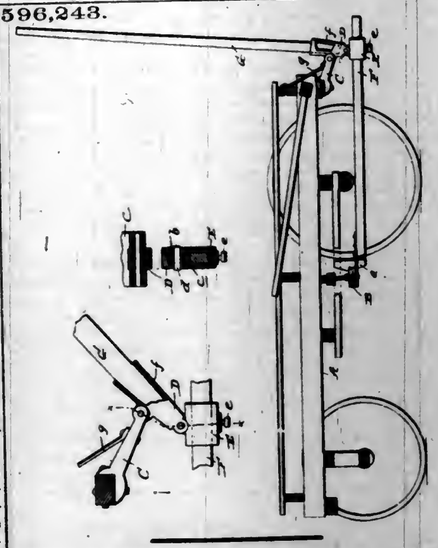
4. In a cyclometer a stationary ring having internal teeth, a revoluble driving-shaft carrying a cross-head, a pinion pivotally mounted thereon, a numeral ring having internal gear-teeth on the side thereof adjacent to said fixed ring, a loose ring having internal and external gear-teeth, the internal diameter of the said loose ring being less than the internal diameter of the said stationary ring, the number of internal gear-teeth on the loose ring being less than the number of internal teeth on said stationary ring, the said pinion engaging the internal teeth on both the stationary ring and the loose ring, the external teeth on the loose ring engaging on one side with the internal teeth in the said numeral-ring, and means for intermittently revolving said driving-shaft.

5. In a cyclometer a driving and locking device comprising a pinion having a given number of teeth N on one end gearing with internal teeth on the adjacent side of one of a series of numeral-rings, a less number of teeth O on the opposite end of said pinion, constituting a two-point bearing on the smooth inner periphery of the preceding adjacent numeral-ring, and a lateral projection on the last-named ring adapted to intermittently engage the teeth N for the purpose of tripping and revolving said pinion, the said teeth N standing into the path of said lug, a separating part at the side of each ring adjacent to said lug projection, and a recess adjacent to said lug, in combination with means for driving the first of the series of numeral-rings, said means comprising a driving-shaft passing through said numeral-rings, a pinion eccentric thereto, a stationary toothed ring, a loose ring internally and externally toothed and gearing at one point in its external circumference with the fixed ring, said pinion gearing with said loose ring and with the first numeral-ring.

6. The combination in a cyclometer of a series of numeral-rings, means for alternately advancing and locking each of said numeral-rings, with a centrally-located driving-shaft carrying a revoluble pinion eccentric thereto, said pinion gearing with a stationary ring and also a loose ring having an internal diameter less than the internal diameter of said stationary ring, said loose ring gearing with internal teeth on the side of the first of the series of numeral-rings, the external diameter of the loose ring being less than the internal diameter of the said numeral-ring as determined by said internal teeth thereon, and means for intermittently revolving said driving-shaft.

7. In a cyclometer a casing, a recessed core centrally mounted therein and finding its bearing at one end of said casing, numeral-rings revolubly mounted on said core, a series of transmitting and locking pinions located within said numeral-rings and in the recess in said core, each of said pinions having on one end a given number of teeth in constant gear with one of the adjacent numeral-rings and on the opposite end half the number of teeth, constituting a two-point locking-bearing for the other adjacent numeral-ring, and means for intermittently driving said pinions.

596,243.

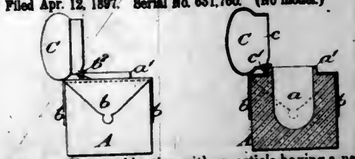


596,244. OIL-CAN TOP. FRED LEID, Columbus, Ohio. Filed Jan. 19, 1897. Serial No. 619,777. (No model.)



Claim.—A top for a can, comprising a top proper, a delivery-spout for the same, filling-aperture, closing-cap over the same, a hinged valve at the lower end of the spout, an arm connected to said valve, a pivoted lever mounted upon the under side of said top and engaging said arm, a vertically-reciprocating rod pivotally connected to said lever, a head mounted on said rod, an aperture-guide surrounding said rod and secured to the top, and a coil-spring surrounding said rod and bearing against said guide and said head so as to normally force the rod upward and open the valve when the closing-cap is loosened, substantially as described.

596,245. HINGE FOR INK-WELL CAPS. ERNEST OLDENBUSCH, Jersey City, N. J., assignor to William Schimper & Co., Hoboken, N. J. Filed Apr. 12, 1897. Serial No. 631,760. (No model.)



Claim.—The combination with an article having a neck projecting from its body portion, of a mantle having an opening through which the said neck projects and wings adapted to embrace the sides, front and back of the article, a cap fitted to said neck and having a slot at its back and a hook carried by the mantle passing through the said slot in the neck, the free end of the hook resting in proximity to the neck for retaining the said cap in its hinge connection with the mantle, substantially as set forth.

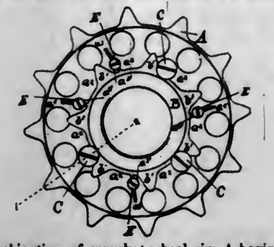
596,246. SPROCKET-WHEEL. CHARLES F. PEASE, Baltimore, Md. Filed Mar. 10, 1897. Serial No. 626,751. (No model.)

Claim.—1. A sprocket-wheel rim provided with projections on its inner surface adapted to engage on the periphery between the teeth of a sprocket-wheel of a smaller diameter, and means for expanding said projections against the edges of the teeth of the smaller sprocket by a tapered screw or plug and slot, substantially as described.

596,248. WAGON-BRAKE. JAMES R. LE GRESLEY, Fairfield, Iowa. Filed July 13, 1897. Serial No. 644,425. (No model.)

Claim.—In the wagon-brake described, the combination of a wagon, a brake-beam connected with the body of the wagon, the longitudinally-extending bar F, connected to the beam, the bracket C, connected to one end of the wagon-body, and extending rearwardly therefrom, the lever fulcrumed on the said bracket and having the socket at its upper end, the sleeve pivotally connected to the lower end of the lever and receiving the bar F, and having a set-screw *e*, for adjustably fixing it on said bar F, and the handle removably inserted in the socket of the lever and extending upwardly, substantially as specified.

2. A sprocket-wheel rim having short inner arms of equal length attached thereto, said arms being adapted to fit upon the periphery between and against the base of the teeth of a smaller sprocket and means for expanding the ends of said arms for the purpose of fastening said rim to said sprocket-wheel, substantially as described.



3. The combination of sprocket-wheel rim A having its inner edge adapted to fit upon the periphery between and against the edges of the teeth, *b' b'* of smaller sprocket B, with bolts C, nuts D and expanding-screws E placed in slots a^4, for holding sprocket-rim A in place on sprocket B, substantially as described.

4. The combination of sprocket-wheel rim A having its inner edge adapted to fit upon the periphery between and against the edges of the teeth of smaller sprocket B, with expanding-screw E placed in slot a^4, for holding sprocket-rim A in place on sprocket-wheel B, substantially as described.

596,247. BUCKLE. WILLIAM ROEMER, Newark, N. J. Filed Mar. 22, 1897. Serial No. 628,600. (No model.)



Claim.—1. The improved buckle herein described comprising a frame having end bars b^3, b^3, concave on the under side, one bar b^3, having at its inner edge a longitudinal extension which curves downward and outward until its edge lies in the concavity of said bar b^3, to form a biting edge, and the opposite bar b^3, having a similar tongue bent downward and outward to extend across the concavity of said bar b^3, and an S-shaped lever fulcrumed to said frame, substantially as set forth.

2. The combination with the buckle-frame *b*, having concavous end bars with under folded extensions b^3, b^3, and ears on the side bars to support a transverse pin *c*, of an S-shaped lever fulcrumed on said pin *c*, and having a central perforation d^3, to allow the loose end of the belt, which is provided with a suitable hook to be attached and detached at pleasure, substantially as set forth.

3. In a belt, the combination of the buckle-frame having concave end bars b^3, b^3, extensions or tongues b^3, b^3, formed integrally on the inner edges of said end bars and curving into the concavities of said end bars, side bars *b'*, *b'*, carrying at their middle points ears b^4, b^4, pin *c*, extending transversely across the frame the S-shaped lever *d* centrally pivoted on said pin *c*, and oppositely curved at its two free ends to engage the aforesaid extensions or tongues b^3, b^3, hook-perforation d^3, in said lever, and a strap having the hook *e* at one end by which said end may be secured to the lever *d*, and the other end free to be passed over said lever *d*, and under the end bars of the buckle-frame, all said parts being arranged and combined, substantially as set forth.

596,248. BAILLESS HORSESHOE. HARRY D. SHAFFER, Philadelphia, Pa. Filed July 1, 1897. Serial No. 643,067. (No model.)



Claim.—1. A horseshoe comprising two parts or halves, an adjustable pivotal connection between the rear ends thereof, in combination with a suitable locking device for detachably securing the front ends of said parts or halves together, and a device for approximating the rear ends of said parts or halves.

2. A horseshoe comprising two parts or halves, each provided with an upwardly and inwardly extending flange adapted for engagement with the outer surface of the hoof, and an inwardly-extending flange adapted to rest against the under surface of the hoof, in combination with an adjustable pivotal connection between the rear ends thereof, and a suitable locking device for detachably securing the front ends of said parts or halves together, and a device for approximating the rear ends of said parts or halves.

3. A horseshoe comprising two parts or halves, in combination with an adjustable pivotal connection between the rear ends thereof, and a device for approximating the rear ends thereof.

4. A horseshoe comprising two parts or halves, each provided with an upwardly and inwardly extending flange adapted for engagement with the outer surface of the hoof, and an inwardly-extending flange adapted to rest against the under surface of the hoof, in combination with an adjustable pivotal connection between the rear ends thereof, and a device for approximating the rear ends thereof.

5. A horseshoe comprising two parts or halves, each provided with an upwardly and inwardly extending flange adapted for engagement with the outer surface of the hoof, and an inwardly-extending flange adapted to rest against the under surface of the hoof, extensions on the rear ends of said parts or halves connected together by a pin-and-slot connection so as to be free to move toward and from each other laterally, and a suitable locking device for detachably securing the front ends of said parts or halves together.

6. A horseshoe comprising two parts or halves, each provided with an upwardly and inwardly extending flange adapted for engagement with the outer surface of the hoof, and an inwardly-extending flange adapted to rest against the under surface of the hoof, extensions on the rear ends of said parts or halves connected together by a pin-and-slot connection so as to be free to move toward and from each other laterally, a suitable locking device for detachably securing the front ends of said parts or halves together, and a device for approximating the rear ends of said parts or halves.

7. A horseshoe comprising two parts or halves, each provided with an upwardly and inwardly extending flange adapted for engagement with the outer surface of the hoof, and an inwardly-extending flange adapted to rest against the under surface of the hoof, extensions on the rear ends of said parts or halves connected together by a pin-and-slot connection so as to be free to move toward and from each other laterally, and a device for approximating the rear ends of said parts or halves.

8. A horseshoe comprising two parts or halves, in combination with an adjustable pivotal connection between the rear ends thereof, a device for approximating the rear ends thereof, and a device for approximating the front ends thereof.

9. A horseshoe comprising two parts or halves, each provided with an upwardly and inwardly extending flange adapted for engagement with the outer surface of the hoof, and an inwardly-extending flange adapted to rest against the under surface of the hoof, in combination with an adjustable pivotal connection between the rear ends thereof, a device for approximating the rear ends thereof, and a device for approximating the front ends thereof.

10. A horseshoe provided with an inwardly and upwardly extending flange adapted for engagement with the outer surface of the hoof, and an inwardly and upwardly extending flange adapted to rest against the under surface of the hoof, in combination with a strip of rubber resting against the inner surface of both of said flanges having its greatest thickness at the inner angle between the two flanges.

11. A horseshoe provided with an inwardly and upwardly extending flange adapted for engagement with the outer surface of the hoof, and an inwardly and upwardly extending flange adapted to rest against the under surface of the hoof, in combination with a strip of rubber resting against the upper surface of the lower flange and having its greatest thickness at the inner angle between the two flanges and tapering transversely toward the inner edge of said lower flange.

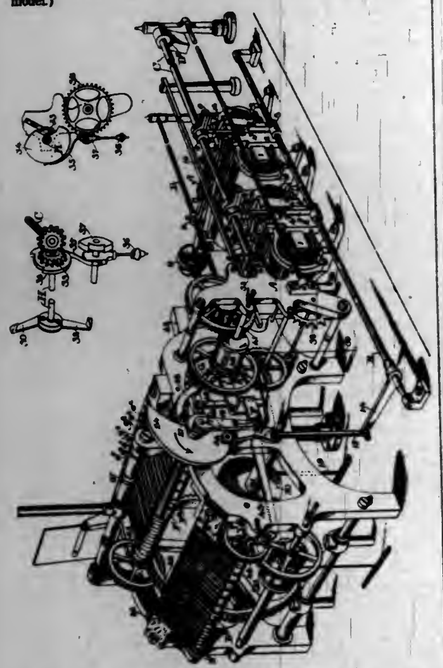
596,249. SONNETTE. GEORGE W. SHERMAN, Lynbrook, N. Y. Filed Sept. 1, 1897. Serial No. 650,262. (No model.)



Claim.—1. In a sonnette, the combination with a stick, of a tongue consisting simply of a strip of elastic and sonorous metal which is attached to said stick at one end only and the other end of which is prolonged beyond the end of the stick, substantially as herein described.

2. In a sonnette, the combination with the stick, of an attached spring-tongue the free end of which is coiled, substantially as herein described.

596,250. FIRE-TELEGRAPH REPEATER. FRANCIS A. SKELTON, Newton, Mass., assignor to The Gamewell Fire-Alarm Telegraph Company, of New York. Filed July 3, 1893. Serial No. 479,477. (No model.)



Claim.—1. In a repeater for use with a series of circuits extending from a central station, the combination with magnets for the respective circuits of mechanism controlled by each of the magnets for releasing a clock-train, switching and locking devices controlled by the said train for locking the inactive magnets and switching the inactive circuits onto a signaling contact device, while leaving the active magnet in its normal condition, a resetting device acting at each impulse of the signal to restore the armature of the active magnet and an additional mechanical resetting device connected to the operating-train in such relation to the main resetting device as to operate subsequently thereto and lock the said armature after it has been reset until the circuit through said active magnet is completed.

2. The combination with a repeater of a supplementary battery and suitable contact devices connected to the several circuits for connecting the supplementary battery in said circuits successively and momentarily.

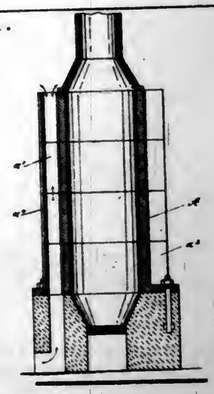
3. The combination with a repeater and several circuits extending therefrom and connecting with the respective magnets of the repeater, of a supplementary-battery contact-cylinder therefor with contact-springs connected to the several circuits, a train for actuating the said cylinder, releasing devices for the said train controlled at the termination of the signal to connect the said battery and the several circuits successively and momentarily.

4. The combination of depending lever 6 having its lower end in the path of armature 2, an actuating-train therefor and contact-lever 12 having a horizontal surface normally beneath pin 13 on said lever 6 so as to be engaged thereby when lever 6 is in its normal position and having an adjacent incline surface placed to engage said pin 13 when the lever 6 is in its outward position.

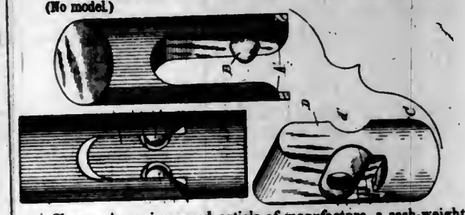
596,251. FURNACE. ALBRECHT STEIN, Wetzlar, Germany. Filed Dec. 24, 1896. Serial No. 616,831. (No model.) Patented in Luxemburg Nov. 27, 1896, No. 2,673.

Claim.—The combination, in a roasting or smelting furnace, of an inner cylindrical metal casing having a series of radiating air-chambers extending therefrom and a complemental series of externally-exposed air channels or spaces between them, said air-chambers having inwardly-converging side walls and curved outer walls and each arranged independent of the other, substantially as and for the purposes described.

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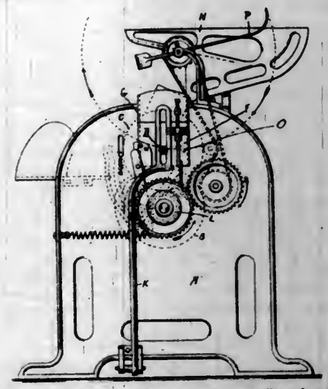


596,252. SASH-WEIGHT. WILLIAM J. TEAGUE and ADAM STEWART, Greensborough, N. C. Filed Mar. 23, 1896. Serial No. 584,488. (No model.)



Claim.—As an improved article of manufacture, a sash-weight composed of two separate parts, one formed with a solid portion and extensions the outer ends of which are formed with notches and shoulders, the inner faces of the extensions having substantially semicircular projections and the other part formed at one end with parallel side portions having a rounded inclined end and this portion formed upon opposite sides with cavities opening at one end and beyond these cavities with shoulders and notches, all combined, arranged and operating substantially as herein shown and described.

596,253. BALLING-MACHINE. GEORGE J. TORRANCE, Kearney, N. J. Filed July 15, 1896. Serial No. 599,228. (No model.) Patented in Canada Feb. 11, 1895, No. 49,893, and in England Apr. 30, 1897, No. 10,795.



Claim.—1. The balling machine, substantially as herein set forth, having a drum, B, flanges, C, C, a spindle, D, adapted to receive the spool and to be withdrawn therefrom, and a device for pushing the empty spool in position upon said drum; levers, K, K', for operating said spindle and pushing device, the said levers being fulcrumed one on the frame and the other on an adjusting-bracket having supplemental adjustable ears and adjusting-screws for regulating the movement of the said lever, K', substantially as set forth.

2. In a balling-machine, the combination with the drum, flanges, spindle D, and slotted lever K, for withdrawing the spindle from the

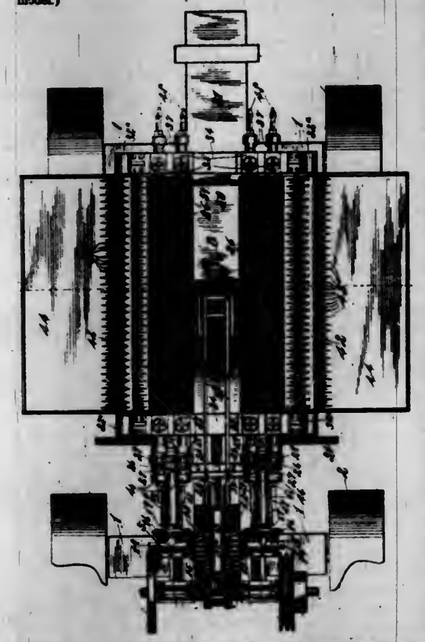
spool, of nuts and lock-nuts arranged on the outer threaded extremity of the spindle on opposite sides of the slotted end of the lever, whereby the lever may be adjusted in its relation to the spindle, substantially as set forth.

596,254. DENTAL DISK-HOLDER. GEORGE W. WATSON, Passaic, N. J. Filed Aug. 3, 1897. Serial No. 646,921. (No model.)



Claim.—In a dental disk holder or carrier, the combination of a mandrel, a pin having an enlarged head or cap, and a spring, within the mandrel, in a plane at right angles to the mandrel-shaft, and with a free end projecting across an opening in the plate to press against the pin, substantially as shown and described.

596,255. GRASS CURLING AND BALING PRESS. LOUISE WESEL, North Judson, Ind. Filed May 27, 1897. Serial No. 638,354. (No model.)



Claim.—1. In a machine of the kind specified, the combination with a baling-press and means for driving the same, of a grass-curling machine mounted thereon and geared thereto and adapted to deliver the curled grass to said baling press.

2. In a machine of the kind specified, a baling-press, grass-curling rollers mounted in bearings in a frame mounted upon said baling-press and adapted to deliver the curled grass thereto, feed-rollers mounted in bearings in said frame on each side of the sets of said curling-rollers, a hopper around said feed-rollers, gearing between said curling-rollers and a drive-shaft, gearing between said drive-shaft and said baling-press, and gearing between said feed-rollers and said drive-shaft, substantially as described.

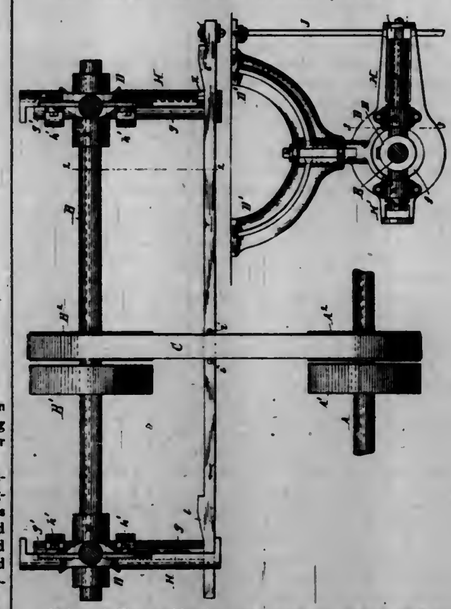
3. In a machine of the kind specified, a baling-press, grass-curling rollers mounted in bearings in a frame mounted upon said baling-press and adapted to deliver the curled grass thereto, feed-rollers mounted in bearings in said frame on each side of the sets of said curling-rollers, a hopper around said feed-rollers, gearing between said curling-rollers and a drive shaft, gearing between said drive-shaft and said baling-press, and gearing between said feed-rollers and said drive-shaft, to cause said feed-rollers to move more slowly at their peripheries than said curling-rollers, whereby the latter will withdraw the grass from between the teeth of said feed-rollers to cause the same to pass transversely between said curling-rollers, substantially as described.

4. In a machine of the kind specified, the combination with devices for curling grass, of a baling-press geared thereto and adapted to receive the curled grass, a plunger in said baling-press, a reciprocating feeder connected therewith and sliding on a guide-table on said press, a rigid scraper adapted to remove the grass from said feeder and cause it to fall upon said guide-table, whereby said feeder will be caused to transport said grass from said table to the feed-opening of said baling press, substantially as described.

5. In a machine of the kind specified, the combination with devices for curling grass, of a baling-press geared thereto and adapted to receive the curled grass therefrom, a plunger in said baling-press, a horizontally-reciprocating feeder connected with said plunger, a guide-table on said press upon which said feeder moves, and a vibrating feeder journaled upon said press and provided with a trip-lever, and devices connected with the plunger and adapted to engage said trip-finger when said plunger is at the rearward limit of its movement to cause said feeder to force the grass down into the baling-press at the feed-opening thereof, substantially as described.

6. In a machine of the kind specified, the combination with devices for curling grass, of a baling-press geared thereto and adapted to receive the curled grass therefrom, a plunger in said baling-press, a horizontally-reciprocating feeder connected with said plunger, a guide-table on said press upon which said feeder moves, and a vibrating feeder journaled upon said press and provided with a trip-lever, a plunger at one end of said vibrating feeder adapted to enter the feed-opening of said press, a counterweight at the other end of said feeder adapted to hold said plunger normally at the upper limit of its movement, and devices connected with the plunger of said press and adapted to engage said trip-finger as said plunger approaches the rearward limit of its movement to cause the plunger of said feeder to force the grass down into the press through the feed-opening thereof, substantially as described.

596,256. SHAFT-HANGER AND BELT-SHIFTER. FREDERICK WIARD, Batavia, N. Y., assignor of one-half to John W. Pratt, same place. Filed Oct. 8, 1897. Serial No. 654,583. (No model.)



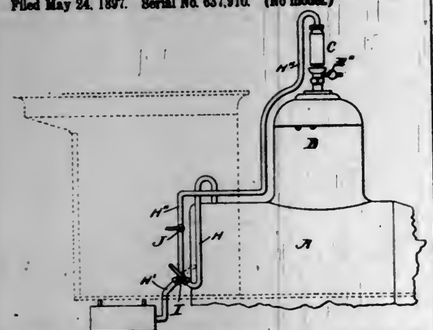
Claim.—1. The combination with a main and a counter shaft having tight and loose pulleys and a belt running around said pulleys, of bearing-boxes carrying the counter-shaft and capable of moving toward and from the main shaft, a belt-shifter engaging with the belt, and intermediate shifting devices whereby the bearing-boxes are moved with reference to the main shaft by the movement of the belt-shifter, substantially as set forth.

2. The combination with a main and a counter shaft having tight and loose pulleys and a belt running around said pulleys, of bearing-boxes carrying the counter-shaft and capable of moving toward and from the main shaft, and a shipper-bar engaging with the belt and having wedges which are arranged to shift said bearing-boxes away from the main shaft when the shipper-bar is moved in the proper direction to shift the belt from the loose to the tight pulleys, substantially as set forth.

3. The combination with a main and a counter shaft having tight and loose pulleys and a belt running around said pulleys, of hangers for the counter-shaft, each provided with a horizontal groove or way and in front of said way with a transverse guide, bearing-boxes carrying the counter-shaft and having guide-rods which slide in said ways, and a shipper-bar sliding in the transverse guides of the hangers and provided with wedges which are adapted to operate against the guide-rods of the bearing-boxes for shifting the latter, substantially as set forth.

4. The combination with a shaft-hanger having an opening and provided in front and in rear of said opening with extensions having guide grooves or ways, of a bearing-box arranged in the opening of the hanger and provided on its front and rear sides with guide-rods which slide in the said grooves or ways, substantially as set forth.

596,257. STEAM-WHISTLE. LA ROY BARTLETT, St. Louis, Mo. Filed May 24, 1897. Serial No. 637,910. (No model.)



Claim.—1. In a steam-whistle, the combination with the whistle-valve, of a plunger for operating said valve, a plurality of fluid-pressure-supply sources, pipes leading from said sources of supply, a valve common to all of said pipes and adapted to control the passage of pressure therethrough, a pipe leading from said valve for conducting fluid-pressure to said valve-operating plunger, and a valve for controlling the passage of said fluid-pressure through the conducting-pipe: substantially as described.

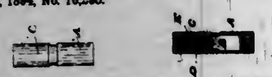
2. In a steam-whistle, the combination with the whistle-bell and whistle-bowl, of an air or fluid chamber mounted upon said bell, a piston operating in said chamber, a rod connected to and operated by said piston, said rod being adapted to engage and unseat the whistle valve, when pressure is admitted into the chamber; substantially as described.

3. In a steam whistle, the combination with the whistle-bell, whistle-bowl and whistle-valve, of a weighted lever for normally holding said valve to its seat, an air or fluid chamber, a plunger in said chamber, and a rod connected to said plunger and adapted to engage the whistle-valve to unseat the same, when pressure is admitted into the chamber: substantially as described.

4. In a steam-whistle, the combination with the whistle-bell, whistle-bowl and whistle-valve, of a weighted lever for normally holding said valve to its seat, an air or fluid chamber, a plunger in said chamber, a rod connected to said plunger and adapted to engage the whistle valve to unseat the same when pressure is admitted into the chamber, and a pipe having a connection with a plurality of sources of pressure-supply, and adapted to conduct pressure to said chamber; substantially as described.

5. In a steam-whistle, the combination with the whistle-valve, of a weighted lever for normally holding said valve to its seat, an air or fluid chamber, a plunger in said chamber, a rod connected to said plunger and adapted to operate said whistle-valve when pressure is admitted into said chamber, a pipe having a connection with a plurality of sources of fluid-pressure supply, and connected with the fluid-chamber, and a self-closing valve for controlling the passage of said fluid pressure through said conducting-pipe: substantially as described.

596,258. GAS-BURNER. GEORGE BRAY, Leeds, England. Filed Jan. 26, 1897. Serial No. 620,738. (No model.) Patented in England Aug. 27, 1894, No. 16,295.



Claim.—In combination, the lower burner-tube A threaded to engage the gas-bracket, and having a contracted upper portion, the perforated disk B fitted in the mouth thereof, the burner-tube C threaded upon the upper end of the tube A, the diaphragm D in the lower end of the tube C and the burner-tip in the upper end of the tube C, substantially as described.

596,259. HOOK AND EYE. JAMES W. BURKE, Boston, Mass. Filed July 16, 1896. Serial No. 599,415. (No model.)

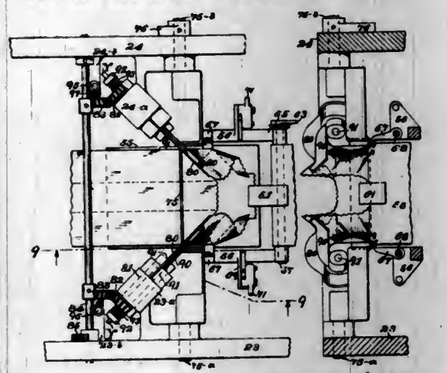


Claim.—1. As a new article of manufacture, the hook member of hooks and eyes, said hook member comprising a shank terminating in an inward bend the free end of which projects downward between the guard and said shank; a guard for said inward bend; the guard projecting beyond and inclosing the upper curved portion of said inward bend.

2. As a new article of manufacture, the hook member of hooks and eyes, said hook member being made from a single wire bent inwardly to form a hook proper of doubled wire the free end of which is deflected downwardly toward the shank of said hook; wings at the butt-end of the shank of the hook; a guard for the bent portion of the hook; said guard being of wire doubled upon itself at the shank portion, open at its free end and inclosing and projecting outwardly beyond the upper curved portion of the hook; the shanks of the hook and guard being coincident.

3. As a new article of manufacture, a hook member of hooks and eyes, said hook member comprising an inward bend the free end of which is deflected toward the shank of the hook in combination with an exteriorly-acting guard, having a recess opposed to said bend, the free end of the bend being normally within the space between the guard and hook-shank.

596,260. PAPER-BAG MACHINE. EDWARD E. CLAUSSEN, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed Jan. 8, 1897. Serial No. 618,424. (No model.)



Claim.—1. In a paper-bag machine the combination of the conveyer: an oscillating carrier having one end pivoted to the conveyer; mechanism to oscillate the carrier upon its pivot, and devices to co-operate with the carrier consisting of a pair of blades and pincers and operating during both parts of the oscillation of the carrier, during the forward movement with the conveyer to unfold a paper tube and refold it into a paper blank.

2. In a paper-bag machine the combination of the conveyer, an oscillating carrier pivoted to that conveyer; and means for defining and holding the corners of one side of the paper blank to that carrier; the oscillating tucker-plate mounted on trunnions in the stationary frames and having the folding edge adapted to travel with the paper blank, a pair of folding-blades provided with pincers and mounted at substantially forty-five degrees with the transverse folding-lines as specified.

3. In a paper-bag machine the combination of the conveyer; an oscillating carrier having one end pivoted to the conveyer; mechanisms to oscillate the carrier upon its pivot, and means to hold the blank at those points where the corners of one side of the bag-bottom are to be located, a tucker-plate vibrated upon trunnions not substantially on a line with the defining edge, which is adapted to travel with the carrier in order to define the transverse folding-line

across the blank; the folding-blades provided with pincers arranged to hold the other side of the blank all combined to unfold a paper tube and refold it into a paper blank

4. In a paper-bag machine the combination of the conveyer: an oscillating carrier having one end pivoted to the conveyer; the cam and the intermediate mechanism to operate the same as the conveyer is propelled onward and provided with means to hold the blank at those points where the corners of one side of the bag-bottoms are to be located; the tucker-plate, the vibrating end forming the folding edge which is adapted to travel near or on the carrier with the combined movements of the carrier and conveyer in order to define the transverse folding-line across the blank; the folding-blades mounted on the stationary frames and operating substantially as described and provided with pincers all combined and operating as described.

5. In a paper-bag machine the combination of the conveyer; an oscillating carrier having one end pivoted to the conveyer, the cam and intermediate mechanisms to oscillate the carrier while the conveyer propels the carrier onward and provided with means to hold the blank at those points where the corners of one side of the bag-bottoms are to be located; a tucker-plate having a folding edge and adapted to travel substantially through the arc of one hundred and eighty degrees, and which is adapted to travel with the carrier and the conveyer in order to define the transverse folding-line across the blank; the folding-blades mounted in the stationary frames and operating substantially as described and being provided with pincers; all combined to unfold the paper tube and refold the same into the paper blank.

6. In a paper-bag machine the combination of the conveyer; an oscillating carrier having its front end pivoted to the conveyer; mechanisms to oscillate the carrier upon its pivot as the conveyer is propelled onward; the oppositely-disposed bevel-edged side clips, means to close the same at predetermined intervals to hold one side of the blank at those points where the bottom corners of one side are to be located; the tucker-plate having the defining edge to define the primary transverse folding-line on the other side of the blank; the folding-blades having their folding edges substantially in line with the center of rotation of the blades; the pincers and means to exert a pressure on the blades by the spring-cams to operate the blades and the pincers at proper times and the required extent substantially as described.

7. The combination of a conveyer; a carrier pivoted to the conveyer and adapted to be vibrated; a tucker-plate having the folding edge adapted to fold and define the primary transverse folding-line on a paper-bag blank; operating mechanism consisting of a cam for operating the same; the oppositely-disposed folding-blades mounted at substantially forty-five degrees to the center line of the tucker-plate; pincers cooperating with the folder-blades; cams to open the pincers, cams and their connecting mechanisms to operate the folding-blades at the respective times and the required extent, substantially as described.

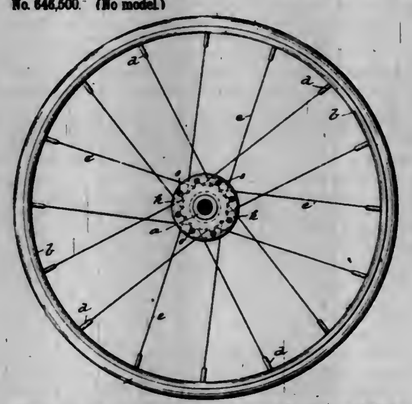
8 The combination of a conveyer; an oscillating carrier pivoted to the conveyer and adapted to be vibrated; a tucker-plate having a folding edge adapted to fold and define the primary transverse folding-line in a paper-bag blank and arranged to be oscillated through the arc of a circle of about one hundred and eighty degrees by means of a cam, the two oppositely-disposed folding-blades having their center of rotation at forty-five degrees to the center line of the tucker-plate, pincers cooperating with the folder-blades and cams to open and close the same, cams and their connections to operate the folding-blades at their respective times and to the proper extent; and springs to hold the pincers with a tension on the folding-blades substantially as described.

9. The folding-blade mounted on the sleeve in the frame of the machine, the sector 82 mounted on the sleeve and receiving motion by means of a cam and its intermediate mechanisms, the pincers having its center of rotation coinciding with the center of rotation of the folding-blades and having its shaft mounted in the sleeve, the arms 92 fastened to the shaft, the spring having one end attached to the arm 92 and the other to the sector 82, substantially as described.

10. The folding-blade 80, having its folding edge substantially coinciding with the center of its rotation and mounted on the sleeve 81 to which is attached the sector 82 receiving a motion by means of its intermediate mechanisms and its cam, the pincers 90 mounted on the shaft 91 concentrically with the sleeve and provided with the arm 92 which is caused to be operated at the proper times by a cam to be opened and then to be closed by the spring and to be held under spring-tension until and after the folding-blade has been caused to be operated substantially as described.

11. A tucker-plate having a folding edge adapted to fold and define the primary transverse folding-line on a paper-bag blank and arranged to be oscillated through an arc of a circle of about one hundred and eighty degrees by means of a cam, the distance of that folding edge to the center of rotation being substantially equal to the depth of the tuck of the paper-bag blank, the folding-blades having their center of rotation at forty-five degrees to the center line and passing through the same, pincers cooperating with the folder-blades, cams to open the same, and cams and their connections to operate the folding-blades at the required times and to the proper extent substantially as described.

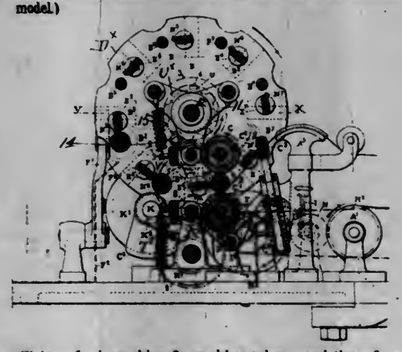
596,261. WHEEL. JOHN H. CROSKEY, Pittsburg, Pa., assignor of one-half to George W. Morse, same place. Filed July 30, 1897. Serial No. 646,500. (No model.)



Claim.—1. In wheels, the combination of a rim or felly having spokes connected thereto, a hub having a flange thereon, a collar on said hub adapted to be secured to said flange, seats within said flange and collar crossing each other for holding the spokes within the hub, and a space within said flange and collar to permit the movement of the spokes therein, substantially as and for the purposes set forth.

2. In wheels, the combination of a rim or felly having spokes connected thereto and provided with heads at their opposite ends, a hub having a flange thereon, a collar on said hub adapted to be secured to said flange, seats within said flange and collar crossing each other for holding the spokes within the hub, an annular space on the inside faces of the flange and collar to permit the movement of the spokes therein, and recesses on the inside faces of the flange and collar for engaging with the heads on the spokes, substantially as and for the purposes set forth.

596,262. MACHINE FOR AUTOMATICALLY ROLLING PAPER TUBES. EDOUARD F. DELAPERRIÈRE and LOUIS CHAMBON, Paris, France, assignors to said Chambon and the Société Delaperrière Dida et Aubin, same place. Filed Apr. 17, 1896. Serial No. 588,003. (No model.)



Claim.—1. A machine for making tubes, consisting of a rotary step-by-step carrier with means for operating the same, the series of mandrels carried by the carrier for winding the strip of material, means for applying glue to the material, rolling-cylinders for rolling the material upon the mandrels, a cutter, a counter-cutter acting in conjunction with the main cutter for severing the material when the tube has been wound to the proper thickness, pincers for pressing the free end of the material upon a new mandrel and means for operating the mandrels to and from position to eject the tubes, substantially as described.

2. In a tube-making machine, the mandrels, the carrier therefor comprising the side plates between which the mandrels extend and through one of which the mandrels slide, means for operating the mandrels longitudinally and paper rolling and cutting devices, comprising the upper and lower rollers and main and counter cutter and the reciprocating pincers for pressing the end of the web upon the next succeeding mandrel said pincers carrying the cutter and said parts being arranged intermediate of the side plates, substantially as described.

3. In a tube-making machine, the mandrels, the cutters, the carrier therefor comprising the two side plates, winding mechanism for the material, one of said cutters being arranged adjacent to each one of the mandrels, and a main cutter and pincers operating to sever the paper and to apply the free end of the web upon the next mandrel, substantially as described, the cross-pieces extending between the side plates and carrying cutters for the material, substantially as described.

4. In combination a series of mandrels, a step-by-step rotary carrier for the same, a pair of rolling-cylinders adapted to open and close, and arranged to receive the mandrels between them in succession, cutting mechanism for the web, and means for applying the free end of the web to a fresh mandrel, substantially as described.

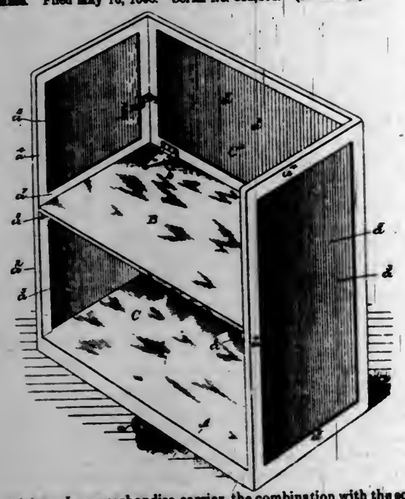
5. In combination, the mandrels, the carrier therefor, the rolling-cylinder, means for supporting the same yieldingly, the cutter and pincers device with means for operating the same controlled by the yielding cylinder when the tube is of the proper size, the counter-cutter, said main cutter and pincers device acting to sever the material and to hold the free end of the web against the next mandrel, and a carrier for the mandrels to bring them in succession to the rolling-cylinders and to the cutter, and pincers, substantially as described.

6. In combination, the step-by-step carrier, a pair of yielding rolling-cylinders adapted to open and close, the mandrels carried by the carrier to be brought between the rolling-cylinders, a cam moving with the carrier for opening and closing the rolling-cylinders, and a cutting device controlled by the separating movement of the cylinders in forming the tube, substantially as described.

7. In combination, the step-by-step carrier, driving mechanism therefor, a clutch controlling the same, a series of mandrels, a pair of rolling-cylinders adapted to receive the mandrels between them, a cutter mechanism and operating connections from one of the rolling-cylinders to said cutting mechanism and to the clutch to control the same when the tube reaches a certain size, substantially as described.

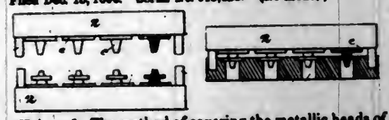
8. In combination, the step-by-step carrier, the rolling-cylinders driving mechanism, a cutter and pincers mechanism, a discharge mechanism, a cam-shaft, a cam thereon for operating the discharge mechanism, means for resetting the cutter and pincers mechanism including a detent-shaft with means to operate the same from one of the rolling-cylinders, and a clutch controlled by the detent-shaft for controlling the cam-shaft, substantially as described.

596,263. MERCHANDISE-TRUCK. THOMAS B. FITZ, Newton, Mass. Filed May 16, 1890. Serial No. 352,068. (No model.)



Claim.—In a merchandise-carrier, the combination with the solid bottom portion A, supporting-rollers *a* on which said portion A is mounted, the skeleton frame a^4 rigidly secured to said portion A, and inclosing the carrier on three sides, the thin metal panels a^5 set in said skeleton frame a^4, the swinging horizontal partition B hinged to the frame a^4, cleats a^6 which support said partition B in one position, and a spring-catch *b'* secured to the skeleton frame a^4 which engages and holds partition B in its other position, substantially as described.

596,264. METHOD OF AND MECHANISM FOR COVERING HEADS OF EYELETS. WILLIAM H. FORBS and MAXIMO O. PARMENTAU, Springfield, Mass., assignors of one-third to Abijah D. Cutler, same place. Filed Dec. 15, 1896. Serial No. 615,805. (No model.)



Claim.—1. The method of covering the metallic heads of eyelets with plastic material, which consists in assembling washers having holes therein of such material in a filler-plate, applying a plate having male dies to said filler-plate so that the dies extend into the holes in the washers, reversing the dies so that the washers remain on the upwardly-projecting male dies, removing the filler-plate, then heating the male dies and tempering the washers thereon so that the washers will be securely attached to said dies when the said dies are reversed, then reversing the male dies, and compressing the heated or tempered washers from above on the heads of eyelets supported in the female dies beneath the said male dies, substantially as described.

2. The method of covering the metallic heads of eyelets with plastic material, which consists in assembling the eyelets in a series of female dies, the eyelet-heads projecting upwardly, heating the dies and eyelets therein, applying to the eyelets a corresponding number of plastic washers which are borne on male dies projecting downward from above, and forming the plastic heads on the metallic eyelet-heads by means of heat and pressure, all substantially as described.

3. In the art of covering the heads of metallic eyelets with plastic material, the method which consists in applying the washers to the upper face of the filler-plate, applying tapered male dies from above the washers, reversing the male-die plate and removing the filler-plate, then gradually heating the male dies so as to temper the washers and cause them to expand and conform to some extent to the tapering male dies.

4. In the art of covering the heads of metallic eyelets with plastic material, the method which consists in applying plastic washers to a number of tapering male dies, heating said dies and tempering the washers thereon, and pressing said washers toward the enlarged ends of said dies by a cold plate acting as a washer-seater.

5. In the art of covering the heads of metallic eyelets with plastic material, the method which consists in applying a washer of plastic material to an upwardly-projecting tapering male die, heating the die and washer and conforming the washer to the die so that it adheres thereto, then reversing the die with the washer still adhering, and afterward applying the die and washer from above to an eyelet, suitably held.

6. The method of covering the heads of metallic eyelets with plastic material, which consists in applying washers having holes therein and of plastic material to holes in the top of a filler-plate, then applying male dies from above to the holes in the washers, then reversing these dies with the washers thereon, removing the filler-plate, and heating the dies and washers, then forcing the washers toward the heads of the dies so they adhere to said dies; then reversing the dies and the washers adhering thereto, and bringing the male dies to the upper ends of heated female dies having the heads of eyelets projecting upward therein, and causing the plastic material to flow over the heads of the eyelets by heat and pressure, substantially as described.

7. The combination with the male-die plate having eyelet-holding dies, of the knocker-plate having holes corresponding in number and location to the dies, and having guiding and supporting surfaces which permit a lateral movement of the knocker-plate with reference to the male eyelet-holding dies, all substantially as described.

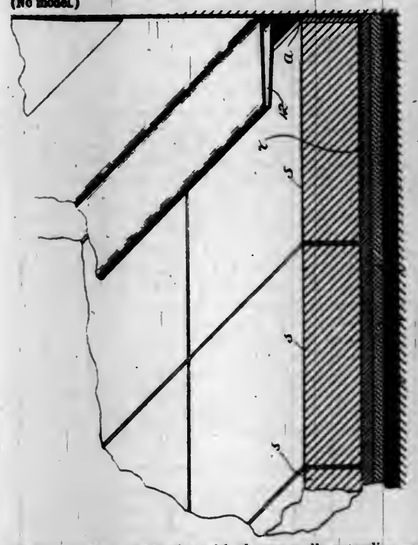
8. The knocker-plate having sockets in its sides, and having passages through the plate, each passage having a beveled opening leading from the face of the plate, said plate having shoulders or lugs at the edges of the working face which shoulders project beyond the plane of the face in which are the beveled mouths, all substantially as described.

9. The female-die plate having a backing of non-conducting material with recesses therein, and a thin metallic face-plate, with holes therein and in register with the holes in the backing and secured to said backing, combined with the male-die plate having frusto conical projections corresponding to the openings in the female-die plate, substantially as described.

596,265. GLOSS COMPOUND FOR STARCH. NORA L. HAGUMAN, Reading, Pa. Filed Apr. 14, 1897. Serial No. 632,120. (No specimens.)

Claim.—A gloss compound made up of glue, borax; gum-arabic, alcohol eau-de-cologne and water, in substantially the manner and proportions described.

596,266. FLASHING FOR USE IN BUILDING CONSTRUCTION. THOMAS J. HEID, Boston, Mass. Filed Apr. 5, 1897. Serial No. 630,725. (No model.)



Claim.—1. The combination with the upwardly-extending wall and the adjacent roof, of a flashing extending up the said wall and provided with an outwardly-extending fold above the surface of the said roof, the said fold projecting beyond the seam or joint at the edge of the roof which is adjacent to the wall and acting to deflect water away from such seam or joint substantially as described.

2. The combination with the upwardly-extending wall and the adjacent roof, of a flashing extending up the said wall and provided with an overhang immediately above the surface of the said roof, the said overhang projecting beyond the seam or joint at the edge of the roof which is adjacent to the wall and acting to deflect water away from such seam or joint substantially as described.

3. The combination of a wall, a roof having a bed layer and a surface layer, and a flashing extending under said surface layer and up said wall and provided with an overhanging fold immediately above the edge of the said surface layer, substantially as described.

596,267. WOVEN TEXTILE FABRIC. CARL F. HÖNSCH and GEORGE CORBIN, Jr., Philadelphia, Pa., assignors to said Corbin, Jr. Filed Feb. 11, 1892. Serial No. 421,176. (Specimens.)



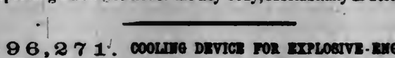
Claim.—1. A fabric composed of a body-warp, a divided secondary warp, and a plurality of series of weft-threads flushed and unflushed into sections or lengths throughout the width of the fabric, the unflushed parts or sections of one series of weft-threads being followed by the flushed sections of the succeeding series, the flushed and unflushed sections of each series of such weft-threads being alternately produced by the ground or body warp, the secondary warp binding the wefts and the wefts binding the body or ground warp, substantially as described.

2. A fabric composed of a body-warp, a divided independent secondary warp, separated parallel design or figure lines or threads forming part of the body of the fabric, each design-line being a weft or wefts flushed and unflushed into lengths or sections and bound throughout the entire width of the fabric by the independent divisions of the secondary warp, and the spaces between succeeding lines and the unflushed parts of each design-line being formed by the body-warp substantially as described.

3. A design fabric having a divided independent secondary warp, a body-warp, and separated design-lines composed each of two series of different-colored weft-threads flushed and unflushed into sections or lengths throughout the width of the fabric, the unflushed parts or sections of the first series of design-lines being followed by the flushed sections of the succeeding series, the flushed and unflushed sections of each series of such design-lines being alternately produced by the ground or body warp threads, the secondary warp binding the two series of design-lines and the latter being the binder-wefts for the body or ground warp, substantially as described.

4. A design fabric having a divided independent secondary or binder warp, a body-warp, separated design-lines composed each of two series of different-colored weft threads flushed and unflushed into sections or lengths, and a series of body-wefts, the unflushed parts of the first series of design-lines being followed by the flushed sections of the succeeding series, the flushed and unflushed sections of each series of such design-lines being alternately produced by the ground or body warp threads, substantially as described.

596,268. POLISHING-ROLL FOR PHOTOGRAPHIC BURNISHERS. ALFRED H. HUMPHREY, Kalamazoo, Mich. Filed Jan. 7, 1892. Serial No. 417,321. (No model.)



Claim.—In a polishing-roll for photographic burnishing-machines consisting of a tube provided on each end with a spindle or a journal containing apertures on the shouldered portion between the journal and the roll; said tube and spindle being made of a single piece of wrought metal substantially as described.

596,269. METAL LOCKER. RICHARD W. JEFFERIS, Camden, N. J. Filed Feb. 16, 1897. Serial No. 623,611. (No model.)

Claim.—In a locker of the character described, angle-irons A forming corner-pieces, a corrugated sheet-metal back riveted thereto, corrugated sheet-metal sides also riveted to said angle-irons, said sides having their front vertical edges inturned, uprights F and I embracing said inturned ends and riveted together, an angle-iron P forming the top of the door-casing, a top N secured to the remainder of the locker by rivets, a door formed of corrugated sheet metal, angle-irons S and T riveted to said sheet metal, hinges U secured to one of the uprights I and to the angle-iron S, angle-irons X and Y also riveted to the door, a hasp carried by the door, and a staple secured to one of the uprights I by means of which said hasp may be secured by a suitable lock, as specified.

596,270. KEY. ELMER E. KAUFMAN, Chicago, Ill. Filed Jan. 18, 1897. Serial No. 619,551. (No model.)



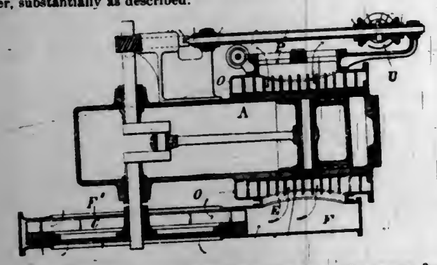
Claim.—1. A key having a slotted body, and a guard-plate mounted in said slot and movable longitudinally and laterally relatively to the body, whereby it is adapted to engage the key-slot, substantially as described.

2. A key having a slotted body, combined with a guard-plate mounted in said slot and having an angular and a transverse slot, a fixed rivet in the key-body engaging the angular slot and a movable rivet adapted to engage the transverse slot of the guard and a corresponding transverse slot of the key-body, substantially as described.

596,271. COOLING DEVICE FOR EXPLOSIVE-ENGINES. FREDERICK W. LANCHESTER, Alvechurch, England. Filed Nov. 30, 1896. Serial No. 614,087. (No model.)

Claim.—1. In combination with the cylinder of a gas or oil engine, a jacket inclosing the same, means for forcing air into the jacket, and an air-blast-regulating device consisting of a damper and a com-

pound variable-expansion shaft located in the path of the air-blast with means for driving it from the engine to close or open the damper, substantially as described.



2. In combination, the cylinder, the air-jacket, the means for supplying an air blast to the jacket, the damper and the thermal regulator connected with the damper to control the position of the same, the said regulator being located at the exit of the blast and being adapted to be heated by direct contact with the air passing from said jacket, substantially as described.

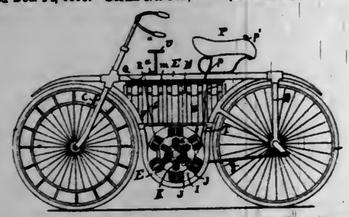
3. The combination of the cylinder of a gas-engine, the jacket inclosing the same, means for forcing air into the jacket, and an air-blast-regulating device comprising a damper, a compound variable-expansion shaft extending across the exit of the air-blast and the connection between the said regulator and the engine for driving the compound shaft, substantially as described.

596,272. ELECTRIC BICYCLE. HOSEA W. LIBBEY, Boston, Mass.
Filed Nov. 8, 1895. Serial No. 568,247. (No model.)



Claim.—In a bicycle, the combination, with a frame, of an electric battery and motor thereon, said motor comprising a series of straight, parallel, central, permanent field-magnets having their poles arranged alternately with each other, a shaft having its axis concentric with the magnets, a plate upon the shaft on each side of the magnets, a series of armatures for each plate, each series of armatures consisting of a pair of horseshoe-magnets passed through and insulated from the plates, a coil upon the inner end of each of the horseshoe-magnets, a commutator for each series of armatures, the brush of each of which engages with the central magnets, and means for transmitting the motion of the motor to the driving-wheel, substantially as set forth.

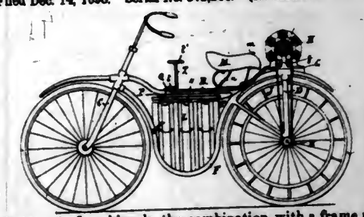
596,273. ELECTRIC BICYCLE. HOSEA W. LIBBEY, Boston, Mass.
Filed Dec. 14, 1895. Serial No. 572,206. (No model.)



Claim.—1. In a bicycle, the combination, with a frame, a portion of which is bifurcated, of an electric battery upon the bifurcation, a motor upon each side of the bifurcation of the frame, an axle in said bifurcated portion common to both of said motors, and a bifurcated pitman connecting the said crank-shaft with the driving-wheel, substantially as set forth.

2. In a bicycle, the combination, with a looped frame, the lower portion of which is bifurcated, of an electric battery upon the bifurcation, a metal ring secured to each side of the bifurcation, a series of horseshoe-magnets secured to each of said rings, a crank through the bifurcated portions of the frame concentric with the rings, magnets upon each end of the crank outside of the looped portion, and means for communicating the motion of the crank to the driving-wheels, substantially as set forth.

596,274. ELECTRIC BICYCLE. HOSEA W. LIBBEY, Boston, Mass.
Filed Dec. 14, 1895. Serial No. 572,206. (No model.)



Claim.—1. In a bicycle, the combination, with a frame provided with a vertical rear fork, of a double motor upon the fork, means for communicating motion from either one or both of the motors to the driving-wheel, a double electrical battery upon the frame, and means for communicating energy from either of the motors to the driving-wheel of the bicycle in a line with the rear fork, substantially as set forth.

2. In a bicycle, the combination, with a frame provided with a vertical rear fork, of a plate upon the top of the fork, provided with vertical standards, a double motor in said standards each end of the shaft of which is provided with a sprocket-wheel, a chain from each of the wheels to the driving-wheel, a double electrical battery upon the frame, and means for communicating energy from the battery to the motor, substantially as set forth.

3. In a bicycle, the combination, with a frame, provided with a vertical rear fork, of a plate upon the fork provided with vertical standards, a shaft journaled in said standards, each end of which is provided with a sprocket-wheel, a sprocket-chain from each end of the shaft to the driving-wheel, a double battery upon the frame, and means for communicating energy from the battery to the shaft, substantially as set forth.

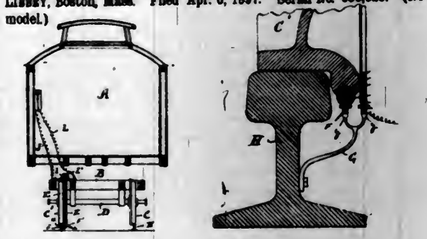
596,275. BICYCLE. HOSEA W. LIBBEY, Boston, Mass. Filed Aug. 17, 1896. Serial No. 602,997. (No model.)



Claim.—1. In a bicycle pawl-carriers attached to the hub of the driving-wheel each of said carriers consisting of a disk having a flange with internal angular recesses, pawls fulcrumed on pins on said disks, a lever fulcrumed to the frame, a forked rod connected at one end to the lower end of the lever and having the outer ends of its arms bent at right angles to engage with the pawls substantially as set forth.

2. In a bicycle a front steering-wheel and rear driving-wheel loose upon its axle connected together by a suitable frame, pawl-carriers secured to the hub of the driving-wheel each of said carriers consisting of a disk having a flange with internal angular recesses, pawls fulcrumed on pins on said disks and adapted to fit into said recesses in combination with a forked rod having its rear end bent inwardly at right angles to engage with the pawls, and its forward end connected to a lever fulcrumed to the frame said lever being forked above its fulcrum and having inwardly-projecting handles and a spring for retaining said lever in its normal position substantially as set forth.

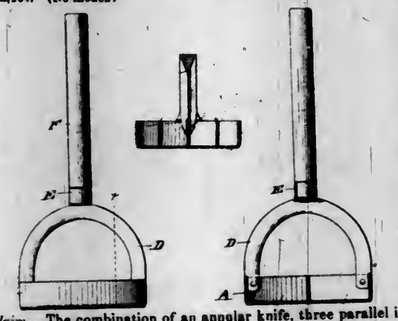
596,276. TELEPHONING FROM CARS IN MOTION. HOSEA W. LIBBEY, Boston, Mass. Filed Apr. 6, 1897. Serial No. 630,926. (No model.)



Claim.—1. In a railroad a wheel having a ring of conducting material let into the edge of its flange but insulated therefrom and a ring of conducting material attached to the inner side of the flange but insulated therefrom substantially as and for the purposes set forth.

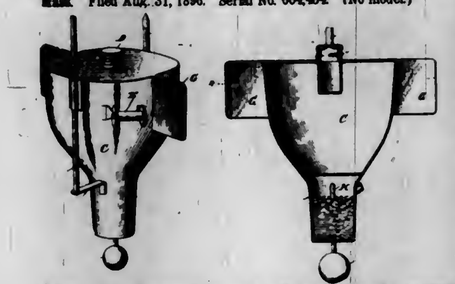
2. In a railroad two electric rails carried by springs secured to the web of the rail, a wheel or wheels having rings of conducting material in or on its flange, trolleys running upon said rings in combination with a telephone and connections between the telephone and trolleys substantially as set forth.

596,277. VEGETABLE, &c., CUTTER. HARRY N. MARSTON and GEORGE F. MARSTON, Lebanon, N. H. Filed Feb. 5, 1897. Serial No. 622,167. (No model.)



Claim.—The combination of an annular knife, three parallel interior knives, an interior knife crossing them at right angles, and a semicircular yoke double-beveled or V-shaped in cross-section, shouldered at each end on the outer face to seat the circular knife, and having a continuous sharp inner edge joining at each end the top edge of an interior knife, and having its ends tapered, bifurcated and embracing the said interior knife, as set forth.

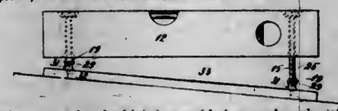
596,278. FLOATING MARINE SAFE. ASA B. PERKINS, Salem, Mass. Filed Aug. 31, 1896. Serial No. 604,454. (No model.)



Claim.—1. An improved floating safe consisting of a buoyant body having an oil-receptacle arranged therein, the wick-tube leading therefrom on the exterior of the body, the wick arranged in said tube, a flagstaff-guide attached to said body, and the rest for the flagstaff extending out from said body, all arranged and adapted to operate substantially as shown and described.

2. An improved floating safe consisting of a buoyant body, essentially funnel-shaped, and having a weight at the lower end, the receptacle arranged in the lower end and having a screw cap or cover, the laterally-projecting rigid wings, the reel journaled to the buoyant body, and carrying a wire or cord, the oil-reservoir located in the lower end of the buoyant body, the wick-tube leading therefrom, the wick arranged in said tube, the flagstaff guide and rest, all arranged and adapted to operate, substantially as shown and described.

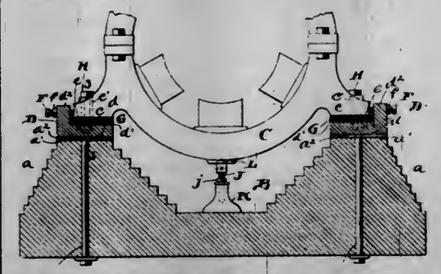
596,279. LEVEL. CHARLES M. POTTER, Naugatuck, Conn. Filed Apr. 30, 1897. Serial No. 634,550. (No model.)



Claim.—1. A level which is provided at each end with a sliding bar which is passed vertically therethrough, each of said sliding bars being provided with a screw-threaded central bore, and with a screw-threaded shaft which is passed thereinto from the upper end thereof, and means for operating said screw-threaded shaft so that the sliding bars may be projected below the bottom of the level, said sliding bar being angular in cross-section and being mounted in casings which are secured in said level, and said sliding bars being also provided with scales which are formed thereon, and the lower ends thereof, being provided with attachments with which are pivotally connected blocks or heads provided with screws, substantially as shown and described.

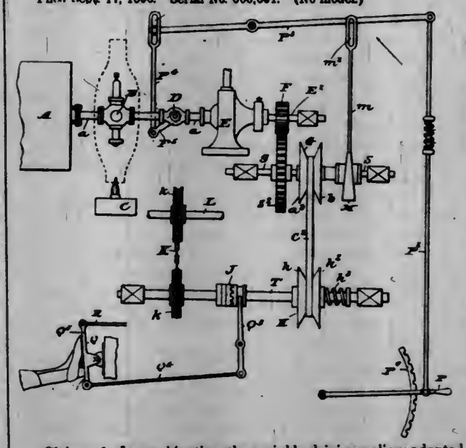
2. A level which is provided at each end with a sliding bar which is passed vertically therethrough each of said sliding bars being provided with a screw-threaded central bore, and with a screw-threaded shaft which is passed thereinto from the upper end thereof, and means for operating said screw-threaded shaft so that the sliding bars may be projected below the bottom of the level, said sliding bars being angular in cross-section and being mounted in casings which are secured in said level, and said sliding bars being also provided with scales which are formed thereon, and the lower ends thereof, being provided with attachments with which are pivotally connected blocks or heads provided with screws, and a plate or board which is connected with the level by means of said screws, substantially as shown and described.

596,280. FOUNDATION FOR GENERATOR-FRAMES. SIDNEY H. SHORT, Cleveland, Ohio. Filed Mar. 13, 1897. Serial No. 627,417. (No model.)



Claim.—A foundation provided with a suitable pit, suitable tops placed upon opposite sides of the foundation, the plates or castings D provided with suitable notches or recesses in their under sides and the flanges at their top edges, and the adjusting-screw to pass through one of said flanges, combined with the generator-frame, thin sheets of iron placed between the frame and the plates D, and the foundation-bolts which are passed through the generator-frame, the plates and the foundation-wall, whereby the parts are secured rigidly in position, substantially as described.

596,281. MOTOR-VEHICLE. HOLLON C. SPAULDING, Boston, Mass.
Filed Sept. 17, 1896. Serial No. 606,091. (No model.)



Claim.—1. In combination, the variable driving-pulleys adapted to change from high to low speed, the motor-shaft in connection with one of said pulley-shafts, the motor on the motor-shaft, the supply-pipe leading to the motor, the valve and an operating means for ad-

justing the pulleys for the high or low speed and a connection from said means to the supply-valve, substantially as described.

2. In combination the variable driving-pulleys adapted to change from high to low speed, the motor in connection with one of said pulley-shafts, the supply-pipe leading to the motor, operating means for adjusting the pulleys from the high to the low speed, a connection between said means and the supply-valve, said operating means and connection comprising loose portions whereby the speed will not be changed until the valve is wide open and the valve cannot be closed until the pulleys have been adjusted to the lowest driving speed.

3. In combination, the shaft, the expansible pulley comprising the two sections with a groove between them, the collars *d*, *e*, the wedge operating between the collars, the collar *f* and the ball-bearings between the collars and the pulley-section, substantially as described.

4. In combination, the expansible pulleys, with means for operating them and connections controlling said operating means including a lever and a yielding part whereby the lever may be set and the parts may assume their position gradually, substantially as described.

5. A vehicle-motor and apparatus for controlling the same, adapted to be operated by steam, compressed air, or other medium, comprising a suitable tank, a motor connected therewith by means of a pipe, a shaft connected with said motor, a regulating and a cut-off valve in the pipe which connects the motor with the tank, two other shafts suitably supported, one of which is in connection with the shaft of the motor and the other with one of the axles of the vehicle, a pulley mounted on each of said last-named shafts and composed of separate parts, one of which is laterally movable, a belt or similar device mounted on said pulleys, a clutch mounted on the shaft which is in operative connection with the axle of the vehicle, and means for operating said devices for adjusting the position of the separate parts of the pulley on the shaft which is in operative connection with the shaft of the motor, said devices being also in connection with the cut-off valve in the pipe between the tank and the motor, substantially as shown and described.

6. The combination with a vehicle of a propelling apparatus and means for controlling the same, adapted to be operated by compressed air, and comprising a suitable tank in which the operative medium is placed, a motor connected therewith by means of a pipe, a regulating and a cut-off valve placed in said pipe, a shaft connected with said motor, two other shafts suitably supported, and one of which is in connection with the shaft of the motor and the other with one of the axles of the vehicle, a pulley mounted on each of said last-named shafts, each of which consists of two separate parts having conical inner faces, and one of said parts being laterally adjustable, means for adjusting said laterally-adjustable parts, a clutch in connection with the shaft which is in operative connection with one of the axles of the vehicle, means for operating said clutch and devices for controlling the adjustment of the movable part of the pulley on the shaft which is in operative connection with the shaft of the motor, and also for operating the cut-off valve in the pipe which connects the tank and the motor, substantially as shown and described.

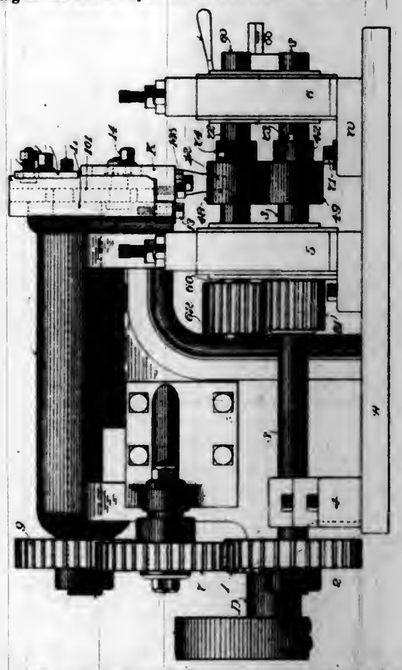
596,282. MACHINE FOR MANUFACTURING SHANK-STIFFENERS. GEORGE H. STEVENS, Melrose, and ELIJAH L. HOWARD, Hingham, Mass.; said Howard assignor to said Stevens. Filed Oct. 28, 1896. Serial No. 610,325. (No model.)

Claim.—1. The combination with the upper die or cutter 12, and means for operating the same, of the lower cutter devices comprising the two separate parts 16, 16, having the proximate faces thereof shaped to suit the contour of the edges of the blank to be produced, and means to adjust the said parts 16, 16 toward and from each other to provide for the cutting of blanks of greater or less width substantially as set forth.

2. The combination with the lower feed-roll and the gear on the shaft thereof, of the upper feed-roll and the gear on the shaft thereof, the swinging frame by which the said upper feed-roll is supported, the intermediate or carrier gear engaging with the gear on the said upper feed-roll, and the actuating-gear in engagement with the said intermediate gear and with the gear on the lower feed-roll, whereby to rotate both of the said feed-rolls in unison and also permit movement of the upper feed roll toward and from the lower feed-roll, substantially as described.

3. The combination with the feed-rolls and the actuating devices therefor, including an oscillating pawl and a wheel which is engaged therewith and from which wheel motion is transmitted to the said feed-rolls, of the guard disposed concentrically with relation to the said wheel, the arm joined to the said guard, and the notched rack-bar to engage with the said arm, whereby to provide for adjusting the position of the said guard as required to communicate the desired extent of movement of rotation to the feed-rolls, substantially as described.

4. The combination with the lower die, the upper die cooperating therewith, the reciprocating head carrying the said upper die, the transferring device whereby each blank formed by the action of the said dies is moved endwise, the compressing and molding rolls located laterally with relation to the said dies, and between which the end of the blank is inserted by the action of the said transferring device, the bell-crank by means of which the said transferring device is actuated, and projections carried by the said head to engage with the said bell-crank for the purpose of communicating movement thereto, and to the transferring device as the said head moves in opposite directions, and provisions for adjusting the distance apart of the said projections to vary the extent of the lost motion and thereby determine the time at which in the movement of the said head the transferring device shall be operated, substantially as described.

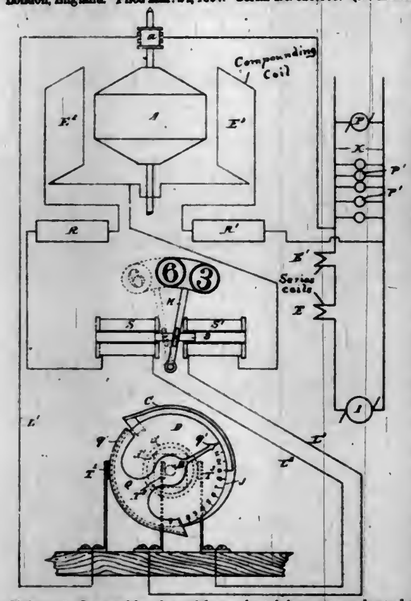


5. The combination with the lower die, the upper die for cooperating therewith, the reciprocating head carrying the said upper die, the transferring device whereby each blank formed by the action of the said dies is moved endwise, the compressing and molding rolls located laterally with relation to the said dies, and between which the end of the blank is inserted by the action of the said transferring device, the bell-crank by means of which the said transferring device is actuated, and projections carried by the said head to engage with the said bell-crank for the purpose of communicating movement thereto and to the transferring device as the said head moves in opposite directions, and provisions for adjusting the said projections laterally to vary the point at which they engage the said bell-crank and thereby determining the extent of movement of the latter and of the transferring device operated thereby, substantially as described.

6. The combination with a pair of molding and compressing rolls, the shafts on which the said rolls are mounted removably, split collars mounted on the said shafts adjacent to the rolls, means to clamp the said collars fixedly upon the said shafts, and means to couple the said rolls with the said collars whereby to cause the rolls to rotate in unison with the shafts and with capacity for readily being removed from the shafts and replaced thereon, substantially as described.

7. The combination, in an organized machine for making shank-stiffeners, of the following instrumentalities, to wit: a pair of feed-rolls by means of which to feed forward the strip of material from which the shank-stiffeners are to be produced, gearing by means of which to actuate the said feed-rolls, a lower die and an upper die by means of which to cut from the said strip the blanks for the said shank-stiffeners, a transferring device by means of which each blank formed by the action of the said dies is carried transversely, a pair of compressing and molding rolls located laterally with relation to the dies between which the end of each blank in succession is inserted by means of the transferring device, a reciprocating head whereby to actuate the upper die, projections carried thereby, a bell-crank actuated by the said projections connected with the transferring device whereby to operate the latter and connecting devices intermediate the said head and the actuating-gearing of the feed-rolls whereby to rotate the latter intermittently in order to effect the feeding forward of the strip of material, all substantially as described.

596,283. ELECTRIC-CURRENT METER. REGINALD P. WILSON, London, England. Filed Mar. 24, 1897. Serial No. 629,069. (No model.)



Claim.—1. In combination with an electricity-meter adapted to register the amount of electric current used at different periods of the day, a switch and a clock mechanism for operating the same, said switch having circuit-closing devices which are adjustable and are adapted to be set to act at any desired period of the day, and an indicating device showing the rate at which the meter is registering at any given time, substantially as described.

2. The combination with an electricity-meter of the improved arrangement for automatically controlling the ratio which the amount of electrical energy or current consumed bears to the current registered, consisting essentially of the automatic clock-driven switch attachment comprising the rotary metallic clock-driven disk D, the revoluble shield or quadrant Q with flat peripheral flange *q*, the snail-wheel cam C, the means for universal adjustment of the parts, the rubbing contacts T', T^2, T^3 and indicating devices, said adjustable parts and contacts being adapted to close different electric circuits at different periods of the day, all arranged and adapted for use substantially in the manner and for the purposes herein set forth.

3. The combination with one electricity-meter having series or shunt coils of the rotary metallic clock-driven switch attachment provided with means for universal adjustment and with rubbing contacts adapted to vary the ampere-turns in the said series or shunt coil of the meter as required by short-circuiting a suitable number of said ampere-turns, and indicating devices for showing the rate of registration, all substantially as herein shown.

4. In combination with the meter the plurality of circuits having means to secure different rates of registration, a clock-driven switch for controlling said circuits and the means for insuring automatically the higher rate of registration by the meter upon stoppage of the clock, consisting of two moving connected bodies Y, Z, driven by the said clock and having recesses, combined with spring-coupler and electric contacts, with circuit connections to the meter to cause a registration at the higher rate, substantially as described.

5. In combination with the meter, a plurality of circuits controlling the same to make said meter register at different rates, a plurality of contacts controlling the said circuits, a clock-driven switch having adjustable parts for controlling the closing of the circuits through said contacts, and means for automatically insuring the higher rate of registration by the meter upon the stoppage of the clock comprising a circuit-closing device with circuit connections to the meter, said circuit-closer being held open by the movement of the clock, substantially as described.

6. A device for automatically changing the position of the indicator (showing the price charged when the clock stops) and brought into operation by the stopping of said clock consisting in the combination of two oscillating bodies, interconnected by a pin-and-slot device and a spring-contact and working differentially so long as the clock is in motion, an indicator free of said oscillating device so long as the clock goes but electrically operated by the closing of circuit through the spring-contact immediately upon the stoppage of the clock, substantially as set forth.

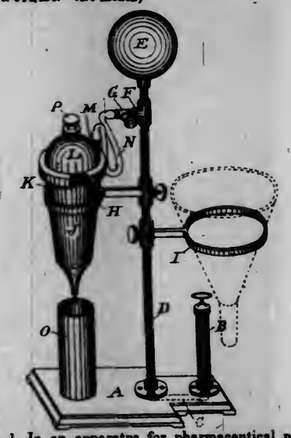
596,284. STATION-INDICATOR. ORRIE W. ALLEN, Butte, Mont. Filed Dec. 2, 1896. Serial No. 614,199. (No model.)



Claim.—1. In a station-indicator, the combination of supporting-frame, two rolls journaled in said frame, the shaft of one of them projecting beyond said frame, two guide-rolls also journaled in the frame, a ribbon on which appear the names of the stations passing over the guide-rolls and having its ends secured to the winding-rolls, a toothed disk on the projecting ends of the winding-rolls, a bifurcated lever straddling said disk, a reversible pawl mounted in said lever, a removable and reversible device adapted to be placed and secured in reversible positions on the said lever, and a set-screw for securing it in place, all substantially as set forth.

2. In a station-indicator, a frame or combination with an upper and lower winding-roll mounted in said frame with their shafts projecting through the side thereof, sprocket-wheels mounted on these projected ends, a sprocket-chain around and engaging said wheels, a plate secured to the side of the frame having teeth on its outer side, a second plate mounted on the first and having corresponding teeth to engage those of the first plate, a screw to adjust the position of these plates with relation to each other, and a sprocket mounted on the adjustable plate and adapted to be adjusted in contact with the sprocket-wheels, all substantially as set forth.

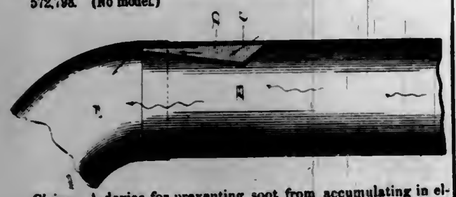
596,285. PERCOLATOR. HIRA W. CARTER, Cohoes, N. Y., assignor of one-half to Frank Vermilyea, same place. Filed Dec. 4, 1896. Serial No. 614,430. (No model.)



Claim.—1. In an apparatus for pharmaceutical purposes, the combination, with an air-compressor, a compressed-air chamber, a tubular standard which forms a communication between said air-compressor and air-chamber, and a filter adjustably attached to said standard, of a percolator adjustably attached to said standard and provided with a removable cap that forms an air-tight closure for the percolator, a stop-cock leading from said tubular standard, and a tubular connection between said stop-cock and percolator, as specified.

2. The combination, with an air-compressor, a compressed-air chamber, a tubular standard having an open communication with the air-compressor and air-chamber, and a stop-cock that governs the outflow of compressed air from said air-chamber, of a percolator carried by the tubular standard, a removable cap that forms an air-tight closure for the upper end of the percolator, and a tubular connection between said cap and the stop-cock, as specified.

596,286. STOVEPIPE ATTACHMENT. JOSEPH MICKEL and GEORGE D. FERREE, Carlisle, Ind. Filed Dec. 20, 1895. Serial No. 572,798. (No model.)



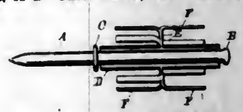
Claim.—A device for preventing soot from accumulating in elbows of pipes located in proximity to stoves or furnaces, the same consisting of an upright length of pipe having secured to its inner surface adjacent to its upper end an angular partition-wall forming a chamber D which chamber is contracted near its upper end and opens into the pipe at the top thereof, the lower end of the said chamber being downwardly and outwardly inclined and an opening or air-passage being provided in the pipe and communicating with the lower portion of the chamber, combined with an elbow which is fitted over the upper end of the pipe in such manner as to bring the outlet of the chamber above the meeting edges of the pipe and elbow, substantially as shown and described.

596,287. STUMP-PULLER. WALTER MITCHELL, St. Paul, Minn. Filed Mar. 10, 1897. Serial No. 626,722. (No model.)



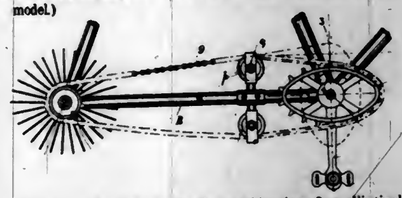
Claim.—A stump-puller comprising a frame comprising a pair of vertical standards mounted on sills or runners and a cross-bar connecting said standards, a transverse shaft 7 mounted in bearings in said standards, a gear and a winding-drum on said shaft, a second transverse shaft mounted in bearings in said standards in a vertical line below the shaft first named, a sprocket-wheel thereon, a chain having one end made fast to the drum and passing around the said sprocket-wheel and the opposite end thereof adapted for engagement with a stump, a vertical shaft having bearings in the cross-bar of the frame, a gear provided at the lower end of said shaft and meshing with the gear-wheel on the drum-shaft, a pole or tongue connected with the upper end of said vertical drive-shaft, an anchor-post adapted to be buried in the ground and provided with a socket or opening, a main anchor-chain having one end connected with one of the standards and the other end thereof formed with a loop or eye adapted to be passed through the said socket or opening in the anchor, a removable pin passing through the said loop or eye and securing the chain to the anchor-post, and a short or auxiliary anchor chain section connected at one end with the main anchor-chain and at the other end with the other standard, substantially as described.

596,288. GUARD FOR SHUTTER-FASTENERS. CHARLES SMITH, Central Falls, R. I. Filed Oct. 26, 1897. Serial No. 656,465. (No model.)



Claim.—A device for preventing birds from perching on blind-shutter fasteners, consisting of the shouldered spindle A, the hollow cylinder mounted on said spindle, a disk E about the cylinder, and circular series of arms F disposed at right angles to said disk and pointing in opposite directions, combined as shown and described.

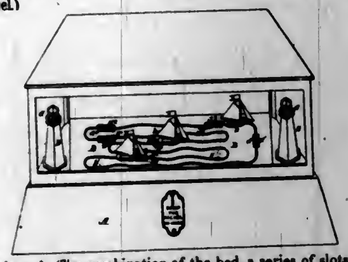
596,289. DRIVING-GEAR FOR VELOCIPEDES. WILLIAM T. SMITH, Bolton, England. Filed Aug. 31, 1896. Serial No. 604,372. (No model.)



Claim.—1. In a velocipede, the combination of an elliptical driving chain-wheel, a concentric driven chain-wheel, a chain connecting them, and a concentric guide-wheel mounted to revolve on fixed bearings, the outer portion of the periphery of the guide-wheel being situated outside of a line drawn from the periphery of the concentric driven wheel to the shorter radius of the elliptical wheel, whereby the path of movement of the chain is deflected more or less according to whether the shorter or the longer radius respectively of the elliptical wheel is at a substantial right angle to said path of movement.

2. In a velocipede, the combination of an elliptical driving chain-wheel, a concentric driven chain-wheel, a chain connecting them, and a pair of concentric guide-wheels, one for each stretch of the chain and mounted to revolve on fixed bearings, each of said guide-wheels having the outer portion of its periphery situated outside of a line drawn from the periphery of the concentric driven wheel to the shorter radius of the elliptical wheel, whereby the path of movement of the chain is deflected more or less according to whether the shorter or the longer radii respectively of the elliptical wheel are at a substantial right angle to said path of movement.

596,290. COIN-CONTROLLED ELECTRIC TOY. FRED STREET, Philadelphia, Pa. Filed Aug. 11, 1894. Serial No. 520,090. (No model.)



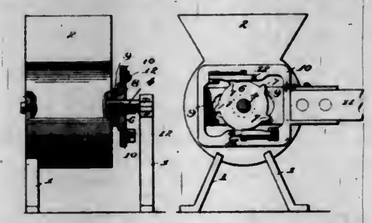
Claim.—1. The combination of the bed, a series of slots therein connected at the ends by loops forming a continuous slot, model boats adapted to traverse over the course marked by the slots, a cord looped to correspond to the slots, pulleys around which the cord passes, one of said pulleys being a driving-pulley, an electric motor geared to said driving-pulley, lights on one or more of the boats, brushes on the bottom of the boats, contacts on each side of the slot connected to a source of electric supply, so that when the boat travels over the contacts, the circuit will be made and the electric lamp lighted, substantially as described.

2. The combination of the bed having a series of connected slots, a driving-cord under the bed following the contour of the slots, a series of boats or other models attached to the cord and adapted to travel over the slots of the bed, contact-plates at each side of the slot at intervals, one or more lighthouses, electric lights therein, a circuit-maker on one or more of the boats so that as the boat having the circuit-maker passes over the contact-plates it will close the circuit and light the lamps in the lighthouses, substantially as described.

3. The combination of the bed having a series of connected slots, a driven endless cord following the contour of the slots, boats or other models attached to the cord and adapted to travel over the slots, an electric lamp carried by each boat, a circuit-maker on the bottom of each boat, contact-plates arranged at intervals along the bed, a battery communicating with the contacts so that when the boats travel over the contacts a circuit will be made and the lamps lighted, substantially as described.

4. The combination in a coin-controlled electric toy, of the bed having a series of connected slots, boats adapted to travel over the slots, a propelling-cord following the contour of the slots and connected to the boats, an electric motor for driving said cord, a musical instrument driven from the motor, a cut-out connected to said musical instrument, a magnet, an armature having an arm, the coin-chute adapted to discharge the coin upon said arm, a series of fingers on the armature, a series of fixed contacts with which the fingers engage when the coin is dropped upon the arm closing the magnet-circuits causing the magnets to hold the armature in an elevated position and closing the motor-circuit whereby the cord to which the boats are attached will be set in motion as well as the musical instrument, the circuit-breaker of the musical instrument breaking the magnet-circuit allowing the maguet to fall which will cut out the motor and stop the apparatus, substantially as described.

596,291. MECHANICAL MOVEMENT. MEREDITH A. THORNTON, Gibson, Ill. Filed June 22, 1896. Serial No. 596,443. (No model.)



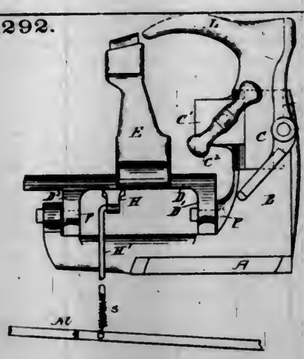
Claim.—1. In a grinding-mill, the combination with the drive-shaft thereof, of a ratchet-wheel secured to said shaft having a hub of smaller diameter thereon, a sliding box having an elongated slot therein through which the hub of said wheel projects, the said box adapted to bear against the inner surface of said ratchet-wheel and be guided thereby, pawls on said box adapted to engage the teeth on said ratchet-wheel, and means for operating said box, substantially as and for the purpose described.

2. In a grinding-mill, the combination with the main shaft thereof, of a ratchet-wheel secured to said shaft, a sliding box having an elongated slot therein through which the hub of said ratchet-wheel projects, means for operating said box, and a pair of spring-actuated pawls having shoulders near their outer ends, pivoted to said box on opposite sides of said slot and extending in opposite directions from their pivotal points, the said pawls being adapted to engage the teeth of said ratchet-wheel to rotate the same in the same direction during both movements of said box, and said box itself being capable of an oscillatory movement in a vertical plane, substantially as and for the purpose described.

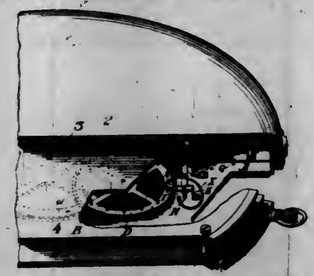
596,292. SOLE-LEVELING MACHINE. ALBION K. WASHBURN, Bridgewater, Mass. Filed Jan. 30, 1897. Serial No. 621,330. (No model.)

Claim.—In a sole-leveling machine, a fixed last or shoe-support, a toe-guard support, adjustable on a line parallel to the long axis of the last, a toe-guard attached to said support; a frame tilting in a direction lateral to the said long axis of the last, independent of the last or shoe-support and adapted to hold the said toe-guard support; and mechanism by which said tilting frame is operated whereby the said toe-guard is removed from the front of the last thereby allowing space for placing the shoe on the last or removing the same, substantially as and for the purpose set forth.

596,292.



596,293. CHRONOSPHYGMOMETER. ORSON H. WOODWORTH, Indianapolis, Ind. Filed Mar. 29, 1897. Serial No. 629,883. (No model.)



Claim.—1. In a chronosphygmometer, the combination of a watch-movement, a rim-perforated casing therefor, timing-pins carried by a wheel of said movement, a lever actuated by the successive engagements of said timing-pins with a spur of said lever, a staff carrying said lever and pivoted in a cock and a plate of the movement, a sonorous bell-shaped stop, a thrusting-spring adapted to drive said lever against said stop and produce a sound simultaneously with each outward thrust of a lancet carried by said lever, substantially as set forth.

2. In a chronosphygmometer, the combination of a watch-movement, a rim-perforated casing therefor strengthened near said perforation by the lancet sheath as set forth, a lever carrying a lancet and so actuated by timing pins carried by a wheel of the movement as to periodically cause said lever to withdraw said lancet within the casing, a thrusting-spring to periodically thrust said lancet outward through said perforation and simultaneously cause said lever to strike a sonorous stop immediately after its spur is successively released by each of said timing-pins, a staff carrying said lever and supported by a cock and a plate of said movement, a thrusting-spring, a sonorous stop, a lancet carried by the lever, a lancet-sheath secured between the sides of the casing, and the perforation in the rim of the casing, substantially as set forth.

3. In a chronosphygmometer, the combination of a watch-movement, a rim-perforated and lancet-sheath-strengthened casing therefor, a lever actuated by timing-pins which conjointly with a thrusting-spring periodically and alternately cause to be withdrawn inwardly and thrust outwardly through said sheath and said perforation a lancet carried by said lever and a sonorous stop to be sounded by the periodical strokes of said lever thereon, substantially as set forth.

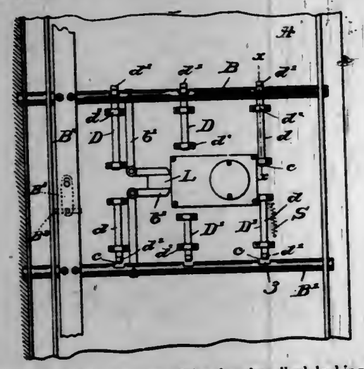
4. In a chronosphygmometer the combination of a watch-movement, a casing therefor with a lancet-passage opening in the rim thereof, a lever carried by a staff and conjointly actuated reciprocally and alternately by a thrusting-spring and by timing-pins carried by a wheel of the movement, a sonorous stop adapted to be sounded at regular intervals by successive strokes of said lever thereon, a thrusting-spring, a lancet carried by said lever and periodically and alternately thrust outwardly by said thrusting-spring and withdrawn inwardly by said timing-pins, a lancet-guide, a lancet-sheath adapted to serve as a lancet-channel and to strengthen the casing, and an opening in the casing-rim for the outward passage of the lancet-point, substantially as set forth.

5. In a chronosphygmometer the combination of a sonorous stop, a lever adapted for continuous periodical strokes on said stop and the means herein described for actuating said lever, substantially as set forth.

6. In a chronosphygmometer the combination of a sonorous stop, a lever adapted for successive periodical strokes thereon, a lancet carried by said lever, and the herein-described means for actuating said lever and lancet coincidentally, substantially as set forth.

7. In a chronosphygmometer, the combination of a watch-movement, a casing therefor with a lancet-passage perforation in the rim thereof, a lever carried by a staff and actuated by timing-pins carried by a wheel of the movement, said staff pivoted in a cock and a plate of the movement, a lancet carried by said lever, a thrusting-spring secured to a plate of the movement, the means described for connecting said spring with the lever, a sonorous stop to be periodically sounded by the successive strokes of the lever thereon, a lancet-guide, the lancet-sheath secured between the sides of the casing, the lancet-passage perforation in the rim of the casing, and the sliding guard, all substantially as set forth.

596,294. PROTECTIVE MECHANISM FOR SAFE-DOORS. ARTHUR R. CURTIS, Revere, Mass. Filed July 17, 1897. Serial No. 644,904. (No model.)



Claim.—1. In an apparatus of the class described, locking mechanism including a bolt, a dog to cooperate at times with and prevent withdrawal of the bolt, and means to normally retain the dog from engagement with the bolt, said means being made effective to release the dog upon an abnormal rise in temperature of the apparatus adjacent the locking mechanism.

2. In an apparatus of the class described, a bolt, mechanism to operate it, a gravity-dog independent of said mechanism adapted to move into engagement with and prevent withdrawal of the bolt, and detaining means for said dog, operative to release it upon a rise in temperature of the adjacent parts, substantially as described.

3. A safe-door, a locking-bolt and controlling mechanism therefor, one or more independent dogs on the inner side of the door, adapted to engage and prevent withdrawal of the bolt, and a readily-fusible detaining device to normally hold each dog inoperative, whereby a rise in temperature melts said device to permit the dog to move into operative position, substantially as described.

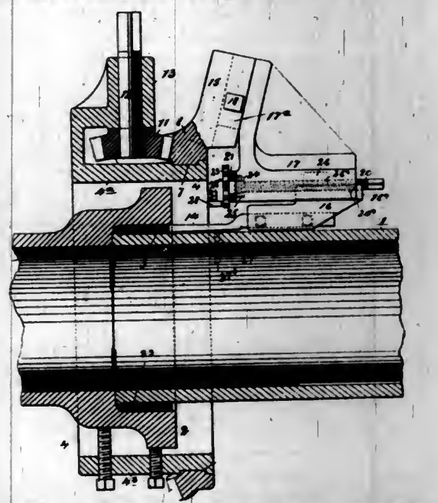
4. In an apparatus of the class described, locking mechanism, and normally inoperative means, rendered operative by an abnormal rise in temperature of the apparatus adjacent thereto, to prevent unlocking of said mechanism, substantially as described.

596,295. MACHINE FOR REMOVING PACKING FROM JOINTS. DAVID W. FRENCH, Hoboken, N. J. Filed Apr. 8, 1897. Serial No. 631,216. (No model.)

Claim.—1. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for guiding and rotating the latter around the frame, with a movable tool-holder supported by said carrier or ring, and means for guiding and for feeding said tool-holder independently of the carrier or ring, and in a line at an angle to the plane of rotation of said carrier or ring, substantially as set forth.

2. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for guiding and rotating the latter around the frame, said carrier or ring being provided with a guide or way that extends at an angle to the plane of rotation thereof, a tool-holder carried by said guide or way to travel therein, and means for feeding said tool-holder parallel to said guide or way and independently of the carrier or ring, substantially as set forth.

3. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub bell or pipe, a carrier or ring, and means for guiding and rotating the latter around the frame, said carrier or ring being provided with a guide or way that extends at an angle to the plane of rotation thereof, a tool-holder carried by said guide or way to travel therein, a screw carried by said carrier or ring and journaled in bearings carried thereby, and means to operate said screw, said tool-holder having screw-threads to receive said screw, whereby as the screw rotates the tool-holder will be fed in a line at an angle to the plane of rotation of said carrier or ring and independently thereof, substantially as set forth.



4. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring, means for guiding and rotating the latter around the frame, said carrier or ring being provided with a guide or way that extends at an angle to the plane of rotation thereof, a tool-holder carried by said guide or way to travel therein, a screw carried by said carrier or ring and journaled in bearings carried thereby, said tool-holder having screw-threads to receive the screw, a feed-wheel carried by said screw, and a finger or lug carried by said frame to operate said wheel, substantially as set forth.

5. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for rotating the latter around said frame, with a head adjustably carried by said carrier or ring, a tool-holder movably supported by said head to travel therealong, and means for feeding said tool-holder, substantially as set forth.

6. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for guiding and rotating the latter around said frame, with a head supported by said carrier or ring, said head having a guide or way that extends toward the bore in said carrier or ring, a tool-holder carried by said guide or way to travel therealong, and means for feeding said tool-holder, substantially as set forth.

7. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for guiding and rotating the latter around said frame, with a head supported by said carrier or ring, said head having a guide or way that extends toward the bore in said carrier or ring, said head having a recess 22, a tool-holder having a projection guided by said guide or way and an extension provided with a threaded aperture or bore, said extension being adapted to travel along said recess, a screw fitting in said threaded aperture or bore, said head having a bearing for said screw, and means for operating said screw to feed the tool-holder, substantially as set forth.

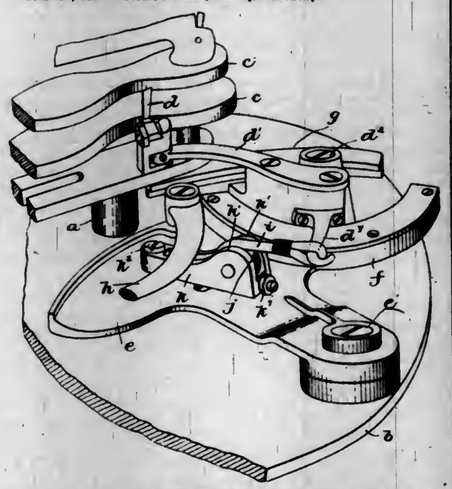
8. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for guiding and rotating the latter around the frame, and a standard carried by said carrier or ring, with a head adjustably connected with said standard and having a guide or way that extends toward the bore in said carrier or ring, a tool-holder carried by said way, and means for feeding said holder along said guide or way, substantially as set forth.

9. In a machine for removing packing from joints, the combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for guiding and rotating the latter around the frame, and a standard carried by said carrier or ring and having a guide or way, with a head guided by said guide or way, means for adjustably holding said head upon said standard, said head having a guide or way that extends toward the bore in the carrier or ring, a tool-holder guided by said guide or way, and means for feeding said tool-holder along said guide or way, substantially as set forth.

10. The combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for guiding and rotating the latter around said frame, and a standard carried by said carrier or ring and having a guide or way, with a head guided by said guide or way, means for adjustably holding said head upon said standard, said head having a guide or way that extends in a line perpendicular to the plane of rotation of said carrier or ring, a tool-holder guided by said guide or way, a screw carried by said head and arranged to feed said tool-holder, a feed-wheel carried by said screw, and a finger or lug adapted to engage said wheel in the different positions of adjustment of said head, substantially as set forth.

11. The combination of a frame adapted to be secured around a hub, bell or pipe, a carrier or ring and means for guiding and rotating the latter around the frame, a standard carried by said carrier or ring and having a guide or way that is inclined inwardly toward the carrier, with a head adjustably carried by said guide or way, said head having a guide or way that extends toward the bore of said carrier or ring, a tool-holder carried by said guide or way, a screw journaled in said head and meshing with threads carried by said tool-holder, a feed-wheel carried by said screw, and fingers or lugs carried by said frame at different distances from the axis thereof to engage said feed-wheel in different positions of its adjustment, substantially as set forth.

596,296. SOLE-ROUNDING MACHINE. GEORGE O. GODDARD, Brockton, Mass., assignor to Harvey P. Crawford, same place. Filed Mar. 27, 1897. Serial No. 629,518. (No model.)

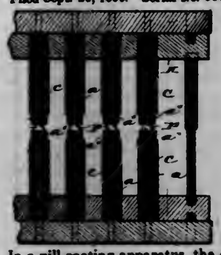


Claim.—1. A sole-rounding machine comprising a rotary table, a movable carrier mounted thereon, a knife-holder above the table, adapted to move back and forth on said carrier, a device below the table for exerting yielding pressure on the knife-holder, a flexible pressure-transmitter extending horizontally from the knife-holder to a point over the table, and from thence vertically through the table to said pressure device, and a compensating guide whereby the pressure-transmitter is permitted to pass from the knife-holder to the pressure device without lateral deflection.

2. A sole-rounding machine comprising a rotary table, a movable carrier mounted thereon, a knife-holder adapted to move back and forth on said carrier, a device below the table for exerting yielding pressure on the knife-holder, a flexible pressure-transmitter extending horizontally from the knife-holder to a point over the table, and from thence vertically through the table to said pressure device, a pulley engaged with said pressure-transmitter, and a support for said pulley mounted on the carrier and having provisions for permitting an automatic lateral movement of the pulley, whereby the pressure-transmitter is permitted to pass from the knife-holder to the pressure device without lateral deflection.

3. A sole-rounding machine comprising a rotary table, a movable carrier mounted thereon, a knife-holder adapted to move back and forth on said carrier, a device below the table for exerting yielding pressure on the knife-holder, a flexible pressure-transmitter extending horizontally from the knife-holder to a point over the table, and from thence vertically through the table to said pressure device, an arm pivotally connected at one end with said carrier and adapted to oscillate horizontally, and a pulley journaled in bearings on the swinging end of said arm and engaged with said pressure-transmitter, the said arm and pulley constituting an oscillatory guide for the pressure transmitter, whereby the said pressure-transmitter is permitted to pass from the knife-holder to the pressure device without lateral deflection.

596,297. PILL-COATING APPARATUS. ALBERT B. HALL, Indianapolis, Ind. Filed Sept. 29, 1896. Serial No. 607,290. (No model.)



Claim.—1. In a pill-coating apparatus, the combination, with a suitable base carrying pill-holders having grasping ends composed of elastic sheaths, of suitable means for placing the pills to be treated in said ends, and suitable means for removing the pills after being treated.

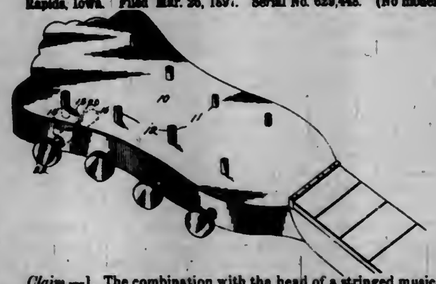
2. The combination, in a pill-coating apparatus, of a pill-holder consisting of a base provided with numerous tubes having pill-grasping ends, a hopper-board whereby the pills may be conveniently distributed to the several pill-grasping tubes, and a follow-board by which the pills may be forced to the proper position in the ends of said pill-grasping tubes, substantially as set forth.

3. The combination, in a pill-coating apparatus, of a pill-holder composed of a base and numerous pill-grasping tubes, a follow-board the followers whereon are arranged to enter said tubes and are of sufficient length to extend nearly to the top thereof, and means for inserting pills in the upper ends of said pill-grasping tubes and forcing them therein until they come in contact with the ends of said followers, whereby uniformity of position is secured, substantially as shown and described.

4. The combination, in a pill-coating apparatus, of a pill-holder consisting of a base carrying pill-grasping tubes, standards or guides at suitable points on said base, a second structure carrying the pills to be coated and adapted to be mounted on said standards or guides, and a follow-board having suitable followers, whereby the pills are transferred from the last-named device to the pill-grasping tubes of the pill-holder, substantially as set forth.

5. The combination, in a pill-coating apparatus, of a suitable base carrying pill-holders having elastic grasping ends, suitable stopping followers, whereby pills, when introduced, are stopped at a predetermined point, and suitable followers whereby the pills may be ejected from said pill-holders after being treated.

596,298. HEAD FOR STRINGED INSTRUMENTS. ERNEST A. HOOPES, Des Moines, Iowa, assignor of one-half to L. F. Marks, Cedar Rapids, Iowa. Filed Mar. 26, 1897. Serial No. 629,448. (No model.)

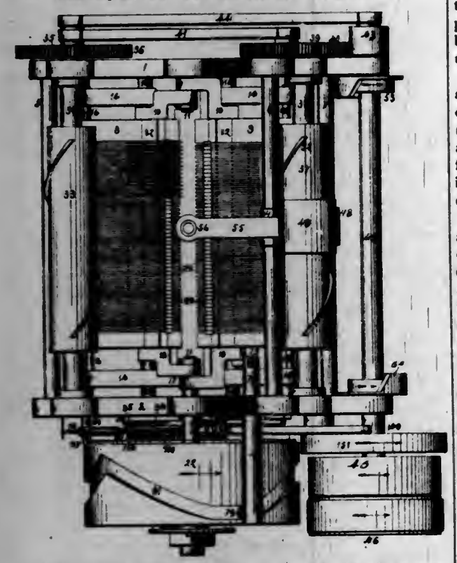


Claim.—1. The combination with the head of a stringed musical instrument, of a string-pin to extend upwardly through an opening in the head to be capable of a rotary movement therein, and having at its upper end an opening through which a string may be passed, and also having on its lower end an enlarged head in which is an annular groove having gear-teeth therein, and an extension on the lower end of the string-pin to project below the head, and a worm-

rod rotatably mounted in the head in a horizontal opening that intersects the opening in which the string-pin is inserted, said worm-rod having formed thereon a worm-gear designed to enter the annular groove in the string-pin and engage the gear-teeth thereon to thereby lock the string-pin against vertical movement, and having a head on its outer end that may be conveniently grasped and operated, substantially as and for the purposes stated.

2. A tuning device for stringed instruments, comprising in combination a pin having an eye at its top through which a string may be passed, a cylindrical enlargement at its lower end having a screw-threaded concave groove thereon, and a milled surface below the groove, a head having an opening in which the said key may be rotatably mounted with the milled portion thereof projecting below the surface of the head, and the upper end of the pin projecting above the top surface of the head, and also having an opening extended tangentially from the screw-threaded groove of the pin, a bushing device in said latter opening having a bearing at one end and an opening in its side, and a worm designed to mesh with the screw-threaded groove, and having a journal at one end to enter the bearing in the bushing, an enlarged portion at the other end of the screw to engage the interior of the bushing, and an enlarged head whereby the worm may be turned, all arranged and combined substantially in the manner set forth and for the purposes stated.

596,299. KNITTING-MACHINE. PETER O. JOHNSON, Rockford, Ill. Filed May 23, 1896. Serial No. 592,728. (No model.)



Claim.—1. In a knitting-machine, the combination of a supporting-frame, two needle-beds having a pivotal connection with the frame at a common center at the point where the needles cross, and supporting knitting-needles, means located over the needle-beds near their free ends for raising and lowering the needles during the knitting process and means for moving the beds upon their pivots toward and from the needle-operating means.

2. In a knitting-machine, the combination of a supporting-frame an intermittent rotary pattern-wheel, two needle-beds having a pivotal connection with the frame, mechanism between the beds and frame for moving them, one of the beds supporting fashioning-needles, mechanism between the fashioning-needles and pattern-wheel whereby their throwing in and out movements are controlled, an intermittent rotary disk and mechanism between the disk and pattern-wheel for determining the length of tubular knitting.

3. In a knitting-machine, the combination of a supporting-frame, two needle-beds having a pivotal connection with the frame and supporting knitting-needles, means for raising and lowering the needles during the knitting process, a pattern-wheel, connections between the beds and pattern-wheel for moving the beds toward and from the needle-operating means, a cam-wheel, a lever operated by the cam-wheel carrying a slidable pawl adapted to engage the pattern-wheel for imparting an intermittent rotary movement thereto.

4. In a knitting-machine, the combination of a supporting-frame, a needle-bed supporting fashioning-needles having a movable connection with the frame, devices located on both sides of the bed for raising and lowering the needles during the knitting process and means for moving the needle bed so that the needles may be operated by either device.

5. In a knitting-machine, the combination of a supporting-frame, a needle-bed supporting fashioning-needles having a movable connection with the main frame, devices located on both sides of the bed for raising and lowering the needles during the knitting process, and means for holding the needles out of action.

6. In a knitting-machine, the combination of a supporting frame, two needle-beds supporting knitting-needles, one bed supporting fashioning-needles, means for raising and lowering the needles during the knitting process, a stud extending from the main frame, an intermittent rotary pattern-wheel supported by the stud, mechanism between the pattern-wheel and fashioning-needles, whereby their action is controlled, a serrated-face disk supported upon the stud capable of an intermittent rotary movement, a pawl supported upon the stud capable of engaging the serrations of the disk, means for moving the pawl and means for varying the extent of its movement.

7. In a knitting-machine, the combination of a supporting-frame, two needle-beds supporting knitting-needles, jacks connected to the needles, their upper edge formed with a depression, a thread-hook having a pivotal connection with the needle-bed and located in the needle-groove, one end lying in the depression of the jack and the other end formed with a hook and lying alongside the needle and a spring for each thread-hook

8. In a knitting-machine, the combination of a supporting-frame, two needle-beds, a yarn-carrier, a spirally-ribbed roller means for imparting a reciprocating rotary movement to the roller, a connection between the roller and yarn-carrier, a driving-shaft and a cam located upon the shaft at each end of the spirally-ribbed roller.

9. In a knitting-machine, the combination of a supporting-frame, an intermittent rotary pattern-wheel, two needle-beds having a pivotal connection with the frame and supporting knitting-needles, a disk for determining the length of the tubular knitting means for actuating the disk, intermediate devices controlling the action of the fashioning-needles, provisions whereby the disk determines the starting of the pattern-wheel, and provisions whereby the pattern-wheel determines the starting of the disk.

10. In a knitting-machine, the combination of a supporting-frame, an intermittent rotary pattern-wheel, two needle-beds having a pivotal connection with the frame, and supporting knitting-needles, a disk for determining the length of the tubular knitting means for actuating the disk, intermediate devices controlling the action of the fashioning-needles, provisions whereby the disk determines the starting of the pattern-wheel, provisions whereby the pattern-wheel determines the starting of the disk, the provisions being made adjustable.

11. In a knitting-machine, the combination of a supporting-frame, a pattern-wheel, two needle-beds supporting knitting-needles connections between the needle-beds and pattern-wheel, a serrated-face disk, a pawl engaging the serrations of the disk, a cam-wheel, a lever operated by the cam-wheel imparting movement to the pawl, a rod having a pivotal connection with the pawl at one end, an arm having a pivotal connection with the supporting-frame, and supporting the free end of the rod, a spiral spring surrounding the rod between the arm and pawl, a spring holding the arm in contact with the periphery of the pattern-wheel and the pattern-wheel provided with a projection operating upon the arm.

12. In a knitting-machine, the combination of a supporting-frame, a stud extending from the frame, a pattern-wheel two sleeves supported upon the stud, one sleeve having a disk connection thereto, and the other sleeve having an arm supporting a projection overlying the periphery of the disk, an adjustable connection between the two sleeves, means for moving the disk and provisions whereby a connection may be formed between the disk and pattern-wheel.

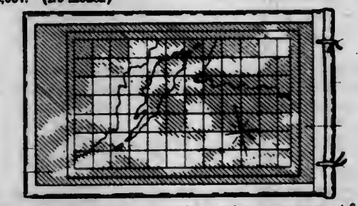
13. In a knitting-machine, the combination of a supporting-frame, an intermittent rotary pattern-wheel, an intermittent rotary disk, a pawl for imparting movement to the disk, means for actuating and controlling the pawl, connections between the wheel and disk consisting of a pivoted lever, a slidable bar, a plate and a lever supporting a movable dog, the pivoted lever operated by a projection extending from the disk, the plate holding the dog out of engagement with the pattern-wheel until the plate is allowed to move by the movement of the slidable bar, the lever supporting the movable dog oscillated by a cam-wheel.

14. In a knitting-machine, the combination of a supporting-frame, a pattern-wheel, a disk, means for moving the disk, connections between the pattern-wheel and disk consisting of a lever having a pivotal connection with the supporting-frame and operated by a cam-wheel, a dog having a sliding engagement with the lever having a stud extending inward therefrom, a plate located between the lever and supporting-frame, and movable upon supports having a recessed under face, a slidable bar located in the recess, a pivoted lever having one end connected to the slidable bar and its other end resting upon the periphery of the disk, a latch operated by the cam-wheel and engaging the plate, the stud extending inward from the lever located in a curved slot in the plate and a dog having a pivotal connection with the frame and with the plate and engaging the pattern-wheel.

15. In a knitting-machine, the combination of a supporting-frame, two needle-beds having a pivotal connection with the supporting-frame, a pattern-wheel having two concentric grooves on its face, each groove provided with two cams, two arms one end of each of which is connected with a needle-bed and the other end in engagement with one of the grooves of the pattern wheel and means for intermittently rotating the wheel.

16. In a knitting-machine, the combination of a supporting-frame, a pattern-wheel, a serrated-face disk, means for moving the disk by engaging its serrated face, two spring-actuated plungers supported by the disk, one made adjustable in its connection with the disk, a movable lever adjusted to engage the plungers thereby moving the disk and provisions whereby a connection may be formed between the disk and pattern-wheel.

596,300. WATERPROOF ENVELOP FOR PROTECTING CHARTS, &c. JOHN C. LEE, Brookline, Mass. Filed May 29, 1897. Serial No. 638,687. (No model.)

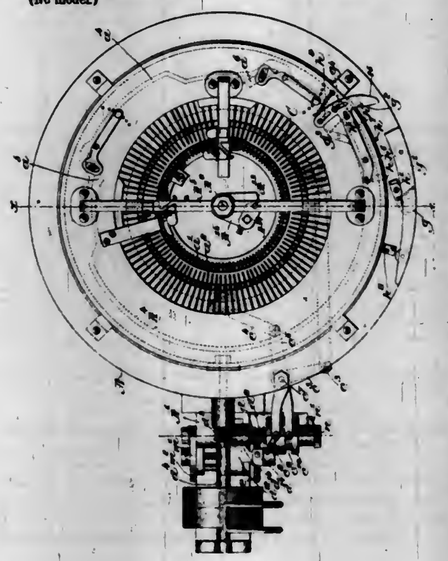


Claim.—1. A waterproof envelop having a transparent front, an end of said envelop being provided with means for forming an adjustable joint, substantially as described.

2. A portable waterproof chart-case consisting of an envelop of rubber or similar material, the front of which is formed of flexible, non-breakable material such as celluloid or the like, and provided with an opening capable of being temporarily sealed to prevent the entrance of moisture &c., substantially as set forth.

3. In a waterproof envelop the combination of a transparent front of non-breakable material secured in place by water-tight joints, and the opening of the envelop so arranged as to be sealed against the admission of moisture substantially as herein set forth.

596,301. KNITTING-MACHINE. GEORGE A. LEIGHTON and JOHN H. RICE, Manchester, N. H. Filed Dec. 14, 1896. Serial No. 615,675. (No model.)



Claim.—1. A knitting-machine containing the following instrumentalities, viz: a cylinder-needle bed to contain cylinder-needles, a cylinder-needle cam, a dial-needle bed, to contain a series of dial-needles, a dial cam-plate, dial-needle-racking guides, two levers, means to connect said levers with said racking-guides, two cams one to actuate each of said levers, a pattern-surface, and actuating means controlled by said pattern-surface to operate said cams and move the racking-guides at the desired times, substantially as described.

2. A knitting-machine containing the following instrumentalities, viz: a cylinder-needle bed to contain cylinder-needles, a cylinder-needle cam, a dial-needle bed, to contain a series of dial-needles, a dial cam-plate, a plurality of segmental racking-guides placed end to end, and means to move the same in the arc of a circle independently of the said dial-needle bed, to rack the dial-needles, substantially as described.

3. A knitting-machine containing the following instrumentalities, viz: a cylinder-needle bed to contain cylinder-needles, a cylinder-needle cam, a dial-needle bed, to contain a series of dial needles, a dial cam-plate, a plurality of segmental racking-guides, a pattern-surface, means intermediate said pattern-surface, and said segmental racking-guides to automatically actuate the same in the arc of a circle independently of said dial-needle bed, substantially as described.

4. A knitting-machine containing the following instrumentalities, viz: a cylinder-needle bed to contain cylinder-needles, a cylinder-needle cam, a dial-needle bed, to contain a series of dial-needles, a dial cam-plate provided with knitting-cams, a racking-guide, means to move the same in the arc of a circle independently of the said dial-needle bed, to rack the dial-needles, a cam, as g^4, to move the dial-needles inwardly, and means to automatically change the position of said cam g^4 to impart an inward movement to said dial-needles when racking-stitches are to be made, to thus enable the work to be cast off said dial-needles, substantially as described.

5. The dial needle bed to contain dial needles, the bed A sustaining said needle-bed, a dial cam-plate having a cam g^4, a lever g^3 connected with said cam, a rod extended below said bed A and provided at its upper end with a cam-plate, and a pattern-surface, combined with a lever, actuated by said pattern-surface, and with means between said lever and said rod to raise said rod and cam, substantially as described.

6. The dial-needle bed to contain dial-needles, the bed-plate sustaining said needle-bed, a dial cam-plate having a movable cam and lever g^3, a rod extended below said bed-plate and provided at its upper end with a cam-plate to engage and actuate said lever, and a pattern-surface, combined with a lever having a pivoted spring-controlled head, and means between it and said pattern-surface to move said lever and cause its spring-head to raise said rod and cam, substantially as described.

7. The dial-needle bed to contain dial-needles, a bed-plate, a vertically-movable cam-plate, means under the control of a pattern-surface to lift said vertically-movable cam-plate, a latch to hold said cam-plate in its elevated position, a dial cam-plate, and a throwing-in cam carried thereby, combined with a lever mounted on said dial cam-plate and having at one end a connected stop, the said lever being actuated by the vertically-movable cam-plate, and said stop thereafter turning said latch to release and permit the said vertically-movable cam-plate to descend, substantially as described.

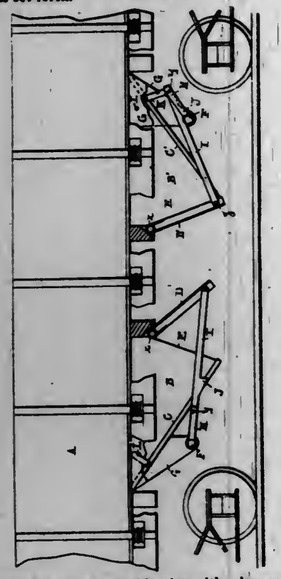
8. In a knitting-machine, a plurality of segmental racking-guides, the shaft d, having the fixed cam-hub, devices intermediate said hub and said racking-guides, the feather-splined clutch part having a pin or projection d^{10} at its outer side and a projection d^{8} at its end, the loose sleeve provided with a projection d^{9}, and means to rotate said sleeve, combined with a holder to act against said pin or projection to disconnect the said clutch part from the said sleeve, and a pattern-surface to raise and lower said holder, the latter when raised permitting the said clutch part to engage the said sleeve and start the rotation of the said shaft, substantially as described.

9. The dial-needle bed to contain dial-needles, the bed A sustaining said needle-bed, a dial cam-plate having a cam g^4, a lever g^3 connected with said cam, a rod extended below said bed A and provided at its upper end with a cam-plate, and a pattern-surface, combined with a lever, actuated by said pattern-surface, and with means between said lever and said rod to raise said rod and cam, and with a stop h and a catch h' to operate, substantially as described.

596,302. DUMPING-CAR-OPERATING MECHANISM. WILLIAM MCMAHON, Rahway, N. J., assignor to George H. Dunham, New York, N. Y. Filed May 7, 1897. Serial No. 635,462. (No model.)

Claim.—1. In a dumping-car, the combination with a hopper closed by a vertically-disposed hinged gate, of a transverse shaft having a crank-arm thereon, a link connecting the crank-arm and gate, and a shoulder on said link, the parts being constructed and arranged so that the gate is closed by throwing the link over the crank-shaft, whereby the said link is made to approach the crank-arm in a nearly

parallel position automatically to engage the shoulder with the shaft, substantially as set forth.



2. In a dumping-car, the combination with a hopper closed by a vertically-disposed hinged gate, of a transverse shaft having a crank-arm thereon, a link connecting the crank-arm and gate, a shoulder on said link, said parts being constructed and arranged so that the gate is closed by throwing the link over the crank-shaft, whereby the said link is made to approach the crank-arm in a nearly parallel position automatically to engage the shoulder with the shaft, and a dog pivoted over the end of the link and hanging by its weight in position to lock the link against return movement, substantially as set forth.

3. In a dumping-car, the combination with a hopper closed by a vertically-disposed hinged gate, of a shaft having crank-arms at its ends, links connecting the crank-arms and gate, said cranks and links being constructed and arranged so that the gate is closed by throwing the links over the crank-shaft, whereby the said links are made to approach the crank-arms in a nearly parallel position automatically to engage the links with the shaft, and dogs pivoted over the ends of the links and hanging by their own weight in position to lock the links against movement in the return direction, substantially as set forth.

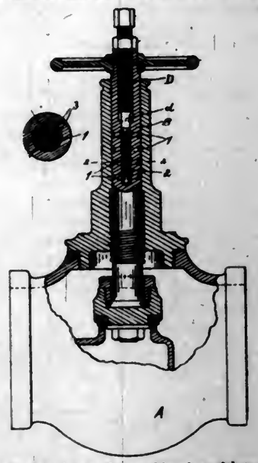
4. In a dumping-car, the combination with a hopper closed by a vertically-disposed hinged gate, of a shaft having crank-arms at its ends, links connecting the crank-arms and the gate, shoulders on said links, said cranks and links being constructed and arranged so that the gate is closed by throwing the links over the crank-shaft, whereby the said links are made to approach the crank-arms in a nearly parallel position automatically to engage the shoulders with the shaft, and dogs pivoted over the ends of the links and hanging by their own weight so as to lock the links in their position of rest on the crank-shaft, substantially as set forth.

5. In a dumping-car, the combination with a hopper closed by a vertically-disposed hinged gate, of a transverse shaft supported in hangers beneath the hopper, crank-arms on the ends of said shaft beneath the side sills of the car, links connecting the crank-arms and gate, shoulders on said links, said cranks and links being constructed and arranged so that the gate is closed by throwing the links over the crank-shaft, whereby the said links are made to approach the crank-arms in a nearly parallel position automatically to engage the shoulders with the shaft, and pivoted dogs locking the links on the crank-shaft, substantially as set forth

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596,803. PACKING. GEORGE R. O'NEILL, New York, N. Y. Filed July 20, 1897. Serial No. 645,233. (No model.)

Claim.—1. In a packing for joints, the combination with two joining members, one of which has channels therein at the joint, of a separate chamber communicating with all of said channels, a solid packing material contained in said channels and chamber, and a piston working in said chamber, against the packing, and having an effective area less than the total area of the channels taken across the direction of flow of the metal, substantially as and for the purpose set forth.



2. In a packing for joints, the combination with two joining members, one of which has separate channels therein at the joint, of a chamber communicating with all of said channels, a solid packing material contained in said channels and chamber and means for applying pressure to the packing material in the chamber.

596,804. BOTTLE-PROTECTOR. EDWARD J. PAQUETTE, New Orleans, La. Filed Nov. 28, 1896. Serial No. 613,761. (No model.)



Claim.—1. A protector for nursing-bottles comprising a hollow rubber covering adapted to be slipped over the bottle, and a rubber strap connected to said casing and adapted to be slipped over the nipple to hold the same firmly in position, substantially as described.

2. A nursing-bottle protector comprising a hollow rubber casing, and a flexible nipple-strap connected to the same at its upper end and provided with an aperture through which the nipple passes, whereby a portion of said strap lies upon each side of the nipple to hold the same firmly down in position, substantially as described.

3. A nipple-holder comprising an elastic ring adapted to be applied about the neck of a bottle, and an elastic strap having its respective ends secured to said ring upon diametrically opposite sides and provided at its top with a nipple-receiving aperture; the construction being such that the nipple may pass through said aperture so as to cause the securing-strap to bear upon each side of the nipple and thus hold the same firmly in position, substantially as described.

596,805. LAST-SUPPORT. GEORGE M. PETTENGILL, Haverhill, Mass. Filed Apr. 24, 1897. Serial No. 633,793. (No model.)

Claim.—1. As a means for supporting a last during a heeling operation, a support adapted to receive the top of the last, and provided with means for transmitting and distributing the blow to the sides of the last.

2. A support for a last during a heeling operation, provided with movable yielding means for transmitting and distributing the blow to the sides and top of the last.



3. As a means for supporting a last during a heeling operation, a support provided with movable jaws actuated by the last, said jaws being arranged to press against the sides of the last in proportion to the force of the blow upon the last.

4. As a means for supporting a last during a heeling operation, a support provided with oppositely-movable jaws adapted to clamp the sides of the last, and means upon which the last rests for operating said jaws.

5. As a means for supporting a last during a heeling operation, a support provided with pivoted jaws actuated positively by the last and arranged to clamp the sides of the last, when the latter is under pressure, said jaws being connected together to operate simultaneously.

6. As a means for supporting a last during a heeling operation, a support provided with jaws moved positively toward each other by the last, to engage the sides of said last, said jaws being faced with yielding pads or cushions.

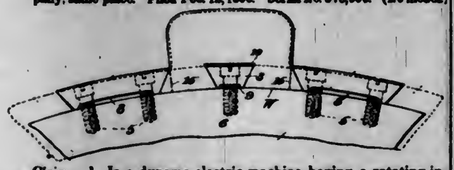
7. As a means for supporting a last during a heeling operation, a support provided with oppositely-movable jaws operated by the last to clamp the sides of the last by a pressure on the last transverse to the line of movement of the clamping parts, and means for limiting the outward movement of the said jaws.

8. As a means for supporting a last during a heeling operation, a suppport provided with movable jaws pivoted to swing toward and from each other to clamp the sides of the last, and having inwardly-projecting portions to receive the last, the construction and arrangement being such that the pressure of the last against the inwardly-projecting portions will cause the jaws to clamp the sides of the last.

9. As a means for supporting a last during a heeling operation, a support provided with movable jaws pivoted to swing toward and from each other to clamp the sides of the last, and having inwardly-projecting portions and a plate resting upon said inwardly-projecting portions to receive the top of the last.

10. As a means for supporting a last during a heeling operation, a support having jaws operated positively and automatically by the last to clamp the sides of the last, and an adjustable rest for the toe end of the last.

596,806. DYNAMO-ELECTRIC MACHINE. PEMBROY W. POWER, Pittsfield, Mass., assignor to the Stanley Electric Manufacturing Company, same place. Filed Feb. 12, 1896. Serial No. 578,996. (No model.)



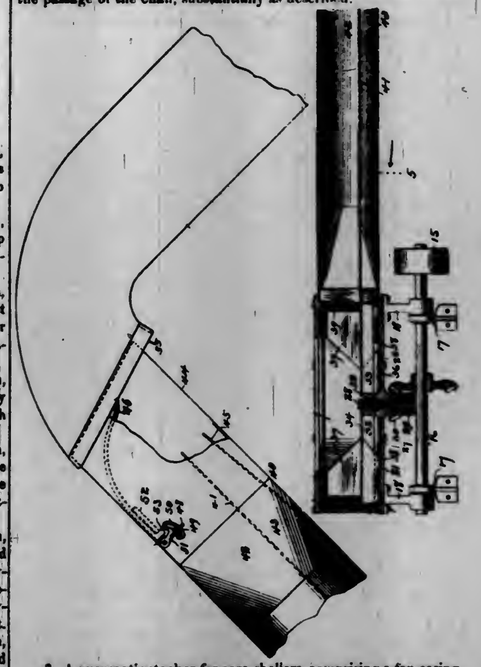
Claim.—1. In a dynamo-electric machine having a rotating inductor, laminated polar projections separately fastened to the inductor-core by dovetail fastenings, substantially as described.

2. In a dynamo-electric machine having a rotating inductor, polar projections fastened to the inductor-core by dovetails, the core and the dovetails having air-gaps between them, substantially as described.

596,807. PNEUMATIC STACKER. GEORGE W. QUINN, Bloomington, Ill., assignor of one-half to the Harber Brothers Company, same place. Filed Oct. 4, 1897. Serial No. 654,019. (No model.)

Claim.—1. A pneumatic stacker for corn-shellers, comprising a fan-casing to receive the cobs and chaff, a fan therein, a stacker-tube open at both ends, one end of said tube communicating with the interior of the casing and said tube being provided at or near its other end with a lateral cob-discharge opening, and a deflector adapted to guide the cobs to said cob-discharge opening and permit the passage of the chaff, substantially as described.

2. A pneumatic stacker for corn-shellers, comprising a fan-casing to receive the cobs and chaff, a fan therein, a stacker-tube communicating at one of its ends with the interior of the casing and having a cob-discharge opening in a direction divergent from the axis of the tube, and a separate discharge-opening for the chaff, and a deflector adapted to guide the cobs to said cob-discharge opening and permit the passage of the chaff, substantially as described.



3. A pneumatic stacker for corn-shellers, comprising a fan-casing to receive the cobs and chaff, a fan therein, a stacker-tube open at both ends, one end of said tube communicating with the interior of the casing, and the other end being provided with a cob-discharge opening in its under side, and a deflector extending from the upper side of said tube downward toward the cob-discharge opening and adapted to guide the cobs to said opening and to permit the passage of the chaff, substantially as described.

4. A pneumatic stacker for corn-shellers, comprising a fan-casing to receive the cobs and chaff, a fan therein, a stacker-tube communicating at one of its ends with the interior of the casing and being provided at or near its other end with a lateral cob-discharge opening and a separate chaff-discharge opening, a deflector adapted to guide the cobs to said cob-discharge opening and permit the passage of the chaff, an air-conduit terminating adjacent to the cob-discharge opening and arranged to direct its blast across the same toward the chaff-discharge opening, and means for forcing a current of air through said air-conduit, substantially as described.

5. A pneumatic stacker for corn-shellers comprising a fan-casing having a cob and chaff receiving chamber and an air-chamber, a fan therein having blades or vanes in each chamber, and a stacker-tube having a diaphragm or partition whereby it is divided into a cob and chaff conduit, and an air-conduit communicating with the respective chambers of the fan-casing, said tube having a lateral cob-discharge opening adjacent to the end of the air-conduit, and a deflector adapted to guide the cobs to said opening and permit the passage of the chaff, substantially as described.

6. In a pneumatic stacker for corn-shellers, the combination, with a stacker-tube having a diaphragm or partition whereby it is divided into a cob and chaff conduit and an air-conduit, said tube being provided with a lateral cob-discharge opening and with a separate chaff-discharge opening, of an inclined diaphragm at the mouth of the air-conduit for contracting the outlet thereof, a cob-deflector adjacent to said cob-discharge opening, and a fan to force the cobs and chaff and air through the respective conduits, substantially as described.

7. In a pneumatic stacker for corn-shellers, the combination, with a suitable fan, of a stacker-tube having a lateral cob-discharge opening, and a separate chaff-discharge opening and a deflector cor-

prising a plurality of curved fingers adapted to guide the cobs to their discharge-opening and permit the chaff to pass, substantially as described..

8. In a pneumatic stacker for corn-shellers, the combination, with a suitable fan, of a stacker-tube having a lateral cob-discharge opening, and a separate chaff-discharge opening and a deflector adjustable at varying angles to the axis of the tube and adapted to guide the cobs to their discharge-opening and permit the passage of the chaff, substantially as described.

9. In a pneumatic stacker for corn-shellers, the combination, with a suitable fan, of a stacker-tube having a lateral cob-discharge opening, and a separate chaff-discharge opening and a deflector adjustable as to its length and as to its angle to the axis of the tube, and adapted to guide the cobs to their discharge-opening and permit the passage of the chaff, substantially as described.

10. In a pneumatic stacker for corn-shellers, the combination, with a stacker-tube having a lateral cob-discharge opening and a separate chaff-discharge opening, of a transverse shaft having radial arms, deflector-fingers adjustable on said arms, and means for adjusting said shaft to vary the angle of the fingers, substantially as described.

11. In a pneumatic stacker for corn-shellers, the combination, with the stacker-tube having cob and chaff and air conduits, and the fan and fan-casing having separate chambers for the cobs and chaff and for the air, and inlet-openings for said chambers, of a valve or damper for controlling the inlet of the air-chamber, substantially as described.

12. In a pneumatic stacker, the combination, with a horizontal shaft from which the fan is driven, of a fan-casing pivotally mounted on and adjustable around said shaft, a fan in said casing connected with said shaft by suitable gearing, and a stacker-tube fixed to and adjustable with the fan-casing, substantially as described.

13. A pneumatic stacker, for corn-shellers, comprising a fan-casing to receive the cobs and chaff, a stacker-tube communicating at one of its ends with the interior of the fan-casing and being provided at or near its other end with a lateral cob-discharge opening and a separate chaff-discharge opening beyond the same, a deflector adapted to guide the cobs to said cob-discharge opening and permit the passage of the lighter and finer chaff, said deflector terminating some distance inward from the cob-discharge opening, an air-conduit terminating adjacent to the cob-discharge opening and arranged to direct its blast across the same and between it and the deflector toward the chaff-discharge opening, and means for forcing a current of air through said air-conduit, substantially as described.

14. In a pneumatic stacker for corn-shellers, a stacker-tube having an upper conduit for the cobs and chaff and a lower air-blast conduit, a cob-discharge opening in its under side at the end of the lower conduit and a separate chaff-discharge opening, a deflector terminating some distance above said cob-discharge opening and adapted to guide the cobs to said opening and permit the passage of the dust and finer chaff, and means for causing an air-blast through said conduits, substantially as described.

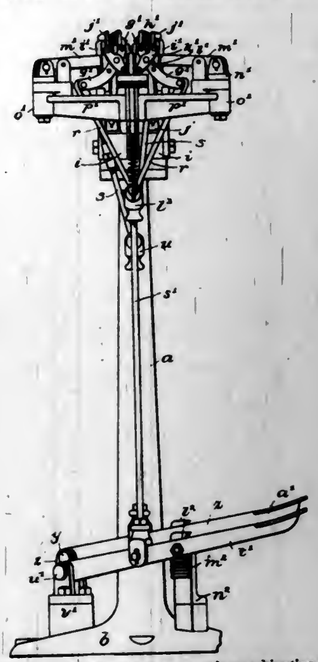
596,808. MACHINE FOR STRETCHING BOOT OR SHOE UPPERS. AUGUSTUS SEAVER, Boston, Mass. Filed Oct. 17, 1896. Serial No. 609,201. (No model.)

Claim.—1. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers comprising an arm movably connected with said support and having a jaw to engage an upper on such last on the side of said upper which is toward the last, and a complemental jaw to engage the opposite side of the upper and movably connected with said arm; and means for moving the said complemental jaw relatively to the arm, said means also operating to move the latter relatively to the support.

2. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers comprising an arm pivotally connected with said support and having a jaw to engage an upper on such last on the side of said upper which is toward the last, and a complemental jaw to engage the opposite side of the upper and movably connected with the said arm; and means for moving said complemental jaw relatively to the arm, said means also operating to move the latter relatively to the support.

3. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers comprising an arm pivotally connected with said support and having a jaw to engage an upper on such last on the side of said upper which is toward the last, a complemental jaw to engage the opposite or outer side of the upper, and a lever pivoted to the arm and connected with the complemental jaw; and means applied to said lever for moving the latter jaw toward the jaw on said arm, said means also operating to move the arm on its pivot.

4. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers comprising an arm pivotally connected with said support and having a jaw to engage the inner side of an upper on such last, a complemental jaw to engage the opposite or outer side of such upper, and a lever pivoted to the arm and connected with the complemental jaw, said lever extending somewhat beyond its point of connection with one of said parts; and means applied to said extension for moving the complemental jaw toward the arm, said means also operating to move the arm on its pivot.



5. In a machine for stretching uppers, the combination of a last-support, upper grippers and stretchers at opposite sides of the said support and each comprising a member pivotally connected with the latter and a complemental member pivotally connected with the first-named member, means for moving said members together, which means also operate to move the grippers on their pivotal connections with the last-support, and means for holding the grippers yieldingly open and retracted.

6. In a machine for stretching uppers, the combination of a suitable last-support; gripper-carrying arms at opposite sides of the same and pivotally connected therewith for movement transversely thereof, each of said arms having a gripping-jaw; means for yieldingly holding the arms outwardly; arms outside said first-named arms and having gripping-jaws in juxtarelation to those of the latter; a set of cross levers for each pair of gripper-arms, each set comprising two crossed members jointed to each other and each jointed to each arm and one exteuding considerably beyond its point of connection with the inner arm: and means applied to the extensions of said levers for operating the same to close the jaws together and to move the inner arms toward each other, subetantially as and for the purpose described.

7. A machine for stretching uppers comprising an abutment to receive a last, oppositely-arranged gripping-jaws located on both sides of the abutment, levers pivoted to swing longitudinally of the last and on each of which a pair of jaws is mounted, and operative means for automatically closing the jaws and swinging said levers longitudinally of the last.

8. A machine for stretching uppers comprising an abutment to receive a last, oppositely-arranged gripping-jaws located on both sides of the abutment adjacent the shank of the last, and coacting oppositely-arranged jaws located between the shank and the toe of the last, means for moving said last-mentioned jaws against the stress of the abutment, to stretch the upper transversely of the last, and toward the toe to stretch the upper lengthwise of the last, and means for moving the first-mentioned jaws to stretch the upper transversely of the last and under the shank.

9. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers in a support movable longitudinally of the last on the first-named support; and means for closing the grippers on the upper, said means also operating to move said grippers-support longitudinally of the last.

10. A machine for stretching uppers, comprising an abutment to receive a last with an upper thereon, oppositely-acting grippers each pivoted to swing longitudinally of the last, and grippers each pivoted to swing transversely of the last.

11. A machine for stretching uppers, comprising a standard having an abutment to receive a last with an upper thereon, oppositely-acting grippers each pivoted to swing longitudinally of the last, grippers each pivoted to swing transversely of the last, operative levers for actuating said grippers in one direction, and springs for returning the grippers to their normal position.

12. A machine for stretching uppers, comprising a standard having an abutment to receive a last with an upper thereon, oppositely-acting grippers each pivoted to swing longitudinally of the last, grippers each pivoted to swing transversely of the last, operative levers for actuating said grippers in one direction and means for locking said levers.

13. A machine for stretching uppers, comprising a standard having a last for the upper, two coacting gripping-jaws arranged on each side of the last, an arm for each pair of coacting jaws, a pin for each arm to which said arm is pivoted to swing transversely of the last, each pin being swiveled in the standard to permit the arms to swing longitudinally of the last, whereby the gripping-jaws have a universal movement.

14. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers movably mounted on said support and comprising a pair of jaws arranged to grasp an upper on such last, and equalizing connections between the said jaws preserving their parallelism; and means for closing said grippers and moving them to stretch the upper.

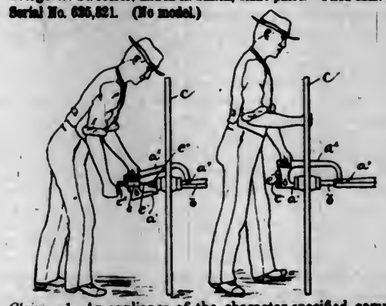
15. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers movably mounted on said support and comprising a pair of jaws arranged to grasp an upper on such last, and crossed levers pivotally connected with the jaws and with each other and preserving parallelism of the jaw; and means applied to said crossed levers for closing the grippers.

16. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers movably mounted on said support and comprising a pair of jaws arranged to grasp an upper on such last, and crossed levers pivotally connected with the jaws and with each other and preserving parallelism of the jaws; and means applied to said crossed levers for closing the grippers, said means also operating to move the grippers relatively to the support.

17. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers movably mounted on said support and comprising a pair of jaws arranged to grasp an upper on such last, and crossed levers pivotally connected with said jaws and with each other and preserving parallelism of the jaws, one of said levers being extended beyond its point of connection with one of the jaws; and means applied to said extension for moving the jaws toward each other.

18. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers comprising an arm pivotally connected with said support and having a jaw to engage the inner side of an upper on such last, a complemental jaw to engage the outer side of such upper, and crossed levers pivotally connected with the said jaws and with each other; and means applied to said crossed lever for moving the complemental jaw relatively to the arm and for moving the latter relatively to the support.

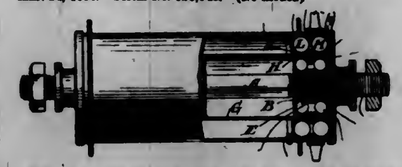
596,809. COMBINED WAGON JACK AND WRENCH. WILLIAM J. TEMPLE, Hampden, Me., assignor of three-fourths to A. A. Pomeroy, George W. Sweetser, and A. A. Smith, same place. Filed Mar. 3, 1897. Serial No. 626,821. (No model.)



Claim.—1. An appliance of the character specified comprising in its construction a frame having a lower arm adapted to be inserted under the end of a wagon-axle and to act both as a support and an extension for said axle against which the wheel may rest when removed from its bearing, and a brace connected with the outer end of said arm and adapted to pass between the spokes of the wheel and rest against the inner portion of the axle, a neck connecting said arm and brace, a bearing hinged to said neck, and a wrench mounted to slide and rotate in said bearing.

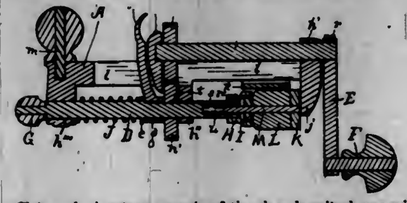
2. An appliance of the character specified, comprising an arm formed to engage an axle-arm and enter a wheel-hub, a brace adapted to project between the spokes of the wheel and bear on the axle, a neck connecting said arm and brace, a handle arranged above said axle-engaging arm, whereby the appliance and axle may be lifted, a bearing hinged in the aforesaid neck, and a wrench mounted to slide and rotate in said bearing, the said wrench having a head formed with a square recess for engaging the axle-nut, and provided with a spring-detent in one of the side walls of said recess for retaining said nut in the recess.

596,810. BALL-BEARING. JOHN P. THOMAS, Chicago, Ill. Filed Mar. 24, 1897. Serial No. 628,946. (No model.)



Claim.—The combination, with a shaft or axle, of an integral inner cylinder surrounding said axle, an outer cylinder surrounding the inner cylinder and axle, said cylinders extending the length of the bearing and said three parts being concentric and having independent relative motion, divided bearings interposed between said three parts at each end of said axle, and provided with grooves forming raceways arranged in two parallel planes perpendicular to the axis of revolution at each end of the bearing, balls arranged in said grooves, and caps applied to the axle and overlapping the ends of the outer cylinder, substantially as described.

596,811. ROTARY WRENCH. JAMES H. WARWICK, Kokomo, Ind. Filed Apr. 3, 1897. Serial No. 630,565. (No model.)



Claim.—1. A rotary wrench of the class described, comprising a frame A, having bearings *h*, *h'*, *h''*, and *h'''*, a slot *l*, an opening *o*, parallel rails *i*, and a jaw *j*, journals C, and D, supported by said bearings, cog-wheels *n*, and *n'*, mounted upon said journals, one of said journals having a crank E, and the other provided with a wrench-head H, a band *g*, having an arm *f*, whereby said journal may be slid back and provided with a coil-spring J, whereby the journal is pressed forward, all substantially as shown and described.

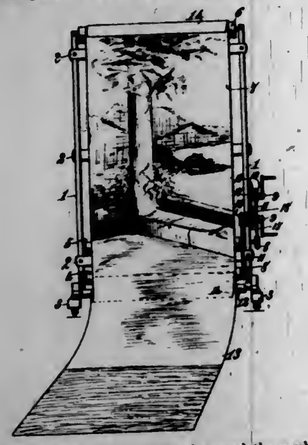
2. A rotary wrench of the class described, having a frame A, provided with journal-bearings *h*, *h'*, *h''*, and *h'''*, a slot *l*, an opening *o*, parallel rails *i*, a knob B, and a jaw *j*, in combination with a means for instantly engaging a nut upon a tire-bolt, and a means for turning said nut, consisting of the sliding journal D, having the arm *f*, the groove *s*, and the head H, the cog-wheels *n*, and *n'*, the journal C, and the crank E, substantially as set forth.

3. In a rotary wrench of the class described, the combination of a main frame A, having the journal-bearings *h*, *h'*, *h''*, and *h'''*, the knob B, the jaw *j*, the slot *l*, the parallel rails *i*, carrying the slide-block *k*; the crank E, the journal C, and the cog-wheel *n*, with a slidably-mounted journal D, having a groove *s*, a head H, a band *g*, having an arm *f*, a coil-spring J, and a cog-wheel *n'* having a tongue *t*, within its axial opening adapted to enter the groove *s*, in the journal D, substantially as and for the purposes shown and described.

4. In combination in a rotary wrench of the class described, the frame A, having the opening *o*, the slot *l*, the knob B, the jaw *j*, the parallel rails *i*, and the journal-bearings *h*, *h'*, *h''*, and *h'''*; the journal C, having the cog-wheel *n*, the crank E, having the knob F, the slide-block *k*, the journal D, having the groove *s*, and carrying the knob G,

the coil-spring J, the ring *e*, the band *g*, having the arm *f*, the cog-wheel *n'*, having the tongue *t*, within its axial opening, and the head H adapted to engage a bolt-nut, substantially as set forth.

596,812. PHOTOGRAPHIC-BACKGROUND CARRIER. SAMUEL F. RADELEY, Louisville, Ky., assignor to the Badgley & Hoerter Company, same place. Filed July 3, 1897. Serial No. 643,362. (No model.)

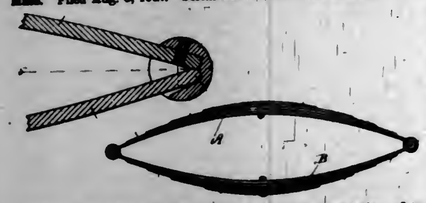


Claim.—1. In a photographic background, the combination with a frame or carrier and rollers mounted thereon, of a flexible background-strip wound on said rollers and provided with a plurality of sections having contrasted shaded or scenic effects, a floor-cloth connected at one end with the lower portion of said frame or carrier and having a plurality of sections corresponding to the sections on said strip, and a plurality of strips each attached at its upper end to the lower edge of one of the sections on the background-strip and arranged to lie at its free edge on said floor-cloth, substantially as described.

2. In a photographic background, the combination with a frame or carrier having rollers 4 5 journaled in its lower end and a guide-roller 6 in its upper end, a flexible background-strip 7 wound on the rollers 4 5 and passed over the roller 6, a spring-roller 12 journaled in the frame below the roller 4, a floor cloth 13 wound upon said spring-roller, and a plurality of strips 14 attached at their upper edges at intervals to said background-strip and adapted to lie at their free edges on said floor-cloth, and means for rotating the rollers 4 5, substantially as described.

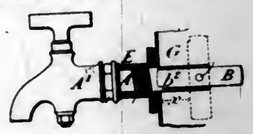
3. In a photographic background, the combination with a frame or carrier, of rollers 4 5 journaled on the opposite sides and lower end of said frame and carrying sprocket-wheels, sprocket-wheels 10 mounted on crank-shafts 9 journaled in the frame above the rollers 4 5, chains connecting said sprocket-wheels, a guide-roller 6 journaled in the upper end of the frame, a flexible background-strip 7 wound on the rollers 4 5 and passed over the roller 6, a spring-roller 12 journaled in the frame below the roller 4, a floor-cloth 13 wound on said spring-roller, and a plurality of strips 14 attached at their upper edges at intervals to the background-strip and adapted to lie at their free edges on said floor-cloth, substantially as described.

596,818. CARRIAGE-SPRING. SAMUEL R. BAILEY, Amesbury, Mass. Filed Aug. 5, 1897. Serial No. 647,177. (No model.)



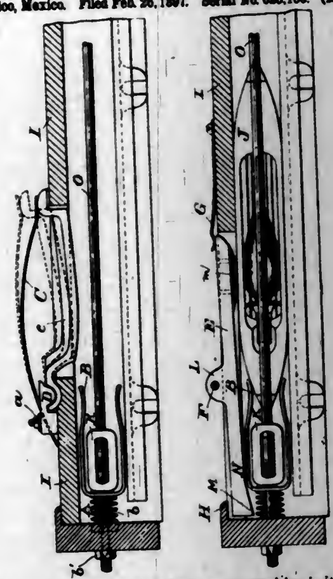
Claim.—The herein-described carriage-spring consisting of two members, to the ends of one of which are secured socket-pieces having closed ends, and the ends of the other member of which are freely disposed in said socket-pieces and confined against lateral displacement by the closed ends thereof, substantially as described.

596,814. COCK, TAP, OR VALVE FOR FACILITATING ATTACHMENT TO CASKS, TANKS, &c. THOMAS L. BANES, London, England. Filed Feb. 10, 1897. Serial No. 622,809. (No model.) Patented in England May 19, 1893, No. 10,047.



Claim.—In a device for securing a cock or tap to a vessel, the combination with a spigot-shank, A, of a forked piece B pivotally attached intermediate its ends to the end of said shank and arranged to normally assume a position at right angles thereto when the shank is turned in one direction, and a stop for holding the said forked piece in alinement with the shank when the latter is turned into the opposite position, substantially as described.

596,815. SHUTTLE-CHECK FOR LOOMS. JOHN BANISTER, Mexico, Mexico. Filed Feb. 26, 1897. Serial No. 626,106. (No model.)



Claim.—1. A shuttle-check for looms, comprising in its construction a fork-spring adapted to permit the passage of the picker between its prongs, said fork having a longitudinal movement in the shuttle-box, and a spring to cushion the movement of said fork in one direction.

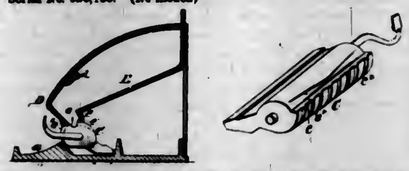
2. A shuttle-check for looms, comprising in its construction the fork B having spring-prongs adapted to permit the passage of the picker between them, and a spiral spring located between the back of the fork and the end of the shuttle-box.

3. A shuttle-check for looms, comprising in its construction the fork B having spring-prongs projecting beyond the picker when the latter is at rest and having the stem *b* extending through the end of the shuttle-box and provided with nut *b'*, and the spiral spring A coiled about said stem *b* and adapted to cushion the fork B.

4. The combination with the shuttle-box of a loom, of a lever the inner end of which is adapted to engage the side of the shuttle to prevent is rebound, and the other end having an inclined portion, of a fork-shaped slide having its prongs adapted to be engaged by the shuttle and movable along said box and adapted to engage the inclined portion of the lever, and a spring-buffer for said fork-shaped slide.

5. The combination with the shuttle-box of a loom, of the lever E having its inner end adapted to engage the side of the shuttle and its other end provided with the inclined portion M, the fork B having shoulder N and the spring-prongs adapted to be engaged by the shuttle and movable longitudinally of said box, and the spiral spring A between said fork and the end of the box, substantially as and for the purpose specified.

596,816. MATCH-SAFE. AMOS BARNES, Detroit, Mich., assignor to James Gamble and John M. Brewer, same place. Filed Mar. 6, 1897. Serial No. 626,185. (No model.)



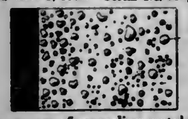
Claim.—1. In a match-safe, a delivery-roll provided with a longitudinal groove, the rear wall of which is of the maximum height at the center and receding toward the ends, substantially as described.

2. In a match-safe, the combination of the frame, a roll mounted in the frame provided with a longitudinal groove, an inclined bottom, and a depending wall over the groove at the end of the bottom, having its surfaces at right angles to the surface of the roll whereby the matches carried back by the roll when returned will be forced against the depending wall and straightened out, substantially as described.

3. In a match-safe, the combination of the frame, the roll provided with a longitudinal groove mounted in the frame, the inclined bottom and depending wall at the end of the bottom over the roll provided with the right-angled edge *e'*, substantially as described

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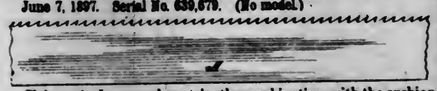
596,817. ENAMELING METAL SURFACES. JOHN BENTZ, Baltimore, Md. Filed Jan. 5, 1897. Serial No. 617,997. (No specimens.)



Claim.—1. The process of enameling metal surfaces, which consists of coating the metal article with a foundation-coat of enameling composition; applying to said coat while it is still moist artificial crystal-stone composition in the form of stripes, grains, pebbles, or other fanciful form, so as to embed the same in the foundation-coat, but have the inlaid particles projecting slightly; then subjecting the metal article to heat in a baking-oven so that one baking will develop the foundation-coat and merge the artificial crystal-stone composition therein and produce a cameo effect.

2. The process of enameling metal surfaces, which consists of coating the metal article with a foundation coat of enameling composition; applying to said coat while it is still moist artificial crystal-stone composition in hot, fused and viscid condition; then subjecting the metal article to heat in a baking-oven so that one baking will develop the foundation-coat and merge the artificial crystal-stone composition therein.

596,818. WEATHER-STRIP. GEORGE J. BLUM, Chicago Ill. Filed June 7, 1897. Serial No. 639,579. (No model.)



Claim.—1. In a weather-strip, the combination, with the cushion, of a metallic back having a serrated edge bent or folded and forced through the cushion and there upset and clenched, substantially as set forth.

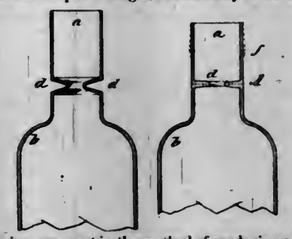
2. In a weather-strip, the combination, with the cushion, of a metallic back, having a serrated edge and having its adjacent marginal portion bent or folded upon itself, and over the cushion, the serrations of the edge being forced through the cushion, substantially as set forth.

3. In a weather-strip, the combination, with the cushion, of a metallic back having a serrated edge and having its adjacent marginal portion bent or folded upon itself and over the cushion, the serrations of the edge being forced through the plies of the cushion and caused to impinge on the body of the back, substantially as set forth.

4. In a weather-strip, the combination, with the cushion, of a metallic back having a serrated edge and having its adjacent marginal portion bent or folded upon itself and over the cushion, the serrations of the edge being forced through the cushion and caused to forcibly impinge upon the body of the back, whereby said serrations are upset and clenched, substantially as set forth.

596,819. MANUFACTURE OF NECKS OF GLASS BOTTLES. HOMER BROOKS, Jersey City, N. J. Filed Oct. 9, 1896. Serial No. 608,319. (No model.)

Claim.—1. The improvement in the method of producing an internal shoulder, ridge or fitting in the neck of a bottle below its mouth, which consists in rendering the neck of the bottle below its mouth sufficiently plastic by heat, protecting the mouth portion of the bottle from being overheated, and while in such condition inwardly displacing the glass below the mouth, thereby producing the required internal shapes or ridges, substantially as described.



2. The improvement in the method of producing an internal annular shoulder or flange in the neck of a bottle which consists in rendering the neck of the bottle plastic, and while in such condition annularly grooving and inwardly displacing the glass, thereby producing the internal ridge or flange with a contracted opening therewithin, substantially as described.

3. The improvement in the method of producing an internally and annularly shouldered bottle-neck which consists in producing a bottle-neck with an annular groove, maintaining the so-grooved portion of the neck plastic by heat, and while plastic compressing in the direction of the axis of the neck, closing the walls of the groove and leaving the neck exteriorly flush or cylindrical, substantially as described.

4. The improvement in the method of producing an internally and annularly shouldered bottle-neck which consists in producing a neck with an annular groove, subjecting the neck to heat which is of a degree sufficient to render the glass plastic, shielding the portion of the neck above the groove from the excessive action of the heat whereby such portion is not melted away or distorted, and whereby such upper portion remains capable of withstanding mechanical pressure applied thereupon, and compressing the neck in the direction of its axis whereby the plastic portion comprising the groove is closed, substantially as described.

5. The improved glory-hole furnace for employment in the manufacture of bottle-necks having internal projections below their mouths, substantially as described, which comprises a furnace-chamber, one or more glory-holes, having internally-provided thimble-shaped hoods or shields, *g*, into which the necks of the bottles may be inserted, and provided with sidewise flame-openings, *i*, forward of their closed inner ends, and between the latter and their open outer ends, and means for maintaining a suitable high heat in the furnace-chamber, substantially as described.

596,820. PRINTING-TELEGRAPH. BYRON A. BROOKS, Brooklyn, N. Y. Filed Aug. 11, 1894. Serial No. 520,016. (No model.)

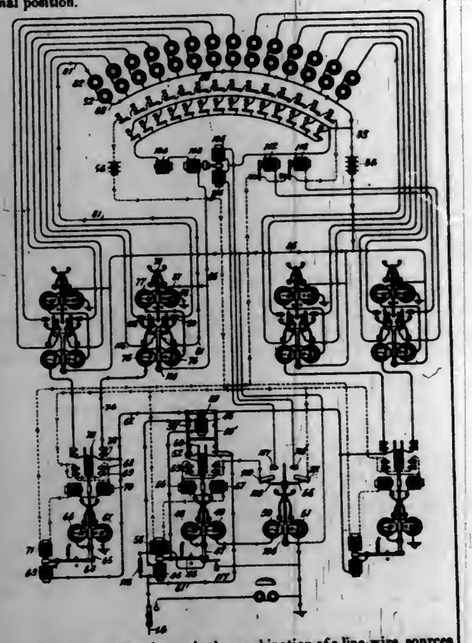
Claim.—1. In a printing-telegraph the combination of a line-wire and electric switches connected in series in said line and means for sending a characteristic succession of impulses over said line and through said switches successively whereby a final impulse is transmitted directly to a magnet controlling the corresponding printing mechanism.

2. In a printing telegraph the combination of a line-wire and electric switches connected in series in said line and means for sending a characteristic succession of impulses over said line and through said switches successively whereby a final impulse is transmitted directly to the magnet controlling the corresponding printing mechanism and means controlled by the operation of the printing mechanism for restoring said switches to their normal position.

3. In a printing-telegraph, the combination with a vibratory member at the receiving end of the line, of a keyboard at the sending end of the line provided with a plurality of keys arranged in groups corresponding to groups of types in the receiver some of which when operated transmit over the line an impulse in addition to their characteristic succession of impulses whereby said vibrating member of the printing mechanism is operated and the types of the corresponding group are printed.

4. In a printing-telegraph, the combination of a keyboard, sources of electricity, contact-points and saltable connections so arranged that by the operation of a single key a succession of contacts are made and a characteristic succession of impulses of varying strength and polarity are sent over the line, combined with a series of type-carriers each of which is operated by a predetermined succession of impulses.

5. In a printing-telegraph the combination of a line-wire, a keyboard, a plurality of switches connected thereto in series, said switches being successively operated by impulses of varying strength and polarity transmitted over the line, by the operation of keys on the keyboard, means for retaining the switches in their new position until the printing operation is completed, a series of printing magnets and means connected with the impression mechanism for automatically unlocking said switches and permitting them to return to their normal position.



6. In a printing-telegraph, the combination of a line-wire, sources of electricity, means for sending in succession a series of characteristic impulses over said line, magnets controlled by said impulses to operate said switches, magnets for holding said switches in position until the printing operation is effected and means for returning said switches to their normal position after the printing operation is effected.

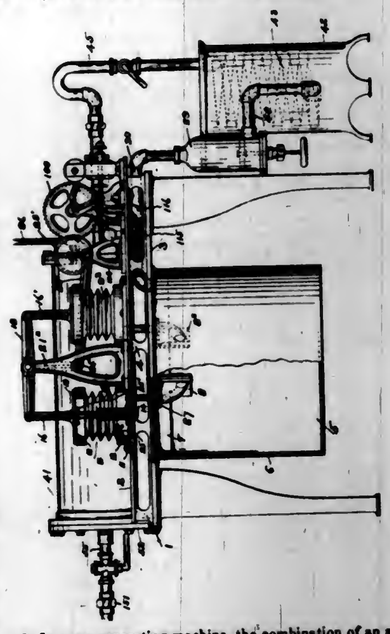
7. In a printing-telegraph the combination of a keyboard, a series of printing-magnets corresponding to the keys on said keyboard, means for sending in succession a series of characteristic impulses over the line-wire, switches operated by said impulses, local circuits for locking said switches, local circuits for operating the printing-magnets and means for sending back currents by the operation of the printing mechanism whereby the switches are unlocked and restored to their normal position.

8. In a printing telegraph the method of actuating a distant printing mechanism electrically, consisting in sending a characteristic series of electrical impulses over a single line-wire by the operation of one of the keys of a keyboard at the sending end whereby a series of switches are successively operated to direct the final impulse to the corresponding magnet at the receiving end and local circuits are simultaneously brought into action to hold said switches in position and finally said local circuits are broken to release said switches, and permit them to return to their normal position simultaneously with the act of printing.

9. In a printing-telegraph the combination of a keyboard, a series of type-carriers each of which is operated by a predetermined succession of impulses, a line-wire and electric switches connected in series in said line, means for sending a characteristic succession of impulses over said line and through said switches successively by the operation of a single key, magnet, operating the impression mechanism and means by which a final impulse is transmitted through said switches directly to a magnet operating a type-carrier corresponding to the key operated on the keyboard.

596,321. GAS-GENERATING MACHINE. LOUIS T. BULLEY, New Haven, Conn. Filed Jan. 30, 1897. Serial No. 621,313. (No model.)

Claim.—1. In combination with a generator-tank having an oil and drying chamber, of a continuously-revolving basket within said generator-tank mounted upon a central shaft whose ends are within the interior of said tank, of a plurality of pumps operated by the same motive mechanism that rotates the aforesaid basket, of an air-tank to receive the air-supply from said air-pumps, of pipe connections between said air-tank and said generator-tank, of a motor adapted to operate said pumps and continuously rotate said basket, the said motor being controlled by the amount of carbureted air exhausted from said generator-tank, substantially as described.



2. In a gas-generating machine, the combination of an air tank or reservoir, a generator-tank containing two chambers independent of each other, one a drying-chamber and the other an oil-chamber, pipe connections between said air tank or reservoir and said generator-tank, a continuously-revolving basket within said oil-chamber, means for revolving said basket, an automatic starting and stopping mechanism for said means controlled by the air-pressure in said tank or reservoir which in turn is governed by the amount of air passing through said generator-tank, substantially as described.

3. In a gas-generating machine, the combination of an air tank or reservoir for the air-supply, a generator-tank containing an oil-chamber and a drying-chamber, a continuously-revolving basket within said oil-chamber, a pressure-regulator to even and purify the air before entering the generator-tank, the said pressure-regulator comprising an outer case containing an interior chamber filled with a porous material and provided with means to vary the length of said chamber whereby the pores in said porous material may be opened or closed, pipe connections between said air-tank and said pressure-regulator and between said pressure regulator and said generator-tank, substantially as described.

4. In a gas-generating machine, a generator-tank having an internal oil-chamber between one end of said tank and an intermediate head, a drying-chamber between said intermediate head and the other end of said tank, the said drying-chamber containing a porous material between two perforated diaphragms united by a central bolt and adapted to be removed from the generator-tank complete without disturbing any of its operative parts, a continuously-revolving basket within said oil-chamber mounted on a central shaft having bearings in the said intermediate head, and an annular collar secured to the head of said tank, with means for rotating said basket continuously, substantially as described.

5. In a gas-generating machine, the combination of a generator-tank the interior of which is divided into two sections and one of which contains oil, a circular basket within said generator-tank, having a perforated jacket filled with sponge or other porous substance and mounted upon a central shaft journaled in the intermediate head and the collar at the head of said tank whereby both ends of said shaft are within the interior of said tank and means for rotating said basket in said oil-chamber, substantially as described.

6. In a gas-generating machine, the combination of the generator-tank 41 constructed as herein described, a revolving basket mounted on shaft 61 within said generating-tank, intermediate head 65 at one end of said oil-chamber, a drying-chamber substantially as herein shown between said intermediate head and the head of said tank, gear 67 upon said basket-shaft 61, pinion 68 mounted upon pinion-shaft 69, the said gear 67 and the said pinion 68 located and operating within said tank pinion-shaft 69 and worm-gear 71 rigidly secured to the outer end of said pinion-shaft 69, substantially as described.

7. In a generator-tank for a gas-generating machine, the combination of the outer jacket 46, head 52 with a central boss 56 to which is secured the exhaust-pipe 55, the said head being bolted to an annular ring 51 which is sweated to the said jacket, head 50 with a central boss to which is secured the inlet-pipe 45, the head 50 being secured to a collar 57 riveted and sweated to the said jacket, intermediate head 65 within said jacket and between the aforesaid heads 50, 52, automatic valve 75 for regulating the supply of oil in said generator-tank, substantially as described.

8. In a gas-generating machine for automatically regulating the supply of oil within the generator-tank, the combination of a valve-body, valve and valve-stem within said body, a lever pivotally connected with said body, a float below said body and a spring connecting said float with said body substantially as described.

9. In a gas-generating machine for automatically regulating the supply of oil within the generator-tank, the combination of the valve-body 77 having a central chamber 78 and port-holes 89, 90 passing through said valve-body into said chamber, valve 87 and integral stem 78 operating in said chamber, lever 82 pivotally connected with said valve-body, float 84 and spring 83 connecting said lever with said float substantially as described.

10. In a gas-generating machine, the combination of the stand 105, insulated base 106 mounted in said stand, a series of contact-buttons 107 secured to said base, lever 127, pivotally mounted on said base, antifriction-wheel 120 mounted in said lever, counterbalances 112, 112′ upon opposite sides of the central bearing of said lever 127, threaded rods 113, spring-actuated movable contact-button 130 in one arm of said lever, cylinder 114 projecting upward from the bed-plate of said machine, air-actuated piston-rod 117 circular disk 119 in one end of said piston-rod, and threaded nut 122 substantially as described

11. In a gas-generating machine, the combination of the bed-plate 1, a plurality of pumps secured to said bed-plate, means for operating said pump, an air-tank to receive the air from said air-pumps, a generator-tank containing an oil-chamber and drying-chamber, means for conveying air from said air-tank to said generator-tank, a pressure-regulator for regulating the pressure of the air as it is being conveyed from the said air-tank to the said generator-tank, a revolving basket within said generator-tank, an electric motor secured to the said bed-plate, means for revolving said basket from said electric motor, a current-controller for controlling the current in said electric motor, means for operating said current-controller by the air-pressure in said air-tank, constructed and operating substantially as described.

596,322. HEARSE. NEWEL CARPENTER, Sr., White Creek, Wis. Filed Feb. 5, 1897. Serial No. 622,237. (No model.)



Claim.—1. The combination with a hearse, of a series of toothed rollers journaled below the floor thereof, means for imparting corresponding peripheral speed to all of the rollers of the series, and means for locking said rollers against rotation, substantially as described.

2. The combination with a hearse having a slotted floor, of a series of toothed rollers journaled within the hearse to have their working surfaces protrude above the slotted floor, a counter-shaft geared to all of said rollers, and a locking device to restrain the counter-shaft and the rollers against rotation, substantially as described.

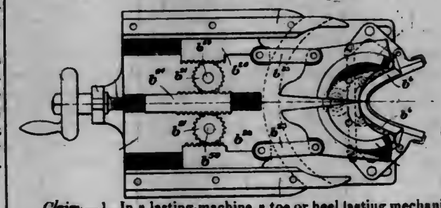
3. The combination with a hearse having its floor provided with a series of transverse slots, of a supporting-frame fixed within the hearse below the slotted floor thereof, a series of rollers journaled in said frame and arranged to have their toothed working surfaces protrude through the slots in said floor, a counter-shaft geared to the shafts of all the rollers, a driving-shaft carrying one of said rollers, geared to the counter-shaft and provided with a detachable crank, and a locking device associated with the driving-shaft, substantially as described.

4. The combination with a hearse having a slotted floor, of a driving-shaft journaled beneath said floor and carrying a toothed roller, a series of rollers, a counter-shaft geared to the driving-shaft and geared to said rollers, a radially-notched disk fastened to the driving-shaft, and a spring-controlled pawl to engage with said notched disk, substantially as described.

5. The combination with a hearse, of a supporting-stand adapted to have one end thereof connected detachably to the hearse and provided with a series of idle-rolls, and foldable legs attached to said stand, substantially as described.

6. The combination with a hearse and a series of rotatable toothed rollers journaled therein, of a supporting-stand connected detachably to the hearse to have its series of idle-rolls occupy substantially the same horizontal plane as the toothed bearing-rollers, foldable legs attached to said stand-frame, and suitable stays connected with the stand-frame and the foldable legs thereof, substantially as described.

596,323. LASTING-MACHINE. ARTHUR W. EATON, Boston, Mass., assignor to the Seaver Process Lasting Company, same place. Filed Nov. 11, 1896. Serial No. 611,690. (No model.)



Claim.—1. In a lasting-machine, a toe or heel lasting mechanism comprising a base or support, a carrier movable thereon, devices for moving the carrier, wipers pivotally connected with the carrier, mechanism operated by movements of the carrier for giving the wipers an accelerated motion, and wiper adjusting devices cooperating with said mechanism, said devices being independent of the carrier-moving devices.

2. In a lasting-machine, a toe or heel lasting mechanism comprising a base or support, a carrier movable thereon, wipers pivotally connected with the carrier, pinions engaged with the carrier to move bodily therewith, an adjustable rack mounted on the base between the pinions and meshing therewith, and connections between the pinions and wipers whereby motion is imparted to the wipers.

3. In a lasting-machine, a toe or heel lasting mechanism comprising a base or support, a carrier movable thereon, wipers pivotally connected with the carrier, pinions engaged with the carrier to move bodily therewith, a rack secured to the base, and meshing with the pinions, sliding racks meshing with the pinions, and links connecting said racks with the wipers.

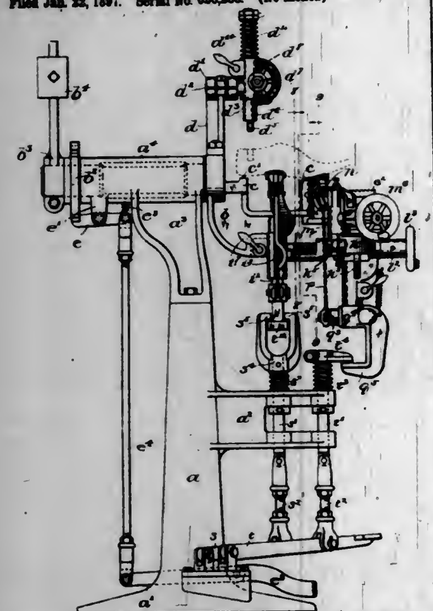
4. In a lasting-machine, a toe or heel lasting mechanism comprising a base or support, a carrier movable thereon, wipers pivotally connected with the carrier, pinions engaged with the carrier to move bodily therewith, a rack secured to the base, and meshing with the pinions, means for adjusting and positively holding said rack, and connections between the pinions and wipers whereby motion is imparted to the wipers.

596,324. SMOKELESS POWDER. FRANCIS A. HALSEY, San Rafael, Cal., assignor of one-half to William C. Savage, same place. Filed Feb. 19, 1897. Serial No. 624,231. (No specimens.)

Claim.—A compound consisting of an alkaline metal chromate.

an alkaline-earth-metal nitrate, ammonium picrate, an alkaline-metal permanganate and an alkaline metal silicate.

596,325. MACHINE FOR STRETCHING UPPERS. WILLIAM S. HANN, Newton, Mass., assignor to Augustus Seaver, Boston, Mass. Filed Jan. 22, 1897. Serial No. 620,208. (No model.)



Claim.—1. In a machine for stretching uppers, the combination of a reversible support affording an abutment for a last; upper grasping and stretching means carried by said support; a lock to hold said means in grasping and stretching condition; and an operating member on a fixed support, the said upper grasping and stretching means and the said operating member having disconnected parts interlocking only for combined movement relative to the reversible support.

2. In a machine for stretching uppers, the combination of a support rotatively mounted for reversibility and affording an abutment for a last; upper grasping and stretching means carried by said support; a lock to hold said means in grasping and stretching condition; and an operating member on a fixed support, said means and the operating member having disconnected parts interlocking for combined movement relative to the reversible support, without obstructing rotary movement of the latter.

3. In a machine for stretching uppers, the combination of a reversible support affording an abutment for a last; a carriage longitudinally movable on said support; upper grasping and stretching means on said carriage; a lock to hold said means in grasping and stretching condition; and an operating member on a fixed support, said operating member and the grasping and stretching means having disconnected parts interlocking for combined movement relative to the reversible support, with provision for adjustment of the carriage longitudinally of said support.

4. In a machine for stretching uppers, the combination of a support affording an abutment for a last; grippers movably mounted on said support so as to move transversely of and toward and away from the last thereon; and a toggle between the grippers and the support and operating both to close the grippers and to move the same relatively to the support.

5. In a machine for stretching uppers, the combination of a support affording an abutment for a last, an arm pivoted to the said support and having a jaw to engage one side of an upper on such last, a complemental jaw to engage the opposite side of the upper, a lever pivotally connected with the arm and with the complemental jaw, and a toggle one member of which is connected with the said lever and the other with the support.

6. A machine for stretching uppers, comprising a last, an abutment therefor, two pairs of oppositely-arranged grippers, and means for causing one pair of grippers to be moved inwardly under the last, and additional means for causing the other pair of grippers to be moved longitudinally of the last.

7. In a machine for stretching uppers, the combination of a reversible support affording an abutment for a last; grippers on said support and arranged to act upon an upper on such last; means carried by the support for closing the grippers on the upper and for moving them to stretch the same, said means including a reciprocating bar having a head or lateral projection; an automatic lock associated with said bar; and an operating member on a fixed support and having a part coacting with the projection or head on said bar to secure combined movement of the latter and the operating member relative to the reversible support.

8. A machine for stretching uppers, comprising a reversible abutment to receive a last, two pivoted gripping-arms pivoted to the abutment and each having a coacting gripping-arm connected thereto, a stationary standard, an operating-lever mounted on said standard, and suitable connections between said lever and the gripping devices.

9. A machine for stretching uppers, comprising an abutment, gripping-jaws arranged adjacent the abutment, means for closing the jaws and moving them transversely of the last, and additional means for moving said jaws longitudinally of the last.

10. A machine for stretching uppers, comprising an abutment, gripping-jaws arranged adjacent the abutment, a pivoted lever for the jaws, means for closing the jaws and swinging the lever transversely of the last, and means for adjusting said lever longitudinally toward and from said last.

11. A machine for stretching uppers, comprising an abutment, gripping-jaws arranged adjacent the abutment, a pivoted lever for the jaws bodily movable in the direction of its length, means for closing the jaws and swinging the lever transversely of the last, means for adjusting said lever longitudinally toward and from the last, and means for adjusting said lever bodily longitudinally of the last.

12. A machine for stretching uppers, comprising an abutment, gripping-jaws arranged adjacent the abutment, a pivoted lever for the jaws, means for closing the jaws and swinging the lever transversely of the last, and means for adjusting said lever to present the jaws with their edges parallel to the edge of the sole of the last.

13. A machine for stretching uppers, comprising an abutment, gripping-jaws arranged adjacent the abutment, means for causing the jaws to stretch the upper, a pivotal support for said jaws adjustable to present their edges parallel to the edge of the sole of the last, and means for locking said support against backward movement on its pivot, substantially as described.

14. A machine for stretching uppers comprising an abutment adapted to receive a last, gripping-jaws mounted upon the said abutment, a carriage movable relatively to the abutment, gripping-jaws mounted on said carriage, and means for operating said jaws to stretch the upper.

15. In a machine for stretching uppers, the combination of a reversible support affording an abutment for a last, a reciprocating pin on said support and adapted to engage the last and hold it against the abutment, and means for manipulating said pin.

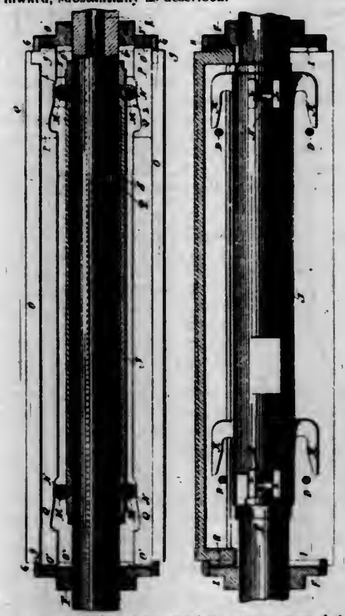
16. In a machine for stretching uppers, the combination of a reversible support affording an abutment for a last, a reciprocating pin on said support and adapted to engage the last and hold it against the abutment, means for moving said pin into engagement with the last, and an automatic lock to hold said pin in such engagement.

596,326. EXPANSIBLE DRUM. IRA L. HAWKINS, Waterbury, Conn. Filed June 14, 1897. Serial No. 640,591. (No model.)

Claim.—1. An expansible drum, comprising two segmental shells, wedges interposed between the edges of said shells, a shaft upon which said shells and wedges are supported, a sleeve on said shaft within said shells, and formed with fingers adapted to draw said shells together, and means for forcing said wedges outward, and a rod extending through said shaft, and connected with said sleeve, whereby said sleeve may be moved longitudinally upon said shaft, substantially as described.

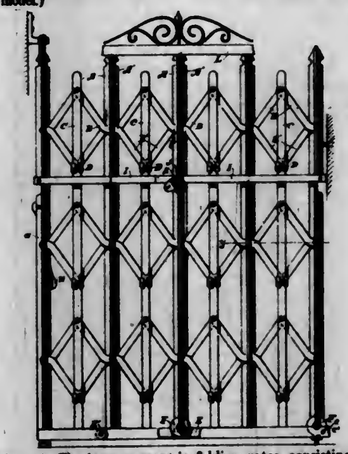
2. An expansible drum comprising two shells formed with inwardly-extending ribs, pins extending transversely through said ribs, and wedges between the edges of said shells, a shaft on which said shells and wedges are mounted for rotation, a sleeve mounted on said shaft, and carrying bevel-ended fingers for engagement with said pins, and means also carried by said sleeve for forcing the wedges outward, a rod extending through said shaft, and a connection between said sleeve and rod, whereby the sleeve may be moved longitudinally on the shaft, substantially as described.

3. An expansible drum, comprising two shells formed with inwardly-beveled edges, and two wedges formed with beveled sides corresponding to the bevel on the shells, a shaft, and means for supporting and holding the said shells and wedges thereon, a sleeve surrounding said shaft within said shells, and carrying fingers for engagement with said shells, and rollers upon which the flanges of the said wedges rest, said flanges formed with cam-surfaces, a rod extending into said shaft, and keyed to said sleeve, whereby said sleeve may be moved transversely to said shaft, and whereby said fingers and rolls are operated to force the wedges outward or draw the shells inward, substantially as described.



4. An expansible drum comprising two segmental shells having leather faces secured to their surfaces and so as to be substantially flush therewith, wedges interposed between the edges of said shells, a shaft upon which said shells and wedges are supported, a sleeve on said shaft within said shells, and formed with fingers adapted to draw said shells together, and means for forcing said wedges outward, and a rod extending through said shaft and connected with said sleeve, whereby said sleeve may be moved longitudinally upon said shaft, substantially as described.

596,327. FOLDING GATE. JAMES H. HENNING and JOHN E. SCHMID, San Francisco, Cal. Filed Oct. 15, 1897. Serial No. 655,272. (No model.)



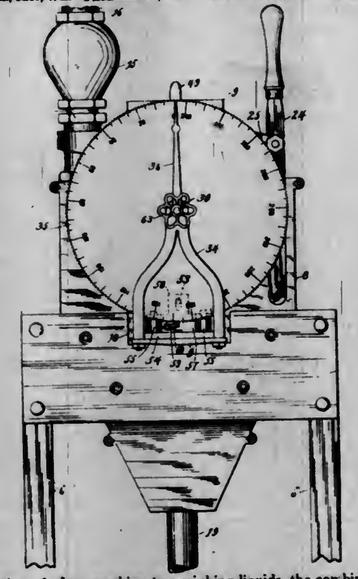
Claim.—1. The improvement in folding gates, consisting of the vertical bars made T-shaped in transverse section having slots made through the central leg, diagonally-disposed bars crossing each other within said slots and turnable upon pivots therein, the ends of these bars extending upwardly and downwardly upon each side of the bar to which they are pivoted, intermediate vertical bars lying between the main bars to which the upper ends of each pair of meeting diagonal bars are pivoted and slides to which the lower ends of the corresponding diagonal bars are pivoted, said slides clasping and being movable upon the intermediate bars.

2. In a folding gate, the vertical T-shaped bars having slots made through the central leg, diagonally-disposed bars crossing each other and pivoted within said slots, said bars having a reverse curve made upon each side of the pivot-point, whereby the upper and lower portions are thrown out of line with each other so as to fold against opposite sides of the central leg of the main bars, intermediate bars with which the upper end of two adjacent diagonal bars are pivoted, slides with which the downwardly-extending arms of the corresponding adjacent pair of diagonal bars are pivoted, said slides clasping and movable upon the intermediate vertical bars whereby the latter are slidable vertically so as to allow the gate to be closed or extended.

3. In a folding gate, the vertically-disposed T-shaped bars having slots made through the central leg, diagonally-disposed bars crossing each other pivoted within said slots, intermediate vertical bars to which the upper meeting ends of the pairs of diagonal bars are pivoted, slides to which the lower ends of the corresponding diagonal crossing bars are also pivoted, said slides clasping and being movable upon the intermediate bars, brace-bars arranged in pairs to press against opposite sides of the main vertical bars having their outer ends pivoted to the exterior bars of the gate, their meeting ends pivoted together, latches projecting from the central vertical bars so that the hinged bars are brought into an approximately straight line when the gate is extended and caused to engage with said latches to form a brace for the gate.

4. In a folding gate, the vertical T-shaped bars and the intermediate vertical flat bars, diagonally-disposed bars pivoted in slots made in the main vertical bars and having their upper and lower ends respectively pivoted to the flat intermediate bars and to clasps which are slidable upon said bars, said diagonal bars being reversely curved at their pivot-points whereby they are foldable closely against opposite sides of the vertical T-bars, bars extending upon opposite sides of the main bars of the gate against which they contact, said bars being pivoted to the exterior vertical gate-bars and having a pivot-joint where they meet in the center whereby they may be folded when the gate-sections are closed together and latches with which they engage when the sections are extended, a channel-iron-guiding track upon which rollers at the lower end of the vertical bars are adapted to travel, said track having a joint by which it is enabled to fold and lie alongside the exterior vertical bar of the gate when the latter is closed together, a catch upon said foldable section and a latch extending across the gate-bars adapted to engage the catch and lock the whole together.

596,328. MACHINE FOR WEIGHING LIQUIDS. HENRY H. HUEB, Cato, Wis. Filed Mar. 19, 1897. Serial No. 628,271. (No model.)



Claim.—1. In a machine for weighing liquids, the combination, of a shaft, a fluid-actuated wheel mounted thereon, an index-wheel

having a series of graduations on one face thereof, and also provided with a series of teeth extending circumferentially therearound, a pointer adapted to be adjusted to any particular point on the scale of the index-wheel, and a dog carried by the shaft of the fluid-actuated wheel, and adapted to engage the teeth of the index-wheel, and thereby rotate said index-wheel intermittently.

2. In a machine for weighing liquids, the combination, of a shaft, a fluid-actuated wheel mounted thereon, another shaft, an index-wheel mounted loosely on the latter shaft, said wheel having a series of graduations on one face thereof, and adapted to be intermittently rotated by the shaft of the fluid-actuated wheel, a pointer fast on the shaft, and adapted to be adjusted to any particular point on the scale of the index-wheel, valve mechanism for controlling the flow of the fluid to the fluid-actuated wheel, clutch mechanism carried by the shaft of the index-wheel, and intermediate mechanism between the valve and the clutch mechanism, said intermediate mechanism adapted to be operated to hold the valve open, and when a certain amount of the fluid has passed out of the discharge of the fluid-actuated wheel, said intermediate mechanism adapted to automatically close the valve, and to throw the clutch mechanism into engagement with the index-wheel in order to hold said wheel to adjusted position.

3. The combination, of a rotatable shaft having a cranked end, a slide to which the cranked end of the shaft is connected, a dog pivoted to said slide, an index-wheel having a toothed periphery and a series of graduations on its face, the dog of the slide adapted to engage the teeth of the index-wheel and to rotate said wheel intermittently, and a pointer adapted to be adjusted to any particular mark of the index-wheel.

4. The combination, of a shaft, an index-wheel mounted loosely thereon, said wheel provided with a projecting hub having a recess in its periphery, a pointer mounted fast on the shaft, a collar rotatable with and slidable longitudinally on the shaft, said collar provided with an arm or projection adapted normally to bear against the edge of the hub of the index-wheel, and means adapted, after the index-wheel has been rotated a sufficient distance to bring the recess of its hub into register with the projecting arm of the collar, to force said arm into the recess.

5. The combination, of a shaft, an index-wheel mounted loosely thereon, said wheel provided with a projecting hub having a recess in its edge, a pointer fast on the shaft and adjacent to the graduated face of the index-wheel, a collar rotatable with and slidable on the shaft, said collar provided with an arm or projection carrying an antifriction-roller at its end, said collar adapted normally to bear against the edge of the hub of the index-wheel, and means adapted, after the index-wheel has been rotated a sufficient distance to bring the recess of its hub into register with the arm of the collar, to force said arm longitudinally and cause the antifriction-roller thereof to seat itself in the recess of the hub.

6. The combination of a shaft, an index-wheel mounted loosely thereon, said wheel provided with a projecting hub having a recess in its edge, a pointer mounted fast on the shaft adjacent to the graduated face of the index-wheel, a collar rotatable with and slidable longitudinally on the shaft, said collar provided with an arm or projection, means for normally holding the arm of the collar against the edge of the hub of the index-wheel, means adapted, after the index-wheel has been rotated a sufficient distance to bring the recess of its hub into register with the projecting arm of the collar, for forcing said arm into the recess, and a lever engaging the collar and adapted, when operated, to withdraw the arm of the collar out of engagement with the recess of the hub.

7. The combination, of a shaft, an index-wheel mounted loosely thereon, said wheel provided with a hub having a recess in its edge, a pointer mounted fast on the shaft adjacent to the graduated face of the index-wheel, a collar rotatable with and slidable longitudinally on the shaft, said collar provided with an arm or projection adapted normally to bear against the edge of the hub of the index-wheel, and to be forced into the recess of said hub after the index-wheel has been rotated a certain distance, and a spring-pressed lever engaging the collar.

8. The combination, of a shaft, an index wheel mounted loosely thereon, said wheel provided with a projecting hub having a recess in its edge, a pointer mounted fast on the shaft adjacent to the graduated face of the index-wheel, a collar rotatable with and slidable longitudinally on the shaft, said collar provided with an arm or projection adapted normally to bear against the edge of the hub of the index-wheel, and to be forced into the recess of said hub, after the index-wheel has been rotated a certain distance, a lever engaging the collar, a bolt projecting from said lever, a valve, and mechanism for operating the valve, said mechanism, when operated so as to open the valve, adapted to be held in locked position by the bolt, when said bolt is forced in one direction by the turning of the lever, the parts being held to this position by the engagement of the arm of the collar with the edge of the hub, and the valve mechanism adapted to automatically close, when said arm is seated in the recess of the hub, and the position of the lever and bolt thereby changed.

9. The combination, of a shaft, an index-wheel mounted loosely thereon, said wheel provided with a projecting hub having a recess in its edge, a pointer mounted fast on the shaft adjacent to the graduated face of the index-wheel, a collar rotatable with and slidable longitudinally on the shaft, said collar provided with an arm or projection adapted normally to bear against the edge of the hub of the index-wheel, and to be forced into the recess of said hub, after the index-wheel has been rotated a certain distance, a lever engaging the collar, a bolt projecting from said lever, a valve, mechanism for operating the valve, an arm carried by the valve operating mechanism, said arm adapted to be engaged by the bolt, when the arm of the collar bears against the hub of the index-wheel, and to be disengaged therefrom when the arm of the collar passes into the recess of the hub.

10. The combination, of an inlet-pipe, a sliding valve for regulating the same, a valve-rod, an arm carried by the valve-rod, a longitudinally-movable bolt separate from and adapted to engage with and to be disengaged from the arm, and when engaged therewith to hold the valve in an open position, and when disengaged therefrom to permit the valve to assume a closed position, and means for actuating the bolt so as to cause said engagement with and disengagement from the arm.

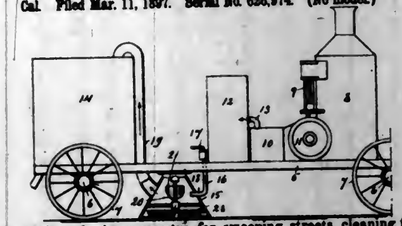
11. The combination, of an inlet-pipe, a sliding valve for regulating the same, a valve-rod, an operating-lever connected to the valve-rod, an arm carried by the valve-rod, a longitudinally-movable bolt separate from and adapted to engage with and to be disengaged from the arm, and when engaged therewith to hold the valve in an open position, and when disengaged therefrom to permit the valve to assume a closed position, and means for actuating the bolt, so as to cause said engagement with and disengagement from the arm.

12. The combination, of an inlet-pipe, a sliding valve for regulating the same, a spring-encircled valve-rod, an arm carried by the valve-rod, a longitudinally-movable bolt separate from and adapted to be engaged with and to be disengaged from the arm, and when engaged therewith to hold the valve in an open position, and means for actuating the bolt, so as to cause said engagement with and disengagement from the arm.

13. The combination, of an inlet pipe, a sliding valve for regulating the same, a valve-rod, an arm carried by the valve-rod, a bolt adapted to engage with and to be disengaged from the arm, and when engaged therewith to hold the valve in an open position, means for returning the valve-rod and arm to their normal position upon said arm being released by the bolt, and a lug having a beveled surface over which the beveled end of the arm rides when released by the bolt, whereby the free end of the arm is raised and a clear passage afforded for the passage of the bolt.

14. The combination, of a shaft, an index-wheel mounted loosely thereon and provided with a projecting hub having a recess in its edge, a pointer fast on the shaft and adjacent to the graduated face of the index-wheel, a collar rotatable with and slidable longitudinally on the shaft, said collar provided with a projecting arm adapted to bear against the edge of the hub, a lever adapted to engage with the collar in order to effect its longitudinal movement in one direction, a bolt carried by said lever, an inlet-pipe, a valve for controlling said inlet-pipe, a valve-rod and an arm carried by said valve-rod, said arm adapted to be engaged by the bolt, when the arm of the collar is bearing against the edge of the hub of the index-wheel, and to be disengaged therefrom, when the arm of the collar passes into the recess of said hub.

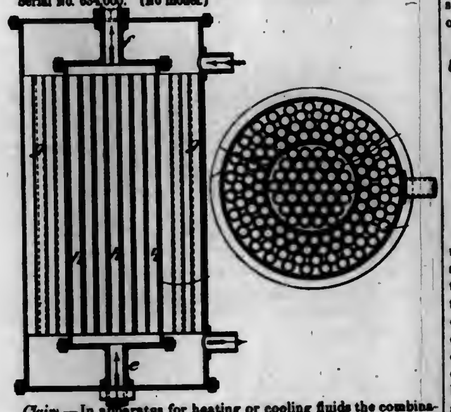
596,329. STREET-SWEEPER. THOMAS R. JONES, Sacramento, Cal. Filed Mar. 11, 1897. Serial No. 626,974. (No model.)



Claim.—1. An apparatus for sweeping streets, cleaning floors, and for other purposes, the same consisting of a truck or frame, an air-tank which is adapted to receive air under pressure, a suitably-supported conical casing, the base of which is directed downwardly and open, and the apex of which is directed upwardly and closed, a vertical shaft mounted in said casing, a fan or blower mounted thereon, a brush connected transversely with the lower end of said shaft, and a pipe which extends into one side of said casing, and which is in communication with said air-tank, and another pipe which communicates with said conical casing on the opposite side thereof, substantially as shown and described.

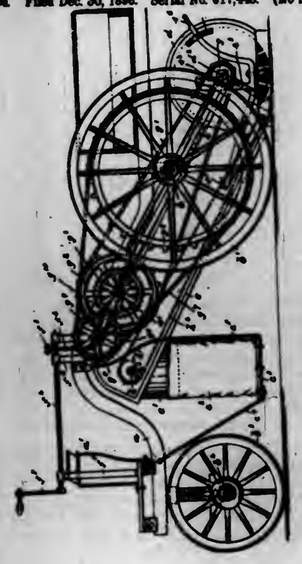
2. An apparatus for sweeping streets, cleaning floors, and for other purposes, the same consisting of a truck or frame, an air-tank which is adapted to receive air under pressure, a suitably supported conical casing the base of which is directed downwardly, and open, and the apex of which is directed upwardly and closed, a vertical shaft mounted in said casing, a fan or blower mounted thereon, a brush connected transversely with the lower end of said shaft, and a pipe which extends into one side of said casing, and which is in communication with said air-tank, and another pipe which communicates with said conical casing on the opposite side thereof, and an opened-top receptacle mounted on said truck and said last-named pipe being in communication with said receptacle, substantially as shown and described.

596,330. APPARATUS FOR HEATING OR COOLING FLUIDS BY FLUIDS. LOUIS MAIGNE, Paris, France. Filed Apr. 26, 1897. Serial No. 634,005. (No model.)



Claim.—In apparatus for heating or cooling fluids the combination with conduits arranged in operative relation and through which the fluids at differing temperatures are to be passed, of a number of small conduits of good conducting metal clustered closely together in the said conduits and bearing against the walls thereof, substantially as and for the purpose set forth.

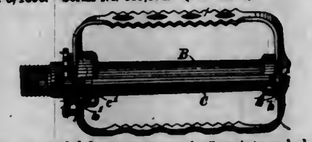
596,331. STREET-SWEEPER. WILLIAM S. MEARS, Scranton, Pa., assignor to the Brooks Street Sweeper Manufacturing Company, same place. Filed Dec. 30, 1896. Serial No. 617,443. (No model.)



Claim.—1. A sweeper consisting of a truck on wheels, an inclined elevator-casing fulcrumed on the axle of the rear wheels, a hood arranged at the lower rear end of said casing and provided at each of its sides with a radial elongated slot, the revolving brush-carrying shaft arranged in said hood and penetrating said slots, a fulcrumed lever on each side of the casing and furnishing bearings for the said shaft, a shorter lever on each side of and fulcrumed on the casing and provided with an upwardly-extending arm, chains connecting said arms with the levers forming the bearings for the shaft, a wheel swiveled on each of said shorter levers, and means for revolving said brush, substantially as and for the purposes described.

2. In a street-sweeper provided with an elevator-casing which is vertically adjustable at its lower end, the combination of a revoluble-brush-carrying shaft journaled near the lower end of the casing, and an adjusting mechanism therefor consisting of rearwardly-projecting levers each fulcrumed at one of its ends in the side of the casing, and provided with a substantially vertical arm and with a handle at its free end, means for adjustably supporting the free ends of the levers, chains adjustably connecting said shaft to, and depending said shaft from, the arms of said levers, and antifriction-wheels swiveled on the levers, substantially as described.

596,332. PEDAL. ARTHUR L. MOORE, Cleveland, Ohio. Filed Sept. 8, 1896. Serial No. 605,151. (No model.)



Claim.—A pedal-frame composed of an integral closed band of resilient metal having parallel ends, said ends being substantially flat strips and each having a hole through it, in combination with an integral sleeve longer than the internal distance from one frame end to the other and having its ends substantially the same in circumference as said holes but being larger in circumference just back of said ends whereby external shoulders are formed, said sleeve having its ends projecting into said holes and having its external shoulders in contact with the inner side of said frame ends, the said frame ends being held against said shoulders by the resiliency of said frame, substantially as described.

596,333. RHODOL DYE. CARL O. MÜLLER, Basle, Switzerland, assignor to the Basle Chemical Works Bindschedler, same place. Filed May 28, 1897. Serial No. 638,548. (Specimens.)

Claim.—1. The improvement in the manufacture of dyestuffs of the phtalein series which consists in condensing the dialkylamidoöxybenzoylbenzoic acids with resorcinol, as described.

2. The improvement in the manufacture of dyestuffs of the phtalein series, which consists in condensing the dialkylamidoöxybenzoylbenzoic acids with resorcinol and in converting the dyestuffs thus obtained into derivatives soluble in water by treating them with an alcohol and an acid, as described.

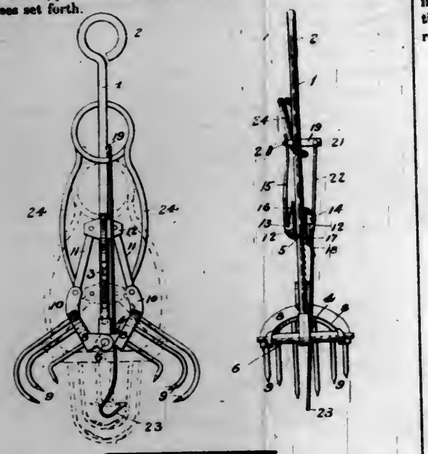
3. As a new article of manufacture the herein-described dyestuff, which is formed by the hydrochlorid of an alkyl ether of dimethyl rhodol, dissolving in water with a yellow-red color and dyeing wool, silk and tannin-mordanted cotton of yellow-red tints, and which in the form of its base is soluble in alcohol and ether, dissolves in concentrated sulfuric acid with a yellow color and gives alkaline alcoholic solutions having a beautiful yellowish-green fluorescence.

596,334. ANIMAL-TRAP. WILLIAM H. MCWHIRTER, Algoma, Miss. Filed July 8, 1897. Serial No. 643,919. (No model.)

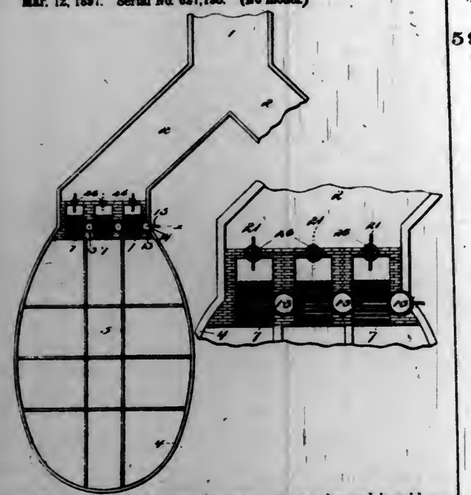
Claim.—1. The combination of the rod 1, having a series of ratchet-teeth 3, on one side, and on the other a notch 5; eye 4, secured to said rod near its lower end; axle 6, secured to the lower end of said rod; horseshoe-jaws 8, provided with teeth 9, and bifurcated extensions 10, pivoted to said axle 6; slide 12; arms 11, secured between the bifurcated ends of extension 10, and of the slide 12; actuating-spring 24, its spring ends pivoted between the bifurcated ends of arms 10; dog 15, pivoted to the rear face of the slide 12, and actuated by a spring 16; dog 17, pivoted to the front face of the slide 12, and actuated by a spring 18; lever 19, pivoted to the rod 1, and having an elbow-arm 20, and perforated end 21; rod 22, having its upper end pivoted to the perforated end of lever 19, its lower end passing through eye 4, and terminating in a bait-hook 23, substantially as shown and described and for the purposes set forth.

2. The combination of the rod 1, having on one side a notch 5; axle 6, secured to the lower end of said rod; jaws 8, provided with teeth 9, and arms 10; slide 12; arms 11, pivoted to arms 10, and slide

12; actuating-spring 24, pivoted to arms 10, and operating-jaws 8; dog 15, adapted to catch in notch 5; spring 16, actuating said dog; lever 19, pivoted to the rod 1, and having an elbow-arm 20; rod 22, pivoted to the end of lever 19, and adapted through said lever to release the dog 15, substantially as shown and described and for the purposes set forth.



596,335. TIDE-MOTOR. EMIL NAUMANN, Homestead, Pa. Filed Mar. 12, 1897. Serial No. 627,195. (No model.)

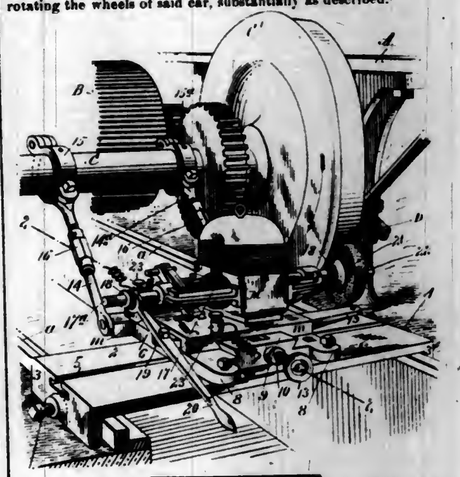


Claim.—In a tide-motor, a waterway, gates located in said waterway, water-wheels provided with blades carrying reversible buckets having the mouth against the current, a locking-pin engaging the blade-frame and bucket, to prevent said buckets from turning, substantially as shown and described.

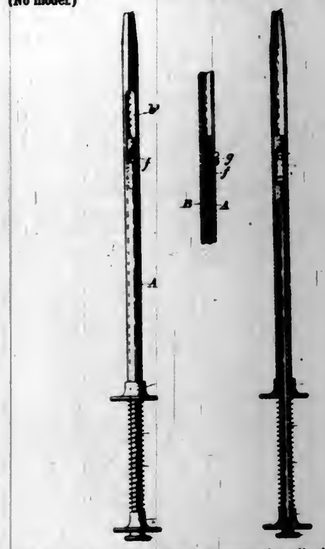
596,336. CAR-WHEEL-GRINDING MACHINE. CHARLES E. NORTON, Manchester, Conn. Filed May 10, 1897. Serial No. 635,786. (No model.)

Claim.—1. A machine for grinding car-wheels and for analogous purposes consisting of a bed-plate, a base movable longitudinally, and rotatable thereon, a base-plate having an electric motor secured thereto, means for moving said plate transversely on said base, an armature-shaft for said motor which has an endwise movement in its bearings, a grinding-wheel, means for securing said wheel to either end of said shaft, and means on the latter for imparting thereto said endwise movement, substantially as described.

2. In combination with a suitable track and a car therefor, a car-wheel-grinding machine consisting of a bed-plate secured transversely across said tracks, a base for said grinding-machine movable longitudinally, and rotatable on said bed-plate, means for securing said base to the latter, an electric motor secured to a suitable base-plate which plate has a sliding engagement on said base toward and from one of the axles of said car, an armature and shaft for said motor having a sliding endwise movement through the field-magnet, a grinding-wheel on one end of said armature-shaft, means for imparting said sliding movement to said shaft, and suitable electric connections between said motor and a source of electricity, and means for rotating the wheels of said car, substantially as described.



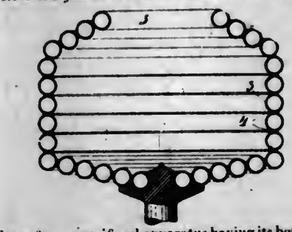
596,337. LAMPLIGHTER. CHARLES W. ROSSETTER and HADLEY R. ROSSETTER, Emporia, Kans. Filed May 5, 1897. Serial No. 635,207. (No model.)



Claim.—In a device of the character described, the combination with the main casing thereof, of a hollow plunger working within the same, a spring-pin located upon the outer end thereof and adapted to close the bore of the same and act as a stop to hold the plunger within the main casing, means for holding said plunger normally retracted, and means for igniting the match when the plunger is depressed.

596,338. CENTRIFUGAL MACHINE. ERIK G. H. SALEHUS, Albano, Sweden, assignor to the Aktiebolaget Radiator, same place. Filed July 8, 1897. Serial No. 643,798. (No model.) Patented in Sweden Jan. 15, 1895, No. 6,765; in Germany Sept. 20, 1895, No. 92,628; in England Nov. 26, 1895, No. 22,599; in France Nov. 27, 1895, No. 252,026, and in Denmark Nov. 24, 1896, No. 874.

Claim.—1. A drum for a centrifugal apparatus having its walls composed of metal tubing in superposed rings secured together in a manner to close the joints between them, substantially as set forth.

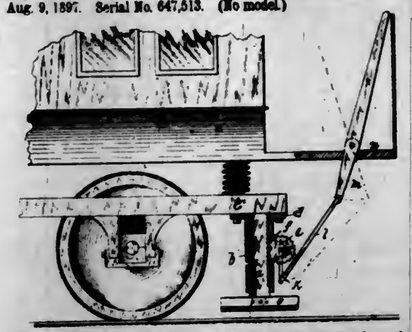


2. A drum for a centrifugal apparatus having its bottom and side walls composed of rings of metal tubing laid close together and united in a manner to close the joints between them, substantially as set forth.

3. A drum for a centrifugal apparatus having its walls formed of superposed rings of tubing secured together by brazing, substantially as set forth.

4. A drum for a centrifugal apparatus having its walls composed wholly of tubing arranged in substantially horizontal, superposed tiers, said tubing being closed at its ends and the superposed tiers secured together by brazing, substantially as set forth.

596,339. CAR-BRAKE. HENRY SCHENCK, Pittsburg, Pa. Filed Aug. 9, 1897. Serial No. 647,513. (No model.)



Claim.—In a car-brake, the combination of a car-truck, casings rigidly attached to the side rails of said truck-frame, lugs formed integral with the forward face of the casing, a shaft carrying cog-wheels journaled thereon, a lever secured to said shaft, said cog-wheels engaging a rack-bar operating in said casing, blocks secured near the lower ends of the rack-bars and extending some distance on each side thereof, the lower faces of said blocks being corrugated and their lower front edges being rounded so as to prevent the same from engaging the ends of the rails at the joints thereof, an operating-lever secured to the car-platform, intermediate levers secured to the operating lever and to the aforesaid shaft, whereby the blocks are applied to the rails to stop the car, substantially as shown and described.

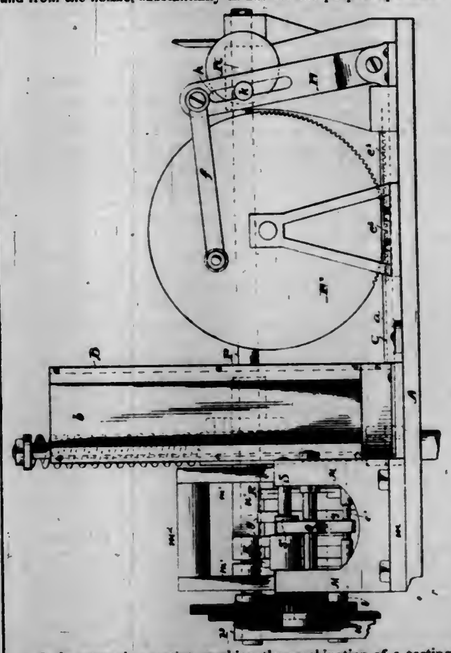
596,340. TYPE-BAR-CASTING MACHINE. CHARLES SEARS, Cleveland, Ohio. Filed Oct. 22, 1896. Serial No. 609,662. (No model.)

Claim. 1. In a type-bar casting machine, the combination of a casting-box adapted to hold a matrix having a plurality of alined characters and to inclose a type-bar mold space in line with the character-line upon said matrix, with means for delivering molten metal into the mold-space from one end thereof, that is to say, from a point at one side of the characters, whereby the molten metal will flow into said space in a direction transverse to the said characters, substantially as and for the purpose specified.

2. In a type-bar-casting machine, the combination of a casting-box containing a recess for a type-bar blank, and mechanism for holding a matrix in parallel relation to said type-bar blank, and mechanism for inclosing the space between them, with a nozzle adapted to direct molten metal into said space from one end thereof, substantially as and for the purpose specified.

3. In a type-bar-casting machine, the combination of a casting-box adapted to receive a prepared matrix and a type-bar blank, and to hold them in parallel relation at the proper distance apart, and means for inclosing the space between them, with a nozzle, and mechanism for introducing the nozzle into the end of said inclosed space, substantially as and for the purpose specified.

4. In a type-bar-casting machine, the combination of a longitudinally-movable casting-box adapted to hold a prepared matrix and a type-bar blank in parallel relation and at the proper distance apart, and mechanism for inclosing the space between them except for a hole at one end of said space, with a fixed nozzle adapted to enter and close said hole, and mechanism for moving the casting-box toward and from the nozzle, substantially as and for the purpose specified.



5. In a type-bar-casting machine, the combination of a casting-box consisting of a bottom mold-plate adapted to support a matrix and a type-bar blank, and having a raised rib between them, mechanism for forcing said matrix and blank against said rib, a vertically-movable top mold-plate, and two vertically-movable end gates, whereby the matrix and blank are held in parallel relations and the space between them is inclosed, with a nozzle for directing molten metal into said inclosed space, substantially as and for the purpose specified.

6. In a type-bar-casting machine, in combination, a hopper adapted to contain a supply of prepared matrix-blocks and type-bar blanks, a casting box movable toward and from said hopper, a slide for pushing the matrix-blocks and blanks from the hopper and into the casting-box, mechanism for holding said matrix-blocks and blanks in the casting-box in parallel relations and at the proper distance apart, and for inclosing the space between them except for a small hole at one end of said space, with a fixed nozzle located between the casting-box and hopper, and mechanism for moving the casting-box toward and from said nozzle, substantially as and for the purpose specified.

7. In a type-bar-casting machine, in combination, a longitudinally-movable bottom mold-plate having a longitudinal raised rib, a hopper adapted to contain a stock of prepared matrices and type-bar blanks, mechanism for moving a matrix-block and a blank from the hopper onto said plate on opposite sides of said rib, mechanism for forcing said matrix-block and blank against said rib, a top mold-plate movable vertically independently of the bottom plate, connections between said plates whereby they must move longitudinally together, end gates vertically movable in guides in the top plate, one of said gates having a hole in which the nozzle will fit, a fixed nozzle, and mechanism for moving a casting-box toward and from the nozzle, substantially as and for the purpose specified.

8. In a type-bar-casting machine, in combination, a bottom mold-plate having a longitudinal raised rib, a vertically-movable top mold-plate having two spring-actuated presser-feet in its lower side, mechanism for moving a matrix-block and a type-bar blank onto the bottom plate on opposite sides of said rib and beneath said presser-feet, mechanism for moving the matrix-block and blank against said rib, end gates for closing the ends of the space between said matrix-block and blank, and a nozzle for directing molten metal into the

inclosed space between said matrix-block and blank, substantially as and for the purpose specified.

9. In a type-bar-casting machine, in combination, a casting-box consisting of a longitudinally-movable bottom mold plate adapted to support a matrix-block and type-bar blank, and having a raised longitudinal rib between them, a housing, a top mold-plate which is movable vertically and horizontally in said housing, a vertical pin d', two end gates, one having a hole, a cam-shaft mounted in the housing, cams thereon for operating said top mold-plate and gates, a fixed nozzle, and mechanism for moving the casting-box toward and from the nozzle, substantially as and for the purpose specified.

10. In a type-bar-casting machine, in combination, a horizontally-movable casting-box adapted to hold a matrix-block and a type-bar blank in parallel relations and at the proper distance apart, means for inclosing the space between them except for a hole at one end thereof, a fixed nozzle having a horizontal tapered end, and mechanism for moving said casting-box toward and from the nozzle to cause it to enter and withdraw from said hole, substantially as and for the purpose specified.

11. In a type-bar-casting machine, the combination of a longitudinally-movable bottom plate D, having a rib d, the housing M, cam-shaft N, and cams n n' n', top mold-plate G having a stem which is slotted and embraces the shaft N, two gates R R which slide through the bottom plate and are slotted and embrace the said shaft, one of said gates having a nozzle-hole, the pin d', the fixed nozzle L, and mechanism for moving the two plates and gates, substantially as and for the purpose specified.

12. In a type-bar-casting machine, the combination of a longitudinally-movable bottom plate D having a raised rib d, and a removable housing M, with a vertically movable top plate G, end gates R, and their operating mechanism supported by said housing, substantially as and for the purpose specified.

13. In a type-bar-casting machine, the combination of a bottom mold-plate having a raised rib, means for introducing a matrix-block and a blank onto said plate on opposite sides of said rib, mechanism for pushing said matrix and blank laterally into contact with said rib, with a vertically-movable top mold-plate, the spring-actuated presser-feet carried thereby, the vertically-movable end gates having vertical knives on the edges which face the matrix-block, and means for directing molten metal into the inclosed space between the matrix-block and blank, substantially as and for the purpose specified.

14. In a type-bar-casting machine, the combination of a hopper having two compartments, both sides of which are slotted at the bottom, a slide having two arms, one of which extends across one of the compartments and has a shoulder c^3, with a casting-box consisting of a bottom plate, a vertically-movable top plate, and end gates, and a beveled spring-pin g^4, which projects down from said top plate, substantially as and for the purpose specified.

596,341. HANDLE-BAR CLAMP FOR BICYCLES. CHARLES E. SEYMOUR, New Haven, Conn. Filed June 8, 1896. Serial No. 594,668. (No model.)

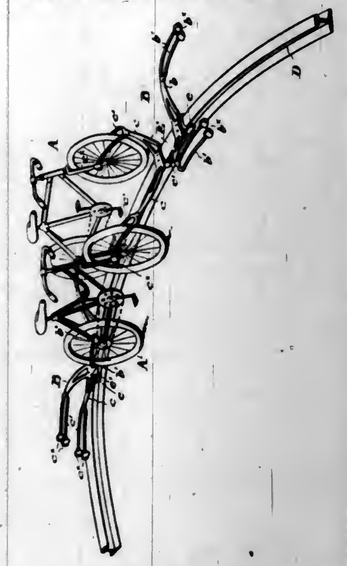


Claim.—In a handle-bar clamp for bicycles, the combination with a head comprising a horizontally-arranged concave seat for the reception of the handle-bar, a vertical shoulder located below the seat, and a shank located below the said shoulder and adapting the head to be secured to a handle-bar post, and the said head being formed with two centrally-arranged oppositely-located vertical grooves; of a bowed strap-like clip substantially semicircular in cross-section and therefore adapted to be set down over and removed from the handle-bar without being sprung, and provided with two straight, centrally-arranged, downwardly-projecting retaining-arms which enter the said slots; and a nut mounted upon the said shoulder of the head, and simultaneously engaging with the threaded lower ends of both of said arms for drawing the clip directly downward or substantially so, so as to grip the handle-bar resting in the said concave seat.

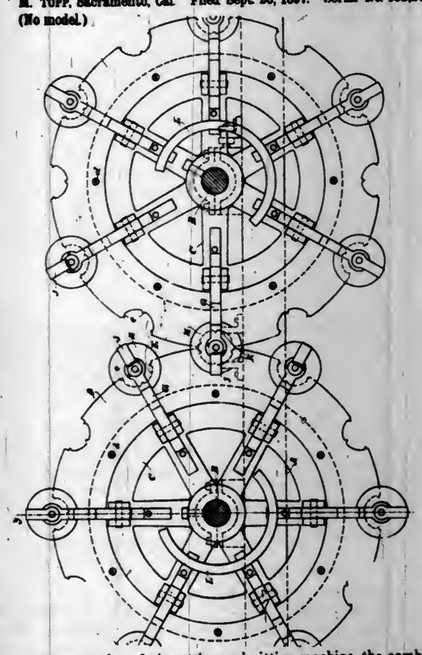
596,342. CAROUSEL. THOMAS B. TIMMEY, Philadelphia, Pa. Filed Apr. 2, 1897. Serial No. 630,362. (No model.)

Claim.—1. The combination to form a carousel, of a permanent guide rail, a series of bicycles or bicycle-like vehicles, a series of frames alternated with said vehicles, and each frame connected to the vehicle in front of and to the rear of it, and guide plates connected to said frames, and engaged with said rail, substantially as set forth.

2. The combination, to form a carousel, of a guide rail, a number of bicycles or bicycle-like vehicles disposed in two tandem series, one series on each side of said rail, and spider frames mounted and adapted to travel upon said rail, and having arms which extend rearwardly, and engage with the frames of two bicycles in the rear, one in the outer and one in the inner series, and two arms which extend forwardly, and engage with the frames of two bicycles in front, one in the outer and one in the inner series, substantially as set forth.



596,343. FRUIT CUTTING AND PITTING MACHINE. THOMAS M. TOPP, Sacramento, Cal. Filed Sept. 20, 1897. Serial No. 652,261. (No model.)



Claim.—1. In a fruit cutting and pitting machine, the combination of cooperating rotary cutters, cups movable with and hinged upon opposite sides of the cutters and means for operating the cutters said cutters having cooperating concavities and hold the fruit-pits while the cutting takes place.

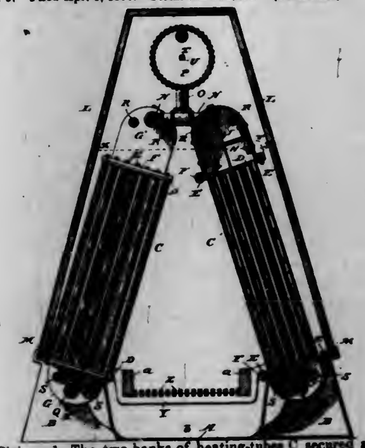
2. A device for cutting and pitting fruit consisting of circular sharp-edged cutters mounted and journaled to rotate with their edges meeting in a common plane, said cutters having concavities or spaces formed in their edges and adapted to register with each other, said concavities having projecting points in the bottom to hold the fruit-pits, cups mounted upon opposite sides of the cutters and adapted to grasp and hold the fruit centrally in the plane of the knives and with the pit in the line of its holding-depressions whereby the fruit is cut and the pit grasped when the cutters are rotated so as to meet and part from each other.

3. In a device for cutting and pitting fruit, a pair of circular rotary cutters, shafts upon which they are mounted so that their edges meet in the same plane, and mechanism by which the cutters are rotated in unison, concaved depressions with holding-points formed in each of the cutting-blades so as to register when the blades are rotated, holding-cups with hinged arms mounted upon opposite sides of the blades, cams fixed with relation to the hinged arms so that the cups are opened at the point to receive the fruit, springs whereby the cups are closed to hold the fruit in line with the cutting-blades after the lever-arms have passed the cams.

4. In a fruit cutting and pitting device, a pair of circular cutters mounted to rotate in the same plane with their edges meeting, concavities or depressions formed in the edges of the blades and registering to receive the pits of the fruit, cups or holders with hinged arms adapted to open to receive the fruit and closed to hold it in line with the cutting edges of the pit-holders, said cups having a soft or yielding lining whereby they adjust themselves to the fruit without bruising it.

5. In a device for cutting and pitting fruit, a pair of circular disks mounted to rotate with their peripheral edges meeting in a single plane, concavities or depressions formed in each of the cutters having holding-points within the depressions and registering so as to seize and hold the fruit-pit when the cut takes place, hinged arms having cups mounted at the outer end adapted to grasp the fruit and hold it in line with the edges of the cutters, shafts or pins carrying the cups, arms connected with said shafts or pins and fixed lugs upon the machine with which said arms contact whereby the cups are turned on their axis and a twisting movement given to the fruit after it has been cut to release it from the pit.

596,344. STEAM-BOILER. JAMES A. VANDERVOORT, Trenton, N. J. Filed Apr. 8, 1896. Serial No. 586,661. (No model.)



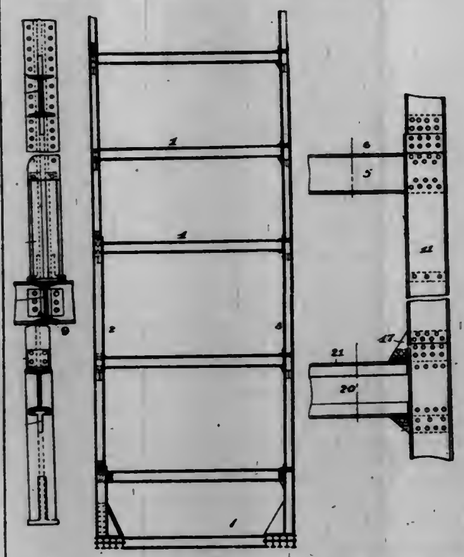
Claim.—1. The two banks of heating-tubes C secured at each end in the tube-sheets D, closed by upper and lower steel headers G', G, and mounted in converging position in saddles B, in combination with the steam-circulating pipes N, and water-circulating pipes Q, tubular connection V, steam-drum P, connection S, stirrups Y, grate-bars Z, and jacket or casing L, substantially as and for the purpose set forth.

2. The heating-tubes C, secured in the tube-sheets D, extended laterally as described, in combination with the cast-steel headers G, G', the latter being strengthened by longitudinal plates H and bridges I, and provided with flanges F, bolts E passing through the lateral extensions of the tube-sheets and the flanges F, and stay-rods J, whereby the tubes may be exposed for repair or cleaning, substantially as hereinbefore set forth.

3. The banks of heating-tubes C provided with the removable headers G', G, the latter mounted upon saddles B, having concave seats and horizontally and vertically oblique flanges, in combination with the converging jacket or casing L, substantially as and for the purposes set forth.

4. The two banks of heating-tubes C closed by headers G', G, in combination with the stirrups Y mounted upon the tube-sheets, and flanges of the lower headers G, and the grate-bars Z, mounted and supported within slots in the stirrups, whereby the stirrups and grate-bars may be readily removed and replaced, substantially as hereinbefore described.

596,345. CONSTRUCTION OF BUILDINGS. GUY B. WAITE, Hoboken, N. J. Filed July 25, 1896. Serial No. 600,460. (No model.)

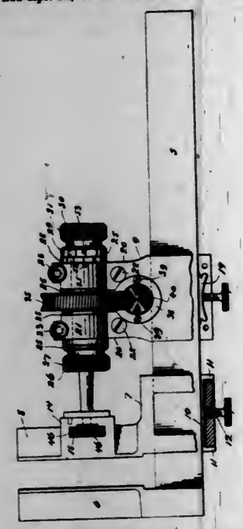


Claim.—1. In metallic framework for high skeleton-constructed buildings comprising several stories, the combination of flanged or webbed metallic floor members extending across the building from side to side thereof throughout consecutive stories thereof, and flanged or webbed metallic side-line columns, such as flanged beams, I-beams or channel-irons, located at the side of the building, and having the webs of each of said columns disposed in a vertical plane extending crosswise of the building for stiffening the structure laterally, one of said side columns being placed at each end of each of said floor members and connected directly therewith with their webs substantially in the same vertical plane and forming together therewith practically a continuous vertical truss for resisting lateral pressure upon the structure, the columns which connect and support the ends of the floor members which lie in the same vertical plane themselves constituting practically a continuous column extending vertically throughout consecutive stories of said structure, whereby the floor-load sustained directly by any one floor member is directly sustained by said webbed side-line columns connected therewith, substantially as and for the purpose set forth.

2. In metallic framework for buildings, the combination of webbed metallic floor members having the ends of the webs free from projections and adapted to make close and rigid contact, and subjacent composite columns comprising two sections for supporting said members, the free ends of the webs of said floor members being interposed centrally between the two said sections composing said columns and being fixedly bolted or fastened in close and flat contact therewith, substantially as and for the purpose set forth.

3. In metallic framework for buildings, the combination of a single system of metallic floor members each extending across the building from side to side thereof, and individual columns located at the sides of the building for supporting the respective ends of said floor members, and a set of inclined foundation-columns having their upper ends placed substantially directly beneath the lower ends of said individual columns and their lower ends placed a considerable distance within the side lines of the building for distributing the load upon the foundation, substantially as and for the purpose set forth.

596,846. MICROMETER-GAGE. CHARLES A. WALLGREN, Brooklyn, N. Y. Filed Apr. 24, 1897. Serial No. 633,625. (No model.)



Claim.—1. A gage of the class herein described, said gage consisting of a bar which is provided at one end with an arm which projects at right angles thereto, a main sliding jaw mounted on said bar adjacent to said arm, a supplemental sliding jaw mounted on said bar, devices for securing each of said jaws to said bar, tubular bearings connected with said supplemental jaw, and parallel with said bar, tubular sleeves mounted in said bearings, a screw-threaded tubular shaft mounted in said sleeves, and a shaft mounted in said tubular shaft and adapted to be moved longitudinally thereby, one end of said shaft being detachably connected with said main jaw, substantially as shown and described.

2. A gage of the class herein described, said gage consisting of a bar which is provided at one end with an arm which projects at right angles thereto, a main sliding jaw mounted on said bar adjacent to said arm, a supplemental sliding jaw mounted on said bar, devices for securing each of said jaws to said bar, tubular bearings connected with said supplemental jaw, and parallel with said bar, tubular sleeves mounted in said bearings, a screw-threaded tubular shaft mounted in said sleeves, a shaft mounted in said tubular shaft and adapted to be moved longitudinally thereby, one end of said shaft being detachably connected with said main jaw, and means for moving said screw-threaded tubular shaft longitudinally, substantially as shown and described.

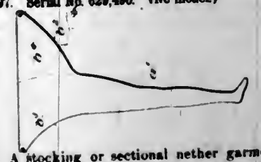
3. A gage of the class herein described, said gage consisting of a bar which is provided at one end with an arm which projects at right angles thereto, a main sliding jaw mounted on said bar adjacent to said arm, a supplemental sliding jaw mounted on said bar, devices for securing each of said jaws to said bar, tubular bearings connected with said supplemental jaw, and parallel with said bar, tubular sleeves mounted in said bearings, a screw-threaded tubular shaft mounted in said sleeves, a shaft mounted in said tubular shaft and adapted to be moved longitudinally thereby, one end of said shaft being detachably connected with said main jaw, and means for moving said screw-threaded tubular shaft longitudinally, consisting of a wheel mounted thereon and provided with a screw-threaded hub, and a groove in the perimeter which is screw-threaded, and a screw which passes through said jaw adjacent to the perimeter of said wheel, and which operates in connection therewith, substantially as shown and described.

4. A gage of the character herein described, the same consisting of a bar which is provided at one end with an arm which projects at right angles thereto, a main jaw longitudinally adjustable on said bar, and provided with an arm which projects parallel to the arm formed on said bar, a supplemental jaw longitudinally adjustable on said bar, a shaft supported by said supplemental jaw parallel with said bar, and the inner end of which is detachably connected with the arm on the main jaw, and means for moving said shaft longitudinally, consisting of a screw-threaded tubular shaft mounted thereon within said supplemental jaw, and means for moving the same longitudinally of its support, consisting of a wheel mounted thereon, and a sleeve through which one end of said tubular shaft passes, said sleeve being provided with a longitudinal groove in the inner wall thereof, and said tubular shaft being provided with a projection which moves therein, and said sleeve being revoluble, substantially as shown and described.

5. A gage of the character herein described, the same consisting of a bar which is provided at one end with an arm which projects at right angles thereto, a main jaw longitudinally adjustable on said bar, and provided with an arm which projects parallel to the arm on said bar, a supplemental jaw longitudinally adjustable on said bar, a shaft supported by said supplemental jaw parallel with said bar, and the inner end of which is detachably connected with the arm on the main jaw, and means for moving said shaft longitudinally, consisting of a screw-threaded tubular shaft mounted thereon within said supplemental jaw and means for moving the same longitudinally of its support, consisting of a sleeve through which one end of said tubular shaft passes, said sleeve being provided with a longitudinal groove in the inner wall thereof, and said tubular shaft being provided with a projection which moves therein, and said sleeve being revoluble, and being provided with a scale, and a corresponding scale formed on the bearing in which said sleeve is mounted, substantially as shown and described.

6. A gage of the character herein described, the same consisting of a bar which is provided at one end with an arm which projects at right angles thereto, a main jaw longitudinally adjustable on said bar, and provided with an arm which projects parallel to the arm on said bar, a supplemental jaw longitudinally adjustable on said bar, a shaft supported by said supplemental jaw parallel with said bar, and the inner end of which is detachably connected with the arm on the main jaw, and means for moving said shaft longitudinally, consisting of a screw-threaded tubular shaft mounted thereon, and means for moving the same longitudinally of its support, consisting of a sleeve through which one end of said tubular shaft passes, said sleeve being provided with a longitudinal groove in the inner wall thereof, and said tubular shaft being provided with a projection which moves therein, and said sleeve being revoluble, and being provided with a scale, and a corresponding scale formed on the bearing in which said sleeve is mounted, and said screw-threaded tubular shaft being also provided centrally thereof with a wheel which is provided with a screw-threaded hub, and the perimeter of which is also screw-threaded, and a screw which passes through the supplemental jaw and operates in connection with said wheel, substantially as shown and described.

596,847. STOCKING. SARAH A. WINTER, Buffalo, N. Y. Filed Mar. 27, 1897. Serial No. 629,490. (No model.)

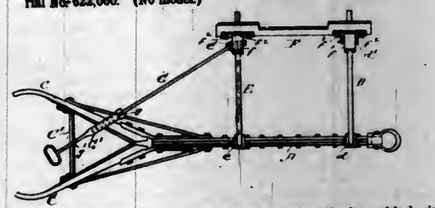


Claim.—1. A stocking or sectional nether garment having a thigh portion formed with a lateral elongation of length sufficient to pass around the waist of the wearer, and means for fastening the same, said elongation being of such width that a pair of said stockings will form a substantially-closed garment, as set forth.

2. A stocking or sectional nether garment having a laterally-elongated thigh portion of length sufficient to pass around the waist of the wearer, and means for fastening the same, said elongated thigh portion being tapered so that a pair of said stockings will form a substantially-closed garment, substantially as set forth.

3. A stocking or sectional nether garment having a thigh portion formed with two lateral extensions of length sufficient to encompass the waist of the wearer, and means for fastening the ends of said extensions, which latter are tapered so that a pair of said stockings will form a substantially-closed garment, substantially as set forth.

596,848. ICE-PLOW. WILLIAM E. WOOD, Arlington, Mass., assignor to William T. Wood & Co., same place. Filed Feb. 4, 1897. Serial No. 622,060. (No model.)



Claim.—1. The reversible ice-plow above described provided with bars D, E, hinged to the plow and carrying at their outer ends a guide-plate adjustable thereon, and a guide-handle, the lower end of which is adjustably connected to one of said bars, all as set forth.

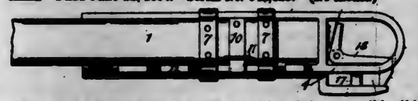
2. In an ice-plow having an adjustable guide-plate, the guide-handle G adjustable in length, the front end thereof being connected to the guide-plate as described, all as and for the purposes set forth.

3. The ice-plow above described having an adjustable guide-plate, said guide-plate being provided with sleeves projecting at right angles therefrom and said plow being provided with rods adapted to travel in said sleeves and be locked therein, in combination with the bolt *c'* shaped as shown and an adjustable guide-handle, the lower end of which is attached to the eye formed in said bolt *c'* and the upper end of which is adjustably connected to the handle of the plow, as set forth.

4. The plow above described, having a guide-plate provided with sleeves *f*, *f'* each having an angular passage through it, in combination with bars D, E each shaped in cross-section to fit its sleeve *f*, *f'* and hinged to the back of said plow and a guide-handle attached to one of said sleeves *f* whereby is formed a rigid reversible frame capable of operation by said guide-handle, as set forth.

5. In an ice-plow of the kind described, the combination of the sleeve *f* attached to the guide-plate and carrying one end of a bar and the hooked bolt *c'*, the shank of which passes through said sleeve and bar and hooked end of which passes back through said sleeve and impinges against the surface of said bar, thus causing a solid contact between said bar and sleeve, all as set forth.

596,849. EXTENSIBLE VEHICLE-POLE. GURY YOUNG, Hallock, Minn. Filed June 22, 1897. Serial No. 641,295. (No model.)



Claim.—1. The combination with the pole, of the extensible slide to lengthen or shorten the pole, said slide consisting of the two members lying on opposite sides of the pole and joined together at their forward ends by a connecting neck, an extension beneath the forward portion of the lower member of the slide to form a recess to receive the neck-yoke ring, a catch located between the two members of the slide at their forward end and having a nose extending through the lower member and lying across the mouth of the recess formed by said extension, guides for said slide to move in, and a dog to hold the slide to its adjustment, substantially as and for the purposes described.

2. The combination with the forward portion of the pole, of the adjustable slide to lengthen or shorten the pole, said slide comprising two members lying on opposite sides of the pole and connected together by a neck at the forward ends, the recess formed in a part of the slide to receive a part of a neck-yoke, and a hook located between the opposite members of the slide and having a part to close the opening to the recess in the slide so as to hold the neck-yoke to the slide, substantially as and for the purposes described.

3. The combination with the forward portion of a pole, of an adjustable slide to lengthen or shorten the pole, said slide comprising two members lying on opposite sides of the pole, one of said members being provided with a flange formed with notches, and a locking-dog attached to the pole and adapted to engage said notches to hold the slide in its adjustments, substantially as and for the purposes described.

596,850. BED. JOHN ARN, Columbus, Ohio. Filed June 25, 1897. Serial No. 642,263. (No model.)

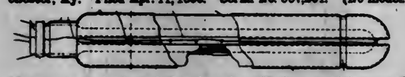


Claim.—1. An improved bed, comprising a frame, head and foot pieces having depending members turned laterally beneath the frame and formed with eyes, legs for the frame, and bolts adapted to extend vertically through the frame and said eyes and secure the legs in position, substantially as shown and described.

2. An improved bed, comprising a frame, head and foot pieces having depending members formed with eyes adapted to extend transversely beneath the frame, tubular legs threaded internally at their upper ends, and screw-bolts adapted to depend through the frame—the said eyes—and into the threaded ends of the tubular legs, thus clamping all the parts together, substantially as shown and described.

3. The combination, in a bed, of a support, upright spiral springs arranged in rows, an open frame at the top of the springs provided with strands, the distance between the latter being equal to the width of the upper ends of the springs, the upper convolutions of the springs and the terminals of adjacent springs meeting adjacent the frame-strands, such terminals being wrapped around the adjacent upper spring convolutions and the strands for uniting the springs together and to the strands, substantially as shown and described.

596,851. OINTMENT-APPLICATOR. EUGENE A. RAGSY, Winchester, Ky. Filed Apr. 11, 1896. Serial No. 587,201. (No model.)



Claim.—1. A device of the class described, comprising a cylindrical body provided with external cavities, and a flexible inflatable sheath on the body and extending into the cavities thereof to form pockets for the reception of the substance to be applied, whereby when the sheath is inflated the pockets will be forced outward and the contents thereof applied to the parts to be treated, substantially as described.

2. A device of the class described, comprising a pipe having external grooves, and a flexible sheath fitted over said pipe and extending into said grooves, to form receptacles for the substance to be applied, the latter being applied to the surface of the membrane of the canal or cavity, upon inflating the sheath, substantially as shown and described.

3. A device of the class described, comprising a cylindrical hollow body apertured and provided with external cavities, said body being constructed to be connected with an air or water supply, and a flexible sheath on the body and extending into the cavities thereof to form pockets for the reception of the substance to be applied, whereby the sheath can be inflated to apply the contents of its pockets to the parts to be treated, substantially as described.

4. A device of the class described, comprising a pipe closed at one end and adapted to be connected at its other end with an air or water supply, said pipe being formed with longitudinally-extending grooves connected with the interior of the pipe by apertures, and a flexible sheath fitted over said pipe and extending into said grooves to form pockets for the substance to be applied, the latter being forced outward against the surface of the membrane of the canal or cavity, by inflating the sheath and turning the instrument, substantially as shown and described.

5. A device of the class described, comprising a pipe closed at one end, and adapted to be connected at its other end with an air or water supply, said pipe being formed with longitudinally-extending grooves connected with the interior of the pipe by apertures, a flexible sheath fitted over said pipe and extending into said grooves to form pockets for the substance to be applied, the latter being forced outward against the surface of the membrane of the canal or cavity, by inflating the sheath and turning the instrument, and cords or strings engaging said sheath at the bottom of the pockets, substantially as shown and described.

6. In a device of the class described, a pipe closed at one end and provided with longitudinal grooves extending around the closed end, and with apertures in the bottoms of the said grooves, substantially as described.

7. In a device of the class described, a pipe closed at one end and provided with longitudinal grooves extending around the closed end, apertures in the bottoms of the grooves, and an annular groove adjacent to its closed end, substantially as described.

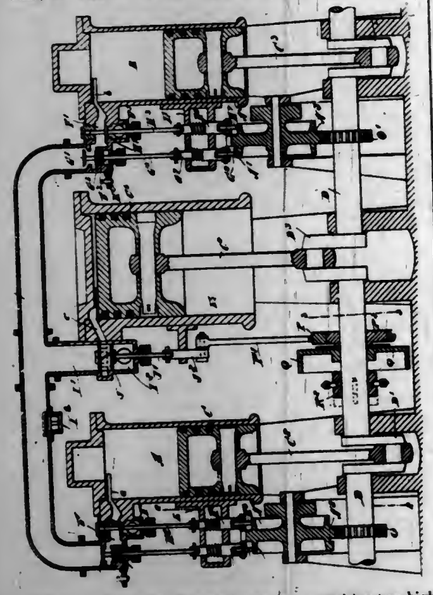
8. A device of the class described, comprising an apertured pipe closed at one end and provided with longitudinal grooves extending around the closed end, a flexible inflatable sheath on the pipe, and cords or strings for holding the sheath in the grooves of the pipe to form pockets for the reception of the substance to be applied, substantially as described.

9. A device of the class described, comprising a pipe closed at one end, and adapted to be connected at its other end with an air or water supply, said pipe being formed with longitudinally-extending grooves passing around the closed end and connected with the interior of the pipe by apertures, a flexible sheath fitted over said pipe and extending into said grooves to form pockets for the substance to be applied, the latter being forced outward against the surface of

the membrane of the canal or cavity, by inflating the sheath and turning the instrument, cords or strings engaging said sheath at the bottom of the pockets, and a rubber band for holding said strings or cords in place on the neck of said pipe, substantially as shown and described.

10. A device of the class described, comprising a perforated pipe closed at one end and provided at its other with a neck, a sheath held on the said pipe and adapted to be inflated and deflated, and a device, substantially as described, and connected with the said neck, the device being arranged to pass a fluid into the said pipe to inflate the sheath, to retain the fluid in the pipe for a suitable length of time and to discharge the fluid, to deflate the sheath when desired, substantially as shown and described.

596,852. COMPOUND GAS-ENGINE. EDWARD R. BALES, Centralia, Ill. Filed Oct. 24, 1896. Serial No. 609,871. (No model.)



Claim.—1. A compound explosive-engine, comprising two high-pressure cylinders provided with exhaust-valves, the working strokes of one high-pressure piston alternating with those of the other, a receiver into which is discharged the exhaust from said high-pressure cylinders, a low-pressure cylinder, and a valve controlling the communication of said low-pressure cylinder with the receiver in such a manner that the low-pressure cylinder is driven alternately by the exhaust-gases from the high-pressure cylinders, said valve when closing the low-pressure cylinder to the receiver, establishing a communication between said cylinder and an exhaust-port, substantially as described.

2. A compound explosive-engine, comprising a high-pressure cylinder, a low-pressure cylinder having a port adapted to serve as an inlet-port and as an exhaust-port as well, a connection between the exhaust-port of the high-pressure cylinder and the port of the low-pressure cylinder, and a valve located in said connection and arranged to alternately establish a communication from said port of the low-pressure cylinder to the said connection and to the exhaust, substantially as described.

3. A compound gas-engine, comprising two four-period high-pressure cylinders, each having a primary and a secondary exhaust-valve actuated successively, the secondary exhaust-valves discharging into the atmosphere, a receiver connected to the primary exhaust-valves, a low-pressure cylinder having a valved connection with the said receiver and supplied with its motive agent therefrom, and means for opening and closing the sets of primary and secondary exhaust-valves for the two cylinders alternately, said means being timed to open the secondary exhaust-valves during the last portion of the exhaust strokes, as set forth.

4. A compound gas-engine, comprising two four-period high-pressure cylinders having their pistons moving in unison, a main shaft connected with the said pistons, an exhaust-chamber for each cylinder, each chamber containing successively-operating primary and secondary exhaust-valves, of which the latter open to the atmosphere, the said valves of the two high-pressure cylinders operating successively on alternate strokes of the said piston in the high pressure cylinders, a receiver connected to the primary exhaust valves, a low-pressure cylinder having a piston operating in opposite directions to the pistons in the high-pressure cylinders, and a valved connection controlled from the said shaft, for connecting the said receiver with the working end of the said low-pressure cylinder, substantially as shown and described.

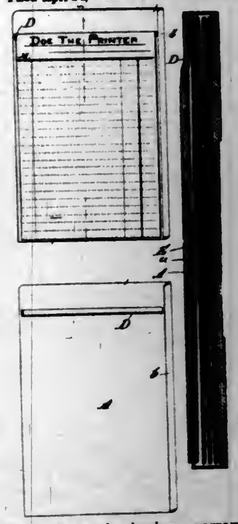
5. A compound gas-engine, comprising two four-period high-pressure cylinders having their pistons moving in unison, a main shaft connected with the said pistons, an exhaust-chamber for each cylinder, each chamber containing successively-operating primary and secondary exhaust-valves, of which the latter open to the atmosphere, the said valves of the two high-pressure cylinders operating successively on alternate strokes of the said piston in the high-pressure cylinders, a receiver connected to the primary exhaust-valves, a low-pressure cylinder having a piston operating in opposite directions to the pistons in the high-pressure cylinders, a valved connection controlled from the said shaft for connecting the said receiver with the working end of the said low-pressure cylinder, and means for actuating the said primary and secondary exhaust-valves from the shaft, as set forth.

6. A compound explosive-engine, comprising a high-pressure cylinder provided with a main exhaust-valve, a low-pressure cylinder, a connection from the said exhaust-valve to the low-pressure cylinder, whereby the exhaust from the high-pressure cylinder will be delivered mainly to the low-pressure cylinder, a supplementary exhaust-valve whereby the remainder of the combustion products may escape from the high-pressure cylinder directly, and valve-operating mechanism timed to open the supplementary exhaust-valve during the last part of the exhaust stroke, substantially as described.

7. A compound explosive-engine, comprising a high-pressure cylinder provided with an exhaust-valve, a receiver into which is discharged the exhaust from said high-pressure cylinder, a low-pressure cylinder having a valve-controlled connection with the receiver, a supplementary exhaust-valve whereby the remainder of the combustion products may escape directly from the high-pressure cylinder without passing into the receiver, and valve-operating mechanism timed to open the supplementary exhaust-valve during the last part of the exhaust stroke, substantially as described

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596,853. SALES-SLIP ENVELOP. WILLIAM DE WITT BATES, Grafton, N. D. Filed Apr. 24, 1897. Serial No. 633,822. (No model.)



Claim.—1. A sales-slip envelop having a narrow transverse slot in one side near its upper end, the inner surface of the front face below said slot being provided with a carbonized or copying surface, substantially as described.

2. A sales-slip envelop closed on all sides and having a narrow transverse slot in its front side near one end, the inner surface of the front face below the said slot being provided with a layer of carbonized or similar copying material, substantially as described.

3. A sales-slip envelop closed on all sides and having a narrow transverse slot in its front side near the upper end, and having also a sales-record upon the back side thereof, the inner surface of the front face below the slot having a layer of carbon or similar copying material, substantially as described.

4. A sales-slip envelop having a narrow transverse slit in one side near its upper end, the inner surface of the front face below said slit being provided with a carbonized or copying surface, and a duplicate sales-slip folded within the envelop, the same being removable by drawing the end through the said slit, substantially as described.

5. A sales-slip envelop closed on all sides having a narrow transverse slit in its front face near one end, the inner surface of the front face below said slit being provided with a carbonized or copying surface, the rear of the said envelop having a sales-record thereon, and a duplicate sales-slip folded within the envelop, the same being removable by drawing the end through said slit, substantially as described.

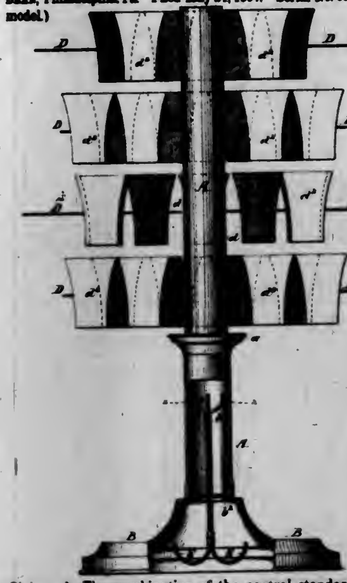
6. A sales-slip envelop having a narrow transverse slit in one side near one end, and having its edges formed with an accordion fold whereby the envelop may collapse, and a duplicate sales-slip folded within the envelop, the same being removable by drawing the slip through said slit, substantially as described.

7. A sales-slip envelop, having a narrow transverse slit in one side near one end, and having its edges formed with an accordion fold whereby it may collapse to a flat condition, and having also a sales-record upon its rear face, and a duplicate sales-slip folded within the envelop, the same being removable by drawing the slip through said slit, substantially as described.

8. A blank for a sales-slip envelop, consisting of a central body having a narrow transverse slot near one end, and flaps attached to all four sides, adapted to be folded in to form a wrapper or envelop, the back or inner surface of the central section being provided with a carbonized or copying surface, substantially as described.

9. A blank for a sales-slip envelop, consisting of a central body adapted to form the front of the envelop, and having a narrow transverse slot near one end, a layer of carbonized or copying material upon the rear or inner surface of this section, narrow rectangular sections attached to each edge of the face adapted to form the edge of the envelop, and flaps attached to the outer edge of the edge sections adapted to fold upon each other and to overlap so as to form the back of the envelop, substantially as described.

596,854. INDIVIDUAL COMMUNION-SERVICE. ISAIAH K. BEAM, Philadelphia, Pa. Filed May 21, 1897. Serial No. 637,585. (No model.)

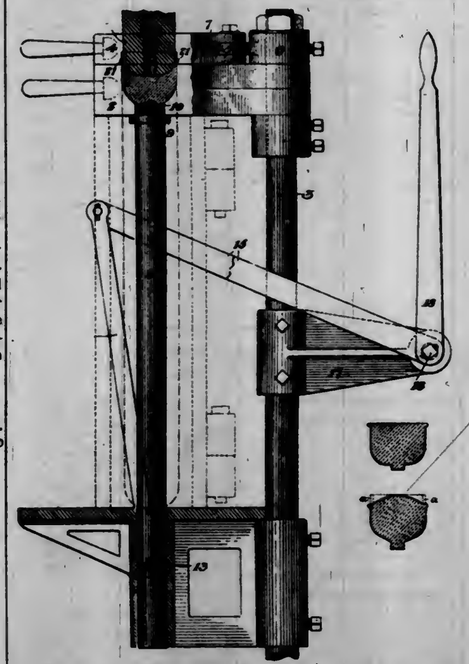


Claim.—1. The combination of the central standard having a lower portion adapted to be grasped by the hand, and above the same a series of revoluble tumbler-holders, which are freely removable in succession upwardly from the standard, each tumbler-holder being provided with a collar or sleeve fitting the central standard and adapted to space and support the successive holders placed thereon, substantially as specified.

2. The combination of the central standard having an annular shoulder on the same and above the same a series of revoluble tumbler-holders freely removable upwardly from the standard, said tumbler-holders having central tubes, which, as to the upper holders, rest one upon another, the lowermost resting upon the shoulder of the standard, substantially as specified.

3. The combination of the central hollow standard and its base, the removable tumbler-holders and a hook located within the hollow standard, but capable of being drawn down so as to project below the base, whereby the empty tumbler-holders can be hung upon said hook, as the tumblers are distributed and the holders removed from the standard, substantially as specified.

596,855. METHOD OF AND APPARATUS FOR MAKING HOLLOW GLASS ARTICLES. GEORGE W. BLAIR, Pittsburg, and HARRY J. HAYS, Baldwin, Pa., assignors to George W. Blair, trustee, Pittsburg, Pa. Filed May 17, 1897. Serial No. 636,882. (No model.)



Claim.—1. The method of forming hollow glass articles, consisting in forming a blank, elongating it vertically while at least a portion of the sides of the blank is out of lateral contact with the matrix in which it was formed and supporting the bottom of the blank and thereby controlling its elongation.

2. The method of forming hollow glass articles, consisting in forming a blank in a mold, releasing at least a portion of the sides of the blank from said mold, and drawing out the blank vertically.

3. The method of forming hollow glass articles, consisting in pressing a blank in a mold, securing the upper end of the blank, releasing the sides of the blank from the press mold, and expanding and drawing out the said blank downwardly.

4. The method of making hollow glass articles, consisting in forming a blank, seizing the center only of one end of the same, and elongating and expanding the same.

5. The method of making hollow glass articles, consisting in forming a blank, seizing the center only of one end of the same, supporting the glass around said central point of attachment, elongating the same vertically, and forcing air therein.

6. The method of making hollow glass articles, consisting in forming a blank, elongating the same while its body is out of contact from the matrix in which it was formed, and thereafter expanding the elongated blank into contact with a matrix.

7. In apparatus for forming hollow glass articles, the combination with a mold in which a glass blank is formed, of means for releasing at least a portion of the blank therefrom, and a stretcher arranged to move the blank vertically after its release.

8. In apparatus for forming hollow glass articles, the combination with a press-mold in which a blank is formed, of means for releasing a portion only of the blank therefrom, means for holding one

end of the blank, and means for stretching the blank longitudinally and expanding it into form.

9. The combination with a press-mold, of a mold-ring having means for securing the blank thereto, means for releasing the mold from the blank, and a vertically-movable support for the blank arranged to stretch the same vertically.

10. In apparatus for forming hollow glass articles, the combination with a mold in which a glass blank is formed, of means for releasing the blank therefrom laterally, a vertically-acting stretcher arranged to elongate the blank after its release, and a fluid-supply arranged to expand the blank during stretching.

11. The combination with a blank-forming matrix, of means adapted to seize the blank formed therein at the center only of one end, while the other end is held by the matrix, and a stretcher arranged to elongate the blank.

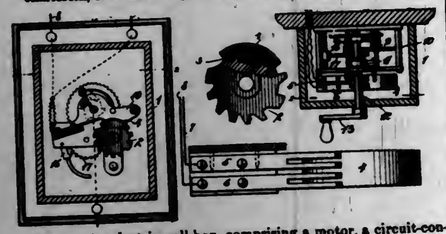
12. The combination with a blank forming matrix, of vertically-acting mechanism adapted to seize the center only of the bottom portion of the blank, and a support for the blank surrounding the said center.

13. The combination with a blank-forming matrix, of means for releasing therefrom at least a portion of the sides of the blank, and a vertically-acting support for the blank, said support being under the control of the operator.

14. The combination of a blank-forming matrix, a second matrix in vertical line therewith, means for releasing the body of the blank, a stretcher arranged to stretch the glass within the second matrix, and an air-inlet arranged to admit air for expanding the blank.

15 The method of forming hollow glass articles, consisting in pressing a hollow blank with the greater body of the glass beyond the pressing device or plunger, expanding the blank, elongating the blank vertically while at least a portion of the same is out of contact with the matrix and supporting the bottom of the blank and thus controlling its elongation.

596,856. ELECTRIC CALL-BOX SYSTEM. WILLIAM T. BUDDE, Charleston, S. C. Filed July 14, 1897. Serial No. 644,565. (No model.)



Claim.—An electric call-box, comprising a motor, a circuit-controlling wheel operated by the motor, a segmental block of insulating material on one side of the wheel, a metallic plate on the block and insulated from the body of the wheel, brushes normally resting on the plate and having connection with line-wires, and a ground-wire having connection with the body portion of the wheel, substantially as specified.

596,857. CAR-COUPLING. HARRY C. BUNOUF, Chicago, Ill. Filed Apr. 15, 1895. Serial No. 545,780. (No model.)

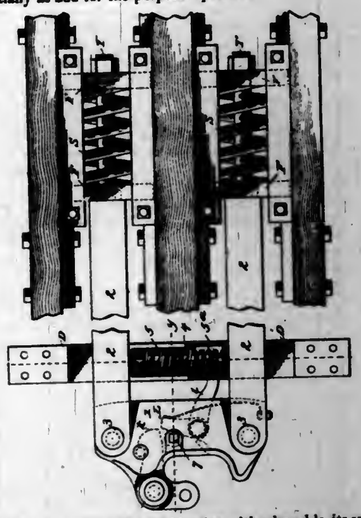
Claim.—1. The combination with a coupler-head of a plurality of laterally movable stems having a pivotal connection with said head, longitudinally-acting draft and buffing springs, and a laterally-acting spring interposed between and bearing on said stems, substantially as and for the purposes specified.

2. The combination with a coupler-head, of a plurality of longitudinally and laterally movable stems each having a pivotal connection with said head, and a laterally-acting means interposed between said stems for restoring said stems to their central or normal position when relieved of a deflecting force; substantially as and for the purposes specified.

3. The combination with a coupler-head, having a plurality of draft and buffing stems pivotally connected thereto, of an independently-movable or detached telescoping case and inclosed spring interposed between said stems; substantially as and for the purposes specified.

4. The combination with a coupler-head, of a plurality of stems pivotally connected with the head, chafing plate and stirrup provided with guides, a telescoping casing interposed between the stems and provided with means to engage the guides of the chafing plate and stirrup, and a spring inclosed in said casing; substantially as and for the purposes specified.

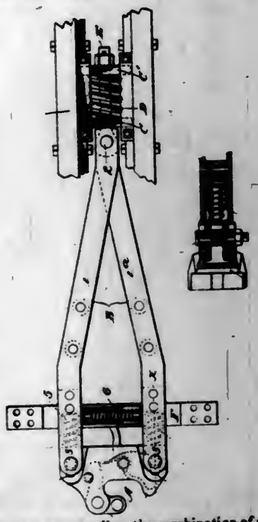
5. In a car-coupler the combination with a knuckle, its tailpiece, and lock, of a movable pin or catch arranged back of the advanced position of the lock and within the path of the tailpiece of the knuckle; substantially as and for the purposes specified.



6. In a car-coupler the combination with a knuckle, its tailpiece, and lock, of a gravity-pin arranged in the head back of the advanced position of the lock and within the path of the tailpiece; substantially as and for the purposes specified.

7. In a car-coupler the combination with a knuckle, its tailpiece, and lock, of a gravity-pin having on its lower end a button or incline, said pin arranged in the head back of the advanced position of the lock and within the path of the tailpiece; substantially as and for the purposes specified.

596,858. CAR-COUPLING. HARRY C. BUNOUF, Chicago, Ill. Filed May 22, 1895. Renewed Sept. 20, 1897. Serial No. 652,371. (No model.)



Claim.—1. In a car-coupling, the combination of a draft and buffing stem, and a coupler-head yieldingly supported and longitudinally movable on said stem; substantially as and for the purposes specified.

2. In a car-coupling, the combination of a draft-stem, a coupler-head having a longitudinal movement on the draft-stem, and an interposed longitudinally-acting spring; substantially as and for the purposes specified.

3. In a car-coupling, the combination with a coupler-head, of a stem having a plurality of members said head being pivotally connected with one of said members and having a longitudinally-movable yieldingly-supported connection with another of said members; substantially as and for the purposes specified.

4. In a car-coupling, the combination with a stem having a plurality of members, of a head longitudinally movable on and pivotally connected with said members, and longitudinally-acting springs interposed between and bearing on said members and head; substantially as and for the purposes specified.

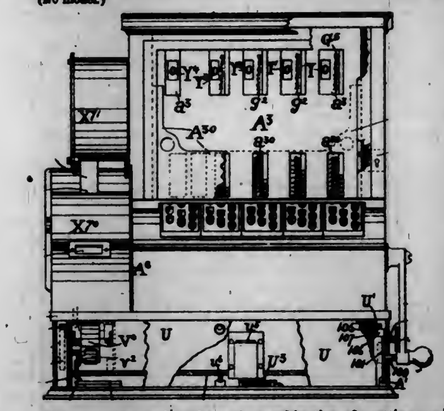
5. In a car-coupling, the combination of a coupler-head and a stem, one of which is provided with an elongated slot and the other with a pin, and a resilient medium, interposed between and bearing on said head and stem; substantially as and for the purposes specified.

6. In a car-coupling, the combination with a coupler-head, of a bifurcated stem with the forks of which said head is connected, said head having a longitudinal movement upon one fork of said stem and a pivotal connection with the other fork, and a single set of follower-plates and draft-spring; substantially as and for the purposes specified.

7. In a car-coupling, the combination with a coupler-head, of a stem having a plurality of converging and pivotally-connected members, and a single set of follower-plates and draft-spring; substantially as and for the purposes specified.

8. In a car-coupling, the combination with a coupler-head, of a stem having a plurality of converging members, said head being longitudinally movable on the stem, of a series of springs corresponding in number with and interposed between the members of said stem and the head, and a single set of follower-plates and draft-spring; substantially as and for the purposes specified.

596,859. CASH REGISTER, INDICATOR, AND CHECK-PRINTER. WILLIAM H. CLARK, Rochester, N. Y., assignor to the Rochester Cash Register Company, same place. Filed Nov. 6, 1896. Serial No. 611,231. (No model.)



Claim.—1. In a cash-register, the combination of a setting mechanism, an indicator-plate having a series of characters thereon, means for moving said indicator-plate to display said characters successively at a reading-point, mechanism for stopping said indicator-plate at different points corresponding to the actuation of the setting mechanism, means for releasing said indicator to permit said plate to continue its motion in the same direction until the remainder of the characters have passed said reading-point, and means for moving said indicator-plate in the opposite direction to return the same to zero.

2. In a cash-register, the combination of a setting mechanism, an indicator having a series of characters thereon, said indicator being movable by gravity to indicating position to display the characters successively at a reading-point, means for stopping said indicator to expose the character corresponding to the actuation of the setting mechanism, means for releasing the indicator whereby its motion is continued in the same direction until the series of characters have passed said aperture, and means for returning said indicator to zero.

3. In a cash-register, the combination of a setting mechanism, an indicator-wheel bearing on its periphery a series of characters adapted to be successively displayed at an aperture, means for rotating said indicator in one direction to expose said numbers successively at said aperture, means for stopping the rotation of said indicator at different points corresponding to the actuation of the setting mechanism, means for releasing said indicator whereby its rotation continues in the same direction until the whole series of characters have passed said aperture, and means for rotating said indicator in the opposite direction to return the same to zero.

4. In a cash-register, the combination of a setting mechanism, an indicator-wheel having a series of numbers on the periphery thereof, a pinion on the shaft thereof, a rack engaging said pinion, means for moving said rack in one direction to successively expose the numbers on said indicator at an aperture, devices for stopping said rack at different points corresponding to the actuation of the setting mechanism, means for releasing said indicator whereby the remainder of said series of numbers are caused to pass said aperture, and means for rotating said indicator in the opposite direction to return the same to zero.

5. In a cash-register, a rotary indicator having a series of numbers or characters upon its periphery, a pinion upon the shaft of said indicator, a weighted rack moving in substantially vertical guides and meshing with said pinion, a catch for holding said rack in its highest position, a setting mechanism, devices for stopping said rack at different points in its downward motion corresponding to the actuation of the setting mechanism, means for releasing said rack whereby it may continue its downward motion to its limit, and means for raising said racks for returning the indicator to zero.

6. In a cash-register, the combination of a guideway for a series of tally-pieces, means for separating in said series different numbers of tally-pieces as desired, means for moving said tally-pieces in said guideway, means for temporarily retaining in said guideway the number of tally-pieces so separated, an indicator-plate having a series of characters thereon, means for moving said indicator-plate to expose said characters successively at an aperture, means connected to said indicator-plate and adapted to engage said retained tally-pieces to stop the motion of the indicator to display a number corresponding to the number of said retained tally-pieces, means for releasing the tally-pieces so temporarily retained and thereby releasing the indicator and permitting the same to continue its travel, and means for returning the indicator to zero.

7. In a cash register, a guideway for a series of tally-pieces, a setting mechanism for separating in said series, different numbers of tally-pieces as desired, means for temporarily retaining in said guideway the number of tally-pieces so separated, a rotary indicator, actuating means for rotating the same in one direction, devices connected with said actuating means for stopping the indicator at different points corresponding to the number of tally-pieces so temporarily retained, means for releasing said tally-pieces and thereby permitting the indicator to continue its revolution in said direction, and means for rotating the indicator in the other direction to return the same to zero.

8. In a cash-register, the combination of a guideway for a series of tally-pieces, means for separating in said series different numbers of tally-pieces as desired, means for moving said tally-pieces in said guideway, means for temporarily retaining in said guideway the number of tally-pieces so separated, a rotary indicator having a series of characters thereon adapted to pass a reading-aperture, means for rotating said indicator in one direction to expose said characters at said aperture in inverse order, means connected to said indicator and adapted to make contact with the top of the column of tally-pieces so temporarily retained for stopping said indicator to expose a character corresponding to the number of retained tally-pieces, means for releasing said tally-pieces and thereby permitting the indicator to continue its rotation, and means for rotating the indicator in the other direction to return it to zero.

9. In a cash-register, a guideway for a series of tally-pieces, means for moving said tally-pieces in said guideway, setting mechanism for separating in said series different numbers of tally-pieces as desired, devices for temporarily retaining in said guideway the number of tally-pieces so separated, a bar movable into and out of said guideway and adapted in its movement in one direction to make contact with the top of the column of tally-pieces temporarily retained in said guideway, a movable indicator, means for moving said indicator in one direction and connections to said bar, devices for releasing said tally-pieces so temporarily retained and thereby permitting the indicator to continue its movement in said direction, and means for moving the indicator in the other direction to return the same to zero.

10. In a cash-register, the combination of a guideway for a series of tally-pieces, a setting mechanism for separating in said series different numbers of tally-pieces as desired, a mechanism for moving said tally-pieces in said guideway, means for temporarily retaining in said guideway the number of tally-pieces so separated, a bar movable into and out of said guideway and adapted in its movement in one direction to make contact with the top of the column of tally-pieces so temporarily retained in said guideway, a rotary indicator, mechanism for rotating said indicator and connections to said bar, means for releasing said tally-pieces so temporarily retained and thereby releasing the indicator and permitting the same to continue its rotation, means for returning the indicator to zero, and a single operating mechanism for actuating the means for moving the tally-pieces and the means for returning the indicator to zero.

11. In a cash-register, the combination of a guideway for a se-

ries of tally-pieces, a setting mechanism for separating in said series different numbers of tally-pieces as desired, means for temporarily retaining in said guideway the number of tally-pieces so separated, a rotary indicator, a pinion on its axle, a rack engaging said pinion, means for moving said rack in one direction to successively expose the numbers on said indicator at an aperture, a bar connected with said rack movable into and out of said guideway and adapted to make contact with the top of the column of tally-pieces so temporarily retained in said guideway whereby a number on said indicator is exposed which corresponds to the number of tally-pieces so temporarily retained, means for releasing said tally-pieces so temporarily retained and thereby permitting the rack to cause the indicator to revolve in the same direction to the end of the movement of the rack, and means for moving said rack in the other direction to return the indicator to zero.

12. In a cash-register, the combination of a guideway for a series of tally-pieces, a setting mechanism for separating in said series different numbers of tally-pieces as desired, means for temporarily retaining in said guideway the number of tally-pieces so separated, a rotary indicator, a pinion on its axle, a rack engaging said pinion, a weight for moving said rack in one direction to successively expose the numbers on said indicator at an aperture, a bar connected with said rack movable into and out of said guideway and adapted to make contact with the top of the column of tally-pieces so temporarily retained in said guideway whereby a number on said indicator is exposed which corresponds to the number of tally-pieces so temporarily retained, means for releasing said tally-pieces so temporarily retained and thereby permitting the rack to cause the indicator to revolve in the same direction to the end of the movement of the rack, and means for moving said rack in the other direction to return the indicator to zero.

13. In a cash-register, the combination of a guideway for a series of tally-pieces, a setting mechanism for separating in said series different numbers of tally-pieces as desired, means for temporarily retaining in said guideway the number of tally-pieces so separated, a rotary indicator, a pinion on its axle, a rack engaging said pinion, means for moving said rack in one direction to successively expose the numbers on said indicator at an aperture, a bar connected with said rack movable into and out of said guideway and adapted to make contact with the top of the column of tally pieces so temporarily retained in said guideway whereby a number on said indicator is exposed which corresponds to the number of tally-pieces so temporarily retained, means for releasing said tally-pieces so temporarily retained and thereby permitting the rack to cause the indicator to revolve in the same direction to the end of the movement of the rack, and means for moving said rack in the other direction to return the indicator to zero, and a single operating mechanism for actuating the means for moving the tally-pieces and the rack for returning the indicator to zero.

14. In a cash-register, the combination of a guideway for a series of tally-pieces, a setting mechanism for separating in said series different numbers of tally-pieces as desired, means for temporarily retaining in said guideway the number of tally-pieces so separated, a rotary indicator, a pinion on its axle, a rack engaging said pinion, a weight for moving said rack in one direction to successively expose the numbers on said indicator at an aperture, a bar connected with said rack movable into and out of said guideway and adapted to make contact with the top of the column of tally-pieces so temporarily retained in said guideway whereby a number on said indicator is exposed which corresponds to the number of tally-pieces so temporarily retained, means for releasing said tally-pieces so temporarily retained and thereby permitting the rack to cause the indicator to revolve in the same direction to the end of the movement of the rack, and means for moving said rack in the other direction to return the indicator to zero, and a single operating mechanism for actuating the means for moving the tally-pieces and the rack for returning the indicator to zero.

15. In a cash-register, the combination of a series of pairs of indicator-wheels, each pair having corresponding characters arranged in like series on their peripheries and having axes out of line but parallel, a gear on each axis, a pair of pinions set on each of a series of concentric sleeves and meshing with the gears of each pair of indicators, mechanism for rotating one of each pair of wheels to display the same characters on the different wheels in the same order at front and rear of the machine, and means for returning the wheels to zero.

16. In a cash-register, the combination of a series of pairs of indicator-wheels, each pair having corresponding characters arranged in series on their peripheries and having axes out of line but parallel, a spur-wheel on each axis, a shaft parallel to said axes and bearing pairs of pinions, each pair set on one of a series of concentric sleeves and meshing with the spur-wheels on the axes of each pair of indicator-wheels, and means for driving one of said indicator-wheels whereby the same characters on said indicator-wheel are displayed in the same order at front and rear of the machine, means for returning the wheels to zero, and means for moving said wheels in one direction.

17. In a cash-register, the combination of a pair of indicator-wheels having on their peripheries corresponding numerals in oppositely-arranged series and having axes out of line but parallel to each other, a casing having an aperture opposite the periphery of each of said wheels, equal spur-wheels, one upon each of said shafts, a third shaft parallel to each of said two shafts and bearing equal spur-wheels meshing with said two spur-wheels just mentioned and connected to each other, a pinion on one of said shafts, a rack meshing with said pinion, means for moving said rack to rotate said indicator-wheel in one direction, and other means for moving said rack in the other direction.

18. In a cash-register, the combination of a guideway for tally-pieces, means for actuating said tally pieces, a movable indicating mechanism having display-characters whose indications are determined by the number of tally-pieces which have accumulated in said guideway.

19. In a cash-register, the combination of a guideway for tally-pieces, means for actuating said tally-pieces to register the sum of the amounts registered from a plurality of operations, an indicating mechanism for indicating by means of said tally-pieces the amounts to be registered at each particular operation, and rotary indicating mechanism whose indicating position is determined by the number of tally-pieces which have accumulated in said guideway to indicate the amount of the particular operation.

20. In a cash-register, a guideway for tally-pieces, means for actuating said tally-pieces to register the sum of the amounts registered from a plurality of operations, means for indicating separately by means of said tally-pieces the amounts to be registered at each particular operation, a rotary indicating mechanism normally set for operation and whose indicating position is determined by the number of tally-pieces which have accumulated to indicate the amount of the particular operation.

21. In a cash-register, the combination of guideways for tally-pieces comprising a registering-way and an elevating-way, a setting mechanism, means for forcing tally-pieces from said elevating-way into said registering-way to correspond with the actuation of the setting mechanism, means for retaining said tally-pieces in said registering-way, whereby the tally-pieces so retained indicate the amount of the particular transaction, rotary indicator mechanism normally held in position for operation, releasing means therefor, stop devices connected with said rotary indicator mechanism for making contact with the tally-pieces so retained and thereby determining the extent of rotation of said rotary indicating devices, means for releasing said tally-pieces from said retaining means, and means for returning said rotary indicator mechanism to zero.

22. In a cash-register, two indicators of the same denomination, each of which is reset to zero after each indication, one of which is moved to indicating position subsequently to the other and whose indicating position is determined by said other.

23. In a cash-register, two indicators of the same denomination, one of which is moved by the registering mechanism to indicate the operation thereof and the other of which is moved to a like indicating position determined by the position of said first indicating mechanism.

24. In a cash-register, the combination of a registering mechanism, an indicator operated by said registering mechanism, and a second indicator of the same denomination movable to indicating position by devices independent of said registering mechanism and whose indicating position is determined by the position of said first indicating mechanism.

25. In a cash-register, the combination of a registering mechanism, an indicator operated by said registering mechanism, and a second indicator of the same denomination movable to indicating position by devices independent of said registering mechanism, the movement of the second indicator being stopped by said first indicator to make the same indication.

26. In a cash-register, a setting mechanism, a guideway for tally-pieces, means for delivering into said way tally-pieces corresponding in number to the actuated setting mechanism, means for temporarily retaining the tally-pieces so delivered in said way, a rotary indicator, a latch for holding the same in non-indicating position, means for releasing said latch to permit the indicator to move to indicating position only when tally-pieces are temporarily retained as aforesaid in said guideway.

27. In a cash-register, the combination of a setting mechanism, an indicating-plate having a series of characters thereon, a latching mechanism for normally holding said indicator-plate at zero, means for moving said indicator-plate to display said characters successively at a reading-point, mechanism for releasing said catch, stopping mechanism for arresting said indicator-plate at different points corresponding to the actuation of the setting mechanism and displaying corresponding characters, means for releasing said stopping mechanism to permit said plate to continue its motion in the same direction until the remainder of the characters have passed said reading-point, and means for moving said indicator-plate in the opposite direction to return the same to zero.

28. In a cash-register, the combination of a setting mechanism, a driving mechanism, a series of indicator-wheels having characters upon the peripheries thereof, reading-apertures at which said characters are successively displayed, pinions connected to said indicator-wheels, weighted racks meshing with said pinions and movable in vertical guides, arms pivoted to said weighted racks, a latch engaging each arm to hold said rack in its highest position, a driving mechanism, a bar operated by the driving mechanism for lifting all said weighted racks to their highest positions, a cam connected to said driving mechanism, connections between said cam and said latch for releasing the latter, and means for stopping the released racks to expose characters on the indicators corresponding to the actuation of the setting mechanism.

29. In a cash-register, a guideway for tally-pieces, means for moving tally-pieces therein, means for separating in said guideway numbers of tally-pieces as desired, a pin projecting into said guideway for temporarily retaining therein the number of tally-pieces so separated, a rotary indicator having a series of characters on the periphery thereof, a reading-aperture for the successive display of said characters, a pinion upon each indicator, a weighted rack meshing with each pinion and movable in vertical guides, a latch for holding said weighted rack in its highest position, a driving mechanism for the register, a lever for releasing said catch whenever tally-pieces are retained in said guideway by said pin, and mechanism for actuating said lever operated by said driving mechanism.

30. In a cash-register, a setting mechanism comprising a movable plate and a stop-bar for determining the extent of motion of said plate, said plate being formed of a transparent substance having finger depressions therein and having a numeral or characterizing-mark under each depression.

31. In a cash-register, a setting mechanism comprising a movable part controlling the operation of the register, a movable plate and a stop-bar for determining the extent of motion of said plate, said plate being formed of a transparent substance having finger depressions therein and having a numeral or characterizing-mark under each depression.

32. In a cash-register, a driving mechanism, a series of movable parts for setting the machine for operation, a toothed device for each of said movable parts, a shaft having rigid thereon a series of dogs, one for each toothed device, and connections from said shaft to the driving mechanism of said cash-register for moving said dogs into the teeth of said toothed device to lock all the movable parts during the registering operations of said machine.

33. In a cash-register, a driving mechanism, a series of movable parts for setting the machine for operation, a toothed segment-plate attached to each of said rocking arms, a shaft having rigid thereon a series of dogs, one for each segment-plate and connections from said shaft to the driving mechanism of said cash-register for moving said dogs into the teeth of said toothed device to lock all the movable parts during the registering operations of said machine.

34. In a cash-register, a driving mechanism, a series of movable parts for setting the machine for operation, a toothed device for each of said movable parts, a transverse shaft having rigid thereon a series of dogs, one for each toothed device, and connections from said shaft to the driving mechanism of said cash-register for moving said dogs into the teeth of said segments to lock the same and connected parts during the registering operations of said machine, and for releasing said dogs from said segment-plates during the return motion of said movable parts.

35. In a cash-register, a driving mechanism, a series of rocking arms for setting the machine for operation, a toothed segment-plate attached to each of said rocking arms, a transverse shaft having rigid thereon a series of dogs, one for each segment-plate and connections from said shaft to the driving mechanism of said cash-register for moving said dogs into the teeth of said segments to lock the same and connected parts during the registering operations of said machine, and for releasing said dogs from said segment-plates during the return motion of said movable parts.

36. In a cash-register, a series of movable parts for setting the machine for operation, a toothed segment-plate attached to each of said movable parts, a transverse shaft having a series of dogs, one for each segment-plate, and connections from said shaft to the driving mechanism of said cash-register for throwing said dogs into the teeth of said segments to lock the same and connected parts during the registering operations of said machine, and for releasing said dogs from said segment-plates during the return motion of said movable plates, and when said movable parts are fully returned to initial position.

37. In a cash-register, a series of rocking arms for setting the machine for operation, a toothed segment-plate attached to each of said rocking arms, a transverse shaft having a series of dogs, one for each segment-plate, and connections from said shaft to the driving mechanism of said cash-register for throwing said dogs into the teeth of said segments to lock the same and connected parts during the registering operations of said machine, and for releasing said dogs from said segment-plates during the return motion of said movable plates, and when said rocking arms are fully returned to initial position.

38. In a cash-register, a driving mechanism, a series of movable parts for setting the machine for operation, a series of guideways for tally-pieces, mechanism actuated by said driving mechanism for discharging tally-pieces from the transfer-bar, mechanism actuated by the driving mechanism for returning the movable parts to initial position, a toothed device attached to each movable part, a shaft having rigid thereon a series of dogs one for each toothed device, and means operated by said driving mechanism for moving the shaft and forcing the dogs into the toothed devices to lock all the movable parts during movement of the transfer-bar.

39. In a cash-register, a driving mechanism, a printing mechanism, a series of movable parts for setting the machine for operation, a series of guideways for tally-pieces, mechanism actuated by said driving mechanism for discharging tally-pieces from the transfer-bar mechanism actuated by the driving mechanism for returning the movable parts to initial position, a toothed device attached to each movable part, a shaft having rigid thereon a series of dogs one for each toothed device, and means operated by said driving mechanism for moving the shaft and forcing the dogs into the toothed device to lock all the movable parts during movement of the transfer-bar and during the printing operation.

40. In a cash-register, a setting mechanism for the registering mechanism, a cash-drawer, a record-strip mechanism in said drawer and adapted to be exposed when the drawer is opened, a series of sliding type-bars connected to said setting mechanism, and mechanism for rocking said type-bars against said record-strip mechanism.

41. In a cash-register, a setting mechanism for the registering mechanism, a check-strip platen, a record-strip platen, a series of sliding type-bars between said two platens having corresponding type upon their opposite faces, and mechanism for rocking said type-bars first against one platen and then against the other for printing the same characters upon a check-strip and a record-strip.

42. In a cash-register, a setting mechanism for the registering mechanism, a check-strip platen, a cash-drawer, record-strip mechanism in said drawer provided with a record-strip platen and in such position in said drawer as to be exposed when the drawer is opened, a series of sliding type-bars between said two platens connected to said setting mechanism and having corresponding type upon their opposite faces, and mechanism for rocking said type-bars first against one platen and then against the other for printing the same characters upon a check-strip and a record-strip.

43. In a cash-register, a setting mechanism for the registering mechanism, a check-strip platen, mechanism for feeding a check-strip across said platen in one direction, a record-strip platen, mechanism for feeding a record-strip across said latter platen in the other direction, a series of sliding type-bars between said two platens having corresponding type upon their opposite faces, and mechanism for rocking said type-bars first against one platen and then against the other for printing the same characters upon a check strip and a record-strip.

44. In a cash-register, a setting mechanism for the registering mechanism, a check-strip platen, a record-strip platen, a series of sliding type-bars having corresponding characters upon their opposite faces, situated between said two platens and connected to said setting mechanism, a driving mechanism for operating said registering mechanism and connections from said driving mechanism to said type-bars for rocking the same first against one platen and then against the other for printing the same characters upon a check-strip and a record-strip.

45. In a cash-register, a setting mechanism for the registering mechanism, a check-strip platen, a record-strip platen, a series of sliding type-bars having corresponding characters upon their opposite faces, said bars being situated between said two platens and connected to said setting mechanism, a driving mechanism for operating said registering mechanism, connections from said driving mechanism to said type-bars for rocking the same first against one platen and then against the other for printing the same characters upon a check strip and a record-strip, mechanisms for feeding the two strips and a cutter for severing individual checks from the check-strip after having been printed by said type-bars.

46. In a cash-register, a setting mechanism for the registering mechanism, a check-strip platen, a record-strip platen, a series of sliding type-bars having corresponding characters upon their opposite faces, said bars being situated between said two platens and connected to said setting mechanism, a driving mechanism for operating said registering mechanism, connections from said driving mechanism to

said type-bars for rocking the same first against one platen and then against the other for printing the same characters upon a check-strip and a record-strip, mechanisms for feeding said two strips, a second check-strip platen across which said check-strip is fed, a swinging frame bearing dating and numbering wheels and mechanism for pressing said swinging frame to said second platen, whereby a date and number are printed upon a portion of the check-strip for another check than the one upon which said type-bars print.

47. In a cash-register, a setting mechanism, a series of sliding type-bars connected thereto and having type thereon, mechanism for rocking said type-bars to print upon a platen, a sliding frame movable in line with said type-bars and bearing an inking device, a spring for pressing said inking device toward said sliding bars, a cam device for holding said inking device away from the type-bars except when moved to printing-line, a detent for holding the said sliding frame adjacent to the printing-line of said type-bars, means for releasing the detent and inking the printing-line of type immediately after the bars are set and before the same are rocked and means, as springs, for propelling said sliding frame, and with it the inking device, out of the path of movement of the said rocking type-bars, and retracting means for the frame and bars.

48. In a cash-register, the combination with a printing mechanism, and means of actuating said printing mechanism, of a means for forcing said drawer open with each operation and means for disconnecting said drawer therefrom, means in said drawer for carrying a record-roll in position to receive the impression from said printing mechanism, means actuated by each opening and closing of said drawer for moving a new surface of said roll into position to be printed, and independent means actuated by the operation of the printing mechanism for moving a new surface of said roll into printing position when the drawer is disconnected from the opening mechanism.

49. In a cash-register, a single shaft for operating the whole register, a cash-drawer, a pulley loose upon said shaft, a continuous band connected to said pulley and to said drawer underneath the same, a lug on said shaft rotating therewith and carrying a spring-pressed pawl adjacent to the inner periphery of said pulley, a pair of wedge-like cams upon said inner periphery having separated abutment ends for engagement with said pawl, whereby on rotating said shaft, said pawl engages one of said abutment ends, and rotates said pulley to open said drawer, and upon closing said drawer, the rotation of the pulley independently of the shaft, causes said pawl to engage the other of said abutment ends and the rotation of the pulley by moving said drawer to open it rotates said pulley until said last-mentioned abutment end engages said pawl

50. In a cash-register, the combination of a rotary operating-shaft, a pulley loose thereon, a pair of wedge-like cams on the inside of said pulley having separated abutment ends facing each other, a cash-drawer, an endless band attached to said pulley and to said drawer, a lug fast upon said shaft bearing a pawl adapted to engage said abutment ends, whereby, on rotating the shaft in one direction the pawl engages one of said abutment ends and the pulley is driven to open the drawer, and on rotating said pulley in the other direction the other abutment end tending to drive the shaft backward, and a stationary cam for moving and holding said pawl out of the path of the cam by which the pulley is driven when the shaft is in its normal position of rest.

51. In a cash-register, the combination of a cash-drawer, a rotary shaft, means for operating the same in one direction, a pulley loose on said shaft, an endless chain passing around said pulley and attached thereto and to said drawer, a clutch mechanism on said shaft engaging with said pulley when the shaft is turned in one direction and a stationary cam for holding the clutch from the pulley when the return of the draw revolves the pulley in the other direction.

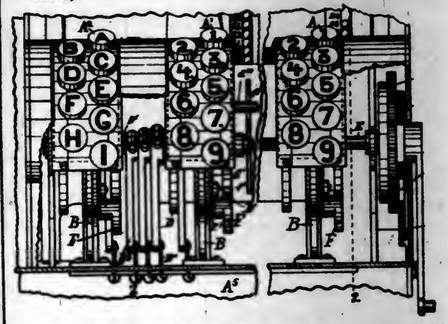
52. In a cash-register, a cash-drawer, an endless chain or band having a portion extending in line with the line of movement of the drawer and around a driving-pulley and guide-pulleys, means for rotating the driving-pulley in one direction to open said drawer, means for disengaging said pulley from the means for rotating the same when the drawer is moved in the opposite direction, and means attached to said drawer for grasping and releasing said chain.

53. In a cash-register, a driving-shaft, a cash-drawer, a pulley loose on said shaft having two wedge-like cams with abutment ends directed toward each other, one of which cams is thicker than the other, a pawl-arm on said fixed shaft and bearing a spring-pressed pawl adapted to engage said abutment ends and a stationary cam for disengaging the pawl from the end of the thinner of said cams when the shaft approaches the normal position of rest, and an endless band or chain connected to said pulley and to said drawer.

54. In a cash-register, a driving-shaft carrying a spring-pressed pawl, a cash-drawer, a pulley loose on said shaft having a cam provided with an abutment for the pawl, whereby the shaft drives the pulley in one direction, an endless chain or band passing around the pulley and connected thereto and to the drawer for opening the same when said pulley is rotated in said direction, and a stationary cam acting on said pawl when the driving-shaft is at its normal position of rest to retain said pawl in position to permit the pulley to revolve in the other direction and the abutment to pass said pawl without engagement therewith.

55. In a cash-register having a setting mechanism and a rotary crank, the combination of a driving-shaft, a loose pulley on said shaft, a cash-drawer, an endless chain attached to said drawer and to said pulley, a clutch mechanism coöperating with said shaft for driving the pulley to open the drawer and permitting backward rotating of the pulley to close the drawer without turning the shaft.

596,860. KEY MECHANISM FOR CASH-REGISTERS. WILLIAM H. CLARK, Rochester, N. Y., assignor to the Rochester Cash Register Company, same place. Filed Nov. 6, 1896. Serial No. 611,232. (No model.)



Claim.—1. In a key mechanism for cash-registers, a plate normally tending to move in one direction and having a series of slots therein of different lengths, a series of movable keys having a stationary support, each key having a projection adapted to enter one of said slots and to stop the movement of said plate in a position corresponding to the value of the operated key, a retainer for said plate released by the actuation of any key, and connections from said plate to a register whereby the register is set for operation.

2. In a key mechanism for cash-registers, a rocking plate normally tending to move in one direction and having a series of slots therein of different lengths, a series of movable keys radially arranged in a stationary support and adapted to slide toward and from the center of movement of said rocking plate, each key having a projection adapted to enter one of said slots and to stop the movement of said plate when the latter reaches a position corresponding to the value of the operated key, a retainer for said plate released by the actuation of any key, and connections from said plate to a register whereby the register is set for operation.

3. In a key mechanism for cash-registers, a rocking plate having a series of slots therein of different lengths, a spring connected thereto adapted to rock said plate in one direction, a series of keys radially arranged in a stationary support and adapted to slide toward and from the center of movement of said rocking plate, each key having a projection adapted to enter one of said slots and to stop the movement of said plate when the latter reaches a position corresponding to the value of the operated key, a retainer for said plate released by the actuation of any key, and connections from said plate to a register whereby the register is set for operation.

4. In a key mechanism for cash-registers, an oscillating sector-shaped plate having a series of arc-shaped slots of different lengths on its side face, mechanism normally tending to move said plate in one direction, a series of radially-arranged keys in a stationary support, each having a lateral projection adapted to enter one of said slots and to stop the movement of said plate in a position corresponding to the value of the operated key, a retainer for said plate released by the actuation of any key, and connections from said plate to a register whereby the register is set for operation.

5. In a key mechanism for cash-registers, a pair of oscillating sector-shaped plates having on their adjacent side faces a series of slots of different lengths cut in arcs having radii of different lengths from the center of each sector, mechanism normally tending to move said plates in one direction, two rows of radially-sliding keys, each key in each row having a lateral projection adapted to enter one of the slots in one of said plates through an opening in its wall and to stop the movement of said plates in a position corresponding to the value of the operated key, a retainer for said plates released by the actuation of any key, and connections from said plates to a register for setting the register for operation.

6. In a key mechanism for cash-registers, an oscillating sector-shaped plate having a series of arc shaped slots of different lengths on its side face, mechanism normally tending to move said plate in one direction, a series of radially-arranged sliding keys in a stationary support, each having a lateral pin adapted to enter one of said slots and to stop the movement of said plate in a position corresponding to the value of the operated key, connections from said plate to a register whereby the register is set for operation, and a retainer released by the actuation of any key for holding said plate in its normal position of rest.

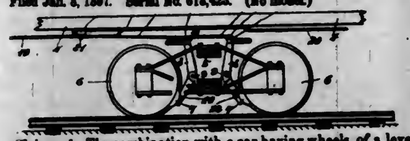
7. In a key mechanism for cash-registers, a rocking plate normally tending to move in one direction and having a series of slots therein of different lengths, a series of keys radially arranged in a stationary support and movable toward and from the center of movement of said rocking plate, each key having a lateral pin adapted to enter one of said slots and to stop the movement of said plate when the latter reaches a position corresponding to the value of the operated key, connections from said plate to a register whereby the register is set for operation, a latch adapted to engage said rocking plate and to hold the same at its normal position and a latch-plate moved by the actuation of any key for releasing said latch from said rocking plate.

8. In a key mechanism for cash-registers, a plate normally tending to move in one direction and having a series of slots therein of different lengths in the side thereof, a series of keys arranged in a stationary support and movable across the line of movement of said plate, each key having a lateral pin adapted to enter one of said slots through its wall and to stop the movement of said plate when the latter reaches a position corresponding to the value of the operated key, connections from said plate to a register whereby the register is set for operation, a movable latch-plate operated by any key, and a retainer for said plate released by the movement of said latch-plate.

9. In a key mechanism for cash-registers, a rocking plate normally tending to rock on an axis in one direction provided with a series of slots of different lengths in the side thereof, a series of keys arranged in a stationary support and movable toward and from the center of oscillation of said rocking plate, each key having a lateral pin adapted to enter one of said slots through its wall and to stop the oscillation of said plate when the same reaches a position corresponding to the value of an operated key, connections from said plate to a register for setting the same for operation, a latch-plate oscillating in the same axis as said rocking plate and operated by any key, and a latch for said rocking plate released by the movement of said latch-plate.

10. In a key mechanism for cash-registers, a pair of oscillating sector shaped plates having on their adjacent side faces a series of slots of different lengths cut in arcs having radii of different lengths from the center of each sector, mechanism normally tending to move said plates in one direction, two rows of radially-sliding keys, each key in each row having a lateral projection adapted to enter one of the slots in one of said plates through an opening in its wall, and to stop the movement of said plates in a position corresponding to the value of the operated key, a pair of latch-plates oscillating on the same axis as the sector-shaped plates and provided with lugs having inclined faces engaged by pins on the keys whereby the latch-plate is moved by the actuation of any key, and a latch mechanism for retaining said sector-shaped plates released by the movement of the latch-plate.

596,861. CAR-BRAKE. BENJAMIN J. COBB, Shreveport, La. Filed Jan. 8, 1897. Serial No. 618,423. (No model.)



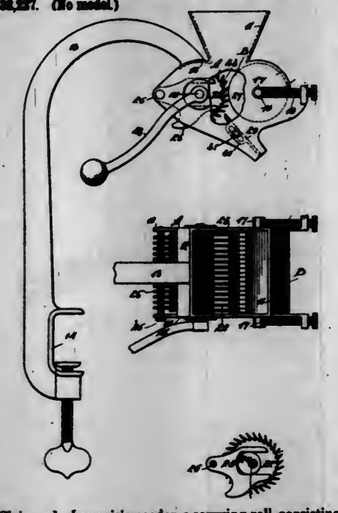
Claim.—1. The combination with a car having wheels, of a lever fulcrumed adjacent to each wheel and extending vertically alongside of the same, a shoe carried by the lower end of each lever, beams connecting the levers in pairs, and means for applying power to the beams, whereby the brakes are applied, substantially as described.

2. The combination with a car having wheels, of a lever located adjacent to each wheel and extending vertically alongside of the same, a brake-shoe carried by the lower end of each lever, a beam extending across between the upper ends of the levers and connecting the levers with each other, and means in connection with the beam, by which the levers may be operated, substantially as described.

3. The combination with a car having two axles, each provided with two wheels, of a lever extending vertically adjacent to the inner side of each wheel, a brake-shoe carried by the lower end of each lever, two beams connecting the levers in pairs, two additional levers respectively connected to the beams, a link connecting said additional levers with each other, and means for applying power to one of said additional levers, substantially as described.

4. The combination of two pairs of brake-levers, extending vertically, brake-shoes carried by the lower ends of the levers, two brake-beams respectively connected to the pairs of brake-levers, a lever pivoted to each brake-beam and located at the upper end thereof, a link pivotally connecting each of the last-named levers and means for drawing on one of said last-named levers, substantially as described.

596,862. RAISIN-SEEDER. GARY S. COX, Fresno, Cal., assignor of one-half to Lee L. Gray, same place. Filed Apr. 15, 1897. Serial No. 633,237. (No model.)



Claim.—1. In a raisin-seeder, a carrying-roll, consisting of a shaft, disks secured upon the shaft having teeth inclined in a direction opposite the direction of motion, a pressure-roll, having an elastic surface arranged to engage with said teeth at a point in the revolution of the carrying-roll, reciprocating strippers located between the toothed disks, and a blade adjustable to and from the teeth of the carrying-roll adapted to remove seed from said teeth.

2. In a raisin-seeder, a carrying-roll consisting of a shaft, disks secured upon the shaft, having teeth set at an incline to the radius, and an elastic roll engaging with the said inclined teeth at one point in the revolution of the carrying-roll, and strippers held to reciprocate upon the carrying roll adjacent to its teeth, as and for the purpose specified.

3. In a raisin-seeder, a carrying-roll consisting of a series of disks having their teeth inclined in a direction opposite to the direction of motion, a support for the disks, cam-washers located between the disks, revolving with them, and strippers operated by the cam-washers, as and for the purpose specified.

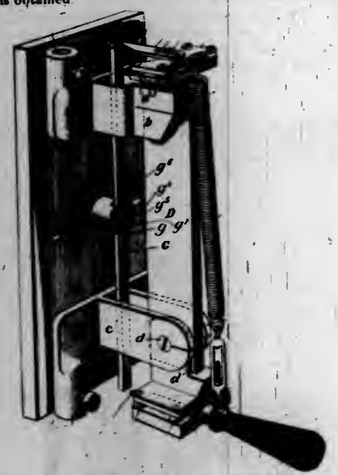
4. In a raisin-seeder, the combination, with a frame having a hopper, and a roll having an elastic face, located below the hopper, of a carrying-roll consisting of a shaft, disks secured upon the shaft, having peripheral teeth inclined in a direction opposite to the direction of motion, cam-washers secured on the shaft between the disks, and stripping-arms pivoted in the said frame, an arm being provided for each cam-washer, and the front ends of the arms being bifurcated to receive the said cam-washers, as and for the purpose specified.

5. The combination of a shaft, toothed disks mounted thereon, cams located between the disks and turning with the shaft, and swinging stripping-arms mounted independently of the shaft and engaged by the cams.

596,868. QUICK-BREAK SWITCH. RALPH G. DEMARY, Buffalo, N. Y. Filed Aug. 2, 1897. Serial No. 646,730. (No model.)

Claim.—1. In a switch or circuit-breaker, the combination of a base, circuit-terminals mounted thereon, a switch-blade pivotally secured to one of the terminals and coöperating with the other, a handle pivoted to the first-named terminal and movable independently of the switch-blade, a spring connection between the switch-blade and the handle, a locking-lever pivotally secured to the switch-

base, and swinging in a plane at right angles to the switch-blade, a catch projecting from the latter and designed to engage with said locking-lever, to hold the blade against the action of the spring while the switch-handle is partially moved, and means for releasing the switch-blade from the locking-lever when the maximum tension of the spring is obtained.



2. In a switch or circuit-breaker, the combination of a base, circuit-terminals mounted thereon, a switch-blade pivotally secured to one of the terminals and cooperating with the other, a handle pivoted to the first-named terminal and movable independently of the switch-blade, a spring connection between the switch-blade and the handle, a locking-lever pivotally secured to the base, and swinging in a plane at right angles to the switch blade, a catch projecting from the latter and designed to engage with said locking-lever, to hold the blade against the action of the spring, while the switch-handle is partially moved, means for moving said locking-lever to release the switch-blade when the maximum tension of the spring is obtained, and means for returning the said locking-lever to its normal position after such movement.

3. In a switch or circuit-breaker, the combination of a base, circuit-terminals mounted thereon, a switch-blade, pivotally secured to one of the terminals and cooperating with the other, a handle pivoted to the first-named terminal and movable independently of the switch blade, a spring connection between the switch-blade and the handle, a swinging, locking-lever pivotally secured to the base, a latch secured to the switch-blade, and insulated therefrom, said latch engaging with the locking-lever when the switch-blade is in its normal or closed position, and means for disengaging the locking-lever from the said latch when the tension of the spring is approximately at its maximum.

4. In a switch or circuit-breaker, the combination of a base, circuit-terminals mounted thereon, a switch-blade pivotally secured to one of the terminals and cooperating with the other, a handle pivoted to the first-named terminal and movable independently of the switch blade, a spring connection between the switch-blade and the handle, a swinging locking lever pivotally secured to the base, a latch secured to the switch-blade, and insulated therefrom, said latch engaging with the locking-lever, when the switch-blade is in its normal or closed position, to hold it against the action of the spring when the handle is partially moved to obtain the maximum tension thereof, and a trip-finger carried by said handle and designed to contact with the locking-lever, upon further movement of the said handle, and release the latch.

5. In a switch or circuit-breaker, the combination of a base, circuit-terminals mounted thereon, a switch-blade pivotally secured to one of the terminals and cooperating with the other, a handle pivoted to the first-named terminal and movable independently of the switch-blade, a spring connection between the switch-blade and the handle, a swinging locking lever pivotally secured to the base, a latch secured to the switch-blade and insulated therefrom, said latch engaging with the locking-lever, when the switch-blade is in its normal or closed position, means for disengaging the locking-lever from the said latch when the tension of the spring is approximately at its maximum, and means for returning said locking-lever to its normal position, where it may be engaged by the latch when the switch-blade is closed.

6. In a switch or circuit-breaker, the combination of a base, circuit-terminals mounted thereon, a switch-blade, pivotally secured to one of the terminals and cooperating with the other, a handle pivoted to the first-named terminal and movable independently of the switch-blade, a spring connection between the switch-blade and the handle, a swinging locking-lever formed centrally of its length with a circular enlargement, a bearing-head for said locking-lever secured to the base and recessed to receive the enlargement on the locking-lever, a pivot pin or bolt connecting the locking-lever and bearing-head, diametrically-disposed cut-away portions or passages to permit the swinging movement of the locking-lever, and a coiled spring seated in said bearing-head and connecting the same with the locking-lever, with means for detachably connecting the switch-blade to the locking-lever and means for releasing the same when the maximum tension of the switch-blade is attained.

7. In a switch or circuit-breaker, the combination of a base, circuit-terminals mounted thereon, a switch-blade pivotally secured to one of the terminals and cooperating with the other, a handle pivoted to the first-named terminal and movable independently of the switch-blade, a spring connection between the switch-blade and the handle, a swinging locking-lever pivotally secured to the base, an adjustable latch secured to the switch-blade and insulated therefrom, said latch engaging with the locking-lever, when the switch-blade is in its normal or closed position, to hold it against the action of the spring when the handle is partially moved to obtain the maximum tension, and a trip-finger carried by said handle and designed to contact with the locking-lever upon further movement of the said handle, and release the latch, with means for returning said locking-lever to its normal position, where it may be engaged by the latch when the switch-blade is lowered.

8. In a switch or circuit-breaker, the combination of a base, circuit-terminals mounted thereon, a switch-blade pivotally secured to one of the terminals and cooperating with the other, a handle pivoted to the first-named terminal and movable independently of the switch-blade, a spring connection between the switch blade and the handle, a swinging, locking-lever, formed centrally of its length with a circular enlargement, a bearing-head, for said locking-lever, secured to the base and correspondingly recessed to receive the enlargement on the locking-lever, a pivot pin or bolt passing through the locking-lever and secured in the bearing-head, diametrically-disposed cut-away portions or passages to permit the swinging movement of the locking-lever, and a coiled spring seated in said bearing-head and connecting the same with the locking-lever, an adjustable latch secured to the switch-blade and insulated therefrom, said latch engaging with the locking-lever when the switch-blade is in its normal or closed position, and an adjustable trip-finger carried by said handle and designed to contact with the locking-lever and oscillate the same, releasing the latch after the handle has been partially moved to obtain the maximum tension of the switch-blade spring.

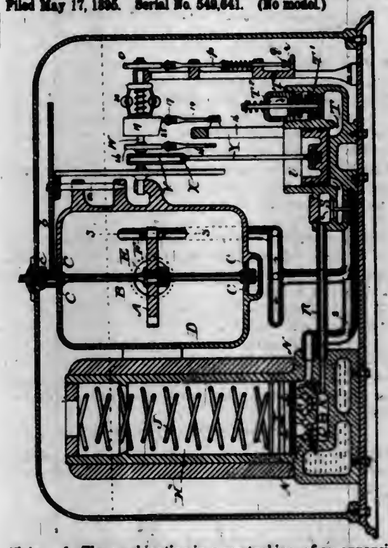
9. In a multipolar switch, the combination of a base, a series of circuit terminals mounted thereon, a switch-blade for each terminal, a handle common to all of the blades and pivoted to the same terminals, but movable independently of said blades, one or more spring connections between said handle and the switch-blades, a second series of terminals in position to cooperate with said switch-blades, a locking-lever pivotally secured to the base and swinging in a plane at right angles to the switch-blades, a catch projecting from said blades and designed to engage with the said locking-lever, to hold the switch-blades against the action of the spring or springs, while the handle is partially moved to obtain the maximum tension thereof, and means for releasing the switch-blades when the maximum tension, or approximately the maximum tension, of the spring or springs has been obtained.

10. In a multipolar switch, the combination of a base, a series of circuit terminals mounted thereon, a switch-blade for each terminal, a handle common to all of the blades and pivoted to the same terminals, but movable independently of said blades, one or more spring connections between said handle and the switch-blades, a second series of circuit-terminals in position to cooperate with the said switch-blades, a locking-lever pivotally secured to the base and swinging in a plane at right angles to the switch-blades, a catch projecting from said blades and designed to engage with the said locking-lever, to hold the switch-blades against the action of the spring or springs while the switch handle is partially moved to obtain the maximum tension of the spring or springs, and means for automatically releasing the switch-blades when the maximum tension of the same has been obtained.

11. In a multipolar switch, the combination of a base, a series of circuit-terminals mounted thereon, a switch-blade for each terminal, a second series of terminals in position to cooperate with said switch-blades, a handle common to all of the blades and pivoted to the first-named terminals but movable independently of said blades, one or more spring connections between the said handle and the switch-blades, a locking-lever pivotally secured to the base and swinging in a plane at right angles to the switch-blades, a catch projecting from said blades and designed to engage with the said locking-lever, to hold the switch-blades against the action of the spring connections, while the handle is partially moved to obtain the maximum tension thereof, means for releasing the switch-blades when the maximum tension of the spring conpections has been obtained, and means for returning the said locking-lever to its normal position after such movement.

596,864. THERMIC MOTOR. MILKER J. RICHMOND, Chicago, Ill.

Filed May 17, 1895. Serial No. 549,641. (No model.)



Claim.—1. The combination in a gas-turbine, of an expansion or compression chamber, a yielding abutment working therein, an explosion-chamber, a duct or passage connecting said chambers, and a non-return check-valve located in said duct or passage, substantially as described.

2. The combination in a gas-turbine of an expansion-chamber and explosion-chamber, a one-way-valved communication between said chambers, a pump for delivering an explosive mixture to, and compressing the same in, said explosion-chamber, a turbine wheel, nozzles communicating with the expansion chamber for directing the products of explosion to said wheel, the terminals q, r and a spring-actuated rod adapted to close the circuit and operated from the main shaft of the turbine wheel, substantially as described.

3. The combination in a gas-turbine, of an explosion-chamber, an expansion or compression chamber, a one-way-valved communication between said chambers, a piston in the expansion chamber, and a spring actuating said piston and adapted to maintain the products of explosion from the explosion-chamber under pressure in the expansion-chamber, substantially as described.

4. The combination in a gas-turbine, of an explosion chamber, an expansion-chamber, a one-way-valved communication between said chambers, a turbine wheel and tangentially-arranged twyers, each twyer being provided with a pair of nozzles, one located above and the other below said wheel, substantially as described.

5. The combination in a gas-turbine, of an explosion-chamber, an expansion-chamber, a one-way-valved communication between said chambers, a turbine wheel and tangentially-arranged twyers, each of said twyers being provided with a pair of nozzles, one arranged below, the other above a turbine wheel, those below said wheel having a superior pressure, substantially as described.

6. The combination in a gas-turbine, of a turbine wheel mounted on a vertical shaft, nozzles arranged tangentially in pairs above and below the said wheel, and means whereby the pressure of the jets delivered by said nozzles above and below the wheel may be adjusted separately or simultaneously with relation to each other, substantially as described.

7. The combination in a gas-turbine, of a turbine wheel mounted upon a vertical shaft, nozzles arranged tangentially in pairs below the periphery of the wheel, and loose ball-bearings for said shaft, substantially as described.

8. The combination in a gas-turbine, of a turbine wheel mounted on a vertical shaft, nozzles arranged tangentially in pairs above and below the said wheel, and means whereby the pressure of the jets delivered by said nozzles above and below the wheel may be varied with relation to each other, and loose ball-bearings for said shaft, substantially as described.

9. The combination in a gas-turbine, of an expansion-chamber, an explosion-chamber, a one-way-valved communication between said chambers, a pump for delivering an explosive mixture to and compressing the same in said explosion-chamber, means for igniting said explosive mixture, a turbine wheel, and nozzles communicating with the expansion chamber for directing the exploded products of explosion to said wheel, substantially as described.

10. The combination in a gas-turbine of an expansion-chamber, an explosion-chamber arranged below the expansion-chamber, a one-way-valved communication between said chambers, a pump for delivering an explosive mixture to, and compressing the same in, said explosion-chamber, a vertical shaft B, a turbine wheel mounted upon said shaft, a cam-shaft W geared with said vertical shaft, a cam-disk mounted on said cam-shaft, a spring-actuated rod adapted to be operated by said cam-disk, a stationary terminal block r and a terminal block q carried by the spring-actuated rod and adapted to be brought in contact with the stationary terminal block to close the circuit and cause an explosion and ignite the explosive mixture in the explosion-chamber, substantially as described.

11. In a gas-turbine, the combination with an explosion-chamber, an expansion or compression chamber, a turbine and connections between said turbine and the expansion-chamber, of a valve-chamber 21, a connection between the expansion-chamber and the turbine and provided with a spring-controlled valve, a bell-crank lever pivotally secured to a suitable support and connected to said valve, a cam-shaft geared to the turbine-shaft and a stationary cam arranged on said shaft and adapted to actuate said bell-crank lever to operate the valve in said valve-chamber, substantially as described.

12. In a gas-turbine, the combination with an explosion-chamber, an expansion or compression chamber, the nozzles, a turbine, a turbine-shaft, a connection between said nozzles and the expansion-chamber, of a valve-chamber 10 between the said explosion chamber and the nozzles, and provided with a spring-controlled valve, a bell-crank lever pivotally secured to a suitable support and connected to said valve, a cam-shaft, and a centrifugal governor connected to said cam and adapted to adjust the position of the cam, substantially as described.

13. In a gas-turbine, the combination with an explosion-chamber, an expansion or compression chamber, the nozzles, a turbine, a turbine-shaft, a connection between said nozzles and the expansion or compression chamber, of a mixing-chamber, a pump adapted to deliver the explosive mixture to, and compressing the same in, said explosion-chamber, a valve-chamber 10 between the said explosion-chamber and the nozzles provided with a spring-controlled valve, a bell-crank lever pivotally supported and connected to said valve, a cam-shaft, a cam movably secured on said cam-shaft, and a centrifugal governor connected to said cam and adapted to adjust the position of the cam, substantially as described.

14. In a gas-turbine, the combination with an explosion-chamber, a turbine and connection between said explosion-chamber and the turbine, of means communicating with said connection adapted to prevent the force of the explosion in said explosion-chamber from acting directly upon the turbine, substantially as described.

15. In a gas-turbine, the combination with an explosion-chamber, a turbine and a connection between said turbine and the explosion-chamber, of an expansion-chamber and a valve communicating with said connection adapted to be automatically closed to prevent the force of the explosion in the explosion-chamber from being directly communicated to the turbine, substantially as described.

596,865. RAILROAD-RAIL. ALEXANDER J. GORDON, Philadelphia, Pa. Filed June 13, 1896. Serial No. 595,387. (No model.)



Claim.—1. A rail, comprising a base having a web formed at its upper end with a fork, stay-rods for connecting the two rails of the track with each other, the said stay-rods being formed at their ends with bolts passing through the said fork, a head formed with a depending flange fitted between the members of the fork, the said flange being formed at its lower end with notches for the bolts of the stay-rods, and bolts for fastening the said flange in place in the said fork, substantially as shown and described.

2. A rail having two sections, one of which is forked to form a channel and the second of which has a portion extending into the channel and provided with notches in its edge, and a stay-rod one end of which is passed through the portions of the fork in the forked section and through the notch in the second section, substantially as described.

3. A rail having two sections, one of which is forked to form a channel receiving a portion of the second section, and the second section having a notch in the edge of the portion fitted within the said channel, a bolt passing through and holding the two sections in connection, and a stay-rod one end of which runs through the forked portion of the first section and through the notch of the second section, substantially as described.

596,866. STOPPER-FASTENER. ROBERT S. GRAHAM, St. Louis, Mo., assignor of three-fourths to Robert J. Lucas, same place. Filed May 8, 1897. Serial No. 635,648. (No model.)

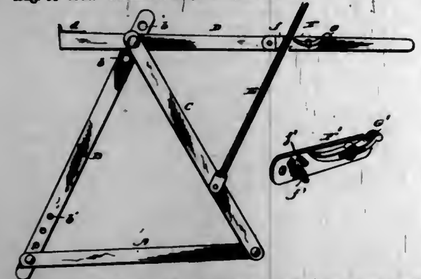


Claim.—1. The combination with a bottle having a contracted mouth formed by a shoulder, of a cork adapted to be forced below said shoulder, and a non-expansible fastener, which is passed through the contracted mouth and placed loosely on top of the cork, the expanding contents of the bottle forcing the cork outwardly to lock the same and the fastener in place under the shoulder forming the contracted mouth portion of the bottle; substantially as described.

2. The combination with a bottle having a contracted mouth, of a cork forced through and below said contracted mouth, a non-expansible fastener having flat sides, which is passed through the contracted mouth and placed loosely on the cork, the expanding contents of the bottle forcing the cork and the fastener outwardly to lock them in place; substantially as described.

3. The combination with a bottle having a contracted mouth formed by a shoulder, of a cork, and a non-expansible fastener having flat sides and a central aperture, said fastener being introduced loosely on top of the cork the expanding contents of the bottle forcing the cork and the fastener outwardly to lock them in place, the central aperture of the fastener permitting the passage of a corkscrew for the purpose of removing the same; substantially as described.

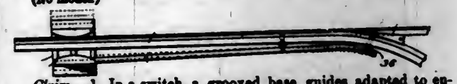
596,867. LIFTING-JACK. JOHN W. HUGHES, Carlisle, Pa. Filed Aug. 11 1897. Serial No. 647,854. (No model.)



Claim.—1. A lifting-jack comprising a triangular frame, a lifting-lever pivoted between the two angular bars at the apex, a rod for supporting the operating-lever, means for securing the end of the rod when in use, and one of the vertical bars provided with a row of perforations adjacent to its lower end for use in adjusting the base of the frame to an inclination from the horizontal, substantially as described.

2. A lifting-jack comprising a triangular frame, a lifting-lever pivoted between the two angular bars at the apex, a rod for supporting an operating-lever, means for clamping the end of the rod when in use, means at the bottom of one of the vertical bars for adjusting the base of the frame at an inclination to the horizontal and at the top of said bars for adjusting the lever, substantially as described.

596,868. TRAMWAY-SWITCH. HENRY M. HUNT and FREDERIC T. HUNT, New York, N. Y. Filed Aug. 6, 1896. Serial No. 601,868. (No model.)



Claim.—1. In a switch, a grooved base, guides adapted to engage said grooved base, a lever, one end of which is secured to said guides, the other to a switch-tongue, cam-blocks secured to said guides, said cam-blocks being located one on each side of a track-rail.

2. In a switch, a track-rail and switch-tongue, a box located on each side of the rail at a predetermined point, a grooved base formed on a portion of said box, under the rail, guides adapted to work in said grooves, an operating-lever, one end of which is secured to said guides, the other to the switch-tongue, cam-blocks secured to the guides, one on each side of the rail.

3. In a switch, a track-rail and switch-tongue, a lever one end of which is connected with said tongue, an iron box located on each side of the track-rail, cam-blocks secured to the free end of said lever, a lateral flange extending from the rear of each cam-block, said flange working in said iron box.

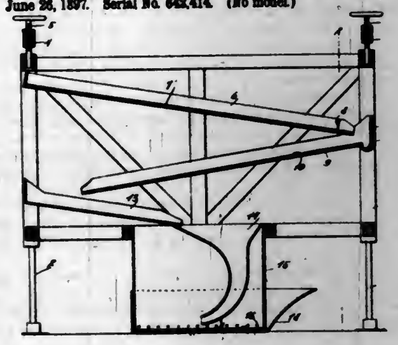
4. In a railway-switch, a track-rail and switch-tongue, a lever connected with said tongue, a box located at the fulcrum-point of said lever, a laterally-extending flange or lug inside of said box, to which the said lever is fulcrumed, and a laterally-extending flange outside of the box provided with spike or bolt openings whereby the box is secured to a block, said outside flange extending underneath the track-rail.

596,869. NOZZLE FOR OIL-CANS. JOHN W. JACKSON, Sharpsville, Pa. Filed Apr. 15, 1897. Serial No. 633,289. (No model.)



Claim.—An oil-can having a spout which projects from one of the side walls of the body of the can, an internally-threaded ring carried by the spout, a removable nozzle having a coupler for engagement with said ring, the coupler comprising a threaded portion d', flange d, and a tubular extension below the threaded portion of less diameter than the same, said parts being integral, in combination with a cylindrical strainer having an open upper end adapted to frictionally engage the tubular extension of the coupler so as to be carried by the nozzle and depend therefrom within the spout so as to engage with the wall of the can above the opening therein, substantially as shown and for the purpose set forth.

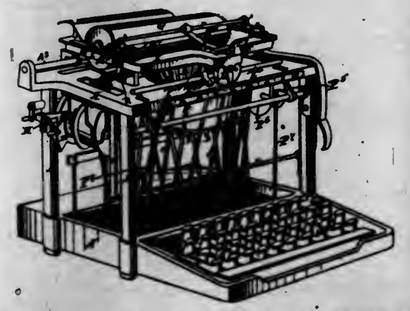
596,870. AMALGAMATOR. JULIUS JEAN, Globeville, Colo., assignor to the Standard Gold Extraction Company, Denver, Colo. Filed June 26, 1897. Serial No. 642,414. (No model.)



Claim.—1. An amalgamator comprising a frame, a copper-lined trough secured near the upper part of said frame and provided with a comb near its lower end, said trough being fixed at an inclination, a second copper-lined trough below the first and inclined in the opposite direction, said trough having at its receiving end a depression or cavity for containing mercury, an inclined trough below its discharge end, and a funnel having a curved discharge-spout, mounted on the lower part of the frame within a perforated box, and means for raising and lowering the frame to adjust the funnel in the box, substantially as described.

2. An amalgamator consisting of a frame, mounted to slide on rods at its corners, a cross-head and screw for raising and lowering said frame, an inclined trough extended longitudinally of said frame and lined with copper, a comb at the discharge end of said trough, a second trough disposed below the first and having a depression for containing mercury, a receiving-trough below and a funnel supported by the frame within a box, substantially as described.

596,871. TYPE-WRITING MACHINE. WILLIAM K. JENNE, Ilion, N. Y., assignor to The Wyckoff, Seamans & Benedict, same place. Filed June 23, 1879. (No model.)



Claim.—1. In a type-writing machine, the combination of a paper-carriage; a spring drum or barrel having a cam or snail-shaped surface; a flexible band attached to the carriage and arranged to wind upon the snail-shaped surface of the drum; printing devices; spacing mechanism for holding and releasing the carriage to permit a step-by-step advance; and a series of finger-key levers serving to actuate the printing devices and to control the spacing mechanism; whereby the power required to depress the finger-key levers, to control the spacing mechanism and to give a proper printing impression is maintained uniform throughout the travel of the carriage.

2. In a type-writing machine, the combination of an inking-ribbon; ribbon-spools adapted to turn upon their axes and to move longitudinally thereof; guides adapted to embrace and to hold in place the ribbon-spools and ribbon; and a movable frame connected with said guides and serving to effect a simultaneous and equal movement of both spools.

3. In a type-writing machine, the combination of a supporting bed or plate; a carriage L, movable in a line parallel with the front of the machine; rollers M carried by the end bars of the frame of said carriage; and a supplemental frame provided with a platen Q and having its end bars N supported upon the rollers M of the primary carriage, substantially as described and shown.

4. In a type-writing machine, the combination of a primary paper-carriage, adapted to move in the direction of the printing-line; a secondary paper-carriage carried by the primary carriage and movable over the same at right angles to the printing-lines; stops to limit the movements of the supplemental carriage; and hooks to engage said stops and hold the supplemental carriage in its adjusted positions.

5. In combination with the primary carriage having stops M^3 M^3; a supplemental carriage; a rocking block O^3, mounted upon the supplemental carriage; and provided with studs O^4; and hooks O pivotally attached to the block O^3 and adapted to engage alternately with the stops M^3 M^3.

6. In combination with carriage L, supplemental carriage N N, R^3; rocking blocks O^3 carried by the supplemental carriage and provided with hooks O and studs O^4; rod P connecting the blocks O^3 and provided with guide-bar P'; rod P^2 and yoke P^3 carried by bar P'; rod P^4 fitting within the yoke P^3; elbow-levers P^5 supporting the rod P^4; and finger-keys connected with and serving to rock said levers, substantially as set forth

7. In a type-writing machine, the combination of a platen shiftable at right angles to the printing-line, and means for locking said platen in its normal position.

8. In a type writing machine, the combination of a platen shiftable at right angles to the printing-line, and means for locking said platen in its shifted position.

9. In a type-writing machine, the combination of a platen shiftable at right angles to the printing-line; means for locking said platen in its normal position; and means for locking the platen in its shifted position.

10. In a type-writing machine, the combination of a platen shiftable at right angles to the printing-line; a vibratory shifter-bar parallel with the platen; connections between the platen and shifter-bar; a shift-key lever at the keyboard; and connections between the shifter-bar and the shift-key lever.

11. In a type-writing machine, the combination of a primary paper-carriage movable in the direction of the printing-line; a secondary carriage supported by the primary carriage and movable thereon at right angles to the printing-line; a vibratory shifter-bar parallel with the printing-line; a crotch or yoke carried by the secondary carriage and arranged to straddle the shifter-bar; and a shift-key connected with the shifter-bar and serving to move the same laterally.

12. In a type-writing machine, the combination of a longitudinally-traveling platen capable also of transverse movement; a shifter-bar extending parallel with the platen; and a finger-key connected with the shifter-bar and serving to shift it and the platen transversely at any and all points in the travel of the platen.

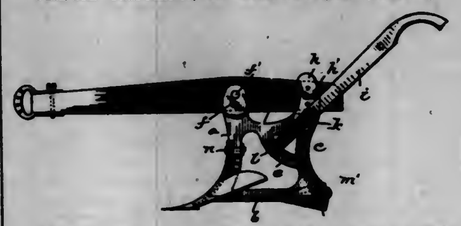
13. In a type-writing machine, the combination of a longitudinally-traveling platen; and a transversely-movable shifter-bar parallel therewith and mounted in the frame of the machine, and so connected with the platen as to shift the same transversely or at right angles to its axis, at any and all points in the travel of the carriage.

14. In a type-writing machine, the combination of a longitudinally-traveling platen, and a shifter-bar at least as long as the travel of the platen, mounted in the main frame, and so connected to the platen as to shift the same transversely to its axis at any and all points in the travel of the platen.

15. In a type-writing machine, the combination of a longitudinally-traveling platen; a shifter-bar connected with the platen and serving to shift the same transversely; and rocker-arms for carrying said shifter-bar.

16. In a type-writing machine, the combination of a longitudinally-traveling platen; a shifter-bar connected with the platen and serving to shift the same transversely; rocker-arms for carrying the shifter-bar; and a key-lever for moving the shifter-bar.

596,872. PLOW. JAMES M. KIRKPATRICK and JERRY R. FILES, Files, Tex. Filed June 15, 1897. Serial No. 640,802. (No model.)



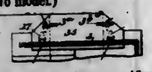
Claim.—1. The combination of a plow-stock, consisting essentially of a front standard *a*, a rear standard *c*, upper connecting-bar *d*, and lower connecting-bar *b*, a pair of plates *f* being formed integral on the upper end of standard *a*, and a pair of separated plates *h* being formed integral with the rear standard and projecting vertically therefrom, these plates being separated and provided with registering holes, a plow-beam pivotally mounted and fitted between the forward plates *f*, the rear end of said beam fitting closely and working vertically between said plates *h*, a pin or bolt passing through the holes in the plates and engaging the beam, and a pair of handles supported on the stock independently of the beam, whereby the beam may be adjusted without varying the pitch of the handles.

2. The combination of a plow-stock, composed of a front standard *a*, rear standard *c*, upper connecting-bar *d*, lower connecting or foot bar *b* and a diagonal arch or brace *e* connecting the rear standard to said upper bar *d*, oppositely-projecting lugs *j* being formed on the upper end of the rear standard *c*, a pair of handles pivoted respectively on said lugs and having their forward ends extend down to said brace or arch, means for connecting the ends adjustably to said arch, and a beam supported on the stock independently of the handle.

3. The combination of a plow-stock having a rearward-extending foot-bar, a colter-plate pivoted at its forward end and lying in a vertical longitudinal slot in the rear end of the foot, and a removable pin carried at the rear end of the colter-plate and engaging notches in the rear edge of the foot-bar, substantially as described.

4. The combination of a plow-stock, a double-sweep plow attached to the standard thereof, a pair of bars o attached to the rear side of the plow, one on each side of the standard, and extending downward and forward and a removable plow-point bolted to the extended ends of said bars, substantially as described.

596,373. PAPER BAG. WILLIAM A. LORENZ, Hartford, Conn., assignor to Albert H. Walker, trustee, same place. Filed June 19, 1896. Serial No. 596,192. (No model.)

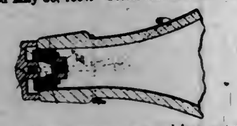


Claim.—1. A paper bag of the class specified, provided with the usual paste fastenings, and having apertures in the inner plies of its bottom-closing flaps through which the paste passes to secure the outer plies of those flaps to the side folds of the bottom in addition to said fastenings.

2. A paper bag of the class specified having inside angular corner-wings, the outer plies of which are each provided with one or more perforations at their paste-lines, whereby both plies of the said wings are united with the bottom.

3. A paper bag of the class specified, provided with the usual paste fastenings, and having inside angular corner-wings, as 31, the inner plies of which are each provided with one or more perforations located in substantial coincidence with those paste fastenings, whereby the paste thereof passes through to unite both plies to the bag-bottom.

596,374. BOTTLE-STOPPER. HERMAN R. MELSTER, Whitewater, Wis. Filed May 28, 1897. Serial No. 638,542. (No model.)



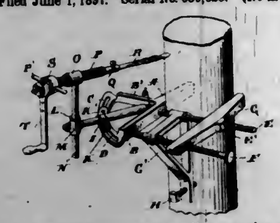
Claim.—1. A bottle-stopper, comprising an elastic plug, and a yoke adapted to be seated on a bottle-neck and provided with a projecting pin extending through the plug and having a longitudinal slot through which a bail loosely passes above the plug, substantially as described.

2. A bottle-stopper, comprising a yoke adapted to be seated on the bottle-neck and provided with a projecting pin having a longitudinal slot through which a bail is adapted to be passed, and an elastic plug held loosely on the said pin between the bail and a stop on the pin, substantially as described.

3. A bottle-stopper, comprising a yoke provided with depending lugs adapted to rest on the top of the bottle-neck, and with a pin depending from the center thereof, said pin being longitudinally slotted to receive a bail, and provided with a stop at its end, and an elastic plug held loosely on the pin between the bail and the stop at the end of the pin, substantially as described.

4. A bottle stopper comprising a yoke provided with depending end lugs adapted to rest on the top of the bottle-neck and with a pin depending from its central portion, said pin being provided with a longitudinal slot, through which a bail is adapted to be passed, and with a nut on its end, an elastic plug held loosely on the pin of the yoke, and a washer also on the pin above the plug, substantially as described.

596,375. HAND DRILLING-MACHINE. JAMES MURCHIE, Traverse City, Mich., assignor to William H. Arms and Wilson Cole, same place. Filed June 1, 1897. Serial No. 639,023. (No model.)



Claim.—1. The combination of a drill-supporting clamp adapted to be secured to a pillar or other support, and a bracket carried by the clamp and extending at an angle thereto and adapted to engage the support, substantially as shown and described.

2. An improved support for a drilling-machine, comprising a rigidly-connected drill-frame and jaw, a second jaw adjustable with relation to the first-mentioned jaw, a bracket depending beneath the jaws, and a set-screw carried by the bracket, the parts operating substantially as herein shown and described.

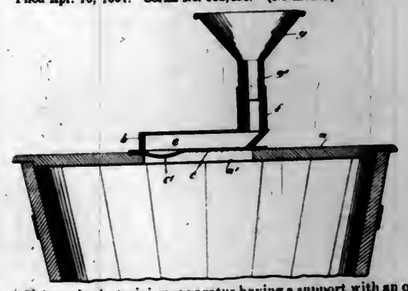
3. The combination of a drill-supporting clamp including horizontally-disposed jaws adapted to embrace a pillar or other support, a bracket depending from the clamp, and a screw adjustable in the bracket and adapted to bear against the support, and thus regulate the position of the bracket and the clamp with relation to the support, substantially as shown and described.

4. An improved drill machine comprising a frame including arms B and B' extending at an angle to each other, segment C supported by the arms, a drill and a drill-adjusting arm hinged concentrically with segment C and adapted to be held on the latter in proper adjustment, substantially as shown and described.

5. An improved hand drilling-machine, comprising a support, socket I hinged thereto and means for securing the socket in proper adjustment, arm L having clamp M at its outer end and at its inner end adjustable in socket I, arm N adjustable in socket M at right angles to arm L, arm N being provided at one end with socket O, a drill-feeding mechanism movable through socket O, and a drill, substantially as shown and described.

6. In a drilling-machine, jaw A formed with integral right-angle arms B and B', segment C supported by the arms and formed with arc slot D, a drill-adjusting arm hinged in the angle of the arms and extended over the arc slot and adapted to be secured in desired adjustment to the segment, a drill, and a second jaw adjustable toward and away from jaw A, substantially as shown and described.

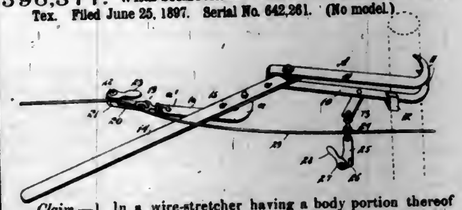
596,376. MILK-PAIL. ANGUS D. MCLELLAN, Crystal, N. D. Filed Apr. 16, 1897. Serial No. 632,458. (No model.)



Claim.—1. A straining apparatus having a support with an opening therein, a concave plate secured to the support and extending over a portion of the opening, a sieve located directly adjacent to the concave plate and extending over the remaining portion of the opening, a flange extending upward from the edges of the opening, a portion of the flange being inclined downward and inward toward the adjacent edge of the opening, a casing having an open bottom, the casing being snugly fitted within the space inclosed by the flange and having an inclined end lying snug against the inclined portion of the flange, such inclined end of the casing leading to the sieve at the edge opposite the concave plate, and a tube leading to the casing and discharging upon the concave end thereof whereby liquid directed through the tube will engage such concave end and be deflected laterally over the sieve toward the concave plate.

2. A straining apparatus having a concave plate, a sieve adjacent thereto, a casing having an open bottom, the casing being arranged over the concave plate and sieve and having one end inclined downward and inward toward the sieve, such end being located opposite to the concave plate, and a tube leading to the casing, the tube discharging directly upon the inclined end of the casing so that liquid projected through the tube will strike said inclined end and be deflected laterally over the sieve toward the concave plate.

596,377. WIRE-STRETCHER. WILLIAM T. MCNEILL, Stoneburg, Tex. Filed June 25, 1897. Serial No. 642,261. (No model.)

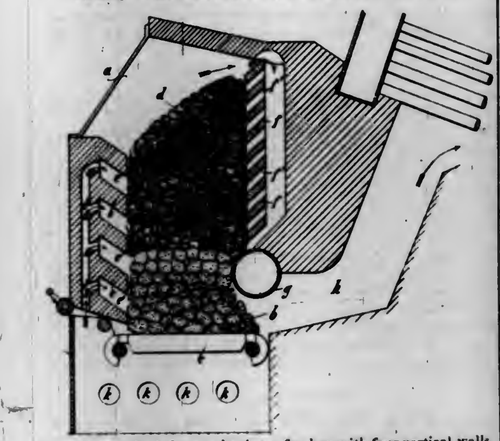


Claim.—1. In a wire-stretcher having a body portion thereof shaped to embrace a post, a lever fulcrumed in the said body, an angular pull-bar adjustably connected with said lever, and a clasp consisting of a body-bar, having a lug and a cam facing the said lug, which clasp is connected with said pull-bar, a projection from the said body, and a second clasp attached to said projection, both clasps being capable of being reversed in position, for the purpose specified.

2. In a wire-stretcher, the combination, with a body provided with claws, and a lever pivoted in the said body, having a series of keyhole-slots produced therein, of a pull-bar having a post formed thereon and a lug projected from the post, the post and lug being arranged to pass through an opening in said lever, a clasp carried by the pull-bar, and a second clasp having a flexible connection with the body of the said stretcher, for the purpose specified.

3. In a wire-stretcher, the combination, with a body having a portion thereof fitted to embrace a post, the said body being provided with a keeper, and a lever fulcrumed in the body, having a series of openings therein, of an angular pull-bar provided with a projection arranged for locking engagement with the lever at one of the openings therein, a clasp connected with the said pull-bar, which clasp comprises a body having a lug formed thereon and a cam provided with a handle pivoted on the body opposite the said lug, and a second clasp having a loose connection with the body of the stretcher, as and for the purpose specified.

596,378. SLOW-COMBUSTION FURNACE. AUGUST PAMPUS, Kiel, Germany. Filed Oct. 20, 1896. Serial No. 609,450. (No model.)



Claim.—1. A furnace having a fire-box with four vertical walls, said fire-box having a gas-outlet at the lower portion at one side and a feed-orifice at its upper portion, the two of the side walls of the fire box each having a vertical air-admission channel leading downward to the lower portion of the fire-box, the front wall of the fire-box having an air-distributing passage leading upward and having a plurality of openings leading into the upper portion of the fire-box, and the rear wall of the fire-box having an air-distributing passage leading downward and having a plurality of openings leading into the fire-box, and a grate situated in the lower portion of the fire-box, substantially as described.

2. A furnace having a fire-box with a gas-outlet near its lower portion and a feed-orifice near its upper portion, the fire-box having an air-inlet at its lower portion and the fire-box also having an air-distributing passage leading up one wall of the fire-box, and having a plurality of openings leading into the upper portion of the fire-box, said fire box having a second air-distributing passage leading from its upper end downward through a second wall and having a plurality of openings leading into the fire-box, and a grate situated in the lower portion of the fire-box, substantially as described.

3. A furnace having a fire-box with air-distributing passages in two opposite walls and having air-supply passages leading down through two other opposite walls, substantially as described.

4. The combination of the shaft or fire-box, adapted to contain the fuel and provided with superposed transverse air-admission channels in its back wall, and the refractory ridge arranged between the combustion-chamber and the lowermost air-admission channel and adapted to engage the fuel to compel the air to pass therethrough, substantially as described.

5. A furnace having a fire-box with two passages in its opposite walls, one passage having a series of apertures opening in the fire-box and the said passage conducting a draft upward and into the fire-box, and the second passage also having apertures leading into the fire box and conducting a draft downward from the upper portion of the fire-box into the lower part thereof, substantially as described.

6. The combination of the shaft or fire-box, adapted to contain the fuel and provided with superposed transverse air-admission channels in its back wall, and the refractory ridge formed by a water-pipe arranged between the combustion-chamber and the lowermost air-admission channel and adapted to engage the fuel to compel the air to pass therethrough, substantially as described.

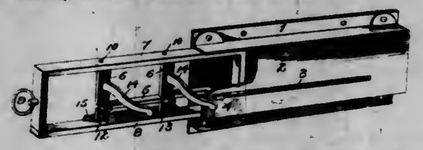
596,379. BURGLAR-ALARM. JAMES S. PAYNE, Midway, Ky. Filed Mar. 24, 1897. Serial No. 629,063. (No model.)



Claim.—1. A burglar-alarm, comprising an air-holder having a flexible escape-tube provided with a whistle or other alarm mouthpiece detachably connected therewith, and a clamp device adapted to be secured at any point on the flexible tube and having its ends adapted to be secured between the door and casing, whereby to close the said tube substantially as shown and described.

2. A new and improved burglar-alarm, comprising an air-holding bag having a flexible hanger and a tube having a mouthpiece, a whistle having a threaded shank to engage the mouthpiece, and a clamp consisting of a base member having a sharpened front end, a spring member hinged thereto in such a manner as to open normally outward from the base said clamp having a portion held in close relation to the base, an outwardly-bent portion and a forwardly-extending member held normally spaced apart from the base member all being arranged substantially as shown and for the purposes described.

596,380. CLOTHES-RACK. WILLIAM A. PURSLEY, Spencer, W. Va. Filed Apr. 27, 1897. Serial No. 634,168. (No model.)



Claim.—1. In a folding rack, the combination of a base having a guide, a frame slidably mounted upon the base, bars pivoted to the frame and provided with suspending means, as pegs or hooks, and with crank portions, and a coupling-bar connecting the crank portions of the pivoted bars, and having an extension to engage with a portion of the aforesaid base to cause an unfolding of the rack simultaneously with moving the frame outward, substantially as set forth.

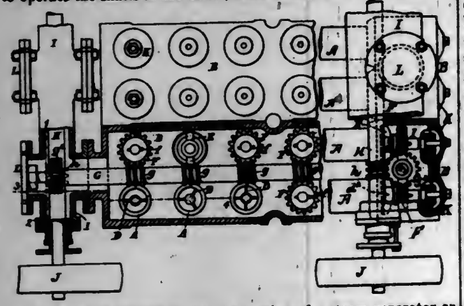
2. In a folding rack, the combination of a case having a longitudinal slot, a frame slidably mounted within the case, bars pivoted to the frame and having suspending hooks or pegs and provided with crank portions, and a coupling-bar connecting the crank portions of the pivoted bars and having a lateral extension operating in the longitudinal slot of the case, substantially in the manner set forth for the purpose specified.

3. The herein-described folding rack, comprising a case formed of a base-plate and longitudinally-slotted keeper secured thereto, a frame slidably mounted within the case and having a removable side bar, bars having trunnions at one edge obtaining bearings in the longitudinal or side bars of the frame and provided at their opposite edge with crank portions, suspending hooks or pegs applied to the pivoted bars, and a coupling-bar connecting the crank portions of the pivoted bars and having a lateral extension operating in the longitudinal slot of the case, substantially in the manner and for the purpose set forth.

596,381. STEAM-GENERATOR. ERNEST C. REED, Dartford, England. Filed July 31, 1897. Serial No. 646,680. (No model.)

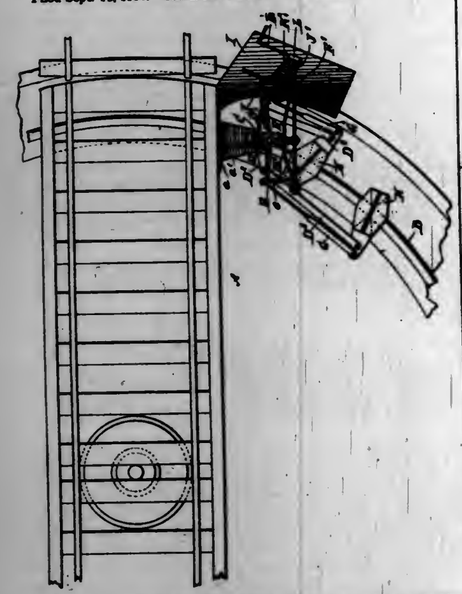
Claim.—1. The combination of the water-tubes of a steam generator or economizer, and boxes into which said tubes open, with scrapers within said tubes, shafts within said boxes to impart motion

to the scraper, a side header and a driving-shaft within the side header to operate the shafts in the boxes, substantially as described.



2. The combination of the water-tubes of a steam-generator or economizer and top and bottom boxes, with transverse shafts within the top boxes and gearing connecting each said shaft to adjacent pairs of scrapers, a side header and a driving-shaft in the latter to operate the shafts in the top boxes, substantially as described.

596,382. TURN-TABLE. GABRIEL ROMBACH, Del Rio, Tex. Filed Sept. 11, 1897. Serial No. 651,334. (No model.)



Claim.—1. A turn-table operating device, comprising a circular rail, dogs adapted to grip and release said rail, a vertical shaft journaled on the turn table, a horizontal bar fixed to said shaft, a cross-shaft pivoted on the vertical shaft, parallel with said bar, links connecting said bar and cross-shaft with the dogs, and means for oscillating said vertical and cross shafts, and actuating the dogs and changing their direction of engagement with the circular rail, substantially as described.

2. A turn-table-operating device, comprising a circular rail, dogs adapted to grip and release said rail, a vertical shaft journaled on the turn-table, a horizontal bar fixed to said shaft, a cross-shaft pivoted on the vertical shaft, parallel with said bar, links connecting said bar and cross-shaft with the dogs, and means for oscillating said vertical and cross shafts, and actuating the dogs and changing the direction of travel of the dogs on the circular rail, substantially as described.

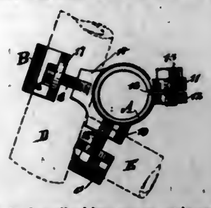
3. A turn-table-operating device comprising a circular rail, clutch-dogs adapted to engage the circular rail when moved in one direction, a vertical shaft mounted upon the turn-table, a horizontal bar fixed to said shaft and connected at opposite ends to the clutch-dogs, an arm or lever pivoted by a horizontal pivot to the vertical shaft, and a crank-arm having a hole receiving the outer part of said pivoted arm or lever, substantially as described.

4. A turn-table-operating device comprising a circular rail, clutch-dogs adapted to engage the circular rail when moved in one direction, a vertical shaft mounted upon the turn-table, a horizontal bar fixed to said shaft and connected at opposite ends to the clutch-dogs, a cross-shaft journaled on the vertical shaft parallel to said bar, spring-arms attached to the ends of the cross-shaft, connections between the spring-arms and the clutch-dogs, means for oscillating the cross-shaft, and means for oscillating the vertical shaft, substantially as described.

5. A turn-table-operating device, comprising a circular rail, clutch-dogs adapted to engage the circular rail when moved in one direction, a vertical shaft mounted upon the turn-table, a horizontal bar fixed to said shaft and connected at opposite ends to the clutch-dogs, an arm or lever pivoted by a horizontal pivot to the vertical shaft, a crank-arm having a hole receiving the outer part of said pivoted arm or lever, and means for shifting the position of the clutch-dogs and their direction of engagement with the circular rail, substantially as described.

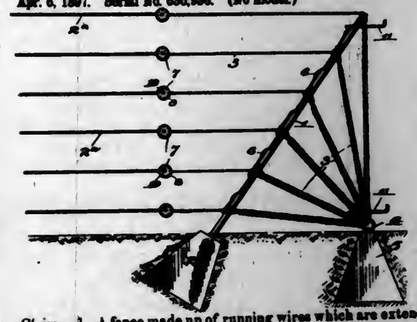
6. A turn-table-operating device comprising clutch-dogs adapted to engage a circular rail, a vertical shaft mounted upon the turn-table, a horizontal bar fixed thereto and engaged at opposite ends to the clutch-dogs, links connected to the clutch-dogs by which their angular position may be changed, a lever for operating said links, spring connections between said levers and links, and means for oscillating the vertical shaft, substantially as described.

596,388. COUPLING FOR BICYCLES. THOMAS H. SANDERSON, New York, N. Y. Filed July 16, 1896. Serial No. 599,364. (No model.)



Claim.—The herein-described improvement in couplings for bicycles, consisting of the combination with a self-bracing fitting comprising an open-ended sleeve arranged transversely to the plane of the machine and adapted to receive a coupling-bar, and having clamps thereon for securing the sleeve firmly both to the head and lower front brace of the bicycle, of a coupling-bar held by said sleeve and means for clamping the sleeve to said bar, substantially as and for the purpose set forth.

596,384. WIRE FENCE. SILAS SHOWN, Glenville, Ky. Filed Apr. 6, 1897. Serial No. 630,996. (No model.)



Claim.—1. A fence made up of running wires which are extended to an inclined brace and are led therefrom to an anchor, wire sections or loops connecting the several wires to each other, and an upper loop engaging the upper end of the brace, substantially as shown and for the purpose set forth.

2. In a fence, the combination with an inclined brace, of running wires engaging the brace and led downward to an anchor to which they are secured, the wires being connected to each other by loops, the upper loop passing over the end of the brace and the ends bent into engagement with the next wire and connecting portion of the second loop, and so on with the other loops, substantially as shown and described.

3. In a fence, the combination with the running wires, of anchor-wires attached thereto and arranged in pairs, an inclined brace passed upward between the anchor-wires, loops or wire sections connecting

the anchor-wires to each other on a line with the brace, the several pairs of anchor-wires being twisted beyond the brace and connected at their ends to an anchor or stone embedded in the ground on a vertical line with the upper end of the brace, substantially as shown and for the purpose set forth.

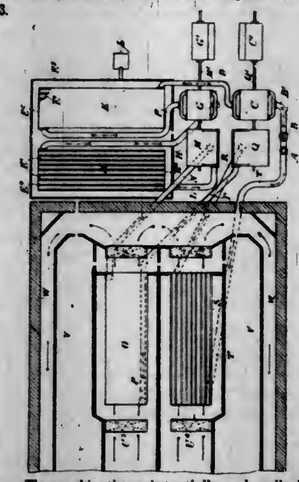
4. The combination with a fence constructed substantially as shown, of an inclined brace, anchor-wires arranged in pairs and twisted from the inclined brace to the anchor of which said wires are attached at their ends, of pintles or hinge-sections each having a shank passed through the twists of the anchor-wires, said shanks being provided with projections which embrace the anchor-wires, substantially as herein shown and described.

596,385. FIGURE TOY. WILLIAM F. SIMON, West Hoboken, N. J. Filed Sept. 7, 1897. Serial No. 650,815. (No model.)



Claim.—A toy or ornament made in the semblance of a reptile, having its body formed of a thin metal strip spirally coiled, said strip being crimped and presenting thereby a contrast of light and shade, substantially as described.

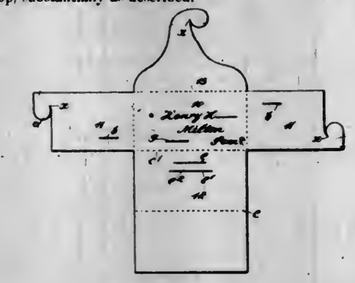
596,386. APPARATUS FOR COOLING AND REFRIGERATING. BERNHARD A. SMITH, Melbourne, Victoria. Filed June 17, 1895. Serial No. 553,122. (No model.) Patented in England June 11, 1895, No. 11,373.



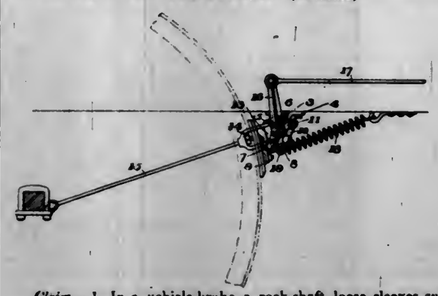
Claim.—The combination substantially as described in a cooling and refrigerating apparatus, of the two engines G' and C', the compression-cylinder C and expansion-cylinder Q in line with engine C' and connected therewith, the compression-cylinder G and expansion-cylinder M in line with engine G' and connected therewith, the tank E^2, the condensers E and K located in said tank, pipe D connecting compression-cylinder C and condenser E, pipe F connecting condenser E and cylinder G, pipe H connecting cylinder G with condenser K, pipe L connecting condenser K with expansion-cylinder M, a refrigerating-chamber, two coolers O and S located therein, a pipe N connecting the cooler O with expansion-cylinder M, the pipe P connecting the cooler O and the cylinder Q and the pipe R connecting cylinder Q with the cooler S, and a pipe T connecting the cooler S with the compression-cylinder C, as and for the purposes set forth.

596,387. SAFETY-ENVELOP. RUTH H. SMITH, Patchogue, N. Y. Filed Apr. 5, 1897. Serial No. 630,749. (No model.)

Claim.—A safety-envelop, comprising a blank, having two foldable end flaps, locking-tabs on said end flaps that may engage slots in said flaps when the end flaps are folded, and two side flaps one of which is adapted for double folding and is provided with a keeper-band produced by two spaced slots therein, the opposite flap being narrowed toward the free end whereon a locking-tab is laterally formed, said tab and the neck of the flap being adapted to pass below the keeper-band when the envelop is folded, and the lateral tab to be interlocked with a single slot provided in the front side of the envelop, substantially as described.



596,388. VEHICLE-BRAKE. HENRY C. SWAN, Oshkosh, Wis. Filed Aug. 31, 1897. Serial No. 650,086. (No model.)



Claim.—1. In a vehicle-brake a rock-shaft, loose sleeves surrounding the shaft, means for preventing rotation of said sleeves, and connections between the sleeves and the brake arranged to give said brake a parallel movement.

2. In a vehicle-brake, the combination with a rock-shaft, having projecting lugs, of brake-shoes having arms pivotally connected with said lugs, loose sleeves surrounding the rock-shaft and held against rotation, and link connections between the loose sleeves and the brake-shoe arms.

3. In a vehicle-brake, a rock-shaft having loose sleeves surrounding the same, rods connected to said sleeves and secured to the axle, and brakes having link connections with said sleeves arranged to give the brakes a parallel motion.

4. In a vehicle-brake, the combination with a rock-shaft, of an end sleeve secured thereto and having projecting ears, a brake-shoe having an arm pivoted within the ears, a collar surrounding the rock-shaft and having a rod extending to the axle, and a link connection between the loose sleeve and the brake-shoe arm.

5. In a vehicle-brake, the combination with a rock-shaft having actuating connections with the brake-shoe, of a spring connected with an arm secured to the shaft and arranged to bring a tension upon the parts when not in use, thereby preventing rattling.

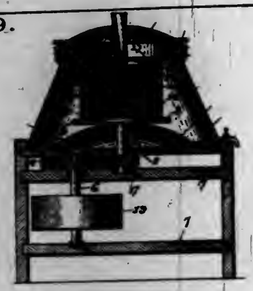
6. In a vehicle-brake, the combination with a rock-shaft, of a brake-shoe, and connections between the shaft and shoe arranged to give the said shoe a parallel movement to and from the wheel.

596,389. CENTRIFUGAL MACHINE. JOSEPH M. THURSTON, Richmond, Ind. Filed Apr. 22, 1897. Serial No. 633,335. (No model.)

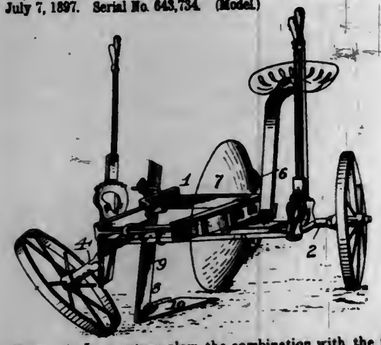
Claim.—1. The combination with a casing, and a shaft, of a carrier provided with upright rods or stems, a foraminous receptacle having an imperforate bottom and adjusted on said carrier within the rods or stems, a clamping-spider resting on the receptacle and fitted to the rods or stems, and devices operating in connection with said rods and the receptacle to clamp the latter upon the carrier, as and for the purposes described.

2. The combination with a casing, and a rotary carrier journaled therein, of a cage like receptacle provided with a perforated central feed-tube, a spider fitted over the open upper end of the cage-like receptacle and to the upper end of said feed-tube, and means for connecting the spider rigidly to, and to clamp said receptacle on, said carrier, substantially as described, for the purposes set forth.

596,889.



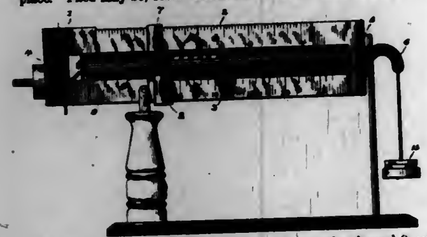
596,890. DISK PLOW. OLIVER P. WOLCOTT, Dallas, TEX. Filed July 7, 1897. Serial No. 643,734. (Model.)



Claim.—1. In a rotary plow, the combination with the furrow cutter and turner, consisting of the rotatable concavo-convex disk located at an angle to the line of draft, of the horizontal cutter located in front of said disk, opposite the concave surface thereof and provided with a forwardly-extending standard, substantially as described

2. In a plow, the combination with the concavo-convex disk, located at an angle to the line of draft, of the downwardly-extending bar having its lower end bent or turned inwardly forming a flat horizontal blade, having its front end formed with an inclined cutting edge and which travels in advance of the concave side of the disk and in a line parallel with the line of draft, substantially as described.

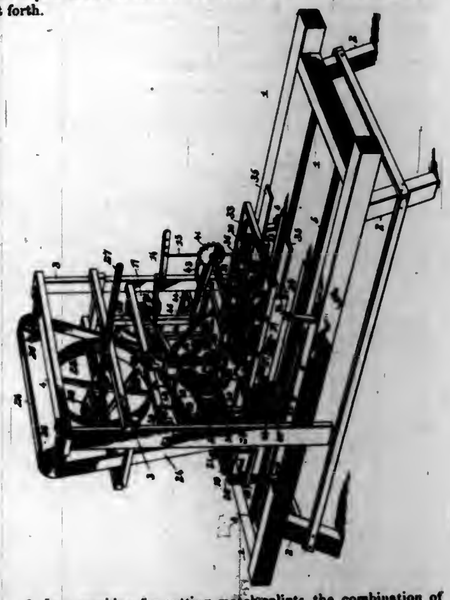
596,891. COMPUTING-SCALE BEAM. ALEXANDER ARMSTRONG, Moundsville, W. Va., assignor of one-half to William F. Weaver, same place. Filed May 28, 1897. Serial No. 638,564. (No model.)



Claim.—A scale comprising a rotating computing-barrel 9, substantially as shown and described, and mounted on the shaft 11, a pointer 12 fixed on said shaft so as to rotate simultaneously with said barrel, a scale-dial 14 fixed intermediate said pointer and the contiguous end of said barrel, a duplex scale-beam 1 comprising the horizontal arms 2 and 3, the former divided off to represent ounces and the latter to represent pounds, the poise 7 adjustably mounted on the arm 2 and provided with the finger 7' and the poise 8 similarly mounted on the arm 3 and provided with the finger 8', said fingers 7' and 8' being arranged to independently traverse said barrel, as and for the purpose set forth.

596,892. SPLINT CUTTING AND BUNCHING MACHINE. JOSEPH A. BRANDSDEFER, Sykesville, Pa. Filed Nov. 5, 1896. Serial No. 611,162. (No model.)

Claim.—1. In a machine for cutting match-splints, the combination of a chute or race for directing and supporting a strip of veneer, a cutting mechanism located to one side of the plane of the veneer strip, means for reciprocating the cutting mechanism transversely of the chute and across the veneer from one edge to the other, a match-splint holder on the opposite side of the plane of the veneer to the cutting mechanism, and a feeding mechanism for advancing the said match-splint holder to receive and bunch the splints, substantially as set forth.



2. In a machine for cutting match-splints, the combination of means for directing a strip of veneer to the cutting mechanism, a feeding mechanism for intermittingly advancing the veneer, a cutting mechanism located to one side of the plane of the veneer strip, means for reciprocating the cutting mechanism transversely of the veneer from one edge to the other, a match-splint holder on the opposite side of the plane of the veneer to the cutting mechanism, and a feeding mechanism for the match-splint holder, substantially as set forth for the purpose specified.

3. In a machine for cutting match-splints, the combination of a cutting mechanism, means for reciprocating the cutting mechanism transversely of the machine and across the veneer from one edge to the other, a feeding mechanism for intermittently advancing a strip of veneer to the cutting mechanism, a holder, mechanism for releasing the holder to admit of the veneer moving forward, and means for causing the holder to grip the veneer when advanced to secure it during the operation of the cutting mechanism, substantially as specified.

4. In a machine for cutting match splints, the combination of a cutting mechanism, a feeding mechanism for intermittently advancing a strip of veneer to the cutting mechanism, means for reciprocating the cutting mechanism from one edge to the other of the veneer, a holder for gripping the veneer during the periods of inactivity of the feeding mechanism, mechanism controlled by the reciprocating carriage of the cutting mechanism for applying and releasing the holder, and a match splint holder for receiving the splints, substantially as set forth.

5. In a machine for cutting match-splints, the combination of means for directing and intermittently feeding a strip of veneer, a cutting mechanism, means for reciprocating the cutting mechanism from one edge to the other of the veneer, a holder for clamping the veneer, a rod having loose connection with an arm or projecting portion of the holder, a spring for transmitting power from the rod to the said holder and engaging directly with the part through which the rod plays, and connections between the said rod and the reciprocating carriage bearing the cutting mechanism for alternately releasing and clamping the veneer, substantially as set forth.

6. In a machine for cutting match-splints, the combination of a reciprocating cutting mechanism, means for directing and feeding a strip of veneer to the cutting mechanism, a pivoted holder for clamping the veneer, an arm applied to the said holder, a rod operating loosely through the arm and having a limited upward movement to carry the holder away from the veneer, a spring for transmitting pressure from the rod to the pivoted holder and engaging directly with the said arm, and a lever having the aforesaid rod connected therewith and itself having connection with the reciprocating carriage bearing the cutting mechanism, substantially as and for the purpose specified.

7. In a match-splint-cutting machine, the combination of a reciprocating cutting mechanism, means for intermittently advancing a strip of veneer to the cutting mechanism, a pivoted holder for clamping the veneer, a rod operating loosely through an arm or projecting portion of the holder and having a stop at its lower end to engage positively with the said arm or projecting portion, a spring mounted upon the rod and adapted to transmit pressure therefrom to the said holder, a bell-crank lever having one arm connected with the aforesaid rod, and a loose and positive connection between the other arm of the lever and the reciprocating carriage bearing the cutting mechanism, substantially as set forth for the purpose described.

8. In a match-splint-cutting machine, the combination of a feeding mechanism for advancing a series of parallel strips of veneer, a reciprocating cutting mechanism, a series of holders for clamping the veneer strips, a rod having loose connection with each holder, a spring for transmitting pressure from each rod to its respective holder, bell-crank levers having one arm in connection with the said rods, and one of the said levers having its other arm extended and having loose and positive connection with the reciprocating carriage of the cutting mechanism, and means for connecting the bell-crank levers so as to cause them to operate in unison, substantially in the manner set forth for the purpose described.

9. In a match-splint-cutting machine, the combination of a reciprocating cutting mechanism, a chute, a pivoted frame located above the chute, a connected series of feed-rollers journaled to the pivoted frame and operating at intervals in the length of the chute for intermittently feeding a strip of veneer therethrough to the cutting mechanism, and actuating mechanism controlled by the carriage bearing the cutting mechanism for operating the series of feed-rollers and admitting of the pivoted frame turning to permit of the veneer being placed between it and the chute substantially in the manner set forth.

10. In a match-splint-cutting machine, the combination of a reciprocating carriage bearing a cutting mechanism, a chute to receive the strip of veneer, a pivoted frame located above the chute and bearing a connected series of feed-rollers to bear upon and move the veneer strip through the chute, a toothed wheel secured to the shaft about which the pivoted frame turns, a lever bearing a pawl to cooperate with the toothed wheel, and a cam connected with the reciprocating carriage and engaging with the said lever for operating it and the connected series of feed-rollers, substantially as specified.

11. In a match-splint-cutting machine, the combination of a transversely-reciprocating carriage bearing a cutting mechanism, a chute, a pivoted frame, a connected series of feed-rollers supported at intervals in the length of the pivoted frame, a toothed wheel secured to the shaft in line with the axis of the pivoted frame, a lever bearing a pawl to cooperate with the toothed wheel, and an arm having pivotal connection with the reciprocating carriage and slidingly supported at its free end, and having a cam portion between its ends to engage with the lever for actuating the feed-rollers, substantially as specified.

12. In a match-splint-cutting machine, the combination of a transversely-reciprocating carriage bearing a circular saw, a feeding mechanism for intermittently advancing a strip of veneer to the saw actuated by means of the said carriage, a match-splint holder, and means for intermittently advancing the said holder to receive and bunch the match-splints and controlled by the power transmitting mechanism of the aforesaid carriage, substantially in the manner set forth for the purpose described.

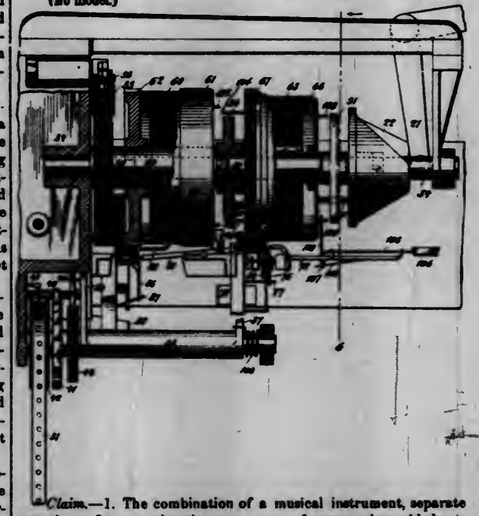
13. In a match-splint-cutting machine, the combination of a cutting mechanism, parallel chutes, a pivoted frame, a series of parallel shafts journaled to the frame and provided with feed-rollers to cooperate with the chutes, band-pulleys secured to the said parallel shafts and connected so as to rotate in unison, a toothed wheel applied to the shaft coincident with the pivoted end of the frame, a lever bearing a pawl to cooperate with the said toothed wheel, and a reciprocating arm having a cam portion for operating the said lever and having connection with the frame of the cutting mechanism, substantially as and for the purpose set forth.

14. A match-splint holder comprising a bar, combs attached thereto, spacing-strips to be interposed between the courses of splints, a bar having its end portions apertured, hooked bolts having their bent ends engaging with openings in the ends of the base of the holder and having their threaded ends passing through the openings of the clamp-bar, and clamp-nuts mounted upon the threaded extremities of the hooked bolts, substantially as set forth.

15. In combination, a carriage, splint-holders placed within the carriage and spaced apart, and binding-screws let into threaded openings in the sides of the carriage for securing the splint-holders in place, substantially as set forth.

16. In combination, a carriage having a longitudinal strip on the top side of its bottom intermediate of the side pieces, splint-holders located within the carriage upon opposite sides of the said longitudinal strip, and binding-screws let into the sides of the carriage for securing the holders therein, substantially as set forth.

596,898. AUTOMATIC MUSICAL INSTRUMENT. GUSTAV A. BRACHHAUSEN, Rahway, N. J. Filed Apr. 1, 1897. Serial No. 630,238. (No model.)



Claim.—1. The combination of a musical instrument, separate tune-sheets for operating the same, means for conveying said sheets to operative position in the musical instrument and means for automatically feeding the said sheets to a position to be fed to the operative position.

2. The combination of a musical instrument, separate tune-sheets for operating the same, means for automatically conveying said sheets to and from operative position in the musical instrument and means for automatically feeding said sheets to a position to be fed to the operative position.

3. The combination of a musical instrument, separate tune-sheets for operating the same, means for conveying said sheets to operative position in a musical instrument, means for automatically feeding the sheets to a position to be fed to the operative position and means for holding the note-sheet when in operative position and for automatically releasing said sheet after the tune has been played thereby.

4. The combination of a musical instrument, separate tune-sheets for operating the same, means for automatically conveying said sheets to and from operative position in a musical instrument, means for automatically feeding said sheets to a position to be fed to the operative position and means for automatically engaging and holding a note-sheet while in the operative position and for automatically releasing said sheet after the tune has been played thereby.

5. The combination of a mechanical musical instrument, separate tune-sheets for operating the same, means for automatically conveying said sheets to and from operative position in the musical instrument, means for automatically feeding said sheets to a position to be fed to the operative position and hand-operated means for selecting any of the sheets for conveyance to operative position in the musical instrument.

6. The combination of a note-disk frame, a note-disk supported by and adapted to revolve therein and means for conveying said note-disk and frame to and from operative position in the instrument.

7. The combination of a note-disk frame, a note-disk supported by and adapted to revolve therein and means for automatically conveying said note-disk and frame to and from operative position in the instrument.

8. The combination of a note-disk frame, a note-disk supported by and adapted to revolve therein and means for automatically feeding said disk and frame to a position where it can be conveyed to operative position in the instrument and means for automatically conveying said note-disk and frame to and from operative position in the instrument.

9. The combination of a note-disk frame, a note-disk supported

by and adapted to revolve therein, side carriers for conveying said note-disk and frame to and from operative position in the instrument and means for automatically feeding said disk and frame to a position where it can be engaged by said carriers and conveyed to operative position in the instrument.

10. The combination of a note-disk carriage, a plurality of note-disks upon said carriage, each of said note-disks being carried by a separate frame in which it is adapted to revolve, a pointer and index coöperating therewith, intermediate mechanism between said pointer and the note-disk carriage, whereby a movement of the pointer from one indication on the index to another will cause a movement of the note-disk carriage to bring a note disk and its frame to a point where it can be removed from the carriage.

11. The combination of a note-disk carriage, means for automatically moving said carriage, a plurality of note-disks upon said carriage, each of said note-disks being carried by a separate frame in which it is adapted to revolve, a pointer and index coöperating therewith, intermediate mechanism between said pointer and the note-disk carriage, whereby a movement of the pointer from one indication on the index to another will cause a movement of the note-disk carriage to bring a note-disk and its frame to a point where it can be removed from the carriage.

12. The combination of a note-disk carriage, means for automatically moving said carriage, a plurality of note-disks upon said carriage, each of said note-disks being carried by a separate frame in which it is adapted to revolve, a pointer connected with the means for automatically moving the carriage and an index coöperating with said pointer whereby the carriage can be shifted either automatically or by hand.

13. The combination with a note-sheet carriage, of hand-operated mechanism for moving said carriage, means for feeding the note-sheet to operative position and means for rendering said carriage-moving mechanism inoperative.

14. The combination with a note-sheet carriage, of mechanism for automatically moving said carriage and means for automatically locking the carriage against movement after each movement thereof.

15. The combination with a note-sheet carriage, of mechanism for moving said carriage, means for locking the carriage against movement after each movement thereof and means for throwing the carriage-moving mechanism out of operation.

16. The combination with a note-sheet carriage, of means for automatically moving said carriage in one direction and automatic means for maintaining the carriage unlocked when it is being moved and for automatically locking said carriage against movement after it has been moved.

17. The combination with a musical instrument and means for operating the same, of a note-sheet carriage, means for moving said carriage and automatic means for maintaining the carriage unlocked when it is being moved and for automatically locking and maintaining said carriage locked against movement while the musical instrument is being operated.

18. The combination with a note-sheet carriage, of means for automatically moving said carriage, automatic means for maintaining the carriage unlocked when it is being moved and for automatically locking said carriage against movement after it has been moved and mechanism for throwing the automatic locking means out of operation

19. The combination with a note-sheet carriage, of means for automatically moving said carriage and hand-operated mechanism for moving said carriage independently of the automatic movement thereof.

20. The combination with a note-sheet carriage, of means for automatically moving said carriage, hand-operated mechanism for moving said carriage independently of the automatic movement thereof and means for locking said carriage against movement after each automatic operation thereof

21. The combination with a note-sheet carriage, of means for automatically moving said carriage, hand-operated mechanism for moving said carriage independently of the automatic movement thereof, means for locking said carriage against movement after each automatic operation thereof and mechanism for throwing the carriage-locking means out of operation.

22. The combination with a note-sheet carriage, of means for automatically moving said carriage, a pointer connected with said carriage-moving means, a dial coöperating with said pointer and means for locking the carriage against movement after the carriage has been moved and for unlocking said carriage before the instrument is again operated.

23. The combination with a note-sheet carriage, of means for automatically moving said carriage, a pointer connected with said carriage-moving means, a dial coöperating with said pointer, automatic means for automatically locking the carriage against movement after the carriage has been moved and for automatically unlocking said carriage before the instrument is again operated.

24. The combination with a note-sheet carriage, of means for moving said carriage, a pointer connected with said carriage-moving means, a dial coöperating with said pointer, mechanism for throwing the automatic carriage-moving mechanism out of operation and automatic means for automatically locking the carriage against movement after the carriage has been moved and for automatically unlocking said carriage before the instrument is again operated.

25. The combination with a note-sheet carriage, of a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl and intermediate mechanism between said ratchet and the note-sheet carriage.

26. The combination with a note-sheet carriage, of a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl, intermediate mechanism between said ratchet and the note-sheet carriage and shifting means for throwing the pawl out of engagement with the ratchet.

27. The combination with a note-sheet carriage of a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl, intermediate mechanism between said ratchet and the note-sheet carriage and means for locking said ratchet against movement when the vibratory arm is moved in one direction and for unlocking it when the arm is moved in an opposite direction.

28. The combination with a note-sheet carriage, of a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl, intermediate mechanism between said ratchet and the note-sheet carriage, a locking-wheel connected with said ratchet-wheel, a locking-pawl adapted to engage the locking-wheel and prevent movement thereof and a pin or abutment carried by the vibratory arm, which pin is adapted to lift said locking-pawl out of engagement with the locking-wheel.

29. The combination with a note-sheet carriage, of a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl, intermediate mechanism between said ratchet and the note-sheet carriage, means for throwing the pawl out of engagement with the ratchet, a locking-wheel connected with said ratchet-wheel, a locking-pawl adapted to engage the locking-wheel and prevent movement thereof and a pin or abutment carried by the vibratory arm, which pin is adapted to lift the locking-pawl out of engagement with the locking-wheel.

30. The combination with a note-sheet carriage, of a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl, intermediate mechanism between said ratchet and the note-sheet carriage, a pointer connected and adapted to rotate with the said ratchet and a dial coöperating with the pointer.

31. The combination with a note-sheet carriage, of a vibratory arm having a pawl thereon, means for vibrating the said arm, a ratchet coöperating with the pawl, intermediate mechanism between the ratchet and the note-sheet carriage, shifting means for throwing the pawl out of engagement with the ratchet, a pointer connected and adapted to rotate with said ratchet and a dial coöperating with the pointer.

32. The combination with a note-sheet carriage, of a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl, intermediate mechanism between said ratchet and note-sheet carriage, a locking-wheel connected with said ratchet-wheel, a locking-pawl adapted to engage the locking-wheel and prevent movement thereof and a pin or abutment carried by the vibratory arm, which pin is adapted to lift said locking-pawl out of engagement with the locking-wheel, a pointer connected and adapted to rotate with said ratchet-wheel and a dial coöperating with the pointer.

33. In a musical instrument the combination of a main driving-motor, an auxiliary driving-motor, an intermediate controlling mechanism between the said main and auxiliary driving-motors, which intermediate mechanism is operated by the movement of the motors themselves to throw either of said motors into operation when the other is thrown out of operation.

34. The combination of a main driving mechanism, means driven thereby for operating a note-sheet, an auxiliary driving mechanism, means driven thereby for feeding a note-sheet to and from operative position and intermediate controlling mechanism between the said main and auxiliary driving mechanisms to stop one when the other is started.

35. The combination of a main driving mechanism, means driven thereby for operating a note-sheet, an auxiliary driving mechanism, means driven thereby for selecting a note-sheet and for feeding the selected note-sheet to and from operative position and intermediate controlling mechanism between the said main and auxiliary driving mechanisms to throw one into operation when the other is thrown out of operation.

36. The combination of a main driving mechanism, means driven thereby for operating a note-sheet, an auxiliary driving mechanism, a note-sheet carriage, means driven by the auxiliary driving mechanism for moving the note-sheet carriage, intermediate controlling mechanism between the said main and auxiliary driving mechanisms to throw one into operation when the other is thrown out of operation.

37. The combination of a main driving mechanism, means driven thereby for operating a note-sheet, an auxiliary driving mechanism, a note-sheet carriage, means driven by the auxiliary driving mechanism for moving the note-sheet carriage, means operated by the auxiliary mechanism for conveying a note-sheet to and from operative position in the instrument and intermediate mechanism between said main and auxiliary driving mechanisms to throw one of said mechanisms into operation when the other is thrown ont of operation.

38. The combination of a main driving mechanism, means driven thereby for operating a note-sheet, an auxiliary driving mechanism, a note-sheet carriage, means driven by the auxiliary driving mechanism for moving the note-sheet carriage, means operated by the auxiliary mechanism for conveying a note-sheet to and from operative position in the instrument, means for clamping a note-sheet in operative position, and intermediate controlling mechanism between the said main and auxiliary driving mechanisms to throw one of said mechanisms into operation when the other is thrown out of operation.

39. The combination of a main driving mechanism, means driven thereby for operating a note-sheet, an auxiliary driving mechanism, a note-sheet carriage, means driven by the auxiliary driving mechanism for moving the note-sheet carriage, means operated by the auxiliary mechanism for conveying a note-sheet to and from operative position in the instrument, means operated by the auxiliary driving mechanism for automatically clamping a note-sheet in operative position and intermediate controlling mechanism between said main and auxiliary driving mechanisms to throw one of said mechanisms into operation when the other is thrown out of operation.

40. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, and a locking device with means for locking the carriage against movement when the main driving mechanism is in operation.

41. The combination of a main driving mechanism, an auxiliary driving mechanism means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, a locking device with means for locking the carriage against movement when the main driving mechanism is in operation and means for unlocking said locking device after the main driving mechanism has completed its movement.

42. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, a locking device with means connected with the auxiliary driving mechanism for automatically locking the carriage against movement when the main driving mechanism is in operation and means for automatically unlocking said locking device after the main driving mechanism has completed its movement.

43. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, hand-operated mechanism for operating the carriage, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, a locking device with means for locking the carriage against movement when the main driving mechanism is in operation.

44. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, a pointer connected with said means for automatically feeding a note-sheet to operative position, a dial coöperating with said pointer, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, a locking device with means for automatically locking the carriage against movement when the main driving mechanism is in operation and for automatically unlocking said locking device after the main driving mechanism has completed its movement.

45. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, intermediate controlling mechanism between the said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation and means for automatically moving the note-sheet to and from operative position.

46. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, mechanism for throwing out of operation the means for automatically moving the note-sheet carriage, a locking device with means for locking the carriage against movement when the main driving mechanism is in operation and means for unlocking said locking device after the main driving mechanism has completed its movement.

47. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, intermediate mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, mechanism for throwing out of operation the means for automatically moving the note-sheet carriage, a locking device with means connected with the auxiliary driving mechanism for automatically locking the carriage against movement when the main driving mechanism is in operation and means for automatically unlocking said locking device after the main driving mechanism has completed its movement.

48. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, hand-operated mechanism for operating the carriage, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, mechanism for throwing out of operation the means for automatically moving the note-sheet carriage, a locking device with means connected with the auxiliary driving mechanism for automatically locking the carriage against movement when the main driving mechanism is in operation and means for automatically unlocking said locking device after the main driving mechanism has completed its movement.

49. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, a pointer connected with said means for automatically feeding a note-sheet carriage to operative position, a dial coöperating with said pointer, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, mechanism for throwing out of operation the means for automatically moving the note-sheet carriage, and a locking device with means for locking the carriage against movement when the main driving mechanism is in operation.

50. The combination of a main driving mechanism, an auxiliary driving mechanism, means driven by said auxiliary driving mechanism for automatically feeding a note-sheet carriage, a pointer connected with said means for automatically feeding a note-sheet carriage to operative position, a dial coöperating with said pointer, intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation, mechanism for throwing out of operation the means for automatically moving the note-sheet carriage, a locking device with means connected with the auxiliary driving mechanism for automatically locking the carriage against movement when the main driving mechanism is in operation and means for automatically unlocking said locking device after the main driving mechanism has completed its movement.

51. The combination with a note-sheet carriage of a main driving mechanism, an auxiliary driving mechanism, a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl, intermediate mechanism between said ratchet and the note-sheet carriage and intermediate controlling mechanism between said main and auxiliary drivingmechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation.

52. The combination with a note-sheet carriage of a main driving mechanism, an auxiliary driving mechanism, a vibratory arm having a pawl thereon, means for vibrating said arm, a ratchet coöperating with the pawl, intermediate mechanism between said ratchet and the note-sheet carriage, shifting means for throwing the pawl out of engagement with the ratchet and intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation.

53. The combination with a note-sheet carriage of a main driving mechanism, an auxiliary driving mechanism, a vibratory arm having a pawl thereon, means for vibrating said arm from the auxiliary driving mechanism, a ratchet coöperating with said pawl, intermediate

mechanism between said ratchet and the note-sheet carriage, means for locking said ratchet against movement when the vibratory arm is moved in one direction and for unlocking it when the arm is moved in an opposite direction and intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation.

54. The combination with a note-sheet carriage of a main driving mechanism, an auxiliary driving mechanism, a vibratory arm having a pawl thereon, means for vibrating said pawl from the auxiliary driving mechanism, a ratchet cooperating with the pawl, intermediate mechanism between said ratchet and the note-sheet carriage, shifting means for throwing the pawl out of engagement with the ratchet, means for locking said ratchet against movement when the vibratory arm is moved in one direction and for unlocking it when the arm is moved in an opposite direction and intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation.

55 The combination of a main driving mechanism, an auxiliary driving mechanism, controlling-levers 75 and 82 controlled by said auxiliary driving mechanism and themselves controlling the governor of said auxiliary driving mechanism, a controlling-lever 85 controlled by the main driving mechanism, the said lever itself controlling the governor of said main driving mechanism and a connection between one of the first-named controlling-levers and the controlling-lever 85, substantially as and for the purposes specified.

56. The combination of a main driving mechanism, an auxiliary driving mechanism, controlling-levers 75 and 82 controlled by said auxiliary driving mechanism and themselves controlling the governor of said auxiliary driving mechanism, a starting-lever adapted to operate one of said controlling-levers, a controlling-lever 85 controlled by the main driving mechanism, the said lever itself controlling the governor of the said main driving mechanism and a connection between one of the first-named controlling levers and the controlling-lever 85, substantially as and for the purposes specified.

57. The combination of a main driving mechanism, an auxiliary driving mechanism, controlling-levers 75 and 82 controlled by said auxiliary driving mechanism and themselves controlling the governor of said auxiliary driving mechanism, a controlling-lever 85 controlled by said main driving mechanism, the said lever itself controlling the governor of said main driving mechanism, a connection between one of the first-named controlling-levers and the lever 85 and means for automatically shifting the tension first upon a controlling-lever for the auxiliary driving mechanism and then upon the controlling-lever of the main driving mechanism.

58. The combination of a main driving mechanism, an auxiliary driving mechanism, controlling-levers 75 and 82 controlled by said auxiliary driving mechanism and themselves controlling the governor of said auxiliary driving mechanism, a starting-lever adapted to operate one of said controlling-levers, a controlling-lever 85 controlled by the main driving mechanism, the said lever itself controlling the governor of said main driving mechanism, a connection between one of said first-named levers and the lever 85 and means for automatically shifting the tension first upon the controlling-lever 82 for the auxiliary driving mechanism and then upon the controlling-lever of the main driving mechanism.

59. The combination of a main driving mechanism, an auxiliary driving mechanism, means operated by said auxiliary driving mechanism for moving a note-sheet carriage; for conveying a note-sheet to operative position in the instrument; for clamping the note-sheet in the operative position and intermediate mechanism between the main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation.

60. The combination of a main driving mechanism, an auxiliary driving mechanism, a note-sheet carriage moved by said auxiliary driving mechanism, means operated by said auxiliary driving mechanism for conveying a note-sheet to operative position in the instrument, means operated by said auxiliary driving mechanism for clamping the note-sheet in operative position, mechanism for throwing the note-sheet-clamping means into and out of operation, automatic locking mechanism for automatically locking the carriage, said locking means being operated by the auxiliary driving mechanism and intermediate controlling mechanism between said main and auxiliary driving mechanisms for throwing one of said mechanisms into operation when the other is thrown out of operation.

61. The combination of a note-disk, a movable pivot around which said note-disk rotates and means for automatically inserting said pivot in a central bearing in said note-disk.

62. The combination of a note-disk, a movable pivot around which said note-disk rotates, means for automatically inserting said pivot in a central bearing in said note-disk and means for clamping the note-disk on the pivot.

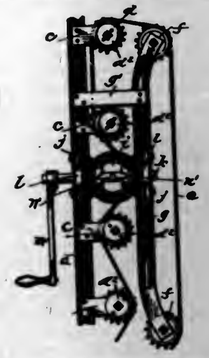
63. The combination of a note-disk, a movable pivot around which said note-disk rotates, means for automatically inserting said pivot in a central bearing in said note-disk and means for automatically clamping the note-disk on the pivot and for automatically releasing the clamping means after the note disk has been rotated.

64. The combination of a note-disk, means for automatically feeding the note-disk to and from operative position in the instrument, a movable pivot around which said note-disk rotates, means for automatically inserting said pivot in a central bearing in said note-disk and means for automatically clamping the note-disk on the pivot and for automatically releasing the clamping means after the note-disk has been rotated.

65. The combination of a note-disk, a movable pivot around which said note-disk rotates, a clamping-rod and means for moving said pivot and clamping-rod in opposite directions, whereby a movement of the clamping-rod and pivot toward each other will cause the pivot to be inserted in a central bearing in the note-disk and the note-disk to be clamped in position on the pivot.

66. The combination of a note-disk, means for automatically feeding the note-disk to and from operative position in the instrument, a movable pivot around which said note-disk rotates, a clamping-rod and means for automatically moving said pivot and clamping-rod in opposite directions, whereby a movement of the clamping-rod and pivot toward each other will cause the pivot to be inserted in the central bearing in the note-disk and the note-disk to be clamped in position on the pivot.

596,394. FENCE-MAKING MACHINE. WILLIAM M. CALHOUN, Allegan, Mich. Filed July 30, 1897. Serial No. 646,573. (No model.)



Claim.—1. In a picket-fastening machine, the combination of a frame, twister-wheels, and means for rotating the same, said means consisting of a main driving-gear, a pair of driving-pinions meshing therewith, a drive-shaft journaled in the frame and carrying said pinions, said drive-shaft being endwise movable to bring either of the drive-pinions into action, whereby the twister-wheels may be rotated in opposite directions by rotating the operating-handle in one direction as and for the purposes set forth.

2. The combination of a frame carrying a series of twister-wheels, a driving-gear, and means connecting the same to the twister-wheels to rotate the latter simultaneously, an endwise-movable shaft journaled in the frame and carrying a pair of loose pinions meshing with the drive-gear, and an operating-crank and clutch devices to bring either of the pinions into action, whereby the twister-wheels may be rotated in opposite directions by rotating the operating-handle in one direction substantially as set forth.

3. In a fence-picket machine, the combination of an upright frame carrying a series of twister-wheels, a drive-gear journaled on the frame and connected to the twister-wheels to rotate them simultaneously, an endwise-movable drive-shaft journaled in the frame and provided with an operating-crank, a pair of loose pinions journaled on said shaft and constantly meshing with the drive-gear, each of said pinions having a clutch member on its inner side, and a clutch member secured stationarily to said drive-shaft between the loose pinions, whereby the twister-wheels may be rotated in opposite directions by rotating the operating-handle in one direction as and for the purposes set forth.

596,395. MAINSPRING-FASTENER FOR WATCHES. FRED H. CONTRELL, Elgin, Ill., assignor to the Elgin National Watch Company, Chicago, Ill. Filed Jan. 14, 1897. Serial No. 619,283. (No model.)

Claim.—1. As a means for connecting a mainspring to a barrel, a pawl projecting inwardly from the barrel-head, having its end inclined, and a projection on the spring, engaging said end, and having a correspondingly-inclined surface, substantially as and for the purpose set forth.



2. As a means for connecting a mainspring to a barrel, a pawl projecting inwardly from the barrel-head, and engaging a projection on a brace attached to the spring, and a notch in the spring, substantially as and for the purpose specified.

3. As a means for connecting a mainspring to a barrel, a pawl projecting inwardly from the barrel-head, and engaging a notch in the spring and a projection on the brace extending above the edge of the spring into an opening in the head, adjacent to the pawl, substantially as and for the purpose specified.

4. As a means for connecting a mainspring to a barrel, a pawl formed of a portion of the barrel-head, and inclining inward therefrom, and a projection on the spring, engaging the pawl, substantially as and for the purpose set forth.

5. As a means for connecting a mainspring to or with a barrel, a brace secured upon the outer end of the spring and provided with an upwardly-projecting lip which has an upwardly and forwardly inclined front end, and a barrel that has within its head a circumferentially-arranged opening for the reception of such lip and at the front end of such opening is provided with a pawl which extends downward and rearward and is adapted to engage the oppositely-inclined end of said lip, substantially as and for the purpose shown and described.

596,396. BICYCLE-LOCK. HOWARD W. COTTON, Rochester, N. Y. Filed Dec. 31, 1896. Serial No. 617,631. (No model.)



Claim.—1. In a lock for bicycles and like machines, the combination of a flexible clamp-band, a lock applied to one end of the clamp-band, an offstanding part at the opposite end of the clamp-band and provided with a threaded opening, a clamp-screw for connecting the lock and said offstanding part and drawing the clamp-band about a frame-bar of the machine, and a locking-arm having a portion projecting over the head of the clamp-screw to prevent loosening thereof when the lock is in operative position, substantially as set forth.

2. In combination, a lock-case having an offset portion, a flexible clamp-band secured at one end to the said offset, a block applied to the opposite end of the clamp-band and having a threaded opening, a clamp-screw passing through the said offset and entering the threaded opening of the block, and a locking-arm for securing the clamp-screw in place, substantially in the manner set forth.

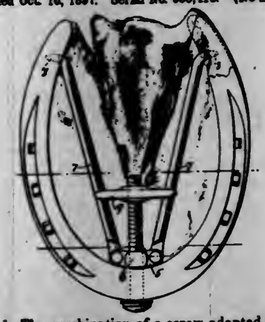
3. In a lock, the combination of a case having a series of longitudinal openings at its inner end, spring-actuated tumblers located in the said openings, a rotary bolt secured in the outer end of the case and having longitudinal openings at its inner end corresponding in number and position with the longitudinal openings of the case, and having longitudinal slots in its sides extending outward from the longitudinal openings, forming key-passages which are closed at their outer side by the inner wall of the case, key-operated tumblers of unequal length fitted in the said openings of the rotary bolt, and a locking-arm secured to the outer end of the rotary bolt, substantially as and for the purpose set forth.

4. In a lock, the combination of a case, spring-actuated tumblers located in openings of the case, a rotary bolt fitted within the case and having a locking-arm, a key secured in a transverse groove of the case and extending into a corresponding groove of the rotary bolt to hold the latter in place, form a ward, and provide a means for holding the operating-key in place when opening the lock, and key-operated tumblers located in openings provided in the rotary bolt, substantially as specified.

5. In a lock, the combination with a case having a spring-actuated tumbler, a rotary bolt revolubly secured within the case and bearing a locking-arm, and a key-operated tumbler carried by the rotary bolt, of a spring-actuated dog located in an opening of the case to one side of the aforesaid tumbler and adapted to enter the opening of the rotary bolt provided to receive the said tumbler to hold the locking-arm normally out of action and against accidental displacement, substantially as and for the purpose set forth.

6. A lock for bicycles and like machines, comprising a case having an offset, a flexible clamp-band secured to the offset at one end, a block at the opposite end of the clamp-band having a threaded opening, a clamp-screw for adjustably connecting the block with the aforesaid offset, spring-actuated tumblers located within the case, a rotary bolt operating within the case, key-operated tumblers of unequal length carried by the rotary bolt, a spring-actuated retaining-dog for holding the rotary bolt in a normal position, and a locking-arm applied to the rotary bolt and having its inner end expanded and extending over the head of the clamp screw to prevent tampering therewith when the locking-arm is performing service, substantially as set forth.

596,397. HOOF-SPREADER. PHILIP DE LORIA, Lake Placid, N. Y. Filed Oct. 16, 1897. Serial No. 655,418. (No model.)

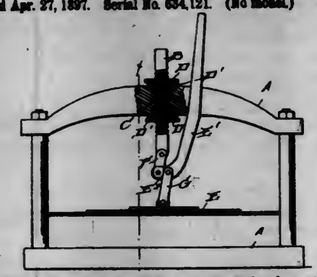


Claim.—1. The combination of a screw adapted to be mounted loosely in the toe of a horse's hoof, and to extend longitudinally of the hoof, a block adapted to bear against the inner portion of the toe of the shoe and having the screw passed loosely therethrough, two arms pivoted to the block and respectively adapted to engage the quarters of the hoof, and a cross-head threaded on the screw and having sliding connection with the arms.

2. The combination of a screw adapted to be mounted loosely in a horse's hoof, a block adapted to bear against the horseshoe, two arms pivoted to the block and respectively adapted to engage the quarters of the horse's hoof, and a cross-head having threaded connection with the screw and having sliding connection with the arms.

3. The combination of a screw adapted to be mounted loosely in the toe of a horse's hoof and arranged longitudinally of the same, a block adapted to bear against the inner side of the toe of the shoe and having an eye loosely receiving the screw, an arm pivoted to each end of the block, the arms extending rearward and being adapted respectively to engage the quarters of the hoof, and a cross-head threaded on the screw and having sliding connection with the arms.

596,398. COPYING-PRESS. WALTER J. ELLIS, Jonesborough, Ind. Filed Apr. 27, 1897. Serial No. 634,121. (No model.)



Claim.—1. The combination, in a press of the character described, with the frame having the bridge-arm, the stationary rod or bolt adjustably secured in the said arm, and the follower or platen, of the parallel toggle-links connected respectively at one end to the said bolt and to the follower or platen, and the bent toggle-lever having its outer or convex angle toward the platen and connected to the adjacent ends of said links, the points of connection between said links and the lever being upon opposite sides of a line through the points of connection of the links to the rod or bolt and to the follower or platen, but movable by the operation of the lever into such line, substantially as specified.

2. In a letter-press, the combination with the frame, the stationary vertical bolt adjustably secured therein, the follower or platen, a

toggle link or links connected to the lower end portion of said bolt, and a similar link or links connected to the said follower or platen, of a lever having a bent end portion to which both links or sets of links are connected at points upon opposite sides of a line passing through the points of connection of said links to the bolt and to the follower or platen, substantially as described.

596,399. SPECULUM. GEORGE R. FOX, Plaquemine, La. Filed May 7, 1897. Serial No. 635,576. (No model.)



Claim.—1. An irrigating-speculum having a blade provided with a tubular shank or stem hollow throughout its entire length and open at both ends, both of the open ends connecting directly with the hollow portion and forming a continuous passage for conducting fluids through the same away from the speculum, the shank or stem being adapted to be grasped by the hand of the operator for drawing down the parts of the patient and allowing the discharge to pass through the shank or stem and escape out of the lower end of the stem while the speculum is in position within the patient, substantially as described.

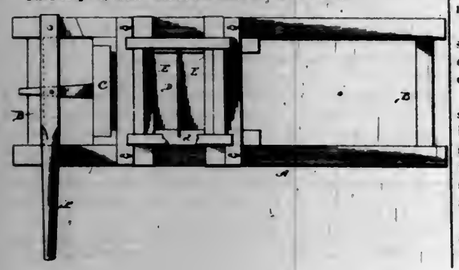
2. A speculum comprising in its construction a lower blade provided with a hollow shank or stem open at both ends for conducting fluids through the stem away from the speculum while the speculum is in an adjusted position and the parts of the patient are being inspected, a fork longitudinally slidable on said lower blade, means for securing the fork to the lower blade at the desired adjusted position, and an upper blade pivoted to the outer end of the fork and means adapted to engage and hold the upper blade at the desired adjusted position, substantially as described.

3. A speculum comprising in its construction a lower blade, provided with a hollow shank or stem and a flaring funnel-shaped opening, a fork longitudinally slidable on the said lower blade, means for securing the fork to the lower blade at the desired adjusted position, and an upper blade pivoted to the outer end of the fork, and a ratchet-bar connected to the sliding fork and adapted to engage and hold the upper blade at the desired position, the construction and arrangement being such that the parts of a patient can be inspected and irrigated while the speculum is in place and in an adjusted position, substantially as described.

4. A speculum comprising in its construction a lower blade, provided with a hollow shank or stem for conducting fluids through the speculum while the speculum is in an adjusted position and the parts of the patient are being inspected, a rubber tube attached to the rear end of the said hollow stem, a fork longitudinally slidable on said lower blade, means for securing the fork to the lower blade at the desired adjusted position, and an upper blade pivoted to the outer end of the fork provided with a slot and a ratchet-bar secured at its lower end to the sliding fork and passing through the slot in the upper blade and adapted to engage and hold the same in an adjusted position, substantially as described.

5. An irrigating-speculum comprising in its construction a lower blade provided with a hollow shank or stem, open at both ends for conducting fluids through the stem away from the speculum, an adjustable upper blade, and means for holding the upper blade in an adjusted position, substantially as described.

596,400. CURD-CUTTER. FRED B. FULLER, Gouverneur, N. Y. Filed May 28, 1897. Serial No. 638,621. (No model.)



Claim.—1. In a curd-cutting machine, the combination with a suitable base or support, and two stationary curd-cutters held therein and having sharp cutting edges, of a slide fitted to reciprocate in or upon said base or support and adapted to carry the curd fed thereto against the said cutters, together with means whereby said slide may be rapidly reciprocated, substantially as specified

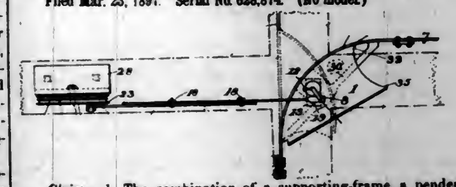
2. In a curd-cutting machine, the combination with a suitable base or support, and two stationary but removable and reversible curd-cutters held therein and having sharp cutting edges, of a slide fitted to reciprocate in or upon said base or support, and means for reciprocating said slide, substantially as specified.

3. In a curd-cutting machine, the combination with a suitable base or support, and two stationary curd-cutters held therein and having sharp cutting edges, of a bottomless slide-frame fitted to reciprocate in or upon said base or support and carrying a plunger which works between the two cutters and forces the curd against them alternately as the slide is reciprocated, together with means for reciprocating said slide, substantially as specified.

4. In a curd-cutting machine, the combination with a base or support having two parallel sills and a floor or platform, of the two parallel transverse curd-cutters held at opposite ends of the said platform and having sharp cutting edges, and having open end portions which engage the said sills, means for temporarily securing said cutters in fixed positions, a bottomless slide fitted to reciprocate between said sills, and a transverse plate or plunger carried by said slide and working between the said cutters, substantially as specified.

5. In a curd-cutting machine, the combination with a base or support having two parallel sills and a floor or platform, of the two parallel transverse curd-cutters secured at opposite ends of the said platform, and consisting each of a central portion having a plurality of openings therethrough whose division-walls have cutting edges, and end portions adapted to embrace said sills, means for temporarily securing said cutters in fixed positions, a bottomless slide fitted to reciprocate between the said sills, a transverse plate or plunger carried by the said slide and working between the two cutters, and a curd-box supported over said floor or platform, substantially as specified.

596,401. OVERHEAD SWITCH. DAVID GAUL, Los Angeles, Cal. Filed Mar. 23, 1897. Serial No. 628,574. (No model.)



Claim.—1. The combination of a supporting-frame, a pendent bracket secured to the frame, the crank having a long arm and a short arm, and supported by the bracket, a straight track, a side-track, a switch-block having stops for limiting its movement, and also having a straight-track section and a curved-track section, and secured to the long arm, and means connected with the short arm for turning the switch-block; substantially as described.

2. The combination of a supporting-frame, a pendent bracket secured to the frame, a crank having a long arm and a short arm and supported in the bracket, a straight track, a side-track, a switch-block support located between the straight track and the side-track, a switch-block having a straight-track section and a curved-track section and secured to the long arm and pivoted to the switch-block support, and means connected with the short arm for turning the switch-block: substantially as described.

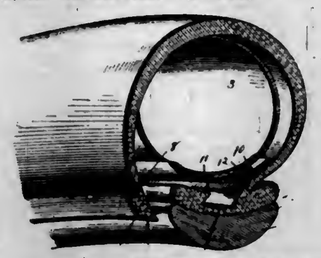
3. The combination of a switch-block having one or more track-sections, a crank connected with the block, an operating-disk, a connecting-bar connected with the operating-disk, a bracket for supporting said disk, and pins on the bracket for limiting the downward movement of the connecting-bar, substantially as set forth.

4. The combination of a switch-block having one or more track-sections, a crank for rotating the switch-block, an operating-disk, cords for operating said disk, and a two-part slotted connecting-bar connecting the disk with the crank, substantially as set forth.

5. The combination of a switch-block having a straight-track section, a curved-track section, means for turning said block in a horizontal plane and a switch-support to which said block is pivoted, said switch-support having its outer face curved to correspond with the curved section and extending the full length of the curved-track section, thus forming a continuous bearing for the same, substantially as set forth.

6. In an overhead switch the combination of an operating-plate, a switch-block pivoted to the same, a crank connected with the switch-block, an operating-disk, an arm connecting the crank with the operating-disk, and means for arresting the movement of the outer end of the operating-arm at a point below the center of the disk in order to prevent the accidental displacement of the switch-block, substantially as set forth.

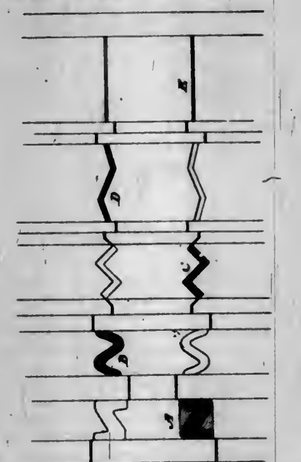
596,402. TIRE. WILLIAM A. D. GRAHAM, Toronto, Canada. Filed Sept. 20, 1897. Serial No. 652,325. (No model.)



Claim.—1. A tire consisting of a flexible cushion adapted to be secured to the wheel-rim, the outer cover integrally joined to the said cushion at an intermediate point between the edges of the cushion, an enlargement located at the opposite edge of the said outer cover, a recess located in the cushion and adapted to receive the enlargement of the cover, the locking edge of the recess and the point of junction between the cover and the cushion being substantially equidistant from the perpendicular axis of the tire, a flap secured at one edge to the inner side of the cover, said flap adapted to extend over the locking edge of the cover, an inner tube located within the cover.

2. A tire consisting of a flexible cushion adapted to be fixed to the wheel-rim, the outer cover integrally attached to the cushion at a point intermediate of the edges of the said cushion, an enlargement located at the opposite edge of the cover, said enlargement having inclined sides, said sides being substantially parallel to each other, a recess having similarly-inclined sides, said recess being located in the cushion and adapted to receive the enlargement of the cover, the locking edge of the cushion and the point of junction between the cover and the cushion being substantially equidistant from the perpendicular axis of the tire, a flap secured at one edge to the inner side of the cover, said flap adapted to pass over the enlargement, an air-tube located within the cover.

596,403. ROLLS. JOSEPH GUEST, Homestead, Pa., assignor to the Carnegie Steel Company, Limited, Pittsburg, Pa. Filed Apr. 27, 1897. Serial No. 634,058. (No model.)

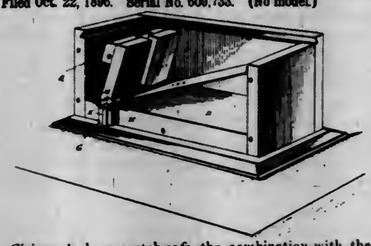


Claim.—1. In apparatus for rolling flat sheets or bars, rolls having several passes and in which each of two adjoining rolls in the first pass is provided with a single annular projection arranged to form a longitudinal groove in the metal and succeeding passes having circumferential projections arranged to give an approximately Z, S or N shape to the metal.

2. In apparatus for rolling flat sheets or bars, a set of rolls in which the first pass is arranged with annular projections to form a single upper and lower longitudinal groove in the metal, intermediate passes of approximately Z, N or S shape, and a final pass arranged to flatten the Z, S or N shape.

3. In apparatus for rolling flat sheets or bars, rolls having at the first pass annular projections arranged to form non-registering single upper and lower longitudinal grooves in the metal, intermediate passes of Z, N or S shape, each successively flatter than the preceding one, and a flat pass arranged to flatten the metal into a sheet or bar.

596,404. MATCH-SAFE. FREDERICK HARDY, Birmingham, Ala. Filed Oct. 22, 1896. Serial No. 609,733. (No model.)



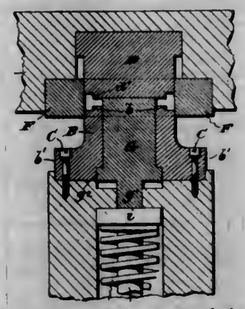
Claim.—1. In a match-safe, the combination with the box or case of the feed-plunger working thereon, the inclined feed-board, the pivoted fall-board and the rake connected with the fall-board, said fall-board, rake and feed board being operated by the movement of the feed-plunger, substantially as shown and described.

2. In a match-safe, the combination with the box or case of the feed-plunger working therein, the inclined feed-board, the fall-board having a groove in the lower edge and provided with a plate having a plurality of shoulders thereon, the presser-finger and spring all arranged and adapted to operate substantially as shown and described.

3. In a match-safe, the combination with a box or case of the plunger arranged therein, having a presser-finger at the rear end of the head of said plunger, the base-spring having a tongue projecting upwardly from the rear end thereof, the slotted guide-plate having the stop-lugs, fall-board having a groove at the lower edge, the plate arranged upon the bottom of the fall-board and having a plurality of shoulders and cut-out portions, the inclined feed-board and the rake connecting with the fall-board adapted to lie upon the matches and hold them upon the feed-board, substantially as shown and described.

4. In a match-safe, the combination with the box or case of the inclined feed-board having the depending teeth, the plunger having a head provided with the presser-finger, the slotted guide-plate having the stop-lugs, the base-spring having upwardly-projecting finger or tongue, the pivoted fall-board having a groove in the lower edge, the plate attached to said lower edge and having a plurality of shoulders and cut-out portions, the spring bearing upon the lower end of said fall-board, said fall-board being slotted as described, the rake having a T-shaped head adapted to engage the said slot and provided with the spring adapted to hold the said rake in place upon the matches and the delivery-chute or tongue having an abrasive surface, all of said parts being arranged and adapted to operate substantially as shown and described.

596,405. MECHANISM FOR MAKING TOOTHED RINGS. GEORGE E. HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed Aug. 18, 1897. Serial No. 648,709. (No model.)



Claim.—1. In an apparatus for making toothed rings, the combination of a die to encircle a blank, a block to be encircled thereby,

and a die having tooth-form projections, to engage the side of the blank, substantially as and for the purpose specified.

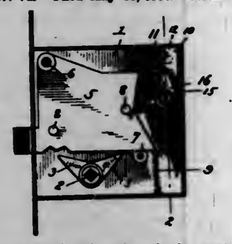
2. In an apparatus for making toothed rings, the combination of dies for operating on opposite sides of a ring-blank, having each, tooth-form projections, a die to encircle said blank, and a block to be encircled thereby, substantially as and for the purpose described.

3. In an apparatus for making toothed rings, the combination of dies for operating on opposite sides of a ring-blank, a die to encircle said blank, a block to be encircled thereby, and a movable support for said block, substantially as and for the purpose described.

4. In an apparatus for making toothed rings, the combination of dies for operating on opposite sides of a ring-blank, a die to encircle said blank, a block to be encircled thereby, and a yielding support for said block, substantially as and for the purpose described.

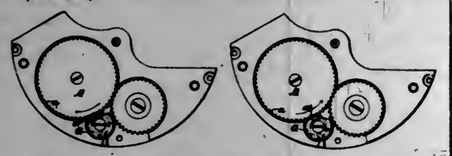
5. In an apparatus for making toothed rings, the combination of dies for operating on opposite sides of a ring-blank, a die to encircle said blank, and a block to be encircled thereby, having a rib to engage a notch in the blank, substantially as and for the purpose described.

596,406. LOCK AND LATCH. CHARLES J. HAZARD, Kellogg, W. Va., assignor of one-half to Rufus Switzer and Thomas A. Wiatt, Huntington, W. Va. Filed May 11, 1897. Serial No. 636,094. (No model.)



Claim.—In a combined lock and latch, the combination of a casing, a latch-bolt normally projected, a knob spindle carrying means for retracting the latch-bolt, a sliding block within the casing and adapted to engage the latch-bolt to lock the same, means for sliding this lock and locking it from the inside, and key devices for sliding the locking-block from the outside, said key devices consisting of a key-post mounted in the inner wall of the casing below said sliding block and having its free end slotted longitudinally, and an arm pivoted on said post and rotative independently thereof and held constantly in engagement with the sliding block, this arm being provided with key-notches in its outer face, as and for the purpose set forth.

596,407. WINDING MECHANISM FOR MAINSPRING-BARREL. GEORGE HUNTER, Elgin, Ill., assignor to the Elgin National Watch Company, Chicago, Ill. Filed Jan. 14, 1897. Serial No. 619,239. (No model.)



Claim.—As an improvement in winding mechanism, the combination of a toothed, spring-winding wheel, a spring-pressed, pivoted recoiling click, having one or more teeth to cooperate with the teeth of said wheel, the number of the click-teeth serving to determine the amount of recoil of the spring, said click having adjacent to one side of its tooth or teeth, an untoothed surface that, in a radial direction, is farther from the click-pivot than is the bottom of the tooth or teeth, which surface impinges on the ends of the teeth of the spring-winding wheel to lock said wheel from rotation in one direction, and having adjacent to the other side of the tooth or teeth an untoothed surface that does not extend beyond the bottom of the tooth or teeth, whereby the winding-wheel is free to rotate in an opposite direction, substantially as and for the purpose specified.

596,408. WATCH-BARREL. GEORGE HUNTER, Elgin, Ill., assignor to the Elgin National Watch Company, Chicago, Ill. Filed Jan. 14, 1897. Serial No. 619,240. (No model.)

Claim.—1. As an improvement in barrels for watches, a spring-barrel which has a hub that is journaled within a movement-plate, a jewel-setting mounted upon said hub, a collar attached to the hub, and confining said setting thereto, and a main-wheel arbor having a pivot journaled in the jewel, substantially as and for the purpose specified.



2. As an improvement in barrels for watches, the combination of a spring-barrel which has a hub that is journaled within a movement-plate, a jewel-setting mounted on the hub, a collar engaging said setting, screws passing through the collar into the hub, and a main-wheel arbor having a pivot journaled in the jewel, substantially as and for the purpose shown.

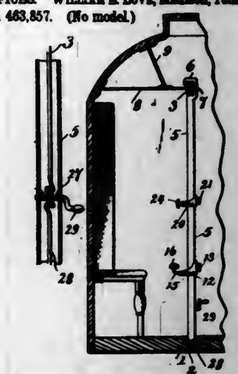
3. As an improvement in barrels for watches, a spring-barrel which has a hub that is journaled within a movement-plate, a jewel-setting which is contained within such hub and a collar that is attached to the outer end of said hub and operates to confine said jewel-setting within said hub and said spring-barrel in place within said movement-plate, substantially as and for the purpose specified.

4. As an improvement in barrels for watches, the combination of a spring-barrel having its hub journaled within a movement-plate, a ratchet-wheel rotatively connected with the outer end of such hub and a collar that is attached to the outer end of said hub and operates to confine thereon said ratchet-wheel and to hold said barrel in rotatable position, substantially as and for the purpose shown.

5. As an improvement in barrels for watches, the combination of a spring-barrel provided with a hub that is journaled within a movement-plate, a ratchet-wheel rotatively connected with the outer end of such hub, a jewel-setting contained within said hub and a collar which is secured to the outer end of the latter and operates to confine thereon and therein, respectively, said ratchet-wheel and jewel-setting and to maintain the connection between said spring-barrel and movement plate, substantially as and for the purpose shown and described.

6. As an improvement in barrels for watches, the combination of a spring-barrel which has a hub journaled within a movement-plate, and having an angular projection, a ratchet-wheel overlying said plate, having an opening fitting said projection, and means for attaching the ratchet-wheel to the hub, substantially as and for the purpose shown.

596,409. ADJUSTABLE SEAT AND SUPPORT FOR RAILWAY POST-OFFICES. WILLIAM R. LOVE, Madison, Tenn. Filed July 8, 1897. Serial No. 643,857. (No model.)



Claim.—1. A railway-car, having its floor 1, provided with a longitudinal groove 2, a series of notches 4, 4, formed in said groove, a longitudinal horizontal bar 7, vertically fixed above and parallel with said groove, a series of notches 11, 11, formed in said bar, in combination with the adjustable standard 5, the shoe 6, formed on the upper end thereof, the bolt 3, mounted in the upper end of the standard, and adapted to engage the notches 11, 11 in the bar 7, the bolt 28, adjustably mounted in the lower end of said standard and adapted to engage the notches in the groove 2, and the adjustable bracket 12, provided with the seat 16, substantially as shown and described.

2. The combination with the vertical standard 5 and means as described for longitudinally adjusting the same in a car, of the seat-bracket 12 adjustably secured to said standard and provided with the seat 16 horizontally secured to the outer end of said rod, substantially as and for the purpose set forth.

3. The combination with the standard, the adjustable seat 16 and the bracket 20 adjustably secured to said standard above said seat, and provided with the spring-actuated rest 24, substantially as shown and described.

4. A railway-car provided with the longitudinally-notched floor-groove 2, the horizontal notched bar 7, and the vertical standard provided with the locking-bolts 3 28, and means for simultaneously operating said bolts to adjust said standard in said floor-groove and on said bar, as and for the purpose set forth.

596,410. REFINING OILS AND REAGENT THEREFOR. ORAZIO LUGO, New York, N. Y., assignor to the Orain Manufacturing Company, Camden, N. J. Filed Apr. 21, 1897. Serial No. 633,360. (No specimens.)

Claim.—1. The process of purifying oils by mixing the same with a soluble aluminate, such as aluminate of soda, heating the mixture until the impurities rendered insoluble are precipitated, and finally separating the refined product from the precipitate, substantially as described.

2. The process of refining oils by mixing the same with an aluminate of a caustic alkali, such as aluminate of soda rendered slightly alkaline, heating the mixture until segregation of the impurities takes place, and separating the refined product from the precipitate, substantially as described.

3. The process of purifying oils by mixing an aluminate (such as aluminate of soda) an alkali (such as caustic soda) and a soluble fluorid (such as fluorid of sodium) adding sufficient water to make a pasty mass, and heating, then adding the compound or reagent thus formed to the oil, agitating, heating, and removing the precipitated impurities, substantially as described.

4. The described reagent for the purification of oils comprising an aluminate of a caustic alkali rendered alkaline and combined with a soluble fluorid, as set forth.

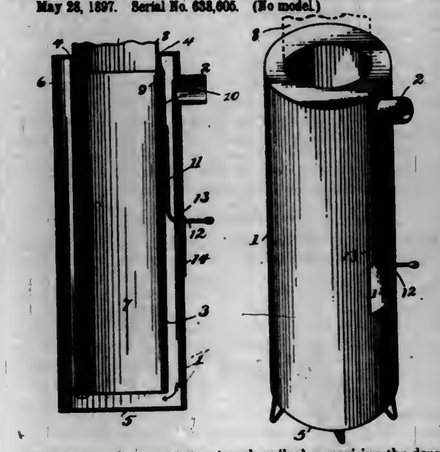
5. The process of purifying oils by mixing the same at ordinary temperature with an aluminate of a caustic alkali combined with a soluble fluorid, heating the mass, and then filtering, substantially as described.

596,411. PURIFICATION OF COTTON-SEED OIL AND REAGENT USED THEREIN. ORAZIO LUGO, New York, N. Y., assignor to the Orain Manufacturing Company, Camden, N. J. Filed May 13, 1897. Serial No. 636,363. (No specimens.)

Claim.—1. The process of purifying crude cotton-seed oil which consists in treating the oil with the herein-described chemical reagent composed of silicate of alumina and a caustic alkali, agitating the mixture and separating the oil from the residuum without heating the same, substantially as described.

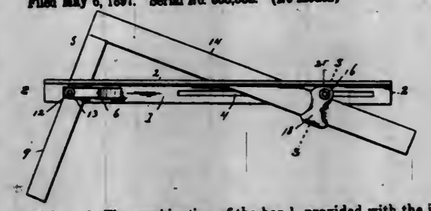
2. A chemical reagent substantially as described for the purposes herein set forth, which consists in the mixture of a silicate of alumina, a caustic alkali (soda or potash) with water, heated and pulverized all substantially in the manner herein described.

596,412. HEATER. JAMES MAHEDY, Kellerton, Iowa. Filed May 28, 1897. Serial No. 638,605. (No model.)



Claim.—A heater of the class described comprising the drum 1 formed with the vertical slot 13 and the sleeve 2, the shell 3 open at the top and bottom and fixed within said drum 1, and formed with a draft-orifice 9 alined with the sleeve 2 in combination with the damper 10, adapted to control said draft-orifice 9, the slide-plate 14 arranged to close the slot 13 and the rod 11 connecting said damper 10 and plate 14 and having its lower end turned horizontally outward so as to extend through said slot 13 and terminating in a projecting handle 12, substantially as shown and described.

596,418. BEVEL-GAGE. LINCOLN MANNING, Clarksville, Cal. Filed May 6, 1897. Serial No. 635,332. (No model.)



Claim.—1. The combination of the bar 1, provided with the integral clamp-bracket 6, and having the alined orifices 5 and 7, with the square blade 8, having its shorter arm 9 provided with an orifice 11, and the pivot-bolt 12 provided with the milled thumb-nut 13 adapted to adjustably secure said arm between said bracket and the bar, substantially as shown and described.

2. The combination with the bar 1, provided with the integral clamp-bracket 6, the longitudinal slot 4 and the flange 2 having the guide-slot 15, of the plane square blade 8, having its shorter arm secured between said bar and integral bracket, by a pivot-bolt 12, and the adjustable clamp 18 formed with the transverse shoulder 19, the jaw 20 engaging the longer arm of said blade and the bolt 16 adjustably secured to said slot 4, and engaging said clamp 18 and provided with the milled thumb-nut 21, substantially as shown and described.

596,414. WHEEL-RUNNER. JOHN MCNAUGHTON, Ruby Hill, Nev. Filed July 29, 1897. Serial No. 646,306. (No model.)



Claim.—1. In a device of the character described the combination with a vehicle-wheel provided with perforated lugs or projections on the inner periphery of the rim thereof, a runner formed with the bifurcated ends adapted to embrace the rim of the wheel and provided at its upper ends with eyes or their equivalents, of pins passing through said eyes and through the perforations in the lugs or projections on the inner periphery of the wheel-rim, a strap or its equivalent passing over the yoke or clip on the axle of the vehicle, secured at one end to said clip, and at the other to the forward pin, substantially as and for the purpose set forth.

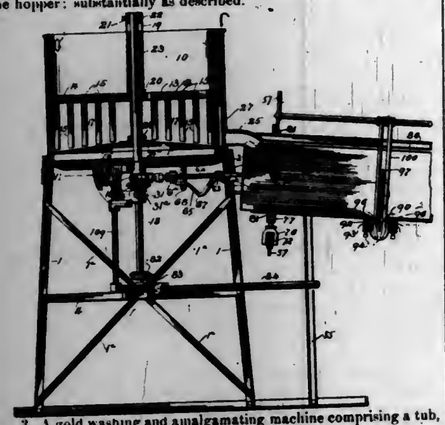
2. In a device of the character described, the combination of the wheel provided with lugs or projections on the inner periphery of the rim thereof, a runner provided with a longitudinal groove or recess, adapted to receive a portion of the periphery of the wheel, said runner being formed with bifurcated ends adapted to straddle or embrace the wheel-rim, pins provided with eyes, and passing through the eyes in the bifurcated ends of the runner and through the perforations in the lugs or projections whereby the same is secured to the wheel, a yoke secured upon the axle of the vehicle, a strap secured to one side of said yoke and passing over the same, and provided with a hook at its other end adapted to enter the eye in the pin passing through the forward end of the runner, substantially as and for the purpose set forth.

596,415. GOLD WASHING AND AMALGAMATING MACHINE. WILLIAM NOTLEY, Los Angeles, Cal. Filed Mar. 22, 1897. Serial No. 628,702. (No model.)

Claim.—1. A gold washing and amalgamating machine comprising a tub, the inclined hopper located over the tub, having a cross-bar located at its lower end and a removable inclined apron having pivoted hooks located at its upper end for engaging the cross-bar of the hopper; substantially as described.

2. A gold washing and amalgamating machine comprising a tub, the inclined hopper located over the tub, having cross-rods forming a screen at the bottom of the hopper, a chute located beneath the

screen at the upper end of the hopper, a cross-bar located at the lower end of the hopper, and the removable inclined apron having pivoted hooks located at its upper end for engaging the cross-bar of the hopper; substantially as described.



3. A gold washing and amalgamating machine comprising a tub, having a conically-inclined bottom and a discharge-spout, an operating-shaft extending through the tub, the annular ring surrounding the shaft for strengthening the bottom, the collar surrounding the shaft within the bottom, the tube surrounding the shaft within the collar and extending flush with the bottom and with the top of the tub, the sliding valve controlling the discharge-spout, the stirrer consisting of a sleeve secured to the upper end of the shaft and surrounding the upper portion of the tube, and a stirrer-head secured to the sleeve, having a two-part bar and series of pendent blades inclined at their lower ends so as to conform to the inclination of the bottom of the tub, and means for operating the shaft; substantially as described.

4. A gold washing and amalgamating machine comprising a tub, an upper tank located beneath the tub, an overflow-pipe extending from the tub to the upper tank, the tube secured to the bottom of the tank and extending upwardly therefrom, the lower tank located beneath the upper tank, the amalgamating device located within the lower tank and the filter supported beneath the lower tank: substantially as described.

5. A gold washing and amalgamating machine comprising a tub, an upper tank located beneath the tub, an overflow-pipe extending from the tub to the upper tank, the tube secured to the bottom of the tank and extending upwardly therefrom, the lower tank located beneath the upper tank and forming an outer chamber, the central post secured to the bottom of the lower tank, extending upwardly therefrom and provided with a series of saucers of increasing diameter from the top to the bottom thereof, the inner chamber surrounding the central post having radial openings located at the bottom thereof, and the cylinder surrounding the wall of the inner chamber and provided with a series of saucers of increasing diameter from the bottom to the top thereof, substantially as described.

6. A gold washing and amalgamating machine comprising a tub, an upper tank located beneath the tub, an overflow-pipe extending from the tub to the upper tank, the tube secured to the bottom of the tank and extending upwardly therefrom, the lower tank located beneath the upper tank, the amalgamating device within the lower tank, the filter provided with an open-work top and bottom, a filling between the top and bottom, the hooks on the filter by which the bottom is removably held in position, the loops secured to the filter, and the rods engaging the loops and secured to the upper tank, whereby the filter is suspended beneath the lower tank: substantially as described.

7. A gold washing and amalgamating machine comprising an inclined agitating-trough, the front and rear supporting-frames, each provided with a horizontal frame, the front and rear rings surrounding the trough in which the latter is mounted, the pulleys journaled to the rings and running on the horizontal frames, the vertical operating-shaft, the eccentric secured to the shaft, the cross-bar, the rod connecting the cross-bar with the eccentric, the agitating-bar through which the rod extends, the arms having elbows and catches and pivoted to the cross-bar, the bearing-bar on which the elbows of the arms ride for disengaging the catches, the jointed rods by which the front ring is connected with the agitating-bar, and means for producing the reverse movement of the trough; substantially as described.

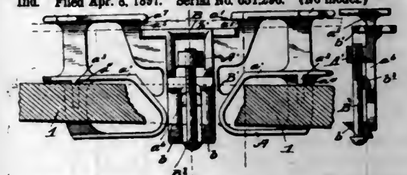
8. A gold washing and amalgamating machine comprising a tub, a stirrer adapted to operate in the tub, a shaft for operating the stirrer, an eccentric on said shaft, a trough, a bearing-bar, an agitating-bar secured to the trough, a cross-bar connected with the eccentric, pivoted arms having catches thereon adapted to engage said agitating-bar, and also having elbows adapted to ride upon said bearing-bar to release the catches, and means for producing the reverse movement of the trough; substantially as described.

9. A gold washing and amalgamating machine comprising an inclined agitating-trough, the front and rear rings surrounding the trough, the front and rear square frames located within the rings, the irons extending lengthwise of the trough within the square frames, the side clips, the rods passing through the trough by which the side clips are secured to the square frames, the bottom clips secured to the square frames, the pulleys journaled to the clips and running on the rings, and means for rocking the trough; substantially as described.

10. A gold washing and amalgamating machine comprising an inclined agitating-trough, the front and rear rings surrounding the trough, the front and rear square frames located within the rings, the irons extending lengthwise of the trough within the square frames, means whereby the square frames are mounted within the rings, a vertical operating-shaft, the horizontal shaft having a crank and geared to the operating-shaft, the bracket secured to the irons, and the link pivoted to the crank at one end and pivoted to the bracket at the other end; substantially as described.

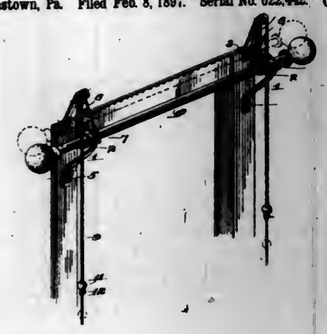
11. A gold washing and amalgamating machine comprising an inclined agitating-trough having a transverse opening at the bottom, an amalgamated cup-shaped riffle located beneath the opening, the front and rear rings surrounding the trough, means whereby the trough is mounted within the rings, the deflecting-plate extending down into the riffle, means for rocking the trough, the rod secured to the rings, the arms loosely mounted on the rod and extending down into the riffle on opposite sides of the deflecting-plate, the arm secured to the trough, the arm secured to the rod, and the cross-arm connecting the arms of the trough and the rod; substantially as described.

596,416. SAW-JOINTER. ROBERT E. POINDEXTER, Indianapolis, Ind. Filed Apr. 8, 1897. Serial No. 631,296. (No model.)



Claim.—In a combined saw jointer and gage, the combination of the block formed with appropriate rests and bearing-points and the file-rests which constitute the stationary jaws of the file-clamps, said block being cut out midway thereof to form a recess for the gage-plate and of a depth to permit said plate to move vertically therein, overhanging parts on each side of the top of said recess formed with the rests, a^1, to support said gage-plate in proper position for use, said gage-plate formed with the shank B′ extending at right angles therewith mounted in said recess with said shank seated on the way formed therefor on said block, points formed on said shank to engage the file in its different positions which constitute the movable jaws of the file clamps, and a screw, B^2, engaging with said shank and a screw-threaded perforation in a part of said block, whereby said shank and gage-plate may be adjusted to the different positions required in the various uses of the device, substantially as set forth.

596,417. CURTAIN-POLE BRACKET. WILLIAM S. POWELL, Johnstown, Pa. Filed Feb. 8, 1897. Serial No. 622,442. (No model.)



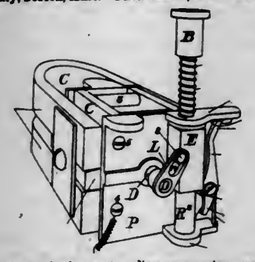
Claim.—1. A bracket comprising a body portion having a socket opening upwardly and formed above said socket with a bend, and an eye above said bend with the end portions of the bracket extended in substantially parallel inclined planes terminating in vertical attaching portions, a movable finger mounted in said bend to the rear of the socket with its free front end adapted to rest upon the outer edge of the socket, with the finger extending in an inclined position and adapted to be thrown upward by the vertical movement of the pole in engagement with its under face, substantially as described.

2. A bracket comprising a body portion having a socket opening upwardly and formed above said socket with a bend, and an eye above said bend with the end portions of the bracket extended in substantially parallel inclined planes terminating in vertical attaching portions, a movable finger mounted in said bend to the rear of the socket with its free front end adapted to rest upon the outer edge of the socket, with the finger extending in an inclined position and adapted to be thrown upward by the vertical movement of the pole in engagement with its under face, and a cord passed through the eye of said bracket adapted to be connected with the pole, substantially as described.

3. The improvement herein described, formed of a single piece of material, bent upon itself to form a socket open upon its upper face, with a vertical portion at the rear of the socket formed at its opposite end with an eye and between its ends with a bend, with the opposite ends of the metal forming the bracket extending in substantially parallel inclined planes and terminating in vertical attaching portions in the same vertical planes, combined with a finger pivotally mounted in the bend of said vertical portion and adapted to extend in an inclined position and rest upon the outer upper edge of said socket, all substantially as herein shown and described.

4. The combination with two brackets, each of which is provided with an upwardly-opening socket upon its front side, an approximately upright face extending upwardly from the rear side of said socket, a rearwardly-inclined face extending from the outer and upper end of said socket, an eye at the upper end of said bracket, and a pivoted finger secured to said bracket above and in the rear of said socket, said finger being of sufficient length to extend beyond the socket when its outer free end rests upon the outer end of the socket, of a pole adapted to rest in said socket, and cords or strands connected with said bolt and extending upwardly and through said eyes and downwardly, for the purpose described.

596,418. MAGNETO-ELECTRIC SIGNALING APPARATUS. ARTHUR S. WILLIAMS, Newton, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed June 5, 1897. Serial No. 639,585. (No model.)



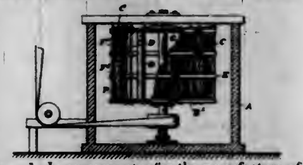
Claim.—1. In a telephone signaling apparatus, and in combination with the field-magnet and armature thereof; a key or press-button and a motor-spring adapted to successively move the said armature in opposite directions, respectively; and a detaining device controlling and acting to delay the operation of said spring, and itself controlled by the said press-button; substantially as set forth.

2. The combination substantially as herein specified, in a telephone signaling magneto-machine, of the movable armature and the coils thereof; with a key or button, and plunger, constituting means for operating the said armature in one direction; a motor-spring adapted to be energized by the pressure of said key, and placed in operative relation to the said armature to produce a return movement thereof; a detaining device for the said spring arranged to temporarily maintain the compression thereof, when the pressure on said key is relaxed, and delay the return motion of the armature; and means for automatically trippiug the said detaining device, and for suddenly releasing the said motor-spring; whereby the armature is enabled to oscillate with great velocity in returning to its normal position, for the purposes set forth.

3. In a magneto-machine for telephone signaling, the combination of the armature thereof; with actuating mechanism comprising a slotted lever or crank secured to the armature-shaft; an actuating-block carrying a pin which plays in the slot of said lever; a key or press-button detachably associated with said block, and organized when pressed to move the same in the direction of such pressure: a motor spring compressible by the operation of said key, and adapted to move the said actuating-block reversely when the said key-pressure is relaxed; a detent engaging a projection of said actuating-block to delay the return movement thereof; a retracting-spring for the key or press-button, acting to independently retract the same when pressure thereon is no longer exercised; and a tripping device for the said detent controlled by the said key in its independent return movement, all substantially as herein specified.

4. In a telephone signaling system, the combination of a main circuit; a source of continuously-developed alternating call-currents connected therewith at a station thereof; and a magneto-electric machine having its armature mounted in the magnetic field in such relation to the direction of the lines of force of such field, that its resting condition shall be unstable, connected with the said circuit at another station thereof; whereby the said magneto-machine may be made responsive as a receiving instrument, to the currents of the first-named source, substantially as described.

596,419. APPARATUS FOR MANUFACTURING HEAT-INSULATING MATERIAL. WILLIAM BORROWE and JOHN LOMLEY, San Francisco, Cal. Filed Aug. 24, 1896. Serial No. 603,809. (No model.)

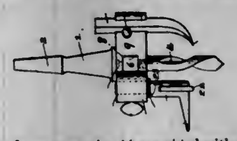


Claim.—1. In an apparatus for the manufacture of heat-insulating coverings, the mold C, consisting of perforated open-sided trough F', hinged cover G, perforated removable front F^2, having perforated bottom extension U, and handle V, all substantially as specified.

2. In an apparatus for the manufacture of heat-insulating coverings, a revolving cage mounted on a vertical axis, and means for rotating the same, in combination with removable perforated separable molds, having hinged covers, adapted to be arranged and held about the periphery of said revolving cage, and rotated therewith to expel the moisture from the contained plastic coverings, substantially as specified.

3. In an apparatus for the manufacture of heat-insulating coverings, a revolving cylindrical cage B′, mounted on a vertical axis, with means for rotating the same, said cage having radial partitions D, hoops E, and clamps I, in combination with molds C, consisting of perforated open-sided trough F', hinged cover G, and perforated removable front F^2, having perforated bottom extension U, substantially as specified.

596,420. EXPANSION ROUTER-BIT. FRANKLIN W. BRITTON, Brainerd, Minn. Filed Apr. 19, 1897. Serial No. 632,837. (No model.)



Claim.—1. In an expansion-bit provided with a shank, an extension-arm, a cross-piece on end of said arm, and a cutting-tool mounted on said cross-piece, a dependent guide having cutting-lips projecting from each side of its lower end, substantially as shown and described.

2. In an expansion-bit provided with a shank, an extension-arm, a cross-piece on the end of said arm and a cutting-tool mounted on said cross-piece, a guide having a cutting-tool adjustably inserted in it, said cutting-tool having cutting-lips projecting at each side below the end of said guide and its surface between said cutting-lips level with the lower end of said guide, substantially as shown and described.

3. An expansion router-bit consisting of a shank having a removable center-bit, an adjustable graduated transverse arm mounted on said shank, a cross-piece on the end of said adjustable arm having a mortise in its forward end and a vertical dovetailed groove on its rear end, a guide mounted in said mortise, said guide having a cutting-tool adjustably inserted in it, said cutting-tool having cutting-lips projecting from each side below the end of said guide and the surface between said cutting-lips level with the lower end of said guide and a cutting-tool mounted in said vertical dovetailed groove having a straight cutting edge and its forward surface above said

cutting edge inclined outward and backward to allow the chips to pass off, substantially as shown and described.

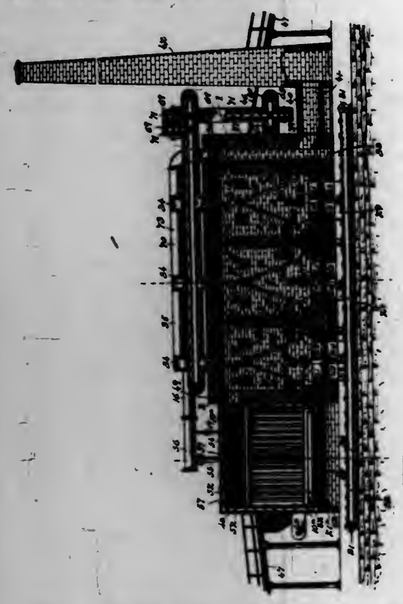
4. In an expansion router-bit a knife having a cutting edge of any desired form inserted at one end in an upwardly-inclined slot in the cross-piece on the end of the expansion-arm and at the other end passed over the head of the center-bit before said center-bit is screwed into the shank, substantially as shown and described.

5. An expansion router-bit consisting of a shank having a removable center-bit, an adjustable graduated transverse arm mounted on said shank, a cross-piece on the end of said adjustable arm having a mortise in its forward end and a vertical dovetailed groove in its rear end, a guide mounted in said mortise having cutting-lips projecting from each side of its lower end and a cutting-tool mounted in said vertical dovetailed groove having a straight cutting edge and its forward surface above said cutting edge inclined outward and backward to allow the chips to pass off, substantially as shown and described.

6. An expansion router-bit consisting of a shank having a removable center-bit, an adjustable graduated transverse arm mounted on said shank, a cross-piece on the end of said adjustable arm having a mortise in its forward end and a vertical dovetailed groove in its rear end, a guide mounted in said mortise having cutting-lips projecting from each side of its lower end and a cutting-tool mounted in said vertical dovetailed groove having a straight cutting edge and its forward surface above said cutting edge inclined outward and backward to allow the chips to pass off, and a knife having one end inserted in an upward-inclined slot in said cross-piece and the other end passed over the upper end of said center-bit before it is inserted in said shank, substantially as shown and described.

596,421. CREMATORY. FELIX L. DECARIE, Montreal, Canada.

Filed Nov. 5, 1896. Serial No. 611,139. (No model.)



Claim.—1. A garbage-crematory having a cremating-chamber, a fire-grate arranged within the lower portion of the chamber, oppositely-arranged upwardly-convergent tubular garbage-grates fixedly supported above the fire-grate and each comprising a plurality of parallel tubes or pipes, said grates forming garbage-cells within the opposite portions of the cremating-chamber next to the side walls thereof, door-inclosed feed-openings formed in the sides of the cremating-chamber and communicating separately with the separate garbage-cells, and water-circulating connections with the ends of said grate tubes or pipes, substantially as set forth.

2. In a crematory, the casing, a pair of upwardly-convergent tubular garbage-supporting grates mounted within the casing and diverging from their upper adjacent ends downwardly toward opposite sides of the chamber in which they are arranged, said garbage-supporting grates comprising a plurality of parallel grate tubes or pipes having outturned lower angled ends, a header-drum fitted to the upper ends of the grate tubes or pipes of both garbage-supporting grates, circulating connections with the lower angled ends of said tubes or pipes, and a fire-grate arranged below the upwardly-convergent garbage-supporting grates, substantially as set forth.

3. In a crematory, the casing having a cremating chamber, a pair of spaced upwardly-convergent tubular garbage-supporting grates mounted within the cremating-chamber and respectively extending upward from opposite sides of said chamber, an upper header-drum fitted to the upper ends of the tubular grates and extending transversely across the cremating-chamber, and projecting at its opposite ends through the side walls of the casing, steam-pipe connections with said projecting ends of the header-drum, oppositely-located drums arranged at opposite sides of the cremating-chamber and connected respectively with the lower ends of the opposite tubular grates, water-pipe connections with said oppositely-located drum, and a fire-grate arranged within the lower part of the cremating-chamber below the garbage-supporting grates, substantially as set forth.

4. In a crematory, the furnace-casing having a plurality of interior successively-arranged communicating cremating-chambers, a pair of spaced upwardly-convergent tubular garbage-supporting grates mounted within each cremating-chamber, an upper distributing header-drum fitted to the upper ends of each pair of grates and extending transversely across the cremating-chamber, and projecting at its opposite ends through the side walls of the casing, water-pipe connections with the lower ends of each pair of grates, upper opposite exteriorly-arranged steam-drums, pipe connections between the exterior projecting ends of the header-drums and said steam-drums, and a pair of separated fire-grates fitted within the lower portion of each cremating-chamber, substantially as set forth.

5. In a crematory, the furnace-casing having a series of interior vertical partition-walls forming a plurality of successively-arranged cremating-chambers, said partition-walls being provided at their upper ends with damper-controlled flue-openings, a stack connection with one end of the furnace and communicating with the last cremating-chamber of the series, a pair of spaced upwardly convergent tubular garbage-supporting grates mounted within each cremating-chamber and inclosing garbage-cells within opposite portions thereof, suitable water-circulating connections with the ends of the garbage-supporting grates, and fire-grates fitted within the lower portion of each cremating-chamber, substantially as set forth.

6. In a crematory, the furnace-casing having a plurality of interior successively-arranged communicating cremating-chambers, and open conveyer-pits formed in the bed thereof and extending the entire length of the crematory so as to communicate with the interior of all of the chambers therein, separating-sieves fitted in said conveyer pits, suitable conveyers working above and below said separating-sieves, fire-grates fitted within the lower portion of each cremating-chamber over the conveyer-pits, and garbage-grates fitted in the cremating-chambers above the fire-grates, substantially as set forth.

7. In a crematory, the casing, the fire-grate arranged within the casing, a main garbage supporting grate extending across the space above the fire-grate, a chamber independent of the main garbage-grate for drying portions of garbage for fuel, and means for delivering the portions of dried garbage from the drying-chamber unto the fire-grate below the plane of the main garbage grate, substantially as set forth.

8. In a crematory, the main casing having a plurality of interior successively-arranged communicating cremating-chambers, main garbage-supporting grates fitted in the cremating-chambers, fire-grates arranged below said garbage-supporting grates, an auxiliary heater or drier casing having a draft communication with the series of cremating-chambers of the main casing, oppositely-inclined garbage-supports arranged within said heater or drier casing, means for drying portions of garbage for fuel on said supports, and means for automatically conveying the dried garbage from the lower ends of said garbage-supports in the heater or drier casing onto the fire-grates below the planes of the main garbage-grates in the cremating-chambers, substantially as set forth.

9. In a crematory, the main casing having a plurality of interior successively-arranged cremating-chambers, garbage-supporting and fire grates fitted in each cremating-chamber, a metallic steam-jacketed auxiliary heater or drier casing communicating with the series of cremating-chambers, a pair of spaced upwardly-convergent tubular or hollow garbage-supporting grates arranged longitudinally within the heater or drier casing, a central longitudinally-arranged upper header-drum communicating with the steam-space at the ends of the heater or drier casing and fitted to the upper ends of said tubular supporting-grates, suitable connections between the lower ends of said grates and the steam jacket or space of the casing, and means for automatically delivering and conveying the dried garbage from the lower ends of the garbage-supporting grates in the heater or drier casing to the fire-grates in the cremating-chambers, substantially as set forth.

10. In a crematory, the main casing having a plurality of interior cremating-chambers, garbage-supporting and fire grates fitted in each cremating-chamber, a steam-jacketed heater or drier casing communicating with the cremating chambers and provided in opposite lower sides with a plurality of discharge-openings, oppositely-inclined upright tubular garbage-supporting grates arranged within the steam-jacketed casing and communicating with the steam-space thereof, the lower ends of the oppositely-arranged tubular grates extending to opposite sides of the casing below said discharge-openings so as to deflect dried garbage therethrough, conveyer-boxes arranged at opposite sides of the main and auxiliary casings exterior thereto, said conveyer-boxes communicating with said discharge-openings and having hoppers extended into the cremating-chambers above the fire-grates, and suitable garbage-conveyers arranged to work in said conveyer-boxes, substantially as set forth.

11. In a crematory, the main casing having a plurality of interior cremating-chambers, garbage-supporting and fire grates fitted in each cremating-chamber, a steam jacketed auxiliary heater or drier casing communicating with the cremating-chambers and provided in opposite lower sides with a plurality of discharge-openings, a pair of opposite oppositely-inclined upright tubular garbage-supporting grates arranged within the steam-jacketed casing and extending to the sides thereof below the discharge-openings, conveyer-boxes arranged longitudinally of the sides of the main and auxiliary casings exterior thereto, said conveyer-boxes communicating with said discharge-openings, and provided with screen bottoms in the portions thereof next to the auxiliary casing, deflecting-chutes extended from the screen-bottom portions of the conveyer-boxes into the auxiliary casing below the grates therein, hopper connections extended from the conveyer-boxes into the cremating-chambers over the fire-grates, and suitable conveyers arranged in said conveyer-boxes, substantially as set forth.

12. In a crematory, the main casing having a plurality of interior cremating-chambers, garbage-supporting and fire grates fitted in each cremating-chamber, an auxiliary heater or drier casing communicating with the series of cremating-chambers, a pair of spaced upwardly-convergent tubular garbage-supporting grates arranged within the heater or drier casing, a hollow evaporating-pan supported below said tubular grates and having pipe connections with the jacket of said heater or drier casing, and suitable conveyers for delivering the dried garbage from the heater or drier casing to the fire-grates in the cremating-chambers, substantially as set forth.

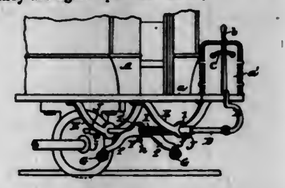
13. In a crematory, the main casing having a plurality of interior cremating-chambers provided with top feed-openings, an auxiliary heater or drier casing having garbage-supporting grates therein and communicating with said cremating-chambers, said heater or drier casing also having opposite discharge-openings for dried garbage, opposite longitudinally-arranged conveyer-boxes communicating with said discharge openings and provided at intervals with feeding-hoppers extended into the cremating-chambers over the fire-grates therein, garbage-conveyers working in said conveyer-boxes, a distributing-box arranged longitudinally above the main casing and having bottom chute connections with the top feed-openings of the cremating-chambers, a distributing apron or belt working in the distributing-box, and suitable elevators for delivering the garbage from one end of the conveyer-boxes to said distributing-box, substantially as set forth.

14. In a crematory, the furnace-casing having a series of interior vertical partition-walls provided at their upper ends with damper-controlled flue-openings and forming a plurality of communicating cremating-chambers having in the top thereof separate oppositely-located flue-openings, a stack connection with one end of the furnace, a common escape flue or pipe arranged longitudinally above the furnace-casing, and communicating at one end with said stack connection and branch flues or pipes fitted at one end in the flue-openings in the top of the cremating-chambers and connected at their other ends with said common escape flue or pipe, substantially as set forth.

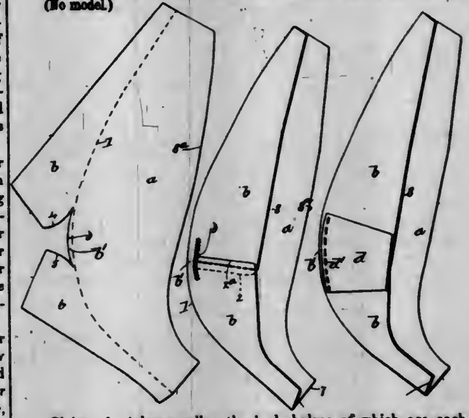
15. In a crematory, the furnace-casing having a plurality of interior communicating cremating-chambers, garbage-supporting and fire grates arranged one above the other in said cremating-chambers, roadways or dump-floors arranged longitudinally of the casing at opposite sides thereof, and provided with trap-doors, and feed-chutes extending from said trap doors through the sides of the cremating-chambers above the fire-grates therein and below the plane of the garbage-grates, substantially as set forth.

596,422. RAILWAY-SWITCH. ST. JULIEN GIRARDEAU and RICHARD J. MURRAY, Galveston, Tex. Filed Dec. 23, 1896. Serial No. 616,797. (No model.)

Claim.—In combination with the car, the hangers under the platform at one end having central bearings, and with an open space between said hanger and the platform both vertically and laterally of the rock-shaft, the rock-shaft supported by said bearings, the thrower consisting of the arms extending laterally from the rock-shaft to each side of the same, the flanged wheels carried by said arms, the lever having the lateral gooseneck providing an opening in line with the open space of the hangers to permit the arrangement of a draw-head, a single spring coiled about the shaft for returning the parts to normal position, and the pair of switch-tongues at opposite sides of the track to be operated by the flanged wheels, said tongues being adapted to remain in the position in which they are moved by the flanged wheels until they are again operated thereby.



596,423. HORSE-COLLAR. HENRY L. GULLINE, WILLIAM SCHWEGEL, and JOHN CONNOLLY, Granby, Canada; said Schwegel and Connolly assignors to said Gulline. Filed Mar. 25, 1897. Serial No. 629,245. (No model.)

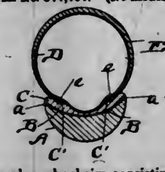


Claim.—1. A horse collar, the body-halves of which are each formed of a single piece of elbow form seamless throughout the "liner" portion and also throughout the back up to the junction of the "straight" and crook portions thereof, and at such junction covered by a chafe-piece the outer edge of which is located adjacent to but does not reach or overlap said "liner" portion, for the purpose set forth.

2. A horse-collar the leather body-halves of which are formed of a single piece of elbow form, notched on the convex edge thereof, folded longitudinally and having the edges of the notch secured together and the convex and concave edges of the piece secured together to produce a complete body free from points or knobs, as set forth.

3. A blank for a horse-collar body-half, comprising an integral "straight" section, "crook" section, intermediate back section, and "liner" section, the "straight" and "crook" back sections being separated by a notch, substantially as and for the purpose set forth.

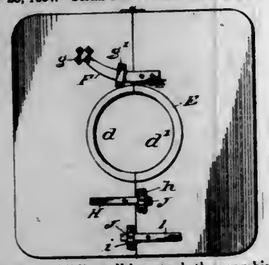
596,424. WHEEL-RIM. THEODOR KUNDTZ, Cleveland, Ohio. Filed Feb. 3, 1896. Serial No. 577,797. (No model.)



Claim.—1. A wooden wheel-rim consisting of a thick, inflexible, inner wooden ring A having a peripheral cavity that is curved in cross-section, a relatively thin wooden reinforcing-layer fitting and secured in, and lining and covering the walls of said cavity, and having its grain crossing that of the ring A, and a thick inflexible outer ring C fitting into the concave outer side of the reinforcing-layer, substantially as described.

2. A wooden wheel-rim, consisting of outer and inner thick and inflexible rings, one of said rings having a groove which is curved in cross-section, and the other of said rings being shaped to fit in said groove, and an intervening strengthening-strip, such as a veneer or layer of wood lying in said groove with its grain crossing the grain of the rings, adhesively secured to the said rings.

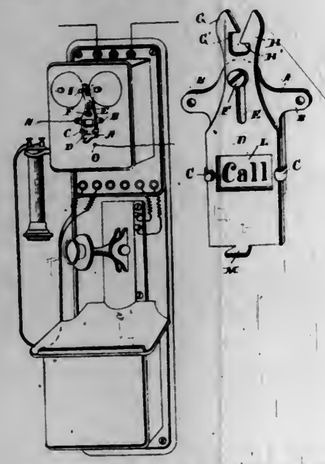
596,425. BABY-CHAIR. NILS P. LINDAHL, Naugatuck, Conn. Filed May 25, 1897. Serial No. 638,093. (No model.)



Claim. 1. In a child's walking-stool, the combination of two broad flat sections hinged at their rear and having their adjoining edges each provided with a semicircular opening, guide sockets or loops on one section in rear of said opening, a guide-arm having one end secured to the other section and a curved free end fitting loosely in said guide-sockets, and a catch in front of the opening to hold the said two sections closed.

2. In a child's walking-stool, the combination of two broad flat sections hinged at their rear and having their adjoining edges each provided with a semicircular opening, guide sockets or loops on one section in rear of said opening, a guide-arm having one end secured to the other section and a curved free end fitting loosely in said guide-sockets, a keeper at the front on each section, a bolt also on each section and each adapted to engage the keeper on the opposite section, and a thumb-screw connecting with each keeper to confine the bolts therein.

596,426. ANNUNCIATOR. ALFRED D. NEALE, Kittanning, Pa., assignor of one-third to Patrick L. Heaphy, same place. Filed Mar. 17, 1897. Serial No. 628,025. (No model.)



Claim.— 1. An improved annunciator including a vibratory support, a call-indicator adapted to move in a plane transverse the line of vibration of the support and formed with a notched opening, the edges of the said indicator being inclined toward the entrance to said opening to guide the support thereinto when setting the indicator, substantially as shown and described.

2. An improved annunciator including a movable indicator, a support therefor adapted to vibrate in a plane at right angles to the plane of movement of the indicator, the indicator being formed with a notched opening and converging guides leading to the entrance to the opening to direct the support thereinto when setting the annunciator, substantially as shown and described.

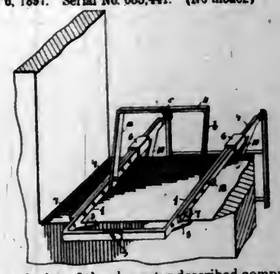
3. An improved annunciator including an indicator formed with an opening and having a notched portion overhanging the opening adjacent the entrance thereto, the opposite side of the entrance to the opening being inclined toward said overhanging notched portion and terminating at a point below the plane of the latter, and a vibratory support adapted to enter the opening of the indicator and engage the notch thereof and sustain the indicator in set position, substantially as shown and described.

4. An improved annunciator including an indicator formed with an opening, the edges of the entrance to the opening being inclined toward each other and terminating with abrupt notches within the opening, the notches being in different planes, and a vibratory support adapted to enter the opening as the indicator is moved thereto and engage one of the notches, substantially as shown and described.

5. An improved annunciator including an indicator formed with a notched opening with the sides of the entrance to the opening converging and intersecting a line extending parallel with the line of movement of the indicator but at different points on said line, and a vibratory support adapted to be directed into the opening and engage the notch thereof, by said converging entrance sides, substantially as shown and described.

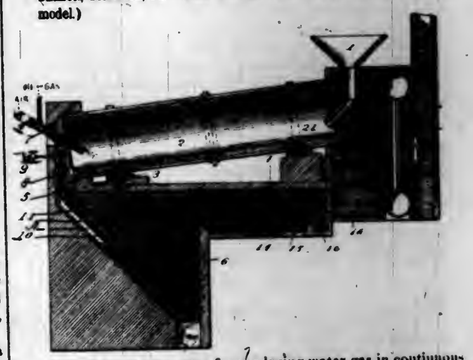
6. In an annunciator, the combination of an electric bell including a vibratory clapper, the notched longitudinally-slotted indicator-drop, back plate B provided with securing means and formed with integral guides C which embrace the edges of the indicator-drop, and screw F extended through the longitudinal slot of the indicator-drop and into the back plate B, substantially as shown and described.

596,427. FIRE-ESCAPE BRACKET. CHARLES V. RICHEY, Washington, D. C., assignor of one-half to Leonard C. Bailey, same place. Filed May 6, 1897. Serial No. 635,441. (No model.)



Claim.—A device of the character described comprising two sets of arms, one set having a sliding engagement with respect to the other set, means for locking one set in desired adjustment to the other set, one set of arms being provided with angular extensions pivoted together and both sets being provided with downwardly-projecting legs, the outer set being provided with means for attaching a ladder to them, and a bail connected to one set of arms and consisting of two pieces pivoted together, substantially as set forth.

596,428. APPARATUS FOR PRODUCING GAS. JAMES G. SANDERSON, Scranton, Pa. Filed Oct. 15, 1894. Serial No. 525,998. (No model.)



Claim.—1. An apparatus for producing water gas in continuous operation consisting of a coal-feeding device, a decomposing-chamber, a passage leading from the feeding device to the decomposing-chamber, a fire located in said passage with which the coal is brought into direct contact for bringing it to incandescence before reaching

the decomposing-chamber, and means for directing steam on the incandescent material in the decomposing chamber, as explained.

2. In an apparatus for producing gas, the combination of a suitable decomposing-chamber, a rotary cylinder adapted to feed carboniferous fuel to a passage from the furnace, a burner for heating the fuel to an incandescent heat, and a series of steam-pipes in open communication with the decomposing-chamber, substantially as set forth.

3. In an apparatus for producing gas, the combination of a decomposing-chamber having a passage leading thereto, a rotary cylinder feeding carboniferous fuel to said passage, a burner adapted to heat the fuel to an incandescent heat before it enters the decomposing-chamber, and a series of steam-pipes in open communication with the decomposing chamber and with which the heated material comes in contact, substantially as and for the purpose set forth.

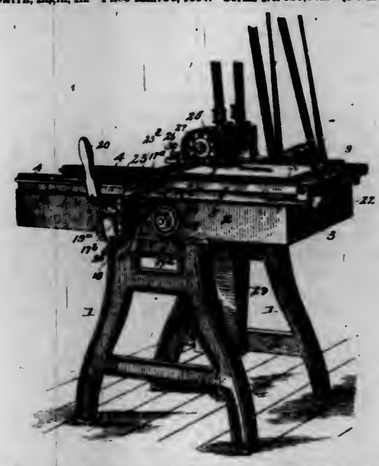
4. In an apparatus for producing gas, the combination of a decomposing-chamber having a passage leading thereto, a series of perforated steam-pipes located within said chamber, a rotary cylinder for feeding carboniferous fuel to the said passage, and a burner for heating the fuel before it enters the decomposing-chamber, substantially as shown and described.

5. In an apparatus for producing gas, the combination of a decomposing-chamber having a passage leading thereto, a series of perforated pipes located within the decomposing chamber, a rotary cylinder adapted to supply carboniferous material to the said passage, a burner for heating the fuel to an incandescent heat before it enters the decomposing-chamber and a conveyer located in the decomposing-chamber, substantially as and for the purpose set forth.

6. In an apparatus for producing water-gas, the combination of a decomposing-chamber having a passage leading thereto, a series of perforated pipes located within said chamber through which steam passes, a rotary cylinder for feeding carboniferous material to the said passage, a burner for heating the fuel to an incandescent heat before it enters the decomposing chamber, and a conveyer located at the bottom of the decomposing-chamber and working in water, substantially as and for the purpose set forth.

7. In an apparatus for producing water-gas, the combination of a decomposing-chamber, a rotary cylinder for feeding fuel to the decomposing-chamber, a burner for heating the fuel to an incandescent heat, perforated steam-pipes located in the said decomposing-chamber: a passage for conveying away the products of combustion, and an air-heater located in said passage, a passage for conveying away the gas from the decomposing-chamber and pipes for containing water located in said passage; substantially as and for the purpose set forth.

596,429. BEVELING AND TRIMMING MACHINE. CHRIS H. SMITH, Elgin, Ill. Filed Mar. 30, 1897. Serial No. 629,972. (No model.)



Claim.—1. As an improvement in plate-trimming machines, the combination with the plate-carrier, of a rotary cutter mechanism, having a bevel-cutter and a square rotary cutter independently journaled on the bevel-cutting shaft, and means for setting the latter for cutting a square edge, substantially as shown and described.

2. As an improvement in plate-trimming machines, the combination with the reciprocating plate-carrier, of the rotary cutter mechanism, comprising a shaft, a cutter, having a bevel knife on its outer end and a square-cutting knife, slidable on the shaft and having its teeth arranged to project between the blades of the bevel-cutter and means for adjusting the said sliding cutter, for the purpose specified.

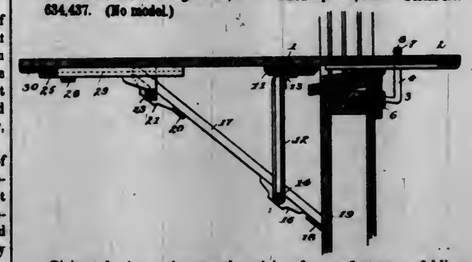
3. In a machine as described, in combination with the plate-carrying mechanism, of a cutting mechanism, consisting of two cutters, held to turn with the shaft, one of such cutters being slidable on the shaft and having square-edged cutter-blades adapted to operate between the blades of the other cutter, said blades having a bevel-cutting edge as specified.

4. In a machine as described, the combination with the plate-carrier, and the rotary cutting mechanism, of a stationary trimmer-knife, substantially as shown and described.

5. The combination with the plate-carrying mechanism, of a cutting mechanism, consisting of two cutters held to turn with the shaft, one of such cutters being slidable on the shaft and held to turn therewith and having square edged cutting-blades, the other being fixedly held on the shaft and having radial projections to receive the cutting edges of the square-edged cutter, substantially as shown and described.

6. The combination with the main frame, the reciprocating carriage, the cutters, and means for reciprocating the carriage, of the fixed trip devices at one end of the carriage, the adjustable stop 23^3 at the other end of the carriage, and the hand-wheel, the devices 23^4 for operating the same, said reciprocating means including a shift-pawl adapted to be engaged by the fixed and adjustable trip devices, substantially in the manner shown and for the purposes described.

596,430. SCAFFOLD FOR PAINTERS OR CARPENTERS. CHAS. E. WILSON, Atlantic Highlands, N. J. Filed Apr. 29, 1897. Serial No. 634,437. (No model.)



Claim.—1. As an improved article of manufacture, a folding scaffold-bracket, comprising the platform 1, provided with the transverse orifices 2 2, the hinged arm 12, the brace-frame 17, pivoted at its forward end to the outer end of said arm, in combination with the parallel bars 25 25 pivoted at its inner end to the outer end of said brace-frame and adapted to engage and slide along the guide-rails 29 29 fixed to said platform, and the clamps 3 3 removably secured in the orifices 2 2, substantially as shown and described.

2. As an improved article of manufacture, a folding scaffold-bracket comprising the platform 1, provided with the transverse orifices 2 2, the transverse cleat 11 and the rectangular brace 30, in combination with the arm 12, hinged to said cleat, and the rod 14 fixed in the outer end of said arm and provided with projecting ends 15 15, the brace-frame 17 provided with the brackets 16 16 in which the projecting ends 15 15 are journaled, the brackets 21 21 secured to the rear end of said brace-frame, the parallel bars 25 25 provided with a cross-brace carrying the rod 23, connecting said brackets 21 and bars 25, the fixed guide-rails 29 29 forming a track for the sliding bars 25, and the removable clamps 3 3 consisting of the shank 4, provided with a right-angular arm 5 and terminating in a rectangular plate 6, and having the transverse slot 7 and the lever 9 provided with a tongue 8 pivoted in the slotted end of said shank, substantially as shown and described.

596,431. CARPET-CLEANER. WILLIAM M. COONRADT, Atlanta, Ga. Filed Dec. 22, 1896. Serial No. 616,654. (No model.)

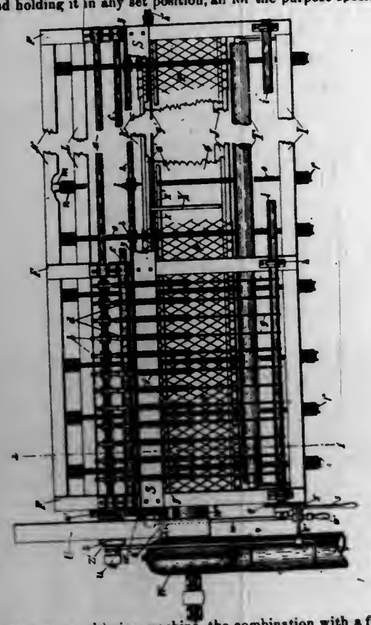
Claim.—1. In a carpet-cleaning machine, the combination, with a frame, of a feed comprising a link belt consisting of plain and spurred links, wheels adapted to carry and drive said link belt and a pressure roller mounted over said belt for the purpose specified.

2. In a carpet-cleaning machine, the combination, with a frame, of a feed comprising a link belt composed of plain and spur links, a series of wheels adapted to carry and drive said link belt, the one of said wheels at the discharge end of the belt being provided with stripping-flanges adapted to lift the fabric from said spurs.

3. In a carpet-cleaning machine, the combination with a frame, of a feed comprising a spurred belt, a driven wheel adapted to drive said belt, and carrying-wheels, one of which is flanged and a pressure-roller arranged over said spurred belt, all for the purpose specified.

4. In a carpet-cleaning machine, the combination with a frame, of a beating-screen and a carpet-conveying mechanism, a shaft rota-

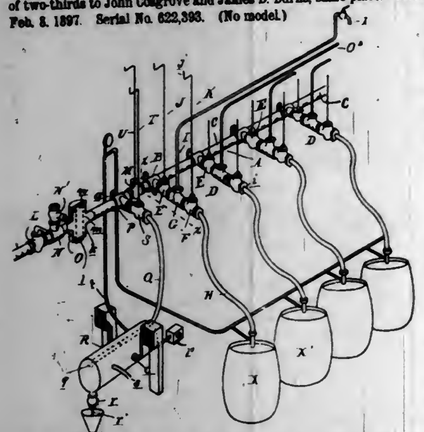
tably mounted and carrying cams, pivotally-mounted blocks having arms projecting into contact with said cams, beaters attached thereto, and upwardly-projecting arms, springs connected each to one of said upwardly-projecting arms, a shaft, means for connecting each of said springs to said shaft separately, and means for partially rotating said shaft and holding it in any set position, all for the purpose specified.



5. In a carpet-cleaning machine, the combination with a frame, of a flue, a screen on its upper side, means for feeding a fabric across said screen, means for creating a suction in said flue, and a partition mounted in said flue and movable longitudinally thereof whereby the length of the flue is adjusted to the width of the carpet operated upon, substantially as described.

6. In a carpet-cleaning machine, the combination with a frame of the flue, the sliding gate X, cable g', pulleys h' and h'', shaft w, and crank w', whereby the length of the flue is adjusted to the width of the carpet operated upon, substantially as described.

596,432. APPARATUS FOR DISPENSING BEER AND MEANS FOR CLEANING SAME. CORNELIUS CRONIN, Detroit, Mich., assignor of two-thirds to John Cosgrove and James D. Burns, same place. Filed Feb. 8, 1897. Serial No. 622,393. (No model.)

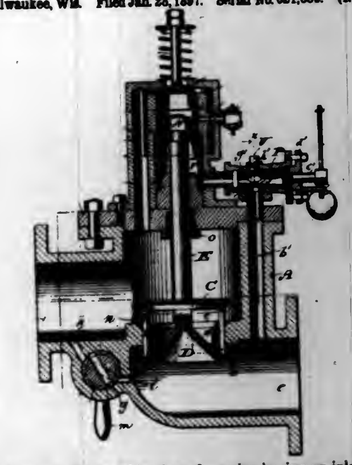


Claim.—1. In an apparatus for dispensing beverages, the combination of a pipe A having a valve-controlled water-supply connection, a plurality of lateral branches connected to said pipe, each branch adapted to be connected to a cask containing the beer or other liquor, a pipe connected to each branch leading to a tap, and two valves in each branch one between the tap-pipe and the cask-pipe and the other between the tap-pipe and the pipe A.

2. In an apparatus for dispensing beverages, the combination of a plurality of liquid-supply casks, an air-supply tank, connections from the air-tank to the casks, a pipe such as A having a valve-controlled water-supply, a plurality of branches connected with said pipe each adapted to be connected with a cask, a tap connected to each branch, and two valves in each branch one between the tap connection and the pipe A and the other between the tap connection and the cask.

3. The combination of the pipe A comprising the T-fittings B and the connecting pipe-sections C, the lateral connections D, each comprising the valves E and F, the T-fitting G between the valves and the pipe H, connecting with the valve F, the pipes I connected to the end of the fittings G and leading to the taps, and a valve-controlled water-supply connecting to one end of the pipe A, for the purpose described.

596,488. FLUID-PRESSURE CUT-OFF. FRANKLIN B. GIBBLER, Milwaukee, Wis. Filed Jan. 28, 1897. Serial No. 621,039. (No model.)



Claim.—1. The combination of a casing having an inlet, an outlet and a partition intermediate of the inlet and outlet provided with an aperture; an engineer's valve controlling a by-pass between the inlet and outlet of the casing below the partition therein, a valve for the partition-aperture, a cone suspended from the latter valve, a shell supported above the casing, a piston within the bore of the shell in stem connection with the cone-supporting valve, and suitable means for admitting to said shell, below the piston, some of the volume of fluid under pressure that may pass either of the aforesaid valves.

2. The combination of a casing having an inlet, an outlet and a partition intermediate of the inlet and outlet provided with an aperture; an engineer's valve controlling a by-pass between the inlet and outlet of the casing below the partition therein, a valve for the partition-aperture, a cone suspended from the latter valve, a shell supported above the casing, a piston within the bore of the shell in stem connection with the cone-supporting valve, suitable means for admitting to said shell, below the piston, some of a volume of fluid under pressure that may pass either of the aforesaid valves, and a pair of pop-valves controlling a vent-port in the aforesaid shell above said piston.

3. The combination of a casing having an inlet, an outlet and a partition intermediate of the inlet and outlet provided with an aperture; an engineer's valve controlling a by-pass between the inlet and outlet of the casing below the partition therein, a valve for the partition-aperture, a cone suspended from the latter valve, a shell supported above the casing, a piston within the bore of the shell in stem connection with the cone-supporting valve, suitable means for admitting to the shell, below the piston, some of a volume of fluid under pressure that may pass either of the aforesaid valves, and a spring-controlled plunger constituting a valve for an opening in the shell-top, a portion of this plunger being exposed to the fluid under pressure that may find its way through a port leading from the aforesaid casing into a chamber of said shell.

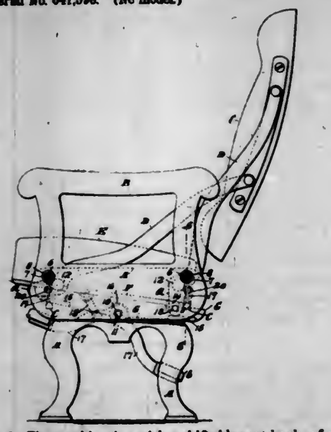
4. The combination of a casing having an inlet, an outlet and a partition intermediate of the inlet and outlet provided with an aperture; an engineer's valve controlling a by-pass between the inlet and outlet of the casing below the partition therein, a valve for the partition aperture, a cone suspended from the latter valve, a shell supported above the casing, a piston within the bore of the shell in stem connection with the cone-supporting valve, suitable means for admitting to said shell, below the piston, some of a volume of fluid under pressure that may pass either of the aforesaid valves, and a stop-cock arranged to permit of the pressure under said piston being let off at will.

5. The combination of a casing having an inlet, an outlet and a partition intermediate of the inlet and outlet provided with an aperture; an engineer's valve controlling a by-pass between the inlet and outlet of the casing below the partition therein, a valve for the partition-aperture, a cone suspended from the latter valve, a shell supported above the casing, a piston within the bore of the shell in stem connection with the cone-supporting valve, and a three-way stop-cock having its chamber portion in connection with a passage leading from the casing-outlet and that portion of said shell containing the piston.

6. The combination of a casing having an inlet, an outlet and a partition intermediate of the inlet and outlet provided with an aperture, an engineer's valve controlling a by-pass between the inlet and outlet of the casing below the partition therein, a valve for the partition-aperture, a cone suspended from the latter valve, a shell supported above the casing, a piston within the bore of the shell in stem connection with the cone-supporting valve, a three-way stop-cock having its chamber portion in connection with a passage leading from the casing-outlet and that portion of the said shell containing the piston, a weight-controlled bell-crank fast to the plug portion of the stop-cock, and a stop arranged to maintain the bell-crank in normal position.

7. The herein-described cut-off comprising a casing having an inlet, an outlet and a partition intermediate of the inlet and outlet provided with an aperture, an engineer's valve controlling a by-pass between the inlet and outlet of the casing below the partition therein, a valve for the partition-aperture, a cone suspended from the latter valve, a shell supported above the casing and having a top opening leading from a space in port connection with said casing, a piston in the shell having stem connection with the cone-supporting valve, a pair of pop-valves controlling a vent-port in the shell above the piston, a stop-cock having the chamber portion thereof in connection with that portion of the shell containing the piston and a passage leading from the casing-outlet, and a spring-controlled plunger constituting a valve for the shell-top opening.

596,434. CAR-SEAT. JOHN S. JOHNSTON, New York, N. Y., assignor to the Pottier & Stymus Company, same place. Filed June 21, 1897. Serial No. 641,598. (No model.)



Claim.—1. The combination with a shiftable seat-back, of a seat-cushion mounted to move sidewise and to rock on a fixed pivot, and connections for moving said cushion sidewise and rocking said cushion on said pivot when the back is shifted, substantially as described.

2. The combination with a shiftable seat-back, of a rocker, a seat-cushion mounted to slide on said rocker, and connections for moving said seat-cushion on and with the rocker when the back is shifted, substantially as described.

3. The combination with a shiftable seat-back, of a rocker, a seat-support mounted to slide on said rocker, and actuating connections between the back and the seat-support and rocker engaging the seat-support to move it on the rocker and shift the seat-cushion sidewise and engaging the rocker to actuate it for tilting the seat cushion, substantially as described.

4. The combination with a shiftable seat-back, of a seat-cushion mounted to move sidewise and to rock on a fixed pivot, connections for moving said cushion sidewise and rocking said cushion when the back is shifted, a foot-rest, and connections for shifting said foot-rest when the back is shifted, substantially as described.

5. The combination with a shiftable seat-back, of a rocker, a seat-cushion mounted to slide on said rocker, connections for moving said seat-cushion on and with the rocker when the back is shifted, a rocking foot-rest, and connections for rocking said foot-rest with the seat-cushion, substantially as described.

6. The combination with a shiftable seat-back, of a seat-cushion mounted to move sidewise and to rock on a fixed pivot, connections for moving said cushion sidewise and rocking said cushion when the back is shifted, a rocking foot-rest having rest-bars at the front and rear of the seat, and connections for rocking said foot-rest when the back is shifted to raise the rest-bar at the front of the seat and lower the rest-bar at the rear of the seat, substantially as described.

7. The combination with a shiftable seat-back, of a rocker, a seat-cushion mounted to slide on said rocker, connections for moving said seat-cushion on and with the rocker when the back is shifted, a rocking foot-rest having rest-bars at the front and rear of the seat, and connections for rocking said foot-rest with the seat-cushion to raise the rest-bar at the front of the seat and lower the rest-bar at the rear of the seat when the back is shifted, substantially as described.

8. The combination with a shiftable seat-back, of a shiftable seat-cushion, connections between the back and seat-cushion for shifting the latter when the back is shifted, a shiftable foot-rest mounted to rock on a fixed pivot, and connections for shifting the foot-rest when the back is shifted, substantially as described.

9. The combination with a seat-cushion mounted to rock on a fixed pivot, of a shiftable foot-rest actuated by said seat-cushion, substantially as described.

10. The combination with a seat-cushion mounted to move sidewise and to rock on a fixed pivot, of a rocking foot-rest, and connections between said seat-cushion and foot-rest for actuating the latter, substantially as described.

11. The combination with a shiftable seat-cushion, of a shiftable foot-rest, and connections between said seat-cushion and foot rest for actuating the latter by the cushion, substantially as described.

12. The combination with a shiftable seat cushion, of a foot-rest mounted to rock on a fixed pivot, and connections between said seat-cushion and foot-rest for actuating the latter by the cushion, substantially as described.

13. The combination with a shiftable seat-cushion, of a foot-rest mounted to rock on a fixed pivot and having rest-bars at the front and rear of the seat, and connections between said seat-cushion and foot-rest for actuating the latter by the cushion to raise the rest-bar at the front of the seat and lower the rest-bar at the rear of the seat when the cushion is shifted, substantially as described.

14. In a reversible seat, a seat-cushion mounted to slide sidewise of the seat and to rock on a fixed pivot, substantially as described.

15. In a reversible seat, the combination with a rocker, of a seat-cushion carried by said rocker and mounted to slide sidewise thereon, substantially as described.

16. The combination with a seat-back, and back-reversing arms, of a rocker, a sliding seat-support on said rocker, and projections on the back-reversing arms engaging said rocker and seat-support to tilt the seat-cushion with the rocker and move it sidewise on the rocker when the back is shifted, substantially as described.

17. The combination with a seat-back, and back-reversing arms, of a rocker, a sliding seat support on said rocker, and projections on the back-reversing arms engaging said rocker and seat-support to tilt the seat-cushion with the rocker and move it sidewise on the rocker when the back is shifted, a rocking foot-rest, and connections for rocking said foot-rest when the back is shifted, substantially as described.

18. The combination with a seat-back, and back-reversing arms, of a rocker, a sliding seat-support on said rocker, and projections on the back-reversing arms engaging said rocker and seat-support to tilt the seat-cushion with the rocker and move it sidewise on the rocker when the back is shifted, a foot-rest mounted to rock on a fixed pivot, and connections for actuating said foot-rest by the rocker, substantially as described.

19. The combination with a seat-back and back-reversing arms, of rocker G, seat-support F mounted to slide on said rocker, and projections a on the arms engaging said seat-support and rocker, substantially as described.

20. The combination with a seat-back and back-reversing arms, of rocker G, seat-support F mounted to slide on said rocker, projections a on the arms engaging said rocker G at the front and rear of the seat for rocking the same, and a pin and-slot connection between one of the projections and the seat-support F for shifting the latter

sidewise of the seat when the back is reversed, substantially as described.

21. The combination with a seat-back and back-reversing arms, of rocker G, seat-support F mounted to slide on said rocker, projections *a* on the arms engaging said rocker G at the front and rear of the seat for rocking the same, a pin-and-slot connection between one of the projections and the seat-support F for shifting the latter sidewise of the seat when the back is reversed, a rocking foot-rest having rest-bars *b*, and actuating connections between said foot-rest and the rocker, substantially as described.

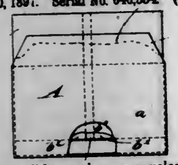
22. The combination with a shiftable seat-back, of rocker-bars G connected by tube 10, shaft 11 extending through said tube and mounted in the seat-frame, and connections for moving said rocker when the back is shifted, substantially as described.

23. The combination with a shiftable seat-back, of rocker-bars G connected by tube 10, shaft 11 extending through said tube and mounted in the seat-frame, sliding seat-support F on said bars, connections for moving said rocker when the back is shifted, and a rocking foot-rest mounted on said shaft and actuated by the rocker, substantially as described.

24. The combination with back C and back-reversing arms D having projections *a*, of rocker G engaged by the ends of the projections at the front and rear of the seat, and a sliding seat-support on said rocker having a slot connection with the projections, substantially as described.

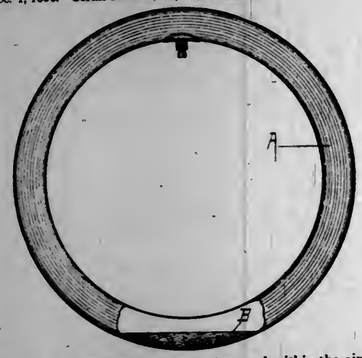
25. The combination with a seat-back and seat-reversing arms, of separate catches for engaging the respective arms to lock the seat-back in position when reversed for facing in either direction, levers 19 carrying said catches, and springs acting on said levers to press the catches into position to engage the arms permitting the rocking of the levers to release the catches, substantially as described.

596,435. EXTENSIBLE ENVELOP. ANNE MITCHELL, Atlanta, Ga. Filed July 30, 1897. Serial No. 646,554. (No model.)



Claim.—In an extensible envelop, an envelop proper and a wrapper having flaps on three of its edges adapted to fold over the central portion, and the part so formed adapted to be inserted in said envelop proper with either the central portion or the flaps toward the front of the envelop proper, and a flap on said envelop proper adapted to be adhered to said wrapper, for the purpose specified.

596,436. PNEUMATIC TIRE. JOSEPH G. MOOMY, Erie, Pa. Filed Dec. 1, 1896. Serial No. 614,042. (No model.)



Claim.—A pneumatic tire containing sand within the air-chamber said sand being free to move in said chamber.

596,437. PROCESS OF REFINING OIL. WILLIAM A. SMITH, Cleveland, Ohio. Filed Feb. 13, 1897. Serial No. 623,299. (No specimens.)

Claim.—1. In a process of refining refractory oils the following steps: introducing terpene into the oil or distillate to be refined, subjecting the mixture to heat, removing terpene, whereby the oil or distillate is rendered amenable to further treatment, substantially as set forth.

2. In a process of refining refractory oils the following steps: introducing terpene into the oil or distillate to be refined, subjecting the mixture to a temperature below the point of distillation, removing terpene, whereby the oil or distillate is rendered amenable to further treatment, substantially as set forth.

3. In an oil-refining process the following steps: introducing into the oil or distillate to be refined spirits of turpentine, or any one of the herein-named equivalents thereof, subjecting the mixture to heat, removing turpentine or equivalent substance, whereby the oil or distillate is rendered amenable to further treatment, substantially as set forth.

4. The process of treating oils for the elimination of sulfurous compounds, which consists in the application to the oil or distillate to be refined, of heat, and of a substance characterized by the formula $(C_5H_8)_n$, or any oxygen derivative of said substance, removing $(C_5H_8)_n$ or said derivative, whereby the oil or distillate is rendered amenable to further treatment, substantially as set forth.

5. The process of refining refractory oils, consisting in the introduction into the oil or distillate to be refined, of a terpene, subjecting the mixture to a temperature immediately beyond which distillation begins, permitting it to cool to a point of safety, subjecting it to a bath of sulfuric acid; after removal of the acid, washing with water, neutralizing any residue of acid therein, substantially as set forth.

6. A series of steps in refining refractory oils, consisting in introducing into the oil or distillate to be refined, a terebinthinate substance, subjecting the mixture to heat, removing terebinthinate substance, whereby the oil or distillate is rendered amenable to further treatment, substantially as set forth.

7. In a process of refining oils containing sulfurous compounds, the following steps: introducing into the oil or distillate, from which it is desired to remove or in which it is desired to subdue the sulfurous compounds, an oleoresinous substance or its product, subjecting the resultant mixture to a temperature approximating the point of distillation, removing the oleoresinous substance or its product, whereby the oil or distillate is rendered amenable to further treatment, substantially as set forth.

8. A step in a process of refining oils containing sulfurous compounds, consisting in introducing into the oil or distillate to be refined, exudations of the coniferæ or products thereof, heating the resultant mixture, allowing it to cool to the point of safety, removing therefrom said coniferous exudations, whereby the oil or distillate is rendered amenable to further treatment, substantially as set forth.

596,438. HAT-PIN RETAINER. JULES UHRY, New York, N. Y. Filed July 29, 1897. Serial No. 646,296. (No model.)



Claim.—1. The attachment for hats which consists of an annular bearing having attaching-means, an elastic bushing held within said bearing and a metallic pin-guiding sleeve fastened in the center of said elastic bushing to play universally therewith.

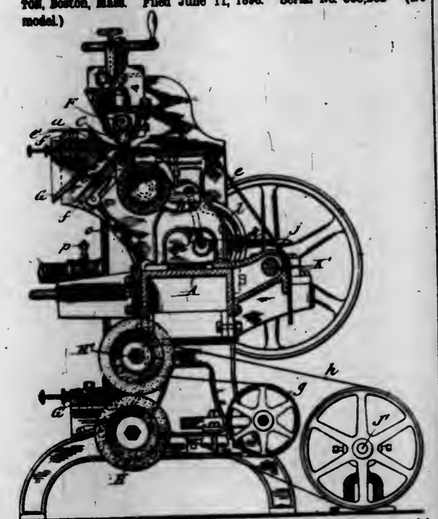
2. The attachment for hats which consists of an annular bearing having threaded attaching-studs to pass through the hat, ornamental nuts to screw on said studs outside the hat, an elastic bushing fixed within said bearing and a pin-guiding sleeve fastened in said bushing to play universally therewith.

596,439. TAKE-UP FOR CONTROLLING SLACK OF TROLLEY-ROPES. HOWARD E. ADT, New Haven, Conn., assignor of one-half to A. Havens Bowditch, same place. Filed May 10, 1897. Serial No. 635,766. (No model.)



Claim.—In a take-up device for controlling the slack of trolley-ropes, the combination with two spool-frame brackets permanently located upon the ends of a trolley-car, of a two-armed spool-frame adapted to be detachably connected with either one of the said brackets according to the direction in which the car is to be run, a non-rotatable spool-shaft mounted in the arms of the said frame, and formed with a longitudinal slot, a chambered spool mounted upon the said shaft so as to rotate thereupon and adapted to have the lower end of a trolley rope attached to it, a spring located within the chamber of the spool, and encircling the said spool-shaft, a collar located in the inner end of the said chamber, having the inner end of the spring connected with it, and mounted upon the inner end of the shaft upon which it has lateral but not rotary movement, and a removable disk-shaped plate secured to the outer end of the spool, affording a bearing for the outer end of the shaft, and having the outer end of the spring connected with it.

596,440. LEATHER-SPLITTING MACHINE. DANVILLE O. BARTON, Boston, Mass. Filed June 11, 1896. Serial No. 595,202. (No model.)



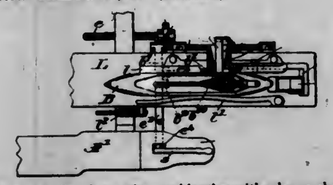
Claim.—1. In a leather-splitting machine, the combination with the gage-roll thereof, of a sectional roll located in advance of the gage-roll, means for adjusting said rolls with relation to each other, and a knife at the rear of the rolls, the said arrangement of the rolls permitting the edge of the knife to be carried to a vertical line passing through the center of the gage-roll.

2. In a leather-splitting machine, the combination with the feed-rolls thereof, of a cutting-knife therefor having its lower bevel cut at a greater inclination than the upper and extending forward to the axes of the rolls.

3. In a leather-splitting machine, the combination with the band-knife thereof, of sharpening means for said knife automatically operated by the machine, rolls to feed the leather to the knife, an inclined table to receive the lower strip of cut leather, said table having its upper edge pivotally connected to the frame of the machine, and having adjustable means connected with the lower edge of the table for adjusting the inclination of the same.

4. In a leather-splitting machine, the combination with the gage-roll thereof, of a sectional roll slightly in advance of the same, said sectional roll comprising a shaft, rigid collars thereon, rings to overlap said collars, and plates or guides to keep the rings in proper alinement.

596,441. LOOM. JOHN C. BROOKS, Paterson, N. J., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed June 3, 1897. Serial No. 639,222. (No model.)



Claim.—1. In a loom, the combination with a lay, a shuttle-box, a shuttle having a slot and provided with a filling-carrier having a depression, a feeler carried independently of the shuttle and arranged to enter the shuttle-slot and cooperate with the filling at or over the depression in the carrier, and means to operate the feeler, of stopping mechanism for the loom controlled by said feeler, substantially as described.

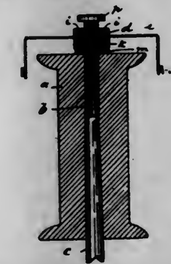
2. In a loom, the combination with a shuttle-box and shuttle containing a filling carrier, of a feeler carried independently of the said shuttle and arranged to cooperate with the supply of filling in the shuttle, means to operate the feeler, and means actuated by said shuttle to vary the location of the said feeler according to the final position which the said shuttle may reach, substantially as described.

3. In a loom, the combination with a lay, a shuttle-box, a shuttle, and its bobbin, of a filling-feeler, means to operate it, and a movable guide controlled by the shuttle, to vary the location of the feeler, substantially as described.

4. In a loom, the combination with a lay, a shuttle-box, and a shuttle containing a supply of filling, of a filling-feeler, means to operate it, stopping mechanism for the loom connected with and to be controlled as to its operation by said feeler, and means to limit the effective operation of the said feeler to the beats of the lay when the shuttle is at the end of the loom adjacent said feeler, substantially as described.

5. In a loom, the combination with a lay, a shuttle-box and shuttle, of a filling-feeler, means to operate it, stopping mechanism for the loom connected with and controlled by said feeler, and means to automatically render said feeler effectively inoperative during a part of the operation of the loom, substantially as described.

596,442. FLIER FOR SPINNING-MACHINES. FOWLER CURL, Avoca, Pa., assignor of two-thirds to the Ashley & Shaw Silk Company, Hackettstown, N. J. Filed June 25, 1897. Serial No. 642,225. (No model.)



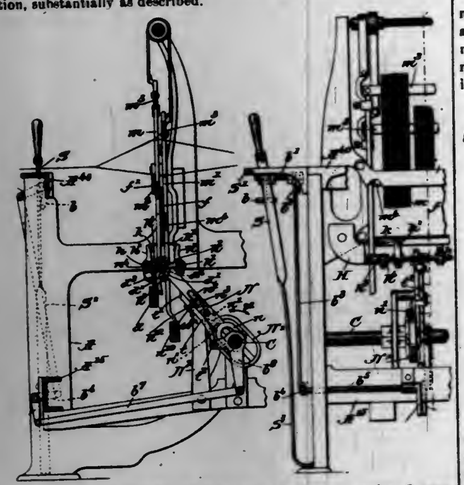
Claim.—1. The combination with a spinning-flier and with the hub carrying the same, of a hollow pin or peg penetrating the hub of the flier and provided with an annular flange for supporting the same and having its top portion internally threaded, a headed screw removably arranged in said internally-threaded portion of the pin or peg to limit the upward movement of the hub, and a spring-wire passing through the lower portion of the peg and having its projecting ends bent upward, all said parts, substantially as and for the purposes described.

2. The combination with a spinning-flier and its hub, of a hollow pin or peg penetrating the hub of the flier and provided with an annular flange supporting said hub, and below said annular flange, with two diametrical oppositely-arranged vertical grooves, and having its upper portion internally threaded, a headed screw removably arranged in said internally-threaded portion of the hollow pin or peg to limit the upward movement of the hub, and a spring passing through the lower portion of said hollow pin or peg and having its projecting ends bent upward and adapted to be partly engaged by said vertical grooves, substantially as and for the purposes described.

596,443. WARP-STOP-MOTION MECHANISM FOR LOOMS. FLORENCE M. DAY, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed July 9, 1897. Serial No. 643,933. (No model.)

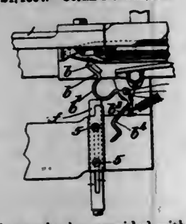
Claim.—1. In a warp-stop-motion mechanism for looms, a series of warp-controlled actuating-detectors, a cooperating feeler moved by gravity toward and stopped by a dropped detector, a rocker-arm rigidly connected with the feeler, a reciprocating actuator to engage said arm and positively move the feeler in the opposite direction, a dog pivotally mounted on the actuator, and having a tail to be engaged by said rocker-arm, to normally retain the dog inoperative, combined with stopping mechanism for the loom, including a bunter adapted to be engaged and moved by bodily movement of the dog when in operative position on the actuator, stoppage of the feeler effecting movement through said rocker-arm of the dog into operative position, substantially as described.

2. In a warp-stop-motion mechanism for looms, including warp-controlled actuating-detectors, a plurality of independently-mounted vibratable feelers moved by gravity toward and to be stopped by a dropped detector, a reciprocating actuator to positively move the feelers in the opposite direction, connections between the feelers, to effect their movement in unison, a gravity-dog pivotally mounted on the actuator, and a detent controlled by movement of the feelers, to normally hold said dog inoperative, stoppage of a feeler releasing said dog and permitting it to move into operative position on the actuator, combined with stopping means for the loom including a bunter to be engaged and moved by the dog when in operative position, substantially as described.



3. In a warp-stop-motion mechanism for looms, a series of warp-controlled actuating-detectors, a cooperating feeler moved by gravity toward and stopped by a dropped detector, a longitudinally-reciprocating actuator, a dog pivotally mounted thereon, and a detent movable in unison with the feeler, to normally hold the dog inoperative on the gravity-actuated stroke of the feeler, said detent being engaged by the actuator to positively move the feeler in the opposite direction, combined with stopping mechanism for the loom, including a bunter guided by and movable relatively to and adjacent said actuator, said bunter being in the path of the dog when in operative position due to stoppage of the feeler, whereby the return stroke of the actuator will, through the dog mounted upon it, effect movement of the bunter and stoppage of the loom, substantially as described.

596,444. LOOM. WILLIAM B. FITTS and PETER REILLY, Oakdale, Mass., assignors to the Draper Company, Portland, Me., and Hopedale, Mass. Filed June 21, 1897. Serial No. 641,600. (No model.)



Claim.—1. In a loom, the lay provided with a shuttle-box, and yielding means to normally act to engage and insure the proper positioning of the shuttle in the shuttle-box, said means yielding when the location of the shuttle precludes positioning thereof, substantially as described.

2. In a loom, the lay provided with a shuttle-box, a positioning device to normally engage and insure the proper position of the shuttle in the shuttle-box, and actuating means therefor, including a yielding member, whereby stoppage of movement of said device by abnormal location of the shuttle may occur without breakage of the parts, substantially as described.

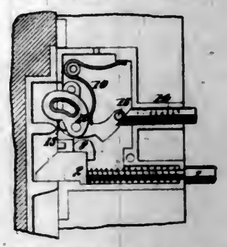
3. In a loom, the lay provided with a shuttle-box, a device to normally engage and insure proper positioning of the shuttle in the shuttle-box, and controlling means for said device, including a yielding bunter, substantially as described.

4. In a loom, the lay provided with a shuttle-box, a device to normally insure proper positioning of the shuttle in the shuttle-box, and a yielding and a fixed bunter to normally act successively upon and operate said device, the yielding bunter receding when the position of the shuttle prevents the operation of the positioning device, substantially as described.

5. In a loom, the lay provided with a shuttle-box, a device to normally engage and insure proper positioning of the shuttle in the shuttle-box, a spring to move said device into inoperative position, and actuating means for the positioning device, comprising a fixed and a yielding bunter, substantially as described.

6. In a loom, the lay provided with a shuttle-box, a device to normally insure proper positioning of the shuttle in the shuttle-box, and controlling means, including a yielding member, to positively move said positioning device under normal conditions, the yielding member acting when the positive movement of the positioning device is prevented, substantially as described.

596,445. SASH-FASTENER. GEROLT GIBSON, St. Louis, Mo. Filed Feb. 23, 1897. Serial No. 624,581. (No model.)



Claim.—1. A sash-lock consisting of a reciprocating bolt having one end adapted to enter the keeper and having its other end projecting through the casing and provided with means for retracting the same, and a detaining device adapted to engage said reciprocating bolt when retracted, said detaining device having a cam-shaped piece projecting outwardly beyond the edge of the keeper and adapted to cooperate therewith whereby, when the sash is moved, said cam-shaped piece cooperates with the keeper to release the reciprocating bolt, substantially as and for the purpose set forth.

2. A sash-lock consisting of a locking device, a detaining device for holding the same in its retracted position and a loose pawl pivoted on said detaining device and adapted to ride idly over the teeth of the keeper-rack in one direction and to cooperate automatically with the keeper-rack to release said detaining device when moved in the opposite direction, substantially as and for the purpose set forth.

3. A sash-lock consisting of a locking device, a detaining device for holding the same in its retracted position and a pawl upon said detaining device and adapted to ride idly over the teeth of the keeper-rack in one direction and to cooperate automatically with the keeper-rack to release said detaining device when moved in the opposite direction, substantially as and for the purpose set forth.

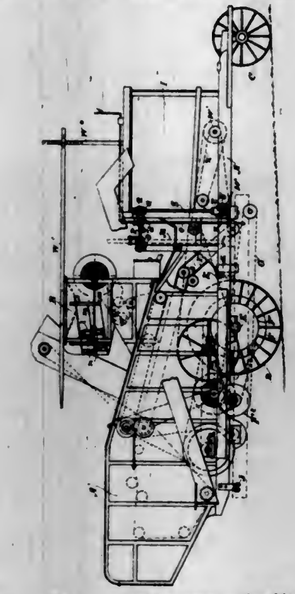
4. A sash-lock consisting of a locking device, a pivoted detaining device for holding the same in its retracted position and a pawl on said detaining device and adapted to ride idly over the teeth of the keeper-rack in one direction and to cooperate automatically with the keeper-rack to release said detaining device when moved in the opposite direction, said detaining device also having a bearing-surface near its free end, and a push-bolt reciprocating through the casing and adapted to cooperate with said bearing-surface, substantially as and for the purpose set forth.

5. A sash-lock consisting of a reciprocating spring-pressed bolt furnished with a finger-piece extending through the casing and having a shoulder, a detent whose free end is arranged to engage said shoulder when the bolt is retracted farther than is necessary for it to clear the keeper, and a rounded pawl pivoted on said detent and extending beyond the edge of the keeper, substantially as and for the purpose set forth.

6. A sash-lock consisting of a reciprocating spring-pressed bolt furnished with a finger-piece extending through the casing and having a shoulder, a detent whose free end is arranged to engage said shoulder when the bolt is retracted farther than is necessary for it to clear the keeper, and a rounded pawl pivoted on said detent and extending beyond the edge of the keeper, said detent also having a bearing surface near its free end and a push-bolt reciprocating through the casing and adapted to cooperate with said bearing-surface, substantially as and for the purpose set forth.

7. A sash-lock consisting of a reciprocating spring-pressed bolt furnished with a finger-piece extending through the casing and having a shoulder, a detent whose free end is arranged to engage said shoulder when the bolt is retracted farther than is necessary for it to clear the keeper, and a rounded pawl pivoted on said detent and extending beyond the edge of the keeper and a spring having one end bearing against said pawl nearly in line with its pivot and having its other end bearing against a fixed surface, substantially as and for the purpose set forth.

596,446. COMBINED HARVESTER. BENJAMIN HOLT, Stockton, Cal. Filed Nov. 25, 1895. Serial No. 570,012. (No model.)



Claim.—1. In a combined harvester, a threshing and cleaning mechanism, a single centrally-journaled bearing-wheel and a front steering-wheel approximately in line therewith upon which the machine is supported, a header-frame having a bearing-wheel at the outer end, an arm extending inwardly from the header-frame and pivoted in front of and approximately in line with the bearing-wheel, and a second hinge connecting the rear of the frame with the rear portion of the threshing-machine, in combination with an inclined arm having the lower end hinged to the header-frame and the upper end connected with a mechanism whereby it may be lengthened or shortened with relation to its connection with the header, and the threshing-machine correspondingly tilted to one side or the other.

2. In a combined harvester, the header-frame having the outer ends supported upon a bearing-wheel, a threshing-machine frame having a centrally-journaled bearing-wheel and a steering-wheel approximately in line therewith at the front, hinged arms whereby the header-frame is connected with the threshing-machine frame in a line which extends approximately through the center of the threshing-machine frame, a rack-bar hinged to the header-frame extending diagonally across the upper part of the threshing-machine, a shaft journaled upon the threshing-machine frame, a pinion fixed upon the shaft engaging the teeth of the rack-bar and a mechanism whereby the shaft may be rotated so as to move the rack-bar and tilt the threshing-machine upon its wheel-base in either direction with relation to the header-frame.

3. In a combined harvester, a header-frame and threshing-machine hinged together upon a line approximately central longitudinally through the threshing-machine frame, a single bearing-wheel upon which the outer end of the header-frame is supported, a single bearing-wheel journaled centrally beneath the threshing-machine frame, and a steering-wheel in front approximately in the same line of travel with the bearing-wheel a rack-bar hinged at one end to the header-frame extending diagonally across the threshing-machine, a pinion fixed upon a horizontally-rotatable shaft and engaging the rack-bar, a second pinion fixed upon the said shaft engaging with a worm or screw upon a vertical shaft journaled to the side of the threshing-machine, and gearing whereby said shaft is rotated in either direction to act upon the rack-bar and tilt the threshing-machine to one side or the other with relation to the header-frame.

4. In a combined harvester, the header-frame and the threshing-machine frame hinged together in a line which passes approximately through the center of the threshing machine frame, a single bearing-wheel by which the outer end of the header-frame is supported, a bearing and a steering wheel approximately centrally journaled with relation to the threshing-machine frame, a rack-bar having the lower end hinged to the header-frame, the opposite end extending across the threshing-machine, a pinion fixed to a horizontally-rotatable shaft engaging the rack-bar so that rotation in either direction will lengthen or shorten the rack-bar and correspondingly tilt the threshing-machine frame upon its wheel-base with relation to the header-frame, a second pinion fixed to the rotatable shaft, a worm-gear or screw fixed to a vertical shaft and engaging said pinion, a bevel gear-wheel fixed to its lower end and pinions engaging opposite sides of said gear with a clutch-coupling whereby either of said pinions may be thrown into or out of engagement so as to reverse the rotation of the gear and the connected shafts.

5. In a combined harvester, a header-frame and a threshing-machine frame hinged together on a line approximately through the center of the threshing machine frame, a bearing-wheel upon which the outer end of the header-frame is supported, a single bearing-wheel journaled approximately central beneath the threshing-machine, and a steering-wheel in line therewith upon which the front end of said frame is supported and a rigid shaft or bar, the lower end connected with the header-frame and the upper end extending over the upper part of the threshing-machine, and a mechanism whereby said bar may be lengthened or shortened with relation to its attachment to the header-frame, and the threshing-machine frame tilted to one side or the other.

6. In a combined harvester, a header-frame and threshing-machine frame hinged together upon a line central with the threshing-machine frame, as shown, a single bearing-wheel upon which the outer end of the header-frame is supported, a bearing and steering wheel in line beneath the central portion of the threshing-machine upon which it is supported and about which it may be tilted with relation to the header-frame, a mechanism consisting of a bar connected with the header-frame extending over the threshing-machine, and means whereby said bar may be lengthened or shortened to tilt the threshing-machine upon its wheel-base to one side or the other with relation to the header-frame, a mechanism by which said operation is effected and a means for ultimately disengaging said mechanism and throwing it out of gear.

7. A header and a threshing-machine frame hinged together, said threshing-frame supported upon a single line of bearing-wheels, a bar hinged to the header-frame extending across the threshing-machine frame, a pinion engaging said bar and mounted upon a horizontally-rotatable shaft, a mechanism by which said shaft is rotated in one direction or the other, a clutch-coupling whereby the reversal of motion is effected, a bell-crank lever by which said coupling is actuated to engage and operate the gearing in either direction, a rod connecting therewith, a plate having offsets upon opposite sides, a worm gear revolving horizontally across the front of said plate, a guiding-tongue extending from the plate between the threads of the worm whereby the latter travels to one side or the other with relation to the plate, and lugs projecting from opposite ends of the worm adapted to engage either one or the other of the offsets when the worm has reached the end of its travel, whereby the clutch-lever is actuated to throw its pinion out of gear.

8. In a combined traveling harvester, a connected header, and thresher and separator, a cleaning mechanism hinged transversely upon the upper part of the threshing-machine, and capable of a movement about its hinge in the direction of travel of the machine only, an arm fixed to the cleaner extending at right angles with the hinge and a locking device with which it engages.

9. In a combined harvester, a cleaning mechanism having oscillating shoes containing cleaning screens and sieves, pitmen extending from said shoes outwardly, connecting-rods extending from the outer ends of the pitmen to an eccentric-shaft by which they are actuated, and brace-rods extending from the meeting angle of the pitmen and connecting-rod to a stationary adjustable support about which the motion takes place and by which the extent of the throw is regulated.

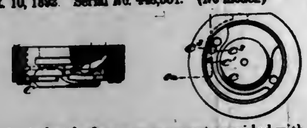
10. In a combined harvester, in which the threshing-machine has a single line of bearing-wheels, a mechanism flexibly connecting the header and thresher, whereby the header is tilted independently about a single axial line extending longitudinally within the line of the threshing-machine frame.

11. In a combined harvester, a threshing-machine with a single line of bearing-wheels longitudinally disposed with relation to it, a header having a wheel-support for its outer end, and a flexible connecting mechanism between the thresher and the header, whereby the latter may be adjusted about a longitudinal axial line interior to the threshing-machine.

12. A harvester consisting of a header supported substantially parallel with the ground, a thresher mounted on a single longitudinal

line of wheels, connections between the header and thresher frames to permit them to change their positions relative to each other and means for adjusting the thresher relative to the header so that it may maintain a horizontal position without regard to the position of the header when traveling over sloping ground.

596,447. SEWING-MACHINE. WILLIAM A. MACK, Norwalk, Ohio, assignor to the Standard Sewing Machine Company, of Ohio. Filed Oct. 10, 1893. Serial No. 448,331. (No model.)



Claim.—1. A shuttle frame or casement provided with a needle-opening and raceway therein, and also with a groove extending from the needle-opening lengthwise of the wall of the raceway and across the latter, substantially as and for the purpose set forth.

2. The combination in a sewing-machine, of a frame having a circular shuttle-race and provided with an opening for the passage of the needle and with a groove extending at an angle across said race from the needle-opening to a point in the rear of the race and below said needle-opening, and a looper having its thread-engaging end formed with an inner rearwardly-tapered edge extending at an angle to said groove in the race, whereby, as the looper moves across said groove, it will cooperate with one edge of the same, in a manner substantially as described and for the purpose set forth.

3. A sewing-machine provided with a frame having a circular shuttle-race and a raised rib forming the rear wall of the latter, said rib having a tapered edge, as c^3, and a looper provided with a depression or opening formed wholly within its rear side thereof and lying partially within the outer edge of the rear wall of said race in order that its edge may coact with the said tapered edge c^3, and also serve as a continuous discharge-passage from the rear of the race, substantially as described and for the purpose set forth.

596,448. LOOM. JAMES H. NORTHROP, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed June 18, 1897. Serial No. 641,270. (No model.)



Claim.—1. In a loom, the lay slotted longitudinally for the ejection therethrough of a filling-carrier from the shuttle, the picker-stick movable in the slot, and a guide-chute for the filling-carrier, rigidly supported on the lay below the slot and having an upwardly-extended portion beyond and crossing the inner end of the path of the picker-stick, substantially as described.

2. In a loom, the longitudinally-slotted lay to permit the passage therethrough of an ejected filling-carrier from the shuttle, a chute-support rigidly attached to and offset from the lay below said slot, an inclined guide-chute secured to said support, and a cushion for the picker-stick held between the support and the adjacent portion of the lay, substantially as described.

3. In a loom, the lay, a filling guide-chute for an ejected filling-carrier, a support for said chute, rigidly attached to the lay, at the front of the picker-stick path, and an integral and a detachable friction-guide for the picker check strap, carried by said support, substantially as described.

4. In a loom, a longitudinally-slotted lay, the picker-stick movable in the slot thereof, and a fixed guide-chute for an ejected filling-carrier, mounted on the lay below the slot, said chute being extended upward and across the inner end of the path of the picker-stick and outwardly extended in front of the latter, to present a large guiding-surface, substantially as described.

596,449. CAR-TRUCK. RICHARD W. OSWALD, Bloomsburg, Pa. Filed Mar. 3, 1897. Reissued Dec. 6, 1897. Serial No. 660,985. (No model.)

Claim.—1. In a car-truck the combination with a bolster, of side frames comprising bars having a horizontal member and one or more vertical ribs or webs forming arch-bars for supporting said bolster and pedestals formed between the ends of the said bars, substantially as described.

2. In a car-truck the combination with a bolster, of side frames formed of bars having a horizontal member and one or more vertical webs forming arch-bars, a bolster consisting of parallel I-beams, braces consisting of horizontal I-beams interposed between said parallel I-beams and gusset-plates interposed between the bolster and the said side frames, substantially as described.

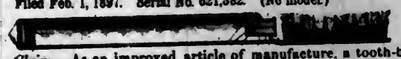
6. In a car truck the combination of upper and lower irons having a horizontal member and one or more vertical webs forming arch-bars, braces interposed between their end portions, a bolster secured between the said arch-bars, and gusset-plates interposed between the arch-bars and the bolster for bracing the same and keeping the truck in true and pedestals formed in the side frames, substantially as described.

7. In a car-truck the combination of side arch-bars forming side frames, pedestals formed between the ends of the said side arch-bars, a bolster secured between the said arch-bars at each end, the ends of the said bolster extending beyond the side bars, and gusset-plates interposed between said extended portions of the bolster and the said arch-bars for bracing the truck, substantially as described.

8. In a car-truck the combination with a bolster, of bars having a horizontal member and one or more vertical webs forming arches for supporting said bolster, the ends of said bars being bent so as to form downwardly extending pedestals to receive the journal-boxes, journal-boxes adapted to work in said pedestals, springs mounted upon said journal-boxes and spring-caps having guiding-flanges interposed between said springs and the side frames, substantially as described.

9. In a car-truck, the combination with a bolster, of side frames, each formed of a bar having a horizontal member and one or more vertical webs and a channel-bar, riveted together near their ends, and pedestals formed between the ends of the said bar and the said channel iron for engaging the journal-boxes, substantially as described.

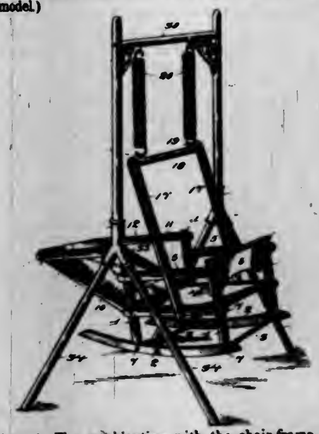
596,450. TOOTH-BRUSH. FRED S. ALLEN, Valparaiso, Nebr. Filed Feb. 1, 1897. Serial No. 621,382. (No model.)



Claim.—As an improved article of manufacture, a tooth-brush comprising a tubular handle having an extension formed integral with and projecting from one end thereof, a brush proper secured to or formed upon said extension, a cylindrical valve-casing formed integral with and projecting into the end of the handle adjacent to the brush, said casing being provided with internal screw-threads and

having openings in its inner end adjacent to the sides thereof, a plug-valve having external screws-threads adapted to fit within the valve-casing and engage the threads thereof, said valve having a boss upon its rear end and a central longitudinal aperture extending therethrough, and a rubber gasket fitting upon said boss and of substantially the same diameter as the body of the valve, said gasket being adapted to close the openings in said casing, substantially as and for the purpose described.

596,451. COMBINED BABY-JUMPER AND ROCKING-CHAIR. ARTHUR M. BABCOCK, Muncie, Ind., assignor to Charles O. Glascock and John W. Glascock, same place. Filed Apr. 17, 1896. Serial No. 588,007. (No model.)



Claim.—1. The combination with the chair-frame, comprising the horizontal longitudinal braces forming the arms of the chair, of spaced cleats secured to the inner surfaces of said braces or arms, and a tray having its ends removably fitted between said cleats and provided with a guard the ends of which are normally interposed between the front ends of said cleats and the front standards of the frame, the said tray being adapted to be removed and replaced by springing said braces or arms apart, substantially as described.

2. A combined baby jumper and chair consisting of a chair-frame having rear standards extended above the seat, the back pivotally connected to the chair-frame at or near the plane of the seat, braces pivoted to the upper end of the rear standard and provided with longitudinal slots, clamping devices connected to the chair-back and working in said slots, whereby the angle of the chair-back may be changed, uprights attached at the sides of the chair-frame and having an upper cross-bar, springs connected to the cross-bar and to a suitable support, substantially as described.

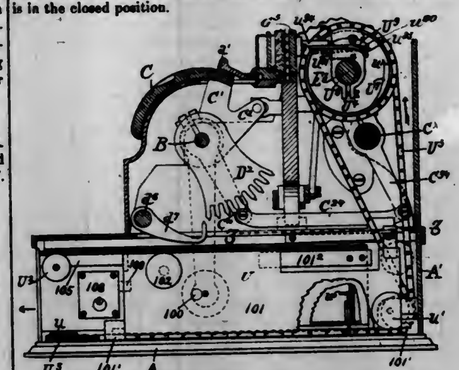
3. A portable, knockdown supporting-frame for baby-jumpers, comprising spaced standards, a cross-bar detachably connected to their upper ends, a Y-coupling for each standard consisting of a vertical sleeve portion into which the lower end of the standard fits loosely, and two downwardly diverging sleeves or thimbles, the bores of which intersect each other and the bore of the vertical sleeve, and legs or braces loosely fitted at their upper ends into the diverging sleeves in such manner that the inner end of the braces and the standard all meet at a common point and form stops for each other, substantially as described.

596,452. LOCKING MECHANISM FOR CASH-REGISTERS. EMORY A. BEDIENT, Rochester, N. Y., assignor to the Rochester Cash Register Company, same place. Filed Nov. 6, 1896. Serial No. 611,257. (No model.)

Claim.—1. In a cash-register having a setting mechanism, an operating-lever and a cash-drawer opened by said lever, the combination of a lock normally projecting into the path of said lever, and means for preventing the removal of said lock from the path of said lever except when the drawer is in the closed position.

2. In a cash-register having a setting mechanism, an operating-lever and a cash-drawer opened by said lever, the combination of a lock normally projecting into the path of said lever and means controlled by the drawer for preventing the removal of said lock from the path of said lever except when the drawer is in the closed position.

3. In a cash-register having a setting mechanism, an operating-lever and a cash-drawer, the combination of a lock normally projecting into the path of said lever, manually-operated means for removing said lock from the path of said lever and means for preventing the actuation of said manually-operated means except when the drawer is in the closed position.



4. In a cash-register having a setting mechanism, an operating-lever and a cash-drawer, the combination of a lock normally projecting into the path of said lever, manually-operated means for removing said lock from the path of said lever, and means controlled by the drawer for preventing the actuation of said manually-operated means except when the drawer is in the closed position.

5. In a cash-register, the combination of a setting mechanism, a crank, and a cash-drawer opened by the movement of the crank, a locking device normally projecting into the path of the crank, a manually-operated device for removing said locking device from the path of the crank which is prevented from operation by the drawer except when the drawer is in its closed position.

6. In a cash-register, the combination of a setting mechanism, a crank, and a cash-drawer opened by the movement of the crank, a locking device normally projecting into the path of the crank, and a manually-operated device for removing said locking device from the path of the crank which is held from operation by the drawer while the drawer is open to any degree, but when the drawer is closed, permits a portion of said manually-operated device to enter a socket in said drawer and to remove the locking device from the path of the crank.

7. In a cash-register, a driver, a movable part operated in one direction by the driver but starting after the driver has moved a predetermined distance from initial position, a stop for said movable part, a driver-stop normally in the path of the driver, means for moving the first-mentioned stop into the path of said movable part while the latter is stationary in its initial position and for moving the driver-stop out of the path of the driver, means for automatically moving said first stop out of the path of said movable part and said driver-stop into the path of the driver when the driver has passed its stop and has moved said predetermined distance, and means for retaining the driver-stop in the path of the driver while the movable part is out of its initial position.

8. In a cash-register, a driver, a sliding part operated in one direction by the driver but starting after the driver has moved a predetermined distance from its initial position, a stop for said sliding part, a driver-stop normally in the path of the driver, means for moving the first-mentioned stop into the path of said sliding part while the same is stationary and in its initial position and for moving the driver-stop out of the path of the driver, means for automatically moving said stop out of the path of said sliding part and said driver-stop into the path of the driver when the driver has passed its stop and has moved said predetermined distance, and means for retaining the stop in the path of the driver while the movable part is out of its initial position.

9. In a cash-register, a driver, a cash-drawer operated in one direction by the driver but starting after the driver has moved a predetermined distance from initial position, a drawer stop, a driver-stop normally in the path of the driver, means for moving the drawer-stop into the path of said cash-drawer while the latter is stationary in its initial position and for moving the driver-stop out of the path of the driver means for automatically moving said drawer-stop out of the path of said cash-drawer and the driver-stop into the path of the driver when the driver has passed its stop and has moved said predetermined distance, and means for retaining the stop in the path of the driver while the drawer is out of its initial position.

10. In a cash-register a series of setting mechanisms, a rotary crank for the registering mechanism, a cash-drawer opened by the operation of said crank but remaining at rest in its closed position until said crank has moved a predetermined distance, a pin projecting

into the path of movement of said crank, a drawer-pin projecting into the path of said drawer when the first-named pin has moved out of the path of the crank, means for simultaneously moving said pins into and out of the path of the drawer and out of and into the path of the crank, means for automatically removing said last-named pin from the path of the drawer and for moving the first-named pin into the path of the crank, and means brought into action by the movement of the drawer for retaining said first-named pin in the path of the crank while the drawer is open to any degree.

11. In a cash-register having a setting mechanism, an operating-lever and a cash-drawer opened by said lever, the combination of a lock normally projecting into the path of said lever, means for preventing the removal of said lock from the path of said lever except when the drawer is in the closed position and provided with a looking device releasable by movement of a part of said setting mechanism.

12. In a cash-register having a setting mechanism, an operating-lever and a cash-drawer opened by said lever, the combination of a lock normally projecting into the path of said lever, means controlled by the drawer for preventing the removal of said lock from the path of said lever except when the drawer is in the closed position and provided with a looking device releasable by movement of a part of said setting mechanism.

13. In a cash-register having a setting mechanism, an operating-lever and a cash-drawer, the combination of a lock normally projecting into the path of said lever, manually-operated means for removing said lock from the path of said lever, means for preventing the actuation of said manually-operated means except when the drawer is in the closed position, and a locking device for said manually-operated means releasable by movement of a part of said setting mechanism.

14. In a cash-register having a setting mechanism, an operating-lever and a cash drawer, the combination of a lock normally projecting into the path of said lever, manually-operated means for removing said lock from the path of said lever, means controlled by the drawer for preventing the actuation of said manually-operated means except when the drawer is in the closed position, and a locking device for said manually-operated means releasable by movement of a part of said setting mechanism.

15. In a cash-register, the combination of a setting mechanism, a crank, and a cash-drawer opened by the movement of the crank, a locking device normally projecting into the path of the crank, a manually-operated device for removing said locking device from the path of the crank which is prevented from operation by the drawer except when the drawer is in its closed position, and a locking device for said manually-operated means releasable by movement of a part of said setting mechanism.

16. In a cash-register, the combination of a setting mechanism, a crank, and a cash-drawer opened by the movement of the crank, a locking device normally projecting into the path of the crank, and a manually-operated device for removing said locking device from the path of the crank which is held from operation by the drawer while the drawer is open to any degree, but, when the drawer is closed, permits a portion of said manually-operated device to enter a socket in said drawer and to remove the locking device from the path of the crank, and a locking device for said manually-operated means releasable by movement of a part of said setting mechanism.

17. In a cash-register, a driver, a movable part operated in one direction by the driver but starting after the driver has moved a predetermined distance from initial position, a stop for said movable part, a driver-stop normally in the path of the driver, means for moving the first-mentioned stop into the path of said movable part while the latter is stationary in its initial position and for moving the driver-stop out of the path of the driver, means for automatically moving said first stop out of the path of said movable part and said driver-stop into the path of the driver when the driver has passed its stop and has moved said predetermined distance, means for retaining the driver-stop in the path of the driver while the movable part is out of its initial position, a series of setting mechanisms for the register and means for retaining the driver-stop in the path of the driver releasable by the operation of a particular setting mechanism.

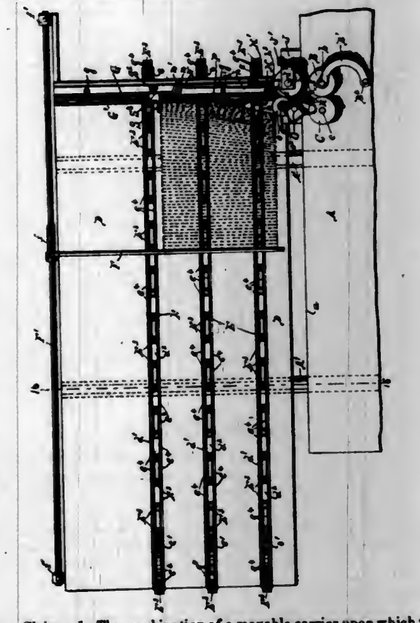
18. In a cash-register, a driver, a cash drawer operated in one direction by the driver but starting after the driver has moved a predetermined distance from initial position, a drawer stop, a driver-stop normally in the path of the driver, means for moving the drawer-stop into the path of said cash-drawer while the latter is stationary in its initial position and for moving the driver-stop out of the path of the driver, means for automatically moving said drawer-stop out of the path of said cash-drawer and the driver-stop into the path of the driver when the driver has passed its stop and has moved said predetermined distance, means for retaining the stop in the path of the driver while the drawer is out of its initial position, a series of setting mechanisms for the register and means for retaining the driver-stop in the path of the driver releasable by the operation of a particular setting mechanism.

19. In a cash-register, a series of setting mechanisms, a rotary crank for the registering mechanism, a cash-drawer opened by the operation of said crank but remaining at rest in its closed position until said crank has moved a predetermined distance, a pin projecting into the path of movement of said crank, a drawer-pin projecting into the path of said drawer when the first-named pin has moved out of the path of the crank, means for simultaneously moving said pins into and out of the path of the drawer and out of and into the path of the crank, means for automatically removing said last-named pin from the path of the drawer and for moving the first-named pin into the path of the crank, means brought into action by the movement of the drawer for retaining said first-named pin in the path of the crank while the drawer is open to any degree, and a bolt for retaining the first-mentioned pin in the path of the crank, which bolt is released by the movement of a particular setting mechanism.

20. In a cash-register, a series of setting mechanisms, a rotary crank H^4 geared to a driving-shaft E^3, a cash-drawer opened by the rotation of the crank and having a rail 105 and a socket 107 on its side, and a rocking plate 101 having a pin 100 normally in the path of the crank, and a pin 106 movable into the socket 107 only when the drawer is fully closed, said pin 106 being held outward by the rail 105 when the drawer is open to any degree thereby holding the pin 100 in the path of the crank.

21. In a cash-register, a series of setting mechanisms, a rotary crank H^4 geared to a driving-shaft E^3, a cash-drawer opened by the rotation of the crank and having a rail 105 and a socket 107 on its side, a rocking plate 101 having a pin 100 normally in the path of the crank, and a pin 106 movable into the socket 107 only when the drawer is fully closed, said pin 106 being held outward by the rail 105 when the drawer is open to any degree and a bar 200 moved by the plate, a movable part C^{36} of one of the setting mechanisms in the path of movement of the bar and preventing its movement by the plate to remove the pin 100 from the path of the crank until said setting mechanism is moved out of the path of the bar.

596,453. STACKER. AUGUST BERTRAM, New York, N. Y., assignor, by mesne assignments, to De Forest Settle, receiver of the International Postal Supply Company, same place. Filed Jan. 29, 1892. Serial No. 419,629. (No model.)



Claim.—1. The combination of a movable carrier upon which the articles are stacked, a movable contact-piece projecting into the path of said articles for making contact therewith, and connections between said carrier and contact-piece, whereby the contact-piece controls the action of the carrier, substantially as described.

2. The combination of a movable carrier normally at rest upon which the articles are stacked, mechanism for operating said carrier, a movable contact-piece projecting into the path of said articles for making contact therewith, and connections between said mechanism and the contact-piece for operatively connecting said mechanism to the carrier, substantially as specified.

3. The combination of mechanism for feeding the articles to be stacked, a movable carrier upon which the articles are stacked, a movable contact-piece projecting into the path of said articles for making contact therewith, and connections between said carrier and contact-piece, whereby the contact-piece controls the action of the carrier, substantially as set forth.

4. The combination of conjointly-operating rollers for successively feeding letters or analogous articles, and a movable carrier upon which the articles fed by the rollers are stacked; of a movable contact-piece projecting into the path of said articles for making contact therewith, and connections between said carrier and contact-piece, whereby the contact-piece controls the action of the carrier, substantially as and for the purpose set forth.

5. The combination of mechanism for feeding the articles to be stacked, a movable carrier normally at rest upon which the articles are stacked, continuously-operating mechanism for actuating the carrier, a contact-piece projecting into the path of said articles for making contact therewith, and connections between the continuously-operating mechanism and the contact-piece for intermittently connecting said mechanism with the carrier, substantially as specified.

6. The combination of conjointly-operating feeding-rollers for the articles to be stacked, a portion of the face of one roller being arranged in advance of the corresponding portion of the face of the other roller, a carrier upon which the articles are stacked, a movable contact-piece projecting into the path of said articles for making contact therewith, and connections between said carrier and contact-piece, whereby the contact-piece controls the action of the carrier, substantially as described.

7. The combination of a movable carrier for the articles to be stacked, a movable contact-piece projecting into the path of said articles for making contact therewith, connections between said carrier and contact-piece, whereby the contact-piece controls the action of the carrier, and a guard for holding the stacked articles away from the contact piece, substantially as specified.

8. The combination of a movable carrier for the articles to be stacked, a movable contact-piece projecting into the path of said articles for making contact therewith, connections between said carrier and contact piece, whereby the contact-piece controls the action of the carrier, and an adjuster for varying the movement of said contact piece, substantially as set forth.

9 The combination of a movable carrier for the articles to be stacked, a movable contact-piece projecting into the path of said articles for making contact therewith, connections between said carrier and contact-piece, whereby the contact-piece controls the action of the carrier, and a second contact-piece for making contact with said articles and resetting the former contact-piece, substantially as described.

10. The combination of a movable carrier for the articles to be stacked, a movable contact-piece projecting into the path of said articles for making contact therewith, connections between said carrier and contact-piece, whereby the contact-piece controls the action of the carrier, and a guide, as R, for conducting the articles to said contact-piece, substantially as specified.

11. The combination of a movable carrier normally at rest upon which the articles are stacked, mechanism for operating said carrier, a movable contact-piece projecting into the path of said articles for making contact therewith, connections between said mechanism and the contact-piece for operatively connecting said mechanism to the carrier, and a second movable contact-piece for making contact with said articles and resetting the former contact-piece, substantially as set forth.

12. The combination of a movable carrier for the articles to be stacked, a movable contact-piece projecting into the path of said articles for making contact therewith, an engaging face movably mounted in proximity to the path of said articles and movable outwardly therefrom by the passage of thick articles, and connections between said carrier, contact-piece, and engaging face, whereby the contact-piece and engaging face control the action of the carrier, substantially as described.

13. The combination of a movable carrier for the articles to be stacked, a pivoted lever having separated engaging faces for alternately projecting into the path of said articles, and connections between said carrier and lever, whereby the lever controls the action of the carrier, substantially as set forth.

14. The combination of a movable carrier for the articles to be stacked, a pivoted lever having separated engaging faces for alternately projecting into the path of said articles, connections between said carrier and lever, whereby the lever controls the action of the carrier, and a guard interposed between said engaging faces of the lever for forcing the preceding article from the advancing end of the succeeding article, substantially as described.

15. The combination of a movable carrier for the articles to be stacked, a pivoted lever provided with rollers at its opposite extremities for alternately projecting into the path of said articles, an adjuster for varying the amount of projection of one of said rollers, and connections between said carrier and lever, whereby the lever controls the action of the carrier, substantially as specified.

16. The combination of a movable carrier for the articles to be stacked, a pivoted lever provided with rollers at its opposite extremities for alternately projecting into the path of said articles, a spring for throwing one of the rollers into the path of said articles, an adjuster for varying the amount of projection of said roller, and connections between said carrier and lever, whereby the lever controls the action of the carrier, substantially as and for the purpose set forth.

17. The combination of a movable carrier for the articles to be stacked, a revoluble shaft in proximity to the carrier, a wheel for operating the carrier, a movable dog for actuating said wheel, a cam on the revoluble shaft for operating the dog, a contact-piece projecting into the path of said articles for making contact therewith, and connections between said dog and contact-piece for forcing the dog into operative position, substantially as described.

18. The combination of a movable carrier for the articles to be stacked, a revoluble shaft in proximity to the carrier, a wheel for operating the carrier, a movable dog for actuating said wheel, a cam on the revoluble shaft for operating the dog, a contact-piece projecting into the path of said articles for making contact therewith, connections between said dog and contact-piece for forcing the dog into operative position, and a second contact-piece for encountering the mail-matter and resetting said dog, substantially as specified.

19. The combination of a movable carrier for the articles to be stacked, a revoluble shaft in proximity to the carrier, a wheel for operating the carrier, a movable dog for actuating said wheel, a cam on the revoluble shaft for operating the dog, a lever for holding said dog out of engagement with the wheel, a contact-piece projecting into the path of said articles for making contact therewith, and connections between said lever and contact-piece for rocking the lever and permitting the dog to engage the wheel, substantially as described.

20. The combination of a movable carrier for the articles to be stacked, a wheel for operating the carrier, a movable dog for actuating said wheel, a sliding support for moving the dog, an engaging face arranged in proximity to the path of said articles, and connections between the sliding support and the engaging face for operating said sliding support, substantially as specified.

21. The combination of a movable carrier for the articles to be stacked, a revoluble shaft in proximity to the carrier, a wheel for operating the carrier, a movable dog for actuating the wheel, a cam on the revoluble shaft for operating the dog, a contact-piece projecting into the path of said articles for controlling the operation of the dog, an engaging face arranged in proximity to the path of the mail-matter for operating said dog to partially rotate the wheel, and connections between the movable dog and said contact-piece and engaging face, whereby the contact piece and engaging face control the action of the movable dog, substantially as set forth.

22. The combination with a table having projecting guides and mechanism supported on said table for feeding the articles to be stacked; of a table or tray for receiving the articles discharged from the feeding mechanism and provided with ways for receiving the guides of the former table, and a carrier movable longitudinally along the table or tray and having its upper face projecting above the corresponding face of said table or tray for feeding the articles along the same, substantially as specified.

23. The combination with mechanism for feeding articles edgewise; of a wall along which the articles are fed, a guard on said wall for forcing the previously-stacked articles from the wall to permit entrance of the succeeding article behind the former one, and a shoulder projecting from said wall for supporting the lower edge of the letters, substantially as and for the purpose set forth.

24. The combination with mechanism for feeding the articles to be stacked, a table or tray for receiving the articles discharged from the feeding mechanism, a wall along which the articles are fed provided with a projecting shoulder arranged directly beneath the path of said articles for supporting the lower edges thereof, and a carrier movable in a plane in close proximity to said shoulder for feeding said articles, substantially as described.

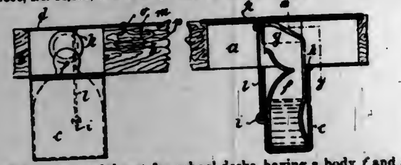
25. The combination of mechanism for feeding marked articles edgewise; of a wall along which the articles are fed provided with a recess or groove arranged opposite to the path of the part of the article bearing the freshly-impressed mark or stamp for preventing smearing of said mark, substantially as and for the purpose specified.

26. The combination of mechanism for feeding the articles to be stacked, a support for the lower edges of said articles, a carrier for feeding the articles along said support, a contact-piece projecting into the path of said articles for making contact therewith, and connections between said carrier and contact-piece, whereby the contact-piece controls the action of the carrier, substantially as specified.

27. The combination of mechanism for feeding the articles to be

stacked, an inclined support for said articles, a carrier arranged beneath said support, a contact-piece projecting into the path of said articles for making contact therewith, and connections between said carrier and contact-piece, whereby the contact piece controls the action of the carrier, substantially as described.

596,454. INK-POT FOR SCHOOL-DESKS. LUDWIG BORN, Berlin, Germany. Filed Sept. 25, 1896. Serial No. 607,009. (No model.) Patented in Germany July 10, 1891, No. 61,595; Mar. 25, 1892, No. 65,170, and June 28, 1892, No. 66,192; in Switzerland May 15, 1896, No. 12,482; in Belgium May 16, 1896, No. 121,387; in Austria May 16, 1896, No. 46/2,709; in Hungary May 19, 1896, No. 6,906; in England May 22, 1896, No. 11,159, and in Italy June 3, 1896, No. 41,724.

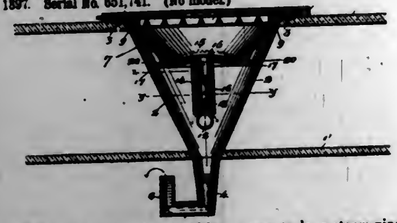


Claim.—1. An ink-pot for school-desks having a body *f* and a laterally-arranged neck *g*, separated partially from said body by an indentation as specified, means for supporting said pot pivotally in the desk-well, a cover hinged to the said well and means for connecting said pivoted ink-pot to the well-cover so as to throw the same into a horizontal position with the neck opening upward when the cover of the well is opened substantially as described.

2. The combination of an ink-pot having a body *f* and a neck *g* separated partially from said body by an indentation, a casing pivotally suspended in the ink-well of the desk in which the body of the ink-pot fits, a cover to the ink-well of the desk and means for turning said casing and ink-pot into a horizontal position when the said cover is opened substantially as described.

3. The combination of an ink-pot having a body *f* and laterally-arranged neck *g* separated partially from said body by means of an indentation as specified, a casing pivotally suspended in the ink-well of the desk, into which said body of the ink-pot fits, a cover to the ink-well of the desk and a rod connecting the lower part of the ink-pot casing to the interior surface of the cover in the manner and for the purpose substantially as described.

596,455. CAR-SPITTOON. ISIDORE J. COCAYNE, St. Louis, Mo., assignor of one-half to Peter Strebler, same place. Filed Sept. 15, 1897. Serial No. 651,741. (No model.)

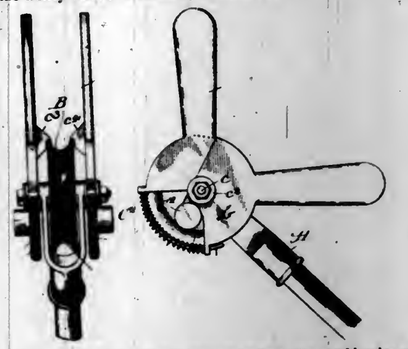


Claim.—1. A spittoon comprising a receptacle, a steam-pipe in communication with the interior of said receptacle and means located within the latter, and adapted to be actuated by the pressure of steam for directing the steam through the outlet of the receptacle, substantially as set forth.

2. A spittoon comprising a suitable receptacle, a pipe in communication with the bottom of the same, a horizontal extension 5, leading from said pipe, an upwardly-turned end leading from said horizontal extension a conical deflector located within the receptacle, a grate covering the deflector, a steam-pipe passing through the receptacle a short pipe leading from said steam-pipe and located within the receptacle, a tubular extension loosely passed over the short pipe leaving a suitable space and a piston carried by the tubular extension and adapted to come in contact with the lower edge of the deflector.

596,456. TROLLEY FOR ELECTRIC-RAILWAY CARS. EDWARD COHN, Chicago, Ill., assignor of one-third to Rudolph G. Meyer, same place. Filed Dec. 11, 1896. Serial No. 615,256. (No model.)

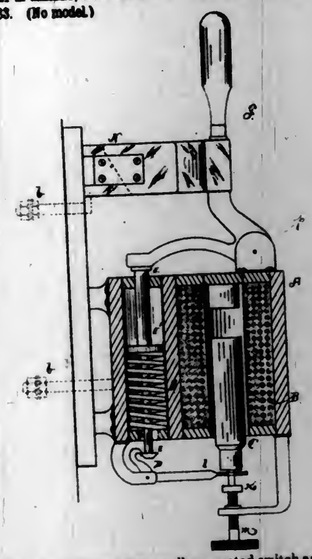
Claim.—1. In mechanisms of the class described, the combination of a trolley-pole provided with a rotatable trolley-wheel at the upper end thereof, substantially V-shaped guards at each side of the trolley-wheel and means for holding one of the wings of the substantially V-shaped guards in substantially vertical position, above the surface of the trolley-wheel, substantially as described.



2. In mechanisms of the class described, the combination of a trolley-pole provided with a rotatable trolley-wheel at the upper end thereof, guard mechanism pivotally mounted at each side of the trolley-wheel and having substantially vertical and horizontal portions independently and pivotally mounted, means for normally holding such portions in their vertical and horizontal positions, and spring mechanism for keeping them in their closed position and permitting a separation of the parts when obstructions are met, substantially as described.

3. In mechanisms of the class described, the combination of a trolley-pole provided with a rotatable trolley-wheel at the upper end thereof, guard mechanism pivotally mounted at each side of the trolley-wheel and made in two portions independently and pivotally mounted, one portion being held in a vertical position and the other in a horizontal position, a weight for normally holding the parts in such positions, helical coiled springs to hold the parts in their closed position, permit a separation thereof and force, at certain times, the horizontal part into a vertical position, or substantially so, and inclined lugs on the inner surface of the guard mechanism to assist in returning the trolley-wire into engagement with the trolley-wheel, substantially as described.

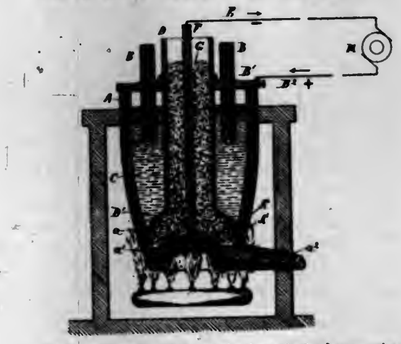
596,457. COMBINED MANUAL AND AUTOMATIC SWITCH. ROBERT L. HAILEY, New York, N. Y. Filed Sept. 27, 1897. Serial No. 653,183. (No model.)



Claim.—1. A combined manually-operated switch and automatic circuit-breaker comprising a spring-actuated member adapted when it is released, to throw a switch, an electromagnetic releasing device having connection to the spring-actuated member and adapted to release the same at a predetermined pressure of current, and a switch to be thrown by the said released spring-actuated member that is located above the electromechanical apparatus, and that is adapted to be freely moved by hand to open and close the circuit without tripping, releasing, or making operative the said electromechanical apparatus.

2. The frame A, containing the solenoid B, with its plunger C, the piston E, in cylinder E', with the actuating-spring S, the latching device D, connecting through lever *l*, with the plunger C, and the freely-moving switch F, adapted to move on its pivoted bearing *p*, independent of the releasing of piston E, the whole arranged and operating substantially as shown and described.

596,458. PROCESS OF AND APPARATUS FOR EXTRACTING METALS FROM ORES. WALTER R. INGLIS, Mount Vernon, N. Y. Filed Apr. 20, 1896. Serial No. 588,291. (No model.)



Claim.—1. The within-described method of extracting metals from ores or compounds, consisting in electrically decomposing an electrolyte, comprising an agent of more electropositive character than that of the metal in the ore, or compound and causing the freed agent to displace the metal in the ore or compound, and afterward passing the reduced metal at a high temperature in contact with a body of untreated ore or compound to free it from residual traces of said agent, all substantially as, and for the purpose set forth.

2. An apparatus for electrically extracting metals, consisting of the combination of a crucible adapted to contain metallic compounds, an electrolyte, and refractory anodes B, means for retaining in the interior of the crucible, an extended surface of melted metal, elevated above the main portion of the bottom and forming the cathode, the rim A^2 being adapted to distribute the overflow so as to present to further unreduced ore, an extended surface of melted metal as it descends, and a receptacle for receiving the melted overflowings from the rim A^2, and provided with a plug substantially as, and for the purpose set forth.

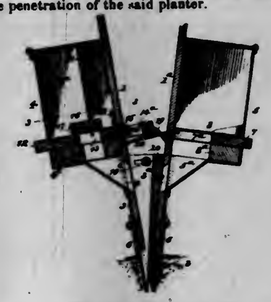
3. In apparatus for reducing metals by aid of electricity, the combination of a crucible and inclosing furnace, provisions for generating heat at the commencement of the operation, provisions for tapping out the reduced metals and for supplying more material, and a source of electricity, conductors therefrom, and electrodes B connected to serve as the anode, an elevated pool of melted metal *a* to act as the cathode, a wire E therefor, with its inclosing sheath F and a further inclosing cylinder D, having a flared lower flange D' all combined and arranged as set forth.

4. The process of extracting tin from a refractory ore, consisting in liberating from a fused sodium compound, by the action of an electric current, the sodium, and causing the freed nascent sodium to separate the tin without fusing said tin and finally collecting the tin.

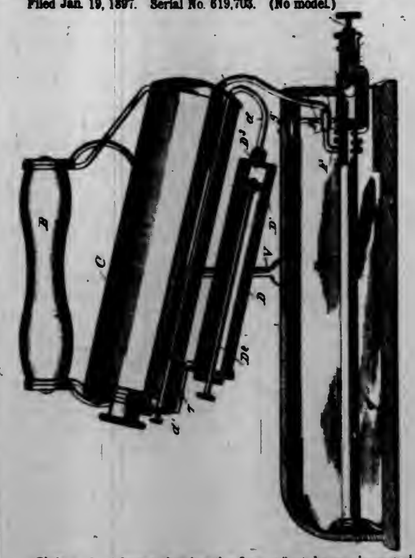
596,459. HAND PLANTER AND FERTILIZER-DISTRIBUTER. JAMES R. LANE, Gate City, Va., assignor of one-half to W. R. Taylor, same place. Filed July 15, 1897. Serial No. 644,640. (No model.)

Claim.—1. A combined hand planter and fertilizer-distributer, comprising two pivotally-connected members, 1 1^a, each of which has a hopper, and chutes attached to such hopper, discharging between the penetrating ends of the members 1 1^a, one of such hoppers having a detachable slide 21, whereby it is divided into two compartments, the slides 12 and 7, having their inner ends attached to the said members by means of rods, the slide 7 having a single opening 7^a, the slide 12 having two openings 13 and 14, having adjustable slides 15 and 14^a and the transverse piece 16, forming a seat for the slide 21, all being arranged substantially as shown and for the purposes described.

2 A combined hand planter and fertilizer-distributer, consisting of the two pivotally-connected members each of which is provided with a hopper, chutes attached to each hopper, one of the said hoppers being divided into compartments by means of a detachable plate, slides having their inner ends attached to the said members by means of rods, openings in said slides, an adjustable plate upon said slides adapted to regulate the size of the said openings, a transverse piece forming a seat for the said detachable plate adapted to form a covering for one of the said openings, and a guard provided with a foot adapted to limit the penetration of the said planter.



596,460. SMOOTHING-IRON. WILLIS MITCHELL, Malden, Mass. Filed Jan. 19, 1897. Serial No. 619,703. (No model.)

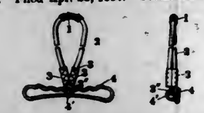


Claim.—1. A burner having the form of a tube or elongated cylinder and provided with perforations in longitudinal series and with an inlet at one end, in combination with a pipe for supplying inflammable fluid and means for discharging the said fluid in a state of ignition into the said burner through the said inlet, the said pipe being wound on the said burner at the inlet end for only a part of the length of the series of perforations to provide for automatic regulation of temperature substantially as set forth.

2. In combination with the hollow body of a smoothing-iron a burner within the same, a gasolene-coil wound on the said burner, a jet-block supplied by the said coil and discharging into the said burner, a fixed hook or point arranged to close partly or wholly the discharge-opening of the said jet-block, means for adjusting the said jet-block toward or from the said hook, a casing which incloses and guides the said jet-block and a coupling which connects the said casing to the said burner substantially as set forth

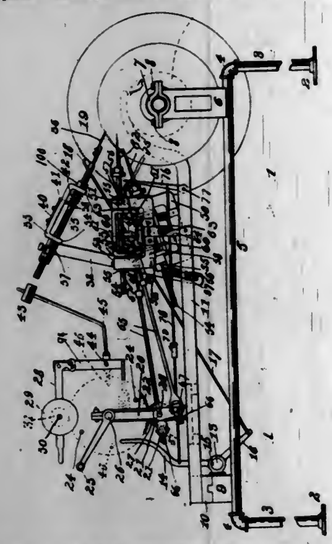
3. A gasolene-supply coil approximately one twenty-fourth of an inch in internal diameter, in combination with a hollow elongated burner having a longitudinal series of perforations, the said coil supplying the said burner at one end of the latter and being wound on the said burner at the inlet end for a part of the length of the said series of perforations, substantially as and for the purpose set forth.

596,461. GARMENT-HANGING LOOP. MARTIN C. SCHWABE, Chicago, Ill. Filed Apr. 23, 1897. Serial No. 633,431. (No model.)



Claim.—As an article of manufacture, a hanging-loop for garments, consisting of a flexible cord having a metallic facing on a limited portion thereof, at its hook-engaging part, a metallic eye 3 secured to the other end of the loop, and the member 4 having the loop 4' engaging said eye, for securing the loop to a garment, substantially as described.

596,462. GIN-SAW SHARPENING AND GUMMING MACHINE. JOHN J. SMITH, McDonough, Ga., assignor of one-half to Paul Turner, same place. Filed Sept. 14, 1896. Serial No. 562,548. (No model.)



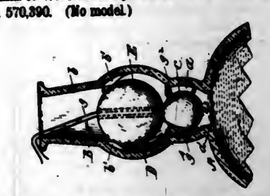
Claim.—1. In a gin-saw sharpening and gumming machine, the combination of a shaft, an arm carrying a hammer journaled on said shaft, a worm-gear loosely mounted on said shaft, a torsion-spring wound on said shaft and connected at one end with said arm and at the other end with said gear, and a means for turning said gear for varying the tension on said spring.

2. In a gin-saw sharpening and gumming machine, the combination of a shaft, an arm carrying a hammer journaled on said shaft, a worm-gear loosely mounted on said shaft, a torsion-spring wound on said shaft and connected at one end with said arm and at the other end with said gear, a worm meshing with said gear, and a means for turning said worm.

3. In a gin-saw sharpening and gumming machine, the combination of a support, a head carried by said support having two lugs projecting from the same and provided with a slot intermediate of said lugs, a chisel-carrying rod mounted in bearings formed in said lugs, means for driving said rod forward, a collar mounted on said rod to limit the forward movement of the same, a collar mounted on said rod intermediate of said lugs, a pin carried by said latter collar registering with the slot in said head, a retracting spring-operating on said rod, and a stop-plate adjustably mounted on said head to engage with said pin to regulate the distance that the said pin travels in said slot.

4. In a gin-saw sharpening and gumming machine, the combination of a support, a U-shaped shackle mounted on said support, a bearing-box pivoted to the end of one of the legs of said shackle, a bearing-box adjustably mounted on the end of the other leg of said shackle, a file-rod mounted in said bearing-boxes, means for reciprocating said file-rod, a horn mounted on said adjustable bearing-box, an operating-finger bearing on said horn, a yoke secured at its ends to said bearing-boxes and having a slot in the shape of a sigmoidal curve, and a pin carried by said file-rod and engaging with said slot.

596,468. BOTTLE. GEORGE W. TAYLOR, Quincy, Mass., assignor of one-half to Walter Jenney, Boston, Mass. Filed Nov. 29, 1895. Serial No. 570,390. (No model.)



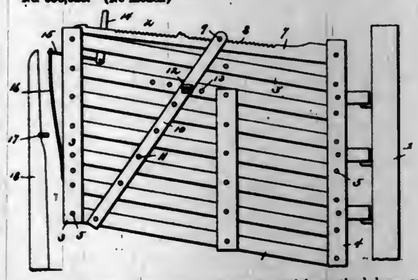
Claim.—1. As a means for holding the balls C, D in the upper part of their respective chambers *a*, D, a temporary wire holder having the ring-sections g^2 g^3, g^4 adapted to receive and hold the lowermost ball as specified, and a straight section arranged to pass through a hole in the upper ball B and connect both balls with the upper part of the neck and bottle, as and for the purposes described.

2. The combination with a bottle having a neck provided with two chambers or cavities D, *a*, of unequal size, and the side walls of which chambers or cavities are integral with said neck, the upper and larger chamber or cavity D having the inclines or ribs *b'* in its upper portion, of the valve and barrier balls C, E, of unequal size, in said chambers and a holder for temporarily attaching said balls to the upper part of said neck with the valve-ball lifted from its seat, said holder consisting of a wire having the connected ring-sections g^2, g^3 and g^4 to receive the lower ball and a straight portion or portions to pass through the upper ball; whereby the bottle may be filled, and whereby also, when the said temporary ball-holder has been removed, even partial refilling of the bottle will be prevented.

596,464. PROCESS OF MERCERIZING. CARL TUBBE, Augsburg, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed Sept. 9, 1897. Serial No. 651,111. (No specimens.)

Claim.—The process herein described of mercerizing vegetable tissues, which consists in padding the tissues with a mixture of alkaline lyes and colloidal agents, next subjecting said tissues to pressure, then rolling them up, and lastly washing them, substantially as set forth.

596,465. GATE. THOMAS R. WHITE, Pincastle, Va., assignor of one-half to Joseph B. Buhrman, Gala, Va. Filed Sept. 4, 1897. Serial No. 650,623. (No model.)

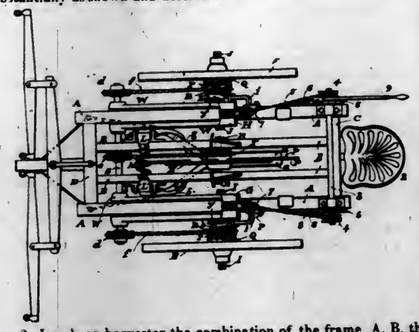


Claim.—1. In a gate, the combination with vertical bars and horizontal rails pivotally connected thereto, of a rack-bar pivoted at one end and extending longitudinally above the gate, and provided with two series of notches separated by a projection, and an oblique locking-bar pivoted at its lower end to the gate and provided with a transverse locking-pin designed to engage the notches upon the rack-bar, substantially as specified.

2. In a gate, the combination with the vertical bars and longitudinal rails pivoted thereto, of a longitudinally-disposed rack-bar terminally pivoted adjacent to the hinged end of the gate and provided with two series of notches separated by a toothed projection, an obliquely-disposed locking-bar pivoted at its lower end to the gate and provided with a transverse pin and designed to engage the notches in the rack-bar, and a securing-pin designed to engage an aperture in the locking-bar, and one of a series of apertures in one of the horizontal rails, substantially as specified.

596,466. BEAN-HARVESTER. WALLACE R. WOOD, Olivet, Mich., assignor of one-half to Earl C. Corey, same place. Filed July 2, 1896. Serial No. 597,879. (No model.)

Claim.—1. In a bean-harvester the combination of the frame, A B, the shoes, K L, said shoes being curved upward and parallal at their rear ends and being adapted to move toward and away from each other, and the spring, M, acting to force said shoes together, substantially as shown and described.



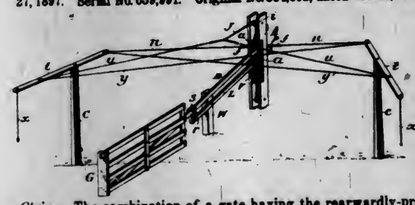
2. In a bean-harvester the combination of the frame, A, B, the shoes, K, L, pivoted to said frame and adapted to swing toward and from each other, the spring, M, acting to force said shoes toward each other, the wheel, N, having arms P, extending between said shoes and means for rotating said wheel substantially as shown and described.

3. In a bean-harvester the frame, A, B, a shaft, S, wheels, E, F, axles, I, J, the shoes, K, L, the wheel N, bearing in said frame and extending between said shoes, sprocket-wheels on said axles and said shaft, sprocket-chains connecting said sprocket-wheels, the wheel, N, being connected to said shaft by sprocket-gearing, substantially as and for the purpose described.

4. In a bean-harvester the frame, A, B, pivoted to a shaft S, the yokes, G, H, provided with arms, W, W, said arms being pivoted to said shaft, said frame being secured to said yokes by an adjustable attachment, shoes, K, and L, pivoted to said frame, the wheel, N, pivoted in said frame and extending between said shoes, said wheel being geared to said shaft, wheels, E, F, having axles, I, J, bearing in said yokes, said shaft being geared to said axles, substantially as shown and described.

REISSUES.

11,648. GATE. PHILEMON MARKLEY, Girard, Kans. Filed Nov. 27, 1897. Serial No. 659,991. Original No. 584,092, dated June 8, 1897.



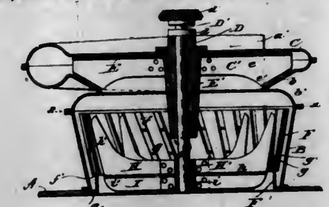
Claim.—The combination of a gate having the rearwardly-prolonged diagonal brace-bar B, with the lever L, pivoted upon the rear gate-post and provided with guide S, and roller *r*; a supplementary post carrying movable guides for brace B, and means connected with these guides for together operating both lever L, and the guides, all substantially as set forth.

11,644. CENTRIFUGAL GRAIN-SEPARATOR. FRANK F. LANDIS, Waynesborough, Pa. Filed Mar. 22, 1897. Serial No. 628,777. Original No. 551,498, dated Dec. 17, 1895.

Claim.—1. The combination with threshing mechanism, of separating mechanism consisting of an outer vertical case, a chamber within said case, a discharger beyond the discharge end of said chamber, a rotary reel or arms within said chamber, apertures in the sides of said chamber, and discharge-openings from said case for the grain, substantially as set forth.

2. A separator for threshing-machines consisting of a vertical case, a chamber therein, a discharger beyond the discharge end of said case, a rotary reel or arms in said chamber, a spreading-disk covering the greater portion of the entrance to said chamber, and openings for the discharge of the grain, substantially as set forth.

3. A separator for threshing-machines consisting of an outer vertical casing, a chamber therein, a discharger at the discharge end of said chamber, a shaft with a reel or arms within said chamber, a spreading-disk on said shaft at the entrance to said chamber, other arms carried by said shaft on the opposite side of said disk, and discharge apertures for the grain, substantially as set forth.



4. A separator for threshing-machines consisting of a vertical separating-chamber surrounded by a suitable casing, a discharger communicating therewith, separate means for whirling the straw around in said chamber, and openings for the discharge of the grain, substantially as set forth.

5. A separator for threshing-machines consisting of a vertical separating-chamber having an annular entrance near its periphery and a suitable casing surrounding said chamber, a discharger, and means for whirling around the straw within said chamber, substantially as set forth.

6. A separator for threshing-machines consisting of a vertical separating-chamber, a suitable casing surrounding the same, a discharger, and means for whirling around the straw within said chamber, which chamber is formed with grooves or corrugations in its sides extending in a direction across its height, substantially as set forth.

7. A separator for threshing-machines consisting of a vertical chamber, a casing surrounding it, a discharger connected therewith, means for whirling around the straw in said chamber, and inclined or spirally-arranged grooves or conveyers extending across the wall of said chamber in the direction of its height, substantially as set forth.

8. A separator for threshing-machines consisting of a vertical separating-chamber, a case surrounding said chamber, a discharger, separate means for whirling around the straw in said chamber, which chamber is made with tapered sides larger at its top than at its bottom, substantially as set forth.

9. A separator for threshing-machines consisting of a vertical separating-chamber having tapered perforated sides, a case surrounding said chamber, a discharger, and separate means for whirling around the straw in said chamber, substantially as set forth.

10. In a separator for threshing machines, the combination of the outer case, the separating-chamber therein, the discharger-casing beyond the discharge end of said separating-casing, the discharge-fan therein, means for whirling around the straw in said chamber, apertures for the discharge of the grain, and a curved or concave part *b'* connecting the top of the case with the entrance of the discharger-casing, which is formed smaller than the discharge end of the separating-chamber, substantially as set forth.

11. The combination, with the vertical grain-separating chamber having substantially upright grooves in its periphery and lateral openings for the passage of the grain, of means for whirling around the straw in said chamber, substantially as set forth.

12. The combination with the vertical grain-separating chamber having spirally-arranged substantially upright grooves in its periphery and lateral openings for the passage of the grain, of means for whirling around the straw in said chamber, substantially as set forth.

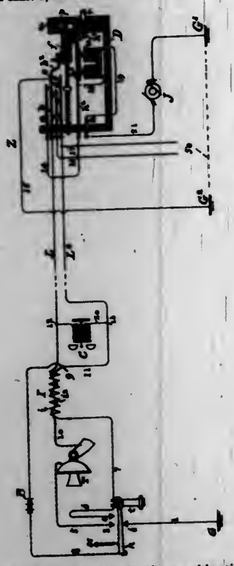
13. The combination, with a grain-separating chamber conical in form and larger at its upper end, said chamber being provided with substantially upright grooves in its periphery and having openings *f'* and *g* at the bottoms and at the lower ends of the grooves for the passage of grain; of means for whirling around the straw in said chamber, substantially as set forth.

14. The combination with a grain-separating chamber provided with substantially upright grooves in its periphery, and a mouthpiece below the said grooves having openings *f''* and *g;* of revoluble arms for whirling around straw in the said mouthpiece and in the said chamber, and a horizontal disk secured to said arms at the entrance to said chamber, substantially as set forth.

15. The combination, with a grain-separating chamber provided with substantially upright grooves in its periphery, and an inclosing case; of a concave portion secured to the top of the case and extending over the periphery of the said chamber, a discharger-casing above the said concave portion, a shaft journaled centrally of the said chamber, a discharger secured on said shaft in said casing, and

arms secured on the said shaft below the said discharger and operating to whirl around the straw in the said chamber, substantially as set forth.

11,645. SIGNALING-CIRCUIT. JOSEPH J. O'CONNELL, Chicago, Ill., assignor, by mesne assignments, to the Western Electric Company, same place. Filed Oct. 20, 1897. Serial No. 655,866. Original No 555,707, dated Mar. 3, 1896.



Claim.—1. In an electric circuit, the combination of a high-resistance signaling instrument connected therewith, a signal-current generator, a key or circuit-changer controlling the said generator and adapted to connect it with the said circuit, an automatic locking device for the said key adapted to hold the same in operative position, means for strengthening the said signaling-current after the signal has been received, consisting of a normally open branch circuit of relatively low resistance associated in parallel with the said signaling instrument and a switch for closing the same, to reduce the circuit resistance, and a releasing-electromagnet associated with the said key and adapted to unlock the same, the said magnet being irresponsive to the normal signaling-current, but responsive to the same when strengthened by the closure of the low-resistance branch, substantially as described.

2. An electric circuit connecting two stations, provided at the first station with a circuit-changing and self-locking call-key, a low-resistance key-releasing electromagnet, and a generator of call-currents; and at the second station with a high-resistance call-receiving apparatus in a bridge between the conductors of the circuit, and a relatively low-resistance communicating apparatus in a normally open branch parallel with the said call-receiving apparatus between the said conductors whereby the key having been locked as described may be released automatically, upon the closure of the normally open parallel circuit shunting the call-receiving apparatus, and the consequent strengthening of the call-currents, substantially as described.

3. In a telephone-circuit connecting a central station, with a substation, the combination of a circuit-changing and self-locking call-key, a generator of signaling-currents and a low-resistance lock-controlling electromagnet in the circuit of said generator placed at the former station; with a high-resistance call-bell connected between the circuit main conductors, a normally open branch circuit containing the station-telephones, in parallel with the said bell branch, and of relatively low resistance, and an automatic telephone-supporting switch controlling the said open branch and adapted on the removal of the telephone from its support to close the same, at the latter station, whereby the call-current is sent to line and the key locked on the operation of the said key at one station, and whereby the said electromagnet is excited and the key released, when the telephone is taken from its support at the other station, substantially as and for the purpose specified.

4. The combination of a telephone-circuit extending between two stations; a closed call-bell branch and a normally open telephone branch constituting paths of high and low resistance respectively between the main-circuit conductors, and a switch holding the low-resistance branch closed or open according to its position, at one of the said stations; and a call-generator, a key controlling the same, and when operated adapted to connect it with the circuit, a lock or detent adapted to hold the said key in operation, and a releasing-electromagnet interposed in the generator-circuit at the other of said stations; the said magnet being wound or adjusted to be irresponsive to the current of the generator when the switch at the first station is in its high-resistance position, but to become responsive thereto, release the key and disconnect the generator when strengthened by the transfer of the said switch to its low-resistance position.

5. The combination of an electric circuit and a key which when manipulated disconnects the normal terminal connections of the circuit-conductors and connects one of the said conductors with one end of a call branch, including an electric generator and an electromagnet, and at the same time connects the other side or conductor of the circuit with the opposite end of the said call branch; means for locking the key; and means for both automatically and manually releasing the same.

6. The combination of an electric circuit with a key which when manipulated disconnects the normal terminal devices of the circuit-conductors and connects one of the said conductors with a grounded call branch, including an electric generator, and an electromagnet and at the same time connects the other side or conductor of the circuit with the ground: means for automatically locking the key when it is manipulated, means for automatically releasing it from a distance, and means associated with the said key also for manually releasing the same.

DESIGNS.

28,087. SHOE-HEEL. NOSA SANDERS, Reading, Pa. Filed June 23, 1897. Serial No. 641,996. Term of patent 7 years.



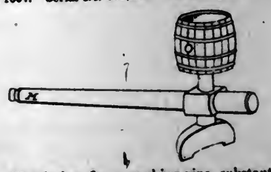
Claim.—The design for a shoe-heel, substantially as shown and described.

28,088. BOX. SIMON WEILLER, New York, N. Y. Filed Aug. 6, 1897. Serial No. 647,377. Term of patent 7 years.



Claim.—The design for a box for feather-stitch and other braids herein shown and described.

28,089. SMOKING-PIPE. CHARLES ROELFS, Buffalo, N. Y. Filed Sept. 27, 1897. Serial No. 653,264. Term of patent 7 years.



Claim.—The design for a smoking-pipe, substantially as herein shown and described.

28,090. BUCKLE. FREDERIC M. SIMONS, Philadelphia, Pa., assignor to himself, John F. Simons, and Thomas Maddock, same place, and Edward S. Simons, Orange, N. J. Filed Apr. 24, 1897. Serial No. 633,312. Term of patent 3½ years.



Claim.—The design for a buckle substantially as described and shown.

28,091. SPOON. FRANK E. LADD, Springfield, Mass. Filed Sept. 23, 1897. Serial No. 653,379. Term of patent 7 years.



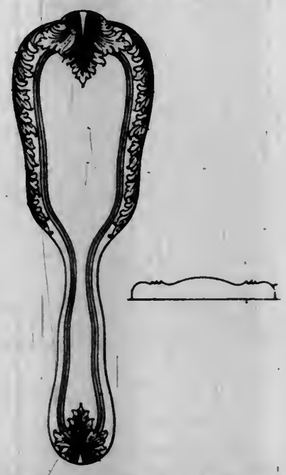
Claim.—The design for a spoon as herein shown and described.

28,092. HANDLE FOR SPOONS. GILBERT L. CROWELL, Jr., Arlington, N. J., assignor to the Dominick & Haff, New York, N. Y. Filed Nov. 5, 1897. Serial No. 657,574. Term of patent 14 years.



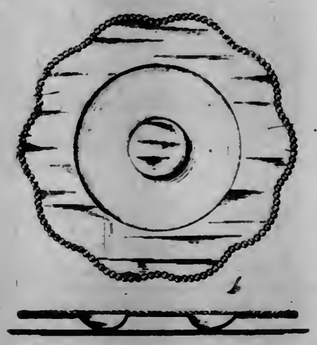
Claim.—The design for a handle for a spoon or similar article, substantially as herein shown as described.

28,093. BACK FOR BRUSHES. GILBERT L. CROWELL, Jr., Arlington, N. J., assignor to the Dominick & Haff, New York, N. Y. Filed Nov. 5, 1897. Serial No. 657,575. Term of patent 14 years.



Claim.—The design for the back of a brush or similar article, substantially as shown and described.

28,094. PLATE OR SIMILAR ARTICLE. LOUIS WOJIDKOW, Brooklyn, N. Y. Filed Oct. 20, 1897. Serial No. 655,858. Term of patent 3½ years.



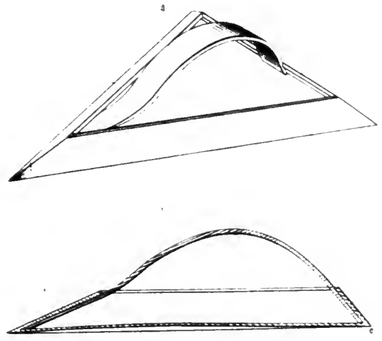
Claim.—The design for a plate or similar article, substantially as herein shown and described.

28,095. BUCKET. EMMA T. MILLS, Cortland, N. Y. Filed Nov. 10, 1897. Serial No. 658,100. Term of patent 7 years.



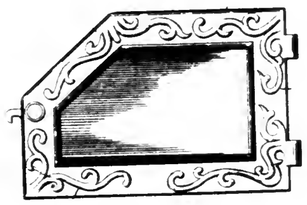
Claim.—The design for a bucket, substantially as herein shown and described.

28,096. STOVE-BRUSH. CLARA E. WATSON, Exeter, N. H. Filed Aug. 3, 1897. Serial No. 646,981. Term of patent 14 years.



Claim.—The design for a stove-brush as herein shown and described

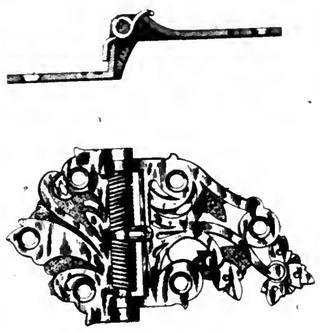
28,097. STOVE-DOOR. FREDERICK JOSEPH OTIS, Apollonia, Wis. Filed May 7, 1897. Serial No. 635,594. Term of patent 14 years.



c

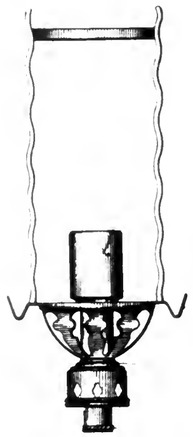
Claim.—The design for a stove-door as herein shown and described.

28,098. HINGE. GEORGE L. LOBSITZ, Newark, N. J., assignor to the Ranney Refrigerator Company, Greenville, Mich. Filed Oct. 22, 1897. Serial No. 656,101. Term of patent 14 years.



Claim.—The design for a hinge, herein shown and described.

28,099. INCANDESCENT-GAS-BURNER FIXTURE. ERNST LINDNER, Brooklyn, N. Y. Filed Nov. 15, 1897. Serial No. 658,644. Term of patent 7 years.



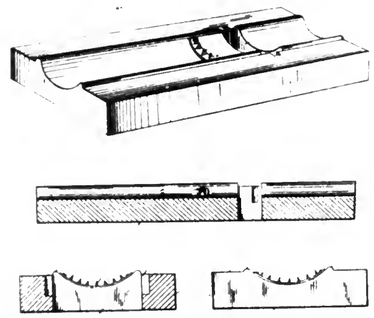
Claim.—The design for an incandescent-gas-burner fixture substantially as shown

28,100. BURNER FOR LANTERNS. JAMES WM. DEARING, Brooklyn, N. Y. Filed Nov. 2, 1897. Serial No. 657,210. Term of patent 7 years.



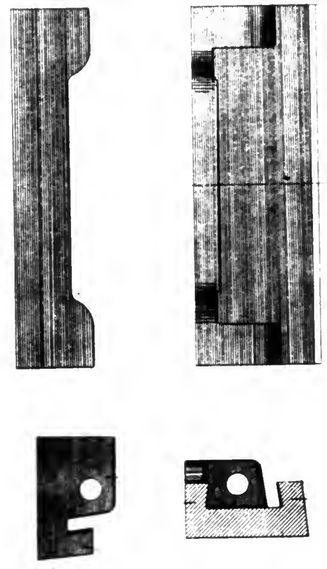
Claim.—The design for a burner for lanterns herein shown and described

28,101. CORN-PULPER. FRANK F. SHILLING, Tiro, Ohio, assignor of one-half to Adolph Lehmann, Moorefield, Ohio. Filed Nov. 11, 1897. Serial No. 658,213. Term of patent 14 years.



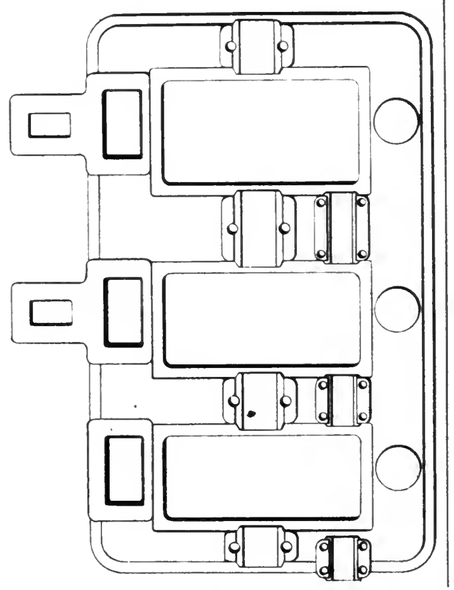
Claim.—The design for a corn-pulper, substantially as herein shown and described

28,102. DIE-SHOE. FREDERIC C. BILLINGS, Hartford, Conn., assignor to the Billings & Spencer Company, of Connecticut. Filed Nov 2, 1897. Serial No. 657,222. Term of patent 7 years.

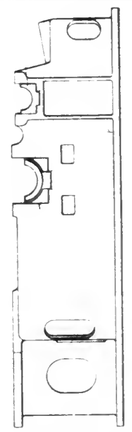


Claim.—The design for a die shoe herein shown and described.

28,103. BED-PLATE FOR STEAM-ENGINES. HORACE SEE, New York, N. Y. Filed Aug. 25, 1897. Serial No. 649,535. Term of patent 14 years.



28,103.



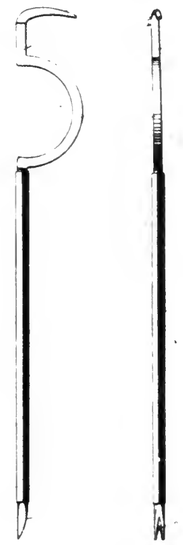
Claim. The design for a bed-plate for a steam-engine, substantially as herein shown and described

28,104. BOLSTER. THOMAS GORMAN, Warren, R. I., assignor of one-half to Frank Hall Brown, Warwick, R. I. Filed Mar. 19, 1896. Serial No. 583,976. Term of patent 14 years.



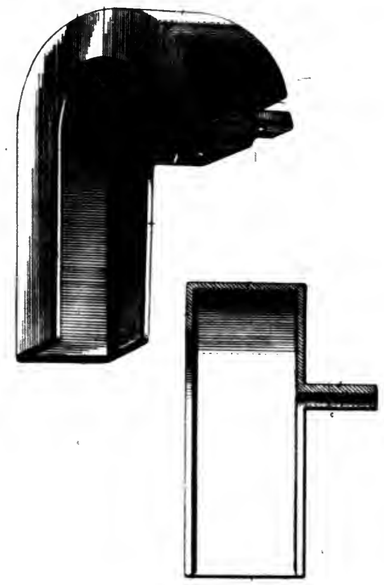
Claim.—The design for a bolster substantially as shown and described.

28,105. WIRE-STRETCHING TOOL. JAMES LEEROY CATES, Senatobia, Miss. Filed Sept. 18, 1897. Serial No. 652,195. Term of patent 14 years.



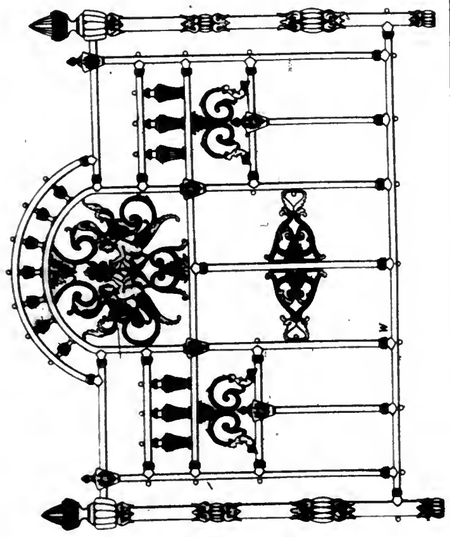
Claim. The design for a wire-stretching tool herein shown and described.

28,106. AWNING-GUARD. CHARLES G. ROGERS, Philadelphia, Pa. Filed Nov. 15, 1897. Serial No. 658,646. Term of patent 7 years.



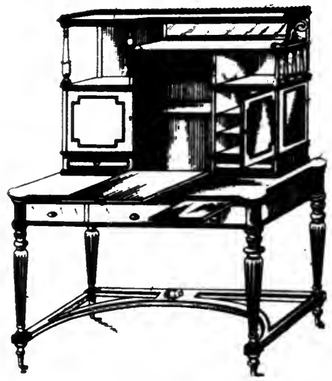
Claim.—The design for an awning-guard substantially as shown and described.

28,107. HEADBOARD OR FOOTBOARD FOR BEDSTEADS. HARRY WARD, Newark, N. J., assignor to Oscar E. A. Wiessner, Brooklyn, N. Y. Filed Nov. 16, 1897. Serial No. 658,761. Term of patent 3½ years.



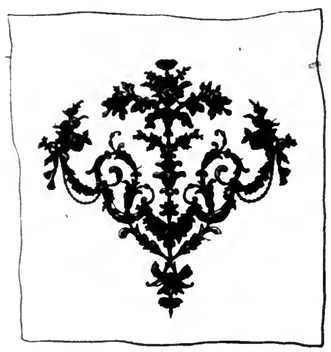
Claim.—A design for a headboard or footboard of a bedstead, substantially as herein shown and described.

28,108. TYPE-WRITER CABINET. JAMES B. HAMMOND, New York, N. Y. Filed Nov. 19, 1897. Serial No. 659,201. Term of patent 7 years.



Claim.—The design for a type-writer cabinet substantially as shown.

28,109. WALL-PAPER. ARTHUR MARTIN, Paris, France. Filed Oct. 26, 1897. Serial No. 656,468. Term of patent 7 years.



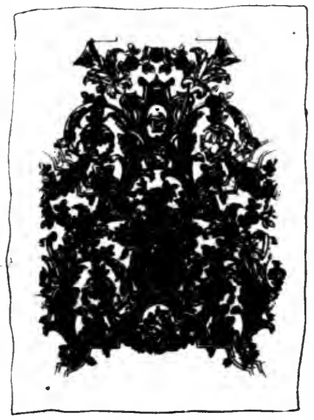
Claim.—The design for wall-paper herein shown and described.

28,110. WALL-PAPER. ARTHUR MARTIN, Paris, France. Filed Oct. 26, 1897. Serial No. 656,469. Term of patent 7 years.



Claim.—The design for wall-paper herein shown and described.

28,111. WALL-PAPER. ARTHUR MARTIN, Paris, France. Filed Oct. 26, 1897. Serial No. 656,470. Term of patent 7 years.



Claim.—The design for wall paper herein shown and described.

28,112. CASKET. LEO STEIN, New York, N. Y., and WILLIAM A. SPARKS, Hoboken, N. J., assignors to the National Casket Company, Hoboken, N. J. Filed Mar. 20, 1897. Serial No. 628,532. Term of patent 7 years.



Claim.—The design for a casket, substantially as shown and described.

TRADE-MARKS

REGISTERED DECEMBER 28, 1897.

31,040. REMEDIES FOR ALL KNOWN DISEASES. MUNYON'S HOMŒOPATHIC HOME REMEDY COMPANY, Philadelphia, Pa. Filed Sept. 2, 1897.

MUNYON'S

Essential feature.—The words "MUNYON'S HOMŒOPATHIC HOME REMEDIES." Used since January 1, 1892.

31,041. REMEDIES FOR KIDNEY AND URINARY COMPLAINTS. THE DR. CHASE CO., Philadelphia, Pa. Filed Aug. 31, 1897.

DR. CHASE'S
Kidney Food

Essential feature.—The words "DR. CHASE'S" and "KIDNEY FOOD." Used since April 1, 1897.

31,042. STOMACH AND BOWEL MEDICINES. BENJAMIN J. LAUER and BERNARD J. NUSSBAUM, Chicago, Ill. Filed Mar. 8, 1897.

CEYENE

Essential feature.—The word "CEYENE." Used since December 26, 1896.

31,043. OINTMENTS, NON-DISINFECTANT AND NON-DEODORIZED SALVES, OR EMOLLIENTS. HILTON E. MCNALLY, Saginaw, Mich. Filed Oct. 21, 1897.

PHENILINE

Essential feature.—The word "PHENILINE." Used since October 1, 1895.

31,044. LINIMENTS. HENRY M. HEYMANN, New York, N. Y. Filed Dec. 1, 1897.

SUN RAY

Essential feature.—The words "SUN RAY." Used since January 18, 1897.

31,045. MEDICINAL PREPARATION FOR HUMAN USE. JAMES CROSSLEY REID, London, England. Filed July 2, 1895.

Essential feature.—The words "FRUIT SALT" or "FRUIT SALINE." Used since 1874.

31,046. COMPOSITION OF MATTER FOR FATTENING STOCK AND POULTRY AND PREVENTING DISEASES IN THE SAME. ALONZO E. STEVENS, JOHN BROWN, and LEWIS PETTIT, Dallas Centre, Iowa. Filed Sept. 18, 1897.

FAMOUS STOCK FOOD.

Essential feature.—The words "FAMOUS STOCK FOOD" and a circle and cross arranged relative to each other. Used since August 1, 1897.

31,047. TONIC PREPARATIONS FOR ALL SEED-BIRDS. STUMPF & WALTER COMPANY, Newark, N. J., and New York, N. Y. Filed Nov. 23, 1897.

SHEPPARD'S SONG RESTORER.

Essential feature.—The words "SHEPPARD'S SONG RESTORER" and the representation of the obverse and reverse of a medal. Used since 1874.

31,048. CERTAIN NAMED PICKLED AND PRESERVED FOODS. HENRY J. HEINZ, Pittsburg Pa. Filed Sept. 9, 1897.

HEINZ

Essential feature.—The representation of a cucumber with the name "HEINZ" prominently printed thereon. Used since June 1, 1893.

31,049. CERTAIN NAMED DAIRY PRODUCTS. NEW YORK CONDENSED MILK COMPANY, New York, N. Y. Filed Oct. 23, 1897.

SUNNY SIDE

Essential feature.—The words "SUNNY SIDE." Used since August 5, 1897.

31,050. PUDDING COMPOUND. JOHN J. O'ROURKE, New York, N. Y. Filed Nov. 23, 1897.

Essential feature.—The word "CUSTARDINE." Used since November 16, 1897.

31,051. COMPRESSED YEAST. FLEISCHMANN & Co., New York, N. Y. Filed June 1, 1896.

Essential feature.—The words "FLEISCHMANN & Co. NONE GENUINE WITHOUT OUR FACSIMILE SIGNATURE. FLEISCHMANN & Co. COMPRESSED YEAST," printed in black ink upon a groundwork of yellow color and in horizontal lines, except the words "Fleischmann & Co. None Genuine." which are circular in form and all inclosed in the circle of words and characters above described and having under the word "Processes" in said circle the word "Patented." Used since November 25, 1875.

31,052. COMPRESSED YEAST. FLEISCHMANN & Co., New York, N. Y. Filed June 1, 1896.

FLEISCHMANN & CO'S
COMPRESSED YEAST.

Essential feature.—The double-lined rectangular parallelogram with the scroll in each of its four corners, the circles and figures and designs with the inscriptions therein, the eagle, the lions, and the scroll above and the scroll below the lions, all specifically arranged with the words and printing thereon as shown in the accompanying facsimile. Used since November 25, 1876.

31,053. BAKING-POWDER. THE EUREKA BAKING POWDER CO., Middle Village, N. Y. Filed Nov. 5, 1897.

E B P Co.

Essential feature.—A monogram composed of the letters "E B P Co." Used since March 7, 1897.

31,054. BAKING-POWDER. VERMONT CHEMICAL MANUFACTURING COMPANY, LIMITED, New Orleans, La. Filed Nov. 15, 1897.

VERMONT'S

Essential feature.—The word "VERMONT'S" and the pictorial representation of a boy wearing a cook's cap and apron and having his shirt-sleeves rolled up to the elbows, standing beside a table upon which are seen articles of food and holding up in one hand a can of said baking-powder. Used since August, 1895.

31,055. GRASS-FERTILIZERS. BOWKER FERTILIZER COMPANY, Boston, Mass. Filed Nov. 8, 1897.

CLOVER BRAND

Essential feature.—The words "CLOVER BRAND." Used since February, 1897.

31,056. DRESSING FOR BOOTS AND SHOES. WHITE BROTHERS, Worcester, Mass. Filed Nov. 26, 1897.

WILLOW CALF DRESSING.

Essential feature.—The words "WILLOW CALF DRESSING" or with the representation of a calf substituted for the word "Calf." Used since November 1, 1897.

31,057. PRINTED PERIODICALS. THE GOLDEN RULE COMPANY, Boston, Mass. Filed Nov. 30, 1897.

Christian Endeavor World

Essential feature.—The words "CHRISTIAN ENDEAVOR WORLD." Used since November 4, 1897.

31,058. SENSITIZED DEVELOPING-PAPER. NEPERA CHEMICAL COMPANY, Yonkers, N. Y., Chicago, Ill., and Paris, France. Filed Nov. 15, 1897.

VELOX

Essential feature.—The word "VELOX." Used since August 6, 1895.

31,059. CERTAIN NAMED DRY GOODS. HAHNE & Co., Newark, N. J. Filed Nov. 24, 1897.

Essential feature.—The pictorial representation of a comet. Used since August 1, 1897.

31,060. DRESS OR CORSET STAYS. JULIUS JANOWITZ, New York, N. Y. Filed Nov. 8, 1897.

DUPLEX

Essential feature.—The word "DUPLEX." Used since October, 1893.

31,061. GLOVES. TRÉFOUSSE & CIE., Chaumont, France. Filed Nov. 20, 1897.



Essential feature.—The pictorial representation of a young lady in an empire gown and wearing a pair of long mousquetaire gloves. Used since November 1, 1897.

31,062. HOSE. TAYLOR & HAWTHORNE CO., Wilmington, Del. Filed Dec. 2, 1897.

GLADIATOR

Essential feature.—The representation of a gladiator and the word "GLADIATOR" arranged adjacent thereto. Used since September 1, 1896.

31,063. BOOTS AND SHOES. WILLIAM CHEER, Chicago, Ill. Filed Dec. 2, 1897.

ANVIL BOTTOM

Essential feature.—The words "ANVIL BOTTOM." Used since September, 1894.

31,064. BICYCLE-SADDLES. CHICAGO TUBE COMPANY, Chicago, Ill. Filed Oct. 14, 1897.

Cossack

Essential feature.—The word "COSSACK." Used since August 1, 1897.

31,065. RUBBER TUBING AND TUBULAR RUBBER TIRES. CONSOLIDATED RUBBER WORKS, Boston, Mass. Filed June 4, 1897.

KANGAROO

Essential feature.—The word "KANGAROO" or the pictorial representation of a kangaroo. Used since September, 1896.

31,066. PNEUMATIC OR SOLID RUBBER TIRES. L. C. CHASE & Co., Boston, Mass. Filed Nov. 29, 1897.

VULCAN

Essential feature.—The word "VULCAN." Used since September 1, 1897.

31,067. RUBBER PACKING. SOLOMON R. DRESSER, Bradford, Pa. Filed Dec. 3, 1897.



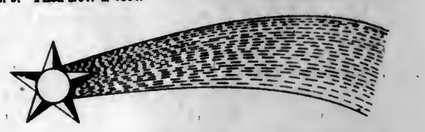
Essential feature.—The representation of a cap inclosed in an elliptical frame. Used since November 1, 1897.

31,068. INSULATED WIRES. THE SAFETY INSULATED WIRE AND CABLE COMPANY, New York, N. Y. Filed Dec. 6, 1897.

WHITE CORE

Essential feature.—The words "REQUA" and "WHITE CORE." Used since May, 1893.

31,069. CERTAIN NAMED FURNITURE. HARRIS & Co., Newark, N. J. Filed Nov. 4, 1897.



Essential feature.—The pictorial representation of a comet. Used since August 1, 1897.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

PRYM *v.* HEILBRUNNER.

Decided November 8, 1897.

1. INTERFERENCE—PRELIMINARY STATEMENT—UNITED STATES CONSUL—VENUE—CONSULAR SEAL.

A preliminary statement affirmed before a United States consul will not be stricken out merely because no venue or indication of the place where such affirmation was made appears save in the seal of the consulate impressed upon the paper.

2. SAME—SAME—SAME—VENUE, PURPOSE OF.

The purpose of the venue is to show that the officer administering the affidavit acted within his jurisdiction. It will be presumed that he so acted in the absence of any showing to the contrary. This presumption is strengthened by his use of a consular seal.

3. SAME—SAME—SAME—SUFFICIENCY OF AFFIDAVIT—PERJURY.

The usual test of the sufficiency of an affidavit as to the possibility of assigning perjury cannot be applied to a paper executed before a United States consul abroad when the latter cannot be brought within the jurisdiction of the Federal court.

APPEAL on motion.

MEANS FOR FASTENING CORSETS, ETC.

Application of August Prym filed November 17, 1896, No. 612,422. Application of Hermann Heilbrunner filed August 4, 1896, No. 601,629.

Messrs. Briesen & Knauth for Prym.

Mr. Heinrich Lade for Heilbrunner.

GREELEY, *Acting Commissioner:*

July 17, 1897, Prym filed a motion to strike out Heilbrunner's preliminary statement for irregularity. The alleged irregularity consists in the fact that while the statement was affirmed before a United States vice and acting consul (Madden) the place where such affirmation was made nowhere appears, and hence it does not appear that the affirmation was taken within Madden's proper territory. This motion was denied by the Examiner of Interferences on September 4, 1897. In his opinion that officer stated that the fact that the seal of the United States consulate at Cologne, Germany, had been affixed to the statement was sufficient to meet the requirements of an oath and to avoid the otherwise fatal defect of venue.

This appeal was then brought from that decision. The appellant contends that the absence of a venue is fatal to any affidavit and quotes a number of authorities in support of his view. He asserts that the decision relied upon by the Examiner of Interferences (*Reavis* v. *Cowell*, 56 Cal., 588) is dependent upon the peculiar statutes of California.

The true test of the sufficiency of a paper as an affidavit is the possibility of assigning perjury upon it if false. There is no such possibility in this instance for reasons other than that assigned by Prym. The affiant cannot be tried for perjury in any Federal court, since he cannot be brought within the jurisdiction of such court. Hence the usual test cannot be applied. The venue is one of the formal requisites of an affidavit. It states the county or district in which it is taken and is *prima facie* evidence that it was taken in such place. In the older practice it was deemed so essential that without it the affidavit was treated as a nullity. Later cases modify this rule. (Enc. of Plead. & Prac., Vol. 1, p. 313.) One of these cases is that referred to above. The purpose of the venue is to show that the officer administering the affidavit acted within his jurisdiction. The majority of cases now hold that it need not conclusively appear on the face of the affidavit by venue that the officer acted within his jurisdiction. It will be presumed that he so acted if nothing appears to the contrary. (Same authority.)

A presumption that the affidavit in question was taken by a proper officer at a proper place is established by the use of the consular seal, by means of which the words "U. S. Consulate, Cologne, Germany" were impressed into the body of the paper and thereby made a part of the permanent record. Sound reasoning and common sense would seem to indicate that this is the equivalent in all essential respects of the formal use of similar words at the beginning of an affidavit to indicate the county in which it may have been executed.

The decision of the Examiner of Interferences is affirmed.

EX PARTE WEIDEMANN.

Decided November 11, 1897.

1. ABANDONMENT OF APPLICATION—ACQUIESCENCE OF ASSIGNEE.

Where a letter of abandonment not containing the consent of the assignee is accepted upon the representation that it was impossible to communicate with such assignee and obtain his consent, but where the assignee afterward appears and objects to the abandonment, *Held* that the abandonment must be considered void and of no effect.

2. INTERFERENCE—SUPPLEMENTAL OATH—EX PARTE QUESTION.

The absence of a supplemental oath, although it may be necessary before allowance, does not furnish a ground for rejecting the claims and is an *ex parte* question not open to argument by an opponent in interference proceedings. (*Rennyson* v. *Merritt*, 58 O. G., 1415.)

3. SAME—SAME—RULE 96.

Where it appears that it is impossible at the present time for the assignee to obtain the signature of the inventor to a supplemental oath, *Held* that the necessity for such oath may properly be left for consideration until after the decision in the interference under Rule 96.

ON petition.

MOLDING WOOD.

Application of Ernst A. Weidemann filed October 24, 1895, No. 566,773.

Mr. F. C. Fraentzel for the applicant.

GREELEY, *Acting Commissioner:*

This is a petition on behalf of Sigmund Willner, assignee of the entire interest, asking—

that the abandonment filed by said Ernst August Weidemann, under oath executed by him on May 19, 1897, be considered an annullity, because not acquiesced in by the assignee of the entire interest, the said Sigmund Willner, and furthermore, that the requirement as to the supplemental oath be either entirely waived or the question of its necessity be reserved until the termination of the proposed interference proceedings.

It appears from the record that certain claims presented in a substitute specification filed with the application included matter which the Examiner holds was not covered by the claims or statement of invention in the original application, and for that reason a supplemental oath was required. It appears, further, that on July 12, 1897, a letter of abandonment was filed by the applicant setting forth that he was not the inventor of the matter set forth in this application, but that the true inventor was one Wedekind. This abandonment was not acquiesced in by the assignee, Willner, as required in Rule 171, but was accepted as sufficient upon the representation that it was impossible to communicate with such assignee and obtain his consent, for the reason that his whereabouts were unknown and could not be learned.

In the present petition the assignee asserts his rights, and not only refuses to acquiesce in the abandonment, but strenuously objects to its acceptance. He calls attention to the contradictions in the affidavits filed by Weidemann and alleges that he believes that the intent was to defraud him of a patent. He states that the said Wedekind has filed an application for patent on this invention and asks that an interference be declared, so that the disputed questions may be properly determined.

In view of the opposition of Willner and the showing made the letter of abandonment should not be given any effect and will be considered void.

In regard to the supplemental oath, it appears from the showing that it is impossible at the present time for the assignee to obtain the signature of the inventor to such an instrument, and therefore the question for consideration is as to whether this matter may be postponed until after an interference has been declared and decided. The question as to whether the requirement for a supplemental oath shall or shall not be waived will not now be passed upon, since the merits of this question have not been presented in the petition.

The question as to the necessity for such an oath is one of form, petitionable to the Commissioner, and may appropriately be left for consideration until after the decision in the interference under Rule 96. The absence of such an oath does not furnish a ground for rejecting the claims and is an *ex parte* question not open to argument by an opponent in interference proceedings. (*Rennyson* v. *Merritt*, 58 O. G., 1415.)

If an interference is found to exist, as stated by the petitioner, the requirement for a supplemental oath should be postponed until after such interference is declared and decided.

The petition is granted.

EX PARTE BURSON.

Decided November 23, 1897.

1. ABANDONMENT—SUFFICIENCY—AMENDMENT TO SAVE CASE FROM ABANDONMENT—TIMELY OBJECTION.

If an amendment, after rejection, inserting additional claims and requesting suspension of action upon other matters for stated reasons be admitted without question, it cannot be objected to at a subsequent period as insufficient to obviate abandonment.

2. SAME—EXAMINER'S SUCCESSOR.

The tacitly favorable action of one Examiner upon a question of abandonment should at least be persuasive upon his successor.

ON petition.

SHEAF-CARRIER.

Application of William W. Burson filed April 27, 1887, No. 236,283.

Mr. John A. Goldsborough for the applicant.

GREELEY, *Acting Commissioner:*

This application, filed in 1887, has been prosecuted from time to time since that date, the intervals between an action by the Office and by the applicant being in no case over two years. In but one instance is it now or has it at any time been charged that after action by the Office the applicant failed to take action responsive thereto within two years.

It is held by the Examiner at present in charge of this application that in one instance there was such failure on the applicant's part, and that by reason of such failure, notwithstanding that such failure was passed over by the Examiner then in charge, the application must be held to be abandoned.

The facts held by the Examiner to show abandonment are these: On June 24, 1891, the applicant was notified of the rejection of certain claims. He took no action in the case until June 24, 1893, when he filed an amendment inserting an additional claim and requesting suspension of action upon other matters for certain stated reasons. This amendment filed June 24, 1893, is held by the Examiner now in charge of the application not to be responsive to the requirements of the previous Office action, and as no other action was taken by the applicant in reference to such requirements within two years from June 29, 1891, it is held by the Examiner that the application became abandoned under Rule 171 on June 29, 1893.

Whether or not the Examiner then in charge of this application would have been justified in holding that the application became abandoned on June 29, 1893, under Rule 171, he did not so hold,

and it is to be presumed that he was satisfied that it was not necessary to so hold. Since that date the application has been prosecuted by the applicant with diligence and has been repeatedly acted upon by the Examiner, by the Examiners-in-Chief, and by the Commissioner, and has also been in an interference. To now hold that an application which has been permitted to be prosecuted without objection on the part of the Office for more than four years after the alleged abandonment took place, during which time it may be that the applicant has by reason of public use of his invention or for other reasons lost the right to file a new application, would be to inflict an unnecessary hardship upon him. The Office cannot take advantage of its own wrong (if, indeed, the tacit admission by the Examiner that the application was not abandoned under the rules on June 29, 1893, be a wrong, and of this I am by no means certain) to deprive the applicant of any rights which he may have.

As was said in *ex parte Nealon*, (MS. Dec. 62, p. 378)—

the favorable action of an Examiner should be at least extremely persuasive upon his successor.

The Examiner will incorporate the amendment filed October 14, 1897, and proceed with the examination of the case.

The petition is granted.

EX PARTE ERNE AND BRIDGES.

Decided November 30, 1897.

JOINT AND SOLE APPLICANTS—SOLE APPLICANT SUCCEEDING JOINT APPLICANTS.

When through ignorance a party who is not an inventor joins with the inventor in making application, the ignorant cannot legally succeed as sole applicant the joint applicants. The fact that for a time the rules permitted the substitution now asked for does not make it possible or equitable to grant relief not in accordance with the law.

ON petition.

MEDICINE.

Application of Edward Erne and James W. Bridges filed July 24, 1896, No. 600,451.

Mr. T. S. Browne for the applicants.

GREELEY, *Acting Commissioner:*

This is a petition which, as appears from a letter accompanying it, is intended to present the single question of the effect of the present Rules of Practice (edition of June 18, 1897) upon a case filed under Rule 32 of the rules in force February 9, 1897.

The above application was filed July 24, 1896, by Erne and Bridges jointly. It appears that they subsequently became aware of the fact that they were not joint inventors under the law and that the application should have been made by but one of them, Erne. Being ignorant of the law at the time of making the application, the other applicant, Bridges, who was interested in the invention and desired to be joint owner with Erne of the patent to be granted thereon, thought it necessary to and in fact did make application jointly with Erne.

Erne afterward filed an amended specification and oath setting forth the fact that he was the sole inventor and asked that this amended application be substituted for the one originally filed. This was refused under the practice existing at that time, August, 1896; but the request was subsequently granted under the provisions of the Rules of Practice established February 9, 1897. Upon the repeal of these rules on June 18, 1897, the original objection was renewed.

In *ex parte Prescott* (62 MS. Dec., 206) the same question was reviewed under circumstances even more favorable to the applicant than those now presented. In that case the application had been filed in the interval between February and June, 1897. In the present case the application was filed before the rule permitting a sole applicant to succeed joint applicants was adopted and filed under rules identical with those at present in force. The petitioner cannot therefore plead that he was misled by the rules. The fact that for a short time since the filing of this application rules now repealed permitted to be done what the petitioner desires does not make it possible or equitable to grant to him relief which is not in accordance with a proper construction of the law.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Connecticut.

WELSBACH LIGHT COMPANY *v.* BENEDICT & BURNHAM MANUFACTURING COMPANY.

Decided October 9, 1897.

1. WELSBACH—INCANDESCENT GAS-LAMP—PRELIMINARY INJUNCTION—DOUBTFUL VALIDITY.

On a motion for a preliminary injunction against infringement of claims 3, 5, and 6 of Letters Patent No. 409,530, granted August 20, 1889, to Carl Auer von Welsbach, for an improved incandescent gas-lamp, *Held* that the validity of the claims is doubtful and the preliminary injunction will not issue.

2. PRELIMINARY INJUNCTION—DOUBTFUL VALIDITY OF THE CLAIMS—ADVANTAGES TO COMPLAINANT AND DEFENDANT.

While the issuance of an injunction would be advantageous to the complainant in its efforts to protect its business and prevent an onslaught upon it, yet when there are serious doubts as to the validity of the contested claims of the patent injunction against infringement should not issue. Such an interference with the business of one manufacturer in order to strengthen the position of another pending an attack upon the validity of his patent seems to be an undue stretch of the power of a court of equity.

STATEMENT OF THE CASE.

This was a suit in equity by the Welsbach Light Company against the Benedict & Burnham Manufacturing Company for alleged infringement of the Welsbach patent for an improved incandescent gas-lamp. The cause was heard on a motion for a preliminary injunction.

Mr. John K. Beach and *Mr. John R. Bennett* for the complainant.

Mr. A. M. Wooster and *Mr. M. B. Philipp* for the defendant.

SHIPMAN, *J.:*

This is a motion for a preliminary injunction against the further infringement by the defendant

of claims 3, 5, and 6 of Letters Patent No. 409,530, dated August 20, 1889, issued to Carl Auer von Welsbach, assignor to the complainant, for an improved incandescent gas-lamp. In 1885 the patentee had patented in England the well-known Welsbach hood or mantle, which was also subsequently patented in this country, and which was styled in his English patent—

an illuminant appliance in the form of a cap or hood, to be rendered incandescent by gas and other burners, so as to enhance their illuminating powers.

This invention underwent a most thorough investigation in the English courts, the patent was sustained, and the invention was declared by Mr. Justice Wills to have accomplished—

what has long been a desideratum, what has been attempted before, but always with an utter want of success, and it has for the first time brought within the range of practical manufacture the production of a brilliant light by incandescence within an ordinary gas-flame.

The lamp which is the subject of the patent in suit was designed to hold and to heat this hood, and is in its details exceedingly well adapted to bring the Welsbach illuminant into successful use in houses and also in places of business; but the patent was not limited to the use of any particular hood or mantle. Its claims to patentability are therefore liable to be disputed by preëxisting lamps which were made for the purpose of raising to incandescence some other refractory material by means of a gas-flame, and it appears from the "file-wrapper and its contents" that this was fully understood by the inventor when the application was making its way through the Patent Office. The patent has never before been the subject of litigation. The Welsbach system of lighting has had great success in this country. Over two millions of lamps made under this patent have been sold, and neither patent was seriously infringed until the spring of 1897. About that time it was rumored that the hood or mantle patent had expired by reason of the expiration of a Spanish patent for the same invention, and forthwith infringement of each patent commenced. Suits for infringement of the hood patent are now pending in the southern district of New York.

It is strongly urged that the public has admitted the validity of the patent in suit and that the complainant's rightful possession of an exclusive right to make the brass part of the Welsbach lamp has been clearly acknowledged. It must be recollected that the Welsbach system consists of the brass lamp and the hood; that the latter is the important member of the system and gives to it its success; that the brass part of the lamp is for the purpose of making the hood operative, and that so long as the validity of the hood patent was admitted there was little or no reason for an attempt to infringe the patent in suit. Acquiescence in the validity of this patent has not, therefore, the importance that it generally has and which it had in the early and well-known case of *Sargent* v. *Seagrave*, (2 Curt., 553; Fed. Cas., No. 12,365.) I am therefore compelled to examine the patent by the light which has been thrown upon it by the affidavits and the other papers which were presented upon the hearing of the motion. The patent contains six claims, which are as follows:

1. The combination of a burner-tube provided with a cap having a vertically-projecting cone 13, surrounded by an inner annular series of perforations 14 and an outer annular series of radiating slots 15, a hood of refractory incandescent material suspended above said burner-cap, and a chimney surrounding said hood, substantially as described.
2. The combination, with the burner-tube 5 and gallery 8, having lugs 23 and set-screws 24, located on a laterally-extended portion of the gallery-body, of the chimney 19, the hood 20, and the vertically-adjustable rods 21 and 22, substantially as described.
3. The combination of a vertically-perforated thimble having a gas-inlet, a perforated disk supported by said thimble, a Bunsen burner having lateral air-inlets, and a shield located around the burner air-inlets, substantially as described.
4. The combination of a Bunsen burner having lateral air-inlets, a ring shrunk onto the burner-tube above the air-inlets, and a shield suspended from said ring and surrounding the air-inlets of the burner, substantially as described.
5. The combination, with a gas-burner and a chimney-gallery, of a vertically-adjustable rod supported by the gallery and an incandescing hood suspended from said rod above the burner, substantially as described.
6. The combination, with a gas-burner, a chimney, and an incandescing hood suspended in said chimney, of a gallery having converging ribs 8e, arranged at intervals, substantially as described.

The defendant's burner does not have the vertically-projecting cone 13 of claim 1 nor the vertically-adjustable rods 21 and 23 of claim 2, and its shield is not suspended, as required in claim 4. It does plainly infringe claims 3, 5, and 6, and the question upon this motion is whether the validity of those claims can be so clearly ascertained that an injunction ought to issue. Claim 3 is the one of importance. It relates to the parts of the gas-burner which produce the necessary smokeless and almost non-luminous hot flame. The patentee used, as stated in the claims, the Bunsen burner, which had been for many years before the date of his invention a well-known form of gas-burner for heating purposes, and which is said to have been invented by the chemist Bunsen. In this burner gas and air are permitted to enter through different orifices or openings into the same tube or mixing-chamber, where the mingling takes place, and when the gas is ignited it has become thoroughly mixed with the air, so that—

all parts of the flame are supplied with sufficient oxygen to insure the immediate combustion of the carbon.

The same general system of independent orifices for the admission of air and gas into a mixing-chamber is used in most of the lamps for heating refractory material to incandescence. Claim 3 names four elements, as follows: first, a vertically-perforated thimble having a gas-inlet, (this thimble is threaded for attachment to the gas-fixture;) second, a perforated disk secured to the upper end of the thimble "to divide the gas-supply into jets and facilitate the mixture with the supply of air;" third, a Bunsen tube having lateral air-inlets; fourth, a shield located around the air-inlets, which, the specification says, may be used "if desired." This shield also has air-inlets in a casing around the inlets of the burner-tube, so that the supply of air can be regulated and modified. Divers earlier patents were introduced by the defendant to show either that these various elements were well known and had been in some way combined before or else were in such common use that their combination was not a patentable one; but I have directed my attention to what is disclosed in the proceedings in the Patent Office in the specification and in the

patent to Charles Clamond, No. 282,053, dated July 31, 1883, to which reference was made by the Patent Office. The patentee on October 15, 1888, asked for the allowance of the following as claim 3:

The combination, with a Bunsen burner having lateral air-inlets, of the shield, 6e, suspended around said burner air-inlets, substantially as described.

The existing claims 3 and 4 were claims 4 and 5 in this application. The Office rejected claim 3 as applied for by reason of the Clamond patent and rejected claims 4 and 5 because they were modifications of the same general construction of burner. The applicant canceled claim 3,

though it is not believed to be met by the patent to Clamond cited, but to facilitate allowance of the remaining claims,

and said of claims 4 and 5 that the former covers—

a combination including a shield located around the burner air-inlets, while the latter is for a combination embracing a ring shrunk into the burner-tube above the air-inlets, and a shield suspended from said ring, and surrounding the air-inlets of the burner.

The claims as they now stand were then allowed. Thus the rejection of a claim for a Bunsen burner and a shield around the air-inlets was acquiesced in, and the present claim 3 was allowed because it included the combination of a Bunsen burner, shield, thimble, and perforated disk. The question is whether the claim describes anything more than a Bunsen burner plus a shield, or, in other words, whether the combination as claimed contained anything which is not a part of a Bunsen burner when in actual use. The apparent contention of the complainant is that the perforated disk, which is a very thin plate and contains three minute holes, is an addition to or is such a modification of the ordinary Bunsen burner that it can be considered a distinct member of the combination, and that this improvement is valuable. The specification says—

that the number and size of the perforations in the disk * * * can be varied as required according to the quality of the gas.

It says also that—

it is advantageous to cause the combustible gas used for the burner to issue through a hole or holes in a very thin sheet-metal plate—such as the perforated disk 2—and not through a plate of from one to one and one-half millimeter in thickness, as in the ordinary Bunsen burner.

It thus appears that neither the size nor the number of the perforations was regarded as of patentable importance. It furthermore appears that a perforated plate or some other contracted orifice for the transmission of gas was a part of an ordinary Bunsen burner and that a thin plate was regarded as preferable to the one in general use, but that a thin plate was not designated either in the specification or in the claims as a part of the patented invention. After reading the specification and the history of the patent upon its journey through the Patent Office claim 3 seems to me to have been an attempt to magnify the combination of one of the common forms of an old burner and a shield into a novel combination of several elements and thus to be patentable.

Claim 5 is for a combination of a gas-burner, not necessarily a Bunsen burner, and a chimney support or gallery with a vertically-adjustable rod supported by the gallery and an incandescing hood suspended from the rod. When this very simple means of suspending the hood is looked at in the complainant's lamp, there seems to be nothing of an inventive character in the combination.

Claim 6 is for a chimney gallery or support having converging ribs, in combination with a gas-burner, chimney, and incandescing hood suspended in the chimney. The important part of this combination, as appears from the specification, is the converging ribs of the chimney-gallery. This is a matter of mechanical detail which is not material and which can apparently be changed without difficulty, and I should not think it worth while to issue an injunction in the present stage of this case merely for an infringement of this claim.

The complainant pressed its equities for an injunction by reason of the deliberate conduct of the defendant in entering into a contract to make the brass portion of the Welsbach lamp with notice of the complainant's possession of a patent and after it had made these lamps for the complainant for eight or nine years, and presented the proposition that when infringement is clear some doubts should be resolved in favor of the patent, especially when injury to the complainant by a refusal will be greater than the injury to the defendant will be by granting the injunction. The force of these propositions in a case proper for their application is acknowledged; but their applicability depends upon the strength of the doubts. For example, the hood patent, which is the most important part of the Welsbach system, has been respected in this country for many years, and the unique character of the invention and its importance as a great aid to domestic comfort have been universally recognized. Upon a motion for a preliminary injunction against the infringement of the patent in this country, even if there had been no adjudication in England, a court would naturally think that doubts in regard to validity were overborne by the weight of the considerations which have been mentioned. But this patent has not that distinctive kind of character, and, while I know that the issuance of an injunction would be an advantage to the complainant in its efforts to protect its business and prevent an onslaught upon it, yet when I have so serious doubts as I have in regard to the validity of the contested claims of the patent I do not think that I ought to enjoin against their infringement. Such an interference with the business of one manufacturer in order to strengthen the position of another, pending an attack upon the validity of its patent, though it is being attacked by its old friends, seems to me an undue stretch of the power of a court of equity.

The motion is denied.

U. S. Circuit Court—Northern District of California.

SCHULTZE *v.* HOLTZ *et al.*

Decided August 23, 1897.

1. SCHULTZE—COIN-CONTROLLED APPARATUS—INVALID—LACK OF UTILITY—GAMBLING PURPOSES.

Letters Patent Nos. 502,891 and 514,664, granted to Gustav F. W. Schultze August 8, 1893, and February 13, 1894, respectively, for improvements in coin-controlled apparatus, *Held* invalid for want of utility, as the only use to which the inventions have been put or applied is for gambling purposes.

2. INFRINGEMENT SUITS—PLEADING—DENIAL OF UTILITY.

A statement in a verified answer that complainant's invention is used only for gambling purposes in saloons and bar-rooms and cannot be used for any other purpose is sufficient evidence of want of utility, in the absence of testimony supporting the patent, to overcome the *prima facie* case made by the patent itself.

STATEMENT OF THE CASE.

This was a suit in equity by Gustav F. W. Schultze against Theodore Holtz and others for alleged infringement of certain patents for improvements in coin-controlled apparatus.

Mr. John H. Durst for the complainant.
Mr. M. H. Hernan for the defendants.

MORROW, *J.:*

The bill in this suit is filed to restrain the infringement of certain Letters Patent, Nos. 502,891 and 514,664, granted to the complainant on August 8, 1893, and February 13, 1894, respectively, it being alleged that said patents are for a certain new and useful invention—to wit, certain new and useful improvements and combinations of mechanism in a coin-controlled apparatus. The answer denies, among other things, that the inventions of complainant are new and useful. On the contrary, it is specifically averred that the only use to which the complainant's inventions have been put or applied is for gambling purposes in saloons and bar-rooms and other drinking-places in and about the city and county of San Francisco, State of California, and that the said coin-controlled apparatus cannot be used for any other purpose. Testimony was taken by the complainant, who introduced the evidence of two witnesses, tending to show that the defendants had infringed. No testimony was introduced by the defendants. Solicitor for complainant asks for a decree in his favor on the ground that the defendants have presented no evidence nor made any showing which would justify the court in refusing the complainant his decree. The defendants, however, filed a verified answer, which in equity, in so far as it is responsive to the bill, not only makes the issue, but is testimony in favor of the defendants and can only be overthrown by the testimony of two witnesses or the testimony of one witness and circumstances equivalent to another or at least sufficient to make a preponderance of evidence in favor of complainant. (*Slessinger* v. *Buckingham*, 8 Sawy., 470; 17 Fed. Rep., 454; *Vigel* v. *Hopp*, 104 U. S., 441; Fost. Fed. Prac., 2d ed., p. 173, sec. 84.) The complainant, as stated, did introduce the testimony of two witnesses, and defendants upon cross-examination elicited testimony which tends to show that the invention of complainant was not new and useful, and that it was a gambling device and could be used for no other purpose. This testimony was, however, obtained over the objection of the complainant that it was not proper cross-examination, the witnesses not having been interrogated on that subject in their direct examination. The objection appears to have been well taken, and this testimony must therefore be excluded. The case then stands upon the patent and the averments of the answer that the only use to which the invention has been put or applied is for gambling purposes in saloons, bar-rooms, and other drinking-places in and about the city and county of San Francisco. This averment is not new matter, but it is responsive to the allegations of the bill that—

> complainant was the true, original, sole, and first inventor of a certain new and useful invention, to wit, of certain new and useful improvements and combinations of mechanism in a coin-controlled apparatus; * * * that the said invention has been of great profit, convenience, and benefit to the public.

The patent is *prima facie* evidence of the utility of the invention it describes, and a mere denial of utility in the answer to a bill for infringement is not sufficient to overcome such *prima facie* evidence. (3 Rob. on Pats., sec. 1029.) But in this case the verified answer not only denies that the invention is new and useful, but alleges a specific fact, which, if true, disposes of the question of utility. It charges directly that the apparatus is used for gambling purposes and that it cannot be used for any other purpose. Clearly this is an allegation which, under the rule, should be treated as testimony in favor of the defendants, and, in view of the fact that the complainant has introduced no testimony to support the patent, it is, in my judgment, sufficient to entitle the defendants to a decree in their favor. The same conclusion would probably be reached in looking at the claims and specifications of the patent upon the allegations of the answer treated as merely raising the issue of utility. In Patent No. 514,664 the inventor sets forth the object of the machine as follows:

> In my previous machine, and in this, the main object is to return the coin deposited in the machine or an equivalent thereof, in case a predetermined result be not arrived at, otherwise to retain said coin. This result may be of any suitable character, as, for example, the telling of a fortune, which may be effected by means of a prepared list of statements corresponding to the various positions of the indicating-disk.

There is certainly no utility apparent in this device. Let a decree be entered for the defendants, with costs.

INDEX TO DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—OCTOBER–DECEMBER, 1897.

VOL. 81 O G—2

INDEX TO DECISIONS.

[Decisions of United States courts are indicated by an asterisk (*) and of the Secretary of the Interior by a dagger (†).]

	Page.
*American Street Car Advertising Company *v.* Newton Street Railway Company *et al*	506
*Athol and Orange Street Railway Company. Thomson-Houston Electric Company *v*	909
*Bates *v.* Keith	1115
Bechman *v.* Wood	2087
*Benedict & Burnham Manufacturing Company. Welsbach Light Company *v*	2247
*Bliss, Secretary of the Interior. United States, *ex rel.* Wedderburn, *v*	1783
†Borton. *In re*	800
Buhoup. Hien *v*	2088
*Buhoup. Hien *v*	2088
Burson. *Ex parte*	2246
*Butterworth, Commissioner of Patents. United States, *ex rel.* Bulkley, *v*	505
*Carborundum Company. Electric Smelting and Aluminium Company *v*	332
*Chicago Railway Equipment Company *v.* Interchangeable Brake Beam Company	1423
Coe. *Ex parte*	2086
*Devol *et al.* Kansas City Hay-Press Company *v*	1277
*Duff Manufacturing Company. Forgie *v*	1113
*Electric Smelting and Aluminium Company *v.* Carborundum Company	332
Erne and Bridges. *Ex parte*	2247
Field *v.* Seher. Stevens *v*	1929
*Forgie *v.* Duff Manufacturing Company	1113
*Gaskill *et al. v.* Myers	1111
*Graef *et al.* Saxlehner *v*	972
Hampden Watch Company. *Ex parte*	1282
Heilbrunner. Prym *v*	2245
*Hench *et al.* National Harrow Company *v*	1612
Hien *v.* Buhoup	2088
*Hien *v.* Buhoup	2088
*Holtz *et al.* Schultze *v*	2249
Hunter. *Ex parte*	504
Hunter *v.* Wightman	1788
*Interchangeable Brake Beam Company. Chicago Railway Equipment Company *v*	1423
*Interchangeable Brake Beam Company. National Hollow Brake Beam Company *et al. v*	1423
J. H. Hargrave & Son. S. Hernsheim, Bros. & Co., Limited, *v*	503
John Wedderburn and John Wedderburn & Co. *In re*	159
*Kansas City Hay-Press Company *v.* Devol *et al*	1277
*Keith. Bates *v*	1115
Keller *v.* Wethey *v.* Roberts	331
Kelly *et al. v.* Park *et al*	1931
Lawrence and Kennedy. Shiels *v*	2085
Letellier. *Ex parte*	1611
*Mergenthaler *v.* Scudder	1417
*Merrow Machine Company *et al.* Willcox & Gibbs Sewing Machine Company *v*	1613
*Morgan Envelope Company *v.* Walton *et al*	1615
*Myers. Gaskill *et al v*	1111
†Nash. *In re*	799
*National Harrow Company *v.* Hench *et al*	1612
*National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company	1423
Nealon. *Ex parte*	1787
*Newton Street Railway Company *et al.* American Street Car Advertising Company *v*	506
*One Case Chemical Compound *et al*, United States *v*	804
Park *et al.* Kelly *et al. v*	1931
Peerless Carbon Black Company, Limited. *Ex parte*	803
Prym *v.* Heilbrunner	2245
Roberts. Keller *v.* Wethey *v*	331
S. Hernsheim, Bros. & Co., Limited, *v.* J. H. Hargrave & Son	503
*Saxlehner *v.* Graef *et al*	972
*Schultze *v.* Holtz *et al*	2249
*Scudder. Mergenthaler *v*	1417
Seher. Stevens *v.* Field *v*	1929
*Seher. Stevens *et al. v*	1932
Sellers *et al. Ex parte*	803
Shiels *v.* Lawrence and Kennedy	2085
Smith. *Ex parte*	909
Société Fabriques de Produits Chimiques de Thann et de Mulhouse. *In re*	804
Stevens *v.* Field *v.* Seher	1929
*Stevens *et al. v.* Seher	1932
*Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company	909
*United States *v.* One Case Chemical Compound *et al*	804
*United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents	505
*United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783
*Walton *et al.* Morgan Envelope Company *v*	1615
Weaver. *Ex parte*	907
Weidemann. *Ex parte*	2245
*Welsbach Light Company *v.* Benedict & Burnham Manufacturing Company	2247
Wethey *v.* Roberts. Keller *v*	331
Wightman. Hunter *v*	1788
*Willcox & Gibbs Sewing Machine Company *v.* Merrow Machine Company *et al*	1613
Wood. Bechman *v*	2087
Yale & Towne Manufacturing Company. *Ex parte*	801

SUBJECT-MATTER.

[Decisions of the United States courts are indicated by an asterisk (*) and of the Secretary of the Interior by a dagger (†).]

	Page.
*Abandoned applications, access to, United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents	505
Abandonment by failure to prosecute, *ex parte* Burson	2246
Abandonment without assent of assignee voidable, *ex parte* Weidemann	2245
Advertising by attorneys, *in re* John Wedderburn *et al*	159
*Advertising-rack for street-cars, American Street Car Advertising Company *v.* Newton Street Railway Company *et al*	506
Affidavit before United States consul, Prym *v.* Heilbrunner	2245
Agents of corporations as attorneys, *in re* John Wedderburn *et al*	159
Amendment after appeal, *ex parte* Hunter	504
Amendment after rejection to save from abandonment, *ex parte* Burson	2246
*Answer to bill, waiver of oath, National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company	1423
†Appeal fees, refundment of, *in re* Borton	800
Appeal from a part of the decision of Examiners-in-Chief, acceptance of the remainder, *ex parte* Letellier	1611
*Appeal to the Court of Appeals of the District of Columbia, Patent Office record as evidence, Stevens *et al. v.* Seher	1932
Appeal to the Examiners-in-Chief, *ex parte* Coe	2086
Appeal to the Examiners-in-Chief, amendments after, *ex parte* Hunter	504
Appeals, duty of attorneys in relation to, *in re* John Wedderburn *et al*	159
Appearance of attorney in disbarment proceedings, *in re* John Wedderburn *et al*	159
*Application for patent, date of evidence of priority of invention, Mergenthaler *v.* Scudder	1417
Applications, duplicate filed by attorney, *in re* John Wedderburn *et al*	159
Applications will not be transferred on account of objectionable action of an Examiner, *ex parte* Weaver	967
Assignee should join in abandonment, *ex parte* Weidemann	2245
*Assignment by officers of corporation without authority of trustees, Kansas City Hay-Press Company *v.* Devol *et al*	1277
Atomizer, *ex parte* Smith	969
Attorneys, *in re* John Wedderburn *et al*	159
*Attorneys, act of July 4, 1884, applies to those practicing before the Patent Office, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783
*Baling-press, Kansas City Hay-Press Company *v.* Devol *et al*	1277
*Brake-beam, National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company	1423
Carpet-sweeper, *ex parte* Letellier	1611
*Charges against attorneys, notice of to be given, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783
†Check protested, *in re* Nash	799
Circuits adapted to electrical transmission of energy, *ex parte* Hunter	504
Claims, applicant may make the broadest possible in view of the state of the art, *ex parte* Weaver	967
*Claims, defective, Gaskill *et al. v.* Myers	1111
Claims offered after appeal to and decision by Examiners-in-Chief, *ex parte* Hunter	504
*Claims, omission from in reissue, Gaskill *et al. v.* Myers	1111
*Claims, surplusage in, American Street Car Advertising Company *v.* Newton Street Railway Company *et al*	506
*Coin-controlled device, Schultze *v.* Holtz *et al*	2249
Commissioner of Patents, *in re* John Wedderburn *et al*	159
*Commissioner of Patents, authority of in regard to the files and records of his Office, United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents	505
Commissioner of Patents, authority of requisite to admit claims after decision upon appeal, *ex parte* Hunter	504
*Commissioner of Patents, charges against attorneys, notice and hearing, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783
Commissioner of Patents, no judicial power over witnesses, Kelly *et al. v.* Park *et al*	1981
Commissioner of Patents will not instruct Examiners pending examination of applications, *ex parte* Sellers *et al.*	808
*Conception of invention defined and proof required to establish, Mergenthaler *v.* Scudder	1417
*Construction of act of July 4, 1884, in relation to attorneys, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783
Construction of Rule 96, *ex parte* Weidemann	2245
Construction of Rule 126, Bechman *v.* Wood	2087
Construction of Rule 144, *ex parte* Nealon	1787
†Construction of Rule 223, *in re* Nash	799
*Construction of section 487, Revised Statutes, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783
*Construction of section 892, Revised Statutes, United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents	505
*Contract between patentee and manufacturer to prevent competition and enhance prices is unlawful, National Harrow Company *v.* Hench *et al*	1612
*Corporation's answer under seal, not oath, National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company	1423
*Corporations, assignment by, Kansas City Hay-Press Company *v.* Devol *et al*	1277
Corporations legally responsible as attorneys, *in re* John Wedderburn *et al*	159
*Costs of suit, record evidence, Stevens *et al. v.* Seher	1932
*Customs duties, infringing goods seized for, United States *v.* One Case Chemical Compound *et al*	804
*Decision affirmed, Hien *v.* Buhoup	2088
Decisions of the Examiners-in-Chief, *ex parte* Letellier	1611
Description, insufficiency as shown by the specification and drawings, *ex parte* Coe	2086
*Description should be definite, Stevens *et al. v.* Seher	1932
Design should not contain movable parts, *ex parte* Smith	969
Designs, modification of prohibited, *ex parte* Coe	2086
*Designs, validity of, Gaskill *et al. v.* Myers	1111
Disbarment of attorneys, *in re* John Wedderburn *et al*	159
*Disbarment of attorneys under section 487, Revised Statutes, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783
Divisional applications in interference, omission to so state in declaration, Hunter *v.* Wightman	1788
*Drawings as evidence of invention, Mergenthaler *v.* Scudder	1417
*Drawings, defective as evidence, Mergenthaler *v.* Scudder	1417
Drawings, insufficient, *ex parte* Coe	2086
*"Due process of law" in proceedings against attorneys, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior	1783

Page.

Duty of the Department, *in re* John Wedderburn *et al* ... 159
*Electric smelting-furnace, Electric Smelting and Aluminium Company *v.* Carborundum Company ... 382
Employees of a dishonest attorney, *in re* John Wedderburn *et al* ... 159
*Evidence in suit, production of private papers as, United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents ... 505
*Evidence, model as, Kansas City Hay-Press Company *v.* Devol *et al* ... 1277
Evidence of priority taken abroad, Shiels *v.* Lawrence and Kennedy ... 2085
*Evidence, records of Patent Office as, Stevens *et al. v.* Seher ... 1932
Evidence sufficient to disbar attorneys, *in re* John Wedderburn *et al* ... 159
Examination of applications, *ex parte* Weaver ... 967
Examiner of Interferences, duty of when error in declaration is disclosed, Hunter *v.* Wightman ... 1788
Examiner, petition to instruct in his duty, *ex parte* Coe ... 2086
Examiners bound by decision of Examiners-in-Chief, *ex parte* Letellier ... 1611
Examiners, complaints against, *ex parte* Coe ... 2086
Examiners, conduct of, *ex parte* Weaver ... 967
Examiner's duty, should not refer to Commissioner for instructions, *ex parte* Sellers *et al* ... 803
Examiners-in-Chief, *ex parte* Letellier ... 1611
Examiners-in-Chief, decisions reversed, Stevens *v.* Field *v.* Seher ... 1929
Examiners-in-Chief, matters appealable to, *ex parte* Coe ... 2086
Examiner's jurisdiction after appeal, *ex parte* Hunter ... 504
Examiner's review of action of previous Examiner, *ex parte* Burson ... 2246
Ex parte Nealon ... 1787
*Experimental tests, Stevens *et al. v.* Seher ... 1932
Fees improperly collected or excessive fees retained by attorneys, *in re* John Wedderburn *et al* ... 159
†Fees, payment of draft dishonored, *in re* Nash ... 799
†Fees, refundment of, *in re* Borton ... 800
Foreign countries, testimony taken in, Shiels *v.* Lawrence and Kennedy ... 2085
Foreign patents, advice by attorneys in relation to obtaining, *in re* John Wedderburn *et al* ... 159
Fraudulent practice of attorneys, *in re* John Wedderburn *et al* ... 159
*Gambling device, Schultze *v.* Holtz *et al* ... 2249
*Harrow, National Harrow Company *v.* Hench *et al* ... 1612
*Immoral purpose of invention, Schultze *v.* Holtz *et al* ... 2249
*Incandescent gas-lamp, Welsbach Light Company *v.* Benedict & Burnham Manufacturing Company ... 2247
*Infringement, Bates *v.* Keith ... 1115
*Forgie *v.* Duff Manufacturing Company ... 1113
*Kansas City Hay Press Company *v.* Devol *et al* ... 1277
*Infringement by equivalents, Willcox & Gibbs Sewing Machine Company *v.* Merrow Machine Company *et al.* ... 1613
*Infringement, mechanical skill only involved, Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company ... 969
*Infringement not sustained, Electric Smelting and Aluminium Company *v.* Carborundum Company ... 382
*Injunction, title to one of several patents defective, Kansas City Hay-Press Company *v.* Devol *et al* ... 1277
*Injunction, validity of patent doubtful, Welsbach Light Company *v.* Benedict & Burnham Manufacturing Company ... 2247
Inspection of books, etc., of attorneys, *in re* John Wedderburn *et al* ... 159
*Interference, change of structure, Hien *v.* Buhoup ... 2088
*Interference, conception and reduction to practice, disclosure to opposing party, Hien *v.* Buhoup ... 2088
Interference, declaration of, omission to state that application was divisional, Hunter *v.* Wightman ... 1788
*Interference, defective drawings as evidence, Mergenthaler *v.* Scudder ... 1417
*Interference, establishment of conception of invention, Mergenthaler *v.* Scudder ... 1417
Interference, motion to dissolve, Bechman *v.* Wood ... 2087

Page.

Interference only to be declared after subject-matter is found to be patentable, *ex parte* Weaver ... 967
*Interference, preliminary statements, Stevens *et al. v.* Seher ... 1932
Interference, preliminary statement executed before United States consul with seal, but without date or location, Prym *v.* Heilbrunner ... 2245
Interference, preliminary statement, execution of before United States consul, Prym *v.* Heilbrunner ... 2245
Interference proceedings, production and conduct of witnesses therein, Kelly *et al. v.* Park *et al* ... 1931
Interference, rights of party prejudiced by error of the Office, duty of tribunal, Hunter *v.* Wightman ... 1788
Interference, testimony taken in a foreign country, Shiels *v.* Lawrence and Kennedy ... 2085
Interference, time for taking testimony, Keller *v.* Wethey *v.* Roberts ... 331
*Invention for immoral purposes, Schultze *v.* Holtz *et al* ... 2249
Joint inventors, if one retires the other cannot prosecute, *ex parte* Erne and Bridges ... 2247
Judgment on the record, priority of invention, Shiels *v.* Lawrence and Kennedy ... 2085
Jurisdiction of Commissioner of Patents over attorneys, *in re* John Wedderburn *et al* ... 159
Jurisdiction of courts over witnesses, Kelly *et al. v.* Park *et al* ... 1931
*Lamp-stove, Gaskill *et al. v.* Myers ... 1111
*Lifting-jack, Forgie *v.* Duff Manufacturing Company ... 1113
*Line-casting machine, Mergenthaler *v.* Scudder ... 1417
*Mandamus to compel production of papers in secret archives of the Patent Office, United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents ... 505
*Mandamus to compel Secretary of the Interior to give a hearing upon charges against attorneys, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior ... 1783
Means for fastening corsets, etc., Prym *v.* Heilbrunner ... 2245
*Mechanical skill, Hien *v.* Buhoup ... 2088
*Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company ... 969
Medals awarded by attorneys, *in re* John Wedderburn *et al* ... 159
Medicine, *ex parte* Erne and Bridges ... 2247
Misconduct, *in re* John Wedderburn *et al* ... 159
Misrepresentations by attorneys, *in re* John Wedderburn *et al* ... 159
*Model as evidence of invention, Mergenthaler *v.* Scudder ... 1417
*Model made from recollection, Kansas City Hay-Press Company *v.* Devol *et al* ... 1277
Molding wood, *ex parte* Weidemann ... 2245
*Monopoly to restrain manufacture and enhance prices of articles protected by patents is conspiracy, National Harrow Company *v.* Hench *et al* ... 1612
Motion to dissolve interference, Office may take cognizance of, Bechman *v.* Wood ... 2087
*Motor suspension for railway-work, Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company ... 969
*Multifariousness, Kansas City Hay-Press Company *v.* Devol *et al* ... 1277
Negligence by attorneys, *in re* John Wedderburn *et al* ... 159
Oath, absence of supplemental not ground for rejecting claims in interference proceedings, *ex parte* Weidemann ... 2245
*Oath by corporation, National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company ... 1423
*Ores, process of smelting, Electric Smelting and Aluminium Company *v.* Carborundum Company ... 382
Originality, evidence of, Shiels *v.* Lawrence and Kennedy ... 2085
*Parties to suit, United States *v.* One Case Chemical Compound *et al* ... 804
Patent Office, duty of in respect to attorneys, *in re* John Wedderburn *et al* ... 159
Patents expired, public property, *ex parte* Yale & Towne Manufacturing Company ... 801
Petition to Commissioner from action of Examiners, *ex parte* Sellers *et al* ... 803
*Practice in the courts, National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company ... 1423

Page.

*Practice in the courts, United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents ... 505
*Preliminary statements, amendment to correct dates, Stevens *et al. v.* Seher ... 1932
Priority of invention, Stevens *v.* Field *v.* Seher ... 1929
*Priority of invention, date of conception, Mergenthaler *v.* Scudder ... 1417
Priority of invention, evidence thereof taken abroad, Shiels *v.* Lawrence and Kennedy ... 2085
†Protested check or draft, *in re* Nash ... 799
*Railway-motor, Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company ... 969
*Records and papers of the Patent Office, access to, United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents ... 505
*Reduction to practice, Stevens *et al. v.* Seher ... 1932
†Refundment of appeal fees, *in re* Borton ... 800
Rehearing on motion to dissolve, Bechman *v.* Wood ... 2087
*Reissue, broadened by omissions from original claims, Gaskill *et al. v.* Myers ... 1111
Roasting-furnace, Keller *v.* Wethey *v.* Roberts ... 331
Rules of evidence applicable to trials of attorneys on charges of misconduct, *in re* John Wedderburn *et al* ... 159
Rules of practice in regard to taking testimony, Keller *v.* Wethey *v.* Roberts ... 331
Sale of patents by attorneys, *in re* John Wedderburn *et al* ... 159
Seal of United States consul, use of establishes jurisdiction, Prym *v.* Heilbrunner ... 2245
Searches in the Patent Office by attorneys, *in re* John Wedderburn *et al* ... 159
*Secretary of the Interior, hearing before, charges against attorneys, United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior ... 1783
*Sewing-machine, Willcox & Gibbs Sewing Machine Company *v.* Merrow Machine Company *et al* ... 1613
Sheaf-carrier, *ex parte* Burson ... 2246
Signature of inventor to supplemental oath in interference proceedings, Prym *v.* Heilbrunner ... 2245
Sole inventor cannot succeed and prosecute a joint application, *ex parte* Erne and Bridges ... 2247
Specification, insufficient description, *ex parte* Coe ... 2086
*Stove for heating and lighting, Gaskill *et al. v.* Myers ... 1111
*Substitution of parts, Gaskill *et al. v.* Myers ... 1111
*Suits for infringement, title to one of several patents defective, Kansas City Hay-Press Company *v.* Devol *et al* ... 1277
*Suits in equity, answer, National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company ... 1423

Page.

Technical terms, use of the word "means," *ex parte* Weaver ... 967
*Telephone-switchboard, United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents ... 505
Testimony, extension of time for taking, Keller *v.* Wethey *v.* Roberts ... 331
Testimony of refractory witness, Kelly *et al v.* Park *et al* ... 1931
*Title to patent in suit defective, Kansas City Hay-Press Company *v.* Devol *et al* ... 1277
Trade-marks, "Black Horse" for tobacco, etc., S. Hernsheim, Bros. & Co., Limited, *v.* J. H. Hargrave & Son ... 503
*"Columbia" for paper, Morgan Envelope Company *v.* Walton *et al* ... 1615
Geographical nouns, *ex parte* Hampden Watch Company ... 1282
*"Hunyadi" for mineral water, Saxlehner *v.* Graef *et al* ... 972
*Injunction after sale and use have been discontinued, Saxlehner *v.* Graef *et al* ... 972
Interference, S. Hernsheim, Bros. & Co., Limited, *v.* J. H. Hargrave & Son ... 503
"Menlo Park" for time-keeping instruments, *ex parte* Hampden Watch Company ... 1282
"Peerless" for carbon-blacks, *ex parte* Peerless Carbon Black Company, Limited ... 803
"Yale" for locks, *ex parte* Yale & Towne Manufacturing Company ... 801
*Trade, restraint of, National Harrow Company *v.* Hench *et al* ... 1612
United States consul, sufficiency of seal of, Prym *v.* Heilbrunner ... 2245
Vacation of judgment when rendered upon the record, Shiels *v.* Lawrence and Kennedy ... 2085
*Valid patents, Forgie *v.* Duff Manufacturing Company ... 1113
*Gaskill *et al. v.* Myers ... 1111
*Kansas City Hay-Press Company *v.* Devol *et al* ... 1277
*Void patents, Bates *v.* Keith ... 1115
*Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company ... 969
*Void patents, invention immoral, Schultze *v.* Holtz *et al.* ... 2249
*Waiver of oath, National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company ... 1423
*Welt-guide for sewing-machines, Bates *v.* Keith ... 1115
Whist-table, *ex parte* Weaver ... 967
Witnesses in interference proceedings, Kelly *et al. v.* Park *et al* ... 1931

DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—OCTOBER-DECEMBER, 1897.

VOL. 81 O G—3

DIGEST OF DECISIONS.

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ABANDONED APPLICATIONS.

ABANDONMENT.

ADVERTISING INVENTIONS FOR SALE.

(See Attorney, 32, 33.)

AFFIDAVITS.

(See Interference, 19, 20.)

AGENTS.

(See Attorneys, 8, 9.)

AMENDMENTS.

(See Abandonment, 2.)

AMENDMENTS TO PRELIMINARY STATEMENTS.

(See Interference, 6, 7.)

ANALOGOUS DEVICES.

(See Particular Patents, 7.)

ANSWER TO BILL.

(See Construction of Specifications and Patents, 3; Practice in the Courts, 1, 2, 3.)

APPEAL.

(See Attorneys, 34, 35.)

APPEAL FEES.

(See Refundment of Appeal Fees.)

APPEAL FROM THE EXAMINERS-IN-CHIEF.

(See Decisions of the Examiners-in-Chief, 3.)

APPEAL TO THE COMMISSIONER OF PATENTS.

(See Examination of Applications, 1.)

APPEAL TO THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

APPEAL APPEAL.—PATENT OFFICE RECORD FOR USE IN COURT—TAXING COST.

APPEAL TO THE EXAMINERS-IN-CHIEF.

APPEAL—SUFFICIENCY OF DESCRIPTION—QUESTIONS FOR EXAMINERS-IN-CHIEF.

APPEALS WHEN INVENTION IS KNOWN TO BE UNPATENTABLE.

(See Attorneys, 36.)

APPLICATIONS.

(See Abandoned Applications; Joint Application—One Applicant not Inventor.)

ABANDONED APPLICATIONS.

1. ACCESS TO RECORDS OF THE PATENT OFFICE—ABANDONED APPLICATIONS—SECTION 892, REVISED STATUTES, CONSTRUED.

Some of the records and papers of the Patent Office are public records, and of these any person is entitled to copies upon paying the usual fee therefor; but there are others not public records, and of these no one is entitled to copies without showing that they are material evidence for him, and the Commissioner of Patents cannot be required to furnish copies until such showing is made. Abandoned applications are evidently of the latter character. (Section 892, Revised Statutes, construed.)

[*United States, *ex rel.* Bulkley, *v.* Butterworth, Commissioner of Patents, 305.

2. SAME—SAME—EVIDENCE IN SUIT—MANDATE OF COURT.

No person is required to submit his private papers to others or produce them in court on the demand of a party to a suit on his allegation or claim that they are material evidence for such party, but only in obedience to the mandate of the court in which such suit is pending, and it is only reasonable that when a public officer has under his control a paper or document in its nature private, or such as the public generally is not entitled to have access to as a public record, he should not be compellable to produce it or deliver copies of it until he has some information from the court in which the case is pending that it is required as evidence. [*Id

3. SAME—SAME—TRIBUNAL TO DETERMINE QUESTION OF EVIDENCE.

The court in which a suit is pending and not the Commissioner of Patents is the appropriate tribunal to determine whether a given paper should be produced as evidence, and where there is no satisfactory showing, as by a certificate of the court, that a paper is proper evidence the Commissioner of Patents may refuse copies of such paper, and a writ of mandamus will not issue to him to furnish such copies.

[*Id.

ABANDONMENT.

1. ABANDONMENT OF APPLICATION—ACQUIESCENCE OF ASSIGNEE.

Where a letter of abandonment not containing the consent of the assignee is accepted upon the representation that it was impossible to communicate with such assignee and obtain his consent, but where the assignee afterward appears and objects to the abandonment, *Held* that the abandonment must be considered void and of no effect.

[*Ex parte* Weidemann, 2245.

2. SUFFICIENCY—AMENDMENT TO SAVE CASE FROM ABANDONMENT—TIMELY OBJECTION.

If an amendment, after rejection, inserting additional claims and requesting suspension of action upon other matters for stated reasons be admitted without question, it cannot be objected to at a subsequent period as insufficient to obviate abandonment. [*Ex parte* Burson, 2246.

3. EXAMINER'S SUCCESSOR.

The tacitly favorable action of one Examiner upon a question of abandonment should at least be persuasive upon his successor. [Id.

APPEAL APPEAL.—PATENT OFFICE RECORD FOR USE IN COURT—TAXING COST.

Where on appeal from the decision of the Commissioner of Patents a record was allowed to be filed in the case by appellee upon assurance that it would have some material bearing upon the question of the issue presented by the appellee, but on consideration it was found that the record had no such bearing, *Held* that the record so introduced must be at the cost of the appellee.

[*Stevens *et al. v.* Seher, 1932.

APPEAL TO THE EXAMINERS-IN-CHIEF.

APPEAL—SUFFICIENCY OF DESCRIPTION—QUESTIONS FOR EXAMINERS-IN-CHIEF.

A petition asking that an Examiner be advised that a certain figure and description are sufficiently described and indicated in the original specification and drawing presents an appeal from the sufficiency rather than the propriety of a rejection. This is a question for the Examiners-in-Chief.

[*Ex parte* Coe, 2086.

APPLICATIONS FOR INVENTIONS KNOWN TO BE UNPATENTABLE.

(See Attorneys, 28, 29, 41, 42.)

ARGUMENT.

(See Attorneys, 37.)

ASSIGNEES.

(See Abandonment, 1; Interference, 22.)

ASSIGNMENTS.

(See Defense.)

ATTORNEYS.

1. JOHN WEDDERBURN AND JOHN WEDDERBURN & CO. HELD GUILTY OF GROSS MISCONDUCT, AND ALSO HELD THAT HE AND THEY SHOULD BE DISBARRED.
The report of the Assistant Commissioner in reference to the order upon John Wedderburn and John Wedderburn & Co. to show cause why he or they should not be refused recognition as patent agent or patent agents, and the facts, evidence, and arguments in the case examined, and *Held* that the said Wedderburn and Wedderburn & Co. have been guilty of gross misconduct as agents or solicitors before the Patent Office, and that he and they should be disbarred.
[*In re* John Wedderburn and John Wedderburn & Co., 159.

2. DISBARMENT PROCEEDINGS — JURISDICTION OF THE COMMISSIONER — RELATION OF SOLICITORS TO THE COMMISSIONER DISTINCT FROM THAT OF A LAWYER TO A JUDGE.
The relation which a patent solicitor sustains to the Commissioner of Patents is not the same as that which a member of a bar sustains to a court. The Commissioner is not a member of the judiciary, practitioners are not members of a court of which the Commissioner is judge, nor does the Commissioner have the authority or jurisdiction of a judge in a similar proceeding. [Id.

3. SAME—SAME—CORPORATION.
The respondent corporation having, by advertisements, by their pamphlets and letter-heads, and by the whole tenor of their correspondence with clients, put themselves before the public as patent attorneys, cannot be heard to deny that they are in fact subject to the jurisdiction of the Commissioner simply because they are in fact a corporation not legally competent to practice law. [Id.

4. SAME—RULES OF EVIDENCE—SUFFICIENCY OF PROOF.
In proceedings under a rule to show cause why an attorney should not be disbarred, it is not necessary that the rules of evidence applicable in criminal proceedings be strictly observed, such proceeding being in its nature civil. (*Ex parte* Wall, 107 U. S., 265.) Nor is it necessary in proceedings of this nature that offenses be proved beyond a reasonable doubt. It is sufficient if the investigation be conducted with fairness and the respondents be afforded ample opportunity to explain the transactions on which the charges were based and to vindicate their conduct in reference thereto. (*Randall* v. *Bingham*, 7 Wall., 523.) [Id.

5. SAME—FAILURE OF RESPONDENT TO APPEAR IN HIS OWN BEHALF.
Since disbarment proceedings in this Office are not *quasi* criminal in character, the failure of a respondent in such proceedings to appear and testify in his own behalf, as well as his failure to exhibit to the inspection of the Office the organization and details of his business, may properly be made subjects for consideration in arriving at a conclusion. [Id.

6. SAME—DUTY OF AN ATTORNEY TO EXPLAIN PRACTICES CHARGED TO INVOLVE GROSS MISCONDUCT.
When an attorney is charged with dishonest practices before this Office, since the character of such practices is peculiarly within his own knowledge, it is not only competent for him to testify concerning them, but it is his duty to himself, to the Patent Office, and to the public to show, if he can, that such practices are legitimate and proper. [Id.

7. SAME—PROPER SUBJECTS OF INQUIRY.
The methods employed by the respondent corporation in gathering in for prosecution applications for patent, the methods employed by the corporation in making searches on inventions, the correspondence carried on with clients, the methods employed for securing fees from clients for foreign patents, for advertising inventions for sale, for appealing rejected applications, in general the methods employed to get money from clients, may be inquired into by the Commissioner, not only as bearing on the fitness of J. W. to continue in practice, but as bearing on the fitness of the corporation to continue in practice, either directly or through its agent. It is impossible in this inquiry to separate the president of the corporation from the corporation of which he is president. [Id.

8. SAME—RESPONSIBILITY OF A CORPORATION FOR ACTS OF AN AGENT IN PROFESSIONAL MATTERS.
It appearing that while applications for patent were filed in the name of J. W. as attorney all correspondence with clients was carried on in the name of the corporation J. W. & Co., J. W. being the president thereof, J. W. is to be considered as merely the agent of the corporation and the corporation must and should be held responsible for his acts. [Id.

9. SAME—PRACTITIONERS—PRESUMPTION AS TO RESPONSIBILITY.
The name of J. W. having appeared continuously since 1893 on papers filed in this Office, he cannot be presumed to be ignorant of the requirements of attorneys or agents practicing before this Office. As president of the corporation he must be held to have been cognizant of and responsible for whatever has been done by the corporation or its employees. [Id.

10. THE PUBLIC SHOULD BE PROTECTED IN THE TRANSACTION OF BUSINESS WITH THE DEPARTMENTS.
If it were true that a solicitor might falsely and deceitfully obtain business from clients, might utilize the offer of the Government to grant patents to defraud citizens, might advise the public falsely that advice would be given free, and might fraudulently induce clients to intrust the prosecution of claims to him without notice of such things being taken by the head of the proper Department, the result would be the organization of combines of confidence men to plunder the public. It is the duty of the head of each Department to protect the public in its relations to such Department. [Id.

11. DISBARMENT PROCEEDINGS—STRICTNESS REQUIRED IN THE INVESTIGATION OF DISHONEST PRACTICES.
When the evil results of the business methods of a practitioner have effected great injury upon the Patent Office and have placed the practice before this Bureau upon a low moral plane, if the result of dealing with such practices slightingly would be to make the Office an apologist therefor, and a participant in reprehensible conduct, and thus bring the Government and its administration into contempt, strict dealing will be observed in any investigation concerning such methods. [Id.

12. ADVERTISEMENTS, MISREPRESENTATION BY.
An advertisement of an "$1,800 prize offer," when the largest prize actually paid was $150, was false and misleading, and was known to be so by the respondents. Whether it called for expenditure on the part of any one is not material. It was misrepresentation for a purpose, that purpose being to secure the name and address of would-be patentees in order to secure fees from them. [Id.

13. NOTICE OF PATENTS PROCURED—DECEPTIVE.
A notice that the number of patents procured in a certain week was 391 and that 124 were sold, when stamped on a letter-head which stated the business of the respondents to be the soliciting of patents and the sale of patents, *Held* to have been intended as a statement of the number of patents procured that week by the respondents and the number of patents sold by them, and is deceptive and misleading. [Id.

14. COMPETITION FOR PRIZES—UNFAIR COMPETITION.
A prize competition open only to those who have paid money to the respondents clearly has nothing philanthropic or generous about it, is not intended for broadly stimulating invention, but is intended solely to boom respondents' business. It is necessary to a fair competition that the jury or board of awards should be impartial, disinterested men, competent to decide on the merits, and it is also necessary that such jury or board should see and examine the invention submitted. To permit the merit of inventions to be finally passed upon by inexperienced and incompetent searchers is to make the competition a mere farce and a fraud. [Id.

15. SIMPLE INVENTIONS — MISREPRESENTATION — GROSS MISCONDUCT.
To encourage would-be patentees to believe there is a great demand for the most simple inventions, when in fact there is no such demand, to endeavor to impress upon the public a false and exaggerated idea of the value of simple inventions, to induce ignorant persons to believe that old and well-tried fields of invention are new and untried fields in which inventions of value can be readily made by them, all for the purpose of inducing the payment of fees for searches and for other purposes, is demoralizing and deceptive and amounts to gross misconduct. [Id.

16. SAME—DECEPTIVE STATEMENTS AS TO THE VALUE OF.
While it is true that some simple inventions which required little thought and little knowledge of the prior art on the part of the inventor have proved of value, such is not usually the case. The valuable inventions are those which are the result of hard work, careful study and experiment by those who have familiarized themselves with what others have done and with the real needs of the art. Further, it is only those simple inventions which are broadly new which are of any considerable value. Hence efforts on the part of parties representing themselves to be attorneys to create in the public mind an impression to a contrary effect are in the nature of fraud—are misleading. [Id.

17. ADVICE AS TO PATENTABILITY AND SALABILITY—DECEPTIVE.
An offer to advise free as to patentability and salability of any device a supposed inventor who had failed to respond to J. W. and Co.'s first letter with its accompanying papers, in view of the fact that the advice given was a mere statement that the device was of a patentable nature, but to determine its patentability a search at a cost of $5 would have to be made, and a statement that a successful device of this nature if patented immediately and properly handled would net its owner not less than so many thousand dollars is deceptive and a mere trick to reopen correspondence with the inventor to lead him on to send fees to J. W. & Co. [Id.

18. VALUATIONS OF INVENTIONS—MISLEADING ESTIMATES.
The fact that the expert chief of the sales department of J. W. & Co. placed values on inventions at sight, sometimes without even sight of the invention or even full description of it—without study of the invention, without inquiry as to its novelty, and without consultation of books—such valuation being a mere off-hand opinion on which neither he nor any other person could have passed intelligent judgment without careful study and full knowledge of all material facts; the fact that this expert never failed to place a substantial value on every device submitted to him; the fact that this expert was one of the incorporators of J. W. & Co., and for a time one of its officers, all show that it was intended that all inventions should be reported to their clients as of very considerable value, without regard to their novelty or real value. [Id.

19. SAME—SAME.
The scheme, as carried out by J. W. & Co., of placing a valuation on inventions before their novelty was even looked into is deceptive and fraudulent on its face. It is utterly indefensible and clearly amounts to gross misconduct. The sending of a false valuation in a single case known to be, or which should be known to be, without value, where by reason of such valuation the inventor might be induced to part with a sum of money, indicates, at least, gross negligence. To make a practice of sending out false valuations indicates deliberate purpose. [Id.

20. PRELIMINARY SEARCH—PROPER SEARCH.
In order to disclose references that may exist in the records of the Patent Office which are accessible to the public, it is necessary that the search be made by a competent person skilled in this line of work, able to recognize a reference when he sees it, that this expert searcher take sufficient time to fully understand the invention on which he is making the search, and that he take sufficient time to make a thorough and complete examination of all classes of invention that may reasonably be supposed to have any bearing upon the invention. [Id.

21. SAME—WHEN REPORT OF SEARCHER SHOULD BE ACCEPTED BY ATTORNEY.
An attorney is not justified in reporting that a thorough examination of the records has been made and no reference found unless such search has been prosecuted by a competent searcher and in a thorough and careful manner, nor is he justified in accepting the favorable report of an inexperienced or incompetent searcher or the favorable report of even an experienced and competent searcher unless that searcher has had sufficient time within which to make a complete search. [Id.

22. SAME—SAME—DUTY OF ATTORNEY—CLOSE REFERENCES SHOULD BE CITED.
It is the duty of an attorney to report the result of a search fully and correctly to the inventor. A false and misleading report upon a search is as grossly deceptive as such a report would be if no search had been made. When references exist which approach the invention so closely as to throw doubt on the advisability of taking out a patent, they should be called to the inventor's attention, even though they do not completely anticipate. [Id.

23. SAME—CRUDE CHARACTER OF INVENTIONS GATHERED IN BY RESPONDENTS.
That an insufficient number of searchers, many of them inexperienced and some of them incompetent, were able in two years to find anticipating references in 20,000 cases shows the supposed inventions gathered in by the respondents through their advertisements and their pamphlets and papers to be merely conceptions of a crude character. It shows that large numbers of persons were falsely induced by the respondents to believe themselves inventors and were led to send fees to the respondents. [Id.

24. SAME—SAME—FAILURE TO REVISE REPORTS OF UNSKILLED SEARCHERS.
The failure to revise the favorable reports of unskilled searchers indicates reckless disregard of the rights of clients, indifference to the agreement as to the character of the search, and intended fraud. It was the duty of respondents to have had reports made under such circumstances, revised. [Id.

25. SAME—SAME—RESPONSIBILITY FOR IMPROPER SEARCHES.
The respondents were bound by their agreement with their clients to have searches made properly. Their failure to do so is gross and inexcusable negligence. They must be held responsible for the acts of their employees in making these searches, particularly as the system under which the searchers worked was of respondents' creation. [Id.

26. SAME—SAME—FRAUDULENT REPORTS—GROSS MISCONDUCT.
The sending of favorable reports by personal direction of J. W. in cases in which references had been found by searchers, without waiting to obtain copies of these references was nothing less than a deliberate fraud upon the clients and amounts to gross misconduct. [Id.

27. SAME—REPORT OF SEARCH—DECEPTIVE AND MISLEADING REPORT—GROSS MISCONDUCT.
A report of search which, while citing an anticipating reference, included a request to send on money for fees and a promise, on receipt of fees, to prepare the necessary application papers and an offer to find a purchaser, is not an unfavorable report and was not intended to be understood by the client as an unfavorable report. It is upon its face a deceptive and fraudulent report. It was intended to deceive and mislead the client. Its use, followed up by the acceptance of fees for the preparation of application papers, is clearly gross misconduct. [Id.

28. APPLICATIONS FOR INVENTIONS KNOWN TO BE UNPATENTABLE—DUTY OF ATTORNEYS TOWARD CLIENTS AND PATENT OFFICE.
It is perhaps an open question whether an attorney may properly file an application for patent for an invention which he believes to be unpatentable. If it is certain that the invention is not patentable, the attorney in filing such an application is false to his client and false in his duty toward the Office. It is the duty of an attorney to assist the Patent Office in doing justice toward his client and justice toward the public. He cannot be a party to an attempt to secure a patent for what he knows to be old any more than he can permit the Office to refuse to his client the protection to which he is entitled. [Id.

29. DUTY OF ATTORNEYS TO CLIENTS—GROSS MISCONDUCT.
When an attorney believes an invention to be unpatentable, he should not file an application therefor without the express direction of the client, given after the reasons why the invention is believed unpatentable have been fully and clearly laid before him. To deceive the client as to facts which negative patentability, or by failure to clearly and definitely state the facts to allow the client to deceive himself as to such facts, is gross misconduct. [Id.

30. SELLING PATENTS.
The propriety of an attorney or solicitor of patents combining the business of soliciting with that of selling patents is questionable. Doubtless it may be done honestly; but propositions for undertaking the sale of inventions which require the payment of a fee in cash in advance are justly condemned. [Id.

31. ADVICE RESPECTING FOREIGN PATENTS.
Advice to take out foreign patents should be given to clients only in those cases in which it is clear that such patents will be of advantage to the clients. In cases in which the invention is not patentable the advice to take out foreign patents presents a plain case of attempt to defraud the client for the benefit of the attorney. That this is gross misconduct is not open to question. [Id.

32. CONCEALMENT OF FACTS FROM CLIENT.
Studious concealment from the client of the true condition of his case, or positive misrepresentation of the condition of the case, in each case representing the condition of the case more favorably than the facts justified, while at the same time the attorney is urging the taking out of foreign patents or the payment of fees to the attorney for advertising the invention for sale, is gross misconduct. [Id.

33. INFORMATION TO CLIENT—FRAUD.
An attorney is bound to inform his client of such steps in the progress of the case as he should know, and he should at least tell the truth and treat his client with candor when he does inform or advise him in regard to his case. If he does not do so, and is at the same time urging further expenditure of money for purposes which he knows cannot result in advantage to the client, his misrepresentation of the condition of the case is conclusive evidence of fraud. [Id.

34. DUTY OF ATTORNEY IN APPEAL CASES.
A letter merely stating to a client that his application is finally rejected and the only course open is to appeal, without explanation of the references, information as to the grounds of the rejection, or advice as to the wisdom of appealing, such as a capable and honest attorney is bound to give to his client, is not such a letter as in fairness and justice to clients, should be written. [Id.

35. SAME—GROSS MISCONDUCT.
An attorney is employed because he is of greater skill and experience in prosecuting applications than his client. He is bound to give his client the advantage of his skill and experience. When he not only fails to do so, but omits that duty for an unworthy purpose, he is guilty of gross misconduct. At so critical a period in the case as that at which the question of appeal has to be considered, the client is entitled to the best information and the best judgment of the attorney. [Id.

36. SAME—SAME.
For persons who represent themselves to be attorneys of experience in practice and skilled in patent matters to accept appeal fees in cases in which they knew there was nothing patentable and appeal would be useless, without hesitation or explanation, purposely keeping the client in ignorance of the true significance of the Examiner's rejection and thus misleading them as to the possibility of favorable action on appeal is gross misconduct. [Id.

37. SAME—GROSS NEGLIGENCE.
An attorney who after repeated assurances to his client that he would do his best on the appeal, fails to appear to argue the case orally and fails to even file a written brief, is guilty of gross negligence. [Id.

38. THE AWARD OF SILVER MEDALS FOR UNPATENTABLE INVENTIONS—GROSS MISCONDUCT.
To award an inventor a silver medal and to state to him that his invention is of special merit and promises to be exceed-

ingly profitable, when the invention is known to be unpatentable and therefore worthless, and to subsequently accept fees for the preparation of an application therefor, shows that the medal was sent intentionally and for a definite purpose and such award is deceptive and fraudulent and amounts to gross misconduct. [Id.

39. The Award of Silver Medals—Gross Deception.
Even if the silver medals had been sent only in those cases on which favorable reports had been made by the searchers, the fact that such medals, together with the accompanying award-letter, were sent in 11,000 cases shows that many inventors whose inventions were in no sense remarkable, in no sense valuable, and in no sense such as would be selected by any competent or honest board of awards, received these medals and that the respondents in sending medals in these cases were guilty of grossly deceiving a large number of their clients. [Id.

40. Retention of Excess of Fees, Dishonest.
It appearing that in each of twenty cases $5 more than the fees agreed on was asked for and paid to the respondents and not returned by them, *Held* that this excess could not have been called for by mistake and it is not seen that the retention of this excess is anything less than petty cheating. [Id.

41. Duplicate Applications—When It Is Improper to File.
An attorney who files several successive applications for the same unpatentable invention, in behalf of different clients to whom he has successively reported such invention patentable, is either grossly negligent or has committed a grave offense against law and morals. [Id.

42. Applications Filed by Respondents—Deceptive Statements.
In view of the fact that only a little over fifty per cent. of the applications filed by the respondents have been found to contain allowable claims, the assurance made by them to their clients that "it is extremely rare that a patent is refused on an invention which we report new and patentable," is obviously a falsehood, promulgated to deceive the unwary. [Id.

43. Charges against Respondents Sustained.
There can be no doubt that the facts brought out in the record fully sustain the charges, with one exception, and show that respondents carried out in their practice a skilfully-planned scheme of deception, misleading and defrauding thousands of would-be inventors out of hundreds of thousands of dollars, and have used to further their schemes the offices of the Government and its postal facilities. [Id.

44. Duty of Patent Office as to Recognition of Attorneys or Agents.
The Patent Office cannot, without bringing lasting reproach upon itself, permit the continuance of such deliberate and systematic deception of inventors as has been practiced by respondents. The duty of the Patent Office to inventors and the public demands that the respondents be no longer permitted to be recognized as patent attorneys or agents. [Id.

45. Responsibility of Employees of a Dishonest Attorney.
Persons in the employ of an attorney who has been engaged in fraudulent practices when, being in responsible positions, they have cooperated and assisted in carrying forward such practices, and when in view of prior experience, such persons must be presumed to have been aware of the nefarious nature of such practices, must be held to be sharers in his guilt and with him, be held unfit to practice before this Office. [Id.

46. Agents or Attorneys—Construction of Act of July 4, 1884.
Section 4 of the act of July 4, 1884, applies to agents or attorneys before the Patent Office, as well as before the other Bureaus of the Interior Department.
[*United States, *ex rel.* Wedderburn, *v.* Bliss, Secretary of the Interior, 1783.

47. Disbarment of Agents or Attorneys—Notice of Charges and Hearing before Disbarment—Construction of Section 487, Revised Statutes.
The proper construction of section 487 of the Revised Statutes is that a person to be disbarred is entitled to notice of the charges against him and an opportunity in some form to be heard in relation thereto prior to any decision of the Commissioner or approval by the Secretary. Any other construction would render the section void, as being in conflict with that part of the fifth amendment to the Constitution which provides that no person shall "be deprived of life, liberty or property without due process of law," and this is the construction very properly given that section by the Commissioner of Patents and the Secretary, as shown by the practice under it. [*Id.

48. Same—Section 487, Revised Statutes, and Section 5 of the Act of July 4, 1884, Compared.
The only difference between section 487 of the Revised Statutes and section 5 of the act of July 4, 1884, is that the act of July 4, 1884, directs that the order disbarring an agent or attorney from practicing before the Patent Office shall be made by the Secretary of the Interior, while section 487 provides that it shall be made by the Commissioner of Patents, with the approval of the Secretary. The only substantial difference between the two sections is that section 5 applies to all the Bureaus of the Interior Department, while the section of the Revised Statutes applies only to the Patent Office. [*Id.

49. Same—"Due Process of Law."
Where an agent was furnished with a copy of charges made against him before the Commissioner of Patents as to why he should not be disbarred from practicing as a patent agent, and he had a hearing before the Commissioner of Patents on these charges and the Commissioner recommended that he be disbarred from further practicing as an agent or attorney, and the Secretary approved the reasons given by the Commissioner of Patents without affording the agent a hearing before him in person, *Held* that the refusal of the Secretary to hear oral argument was not arbitrary, oppressive, or unjust and the proceeding before him was conducted under "due process of law." [*Id.

50. Same—Tribunals Exercising Quasi-Judicial Powers—"Due Process of Law."
The proceeding before executive and ministerial officers and special tribunals exercising quasi-judicial powers in order to constitute due process of law need not be as formal as in courts of justice or conducted after the manner of proceedings in such courts. What would be due process of law before such officers and tribunals might not be considered such in a court of justice. What is due process of law in a particular case depends largely upon the nature and object of the proceeding, the duties and the jurisdiction of the officer or tribunal, and the nature of the right or immunity to be affected by the proceeding. If the mode of procedure be such that the party to be affected has an opportunity of presenting to the officer or tribunal in any reasonable way his contention as to the facts and merits of the question to be determined, the proceeding is due process of law; but if the determination be made in an arbitrary, oppressive, or unjust manner, so that the party to be affected has no reasonable opportunity for hearing, then the proceeding and determination are void because not due process of law. [*Id.

51. Same—Mandamus for Hearing before the Secretary—Demurrer—Petition Dismissed.
Upon a demurrer to the petition for writ of mandamus to compel the Secretary to grant a hearing in person to a patent agent whom the Commissioner had recommended to the Secretary for disbarment, the reasons for which recommendation the Secretary had approved without a hearing before him in person, *Held* that the demurrer should be sustained, the rule to show cause discharged, and the petition for writ of mandamus dismissed. [*Id.

ATTORNEYS' FEES.

(See Attorneys, 40.)

BILL IN EQUITY.

(See Multifariousness.)

BRIEF.

(See Attorneys, 37.)

CHANGE OF STRUCTURE.

(See Interference, 15, 17.)

CLAIMS.

(See Construction of Specifications and Patents, 1; Designs, 2.)

1. Breadth of Claims—"Means."
An applicant should be allowed to claim his invention as broadly as possible in view of the state of the art. The use of the term "means," with the proper qualifying words, is not prohibited by any decision of the Office or courts.
[*Ex parte* Weaver, 967.

2. Same—Clearness of Statement.
Where the idea is clearly stated and the combination or relation of parts to produce a desired end is plainly expressed, the breadth of the statement of the claim is no reason for objecting to it. (*Ex parte Knudsen*, 72 O. G., 589.) [Id.

COMMISSIONER OF PATENTS.

(See Abandoned Applications; Attorneys, 2, 3, 7, 47, 48, 49, 50; Examination of Application, 1; Interference, 7; Reopening of Rejected Cases, 1; Witnesses, 1, 2.)

CONCEPTION OF INVENTION.

1. Interference.
A complete conception as defined in an issue of priority of invention is matter of fact and must be clearly established by proof. The conception of the invention consists in the complete performance of the mental part of the inventive act. All that remains to be accomplished in order to perfect the act or instrument belongs to the department of construction, not invention. It is therefore the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice that constitutes an available conception within the meaning of the patent law.
[*Mergenthaler *v.* Scudder, 1417.

2. Same—Date of Conception.
The date of the conception is the date when the idea of means, including all the essential attributes of the invention, becomes so clearly defined in the mind of the inventor as to be capable of exterior expression, and it is settled both by practice and express decision that such exterior expression of the mind of the inventor when relating to machinery may be by exhibits either in the form of drawings or by model, so as to lay the foundation of a claim to priority, if thereby the invention be made sufficiently plain to enable those skilled in the art to understand it. [*Id.

3. Same—Proving Conception—Unsupported Testimony.
The fact of conception by an inventor, for the purpose of establishing priority, cannot be proved by his mere allegation nor by his unsupported testimony where there has been no disclosure to others or embodiment of the invention in some clearly perceptible form, such as drawings or model, with sufficient proof of identity in point of time. [*Id.

4. Same—Date of Conception—Adequate Proof—Date of Application.
Any full and accurate description of the invention, either in words or drawings or by model, if it be of a machine, or even an unsuccessful effort to embody the conception, when the effort discloses that the idea was complete, will suffice, although the attempt to represent it may have failed. In the absence of all other proof the date of the application for a patent, if containing a complete description, is taken as the date of the conception. [*Id.

5. Same—Same—Same—Drawings.
If drawings be exhibited and relied on as evidence of the conception of the invention, they must show a complete conception, free from ambiguity or doubt, and such as would enable the inventor or others skilled in the art to reduce the conception to practice without any further exercise of inventive skill. [*Id.

6. Same—Same—Defective Drawings Insufficient to Prove Conception.
Where drawings are in many essential particulars defective and wanting in completeness as means of showing and illustrating an invention involved in interference, such defects and want of completeness in the drawings cannot be aided and the defective drawings made effective by construction or by reference to the prior state of the art. [*Id.

7. Same—Same—Sufficiency of Drawings.
Where an inventor has undertaken to invent and construct a machine essentially different from preëxisting machines and not simply a mere improvement upon previous inventions, it is necessary for him to furnish such full, clear, and definite drawings of his invention to prove conception as will enable any person skilled in the art of construction of such machines to reduce the invention to practical form. [*Id.

CONSPIRACY.

(See Contracts, 3.)

CONSTRUCTION OF CLAIMS.

Claims—Including Elements Necessarily Understood.
It is not requisite to include in a claim as elements thereof parts of the machine which are necessary to its action so far as they may be understood and can be supplied by those who are ordinarily skilled in the art.
[*American Street Car Advertising Company *v.* Newton Street Railway Company *et al.*, 506.

CONSTRUCTION OF RULES.

(See Examiners, 1; Fees, 2; Interference, 1, 2, 12, 13, 22.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Construction of Claims; Designs, 2; Invention; Particular Patents.)

1. Reissue—Defective Claim—Omitting Elements.
A claim which made that which was no part of the invention one of its elements, was defective, which defect was properly cured by omitting the improper element from the reissue.
[*Gaskill *et al. v.* Myers, 1111.

2. Definite Description in Patent.
In a case like the present the patent should state and fully disclose the component parts of the composition claimed with clearness and precision and not leave a person attempting to use the discovery to find it out by experiment. If the description be so vague and uncertain that no one can tell with certainty, except by independent experiment, how to apply the discovery and what exact result may be expected therefrom, the patent is void. (*Wood v. Underhill*, 5 How., 1, 5; *Tyler v. Boston*, 7 Wall., 327, 330; *The Incandescent Lamp Patent*, 73 O. G., 1290; 159 U. S., 465, 474–5.)
[*Stevens *et al. v.* Seher, 1932.

3. Infringement Suits—Pleading—Denial of Utility.
A statement in a verified answer that complainant's invention is used only for gambling purposes in saloons and barrooms and cannot be used for any other purpose is sufficient evidence of want of utility, in the absence of testimony supporting the patent, to overcome the *prima facie* case made by the patent itself. [*Schultze *v.* Holtz *et al.*, 2249.

CONSTRUCTION OF STATUTES.

(See Abandoned Applications; Attorneys, 46, 47, 48.)

CONSULAR SEAL.

(See Interference, 18, 19, 20.)

CONTRACTS.

1. Restraint of Trade.
While it is true that all contracts in restraint of trade are not prohibited, and it is sometimes difficult to determine whether a particular one is, there is no room for doubt that a contract between patentees and manufacturers of patented articles to prevent competition in business and enhance prices is unlawful.
[*National Harrow Company *v.* Hench *et al.*, 1612.

2. Property Covered by Letters Patent.
The fact that property involved is covered by Letters Patent cannot be urged as a justification of a contract which enhances prices and restrains trade. Patents confer a monopoly as respects property covered by them, but they confer no right upon the owners of several distinct patents to combine for the purpose of restraining competition and trade. Patent property does not differ in this respect from any other. [*Id.

3. Patent Privileges—Combination by Distinct Owners of Patents—Monopoly—Restraint of Trade.
The fact that one patentee may possess himself of several patents and thus increase his monopoly affords no support for an argument in favor of a combination by several distinct owners of such property to restrain manufacture, control sales, and enhance prices. Such combinations are conspiracies against the public interest and abuses of patent privileges. The object of these privileges is to promote the public benefit, as well as to reward inventors. [*Id.

4. Same—Avoiding Litigation.
A contract based on patent-rights which restrains trade is not justified by the situation of the parties. Their exposure to litigation is entitled to no greater weight. Patentees may compose their differences, as the owners of other property may, but they cannot make the occasion an excuse or cloak for the creation of monopolies to the public disadvantage. [*Id.

COPIES OF PAPERS IN THE PATENT OFFICE.

(See Abandoned Applications.)

CORPORATIONS.

(See Attorneys, 3, 8, 9; Defense; Practice in the Courts, 1.)

COSTS.

(See Appeal to the Court of Appeals of the District of Columbia.)

CUSTOMS DUTIES.

(See Parties to Suit.)

DATE OF FILING APPLICATION.

(See Conception of Invention, 4.)

DECISIONS OF EXAMINERS-IN-CHIEF.

(See Reopening of Rejected Cases.)

1. RECOMMENDATION OF EXAMINERS-IN-CHIEF—EFFECT ON PRIMARY EXAMINER.
The Rules of Practice of the Patent Office provide that the Examiners-in-Chief may annex to their decision a statement of apparent grounds for granting Letters Patent in the form claimed or any other form and may make such recommendation as they deem proper. Such statement and recommendation cannot be ignored or pleaded as of no effect. It is binding upon the Examiner and cannot be disregarded.
[*Ex parte* Letellier, 1611.

2. SAME—QUESTIONS CONSIDERED BY THE EXAMINERS-IN-CHIEF.
It is to be presumed that the Examiners-in-Chief consider fully all matters bearing upon the question of patentability of claims as to which they make favorable recommendations, the question of new matter, as well as other questions. Unless a state of the art not before the Examiners-in-Chief when their recommendation is made is found to exist by the Examiner, such as precludes the allowance of claims recommended by them, the Examiner should accept the recommendation.
[Id.

3. RIGHT OF APPLICANT TO ACCEPT DECISION.
The Examiner's action holding that an applicant cannot appeal from the decision of the Examiners-in-Chief and at the same time take advantage of so much of their decision as is favorable to him—cannot "split up their decision and accept a part of their suggestion and appeal from the rest of their decision"—overruled, as this is precisely what an applicant is entitled to do. It is the purpose of the patent law to grant to an applicant all that he is entitled to claim as new. [Id.

DEFENSE.

TITLE TO A PATENT—DEFECTIVE ASSIGNMENT BY A CORPORATION—EFFECT AS TO INFRINGERS.
Where an assignment of a patent by a corporation is executed by its president and secretary, who own all the stock, without any previous authorization by the board of trustees, *Held* that it is no defense to an infringement suit brought by the assignees against a third party where the corporation itself has never questioned the validity of an assignment.
[*Kansas City Hay-Press Company *v.* Devol *et al.*, 1277.

DEMURRER.

(See Attorneys, 51.)

DESCRIPTION.

(See Appeal to the Examiners-in-Chief; Conception of Invention, 4; Construction of Specifications and Patents, 2.)

DESIGNS.

(See Particular Patents, 8.)

1. MOVABLE PARTS.
A design as a whole should be of unchanging character and should not include movable parts, since the shape or configuration of a device is varied by varied positions of its elements.
[*Ex parte* Smith, 969.

2. GENERIC AND SPECIFIC CLAIMS.
Claims of a design patent are related as generic and specific when one has more elements recited therein than the others.
[*Ex parte* Coe, 2086.

3. SPECIES—MODIFICATION—ADDITIONS.
When an inventor has produced a design, he has produced a single shape or configuration and not a plurality of them. He may make additions to that design, but may not make modifications. Two different manifestations constitute two distinct species of which one is a modification of the other. [Id.

DISBARMENT OF ATTORNEYS.

(See Attorneys 1, 4, 5, 6, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 47, 48, 49, 50, 51.)

DISCLOSURE.

(See Interference, 10, 14.)

DISHONORED DRAFTS.

(See Fees.)

DIVISION OF APPLICATION.

(See Interference, 4.)

DRAWINGS.

(See Appeal to Examiners-in-Chief; Conception of Invention, 2, 3, 4, 5, 6, 7; Designs, 3.)

DUTY OF EXAMINER.

(See Examination of Applications; Interference, 3.)

EMPLOYEES OF PATENT ATTORNEYS.

(See Attorneys, 45.)

EMPLOYMENT OF ATTORNEYS.

(See Attorneys, 35.)

ERRONEOUS DECISIONS.

(See Interference, 4, 5.)

ERROR IN PRELIMINARY STATEMENT.

(See Interference, 6, 7.)

ERROR IN STATEMENT.

(See Interference, 4.)

EVIDENCE.

(See Appeal to the Court of Appeals of the District of Columbia; Model.)

EVIDENCE IN SUIT.

(See Abandoned Applications, 2.)

EVIDENCE OF INVENTION.

(See Conception of Invention, 4, 5, 6, 7; Interference, 8, 9.)

EXAMINATION OF APPLICATIONS.

(See Claims; Decisions of Examiners-in-Chief; Examiners, 1; Interference, 3.)

1. PRACTICE—EXAMINERS REFERRING QUESTIONS OF PRACTICE TO THE COMMISSIONER.
The Commissioner should not be called upon to instruct an Examiner as to how he should act upon an application or pass upon questions arising during the prosecution of a case until the case is properly before the Commissioner by petition or appeal. It is the Examiner's duty to act on applications as they come before him, using his best judgment in deciding any question that may arise in the consideration of the case. If exception is taken to his ruling, there is relief by petition or appeal.
[*Ex parte* Sellers *et al.*, 803.

2. TRANSFERRING APPLICATIONS—CONDUCT OF EXAMINERS.
An application will not be transferred from one division to another on the ground that it is not receiving proper treatment by the Examiner in charge of it. Other relief will be applied when it is clear that an Examiner is not performing his duties as he should.
[*Ex parte* Weaver, 967.

EXAMINERS.

(See Abandonment, 3; Appeal to Examiners-in-Chief; Decisions of Examiners-in-Chief; Examination of Applications, 1; Interference, 4; Reopening of Rejected Cases; Trade-Marks, 8.)

1. REJECTION—ONE EXAMINER REVIEWING THE ACTION OF HIS PREDECESSOR—CONSTRUCTION OF RULE 144.
While a claim deemed allowable by one Examiner is always subject to rejection by his successor upon references or reasons not before considered, and it may be, in exceptional cases, on the references previously considered, the spirit of Rule 144 would seem to indicate that the favorable action of an Examiner should be at least extremely persuasive upon his successor.
[*Ex parte* Nealon, 1787.

2. COMPLAINTS AGAINST EXAMINERS—SEPARATE FROM PETITION.
A request that an Examiner be instructed in his duty as to his general practice toward applicants and in relation to application should be presented in a complaint against the Examiner and not in a petition.
[*Ex parte* Coe, 2086.

EXAMINER'S DECISION TO BE RESPECTED BY HIS SUCCESSORS.

(See Abandonment, 3.)

EXAMINERS-IN-CHIEF.

(See Appeal to the Examiners-in-Chief; Decisions of Examiners-in-Chief; Reopening of Rejected Cases.)

EXAMINER OF INTERFERENCES.

(See Interference, 4.)

EXPERIMENTAL TESTS.

(See Reduction to Practice.)

FEES.

(See Refundment of Appeal Fees.)

1. PAYMENT OF FEES—DISHONORED DRAFT.
Where a draft presented in payment of the fee in an application for patent is dishonored because of the failure of the bank by which it was issued, *Held* that it did not constitute payment of the fee.
[†*In re* Nash, 799.

2. SAME—RULE 223.
Such draft was not a compliance with Rule 223, specifying the manner in which money shall be paid, since the money was never received by any officer of the United States.
[†Id.

FOREIGN PATENTS.

(See Attorneys, 31, 32, 33.)

FOREIGN TESTIMONY.

(See Interference, 8, 9, 10.)

FORMER DECISIONS AFFIRMED.

(See Interference, 16.)

FORMER DECISIONS REVERSED.

DECISION REVERSED.
The decision of the Acting Commissioner of Patents in awarding priority to Seher reversed.
[*Stevens *et al. v.* Seher, 1982.

FRAUD.

(See Attorneys, 10, 11, 12, 13, 14, 26, 27, 31, 32, 33, 38, 39, 40, 43.)

FRAUDULENT USE OF THE UNITED STATES MAILS.

(See Attorneys, 43.)

GENERIC CLAIMS.

(See Designs, 2.)

HEARING.

(See Attorneys, 47, 49, 50, 51.)

IMMORAL PURPOSES.

(See Construction of Specifications and Patents, 3; Particular Patents, 11.)

INFRINGEMENT.

(See Defense; Injunction, 2; Multifariousness; Particular Patents, 1, 2, 4, 5, 6, 9, 10, 12, 13, 14, 15, 16, 17.)

INJUNCTION.

(See Trade-Marks, 6, 7.)

1. PRELIMINARY INJUNCTION—QUESTIONS FOR FINAL HEARING.
The question as to whether laches or inaction has in any way impaired the complainant's right to an injunction and whether the continued use of the word "Hunyadi" after sale of complainant's water was discontinued was or was not proper may appropriately be left for final hearing where it appears that this word is not now being used.
[*Saxlehner *v.* Graef *et al.*, 972.

2. SEVERAL PATENTS IN SUIT—TITLE TO ONE IN DISPUTE.
Where devices covering several patents are capable of embodiment and conjoint use in a single machine and it was sought to recover in a single suit for infringement, the failure of the complainant either to establish title to one of the patents or to show infringement of one or more of them does not affect his right to an injunction and an accounting in respect of others if the proof is sufficient to show that they are infringed.
[*Kansas City Hay-Press Company *v.* Devol *et al.*, 1277.

3. WELSBACH—INCANDESCENT GAS-LAMP—PRELIMINARY INJUNCTION—DOUBTFUL VALIDITY.
On a motion for a preliminary injunction against infringement of claims 3, 5, and 6 of Letters Patent No. 409,530, granted August 20, 1889, to Carl Auer von Welsbach, for an improved incandescent gas-lamp, *Held* that the validity of the claims is doubtful and the preliminary injunction will not issue.
[*Welsbach Light Company *v.* Benedict & Burnham Manufacturing Company, 2257.

4. PRELIMINARY INJUNCTION—DOUBTFUL VALIDITY OF THE CLAIMS—ADVANTAGES TO COMPLAINANT AND DEFENDANT.
While the issuance of an injunction would be advantageous to the complainant in its efforts to protect its business and prevent an onslaught upon it, yet, when there are serious doubts as to the validity of the contested claims of the patent, injunction against infringement should not issue. Such an interference with the business of one manufacturer in order to strengthen the position of another pending an attack upon the validity of his patent seems to be an undue stretch of the power of a court of equity.
[*Id.

INTERFERENCE.

(See Conception of Invention, 1, 2, 3, 6; Former Decisions Reversed; Priority of Invention; Reduction to Practice; Trade-Marks, 1; Witnesses, 1, 2, 3.)

1. TESTIMONY, EXTENDING THE TIME FOR TAKING—OBSERVING THE RULES OF PRACTICE.
The rule for extension of time for taking testimony is a salutary one, made in the interest of all parties. Where there is an obvious disregard of the rule, there is nothing left to do but to abolish the rule or compel its observance, and there is only one way to accomplish the latter, which is to refuse to permit testimony to be taken when it is not observed.
[Keller *v.* Wethey *v.* Roberts, 331.

2. RULES OF PRACTICE—JUST COMPLIANCE WITH.
It is better to insist upon a reasonable and just compliance with the Rules of Practice of the Office, though it may work a hardship in an individual case, than adopt a course which would result in a practical abrogation of them, with consequent confusion. (Citing *Smith and Thomas* v. *Cowles*, 30 O. G., 343.)
[Id.

3. PATENTABILITY OF THE ISSUE.
Before an interference is declared the subject-matter of the issue must be decided to be patentable. To declare an interference and put a party to the trouble of conducting it and then when he succeeded reject his claims on the same reason urged prior to the declaration of the interference is unwise and unjust.
[*Ex parte* Weaver, 967.

4. DECLARATION OF INTERFERENCE—DIVISIONAL APPLICATION—ERROR IN STATEMENT OF PRIMARY EXAMINER—DUTY OF EXAMINER OF INTERFERENCES TO AID IN CORRECTING ERROR.
Where in the statement prepared by the Primary Examiner and forwarded to the Examiner of Interferences the Primary Examiner omitted to state that an application involved in the interference was a division of an earlier application, the Examiner of Interferences might, without any showing, have justified his action in deciding the case on the record, yet such fact did not justify him in adhering to his decision when his

attention was called to the omission. In such case it was his plain duty to take such step as might have been necessary to correct the error in the most expeditious manner.
[Hunter *v.* Wightman, 1788.

5. ERRORS ON THE PART OF THE OFFICE—DUTY OF THE TRIBUNALS IN CORRECTING THEM.
Whenever it is found that the rights of a party to an interference or the rights of any party before this Office have been prejudiced by an error of any tribunal of the Office, all tribunals of this Office should cooperate to remedy the error with as little delay or formality as is consistent with a due regard to the proper keeping of the records. [Id.

6. AMENDING PRELIMINARY STATEMENT—CHANGING DATES.
It is of the utmost importance that strictness be observed as to the dates furnished in preliminary statements required in cases of interferences, for if parties were allowed to vary their dates at pleasure as to the time of discovery, invention, or disclosure it would inevitably lead to the imputation of deception and bad faith practiced on the part of the party so changing his dates.
[*Stevens *et al. v.* Seher, 1932.

7. SAME—COMPLYING WITH RULE TO AMEND STATEMENT.
If any material error occurs in the preliminary statements, or other statements made to the Office, through inadvertence or mistake, the statement may be corrected on motion upon showing to the satisfaction of the Commissioner that the correction is essential to the ends of justice, and the motion to correct the statement must be made, if possible, before the taking of any testimony and as soon as practicable after the discovery of the error. It is only upon complying with this rule that the correction of any material error in preliminary statements can be made. [*Id.

8. TESTIMONY AS TO MATTERS WHICH OCCURRED ABROAD.
Testimony cannot be taken as to matters which took place in a foreign country tending to prove priority; but the question of originality stands on a different footing. (*Parkin and Wright* v. *Jenness*, 63 O. G., 759.)
[Shiels *v.* Lawrence and Kennedy, 2085.

9. SAME—ORIGINALITY OF INVENTION.
Although a party may not be able to prove priority of invention in this country by reason of the fact, appearing from his preliminary statement, that he was not the first to introduce the invention into this country, *Held* that he may nevertheless establish that his opponent is not entitled to an award of priority by proving that such opponent is not an original inventor, but received a disclosure of it from him. [Id.

10. JUDGMENT ON THE RECORD—VACATION OF JUDGMENT.
Judgment of priority may properly be rendered on the record under these circumstances; but where afterward a reasonable suggestion is made that the successful party received a disclosure of the invention from his opponent *Held* that the judgment should be vacated as to matters relating to originality and times set for taking testimony on this question. [Id.

11. MOTION TO DISSOLVE—REHEARING.
Where a party fails to make a full presentation of his case on a motion for dissolution, but relies on the case as presented, *Held* that he is bound by the decision rendered and a rehearing will not be granted merely to permit of a further showing, but only on grounds which would warrant a new trial at law.
[Bechman *v.* Wood, 2087.

12. SAME—RULE 126.
The Office may of its own motion, under the provisions of Rule 126, take cognizance of matter which would properly constitute a basis for a motion to dissolve without regard to the fact that such motion has been previously made. [Id.

13. SAME—PIECEMEAL MOTIONS.
All grounds for dissolution should be presented in one motion, since it is contrary to the established practice of the Office to allow a party to make motions to dissolve by piecemeal. [Id.

14. PRIORITY.
On the record it must be held that Buhoup was not only the first to conceive and the first to reduce to practice, but that he actually disclosed the invention to Hien prior to his alleged date of conception. Hien may have forgotten the circumstances of this disclosure; but this cannot overcome the proof submitted on behalf of Buhoup.
[Hien *v.* Buhoup, 2088.

15. PRIORITY—CAR-COUPLING—CHANGE IN FORM OF A PIN—DEPARTURE.
Where it appears that Buhoup was the first to conceive the invention of a round-shanked gravity-pin and button-head and reduced the invention to practice after he had seen the model of the conception of the device in issue by Hien, *Held* that the subsequent modification of the pin from a round shank to a square shank with an oblong head and the substitution of this modification or form for that previously put into use was not such a departure from the original invention as to disentitle him to the right of priority against Hien, who had conceived subsequently to Buhoup, but not put into practical operation a device of similar principle but of different form and operation from that of the original conception.
[*Hien *v.* Buhoup, 2088.

16. SAME—DECISION OF THE PATENT OFFICE AFFIRMED.
The decision of the Assistant Commissioner holding that Buhoup was the first and original inventor affirmed. [*Id.

17. INVENTION—MECHANICAL SKILL—CHANGE OF FORM OF PIN.
To change the form of a pin from a round shank with a button-head to a square-shanked pin with an oblong head to overcome a defect in operation was simply a matter of variation in construction not affecting the substance of the invention claimed, and such change or variation in form could be made by mere mechanical skill, without the exercise of the faculty of invention, in order to render more perfect the operation of the original device. (*Pickering* v. *McCullough*, 21 O. G., 73; 104 U. S., 319.) [*Id.

18. PRELIMINARY STATEMENT—UNITED STATES CONSUL—VENUE—CONSULAR SEAL.
A preliminary statement affirmed before a United States consul will not be stricken out merely because no venue or indication of the place where such affirmation was made appears save in the seal of the consulate impressed upon the paper.
[Prym *v.* Heilbrunner, 2245.

19. SAME—SAME—VENUE, PURPOSE OF.
The purpose of the venue is to show that the officer administering the affidavit acted within his jurisdiction. It will be presumed that he so acted in the absence of any showing to the contrary. This presumption is strengthened by his use of a consular seal. [Id.

20. SAME—SAME—SUFFICIENCY OF AFFIDAVIT—PERJURY.
The usual test of the sufficiency of an affidavit as to the possibility of assigning perjury cannot be applied to a paper executed before a United States consul abroad when the latter cannot be brought within the jurisdiction of the Federal court. [Id.

21. SUPPLEMENTAL OATH—EX PARTE QUESTION.
The absence of a supplemental oath, although it may be necessary before allowance, does not furnish a ground for rejecting the claims and is an *ex parte* question not open to argument by an opponent in interference proceedings. (*Rennyson* v. *Merritt*, 58 O. G., 1415.)
[*Ex parte* Weidemann, 2245.

22. SAME—RULE 96.
Where it appears that it is impossible at the present time for the assignee to obtain the signature of the inventor to a supplemental oath, *Held* that the necessity for such oath may properly be left for consideration until after the decision in the interference under Rule 96. [Id.

INTERIOR DEPARTMENT.

(See Attorneys, 46.)

INVENTION.

(See Conception of Invention; Interference, 17; Reduction to Practice.)

MECHANICAL SKILL—ELASTIC SUSPENSION.
The matter of elastic suspension by springs and of otherwise giving either entire or partial support is so common in the arts that the presumption is against the patentability of any such mere form of suspension. The selection of a form of support is in the common field of mechanical construction.
[*Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company, 969.

JOINT APPLICATION—ONE APPLICANT NOT INVENTOR.

JOINT AND SOLE APPLICANTS—SOLE APPLICANT SUCCEEDING JOINT APPLICANTS.
When through ignorance a party who is not an inventor joins with the inventor in making application, the ignorant cannot legally succeed as sole applicant the joint applicants. The fact that for a time the rules permitted the substitution now asked for does not make it possible or equitable to grant relief not in accordance with the law.
[*Ex parte* Erne and Bridges, 2247.

JUDGMENT ON THE RECORD.

(See Interference, 10.)

JURISDICTION.

(See Attorneys, 2, 3, 7; Witnesses.)

LACHES.

(See Attorneys, 37; Injunction, 1; Witnesses, 4.)

MANDAMUS.

(See Abandoned Applications, 3; Attorneys, 51.)

MANDATE OF THE COURT.

(See Abandoned Applications, 2.)

MECHANICAL SKILL.

(See Interference, 17; Invention.)

MEDALS AWARDED BY ATTORNEYS.

(See Attorneys, 38, 39.)

MISCONDUCT.

(See Attorneys, 1, 6, 7, 15, 16, 17, 18, 19, 28, 29, 31, 35, 36, 41, 42, 43.)

MISREPRESENTATION.

(See Attorneys, 15, 16, 17, 18, 19.)

MODEL.

(See Conception of Invention, 2, 3, 4.)

INFRINGEMENT—PROOF OF ANTICIPATION.
A model of an alleged anticipating machine made merely from recollection years after the machine that it purports to represent and which is introduced without disclosing the fact that it was not an original model until the same was developed on cross-examination cannot be accepted as sufficient evidence to invalidate a patent.
[*Kansas City Hay-Press Company *v.* Devol *et al.*, 1277.

MONOPOLY.

(See Contracts, 2, 3, 4.)

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 11, 12, 13.)

MULTIFARIOUSNESS.

INFRINGEMENT SUITS.
Where devices covered by several patents are capable of embodiment and conjoint use in a single machine, a bill which seeks to recover in a single suit for the infringement of all the patents is not multifarious.
[*Kansas City Hay-Press Company *v.* Devol *et al.*, 1277.

NEW CLAIMS.

(See Reopening of Rejected Cases.)

NOTICE OF HEARING.

(See Attorneys, 47.)

OATH.

(See Interference, 21, 22; Practice in the Courts, 1, 2, 3.)

OMISSION OF ELEMENT.

(See Construction of Specifications and Patents, 1.)

PARTICULAR PATENTS.

(See Priority of Invention; Reduction to Practice.)

1. BARRETT—LIFTING-JACK—No. 455,993—VALID—BROAD CONSTRUCTION—INFRINGED.
Claims 1 and 6 of Letters Patent No. 455,993, granted July 14, 1891, to Josiah Barrett, for a lifting-jack, *Held* to be valid and entitled to have such a broad construction put upon them as would enable him to obtain the benefit of the full scope of his invention. As thus construed they are *Held* to be infringed.
[*Forgie *v.* Duff Manufacturing Company, 1113.

2. BATES—WELT-GUIDE FOR SEWING-MACHINES—No. 419,239—PATENTABILITY—INFRINGEMENT.
Letters Patent No. 419,239, granted January 14, 1890, to George A. Bates, for a welt-guide for sewing-machines, construed and *Held* that if the patent covers anything which is patentable any claimed construction of it which would bar the respondent from using the guide especially devised by him would be too unreasonable to be sustained.
[*Bates *v.* Keith, 1115.

3. BLACKWELL—RAILWAY-MOTOR—No. 470,817—VOID.
Letters Patent No. 470,817, dated March 15, 1892, to Francis O. Blackwell, for improvements in railway-motors, *Held* to cover nothing of a patentable nature.
[*Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company, 969.

4. COWLES ET AL.—SMELTING ORES BY ELECTRIC CURRENT—No. 319,795—INFRINGEMENT.
Letters Patent No. 319,795, granted June 9, 1885, to Eugene H. Cowles *et al.*, for a process of smelting ores by the electric current, construed and *Held* that the charge of infringement has not been sustained.
[*Electric Smelting and Aluminium Company *v.* Carborundum Company, 332.

5. SAME—ELECTRIC SMELTING-FURNACE—No. 319,945—NOVELTY—INFRINGEMENT.
Letters Patent No. 319,945, granted June 9, 1885, to Eugene H. Cowles *et al.*, for an electric smelting-furnace, was assailed as being void for lack of patentable novelty, but as it was held that it was not infringed the question of patentability was not passed upon. [*Id.

6. LIVENGOOD *et al.*—BALING-PRESS—No. 495,944—INFRINGED.
Claim 5 of Letters Patent No. 495,944, granted April 18, 1893, to James E. Knight, Edward Kelly, and William A. Alderson as assignees of Winfield S. Livengood, Walter H. Chadbourne, and James M. Gibbons, for a baling-press, construed and *Held* to be infringed.
[*Kansas City Hay-Press Company *v.* Devol *et al*, 1277.

7. MYERS—STOVE FOR HEATING AND LIGHTING PURPOSES—REISSUE No. 11,383—VALIDITY.
Reissue Letters Patent No. 11,383, granted November 7, 1893, to John F. Myers, for a stove for heating and lighting purposes, *Held* to be valid, although the claims of the original patent had been broadened by the omission of certain unpatentable elements and although a patent for substantially the same thing had been granted to another party who had merely substituted a base-ring of the Myers original patent and added a heat-deflecting ring on the top of Myers's device.
[*Gaskill *et al. v.* Myers, 1111.

8. MYERS—DESIGN FOR A LAMP-STOVE—No. 22,911—VALIDITY.
Design Letters Patent No. 22,911, granted November 14, 1893, to John F. Myers, for a design for a lamp-stove, shows sufficient originality and invention to sustain its validity. (Gilbert, judge, dissenting.) [*Id.

9. RANDALL—ADVERTISING-RACK—No. 380,696—INVALIDITY—INFRINGEMENT.
Claim 1 of Letters Patent No. 380,696, granted April 10, 1888, to Isaac H. Randall, for an advertising-rack for street-cars, construed and *Held* that the unnecessary designation of certain elements does not invalidate the claim; that the device covered is new, useful, and not anticipated, and that the claim is infringed.
[*American Street Car Advertising Company *v.* Newton Street Railway Company *et al.*, 506.

10. RICE—MOTOR-SUSPENSION FOR RAILWAY-WORK—No. 448,200—INFRINGEMENT.
Letters Patent No. 448,200, dated March 17, 1891, to Edwin Wilbur Rice, for improvements in motor-suspension for railway-work, examined and *Held* not infringed.
[*Thomson-Houston Electric Company *v.* Athol and Orange Street Railway Company, 969.

11. SCHULTZE—COIN-CONTROLLED APPARATUS—NOS. 502,891 AND 514,664—INVALID—LACK OF UTILITY—GAMBLING PURPOSES.
Letters Patent Nos. 502,891 and 514,664, granted to Gustav F. W. Schultze August 8, 1893, and February 13, 1894, respectively, for improvements in coin-controlled apparatus, *Held* invalid for want of utility, as the only use to which the inventions have been put or applied is for gambling purposes.
[*Schultze *v.* Holtz *et al.*, 2249.

12. SOOY—BALING-PRESS—No. 394,623—VALID—INFRINGED.
Claims 1 and 2 of Letters Patent No. 394,623, granted December 18, 1888, to Ephraim C. Sooy, for a baling-press, *Held* not anticipated by certain prior patents and also *Held* infringed.
[*Kansas City Hay-Press Company *v.* Devol *et al.*, 1277.

13. SAME—SAME—No. 386,300—NOT INFRINGED.
Claim 1 of Letters Patent No. 386,300, granted July 17, 1888, to Ephraim C. Sooy, for a baling-press, construed and *Held* not infringed. [*Id.

14. SAME—SAME—No. 358,898—DOUBTFUL VALIDITY—NOT INFRINGED.
Claim 1 of Letters Patent No. 358,898, granted March 8, 1887, to Ephraim C. Sooy, for a baling-press, considered and patentable novelty *Held* doubtful. In any event the patentee should be limited to the precise form of construction described in his patent, and as thus construed the claim is not infringed.
[*Id.

15. SAME—SAME—No. 456,239—NOT INFRINGED.
Letters Patent No. 456,239, granted July 21, 1891, to Ephraim

C. Sooy, for a baling-press, one element of which is a curved spring-plate upon the vibrating end of a pitman, is not infringed by a press which lacks this element. [*Id.

16. WILLCOX—SEWING-MACHINE—No. 472,094—INFRINGEMENT.
Claims 2 and 5 of Letters Patent No. 472,094, granted April 5, 1892, to Charles H. Willcox, for a sewing-machine, construed and *Held* that defendants' device is not found in the elements of these claims without unduly straining the doctrine of equivalents.
[*Willcox & Gibbs Sewing Machine Company *v.* Merrow Machine Company *et al.*, 1613.

17. SAME—SAME—No. 472,095—VALIDITY—INFRINGEMENT.
Claim 2 of Letters Patent No. 472,095, granted April 5, 1892, to Charles H. Willcox, for a sewing-machine, is of doubtful validity and it cannot be construed to cover defendants' device without unduly straining the doctrine of equivalents. [*Id.

PARTIES TO SUIT.

CUSTOMS DUTIES—FORFEITURE PROCEEDINGS—INTERVENTION BY PATENT-OWNER.
A patent owner who is suing an importer for infringement by the importation of infringing goods which have been detained by the customs officials and libeled for forfeiture because of fraudulent undervaluation may for the protection of his interests be permitted to intervene in the forfeiture proceedings on giving proper security.
[*United States *v.* One Case Chemical Compound *et al.*, 504.

PATENTABILITY.

(See Invention.)

PATENTS.

(See Attorneys, 46; Contracts 2, 3.)

PAYMENT OF FEES.

(See Fees.)

PETITION.

(See Examiners, 2.)

POSTAL FACILITIES FRAUDULENTLY USED.

(See Attorneys, 43.)

PRACTICE IN THE COURTS.

(See Appeal to the Court of Appeals of the District of Columbia; Construction of Specifications and Patents, 3; Injunction, 2, 3, 4; Multifariousness; Parties to Suit.)

1. EQUITY SUIT—WAIVER OF ANSWER UNDER OATH—FAILURE TO ANSWER INTERROGATORIES—ANSWER BY CORPORATION.
When it is urged by the defendant, a corporation, in justification of failure to answer certain interrogatories propounded that the complainants' waiver of an answer under oath is a waiver of all right to exceptions for insufficiency, *Held* that, the cause being against a corporation only, an answer under oath, even if not waived by the bill, could not have been required. Corporations answer under the sanction and solemnity of their seals only. But whether defendant answers under oath or under corporate seal, when oaths are waived, they are required to answer fully on every material issue.
[*National Hollow Brake Beam Company *et al. v.* Interchangeable Brake Beam Company, 1423.

2. SAME—SAME—PURPOSE OF WAIVER.
The waiver of an oath in any case is made by the complainant for the purpose of depriving the defendant of the advantage of his answer as evidence in his favor. If no such waiver is made, a sworn answer is taken as evidence in favor of the defendant so forceful as to require two witnesses or one witness and corroborating circumstances to overcome it. [*Id.

3. SAME—SAME—SAME—ANSWER AS PLEADING—FULLNESS OF ANSWER.
The sole purpose of a waiver of an oath to an answer is to affect the evidential character and value of the answer. It has nothing to do with the answer as a pleading, and the rule prevails that the defendant must answer fairly fully to each and every material fact alleged in the bill. This fair and full answer should serve the purpose of eliminating many undisputed facts from the case. [*Id.

4. RULES OF THE COURT—EQUITY RULE 39—ANSWER—PLEA.
Equity Rule 39 discussed and construed. [*Id.

PRACTICE IN THE INTERIOR DEPARTMENT.

(See Attorneys, 50.)

PRACTICE IN THE PATENT OFFICE.

(See Attorneys, 4, 5; Claims; Decisions of the Examiners-in-Chief, 1, 2; Examination of Applications, 1; Examiners, 2; Interference, 1, 2, 3, 5, 6, 10, 12, 13; Reopening of Rejected Cases; Witnesses, 2.)

PRELIMINARY STATEMENTS.

(See Interference, 6, 7, 9, 10, 18, 19, 20.)

PRIORITY OF INVENTION.

(See Conception of Invention; Interference, 8, 9, 10, 14, 15, 17; Reduction to Practice.)

INTERFERENCE—PRIORITY.
Upon reviewing the evidence in the case, *Held* that priority should be awarded to Seher and the decision of the Examiners-in-Chief reversed.
[Stevens *v.* Field *v.* Seher, 1929.

PROCESS OF LAW.

(See Attorneys, 49, 50.)

PROPERTY RIGHTS.

(See Contracts, 2, 3.)

RECORDS OF THE PATENT OFFICE.

(See Abandoned Applications; Appeal to the Court of Appeals of the District of Columbia.)

REDUCTION TO PRACTICE.

(See Construction of Specifications and Patents, 2.)

EXPERIMENTAL TESTS.
On the proof, *Held* that the claim of Seher is not sufficiently and definitely established to maintain his patent, it having, as it can have, only *prima facie* effect; that he has failed to show that he has fully and completely established by experimental tests so as to enable persons reasonably skilled in the science of chemistry to determine whether or not the composition made and claimed by him as new and valuable in the arts really possesses those properties which he claims as the essential character as an operative means, for no invention or discovery in such case as the present can be regarded as complete until such tests have been applied and have been successfully maintained. [*Stevens *et al. v.* Seher, 1932.

REFERENCES.

(See Attorneys, 20, 21, 22, 23, 24, 25, 26, 27, 34; Examiners, 1.)

REFUNDMENT OF APPEAL FEES.

REPAYMENT OF MONEY—ACTUAL MISTAKE.
Where an appeal is regularly taken and the fee therefor paid, but thereafter the appellant changes his purpose and concludes not to prosecute the appeal, *Held* that there was no such mistake in the payment as would warrant the return of the appeal fee. [†*In re* Borton, 800.

REHEARING.

(See Attorneys, 49; Examiners, 1; Interference 11.)

REISSUE.

(See Construction of Specifications and Patents, 1; Particular Patents, 7.)

REJECTED AMENDMENTS.

(See Abandonment, 2.)

REJECTED CASES.

(See Attorneys, 36.)

REOPENING OF REJECTED CASES.

1. REOPENING CASE AFTER DECISION OF APPELLATE TRIBUNAL—ALLOWABLE CLAIMS.
The Examiner cannot, under the rules, after a decision by the Examiners-in-Chief, admit even allowable claims, unless such claims are recommended by the Examiners-in-Chief, without written authority from the Commissioner.
[*Ex parte* Hunter, 504.

2. SAME—ADDITIONAL CLAIMS.
To permit an applicant after decision upon appeal to present additional claims to be considered by the Examiner, and if rejected by him again brought before the Examiners-in-Chief on appeal, is not proper practice. [Id.

RESTRAINT OF TRADE.

(See Contracts.)

RULES OF EVIDENCE.

(See Attorneys, 4, 5.)

SALE OF PATENTS BY ATTORNEYS.

(See Attorneys, 30, 32, 33.)

SEAL.

(See Interference, 18, 19, 20.)

SEARCHES.

(See Attorneys, 20, 21, 22, 23, 24, 25, 26, 27.)

SECRETARY OF THE INTERIOR.

(See Attorneys, 47, 48, 49, 51.)

SPECIFICATIONS.

(See Construction of Specifications and Patents, 2.)

SUBSTITUTION OF PARTS.

(See Particular Patents, 7.)

SUITS FOR INFRINGEMENT.

(See Construction of Specifications and Patents, 3; Injunction, 2; Model; Multifariousness.)

SUITS IN EQUITY.

(See Practice in the Courts, 1, 2, 3.)

TECHNICAL TERMS.

(See Claims, 1.)

TESTIMONY.

(See Attorneys, 6; Interference, 1, 2, 8; Witnesses, 4.)

TITLE TO PATENT.

(See Defense; Injunction, 2.)

TRADE-MARKS.

(See Injunction, 1.)

1. INTERFERENCES—BROAD CLAIM UNDER A NARROW ISSUE.
In interferences in trade-mark cases a broad claim should not be placed under a narrow issue, but the practice in patent cases of making the issue as broad as the broadest claim should be followed.
[S. Hernsheim, Bros. & Co., Limited, *v.* J. H. Hargrave & Son, 503.

2. "YALE"—LOCKS.
The word "Yale" refused registration as a trade-mark for locks on the ground that it is public property, being descriptive of a lock of a certain kind.
[*Ex parte* Yale & Towne Manufacturing Company, 801.

3. SAME—SAME—PATENTED DEVICE.
No one has the right to the exclusive use of the word "Yale" as a trade-mark for locks, as any one who makes a lock disclosed by any one of the expired patents taken out by the Yales has a right to designate such lock as a "Yale lock," and it would be the proper and true name of such lock. [Id.

4. PATENTED DEVICE.
It is well settled by all the authorities that when an inventor obtains a patent on a device and said patented device is known by a certain name the name becomes public property at the expiration of the patent. [Id.

5. WORD "PEERLESS"—DESCRIPTIVE OF QUALITY OF GOODS.
The word "peerless" being an adjective meaning "unequaled, unmatched, matchless, unsurpassed," etc., registration as a trade-mark refused on the ground that it is descriptive of the quality of the goods to which it is applied. To give to one person the exclusive right to its use as a trade-mark would be to deprive the public of its lawful use in language.
[*Ex parte* Peerless Carbon Black Company, Limited, 803.

6. DISCONTINUING USE—PRELIMINARY INJUNCTION REFUSED.
The defendants having discontinued the sale of the articles for the complainant and having also discontinued the use of the trade-mark, which had been applied thereto, a preliminary injunction is refused.
[*Saxlehner *v.* Graef *et al.*, 972.

7. INDIVIDUAL TRADE-MARK—UNFAIR COMPETITION.
Defendants having been the exclusive importers of the Hunyadi Janos waters and having pasted their own individual mark on each bottle sold by them, in addition to the mark of the complainant, and having discontinued the sale of such waters, *Held* that they cannot be restrained from placing the same individual mark on the water which they thereafter handle on the ground of unfair competition, since the complainant has no title to such individual mark. [*Id.

8. "MENLO PARK"—REGISTRABLE.
The decision of the Examiner that the words "Menlo Park" cannot be registered as a trade-mark for time-keeping instruments, as the words have no other than a geographical meaning, and do not, therefore, constitute a lawful trade-mark under the decisions of the courts and under the practice of the Patent Office, reversed.
[*Ex parte* Hampden Watch Company, 1282.

9. SAME—GEOGRAPHICAL TERM.
While it is true that "Menlo Park" is a geographical term, it does not stand on the same footing as the word "Columbia" or "Lackawanna" or "International" or "East India," all of which have been held not to be lawful trade-marks. (*Columbia Mills* v. *Alcorn*, 65 O. G., 1916.) [Id.

10. SAME—MANUFACTURING TOWN.
While it is true that Menlo Park is the name of a small town in New Jersey and is also the name of a town in San Mateo county, California, it does not appear that either of these localities is a manufacturing town. Certainly in neither of these towns is the manufacture of watch-movements carried on.
[Id.

11. "COLUMBIA"—MISTAKE AS TO ORIGIN OF GOODS.
Where W., a manufacturer of paper, placed thereon the word "Columbia," which paper became known to the trade and was called for as "Columbia" paper, and M., a like manufacturer, adopted and placed upon his goods for his distinguishing-mark a figure of the goddess Columbia, with the name "Columbia" upon the shield and the letters "Columbia" upon the side of the package, which paper also became known by the name "Columbia," and then W. was induced to place upon his paper a figure of Columbia which is in all respects similar to that used by M., *Held* that there cannot be any question that under these circumstances there is a grave danger that the goods may be mistaken the one for the other.
[*Morgan Envelope Company *v.* Walton *et al.*, 1615.

12. SAME—TECHNICAL TRADE-MARK.
Although W. was the first to use the word "Columbia" on his goods, it cannot be said that he acquired a technical trade-mark in the word "Columbia" in view of the decision in *Columbia Mills Co.* v. *Alcorn*, (65 O. G., 1916; 150 U. S., 160.)
[*Id.

13 SAME—UNFAIR COMPETITION.
Inasmuch as W. appeared to have been the first to put upon his goods the distinguishing-mark "Columbia," and as his goods were the first to become known to purchasers as "Columbia," no other person should be permitted to use the name as the sole distinguishing-mark for like goods, whether expressed in letters or figures, and in that manner mislead the general public into buying his goods as those of his competitors. If the word could not be used as a trade-mark, it is to be treated as a descriptive word, to the benefit of which W. is entitled. [*Id.

UNITED STATES CONSUL.

(See Interference, 18, 19, 20.)

UNITED STATES MAILS FRAUDULENTLY USED.

(See Attorneys, 43.)

USE AND SALE OF PATENTED ARTICLES.

(See Injunction, 1; Trade-Marks, 4, 6, 7.)

UTILITY.

(See Construction of Specifications and Patents, 3.)

VACATION OF JUDGMENT.

(See Interference, 10.)

VALIDITY OF PATENT.

(See Construction of Specifications and Patents, 2; Injunction, 3, 4.)

VALID PATENTS.

(See Particular Patents, 1, 4, 6, 7, 8, 9, 12, 13.)

VENUE.

(See Interference, 19, 20.)

VOID PATENTS.

(See Particular Patents, 2, 3, 11, 17.)

WAIVER.

(See Practice in the Courts, 1, 2, 3.)

WITNESSES.

(See Attorneys, 6; Practice in the Courts, 2.)

1. WITNESSES—JURISDICTION OF THE COMMISSIONER OF PATENTS.
The Commissioner of Patents has no judicial power over the production and conduct of witnesses in interference proceedings, but this whole matter is left in the hands of the Federal courts of the district in which the testimony is being taken. (*Wright* v. *Daggett*, 44 O. G., 943; *Osgood* v. *Badger* v. *Bennett*, 44 Q. G., 1065.)
[Kelly *et al. v.* Park *et al.*, 1931.

2. SAME—FAILURE OF PARTY TO APPLY TO COURT.
Where a party fails to avail himself of his right to apply to the court for the control of a refractory witness, the Commissioner will not interfere, except in an unusual case, but will, in passing upon the question of priority, give to the testimony of such witness only such weight as is justified by the circumstances. [Id.

3. VOLUNTEER WITNESS—REFUSAL TO ANSWER PROPER QUESTIONS.
The fact that the witness is a volunteer witness does not relieve him from the jurisdiction of the Federal court, and the remedy from his refusal to answer proper questions is by application to the judge of such court. [Id.

4. SAME—APPLICATION TO COURT—DELAY IN PRESENTING.
Where the taking of testimony has been closed, the printed record filed, and the day set for final hearing has passed, application for leave to apply to the court comes too late. [Id.

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING DECEMBER 31, 1897.

[Claims and drawings of Designs do not appear in the Monthly Volumes or the Gazette. Separate indexes for Designs, Trade-Marks, Labels, Prints, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
A. T. Atherton Machine Company. (See Sweet, Albert A., assignor.)						
Abbey, Fred G., and J. G. McLeod, Lookout, Wash. Steel-trap	591,264	Oct. 5	595	139	81	113
Abbott, Benjamin J., assignor to C. H. Durphy, Chicago, Ill. Engraving-machine	593,556	Nov. 16	1469	358 359	81	1119
Abbott, Benjamin J., assignor to C. H. Durphy, Chicago, Ill. Annealing-furnace	593,557	Nov. 16	1475	359 360	81	1120
Abbott, Charles H., *et al.* (See Harrell, Joseph J., assignor.)						
Abbott, Francis A. (See Thompson and Abbott.)						
Aber, David L., Pittsburg, Pa. Dentometer	596,022	Dec. 21	2050	487	81	2063
Abernathy, Hugh H. (See Abernathy, Thomas B., assignor.)						
Abernathy, Thomas B., assignor to himself and H. H. Abernathy, Chicago, Ill. Box cutting and nailing machine	593,551	Nov. 9	1445	352 353 354	81	1098
Abernethy, Harry M., assignor of one-half to H. H. Fulton, Elmira, N. Y. Mechanical safety device for railway-switches	596,100	Dec. 28	2125	520	81	2109
Aborn, George P., Warren, Mass., assignor to Geo. F. Blake Manufacturing Company, New York, N. Y. Sinking-pump	592,088	Oct. 19	1930	458	81	426
Abraham, Abraham, Brooklyn, N. Y. Packing-basket	595,685	Dec. 21	1431	346	81	1939
Accurate Time Stamp Company. (See Stahlberg, Charles, assignor.)						
Acetylene House Lighting Company. (See Dolan, Edward J., assignor.)						
Ackerman, Harman F., Cleveland, Ohio. Scrubbing-machine	594,509	Nov. 30	3154	738	81	1481
Ackerman, Howard U., Indianapolis, Ind. Clothes-wringer clamp	594,454	Nov. 30	3047	715	81	1459
Ackermann, George, Cincinnati, assignor to Albert Fischer Manufacturing Company, Hamilton, Ohio. Sheet-metal vessel	595,800	Dec. 21	1641	395	81	1979
Ackermann, Hermann, Marysville, Kans., assignor to C. F. Zimmermann Company, Dolgeville, N. Y. Pick for musical instruments	593,072	Nov. 2	563	135	81	916
Adams, Abraham L., and G. E. Hawes, Bridgeport, Conn. Machine for folding and winding strips of flexible material	594,586	Nov. 30	3295	774 775	81	1508
Adams, Adelbert A., Cambridge, Mass. Corset-stiffener	595,510	Dec. 14	1163	279	81	1964
Adams, Austin, New York, N. Y. Latch	595,424	Dec. 14	1022	245	81	1936
Adams, Austin, New York, N. Y. Latch	595,425	Dec. 14	1025	245	81	1936
Adams, Austin, New York, N. Y. Latch	595,426	Dec. 14	1026	246	81	1936
Adams, Austin, New York, N. Y. Latch	595,427	Dec. 14	1027	246	81	1936
Adams, Austin, New York, N. Y. Holder for doors	595,428	Dec. 14	1029	247	81	1937
Adams Brothers Company. (See Kwis, Joseph J., assignor.)						
Adams, Charles S. (See Barker, John R., assignor.)						
Adams, Ernest K., New York, N. Y. Compensating pendulum	594,365	Nov. 30	2877	679	81	1427
Adams, Ernest K., New York, N. Y. Photographic-printing apparatus	594,366	Nov. 30	2878	679	81	1427
Adams, Ernest K., New York, N. Y. Wattmeter	595,751	Dec. 21	1539	371 372	81	1959
Adams, Fred L. (See Smith, Walton D., assignor.)						
Adams, George E., New York, N. Y. Luggage-carrier for bicycles	595,843	Dec. 21	1718	411	81	1993
Adams, James D., Wabash, Ind. Bushing for pulleys, journals, &c	592,504	Oct. 26	3070	625	81	700
Adams, Stephen J., Pittsburg, Pa. Sand-molding apparatus	591,161	Oct. 5	373	88	81	73
Adams, Stephen J., Pittsburg, Pa. Apparatus for forming sand molds	593,267	Nov. 9	949	220	81	1005
Adams, Stephen J., Pittsburg, Pa. Apparatus for forming sand molds	594,594	Nov. 30	3291	773	81	1508
Adams, Thomas E., Cleveland, Ohio. Electric-arc lamp	594,595	Nov. 30	3294	773	81	1508
Adams & Westlake Company. (See Emery, Plato G., assignor.)						
Adams, William H., Boston, Mass. Safety-cap for lamps	594,167	Nov. 23	2529	599	81	1342
Adel, Wilmer T., and S. F. Leib, San José, Cal.; said Leib assignor to said Adel. Clod-pulverizer	593,040	Nov. 2	505	122	81	905
Adler, Josua, Salem, Oreg. Game apparatus	593,781	Nov. 16	1781	428	81	1177
Adlfinger, Alex. (See Hiles, George, assignor.)						
Adriance, Platt & Company. (See Brown, Thomas S., assignor.)						
Adt, Howard E., assignor of one-half to A. H. Bowditch, New Haven, Conn. Take-up for controlling slack of trolley-ropes	596,439	Dec. 28	2786	658	81	2224
Aegeter, Johann, Hamburg, Germany. Dough-operating machine	593,268	Nov. 9	1108	268	81	1035
Aeolian Company. (See Shonnard and Davis, assignors.)						
Agan, David H. and J., New York, N. Y. Sewing-machine	591,718	Oct. 12	1380	324	81	297
Agan, Jennie. (See Agan, David H. and J.)						
Agnew, Alice A., *et al.* (See Cornell, Franklin D., assignor.)						
Agnew, Lee A., Chicago, Ill. Machine for folding and wrapping newspapers	591,801	Oct. 19	1513	359	81	343
Agur, Luke, Seward, Nebr. Weed-cutter	592,268	Oct. 26	2331	550	81	583

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ahearn, Michael D., Green Bay, Wis. Machine for patching saws	594,312	Nov. 23	2775	656	81	1389
Ahrens, John N., Union, N. J. Sash-lock	595,511	Dec. 14	1164	280	81	1865
Ainsworth, Charles F., Horwich, England. Slubbing, intermediate, and roving frame	592,621	Oct. 26	3271	678	81	739
Aird, Hugh W., and C. E. Felch, Montreal, Canada. Paint	593,917	Nov. 16	2124	------	81	1246
Akers, Maurice L., Gooseberry, assignor of one-fourth to R. Montgomery, Hardman, Oreg. Belt and slat fastener	592,578	Oct. 26	3195	660	81	725
Akeson, Anders, Providence, R. I. Tobacco-pipe	595,801	Dec. 21	1642	395	81	1979
Aktiebolaget Radiator. (See Salenius, Erik G. N., assignor.)						
Aktiebolaget Separator. (See Jönsson, Johan L., assignor.)						
Albach, William H., Mansfield, Ohio. Stove	592,089	Oct. 19	1933	459	81	426
Alberger, Louis R., New York, N. Y., assignor to H. R. Worthington, Elizabeth, N. J. Self-cooling condenser or similar apparatus	590,950	Oct. 5	1	1	81	3
Alberger, Louis R., New York, N. Y., assignor to H. R. Worthington, Elizabeth, N. J. Air or gas pump or compressor	595,429	Dec. 14	1080	247	81	1837
Albert Fischer Manufacturing Company. (See Ackermann, George, assignor.)						
Albree, Chester B., Allegheny, Pa. Suspension device for portable machines	593,064	Nov. 2	544	131	81	913
Albright, Henry F., Elizabeth, N. J., assignor to Western Electric Company, Chicago, Ill. Electric vibrating bell	592,269	Oct. 26	2332	550	81	523
Albright, Preston K., Binghamton, N. Y. Hand-sled	594,925	Dec. 7	140	35	81	1648
Alden, Charles E., Philadelphia, Pa. Automatic draft-regulator	591,317	Oct. 5	670	159	81	128
Alden, Frank W., assignor to Queen Butter Maker Company, Cincinnati, Ohio. Churn	593,317	Nov. 9	1033	250	81	1022
Alden, Gustavus R., Cambridge, Mass. Portable book-rack	593,758	Nov. 16	1889	441	81	1188
Alden Type Machine Company. (See Johnson and Low, assignors.)						
Alexander, John S. L., *et al.* (See Welsh, Jabez L., assignor.)						
Alexander, Philip B., Springfield, Mass. Machine for turning lock-seams on sheet-metal conductors	594,222	Nov. 23	2615	618 619	81	1357
Alexander Smith & Sons Carpet Company. (See Webb, William J., assignor.)						
Alexander, William, Birkenhead, and W. E. Thompson, Liverpool, England. Coin-actuated apparatus	593,152	Nov. 2	708	167	81	947
Alexandrescu, Mihail, Bucharest, Roumania. Reaping-machine	593,449	Nov. 9	1247	300	81	1062
Alfred, Ralph E., assignor of one-half to J. I. Warder, Weston, W. Va. Non-refillable bottle	592,753	Nov. 2	1	1	81	807
Alfred, Ralph E., assignor of one-half to J. I. Warder, Weston, W. Va. Non-refillable bottle	592,754	Nov. 2	2	1	81	807
Allardyce, Emma, *et al.* (See Clarke, Arthur R., assignor.)						
Allen, Alvoni R. (See Woods, Franklin, assignor.)						
Allen, Andrew J., and J. F. Morrison, Chicago, Ill. Brake-shoe	596,132	Dec. 28	2247	533	81	2119
Allen, Byron C., Saratoga, Cal. Fruit-paring attachment for knives	593,633	Nov. 16	1622	392	81	1143
Allen, Charles H., Rochester, N. Y. Pump for inflating pneumatic tires	593,545	Nov. 9	1436	349	81	1096
Allen, Charles M., San Francisco, Cal. Clamp for garment-supporters	595,082	Dec. 7	335	81	81	1683
Allen, David H., Miamisburg, Ohio. Soldering-iron	593,796	Nov. 16	1913	455	81	1201
Allen, Elijah L., Girard, Ala., assignor of one-half to J. H. Brown, Columbus, Ga. Fence-post	592,080	Oct. 26	3393	708	81	703
Allen, Fred S., Valparaiso, Nebr. Tooth-brush	596,450	Dec. 28	2808	662	81	2228
Allen, George (See Maher, John N., assignor.)						
Allen, Hans, Red Wing, Minn. Spring-cushion tire for vehicles	595,131	Dec. 7	523	125	81	1717
Allen, Henry M., Milwaukee, Wis. Pad for corns, bunions, &c	592,040	Oct. 19	1934	459	81	427
Allen, James A., South Arm, Mich. Animal-trap	591,719	Oct. 12	1384	325	81	298
Allen, John L., Loretto, Ky. Railway time-signal	592,072	Oct. 19	1996	472 473	81	438
Allen, Nathan D. (See McLaughlin, Benjamin, assignor.)						
Allen, Orrie W., Butte, Mont. Station-indicator	596,284	Dec. 28	2495	592	81	2165
Allen, Samuel W., New York, N. Y. Optical lantern	594,819	Nov. 30	3740	871 872	81	1598
Allen, Walter B., Boston, Mass. Coin-controlled key-locking keeper	593,065	Nov. 2	546	131	81	913
Allen, William R., Denton, Tex. Clothes-pounder	593,073	Nov. 2	564	135	81	916
Alley, Frederick L., Lynn, Mass. Take-up mechanism	595,802	Dec. 21	1643	394	81	1979
Allgauer, Martin, Port Chester, N. Y. Supporting-stand	595,686	Dec. 21	1432	346	81	1989
Allgeier, Carl, Chicago, Ill. Starching-machine	594,071	Nov. 30	3479	810	81	1545
Allison, Samuel B., New Orleans, La. Fiber-cleansing apparatus	596,199	Dec. 28	2358	559	81	2140
Almond, Thomas R., Dunwoodie Heights, N. Y. Belt-shipper	594,187	Nov. 23	2563	606	81	1348
Almond, Thomas R., Dunwoodie Heights, N. Y. Chuck	594,587	Nov. 30	3300	775	81	1509
Almy, Arnold, Middleburg, N. Y. Baling-press	594,771	Nov. 30	3647	849	81	1580
Almy, Darwin and F. D., Providence, R. I. Steam-gage	595,844	Dec. 21	1713	412	81	1998
Almy, Frank D. (See Almy, Darwin and F. D.)						
Altman, David, assignor of one-half to I. Poss and R. Schwartz, Chattanooga, Tenn. Car-coupling	594,367	Nov. 30	2879	679	81	1427
Alvis, Joseph M. (See Sager and Alvis.)	592,755	Nov. 2	3	1	81	807
Ambjörn, Pierre, Paris, France. Bicycle-frame						
American Acetylene Gas Company. (See Dibble, Frank D., assignor.)						
American Arithmometer Company. (See Pike, William H., Jr., assignor.)						
American Bell Telephone Company. (See Leonard, Frank E., assignor.)						
American Bell Telephone Company. (See Thompson, George K., assignor.)						
American Bell Telephone Company. (See Williams, Arthur S., assignor.)						
American Cotton Company. (See Dyer, Frank L., assignor.)						
American Cotton Company. (See Swenson, Magnus, assignor.)						
American Electric Cold Supply Company. (See Fay, Thomas J., assignor.)						
American Electric Meter Company. (See Marks, William D., assignor.)						
American Electrical Works. (See Wiggin, William H., assignor.)						
American Metallic Cushion Company. (See Cowley, James T., assignor.)						
American Pulley Company. (See Corscaden, Thomas, assignor.)						
American Railway Electric Light Company. (See Kennedy, Patrick, assignor.)						
American Saw Company. (See Freas, Samuel T., assignor.)						
American Steel Scraper Co. (See Taylor, Frederick, assignor.)						
American Sugar Refining Company. (See Feld, Walther, assignor.)						
American Telephone and Telegraph Company. (See Barrett, John A., assignor.)						
American Telephone and Telegraph Company. (See Erdman, Albert W., assignor.)						
American Telephone and Telegraph Company. (See Whittemore, George W., assignor.)						
Ames Charles F., and H. A. Rearson, Boston, Mass., assignors to D. L. Goff, Pawtucket, R. I. Photographic camera	594,368	Nov. 30	2881	679	81	1428
Ames, William L., Worcester, Mass. Die for rolling screw-threads	594,339	Nov. 23	2826	669	81	1399
Amez-Droz, Louis F., Geneva, Switzerland. Watch-carrier	594,188	Nov. 23	2584	606	81	1349
Amos, Harry M., Rainsburg, Pa. Fruit-evaporator	595,011	Dec. 7	299	72	81	1676
Amrine, Clover, Vermont, Ill. Parcel-carrier	593,171	Nov. 2	762	183	81	958
Amrock, Edward S., Waltham, Mass. Portable nursery	595,235	Dec. 7	710	173	81	1751
Ams, Max, New York, N. Y. Sheet-metal can	593,558	Nov 16	1477	360	81	1120

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Anciennes Salines Domaniales de l'Est, Actien-Gesellschaft. (See Marchal, Nicolas, assignor.)						
Anderegg, Christian, Indianapolis, Ind. Vehicle-wheel rim	593,268	Nov. 9	951	230	81	1005
Andersen, Andreas, Tistedalen, Norway. Apparatus for barking and washing logs	593,870	Nov. 16	2053	483	81	1230
Andersen, Johan M. (See Anderson, Albert, assignor.)						
Anderson, Albert, assignor of one-half to J. M. Andersen, Boston, Mass. Third-rail insulator	595,089	Dec. 7	448	107	81	1703
Anderson, Alexander C., Graham, Tex. Ink-bottle	591,802	Oct. 19	1521	360	81	345
Anderson, Andrew. (See Hall and Anderson.)						
Anderson, Andrew C., *et al.* (See Branzell, Charley, assignor.)						
Anderson, Axel B., Brooklyn, N. Y. Apparatus for transporting ships by railway	593,153	Nov. 2	709	168 169	81	947
Anderson, Cecil R., *et al.* (See Neely, George P., assignor.)						
Anderson, Charles, assignor to South Bend Iron Works, South Bend, Ind. Plow-point	592,858	Nov. 2	195	44	81	845
Anderson, Frederick A., Washington, D. C. Current-collector for electric railways	593,154	Nov. 2	712	169 170	81	948
Anderson, George W., Buffalo, Kans. Clock repeating mechanism	593,184	Nov. 9	785	189	81	975
Anderson, Hans J., Lake Mills, Wis. Combined churn and butter-worker	590,951	Oct. 5	3	1	81	3
Anderson, Henry, Sumner, Wash. Stirrup	594,926	Dec. 7	140	35	81	1648
Anderson, Henry C., assignor of three-fourths to T. J. Fryar, W. D. Carrol, and A. Talley, Clarksville, Tex. Fencing-machine	592,719	Oct. 26	3455	724 725	81	775
Anderson, James, assignor of one-half to W. Carothers, Sidney, Ohio. Bucket-bail ear	594,340	Nov. 23	2829	670	81	1399
Anderson, James A., Kansas City, Mo. Appliance for steaming collars	595,752	Dec. 21	1540	372	81	1959
Anderson, John T., Ada, Minn. Checkrein-hook	595,430	Dec. 14	1053	247	81	1838
Anderson, John W., Wainwright, assignor of one-half to F. C. Owens, Way Cross, Ga. Wrench	595,512	Dec. 14	1165	280	81	1865
Anderson, Leonard, Detroit, Mich., assignor, by mesne assignments, to Anderson Safety Elevator Company, Limited, of Michigan. Elevator attachment	592,756	Nov. 2	4	1,2	81	807
Anderson Safety Elevator Company. (See Anderson, Leonard, assignor.)						
Anderson Safety Elevator Company. (See Mattullath, Hugo, assignor.)						
Anderson, W. Jay, *et al.* (See Smith, William D., assignor.)						
Andrade, Felix J. de, Liverpool, England. Velocipede-frame	594,147	Nov. 23	2498	591	81	1336
Andreae, Augusta E., London, England. Carriage	595,657	Dec. 21	1432	346	81	1939
Andrew, Thomas, Sydney, New South Wales. Fountain-pen	595,361	Dec. 14	904	219	81	1814
Andrews, George P., *et al.* (See Andrews, Robert W., assignor.)						
Andrews, James, deceased, Allegheny; Union Trust Company, Pittsburg, Pa., administrator. Railway-car	596,227	Dec. 28	2399	567	81	2149
Andrews, Otis, El Paso, Tex. Refrigerator shipping-box	591,581	Oct. 12	1160	272	81	252
Andrews, Robert W., assignor to G. P. Andrews, Staffordville, Conn., and S. J. Chamberlin, Westerly, R. I. Picker-check for looms	594,719	Nov. 30	3559	827 828	81	1562
Andriot, Peter, Bellevue, assignor of one-half to C. W. House, Covington, and W. J. Wilmer, Fort Thomas, Ky. Game apparatus	591,794	Oct. 12	1499	356	81	32
Angerer, Victor, assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Railway-switch	593,074	Nov. 2	565	135	81	917
Ank, George A., Mount Carroll, Ill. Folding wall shelf, table, or desk	593,828	Nov. 16	1973	465	81	1214
Anna, G. W., *et al.* (See Ike, Albert and A., assignors.)						
Ansley, George W., Medical Lake, and C. C. May, Davenport, Wash. Carpet stretcher and tacker	595,845	Dec. 21	1715	412	81	1998
Anstice, Josiah. (See Streeter and Anstice.)						
Anthony, Daniel P., Tecumseh, Mich. Die for joining intersecting wires	594,841	Dec. 7	1	1	81	1621
Anthony, Edgar W., assignor to Smith & Anthony Company, Boston, Mass. Dry closet	591,592	Oct. 12	1161	273	81	253
Anthony, Elliott E., Detroit, Mich. Electrical-resistance device	592,463	Oct. 26	3016	611	81	660
Antony, Edwin L., Cameron, Tex. Wrench	596,235	Dec. 28	2409	570	81	2151
Apelt, William, Minneapolis, Minn. Gravity wheat-heater	592,041	Oct. 19	1935	459	81	427
Appie, Vincent G., Miamisburg, Ohio. Igniting means for explosive-engines	591,123	Oct. 5	322	79	81	63
Appleberg, John T. (See Jones, Fernando, assignor.)						
Appleby, John F., Harvey, Ill. Knotting mechanism for self-binding harvesters	591,614	Oct. 12	1211	284 285	81	202
Appleby, John F., Santa Cruz, Cal., assignor to William Deering & Company, Chicago, Ill. Grain-binder	594,842	Dec. 7	3	1	81	1621
Applegate, Addison. (See Eyles, Repelye, and Applegate.)						
Appleman, Mathias M., Rohrsburg, Pa. Fruit-press	594,189	Nov. 23	2565	607	81	1349
Appleton, Thomas, St. Paul, Minn. Coaling-station	596,183	Dec. 28	2248	533 534	81	2119
Arbes, Joseph, New York, N. Y. Machine for blindstitching	595,090	Dec. 7	449	107 108	81	1703
Archer, Ira B., North San Juan, Cal. Chair attachment	595,450	Dec. 14	1061	255	81	1844
Argall, Philip, Denver, Colo. Apparatus for roasting and drying ores	591,909	Oct. 19	1701	406 407	81	382
Armison, Levartt, Buffalo, N. Y. Mechanical poker for gas-furnaces	593,546	Nov. 9	1437	349 350	81	1006
Armitage, William J. (See Wetherilt and Armitage.)						
Arms, William H., *et al.* (See Murchie, James, assignor.)						
Armstrong, Alexander, assignor of one-half to W. F. Weaver, Moundsville, W. Va. Computing-scale beam	596,301	Dec. 28	2699	639	81	2206
Armstrong, Benjamin L., New London, Conn. Spool for containing thread	594,190	Nov. 23	2566	607	81	1349
Armstrong, Charles D., Jeffersonville, Ind. Steam-engine	593,634	Nov. 16	1623	392	81	1143
Armstrong, Charles J., assignor of one-half to C. Wolf, Austin, Tex. Combination-tool	591,720	Oct. 12	1385	325	81	298
Armstrong, Fred M. (See Baker, William H., assignor.)						
Armstrong, Henry M., and W. J. Jones, Detroit, Mich.; said Jones assignor to said Armstrong. Necktie-fastener	593,955	Nov. 16	2185	518	81	1257
Armstrong, John W., and N. M. Berry, assignors of one-third to J. B. Mitchell, Searcy, Ark. Wagon-standard	594,455	Nov. 30	3048	715	81	1459
Armstrong Manufacturing Company. (See Carstensen, Larna F., assignor.)						
Arn, John, Columbus, Ohio. Bed	596,350	Dec. 28	2612	622	81	2180
Arnold, John L., Toledo, Ohio, assignor to Standard Fuel Gas Company, of Illinois. Hydrocarbon-burner	592,601	Oct. 26	3236	670	81	732
Arnold, Phineas, Canal Dover, Ohio. Machine for preparing clay	594,672	Nov. 30	3480	810	81	1545
Arntzen, John B., assignor of one-half to J. G. Winters, St. Louis, Mo. Valve	594,843	Dec. 7	5	1	81	1622
Aronson, Louis, New York, N. Y. Match and composition for same	592,227	Oct. 26	2269	535	81	511
Arp, George F., Spirit Lake, Iowa. Whistle for gas or gasolene engines	591,521	Oct. 12	1055	247	81	230
Artemkin, Ivan, Moscow, Russia. Rotary pump	591,522	Oct. 12	1055	247	81	231
Arth, Philomena, Dover, Mo. Folding bed	594,510	Nov. 30	3155	739	81	1481
Ash, Claudius J., *et al.* (See Denham, Alexander M., assignor.)						
Ash, William H., *et al.* (See Denham, Alexander M., assignor.)						
Ashby, Alexander F. (See Smith and Ashby.)						
Ashcroft, Edgar A., Grays, England. Preparing zinc ores and zinkiferous ores for smelting	595,513	Dec. 14	1166	280	81	1865

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ashley, Ralph, Port Republic, N. J., assignor to Guarantor Electric Company, of New Jersey. High-tension battery	591,265	Oct. 5	596	139	81	113
Ashley, Ralph, Port Republic, N. J., assignor to Guarantor Electric Company, of New Jersey. Storage or secondary battery	594,313	Nov. 23	2777	656	81	1390
Ashley, Ralph, Port Republic, N. J., assignor to Guarantor Electric Company, of New Jersey. Secondary battery	595,182	Dec. 7	524	126	81	1717
Ashley & Shaw Silk Company. (See Curl, Fowler, assignor.)						
Attkisson, Daisy. (See Attkisson, Stephen C., assignor.)						
Attkisson, Stephen C., assignor of seven-eighths to D. Attkisson, Salem, Ind. Invalid's bed	595,514	Dec. 14	1167	280	81	1805
Atwater, Charles E. (See Curtis and Atwater.)						
Atwater, John L., Western Springs, assignor to Vive Camera Company, Chicago, Ill. Photographic camera	595,551	Dec. 14	1223	294	81	1877
Atwater, John L., Western Springs, assignor to Vive Camera Company, Chicago, Ill. Magazine-camera	595,591	Dec. 14	1286	310	81	1891
Atwood, George H. (See Jones, Samuel O., assignor.)						
Auble, James H., assignor of three-fourths to J. M. Graham, Lawrenceburg, J. N. Fox, and L. S. Matheus, Dearborn county, Ind. Motor mechanism for horseless carriages	594,511	Nov. 30	3156	739	81	1481
Ault, Albert A., *et al.* (See Graham, James, assignor.)	595,592	Dec. 14	1287	310	81	1891
Ault, George L., Bartlett, N. D. Adding-machine	592,073	Oct. 19	2000	473	81	439
Auriol, Paul, Paris, France. Gas-engine	594,772	Nov. 30	3649	849	81	1580
Aurora Automatic Machinery Company. (See Levedahl, Axel, assignor.)						
Austin, Frederick, Centre Point, Iowa. Device for loosening well-drills	594,927	Dec. 7	142	36	81	1648
Austin, Frederick C. (See Bunnell, Morton G., assignor.)						
Austin, Frederick C. (See Bunnell and Perkins, assignors.)						
Austin, Josiah, Marion, Ohio. Valve	592,622	Oct. 26	3272	678 679	81	739
Austin, Stephen J., Terre Haute, Ind. Railway-crossing	593,345	Nov. 9	1076	260	81	1080
Austin, William J., assignor to Milwaukee Rail Joint and Welding Company, Milwaukee, Wis. Rail-joint and forming same						
Automatic Can Machinery Company. (See Steegmüller, Richard, assignor.)						
Automatic Memorandum Clock Company. (See Davidson, John, assignor.)						
Avellis, Eduard. (See Köster, Emil, assignor.)	594,369	Nov. 30	2892	680	81	1428
Avery, Edward R., Joliet, Ill. Spark-arrester						
Avery, Frederick C., Toledo, Ohio. Means for connecting bicycle-cranks and sprocket-wheels with shafts	595,515	Dec. 14	1168	281	81	1865
Ayer, Albert E., assignor of two-thirds to W. B. Johnson, Boston, and B. J. Mulligan, Salem, Mass. Machine for skiving counters	593,409	Nov. 9	1186	297 298	81	1049
Aylworth, Daniel W., Cleveland, Ohio. Gage for wire fences	591,808	Oct. 19	1522	360	81	845
Ayotte, Eugene. (See Nicol and Ayotte.)						
Ayres, Henry S., assignor to A. P. McGraw, McGrawville, N. Y. Plaiting device for sewing-machines	595,088	Dec. 7	336	81, 82	81	1668
Ayres, John F., Alloway, N. J. Fender or guard for tramway-cars	595,362	Dec. 14	905	220	81	1814
Ayres, Sereno N., New York, N. Y. Instrument for measuring time and distance	594,820	Nov. 30	3741	872	81	1598
Ayres & Sons, William. (See Hand, James, assignor.)	594,720	Nov. 30	3562	828	81	1563
Azevedo, Jacob C. d', Brooklyn, N. Y. Cane-planter						
B. F. Goodrich Company. (See Work, Bertram G., assignor.)						
Baack, Henry J. (See Normoyle, John F., assignor.)	594,314	Nov. 23	2778	657	81	1390
Babb, Marian B., Cassville, Mo. Woodworker's vise						
Babcock, Arthur M., assignor to C. O. and J. W. Glascock, Muncie, Ind. Combined baby-jumper and rocking-chair	596,451	Dec. 28	2909	663	81	2229
Babcock, Lucien C., Brooklyn, N. Y. Hair-pin	594,223	Nov. 23	2620	619	81	1358
Backstrom, Charles A. (See Miller, William L., assignor.)						
Backus, Abram C., Chicago, Ill. Stone-channeling machine	591,615	Oct. 12	1213	285	81	902
Bacon, Frank R., assignor to Michigan Buggy Company, Kalamazoo, Mich. Upholstering device	592,270	Oct. 26	2383	550 551	81	523
Bacon, James D., Boston, Mass. Rectal applicator	593,318	Nov. 9	1084	250	81	1022
Badanes, Bernard, Boston, Mass. Washstand	591,664	Oct. 12	1206	305	81	281
Bader, Henry, and H. D. Cartwright, San Francisco, Cal. Support for mirrors	592,042	Oct. 19	1989	460	81	427
Badger, George L., Quincy, Mass. Machine for working stone	594,588	Nov. 30	3301	775	81	1509
Badger, George L., Quincy, Mass. Stone-working machine	594,589	Nov. 30	3304	776	81	1510
Badgley & Hoerter Company. (See Badgley, Samuel F., assignor.)						
Badgley, Samuel F., assignor to Badgley & Hoerter Company, Louisville, Ky. Photographic-background carrier	596,312	Dec. 28	2544	606	81	2176
Baehn, Frederick W., New York, N. Y. Moth-proof clothes-bag	593,346	Nov. 9	1077	260	81	1080
Bagby, Eugene A., Winchester, Ky. Ointment-applicator	596,351	Dec. 28	2613	622	81	2189
Bailey, Clifford C., assignor of one-half to L. C. Lincoln, Woonsocket, R. I. Carbon-holder for arc-lamps	593,172	Nov. 2	763	183	81	958
Bailey, Francis P., Indianapolis, Ind. Canopy-support	594,370	Nov. 30	2892	680	81	1428
Bailey, Frank W., *et al.* (See Timmis, William, assignor.)						
Bailey, Frederick M. (See Lewis and Bailey.)						
Bailey, Israel S., Farmer's Branch, assignor of one-half to L. F. Fouts, Trinity Mills, Tex. Fan attachment	591,721	Oct. 12	1186	325	81	298
Bailey, Leonard C. (See Richey, Charles V., assignor.)						
Bailey, Samuel R., Amesbury, Mass. Body-hanger for carriages	595,133	Dec. 7	526	126	81	1717
Bailey, Samuel R., Amesbury, Mass. Carriage-spring	596,313	Dec. 28	2546	606	81	2176
Bailey, Selden A., New York, N. Y. Combined antirattler, shaft-support, and safety-strap	591,318	Oct. 5	671	159	81	198
Baily, Samuel J. (See Hood, John D., assignor.)						
Bain, Alexander, Brooklyn, N. Y. Hydraulic steering mechanism	593,871	Nov. 16	2054	484	81	1230
Bain, Stephen A., assignor of one-half to M. J. Matthews, Chillicothe, Mo. Detachable child's seat for buggies	592,515	Oct. 26	3091	681	81	703
Baines, Hugh, Brooklyn, assignor to A. E. Pelham, New York, N. Y.; said Baines assignor of one-third to said Pelham. Safety device for hoisted carriages	595,987	Dec. 21	1986	474	81	2049
Baird, James S., assignor to W. E. Fairbrother and S. Baird, Golden, Colo. Folding display rack and tray	595,516	Dec. 14	1169	281	81	1866
Baird, Sarah, *et al.* (See Baird, James S., assignor.)						
Baird, Warren W., Pittsburg, Pa. Conductor-pipe	593,185	Nov. 9	790	189	81	976
Baker, Charles W. (See Nash and Baker.)						
Baker, Charlie B., Saltilloville, Ind. Clothes-drier	593,186	Nov. 9	791	189	81	977
Baker, Frederick H. (See Baker, Shevlin, and Baker.)						
Baker, Haydn M., Jr., and A. W. Fox, Brooklyn, N. Y. Electric-arc lamp	594,928	Dec. 7	143	36	81	1648
Baker, Harold J. M., Port Townsend, Wash. Luggage-carrier for bicycles	595,517	Dec. 14	1171	281	81	1866
Baker, Herbert L., Whitecastle, La. Tally-sheet	591,319	Oct. 5	673	160	81	198
Baker, James H., G. F. Shevlin, and F. H. Baker, Saratoga Springs, N. Y. Wood-pulp grinder	591,644	Oct. 19	1966	396	81	373
Baker, James H., G. F. Shevlin, and F. H. Baker, Saratoga Springs, N. Y. Pulp-screen	591,645	Oct. 12	1209	297	81	273
Baker, Joseph B., Naples, Tex. Roller-bearing	590,959	Oct. 5	5	1	81	3

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Baker, Joseph H., Brooklyn, N. Y. Gas apparatus	592,185	Oct. 19	2193	517	81	475
Baker & Sons, Joseph. (See Tupholme, Beeston, assignor.)						
Baker, Thomas J., *et al.* (See Owen, Thomas, assignor.)						
Baker, William H., assignor to F. M. Armstrong, Pawtucket, R. I. Warp stop-motion for looms	595,688	Dec. 21	1483	346 347	81	1989
Baker, William R., Chicago, Ill. Cutting mechanism for corn-harvesters	592,720	Oct. 26	3457	725	81	776
Baldwin, Frederic E., New Brighton, N. Y. Sprocket-and-chain gearing	593,714	Nov. 16	1755	422	81	1173
Baldwin, Percy M., *et al.* (See Van de Westelaken, Peter, assignor.)						
Baldwin, William B. (See Uhlig. Richard W., assignor.)						
Baldwin, William D., *et al.* (See Boening, Ernest, assignor.)						
Bales, Edward R., Centralia, Ill. Compound gas-engine	596,352	Dec. 28	2615	628	81	2190
Balkam, Henry G., assignor to W. A. Easterday, Washington, D. C. Carbureter	592,579	Oct. 26	3196	660 661	81	725
Ball, Alverdo, Hill's Grove, R. I. Machine for cutting cheese	593,635	Nov. 16	1624	392	81	1148
Ball, Bert C. (See Ball, Frank H. and B. C.)						
Ball, Charles P., D. E. Sweetser, and G. H. Ball, Enfield, Conn.; said Sweetser and said G. H. Ball assignors to said Charles P. Ball. Automatic lathe	593,066	Nov. 2	550	132 133	81	914
Ball, Frank H. and B. C., Plainfield, N. J. Engine-governor	591,447	Oct. 12	917	216	81	297
Ball, George H. (See Ball, Sweetser, and Ball.)						
Ball, Samuel E., Dayton, Ohio, assignor to A. B. Hostetter, Lancaster, Pa. Cigar-tip cutter and match box and lighter	591,523	Oct. 12	1057	248	81	231
Ball, Warren J., Salem, Ohio. Riveting-tool	595,431	Dec. 14	1034	248	81	1838
Ballard & Ballard Company. (See Koelner, John, assignor.)						
Ballard, Thomas S., Glenwood Springs, Colo. Trace-fastener	592,757	Nov. 2	6	2	81	808
Ballenger, Frank W., *et al.* (See Burgess, James, assignor.)						
Balloch, Guy R., Centreville, Canada. Differential bicycle-gear	593,450	Nov. 9	1249	300 301	81	1062
Ballus, Jacob, Scranton, Pa. Machine for mixing dough	591,722	Oct. 12	1187	325 326	81	298
Balph, Charles A., Pittsburg, Pa., and E. P. S. Wright, New York, N. Y. Fireproof floor and ceiling	593,547	Nov. 9	1440	350	81	1097
Baltzley, Henry H., assignor of one-half to C. S. Clark, Assumption, Ill. Flue-stopper	595,593	Dec. 14	1290	311	81	1862
Bamberger, Elias, Freeport, Ill. Cabinet	593,636	Nov. 16	1636	393	81	1148
Bammann, Johann. (See Ulrich and Bammann.)						
Bancroft, Charlotte C., Manistee, Mich. Griddle	595,689	Dec. 21	1486	347	81	1940
Bánki, Donát, and J. Csonka, Buda-Pesth, Austria-Hungary. Gasolene-motor	595,552	Dec. 14	1224	294	81	1877
Banks, Anita M. (See Cochran and Banks.)						
Banks, Thomas L., London, England. Cock, tap, or valve for facilitating attachment to casks, tanks, &c.	596,314	Dec. 28	2546	607	81	2176
Banks, William C., New York, N. Y. Electrical instrument	593,187	Nov. 9	793	190	81	977
Bannan, John, Providence, R. I. Shutter-fastener	591,723	Oct. 12	1188	326	81	299
Bannan, John R., Worcester, Mass. Sectional steam or hot-water boiler	594,512	Nov. 30	3159	739 740	81	1482
Banning, Joseph O., New York, N. Y., assignor to M. E. Yost, Rutherford, N. J. Fire-extinguishing apparatus	595,115	Dec. 7	500	120	81	1712
Bannister, John, Mexico, Mexico. Shuttle-check for looms	596,315	Dec. 28	2548	607	81	2176
Bansall, George, assignor of one-half to L. D. Stiffler, Lilly, Pa. Automatic switch	592,043	Oct. 19	1940	460	81	428
Banta, Frank L., and C. C. Marble, Chicago, Ill. Non-refillable bottle	591,068	Oct. 5	224	53	81	45
Barber Asphalt Paving Company. (See Greene, Carleton, assignor.)						
Barber, Edward A., assignor of one-half to Hitchcock Lamp Company, Watertown, N. Y. Storage battery	593,559	Nov. 16	1477	360	81	1120
Barker, Frederick W., *et al.* (See Pettie, Charles A., assignor.)						
Barker, Irving, Springfield, Ill. Ball-bearing	595,933	Dec. 21	1802	451	81	2030
Barber, John C., Phillipsburg, N. J. Soldering-iron	593,918	Nov. 16	2125	504	81	1246
Barbour, Thomas J., and C. M. Hansen, assignors to Risdon Iron and Locomotive Works, San Francisco, Cal. Regulating apparatus for air-compressing engines	591,583	Oct. 12	1164	273 274	81	253
Barbour, Thomas J., and C. M. Hansen, assignors to Risdon Iron and Locomotive Works, San Francisco, Cal. Air-compressing engine	591,584	Oct. 12	1166	274	81	253
Barbour, Wellington, Bar Harbor, Me. Electrical insulator	592,505	Oct. 26	3072	626	81	700
Barclay, Frank, Beatrice, Nebr. Antifriction-clip for reapers or mowers	592,557	Oct. 26	3166	652	81	719
Barclay, John W. (See Stephens, Judson W., assignor.)						
Bardsley, Edward E., Philadelphia, Pa. Attachment for graphophones	592,758	Nov. 2	7	2	81	808
Barker, George H. (See Hall, James C., assignor.)						
Barker, Irving, assignor of one-half to A. L. Ide, Springfield, Ill. Tool-chuck	591,088	Oct. 5	261	62	81	52
Barker, John R., assignor to himself and C. S. Adams, Jacksonville, Fla. Bicycle-tool	592,859	Nov. 2	195	44	81	846
Barker, Melville H., Boston, Mass. Shaft-bearing	593,188	Nov. 9	796	190	81	978
Barling, Elliott D., Pontiac, Mich. Cultivator	595,900	Dec. 21	1837	439	81	2018
Barlow, Howard E., Providence, R. I. Machine for making toothpicks	592,074	Oct. 19	2002	473 474	81	439
Barndollar, Samuel L., Allegheny, Pa. Washboard	595,984	Dec. 21	1894	451	81	2030
Barnes, Amos, assignor to J. Gamble and J. M. Brewer, Detroit, Mich. Match-safe	592,105	Oct. 19	2064	488	81	451
Barnes, Amos, assignor to J. Gamble and J. M. Brewer, Detroit, Mich. Match-safe	596,316	Dec. 28	2549	607	81	2177
Barnes, Trueman B., Omaha, Nebr. Shingling-gage	594,371	Nov. 30	2884	681	81	1428
Barnes, William H., Rochester, N. Y. Device for attaching furring to walls	590,963	Oct. 5	6	2	81	4
Barnett, Karl, Manchester, Ind. Washing-machine	594,058	Nov. 23	2366	560	81	1310
Barnett, Samuel T. (See Welch, Michael L., assignor.)						
Barnett, William S., *et al.* (See Flannery, William C., assignor.)						
Barney, Edwin E., assignor of one-half to F. J. Tanner, Groton, N. Y. Type-writing machine	594,978	Dec. 7	233	57 58 59	81	1664
Barney, Everett H., Springfield, Mass. Skate	594,191	Nov. 23	2567	607	81	1349
Barney, George L. (See Kittle, Barney, and Clough.)						
Barney & Smith Car Company. (See Rochester, Robert, assignor.)						
Barney & Smith Car Company. (See Tesseyman, Henry, assignor.)						
Barnhart, David A. (See Barnhart, John, D. A., and J. W.)						
Barnhart, Frank, Warren, Pa. Pipe-coupling	592,681	Oct. 26	3394	709	81	764
Barnhart, Frank, Warren, Pa. Coupling-link for repairing drive-chains	593,872	Nov. 16	2055	484	81	1231
Barnhart, James W. (See Barnhart, John, D. A., and J. W.)						
Barnhart, John, D. A., and J. W., Williamson, Pa. Milk-cooler	592,721	Oct. 26	3459	725	81	776
Barreda, Henry H., assignor to himself and H. M. Rose, Buffalo, N. Y. Cape-support for bicycles	594,518	Nov. 30	3161	741	81	1482
Barrett, Addison D., Norfolk, Va. Wig-frame	593,560	Nov. 16	1478	360	81	1120
Barrett, Albert, Kansas City, Mo. Signaling-circuit for fire and police systems	596,134	Dec. 28	2251	534	81	2119
Barrett, Alfred, assignor of one-half to A. Bennett and G. Edgarton, Puyallup, Wash. Baling-press	593,506	Nov. 9	1361	330	81	1083
Barrett, Charles E., assignor to J. H. Horne & Sons Company, Lawrence, Mass. Shake-rail for Fourdrinier machines	595,753	Dec. 21	1541	372	81	1960

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Barrett, George F., Wilkes-Barré, Pa. Non-refillable bottle	591,724	Oct. 12	1389	296	81	299
Barrett, John A., Brooklyn, N. Y., assignor to American Telephone and Telegraph Company, of New York. Telephonic selective signaling	594,979	Dec. 7	239	59,60	81	1665
Barrett, Patrick F., San Francisco, Cal. Scrubbing-brush	595,012	Dec. 7	300	72	81	1676
Barrett, Zephaniah A., Chicago, Ill., assignor of one-half to J. J. Russell, Muscatine, Iowa. Gate	596,023	Dec. 21	2059	466	81	2063
Barriclow, Irvin E., Dallas, Tex. Protecting alarm-circuit	591,725	Oct. 12	1389	327	81	299
Barrie, John D., Los Angeles, Cal. Desk-ruler	591,804	Oct. 19	1523	360	81	345
Barriett, Samuel L., New York, N. Y. Automatic switch for electrical apparatus	595,808	Dec. 21	1644	396	81	1979
Barringer, Victor C., *et al.* (See Ligon, John B., assignor.)						
Barro, Anthony F., New York, N. Y. Car-fender	595,809	Dec. 21	1773	426	81	2005
Barrouin, Felix, Paris, France. Touch-regulator for keyboards of musical instruments	593,451	Nov. 9	1250	301	81	1063
Barrow, Thomas, assignor to Fraser & Chalmers, Chicago, Ill. Boiler-stay	593,452	Nov. 9	1252	301	81	1063
Barrowclough, Samuel, and J. Brown, Pawtucket, R. I.; said Barrowclough assignor to said Brown. Spinning-mule	591,910	Oct. 19	1708	407, 408, 409, 410	81	383
Barrows, Charles D. (See James and Barrows.)						
Barrows, Charles H., New York, N. Y. Motor-vehicle	592,692	Oct. 26	3396	709	81	764
Bartel, Rudolph F., Bayonne, N. J. Bicycle	594,773	Nov. 30	3650	850	81	1580
Barth, Ernst C. F., Philadelphia, Pa. Insect-screen	594,224	Nov. 23	2620	620	81	1358
Barth, John H., Indianapolis, Ind. Street-sweeper	593,075	Nov. 2	566	136	81	917
Bartholomew, Cassius M., Columbus, Ohio. Ring-twirling toy	595,594	Dec. 14	1291	311	81	1698
Bartholomew Company. (See Stutsman, Reuben O., assignor.)						
Bartlett Agency. (See O'Neill, Harry E., assignor.)						
Bartlett, Ara A., assignor to Cincinnati Coffin Company, Cincinnati, Ohio. Reaming or cutting tool	592,979	Nov. 2	412	97	81	887
Bartlett, Eayre O., Joplin, Mo. Method of and apparatus for making sublimed metallic pigments	592,860	Nov. 2	196	45	81	846
Bartlett, George D., Plymouth, Mass. Tumbling-star	591,225	Oct. 5	323	125	81	100
Bartlett, Howard E. (See Goodkind, Essington, and Bartlett.)						
Bartlett, La Roy, St. Louis, Mo. Chuck	595,363	Dec. 14	907	220	81	1614
Bartlett, La Roy, St. Louis, Mo. Steam-whistle	596,257	Dec. 28	2448	579	81	2158
Bartley, James S., Whitesville, Ga. Car-coupling	594,315	Nov. 23	2779	657	81	1990
Bartling, Henry E., *et al.* (See McGowan, Matthew, assignor.)						
Barton, Danville O., Boston, Mass. Leather-splitting machine	596,440	Dec. 28	2787	659	81	2225
Basch, David, New York, N. Y. Saddle	594,316	Nov. 23	2781	657	81	1990
Bascom, Rollin S., and N. E. Martin, Greenfield, Mass. Die and die-stock	592,044	Oct. 19	1941	460	81	428
Basle Chemical Works Bindschedler. (See Müller, Carl O., assignor.)						
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Canopy	595,257	Dec. 7	747	183	81	1759
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mold for prism-lights	595,258	Dec. 7	748	183	81	1759
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Framing tiles	595,259	Dec. 7	748	183	81	1759
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Device for selecting prisms having proper angles	595,261	Dec. 7	750	184	81	1759
Basquin, Olin H., Chicago, Ill., assignor to Luxfer Prism Patents Company, of West Virginia. Angle-measuring device	595,260	Dec. 7	749	184	81	1759
Bassett, Norman C., Yonkers, N. Y., assignor, by mesne assignments, to National Company, of Illinois. Hydraulic elevator	594,590	Nov. 30	3309	776, 777	81	1510
Bassett, Norman C., Lynn, Mass., assignor to General Electric Company, of New York. Securing device for covers of dynamo-electric machines	596,135	Dec. 28	2255	534	81	2121
Bassett, R. S., *et al.* (See Hewlett, William F., assignor.)						
Bastide, Henry, Paris, France. Umbrella	595,184	Dec. 7	526	126	81	1717
Batcheller, Asa F., Schenectady, N. Y., assignor to General Electric Company, of New York. Space-block for armature-cores	595,364	Dec. 14	909	220	81	1815
Batcheller, Asa F., Schenectady, N. Y., assignor to General Electric Company, of New York. Armature winding and coil	596,136	Dec. 28	2256	535	81	2121
Batcheller, Birney C., Brooklyn, N. Y., assignor to United States Mail Package and General Pneumatic Delivery Company, Philadelphia, Pa. Substation sending apparatus for pneumatic-despatch-tube systems	595,754	Dec. 21	1543	372, 373, 374	81	1960
Batcheller, Birney C., New York, N. Y., assignor to United States Mail Package and General Pneumatic Delivery Company, Philadelphia, Pa. Pneumatic-despatch-tube system	595,755	Dec. 21	1550	374, 375, 376	81	1960
Batcheller, Birney C., Brooklyn, N. Y., assignor to United States Mail Package and General Pneumatic Delivery Company, Philadelphia, Pa. Sending apparatus for pneumatic-despatch-tube systems	595,756	Dec. 21	1558	376, 377	81	1962
Bates, Albert J., Joliet, assignor to Consolidated Steel and Wire Company, Chicago, Ill. Machine for making wire fencing	591,996	Oct. 19	1653	441, 442, 443	81	412
Bates, Francis C., assignor of one-half to J. W. Holland, San José, Cal. Crude-petroleum burner	594,317	Nov. 23	2782	657	81	1990
Bates, George A. (See Owen and Bates.)						
Bates, John H., Wilkes-Barré, Pa. Fire-escape	593,319	Nov. 9	1085	250	81	1022
Bates, Robert E., Spring Green, Wis. Automatic car-coupling	592,580	Oct. 26	3199	661	81	725
Bates, Solomon W., Portland, Me. Refrigerator	591,374	Oct. 12	797	186	81	183
Bates, William D., Grafton, N. D. Sales-slip envelop	596,353	Dec. 28	2618	623	81	2190
Battle, William W. (See Graybill, Jacob D., assignor.)						
Baude, Emil F., Cincinnati, Ohio, assignor to J. F. Weitzel, Ludlow, Ky. Construction of walls, partitions, ceilings, &c., of sheet metal	596,010	Dec. 21	2016	481	81	2055
Baudendistle, Lafayette, Denver, Colo. Amalgamating apparatus	591,943	Oct. 19	1769	422	81	396
Bauer, Carl E., assignor to Simplex Railway Appliance Company, Chicago, Ill. Bolster-truss	592,536	Oct. 26	3132	643	81	719
Bauer, Carl E., assignor to W. V. Kelly, Chicago, Ill. Bolster	595,410	Nov. 9	1190	298	81	1050
Bauer, Carl E., assignor to Simplex Railway Appliance Company, Chicago, Ill. Car-bolster	592,861	Nov. 2	199	45	81	846
Bauer, Carl E., assignor to Simplex Railway Appliance Company, Chicago, Ill. Bolster for cars	593,637	Nov. 16	1628	393	81	1149
Bauer, Frederick W., and J. C. Hellmann, Jr., Cincinnati, Ohio. Candy-forming machine	596,137	Dec. 28	2259	535, 536	81	2121
Bauer, Otto C., assignor to Missouri Car and Foundry Company, St. Louis, Mo. Dumping-car	591,565	Oct. 12	1167	274, 275	81	253
Baugh, Oliver H. (See Gere, Asa O., assignor.)						
Baughman, John W., assignor of one-half to M. F. McDowell, Dalton, Ohio. Automatic electric burglar-alarm	594,192	Nov. 23	2568	608	81	1349
Baum, Charles S., Williamsport, Pa. Governor or chin-rest for horses	591,726	Oct. 12	1391	327	81	299
Baum, Helen, Omaha, Nebr. Combination table and desk	595,994	Dec. 7	778	192	81	1765

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Baum, Jesse M. (See Baum, Louren M., assignor.)						
Baum, Louren M., assignor to J. M. Baum, Braddock, Pa. Wire-nail-machine feed	593,977	Nov. 23	2329	529	81	1285
Baumgarten, Albert, and M. Redlinger, Jr., Freeport, Ill. Lemon-squeezer	593,548	Nov. 9	1441	351	81	1097
Bauroth, William F., Springfield, Ohio. Sharpener	591,028	Oct. 5	150	36	81	33
Bausch, George, Syracuse, N. Y. Eyeglasses	591,152	Oct. 5	576	88	81	73
Bayer, Christian, New York, N. Y. Knob attachment	593,507	Nov. 9	1363	330	81	1084
Bayer & Gardner. (See Ladewich, George, assignor.)						
Bayerdoerfer, Frank, Brooklyn, N. Y. Drying-frame for lace curtains	593,267	Nov. 9	1153	279	81	1043
Bayle, Antoine L. F., Cherbourg, France. Dynamometric governor for steam-engines	590,954	Oct. 5	7	2	81	4
Bayley, Walter H., Peacham, Vt. Whiffletree-fastening	591,727	Oct. 12	1392	327	81	300
Bayley, William, Springfield, Ohio. Igniter for explosive-engines	594,372	Nov. 30	2695	681	81	1428
Baylis, William, Winnipeg, Canada. Washing-machine	591,728	Oct. 12	1393	327	81	300
Beadle, Mark, Climax, Mich. Windmill-coupling	593,041	Nov. 2	507	122, 123	81	905
Beal, George. (See Brandon and Beal.)						
Beam, James P., *et al.* (See Comley, Joseph W., assignor.)						
Beamisderfer, Joseph A., Syner, Pa. Splint cutting and bunching machine	596,392	Dec. 28	2700	640, 641	81	2206
Bean, Edward D., assignor of one-half to E. P. White, Arlington, Mass. Trunk	593,007	Nov. 2	452	108	81	895
Bean, Isaiah K., Philadelphia, Pa. Individual communion-service	596,354	Dec. 28	2619	623, 624	81	2191
Bearce, John W., assignor of one-half to G. M. Bedinger, Bowling Green, Ky. Stopper-fastener	595,135	Dec. 7	527	127	81	1718
Beard, Andrew J., Eastlake, Ala. Car-coupling	594,059	Nov. 23	2367	560	81	1310
Bearden Butter Company. (See Bearden, Rufus C., assignor.)						
Bearden, Rufus C., assignor to Bearden Butter Company, Knoxville, Tenn. Making butter	592,215	Oct. 19	2233	.....	81	483
Beardsley, William N., and F. B. Felton, Bridgeport, Conn., assignors to M. Hartley, and M. Graham, New York, N. Y. Bicycle-support	594,373	Nov. 30	2886	681	81	1429
Beare, Joseph H., Stockton, Cal. Relief-valve	591,375	Oct. 12	798	186	81	183
Beaton, Allan J., assignor to Beaton & Bradley Company, Southington, Conn. Pipe-hanger	592,506	Oct. 26	3073	626	81	700
Beaton & Bradley Company. (See Beaton, Allan J., assignor.)						
Beattie, Frank C., Chicago, Ill. Theatrical trunk	592,748	Oct. 26	3512	737, 738	81	785
Beatty, Robert, Tarentum, Pa. Fruit-picker	595,084	Dec. 7	338	82	81	1684
Beaumont, Charles, Roubaix, France. Hair-pin-making machine	594,844	Dec. 7	6	2	81	1622
Beaumont, Charles, Roubaix, France. Hair-pin-making machine	594,845	Dec. 7	7	2	81	1622
Beauregard, Victor. (See Gooding and Beauregard.)						
Beavers, John M., Waco, Tex. Gin-saw-filing machine	592,045	Oct. 19	1942	461	81	428
Bebb, William J., Wellington, Kans. Means for securing glass in sashes of windows, &c.	595,136	Dec. 7	529	127	81	1718
Bebermeyer, William, near Casco, Mo. Traction-wheel	592,683	Oct. 26	3398	709	81	764
Bechman, Henry F., assignor to Duplex Printing Press Company, Battle Creek, Mich. Printing-press	592,684	Oct. 26	3399	710	81	765
Bechtel, Henry, and L. Fritz; said Fritz assignor to G. D. Nuber, Philadelphia, Pa. Locking device for elevator-doors	596,228	Dec. 28	2401	567	81	2149
Bechtold, Edmund E., Pittsburg, Pa. Curtain-pole	593,629	Nov. 16	1975	465	81	1215
Beck, Charles O., New Geneva, Pa. Fence-machine	592,228	Oct. 26	2270	535	81	511
Beck, Charles W., Chicago, Ill. Acetylene-gas lamp	590,955	Oct. 5	9	2	81	4
Beck, Charles W., Chicago, Ill. Acetylene-gas lamp	591,367	Oct. 5	779	183	81	148
Beck, George M., Lebanon, Ind. Washing-machine	592,229	Oct. 26	2272	535	81	511
Beck, John, Carnegie, Pa. Miner's cap	595,595	Dec. 14	1292	311	81	1698
Becker, Auguste, Stembert, and A. Minsart, Pepinster, Belgium. Means for automatically controlling throttle-levers of locomotives	592,623	Oct. 26	3274	679, 680	81	740
Beckett, William, Sheffield, England. Folding ladder for fire-escapes, &c	591,944	Oct. 19	1770	422	81	396
Bedell, James S., *et al.* (See Comley, Joseph W., assignor.)						
Bedford, Charles S. (See Bedford, James E. and C. S.)						
Bedford, James E. and C. S., Leeds, England. Printing inlaid patterns upon linoleum or like fabrics	592,186	Oct. 19	2194	517, 518	81	475
Bedient, Emory A., assignor to Rochester Cash Register Company, Rochester, N. Y. Locking mechanism for cash-registers	596,452	Dec. 28	2811	603	81	2229
Bedinger, George M. (See Bearce, John W., assignor.)						
Beduhn, August J. (See Walter, John W., assignor.)						
Beebe, Charles J., assignor of one-half to C. M. Caulkins, New London, Conn. Fire-escape	594,318	Nov. 23	2784	658	81	1391
Beebe, Gaylord W., Minneapolis, Minn. Check-protector	594,319	Nov. 23	2785	658	81	1391
Beecher, William H., assignor of one-half to A. D. Rossiter, Philadelphia, Pa. Envelop	592,602	Oct. 26	3237	670	81	782
Beekman, Gerard, New York, N. Y. Propelling and braking mechanism for cycles	592,230	Oct. 26	2273	535	81	511
Beekman, Gerard, New York, N. Y. Propelling and braking mechanism for cycles	592,231	Oct. 26	2274	536	81	512
Beekman, Gerard G., Hempstead, N. Y. Court-marker	592,046	Oct. 19	1946	461	81	429
Beekman, John C., Tarpon Springs, Fla. Railway-spike	592,222	Oct. 19	2242	531	81	485
Beermaker, John, assignor of one-half to J. A. Leiter, Wahoo, Nebr. Pipe-wrench	593,008	Nov. 2	453	108	81	895
Behlow, Felix, Berlin, Germany. Coin-controlled folding stool	592,558	Oct. 26	3168	653	81	719
Behnke, Wilhelm B., Phillips, assignor of one-half to W. A. Pridemore, Ashland, Wis. Autoharp	591,729	Oct. 12	1394	328	81	300
Behr, Fritz B., London, England. Motor-vehicle for single-rail elevated railways	593,076	Nov. 2	568	136, 137	81	917
Behrens, Joachim H. A., Hamburg, Germany. Combined cane and camp-stool	591,549	Oct. 12	1108	260	81	242
Beighlee, Henry E., assignor of one-half to H. G. Dodds, New Castle, Pa. Non-refillable bottle	596,011	Dec. 21	2018	482	81	2056
Bein, Willy, Berlin, Germany. Process of and apparatus for electrolyzing	591,730	Oct. 12	1396	328	81	301
Beitler, Frederick, Pittsburg, Pa. Bicycle-brake	592,271	Oct. 26	2336	552	81	524
Beltner, George L., Bridgeport, Conn. Baker's-oven lamp	594,929	Dec. 7	146	36,37	81	1649
Belais, David. (See Vidal y Villaret and Belais.)						
Belden, Emerson, Green Island, N. Y. Corner-block machine	595,463	Dec. 14	1080	260	81	1848
Belknap, Frank D., New York, N. Y. Address-printing machine	592,603	Oct. 26	3238	670, 671	81	783
Bell, Charles S., Hillsborough, Ohio. Maguey-crushing mill	595,137	Dec. 7	530	127	81	1718
Bell, Frank M., New York, N. Y. Electric battery	592,722	Oct. 26	3459	725	81	776
Bell, Frederick D., Hornellsville, N. Y. Potato cutter and dropper	593,190	Nov. 9	797	190	81	978
Bell, George, assignor of one-fourth to C. S. Lynn, Muncie, Ind. Shade-bracket	595,667	Dec. 14	1405	339	81	1916
Bell, George H., Brooklyn, N. Y. Vaporizer	595,429	Dec. 14	1035	248	81	1838
Bell, Lorenzo W., Sumner, Mo. Corn-harvester	591,805	Oct. 19	1524	360, 361	81	345
Bell Telephone Company of Missouri. (See Dean, William W., assignor.)						
Bell Telephone Company of Missouri. (See Johnston, Willbur H., assignor.)						
Bellamy, Charles H., South Hadley Falls, Mass. Apparatus for generating acetylene gas	592,759	Nov. 2	7	2	81	808

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Beltz, Harvey A., Everett, Pa. File	591,448	Oct. 12	921	217	81	208
Bemish, Charles W., Tacoma, Wash. Automatic high-pressure alarm	594,514	Nov. 30	3162	741	81	1482
Bendel, Eduard. (See Neumeister and Sobotka, assignors.)						
Bender, Fritz, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim, Germany. Violet disazo dye	593,347	Nov. 9	1078		81	1030
Benét, Laurence V., and H. A. Mercié, Paris, France, assignors to Hotchkiss Ordnance Company, Limited, London, England. Cartridge-feed belt	595,518	Dec. 14	1172	281 / 282	81	1866
Benguê, Jules, Paris, France. Sprayer	594,721	Nov. 30	3565	829	81	1563
Benjamin, William T., assignor of one-half to J. W. Denny, Newark, N. J. Tip-setting apparatus	592,947	Nov. 2	346	81	81	875
Benners, Edwin H., Elizabeth, N. J., and W. A. Stadelman, New York, N. Y. Car-axle lubricator	594,515 / 594,846	Nov. 30 / Dec. 7	3163 / 8	741 / 2, 3	81	1482 / 1622
Bennett, Abijah B., Opelika, Ala. Invalid-bed						
Bennett, Albert, *et al.* (See Barrett, Alfred, assignor.)						
Bennett, Benjamin W., East Bridgewater, Mass. Mechanical movement	594,930	Dec. 7	148	37	81	1649
Bennett, Charles F., Chicago, Ill. Combined jock-strap and suspensory	594,673	Nov. 30	3481	810	81	1546
Bennett, Charles M., Zanesville, Ohio, C. Lindstrom, Altoona, Pa., and W. R. McKeen, Jr., Terre Haute, Ind. Mail-bag holding and catching device	591,731	Oct. 12	1399	328 / 329	81	301
Bennett, Frederick M., assignor to M. Lowenstein, New York, N. Y. Solder-block	595,091	Dec. 7	454	108	81	1704
Bennett, John, assignor to himself and J. Thompson, Lyndhurst, Canada. Churn	592,216	Oct. 19	2234	529	81	483
Bennett, John E., and H. Beresford, Manchester, England. Sewage or like precipitating and filtering tank	594,847	Dec. 7	11	3	81	1623
Bennett, Joseph S., assignor of one-half to A. Rankin, St. Paul, Minn. Motion-converter for windmills	593,290	Nov. 9	984	237 / 238	81	1012
Bennett, Josiah Q., trustee. (See Cunningham and Mullen, assignors.)						
Bennett, William J., Fond du Lac, Wis. Carpet-beater	592,559	Oct. 26	3169	653	81	719
Bennewis, Henry, Philadelphia, Pa. Door-check	592,272	Oct. 26	2337	552	81	524
Bensene, Eli. (See Mack, Miron D., assignor.)						
Bente, Henry F., St. Louis, Mo. Shutter-fastener	592,624	Oct. 26	3276	680	81	741
Bentz, John, Baltimore, Md. Enameling metal surfaces	596,317	Dec. 28	2550	608	81	2177
Béranger, Emile, and A. Chobert, Brussels, Belgium. Construction of bicycle-frames	595,035	Dec. 7	338	82	81	1684
Berbecker, Carl H. W., Waterbury, Conn. Picture-support	591,089	Oct. 5	262	62	81	52
Berchem, John P., St. Paul, Minn. Foot-warmer	595,519	Dec. 14	1174	282	81	1867
Berdell, Theodore, New York, N. Y. Telephone	594,060	Nov. 23	2308	560	81	1311
Beresford, Aaron. (See Foster and Beresford.)						
Beresford, Henry. (See Bennett and Beresford.)						
Berg, John V., assignor to T. E. Brown, Chicago, Ill. Pail or package lining	593,009	Nov. 2	454	108	81	895
Bergen, Ferdinand N., Tacoma, Wash. Smelting-furnace	591,945	Oct. 19	1770	428	81	896
Berger, Christian L., Boston, Mass. Engineer's or surveyor's instument	591,153	Oct. 5	377	89	81	73
Berggren, Peter, Lake City, Minn. Magazine-camera	595,285	Dec. 14	783	194	81	1791
Bergner, Edmond M., Paris, France. Reed for looms	595,596 / 591,320	Dec. 14 / Oct. 5	1292 / 674	311 / 312 / 160	81 / 81	1892 / 128
Berkstresser, Robert H., York, Pa. Gate						
Berliner Kunstdruck und Verlags-Anstalt, vormals A. & C. Kaufmann. (See Mohs, Julius, assignor.)	594,848	Dec. 7	13	4	81	1622
Bernhard, Louis, Bridgeport, Conn. Boiler-setting	593,190	Nov. 9	799	191	81	978
Bernhardt, Frank J., Wausau, Wis. Hose-coupling	593,191	Nov. 9	801	191	81	979
Bernhardt, Frank J., Wausau, Wis. Hose or pipe coupling	595,935	Dec. 21	1895	451	81	2030
Bernhart, Daniel, Pittsburg, Pa. Extension step-ladder	592,695	Oct. 26	3400	710	81	765
Bernier, François D., Paris, France. Vehicle-shaft	592,187	Oct. 19	2196	518	81	476
Berr, August W. R., San José, Cal. Valve	594,225	Nov. 23	2021	620	81	1359
Berridge, Philip W., Sturgis, Mich. Metal-crimping tool	594,591	Nov. 30	3314	777	81	1511
Berry, Marcellus F., Brooklyn, N. Y. Calendar						
Berry, Millard. (See West, Thomas T., assignor.)						
Berry, Nicholas M. (See Armstrong and Berry.)						
Bertram, August, assignor, by mesne assignments, to D. Settle, receiver, New York, N. Y. Stacker	596,453	Dec. 28	2815	664 / 665 / 666	81	2230
Best, Daniel, San Leandro, Cal. Gas engine and generator. (Reissue)	11,633	Oct. 12	1508	358	81	323
Bettendorf Metal Wheel Company. (See Einfeldt, Emil, assignor.)						
Bettini, Gianni, New York, N. Y. Acetylene-gas generator	594,849	Dec. 7	15	4, 5	81	1623
Betts, Charles L., assignor to R. E. Dietz Company, New York, N. Y. Bicycle-lamp	591,108	Oct. 5	298	73	81	59
Bevan, William S., Brooklyn, N. Y. Eye-shade	593,077	Nov. 2	570	138	81	918
Bever, Frank, and J. A. Lentz, El Dorado, Kans. Automatic railway mail-crane	592,075	Oct. 19	2004	474	81	440
Beyer, Joseph C. (See Beyer, Matthew H., assignor.)						
Beyer, Matthew H., assignor of one-half to J. C. Beyer, Orange, N. J. Rotary engine	593,078	Nov. 2	571	138	81	918
Bibb, John G., Canton, Mo. Washing-machine	591,069	Oct. 5	225	53	81	45
Bickel, Paul S. A., Helena, Mont. Compressed-air water-elevator	591,029	Oct. 5	160	36	81	33
Bickford, John H., Salem, Mass. Return-wire connection for electric railways	593,369	Nov. 9	1110	268	81	1035
Biddle, Charles M., Boston, Mass. Clothes-drier	593,797	Nov. 16	1914	455	81	1208
Biermann, Hermann, Breslau, Germany. Arrangement for preventing accidents on railways	596,047	Dec. 28	2107	499	81	2093
Biernatzki & Co. (See Bosse, Bernhard, assignor.)						
Bigelow, Charles H., Litchfield, Minn. Adding-register	593,715	Nov. 16	1756	422	81	1173
Bigelow, Levi H., assignor of one-half to J. F. Gibson, Fremont, Mich. Bolt	594,981	Dec. 7	149	37	81	1649
Bigelow, Myron J. (See Northrop and Bigelow.)						
Bigelow, Myron J., Hopedale, Mass., assignor to Northrop Loom Company, Hopedale, Mass., and Saco, Me. Warp stop-motion for looms	594,341	Nov. 23	2330	670	81	1399
Biggar, John S., Chicago, Ill. Electrically-operated railway-gate	591,911	Oct. 19	1714	411	81	385
Bild, Charles, Washington, D. C. Bottle-stopper	595,090	Dec. 21	1437	347	81	1940
Biles, James B., Elma, Wash. Chopping-board	595,757	Dec. 21	1561	377	81	1962
Bilgram, Hugo. (See Bonsack and Bilgram.)						
Bilgram, Hugo, Philadelphia, Pa., assignor, by mesne assignments, to Bonsack Machine Company, Salem, Va. Mechanism for feeding and measuring tobacco for cigarette-machines	594,374	Nov. 30	2888	682	81	1429
Billings, John W., Grinnell, Iowa. Toy gun	591,090	Oct. 5	263	62	81	52
Billington, Horace W., Jersey City, N. J. Gas-burner	593,453	Nov. 9	1252	301	81	1063
Billman, August W., Stockholm, Sweden. Hose-coupling	590,956	Oct. 5	12	2	81	5
Binckley, George S., assignor to Union Iron Works, San Francisco, Cal. Valve mechanism for engines	591,070	Oct. 5	227	54	81	45
Binder, Theodore. (See Regensburger, Herman, assignor.)						
Binns, Leedham, Philadelphia, Pa. Endless band	592,686	Oct. 26	3402	710	81	765
Binns, William H., Chicago, Ill. Tandem	593,291	Nov. 9	965	238	81	1012
Binns, William H., Chicago, Ill. Tandem	593,292	Nov. 9	966	236 / 239	81	1012
Bird, James M. and J. W., Mossy Creek, Tenn. Flood-fence	592,188	Oct. 19	2197	519	81	476

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bird, John W. (See Bird, James M. and J. W.)						
Bird & Son, F. W. (See Wyman, George R., assignor.)						
Birtch, Amos J., Ceryl, Nebr. Gas-pipe and rod tongs	593,042	Nov. 2	509	123	81	906
Bisbee, Seymour E., South Pasadena, Cal. Street and station indicator	593,956	Nov. 16	2185	519	81	1258
Bischoff, John C. A., assignor of one-half to F. G. Uhlich, St. Louis, Mo. Door-mat	593,508	Nov. 9	1364	330	81	1084
Bisel, Joseph J., assignor of one-half to J. Hancock, Philadelphia, Pa. Clothes-drier	593,079	Nov. 2	573	138	81	918
Bishop, James D., New York, N. Y. Insulated electric conductor and apparatus for making same	591,997	Oct. 19	1863	444	81	413
Bishop, Joseph, assignor of one-half to J. Tait, Meriden, Conn. Sprinkler-head	591,266	Oct. 5	597	140	81	119
Bishop, Thomas, Birmingham, England. Box-covering machine	595,758	Dec. 21	1562	378	81	1963
Bishop, Webster. (See Gould, William F., assignor.)						
Bissell, David S., Pittsburg, Pa. Manufacture of gear-wheels	595,553	Dec. 14	1226	295	81	1877
Bittenbender, George H., Plymouth, Pa. Coal or rock drill	591,204	Oct. 5	478	113	81	90
Black, Adolph, and L. E. Gregory, New York, N. Y. Station-indicator	595,138	Dec. 7	532	128	81	1718
Black, Albert B., Lexington, Mass. Snow-plow	591,091	Oct. 5	264	62, 63	81	53
Black, Charles N., New Haven, Conn. Constant-current dynamo	593,388	Nov. 9	1154	279	81	1043
Black, Ross W., and G. A. Sander, Pittsburg, Pa. Non-refillable bottle	592,189	Oct. 19	2198	519	81	476
Blackman, Benjamin E. (See Withers and Blackman.)						
Blackmore Heating Company. (See Blackmore, Lawrence R., assignor.)						
Blackmore, Lawrence R., Newark, N. J., assignor to Blackmore Heating Company, of New Jersey. Sectional boiler for hot-water and steam heating	591,806	Oct. 19	1526	361 / 362	81	345
Blagg, Thomas J., assignor of one-fourth to J. S. Sturdevant, Waverly, Nebr. Pump-operating mechanism	592,581	Oct. 26	3201	668 / 669	81	726
Blahnik, Antoine, Paris, France. Electric-arc lamp	595,996	Dec. 21	1896	452	81	2030
Blair, Calvin, Leatherwood, Pa. Fruit-gatherer	595,870	Dec. 21	1775	426	81	2005
Blair, George W., trustee. (See Blair and Hays, assignors.)						
Blair, George W., Pittsburg, and H. J. Hays, Baldwin, assignors to G. W. Blair, trustee, Pittsburg, Pa. Method of and apparatus for making hollow glass articles	596,355	Dec. 28	2920	624	81	2191
Blair, John, Newark, Ohio. Mining-machine	591,449	Oct. 12	922	217	81	208
Blakely, Augustus B. (See Clarkson, Nathaniel B., assignor.)						
Blakely, Collins, Elsinore, Utah. Attachment for baby-carriages	595,139	Dec. 7	534	128	81	1719
Blakeney, Benona A., Grand Haven, Mich. Box-machine	592,687	Oct. 26	3402	711	81	765
Blanchard, Daniel B., La Crosse, Wis. Acetylene-gas generator	596,138	Dec. 28	2262	536	81	2122
Blanchard, Etna T. (See Blanchard, George H., assignor.)						
Blanchard, George H., Davenport, Iowa. Bread-knife	595,597	Dec. 14	1293	312	81	1893
Blanchard, George H., Clinton, assignor to E. T. Blanchard, Davenport, Iowa. Cushioned horseshoe	594,821 / 596,101	Nov. 30 / Dec. 28	3744 / 2199	872 / 521	81 / 81	1599 / 2110
Blankart, John, St. Paul, Minn. Car-door lock						
Blattner, Joseph, *et al.* (See Neely, George P., assignor.)						
Bleichert, Adolf, Leipsic-Gohlis, Germany. Gripping device for suspended cable or rope railways	590,957	Oct. 5	12	3, 4	81	5
Bleier, Benjamin. (See Sullivan, James J., assignor.)						
Bless & Drake. (See Meeker, Charles C., assignor.)						
Bless, James F., Newark, N. J. Sad-iron	590,958	Oct. 5	16	4	81	5
Blickenstaff, Jesse L., North Manchester, Ind. Gate	591,154	Oct. 5	380	89	81	73
Bloch, Edmond, Paris, France. Photographic camera	595,686	Dec. 7	340	82, 83	81	1084
Blodget, Charles W. (See Bostwick, James A., assignor.)						
Blodgett, Jerry L., Los Angeles, Cal. Electrical switchboard for coin-operated machines	593,919	Nov. 16	2126	504	81	1246
Bloecker, Louis. (See Silverman, Marcell, assignor.)						
Bloede, Victor G., Catonsville, Md. Dyeing	593,192	Nov. 9	802		81	979
Blondel, André, and S. Psaroudaki, Paris, France, assignors to L. N. Bruner. Reflector	593,348	Nov. 9	1061	261	81	1030
Blood, Edwin J., Chicago, Ill. Cannon	595,464	Dec. 14	1083	260 / 261	81	1849
Blubaugh, Charles L., Howard, Ohio. Railway-bicycle	592,507	Oct. 26	3074	626	81	701
Blubaugh, Henry D., Danville, Ohio. Antirattling thill-coupling	592,901	Nov. 2	262	59	81	858
Blum, Benjamin. (See Pruden and Waterbury, assignors.)						
Blum, George J., Chicago, Ill. Weather-strip	596,318	Dec. 28	2552	608	81	2177
Blum, Sylvain, *et al.* (See Clark, George G., assignor.)						
Blumenkranz, Leo, Minneapolis, Minn. Clothing-cabinet	594,226	Nov. 23	2023	620 / 621	81	1359
Blun, Sylvain, *et al.* (See Clark, George G., assignor.)						
Bock, Eduard, Bangkok, Siam. High-level tramway	594,061	Nov. 23	2309	500 / 501	81	1311
Bodee, George A., New York, N. Y. Lamp-burner	593,454	Nov. 9	1254	302	81	1064
Boden, Andrew and W., and G. I. Lewis, Akron, Iowa. Wagon attachment	592,902	Nov. 2	263	60	81	858
Boden, William. (See Boden and Lewis.)						
Bodine, Clinton B., Camden, N. J. Garbage-crematory	592,948	Nov. 2	348	81	81	875
Bodley, James W., Staunton, Va. Hoisting and transporting vehicle	594,722	Nov. 30	3566	829	81	1563
Boeck, Charles H., assignor to Novelty Manufacturing Company, Jackson, Mich. Oil heating-stove	592,273	Oct. 26	2338	552 / 553	81	524
Boehm, Frederick J., Brooklyn, N. Y. Parcel-carrier for bicycles	593,978	Nov. 23	2230	529	81	1295
Boehmen, Adolph, Rockford, Ill. Heel-hook for knitting-machines	595,365	Dec. 14	911	220	81	1815
Boehmer, Henry. (See Newcomb, Emery A., assignor.)						
Boekel, Julius. (See Boekel, William and J.)						
Boekel, William and J., Philadelphia, Pa. Atomizer	595,759	Dec. 21	1564	378	81	1963
Boening, Ernest, Yonkers, assignor of one-half to J. H. Walling, Brooklyn, N. Y. Measuring-faucet	592,274	Oct. 26	2340	553	81	525
Boening, Ernest, assignor of three-fourths to W. D. Baldwin, Yonkers, and J. H. Walling, Brooklyn, N. Y. Ratchet mechanism	595,598	Dec. 14	1294	312	81	1893
Boettcher, Fridrich W. G., Detroit, Mich. Combined skate and knife sharpener	594,723	Nov. 30	3569	829	81	1564
Bogart, Adrian L., Jamaica, assignor to W. B. M. Jordan, New York, N. Y. Electric gas-lighting apparatus	591,071	Oct. 5	229	54	81	46
Bogart, Adrian L., New York, N. Y., and L. S. White, Waterbury, Conn. Electric gas-lighting device	596,236	Dec. 28	2410	570	81	2151
Bohm, Ludwig, Berlin, Germany. Ink-pot for school-desks	596,454	Dec. 28	2823	666	81	2229
Bohner, Charles A., Paducah, Ky. Fence	591,732	Oct. 12	1404	329 / 330	81	302
Boisvert, Napoleon, *et al.* (See Champoux, George, assignor.)						
Boland, Ella E., assignor of one-half to C. H. Lloyd, Pittsburg, Pa. Curtain-pole bracket	593,980	Nov. 16	2129	504	81	1246
Bölderl, Dominick, San Francisco, Cal. Skinning-knife	592,217	Oct. 19	2236	529	81	484
Bolding, James P., Forney, Tex. Propeller for churns	590,950	Oct. 5	17	4	81	0
Bole, William A., Pittsburg, Pa. Engine, pump, or compressor	592,688	Oct. 26	3405	711 / 712	81	766
Bolen, John A., Fall River, Mass. Stop-motion	595,433	Dec. 14	1036	248	81	1838
Bolender, Harrison W., Freeport, Ill. Farm-gate	593,638	Nov. 16	1629	393 / 394	81	1149

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bolton, James M., assignor of one-half to J. L. Kennedy, Sioux City, Iowa. Window-sash	594,822	Nov. 30	3745	872, 873	81	1599
Bolton, Werner, Leipsic, Germany, assignor, by mesne assignments, to J. A. Deuther, Boston, Mass. Generating acetylene gas	596,139	Dec. 28	2265	.....	81	2122
Boltz, Solomon H., assignor of one-half to J. L. Sloat, Reading, Pa. Car-window	592,980	Nov. 2	413	97	81	887
Bomar, William M., Spartanburg, S. C. Wheel plow or cultivator	590,960	Oct. 5	18	5	81	6
Bond, Archibald C. T., London, England. Signaling on railways	591,376	Oct. 12	900	186	81	183
Bond, Ida M., Montclair, N. J. Corset	595,554	Dec. 14	1237	295	81	1878
Bond, Richard T., Atoka, Ind. Ter. Cyclone-refuge	592,190	Oct. 19	2199	519	81	476
Böniger, Melchior, assignor to Chemische Fabrik, vormals Sandoz, Basle, Switzerland. Trisazo dye	591,616	Oct. 12	1215	.....	81	263
Bonner, Joseph C., Toledo, Ohio. Vehicle	591,733	Oct. 12	1405	330	81	309
Bonniwell, George C., Hickory, N. C. Sandpapering-machine	594,320	Nov. 23	2788	658, 659	81	1391
Bonsack, James A., and H. Bilgram, Philadelphia, Pa., assignors to Bonsack Machine Company, Salem, Va. Cigarette machinery	594,375	Nov. 30	2803	683, 684	81	1430
Bonsack Machine Company. (See Bilgram, Hugo, assignor.)						
Bonsack Machine Company. (See Bonsack and Bilgram, assignors.)						
Boon, William S. (See Perrine and Boon.)						
Boorey, F. J., *et al.* (See Thompson and Stewart, assignors.)	592,232	Oct. 26	2276	536	81	512
Boorse, Herbert G., and J. Y. Gross, Lansdale, Pa. Fifth-wheel						
Booth, Albert T. (See Miller and Booth.)	594,980	Dec. 7	247	60	81	1666
Booth, George T., and W. Scott, Christchurch, New Zealand. Cycle-propelling mechanism						
Booth, Kraft, assignor to Luxfer Prism Patents Company, Chicago, Ill. Mold for prism-lights	595,202	Dec. 7	752	184	81	1760
Booth, William P., assignor of one-half to South Bend Telephone Company, South Bend, Ind. Terminal for electric conductors	594,932	Dec. 7	150	37	81	1650
Boothman, Jonathan, Cheetham, England. Nail cutting and driving machine	596,048	Dec. 28	2108	490	81	2098
Borchardt, Hugo, Berlin, Germany. Automatic lighting device for gas-burners	594,376	Nov. 30	2900	684	81	1431
Borchardt, Hugo, Berlin, Germany. Means for holding platinum sponges in automatic gas-lighters	594,377	Nov. 30	2902	684	81	1432
Borden, John T., Norfolk, Va. Device for sharpening scissors	592,486	Oct. 26	3047	690	81	695
Borden, William S. (See Peck, Isaac N., assignor.)						
Borgenschild, Clara, Racine, Wis. Nursing-bottle	593,890	Nov. 16	1976	465	81	1215
Bormann, Franz C., Hamburg, Germany. Stove or other furnace	594,774	Nov. 30	3652	850	81	1581
Borrowe, William. (See Lumley, John, assignor.)						
Borrowe, William, and J. Lumley, San Francisco, Cal. Apparatus for manufacturing heat-insulating material	596,419	Dec. 28	2749	650	81	2217
Bosley, Daniel W., Chicago, Ill. Machine for cutting flexible material into strips	595,092	Dec. 7	455	108, 109	81	1704
Boss, Henry L., Watsonville, Pa. Saw-setting machine	594,593	Nov. 30	2317	778	81	1512
Bosse, Bernhard, Barmen, assignor to Biernatzki & Co., Hamburg, Germany. Loom	591,734	Oct. 12	1407	331	81	308
Bossert Electric Construction Company. (See Bossert, William F., assignor.)						
Bossert, William F., assignor to Bossert Electric Construction Company, Utica, N. Y. Underground junction-box for electric conductors	596,229	Dec. 28	2402	568	81	2149
Boston Fast Color Eyelet Company. (See Kempshall, Eleazer, assignor.)						
Boston Woven Hose and Rubber Company. (See Cowen, Robert, assignor.)						
Boston Woven Hose and Rubber Company. (See Davis, Joseph E., assignor.)						
Boston Woven Hose and Rubber Company. (See De Wolf, John O., assignor.)						
Bostwick, James A., Brooklyn, assignor of one-third to C. W. Blodget, New York, N. Y. Flash-light composition	594,594	Nov. 30	3318	778	81	1512
Bostwick, John R., assignor to Stowell & Bostwick, Clifton Springs, N. Y. Pipe-thimble	593,999	Nov. 9	951	230	81	1005
Bosworth Machine Company. (See Dodge, Henry A., assignor.)						
Bothwell, Henry R. (See Newman and Bothwell.)	595,760	Dec. 21	1565	378	81	1963
Bothwell, William T., Jersey City, N. J. Automatic fluid-pressure brake apparatus						
Bottomley, Samuel. (See Keene, Samuel D., assignor.)	594,516	Nov. 30	3164	742	81	1483
Boughton, Claudius V., Buffalo, N. Y. Bicycle-lamp	594,517	Nov. 30	3166	742	81	1483
Boughton, Claudius V., Buffalo, N. Y. Taper for bicycle or carriage lamps	591,073	Oct. 5	239	54	81	46
Bourne, Edward, Allegheny, Pa. Faucet						
Boutet, Joseph. (See Rousseau and Boutet.)						
Bouton, Georges. (See Dion and Bouton.)	592,689	Oct. 26	3406	712	81	766
Bowden, Matthew H., Eastbourne, England. Shipwreck-messenger						
Bowditch, A. Havens. (See Adt, Howard E., assignor.)	592,233	Oct. 26	2277	536	81	512
Bowen, John A., Washington, D. C. Pneumatic door-check	591,205	Oct. 5	479	113	81	91
Bowen, Philip A., Milwaukee, Wis. Heating-support for curling-irons	595,037	Dec. 7	342	83	81	1684
Bowen, Robert S., Boston, Mass., assignor to Chickering & Sons, New York, N. Y. Piano	593,561	Nov. 16	1480	361	81	1121
Bower, Fred, Dancy, Wis. Mower						
Bower, George. (See Bower, Orus, assignor.)	591,595	Oct. 12	1170	275	81	254
Bower, Orus, assignor of one-half to G. Bower, Brodhead, Ky. Gate-latch						
Bowers, George S., *et al.* (See Rogers, Douglas, assignor.)	592,981	Nov. 2	414	97	81	887
Bowker, Alphonso V., Athol, Mass. Index-book						
Bowker, John R. (See Bowker, William R. and J. R.)	591,807	Oct. 19	1533	362	81	348
Bowker, William R. and J. R., Waltham, Mass. Car-journal bearing	591,808	Oct. 19	1534	362	81	348
Bowker, William R. and J. R., Waltham, Mass. Car-journal bearing						
Bowley, Joseph H., assignor of one-half to J. W. Stockwell, Marengo, Ill. Refrigerator for storing and transporting eggs, meats, fruits, &c	593,509	Nov. 9	1364	331	81	1084
Bowley, Joseph H., Washington, D. C., assignor of one-half to J. W. Stockwell, Marengo, Ill. Electric-circuit controller	593,510	Nov. 9	1369	332	81	1085
Bowman, Harvey, Dayton, Ohio. Portable step-ladder	594,674	Nov. 30	3482	810	81	1546
Bowron, Charles W., Oshkosh, Wis. Type-justifying machine	592,743	Oct. 26	3500	735, 736	81	788
Boyd, J. A. (See Pratt, Lewis M., assignor.)						
Boyer, Edith E. L. (See Boyer, Israel D. and E. E. L.)	593,173	Nov. 2	765	183	81	958
Boyer, Israel D. and E. E. L., assignors to Clark & Boyer, Dayton, Ohio. Spinning-top	593,174	Nov. 2	766	184	81	958
Boyer, Israel D. and E. E. L., assignors to Clark & Boyer, Dayton, Ohio. Locomotive toy	592,191	Oct. 19	2200	519, 520	81	477
Boyle, James M., Boston, Mass., assignor of one-half to H. D. Richards, New York, N. Y. Switch	592,234	Oct. 26	2280	537	81	513
Boyle, Michael B., Chicago, Ill. Bathing apparatus						
Bracey, Burtred G. (See Speyer, Herbert E., assignor.)						
Bracher, George S. (See Gammons and Bracher.)	593,759	Nov. 16	1840	441	81	1186
Brachhausen, Gustav A., Rahway, N. J. Governor mechanism	593,760	Nov. 16	1843	442	81	1189
Brachhausen, Gustav A., Rahway, N. J. Governor	593,761	Nov. 16	1844	442	81	1189
Brachhausen, Gustav A., Rahway, N. J. Musical instrument	593,762	Nov. 16	1845	442, 443	81	1189
Brachhausen, Gustav A., Rahway, N. J. Mechanical musical instrument	595,366	Dec. 14	919	231	81	1816
Brachhausen, Gustav A., Rahway, N. J. Musical instrument						

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brachhausen, Gustav A., Rahway, N. J. Electrical musical instrument	595,901	Dec. 21	1838	440	81	2019
Brachhausen, Gustav A., Rahway, N. J. Automatic musical instrument	596,393	Dec. 28	2704	641, 642, 643	81	2207
Bracklo, Charles A., New York, N. Y. Fish-hook	595,691	Dec. 21	1438	347	81	1940
Bradeen, Ansel R., Seattle, Wash. Ice-creeper	593,530	Nov. 9	1401	338	81	1090
Bradford, William H., Chester, England. Apparatus for preventing capsizing of boats	595,804	Dec. 21	1645	396	81	1980
Bradley, Andrew J., St. Louis, Mo. Metallic window-screen	594,518	Nov. 30	3167	743	81	1483
Bradley, Charles S., Avon, N. Y., assignor to General Electric Company, of New York. Alternating-current generator	591,267	Oct. 5	590	140	81	113
Bradley, Charles S., Avon, N. Y., assignor to General Electric Company, of New York. Alternating-current motor	591,268	Oct. 5	601	140, 141	81	114
Bradley, James M., Hillside, Tex. Machine for sharpening gin-saws	595,530	Dec. 14	1175	282, 283	81	1867
Bradley, Orrilla S., Saratoga Springs, N. Y. Flat-iron cleaner	592,560	Oct. 26	3170	654	81	730
Bradley, William E., New York, N. Y. Snow-plow and scraper	592,192	Oct. 19	2202	520	81	477
Bradley, William S., New Britain, Conn. Ledger-board support for scaffolds	593,639	Nov. 16	1620	394	81	1149
Bradt, Charles E., *et al.* (See Reynolds and Shipman, assignors.)						
Bradt, Samuel E., *et al.* (See Reynolds and Shipman, assignors.)						
Brady, C. M., *et al.* (See Poulter, John H., assignor.)						
Bragg, James R., and J. M. Moyers, Richmond, Va. Air-brake hose-coupling	593,531	Nov. 9	1402	338	81	1091
Bragger, John W., assignor to Hitchcock Lamp Company, Watertown, N. Y. Fluid-seal trap	592,690	Oct. 26	3407	712	81	766
Brainard, Julius D., St. Paul, Minn. Storm-sash and window-screen hanger and operator	591,799	Oct. 12	1506	357	81	322
Brakeley, Harry H., Bordentown, N. J. Machine for shelling peas or beans	593,496	Nov. 9	1213	293	81	1055
Braley, Samuel T., assignor to Howe Scale Company of 1886, Rutland, Vt. Recording weigh-beam for scales	593,220	Nov. 9	1036	251, 252	81	1023
Brandenburg, Albert F., Dayton, Ohio. Screen for light and ventilation	594,850	Dec. 7	18	5	81	1625
Brandenburg, Albert F., assignor to J. B. McLardie and A. C. Brandenburg, Dayton, Ohio. Fastener for rain-aprons	590,961	Oct. 5	19	5	81	6
Brandenburg, Anna C., *et al.* (See Brandenburg, Albert F., assignor.)						
Brandon, John, and G. Beal, Leavenworth, Kans. Smoke-consuming furnace	594,675	Nov. 30	3463	811	81	1546
Brandy, James, Trinidad, assignor of three-fourths to G. M. Forbes, Las Animas county, Colo. Wool-bagging machine	594,321	Nov. 23	2789	659	81	1392
Branson, Edwin R., Philadelphia, Pa., and E. E. Davis, Rockford, Ill., assignors to said Branson. Circular-knitting machine	594,092	Nov. 23	2371	561	81	1311
Branthoover, Frank M., *et al.* (See Jackson, William H., assignor.)						
Branzell, Charley, assignor of part to C. Ellison, S. G. Peterson, A. Fridstrom, J. Sundell, Monsos & Larson, A. C. Anderson, and W. Nystrom, Ashland, Wis. Lightning-arrester and cut-out	591,221	Oct. 5	675	160, 161	81	199
Branzke, Carl, München, Germany. Boundary-stone	595,088	Dec. 7	344	83	81	1685
Braun, William F., Chicago, Ill., assignor to J. E. Searles, New York, N. Y. Automatic weighing-machine	593,455	Nov. 9	1255	302, 304	81	1064
Brawley, David A., and J. F. Lewis, Charleston, W. Va. Automatic weather-strip	591,809	Oct. 19	1535	362, 363	81	348
Bray, George, Leeds, England. Gas-burner	596,258	Dec. 28	2450	579	81	2158
Bray, John, Boston, Mass. Railway-brake	595,013	Dec. 7	301	72, 73	81	1676
Bray, Nicholas, Dubuque, Iowa. Range-finder	591,912	Oct. 19	1715	411	81	385
Brayshaw, James, Weymouth, Mass. Rope-adjusting device	591,450	Oct. 12	924	217	81	209
Brayton, James T., Chicago, Ill. Ophthalmoscope	591,617	Oct. 12	1216	286	81	263
Brede, Alexander. (See Friedrichs and Brede.)						
Bredsvold, Paul A. (See Lau and Bredsvold.)						
Breen, Charles P., Parkville, Mo. Slate	593,979	Nov. 23	2231	529	81	1265
Breen, John A., Utica, N. Y. Heater	590,962	Oct. 5	20	5	81	6
Brennan, Patrick H., Syracuse, N. Y. Crank-shaft hanger	593,562	Nov. 16	1484	362	81	1122
Brennan, Patrick H., Syracuse, N. Y. Velocipede	595,465	Dec. 14	1087	261	81	1849
Brennan, Stephen J., Holyoke, Mass. Store-service trolley-track	595,555	Dec. 14	1228	295	81	1878
Brent, Charles. (See Lardner and Brent.)						
Brent, Henry, *et al* (See Harrington, John, assignor.)						
Brentlinger, Ellsworth, Dayton, Ohio. Street-sweeper	591,206	Oct. 5	479	114, 115	81	91
Bresnahan, Cornelius, Detroit, Mich. Car-brake	592,604	Oct. 26	3241	671	81	733
Brethauer, Otto, assignor of one-half to A. Weismantel, Brooklyn, N. Y. Toy	594,595	Nov. 30	3319	778	81	1512
Brett, Edward S., Coventry, England. Power-hammer	594,063	Nov. 23	2373	562	81	1311
Brewer, Harvey E., and M. H. Shenk, Annville, Pa. Blacksmithing apparatus	592,193	Oct. 19	2208	520, 521	81	477
Brewer, Horatio J., New York, N. Y. Galvanic battery	592,760	Nov. 2	10	3	81	809
Brewer, John M., *et al* (See Barnes, Amos, assignor.)						
Brewer, William F. (See Stitzer, David, assignor.)						
Brewer, William M., New Brighton, Pa. Jug	591,785	Oct. 12	1409	331	81	308
Brewster, James F., assignor of one-third to R. M. Gill, D'Arbonne, La. Time lamp-lighter	592,761	Nov. 2	11	3	81	809
Bridge, Thomas E., Akron, Ohio. Non-refillable bottle	594,502	Nov. 30	3315	778	81	1511
Bridgeport Brass Company. (See Stoddard, Samuel G., assignor.)						
Bridges, John R., Findlay, Ohio. Hasp-lock	592,527	Oct. 26	3115	636	81	708
Bridges, John R., Findlay, Ohio. Machine for finishing tumblers, &c	592,645	Oct. 26	3309	688, 689	81	746
Brining, John, *et al.* (See Waterman, Charles H., assignor.)						
Brining, Thomas, Leeds, England. Last for boots or shoes	594,933	Dec. 7	151	38	81	1650
Brintnall, Thomas M., Medina, assignor to National Safe and Lock Company, Cleveland, Ohio. Safe	594,378	Nov. 30	2903	684, 685	81	1432
Brion, Henry E., Liberty, Pa. Stable-floor	592,960	Nov. 2	379	88	81	881
Bristow, Henry, Brooklyn, N. Y. Skein-silk book	594,519	Nov. 30	3168	743	81	1483
Britton, Franklin W., Brainerd, Minn. Expansion router-bit	596,490	Dec. 28	2750	650	81	2217
Britton, James A., Phillipsburg, N. J. Battery-cup	593,198	Nov. 9	803	191	81	979
Broadwell, William D. (See Waite and Broadwell.)						
Brock, Henry J., assignor to Brock & Wiener, Buffalo, N. Y. Vest	593,370	Nov. 9	1111	269	81	1036
Brock & Wiener. (See Brock, Henry J., assignor.)						
Brock, William H., Brooklyn, N. Y. Brick construction	595,988	Dec. 21	1988	475	81	2050
Brockles, Alfred C., London, England. Electric switch	594,227	Nov. 23	2625	621	81	1359
Brockmann, Henry, Santa Rosa, Cal. Spraying attachment for brooms	595,761	Dec. 21	1569	379	81	1964
Brocksmith, Hermann H., Vincennes, Ind. Adjustable bench-dog	591,618	Oct. 19	1218	286	81	263
Brockson, James W., Middletown, Del. Horseshoe-extractor	595,602	Dec. 21	1438	348	81	1940
Brodeur, Timothy, and T. O. Thayer, Portland, Oreg. Game-counter	593,511	Nov. 9	1374	332	81	1085
Brodie, William H., Brooklyn, N. Y. Wire-clamp	593,949	Nov. 9	349	81	81	875

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Broemler, George M., New York, N. Y. Bottle or similar vessel	591,619	Oct. 12	1219	286	81	262
Bromley, Albert H., Jr., Philadelphia, Pa. Photographic camera	593,010	Nov. 2	455	109	81	896
Bromley, Robert C., Pittsburg, Pa., assignor to Pittsburg Valve and Machine Co., Limited. Valve	593,411	Nov. 9	1191	285	81	1050
Bromley, Robert C., Pittsburg, Pa., assignor to Pittsburg Valve and Machine Co., Limited. Valve	593,412	Nov. 9	1192	286 28	81	1050
Bronder, Gaston A., New York, N. Y. Machinery for discharging gas-retorts	595,089	Dec. 7	345	84	81	1685
Brook, Frank, Huddersfield, England. Workman's time-recorder	593,456	Nov. 9	1202	305	81	1065
Brook, Frank, Huddersfield, England. Workman's time-check	593,457	Nov. 9	1207	305 306	81	1066
Brooke, Homer, Jersey City, N. J. Manufacture of necks of glass bottles	596,319	Dec. 28	2553	606	81	2177
Brookhart, Chauncey E., Crossville, Tenn. Tire-tightener	593,293	Nov. 9	988	230	81	1013
Brooks, Byron A., Brooklyn, N. Y. Printing-telegraph	596,320	Dec. 28	2555	608 609	81	2177
Brooks, Chapin C., Wayne, Me. Knife	592,961	Nov. 2	280	88	81	881
Brooks, Charles E., London, England. Copy-holder for type-writers, &c	595,140	Dec. 7	535	129	81	1719
Brooks, Edward J., East Orange, N. J. Seal-press	595,282	Dec. 7	775	192	81	1764
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Cording-seal	591,968	Oct. 5	782	188	81	149
Brooks, Frank M., Brooklyn, N. Y. Gas-burner	595,762	Dec. 21	1509	379	81	1964
Brooks, Franklin W., New York, N. Y. Lead seal	595,989	Dec. 21	1989	475	81	2050
Brooks, Herbert H., Medford, Mass. Flexible metallic tube or conduit	591,092	Oct. 5	266	63	81	58
Brooks, James W., *et al.*, trustees. (See Fogg, Charles H., assignor.)						
Brooks, John, *et al.*, trustees. (See Fogg, Charles H., assignor.)						
Brooks, John C., Paterson, N. J., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Loom	596,441	Dec. 28	2789	659	81	2225
Brooks Street Sweeper Manufacturing Company. (See Mears, William S., assignor.)						
Brower, George L. (See Gist, Lane, assignor.)						
Brown, Aaron A., Roland Park, Md. Means for storing power derived from agitated water	592,702	Nov. 2	13	3	81	809
Brown, Adna, assignor to Parks & Woolson Machine Company, Springfield, Vt. Yielding extensible cloth-rest for sewing-machines	592,744	Oct. 26	3506	736	81	784
Brown, Carl E., Columbus, and G. H. Smith, Santa Fé, Ohio. Car-fender	594,851	Dec. 7	19	5	81	1025
Brown, Charles, Chicago, Ill. Window-cleaner	592,076	Oct. 19	2005	474	81	440
Brown, Charles F., administrator. (See Lamplugh, James A.)						
Brown, Emma, Freeport, Ill. Adjustable can or jar holder	590,963	Oct. 5	22	6	81	7
Brown, George F., assignor to Pullman's Palace Car Company, Chicago, Ill. Street-car.	592,749	Oct. 26	3514	738 739	81	785
Brown, George T., Portland, and R. N. Morrow, Sedalia, Mo. Shipping-crate	595,902	Dec. 21	1840	440	81	2019
Brown, Harry R., Minneapolis, Minn. Gage	591,342	Oct. 5	719	170	81	139
Brown, James. (See Barrowclough and Brown.)						
Brown, James H. (See Allen, Elijah L., assignor.)						
Brown, John R. (See Seabrook and Brown.)						
Brown, John S., Galveston, Tex. Trussed axle for wheeled vehicles	591,736	Oct. 12	1410	331	81	303
Brown, John W., Jr., Philadelphia, Pa. Raisin-seeder	591,322	Oct. 5	676	161	81	129
Brown, John W., Jr., Philadelphia, Pa. Meat-chopper	591,323	Oct. 5	678	161 162	81	129
Brown, Joseph E., Hubbard, Nebr. Combined corn harvester and shucker	594,823	Nov. 30	3747	873	81	1599
Brown, Joseph H., assignor of one-half to H. O. Overby, Richland, Ga. Mud-guard for vehicle-hubs	595,141	Dec. 7	537	129	81	1719
Brown, Lewis O., Toledo, Ohio. Washboard	594,168	Nov. 23	2530	599	81	1343
Brown, Millard F., Kansas City, Mo. Flour-bin and spice-receptacle	591,124	Oct. 5	326	79, 80	81	64
Brown & Sharpe Manufacturing Company. (See Norton, Charles H., assignor.)						
Brown & Sharpe Manufacturing Company. (See Spalding, Frank, assignor.)						
Brown, Sidney J., Tip Top, Va. Car-mover	594,456	Nov. 30	3049	716	81	1459
Brown, Taylor E. (See Berg, John V., assignor.)						
Brown, Theodore P., Worcester, Mass. Pneumatic motor for musical instruments	594,981	Dec. 7	248	60	81	1667
Brown, Theodore P., Worcester, Mass. Foot-pedal for musical instruments	595,466	Dec. 14	1089	261	81	1850
Brown, Thomas S., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Mower.	594,596	Nov. 30	3320	779	81	1512
Brown, Ulysses S. G. (See Riley and Brown.)						
Brown, Wilfred L., San Francisco, Cal. Amalgamator	591,557	Oct. 12	1171	276	81	254
Brown, William M., Menominee, Mich. Saw-filing machine	591,946	Oct. 19	1772	423	81	397
Brown, William M., Johnstown, Pa. Joint for electric cables	595,367	Dec. 14	913	221	81	1816
Brown, William M., Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Electric system of propulsion	594,379	Nov. 30	2906	685	81	1432
Brown, William W., Macon, Ga. Adding-pencil	592,723	Oct. 26	3461	726	81	776
Browne, Walram S., Brooklyn, N. Y. Electrically-actuated switch mechanism	593,389	Nov. 9	1157	279	81	1043
Browne, William F., New York, N. Y., assignor of one-half to C. R. Knapp, Somerville, N. J. Prepayment coin-controlled mechanism for electric meters	596,012	Dec. 21	2019	482	81	2056
Browning, John P., assignor of two-thirds to A. D. Hardy and F. G. Fawkes, Brantford, Canada. Auxiliary link for bicycle drive-chains	592,275	Oct. 26	2343	553	81	526
Browning, Joseph, Philadelphia, Pa. Pipe-wrench	594,775	Nov. 30	3653	850	81	1561
Bruckheimer, Samuel. (See Houts, John R., assignor.)						
Bruhn, Friedrich E. J., Hamburg, Germany. Means for adjusting head-pieces of bedsteads, &c	592,925	Nov. 2	297	60	81	806
Brundage, Charles S. (See Velie, George S., assignor.)						
Brundage, Charles S., *et al.* (See Smith, Edward C., assignor.)						
Brundage, William D., Albion, Mich. Spring for cultivator-beams	596,088	Dec. 21	2085	495	81	2071
Brundage, William H., Hudson, N. Y. Store-service apparatus	593,458	Nov. 9	1271	306	81	1067
Brunell, Charles G., Custer, S. D. Fuse cutter, splitter, and crimper	594,852	Dec. 7	22	5	81	1625
Bruner, Louis N. (See Biondel and Psaroudaki, assignors.)						
Brunnemer, William T. M., assignor to David Bradley Manufacturing Company, Bradley, Ill. Wheeled plow	595,521	Dec. 14	1178	283	81	1868
Bruns, William, Chicago, Ill. Album	595,467	Dec. 14	1090	262	81	1850
Brunson, Charles B., administrator. (See Winters, John W.)						
Brunton, Daniel V. (See Brunton, Joseph and D. V.)						
Brunton, Joseph and D. V., Pittsburg, Pa. Tack	596,200	Dec. 28	2360	560	81	2140
Bruseau, Albert C., Memphis, Tenn. Mail-box	592,908	Nov. 2	264	60	81	858
Bryan, William J., Chicago, Ill. Device for preventing refilling of bottles	593,194	Nov. 9	805	192	81	979
Bryant, Emery H., Hanson, Mass. Switch mechanism	591,810	Oct. 19	1586	363	81	349
Bryant, Henry, Aransas Pass, Tex. Acetylene-gas machine	595,668	Dec. 14	1407	340	81	1916
Bryant, Noah, Otsego, Mich. Manufacturing paper	593,011	Nov. 2	457	.....	81	896
Buchanan, James P., Allegheny, Pa. Metallic door-jamb	591,690	Oct. 12	1290	296	81	263
Buchanan, John P., Boston, Mass., assignor to Hall Signal Company, of Maine. Electrical signaling system	596,201	Dec. 28	2360	560	81	2140
Buchanan, Sarah E. G., Newport, Ky. Broom-handle attachment or pole attachment consisting of picture-hanger, dust-rag holder, and suspending device	593,155	Nov. 2	717	170	81	949

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bucher, Casper T., Tiffin, Ohio. Carpet-stretcher	591,080	Oct. 5	102	37	81	34
Bucher, Casper T., Tiffin, Ohio. Metal-shearing machine	591,811	Oct. 19	1538	363	81	349
Buchheit, Peter. (See Hochstrasser, Albert, assignor.)						
Buchhop, Ferdinand. (See Meyrowitz and Buchhop.)						
Buchhorn, Frederick. (See Franke and Buchhorn.)						
Buck, Charles E. (See Geer, George, assignor.)						
Buck, Daniel A. A., New Haven, Conn., assignor to National Spirometer Company, of New York. Spirometer and coin-controlled mechanism therefor	595,990	Dec. 21	1990	475	81	2050
Buck, George N., Mattoon, Ill. Combined waist, skirt, and belt holder	592,484	Oct. 26	3018	611	81	689
Buck, Henry, North Manchester, Ind. Fence-post	595,600	Dec. 14	1297	313	81	1804
Buck, Seth W., Hoxie, Kans. Animal-trap	595,601	Dec. 14	1298	313	81	1804
Buck, Vertrude P., *et al.* (See Rand, William C., assignor.)						
Buckeye Malleable Iron and Coupler Company. (See Timms, James, assignor.)						
Buckley, John, Chicago, Ill. Semi-elliptic spring	591,812	Oct. 19	1540	363	81	349
Budds, William T., Charleston, S. C. Electric call-box system	596,256	Dec. 28	2623	624	81	2192
Buebel, Emil, Altoona, and J. Hall, Juniata Kipple, Pa. Device for locking bicycles	594,734	Nov. 30	3570	880	81	1564
Buerkle, August, Allegheny, Pa. Water-heater	591,568	Oct. 12	1172	276	81	254
Buffalo Dental Manufacturing Company. (See Lewis and Bailey, assignors.)						
Bufford, George W., Brooklyn, N. Y. Chain for sprocket-wheels	595,937	Dec. 21	1898	452	81	2061
Buffum, Herbert H., Abington, Mass. Eyelet-delivering mechanism for eyeleting-machines	595,040	Dec. 7	348	84	81	1685
Buffum, Herbert H., Abington, Mass. Pawl	595,556	Dec. 14	1230	295 296	81	1878
Bühler, Emil, Schriesheim, Germany. Timing apparatus for photographic printing	595,368	Dec. 14	914	221	81	1816
Buhoup, Harry C., Chicago, Ill. Car-coupling	596,357	Dec. 28	2624	624 625	81	2192
Buhoup, Harry C., Chicago, Ill. Car-coupling	596,358	Dec. 28	2626	625	81	2199
Buhrman, Joseph B. (See White, Thomas R., assignor.)						
Bukoutz, Charles J., La Moille, Ill. Electric burglar and fire alarm	595,871	Dec. 21	1776	427	81	2006
Bulkley, Charles E., Summit, N. J. Vehicle-wheel	593,763	Nov. 16	1846	443	81	1190
Bull, Annabell C., Peoria, Ill. Stirrer	594,884	Nov. 30	3749	873	81	1600
Bulley, Louis T., New Haven, Conn. Gas-generating machine	596,321	Dec. 28	2559	609 610	81	2178
Bullis, Franklin H., Brooklyn, N. Y. Machine for melting snow from city streets	593,980	Nov. 23	2222	529 530	81	1285
Bullock, Edmund L., assignor of two-thirds to E. H. Lyman and E. Pember, Hartford, Conn. Switch-operating attachment for street-railway cars	592,802	Nov. 2	200	46	81	847
Bullock, William J., assignor to F. C. Rockwell, Hartford, Conn. Handle	596,049	Dec. 28	2109	500	81	2098
Bump, Charles H., assignor to Newton & Thompson Manufacturing Company, Brandon, Vt. Handle-finishing machine	594,825	Nov. 30	3750	874	81	1600
Bumpass, Charles W., and W. M. McCandlish, Bumpass, Va.; said McCandlish assignor to said Bumpass. Poultry-coop	592,194	Oct. 19	2206	521	81	478
Bunce, Richard, Brooklyn, N. Y. Dish-drainer	591,877	Oct. 12	800	186	81	183
Bundy Manufacturing Company. (See Bundy, Willard L., assignor.)						
Bundy, Willard L., assignor to Bundy Manufacturing Company, Binghamton, N. Y. Ribbon mechanism for time-recorders, &c	594,725	Nov. 30	3572	880	81	1564
Bunnell, Jesse H., Brooklyn, N. Y., and T. A. Casey, Passaic, N. J., assignors to said Bunnell and C. J. Kintner, New York, N. Y. Implement for throwing or discharging liquids in form of streams	594,520	Nov. 30	3170	743	81	1483
Bunnell, Morton G., assignor to F. C. Austin, Chicago, Ill. Dumping-scraper	591,378	Oct. 12	801	187	81	184
Bunnell, Morton G., assignor to F. C. Austin, Chicago, Ill. Drag-scraper	593,270	Nov. 9	992	230 231	81	1005
Bunnell, Morton G., Chicago, Ill., and W. T. Perkins, Rensselaer, Ind., assignors to F. C. Austin, Chicago, Ill. Well-drilling machine	594,064	Nov. 23	2374	562 563	81	1312
Burbank, Henry S. (See Ruhe and Burbank.)						
Burck, John H., North Hoosick, N. Y. Spraying apparatus	593,732	Nov. 16	1782	429	81	1177
Burdett, Fred H. (See Higgins, Frank L., assignor.)						
Burdick, George, assignor to Penn Manufacturing Company, Erie, Pa. Bicycle-wheel hub	593,764	Nov. 16	1848	443	81	1190
Burdick, George, assignor to Penn Manufacturing Company, Erie, Pa. Combined cone lock-nut and dust-cap for crank-shafts	593,873	Nov. 16	2056	484	81	1231
Burge, John H. H., Brooklyn, N. Y. Bicycle-saddle	595,434	Dec. 14	1038	248	81	1838
Burgers, Franz, Geisenkirchen, Germany. Shaft or blast furnace	591,524	Oct. 12	1058	248	81	231
Burgess, Andrew, Buffalo, N. Y. Recoil-operated firearm	591,525	Oct. 12	1060	248 249	81	232
Burgess, James, assignor to T. Higham, J. W. Jackson, and F. W. Ballenger, Indianapolis, Ind. Cold-iron shears	595,028	Dec. 7	330	80	81	1682
Burgess, William S., Brookline, Mass. Recoil-operated gun	591,155	Oct. 5	382	89, 90	81	73
Burk, Ruben C., *et al.* (See Sidwell, Aaron M., Jr., assignor.)						
Burke, James W., Boston, Mass. Hook and eye	596,259	Dec. 28	2451	580	81	2158
Burkes, Howell H. (See Wright and Burkes.)						
Burkhalter, William P., Bryan, Tex. Combination-tool	592,077	Oct. 19	2006	475	81	440
Burkhiser, John E., and G. K. Colborn, assignors to E. M. Tabb, Bayard, W. Va. Match-box	591,379	Oct. 12	803	187	81	184
Burleigh, George K., Northfield, assignor to Flash Light and Cyclometer Company, Tilton, N. H. Illuminated electric sign	591,209	Oct. 5	783	183	81	149
Burley, Jacob F., Belvidere, N. J. Heat or damper regulator	591,526	Oct. 12	1064	249	81	233
Burnett, Frank C., Joliet, Ill. Cattle-guard for railways	594,148	Nov. 23	2498	591	81	1326
Burnett, Leander, Ravenswood, Ill. Bottle	591,125	Oct. 5	327	80	81	64
Burnett, William H., Red Hook, N. Y. Can or jar closure	594,120	Nov. 23	2473	585	81	1321
Burnham, Della R., Pullman, Wash. Band-cutter	594,776	Nov. 30	3653	850	81	1561
Burnham, Frank A., assignor to Chandler & Price Company, Cleveland, Ohio. Movable and adjustable bearer for platen printing-presses	595,991	Dec. 21	1994	476	81	2051
Burns, Alexander B., and J. T. Ketchum, Green Bay, Wis. Steam-boiler	593,921	Nov. 16	2130	505	81	1247
Burns, James, *et al.* (See Harrington, John, assignor.)						
Burns, James, Cincinnati, Ohio. Hearse	595,116	Dec. 7	501	120	81	1712
Burns, James D., *et al.* (See Cronin, Cornelius, assignor.)						
Burns, Jeremiah D., Washington, D. C. Hat and coat lock	592,276	Oct. 26	2344	554	81	526
Burns, Matthew A. (See King and Burns.)						
Burridge, Lee S., assignor to Century Machine Company, New York, N. Y. Type-writing machine	593,563	Nov. 16	1486	362	81	1122
Burridge, Lee S., assignor to Century Machine Company, New York, N. Y. Type-writing machine	594,777	Nov. 30	3655	851	81	1581
Burrow, Ezekiel V., assignor to R. M. Thompson & Sons, Monrovia, Ala. Cultivator	591,589	Oct. 12	1174	276	81	255
Burrows, Edward O., Somerville, assignor to Smith & Anthony Company, Boston, Mass. Heating and ventilating apparatus	594,597	Nov. 30	3323	779	81	1513

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Burson, William W., Chicago, Ill. Harvesting-machine	595,869	Dec. 14	916	223	81	1817
Burt, Charles H., Warren, assignor to Burtworth Carpet Company, Springfield, Mass. Pile-fabric loom	593,957	Nov. 16	2189	519	81	1958
Burt, Henry J., Liberty, Ind. Gas-generator	592,605	Oct. 26	3342	671	81	733
Burton, Bethel, Brooklyn, N. Y. Magazine bolt-gun	594,858	Dec. 7	23	6	81	1626
Burton, George D., Boston, Mass. Apparatus for electrically heating metals and ores	593,961	Nov. 23	2234	530 / 531	81	1986
Burton, John, Anderson, Ind. Machine for cleaning and polishing metal plates	594,149	Nov. 23	2500	592	81	1326
Burton, John L., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Filling-changing mechanism for looms	591,906	Oct. 19	1864	444	81	414
Burtworth Carpet Company. (See Burt, Charles H., assignor.)						
Busell Lasting Machine Company. (See Preston, Albert F., assignor.)						
Busfield, John G., Woburn, Mass. Spool-holder	592,863	Nov. 2	201	46	81	847
Bush, Edmond S. (See Scobee and Bush.)						
Busse, Rudolph, Bethlehem, Pa. Safety gas-cock	595,142	Dec. 7	538	129	81	1720
Butcher, James M., Denver, Colo. Bill-file	592,864	Nov. 2	202	46	81	847
Butler, James H., Columbia Heights, Ill., assignor to J. G. Ebersole, Cincinnati, Ohio. Piano-action	593,552	Nov. 9	1452	354	81	1099
Butler, William H., Harrison, N. Y. Tobacco-leaf-stemming machine	595,041	Dec. 7	350	85	81	1635
Butman, T. H. (See Butman, Thomas R., assignor.)						
Butman, Thomas R., assignor to T. H. Butman, Chicago, Ill. Steam-generator	596,024	Dec. 21	2054	488 / 489	81	2063
Buttler, William, Redkey, Ind. Manufacture of glassware	592,078	Oct. 19	2008	475	81	441
Buttress, Joseph A. (See Rankin, Thomas F., assignor.)						
Byer, Edgar H., Hagerstown, Md. Gage	595,370	Dec. 14	919	223	81	1817
Byers, Oscar D. (See Jones, William S., assignor.)						
Byers, Oscar D., Syracuse, N. Y. Burial-casket	595,602	Dec. 14	1300	313	81	1894
Byrne, Edmond J., Dundrum, Ireland. Seat or saddle support for cycles or other vehicles	593,798	Nov. 16	1916	456	81	1993
Byrne, John, Minden, Nebr. Calculating-machine	595,603	Dec. 14	1301	314	81	1894
Byrne, Luke G. (See Millar, George G. J., assignor.)						
Byrne, Robert E., Providence, R. I. Fastening heads to posts of collar-buttons	595,143	Dec. 7	539	129	81	1720
Byrnes, Edward, New York, N. Y. Door-fastener	596,050	Dec. 28	2111	500	81	2093
Byrnes, George W. (See Crandall and Byrnes.)						
Byxbe, John C., and P. E. Petersen, Pensacola, Fla. Sash-cord fastener	591,380	Oct. 12	804	187	81	184
Byxbe, John C., and P. E. Petersen, Pensacola, Fla. Folding support for hammocks and tents	594,598	Nov. 30	3323	779 / 780	81	1513
C. A. Edgarton Manufacturing Company. (See Wolff, Charles W., assignor.)						
C. F. Zimmermann Company. (See Ackermann, Hermann, assignor.)						
C. F. Zimmermann Company. (See Joyce, John J., assignor.)						
C. F. Zimmermann Company. (See McPherson, Frank G., assignor.)						
C. F. Zimmermann Company. (See Roth and Joyce, assignors.)						
C. J. Luther Company. (See Luther, Clarence J., assignor.)						
Cabell, Philip M., Wilmington, Del. Method of and device for fine stenciling	594,322	Nov. 23	2791	659	81	1302
Cadman, Christopher B. (See Case and Lee, assignors.)						
Caesar, Emil, Long Island City, N. Y. Needle	592,926	Nov. 2	298	69	81	866
Caffrey, James H., Philadelphia, Pa. Spring-gear for carriages	593,831	Nov. 16	1977	465	81	1215
Cahalane, Michael A., Charlestown, N. H. Toy foot-ball game-board	593,512	Nov. 9	1375	332	81	1085
Cahill & Hall Elevator Company. (See Weymann, Charles M., assignor.)						
Cain, Ephraim D., Weatherby, Mo. Water-column	595,557	Dec. 14	1231	296	81	1676
Cain, William, Perth, Canada. Overboot for horses	593,564	Nov. 16	1490	363	81	1123
Caldwell, Evalyn, St. Paul, Minn. Purse	593,640	Nov. 16	1630	394	81	1149
Caldwell, John. (See Westinghouse and Caldwell.)						
Calhoun, William M., Allegan, Mich. Fence-making machine	596,394	Dec. 28	2715	643	81	2210
California Voting Machine Company. (See Christensen, Christ, assignor.)						
Calkin, Gorge L. (See Wile and Calkin.)						
Calvert, Charles A., assignor to George L. Squier Manufacturing Company, Buffalo, N. Y. Rice-huller	596,051	Dec. 28	2113	500 / 501	81	2094
Calvert Lithographing, Engraving and Map Publishing Company. (See Seaman, Henry B., assignor.)						
Calvert, Thomas W., Guthrie, Okla. Ter. Nut-lock	594,854	Dec. 7	25	6	81	1626
Calvert, William J., New York, N. Y. Fender for tramway-cars	594,855	Dec. 7	26	7	81	1626
Camburn, Charles B., Cold Point, Pa. Game apparatus	591,737	Oct. 12	1411	332	81	808
Camburn, Ernest L. (See Kilmer, William A., assignor.)						
Cameron, George, Boston, Mass. Suspension of aerial cables	595,093	Dec. 21	1439	348	81	1940
Cameron, Walter. (See Gabos, Julius, assignor.)						
Campbell, Andrew C., Waterbury, Conn., assignor to E. J. Manville Machine Company, of Connecticut. Rod separating and feeding device	593,532	Nov. 9	1405	338 / 339	81	1091
Campbell, Andrew C., assignor to E. J. Manville Machine Company, Waterbury, Conn. Machine for forming nipples	594,457	Nov. 30	3050	716 / 717 / 718	81	1460
Campbell, Charles E., Portland, Oreg. Hat-fastener	592,646	Oct. 26	3315	699	81	747
Campbell, Henry, assignor of one-fourth to P. G. Campbell, Milwaukee, Wis. Cement-kiln	591,613	Oct. 19	1541	364	81	350
Campbell, Horace J., Memphis, Tenn. Compression-pump for refrigerating apparatus	592,235	Oct. 26	2231	537	81	513
Campbell, James S., and J. W. Shields, Pittsburg, Pa. Hose-bridge	595,144	Dec. 7	540	130	81	1720
Campbell, John D., Leesburg, Idaho. Tool for miners' use	593,459	Nov. 9	1378	306	81	1067
Campbell, Newman, Helena, Mont. Rotary crusher	593,799	Nov. 16	1916	456	81	1902
Campbell, Peter R., Brierfield, Miss. Clod-cutter	595,117	Dec. 7	503	120	81	1713
Campbell, Philip G. (See Campbell, Henry, assignor.)						
Campbell Printing Press and Manufacturing Company. (See Wood, Henry A. W., assignor.)	591,381	Oct. 12	805	186	81	184
Campbell, Robert O., Victoria, Canada. Bag-filler	593,533	Nov. 9	1409	339	81	1092
Campbell, Sumner B., assignor to Textile Manufacturing Company, Westfield, Mass. Trimming device for struck-up metal-work	592,950	Nov. 2	350	82	81	876
Campbell, Thomas H., Beaver, Pa. Car-fender	595,145	Dec. 7	541	130	81	1720
Campbell, William J., Dayton, Va. Hame-tug	593,753	Nov. 2	14	4	81	809
Canda, Leo, Cincinnati, Ohio. Coin-operated game and discount apparatus	595,986	Dec. 14	785	194	81	1791
Candel, Edouard, assignor to La Société Edouard Candel et Cie., Paris, France. Button.						
Capehart, Alexander S., Bismarck, N. D. Side-box matrix-bar for line-casting machines	591,814	Oct. 19	1543	364	81	350
Capehart, Alexander S., Bismarck, N. D. Matrix for line-casting machines	591,947	Oct. 19	1776	424	81	398
Capehart, Alexander S., Bismarck, N. D. Matrix-bar and making same	591,948	Oct. 19	1778	424	81	398
Capen, George W. (See Skellen, Francis J., assignor.)						
Carandini, Victor, Calcutta, India. Race-starting machine	593,460	Nov. 9	1274	307	81	1067
Carbutt, John, Philadelphia, Pa. Film-spool	594,458	Nov. 30	3059	718	81	1462

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cardwell Machine Company. (See Goodwin, James D., assignor.)						
Carey, John H., assignor to M. A. Carey, Hartford, Conn. Soft-tread horseshoe	594,982	Dec. 7	249	61	81	1667
Carey, Mary A. (See Carey, John H., assignor.)						
Carlewitz, August, Newark, N. J. Manufacture of plaster cornices	591,245	Oct. 5	557	131	81	106
Carlson, Aron M., Pierre, S. D. Sled-runner	595,872	Dec. 21	1777	427	81	2008
Carlson, Gustaf H., Lowell, Mass. Seesaw	594,856	Dec. 7	28	7, 8	81	1627
Carlson, Otto. (See Hammarstrom and Carlson.)						
Caristedt, John A., Brooklyn, N. Y., assignor to G. F. Spencer, Newark, N. J. Device for forming annular sheet-metal rings	595,287	Dec. 14	786	194	81	1791
Carnegie Steel Company. (See Guest, Joseph, assignor.)						
Carothers, Wilson. (See Anderson, James, assignor.)						
Carpenter, Charles H., *et al.* (See Crowell, Luther C., assignor.)						
Carpenter, Charles W., *et al.* (See North, Thomas M., assignor.)						
Carpenter, Charles W., *et al.* (See Read, George F., assignor.)						
Carpenter, Charles W., *et al.* (See Shattuck, Edwin L., assignor.)						
Carpenter, James M. (See Carpenter, Orville, assignor.)						
Carpenter, Newel, Sr., White Creek, Wis. Hearse	596,322	Dec. 28	2564	611	81	2179
Carpenter, Orville, assignor of one-half to J. M. Carpenter, Pawtucket, R. I. Means for indicating movement or cessation of movement of fluid	594,323	Nov. 23	2792	659	81	1302
Carpenter, Rolla C., Ithaca, N. Y. Steam-boiler	595,042	Dec. 7	355	85, 86	81	1636
Carr, Charles H. (See Dubois, Otis E., assignor.)						
Carragan, Sydney H. (See Loughran, Frederic W., assignor.)						
Carrey, John, De Soto, Mo. Fodder-shredding machine	596,013	Dec. 21	2023	483	81	2057
Carrick, Martin, San Francisco, Cal. Lathing and finishing for buildings	591,207	Oct. 5	483	115	81	91
Carrick, Martin, San Francisco, Cal. Adjustable scaffold	591,208	Oct. 5	485	115 / 116	81	92
Carrier, Milo. (See Rogers, Charles B., assignor.)						
Carriere, Joseph, Worcester, Mass. Level	592,537	Oct. 26	3133	643	81	712
Carrol, William D., *et al.* (See Anderson, Henry C., assignor.)						
Carroll, Edgar J., Worcester, Mass., assignor to Sawyer Spindle Company, Portland, Me. Spindle-bearing	595,908	Dec. 21	1841	441	81	2019
Carroll, John L., Creston, Iowa. Flooring-joiner	593,992	Nov. 23	2237	531	81	1296
Carroll, Timothy, Anaheim, Cal. Load-dumping apparatus	595,236	Dec. 7	710	174	81	1751
Carson, Frank, and W. Glenn, Houlton, Me. Game-counter	592,927	Nov. 2	298	60	81	866
Carson, James W. (See Funk, Mark M., assignor.)						
Carson, Raymond B. (See Purdy and Carson.)						
Carstensen, Larns F., assignor to Armstrong Manufacturing Company, Bridgeport, Conn. Die-head for threading-machines	591,324	Oct. 5	680	162	81	130
Carswell, Robert H., Kansas City, Mo. Horseshoe-cushion	592,277	Oct. 26	2346	554	81	526
Carter, Charles K. (See Graham, William, assignor.)						
Carter, Ezra W., assignor of one-half to F. Vermilyea, Cohoes, N. Y. Percolator	596,285	Dec. 28	2496	598	81	2165
Carter, George W., Haverhill, Mass., assignor to Consolidated and McKay Lasting Machine Company, Portland, Me. Notching device for lasting boots or shoes	591,999	Oct. 19	1865	444	81	414
Cartwright, Benjamin T., Washington, Pa. Double-headed threading-machine	594,890	Nov. 30	2907	685 / 686	81	1433
Cartwright, Harry D. (See Bader and Cartwright.)						
Cartwright, Robert, Rochester, N. Y. Traveling stairway or elevator	593,874	Nov. 16	2056	484 / 485	81	1231
Cary, Lewis C., assignor of two-thirds to T. H. Conklin and C. R. Morehead, El Paso, Tex. Multiple gearing	595,694	Dec. 21	1441	348	81	1941
Casaday, William L., South Bend, Ind. Wheel-plow	592,764	Nov. 2	17	4, 5	81	810
Case, Cromwell O., assignor to P. & F. Corbin, New Britain, Conn. Door check and closer	592,236	Oct. 26	2283	537 / 538	81	513
Case, Edward D., Flint, Mich. Distributing apparatus for beer	593,080	Nov. 2	574	139	81	919
Case, Henry, and J. G. Lee, assignors of one-third to C. B. Cadman, Gloversville, N. Y. Vent and pressure-plug for barrels	591,156	Oct. 5	388	90	81	75
Casey & Hedges Manufacturing Company. (See Casey, James F., assignor.)						
Casey, James F., assignor to Casey & Hedges Manufacturing Company, Chattanooga, Tenn. Jail-cell, &c	591,157	Oct. 5	390	90, 91	81	75
Casey, John P., Bloomsburg, Pa. Electric brake for elevators	593,833	Nov. 16	1978	466	81	1215
Casey, Thomas A. (See Bunnell and Casey.)						
Casey, Thomas A., assignor to F. W. Jones, New York, N. Y. Pneumatic-despatch tube	592,765	Nov. 2	20	5	81	810
Cash, Arthur W., assignor to Foster Engineering Company, Newark, N. J. Fluid-pressure-controlled governor	591,815	Oct. 19	1546	364 / 365	81	350
Casler, Alonzo A., Mansfield, Ohio. Washing-machine	593,833	Nov. 16	1980	466	81	1216
Cassady, Alfred W., Lamar, Mo. Elevator	592,962	Nov. 2	415	98	81	888
Cassel, Warren D. (See Weaver, Harry, assignor.)						
Cassidy, Andrew G., Hartford, Conn. Valve	592,625	Oct. 26	3277	680	81	741
Cassidy, John C., East Orange, N. J. Electric switch	591,451	Oct. 12	925	218	81	309
Castle, Goswin, Rome, N. Y. Plow	594,736	Nov. 30	3574	831	81	1565
Cately, Shepard W., assignor to A. M. Ettling, Cortland, N. Y. Thill-support	594,342	Nov. 23	2833	670	81	1400
Cates, Charles T., Jr., *et al.* (See Ligon, John B., assignor.)						
Cather, James. (See Saludee and Cather.)						
Catlin, Horace, assignor of one-half to O. Hirsch, Burlington, Iowa. Clothes-line holder	591,795	Oct. 12	1501	356	81	321
Catois, Ernest. (See Draullette and Catois.)						
Catsiff, Herman, Philadelphia, Pa. Basket-trap for water-closets, &c	594,169	Nov. 23	2531	599	81	1343
Catton, William, Atlanta, Ga. Sleeve for reciprocating rods	594,358	Nov. 23	2866	676	81	1407
Caufield, John F., New Britain, Conn. Support for scaffold ledger-boards	595,604	Dec. 14	1302	314	81	1895
Caulkins, Clarence M. (See Beebe, Charles J., assignor.)						
Cave, George J., Elizabeth, N. J. Baking-pan	593,390	Nov. 9	1159	279	81	1044
Cave, George J., Elizabeth, N. J. Stamp or envelop moistener	594,599	Nov. 30	3325	780	81	1518
Cave, George J., Elizabeth, N. J. Stamp or envelop moistener						
Cave & Sons, John. (See Firman, Walter, assignor.)						
Cavenaugh, Ralph W., St. Paul, Minn. Automatic smoke-preventer	593,565	Nov. 16	1498	363	81	1123
Cavniss, William H., assignor one-half to W. McCoy, Helena, Ark. Car-coupling	593,195	Nov. 9	806	192	81	960
Cawdery, John W., London, England. Carriage for gravity-railways	593,418	Nov. 9	1193	289	81	1051
Cazalet, Emile F., Kentland, Ind. Grain purifier and drier	592,691	Oct. 26	3408	713	81	767
Ceder, Oscar W., Lee, N. D. Nut-lock	593,081	Nov. 2	576	139	81	919
Cellison, Edmund. (See Grist and Cellison.)						
Cellison, Edmund, assignor to Pennsylvania Iron Works Company, Philadelphia, Pa. Valve-gear for gas-engines	594,361	Nov. 30	2909	686 / 687	81	1433
Celluloid Company. (See Miller, Horace E., assignor.)						
Celluloid Company. (See Stevens, John H., assignor.)						
Century Machine Company. (See Burridge, Lee S., assignor.)						
Chace, Albert F., Boston, Mass. Means for preventing refilling of bottles	592,223	Oct. 19	2243	531	81	435

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Chadwick, John. (See Whitaker and Chadwick.)						
Chadwick, Sager, assignor to R. K. McNeely, Philadelphia, Pa. Leather-dressing machine	595,669	Dec. 14	1408	340	81	1916
Chaffee, Charles S., Derby, Conn. Machine for cutting wire	594,676	Nov. 30	3484	811	81	1546
Chain Stay Fence Company. (See Frantz, Peter, assignor.)						
Challoner, Frank, Oshkosh, Wis. Shingle-sawing machine	593,963	Nov. 23	2230	531	81	1287
Chamberlain, Blanchard, Bellefontaine, Ohio. Mail-pouch-delivery device	594,963	Dec. 7	251	61	81	1667
Chamberlain, Ernest A., Woods, Oreg. Submarine buoy	594,600	Nov. 30	3390	780	81	1513
Chamberlin, Charles, New York, N. Y. Horseshoe	594,523	Nov. 30	3182	745	81	1486
Chamberlin, Frank H. (See Flammang, Nicolas, assignor.)						
Chamberlin, Sarah J., *et al.* (See Andrews, Robert W., assignor.)						
Chambers Brothers Company. (See Gill, James, assignor.)						
Chambers, Charles G., Brownsville, Tenn. Combined funnel and strainer	593,834	Nov. 16	1981	466	81	1216
Chambers, James H., Apollo, Pa. Coat and umbrella suspending rack	595,670	Dec. 14	1410	341	81	1917
Chambers, Thomas P., Newtown, Pa. Brake for horse-power machines	595,522	Dec. 14	1182	283	81	1869
Chambon, Louis. (See Delaperrière and Chambon.)						
Chameroy, Bernard H., Paris, France. Wheel-tire	594,601	Nov. 30	3327	780	81	1513
Champoux, George, assignor of two-thirds to H. E. Hamilton and N. Boisvert, Salmon Falls, N. H. Combined tap and faucet	593,513	Nov. 9	1377	333	81	1096
Chance, Frank S., Indianapolis, Ind. Picture-displaying device	591,452	Oct. 12	926	218	81	209
Chandler, Charles D., Damascus, Oreg. Folding baby-carriage	591,158	Oct. 5	391	91, 92	81	75
Chandler, Charles H., *et al.* (See Wold, Olaus C., assignor.)						
Chandler, Joseph H. (See Finney, James J., assignor.)						
Chandler & Price Company. (See Burnham, Frank A., assignor.)						
Chandler, Walter A. (See Leavens, Harvey, and Chandler.)	591,382	Oct. 12	806	188	81	185
Chapman, Matthew T., Aurora, Ill. Apparatus for pumping water						
Chapman, Romaine A. (See Hollander, Theodore, assignor.)						
Chapman, William. (See Westinghouse and Chapman.)						
Chapman, William A., Yellville, Ark. Miner's knife	594,984	Dec. 7	252	61	81	1667
Chappell, William H., Chicago, Ill. Machine for planing metals	594,065	Nov. 23	2377	564	81	1312
Charles, Edward, Norristown, Pa. Shovel	594,778	Nov. 30	3660	852	81	1582
Charles Parker Company. (See Winans, Daniel M., assignor.)						
Charlet, Edward B., Kewanee, Ill. Pipe-wrench	591,325	Oct. 5	681	169	81	130
Charlton, Milton J. (See Smith, Crippen, and Charlton.)						
Chase, Harry P., and G. Griswold, Salem, Oreg. Stovepipe-holder	595,118	Dec. 7	504	121	81	1718
Chase, Henry A., Boston, Mass., assignor, by mesne assignments, to Metropolitan Duplex Fire and Police Signal Company, Portland, Me. Signaling system	594,292	Nov. 30	2911	667	81	1433
Chase, John Q., Dayton, Ohio. Gas-engine	595,043	Dec. 7	357	86, 87	81	1667
Chase, Rodney G., assignor of one-half to G. N. Sceets, Chicago, Ill. Steam-trap	594,857	Dec. 7	30	8	81	1627
Chatelan, Alfred, Butler, Pa. Composition for lighting cigars	594,077	Nov. 30	3486	812	81	1547
Chatfield, Edwin E. (See Wilson and Chatfield.)						
Chaudun, Henri, Paris, France. Rotary motor	593,514	Nov. 9	1381	333	81	1096
Chemische Fabrik auf Actien, vormals E. Schering. (See Herzheim, Alfred, assignor.)						
Chemische Fabrik, vormals Sandoz. (See Böniger, Melchior, assignor.)						
Cheney, Charles A., Madison, Wis. Toy	594,198	Nov. 23	2570	606	81	1349
Cheney, Frank C., New York, N. Y. School desk and seat	591,738	Oct. 12	1412	332	81	303
Cheney, George M., Indianapolis, Ind. Arch culvert	591,949	Oct. 19	1781	424	81	398
Cheney, Walter L., and W. B. Comstock, Meriden, Conn. Lathe-slide	595,288	Dec. 14	789	195	81	1792
Cherrington, William P., Boston, Mass. Device for rolling barrels, &c	593,294	Nov. 9	969	239	81	1013
Cherry, Edward H. and F. A., Owosso, Mich. Bean-picking machine	595,523	Dec. 14	1183	284	81	1869
Cherry, Florence A. (See Cherry, Edward H. and F. A.)						
Cheshire, Edward. (See Reynolds and Cheshire.)						
Chiapella, A. J. A., *et al.* (See Roux, Harry L., assignor.)						
Chicago Cotton Picker Company. (See Turner, William A., assignor.)						
Chicago Edison Company. (See Tailleur, George, assignor.)						
Chicago Folding Box Company. (See Walker, William J., assignor.)						
Chicago Lubricating and Manufacturing Company. (See Koch, Christian H. C., assignor.)						
Chicago Recording Scale Company. (See Nelson, Nicolay, assignor.)						
Chickering, Frank W., assignor to O. R. Collins, Cabot, Vt. Wall-paper exhibitor	591,453	Oct. 12	927	218	81	209
Chickering & Sons. (See Bowen, Robert S., assignor.)						
Childers, Charles T., Galesburg, Ill. Machine for making sheet-metal moldings	594,383	Nov. 30	2915	667	81	1434
Childers, Frank, Wolf Creek, Ill. Fence	594,324	Nov. 23	2794	660	81	1393
Childress, Patrick H., assignor of three-fifths to F. A. and F. P. Loth, Waynesborough, Va. Treadle mechanism	592,195	Oct. 19	2208	522	81	478
Chillingworth, Rudolf, Nuremberg, Germany, assignor to Standard Weldless Tube and Cycle Components, Limited, London, England. Means for finishing tubular sockets	595,988	Dec. 21	1809	452 / 453	81	2031
Chinnock, George H., Brooklyn, N. Y., assignor to Voelker Light Company, of New Jersey. Holder for incandescent mantles	595,846	Dec. 21	1716	412	81	1994
Chisolm, Henry C. (See Stewart, Raymond C., assignor.)						
Chittenden, Frank, *et al.* (See Sanders, William O., assignor.)						
Chobert, Alfred. (See Béranger and Chobert.)						
Chope, Robert L., Detroit, Mich. Coin-wrapper	595,763	Dec. 21	1571	379	81	1964
Choquette, Charles P., and A. M. Morin, St. Hyacinthe, Canada. Acetylene-gas generator	595,451	Dec. 14	1064	255	81	1844
Christensen, Christ, East Oakland, assignor to California Voting Machine Company, San Francisco, Cal. Voting-machine	592,692	Oct. 26	3410	713	81	767
Christie, Meldrum J., London, England. Iron-frame pianoforte	594,325	Nov. 23	2795	660	81	1393
Christopher, Henry C., assignor to himself, C. C. King, and M. T. Murphree, Meridian, Miss. Generator	594,858	Dec. 7	31	8	81	1627
Christopher, James B., assignor of one-half to H. Eickhoff, Peru, Ill. Journal-bearing	593,092	Nov. 2	577	139	81	919
Christy, James E. (See Oliver, Abraham R., assignor.)						
Chrystie, Percival. (See Taylor, Lewis H., Jr., assignor.)						
Church, Benjamin S., New York, N. Y., assignor, by mesne assignments, to Church Machinery Company, of New Jersey. Apparatus for extracting gold or other precious metals from earth, &c	594,521	Nov. 30	3172	744 / 745	81	1484
Church, Benjamin S., New York, N. Y., assignor, by mesne assignments, to Church Machinery Company, of New Jersey. Apparatus for separating precious metals from sand, rock, &c	594,522	Nov. 30	3180	745	81	1485
Church, Duane H., Newton, Mass. Watch-plate drilling and tapping machine	595,044	Dec. 7	360	87 / 88 / 89 / 90	81	1667
Church, Henry A. (See White, Robert H., assignor.)						
Church Machinery Company. (See Church, Benjamin S., assignor.)						
Churchill, Arthur W., Everett, Mass. Computing-scale	596,052	Dec. 28	2115	501	81	2094

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Churchill, Reginald, Burton-on-Trent, England. Venetian blind	595,146	Dec. 7	542	130 / 131	81	1720
Churchward, Alexander J., Brooklyn, N. Y. Alternating-current motor	593,716	Nov. 16	1738	422 / 423	81	1173
Chute, Clarence A., assignor to G. F. Brunt Porcelain Works, East Liverpool, Ohio. Regulating-socket for electric lamps	592,951	Nov. 2	352	82	81	876
Cilley, H. E., *et al.* (See Gooding, Charles S., assignor.)						
Cilley, Harry E. (See Judd, Cilley, and Paul.)						
Cincinnati Coffin Company. (See Bartlett, Ara A., assignor.)						
Cincinnati Folding Basket Company. (See Hargrave, Edward H., assignor.)						
Clancy, Thomas M., New York, N. Y. Adjustable and removable center for arches	593,063	Nov. 2	578	130	81	919
Clapperton, Alexander, Yonkers, N. Y. Pattern-matching mechanism for looms	596,039	Dec. 21	2087	496	81	2071
Clappison, Helen I. (See Clappison, John H., assignor.)						
Clappison, John H., assignor of one-half to H. I. Clappison, Easton, Pa. Shoe-upper	591,031	Oct. 5	165	37	81	34
Clark, Alfred N., Athens, Mich. Barrel-head	595,371	Dec. 14	920	223	81	1817
Clark, Appleton L. (See Kitson, Arthur, assignor.)						
Clark, Augusta C. (See Clark, Edward C., assignor.)						
Clark & Boyer. (See Boyer, Israel D. and E. E. L., assignors.)						
Clark, Charles S. (See Baltzley, Henry H., assignor.)						
Clark, Daniel J., *et al.* (See Clark, George G., assignor.)						
Clark, Dwight S., assignor to W. H. Forbes, Boston, Mass. Apparatus for scoring, cutting, and printing cardboard boxes	591,209	Oct. 5	487	116 / 117	81	92
Clark, Edward C., assignor to A. C. Clark, Lebanon Springs, N. Y. Hammer	592,278	Oct. 26	2347	554	81	527
Clark, Edward E., Milton, Pa. Stair-rod fastener	593,641	Nov. 16	1631	394	81	1150
Clark, Frank T., Omaha, Nebr. Delivery-slip holder	591,950	Oct. 19	1782	425	81	399
Clark, George G., assignor to H. Eldridge, S. Blum, D. J. Clark, Galveston, and S. Lazarus, Sherman, Tex. Fluid-pressure regulator	595,147	Dec. 7	543	131	81	1721
Clark, George G., assignor to H. Eldridge, S. Blun, D. J. Clark, Galveston, and S. Lazarus, Sherman, Tex. Fluid-pressure regulator	596,140	Dec. 28	2265	537	81	2122
Clark, Harry B., Florin, Cal. Wrapping-machine for newspapers, &c	593,959	Nov. 16	2192	520 / 521	81	1259
Clark, Lucas C., Plantsville, Conn. Counting mechanism for printing-presses	591,246	Oct. 5	539	131 / 132	81	106
Clark, Newman S., Los Angeles, assignor, by mesne assignments, to Zucker Manufacturing Company, Oakland, Cal. Medicated nest-egg	591,109	Oct. 5	300	73	81	59
Clark, William and W. A., London, England. Feed-water heater	591,816	Oct. 19	1548	365	81	351
Clark, William A. (See Clark, William and W. A.)						
Clark, William H., assignor to Rochester Cash Register Company, Rochester, N. Y. Cash register, indicator, and check-printer	596,359	Dec. 28	2628	625 / 626 / 627 / 628	81	2193
Clark, William H., assignor to Rochester Cash Register Company, Rochester, N. Y. Key mechanism for cash-registers	596,360	Dec. 28	2648	628 / 629	81	2196
Clark, William J., Janesville, Wis. Game device	592,465	Oct. 26	3019	612	81	689
Clark, William S. (See Tarr, Joseph S., assignor.)						
Clarke, Arthur R., assignor of three-fourths to E. Allardyce and V. Dumont, Chicago, Ill. Savings-bank	591,110	Oct. 5	301	73	81	59
Clarke, Harry H. (See Terpening, Elmer A., assignor.)						
Clarke, Robert W., Victoria, Canada. Trolley	593,964	Nov. 23	2242	532	81	1288
Clarke, Thomas A., Bootle, England. Electric burglar-alarm	594,678	Nov. 30	3486	812	81	1547
Clarke, Walter H., Chicago, Ill. Toilet-paper holder	595,558	Dec. 14	1232	296	81	1878
Clarkson, Nathaniel B., assignor of one-half to A. B. Blakely, Clinton, S. C. Device for detaching harness	594,859	Dec. 7	32	8, 9	81	1628
Claus, Joseph A. (See Ludlam and Claus.)						
Clausius, Claus H. R., Hamburg, Germany. Recoil-operated firearm	593,835	Nov. 16	1982	467	81	1216
Claussen, Edward E., assignor to A. H. Walker, trustee, Hartford, Conn. Paper-bag machine	596,260	Dec. 28	2452	580 / 581	81	2158
Cleland, Andrew J. and H. W., Mankato, Minn. Double-grade grain-cleaner	594,459	Nov. 30	3060	718	81	1462
Cleland, Herbert W. (See Cleland, Andrew J. and H. W.)						
Clemmshaw, Charles G., Troy, N. Y. Shirt	594,194	Nov. 23	2571	608	81	1350
Clerc, Clovis P. F., and A. G. Pingault, Paris, France. Electric accumulator	595,695	Dec. 21	1443	348 / 349	81	1941
Cline, Nelson, and J. Farrell, Freedom, Pa. Lock for stop-cocks, valves, &c	594,229	Nov. 23	2629	622	81	1360
Clive, Albert A., Ilion, N. Y. Breech-loading firearm	592,196	Oct. 19	2200	522	81	478
Cloos, Jacob, Milwaukee, Wis. Junction-box	591,226	Oct. 5	524	125	81	100
Closs, Friedrich, Boeblingen, Germany. Rotary pump and rotary motor	592,237	Oct. 26	2285	538	81	514
Clouard, André, Caen, France. Gazogene	594,460	Nov. 30	3061	719	81	1462
Cloud, John W., Chicago, Ill. Rail-joint	593,955	Nov. 2	203	47	81	847
Clough, John L. (See Kittle, Barney, and Clough.)						
Clough, William, Rockland, Del. Combination-tool	595,534	Dec. 14	1184	284	81	1870
Clowes, George H. (See Deming, Ferdinand, assignor.)						
Cluff, Fred, Mar, Canada. Saw-guide	591,185	Oct. 5	442	105	81	84
Clutz, Josiah. (See Effinger and Clutz.)						
Cluxton, Sidney H., Syracuse, N. Y. Device for repairing vehicle-tires	594,006	Nov. 23	2379	564	81	1313
Clyne, Ellen, administratrix. (See Clyne, Thomas.)						
Clyne, Thomas, deceased, Detroit, Mich.; E. Clyne, administratrix. Piano-stool	595,847	Dec. 21	1717	412 / 413	81	1994
Coash, Louis B., Lawrence, Mass. Oil-stove burner	591,247	Oct. 5	561	132	81	107
Coats, William T. (See Raymond and Lemley, assignors.)						
Cobb, Benjamin J., Shreveport, La. Car-brake	596,361	Dec. 28	2651	629	81	2197
Cobb, Lyman H., assignor to Lovell Cycle and Ether Motor Company, Portland, Me. Frame for bicycles	595,148	Dec. 7	545	131	81	1721
Cocayne, Isidore J., assignor of one-half to P. Strebler, St. Louis, Mo. Car-spittoon	596,455	Dec. 28	2824	666	81	2232
Cochran, Richard L., and A. M. Banks, St. Louis, Mo. Mirror attachment for chairs	593,043	Nov. 2	509	123	81	906
Cocker, Herbert M., *et al.* (See Cocker, John A., assignor.)						
Cocker, John A., assignor of two-thirds to C. N. Macdonald, Joliet, and H. M. Cocker, Lockport, Ill. Rotary steam-engine	591,062	Oct. 5	165	37, 38	81	34
Coda, Carlo, Civita Vecchia, Italy. Water-accumulator	594,326	Nov. 23	2797	660	81	1393
Cody, George, *et al.* (See Parfrey, William, assignor.)						
Cody, Martin, New York, N. Y. Scaffold	595,998	Dec. 21	1995	476	81	2051
Coe, Addison A., assignor to H. De Haven, Brooklyn, N. Y. Clutch	595,998	Dec. 21	1996	476	81	2051
Coey, Charles A., Fairfield, Wash. Attachment for cigar-boxes	595,929	Dec. 21	1901	453	81	2031
Coffin, Arthur W., San Francisco, Cal. Seal-lock	595,009	Dec. 7	456	109	81	1704
Coffin, Walter E., assignor to National Malleable Castings Company, Cleveland, Ohio. Frame for cars	591,186	Oct. 5	443	105	81	84

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Coffin, Walter E., assignor to National Malleable Castings Company, Cleveland, Ohio. Car-frame	591,187	Oct. 5	444	106	81	85
Coffman, Jacob H., assignor of one-half to L. Ketterer, Philadelphia, Pa. Door stop and check	594,827	Nov. 23	2799	661	81	1894
Coggeshall, William J., assignor of one-half to J. H. Lord, Rochester, N. Y. Game device	595,904	Dec. 21	1842	441	81	2019
Coggins, Leslie I. (See Lindley and Coggins.)						
Cogswell, Frank H., Ipswich, Mass. Shell-fuse	593,765	Nov. 16	1849	443	81	1190
Cohen, Cosman H., and S. Mark, London, England; said Mark assignor to said Cohen. Machine for taking prints from prepared lithographic stones	595,525	Dec. 14	1186	284, 285, 286	81	1870
Cohen, Laurance H., New York, N. Y. Graphoscope	592,608	Oct. 26	3412	713	81	767
Colbert, Thomas F. (See Gelinas, Richard M., assignor.)						
Colborn, George K. (See Burkhiser and Colborn.)						
Colburn, Henry J., and M. J. Owens, assignors to Toledo Glass Company, Toledo, Ohio. Glass-blowing machine	594,343	Nov. 23	2834	670, 671	81	1400
Colby & Co. (See Hawes, Herbert E., assignor.)						
Colby, Theodore P., Boston, Mass. Pinking-machine	595,278	Dec. 7	771	190	81	1763
Coldwell, Thomas, Newburg, N. Y. Knife-casting and making same	594,170	Nov. 23	2532	600	81	1343
Coldwell, William H., Newburg, N. Y. Caster	595,526	Dec. 14	1192	286	81	1870
Cole, Allen P., Chelsea, Mass. Game-counter	592,047	Oct. 19	1946	461	81	429
Cole, Charles A., Clarendon, N. Y. Railway tie and clamp	595,905	Dec. 21	1844	441	81	2020
Cole, Charles J., Pittsfield, Mass. Safety-plug for steam-boilers	594,230	Nov. 23	2630	622	81	1361
Cole, Edward M., Chicago, Ill. Rounding and channeling machine	595,764	Dec. 21	1572	379	81	1964
Cole, Frederick W., Newton, Mass. Electric signal apparatus	592,902	Nov. 2	381	88	81	881
Cole, Stephen D., Wallace, Idaho. Washing-machine	592,694	Oct. 26	3415	714	81	768
Cole, Thomas A., assignor to E. Keller and C. L. Hollowell, Indianapolis, Ind. Combined cigar clipper and register	592,106	Oct. 19	2066	486	81	451
Cole, Warren, Jr., assignor of two-thirds to J. C. and W. Woodward, Knoxville, Tenn. Tobacco-knife	592,538	Oct. 26	3134	643	81	712
Cole, William R., Detroit, Mich. Plug-switch	591,126	Oct. 5	328	80	81	64
Cole, William R., Detroit, Mich. Telephone-exchange system	591,127	Oct. 5	329	81	81	64
Cole, Wilson, *et al.* (See Murchie, James, assignor.)						
Coleman, Fred, *et al.* (See Richard, Julius, assignor.)						
Coleman, John P., assignor to Union Switch and Signal Company, Swissvale, Pa. Switch apparatus	591,590	Oct. 12	1175	277	81	255
Coleman, Thomas G., Gunsight, Tex. Unicycle road and racing sulky	592,130	Oct. 19	2108	499, 500	81	459
Coleman, Thomas G., Gunsight, Tex. Shaft-support	592,466	Oct. 26	3020	612	81	690
Coles, Albert D., Newark, assignor of one-fourth to J. L. Hay, Clinton, N. J. Stove-lid lifter	593,196	Nov. 9	808	192	81	980
Colledge, George, Pietermaritzburg, Natal. Needle-threader	591,326	Oct. 5	682	163	81	130
Colley, George H., assignor to Weeks-Colley Manufacturing Company, Jackson, Mich. Sewing-machine	593,733	Nov. 16	1786	430	81	1178
Colley, George H., assignor to Weeks-Colley Manufacturing Company, Jackson, Mich. Shuttle for sewing-machines	593,734	Nov. 16	1796	431	81	1179
Colley, George H., assignor to Weeks-Colley Manufacturing Company, Jackson, Mich. Sewing-machine	593,735	Nov. 16	1796	431, 432	81	1180
Collier, John V., Northampton, England. Machine for making heels for boots or shoes	593,349	Nov. 9	1083	261, 262	81	1081
Collins, Corties, Dallas, Tex. Axle-nut	594,328	Nov. 23	2800	661	81	1394
Collins, George J. S., Chicago, Ill. Roller-bearing	595,696	Dec. 21	1444	349	81	1941
Collins, Harry R., South Bethlehem, Pa. Vehicle-wheel	594,603	Nov. 30	3329	781	81	1514
Collins, Harry R., South Bethlehem, Pa. Vehicle-wheel	594,604	Nov. 30	3331	781, 782	81	1514
Collins, Harry R., South Bethlehem, Pa. Vehicle-hub	594,605	Nov. 30	3335	782	81	1515
Collins, Herman B., Fulton, N. Y. Fan	591,033	Oct. 5	108	38	81	35
Collins, J. S. (See Jones, Christopher C., assignor.)						
Collins, John A., Fall River, Mass. Roving-can	594,602	Nov. 30	3328	781	81	1514
Collins, John T., *et al.* (See Collins, Samuel W., assignor.)						
Collins, John T., assignor to Merrow Machine Company, Hartford, Conn. Overedge sewing-machine	591,383	Oct. 12	809	188, 189	81	185
Collins, John T., W. H. Stedman, Hartford, and J. M. Merrow, Mansfield, assignors to Merrow Machine Company, Hartford, Conn. Overedge sewing-machine	591,384	Oct. 12	811	189	81	186
Collins, O. R. (See Chickering, Frank W., assignor.)						
Collins, Samuel W., assignor of three-fourths to Parkhurst Brothers & Co., Indianapolis, and J. T. Collins, Kokomo, Ind. Liquid-vending machine	593,414	Nov. 9	1195	290	81	1051
Collis, Lloyd, New York, N. Y. Car-coupling	591,385	Oct. 12	814	190	81	186
Collmar, Charles, and S. N. Ritter, Easton, Pa.; said Ritter assignor to said Collmar. Puzzle	591,817	Oct. 19	1550	365	81	351
Collyer, William C., Reading, Mass. Sewing-machine for lasting boots or shoes	591,327	Oct. 5	683	163, 164	81	131
Colt & Co., J. B. (See Mason, Francis B., assignor.)						
Colton, George A., Wilmette, Ill. Lamp bracket or holder	593,965	Nov. 23	2243	532	81	1286
Colwell, William, Chillicothe, assignor to Joliet Manufacturing Company, Joliet, Ill. Corn-sheller	595,705	Dec. 21	1573	380	81	1965
Colwell, William S., Chicago, Ill. Rotary engine	592,224	Oct. 19	2244	531, 532, 533	81	486
Colyer, Elias B., Pittsburg, Pa. Jar-wrench	593,736	Nov. 16	1802	432	81	1180
Comley, Joseph W., Braddock, assignor of eleven-twentieths to J. S. Bedell, W. S. Frye, J. P. Beam, W. W. Payne, Jefferson, L. J. Long, J. C. Werner, Pittsburg, and A. H. Rowand, Jr., Verona, Pa. Method of and apparatus for welding metals	593,534	Nov. 9	1411	340	81	1092
Commercial Letter File Company. (See Marcy, Harry L., assignor.)						
Compagnie Internationale des Procédés Adolphe Seigle. (See Rambaud, Jean A., assignor.)						
Comstock, Chester, Brooklyn, assignor to Ironclad Manufacturing Company, New York, N. Y. Enameling	592,724	Oct. 26	3402	.....	81	777
Comstock, Frederick L. (See Whitney and Comstock.)						
Comstock, William B. (See Cheney and Comstock.)						
Comstock, William H. (See Shaw and Redmond, assignors.)						
Conderman, George W., Philadelphia, Pa. Urinal	590,964	Oct. 5	24	6	81	7
Condon, Alvin T., and J. C. Ham, Belfast, Me. Flexible rotary roll	596,014	Dec. 21	2026	488	81	2057
Cone, Edward, assignor of one-third to R. G. Meyer, Chicago, Ill. Trolley for electric-railway cars	596,456	Dec. 28	2923	666	81	2232
Conihe, Orlando F., Boston, Mass. Valve	592,279	Oct. 26	2348	555	81	527

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Conklin, T. H., *et al.* (See Cary, Lewis C., assignor.)						
Connell, John H., Staunton, Va. Railway-tie	595,452	Dec. 14	1065	255	81	1845
Connell, John H. and W. J., Charleston, W. Va. Grubbing implement	594,461	Nov. 30	3063	719	81	1463
Connell, William J. (See Connell, John H. and W. J.)						
Connolly, John. (See Gulline, Schwegel, and Connolly.)						
Connor, George A., *et al.* (See Ehrhardt, William, assignor.)						
Connors, Thomas. (See Marea and Connors.)						
Conord, Leon A., Elizabeth, N. J. Jet-pump for hydraulic elevation, &c	592,561	Oct. 26	3171	654	81	720
Consolidated and McKay Lasting Machine Company. (See Carter, George W., assignor.)						
Consolidated Steel and Wire Company. (See Bates, Albert J., assignor.)						
Continental Lasting Machine Company. (See Shaw, Walter, assignor.)						
Converse, Lyman P., assignor to W. C. Converse, Chicago, Ill. Waterproofing material	594,984	Dec. 7	153	.....	81	1650
Converse, Lyman P., assignor to W. C. Converse, Chicago, Ill. Waterproofing compound	594,985	Dec. 7	154	.....	81	1650
Converse, Wallace C. (See Converse, Lyman P., assignor.)						
Cook, Byron D., assignor to P. C. Mitchell, Homer, Mich. Flour bin and sifter	593,350	Nov. 9	1085	262	81	1081
Cook, Edward J., and W. McEwen, Cleveland, Ohio. Method of and apparatus for purifying liquids	593,371	Nov. 9	1112	269	81	1086
Cook, Edwin B., Canton, Ohio. Galvanizing-machine	590,965	Oct. 5	25	6	81	7
Cook, Eugene, Niles, Mich. Window-screen	594,606	Nov. 30	3338	783	81	1516
Cook, James H., Beech Island, assignor of one-half to N. L. Lamar, Aiken county, S. C. Link-hook	591,951	Oct. 19	1788	425	81	399
Cook, John H., Brooklyn, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Tramway-track mechanism	596,015	Dec. 21	2027	484	81	2057
Cook, John W. B., Camden, Ark. Nut-lock	593,515	Nov. 9	1382	334	81	1087
Cook, Leroy, Worcester, Mass. Machine for swaging wire	591,454	Oct. 12	929	218, 219, 220	81	210
Cook, Oren F., San José, Cal. Thrust-bearing for propeller-shafts	594,462	Nov. 30	3063	719	81	1463
Cook, William F., Ivy Mills, Pa. Photographic camera	595,408	Dec. 14	1091	262	81	1850
Cooke, Arthur G., London, England. Variable and reversing speed gear	594,195	Nov. 23	2571	609	81	1350
Cooke, Lois, Stoughton, Mass. Clothes-drainer for washboilers	593,371	Nov. 9	954	231	81	1006
Cooke, William E., Kingston, assignor to Peckham Motor Truck and Wheel Company, New York, N. Y. Car-truck	595,045	Dec. 7	870	90, 91	81	1689
Coolbaugh, Frank W., Easton, Pa. Fulcrum for brake-beams	594,384	Nov. 30	2916	698	81	1434
Coombs, John H., Boston, Mass. Panning and concentrating machine	592,238	Oct. 26	2286	538, 539	81	514
Coonradt, William M., Atlanta, Ga. Carpet-cleaner	596,431	Dec. 28	2772	656	81	2221
Coonrod, Kittie M., Port Jervis, N. Y. Folding chair	592,605	Oct. 26	3416	714	81	768
Cooper, Edward R., *et al.* (See Yetter, John C., assignor.)						
Cooper, Frank A., Brooklyn, N. Y. Folding bed	593,922	Nov. 16	2131	505	81	1247
Cooper, George H., New Westminster, Canada. Air-motor	593,923	Nov. 16	2134	506	81	1247
Cooper, John W., Brockton, Mass. Tack-pulling machine	593,891	Nov. 9	1160	280	81	1044
Cooper, Perry L. (See Davis and Cooper.)						
Cooper, William, Farnworth, England. Ventilator for buildings	594,727	Nov. 30	3575	831	81	1565
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Hartford, Conn., and Portland, Me. Detachable handle for bicycle handle-bars	594,221	Nov. 23	2632	622, 623	81	1361
Copeland, John W. (See Griffin and Copeland.)						
Coppen, George E., assignor of one half to W. N. Woodard, Sheffield, Mo. Spring-trip cultivator	594,463	Nov. 30	3065	719, 720	81	1463
Corbin, Elbert A., Philadelphia, Pa., and C. E. Foster, Washington, D. C. Heating and ventilating device	593,737	Nov. 16	1806	432, 433	81	1181
Corbion, George, Jr. (See Hönsch and Corbion.)						
Corcoran, Ross A., Slaughter, La. Protector and supporter for harness-reins	593,642	Nov. 16	1633	395	81	1150
Cordeiro, Frederick J. B., U. S. Navy. Sextant	595,527	Dec. 14	1193	287	81	1871
Corey, Earl C. (See Wood, Wallace R., assignor.)						
Corfe, William, Liverpool, England. Index cutting and printing machine	591,818	Oct. 19	1551	366	81	351
Corin, Michael M., Rochester, N. Y. Trousers	592,606	Oct. 26	3418	714	81	769
Corkins, John W. (See Quisenberry, Everett B., assignor.)						
Cormack, Mark N., assignor to L. Klopsch, New York, N. Y. Delivery attachment for printing-presses	592,697	Oct. 26	3419	715	81	769
Cornaille, Fernand. (See Lebrun and Cornaille.)						
Cornelius, Jesse N., Mooresville, N. C. Folding coop	596,141	Dec. 28	2267	537	81	2123
Cornell, Charles L. (See Thompson, Milton E., assignor.)						
Cornell, Franklin D., assignor of five-eighths to M. F. Lyon, A. A. Agnew, and I. L. Wilcox, Adrian, Mich. Pencil-sharpener	594,839	Nov. 30	3770	879	81	1604
Corning Brake Shoe Company. (See Gorton, William E., assignor.)						
Cornwall, George R., Port Chester, assignor, by mesne assignments, to Cornwall Printing Press Company, New York, N. Y. Preparing aluminium plates for surface printing	590,966	Oct. 5	26	.....	81	7
Cornwall Printing Press Company. (See Cornwall, George R., assignor.)						
Corrington, Murray, New York, N. Y. Air-brake	594,464	Nov. 30	3068	720	81	1464
Corscaden, Thomas, New Britain, Conn., assignor to American Pulley Company, Philadelphia, Pa. Pulley	595,559	Dec. 14	1283	296	81	1879
Corthell, Fred H., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Mainspring-fastener for watches	596,895	Dec. 28	2716	643	81	2210
Cory & Reynolds. (See Vaughan, Albert F., assignor.)						
Cosgrove, John, *et al.* (See Cronin, Cornelius, assignor.)						
Cotey, Joseph M., West Superior, Wis. Marine life-saving messenger	593,958	Nov. 16	2191	520	81	1250
Cotton, Howard W., Rochester, N. Y. Bicycle-lock	596,396	Dec. 28	2717	644	81	2211
Cottrell, Charles E., Minneapolis, Minn. Barrel-lining	591,455	Oct. 12	933	220	81	211
Coughlin, Michael, Philadelphia, Pa. Connecting-rod	592,487	Oct. 26	3047	690	81	695
Coughlin, William H., assignor to Worcester Electric Light Company, Worcester, Mass. Electric-arc lamp	593,738	Nov. 16	1805	433	81	1181
Coulson, Charles C., Riverside, Cal. Tree-protector	595,149	Dec. 7	546	132	81	1721
Count, Albert E., *et al.* (See Graham, James, assignor.)						
Couper, James H., Atlanta, Ga. Acetylene-gas generator	595,119	Dec. 7	505	121	81	1713
Cowell, Irving S., Hartford, Conn. Bicycle lock and support	595,605	Dec. 14	1303	314	81	1895
Cowen, Robert, Cambridge, assignor to Boston Woven Hose and Rubber Company, Boston, Mass. Woven tire	591,456	Oct. 12	935	220	81	211
Cowles, Norman H. (See Devlin and Cowles.)						
Cowles, Orrin L. (See Woodbury, Joseph D., assignor.)						
Cowley, James T., Lowell, Mass., assignor, by mesne assignments, to American Metallic Cushion Company, of West Virginia. Seat or cushion	593,739	Nov. 16	1806	433	81	1181
Cox, Cary S., assignor of one-half to L. L. Gray, Fresno, Cal. Raisin-seeder	592,131	Oct. 19	2109	500	81	459
Cox, Cary S., assignor of one-half to L. L. Gray, Fresno, Cal. Raisin-seeder	596,363	Dec. 28	2652	629	81	2197
Cox, Charles B., New York, N. Y. Dumb-waiter safety-clutch	592,698	Oct. 26	3422	715	81	769

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cox, Edward G. (See Marble, James E., assignor.)						
Cox, Eugene R., *et al.* (See McCaughey, David W., assignor.)						
Cox, Frank P. (See Denno, John W., assignor.)						
Cox, Jacob D., Jr., Cleveland, Ohio. Socket or collet	504,329	Nov. 23	2800	661	81	1394
Cox, Jacob D., Jr., Cleveland, Ohio. Drill-socket	504,330	Nov. 23	2801	661	81	1394
Cox, Paul F., assignor to Cox Type Setting Machine Company, Chicago, Ill. Test-plate cleaner for type-distributing machines	591,073	Oct. 5	232	55	81	46
Cox Type Setting Machine Company. (See Cox, Paul F., assignor.)						
Cox, William H., and C. Hughes, Red Bluff, Cal. Lemon-squeezer	504,726	Nov. 30	3576	831	81	1566
Coykendall, Frederick, New York, N. Y. Bicycle-tire	502,351	Nov. 9	1096	262	81	1061
Coykendall, Frederick, New York, N. Y. Drafting-compass	505,607	Dec. 14	1306	315	81	1806
Crabb, James N., assignor of one-half to O. J. Ensley, Indianapolis, Ind. Coin-transmitter	502,900	Nov. 16	1918	456	81	1210
Crabtree, Jonas, New York, N. Y. Air or gas compressor	504,594	Nov. 30	3184	746	81	1486
Craig, James C., and W. Taylor, Salt Lake City, Utah. Folding baby-carriage	502,079	Oct. 19	2009	476	81	441
Cram, Elmer H., Wakefield, Mass. Curtain-rod bracket	505,560	Dec. 14	1234	297	81	1879
Cramer, Charles W., Scranton, Pa. Measuring and dispensing apparatus	504,196	Nov. 23	2574	609 610	81	1350
Cramer, Joseph. (See White, Cramer, and Gaines.)						
Crandall, Arthur F., and G. W. Byrnes, Beresford, S. D. Form-cabinet	501,739	Oct. 13	1414	332	81	308
Crandall, Henry F., assignor to Milwaukee Harvester Company, Milwaukee, Wis. Harvester-elevator	502,280	Oct. 26	2349	555	81	527
Crandall, Jesse A., assignor of one-half to C. V. C. Van Deusen, Brooklyn, N. Y. Folding baby-carriage	503,924	Nov. 16	2185	506	81	1248
Crandall, Lucien S., Birmingham, England. Cycle or other drive-chain	501,819	Oct. 19	1554	367	81	352
Crane, Angustus S., Newark, N. J. Opera-glass and handle therefor	505,697	Dec. 21	1447	349 350	81	1942
Crane Company. (See Crane and Hayden, assignors.)						
Crane Elevator Company. (See Reynolds, George H., assignor.)						
Crane, Frank, Philadelphia, Pa. Hose-bridge for railways	504,465	Nov. 30	3071	721	81	1465
Crane, Richard T., Chicago, Ill. Elevator safety device	501,210	Oct. 5	492	117	81	98
Crane, Richard T., Chicago, and G. W. Hayden, Oak Park, assignors to Crane Company, Chicago, Ill. Quick-opening valve	503,567	Nov. 16	1497	364	81	1124
Crane, William E. S., Bayonne, N. J. Can-holder for condensed-milk cans, &c	503,044	Nov. 2	511	123	81	906
Cranston, Warren, Waterloo, Iowa. Hay rake and loader	506,142	Dec. 28	2208	537 538	81	2123
Crass, Fredrick L. (See Smith and Crass.)						
Cravath, James R., assignor to Cravath Manufacturing Company, Chicago, Ill. Separable recording-meter	503,986	Nov. 23	2945	532	81	1288
Cravath Manufacturing Company. (See Cravath, James R., assignor.)						
Craw, John W., New York, N. Y. Ironing-machine	503,566	Nov. 16	1495	364	81	1124
Crawford, Elizabeth D., *et al.* (See Ewbank, Herbert B., Sr., assignor.)						
Crawford, Harvey F. (See Goddard, George O., assignor.)						
Crawford, Horace M., *et al.* (See Mowry, George W., assignor.)						
Crawford, James H., Chicago, Ill. Refrigerator-car	503,012	Nov. 2	458	109 110	81	906
Creighton, John A. (See Thomas and Creighton.)						
Cress, John F., Mahanoy City, Pa. Adjustable bevel	503,987	Nov. 23	2947	532 533	81	1288
Cretors, Charles, Chicago, Ill. Vehicle attachment for bicycles	502,963	Nov. 2	393	88, 89	81	893
Crippen, Henry M. (See Smith, Crippen, and Charlton.)						
Crisp, Joseph E., Somerville, Mass. Mechanical movement	506,053	Dec. 28	2116	501 502	81	2094
Crispin, Haskell W., De Witt, Mo. Nut-lock	502,963	Nov. 2	418	96	81	893
Critchett, James C., Clint, Tex. Lock for firearms	505,046	Dec. 7	371	91	81	1689
Crocker, Eben C., assignor of one-half to E. C. Howe, Bridgeport, Conn. Electric railway	502,598	Oct. 26	2117	686 687	81	709
Crocker, Eben C., assignor of one-half to E. C. Howe, Bridgeport, Conn. Electric railway	506,054	Dec. 28	2118	502	81	2095
Crocker, Lauren A., Lexington, Tex. Sash-lock	503,875	Nov. 16	2059	485	81	1232
Crocker, Samuel, Oklahoma, Okla. Ter. Bottle-stopper	501,159	Oct. 5	368	92	81	75
Crocker, Samuel, Oklahoma, Okla. Ter. Air or water wheel	502,060	Oct. 19	2011	476 477	81	441
Crocker, Samuel, Oklahoma, Okla. Ter. Game apparatus	502,061	Oct. 19	2014	477	81	442
Crocker-Wheeler Electric Company. (See Dunn, Gano S., assignor.)						
Crocker-Wheeler Electric Company. (See Lowrie, William G., assignor.)						
Crockford, Alfred H., London, England. Apparatus for vaporizing hydrocarbons, &c	503,516	Nov. 9	1384	334	81	1087
Crompton & Knowles Loom Works. (See Hutchins and Thompson, assignors.)						
Cronbach, John G., New Orleans, La. Bicycle-support	501,680	Oct. 19	1555	367	81	352
Cronemeyer, August H., New York, N. Y. Support for bicycles	503,321	Nov. 9	1041	252	81	1023
Cronin, Cornelius, assignor of two-thirds to J. Cosgrove and J. D. Burns, Detroit, Mich. Apparatus for dispensing beer and means for cleaning same	506,422	Dec. 28	2774	656	81	2222
Crooks, Frank B. (See Crooks, Robert S. and F. B.)						
Crooks, Robert S. and F. B., San Francisco, Cal. Game apparatus	505,872	Dec. 14	921	223	81	1818
Crosby, Daniel J., Kadina, South Australia. Connecting-rod for reapers, mowers, pumps, &c	504,729	Nov. 30	3578	881 882	81	1566
Crosby, Oliver, St. Paul, Minn. Variable-speed hoisting-engine	505,671	Dec. 14	1411	341	81	1917
Crosby Steam Gage and Valve Company. (See Hughes, John, assignor.)						
Croskey, John H., assignor of one-half to G. W. Morse, Pittsburg, Pa. Wheel	506,261	Dec. 28	2457	582	81	2159
Cross, Albert P. (See Greenamyer, Clarence V., assignor.)						
Cross, Alonzo T., Providence, R. I. Fountain-pen	505,873	Dec. 14	923	224	81	1818
Cropsley, William F., New York, N. Y. Bicycle-track	504,331	Nov. 23	2802	662	81	1394
Crouch, George, New York, N. Y. Traveling-trunk	506,055	Dec. 28	2120	502	81	2095
Crouch, Luther, and W. E. Stokes, Wabash, Ind. Lock	505,606	Dec. 14	1304	315	81	1805
Crowe, F. T. (See Mullen, Robert B., assignor.)						
Crowell, Luther C., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Tympan mechanism for printing-machines	506,025	Dec. 21	2056	489 490	81	2064
Crowley, John L., assignor of one-half to T. J. Lehan, Boston, Mass. Folding child's carriage	505,150	Dec. 7	548	132	81	1722
Crudup, Josiah L., Tampa, Fla. Mosquito-screen	504,171	Nov. 23	2533	600	81	1343
Csonka, John. (See Bánki and Csonka.)						
Culver, Lucius L., St. Louis, Mo. Valve for vapor-burners	505,994	Dec. 21	1906	477	81	2051
Cuba, Ambrose. (See Washington, Fortune, assignor.)						
Cudlip, John, Nesquehoning, Pa. Automatic railway-switch	501,821	Oct. 19	1556	367 368	81	353
Cummings, Charles L., and J. C. Hilton, Erie, Pa. Explosive-engine	501,952	Oct. 19	1733	425 426	81	509

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cummings, George K., Chicago, Ill. Light-transmitter	503,045	Nov. 2	512	124	81	907
Cummings, George K., assignor to Graphite Rheostat Company, Chicago, Ill. Resistance device	503,966	Nov. 23	2948	533	81	1289
Cummings, George W., Cohoes, N. Y. Knitting-machine	505,698	Dec. 21	1450	350	81	1943
Cunningham, Edgar W., Jersey City, N. J. Glazed stretcher	505,805	Dec. 21	1646	396	81	1980
Cunningham, James J., and E. H. Mullen, Lynn, assignors to J. Q. Bennett, trustee, Cambridge, Mass. Apparatus for registering votes	505,699	Dec. 21	1453	350 351	81	1943
Cunningham, William F., Brooklyn, N. Y. Sectional steam-boiler	503,886	Nov. 16	1986	467	81	1216
Curk, John D., Brookville, Ohio. Fence	503,197	Nov. 9	808	192	81	980
Curl, Charles A. (See McAdams, Sylvester L., assignor.)						
Curl, Fowler, Avoca, Pa. assignor of two-thirds to Ashley & Shaw Silk Company, Hackettstown, N. J. Filer for spinning-machines	506,442	Dec. 28	2792	660	81	2225
Curl, Marion L., assignor of three-fourths to S. G. Watson, T. E. Curl, and S. H. Sandefur, Cherryvale, Kans. Fence-machine	503,717	Nov. 16	1764	424	81	1174
Curl, Thomas E., *et al.* (See Curl, Marion L., assignor.)						
Currie, James. (See Orewiler, Benjamin F., assignor.)						
Currier, Cyrus C. (See Holthaus, Emil, assignor.)						
Currier, Cyrus C., Summit, N. J. Apparatus for treating garbage	503,196	Nov. 9	809	193 194	81	981
Currier, Israel L. (See Sisson, Jacob D., assignor.)						
Curry, Henry B., Troy, W. Va. Spur	505,047	Dec. 7	372	91	81	1689
Curtin, Frank, assignor to J. L. Northrup, Gloversville, N. Y. Trimming attachment for sewing-machines	505,374	Dec. 14	924	224	81	1818
Curtis, Arthur B., Revere, Mass. Protective mechanism for safe-doors	506,294	Dec. 28	2506	596	81	2168
Curtis, Charles G., assignor to Curtis Company, New York, N. Y. Elastic-fluid turbine	501,623	Oct. 19	1558	368	81	353
Curtis, Charles G., assignor to Curtis Company, New York, N. Y. Elastic-fluid turbine	505,435	Dec. 14	1039	249	81	1839
Curtis, Charles H., Derby, and C. E. Atwater, New Haven, Conn. Lawn-mower	504,067	Nov. 23	2380	564	81	1313
Curtis Company. (See Curtis, Charles G., assignor.)						
Curtis, David W., Fort Atkinson, Wis. Steam-muffler	502,000	Oct. 19	1866	444	81	414
Curtis, Frank. (See Levey, John, assignor.)						
Curtis, Frank J., Ben Avon, Pa. Dry closet	502,107	Oct. 19	2008	499	81	451
Curtis, Theodore H., Cleveland, Ohio. Track-sanding apparatus	501,008	Oct. 5	268	63, 64	81	58
Curtis, William G., San Francisco, Cal. Railway construction	502,218	Oct. 19	2237	529	81	484
Curtis, William G., and J. D. Isaacs, San Francisco, Cal. Wood construction	502,219	Oct. 19	2238	530	81	484
Cushman, Henry D. (See Masser, Andrew J., assignor.)						
Cushman, Modestus J., Waterloo, Iowa. Apparatus for milking cows	504,860	Dec. 7	33	9	81	1628
Cutler, Abijah D. (See Force and Parenteau, assignors.)						
Cutter Electrical and Manufacturing Company. (See Scott, William M., assignor.)						
Cutts, Charles D., Fort Fairfield, Me. Drill	502,904	Nov. 2	395	60	81	859
Cutts, George, New York, N. Y. Drawers	503,549	Nov. 9	1443	351	81	1097
Daberer, Max A., West Berkeley, Cal. Kite	501,211	Oct. 5	498	117	81	98
Dade, Harry E., Newburg, N. Y. Temporary binder	502,062	Oct. 19	2016	477	81	442
Daggett, Henry S., Pueblo, Colo. Rotary engine	501,328	Oct. 5	696	164	81	181
Dague, Levi, and J. F. Gregg, Washington, Pa. Car-coupling	502,132	Oct. 19	2111	500	81	450
Dahl, Niel, Denver, Colo. Bicycle-frame	503,045	Nov. 2	514	124	81	907
Dahmen, Hans von, Breslau, Germany. Blasting-powder	503,568	Nov. 16	1496	.....	81	1124
Dain, Joseph, Jr., Carrollton, Mo. Shoveling-board for wagon-boxes	503,199	Nov. 9	815	194	81	980
Dalbey, William C., Battle Creek, Mich. Machine for trimming electrotype plates and blocks	504,985	Dec. 7	254	62	81	1668
Dale, John C., Manhattan, Kans. Thill-coupling	505,048	Dec. 7	373	91	81	1689
Daly, Michael J., Pittsburg, Pa. Elevator-lock	500,967	Oct. 5	28	6, 7	81	7
Damon, George L., Boston, Mass. Safe or vault	503,200	Nov. 9	817	194 195	81	980
Damon, Oscar, Buffalo, N. Y. Bicycle or tourist lock	506,237	Dec. 28	2413	571	81	2151
Dandridge, Alexander S., Brooklyn, N. Y. Bridge	505,906	Dec. 21	1845	449	81	2020
Daniel, William F., Laneburg, Ark. Fireplace screen and blower	506,056	Dec. 28	2121	503	81	2095
Daniels, Franklin W., *et al.* (See Smith, William D., assignor.)						
Daniels, Fred H., Worcester, Mass. Rail-bond	506,208	Dec. 28	2363	560	81	2141
Daniels, Taylor E., Chicago, Ill. Roller-skate	505,608	Dec. 14	1307	315	81	1806
Danner, Washington T., Burlington, Iowa. Carpet-fastener	503,201	Nov. 9	818	195	81	980
Dansby, Thomas M., Aspen, Colo. Portable turn-table for tramways	503,517	Nov. 9	1385	334	81	1087
Darmody, James, New York, N. Y. Ripping and stitch-picking tool	503,461	Nov. 9	1277	307	81	1068
Darnault, Leo T., London, England. Pneumatic tire	504,282	Nov. 23	2633	623	81	1361
Darrow, Mary C., *et al.* (See Dyer, Charles P., assignor.)						
Daubs, Michael H., Albion, Ill. Plow attachment	502,905	Nov. 2	396	61	81	859
Daum, Louis, Loschwitz, Germany. Trousers-strap	503,001	Oct. 19	1867	445	81	414
Daumas, Louis C., Paris, France. Process of and apparatus for extracting gold from ores	501,527	Oct. 12	1065	249 250 251 252	81	233
Davenport, Elmer E. (See Davenport, Merwin R. and E. E.)						
Davenport, Joseph P., Downer's Grove, Ill. Potato-planter	501,396	Oct. 12	815	190 191	81	187
Davenport, Merwin R. and E. E., Baraboo, Wis. Scoop	501,953	Oct. 19	1786	426	81	399
Davenport, William H., Norwich, Conn. Shell-ejecting device for firearms	502,239	Oct. 26	2390	539	81	515
David Bradley Manufacturing Company. (See Brunnemer, William T. M., assignor.)						
David, Paul, Eguilles, France. Process of and apparatus for obtaining pure copper in single operations	505,766	Dec. 21	1577	381	81	1906
Davidson, Francis P., *et al.* (See Roberts, William E., assignor.)						
Davidson, George F., Chicago, Ill. Insect-trap	503,518	Nov. 9	1387	335	81	1087
Davidson, John, assignor of one-half to Automatic Memorandum Clock Company, Limited, London, England. Program-clock	505,767	Dec. 21	1579	381	81	1906
Davidson, Samuel C., Belfast, Ireland. Multitubular air-heating apparatus	503,989	Nov. 23	2950	583	81	1289
Davie, James, Glasgow, Scotland, and J. Wotherspoon, London, England. Feed-water-filtering apparatus	503,740	Nov. 16	1807	433	81	1181
Davies Brothers & Co. (See Davies and Thomas, assignors.)						
Davies, Edward A., and S. T. Thomas, assignors to Davies Brothers & Co., Limited, Wolverhampton, England. Apparatus for removing scale from sheet metal	501,621	Oct. 12	1220	287 288	81	264
Davies, John R. (See Jarrett, Davies, and Edwards.)						
Davies, Thomas F., Duquesne, Pa. Compound rail	501,954	Oct. 19	1787	426	81	400
Davis, Albert G., Washington, D. C. Regulating electric motors	504,779	Nov. 30	3601	853	81	1582
Davis, Alexander H. S., Washington, D. C. Street-sweeper	502,539	Oct. 26	2185	643	81	712
Davis, Charles E., Boston, Mass. Mechanism for spring-back chairs	504,679	Nov. 30	3488	812	81	1547
Davis, Charles F., and P. L. Cooper, Olivet, Mich. Sash-holder	504,366	Nov. 23	2868	675	81	1406
Davis, Daniel V., Fork Church, N. C. Canopy for dining-tables	501,457	Oct. 12	987	220 221	81	211
Davis, Elwood C., New York, N. Y. Trolley for electric cars	503,938	Nov. 2	399	69	81	866

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Davis, Emry, New York, N. Y. Penholder attachment	506,057	Dec. 28	2122	503	81	2096
Davis, Eugene E. (See Branson and Davis.)						
Davis, George E., Mahaffey, Pa. Buckle	501,955	Oct. 19	1788	426	81	400
Davis, George H. (See Shonnard and Davis.)						
Davis, George K., Lewiston, Me. Ladder and chute for fruit-gathering	502,133	Oct. 19	2112	500	81	460
Davis, James A., Atlanta, Ga. Turbine water-wheel	502,984	Nov. 2	419	98,99	81	888
Davis, James M., Deer Creek, Ill. Tilting gate	504,385	Nov. 30	2917	668	81	1434
Davis, John, Allegheny, Pa. Filter	500,908	Oct. 5	29	7	81	8
Davis, John B., Abingdon, Ill. Animal-trap	501,956	Oct. 19	1789	427	81	400
Davis, John C., Seneca Falls, N. Y. Flexible pipe-coupling	502,647	Oct. 26	3315	689	81	747
Davis, John E., Conway, N. H., assignor of one-half to E. D. Holmes, Newton, Mass. Folding ruler	504,607	Nov. 30	3339	783	81	1516
Davis, John H. (See Nichols and Davis.)						
Davis, John T. (See Ward, Bryant A., assignor.)						
Davis, John T., San Francisco, Cal., assignor of one-half to C. W. Kohlsaat, New York, N. Y. Artificial fuel	505,672	Dec. 14	1412	------	81	1917
Davis, John T., San Francisco, Cal., assignor of one-half to C. W. Kohlsaat, New York, N. Y. Artificial fuel	505,673	Dec. 14	1413	------	81	1917
Davis, John T., San Francisco, Cal., assignor of one-half to C. W. Kohlsaat, New York, N. Y. Vehicle-wheel	505,700	Dec. 21	1457	351	81	1944
Davis, Joseph E., Lynn, assignor to Boston Woven Hose and Rubber Company, Boston, Mass. Tire-tube	501,458	Oct. 12	989	221	81	211
Davis, Luman H., Ridgefield, Conn. Device for cutting, weighing, and measuring butter, &c	505,049	Dec. 7	374	92	81	1690
Davis & Roesch Temperature Controlling Company. (See Roesch, Alfred, assignor.)						
Davis, Stephen G., Indianola, assignor of two-thirds to B. C. Richie, Georgetown, Ill. Post-hole digger	505,609	Dec. 14	1308	316	81	1806
Davis, Warren G., Retreat, Wis. Box-fastener	506,058	Dec. 28	2123	503	81	2096
Davis, William D. (See Simms, Edward W., assignor.)						
Davison, Charley, Stanton, Nebr. Draft-equalizer	505,940	Dec. 21	1902	453	81	2031
Davison, James E. (See Hampshire and Davison.)						
Davisson, Ithamar, Lost Creek, W. Va. Stock-car	505,151	Dec. 7	549	132, 133	81	1723
Day, Florence M., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Warp-stop-motion mechanism for looms	506,443	Dec. 28	2793	660	81	2225
Day, Isaac O., assignor of one-half to J. and H. D. Wonnhoudt, Ottumwa, Iowa. Currycomb	501,074	Oct. 5	234	55	81	47
	502,750	Oct. 26	3515	739	81	786
Day, John H., Cincinnati, Ohio. Packing-machine						
Day, Wilbur F. (See Lavigne, Joseph P., assignor.)						
Day, Wilbur P. (See Lavigne, Joseph P., assignor.)						
Day, Willard G., assignor of two-thirds to W. F. Howard, Baltimore, Md., and G. H. Howard, Washington, D. C. Preserving perishable substances	503,741	Nov. 16	1809	434	81	1182
Dayton Manufacturing Company. (See Kirby, John, Jr., assignor.)						
Dayton Manufacturing Company. (See Wagenhals, William G., assignor.)						
De Croes, Clement, assignor of one-half to T. Ketchum, Westport, Ind. Voting-machine	504,966	Dec. 7	256	62	81	1668
De Forest, Charles D., and W. F. Kenna, Pittsburg, Pa. Apparatus for rolling pipe-couplings	501,742	Oct. 12	1417	333, 334	81	804
De Freese, William. (See Nicholson and De Freese.)						
De Haven, Hugh. (See Coe, Addison A., assignor.)						
De Kesel, Karel, Brussels, Belgium. Beehive	502,626	Oct. 26	3280	680, 681	81	741
De Kleist, Eugene. (See Ganter, Max, assignor.)						
De Long, Samuel J., H. B. Pelton, and J. Stewart, Grand Rapids, Mich. Furniture-fastening	503,876	Nov. 16	2060	486	81	1232
De Loria, Philip, Lake Placid, N. Y. Hoof-spreader	506,307	Dec. 28	2719	644	81	2211
De Rango, Louis, Syracuse, assignor to McKee & Harrington, New York, N. Y. Bicycle	503,814	Nov. 16	1967	460	81	1206
De Wolf, John O., Cambridge, assignor to Boston Woven Hose and Rubber Company, Boston, Mass. Hose-fitting	501,796	Oct. 12	1502	356	81	322
Dealy, Jacob V., *et al.* (See Owen, Thomas, assignor.)						
Dean, Alvertus. (See Lewis, Everett C., assignor.)						
Dean, Augusta E., Boston, Mass. Skirt-adjuster	503,569	Nov. 16	1498	364	81	1124
Dean, William W., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Telephone system	503,372	Nov. 9	1113	269	81	1036
Deane Steam Pump Company. (See Newcomb, Charles L., assignor.)						
Dearborn, Clayton M., Lynn, Mass. Folding bracket for builders' use	503,202	Nov. 9	819	195	81	992
Deardorff, Ray P. (See Weed and Deardorff.)						
Dearing, D. W. (See Kress, George R., assignor.)						
Dearing, David M., Jackson, Mich., assignor of one-half to G. S. Wood, Denver, Colo. Wheel	505,610	Dec. 14	1309	316	81	1806
Dearing, James W., assignor to E. Parfitt, Brooklyn, N. Y. Incandescent burner for lanterns, &c	503,925	Nov. 16	2136	506	81	1248
	505,674	Dec. 14	1414	341	81	1917
Deaton, James K., Concord, N. C. Double cultivator	506,421	Dec. 28	2752	651, 652	81	2218
Decarie, Felix L., Montreal, Canada. Crematory	506,103	Dec. 28	2200	521, 522	81	2110
Deckebach, Henry E., Cincinnati, Ohio. Wort-cooler	504,780	Nov. 30	3663	852, 853	81	1582
Decker, William H., Rumford Falls, Me. Paper-winding machine	505,375	Dec. 14	926	224	81	1618
Decrow, William E., Boston, Mass. Electric signaling apparatus	501,740	Oct. 12	1415	333	81	804
Dedreux, Frederick, Cleveland, Ohio. Preserve-jar	504,861	Dec. 7	36	9	81	1628
Dedrick, Freeling H., Glidden, Iowa. Nut-lock	501,741	Oct. 12	1416	333	81	804
Deem, Miller M., assignor of one-half to P. & F. Manufacturing Co., Reading, Pa. Saddle-clamp for velocipedes						
Deering Harvester Company. (See Stone, John A., assignor.)						
Deering, Isaac W., Gloucester, Mass. Lime-burning furnace	504,332	Nov. 23	2804	662, 663	81	1304
Deets, Oren M., Youngstown, Ohio. Paper-hanger's apparatus	501,957	Oct. 19	1790	427	81	400
Dehlin, August G., Seattle, Wash. Potato parer and slicer	504,926	Dec. 7	155	38	81	1650
Dehn, George J., Iron Mountain, Mich. Apparatus for cleaning water-heaters	505,190	Dec. 7	507	121	81	1714
Dejonge, Louis, Jr., Stapleton, N. Y. Drier for paper in sheet form	503,926	Nov. 16	2138	507, 508	81	1248
Delaney, James G., New York, N. Y. Dumping apparatus	505,528	Dec. 14	1194	287	81	1871
Delaney, John. (See Simmonds and Delaney.)						
Delaperrière, Edouard F., and L. Chambon, assignors to said Chambon and Société Delaperrière Dida et Aubin, Paris, France. Machine for automatically rolling paper tubes	506,903	Dec. 26	2458	582, 583, 584, 585	81	2159

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Delay, Paul J., Boucan, France. Rolling-mill for manufacturing round bars, &c	504,333	Nov. 23	2805	663, 664, 665, 666	81	1895
Dell, Albert, Dobbs Ferry, N. Y. Attached can-opener, wire-cutter, and corkscrew	501,459	Oct. 12	940	221	81	212
Delony, Isaac F. (See Hartsell, Edward E., assignor.)						
Demary, Ralph C., Buffalo, N. Y. Quick-brake switch	506,363	Dec. 28	2654	630	81	2197
Deming, Ferdinand, assignor, by mesne assignments, to G. H. Clowes, Waterbury, Conn. Draw-bench	505,611	Dec. 14	1311	316, 317	81	1897
Deming, William J., Murphysborough, Ill. Insect-exterminating compound	503,990	Nov. 23	2252	------	81	1289
Dempster, John, Knoxville, Tenn. Fire-escape	502,582	Oct. 26	3204	663	81	726
Denham, Albert B., Cowling, Ill. Corn-harvester	506,143	Dec. 28	2270	538	81	2123
Denham, Alexander M., Santiago, Chile, assignor to C. J. and W. H. Ash, London, England. Head-rest	502,002	Oct. 19	1868	445	81	414
Denison, Arthur E., *et al.* (See Robinson, Thomas C., assignor.)						
Denney, Joseph A. (See Miller and Denney.)						
Denning, James J. (See Lazure and Denning.)						
Dennis, Montgomery, Newark, N. J. Cross-tooling and crandalling machine	505,094	Dec. 7	457	109, 110	81	1705
Denno, John W., Boston, assignor to F. P. Cox, Malden, Mass. Fastening for boots or shoes	503,272	Nov. 9	954	231	81	1006
Denny, John W. (See Benjamin, William T., assignor.)						
Densmore, James A., Winnetka, Ill. Machine for making hollow ware	501,329	Oct. 5	688	164, 165	81	132
Denton, Lemi B., assignor to Z. C. Thwing, Grand Rapids, Mich. Caster-case	504,937	Dec. 7	156	38	81	1650
Depew, Charles M. (See Proll, Depew, and Hawley.)						
Derwin, William F., Waterbury, Conn. Puzzle	503,766	Nov. 16	1650	444	81	1191
Dessau, Sophia D. (See Kavanagh, William C., assignor.)						
Detrick Cigarette Machine Company of Baltimore City. (See Detrick, Jacob S., assignor.)						
Detrick, Jacob S., Baltimore, Md., assignor, by mesne assignments, to Detrick Cigarette Machine Company of Baltimore City, of Maryland. Cigarette-machine	502,964	Nov. 2	388	89, 90, 91	81	882
Detroit Automatic Switch Company. (See Ruff, Frederick A., assignor.)						
Detweiler, David Z. (See Diffenderfer, Charles L., assignor.)						
Deuther, James A. (See Bolton, Werner, assignor.)						
Deuther, Lorenz A., Buffalo, N. Y. Ice-cream carrier	503,822	Nov. 9	1042	252	81	1034
Deutsch, Alexander S., assignor of three-fourths to L., J., and B. Deutsch, Chicago, Ill. Non-refillable bottle	506,238	Dec. 28	2414	571	81	2152
Deutsch, Bertie, *et al.* (See Deutsch, Alexander S., assignor.)						
Deutsch, Joseph, *et al.* (See Deutsch, Alexander S., assignor.)						
Deutsch, Louis, *et al.* (See Deutsch, Alexander S., assignor.)						
Devaun, William, Southport, N. C. Combination-wrench	505,289	Dec. 14	791	195	81	1793
Devlin, Cyrus H., and N. H. Cowles, Bay City, Mich. Skirt-rack	503,519	Nov. 9	1388	335	81	1088
Devlin, Francis H. A., Mauch Chunk, assignor of one-half to J. Leisenring, Upper Lehigh, Pa. Safety-plate for stoves	502,981	Oct. 26	2352	556	81	527
Devore, Levi M., Freeport, Ill. Handle for screw-drivers or other tools	501,918	Oct. 19	1717	411	81	385
Dewhirst, Simon, Des Moines, Iowa. Hot-air furnace	505,496	Dec. 14	1041	249	81	1839
Dexter Folder Company. (See Dexter, Talbot C., assignor.)						
Dexter, Talbot C., Pearl River, N. Y. Book-collating machine	501,094	Oct. 5	270	64, 65, 66, 67	81	53
Dexter, Talbot C., Pearl River, assignor to Dexter Folder Company, New York, N. Y. Sheet assembling and stapling machine	505,941	Dec. 21	1903	453, 454, 455	81	2031
Dexter, Talbot C., Pearl River, N. Y., and C. Ransom, Jersey City, N. J.; said Ransom assignor to said Dexter. Electric controlling device for paper-feeding machines	505,768	Dec. 21	1580	382	81	1906
	505,529	Dec. 14	1196	287	81	1872
Deyoung, Robert M., Ryland, Ala. Wagon-brake						
Diamond Drill and Machine Company. (See Templin, Joseph H., assignor.)						
Diamond Light Company. (See Grote, John F. W., assignor.)						
Diamond Match Company. (See Wright, Jacob P., assignor.)						
Dibble, Frank D., assignor to American Acetylene Gas Company, Minneapolis, Minn. Acetylene-gas generator	506,108	Dec. 28	2202	522	81	2111
Dicey, Elmer C., Chicago, Ill. Steam-engine valve	504,730	Nov. 30	3579	832	81	1566
Dick, Joseph, Canton, Ohio. Fodder-cutter	501,501	Oct. 12	1178	217	81	255
Dick, Joseph, Canton, Ohio. Cylinder for fodder-shredders	506,059	Dec. 28	2124	503	81	2096
Dickerson, Charles L. (See Williams and Dickerson.)						
Dickerson, Ernest S., Philadelphia, Pa. Bell extension for telephones	504,181	Nov. 23	2474	586	81	1331
Dickerson, Richmond S., Kissimmee, Fla. Bottle	501,212	Oct. 5	494	118	81	94
Dickerson, William L., and J. A. Towne, Oakland, Cal. Car-fender	505,095	Dec. 7	459	110	81	1705
Dickey, Adam, Boston, Mass. Molding-machine	504,283	Nov. 23	2634	623	81	1361
Dickinson, Arthur H., Brockley, and H. J. Fisher, London, England. Lock for cycles	501,823	Oct. 19	1559	369	81	358
Dickinson, Charles W., Belleville, N. J., assignor to Empire Type Setting Machine Company, of West Virginia. Type-setting machine	501,914	Oct. 19	1718	412	81	386
Diehl, Walter R., and G. McCargo, Pittsburg, Pa. Apparatus for mixing liquids	505,942	Dec. 21	1907	455, 456	81	2032
Diffenderfer, Charles L., Lewistown, assignor of one-half to D. Z. Detweiler, Belleville, Pa. Lifting-jack	500,969	Oct. 5	30	7	81	8
Diffenderfer, Elam D., West Milton, Pa. Plate-lifter	505,530	Dec. 14	1198	288	81	1872
Dignan, Edward, St. Benedict, Kans. Elevated carrier for stacking hay	503,643	Nov. 16	1633	395	81	1150
Dilg, Charles H. J., assignor to G. E. Strauss, New York, N. Y. Ball-bearing	504,680	Nov. 30	3489	812	81	1547
Dill, Thomas C., assignor to T. C. Dill Machine Company, Philadelphia, Pa. Shaft-hanger	503,742	Nov. 16	1812	434	81	1182
Dillon, Levin C., Brooklyn, N. Y. Attaching device	503,084	Nov. 2	579	140	81	920
Dillon, Patrick, Milford, Mass. Bottle-stopper	501,824	Oct. 19	1561	369	81	353
Dills, William M., Kansas City, Mo. Brake for cars	503,535	Nov. 9	1414	340	81	1092
Dils, Thomas M., Davenport, Iowa. Knob attachment	501,111	Oct. 5	308	74	81	59
Dimock, Fred D., National City, Cal. Boosting device for fowls	505,121	Dec. 7	508	122	81	1714
Dinichert Son, Constant. (See Domon, Edouard, Jr., assignor.)						
Dinkey, Alva C., Munhall, Pa. Hoisting device	505,561	Dec. 14	1235	297	81	1879
Dinsmore, George F., Boston, Mass. Steam-generator	501,460	Oct. 12	942	221, 222	81	212
Dion, Albert de, and G. Bouton, Puteaux, France. Igniting device for gas or like motors	503,877	Nov. 16	2061	486	81	1232
Dittbenner, Hermann G., Minneapolis, Minn. Lever-shield	504,608	Nov. 30	3341	783	81	1516
Dittenhoefer, Myer, New York, N. Y. Syringe	501,958	Oct. 19	1791	427	81	400

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dixon, Edward B., Grantsborough, N. C. Mattress-tufting machine	595,152	Dec. 7	550	133	81	1722
Dixon, George T., Butte, Mont. Apparatus for dumping cars	591,387	Oct. 12	821	191	81	187
Dixon, John G., Penistone, England. Check on billiard-markers	592,240	Oct. 26	2291	540	81	515
Dobson, John W., Salt Lake City, Utah. Rudder	594,066	Nov. 23	2366	565	81	1313
Dodds, Horace G. (See Beighlee, Henry E., assignor.)						
Dodge, Carroll W., Worcester, Mass. Corset	595,376	Dec. 14	928	224	81	1819
Dodge, Henry A., assignor to Bosworth Machine Company, Milford, Conn. Pump-wrench	591,825	Oct. 19	1562	370	81	354
	594,609	Nov. 30	3542	784	81	1517
Dodge, Henry M., Boston, Mass. Fishing apparatus	593,927	Nov. 16	2147	509	81	1250
Dodge, William W., Burlington, Iowa. Paper-scale	591,084	Oct. 5	170	36	81	35
Doebler, Charles F., Hartford, Conn. Sash-cord guide	594,802	Dec. 7	36	10	81	1628
Doebler, Charles F., Hartford, Conn. Bracket	595,873	Dec. 21	1778	427	81	2006
Doebler, Charles F., Hartford, Conn. Bracket	591,095	Oct. 5	172	39	81	36
Doherty, George, Boston, Mass. Scrubbing-pail						
Dolan, Edward J., Philadelphia, Pa., assignor, by mesne assignments, to Acetylene House Lighting Company, of West Virginia. Burner for burning rich gases, especially acetylene gas	595,848	Dec. 21	1718	413	81	1994
Dolan, Edward J., Philadelphia, Pa., assignor, by mesne assignments, to Acetylene House Lighting Company, of West Virginia. Burner for burning rich gases, especially acetylene gas	596,144	Dec. 28	2272	538	81	2123
Dolley, Charles S., J. G. Rehfuss, and J. Hunt, assignors to Universal Food and Liquid Improving Company, Philadelphia, Pa. Bottle-filling machine	594,781	Nov. 30	3665	853	81	1583
	596,145	Dec. 28	2273	539	81	2124
Dolsen, Emmet L., Bartlett, Ill. Machine for cutting ear-corn	594,610	Nov. 30	3343	784 / 785	81	1517
Doman, Herman C., Oshkosh, Wis. Clamping-machine						
Domeyer, Henry C., Sauvie's Island, Oreg. Chain-lock in loading or unloading apparatus	593,928	Nov. 16	2148	509	81	1250
Domon, Edouard, Jr., Paris, France, assignor to C. Dinichert Son, Montilier, Switzerland. Speed-indicator	592,008	Oct. 19	1870	445 / 446	81	415
Donaghy, Joseph F. (See Gregg, Donaghy, and Humphrey.)						
Donahue, James A., and F. H. Leach, Los Angeles, Cal. Mouth guard and protector for bottles or drinking-glasses	591,778	Oct. 12	1482	350	81	317
Donaldson, James A., Greenville, Pa. Horse-detacher	594,334	Nov. 23	2811	666	81	1395
Donaldson, James A., Greenville, Pa. Hook	594,335	Nov. 23	2815	666 / 667	81	1396
Donaldson, John W., Bowerston, Ohio. Nut-lock	595,701	Dec. 21	1459	351	81	1944
Donnelly, Joseph C. (See Whipple and Stauffer, assignors.)						
Donovan, John E., Cincinnati, Ohio. Apparatus for forming pulley-molds	593,644	Nov. 16	1634	395 / 396 / 397	81	1150
Donovan, John E., Cincinnati, Ohio. Pulley-molding machine	593,645	Nov. 16	1638	397	81	1151
Donovan, John E., Cincinnati, Ohio. Split pulley	593,646	Nov. 16	1642	398	81	1151
Dooley, Clarence H., Brokaw, Ill. Combined check-row and drill corn-planter	593,295	Nov. 9	990	239 / 240	81	1013
Doolittle, Clarence E., Aspen, Colo. Discharge-nozzle and valve therefor	595,014	Dec. 7	302	73	81	1677
Doran, Robert L., assignor of one-half to T. E. Webster, Bay City, Mich. System of lighting for hydrocarbon-lamps	591,629	Oct. 12	1223	288	81	264
	594,398	Dec. 7	157	38, 39	81	1651
Dorman, Charles D., Clinton, Mo. Fender for street-cars	595,943	Dec. 21	1909	456	81	2033
Dorn, Robert, New York, N. Y. Safety device for elevators	593,900	Nov. 16	2198	522	81	1260
Dorney, Albert H., Allentown, Pa. Hoof-pad for horses						
Dorschell, Lucas D. (See Moehn, John N., assignor.)						
Dorsey, Albert G., Clifty, Ind. Device for heating water	593,047	Nov. 2	516	124	81	907
Dortch, John M., assignor to Steel Motor Company, Johnstown, Pa. Electric contact device and conductor construction therefor	594,386	Nov. 30	2919	698 / 699	81	1435
Dossert, John J., New York, N. Y. Garment-supporter	594,122	Nov. 23	2475	595	81	1331
Dotson, David, Brooklyn, N. Y. Fender or guard for tramway-cars	592,241	Oct. 26	2293	541	81	515
Doty, Robert E., and C. Miller, Vergennes, Ill. Curtain-fixture	591,112	Oct. 5	304	74	81	59
Dougherty, Francis. (See McClellan, Oscar D., assignor.)						
Douglass, James, New York, N. Y. Nut-lock	594,525	Nov. 30	3187	747	81	1496
	594,326	Nov. 23	2816	667 / 678	81	1397
Dow, Josiah, Philadelphia, Pa. Steam-engine	591,160	Oct. 5	303	99	81	75
Dow, Willard E., Braintree, Mass. Electric apparatus for surgical purposes						
Dow Wire Works Company. (See Logan, William H., assignor.)						
Dowden, Ashford T., Prairie City, Iowa. Segmental conveyer for potato-harvesters	591,398	Oct. 12	822	191 / 192	81	188
Dowden, John W., Lake Charles, La. Railway-track	593,590	Nov. 9	1398	335	81	1086
Dowe, George W., Carbondale, Pa. Machine for driving tie-plates	594,731	Nov. 30	3582	832 / 833	81	1567
Dowman, Thomas, Chester, Ill. Lock	595,290	Dec. 14	792	196	81	1798
Downes, Andrew J., Philadelphia, Pa. Seat or saddle for bicycles	591,330	Oct. 5	692	165	81	183
Downey, George W., Washington, D. C. Pleasure-railway	592,648	Oct. 26	3316	690	81	746
Downey, John W., Edgewood Park, Pa. Fruit-picker	595,531	Dec. 14	1199	288	81	1872
Downey, Joseph M., *et al.* (See Gray, Gorham, assignor.)						
Downey, William J., *et al.* (See Gray, Gorham, assignor.)						
Downham, Emanuel F., *et al.* (See Van de Westelaken, Peter, assignor.)						
Downs, J. Willis. (See Johnson, Albert W., assignor.)						
Downs, James R., East Pittsburg, Pa. Self-leveling table	594,661	Nov. 30	3490	813	81	1548
Doyle, Dennis S., assignor to W. W. Doyle, Philadelphia, Pa. Dental cuspidor	595,532	Dec. 14	1200	288	81	1872
Doyle, Dennis S., assignor to W. W. Doyle, Philadelphia, Pa. Dental cuspidor	595,533	Dec. 14	1201	289	81	1873
Doyle, William W. (See Doyle, Dennis S., assignor.)						
Drake, Edwin S., Portland, Me. Crutch	596,208	Dec. 28	2364	560	81	2141
Drake, Ellis E. (See Phillips, John E., assignor.)						
Drake, Ira C., South Prairie, Wash. Fruit-gatherer	591,118	Oct. 5	305	74	81	60
Drake, Joseph E., Blue Rapids, Kans. Carpet-stretcher	591,896	Oct. 19	1563	370	81	354
Draper Company. (See Brooks, John C., assignor.)						
Draper Company. (See Burton, John L., assignor.)						
Draper Company. (See Day, Florence M., assignor.)						
Draper Company. (See Draper, William F., assignor.)						
Draper Company. (See Eaton, Russell W., assignor.)						
Draper Company. (See Fitts and Reilly, assignors.)						
Draper Company. (See Ludlam and Claus, assignors.)						
Draper Company. (See Northrop, James H., assignor.)						
Draper Company. (See Northrop and Bigelow, assignors.)						
Draper, George O., assignor to G. Draper & Sons, Hopedale, Mass. Self-threading loom-shuttle	591,370	Oct. 5	784	188	81	156
Draper, Lucius D., Boston, Mass. Stocking-supporter	591,915	Oct. 19	1720	412	81	396

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Draper & Sons, George. (See Draper, George O., assignor.)						
Draper, William B. (See Page, Warren B., assignor.)						
Draper, William F., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Warp stop-motion for looms	594,344	Nov. 23	2337	671	81	1401
	592,606	Oct. 26	3244	672 / 673	81	734
Draullette, Edmond, and E. Catois, Paris, France. Lock	595,905	Dec. 21	1997	477	81	2053
Dreese, John D., Halstead, Kans. Fish-hook	593,065	Nov. 2	580	140	81	920
Dresback, William S., Columbus, Ohio. Bottle	592,048	Oct. 19	1948	462	81	429
Dreses, Henry, Cincinnati, Ohio. Drill-press	591,743	Oct. 12	1421	334	81	305
Drew, Edmond P., Glenville, Ohio. Adjustable wrench						
Drew, George L. (See Smith, John W., assignor.)						
Drew, Jesse J., Philadelphia, Pa. Animal-trap	591,744	Oct. 12	1422	334	81	305
Drew, Mitchel N., Madison, Fla. Toy detonating trick device	591,827	Oct. 19	1565	370	81	354
Drewett, William A., Brooklyn, N. Y. Electric switch	591,331	Oct. 5	695	165	81	183
Driller, John H., Los Angeles, Cal. Nail or tack holding and setting hammer	595,015	Dec. 7	304	73	81	1677
Drohan, Thomas E., assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Electric-arc lamp	594,662	Nov. 30	3499	813	81	1548
	595,287	Dec. 7	713	174	81	1752
Drummond, John T., Asheville, N. C. Double-shovel plow						
Drummond, Michael J. (See Mern, John P., assignor.)						
Du Brul, Napoleon, Cincinnati, Ohio. Atomizer	591,745	Oct. 12	1423	335	81	305
Du Brul, Napoleon, Cincinnati, Ohio. Cigar-mold	592,627	Oct. 26	3269	681	81	741
Du Brul, Napoleon, Cincinnati, Ohio. Cigar or cigarette wrapper cutting machine	593,878	Nov. 16	2062	486 / 487	81	1239
Du Brul, Napoleon, Cincinnati, Ohio. Cigar or cigarette wrapper cutter	593,879	Nov. 16	2064	487 / 488	81	1238
Du Cacher, Frank, *et al.* (See Richard, Julius, assignor.)						
Dubois, Otis E., assignor to C. H. Carr, Fall River, Mass. Dice-box	591,269	Oct. 5	603	141	81	114
Duck, Abram W., Oakland, Cal. Bicycle-brake	594,284	Nov. 23	2635	623	81	1361
Duck, Abram W., Oakland, Cal. Bicycle bundle-carrier	594,663	Nov. 30	3493	813	81	1548
Ducker, Jacob F., Argonia, Kans. Windmill	590,970	Oct. 5	32	8	81	8
Duckering, Samuel, Ramsgate, England. Incubator	593,208	Nov. 9	821	196	81	983
Dudley, John S., and S. Fogleson, assignors to Triumph Manufacturing Company, Marion, Ohio. Copy-holder	593,735	Oct. 26	3464	726	81	776
Dudley, John W., assignor to Dudley Packing Company, Chicago, Ill. Piston-rod packing	595,675	Dec. 14	1415	349	81	1918
Dudley Packing Company. (See Dudley, John W., assignor.)						
Duke, John F., London, England. Manufacture of mantles or incandescing bodies for incandescent gas-lamps	593,991	Nov. 23	2253	------	81	1299
Dumont, Victor, *et al.* (See Clarke, Arthur R., assignor.)						
Dunbar, Clement A., assignor to Dunbar Manufacturing Company, Detroit, Mich. Non-refillable bottle	595,612	Dec. 14	1316	318	81	1898
Dunbar Manufacturing Company. (See Dunbar, Clement A., assignor.)	595,877	Dec. 14	930	225	81	1819
Duncan, Alexander G., Ryan, Iowa. Gate	591,828	Oct. 19	1566	370 / 371 / 372	81	354
Duncan, David J. R., London, England. Means for jointing mains, pipes, &c	596,036	Dec. 21	2062	490	81	2065
Duncan, Francis A., assignor of eleven-twentieths to D. W. Reddin, North Baltimore, Ohio. Calk for horseshoes	591,332	Oct. 5	697	166	81	184
Duncan, Robert, Knoxville, Tenn. Mechanical calculator						
Duncan, William, Kearney and A. R. Fordyce, Newark, N. J.; said Duncan assignor to said Fordyce. Die for making metallic lathing	594,172	Nov. 23	2534	600	81	1343
	592,262	Oct. 26	2253	556	81	528
Dundon, Edward, Fort Leavenworth, Kans. Self-sprinkling broom						
Dunham, George H. (See McMahon, William, assignor.)						
Dunkle, Abraham B., Steelton, Pa. Curtain-shade strip	591,389	Oct. 12	824	192	81	188
Dunklin, Nono. (See Krutsch, Willis W., assignor.)						
Dunlop, George H., South Melbourne, Victoria. Wall or lining for shield-tunneling and for shaft-sinking	595,702	Dec. 21	1460	359	81	1944
	591,959	Oct. 19	1708	427	81	401
Dunn, Eugene S., Marietta, Ohio. System of fans						
Dunn, Gano S., East Orange, N. J., assignor to Crocker-Wheeler Electric Company, of New Jersey. Indirect regulation of dynamo-electric machinery	591,343	Oct. 5	721	170	81	189
Dunn, Gano S., East Orange, N. J., assignor to Crocker-Wheeler Electric Company, of New Jersey. Indirect regulation of dynamo-electric machinery	591,344	Oct. 5	724	170	81	189
Dunn, Gano S., East Orange, N. J., assignor to Crocker-Wheeler Electric Company, of New Jersey. Indirect regulation of dynamo-electric machinery	591,345	Oct. 5	727	171	81	140
Dunn, Mulford M. (See Foster, John W., assignor.)						
Dunn, Thomas F., Hyde Park, Mass. Flier for roving-machines	595,906	Dec. 21	1908	477	81	2053
Dunnigan, James F., Greenfield, Mass. Flower-holder for bicycles	591,390	Oct. 12	825	192	81	188
Dunnigan, James F., Greenfield, Mass. Clamp for bedsteads	593,252	Nov. 9	1067	268	81	1061
Dunton, Emily M. (See Dunton, Frederick W., assignor.)						
Dunton, Frederick W., assignor to E. M. Dunton, Hollis, N. Y. Single-rail-railway car	592,866	Nov. 2	205	47	81	847
Dunton, George E., Boston, Mass. Apparatus for circulating liquid in tanks	593,887	Nov. 16	1967	467	81	1217
Dupee, John C., assignor of one-half to R. J. White, Chicago, Ill. Burner for plumbers' or braziers' furnaces	591,916	Oct. 19	1721	412	81	396
Dupee, John C., assignor of one-half to R. J. White, Chicago, Ill. Acetylene-gas generator	592,068	Oct. 19	2016	477 / 478	81	443
Dupee, John C., assignor of one-half to R. J. White, Chicago, Ill. Acetylene-gas generator	592,084	Oct. 19	2023	478	81	443
Dupee, John C., assignor of one-half to R. J. White, Chicago, Ill. Brazing apparatus	594,345	Nov. 23	2339	671	81	1401
	596,146	Dec. 28	2275	539 / 540	81	2124
Dupen, William, Whatcom, Wash. Eight-day alarm-clock						
Duperrouzel, Raoul. (See Ouellette and Duperrouzel.)						
Duplessis, Elouild, assignor of two-thirds to E. A. Marchildon, M. M. Tousignant, and L. H. Marin, St. Hyacinthe, Canada. Pegging-machine	594,466	Nov. 30	3072	721	81	1465
Duplex Match Company. (See Firsching, Georg, assignor.)						
Duplex Printing Press Company. (See Bechman, Henry F., assignor.)						
Duplex Roller Bushings Company. (See Knowlton, Alonzo J. Q., assignor.)						
Dupuis, Adolphe C. G., New Orleans, La. Spike	593,880	Nov. 16	2065	488	81	1233
Dupuis, Adolphe C. G., New Orleans, La. Vehicle-axle	595,409	Dec. 14	1093	262	81	1651
Durell, George B. (See Miller, Charles E., assignor.)						
Durham, John F., assignor of three-fourths to P. A. Groves, E. D. Wood, Caldwell, and W. H. Martin, Silver City, Idaho. Water-elevator	595,153	Dec. 7	552	133 / 134	81	1738
Durier, George E. (See Ripple and Durier.)	593,096	Nov. 2	561	140	81	920
Duross, Patrick F., Long Island City, N. Y. Street-sweeper						
Durphy, Charles H. (See Abbott, Benjamin J., assignor.)						
Durrin, Ardin L., and F. I. Rourke, Glens Falls, N. Y. Machine for pasting collars and cuffs	594,357	Nov. 30	2922	699	81	1435

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dusart, Daniel, Jr., Syracuse, N. Y. Combination pocket-book	591,746	Oct. 12	1424	335	81	305
Dusenbury, C. Coles. (See Fuller, John E., assignor.)						
Dustin, John F., assignor to himself and Parkhill Manufacturing Company, Fitchburg, Mass. Loom	594,684	Nov. 30	3494	813 814	81	1549
Dustin, John F., assignor to himself and Parkhill Manufacturing Company, Fitchburg, Mass. Box-motion-operating device for looms	594,685	Nov. 30	3496	814	81	1549
Duval, Jennie P., Kansas City, Mo. Car-fender	592,516	Oct. 26	3092	631	81	704
Duval, John L., Houston, Tex. Bale-band tightener	591,333	Oct. 5	699	166	81	134
Duwellius, Augustus L., Cincinnati, Ohio. Electric elevator	595,874	Dec. 21	1779	428 429	81	2006
Dwiggins, John W., assignor to Dwiggins Wire Fence Company, Anderson, Ind. Wire-fence machine	595,291	Dec. 14	798	196	81	1798
Dwiggins Wire Fence Company. (See Dwiggins, John W., assignor.)						
Dyblie, Julius A., Anaconda, Mont., assignor to Fraser & Chalmers, Chicago, Ill. Ore-converter	593,908	Nov. 23	2254	534	81	1290
Dyer, Charles P., Somerville, Mass. Friction-pivot for mirrors or transoms	595,613	Dec. 14	1817	418	81	1898
Dyer, Charles P., assignor to L. E. Dyer, Somerville, and M. C. Darrow, Boston, Mass. Detachable joint for metallic bedsteads	591,960	Oct. 19	1794	428	81	401
Dyer, Frank L., Washington, D. C., assignor to American Cotton Company, New York, N. Y. Cotton-press	591,334	Oct. 5	700	166 167	81	134
Dyer, Frank L., Washington, D. C., assignor to American Cotton Company, New York, N. Y. Core and core-operating mechanism for cotton-presses	592,268	Oct. 26	2354	556	81	528
Dyer, Frank L., Washington, D. C., assignor to W. F. Jobbins and J. Van Ruymbeke, Chicago, Ill. Purifying fixed oils, fats, &c.	594,467	Nov. 30	3077	721	81	1466
Dyer, Joseph, Fairfield, Me. Shoe-protector	591,829	Oct. 19	1567	372	81	355
Dyer, Lucy E., *et al.* (See Dyer, Charles P., assignor.)						
Dyett, James H., Buffalo, N. Y. Corner-brace	594,686	Nov. 30	3766	878	81	1608
Dyon, Filiase. (See Giguere, Thomas, assignor.)						
E. & H. T. Anthony & Company. (See Esmond, William V., assignor.)						
E. Ingraham Company. (See Wright, William H., assignor.)						
E. J. Brooks & Company. (See Brooks, Edward J., assignor.)						
E. J. Manville Machine Company. (See Campbell, Andrew C., assignor.)						
E. Jenckes Manufacturing Company. (See Frink, George E., assignor.)						
E. & T. Fairbanks & Company. (See Paddock, Harvlin, assignor.)						
E. & T. Fairbanks & Company. (See Sargent, Willis H., assignor.)						
Eads, Charles R., Como, Miss. Screen scoop or shovel	594,583	Oct. 26	3205	663	81	736
Eakin, Hort C., Dallas, Oreg. Clothes-line	590,971	Oct. 5	84	8	81	9
Earl, William H., Painesville, Ohio. Dumping-wagon	594,197	Nov. 23	2577	610	81	1351
Earle, William G. (See Missimer, Frank C., assignor.)						
Earle, William H., Providence, R. I. Thread-severing attachment for spools	591,502	Oct. 12	1179	277	81	255
Earll, Charles I., New York, N. Y. Geared hoist	595,703	Dec. 21	1461	352	81	1945
Easterday, William A. (See Balkam, Henry G., assignor.)						
Eastman, David. (See Evertz, Carl R., assignor.)						
Easton, Walter S., Elk Lick, assignor of one-half to J. C. Lowry, Somerset, Pa. Brake	594,398	Nov. 30	2923	689	81	1436
Easton, William B., assignor to Fraser & Chalmers, Chicago, Ill. Amalgamating-pan and settler	593,767	Nov. 16	1851	444	81	1191
Eaton, Arthur W., assignor to Seaver Process Lasting Company, Boston, Mass. Lasting-machine	595,323	Dec. 28	2506	611	81	2179
Eaton, Moses H., Philadelphia, Pa. Envelop	594,235	Nov. 23	2637	624	81	1362
Eaton, Russell W., Brunswick, Me., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Registering mechanism for warping-machines	595,907	Dec. 21	1846	442	81	2020
Eaton, Wilber K., Lynn, Mass. Machine for making popcorn cakes	591,461	Oct. 12	943	222	81	212
Ebbs, Hermann, assignor to Fried. Krupp Grusonwerk, Magdeburg, Germany. Distributing and igniting device for gas-engines	595,050	Dec. 7	375	92	81	1690
Eberle, Charles R., Philadelphia, Pa. Bicycle-lock	592,242	Oct. 26	2295	541	81	515
Ebersole, John, Chambersburg, Pa. Water-wheel	593,278	Nov. 9	956	231	81	1006
Ebersole, Joseph G. (See Butler, James H., assignor.)						
Ebersole, Raphael E., Roanoke, Va. Coin-controlled apparatus	592,004	Oct. 19	1873	447	81	415
Ebert, Hugo E., assignor of one-half to A. F. Stahl, Milwaukee, Wis. Wig-maker's appliance	592,243	Oct. 26	2296	541	81	516
Ebner, Charles F. (See Gloor, Solomon, assignor.)						
Eccleston, S. Spenser, Syracuse, N. Y. Nursery-chair	596,204	Dec. 28	2906	561	81	2142
Eck, James L., Reading, Pa. Circular-knitting machine	592,134	Oct. 19	2114	501	81	460
Eclipse Nonrefilling Bottle Company. (See Sassenhoff, Ernesto, assignor.)						
Eddy & Co., G. M. (See Eddy, John G., assignor.)						
Eddy, John G., assignor to G. M. Eddy & Co., Brooklyn, N. Y. Tape-reel	591,747	Oct. 12	1424	335	81	306
Edgar, Ellis F., Woodbridge, N. J. Heating apparatus	595,378	Dec. 14	961	225	81	1819
Edge, James, Gorton, England. Carding-engine	592,726	Oct. 26	3466	726	81	777
Edgerton, George, *et al.* (See Barrett, Alfred, assignor.)						
Edmonston, Thomas C., Houston, Tex. Bale-tie	595,534	Dec. 14	1908	289	81	1873
Edmund, August G. and H., Seattle, Wash. Stone cutting or carving machine	591,114	Oct. 5	306	74 75 76	81	60
Edmund, Hannah. (See Edmund, August G. and H.)						
Edson, Jarvis B., Shelter Island, N. Y. Combined ruling, printing, and numbering machine	593,961	Nov. 16	2199	522	81	1261
Edward Miller & Company. (See Homan, William C., assignor.)						
Edwards, Ezra, Webster City, Iowa. Egg-tester	595,292	Dec. 14	798	197	81	1794
Edwards, Frank W., Bayonne, N. J. Boiler-tube cleaner	595,908	Dec. 21	1847	442 443	81	2020
Edwards, Houghton D., Hiseville, Ky. Roller-harrow	596,147	Dec. 28	2277	540	81	2124
Edwards, John. (See Jarrett, Davies, and Edwards.)						
Edwards, John E., Melbourne, Victoria. Bicycle-crank	595,585	Dec. 14	1904	289	81	1873
Edwards, Samuel M., Los Angeles, Cal. Envelop	595,806	Dec. 21	1648	397	81	1980
Effinger, August, Canton, and J. Clutz, Massillon, Ohio. Pliers	592,766	Nov. 2	21	5	81	811
Effrig, Horace A., *et al.* (See Huber, George W., assignor.)						
Egan, Patrick P. (See Hanson, Harry L., assignor.)						
Egly, John C., Philadelphia, Pa. Circular-knitting machine	591,213	Oct. 5	495	118 119	81	94
Ehler, Emil, Henrico county, Va. Fire-alarm	593,536	Nov. 9	1415	341	81	1093
Ehlers, Cord. (See McCausland, William, assignor.)						
Ehrhardt, William, Union Hill, N. J., assignor to himself, W. B. Thorn, and G. A. Connor, New York, N. Y. Magazine fuse-block	595,244	Dec. 7	729	178	81	1755
Ehrlich, Paul, Leipsic-Gohlis, Germany. Mechanical music-box	594,336	Nov. 23	2630	624	81	1362
Eichhorn, Melker J., Chicago, Ill. Thermic motor	596,264	Dec. 28	2957	630 631	81	2199

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Eickemeyer, Carl, Yonkers, N. Y. Bicycle	591,227	Oct. 5	526	125	81	109
Eickhoff, Harry. (See Christopher, James B., assignor.)						
Eicks, William J. (See Henckler and Eicks.)						
Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company, of Iowa. Flanging-machine	592,767	Nov. 2	22	5	81	811
Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company, of Iowa. Apparatus for welding	592,768	Nov. 2	23	6	81	811
Eisner, Moritz, New York, N. Y. Incandescent gas-burner	591,036	Oct. 5	173	30	81	86
Ek, Magnus, Silverton, Oreg. Folding crate	591,245	Oct. 5	562	132	81	107
Eldridge, Hilliary, *et al.* (See Clark, George G., assignor.)						
Electric Car Company of America. (See Hunter, Rudolph M., assignor.)						
Electro-Magnetic Traction Company. (See Westinghouse and Chapman, assignors.)						
Electro Storage Company of North America. (See Rively, John D., assignor.)						
Elgin National Watch Company. (See Corthell, Fred H., assignor.)						
Elgin National Watch Company. (See Hunter, George, assignor.)						
Elleson, Chalmsonovitz P., London, England. Power-transmitter for use upon carriages, &c	595,051	Dec. 7	377	92	81	1690
Elkus, Abraham M. (See Ferguson, Robert G., assignor.)						
Ellers, Henry J., Rotterdam Junction, N. Y. Checkrein-fastener	591,462	Oct. 12	944	223	81	213
Elliott, Lucius J. (See Reichert, John, assignor.)						
Elliott, Robert T., *et al.* (See Elliott, William J., assignor.)						
Elliott, William J., assignor of one-half to V. C. Walker and R. T. Elliott, Wilmington, Del. Automatic weighing and bagging machine	595,154	Dec. 7	553	134	81	1723
Ellis, James H., Prescott, Ark. Burglar and fire alarm	594,389	Nov. 30	2994	690	81	1436
Ellis, Peter, Christchurch, New Zealand. Gear for rolling-stock	592,540	Oct. 26	3136	644	81	712
Ellis, Robert B., *et al.* (See White, Monroe, assignor.)						
Ellis, Walter J., Jonesborough, Ind. Copying-press	596,398	Dec. 28	2720	644	81	2211
Ellison, Charley, *et al.* (See Branzell, Charley, assignor.)						
Elmore, Alonzo B., Magnolia, Ark. Fertilizer-distributer or seed-planter	592,097	Nov. 2	582	141	81	990
Elterich, Otto P., New York, N. Y. Lock for firearms	594,803	Dec. 7	38	10	81	1629
Elton, Howard L., Philadelphia, Pa. Concentrator	591,395	Oct. 5	708	167	81	136
Elwee, Charles, Allegheny, Pa. Switch-operating mechanism	594,198	Nov. 23	2580	610	81	1351
Elwood, Jonathan, Sanger, Cal. Observation-opening for doors	593,993	Nov. 23	2255	534	81	1290
Emerson, Cora V., and J. A. Hilcken, Brooklyn, N. Y. Game device	591,961	Oct. 19	1796	428	81	401
Emery, Charles E., Brooklyn, N. Y. Electric motor for street-cars	592,965	Nov. 2	389	91	81	883
Emery, Frederick L., Lexington, Mass. Means for regulating operation of elevator or traveling cars	594,060	Nov. 23	2383	565 566	81	1313
Emery, Harry H., Lamartine, Ohio. Automatic wagon-brake	593,570	Nov. 16	1500	365	81	1125
Emery, Plato G., Chicago, Ill., assignor to Adams & Westlake Company. Window or curtain fixture	593,989	Nov. 16	2149	509 510	81	1250
Emery, Victor J., Quincy, Mass. Pipe-hanger	591,349	Oct. 5	563	132	81	107
Emmens, Stephen H., New York, N. Y. Process of and apparatus for removing zinc from zinciferous ores	594,611	Nov. 30	3347	785	81	1518
Empire Self Lighting Oil Lamp Company. (See Meyer, Svend M., assignor.)						
Empire Type Setting Machine Company. (See Dickinson, Charles W., assignor.)						
Empson, John H., Longmont, Colo. Hoisting and conveying apparatus	594,987	Dec. 7	260	63	81	1669
Enck, Philipp. (See Frommann and Enck.)						
Engle, Howard A., *et al.* (See Shuttleworth, Alpheus C., assignor.)						
Engledue, William J. (See Yarnold and Engledue.)						
Englert, August J. (See Englert, Charles W., assignor.)						
Englert, Charles W., Paterson, N. J., assignor of one-half to A. J. Englert, Brooklyn, N. Y. Window-chair	594,612	Nov. 30	3349	785	81	1518
Ensley, Oscar J. (See Crabb, James N., assignor.)						
Ensworth, William J., assignor of one-fourth to J. W. Galbraith, Erie, Pa. Cash-register	591,748	Oct. 12	1425	335 336	81	306
Entz, Justus B., Philadelphia, Pa. Bicycle-gear	596,104	Dec. 28	2204	523	81	2111
Ephraim, Ferdinand, San Francisco, Cal. Boot or shoe	591,646	Oct. 12	1270	297	81	274
Eppler, Andrew, Jr., Boston, Mass. Machine for sewing shoes	593,156	Nov. 2	717	170 171 172	81	949
Erb, Paris, Lancaster, Pa. Fluid-pressure regulator	595,614	Dec. 14	1819	318	81	1898
Erdman, Albert W., Milburn, N. J., assignor to American Telephone and Telegraph Company, of New York. Method of and apparatus for relaying telephonic messages	592,769	Nov. 2	24	6	81	811
Erdmann, Frank, San Francisco, Cal. Rail-joint	596,105	Dec. 28	2205	523	81	2111
Erickson, Charles J. (See Strowger, Lundquist, and Erickson.)						
Erickson, Edward, assignor to Flagg Manufacturing Company, Boston, Mass. Soie-rounding machine	591,593	Oct. 12	1180	278	81	256
Erickson, Erick W., Brooklyn, N. Y. Engine-governor	592,529	Oct. 26	3119	637	81	709
Erickson, John. (See Strowger, Lundquist, and Erickson.)						
Erickson, Paul E., Scandia, Kans. Weed-destroyer	591,391	Oct. 12	636	198	81	189
Eriksson, Viktor, New York, N. Y. Baby-carriage	594,782	Nov. 30	3067	854	81	1583
Ernest, Albert. (See Welch and Ernest.)						
Ernest, Juan W., Los Angeles, Cal. Tent or booth	595,875	Dec. 21	1786	429	81	2008
Ernst, Albert H. W., assignor of one-half to J. C. F. A. Schmidt, Chicago, Ill. Elevator safety device	592,541	Oct. 26	3137	645	81	713
Ernst, Victor, Cleveland, Ohio. Bicycle	593,975	Nov. 16	2221	528	81	1266
Ernst, Victor H., Jersey City, N. J. Steam-motor	593,994	Nov. 23	2250	534 535	81	1290
Erxleben, Frank, Wayne, Nebr. Locking pin or bolt	595,155	Dec. 7	553	134	81	1723
Esmond, William V., New York, N. Y., assignor to E. & H. T. Anthony & Company, of New York. Sensitized photographic film	591,346	Oct. 5	731	171	81	140
Esmond, William V., assignor to E. & H. T. Anthony & Company, New York, N. Y. Photographic shutter	591,347	Oct. 5	732	171	81	140
Espina, Gil, Carácas, Venezuela. Marine vessel	591,749	Oct. 12	1428	336 337	81	307
Esselburn, John B. and L., West Salem, Ohio. Thill-coupling	595,828	Dec. 21	1665	407	81	1957
Esselburn, Lewis. (See Esselburn, John B. and L.)						
Esselen, Henry M., Boston, Mass. Snow-guard	591,504	Oct. 12	1182	278	81	256
Essington, Harry M. (See Goodkind, Essington, and Bartlett.)						
Estell, Samuel F., Chicago, Ill. Saddle-post and handle-bar adjusting mechanism	593,373	Nov. 9	1118	270	81	1037
Estienne, Alfred D., Marseilles, France. Decorticating-machine	594,988	Dec. 7	292	63	81	1669
Esty, William, Laconia, N. H. Knit goods	591,128	Oct. 5	332	81	81	65
Ety, David J., Louisville, Ky. Fruit-picker	594,237	Nov. 23	2639	624	81	1362
Ettling, Alice M. (See Cately, Shepard W., assignor.)						
Eubank, Thomas, Little Rock, Ark., assignor to Western Railway Equipment Company, East St. Louis, Ill. Car-roof	591,665	Oct. 12	1304	305 306	81	281

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Eubank, Thomas, Little Rock, Ark., assignor to Missouri Railway Equipment Company, St. Louis, Mo. Automatic hand-brake-release mechanism	591,666	Oct. 12	1306	306	81	281
Eubank, Thomas, Little Rock, Ark., assignor to Missouri Railway Equipment Company, St. Louis, Mo. Hand-brake-release mechanism	591,667	Oct. 12	1308	306	81	282
Euston, Alexander, St. Louis, Mo. Extracting oil from seeds	594,390	Nov. 30	3025	690	81	1436
Evans, Charles G., Union, Canada. Piston	591,396	Oct. 12	827	193	81	189
Evans, John. (See Soley, William H., assignor.)						
Evans, John H., Cleveland, Ohio. Convertible settee and bed	591,095	Oct. 5	275	67	81	54
Evans, Richard, Milwaukee, Wis. Ash sifter and receptacle	595,838	Nov. 16	1986	468	81	1217
Evans, Robert D., *et al.* (See Gooding and Beauregard, assignors.)						
Evans, Thomas F. (See Harris and Evans.)						
Evans, William. (See Holmes, Henry, assignor.)						
Evans, William, Philadelphia, Pa. Hide and skin machinery	592,952	Nov. 2	355	83	81	876
Evert, Louis J. (See Kiefer and Evert.)						
Everts, Carl R., Brooklyn, N. Y., assignor of one-half to D. Eastman, Plainfield, N. J. Pocket-knife	595,909	Dec. 21	1862	443	81	2022
Evison, Francis, Morenci, Mich. Windmill	591,962	Oct. 19	1797	428	81	401
Ewart, John, assignor of one-half to J. A. Ewart, Lawrence, Mass. Door-check	594,613	Nov. 30	3350	785	81	1518
Ewart, Joseph A. (See Ewart, John, assignor.)						
Ewart Manufacturing Company. (See McIntire, Jacob N., assignor.)						
Ewbank, Herbert B., Sr., assignor to J. F. Ewbank and E. D. Crawford, Baltimore, Md. Pneumatic saddle for bicycles	592,488	Oct. 26	3050	690	81	695
Ewbank, Julia F., *et al.* (See Ewbank, Herbert B., Sr., assignor.)						
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prismatic window	595,263	Dec. 7	753	185	81	1760
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Figured prism-light	595,264	Dec. 7	754	185	81	1760
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Support for prism-light canopies	595,265	Dec. 7	757	185	81	1760
Exline, Marcus P., Waxahachie, Tex. Check-book	592,929	Nov. 2	300	70	81	866
Eyles, Arthur H., Pelhamville, H. S. Rapelye, and A. Applegate, Mount Vernon, N. Y. Making white lead	595,849	Dec. 21	1718	413	81	1994
Ezekiel, Hannah E., New York, N. Y. Cycling-skirt	594,864	Dec. 7	39	10	81	1629
F. H. Gilson Company. (See Gilson, Franklin H., assignor.)						
Fabrik Keim'scher Farben der Steingewerkschaft Offenstetten, Aktiengesellschaft. (See Keim, Adolf W., assignor.)						
Fahey, Daniel, Graceville, Minn. Wheel	591,398	Oct. 12	829	193	81	189
Fahr, Augustus W., Manchester, Va. Antifreezing valve	594,070	Nov. 23	2386	566	81	1314
Fahy, William C., Philadelphia, Pa. Oil-purifier	591,394	Oct. 12	830	193	81	189
Fair, Andrew J., Walnut Cove, N. C. Mantel	595,052	Dec. 7	379	93	81	1691
Fair, Thomas S., Detroit, Mich. Hand corn-planter	592,489	Oct. 26	3051	691	81	696
Fairbanks, Albert C., Boston, Mass. Bicycle	594,999	Dec. 7	159	39	81	1651
Fairbrother, William E., *et al.* (See Baird, James S., assignor.)						
Fairchild, Charles B., New York, N. Y. Vehicle-propelling machine	595,156	Dec. 7	556	135	81	1723
Fairmount Machine Company. (See Ingraham, Edmund, assignor.)						
Falk, Herman W., assignor to Falk Manufacturing Company, Milwaukee, Wis. Repairing railway-track rails	593,963	Nov. 16	2182	518	81	1257
Falk Manufacturing Company. (See Falk, Herman W., assignor.)						
Falk, Moses, New York, N. Y. Tobacco-box	594,071	Nov. 23	2388	566	81	1315
Faltermayer, Jacob. (See Paradis and Faltermayer.)						
Fangel, Johan P., Brooklyn, N. Y. Soda-water can	592,490	Oct. 26	3053	691	81	696
Faracchio, Pasquale, Philadelphia, Pa. Hair-clipper	592,770	Nov. 2	27	6	81	812
Farbenfabriken, vormals Fr. Bayer & Co. (See Heymann and Reyher, assignors.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Kahn and Runkel, assignors.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Schmidt, Robert E., assignor.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Ulrich and Bammann, assignors.)						
Farbwerk Mühlheim, vormals A. Leonhardt & Co. (See Bender, Fritz, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Seyberth and Gallois, assignors.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Tubbe, Carl, assignor.)						
Farlow, Frederic F., Bombay, India. Low-water alarm	596,060	Dec. 28	2125	504	81	2006
Farlow, James A., and J. Strayer, Brooklyn, N. Y. Car-fender	595,879	Dec. 14	983	226	81	1830
Farmer, David J. and S., Elizabeth, N. J. Fluid-pressure regulator	592,197	Oct. 19	2210	522 523	81	479
Farmer, David J. and S., Elizabeth, N. J. Fluid-pressure regulator	592,198	Oct. 19	2214	523	81	480
Farmer, John R., assignor of seven-eighths to O. M. Schmidt, M. Schaller, and D. H. Lohse, St. Louis, Mo. Electric railway	595,298	Dec. 14	799	197	81	1794
Farmer, Joseph C., Rochester, N. Y. Apparatus for cutting weeds and grass under water	592,985	Nov. 2	420	99	81	868
Farmer, Samuel. (See Farmer, David J. and S.)						
Farnham, Edward W., Chicago, Ill. Dynamo-electric machine	591,622	Oct. 12	1226	288	81	264
Farnham, Edward W., Chicago, Ill. Dynamo-electric machine	591,625	Oct. 12	1230	289	81	265
Farnham, Edward W., assignor of one-half to C. M. Higginson, Chicago, Ill. Telegraph-key	591,624	Oct. 12	1228	289	81	265
Farnsworth, Ralph L., Palmer, Kans. Cultivator	595,122	Dec. 7	510	122	81	1714
Farrall, George A., assignor to Johnston Harvester Company, Batavia, N. Y. Grain-harvester	591,096	Oct. 5	276	68	81	54
Farrar, Carroll L. (See Scamman and Farrar.)						
Farrar, Ellery C. (See Scamman and Farrar.)						
Farrar, James B., Wilmington, N. C. Tire-holder for forges	593,088	Nov. 2	584	141	81	921
Farrell, John. (See Cline and Farrell.)						
Farrell, John, Pittsburg, Pa. Water-regulating apparatus	591,161	Oct. 5	397	92, 93	81	76
Farwell, Pulaski, Frederick, Ill. Sliding-door fastener	594,173	Nov. 23	2537	601	81	1344
Fassett, Riley D., assignor to himself and G. R. Strong, Harris, Mo. Rotary engine	595,536	Dec. 14	1904	290	81	1873
Fast, Jonathan M. (See Hadley, Joshua A., assignor.)						
Faure, Camille A., Paris, France. Steering mechanism for motor-vehicles	591,595	Oct. 12	1183	278 279	81	256
Fawcett, William J., Pittsburg, Pa. Railway-signal	595,994	Dec. 14	801	198	81	1705
Fawkes, Frederick G., *et al.* (See Browning, John P., assignor.)						
Fay, Charles P., *et al.* (See Ingram, Harry, assignor.)						
Fay, Charles P., assignor to J. Stevens Arms and Tool Company, Chicopee Falls, Mass. Calipers	591,348	Oct. 5	733	172	81	141
Fay, Joseph. (See Fitz Gerald and Fay.)						
Fay, Thomas J., Brooklyn, N. Y., assignor to American Electric Cold Supply Company, of Maine. Magnetic coupling	591,395	Oct. 12	832	194	81	190
Fay, Thomas J., Brooklyn, N. Y., assignor to American Electric Cold Supply Company, of Maine. Electrical power transmission	592,244	Oct. 26	2297	541	81	516

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fay, Thomas J., Brooklyn, N. Y., assignor to American Electric Cold Supply Company, of Maine. Magnetic clutch	593,571	Nov. 16	1504	365	81	1126
Fay, Thomas J., Brooklyn, N. Y., assignor to American Electric Cold Supply Company, of Maine. Electrically-driven gas-machine	593,718	Nov. 16	1767	424	81	1174
Feail, Thomas J. (See Lane, Edwin, assignor.)						
Fee, Thomas J., *et al.* (See Wimmer, Louis, assignor.)						
Fefel, John E., New York, N. Y. Looper-operating mechanism for sewing-machines	595,615	Dec. 14	1821	316 319	81	1898
Feigley, Newton, assignor of one-fourth to J. E. O'Donnell, Pittsburg, Pa. Combined brake and fender	593,889	Nov. 16	1900	468	81	1218
Feinberg, Jacob. (See Park, Rufus H., assignor.)						
Felch, Charles E. (See Aird and Felch.)						
Feld, Walther, Hönningen-on-the-Rhine, Germany, assignor to American Sugar Refining Company, New York, N. Y. Extracting sugar	592,517	Oct. 26	3004	.....	81	704
Feld, Walther, Hönningen-on-the-Rhine, Germany, assignor to American Sugar Refining Company, New York, N. Y. Extracting sugar	592,518	Oct. 26	3005	.....	81	704
Fellows, Olin S., Middletown, N. Y. Means for removing superfluous solder from sheet-metal cans	595,704	Dec. 21	1465	352 353	81	1945
Fellows, Olin S., Middletown, N. Y. Means for removing superfluous solder from sheet-metal cans	595,705	Dec. 21	1466	353 354	81	1946
Felsing, Samuel D., and E. G. Gustafson, Maple Bay, Minn. Pneumatic-straw-stacker attachment	593,995	Nov. 23	2260	535	81	1200
Felt, Door E., Chicago, Ill. Duplicate-printing mechanism for adding-machines, type-writers, &c.	590,972	Oct. 5	34	8	81	9
Felton, Frank B. (See Beardsley and Felton.)						
Fenner, Jess B., assignor to J. W. Ruger Manufacturing Company, Buffalo, N. Y. Gas-engine	596,239	Dec. 28	2416	571 572	81	2152
Ferber, Anthony, assignor to S. Shepard & Co., Buffalo, N. Y. Dinner-pail, &c.	594,696	Nov. 30	3498	815	81	1549
Ferguson, Arthur C., Brooklyn, N. Y. Machine for reproducing sound	595,053	Dec. 7	380	93	81	1691
Ferguson Company. (See Ferguson, Thomas S., assignor.) (Reissue.)						
Ferguson, James S. Minneapolis, Minn. Acetylene-gas generator	594,826	Nov. 30	3732	874	81	1600
Ferguson, Robert, *et al.* (See Woods, William H., assignor.)						
Ferguson, Robert G., Lakewood, N. J., assignor of one-half to A. M. Elkus, New York, N. Y. Apparatus for mixing liquids and gases	591,880	Oct. 19	1568	372	81	355
Ferguson, Robert G., Lakewood, N. J., assignor of one-half to A. M. Elkus, New York, N. Y. Apparatus for mixing liquids with gases	591,881	Oct. 19	1569	373	81	355
Ferguson, Silvester E., Eureka Springs, Ark. Rotary engine	592,284	Oct. 26	2356	556 557	81	528
Ferguson, Thomas S., assignor to Ferguson Company, Limited, Omaha, Nebr. Egg-carrier. (Reissue)	11,640	Dec. 7	779	198	81	1765
Ferguson, William. (See Thackeray and Ferguson.)						
Ferguson, William C., and G. P. Glenn, Jacksonville, Fla. Car-fender brake-actuating mechanism	594,940	Dec. 7	160	39	81	1651
Fern, John, and C. Lynch, Scranton, Pa. Belt-stretcher	591,214	Oct. 5	500	119	81	95
Fernandes, Louis J. A., New York, N. Y. Bottle and stopper therefor	591,336	Oct. 5	709	168	81	137
Ferree, George D. (See Mickel and Ferree.)						
Ferris, Benjamin, Deckertown, N. J. Rail-fastener	591,750	Oct. 12	1429	337	81	307
Ferron, Thomas C. (See Matter, Jacob, assignor.)						
Fessenden, William N., Candor, N. Y. Bedstead-fastener	592,699	Oct. 26	3423	715	81	770
Fetters, Charles A., assignor to himself, H. C. Hoefinghoff, and W. O. Wilcox, Cincinnati, Ohio. Periodical-file holder	594,827	Nov. 30	3753	875	81	1601
Fickel, William H. (See Roseberry and Fickel.)						
Field, Edwin S., Springfield, Mass. Projectile	594,199	Nov. 23	2589	611	81	1359
Field, Henry, Jr., Olneyville, R. I. Automatic feeding mechanism for carding-machines.	593,135	Oct. 19	2116	501	81	461
Field, Thomas J. (See Schulte, Joseph, Jr., assignor.)						
Figg, John T., *et al.* (See Jackson, William H., assignor.)						
Files, Jerry B. (See Kirkpatrick and Files.)						
Fill, Ernst, Jr., Philadelphia, Pa. Slab oiler or greaser for confectioners	593,910	Dec. 21	1853	443	81	2022
Fine, Douglas, Siam, Iowa. Spraying-machine	596,061	Dec. 28	2129	504	81	2006
Fingal, Leonard, Chicago, Ill. Molding apparatus	591,463	Oct. 12	945	223	81	213
Fink, Marc. (See Manvers and Fink.)						
Finley, Sam E., Atlanta, Ga. Vehicle-tire	594,498	Nov. 30	3078	722	81	1467
Finn, William A., assignor of one-third to F. H. McCormack, Brooklyn, N. Y. Spool	594,989	Dec. 7	263	63	81	1670
Finnblade, John O., and O. T. Westlin, Brooklyn, N. Y. Piano-technic regulator	591,800	Oct. 12	1507	357	81	323
Finney, James J., assignor to J. H. Chandler, Chicago, Ill. Automatic fluid-pressure brake	595,708	Dec. 21	1469	354	81	1946
Finsel, Andrew, Elizabeth, N. J. Ash-sifter	592,857	Nov. 2	205	48	81	847
Firey, William P., Roanoke, Va. Device for preventing bursting of freezing pipes	596,022	Dec. 28	2128	504	81	2007
Firman, Walter, assignor to J. Cave & Sons, Rushden, England. Last	594,174	Nov. 23	2538	601	81	1344
Firsching, Georg, Vienna, Austria-Hungary, assignor, by mesne assignments, to Duplex Match Company, of New Jersey. Manufacture of matches	594,133	Nov. 23	2476	.....	81	1331
Firth, Joseph K., San Francisco, Cal. Rock-drill	596,149	Dec. 28	2280	540	81	2125
Firth, Thaddeus, Jr., *et al.* (See Ingram, Harry, assignor.)						
Fischer Electric Clock Company. (See Fischer, Sigismund, assignor.)						
Fischer, Ernst. (See Liebhardt and Fischer.)						
Fischer, Ernst O. (See Jenatschke and Fischer.)						
Fischer, Fred F., Chicago, Ill. Fluid-pressure engine	592,108	Oct. 19	2069	489	81	451
Fischer, Fred F., Chicago, Ill. Connecting-rod end for engines	592,109	Oct. 19	2071	490	81	452
Fischer, Sigismund, assignor to Fischer Electric Clock Company, New York, N. Y. Electric clock	595,911	Dec. 21	1854	443 444	81	2022
Fischer, William, Watertown, N. Y. Fire-escape	595,453	Dec. 14	1066	256	81	1845
Fischhaber, Manfred, Philadelphia, Pa. Hair-crimper	592,049	Oct. 19	1956	462	81	451
Fish, Fred A., Kingman, Me. Air-brake	592,996	Nov. 23	2262	535	81	1201
Fish, William R., Brooklyn, N. Y. Transferring designs	592,997	Nov. 23	2264	.....	81	1201
Fisher, Abel, Wellsville, Ohio. Apparatus for pneumatic painting	593,013	Nov. 2	460	110 111	81	897
Fisher, Alfred A. (See Pihl, Carl J., assignor.)						
Fisher, Alvin L., Almena, Kans. Animal-yoke	591,287	Oct. 5	711	168	81	137
Fisher, Bevly A., assignor of one-half to G. D. Shupe, Hamilton, Mont. Rein-guard for neck-yokes	593,437	Nov. 9	1217	294	81	1055
Fisher, Cyrus, Pittsburg, Pa. Insecticide	593,069	Nov. 2	585	.....	81	921
Fisher, David E., Kenton, Ohio. Bridge	591,622	Oct. 19	1570	373	81	355
Fisher, Franklin C., Cascade, Colo. Door-check	591,751	Oct. 12	1431	337	81	307
Fisher, Frederick, Provincetown, Mass. Chandelier attachment	593,771	Nov. 2	29	7	81	813
Fisher, George P., Jr. (See Hellwig, Otto S., assignor.)						
Fisher, Henry J. (See Dickinson and Fisher.)						
Fisher, James, New Orleans, La. Apparatus for feeding bagasse, sawdust, &c., to furnaces	591,752	Oct. 12	1432	338	81	307
Fisher, John F., Atchison, Kans. Ice-vehicle	595,350	Dec. 14	994	226	81	1880

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fisher, John G., Hanover, Mass. Tag	592,126	Oct. 19	2118	501	81	461
Fisher, Joseph A., Christiansburg, Va. Land-roller	594,238	Nov. 23	2641	624	81	1366
Fiske, Bradley A., U. S. Navy, assignor to Western Electric Company, Chicago, Ill. Speed and direction indicator	591,162	Oct. 5	398	98	81	76
Fitch, Mary, Sun Prairie, Wis. Sack-pin	595,150	Dec. 28	2281	541	81	2125
Fitch, William E., Philadelphia, Pa. Portable elevator	593,892	Nov. 9	1161	280	81	1044
Fitts, William B., and P. Reilly, Oakdale, Mass., assignors to Draper Company, Portland, Me., and Hopedale, Mass. Loom	596,444	Dec. 28	2795	660	81	2226
Fitz Gerald, Louie, Hartford, and J. Fay, Yalesville, Conn. Electric alarm device	595,096	Dec. 7	460	110	81	1705
Fitz, Thomas B., Newton, Mass. Merchandise-truck	596,263	Dec. 28	2461	585	81	2160
Fix, John W. (See Poertner and Fix.)						
Flack, David H., *et al.* (See Houghton, John Q. A., assignor.)						
Flad, Edward, St. Louis, Mo. Mechanical agitator for dredges	595,054	Dec. 7	393	93, 94	81	1691
Flagg Manufacturing Company. (See Erickson, Edward, assignor.)						
Flammang, Nicolas, assignor to F. H. Chamberlin, Cleveland, Ohio. Machine for making metal balls	592,065	Oct. 19	2026	479	81	444
Flanders, Herbert, and C. E. Stearns, Manchester, N. H. Match-safe	593,353	Nov. 9	1087	263	81	1032
Flanders, Johnson B. (See Smith, John M., assignor.)						
Flanders, T. B. (See Porter, Horatio A., assignor.)						
Flannery, William C., assignor of two-thirds to D. C. Smith, Washington, D. C., and W. S. Barnett, Cape May, N. J. Recorder for sleeping-cars	596,027	Dec. 21	2063	490 491	81	2065
Flash Light and Cyclometer Company. (See Burleigh, George K., assignor.)						
Flather, Ernest J., Nashua, N. H. Change-gear lathe	595,562	Dec. 14	1236	297 298	81	1879
Flather, Herbert L., Nashua, N. H. Feed mechanism for engine-lathes	592,966	Nov. 2	392	91, 92	81	883
Flather, Mark, Nashua, N. H. Supporting device for shaper or metal-planer tables	591,883	Oct. 19	1579	378	81	356
Flegal, Jacob S., Clearfield, Pa. Tie and rail fastener	594,828	Nov. 30	3754	875	81	1601
Fleming, Peter F., Huntsville, Mo. Latch	591,396	Oct. 12	833	194	81	190
Fleming, Thomas C., Ayr, Nebr. Folding harrow	594,687	Nov. 30	3767	879	81	1603
Fleming, William B., Detroit, Mich. Pouch-pneumatic for pipe-organs	594,891	Nov. 30	3927	900	81	1486
Flentke, Henry W., *et al.* (See Neal, George P., assignor.)						
Fletcher, Evelyn A., Toronto, Canada. Music-block game	595,157	Dec. 7	560	125	81	1734
Fletcher, Joseph G., assignor of one-half to C. E. Willard, Hartford, Conn. Wrench	592,199	Oct. 19	2215	522	81	490
Flickinger, William W., Cochranton, Pa. Drilling-machine	595,850	Dec. 21	1721	413 414	81	1994
Fliedner, Hanna N., Cleveland, Ohio. Device for handling coal	591,596	Oct. 12	1184	279	81	257
Fodor, Moses, Wilkes-Barré, Pa. Safety-catch for elevators	592,772	Nov. 2	30	7	81	812
Foecke, Henry, Crofton, Nebr. Sieve	595,587	Dec. 14	1906	290	81	1874
Fogg, Charles H., Hyde Park, assignor to J. W. Brooks, Petersham, and J. Brooks, Cambridge, Mass., trustees. Starting and stopping mechanism	595,707	Dec. 21	1471	355	81	1947
Fogleson, Schiller. (See Dudley and Fogleson.)						
Foley, Bartholomew J. (See Merrill and Foley.)						
Foley, James S., West Bromwich, England. Bicycle-brake	592,745	Oct. 26	3508	736	81	784
Foley, William C. (See Hull, Nicholas A., assignor.)						
Foltz, Jacob L. (See Mohler and Foltz.)						
Fontan, Bernardo and C., Buenos Ayres, Argentina. Bottle-cap	592,700	Oct. 26	3424	716	81	770
Fontan, Cárlos. (See Fontan, Bernardo and C.)						
Foord, William F., assignor of one-half to W. Gowan, London, England. Collapsible life-boat	594,299	Nov. 23	2642	625	81	1363
Footte, Edward H., Somerville, Mass. Show stand or holder	594,300	Nov. 23	2588	611	81	1359
Forbes, George M. (See Brandy, James, assignor.)						
Forbes, Pomeroy H., C. C. French, and A. Lee, Topeka, Kans. Mechanism for making, breaking, and switching electric circuits for railway-signals	594,614	Nov. 30	3852	786	81	1519
Forbes, William H. (See Clark, Dwight S., assignor.)						
Forbes, William R., Pittsburg, Pa. Car-fender	593,014	Nov. 2	468	111	81	807
Forbes, Solomon R., Randolph, Tenn. Belt-tightener	593,090	Nov. 2	586	141	81	921
Force, William H., and M. O. Parenteau, assignors of one-third to A. D. Cutler, Springfield, Mass. Method of and mechanism for covering heads of eyelets	596,264	Dec. 28	2462	585 586	81	2160
Ford, Jerome B., Bristol, Conn. Wrench	591,598	Oct. 12	1070	252	81	233
Forde, Thomas J., Geneva, Ohio. Grape or flower clipper or shears	594,072	Nov. 23	2269	566	81	1315
Fordyce, Alexander R. (See Duncan and Fordyce.)						
Foreman, Harry H., assignor of one-half to W. Foreman, Maseppa, Minn. Kettle-cover	595,454	Dec. 14	1067	256	81	1645
Foreman, John H., St. Lucas, Iowa. Fence-making machine	595,158	Dec. 7	561	135 136	81	1725
Foreman, William. (See Foreman, Harry H., assignor.)						
Forsberg, John P., Thief River Falls, Minn. Wrench	593,285	Oct. 26	2358	537	81	529
Forsyth, George H., Chicago, Ill. Sash-fastener	593,768	Nov. 16	1852	444 445	81	1191
Forsyth, Henry H., Chicago, Ill. Shade or curtain fixture	595,563	Dec. 14	1238	298 299	81	1880
Forsyth Manufacturing Company. (See Rose, Herbert B., assignor.)						
Forsyth, Robert, Chicago, Ill. Locomotive smoke-stack	593,572	Nov. 16	1505	365	81	1126
Forsyth, Wilber D., Pittsburg, Pa. Coal-mining machine	594,240	Nov. 23	2643	625	81	1363
Forsyth, Wilber D., Pittsburg, Pa. Means for burnishing or polishing interiors of pipes or tubes, &c	595,159	Dec. 7	562	136	81	1725
Forsyth, Wilber D., Pittsburg, Pa. Core for flexible shafting	595,708	Dec. 21	1474	355	81	1947
Fortier, Charles L., Milwaukee, Wis., assignor to Johnson Electric Service Company, of Wisconsin. Heat-regulating apparatus	594,346	Nov. 23	2641	672	81	1402
Fortner, George W., assignor to R. E. Wetzel, Mowesqua, Ill. Valve	592,966	Nov. 2	421	99	81	889
Fortney, David, Otho, Iowa. Fracture apparatus	594,665	Dec. 7	40	10	81	1699
Fortney, Frank F., and T. H. Stevens, Ravenna, Ohio; said Fortney assignor to said Stevens. Dental chin rest	591,386	Oct. 5	712	168	81	187
Foss, John J., Cleveland, Ohio. Device for laying out regular polygons	595,055	Dec. 7	395	94	81	1692
Fossel, Joseph, Boston, Mass. Spinning-machine	596,106	Dec. 28	2906	683	81	2111
Foster, Charles E. (See Corbin and Foster.)						
Foster & Co., John. (See Hall, William D., assignor.)						
Foster Engineering Company. (See Cash, Arthur W., assignor.)						
Foster, Ephriam A., Port Clinton, Ohio. Non-refillable bottle	594,073	Nov. 23	2269	567	81	1315
Foster, Harlow R., Ashby, Mass. Incubator	595,351	Dec. 14	935	226	81	1690
Foster, Harry, and A. Beresford; said Beresford assignor to F. Hardwick, Eckington, England. Ventilating, exhausting, or blowing fan	596,107	Dec. 28	2209	523 524	81	2112
Foster, James, Glasgow, Scotland. Vacuum-pan	594,788	Nov. 30	3668	854	81	1584
Foster, John H., Brooklyn, N. Y. Hydrocarbon-furnace	594,941	Dec. 7	168	40	81	1652
Foster, John M., Elizabeth, N. J. Fluid-pressure regulator	593,091	Nov. 2	587	142	81	922
Foster, John W., Westfield, Mass. Machine for winding bobbins	592,778	Nov. 2	29	7, 8	81	813
Foster, John W., Westfield, assignor of one-half to M. M. Dunn, Boston, Mass. Ring spinning and twisting frame	594,847	Nov. 23	2643	672	81	1402

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Foster, Thomas J., Chicago, Ill. Fireproof flooring	595,789	Dec. 21	1582	382	81	1966
Foster, William J., Schenectady, N. Y., assignor to General Electric Company, of New York. Starting device for alternating-current motors	594,150	Nov. 23	2502	598	81	1337
Fourtner, Henry J., Hazelton, Iowa. Band-cutter and self-feeder	594,784	Nov. 30	3670	855	81	1584
Fouts, Lambert F. (See Bailey, Israel S., assignor.)						
Fouzer, Robert B., Butler, Pa. Stock-feeding box	594,785	Nov. 30	3672	855	81	1584
Fowle, Bernard H., Spokane, Wash. Expansive bit	594,615	Nov. 30	3354	786	81	1519
Fowler, Charles M., *et al.* (See Frost, Frederick E., assignor.)						
Fowler, Charles M., Worcester, Mass. Griddle-cake or food turner	593,681	Nov. 16	2067	488	81	1234
Fowler, Edwin, Kansas City, Kans. File-case	594,990	Dec. 7	264	63	81	1670
Fowler, Eugene, Wadsworth, Nev. Bicycle-stand	593,521	Nov. 9	1390	335	81	1066
Fowler, William M., Stamford, Conn. Bottle-filling machine	594,392	Nov. 30	2968	690	81	1437
Fowzer, Robert B., Butler, Pa. Rein-holder	591,884	Oct. 19	1573	374	81	356
Fox, Arthur W. (See Baker and Fox.)						
Fox, Clifford S. (See Kerr, Harry H., assignor.)						
Fox, Clifford S. (See Stackhouse, Thomas H., assignor.)						
Fox, Ella L. (See Loughin and Fox.)						
Fox, George R., Plaquemine, La. Speculum	596,899	Dec. 28	2721	644	81	2212
Fox, John N., *et al.* (See Auble, James H., assignor.)						
Fox, Moses, and N. Snyder, East Bangor, Pa. Snow-guard	595,295	Dec. 14	802	198	81	1795
Fox, William T., Rochester, N. Y. Water-closet	591,897	Oct. 12	834	194	81	190
Frake, James. (See Walker and Minnemeyer, assignors.)						
Frambes, Henry S., East Saginaw, Mich. Bicycle support or rack	592,066	Oct. 19	2029	480	81	444
France, Adam W., assignor of one-half to A. H. Jones, Philadelphia, Pa. Fuse-box	591,917	Oct. 19	1723	412	81	387
Francis, Charles, Jr., *et al.* (See Nininger, Thomas E., assignor.)						
Francis, George F., *et al.* (See Nininger, Thomas E., assignor.)						
Francis, William H., assignor of one-third to R. P. Thompson, Gallipolis, Ohio. Stove-top	595,997	Dec. 21	1999	477	81	2052
Franke, Charles F. H., and F. Buchhorn, Chicago, Ill. Self-cleaning filter	593,573	Nov. 16	1507	366	81	1126
Frankenstein, Louis, New York, N. Y. Collar and cravat	593,998	Nov. 23	2265	536	81	1291
Franklin, Albert B. (See Gay, George E., assignor.)						
Frantz, Marshall P., Salem, Va. Sliding gate and latch	592,698	Oct. 26	3383	692	81	742
Frantz, Peter, assignor to Chain Stay Fence Company, Mount Morris, Ill. Wire-fence-stay machine	592,727	Oct. 26	3466	726 727 728	81	777
Fraser & Chalmers. (See Barrow, Thomas, assignor.)						
Fraser & Chalmers. (See Dyblie, Julius A., assignor.)						
Fraser & Chalmers. (See Easton, William B., assignor.)						
Fraser, Edwin J., San Francisco, Cal. Obtaining precious metals by solution	591,753	Oct. 12	1485	.....	81	308
Fraser, George C. and N. P., Carsonville, Mich. Damper	593,980	Nov. 16	2150	510	81	1250
Fraser, George H. (See McElroy, William, assignor.)						
Fraser, Norman P. (See Fraser, George C. and N. P.)						
Fraser, Simon F., West Albany, N. Y. Bottle	593,999	Nov. 23	2265	536	81	1291
Frazier, James, Hamilton, Ohio. Feeder and mixer	592,774	Nov. 2	38	8	81	814
Freas, Samuel T., assignor to American Saw Company, Trenton, N. J. Wrench	593,682	Nov. 16	2067	488	81	1234
Fréchette, Isaïe, Montreal, Canada. Hand lasting-tool	594,241	Nov. 23	2645	626 627	81	1364
Frederickson, Jorgen, and F. Jorgenson, Gaylord, Mich. Device for setting, gaging, and jointing saw-teeth	594,000	Nov. 23	2266	536	81	1292
Freeborn, Millard F. (See Macy, Wendell, assignor.)						
Freeland, Henry M., Rutherford, N. J. Umbrella-supporter	592,050	Oct. 19	1956	462 463	81	431
Freeman, Albert A., assignor to J. H. Scott, Philadelphia, Pa. Bottle	594,242	Nov. 23	2648	627	81	1365
Freeman, Charles A., Austin, Ill. Water-closet	595,892	Dec. 14	937	226	81	1821
Freeman, Frank T. (See Wharton and Freeman.)						
Freeman, Rufus A., St. Louis, Mo. Drier for printed sheets of paper	592,967	Nov. 2	394	92	81	883
Freeman, William. (See Richey, Charles, assignor.)						
Freese, Heinrich, Berlin, Germany. Wood pavement	595,616	Dec. 14	1322	319	81	1690
French, Carpus, Oshawa, Canada. Saw-set	593,574	Nov. 16	1509	366	81	1127
French, Charles A., Boston, Mass. Game apparatus	592,087	Oct. 19	2031	480	81	445
French, Charles C. (See Forbes, French, and Lee.)						
French, David W., Hoboken, N. J. Machine for removing packing from joints	596,995	Dec. 28	2509	596 597	81	2168
French, Joel E., Pluto, Miss. Vehicle-body	594,942	Dec. 7	166	40	81	1652
Frenzel, John A., Wausau, Wis. Straw-cutter	594,074	Nov. 23	2300	567	81	1315
French, Lewis H. (See Quinn, William, assignor.)						
French, Walter L., Brockton, Mass. Dumping-wagon	595,056	Dec. 7	396	95	81	1692
Freschl, Alfred, Milwaukee, Wis. Upholstering apparatus	592,506	Oct. 26	3076	626 627	81	701
Fretwell, Orson P., Cedar City, Utah. Animal-cleaning device	594,732	Nov. 30	3584	833	81	1567
Fretwell, William A., Reidsville, N. C. Clover-plow planter	593,008	Nov. 2	390	142	81	922
Fridstrom, Axel, *et al.* (See Branzell, Charley, assignor.)						
Fried. Krupp Grusonwerk. (See Ebbs, Hermann, assignor.)						
Friedman, Isaac, Chicago, Ill. Corset and abdominal supporter	591,686	Oct. 12	1239	289	81	265
Friedrich, Carl R., Werdau, Germany. Slat blind	591,918	Oct. 19	1724	413	81	387
Friedrich, Frank J. (See Haag and Friedrich.)						
Friedrichs, Franz, and A. Brede, Cologne, Germany. Case or holder for manuscripts	594,308	Nov. 30	2989	691	81	1437
Fries, William A., Brooklyn, N. Y. Wheel-tire	593,981	Nov. 16	2151	510	81	1251
Frieseke, Albert C., Floral Bluff, Fla. Railway-telegraph	591,339	Oct. 5	714	168 169	81	187
Frink, George E., assignor to E. Jenckes Manufacturing Company, Pawtucket, R. I. Knitting-machine	595,770	Dec. 21	1584	382 383	81	1967
Frisbee, Daniel D., Detroit, Mich. Fence	591,627	Oct. 12	1234	289 290	81	266
Fritz, Julia, Concord, Mich. Screen-door	591,550	Oct. 12	1109	261	81	242
Fritz, Louis. (See Bechtel and Fritz.)						
Fromm, Ludwig, and R. Schmidt, Dresden, Germany. Making extracts	595,996	Dec. 14	808	.....	81	1795
Frommann, Albert, and P. Enck, Chicago, Ill. Car-coupling	591,919	Oct. 19	1726	413	81	387
Frost, Frederick E., assignor to C. W. Fowler, Worcester, Mass., and F. D. Griswold, Keene, N. H. Marking-ink fountain	591,849	Oct. 5	734	172	81	141
Frothingham, Arthur G., Salem, Mass. Belt	594,301	Nov. 23	2264	611	81	1352
Fryar, Thomas J., *et al.* (See Anderson, Henry C., assignor.)						
Frye, William S., *et al.* (See Comley, Joseph W., assignor.)						
Fuchs, Ernesto. (See Fuchs, Georg L., assignor.)						
Fuchs, Georg L., assignor of one-half to E. Fuchs, Meiningen, Germany. Automatic weir	594,788	Nov. 30	3585	833	81	1567

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fuchs, John H., Elliott, Pa. Dishing-machine	593,462	Nov. 9	1278	307, 308	81	1068
Fuchs, Victor H. (See Müller, Oberländer, Fuchs, and Gomperz.)						
Fugh, George H. (See Orr and Galvin, assignors.)						
Fuller, Fred B., Gouverneur, N. Y. Curd-cutter	596,400	Dec. 28	2722	645	81	2212
Fuller, James M., Sioux Falls, S. D. Tender for traction-engines	594,866	Dec. 7	41	11	81	1629
Fuller, John E., Brooklyn, assignor to C. C. Dusenbury, Lake Mahopac, N. Y. Bracket for fan-motors	593,719	Nov. 16	1768	424	81	1174
Fuller, Samuel S., *et al.* (See Gowans, James A., assignor.)						
Fuller, Solomon, Danvers, Mass. Weed-cutter	595,709	Dec. 21	1475	355	81	1947
Fuller, William E., New Haven, Conn. Automatic rotating book-rest	594,151	Nov. 23	2508	598	81	1337
Fulton, H. H. (See Abernethy, Harry M., assignor.)						
Funcke, Julius, Charlottenburg, Germany. Ladder-scaffold	596,151	Dec. 28	2282	541	81	2125
Funk, Frank F., Kinross, Iowa. Fruit-gatherer	595,160	Dec. 7	564	136	81	1725
Funk, Mark M., assignor to J. W. Carson, Mercersburg, Pa. Adjustable wrench	593,354	Nov. 9	1069	263	81	1063
Furbish, Zachry T., assignor to North Brothers Manufacturing Company, Philadelphia, Pa. Ratchet mechanism	593,157	Nov. 2	720	172, 173	81	949
Furbush, Frank L., Graniteville, Mass. Bagging-machine	594,134	Nov. 23	2477	586	81	1333
Furrer, Joseph, East Toledo, Ohio. Artificial leg	592,542	Oct. 26	3140	645	81	714
Fürst, Alfred A., London, England. Wheel-tire	593,463	Nov. 9	1279	308	81	1068
Füttterer, Heinrich, Dusseldorf, Germany. Electric hair-drier	592,245	Oct. 26	2299	542	81	517
G. F. Brunt Porcelain Works. (See Chute, Clarence A., assignor.)						
Gabos, Julius, Allegheny, Pa., assignor to W. Cameron. Mast or hanger for street-lamps	594,075	Nov. 23	2391	567	81	1315
Gackeler, John A., Grand Rapids, Mich., assignor, by mesne assignments, of one-half to F. Karr, Chicago, Ill. Spring-bed	591,464	Oct. 12	947	223	81	213
Gage, George A., Chicago, Ill. Veneer-coiling machine	592,110	Oct. 19	2072	490	81	452
Gaines, Ambrose P., South Pittsburg, Tenn. Furnace-twyer	594,786	Nov. 30	3673	855, 856	81	1584
Gaines, Henry P. (See White, Cramer, and Gaines.)						
Galbraith, Arthur, Everton, Mo. Holder for matches, toothpicks, &c	591,963	Oct. 19	1798	429	81	402
Galbraith, John W. (See Ensworth, William J., assignor.)						
Galbraith, Robert M., Pine Bluff, Ark. Pilot-coupling	595,363	Dec. 14	988	227	81	1821
Galbreath, Thomas M., Memphis, Tenn. Railway	591,597	Oct. 12	1186	280	81	257
Gale, Horace B., San Francisco, Cal. Duplex engine	591,529	Oct. 12	1071	252	81	234
Gallager, Henry, assignor of three-fourths to J. J. McDonough and M. A. O'Byrne, Savannah, Ga. Car-coupling	593,464	Nov. 9	1280	308	81	1068
Gallagher, Edward J., Lafayette, Ind. Cushion for water-pipes	594,787	Nov. 30	3674	856	81	1585
Gallagher, Thomas M., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Car-truck	595,617	Dec. 14	1323	319	81	1809
Galland, Annie M., New York, N. Y. Packing device for measurable dry goods, &c	595,807	Dec. 21	1649	397	81	1980
Gallaway, Edgar, Marietta, assignor of one-half to J. C. Martin, Naples, Tex. Support for carriage-tops	594,943	Dec. 7	166	40	81	1652
Gallegos, José, Antigua, Guatemala. Distilling apparatus	591,340	Oct. 5	715	169	81	138
Gallois, Moritz von. (See Seyberth and Gallois.)						
Galt, Thomas A., Sterling, Ill. Potato-planter	592,607	Oct. 26	3247	673	81	734
Galvin, Theodore F. (See Orr and Galvin.)						
Gamble, James, *et al.* (See Barnes, Amos, assignor.)						
Gambs, Paul, Burkhart, Ohio. Slate roofing	595,618	Dec. 14	1324	319	81	1809
Gamewell Fire-Alarm Telegraph Company. (See Skelton, Francis A., assignor.)						
Gammons, Welcome P., Jr., New York, N. Y., and G. S. Bracher, Rahway, N. J. Machine for attaching bindings to curled or rolled brims of hats	591,754	Oct. 12	1437	338, 339	81	309
Gammons, Welcome P., Jr., and G. S. Bracher, New York, N. Y. Hat	591,755	Oct. 12	1439	339	81	309
Ganelin, Solomon, Philadelphia, Pa. Treating sulfid ores as lead-zinc ores	593,415	Nov. 9	1199	------	81	1052
Ganelin, Solomon, Philadelphia, Pa. Treating sulfid ores	593,416	Nov. 9	1201	------	81	1052
Gano, William, and J. S. Stimmel, Springfield, Ohio. Checkrein-holder	593,048	Nov. 2	517	124	81	908
Ganon, Henry F., Indianapolis, Ind. Match-cabinet	591,215	Oct. 5	501	119	81	95
Ganter, Max, Buffalo, assignor to E. De Kleist, North Tonawanda, N. Y. Swing	596,108	Dec. 28	2210	524	81	2112
Gardam, Joseph, *et al.* (See Mather, Henry W., assignor.)						
Gardam, William, *et al.* (See Mather, Henry W., assignor.)						
Gardiner, Sidney H., Brooklyn, N. Y. Surgical splint	594,076	Nov. 23	2398	568	81	1316
Gardner, Jefferson M., New London, Conn. Gin-saw	592,187	Oct. 19	2119	501, 502	81	461
Gardner, Levi S., assignor to Gardner Motor Company, Limited, New Orleans, La. Universal joint	595,538	Dec. 14	1207	290	81	1874
Gardner Motor Company. (See Gardner, Levi S., assignor.)						
Gardner, Robert J., Nacogdoches, Tex. Wire-stretcher	591,115	Oct. 5	310	76	81	60
Garey, Charles W., Berlin, Pa. Can-opener	594,469	Nov. 30	3080	722	81	1467
Garis, Cornelius W., Easton, Pa. Non-refillable bottle	596,205	Dec. 28	2367	561	81	2143
Garland, Horatio H., Brooklyn, N. Y. Fish-hook holder	595,998	Dec. 21	2000	478	81	2052
Garneau, Joseph A., Quebec, Canada. Horseshoe	594,616	Nov. 30	3355	786	81	1519
Garner, William R., Galveston, Tex., assignor to L. J. Hunter, Covington, Ky. Station-indicator	593,976	Nov. 16	2225	528	81	1266
Garrett, John R., Emison, Ind. Cradle	591,465	Oct. 12	947	224	81	213
Garrigus, Charles H., assignor of one-half to M. C. Garrigus, Bloomington, Ill. Garment-hanger	595,564	Dec. 14	1239	299	81	1880
Garrigus, Matilda C. (See Garrigus, Charles H., assignor.)						
Gas-Motoren-Fabrik-Deutz. (See Kramer, Ferdinand, assignor.)						
Gaskill, Lacy T., Liverpool, England. Holding and disengaging gear for ships' boats	595,912	Dec. 21	1960	444, 445	81	2023
Gass, William G., and J. Tonge, Bolton, England. Hydraulic apparatus for mining purposes	590,973	Oct. 5	26	8	81	9
Gates, George B., assignor to Tripp Giant Leveller Company, Lynn, Mass. Beating-out machine	591,075	Oct. 5	295	55	81	47
Gates, Jacob F., Pittsburg, Pa. Combination attachment-plug	595,619	Dec. 14	1326	320	81	1809
Gates, Philetus W., Chicago, Ill. Traction-engine	596,033	Dec. 28	2128	505	81	2097
Gates, William, Mulberry, Mo. Grain adjuster or butter for binders	593,575	Nov. 16	1510	366	81	1127
Gathmann, Louis, Chicago, Ill. Lens	591,466	Oct. 12	948	224	81	213
Gauthier, Ernest V., Westborough, Mass. Sprocket-wheel	591,270	Oct. 5	604	141	81	114
Gaul, David, Los Angeles, Cal. Overhead switch	596,401	Dec. 28	2794	645	81	2212
Gauntt, Forest G., Fort Wayne, Ind. Means for keeping meshes of bolting-cloth clean	594,001	Nov. 23	2367	536, 537	81	1293
Gauthier, Ernest V., Westborough, Mass. Screw-machine chuck	594,077	Nov. 23	2394	568	81	1316
Gautier, Paul, Paris, France. Kinetographic camera	595,690	Dec. 14	1827	390	81	1899
Gay, George E., Malden, assignor of one-half to A. B. Franklin, Melrose, Mass. Self-indicating register	595,876	Dec. 21	1790	430	81	2009

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gay, William. (See Glydon and Gay.)						
Gayley, James, Pittsburg, Pa. Apparatus for supplying air to blast-furnaces and converters	594,243	Nov. 23	2649	627	81	1365
Gaylord, Jared E., *et al.* (See Roberts, William E., assignor.)						
Gedney, Meave T., New York, N. Y. Toy	596,109	Dec. 28	2212	524	81	2112
Geer, George, assignor of one-half to C. E. Buck, Richmond, Va. Cigarette-machine	593,158	Nov. 2	725	173, 174, 175, 176, 177	81	950
Gegauf, Friedrich and J. G., Steckborn, Switzerland. Hemstitch sewing-machine	592,088	Oct. 19	2084	480, 481	81	445
Gegauf, Johan G. (See Gegauf, Friedrich and J. G.)						
Geier, Philip A., Cleveland, Ohio. Handle-bar for bicycles	595,944	Dec. 21	1911	457	81	2033
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Detachable laminated pole-piece for dynamo-electric machines	596,152	Dec. 28	2284	541	81	2125
Geiser, Daniel S., Waynesborough, Pa. Deflector mechanism for threshing-cylinders	592,868	Nov. 2	207	48	81	848
Geisler, William L. (See Spoerl and Geisler.)						
Gelinas, Richard M., assignor of one-half to T. F. Colbert, Seattle, Wash. Lubricator	590,974	Oct. 5	38	9	81	9
Geltz, Albert H., Alliance, Ohio. Car-fender	590,975	Oct. 5	40	9	81	10
General American Reduction Company. (See Rissmuller, Ludwig, assignor.)						
General Electric Company. (See Bassett, Norman C., assignor.)						
General Electric Company. (See Batchelder, Asa F., assignor.)						
General Electric Company. (See Bradley, Charles S., assignor.)						
General Electric Company. (See Foster, William J., assignor.)						
General Electric Company. (See Geisenhöner, Henry, assignor.)						
General Electric Company. (See Hoffman, Joseph, assignor.)						
General Electric Company. (See Howell, Irwin W., assignor.)						
General Electric Company. (See Hunter, Rudolph M., assignor.)						
General Electric Company. (See Moody, Walter S., assignor.)						
General Electric Company. (See Potter, William B., assignor.)						
General Electric Company. (See Priest, Edward D., assignor.)						
General Electric Company. (See Reist, Henry G., assignor.)						
General Electric Company. (See Rice, Edwin W., Jr., assignor.)						
General Electric Company. (See Rice, Martin P., assignor.)						
General Electric Company. (See Steinmetz, Charles P., assignor.)						
General Electric Company. (See Steinmetz and Rice, assignors.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Thomson and Harthan, assignors.)						
General Electric Company. (See Thomson and Pratt, assignors.)						
Genaitz, Robert. (See Germer, William, assignor.)						
Geo. F. Blake Manufacturing Company. (See Aborn, George P., assignor.)						
George L. Squier Manufacturing Company. (See Calvert, Charles A., assignor.)						
George T. Smith Mill Building Company. (See Smith, George T., assignor.)						
George Washington Lighting Company. (See Washington, George, assignor.)						
George Ziegler Company. (See Lucas, Henry, assignor.)						
Georgii, Emil, Stuttgart, Germany. Machine for pressing and cutting cigarettes	591,250	Oct. 5	564	133	81	107
Gerbereux, Denis F., New York, N. Y. Chocolate-dipping tray	596,153	Dec. 28	2285	541	81	2126
Gerdau, Berthold, Dusseldorf, Germany. Apparatus for supporting loads	591,076	Oct. 5	237	56	81	47
Gere, Asa O., assignor of one-half to O. H. Baugh, Stafford, Kans. Cane or corn heading machine	594,788	Nov. 30	3676	856	81	1585
Gere, William B., assignor to Merrell-Soule Company, Syracuse, N. Y. Pumpkin-powder	592,906	Nov. 2	267	61	81	859
Germer, William, assignor of one-half to R. Genaitz, Hoboken, N. J. Damper mechanism for musical instruments	593,204	Nov. 9	823	196	81	983
Gerold, Hugo, Halle, assignor to H. O. Wendt, Bremen, Germany. Treating tobacco and tobacco products, &c	591,129	Oct. 5	335	------	81	66
Gerstendöfer, Albert, *et al.* (See Oberhammer, Peter, assignor.)						
Getchell, A. W., *et al.* (See Young and Lewis, assignors.)						
Geurink, Bernard A. (See Schneider, Trenkamp, and Geurink.)						
Gibb, James W., Chicago, Ill. Centerboard for boats, &c	595,161	Dec. 7	567	137	81	1736
Gibbons, James, Jr., Jersey City, N. J. Gas-broiler	594,304	Nov. 30	2980	691	81	1437
Gibbs, James D., Atlanta, Ga. Cash-check	594,344	Nov. 23	2650	626	81	1365
Gibbs, Lucius T., New York, N. Y. Compressed-air engine	592,246	Oct. 26	2299	542	81	517
Gibson, Gerolt, St. Louis, Mo. Sash-fastener	596,445	Dec. 28	2796	660	81	2226
Gibson, James, Kansas City, Mo. Eye-shade	593,374	Nov. 9	1116	270	81	1037
Gibson, John F. (See Bigelow, Levi H., assignor.)						
Gibson, Levi A., Thornton, Tex. Revolving fan	595,297	Dec. 14	804	198	81	1795
Gibson, Walter L., Woodley, assignor of one-half to F. W. White, Roseland, Fla. Self-cleaning comb	594,002	Nov. 23	2270	537	81	1292
Giddings, John A., Grand Rapids, Mich. Iron-shaper	593,522	Nov. 9	1391	336	81	1066
Gies, Hermann J., Peterborough, N. H. Combined folding bath and wash-tub	592,701	Oct. 26	3496	716	81	770
Giesicke, Robert C. (See Quinn and Giesicke.)						
Giesler, Franklin B., Milwaukee, Wis. Fluid-pressure cut-off	596,433	Dec. 28	2776	657	81	2222
Giesler, Henry, Moisheim, Germany. Manufacture of mixed or party-colored fabrics	593,883	Nov. 16	2008	------	81	1234
Gifford, Samuel N., assignor of one-third to F. A. Millett, Livermore Falls, Me. Vote-registering machine	593,323	Nov. 9	1043	252, 253	81	1034
Giguere, Thomas, Attleborough, assignor of one-half to F. Dyon, North Attleborough, Mass. Adding-machine	594,734	Nov. 30	3587	834	81	1568
Gilbert, Carleton. (See Hamilton, William G., assignor.)						
Gilbert, Frank H., Ridgefield, Wash. Sack-holder	595,884	Dec. 14	940	227	81	1821
Gilbert, Frederick A., Brookline, Mass. Electric switch	594,944	Dec. 7	167	40, 41	81	1653
Gilbert, Joel M., Clinton, Conn. Bicycle	594,991	Dec. 7	266	64	81	1670
Gilbert, Thomas W., Boston, Mass. Adjusting device for stools	593,455	Nov. 9	1281	309	81	1069
Gilcrest, Thomas F., Oskaloosa, Iowa. Bevel-square and protractor	591,964	Oct. 19	1799	429	81	403
Giles, Joseph S., assignor to M. J. Whittall, Worcester, Mass. Oiling device for pile-wires of looms	595,539	Dec. 14	1208	290	81	1874
Gilfillan, Essington N., assignor to H. A. Wheeler, Chicago, Ill. Car-seat	592,247	Oct. 26	2302	542	81	517
Gilfillan, Essington N., assignor to Gilfillan Scale and Hardware Company, Chicago, Ill. Nail-puller	594,302	Nov. 23	2585	612	81	1852
Gilfillan, Essington N., assignor to Gilfillan Scale and Hardware Company, Chicago, Ill. Weighing-scale	596,154	Dec. 28	2286	542	81	2126
Gilfillan Scale and Hardware Company. (See Gilfillan, Essington N., assignor.)						
Gill, James, assignor to Chambers Brothers Company, Philadelphia, Pa. Paper-folding machine	594,345	Nov. 23	2652	626	81	1366
Gill, R. M. (See Brewster, James F., assignor.)						
Gill, William T., Lincoln, Mo. Device for putting up stovepipes	591,163	Oct. 5	402	93	81	77

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gillegan, William J., Sailor's Snug Harbor, N. Y. Puzzle	592,089	Oct. 19	2086	481	81	446
Gillespie, Charles W., San Angelo, Tex., assignor to Huntington Automatic Railway Car Coupler Company, of Texas. Car-coupling	593,840	Nov. 16	1991	468 469	81	1218
Gillette, King C., Newton, Mass. Machine for feeding crown bottle-stoppers	592,584	Oct. 26	3206	663 664	81	727
Gillin, Samuel W., Paulton, Pa. Ingot-tongs	594,867	Dec. 7	43	11	81	1630
Gilman, John H., assignor to King & Hamilton Company, Ottawa, Ill. Corn-sheller cob-stacker	592,111	Oct. 19	2074	490	81	452
Gilman, John H., assignor to King & Hamilton Company, Ottawa, Ill. Corn-sheller attachment	592,543 592,907	Oct. 26 Nov. 2	3141 268	646 61	81 81	714 859
Gilpin, Elijah B., Davis, W. Va. Railway-tie						
Gilson, Franklin H., Wellesley, assignor to F. H. Gilson Company, Boston, Mass. Separable book	594,208 594,735	Nov. 23 Nov. 30	2596 3566	612 834	81 81	1352 1568
Giorgi, Carlo T., New York, N. Y. Flute	592,968	Nov. 2	398	93	81	894
Gipe, Emanuel C., Freeport, Ill. Paper-weight	596,422	Dec. 28	2760	652	81	2219
Girardeau, St. Julien, and R. J. Murray, Galveston, Tex. Railway-switch						
Girtanner, Alice. (See Girtanner, Frederick and A.)						
Girtanner, Frederick and A., Kansas City, Mo., assignors to Smokeless Fuel-Saving Stove Company, of New York. Stove	596,028	Dec. 21	2066	491	81	2066
Gist, Lane, Lake City, Iowa, assignor of one-half to G. L. Brower, Chicago, Ill. Automatic check-row corn-planter	593,647	Nov. 16	1644	398	81	1152
Glascock, Charles O., *et al.* (See Babcock, Arthur M., assignor.)						
Glascock, John W., *et al.* (See Babcock, Arthur M., assignor.)						
Glass, George, Port Huron, Mich. Slab indicator or gage for sawmill-carriages	594,003	Nov. 23	2271	537	81	1292
Glass, George, Port Huron, Mich. Slab gage or indicator for sawmill-carriages	594,004	Nov. 23	2272	538	81	1292
Glass, George, Port Huron, Mich. Slab gage or indicator for sawmill-carriages	592,775	Nov. 2	59	8	81	814
Glassbrenner, Peter F., Franklin, Ind., assignor to W. R. White, Bloomington, Ill. Gate	595,877	Dec. 21	1791	430	81	2009
Glauber, Joseph H., Cleveland, Ohio. Valve for faucets, &c	594,526	Nov. 30	3188	747	81	1487
Glauber, Max, New York, N. Y. Pipe coupling or connection	593,015	Nov. 2	464	111	81	897
Glazier, Frank P., Chelsea, Mich. Vapor-burner						
Glenn, George P. (See Ferguson and Glenn.)						
Glenn, William. (See Carson and Glenn.)						
Glidden, Minnie M., Brooklyn, N. Y. Educational appliance	595,455	Dec. 14	1068	256 257	81	1845
Glines, Frederick A., Cambridge, Mass. Bicycle-bell	595,057	Dec. 7	387	95	81	1692
Globe Company. (See Vilas, Royal L., assignor.)						
Globe Ventilator Company. (See May, Edwin A., assignor.)						
Gloor, Solomon, assignor to C. F. Ebner, Burlington, Iowa. Gun-cleaner	593,648	Nov. 16	1646	398	81	1152
Glover, Byron F., Chicago, Ill. Snow-locomotive	593,466	Nov. 9	1283	309 310	81	1069
Glover, George T., Chicago, Ill. Logging-machine	592,728	Oct. 26	3470	728 729	81	778
Glover, John T., High Point, N. C. Grate	591,467	Oct. 12	950	294	81	214
Gluck, William. (See Keyes and Gluck.)						
Glutz, Leo, *et al.* (See Stauffer and Tolson, assignors.)						
Glydon, George, and W. Gay, Birmingham, England. Means for controlling supply of steam to injectors, ejectors, or other appliances	596,110 595,621	Dec. 28 Dec. 14	2214 1327	525 321	81 81	2112 1900
Gobron, Andre, Paris, France. Acetylene-gas-generating lamp	595,622	Dec. 14	1329	321	81	1900
Gobron, Andre, Paris, France. Safety-bolt for cycles						
Goddard, Frederick H. (See Henkle and Goddard.)	596,296	Dec. 28	2513	597	81	2169
Goddard, George O., assignor to H. F. Crawford, Brockton, Mass. Sole-rounding machine	591,598	Oct. 12	1187	280	81	257
Godding, Milon O., Monrovia, Cal. Igniter for gas or gasolene engines						
Goddu, George. (See Goddu, Napoleon and G.)						
Goddu, George, Winchester, Mass., assignor to Goddu Sons Metal Fastening Company, Portland, Me. Nail-making machine	592,729	Oct. 26	3473	729 730	81	778
Goddu, Napoleon and G., Winchester, Mass. Sewing-machine for lasting boots or shoes.	592,702	Oct. 26	3427	716 717	81	770
Goddu Sons Metal Fastening Company. (See Goddu, George, assignor.)						
Goddu, William, Winchester, Mass. Nailing-machine	595,878	Dec. 21	1793	430	81	2009
Goding, Edwin L., Portland, Me. Heeling-last	596,054	Dec. 28	2130	505	81	2097
Goeddel, Louis C. W., Pittsburg, Pa. Shoe-lace holder	595,109	Dec. 7	388	137	81	1736
Goehde, Richard. (See Oppermann and Goehde.)						
Goerk, Gustav. (See Ochse and Goerk.)						
Goff, D. L. (See Ames and Rearson, assignors.)						
Goff, Joseph M., assignor of one-half to J. M. Smith, Ruston, La. Oil-bath for wheel-rims	595,808	Dec. 21	1650	397 398	81	1980
Golar, George A., Milton, Mass. Device for removing spokes from wheels	591,164	Oct. 5	403	94	81	77
Gold and Silver Extraction Company of America. (See MacArthur, John S., assignor.)						
Gold, Edward E., New York, N. Y. Hose-fastening	591,468	Oct. 12	950	224 225	81	214
Golding, William E., Wakefield, N. Y. Extension-gear	593,982	Nov. 16	2152	510	81	1251
Goldman, Russell. (See Jacobson, Morris S., assignor.)						
Goldner, Simon, New York, N. Y. Comb-gage attachment for scissors or shears	595,470	Dec. 14	1094	268	81	1851
Goldsborough, Byron, New York, N. Y. Supporting-wheel for pile-drivers, &c	591,756	Oct. 19	1440	339	81	309
Goldsmith, Albert L., New Haven, Conn. Rail-joint	596,206	Dec. 28	2367	561	81	2142
Goldsmith, Paul, Troy, N. Y. Trolley-finder for electrical railways	591,251	Oct. 5	566	133 134	81	108
Goltermann, Ada V., New York, N. Y. Shut-off for fountain-syringes	591,228	Oct. 5	528	126	81	100
Gomperz, Sigmund. (See Müller, Oberländer, Fuchs, and Gomperz.)						
Gooch, William J., Franklin, Ky. Kitchen-cabinet	591,037	Oct. 5	174	39, 40	81	36
Goodell Bros. Company. (See Goodell and Lanfair, assignors.)						
Goodell, Henry E., and H. D. Lanfair, Greenfield, Mass., assignors to Goodell Bros. Company. Reversible automatic screw-driver	591,097	Oct. 5	277	68	81	55
Goodenough, William H. (See Nash and Baker, assignors.)						
Gooding, Charles S., Brookline, assignor to E. C. Judd and H. E. Cilley, Boston, Mass. Sole-laying machine	595,097	Dec. 7	462	110 111	81	1706
Gooding, Charles S., Brookline, and V. Beauregard, assignors to R. D. Evans and J. S. Lockwood, Boston, Mass. Machine for cutting boot or shoe soles, &c., from sheet material	593,537	Nov. 9	1416	341 342 343 344 345 346	81	1093
Goodkind, Leo, H. M. Essington, and H. E. Bartlett, St. Paul, Minn.; said Essington assignor to said Goodkind. Button-feeding apparatus for sewing-machines	594,617	Nov. 30	3356	736	81	1519
Goodman, Edward H. (See O'Kain, Domenec C., assignor.)						
Goodman, Patrick, New York, N. Y. Gas-main stopper	591,271	Oct. 5	605	141	81	115
Goodrich, Joseph, Chicago, Ill. Vise	593,649	Nov. 16	1647	399	81	1153

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Goodwin, Benjamin A., Ripon, Cal. Trace-hook	591,086	Oct. 5	178	40	81	36
Goodwin, James D., assignor of one-half to Cardwell Machine Company, Richmond, Va. Tobacco-stemming and grit-cleaning machine	594,152	Nov. 23	2506	503 504	81	1337
Goodwin, Lewis, Boston, Mass. Plastering-corner	595,998	Dec. 14	806	198	81	1796
Goodwin, Lewis, Boston, Mass. Corner brace or support for plastering	595,999	Dec. 14	806	199	81	1796
Googins, James G., and G. T. Howarth, Fairfield, Me. Adjustable couch	591,530	Oct. 12	1076	253	81	234
Goold, William T., Shillingford, England. Automatic steam-trap	594,005	Nov. 23	2273	586	81	1293
Goolman, William P., assignor of one-half to J. G. Wickersham, Los Angeles, Cal. Tire-tightener	594,992	Dec. 7	268	64	81	1670
Gordon, Alexander, Strahan, Tasmania. Diving apparatus	594,945	Dec. 7	171	41, 42	81	1653
Gordon, Alexander J., Philadelphia, Pa. Railway-rail	596,265	Dec. 28	2061	481	81	2199
Gordon, Charles A., Cincinnati, Ohio, assignor to J. E. Mooney, Decatur, Ala. Manufacture of merchantable starch	595,058	Dec. 7	388	.....	81	1692
Gordon, H. C., *et al.* (See Supple, John R., assignor.)						
Gordon, William K., Thurber, Tex. Automatic dumping-cage	594,736	Nov. 30	3590	834 835	81	1569
Gorton, Robert, Newton, Mass. Garment-supporter	594,006	Nov. 23	2274	538	81	1293
Gorton, William E., Corning, assignor to Corning Brake Shoe Company, Corning and Buffalo, N. Y. Brake-shoe and wheel-dresser	595,098	Dec. 7	465	111	81	1706
Gorton, William H., Angola, assignor of one-half to T. Scurr, Jr., Coffeyville, Kans. Corn-harvester	594,246	Nov. 23	2654	629	81	1366
Gosewisch, Ernst H., Chicago, Ill. Napkin-holder	591,535	Oct. 19	1574	374	81	356
Goss, John H., assignor to Scovill Manufacturing Company, Waterbury, Conn. Bicycle-bell	595,771	Dec. 21	1588	383	81	1968
Gottschalk, John W., assignor to A. F. Moore, Philadelphia, Pa. Tip for telephone-cords	593,467	Nov. 9	1266	310	81	1070
Goughnour, Henry S., Johnstown, Pa., assignor to Johnson Company, Lorain, Ohio. Brake mechanism	591,536	Oct. 19	1575	374	81	356
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould, John D., Brooklyn, assignor to Montauk Multiphase Cable Company, New York, N. Y. Electric cable	594,347	Nov. 23	2655	629	81	1366
Gould, William F., Des Moines, Iowa. Balancing slide-valve	594,868	Dec. 7	43	12	81	1630
Gould, William F., Des Moines, Iowa, assignor of one-half to W. Bishop, New York, N. Y. Tie-plate	594,248	Nov. 23	2656	629	81	1367
Gould, William F., Des Moines, Iowa, assignor of one-half to W. Bishop, New York, N. Y. Railway-tie plate	594,249	Nov. 23	2657	630	81	1367
Goulden, Samuel, assignor of one-half to E. Zusi, Newark, N. J. Bicycle-bell	591,599	Oct. 12	1189	280	81	257
Goulden, Samuel, assignor of one-half to E. Zusi, Newark, N. J. Bicycle-bell	591,600	Oct. 12	1190	280	81	258
Gowan, William. (See Foord, William F., assignor.)						
Gowans, James A., assignor of three-fourths to S. S. Fuller and M. MacFarlane, Stratford, Canada. Electric annunciator	593,884	Nov. 16	2070	489	81	1234
Gowen, William A., Portland, assignor of one-half to A. S. Wilcox, Deering, Me. Skewer-machine	593,067	Nov. 2	556	133	81	915
Gower, Charles E. (See Mahon and Gower.)						
Goyne, Richard F. (See Snelgrove and Goyne.)						
Graaf, Margaret, Estherville, Iowa. Spool-rack	591,272	Oct. 5	607	142	81	115
Grace, Henry S., and A. D. Reynolds, San Francisco, Cal. Can-labeling machine	592,585	Oct. 26	3208	664 665	81	727
Gracey, Frank T. (See Tabler and Gracey.)						
Graetz, Max, Berlin, Germany. Oil-burner for producing non-luminous flame	594,295	Nov. 30	2984	692	81	1437
Graf, Charles J. (See Moyer and Graf.)						
Graham, Albert A., Topeka, Kans. Railway cattle-guard	595,471	Dec. 14	1095	203	81	1851
Graham, Archibald P., and S. T. Pearsons, Rutland, Vt. Bicycle-stand	592,544	Oct. 26	3144	646 647	81	715
Graham, Francis M., San José, Cal. Wave-motor	592,051	Oct. 19	1958	463	81	431
Graham, Francis M., San José, Cal. Air-compressor	592,586	Oct. 26	3211	665	81	727
Graham, George W. (See Van Alstine and Graham.)						
Graham, Gholson H., Seabright, N. J. Musical instrument	593,468	Nov. 9	1287	311	81	1070
Graham, James, assignor of two-thirds to A. E. Count and A. A. Ault, Muncie, Ind. Machine for molding plastic materials	592,908	Nov. 2	269	61, 62	81	860
Graham, James M., *et al.* (See Auble, James H., assignor.)						
Graham, James M., Drayton, N. D. Sash-fastener	591,469	Oct. 12	953	225	81	214
Graham, Jay J., Morrisville, N. Y. Wheel	591,920	Oct. 19	1727	414	81	388
Graham, Malcolm, *et al.* (See Beardsley and Felton, assignors.)						
Graham, Robert S., assignor of three-fourths to R. J. Lucas, St. Louis, Mo. Stopper-fastener	596,366	Dec. 28	2062	631	81	2200
Graham, William, assignor of one-half to C. K. Carter, Newaygo, Mich. Ribbon-holder	595,059	Dec. 7	389	95	81	1692
Graham, William A. D., Owen Sound, Canada. Pneumatic tire	592,138	Oct. 19	2121	502	81	468
Graham, William A. D., Toronto, Canada. Tire	596,402	Dec. 28	2725	645	81	2213
Graham, William A. D., Owen Sound, assignor of one-half to A. P. Jameson, South Dumfries, Canada. Bicycle-tire	595,300	Dec. 14	807	199	81	1796
Grand Rapids School Furniture Company. (See Linn and Lytle, assignors.)						
Grandle, James W., near Marion, Iowa. Hand nailing implement	592,286	Oct. 26	2359	557	81	539
Grandy, Edward F., Boston, Mass. Lasting-machine	595,809	Dec. 21	1658	398	81	1981
Graner, Louis, New York, N. Y. Coat	592,200	Oct. 19	2215	524	81	480
Grant, Charles W., Jamestown, N. Y. Sanitary commode	594,789	Nov. 30	3578	857	81	1586
Grant, John, Omaha, Nebr. Dumping-wagon	590,976	Oct. 5	41	9	81	10
Grapes, George H., Paraparaumu, New Zealand. Push-hoe	591,537	Oct. 19	1576	375	81	357
Graphite Rheostat Company. (See Cummings, George K., assignor.)						
Grattan, Orlando T., Elkton, S. D., assignor of one-half to C. E. Webber, Minneapolis, Minn. Shoe for grain-drills	592,776	Nov. 2	41	9	81	814
Graves, Edwin H., Hoboken, N. J. Armor for cycle-tires	595,099	Dec. 7	466	112	81	1706
Graves, George W., Rochester, N. Y. Hot-water-boiler connection	591,098	Oct. 5	279	68	81	55
Graves, Gilbert S. (See Tomilson, William, assignor.)						
Graves, Lewis H. (See James, Ulysses S., assignor.)						
Graves, Philander H., Chicago, Ill. Elastic horseshoe	591,601	Oct. 12	1190	281	81	258
Gravis, John B., Canton, Ohio, assignor of one-half to T. C. McQuate. Cushioned horseshoe	591,388	Oct. 5	569	134	81	108
Gray, Gorham, Boston, assignor of one-half to J. M. and W. J. Downey, Hyde Park, Mass. Electric conductor	592,708	Oct. 26	3480	717	81	771
Gray, James D., assignor of two-thirds to W. B. Price and A. Sharp, Baltimore, Md. Direct-acting engine	592,248	Oct. 26	2304	543	81	518
Gray, John B., assignor of one-half to T. L. Gray, Liberty Hill, Tex. Wheel-scraper	592,519	Oct. 26	3098	632	81	705
Gray, Lee L. (See Cox, Cary S., assignor.)						
Gray, T. L. (See Gray, John B., assignor.)						
Gray Telephone Pay Station Company. (See Gray, William, assignor.)						
Gray, Thomas. (See Ormsby, William, assignor.) (Reissue.)						
Gray, Tilman C., Grayridge, Mo. Railway-rail joint	595,163	Dec. 7	509	137	81	1736

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gray, William, assignor to Gray Telephone Pay Station Company, Hartford, Conn. Telephone toll-station	593,790	Nov. 16	1769	425	81	1175
Gray, William, assignor to Gray Telephone Pay Station Company, Hartford, Conn. Telephone toll apparatus	593,962	Nov. 16	2208	523	81	1261
Graybill, Jacob D., assignor of three-tenths to W. W. Battle, New Orleans, La. Aerial machine	592,704	Oct. 26	3430	717 718	81	771
Grebe, George, Swanton, Nebr. Horse-detacher	591,797	Oct. 12	1504	355 357	81	322
Green, Arthur M., Port Gibson, Miss. Compound rotary steam-engine	591,165	Oct. 5	404	94, 95	81	77
Green, Charles M., Highland Park, Ill. Nailing-machine	590,977	Oct. 5	43	9 10 11	81	10
Green, Charles R., Grand Rapids, Mich. Combined detachable ice-creeper and heel-plate	595,772	Dec. 21	1589	388	81	1968
Green, David C., Milwaukee, Wis. Apparatus for cleaning cast-metal surfaces	592,730	Oct. 26	3478	730	81	779
Green, David S., Chicago, Ill. Toy catapult	592,777	Nov. 2	42	9	81	815
Green, Grant, Jr., New York, N. Y. Machine for manufacturing railway-ties	591,888	Oct. 19	1576	375	81	357
Green, Henry. (See Harriman, Frank H., assignor.)	593,393	Nov. 9	1163	280 281	81	1045
Green, Herman, New York, N. Y. Machine for making waistbands, &c	595,676	Dec. 14	1417	342	81	1918
Green, James A., Milldale, assignor of one-half to A. R. Simpson, Paris, Va. Gate-latch	595,164	Dec. 7	570	137	81	1727
Green, Thomas, Davenport, Iowa. Wrench	595,165	Dec. 7	571	138 139	81	1727
Green, William M., Evanston, and F. W. Smith, Chicago, Ill. Magic lantern	594,359	Nov. 23	2867	676	81	1407
Greenamyer, Clarence V., assignor of one-half to A. P. Cross, Los Angeles, Cal. Car-bearing adjuster						
Greenberg, Louis. (See Hand and Greenberg.)	591,889	Oct. 19	1579	376	81	357
Greene, Carleton, Buffalo, N. Y., assignor to Barber Asphalt Paving Company, Washington, D. C., and New York, N. Y. Plant for preparing paving materials	593,324	Nov. 9	1047	253	81	1025
Greene, Thomas C., Tremont, Ill. Gate	593,841	Nov. 16	1998	469	81	1218
Greenfield, Edwin T., New York, N. Y. Metallic junction-box and means for uniting metal conduit-tubes thereto	593,842	Nov. 16	1994	469	81	1218
Greenfield, Edwin T., New York, N. Y. Flexible armored conduit	595,238	Dec. 7	715	175	81	1759
Greenfield, Edwin T., New York, N. Y. Armored conduit	595,437	Dec. 14	1042	249	81	1839
Greenfield, Edwin T., New York, N. Y. Pipe or tube coupling				263		
Greenfield, Edwin T., New York, N. Y. Mechanism for lining metal tubes with pliable material	595,472	Dec. 14	1097	264 265	81	1851
Greengard, Morris D., St. Louis, Mo. Shade-holder	592,287	Oct. 26	2260	558	81	529
Greenleaf, Abner, Baltimore, Md. Printing-press	592,563	Oct. 26	3173	655	81	720
Greenleaf, Abner, Baltimore, Md. Machine for perforating paper	592,564	Oct. 26	3174	655	81	720
Greenwood, John, Rochester, N. Y. Barrel-head machine	592,467	Oct. 26	3021	612	81	600
Greenwood, Thomas, *et al.* (See Leland, Edwin A., assignor.)	593,885	Nov. 16	2072	489	81	1235
Greer, John J., Brockville, La. Ejector for wells						
Gregg, James F. (See Dague and Gregg.)	595,385	Dec. 14	941	227 228	81	1821
Gregg, Richard, Randolph, Ind. Hay-carrier	595,810	Dec. 21	1654	399	81	1981
Gregg, Walter, J. F. Donaghy, and J. Humphrey, Ellwood City, Pa. Tube-making machine	596,155	Dec. 28	2288	542	81	2196
Gregory, James L., and J. Grieve, Brooklyn, N. Y. Shutter worker and fastener	594,007	Nov. 23	2277	536	81	1296
Gregory, Joseph, New York, N. Y. Lamp-burner						
Gregory, Luther E. (See Black and Gregory.)	595,565	Dec. 14	1240	299	81	1980
Greif, Louis M., Cleveland, Ohio. Barrel-machine	591,757	Oct. 12	1441	339 340	81	309
Greig, Alfred B., London, England. Apparatus for constructing paving-blocks						
Greimann, Charles. (See Junker, Edward, assignor.)	594,697	Nov. 30	3499	815	81	1549
Greiner, Charles J., St. Louis, Mo. Commutator	595,166	Dec. 7	582	139	81	1726
Greiner, Charles J., St. Louis, Mo. Car-coupling	593,305	Nov. 9	894	196 197	81	963
Grenier, Francois M. J., Providence, R. I. Stop mechanism for looms	591,398	Oct. 12	836	194	81	191
Grenlich, George H., Cincinnati, Ohio. Motor-vehicle	595,945	Dec. 21	1912	457 458	81	2084
Greuter, Charles R., Springfield, assignor to J. C. Keough, Holyoke, Mass. Mechanical stoker	595,060	Dec. 7	390	95	81	1602
Gridley, George O., Springfield, Mass. Antifriction-bearing						
Grieve, James. (See Gregory and Grieve.)	591,373	Oct. 5	606	142	81	115
Griffey, Martin V., Moscow, Ky. Combined currycomb and brush	591,216	Oct. 5	508	119	81	95
Griffin, Martin L., Priest Valley, Cal. Poison-distributer for field use				83		
Griffin, Robert S., and J. W. Copeland, Worcester, Mass. Machine for making window-blinds	592,953	Nov. 2	358	84 85 86	81	877
Griffin, Willis, Lynn, Mass. Knife eraser	596,240	Dec. 28	2420	572	81	2153
Griffith, Amenzo, Springfield, Mass. Machine for stuffing mattresses	591,077	Oct. 5	241	57	81	47
Griffith, Jesse C., Madison, N. C. Car-coupling	596,040	Dec. 21	2001	496	81	2073
Griffith, Thomas M., West New Brighton, N. Y. Miter-box	592,139	Oct. 19	2122	508	81	403
Griffiths, Ellis W., McCracken, Kans. Plow-point fastener	594,527	Nov. 30	3189	747	81	1487
Griffiths, Ellis W., Salva, Kans. Shoe for hoe-drills	594,528	Nov. 30	3190	747	81	1487
Grimes, George W., Bluffton, Ind. Pumping-power	595,167	Dec. 7	584	139	81	1726
Grimes, Walter, London, England, assignor to Vacuum Oil Company, Rochester, N. Y. Lubricator	592,909	Nov. 2	273	68	81	861
Grimm, Gustav A. (See Nettelbeck, Hermann, assignor.)						
Grist, Benjamin W., and E. Cellison, assignors to Pennsylvania Iron Works Company, Philadelphia, Pa. Electrical igniter for gas-engines	595,016	Dec. 7	306	74	81	1677
Griswold, Francis D., *et al.* (See Frost, Frederick E., assignor.)						
Griswold, George. (See Chase and Griswold.)	592,843	Nov. 16	1995	469	81	1219
Griswold, John W., Troy, N. Y. Bale-tie	594,869	Dec. 7	44	12	81	1630
Griswold, Marius E., Chicago, Ill. Tool for repairing pneumatic tires						
Groebli, Joseph A. (See Kursheedt and Groebli.)	593,906	Nov. 9	888	197 198	81	984
Groebli, Joseph A., assignor to Kursheedt Manufacturing Company, New York, N. Y. Embroidering-machine	593,907	Nov. 9	891	199 200	81	985
Groebli, Joseph A., assignor to Kursheedt Manufacturing Company, New York, N. Y. Embroidering-machine	593,908	Nov. 9	894	199 200	81	985
Gross, Augustus, Sydney, New South Wales. Boot or shoe	593,140	Oct. 19	2194	508	81	403
Gross, James Y. (See Boorse and Gross.)	591,965	Oct. 19	1801	439	81	403
Gross, Mary G., Little Falls, N. Y. Ink-well	593,650	Nov. 16	1649	399	81	1153
Grossman, Adolphe, New Orleans, La. Automatic railway-switch						

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Grossman, Aldolphe, New Orleans, La. Controller for motors and brakes of electric cars	594,946	Dec. 7	173	42	81	1653
Grote, John F. W., New York, N. Y., assignor, by mesne assignments, to Diamond Light Company. Burner	592,545	Oct. 26	3145	647	81	715
Grote, Ludwig, London, England. Manufacturing moldable mass or articles from asbestos	595,168	Dec. 7	585	.....	81	1729
Grove, Robert J., and F. P. Lund, Buffalo, N. Y. Roller-skate	596,111	Dec. 28	2215	525	81	2113
Groves, Perry A., *et al.* (See Durham, John F., assignor.)						
Gruhl, Bernhard, Dresden, Germany. Apparatus for cutting and ornamenting hollow glass bodies	595,017	Dec. 7	307	74, 75	81	1678
Grundy, Charles D., Batley, England. Dental apparatus	595,301	Dec. 14	808	199	81	1796
Gschwender, John A., assignor of one-half to F. B. Palmer, Martin's Ferry, Ohio. Nut-lock	594,153	Nov. 23	2511	594	81	1330
Gschwind, Franz J., Providence, R. I. Automatic fire-extinguisher	590,978	Oct. 5	47	11	81	11
Guarantor Electric Company. (See Ashley, Ralph, assignor.)						
Gue, David J. and H. D., Brooklyn, N. Y. Bicycle-brake	594,668	Nov. 30	3502	815	81	1550
Gue, Harry D. (See Gue, David J. and H. D.)						
Guenther, John E., Fort Wayne, Ind. Rotary steam-engine	591,130	Oct. 5	336	81	81	66
Guenther, John E., Fort Wayne, Ind. Fruit or wine press	591,131	Oct. 5	339	81	81	66
Guertin, Lewis H., Momence, Ill. Impalement-trap	593,933	Nov. 16	2153	511	81	1251
Guest, Fred. (See King and Guest.)						
Guest, Joseph, Homestead, assignor to Carnegie Steel Company, Limited, Pittsburg, Pa. Rolls	596,408	Dec. 28	2726	645	81	2218
Guest, Theodore M., Moravia, N. Y. Wire fence	591,470	Oct. 12	953	225 226	81	214
Guett, Monroe, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Electric switch	594,618	Nov. 30	3358	787	81	1530
Guhl, Heinrich A. H., Hamburg, Germany. Apparatus for sharpening pencils	593,033	Nov. 9	862	143	81	923
Guilmet, William, and J. Le Blanc, Lewiston, Me. Fire-lighting attachment for clocks	595,773	Dec. 21	1590	394	81	1968
Guite, William H. (See Guthrie and Guite.)						
Gulland, Charles, Pittsburg, Pa. Valve	595,061	Dec. 7	392	96	81	1603
Gullberg, Carl, Jersey City, N. J. Electric clock	591,917	Oct. 5	505	120	81	96
Gulline, Henry L., W. Schwegel, and J. Connolly, Granby, Canada; said Schwegel and Connolly assignors to said Gulline. Horse-collar	596,423	Dec. 28	2761	653	81	2219
Gump, Joseph R., Milan, Mich. Checkrein-hook	595,566	Dec. 14	1942	300	81	1980
Gunn, J. O. B., *et al.* (See Hanscom and Hough, assignors.)						
Gunnell, Frank I. (See McDonnel, William J., assignor.)						
Gurney, James T. (See Medberry and Gurney.)						
Gustafson, Elias G. (See Felsing and Gustafson.)						
Guthrie, James F., Leesburg, Ohio. Wire-and-picket-fence machine	595,633	Dec. 14	1331	381	81	1900
Guthrie, Nathan F., and W. H. Guite, Tie Siding, Wyo.; said Guite assignor to said Guthrie. Gate for irrigating-ditches	592,649	Oct. 26	3318	690	81	743
H. C. White Company. (See White, Hawley C., assignor.) (Reissue.)						
Haag, Alex P., and F. J. Friedrich, assignors of one-third to J. L. Wiener, Fall River, Mass. Machine for storing wave-power	594,078	Nov. 23	2305	509	81	1316
Hasse, Ferdinand, Jr. (See Wrigley, John, assignor.)						
Habbeler, William H. (See Koehler, Herman A., assignor.)						
Habberstad, Nicholas M., St. Paul, Minn. Shoe for doubletrees	594,870	Dec. 7	45	12	81	1631
Haddow, Thomas, West Hoboken, N. J. Hoisting apparatus	594,619	Nov. 30	3360	787	81	1530
Hadley, Joshua A., assignor to J. M. Fast, Brazil, Ind. Flue-stop	594,871	Dec. 7	46	12	81	1631
Haeberlin, Hermann, Cleveland, Ohio. Water-heater	593,209	Nov. 9	840	200	81	987
Haebler, Theodore, *et al.* (See Schutz, John, assignor.)						
Haefner, Carl, assignor to National Filter and Carbonating Company, Chicago, Ill. Apparatus for filling barrels	594,204	Nov. 23	2587	612 613	81	1353
Haegelin, Richard A., St. Joseph, Mo. Safety releasing device	593,844	Nov. 16	1996	470	81	1219
Haeseley, Charles A. (See Robinson and Haeseley.)						
Hageman, Nora L., Reading, Pa. Gloss compound for starch	596,265	Dec. 28	2466	.....	81	2161
Hagen, Erik S., assignor of one-half to C. F. Roberg, Chicago, Ill. Rotary steam-engine	593,375	Nov. 9	1120	270	81	1037
Haggard, James W., Portland, Oreg. Saddle-horn	595,567	Dec. 14	1943	300	81	1980
Hagstrom, Randall, Watasa, assignor of one-half to J. F. and A. Hilberg, Galva, Ill. Wrench	591,779	Oct. 12	1483	351	81	318
Hahlweg, Carl, Stettin, Germany. Repeating mechanism for watches	593,274	Nov. 9	956	232	81	1006
Haight, Charles W., Mount Vernon, N. Y. Can-opener	594,079	Nov. 23	2307	569	81	1317
Haight, Ida L., Yonkers, N. Y. Garment-supporter	593,210	Nov. 9	842	201	81	987
Hailey, Robert L., New York, N. Y. Combined manual and automatic switch	596,457	Dec. 28	2826	667	81	2229
Hain, Ralph B., Grand Rapids, Mich. Reversible propeller	593,934	Nov. 16	2155	511	81	1251
Haines, Winfield S., Gladstone, Mich. Car-axle lubricator	592,910	Nov. 2	276	63	81	861
Hainsworth, John S., London, England. Horse-collar	591,758	Oct. 12	1444	340	81	310
Hakes, Hudson W., Millbury, Mass. Vehicle-seat	591,840	Oct. 19	1581	376 377	81	358
Halcomb, Thomas A., Neosheo, Ky. Saw-guide	595,092	Dec. 7	393	96	81	1696
Haldeman, Charles F., and E. W. Silver, assignors to Silver Manufacturing Company, Salem, Ohio. Shredder-cylinder for fodder-mills	594,250	Nov. 23	2659	630	81	1367
Haldeman, John J., Shamokin, assignor of one-fourth to W. P. G. Hoffman and W. A. Murray, Sunbury, Pa. Pipe-wrench	594,348	Nov. 23	2845	672	81	1409
Hale, Henry S., Philadelphia, Pa. Car-seat	595,694	Dec. 14	1833	321 322	81	1901
Hale, Henry S., Philadelphia, Pa. Sofa-bedstead	595,913	Dec. 21	1861	445	81	2024
Haley, Patrick, and P. P. Thompson, Chicago, Ill. Joint for third rails of electric railways	592,565	Oct. 26	3177	655	81	721
Haley, Patrick F., Philadelphia, Pa. Exhaust-utilizer	594,694	Nov. 30	3357	780	81	1529
Hall, Albert B., Indianapolis, Ind. Pill-coating apparatus	596,297	Dec. 28	2514	597	81	2190
Hall, Burroughs R., and A. Anderson, Denver, Colo. Folding carriage	595,398	Dec. 14	944	228	81	1822
Hall, Charles B., Governor's Island, N. Y. Miter-box	590,979	Oct. 5	49	11	81	11
Hall, Elbert D., Mitchell, Iowa. Book or manuscript holder	593,935	Nov. 16	2156	511	81	1251
Hall, Fred E., Philadelphia, Pa. Thread-package	593,211	Nov. 9	843	201	81	987
Hall, Herbert L., assignor to Hall-Shone Company, Rochester, N. Y. Mud-guard for bicycles	590,980	Oct. 5	50	11	81	11
Hall, Jack. (See Buebel and Hall.)						
Hall, James C., assignor of one-fourth to G. H. Barker, Waldo, Fla. Umbrella	594,135	Nov. 23	2479	586	81	1332
Hall, Jesse, Surrency, Ga. Cotton-stalk puller	595,456	Dec. 14	1071	258	81	1846
Hall, John D., Orrville, Ohio. Horseshoe	591,166	Oct. 5	406	95	81	78
Hall, Joseph J., Los Angeles, assignor, by mesne assignments, to J. Smith, Pasadena, Cal. Mineral-oil burner	593,801	Nov. 16	1919	457	81	1203
Hall, Julius C., Wallingford, Conn. Chopping-machine	595,367	Dec. 14	946	228 229	81	1822
Hall, Lincoln C., Burlington, Iowa. Bicycle-brake	594,947	Dec. 7	176	42	81	1654

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hall, Minerva E., Toronto, Canada. Stair-carpet fastener	593,212	Nov. 9	846	208	81	988
Hall, Robert F., Birmingham, England. Adjustable spanner-wrench	595,473	Dec. 14	1101	265	81	1852
Hall, Sam N., Holly Grove, Ark. Saw-handle	595,438	Dec. 14	1043	250	81	1840
Hall-Shone Company. (See Hall, Herbert L., assignor.)						
Hall Signal Company. (See Buchanan, John P., assignor.)						
Hall, Walter E., *et al.* (See Shaller, George W., assignor.)						
Hall, William D., assignor to J. Foster & Co., Beloit, Wis. Shoe	593,576	Nov. 16	1511	366	81	1127
Hall, William H. (See Rogers and Hall.)						
Hallensleben, Otto, Hilden, Germany. Apparatus for washing warp	595,302	Dec. 14	810	199, 200	81	1796
Hallett, Samuel I., Aspen, Colo., assignor of one-half to D. M. Hyman, Cincinnati, Ohio. Treating zinc-lead or other ores	594,899	Nov. 30	3755	875	81	1601
Halliwell, Henry V., Tacoma, Wash. Hair-drier	591,966	Oct. 19	1802	429	81	402
Hallock, William H. H., Manorville, N. Y. Shaft for vehicles	591,309	Oct. 12	837	195	81	191
Halsey, Francis A., assignor of one-half to W. C. Savage, San Rafael, Cal. Smokeless powder	596,324	Dec. 28	2567	.....	81	2179
Halsey, James T., Philadelphia, Pa. Steam-engine	594,529	Nov. 30	3192	748	81	1487
Halvorsen, Halbert B., assignor of one-half to W. K. Millholland, Chicago, Ill. Engine-governor	593,802	Nov. 16	1919	457	81	1203
Ham, John C. (See Condon and Ham.)						
Hambloch, Hubert A., Union Hill, N. J. Sounding-board	591,759	Oct. 12	1445	341	81	310
Hamilton, Clayton M., assignor of one-half to H. Hunt, Boston, Mass. Hinged socket-piece	593,651	Nov. 16	1651	399	81	1153
Hamilton, Emery M., Flushing, N. Y. Type-writing machine	592,052	Oct. 19	1960	463, 464	81	431
Hamilton, Frances M., executrix. (See Hamilton, William G.)						
Hamilton, Herbert E., *et al.* (See Champoux, George, assignor.)						
Hamilton, William G., deceased, Colorado Springs, Colo.; F. M. Hamilton, executrix, assignor of one-half to C. Gilbert, New York, N. Y. Adjustable fire-box partition	593,213	Nov. 9	846	208	81	988
Hamlin, Louis. (See Lafond and Hamlin.)						
Hamm, Charles, Pittsburg, Pa. Lantern	591,647	Oct. 12	1971	297	81	274
Hamm, William S., Chicago, Ill. Lantern	592,705	Oct. 26	3482	718	81	771
Hamm, William S., Chicago, Ill. Lantern	594,790	Nov. 30	3679	857	81	1586
Hamm, William S., Chicago, Ill. Lantern	594,791	Nov. 30	3680	857, 858	81	1586
Hamm, William S., Newton, assignor to A. Seaver, Boston, Mass. Machine for stretching uppers	596,325	Dec. 28	2568	611, 612	81	2180
Hammarstrom, Andrew, and O. Carlson, Hastings, Pa. Wrench	591,167	Oct. 5	407	95, 96	81	78
Hammer, Neals, Orange, N. J. Extension shade-bracket	593,417	Nov. 9	1902	200	81	1052
Hammond, Leo R., New Haven, Conn. Type-writing telegraph	593,094	Nov. 2	594	143, 144	81	923
Hammond, Oliver S., Toronto, Canada. Pneumatic tire	591,551	Oct. 12	1110	261	81	243
Hamor, John M., Philadelphia, Pa., assignor to J. M. Rogers, Wilmington, Del. Rock-drill	593,214	Nov. 9	848	202, 203	81	988
Hampe, Wilhelm, Clausthal, Germany. Manufacture of zinc pigments	594,948	Dec. 7	177	.....	81	1655
Hampshire, Edmund A., and J. E. Davison, Pittsburg, Pa. Non-refillable bottle	591,400	Oct. 12	838	195	81	191
Hampton, Manoah B. (See Le May, Marcus M., assignor.)						
Hanak, Edward, Sacramento, Cal. Automatic weighing and packing machine	594,008	Nov. 23	2279	530	81	1294
Hancock, Joseph. (See Bisel, Joseph J., assignor.)						
Hand, Havelock E., and L. Greenberg, Buffalo, N. Y. Marine-leg-pushing device	593,743	Nov. 16	1814	434, 435	81	1193
Hand, James, assignor to W. Ayres & Sons, Philadelphia, Pa. Means for mounting snap-hooks	593,428	Nov. 9	1217	294	81	1055
Hand, Oscar. (See Hand, Townson, assignor.)						
Hand, Thomas, Pawtucket R. I. Ball-cock for water-closet cisterns	595,063	Dec. 7	205	96	81	1698
Hand, Townson, North Vernon, assignor of one-half to O. Hand, Shelbyville, Ind. Nut-lock	594,736	Nov. 30	3596	836	81	1570
Handbury, John D., Pekin, Ill. Steam and hot-water heater	594,896	Nov. 30	2935	699	81	1436
Handshy, Henry M., assignor to C. J. McPherson, Chicago, Ill. Acetylene-gas lamp	591,132	Oct. 5	341	89	81	66
Haney, Allen O., Milford, Ind. Double-acting pump	593,936	Nov. 16	2157	511	81	1239
Hanford, Henry B. (See Shaiffer, Harry D., assignor.)						
Hanken, Edward E., Waggoner, Ill. End-gate for wagons	591,531	Oct. 12	1077	253	81	234
Hanlon, John J., Allentown, Pa. Non-refillable bottle	592,491	Oct. 26	3054	661	81	696
Hanlon, John R., Pennington, N. J. Damper-regulator	593,987	Nov. 16	2159	512	81	1239
Hannum, Henry A., Cazenovia, N. Y. Rotary cutter	592,869	Nov. 2	209	48	81	848
Hano, Philip. (See Turck, Frederick M., assignor.)						
Hano, Philip, New York, N. Y. Manifold sales book or pad	592,141	Oct. 19	2125	503	81	462
Hanretty, William R., Newburg, N. Y. Clothes-line support	592,969	Nov. 2	399	98	81	884
Hanscom, William W., and A. Hough, assignors of one-half to J. O. B. Gunn and E. H. Potter, San Francisco, Cal. Electric battery	593,886	Nov. 16	1921	457	81	1203
Hansen, Christian M. (See Barbour and Hansen.)						
Hansen, Frederick C. (See Pitney and Hansen.)						
Hansen, Hansp, Christiania, Norway. Manufacture of fuel-blocks from petroleum	594,739	Nov. 30	3597	.....	81	1570
Hansen, John, Everett, Wash. Combined badge, bouquet, and perfume holder	596,156	Dec. 28	2260	542	81	2126
Hansen, Thorvald, Everett, Mass. Thread-winding machine	594,530	Nov. 30	3194	749	81	1488
Hanson, Harry L., Union Mills, assignor of one-third to P. P. Egan, Highland, Wis. Stove-polishing brush	594,154	Nov. 23	2512	594	81	1339
Hanson, John T., assignor to Hanson's Fire-Proof Floor Syndicate, Limited, London, England. Constructing fireproof floors, flats, walls, &c.	595,169	Dec. 7	595	140	81	1729
Hanson, Joseph W., Boston, Mass. Bicycle-pedal attachment	595,368	Dec. 14	948	229	81	1823
Hanson's Fire-Proof Floor Syndicate. (See Hanson, John T., assignor.)						
Hara, Ginrio, San Mateo, Cal. Cigarette-holder	591,471	Oct. 12	955	226	81	214
Harbaugh, Winfield, Alameda, Cal. Adjustable support for invalids	591,099	Oct. 5	260	68	81	56
Harber Brothers Company. (See Quinn, George W., assignor.)						
Harbison, Albert L., New Brighton, Pa. Gas-engine	595,695	Dec. 14	1234	322	81	1901
Harden, Levi D., Deemston, Pa. Fence	591,760	Oct. 12	1445	341	81	310
Harding, Richard O. (See Prouty, George W., assignor.)						
Hardingham, George G. M., London, England. Differential speed and reversing gear for motor-cars, tram-cars, &c.	593,652	Nov. 16	1652	400	81	1153
Hardley, Samuel, Christchurch, New Zealand. Seed-distributer	592,629	Oct. 26	2854	638	81	742
Hardwick, Frederick. (See Foster and Beresford, assignors.)						
Hardwick, Harry, Philadelphia, Pa. Jacquard mechanism for looms	592,005	Oct. 19	1874	447	81	415
Hardy, Alexander D., *et al.* (See Browning, John P., assignor.)						
Hardy, Charles S., San Diego, Cal. Refrigerator-car	593,886	Nov. 16	2073	489, 490	81	1235
Hardy, Frederick, Birmingham, Ala. Match-safe	596,404	Dec. 28	2737	646	81	2213

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hargrave, Edward H., Cincinnati, Ohio, assignor to Cincinnati Folding Basket Company, of Ohio. Basket	592,778	Nov. 2	43	9	81	815
Hargreaves, James, Widnes, England. Apparatus for electrolytically producing alkalies	596,157	Dec. 28	2290	542, 543	81	2127
Hargrove, Byron L., McLendons, Tex. Cotton chopper and cultivator	591,116	Oct. 5	312	77	81	61
Hargrove, William, Chicago, Ill. Door-spring	595,945	Dec. 7	730	178	81	1752
Harig, Henry. (See Jones and Harig.)						
Harker, Frederick. (See Lamborn and Harker.)						
Harker, Herbert. (See Lamborn and Harker.)						
Harleman, John. (See Mitchell and Harleman.)						
Harmon, Charles W., Pittsburg, Pa. Penholder	595,389	Dec. 14	949	229	81	1823
Harmon, Martin, Bloomington, Ill. Seed-planter	592,112	Oct. 19	2076	490	81	458
Harper, David, Scott county, Ill. Disk pulverizer	590,961	Oct. 5	51	12	81	11
Harper, James, Cannonsburg, Pa. Bicycle-support	591,602	Oct. 12	1192	281	81	258
Harrell, Joseph J., Chicago, Ill., assignor of three-fourths to C. H. Abbott and W. W. Hessey, Denver, Colo. Wood-pulp-making machine	592,090	Oct. 19	2037	482	81	446
Harriman, Frank H., assignor to H. Green, Hartford, Conn. Electric soldering-iron	594,672	Dec. 7	47	13	81	1631
Harrington, Humphrey, assignor to Indianapolis Chain and Stamping Company, Indianapolis, Ind. Manufacture of bicycle-chains	594,009	Nov. 23	2282	540	81	1294
Harrington, Humphrey, assignor to Indianapolis Chain and Stamping Company, Indianapolis, Ind. Bicycle-chain	594,010	Nov. 23	2285	540	81	1294
Harrington, John, assignor of two-thirds to H. Brent, Ryde, and J. Burns, Whitehaven, England. Caster-wheel	592,901	Oct. 19	2217	524	81	490
Harris, Abram W., Providence, R. I. Ring-spinning machine	596,016	Dec. 21	2029	484	81	2058
Harris Automatic Press Company. (See Harris and McNutt, assignors.)						
Harris, Charles, and T. F. Evans, Manchester, England. Ventilating apparatus	592,468	Oct. 26	3022	613	81	690
Harris, Charles G., Niles, Ohio. Feed-table and feeder for printing-presses	591,648	Oct. 12	1272	297, 298	81	274
Harris, Charles G., Niles, and J. F. McNutt, Warren, assignors to Harris Automatic Press Company, Niles, Ohio. Feeding device for printing-presses	591,649	Oct. 12	1274	298	81	275
Harris, David, Star, Wis. Envelop	594,630	Nov. 30	3362	787	81	1521
Harris, Henry R., Reelfoot, Tenn. Shaft or pole fastener	593,355	Nov. 9	1090	263	81	1039
Harris, James G., *et al.* (See Stephens, Dabney B., assignor.)						
Harris, Lucius D. (See Pulhemus, Frank A., assignor.)						
Harris, Rutledge, Cedar Falls, Iowa. Cutter-head	591,039	Oct. 5	179	40, 41	81	37
Harris, Rutledge, Cedar Falls, Iowa. Rosette cutter-head	591,040	Oct. 5	181	41	81	37
Harris, Stevens T., Carrollton, Ga. Fountain-syringe	596,158	Dec. 28	2292	543	81	2127
Harris, William T., Jr. (See Hunley and Harris.)						
Harrison, Albert D. (See Lucas and Harrison.)						
Harrison, Charles E., Nebraska City, Nebr. Oil-reservoir for car-journals	595,999	Dec. 21	2001	478	81	2053
Harrison, Frank M., and J. W. Kelley, Portland, Me. Market-refrigerator	591,401	Oct. 12	839	195	81	191
Harrison, George M., Humboldt, Iowa. Wagon-body	593,769	Nov. 16	1854	445	81	1191
Harrison, William. (See Joynson and Harrison.)						
Harrison, William B., and E. Stephenson, Hull, England. Apparatus for extracting oil	591,041	Oct. 5	182	42, 43	81	37
Harry, Edward. (See Jaixen and Harry.)						
Harry, Owen K., Dallas, Tex. Bale-tie machine	591,532	Oct. 12	1078	253, 254	81	235
Harry, Owen K., Dallas, Tex. Baking, cooking, and heating furnace	594,998	Dec. 7	269	64, 65	81	1671
Hart & Crouse Company. (See Mackay, William M., assignor.)						
Hart, Edwin, assignor to Waterbury Watch Company, Waterbury, Conn. Cyclometer	591,761	Oct. 12	1446	341	81	310
Hart, Edwin, assignor to Waterbury Watch Company, Waterbury, Conn. Cyclometer	591,762	Oct. 12	1448	341	81	310
Hart, George E., assignor to Waterbury Watch Company, Waterbury, Conn. Mechanism for making toothed rings	595,405	Dec. 28	2729	646	81	2213
Hart, Gerald W., Hartford, Conn. Face-plate for flush switches	592,249	Oct. 26	2306	543	81	518
Hart, Gerald W., assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Electric switch	594,470	Nov. 30	3061	722	81	1467
Hart & Hegeman Manufacturing Company. (See Guett, Monroe, assignor.)						
Hart & Hegeman Manufacturing Company. (See Hart, Gerald W., assignor.)						
Hart, Walter, New York, N. Y. Flagstaff-holder	596,207	Dec. 28	2369	561	81	2142
Hartenstein, Herman L., Bellaire, Ohio. Process of and apparatus for carbureting calcium	594,740	Nov. 30	3596	836, 837	81	1570
Hartge, Emile A. (See Ward, Hezekiah F., assignor.)						
Harthan, Charles E. (See Thomson and Harthan.)						
Hartley, Marcellus, *et al.* (See Beardsley and Felton, assignors.)						
Hartman, Daniel B., assignor of one-half to M. R. Warner, Manchester, Pa. Metal-seam-turning tool	595,170	Dec. 7	587	140	81	1729
Hartman, William H., and J. B. Morey, Jr., Dansville, N. Y. Tree-digger	594,680	Nov. 30	3508	815, 816	81	1550
Hartnett, George W., *et al.* (See McGowan, Matthew, assignor.)						
Harton, Pembroke D., Philadelphia, Pa. Belt tightener and shifter	594,622	Nov. 30	3365	788	81	1521
Hartsell, Edward E., assignor of one-third to I. F. Delony, Rowland, Ala. Wagon-body	594,621	Nov. 30	3363	788	81	1521
Harvey, Austin I., Newport, Me. Locomotive-cab seat	594,702	Nov. 30	3683	858	81	1587
Harvey, James M. (See Leavens, Harvey, and Chandler.)						
Harvie, William L., Newton, Mass. Trolley for electric cars	591,042	Oct. 5	185	43	81	37
Harwood, Benjamin F., Cooper, Tex. Cotton-stalk puller	595,626	Dec. 14	1336	322, 323	81	1901
Harwood, Sumpter L., Uniontown, Ala. Mechanical movement	594,741	Nov. 30	3601	837	81	1571
Haselau, Otto, Jr., New York, N. Y. Automatic boiler-feed	594,703	Nov. 30	3685	858	81	1587
Haskell, Luther D., Jr., Salem, Mass. Coin-controlled athletic punching-bag	593,469	Nov. 9	1288	311, 312	81	1070
Haskins, William, Troy, N. Y. Bottle-stopper and holder for same	591,402	Oct. 12	840	195	81	192
Hassel, Nels H., Chicago, Ill. Rocking-chair	596,241	Dec. 28	2421	578	81	2153
Hastings, Charles H., Chicago, Ill. Type-writer platen	594,531	Nov. 30	3198	750	81	1489
Hatch, Nathan, Albany, N. Y. Undergarment	594,794	Nov. 30	3686	859	81	1587
Hatfield, Daniel W. and G. W., New Haven, Conn. Street-railway switch	591,688	Oct. 12	1234	290	81	266
Hatfield, George W. (See Hatfield, Daniel W. and G. W.)						
Hatten, William V., Pax, assignor of one-third to W. F. Strasser, Stotts City, Mo. Spring-buckle	594,532	Nov. 30	3199	750	81	1489
Hatton, William J., Escanaba, Mich. Drill	592,142	Oct. 19	2127	503	81	462
Hatscher, Hubert. (See Vogel and Hatscher.)						
Havell, George, assignor to Havell Manufacturing Company, Newark, N. J. Bicycle-lamp	593,016	Nov. 2	465	112	81	808
Havell Manufacturing Company. (See Havell, George, assignor.)						
Hawekotte, George F., Cincinnati, Ohio. Steam-boiler	592,779	Nov. 2	44	9	81	815

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hawes, George E. (See Adams and Hawes.)						
Hawes, Herbert E., assignor to Colby & Co., Brooklyn, N. Y. Sewing-machine	593,577	Nov. 16	1512	367 368 369	81	1127
Hawes, Herbert E., assignor to Colby & Co., Brooklyn, N. Y. Multiple buttonhole-sewing machine	595,171	Dec. 7	589	141 142	81	1729
Hawk, Hale E., Cleveland, Ohio. Street-sweeper	594,207	Nov. 30	2036	602	81	1436
Hawkins, Ira L., Waterbury, Conn. Expansible drum	596,326	Dec. 28	2573	613	81	2180
Hawley, Eugene W. (See Proll, Depew, and Hawley.)						
Hay, John L. (See Coles, Albert D., assignor.)	596,159	Dec. 28	2298	543	81	2127
Haycock, George B., Chicago, Ill. Hypodermic syringe						
Hayden Cigarette Machine Company. (See Hayden, George H. and F. D., assignors.)						
Hayden, Frank D. (See Hayden, George H. and F. D.)						
Hayden, George H. and F. D., assignors to Hayden Cigarette Machine Company, Richmond, Va. Cigarette-machine	595,474	Dec. 14	1108	265 266 267	81	1852
Hayden, George W. (See Crane and Hayden.)						
Hayes, Eli B., Oshkosh, Wis. Boring-machine for dowel-doors	595,568	Dec. 14	1244	300	81	1890
Hayes, Eugenio K., Galva, Ill. Corn-planter frame	592,970	Nov. 2	400	98	81	864
Hayes, George, New York, N. Y. Wheel for bicycles	593,653	Nov. 16	1653	401	81	1154
Hayes, Harry, Ogden, Utah. Non-refillable bottle	594,011	Nov. 23	2287	540	81	1295
Hayes, Jacob B., Moorestown, N. J. Track-clearing board and arm for mowing-machines or the like	591,274	Oct. 5	609	142	81	115
Hayes, John J. (See McAllister and Hayes, assignors.)						
Hayes, William H. (See McAllister and Hayes.)						
Hays, Daniel, Gloversville, N. Y. Apparatus for manufacturing leather	595,303	Dec. 14	813	200	81	1797
Hays, Daniel, Gloversville, N. Y. Apparatus for manufacturing leather	595,304	Dec. 14	814	201	81	1797
Hays, Harry J. (See Blair and Hays.)						
Hays, John A., Pittsburg, Pa. Folding box	594,690	Nov. 30	3504	816	81	1551
Hayton, Joseph, Lancaster, England. Window-sash	595,774	Dec. 21	1591	384	81	1908
Hazard, Charles J., Kellogg, assignor of one-half to R. Switzer and T. A. Wiatt, Huntington, W. Va. Lock and latch	596,406	Dec. 28	2730	646	81	2214
Hazelton, Asa, Middletown, Mo. Churn	595,627	Dec. 14	1337	323	81	1902
Heacker, Edwin W., Ida, Tex. Quilting-frame for sewing-machines	593,523	Nov. 9	1398	336	81	1089
Head, Frederick A. (See Kerns and Head.)						
Headley, Ezra, Bloomfield, Ohio. Awning for vines	593,654	Nov. 16	1655	401	81	1154
Heap, Charles, *et al.* (See Horton, Joseph and W., assignors.)						
Heap, William T., *et al.* (See Horton, Joseph and W., assignors.)						
Heaphy, Patrick L. (See Neale, Alfred D., assignor.)						
Heath, Courtney K., Brooklyn, N. Y. Foot-power application	593,887	Nov. 16	2074	490	81	1235
Heath, Frank E. (See Richardson, James, assignor.)						
Heath, Frederick H., Tacoma, Wash. Ejector for ashes, &c	596,065	Dec. 28	2131	505 506	81	2097
Heath, Kate A. (See Heath, William H., assignor.)						
Heath, William H., assignor to K. A. Heath, Buffalo, N. Y. Book-rest	592,780	Nov. 2	45	10	81	815
Heaton, Henry W., Olneyville, R. I. Motor-vehicle	593,470	Nov. 9	1290	312 313	81	1071
Heaton, Henry W., Olneyville, R. I. Handle-bar	593,471	Nov. 9	1294	313	81	1071
Heaven, Charles G., Birmingham, England. Inflater for pneumatic tires	591,841	Oct. 19	1563	377	81	356
Heberling, John, Rochester, N. Y. Pancake-turner	594,205	Nov. 23	2298	513	81	1353
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Wind-motor	591,218	Oct. 5	506	120	81	96
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Wind-motor for musical instruments	593,215	Nov. 9	849	208	81	989
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Self-playing instrument	593,216	Nov. 9	851	208	81	989
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Pneumatic motor	593,655	Nov. 16	1656	401	81	1154
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Fall-board for musical instruments	594,012	Nov. 23	2288	540	81	1295
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Music-rack for pianos or organs	595,710	Dec. 21	1475	355	81	1947
Hedges, Vespasian V., Coffeyville, Kans. Hinge	593,472	Nov. 9	1296	314	81	1072
Hedley, Frank, Chicago, Ill. Railway-car truck	590,992	Oct. 5	53	12	81	12
Heeb, William E., *et al.* (See Kehl, Anthony and F. E., assignors.)						
Heebner, William D., and N. Metz, Lansdale, Pa. Shredding attachment for feed-cutters	594,398	Nov. 30	2988	698	81	1438
Hegarty, Reuben, Madera, Pa. Measuring-pole	595,475	Dec. 14	1109	267	81	1854
Hegeler, Julius W., La Salle, Ill. Rake appliance for ore-roasting furnaces	592,006	Oct. 19	1876	447	81	416
Hegerty, John F., Warren, Pa. Bicycle handle-bar	593,217	Nov. 9	852	208	81	989
Heggem, Charles O., assignor to Russell & Co., Massillon, Ohio. Pneumatic stacker	595,390	Dec. 14	950	229 230	81	1828
Heglin, Jacob. (See Wortendyke, Howard, assignor.)						
Hellmann, Jean J., Paris, France. Oil and gas engine	593,296	Nov. 9	999	241	81	1015
Hellmann, John C., Jr. (See Bauer and Hellmann.)						
Heimlich, Charles H., Venice, Ohio. Neck-yoke coupling	593,578	Nov. 16	1518	369	81	1128
Heine, August, and G. S. Mack, Silver Creek, N. Y.; said Mack assignor to said Heine. Confectioner's filling and separating machine	593,325	Nov. 9	1049	253 254	81	1025
Heinse, Horatio J., London, England. Kinetographic camera	593,376	Nov. 9	1122	271 272	81	1088
Heinzerling, Christian, Frankfort-on-the-Main, Germany. Artificial stone	591,168	Oct. 5	408	------	81	78
Heithecker, August, Brooklyn, N. Y. Fluid-pressure regulator	595,540	Dec. 14	1209	291	81	1874
Helberger, Hugo, Munich, Germany. Electric heater	596,160	Dec. 28	2294	544	81	2127
Helbig, Ernst R., New York, N. Y. Nail and corn trimmer	593,594	Nov. 9	1304	326	81	1089
Held, Paul, St. Cloud, Minn. Horseshoe-calk	595,711	Dec. 21	1476	356	81	1947
Helgren, Eric R., Aurora, Ill. Cake-turner	592,630	Oct. 26	2266	692	81	742
Heller, Charles, assignor of one-half to J. R. Strange, Annapolis, Md. Table attachment	595,476	Dec. 14	1110	268	81	1854
Heller, Henry, New York, N. Y. Fastening device for pocket-books	595,100	Dec. 7	467	112	81	1707
Heller, Sigmund, Saas, Austria-Hungary. Workman's time-recorder	594,949	Dec. 7	178	43	81	1655
Hellwig, Otto S., assignor to G. P. Fisher, Jr., Chicago, Ill. Acetylene-gas generator	594,175	Nov. 23	2039	501	81	1344
Helwig, Anna, St. Paul, Minn. Bolt or rivet cutter	596,066	Dec. 28	2122	506	81	2096
Heminger, Amzie N., Plymouth, Ind. Bicycle-guard	592,987	Nov. 2	428	100	81	899
Hemje, Charles, Annapolis, Md. Heater	595,018	Dec. 7	309	75	81	1678
Henckler, Herman, and W. J. Elcks, St. Louis, Mo. Music-leaf turner	594,625	Nov. 30	3399	789	81	1522
Henderson, Charles T., Dunkirk, Ohio. Drum	594,691	Nov. 30	3505	816	81	1551

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Henderson, James A. (See Williams and Kinney, assignors.)						
Henderson, James A., *et al.* (See Williams, James M., assignor.)						
Henderson, Robert, Pittsburg, Pa. Fuel-gas burner	594,251	Nov. 23	2061	631	81	1307
Henderson, Thomas, West Salem, Ohio. Antirattler for thill-couplings	594,696	Nov. 30	3371	790	81	1522
Henderson, Thomas M. (See Noland, Frederick C., assignor.)						
Henery, Charles F., assignor of one-half to F. J. Laub, Akron, Ohio. Tailpiece for musical instruments	591,472	Oct. 12	956	236	81	214
Henion, Wakeman B., *et al.* (See Johnson, Edward E., assignor.)						
Henius, Max, Chicago, Ill. Temperature-indicating stirring apparatus	594,533	Nov. 30	2900	750	81	1489
Henkle, Leonard, and F. H. Goddard, Rochester, N. Y. Acetylene-gas burner	596,112	Dec. 28	2215	526	81	2113
Henlein, Siegmund, *et al.* (See Wendorf, Maximilian, assignor.)						
Henneberg, Gustav, assignor to E. Leissner, New York, N. Y. Spirit-level	594,692	Nov. 30	3507	816	81	1551
Hennebutte, Henri J. E., Paris, France. Process of and apparatus for recovering glycerin from spent soap-lye	591,219	Oct. 5	508	120	81	97
Hennessy, James, assignor of one-half to J. M. Warn, Painesville, Ohio. Pneumatic rubber hoof-pad	594,090	Nov. 23	2298	509	81	1317
Hennig, Henry, Paterson, N. J. Closed continuous system for generating steam	595,101	Dec. 7	468	112	81	1707
Henning, Frederick S., and W. Pigott, assignors of one-third to H. Strain, Jr., Toronto, Canada. Water-tower	591,603	Oct. 12	1193	261 262	81	258
Henning, James H., and J. E. Schmid, San Francisco, Cal. Folding gate	596,927	Dec. 28	2574	613	81	2181
Henning, Paul. (See Pollock and Kurth, assignors.)						
Henry, John C., Denver, Colo. Electric railway	591,100	Oct. 5	261	60	81	56
Hentze, Rudolph J., Jersey City, N. J. Kitchen-table	594,353	Nov. 23	2069	631	81	1307
Hepburn, Lewis L., assignor to Marlin Fire Arms Company, New Haven, Conn. Safety device for bolt-guns	591,220	Oct. 5	510	120 121	81	97
Hepp, Daniel, Chicago, Ill. Workman's time-recorder	591,253	Oct. 5	570	134 135	81	108
Hepp, Daniel, Chicago, Ill. Watchman's time-recorder	591,254	Oct. 5	572	135 136	81	108
Herbabny, Julius. (See Rudolph and Herbabny.)						
Herbert, Winfred J., East Liverpool, Ohio. Necktie-holder	593,095	Nov. 2	603	144	81	924
Herbst, Frank M., Dayton, Ohio. Scaffolding	595,064	Dec. 7	396	96	81	1693
Herman, Morris L., Cincinnati, Ohio. Folding tray	590,988	Oct. 5	56	13	81	13
Herr, David L., assignor of one-half to W. R. Herr, Lock Haven, Pa. Pipe-threading machine	591,967	Oct. 19	1803	430	81	402
Herr, William R. (See Herr, David L., assignor.)						
Herrick, Frank A., Jackson, Mich. Curtain-clamp	591,921	Oct. 19	1728	414	81	388
Herrick, Lewis, New Haven, Conn., assignor to Lovejoy Company, New York, N. Y. Clamping device for routing-machines	593,017	Nov. 2	467	112	81	898
Herrin, Lemuel, Timpson, Tex. Bolt-lock for railways	595,775	Dec. 21	1592	384	81	1909
Herrmann, Otto, Memphis, Tenn. Chimney and reflector therefor	593,096	Nov. 2	606	144	81	924
Herterich, Frank H., New Haven, Conn. Spring-bed	596,208	Dec. 28	2370	562	81	2143
Hertwig, Max, Hoboken, N. J. Liquid-cooler	592,781	Nov. 2	46	10	81	816
Hervey, Walter D., Chenoa, Ill. Flue cutter and expander	594,061	Nov. 23	2299	569 570	81	1317
Herzheim, Alfred, assignor to Chemische Fabrik auf Actien, vormals E. Schering, Berlin, Germany. Water and grease proof paper and making same	591,968	Oct. 19	1805	------	81	408
Heselwood, James, Leeds, England. Machine for washing clothes	595,102	Dec. 7	470	113	81	1707
Hess, Christina. (See Pennie, Henry, assignor.)						
Hess, Henry, Jr., Washington, D. C. Lunch-box	593,536	Nov. 9	1427	347	81	1094
Hess, Henry K., Syracuse, N. Y. Chemical-electric generator	592,782	Nov. 2	47	10, 11	81	816
Hess, John M., Philadelphia, Pa. Adjustable back-rest for bicycle-seats	592,783	Nov. 2	51	11	81	816
Hesse, Gustav. (See Oddie and Hesse.)						
Hessen, Herman. (See Machlis, Pinchus L., assignor.)						
Hessey, William W., *et al.* (See Harrell, Joseph J., assignor.)						
Hessler, George W., Paterson, N. J. Railway-car extension-step	594,082	Nov. 23	2400	570	81	1317
Heston, William, assignor to Homestead Manufacturing Company, Limited, Homestead, Pa. Valve	596,000	Dec. 21	2002	478	81	2053
Hewes, James E., Philadelphia, Pa. Electric furnace	595,712	Dec. 21	1477	356	81	1948
Hewett, Robert J., St. Louis, Mo. Electrically-controlled block-signal for railways	594,471	Nov. 30	3082	722 723	81	1467
Hewitt, Douglas S., Toronto, Canada. Combined square and bevel	594,873	Dec. 7	48	13	81	1631
Hewlett, William F., assignor of one-half to R. S. Bassett and F. J. Smith, Pomona, Cal. Bicycle-support	594,627	Nov. 30	3372	790	81	1522
Heyman, Julius M., assignor to J. J. Paxton, New York, N. Y. Underwear	593,175	Nov. 2	768	184 185	81	959
Heymann, Bernhard, Elberfeld, and R. Reyher, Frankfort-on-the-Main, assignors to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Red azin dye	592,606	Oct. 26	2248	------	81	734
Heywood, Charles H., Hartford, Conn. Stop-motion mechanism	590,984	Oct. 5	56	13	81	13
Heywood, Charles H., Milwaukee, Wis. Device for feeding sheets of paper	592,609	Oct. 26	2250	673	81	735
Hibben, George. (See Long, Jeremiah J., assignor.)						
Hibbler, Edmund, Lehighton, Pa. Bicycle-support	595,946	Dec. 21	1916	458	81	2084
Hicks, James J. (See Zeal, Giles H., assignor.)						
Hicks, Louis H., Lyons, Ind. Cheese-cutter	593,656	Nov. 16	1657	402	81	1154
Hiekisch, Paul, Decatur, Ill. Bicycle-stand	591,969	Oct. 19	1805	430	81	408
Higginbotham, Charles T., Thomaston, Conn., assignor to Seth Thomas Clock Company, of Connecticut. Cyclometer	596,242	Dec. 28	2423	572 573	81	2153
Higgins, Campbell P., Roselle, N. J. Riveting-machine	594,472	Nov. 30	3087	723 724	81	1468
Higgins, Campbell P., Roselle, N. J. Sectional steam-generator	595,829	Dec. 21	1686	407	81	1967
Higgins, Frank L., Winthrop, assignor of one-half to F. H. Burdett, Woburn, Mass. Ball-bearing roller-cog wheel	594,110	Nov. 23	2437	579	81	1325
Higgins, Werter C., Norwich, Conn. Boiler	593,997	Nov. 9	1001	241	81	1016
Higginson, Charles M. (See Farnham, Edward W., assignor.)						
Higham, Thomas, *et al.* (See Burgess, James, assignor.)						
Highland Electro-Chemical Manufacturing Company. (See Knox, William J., assignor.)						
Hilberg, Amel, *et al.* (See Hagstrom, Randall, assignor.)						
Hilberg, John F., *et al.* (See Hagstrom, Randall, assignor.)						
Hilcken, John A. (See Emerson and Hilcken.)						
Hiles, George, assignor of one-half to A. Adlfinger, Des Moines, Iowa. Car-coupling	594,478	Nov. 30	3089	734	81	1468
Hill, Albert D., Ottawa, Ill., assignor of one-third to J. Pohlig, New Orleans, La. Railway-switch-actuating mechanism	592,143	Oct. 19	2139	504	81	468
Hill, Burton W., Somerville, Mass. Steam-trap	594,795	Nov. 30	3687	859	81	1567
Hill, Ebenezer, South Norwalk, Conn. Apparatus for compressing air or gas	593,049	Nov. 2	516	125	81	908
Hill, George A., Massena, Iowa. Weather-strip	594,623	Nov. 30	3366	788	81	1521
Hill, George B., St. Louis, Mo. Combined sash lift and lock	596,161	Dec. 28	2295	544	81	2127

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hill, John A., Leechburg, Pa. Wrench	594,899	Nov. 30	2089	693	81	1438
Hill, Joseph P., Worcester, Mass. Clothes-drier	595,947	Dec. 21	1918	458	81	2034
Hill, Robert J., Camden N. J., assignor to James Smith Woolen Machinery Company, Philadelphia, Pa. Feeting mechanism for carding-machines	592,706	Oct. 26	3434	718 719	81	771
Hill, Sylvester B., Chicopee, Mass. Bicycle-frame	594,136	Nov. 23	2479	587	81	1332
Hill, W. M. (See Wells, Louis B., assignor.)						
Hillee, Jesse. (See Huff, Slaughter W., assignor.)						
Hillis, Henry H., *et al.* (See Merryweather, James, assignor.)						
Hilsinger, Alburtis C., Killawog, assignor to C. A. Stevens, New York, N. Y. Stone or ore crusher	592,469	Oct. 26	3023	613	81	690
Hilton, James, Newark, N. J. Trowel	593,770	Nov. 16	1856	445	81	1192
Hilton, James W., Brooklyn, N. Y. Means for protecting small trees, plants, flowers, &c.	593,579	Nov. 16	1519	369	81	1128
Hilton, John C. (See Cummings and Hilton.)						
Himel, Ulisse, Baldwin, La. Horse-rake	594,083	Nov. 23	2401	570	81	1317
Hind, Thomas J., Boston, Mass. Flashing for use in building construction	596,366	Dec. 28	2467	586	81	2161
Hines, Edwin S., Jersey City, N. J. Veil-clamp	594,904	Dec. 7	270	65	81	1671
Hinton, James A. E., Longview, Ala. Railway-spike	594,253	Nov. 23	2664	631	81	1308
Hintze, Julius E., Brooklyn, N. Y. Fireproof building	593,804	Nov. 16	1923	457	81	1208
Hirner, Emil A., Allentown, Pa. Stocking-cutter	594,400	Nov. 30	2940	693	81	1438
Hirsch, Oswald. (See Catlin, Horace, assignor.)						
Hitch, William S., Laurel, assignor of one-half to J. H. Wilson, Dover, Del. Fastening device for furniture	593,888	Nov. 16	2075	490	81	1296
Hitchcock, Charles F., assignor to Hitchcock Metal Company, San Francisco, Cal. Metallic alloy	591,604	Oct. 12	1199	------	81	259
Hitchcock Lamp Company. (See Barber, Edward A., assignor.)						
Hitchcock Lamp Company. (See Bragger, John W., assignor.)						
Hitchcock Lamp Company. (See Zimerman, Eli, assignor.)						
Hitchcock Metal Company. (See Hitchcock, Charles F., assignor.)						
Hite, Francis A., Pittsburg, Pa. Emergency brake and fender combined	594,693	Nov. 30	3508	817	81	1551
Hixson, Frank, Ashland, Ohio. Corn-harvester	595,477	Dec. 14	1112	268	81	1854
Hobbs, John E., North Berwick, Me. Connecting-rod for attachable sleigh-runners	593,744	Nov. 16	1815	435	81	1188
Hobbs, John E., North Berwick, and B. M. Wentworth, Berwick, Me.; said Wentworth assignor to said Hobbs. Attachable sleigh-runner	595,851	Dec. 21	1723	414	81	1995
Hochstrasser, Albert, assignor of one-half to P. Buchheit, Cincinnati, Ohio. Grooved-rail cleaner	594,349	Nov 23	2846	673	81	1402
Hockensmith, Franklin C., Irwin, Pa. Mine-car-door fastening	593,988	Nov. 16	2160	512	81	1252
Hodgdon, Frederick S., Rumford, Me. Perpetual calendar	591,255	Oct. 5	575	136	81	109
Hodge, John G. (See O'Connor and Hodge.)						
Hodges, Edward R., Indianapolis, Ind. Copying-pad	593,657	Nov. 16	1659	402	81	1155
Hodgman, Willis K. (See Huber and Hodgman.)						
Hodgman, Willis K., assignor to Huber Printing Press Company, Taunton, Mass. Registering apparatus for printing-presses	593,658	Nov. 16	1660	402	81	1155
Hodgson, Frank B., and R. H. Rickards, Blackstone, Mass. Non-refillable bottle	591,763	Oct. 12	1449	342	81	311
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.)						
Hoe, Robert, *et al.* (See North, Thomas M., assignor.)						
Hoe, Robert, *et al.* (See Read, George F., assignor.)						
Hoe, Robert, *et al.* (See Shattuck, Edwin L., assignor.)						
Hoefer, Frederick W. (See Stover and Hoefer.)						
Hoefinghoff, Harry C., *et al.* (See Fetters, Charles A., assignor.)						
Hoey, Michael J., Columbus, Ohio. Draft-beam attachment for railway-cars	593,097	Nov. 2	604	145	81	925
	593,580	Nov. 16	1520	369 370	81	1129
Hoffken, Jeremiah G., Green Isle, Minn. Mower	591,043	Oct. 5	186	43	81	38
Hoffelt, Arthur E., Brooklyn, N. Y. Folding umbrella	595,019	Dec. 7	311	75	81	1678
Hoffman, Charles M., Lebanon, N. H., assignor of one-half to I. N. Perley. Pole or thill coupling	593,721	Nov. 16	1770	425	81	1175
Hoffman, Charles V., Sidney, N. J. Fastening						
Hoffman, John G., *et al.* (See Hoffmann, Charles H., assignor.)						
Hoffman, Joseph, Schenectady, N. Y., assignor to General Electric Company, of New York. Section-insulator	594,155	Nov. 23	2512	595	81	1339
Hoffman, William P. G., *et al.* (See Haldeman, John J., assignor.)						
Hoffmann, Charles H., assignor of two-thirds to P. J. Pitson and J. G. Hoffman, Perrysburg, Ohio. Butter-cutter	591,970	Oct. 19	1807	430	81	402
Hoffmann, Ferdinand F., Brookville, Pa. Veterinary ecraseur	591,403	Oct. 12	841	196	81	198
Hofheimer, Maurice, Baltimore, Md. Caramel-wrapping machine	594,796	Nov. 30	3089	859 860 861	81	1587
Hogg, Alfred, Dunedin, New Zealand. Steam-engine	592,144	Oct. 19	2130	504	81	463
Hoke, Samuel A. (See Jones and Hoke.)						
Holbrook, Harry D., Utica, N. Y. Sheet material of cork and mechanism for producing same	595,776	Dec. 21	1598	384	81	1969
Holbrook, Robert G., Oswego, N. Y. Heater	593,659	Nov. 16	1662	403	81	1155
Holcomb, Thomas D., Brooklyn, N. Y. Carousel	592,870	Nov. 2	211	49	81	848
Holden, W. Howard, *et al.* (See Shuttleworth, Alpheus C., assignor.)						
Holderness, Harry I., Pine Bluff, Ark. Crib attachment for beds	591,117	Oct. 5	314	77	81	61
Holecek, Albert, Reedsville, Wis. Device for setting saw-teeth	590,985	Oct. 5	60	13	81	13
Holford, Lee. (See Windmiller and Holford.)						
Holland, Charles F., Elko, Nev. Vessel-cleaner	593,298	Nov. 9	1002	241 242	81	1016
Holland, Daniel P., Edgewood, Ga. Oven	593,098	Nov. 2	605	145	81	925
Holland, Elias C. (See Muther, Holland, and Woodward.)						
Holland, John W. (See Bates, Francis C., assignor.)						
Hollander, Theodore, assignor of forty-nine one-hundredths to R. A. Chapman, Middletown, Conn. Apparatus for producing illusive effects	592,631	Oct. 26	3287	662	81	742
Hollar, William H., and A. Kennedy, Philadelphia, Pa.; said Kennedy assignor to said Hollar. Safe	591,188	Oct. 5	445	106 107	81	85
Hollen, James H., Providence, assignor to W. L. Plaisted, Johnston, R. I. Advertising apparatus	595,541	Dec. 14	1210	291	81	1874
Holley, Seymour H. (See Rawlings, Samuel V., assignor.)						
Hollinger, Isaac K., Greenville, Ohio. Fence	595,172	Dec. 7	592	142	81	1730
Hollister, Willoahby F., Cowen, W. Va. Stirrup	592,587	Oct. 26	3313	665	81	728
Hollister, Willoahby F., Cowen, W. Va. Spring-stirrup	592,588	Oct. 26	3313	665	81	728
Hollowell, Calvin L., *et al.* (See Cole, Thomas A., assignor.)						
Holly, Carlos, assignor to J. A. Ward and J. McLean, Lockport, N. Y. Looping-machine	593,218	Nov. 9	854	204 205 206	81	990
Holman, Calvin J., Chicago, Ill. Folding umbrella	595,628	Dec. 14	1339	323	81	1902

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Holmes, Charles B., Minneapolis, Minn. Gear-case for sprocket-and-chain drives	592,288	Oct. 26	2362	558	81	580
Holmes, Charles B., Minneapolis, Minn. Gear-case for sprocket-and-chain drives	592,289	Oct. 26	2365	559	81	580
Holmes, Edgar R., Ayr, Nebr. Lamp-holder	591,533	Oct. 12	1061	254	81	236
Holmes, Edward D. (See Davis, John E., assignor.)						
Holmes, Henry, assignor of one-half to W. Evans, Philadelphia, Pa. Depilating hides or skins	593,600	Nov. 16	1663	403	81	1155
Holmes, Milo P., San Francisco, Cal. Two-wheeled vehicle	592,091	Oct. 19	2039	482	81	446
Holmes, William H., Columbus, Ohio. Bicycle-vise	594,874	Dec. 7	50	13	81	1631
Holst, Constantyn P., Amsterdam, Netherlands. Pump and mechanism for operating same	593,099	Nov. 2	606	145 146	81	925
Holt, Benjamin, Stockton, Cal. Combined harvester	596,446	Dec. 28	2798	661	81	2227
Holthaus, Emil, Canarsie, N. Y., assignor to C. C. Currier, Newark, N. J. Rendering apparatus	594,013	Nov. 23	2289	541	81	1295
Holthaus, Emil, Canarsie, N. Y., assignor to C. C. Currier, Summit, N. J. Rendering apparatus	594,014	Nov. 23	2290	541	81	1295
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Cyclometer	594,875	Dec. 7	52	13	81	1632
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Cyclometer	595,569	Dec. 14	1246	301	81	1881
Homann, Otto E. C. (See Lippincott and Homann.)						
Homer, Howard H., Franklin, Me. Folding cradle	594,015	Nov. 23	2291	541	81	1296
Homestead Manufacturing Company. (See Heston, William, assignor.)						
Hompe, Alexander W., assignor to Royal Furniture Company, Grand Rapids, Mich. Metallic bedstead	594,016	Nov. 23	2293	542	81	1296
Honecker, William A., assignor of one-half to T. D. Johnson, Tougaloo, Miss. Nut-lock	594,950	Dec. 7	180	43	81	1655
Hönsch, Carl F., and G. Corbion, Jr., Philadelphia, Pa., assignors to said Corbion. Woven textile fabric	596,267	Dec. 28	2408	586 587	81	2161
Hood, John D., assignor of one-third to S. J. Baily, Columbia, Pa. Valve-gear	594,951	Dec. 7	182	44	81	1655
Hood, John W., Portsmouth, Ohio. Safety-frog for railway-tracks	592,589	Oct. 26	3214	606	81	728
Hood, William C., assignor to Racine Hardware Company, Racine, Wis. School-desk standard	594,084	Nov. 23	2408	570	81	1318
Hook, Duane B., Germany, Pa. Ironing-board	593,661	Nov. 16	1665	403	81	1155
Hooper, Lorenzo D., Coffeyville, Kans. Gate	593,939	Nov. 16	2102	512	81	1253
Hoopes, Ernest A., Des Moines, assignor of one-half to L. F. Marks, Cedar Rapids, Iowa. Head for stringed instruments	596,298	Dec. 28	2515	598	81	2169
Hoosier Drill Company. (See Jones, Sylvester H., assignor.)						
Hoosier Drill Company. (See Jones and Towle, assignors.)						
Hoover, Frank K. (See Mason, Arthur J., assignor.)						
Hoover, Frank K. (See Mason and Hoover.)						
Hope, William. (See Spanler, Waldemar H., assignor.)						
Hopkins, Lyman R., Brooklyn, N. Y. Fastener for windows	590,986	Oct. 5	62	14	81	14
Hopkins, William B., Birmingham, Ala. Type-writer arm	595,478	Dec. 14	1113	268	81	1854
Hörmann, Rudolph, Hoboken, N. J. Button	594,797	Nov. 30	3695	861	81	1589
Horn, Adam, Batavia, N. Y. Berry-carrier	593,889	Nov. 16	2076	491	81	1236
Horn, George A., Newark, N. Y., assignor of one-half to J. S. Ross, Rochester Mills, Pa. Ironing-board	591,350	Oct. 5	735	172	81	141
Horn, John C., Chicago, Ill. Framing attachment for articles of furniture	591,275	Oct. 5	610	142 143	81	115
Hornbake, Robert P., Washington, Pa. Wringer-roll	595,020	Dec. 7	312	75	81	1678
Hornich, William, Jr., Newark, N. J., assignor to Whitehead & Hoag Company, of New Jersey. Badge	592,610	Oct. 26	3251	673	81	735
Horr, Bertin E., assignor of one-half to J. H. Turner, Abingdon, Ill. Wrench	591,118	Oct. 5	315	78	81	62
Horton, Charles M., Duluth, Minn. Truss and bridge	595,629	Dec. 14	1340	324	81	1902
Horton, Charles W., Blakeslee, Ohio. Water-motor	595,246	Dec. 7	731	179	81	1755
Horton, Joseph and W., West Vale, assignors to C. and W. T. Heap, Rochdale, England. Clip for tentering, stretching, and drying machinery	592,707	Oct. 26	3437	719 720	81	772
Horton, William. (See Horton, Joseph and W.)						
Hoshall, Bennett T., Shamburg, Md. Fence	595,173	Dec. 7	593	142	81	1730
Hostetter, Amos B. (See Ball, Samuel E., assignor.)						
Hotchkiss, Lyman A., Perry, Pa. Automatic steam-valve	596,001	Dec. 21	2003	478	81	2053
Hotchkiss Ordnance Company. (See Benét and Mercié, assignors.)						
Hotz, Jacob, Philadelphia, Pa. Measuring apparatus for ribbons, &c	594,534	Nov. 30	3301	750 751	81	1489
Houchens, Leonidas R., Washington, D. C. Garbage-receptacle	593,525	Nov. 9	1395	336	81	1089
Hough, Arthur. (See Hanscom and Hough.)						
Hough, Benjamin B., assignor of one-half to B. V. Thomas, Millville, N. J. Apparatus for manufacturing glass objects	592,784	Nov. 2	52	11, 12	81	817
Houghton, Arthur A., Corning, N. Y. Process of and apparatus for drawing glass tubing	593,581	Nov. 16	1523	370	81	1129
Houghton, John Q. A., assignor, by mesne assignments, to D. H. Flack and G. C. Morrison, Baltimore, Md. Buttonhole-stitching machine	591,133	Oct. 5	343	82, 83	81	67
House, Charles W., *et al.* (See Andriot, Peter, assignor.)						
House, George V., Mount Vernon, N. Y. Truss-pad	593,473	Nov. 9	1297	314	81	1072
House, George V., Mount Vernon, N. Y. Truss	593,474	Nov. 9	1298	314	81	1072
House, James A., Bridgeport, Conn. Rotary engine	593,219	Nov. 9	870	206 207	81	991
Houseman, Harry A., Philadelphia, Pa., assignor to Standard Machine Company, of Pennsylvania. Knitting-machine	595,439	Dec. 14	1044	250	81	1840
Houser, Wesley C., Columbus, Ohio. Combined curtain-pole and shade-roller bracket	592,113	Oct. 19	2077	491	81	453
Housman, Robert H. (See Osmond and Housman.)						
Houston, David H., Hunter, N. D. Extension-stock for firearms	593,890	Nov. 16	2077	491	81	1236
Hout, Kittie C., Schenectady, N. Y. Bed-bottom	593,891	Nov. 16	2078	491	81	1236
Houts, John R., assignor of one-fourth to S. Bruckheimer, Washington, D. C. Permutation-padlock	593,892	Nov. 16	2079	491	81	1237
Houze, Leon J., Hartford City, Ind. Non-refillable bottle	593,220	Nov. 9	874	207	81	991
Howard, Charles D., Syracuse, N. Y. Stove or furnace grate-bar	591,371	Oct. 5	785	184	81	150
Howard, Charles D., Syracuse, N. Y. Stove or furnace grate	593,539	Nov. 9	1428	347	81	1094
Howard, Charles E., Chicago, Ill. Equalizer for furniture-drawers	591,184	Oct. 5	348	83	81	68
Howard, Elijah L. (See Stevens and Howard.)						
Howard, George H., *et al.* (See Day, Willard G., assignor.)						
Howard, George M., Joplin, Mo. Climbing-spur	596,113	Dec. 28	2217	596	81	2113
Howard, William F., *et al.* (See Day, Willard G., assignor.)						
Howarth, George T. (See Googins and Howarth.)						
Howe, Edwin C. (See Crocker, Eben C., assignor.)						
Howe, Emma J., West Superior, Wis. Egg or cake beater	592,708	Oct. 26	3438	720	81	772
Howe, Martin V. B., Gardner, Mass. Embossing-machine	591,472	Oct. 12	957	226	81	315
Howe, Peter N., Malta, Ill. Disk-sharpener	592,785	Nov. 2	54	12	81	817

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Howe Scale Company of 1886. (See Braley, Samuel T., assignor.)						
Howe Scale Company of 1886. (See Webster and Winslow, assignors.)						
Howe, Solon G., Detroit, Mich. Shut-off and pipe-drilling device	592,007	Oct. 19	1877	447, 448	81	416
Howe, Walter H., London, England. Vote-recording apparatus	592,500	Oct. 26	3216	666, 667	81	728
Howell, George H., and J. Kiley, Sioux City, Iowa; said Kiley assignor to said Howell. Upholsterer's tool and appliance	593,221	Nov. 9	876	208	81	992
Howell, Irwin W., Newark, N. J., assignor to General Electric Company, of New York. Roentgen-ray tube	594,156	Nov. 23	2514	595	81	1340
Howk, John S., Reno, Nev. Mowing-machine	590,987	Oct. 5	63	14	81	14
Howland, Lewis E., Chicago, Ill. Measuring instrument	592,911	Nov. 2	278	64	81	861
Howson, Henry, assignor to Link-Belt Engineering Company, Philadelphia, Pa. Conveyer	592,709	Oct. 26	3439	720, 721	81	772
Hoxie, William D., Brooklyn, N. Y. Steam-boiler	595,852	Dec. 21	1726	414	81	1996
Hoyer, Frank F., Owosso, Mich. Dental-tool guard	594,952	Dec. 7	185	44	81	1655
Hoyt, William C. (See Lee and Hoyt.)						
Hubbard, Moses G., Jr., assignor to McGuire Manufacturing Company, Chicago, Ill. Truss-brace for railway-cars	594,798	Nov. 30	3696	861	81	1589
Hubbell, Charles W., *et al.* (See Johnson, Edward E., assignor.)						
Hubbell, Harvey, Bridgeport, Conn. Belt cutter and punch	593,940	Nov. 16	2163	513	81	1253
Huber, Berthold, assignor to Huber Printing Press Company, Taunton, Mass. Printing-press	593,662	Nov. 16	1666	404	81	1156
Huber, Berthold, and W. K. Hodgman, assignors to Huber Printing Press Company, Taunton, Mass. Printing-press	593,582	Nov. 16	1524	370	81	1129
Huber, E. (See Smith, John W., assignor.)						
Huber, George W., assignor, by mesne assignments, to H. A. Effrig and T. S. Krause, Philadelphia, Pa. Machine for compressing powdered or granular substances	593,100	Nov. 2	609	146, 147	81	926
Huber Printing Press Company. (See Hodgman, Willis K., assignor.)						
Huber Printing Press Company. (See Huber, Berthold, assignor.)						
Huber Printing Press Company. (See Huber and Hodgman, assignors.)						
Hubert, Philip G., New York, N. Y. Signaling apparatus	592,954	Nov. 2	868	86	81	878
Hudson, Edmund. (See Scales, William S., assignor.)						
Hudson, Edmund. (See Stirling, Clarence C., assignor.)						
Hudson, William B. (See Randall, Charles B., assignor.)	594,799	Nov. 30	3698	861	81	1590
Huelsmann, Albert, Fond du Lac, Wis. Machine for making cigarettes	594,800	Nov. 30	3699	862	81	1590
Huff, Slaughter W., assignor of one-half to J. Hilles, Baltimore, Md. Electric rail-bond	595,479	Dec. 14	1114	269	81	1855
Hugg, William H., Palmyra, N. J., and C. Schütz, Philadelphia, Pa. Sewing-machine						
Hughes, Charles. (See Cox and Hughes.)	591,971	Oct. 19	1808	430	81	408
Hughes, David W., Vandalia, Mo. Egg-tester						
Hughes, Edward C. (See Robbins, Arthur C., assignor.)						
Hughes, Fred C., and G. W. Kelley, Detroit, Mich.; said Kelley assignor to said Hughes. Multiple-switchboard system	593,394	Nov. 9	1165	281	81	1045
Hughes, George M., Buffalo, N. Y. Clothes-line holder	593,745	Nov. 16	1816	435	81	1183
Hughes, John, Somerville, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Safety-valve	593,526	Nov. 9	1396	337	81	1069
Hughes, John W., Carlisle, Pa. Lifting-jack	596,367	Dec. 28	2665	631	81	2300
Hughes, Robert, Waterford, assignor to J. Knickerbacker, Troy, N. Y. Hydrant-valve	590,988	Oct. 5	65	14	81	14
Hughes, Thomas W., assignor of three-fourths to O. B. Roller, E. C. Martz, and E. Purcell, Jr., Harrisonburg, Va. Ladder	591,351	Oct. 5	736	172, 173	81	141
Hughes, William B. (See Talbot, Benjamin, assignor.)						
Hughes, William B., Philadelphia, Pa. Gas-producer	593,893	Nov. 16	2081	492	81	1237
Hughes, William B., Philadelphia, Pa. Gas-producer	593,894	Nov. 16	2084	493	81	1238
Hughes, William H., Jr., New York, N. Y. Umbrella or flag holder for bicycles	593,018	Nov. 2	469	112	81	898
Huhn, Henry H., Cato, Wis. Machine for weighing liquids	596,328	Dec. 28	2577	613, 614	81	2181
Hull, Daniel O., Clyde, Ohio. Alternating-current regulator	593,050	Nov. 2	520	125	81	908
Hull, Nicholas A., assignor to W. C. Foley, Chicago, Ill. Sewing-machine table-top	591,474	Oct. 12	959	227	81	215
Hull, Ual, Newton, N. J. Manufacture of paper-covered vessels	591,404	Oct. 12	842	196	81	192
Hulse-Anderson Company. (See Hulse, Edwin M., assignor.)						
Hulse, Edwin M., Columbus, Ohio, assignor to Hulse-Anderson Company, of Ohio. Rocking-chair	593,068	Nov. 2	558	134	81	915
Hume, Frederic T. (See Hume, Henry M. and F. T.)						
Hume, Henry M. and F. T., New York, N. Y. Tramway-switch	596,868	Dec. 28	2666	632	81	2300
Hummel, Charles F., Brooklyn, N. Y. Insulating-coupling	592,930	Nov. 2	809	70	81	866
Humphrey, Alfred H., Kalamazoo, Mich. Polishing-roll for photographic burnishers	596,268	Dec. 28	2472	587	81	2161
Humphrey, Harry J., Philadelphia, Pa., assignor to Ridley & Company, Limited. Match or other box for bicycles	593,222	Nov. 9	877	208	81	992
Humphrey, John. (See Gregg, Donaghy, and Humphrey.)						
Humphrey, William C., Jamestown, N. D. Dress and mud guard	594,604	Nov. 30	3510	817	81	1552
Hundhausen, Johannes, Hamm, Germany. Drier for semifluid material	594,085	Nov. 23	2404	571	81	1318
Hunicke, Felix H., St. Louis, Mo. Glove	593,475	Nov. 9	1301	314, 315	81	1073
Hunley, William S., and W. T. Harris, Jr., Richmond, Ky. System of protecting levees	591,256	Oct. 5	576	136, 137	81	109
Hunt, Charles W., West New Brighton, N. Y. Antifriction-bearing	592,053	Oct. 19	1964	464	81	432
Hunt, David. (See Whipple, Charles S., assignor.)						
Hunt, David, Boston, Mass. Caster	594,017	Nov. 23	2295	542	81	1296
Hunt, Ellwood C., Baiting Hollow, N. Y. Darning apparatus	592,955	Nov. 2	869	86	81	878
Hunt, Henry. (See Hamilton, Clayton M., assignor.)						
Hunt, James. (See Dolley, Rehfuss, and Hunt.)						
Hunt, James W., Port Hope, Canada. Chimney-cowl	594,877	Dec. 7	55	14	81	1633
Hunt, John, New York, N. Y. Pneumatic door-bell	595,630	Dec. 14	1345	325	81	1903
Hunt, John T., New York, N. Y. Removable fuse-holder	596,209	Dec. 28	2371	562	81	2143
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	594,876	Dec. 7	53	14	81	1632
Hunt, Ludovic E., Somerset, Ky. Thermometer	596,162	Dec. 28	2297	544	81	2128
Hunt, Platt L., Nichols, N. Y. Bottle	592,260	Oct. 26	2367	559	81	530
Hunter, Alexander G., Toronto Junction, Canada. Apparatus for disinfecting and deodorizing purposes	591,332	Oct. 5	739	173	81	142
Hunter, Charles B., Poughkeepsie, N. Y. Automatic signal	594,995	Dec. 7	273	65	81	1671
Hunter, David E., Cambridge, Mass. Device for locking drawers of cabinets	591,552	Oct. 12	1111	261, 262	81	243
Hunter, George, Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Winding mechanism for mainspring-barrels	596,407	Dec. 28	2731	647	81	2214
Hunter, George, Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Watch-barrel	596,408	Dec. 28	2732	647	81	2214

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hunter, Laura G., Ewing, Ill. Plant-protector	594,474	Nov. 30	3690	724	81	1468
Hunter, Lytle J. (See Garner, William R., assignor.)						
Hunter, Rudolph M., Philadelphia, Pa. Electrical railway	592,225	Oct. 19	2257	534	81	486
Hunter, Rudolph M., Philadelphia, Pa. Controlling device for electric railways	595,570	Dec. 14	1247	301	81	1881
Hunter, Rudolph M., assignor to Electric Car Company of America, Philadelphia, Pa. Electric railway	593,051	Nov. 2	522	126	81	908
Hunter, Rudolph M., Philadelphia, Pa., assignor to General Electric Company, of New York. Electrical transmission of energy	596,002	Dec. 21	2004	479	81	2053
Hunter, Rudolph M., Philadelphia, Pa., assignor to General Electric Company, of New York. Transmission of electrical energy	596,042	Dec. 21	2004	497	81	2073
Hunter, Rudolph M., assignor to G. W. K. Stephens, Philadelphia, Pa. Electrical transmission of energy	596,041	Dec. 21	2002	496	81	2072
Hunter, William, assignor to J. B. McGlew, San Francisco, Cal. Water-filter	594,695	Nov. 30	3511	817	81	1553
Huntington Automatic Railway Car Coupler Company. (See Gillespie, Charles W., assignor.)						
Huntington, W. D., *et al.* (See Rumble, Alexander C., assignor.)						
Hurndall, Percy W., San Francisco, Cal. Adjustable fire-draft blower and screen	592,114	Oct. 19	2078	491	81	453
Hurop, Ferdinand, Detroit Mich. Horseshoe attachment	595,305	Dec. 14	815	201	81	1797
Hurt, Elisha F., New York, N. Y., and G N Whistler, Pompton, N. J., assignors, by mesne assignments, to Manhattan Concentrator Company, Charleston, W. Va. Separator	594,953	Dec. 7	186	45	81	1656
Huschke, Ernst, Saalfeld, Germany. Shuttle-operating mechanism for power-looms	593,941	Nov. 16	2164	513	81	1253
Huse, Leon C., Laconia, N. H. Circular-knitting machine	593,663	Nov. 16	1668	404	81	1156
Huselton, John F. (See Nicholson, George W., assignor.)						
Hutchins, George F., and W. D. Thompson, assignors to Crompton & Knowles Loom Works, Worcester, Mass. Take-up mechanism	595,103	Dec. 7	471	113	81	1707
Hutchins, George F., and W. D. Thompson, assignors to Crompton & Knowles Loom Works, Worcester, Mass. Take-up mechanism	595,104	Dec. 7	472	113	81	1708
Hutchins, Samuel D. (See Nellis and Hutchins.)						
Hutchinson, Warren B., trustee. (See Mixer, William M., assignor.)						
Hutchinson, William F., Bound Brook, N. J., assignor to himself, and Oliver Wire Company, of Pennsylvania. Wire-nail machine	593,019	Nov. 2	470	113	81	898
Hutchinson, William F., Bound Brook, N. J., assignor to himself, and Oliver Wire Company, of Pennsylvania. Wire-nail machine	593,020	Nov. 2	472	113, 114	81	899
Hutin, Maurice, and M. Leblanc, assignors to Société Anonyme pour la Transmision de la Force par l'Electricité, Paris, France. Telephony and telegraphy	596,017	Dec. 21	2030	485	81	2058
Hutter, Emilie. (See Hutter, Frank A., assignor.)						
Hutter, Frank A., assignor to E. Hutter, New Haven, Conn. Gas-generating machine	594,742	Nov. 30	3602	687, 688	81	1571
Hyatt Roller Bearing Company. (See Tellefsen and Lockwood, assignors.)						
Hyde, George W., Richfield Springs, N. Y. Machine for measuring cloth, paper, &c	592,710	Oct. 26	3442	721	81	773
Hyde, John, Jr., Pawtucket, R. I. Refrigerator	593,021	Nov. 2	474	114	81	899
Hyde, William, Philadelphia, Pa. Axle-box	592,520	Oct. 26	3099	632	81	705
Hyland, Robert R., Round Rock, Tex. Cotton-chopper	591,972	Oct. 19	1809	431	81	408
Hyle, John A. (See Saunders, John H., assignor.)						
Hyman, D. M. (See Hallett, Samuel L., assignor.)						
Hyne, Henry A., San Francisco, Cal. Windmill	591,101	Oct. 5	285	69	81	56
Hynes, Michael, St. Johnsbury, Vt. Twyer for furnaces	594,878	Dec. 7	55	15	81	1633
Hyslop, John, Abington, assignor of one-half to J. Pettee, Jr., Whitman, Mass. Machine for making leather-board boot or shoe shanks, &c	591,358	Oct. 5	741	173, 174, 175, 176	81	142
Ide, Albert L. (See Barker, Irving, assignor.)						
Ife, Walter W., St. Paul, Minn. Revolving door	595,948	Dec. 21	1919	458, 459	81	2085
Ife, Walter W., St. Paul, Minn. Revolving door	596,029	Dec. 21	2068	491, 492	81	2066
Ihlder, John D., Yonkers, assignor to Otis Brothers & Company, New York, N. Y. Potential switch	594,879	Dec. 7	56	15	81	1633
Illing, Robert, Chicago, Ill. Composition of matter for artificial fuel	594,880	Dec. 7	57		81	1633
Illingworth, Harry L., Lynn, assignor to C. E. Riley, Newton, Mass. Sole-sewing machine	591,475	Oct. 12	960	227, 228	81	215
Illingworth, John, Newark, N. J. Ingot-casting machine	594,157	Nov. 23	2515	595, 596	81	1340
Indiana Manufacturing Company. (See Toner and McCollum, assignors.)						
Indiana Novelty Manufacturing Company. (See Marble, George W., assignor.)						
Indianapolis Chain and Stamping Company. (See Harrington, Humphrey, assignor.)						
Ingalls, Willard A., assignor of one-half to T. Pearson, South Bend, Ind. Separable button	596,168	Dec. 28	2298	544	81	2128
Inglis, Walter E., Mount Vernon, N. Y. Process of and apparatus for extracting metals from ores	596,458	Dec. 28	2927	667	81	2233
Ingraham, Edmund, assignor of one-half to Fairmount Machine Company, Philadelphia, Pa. Clutch-and-brake mechanism for looms	592,731	Oct. 26	3479	731	81	779
Ingram, Arthur R., and F. Paugh, La Grange, Ky. Wire-stretcher	592,226	Oct. 19	2267	534	81	491
Ingram, Harry, assignor of one-half to C. F. Fay and T. Firth, Jr., Brooklyn, N. Y. Hat-fastener	595,480	Dec. 14	1117	270	81	1855
Ingram, Nathan D., Holyoke, Mass., assignor to Scovill Manufacturing Company, Waterbury, Conn. Self-attaching button	591,973	Oct. 19	1810	431	81	404
Inman, Byron B., assignor to H. G. Inman, Duluth, Minn. Ice-breaking boat	593,664	Nov. 16	1670	405	81	1156
Inman, Harry A., Amsterdam, N. Y. Box-covering machine	594,401	Nov. 30	2944	694	81	1439
Inman, Hiram G. (See Inman, Byron B., assignor.)						
Insinger, Alfred, assignor to C. F. Insinger, Philadelphia, Pa. Dish-cleaner	594,137	Nov. 23	2481	587	81	1332
Insinger, C. Florence. (See Insinger, Alfred, assignor.)						
Invisible Collar Button Co. (See Loveland, Frank A., assignor.)						
Irish, Richard F., Boston, Mass. Soap-holder	594,086	Nov. 23	2405	571	81	1318
Irmscher, William, Brooklyn, N. Y. Table implement	593,223	Nov. 9	878	208	81	992
Ironclad Manufacturing Company. (See Comstock, Chester, assignor.)						
Irons, Perry, St. Joseph, Ill. Clothes-wringer	592,202	Oct. 19	2218	524	81	480
Irving, James A., Columbus, Ohio, assignor of one-half to M. Jenkins. Musical toy	591,476	Oct. 12	964	228	81	216
Irwin, Andrew J. (See Irwin, Jared I. and A. J.)						
Irwin, Edward J. (See Kinsey, Ernest U., assignor.)						
Irwin, Elijah and L., Furches, N. C. Combination-lock	596,164	Dec. 28	2299	545	81	2128
Irwin, Jared I. and A. J., Sandersville, Ga. Rail-holder	592,991	Oct. 26	2367	559	81	530
Irwin, Launa. (See Irwin, Elijah and L.)						
Isaacs, John D. (See Curtis and Isaacs.)						
Isham, Willard H., Geneva, Ohio. Composition for renovating black fabrics	592,956	Nov. 2	872		81	879
Isherwood, Alfred, New Bedford, Mass. Loom-shuttle	594,402	Nov. 30	2946	694	81	1440
Iske, Albert and A., assignors of one-fourth to G. W. Anna and A. L. Thomas, Lancaster, Pa. Elevator	592,963	Nov. 16	2904	523	81	1202

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Iake, Anthony. (See Iske, Albert and A.)						
Ithaca Gun Co. (See Smith and Crass, assignors.)						
Ivens, Theodore. (See Murray and Ivens.)	595,879	Dec. 21	1795	431	81	2010
Ives, George L., Kalamazoo, Mich. Pipe-wrench						
J. H. Horne & Sons Company. (See Barrett, Charles E., assignor.)						
J. Stevens Arms and Tool Company. (See Fay, Charles P., assignor.)						
J. W. Ruger Manufacturing Company. (See Fenner, Jess B., assignor.)	591,764	Oct. 12	1450	342	81	811
Jackman, William A., Cheyenne, Wyo. Coupling for vehicle-shafts						
Jackson Architectural Iron Works. (See Preston, John H., assignor.)	593,540	Nov. 9	1499	347	81	1095
Jackson, Campbell, Abingdon, Va. Ash-pit	595,806	Dec. 14	816	201	81	1798
Jackson, Frederick, Karns City, Pa. Sand pump and bailer						
Jackson, George M. (See Jackson, Henry M. and G. M.)						
Jackson, Henry M. and G. M., Reading, assignors to Kelley Bros. & Spielman, Philadelphia, Pa. Wire-coil machine	594,535	Nov. 30	2204	751	81	1490
Jackson, James W. (See Tortoiseshell, Ernest, assignor.)						
Jackson, John W., Sharpsville, Pa. Nozzle for oil-cans	596,369	Dec. 28	2067	632	81	2200
Jackson, Joseph W., *et al.* (See Burgess, James, assignor.)						
Jackson, William H., assignor of two-thirds to J. T. Figg, F. M. Branthoover, and W. F. Martin, Indianapolis, Ind. Railway-switch	593,665	Nov. 16	1671	405	81	1157
Jacobs, Arthur I., Hartford, Conn. Wire-spoke wheel	596,067	Dec. 28	2135	506	81	2098
Jacobs, Frank W., Plymouth, Iowa. Apparatus for hoisting and conveying boulders	595,718	Dec. 21	1479	356	81	1948
Jacobs, James W., Jeffersonville, Ind. Brake for bicycles	594,018	Nov. 23	2296	542	81	1297
Jacobson, John P. (See Nelson, Bernhard, assignor.)						
Jacobson, Morris S., assignor of one-half to R. Goldman, New York, N. Y. Safety-guard for razors	592,611	Oct. 26	3254	674	81	736
Jacoby, Johann H. F., Saargemünd, Germany. Valve-gear	595,307	Dec. 14	818	202	81	1798
Jahren, Joseph, and E. Harry, Buffalo, N. Y. Burial-casket	593,176	Nov. 2	771	185	81	959
James-Beam Company. (See Parker, Henry F., assignor.)						
James, Joseph H., Rockville, and C. D. Barrows, Glastonbury, Conn.; said Barrows assignor to said James. Automatic cut-off for magic lanterns	593,069	Nov. 2	558	134	81	915
James Smith Woolen Machinery Company. (See Hill, Robert J., assignor.)						
James Smith Woolen Machinery Company. (See Moulton, Hamilton L., assignor.)	591,650	Oct. 12	1277	298 299	81	275
James, Thomas, Braddock, Pa. Crane	595,308	Dec. 14	819	202	81	1798
James, Ulysses S., assignor of one-half to L. H. Graves, Helena, Mont. Hoisting-drum	592,054	Oct. 19	1965	464	81	432
James, Wilbur C., Dayton, Ky., assignor to United States Playing Card Company, Cincinnati, Ohio. Game-counter	595,440	Dec. 14	1046	250	81	1840
James. Will S., Waco, Tex. Biblical game apparatus						
Jameson, Arthur P. (See Graham, William A. D., assignor.)						
Jamison, Clarence. (See Woodman, John C., assignor.)						
Jamison, Harry A. (See Wickersham and Jamison.)						
Jamison, Joel A., *et al.* (See Perkins and Palmer, assignors.)						
Jamison, Thomas E., *et al.* (See Perkins and Palmer, assignors.)						
Jandus Electric Company. (See Lean, George R., assignor.)	592,145	Oct. 19	2139	504	81	463
Jaques, Ephraim, Geneseo, Ill. Paper-weight and sponge-cup	596,114	Dec. 28	2218	526	81	2118
Jarmain, Thomas M., Tetsworth, England. Machine for turning and breaking up swath						
Jarrett, John, Pittsburg, J. R. Davies, Duquesne, and J. Edwards, Homestead, Pa. Car-coupling	591,257	Oct. 5	577	137	81	109
Jarvis, Albert H., and W. J. McLean, New York, N. Y.; said Jarvis assignor to said McLean. Banjo-bell	592,732	Oct. 26	3481	731	81	780
Jarvis, Oscar F., and H. C. Jones, St. Louis, Mo. Car-fender	595,105	Dec. 7	474	114	81	1708
Jarvis, Philip, Cedar Rapids, Nebr. Corn-cultivator	594,254	Nov. 23	2065	631 632	81	1268
Jasper, Wilhelm, assignor of one-half to M. Mindheim, New York, N. Y. Expansible pulley	593,895	Nov. 16	2067	493	81	1288
Jay, Edward G., Philadelphia, Pa., assignor of one-half to S. S. Jay, Aberdeen, Md. Buckle	592,733	Oct. 26	3481	731	81	780
Jay, Samuel S. (See Jay, Edward G., assignor.)						
Jean, Julius, Globeville, assignor to Standard Gold Extractor Company, Denver, Colo. Amalgamator	596,370	Dec. 28	2068	632	81	2200
Jeffares, Richard, and J. W. McCann, Washington, D. C. Portable hammock-support	593,588	Nov. 16	1525	370	81	1130
Jefferies, Ebenezer A. W., assignor to W. Wood, Philadelphia, Pa. Hydraulic coping or shearing machine	594,019	Nov. 23	2297	542 543	81	1297
Jefferis, Richard W., Camden, N. J. Metal locker for marine purposes	593,722	Nov. 16	1771	425	81	1175
Jefferis, Richard W., Camden, N. J. Metal locker	596,269	Dec. 28	2472	587	81	2161
Jeffreys, John, London, England. Fan	594,206	Nov. 23	2294	614	81	1354
Jeklin, John, Spokane, Wash. Dust-pan	593,299	Nov. 9	1004	242	81	1016
Jenatschke, Adolph, and E. C. Fischer, New York, N. Y. Condiment-box	595,481	Dec. 14	1118	270	81	1855
Jencks, Frank B., Syracuse, N. Y. Mending device	596,165	Dec. 28	2200	545	81	2128
Jendis, Emil, Chicago, Ill. Water gate or valve	594,954	Dec. 7	187	45	81	1656
Jendis, Emil, Chicago, Ill. Shower-bath	596,115	Dec. 28	2219	526 527	81	2113
Jenkins, John M., Palmer, Tex. Medicine-glass	594,087	Nov. 23	2407	571	81	1318
Jenkins, Merlin. (See Irving, James A., assignor.)						
Jenkins, Warner H., Philadelphia, Pa. Construction of concrete floors for buildings	591,405	Oct. 12	843	196	81	198
Jenne, William K., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	596,371	Dec. 28	2069	632 633	81	2201
Jenney, Walter. (See Taylor, George W., assignor.)						
Jennings, William C., assignor to Watson & McDaniel Company, Philadelphia, Pa. Separator	594,350	Nov. 23	2347	573	81	1402
Jensen, Hans, Omaha, Nebr. Starching-machine	594,830	Nov. 30	2757	676	81	1601
Jewell, Charles E. and M. R., Seneca Falls, N. Y. Bicycle-holder	591,078	Oct. 5	243	57	81	48
Jewell, Ernest F., Lake City, Minn. Book-support	591,765	Oct. 12	1458	342	81	811
Jewell, Johnson A., Ottawa, Kans. Fence-machine	594,337	Nov. 23	2282	668	81	1306
Jewell, Major R. (See Jewell, Charles E. and M. R.)						
Jewell, Omar H. and W. M., assignors to O. H. Jewell Filter Company, Chicago, Ill. Filter	593,666	Nov. 16	1673	406	81	1157
Jewell, William M. (See Jewell, Omar H. and W. M.)	593,584	Nov. 16	1598	371	81	1130
Jewett, Charles T., New York, N. Y. Portable vehicle-cover	595,681	Dec. 14	1348	325	81	1904
Job, Daniel, deceased; L. S. Job, Warren, Ohio, administrator. Engine or pump						
Job, Lewis S., administrator. (See Job, Daniel.)						
Jobbins, William F., *et al.* (See Dyer, Frank L., assignor.)						
Joerss, August, *et al.* (See Richard, Julius, assignor.)						
Jogada Furnace Company. (See Roe, John M., assignor.)						
John O'Brien Boiler Works Company. (See O'Brien, John J., assignor.)						
John R. Williams Company. (See Williams, John R., assignor.)						
Johns-Pratt Company. (See Luscomb, Henry H., assignor.)						
Johnsen, William H., Philadelphia, Pa. Rotary fan	595,571	Dec. 14	1258	301	81	1665

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Johnson, Albert W., assignor to J. W. Downs, New Haven, Conn. Tension device for sewing-machines	591,092	Oct. 19	2041	483	81	446
Johnson, Andrew P., Brooten, Minn. Stove	595,714	Dec. 21	1480	357	81	1948
Johnson, Charles, Chicago, Ill. Overflow-alarm	594,408	Nov. 30	2049	694	81	1440
Johnson, Charles H., assignor of one-half to W. B. Ridgely, Springfield, Ill. Fluid-pressure machine	592,115	Oct. 19	2079	491	81	454
Johnson, Charles H., assignor of one-half to W. B. Ridgely, Springfield, Ill. Pneumatic hammer	592,116	Oct. 19	2081	491	81	454
Johnson, Charles J., assignor of one-half to G. L. Schoeneberger, Chicago, Ill. Means for repairing pneumatic tires	591,477	Oct. 12	965	228	81	216
Johnson, Chauncey B., Los Angeles, Cal. Gate operating and locking device	593,159	Nov. 2	738	177 178	81	953
Johnson, Christian, Warwick, Minn. Snow-plow for wagon-roads	590,980	Oct. 5	66	15	81	15
Johnson Company. (See Brown, William M., assignor.)						
Johnson Company. (See Goughnour, Henry S., assignor.)						
Johnson, Edward E., assignor to W. B. Henion and C. W. Hubbell, Chicago, Ill. Pumping machinery	595,175	Dec. 7	595	143 144	81	1730
Johnson Electric Service Company. (See Fortier, Charles L., assignor.)						
Johnson, Emil, Ashtabula, Ohio. Mallet for tapping beer-kegs	593,942	Nov. 16	2165	514	81	1254
Johnson, Ernest V., Chicago, Ill., assignor of one-half to J. L. Record, Minneapolis, Minn. Grain-elevator	595,991	Dec. 14	952	231	81	1824
Johnson, Frank, San Francisco, Cal. Bottle	591,842	Oct. 19	1583	377	81	358
Johnson, Frank, San Francisco, Cal. Bicycle-support	596,210	Dec. 28	2373	562	81	2143
Johnson, Frank L., Albia, Iowa. Pipe holding and hoisting machine	595,309	Dec. 14	820	203	81	1799
Johnson, George, Allenport, Pa. Gage-cock	595,128	Dec. 7	513	122	81	1715
Johnson, George A., Traverse City, Mich. Bicycle-brake	591,974	Oct. 19	1812	431	81	404
Johnson, George F., Hartford, Conn. Bottle-stopper attachment for bottles, jugs, jars, &c.	591,668	Oct. 12	1309	307	81	282
Johnson, George W., assignor to New York Central Iron Works Company, Geneva, N. Y. Boiler	592,509	Oct. 26	3078	627	81	701
Johnson, Hans G., Waukon, Iowa. Pocket-knife	592,612	Oct. 26	3255	674	81	736
Johnson, Johannes H., assignor of one-half to O. A. Spillum, North Cape, Wis. Wrench	591,553	Oct. 12	1113	262	81	243
Johnson, John A. (See Tyden, Emil, assignor.)						
Johnson, John B., assignor of one-half to C. J. Robertson, New Britain, Conn. Can-opener	593,377	Nov. 9	1127	272	81	1089
Johnson, John T., *et al.* (See Van de Westelaken, Peter, assignor.)						
Johnson, Joseph, Bilston, England. Gully or stench trap	595,949	Dec. 21	1923	459 460	81	2036
Johnson, Joseph S., San Francisco, Cal. Device for preserving perishable articles	595,174	Dec. 7	594	143	81	1730
Johnson, Kimber P., Harlan, Iowa. Stock-waterer	591,276	Oct. 5	612	143	81	116
Johnson, Louis K., and A. A. Low, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-containing channel	593,667	Nov. 16	1675	406	81	1158
Johnson, Louis K., and A. A. Low, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-containing channel	593,668	Nov. 16	1676	406	81	1158
Johnson, Louisiana P., *et al.* (See Kesty, Charles C., assignor.)						
Johnson, Lucius E. (See McCauley and Johnson.)						
Johnson-Lundell Electric Company. (See Lundell, Robert, assignor.)						
Johnson, Morgan, Hartford, Conn. Centering drill-chuck	592,912	Nov. 2	279	64	81	893
Johnson, Orville C., Omaha, Nebr. Halter	592,292	Oct. 26	2369	560	81	531
Johnson, Peter O., Rockford, Ill. Knitting-machine	596,299	Dec. 28	2517	598 599 600	81	2170
Johnson, Samuel, Clinton, Mo. Window-sash guide	596,068	Dec. 28	2137	507	81	2098
Johnson, T. D. (See Honecker, William A., assignor.)						
Johnson, Thomas B., Luling, Tex. Wire fence	596,003	Dec. 21	2006	479	81	2053
Johnson, Walter L., *et al.* (See Pugh, William J., assignor.)						
Johnson, Welcome B., *et al.* (See Ayer, Albert E., assignor.)						
Johnson, William, Mott, Cal. Support for window-awnings	592,736	Nov. 2	57	12	81	818
Johnson, William C., Tye River, Va. Shade-roller	592,734	Oct. 26	3483	732	81	780
Johnson, William K., Philadelphia, Pa. Painting-machine	593,896	Nov. 16	2068	494	81	1239
Johnson, William M. (See Timms, William A., assignor.)						
Johnson, William W., Beebe, Ark. Pan-lifter	594,475	Nov. 30	2091	724	81	1469
Johnston, Allen, Ottumwa, Iowa. Means for securing attachments to sewing-machines	592,008	Oct. 19	1884	449	81	418
Johnston, Edgar D., assignor to Steel Storage and Elevator Construction Company, Connersville, Ind. Grain-tank	595,810	Dec. 14	821	203	81	1799
Johnston, Edwin S., and J. N. Kyle, Mount Vernon, Iowa. Wire-stretcher	594,955	Dec. 7	188	45	81	1656
Johnston Harvester Company. (See Farrall, George A., assignor.)						
Johnston, John S., assignor to Pottier & Stymus Company, New York, N. Y. Car-seat	596,434	Dec. 28	2279	557	81	2223
Johnston, Robert, Wilkes-Barré, Pa. Treeing and straightening gage for bicycle-forks	591,377	Oct. 5	613	143	81	116
Johnston, Wilbur H., assignor to Bell Telephone Company of Missouri, St. Louis, Mo. Apparatus for feeding cables into underground conduits	594,020	Nov. 23	2299	543	81	1297
Johnston, William, Jr., Somerville, Mass. Hat-holder	593,805	Nov. 16	1994	458	81	1204
Joliet Manufacturing Company. (See Colwell, William, assignor.)						
Jonas, Hubert F., assignor of one-half to G. M Lindemann and A. C. Smith, Oshkosh, Wis. Hand-bag	592,988	Nov. 2	423	100	81	880
Jonas, Hubert F., assignor of two-thirds to F. R. and G. F. Marshall and M. F. Miller, Oshkosh, Wis. Bag-handle	594,176	Nov. 23	2342	601	81	1344
Jones, Andrew, and H. Harig, Cincinnati, Ohio. Window-casing and pulley-support	593,585	Nov. 16	1529	371	81	1130
Jones, Arthur H. (See France, Adam W., assignor.)						
Jones, Charles E., Catlettsburg, Ky. Type-writing-machine blank-feeder	594,831	Nov. 30	2758	676	81	1601
Jones, Charles W. (See Warren and Jones.)						
Jones, Christopher C., assignor of one-half to J. S. Collins, Savannah, Ga. Car-signal	596,080	Dec. 21	2071	492 493	81	2067
Jones, E. E., *et al.* (See Young and Lewis, assignors.)						
Jones, Fernando, assignor of one-half to J. T. Appleberg, Chicago, Ill. Apparatus for electrically treating liquids	592,735	Oct. 26	3483	732	81	780
Jones, Florentine A., Malden, Mass. Pressure indicating and recording gage	594,881	Dec. 7	58	15	81	1633
Jones, Francis W. (See Casey, Thomas A., assignor.)						
Jones, Frank B., Bessemer, Mich. Snow-plow	591,278	Oct. 5	615	143 144	81	116
Jones, George W. (See Jones, John T. and G. W.)						
Jones, John T. and G. W., Western Port, Md. Bark-peeling machine	593,897	Nov. 16	2069	494	81	1239
Jones, Harry C. (See Jarvis and Jones.)						
Jones, Joseph L., Cincinnati, Ohio. Hat-shape sustainer	595,176	Dec. 7	608	144	81	1731
Jones, Marion E., Gadsden, Ala. Filter	591,279	Oct. 5	616	144 145	81	116

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jones, Orlando J., *et al.* (See Nicholes, John H., assignor.)						
Jones, Richard, Bay City, Mich. Saw-swaging machine	592,293	Oct. 26	2371	560	81	531
Jones, Richard, Bay City, Mich. Machine for side-dressing teeth of saws	595,065	Dec. 7	398	97	81	1094
Jones, Samuel H., Newark, N. J. Pneumatic conveyer	596,211	Dec. 28	2374	562 563	81	2143
Jones, Samuel O., assignor of one-half to G. H. Atwood, Stillwater, Minn. Measuring device	592,736	Oct. 26	3485	732	81	780
Jones & Son, J. (See Shonnard, Harold W., assignor.)						
Jones, Sylvester H., assignor to Hoosier Drill Company, Richmond, Ind. Seeding-machine	591,354	Oct. 5	749	177	81	144
Jones, Sylvester H., and E. E. Towle, assignors to Hoosier Drill Company, Richmond, Ind. Corn-planter	595,177	Dec. 7	608	144 145	81	1732
Jones, Thomas, and S. A. Hoke, Tacoma, Wash. Railway-switch lamp	592,294	Oct. 26	2374	560	81	531
Jones, Thomas H., assignor of one-half to M. Von Platen, Chicago, Ill. Apparatus for preventing boiler incrustation	593,378	Nov. 9	1128	272	81	1039
Jones, Thomas R., Sacramento, Cal. Street-sweeper	596,329	Dec. 28	2581	614	81	2182
Jones, Warner E., *et al.* (See McCaughey, David W., assignor.)						
Jones, Whitfield F., Brooklyn, N. Y. Subdoor	593,160	Nov. 2	740	178	81	953
Jones, William J. (See Armstrong and Jones.)						
Jones, William S., Owosso, Mich., assignor to O. D. Byers, Syracuse, N. Y. Burial-casket	595,682	Dec. 14	1349	325 326	81	1904
Jones, William T., New Westminster, Canada. Wood-turning machine	592,737	Oct. 26	3486	733	81	781
Jonkhoff, Jan A., Dresden, Germany. Stringed instrument	594,743	Nov. 30	3604	888	81	1571
Jönsson, Johan L., assignor to Aktiebolaget Separator, Stockholm, Sweden. Apparatus for treating milk, &c	595,347	Dec. 7	732	179	81	1755
Jordan, Lewis H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Protected prism-light canopy	595,966	Dec. 7	758	186	81	1761
Jordan, William B. M. (See Bogart, Adrian L., assignor.)						
Jorgenson, Frederik. (See Frederickson and Jorgenson.)						
Joseph, Myer, Arlington, Mass. Bicycle	593,101	Nov. 2	611	147	81	926
Joubert, Frederic L. (See Payne and Joubert.)						
Joyce, John J. (See Roth and Joyce.)						
Joyce, John J., assignor to C. F. Zimmermann Company, Dolgeville, N. Y. Autoharp	593,102	Nov. 2	612	147	81	926
Joynson, Frederick, and W. Harrison, Warrington, England. Stoppering and hermetic closing for jars, &c	595,311	Dec. 14	823	208	81	1799
Judd, E. C., *et al.* (See Gooding, Charles S., assignor.)						
Judd, Edward C., H. E. Cilley, Boston, and A. C. Paul, Lynn, Mass.; said Paul assignor to said Judd and Cilley. Sole-leveling machine	591,766	Oct. 12	1453	343 344	81	311
Judson, Roswell S., Matteawan, N. Y. Rack-cleaner for water-races	591,767	Oct. 12	1459	344	81	312
Judson, William V., U. S. Army. Retaining-wall, bulkhead, &c	592,738	Oct. 26	3489	733 734	81	781
Judy, William E., and J. Robeson, near Greenville, Ohio. Wire-tightener and fence-ratchet	592,787	Nov. 2	59	13	81	818
Juhl, William. (See Kummerow, Ferdinand C., assignor.)						
Jumeau, Ferdinand A., Lyons, France. Wood fabric for tapestries, carpets, furniture, &c	593,326	Nov. 9	1054	254	81	1036
Junker, Edward, assignor of one-half to C. Greimann, St. Louis, Mo. Non-refillable bottle	591,280	Oct. 5	680	145	81	117
Jutz, Edward, St. Louis, Mo. Transformable advertising or display rack	591,281	Oct. 5	680	146	81	117
Kachel, George C., and H. Sager, Girardville, Pa. Bung and faucet	592,295	Oct. 26	2375	561	81	532
Kadel, Harry L. (See Kadel, William H., assignor.)						
Kadel, William H., assignor of one-third to H. L. Kadel, Rock Falls, Ill. Bicycle-wheel	591,922	Oct. 19	1730	414	81	388
Kahn, Felix, Laredo, Tex. Portable gold-washer	594,255	Nov. 23	2666	632	81	1308
Kahn, Myrtil, and F. Runkel, assignors to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Black azo dye	594,906	Dec. 7	272	------	81	1671
Kahn, Myrtil, and F. Runkel, assignors to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Black azo dye	595,021	Dec. 7	313	------	81	1679
Kahrs, Friman, New York, N. Y. Dissolving glue and making clay size	593,845	Nov. 16	1999	470	81	1220
Kaiser, George G., Johnson, Wash. Wagon weighing attachment	595,715	Dec. 21	1481	357	81	1948
Kalchthaler, William, Pittsburg, Pa. Folding crate	593,022	Nov. 2	476	115	81	900
Kalinowski, Hermann von, Berlin, Germany. Lasting-machine	593,356	Nov. 9	1091	263 264 265	81	1032
Kallenbach, Ferdinand J., Brooklyn, N. Y. Printing on two-color lithographic presses	595,716	Dec. 21	1483	357	81	1949
Kane, Patrick H., Buffalo, N. Y. Lubricator	595,717	Dec. 21	1484	358	81	1949
Kane, Maurice, Austin, Ill. Mowing-machine	591,923	Oct. 19	1731	414 415	81	388
Kane, Maurice, Austin, Ill. Mowing-machine	591,924	Oct. 19	1734	415	81	389
Kane, Maurice, Austin, Ill. Mowing-machine	594,021	Nov. 23	2300	543	81	1298
Kanel, Otto von, *et al.* (See Richard, Julius, assignor.)						
Karavodin, Victor, St. Petersburg, Russia. Rotary motor	592,788	Nov. 2	60	13	81	818
Karns, William E., Parker's Landing, Pa. Oil-well pumping apparatus	595,914	Dec. 21	1864	446	81	2094
Karr, Francis. (See Gackeler, John A., assignor.)						
Kaschenbach, John, Wilkes-Barré, Pa. Bed	596,166	Dec. 28	2302	545	81	2129
Kaselowsky, Emil, Berlin, Germany. Steering apparatus for torpedoes	591,768	Oct. 12	1461	344 345	81	312
Kass, John, Menominee, Mich. Horseshoe	592,651	Oct. 26	3321	691	81	749
Katzenstein, Leopold, New York, N. Y. Metallic ring packing	595,811	Dec. 21	1655	399	81	1982
Kauffman, Frank S., Depew, assignor of one-half to G. Lesher, Albion, N. Y. Necktie-retainer	596,069	Dec. 28	2138	507	81	2099
Kauffmann, Ferdinand E., Elizabeth, N. J. Pipe-coupling	594,536	Nov. 30	3306	751	81	1490
Kaufman, Elmer E., Chicago, Ill. Key	596,270	Dec. 28	2474	588	81	2161
Kaufman, Everett G. (See Stuart, Ronald A., assignor.)						
Kavanagh, William C., assignor to S. D. Dessau, New York, N. Y. Hydrocarbon-burner	592,739	Oct. 26	3491	734	81	781
Kaye, Walter E. (See Simpson, Roy B., assignor.)						
Keefer, William T., Bedford, Ind. Animal-trap	592,682	Oct. 26	3289	693	81	743
Keefe, Richard J. (See Roach, James C., assignor.)						
Keeler, Orrin L., Truxton, N. Y. Corner-iron for wagons	593,294	Nov. 9	879	208	81	998
Keenan, Thomas, New York, N. Y. Elevator	593,806	Nov. 16	1925	458	81	1204
Keene, Samuel D., assignor, by mesne assignments, to S. Bottomley, Providence, R. I. Knitted fabric	594,158	Nov. 23	2518	506	81	1340
Kehl, Anthony and F. E., assignors of two-thirds to W. E. Heeb, C. I. and D. L. Kehl, Connersville, and G. Rech, Indianapolis, Ind. Pump for pneumatic tires	591,220	Oct. 5	599	126	81	100
Kehl, Catherine L., *et al.* (See Kehl, Anthony and F. E., assignors.)						
Kehl, Domian L., *et al.* (See Kehl, Anthony and F. E., assignors.)						
Kehl, Frank E. (See Kehl, Anthony and F. E.)						
Kehoe, Mathew, Cushing, Iowa. Evener for buggy-poles	595,441	Dec. 14	1048	250	81	1841

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Keil, Augustus J., Newark, N. J., assignor to Whitehead & Hoag Company, of New Jersey. Badge	595,853	Dec. 21	1727	414	81	1906
Keim, Adolf W., Grünwald, assignor to Fabrik Keim'scher Farben der Steingewerkschaft Offenstetten, Aktiengesellschaft, Munich, Germany. Coating walls or other surfaces	595,006	Dec. 7	400	------	81	1604
Kelm, John, New York, assignor to J. S. Levis, Brooklyn, N. Y. Means for propelling boats	591,534	Oct. 12	1083	254 255	81	236
Kelper, Henry B., Lancaster, Pa. Tap-wrench	595,312	Dec. 14	834	203	81	1799
Keith, James, London, England. Apparatus for pumping or raising liquids	592,653	Oct. 26	3290	683	81	743
Keith Lasting Machine Company. (See Keith, Thomas K., assignor.)						
Keith, Thomas K., Boston, Mass., assignor to Keith Lasting Machine Company, Kittery, Me. Sewing-machine	591,044	Oct. 5	187	44,45	81	38
Keith, Thomas K., Boston, Mass., assignor to Keith Lasting Machine Company, Kittery, Me. Sewing-machine for lasting boots or shoes	592,971	Nov. 2	401	93,94	81	885
Keller, Charles C. (See McCully, Milton, assignor.)						
Keller, Elso, *et al.* (See Cole, Thomas A., assignor.)						
Keller, Emanuel E., York, Pa. Cutter and grater combined	593,052	Nov. 2	526	126	81	909
Kelley Bros. & Spielman. (See Jackson, Henry M. and G. M., assignors.)						
Kelley, George W. (See Hughes and Kelley.)						
Kelley, George W., Norfolk, Va. Steam-table	592,591	Oct. 26	3220	667	81	729
Kelley, James W. (See Harrison and Kelley.)						
Kellogg, Alfred J., Portland, Oreg., assignor of one-half to W. J. Minges, Vancouver, Wash. Advertising device	594,628	Nov. 30	3373	790	81	1523
Kellogg, Byron W., Vernonville, Canada. Sleigh-knee	591,843	Oct. 19	1584	377	81	359
Kellogg, Horace O., assignor of one-half to M. E. Kellogg, New York, N. Y. Banjo or similar musical instrument	591,844	Oct. 19	1585	378	81	359
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,301	Oct. 26	2382	562	81	533
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,302	Oct. 26	2388	562	81	534
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,303	Oct. 26	2390	563	81	535
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,304	Oct. 26	2394	563	81	536
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,305	Oct. 26	2399	563	81	537
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,306	Oct. 26	2403	564	81	538
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,307	Oct. 26	2410	564	81	540
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,308	Oct. 26	2414	564	81	541
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,309	Oct. 26	2417	564	81	541
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,310	Oct. 26	2420	565	81	542
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,311	Oct. 26	2425	565	81	543
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,312	Oct. 26	2429	565	81	544
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,313	Oct. 26	2434	565	81	545
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,314	Oct. 26	2438	566	81	546
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,315	Oct. 26	2443	566	81	548
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,316	Oct. 26	2447	566	81	549
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,317	Oct. 26	2451	566	81	550
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,318	Oct. 26	2455	567	81	551
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,319	Oct. 26	2459	567	81	552
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,320	Oct. 26	2462	567	81	553
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,321	Oct. 26	2466	567	81	554
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,322	Oct. 26	2470	568	81	555
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,323	Oct. 26	2474	568	81	556
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,324	Oct. 26	2479	568	81	558
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,325	Oct. 26	2483	568	81	559
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,326	Oct. 26	2487	569	81	560
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,327	Oct. 26	2492	569	81	561
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,328	Oct. 26	2493	569	81	561
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,329	Oct. 26	2497	569	81	562
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,330	Oct. 26	2499	570	81	563
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,331	Oct. 26	2503	570	81	564
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,332	Oct. 26	2506	570	81	565
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,333	Oct. 26	2511	570	81	566
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,334	Oct. 26	2514	571	81	567
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,335	Oct. 26	2518	571	81	568

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,336	Oct. 26	2522	571	81	569
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,337	Oct. 26	2525	571	81	570
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,338	Oct. 26	2529	572	81	571
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,339	Oct. 26	2534	572	81	572
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,340	Oct. 26	2536	572	81	573
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,341	Oct. 26	2539	572	81	574
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,342	Oct. 26	2544	573	81	575
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,343	Oct. 26	2547	573	81	575
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,344	Oct. 26	2551	573	81	577
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,345	Oct. 26	2555	573	81	577
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,346	Oct. 26	2559	574	81	578
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,347	Oct. 26	2564	574	81	580
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,348	Oct. 26	2569	574	81	581
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,349	Oct. 26	2574	574	81	582
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,350	Oct. 26	2579	575	81	584
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,351	Oct. 26	2583	575	81	585
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,352	Oct. 26	2588	575	81	586
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,353	Oct. 26	2593	575	81	588
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,354	Oct. 26	2597	576	81	589
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,355	Oct. 26	2601	576	81	590
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,356	Oct. 26	2605	576	81	591
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,357	Oct. 26	2608	576	81	591
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,358	Oct. 26	2613	577	81	592
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,359	Oct. 26	2616	577	81	593
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,360	Oct. 26	2619	577	81	594
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,361	Oct. 26	2625	577	81	595
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,362	Oct. 26	2633	578	81	597
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,363	Oct. 26	2640	578	81	599
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,364	Oct. 26	2647	579	81	600
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,365	Oct. 26	2657	579	81	603
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,366	Oct. 26	2662	579	81	605
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,367	Oct. 26	2666	580	81	605
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,368	Oct. 26	2670	580	81	606
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,369	Oct. 26	2675	580	81	605
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,370	Oct. 26	2680	580	81	610
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,371	Oct. 26	2686	581	81	612
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,372	Oct. 26	2690	581	81	613
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,373	Oct. 26	2694	581	81	614
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,374	Oct. 26	2701	582	81	615
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,375	Oct. 26	2707	582	81	617
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,376	Oct. 26	2711	582	81	617
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,377	Oct. 26	2714	583	81	618
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,378	Oct. 26	2720	583	81	620
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,379	Oct. 26	2725	583	81	621
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,380	Oct. 26	2730	583	81	623
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,381	Oct. 26	2736	584	81	624
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,382	Oct. 26	2739	584	81	625
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,383	Oct. 26	2745	584	81	627

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,384	Oct. 26	2749	584	81	628
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,385	Oct. 26	2756	585	81	630
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,386	Oct. 26	2759	585	81	630
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,387	Oct. 26	2764	585	81	631
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,388	Oct. 26	2769	585	81	632
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,389	Oct. 26	2775	586	81	635
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,390	Oct. 26	2779	586	81	635
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,391	Oct. 26	2785	586	81	638
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,392	Oct. 26	2788	586 587	81	639
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,393	Oct. 26	2793	587	81	639
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,394	Oct. 26	2800	587	81	643
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,395	Oct. 26	2803	587	81	643
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,396	Oct. 26	2808	588	81	645
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,397	Oct. 26	2814	588	81	646
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,398	Oct. 26	2818	588	81	647
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,399	Oct. 26	2821	588	81	648
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,400	Oct. 26	2824	589	81	649
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,401	Oct. 26	2829	589	81	649
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,402	Oct. 26	2833	589	81	650
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,403	Oct. 26	2837	589	81	651
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,404	Oct. 26	2840	590	81	651
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,405	Oct. 26	2844	590	81	652
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,406	Oct. 26	2848	590	81	653
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,407	Oct. 26	2852	590	81	654
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,408	Oct. 26	2856	591	81	655
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,409	Oct. 26	2859	591	81	656
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,410	Oct. 26	2862	591	81	657
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,411	Oct. 26	2866	591	81	658
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,412	Oct. 26	2869	592	81	659
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,413	Oct. 26	2873	592	81	660
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,414	Oct. 26	2876	592	81	660
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,415	Oct. 26	2881	592	81	662
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Spring-jack for telephone-switchboards	592,416	Oct. 26	2885	593	81	663
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,417	Oct. 26	2888	593	81	664
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,418	Oct. 26	2891	593	81	665
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,419	Oct. 26	2895	593	81	665
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,420	Oct. 26	2900	594	81	666
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,421	Oct. 26	2910	594	81	668
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,422	Oct. 26	2915	595	81	669
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,423	Oct. 26	2924	595	81	671
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,424	Oct. 26	2930	596	81	672
Kellogg, Milo G., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Multiple switchboard	592,425	Oct. 26	2944	596	81	674
Kellogg, Minerva E. (See Kellogg, Horace O., assignor.)						
Kellogg Switchboard and Supply Company. (See Kellogg, Milo G., assignor.)						
Kellogg, Walter P., Syracuse, N. Y. Time-damper mechanism	591,169	Oct. 5	409	96	81	78
Kelly, John M. (See Parry, Denis, assignor.)						
Kelly, Richard E. (See Paehtz, Gustavus J., assignor.)						
Kelly, William G., Niagara Falls Center, Canada. Snap-hook	593,083	Nov. 2	477	115	81	900
Kelly, William H., New York, N. Y. Bicycle-saddle	593,108	Nov. 2	613	148	81	926
Kelly, William J. (See Murnan, John H., assignor.)						
Kelly, William V. (See Bauer, Carl E., assignor.)						
Kelman, John H., Pittsfield, Mass. Electric cable	594,892	Dec. 7	61	16	81	1634
Kelting, Rudolf, Eschweiler 2, Germany. Receiver for gases or liquids	595,124	Dec. 7	514	123	81	1715

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kempshall, Eleazer, Hartford, Conn., assignor, by mesne assignments, to Boston Fast Color Eyelet Company, Boston, Mass. Lacing-stud	595,482	Dec. 14	1119	270	81	1855
Kempton, Austin G. (See Leavens, Harvey, and Chandler, assignors.)						
Kempton, Clinton H., Adams Mich. Fence-post	592,146	Oct. 19	2133	504	81	464
Kendall, John. (See Mease, George R., assignor.)						
Kendall, Lemuel C., Boston, assignor of one-half to C. L. Young, Springfield, Mass. Freight-car	594,022	Nov. 23	2302	544	81	1298
Kendall, William F., Lu Verne, Minn. Apparatus for elevating or dumping grain	592,650	Oct. 26	3319	690 691	81	748
Kendrick, James R. (See Raven, Freeman, assignor.)						
Kenna, William F. (See De Forest and Kenna.)						
Kennedy, Anthony. (See Hollar and Kennedy.)						
Kennedy, Frank M., Celina, Ohio, assignor of one-half to J. W. Stone, Brooklyn, N. Y. Pumping apparatus for oil-wells	593,586	Nov. 16	1529	371	81	1180
Kennedy, James L. (See Bolton, James M., assignor.)						
Kennedy, John A., Choteau, Mont. Sight for firearms	592,740	Oct. 26	3495	734	81	782
Kennedy, Julian, Pittsburg, Pa. Furnace-valve for hot-blast stoves	593,476	Nov. 9	1303	315	81	1073
Kennedy, Julian, Pittsburg, Pa. Rolling-mill	595,572	Dec. 14	1259	301 302	81	1885
Kennedy, Patrick, Brooklyn, assignor to American Railway Electric Light Company, New York, N. Y. Means for controlling electric currents	594,744	Nov. 30	3605	839	81	1572
Kennedy, Patrick, Brooklyn, assignor to American Railway Electric Light Company, New York, N. Y. Pole-changing mechanism for electric generators	594,745	Nov. 30	3608	840	81	1572
Kennedy, Patrick, Brooklyn, assignor to American Railway Electric Light Company, New York, N. Y. Bearing-sleeve for car-axles	594,746	Nov. 30	3611	840	81	1572
Kenney, Owen E., assignor to J. L. Yost, Toledo, Ohio. Means for securing sprocket-wheels to bicycles	592,980	Nov. 2	424	100	81	889
Kent, Deville H., *et al.* (See Winters, John W., assignor.)	592,613	Oct. 26	3256	674	81	736
Kenyon, John M., Toledo, Ohio. Fishing-rod						
Keough, James C. (See Greuter, Charles R., assignor.)						
Keough, James C., *et al.* (See Rowe, Amos D., assignor.)						
Keough, James C., Holyoke, Mass. Quilting-machine	593,846	Nov. 16	2003	470 471	81	1220
Kepp, Ferdinand, Allegheny, Pa. Gear-molding machine	592,506	Oct. 26	3178	656	81	721
Kern, Amiah J., Bellevue, Ohio. Cutting device	593,477	Nov. 9	1304	315	81	1073
Kern, Criss. (See Round, Sammis, and Kern.)						
Kerns, Simon A., and F. A. Head, Rock Island, Ill. Wheeled plow	591,535	Oct. 12	1084	255	81	236
Kerr, Charles G., Indianapolis, Ind. Mower	591,290	Oct. 5	530	126	81	101
Kerr, Harry H., assignor of one-half to C. S. Fox, Philadelphia, Pa. Holder for cigarettes or similar articles	591,845	Oct. 19	1586	378	81	359
Kerr, Harry H., assignor of one-half to C. S. Fox, Philadelphia, Pa. Holder for cigarettes or similar articles	591,846	Oct. 19	1588	378	81	359
Kerrigan, Thomas J. (See Kerrigan, William C. and T. J.)						
Kerrigan, William C. and T. J., New York, N. Y. Sanitary cuspidor	595,813	Dec. 14	825	204	81	1800
Kerry, Aaron, assignor of one-half to M. Mills, Marysville, Mich. Combined vise and drill	591,135	Oct. 5	349	88	81	68
Kesty, Charles C., Northumberland, Pa. Damper-regulator	591,554	Oct. 12	1114	262	81	243
Kesty, Charles C., Sunbury, assignor of one-half to L. P. Johnson and P. Little, Northumberland, Pa. Wire-nail-making machine	594,683	Dec. 7	62	16	81	1634
Ketchum, Ernest C., Boston, Mass. Treating ores	592,055	Oct. 19	1966	465	81	433
Ketchum, James T. (See Burns and Ketchum.)						
Ketchum, Thomas. (See De Croes, Clement, assignor.)						
Ketterer, Leopold. (See Coffman, Jacob H., assignor.)						
Keyes, Harry E., and W. Gluck, Homestead, Pa. Straightway valve	593,587	Nov. 16	1531	371	81	1180
Kidd, Albertus H. (See Walter, Theophiel P., assignor.)						
Kidd, Claude H., Lexington, Ky. Piano-action	594,476	Nov. 30	3092	725	81	1469
Kidwell, James A., Gorton Heights, Pa. Saw-set	591,478	Oct. 12	966	228	81	216
Kiefer, Charles C., Blue River, and L. J. Evert, Boscobel, Wis. Cattle-guard	596,004	Dec. 21	2006	479	81	2054
Kiehl, August F., Norfolk, Nebr., assignor of one-half to F. O. Kiehl, Reedsville, Wis. Check-hook	596,116	Dec. 28	2221	527	81	2114
Kiehl, Fredrick O. (See Kiehl, August F., assignor.)						
Kiessling, Hermann, Leipsic, Germany. Door-hinge	591,847	Oct. 19	1580	378	81	359
Kilbourn, Beecher, Utica, N. Y. Combination broom and dust-pan holder	594,541	Nov. 30	3218	754	81	1493
Kilbourne, Albert B., West Pike, Pa. Plumb-bob	592,913	Nov. 2	281	64	81	862
Kilburn, John, Belmont, Mass. Spindle-bearing	591,975	Oct. 19	1812	432	81	404
Kilburn, John, Belmont, Mass. Spindle-bearing	591,976	Oct. 19	1815	432	81	404
Kiley, John. (See Howell and Kiley.)						
Kilgore, Frederick O., Minneapolis, Minn. Excavator	590,990	Oct. 5	69	15,16	81	15
Kilmer, William A., Newburg, N. Y., assignor, by mesne assignments, to E. L. Camburn, Chicago, Ill. Fence-machine	595,892	Dec. 14	956	231 232 233	81	1824
Kimball, Irene P., Owensville, Ind. Hook and eye	592,296	Oct. 26	2376	561	81	532
Kimball, Wesley, Brooklyn, N. Y. Handle for stamps	595,633	Dec. 14	1350	326	81	1904
Kimbell, John B., Alpharetta, Ga. Guano-distributer	595,950	Dec. 21	1925	460	81	2086
Kimbrough, Robert H., Viola, Ind. Ter. Wheel attachment for legs	591,925	Oct. 19	1736	415	81	389
Kimmich, Gottlieb, Esslingen, Germany. Distance instrument	594,404	Nov. 30	2951	694 695	81	1441
Kincaid, Joseph W., assignor to Reading Crane and Hoist Works, Reading, Pa. Chain hoist	593,588	Nov. 16	1533	372	81	1181
Kincaid, Joseph W., assignor to Reading Crane and Hoist Works, Reading, Pa. Differential chain hoist	593,589	Nov. 16	1535	372 373	81	1181
Kincaid, Joseph W., assignor to Reading Crane and Hoist Works, Reading, Pa. Chain hoist	594,801	Nov. 30	3708	862 863	81	1501
Kindig, Samuel C., assignor of one-half to W. B. Price, Baltimore, Md. Toy	591,848	Oct. 19	1590	379	81	360
King, Abbie M., Logan, Iowa. Corset	594,177	Nov. 23	2543	602	81	1345
King Annealing Process Company. (See King, Richard, assignor.)						
King, Charles C., *et al.* (See Christopher, Henry C., assignor.)						
King, Edward A., and F. Guest, Boston, Mass. Tucking-guide for sewing-machines	591,231	Oct. 5	531	127	81	101
King, George R., New York, N. Y., and A. Raymond, Chicago, Ill. Roller pulverizing-mill	594,696	Nov. 30	3513	816	81	1559
King & Hamilton Company. (See Gilman, John H., assignor.)						
King, James H., Pittsburg, Pa. Artificial limb	595,634	Dec. 14	1351	326	81	1904
King, Jeremiah J., New York, N. Y. Trap	593,104	Nov. 2	61	148	81	927
King, Joseph D., and M. A. Burns, Menominee, Mich. Hat-fastener	595,488	Dec. 14	1121	270	81	1856
King, Richard, assignor, by mesne assignments, to King Annealing Process Company, Belleville, Ill. Annealing iron castings	595,398	Dec. 14	959		81	1825

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kingsbury, Harry T., Keene, N. H. Cycle-stand and home trainer	593,105	Nov. 2	615	148	81	927
Kingsland & Douglas Manufacturing Company. (See Swinnerton, James F., assignor.)						
Kingsland, Philip S., St. Louis, Mo. Adjustable handle-bar for bicycles	593,943	Nov. 16	2166	514	81	1254
Kingsland, William, Llandudno, England. Electrical traction	592,056	Oct. 19	1968	465	81	433
Kinkele, Robert A., Stapleton, N. Y. Fireproof floor	592,117	Oct. 19	2068	492	81	454
Kinnan, Simeon E., Middleburg, Fla. Bottle-cap	591,849	Oct. 19	1591	379	81	360
Kinney, Harry W. (See Williams and Kinney.)						
Kinney, Harry W., *et al.* (See Williams, James M., assignor.)						
Kinney, Thomas P. (See Williams and Kinney.)						
Kinney, Thomas P., *et al.* (See Williams James M., assignor.)						
Kinraide, Thomas B., Boston, Mass. Method of and apparatus for converting X-rays into light for photographic purposes	595,812	Dec. 21	1656	399	81	1982
Kinsella, Stephen F., Auburn, N. Y. Lock	594,097	Nov. 30	3514	818	81	1552
Kinsey, Ernest U., New York, N. Y., assignor to E. J. Irwin, Englewood, N. J. Lens-cabinet	593,024	Nov. 2	478	115	81	900
Kinsey, Isaac, Dayton, Ohio. Lighting device for vapor-stoves	594,360	Nov. 23	2808	676	81	1407
Kintner, Charles J. (See Bunnell and Casey, assignors.)						
Kinzer, John J., Jr., assignor to Kinzer & Jones Manufacturing Company, Pittsburg, Pa. Brake-shoe connection. (Reissue)	11,636	Nov. 9	1465	357	81	1101
Kinzer & Jones Manufacturing Company. (See Kinzer, John J., Jr., assignor.) (Reissue.)						
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Water-closet	596,070	Dec. 28	2139	507 508	81	2099
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Water-closet	596,071	Dec. 28	2143	508 509	81	2099
Kirk, Franklin, Kansas City, Mo. Dry-kiln	596,212	Dec. 28	2376	563	81	2144
Kirk, Wallace R., Kansas City, Mo. Railway-siding	591,977	Oct. 19	1816	433	81	405
Kirkpatrick, James M., and J. B. Files, Files, Tex. Plow	596,372	Dec. 28	2673	633	81	2201
Kirkpatrick, William A., and J. E. Robbins, Greensburg, Ind. Kraut-cutter	593,746	Nov. 16	1817	435	81	1184
Kirsch, Oswald L., West View, Pa. Trolley	593,847	Nov. 16	2006	471	81	1221
Kirsten, George W., West Orange, N. J. Grinding-machine	595,125	Dec. 7	515	123 124	81	1715
Kirwin, Garrett M., Newport, R. I. Back-band for harness	591,258	Oct. 5	579	137	81	110
Kitchen, John G. A., assignor to Manchester Cycle Components, Limited, Manchester, England. Mud-guard for wheels	593,395	Nov. 9	1167	281	81	1045
Kitchen, John G. A., assignor to Manchester Cycle Components, Limited, Manchester, England. Lamp	593,396	Nov. 9	1168	282	81	1046
Kitselman, Alva L., Ridgeville, Ind. Wire-fabric machine	592,931	Nov. 2	308	70 71 72	81	867
Kitselman, Alva L., Ridgeville, Ind. Wire-fabric machine	595,635	Dec. 14	1353	326 327	81	1905
Kitson, Arthur, Philadelphia, Pa. Gas-producer	596,018	Dec. 21	2083	485	81	2059
Kitson, Arthur, Philadelphia, Pa., assignor to A. L. Clark. Gas-producer	594,537	Nov. 30	3207	752	81	1490
Kitson, Arthur, Philadelphia, Pa., assignor to A. L. Clark. Automatic fuel-charging apparatus	594,538	Nov. 30	3210	752	81	1491
Kitson, Arthur, Philadelphia, Pa., assignor to A. L. Clark. Gas-producer	594,539	Nov. 30	3212	752 753	81	1492
Kitson, Arthur, Philadelphia, Pa., assignor to A. L. Clark. Apparatus for manufacturing gas	594,540	Nov. 30	3215	753 754	81	1492
Kittle, John S., G. L. Barney, and J. L. Clough, Indianapolis, Ind. Keyless lock	591,045	Oct. 5	189	45	81	88
Kjeldsen, Valdemar, Porz, Germany. Cement manufacture	592,492	Oct. 26	3055		81	697
Kjellberg, Petter C., Stockholm, Sweden. Machine for packing matches in boxes, &c.	593,944	Nov. 16	2168	514	81	1254
Klatte, Otto, Neuwied, Germany. Connecting-link	595,542	Dec. 14	1210	291	81	1875
Kleemichen, Richard, Brooklyn, N. Y. Figure toy	592,567	Oct. 26	3179	656	81	721
Kleinschmidt, Hans F., Hamburg, Germany. Electric switch	595,777	Dec. 21	1594	385	81	1969
Kleitz, Carl L., Sigourney, Iowa. Cable grip and take-up	593,053	Nov. 2	527	127	81	909
Kline, Charles D. (See Prendergast, William H., assignor.)						
Kline, John N., Allentown, Pa. Nailing-machine	593,379	Nov. 9	1129	273	81	1039
Klinger, Fredrick W., Philadelphia, Pa. Fish-hook book	592,498	Oct. 26	3056	621	81	697
Klingler, Paul G., and J. W. Mayne, Easton, Pa. Magic toy	593,807	Nov. 16	1936	458	81	1204
Kloeb, Joseph A., assignor of one-half to C. J. Mess, Washington, D. C. Gas-burner	591,046	Oct. 5	192	45	81	89
Klogel, Karl S., New York, N. Y. Type-writing machine	596,167	Dec. 28	2302	546 547	81	2129
Klopfenstien, Joseph M., Leo, Ind. Coupling for windmill-pumps	595,484	Dec. 14	1122	271	81	1856
Klopsch, Louis. (See Cormack, Mark N., assignor.)						
Klose, Alois. (See Klose, Charles and A.) (Reissue.)						
Klose, Charles, Doniphan, Nebr., and A. Klose, Robesonia, Pa. Brick-kiln. (Reissue)	11,635	Nov. 2	779	187 188	81	901
Klossner, Henry, Winthrop, and J. Schuch, Round Grove, Minn. Cutter-bar	594,477	Nov. 30	3093	725	81	1469
Klotter & Co., George F. (See Rogers, Charles T., assignor.)						
Knapp, Charles R. (See Browne, William F., assignor.)						
Knause, John W., Providence, R. I. Combined collar-button and tie-retainer	591,978	Oct. 19	1822	434	81	405
Kneeland, Romulus A., Benton Harbor, Mich. Mail-bag	596,168	Dec. 28	2306	547	81	2129
Knickerbacker, John. (See Hughes, Robert, assignor.)						
Knickerbacker, John. (See Sulzman, Charles A., assignor.)						
Kniffen, Le Grand, Chicago, Ill. Stock-feed machine	593,880	Nov. 9	1131	273	81	1040
Knight, James E. (See Neuner, Martin C., assignor.)						
Knight, Jesse A., Phenix, R. I. Seamless woven bag	592,057	Oct. 19	1971	466	81	434
Knight, John H., London, England. Velocipede	593,300	Nov. 9	1005	242	81	1017
Knights, Alonzo A., Melrose, Mass. Damper for ovens	592,789	Nov. 2	61	18	81	818
Knobel, Frank, Bedford, Ind. Stone-sawing machine	594,542	Nov. 30	3219	754 755	81	1493
Knoblaugh, Augustus L., Cincinnati, Ohio. Vehicle body and seat	595,894	Dec. 14	961	233	81	1825
Knöfler, Oskar, Charlottenburg, Germany. Gas-incandescent	593,106	Nov. 2	617		81	927
Knoll, Louis P., Montrose, Pa. Stove-door	594,188	Nov. 23	2482	587	81	1333
Knoop, Ernest A., Monterey, Cal. Sprinkler	595,778	Dec. 21	1597	385	81	1970
Knop, August, Rheinau, Germany. Making nitrites	595,178	Dec. 7	605		81	1732
Knorr, Gotlieb F., Fontanelle, Iowa. Milk-can loader	594,478	Nov. 30	3095	725	81	1469
Knowlton, Alonzo J. Q., assignor to Duplex Roller Bushings Company, Camden, Me. Roller-bushing for sheaves	594,357	Nov. 23	2865	676	81	1406
Knowlton, James J., Oakland, Cal. Sheet-metal roofing	594,139	Nov. 23	2483	588	81	1333
Knox, George F. (See Sharpneck and Knox.)						
Knox, Samuel M., administrator. (See Pusey, Lea.)						
Knox, William J., Pittsburg, assignor, by mesne assignments, to Highland Electro-Chemical Manufacturing Company, Connellsville, Pa. Soldering compound	592,914	Nov. 2	281		81	862

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Knudson, Charles E., Everest, Kans. Corn-harvester	594,802	Nov. 30	3706	863, 864, 865	81	1591
Koch, Christian H. C., Chicago, Ill., assignor to Chicago Lubricating and Manufacturing Company, of Illinois. Self-oiling device for journals	591,406	Oct. 12	845	196	81	1013
Koch, Gustave, New York, N. Y. Bottle-stopper	595,812	Dec. 21	1659	400	81	1982
Koch, Gustave, New York, N. Y. Bottle-stopper	595,814	Dec. 21	1661	400	81	1982
Koch, Matteson T., Hub City, Wis. Railway-switch mechanism	592,009	Oct. 19	1895	449	81	418
Koehler, Adolph, assignor of one-half to J. Schumm, Ticonderoga, N. Y. Carousel	593,177	Nov. 2	772	185, 186	81	959
Koehler, Herman A., assignor of one-half to W. H. Habbeler, Chicago, Ill. Lung-testing apparatus	594,351	Nov. 23	2849	673	81	1408
	591,629	Oct. 12	1236	290, 291	81	266
Koehne, Ira C., Columbus, Ohio. Computing-scale	591,259	Oct. 5	561	138	81	110
Koelner, John, assignor to Ballard & Ballard Company, Louisville, Ky. Packing-auger	591,260	Oct. 5	562	138	81	110
Koelner, John, assignor to Ballard & Ballard Company, Louisville, Ky. Bran-packer	595,718	Dec. 21	1488	358	81	1949
Koenig, Reinhold, La Porte, Ind. Display-stand	595,779	Dec. 21	1508	366	81	1970
Koerner, Carl H., Hamburg, Germany. Book-rest	594,256	Nov. 23	2668	632, 633	81	1369
Kohlsaat, Charles W. (See Davis, John T., assignor.)						
Kohn, Koby, Seward, Nebr. Electric railway signal and safety device	592,058	Oct. 19	1973	466	81	434
Kolb, Charles W., Philadelphia, Pa. Bread-baking pan	591,850	Oct. 19	1501	379	81	360
Kolb, Edwin, assignor to Pauly Jail Building and Manufacturing Company, St. Louis, Mo. Locking device for doors	591,341	Oct. 5	717	169	81	138
Konley, Frank, and C. J. Macomber, St. Mary's, Ohio. Engine-governor	595,314	Dec. 14	827	204	81	1800
Konz, Charles A., Providence, R. I. Track and switch for beef-houses	593,397	Nov. 9	1169	282	81	1046
Koontz, Lewis K., *et al.* (See Neely, George P., assignor.)						
Kops, Daniel, New York, N. Y. Corset	591,232	Oct. 5	533	127	81	101
Korbien, Julius, assignor of one-half to G. C. Sucro, Baltimore, Md. Rubber-tread horse-shoe						
Kos, Albert J., *et al.* (See Winters, John W., assignor.)						
Köster, Emil, Neumünster, assignor to E. Avellis, Berlin, Germany. Treating leather preparatory to dyeing	591,709	Oct. 12	1462	----	81	313
Kouznezoff, Wasilly, Moscow, Russia. Hot-water accumulator	593,418	Nov. 9	1202	291	81	1052
Kraemer, Frank, Chicago, Ill. Rheostat or electric heater	595,395	Dec. 14	963	234	81	1825
Kramer, Ferdinand, Cologne, assignor to Gas-Motoren-Fabrik-Deutz, Cologne-Deutz, Germany. Driving-gear for motor-cars	593,945	Nov. 16	2169	515	81	1255
Krantz, Hubert. (See Soons, William, assignor.)						
Kraus, Otto, New York, N. Y. Bicycle-brake	595,106	Dec. 7	476	114	81	1708
Kraus, Otto, New York, N. Y. Seat-post and handle-bar fastener	595,179	Dec. 7	606	145	81	1732
Krause, Arthur E., Jersey City, N. J. Control apparatus for centrifugal machines	592,546	Oct. 26	3146	647, 648	81	715
Krause, Arthur E., Jersey City, N. J. Apparatus for revivifying bone-black	592,547	Oct. 26	3150	648, 649	81	716
Krause, Hugo C. (See Schneider, Herman B., assignor.)						
Krause, Thaddeus S., *et al.* (See Huber, George W., assignor.)						
Krebs, George R., assignor to D. W. Dearing, Pittsburg, Pa. Tubular tripod-brace for lightning-rods	595,543	Dec. 14	1211	291	81	1875
Krewson, Franklin P., Philadelphia, Pa. Machine for pulverizing soil	593,848	Nov. 16	2007	472	81	1221
Krisan, Ignatz, Chicago, Ill. Water-tube cleaner for steam-boilers	595,780	Dec. 21	1509	386	81	1970
Krueger, Francis E., *et al.* (See O'Neill, Charles P., assignor.)						
Krueger, Louis G., Wrightstown, Wis. Wrench	594,023	Nov. 23	2303	544	81	1298
Krum, Charles L. (See McClatchey and Krum.)						
Krutsch, Willis W., Coffeyville, Kans., assignor to N. Dunklin, Little Rock, Ark. Staple-puller	592,297	Oct. 26	2377	561	81	532
Kuehl, Herman W. (See Macher, Kuehl, and Meinshausen.)						
Kuehnle, John, Cincinnati, Ohio. Cutter-head with self-clearing bit	592,700	Nov. 2	62	14	81	818
Kuenzle, William, and W. Poehlmann, Philadelphia, Pa. Hat and clothes rack	592,259	Oct. 26	2907	543	81	518
Kugler, Ladislaus, Chicago, Ill. Bicycle	596,072	Dec. 28	2146	509	81	2100
Kühn, Albin, Heidelberg, Germany. Cowl	592,791	Nov. 2	64	14	81	819
Kühnert, Hugo, Berlin, Germany. Lamp-globe cover and protector	595,636	Dec. 14	1356	327	81	1906
Kuhnke, Emma O., Covington, La. Folding crutch	595,637	Dec. 14	1357	327	81	1906
Kull, Samuel B. (See O'Leary and Kull.)						
Kummerow, Ferdinand C., assignor of one-half to W. Juhl, Chicago, Ill. Extension fire-ladder	592,470	Oct. 26	3025	614, 615	81	691
Kundtz, Theodor, Cleveland, Ohio. Wheel-rim	596,424	Dec. 28	2702	653	81	2219
Kunkel, John A., New York, N. Y. Indicator for carriages, &c	591,282	Oct. 5	622	146	81	118
Kursheedt, Alphonse H., and J. A. Groebli, New York, N. Y., assignors to said Kursheedt. Sewing-machine for sewing spangles on fabrics	591,079	Oct. 5	245	57, 58, 59	81	48
Kursheedt Manufacturing Company. (See Groebli, Joseph A., assignor.)						
Kursheedt Manufacturing Company. (See Panse, Friedrich W., assignor.)						
Kurth, William. (See Pollock and Kurth.)						
Kurtzworth, John, New York, N. Y. Grain-drier	592,530	Oct. 26	3120	637	81	709
Kustel, Oscar, San Francisco, Cal. Mariner's compass	594,803	Nov. 30	3713	865	81	1593
Kuster, John A., Plymouth, Wis. Adjustable mounting for sliding doors	595,180	Dec. 7	607	145	81	1732
Küstner, Max, and H. Ladebeck, Leipsic, Germany. Abdominal douche-bath	593,527	Nov. 9	1397	337	81	1060
Kyle, Joseph J., assignor to Adams Brothers Company, Findlay, Ohio. Power device for pumping wells	591,283	Oct. 5	623	146	81	118
Kyle, John N. (See Johnston and Kyle.)						
La Burt, John, Brooklyn, N. Y., assignor, by mesne assignments, to New York Coupler Company, of New York. Car-coupling	595,067	Dec. 7	402	97	81	1694
La France, Asa W. (See Watrous, Thomas A., assignor.)						
La Société des Générateurs à Vaporisation Instantanée. (Système Leon Serpollet.) (See Serpollet, Leon, assignor.)						
La Société Edouard Candel et Cie. (See Candel, Edouard, assignor.)						
Lacey, Walter, Adams, Mass., assignor to Northrop Loom Company, Saco, Me., and Hopedale, Mass. Stopping mechanism for looms	591,979	Oct. 19	1823	434	81	405
Lachenmaier, Charles, Darby, Pa. Car-wheel and track therefor	593,419	Nov. 9	1208	291	81	1052
Lacy, George W., Kingston, N. Y. Car-truck	595,719	Dec. 21	1480	358	81	1949
Ladd, Edward T., Marionville, Mo. Bucksaw-frame	595,815	Dec. 14	828	204	81	1800
Ladebeck, Hermann. (See Küstner and Ladebeck.)						
Ladewich, George, assignor to Bayer & Gardner, New York, N. Y. Sliding-door lock	596,169	Dec. 28	2907	547	81	2129
Lafaelle, William H., assignor of two-thirds to H. F. Naphen and H. H. Waldron, Boston, Mass. Clutch	591,080	Oct. 5	250	59	81	50
Lafaelle, William H., assignor of two-thirds to H. F. Naphen and H. H. Waldron, Boston, Mass. Hoisting apparatus	592,792	Nov. 2	65	14	81	819

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lafond, Moses, and L. Hamlin, Little Falls, Minn. Washing-machine	594,088	Nov. 23	2407	572	81	1318
Lagonda Manufacturing Co. (See Weinland, Henry F., assignor.)						
Laidlaw, John, Glasgow, Scotland. Centrifugal machine	591,770	Oct. 12	1463	345	81	313
Laidlaw, John, Glasgow, Scotland, and C. A. Matthey, Reading, England. Centrifugal machine	592,147	Oct. 19	2134	505	81	464
Lain, William H. (See Sheehan and Lain.)						
Lainé, Damaso T. (See Wamsley and Lainé, assignors.)						
Lainé, Honoré F. (See Wamsley and Lainé.)						
Lake, Amariah, Pleasantville, N. J. Illusion apparatus	595,951	Dec. 21	1926	400, 401	81	2036
Lake, John C., Baltimore, Md., and S. Lake, Atlantic Highlands, N. J. Steering-gear	591,851	Oct. 19	1503	380	81	360
Lake, Simon. (See Lake, John C. and S.)						
Lalonde, Moses, Mooers, N. Y. Signal	594,361	Nov. 23	2370	677	81	1407
Lamar, Norman L. (See Cook, James H., assignor.)						
Lamb, Charles R., New York, N. Y. Mosaic tile	595,485	Dec. 14	1123	271	81	1856
Lambert, George A., Anderson, Ind. Neck-yoke	592,793	Nov. 2	66	14	81	819
Lamborn, Samuel, H. and F. Harker, Philadelphia, Pa. Air-valve for pneumatic tires	592,010	Oct. 19	1886	449	81	418
Lambrecht, Charles L., Buffalo, N. Y. Toy marble-shooter	594,479	Nov. 30	3090	725	81	1470
Lamontagne, Arthur J., *et al.* (See Lamontagne, Joseph, assignor.)						
Lamontagne, Joseph, assignor of two-thirds to A. J. Lamontagne and A. C. Matthews, Northampton, Mass. Switch-operating mechanism for cars	591,233	Oct. 5	534	127	81	101
Lampert, William, Sacramento, Cal. Bicycle handle-bar grip	592,634	Oct. 26	3291	683	81	743
Lamplugh, James A., deceased; C. F. Brown, Reading, Mass., administrator. Bicycle-saddle	595,590	Dec. 14	1290	312	81	1893
Lamprey, Ben B., Lynn., assignor of one-half to B. J. White, Westfield, Mass. Protective arch-plate for mouths of boiler-furnaces	592,685	Oct. 26	3292	684	81	743
Lancaster, Margaret A., administratrix. (See Lancaster, William.)						
Lancaster, William, deceased, Saylesville, R. I.; M. A. Lancaster, administratrix. Alarm	593,669	Nov. 16	1677	400	81	1158
Lanchester, Frederick W., Alvechurch, England. Gas or oil motor engine	592,794	Nov. 2	68	15	81	820
Lanchester, Frederick W., Alvechurch, England. Steering mechanism for power-propelled vehicles	593,357	Nov. 9	1095	265	81	1033
Lanchester, Frederick W., Alvechurch, England. Cooling device for explosive-engines	596,271	Dec. 28	2474	588	81	2161
Landenberger, Emma M. D., St. Louis, Mo. Dress-stay attachment	591,170	Oct. 5	410	96	81	79
Landers, Frary & Clark. (See Smith, Charles F., assignor.)						
Landers, John N. (See Whittier and Landers.)						
Landes, Henry M., assignor of one-half to C. B. Pugh, Afton, Va. Cutter-bar	594,747	Nov. 30	3612	840	81	1573
Landfried, Charles, Ravenswood, W. Va. Vehicle running-gear	596,170	Dec. 28	2308	548	81	2130
Landis, Frank F., Waynesborough, Pa. Centrifugal grain-separator. (Reissue)	11,631	Oct. 5	791	184, 185	81	151
Landis, Frank F., Waynesborough, Pa. Centrifugal grain-separator. (Reissue)	11,632	Oct. 5	793	185	81	151
Landis, Frank F., Waynesborough, Pa. Centrifugal grain-separator. (Reissue)	11,644	Dec. 28	2843	670	81	2235
Landis, Frank F., Waynesborough, Pa. Type-writing machine	591,669	Oct. 12	1310	307	81	282
Landis, John C., Middletown, Pa. Type-writing machine	593,849	Nov. 16	2008	472	81	1221
Lane, Almeron M., Meriden, Conn. Balance-escapement	593,747	Nov. 16	1818	436	81	1184
Lane, Charles M., Olathe, Kans. Gate						
Lane, Cornelius. (See Lane, John, assignor.)						
Lane, Edwin, assignor of three-fourths to T. J. Fearl, Johnstown, Pa. Fire-kindler	594,024	Nov. 23	2305	544	81	1298
Lane, Edwin, and J. A. Snyder, Johnstown, Pa. Trolley	593,301	Nov. 9	1007	242	81	1017
Lane, Frederick A., Waterville, Me. Fly-trap	594,698	Nov. 30	3517	818	81	1553
Lane, James R., assignor of one-half to W. E. Taylor, Gate City, Va. Hand planter and fertilizer-distributer	596,459	Dec. 28	2829	667	81	2233
Lane, John, assignor of one-half to C. Lane, Holly, Mich. Gate	591,780	Oct. 12	1484	351	81	318
Lane, Julius S., Westport, Conn. Support for aerial wire ropeways	591,221	Oct. 5	512	121	81	97
Lanfair, Herbert D. (See Goodell and Lanfair.)						
Langan, David H., assignor of one-half to C. M. Shaut, Leetonia, Pa. Grab-hook	595,181	Dec. 7	609	145	81	1733
Langford, Ernest A., Washington, Cal. Fuse-cutting tool	595,915	Dec. 21	1867	446	81	2025
Langmuir, Woodburn, Toronto, Canada. Rubber tire	595,486	Dec. 14	1124	271	81	1856
Langsenkamp, William, Jr., Indianapolis, Ind. Gas-mixer	595,916	Dec. 21	1868	446	81	2025
Lano, Adolph G., South Haven, Minn. Potato-digger	595,396	Dec. 14	964	234	81	1825
Lansing, John R., Bridgeport, Conn. Blind-slat operator and fastener	595,854	Dec. 21	1738	415	81	1997
Lantz, Benjamin F., Taylorville, Ill. Envelop-opener	591,651	Oct. 12	1278	299	81	276
Lantz, Elmer G., Albany, Oreg. Syrup-pitcher	594,629	Nov. 30	3375	790	81	1523
Lapsley, William R., and W. Sallee, McAfee, Ky. Twin snap-hook	593,748	Nov. 16	1819	436	81	1184
Lardner, Henry, and C. Brent, Niles, Mich. Filter	593,182	Dec. 7	610	146	81	1733
Laroche, Emile, Angers, France. Stove	595,952	Dec. 21	1930	461	81	2037
Larrabee, Joe, Kansas City, Kans. Sheet-assembling device	592,548	Oct. 26	3155	649	81	717
Larson, Knute. (See Quickert and Larson.)						
Larue, Alvy M., Downey, Iowa. Harvester attachment	593,478	Nov. 9	1305	316	81	1073
Latham, Henry W., assignor to Wilkinson Sword Company, Limited, London, England. Means and machinery for grinding cutlery	594,699	Nov. 30	3518	819, 820, 271, 272	81	1553
Latham, James R., New York, N. Y. Non-refillable bottle	595,487	Dec. 14	1126		81	1857
Latta, Emmit G., Friendship, N. Y. Velocipede	592,871	Nov. 2	212	49	81	849
Latta, Emmit G., Friendship, N. Y. Velocipede	593,479	Nov. 9	1305	316	81	1074
Lattimore Manufacturing Company. (See Lattimore, Walter A., assignor.)						
Lattimore, Walter A., assignor to Lattimore Manufacturing Company, St. Clair, Pa. Cap	592,298	Oct. 26	2378	561	81	532
Lau, Willy H., and P. A. Bredsvold, Chicago, Ill. Insulating-joint	593,381	Nov. 9	1133	274	81	1040
Laub, Fred. J. (See Henery, Charles F., assignor.)						
Lauderdale, Joab S., Kellyton, Ala. Cotton-chopper	595,397	Dec. 14	965	234	81	1825
Laue, Vernon A., and M. M. Pierce, Cross Fork, Pa. Index	593,528	Nov. 9	1308	337	81	1060
Laughlin, Henry D. (See Robischung, Henry B., assignor.)						
Launstein, William H., Owosso, Mich. Dress-stay	592,118	Oct. 19	2084	492	81	455
Laurence, Charles, Kingston-upon-Hull, England. Needle-threader	595,953	Dec. 21	1931	461	81	2037
Lausen, Hans C., Newman, Cal. Railway-switch	591,852	Oct. 19	1506	380	81	361
Lauth, Bernard C., Pittsburg, Pa. Metallurgical furnace	594,111	Nov. 23	2439	579, 580	81	1325
Lauth, Bernard C., Pittsburg, Pa. Metallurgical furnace	594,112	Nov. 23	2441	580	81	1325
Lavigne, Joseph P., assignor of one-half to W. P. Day, New Haven, Conn. Split pulley	593,398	Nov. 9	1171	282	81	1047
Lavigne, Joseph P., assignor of one-half to W. F. Day, New Haven, Conn. Bicycle-pedal	594,405	Nov. 30	2952	695	81	1441
Law, Harrison O., *et al.* (See Law, Samuel H., assignor.)						
Law, Myron D., assignor to Love Electric Traction Company, New York, N. Y. Traveling contact device for electric railways	594,406	Nov. 30	2953	695	81	1442
Law, Samuel H., assignor to himself, J. W. Wells, and H. O. Law, Brooklyn, N. Y. Bicycle-trainer	592,093	Oct. 19	2043	483	81	447
Law, William H., Brooklyn, N. Y. Metallic packing	591,670	Oct. 12	1313	308	81	283

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lawfer, Albert H., Duncansville, Pa. Nut-lock	593,107	Nov. 2	619	149	81	927
Lawler, James G., St. Charles, Mo. Railway-car	592,932	Nov. 2	315	72,73	81	869
Lawton, Albert L. (See Lawton, Charles F., A. W., and A. L.)						
Lawton, Arthur W. (See Lawton, Charles F., A. W., and A. L.)						
Lawton, Charles F., Brooklyn, N. Y. Cement	594,118	Nov. 23	2443	.....	81	1325
Lawton, Charles F., A. W., and A. L., Washington, D. C. Paint	593,670	Nov. 16	1678	.....	81	1158
Lawyer, Philip A., Janesville, Ill. Carpet-stretcher	593,898	Nov. 16	2091	495	81	1239
Lay, Gilbert, Licking, Mo. Telephone-line switch	594,407	Nov. 30	2957	696	81	1442
Lay, William F., New York, N. Y. System of mining gold-bearing placers	595,457	Dec. 14	1072	258	81	1846
Lazarus, Sam, *et al.* (See Clark, George G., assignor.)						
Lazure, Albert R., and J. J. Denning, Gas City, Ind., assignors to United States Glass Company, Pittsburg, Pa. Apparatus for reheating glassware	593,108	Nov. 2	619	149	81	928
Le Blanc, Joseph. (See Guilmet and Le Blanc.)						
Le Fevre, Nevin B., Littlestown, assignor to Z. K. Loucks, Philadelphia, Pa. Bicycle-stand	594,748	Nov. 30	3613	841	81	1573
Le Gresley, James R., Fairfield, Iowa. Wagon-brake	596,243	Dec. 28	2425	573	81	2154
Le May, Marcus M., Town Creek, assignor of one-half to M. B. Hampton, Leighton, Ala. Wrench	595,638	Dec. 14	1358	328	81	1906
Leach, Fred H. (See Donahue and Leach.)						
Leadbetter, George D., Detroit, Mich. Perambulator	595,488	Dec. 14	1128	272	81	1857
Lean, George R., deceased; J. Potter, administrator, assignor to Jandus Electric Company, Cleveland, Ohio. Electric-arc lamp	593,899	Nov. 16	2008	495	81	1239
Lear, James A., Lauderdale, La. Milk-pail	593,109	Nov. 2	621	149 150	81	928
Leas, Theodore. (See Stevenson, George W., assignor.)						
Leavens, Stephen A., J. M. Harvey, and W. A. Chandler; said Chandler assignor to A. G. Kempton, Grafton, Mass. Loom for lappet-weaving	595,677	Dec. 14	1419	342	81	1918
Leavitt, John E., Melrose, assignor to H. I. Young, Boston, Mass. Polishing apparatus	593,302	Nov. 9	1008	243	81	1017
Lebeau, Jules, Chatelineau, and L. Mineur, Brussels, Belgium. Burner for acetylene gas	592,299	Oct. 26	2379	562	81	533
Leblanc, Maurice. (See Hutin and Leblanc.)						
Lebrun, Gustave, and F. Cornaille, Paris, France. Apparatus for producing acetylene gas	595,816	Dec. 21	1662	401	81	1983
Lederer, Charles. (See Skiles and Lederer.)						
Lee, Arthur. (See Forbes, French, and Lee.)						
Lee, Charles A., Canastota, N. Y. Adjustable head-rest	594,543	Nov. 30	3321	755	81	1498
Lee, Charles E., Nashua, and W. C. Hoyt, Merrimac, N. H. Seal-lock	591,407	Oct. 12	847	197	81	198
Lee, Edwin P., Cardiff, England. Kiln for burning clay goods	593,723	Nov. 16	1772	425 426	81	1175
Lee, Jacob M., Houston, Tex. Railway-bed for trestles	592,990	Nov. 2	425	100 101	81	889
Lee, John C., Brookline, Mass. Waterproof envelop for protecting charts, &c	596,300	Dec. 28	2523	600	81	2171
Lee, John G. (See Case and Lee.)						
Lee, Robert E. (See Quinn and Lee.)						
Lee, Robert J., Oklahoma, Okla. Ter. Currycomb	594,025	Nov. 23	2306	545	81	1209
Lee, William W., Northampton, Mass. Oil-distributing projectile	591,853	Oct. 19	1507	380	81	361
Leek, Ira G., San Francisco, Cal. Folding chair	595,316	Dec. 14	829	204	81	1800
Lege, Louis, Hanover, Germany. Track-cleaning device for street-tramways	595,183	Dec. 7	612	146	81	1733
Legros, Oscar, North Bay, Canada. Fare-box register	593,671	Nov. 16	1681	407	81	1158
Lehan, Timothy J. (See Crowley, John L., assignor.)						
Lehmann, Louis B., Dresden, Germany. Machine for coating confectionery or the like	592,568	Oct. 26	3180	656 657	81	721
Lehmann, Richard, assignor of one-half to J. A. Quell, Brooklyn, N. Y. Baby-walker	592,569	Oct. 26	3182	657	81	722
Lehr Agricultural Company. (See Lehr and Moore, assignors.)						
Lehr, Joseph W., and H. F. Moore, assignors to Lehr Agricultural Company, Fremont, Ohio. Pumping mechanism	593,178	Nov. 2	773	186	81	959
Leib, Samuel F. (See Adel and Leib.)						
Leibert, Owen F., Bethlehem, Pa. Apparatus for washing gas	594,490	Nov. 30	3097	726	81	1470
Leid, Paul, *et al.* (See Schutz, John, assignor.)						
Leidgen, Nicolaus, Milwaukee, Wis. Lubricator	591,854	Oct. 19	1598	380	81	362
Leigh, Charles, Knottsville, Ky. Fruit-squeezer	592,652	Oct. 26	3323	691	81	749
Leighton, George A., and J. H. Rice, Manchester, N. H. Knitting-machine	596,301	Dec. 28	2524	601 602	81	2171
Leisenring, John. (See Devlin, Francis H. A., assignor.)						
Leissner, Eduard. (See Henneberg, Gustav, assignor.)						
Leitch, Meredith, Richmond, Va., assignor to Warren Webster & Company, of New Jersey. Thermostatic valve	591,980	Oct. 19	1825	434	81	406
Leitch, Meredith, Richmond, Va., assignor to Warren Webster and Company, of New Jersey. Thermostatic valve	593,399	Nov. 9	1172	283	81	1047
Lester, James A. (See Beermaker, John, assignor.)						
Leland, Edwin A., assignor to T. Greenwood and F. H. Wright, Great Barrington, Mass. Locomotive for towing canal-boats	594,832	Nov. 30	3759	876	81	1602
Lelardioux, Pierre, Denison, Tex. Roller-press for extracting oil from cotton-seed, &c	595,022	Dec. 7	314	76	81	1679
Lemke, Adolph, Minneapolis, Minn. Chimney	593,308	Nov. 9	1010	243	81	1017
Lemley, Louis E. (See Raymond and Lemley.)						
Lemmermann, Henry, Hasbrouck Heights, N. J. Dress-shield	591,981	Oct. 19	1826	434	81	406
Lemon, Richard A. (See Williams and Dickerson, assignors.)						
Lemyre, Joseph E., Manchester, N. H. Lasting-hammer	594,997	Dec. 7	274	65	81	1671
Lengel, Irvin D., assignor of one-half to Packer Cycle Company, Reading, Pa. Milling-machine	593,541	Nov. 9	1430	348	81	1095
Lenhart, Harry P., Terre Haute, Ind. Bib	590,991	Oct. 5	75	16	81	16
Lentz, Charles W. (See Reeves and Lentz.)						
Lentz, John A. (See Bever and Lentz.)						
Leonard, Frank E., Chicago, Ill., assignor to American Bell Telephone Company, Boston, Mass. Cable-bending appliance	592,972	Nov. 2	404	95	81	885
Leonard, Peter G., Springfield, Ill. Cinder-extractor	592,011	Oct. 19	1887	449 450	81	418
Leonhardt, Hermann. (See Zietz, Eduard, assignor.)						
Léry, Joseph B. de, New York, N. Y. Incandescent burner	591,652	Oct. 12	1279	300	81	276
Lesch, Peter, New York, N. Y. Non-refilling stopper for vessels	593,179	Nov. 2	774	186	81	960
Lesher, George. (See Kauffman, Frank S., assignor.)						
Leslie, James W., Melrose, Mass. Curtain-ring	592,795	Nov. 2	69	15	81	820
Lester & Wasley. (See Stanton, Howard L., assignor.)						
Leu, Mary D., Wauseon, Ohio. Dress-chart	595,239	Dec. 7	717	175	81	1752
Levedahl, Axel, assignor to Aurora Automatic Machinery Company, Aurora, Ill. Oil-cup	594,544	Nov. 30	3222	753	81	1494

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Levedahl, Axel, assignor to Aurora Automatic Machinery Company, Aurora, Ill. Machine for making and applying peripherally-toothed spoke-washers	595,107	Dec. 7	478	114 115 116	81	1709
Levedahl, Axel, assignor to Aurora Automatic Machinery Company, Aurora, Ill. Machine for making and applying spoke-washers	595,108	Dec. 7	483	116 117	81	1709
Levey, John, assignor of one-half to F. Curtis, Lindsay, Canada. Cheese-rack	591,671	Oct. 12	1314	308	81	283
Levis, John S. (See Keim, John, assignor.)						
Levy, Jacob, Brooklyn, N. Y. Folding bed-frame	592,653	Oct. 26	3324	691 692	81	749
Levy, John Z., Apollo, Pa. Street-sweeper	593,749	Nov. 16	1820	436	81	1184
Levy, Max, Philadelphia, Pa. Half-tone screen	591,653	Oct. 12	1281	300	81	276
Lewis, Benjamin B., Bridgeport, Conn. Chimney-top draft-regulator	594,257	Nov. 23	2672	633	81	1369
Lewis, Elizabeth, Prattsville, N. Y. Hat-fastener	593,400	Nov. 9	1174	283	81	1047
Lewis, Everett C., Woonsocket, R. I., assignor of one-half to A. Dean. Ticket-holder	591,171	Oct. 5	411	97	81	79
Lewis, George G., Athens, Ohio. Mine-gate	595,880	Dec. 21	1796	431	81	2010
Lewis, George I. (See Boden and Lewis.)						
Lewis, Herman, Brooklyn, N. Y. Holder for jars, cans, &c	592,012	Oct. 19	1889	450	81	419
Lewis, James F. (See Brawley and Lewis.)						
Lewis, John C., St. Louis, Mo. Method of and means for joining soft-metal pipes	592,991	Nov. 2	427	101	81	890
Lewis, Joseph S., Ridgewood, Mo. Folding egg-crate	592,059	Oct. 19	1974	466	81	434
Lewis, Lute L., and S. Williams, Bucklin, Mo. Rein-holder	595,881	Dec. 21	1798	431	81	2011
Lewis, Samuel T., Philadelphia, Pa. Collapsible crate	593,590	Nov. 16	1537	373	81	1132
Lewis, Theodore G., and F. M. Bailey, assignors to Buffalo Dental Manufacturing Company, Buffalo, N. Y. Brazing apparatus	591,982	Oct. 19	1827	435	81	406
Lewis, Thomas, Priors Lee, England. Blast-furnace and means for charging same	593,358	Nov. 9	1096	265 266	81	1033
Lewis, Truman S., Waterbury, Conn. Cover for mucilage-reservoirs	593,480	Nov. 9	1308	316	81	1074
Lewis, William D. (See Young and Lewis.)						
Lewis, William P., Allegheny, Pa. Reversible range	591,654	Oct. 12	1283	300	81	276
Libbey, Hosea W., Boston, Mass. Electric bicycle	596,272	Dec. 28	2475	588	81	2162
Libbey, Hosea W., Boston, Mass. Electric bicycle	596,273	Dec. 28	2476	589	81	2162
Libbey, Hosea W., Boston, Mass. Electric bicycle	596,274	Dec. 28	2477	589	81	2162
Libbey, Hosea W., Boston, Mass. Bicycle	596,275	Dec. 28	2478	589	81	2162
Libbey, Hosea W., Boston, Mass. Telephoning from cars in motion	596,276	Dec. 28	2479	589	81	2162
Liddle, Robert W., Gilbert Station, Iowa. Attachment for raising or lowering buggy-tops	593,591	Nov. 16	1538	373 374	81	1132
Lidy, George F., Chicago, Ill. Apparatus for purifying water	593,054	Nov. 2	598	127	81	910
Lieber, William A. (See Tyler and Lieber.)						
Liebhardt, Julius, and E. Fischer, Barmen, Germany. Mechanism for feeding envelops, &c., to printing-machines	594,408	Nov. 30	2958	696 697	81	1442
Lied, Fred, Columbus, Ohio. Oil-can top	596,244	Dec. 28	2426	573	81	2154
Liezen, Gerritt J., Hingham, Wis. Cheese-vat	593,771	Nov. 16	1658	445 446	81	1192
Lightfoot, Thomas B., London, England. Apparatus for cooling air	591,655	Oct. 12	1284	301	81	277
Ligon, John B., assignor of two-thirds to N. L. Wingo, Jackson, Miss., C. T. Cates, Jr., Knoxville, Tenn., and V. C. Barringer, San Antonio, Tex. Coin-controlled tire-inflater	595,689	Dec. 14	1360	328	81	1906
Lilley, Luke, Cincinnati, Ohio. Electric pleasure-railway	594,700	Nov. 30	3523	820 821	81	1554
Lincoln, Ertell W., Pasadena, Cal. Pedal for cycles	592,549	Oct. 26	3156	650	81	717
Lincoln, Isaac, Providence, R. I. Luggage-carrier for bicycles	595,240	Dec. 7	721	175	81	1753
Lincoln, Levi C. (See Bailey, Clifford C., assignor.)						
Lind, Monroe P. (See Schandein and Lind.)						
Lindahl, Nils P., Naugatuck, Conn. Baby-chair	596,425	Dec. 28	2763	653	81	2220
Linde, Carl von der, Crefeld, Germany. Distilling acetic acid	596,043	Dec. 21	2097	.....	81	2073
Lindemann, Gustav M., *et al.* (See Jonas, Hubert F., assignor.)						
Lindgren, John, Porter's Mills, Wis. Claw-bar	591,172	Oct. 5	413	97	81	79
Lindley, Mark N., and L. I. Coggins, San Francisco, Cal.; said Lindley assignor to said Coggins. Mimeograph	593,672	Nov. 16	1668	407	81	1159
Lindner, Ernst, New York, N. Y. Gas-burner	595,317	Dec. 14	830	205	81	1801
Lindquist, Fredrik, Lutcher, La. Tie-plate and coupling device for railway-rails	592,751	Oct. 26	3518	739	81	787
Lindsay, Charles E., Terrace Park, Ohio. Deraller	593,304	Nov. 9	1012	243	81	1018
Lindsay, Clarence A., Washington, D. C. Photographic-plate wrapper	592,148	Oct. 19	2135	505	81	464
Lindsay, Edmund, Patterson, Pa. Sawbuck	592,654	Oct. 26	3325	692	81	749
Lindsay, William, Manchester, England. Apparatus for measuring, registering, and delivering liquids	594,630	Nov. 30	3376	791	81	1523
Lindstrom, Charles. (See Bennett, Lindstrom, and McKeen.)						
Lindstrom, Gustaf A., Jersey City, N. J. Pneumatic tire	590,992	Oct. 5	76	17	81	16
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Oil-can	592,094	Oct. 19	2045	483	81	447
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Oil-can	594,258	Nov. 23	2673	633	81	1370
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Bottle-stopper	593,401	Nov. 9	1175	283	81	1047
Link-Belt Engineering Company. (See Howson, Henry, assignor.)						
Link-Belt Engineering Company. (See Piez, Charles, assignor.)						
Link, John J., St. Louis, Mo. Lock	591,479	Oct. 12	967	229	81	217
Linn, Allen D., and A. A. Lytle, assignors to Grand Rapids School Furniture Company, Grand Rapids, Mich. Tablet-arm	592,471	Oct. 26	3029	616	81	691
Linneborn, Ferdinand, Hagen, Germany. Combined woolen and linen underclothing	593,772	Nov. 16	1861	.....	81	1192
Linnell, Fred J., *et al.* (See Nicholes, John H., assignor.)						
Linnemeier, Fred, assignor of one-half to M. Pfeiffer, Fairmont, Minn. Tongue-iron	595,640	Dec. 14	1363	328	81	1907
Linton, August W., assignor of two-thirds to J. A. Smith and A. Schnorenberg, Minneapolis, Minn. Machine for kneading dough	592,797	Nov. 2	71	16	81	890
Linton, W. C., *et al.* (See Walker, Robert H., assignor.)						
Linton, William H., New Richmond, assignor to O. P. Schriver & Co., Cincinnati, Ohio. Fence-wire ratchet	592,798	Nov. 2	73	16	81	821
Lippincott, William E., and O. E. C. Homann, Allegheny, Pa. Motor	593,808	Nov. 16	1927	458 459	81	1204
Lippmann, Gustav H., Milwaukee, Wis. Car-coupling	592,957	Nov. 2	372	87	81	879
Lisle, Bernard C. de, and G. P. Main, Loughborough, England. Car-coupling	595,318	Dec. 14	831	205	81	1801
Listmann, George, Baltimore, Md. Coat	592,149	Oct. 19	2136	505	81	464
Littauer, Lucius N. (See Murphy, William B., assignor.)						
Little, Peter E., assignor to Ohio Rake Company, Dayton, Ohio. Disk harrow	591,555	Oct. 12	1116	262	81	344
Little, Piercy, *et al.* (See Kesty, Charles C., assignor.)						
Little, Thomas F. (See Martin, William, assignor.)						
Livermore, William B., Fresno, Cal. Apparatus for drawing water	594,956	Dec. 7	189	45	81	1656
Livingston, Frederick H., Ithaca, N. Y. Stovepipe-clamp	591,480	Oct. 12	970	229	81	217
Llatas, Cándido D., Paris, France. Manufacturing steel	595,819	Dec. 14	853	.....	81	1801

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lloyd, Charles H. (See Boland, Elia E., assignor.)						
Lloyd, Ernest F. (See MacFadden and Lloyd.)						
Lloyd, Herbert S., Philadelphia, Pa. Electrode for storage batteries	591,855	Oct. 19	1600	381	81	362
Lloyd, Samuel, Washington, D. C. Bow-nut cover for vehicles	594,026	Nov. 23	2308	545	81	1299
Lo Forte, Remigio, New York, N. Y. Bicycle-support	592,472	Oct. 26	3030	616	81	602
Loadwick, Burton E., Harrisville, N. Y. Valve apparatus for washbowls or sinks	596,117	Dec. 28	2221	527	81	2114
Lochmann, Paul, Leipsic-Gohlis, Germany. Vessel for transporting and preserving liquids	590,903	Oct. 5	77	17	81	16
Locke, William S., *et al.* (See Lomb, George W. C., assignor.)						
Lockman, Henry S., Castleton, N. Y. Pump	593,800	Nov. 16	1929	459	81	1205
Lockwood, Arthur W., Everett, Pa. Ice-cream disher	595,954	Dec. 21	1932	461	81	2037
Lockwood, Charles S. (See Tellefsen and Lockwood.)						
Lockwood, George A. and J. E., Chariton, Iowa. Stem winding and setting watch	595,184	Dec. 7	613	146	81	1734
Lockwood, George D., Ypsilanti, Mich. Wire fence	594,207	Nov. 23	2505	614	81	1354
Lockwood, Henry S., South Norwalk, Conn. Lock	594,631	Nov. 30	3379	791	81	1524
Lockwood, James E. (See Lockword, George A. and J. E.)						
Lockwood, Jeremiah, Sullivan, Ind. Pump	592,570	Oct. 26	3184	657	81	722
Lockwood, John S., *et al.* (See Gooding and Beauregard, assignors.)						
Lodewick, Cora B., administratrix. (See Lodewick, Marshall S.)						
Lodewick, Marshall S., deceased, Saratoga Springs, N. Y.; C. B. Lodewick, administratrix. Fire-escape	594,259	Nov. 23	2675	633 634	81	1370
Lodge & Shipley Machine Tool Company. (See Lodge, William, assignor.)						
Lodge, William, assignor to Lodge & Shipley Machine Tool Company, Cincinnati, Ohio. Taper-lathe	593,359	Nov. 9	1098	266	81	1083
Loebs, Albert H., Rochester, N. Y. Combination baby-carriage and chair	594,027	Nov. 23	2308	545 546	81	1299
Loewenthal, Max., New York, N. Y. Duplex parallel shears	596,213	Dec. 28	2378	563	81	2144
Loewi, Adolph, Berlin, Germany. Flooring	594,701	Nov. 30	3524	821	81	1554
Logan, John H., Allegheny, assignor to Logan & Strowbridge Iron Company, New Brighton, Pa. Self-emptying ice-shredder	595,855	Dec. 21	1729	415	81	1997
Logan & Strowbridge Iron Company. (See Logan, John H., assignor.)						
Logan, William H., assignor to Dow Wire Works Company, Louisville, Ky. Luggage-carrier for bicycles	595,185	Dec. 7	615	147	81	1734
Lohr, Marcellus A., assignor of one-half to W. Wildt, Charlotte, Mich. Bean-picking machine	594,028	Nov. 23	2310	546	81	1299
Lohse, D. H., *et al.* (See Farmer, John R., assignor.)						
Lomb, George W. C., Birmingham, Ala., assignor of one-half to W. S. Locke and G. W. Werden, Cincinnati, Ohio. Vehicle-wheel	591,771	Oct. 12	1464	345 346	81	318
Lombard, Nathaniel, Boston, Mass., assignor to Lombard Water Wheel Governor Company, Boston, Mass., and Portland, Me. Speed-regulator	594,622	Nov. 30	3380	792	81	1524
Lombard Water Wheel Governor Company. (See Lombard, Nathaniel, assignor.)						
Long, George S., Hinckley, Ill. Tank-heater	593,055	Nov. 2	529	127	81	910
Long, Jeremiah J., assignor of one-half to G. Hibben, Chicago, Ill. Automatic boiler-cleaner and feed-water heater	591,856	Oct. 19	1601	381	81	362
Long, Joseph S., Pursell, Mo. Water-gage	595,320	Dec. 14	834	206	81	1801
Long, Leon J., *et al.* (See Comley, Joseph W., assignor.)						
Long, Timothy. (See Schlegelmilch, Fredrick H., assignor.)						
Longwell, Orville E., Hillsborough, Ill. Spool-holder	591,605	Oct. 12	1199	282	81	259
Look, Frank N., Northampton, Mass. Toilet article	594,883	Nov. 30	3761	877	81	1602
Loomis, Charles D., Austerlitz, N. Y. Bug-exterminator	595,720	Dec. 21	1491	359	81	1950
Loomis, George M. (See Middleton and Loomis.)						
Loomis, Harry T., assignor to National Casket Company, Oneida, N. Y. Casket	591,781	Oct. 12	1485	351 352	81	318
Loomis, Harry T., assignor to National Casket Company, Oneida, N. Y. Casket	592,799	Nov. 2	75	17	81	821
Loomis-Manning Filter Company. (See Manning, Joseph T., assignor.)						
Lord, Charles B., Long Island City, N. Y. Fuel-saving device for locomotives	595,821	Dec. 14	835	206	81	1802
Lord, James H. (See Coggeshall, William J., assignor.)						
Lord, Richard, Kasson, Minn. Hub-attaching device	591,481	Oct. 12	971	229 230	81	217
Lorenz, William A., assignor to A. H. Walker, trustee, Hartford, Conn. Paper-bag machine	591,173	Oct. 5	414	97 98 99	81	79
Lorenz, William A., assignor to A. H. Walker, trustee, Hartford, Conn. Paper-bag machine	591,174	Oct. 5	419	99 100	81	80
Lorenz, William A., assignor to A. H. Walker, trustee, Hartford, Conn. Paper-bag machine	591,175	Oct. 5	424	100 101	81	80
Lorenz, William A., assignor to A. H. Walker, trustee, Hartford, Conn. Paper bag	596,373	Dec. 28	2674	633	81	2202
Loring, Benjamin C., Providence, R. I. Puzzle	591,234	Oct. 5	536	128	81	101
Lormant, Pierre, Paris, France. Apparatus for raising water	592,872	Nov. 2	215	49,50	81	849
Loth, Frances A., *et al.* (See Childress, Patrick H., assignor.)						
Loth, Frank P., *et al.* (See Childress, Patrick H., assignor.)						
Lottermoser, Thomas, Ludington, Mich. Parasol-holder for bicycles	593,360	Nov. 9	1100	266	81	1084
Lotz, Alfred F. C., Pittsburg, Pa. Positive automatic safety-brake	591,189	Oct. 5	449	107	81	85
Loucks, Zachariah K. (See Le Fevre, Nevin B., assignor.)						
Louden, Robert B. (See Louden, William and R. B.)						
Louden, William and R. B., Fairfield, Iowa. Door-hanger	591,235	Oct. 5	537	128	81	102
Loughin, Alexander, and E. L. Fox, Port Kennedy, Pa. Chest	595,955	Dec. 21	1933	462	81	2038
Loughran, Frederic W., New York, assignor to S. H. Carragan, Brooklyn, N. Y. Surgeon's operating-table	595,822	Dec. 14	837	206 207	81	1802
Louis, Fedor, Brooklyn, N. Y. Electric alarm device	595,398	Dec. 14	966	234 235	81	1896
Lounsbury, Fred C., Plainfield, N. J. Door-fastener	596,118	Dec. 28	2223	528	81	2114
Love Electric Traction Company. (See Law, Myron D., assignor.)						
Love, John L., Fall River, Mass. Pencil-sharpener	594,114	Nov. 23	2444	580	81	1325
Love, John P. (See Love, Joy and J. P.)						
Love, Joy and J. P., Aurora, Ill. Plate-glass setting	593,110	Nov. 2	623	150	81	929
Love, Warren L., Beaver Falls, Pa. Combination-lock	594,206	Nov. 23	2597	614	81	1354
Love, William, Bryn Mawr, Pa. Sink	595,544	Dec. 14	1212	292	81	1875
Love, William E., Madison, Tenn. Adjustable seat and support for railway post-offices	596,409	Dec. 28	2734	647	81	2214
Lovell, Robert E. L. J., Vadis, W. Va. Machine for measuring cloth, &c	592,636	Oct. 26	3294	684	81	744
Lovejoy Company. (See Herrick, Lewis, assignor.)						
Loveland, Frank A., Boston, Mass., assignor to Invisible Collar Button Co. Collar-button	596,081	Dec. 21	2073	493	81	2068
Lovell Cycle and Ether Motor Company. (See Cobb, Lyman H., assignor.)						
Low, Abbot A. (See Johnson and Low.)						
Low, Abbot A., Brooklyn, N. Y. Card-canceling machine	591,680	Oct. 12	1242	291	81	268

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Low, Everett M., assignor, by mesne assignments, to Worcester Envelope Company, Worcester, Mass. Envelop-machine	594,884	Dec. 7	34	17 18 19	81	1634
Lowe, Edward S., Somerville, Mass. Check-book	594,089	Nov. 23	2408	572	81	1319
Lowell Machine Shop. (See Whitaker, Channing, assignor.)						
Lowenstein, Moses. (See Bennett, Frederick M., assignor.)						
Lowrie, William G., Newark, N. J., assignor to Crocker-Wheeler Electric Company, of New Jersey. Automatic circuit-breaker	593,481	Nov. 9	1309	317	81	1074
Lowry, George A., Chicago, Ill. Smoke-house apparatus	595,856	Dec. 21	1730	415 416	81	1997
Lowry, J. C. (See Easton, Walter S., assignor.)						
Lowry, John B., and J. Oldendorph, St. Louis, Mo. Sandpapering-machine	592,992	Nov. 2	428	101 102	81	800
Loyd, Samuel P., Ascalon, Ga. Evaporator	595,186	Dec. 7	616	147	81	1734
Lucas, Charles O., and A. D. Harrison, Greenville, Ohio. Mail-box	595,678	Dec. 14	1421	342 343	81	1919
Lucas, Henry, Lake, assignor to George Ziegler Company, Milwaukee, Wis. Steam-trap	594,885	Dec. 7	69	19	81	1635
Lucas, Robert J. (See Graham, Robert S., assignor.)						
Lucas, Seymour W., Meriden, Conn. Hose-coupling	591,136	Oct. 5	350	84	81	68
Luce, Curtis O., Brandon, Vt. Horse hay-rake	591,672	Oct. 12	1315	308	81	283
Lucier, Louis A., Worcester, Mass. Track-sanding device for street-cars	590,994	Oct. 5	79	17	81	17
Lucken, Jacob E., Worden, Wis. Grip-hook for binding-chains	593,402	Nov. 9	1176	283	81	1047
Ludlam, Annabella E. G., administratrix. (See Ludlam and Claus.)						
Ludlam, Joseph S., deceased, (A. E. G. Ludlam, administratrix,) and J. A. Claus, Lowell, assignors, by mesne assignments, to Draper Company, Hopedale, Mass. Thread-cutting attachment for loom-temples	591,857	Oct. 19	1603	381	81	363
Ludlow, Samuel W., Cincinnati, Ohio. Fire-alarm	591,408	Oct. 12	849	197	81	193
Luer, William, Chicago, Ill. Conduit-railway trolley	592,711	Oct. 26	3444	722	81	773
Lugo, Orazio, New York, N. Y., assignor to Oralu Manufacturing Company, Camden, N. J. Refining oils and reagent therefor	596,410	Dec. 28	2735	------	81	2215
Lugo, Orazio, New York, N. Y., assignor to Oralu Manufacturing Company, Camden, N. J. Purification of cotton-seed oil and reagent used therein	596,411	Dec. 28	2736	------	81	2215
Lumiere, Auguste and L., Lyons, France. Picture-exhibitor	591,858	Oct. 19	1604	381	81	363
Lumiere, Louis. (See Lumiere, Auguste and L.)						
Lumis, James H. (See Miller, Louis M., assignor.)						
Lumley, John. (See Borrowe and Lumley.)						
Lumley, John, assignor of one-half to W. Borrowe, San Francisco, Cal. Heat-insulating article	591,409	Oct. 12	850	------	81	194
Lund, Franklin P. (See Grove and Lund.)						
Lund, Oscar, Brooklyn, N. Y. Toy rattle	594,178	Nov. 23	2545	602	81	1345
Lundberg, Olaf, Minneapolis, Minn. Horse-stopping device	591,988	Oct. 19	1828	435	81	406
Lundell, Robert, Brooklyn, assignor to Johnson-Lundell Electric Company, New York, N. Y. Electric railway	594,702	Nov. 30	3526	821	81	1555
Lundquist, Frank A. (See Strowger, Lundquist, and Erickson.)						
Lundqvist, Emil, Pittsburg, Pa. Traveling contact device	592,150	Oct. 19	2137	506	81	465
Lundqvist, Emil, Pittsburg, Pa. Electric-car truck	592,151	Oct. 19	2138	506	81	465
Lungren, Charles M., Bayonne, N. J., assignor to Safety Car Heating and Lighting Company, New York, N. Y. Lamp	595,721	Dec. 21	1492	359	81	1950
Lunken, Edmund H., Denver, Colo. Knee-protecting attachment for trousers	592,550	Oct. 26	3157	650	81	717
Lunken, Edmund H., Denver, Colo. Quick-opening valve	594,633	Nov. 30	3383	792	81	1525
Lunken, Edmund H., Denver, Colo. Straightway valve	594,634	Nov. 30	3385	793	81	1525
Luscomb, Henry H., assignor to Johns-Pratt Company, Hartford, Conn. Mechanical splice-bar	591,556	Oct. 12	1117	263	81	244
Lusenberry, Hacupha Z. (See Rhoades, Mahlon E., assignor.)						
Lussier, Pierre, Jr. (See Tremblay, Marcel M., assignor.)						
Lust, John, New Washington, Ohio. Means for elevating sacks of grain or the like onto wagons	595,956	Dec. 21	1935	462	81	2038
Luther, Clarence J., Poynette, assignor to C. J. Luther Company, Port Washington, Wis. Grinding-machine	593,964	Nov. 16	2225	523	81	1202
Luther, Sarah L., assignor of one-half to F. H. and W. C. Russell, Berlin, Wis. Glove	592,060	Oct. 19	1975	466	81	434
Lutwyche, Edgar J., assignor of one-fourth to E. A. Lutwyche, Chicago, Ill. Letter or character for signs	591,536	Oct. 12	1087	255	81	237
Lutwyche, Elizabeth A. (See Lutwyche, Edgar J., assignor.)						
Luxfer Prism Patents Company. (See Basquin, Olin H., assignor.)						
Luxfer Prism Patents Company. (See Booth, Kraft, assignor.)						
Luxfer Prism Patents Company. (See Ewen, John M., assignor.)						
Luxfer Prism Patents Company. (See Jordan, Lewis H., assignor.)						
Luxfer Prism Patents Company. (See MacHarg, William S., assignor.)						
Luxfer Prism Patents Company. (See Soper, Frank C., assignor.)						
Luxfer Prism Patents Company. (See Winslow, William H., assignor.)						
Luyckx, Albert C. (See Watson and Luyckx.)						
Lychenheim, Emil, Schwartau, Germany. Portable vessel for retailing liquids	595,328	Dec. 14	838	207	81	1802
Lyle, Robert W., Perth Amboy, N. J. Conduit for electric wires	594,998	Dec. 7	276	66	81	1672
Lyman, Eleazar H., *et al.* (See Bullock, Edmund L., assignor.)						
Lynch, Calvin. (See Fern and Lynch.)						
Lynch, David, New York, N. Y. Telegraph-transmitter for ocean cables	592,494	Oct. 26	3057	622	81	697
Lynch, Edwin G., Parish, N. Y. Device for facilitating rising of cream from milk	594,635	Nov. 30	3389	793	81	1526
Lynd, Coleman T., assignor of one-half to himself and B. M. Miller, San Francisco, Cal. Device for lighting gas	595,023	Dec. 7	316	76	81	1679
Lynn, Charles S. (See Bell, George, assignor.)						
Lynn, Frederick W., assignor of one-half to W. E. Rollins, Natick, Mass. Machine for removing gore-pieces from linings of shoes	594,957	Dec. 7	191	46	81	1657
Lyon, Addison J., Mount Vernon, N. Y. Key-guard	592,300	Oct. 26	2380	502	81	533
Lyon, De Witt H. (See Mead, Edward I., assignor.)						
Lyon, Millard F., *et al.* (See Cornell, Franklin D., assignor.)						
Lyon, William T., Portland, Oreg. Dental appliance	595,068	Dec. 7	403	97, 98	81	1694
Lyons, Hugh, Lansing, Mich. Form for displaying clothing	593,502	Nov. 16	1539	374	81	1132
Lyons, John P. S., Pittsburg, Pa. Curtain-pole appliance	592,152	Oct. 19	2139	506	81	465
Lytle, Alton A. (See Linn and Lytle.)						
Lytle, John M., Whitehall, Md. Horse-rake attachment for grain-binders	595,957	Dec. 21	1936	462 463	81	2038
MacArthur, John S., Pollokshields, assignor to Gold and Silver Extraction Company of America, Limited, Glasgow, Scotland. Precipitating precious metals from solutions	592,153	Oct. 19	2140	------	81	465
MacCoy, Andrew T., Boston, Mass. Automatic boiler-feeder	592,061	Oct. 19	1975	467	81	434
MacCoy, Andrew T., Boston, Mass. Continuous boiler-feeder	592,062	Oct. 19	1980	467 468	81	435

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
MacDonald, Thomas A., Boston, Mass. Water-closet for yachts or vessels	591,190	Oct. 5	451	108	81	85
MacFadden, Carl K., Chicago, Ill., and E. F. Lloyd, Fort Wayne, Ind. Fuel-engine	595,324	Dec. 14	889	207	81	1802
MacFarlane, Malcolm, *et al.* (See Gowans, James A., assignor.)						
MacGregor, Albert G., Chicago, Ill. Spoke-cleaner for bicycles	595,958	Dec. 21	1937	463	81	2039
MacGregor, Charles, Dayton, Ohio. Galvano-cautery instrument	595,573	Dec. 14	1200	302	81	1885
MacHarg, William S., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mold for prism-lights	595,267	Dec. 7	758	186	81	1761
MacHarg, William S., assignor to Luxfer Prism Patents Company, Chicago, Ill. Means for indenting corners of tile	595,268	Dec. 7	759	186	81	1761
MacHarg, William S., assignor to Luxfer Prism Patents Company, Chicago, Ill. Tile with partially-removed corners	595,269	Dec. 7	760	187	81	1761
MacVean, John M., Chicago, Ill. Syringe	591,859	Oct. 19	1605	382	81	363
Macauley, Alvan, assignor to National Cash Register Company, Dayton, Ohio. Cash-register	595,882	Dec. 21	1799	432	81	2011
Macbrair & Co., C. C. (See Simonson, William W., assignor.)						
Macdonald, Colin N., *et al.* (See Cocker, John A., assignor.)						
Macgowan, Guy, *et al.* (See White, Monroe, assignor.)						
Macher, Christian, H. W. Kuehl, and O. Meinshausen, Chicago, Ill. Dumping malt-floor	595,888	Dec. 21	1801	432	81	2011
Machis, Pinchus I., assignor to H. Heesen, Krementschug, Russia. Apparatus for making boots or shoes	592,637	Oct. 26	3295	684 685	81	744
Mack, Ella L. R., Los Angeles, Cal. Movable ladder for musical instruction	594,804	Nov. 30	3713	865	81	1593
Mack, George S. (See Heine and Mack.)						
Mack, Miron D., Kneeland, assignor of one-half to E. Bensene, Thompsonville, Wis. Axle and axle-box	590,995	Oct. 5	80	17	81	17
Mack, William A., Norwalk, Ohio, assignor to Standard Sewing Machine Company, of Ohio. Sewing-machine	596,447	Dec. 28	2803	661	81	2228
Mackay, William M., Newark, N. J., assignor to Hart & Crouse Company, Utica, N. Y. Boiler for steam or hot-water heating	591,236	Oct. 5	539	128	81	102
Macklin, Athol B., New York, N. Y. Pipe-cleaning apparatus	593,225	Nov. 9	880	209	81	993
Macomber, Charles J. (See Konley and Macomber.)						
Macphail, James, Blue Island, Ill. Truck	593,226	Nov. 9	881	209	81	993
Macphail, James, assignor to Plano Manufacturing Company, Chicago, Ill. Harvester-wheel	592,800	Nov. 2	76	17	81	821
Macphail, James, Blue Island, assignor to Plano Manufacturing Company, Chicago, Ill. Grain-harvester elevator	594,636	Nov. 30	3390	793	81	1526
Macy, Wendell, assignor of one-half to M. F. Freeborn, Nantucket, Mass. Attachment for bicycle-pedals	592,801	Nov. 2	77	17	81	821
Madden, John W., Wellsborough, Pa. Trousers	592,473	Oct. 26	3081	615	81	692
Maddock, Harry S., Trenton, N. J. Water-closet bowl	595,890	Dec. 21	1687	407	81	1987
Maddock, John, Trenton, N. J. Supply-regulator for water-closet bowls	594,886	Dec. 7	71	19	81	1635
Mahedy, James, Kellerton, Iowa. Heater	596,412	Dec. 28	2737	647	81	2215
Maher, John N., assignor to G. Allen, Franklin, Pa. Pumping-rigging for oil-wells	592,655	Oct. 26	3326	692	81	750
Mahon, James G. (See Mahon, John G. and J. G.)						
Mahon, John G., and C. E. Gower, Baldwyn, Miss. Corn-harvester	594,409	Nov. 30	2960	697	81	1442
Mahon, John G. and J. G., Baldwyn, Miss. Planter	595,187	Dec. 7	616	147	81	1734
Mahon, Ross L., assignor of one-half to R. G. Wieland, Duluth, Minn. Incandescent-electric-light support	592,551	Oct. 26	3159	650	81	718
Maiche, Louis, Paris, France. Separating heavy from light particles by centrifugal action	593,900	Nov. 16	2094	495	81	1240
Maiche, Louis, Paris, France. Apparatus for heating or cooling fluids by fluids	596,330	Dec. 28	2583	614	81	2183
Main, George P. (See Lisle and Main.)						
Maingot, Joseph N., Grenada, Windward Islands. Dumb-bell	593,056	Nov. 2	531	128	81	910
Maisch, Charles F., Philadelphia, Pa. Car-fender. (Reissue)	11,637	Nov. 9	1466	357	81	1101
Makutchan, William H., Princeton, Ill. Ball-bearing	591,482	Oct. 12	974	230	81	218
Malin, Jesse S., assignor of one-half to I. D. Wiest, Portland, Ind. Automatic continuous rail	595,248	Dec. 7	733	178	81	1756
Mallett, Paschal, assignor of one-half to I. E. Young, East St. Louis, Ill. Lamp	592,656	Oct. 26	3325	693	81	750
Malloy, John J., assignor to Pacific Car Coupling Company, Portland, Oreg. Car-coupling	593,188	Nov. 2	779	187	81	961
Malloy, William F., Pittsburg, assignor to Phoenix Glass Company, Monaca, Pa. Globe-holder	591,984	Oct. 19	1630	435	81	407
Maltby, Frank D., Brooklyn, N. Y. Bicycle	591,673	Oct. 12	1318	309	81	284
Manchester Cycle Components. (See Kitchen, John G. A., assignor.)						
Mandt, Targe G., Stoughton, Wis. Wagon bolster-spring	593,482	Nov. 9	1310	317	81	1074
Mandt, Targe G., Stoughton, Wis. Wagon bolster-spring	593,946	Nov. 16	2170	515	81	1255
Mangold, John A., Moundsville, W. Va. Station-indicator	591,410	Oct. 12	851	197	81	194
Manhattan Concentrator Company. (See Hurt and Whistler, assignors.)						
Manhattan Type Writer Company. (See Price, John B., assignor.)						
Mann, James, Philadelphia, Pa. Stone-planing machine	591,411	Oct. 12	852	198	81	194
Mann, James, Philadelphia, Pa. Planing-machine	595,722	Dec. 21	1494	360 361	81	1950
Manning, James H., Omaha, Nebr. Pneumatic drill	591,284	Oct. 5	625	147 148	81	118
Manning, Joseph T., Philadelphia, Pa. Valve apparatus for filters	594,639	Nov. 30	3416	796	81	1531
Manning, Joseph T., assignor to Loomis-Manning Filter Company, Philadelphia, Pa. Filter	594,637	Nov. 30	3393	794 795	81	1527
Manning, Joseph T., assignor to Loomis-Manning Filter Company, Philadelphia, Pa. Coagulant-feeder for water purification	594,638	Nov. 30	3410	796	81	1530
Manning, Joseph T., assignor to Loomis-Manning Filter Company, Philadelphia, Pa. Filter and valve apparatus therefor	594,640	Nov. 30	3424	797	81	1533
Manning, Lincoln, Clarksville, Cal. Bevel-gage	596,413	Dec. 28	2738	648	81	2215
Manning, Thomas, Cleveland, Ohio. Steam-generator	594,641	Nov. 30	3435	798	81	1537
Mansell, Elbridge S., Lynn, Mass. Machine for making spring-heels	594,115	Nov 23	2445	580	81	1326
Mansell, Elbridge S., Lynn, Mass. Machine for manufacturing heels	595,249	Dec. 7	734	179 180	81	1756
Manteuffel, William, St. Paul, Minn. Washing-machine	593,593	Nov. 16	1541	374	81	1133
Manvers, Albert, Northcote, and M. Fink, St. Kilda, Victoria. Puncture-resisting shield for pneumatic tires	590,996	Oct. 5	82	18	81	17
Marble, Charles C. (See Banta and Marble.)						
Marble, George W., assignor to Indiana Novelty Manufacturing Company, Plymouth, Ind. Bicycle-wheel	595,831	Dec. 21	1668	407	81	1988
Marble, James E., Albany, N. Y. Automatic coupling for steam and air pipes for railway-cars	592,521	Oct. 26	3100	632 633	81	705
Marble, James E., assignor to E. G. Cox, Albany, N. Y. Automatic coupling for train-pipes	592,522	Oct. 26	3103	633 634	81	705
Marble, James E., assignor to E. G. Cox, Albany, N. Y. Train-pipe coupling	592,523	Oct. 26	3106	634 635	81	706

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Marble, Louis M., Washington, D. C. Garment form and press	593,161	Nov. 2	743	178	81	954
Marchal, Nicolas, assignor to Anciennes Salines Domaniales de l'Est, Actien-Gesellschaft, Dieuze, Germany. Electric diaphragm	592,802	Nov. 2	78	.....	81	822
Marchildon, Emile A., *et al.* (See Duplessis, Elouild, assignor.)						
Marcil, Dorila, Terrebonne, Minn. Washboiler	593,275	Nov. 9	959	232	81	1006
Marcus, Morris H. (See Stitt and Marcus.)						
Marea, Michael, and T. Connors, Garrett, Ind. Valve	593,594	Nov. 16	1542	374 375	81	1133
Margeson, Thomas P., assignor to H. M. Sylvester, Melrose, Mass. Oil-vaporizing attachment for stoves or furnaces	592,571	Oct. 26	3184	658	81	722
Margolis, Hirsh, New York, N. Y. Geographical clock	594,410	Nov. 30	2962	698	81	1443
Marin, Louis H., *et al.* (See Duplessis, Elouild, assignor.)						
Mark, Samuel. (See Cohen and Mark.)						
Markley, Hamilton, *et al.* (See Smith, Albert D., assignor.)						
Markley, Paul H., *et al.* (See Smith, Albert D., assignor.)	11,643	Dec. 28	2842	670	81	2235
Markley, Philemon, Girard, Kans. Gate. (Reissue)	591,557	Oct. 12	1118	263	81	244
Markowsky, John, Philadelphia, Pa. Candelabrum	593,111	Nov. 2	624	150 151	81	929
Markowsky, John, Philadelphia, Pa. Candelabrum	593,750	Nov. 16	1821	437	81	1185
Marks, George C., London, England. Atomizer	591,081	Oct. 5	251	59	81	50
Marks, L. F. (See Hoopes, Ernest A., assignor.)						
Marks, William D., assignor to American Electric Meter Company, Philadelphia, Pa. Method of magnetizing	595,325	Dec. 14	840	208	81	1808
Marks, William D., assignor to American Electric Meter Company, Philadelphia, Pa. Electric meter	594,958	Dec. 7	192	46	81	1657
Marlin Fire Arms Company. (See Hepburn, Lewis L., assignor.)	592,154	Oct. 19	2142	506	81	466
Marschall, Adolf J., and C. Nielsen, Little Falls, N. Y. Corn-holder	593,595	Nov. 16	1544	375	81	1133
Marsh, Daniel B., Blackheath, Canada. Apparatus for examining hearts, lungs, &c.	592,155	Oct. 19	2143	507	81	466
Marsh, James P., Chicago, Ill. Air-valve	596,073	Dec. 28	2147	509 510	81	2100
Marsh, Pressley P., South Greenfield, Mo. Well-drilling machine	595,884	Dec. 21	1803	432	81	2011
Marsh, William W., Lincoln, Nebr. Corn-harvester						
Marshall, Charles L., Cedar Grove, N. J. Lamp-wick						
Marshall, Frank R., *et al.* (See Jonas, Hubert F., assignor.)						
Marshall, George F., *et al.* (See Jonas, Hubert F., assignor.)						
Marshall, Mark R., Jr., Bunkie, La. Tool-bag	595,959	Dec. 21	1938	463	81	2039
Marshall, William L., Chicago, Ill. Automatic dam, weir, or gate	596,074	Dec. 28	2151	510 511	81	2101
Marston, George F. (See Marston, Harry N. and G. F.)						
Marston, Harry N. and G. F., Lebanon, N. H. Vegetable, &c., cutter	596,277	Dec. 28	2480	590	81	2163
Marth, Oscar, Berlin, Germany. Milk-can	593,429	Nov. 9	1218	294	81	1056
Martin, Anthony S., Maiden, N. C. Cotton-picker	594,481	Nov. 30	3100	726	81	1471
Martin, Edward P., Dowlais, and R. Price-Williams, London, England. Tongue-rail for railway-switches	591,412	Oct. 12	853	199	81	194
Martin, Frank E., Pittsburg, Pa. Stamp-canceling machine	594,029	Nov. 23	2312	546	81	1300
Martin, Gaylord W., Fort Scott, Kans. Large-ware jollie-machine	592,803	Nov. 2	78	18	81	822
Martin, George W., assignor of one-half to H. M. Stanley, Henderson, Ky. Stopper-neck	591,782	Oct. 12	1486	352	81	318
Martin, Herman W., Ilion, N. Y. Fishing-reel	594,411	Nov. 30	2965	698 699	81	1443
Martin, Herman W., Ilion, N. Y. Fishing-reel	594,412	Nov. 30	2969	699	81	1444
Martin, J. C. (See Gallaway, Edgar, assignor.)						
Martin, James E., Nicholson, N. D. Bicycle driving-gear	592,176	Oct. 19	2146	507	81	467
Martin, John E., Sturgeon, Pa. Casing-head packer	595,574	Dec. 14	1261	302	81	1886
Martin, Lord C., Philadelphia, Pa. Track brush and scraper	595,399	Dec. 14	968	235	81	1826
Martin, Nathan E. (See Bascom and Martin.)						
Martin, Samuel W., assignor to Mast, Foos & Company, Springfield, Ohio. Centering and tightening device for windmill-tower braces	591,860	Oct. 19	1606	382	81	363
Martin, Thomas E., Rush, N. Y. Endless-chain cutter	591,606	Oct. 12	1201	282	81	260
Martin, Werner, Keyser, W. Va. Cashier-protector	595,005	Dec. 21	2007	479	81	2054
Martin, William, assignor of one-half to T. F. Little, Salem, Mass. Mechanical movement	591,102	Oct. 5	287	70	81	57
Martin, William, assignor of one-half to T. F. Little, Salem, Mass. Railway-gate	591,656	Oct. 12	1286	301	81	277
Martin, William, assignor of one-half to T. F. Little, Salem, Mass. Railway-crossing gate	592,013	Oct. 19	1890	450 451	81	419
Martin, William H., *et al.* (See Durham, John F., assignor.)						
Martin, William H., Los Angeles, Cal. Rotary-barrel-rack wagon	592,203	Oct. 19	2219	524 525	81	481
Martin, Willis F., *et al.* (See Jackson, William H., assignor.)						
Martinez-Cardeza, Thomas D., Philadelphia, Pa. Timing device for homing pigeons	591,965	Oct. 19	1830	436	81	407
Martz, Edward C., *et al.* (See Hughes, Thomas W., assignor.)						
Martz, Randolph N., Frederick, Md. Shutter-fastener	592,804	Nov. 2	81	18	81	822
Marvin, Judson L., Mauston, Wis. Rod for flue-cleaners	593,673	Nov. 16	1684	408	81	1159
Marvin, Luke. (See Renney, James, assignor.)						
Marvin, Russell, assignor of one-half to S. N. E. Priddy, Findlay, Ohio. Eccentric	596,075	Dec. 28	2154	511	81	2101
Masland, Joseph H. (See Sutton and Masland.)						
Mason, Arthur J., assignor of one-half to F. K. Hoover, Kansas City, Mo. Conveyer for making artificial excavations for water-courses	592,657	Oct. 26	3328	693 694	81	750
Mason, Arthur J., and F. K. Hoover, Kansas City, Mo. Method of and apparatus for stripping coal-beds	591,047	Oct. 5	194	45, 46	81	30
Mason, Arthur J., and F. K. Hoover, Kansas City, Mo. Apparatus for making artificial excavations for water-courses	592,658	Oct. 26	3337	694 695 696	81	752
Mason, Francis B., Brooklyn, assignor to J. B. Colt & Co., New York, N. Y. Electric-light fixture	592,805	Nov. 2	84	19	81	823
Mason, Martha H., San Diego, Cal. Support for bicycles	593,361	Nov. 9	1101	266	81	1034
Mason, William, assignor to Winchester Repeating Arms Company, New Haven, Conn. Die for making cartridge-cases	592,095	Oct. 19	2047	483	81	447
Masser, Andrew Y., assignor of one-half to H. D. Cushman, Three Rivers, Mich. Windmill-coupling	590,997	Oct. 5	82	18	81	17
Mast Fence Company. (See Mast, Peter, assignor.)						
Mast, Foos & Company. (See Martin, Samuel W., assignor.)						
Mast, Peter, assignor to Mast Fence Company, Delphos Ohio. Wire-fence machine	594,642	Nov. 30	3437	798 799	81	1537
Masters, Egbert E., Sacramento, Cal. Combined sash holder and fastener	592,873	Nov. 2	217	50	81	849
Masterson, Bernard W., assignor of one-half to H. Small, Sunset Depot, Tex. Door-hanger	595,817	Dec. 21	1663	401	81	1963
Masterson, Patrick H., Altoona, Pa. Fan attachment for rocking-chairs	591,237	Oct. 5	545	129	81	104

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mather, Allan G., Milwaukee, Wis. Locking device for shafts	591,558	Oct. 12	1120	263	81	244
Mather, Alonzo C., Chicago, Ill. Furniture-car	593,674	Nov. 16	1686	408	81	1159
Mather, Henry W., Roseville, N. J., assignor to W. and J. Gardam, Brooklyn, N. Y. Electrical-current interrupter	591,861	Oct. 19	1608	382	81	364
Matheus, Louis S., *et al.* (See Auble, James H., assignor.)						
Mathis, August. (See Mathis, Julien W. and A.)						
Mathis, Julien W. and A., Chicago, Ill. Pneumatic-despatch apparatus	594,090	Nov. 23	2409	572	81	1319
Mathisen, Salomon M., Portland, Oreg. Tire-cooling device	593,483	Nov. 9	1311	317	81	1075
Matter, Jacob, assignor to T. C. Ferron, Lincoln, Cal. Roof-bracket	591,772	Oct. 12	1465	346	81	318
Matteson, Walter C., Stockton, Cal. Seeder attachment for gang-plows	594,091	Nov. 23	2410	572	81	1319
Matteson, Walter C., Stockton, Cal. Gang-plow	594,092	Nov. 23	2412	573	81	1319
Matthews, Avon C., *et al.* (See Lamontagne, Joseph, assignor.)						
Matthews, Marion J. (See Bain, Stephen A., assignor.)						
Matthews & Willard Manufacturing Company. (See Miller, John C., assignor.)						
Matthews & Willard Manufacturing Company. (See Miller and Booth, assignors.)						
Matthey, Charles A. (See Laidlaw and Matthey.)						
Mattison, James D., New York, N. Y. Box for shafting	592,807	Nov. 2	91	20	81	824
Mattson, Samuel, Brooklyn, N. Y. Air-lock for caissons	593,947	Nov. 16	2171	515, 516	81	1255
Mattson, Thomas L. (See Parsons, Samuel C., assignor.)						
Mattullath, Hugo, assignor to Anderson Safety Elevator Company, Limited, Detroit, Mich. Automatic device for operating hatch-covers for elevators	592,933	Nov. 2	816	73	81	869
Maury, Dabney H., Jr., Peoria, Ill. System of fluid distribution	593,057	Nov. 2	831	128	81	910
Mauser, Alfons, Schramberg, Germany. Metallic fabric for fencing	593,484	Nov. 9	1312	318	81	1075
Maxcy, Harry L., assignor to Commercial Letter File Company, Chicago, Ill. Device for securing balls in filing-receptacles	595,109	Dec. 7	490	118	81	1710
Maxim, Hiram P., Hartford, Conn. Motor-vehicle	594,805	Nov. 30	3715	865, 866	81	1594
Maxim, Hiram S., assignor to Maxim-Nordenfelt Guns and Ammunition Company, Limited, London, England. Automatic loading mechanism for quick-firing ordnance	593,227	Nov. 9	882	209, 210, 211, 212	81	998
Maxim, Hiram S., assignor to Maxim-Nordenfelt Guns and Ammunition Company, Limited, London, England. Automatic gun	593,228	Nov. 9	887	212, 213, 214, 215	81	998
Maxim-Nordenfelt Guns and Ammunition Company. (See Maxim, Hiram S., assignor.)						
Maxon, Stiles E., assignor of one-half to T. Varwig, Portland, Oreg. Ventilating show-window	595,188	Dec. 7	618	147, 148	81	1734
Maxson, James A., McCune, Kans. Miter-box	592,874	Nov. 2	218	50	81	850
May, Charles C. (See Ansley and May.)						
May, Edwin A., assignor to Globe Ventilator Company, Troy, N. Y. Ventilator or ventilating-ridging for roofs of buildings	595,960	Dec. 21	1989	463, 464	81	2039
Mayers, John. (See Rigling and Mayers.)						
Mayes, David H., Maysfield, Tex. Bridle	591,681	Oct. 12	1243	291	81	268
Mayfield, Daniel D., Robinson, Ill. Weather-strip	591,048	Oct. 5	196	47	81	39
Mayhew, Charles L., Saratoga Springs, N. Y. Gas-engine	591,862	Oct. 19	1609	382, 383	81	364
Mayhew, Theophilus, Detroit, Mich. Culinary device	592,096	Oct. 19	2048	484	81	447
Mayne, Joseph W. (See Klingler and Mayne.)						
Maytham, George W., Buffalo, N. Y. Non-refillable bottle	594,116	Nov. 23	2447	581	81	1326
McAdams, Sylvester L., assignor of one-half to C. A. Curl, Beaver Falls, Pa. Extension-table	595,192	Dec. 7	626	150	81	1736
McAllister, John, Kings county, and W. H. Hayes, Queens county, assignors to J. J. Hayes, Flushing, N. Y. Clenching device for box-nailing machines	593,232	Nov. 9	897	216	81	995
McArthey, Michael H., Cleveland, Ohio. Jig for drilling bolt-holes	595,404	Dec. 14	979	237	81	1829
McArthur, Andrew J., Gainesville, Fla. Car-ventilator	595,127	Dec. 7	518	124	81	1716
McArthur, Andrew J., Gainesville, Fla. Refrigerator-door	595,128	Dec. 7	519	124	81	1716
McAshan, Walter B., Fort Madison, Iowa. Door-bell	593,233	Nov. 9	899	217	81	995
McAusland, William, assignor to Reed & Barton Corporation, Taunton, Mass. Device for stamping or shaping metallic articles	594,960	Dec. 7	195	46, 47	81	1658
McBerty, Frank R., Downer's Grove, assignor to Western Electric Company, Chicago, Ill. Telephone-switchboard apparatus	592,431	Oct. 26	2958	599	81	677
McBerty, Frank R., Downer's Grove, assignor to Western Electric Company, Chicago, Ill. Cut-off relay for telephone-switchboards	592,432	Oct. 26	2960	599	81	677
McBride, John H., Topeka, Kans. Copy device	593,234	Nov. 9	900	217	81	996
McBride, Samuel H., Oak Cliff, Tex. Weed-exterminator	593,235	Nov. 9	901	217	81	996
McCabe, Edward J., Paterson, N. J. Range-boiler	595,545	Dec. 14	1214	292	81	1875
McCahey, John, assignor to New England Butt Company, Providence, R. I. Braiding-carrier	592,477	Oct. 26	3035	617	81	698
McCall, Clarence C., *et al.* (See McCall, William, assignor.)						
McCall, Duncan D., assignor to J. McCall, Josserand, Tex. Lubricator	596,174	Dec. 28	2314	549	81	2131
McCall, Elvin C., *et al.* (See McCall, William, assignor.)						
McCall, Josie. (See McCall, Duncan D., assignor.)						
McCall, William, assignor of three-fourths to E. C. and C. C. McCall and M. O'Sullivan, San Francisco, Cal. Hinged slidable window-sash	591,350	Oct. 5	752	177	81	144
McCammant, Samuel, Wheaton, Minn. Car-coupling	591,927	Oct. 19	1739	416	81	390
McCandlish, William M. (See Bumpass and McCandlish.)						
McCann, Andrew, Chicago, Ill. Check-valve for sewers	592,814	Nov. 2	113	25	81	829
McCann, Joseph W. (See Jeffares and McCann.)						
McCargo, Grant. (See Diehl and McCargo.)						
McCarroll, David C. (See Seibel and McCarroll.)						
McCarthy, J. J. (See Pickles, Charles K., assignor.)						
McCarthy, Louis, Boston, Mass. Insulating-coupling for electric-wire conduits	592,016	Oct. 19	1897	451	81	490
McCarty, Augustus E. (See Odean, Gustavus R., assignor.)						
McCaughey, David W., assignor of seven-tenths to M. L. Somers, E. R. Cox, and W. E. Jones, Chicago, Ill. Electric burglar-alarm	595,968	Dec. 21	1943	465	81	2040
McCauley, William F., and L. E. Johnson, Toledo, Ohio. Air-brake hose	592,017	Oct. 19	1898	452	81	490
McCausland, William, assignor of one-half to C. Ehlers, New York, N. Y. Liquid-meter	594,890	Dec. 7	76	21	81	1636
McClatchey, Augustus F., Aurora, and C. L. Krum, Chicago, Ill. Drying apparatus	596,175	Dec. 28	2316	549, 550	81	2131
McClellan, Edward J., New York, N. Y. Compound harmonic movement for machines	594,092	Nov. 23	2315	547	81	1300
McClellan, Oscar D., assignor of one-half to F. Dougherty, Philadelphia, Pa. Electric heater	591,783	Oct. 12	1487	352, 353	81	318
McClelland, William, Bloomington, Nebr. Wagon-track	592,433	Oct. 26	2962	599	81	678

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
McClure, Albert E. (See Wright and McClure.)						
McClure, Charles, U. S. Army. Device for inserting tubes in pneumatic tires	591,607	Oct. 12	1208	282	81	260
McCollum, John W. (See Toner and McCollum.)						
McConnell, Niven, Munhall, Pa. Metallurgical furnace	595,646	Dec. 14	1369	330	81	1909
McCool, William A., Beaver Falls, Pa. Broaching implement	591,871	Oct. 19	1624	386, 387	81	367
McCorkile, George T., Munhall, Pa. Fork	594,644	Nov. 30	3440	799	81	1538
McCormack, Francis H. (See Finn, William A., assignor.)						
McCormick, John, Spencer, Iowa. Sprocket-chain	594,416	Nov. 30	2977	700	81	1445
McCoy, William. (See Cavniss, William H., assignor.)						
McCready, Charles S., assignor of one-half to L. A. Murphey, Bodie, Cal. Miner's combined candlestick, cap-crimper, and fuse-cutter	594,354	Nov. 23	2858	675	81	1405
McCreary, Cassius. (See Watson and McCreary.)						
McCreery, Joseph, Toledo, Ohio. Ventilator-valve for ships	592,531	Oct. 26	3125	638	81	710
McCreery, Joseph, Toledo, Ohio. Ventilating-valve for ships	592,532	Oct. 26	3124	638, 639	81	710
McCue, John M., Oak Cliff, Tex. Grain separator	591,001	Oct. 5	90	21	81	19
McCully, Milton, assignor of one-third to C. C. Keller, West Mansfield, Ohio. Railway-switch	591,051	Oct. 5	202	48	81	40
McDevitt, William. (See Murphy and McDevitt.)						
McDonald, Charles B., Chicago, Ill. Can-heading machine	594,547	Nov. 30	3227	756, 757	81	1494
McDonald, Hugh, Williamsport, Pa. Yoke for rear forks of bicycles	591,286	Oct. 5	632	148	81	120
McDonald, Joe. (See Pyle and McDonald.)						
McDonald, Mott W., Polk, Ohio. Mat-surface photographic paper	593,775	Nov. 16	1870	------	81	1194
McDonald, Thomas H., Potomac, Mont. Wire-fence machine	593,776	Nov. 16	1871	447	81	1194
McDonald, Thomas H., Potomac, Mont. Fumigator	593,777	Nov. 16	1872	448	81	1194
McDonnel, William J., assignor of one-half to F. I. Gunnell, Salt Lake City, Utah. Measure	594,548	Nov. 30	3231	758	81	1495
McDonough, John J., *et al.* (See Gallager, Henry, assignor.)						
McDougall, George, Cedar Junction, Kans. Cultivator	591,287	Oct. 5	633	149	81	120
McDowell, Millard F. (See Baughman, John W., assignor.)						
McElroy, James H., Middletown, N. Y. Fastening device	595,822	Dec. 21	1689	408	81	1968
McElroy, James H., Middletown, N. Y. Boot or shoe	595,823	Dec. 21	1690	408	81	1968
McElroy, William, assignor, by mesne assignments, to G. H. Fraser, Brooklyn, N. Y. Electric conductor and connection and support therefor	592,815	Nov. 2	115	25	81	830
McEwen, Daniel T. K., Roxborough, Canada. Lamp or lantern extinguisher	591,608	Oct. 12	1204	283	81	260
McEwen, William. (See Cook and McEwen.)						
McFadden, Bernard A., New York, N. Y., assignor, by mesne assignments, to H. P. Miller, St. Louis, Mo. Exercising apparatus	595,492	Dec. 14	1135	273	81	1858
McFadden, William H., Allegheny, Pa. Feed-table	591,563	Oct. 12	1133	267	81	247
McGall, Ludovic. (See McGall, William J., assignor.)						
McGall, William J., assignor to L. McGall, West Orange, N. J. Hat-brim-curling machine	593,810	Nov. 16	1930	459	81	1205
McGinley, James, Kingston, Pa. Lubricator	595,725	Dec. 21	1490	332	81	1951
McGlew, John B. (See Hunter, William, assignor.)						
McGowan, Matthew, assignor of one-half to G. W. Hartnett and H. E. Bartling, St. Louis, Mo. Gearing for bicycles	594,417	Nov. 30	2978	700, 701	81	1445
McGrath, Thomas D., Muncie, Kans. Corn-harvesting machine	594,418	Nov. 30	2979	701	81	1446
McGraw, Albert P. (See Ayres, Henry S., assignor.)						
McGregor, Bradford, Covington, Ky. Inhaler	591,052	Oct. 5	204	48	81	41
McGuire Manufacturing Company. (See Hubbard, Moses G., Jr., assignor.)						
McIntosh, William F., Dundee, Scotland. Window	595,332	Dec. 14	856	211	81	1805
McIlwaine, William. (See Willis, Thomas G., assignor.)						
McIntire, Jacob N., New York, N. Y., assignor to Ewart Manufacturing Company, Chicago, Ill. Chain	593,811	Nov. 16	1931	459	81	1205
McKechnie, John, and E. W. Smith, Winnipeg, Canada. Street-sweeper	592,816	Nov. 2	119	26	81	830
McKee & Harrington. (See De Rango, Louis, assignor.)						
McKeen, Thomas L., New York, assignor to Trojan Car Coupler Company, Troy, N. Y. Platform-truss for railway-cars	593,676	Nov. 16	1689	408	81	1160
McKeen, Thomas L., Easton, Pa., assignor to Trojan Car Coupler Company, Troy, N. Y. Draw-bar platform for railway-cars	594,891	Dec. 7	77	21, 22	81	1636
McKeen, Thomas L., Easton, Pa., assignor to Trojan Car Coupler Company, Troy, N. Y. Vestibule for railway-cars	595,279	Dec. 7	772	190, 191	81	1763
McKeen, William R., Jr. (See Bennett, Lindstrom, and McKeen.)						
McKelvey, Harry H., Corsopolis, Pa. Wrench	592,162	Oct. 19	2158	509	81	469
McKenney Button Fastening Company. (See McKenney, Franklin S., assignor.)						
McKenney, Franklin S., assignor to McKenney Button Fastening Company, Detroit, Mich. Button attaching or detaching implement	594,806	Nov. 30	3719	867	81	1594
McKinnie Rail Bridge Company. (See McKinnie, Thomas S., assignor.) (Reissue.)						
McKinnie, Thomas S., assignor to McKinnie Rail Bridge Company, Cleveland, Ohio. Device for bridging joints of railway-rails. (Reissue)	11,642	Dec. 21	2105	498	81	2074
McKinnon, Murdock M., Laurinburg, N. C. Plow	594,549	Nov. 30	3232	758	81	1496
McKone, Augustus K., St. Louis, Mo. Curling-iron holder	591,239	Oct. 5	547	129	81	104
McLardie, John B., *et al.* (See Brandenburg, Albert F., assignor.)						
McLaughlin, Benjamin, assignor to himself and N. D. Allen, Boston, Mass. Musical instrument	591,288	Oct. 5	634	149	81	120
McLaughlin, Edison D., Peshtigo, Wis. Cheese-cutter	592,817	Nov. 2	120	26	81	831
McLaughlin, Hezekiah, Boston, Mass. Scaffold	595,405	Dec. 14	961	237, 238	81	1828
McLaughlin, James F., Philadelphia, Pa. Bogie-truck motor-car	593,599	Nov. 16	1553	376, 377	81	1134
McLaughlin, James J., Boston, Mass. Artificial flower	593,329	Nov. 9	1058	255	81	1026
McLean, Calvin B. (See McLean, Thomas N. and C. B.)						
McLean, Horace G. (See Speer and McLean.)						
McLean, John, *et al.* (See Holly, Carlos, assignor.)						
McLean, Thomas N., Elizabeth, N. J., and C. B. McLean, Stamford, Conn. Depurator	594,961	Dec. 7	196	47	81	1658
McLean, William J. (See Jarvis and McLean)						
McLellan, Angus D., Crystal, N. D. Milk-pail	595,376	Dec. 28	2679	634	81	2202
McLellan, Robert K., Rochester, N. Y. Vehicle-wheel	593,000	Nov. 16	1555	377	81	1135
McLeod, Alexander, Brisbane, Queensland. Bottle-closure	595,964	Dec. 21	1945	465	81	2040
McLeod, Alexander M. (See McLeod, Roderick, Jr., and A. M.)						
McLeod, Earl H., Covington, Ky. Bomb-proof turret for cars	595,493	Dec. 14	1136	273	81	1859
McLeod, John G. (See Abbey and McLeod.)						
McLeod, Roderick, Jr., and A. M., Edinburgh, Scotland. Pneumatic tire for cycles	594,209	Nov. 23	2087	636	81	1372
McMahon, William, Rahway, N. J., assignor to G. H. Dunham, New York, N. Y. Dumping-car-operating mechanism	596,302	Dec. 28	2527	602	81	2171

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
McManus, Henry, Hartford, Conn. Soap-dish	594,902	Dec. 7	197	47	81	1658
McMeekin, Adam, Dosgh, Ireland. Sweat-band	591,289	Oct. 5	636	149	81	121
McMenamin, Neal, Trenton, N. J. Electric bell-chiming apparatus	591,002	Oct. 5	98	21	81	20
McMillan, James D., Macomb, Ill. Holder for rolled material	594,485	Nov. 30	3107	728	81	1472
McMullin, Samuel, Philadelphia, Pa. Bicycle-gearing	591,486	Oct. 12	900	232	81	220
McMurtrey, Elisha F., Rison, Ark. Car-coupling	593,950	Nov. 16	2176	516	81	1256
McMurtry, John T., Conneaut, Ohio. Nut-lock	595,193	Dec. 7	627	150	81	1736
McNab, James, Catonsville, Md. Machine for packing powder	593,902	Nov. 16	2096	496 / 497	81	1240
McNabb, Charles, Knoxville, Tenn. Cash-register	591,176	Oct. 5	428	102	81	81
McNair, Helen W. (See Willard, Helen.)						
McNally, Thomas W., Bristol, Pa., assignor of one-sixth to J. Woodhouse, Rahway, N. J. Railway signal-lamp and blade-signal	594,990	Dec. 7	277	66	81	1672
McNaughton, John, Ruby Hill, Nev. Wheel-runner	596,414	Dec. 28	2739	648	81	2215
McNaul, William, Bradley, Cal. Envelop	594,093	Nov. 23	2413	573	81	1220
McNeely, Robert K. (See Chadwick, Sager, assignor.)						
McNeill, James H., Staunton, Va. Stamp-box	591,679	Oct. 12	1324	310	81	286
McNeill, William T., Stoneburg, Tex. Wire-stretcher	596,377	Dec. 28	2680	634	81	2202
McNett, Lyman H., Eldora, Iowa. Trolley-guard	594,807	Nov. 30	3721	867	81	1595
McNulta, Herbert, Chicago, Ill. Fishing-reel	592,593	Oct. 26	3223	667	81	729
McNutt, John F. (See Harris and McNutt.)						
McPhail, Richard S., Toronto, Canada. Trolley-wheel	591,489	Oct. 12	992	232	81	220
McPherson, Chester J. (See Haudshy, Henry M., assignor.)						
McPherson, Frank G., Beaver Falls, Pa., assignor to C. F. Zimmermann Company, Dolgeville, N. Y. Musical instrument	591,872	Oct. 19	1627	387	81	367
McQuate, Theodore C. (See Gravis, John B., assignor.)						
McWane, Henry E. (See Wiley, Edgar C., assignor.)						
McWhirter, William H., Algoma, Miss. Animal-trap	596,334	Dec. 28	2587	615	81	2183
Meachem, Thomas W., Syracuse, N. Y. Billiard-table cushion	593,327	Nov. 9	1055	255	81	1026
Mead, Edward I., Mamaroneck, assignor of one-half to D. H. Lyon, Port Chester, N. Y. Thill-coupling	592,638	Oct. 26	3296	685	81	744
Mead, Frank S., Montreal, Canada. Valve-gear for gas-engines	594,260	Nov. 23	2677	634	81	1370
Mead, Theodore H., *et al.* (See Crowell, Luther C., assignor.)						
Mead, Theodore H., *et al.* (See North, Thomas M., assignor.)						
Mead, Theodore H., *et al.* (See Read, George F., assignor.)						
Mead, Theodore H., *et al.* (See Shattuck, Edwin L., assignor.)	591,222	Oct. 5	513	121 / 122	81	98
Mealey, Johnston, Howard Lake, Minn. Harness	595,723	Dec. 21	1495	361	81	1951
Meals, Gabriel S., Colorado Springs, Colo. Gold washing and separating machine						
Mears, Annie E., *et al.* (See Mears, Henry D., assignor.)						
Mears, Henry D., assignor to A. E. Mears and A. L. Thompson, Philadelphia, Pa. Head-cooler	594,209	Nov. 23	2598	615	81	1354
Mears, William S., assignor to Brooks Street Sweeper Manufacturing Company, Scranton, Pa. Street-sweeper	596,331	Dec. 28	2583	615	81	2183
Mease, George R., assignor of one-half to J. Kendall, Marion, Ohio. Grinding-mill	594,352	Nov. 23	2851	673 / 674	81	1403
Medart, Philip, assignor of one-half to W. Medart, St. Louis, Mo. Machine for straightening and polishing shafting, &c	594,482	Nov. 30	3102	727	81	1471
Medart, William. (See Medart, Philip, assignor.)						
Medberry, Chauncey J., Fond du Lac, Wis., and J. T. Gurney, Boston, Mass. Refrigerator	594,413	Nov. 30	2973	699	81	1444
Meddings, George, Joint, Pa. Journal-lubricator	595,917	Dec. 21	1969	447	81	2025
Meech, Alfred H., Chatham, N. Y. Non-refillable bottle	592,157	Oct. 19	2148	508	81	467
Meehan, John, Fall River, Mass. Stop-motion for twisters	596,076	Dec. 28	2156	511	81	2102
Meeker, Charles C., assignor of one-half to Bless & Drake, Newark, N. J. Sad-iron	592,808	Nov. 2	93	20	81	825
Megill, Edward L., Brooklyn, N. Y. Sheet guard and setter for platen printing-presses	596,214	Dec. 28	2380	564	81	2144
Mégroz, Auguste, Buda-Pesth, Austria-Hungary. Supply system for electric railways	592,521	Oct. 26	3108	635	81	706
Mehrman, Jacob P., Toledo, Ohio. Machine for cutting and bending sheet metal	594,643	Nov. 30	3488	799	81	1538
Meier, Edward D., St. Louis, Mo. Steam-generator and hot-water heater	595,641	Dec. 14	1364	328 / 329	81	1907
Meier, George, *et al.* (See Oberhammer, Peter, assignor.)						
Meinhardt, Henry W., St. Louis, Mo. Bandage	596,171	Dec. 28	2300	548	81	2130
Meinshausen, Otto. (See Macher, Kuehl, and Meinshausen.)						
Meinshausen, Otto, Chicago, Ill. Liquid-cooling apparatus	594,545	Nov. 30	3224	755 / 756	81	1494
Meise, Albert, *et al.* (See Rogers, Douglas, assignor.)						
Meisselbach, August F. and W., Newark, N. J. Pivot ball-bearing for fishing-reels	595,110	Dec. 7	492	118	81	1711
Meisselbach, William. (See Meisselbach, August F. and W.)						
Meister, Herman R., Whitewater, Wis. Bottle-stopper	596,374	Dec. 28	2677	634	81	2202
Meltzer, Heinrich, Ratibor, Germany. Abutment ring or collar for shafting	594,261	Nov. 23	2679	634	81	1371
Mercer, Frederic W. (See Palmer and Mercer.)						
Mercié, Henri A. (See Benét and Mercié.)						
Mercier, Maunsell, Manchester, England. Electric signal-indicator	595,575	Dec. 14	1262	308	81	1886
Mercy, Meyer, Newark, N. J. Pressing and smoothing device	594,887	Dec. 7	72	19	81	1635
Meredith, Edmund, Philadelphia, Pa., assignor to Pennsylvania Globe Gas Light Company, of Pennsylvania. Gas and air mixer	593,276	Nov. 9	960	229 / 233	81	1006
Meredith, Edwin, Batavia, Ill. Gas-engine	595,489	Dec. 14	1129	272	81	1657
Meres, Charles R., Norwalk, Ohio. Combined water-heater and steam-generator	592,915	Nov. 2	282	34, 65	81	892
Merker, Mont C., Philadelphia, Pa. Cuspidor	594,117	Nov. 23	2449	581	81	1326
Merling, Georg, Berlin, Germany. Compound of gamma-oxypiperidin-carbo-acids and making same	591,483	Oct. 12	975	.....	81	218
Mern, John P., assignor to M. J. Drummond, New York, N. Y. Testing-plug	595,189	Dec. 7	620	148	81	1735
Merrell-Soule Company. (See Gere, William B., assignor.)						
Merrill, Edwin C., and B. J. Foley, Pittsburg, Pa. Automatic control device for elevators	595,826	Dec. 14	843	208 / 209	81	1803
Merrill, John J., Alfred, N. Y. Tile	592,474	Oct. 26	3032	617	81	692
Merriman, Eurie L., and J. W. Vought, Scranton, Pa. Sand-drier	591,413	Oct. 12	854	199 / 200	81	195
Merrow, Joseph M. (See Collins, Stedman: and Merrow.)						
Merrow, Joseph M., Mansfield, Conn. Overseaming sewing-machine	591,049	Oct. 5	197	47	81	40
Merrow Machine Company. (See Collins, John T., assignor.)						
Merrow Machine Company. (See Collins, Stedman, and Merrow, assignors.)						
Merry, John W., Mount Ayr, Ind. Drip-trough	594,262	Nov. 25	2679	634	81	1371
Merryweather, James, assignor of two-thirds to A. Throop and H. H. Hillis, Greencastle, Ind. Coupling for electric circuits in railway-trains	593,965	Nov. 16	2208	524	81	1262
Merwarth, Charles H., South Bethlehem, Pa. Packing for steam and hydraulic joints	591,863	Oct. 19	1611	383	81	364

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mess, Carl J. (See Kloeb, Joseph A., assignor.)						
Metropolitan Duplex Fire and Police Signal Company. (See Chase, Henry A., assignor.)						
Metz, Nathaniel. (See Heebner and Metz.)						
Meurer, Eugene, Palmer Falls, N. Y. Digester	592,875	Nov. 2	219	51	81	850
Meyenberg, Albert, *et al.* (See Wendorf, Maximilian, assignor.)						
Meyer, Andrew A., Boston, Mass. Automatic weighing-machine	596,006	Dec. 21	2009	480	81	2054
Meyer, Georg, Breckenridge, Mich. Pocket-knife	592,426	Oct. 26	2949	597	81	675
Meyer, Joseph H., Brooklyn, N. Y. Attachment for bicycles	591,864	Oct. 19	1611	383	81	364
Meyer, Rudolph G. (See Cone, Edward, assignor.)						
Meyer, Svend M., Brooklyn, N. Y., assignor to Empire Self Lighting Oil Lamp Company, of New Jersey. Electrical lighter for burners	595,327	Dec. 14	846	209	81	1804
Meyer, William H., Afton, Minn. Washing-machine	593,596	Nov. 16	1546	375	81	1134
Meyers & Son, Louis. (See Schrecker, Solomon, assignor.)						
Meyrowitz, Emil B., Ridgefield, N. J., and F. Buchhop, New York, N. Y., assignors to Meyrowitz Manufacturing Company, Ridgefield, N. J. Perimeter	596,044	Dec. 21	2009	497	81	2073
Meyrowitz Manufacturing Company. (See Meyrowitz and Buchhop, assignors.)						
Michael, Henry, Erie, N. Y. Horse-detaching device	593,724	Nov. 16	1774	426	81	1175
Michigan Buggy Company. (See Bacon, Frank R., assignor.)						
Mickel, Joseph, and G. D. Ferree, Carlisle, Ind. Stovepipe attachment	596,296	Dec. 28	2408	593	81	2166
Middleton, William A., and G. M. Loomis, Jefferson, Ohio. Land-roller	591,414	Oct. 12	856	200	81	195
Miehle, Robert, Chicago, Ill. Counting-machine	593,773	Nov. 16	1862	446 / 447	81	1192
Migel, Louey. (See Williams, Addison B., assignor.)						
Miles, Stephen S., Cincinnati, Ohio. Air or gas compressor	591,137	Oct. 5	352	84	81	69
Miles, William A., Poughkeepsie, N. Y. Reversible plow	593,328	Nov. 9	1056	255	81	1026
Miley, Frank S., assignor, by mesne assignments, of one-half to C. H. Sanders, Forrest City, Ark. Curtain-pole	591,674	Oct. 12	1319	309	81	284
Milhone, Myron H. (See Zern and Milhone.)						
Millar, Adam, Glasgow, Scotland. Obtaining useful products from silk-worms	594,888	Dec. 7	73	20	81	1635
Millar, George G. J., Groveport, assignor of one-half to L. G. Byrne, Columbus, Ohio. Foot-propelled vehicle	593,597	Nov. 16	1547	375 / 376	81	1134
Millen, James H., Bloomington, Ind. Crank-movement	594,414	Nov. 30	2975	700	81	1445
Miller, Belle M. (See Lynd, Coleman T., assignor.)						
Miller, Caroline E., Minneapolis, Minn. Car-signal	592,158	Oct. 19	2150	508	81	468
Miller, Charles. (See Doty and Miller.)						
Miller, Charles A. and F. J., Birmingham, England. Cycle-lamp	595,191	Dec. 7	623	149	81	1735
Miller, Charles B., assignor to E. Miller, Canton, Ohio. Disk cultivator	591,484	Oct. 12	981	230	81	219
Miller, Charles E., Obed, assignor of one-half to G. B. Durell, Harriman, Tenn. Nut-lock	594,546	Nov. 30	3226	756	81	1494
Miller, Charles H., Los Angeles, Cal. Combined trunk-tray and table	592,159	Oct. 19	2153	508	81	468
Miller, Charles W., Canton, Ohio. Saddle for harness	595,400	Dec. 14	969	235	81	1826
Miller, Commodore R., assignor, by mesne assignments, to W. J. McClurg Gas Construction Company, Pittsburg, Pa. Gas-generator	595,857	Dec. 21	1734	416 / 417	81	1968
Miller, Commodore R., assignor to W. J. McClurg Gas Construction Company, Pittsburg, Pa. Gas-producer	595,858	Dec. 21	1736	417 / 418	81	1998
Miller, David L., Wilson, Kans. Doubletree	594,263	Nov. 23	2681	635	81	1371
Miller, Eli. (See Miller, Charles B., assignor.)						
Miller, Frank B., Unionville, Conn. Screw-driver	595,859	Dec. 21	1739	418	81	1998
Miller, Frederick J. (See Miller, Charles A. and F. J.)						
Miller, George, Baltimore, Md. Sheet-metal receptacle	595,024	Dec. 7	318	76	81	1680
Miller, Harry L., Wausau, Wis. Car-coupling	592,876	Nov. 2	220	51	81	850
Miller, Harvey P. (See McFadden, Bernard A., assignor.)						
Miller, Horace E., Newark, N. J., assignor to Celluloid Company, New York, N. Y. Mirror construction	592,877	Nov. 2	222	51	81	850
Miller, Isaac N., and J. B. Moss, St. Joseph, Mo. Bougie	592,659	Oct. 26	3347	696	81	754
Miller, James A., New Haven, Conn. Telescoping lamp-post	592,660	Oct. 26	3348	696	81	754
Miller, James G., Youngstown, Ohio. Rail-joint or rail-coupling	593,420	Nov. 9	1204	291	81	1053
Miller, John C., assignor to Matthews & Willard Manufacturing Company, Waterbury, Conn. Wick-adjuster	594,264	Nov. 23	2681	635	81	1371
Miller, John C., and A. T. Booth, assignors to Matthews & Willard Manufacturing Company, Waterbury, Conn. Bicycle-lamp	594,265	Nov. 23	2683	635	81	1372
Miller, John C., and A. T. Booth, assignors to Matthews & Willard Manufacturing Company, Waterbury, Conn. Lamp-burner	595,576	Dec. 14	1263	308	81	1886
Miller, John J. A., Denver, Colo. Nailless clamping horseshoe	595,401	Dec. 14	970	235	81	1826
Miller, John S., Truro, Canada. Car-stake	593,229	Nov. 9	893	215	81	994
Miller, John T., and J. A. Denney, Mount Ayr, Iowa. Miter-box	593,751	Nov. 16	1822	437	81	1185
Miller, Joseph F., Cleveland, Ohio. Dry-pipe sprinkler system	591,805	Oct. 19	1613	384	81	365
Miller, Joseph W., and J. M. Shaffner, Harrisburg, Pa. Lantern	593,725	Nov. 16	1775	426	81	1176
Miller-Knoblock Company. (See Miller, William H., assignor.)						
Miller, Lewis, Akron, Ohio. Grain-binder	590,998	Oct. 5	83	18, 19	81	18
Miller, Louis M., Philadelphia, assignor of one-half to J. H. Lumis, West Chester, Pa. Handle for cycles	593,162	Nov. 2	745	178	81	954
Miller, Louis W., Rochester, N. Y. Cut-out for electric-signal boxes	592,427	Oct. 26	2951	597	81	676
Miller, Mike F., *et al.* (See Jonas, Hubert F., assignor.)						
Miller, Nathan R., Medusa, N. Y. Berry-basket holder	595,642	Dec. 14	1365	329	81	1908
Miller, Oliver A. (See Ryan, George H., assignor.)						
Miller, Richard A., Gloucester City, N. J. Support for lamp-shades	596,077	Dec. 28	2157	512	81	2102
Miller, Samuel A., Gardner, Kans. Wagon-scale	592,809	Nov. 2	94	21	81	825
Miller, Samuel E., *et al.* (See Sidwell, Aaron M., Jr., assignor.)						
Miller, William H. assignor to Miller-Knoblock Company, South Bend, Ind. Sprinkling-car	590,999	Oct. 5	86	19, 20	81	18
Miller, William I., Atchison, Kans. Boiler attachment	595,190	Dec. 7	622	148	81	1735
Miller, William L., Pittsburg, Pa., assignor of one-half to C. A. Backstrom, New York, N. Y. Roller-bearing	595,328	Dec. 14	847	209	81	1804
Millett, Frank A. (See Gifford, Samuel N., assignor.)						
Millholland, William K. (See Halvorsen, Halbert B., assignor.)						
Millikan, W. F., *et al.* (See Wilder, Norman B., assignor.)						
Milliken, W. F., *et al.* (See Wilder, Norman B., assignor.)						
Millis, John, U. S. Army. Conductor for electrical apparatus	595,402	Dec. 14	972	236	81	1827
Mills, Mortimer B., Chicago, Ill. Vending device	591,559	Oct. 12	1122	264	81	245
Mills, Myron. (See Kerry, Aaron, assignor.)						
Mills, Robert A., Orlando, Fla. Seal-lock	593,598	Nov. 16	1551	376	81	1 84

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Milwaukee Harvester Company. (See Crandall, Henry F., assignor.)						
Milwaukee Rail Joint and Welding Company. (See Austin, William J., assignor.)						
Milwaukee Sander Manufacturing Company. (See Schmitt, Frederick E., assignor.)						
Mindheim, Max. (See Jasper, Wilhelm, assignor.)						
Mineur, Leon. (See Lebeau and Mineur.)						
Minges, W. J. (See Kellogg, Alfred J., assignor.)						
Minnemeyer, Edward G. (See Walker and Minnemeyer.)						
Minnis, Henry M., assignor of one-half to T. O. Staples, Wylie, Tex. Calculating-macnine.	593,675	Nov. 16	1687	408	81	1159
Minott, George L., Gardner, Mass. Multiplying attachment for photographic cameras.	592,984	Nov. 2	319	74	81	870
Minsart, Alphonse. (See Becker and Minsart.)						
Minton, Calvin J., Miles Point, Mo. Doubletree-fastener	593,362	Nov. 9	1102	267	81	1084
Minton, David S., New York, N. Y. Hopple for horses	591,866	Oct. 19	1615	384	81	365
Misner, Edgar D., and G. A. Weightman, Brantford, Canada. Ball-bearing vehicle-axle.	592,935	Nov. 2	321	74	81	870
Missimer, Frank C., assignor of one-half to W. G. Earle, Philadelphia, Pa. Belt	595,250	Dec. 7	737	180	81	1756
Missouri Car and Foundry Company. (See Bauer, Otto C., assignor.)						
Missouri Railway Equipment Company. (See Eubank, Thomas, assignor.)						
Mitchell, Anne, Atlanta, Ga. Extensible envelop	596,435	Dec. 28	2782	658	81	2234
Mitchell, George R., *et al.* (See Smith, Edward C., assignor.)						
Mitchell, George R., Newburg, N. Y. Adjustable fastener	594,749	Nov. 30	3615	841	81	1573
Mitchell, Herbert L., assignor of three-fourths to H. L. Myers and G. W. Schilling, Pittsburg, Pa. Coffee-pot	593,277	Nov. 9	963	233	81	1007
Mitchell, J. B. (See Armstrong and Berry, assignors.)						
Mitchell, James C., and L. B. Perry, Lewiston, Me. Fifth-wheel	591,867	Oct. 19	1615	384	81	365
Mitchell, James T. (See Southington, Thomas W., assignor.)						
Mitchell, Kerr M., St. Joseph, Mo., and J. Harleman, Kansas City, Kans. Gas-producer.	594,488	Nov. 30	3105	728	81	1471
Mitchell, P. C. (See Cook, Byron D., assignor.)						
Mitchell, Richard R., Montreal, Canada. Flushing-valve	592,810	Nov. 2	96	21	81	825
Mitchell, Valentine, Horton, Mich. Gate	594,030	Nov. 23	2313	547	81	1800
Mitchell, Walter, St. Paul, Minn. Stump-puller	596,287	Dec. 28	2499	598	81	2166
Mitchell, William R., assignor of one-half to G. H. Wunderlich, Elmhurst, Wis. Railway time-signal	591,926	Oct. 19	1737	416	81	390
Mitchell, William W., McKee's Rocks, Pa. Key-fastener	592,428	Oct. 26	2053	497	81	676
Mitchell, Willis, Malden, Mass. Smoothing-iron	596,460	Dec. 28	2831	667 668	81	2233
Mixer, William M., assignor to W. B. Hutchinson, trustee, New York, N. Y. Still	591,138	Oct. 5	353	84	81	69
Mock, James W., Morgantown, N. C. Vehicle-brake	592,998	Nov. 2	429	102	81	890
Moe, Leonidas L., Denver, Colo. Bicycle	593,263	Nov. 9	1103	267	81	1084
Moe, Sivert, assignor to Troy Laundry Machinery Company, Limited, Chicago, Ill. Shirt-stretcher	592,160	Oct. 19	2154	509	81	468
Moebius, Bernard, and G. Nebel, New York, N. Y.; said Nebel assignor to said Moebius. Electrolytic apparatus	592,097	Oct. 19	2049	484	81	448
Moehn, John N., Milwaukee, assignor of one-half to L. D. Dorschell, Chilton, Wis. Toilet-paper holder	592,811	Nov. 2	98	21, 22	81	826
Moellenbeck, Anton, Amity, Iowa. Pneumatic straw-stacker	594,266	Nov. 23	2684	635	81	1372
Moffat, Theodore B., Pittston, Pa. Bicycle chime-bell	594,750	Nov. 30	3615	841	81	1573
Moffatt, Ansil, Indianapolis, Ind. Pencil-sterilizing case	591,050	Oct. 5	201	47, 48	81	40
Moffitt, William T., New Brighton, N. Y. Filter	593,525	Oct. 26	3113	636	81	706
Mohler, Adam L., Minneapolis, Minn. Uncoupling device for coach draw-bars	591,868	Oct. 19	1617	385	81	366
Mohler, Adam L., Minneapolis, Minn. Uncoupling device for coach draw-bars	592,119	Oct. 19	2085	492	81	455
Mohler, James W., and J. L. Foltz, Moville, Iowa. Stock-chute	595,643	Dec. 14	1366	329	81	1908
Mohr, Harry T., Vera Cruz, Pa. Combined match-safe and cigar-cutter	594,031	Nov. 23	2314	547	81	1300
Mohring, John, Lancaster, Pa. Method of and means for cleaning filtering-surfaces	591,108	Oct. 5	288	70	81	57
Mohs, Julius, Brandenburg, assignor of one-half to Berliner Kunstdruck und Verlags-Anstalt, vormals A. & C. Kaufmann, Berlin, Germany. Lead for electrical sounding	596,172	Dec. 28	2310	548	81	2130
Moise, Jean R., Paris, France. Making cyanids	591,675	Oct. 12	1320	------	81	265
Moissan, Henri, Paris, France. Obtaining cast titanium	591,355	Oct. 5	751	------	81	144
Moller, John A., New York, N. Y. Book-cover folding and pressing machine	592,429	Oct. 26	2054	597 598	81	676
Monarch, John W., and C. V. Pollock, Des Moines, Iowa. Yielding-tread horseshoe	593,112	Nov. 2	626	151	81	229
Monk, William. (See Wright and Monk.)						
Monoline Composing Company. (See Scudder, Wilbur S., assignor.)						
Monsos & Larson *et al.* (See Branzell, Charley, assignor.)						
Montague, Charles. (See Naramor, Colton D., assignor.)						
Montauk Multiphase Cable Company. (See Gould, John D., assignor.)						
Montauk Multiphase Cable Company. (See Price, Charles W., assignor.)						
Montgomery, Roger. (See Akers, Maurice L., assignor.)						
Montgomery, Theophilus E., Wilmington, Del. Three-wheeled cycle	595,490	Dec. 14	1130	272	81	1857
Moodie, Thomas, Hamilton, Scotland. Apparatus for closing water-tight bulkhead-doors.	592,430	Oct. 26	2057	598 599	81	677
Moody, Joseph S., Saco, Me. Spindle and bearing	594,118	Nov. 23	2451	582	81	1327
Moody, Walter S., Lynn, Mass., assignor to General Electric Company, of New York. Electric transformer	591,869	Oct. 19	1620	385	81	366
Moody, Walter S., Lynn, Mass., assignor to General Electric Company, of New York. Transformer	595,408	Dec. 14	977	226	81	1827
Moomy, Joseph G., Erie, Pa. Pneumatic tire	596,436	Dec. 28	2788	658	81	2224
Moon, Frederick H., Hyde Park, assignor to C. F. Murphy, Boston, Mass. Knitting-machine	594,353	Nov. 23	2654	674	81	1404
Mooney, Dennis F., Jr., Brooklyn, N. Y. Adjustable window-screen	595,724	Dec. 21	1498	361 362	81	1951
Mooney, James E. (See Gordon, Charles A., assignor.)						
Moore, Alfred F. (See Gottschalk, John W., assignor.)						
Moore, Arthur B., East Las Vegas, N. Mex. Ter. Smoke and gas consumer	594,267	Nov. 23	2685	636	81	1372
Moore, Arthur L., Cleveland, Ohio. Pedal	596,339	Dec. 28	2585	615	81	2183
Moore, B. E. (See Smith, William E., assignor.)						
Moore, Charles H., New York, N. Y. Trap-fixture for washbasins	595,577	Dec. 14	1265	308	81	1686
Moore, Daniel M., Newark, N. J., assignor to Moore Electrical Company, New York, N. Y. Magnetic-circuit breaker	593,230	Nov. 9	895	216	81	905
Moore Electrical Company. (See Moore, Daniel M., assignor.)						
Moore, Felix, Hanford, Cal. Orchard or vineyard plow	591,676	Oct. 12	1322	309	81	285
Moore, George. (See Sherman, Lewis P., assignor.)						
Moore, Henry F. (See Lehr and Moore.)						
Moore, Louis P. (See Moore, Robert L. and L. P.)						
Moore, Louis P., Statesville, N. C. Horse-detacher	596,078	Dec. 28	2158	512	81	2103
Moore, Matthew R., Indianapolis, Ind. Steam-engine	591,485	Oct. 12	984	229 231	81	219
Moore, Robert L. and L. P., Statesville, N. C. Lamp-chimney attachment	591,677	Oct. 12	1323	310	81	285

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Moore, Silas H., New York, N. Y. Incandescent gas-burner	593,364	Nov. 9	1103	267	81	1084
Moran, George H., New York, N. Y. Coasting sprocket-wheel	591,082	Oct. 5	252	59	81	50
More, Nina, Cutting, N. Y. Quilting-frame	593,485	Nov. 9	1314	318	81	1075
Morehead, C. R., *et al.* (See Cary, Lewis C., assignor.)						
Morency, Germain, Cincinnati, Ohio. Siphon-head	595,029	Dec. 7	331	80	81	1682
Morey, Hester A., Denver, Colo. Envelop	591,415	Oct. 12	858	200	81	195
Morey, Jonathan B., Jr. (See Hartman and Morey.)						
Morgan, Edward L., Little Rock, Ark. Indicator and recorder	591,416	Oct. 12	859	201 202 203	81	196
Morgan, Frank H., St. Paul, Minn. Incubator	591,870	Oct. 19	1622	386	81	367
Morgan, Henry D., Liverpool, England. Soap-frame	594,889	Dec. 7	75	20	81	1635
Morgan, James M., Port Washington, Wis. Revolving chair	595,781	Dec. 21	1600	386	81	1970
Morgan & Wright. (See Young, Ernest W., assignor.)						
Morhard, Francis L., New York, N. Y. Dental electrode	592,878	Nov. 2	224	51	81	851
Morin, Antoine M. (See Choquette and Morin.)						
Morio, Joseph J. (See Schoenberg, William H., assignor.)						
Morison, Donald B., Hartlepool, England. Stamping apparatus	591,560	Oct. 12	1124	264 265	81	245
Moritz, Albert, New York, N. Y. Snap-hook	596,215	Dec. 28	2382	564	81	2145
Morley, Charles W., Lawton, Mich. Internal pipe-cutter	595,885	Dec. 21	1804	433	81	2019
Morris, Albert, Fair Port, Va. Fish-drying apparatus	591,966	Oct. 19	1832	436	81	407
Morris, Albert, Fair Port, Va. Apparatus for making fertilizers	591,967	Oct. 19	1833	436	81	407
Morris, Alfred D. (See Morris, Alfred W. and A. D.)						
Morris, Alfred W. and A. D., Philadelphia, Pa. Rod-packing	594,119	Nov. 23	2452	582	81	1327
Morris, Frank H., Blue Earth City, Minn. Bucksaw	592,475	Oct. 26	2033	617	81	692
Morris, Henry B., Michigan City, Ind. Chain and chain-link	594,959	Dec. 7	194	46	81	1657
Morris, John R., near Jewell City, Kans. Portable fence	591,000	Oct. 5	89	20	81	19
Morris, Marion A., assignor to Scovill Manufacturing Company, Waterbury, Conn. Bicycle-valve	595,578	Dec. 14	1266	304	81	1887
Morrison, Alexander J. (See Morrison, John A. and A. J.)						
Morrison, Charles M., Viroqua, Wis. Nail-extractor	595,644	Dec. 14	1367	330	81	1908
Morrison, Edwin, Philadelphia, Pa. Filter	594,415	Nov. 30	2976	700	81	1445
Morrison, George C., *et al.* (See Houghton, John Q. A., assignor.)						
Morrison, James F. (See Allen and Morrison.)						
Morrison, James F., Pittsburg, Pa. Hose-bridge	595,645	Dec. 14	1368	330	81	1908
Morrison, John A. and A. J., Big Stone Gap, Va. Automatic latch mechanism for dumping-cars	592,063	Oct. 19	1949	468	81	436
Morrison, John T., Minneapolis, Minn. Water-closet repair	593,025	Nov. 2	479	116	81	900
Morrow, Robert N. (See Brown and Morrow.)						
Morse, Alfred B., Easton, Mass. Thread-package	592,592	Oct. 26	3222	667	81	729
Morse, Everett F., Trumansburg, N. Y. Drive-chain	592,552	Oct. 26	3160	651	81	718
Morse, Frederic A., Pawtucket, R. I. Lamp	591,417	Oct. 12	867	203	81	196
Morse, George W. (See Crowley, John H., assignor.)						
Morse, John H., St. Louis, Mo. Station-indicator	596,173	Dec. 28	2312	548	81	2130
Morse, Joseph E., Bridgeport, Conn. Cutting-off tool	595,918	Dec. 21	1870	447	81	2035
Morse, Lorenzo V. (See Bolomon and Morse.)						
Morse, William M., Chicago, Ill. Vibration-absorbing device for bicycles	596,079	Dec. 28	2160	512	81	2103
Morse, William M., Chicago, Ill. Vibration-absorbing device for bicycles	596,080	Dec. 28	2163	513	81	2103
Morse, William M., Chicago, Ill. Vibration-absorbing device for bicycles	595,782	Dec. 21	1604	387	81	1971
Morsell, William F. C., Philadelphia, Pa. Sectional model for stereometric representation	591,139	Oct. 5	355	84, 85	81	69
Morton, William M., New Haven, Conn. Combined level and plumb	595,491	Dec. 14	1132	273	81	1858
Moseley, William M., Elgin, Ill. Moistener for envelops, &c	591,657	Oct. 12	1288	301	81	277
Moser, Frank R., St. Louis, Mo. Weighing-scale	593,948	Nov. 16	2172	516	81	1255
Mosher, Charles P., Groton, N. Y. Meat-cutter	595,829	Dec. 14	848	210	81	1804
Moskowitz, Morris, Newark, N. J., assignor to National Electric Car Lighting Company, of West Virginia. Means for generating electricity from car-wheel axles	595,830	Dec. 14	853	210	81	1805
Moskowitz, Morris, Newark, N. J., assignor to National Electric Car Lighting Company, of West Virginia. Electric regulator						
Moss, Josiah B. (See Miller and Moss.)						
Moss, Julian. (See Storie and Moss.)						
Moss, Oscar S., Syracuse, N. Y. Carbon-holder for arc-lights	591,486	Oct. 12	989	232	81	219
Mosure, Franklin, assignor of one-half to J. Mosure, Vera Cruz, Ind. Wire-tightener for fences	591,238	Oct. 5	546	129	81	104
Mosure, John. (See Mosure, Franklin, assignor.)						
Mott, Henry, Detroit, Mich. Paper-box machine	593,026	Nov. 2	480	116	81	900
Motz, Emanuel, Brewer Mine, assignor of one-half to H. F. Welch, Charleston, S. C. Electrolytic apparatus	592,973	Nov. 2	405	95	81	895
Moulton, Edward C., San José, Cal. Skate	593,278	Nov. 9	963	233	81	1008
Moulton, Hamilton L., assignor to James Smith Woolen Machinery Company, Philadelphia, Pa. Warp-dressing machine	593,486	Nov. 9	1315	318	81	1075
Mowry, George W., assignor of one-half to H. M. Crawford and G. E. Reynolds, Rochester, N. Y. Inflating device for bicycle-tires	592,014	Oct. 19	1894	451	81	419
Moyer, Harvey A., and C. J. Graf, Syracuse, N. Y.; said Graf assignor to said Moyer. Thill-coupling	591,561	Oct. 12	1129	265 266	81	246
Moyers, James M. (See Bragg and Moyers.)						
Mucklé, John S., Philadelphia, Pa. Elevator locking mechanism	595,961	Dec. 21	1941	464	81	2039
Mueller, Frederick T., New York, N. Y. Damper-regulator	591,562	Oct. 12	1131	266	81	246
Mueller, John Lisbon, N. D. Automatic vehicle-brake	595,818	Dec. 21	1665	401 402	81	1963
Muffly, Sidney T., Roanoke, Va. Churn	592,812	Nov. 2	99	22	81	826
Muirhead, John, Pittston, Pa. Drive-pipe for Artesian wells, &c	596,081	Dec. 28	2165	513	81	2103
Mulch, Theodore H., New York, N. Y. Incandescent lamp-burner	593,231	Nov. 9	890	216	81	905
Mullen, Eugene H. (See Cunningham and Mullen.)						
Mullen, Robert B., assignor of one-third to F. T. Crowe, Tacoma, Wash. Lock for stop-cocks	595,886	Dec. 21	1805	433	81	2012
Müller, Carl O., assignor to Basle Chemical Works Bindschedler, Basle, Switzerland. Rhodol dye	596,533	Dec. 28	2586	------	81	2183
Muller, Frank, Philadelphia, Pa. Tag	594,484	Nov. 30	3106	728	81	1472
Müller, Friedrich D. F., New York, N. Y. Coal-cart	593,305	Nov. 9	1013	243 244	81	1018
Müller, Friedrich D. F., New York, N. Y. Coal-cart	593,306	Nov. 9	1014	244 245	81	1018
Müller, Friedrich, S. Oberländer, V. H. Fuchs, and S. Gomperz, Vienna, Austria-Hungary. Blasting-powder and making same	594,268	Nov. 23	2686	------	81	1373
Müller, Gustave, Bridgeport, Conn. Tip for billiard-cues	591,487	Oct. 12	990	232	81	220
Müller, Hermann, Nuremberg, Germany. High-tension switch	595,897	Dec. 21	1807	433	81	2012

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mulligan, Bernard J., *et al.* (See Ayer, Albert E., assignor.)						
Mullins, William H., Salem, Ohio. Baking-pan	593,940	Nov. 16	2174	516	81	1256
Mumbrauer, Wilhelm, New York, N. Y. Game-board	593,421	Nov. 9	1926	291	81	1053
Munch, Walter, St. Paul, Minn. Gluing-press	592,916	Nov. 2	283	65, 66	81	863
Munson Brothers. (See Munson, Countell, assignor.)						
Munson, Countell, deceased; F. A. Munson, executrix, assignor to Munson Bros., Utica, N. Y. Grinding-mill	591,968	Oct. 19	1835	437	81	408
Munson, Countell, deceased; F. A. Munson, executrix, assignor to Munson Brothers, Utica, N. Y. Feeding mechanism for grinding-mills	595,819	Dec. 21	1667	402	81	1964
Munson, Florence A., executrix. (See Munson, Countell.)						
Murchie, James, assignor to W. H. Arms and W. Cole, Traverse City, Mich. Hand drilling-machine	596,375	Dec. 28	2678	634	81	2202
Murnan, John H., assignor of one-half to W. J. Kelly, Boston, Mass. Fireman's tool and hose carrier	593,901	Nov. 16	2095	496	81	1240
Murphey, Lewis H. (See McCready, Charles S., assignor.)						
Murphree, Mathew T., *et al.* (See Christopher, Henry C., assignor.)						
Murphy, Charles F. (See Moon, Frederick H., assignor.)						
Murphy, George J., Philadelphia, Pa. Ballot-box	593,487	Nov. 9	1317	319	81	1076
Murphy, James, San Antonio, Tex. Revolving sand-drag	595,442	Dec. 14	1049	251	81	1841
Murphy, Leander, Manor, Pa. Railway-signal	592,661	Oct. 26	3350	697	81	755
Murphy, Michael E., and W. McDevitt, Lebanon, Pa. Nut-lock	595,962	Dec. 21	1943	465	81	2040
Murphy, Smith D., Johnstown, Pa. Curling-iron heater	591,191	Oct. 5	453	108	81	86
Murphy, William, New York, N. Y. Bolt	595,331	Dec. 14	855	210	81	1805
Murphy, William B., New York, assignor to L. N. Littauer, Gloversville, N. Y. Fastening device for gloves, &c.	591,969	Oct. 19	1836	437	81	408
Murray, Charles F., Wayne county, Mich. Automatic boiler-feed	594,210	Nov. 23	2599	615	81	1355
Murray, Charles T., Kansas City, Mo. Curved-stereotype-plate-finishing machine	592,813	Nov. 2	101	22, 23, 24	81	826
Murray, Donald, Maple Creek, Canada. Neck-yoke holder for wagon-tongues	592,476	Oct. 26	3084	617	81	692
Murray, Edward N. (See Murray, William R. and E. N.)						
Murray, George W., Minneapolis, Minn. Spring-mattress	593,279	Nov. 9	965	233, 234	81	1008
Murray, John A., and T. Ivens, Schaller, Iowa. Cashier-protector	593,752	Nov. 16	1896	457, 458	81	1185
Murray, Richard J. (See Girardeau and Murray.)						
Murray, Thomas J., Boston, Mass. Spool-holder	592,572	Oct. 26	3186	658	81	728
Murray, William A., *et al.* (See Haldeman, John J., assignor.)						
Murray, William R. and E. N., Parramatta, New South Wales. Ironing-table	595,126	Dec. 7	517	124	81	1716
Murry, Ervin E., Literberry, Ill. Combined post and brace	593,774	Nov. 16	1868	447	81	1198
Musselwhite, Worley, Saltville, Va. Evaporating-pan	591,678	Oct. 12	1324	310	81	295
Musser, Frank P., Beaver Falls, Pa. Extension table	593,488	Nov. 9	1320	319	81	1076
Musson, Frederick W., Chicago, Ill. Mechanical lead-pencil	592,161	Oct. 19	2157	509	81	409
Mustard, Henry C., West Point, Ind. Automatic device for operating whistles	592,015	Oct. 19	1896	451	81	419
Muther, Lorenz, Oak Park, E. C. Holland, Austin, and R. G. Woodward, Waukegan, assignors to Union Special Sewing Machine Company, Chicago, Ill. Sewing-machine	592,806	Nov. 2	87	19, 20	81	823
Myers, Clarence A. (See Myers, John W. and C. A.)						
Myers, Frederick G., Philadelphia, Pa. Metal-forging machine	591,285	Oct. 5	630	148	81	119
Myers, Howard L., *et al.* (See Mitchell, Herbert L., assignor.)						
Myers, James H., Troy, N. Y. Shirt	594,140	Nov. 23	2484	588	81	1333
Myers, John W. and C. A., Quincy, Ill. Box-fastener	593,753	Nov. 16	1828	436	81	1186
Nagy de Markovitz, Rosa von, Buda-Pesth, Austria-Hungary. Ice-cycle	591,990	Oct. 19	1837	437	81	408
Naismith, James, Kearney, Nebr. Ball-bearing	595,118	Nov. 2	088	151	81	929
Naphen, Henry F., *et al.* (See Lafaelle, William H., assignor.)						
Naramor, Colton D., Watrousville, assignor of two-thirds to C. Montague for himself and as trustee, Caro, Mich. Packing or shipping crate	593,180	Nov. 2	776	186	81	960
Narber, Simon D. S., Le Grand, Iowa. Metallic railway-tie	594,419	Nov. 30	2986	702	81	1447
Nash, Robert L. (See Penick and Nash.)						
Nash, Walter S., Knoxville, Tenn. Multiple switchboard for telephone-exchanges	591,192	Oct. 5	454	108	81	86
Nash, William C., and C. W. Baker, Neenah, assignors of one-third to W. H. Goodenough, De Pere, Wis. Suction-box for paper-making machines	592,163	Oct. 19	2159	510	81	409
National Cash Register Company. (See Macauley, Alvan, assignor.)						
National Casket Company. (See Loomis, Harry T., assignor.)						
National Company. (See Bassett, Norman C., assignor.)						
National Electric Car Lighting Company. (See Moskowitz, Morris, assignor.)						
National Filter and Carbonating Company. (See Haefner, Carl, assignor.)						
National Malleable Castings Company. (See Coffin, Walter E., assignor.)						
National Safe and Lock Company. (See Brintnall, Thomas M., assignor.)						
National Spirometer Company. (See Buck, Daniel A. A., assignor.)						
Naud, Jean, Fils, Montreal, Canada. Hydrant-coupling	591,140	Oct. 5	356	85	81	70
Naumann, Carl R. B., Dresden, Germany. Machine for screw-threading rods or wires	595,788	Dec. 21	1606	387	81	1971
Naumann, Emil, Homestead, Pa. Tide-motor	596,335	Dec. 28	2588	616	81	2184
Nawrath, Robert, Newark, N. J., assignor to Vale Barrel Machine Company, Limited, Hamilton, Canada. Barrel-machine	591,006	Oct. 5	94	21, 22, 23	81	90
Naylor, Lida H., Minneapolis, Minn. Coat-hanger	596,176	Dec. 28	2319	550	81	2131
Neal, George P., assignor of two-thirds to H. W. Flentke and A. M. Weil, Evansville, Ind. Stable	596,007	Dec. 21	2011	480, 481	81	2054
Neal, John N. (See Van Valkenberg, Randall T., assignor.)						
Neale, Alfred D., assignor of one-third to P. L. Heaphy, Kittanning, Pa. Annunciator	596,426	Dec. 28	2764	654	81	2220
Nebbe, Hans, Fairmont, Minn. Stuble-catcher	591,873	Oct. 19	1628	387, 388	81	368
Nebel, Gustav. (See Moebius and Nebel.)						
Neddermann, Bertha. (See Neddermann, Henry, assignor.)						
Neddermann, Henry, assignor to B. Neddermann, New York, N. Y. Painter's scaffolding	593,677	Nov. 16	1690	409	81	1160
Needland, Marvin A., and W. Rotthoff, Duquesne, Pa. Valve	592,478	Oct. 26	3036	618	81	693
Neely, George P., assignor of three-fourths to J. Blattner, C. R. Anderson, and L. K. Koontz, Allegheny, Pa. Flagstaff-holder	593,601	Nov. 16	1558	377	81	1125
Neff, Louis C., Brooklyn, N. Y. Rail grip-joint for bedsteads	593,330	Nov. 9	1058	256	81	1037
Neider, Fred A., Augusta, Ky. Coasting foot-rest for bicycles	593,678	Nov. 16	1691	409	81	1161
Neidl, William J., New Britain, Conn. Sash-fastener	591,537	Oct. 12	1068	256	81	237
Nell, Michael, Dayton, Ohio. Hedge fence	591,874	Oct. 19	1629	388	81	368
Nellis, Frederick M., New York, N. Y., and S. D. Hutchins, Columbus, Ohio. Pressure-indicator for air-brake apparatus	594,083	Nov. 23	2317	548	81	1301
Nelson, Bernhard, assignor of one-half to J. P. Jacobson, Boston, Mass. Diving apparatus	591,773	Oct. 12	1466	346, 347	81	313

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Nelson, James C., Omaha, Nebr. Interchangeable cultivator	592,818	Nov. 2	122	26	81	831
Nelson, Nicolay, assignor to himself and Chicago Recording Scale Company, Waukegan, Ill. Kinetographic camera	594,094	Nov. 23	2414	573, 574	81	1330
Nelson, William C., Santa Rosa, Cal. Rein-holder	592,994	Nov. 2	431	102	81	890
Nettelbeck, Hermann, assignor of one-half to G. A. Grimm, Buffalo, N. Y. Trench-excavating apparatus	594,141	Nov. 23	2485	588, 589	81	1333
Neubert, Franklin G., Waterbury, Conn. Button	591,564	Oct. 12	1135	267	81	247
Neuhaus, Charles, Baltimore, Md. Stopper for bottles	592,879	Nov. 2	226	52	81	851
Neumann, John W., Louisville, Ky. Packing-box	595,726	Dec. 21	1500	362	81	1952
Neumeister, Eduard, Berlin, and R. Sobotka, assignors to E. Bendel, Magdeburg, Germany. Machine for bordering and flanging pipes	596,177	Dec. 28	2320	550, 551	81	2132
Neuner, Martin C., Los Angeles, Cal. Signature-register and machine-index	595,129	Dec. 7	520	125	81	1716
Neuner, Martin C., assignor of one-fourth to J. E. Knight, Los Angeles, Cal. Double index	595,194	Dec. 7	628	150, 151	81	1736
Nevoigt, Friedrich, Reichenbrand, Germany. Machine for automatically manufacturing writing-pens	594,751	Nov. 30	3616	841, 842	81	1573
New England Butt Company. (See McCahey, John, assignor.)						
New Haven Clock Company. (See Porter, Wilson E., assignor.)						
New York Central Iron Works Company. (See Johnson, George W., assignor.)						
New York Coupler Company. (See La Burt, John, assignor.)						
Newbury, Charles H., St. Paul, Minn. Construction of non-refillable bottles	594,270	Nov. 23	2088	536	81	1373
Newcomb, Charles L., assignor to Deane Steam Pump Company, Holyoke, Mass. Pump-cylinder packing	593,027	Nov. 2	482	116	81	901
Newcomb, Emery A., Chicago, assignor to H. Boehmer, Barrington, Ill. Automatic boiler-cleaning apparatus	592,553	Oct. 26	3161	651	81	718
Newell, Charles E. and D. M., Franklin, Pa. Pumping apparatus	595,965	Dec. 21	1946	465	81	2040
Newell, David M. (See Newell, Charles E. and D. M.)						
Newhall, Henry B. (See Cook, John H., assignor.)						
Newman, Abraham, Chicago, Ill. Workman's time-recorder	592,880	Nov. 2	227	52	81	851
Newman, Elmer P., Denver, Colo. Stringing device for musical instruments	592,995	Nov. 2	432	102	81	891
Newman, Samuel, and H. R. Bothwell, Cincinnati, Ohio; said Bothwell assignor to said Newman. Display-stand	595,196	Dec. 7	630	151	81	1737
Newman, Theodore R., Rossland, Canada. Powder-thawer	595,195	Dec. 7	629	151	81	1736
Newton & Thompson Manufacturing Company. (See Bump, Charles H., assignor.)						
Newton, William H., Decatur, Ill. Combined harrow and roller	594,892	Dec. 7	79	22	81	1636
Nicholes, John H., assignor of one-half to F. J. Linnell and O. J. Jones, Chattanooga, Tenn. Checkrein-retainer	592,573	Oct. 26	3187	658	81	728
Nicholls, Mark M., New York, N. Y. Tubing	593,726	Nov. 16	1776	427	81	1176
Nichols, Eugene G., Central City, W. Va. Mason's and builder's implement	595,960	Dec. 21	1739	418	81	1999
Nichols, Joseph, and J. H. Davis, Chicago, Ill. Coin-controlled vending and amusement machine	594,550	Nov. 30	3233	758, 759	81	1496
Nichols, Joseph E., Rochester, N. H. Dental appliance	594,486	Nov. 30	3110	729	81	1472
Nicholson, Chrystie F., New York, N. Y. Buckle	594,271	Nov. 23	2090	636	81	1373
Nicholson, George W., assignor of one-half to J. F. Huselton, Butler, Pa. Billiard and pool table leveler	591,053	Oct. 5	207	48	81	41
Nicholson, John B., Schenectady, N. Y. Hair-crimper	593,679	Nov. 16	1692	409	81	1161
Nicholson, Thomas E., and W. De Freese, St. Paul, Minn. Automatic slack-adjuster for railway-brakes	593,553	Nov. 9	1454	354, 355	81	1099
Nickel, Adam, New York, N. Y. Piano-damper	593,458	Dec. 14	1076	258	81	1847
Nicol, Ludger A. O., and E. Ayotte, Lowell, Mass. Spindle for spinning-machines	591,054	Oct. 5	208	49	81	41
Niebling, William F., Cincinnati, Ohio. Spring adjustment for valves	592,434	Oct. 26	2962	600	81	678
Niebling, William F., Cincinnati, Ohio. Ice-dump	593,680	Nov. 16	1092	409	81	1161
Nielsen, Charles. (See Marschall and Nielsen.)						
Niesen, F. E., trustee. (See Van Zandt, Edwin G., assignor.)						
Niles, Walter L. C., Lynn, Mass. Form for boots or shoes	594,551	Nov. 30	3236	759	81	1496
Nimmo, Andrew, Medford, Mass. Preserving butter	594,272	Nov. 23	2091	637	81	1373
Nininger, Thomas E., assignor of one-half to C. Francis, Jr., Interlachen, Fla., and G. F. Francis, Chicago, Ill. Wrapping-machine	594,273	Nov. 23	2092	637, 638	81	1373
Nisbet, Harry D., St. Louis Mo. Needle-bath	595,009	Dec. 7	406	98	81	1695
Niven, James. (See Strachan and Niven.)						
Nixson, Edwin J., Red Oak, Iowa. Inkstand	594,893	Dec. 7	81	23	81	1637
Noble, Truman, Ithaca, N. Y. Temporary binder	594,420	Nov. 30	2987	702	81	1447
Noechel, Frank J., assignor to J. G. Wagner, Jr., and H. S. Searle, Rochester, N. Y. Device for transmitting power	592,435	Oct. 26	2964	600	81	678
Noechel, Frank J., assignor to J. G. Wagner, Jr., and H. S. Searle, Rochester, N. Y. Device for transmitting motion	592,436	Oct. 26	2966	600	81	679
Nohr, John E., Marion, Wis. Churn	596,082	Dec. 28	2166	513	81	2103
Noirit, Juan E., Walsall, England. Velocipede-saddle	593,331	Nov. 9	1060	256	81	1027
Noland, Frederick C., assignor of one-half to T. M. Henderson, Covington, Ind. Wire-fence machine	593,114	Nov. 2	629	152	81	930
Noland, John, Pittsburg, Pa. Folding box	593,489	Nov. 9	1321	320	81	1077
Noll, Emil, St. Louis, Mo. Portable clothes-line holder	591,290	Oct. 5	637	150	81	121
Non Corrosive Preserving and Fire Resisting Paint Company. (See White and Thomson, assignors.)						
Noonan, Albert S., Rome, N. Y. Air-pump	594,708	Nov. 30	3528	822	81	1555
Noppel, Emil, Philadelphia, Pa. Shoe-pull	592,819	Nov. 2	123	26	81	831
Nordinger, Jacob, New York, N. Y. Plumber's furnace	594,645	Nov. 30	3441	800	81	1538
Normand, Francoise E. (See Normand and Sigaudy.)						
Normand, Jacques A., Havre, France. Window for railway-vehicles	591,680	Oct. 12	1326	310	81	296
Normand, Jacques A., F. E., and M. E., and P. Sigaudy, Havre, France. Feed-water device for steam-generators	593,115	Nov. 2	631	152, 153	81	930
Normand, Marie E. (See Normand and Sigaudy.)						
Normoyle, John F., assignor of one-half to H. J. Basck, New York, N. Y. Pipe-coupling	592,820	Nov. 2	124	27	81	831
Norris, Sherwood B., Auburn, Me. Device for operating switches	595,197	Dec. 7	633	151	81	1737
North Brothers Manufacturing Company. (See Furbish, Zachry T., assignor.)						
North, Thomas M., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Sheet-delivery apparatus for printing-machines	591,223	Oct. 5	517	123, 124	81	99
North Wheeling Glass Company. (See Park, Frederick J., assignor.)						
Northrop, James H., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Brake mechanism for looms	593,070	Nov. 2	560	134	81	916
Northrop, James H., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Warp stop-motion for looms	594,355	Nov. 23	2359	675	81	1405
Northrop, James H., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Shuttle-box for looms	594,704	Nov. 30	3529	822	81	1556
Northrop, James H., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Loom	596,448	Dec. 28	2805	662	81	2228

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Northrop, James H., and M. J. Bigelow, Hopedale, Mass., assignors to Draper Company, Hopedale, Mass., and Portland, Me. Loom	595,198	Dec. 7	685	139	81	1737
Northrop Loom Company. (See Bigelow, Myron J., assignor.)						
Northrop Loom Company. (See Lacey, Walter, assignor.)						
Northrop Loom Company. (See Piper, Orin, assignor.)						
Northrup, James L. (See Curtin, Frank, assignor.)						
Northup, Angevine, *et al.* (See Northup, Joseph, assignor.)						
Northup, Henry E., *et al.* (See Northup, Joseph, assignor.)						
Northup, Joseph, assignor of two-thirds to A. and H. E. Northup, Brooklyn, N. Y. Centerboard for yachts	596,083	Dec. 28	2167	513	81	2103
	596,336	Dec. 28	2569	616	81	2184
Norton, Charles E., Manchester, Conn. Car-wheel-grinding machine	591,357	Oct. 5	754	177	81	145
Norton, Charles H., assignor to Brown & Sharpe Manufacturing Company, Providence R. I. Micrometer-feed for grinding or other machines	595,966	Dec. 21	1947	466	81	2041
Norton, Edward Q., Daphne, Ala. Bicycle-handle	591,681	Oct. 12	1327	311	81	246
Norton, John B., Madison, Wis. Belt-hook	596,415	Dec. 28	2740	648 649	81	2215
Notley, William, Los Angeles, Cal. Gold washing and amalgamating machine						
Novelty Manufacturing Company. (See Boeck, Charles H., assignor.)						
Noyes, Ellis B., Portsmouth, Va. Ruler and tracer for arcs of circles	596,236	Nov. 9	902	218	81	996
Noyes, La Verne W., Chicago, Ill. Ladder and duplex step therefor	591,418	Oct. 12	868	203	81	197
Nuber, George D. (See Bechtel and Fritz, assignors.)						
Nugent, John P., Dubuque, Iowa. Fodder-binder	594,487	Nov. 30	3111	720	81	1473
Nyberg, Carl R., Stockholm, Sweden, assignor to W. I. Ohmer, Dayton, Ohio. Hydrocarbon-burner	590,084	Dec. 28	2168	514	81	2104
	594,894	Dec. 7	83	23	81	1037
Nylander, Joseph L., Duluth, Minn. Shoe-horn						
Nystrom, Walfrid, *et al.* (See Branzell, Charley, assignor.)						
O. H. Jewell Filter Company. (See Jewell, Omar H. and W. M., assignors.)						
O'Brien, John, and C. K. Pickles, St. Louis, Mo. Boiler-furnace	593,851	Nov. 16	2010	473	81	1222
O'Brien, John H., Nasby, S. D. Bicycle attachment	592,498	Oct. 26	2969	601	81	679
O'Brien, John J., assignor to John O'Brien Boiler Works Company, St. Louis, Mo. Manhole-cover	595,647	Dec. 14	1370	331	81	1909
	594,647	Nov. 30	3443	800	81	1539
O'Brien, Walter A., Boston, Mass. Bifurcated union garment	595,546	Dec. 14	1215	292	81	1875
O'Brien, William J., Holyoke, Mass. Quick-acting vise						
O'Byrne, M. A., *et al.* (See Gallager, Henry, assignor.)						
O'Connell, Joseph J., assignor, by mesne assignments, to Western Electric Company, Chicago, Ill. Signaling-circuit. (Reissue)	11,645	Dec. 28	2845	671	81	2236
	593,812	Nov. 16	1984	460	81	1905
O'Connor, Christopher J., and J. G. Hodge, Philadelphia, Pa. Bicycle-support	594,274	Nov. 23	2700	638	81	1376
O'Donnell, Daniel and J. E., Grimes, Iowa. Non-refillable bottle						
O'Donnell, James E. (See Feigley, Newton, assignor.)						
O'Donnell, James E. (See O'Donnell, Daniel and J. E.)						
O'Kain, Domenec C., Wilkinsburg, assignor to E. H. Goodman, Pittsburg, Pa. Slack-adjuster for brake-rigging	594,421	Nov. 30	2989	708 706	81	1448
	591,795	Oct. 12	1499	353	81	319
O'Lally, Patrick K., Boston, Mass. Faucet	594,120	Nov. 23	2453	582	81	1327
O'Leary, Daniel P., and S. B. Kull, New York, N. Y. Photographic camera	594,895	Dec. 7	83	23	81	1037
O'Meara, Jeremiah, New York, N. Y. Valve	595,494	Dec. 14	1137	274	81	1859
O'Meara, Michael J., Anderson, Ind. Annealing-pot						
O'Meara, Patrick, Pietermaritzberg, Natal. Means for preventing accumulation of sand in harbors, &c.	593,430	Nov. 9	1219	294	81	1056
	591,004	Oct. 5	101	23	81	21
O'Neil, Joseph, Taylorstown, Pa. Pump						
O'Neill, Charles P., Brooklyn, assignor of one-half to G. A. Phail, Winfield, and F. E. Krueger, New York, N. Y. Bevel-shearing attachment for punching-machines	593,778	Nov. 16	1873	448	81	1194
O'Neill, Ellis I. (See Paxton and O'Neill.)						
O'Neill, George E., New York, N. Y. Packing	596,808	Dec. 28	2529	602	81	2172
O'Neill, Harry E., assignor to Bartlett Agency, Omaha, Nebr. Blank for commercial reports	591,875	Oct. 19	1630	386	81	368
	591,547	Oct. 12	1106	260	81	242
O'Neill, James, Wallace, Idaho. Handle	593,779	Nov. 16	1874	448	81	1194
O'Rourke, John, Brooklyn, N. Y. Tube-expander	591,632	Oct. 12	1244	291	81	208
O'Rourke, John F., assignor to Stephens & O'Rourke, New York, N. Y. Caisson-shaft						
O'Rourke, John F., assignor to Stephens & O'Rourke, New York, N. Y. Air-lock for caissons	591,633	Oct. 12	1245	292	81	208
O'Sullivan, Michael, *et al.* (See McCall, William, assignor.)						
O'Thayne, Patrick, New York, N. Y. Drying-frame	595,648	Dec. 14	1371	331	81	1909
Oakley, Jesse R., Braddock, Pa. Curtain and shade holder	593,850	Nov. 16	2009	472	81	1221
Obear, William F., St. Louis, Mo. Bottle or jar blowing machine	594,646	Nov. 30	3441	800	81	1585
Oberhammer, Peter, Munich, Germany, assignor of one-half to A. Gerstendörfer and G. Meier, New York, N. Y. Gun-barrel	592,437	Oct. 26	2968	600	81	679
Oberländer, Stefan. (See Müller, Oberländer, Fuchs, and Gomperz.)						
Obernesser, William C., Hamilton, Ohio. Chuck	593,681	Nov. 16	1994	410	81	1161
Obry, Ludwig, Pola, Austria-Hungary. Gyroscopic-controlled firing mechanism for ships' guns	595,820	Dec. 21	1668	402 406 404	81	1984
Obuch, William, Valley View, assignor to G. Savage, Cooke county, Tex. Quilting attachment for sewing-machines	591,784	Oct. 12	1488	353	81	319
Ochse, Louis, and G. Goerk, assignors to W. Roemer, Newark, N. J. Bag-frame machine	594,142	Nov. 23	2489	589	81	1334
Ocumpaugh, Charles H., Rochester, N. Y. Sash-balance	596,216	Dec. 28	2383	564	81	2145
Oddie, Philip F., and G. Hesse, London, England. Duplex pumping-engine	593,490	Nov. 9	1823	320	81	1077
Odean, Gustavus R., assignor of one-half to A. E. McCarty, Minneapolis, Minn. Bicycle-wheel	594,211	Nov. 23	2601	615	81	1355
	595,727	Dec. 21	1501	362	81	1952
Oefinger, John L., Chicago, Ill. Tool for cutting off gas-pipe outlets						
Oehler, Firm of K. (See Rudolph and Herbabny, assignors.)						
Oehlmann, Emil H. C., Berlin, Germany. Incandescent-light burner	593,365	Nov. 9	1104	267	81	1084
Oehring, August J. (See Warner and Oehring.)						
Ogden, Dora, Columbus, Ind. Battery-zinc	593,332	Nov. 9	1061	257	81	1027
Ogden, George H., Cleveland, Ohio. Index-tab	592,821	Nov. 2	125	27	81	832
Ogilvie, David D., Lee, Nev. Gate	592,251	Oct. 26	2308	544	81	518
Ohio Rake Company. (See Little, Peter E., assignor.)						
Ohlsson, Olof, Newark, N. J. Centrifugal cream-separator	593,307	Nov. 9	1016	245	81	1019
Ohmer, Will I. (See Nyberg, Carl R., assignor.)						
Ohmer, Will I. (See Ostlund, Carl E., assignor.)						
Okell, John R., Philadelphia, Pa. Apparatus for roasting coffee	593,163	Nov. 2	746	179	81	954
Oldenbusch, Ernest, Jersey City, assignor to William Schimper & Company, Hoboken, N. J. Box	595,070	Dec. 7	407	98	81	1695
Oldenbusch, Ernest, Jersey City, assignor to W. Schimper & Co., Hoboken, N. J. Hinge for ink-well caps	596,245	Dec. 28	2427	574	81	2154
Oldendorph, John. (See Lowry and Oldendorph.)						
Olds, Eugene H., Fort Wayne, Ind. Bicycle handle-bar clip	592,018	Oct. 19	1899	452	81	490

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Olds, Ransom E., Lansing, Mich. Motor-carriage	594,338	Nov. 23	2825	669	81	1398
Olin, Fred C., assignor to Olin Gas Engine Company, Buffalo, N. Y. Igniter for gas-engines	592,881	Nov. 2	230	53	81	852
Olin Gas Engine Company. (See Olin, Fred C., assignor.)						
Oliver, Abraham R., assignor of one-half to J. E. Christy, Warren, Ind. Operating mechanism for sliding gates	593,116	Nov. 2	634	153	81	931
Oliver, James C., Lexington, Ky. Gas-machine	593,692	Nov. 16	1695	410	81	1161
Oliver, Samuel R., Martindale, Tex. Organ-protector	593,382	Nov. 9	1134	274	81	1040
Oliver Wire Company. (See Hutchinson, William F., assignor.)						
Olsen, Andrew K., Elizabeth, N. J. Window-sash	594,275	Nov. 23	2701	638	81	1376
Olson, Oscar, Gervais, Oreg. Automatic vehicle-steering device	593,542	Nov. 9	1432	348	81	1095
Olson, Otto, Redding, Cal. File or rasp	593,028	Nov. 2	483	116	81	901
Omeis, Francis, Moultrieville, S. C. Fireproof-floor construction	594,705	Nov. 30	3530	822	81	1556
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, of Illinois. Looper-actuating mechanism for sewing-machines	591,419	Oct. 12	869	203	81	197
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Sewing-machine	591,420	Oct. 12	871	204	81	197
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,538	Oct. 12	1088	256	81	237
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,539	Oct. 12	1092	257	81	238
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,540	Oct. 12	1093	257	81	238
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,541	Oct. 12	1095	258	81	239
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,542	Oct. 12	1098	258	81	240
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,543	Oct. 12	1100	259	81	240
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,544	Oct. 12	1102	259	81	241
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,545	Oct. 12	1103	259	81	241
Onderdonk, Lansing, Boston, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Take-up mechanism for sewing-machines	591,546	Oct. 12	1104	260	81	241
Onderdonk, Lansing, Winthrop, Mass., assignor to Union Special Sewing Machine Company, Chicago, Ill. Looper mechanism for sewing-machines	591,774	Oct. 12	1467	347	81	314
Onlevey, Ernest E., Sacramento, Cal. Propelling mechanism for ships, &c	596,178	Dec. 28	2321	551	81	2132
Onlevey, Ernest E., Sacramento, Cal. Steering mechanism	596,179	Dec. 28	2322	551	81	2132
Oppenheimer, Benedict, Trenton, Tenn. Express-car-protecting door	592,639	Oct. 26	3297	685	81	744
Oppermann, Emil L., London, England. Apparatus for amalgamating and extracting gold, &c., from dry crushed ore	591,682	Oct. 12	1328	311	81	286
Oppermann, Heinrich, Bernburg, and R. Goehde, Berlin, Germany. Disinfecting compound and apparatus for applying same	591,683	Oct. 12	1329	311	81	286
Opsahl, Johan B., Toronto, Canada. Automatic cut-off valve	596,119	Dec. 28	2224	528	81	2115
Oralu Manufacturing Company. (See Lugo, Orazio, assignor.)						
Ordway, Albert H. (See Ordway, Oscar H., assignor.)						
Ordway, Oscar H., assignor to A. H. Ordway, South Framingham, Mass. Machine for twisting wood	595,199	Dec. 7	636	152	81	1738
Orewiler, Benjamin F., assignor of four-ninths to J. Currie, Shelby, Ohio. Hook and eye	592,459	Oct. 26	2970	601	81	680
Orfeur, John H., Stowmarket, England. Apparatus for mending and cleaning sacks	594,963	Dec. 7	198	47	81	1658
Ormsby, William, Melrose, assignor to T. Gray, Arlington, Mass. Transom-lifter. (Reissue)	11,639	Nov. 30	3772	880	81	1604
	592,640	Oct. 26	3298	685	81	745
Orner, Ellis F., Gowen City, Pa. Plant-protector						
Orr, James P., Pittsburg, and T. F. Galvin, McKeesport; said Galvin assignor to G. H. Fugh, Pittsburg, Pa. Electrical signal-bell for street-cars	596,085	Dec. 28	2169	514	81	2104
Osborn, Harmon R., Granville, N. Y. Rim and tire for vehicle-wheels	595,353	Dec. 14	856	211	81	1806
Osborn, Winfield S., Remington, Ind. Thill-coupling	593,602	Nov. 16	1559	377	81	1135
Osgood, John L., Buffalo, N. Y. Leather washer	591,193	Oct. 5	450	108	81	86
Osmer, William H., St. Louis, Mo. Washboard	591,664	Oct. 12	1330	311	81	287
Osmond, Frederick J., and R. H. Housman, Moseley, England. Toe-clip for pedals	591,665	Oct. 12	1332	312	81	287
Osterhoudt, Burton H., Bloomfield, Iowa. Machine for making wooden wedges	593,308	Nov. 9	1017	245 246	81	1019
Ostlund, Carl E., Stockholm, Sweden, assignor to W. I. Ohmer, Dayton, Ohio. Petroleum stove and burner	596,096	Dec. 28	2170	514	81	2104
Oswald, Edward, Johnstown, Pa. Machine for cutting window-shades	592,495	Oct. 26	3058	622	81	697
Oswald, Richard W., Bloomsburg, Pa. Car-truck	596,449	Dec. 28	2305	562	81	2228
Otis Brothers & Company. (See Ihlder, John D., assignor.)						
Overby, Hugh O. (See Brown, Joseph H., assignor.)						
Overlin, William S., Portland, Oreg. Automatic fire-lighter	592,882	Nov. 2	232	53	81	852
Overton, Charles P., San Francisco, Cal. Machine for cutting and trimming fish	593,422	Nov. 9	1207	292	81	1053
Oveson, Edward P., Nash, N. D. Detachable shovel-blade for forks	596,120	Dec. 28	2226	528	81	2115
Ouellette, Joseph, and R. Duperrouzel, St. Hyacinthe, Canada. Stop-motion for knitting-machines	593,440	Oct. 26	2972	601	81	680
Owen, David E., Gario, Ohio. Runner attachment for vehicles	594,752	Nov. 30	3619	842	81	1574
Owen, George A., Springfield, Mass., and G. A. Bates, Brooklyn, N. Y. Railway-sleeper	591,565	Oct. 12	1136	267 268	81	247
Owen, James A., Chester, S. C. Cabinet for groceries	595,834	Dec. 21	1691	408	81	1988
Owen, James B., Allisonia, Va. Lamp-handle	594,095	Nov. 23	2417	574	81	1330
Owen, Thomas, assignor of one-half to T. J. Baker and J. V. Dealy, Houston, Tex. Ruling-machine	594,808	Nov. 30	3722	867	81	1595
Owens, Frank C. (See Anderson, George W., assignor.)						
Owens, Michael J. (See Colburn and Owens.)						
Owens, Richard K., *et al.* (See Parfrey, William, assignor.)						
Oxley, Eustace, Washington, D. C. Method of and apparatus for multiple rate-metering for electric currents	591,194	Oct. 5	457	109	81	87
Oxley, Eustace, Washington, D. C. Method of and apparatus for multiple rate-metering for electric currents	591,195	Oct. 5	460	109	81	87
Oxley, Eustace, Washington, D. C. Multiple metering of electric currents	593,852	Nov. 16	2012	473 474	81	1222
Oxley, Eustace, Washington, D. C. Method of and apparatus for multiple metering of electric currents	595,821	Dec. 21	1672	404	81	1985
P. & F. Corbin. (See Case, Cromwell O., assignor.)						
P. & F. Corbin. (See Tredwell, Charles A., assignor.)						
P. & F. Manufacturing Co. (See Deem, Miller M., assignor.)						
Pace, Harvey T., Centralia, Ill. Marble-racket	591,876	Oct. 19	1632	389	81	369

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pacific Car Coupling Company. (See Malloy, John J., assignor.)						
Packard, Clarance A., Charleston, W. Va. Hair-pin	593,908	Nov. 16	2099	497	81	1941
Packer Cycle Company. (See Lengel, Irvin D., assignor.)						
Paddock, H. E., *et al.* (See Wilder, Norman B., assignor.)						
Paddock, Harvlin, assignor to E. & T. Fairbanks & Company, St. Johnsbury, Vt. Scale	595,200	Dec. 7	638	153	81	1738
Paddock, Truman M., Percival, Iowa. Machine for topping sorghum	592,164	Oct. 19	2161	510	81	469
Paehtz, Gustavus J., San Francisco, assignor of three-fourths to R. E. Kelly, Alameda, Cal. Bicycle-alarm	595,334	Dec. 14	857	211	81	1806
Page, Warren B., Newton, assignor of one-third to W. B. Draper, Malden, Mass. Fastening device for gloves	591,261	Oct. 5	586	138	81	111
Paine, Henry M., Amherst, Mass., assignor to W. A. Rees, New York, N. Y. Magnet-armature	592,917	Nov. 2	295	66	81	863
Palste, Harry T., Philadelphia, Pa. Electric cut-out	593,853	Nov. 16	2015	474	81	1223
Palethorpe, James A., Liverpool, England, assignor to Tobacco Warehousing and Trading Company, Danville, Va. Sheep-dip compound	594,753	Nov. 30	3630	----	81	1574
Palm, Friedrich, Nuremberg, Germany. Fitting for glow-lamps	591,490	Oct. 12	903	233	81	220
Palmer, Charles O., Cleveland, Ohio. Cutter-bit fastening for mining-machines	594,696	Dec. 7	95	23, 24	81	1637
Palmer, Charles O., Cleveland, Ohio. Mining-machine	594,697	Dec. 7	97	24, 25	81	1638
Palmer, Charles O., Cleveland, Ohio. Coal-cutting machine	594,698	Dec. 7	95	25, 26	81	1639
Palmer, Charles O., Cleveland, Ohio. Cutter-bit holder for mining-machines	594,699	Dec. 7	99	26	81	1640
Palmer, Charles O., Cleveland, Ohio. Truck for mining-machines	594,900	Dec. 7	101	26	81	1640
Palmer, Franklin B. (See Gschwender, John A., assignor.)						
Palmer, Herbert A., Winthrop, Mass. Key-fastener	591,177	Oct. 5	431	102	81	89
Palmer, Herbert A., Winthrop, Mass. Curling-iron heater	596,087	Dec. 28	2171	514	81	2104
Palmer, Isaac E., Middletown, Conn. Hammock	595,335	Dec. 14	859	212	81	1806
Palmer, Isaac E., Middletown, Conn. Hammock attachment	595,336	Dec. 14	860	212	81	1806
Palmer, Isaac E., Middletown, Conn. Hammock attachment	595,337	Dec. 14	862	212	81	1807
Palmer, James A., Philadelphia, Pa. Steam-boiler	595,071	Dec. 7	408	98	81	1695
Palmer, James O. B. (See Perkins and Palmer.)						
Palmer, Josh. (See West, Douglas, assignor.)						
Palmer, Lafayette, Harrisburg, Pa. Folding crate	591,005	Oct. 5	108	23	81	22
Palmer, Reuben T., Jr., and F. W. Mercer, New London, Conn. Clamp	591,421	Oct. 12	872	204	81	198
Palmer, William A., Mobile, Ala. Car-axle box	595,898	Dec. 21	1808	434	81	2012
Pampus, August, Kiel, Germany. Slow-combustion furnace	596,378	Dec. 28	2261	535	81	2303
Pancoast, Richard M., Jr., Camden, N. J. Paper-fastener	593,683	Nov. 16	1997	410	81	1169
Panse, Friedrich W., assignor to Kursheedt Manufacturing Company, New York, N. Y. Plaiting-machine	595,728	Dec. 21	1802	363	81	1952
Pappardakes, Andrew, New Haven, Conn. Driving mechanism for bicycles	595,579	Dec. 14	1266	304	81	1667
Paquette, Edward J., New Orleans, La. Bottle-protector	596,304	Dec. 28	2230	002	81	2172
Paradis, Albert, and J. Faltermayer, assignors to S. Sternberger, Philadelphia, Pa. Shaper for neckbands of shirts	591,083	Oct. 5	253	60	81	50
Parenteau, Maxime O. (See Force and Parenteau.)						
Parfitt, Emeline. (See Dearing, James W., assignor.)						
Parfrey, William, assignor to himself, R. K. Owens, and G. Cody, New York, N. Y. Atmospheric burner or heater	593,904	Nov. 16	2100	498	81	1941
Park, Frederick J., assignor to North Wheeling Glass Company, Wheeling, W. Va. Coffee-warmer	591,786	Oct. 12	1490	353	81	319
Park, George W., Quincy, Mass. Broom-handle	592,554	Oct. 26	3163	651	81	718
Park, Harvey S., Chicago, Ill. Syrup-dispensing apparatus for aerated waters	592,958	Nov. 2	375	87	81	880
Park, Harvey S., Chicago, Ill., assignor to Westinghouse Air Brake Company, Allegheny county, Pa. Pneumatic and electric controlled brake	591,202	Oct. 5	587	139	81	111
Park, Rufus H., assignor of one-half to J. Feinberg, Chicago, Ill. Device for separating liquids of different specific gravity	593,333	Nov. 9	1062	257	81	1027
Parke, L. C. (See Pease, Henry W., assignor.)						
Parke, Robert A., New Brighton, N. Y. Fluid-pressure engine or motor	594,901	Dec. 7	103	27	81	1641
Parker, Elizabeth, Philadelphia, Pa. Catamenial sack	595,961	Dec. 21	1740	419	81	1999
Parker, Harry, Jr., E. Scanlin, H. H. Skevington, and W. L. Whitehead, Philadelphia, Pa. Knitting-machine	592,883	Nov. 2	234	53, 54	81	853
Parker, Henry F., Brooklyn, assignor, by mesne assignments, to James-Beam Company, New York, N. Y. Ventilating-cushion for shoes, &c.	592,822	Nov. 2	125	27	81	832
Parker, John, assignor to Parker's Limited, Birmingham, England. Wood mantel	591,358	Oct. 5	757	178	81	145
Parker, John D., San Diego, Cal. Bicycle-tire	591,787	Oct. 12	1491	354	81	319
Parker, Philip J., Brooklyn, N. Y. Vehicle-wheel	595,130	Dec. 7	522	125	81	1717
Parker, William D., and E. H. White, Meriden, Conn.; said Parker assignor to said White. Automatic piano-player	592,641	Oct. 26	3299	696 / 697	81	745
Parker's Limited. (See Parker, John, assignor.)						
Parkes, William N., Brooklyn, N. Y. Sewing-machine	591,634	Oct. 12	1249	202 / 206 / 627	81	209
Parkes, William N., Brooklyn, N. Y. Sewing-machine	592,510	Oct. 26	3079	628 / 629	81	703
Parkhill Manufacturing Company. (See Dustin, John F., assignor.)						
Parkhurst Brothers & Co., *et al.* (See Collins, Samuel W., assignor.)						
Parkin, Joseph W., Philadelphia, Pa. Electric switch	591,491	Oct. 12	903	233	81	220
Parkin, Joseph W., Philadelphia, Pa. Electric switch for chandeliers or brackets	593,237	Nov. 9	904	218	81	907
Parkin, Joseph W., Philadelphia, Pa. Insulated joint for gas-fixtures	595,338	Dec. 14	863	213	81	1807
Parks, Lewis F., Cincinnati, Ohio. Bicycle	591,506	Oct. 12	1138	268	81	248
Parks & Woolson Machine Company. (See Brown, Adna, assignor.)						
Parmenter, George A., and S. H. Peirce, Cambridge, Mass. Track-cleaner for street-railways	594,552	Nov. 30	3237	759	81	1497
Parrish, William N., Richmond, Ind. Fence-machine	591,226	Oct. 19	1740	417	81	320
Parrish, William N., Richmond, Ind. Wire-looping tool	595,759	Dec. 21	1808	363	81	1952
Parry, Denis, London, England. Drive-chain	593,685	Nov. 16	1700	411	81	1169
Parry, Denis, assignor to J. M. Kelly, London, England. Chain for mortising-machines	593,684	Nov. 16	1699	411	81	1169
Parson, Henry E., Brooklyn, N. Y. Blast-pipe for steel-furnaces	592,304	Oct. 19	2219	525	81	481
Parson, Henry E., Brooklyn, N. Y. Steam-boiler furnace	592,305	Oct. 19	2220	525 / 526	81	481
Parson, Henry E., Brooklyn, N. Y. Feed-water heater	592,306	Oct. 19	2221	526	81	481
Parsons, Arthur R. (See Sprain, John F., assignor.)						
Parsons, Francis F., assignor to A. and H. Schiffer, Paterson, N. J. Tension-regulator for warp-beams	593,686	Nov. 16	1701	411	81	1169
Parsons, Francis W., Osterville, Mass. Shipping-case	593,002	Nov. 16	1560	378	81	1135
Parsons, Samuel C., assignor of two-thirds to T. L. Mattson, Philadelphia, Pa. Water-filter	591,006	Oct. 5	104	23	81	22
Parsons, Walter G., Englewood, N. J. Bicycle-rack	595,967	Dec. 21	1948	466	81	2041
Parsons, Willard P., Hoosick Falls, N. Y. Mechanical movement	595,968	Dec. 21	1949	466	81	2041

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Parsons, William C., assignor to Selle Gear Company, Akron, Ohio. Fifth-wheel	592,712	Oct. 26	3445	722	81	773
Parsons, William T., Boston, Mass. Unicycle	595,078	Dec. 7	411	99	81	1696
Partello, Joseph D., and H. B. Rosenberg, St. Joseph, Mich. Gearing	595,730	Dec. 21	1504	364	81	1952
Partington, Charles, Newport, Ky., assignor to Weir Frog Company, Cincinnati, Ohio. Automatic switch	592,662	Oct. 26	3352	697	81	755
Partridge, Charles C., Hyde Park, Mass. Top	593,228	Nov. 9	905	218	81	907
Passmore, Charles L., assignor of one-half to E. L. Passmore, Fulton, Ill. Shoe-stretcher	591,492	Oct. 12	996	283	81	221
Passmore, Edwin L. (See Passmore, Charles L., assignor.)						
Passover, Conon L., Denver, Colo. Station-indicator	596,088	Dec. 28	2172	515	81	2105
Pates, James S., Midway, Ky. Burglar-alarm	596,379	Dec. 28	2263	535	81	2303
Patrick & Carter Co. (See Wilson, Elmer E., assignor.)						
Patten, Clinton A., Somerville, Mass. Mowing-machine	591,567	Oct. 12	1130	268	81	248
Patterson, Ashmore P., Yeadon, Pa. Swathing attachment for binders	592,252	Oct. 26	2309	544	81	519
Patterson, John F., Batin N. Y. Game apparatus	596,089	Dec. 28	2175	515	81	2105
Patterson, Peter C., McKeesport, Pa. Apparatus for manufacturing tubing	593,965	Nov. 16	2209	524	81	1963
Patterson, Peter C., McKeesport, Pa. Tube-welding apparatus	593,967	Nov. 16	2212	524 / 525	81	1963
Patterson, Peter C., McKeesport, Pa. Skelp-charging apparatus	593,968	Nov. 16	2214	525 / 526	81	1964
Patterson, R. G., *et al.* (See Supple, John R., assignor.)						
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Electric cable	592,441	Oct. 26	2973	602	81	690
Pattison, Richard, New York, N. Y. Steam-injector	596,121	Dec. 28	2227	528 / 529	81	2115
Patton, Robert B., West Superior, Wis., assignor of one-half to J. H. Sessions, Minneapolis, Minn. Pick-up bucket	593,969	Nov. 16	2217	526	81	1965
Paugh, James. (See Ingram and Paugh.)						
Paul, Abner C. (See Judd, Cilley, and Paul.)						
Paul, Almarin B., San Francisco, Cal. Pulverizing machinery	594,422	Nov. 30	2990	708	81	1448
Paulsen, Otto B., New York, N. Y. Churn	591,493	Oct. 12	997	283 / 284	81	221
Pauly Jail Building and Manufacturing Company. (See Kolb, Edwin, assignor.)						
Paxton, John B., and E. I. O'Neill, Philadelphia, Pa. Circular-knitting machine	595,899	Dec. 21	1809	434 / 435	81	2013
Paxton, John J. (See Heyman, Julius M., assignor.)						
Payne, Martin, Troy, N. Y. Thill and trace connector	595,862	Dec. 21	1741	419	81	1999
Payne, Samuel R., Riddleton, Tenn. Bed-brace	595,201	Dec. 7	639	153	81	1738
Payne, Walter E., and F. L. Joubert, New Orleans, La. Hollow blast revoluble grate	595,849	Dec. 14	1371	331	81	1909
Payne, William W., *et al.* (See Comley, Joseph W., assignor.)						
Peacock, Francis H., Clintonville, Ala. Vehicle-spindle	595,863	Dec. 21	1742	419	81	1999
Pearce, James G., Oakland, Cal. Combined automatic block and signal system and brake and automatic appliance	592,120	Oct. 19	2087	492 / 493 / 494 / 495	81	455
Pearson, Andrew, Brooklyn, N. Y. Means for raising or lowering sashes	594,553	Nov. 30	3238	760	81	1497
Pearson, Henry, and G. S. Webb, Springfield, Mass. Snow-plow	595,202	Dec. 7	640	153 / 154	81	1739
Pearson, John, Levenshulme, assignor of two-thirds to J. B. Price, Chorlton-cum-Hardy, and E. T. Whitelow, Manchester, England. Rim for pneumatic-tired wheels	591,568	Oct. 12	1141	268	81	248
Pearsons, Samuel T. (See Graham and Pearsons.)						
Pearson, Theodore. (See Ingalls, Willard A., assignor.)						
Pearson, Thomas J., Vienna, Va. Milking-pail	595,001	Dec. 7	279	66	81	1672
Pearson, Walter B., Chicago, Ill. Horizontal drilling and boring machine	593,491	Nov. 9	1324	321	81	1077
Pearson, William H., Boston, Mass. Bumper for railway-cars	593,605	Nov. 16	1564	378	81	1136
Pease, Charles F., Baltimore, Md. Sprocket-wheel	596,246	Dec. 28	2428	574	81	2164
Pease, Henry W., Milwaukee, Wis., assignor, by mesne assignments, to L. C. Parke, San Francisco, Cal. Can-labeling machine	593,604	Nov. 16	1561	378	81	1136
Peck, Barton L., Detroit, Mich. Motor-vehicle	595,203	Dec. 7	642	154	81	1739
Peck, Charles, Chicago, and F. H. Peck, Lombard, Ill. Folding box	592,253	Oct. 26	2310	544 / 545	81	519
Peck, Claude E., Diamond, assignor of one-half to W. Wollberg, Brazil, Ind. Spool-holder	591,178	Oct. 5	432	102	81	92
Peck, Frank H. (See Peck, Charles and F. H.)						
Peck, Isaac N., Cohocton, assignor of one-half to W. S. Borden, Atlanta, N. Y. Wire-fence implement	592,165	Oct. 19	2162	510	81	470
Peckham, Edgar, Kingston, N. Y. Truss-brace for railway-cars	595,784	Dec. 21	1607	388	81	1972
Peckham Motor Truck and Wheel Company. (See Cooke, William E., assignor.)						
Peden, Joseph S., New York, N. Y. Cable-grip	595,495	Dec. 14	1138	274	81	1859
Peirce, Herbert W., Waltham, Mass. Transom-lifter	591,509	Oct. 12	1142	269	81	249
Peirce, Stephen H. (See Parmenter and Peirce.)						
Pelham, Alphonzo E. (See Baines and Pelham.)						
Pelton, Henry B. (See De Long, Pelton, and Stewart.)						
Pember, Elijah, *et al.* (See Bullock, Edmund L., assignor.)						
Pengnet, Maurice B., Cambridge, Mass. Electric motor	595,731	Dec. 21	1506	364	81	1953
Penick, Charles C., and R. L. Nash, Richmond, Va. Fan attachment for baby-carriages	593,687	Nov. 16	1702	411	81	1169
Penn Manufacturing Company. (See Burdick, George, assignor.)						
Pennie, Henry, assignor of one-half to C. Hess, Brooklyn, N. Y. Brick	591,788	Oct. 12	1492	354	81	319
Pennington, Alexander W., Cleveland, Ohio. Sash-fastener	592,974	Nov. 2	408	95	81	886
Pennington, Walter W., Butte, Mont. Match-safe	593,905	Nov. 16	2101	498	81	1941
Pennsylvania Globe Gas Light Company. (See Meredith, Edmund, assignor.)						
Pennsylvania Iron Works Company. (See Cellison, Edmund, assignor.)						
Pennsylvania Iron Works Company. (See Grist and Cellison, assignors.)						
Peraglie, Martino, New York, N. Y. Device for preventing picking of pockets	593,727	Nov. 16	1777	427	81	1176
Perine, Aaron B., Topeka, Kans. Means for converting motion	594,276	Nov. 23	2702	639	81	1376
Périssé, Joseph J., Asnières, France. High-explosive shell	595,406	Dec. 14	983	238	81	1859
Perkins, Andrew, Cleveland, Fla. Ironing-table	591,089	Oct. 19	1749	417	81	321
Perkins, Asa B., Salem, Mass. Floating marine safe	596,278	Dec. 28	2461	590	81	2163
Perkins, Hasen H., Kewanee, Ill. Husking-pin	596,180	Dec. 28	2323	552	81	2133
Perkins, James C., Inwood, Iowa. Roller attachment for sleighs	592,907	Oct. 19	2222	526	81	481
Perkins, Nicholas P., and J. O. B. Palmer, assignors of one-half to J. A. and T. E. Jamison, Roanoke, Va. Tobacco-cutting machine	592,064	Oct. 19	1965	469	81	436
Perkins, William T. (See Bunnell and Perkins.)						
Perkins, Willis J., Grand Rapids, Mich., assignor, by mesne assignments, to Smith Premier Typewriter Company, Syracuse, N. Y. Type-writing machine	594,706	Nov. 30	3532	822 / 823	81	1557
Perkinson, William H., Brocton, Ill. Cultivator	595,095	Dec. 7	319	77	81	1680

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Perley, Isaac N. (See Hoffman, Charles M., assignor.)						
Perotti, John, Brooklyn, N. Y. Combination lock and foot-support for bicycles	595,835	Dec. 21	1692	408	81	1988
Perrine, Van B., Fort Wayne, Ind., and W. S. Boon, Montpelier, Ohio. Apparatus for loading lumber	592,121	Oct. 19	2094	495	81	456
Perry, Frederic H., Pawtucket, R. I. Bottle	592,334	Nov. 9	1064	257	81	1028
Perry, Harry A., Chicago, Ill. Saddle	595,111	Dec. 7	494	118	81	1711
Perry, Levi B. (See Mitchell and Perry.)						
Peru Electric Manufacturing Company. (See Schutt, Duny A., assignor.)						
Peteler, Francis, Minneapolis, Minn. Heating-furnace	593,492	Nov. 9	1328	321, 322	81	1078
Peter, Hermann, Berlin, Germany. Faucet	591,686	Oct. 12	1333	312	81	287
Peters, Daniel M., Bellwood, Pa. Bicycle-brake	592,254	Oct. 26	2313	545	81	519
Peters, Harry S., Dover, N. J. Safety-pocket	594,096	Nov. 23	2418	574	81	1321
Peters, Meinert, Hartford, Conn. Valve	594,097	Nov. 23	2419	574	81	1321
Petersen, Andrew N., Brooklyn, N. Y. Construction of stairways	593,403	Nov. 9	1176	284	81	1047
Petersen, Peter E. (See Byxbe and Petersen.)						
Peterson, Alexander E., New York, N. Y. Non-refillable bottle	593,117	Nov. 2	634	153	81	981
Peterson, Henry M., Horace, N. D. Windmill	591,775	Oct. 12	1469	347, 348	81	314
Peterson, S. Gust, *et al.* (See Branzell, Charley, assignor.)						
Petraeus, Carl V., assignor to O. H. Picher, Joplin, Mo. Manufacturing lead oxid	592,594	Oct. 26	2227	668	81	730
Petsch, Hans, and H. Soukup, Vienna, Austria-Hungary. Automatic advertiser	593,754	Nov. 16	1829	438, 439	81	1186
Pettee, Joseph, Jr. (See Hyslop, John, assignor.)						
Pettengill, George M., Haverhill, Mass. Last-support	596,305	Dec. 28	2531	603	81	2172
Pettie, Charles A., assignor to E. C. Pettie, Brooklyn, and F. W. Barker, Nyack, N. Y. Pneumatic non-puncturable tire	595,785	Dec. 21	1600	388	81	1972
Pettie, Emma C., *et al.* (See Pettie, Charles A., assignor.)						
Pettit, Albert H., New Orleans, La. Frame for bicycles	595,459	Dec. 14	1076	259	81	1848
Pettit, George W., Amma, W. Va. Gate	591,687	Oct. 12	1334	312	81	287
Petty, John V. (See Strickle and Petty.)						
Pew, Arthur, Macon, Ga. Bottle	591,688	Oct. 12	1335	313	81	288
Pfeiffer, Matthew. (See Linnemeier, Fred, assignor.)						
Pfeil, Philip, assignor of one-half to H. Rendtorff, Chicago, Ill. Detachable strainer for milk-pails	595,407	Dec. 14	966	238	81	1829
Pfouts, Leroy S., Canton, Ohio. Crushing-machine	594,964	Dec. 7	199	48	81	1658
Phail, George A., *et al.* (See O'Neill, Charles P., assignor.)						
Phelis, Isaac F., Woodville, Ohio. Camera-holder	591,977	Oct. 19	1632	399	81	899
Phelps, Chamberlayne, Bucks Bridge, N. Y. Whiffletree-eye	593,029	Nov. 2	483	117	81	901
Phelps, Spencer H., Janesville, Wis. Bicycle	592,122	Oct. 19	2095	495	81	456
Phelps, Spencer H., Janesville, Wis. Journal-bearing	592,595	Oct. 26	2298	668	81	731
Phelps, Theodore B., Brewster, N. Y. Can-soldering machine	592,663	Oct. 26	2353	698, 699	81	755
Phillips, Elwood C., assignor of one-half to G. A. Stanley, Chicago, Ill. Attachment for velocipede-pumps	595,547	Dec. 14	1217	292	81	1676
Phillips, Emily E., Eldon, Mo. Garment-supporter	592,479	Oct. 26	2087	618	81	698
Phillips, John E., assignor of one-half to E. E. Drake, Chicago, Ill. Fire-door	594,898	Nov. 30	3768	879	81	1603
Phillips, Thomas H., St. Davids, Pa. Impact-tool	592,166	Oct. 19	2168	510, 511	81	470
Phillips, William R., Seattle, Wash. Water-impelling machine	595,919	Dec. 21	1871	447	81	2036
Philper, Harry H. (See Stocker and Philper.)						
Phoenix Caster Company. (See Tucker, William H., assignor.)						
Phoenix Glass Company. (See Malloy, William F., assignor.)						
Phoenix Glass Company. (See Wehr, George F., assignor.)						
Picher, Oliver H. (See Petraeus, Carl V., assignor.)						
Pickles, Charles K. (See O'Brien and Pickles.)						
Pickles, Charles K., St. Louis, Mo., assignor to J. J. McCarthy, Chicago, Ill. Railway-brake	595,496	Dec. 14	1139	274	81	1859
Pieper, Carl, Menomonee, Wis. Bed-block for stereotype-plates	591,422	Oct. 12	873	204	81	198
Pieper, Henry, Liege, Belgium. Lock mechanism for firearms	591,291	Oct. 5	688	150	81	121
Pier, Caroline B., *et al.* (See Timmis, William, assignor.)						
Pierce, Charles E., New York, N. Y. Lock-circuit closer	593,335	Nov. 9	1065	257	81	1028
Pierce, Edward, *et al.* (See Stauffer and Tolson, assignors.)						
Pierce, Frank M., and A. C. Warner, Allentown, Ill. Wagon end-gate	593,813	Nov. 16	1985	460	81	1905
Pierce, Mathew M. (See Laue and Pierce.)						
Pierson, Gustaf, Braddock, Pa. Combined lace-curtain stretcher and clothes-horse	596,181	Dec. 28	2324	592	81	2138
Piez, Charles, assignor to Link-Belt Engineering Company, Philadelphia, Pa. Valve for conveyer-chutes	591,292	Oct. 5	689	150	81	121
Pigott, William. (See Henning and Pigott.)						
Pihl, Carl J., assignor of one-half to A. A. Fisher, Brooklyn, N. Y. Tap-wrench	594,212	Nov. 23	2603	615	81	1355
Pike, Charles F., Philadelphia, Pa., assignor to United States Pneumatic Despatch Company, Burlington, N. J. Pneumatic-despatch tube	595,890	Dec. 21	1818	435	81	2014
Piland, Joseph, Covington, La. Smoke-conductor	594,965	Dec. 7	201	48	81	1659
Pilkington, John K., Liverpool, England. Shaft attachment for vehicles	594,648	Nov. 30	3444	801	81	1539
Pingault, Adolphe G. (See Clerc and Pingault.)						
Pipe, William H., Jr., assignor to American Arithmometer Company, St. Louis, Mo., Printing attachment for calculating-machines	595,864	Dec. 21	1743	419, 420, 421	81	2000
Piper, Orin, Manchester, N. H., assignor, by mesne assignments, to Northrop Loom Company, Saco, Me., and Hopedale, Mass. Warp stop-motion for looms	594,213	Nov. 23	2604	616	81	1355
Pitcher, Edmund, Keene, and E. H. Sargent, Sunapee, N. H. Pneumatic water-raising device	593,431	Nov. 9	1220	295	81	1056
Pitcher, Edward W., Red Hook, N. Y. Cash-drawer register	592,208	Oct. 19	2223	536	81	482
Pitkin, Albert J., Schenectady, N. Y. Compound engine	593,823	Nov. 2	127	29	81	882
Pitkin, Albert J., and J. E. Sague, Schenectady, N. Y. Compound engine	592,824	Nov. 2	128	28, 29	81	882
Pitney, Sanford C. (See Sheer and Pitney.)						
Pitney, Sanford C., Quincy, and F. C. Hansen, Freeport, Ill.; said Hansen assignor to said Pitney. Shutter-worker	593,854	Nov. 16	2016	475	81	1223
Pitson, P. J., *et al.* (See Hoffmann, Charles H., assignor.)						
Pitt, William A., Manhassett, N. Y. Mechanical movement	595,782	Dec. 21	1508	364, 365	81	1953
Pittler, Julius W. von, assignor to R. Voigtländer, Leipsic, Germany. Dynamometer	592,442	Oct. 26	2074	602	81	680
Pittman, Reinhart W., Hartford, Conn. Supporting means or bracket for lamps	595,074	Dec. 7	412	99, 100	81	1696
Pittsburg Valve and Machine Co. (See Bromley, Robert C., assignor.)						
Pitzler, Fred R. C., Lester Prairie, Minn. Washing-machine	593,118	Nov. 2	635	153	81	981

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Plaisted, William L. (See Hollen, James H., assignor.)						
Plano Manufacturing Company. (See Macphail, James, assignor.)						
Plopper, James A., Chicago, Ill., assignor, by mesne assignments, to A. F. Stern, Milwaukee, Wis. Nut-tapping machine	592,825	Nov. 2	132	29, 30, 31	81	833
Plumb, Albert M., assignor to Plumb Rock Drill Company, Colorado Springs, Colo. Rock-drill	595,969	Dec. 21	1950	467	81	2041
Plumb Rock Drill Company. (See Plumb, Albert M., assignor.)						
Plummer, Horace Q., Maplewood, Ind. Automatic guiding attachment for bicycles	591,980	Oct. 19	1742	417	81	391
Plummer, Mark, Minera Springs, Mo. Fence-machine	594,649	Nov. 30	3445	801	81	1539
Poehlmann, William. (See Kuenzle and Poehlmann.)						
Poekert, Friedrich W. R., Philadelphia, Pa. Fan-holder	591,423	Oct. 12	874	204	81	198
Poertner, Henry A., and J. W. Fix, St. Louis, Mo. Table for boring-machines	594,902	Dec. 7	105	27	81	1641
Pohlig, John. (See Hill, Albert D., assignor.)						
Poindexter, Robert E., Indianapolis, Ind. Saw-jointer	596,416	Dec. 28	2744	649	81	2216
Poll, George, Melbourne, Victoria. Smoothing-iron	595,075	Dec. 7	417	100	81	1697
Pollard, Arthur R., Worthing, England. Bottle and stopper therefor	594,423	Nov. 30	2992	708	81	1448
Pollock, Charles V. (See Monarch and Pollock.)						
Pollock, Charles W., and W. Kurth, assignors to P. Henning, Casselton, N. D. Lace holder and unwinder	592,884	Nov. 2	237	54	81	853
Pollock, Edward E., *et al.* (See Van Vechten, Orville R., assignor.)						
Pomeroy, A. A., *et al.* (See Temple, William J., assignor.)						
Pomeroy, Le Dru R., Cleveland, Ohio, assignor to Van Wagoner & Williams Hardware Company, Jersey City, N. J. Spring-hinge	591,359	Oct. 5	759	179	81	145
Pommer, Eugene R., assignor to Sprague Electric Railway and Motor Company, New York, N. Y. Contact device for electric railways	592,506	Oct. 26	2228	668, 669	81	731
Pond, Goldsbury H., Ashburnham, Mass. Disintegrating-machine	591,494	Oct. 12	998	234	81	221
Pond, William H., and W. N. Talpe, Providence, R. I. Lock for bicycles	593,755	Nov. 16	1853	439	81	1187
Ponkney, August C., Cotulla, Tex. Combination-tool	591,689	Oct. 12	1336	313	81	288
Ponkney, August C., Cotulla, Tex. Rod-coupling device	591,690	Oct. 12	1337	313	81	288
Ponstein, John, Chicago, Ill. Bolster for cars	596,122	Dec. 28	2229	589	81	2116
Poole & Brown. (See Seelye, Seymour K., assignor.)						
Pooler, George E., Cedar Bluff, Iowa. Sawing-machine	595,002	Dec. 7	280	67	81	1673
Pooley, Beulah S., *et al.* (See Pooley, George F., assignor.)						
Pooley, Edward F., *et al.* (See Pooley, George F., assignor.)						
Pooley, George F., assignor to B. S. Pooley, Brooklyn, Md., and E. F. Pooley, Philadelphia, Pa. Shirt	594,277	Nov. 23	2705	639	81	1376
Pooley, George F., assignor to B. S. Pooley, Havre de Grace, Md., and E. F. Pooley, Philadelphia, Pa. Shirt	594,278	Nov. 23	2706	640	81	1377
Poor, James W., Boston, Mass. Fountain-brush	591,570	Oct. 12	1143	269	81	249
Pope, Charles, Chicago, Ill. Treating starch	595,408	Dec. 14	987	------	81	1829
Pope Manufacturing Company. (See Copeland, James S., assignor.)						
Porcher, Jacob W., Port Washington, Ohio. Horseshoe	595,733	Dec. 21	1510	365	81	1954
Porter, Horatio A., assignor of one-half to T. B. Flanders, Holyoke, Mass. Pneumatic-tire fastener	592,480	Oct. 26	2088	618	81	698
Porter, Wilson E., assignor to New Haven Clock Company, New Haven, Conn. Chiming clock	592,614	Oct. 26	2257	674, 675	81	736
Posey, Joshua M., Vivian, La. Combination drawing-knife	594,279	Nov. 23	2710	640	81	1377
Posgay, Alexius, New York, N. Y. Siphon-head	595,112	Dec. 7	495	119	81	1711
Poss, Ike, *et al.* (See Altman, David, assignor.)						
Post, Charles B., New London, Ohio. Cyclometer	592,255	Oct. 26	2313	545	81	520
Post, Elisha A., Gobleville, Mich. Coffin-handle	593,239	Nov. 9	906	219	81	997
Postmus, Wieger, Chicago, Ill. Woodworking-machine	591,424	Oct. 12	876	205	81	198
Potter, Charles M., Naugatuck, Conn. Level	596,279	Dec. 28	2482	590	81	2163
Potter, E. H., *et al.* (See Hanscom and Hough, assignors.)						
Potter, Edward A., Toronto, Canada. Tufting-machine	592,167	Oct. 19	2166	511	81	470
Potter, Jotham, administrator. (See Lean, George R.)						
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Mounting for contact-shoes of surface-contact railways	591,878	Oct. 19	1633	389	81	369
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric railway	596,162	Dec. 28	2336	552	81	2133
Pottier & Stymus Company. (See Johnston, John S., assignor.)						
Poulter, John H., Newman, assignor of two-thirds to C. M. Brady and J. S. Walker, Danville, Ill. Churn	594,280	Nov. 23	2712	640	81	1378
Pound, Orange, Bartow, Fla. Clamp for hose-couplings	593,906	Nov 16	2102	498	81	1241
Powell, David C., assignor of one-half to E. J. Powell, Michigan City, Ind. Grater	594,424	Nov. 30	2998	703	81	1449
Powell, Edward J. (See Powell, David C., assignor.)						
Powell, John B., Philadelphia, Pa. Sprocket-chain	592,718	Oct. 26	3446	722	81	773
Powell, Lorenzo W., Kirtland, Ohio. Planting and seeding machine	593,498	Nov. 9	1231	323	81	1079
Powell, W. H. (See Smith, George P., assignor.)						
Powell, William D., Rochester, N. Y. Pool-triangle	592,752	Oct. 26	3519	740	81	787
Powell, William S., Johnstown, Pa. Curtain-pole bracket	596,417	Dec. 28	2745	649	81	2216
Power, Pomeroy W., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Inductor-generator	596,032	Dec. 21	2078	493	81	2008
Power, Pomeroy W., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Dynamo-electric machine	596,306	Dec. 28	2533	603	81	2173
Power Transmitter Company. (See Regan, Daniel S., assignor.)						
Powers, Walter S., and A. J. Reynolds, Nashville, Mich. Hose-nozzle	594,554	Nov. 30	3239	760	81	1497
Prahm, Adolph F., Indianapolis, Ind. Signal-lantern	593,606	Nov. 16	1565	378, 379	81	1137
Pratt, Edward W., Menominee, Mich. Implement for extracting nails or tacks	595,679	Dec. 14	1423	342	81	1919
Pratt Fastener Company. (See Stover and Hoefer, assignors.)						
Pratt Fastener Company. (See Wirth, Rodolphe, assignor.)						
Pratt, John W. (See Ward, Frederick, assignor.)						
Pratt, Lewis M., assignor of one-half to J. A. Boyd, Belleville, Kans. Burglar-alarm	591,055	Oct. 5	208	49	81	42
Pratt, William H. (See Thomson and Pratt.)						
Prechtel, Charles A., Abbott, Tex. Egg-case	593,404	Nov. 9	1178	284	81	1048
Prendergast, William H., Savannah, Ga., assignor of one-half to C. D. Kline. Lubricator	596,220	Dec. 28	2404	568	81	2150
Prentice, Albert F., Worcester, Mass. Engine-lathe	593,607	Nov. 16	1569	379	81	1138
Prentice, George W., Providence, R. I. Support for bicycles	595,304	Dec. 7	644	154	81	1730
Prentice, James, Colesburg, Iowa. Straddle-row wheel-cultivator	594,908	Dec. 7	106	27	81	1641
Prentiss, Irving R., Cleveland, Ohio. Polycircuit dynamo	594,488	Nov. 30	3112	729, 730	81	1473
Prentiss, Irving R., Cleveland, Ohio. Polycircuit dynamo	594,489	Nov. 30	3114	730	81	1473
Prenzel, Adam H., assignor of one-half to K. V. Zuber, Reading, Pa. Edge-setting machine	594,754	Nov. 30	3230	843	81	1574

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Preston, Albert F., Winthrop, Mass., assignor, by mesne assignments, to Preston Lasting Company. Lasting-machine	592,826	Nov. 2	136	31,32	81	834
Preston, Albert F., Boston, Mass., assignor to Busell Lasting Machine Company, Nashua, N. H. Hand tacking-tool	593,780	Nov. 16	1876	449	81	1195
Preston, Albert F., Boston, Mass., assignor to Busell Lasting Machine Company, Nashua, N. H. Lasting-machine	594,179	Nov. 23	2545	602	81	1345
Preston, John H., Brooklyn, assignor to Jackson Architectural Iron Works, of New York. Clip for securing sleepers to beams	594,555	Nov. 30	3241	760	81	1497
Preston Lasting Company. (See Preston, Albert F., assignor.)						
Pribyl, Francis J., Hazleton, Pa. Fountain-pen	594,098	Nov. 23	2419	575	81	1321
Price, Charles W., Newark, N. J., assignor, by mesne assignments, to Montauk Multiphase Cable Company, New York, N. Y. Automatic circuit-controller	594,084	Nov. 23	2319	548	81	1301
Price, Charles W., Newark, N. J., assignor, by mesne assignments, to Montauk Multiphase Cable Company, New York, N. Y. Automatic signaling system	594,261	Nov. 23	2718	641	81	1378
Price, Isaac W., Roseau, Ohio. Vehicle-brake	592,168	Oct. 19	2167	512	81	470
Price, John, Trenton, N. J. Oil-cup	591,208	Oct. 5	641	151	81	122
Price, John, Trenton, N. J. Lubricator	594,755	Nov. 30	3622	846	81	1574
Price, John B., *et al.* (See Pearson, John, assignor.)						
Price, John B., Wollaston, Mass., assignor to Manhattan Type Writer Company, of New Jersey. Type-writing machine	593,432	Nov. 9	1221	295	81	1056
Price, William B. (See Kindig, Samuel C., assignor.)						
Price, William B., *et al.* (See Gray, James D., assignor.)						
Price-Williams, Richard. (See Martin and Price-Williams.)						
Priddy, S. N. E. (See Marvin, Russell, assignor.)						
Pridemore, W. A. (See Behnke, Wilhelm B., assignor.)						
Pries, Herman. (See Williamson and Pries.)						
Priest, Edward D., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric railway-motor	595,409	Dec. 14	988	226, 230	81	1830
Priest, Edward D., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric motor	595,410	Dec. 14	990	229, 240	81	1830
Prim, Arthur, Brussels, Belgium. Car-starter	594,556	Nov. 30	3242	761	81	1497
Prince, Theodore, New York, N. Y. Trousers	592,019	Oct. 19	1900	452	81	490
Printz, Emanuel, Philadelphia, Pa. Apparatus for extracting oil	594,495	Nov. 30	3095	704	81	1449
Probasco, Abraham B., near Lebanon, Ohio. Wire-stretching implement	591,495	Oct. 12	1000	235	81	222
Probasco, Abraham B., Lebanon, Ohio. Wire fence	592,020	Oct. 12	1901	452	81	490
Proctor, David G. and G. E., Washington, D. C. Box-couch	594,557	Nov. 30	3243	761	81	1498
Proctor, George E. (See Proctor, David G. and G. E.)						
Proll, Louis, C. M. Depew, and E. W. Hawley, San Francisco, Cal. Reversible window	593,855	Nov. 16	2017	475	81	1223
Prouty, Chester, Ridgway, Pa. Machine for rolling tapered metal	593,907	Nov. 16	2108	498, 499	81	1242
Prouty, George W., Medford, assignor of one-half to R. O. Harding, Boston, Mass. Skate	593,494	Nov. 9	1334	323	81	1079
Pruckner, Edmund, and G. Schindler, Newark, N. J. Automatic electric-circuit breaker and closer	592,443	Oct. 26	2975	692	81	690
Pruden, Abraham B., and C. M. Waterbury, Brooklyn, assignors to B. Blum, New York, N. Y. Bicycle-hanger	593,738	Nov. 16	1777	427	81	1176
Pryibil, Paul, New York, N. Y. Gang-saw	592,936	Nov. 2	322	74	81	870
Psaroudaki, Spiridion. (See Blondel and Psaroudaki.)						
Pugh, C. B. (See Landes, Henry M., assignor.)						
Pugh, John A., Waverly, Ill. Cuff-holder	594,180	Nov. 23	2548	608	81	1346
Pugh, William J., assignor of two-thirds to W. N. Wallace, J. H. and C. B. Vail, and W. L. Johnson, Muscatine, Iowa. Automatic steam and air brake coupling	593,119	Nov. 2	637	154	81	961
Pugsley, William E., Lincoln, Nebr. Nut and pipe wrench	591,196	Oct. 5	463	109	81	86
Pulhemus, Frank A., Hopkins Station, assignor of one-half to L. D. Harris, Grand Rapids, Mich. Printing-press	593,164	Nov. 2	750	179	81	955
Pullen, Alfred R., Paddington, New South Wales. Fish-plate fastening	594,302	Nov. 23	2871	677	81	1408
Pullman, Herbert S., assignor to Scovill Manufacturing Company, Waterbury, Conn. Clamp for bicycle-bells	592,098	Oct. 19	2050	484	81	448
Pullman's Palace Car Company. (See Brown, George F., assignor.)						
Purcell, Edward, Jr., *et al.* (See Hughes, Thomas W., assignor.)						
Purdy, Stephen H., and R. B. Carson, Fultonville, N. Y. Woven-wire fence	591,294	Oct. 5	642	151	81	122
Puretoy, Addison F., Wake Forest, N. C. Spring bed-bottom	593,781	Nov. 16	1878	449	81	1195
Pursley, William A., Spencer, W. Va. Clothes-rack	596,380	Dec. 28	2684	636	81	2208
Pusey, Lea, deceased, Wilmington, Del.; S. M. Knox, administrator. Ice-making apparatus	596,123	Dec. 28	2231	529, 530	81	2116
Putnam, George K., Montpelier, Vt. Book-rest	593,120	Nov. 2	638	154	81	962
Putney, Simeon F., Cleveland, N. Y. Conductor-hood for stoves or ranges	595,443	Dec. 14	1050	251	81	1841
Pyle, Frank L., and J. McDonald, Simi, Cal. Wave-motor	596,124	Dec. 28	2234	530	81	2116
Quackenboss, Leonard G., Chicago, Ill. Supporting-frame	591,934	Oct. 19	1749	418	81	392
Quackenboss, Leonard G., Chicago, Ill. Window-box	591,935	Oct. 19	1751	418, 419	81	393
Quell, John A. (See Lehmann, Richard, assignor.)						
Queen Butter Maker Company. (See Alden, Frank W., assignor.)						
Queen & Company. (See Sayen, Henry L., assignor.)						
Quick, Miles W., Titusville, Pa. Device for operating series of pumps	595,205	Dec. 7	645	155	81	1740
Quick, Miles W., Titusville, Pa. Plant for operating motors	595,206	Dec. 7	647	155	81	1740
Quickert, Reinhold R., and K. Larson, Minneapolis, Minn. Nailing and stapling machine	592,615	Oct. 26	3260	675, 676	81	737
Quinby, Henry R., Rochester, N. Y. Electric-arc lamp	594,426	Nov. 30	2997	704	81	1449
Quinn, George W., assignor of one-half to Harber Brothers Company, Bloomington, Ill. Pneumatic stacker	596,907	Dec. 28	2584	604	81	2173
Quinn, Hugh M., *et al.* (See Shuttleworth, Alpheus C., assignor.)						
Quinn, James F., and R. E. Lee, Birmingham, Ala. Flue-welding machine	595,836	Dec. 21	1604	409	81	1989
Quinn, Joseph, Brooklyn, N. Y. Belt-governor	592,627	Nov. 2	189	33	81	834
Quinn, Patrick, Edwardsdale, Pa. Flux for welding metals	592,642	Oct. 26	3303	.....	81	746
Quinn, Patrick, Jr., and R. C. Giesicke, St. Louis, Mo. Bottle	593,058	Nov. 2	533	128	81	911
Quinn, William, assignor of one-half to L. H. French, Philadelphia, Pa. Bicycle	591,360	Oct. 5	762	179	81	146
Quinton, John H., San Diego, Cal. Luggage-carrier	591,425	Oct. 12	877	205	81	199
Qurin, Ignatz, Cologne, Germany. Adjustable cam	593,121	Nov. 2	640	154	81	962
Quirk, Peter J., Des Moines, Iowa. Apparatus for weighing and dumping coal	594,427	Nov. 30	2999	704, 705	81	1450
Quisenberry, Everett B., assignor of one-half to J. W. Corkins, Sedalia, Mo. Copy-holder	594,558	Nov. 30	3246	762	81	1498
R. E. Dietz Company. (See Betts, Charles L., assignor.)						
Racine Hardware Company. (See Hood, William C., assignor.)						
Radel, George, Jr., Napoleon, Ohio. Nut-lock	594,214	Nov. 23	2607	616	81	1356
Rafter, John A., Holton, Kans. Inhaler	594,966	Dec. 7	908	48	81	1676
Rahner, August, Villisca, Iowa. Boiler-furnace	595,339	Dec. 14	864	213	81	1807

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rairigh, Archie F., Barnard's, Pa. Railway-switch	594,215	Nov. 23	2608	616, 617	81	1356
Raker, Clinton W., Shamokin, Pa. Combination pail-ear and spring-catch	592,496	Oct. 26	3059	622	81	607
Ralph, Linton N., Pittsburg, Pa. Dust-pan	594,756	Nov. 30	3623	843	81	1575
Rambaud, Jean A., assignor to Compagnie Internationale des Procédés Adolphe Seigle, Paris, France. Apparatus for lighting and heating by means of hydrocarbons	594,282	Nov. 23	2715	641, 642	81	1378
Rand, Edwin R., and H. N. Wayne, Waban, Mass. Invalid-bed bottom	595,734	Dec. 21	1510	365	81	1954
Rand, William C., Lewiston, assignor to V. P. Buck, Auburn, Me., and H. W. Spencer, Boston, Mass. Mechanism for covering straps	594,181	Nov. 23	2549	603, 604	81	1346
Randall, Charles B., Brooklyn, N. Y., assignor of one-half to W. B. Hudson, Bedford, England. Paper sack	593,280	Nov. 9	968	234	81	1008
Randall, Charles E., Chicago, Ill. Pencil	591,007	Oct. 5	106	24	81	23
Rankin, Andrew. (See Bennett, Joseph S., assignor.)						
Rankin, Thomas F., assignor of one-half to J. A. Buttress, Allegheny, Pa. Ice-cream mold and disher	591,635	Oct. 12	1250	293	81	309
Ranney, Fred E., assignor to Ranney Refrigerator Company, Greenville, Mich. Refrigerator	594,159	Nov. 23	2518	596	81	1341
Ranney Refrigerator Company. (See Ranney, Fred E., assignor.)						
Ransom, Clarence. (See Dexter and Ransom.)						
Rapelye, Henry S. (See Eyles, Rapelye, and Applegate.)						
Raphael, Henry J. W., *et al.* (See West, James, assignor.)						
Rapp, John W., New York, N. Y. Column or post	596,217	Dec. 28	2385	564	81	2145
Rasmussen, Alfred W., Chicago, Ill. Paper-binder	591,372	Oct. 5	787	184	81	150
Ratcliff, John W., and M. G. Watson, Webbville, Ky. Forge-twyer	593,240	Nov. 9	907	219	81	997
Rathjen, Henry J., Jr., Otter Creek, Wis. Envelop	592,444	Oct. 26	2977	603	81	681
Raven, Freeman, assignor to J. R. Kendrick, Philadelphia, Pa. Straight-knitting machine	593,309	Nov. 9	1022	247	81	1020
Rawlings, Samuel V., assignor of one-half to S. H. Holley, Marquette, Mich. Saw-swage	593,782	Nov. 16	1879	449, 450	81	1195
Rawson, C. D. (See Wood, Benjamin F., assignor.)						
Raymond, Albert. (See King and Raymond.)						
Raymond, John C., New York, N. Y. Bicycle	592,169	Oct. 19	2170	512	81	471
Raymond, John M., and L. E. Lemley, assignors of one-third to W. T. Coats, New Orleans, La. Acetylene-gas generator	593,122	Nov. 2	641	155	81	962
Read, George F., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Sheet-feeding mechanism for printing-machines	593,080	Nov. 2	484	117, 118	81	901
Read, John F., Walsenburg, Colo. Artificial foot	594,121	Nov. 23	2456	583	81	1328
Reading Crane and Hoist Works. (See Kincaid, Joseph W., assignor.)						
Reagan, Harry C., Jr., Philadelphia, Pa. Indicator for underground electric railways	594,122	Nov. 23	2457	583	81	1328
Reagan, James, Philadelphia, Pa. Grate-bar	594,904	Dec. 7	108	28	81	1642
Reagan, John J., Louisville, Ky. Oscillatory mechanism	593,310	Nov. 9	1025	247, 248	81	1020
Rearson, Henry A. (See Ames and Rearson.)						
Rech, George, *et al.* (See Kehl, Anthony and F. E., assignors.)						
Record, James L. (See Johnson, Ernest V., assignor.)						
Reddick, William A., Niles, Mich. Potato-scoop	591,691	Oct. 12	1338	313, 314	81	288
Reddin, Daniel W. (See Duncan, Francis A., assignor.)						
Redding, Jacob, New Castle, Ind. Coasting-hub for cycles	593,698	Nov. 16	1703	412	81	1162
Redfield, Charles T., Glen Haven, N. Y. Snap-hook	593,495	Nov. 9	1336	324	81	1080
Redlinger, Mathias, Jr. (See Baumgarten and Redlinger.)						
Redman, Henry A., Guthrie, assignor of one-half to H. R. and J. A. Thurston, Rock, Okla. Ter. Combination-padlock	595,650	Dec. 14	1373	332	81	1910
Redmond, Rufus P. (See Shaw and Redmond.)						
Reed & Barton Corporation. (See McAusland, William, assignor.)						
Reed, Carroll H., New York, N. Y. Bicycle-lock	592,481	Oct. 26	3089	619	81	693
Reed, Daniel, Eagle Lake, Minn. Air-whip	591,692	Oct. 12	1339	314	81	288
Reed, Ernest C., Dartford, England. Steam-generator	596,381	Dec. 28	2685	636	81	2208
Reeder, Andrew H., Uniontown, Pa. Antifreezing attachment for engines	594,288	Nov. 23	2716	642	81	1379
Rees, David, Confidence, Mo. Combined currycomb and brush	592,445	Oct. 26	2978	603	81	681
Rees, William A. (See Paine, Henry M., assignor.)						
Reese, Franklin T., and C. A. Willis, Carnegie, Pa. Sleeping-car section-partition	595,207	Dec. 7	649	155, 156	81	1740
Reeves, Charles W., and C. W. Lentz, assignors to Stone Manufacturing Company, Columbus, Ohio. Clothes-wringer	591,295	Oct. 5	643	151	81	122
Reeves, William, New Haven, Conn. Kaleidoscope	593,405	Nov. 9	1179	284, 285	81	1048
Regan, Annie F., administratrix. (See Regan, Daniel S.)						
Regan, Daniel S., deceased; A. F. Regan, Brooklyn, N. Y., administratrix, assignor to Power Transmitter Company, Jersey City, N. J. Drilling-machine	595,076	Dec. 7	418	100, 101	81	1697
Regensburger, Herman, assignor of one-half to T. Binder, Philadelphia, Pa. Lamp-chimney protector	592,170	Oct. 19	2171	512	81	471
Rehfuss, John G. (See Dolley, Rehfuss, and Hunt.)						
Rehmenklau, Rudolph W. O., Minneapolis, Minn. Means for closing tire-punctures	593,589	Nov. 9	1309	337	81	1090
Reichert, John, assignor of one-half to L. J. Elliott, Racine, Wis. Seat	594,085	Nov. 23	2322	549	81	1301
Reilly, James, New York, N. Y. Steam-generator	592,987	Nov. 2	823	75	81	871
Reilly, Michael F., Brooklyn, N. Y. Picture-hanger	591,056	Oct. 5	210	49	81	43
Reilly, Peter. (See Fittz and Reilly.)						
Reisner, William H., Hagerstown, Md. Lens-measure	595,865	Dec. 21	1757	421	81	2008
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric controller	591,879	Oct. 19	1634	390	81	369
Rembe, Louis F., Haverstraw, N. Y. Insulator	593,689	Nov. 16	1706	412	81	1163
Rendtorff, Hermann. (See Pfeil, Philip, assignor.)						
Renney, James, assignor of one-half to L. Marvin, Charlotte, N. Y. Ironing-table	593,161	Nov. 2	777	187	81	960
Reno, Howard, Folsom, N. Mex. Ter. Sad-iron support	595,411	Dec. 14	994	240	81	1831
Rentsch, August, Brooklyn, N. Y. Lock-hinge	591,028	Oct. 12	1340	315	81	289
Renz, Carl J., New York, N. Y. Reservoir-pen	594,284	Nov. 23	2718	642	81	1379
Restein, Clement J., Philadelphia, Pa. Packing	595,340	Dec. 14	866	213	81	1808
Revere Rubber Company. (See Trent, Lamartine C., assignor.)						
Reyher, Rudolf. (See Heymann and Reyher.)						
Reynolds, Adrian J. (See Powers and Reynolds.)						
Reynolds, Alexander H. (See Wallace and Reynolds.)						
Reynolds, Arthur D. (See Grace and Reynolds.)						
Reynolds, Edwin, Milwaukee, Wis. Blowing-engine	591,008	Oct. 5	107	24	81	23
Reynolds, Edwin, Milwaukee, Wis. Grinding-mill	592,988	Nov. 2	141	33	81	834
Reynolds, Edwin, and E. Cheshire, Milwaukee, Wis. Stamp-mill	595,651	Dec. 14	1375	332	81	1910

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Reynolds, George E., *et al.* (See Mowry, George W., assignor.)						
Reynolds, George H., assignor to Crane Elevator Company, Chicago, Ill. Plunger-elevator	595,280	Dec. 7	773	191	81	1764
Reynolds, Jennie, Pittsfield, Ill. Step	592,446	Oct. 26	2980	603	81	681
Reynolds, Samuel D. and W. S., and M. D. Shipman, assignors to said Shipman, C. E. and S. E. Bradt, De Kalb, Ill. Spring-wagon gear	594,099	Nov. 23	2422	575	81	1321
Reynolds, Sylvanus J., Saginaw, Mich. Fireplace-back	591,931	Oct. 19	1744	417	81	391
Reynolds, Thomas A., Bunch, Iowa. Support for sheep while being sheared	594,428	Nov. 30	3001	705	81	1450
Reynolds, Walter S. (See Reynolds and Shipman.)						
Reynolds, William W., New York, N. Y. Sign	593,433	Nov. 9	1225	296	81	1057
Reynolds, Willie J., Fall Creek Depot, Va. Gate-latch	593,241	Nov. 9	908	219	81	907
Rhoades, Mahlon E., assignor of one-third to H. Z. Lusenberry, Sedalia, Mo. Corn-planter	592,996	Nov. 2	435	103	81	691
Ribbe, Paul F., Berlin, Germany. Secondary battery	595,580	Dec. 14	1267	304	81	1887
Ribble, George W., Hyattsville, Md., assignor of one-half to W. J. Slater, Washington, D. C. Electric switchboard	592,123	Oct. 19	2096	495	81	457
Rice, Edwin W., Jr. (See Steinmetz and Rice.)						
Rice, Edwin W., Jr., assignor to Thomson-Houston Electric Company, Schenectady, N. Y. Regulating alternating-current dynamo-electric machines	595,412	Dec. 14	994	240	81	1831
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. Braking alternating-current induction-motors	595,413	Dec. 14	1000	241	81	1831
Rice, Emery E., Charlerol, Pa. Hat-pin	595,920	Dec. 21	1874	448	81	2096
Rice, James N., Scranton, Pa. Tubular boiler	592,511	Oct. 26	3086	629	81	703
Rice, John H. (See Leighton and Rice.)						
Rice, Joseph, Chicago, Ill. Device for opening elevator-doors	593,434	Nov. 9	1226	296	81	1058
Rice, Margaret E., Hillsborough, Tex. Sad-iron attachment for pressing seams	592,918	Nov. 2	286	66	81	863
Rice, Martin P., Schenectady, N. Y., assignor to General Electric Company, of New York. Regulating Roentgen-ray tubes	594,143	Nov. 23	2490	590	81	1334
Rice, Oliver, East Oakland, Cal. Rug-making machine	595,118	Dec. 7	497	119	81	1711
Rich, Charles T. (See Rich, Thomas E. and C. T.)						
Rich, Menzo L., Addison, N. Y. Ventilator	591,880	Oct. 19	1637	390	81	370
Rich, Thomas E. and C. T., Barre Plains, Mass. Machine for jointing bars of window-sashes	595,077	Dec. 7	421	101	81	1698
Richard, Julius, assignor of three-eighths to F. Du Cacher, A. Joerss, F. Coleman, and O. von Kanel, Bisbee, Ariz. Railway-spike	594,757	Nov. 30	3624	844	81	1575
Richards, Harry D. (See Boyle, James M., assignor.)						
Richards, Hubert P., New Britain, Conn. Shuttle for sewing-machines	594,429	Nov. 30	3001	705	81	1450
Richards, John B., New York, N. Y. Self-closing cock or valve for gas, &c	595,921	Dec. 21	1874	448	81	2097
Richards, Joseph W., Bethlehem, Pa. Process of and apparatus for electrolytic extraction of metals from their solutions	591,141	Oct. 5	357	85	81	70
Richards, Joseph W., and C. W. Roepper, Bethlehem, Pa. Process of and apparatus for electrolytic recovery of metals from their solutions	591,571	Oct. 12	1144	269	81	249
Richards, Lutellas, Allegheny, Pa. Tobacco-pipe	595,652	Dec. 14	1377	332	81	1911
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Unlocking device for car-couplings	592,883	Nov. 2	238	54	81	853
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-truck	594,559	Nov. 30	3247	762	81	1490
Richardson, Charles G. (See Vogler and Richardson.)						
Richardson, Charles G., New Brighton, N. Y. Manufacture of incandescents	592,209	Oct. 19	2224	.....	81	482
Richardson, Charles N., Providence, R. I. Hose-pipe nozzle	592,447	Oct. 26	2981	603 / 604	81	682
Richardson, James, assignor to himself and F. E. Heath, New York, N. Y. Flying-machine	596,231	Dec. 28	2405	568	81	2150
Richardson, John C., Middlesborough, Ky. Section-liner attachment for parallel-rulers	591,296	Oct. 5	644	152	81	129
Richardson, John P., Cambridge, assignor of one-half to J. E. Treat, Boston, Mass. Railway-rail	592,829	Nov. 2	143	33	81	835
Richey, Charles, assignor of one-half to W. Freeman, Atlanta, Ga. Railway-switch	592,448	Oct. 26	2982	604	81	682
Richey, Charles V., assignor of one-half to L. C. Bailey, Washington, D. C. Fire-escape bracket	596,427	Dec. 28	2766	654	81	2290
Richie, Benjamin C. (See Davis, Stephen G., assignor.)						
Richmand, Francis J., San Francisco, Cal. Cornet	593,690	Nov. 16	1707	412	81	1168
Richmond, Cassius M., assignor to Universal Trading Company, New York, N. Y. Seat for bicycles	595,680	Dec. 14	1423	343	81	1919
Richmond, Frederic S., Chicago, Ill. Plug cut-out	595,970	Dec. 21	1953	467	81	2042
Richter, Frank L., Moravia, Tex. Cotton-chopper	593,908	Nov. 16	2107	499	81	1243
Richter, Friedrich E., Leipsic, Germany. Mangle	594,430	Nov. 30	3005	705 / 706	81	1451
Richter, Harry J., Chicago, Ill. Bicycle attachment	591,696	Oct. 12	1252	293	81	270
Rickards, Ralph H. (See Hodgson and Rickards.)						
Ricker, John W., Chelsea, Mass. Washing-machine	593,856	Nov. 16	2019	475	81	1224
Rickson, Ernest L., Dubuque, Iowa. Car-coupling	593,815	Nov. 16	1938	460	81	1206
Rider, Herbert E., assignor to C. P. Robinson, New York, N. Y. Envelop-opening apparatus	594,650	Nov. 30	3446	801	81	1539
Rider, John P. (See Wolcott, Henry G., assignor.)						
Ridgely, William B. (See Johnson, Charles H., assignor.)						
Ridley & Company. (See Humphrey, Harry J., assignor.)						
Riebe, John C. (See Small, Guy W., assignor.)	594,431	Nov. 30	3006	706	81	1451
Riegel, Ernst, Stettin, Germany. Stoker for inclined grates or retorts						
Riehl Co., John B. (See Riehl, John B., assignor.)						
Riehl, John B., assignor to J. B. Riehl Co., Limited, Philadelphia, Pa. Closing device for umbrellas	591,637	Oct. 12	1253	294	81	270
Rieken, Ernest H., New Orleans, La. Steam-boiler	596,183	Dec. 28	2328	553	81	2134
Rigby, Holden, Paterson, N. J. Lingo	591,496	Oct. 12	1001	235	81	228
Rigling, John, and J. Mayers, Philadelphia, Pa. Fluid-pressure regulator	591,861	Oct. 19	1638	391	81	371
Rile, John L. and W. J., Brooklyn, N. Y. Temporary binder	591,698	Oct. 12	1255	294	81	271
Rile, William J. (See Rile, John L. and W. J.)						
Riley, Charles E. (See Illingworth, Harry I., assignor.)	592,890	Nov. 2	144	33	81	835
Riley, Robert M., and U. S. G. Brown, New York, N. Y. Collapsible carrier for bicycles	592,574	Oct. 26	3198	658	81	723
Ring, Franz, Portland, Oreg. Trestle	595,581	Dec. 14	1389	305	81	1887
Rinker, William, Allegheny, Pa. Boot or shoe shining machine	593,857	Nov. 16	2021	476	81	1224
Ripley, Daniel C., Pittsburg, Pa. Apparatus for forming articles of glassware	591,992	Oct. 19	1744	418	81	391
Ripple, August, and G. E. Durler, Oshkosh, Wis. Combined match box and lighter	594,160	Nov. 23	2521	597	81	1341
Risch, Henry F., Brooklyn, N. Y. Water-filter						
Risdon Iron and Locomotive Works. (See Barbour and Hansen, assignors.)						
Riesmuller, Ludwig, Philadelphia, Pa., assignor, by mesne assignments, to General American Reduction Company, New York, N. Y. Treating garbage	596,008	Dec. 21	2012	481	81	2055

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rittenhouse, James F. (See Rittenhouse, Silas B. and J. F.)						
Rittenhouse, Silas B. and J. F., Liberty Mills, Ind. Lifting-jack	594,967	Dec. 7	203	49	81	1659
Ritter, Jerome L., Newport, Pa. Automatic harpoon hay-fork	591,609	Oct. 12	1205	283	81	261
Ritter, Simon N. (See Collmar and Ritter.)						
Rively, John D., Pittsburg, Pa., assignor to Electro Storage Company of North America, of West Virginia. Storage battery	595,208	Dec. 7	651	156	81	1741
Rivett, Edward, Boston, Mass. Universal detachable handle	594,285	Nov. 23	2719	643	81	1379
Roach, James C., Bath Beach, assignor of one-half to R. J. Keeffe, New York, N. Y. Nursing-bottle	595,414	Dec. 14	1002	241	81	1832
Roach, John J., Butte, Mont. Lantern	595,200	Dec. 7	652	156	81	1741
Robbins, Arthur C., assignor to E. C. Hughes, San Francisco, Cal. Central-station combined telegraph and telephone system	595,241	Dec. 7	722	176	81	1753
Robbins, George, assignor of one-third to C. M. Wood, Slate Hill, N. Y. Music-leaf turner	592,021	Oct. 19	1903	458	81	491
Robbins, John E. (See Kirkpatrick and Robbins.)						
Robbins, Richard B., Adrian, Mich. Fence-post	592,997	Nov. 2	437	103 / 104	81	902
Roberg, Claus F. (See Hagen, Erik S., assignor.)						
Roberts, George W., West Superior, Wis. Sterilizer	594,560	Nov. 30	3249	763	81	1499
Roberts, Edward M., and E. C. Spalding, Atlanta, Ga.; said Roberts assignor to said Spalding. Draft-rigging for car-frames	592,171	Oct. 19	2172	512	81	471
Roberts, George C., assignor to Troy Laundry Machinery Company, Limited, Chicago, Ill. Hydrocarbon-burner	591,694	Oct. 12	1241	315	81	289
Roberts, W. E. (See Stenger, William, assignor.)						
Roberts, William E., assignor of two-thirds to J. E. Gaylord and F. P. Davidson, Butte, Mont. Heating and roasting furnace	592,220	Oct. 19	2239	530	81	484
Roberts, Willis, Mobile, Ala. Insulator for electric wires	591,104	Oct. 5	291	70	81	57
Robertson, Charles J. (See Johnson, John B., assignor.)						
Robertson, David R., Kirkcaldy, Scotland. Bicycle-stand	595,891	Dec. 21	1820	436	81	2015
Robertson, Judah T., New York, N. Y. Inking device for plate-printing presses	592,664	Oct. 26	3300	699	81	757
Robertson, Sara T., Canton, N. Y. Steam cooking utensil	593,091	Nov. 16	1710	413	81	1163
Robertson, Thomas B. (See Rust, Robert S., assignor.)						
Robeson, John. (See Judy and Robeson.)						
Robinson, Andrew J. and F. P., Boston, Mass. Valve or faucet	592,172	Oct. 19	2173	513	81	472
Robinson, Celinda P. (See Rider, Herbert E., assignor.)						
Robinson, Charlotte L. J., executrix. (See Robinson, Edward T.)						
Robinson & Co., Henry. (See Robinson, Henry, assignor.)						
Robinson, Edward T., deceased, Denton, England; C. L. J. Robinson, executrix. Apparatus for manufacturing fur hat-bodies	595,582	Dec. 14	1270	305	81	1887
Robinson, Elbert R., Chicago, Ill. Casting composite or other wheels	594,286	Nov. 23	2720	643 / 644	81	1379
Robinson, Franklin C., Brunswick, Me. Formaldehyde-generator	593,123	Nov. 2	644	155	81	983
Robinson, Fred P. (See Robinson, Andrew J. and F. P.)						
Robinson, Henry, New York, N. Y., assignor to H. Robinson & Co. Piano attachment	594,651	Nov. 30	3448	801	81	1539
Robinson, Louis D., De Funiak Springs, Fla. Color-printing press	595,653	Dec. 14	1378	333	81	1911
Robinson, Stillman W., Columbus, Ohio, assignor to Wire Grip Fastening Company, Boston, Mass. Nailing-machine	591,658	Oct. 12	1288	302	81	278
Robinson, Thomas C., Boston, assignor of five-eighths to E. B. Welch and A. E. Denison, Cambridge, Mass. Tack-driving machine	594,905	Dec. 7	109	28	81	1642
Robinson, Thomas F., and F. Smith, Little Falls, N. Y. Automatic fire-alarm	591,009	Oct. 5	110	24	81	23
Robinson, William, Boston, Mass. Mechanical movement	592,194	Oct. 19	2096	496	81	457
Robinson, William, Boston, Mass. Electric-railway system	592,851	Nov. 2	146	33, 34	81	836
Robinson, William S., and C. A. Haeseley, Fancy Farm, Ky. Automatic locking and releasing mechanism for transoms or windows	595,922	Dec. 21	1876	448	81	2027
Robischung, Henry B., Kalamazoo, Mich., assignor to H. D. Laughlin, St. Louis county, Mo. Nut-lock	596,083	Dec. 21	2074	493	81	2068
Rochester Cash Register Company. (See Bedient, Emory A., assignor.)						
Rochester Cash Register Company. (See Clark, William H., assignor.)						
Rochester, Robert, assignor to Barney & Smith Car Company, Dayton, Ohio. Car-seat	595,415	Dec. 14	1003	341 / 342	81	1832
Rock Island Plow Company. (See Waterman, Lewis E., assignor.)						
Rockwell, Frederick C. (See Bullock, William J., assignor.)						
Rockwell, John A., *et al.* (See Wight, Elerson, assignor.)						
Rockwell, John S. (See Weston, Henry, assignor.)						
Rockwell, Ulysses G., Groton, N. Y. Display-rack for umbrellas	591,572	Oct. 12	1146	269	81	249
Rockwell, Warren A., *et al.* (See Wight, Elerson, assignor.)						
Rodenhausen, William, Philadelphia, Pa. Wagon-chute	591,057	Oct. 5	210	49	81	42
Rodgers, James G., Springfield, Ohio. Apparatus for placing tires on wheels	595,548	Dec. 14	1219	293	81	1876
Roe, John M., Austin, Ill., assignor to Jogada Furnace Company, of Oregon. Furnace	596,837	Dec. 21	1696	409	81	1989
Roebling, Alexander T. S., Cincinnati, Ohio. Barrel-hooping machine	591,497	Oct. 12	1002	235	81	228
Roehr, Charles, Bucyrus, Ohio. Door-frame	593,435	Nov. 9	1229	296	81	1058
Roemer, William. (See Ochse and Goerk, assignors.)						
Roemer, William, Newark, N. J. Buckle	596,247	Dec. 28	2429	574	81	2155
Roepke, Carl A., assignor of one-half to Roepke & Co., Limited, Manchester, England. Winding device for musical boxes	592,892	Nov. 2	151	34	81	837
Roepke & Co. (See Roepke, Carl A., assignor.)						
Roepper, Charles W. (See Richards and Roepper.)						
Roesch, Alfred, Brooklyn, N. Y., assignor to Davis & Roesch Temperature Controlling Company, of New Jersey. Air-controlling device	595,654	Dec. 14	1361	333	81	1911
Roger, George, Warrington, England. Machine for cutting pile of weft pile fabrics	592,714	Oct. 26	3447	722 / 723	81	774
Rogers, Charles B., assignor of three-fourths to M. Carrier, St. Peter, Minn. Feed-water heater and purifier	591,058	Oct. 5	211	50	81	42
Rogers, Charles H., Sayre, Pa. Wagon running-gear	591,197	Oct. 5	464	110	81	88
Rogers, Charles T., Detroit, Mich., assignor of one-half to G. F. Klotter & Co., Cincinnati, Ohio. Steam-boiler furnace	595,341	Dec. 14	866	214	81	1808
Rogers, Dillen, Sr., and Dillen, Jr., Madisonville, Tenn. Time lamplighter	592,178	Oct. 19	2174	513	81	472
Rogers, Douglas, assignor to G. S. Bowers and A. Meise, Springfield, Ohio. Puzzle	591,699	Oct. 12	1257	294	81	271
Rogers, Elbert S., Knoxville, Tenn. Furnace	593,065	Oct. 19	1968	470	81	437
Rogers, Francis I., Philadelphia, Pa. Cooking utensil	594,652	Nov. 30	3449	802	81	1540
Rogers, George H., Birmingham, Ala. Writing-desk	591,899	Oct. 19	1640	391	81	371
Rogers, Jael F., Springville, N. Y. Axle-nut wrench	591,991	Oct. 19	1637	457	81	408
Rogers, John B., and W. H. Hall, San Francisco, Cal. Tire for velocipedes or other vehicles	592,125	Oct. 19	2100	497	81	457
Rogers, John B., and W. H. Hall, San Francisco, Cal. Machine for indelibly marking values on checks	592,533	Oct. 26	3125	639	81	711

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rogers, John E., Dendron, Va. Journal-bearing for trucks	592,665	Oct. 26	3361	699	81	758
Rogers, John M. (See Hamor, John M., assignor.)						
Rogers, Willett E., Essex, N. Y. Elevator safety appliance	595,786	Dec. 21	1610	388	81	1973
Rogge, John H. (See Turner, George W., assignor.)						
Roggenbauch, Charles F., New York, N. Y. Type-writing machine	593,081	Nov. 2	487	118, 119	81	903
Rohrbach, Gabriel, Del Rio, Tex. Turn-table	596,382	Dec. 28	2686	636	81	2204
Rolfe, Charles A., Chicago, Ill. Electrical protector	591,426	Oct. 12	879	205	81	199
Rölker, Winfried A., Bayonne, N. J. Hasp	595,923	Dec. 21	1879	448	81	2027
Roll, Frederick W., and F. Waltman, Denver, Colo. Illuminating device for keyholes	595,444	Dec. 14	1051	251	81	1841
Roller, Oliver B., *et al.* (See Hughes, Thomas W., assignor.)						
Rollins, William E. (See Lynn, Frederick W., assignor.)						
Rollins, William H., Boston, Mass. Musical instrument	595,342	Dec. 14	868	214	81	1808
Root, Edgar L., Defiance, Ohio. Glue-kettle	591,933	Oct. 19	1748	418	81	392
Root, Sanford O., Lodi, N. Y. Vise	596,125	Dec. 28	2236	531	81	2117
Rosa, Edward B., Middletown, Conn. Indicator for electrical measurements	593,858	Nov. 16	2025	477	81	1224
Rose, Allen W., New York, N. Y. Telephone system	591,011	Oct. 5	112	25, 26	81	24
Rose, Harry M. (See Barreda, Henry H., assignor.)						
Rose, Herbert B., assignor to Forsyth Manufacturing Company, Buffalo, N. Y. Spanner-wrench	593,543	Nov. 9	1433	349	81	1095
Rose, William, Gainesborough, and H. H. Wills, London, England, assignors, by mesne assignments, to Wright's Automatic Tobacco-Packing Machine Company, Lynchburg, Va. Machine for wrapping and securing tobacco in packets	594,968	Dec. 7	204	49, 50, 51	81	1660
Roseberry, Edward S., and W. H. Fickel, Hurdland, Mo. Check-row planter	593,194	Nov. 2	645	155	81	933
Rosedale, Adolph, Tallahassee, Fla. Mileage-book and coupon-ticket protector	593,125	Nov. 2	647	156	81	934
Rosenberg, Albert, Baltimore, Md. Gas-engine	593,859	Nov. 16	2031	477, 478	81	1226
Rosenberg, Henry B. (See Partello and Rosenberg.)						
Rosenkranz, William, New York, N. Y. Combination-rule	593,608	Nov. 16	1571	379	81	1138
Rosin, Charles, Newark, N. J. Boutonnière, badge, &c	595,655	Dec. 14	1382	334	81	1912
Roskop, Louis F., Paterson, N. J. Bouquet-holder	592,449	Oct. 26	2984	604	81	669
Ross, John S. (See Horn, George A., assignor.)						
Ross, Stanton D. L., Post Falls, Idaho. Hanger for vehicle-brakes	591,695	Oct. 12	1344	315	81	289
Ross, Thomas H., Sydney, New South Wales. Cigar-tip cutter	591,297	Oct. 5	645	152	81	123
Rossetter, Charles W. and H. R., Emporia, Kans. Lamplighter	596,337	Dec. 28	2590	617	81	2184
Rossetter, Hadley R. (See Rossetter, Charles W. and H. R.)						
Rossiter, Alonzo D. (See Beecher, William H., assignor.)						
Rost, Alfred, Halbstadt, Austria-Hungary. Coating for mirrors and producing same	594,758	Nov. 30	3625	------	81	1575
Roth, Adolph, *et al.* (See Waterman, Charles H., assignor.)						
Roth, Eugen, Osnabrück, Germany. Blind raised or lowered by means of electricity and solar rays	595,343	Dec. 14	870	214	81	1808
Roth, John A., Hannibal, Ohio. Horseshoe	592,998	Nov. 2	439	104	81	893
Roth, Theodore H., and J. J. Joyce, assignors to C. F. Zimmermann Company, Dolgeville, N. Y. Autoharp	593,126	Nov. 2	648	156	81	934
Rothenbach, Alfred, Zurich, Switzerland. Device for transporting granular or similar materials	591,696	Oct. 12	1346	315, 316	81	290
Rothenbücher, George E. R., Bloomfield, N. J. Flue-cleaner	595,971	Dec. 21	1954	467	81	2042
Rotsell, William G., Warren, Pa. Nailless horseshoe	594,561	Nov. 30	3250	763	81	1499
Rotthoff William. (See Neeland and Rotthoff.)						
Round, Olin H., G. A. Sammis, and C. Kern, Lemars, Iowa. Switch-stand	595,735	Dec. 21	1512	366	81	1954
Rourke, Flurence I. (See Durrin and Rourke.)						
Rouse, Albion M., assignor of one-half to H. M. Williamson, Denver, Colo. Ore-separator	594,287	Nov. 23	2723	644	81	1380
Roush, Henry. (See Roush, Peter, Jr., and H.)						
Roush, Peter, Jr., and H., Greenfield, Ohio. Exhibiting apparatus	595,549	Dec. 14	1220	293	81	1876
Rousseau, Jean B. E., and J. Boutet, Quebec, Canada. Leather-measuring machine	591,868	Oct. 19	1643	391, 392	81	373
Rousselle, Narcisse, Verviers, V. and J. Snutsel, Brussels, Belgium. Ball-bearing for axles	595,210	Dec. 7	654	157	81	1741
Roux, Harry L., assignor of two-thirds to J. Singer and A. J. A. Chiapella, Galveston, Tex. Letter-copying roller	596,090	Dec. 28	2176	515	81	2106
Röver, Adolph B. (See Van Dusen and Röver.)						
Rowand, Arch. H., Jr., *et al.* (See Comley, Joseph W., assignor.)						
Rowand, Lewis G., Camden, N. J. Automatic test-circuit	591,010	Oct. 5	111	25	81	24
Rowand Lewis G., Camden, N. J. Electric signaling apparatus	593,692	Nov. 16	1711	413	81	1164
Rowbotham, Walter, Birmingham, England. Oil, gas, or like engine	595,497	Dec. 14	1140	274, 275	81	1860
Rowe, Allen H., Hartford, Conn. Horseshoe-calk	596,126	Dec. 28	2240	531	81	2117
Rowe, Amoe D., assignor of two-thirds to P. J. Westphal and J. C. Keough, Holyoke, Mass. Paper-feeding machine	593,554	Nov. 9	1456	355, 356	81	1100
Rowell, Guilford D., Appleton, Wis. Car-starter	591,498	Oct. 12	1007	235	81	223
Rowntree, Harold, Chicago, Ill. Door-operating device	596,019	Dec. 21	2036	486	81	2059
Royal Furniture Company. (See Hompe, Alexander W., assignor.)						
Royer, Charlotte, *et al.* (See Royer, Samuel M., assignor.)						
Royer, Olney E., *et al.* (See Royer, Samuel M., assignor.)						
Royer, Samuel M., assignor to C. and O. E. Royer, Martinsburg, Pa. Folding basket	594,562	Nov. 30	3252	763, 764	81	1499
Royle, Vernon, Paterson, N. J. Tubing and wire covering machine	592,998	Nov. 2	325	75, 76	81	871
Ruckstuhl, Charles S., St. Louis, Mo. Fever-thermometer	594,840	Nov. 30	3771	879	81	1604
Rude, John, Chicago, Ill. Window-cleaner	591,142	Oct. 5	361	85	81	70
Rudolph, Christian H., and J. Herbabny, assignors to Firm of K. Oehler, Offenbach-on-the-Main, Germany. Blue-red tetrazo dye	594,123	Nov. 23	2460	------	81	1329
Ruetschi, Hermann, Newark, N. J. Heat-detector	591,143	Oct. 5	362	86	81	70
Ruff, Frederick A., assignor to Detroit Automatic Switch Company, Limited, Detroit, Mich. Switch-operating mechanism	591,144	Oct. 5	364	86	81	71
Rugeley, Fannie M., Lampasas, Tex. Crayon-holder	596,498	Dec. 14	1142	275	81	1860
Ruhe, Walter A., and H. S. Burbank, Philadelphia, Pa. Acetylene-gas apparatus	595,924	Dec. 21	1879	449	81	2027
Rumble, Alexander C., assignor of five-eighths to J. H. Thompson and W. D. Huntington, Oakland, Cal. Air-brake governor	595,251	Dec. 7	738	180	81	1736
Rumpf, Martin H., Paris, France. Embroidering-machine	594,653	Nov. 30	3450	802, 803	81	1540
	591,640	Oct. 12	1258	294	81	271
Runions, James N., Cokato, Minn. Sleigh						
Runkel, Friedrich. (See Kahn and Runkel.)						
Rush, Henry G. (See Wilson and Rush.)						
Rushforth, Arthur, Bradford, England. Automatic coupling for railway-wagons, &c	592,210	Oct. 19	2226	527	81	482
Russ, John M., Elizabethtown, N. C. Manifold letter-writer	591,084	Oct. 5	254	60	81	50
Russell, B. L. (See Short, William A., assignor.)						
Russell, Charles F., New Haven, Conn. Weather-strip	596,091	Dec. 28	2178	516	81	2106

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Russell & Co. (See Heggem, Charles O., assignor.)						
Russell & Erwin Manufacturing Company. (See Voight, Henry G., assignor.)						
Russell, Frank H., *et al.* (See Luther, Sarah L., assignor.)						
Russell, Frank J., assignor of one-half to H. See, New York, N. Y. Controlling device for electric motors	595,344	Dec. 14	871	215	81	1809
Russell, Frank J., assignor of one-half to H. See, New York, N. Y. Electrical controlling mechanism	595,345	Dec. 14	877	215	81	1809
Russell, Isaac S. (See Russell, Percy, assignor.)						
Russell, James, assignor to Thomas Davidson Manufacturing Company, Limited, Montreal, Canada. Stovepipe-elbow-making machine	591,776	Oct. 12	1472	348, 349	81	315
Russell, James J. (See Barrett, Zephaniah A., assignor.)						
Russell, Percy, assignor of one-half to I. S. Russell, New Market, Md. Electric dental mallet	591,499	Oct. 12	1008	236	81	223
Russell, Samuel T., assignor to A. N. Russell & Sons, Ilion, N. Y. Box	591,059	Oct. 5	213	50	81	43
Russell & Sons, A. N. (See Russell, Samuel T., assignor.)						
Russell, Will C., *et al.* (See Luther, Sarah L., assignor.)						
Rust, Lucian, Dunkirk, N. Y. Lettering device	591,607	Oct. 12	1348	316	81	290
Rust, Robert S., Front Royal, assignor to T. B. Robertson, Delaplane, Va. Hog-nose cutter	594,809	Nov. 30	3723	867	81	1595
Ryan, George H., assignor to O. A. Miller, Brockton, Mass. Shoe-turning machine	594,810	Nov. 30	3725	868	81	1596
Ryan, John J., assignor to S. L. Ryan, Louisville, Ky. Churn	592,999	Nov. 2	440	104, 105	81	892
Ryan, Susan L. (See Ryan, John J., assignor.)						
Ryan, Thomas J., Buffalo, N. Y. Stop-cock box	591,884	Oct. 19	1645	398	81	372
Rydberg, Thorsten A. T., Stockholm, Sweden. Lock	593,426	Nov. 9	1290	297	81	1058
Ryder, Benjamin L., Chambersburg, Pa. Fruit-drier	592,256	Oct. 26	2315	546	81	520
Ryder, Nathaniel F., Middleborough, Mass. Apparatus for treating oils	592,512	Oct. 26	3087	690	81	708
Ryrie, Robert A., Camden, N. J. Pipe-wrench	594,563	Nov. 30	3253	764	81	1500
S. A. Woods Machine Company. (See Tillison, Hosea R., assignor.)						
Saacke; Gebrüder. (See Saacke, Paul, assignor.)						
Saacke, Paul, assignor to Gebrüder Saacke, Pforzheim, Germany. Reamer	595,346	Dec. 14	880	216	81	1810
Sabin, Belle C., Harvey, Ill. Kettle	593,127	Nov. 2	649	156	81	934
Safety Car Heating and Lighting Company. (See Lungren, Charles M., assignor.)						
Sager, Henry. (See Kachel and Sager.)						
Sager, Myron H., and J. M. Alvis, Los Angeles, Cal. Tire-tightener	593,693	Nov. 16	1713	413	81	1164
Sager, Otto, Rochester, N. Y. Hat-hanger	595,736	Dec. 21	1513	366	81	1954
Sague, James E. (See Pitkin and Sague.)						
Sahlin, Axel, Sparrow's Point, Md. Machine for breaking and loading pig-iron	594,707	Nov. 30	3535	823, 824	81	1557
Saladee, William H., and J. Cather, Bedford, Ind. Dancing toy	592,257	Oct. 26	2319	546	81	520
Salenius, Erik G. N., assignor to Aktiebolaget Radiator, Kraftriket, Albano, Sweden. Centrifugal cream-separator	593,082	Nov. 2	490	119	81	902
Salenius, Erik G. N., assignor to Aktiebolaget Radiator, Albano, Sweden. Centrifugal machine	596,338	Dec. 28	2591	617	81	2184
Sallee, Walter. (See Lapsley and Sallee.)						
Salmond, Colin, San Francisco, Cal. Freight-carrying vessel	596,218	Dec. 28	2386	565	81	2145
Salvá, John A., Brooklyn, N. Y. Permutation-lock	592,989	Nov. 2	328	76	81	872
Sammis, George A. (See Round, Sammis, and Kern.)						
Sampson, Frank L., Baldwinsville, N. Y., assignor to Wire Goods Company, Worcester, Mass. Trousers-stretcher	593,609	Nov. 16	1572	379	81	1138
Samuel, Edward, deceased; W. Selfridge, Philadelphia, Pa., executor. Railway-track structure	593,166	Nov. 2	753	180	81	955
Sanborn, Wallace L., Anthony, R. I. Music holder and turner	591,060	Oct. 5	215	50	81	43
Sandefur, Samuel H., *et al.* (See Curl, Marion L., assignor.)						
Sander, Gustave A. (See Black and Sander.)						
Sanders, Charles H. (See Miley, Frank S., assignor.)						
Sanders, Fred B., North Bend, Pa. Bicycle-alarm	596,127	Dec. 28	2241	531	81	2118
Sanders, Ira B., Fort Worth, Tex. Convertible package-carrying bicycle	592,886	Nov. 2	241	55	81	854
Sanders, John E., Indianapolis, Ind. Tune-sheet for mechanical musical instruments	593,165	Nov. 2	751	180	81	955
Sanders, William, Lowell, Mass. Apparatus for making ammonium carbonate	594,100	Nov. 23	2423	575, 576	81	1322
Sanders, William O., assignor of two-thirds to S. H. Walker and F. Chittenden, Omaha, Nebr. Plumb-level	592,833	Nov. 2	152	34	81	838
Sanderson, James G., Scranton, Pa. Furnace	592,616	Oct. 26	2268	676	81	737
Sanderson, James G., Scranton, Pa. Apparatus for producing gas	596,428	Dec. 28	2767	654	81	2220
Sanderson, Thomas H., New York, N. Y. Coupling for bicycles	596,383	Dec. 28	2688	637	81	2204
Sankey, Eben B., Salem, Mo. Monkey-wrench	592,666	Oct. 26	3302	700	81	758
Sankey, Eben B., Salem, Mo. Wrench	595,252	Dec. 7	740	181	81	1757
Sankey, Eben B., Salem, Mo. Coat and hat rack	595,253	Dec. 7	740	181	81	1757
Sargent, Edmund H. (See Pitcher and Sargent.)						
Sargent, William D., Chicago, Ill. Key for brake-shoes	593,242	Nov. 9	909	219	81	998
Sargent, Willis H., assignor to E. & T. Fairbanks & Company, St. Johnsbury, Vt. Printing-register for weighing-scales	595,583	Dec. 14	1271	305, 306	81	1888
Sassenhoff, Ernesto, New York, N. Y., assignor to Eclipse Nonrefilling Bottle Company, Newark, N. J. Non-refillable bottle	592,940	Nov. 2	331	76, 77	81	872
Saul, Warren A., and J. M. Zimmerman, Steelton, Pa. Fire-lighter	592,450	Oct. 26	2985	605	81	688
Saunders, Alfred, Brighton, England. Cheese-cutting apparatus	593,496	Nov. 9	1337	324, 325	81	1080
Saunders, David R., assignor of one-half to H. F. Smith, Houston, Tex. Bottle	595,499	Dec. 14	1143	276	81	1860
Saunders, John H., assignor of one-half to J. A. Hyle, Buffalo, N. Y. Smoke-consumer	593,860	Nov. 16	2035	478	81	1226
Saunders, Samuel L., Lynn, Mass. Shelf-rack for holding boots or shoes	592,975	Nov. 2	409	96	81	886
Saurer, John, Philadelphia, Pa. Umbrella	595,892	Dec. 21	1821	426	81	2015
Savage, George. (See Obuch, William, assignor.)						
Savage, George W., Norwalk, Ohio. Rail-fastening	595,650	Dec. 14	1385	334	81	1912
Savage, James S., Jr., and G. R. Taylor, Buffalo, N. Y. Hand-strap for cars	592,919	Nov. 2	298	67	81	863
Savage, William C. (See Halsey, Francis A., assignor.)						
Savage, William P., Germantown, Md. Heating-grate	593,311	Nov. 9	1026	248	81	1021
Sawyer Spindle Company. (See Carroll, Edgar J., assignor.)						
Sayen, Henry L., Philadelphia, Pa., assignor to Queen & Company, of Pennsylvania. Roentgen-ray tube	594,096	Nov. 23	2394	549	81	1301
Scaife, Charles C., *et al.* (See Shepard, Stephen A., assignor.)						
Scales, William S., Everett, Mass., assignor to E. Hudson, Hartford, Conn. Stereopticon	592,575	Oct. 26	3189	659	81	723
Scamman, Charles F., C. L. Farrar, Deering, and E. C. Farrar, Bath, Me. Machine for forming and coiling match-splints	592,741	Oct. 26	3496	735	81	788
Scanlan, Joseph P. (See Schweikart, Charles B., assignor.)						
Scanlin, Edward. (See Parker, Scanlin, Skevington, and Whitehead.)						
Scattergood, Henry W., Philadelphia, Pa. Mucilage-pot	592,959	Nov. 2	378	87	81	881

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sceets, George N. (See Chase, Rodney G., assignor.)						
Schaal, John W., Logan, Ohio. Fence-wire stretcher	594,708	Nov. 30	3539	694	81	1558
Schabadt, Abraham, Minsk, Russia. Calculating-machine	595,347	Dec. 14	860	216	81	1610
Schaeffer, Henri N. E., Manchester, N. H. Dyeing mixed goods	592,029	Oct. 19	1905	------	81	421
Schaellibaum, Robert, Lowell, Mass. Dinner-pail	594,564	Nov. 30	3254	764	81	1500
Schafer, Catharina, executrix. (See Schafer, Konrad H.)						
Schafer, Henry, Utica, N. Y. Bicycle-propelling mechanism	595,460	Dec. 14	1077	259	81	1848
Schafer, Konrad H., deceased; C. Schafer, Philadelphia, Pa., executrix. Apparatus for cutting wood splints	593,610	Nov. 16	1572	380, 381	81	1139
Schaffer, Martin R., Slatington, Pa. Bottle	594,565	Nov. 30	3255	764	81	1500
Schaffer, Morse B., St. Louis, Mo. Car-truck	592,258	Oct. 26	2320	547	81	521
Schaller, Michael, *et al.* (See Farmer, John R., assignor.)						
Schanck, Henry I., Holmdel, N. J. Bicycle crank mechanism	592,174	Oct. 19	2175	513, 514	81	472
Schandein, Harry, and M. P. Lind, Philadelphia, Pa. Rack for bottles and graduates	593,312	Nov. 9	1028	248	81	1021
Scheben, Franz, Hennef, Germany. Device for preventing slipping of belts	591,500	Oct. 12	1010	236	81	223
Scheeffer, Gustave A., Peoria, Ill. Electric meter	591,641	Oct. 12	1260	295	81	272
Scheel, Waldemar, Schleusendorf, Germany. Car-coupling	596,128	Dec. 28	2241	532	81	2118
Schenck, Henry, Pittsburg, Pa. Car-brake	596,339	Dec. 28	2592	617	81	2185
Scheuer, William, New York, N. Y. Fastener-setting apparatus	595,972	Dec. 21	1956	468	81	2043
Schiffer, Alfred, *et al.* (See Parsons, Francis F., assignor.)						
Schiffer, Herman, *et al.* (See Parsons, Francis F., assignor.)	591,610	Oct. 12	1206	283	81	261
Schillig, Jacob, Dysart, Iowa. Trace-carrier						
Schilling, George W., *et al.* (See Mitchell, Herbert L., assignor.)						
Schimper & Co., William. (See Oldenbusch, Ernest, assignor.)						
Schindler, George. (See Pruckner and Schindler.)	594,906	Dec. 7	113	29	81	1643
Schindler, Robert, Independence, Colo. Automatic fish-hook	595,737	Dec. 21	1514	366	81	1954
Schlangen, Simon, Chicago, Ill. Bung						
Schlegel Patent Beveling Machine Company. (See Schlegel, Robert A., assignor.)						
Schlegel, Robert A., St. Louis, Mo., assignor to Schlegel Patent Beveling Machine Company, of Missouri. Machine for beveling glass	591,936	Oct. 19	1753	419, 420	81	393
Schlegelmilch, Fredrick H., assignor of one-half to T. Long, Cleveland, Ohio. Bucket-dumping device for hoisting and conveying machines	593,816	Nov. 16	1939	461	81	1306
Schlemmer, Oliver, Cincinnati, Ohio. Water-heater	595,348	Dec. 14	883	216	81	1810
Schlicht, Paul J., Summit, N. J. Apparatus for ventilating	592,211	Oct. 19	2226	527	81	482
Schlick, Ernst O., Hamburg, Germany, assignor to Yarrow Schlick & Tweedy System, Limited, London, England. Steam or like motive-power engine	594,288	Nov. 23	2724	645	81	1380
Schlick, Ernst O., Hamburg, Germany, assignor to Yarrow Schlick & Tweedy System, Limited, London, England. Balancing of steam or like motive-power engines	594,289	Nov. 23	2730	646, 647	81	1380
Schlickeysen, Carl, Berlin, Germany. Chain-bucket elevator	591,085	Oct. 5	255	60, 61	81	51
Schlossmann, Paul, Philadelphia, Pa. Apparatus for finishing knit fabrics	595,803	Dec. 21	1826	436	81	2016
Schmid, John E. (See Henning and Schmid.)						
Schmidt, Adolf, Cassel, Germany. Purification of crude acetic acid	595,787	Dec. 21	1612	389	81	1973
Schmidt, August E., Leipsic, Germany. Roller-shutter	591,885	Oct. 19	1648	393	81	362
Schmidt, George B., New York, N. Y. Cigar or cigarette holder	595,114	Dec. 7	499	119	81	1712
Schmidt, Hermann, Brooklyn, N. Y. Nut-lock	594,432	Nov. 30	3007	707	81	1452
Schmidt, John C. F. A. (See Ernst, Albert H. W., assignor.)						
Schmidt, Max, Brooklyn, N. Y. Fire-escape	595,973	Dec. 21	1959	468	81	2043
Schmidt, Otto M., *et al.* (See Farmer, John R., assignor.)						
Schmidt, Robert E., assignor to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Anthrarufin dye	595,349	Dec. 14	884	------	81	1810
Schmidt, Robert E., assignor to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Blue dye from chrysazin	595,350	Dec. 14	886	------	81	1811
Schmidt, Rudolf. (See Fromm and Schmidt.)						
Schmit, Mick E. (See Schmit, Peter and M. E.)	592,023	Oct. 19	1907	453	81	421
Schmit, Peter and M. E., Fredonia, Wis. Engine	594,969	Dec. 7	209	51	81	1660
Schmitt, Frank, Carlyle, Ill. Fence-wire machine						
Schmitt, Frederick E., assignor to Milwaukee Sander Manufacturing Company, Green Bay, Wis. Cylinder adjustment for sanders	595,445	Dec. 14	1052	252	81	1842
Schmitt, Frederick E., assignor to Milwaukee Sander Manufacturing Company, Green Bay, Wis. Roller-frame adjustment for sanders	596,232	Dec. 28	2406	569	81	2150
Schmitz, John P., San Francisco, Cal. Amalgamator	591,119	Oct. 5	316	78	81	62
Schneider, Arnold, San Diego, Cal. Stamp-wallet	596,219	Dec. 28	2367	563	81	2146
Schneider, Emanuel L., Ann Arbor, Mich. Water-heater	595,211	Dec. 7	655	157	81	1741
Schneider, George J., Detroit, Mich. Rheostat	593,817	Nov. 16	1940	461	81	1306
Schneider, Herman B., assignor of one-half to H. C. Krause, Chicago, Ill. Tabulating attachment for type-writing machines	591,789	Oct. 12	1492	354	81	320
Schneider, Paul, H. Trenkamp, and B. A. Geurink, assignors to Schneider & Trenkamp Company, Cleveland, Ohio. Hydrocarbon-burner	593,243	Nov. 9	911	220	81	908
Schneider & Trenkamp Company. (See Schneider, Trenkamp, and Geurink, assignors.)						
Schnorenberg, Simeon, *et al.* (See Linton, August W., assignor.)	594,759	Nov. 30	3027	849	81	1575
Schnurr, Bernhard, Huntsville, Ala. Trunk-lock						
Schobel, Robert. (See Schwarz, Samuel, assignor.)	594,834	Nov. 30	3762	877	81	1602
Schoenberg, William H., assignor to J. J. Morio, Philadelphia, Pa. Watch case or holder						
Schoeneberger, George L. (See Johnson, Charles J., assignor.)	596,184	Dec. 28	2331	553	81	2135
Schoeneweiss, Albrecht, Iserlohn, Germany. Needle-grinding machine	591,427	Oct. 12	882	206	81	200
Schoenmehl, Charles B., Waterbury, Conn. Galvanic battery	594,907	Dec. 7	113	29	81	1643
Schofield, Frank B., West, and J. L. Schofield, Taylor, Tex. Clothes-pounder						
Schofield, Joseph L. (See Schofield, Frank B. and J. L.)	593,550	Nov. 9	1444	351	81	1097
Scholfield, Joseph J., Providence, R. I. Cloth-guiding machine						
Schonborn, Arthur V., Denver, assignor of one-half to W. R. Wilcox, Steamboat Springs, Colo. Means for mending inner tubes of bicycle-tires	591,501	Oct. 12	1011	236	81	224
Schönlank, Carl, Hamburg, Germany. Bicycle-alarm	593,336	Nov. 9	1067	258	81	1028
Schorp, Joseph J., and G. Siglinger, St. Louis, Mo. Pneumatic harness-saddle	591,659	Oct. 12	1292	308	81	278
Schrader, George H. F., New York, N. Y. Tire-valve	591,012	Oct. 5	117	26	81	25
Schrader, George H. F., New York, N. Y. Valve proper for tire or other valves	591,886	Oct. 19	1648	394	81	373
Schrader, Henry C., Stauffer, Pa. Engraving-machine	592,920	Nov. 2	289	67	81	863
Schrader, Henry C., Stauffer, Pa. Glass-grinding machine	595,974	Dec. 21	1960	468, 469	81	2044
Schrecker, Solomon, Gloversville, assignor to L. Meyers & Son, New York, N. Y. Glove	595,925	Dec. 21	1881	449	81	2028
Schreiber, Wilmert B., Floyd's Knobs, assignor of one-half to A. and A. F. Sperzel, Galena, Ind. Steering device for motor-vehicles	595,254	Dec. 7	743	182	81	1758
Schreidt, Frank, Mansfield, Ohio. Safety-valve	591,013	Oct. 5	119	27	81	25
Schreidt, Frank, Mansfield, Ohio. Safety-valve	591,014	Oct. 5	121	27	81	25
Schreidt, Frank, Mansfield, Ohio. Safety-valve	591,015	Oct. 5	122	27	81	25
Schreurs, François, Brussels, Belgium. Apparatus for printing and dyeing fabrics	592,834	Nov. 2	155	35	81	833

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Schriver & Co., O. P. (See Linton, William H., assignor.)						
Schroeder, Emma L., La Porte, Ind. Thread or silk holder	592,451	Oct. 26	2986	605	81	683
Schroeder, Frederick W., Newtown, New South Wales. Fastening for railway-rails	595,212	Dec. 7	656	157	81	1741
Schroeder, Frederick W., Newtown, assignor to Schroeder's Spectacle Spoke Wheel Company, Limited, Sydney, New South Wales. Wheel for vehicles	593,128	Nov. 2	651	156	81	934
Schroeder, Julius, Göding, Austria-Hungary. Centrifugal machine	593,423	Nov. 9	1209	293	81	1054
Schroeder's Spectacle Spoke Wheel Company. (See Schroeder, Frederick W., assignor.)						
Schuch, Joseph. (See Klossner and Schuch.)						
Schulte, Joseph, Jr., assignor of one-half to T. J. Field, Monterey, Cal. Clock	594,654	Nov. 30	3454	803	81	1540
Schultz, Clarence B., Charlottenburg, Germany. Clutch	593,313	Nov. 9	1029	248	81	1021
Schumacher, Peter A., Reynolds, N. D. End bearing for shafts	591,502	Oct. 12	1012	236	81	224
Schumacher, William, Boston, Mass. Diaphanous picture	594,655	Nov. 30	3456	804	81	1541
Schuman, James B., Columbia, Ind. Pneumatic straw-stacker	594,124	Nov. 23	2461	582	81	1329
Schumm, John. (See Koehler, Adolph, assignor.)						
Schuster, Charles E., Allegheny, and W. Schuster, Pittsburg, Pa. Automatic gas shut-off	592,597	Oct. 26	3229	669	81	731
Schuster, William. (See Schuster, Charles E. and W.)						
Schutt, Duny A., assignor to Peru Electric Manufacturing Company, Peru, Ind. Fuse-plug	594,908	Dec. 7	114	29	81	1643
Schutt, Duny A., assignor to Peru Electric Manufacturing Company, Peru, Ind. Multiple-circuit block	595,078	Dec. 7	422	101	81	1698
Schutt, Duny A., assignor to Peru Electric Manufacturing Company, Peru, Ind. Incandescent-lamp socket	595,584	Dec. 14	1274	306	81	1888
Schutt, Duny A., assignor to Peru Electric Manufacturing Company, Peru, Ind. Fuse-block	595,585	Dec. 14	1275	306	81	1888
Schütz, Conrad. (See Hugg and Schütz.)						
Schutz, John, assignor to J. Schutz, T. Haebler, and P. Leid, New York, N. Y. Bottle-washer	593,437	Nov. 9	1231	297	81	1059
Schwabe, Martin C., Chicago, Ill. Garment-hanging loop	596,461	Dec. 28	2833	668	81	2234
Schwalm, Charles L., New Britain, Conn. Clothes-line support	592,099	Oct. 19	2051	484	81	448
Schwarm, Charles A., assignor of one-half to G. Trautman, Pittsburg, Pa. Muffler for gas-engines	593,970	Nov. 16	2219	526	81	1265
Schwartz, Jacob, Portland, Oreg. Potato-digger	591,642	Oct. 12	1263	295, 296	81	272
Schwartz, Robert, *et al.* (See Altman, David, assignor.)						
Schwarz, Jacob, New York, N. Y. Buttonhole-sewing machine	594,290	Nov. 23	2734	647, 648, 649	81	1381
Schwarz, Oscar, Munich, Germany. Bicycle-lantern	593,281	Nov. 9	968	234	81	1009
Schwarz, Samuel, assignor to R. Schobel, New York, N. Y. Disinfecting device	596,748	Oct. 26	3510	737	81	785
Schwedtmann, Ferdinand, St. Louis, Mo. Electric switch	594,656	Nov. 30	3457	804	81	1541
Schwedtmann, Ferdinand, St. Louis, Mo. Laminated converter-core	594,657	Nov. 30	3458	804	81	1541
Schwegel, William. (See Gulline, Schwegel, and Connolly.)						
Schweikart, Charles B., assignor of one-third to J. P. Scanlan, Chicago, Ill. Repeating action for pianos	591,887	Oct. 19	1650	394	81	373
Schweinfurth, John G., Birmingham, Ala. Device for cleaning slates	591,508	Oct. 12	1013	237	81	224
Scobee, John M., and E. S. Bush, Shelbyville, Ky. Planter	594,037	Nov. 23	2326	549, 550	81	1302
Sconfietti, Leopoldo, Legnano, Italy. Shuttle-guard for looms	594,038	Nov. 23	2333	550, 551	81	1304
Scott, Charles F., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. System of electrical distribution	593,244	Nov. 9	913	220	81	908
Scott, Clarence N., assignor to Snow Steam Pump Works of Buffalo, Buffalo, N. Y. Pumping-engine	592,513	Oct. 26	3069	630, 631	81	703
Scott, Gerard C., Lima, Ohio. Sled-boat	594,658	Nov. 30	3459	804	81	1541
Scott, James W., *et al.* (See Thompson and Stewart, assignors.)						
Scott, John H. (See Freeman, Albert A., assignor.)						
Scott, Walter, Plainfield, N. J. Printing and folding machine	592,887	Nov. 2	242	55	81	854
Scott, Walter, Plainfield, N. J. Printing-machine	594,566	Nov. 30	3257	765	81	1501
Scott, Walter, Plainfield, N. J. Printing-machine	594,909	Dec. 7	115	30	81	1643
Scott, William. (See Booth and Scott.)						
Scott, William, Medford, Mass. Flushing device	591,016	Oct. 5	124	27, 28	81	26
Scott, William M., Philadelphia, Pa., assignor to Cutter Electrical and Manufacturing Company, of New Jersey. Automatic magnetic circuit-breaker	592,100	Oct. 19	2053	485	81	449
Scott, William M., Philadelphia, Pa., assignor to Cutter Electrical and Manufacturing Company, of New Jersey. Contact in shunt for circuit-breakers	592,497	Oct. 26	3001	622, 623	81	698
Scovill Manufacturing Company. (See Goss, John H., assignor.)						
Scovill Manufacturing Company. (See Ingram, Nathan D., assignor.)						
Scovill Manufacturing Company. (See Lines, John, assignor.)						
Scovill Manufacturing Company. (See Morris, Marion A., assignor.)						
Scovill Manufacturing Company. (See Pullman, Herbert S., assignor.)						
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Pilot-lamp for telephone-switchboards	592,452	Oct. 26	2987	605	81	683
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Apparatus for party telephone-lines	593,245	Nov. 9	914	220	81	908
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Multiple-switchboard system for telephone-exchanges	593,611	Nov. 16	1577	381	81	1139
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Toll-counter for telephone-lines	593,612	Nov. 16	1580	381	81	1140
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Polarized signal-bell	593,613	Nov. 16	1585	382	81	1141
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Telephone system	593,614	Nov. 16	1586	382	81	1141
Scriven, Jeremiah A., New York, N. Y. Drawers	594,910	Dec. 7	121	31	81	1644
Scudder, Wilbur S., Brooklyn, N. Y., assignor to Monoline Composing Company, Washington, D. C. Method of and means for making matrix-bars for line-casting machines	595,079	Dec. 7	423	102	81	1698
Scurr, Thomas, Jr. (See Gorton, William H., assignor.)						
Seabrook, Bagster R., Victoria, and J. R. Brown, Harrison Hot Springs, Canada. Rock-crusher	593,861	Nov. 16	2036	478, 479	81	1227
Seaman, Benjamin S., Canton, Ohio. Bicycle-saddle	591,145	Oct. 5	365	86	81	71
Seaman, Benjamin S., Canton, Ohio. Bicycle-saddle frame and holder	591,573	Oct. 12	1147	270	81	249
Seaman, Henry B., St. Louis, Mo., assignor to Calvert Lithographing, Engraving and Map Publishing Company, Detroit, Mich. Postal balance	594,911	Dec. 7	122	31	81	1644
Search, Casper F., Oak Park, Ill., assignor to Search Manufacturing Company, Sheboygan Falls, Wis. Tread-power	591,660	Oct. 12	1293	303, 304	81	279

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Search Manufacturing Company. (See Search, Casper F., assignor.)						
Searle, Herman S., *et al.* (See Noechel, Frank J., assignor.)						
Searles, John E. (See Braun, William F., assignor.)						
Sears, Charles, Cleveland, Ohio. Machine for making type-bars	591,777	Oct. 12	1478	349, 350	81	817
Sears, Charles. Cleveland, Ohio. Type-bar-casting machine	596,340	Dec. 28	2598	617, 618	81	2185
Sears, John H., Springport, Ind. Fence	593,862	Nov. 16	2039	479	81	1227
Seaver, Augustus. (See Hamm, William S., assignor.)						
Seaver, Augustus, Boston, Mass. Machine for stretching boot or shoe uppers	596,308	Dec. 28	2597	605	81	2174
Seaver, Frederic A., Hartford, Conn. Trolley pole and stand	593,424	Nov. 9	1210	292	81	1054
Seaver, John W. (See Wellman, Seaver, and Wellman.)						
Seaver Process Lasting Company. (See Eaton, Arthur W., assignor.)						
Seay, Alfred B., Leslie, Iowa. Woven-wire slipper	591,888	Oct. 19	1662	394	81	373
See, Horace. (See Russell, Frank J., assignor.)						
See, Horace, New York, N. Y. Steam-boiler	595,092	Dec. 28	2179	516	81	2106
Seelye, Seymour K., assignor of one-third to Poole & Brown, Chicago, Ill. Change-speed gearing	594,567	Nov. 30	3260	766	81	1501
Seibel, Richard M., and D. C. McCarroll, Kansas City, Mo. Bottle	594,970	Dec. 7	210	52	81	1660
Seifried, Isaac G., Findlay, Ohio. Vertical bolting-machine	594,760	Nov. 30	3628	844, 845	81	1575
Seitz, Nathaniel Z., Washington, D. C. Carbureter	595,658	Dec. 14	1387	334	81	1913
Self-Sealing Bicycle Tire Company. (See Shaw, Al B., assignor.)						
Selfridge, William, executor. (See Samuel, Edward.)						
Selie Gear Company. (See Parsons, William C., assignor.)						
Sellers, William F., Gallitzin, Pa. Wrench	595,586	Dec. 14	1276	306	81	1889
Selowsky, Gustave, New York, N. Y. Necktie-fastener	593,438	Nov. 9	1234	297	81	1059
Selwyn, William M. S., Philadelphia, Pa. Lock	592,885	Nov. 2	157	35, 36	81	838
Sénéchal, Jules E. (See Vincent, Eugene, assignor.)						
Sentinel Electric Company. (See Spruance and Waddell, assignors.)						
Sergeson, James C., Philadelphia, Pa. Loom-shuttle	595,416	Dec. 14	1005	242	81	1833
Serpollet, Leon, Paris, France, assignor to La Société des Générateurs à Vaporisation Instantanée, (Systéme Leon Serpollet,) of France. Tube for steam-generators	591,998	Oct. 5	646	152	81	128
Serve, Jean P., Paris, France. Means for preventing shocks in pumps	594,089	Nov. 23	2334	551	81	1304
Sessions, J. H. (See Patton, Robert B., assignor.)						
Seth Thomas Clock Company. (See Higginbotham, Charles T., assignor.)						
Settle, De Forest. (See Bertram, August, assignor.)						
Sewell, Delos, Hillsdale, Mich. Shaking-bolt	592,617	Oct. 26	2265	676	81	738
Sexton, Andrew J., Jonesborough, Tenn. Clothes-pin	591,196	Oct. 5	464	110	81	88
Sexton, James A. (See Spence, George M., assignor.)						
Seybert, Harvey F., Queenstown, Pa. Drill-jar	592,024	Oct. 19	1908	453	81	421
Seyberth, Hermann, and M. von Gallois, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Producing diazonaphthalene on fiber	595,894	Dec. 21	1827	.....	81	2016
Seybold, Charles, assignor to Seybold Machine Company, Dayton, Ohio. Paper-trimming machine	594,490	Nov. 30	3116	730, 731	81	1473
Seybold Machine Company. (See Seybold, Charles, assignor.)						
Seymour, Charles E., New Haven, Conn. Handle-bar clamp for bicycles	596,341	Dec. 28	2597	618	81	2186
Shaffer, Charles A., Indianapolis, Ind. Display-table	591,504	Oct. 12	1014	237	81	224
Shaffner, John M. (See Miller and Shaffner.)						
Shaiffer, Harry D., Philadelphia, Pa. Nailless horseshoe	596,248	Dec. 28	2480	574	81	2155
Shaiffer, Harry D., assignor of one-sixth to H. B. Hanford, Philadelphia, Pa. Nailless horseshoe	591,373	Oct. 5	789	184	81	150
Shailer, George W., assignor of one-half to W. E. Hall and W. E. Woods, Wellington, New Zealand. Non-refillable bottle and stopper	595,008	Dec. 7	281	67	81	1673
Shakespeare, William, Jr., Kalamazoo, Mich. Fish-line reel	591,086	Oct. 5	257	61	81	51
Shallenberger, Jesse Y., Strasburg, Ill. Fire alarm and extinguishing mechanism	592,921	Nov. 2	292	67, 68	81	864
Shallenberger, Oliver B., Rochester, Pa. Phase-adjusting method and means for alternating-current apparatus	591,240	Oct. 5	548	130	81	104
Shallenberger, Oliver B., Rochester, Pa. Electrical measuring instrument	591,241	Oct. 5	550	130	81	105
Shallenberger, Oliver B., Rochester, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Alternating-current electric motor	591,242	Oct. 5	552	130	81	105
Sharp, Abraham, *et al.* (See Gray, James D., assignor.)						
Sharp, Leopold B., Chicago, Ill. Leg band or guard	591,889	Oct. 19	1653	393	81	373
Sharpe, Thomas F., Wolfe City, Tex. Wire-stretcher	591,263	Oct. 5	594	139	81	113
Sharpneck, Eliel L., and G. F. Knox, Chicago, Ill. Fluid-pressure regulator	592,212	Oct. 19	2228	527	81	482
Shattuck, Edwin L., Brooklyn, assignor to R. Hoe, T. H. Mead, and C. W. Carpenter, New York, N. Y. Fly-frame for printing-machines	594,659	Nov. 30	3462	805	81	1542
Shaut, Charles M. (See Langan, David H., assignor.)						
Shaw, Al B., Medford, Mass., assignor to Self-Sealing Bicycle Tire Company, Portland, Me. Pneumatic tire	593,544	Nov. 9	1434	349	81	1096
Shaw, Campbell B., Kirkwood, Mo. Automatic sprinkler for fire-extinguishers	594,977	Dec. 7	212	52	81	1661
Shaw, Clifford. (See Young and Shaw.)						
Shaw, Walter, Boston, Mass., assignor to Continental Lasting Machine Company, of Maine. Fastening-driving mechanism	591,790	Oct. 12	1495	354	81	330
Shaw, Walter, Boston, Mass., assignor to Continental Lasting Machine Company, of Maine. Fastening-driving machine	594,811	Nov. 30	3727	868	81	1596
Shaw, William G., and R. P. Redmond, Buffalo, N. Y., assignors to W. H. Comstock, Brockville, Canada. Whip-socket	595,500	Dec. 14	1145	276	81	1860
Shearer, George B., Oneonta, N. Y. Harp	593,818	Nov. 16	1942	461	81	1207
Shedd, Orlando B., Dolgeville, N. Y. Boat-oar	594,761	Nov. 30	3630	845	81	1576
Shedlock, Alfred, Jersey City, N. J. Clasp	594,568	Nov. 30	3263	766	81	1502
Shedlock, Alfred, Jersey City, N. J. Clasp	594,569	Nov. 30	3266	766	81	1503
Shedlock, Alfred, Jersey City, N. J. Clasp	594,912	Dec. 7	123	31	81	1644
Sheehan, Michael, and W. H. Lain, Slater, Mo. Car-axle box	592,175	Oct. 19	2180	514	81	472
Sheely, Howard H., Hutchinson, Kans. Churn-dasher	593,615	Nov. 16	1598	382	81	1142
Sheer, Henry M., and S. C. Pitney, Quincy, Ill. Box-fastener						
Sheets, William M., assignor of one-half to M. Walz, Defiance, Ohio. Knotter for harvesters	592,514	Oct. 26	3090	631	81	708
Sheldon, Mark A., Detroit, Mich. Bicycle-stand	594,433	Nov. 30	3008	707	81	1452
Sheldon, William F., Lyndonville, N. Y. Fence	591,428	Oct. 12	883	206	81	200
Shenk, Michael H. (See Brewer and Shenk.)						
Shepard & Co., Sidney. (See Ferber, Anthony, assignor.)						
Shepard, John G., Windsor, Conn. Seam-ripping device	594,660	Nov. 30	3463	805	81	1542
Shepard, Stephen A., assignor of three-fifths to C. C. Scalfe and W. E. Taylor, Allegheny, Pa. Machine for making cigar-bunches	591,361	Oct. 5	764	179, 180	81	146
Shepard, Wilbur L., and E. W. Whitlock, Elmwood, Conn. Water heater and purifier	591,505	Oct. 12	1015	227	81	224
Shepherd, Charles H., New York, N. Y. Lock for flushing-valves	594,709	Nov. 30	3540	824	81	1559

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sheridan, Philip L., assignor to Stowell Manufacturing and Foundry Company, Milwaukee, Wis. Door-hanger	595,550	Dec. 14	1222	294	81	1877
Sheriffs, George D., and C. J. Travers, Milwaukee, Wis. Revolving chair	593,059	Nov. 2	584	126	81	911
Sherman, Elisha, Leavenworth, Kans. Trap-target	595,788	Dec. 21	1516	366	81	1955
Sherman, George W., Lynbrook, N. Y. Sonnette	596,249	Dec. 28	2483	575	81	2155
Sherman, James M., Columbia, Mo. Water-nozzle	591,120	Oct. 5	318	76	81	62
Sherman, Lewis P., Biddeford, assignor to G. Moore, Berwick, Me. Machine for drawing in warp-threads	592,667	Oct. 26	3303	700, 701, 702	81	758
Sherman, Samuel, Easton, Md. Carving-dish attachment	591,243	Oct. 5	555	131	81	106
Sherwood, Dalton E., Hoadley's, Pa. Shade-roller bracket	594,762	Nov. 30	3631	845	81	1576
Sherwood, Earl, Brooklyn, N. Y. Car-fender	594,434	Nov. 30	3009	707, 708	81	1452
Shevlin, George F. (See Baker, Shevlin, and Baker.)						
Shewring, Frederick J., Toronto, Canada. Trolley connection for canal-boats	594,913	Dec. 7	125	31	81	1645
Shickle, Harrison & Howard Iron Company. (See Gallagher, Thomas M., assignor.)						
Shields, James W. (See Campbell and Shields.)						
Shields, Robert, *et al.* (See Walker, Robert H., assignor.)						
Shiels, Alexander, Glasgow, Scotland. Vacuum or suction pump	592,888	Nov. 2	246	56	81	855
Shillito, Stewart, Cincinnati, Ohio. Display apparatus for carpets, &c	593,033	Nov. 2	491	119, 120	81	902
Shimer, Samuel J., Milton, Pa. Cutter-head	593,489	Nov. 9	1234	297, 298	81	1059
Shipman, Madison D. (See Reynolds and Shipman.)						
Shiring, Joseph L., Allegheny, Pa. Water-filter	594,162	Nov. 23	2555	605	81	1346
Shirley, Elmer J., El Modena, Cal. Baling-press	593,383	Nov. 9	1135	274, 275	81	1040
Sholl, George M. (See White, William F., assignor.)						
Shonnard, Harold W., assignor to J. Jones & Son, New York, N. Y. Distribution-board for electric currents	592,889	Nov. 2	248	56	81	855
Shonnard, Harold W., and G. H. Davis, assignors to Aeolian Company, New York, N. Y. Machine for perforating paper	593,694	Nov. 16	1715	414	81	1164
Shorb, William A., Decatur, Ill. Pipe-reamer	594,914	Dec. 7	127	32	81	1645
Short, John, London, England. Surveying instrument	593,784	Nov. 16	1882	450	81	1196
Short, Sidney H., Cleveland, Ohio. Electric equipment for vehicles	592,259	Oct. 26	2321	547	81	521
Short, Sidney H., Cleveland, Ohio. Apparatus for assembling commutator-bars	593,282	Nov. 9	969	235	81	1009
Short, Sidney H., Cleveland, Ohio. Construction of end rings for commutators	593,283	Nov. 9	971	235	81	1009
Short, Sidney H., Cleveland, Ohio. Combined gas and electric generator plant	594,495	Nov. 30	3013	708	81	1453
Short, Sidney H., Cleveland, Ohio. Electric brake	594,498	Nov. 30	3122	732	81	1475
Short, Sidney H., Cleveland, Ohio. Trolley-arm for electric railways	595,080	Dec. 7	426	102	81	1699
Short, Sidney H., Cleveland, Ohio. Armature for dynamo-electric machines	595,081	Dec. 7	427	102	81	1699
Short, Sidney H., Cleveland, Ohio. Trolley-stand	595,650	Dec. 14	1391	335	81	1913
Short, Sidney H., Cleveland, Ohio. Foundation for generator-frames	596,290	Dec. 28	2484	590	81	2163
Short, William A., assignor of one-half to B. L. Russell, Baird, Tex. Wire-tightener	595,213	Dec. 7	657	158	81	1742
Shown, Silas, Glenville, Ky. Wire fence	596,384	Dec. 28	2089	487	81	2204
Shryock, George K., Johnstown, Pa. Trolley	591,698	Oct. 12	1352	317	81	291
Shryock, Leonard D., Marietta, Ohio. Wrench for oil-well tools	595,975	Dec. 21	1903	469	81	2044
Shultes, Isaac, Martin, Mich. Electric-conductor-wire connector	592,025	Oct. 19	1908	454	81	421
Shultes, Isaac, Martin, Mich. Non-refillable bottle	593,129	Nov. 2	652	157	81	985
Shuman, Frank, Philadelphia, Pa. Treating metal structures	593,440	Nov. 9	1236	.....	81	1059
Shupe, George D. (See Fisher, Bevly A., assignor.)						
Shuttleworth, Alpheus C., assignor to H. M. Quinn, P. R. Wells, H. A. Engle, and W. H. Holden, Philadelphia, Pa. Electromagnetic braiding-machine	591,105	Oct. 5	292	71, 72	81	57
Sidwell, Aaron M., Jr., assignor of one-half to S. E. Miller and R. C. Burk, Henderson, Tex. Automatic blast-generator	591,699	Oct. 12	1354	317	81	291
Siegel, William, Stade, Germany. Frame for pianos	594,570	Nov. 30	3268	766	81	1503
Siemens & Halske Electric Company of America. (See Drohan, Thomas E., assignor.)						
Sigaudy, Pierre. (See Normand and Sigaudy.)						
Siglinger, George. (See Schorp and Siglinger.)						
Silver, Emmor W. (See Haldeman and Silver.)						
Silver Manufacturing Company. (See Haldeman and Silver, assignors.)						
Silverman, Marcell, assignor of one-half to L. Bloecker, New York, N. Y. Christmas-tree holder	594,491	Nov. 30	3120	731	81	1474
Simmance, John F., assignor to Wright's Gas Meter Syndicate, Limited, London, England. Coin-freed-meter apparatus	592,668	Oct. 26	3369	702	81	759
Simmonds, Henry, Colne, and J. Delaney, Horton, England. Kiln or furnace for burning lime	593,946	Nov. 9	917	221	81	999
Simms, Edward W., assignor of one-half to W. D. Davis, Fort Assinniboine, Mont. Track-cleaner	594,571	Nov. 30	3269	767	81	1503
Simon, William F., West Hoboken, N. J. Figure toy	596,395	Dec. 28	2691	637	81	2205
Simons, James W., Port Chester, N. Y. Sewing-machine attachment	594,391	Nov. 23	2744	649	81	1383
Simonson, William W., assignor to C. C. Macbrair & Co., Cincinnati, Ohio. Joining edges of previously-waxed fabrics	591,299	Oct. 5	647	.....	81	128
Simplex Railway Appliance Company. (See Bauer, Carl E., assignor.)						
Simpson, Allanson S., Folsom, N. Mex. Ter. Pump for pneumatic tires	594,992	Nov. 23	2746	649	81	1384
Simpson, Amos R. (See Green, James A., assignor.)						
Simpson, Denton, Centre, Ind. Corn-planter	591,937	Oct. 19	1758	420, 421	81	394
Simpson, McDuff, Bryan, Tex. Flower-pot	592,066	Oct. 19	1990	470	81	487
Simpson, Orville, Cincinnati, Ohio. Grinding-mill	594,101	Nov. 23	2424	576	81	1323
Simpson, Roy B., assignor of one-half to W. E. Kaye, Fort Worth, Tex. Mandolin	594,496	Nov. 30	3015	708	81	1453
Simpson, Thomas H., Detroit, Mich. Car-coupling	595,351	Dec. 14	887	217	81	1911
Simpson, William E., Mansfield, England. Gas-operated ordnance	594,710	Nov. 30	3541	825	81	1559
Simpson, William S., Grinnell, Iowa. Spring bed-bottom	594,915	Dec. 7	128	32	81	1645
Sine, Alpheus C., Stanford, Ky. Cash-receptacle	594,208	Nov. 23	2747	649, 650	81	1384
Singer, Jacob, *et al.* (See Roux, Harry L., assignor.)						
Sintz, Clark, Grand Rapids, Mich. Gas-engine	592,669	Oct. 26	3370	703	81	759
Sipman, Carl, Nottingham, England. Support for bicycles	592,260	Oct. 26	2323	547	81	521
Sisson, Jacob D., assignor of one-half to I. L. Currier, Worcester, Mass. Insertible joint for iron pipes	591,362	Oct. 5	767	180	81	147
Sisum, William H. H., deceased, Belleville, N. J.; J. Wilkinson, administrator. Machine for making wire cords and cables	592,453	Oct. 26	2989	605, 606	81	683
Skele, Christian A., St. Hilaire, Minn. Snap-hook	591,429	Oct. 12	884	206	81	200
Skelton, Francis A., Newton, Mass., assignor to Gamewell Fire-Alarm Telegraph Company, of New York. Fire-telegraph repeater	596,250	Dec. 28	2434	575, 576	81	2156

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Skevington, Henry H. (See Parker, Scanlin, Skevington, and Whitehead.)						
Skiles, Robert M., Atlantic, Iowa, and C. Lederer, New York, N. Y. Ball-bearing for scales	594,492	Nov. 30	3120	732	81	1474
Skillen, Francis J., assignor to G. W. Capen, Reading, Mass. Hair-ribbon retainer	595,926	Dec. 21	1882	449	81	2028
Skinner, Courtland, Baraboo, Wis. Crushing-machine	591,890	Oct. 19	1653	395	81	373
Skinner, Courtland and F. B., Chicago, Ill. Crushing-machine	591,891	Oct. 19	1655	395 396	81	374
Skinner Ernest M., Boston, Mass. Pipe-organ	595,660	Dec. 14	1392	335 336	81	1913
Skinner, Fannie B. (See Skinner, Courtland and F. B.)						
Skinner, George, Cambridge, Mass. Awning-frame	593,720	Nov. 16	1778	428	81	1176
Skoglund, Jean V., Brooklyn, assignor of one-half to A. Winter, New York, N. Y. Manufacturing nitric acid	591,087	Oct. 5	259	61	81	51
Skriver, Peder A., Corning, N. Y. Crochet hook or needle	594,040	Nov. 23	2335	551	81	1304
Slater, William J. (See Ribble, George W., assignor.)						
Slaughter, Charles F., *et al.* (See Yetter, John C., assignor.)	594,572	Nov. 30	3270	767	81	1504
Slavik, William M., St. Louis, Mo. Arm-rest						
Slaymaker-Barry Company. (See Troast, William F., assignor.)						
Sloat, Jonathan I. (See Boltz, Solomon H., assignor.)	591,700	Oct. 12	1355	317	81	292
Slosky, Konstanty O., Philadelphia, Pa. Thermic fire-alarm	593,497	Nov. 9	1342	325	81	1060
Small, Guy W., assignor of one-half to J. C. Riebe, Buffalo Lake, Minn. Sheet-adjusting device for printing-presses	594,294	Nov. 23	2750	650	81	1384
Small, Henderson T., Chanute, Kans. Shoestring-holder						
Small, Henry. (See Masterson, Bernard W., assignor.)						
Small, Henry J., and H. Stillman, Sacramento, Cal. Apparatus for manufacturing benzene	595,788	Dec. 21	1612	389	81	1973
Smallwood, George T., Washington, D. C. Puzzle	595,288	Dec. 7	777	192	81	1764
Smart, Frederick, Hastings, England. Brake for velocipedes	594,295	Nov. 23	2750	650	81	1385
Smith, A. A., *et al.* (See Temple, William J., assignor.)	595,822	Dec. 21	1674	404	81	1985
Smith, Addison V., Cortland, N. Y. Milk-can						
Smith, Albert D., Philadelphia, assignor of one-half to P. H. Markley, Hatborough, Pa., and H. Markley, Camden, N. J. Nut-lock	591,892	Oct. 19	1656	396	81	374
Smith, Albert R. and M. S., London, England. Apparatus for manufacturing bicycle-wheel rims	594,661	Nov. 30	3464	805 806	81	1542
Smith, Alfred F., Las Vegas, N. Mex. Ter. Window-sash	593,909	Nov. 16	2109	499	81	1242
Smith, Amelia S., Central Falls, R. I. Hose-supporter	593,180	Nov. 2	653	157	81	985
Smith & Anthony Company. (See Anthony, Edgar W., assignor.)						
Smith & Anthony Company. (See Burrows, Edward O., assignor.)						
Smith, Arthur C., *et al.* (See Jonas, Hubert F., assignor.)	595,072	Dec. 7	408	99	81	1695
Smith, Augustus P., assignor to W. M. Speer, New York, N. Y. Snow-melting machine	592,213	Oct. 19	2230	528	81	483
Smith, Benjamin F., Somerville, Mass. Hand drilling-machine	592,890	Nov. 2	249	57	81	896
Smith, Benjamin F., Somerville, Mass. Track-drilling device						
Smith, Benjamin F., H. M. Crippen, and M. J. Charlton, Stewart, Ohio. Hub-attaching device	593,247	Nov. 9	918	222	81	999
Smith, Bernhard A., Melbourne, Victoria. Apparatus for cooling and refrigerating	596,386	Dec. 28	2691	638	81	2305
Smith, Charles, Central Falls, R. I. Guard for shutter-fasteners	596,288	Dec. 28	2500	594	81	2166
Smith, Charles B., Elizabeth, Pa. Inkstand	595,739	Dec. 21	1517	367	81	1955
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Right and left hand stop and waste cock	594,161	Nov. 23	2532	597	81	1341
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Right and left hand stop and waste cock	594,162	Nov. 23	2534	597	81	1341
Smith, Chauncey F., Broadway, Ohio. Fence-coupling	595,789	Dec. 21	1614	389	81	1973
Smith, Chris N., Elgin, Ill. Beveling and trimming machine	596,429	Dec. 28	2769	655	81	2221
Smith, Clark L., Ronks, Pa. Non-refillable bottle	596,230	Dec. 28	2398	565	81	2146
Smith, Curtis B. (See Wehe, William T., assignor.)	592,498	Oct. 26	3002	623	81	698
Smith, Daniel, Griffin Corners, N. Y. Game apparatus						
Smith, De Witt C., *et al.* (See Flannery, William C., assignor.)						
Smith, Edward C., assignor to C. S. Brundage and G. R. Mitchell, Newburg, N. Y. Non-refillable bottle	594,763	Nov. 30	3632	846	81	1576
Smith, Edward W. (See McKechnie and Smith.)	591,893	Oct. 19	1658	396	81	374
Smith, Edwin B., Manchester, England. Wrench	594,973	Dec. 7	214	52, 53	81	1661
Smith, Elvah C. and J. O., Newton, Iowa. Mill for cutting grain						
Smith, Fay R. (See Taylor, George E., assignor.)						
Smith, Francis. (See Robinson and Smith.)	591,061	Oct. 5	216	51	81	43
Smith, Frank S., Chicago, Ill. Wrench						
Smith, Fred J., *et al.* (See Hewlett, William F., assignor.)						
Smith, Fred W. (See Green and Smith.)	591,574	Oct. 12	1148	270	81	250
Smith, George C., New York, N. Y. Cabinet	592,576	Oct. 26	3191	659	81	794
Smith, George E., Boston, Mass. Non-refillable bottle						
Smith, George H. (See Brown and Smith.)						
Smith, George P., assignor of one-half to W. H. Powell, Jerseyville, Ill. Wire-fence tool	592,886	Nov. 2	160	36	81	889
Smith, George T., assignor to George T. Smith Mill Building Company, Cleveland, Ohio. Flour-dressing machine	591,017	Oct. 5	128	28	81	26
Smith, George W., Topeka, Kans. Pneumatic motor	591,018	Oct. 5	130	28, 29	81	27
Smith, Hamilton E., Philadelphia, Pa. Washing-machine	593,910	Nov. 16	2110	500	81	1243
Smith, Harper F., Philadelphia, Pa. Vapor-burner	592,887	Nov. 2	162	37	81	889
Smith, Henry D., Newbern, Va. Corn-planter	594,437	Nov. 30	3016	708 709	81	1453
Smith, Henry H., Smithborough, Ill. Lawn-swing	595,976	Dec. 21	1964	499	81	2044
Smith, Herbert S., San José, Cal. Fluid-pressure brake	591,701	Oct. 12	1356	317	81	292
Smith, Howard F. (See Saunders, David R., assignor.)						
Smith, J. Mack. (See Goff, Joseph M., assignor.)						
Smith, James. (See Hall, Joseph J., assignor.)	593,821	Nov. 16	1960	492	81	1212
Smith, James G., New York, N. Y. Electric signaling or calling system	593,819	Nov. 16	1944	492	81	1207
Smith, James G., New York, N. Y., assignor to Smith-Vassar Telephone Company, of New York. Telephone and signaling or calling system						
Smith, James O. (See Smith, Elvah C. and J. O.)						
Smith, John A., *et al.* (See Linton, August W., assignor.)	596,462	Dec. 28	2833	668 669	81	2284
Smith, John J., assignor of one-half to P. Turner, McDonough, Ga. Gin-saw sharpening and gumming machine	591,490	Oct. 12	885	206 207 208	81	301
Smith, John J. C., Passaic, N. J. Process of and apparatus for casting printing-type	594,916	Dec. 7	199	32	81	1646
Smith, John M., Van Wert, assignor of one-half to J. B. Flanders, Toledo, Ohio. Car-door	591,062	Oct. 5	217	51	81	43
Smith, John W., Holgate, assignor of one-half to E. Huber, Marion, Ohio. Nut-lock	595,214	Dec. 7	658	158	81	1742
Smith, John W., assignor to himself and G. L. Drew, Columbia, Fla. Shaft-bearing						

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Smith, Jonathan W., Shreve, Ohio. Street water or gas box	595,790	Dec. 21	1615	389	81	1974
Smith, Justus J., New York, N. Y. Constructing walls, floors, and ceilings	594,812	Nov. 30	3729	868	81	1596
Smith, Leroy H., and F. L. Crass, assignors to Ithaca Gun Co., Ithaca, N. Y. Ejector mechanism for breech-loading firearms	593,616	Nov. 16	1589	382 383	81	1142
Smith, Matthew S. (See Smith, Albert R. and M. S.)						
Smith, Melvin H., Galien, Mich. Combination-lock	596,185	Dec. 28	2333	554	81	2135
Smith, Nathaniel E., Jersey City, N. J. Coupling for traps and pipes	591,481	Oct. 12	891	206	81	291
Smith, Oberlin, Bridgeton, N. J. Press	591,702	Oct. 12	1358	318	81	292
Smith, Orien R., Athens, Mich. Ditching-machine	592,101	Oct. 19	2055	486 487	81	449
Smith Premier Typewriter Company. (See Perkins, Willis J., assignor.)						
Smith, Rudolph C., Yonkers, N. Y. Calculating-scale	592,067	Oct. 19	1991	470	81	438
Smith, Ruth N., Patchogue, N. Y. Safety-envelop	596,387	Dec. 28	2694	638	81	2305
Smith, Samuel A., McKinney, Tex. Moldboard	595,977	Dec. 21	1966	470	81	2045
Smith, Sarah A., and A. F. Ashby, Coffeyville, Kans. Stew-kettle and jacket	594,764	Nov. 30	3632	846	81	1576
Smith, Thomas, and E. P. White, Southampton, N. Y. Snow-plow	591,482	Oct. 12	893	208	81	297
Smith-Vassar Telephone Company. (See Smith, James G., assignor.)						
Smith, Walter. (See Subra, Gustave E. N. I. E., assignor.)						
Smith, Walter B., St. Johnsville, N. Y. Soda-water apparatus	594,573	Nov. 30	3271	767 768	81	1504
Smith, Walton D., assignor of one-half to F. L. Adams, Prophetstown, Ill. Point-protector for flexible fastening-pins	591,121	Oct. 5	319	78	81	92
Smith, William, Trenton, N. J. Urinal	594,438	Nov. 30	3019	709	81	1453
Smith, William A., New York, N. Y. Incandescent oil-burner	594,439	Nov. 30	3021	710	81	1454
Smith, William A., Cleveland, Ohio. Refining oil	596,437	Dec. 28	2788		81	2224
Smith, William C., Pittsburg, Pa. Soap-press	592,214	Oct. 19	2232	528	81	483
Smith, William C., Gray, Me. Carriage or cycle motor	593,348	Nov. 9	919	222	81	999
Smith, William D., Denver, Colo. Bicycle driving mechanism	595,661	Dec. 14	1398	336 337	81	1914
Smith, William D., assignor of two-thirds to F. W. Daniels and W. J. Anderson, Chicago, Ill. Gas-burner	593,785	Nov. 16	1884	451	81	1196
Smith, William E., assignor of two-fifths to B. E. Moore, Grenada, Miss. Nut-lock	595,215	Dec. 7	659	158	81	1742
Smith, William H., Oakville, Conn. Handle for tree-pruners	593,337	Nov. 9	1068	258	81	1028
Smith, William T., Bolton, England. Driving-gear for velocipedes	596,289	Dec. 28	2501	594	81	2166
Smokeless Fuel-Saving Stove Company. (See Girtanner, Frederick and A., assignors.)						
Smoot, James E., Concord, N. C. Fire-escape	595,082	Dec. 7	429	102 103	81	1699
Snader, Edward L., New York, N. Y. Coffin	595,461	Dec. 14	1079	259	81	1848
Snader, Edward L., New York, N. Y. Coffin	595,462	Dec. 14	1079	259	81	1848
Snedeker, Samuel E., White Plains, N. Y. Steam-generator	594,216	Nov. 23	2609	617	81	1356
Sneigrove, William, and R. F. Goyne, Birmingham, England. Water service-pipe	593,338	Nov. 9	1069	258	81	1028
Snell, James W., assignor to L. E. Snell, Lynn, Mass. Sole-sewing machine	591,019	Oct. 5	131	29, 30	81	27
Snell, Joseph W., Jr., Chicago, Ill. Lifting-jack	595,316	Dec. 7	660	158	81	1742
Snell, Joseph W., Jr., Bay Port, Mich. Stool or chair	595,352	Dec. 14	389	217	81	1811
Snell, Lizzie E. (See Snell, James W., assignor.)						
Snodgrass, Arthur T., Dothen, Ala. Cotton-compressor	594,125	Nov. 23	2462	583 584	81	1329
Snow, Franklin F., Benton Harbor, Mich. Vaporizing-carbureter and air-governor for gas-engines	593,911	Nov. 16	2112	500	81	1243
Snow, Levi T., New Haven, Conn. Food-chopper	591,575	Oct. 12	1150	270	81	250
Snow Steam Pump Works of Buffalo. (See Scott, Clarence N., assignor.)						
Snutsel, Jean. (See Rousselle and Snutsel.)						
Snutsel, Victor. (See Rousselle and Snutsel.)						
Snyder, Emmanuel H., Cedar Rapids, Iowa. Cultivator	592,715	Oct. 26	3449	723	81	774
Snyder, Howard E., Bomanstown, Pa. Step-box	593,695	Nov. 16	1716	415	81	1165
Snyder, Jacob A. (See Lane and Snyder.)						
Snyder, Nathaniel. (See Fox and Snyder.)						
Sobinski, Charles O., St. Louis, Mo. Bicycle signal-alarm and brake	593,786	Nov. 16	1889	451 452	81	1197
Sobotka, Richard. (See Neumeister and Sobotka.)						
Société Anonyme pour la Transmission de la Force par l'Électricité. (See Hutin and Leblanc, assignors.)						
Société Delaperrière Dida et Aubin. (See Delaperrière and Chambon, assignors.)						
Söhnchen, Moritz, Marktleuthen, Germany. Manufacture of glass bottles	594,494	Nov. 30	3128	733	81	1476
Sohoni, Vishnoo V. (See Thompson and Sohoni.)						
Solamone, Vincenzo, Brooklyn, N. Y. Pocket-case	591,548	Oct. 12	1107	260	81	242
Solem, Lars L., Minneapolis, Minn. Brush-holder	592,888	Nov. 2	163	37	81	889
Soley, William H., assignor, by mesne assignments, to J. Evans, Philadelphia, Pa. Tool	595,791	Dec. 21	1616	390	81	1974
Solignac, Louis E., Paris, France. Steam-boiler	592,891	Nov. 2	251	57	81	856
Solomon, Emmet G., and L. Y. Morse, Omaha, Nebr. Device for lighting race-tracks	595,353	Dec. 14	800	217	81	1811
Solomon, Selig, Au Sable, Mich. Lumber-rack	595,995	Dec. 21	1828	437	81	2016
Somers, Marion L., *et al.* (See McCaughey, David W., assignor.)						
Soons, William, New York, assignor to H. Krantz, Brooklyn, N. Y. Outlet-box for electric wiring	591,300	Oct. 5	648	152	81	128
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Ornamental prism-light	595,270	Dec. 7	760	187	81	1761
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	595,271	Dec. 7	761	187	81	1762
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Ventilated prism	595,272	Dec. 7	762	187 188	81	1762
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Lenticular window-light	595,273	Dec. 7	763	188	81	1762
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Mold for forming prism-lights	595,274	Dec. 7	764	188 189	81	1762
Soseman, Laban, Oskaloosa, Iowa. Wire fence	591,708	Oct. 12	1360	319	81	293
Soukup, Hugo. (See Petsch and Soukup.)						
Soulon, Honorat M., Odin, Ill. Miner's expanding drill	593,617	Nov. 16	1591	383	81	1142
South Bend Iron Works. (See Anderson, Charles, assignor.)						
South Bend Telephone Company. (See Booth, William P., assignor.)						
Southard, Abraham M., Denver, Colo. Burner for gasolene-lamps	591,506	Oct. 12	1017	238	81	295
Southington, Thomas W., assignor of one-half to J. T. Mitchell, Locust Valley, N. Y. Propeller	595,740	Dec. 21	1519	367	81	1955
Spacke, Fred W., Indianapolis, Ind. Gas-engine	593,084	Nov. 9	493	120	81	908
Spacke, Fred W., Indianapolis, Ind. Carbureter	593,294	Nov. 9	973	235	81	1009
Spaethe, Otto, Gera, Germany. Reed-organ	593,498	Nov. 9	1343	326	81	1081

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol	Official Gazette. Page.
Spake, William H. (See Staples and Spake.)						
Spalding, Eugene C. (See Roberts and Spalding.)						
Spalding, Frank, assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Callpers	591,963	Oct. 5	768	181	81	147
Spanier, Waldemar H., assignor of one-half to W. Hope, Devil's Lake, N. D. Word-register for type-writers	593,071	Nov. 2	562	134	81	916
Spaulding, Hollon C., Boston, Mass. Motor-vehicle	596,281	Dec. 28	2485	591	81	2163
Speer, Isaac N., Kansas City, and H. G. McLean, Racine, assignors to G. A. Wells, St. Louis, Mo. Filter	592,742	Oct. 26	3498	735	81	768
Speer, James R., Pittsburg, Pa. Furnace-valve	594,602	Nov. 30	3466	{806 807	81	1543
Speer, John J., and R. W. Zedlitz, Waterbury, Conn. Locomotive	591,020	Oct. 5	183	30	81	28
Speer, William M. (See Smith, Augustus P., assignor.)						
Spence, George M., assignor of one-half to J. A. Sexton, Raleigh, N. C. Furniture-brace	591,938	Oct. 19	1761	421	81	395
Spencer, George F. (See Carlstedt, John A., assignor.)						
Spencer, Harry W., *et al.* (See Rand, William C., assignor.)						
Sperzel, Albert F., *et al.* (See Schreiber, Wilmert B., assignor.)						
Sperzel, August, *et al.* (See Schreiber, Wilmert B., assignor.)	595,217	Dec. 7	661	159	81	1742
Speyer, Herbert E., assignor of one-half to B. G. Bracey, Chicago, Ill. Fence-post	595,354	Dec. 14	891	218	81	1812
Spilker, Bernard J., Cincinnati, Ohio. Mixer						
Spillum, Oscar A. (See Johnson, Johannes H., assignor.)						
Spills, Joseph C., Cincinnati, Ohio. Apparatus for physical culture	591,063	Oct. 5	218	51	81	44
Spiro, Charles, New York, N. Y. Coin-controlled apparatus	593,131	Nov. 2	654	157	81	935
Spiro, Charles, New York, N. Y. Vending-machine	593,132	Nov. 2	657	158	81	936
Spiro, Charles, New York, N. Y. Type-writing machine	595,838	Dec. 21	1696	{409 410	81	1990
Spivey, Henry T., *et al.* (See Talley, Orrin P., assignor.)						
Spivey, Robert B., *et al.* (See Talley, Orrin P., assignor.)						
Spoerl, Alfred R., Brooklyn, and W. L. Geisler, Hempstead, N. Y. Touch and technic stop for pianos	593,133	Nov. 2	661	{158 159	81	937
Spohn, August, Barmen, Germany. Reflector	594,495	Nov. 30	3129	733	81	1476
Spooner, George W., Syracuse, N. Y. Washing-machine	591,643	Oct. 12	1265	296	81	273
Spracklen, Peter J., assignor to B. W. Thomson, Kenton, Ohio. Carousel	591,507	Oct. 12	1018	238	81	225
Sprague Electric Railway and Motor Company. (See Pommer, Eugene R., assignor.)						
Sprain, John F., Brooklyn, assignor of one-half to A. R. Parsons, New York, N. Y. Automatic funnel	591,894	Oct. 19	1658	397	81	374
Springer, Alfred, Cincinnati, Ohio. Violin	594,102	Nov. 23	2426	576	81	1322
Springer, Christopher C., Poughkeepsie, N. Y. Clamp or fastening device for lines	594,126	Nov. 23	2466	584	81	1330
Springsteen, Nelson E., Royal Oak, Mich. Ticket-case	593,085	Nov. 2	499	121	81	908
Spruance, Daniel C., Philadelphia, Pa., and M. Waddell, New York, N. Y., assignors to Sentinel Electric Company, Wilmington, Del. Electromagnetic circuit-breaker	593,167	Nov. 2	754	180	81	956
Squires, Charles W., Springfield, Mass. Device for operating railway-switches	595,083	Dec. 7	431	103	81	1699
St. Hilaire, Napoléon J., Gardner, Mass. Trolley-wire hanger	592,923	Nov. 2	394	98	81	865
Stackhouse, Lewis B., assignor of one-half to H. Struntz, Philadelphia, Pa. Bib	593,618	Nov. 16	1592	383	81	1143
Stackhouse, Thomas H., assignor to C. S. Fox, Philadelphia, Pa. Fastening device for cuffs, &c.	593,499	Nov. 9	1345	326	81	1061
Stacy, Charles L., Covington, Ky. Adjustable winding-machine	592,454	Oct. 26	2992	{605 607	81	684
Stadelman, William A. (See Benners and Stadelman.)						
Stadler, Peter C., Paterson, N. J., assignor to William Strange Company, of New Jersey. Loom	595,417	Dec. 14	1006	242	81	1833
Stafford, Rinaldo R., Hoboken, N. J., assignor, by mesne assignments, to United Fuel Gas Generator Company, of New Jersey. Compound generative burner	594,574	Nov. 30	3273	768	81	1504
Stafford, Walter, Little Falls, N. Y. Knitting-machine	591,199	Oct. 5	465	110	81	88
Stahl, August F. (See Ebert, Hugo E., assignor.)						
Stahl, Charles, New York, N. Y. Combined billiard and dining table	592,941	Nov. 2	333	77	81	872
Stahl, George H., Quincy, Ill. Incubator	593,803	Nov. 16	2040	{479 480	81	1227
Stahlberg, Charles, New York, N. Y., assignor to Accurate Time Stamp Company, of West Virginia. Time-stamp	591,021	Oct. 5	135	31,32	81	28
Stahlhut, Ferdinand E., Carpenter, Ill. Shade-hanger	593,441	Nov. 9	1227	296	81	1060
Staib, Henry, assignor of one-half to W. F. Wiatt, Brooklyn, N. Y. Refrigerator	593,821	Nov. 16	1964	462	81	1212
Standard Fuel Gas Company. (See Arnold, John L., assignor.)						
Standard Gold Extractor Company. (See Jean, Julius, assignor.)						
Standard Machine Company. (See Houseman, Harry A., assignor.)						
Standard Sewing Machine Company. (See Mack, William A., assignor.)						
Standard Weldless Tube and Cycle Components. (See Chillingworth, Rudolf, assignor.)						
Standish, Mary L., Coolidge, Kans. Dust-pan	595,823	Dec. 21	1676	405	81	1985
Stanley Electric Manufacturing Company. (See Power, Pomeroy W., assignor.)						
Stanley, Elijah H., Lake Geneva, Wis. Electric push-button	591,895	Oct. 19	1662	397	81	375
Stanley, Giles A. (See Phillips, Elwood C., assignor.)						
Stanley, Harry M. (See Martin, George W., assignor.)						
Stanley, William, Jr., Great Barrington, Mass., assignor, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Alternating-current electric motor	591,301	Oct. 5	649	153	81	123
Stannard, John E., Springfield, Mass. Puzzle	591,146	Oct. 5	366	86	81	71
Stanton, Frank J., Norwich, N. Y. Temporary binder	595,792	Dec. 21	1617	390	81	1974
Stanton, Howard L., assignor of one-half to Lester & Wasley, Norwich, Conn. Steering mechanism for bicycles	593,696	Nov. 16	1717	415	81	1165
Stanton, Walter D., Springfield, Mass. Electrically-operated switch	594,575	Nov. 30	3276	769	81	1505
Staples, John, and W. H. Spake, Ennis, Tex. Fire-alarm	592,643	Oct. 26	3303	687	81	746
Staples, John, and W. H. Spake, Ennis, Tex. Churn-motor	593,000	Nov. 2	441	105	81	893
Staples, Tom O. (See Minnis, Henry M., assignor.)						
Staples, Van B., Manchester, N. H. Door-butt gage	592,026	Oct. 19	1909	454	81	422
Starrett, Laroy S., Athol, Mass. Reversible pocket-tool	592,176	Oct. 19	2181	514	81	472
Stauber, Joseph H., Osborn, Mo. Puzzle	591,508	Oct. 12	1019	238	81	225
Staudenmayer, John G., Allegheny, Pa. Lathing-machine	593,864	Nov. 16	2042	{480 481	81	1228
Stauffer, Charles A. (See Whipple and Stauffer.)						
Stauffer, Ella A., Chicago, Ill. Handle and socket for parasols	595,218	Dec. 7	662	159	81	1743
Stauffer, Marion T., and J. L. Tolson, Barry, Ill., assignors of one-half to E. Pierce and L. Glutz, West Burlington, Iowa. Gate	593,000	Nov. 2	536	129	81	911
Stearns, Charles E. (See Flanders and Stearns.)						
Stebbins, Timothy, Davenport, Iowa. Pipe-holder	595,657	Dec. 14	1386	334	81	1912
Steber, Bernard T., Utica, N. Y. Match-machine	595,978	Dec. 21	1967	470	81	2045

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stedman, William H. (See Collins, Stedman, and Merrow.)						
Steegmüller, Richard, New York, N. Y., assignor to Automatic Can Machinery Company, Westfield, N. J. Machine for soldering side seams of can-bodies	591,896	Oct. 19	1663	{397 398 399 400	81	375
Steel Motor Company. (See Dortch, John M., assignor.)						
Steel Storage and Elevator Construction Company. (See Johnston, Edgar D., assignor.)						
Steel Storage and Elevator Construction Company. (See Weber, Frederick J., assignor.)						
Steele, Frank W., Terre Haute, Ind. Saw-set	595,662	Dec. 14	1400	338	81	1914
Steele, Margaret, Pitcairn, Pa. Press-board	591,989	Oct. 19	1762	421	81	395
Steigert, Leopold, Cincinnati, Ohio. Water-indicator and alarm for steam-boilers	595,418	Dec. 14	1008	242	81	1833
Stein, Albrecht, Wetzlar, Germany. Furnace	596,251	Dec. 28	2141	576	81	2156
Steinbart, Alfred, Carlstadt, N. J. Recording instrument	593,339	Nov. 9	1070	258	81	1029
Steiner, Ottomar, Frankenberg, Germany. Mattress, pillow, &c	591,022	Oct. 5	142	32	81	29
Steinmetz, Charles P., Lynn, Mass., assignor to General Electric Company, of New York. Regulation of alternating-current systems	594,144	Nov. 23	2491	590	81	1335
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. Inductor-dynamo	594,145	Nov. 23	2495	590	81	1336
Steinmetz, Charles P., Lynn, and E. W. Rice, Jr., Swampscott, Mass., assignors to General Electric Company, of New York. Phase-regulator	596,186	Dec. 28	2334	554	81	2135
Stenger, William, assignor of one-half to W. E. Roberts, Germano, Ohio. Car-coupling	592,902	Nov. 2	252	57	81	856
Stephens, Dabney B., assignor of nine-sixteenths to W. B. Topham and J. G. Harris, Duluth, Minn. Soft-tread nailless horseshoe	592,261	Oct. 26	2323	548	81	521
Stephens, George W. K. (See Hunter, Rudolph M., assignor.)						
Stephens, Harry A., Missoula, Mont. Lock	596,187	Dec. 28	2336	554	81	2136
Stephens, Judson W., assignor of one-half to J. W. Barclay, Norfolk, Va. Sanitary tongs	592,499	Oct. 26	3063	623	81	698
Stephens & O'Rourke. (See O'Rourke, John F., assignor.)						
Stephenson, Edwin. (See Harrison and Stephenson.)						
Stephenson, William H., Bluffton, Ind. Detachable safety-cap for lamp chimneys or globes	592,922	Nov. 2	294	68	81	865
Sterling, Charles B., New York, N. Y. Signaling system	593,314	Nov. 9	1029	249	81	1021
Stern, Albert F. (See Plopper, James A., assignor.)						
Stern, Wilhelm, Antwerp, Belgium. Metallic barrel, cask, or vessel	596,188	Dec. 28	2337	{554 555	81	2136
Sternberger, Samuel. (See Paradis and Faltermayer, assignors.)						
Stevens, Calvin A. (See Hilsinger, Alburtis C., assignor.)						
Stevens, Edward T. (See Stevens, William H., assignor.)						
Stevens, Frank V., Sr., Brooklyn, N. Y. Thill-coupling	593,134	Nov. 2	664	159	81	937
Stevens, Fred P., Colorado Springs, Colo. Annunciator	591,179	Oct. 5	433	103	81	82
Stevens, George H., Toledo, Ohio. Billiard-cushion	593,249	Nov. 9	921	{222 223	81	1000
Stevens, George H., Melrose, and E. L. Howard, Hingham, Mass.; said Howard assignor to said Stevens. Machine for manufacturing shank-stiffeners	596,282	Dec. 28	2488	591	81	2164
Stevens, Irving D., Joliet, Ill. Seeding-machine	595,587	Dec. 14	1277	{307 308	81	1889
Stevens, John H., Newark, N. J., assignor to Celluloid Company, New York, N. Y. Pyroxylin compound	593,787	Nov. 16	1893	.....	81	1198
Stevens, John H., Newark, N. J., assignor to Celluloid Company, New York, N. Y. Pyroxylin compound	595,355	Dec. 14	892	.....	81	1812
Stevens, Samuel M., Manchester, N. H. Hand fire-extinguisher	593,135	Nov. 2	665	159	81	938
Stevens, Thomas H. (See Fortney and Stevens.)						
Stevens, William H., assignor of one-half to E. T. Stevens, Buffalo, N. Y. Bicycle-tire	591,791	Oct. 12	1496	355	81	320
Stevenson, Andrew, Ellensburg, Wash. Safe-lock	591,200	Oct. 5	467	111	81	89
Stevenson, George W., Cramer's Hill, assignor of one-half to T. Leas, Camden, N. J. Machine for cleaning fish	592,500	Oct. 26	3064	{623 624	81	698
Stevenson, John, Jr., New Castle, Pa. Apparatus for making hollow billets or ingots	591,483	Oct. 12	894	209	81	202
Stewart, Adam. (See Teague and Stewart.)						
Stewart, Isaac R., Hope, Ark. Hay-press	596,129	Dec. 28	2242	532	81	2118
Stewart, James. (See De Long, Pelton, and Stewart.)						
Stewart, Philander J. (See Thompson and Stewart.)						
Stewart, Raymond C., assignor of one-third to H. C. Chisolm, Huntingdon, Pa. Lubricant	594,576	Nov. 30	3277	.....	81	1505
Stiffler, L. D. (See Bansall, George, assignor.)						
Stiles, Hervey R., Davenport, Iowa. Dish-cleaner	596,180	Dec. 28	2243	533	81	2118
Stiles, Norman C., Watertown, N. Y. Eraser	594,496	Nov. 30	3130	733	81	1476
Still, Henry, Baltimore, Md. Animal feed-box	592,902	Oct. 26	2325	548	81	522
Stillman, Howard. (See Small and Stillman.)						
Stillman, Howard, Sacramento, Cal. Apparatus for purifying water	595,793	Dec. 21	1618	390	81	1974
Stilwell-Bierce & Smith-Valle Company. (See Stilwell, Edwin R., assignor.)						
Stilwell, Edwin R., Dayton, Ohio, assignor to Stilwell-Bierce & Smith-Valle Company, of New Jersey. Feed-water heater and purifier	592,670	Oct. 26	3373	{703 704	81	760
Stilwell, Edwin R., Dayton, Ohio, assignor to Stilwell-Bierce & Smith-Valle Company, of New Jersey. Feed-water purifier	592,671	Oct. 26	3373	704	81	760
Stimmel, James S. (See Gano and Stimmel.)						
Stirk, Albert J., Boston, Mass. Wire-stretcher	593,250	Nov. 9	923	223	81	1000
Stirk, David P., Indianapolis, Ind. Multiple gas-burner	593,619	Nov. 16	1593	383	81	1143
Stirling, Clarence C., Hartford, Conn., assignor to E. Hudson, Templeton, Mass. Electric-arc lamp	593,697	Nov. 16	1719	415	81	1165
Stitt, Washington G., and M. H. Marcus, Homestead, Pa. Shade-supporter	592,716	Oct. 26	3451	723	81	774
Stitzer, David, assignor of three-fifths to W. F. Brewer, Louisville, Ky. Portable stall	591,792	Oct. 12	1497	355	81	320
Stocker, John, and H. H. Philper, St. Louis, Mo. Liquid-cooling apparatus	594,440	Nov. 30	3023	710	81	1454
Stockman, Benjamin P., London, England, assignor to Stockman Iron and Steel Company, of West Virginia. Purifying iron	594,497	Nov. 30	3132	.....	81	1477
Stockman Iron and Steel Company. (See Stockman, Benjamin P., assignor.)						
Stockwell, John W. (See Bowley, Joseph H., assignor.)						
Stoddard, John, Wilmington, Del. Lubricating device for revolving bodies	594,183	Nov. 23	2556	605	81	1347
Stoddard, Samuel G., assignor to Bridgeport Brass Company, Bridgeport, Conn. Gas-burner	593,730	Nov. 16	1779	428	81	1177
Stoffel, Peter T., Racine, Wis. Pin-ticket	591,147	Oct. 5	367	87	81	71
Stoffer, Martin J., Capac, Mich. Earth-auger	593,001	Nov. 2	442	106	81	893
Stokes, William E. (See Crouch and Stokes.)						
Stoll, Louis C., Brooklyn, N. Y. Corkscrew	593,698	Nov. 16	1722	416	81	1166
Stoll, Louis C., Brooklyn, N. Y. Corkscrew	593,699	Nov. 16	1724	416	81	1166
Stoll, Louis C., Brooklyn, N. Y. Corkscrew	593,700	Nov. 16	1725	416	81	1166
Stone, James B., Worcester, Mass. Combined spring-shackle and oil-ejector	593,788	Nov. 16	1894	452	81	1198

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stone, Jane W. (See Kennedy, Frank M., assignor.)						
Stone, John A., assignor to Deering Harvester Company, Chicago, Ill. Corn-harvester	592,618	Oct. 26	3266	677	81	738
Stone Manufacturing Company. (See Reeves and Lentz, assignors.)						
Stoops, Jesse E., Dayton, Wash. Bicycle driving-gear	595,501	Dec. 14	1147	276	81	1861
Storie, George, and J. Moss, Detroit, Mich. Device for holding and dipping pills or tablets	592,839	Nov. 2	164	37	81	839
Storm, William M., New York, N. Y. Electromagnetic engine	591,897	Oct. 19	1674	400, 401	81	377
Storm, William M., New York, N. Y. Electric battery	594,917	Dec. 7	131	32	81	1646
Storts, Thomas H., Van Buren, Ind. Burglar-alarm	593,136	Nov. 2	668	159	81	988
Story, Ward B., Freehold, N. Y. Rotary engine	594,711	Nov. 30	3542	825	81	1559
Story, Ward B., Freehold, N. Y. Rotary engine	594,712	Nov. 30	3545	825	81	1559
Stott, Wellington, Washington, D. C. Specialist's chair	594,296	Nov. 23	2751	651	81	1385
Stough, Leona A., Durango, Colo. Pencil-sharpener	593,912	Nov. 16	2115	500	81	1244
Stout, Edwin F., East Orange, N. J. Wrench	594,498	Nov. 30	3133	734	81	1477
Stout, John V., Easton, Pa. Automatic heat-regulating system	592,924	Nov. 2	295	68	81	965
Stove, Alfred E., London, England. Coupling for fire-hose, &c	595,219	Dec. 7	663	159, 160	81	1743
Stover, Daniel C., and F. W. Hoefer, Freeport, assignors to Pratt Fastener Company, Chicago, Ill. Machine for making lace-fasteners	592,455	Oct. 26	2995	607	81	694
Stowell & Bostwick. (See Bostwick, John R., assignor.)						
Stowell Manufacturing and Foundry Company. (See Sheridan, Philip L., assignor.)						
Strachan, John, and J. Niven, Saginaw, Mich. Prepayment attachment for electric meters	595,446	Dec. 14	1054	252, 253	81	1842
Stradley, Charley H., Warrenton, Ill. Farm or garden gate	596,189	Dec. 28	2339	555	81	2136
Strain, Hugh, Jr. (See Henning and Pigott, assignors.)						
Straight, George H., Allenton, R. I. Lamp-blaze-extinguishing burner	595,824	Dec. 21	1677	405	81	1996
Strait, William, Elmira, N. Y. Horse hay-rake	594,441	Nov. 30	3025	710	81	1455
Stran, Charles W., Cleveland, Ohio. Frame for skylights	591,611	Oct. 12	1207	288	81	261
Strange, John R. (See Heller, Charles, assignor.)						
Strasser, William F. (See Hatten, William V., assignor.)						
Strasser, William T., Danbury, Conn. Non-refillable bottle	595,447	Dec. 14	1056	253	81	1843
Stratman, John H., Cape Girardeau, Mo. Washboard	591,704	Oct. 12	1302	319	81	298
Strattner, Frederick, Salisbury, Md. Press	594,297	Nov. 23	2753	651	81	1385
Strauch, Albert T., New York, N. Y. Piano-action	594,217	Nov. 23	261	617	81	1357
Strauss, Gustavus E. (See Dilg, Charles H. J., assignor.)						
Strauss, Gustavus E., New York, N. Y. Fastening wheels to hubs, axles, or shafts	591,798	Oct. 19	1505	357	81	332
Strauss, Joseph B., New York, N. Y., assignor of one-half to E. B. Tuteur, Chicago, Ill. Head-rest for car-seats	594,103	Nov. 23	2427	576, 577	81	1322
Strayer, John. (See Farlow and Strayer.)						
Strebler, Peter. (See Cocayne, Isidore J., assignor.)						
Street, Fred, Philadelphia, Pa. Coin-controlled electric toy	596,290	Dec. 28	2502	594, 595	81	2166
Streeter, Alfred L., Chicago, Ill. Brake-shoe	595,588	Dec. 14	1281	308	81	1890
Streeter, Nelson R., Groton, and J. Anstice, Rochester, N. Y. Trap	596,741	Dec. 21	1520	367	81	1955
Strich & Zeidler. (See Zeidler, Paul M., assignor.)						
Strickle, Jacob W., and J. V. Petty, Huntsville, Ala. Bicycle-support	594,813	Nov. 30	3730	868, 869	81	1596
Striemer, Adolph, Berlin, Germany. Machine for making wire coils for flexible shafting	593,168	Nov. 2	756	181	81	956
Strohm, James N., *et al.* (See Waterman, Charles H., assignor.)						
Strong, Groves R. (See Fassett, Riley D., assignor.)						
Strong, William M., Cedar Rapids, Iowa. Placer-gold-extracting machine	594,041	Nov. 23	2336	551	81	1304
Strout, George E., Waltham, Mass. Sash-fastener	592,747	Oct. 26	3511	737	81	785
Strowger, Almon B., F. A. Lundquist, J. and C. J. Erickson, assignors to Strowger Automatic Telephone Exchange, Chicago, Ill. Electrical exchange	591,201	Oct. 5	469	111, 112	81	89
Strowger Automatic Telephone Exchange. (See Strowger, Lundquist, and Erickson, assignors.)						
Struntz, Henry. (See Stackhouse, Lewis B., assignor.)						
Stuart, Benjamin F., Waco, Tex. Stenographer's note-book	592,808	Nov. 2	253	58	81	856
Stuart, Ronald A., assignor of one-half to E. G. Kaufman, New York, N. Y. Car-fender	593,137	Nov. 2	660	160	81	988
Stuart, Sidney G., Boston, Mass. Autoharp	593,701	Nov. 16	1727	416	81	1167
Stuparich, Paul J., San Francisco, Cal. Photographic mount	593,086	Nov. 2	500	121	81	904
Sturdevant, J. S. (See Blagg, Thomas J., assignor.)						
Sturm, Henry, Paris, France. Apparatus for molding clay, &c	591,302	Oct. 5	650	153	81	123
Sturtevant, Jennie L., Gilroy, Cal. Flower-holder	596,221	Dec. 28	2389	565	81	2146
Stürzwage, Leopold, Moscow, Russia. Piano mechanism	592,840	Nov. 2	165	38	81	889
Stutsman, Reuben O., assignor to Bartholomew Company, Des Moines, Iowa. Portable newspaper-cabinet	592,177	Oct. 19	2182	514, 515	81	473
Subra, Gustave E. N. I. E., assignor of one-half to W. Smith, London, England. Apparatus for treating fibrous plants	594,973	Dec. 7	216	53	81	1661
Suck, Frederick A. (See White, Maurice W., assignor.)						
Sucro, George C. (See Korbien, Julius, assignor.)						
Suit, Edgar, Baltimore, Md. Glove	594,499	Nov. 30	3134	734	81	1477
Sullivan, James J., Brooklyn, assignor of one-half to B. Bleier, New York, N. Y. Machine for wrapping, printing, and boxing cakes of yeast, caramels, &c	595,866	Dec. 21	1760	421, 422, 423, 424, 425	81	2003
Sullivan, John J., Ipswich, Mass. Machine for sewing on buttons	595,742	Dec. 21	1522	308	81	1956
Sullivan, John J., Ipswich, Mass. Machine for sewing on buttons	595,743	Dec. 21	1528	309	81	1957
Sullivan, John J., Ipswich, Mass. Seam for attaching buttons to shoes or other articles	595,744	Dec. 21	1530	309	81	1957
Sullivan, John J., Ipswich, Mass. Machine for sewing on buttons	596,020	Dec. 21	2043	486, 487	81	2060
Sullivan, M. F. (See Weggeman, Joseph, assignor.)						
Sullivan, Timothy J., Rockport, Ky. Planter	592,717	Oct. 26	3452	734	81	775
Sulzman, Charles A., Waterford, assignor of one-half to J. Knickerbacker, Troy, N. Y. Hydrant-valve	591,023	Oct. 5	143	32, 33	81	30
Sundberg, Andrew P., Union Hill, N. J. Bow-facing oar	591,992	Oct. 19	1689	438	81	408
Sundberg, Clas A., Stockholm, Sweden. Regulating device for gas or petroleum machines	594,042	Nov. 23	2338	552	81	1304
Sundell, John, *et al.* (See Branzell, Charley, assignor.)						
Suppes, Maximilian M., Lorain, Ohio. Blast-furnace	594,577	Nov. 30	3278	769, 770	81	1505
Suppes, Maximilian M., Lorain, Ohio. Blast-furnace	594,578	Nov. 30	3279	770, 771	81	1505

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Supple, John R., assignor of three-fourths to R. G. Patterson and H. C. Gordon, San Diego, Cal. Oar-lock	591,509	Oct. 12	1019	238	81	225
Sürth, Franz A., Dortmund, Germany. Axle-box	594,298	Nov. 23	2755	651, 652	81	1385
Sutcliffe, Walter, Todmorden, England. Lining for boots or shoes	594,299	Nov. 23	2757	652	81	1386
Sutherland, Owen A., Keeler, Cal. Fender or guard for tram-cars	595,356	Dec. 14	897	218	81	1812
Sutton, Frederick W., and J. H. Masland, Philadelphia, Pa. Hammock	595,794	Dec. 21	1620	391	81	1974
Svendsen, Svend N., Brooklyn, N. Y. Printing-press	593,109	Nov. 2	757	181, 182	81	956
Svenson, Johan V., Stockholm, Sweden. Vapor-burner for petroleum-stoves	595,795	Dec. 21	1621	391	81	1975
Swan, Alfred F., Bayonne, N. J. Telephone system	594,363	Nov. 23	2372	577	81	1408
Swan, Henry C., Oshkosh, Wis. Metal joint	591,308	Oct. 5	651	153	81	124
Swan, Henry C., Oshkosh, Wis. Vehicle-brake	596,388	Dec. 28	2695	638	81	2305
Swanson, John E., Stratford, Iowa. Wind-motor and power-transmitter	594,442	Nov. 30	3026	711	81	1455
Swanson, Peter N., Galva, Ill. Farm-derrick	591,612	Oct. 12	1208	284	81	261
Sweeney, Eugene J., Rockford, Ill. Nut-lock	594,918	Dec. 7	132	33	81	1646
Sweeney, Henry G., Chicago, Ill. Tire-fastening	594,500	Nov. 30	3135	734	81	1477
Sweeney, John T., *et al.* (See Van de Westelaken, Peter, assignor.)						
Sweet, Albert A., Fall River, Mass., assignor to A. T. Atherton Machine Company, Pawtucket, R. I. Picker	593,620	Nov. 16	1594	384	81	1143
Sweet, Whitford H., Auburn, R. I. Automatic fan attachment for hammocks, &c	594,814	Nov. 30	3732	869	81	1597
Sweet, William A., Syracuse, N. Y. Horseshoe bar and blank	592,178	Oct. 19	2184	515	81	473
Sweeting, James A., New York, N. Y. Device for rolling cigarettes	594,501	Nov. 30	3136	734	81	1477
Sweetser, Dwight E. (See Ball, Sweetser, and Ball.)						
Sweetser, George W., *et al.* (See Temple, William J., assignor.)						
Swem, Lawrence W., West Liberty, Iowa. Gas-making apparatus	595,979	Dec. 21	1971	471	81	2046
Swenson, Magnus, Chicago, Ill., assignor to American Cotton Company, New York, N. Y. Cotton-press	591,304	Oct. 5	652	154	81	124
Swink, Clarence J., Red Lion, Ohio. Eaves-trough	591,705	Oct. 12	1364	319	81	298
Swinnerton, James F., assignor to Kingsland & Douglas Manufacturing Company, St. Louis, Mo. Device for applying end caps to cylindrical bales	594,663	Nov. 30	3467	807	81	1543
Swinnerton, Thomas C., Bridgeport, Conn. Ceiling-block	592,482	Oct. 26	3041	619	81	694
Switzer, John, San Francisco, Cal. Flax-threshing machine	594,104	Nov. 23	2431	577, 578	81	1323
Switzer, Rufus, *et al.* (See Hazard, Charles J., assignor.)						
Swope, Gerard, Chicago, Ill. Cloth-cutting machine	595,084	Dec. 7	433	103	81	1700
Sylvester, Herbert M. (See Margeson, Thomas P., assignor.)						
T. C. Dill Machine Company. (See Dill, Thomas C., assignor.)						
Tabb, E. M. (See Burkhiser and Colborn, assignors.)						
Taber, Benjamin F., Buffalo, N. Y. Rotary pump	595,745	Dec. 21	1531	369, 370	81	1957
Tabler, John H., and F. T. Gracey, Nashville, Tenn. Device for making cigarettes	593,822	Nov. 16	1965	463	81	1212
Taggart, Horace D., Akron, Ohio. Appliance for assisting anatomical organs	594,815	Nov. 30	3732	869	81	1597
Tailleur, George, assignor to Chicago Edison Company, Chicago, Ill. Joint or coupling for electric cables	593,442	Nov. 9	1238	298	81	1060
Taipe, William N. (See Pond and Taipe.)						
Tait, John. (See Bishop, Joseph, assignor.)						
Tait, Lawson, Birmingham, England. Range or stove	594,974	Dec. 7	218	54	81	1662
Talbot, Benjamin, Pencoyd, assignor of one-fourth to W. B. Hughes, Philadelphia, Pa. Gas-producer	593,805	Nov. 16	2044	481	81	1228
Talbot, Henry C., Cleveland, Ohio. Furnace-door	592,976	Nov. 2	410	96	81	886
Talley, Allen, *et al.* (See Anderson, Henry C., assignor.)						
Talley, Andrew J. and W. B., Bell Point, Ohio. Grinding-mill	593,823	Nov. 16	1966	463	81	1213
Talley, Orrin P., assignor of two-thirds to H. T. and R. B. Spivey, Chicago, Ill. Gas generator and burner	592,102	Oct. 19	2059	487	81	450
Talley, William B. (See Talley, Andrew J. and W. B.)						
Tallmadge, James W., Boston, Mass. Exudation-cap	591,434	Oct. 12	896	209	81	202
Tally, Colonel G., Cincinnati, Ohio. Steam-trap	594,184	Nov. 23	2558	605	81	1347
Tanner, Frank J. (See Barney, Edwin E., assignor.)						
Tanner, William J., Bridgeport, Conn. Display-cover for barrels	591,661	Oct. 12	1297	304	81	280
Tarr, Joseph S., Cleveland, Ohio, assignor to W. S. Clark, Erie, Pa. Button-drilling machine	593,061	Nov. 2	537	129	81	911
Taubald, George, Cincinnati, Ohio. Water-heater	593,621	Nov. 16	1597	384	81	1143
Taveau, Augustin L., Baltimore, Md. Bicycle-bell	595,290	Dec. 7	664	160	81	1743
Taylor Burner and Electroplating Company. (See Taylor, William G., assignor.)						
Taylor, Frederick, assignor of one-half to American Steel Scraper Co., Sidney, Ohio. Wheelbarrow	594,766	Nov. 30	3634	846, 847	81	1577
Taylor, George E., assignor of one-half to F. R. Smith, Austin, Minn. Machine for working clay, &c	595,357	Dec. 14	898	218	81	1812
Taylor, George R. (See Savage and Taylor.)						
Taylor, George W., Quincy, assignor of one-half to W. Jenney, Boston, Mass. Bottle	596,463	Dec. 28	2837	669	81	2234
Taylor, Hiram H., Manchester, N. H. Pattern-drafting device	594,443	Nov. 30	3029	711	81	1456
Taylor, James M., Yantis, Tex. Non-refillable bottle	594,765	Nov. 30	3633	846	81	1576
Taylor, John D., Chillicothe, Ohio. Railway-signal	594,300	Nov. 23	2758	652, 653	81	1386
Taylor, John W., Trout, W. Va. Wrench	592,068	Oct. 19	1998	471	81	437
Taylor, Lewis H., Jr., Philadelphia, Pa., assignor to P. Chrystie, High Bridge, N. J. Hand-brake for bicycles	593,251	Nov. 9	924	223	81	1000
Taylor, W. E. (See Lane, James R., assignor.)						
Taylor, William. (See Craig and Taylor.)						
Taylor, William E., *et al.* (See Shepard, Stephen A., assignor.)						
Taylor, William G., Hulton, assignor to Taylor Burner and Electroplating Company, Limited, Pittsburg, Pa. Burner for gas fireplaces or stoves	594,816	Nov. 30	3734	869, 870	81	1597
Taylor, William H., Temple, Tex. Cotton-chopper	593,009	Nov. 2	444	106	81	893
Teague, William J., and A. Stewart, Greensborough, N. C. Sash-weight	596,252	Dec. 28	2141	577	81	2156
Teats, Andrew S., Oakland, Md. Blackboard	592,841	Nov. 2	166	38	81	840
Tegart, William M., Moosomin, Canada. Detachable carrier for bicycles	593,443	Nov. 9	1239	298	81	1060
Tejada, Juan D., New York, N. Y. Machine for drilling and tapping metal castings	593,622	Nov. 16	1598	384, 385	81	1144
Tellefsen, Theodore J., and C. S. Lockwood, Newark, N. J., assignors to Hyatt Roller Bearing Company, of New Jersey. Oil-distributer for roller-bearings	596,093	Dec. 28	2180	516	81	2106
Temple, Ansel F., Muskegon, Mich. Bicycle	595,927	Dec. 21	1892	449	81	2028
Temple, John A., Shamokin, assignor of one-half to W. A. Ziegler, Milton, Pa. Nut-lock	596,094	Dec. 28	2183	517	81	2107
Temple, William J., assignor of three-fourths to A. A. Pomeroy, G. W. Sweetser, and A. A. Smith, Hampden, Me. Combined wagon jack and wrench	596,309	Dec. 28	2541	605	81	2175
Templeton, Allison, Galveston, Tex. Type-writing machine	594,767	Nov. 30	3636	847	81	1577

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Templin, Joseph H., assignor to Diamond Drill and Machine Company, Birdsborough, Pa. Wire-coil machine	593,406	Nov. 9	1181	285, 286	81	1048
Templin, Thomas T., Paris, Ky. Merry-go-round	594,713	Nov. 30	3547	826	81	1560
Terpening, Elmer A., Geneseo, Ill., assignor of one-half to H. H. Clarke, New York, N. Y. Weighing-scale	595,502	Dec. 14	1149	276, 277	81	1861
Terry, Francis P., Chicago, Ill. Wheel	592,027	Oct. 19	1910	454	81	422
Terry, Le Grand, Horseheads, N. Y. Wrench	595,796	Dec. 21	1622	391	81	1975
Teske, Charles L., Hartford, Conn. Chuck	594,919	Dec. 7	133	33	81	1646
Tesla, Nikola, New York, N. Y. Electrical transformer	593,138	Nov. 2	670	160	81	989
Tesseyman, Henry, assignor to Barney & Smith Car Company, Dayton, Ohio. Truck and body bolster for cars	592,028	Oct. 19	1911	454	81	422
Tétrault, Amédée, Montreal, Canada. Driving mechanism for agricultural implements	594,444	Nov. 30	3081	712	81	1456
Textile Manufacturing Company. (See Campbell, Sumner B., assignor.)						
Thackeray, Richard, and W. Ferguson, Fall River, Mass. Grooving-cutter	591,180	Oct. 5	435	103	81	83
Thayer, Henry J., *et al.* (See Wold, Olaus C., assignor.)						
Thayer, Tileston O. (See Brodeur and Thayer.)						
Therien, Joseph H., San Francisco, Cal. Reversing-gear	592,483	Oct. 26	3043	619	81	694
Theis, Henry, Lawrenceburg, Ind. Nut-lock	595,746	Dec. 21	1534	370	81	1958
Thew, Richard, Cleveland, Ohio. Machine for handling coal, ore, &c	593,062	Nov. 2	540	129, 130	81	912
Thieke, August, Berlin, Germany. Wood-plug holder	594,990	Dec. 7	135	33	81	1647
Thiel, Martin A., Milwaukee, Wis. Gas-stove burner	593,623	Nov. 16	1608	385	81	1145
Thomann Karl, Halle-on-the-Saale, Germany. Machine for digging beets, &c	592,126	Oct. 19	2101	497, 498	81	458
Thomas, A. L., *et al.* (See Ike, Albert and A., assignors.)						
Thomas, Bond V. (See Hough, Benjamin B., assignor.)						
Thomas Davidson Manufacturing Company. (See Russell, James, assignor.)						
Thomas, Franz S., Salem, Ind. Sawmill attachment	591,305	Oct. 5	655	154	81	125
Thomas, Fred J., Cairo, Ill. Jeweler's clamp	593,139	Nov. 2	671	161	81	989
Thomas, Friedrich E., Steinigwoolmsdorf, Germany. Device for throwing dice	592,363	Oct. 26	2826	548	81	522
Thomas, Hannah, administratrix. (See Thomas, William J.)						
Thomas, Herbert A., Chicago, Ill. Hot-water-storage motive-power system and apparatus	594,185	Nov. 23	2559	606	81	1347
Thomas, James B., St. Louis, Mo. Draft mechanism for railway-cars	594,579	Nov. 30	3280	771	81	1506
Thomas, James P. (See Williams, Morgan L., assignor.)						
Thomas, John L., Osceola, Mo. Cross-clevis	595,503	Dec. 14	1151	277	81	1862
Thomas, John P., Chicago, Ill. Ball-bearing	596,310	Dec. 28	2542	606	81	2175
Thomas, Robert H., and J. A. Creighton, Summitville, Ind. Device for controlling and directing air to glass-presses	594,445	Nov. 30	3082	712	81	1456
Thomas, Sallie, Nashville, Tenn. Badge	595,663	Dec. 14	1401	338	81	1915
Thomas, Stephen T. (See Davies and Thomas.)						
Thomas, Walter, Palatka, Fla. Bin	594,714	Nov. 30	3548	826	81	1560
Thomas, William H., Carversville, Pa. Chicken-coop	593,252	Nov. 9	927	224	81	1001
Thomas, William H., Lahaska, Pa. Push-bar for trolley-cars	593,340	Nov. 9	1071	259	81	1029
Thomas, William H., Lahaska, Pa. Gage for gang-punches	593,341	Nov. 9	1073	259	81	1029
Thomas, William H., Fall River, Mass. Machine for manufacturing hat-linings	593,702	Nov. 16	1729	417	81	1167
Thomas, William H., Jenkintown, Pa. Chestnut-perforator	595,797	Dec. 21	1623	391, 392	81	1975
Thomas, William J., deceased; H. Thomas, Canal Dover, Ohio, administratrix. Kiln for burning brick	592,842	Nov. 2	167	38, 39	81	840
Thompson, Allen L. and J. D., and P. J. Stewart; said J. D. Thompson and said Stewart assignors of their right and Allen L. Thompson assignor of part of his right to J. W. Scott, C. H. and F. W. Wood, and F. J. Boorey, Provo City, Utah. Thill-coupling	592,718	Oct. 26	3454	724	81	775
Thompson, Anna L., *et al.* (See Mears, Henry D., assignor.)						
Thompson, David M., Providence, R. I. Steam plant	593,703	Nov. 16	1731	417	81	1166
Thompson, Fred W., Denver, Colo. Assay and chemical balance	594,364	Nov. 23	2874	678	81	1408
Thompson, Frederick M., assignor to G. S. Wilson, Jackson, Mich. Device for separating whites and yolks of eggs	595,255	Dec. 7	745	182	81	1758
Thompson, George C., and F. A. Abbott, Salinas, Cal. Coupling for pump-rods, &c	594,043	Nov. 23	2339	552	81	1305
Thompson, George K., Malden, assignor to American Bell Telephone Company, Boston, Mass. Telephone-circuit	595,004	Dec. 7	283	67	81	1673
Thompson, George S., New York, N. Y. Plug check-valve for boilers	592,501	Oct. 26	3067	625	81	699
Thompson, Hiram F., Springville, Cal. Combined potato and beet digger	593,384	Nov. 9	1142	275, 276	81	1042
Thompson, James. (See Bennett, John, assignor.)						
Thompson, James, Parel, and V. V. Sohoni, Thakurdwar Girgaum, Bombay, India. Humidifier	591,576	Oct. 12	1153	271	81	250
Thompson, Jesse D. (See Thompson and Stewart.)						
Thompson, Jos. H., *et al.* (See Rumble, Alexander C., assignor.)						
Thompson, Milton E., Ridgeway, Pa., assignor of one-half to C. L. Cornell, Hamilton, Ohio. Dynamo-electric machine	591,024	Oct. 5	145	33, 34	81	30
Thompson, Paul P. (See Haley and Thompson.)						
Thompson, R. P. (See Francis, William H., assignor.)						
Thompson & Sons, R. M. (See Burrow, Ezekiel V., assignor.)						
Thompson, Thomas J., Higgston, Ga. Panel fence	592,456	Oct. 26	3002	608	81	686
Thompson, William D. (See Hutchins and Thompson.)						
Thompson, William E. (See Alexander and Thompson.)						
Thompson, William H., Cleveland, Ohio. Hoisting apparatus	593,253	Nov. 9	928	224	81	1001
Thompson, William P., *et al.* (See Welsh, Jabez L., assignor.)						
Thompson, William R., South Norwalk, Conn. Support for armature-shafts	592,502	Oct. 26	3068	625	81	699
Thomson, Bessie W. (See Spracklen, Peter J., assignor.)						
Thomson, David P., Schenectady, N. Y. Chain-protector for bicycles	593,254	Nov. 9	930	225	81	1001
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Damper for electrical measuring instruments	591,898	Oct. 19	1676	401	81	378
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Regulating Roentgen-ray tubes	591,899	Oct. 19	1678	401	81	378
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Method of and apparatus for converting electric currents	595,419	Dec. 14	1009	243	81	1833
Thomson, Elihu, Swampscott, and C. E. Harthan, Lynn, Mass., assignors to General Electric Company, of New York. Electric-arc lamp	595,420	Dec. 14	1012	243	81	1834
Thomson, Elihu, Swampscott, and W. H. Pratt, Lynn, Mass., assignors to General Electric Company, of New York. Induction-wattmeter	596,190	Dec. 28	2340	555, 556	81	2136
Thomson-Houston Electric Company (See Rice, Edwin W., Jr., assignor.)						
Thomson, James. (See White and Thomson.)						
Thomson, James, Jr., Pawtucket, assignor to Thomson Manufacturing Company, Providence, R. I. Rotary clearer for drawing-rolls of cotton machinery	593,971	Nov. 16	2219	526	81	1265

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Thomson, James, Jr., Pawtucket, assignor to Thomson Manufacturing Company, Providence, R. I. Rotary clearer for drawing-rolls of cotton machinery	593,972	Nov. 16	2221	527	81	1265
Thomson, James, Jr., Pawtucket, assignor to Thomson Manufacturing Company, Providence, R. I. Rotary clearer for drawing-rolls of cotton machinery	593,973	Nov. 16	2221	527	81	1265
Thomson, James W., Bedford, Ind. Telephone-transmitter	593,255	Nov. 9	930	225	81	1001
Thomson Manufacturing Company. (See Thomson, James, Jr., assignor.)						
Thorn, William B., *et al.* (See Ehrhardt, William, assignor.)						
Thornton, Meredith A., Gibson, Ill. Mechanical movement	596,291	Dec. 28	2503	595	81	2167
Thornton, Solomon T., Starnes, Miss. Railway-switch	593,624	Nov. 16	1605	386	81	1145
Throm, Charles F., Toledo, Ohio. Eaves-trough hanger	593,407	Nov. 9	1183	286	81	1049
Throop, Arthur, *et al.* (See Merryweather, James, assignor.)						
Thurlow, John W., Osceola, Iowa. Horse-foot protector	591,510	Oct. 12	1020	239	81	226
Thurston, H. R., *et al.* (See Redman, Henry A., assignor.)						
Thurston, Joseph M., Richmond, Ind. Centrifugal machine	596,389	Dec. 28	2496	639	81	2205
Thurston, Julia A., *et al.* (See Redman, Henry A., assignor.)						
Thwing, Z. Clark. (See Denton, Lemi B., assignor.)						
Tichenor, Francis H., Peoria, Ill. Universal firing-pin	592,942	Nov. 2	334	78	81	873
Tilley, Edwin F., New York, N. Y. Bedstead-fastening	593,444	Nov. 9	1241	299	81	1060
Tillinghast, Frederick. (See Van Guysling, Walter F., assignor.)						
Tillinghast, Wallace E., East Greenwich, R. I. Oil-cup	592,179	Oct. 19	2186	515	81	474
Tillison, Hosea R., Boston, Mass. Belt-pulley	593,366	Nov. 9	1105	268	81	1035
Tillison, Hosea R., assignor to S. A. Woods Machine Company, Boston, Mass. Cutter-head	593,500	Nov. 9	1346	327	81	1081
Timmis, William, Pittsburg, Pa. Window-chair	593,501	Nov. 9	1349	327	81	1081
Timmis, William, assignor of one-half to F. W. Bailey and C. B. Pier, Pittsburg, Pa. Car-brake	591,577	Oct. 12	1154	271	81	251
Timms, James, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Car-coupling	592,977	Nov. 2	411	96	81	886
Timms, James, assignor to Buckeye Malleable Iron and Coupler Company, Columbus, Ohio. Center-plate for cars	595,681	Dec. 14	1426	344	81	1920
Timms, William A., Mount Vernon, assignor of one-half to W. M. Johnson, Newark, Ohio. Bolt tapping and drilling machine	594,044	Nov. 23	2340	552	81	1305
Tingle, Eustace M., Lichfield, England. Self-raising flour	595,980	Dec. 21	1973	.....	81	2046
Tinker, Matthew, Baltimore, Md. Hand-stamp	595,005	Dec. 7	285	68	81	1674
Tinkham, Francis M., Springfield, Mass. Extensible bed-bottom for iron bedsteads	593,994	Nov. 16	1968	463	81	1213
Tinney, Thomas B., Philadelphia, Pa. Carousel	596,342	Dec. 28	2598	618	81	2186
Tinning, James D., Hutto, Tex. Planter	591,513	Oct. 12	1209	284	81	261
Toal, David D., and R. Wilson, New York, N. Y. Beds	593,445	Nov. 9	1242	299	81	1061
Tobacco Warehousing and Trading Company. (See Palethorpe, James A., assignor.)						
Todd, Elbert R., *et al.* (See Woods, William H., assignor.)						
Toledo Glass Company. (See Colburn and Owens, assignors.)						
Tolhurst, Joseph, Burlington, Canada. Gate-valve	594,045	Nov. 23	2342	553	81	1305
Tolson, Jacob L. (See Stauffer and Tolson.)						
Tolson, Thomas, Boston, Mass. Unicycle	591,025	Oct. 5	151	34	81	31
Tolson, Thomas, Boston, Mass. Bicycle-frame	591,306	Oct. 5	656	154	81	125
Tombaugh, Reno G., Scenery Hill, Pa. Currycomb	594,218	Nov. 23	2611	617	81	1357
Tomlison, William, assignor of one-half to G. S. Graves, Buffalo, N. Y. Furnace	591,998	Oct. 19	1841	438	81	409
Tomlin, Albert B., Fort Collins, Colo. Cash-drawer	593,704	Nov. 16	1733	417, 418	81	1168
Toner, George C., and J. W. McCollum, West Indianapolis, assignors to Indiana Manufacturing Company, Indianapolis, Ind. Discharger for pneumatic straw-stackers	592,672	Oct. 26	3374	704	81	760
Toner, George C., and J. W. McCollum, West Indianapolis, assignors to Indiana Manufacturing Company, Indianapolis, Ind. Pneumatic straw-stacker	592,673	Oct. 26	3376	704, 705	81	761
Tonge, James. (See Gass and Tonge.)						
Toof, Edwin J., New Haven, Conn. Tuck-marking attachment for sewing-machines	592,127	Oct. 19	2104	498	81	458
Toops, Hector, Frankfort, Ind. Sash-fastener	592,457	Oct. 26	3003	608	81	686
Topham, William B., *et al.* (See Stephens, Dabney B., assignor.)						
Topp, Thomas M., Sacramento, Cal. Fruit cutting and pitting machine	596,343	Dec. 28	2599	619	81	2186
Topping, Alfred S., Hart, Mich. Combined saw-set, jointer, and raker-gage	592,069	Oct. 19	1993	471	81	438
Torchiani, Harry, Brooklyn, N. Y. Pitching-machine	592,198	Oct. 19	2105	499	81	458
Torrance, George J., Kearney, N. J. Baling-machine	596,253	Dec. 28	2442	577	81	2156
Tortoiseshell, Ernest, assignor of one-half to J. W. Jackson, Paterson, N. J. Car-fender	592,555	Oct. 26	3164	652	81	718
Tourtillotte, Fredrick A., Northfield, Minn. Shaft-bearing	593,705	Nov. 16	1735	418	81	1169
Tousignant, Mathilda M., *et al.* (See Duplessis, Elouild, assignor.)						
Towle, Elmer E. (See Jones and Towle.)						
Towne, John A. (See Dickerson and Towne.)						
Townsend, Samuel P., Philadelphia, Pa. Lawn-mower	591,435	Oct. 12	896	209, 210	81	208
Tracy, Hayden H., San Francisco, Cal. Automatic regulator	596,191	Dec. 28	2342	556	81	2137
Traut, Justus A. (See Turnbull, Andrew, assignor.)						
Traut, Justus A., New Britain, Conn. Plane	591,662	Oct. 12	1299	305	81	280
Trautman, George. (See Schwarm, Charles A., assignor.)						
Travaglini, Antonio, Philadelphia, Pa. Trolley	596,131	Dec. 28	2244	533	81	2119
Travers, Charles J. (See Sheriffs and Travers.)						
Treat, James E. (See Richardson, John P., assignor.)						
Tredwell, Charles A., Bristol, assignor, by mesne assignments, to P. & F. Corbin, New Britain, Conn. Gear-wheel	594,219	Nov. 23	2612	618	81	1357
Tremblay, Marcel M., assignor of one-half to P. Lussier, Jr., Springfield, Mass. Switch-operating mechanism for cars	594,715	Nov. 30	3549	826	81	1560
Trench, John T., Kenmare, Ireland, assignor to Trench Tubeless Tyre Company, Limited, London, England. Pneumatic tire	596,009	Dec. 21	2015	481	81	2055
Trench Tubeless Tyre Company. (See Trench, John T., assignor.)						
Trenkamp, Henry. (See Schneider, Trenkamp, and Geurink.)						
Trent, Lamartine C., Salt Lake City, Utah, assignor to Revere Rubber Company, Boston, Mass. Flanged belt	594,220	Nov. 23	2613	618	81	1357
Trent, Thomas A., Jr., Osceola, Iowa. Typographical adding-machine	591,900	Oct. 19	1680	402, 403	81	378
Trice, Agnes M. (See Trice, Sinnette Y., assignor.)						
Trice, Sinnette Y., assignor to A. M. Trice, Dallas, Tex. Hopple	594,502	Nov. 30	3138	735	81	1478
Tripp Giant Leveller Company. (See Gates, George B., assignor.)						
Tripp, Seth D., Lynn, Mass. Wrapping-machine	595,421	Dec. 14	1015	244	81	1834
Trojan Car Coupler Company. (See McKeen, Thomas L., assignor.)						
True, David, Amesbury, Mass. Oil-can	593,446	Nov. 9	1244	299	81	1061
Triumph Manufacturing Company. (See Dudley and Fogleson, assignors.)						
Troast, William F., assignor to Slaymaker-Barry Company, Connellsville, Pa. Cylinder-lock	591,106	Oct. 5	295	72	81	58

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Trotman, Zina U., Traverse City, Mich. Lock	591,901	Oct. 19	1689	408	81	880
Trotter, James M., Alma, Cal. Motor for vehicles	592,674	Oct. 26	3579	705	81	761
Troy Laundry Machinery Company. (See Moe, Sivert, assignor.)						
Troy Laundry Machinery Company. (See Roberts, George C., assignor.)						
Tubbe, Carl, Augsburg, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Mercerizing	596,464	Dec. 28	2898	.....	81	2234
Tubbs, Nelson J., Knoxville, Tenn. Vehicle	594,768	Nov. 30	3643	848	81	1579
Tucker, Benjamin W., Newark, N. J. Car-truck	592,843	Nov. 2	170	39	81	840
Tucker, John Q., Belfalls, Tex. Beehive	592,180	Oct. 19	2187	515	81	474
Tucker, William H., assignor to Phoenix Caster Company, Indianapolis, Ind. Caster	592,484	Oct. 26	3045	620	81	694
Tucker, William W., Hartford, Conn. Thread-cutting machine	595,798	Dec. 21	1624	392	81	1975
Tuitte, Frank, assignor of one-half to H. Vander Stucken, Menardville, Tex. Sash-fastener	593,706	Nov. 16	1736	418	81	1169
Tupholme, Beeston, assignor to J. Baker & Sons, London, England. Apparatus for roasting coffee	591,907	Oct. 5	657	155 156	81	125
Turck, Frederick M., assignor to P. Hano, New York, N. Y. Manifolding-book	595,981	Dec. 21	1974	471	81	2046
Turley, John B., Murphy, Tex. Gate-latch	595,080	Dec. 7	332	80	81	1683
Turnbull, Andrew, assignor to J. A. Traut, New Britain, Conn. Plane	591,663	Oct. 12	1301	305	81	281
Turnell, Edward, Elm Creek, Nebr. Corn picker and husker	596,192	Dec. 28	2344	557	81	2137
Turner, George A., Roanoke, Va. Sash-fastener	592,070	Oct. 19	1994	471	81	438
Turner, George E., Marion, Ohio. Water-tube steam-generator	594,163	Nov. 23	2525	597 598	81	1341
Turner, George W., assignor of one-half to J. H. Rogge, Dayton, Ohio. Lifting-jack	591,793	Oct. 12	1498	355	81	321
Turner, Granville W., assignor to F. J. Underwood, Springfield, Mo. Coal-chute	591,864	Oct. 5	769	181	81	147
Turner, Jesse H. (See Horr, Bertin E., assignor.)						
Turner, Paul. (See Smith, John J., assignor.)						
Turner-Turner, John, Avon Castle Hotel, Hampshire, England. Coin-freed goods-delivery apparatus	591,511	Oct. 12	1021	239	81	226
Turner, William A., assignor to Chicago Cotton Picker Company, Chicago, Ill. Cotton-picking machine	593,707	Nov. 16	1738	418 419 420	81	1169
Turrell, George, Patterson, N. Y. Non-refillable bottle	594,301	Nov. 23	2761	653	81	1386
Tuteur, Edwin B. (See Strauss, Joseph B., assignor.)						
Tuttle, George H., Braintree, Mass. Elevator	591,578	Oct. 12	1155	271	81	251
Tyden, Emil, assignor to J. A. Johnson, Chicago, Ill. Self-locking seal	594,580	Nov. 30	3283	771	81	1506
Tyler, Arthur M., Richmond, Va. Sash-fastener	592,458	Oct. 26	3005	608	81	687
Tyler, Nathaniel, Jr., and W. A. Lieber, Washington, D. C.; said Lieber assignor to said Tyler. Device for holding and pressing trousers	596,084	Dec. 21	2075	494	81	2068
Tyree, William, Christchurch, New Zealand. Apparatus for teaching writing	592,029	Oct. 19	1913	455	81	422
Tysen, Mary F., Jacksonville, Fla. Work-holder	592,181	Oct. 19	2188	516	81	474
Uebelacker, Charles F., Newark, N. J. Mold for lining shells of journal-bearings	595,825	Dec. 21	1678	405 406	81	1986
Uhlich, Ferdinand G. (See Bischoff, John C. A., assignor.)						
Uhlig, Richard W., College Point, assignor, by mesne assignments, to W. B. Baldwin, Yonkers, N. Y. Type-writing machine	593,789	Nov. 16	1896	452 453	81	1198
Uhry, Jules, New York, N. Y. Hat-pin retainer	596,438	Dec. 28	2785	658	81	2224
Ulrich, Moritz, and J. Bammann, assignors to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Blue-black disazo dye	593,790	Nov. 16	1905	.....	81	1200
Umhoefer, Gregory. (See Umhoefer, Joseph J. and G.)						
Umhoefer, Joseph J. and G., Alvord, Iowa. Paper-bag cabinet	593,003	Nov. 2	446	107	81	894
Underhill, William M., Underhill, Wis. Animal-stall	595,504	Dec. 14	1152	277 278	81	1862
Underwood, Flaveus J. (See Turner, Granville W., assignor.)						
Underwood, George B., New York, N. Y. Inhaler	594,302	Nov. 23	2762	653	81	1386
Underwood, Joseph B., Fayetteville, N. C. Tobacco-stemming machine	591,436	Oct. 12	898	210 211	81	208
Union Iron Works. (See Binckley, George S., assignor.)						
Union Special Sewing Machine Company. (See Muther, Holland, and Woodward, assignors.)						
Union Special Sewing Machine Company. (See Onderdonk, Lansing, assignor.)						
Union Special Sewing Machine Company. (See Weyburn, Elbert D., assignor.)						
Union Special Sewing Machine Company. (See Woodward, Russel G., assignor.)						
Union Switch and Signal Company. (See Coleman, John P., assignor.)						
Union Trust Company, administrator. (See Andrews, James.)						
United Fuel Gas Generator Company. (See Stafford, Rinaldo R., assignor.)						
United States Glass Company. (See Lazure and Denning, assignors.)						
United States Mail Package and General Pneumatic Delivery Company. (See Batcheller, Birney C., assignor.)						
United States Playing Card Company. (See James, Wilbur C., assignor.)						
United States Pneumatic Despatch Company. (See Pike, Charles F., assignor.)						
Universal Food and Liquid Improving Company. (See Dolley, Rehfuss, and Hunt, assignors.)						
Universal Trading Company. (See Richmond, Cassius M., assignor.)						
Universal Winding Company. (See Wardwell, Simon W., Jr., assignor.)						
Urie, William T., Kansas City, Mo. Street-sweeper	594,508	Nov. 30	3139	735 736	81	1478
Urquhart, David, and F. Wynne, London, England. Electric railway	591,706	Oct. 12	1365	319	81	293
Usher, Charles E. D., Malvern, Victoria. Variable-speed driving-gear for velocipedes	595,242	Dec. 7	724	176 177	81	1753
Utley, Thomas, Liverpool, England. Light and air port for ships	591,707	Oct. 12	1367	320	81	294
Vacuum Oil Company. (See Grimes, Walter, assignor.)						
Vail, C. D., *et al.* (See Pugh, William J., assignor.)						
Vail, J. H., *et al.* (See Pugh, William J., assignor.)						
Vale Barrel Machine Company. (See Nawrath, Robert, assignor.)						
Valentine, Nathan M., Montezuma, Iowa. Shaft or tongue coupling	592,004	Nov. 2	448	107	81	894
Valentine, William A., New York, N. Y. Metal-button-cleaning shield	592,894	Nov. 2	255	58	81	857
Van Alstine, Cornelius C. E., and G. W. Graham, Paterson, N. J. Combined spinning, doubling, and twisting machine	593,866	Nov. 16	2046	482	81	1229
Van Cise, William C., Jamestown, N. Y. Spring-bed	591,579	Oct. 12	1157	273	81	252
Van de Westelaken, Peter, assignor to himself, P. M. Baldwin, J. T. Sweeney, J. T. Johnson, and E. F. Downham, Alexandria, Va. Pasteurizing bottled liquids	593,140	Nov. 2	672	161	81	939
Van Derworp, Anna M., Detroit, Mich. Dressmaker's measure	593,555	Nov. 9	1464	356	81	1101
Van Deusen, C. V. C. (See Crandall, Jesse A., assignor.)						
Van Dusen, Charles E., and A. B. Röver, Binghamton, N. Y. Boring-machine	595,896	Dec. 21	1890	437	81	2016
Van Eyck, Henry R., Zeeland, Mich. Speed-changing appliance	593,285	Nov. 9	975	235 236	81	1010

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Van Guysling, Walter F., assignor of three-fifths to F. Tillinghast, Albany, N. Y. Lubricator	595,031	Dec. 7	333	80	81	1683
Van Nuis, Charles S., New Brunswick, N. J. Electric-arc lamp	591,026	Oct. 5	153	35	81	32
Van Valkenburg, Randall T., Bucyrus, Ohio, assignor of one-half to J. N. Neal, Coldwater, Mich. Wire fence	591,064	Oct. 5	219	51	81	44
Van Vechten, Orville R., assignor to S. A. Van Vechten and E. E. Pollock, New York, N. Y. Device for preventing refilling of bottles	591,902	Oct. 19	1690	404	81	380
Van Vechten, Stella H., *et al.* (See Van Vechten, Orville R., assignor.)						
Van Wagoner & Williams Hardware Company. (See Pomeroy, Le Dru R., assignor.)						
Van Ruymbeke, Joseph, *et al.* (See Dyer, Frank L., assignor.)						
Van Zandt, Edwin G., assignor to F. E. Niesen, trustee, St. Louis, Mo. Pneumatic tire	595,422	Dec. 14	1019	244	81	1835
Vance, James R., Geneva, N. Y. Steam-boiler	595,589	Dec. 14	1282	308	81	1890
Vander Stucken, Henry. (See Tuitte, Frank, assignor.)						
Vanderbeck, Isadore and M. E., Huntsville, Mo. Trace-detacher	591,181	Oct. 5	436	104	81	83
Vanderbeck, Martile E. (See Vanderbeck, Isadore and M. E.)						
Vandervoort, James A., Trenton, N. J. Steam-boiler	596,344	Dec. 28	2600	619	81	2187
Vandevelde, Paul V., Corona, N. Y. Automatic electric-alarm device	592,503	Oct. 26	3069	625	81	700
Varwig, Thomas. (See Maxon, Stiles E., assignor.)						
Vaughan, Albert F., assignor to Cory & Reynolds, Providence, R. I. Necktie-fastener	595,928	Dec. 21	1883	450	81	2028
Vaughan, Henry R., Belfast, Ireland. Brick-kiln	591,065	Oct. 5	220	52	81	44
Vaughn, Charles A., Vineland, N. J. Tool-handle	591,512	Oct. 12	1023	259	81	226
Velle, George S., assignor of one-half to C. S. Brundage, Newburg, N. Y. Clothes-line fastener	593,256	Nov. 9	931	225 276	81	1001
Venners, James H., Brooklyn, N. Y. Cigarette-making machine	593,385	Nov. 9	1144	277 278	81	1042
Veraci, Pietro, Florence, Italy. Cigar-wrapper-cutting machine	594,835	Nov. 30	3763	677 678	81	1602
Verdier, Mary E., Pittsburg, Pa. Soap-saving device	594,664	Nov. 30	3468	607	81	1543
Verity, James H., Portland, Mich. Washing-machine	591,437	Oct. 12	903	211	81	204
Vermilyea, Frank. (See Carter, Ezra W., assignor.)						
Vickrey, John C., Reno, Ind. Catching and holding tool	592,030	Oct. 19	1914	455	81	423
Vidal, Henri R., Paris, France. Sulfur dye	594,105	Nov. 23	2434	.....	81	1334
Vidal, Henri R., Paris, France. Mixed sulfur dye	594,106	Nov. 23	2435	.....	81	1334
Vidal, Henri R., Paris, France. Thiazin dye	594,107	Nov. 23	2435	.....	81	1334
Vidal, Henri R., Paris, France. Making paramidophenol	595,857	Dec. 21	1831	.....	81	2017
Vidal y Vilaret, Felipe, and D. Beials, New York, N. Y. Electric-motor regulator	592,619	Oct. 26	3267	677	81	738
Vidor, Charles S., Galveston, Tex. Tool for type-writers	593,791	Nov. 16	1906	454	81	1200
Vierkant, Hermann C., Tarrytown, N. Y. Coin-controlled vending-machine	592,071	Oct. 19	1905	471 472	81	436
Vigand, Paolo, Triuggio, Italy. Shuttle-box-operating mechanism for looms	591,308	Oct. 5	659	156	81	126
Vilas, Royal L., assignor to Globe Company, Cincinnati, Ohio. Card-file	595,085	Dec. 7	436	103	81	1700
Ville, Jules, Montpellier, France. Red dye	591,309	Oct. 5	661	.....	81	126
Vincent, Eugene, assignor to J. E. Sénéchal, Paris, France. Wheel for vehicles	593,708	Nov. 16	1743	420	81	1170
Viser, Henry D., St. Louis, Mo. Device for holding covers on beds	595,221	Dec. 7	666	160	81	1743
Vive Camera Company. (See Atwater, John L., assignor.)						
Voelker Light Company. (See Chinnock, George H., assignor.)						
Voelker Light Company. (See Voelker, William L., assignor.)						
Voelker, William L., Elizabeth, N. J., assignor to Voelker Light Company, of New Jersey. Material for hoods or mantles for incandescent gas-lights	591,438	Oct. 12	904	.....	81	204
Voelker, William L., Elizabeth, N. J., assignor to Voelker Light Company, of New Jersey. Manufacturing incandescible material	595,839	Dec. 21	1707	.....	81	1992
Vogel, Peter, and H. Hatscher, Springfield, Mass. Beverage and compounding same	596,222	Dec. 28	2389	.....	81	2146
Vogler, August E., Hoboken, N. J., and C. G. Richardson, New Brighton, N. Y. Gas-burner	593,342	Nov. 9	1073	250	81	1029
Voight, Henry G., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Grand-master-key cylinder-lock	591,439	Oct. 12	905	212	81	204
Volgt, Frederick H., Philadelphia, Pa. Balance-escapement	594,446	Nov. 30	3083	712	81	1456
Voigtländer, Richard. (See Pittler, Julius W. von, assignor.)						
Vollrath, Andrew J., Sheboygan, Wis. Enameling surfaces	593,792	Nov. 16	1907	.....	81	1200
Volney, Carl W., New York, N. Y. Making gunpowder	592,485	Oct. 26	3046	.....	81	695
Volney, Carl W., New York, N. Y. Gunpowder	592,805	Nov. 2	256	.....	81	857
Von Platen, Maurice. (See Jones, Thomas H., assignor.)						
Voras, Rudolph, New York, N. Y. Animal-trap	592,598	Oct. 26	3231	669	81	731
Vought, Josiah W. (See Merriman and Vought.)						
Vreeland, Aaron, East Orange, N. J. Saw-file holder and guide	593,793	Nov. 16	1908	454	81	1200
W. J. McClurg Gas Construction Company. (See Miller, Commodore R., assignor.)						
W. W. Kimball Company. (See Hedgeland, Frederick W., assignor.)						
Waddell, Montgomery. (See Spruance and Waddell.)						
Wade, Merritt, Detroit, Mich. Bench-vise	591,903	Oct. 19	1692	404	81	380
Wade, Oscar A., Avon, Mass. Parlor game-board	593,794	Nov. 16	1910	454	81	1201
Wadsworth, Joseph, Paterson, N. J. Machine for measuring and folding fabrics, &c	592,264	Oct. 26	2327	548 549	81	522
Wagenhals, William G., assignor to Dayton Manufacturing Company, Dayton, Ohio. Trolley-base cushion	596,193	Dec. 28	2347	558	81	2138
Wagner, Anna F. (See Wagner, Ernst L. and A. F.)						
Wagner, Ernst L. and A. F., Philadelphia, Pa. Safety ice-creeper	593,315	Nov. 9	1081	249	81	1022
Wagner, John G., Jr., *et al.* (See Noechel, Frank J., assignor.)						
Wahl, John, Alton, Ill. Slot-machine	596,095	Dec. 28	2184	517	81	2107
Waite, Frank W., and W. D. Broadwell, Petersburg, Va. Knife-guard	591,310	Oct. 5	602	157	81	126
Waite, Gilman. (See Washburn, Theodore W., assignor.)						
Waite, Guy B., Hoboken, N. J. Construction of buildings	596,345	Dec. 28	2302	620	81	2187
Waite, Henry E., New York, N. Y. Apparatus for electrically treating diseases	592,844	Nov. 2	173	39, 40	81	841
Waite, Henry E., New York, N. Y. Electric switch	593,286	Nov. 9	978	236	81	1010
Waitt, Benjamin F., trustee. (See Waitt, George W., assignor.)						
Waitt, George W., assignor to B. F. Waitt, trustee, San Francisco, Cal. Pipe-wrench	592,081	Oct. 19	1915	455	81	423
Wakefield, Nathan S., Pomona, Cal. Faucet	595,222	Dec. 7	667	160	81	1743
Walch, Gustav, Wiesbaden, Germany. Lubricator	595,826	Dec. 21	1682	406	81	1987
Waldron, Edward, Philadelphia, Pa. Friction-clutch	595,223	Dec. 7	668	161	81	1744
Waldron, Hubert H., *et al.* (See Lafaelle, William H., assignor.)						
Waldron, William E., Washington, Pa. Nut-lock	595,448	Dec. 14	1056	253	81	1843
Wales, Alfred R. (See Wales, Robert R. and A. R.)						
Wales, Robert R. and A. R., Westover, Canada. Bottle, tankard, glassware, or the like	596,194	Dec. 28	2349	558	81	2138
Walker, Albert H., trustee. (See Claussen, Edward E., assignor.)						
Walker, Albert H., trustee. (See Lorenz, William A., assignor.)						
Walker, Byron H., Cœur d'Alene, Idaho. Bicycle-lock	591,066	Oct. 5	221	52, 53	81	44

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Walker Company. (See Zweigbergk, Thorsten von, assignor.)						
Walker, Horace L., and E. G. Minnemeyer, assignors of one-half to J. Frake, Chicago, Ill. Soldering-machine	595,449	Dec. 14	1057	254	81	1843
Walker, John M., Converse, Ind. Self-oiling spindle	593,867	Nov. 16	2049	482	81	1229
Walker, John S., *et al.* (See Poulter, John H., assignor.)						
Walker, Robert H., assignor of two-thirds to R. Shields, Washington, and W. C. Linton, Ottumwa, Iowa. Nut-lock	593,913	Nov. 16	2116	501	81	1244
Walker, Samuel H., *et al.* (See Sanders, William O., assignor.)						
Walker, Vincent C., *et al.* (See Elliott, William J., assignor.)						
Walker, William J., assignor to Chicago Folding Box Company, Chicago, Ill. Paper box	591,148	Oct. 5	368	87	81	71
Walkins, Louis E., assignor to F. C. Wright, Springfield, Mass. Underground-trolley system	595,224	Dec. 7	670	162	81	1744
Wallace, David S., assignor to Wallace Plumbing Improvement Company, Denver, Colo. Automatic siphoning device	591,067	Oct. 5	223	53	81	44
Wallace, Merritt T., New Lexington, and A. H. Reynolds, Moxahala, Ohio. Nut-lock	592,845	Nov. 2	175	40	81	842
Wallace Plumbing Improvement Company. (See Wallace, David S., assignor.)						
Wallace, William N., *et al.* (See Pugh, William J., assignor.)						
Wallgren, Charles A., Brooklyn, N. Y. Micrometer-gage	596,346	Dec. 28	2605	620 621	81	2188
Walling, James H., *et al.* (See Boening, Ernest, assignor.)						
Wallwork, Roughsedge, Manchester, England. Machine for printing upon textile fabrics	595,225	Dec. 7	672	162 163	81	1745
Walsh, Ralph, Washington, D. C. Box or receptacle for pulverulent or granular materials	591,709	Oct. 12	1368	320	81	294
Walsh, William J., Cleveland, Tenn. Milk-bucket	594,127	Nov. 23	2467	584	81	1330
Walter, George P., Brownwood, Tex. Ironing-machine	593,141	Nov. 2	676	162	81	940
Walter, John W., assignor of one-half to A. J. Beduhn, Oshkosh, Wis. Shading and spacing tool	594,186	Nov. 23	2562	606	81	1348
Walter, Marcellous B., Cardington, Ohio. Spring-clamp for wire-fence stays	593,868	Nov. 16	2050	483	81	1230
Walter, Theophiel P., assignor of one-half to A. H. Kidd, Beatrice, Nebr. Pneumatic tire	594,046	Nov. 23	2343	553	81	1306
Waltman, Frank. (See Roll and Waltman.)						
Walz, Micheal. (See Sheets, William M., assignor.)						
Wambsgans, Jacob. (See Wells and Wambsgans.)						
Wamsley, James W., and H. F. Lainé; said Lainé assignor of one-half to D. T. Lainé, Philadelphia, Pa. Shutter-bower	594,504	Nov. 30	3141	736	81	1479
Wanamaker, Rodman, Paris, France. Repeating watch	592,032	Oct. 19	1916	455	81	428
Wanliss, William, Johannesburg, South African Republic. Device for driving bicycles or velocipedes	594,921	Dec. 7	136	33	81	1647
Ward, Bryant A., assignor of one-half to J. T. Davis, Bardwell, Ky. Ladder	594,308	Nov. 23	2763	653	81	1387
Ward, George H., Brooklyn, N. Y. Filter	592,675	Oct. 26	3381	706	81	762
Ward, Hezekiah F., Churchton, assignor to E. A. Hartge, Galloway, Md. Anchor	594,769	Nov. 30	3645	848	81	1579
Ward, Joseph A., *et al.* (See Holly, Carlos, assignor.)						
Ward, Joseph G., Newark, N. J. Manufacture of finger-rings	595,929	Dec. 21	1884	450	81	2028
Ward, Lee, Wrightsborough, Tex. Cultivator	593,709	Nov. 16	1744	420	81	1170
Warder, J. I. (See Alfred, Ralph E., assignor.)						
Wardwell, Frank A., Methuen, Mass. Loom-picker	595,226	Dec. 7	678	163	81	1746
Wardwell, Simon W., Jr., Boston, Mass., assignor to Universal Winding Company, Portland, Me. Machine for winding tapering cops	593,756	Nov. 16	1834	440	81	1187
Waring, Thomas, Camden, N. J. Filing-case	595,982	Dec. 21	1976	472	81	2047
Warman, John I., Chicago, Ill. Multiple drill	592,943	Nov. 2	337	78, 79	81	873
Warn, John M. (See Hennessy, James, assignor.)						
Warncke, Heinrich, Lüneburg, Germany. Pick for edging millstones	592,265	Oct. 26	2328	549	81	522
Warner, Albert C. (See Pierce and Warner.)						
Warner, Charles E., Waverly, Kans. Wire-fence machine	594,128	Nov. 23	2468	584 585	81	1330
Warner, Ernest P., assignor to Western Electric Company, Chicago, Ill. Insulated hanger	593,625	Nov. 16	1606	386	81	1145
Warner, Ernest P., assignor to Western Electric Company, Chicago, Ill. Electric-arc lamp	593,626	Nov. 16	1608	386 387	81	1146
Warner, Ernest P., and A. J. Oehring, assignors to Western Electric Company, Chicago, Ill. Electric-arc lamp	591,182	Oct. 5	437	104	81	83
Warner, James H., New York, N. Y. Combination-lock	594,447	Nov. 30	3085	713	81	1457
Warner, John F., Boston, Mass. Heel for boots or shoes	594,108	Nov. 23	2436	578	81	1324
Warner, John H., Portsmouth, Ohio. Window curtain and shade holder	592,846	Nov. 2	175	40	81	842
Warner, Judson W., Oneida, N. Y. Boiler-furnace	594,817	Nov. 30	3735	870	81	1597
Warner, Milton R. (See Hartman, Daniel B., assignor.)						
Warren, Edwin A. and R. A., Sturgis, Mich. Corset	594,164	Nov. 23	2526	598	81	1342
Warren, John B., and C. W. Jones, Kansas City, Mo. Bicycle-brake	591,994	Oct. 19	1843	438 439	81	409
Warren, Ruth A. (See Warren, Edwin A. and R. A.)						
Warren Webster and Company. (See Leitch, Meredith, assignor.)						
Warwick, George T., Newark, N. J. Bicycle-brake	592,599	Oct. 26	2332	609	81	731
Warwick, James H., Kokomo, Ind. Rotary wrench	596,311	Dec. 28	2542	606	81	2175
Wascher, William, Portland, Oreg. Relief-valve for force-pumps	595,006	Dec. 7	296	68	81	1674
Washburn, Albion K., Bridgewater, Mass. Sole-leveling machine	596,298	Dec. 28	2505	596	81	2167
Washburn, Edwin C., Minneapolis, Minn. Car-coupling	593,951	Nov. 16	2178	517	81	1256
Washburn, Theodore W., assignor to G. Waite, Baldwinsville, Mass. Locking device for adjustable chairs, &c	595,840	Dec. 21	1708	410 411	81	1992
Washburn, Wilbur F., Yonkers, N. Y. Water-cock for toilet-basins or bath-tubs	591,107	Oct. 5	297	72, 78	81	59
Washington, Fortune, assignor of one-half to A. Cuba, Colchester, Ill. Kitchen-cabinet	591,440	Oct. 12	907	212	81	205
Washington, George, Brussels, Belgium, assignor to George Washington Lighting Company, Jersey City, N. J. Vapor-lamp	593,257	Nov. 9	932	295 296	81	1002
Waterbury, Charles M. (See Pruden and Waterbury.)						
Waterbury Watch Company. (See Hart, Edwin, assignor.)						
Waterbury Watch Company. (See Hart, George E., assignor.)						
Waterman, Arthur A., Arlington, Mass. Fountain-pen	592,847	Nov. 2	177	40	81	842
Waterman, Charles H., assignor of three-fourths to A. Roth, J. Brining, and J. N. Strohm, Dayton, Wash. Extension-ladder	592,182	Oct. 19	2189	516	81	474
Waterman, Lewis E., Moline, assignor to Rock Island Plow Company, Rock Island, Ill. Corn-planter	595,026	Dec. 7	320	77, 78	81	1680
Watrous, Thomas A., assignor of one-half to A. W. La France, Elmira, N. Y. Griddle	591,518	Oct. 12	1025	240	81	226
Watson, George W., Passaic, N. J. Dental disk-holder	596,254	Dec. 28	2444	577	81	2157
Watson, Harrison F., and C. McCreary, Erie, Pa. Gasket	595,867	Dec. 21	1768	425	81	2004
Watson, James, Rantoul, Ill. Grain-door	591,940	Oct. 19	1763	421	81	395

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Watson & McDaniel Company. (See Jennings, William C., assignor.)						
Watson, Morton G. (See Ratcliff and Watson.)						
Watson, Richard D., Toledo, Ohio. Valve	593,258	Nov. 9	934	226	81	1002
Watson, Richard P., and A. C. Luyckx, Detroit, Mich. Expansible cap	591,311	Oct. 5	663	157	81	126
Watson, Samuel G., *et al.* (See Curl, Marion L., assignor.)						
Watt, Alexander C., Greenfield, Ohio. Railway-crossing signal	596,233	Dec. 28	2407	569 570	81	2150
Wattles, Luther H., assignor, by mesne assignments, to Wattles Steam and Gas Engine Company, Providence, R. I. Rotary-piston engine	595,227	Dec. 7	679	164 165 166	81	1746
Wattles Steam and Gas Engine Company. (See Wattles, Luther H., assignor.)						
Watts, James D., Florence, Ala. Coat-support	595,358	Dec. 14	900	218	81	1813
Watts, John R., Sheffield, England. Pocket-knife	596,006	Dec. 28	2185	517	81	2107
Wauthier, Louis F., Ligny, Belgium. Machine for sowing seed in lines, &c	591,312	Oct. 5	664	157	81	126
Way, John H., Philadelphia, Pa. Chest and neck protector	593,954	Nov. 16	2184	518	81	1257
Wayne, Herbert N. (See Rand and Wayne.)						
Weaver, Andrus S., Joy, N. Y. Car-coupling	596,105	Dec. 28	2350	558	81	2138
Weaver, Harry, York Haven, assignor of one-half to W. D. Cassel, Goldsborough, Pa. Jar-top	592,676	Oct. 26	3382	706	81	762
Weaver, William F. (See Armstrong, Alexander, assignor.)						
Weaver, William H. M., Macon, Ga. Telephone-repeater	595,963	Dec. 21	1978	472	81	2047
Webb, George S. (See Pearson and Webb.)						
Webb, William J., assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y. Yarn-printing machine	595,964	Dec. 21	1979	472 473	81	2048
Webb, William J., assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y. Yarn-printing apparatus	596,035	Dec. 21	2077	494	81	2069
Webb, William J., assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y. Yarn-printing machine	596,045	Dec. 21	2101	497 498	81	2074
Webber, Charles E. (See Grattan, Orlando T., assignor.)						
Webber, Jeremiah, *et al.* (See Winters, John W., assignor.)						
Webber, John F., Sheridan, Wyo. Bait-holder	594,448	Nov. 30	3088	713	81	1457
Webber, Wesley, New York, N. Y. Coin-controlled gas-vending machine	591,514	Oct. 12	1026	240 241	81	227
Webber, Wesley, New York, N. Y. Coin-controlled gas-vending machine	591,515	Oct. 12	1032	242 243	81	227
Weber, Eugen, Pforzheim, Germany. Slide-gage	591,709	Oct. 12	1369	321	81	295
Weber, Frederick J., Connersville, Ind. Elevator marine leg	594,449	Nov. 30	3089	713 714	81	1457
Weber, Frederick J., assignor to Steel Storage and Elevator Construction Company, Connersville, Ind. Pneumatic grain-moving apparatus	592,848	Nov. 2	179	41	81	842
Weber, George W., St. Paul, Minn. Combination bracket and luggage-carrier for bicycles	591,904	Oct. 19	1693	404	81	380
Weber, Richard, Brooklyn, N. Y. Envelop	595,747	Dec. 21	1535	370	81	1958
Webster, Charles A., Independence, Iowa. Blowpipe	594,922	Dec. 7	137	34	81	1647
Webster, Edward H., and J. D. Winslow, assignors to Howe Scale Company, of 1886, Rutland, Vt. Bicycle-stand	592,534	Oct. 26	3128	640	81	711
Webster, Thomas E. (See Doran, Robert L., assignor.)						
Weed, Harry D., and R. P. Deardorff, Syracuse, N. Y. Crank for bicycles	594,109	Nov. 23	2437	579	81	1324
Weeks-Colley Manufacturing Company. (See Colley, George H., assignor.)						
Weggeman, Joseph, assignor of one-half to M. F. Sullivan, Henderson, Colo. Churn	594,923	Dec. 7	138	34	81	1647
Wehe, William T., assignor of one-half to C. B. Smith, Middleport, Ohio. Stopper-puller	592,849	Nov. 2	181	41	81	843
Wehr, George F., Rochester, Pa., assignor to Phoenix Glass Company, of West Virginia. Globe, chimney, and shade support	595,682	Dec. 14	1426	344	81	1920
Weightman, George A. (See Misner and Weightman.)						
Weihl, William, New York, N. Y. Electric brake	594,665	Nov. 30	3469	808	81	1544
Weil, Aaron M., *et al.* (See Neal, George P., assignor.)						
Weil, John, Mansfield, Ohio. Telephone	593,627	Nov. 16	1609	387	81	1146
Weinland, Henry F., assignor to Lagonda Manufacturing Co., Springfield, Ohio. Flue-cleaner	594,221	Nov. 23	2614	618	81	1357
Weir Frog Company. (See Partington, Charles, assignor.)						
Weir, John, Dayton, Ohio. Garment-fitting device	594,666	Nov. 30	3470	808	81	1544
Weis, Andrew L., Toledo, Ohio. Scrap or stub book	592,103	Oct. 19	2061	487	81	450
Weise, Will M. T., Davenport, Iowa. Electric switch	593,914	Nov. 16	2117	501	81	1244
Weismantel, August. (See Brethauer, Otto, assignor.)						
Weiss, Carl W., New York, N. Y. Explosive-engine	592,033	Oct. 19	1918	456	81	424
Weiss, Carl W., New York, N. Y. Explosive-engine	592,034	Oct. 19	1922	456	81	424
Weiss, Christian, Jr., Trossingen, Germany. Harmonica	592,850	Nov. 2	182	41	81	843
Weiss, Henry W., Quakertown, Pa. Car-fender	593,142	Nov. 2	678	162	81	940
Weitzel, Jacob F. (See Baude, Emil F., assignor.)						
Weitzel, Jacob F., Ludlow, Ky. Construction of sheet-metal pipes	592,459	Oct. 26	3006	608	81	687
Welch, E. B., *et al.* (See Robinson, Thomas C., assignor.)						
Welch, Henry F. (See Motz, Emanuel, assignor.)						
Welch, James N., and A. Ernest, Independence, Tex. Desk	594,505	Nov. 30	3143	736	81	1479
Welch, Michael I., Cordele, assignor to S. T. Barnett, Atlanta, Ga. Car-coupling	594,770	Nov. 30	3646	848 849	81	1579
Welker, Louis, Williamsport, Pa. Means for supplying food and air to entombed miners	593,259	Nov. 9	934	226	81	1002
Welles, Edward B. and G. E. B., Asheville, N. C. Extensible pedal-lever for bicycles	594,047	Nov. 23	2344	553	81	1306
Welles, George E. B. (See Welles, Edward B. and G. E. B.)						
Wellman, Charles H. (See Wellman, Seaver, and Wellman.)						
Wellman, Harlan P., Ashland, Ky. Electric-railway system	593,143	Nov. 2	679	162 163 164	81	941
Wellman, Samuel T., J. W. Seaver, and C. H. Wellman, Cleveland, Ohio. Traveling crane	594,904	Nov. 23	2763	654	81	1387
Wellman, Samuel T., J. W. Seaver, and C. H. Wellman, assignors to Wellman-Seaver Engineering Company, Cleveland, Ohio. Brake	596,097	Dec. 28	2186	517	81	2107
Wellman-Seaver Engineering Company. (See Wellman, Seaver, and Wellman, assignors.)						
Wells, George A. (See Speer and McLean, assignors.)						
Wells, James L., El Paso, Tex. Apparatus for desulfurizing matte or other furnace products	593,447	Nov. 9	1245	299	81	1061
Wells, James M., and J. Wambsgans, Peoria, Ill. Ball-trap	592,221	Oct. 19	2240	531	81	485
Wells, James W., *et al.* (See Law, Samuel H., assignor.)						
Wells, Louis B., assignor of one-half to W. M. Hill, Granger, Tex. Plow	593,502	Nov. 9	1350	327	81	1062
Wells, Philip R., *et al.* (See Shuttleworth, Alpheus C., assignor.)						
Welsh, Jabez L., assignor of two-thirds to W. P. Thompson and J. S. L. Alexander, Philadelphia, Pa. Safety device for elevators	593,260	Nov. 9	936	227	81	1003

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Welshimer, Birney L. (See Welshimer, Fillmore M. and B. L.)						
Welshimer, Fillmore M. and B. L., Columbia, Ind. Station-indicator	591,941	Oct. 19	1765	422	81	395
Welz, George, Detroit, Mich. Oven	592,460	Oct. 26	3007	609	81	687
Wendorf, Maximilian, assignor of two-thirds to A. Meyenberg and S. Henlein, Frankfort-on-the-Main, Germany. Incandescent lamp	592,851	Nov. 2	183	41	81	843
Wendt, Hermann O. (See Gerold, Hugo, assignor.)						
Wenger, Gustav H., South Bend, Ind. Fishing-float	595,664	Dec. 14	1402	338	81	1915
Wentworth, Barton M. (See Hobbs and Wentworth.)						
Werden, Grenville W., *et al.* (See Lomb, George W. C., assignor.)						
Werner, Carl W., Wakefield, Mass. Attachment for flower-pots	592,556	Oct. 26	3165	652	81	719
Werner, John C., *et al.* (See Comley, Joseph W., assignor.)						
Wernicke, John F., Dolton, Ill. Hoe	591,710	Oct. 12	1370	321	81	295
Wesling, August H., St. Louis, Mo. Door-fastener	595,505	Dec. 14	1155	278	81	1803
Wessel, Louise, North Judson, Ind. Grass curling and baling press	596,255	Dec. 28	2445	578, 579	81	2157
West, Douglas, assignor of one-half to J. Palmer, Vergennes, Ill. Vehicle-top	595,228	Dec. 7	684	166, 167	81	1746
West, Enoch J., Foleshill, England. Ball-bearing for cycles	594,450	Nov. 30	3041	714	81	1458
West, George, *et al.* (See West, James, assignor.)						
West, James, assignor to J. and G. West and H. J. W. Raphael, London, England. Cover for pneumatic tires	593,952	Nov. 16	2181	518	81	1257
West, Thomas T., assignor of one-half to M. Berry, Springdale, Ark. Stove	593,144	Nov. 2	685	164	81	942
Westerbeck, Frederick, St. Louis, Mo. Sheet-metal can	591,313	Oct. 5	666	158	81	127
Westerbeck, Frederick, St. Louis, Mo. Sheet-metal can. (Reissue)	11,641	Dec. 7	781	193	81	1765
Western Electric Company. (See Albright, Henry F., assignor.)						
Western Electric Company. (See Fiske, Bradley A., assignor.)						
Western Electric Company. (See McBerty, Frank R., assignor.)						
Western Electric Company. (See O'Connell, Joseph J., assignor.) (Reissue.)						
Western Electric Company. (See Patterson, William R., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Warner, Ernest P., assignor.)						
Western Electric Company. (See Warner and Oehring, assignors.)						
Western Railway Equipment Company. (See Eubank, Thomas, assignor.)						
Westinghouse Air Brake Company. (See Park, Harvey S., assignor.)						
Westinghouse Air Brake Company. (See Westinghouse, George, assignor.)						
Westinghouse Air Brake Company. (See Westinghouse and Caldwell, assignors.)						
Westinghouse Electric and Manufacturing Company. (See Scott, Charles F., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Shallenberger, Oliver B., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Stanley, William, Jr., assignor.)	591,314	Oct. 5	666	158	81	127
Westinghouse, George, Jr., Pittsburg, Pa. Electric-railway system	595,007	Dec. 7	287	68, 69	81	1674
Westinghouse, George, Jr., Pittsburg, Pa. Elevator	595,027	Dec. 7	325	78, 79	81	1681
Westinghouse, George, Pittsburg, Pa. Hydraulic pumping and motor apparatus	593,710	Nov. 16	1746	420	81	1171
Westinghouse, George, assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Quick-action triple valve	593,711	Nov. 16	1748	421	81	1171
Westinghouse, George, Pittsburg, Pa., and W. Chapman, assignors to Electro-Magnetic Traction Company, Washington, D. C. Electric railway	595,008	Dec. 7	291	69, 70	81	1675
Westinghouse, Henry H., and J. Caldwell, Edgewood, assignors to Westinghouse Air Brake Company, Pittsburg, Pa. Air-brake	592,461	Oct. 26	3009	609	81	687
Westlin, Otto T. (See Finnblade and Westlin.)						
Westman, Gustaf M., New York, N. Y. Steam or gas turbine	595,748	Dec. 21	1535	370	81	1958
Weston, Henry, assignor of one-half to J. S. Rockwell, Buffalo, N. Y. Car-truck	593,145	Nov. 2	686	164	81	942
Weston, William S., Chicago, Ill. Electric meter	595,841	Dec. 21	1708	411	81	1992
Westphal, Peter J., *et al.* (See Rowe, Amos D., assignor.)						
Westwood, Alfred, Tipton, England. Means for supporting ends of girders, &c	592,852	Nov. 2	185	42	81	844
Wetherbee, James E., Sandy Hill, N. Y. Automatic guide for felts or wires	593,087	Nov. 2	501	121	81	904
Wetherilt, James, and W. J. Armitage, London, England. Belt or band for driving machinery	591,711	Oct. 12	1371	321	81	295
Wettlaufer, George, Stratford, Canada. Pea-harvester	593,261	Nov. 9	937	227	81	1003
Wettmarshausen, Henry, Petri Station, Ky. Automatic gate for railways	591,441	Oct. 12	908	213	81	205
Wetzel, Rheem E. (See Fortner, George W., assignor.)						
Weyburn, Elbert D., assignor, by mesne assignments, to Union Special Sewing Machine Company, Chicago, Ill. Sewing-machine	595,229	Dec. 7	686	167, 168	81	1747
Weymann, Charles M., assignor to Cahill & Hall Elevator Company, San Francisco, Cal. Electric elevator-controller	595,086	Dec. 7	437	104	81	1700
Wharton, William E., and F. T. Freeman, Bentonville, Ark. Robber and burglar trap	594,818	Nov. 30	3736	870, 871	81	1598
Wheeler, Alden D., Hyde Park, Mass. Electric battery	592,853	Nov. 2	186	42	81	853
Wheeler, Benjamin F., assignor to Wheeler Saddle Company, Detroit, Mich. Bicycle-saddle	594,451	Nov. 30	3041	714	81	1458
Wheeler, Harris A. (See Gilfillan, Essington N., assignor.)						
Wheeler, Harvey C., Boston, Mass. Card-displaying device	594,506	Nov. 30	3145	737	81	1479
Wheeler, Orrin A., Chicago, Ill. Bicycle handle-bar	593,367	Nov. 9	1106	268	81	1035
Wheeler Saddle Company. (See Wheeler, Benjamin F., assignor.)						
Wherren, Frank M., South Elliot, Me. Binnacle	591,442	Oct. 12	910	213, 214	81	205
Whipple, Charles S., assignor of one-half to D. Hunt, Boston, Mass. Door-securer	592,854	Nov. 2	188	42	81	844
Whipple, Fenner E., and C. A. Stauffer; said Stauffer assignor to J. C. Donnelly, Philadelphia, Pa. Electric motor	595,898	Dec. 21	1831	437, 438, 439	81	2017
Whistler, Garland N. (See Hurt and Whistler.)						
Whitaker, Channing, Tyngsborough, assignor to Lowell Machine Shop, Lowell, Mass. Grinding mechanism for flats of traveling-flat carding-engines	594,975	Dec. 7	220	54, 55, 56	81	1662
Whitaker, Edmund S., and J. Chadwick, Providence, R. I. Spinning and twisting machine spindle	593,448	Nov. 9	1240	300	81	1062
White, Andrew J., deceased, (L. K. White, executrix,) J. Cramer, and H. P. Gaines, Cincinnati, Ohio. Machine for making paper boxes	594,049	Nov. 23	2347	554, 555	81	1306
White, Burdette J. (See Lamprey, Ben B., assignor.)						
White, Charles A., Towanda, Ill. Corn-sheller	595,359	Dec. 14	901	219	81	1813
White, Charles F., Denver, Colo. Needle for repairing punctures in bicycle-tires	591,443	Oct. 12	911	214	81	206
White, Cyrus B., Orangeville, Pa. Feed-cutter	592,855	Nov. 2	188	42, 43	81	844

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
White, Edward H. (See Parker and White.)						
White, Edward P. (See Bean, Edward D., assignor.)						
White, Elwyn P. (See Smith and White.)						
White, Frank, and J. Thomson, assignors to Non Corrosive Preserving and Fire Resisting Paint Company, Limited, Christchurch, New Zealand. Paint	594,048	Nov. 23	2346	.....	81	1306
White, Fred W. (See Gibson, Walter L., assignor.)						
White, Hawley C., assignor to H. C. White Company, North Bennington, Vt. Stereoscope or other binocular instrument. (Reissue)	11,638	Nov. 16	2226	528	81	1267
White, Joseph B., Chicora, Miss. Chair	593,038	Nov. 2	502	122	81	904
White, Joseph D., Altoona, Pa. Draft-screen holder	591,905	Oct. 19	1694	405	81	381
White, Le Roy S. (See Bogart and White.)						
White, Lucy K., executrix. (See White, Cramer, and Gaines.)						
White, Maurice W., Somerville, assignor of one-half to F. A. Suck, Boston, Mass. Bridge for bow instruments	594,129	Nov. 23	2472	585	81	1331
White, Monroe, Vancouver, Canada. Wind-wheel	593,170	Nov. 2	760	182	81	957
White, Monroe, assignor of one-half to R. B. Ellis and G. Macgowan, Vancouver, Canada. Nut-lock	592,896	Nov. 2	257	58	81	857
White, R. J. (See Dupee, John C., assignor.)						
White, Ripley J. (See Dupee, John C., assignor.)						
White, Robert H., assignor of one-half to H. A. Church, Providence, R. I. Wick-trimmer	593,262	Nov. 9	939	227	81	1003
White, Thomas R., Fincastle, assignor of one-half to J. B. Buhrman, Gala, Va. Gate	596,465	Dec. 28	2839	669	81	2234
White, William F., Highland Park, assignor to G. M. Sholl, Chicago, Ill. Railway-ticket	594,976	Dec. 7	220	56	81	1664
White, William H., Harrold, S. D. Fork for holding ears of corn	592,897	Nov. 2	258	58	81	857
White, William R. (See Glassbrenner, Peter F., assignor.)						
White, William R., Bloomington, Ill. Gate	593,146	Nov. 2	687	164, 165	81	942
White, William R., Bloomington, Ill. Swinging gate	593,737	Nov. 16	1836	440	81	1187
Whitehead, Alfred E., Brooklyn, N. Y. Stamp-canceling machine	596,098	Dec. 28	2188	518, 519, 520	81	2108
Whitehead & Hoag Company. (See Hornich, William, Jr., assignor.)						
Whitehead & Hoag Company. (See Keil, Augustus J., assignor.)						
Whitehead, William L. (See Parker, Scanlin, Skevington, and Whitehead.)						
Whitelow, Edward T., *et al.* (See Pearson, John, assignor.)						
Whitlock, Erastus W. (See Shepard and Whitlock.)						
Whitney, Albert E., Muncie, Ind. Clamp for holding shoes while being stretched	592,266	Oct. 26	2329	549	81	522
Whitney, Arthur W., Lowell, Mass. Game apparatus	593,343	Nov. 9	1074	259	81	1029
Whitney, Edmund B., and F. L. Comstock, Gloversville, N. Y. Sash-holder	596,234	Dec. 28	2408	570	81	2151
Whitney, James F., Hartford, Conn. Journal-box jack	593,063	Nov. 2	543	130	81	913
Whittall, Matthew J. (See Giles, Joseph S., assignor.)						
Whittemore, George W., Brooklyn, N. Y., assignor to American Telephone and Telegraph Company, of New York. Auxiliary apparatus for selective electrical signals	595,096	Dec. 21	2082	495	81	2070
Whittemore, James M., Washington, D. C. Breech-loading firearm	594,716	Nov. 30	3550	826, 827	81	1561
Whittemore, Louis D., Jr., Stamford, Conn. Combined lamp and acetylene-generator	595,230	Dec. 7	689	168	81	1747
Whittier, Reuben S., Revere, and J. N. Landers, Boston, Mass. Self-locking gas-fixture	592,183	Oct. 19	2191	516	81	475
Whittle, William H., New York, N. Y. Starting apparatus for race-tracks	594,717	Nov. 30	3556	827	81	1561
Whittlesey, John J., Ann Arbor, Mich. Boiler-pressure-indicating alarm	592,856	Nov. 2	191	43, 44	81	845
Whittum, Edward, Fall River, Mass. Thread-guide for spinning-machines and support therefor	594,581	Nov. 30	3286	772	81	1507
Wiard, Frederick, assignor of one-half to J. W. Pratt, Batavia, N. Y. Shaft-hanger and belt-shifter	596,256	Dec. 28	2447	579	81	2157
Wiatt, Thomas A., *et al.* (See Hazard, Charles J., assignor.)						
Wiatt, William F. (See Staib, Henry, assignor.)						
Wickersham, Joshua G. (See Goolman, William P., assignor.)						
Wickersham, Nathan R., and H. A. Jamison, Philadelphia, Pa. Bicycle or other vehicle pump	596,223	Dec. 28	2390	566	81	2146
Wicky, Edouard, Lausanne, Switzerland. Air-pump for inflating pneumatic cycle-tires	595,809	Dec. 21	1836	439	81	2018
Widders, William D., Fairland, Ind. Ter. Running-gear	595,087	Dec. 7	442	104	81	1701
Wiedemann, Martin F., Burlington, Iowa. Awning	593,147	Nov. 2	692	165	81	943
Wieland, Rudolph G. (See Mahon, Ross L., assignor.)						
Wiemers, George, Brooklyn, N. Y. Car-fender	596,196	Dec. 28	2353	559	81	2139
Wiener, John L. (See Haag and Friedrich, assignors.)						
Wiest, Isaiah D. (See Malin, Jesse S., assignor.)						
Wiggin, William H., Worcester, Mass., assignor to American Electrical Works, Providence, R. I. Electrical rail-bond	591,516	Oct. 12	1040	243	81	228
Wiggs, Zeph, Denton, Tex. Railway cattle-guard	594,050	Nov. 23	2351	556	81	1307
Wight, Elerson, assignor of two-thirds to W. A. Rockwell, Harriman, Tenn., and J. A. Rockwell, Norwich, Conn. Transplanter	594,305	Nov. 23	2765	654	81	1387
Wightman, Merle J., Scranton, Pa. Electric-railway system	595,590	Dec. 14	1283	309	81	1890
Wigzell, Eustace E., London, England. Water-tube steam-boiler	591,444	Oct. 12	912	214, 215	81	206
Wigzell, Eustace E., London, England. Water-tube steam-boiler	591,445	Oct. 12	914	215	81	206
Wilcox, Alvin S. (See Gowen, William A., assignor.)						
Wilcox, Isaac L., *et al.* (See Cornell, Franklin D., assignor.)						
Wilcox, Melvin L., Bay City, Mich. Removable wheel	591,149	Oct. 5	370	87	81	72
Wilcox, William O., *et al.* (See Fetters, Charles A., assignor.)						
Wilcox, William R. (See Schonborn, Arthur V., assignor.)						
Wild, William E., Denver, Colo. Ore classifier and slimer	596,021	Dec. 21	2047	487	81	2061
Wilder, John K., Monroe, Mich. Fodder-shredder	593,005	Nov. 2	449	107	81	894
Wilder, Norman B., assignor of one-half to H. E. Paddock and W. F. Milliken, Prophetstown, Ill. Baling-press	593,148	Nov. 2	693	165, 166	81	944
Wilder, Norman B., assignor of one-half to H. E. Paddock and W. F. Millikan, Prophetstown, Ill. Cue-tip fastener	594,165	Nov. 23	2527	598	81	1342
Wilder, William H., Gardner, Mass. Oil-stove	595,231	Dec. 7	691	169	81	1748
Wildi, Emil, Highland, Ill. Can-filling machine	594,667	Nov. 30	3472	808, 809	81	1544
Wildprett, William, Providence, R. I. Ladder	594,582	Nov. 30	3288	772	81	1507
Wildt, William. (See Lohr, Marcellus A., assignor.)						
Wile, William W., and G. L. Calkin, Auburn, Ind. Hollow grate-bar	593,287	Nov. 9	979	236	81	1011
Wiley, Edgar C., assignor of one-half to H. E. McWane, Lynchburg, Va. Fire-plug	595,506	Dec. 14	1158	278	81	1803
Wilkens, John A., Indianapolis, Ind. Tree-transplanter	594,668	Nov. 30	3475	809	81	1545
Wilkinson, John F., Ayer, Mass. Treadle attachment	592,577	Oct. 26	3194	659	81	734

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wilkinson, Joseph, administrator. (See Sisum, William H. H.)						
Wilkinson, Melville L., Los Angeles, Cal. Automatically-recording thermometer	593,503	Nov. 9	1351	328	81	1082
Wilkinson Sword Company. (See Latham, Henry W., assignor.)						
Willard, Charles E. (See Fletcher, Joseph G., assignor.)						
Willard, Helen, (now by marriage Helen W. McNair,) Philadelphia, Pa. Device for stoning fruit	591,942	Oct. 19	1767	422	81	396
Willard, William A. P., Jr., Hull, Mass. Trolley-rail	596,224	Dec. 28	2391	566	81	2147
Willard, William A. P., Jr., Hull, Mass. Trolley-rail for electric roads	596,225	Dec. 28	2393	566	81	2147
Willbur, James M., New York, N. Y. Check-canceling device	593,795	Nov. 16	1911	454	81	1201
William Deering & Company. (See Appleby, John F., assignor.)						
William Schimper & Company. (See Oldenbusch, Ernest, assignor.)						
William Strange Company. (See Stadler, Peter C., assignor.)						
William Wharton, Jr., & Company, Incorporated. (See Angerer, Victor, assignor.)						
Williams Abbott Electric Company. (See Williams, Joseph A., assignor.)						
Williams, Addison B., assignor of one-half to L. Migel, Waco, Tex. Electric time-switch	594,306	Nov. 23	2766	654	81	1987
Williams, Albert G., Mattoon, Ill. Milk-cabinet	594,670	Nov. 30	3478	809	81	1545
Williams, Arthur S., Newton, assignor to American Bell Telephone Company, Boston, Mass. Electrical protective appliance	596,197	Dec. 28	2354	569	81	2139
Williams, Arthur S., Newton, assignor to American Bell Telephone Company, Boston, Mass. Magneto-electric signaling apparatus	596,418	Dec. 28	2746	650	81	2217
Williams, Benjamin F., Quanah, Tex. Generator for acetylene gas	593,028	Nov. 16	1611	387	81	1146
	592,095	Oct. 19	1924	456 / 457	81	425
Williams, David S., Philadelphia, Pa. Acetylene-gas generator	594,051	Nov. 23	2352	556	81	1307
Williams, David S., Philadelphia, Pa. Electric battery						
Williams, Edwin G. (See Williams and Dickerson.)						
Williams, Elmer V. and E. G., and C. L. Dickerson, assignors of one-fourth to R. A. Lemon, Clinton, Ill. Calculating-machine	595,009	Dec. 7	293	70, 71	81	1675
Williams, Francis A., Jacksonville, Fla. Drinking-fountain for poultry, &c	591,183	Oct. 5	439	105	81	84
Williams, George W., Humansville, Mo. Queen and drone trap	593,712	Nov. 16	1751	421	81	1173
Williams, Harry C., Stockbridge, Mich. Wire-unwinding device	594,977	Dec. 7	232	56	81	1064
Williams, James M., T. P. Kinney, Danville, and H. W. Kinney, Lynchburg, assignors of one-fourth to J. A. Henderson, Danville, Va. Automatic block-signal	593,504	Nov. 9	1354	328 / 329	81	1082
Williams, James M., assignor of three-fourths to T. P. Kinney, J. A. Henderson, Danville, and H. W. Kinney, Lynchburg, Va. Automatic recorder for electrically-operated railway gates and signals	595,243	Dec. 7	726	177 / 178	81	1754
Williams, John H., Albion, N. Y. Device for removing butter, &c., from packages	593,386	Nov. 9	1152	278	81	1043
Williams, John R., East Orange, N. J., assignor to John R. Williams Company, New York, N. Y. Machine for cutting out wrappers or binders for cigars	594,507	Nov. 30	3146	737 / 738 / 392	81	1479
Williams, John R., East Orange, N. J., assignor to John R. Williams Company, New York, N. Y. Cigar-making machine	595,799	Dec. 21	1627	393 / 394 / 395	81	1976
Williams, Joseph A., assignor to Williams Abbott Electric Company, Cleveland, Ohio. Magneto-electric generator	591,305	Oct. 5	770	181	81	147
Williams, Lawrence, Columbus City, Iowa. Pipe-wrench	593,149	Nov. 2	702	166	81	946
Williams, Milton F., assignor to Williams Patent Crusher and Pulverizer Company, St. Louis, Mo. Disintegrator or crusher. (Reissue)	11,634	Oct. 26	3521	740	81	787
Williams, Morgan L., assignor of one-half to J. P. Thomas, Johnstown, Pa. Runner-brick for bottom-cast molds	593,974	Nov. 16	2223	527	81	1266
Williams Patent Crusher and Pulverizer Company. (See Williams, Milton F., assignor.)						
Williams, Robert B., Invercargill, New Zealand. Machine for washing clothes	596,087	Dec. 21	2085	495	81	2071
Williams, Samuel. (See Lewis and Williams.)						
Williams, Thomas H., Huron, S. D. Potato-planter	594,669	Nov. 30	3477	809	81	1545
Williams, Wilson C., Utica, N. Y. Fire-escape	596,198	Dec. 28	2357	550	81	2140
Williamson, Angus M., Philadelphia, Pa. Tire	592,184	Oct. 19	2192	517	81	475
Williamson Brothers Co. (See Williamson, John D., Jr., assignor.)						
Williamson, George W., *et al.* (See Wimmer, Louis, assignor.)						
Williamson, H. M. (See Rouse, Albion M., assignor.)						
Williamson, Henry C., and H. Pries, Michigan City, Ind. Draw-bar attachment for car-couplings	593,288	Nov. 9	961	237	81	1011
Williamson, John D., Jr., assignor to Williamson Brothers Co., Philadelphia, Pa. Electrical steering-gear	591,995	Oct. 19	1846	439 / 440 / 441	81	410
Willis, Charles A. (See Reese and Willis.)						
Willis, Henry M., East Williston, N. Y. Chair	593,263	Nov. 9	940	228	81	1003
Willis, John W., Springfield, Ill. Bed attachment	595,930	Dec. 21	1886	450	81	2029
Willis, Thomas G., assignor of one-fourth to W. McIlwaine, Paterson, N. J. Hat-pin	592,898	Nov. 2	259	59	81	857
Wills, Henry H. (See Rose and Wills.)						
Wilmer, William J., *et al.* (See Andriot, Peter, assignor.)						
Wilson, Adoniram J., Port Chester, N. Y. Electric signaling system	596,226	Dec. 28	2395	566	81	2147
Wilson, Albert B., and E. E. Chatfield, Newark, N. J. Non-refillable bottle	593,825	Nov. 16	1969	464	81	1213
Wilson, Benjamin F., assignor of one-half to E. F. Wilson, North Tonawanda, N. Y. Piston-valve	592,644	Oct. 26	3305	687	81	746
Wilson, Charles E., Atlantic Highlands, N. J. Scaffold for painters or carpenters	596,430	Dec. 28	2771	655	81	2221
Wilson, Edward F. (See Wilson, Benjamin F., assignor.)						
Wilson, Elmer E., Blackwood, N. J., assignor of one-half to Patrick & Carter Co., Philadelphia, Pa. Circuit-closing device for burglar-alarms	595,842	Dec. 21	1712	411	81	1903
Wilson, George S. (See Thompson, Frederick M., assignor.)						
Wilson, Gottfried N., New York, N. Y. Hose-coupling	592,899	Nov. 2	259	59	81	857
Wilson, Henry, Richland, Ga. Fire-fender	591,315	Oct. 5	668	158	81	127
Wilson, James H. (See Hitch, William S., assignor.)						
Wilson, Joseph W., Salt Lake City, Utah. Dust-collector	595,256	Dec. 7	745	182 / 183	81	1758
Wilson, Melville C., and H. G. Rush, Oil City, Pa. Machine for hooping barrels	594,052	Nov. 23	2354	556 / 557	81	1307
Wilson, Michael H., Brooklyn, N. Y Rotary spring-motor	595,360	Dec. 14	902	219	81	1813
Wilson, Reginald P., London, England, Electric-current meter	596,283	Dec. 28	2492	592	81	2165
Wilson, Richard. (See Toal and Wilson.)						
Wilson, William F., Mount Vernon, N. Y. Collapsible crate	592,944	Nov. 2	342	79	81	874
Wilson, William H., Nocona, Tex. Stirrup	595,232	Dec. 7	692	169	81	1748
Wimmer, Louis, assignor of two-thirds to G. W. Williamson and T. J. Fee, Elizabeth, N. J. Looping-machine for web-driers	592,677	Oct. 26	3384	706 / 707	81	762
Winans, Daniel M., Binghamton, N. Y., assignor to Charles Parker Company, Meriden, Conn. Ejecting mechanism for drop-down guns	593,408	Nov. 9	1184	286	81	1049
Winchester Repeating Arms Company. (See Mason, William, assignor.)						
Windle, John F., Worcester, Mass. Power-reversing mechanism	591,184	Oct. 5	440	105	81	84

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Windmiller, Ganey F. (See Windmiller and Holford, assignors.)						
Windmiller, Samuel M., and L. Holford; said Holford assignor to G. F. Windmiller, Nebo, Ill. Washing-machine	593,344	Nov. 9	1075	260	81	1030
Wingo, Newton L., *et al.* (See Ligon, John B., assignor.)						
Winkler, Friedrich G., Jersey City, N. J. Machine for sifting granular material	593,629	Nov. 16	1613	388	81	1147
Winkler, Friedrich G., Jersey City, N. J. Sifting granular material	593,630	Nov. 16	1616	389 / 390 / 391 / 501	81	147
Winkler, Friedrich G., Jersey City, N. J. Machine for sifting granular materials	593,915	Nov. 16	2119	502 / 503	81	1245
Winn, Thomas, East Orange, N. J. Bicycle or other lantern	594,452	Nov. 30	3043	715	81	1458
Winslow, James D. (See Webster and Winslow.)						
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	595,275	Dec. 7	765	189	81	1762
Winslow, William H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Framing prism-lights	595,276	Dec. 7	767	189	81	1763
Winslow, William H., Chicago, Ill., assignor to Luxfer Prism Patents Company, of West Virginia. Prism-plate	595,277	Dec. 7	768	190	81	1763
Winter, Albert. (See Skoglund, Jean V., assignor.)						
Winter, Henry W., Boston, Mass. Heel-nailing machine	591,866	Oct. 5	772	181 / 182	81	147
Winter, Sarah A., Buffalo, N. Y. Stocking	596,347	Dec. 28	2608	621	81	2188
Winters, Edward O., Buffalo, N. Y. Station-indicator	591,150	Oct. 5	371	86	81	72
Winters, Frederick V., assignor of one-half to J. A. York, New York, N. Y. Heater for stand-boilers	594,166	Nov. 23	2328	599	81	1342
Winters, John G. (See Arntzen, John B., assignor.)						
Winters, John W., deceased; C. B. Brunson, administrator, assignor of five-eighths to D. H. Kent, J. Webber, St. Paul, and A. J. Kos, Rochester, Minn. Air-brake	594,228	Nov. 23	2026	621	81	1360
Wire Goods Company. (See Sampson, Frank L., assignor.)						
Wire Grip Fastening Company. (See Robinson, Stillman W., assignor.)						
Wirth, Rodolphe, assignor to Pratt Fastener Company, Chicago, Ill. Machine for making lace-fasteners	592,462	Oct. 26	3011	610 / 611	81	688
Wirtz, Heinrich, Berlin, Germany. Pocket match-box	592,526	Oct. 26	3115	636	81	708
Wischmeyer, Louis A., North Dover, Ohio. Rotary steam-engine	595,665	Dec. 14	1403	338 / 339	81	1915
Withers, Robert T., and B. E. Blackman, New Castle, Pa. Automatic stop for elevators	595,507	Dec. 14	1159	279	81	1863
Witzel, Joseph R., Philadelphia, Pa. Scale	591,202	Oct. 5	477	113	81	90
Wolander, John, Cannon Falls, Minn. Endless screw-chain	595,508	Dec. 14	1161	279	81	1864
Wolcott, Henry G., assignor of one-half to J. P. Rider, Fishkill-on-the-Hudson, N. Y. Soft-rubber ball	593,264	Nov. 9	942	228	81	1003
Wolcott, Oliver P., Dallas, Tex. Disk plow	596,390	Dec. 28	2698	639	81	2206
Wold, Olaus C., assignor to H. J. Thayer and C. H. Chandler, Chicago, Ill. Air-brush	595,931	Dec. 21	1887	450	81	2029
Wolf, Augustus, Chambersburg, Pa. Gyrating sieve or bolting-machine	595,985	Dec. 21	1963	473 / 474	81	2049
Wolf, Charles. (See Armstrong, Charles J., assignor.)						
Wolf Electrical Promoting Company. (See Wolf, John Jr., assignor.)						
Wolf, John, Jr., assignor to Wolf Electrical Promoting Company, Cincinnati, Ohio. Cloth-cutting machine	593,265	Nov. 9	943	228 / 229	81	1004
Wolf, Joseph N., Pullman, Ill. Sharpening device for scissors	591,906	Oct. 19	1696	405	81	381
Wolfe, Jacob W., Nashville, Tenn. Grate	593,006	Nov. 2	450	108	81	895
Wolfermann, Hermann, Strasburg, Germany. Truss	594,307	Nov. 23	2768	654	81	1388
Wolff, Charles W., assignor to C. A. Edgarton Manufacturing Company, Shirley, Mass. Suspenders	592,620	Oct. 26	3269	678	81	739
Wolff, Charles W., assignor to C. A. Edgarton Manufacturing Company, Shirley, Mass. Suspender-end	592,978	Nov. 2	412	97	81	887
Wolff, John H., Roseville, Ohio. Oil-can	596,046	Dec. 21	2105	498	81	2074
Wollberg, William. (See Peck, Claude E., assignor.)						
Wonders, George, Johnstown, Pa. Figure toy	595,749	Dec. 21	1537	371	81	1959
Wonnhoudt, H. D., *et al.* (See Day, Isaac O., assignor.)						
Wonnhoudt, John, *et al.* (See Day, Isaac O., assignor.)						
Wood, Benjamin F., assignor of one-half to C. D. Rawson, Des Moines, Iowa. Automatic kitchen-ventilator and stovepipe attachment	594,508	Nov. 30	3154	738	81	1480
Wood, C. H., *et al.* (See Thompson and Stewart, assignors.)						
Wood, Charles, London, England. Valve-gear for gas or oil engines	594,146	Nov. 23	2407	590	81	1336
Wood, Charles M. (See Robbins, George, assignor.)						
Wood & Co., William T. (See Wood, William E., assignor.)						
Wood, Edward D., *et al.* (See Durham, John F., assignor.)						
Wood, Frank W., *et al.* (See Thompson and Stewart, assignors.)						
Wood, Frederick W., Baltimore, Md. Casting apparatus	594,583	Nov. 30	3289	772 / 773	81	1507
Wood, Guilford S. (See Dearing, David M., assignor.)						
Wood, Henry A. W., New York, N. Y., assignor to Campbell Printing Press and Manufacturing Company, of New York. Registering mechanism for printing-presses	594,053	Nov. 23	2356	557	81	1308
Wood, Henry A. W., New York, N. Y., assignor to Campbell Printing Press and Manufacturing Company, of New York. Delivery mechanism for printing-presses	594,054	Nov. 23	2359	558	81	1308
Wood, Henry A. W., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Delivery mechanism for printing-presses	594,055	Nov. 23	2362	558 / 559	81	1309
Wood, Horatio G., Newport, R. I. Type-writing-machine platen	596,099	Dec. 28	2194	520	81	2109
Wood, James J., Fort Wayne, Ind. Commutator for dynamo-electric machines	591,308	Oct. 5	477	113	81	90
Wood, John S., Walton-upon-Thames, England. Seat-spring	593,631	Nov. 16	1620	391	81	1147
Wood, Wallace R., assignor of one-half to E. C. Corey, Olivet, Mich. Bean-harvester	596,466	Dec. 28	2841	669 / 670	81	2234
Wood, Walter. (See Jefferies, Ebenezer A. W., assignor.)						
Wood, William E., assignor to W. T. Wood & Co., Arlington, Mass. Ice-plow	596,348	Dec. 28	2609	621	81	2188
Woodard, George E., Sugar Grove, Pa. Reversible rotary steam-engine	594,924	Dec. 7	139	34, 35	81	1648
Woodard, William N. (See Coppen, George E., assignor.)						
Woodbury, Joseph D., assignor of one-half to O. L. Cowles, Springfield, Mass. Latch	593,182	Nov. 2	778	187	81	961
Woodhouse, John. (See McNally, Thomas W., assignor.)						
Woodman, John C., assignor of one-half to C. Jamison, Digby, Canada. Culinary vessel	593,316	Nov. 9	1032	250	81	1022
Woods, Charles O., Lynn, Mass. Pipe-wrench	592,036	Oct. 19	1927	457	81	425
Woods, Edward D., Manchester, Vt. Grinding-machine	593,425	Nov. 9	1212	293	81	1054
Woods, Franklin, Philadelphia, Pa., assignor to A. R. Allen, Wyckoff, N. J. Corner-strip for buildings	593,150	Nov. 2	703	166	81	946

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Woods, William E., *et al.* (See Shailer, George W., assignor.)						
Woods, William H., assignor of two-thirds to R. Ferguson and E. R. Todd, Detroit, Mich. Refrigerator-car	591,316	Oct. 5	669	158, 159	81	127
Woods, William J., Cold Spring, N. Y. Roof	595,010	Dec. 7	297	71	81	1676
Woodward, James C., *et al.* (See Cole, Warren, Jr., assignor.)						
Woodward, Russel G. (See Muther, Holland, and Woodward.)						
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Company, Chicago, Ill. Feed mechanism for sewing-machines	591,517	Oct. 12	1041	244	81	228
Woodward, Walter, *et al.* (See Cole, Warren, Jr., assignor.)						
Woodworth, Clara E., London, Canada. Corset	591,518	Oct. 12	1043	244, 245	81	229
Woodworth, Orson H., Indianapolis, Ind. Chronosphygmometer	596,206	Dec. 28	2506	596	81	2167
Woolsey, Charles A., Brooklyn, N. Y. Insulator-bracket	595,827	Dec. 21	1684	406	81	1987
Wootton, J. J., *et al.* (See Wootton, William S., assignor.)						
Wootton, Vesta L., *et al.* (See Wootton, William S., assignor.)						
Wootton, William S., assignor to V. L. and J. J. Wootton, Roanoke, Va. Road-engine	591,027	Oct. 5	154	35, 36	81	32
Worcester Electric Light Company. (See Coughlin, William H., assignor.)						
Worcester Envelope Company. (See Low, Everett M., assignor.)						
Work, Bertram G., assignor to B. F. Goodrich Company, Akron, Ohio. Manufacture of rubber tubing	595,088	Dec. 7	443	105, 106	81	1702
Worley, Thomas W. M., New York, N. Y. Nursing-bottle	595,986	Dec. 21	1985	474	81	2049
Wortendyke, Howard, assignor of one-half to J. Heglin, Cincinnati, Ohio. Self-feeding furnace	593,713	Nov. 16	1753	421	81	1172
Worth, John S., Coatesville, Pa. Plate-turner for rolling-mills	591,712	Oct. 12	1372	322	81	295
Worth, John S., Coatesville, Pa. Rolling-mill	591,713	Oct. 12	1374	322, 323	81	295
Worthen, Charles H., Taunton, Mass. Sail-slide	591,446	Oct. 12	916	216	81	206
Worthen, Edward A., Burlington, Vt. Window-screen	591,714	Oct. 12	1375	323	81	296
Wotherspoon, John. (See Davie and Wotherspoon.)						
Worthington, Henry R. (See Alberger, Louis R., assignor.)						
Wright, Charles A., Philadelphia, Pa. Stuffing-box	594,453	Nov. 30	3045	715	81	1459
Wright, Daniel H., Lansingburg, N. Y. Adjustable picker-staff check	591,122	Oct. 5	321	79	81	63
Wright, Elisha P. S. (See Ralph and Wright.)						
Wright, Frank H., *et al.* (See Leland, Edwin A., assignor.)						
Wright, Fred C. (See Walkins, Louis E., assignor.)						
Wright, George E., and W. Monk, Nottingham, England. Apparatus for extracting oil	592,535	Oct. 26	3129	640, 641, 642	81	711
Wright, Hugh M., Ravenna, Ohio. Mileage-ticket and cover therefor	595,423	Dec. 14	1020	244, 245	81	1835
Wright, Isaac D., Sedalia, Mo., and A. E. McClure, Pittsburg, Pa. Buckle	594,308	Nov. 23	2769	355	81	1388
Wright, Jacob P., New Haven, Conn., assignor to Diamond Match Company, Chicago, Ill. Box-filling machine	595,233	Dec. 7	698	169, 170, 171	81	1748
Wright, Jacob P., New Haven, Conn., assignor to Diamond Match Company, Chicago, Ill. Box-filling machine	595,234	Dec. 7	700	171, 172, 173	81	1750
Wright, John W., and H. H. Burkes, Lampasas, Tex. Mechanism for cleansing clothing or textile fabrics	595,932	Dec. 21	1890	451	81	2029
Wright, Joseph, Lancaster, Wis. Grain-door for freight-cars	593,266	Nov. 9	947	229	81	1005
Wright, Samuel M., Denver, Ind. Can-opener	592,129	Oct. 19	2107	499	81	459
Wright, Samuel M., Denver, Ind. Fifth-wheel for vehicles	595,683	Dec. 14	1427	344	81	1920
Wright, William H., assignor to E. Ingraham Company, Bristol, Conn. Base for clocks	594,309	Nov. 23	2769	655	81	1388
Wright's Automatic Tobacco-Packing Machine Company. (See Rose and Wills, assignors.)						
Wright's Gas Meter Syndicate. (See Simmance, John F., assignor.)						
Wrigley, John, assignor of one-half to F. Haase, Jr., Elmira, N. Y. Protector for wires, rods, &c., in railway signaling and switching systems	593,869	Nov. 16	2051	483	81	1230
Wunderlich, George H. (See Mitchell, William R., assignor.)						
Wyckoff, Seamans & Benedict. (See Jenne, William K., assignor.)						
Wye, John T., Sheboygan, Wis. Carpet-beater	592,267	Oct. 26	2330	550	81	523
Wyland, George G., Williamsport, Pa. Metal fastening device	595,000	Dec. 7	278	66	81	1672
Wylie, Ella R., Boston, Mass. Eye-protector	591,244	Oct. 5	556	131	81	106
Wyman, Benjamin F., Lancaster, Mass. Coin-box	595,509	Dec. 14	1162	279	81	1864
Wyman, George R., assignor to F. W. Bird & Son, Walpole, Mass. Paper box	595,684	Dec. 14	1428	345	81	1920
Wynne, Frank. (See Urquhart and Wynne.)						
Wynne, Frank, London, England. Pneumatic tire	594,310	Nov. 23	2771	655	81	1388
Yarbrough, David A., Pettey, Ala. Cotton-chopper	591,715	Oct. 12	1377	323	81	296
Yarnold, Charles J., London, and W. J. Engledue, Byfleet, England. Apparatus for purifying barrels	594,056	Nov. 23	2364	559	81	1310
Yarrow Schlick & Tweedy System. (See Schlick, Ernst O., assignor.)						
Yates, Edward D., Franklin, Pa. Oil-well pumping-rig	593,826	Nov. 16	1971	464	81	1214
Ycre, Baptiste, New York, N. Y. Baker's oven	591,224	Oct. 5	520	124	81	99
Yearian, Francis R., Rinard, Ill. Well-drilling machine	592,678	Oct. 26	3385	707	81	703
Yehle, Joseph, Johnstown, Pa. Attachment for baby-carriages	594,311	Nov. 23	2774	656	81	1389
Yetter, John C., assignor of two-thirds to E. R. Cooper and C. F. Slaughter, Chicago, Ill. Safety-paper	595,281	Dec. 7	773	191	81	1764
York, John A. (See Winters, Frederick Y., assignor.)						
Yost, Joseph L. (See Kenney, Owen E., assignor.)						
Yost, Mary E. (See Banning, Joseph O., assignor.)						
Young, David, and W. D. Lewis, assignors of one-half to A. W. Getchell and E. E. Jones, Cleveland, Ohio. Steam-boiler furnace	595,666	Dec. 14	1404	339	81	1915
Young, Carl, Chicago, Ill. Bicycle gearing and brake	593,289	Nov. 9	992	237	81	1011
Young, Charles L. (See Kendall, Lemuel C., assignor.)						
Young, Ernest W., Austin, assignor to Morgan & Wright, Chicago, Ill. Manufacture of pneumatic tires	591,907	Oct. 19	1698	405, 406	81	382
Young, George R., Ridgewood, N. J., and C. Shaw, New York, N. Y. Water-raising apparatus	592,087	Oct. 19	1928	458	81	425
Young, Gust, Hallock, Minn. Extensible vehicle-pole	590,349	Dec. 28	2610	621	81	2189
Young, Helen I. (See Leavitt, John E., assignor.)						
Young, L. E. (See Mallett, Paschal, assignor.)						
Young, Lorin, Dayton, Ohio. Hedge fence	591,716	Oct. 12	1378	323	81	297
Young, Lorin W., Dayton, Ohio. Hedge fence	591,717	Oct. 12	1379	324	81	297
Young, Oliver H., Williamsport, Pa. Wood-polishing machine	592,679	Oct. 26	3387	707, 708	81	703
Youngblood, John E., Union City, Wash. Can-opener	592,945	Nov. 2	343	79	81	874

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Youngman, Frank S., Dixon, Ill. Support for bicycle-shades	594,057	Nov. 23	2365	559	81	1310
Yunck, Frederick, Bryan, Ohio. Convertible shelving and table	593,916	Nov. 16	2123	508	81	1245
Zacharias, Charles R., Asbury Park, N. J. Oil can or receptacle	591,908	Oct. 19	1700	406	81	382
Zalinski, Edmund L., U. S Army. Telescopic gun-sight	592,946	Nov. 2	344	80	81	874
Zeal, Giles H., assignor to J. J. Hicks, London, England. Thermometric electrical circuit-closer	592,600	Oct. 26	3235	670	81	732
Zedlitz, Rudolph W. (See Speer and Zedlitz.)						
Zeh, Christian, Philadelphia, Pa. Automatic fan	592,900	Nov. 2	261	59	81	858
Zeidler, Paul M., assignor to Strich & Zeidler, New York, N. Y. Sounding-board for pianos	594,718	Nov. 30	3557	827	81	1562
Zengler, John A., Canton, Ohio. Pottery-molding machine	591,580	Oct. 12	1158	272	81	232
Zern, George W., and M. H. Milhone, Good Hope, Ill. Rail joint, splice, or truss	593,505	Nov. 9	1360	329	81	1063
Zern, George W., and M. H. Milhone, Good Hope, Ill. Car-mover	593,632	Nov. 16	1621	391	81	1147
Zeigler, Henry, New York, N. Y. Sounding-board support for pianos	593,089	Nov. 2	504	122	81	905
Ziegler, Lewis D., Philadelphia, Pa. Machine for making shoe-soles flexible	593,827	Nov. 16	1972	464	81	1214
Ziegler, William A. (See Temple, John A., assignor.)						
Zietz, Eduard, assignor of one-half to H. Leonhardt, Hamburg, Germany. Beach-seat	592,857	Nov. 2	193	44	81	845
Zimerman, Eli, assignor of one-half to Hitchcock Lamp Company, Watertown, N. Y. Bench-dog	591,519	Oct. 12	1045	245	81	229
Zimmerman, Casper, Santa Rosa, Cal. Insect-exterminator	595,750	Dec. 21	1538	371	81	1959
Zimmerman, James M. (See Saul and Zimmerman.)						
Zoeller, William, Chicago, Ill. Molding-machine	591,520	Oct. 12	1046	245, 246, 247	81	229
Zöhe, Ludwig A., Syracuse, N. Y. Compressed-air liquid elevator and conveyer	593,151	Nov. 2	704	167	81	946
Zuber, Katie V. (See Prenzel, Adam H., assignor.)						
Zucker Manufacturing Company. (See Clark, Newman S., assignor.)						
Zusi, Edward. (See Goulden, Samuel, assignor.)						
Zweigbergk, Thorsten von, assignor to Walker Company, Cleveland, Ohio. Controller	592,104	Oct. 19	2062	488	81	450
Zweigbergk, Thorsten von, assignor to Walker Company, Cleveland, Ohio. Reversing and cutting-out switch for electric motors	595,868	Dec. 21	1768	425	81	2004

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Page.
Adams Company. (See Farwell, Fay O., assignor.)				
Adams, John H., Morristown, N. J. Golf-club	27,732	Oct. 12	81	327
Allen, James A., Philadelphia, Pa. Block of stencil-ink	27,746	Oct. 19	81	493
Alton, Lee T., Brooklyn, N. Y. Tube for burners	27,720	Oct. 12	81	325
Ambrose, Edward. (See Bascom and Ambrose.)				
American Pulley Company. (See Corscaden, Thomas, assignor.)				
Ames, Alfred E., Toronto, Canada. Velocipede-saddle	28,036	Dec. 14	81	1923
Anderson, Olof, Chicago, Ill. Casing for jewelers' blowpipes	27,913	Nov. 30	81	1605
Anderson, Samuel J., and J. Toltras, Providence, R. I. Pedal-arm for bicycles	27,778	Oct. 26	81	788
Andrews, Arthur H., Williamsport, Pa. Bicycle-frame	27,767	Oct. 19	81	497
Andrews, Marion A., Syracuse, N. Y. Bicycle-frame	27,958	Dec. 7	81	1770
Armour, Robert J., Newark, N. J., assignor to Rail Road Signal Lamp and Lantern Company, New York, N. Y. Lamp or lantern body	27,898	Nov. 23	81	1411
Arvonen, Izak V., Calumet, Mich. Frame for pictures	28,060	Dec. 21	81	2075
Askins, Joseph, Ridgefield, N. J. Tire	27,922	Nov. 30	81	1606
Bader, Gustav A., assignor to E. Kirstein's Sons Company, Rochester, N. Y. Spectacle-bridge	27,712	Oct. 12	81	324
Bailey, Frederick M. (See Lewis and Bailey, assignors.)				
Bailey, Samuel R., Amesbury, Mass. Carriage-seat	27,872	Nov. 16	81	1271
Baker, Frank S. (See La Rouche and Baker.)				
Bariffi, Martin. (See Nielsen and Thomsen, assignors.)				
Barnard, John W., Shannon, N. C. Plow-stock	27,918	Nov. 30	81	1606
Barton, Albert, Findlay, assignor to Cleveland Target Company, Cleveland, Ohio. Flying target	27,787	Oct. 26	81	789
Basch, David, New York, N. Y. Toe-clip	27,920	Nov. 30	81	1606
Bascom & Co., H. Clay. (See Bascom and Ambrose, assignors.)				
Bascom, Henry C., Lansingburg, and E. Ambrose, assignors to H. C. Bascom & Co., Troy, N. Y. Stove	27,724	Oct. 12	81	325
Basquin, Olin H., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,909	Dec. 7	81	1772
Baumgarten, Albert, and M. Redlinger, Jr., Freeport, Ill. Cone for lemon-squeezers	27,821	Nov. 9	81	1102
Beck, Albert, Chicago, Ill. Game-board	28,083	Dec. 21	81	2079
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,970	Dec. 7	81	1772
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,971	Dec. 7	81	1772
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,972	Dec. 7	81	1772
Belcher, Henry F., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,973	Dec. 7	81	1772
Benninghoff, Edward D., Creston, Iowa. Churn-lid	27,814	Nov. 2	81	963
Benz & Sons, George. (See St. George, August, assignor.)				
Bessonette, William T., Temple, Tex. Sprayer attachment for washing-machines	27,866	Nov. 16	81	1270
Bevin, Abner A., East Hampton, Conn. Gong for bells	28,076	Dec. 21	81	2077
Bigney, Sidney O., Attleborough, Mass. Ornamental chain	27,734	Oct. 19	81	491
Billings, Frederic C., Hartford, Conn, assignor to Billings & Spencer Company, of Connecticut. Die-shoe	28,102	Dec. 28	81	2239
Billings & Spencer Company. (See Billings, Frederic C., assignor.)				
Birtcherd, Edward J., Genoa, Wis. Pie-fork	27,820	Nov. 9	81	1103
Blackman, Charles M., Brooklyn, assignor to S. H. Wetmore Company, New York, N. Y. Cake of soap	27,864	Nov. 16	81	1270
Blake, George R., Winchester, Va. Lemon-squeezer	27,948	Dec. 7	81	1768
Blondel, Mercer D., and J. A. Ryan, Washington, D. C. Frame for wrenches	27,919	Nov. 30	81	1606
Bonshire, Jacob, Redkey, Ind. Jar-lid clamp	28,052	Dec. 14	81	1926
Bowen, Robert S., Boston, Mass. Piano-plate	27,763	Oct. 19	81	496
Bowen, Robert S., Boston, Mass. Piano-plate	27,764	Oct. 19	81	496
Bowen, Robert S., Boston, Mass. Piano-top	27,765	Oct. 19	81	496
Bradley, William J., Troy, and J. Mathisen, Lansingburg, N. Y. Metal bar	27,757	Oct. 19	81	495
Bridgeport Brass Company. (See Hornberger, Louis, assignor.)				
Brooks, Edward J., East Orange, N. J. Snap-seal shackle	27,822	Nov. 9	81	1102
Brown, Frank H. (See Gorman, Thomas, assignor.)				
Brown, Thomas P., Belleville, Canada. Shade-roller axle	27,719	Oct. 12	81	325
Browning, J. Hull. (See Chapin, William D., assignor.)				
Buffalo Dental Manufacturing Company. (See Lewis and Bailey, assignors.)				
Buick, David D., Detroit, Mich. Bath-tub	27,725	Oct. 12	81	326
Buick, David D., Detroit, Mich. Water-closet tank	27,823	Nov. 9	81	1102
Bunker, William I., La Grange, Ill. Saddle-cushion	28,037	Dec. 14	81	1923
Bunker, William I., La Grange, Ill. Saddle-cushion	28,038	Dec. 14	81	1924
Bunker, William I., La Grange, Ill. Saddle-cushion	28,039	Dec. 14	81	1924
Bunker, William I., La Grange, Ill. Saddle-cushion	28,040	Dec. 14	81	1924
Burns, Philip, Norwich, Conn. Link for bicycle-chains	27,957	Dec. 7	81	1770
Burnworth, Hezekiah J., Zanesville, Ohio. Checkrein-holder	27,811	Nov. 2	81	963
Busch, George W., Detroit, Mich. Ornamental cross	27,928	Nov. 30	81	1608
Carey, Michael F., Albany, N. Y. Playing-card	27,905	Nov. 30	81	1604
Carr, Mary P. M., St. Louis, Mo. Car-strap	27,749	Oct. 19	81	493
Carr, William H., and J. G. Wolf, New York, N. Y. Belt	27,927	Nov. 30	81	1608
Cary, Spencer C., Brooklyn, N. Y. Pail-hook	27,908	Nov. 30	81	1605
Cary, Spencer C., Brooklyn, N. Y. Box-strap	27,910	Nov. 30	81	1605
Cates, James L., Senatobia, Miss. Wire-stretching tool	28,105	Dec. 28	81	2239
Chandler, George E., Taunton, and F. W. Parsons, Newburyport, Mass. Game-board	27,844	Nov. 9	81	1106
Chandler, Sylvester R., assignor of one-fourth to A. W. Mears, Baltimore, Md. Bottle	27,885	Nov. 23	81	1409
Chapin, William D., Wakefield, N. Y., assignor to himself, and J. H. Browning, Tenafly, N. J. Link for belt-fasteners	28,062	Dec. 21	81	2075
Chicago Handle-Bar Company. (See Schinneer, Fredrick H., assignor.)				
Chrisman, Clarence C., St. Louis, Mo. Bicycle-frame	27,901	Nov. 23	81	1412
Christl, Joseph V., Newark, N. J. Metal fabric	27,839	Nov. 9	81	1105
Cisler, James. (See Serson, Joseph, assignor.)				
Cleveland Target Company. (See Barton, Albert, assignor.)				
Coakley, William J., and L. M. Robbins, Rockland, Me. Teething-ring	27,852	Nov. 16	81	1268

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Coast Pigeon Manufacturing Company. (See Parker, Henry F., assignor.)				
Codman, William C., Providence, R. I. Handle for spoons, &c	27,850	Nov. 16	81	1268
Cole, Ernest C., Council Bluffs, Iowa. Stove	27,886	Nov. 9	81	1105
Cole, George E., South Bend, Ind. Clamping-arm for pan-lifters	27,893	Nov. 23	81	1411
Comstock, Alphonso S., Evanston, Ill. Handle-bar	28,081	Dec. 21	81	2078
Cooperative Foundry Company. (See Kennedy, Thomas R., assignor.)				
Cooperative Foundry Company. (See King and Kennedy, assignors.)				
Cope, George W., Detroit, Mich., assignor to C. Emrich, Columbus, Ohio. Stove or range	27,723	Oct. 12	81	325
Cope, George W., Detroit, Mich., assignor to Eclipse Stove Company, Mansfield, Ohio. Stove	27,837	Nov. 9	81	1105
Corscaden, Thomas, New Britain, Conn., assignor to American Pulley Company, Philadelphia, Pa. Frame for pulleys	27,758	Oct. 19	81	495
Couper, James C., Terre Haute, Ind., assignor to Standard Wheel Company, Chicago, Ill. Hub-flange	27,896	Nov. 23	81	1411
Cover, Harvey S., South Bend, Ind. Dust-protector	27,962	Dec. 7	81	1770
Crane, Richard T., Chicago, Ill. Guide-supporting beam for elevators	27,827	Nov. 9	81	1103
Crane, Richard T., Chicago, Ill. Guide-supporting beam for elevators	27,828	Nov. 9	81	1103
Crowell, Gilbert L., Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Handle for spoons	28,092	Dec. 28	81	2237
Crowell, Gilbert L., Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Back for brushes	28,093	Dec. 28	81	2237
Crump, George E., New York, N. Y. Auxiliary change-counter	27,863	Nov. 16	81	1269
Curtice, Jesse M., Kansas City, Mo. Kitchen-safe	27,816	Nov. 2	81	964
Curtin, Harry B., Grafton, W. Va. Cake of soap	27,959	Dec. 7	81	1770
Cushing, Sarah M., Salem, and W. O. Perkins, Boston, Mass. Scraping-tool	27,825	Nov. 9	81	1103
Darling, Charles C., Providence, R. I. Badge	27,817	Nov. 9	81	1102
Davis, Charles H., New York, N. Y. Electric-railway car	28,072	Dec. 21	81	2077
Davis, Charles H., New York, N. Y. Electric-railway car	28,073	Dec. 21	81	2077
Dearing, James W., Brooklyn, N. Y. Burner for lanterns	28,100	Dec. 28	81	2238
Dickinson, Isaac H. (See Webster, George, assignor.)				
Dickinson, Joseph L., assignor of one-half to A. R. Smith, Carbon Hill, Ala. Butter-mold stamp	27,782	Oct. 26	81	789
Dominick & Haff. (See Crowell, Gilbert L., Jr., assignor.)				
Doulton, Henry. (See Noke, Charles J., assignor.)				
Du Bois, Dallas, Montclair, N. J. Game-board	28,049	Dec. 14	81	1925
Dunlop, Judson, assignor of one-half to P. Dunlop, Cambridge, Mass. Pie-plate	27,858	Nov. 16	81	1269
Dunlop, Porter. (See Dunlop, Judson, assignor.)				
E. Kirstein's Sons Company. (See Bader, Gustav A., assignor.)	27,931	Dec. 7	81	1766
Eaton, Harrison H., Cleveland, Ohio. Lacing-hook for gloves				
Eclipse Stove Company. (See Cope, George W., assignor.)				
Edward Miller & Company. (See Homan, William C., assignor.)				
Edward Miller & Company. (See Williams, Frank T., assignor.)	28,083	Dec. 14	81	1923
Ellis, Edward H., Pasadena, Cal. Cylindrical cabinet				
Emrich, C. (See Cope, George W., assignor.)	27,917	Nov. 30	81	1606
Epler, Peter, Williamsport, Pa. Harness-hook	27,925	Nov. 30	81	1607
Epley, Emma, Philadelphia, Pa. Dressmaker's chart	28,094	Dec. 14	81	1921
Esser, Hermann, Hoboken, N. J. Bottle	27,780	Oct. 26	81	788
Estes, Webster C., Brooklyn, N. Y. Wooden stopper	27,908	Dec. 7	81	1772
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	28,019	Dec. 7	81	1779
Ewen, John M., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism pavement-panel				
Falvey, John J. (See Phinney and Falvey.)				
Farwell, Fay O., assignor of one-half to Adams Company, Dubuque, Iowa. Frame for sand-presses	28,067	Dec. 21	81	2076
Fauber, William H., Chicago, Ill. Sprocket-wheel for velocipedes	27,883	Nov. 9	81	1104
Felker, Peter H., St. Louis, Mo. Angler's ring	27,912	Nov. 30	81	1605
Ferrall, Thomas R., Somerville, Mass. Tackle-block	27,950	Dec. 7	81	1769
Fleming, William J., New York, N. Y. Puzzle-board	27,880	Nov. 16	81	1272
Fletcher, Evelyn A., Toronto, Canada. Music-time-division block set	28,029	Dec. 14	81	1922
Foote, James B., Fredericktown, Ohio. Carriage-jack	27,812	Nov. 2	81	963
Ford, George H., New Haven, Conn. Coffin-plate	27,843	Nov. 9	81	1106
Fox, Clarence W. (See Krauth, Herman, assignor.)				
Frenzel, Carl, Brooklyn, N. Y. Calendar	27,807	Nov. 2	81	962
Friedberger, Miriam L. (See Payne, Francis, assignor.)				
Fuller, James W., Catasauqua, Pa. Bicycle ammonia-gun holder	27,766	Oct. 19	81	497
Gallman, John J., Fullerton, Cal. Can-opener blade	27,781	Oct. 26	81	788
Gander, Arnold, St. Louis, Mo. Flour-bin stand	27,784	Oct. 26	81	789
General Electric Company. (See Howell, Irwin W., assignor.)				
George Frost Company. (See Phelps, George H., assignor.)	27,783	Oct. 26	81	789
Germer, Edward G., Erie, Pa. Stove-door	27,877	Nov. 16	81	1271
Germer, Edward G., Erie, Pa. Heating-stove				
Gorham Manufacturing Company. (See Osborne, Frank N., assignor.)	28,104	Dec. 28	81	2239
Gorman, Thomas, Warren, assignor of one-half to F. H. Brown, Warwick, R. I. Bolster	27,756	Oct. 19	81	495
Graham, Sarah A., Marion, Iowa. Line-wire insulator	27,916	Nov. 30	81	1606
Green, Edwin J., Hurlbert, Ind. Rest for carriage-tops	27,955	Dec. 7	81	1770
Greger, Thomas P., Philadelphia, Pa. Manhole-frame	28,070	Dec. 21	81	2076
Greger, Thomas P., Philadelphia, Pa. Manhole-cover				
Grindley, William H., Congleton, England, assignor to W. S. Pitcairn, New York, N. Y. Covered dish	27,742	Oct. 19	81	492
Grindley, William H., Congleton, England, assignor to W. S. Pitcairn, New York, N. Y. Dish	27,743	Oct. 19	81	492
Grindley, William H., Congleton, England, assignor to W. S. Pitcairn, New York, N. Y. Dish	27,744	Oct. 19	81	493
Gross, Peter J., assignor of one-half to H. Ost and F. P. Wilderoter, Brooklyn, N. Y. Bottle-stopper lever	27,860	Nov. 16	81	1269
Guinzburg, Victor, assignor to I. B. Kleinert Rubber Company, New York, N. Y. Collar and back shield	27,810	Nov. 2	81	962
Gumbinner, Paul, New York, N. Y. Plaited fabric	28,051	Dec. 14	81	1926
Haggard, Ries W., Holbrook, Ky. Cradle-frame	27,726	Oct. 12	81	326
Hale, Henry S., Philadelphia, Pa. Car-seat frame	27,871	Nov. 16	81	1271
Hall, Joseph, Leeds, England. Finishing-roll for leather machinery	27,760	Oct. 19	81	495
Hammond, James B., New York, N. Y. Type-writer cabinet	28,108	Dec. 28	81	2240
Haney, Charles A., Brooklyn, N. Y. Cyclometer-case	28,079	Dec. 21	81	2078
Haskell, Henry L., Ludington, Mich. Game-board	27,788	Oct. 26	81	790
Haugh, Harry, Anderson, Ind. Tile	27,842	Nov. 9	81	1105
Hayes, George D., Chetek, Wis. Display-cabinet	27,904	Nov. 23	81	1412
Healy, Joseph A., Lynn, Mass. Pen-wiper holder	27,853	Nov. 16	81	1268
Henderson, John T., Council Bluffs, Iowa. Toy	27,879	Nov. 16	81	1272
Hendryx, Andrew B., New Haven, Conn. Fishing-reel plate	27,897	Nov. 23	81	1411
Hicks, John G., and J. McGreer, Chicago, Ill. Statuette	28,054	Dec. 14	81	1926
Hicks, John G., and J. McGreer, Chicago, Ill. Statuette	28,055	Dec. 14	81	1926

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Hicks, John G., and J. McGreer, Chicago, Ill. Statuette	28,056	Dec. 14	81	1926
Hilliard, Thomas M., assignor of one-half to H. A. Parr, New York, N. Y. Guard for keys	27,911	Nov. 30	81	1605
Hirsch, Isaac, Chicago, Ill. Bread-pan	27,722	Oct. 12	81	325
Hoff, Johan H., Chicago, Ill. Basket	27,857	Nov. 16	81	1269
Holbrook, Edward, New York, N. Y. Handle for spoons, &c	27,846	Nov. 16	81	1267
Holbrook, Edward, New York, N. Y. Handle for spoons, &c	27,847	Nov. 16	81	1267
Holbrook, Edward, New York, N. Y. Handle for spoons, &c	27,848	Nov. 16	81	1267
Holbrook, Edward, New York, N. Y. Handle for spoons, &c	27,849	Nov. 16	81	1267
Holmes, George A., Boston, Mass. Machine-standard	27,826	Nov. 9	81	1103
Holmgren, Carl J., and E. J. Youngquist, Minneapolis, Minn. Hat-pin	27,735	Oct. 19	81	491
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Cyclometer-body	27,899	Nov. 23	81	1412
Hooker, William C., Abingdon, Ill. Hammer, lifter, and tack-puller	27,861	Nov. 16	81	1269
Hornberger, Louis, assignor to Bridgeport Brass Company, Bridgeport, Conn. Bicycle-lantern	28,060	Dec. 21	81	2078
Howell, Irwin W., Newark, N. J., assignor to General Electric Company, of New York. Roentgen-ray tube	27,953	Dec. 7	81	1769
Hoyt, Frank C., Cleveland, Ohio. Face-plate for scales	27,745	Oct 19	81	493
Hubbard, George M., assignor to W. & E. T. Fitch Company, New Haven, Conn. Snap-hook	28,064	Dec. 21	81	2076
Hubbard, George M., assignor to W. & E. T. Fitch Company, New Haven, Conn. Snap-hook	28,065	Dec. 21	81	2076
Hull, Scott H., Oskaloosa, Iowa. Harness-loop	27,753	Oct. 19	81	494
Hunt, Jonathan A., Westborough, Mass. Bicycle-saddle	27,813	Nov. 2	81	963
Hunt, Jonathan A., Westborough, Mass. Saddle-post	27,834	Nov. 9	81	1104
I. B. Kleinert Rubber Company. (See Guinzburg, Victor, assignor.)				
Israel, Elias, New York, N. Y. Cap	28,050	Dec. 14	81	1925
Ives, Edward R., Bridgeport, Conn. Toy gun-stock	27,808	Nov. 2	81	962
Jacobs, Jacob, Brooklyn, N. Y. Glass or tile	27,878	Nov. 16	81	1272
Jacobs, Jacob, Brooklyn, N. Y. Tile	28,084	Dec. 21	81	2079
Johnson, Henry, Arlington, N. J. Foundation for switch and signal supporting standards	27,869	Nov. 16	81	1270
Johnson, Robert L., Hanley, England. Cover-dish	27,933	Dec. 7	81	1766
Jones, Frank E., Kirkwood, Ill. Paper box	28,041	Dec. 14	81	1924
Jones, Frank E., Kirkwood, Ill. Paper box	28,042	Dec. 14	81	1924
Jones, Frank E., Kirkwood, Ill. Paper box	28,043	Dec. 14	81	1924
Jones, Frank E., Kirkwood, Ill. Paper box	28,044	Dec. 14	81	1924
Jones, Frank E., Kirkwood, Ill. Paper box	28,045	Dec. 14	81	1925
Jones, Frank E., Kirkwood, Ill. Paper box	28,046	Dec. 14	81	1925
Jones, Frank E., Kirkwood, Ill. Paper box	27,880	Nov. 9	81	1103
Kelly, Charles P., assignor to Morgan & Wright, Chicago, Ill. Tire	27,727	Oct. 12	81	326
Kendall, David W., assignor to Phœnix Furniture Company, Grand Rapids, Mich. Chair				
Kennedy, Thomas R. (See King and Kennedy.)	28,071	Dec. 21	81	2077
Kennedy, Thomas R., assignor to Cooperative Foundry Company, Rochester, N. Y. Grate-frame	27,924	Nov. 30	81	1607
Kepler, Porteus S., Ashtabula, Ohio. Blas-stick				
Kidder, Benjamin F. (See Pope and Kidder.)				
King, Edward J., and T. R. Kennedy, assignors to Cooperative Foundry Company, Rochester, N. Y. Stove	27,762	Oct. 19	81	496
Kirchner, Fredrick, Brooklyn, N. Y. Plumber's trap	27,866	Nov. 16	81	1270
Knadler, George W., Philadelphia, Pa. Body for delivery-wagons	28,035	Dec. 14	81	1923
Knapp, Charles F., Brooklyn, N. Y. Ring	27,930	Dec. 7	81	1765
Koehler, Joseph, New York, N. Y. Envelop	27,854	Nov. 16	81	1268
Kramer, A. R. (See Shirley, George E., assignor.)				
Krauth, Herman, Meriden, Conn. Bottle or jar	27,819	Nov. 9	81	1102
Krauth, Herman, Meriden, Conn., assignor to C. W. Fox, Saugus, Mass. Wall-bracket	27,728	Oct. 12	81	326
Kriechbaum, Henry, St. Charles, Mo. Pipe	27,738	Oct. 19	81	491
Kursheedt Manufacturing Company. (See Taylor, George H., assignor.)				
La Rouche, Matthias T., and F. S. Baker, Utica, N. Y. Match-safe	27,776	Oct. 26	81	786
Ladd, Frank E., Springfield, Mass. Spoon	28,091	Dec. 28	81	2237
Lamond & Robertson Company. (See Travis, John S., assignor.)				
Lange, Max, Philadelphia, Pa. Brush	27,856	Nov. 16	81	1268
Lee, Jacob M. (See Saunders and Lee.)				
Lehmann, Adolph. (See Shilling, Frank F., assignor.)				
Leonard, Charles H., Grand Rapids, Mich. Game-board	27,733	Oct. 12	81	327
Levin, Herman C., New York, N. Y. Frame or body for musical instruments	28,061	Dec. 21	81	2075
Levis, Robert H., Alton, Ill. Bottle	27,906	Nov. 30	81	1604
Lewis, Jacob A., and W. G. Spiegel, New York, N. Y. Molded tire-section	27,829	Nov. 9	81	1103
Lewis, Theodore G., and F. M. Bailey, assignors to Buffalo Dental Manufacturing Company, Buffalo, N. Y. Brazing-stand	27,747	Oct. 19	81	493
Lincoln, David B., Aurora, Ill. Hotel-cabinet	27,964	Dec. 7	81	1771
Lindner, Ernst, Brooklyn, N. Y. Gas-burner fixture	27,944	Dec. 7	81	1768
Lindner, Ernst, Brooklyn, N. Y. Gas-burner fixture	27,945	Dec. 7	81	1768
Lindner, Ernst, Brooklyn, N. Y. Incandescent-gas-burner fixture	28,099	Dec. 28	81	2238
Lines, Frederick, Waterbury, Conn. Whist-box	27,740	Oct. 19	81	492
Lobsitz, George L., Newark, N. J., assignor to Ranney Refrigerator Company, Greenville, Mich. Hinge	28,098	Dec. 28	81	2238
Loeser, Daniel A., Sag Harbor, N. Y. Back for brushes or similar articles	27,855	Nov. 16	81	1268
Loeser, Daniel A., Sag Harbor, N. Y. Spoon or fork handle	28,022	Dec. 14	81	1921
Lovett, Thomas J., Chicago, Ill. Vehicle-wheel	27,759	Oct. 19	81	495
Lovett, Thomas J., Chicago, Ill. Tire-block	28,074	Dec. 21	81	2077
Lovett, Thomas J., Chicago, Ill. Tire-block	28,075	Dec. 21	81	2077
Luxfer Prism Patents Company. (See Basquin, Olin H., assignor.)				
Luxfer Prism Patents Company. (See Belcher, Henry F., assignor.)				
Luxfer Prism Patents Company. (See Ewen, John M., assignor.)				
Luxfer Prism Patents Company. (See MacHarg, William S., assignor.)				
Luxfer Prism Patents Company. (See Soper, Frank C., assignor.)				
Luxfer Prism Patents Company. (See Waller, Edward C., assignor.)				
Luxfer Prism Patents Company. (See Wright, Frank L., assignor.)	27,840	Nov. 9	81	1105
MacHarg, William S., assignor to Luxfer Prism Patents Company, Chicago, Ill. Vault-light				
Maddock, Thomas, *et al.* (See Simons, Frederic M., assignor.)	27,815	Nov. 2	81	963
Makepeace, William T., Barnstable, Mass. Cranberry-scoop	27,907	Nov. 30	81	1604
Manning, Edward B., and M. Seips, Meriden, Conn. Handle for tea or coffee pots	27,761	Oct. 19	81	495
Mark, John W., New York, N. Y. Light or tile	27,851	Nov. 16	81	1269
Marshutz, Siegfried G., Los Angeles, Cal. Spectacle or eyeglass temple	28,109	Dec. 28	81	2240
Martin, Arthur, Paris, France. Wall-paper	28,110	Dec. 28	81	2240
Martin, Arthur, Paris, France. Wall-paper	28,111	Dec. 28	81	2241
Martin, Arthur, Paris, France. Wall-paper				
Mathisen, John. (See Bradley and Mathisen.)				
May, Anna K., Philadelphia, Pa. Carpet	27,796	Oct. 26	81	791
May, Anna K., Philadelphia, Pa. Carpet	27,797	Oct. 26	81	791
May, Anna K., Philadelphia, Pa. Carpet	27,798	Oct. 26	81	791
May, Anna K., Philadelphia, Pa. Carpet	27,799	Oct. 26	81	791

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
May, Anna K., Philadelphia, Pa. Carpet	27,800	Oct. 26	81	791
May, Anna K., Philadelphia, Pa. Carpet	27,801	Oct. 26	81	791
May, Anna K., Philadelphia, Pa. Carpet	27,802	Oct. 26	81	792
May, Anna K., Philadelphia, Pa. Carpet	27,803	Oct. 26	81	792
May, Anna K., Philadelphia, Pa. Carpet	27,804	Oct. 26	81	792
May, Anna K., Philadelphia, Pa. Carpet	27,805	Oct. 26	81	792
May, Anna K., Philadelphia, Pa. Carpet	27,806	Oct. 26	81	792
McGreer, John. (See Hicks and McGreer.)				
McHugh, Joseph P., New York, N. Y. Fabric for hangings, portières, &c	27,965	Dec. 7	81	1771
McHugh, Thomas P., St. Louis, Mo. Display-stand	27,785	Oct. 26	81	789
Mears, Adelbert W. (See Chandler, Sylvester R., assignor.)				
Meloche, Antoine H., Whitney, Mich. Support for penholders	27,737	Oct. 19	81	491
Merrick, Frank W., Boston, Mass. Seam-welting strip	27,960	Dec. 7	81	1770
Miller, Tobias, assignor of one-half to L. P. Whiteman, New York, N. Y. Toe-clip	27,900	Nov. 23	81	1412
Mills, Emma T., Cortland, N. Y. Bucket	28,095	Dec. 28	81	2237
Miner, Henry A., Malden, Mass. Coin-tray	27,891	Nov. 23	81	1410
Mitchell, James A., Dayton, Ohio. Wire-joining tool	27,755	Oct. 19	81	494
Morgan & Wright. (See Kelly, Charles P., assignor.)				
Morton, William F., New Haven, Conn. Wheel-hub band	27,831	Nov. 9	81	1104
National Casket Company. (See Stein and Sparks, assignors.)				
Nielsen, Michael, and T. S. Thomsen, Greenwich, Conn., assignors of one-third to M. Barim, Port Chester, N. Y. Knife-sharpening jaw	28,066	Dec. 21	81	2076
Niesen, F. E., trustee. (See Van Zandt, Edwin G., assignor.)				
Noke, Charles J., Bursiem, assignor to H. Doulton, London, England. Vase	27,883	Nov. 23	81	1409
North & Judd Manufacturing Company. (See Prindle, Lucius H., assignor.)				
Norton, Henry M., Chester, Conn. Ice-shaver	27,947	Dec. 7	81	1768
Oldham, George, Philadelphia, Pa. Jack-lever	27,779	Oct. 26	81	788
Oliver Brothers. (See Oliver, William, assignor.)				
Oliver Brothers. (See Pine, William K., assignor.)				
Oliver, William, assignor to Oliver Brothers, Lockport, N. Y. Bicycle-stand	27,768	Oct. 19	81	497
Ordway, William P., Boston, Mass. Card-case attachment	28,053	Dec. 14	81	1926
Osborne, Frank N., New York, N. Y., assignor to Gorham Manufacturing Company, Providence, R. I. Brush-back	28,021	Dec. 14	81	1921
Osgood, Isaac, Amesbury, Mass. Frame for towel-racks	27,786	Oct. 26	81	789
Ost, Herman, *et al.* (See Gross, Peter J., assignor.)				
Otis, Frederick J., Apollonia, Wis. Stove-door	28,097	Dec. 28	81	2238
Packard, William D., Warren, Ohio. Fuse-block	27,750	Oct. 19	81	493
Parker, Henry F., Brooklyn, N. Y., assignor to Coast Pigeon Manufacturing Company, Cuyahoga Falls, Ohio. Flying target	27,881	Nov. 16	81	1272
Parmenter, George E., Waltham, Mass. Puzzle-block	28,047	Dec. 14	81	1925
Parr, Henry A. (See Hilliard, Thomas M., assignor.)				
Parsons, Frederic W. (See Chandler and Parsons.)				
Payne, Francis, assignor to M. L. Friedberger, Philadelphia, Pa. Trimming	27,772	Oct. 19	81	497
Payne, Francis, assignor to M. L. Friedberger, Philadelphia, Pa. Trimming	27,773	Oct. 19	81	498
Payne, William H., South Haven, Mich. Dust-pan	28,025	Dec. 14	81	1922
Pennell, Sylvenus, Girard, Ohio. Pump-frog	27,951	Dec. 7	81	1769
Perkins, Ward O. (See Cushing and Perkins.)				
Perry, William H., Concord, N. H. Monument	27,774	Oct. 19	81	498
Phelps, Edmund J., Minneapolis, Minn. Bicycle-frame	28,082	Dec. 21	81	2078
Phelps, George H., Newton, assignor to George Frost Company, Boston, Mass. Stud	27,809	Nov. 2	81	902
Phinney, Elmer E., Middleborough, and J. J. Falvey, Boston, Mass. Bicycle-boot	27,771	Oct. 19	81	497
Phœnix Furniture Company. (See Kendall, David W., assignor.)				
Piffard, Henry G., New York, N. Y. Bicycle-frame	27,873	Nov. 16	81	1271
Pine, William K., assignor to Oliver Brothers, Lockport, N. Y. Bicycle-stand	27,769	Oct. 19	81	497
Pine, William K., assignor to Oliver Brothers, Lockport, N. Y. Bicycle-stand	27,770	Oct. 19	81	497
Pitcairn, William S. (See Grindley, William H., assignor.)				
Pitt, Walter H. (See Sittmann and Pitt.)				
Pope, Henry T., and B. F. Kidder, Fort Payne, Ala. Jug	27,859	Nov. 16	81	1869
Prindle, Lucius H., assignor to North & Judd Manufacturing Company, New Britain, Conn. Snap-hook	27,751	Oct. 19	81	494
Prindle, Lucius H., assignor to North & Judd Manufacturing Company, New Britain, Conn. Body for snap-hooks	27,752	Oct. 19	81	494
Rail Road Signal Lamp and Lantern Company. (See Armour, Robert J., assignor.)				
Raney, Thomas H., Aurora, La. Cultivator-shovel	28,034	Dec. 14	81	1923
Ranney Refrigerator Company. (See Lobsitz, George L., assignor.)				
Rathbone, John A., assignor to United States Heater Company, Detroit, Mich. Water-heater section	27,721	Oct. 12	81	325
Redlinger, Mathias, Jr. (See Baumgarten and Redlinger.)				
Reineke, Wilson & Co. (See Warren, Edric C., assignor.)				
Richardson, William S., Boston, Mass. Socket member of detachable fasteners	27,865	Nov. 16	81	1270
Rigg, Elmer E., Copeville, Tex. Bed-spring	27,954	Dec. 7	81	1709
Rivett, Arthur W., assignor to J. J. Ryan & Co., Chicago, Ill. Chain-guard for bicycles	27,832	Nov. 9	81	1104
Robbins, Edwin S., Waterbury, Conn. Hanger for articles of merchandise	27,923	Nov. 30	81	1607
Robbins, Levi M. (See Coakley and Robbins.)				
Rogers, Charles G., Philadelphia, Pa. Awning-guard	28,106	Dec. 28	81	2240
Rogers, Timothy, Dayton, Ohio. Drinking-cup	27,886	Nov. 23	81	1410
Rohlfs, Charles, Buffalo, N. Y. Smoking-pipe	28,090	Dec. 28	81	2236
Roos, Edward, Chicago, Ill. Curtain-pole bracket	27,915	Nov. 30	81	1606
Rose, Arthur M., Yonkers, N. Y. Carpet	27,790	Oct. 26	81	790
Rose, Arthur M., Yonkers, N. Y. Carpet	27,791	Oct. 26	81	790
Rose, Arthur M., Yonkers, N. Y. Carpet	27,792	Oct. 26	81	790
Rose, Arthur M., Yonkers, N. Y. Carpet	27,793	Oct. 26	81	790
Rose, Arthur M., Yonkers, N. Y. Carpet	27,794	Oct. 26	81	790
Rose, Arthur M., Yonkers, N. Y. Carpet	27,795	Oct. 26	81	791
Rose, Arthur M., Yonkers, N. Y. Carpet	27,906	Dec. 7	81	1771
Rose, Arthur M., Yonkers, N. Y. Carpet	27,862	Nov. 16	81	1269
Rosenbluth, Edwin M., Philadelphia, Pa. Lantern-body	28,063	Dec. 21	81	2076
Rozell, Charles, Hutchinson, Kans. Billet-loop	27,932	Dec. 7	81	1766
Rutter, George S. M., Canton, Ohio. Basket				
Ryan & Co., J. J. (See Rivett, Arthur W., assignor.)	27,888	Nov. 9	81	1105
Ryan, James B., New York, N. Y. Pattern for wire fabric				
Ryan, Joseph A. (See Blondel and Ryan.)				
S. H. Wetmore Company. (See Blackman, Charles M., assignor.)				
Sanders, Louis, Brooklyn, N. Y. Hand-bag	27,775	Oct. 26	81	786
Sanders, Nora, Reading, Pa. Shoe-heel	28,087	Dec. 28	81	2236
Sandstrom, Charles E., Chicago, Ill. Molding	28,085	Dec. 21	81	2079
Saunders, David R., and J. M. Lee, Houston, Tex. Rein-holder	27,754	Oct. 19	81	494

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Schaezlein, Robert, San Francisco, Cal. Spoon	27,882	Nov. 23	81	1409
Scheiosky, John R., St. Louis, Mo. Block for extension-table slides	28,069	Dec. 21	81	2076
Schenck, Jacob, St. Louis, Mo. Door-stop	27,867	Nov. 16	81	1270
Schles, John, Anderson, Ind. Jar-fastening bar	28,026	Dec. 14	81	1922
Schilling, Edward E. (See Sütterlin and Schilling.)				
Schineer, Fredrick H., assignor to Chicago Handle-Bar Company, Chicago, Ill. Bicycle handle-bar	27,835	Nov. 9	81	1104
Schmidt, Charles E., New York, N. Y. Cake-pan	27,936	Dec. 7	81	1766
Schwedtmann, Ferdinand, St. Louis, Mo. Holder for fusible cut-outs	27,952	Dec. 7	81	1769
Scovill Manufacturing Company. (See Sperry, Mark L., assignor.)				
See, Horace, New York, N. Y. Bed-plate for steam-engines	28,103	Dec. 28	81	2239
Seips, Michael. (See Manning and Seips.)				
Selby, Edgar O., Coshocton, Ohio. Bracket and pencil-holder	28,059	Dec. 21	81	2075
Serson, Joseph, assignor of one-half to J. Cisler, Chicago, Ill. Bicycle-saddle	27,956	Dec. 7	81	1770
Shilling, Frank F., Tiro, assignor of one-half to A. Lehmann, Moorefield, Ohio. Corn-pulper	28,101	Dec. 28	81	2238
Shirley, George E., assignor of one-half to A. R. Kramer, Galena, Kans. Flue-cleaner	27,875	Nov. 16	81	1271
Simons, Edward S., *et al.* (See Simons, Frederic M., assignor.)				
Simons, Frederic M., assignor to himself, J. F. Simons, T. Maddock, Philadelphia, Pa., and E. S. Simons, Orange, N. J. Buckle	28,000	Dec. 28	81	2237
Simons, John F., *et al.* (See Simons, Frederic M., assignor.)				
Sittmann, Gustav, and W. H. Pitt, Brooklyn, N. Y. Case for coin-controlled machines	27,914	Nov. 30	81	1606
Sjöberg, John P., New York, N. Y. Sash-spring	27,894	Nov. 23	81	1411
Smith, Alvin R. (See Dickinson, Joseph L., assignor.)				
Smith, Frank R., Houlton, Me. Grate	27,876	Nov. 16	81	1271
Smith, Herbert, New York, N. Y. Pencil-point protector	27,818	Nov. 9	81	1102
Snow, Andrew, Jr., New Bedford, Mass. Tray	27,887	Nov. 23	81	1410
Snow, Andrew, Jr., New Bedford, Mass. Tray	27,888	Nov. 23	81	1410
Snow, Andrew, Jr., New Bedford, Mass. Tray	27,889	Nov. 23	81	1410
Snow, Andrew, Jr., New Bedford, Mass. Tray	27,890	Nov. 23	81	1410
Sommer, John L., Newark, N. J. Hammer	27,949	Dec. 7	81	1769
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Vault-light	27,841	Nov. 9	81	1106
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,974	Dec. 7	81	1772
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,975	Dec. 7	81	1772
Soper, Frank C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,976	Dec. 7	81	1773
Sparks, William A. (See Stein and Sparks.)				
Sparry, William C. B., New York, N. Y. Umbrella-runner	27,777	Oct. 26	81	788
Sperry, Mark L., assignor to Scovill Manufacturing Company, Waterbury, Conn. Oil-can	27,748	Oct. 19	81	493
Spiegel, William G. (See Lewis and Spiegel.)				
St. George, August, Chicago, Ill., assignor to G. Benz & Sons, St. Paul, Minn. Bottle	27,884	Nov. 23	81	1409
Staiger, Godfrey, Toledo, Ohio. Lower member for bushings	28,027	Dec. 14	81	1922
Standard Wheel Company. (See Couper, James C., assignor.)				
Stanley, Charles E., Chicago, Ill. Bicycle-saddle	27,730	Oct. 12	81	327
Steele, William, Allegheny, Pa. Button or badge	28,057	Dec. 21	81	2075
Stein, Leo, New York, N. Y., and W. A. Sparks, assignors to National Casket Company, Hoboken, N. J. Casket	28,112	Dec. 28	81	2241
Streiff, Henry, St. Louis, Mo. Cork-extractor	27,715	Oct. 12	81	324
Streiff, Henry, St. Louis, Mo. Stopper-extractor	27,892	Nov. 23	81	1411
Stephenson, Thomas B., Bristol, Conn. Badge	27,929	Dec. 7	81	1765
Sturges, Lee, Elmhurst, Ill. Sprocket-wheel and chain guard	27,921	Nov. 30	81	1607
Sütterlin, William L., and E. E. Schilling, Trenton, N. J. Trace-guard	27,718	Oct. 12	81	324
Taylor, George H., assignor to Kursheedt Manufacturing Company, New York, N. Y. Trimming	27,845	Nov. 9	81	1106
Thielke, Ferdinand, Brooklyn, N. Y. Handle for button-hooks	27,736	Oct. 19	81	491
Thomforde, Ernest A., Englewood, N. J. Corn-holder	28,023	Dec. 14	81	1921
Thomsen, Thomas S. (See Nielsen and Thomsen.)				
Thomson, James, Jr., Pawtucket, assignor to Thomson Manufacturing Company, Providence, R. I. Rotary clearing-disk	27,895	Nov. 23	81	1411
Thomson Manufacturing Company. (See Thomson, James, Jr., assignor.)				
Toltras, Joseph. (See Anderson and Toltras.)				
Tonk Manufacturing Company. (See York, Phineas H., assignor.)				
Tooley, Samuel E., Cazenovia, N. Y. Kitchen-cabinet	27,909	Nov. 30	81	1605
Tourny, Emma A., Philadelphia, Pa. Game-board	28,048	Dec. 14	81	1925
Townsend, Edwin O., New York, N. Y. Monument	27,729	Oct. 12	81	326
Trahern, Oscar P., Rockford, Ill. Pump-wrench	27,824	Nov. 9	81	1103
Travis, John S., assignor to Lamond & Robertson Company, Paterson, N. J. Rug	27,967	Dec. 7	81	1771
Tyler, Abel D., Jr., Brockton, Mass. Shoe-form	27,902	Nov. 23	81	1412
Tyler, Abel D., Jr., Brockton, Mass. Shoe-form	27,903	Nov. 23	81	1412
United States Heater Company. (See Rathbone, John A., assignor.)				
Van Zandt, Edwin G., assignor to F. E. Niesen, trustee, St. Louis, Mo. Tire	27,731	Oct. 12	81	327
Vanderbilt, Jeremiah, Brooklyn, assignor to Will & Baumer Company, Syracuse, N. Y. Candle-shade	27,741	Oct. 19	81	492
Veeder, Curtis H., assignor to Veeder Manufacturing Company, Hartford, Conn. Case for registers	28,077	Dec. 21	81	2078
Veeder, Curtis H., assignor to Veeder Manufacturing Company, Hartford, Conn. Case for registers	28,078	Dec. 21	81	2078
Veeder Manufacturing Company. (See Veeder, Curtis H., assignor.)				
W. & E. T. Fitch Company. (See Hubbard, George M., assignor.)				
Waldeck, George E., Jersey City, N. J. Tray or similar article	27,714	Oct. 12	81	324
Walden, Joseph, Orange, N. J. Vamp-stay for shoes	27,961	Dec. 7	81	1770
Walker, William, Summit, N. J. Coat, hat, and umbrella hook	27,963	Dec. 7	81	1770
Walker, William, Summit, N. J. Garment and umbrella hook	28,028	Dec. 14	81	1922
Waller, Edward C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,016	Dec. 7	81	1770
Waller, Edward C., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate and border	28,018	Dec. 7	81	1779
Ward, Harry, Newark, N. J., assignor to O. E. A. Wiessner, Brooklyn, N. Y. Headboard or footboard for bedsteads	28,107	Dec. 28	81	2240
Warner, De Ver H., Bridgeport, Conn. Corset	28,066	Dec. 21	81	2079
Warren, Edric C., Cleveland, Ohio, assignor to Reineke, Wilson & Co., Pittsburg, Pa. Gas heating-stove	27,946	Dec. 7	81	1768
Watson, Clara E., Exeter, N. H. Stove-brush	28,096	Dec. 28	81	2238
Way, John H., Philadelphia, Pa. Chest and neck protector	27,926	Nov. 30	81	1606
Webster, George, Christiana, assignor of one-half to I. H. Dickinson, Quarryville, Pa. Knife-blade	27,716	Oct. 12	81	324
Weiller, Simon, New York, N. Y. Box	28,088	Dec. 28	81	2236
Weinreich, Elias, Dayton, Ohio. Cigar	28,058	Dec. 21	81	2075
Weiss, Martin, San Marcos, Tex. Match and cigar safe	27,739	Oct. 19	81	492

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Whiteman, Louis P. (See Miller, Tobias, assignor.)				
Wiederhold, Oscar, Summit, N. J. Armature	27,870	Nov. 16	81	1270
Wiessner, Oscar E. A. (See Ward, Harry, assignor.)				
Wilderoter, Frank P., *et al.* (See Gross, Peter J., assignor.)				
Will & Baumer Company. (See Vanderbilt, Jeremiah, assignor.)				
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Lantern	27,717	Oct. 12	81	324
Wojidkow, Louis, Brooklyn, N. Y. Cover	27,934	Dec. 7	81	1766
Wojidkow, Louis, Brooklyn, N. Y. Bread or cake tray	27,935	Dec. 7	81	1766
Wojidkow, Louis, Brooklyn, N. Y. Tea-holder	27,937	Dec. 7	81	1767
Wojidkow, Louis, Brooklyn, N. Y. Stand for pots or kettles	27,938	Dec. 7	81	1767
Wojidkow, Louis, Brooklyn, N. Y. Stand for tea-kettles	27,939	Dec. 7	81	1767
Wojidkow, Louis, Brooklyn, N. Y. Stand for tea-kettles	27,940	Dec. 7	81	1767
Wojidkow, Louis, Brooklyn, N. Y. Stand for tea-kettles	27,941	Dec. 7	81	1767
Wojidkow, Louis, Brooklyn, N. Y. Tea-kettle	27,942	Dec. 7	81	1767
Wojidkow, Louis, Brooklyn, N. Y. Tea-kettle	27,943	Dec. 7	81	1768
Wojidkow, Louis, Brooklyn, N. Y. Plate or similar article	28,094	Dec. 28	81	2237
Wolf, John G. (See Carr and Wolf.)				
Wood, Charles W., Fairmount, N. J. Game-board	27,789	Oct. 26	81	790
Worthington, Joseph M., Annapolis, Md. Frame for prescription-cabinets	28,032	Dec. 14	81	1923
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,977	Dec. 7	81	1773
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,978	Dec. 7	81	1773
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,979	Dec. 7	81	1773
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,980	Dec. 7	81	1773
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,981	Dec. 7	81	1773
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,982	Dec. 7	81	1773
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,983	Dec. 7	81	1774
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,984	Dec. 7	81	1774
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,985	Dec. 7	81	1774
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,986	Dec. 7	81	1774
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,987	Dec. 7	81	1774
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,988	Dec. 7	81	1774
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-light	27,989	Dec. 7	81	1774
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,990	Dec. 7	81	1774
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,991	Dec. 7	81	1775
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,992	Dec. 7	81	1775
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,993	Dec. 7	81	1775
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,994	Dec. 7	81	1775
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,995	Dec. 7	81	1775
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,996	Dec. 7	81	1775
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,997	Dec. 7	81	1776
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,998	Dec. 7	81	1776
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	27,999	Dec. 7	81	1776
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,000	Dec. 7	81	1776
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,001	Dec. 7	81	1776
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,002	Dec. 7	81	1776
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,003	Dec. 7	81	1776
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,004	Dec. 7	81	1777
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,005	Dec. 7	81	1777
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,006	Dec. 7	81	1777
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,007	Dec. 7	81	1777
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,008	Dec. 7	81	1777
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,009	Dec. 7	81	1777
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,010	Dec. 7	81	1778
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,011	Dec. 7	81	1778
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,012	Dec. 7	81	1778
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,013	Dec. 7	81	1778
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,014	Dec. 7	81	1778
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate	28,015	Dec. 7	81	1778
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-plate and border	28,017	Dec. 7	81	1779
Wright, Frank L., assignor to Luxfer Prism Patents Company, Chicago, Ill. Prism-canopy	28,020	Dec. 7	81	1779
York, Phineas H., assignor to Tonk Manufacturing Company, Chicago, Ill. Pedestal for piano-stools	28,030	Dec. 14	81	1922
York, Phineas H., assignor to Tonk Manufacturing Company, Chicago, Ill. Duet-bench	28,031	Dec. 14	81	1922
Youngquist, Erick J. (See Holmgren and Youngquist.)				
Zimmern, Henry, New York, N. Y. Watchmaker's tool	27,713	Oct. 12	81	324

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. A. Griffing Iron Company, Jersey City, N. J. Steam and water heaters	30,724	Oct. 19	81	502
A. A. Griffing Iron Company, Jersey City, N. J. Steam specialties, heating apparatus, and kindred supplies	30,725	Oct. 19	81	502
A. W. Stewart & Company, New York, N. Y. Antiseptic medicine	31,037	Dec. 21	81	2084
Ackermann, Johan C., Summerford, Ohio. Medicine for hogs and chickens	30,620	Oct. 5	81	155
Adams, Austin, New York, N. Y. Latches and fastening, coupling, and catch devices	30,875	Nov. 23	81	1413
Adams, Austin, New York, N. Y. Latches and fastening, coupling, and catch devices	30,876	Nov. 23	81	1413
Adams Nomatch Light Company, Jersey City, N. J., and New York, N. Y. Incandescent gas-mantles	30,767	Oct. 26	81	796
Agostini, Joseph, New York, N. Y. Sarsaparilla-root	30,621	Oct. 5	81	155
Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Sewing cotton, threads, yarns, worsted or hair and braids, trimmings, and passementerie	30,868	Nov. 16	81	1276
Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Sewing cotton and silks, yarns, and threads of various kinds	30,869	Nov. 16	81	1276
Alaska Packers Association, San Francisco, Cal. Canned salmon	30,820	Nov. 9	81	1109
Alaska Packers Association, San Francisco, Cal. Canned salmon	30,821	Nov. 9	81	1109
Alaska Packers Association, San Francisco, Cal. Canned fish, especially salmon	30,886	Nov. 23	81	1414
Alaska Packers Association, San Francisco, Cal. Canned salmon	30,918	Nov. 30	81	1609
Alaska Packers Association, San Francisco, Cal. Canned salmon	30,946	Dec. 7	81	1781
Alaska Packers Association, San Francisco, Cal. Canned salmon	30,947	Dec. 7	81	1781
Alaska Packers Association, San Francisco, Cal. Canned salmon	30,948	Dec. 7	81	1781
Alaska Packers Association, San Francisco, Cal. Canned salmon	31,028	Dec. 21	81	2083
Alfred Bishop & Sons, Limited, London, England. Effervescent medicinal preparations for the treatment of liver, head, stomach, throat, and urinary disorders, gout, stone, anemia, fevers, rheumatism, glanduiar ailments, and like affections	30,863	Nov. 23	81	1414
Alfred Bishop & Sons, Limited, London, England. Effervescent medicinal preparations for the treatment of certain affections of the human body	30,913	Nov. 30	81	1609
Alfred Bishop & Sons, Limited, London, England. Effervescent medicinal preparations for the treatment of disorders of the human body	30,914	Nov. 30	81	1609
Allen & Co., Benjamin, Chicago, Ill. Watches	30,688	Oct. 19	81	499
Allen & Co., Benjamin, Chicago, Ill. Watches	30,689.	Oct. 19	81	499
American Asbestic Company, New York, N. Y. Special material formed by crushing serpentine rock and liberating the asbestos therein, being a mixture of crushed serpentine rock and short-fibered asbestos	30,651	Oct. 5	81	157
American Brewing Company, St. Louis, Mo. Beer	30,957	Dec. 7	81	1782
American Brewing Company, St. Louis, Mo. Beer	30,958	Dec. 7	81	1782
American Dunlop Tire Company, New York, N. Y. Pneumatic tires and parts thereof	30,839	Nov. 16	81	1273
American Mutoscope Company, New York, N. Y. Moving-picture apparatus	30,681	Oct. 12	81	330
American Optical Company, Southbridge, Mass. Spectacles and eyeglasses	30,687	Oct. 19	81	499
American Pepsin Gum Company, Newark, N. J. Confections and chewing-gum	30,641	Oct. 5	81	156
Anchor Pitch Co., Cincinnati, Ohio. Pitch for pitching beer-kegs, barrels, beer-mugs, bottles, and vats	30,940	Dec. 7	81	1780
Andrews, Edward F., Detroit, Mich. Dental plugs or other filling for teeth, either temporary or permanent	31,008	Dec. 21	81	2081
Andrews, Thomas, Sr., Gloversville, N. Y. Gloves	30,932	Dec. 7	81	1780
Assau, Baines Company, Cheswold, Del., and Baltimore, Md. Certain named canned goods	30,714	Oct. 19	81	501
Assau, Baines Company, Cheswold, Del., and Baltimore, Md. Oysters, meats, fruits, vegetables, and cereals in glass, earthenware, and cans hermetically sealed	30,822	Nov. 9	81	1109
Aston & Co., London, England. Coffee, tea, and cocoa	30,962	Dec. 14	81	1928
Atlantic Dynamite Company of New Jersey, Kenvil, N. J. Dynamite	30,652	Oct. 5	81	157
Aunkst, Daniel E., Milton, Pa. Medical ointment	30,880	Nov. 23	81	1414
Baldwin, Charles A., Cupertino, Cal. Wines	30,813	Nov. 9	81	1108
Ballard & Ballard Company, Louisville, Ky. Wheat-flour	30,850	Nov. 16	81	1274
Ballard & Ballard Company, Louisville, Ky. Wheat-flour	30,851	Nov. 16	81	1274
Ballard & Ballard Company, Louisville, Ky. Wheat-flour	30,852	Nov. 16	81	1274
Balsa, Eugenio. (See Balsa, José and E.)				
Balsa, José and E., Vera Cruz, Mexico, and Tampa, Fla. Cigars	30,639	Oct. 5	81	156
Barbeau, Alfred E., Chicago, Ill. Washing compound in the form of cakes	30,978	Dec. 14	81	1928
Beggs & Co., James, New York, N. Y. Steam-boilers designated "horizontal direct return tubular"	30,653	Oct. 5	81	157
Bellows, Charles, New York, N. Y. Wines	30,730	Oct. 26	81	793
Bernheimer, Adolph L., New York, N. Y. Woven goods, such as cotton fabrics or cloths	30,808	Nov. 23	81	1415
Bergen, Garret, New York, N. Y. Tomato catchup	30,644	Oct. 5	81	157
Bergen, Garret, New York, N. Y. Tomato catchup	30,952	Dec. 7	81	1781
Bernheimer & Walter, New York, N. Y. Cotton goods	30,640	Oct. 5	81	154
Berrang & Zacharias, Asbury Park, N. J. Chain-lubricants and tire and rim cements of a semi-liquid or pasty character packed in cans or collapsible tubes	30,909	Nov. 30	81	1609
Black, Blanche R. (See Bryan and Black.)				
Blissett, William V., New York, N. Y. Laundry, toilet, and dyeing soap	30,802	Nov. 16	81	1275
Boas, Arthur E., New York, N. Y. Sewing, crochet, darning, and embroidery silk, cotton, thread, and twine	30,923	Nov. 30	81	1610
Boekel & Co., William, Philadelphia, Pa. Atomizers, laryngoscopes, rectal dilators, sterilizers, and bacteriological incubators	30,694	Oct. 19	81	500
Boston Artificial Leather Company, Salem, N. H., and Boston, Mass. Artificial leather	30,690	Oct. 12	81	330
Bostwick, Harrison & Co., Brooklyn, N. Y. Developers for photographic plates in granular or powdered form	30,877	Nov. 23	81	1413
Bouillot, Joseph, Paris, France. Medicinal preparation for use in lieu of cod-liver oil	30,610	Oct. 5	81	155
Bowker Fertilizer Company, Boston, Mass. Plant-fertilizers	30,975	Dec. 14	81	1928
Bowker Fertilizer Company, Boston, Mass. Grass-fertilizers	31,055	Dec. 28	81	2243
Bradley & Son, C. C., Syracuse, N. Y. Thill or shaft and pole couplings	30,986	Dec. 21	81	2080
Brandly, Albert R., New York, N. Y. Soap	30,673	Oct. 12	81	330

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Breyer, Theodor E., Peoria, Ill. Compound for precipitating mineral substances contained in boiler-water	30,773	Oct. 26	81	797
Bridgeport Brass Company, Bridgeport, Conn. Wire for electric conduction	30,720	Oct. 19	81	502
Bridgeport Wood Finishing Company, New Milford, Conn. Primers and white lead	31,006	Dec. 21	81	2082
Brinly, Miles & Hardy Company, Louisville, Ky. Plows	30,723	Oct. 19	81	502
Bronx Chemical Company, Yonkers, N. Y. Homeopathic medicines and remedies	30,679	Oct. 12	81	330
Brooklyn Daily Eagle, Brooklyn, N. Y. Publications	30,686	Oct. 19	81	499
Brooklyn Daily Eagle, Brooklyn, N. Y. Periodical publications	30,924	Nov. 30	81	1610
Brown, John. (See Stevens, Brown, and Pettit.)	30,953	Dec. 7	81	1781
Bryan, Laura B., and B. R., Black, Vincentown, N. J. Mint-sauce	30,646	Oct. 5	81	157
Bullock, Thomas O., New York, N. Y. Rice and rice-flour	30,787	Nov. 2	81	965
Burrough Brothers Manufacturing Company, Baltimore, Md. Gastro-intestinal antiseptics				
C. F. Blanke Tea and Coffee Company, St. Louis, Mo. Mixture of comminuted ingredients for use in the making of beverages	30,740	Oct. 26	81	794
Cabot, Samuel, Brookline, Mass. Wood preservatives	30,939	Dec. 7	81	1780
Canfield Rubber Company, Bridgeport, Conn., and New York, N. Y. Dress-shields	30,797	Nov. 9	81	1107
Cargill & Fall, Houston, Minn. Wheat-flour	30,944	Dec. 7	81	1781
Carloni, Firm of Ing. C., Milan, Italy. Packing materials for joining steam, water, and gas pipes	30,774	Oct. 26	81	797
Carpenter & Co., Geo. B., Chicago, Ill. Braided sash-cord	30,994	Dec. 21	81	2080
Carr, Nora, Grand Rapids, Mich. Toilet preparation	30,861	Nov. 16	81	1275
Carstairs, McCall & Co., Philadelphia, Pa. Whisky	30,814	Nov. 9	81	1108
Carter-Crume Company, Niagara Falls, N. Y. Silver-plated spoons, forks, and knives	30,902	Dec. 14	81	1927
Charles Efros Company, Bayonne, N. J. Oils, waterproof compounds, lubricants, greases, and petroleum products	30,677	Oct. 12	81	329
Chase & Co., L. C., Boston, Mass. Pneumatic or solid-rubber tires	30,794	Nov. 2	81	966
Chase & Co., L. C., Boston, Mass. Pneumatic or solid-rubber tires	31,066	Dec. 28	81	2244
Chester Paper Company, Huntington, Mass. Paper and envelops	30,601	Oct. 5	81	153
Chicago Corset Co., Chicago, Ill. Corsets	30,608	Oct. 5	81	154
Chicago Tube Company, Chicago, Ill. Bicycle-saddles	31,064	Dec. 28	81	2244
Chipman & Co., Frederick V., Boston, Mass. Leather boots and shoes	30,900	Nov. 23	81	1415
Chipman, Harry D., Tekonsha, Mich. Mixture sold as a substitute for coffee	30,670	Oct. 12	81	329
Clapp, Alfred C., New York, N. Y. Dress-stays or corset-stiffeners	30,995	Dec. 21	81	2080
Clark-Sawyer Company, Worcester, Mass. Toilet-paper	30,705	Oct. 26	81	796
Clough, Edward G., Boston, Mass. Inhaler and contents	30,698	Oct. 19	81	499
Columbian Novelty Company, North East, Pa. Antirattlers for thill-couplings	30,654	Oct. 5	81	157
Conover, James F., Chicago, Ill. Pianos	30,991	Dec. 21	81	2080
Consolidated Rubber Works, Boston, Mass. Rubber tubing and tubular rubber tires	31,065	Dec. 28	81	2244
Corry & Co., Limited, William, Belfast, Ireland. Mineral and aerated waters or liquids	31,018	Dec. 21	81	2083
Court Perfumery Company, New York, N. Y. Toilet soaps, perfumes, waters, powders, and cosmetics	30,616	Oct. 5	81	154
Cream of Wheat Company, Minneapolis, Minn. Breakfast food	30,943	Dec. 7	81	1781
Creed, John M., Sydney, and W. J. Green, Croydon, New South Wales. Medicinal preparation for the cure of indigestion	30,941	Dec. 7	81	1780
Crystal Water Company, Buffalo, N. Y. Pure distilled water and mineral and other carbonated waters	30,741	Oct. 26	81	794
D. Goff & Sons, Pawtucket, R. I. Braid	30,605	Oct. 5	81	153
D. M. Osborne & Company, Auburn, N. Y. Harvesters, binders, mowers, rakes, harrows, cultivators, and similar machines and their several parts	30,833	Nov. 9	81	1110
Dairy Improvement Company, New York, N. Y., and Boston, Mass. Prepared curd and products made therefrom	31,029	Dec. 21	81	2083
Danforth Chemical Company, Saco, Me., and Leominster, Mass. Powder for use on plants and vines	30,809	Nov. 9	81	1108
Danis, John B., Chicago, Ill. Remedies for diseases of women	30,858	Nov. 16	81	1275
Davenny, Wilson L., Chicago, Ill. Drink-tablets	30,671	Oct. 12	81	329
Davis & Co., J. H., Hot Springs, Ark. Blood-purifying remedies	30,749	Oct. 26	81	795
Deist, Adam, Philadelphia, Pa. Books, pamphlets, and other printed matter	30,966	Dec. 14	81	1927
Detroit Casket Company, Detroit, Mich. Burial-caskets	30,781	Oct. 26	81	798
Diamond Match Company, Chicago, Ill. Friction-matches	31,004	Dec. 21	81	2081
Dighton Furnace Company, Taunton, Mass. Heating and cooking stoves, ranges, furnaces, and hot-water and steam heaters	30,985	Dec. 21	81	2080
Dodwell, Carlill & Co., Tacoma, Wash. Tea	30,891	Nov. 23	81	1415
Doig, William S., Brooklyn, N. Y. Box-nailing machines	30,779	Oct. 26	81	798
Dolle, Gustav E., Bremen, Germany. Medical preparation for strengthening the blood	30,750	Oct. 26	81	795
Dolle, Gustav E., Bremen, Germany. Preparation for strengthening the blood	30,751	Oct. 26	81	795
Donat, Maria B. von, Berlin, Germany. Cocoa and all kinds of confectionery, cakes, and biscuits containing albumen or albuminous matter	31,021	Dec. 21	81	2083
Dr. Chase Co., Philadelphia, Pa. Remedies for kidney and urinary complaints	31,041	Dec. 28	81	2242
Dresdener Chemisches Laboratorium Lingner, Dresden, Germany. Certain named articles and preparations for the teeth, hair, and skin	30,942	Dec. 7	81	1780
Dresser, Solomon R., Bradford, Pa. Rubber packing	31,067	Dec. 28	81	2244
E. P. Breckenridge Company, Toledo, Ohio. Bicycle-lamps	30,831	Nov. 9	81	1110
E. Seidenberg, Stiefel & Company, New York, N. Y. Cigars and all-tobacco cigarettes	30,735	Oct. 26	81	793
E. Seidenberg, Stiefel & Company, New York, N. Y. All-tobacco cigarettes or small cigars	30,844	Nov. 16	81	1274
Earl & Wilson, New York, N. Y. Turn-down collars	30,731	Oct. 26	81	793
English, Richard W., Buffalo, N. Y. Linseed-oil	30,926	Nov. 30	81	1610
English, Richard W., Buffalo, N. Y. Linseed-oil	30,927	Nov. 30	81	1610
Eno, James C., London, England. Medicinal preparation for human use	31,045	Dec. 28	81	2242
Esterbrook Steel Pen Manufacturing Company, Camden, N. J., and New York, N. Y. Metallic pens	30,902	Nov. 23	81	1415
Esterbrook Steel Pen Manufacturing Company, Camden, N. J., and New York, N. Y. Metallic pens	30,903	Nov. 23	81	1416
Esterbrook Steel Pen Manufacturing Company, Camden, N. J., and New York, N. Y. Metallic pens	30,904	Nov. 23	81	1416
Esterbrook Steel Pen Manufacturing Company, Camden, N. J., and New York, N. Y. Metallic pens	30,905	Nov. 23	81	1416
Esterbrook Steel Pen Manufacturing Company, Camden, N. J., and New York, N. Y. Metallic pens	30,906	Nov. 23	81	1416
Esterbrook Steel Pen Manufacturing Company, Camden, N. J., and New York, N. Y. Metallic pens	30,907	Nov. 23	81	1416
Esterbrook Steel Pen Manufacturing Company, Camden, N. J., and New York, N. Y. Metallic pens	30,908	Nov. 23	81	1416
Eureka Baking Powder Co., Middle Village, N. Y. Baking-powder	31,053	Dec. 28	81	2243
Eureka Fire Hose Company, New York, N. Y. Seamless-fabric hose	30,606	Oct. 5	81	153
Eureka Fire Hose Company, New York, N. Y. Seamless-fabric hose	30,607	Oct. 5	81	154
Export Iron and Steel Company, Pittsburg, Pa. Hoops, bands, strips, ties, and blades	30,826	Nov. 9	81	1109

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
F. A. Sarg's Sohn & Co., K. K. Landespriv. Milly, Kerzen, Seifen, und Glycerin Fabrik, Vienna and Liesing, Austria-Hungary. Dentifrice	30,758	Oct. 26	81	796
Fairbanks Company, New York, N. Y. Gas and gasolene engines	30,872	Nov. 23	81	1413
Farbenfabriken of Elberfeld Company, New York, N. Y. Specific for dandruff	30,789	Nov. 2	81	965
Farbenfabriken of Elberfeld Company, New York, N. Y. Remedy for gonorrhea	30,892	Nov. 23	81	1414
Farbenfabriken of Elberfeld Company, New York, N. Y. Dyestuffs	31,011	Dec. 21	81	2083
Farlee, George R., New York, N. Y. Dextrinized barley-flour for medicinal purposes	30,711	Oct. 19	81	501
Faultless Chemical Company, Baltimore, Md. Chewing-gum	30,640	Oct. 5	81	156
Farwell, Ozmun, Kirk & Company, St. Paul, Minn. Cutlery and other cutting edge-tools	30,837	Nov. 16	81	1276
Feder, Harry, New York, N. Y. Skirt-protectors	30,733	Oct. 26	81	793
Feder, Harry, New York, N. Y. Dress-protectors	30,798	Nov. 9	81	1107
Ferris, Frank A., New York, N. Y. Smoked meats	30,888	Nov. 23	81	1414
Fleischmann & Co., Cincinnati, Ohio, and New York, N. Y. Compressed yeast	31,051	Dec. 28	81	2243
Fleischmann & Co., Cincinnati, Ohio, and New York, N. Y. Compressed yeast	31,052	Dec. 28	81	2243
Forsyth Seeded Raisin Company, Fresno, Cal. Seeded muscat raisins	30,816	Nov. 9	81	1108
Fowle, Edwin M., Boston, Mass. Harness and carriage soap	31,008	Dec. 21	81	2082
Fowler, Frank C., Moodus, Conn. Lotions	31,035	Dec. 21	81	2084
Frederiksen, Johan D., Little Falls, N. Y. Preparations for coagulating or curdling milk	30,916	Nov. 30	81	1609
Gedney, Stanley L., East Orange, N. J. Scouring-soap	30,761	Oct. 26	81	796
George R. Sims Hair Restorer Company, Limited, London, England. Liquid preparation for restoring the growth of the hair	30,912	Nov. 30	81	1609
Gillies & Co., Edwin J., New York, N. Y. Roasted coffee	30,955	Dec. 7	81	1782
Godet, Jules, Paris, France. Haircloth	30,997	Dec. 21	81	2081
Golden Rule Company, Boston, Mass., and New York, N. Y. Printed periodicals	31,057	Dec. 28	81	2243
Goold, Matthew H., Liverpool, England. Oils, lubricants, varnishes, enamels, and pigments or paints	30,772	Oct. 26	81	797
Grant Ball Company, Cleveland, Ohio. Balls and ball-bearings	30,840	Nov. 16	81	1273
Grant, William A., West Orange, N. J. Laundry soap	30,763	Oct. 26	81	796
Graves, Gilbert S., Buffalo, N. Y. Laundry starch	30,764	Oct. 26	81	796
Green, William J. (See Creed and Green.)				
Greene, William F., and F. P. Jaques, Boston, Mass. Powder for the cure of headache, neuralgia, la grippe, colds, and for the prevention of pneumonia and rheumatism	30,790	Nov. 2	81	965
Griffiths Bros. & Co., London, England. Enamel or varnish preparation	30,784	Nov. 2	81	965
Griffiths Bros. & Co., London, England. Paints and ingredients thereof	30,866	Nov. 16	81	1276
H. Mueller Manufacturing Company, Decatur, Ill. Valves, cocks, pressure-regulators, and tapping-machines	30,910	Nov. 30	81	1609
H. W. Johns Manufacturing Company, New York, N. Y. Joint and valve packings	30,655	Oct. 5	81	158
Hage & Co., J. D., New York, N. Y. Indian-corn meal and grits	30,665	Oct. 12	81	328
Hage & Co., J. D., New York, N. Y. Indian-corn flakes	30,666	Oct. 12	81	328
Hahne & Co., Newark, N. J. Certain named dry goods	31,059	Dec. 28	81	2243
Hahne & Co., Newark, N. J. Certain named furniture	31,060	Dec. 28	81	2244
Hall, Maria A., Dansville, N. Y. Meal, flour, cracked wheat, oats, or rye, and other food products	30,885	Nov. 23	81	1414
Hamburger & Sons, A., Los Angeles, Cal. Women's and children's corsets and waists	30,931	Dec. 7	81	1780
Hammer Society, Tournai, Belgium. Portland cement	30,709	Oct. 26	81	797
Hampden Watch Company, Canton, Ohio. Watch-movements	30,937	Dec. 7	81	1780
Hancock, George W., Chicago, Ill. Preparation for healing and reducing inflammatory diseases of the skin	30,617	Oct. 5	81	154
Harris Suspender Co., New York, N. Y. Suspenders, braces, and garters	30,609	Oct. 5	81	154
Harrison, Samuel A., Anutt, Mo. Liniment or oil for internal and external use	30,618	Oct. 5	81	155
Hastings & McIntosh Truss Company, Philadelphia, Pa. Supporters	30,695	Oct. 19	81	500
Haworth & Dewhurst, Limited, Pittsburg, Pa. Wheat-flour	30,712	Oct. 19	81	501
Heath, James N., Appleton, Wis. Medicine for certain named diseases	31,036	Dec. 21	81	2084
Hecker, Jacob S., Philadelphia, Pa. Imitation game-balls	30,805	Nov. 9	81	1107
Heinz, Henry J., Pittsburg, Pa. Certain named pickled and preserved foods	31,048	Dec. 28	81	2242
Heissenbuttel, Nearing & Co., Brooklyn, N. Y. Certain named canned goods	30,917	Nov. 30	81	1609
Herman Zöhrlaut Leather Company, Milwaukee, Wis., and Boston, Mass. Russia leather	30,801	Nov. 9	81	1107
Heroy & Marrenner, New York, N. Y. Cylinder and rolled glass	30,692	Oct. 19	81	499
Herriott Bros. & Co., St. Louis, Mo. Boot and shoe blacking	30,675	Oct. 12	81	329
Herriott Bros. & Co., St. Louis, Mo. Boot, shoe, and leather blackings and dressings, stains, and waxes	30,676	Oct. 12	81	329
Herriott Bros. & Co., St. Louis, Mo. Shoe-dressing	30,974	Dec. 14	81	1928
Herron & Herron, Oskaloosa, Iowa. Garment-supports	30,695	Oct. 19	81	499
Heyer, George W., Houston, Tex. Powder for the skin	30,807	Nov. 9	81	1108
Heymann, Henry M., New York, N. Y. Liniments	31,044	Dec. 28	81	2242
Higgins, Charles R., New York, N. Y. Safety backwater and sewer-gas traps	30,961	Dec. 14	81	1927
Hils, Albert, and C. H. Hunt, St. Louis and Canton, Mo. Wax preparation for washing and ironing purposes	30,878	Nov. 23	81	1413
Hobron, Thomas W., Honolulu, Hawaii, St. Joseph, Mich., and San Francisco, Cal. Prepared food for infants, invalids, and dyspeptics	30,742	Oct. 26	81	794
Holbrook, Merrill & Stetson, New York, N. Y. Tin plates	30,990	Dec. 21	81	2080
Howard & Childs, New York, N. Y. Malt extracts	30,623	Oct. 5	81	155
Howard Sterling Company, Providence, R. I. Ornamented silverware	30,690	Oct. 19	81	499
Hunt, Charles H. (See Hils and Hunt.)				
Hunter, James A., and R. Strehlow, Peoria, Ill. Mouse-trap	30,659	Oct. 5	81	158
Hunter, John E., Wildwood, Pa. Hair-invigorator	30,701	Oct. 19	81	500
Hupfel, Adolph G., New York, N. Y. Lager-beer and malt extract	30,738	Oct. 26	81	794
Hupfel, Adolph G., New York, N. Y. Lager-beer	30,845	Nov. 16	81	1274
Ilfeldter & Co., B., New York, N. Y. Harmonicas	30,925	Nov. 30	81	1610
Interior Conduit and Insulation Company, New York, N. Y. Iron piping or tubing	30,989	Dec. 21	81	2080
Isaacs, Mone R., Philadelphia, Pa. Glue and sizing	30,865	Nov. 16	81	1276
J. H. Williams & Company, Brooklyn, N. Y. Chain pipe-wrench	30,656	Oct. 5	81	158
J. & J. Colman, Limited, London, England. Washing-blue	30,674	Oct. 12	81	329
J. & J. Colman, Limited, London, England. Rice-starch	30,713	Oct. 19	81	501
J. & J. Colman, Limited, London, England. Washing-blue	31,009	Dec. 21	81	2082
J. & J. Colman, Limited, London, England. Washing-blue	31,010	Dec. 21	81	2082
Janowitz, Julius, New York, N. Y. Dress and corset stays	30,796	Nov. 9	81	1107
Janowitz, Julius, New York, N. Y. Dress or corset stays	31,060	Dec. 28	81	2244
Jaques, Frederick P. (See Greene and Jaques.)				
Jas. E. Pepper & Company, Lexington, Ky. Rye whisky	30,704	Oct. 19	81	500
John Gund Brewing Company, La Crosse, Wis. Beer, ale, porter, and malt extract or tonic	30,627	Oct. 5	81	155
John L. Roper Lumber Company, Norfolk, Gilmerton, and Waverly, Va.; Philadelphia, Pa.; New York, N. Y., and Roper, N. C. Lumber, both bundled and loose, including dressed lumber, boards, flooring, ceiling, cedar lumber, and shingles	30,727	Oct. 19	81	502
John P. Dousman Milling Company, Depere, Wis. Roller or patent flour	30,854	Nov. 16	81	1274
Johnson Bros., St. Louis, Mo. Tonic and laxative	30,857	Nov. 16	81	1275
Jowers, Joseph D., Smith's Fork, Tenn. Washing-powder	30,879	Nov. 23	81	1413

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Kahn-Miller Drug Company, Baltimore, Md. Remedy for catarrh, hay-fever, tonsilitis, sore throat, quinsy, and cold in the head	30,791	Nov. 2	81	966
Kaiser, William S., Philadelphia, Pa. Mineral water	30,892	Nov. 23	81	1415
Kathreiner's Malzkaffee-Fabriken Gesellschaft mit Beschränkter Haftung, Munich, Uerdingen, and Berlin, Germany. Malt extracts	30,625	Oct. 5	81	155
Kathreiner's Malzkaffee-Fabriken Gesellschaft mit Beschränkter Haftung, Munich, Uerdingen, and Berlin, Germany. Malt extracts	30,626	Oct. 5	81	155
Kaufmann & Blache, New York, N. Y. Cognac	31,014	Dec. 21	81	2082
Kazis, Margareta, New York, N. Y. Cigarettes manufactured from oriental or Egyptian tobacco	31,013	Dec. 21	81	2082
Keatinge, John R., New York, N. Y. Type-writer ribbons	30,965	Dec. 14	81	1927
Keily Axe Manufacturing Company, Alexandria, Ind., and New York, N. Y. Axes	30,835	Nov. 9	81	1110
Kennard, Charles W., Baltimore, Md. Talking-boards	30,964	Dec. 14	81	1927
Kerr Thread Company, Fall River, Mass., and New York, N. Y. Yarns and threads and knitted and crocheted garments and articles	30,800	Nov. 9	81	1107
Kewanee Boiler Company, Kewanee, Ill. Boilers for steam and water heating systems	30,775	Oct. 26	81	797
Kewanee Boiler Company, Kewanee, Ill. Boilers for steam and water heating systems	30,776	Oct. 26	81	797
Kewanee Boiler Company, Kewanee, Ill. Boilers for steam and water heating systems	30,777	Oct. 26	81	797
Kewanee Boiler Company, Kewanee, Ill. Water or steam heaters	30,778	Oct. 26	81	797
King, Henry H., Minneapolis, Minn. Flour made from wheat	31,026	Dec. 21	81	2083
King Powder Company, Cincinnati, Ohio. Gunpowder, ordnance-powder, and blasting-powder	31,005	Dec. 21	81	2081
King & Son, Chas., Alexandria and Charlottesville, Va. Flour	30,668	Oct. 12	81	329
Kops Bros., New York, N. Y. Corsets and parts thereof	30,732	Oct. 26	81	793
Krupp, Firm of Fried., Essen-on-the-Ruhr, Germany. Certain named iron and steel manufactures	30,721	Oct. 19	81	502
Kufeke, Anton F. F., Bergedorf, Germany. Prepared food for infants, invalids, and dyspeptics	30,743	Oct. 26	81	794
Kurvem Dress Stay Company, Eau Claire, Wis. Dress-stays	30,897	Nov. 23	81	1415
Kutnow & Co., S., London, England. Remedy for asthma, bronchitis, and catarrh	30,754	Oct. 26	81	796
La Favorite Rubber Manufacturing Company, Paterson, N. J. Gaskets and steam and other packing	30,960	Dec. 14	81	1927
La Manna, Azema & Farnan, New York, N. Y. Sardines in oil	30,849	Nov. 16	81	1274
La Manna, Azema & Farnan, New York, N. Y. Sardines in oil	30,949	Dec. 7	81	1781
Ladd & Coffin, New York, N. Y. Perfumes, colognes, toilet waters, and sachet-powders	30,709	Oct. 19	81	501
Ladd & Coffin, New York, N. Y. Perfumes, colognes, toilet waters, and sachet-powders	30,710	Oct. 19	81	501
Lauer, Benjamin J., and B. J. Nussbaum, Chicago, Ill. Stomach and bowel medicines	31,042	Dec. 28	81	2242
Lawrence Manufacturing Company, Boston and Lowell, Mass. Underwear and stockings	30,968	Dec. 14	81	1927
Laxine Co., New Brunswick, N. J. Laxatives	31,034	Dec. 21	81	2084
Leisy Brewing Company, Peoria, Ill. Lager-beer	30,737	Oct. 26	81	794
Lever Brothers, Limited, Port Sunlight, England. Soaps, powders, detergents, glycerin, matches, tapers, starch, blue, candles, soda, and disinfectants	30,786	Nov. 2	81	965
Lewis & Co., George, Chicago, Ill. Specially-prepared product for use as a substitute for and containing the constituents of eggs and baking-powder	30,950	Dec. 7	81	1781
Lewis & Co., George, Chicago, Ill. Specially-prepared product, used as a substitute for and containing the constituents of eggs and baking-powder	30,951	Dec. 7	81	1781
Lewis, George W., New Haven, Conn. Remedy for colds	30,792	Nov. 2	81	966
Liggett & Myers Tobacco Company, St. Louis, Mo. Plug, chewing, and smoking tobaccos	30,636	Oct. 5	81	156
Liggett & Myers Tobacco Company, St. Louis, Mo. Tobaccos and cigarettes	30,637	Oct. 5	81	156
Liggett & Myers Tobacco Company, St. Louis, Mo. Smoking-tobacco	30,638	Oct. 5	81	156
Liggett & Myers Tobacco Company, St. Louis, Mo. Smoking and chewing tobaccos and cigarettes	30,810	Nov. 9	81	1108
Liggett & Myers Tobacco Company, St. Louis, Mo. Chewing and smoking tobaccos and cigarettes	30,841	Nov. 16	81	1273
Liggett & Myers Tobacco Company, St. Louis, Mo. Chewing and smoking tobaccos and cigarettes	30,842	Nov. 16	81	1273
Liggett & Myers Tobacco Company, St. Louis, Mo. Chewing and smoking tobaccos and cigarettes	30,843	Nov. 16	81	1273
Little, Adelbert P., Rochester, N. Y. Type-writer ribbons	30,718	Oct. 19	81	502
Little Falls Knitting Mill Company, Little Falls, N. Y. Knit underwear	30,799	Nov. 9	81	1107
Luey, Herbert, Brooklyn, N. Y. Bicycle skirts or habits	30,783	Nov. 2	81	965
Lüpfert, Scales & Co., Winston, N. C. All kinds of smoking-tobacco, including granulated, fine-cut, long-cut, and plug-cut	30,635	Oct. 5	81	156
Luyties Brothers, New York, N. Y. Whisky	30,634	Oct. 5	81	156
M. K. Goetz Brewing Company, St. Joseph, Mo. Lager-beer and malt extracts	30,811	Nov. 9	81	1108
Magnat, Jules, Paterson, N. J. Blood-purifying beverage	31,032	Dec. 21	81	2084
Malt-Diastase Company, New York, N. Y. Malt extracts	30,624	Oct. 5	81	155
Manskopf-Sarasin, Frankfort-on-the-Main, Germany. Wines	30,706	Oct. 19	81	500
Marceau, Theodore C., San Francisco, Cal. Photographs and photographic pictures	30,994	Dec. 7	81	1780
Martindale, Thomas, Philadelphia, Pa. Coffee, cereals, dried fruit, candies, and condensed milk	30,849	Nov. 16	81	1274
Mason & Risch Vocalion Company, Limited, Worcester, Mass., and Toronto, Canada. Organs	30,963	Dec. 14	81	1927
Massachusetts Cotton Mills, Lowell, Mass. Woven cotton fabrics	30,611	Oct. 5	81	154
Mattes Brewing Co., Nebraska City, Nebr. Beer	30,894	Nov. 23	81	1415
Maypole Company, Limited, London, England. Preparation used in the laundry for coloring purposes, but not including laundry blue	30,648	Oct. 5	81	157
Maypole Company, Limited, London, England. Soap for cleansing and dyeing	30,762	Oct. 26	81	796
McClintock & Irvine, Allegheny, Pa. Paint	30,785	Nov. 2	81	965
McGowan & Bros., Thos., Chicago, Ill. Hair-tonic	30,856	Nov. 16	81	1275
McNally, Hilton E., Saginaw, Mich. Ointments and non-disinfectant and non-deodorized salves or emollients	31,043	Dec. 28	81	2242
McRae & Keeler, Attleborough, Mass. Plated jewelry	30,996	Dec. 7	81	1780
Meisel, Charles, New York, N. Y. Musical instruments	30,598	Oct. 5	81	153
Merrifield, Fred H., Boston, Mass. Shingles, laths, clapboards, and other manufactured lumber	30,795	Nov. 2	81	966
Metz, Theodore A., New York, N. Y. Complexion-beautifier	30,808	Nov. 9	81	1108
Meyer, Ernst F., Freiburg, Germany. Stone-putty	30,678	Oct. 12	81	330
Mica Insulator Company, New York, N. Y.; Chicago, Ill.; San Francisco, Cal.; St. Louis, Mo., and Cincinnati, Ohio. Electrical insulators, consisting of a black liquid to be applied with a brush	30,864	Nov. 16	81	1275
Michaelis & Sons, M., New York, N. Y. Cocoa-oatmeal preparations	30,669	Oct. 12	81	329
Milburn, Lewis C., Cherrydale, Va. Internal remedies for malaria, chills, and fever	31,030	Dec. 21	81	2084
Miller, Charles G., Brooklyn, N. Y. Greases or lubricating compounds	31,007	Dec. 21	81	2082
Mineralized Rubber Company, New York, N. Y. Rubber tires	30,998	Dec. 21	81	2080
Minneapolis Brewing Company, Minneapolis, Minn. Malt extract	30,805	Nov. 23	81	1415
Morgan, Frank B., Brooklyn, N. Y. Remedy for bunions, corns, chilblains, frost-bites, ingrowing nails, stinging feet, and other ailments incident to the feet	30,860	Nov. 16	81	1275
Moseley & Motley Milling Company, Rochester, N. Y. Wheat-flour	30,744	Oct. 26	81	794
Mount Zircon Spring Company, Oxford county, Me., and Boston, Mass. Certain named spring-water	30,629	Oct. 5	81	155

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Mountain Copper Company, Limited, London, England. Copper in ingots, bars, and other unmanufactured forms	30,929	Nov. 30	81	1610
Muntwyler & Dubler, New York, N. Y. Canned lobster	30,660	Oct. 12	81	328
Munyon's Homœopathic Home Remedy Company, Philadelphia, Pa. Remedies for all known diseases	31,040	Dec. 28	81	2242
Muscatine Oat Meal Company, Muscatine, Iowa. Rolled oats and oatmeal	30,817	Nov. 9	81	1108
National Cigarette and Tobacco Company, New York, N. Y. Cigarettes	30,708	Oct. 19	81	501
National Cigarette and Tobacco Company, New York, N. Y. Cigarettes	30,921	Nov. 30	81	1610
National Cigarette and Tobacco Company, New York, N. Y. Cigarettes	30,922	Nov. 30	81	1610
National Electric Car-Lighting Company, Newark, N. J., and New York, N. Y. Electrical apparatus and appliances for lighting railway-cars by electricity generated from rotating car-wheel axles	30,873	Nov. 23	81	1413
National Safety Match Company, Chicago, Ill. Friction-matches	30,766	Oct. 26	81	796
National Starch Manufacturing Company, Covington, Ky., and New York, N. Y. Starch for food and laundry purposes	30,818	Nov. 9	81	1109
Nepera Chemical Company, Yonkers, N. Y., Chicago, Ill., and Paris, France. Photographic papers and chemicals	30,967	Dec. 14	81	1927
Nepera Chemical Company, Yonkers, N. Y., Chicago, Ill., and Paris, France. Sensitized developing-paper	31,058	Dec. 28	81	2243
Netter & Co., David, Philadelphia, Pa. Whisky	30,983	Dec. 14	81	1928
New York Condensed Milk Company, New York, N. Y. Certain named dairy products	31,049	Dec. 28	81	2242
Niagara Paper Mills, Lockport, N. Y. Paper suitable for covers for pamphlets	30,602	Oct. 5	81	153
Nicholson, Isaac C., and A. F. Way, New York, N. Y. Artificial diamonds, rubies, pearls, and other artificial gems	30,935	Dec. 7	81	1780
Nitzsche, Hugo, St. Louis, Mo. Cigars	30,984	Dec. 14	81	1928
Noyes, George E., Lynn, Mass. Ladies' shoes	30,998	Dec. 31	81	2081
Nussbaum, Bernard J. (See Lauer and Nussbaum.)	31,050	Dec. 28	81	2243
O'Rorke, John J., New York, N. Y. Pudding compound	30,863	Nov. 16	81	1275
Oettinger Company, New York and Brooklyn, N. Y. Soap and washing-powder	30,722	Oct. 19	81	502
Ohio Cultivator Company, Bellevue, Ohio. Sulky cultivators, stalk-cutters, harrows, bean-harvesters, and corn-planters	30,933	Dec. 7	81	1780
Okonite Company, Limited, New York, N. Y., and London, England. Adhesive cloth or adhesive tape for use by electricians, surgeons, bicyclists, and others	30,705	Oct. 19	81	500
Old Bushmills Distillery Company, Limited, Belfast, Ireland. Whisky	30,673	Oct. 12	81	329
Opal Crême Co., Bloomington, Ill. Tooth-washes	31,063	Dec. 28	81	2244
Osner, William, Chicago, Ill. Boots and shoes	30,809	Nov. 9	81	1107
Palmetto Fiber Company, Chicago, Ill. Cleaning or scrubbing brushes	30,697	Oct. 19	81	500
Pantasote Leather Company, Passaic, N. J. Manufactured imitation leather and insulating material	31,000	Dec. 21	81	2081
Para Rubber Tire and Manufacturing Company, Williamsport, Pa. Pneumatic rubber tire	30,658	Oct. 5	81	158
Paramount Rubber Company, Newark, N. J. Erasive rubber	30,867	Nov. 16	81	1276
Paris Medicine Company, St. Louis, Mo. Remedies for coughs, colds, and headaches	30,753	Oct. 26	81	795
Parke & Co., L. H., Philadelphia, Pa. Tea from China and Ceylon principally	30,647	Oct. 5	81	157
Passavant & Co., New York, N. Y. Silk, satin, and velvet goods and ribbons	30,996	Dec. 21	81	2081
Patchen, Horace, Tillamook, Oreg. Remedies for influenza, congestive chills, coughs, colds, and similar ailments	30,697	Oct. 19	81	500
Paul Smith's Hotel Company, Brighton, N. Y. Spring-water	30,698	Oct. 5	81	155
Peerless Lead Glass Works, Ellwood City, Pa. Lamp-chimneys	30,768	Oct. 26	81	797
Peerless Lead Glass Works, Ellwood City, Pa. Lamp-chimneys	30,808	Nov. 9	81	1107
Penberthy Injector Company, Detroit, Mich. Injectors	30,669	Oct. 12	81	330
Petticord Mineral Springs Co., Cambridge Springs, Pa. Medicinal mineral water and the various preparations of non-alcoholic beverages prepared therefrom	31,019	Dec. 21	81	2083
Pettit, Lewis. (See Stevens, Brown, and Pettit.)				
Pfeiffer, Jacob, Akron, Ohio. Mechanical and surgical instruments and appliances	30,746	Oct. 26	81	794
Pilgrim Baking Powder Co., Boston, Mass. Baking-powder	31,027	Dec. 21	81	2083
Platner & Porter Paper Manufacturing Company, Unionville, Conn. Writing-paper	30,600	Oct. 5	81	153
Poist & Co., John A., McSherrystown, Pa. Cigars	30,896	Nov. 23	81	1415
Portland Packing Co., Portland, Me. Certain named canned goods	30,661	Oct. 12	81	328
Poth, Frederick A., Philadelphia, Pa. Pale beer	30,898	Nov. 23	81	1415
Probst & Co., Langnau, Switzerland. Cheese	30,668	Oct. 12	81	328
R. H. Wolff & Company, Limited, New York, N. Y. Velocipedes	30,880	Nov. 9	81	1110
R. Wallace & Sons Manufacturing Company, Wallingford, Conn. Silver-plated flat ware	30,691	Oct. 19	81	499
Ralston Yeast Company, Topeka, Kans. Cake yeast	30,645	Oct. 5	81	157
Reilly, John, Newark, N. J. Patent and enameled leather	30,614	Oct. 5	81	154
Remington-Sholes Company, Chicago, Ill. Type-writing machines	30,719	Oct. 19	81	502
Retail Merchants Association of New Jersey, Paterson, N. J. Matches	30,715	Oct. 19	81	501
Retail Merchants Association of New Jersey, Paterson, N. J. Flour	30,745	Oct. 26	81	794
Rice & Hutchins, Incorporated, Boston, Mass. Boots and shoes	30,899	Nov. 23	81	1415
Rice & Hutchins, Incorporated, Boston, Mass. Boots and shoes	30,999	Dec. 21	81	2081
Richardson, Alonzo F., New York, N. Y. Remedies for pulmonary and similar diseases	30,911	Nov. 30	81	1609
Richardson, Alonzo F., New York, N. Y. Substitutes for coffee	30,915	Nov. 30	81	1609
Richardson, Alonzo F., New York, N. Y. Catarrh remedies	30,980	Dec. 14	81	1928
Richmond, William T., New York, N. Y. Polishing material for metal goods and articles of various kinds and classes	30,988	Dec. 7	81	1780
Ries, Jacob, Shakopee, Minn. Table mineral waters and carbonated beverages	30,630	Oct. 5	81	155
Ries, Jacob, Shakopee, Minn. Table mineral waters and carbonated beverages	30,631	Oct. 5	81	156
Roberson & Son, Alonzo, Binghamton, N. Y. Doors, blinds, and windows glazed and unglazed, frames, moldings, shutters, and lumber rough and dressed	30,992	Dec. 21	81	2080
Rogers, Joshua L., Kansas City, Mo. Salve, cordial, and cathartic pill	30,700	Oct. 19	81	500
Roka Food Co., Warsaw, N. Y. Cereal coffee or coffee substitute	30,847	Nov. 16	81	1274
Rosenstein, Cohn Cigar Company, Los Angeles, Cal. Cigars	30,734	Oct. 26	81	793
Rowntree & Company, Limited, York, England. Cocoa and cocoa extract	31,020	Dec. 21	81	2083
Ryan, William E., French Lick, Ind. Remedies for dyspepsia	30,698	Oct. 19	81	500
Safety Insulated Wire and Cable Company, New York, N. Y. Insulated wires	31,068	Dec. 28	81	2244
Sanborn, Joseph W., Kansas City, Mo. Manufactured lumber	30,836	Nov. 16	81	1273
Sanda, Taylor & Wood, Boston, Mass. Flour	30,945	Dec. 7	81	1781
Schadewald, Henry, Philadelphia, Pa. Bedspreads	30,684	Oct. 19	81	499
Schelosky, John R., St. Louis, Mo. Tables and table parts	30,726	Oct. 19	81	502
Scheuer & Fleischer, Paterson and Passaic, N. J. Mixed teas	30,890	Nov. 23	81	1414
Schneebeli Brothers & Co., Nazareth, Pa., and New York, N. Y. Dress or bust forms	30,613	Oct. 5	81	154
Schroeder, Valentine, Detroit, Mich. Chewing-gum	31,012	Dec. 21	81	2082
Schultz, Tanner & Co., New York, N. Y. Embroidered articles, such as handkerchiefs, doilies, and tidies	30,870	Nov. 16	81	1276
Schumacher, Johannes, St. Louis, Mo. Paints for use in the fine arts	30,649	Oct. 5	81	157
Seabury & Johnson, New York, N. Y. Plasters	30,855	Nov. 16	81	1275
Seville Packing Company, New York, N. Y. Certain named table delicacies	30,899	Nov. 23	81	1414

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Seville Packing Company, New York, N. Y. Olives	30,954	Dec. 7	81	1781
Shepard, John, Jr., Providence, R. I. Soap	30,977	Dec. 14	81	1928
Shields, William C., St. Louis, Mo. Cathartics	30,747	Oct. 26	81	794
Sicilian Asphalt Paving Company, New York, N. Y. Paving materials	30,770	Oct. 26	81	797
Sidway, Henry T., Chicago, Ill. Polishing-powder	30,650	Oct. 5	81	157
Silurian Mineral Spring Company, Chicago, Ill., and Waukesha, Wis. Mineral water	31,016	Dec. 21	81	2082
Simpson, George H., New York, N. Y. Writing-paper	30,901	Nov. 23	81	1415
Slatington-Bangor Slate Syndicate, Slatington, Pa. Roofing-slate	30,871	Nov. 23	81	1413
Smith, Cathrine. (See Smith, Edward B. and C.)				
Smith, Edward B. and C., Chicago, Ill. Certain named medicinal preparations and soaps	30,759	Oct. 26	81	796
Smith's Sons, John, Youngstown, Ohio. Beer, ale, porter, stout, and malt extract	30,812	Nov. 9	81	1108
Smyth, Charles, Dayton, Ohio. Toy banks	30,804	Nov. 9	81	1107
Snell Cycle Fittings Company, Toledo, Ohio. Bicycles, hubs, pedals, handle-bars, frames, and cycle parts	30,832	Nov. 9	81	1110
Snyder, Frederic S., Boston, Mass. Icing and frosting compounds	30,642	Oct. 5	81	156
Sprague, Warner & Company, Chicago, Ill. Certain named canned goods or articles	30,819	Nov. 9	81	1109
Sprague, Warner & Company, Chicago, Ill. Flour	31,025	Dec. 21	81	2083
South Chicago Brewing Co., South Chicago, Ill. Special preparation of malt for a beverage	30,956	Dec. 7	81	1782
Standard Leather Company, Newark, N. J. Certain named leathers	31,001	Dec. 21	81	2081
Standard Manufacturing Company, Allegheny, Pa. Bath-tubs	30,780	Oct. 26	81	798
Sterling Remedy Company, Chicago, Ill. Cathartic medicine	31,033	Dec. 21	81	2084
Stern & Saalberg, New York, N. Y. Jelly compounds or powdered mixtures of sugar, gelatin, flavors, &c., from which jelly is made	30,643	Oct. 5	81	156
Stevens, Alonzo E., J. Brown, and L. Pettit, Dallas Centre, Iowa. Composition of matter for fattening stock and poultry and preventing diseases in the same	31,046	Dec. 28	81	2242
Stoll Brewing Company, Troy, N. Y. Malt liquor	31,015	Dec. 21	81	2082
Strehlow, Robert. (See Hunter and Strehlow.)				
Stumph, Edward B., Washington, D. C. Woven-wire beds and bed-bottoms	30,823	Nov. 9	81	1109
Stumpp & Walter Company, Newark, N. J., and New York, N. Y. Prepared food for soft-billed birds	31,030	Dec. 21	81	2084
Stumpp & Walter Company, Newark, N. J., and New York, N. Y. Prepared food for goldfish and other fish in aquaria or globes	31,031	Dec. 21	81	2084
Stumpp & Walter Company, Newark, N. J., and New York, N. Y. Tonic preparations for all seed-birds	31,047	Dec. 28	81	2242
T. B. Dunn Company, Rochester, N. Y. Cachous	30,708	Oct. 19	81	500
T. B. Dunn Company, Rochester, N. Y. Chewing-gum	30,815	Nov. 9	81	1108
Tanner & Co., F., Frauenfeld, Switzerland. Harness-dressings, oils for leather goods, blacking, leather-grease, and other dressings	30,771	Oct. 26	81	797
Taylor, Firm of Henry, Sheffield, England. Cutlery and edge-tools	30,834	Nov. 9	81	1110
Taylor, Firm of Henry, Sheffield, England. Joiners', carpenters', and carvers' tools not edged	30,998	Dec. 21	81	2080
Taylor & Hawthorn Co., Wilmington, Del. Hose	31,062	Dec. 28	81	2244
Taylor, William G., Fonticello and Richmond, Va. Mineral water	31,017	Dec. 21	81	2082
Teacher & Sons, William, Glasgow, Scotland, and London and Manchester, England. Whisky	30,959	Dec. 7	81	1782
Temple, Ansel F., Muskegon, Mich. Bicycle handles or grips	30,987	Dec. 21	81	2080
Tennessee Brewing Company, Memphis, Tenn. Malt extract	30,739	Oct. 26	81	794
Tenney, Vernon L., New York, N. Y. Liquid toilet soap	30,760	Oct. 26	81	796
Thorsen Company, Chicago, Ill. Bicycles	30,827	Nov. 9	81	1109
Thorsen Company, Chicago, Ill. Bicycles	30,828	Nov. 9	81	1109
Threefoot Bros. & Co., Meridian, Miss. Hams	30,919	Nov. 30	81	1609
Tickle-Me-Gum Manufacturing Co., St. Joseph, Mo. Chewing-gum and cough-drops	30,702	Oct. 19	81	500
Tiffany & Company, New York, N. Y. Miscellaneous stationery	30,599	Oct. 5	81	153
Tréfousse & Cie., Chaumont, France. Gloves	31,061	Dec. 28	81	2244
Triton Remedy Co., Chicago, Ill., and Crawfordsville, Ind. Vegetable remedy in tablet form	30,748	Oct. 26	81	795
Trommer, Estate of John F., Brooklyn, N. Y. Beer	30,846	Nov. 16	81	1274
Tucker, Mary E., Bristol, Md. Hair-restoratives	30,757	Oct. 26	81	795
Turner, Thomas J., Philadelphia, Pa. Foods for infants and invalids	30,664	Oct. 12	81	328
Ulrici, Charles J., New York, N. Y. Remedy for anemia and nerve disorders and tonics for the nerves and blood	30,699	Oct. 19	81	500
Union Bag and Paper Company, Chicago, Ill. Paper bags	30,608	Oct. 5	81	153
Union Braiding Company, Sandwich and Boston, Mass., and New York, N. Y. Round or tubular braided cords for eyeglasses and ornamental purposes	30,604	Oct. 5	81	153
Union Cycle Manufacturing Company, Highlandville, Mass. Pedals	30,657	Oct. 5	81	158
United States Baking Company, Pittsburg, Allegheny, and Williamsport, Pa.; Cincinnati, Columbus, Zanesville, Dayton, Newark, Cleveland, Toledo, Mansfield, Akron, and Springfield, Ohio; Detroit, Bay City, Jackson, Muskegon, and Lansing, Mich.; Indianapolis, Fort Wayne, Richmond, Evansville, Terre Haute, Ind.; Wheeling, W. Va.; Buffalo and Rochester, N. Y.; Boston, Mass., and Louisville, Ky. Crackers and cakes	30,663	Oct. 12	81	328
United States Baking Company, Pittsburg, Allegheny, and Williamsport, Pa.; Cincinnati, Columbus, Zanesville, Dayton, Newark, Cleveland, Toledo, Mansfield, Akron, and Springfield, Ohio; Detroit, Bay City, Jackson, Muskegon, and Lansing, Mich.; Indianapolis, Fort Wayne, Richmond, Evansville, and Terre Haute, Ind.; Wheeling, W. Va.; Buffalo and Rochester, N. Y.; Boston, Mass., and Louisville, Ky. Crackers and cakes	31,022	Dec. 21	81	2083
United States Baking Company, Pittsburg, Allegheny, and Williamsport, Pa.; Cincinnati, Columbus, Zanesville, Dayton, Newark, Cleveland, Toledo, Mansfield, Akron, and Springfield, Ohio; Detroit, Bay City, Jackson, Muskegon, and Lansing, Mich.; Indianapolis, Fort Wayne, Richmond, Evansville, and Terre Haute, Ind.; Wheeling, W. Va.; Buffalo and Rochester, N. Y.; Boston, Mass., and Louisville, Ky. Crackers and cakes	31,023	Dec. 21	81	2083
United States Iron and Tin Plate Manufacturing Company, McKeesport, Pa. Tin-plate or terne-plate, being sheet-iron coated with tin or lead or by a mixture of both	30,824	Nov. 9	81	1109
United States Iron and Tin Plate Manufacturing Company, McKeesport, Pa. Tin-plate or terne-plate, being sheet-iron coated with tin or lead or a mixture of both	30,825	Nov. 9	81	1109
Valentiner & Schwarz, Leipsic, Germany. Salves	30,861	Nov. 23	81	1414
Van Nest, Margaret A. and M. A., Binghamton, N. Y. Cosmetics	30,615	Oct. 5	81	154
Van Nest, Minnie A. (See Van Nest, Margaret A. and M. A.)	30,920	Nov. 30	81	1610
Vega, José, New Orleans, La. Cigars	30,696	Oct. 19	81	500
Vereinigte Chininfabriken Zimmer & Co., Gesellschaft mit Beschränkter Haftung, Frankfort-on-the-Main, Germany. Derivatives of cinchona alkaloids	31,054	Dec. 28	81	2243
Vermont Chemical Manufacturing Company, Limited, New Orleans, La. Baking-powder	31,002	Dec. 21	81	2081
Vive Camera Company, Chicago, Ill. Photographic supplies	30,788	Nov. 2	81	965
Viakfantine Toilet Co., Riverdale, Ill. Salve for wounds or sores	30,632	Oct. 5	81	156
W. A. Ross & Sons, Limited, Belfast, Ireland. Ginger-ale, orangeade, and soda-water	30,633	Oct. 5	81	156
W. A. Ross & Sons, Limited, Belfast, Ireland. Ginger-ale and soda-water	30,970	Dec. 14	81	1928
W. L. Douglas Shoe Company, Brockton, Mass. Boots, shoes, and slippers	30,973	Dec. 14	81	1928
W. N. Eisendrath & Company, Chicago, Ill. Calf, kip, cow, horse, goat, and sheep leather	30,716	Oct. 19	81	501
W. P. Fuller & Company, San Francisco, Cal. Paints and oils	30,928	Nov. 30	81	1610
Wagner, Edward H., New York, N. Y. Fireworks and matches				

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Walbridge, Charles E. and H., Buffalo, N. Y. Bicycles	30,829	Nov. 9	81	1109
Walbridge, Harry. (See Walbridge, Charles E. and H.)				
Wallace Asthma Cure Co., Philadelphia, Pa. Remedies for bronchitis and asthma	30,755	Oct. 26	81	795
Walz, William H., Hot Springs, Ark. Medicines for purifying the blood	30,752	Oct. 26	81	795
Wanamaker, John, Philadelphia, Pa. Bicycles	30,793	Nov. 2	81	966
Ward & Huntington, New York, N. Y. Sulfate of copper	30,976	Dec. 14	81	1928
Warriner, Myron A., Bridgeport, Conn. Remedies for biliousness, chronic constipation, sick headache, and sour stomach	31,038	Dec. 21	81	2084
Watkinson & Co., Geo., Philadelphia, Pa. Rubber boots, shoes, and overshoes	30,971	Dec. 14	81	1928
Way, Augustus F. (See Nicholson and Way.)	30,782	Nov. 2	81	965
Way Manufacturing Company, Philadelphia, Pa. Garments for the neck and chest	30,806	Nov. 9	81	1107
Webster & Son, E. G. Brooklyn, N. Y. Jewelry and silver-plated ware				
Wertheimer, Joseph, New York, N. Y. Sweaters, cardigan jackets, bathing-suits, leggings, and analogous articles of apparel	30,969	Dec. 14	81	1927
White Brothers, Worcester, Mass. Dressing for boots and shoes	31,056	Dec. 28	81	2243
White, Fevey, Dexter Company, Worcester, Mass. Leaf-lard	30,961	Dec. 14	81	1928
White Sewing Machine Company, Cleveland, Ohio. Bicycle-pedals	30,683	Oct. 12	81	330
Whitman & Barnes Manufacturing Company, Akron, Ohio. Tires, hose, belting, horseshoes, and other merchandise composed in whole or in part of rubber	30,717	Oct. 19	81	501
Whitman & Barnes Manufacturing Company, Akron, Ohio. Articles composed in whole or in part of rubber, including tires, hose, belting, and horseshoes	30,838	Nov. 16	81	1278
Whitman & Barnes Manufacturing Company, Akron, Ohio. Certain named tools, implements, and hardware	30,874	Nov. 23	81	1413
Wiley & Son, Wm. H., Hartford, Conn. Insoles	30,972	Dec. 14	81	1928
William Hollins & Company, (Nottingham,) Limited, Mansfield, England. Cloths and stuffs of wool, worsted, or hair	30,612	Oct. 5	81	154
Wilson Bros., New York, N. Y. Medical compound used on wounds and sores of all descriptions	30,979	Dec. 14	81	1928
Witzel, Joseph R., Philadelphia, Pa. Medicine for the treatment of bacteriological diseases	30,756	Oct. 26	81	795
Wm. Numsen & Sons, Incorporated, Baltimore, Md. Canned or preserved edibles	30,728	Oct. 19	81	502
Wm. Numsen & Sons, Incorporated, Baltimore, Md. Oysters, meats, fruits, vegetables, jellies, preserves, soups, and such like goods usually put up by food-packers, except fish	30,887	Nov. 23	81	1414
Wm. S. Hills Company, Boston, Mass. Wheat-flour	30,667	Oct. 12	81	328
Wm. Schmidt Baking Company, Chicago, Ill. Flour-like digestive product in baking which converts the starch contained in flour into sugar	31,024	Dec. 21	81	2083
Wood, Adaline, De Lassus, Mo. Remedies for eczema and skin diseases	30,859	Nov. 16	81	1275
Wood, John, Manchester, England. Dog and poultry food	30,884	Nov. 23	81	1414
Woodward, Robert G., New York, N. Y. Holders for velocipedes	30,980	Dec. 7	81	1780
Wright, Henry L., Santos, Brazil. Wheat-flour	30,853	Nov. 16	81	1274
Young & Co., Otto, Chicago, Ill. Watches	30,729	Oct. 26	81	793
Young & Co., Otto, Chicago, Ill. Watches	30,730	Oct. 26	81	793
Yuengling & Son, D. G., Pottsville, Pa. Malt extract	30,622	Oct. 5	81	155
Yuengling & Son, D. G., Pottsville, Pa. Malt liquors	30,707	Oct. 19	81	501

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Doliber-Goodale Company, Portland, Me., and Boston, Mass. "Mellin's Food for Infants and Invalids"	6,560	Nov. 9	81	974
George R. Hill Company, Alexandria, Va. "Peptone Beef and Bread Biscuit"	6,557	Oct. 5	81	2
Mellwood Distillery Company, Louisville, Ky. "Normandy Pure Rye." (For Whisky)	6,558	Oct. 19	81	342
Mellwood Distillery Company, Louisville, Ky. "Old Water Mill." (For Whisky)	6,559	Oct. 19	81	342

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
American Lithographic Company, New York, N. Y. "Royal Mace." (For Cigars and Tobacco)	56	Oct. 26	81	510
Cincinnati Butchers' Supply Company, Cincinnati, Ohio. "The Boss of the Field." (Machines and Devices for Butchers)	57	Nov. 9	81	974
New York Consolidated Card Company, New York, N. Y. "Shakesperian Series." (For Playing-Cards)	53	Oct. 19	81	342
	54	Oct. 12	81	182
W. W. Kimball Company, Chicago, Ill. "The Kimball Situation"				

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Volume.	Page.
Rites, Francis M., Alleghany, Pa.; disclaimer filed by patentee. Governor	584,579	Nov. 16, 1897	81	1283

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Acid. Manufacturing nitric	J. V. Skoglund	591,087	Oct. 5	259	61	81	51
Acid. Purification of crude acetic	A. Schmidt	595,787	Dec. 21	1612	389	81	1973
Acids and making same. Compound of gamma-oxypiperidin-carbo-	G. Merling	591,458	Oct. 12	975	------	81	218
Adding-machine	G. L. Ault	595,592	Dec. 14	1287	310	81	1891
Adding-machine	T. Giguère	594,734	Nov. 30	3587	834	81	1508
Adding-machine. Typographical	T. A. Trent, Jr.	591,900	Oct. 19	1690	402 / 403	81	378
Adding-register	C. H. Bigelow	593,715	Nov. 16	1756	422	81	1173
Adjustable wrench	M. M. Funk	593,354	Nov. 9	1089	263	81	1032
Adjustable wrench	E. P. Drew	591,743	Oct. 12	1421	334	81	305
Advertiser. Automatic	H. Petsch and H. Soukup	593,754	Nov. 16	1829	438 / 439	81	1186
Advertising apparatus	J. H. Hollen	595,541	Dec. 14	1210	291	81	1874
Advertising device	A. J. Kellogg	594,628	Nov. 30	3373	790	81	1523
Advertising or display rack. Transformable	E. Jutz	591,281	Oct. 5	620	146	81	117
Aerial machine	J. D. Graybill	592,704	Oct. 26	3430	717 / 718	81	771
Agricultural implements. Driving mechanism for	A. Tétrault	594,444	Nov. 30	3081	718	81	1456
Air-brake	M. Corrington	594,464	Nov. 30	3068	720	81	1464
Air-brake	F. A. Fish	593,906	Nov. 23	2263	535	81	1291
Air-brake	H. H. Westinghouse and J. Caldwell	592,461	Oct. 26	3009	609	81	687
Air-brake	J. W. Winters	594,228	Nov. 23	2926	621	81	1360
Air-brake apparatus. Pressure-indicator for	F. M. Nellis and S. D. Hutchins	594,033	Nov. 23	2317	548	81	1301
Air-brake hose-coupling	J. R. Bragg and J. M. Moyers	593,531	Nov. 9	1402	338	81	1091
Air-compressing engine	T. J. Barbour and C. M. Hansen	591,594	Oct. 12	1166	274	81	258
Air-compressor	F. M. Graham	592,586	Oct. 26	3211	665	81	727
Air-controlling device	A. Roesch	595,654	Dec. 14	1361	333	81	1911
Air-cooling apparatus	T. B. Lightfoot	591,655	Oct. 12	1264	301	81	277
Air engine. Compressed	L. T. Gibbs	592,946	Oct. 26	2999	542	81	517
Air-motor	G. H. Cooper	593,923	Nov. 16	2134	506	81	1247
Air or gas compressing apparatus	E. Hill	593,049	Nov. 2	518	125	81	908
Air or gas compressor	J. Crabtree	594,524	Nov. 30	3184	746	81	1486
Air or gas compressor	S. S. Miles	591,137	Oct. 5	352	84	81	69
Air or water wheel	S. Crocker	592,060	Oct. 19	2011	476 / 477	81	441
Air-ship	D. Reed	591,692	Oct. 12	1339	314	81	288
Alarm:							
See Bicycle-alarm.							
Bicycle signal-alarm.							
Boiler-pressure-indicating alarm.							
Burglar-alarm.							
Burglar and fire alarm.							
Fire-alarm.							
Low-water alarm.							
Overflow-alarm.							
Pressure-alarm.							
Alarm	W. Lancaster	593,669	Nov. 16	1677	406	81	1158
Alarm-circuit. Protecting	I. E. Barriclow	591,725	Oct. 12	1389	327	81	299
Alarm device. Automatic electric	P. V. Vandevelde	592,508	Oct. 26	3089	625	81	700
Alarm device. Electric	L. Fitz Gerald and J. Fay	595,096	Dec. 7	460	110	81	1705
Alarm device. Electric	F. Louis	595,398	Dec. 14	906	234 / 235	81	1826
Album	W. Bruns	595,467	Dec. 14	1090	262	81	1850
Alkalies. Apparatus for electrolytically producing	J. Hargreaves	596,157	Dec. 28	2290	542 / 543	81	2127
Alloy. Metallic	C. F. Hitchcock	591,604	Oct. 12	1199	------	81	259
Amalgamating and extracting gold, &c., from dry crushed ore. Apparatus for	E. L. Oppermann	591,688	Oct. 12	1338	311	81	286
Amalgamating apparatus	L. Baudendistle	591,943	Oct. 19	1769	422	81	396
Amalgamating-pan and settler	W. B. Easton	593,767	Nov. 16	1851	444	81	1191
Amalgamator	W. L. Brown	591,587	Oct. 12	1171	276	81	254
Amalgamator	J. Jean	596,370	Dec. 28	2068	632	81	2200
Amalgamator	J. P. Schmitz	591,119	Oct. 5	316	78	81	62
Ammonium carbonate. Apparatus for making	W. Sanders	594,100	Nov. 23	2423	575 / 576	81	1322
Anatomical organs. Appliance for assisting	H. D. Taggart	594,815	Nov. 30	3732	869	81	1597
Anchor	H. F. Ward	594,709	Nov. 30	3645	848	81	1579
Animal-cleaning device	O. P. Fretwell	594,732	Nov. 30	3584	833	81	1567
Animal-trap	J. A. Allen	591,719	Oct. 12	1384	325	81	298
Animal-trap	S. W. Buck	595,601	Dec. 14	1298	313	81	1894
Animal-trap	J. B. Davis	591,956	Oct. 19	1789	427	81	400
Animal-trap	J. J. Drew	591,744	Oct. 12	1422	334	81	305
Animal-trap	W. T. Keefer	592,632	Oct. 26	3289	683	81	743
Animal-trap	W. H. McWhirter	596,334	Dec. 28	2587	615	81	2165
Animal-trap	R. Voras	592,508	Oct. 26	3231	609	81	731
Animal-trap	B. J. Abbott	593,557	Nov. 16	1475	359 / 360	81	1120
Annealing-furnace	R. King	595,398	Dec. 14	959	------	81	1825
Annealing iron castings	M. J. O'Meara	595,494	Dec. 14	1137	274	81	1959
Annealing-pot	A. D. Neale	596,426	Dec. 28	2764	654	81	2220
Annunciator	F. P. Stevens	591,179	Oct. 5	453	108	81	82
Annunciator							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Annunciator. Electric	J. A. Gowans	593,894	Nov. 16	2070	489	81	1234
Antirattler, shaft-support, and safety-strap. Combined	S. A. Bailey	591,318	Oct. 5	671	159	81	128
Apron fastener. Rain-	A. F. Brandenburg	590,961	Oct. 5	19	5	81	6
Arches. Adjustable and removable center for	T. M. Clancy	593,083	Nov. 2	578	139	81	919
Arm-rest	W. M. Slavik	594,572	Nov. 30	3270	767	81	1504
Armature-cores. Space-block for	A. F. Batchelder	595,364	Dec. 14	909	220	81	1815
Armature for dynamo-electric machines	S. H. Short	595,081	Dec. 7	427	102	81	1699
Armature. Magnet-	H. M. Paine	592,917	Nov. 2	285	66	81	953
Armature-shaft support	W. R. Thompson	592,502	Oct. 26	3068	625	81	699
Armature winding and coil	A. F. Batchelder	596,136	Dec. 28	2256	535	81	2121
Asbestos. Manufacturing moldable mass or articles from	L. Grote	595,168	Dec. 7	585	.....	81	1729
Ash-pit	C. Jackson	593,540	Nov. 9	1429	347	81	1005
Atmospheric burner or heater	W. Parfrey	593,904	Nov. 16	2100	498	81	1241
Atomizer	W. and J. Boekel	595,759	Dec. 21	1564	378	81	1963
Atomizer	N. Du Brul	591,745	Oct. 12	1422	335	81	805
Atomizer	G. C. Marks	593,750	Nov. 16	1821	437	81	1185
Attaching device	L. C. Dillon	593,084	Nov. 2	579	140	81	920
Auger. Earth-	M. J. Stoffer	593,001	Nov. 2	442	105	81	893
Auger. Packing-	J. Koelner	591,259	Oct. 5	581	138	81	110
Autoharp	W. B. Behnke	591,729	Oct. 12	1394	328	81	800
Autoharp	J. J. Joyce	593,102	Nov. 2	612	147	81	926
Autoharp	T. H. Roth and J. J. Joyce	593,126	Nov. 2	648	156	81	934
Autoharp	S. G. Stuart	593,701	Nov. 16	1737	416	81	1167
Autoharp	A. Rushforth	592,210	Oct. 19	2226	527	81	482
Automatic coupling for railway-wagons, &c	H. H. Tracy	596,191	Dec. 28	2342	556	81	2137
Automatic regulator	C. B. Hunter	594,995	Dec. 7	272	65	81	1671
Automatic signal	G. Bansall	592,043	Oct. 19	1940	460	81	628
Automatic switch	C. Partington	592,602	Oct. 26	3352	697	81	755
Automatic switch	M. F. Wiedemann	593,147	Nov. 2	692	165	81	943
Awning	E. Headley	593,654	Nov. 16	1655	401	81	1154
Awning for vines	G. Skinner	593,729	Nov. 16	1778	426	81	1176
Awning-frame	W. Johnson	592,796	Nov. 2	57	12	81	818
Awning support. Window-	M. D. Mack	590,995	Oct. 5	80	17	81	17
Axle and axle-box	E. D. Misner and G. A. Weightman	592,985	Nov. 2	321	74	81	870
Axle. Ball-bearing vehicle-	W. Hyde	592,520	Oct. 26	3099	699	81	705
Axle-box	F. A. Sürth	594,398	Nov. 23	2755	651 628	81	1865
Axle-box	W. A. Palmer	595,868	Dec. 21	1808	434	81	2012
Axle box. Car-	M. Sheehan and W. H. Lain	594,912	Dec. 7	123	31	81	1644
Axle-box. Car-	J. S. Brown	591,736	Oct. 12	1410	331	81	808
Axle for wheeled vehicles. Trussed	E. H. Benners and W. A. Stadelman.	594,515	Nov. 30	3163	741	81	1492
Axle lubricator. Car-	W. S. Haines	592,910	Nov. 2	276	63	81	861
Axle. Vehicle-	A. C. G. Dupuis	595,469	Dec. 14	1093	262	81	1851
Baby-chair	N. P. Lindahl	596,425	Dec. 28	2703	653	81	2239
Baby-jumper and rocking-chair. Combined	A. M. Babcock	596,451	Dec. 28	2809	668	81	2239
Baby-walker	R. Lehmann	592,569	Oct. 26	3182	657	81	722
Badge	W. Hornich, Jr	592,610	Oct. 26	3251	673	81	735
Badge	A. J. Keil	595,858	Dec. 21	1727	414	81	1906
Badge	S. Thomas	595,668	Dec. 14	1401	336	81	1915
Badge, bouquet, and perfume holder. Combined	J. Hansen	596,156	Dec. 28	2289	542	81	2126
Bag: *See* Clothes-bag. Punching-bag. Hand-bag. Seamless woven bag. Mail-bag. Tool-bag. Paper bag.							
Bag-filler	R. O. Campbell	591,381	Oct. 12	805	186	81	184
Bag-frame machine	L. Ochse and G. Goerk	594,142	Nov. 23	2489	589	81	1334
Bag-handle	H. F. Jonas	594,134	Nov. 23	2477	586	81	1333
Bagging-machine	F. L. Furbush	594,340	Nov. 23	2839	670	81	1399
Ball ear. Bucket-	J. Anderson	594,448	Nov. 30	3088	713	81	1457
Bait-holder	J. F. Webber	594,993	Dec. 7	269	64, 65	81	1671
Baking, cooking, and heating furance	O. K. Harry	593,390	Nov. 9	1159	279	81	1044
Baking-pan	G. J. Cave	593,949	Nov. 16	2174	516	81	1256
Baking-pan	W. H. Mullins	592,058	Oct. 19	1973	466	81	434
Baking pan. Bread-	C. W. Kolb	594,364	Nov. 23	2874	678	81	1408
Balance. Assay and chemical	F. W. Thompson	593,849	Nov. 16	2008	472	81	1221
Balance-escapement	A. M. Lane	594,446	Nov. 30	3083	712	81	1456
Balance-escapement	F. H. Voigt	594,911	Dec. 7	122	31	81	1644
Balance. Postal	H. B. Seaman	591,233	Oct. 5	609	166	81	134
Bale-band tightener	J. L. Duval	595,534	Dec. 14	1203	290	81	1873
Bale-tie	T. C. Edmonston	593,843	Nov. 16	1995	469	81	1219
Bale-tie	J. W. Griswold	591,532	Oct. 12	1078	253 254	81	285
Bale-tie machine	O. K. Harry	594,663	Nov. 30	3467	807	81	1543
Bales; Device for applying end caps to cylindrical	J. F. Swinnerton	594,771	Nov. 30	3647	849	81	1580
Baling-press	A. Almy	593,506	Nov. 9	1361	330	81	1083
Baling-press	A. Barrett	593,383	Nov. 9	1135	274 275	81	1040
Baling-press	E. J. Shirley	593,148	Nov. 2	698	165 166	81	944
Baling-press	N. B. Wilder						
Ball: *See* Rubber ball.							
Ball-trap	J. M. Wells and J. Wambegans	592,221	Oct. 19	2240	581	81	485
Balling-machine	G. J. Torrance	596,253	Dec. 28	2442	577	81	2156
Ballot-box	G. J. Murphy	593,487	Nov. 9	1317	319	81	1076
Band-cutter	D. R. Burnham	594,776	Nov. 30	3653	850	81	1581
Band-cutter and self-feeder	H. J. Fourtner	594,784	Nov. 30	3670	855	81	1584
Band. Endless	L. Binns	592,686	Oct. 26	3402	710	81	765
Bandage	H. W. Meinhardt	596,171	Dec. 28	2309	548	81	2130
Banjo-bell	A. H. Jarvis and W. J. McLean	592,732	Oct. 26	3481	731	81	780
Banjo or similar musical instrument	H. O. Kellogg	591,844	Oct. 19	1585	378	81	359
Bank. Savings-	A. R. Clarke	591,110	Oct. 5	301	73	81	59

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Bark-peeling machine	J. T. and G. W. Jones	593,807	Nov. 16	2089	494	81	1239
Barrel, cask, or vessel. Metallic	W. Stern	596,188	Dec. 28	2337	554 555	81	2136
Barrel-filling apparatus	C. Haefner	594,804	Nov. 23	2567	612 613	81	1353
Barrel-head	A. N. Clark	595,371	Dec. 14	920	223	81	1817
Barrel-head machine	J. Greenwood	592,467	Oct. 26	3021	612	81	690
Barrel-lining	C. E. Cottrell	591,455	Oct. 12	933	220	81	211
Barrel-machine	L. M. Greif	595,565	Dec. 14	1240	299	81	1880
Barrel-machine	R. Nawrath	591,008	Oct. 5	94	21 22 23	81	90
Barrel-purifying apparatus	C. J. Yarnold and W. J. Engledue	594,056	Nov. 23	2364	559	81	1310
Barrels, &c. Device for rolling	W. P. Cherrington	593,204	Nov. 9	989	239	81	1013
Basin trap-fixture. Wash-	C. H. Moore	595,577	Dec. 14	1265	308	81	1898
Basket	E. H. Hargrave	593,778	Nov. 2	43	9	81	815
Basket. Folding	S. M. Royer	594,562	Nov. 30	3252	763 764	81	1499
Basket holder. Berry-	N. R. Miller	595,642	Dec. 14	1305	329	81	1908
Basket. Packing-	A. Abraham	595,685	Dec. 21	1431	346	81	1939
Bath: *See* Douche-bath. Shower-bath. Needle-bath.							
Bath and wash tub. Combined folding	H. J. Gies	592,701	Oct. 26	3426	716	81	770
Bathing apparatus	M. B. Boyle	592,234	Oct. 26	2260	537	81	513
Battery: *See* Electric battery. Secondary battery. Galvanic battery. Storage battery. High-tension battery. Storage or secondary battery.							
Battery-cup	J. A. Britton	593,198	Nov. 9	908	191	81	979
Battery-zinc	D. Ogden	593,332	Nov. 9	1061	257	81	1027
Beach-seat	E. Zletz	592,857	Nov. 2	198	44	81	845
Bean-picking machine	E. H. and F. A. Cherry	595,523	Dec. 14	1188	284	81	1869
Bean-picking machine	M. A. Lohr	594,028	Nov. 23	2310	546	81	1299
Bearing. Antifriction-	G. O. Gridley	595,060	Dec. 7	390	95	81	1692
Bearing. Antifriction-	C. W. Hunt	592,053	Oct. 19	1964	464	81	432
Bearing. Ball-	I. Barker	595,953	Dec. 21	1892	451	81	2080
Bearing. Ball-	C. H. J. Dilg	594,080	Nov. 30	3489	812	81	1547
Bearing. Ball-	W. H. Makutchan	591,492	Oct. 12	974	230	81	218
Bearing. Ball-	J. Naismith	593,113	Nov. 2	628	151	81	929
Bearing. Ball-	J. P. Thomas	596,810	Dec. 28	2542	606	81	2175
Bearing for axles. Ball-	N. Rousselle, V. and J. Snutsel	595,210	Dec. 7	654	157	81	1741
Bearing for cycles. Ball-	E. J. West	594,450	Nov. 30	3041	714	81	1458
Bearing for shafts. End	P. A. Schumacher	591,502	Oct. 12	1019	236	81	224
Bearing. Roller-	J. B. Baker	590,952	Oct. 5	5	1	81	3
Bearing. Roller-	G. J. S. Collins	595,606	Dec. 21	1444	349	81	1941
Bearing. Roller-	W. L. Miller	595,398	Dec. 14	847	209	81	1804
Bearing. Shaft-	M. H. Barker	593,188	Nov. 9	796	190	81	978
Bearing. Shaft-	J. W. Smith	595,214	Dec. 7	658	158	81	1742
Bearing. Shaft-	F. A. Tourtillotte	593,705	Nov. 16	1735	418	81	1169
Bearing-sleeve. Car-axle	P. Kennedy	594,746	Nov. 30	3611	840	81	1572
Beating-out machine	G. B. Gates	591,075	Oct. 5	285	55	81	47
Bed	J. Arn	596,350	Dec. 28	2612	622	81	2189
Bed	J. Kaschenbach	596,166	Dec. 28	2302	545	81	2129
Bed	D. D. Toal and R. Wilson	593,445	Nov. 9	1242	299	81	1061
Bed attachment	J. W. Willis	595,980	Dec. 21	1886	450	81	2029
Bed-bottom	K. C. Hout	593,591	Nov. 16	2078	491	81	1236
Bed-bottom for iron bedsteads. Extensible	F. M. Tinkham	593,824	Nov. 16	1968	463	81	1218
Bed bottom. Invalid-	E. R. Rand and H. N. Wayne	595,784	Dec. 21	1510	365	81	1954
Bed-bottom. Spring	A. F. Purefoy	593,781	Nov. 16	1878	449	81	1195
Bed-bottom. Spring	W. S. Simpson	594,915	Dec. 7	128	32	81	1645
Bed-brace	S. R. Payne	595,201	Dec. 7	639	153	81	1738
Bed crib attachment	H. I. Holderness	591,117	Oct. 5	314	77	81	61
Bed. Folding	P. Arth	594,510	Nov. 30	3155	739	81	1491
Bed. Folding	F. A. Cooper	593,923	Nov. 16	2131	505	81	1247
Bed frame. Folding-	J. Levy	592,653	Oct. 26	3334	691 692	81	749
Bed. Invalid-	A. B. Bennett	594,846	Dec. 7	8	2, 3	81	1622
Bed. Invalid's	S. C. Attkisson	595,514	Dec. 14	1167	280	81	1886
Bed. Spring-	J. A. Gackeler	591,464	Oct. 12	947	223	81	213
Bed. Spring-	F. H. Herterich	596,308	Dec. 28	2370	562	81	2143
Bed. Spring-	W. C. Van Clee	591,579	Oct. 12	1157	272	81	252
Beds. Device for holding covers on	H. D. Viser	595,221	Dec. 7	666	160	81	1743
Bedstead. Sofa-	H. S. Hale	595,913	Dec. 21	1861	445	81	2024
Bedstead-clamp	J. F. Dunnigan	593,358	Nov. 9	1067	252	81	1031
Bedstead-fastener	W. N. Fessenden	592,699	Oct. 26	3423	715	81	770
Bedstead-fastening	E. F. Tilley	593,444	Nov. 9	1241	299	81	1060
Bedstead. Metallic	A. W. Hompe	594,016	Nov. 23	2298	542	81	1296
Bedstead rail grip-joint	L. C. Neff	593,330	Nov. 9	1058	256	81	1027
Bedsteads. Detachable joint for metallic	C. P. Dyer	591,900	Oct. 19	1794	428	81	401
Bedsteads, &c. Means for adjusting head-pieces of	F. E. J. Bruhn	592,925	Nov. 2	997	69	81	866
Beehive	K. De Kesel	592,626	Oct. 26	3280	680 681	81	741
Beehive	J. Q. Tucker	592,180	Oct. 19	2187	515	81	474
Beer and means for cleaning same. Apparatus for dispensing	C. Cronin	596,432	Dec. 28	2774	656	81	2222
Beer-distributing apparatus	E. D. Case	593,080	Nov. 2	574	139	81	919
Bell. Bicycle-	F. A. Glines	595,057	Dec. 7	387	95	81	1692
Bell. Bicycle-	J. H. Goss	595,771	Dec. 21	1588	388	81	1908
Bell. Bicycle-	S. Goulden	591,599	Oct. 12	1189	280	81	257
Bell. Bicycle-	S. Goulden	591,600	Oct. 12	1190	280	81	258
Bell. Bicycle-	A. L. Taveau	595,220	Dec. 7	664	160	81	1743
Bell. Bicycle chime-	T. B. Moffat	594,750	Nov. 30	3615	841	81	1573
Bell-chiming apparatus. Electric	N. McMenamin	591,002	Oct. 5	93	21	81	20
Bell clamp. Bicycle-	H. S. Pullman	592,008	Oct. 19	2050	484	81	448

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bell. Door-	W. B. McAshan	593,233	Nov. 9	899	217	81	995
Bell. Electric vibrating	H. F. Albright	592,999	Oct. 26	2332	550	81	523
Bell for street-cars. Electrical signal-	J. P. Orr and T. F. Galvin	596,085	Dec. 28	2199	514	81	2104
Bell. Pneumatic door-	J. Hunt	595,630	Dec. 14	1345	325	81	1903
Bell. Polarized signal-	C. E. Scribner	593,618	Nov. 16	1565	369	81	1141
Belt	A. G. Frothingham	594,201	Nov. 23	2584	611	81	1352
Belt	F. C. Missimer	595,250	Dec. 7	737	180	81	1756
Belt	M. L. Akers	592,578	Oct. 26	2195	660	81	725
Belt and slat fastener	H. Hubbell	593,940	Nov. 16	2168	513	81	1253
Belt cutter and punch	L. C. Trent	594,220	Nov. 23	2613	618	81	1357
Belt. Flanged	J. B. Norton	591,681	Oct. 12	1327	311	81	286
Belt-hook	J. Quinn	592,827	Nov. 2	139	33	81	834
Belt-governor	J. Wetherilt and W. J. Armitage	591,711	Oct. 12	1371	321	81	295
Belt or band for driving machinery	T. R. Almond	594,187	Nov. 23	2563	606	81	1348
Belt-shipper	J. Fern and C. Lynch	591,214	Oct. 5	500	119	81	95
Belt-stretcher	S. R. Forbess	593,090	Nov. 2	596	141	81	921
Belt-tightener	P. D. Harton	594,622	Nov. 30	3365	788	81	1521
Belt tightener and shifter	F. Scheben	591,500	Oct. 12	1010	236	81	223
Belts. Device for preventing slipping of							
Bench: See Draw-bench.							
Bench-dog	E. Zimerman	591,519	Oct. 12	1045	245	81	229
Bench-dog. Adjustable	H. H. Brocksmith	591,618	Oct. 12	1318	286	81	263
Benzene-manufacturing apparatus	H. J. Small and H. Stillman	595,788	Dec. 21	1612	389	81	1973
Berry-carrier	A. Horn	593,859	Nov. 16	2076	491	81	1236
Bevel. Adjustable	J. F. Cress	593,987	Nov. 23	2247	532 / 533	81	1288
Bevel-gage	L. Manning	596,413	Dec. 28	2738	648	81	2215
Beveling and trimming machine	C. N. Smith	596,429	Dec. 28	2769	655	81	2221
Beverage and compounding same	P. Vogel and H. Hatscher	596,222	Dec. 28	2389	------	81	2146
Bib	H. P. Lenhart	590,991	Oct. 5	75	16	81	16
Bib	L. B. Stackhouse	593,618	Nov. 16	1592	388	81	1143
Bicycle	R. F. Bartel	594,773	Nov. 30	3650	850	81	1580
Bicycle	L. De Rango	593,814	Nov. 16	1987	460	81	1206
Bicycle	C. Eickemeyer	591,227	Oct. 5	526	125	81	100
Bicycle	V. Ernst	593,975	Nov. 16	2224	538	81	1266
Bicycle	A. C. Fairbanks	594,989	Dec. 7	159	39	81	1651
Bicycle	J. M. Gilbert	594,991	Dec. 7	266	64	81	1670
Bicycle	M. Joseph	593,101	Nov. 2	611	147	81	926
Bicycle	L. Kugler	596,073	Dec. 28	2146	509	81	2100
Bicycle	H. W. Libbey	596,275	Dec. 28	2478	589	81	2162
Bicycle	F. D. Maltby	591,673	Oct. 12	1318	309	81	284
Bicycle	L. L. Moe	593,363	Nov. 9	1103	267	81	1084
Bicycle	L. F. Parks	591,566	Oct. 12	1138	268	81	248
Bicycle	S. H. Phelps	592,122	Oct. 19	2065	495	81	456
Bicycle	W. Quinn	591,360	Oct. 5	782	179	81	146
Bicycle	J. C. Raymond	592,169	Oct. 19	2170	512	81	471
Bicycle	A. F. Temple	595,927	Dec. 21	1892	449	81	2028
Bicycle	G. J. Paehtz	595,334	Dec. 14	857	211	81	1806
Bicycle-alarm	F. B. Sanders	596,132	Dec. 28	2241	531	81	2118
Bicycle-alarm	C. Schönlank	593,336	Nov. 9	1067	258	81	1028
Bicycle-alarm	J. H. Meyer	591,864	Oct. 19	1611	388	81	364
Bicycle attachment	J. H. O'Brien	592,438	Oct. 26	2969	601	81	679
Bicycle attachment	H. J. Richter	591,636	Oct. 12	1252	298	81	270
Bicycle attachment	F. Beitler	592,271	Oct. 26	2336	552	81	524
Bicycle-brake	A. W. Duck	594,234	Nov. 23	2635	623	81	1361
Bicycle-brake	J. S. Foley	592,745	Oct. 26	3508	786	81	784
Bicycle-brake	D. J. and H. D. Gue	594,688	Nov. 30	3502	815	81	1550
Bicycle-brake	L. C. Hall	594,947	Dec. 7	176	42	81	1654
Bicycle-brake	J. W. Jacobs	594,018	Nov. 23	2296	549	81	1297
Bicycle-brake	G. A. Johnson	591,974	Oct. 19	1819	431	81	404
Bicycle-brake	O. Kraus	595,106	Dec. 7	476	114	81	1706
Bicycle-brake	D. M. Peters	592,254	Oct. 26	2313	545	81	519
Bicycle-brake	J. B. Warren and C. W. Jones	591,994	Oct. 19	1843	438 / 439	81	409
Bicycle-brake	G. T. Warwick	592,509	Oct. 26	3232	669	81	731
Bicycle bundle-carrier	A. W. Duck	594,663	Nov. 30	3498	813	81	1548
Bicycle cape-support	H. H. Barreda	594,513	Nov. 30	3161	741	81	1482
Bicycle-carrier. Collapsible	R. M. Riley and U. S. G. Brown	592,830	Nov. 2	144	33	81	835
Bicycle-carrier. Detachable	W. M. Tegart	593,443	Nov. 9	1293	298	81	1060
Bicycle chain-protector	D. P. Thomson	593,254	Nov. 9	980	225	81	1001
Bicycle coasting foot-rest	F. A. Neider	593,678	Nov. 16	1691	409	81	1161
Bicycle. Convertible package-carrying	I. B. Sanders	592,886	Nov. 2	241	55	81	854
Bicycle-coupling	T. H. Sanderson	596,353	Dec. 28	2688	637	81	2204
Bicycle-crank	J. E. Edwards	595,535	Dec. 14	1204	299	81	1873
Bicycle-crank	H. D. Weed and R. P. Beardorff	594,109	Nov. 23	2437	579	81	1394
Bicycle-crank	H. I. Schanck	592,174	Oct. 19	2175	513 / 514	81	472
Bicycle crank mechanism	F. C. Avery	595,515	Dec. 14	1168	281	81	1865
Bicycle-cranks and sprocket-wheels with shafts. Means for connecting	J. E. Martin	592,156	Oct. 19	2146	507	81	467
Bicycle driving-gear	J. E. Stoops	595,501	Dec. 14	1147	276	81	1861
Bicycle driving-gear	A. Pappardakes	595,579	Dec. 14	1266	304	81	1887
Bicycle driving mechanism	W. D. Smith	595,661	Dec. 14	1398	336 / 337	81	1914
Bicycle. Electric	H. W. Libbey	596,272	Dec. 28	2475	588	81	2162
Bicycle. Electric	H. W. Libbey	596,273	Dec. 28	2476	589	81	2162
Bicycle. Electric	H. W. Libbey	596,274	Dec. 28	2477	589	81	2162
Bicycle flower-holder	J. F. Dunnigan	591,390	Oct. 12	825	192	81	188
Bicycle-fork truing and straightening gage	R. Johnston	591,277	Oct. 5	618	143	81	116
Bicycle-frame	P. Ambjorn	592,755	Nov. 2	3	1	81	807
Bicycle-frame	L. H. Cobb	595,148	Dec. 7	545	131	81	1721
Bicycle-frame	N. Dahl	593,046	Nov. 2	514	124	81	907
Bicycle-frame	S. B. Hill	594,136	Nov. 23	2479	587	81	1332
Bicycle-frame	A. H. Pettit	595,459	Dec. 14	1076	259	81	1848
Bicycle-frame	T. Tolson	591,306	Oct. 5	656	154	81	125
Bicycle-frames. Construction of	E. Béranger and A. Chobert	595,085	Dec. 7	388	82	81	1684

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle-gear	J. B. Ents	596,104	Dec. 28	2204	523	81	2111
Bicycle-gear. Differential	G. R. Balloch	593,450	Nov. 9	1249	300 / 301	81	1062
Bicycle-gearing	M. McGowan	594,417	Nov. 30	2978	700 / 701	81	1445
Bicycle-gearing	S. McMullin	591,488	Oct. 12	990	232	81	220
Bicycle gearing and brake	C. Young	593,260	Nov. 9	982	237	81	1011
Bicycle-guard	A. N. Heminger	592,987	Nov. 2	422	100	81	889
Bicycle hand-brake	L. H. Taylor, Jr	593,251	Nov. 9	994	228	81	1000
Bicycle-handle	E. Q. Norton	595,998	Dec. 21	1947	466	81	2041
Bicycle handle-bar	P. A. Geier	595,944	Dec. 21	1911	457	81	2033
Bicycle handle-bar	J. F. Hegerty	593,217	Nov. 9	952	203	81	989
Bicycle handle-bar	O. A. Wheeler	593,367	Nov. 9	1105	269	81	1035
Bicycle handle-bar. Adjustable	P. S. Kingsland	593,943	Nov. 16	2166	514	81	1254
Bicycle handle-bar clamp	C. E. Seymour	596,341	Dec. 28	2567	618	81	2186
Bicycle handle-bar clip	E. H. Olds	592,018	Oct. 19	1909	452	81	420
Bicycle handle-bar grip	W. Lampert	592,684	Oct. 26	3391	803	81	743
Bicycle handle-bars. Detachable handle for	J. S. Copeland	594,231	Nov. 23	2632	622 / 623	81	1361
Bicycle-hanger	A. B. Pruden and C. M. Waterbury	593,798	Nov. 16	1777	427	81	1176
Bicycle-holder	C. E. and M. R. Jewell	591,078	Oct. 5	243	57	81	48
Bicycle-lock	H. W. Cotton	596,306	Dec. 28	2717	644	81	2211
Bicycle-lock	C. R. Eberle	592,242	Oct. 26	2305	541	81	516
Bicycle-lock	W. H. Pond and W. N. Taipe	593,755	Nov. 16	1853	439	81	1187
Bicycle-lock	C. H. Reed	592,481	Oct. 26	3089	619	81	698
Bicycle-lock	B. H. Walker	591,066	Oct. 5	221	52, 53	81	44
Bicycle lock and support	I. S. Covell	595,605	Dec. 14	1308	314	81	1895
Bicycle-locking device	E. Buebel and J. Hall	594,724	Nov. 30	3570	830	81	1564
Bicycle luggage-carrier	G. E. Adams	595,843	Dec. 21	1713	411	81	1998
Bicycle luggage-carrier	H. J. M. Baker	595,517	Dec. 14	1171	281	81	1866
Bicycle luggage-carrier	I. N. Lincoln	595,240	Dec. 7	721	175	81	1753
Bicycle luggage-carrier	W. H. Logan	595,185	Dec. 7	615	147	81	1734
Bicycle match or other box	H. J. Humphrey	593,222	Nov. 9	877	208	81	992
Bicycle mud-guard	H. L. Hall	590,980	Oct. 5	50	11	81	11
Bicycle or other vehicle pump	N. R. Wickersham and H. A. Jamison.	596,223	Dec. 28	2390	566	81	2146
Bicycle or tourist lock	O. Damon	596,237	Dec. 28	2413	571	81	2151
Bicycle or velocipede driving device	W. Wanliss	594,921	Dec. 7	136	33	81	1647
Bicycle parcel-carrier	F. J. Boehm	593,978	Nov. 23	2230	529	81	1295
Bicycle parasol-holder	T. Lottermoser	593,360	Nov. 9	1100	266	81	1034
Bicycle-pedal	J. P. Lavigne	594,405	Nov. 30	2952	695	81	1441
Bicycle-pedal attachment	J. W. Hanson	595,268	Dec. 14	948	229	81	1823
Bicycle-pedal attachment	W. Macy	592,801	Nov. 2	77	17	81	821
Bicycle-propelling mechanism	H. Schafer	595,460	Dec. 14	1077	259	81	1846
Bicycle-rack	W. G. Parsons	595,967	Dec. 21	1948	466	81	2041
Bicycle. Railway-	C. L. Blubaugh	592,507	Oct. 26	3074	636	81	701
Bicycle rear forks. Yoke for	H. McDonald	591,295	Oct. 5	639	143	81	120
Bicycle-saddle	J. H. H. Burge	595,434	Dec. 14	1088	248	81	1838
Bicycle-saddle	J. A. Hunt	594,876	Dec. 7	53	14	81	1632
Bicycle-saddle	W. H. Kelly	593,108	Nov. 2	613	148	81	926
Bicycle-saddle	J. A. Lamplugh	595,599	Dec. 14	1296	312	81	1893
Bicycle-saddle	B. S. Seaman	591,145	Oct. 5	365	86	81	71
Bicycle-saddle	B. F. Wheeler	594,451	Nov. 30	3041	714	81	1458
Bicycle-saddle frame and holder	B. S. Seaman	591,573	Oct. 12	1147	270	81	249
Bicycle-saddle. Pneumatic	H. B. Ewbank, Sr	592,488	Oct. 26	3050	690	81	695
Bicycle-seat	C. M. Richmond	595,690	Dec. 14	1423	343	81	1919
Bicycle seat or saddle	A. J. Downes	591,330	Oct. 5	692	165	81	133
Bicycle-seats. Adjustable back-rest for	J. M. Hess	592,788	Nov. 2	51	11	81	816
Bicycle-shade support	F. S. Youngman	594,057	Nov. 23	2365	559	81	1310
Bicycle signal-alarm and brake	C. O. Sobinski	593,786	Nov. 16	1889	451 / 452	81	1197
Bicycle spoke-cleaner	A. G. MacGregor	595,958	Dec. 21	1937	463	81	2039
Bicycle-stand	E. Fowler	593,521	Nov. 9	1390	335	81	1068
Bicycle-stand	A. P. Graham and S. T. Pearsons	593,544	Oct. 26	3144	646 / 647	81	715
Bicycle-stand	P. Hielisch	591,909	Oct. 19	1805	430	81	403
Bicycle-stand	N. B. Le Fevre	594,748	Nov. 30	3613	841	81	1573
Bicycle-stand	D. R. Robertson	595,801	Dec. 21	1820	436	81	2015
Bicycle-stand	M. A. Sheldon	594,433	Nov. 30	3008	707	81	1452
Bicycle-stand	E. H. Webster and J. D. Winslow	592,534	Oct. 26	3128	640	81	711
Bicycle steering mechanism	H. L. Stanton	593,606	Nov. 16	1717	416	81	1165
Bicycle-support	W. N. Beardsley and F. B. Felton	594,373	Nov. 30	2886	681	81	1429
Bicycle-support	A. H. Cronemeyer	593,321	Nov. 9	1041	252	81	1023
Bicycle-support	J. G. Cronbach	591,820	Oct. 19	1555	367	81	352
Bicycle-support	J. Harper	591,602	Oct. 12	1192	281	81	258
Bicycle-support	W. F. Hewlett	594,627	Nov. 30	3372	790	81	1532
Bicycle-support	E. Hibbler	595,946	Dec. 21	1916	458	81	2034
Bicycle-support	F. Johnson	596,210	Dec. 28	2373	562	81	2143
Bicycle-support	R. Lo Forte	592,472	Oct. 26	3080	616	81	692
Bicycle-support	M. H. Mason	593,361	Nov. 9	1101	266	81	1034
Bicycle-support	C. J. O'Connor and J. G. Hodge	593,819	Nov. 16	1954	460	81	1205
Bicycle-support	G. W. Prentice	595,304	Dec. 7	644	154	81	1739
Bicycle-support	C. Sipman	592,260	Oct. 26	2323	547	81	521
Bicycle-support	J. W. Strickle and J. V. Petty	594,813	Nov. 30	3730	868 / 869	81	1596
Bicycle support or rack	H. S. Frambes	592,086	Oct. 19	2029	486	81	444
Bicycle-tool	J. R. Barker	593,859	Nov. 2	195	44	81	846
Bicycle-track	W. F. Crossley	594,331	Nov. 23	2602	602	81	1304
Bicycle-trainer	S. H. Law	592,098	Oct. 19	2043	483	81	447
Bicycle umbrella or flag holder	W. H. Hughes, Jr	593,018	Nov. 2	469	112	81	898
Bicycle-valve	M. A. Morris	595,578	Dec. 14	1286	304	81	1897
Bicycle vehicle attachment	C. Cretors	592,963	Nov. 2	382	88, 89	81	882
Bicycle vibration-absorbing device	W. M. Morse	596,079	Dec. 28	2160	512	81	2102
Bicycle vibration-absorbing device	W. M. Morse	596,080	Dec. 28	2163	513	81	2103
Bicycle-wheel	G. Hayes	593,653	Nov. 16	1653	401	81	1154
Bicycle-wheel	W. H. Kadel	591,922	Oct. 19	1730	414	81	898

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle-wheel	G. W. Marble	595,881	Dec. 21	1688	407	81	1988
Bicycle-wheel	G. R. Odean	594,211	Nov. 23	2601	615	81	1355
Bicycle-wheel hub	G. Burdick	593,764	Nov. 16	1848	443	81	1190
Bicycle-wheel rims. Apparatus for manufacturing	A. R. and M. S. Smith	594,661	Nov. 30	3464	805, 806	81	1542
Bicycles. Automatic guiding attachment for	H. Q. Plummer	591,930	Oct. 19	1742	417	81	391
Bicycles. Combination bracket and luggage-carrier for	G. W. Weber	591,904	Oct. 19	1693	404	81	380
Bicycles. Combination lock and foot-support for	J. Perotti	595,885	Dec. 21	1692	408	81	1988
Bicycles. Extensible pedal-lever for	E. B. and G. E. B. Welles	594,047	Nov. 23	2344	553	81	1306
Bicycles. Means for securing sprocket-wheels to	O. E. Kenney	592,989	Nov. 2	424	100	81	889
Billets or ingots. Apparatus for making hollow	J. Stevenson, Jr	591,433	Oct. 12	894	209	81	202
Billiard and dining table. Combined	C. Stahl	592,941	Nov. 2	353	77	81	872
Billiard and pool table leveler	G. W. Nicholson	591,058	Oct. 5	207	48	81	41
Billiard-cue tip	G. Muller	591,487	Oct. 12	990	232	81	230
Billiard-cushion	G. H. Stevens	593,249	Nov. 9	921	222, 223	81	1000
Billiard-markers. Check on	J. G. Dixon	592,240	Oct. 26	2291	540	81	515
Billiard-table cushion	T. W. Meachem	593,327	Nov. 9	1055	255	81	1036
Bin: *See* Flour-bin.							
Bin	W. Thomas	594,714	Nov. 30	3548	826	81	1560
Binder. Paper-	A. W. Rasmussen	591,372	Oct. 5	787	184	81	150
Binder swathing attachment	A. P. Patterson	592,252	Oct. 26	2309	544	81	519
Binder. Temporary	H. E. Dade	592,082	Oct. 19	2016	477	81	442
Binder. Temporary	T. Noble	594,420	Nov. 30	3087	702	81	1447
Binder. Temporary	J. L. and W. J. Rile	591,636	Oct. 12	1255	294	81	271
Binder. Temporary	F. J. Stanton	595,792	Dec. 21	1617	390	81	1974
Binnacle	F. M. Wherren	591,442	Oct. 12	910	213, 214	81	205
Bit: *See* Expansive bit. Router-bit.							
Blackboard	A. S. Teats	592,841	Nov. 2	166	38	81	840
Blacksmithing apparatus	H. E. Brewer and M. H. Shenk	592,193	Oct. 19	2308	520, 521	81	477
Blank for commercial reports	H. E. O'Neill	591,875	Oct. 19	1690	398	81	368
Blast-furnace	M. M. Suppes	594,577	Nov. 30	3278	769, 770	81	1505
Blast-furnace	M. M. Suppes	594,578	Nov. 30	3279	770, 771	81	1505
Blast-furnace and means for charging same	T. Lewis	593,358	Nov. 9	1096	265, 266	81	1063
Blast-generator. Automatic	A. M. Sidwell, Jr.	591,699	Oct. 12	1354	317	81	291
Blind raised or lowered by means of electricity and solar rays.	E. Roth	595,343	Dec. 14	870	214	81	1808
Blind. Slat	C. R. Friedrich	591,918	Oct. 19	1724	413	81	387
Blind-slat operator and fastener	J. R. Lansing	595,854	Dec. 21	1728	415	81	1997
Blind. Venetian	R. Churchill	595,146	Dec. 7	542	130, 131	81	1730
Blinds. Machine for making window-	R. S. Griffin and J. W. Copeland	592,953	Nov. 2	358	83, 84, 85, 86	81	877
Block: *See* Ceiling-block.							
Block and signal system and brake automatic appliance. Combined automatic	J. G. Pearce	592,120	Oct. 19	2087	492, 493, 494, 495	81	455
Block-signal. Automatic	J. M. Williams, T. P. and H. W. Kinney.	593,504	Nov. 9	1354	328, 329	81	1062
Blower and screen. Adjustable fire-draft	P. W. Hurndall	592,114	Oct. 19	2078	491	81	453
Blowing-engine	E. Reynolds	591,008	Oct. 5	107	24	81	28
Blowpipe	C. A. Webster	594,922	Dec. 7	137	34	81	1647
Board: *See* Chopping-board. Washboard.							
Boat. Collapsible life-	W. F. Foord	594,239	Nov. 23	2642	625	81	1363
Boat. Ice-breaking	B. B. Inman	593,664	Nov. 16	1670	405	81	1156
Boats capsizing. Apparatus for preventing	W. H. Bradford	595,804	Dec. 21	1645	396	81	1980
Boiler: *See* Range-boiler. Steam-boiler. Sectional boiler. Tubular boiler. Steam-boiler. Washboiler. Steam or hot-water boiler.							
Boiler	W. C. Higgins	593,297	Nov. 9	1001	241	81	1016
Boiler	G. W. Johnson	592,509	Oct. 26	2078	627	81	701
Boiler attachment	W. I. Miller	595,190	Dec. 7	622	148	81	1735
Boiler-cleaner and feed-water heater. Automatic	J. J. Long	591,856	Oct. 19	1601	381	81	362
Boiler-cleaning apparatus. Automatic	E. A. Newcomb	592,553	Oct. 26	2161	651	81	718
Boiler connection. Hot-water	G. W. Graves	591,098	Oct. 5	279	68	81	55
Boiler for steam or hot-water heating	W. M. Mackay	591,286	Oct. 5	539	128	81	102
Boiler-furnace	J. O'Brien and C. K. Pickles	593,851	Nov. 16	2010	473	81	1222
Boiler-furnace	A. Rahner	595,339	Dec. 14	864	213	81	1807
Boiler-furnace	J. W. Warner	594,817	Nov. 30	3735	870	81	1597
Boiler furnace. Steam-	H. E. Parson	592,205	Oct. 19	2220	525, 526	81	481
Boiler furnace. Steam-	C. T. Rogers	595,341	Dec. 14	866	214	81	1808
Boiler furnace. Steam-	D. Young and W. D. Lewis	595,666	Dec. 14	1404	339	81	1915
Boiler heater. Stand-	F. V. Winters	594,166	Nov. 23	2528	599	81	1342
Boiler incrustation. Apparatus for preventing	T. H. Jones	593,378	Nov. 9	1128	272	81	1089
Boiler-pressure-indicating alarm	J. J. Whittlesey	592,856	Nov. 2	191	43, 44	81	845
Boiler safety-plug. Steam-	C. J. Cole	594,230	Nov. 23	2630	622	81	1361
Boiler-setting	L. Bernhard	594,848	Dec. 7	13	4	81	1623
Boiler-stay	T. Barrow	593,452	Nov. 9	1352	301	81	1063
Boiler-tube cleaner	F. W. Edwards	595,908	Dec. 21	1847	442, 443	81	2020

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Boiler water-indicator and alarm. Steam-	L. Steigert	595,416	Dec. 14	1008	242	81	1833
Boiler water-tube cleaner. Steam-	I. Krisan	595,780	Dec. 21	1599	386	81	1970
Bolster	C. E. Bauer	593,410	Nov. 9	1190	288	81	1050
Bolster-truss	C. E. Bauer	592,536	Oct. 26	2132	643	81	712
Bolt: *See* Cycle safety-bolt. Shaking-bolt.							
Bolt	L. H. Bigelow	594,931	Dec. 7	149	37	81	1649
Bolt	W. Murphy	595,331	Dec. 14	855	210	81	1805
Bolt and rivet cutter	A. Helwig	596,066	Dec. 28	2132	506	81	2098
Bolt tapping and drilling machine	W. A. Timms	594,044	Nov. 23	2340	552	81	1305
Bolting-cloth clean. Means for keeping meshes of	F. G. Gauntt	594,001	Nov. 23	2267	536, 537	81	1292
Bolting-machine. Vertical	I. G. Seifried	594,760	Nov. 30	3628	844, 845	81	1575
Bone-black-revivifying apparatus	A. E. Krause	592,547	Oct. 26	3150	648, 649	81	716
Book and coupon-ticket protector. Mileage-	A. Rosedale	593,125	Nov. 2	647	156	81	934
Book. Check-	M. P. Exline	592,929	Nov. 2	300	70	81	866
Book. Check-	E. S. Lowe	594,089	Nov. 23	2408	572	81	1319
Book-collating machine	T. C. Dexter	591,094	Oct. 5	270	64, 65, 66, 67	81	53
Book-cover folding and pressing machine	J. A. Möller	592,429	Oct. 26	2954	597, 598	81	676
Book. Index-	A. V. Bowker	592,981	Nov. 2	414	97	81	887
Book. Manifolding-	F. M. Turck	595,981	Dec. 21	1974	471	81	2046
Book or manuscript holder	E. D. Hall	593,935	Nov. 16	2156	511	81	1251
Book or pad. Manifold sales	P. Hano	592,141	Oct. 19	2125	508	81	462
Book-rack. Portable	G. R. Alden	593,758	Nov. 16	1839	441	81	1168
Book-rest	W. H. Heath	592,780	Nov. 2	45	10	81	815
Book-rest	C. H. Koerner	595,779	Dec. 21	1598	386	81	1970
Book-rest	G. K. Putnam	593,120	Nov. 2	638	154	81	932
Book-rest. Automatic rotating	W. E. Fuller	594,151	Nov. 23	2503	593	81	1337
Book. Scrap or stub	A. L. Weis	592,103	Oct. 19	2061	487	81	450
Book. Separable	F. H. Gilson	594,908	Nov. 23	2586	612	81	1352
Book. Stenographer's note-	B. F. Stuart	592,898	Nov. 2	253	58	81	856
Book-support	E. F. Jewell	591,765	Oct. 12	1452	342	81	311
Boot and shoe shining machine	W. Rinker	595,581	Dec. 14	1269	305	81	1887
Boot or shoe	F. Ephraim	591,646	Oct. 12	1270	297	81	274
Boot or shoe	A. Gross	592,140	Oct. 19	2124	502	81	462
Boot or shoe	J. H. McElroy	595,833	Dec. 21	1690	408	81	1988
Boot or shoe fastening	J. W. Denno	593,272	Nov. 9	954	231	81	1006
Boot or shoe form	W. L. C. Niles	594,551	Nov. 30	3296	750	81	1496
Boot or shoe lining	W. Sutcliffe	594,299	Nov. 23	2757	652	81	1386
Boot or shoe making apparatus	P. I. Machlis	592,637	Oct. 26	3295	684, 685	81	744
Boot or shoe shanks, &c. Machine for making leather-board	J. Hyslop	591,353	Oct. 5	741	173, 174, 175, 176	81	142
Boot or shoe uppers. Machine for stretching	A. Seaver	596,308	Dec. 28	2537	605	81	2174
Boots or shoes. Shelf-rack for holding	S. L. Saunders	592,975	Nov. 2	409	96	81	886
Boring-machine	C. E. Van Dusen and A. B. Röver	595,896	Dec. 21	1830	437	81	2016
Boring-machine for dowel-doors	E. B. Hayes	595,568	Dec. 14	1244	300	81	1860
Boring-machine table	H. A. Poertner and J. W. Fix	594,902	Dec. 7	105	27	81	1641
Bottle	L. Burnett	591,125	Oct. 5	327	80	81	64
Bottle	R. S. Dickerson	591,212	Oct. 5	494	118	81	94
Bottle	W. S. Dresback	593,085	Nov. 2	590	140	81	920
Bottle	S. F. Fraser	593,999	Nov. 23	2365	535	81	1291
Bottle	A. A. Freeman	594,243	Nov. 23	2648	627	81	1365
Bottle	P. L. Hunt	592,250	Oct. 26	2367	559	81	530
Bottle	F. Johnson	591,842	Oct. 19	1593	377	81	358
Bottle	F. H. Perry	593,334	Nov. 9	1064	257	81	1028
Bottle	A. Pew	591,698	Oct. 12	1335	313	81	286
Bottle	P. Quinn, Jr., and R. C. Giesicke	593,058	Nov. 2	533	128	81	911
Bottle	D. R. Saunders	595,499	Dec. 14	1143	276	81	1860
Bottle	M. R. Schaffer	594,565	Nov. 30	3255	764	81	1500
Bottle	R. M. Selbel and D. C. McCarroll	594,970	Dec. 7	210	52	81	1660
Bottle	G. W. Taylor	596,463	Dec. 28	2837	669	81	2234
Bottle and graduate rack	H. Schandein and M. P. Lind	593,312	Nov. 9	1028	248	81	1021
Bottle and stopper. Non-refillable	G. W. Shaller	595,003	Dec. 7	261	67	81	1673
Bottle and stopper therefor	L. J. A. Fernandes	591,336	Oct. 5	709	168	81	137
Bottle and stopper therefor	A. R. Pollard	594,423	Nov. 30	2992	708	81	1448
Bottle-cap	B. and C. Fontan	592,700	Oct. 26	3424	716	81	770
Bottle-cap	S. E. Kinnan	591,849	Oct. 19	1591	379	81	360
Bottle-closure	A. McLeod	595,964	Dec. 21	1945	465	81	2040
Bottle-filling machine	C. S. Dolley, J. G. Rehfuss, and J. Hunt.	594,781	Nov. 30	3665	858	81	1588
Bottle-filling machine	W. M. Fowler	594,392	Nov. 30	2998	690	81	1437
Bottle. Ink-	A. C. Anderson	591,802	Oct. 19	1521	360	81	345
Bottle necks. Manufacture of glass-	H. Brooke	596,319	Dec. 28	2553	608	81	2177
Bottle. Non-refillable	R. E. Alfred	592,753	Nov. 2	1	1	81	807
Bottle. Non-refillable	R. E. Alfred	592,754	Nov. 2	2	1	81	807
Bottle. Non-refillable	F. L. Banta and C. C. Marble	591,068	Oct. 5	224	53	81	45
Bottle. Non-refillable	G. F. Barrett	591,724	Oct. 12	1389	326	81	299
Bottle. Non-refillable	H. E. Beighlee	596,011	Dec. 21	2018	482	81	2056
Bottle. Non-refillable	R. W. Black and G. A. Sander	592,189	Oct. 19	2198	519	81	476
Bottle. Non-refillable	T. R. Bridge	594,592	Nov. 30	3315	778	81	1511
Bottle. Non-refillable	A. S. Deutsch	596,238	Dec. 28	2414	571	81	2152
Bottle. Non-refillable	C. A. Dunbar	595,612	Dec. 14	1316	318	81	1898
Bottle. Non-refillable	E. A. Foster	594,073	Nov. 23	2389	567	81	1315
Bottle. Non-refillable	C. W. Garis	596,205	Dec. 28	2367	561	81	2142
Bottle. Non-refillable	E. A. Hampshire and J. E. Davison	591,400	Oct. 12	888	195	81	191
Bottle. Non-refillable	J. J. Hanlon	592,491	Oct. 26	3054	621	81	696
Bottle. Non-refillable	H. Hayes	594,011	Nov. 23	2287	540	81	1296
Bottle. Non-refillable	F. B. Hodgson and R. H. Rickards	591,763	Oct. 12	1449	342	81	311

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bottle. Non-refillable	L. J. Houze	593,220	Nov. 9	874	207	81	991
Bottle. Non-refillable	E. Junker	591,280	Oct. 5	680	145	81	117
Bottle. Non-refillable	J. R. Latham	595,487	Dec. 14	1120	271, 272	81	1857
Bottle. Non-refillable	G. W. Maytham	594,116	Nov. 23	2447	581	81	1336
Bottle. Non-refillable	A. H. Meech	592,157	Oct. 19	2148	508	81	467
Bottle. Non-refillable	D. and J. E. O'Donnell	594,274	Nov. 23	2700	638	81	1376
Bottle. Non-refillable	A. E. Peterson	593,117	Nov. 2	634	153	81	951
Bottle. Non-refillable	E. Sassenhoff	592,940	Nov. 2	331	76, 77	81	872
Bottle. Non-refillable	I. Shultes	593,129	Nov. 2	652	157	81	985
Bottle. Non-refillable	C. L. Smith	596,220	Dec. 28	2388	565	81	2146
Bottle. Non-refillable	E. C. Smith	594,763	Nov. 30	3632	846	81	1576
Bottle. Non-refillable	G. E. Smith	592,576	Oct. 26	3191	659	81	734
Bottle. Non-refillable	W. T. Strasser	595,447	Dec. 14	1056	253	81	1843
Bottle. Non-refillable	J. M. Taylor	594,765	Nov. 30	3633	846	81	1576
Bottle. Non-refillable	G. Turrell	594,301	Nov. 23	2761	653	81	1386
Bottle. Non-refillable	A. B. Wilson and E. E. Chatfield	593,825	Nov. 16	1969	464	81	1213
Bottle. Non-refillable	C. Borgenschild	593,880	Nov. 16	1976	465	81	1215
Bottle. Nursing-	T. W. M. Worley	595,414	Dec. 14	1002	241	81	1832
Bottle. Nursing-	W. F. Obear	595,986	Dec. 21	1985	474	81	2049
Bottle. Nursing-	G. M. Broemler	594,646	Nov. 30	3441	800	81	1538
Bottle or jar blowing machine	E. J. Paquette	591,619	Oct. 12	1219	286	81	268
Bottle or similar vessel	C. Bild	596,304	Dec. 28	2530	602	81	2172
Bottle-protector	S. Crocker	595,690	Dec. 21	1437	347	81	1940
Bottle-stopper	P. Dillon	591,159	Oct. 5	393	92	81	75
Bottle-stopper	G. Koch	591,824	Oct. 19	1561	369	81	353
Bottle-stopper	G. Koch	595,813	Dec. 21	1659	400	81	1992
Bottle-stopper	J. Lines	595,814	Dec. 21	1061	400	81	1992
Bottle-stopper	H. R. Meister	593,401	Nov. 9	1175	283	81	1047
Bottle-stopper	C. Neuhaus	596,374	Dec. 28	2677	634	81	2203
Bottle-stopper	W. Haskins	592,879	Nov. 2	226	52	81	851
Bottle-stopper and holder for same	G. F. Johnson	591,668	Oct. 12	840	195	81	193
Bottle-stopper attachment for bottles, jugs, jars, &c.	K. C. Gillette	592,584	Oct. 26	3206	663, 664	81	727
Bottle-stoppers. Machine for feeding crown	R. R. and A. R. Wales	596,194	Dec. 28	2349	558	81	2138
Bottle, tankard, glassware, or the like	J. Schutz	593,437	Nov. 9	1231	297	81	1059
Bottle-washer	C. H. Newbury	594,270	Nov. 23	2698	636	81	1373
Bottles. Construction of non-refillable	W. J. Bryan	593,194	Nov. 9	805	192	81	979
Bottles. Device for preventing refilling of	O. R. Van Vechten	591,902	Oct. 19	1690	404	81	380
Bottles. Device for preventing refilling of	A. F. Chace	592,223	Oct. 19	2243	531	81	485
Bottles. Means for preventing refilling of	J. A. Donahue and F. H. Leach	591,778	Oct 12	1469	350	81	317
Bottles or drinking-glasses. Mouth guard and protector for	I. N. Miller and J. B. Moss	592,659	Oct. 26	3347	696	81	754
Bougie	C. Branzke	595,038	Dec. 7	344	83	81	1665
Boundary-stone	L. F. Roskop	592,449	Oct. 26	2984	604	81	662
Bouquet-holder	C. Rosin	595,655	Dec. 14	1382	334	81	1919
Boutonnière, badge, &c.	M. W. White	594,129	Nov. 23	2472	585	81	1331
Bow-instrument bridge							
Box: *See* Axle-box. Ballot-box. Bicycle match or other box. Coin-box. Condiment-box. Dice-box. Feed-box. Feeding-box. Folding box. Junction-box. Lunch-box. Mail-box. Match-box. Miter-box. Music-box. Packing-box. Paper box. Stamp-box. Step-box. Stuffing-box. Tobacco-box. Water or gas box. Window-box.							
Box	E. Oldenbusch	595,070	Dec. 7	407	98	81	1695
Box	S. T. Russell	591,059	Oct. 5	318	50	81	43
Box-covering machine	H. A. Inman	594,401	Nov. 30	2944	604	81	1439
Box-covering machine	T. Bishop	595,758	Dec. 21	1562	378	81	1903
Box cutting and nailing machine	T. B. Abernathy	593,551	Nov. 9	1445	352, 353, 354	81	1098
Box-fastener	W. G. Davis	596,058	Dec. 28	2123	508	81	2096
Box-fastener	J. W. and C. A. Myers	593,753	Nov. 16	1828	438	81	1166
Box-fastener	H. M. Sheer and S. C. Pitney	593,615	Nov. 16	1588	382	81	1142
Box-filling machine	J. P. Wright	595,233	Dec. 7	693	169, 170, 171, 171	81	1748
Box-filling machine	J. P. Wright	595,234	Dec. 7	700	171, 172, 178	81	1750
Box-machine	B. A. Blakeney	593,687	Oct. 26	3402	711	81	765
Box-nailing-machine clenching device	J. McAllister and W. H. Hayes	593,232	Nov. 9	897	216	81	995
Box or receptacle for pulverulent or granular materials.	R. Walsh	591,708	Oct. 12	1368	330	81	294
Boxes. Apparatus for scoring, cutting, and printing cardboard	D. S. Clark	591,209	Oct. 5	487	116, 117	81	93
Brace: *See* Corner-brace. Furniture-brace.							
Bracket: *See* Curtain-pole bracket. Curtain-rod bracket. Fan-motor bracket. Fire-escape bracket. Folding bracket. Insulator-bracket. Lamp-bracket. Roof-bracket. Shade-bracket. Shade-roller bracket.							
Bracket	C. F. Doebler	594,862	Dec. 7	36	10	81	1628
Bracket	C. F. Doebler	595,873	Dec. 21	1778	497	81	2006
Braiding-carrier	J. McCahey	592,477	Oct. 26	3085	617	81	608
Braiding-machine. Electromagnetic	A. C. Shuttleworth	591,105	Oct. 5	299	71, 72	81	57

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brake: *See* Air-brake. Bicycle-brake. Bicycle hand-brake. Car-brake. Electric brake. Elevator-brake. Emergency-brake. Fluid-pressure brake. Horse-power-machine brake. Pneumatic and electric controlled brake. Railway-brake. Safety-brake. Vehicle-brake. Velocipede-brake. Wagon-brake.							
Brake	W. S. Easton	594,388	Nov 30	2923	689	81	1436
Brake	S. T. Wellman, J. W. Seaver, and C. H. Wellman.	596,097	Dec. 28	2186	517	81	2107
Brake and fender. Combined	N. Feigley	593,839	Nov. 16	1990	468	81	1218
Brake-beam fulcrum	F. W. Coolbaugh	594,384	Nov. 30	2916	688	81	1434
Brake mechanism	H. S. Goughnour	591,886	Oct. 19	1575	374	81	356
Brake-release mechanism. Automatic hand-	T. Eubank	591,666	Oct. 12	1306	306	81	261
Brake-release mechanism. Hand-	T. Eubank	591,667	Oct. 12	1308	306	81	262
Brake-rigging slack-adjuster	D. C. O'Kain	594,421	Nov. 30	2989	702, 703	81	1448
Brake-shoe	A. J. Allen and J. F. Morrison	596,132	Dec. 28	2247	533	81	2119
Brake-shoe	A. L. Streeter	595,588	Dec. 14	1281	308	81	1860
Brake-shoe and wheel-dresser	W. E. Gorton	595,096	Dec. 7	465	111	81	1706
Brake-shoe connection	J. J. Kinzer, Jr. (Reissue)	11,636	Nov. 9	1465	357	81	1101
Brake-shoe key	W. D. Sargent	593,242	Nov. 9	909	219	81	998
Bran-packer	J. Koelner	591,260	Oct. 5	582	138	81	110
Brazing apparatus	J. C. Dupee	594,345	Nov. 23	2839	671	81	1401
Brazing apparatus	T. G. Lewis and F. M. Bailey	591,962	Oct. 19	1827	435	81	406
Bread-knife	G. H. Blanchard	595,597	Dec. 14	1393	312	81	1898
Brick	H. Pennfe	591,788	Oct. 12	1492	354	81	320
Brick-burning kiln	W. J. Thomas	592,842	Nov. 2	167	38, 39	81	840
Brick construction	W. H. Brock	595,988	Dec. 21	1988	475	81	2050
Brick-kiln	C. and A. Klose. (Reissue)	11,635	Nov. 2	779	187, 188	81	961
Brick-kiln	H. R. Vaughan	591,065	Oct. 5	220	53	81	44
Bridge	A. S. Dandridge	595,906	Dec. 21	1845	442	81	2020
Bridge	D. E. Fisher	591,832	Oct. 19	1570	373	81	355
Bridle	D. H. Mayes	591,651	Oct. 12	1343	321	81	268
Broaching implement	W. A. McCool	591,871	Oct. 19	1624	386, 387	81	367
Broiler. Gas-	J. Gibbons, Jr	594,394	Nov. 30	2920	691	81	1437
Broom and dust-pan holder. Combination	B. Kilbourn	594,541	Nov. 30	3218	754	81	1498
Broom-handle	G. W. Park	592,554	Oct. 26	3163	651	81	718
Broom handle or pole attachment consisting of picture-hanger, dust-rag holder, and suspending device.	S. E. G. Buchanan	593,155	Nov. 2	717	170	81	949
Broom. Self-sprinkling	E. Dundon	592,282	Oct. 26	2858	556	81	528
Broom spraying attachment	H. Brockmann	595,761	Dec. 21	1569	379	81	1904
Brush. Air-	O. C. Wold	595,931	Dec. 21	1887	450	81	2029
Brush. Fountain-	J. W. Poor	591,570	Oct. 12	1143	269	81	249
Brush-holder	L. L. Solem	592,898	Nov. 2	163	37	81	839
Brush. Scrubbing-	P. F. Barrett	595,012	Dec. 7	300	73	81	1676
Brush. Stove-polishing	H. L. Hanson	594,154	Nov. 23	2512	594	81	1339
Brush. Tooth-	F. S. Allen	596,450	Dec. 28	2808	662	81	2238
Bucket. Milk-	W. J. Walsh	594,127	Nov. 23	2467	584	81	1330
Bucket. Pick-up	R. B. Patton	593,969	Nov. 16	2317	536	81	1265
Buckle	G. E. Davis	591,955	Oct. 19	1788	426	81	400
Buckle	E. G. Jay	592,788	Oct. 26	3481	781	81	780
Buckle	C. F. Nicholson	594,371	Nov. 23	2690	636	81	1373
Buckle	W. Roemer	596,247	Dec. 28	2439	574	81	2155
Buckle	I. D. Wright and A. E. McClure	594,308	Nov. 23	2760	655	81	1388
Buckle. Spring-	W. V. Hatten	594,532	Nov. 30	3199	750	81	1489
Bug-exterminator	C. D. Loomis	595,730	Dec. 21	1491	359	81	1950
Buggy-seat. Detachable child's	S. A. Bain	592,515	Oct. 26	3091	631	81	703
Buggy-top raising or lowering attachment	R. W. Liddle	593,591	Nov. 16	1538	373, 374	81	1132
Building-ventilator	W. Cooper	594,727	Nov. 30	3575	831	81	1565
Buildings. Construction of	G. B. Waite	596,345	Dec. 28	2602	620	81	2187
Bulkhead-doors. Apparatus for closing water-tight	T. Moodie	592,430	Oct. 26	2957	598, 599	81	677
Bung	S. Schlangen	595,737	Dec. 21	1514	366	81	1954
Bung and faucet	G. C. Kachel and H. Sager	592,295	Oct. 26	2875	561	81	532
Buoy. Submarine	E. A. Chamberlain	594,600	Nov. 30	3336	780	81	1513
Burglar-alarm	J. S. Fates	596,379	Dec. 28	2633	685	81	2303
Burglar-alarm	L. M. Pratt	591,055	Oct. 5	208	49	81	43
Burglar-alarm	T. H. Storts	593,186	Nov. 2	668	159	81	936
Burglar-alarm. Automatic electric	J. W. Baughman	594,192	Nov. 23	2565	608	81	1340
Burglar-alarm circuit-closing device	E. E. Wilson	595,842	Dec. 21	1712	411	81	1993
Burglar-alarm. Electric	T. A. Clarke	594,678	Nov. 30	3486	812	81	1547
Burglar-alarm. Electric	D. W. McCaughey	595,963	Dec. 21	1943	463	81	2040
Burglar and fire alarm	J. H. Ellis	594,390	Nov. 30	2894	690	81	1436
Burglar and fire alarm. Electric	C. J. Bukoutz	595,871	Dec. 21	1776	427	81	2006
Burial-casket	O. D. Byers	595,608	Dec. 14	1300	313	81	1894
Burial-casket	J. Jaixen and E. Harry	593,176	Nov. 2	771	185	81	959
Burial-casket	W. S. Jones	595,632	Dec. 14	1349	325, 326	81	1904
Burner: *See* Atmospheric burner. Gas-burner. Generative burner. Hydrocarbon burner. Incandescent burner. Incandescent-light burner. Lamp-burner. Oil-burner. Petroleum-burner. Vapor-burner.							
Burner	J. F. W. Grote	592,545	Oct. 26	3145	647	81	715

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bushing for pulleys, journals, &c	J. D. Adams	592,504	Oct. 26	3070	625	81	700
Bushing. Sheave roller	A. J. Q. Knowlton	594,357	Nov. 23	2365	676	81	1406
Butter-cutter	C. H. Hoffmann	591,970	Oct. 19	1807	480	81	408
Butter, &c. Device for cutting, weighing, and measuring	L. H. Davis	595,049	Dec. 7	374	92	81	1690
Butter, &c., from packages. Device for removing	J. H. Williams	593,386	Nov. 9	1152	278	81	1043
Butter. Making	R. C. Bearden	592,215	Oct. 19	2233		81	488
Butter. Preserving	A. Nimmo	594,272	Nov. 23	2091	637	81	1373
Button	E. Candel	595,266	Dec. 14	785	194	81	1721
Button	R. Hörmann	594,797	Nov. 30	3695	951	81	1589
Button	F. G. Neubert	591,564	Oct. 12	1135	267	81	247
Button	J. W. Knause	591,976	Oct. 19	1882	434	81	405
Button and tie-retainer. Combined collar	F. S. McKenney	594,806	Nov. 30	3719	867	81	1594
Button attaching or detaching implement	W. A. Valentine	592,594	Nov. 2	255	58	81	857
Button-cleaning shield. Metal	F. A. Loveland	596,031	Dec. 21	2073	498	81	2068
Button. Collar	J. S. Tarr	593,061	Nov. 2	537	129	81	911
Button-drilling machine	J. Q. A. Houghton	591,188	Oct. 5	343	89,68	81	67
Buttonhole-stitching machine	N. D. Ingram	591,973	Oct. 19	1810	431	81	404
Button. Self-attaching	W. A. Ingalls	596,168	Dec. 28	2298	544	81	2128
Button. Separable	R. E. Byrne	595,143	Dec. 7	589	129	81	1720
Buttons. Fastening heads to posts of collar	E. Bamberger	593,636	Nov. 16	1626	398	81	1148
Cabinet	G. C. Smith	591,574	Oct. 12	1148	270	81	250
Cabinet	L. Blumenkranz	594,226	Nov. 23	2023	620 621	81	1359
Cabinet. Clothing	J. A. Owen	595,884	Dec. 21	1691	408	81	1988
Cabinet for groceries	A. F. Crandall and G. W. Byrnes	591,739	Oct. 12	1414	332	81	303
Cabinet. Form	E. U. Kinsey	593,024	Nov. 2	478	115	81	900
Cabinet. Lens	J. J. and G. Umhoefer	593,003	Nov. 2	446	107	81	894
Cabinet. Paper-bag	R. O. Stutsman	592,177	Oct. 19	2182	514 515	81	473
Cabinet. Portable newspaper	F. E. Leonard	592,972	Nov. 2	404	95	81	885
Cable-bending appliance	J. S. Peden	595,495	Dec. 14	1138	274	81	1859
Cable-grip	C. L. Kleitz	593,053	Nov. 2	527	127	81	909
Cable grip and take-up	W. H. Johnston	594,020	Nov. 23	2299	543	81	1297
Cables into underground conduits. Apparatus for feeding	G. Cameron	595,698	Dec. 21	1439	348	81	1940
Cables. Suspension of aerial	S. Mattson	593,947	Nov. 16	2171	515 516	81	1255
Caisson air-lock	J. F. O'Rourke	591,633	Oct. 12	1245	292	81	268
Caisson air-lock	J. F. O'Rourke	591,632	Oct. 19	1244	291	81	268
Caisson-shaft	C. M. Fowler	593,881	Nov. 16	2067	488	81	1224
Cake or food turner. Griddle	E. R. Helgren	592,630	Oct. 26	3286	682	81	742
Cake-turner	J. Heberling	594,205	Nov. 23	2593	613	81	1353
Cake turner. Pan	J. Byrne	595,608	Dec. 14	1301	314	81	1994
Calculating-machine	H. M. Minnis	593,675	Nov. 16	1687	408	81	1159
Calculating-machine	A. Schabadt	595,347	Dec. 14	980	216	81	1810
Calculating-machine	E. V. and E. G. Williams and C. L. Dickerson.	595,009	Dec. 7	293	70,71	81	1675
Calculating-machine printing attachment	W. H. Pike, Jr	595,864	Dec. 21	1743	419 420 421	81	2000
Calculator. Mechanical	R. Duncan	591,382	Oct. 5	697	166	81	134
Calendar	M. F. Berry	594,591	Nov. 30	3514	777	81	1511
Calendar. Perpetual	F. S. Hodgdon	591,255	Oct. 5	575	136	81	109
Calipers	C. P. Fay	591,348	Oct. 5	733	172	81	141
Calipers	F. Spalding	591,363	Oct. 5	768	181	81	147
Call-box system. Electric	W. T. Budds	596,356	Dec. 28	2223	524	81	2122
Cam. Adjustable	I. Qurin	593,121	Nov. 2	640	154	81	932
Camera-holder	I. F. Phelps	591,877	Oct. 19	1632	389	81	369
Camera. Kinetographic	P. Gautier	595,620	Dec. 14	1227	320	81	1899
Camera. Kinetographic	H. J. Heinze	593,376	Nov. 9	1122	271 272	81	1038
Camera. Kinetographic	N. Nelson	594,094	Nov. 23	2414	573 574	81	1320
Camera. Magazine	J. L. Atwater	595,591	Dec. 14	1296	310	81	1891
Camera. Magazine	P. Berggren	595,255	Dec. 14	788	194	81	1721
Camera. Photographic	C. F. Ames and H. A. Rearson	594,368	Nov. 30	2681	679	81	1428
Camera. Photographic	J. L. Atwater	595,551	Dec. 14	1223	294	81	1877
Camera. Photographic	E. Bloch	595,036	Dec. 7	340	82,83	81	1684
Camera. Photographic	A. H. Bromley, Jr	593,010	Nov. 2	455	109	81	896
Camera. Photographic	W. F. Cook	595,468	Dec. 14	1091	262	81	1850
Camera. Photographic	D. P. O'Leary and S. B. Kull	594,120	Nov. 23	2453	592	81	1327
Camera. Photographic	G. L. Minott	592,934	Nov. 2	319	74	81	870
Cameras. Multiplying attachment for photographic							
Can: *See* Milk-can. Oil-can. Roving-can. Sheet-metal can. Soda-water can.							
Can-filling machine	E. Wildi	594,667	Nov. 30	3472	808 809	81	1544
Can-heading machine	C. B. McDonald	594,547	Nov. 30	3227	756 757	81	1494
Can-holder for condensed-milk cans, &c	W. E. S. Crane	593,044	Nov. 2	511	123	81	906
Can-opener	C. W. Garey	594,469	Nov. 30	3080	728	81	1467
Can-opener	C. W. Haight	594,079	Nov. 23	2397	569	81	1317
Can-opener	J. B. Johnson	593,377	Nov. 9	1127	272	81	1039
Can-opener	S. M. Wright	592,120	Oct. 19	2107	499	81	459
Can-opener	J. E. Youngblood	592,945	Nov. 2	343	79	81	874
Can-opener	A. Dell	591,459	Oct. 12	940	221	81	212
Can-opener, wire-cutter, and corkscrew. Attached	W. H. Burnett	594,180	Nov. 23	2473	585	81	1331
Can or jar closure	E. Brown	590,963	Oct. 5	22	6	81	7
Can or jar holder. Adjustable	F. Lied	596,244	Dec. 28	2426	573	81	2154
Can top. Oil	J. M. Willbur	593,795	Nov. 16	1911	454	81	1201
Canceling device. Check	A. A. Low	591,630	Oct. 12	1243	291	81	268
Canceling machine. Card	F. E. Martin	594,029	Nov. 23	2512	546	81	1300

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Canceling machine. Stamp	A. E. Whitehead	596,098	Dec. 28	2188	518 519 520	81	2108
Candelabrum	J. Markowsky	591,557	Oct. 12	1116	263	81	244
Candelabrum	J. Markowsky	593,111	Nov. 2	624	150 151	81	929
Candlestick, cap-crimper, and fuse-cutter. Miner's combined	C. S. McCready	594,354	Nov. 23	2858	675	81	1405
Candy-forming machine	F. W. Bauer and J. C. Heilmann, Jr.	596,137	Dec. 28	2259	535 536	81	2121
Cane and camp-stool. Combined	J. H. A. Behrens	591,549	Oct. 12	1108	260	81	242
Cane or corn heading machine	A. O. Gere	594,788	Nov. 30	3676	856	81	1585
Cannon	E. J. Blood	595,464	Dec. 14	1083	260 261	81	1849
Canopy	O. H. Basquin	595,257	Dec. 7	747	188	81	1759
Canopy-support	F. P. Bailey	594,370	Nov. 30	2882	680	81	1428
Cap	W. A. Lattimore	592,298	Oct. 26	2376	561	81	532
Cap. Expansible	R. P. Watson and A. C. Luyckx	591,311	Oct. 5	663	157	81	126
Cap. Miner's	J. Beck	595,595	Dec. 14	1202	311	81	1892
Car-bearing adjuster	C. V. Greenamyer	594,359	Nov. 23	2867	676	81	1407
Car. Bogie-truck motor	J. F. McLaughlin	593,599	Nov. 16	1553	376 377	81	1134
Car-bolster	C. E. Bauer	592,961	Nov. 2	199	45	81	846
Car-bolster	C. E. Bauer	593,637	Nov. 16	1628	393	81	1149
Car-bolster	J. Ponstein	596,122	Dec. 28	2229	520	81	2116
Car-brake	C. Bresnahan	592,604	Oct. 26	3241	671	81	733
Car-brake	B. J. Cobb	596,361	Dec. 28	2651	620	81	2197
Car-brake	W. M. Dills	593,535	Nov. 9	1414	340	81	1092
Car-brake	H. Schenck	596,339	Dec. 28	2592	617	81	2185
Car-brake	W. Timmis	591,577	Oct. 12	1154	271	81	251
Car bumper. Railway	W. H. Pearson	593,605	Nov. 16	1564	378	81	1136
Car center-plate	J. Timms	595,681	Dec. 14	1426	344	81	1920
Car-coupling	D. Altman	594,367	Nov. 30	2879	679	81	1427
Car-coupling	J. S. Bartley	594,315	Nov. 23	2779	657	81	1390
Car-coupling	A. J. Beard	594,059	Nov. 23	2307	560	81	1310
Car-coupling	H. C. Buhoup	596,357	Dec. 28	2624	624 625	81	2192
Car-coupling	H. C. Buhoup	596,358	Dec. 28	2626	625	81	2192
Car-coupling	W. H. Cavnies	593,195	Nov. 9	806	192	81	980
Car-coupling	L. Collis	591,325	Oct. 12	814	190	81	186
Car-coupling	L. Dague and J. F. Gregg	592,132	Oct. 19	2111	500	81	459
Car-coupling	A. Frommann and P. Enck	591,919	Oct. 19	1726	413	81	387
Car-coupling	H. Gallager	593,464	Nov. 9	1280	308	81	1068
Car-coupling	G. W. Gillespie	593,840	Nov. 16	1991	468 469	81	1218
Car-coupling	C. J. Greiner	595,166	Dec. 7	562	139	81	1728
Car-coupling	J. C. Griffith	596,040	Dec. 21	2091	496	81	2073
Car-coupling	G. Hilea	594,473	Nov. 30	3099	724	81	1468
Car-coupling	J. Jarrett, J. R. Davies, and J. Edwards.	591,257	Oct. 5	577	137	81	109
Car-coupling	J. La Burt	595,067	Dec. 7	402	97	81	1694
Car-coupling	G. H. Lippmann	592,957	Nov. 2	372	87	81	879
Car-coupling	B. C. de Lisle and G. P. Main	595,318	Dec. 14	831	205	81	1801
Car-coupling	J. J. Malloy	593,183	Nov. 2	779	187	81	961
Car-coupling	S. McCammant	591,927	Oct. 19	1739	416	81	390
Car-coupling	E. F. McMurtrey	593,950	Nov. 16	2176	516	81	1256
Car-coupling	H. L. Miller	592,876	Nov. 2	220	51	81	850
Car-coupling	E. L. Rickson	593,815	Nov. 16	1938	460	81	1206
Car-coupling	W. Scheel	596,128	Dec. 28	2241	532	81	2118
Car-coupling	T. H. Simpson	595,351	Dec. 14	867	217	81	1811
Car-coupling	W. Stenger	592,892	Nov. 2	252	57	81	856
Car-coupling	J. Timms	592,977	Nov. 2	411	96	81	886
Car-coupling	E. C. Washburn	593,951	Nov. 16	2178	517	81	1256
Car-coupling	A. S. Weaver	596,195	Dec. 28	2350	558	81	2133
Car-coupling	M. I. Welch	594,770	Nov. 30	3646	848 849	81	1579
Car-coupling. Automatic	R. E. Bates	592,590	Oct. 26	3199	661	81	725
Car-coupling draw-bar attachment	H. C. Williamson and H. Pries	593,288	Nov. 9	981	237	81	1011
Car-coupling unlocking device	W. F. Richards	592,895	Nov. 2	238	54	81	853
Car-door	J. M. Smith	594,916	Dec. 7	129	32	81	1646
Car-door fastening. Mine	F. C. Hockensmith	593,938	Nov. 16	2160	512	81	1252
Car-door lock	J. Blankart	596,101	Dec. 28	2199	521	81	2110
Car draft-beam attachment. Railway	M. J. Hoey	593,097	Nov. 2	604	145	81	925
Car draft mechanism. Railway	J. B. Thomas	594,579	Nov. 30	3380	771	81	1506
Car draw-bar platform. Railway	T. L. McKeen	594,801	Dec. 7	77	21,22	81	1636
Car driving-gear. Motor	F. Kramer	593,945	Nov. 16	2169	515	81	1255
Car. Dumping	O. C. Bauer	591,585	Oct. 12	1167	274 275	81	253
Car-dumping apparatus	G. T. Dixon	591,387	Oct. 12	821	191	81	187
Car extension-step. Railway	G. W. Hessler	594,089	Nov. 23	2400	570	81	1317
Car-fender	A. F. Barro	595,899	Dec. 21	1773	426	81	2005
Car-fender	C. E. Brown and G. H. Smith	594,851	Dec. 7	19	5	81	1635
Car-fender	T. H. Campbell	592,950	Nov. 2	350	82	81	876
Car-fender	W. L. Dickerson and J. A. Towne	595,095	Dec. 7	459	110	81	1705
Car-fender	J. P. Duval	595,516	Oct. 26	3029	681	81	704
Car-fender	J. A. Farlow and J. Strayer	595,879	Dec. 14	933	226	81	1890
Car-fender	W. R. Forbes	593,014	Nov. 2	463	111	81	897
Car-fender	A. H. Geltz	590,975	Oct. 5	40	9	81	10
Car-fender	O. F. Jarvis and H. C. Jones	595,105	Dec. 7	474	114	81	1708
Car-fender	C. F. Maisch. (Reissue)	11,637	Nov. 9	1466	357	81	1101
Car-fender	E. Sherwood	594,434	Nov. 30	3009	707 708	81	1458
Car-fender	R. A. Stuart	593,137	Nov. 2	669	160	81	938
Car-fender	E. Tortoiseshell	593,555	Oct. 26	3164	659	81	718
Car-fender	H. W. Weiss	593,143	Nov. 2	678	162	81	940
Car-fender	G. Wiemers	596,196	Dec. 28	2353	559	81	2139

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Car-fender brake-actuating mechanism	W. C. Ferguson and G. P. Glenn	594,940	Dec. 7	160	39	81	1651
Car fender or guard. Tram-	O. A. Sutherland	595,356	Dec. 14	997	218	81	1812
Car fender or guard. Tramway-	J. F. Ayres	595,362	Dec. 14	905	220	81	1814
Car fender or guard. Tramway-	D. Dotson	592,241	Oct. 26	2293	541	81	515
Car fender. Street-	C. D. Dorman	594,988	Dec. 7	157	38,39	81	1651
Car fender. Tramway-	W. J. Calvert	594,855	Dec. 7	26	7	81	1626
Car-frame	W. E. Coffin	591,186	Oct. 5	443	105	81	84
Car-frame	W. E. Coffin	591,187	Oct. 5	444	106	81	85
Car-frame	E. M. Roberts and E. C. Spalding	592,171	Oct. 19	2172	512	81	471
Car-frame draft-rigging	L. C. Kendall	594,022	Nov. 23	2302	544	81	1298
Car. Freight-	A. C. Mather	593,674	Nov. 16	1666	408	81	1159
Car. Furniture-	J. Wright	593,266	Nov. 9	947	229	81	1005
Car grain-door. Freight-	J. S. Savage, Jr., and G. R. Taylor	592,919	Nov. 2	288	67	81	863
Car hand-strap	S. J. Brown	594,456	Nov. 30	3049	716	81	1459
Car-mover	G. W. Zern and M. H. Milhone	593,632	Nov. 16	1621	391	81	1147
Car-mover	W. McMahon	596,302	Dec. 28	2527	602	81	2171
Car-operating mechanism. Dumping-	T. L. McKeen	593,676	Nov. 16	1669	408	81	1160
Car platform-truss	B. Oppenheimer	592,639	Oct. 26	3297	685	81	744
Car-protecting door. Express-	W. H. Thomas	593,340	Nov. 9	1071	259	81	1029
Car push-bar. Trolley-	J. Andrews	596,327	Dec. 28	2399	567	81	2149
Car. Railway-	J. G. Lawler	592,932	Nov. 2	315	72, 73	81	869
Car. Railway-	W. C. Flannery	596,027	Dec. 21	2063	490, 491	81	2065
Car recorder. Sleeping-	T. Eubank	591,665	Oct. 12	1304	305, 306	81	281
Car-roof	E. N. Gilfillan	592,247	Oct. 26	2302	542	81	517
Car-seat	H. S. Hale	595,624	Dec. 14	1333	321, 322	81	1901
Car-seat	J. S. Johnston	596,434	Dec. 28	2779	657	81	2223
Car-seat	R. Rochester	595,415	Dec. 14	1008	241, 242	81	1882
Car-seat head-rest	J. B. Strauss	594,108	Nov. 23	2427	576, 577	81	1322
Car section-partition. Sleeping-	F. T. Reese and C. A. Willis	595,307	Dec. 7	649	155, 156	81	1740
Car-signal	C. C. Jones	596,090	Dec. 21	2071	492, 493	81	2067
Car-signal	C. E. Miller	592,158	Oct. 19	2150	508	81	468
Car. Single-rail-railway	F. W. Dunton	592,966	Nov. 2	205	47	81	847
Car-stake	J. S. Miller	593,229	Nov. 9	893	215	81	994
Car-starter	A. Prim	594,556	Nov. 30	3242	761	81	1497
Car-starter	G. D. Rowell	591,498	Oct. 12	1007	235	81	223
Car. Stock-	I. Davisson	595,151	Dec. 7	549	132, 133	81	1722
Car. Street-	G. F. Brown	592,749	Oct. 26	3514	738, 739	81	785
Car-switch-operating mechanism	J. Lamontagne	591,283	Oct. 5	534	127	81	101
Car switch-operating mechanism	M. M. Tremblay	594,715	Nov. 30	3549	826	81	1560
Car truss-brace. Railway-	M. G. Hubbard, Jr.	594,798	Nov. 30	3696	861	81	1589
Car truss-brace. Railway-	E. Peckham	595,784	Dec. 21	1607	388	81	1972
Car-ventilator	A. J. McArthur	595,127	Dec. 7	518	124	81	1716
Car vestibule. Railway-	T. L. McKeen	595,279	Dec. 7	772	190, 191	81	1763
Car-wheel and track therefor	C. Lachenmaier	593,419	Nov. 9	1203	291	81	1052
Car-wheel-grinding machine	C. E. Norton	596,336	Dec. 28	2589	616	81	2184
Car-window	S. H. Boltz	592,980	Nov. 2	413	97	81	887
Cars. Automatic coupling for steam and air pipes for railway	J. E. Marble	592,521	Oct. 26	3100	632, 633	81	705
Cars. Automatic latch mechanism for dumping	J. A. and A. J. Morrison	592,063	Oct. 19	1968	468	81	436
Cars. Controller for motors and brakes of electric	A. Grossman	594,946	Dec. 7	173	42	81	1653
Cars, &c. Differential speed and reversing gear for motor and tram	G. G. M. Hardingham	593,652	Nov. 16	1652	400	81	1153
Cars. Electric motor for street-	C. E. Emery	592,965	Nov. 2	389	91	81	882
Cars. Switch-operating attachment for street-railway	E. L. Bullock	592,862	Nov. 2	200	46	81	847
Caramel-wrapping machine	M. Hofheimer	594,796	Nov. 30	3689	859, 860, 861	81	1587
Carbon-holder for arc-lights	O. S. Moss	591,486	Oct. 12	989	233	81	219
Carbureter	H. G. Balkam	592,579	Oct. 26	3196	660, 661	81	725
Carbureter	N. Z. Seitz	595,658	Dec. 14	1387	334	81	1913
Carbureter	F. W. Spacke	593,284	Nov. 9	973	225	81	1009
Carbureting calcium. Process of and apparatus for	H. L. Hartenstein	594,740	Nov. 30	3598	836, 837	81	1570
Carding-engine	J. Edge	592,726	Oct. 26	3465	726	81	777
Carding-engines. Grinding mechanism for flats of traveling-flat	C. Whitaker	594,975	Dec. 7	220	54, 55, 56	81	1662
Carding-machine automatic feeding mechanism	H. Field, Jr	592,135	Oct. 19	2116	501	81	461
Carding-machine feeding mechanism	R. J. Hill	592,706	Oct. 26	3434	718, 719	81	771
Carousel	T. D. Holcomb	592,870	Nov. 2	211	49	81	848
Carousel	A. Koehler	593,177	Nov. 2	772	185, 186	81	959
Carousel	P. J. Spracklen	591,507	Oct. 12	1018	238	81	225
Carousel	T. B. Tinney	596,349	Dec. 28	2508	618	81	2186
Carpet-beater	W. J. Bennett	592,559	Oct. 26	3169	653	81	719
Carpet-beater	J. T. Wye	592,267	Oct. 26	2330	550	81	523
Carpet-cleaner	W. M. Coonradt	596,431	Dec. 28	2772	656	81	2221
Carpet-fastener	W. T. Danner	593,201	Nov. 9	818	195	81	982
Carpet fastener. Stair-	M. E. Hall	593,212	Nov. 9	846	203	81	988
Carpet-stretcher	C. T. Bucher	591,080	Oct. 5	162	37	81	84
Carpet-stretcher	J. E. Drake	591,826	Oct. 19	1563	370	81	354
Carpet-stretcher	P. A. Lawyer	593,898	Nov. 16	3091	495	81	1229
Carpet stretcher and tacker	G. W. Ansley and C. C. May	595,845	Dec. 21	1715	412	81	1908

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Carriage	A. E. Andreae	595,687	Dec. 21	1432	346	81	1939
Carriage and chair. Combination baby-	A. H. Loebs	594,027	Nov. 23	2308	545, 546	81	1299
Carriage attachment. Baby-	C. Blakely	595,189	Dec. 7	534	128	81	1719
Carriage attachment. Baby-	J. Yehle	594,311	Nov. 23	2774	656	81	1389
Carriage. Baby-	V. Eriksson	594,782	Nov. 30	3667	854	81	1583
Carriage-body hanger	S. R. Bailey	595,133	Dec. 7	526	126	81	1717
Carriage fan attachment. Baby-	C. C. Penick and R. L. Nash	593,687	Nov. 16	1702	411	81	1162
Carriage. Folding	B. R. Hall and A. Anderson	595,886	Dec. 14	944	228	81	1822
Carriage. Folding baby-	C. D. Chandler	591,158	Oct. 5	391	91, 92	81	75
Carriage. Folding baby-	J. C. Craig and W. Taylor	592,079	Oct. 19	2009	476	81	441
Carriage. Folding baby-	J. A. Crandall	593,924	Nov. 16	2135	506	81	1248
Carriage. Folding child's	J. L. Crowley	595,150	Dec. 7	548	132	81	1722
Carriage. Motor-	R. E. Olds	594,338	Nov. 23	2825	669	81	1308
Carriage or cycle motor	W. C. Smith	593,248	Nov. 9	919	222	81	999
Carriage-spring	S. R. Bailey	596,313	Dec. 28	2546	606	81	2176
Carriage spring-gear	J. H. Caffrey	593,831	Nov. 16	1977	465	81	1215
Carriage-top support	E. Gallaway	594,943	Dec. 7	166	40	81	1652
Carriages. Motor mechanism for horseless	J. H. Auble	594,511	Nov. 30	3156	739	81	1481
Carriages. Safety device for hoisted	H. Baines and A. E. Pelham	595,987	Dec. 21	1996	474	81	2049
Carrier: *See* Berry-carrier. Bicycle luggage-carrier. Hay-carrier. Parcel-carrier.							
Cart. Coal-	F. D. F. Müller	593,305	Nov. 9	1013	243, 244	81	1018
Cart. Coal-	F. D. F. Müller	593,306	Nov. 9	1014	244, 245	81	1018
Cartridge-cases. Die for making	W. Mason	592,095	Oct. 19	2047	483	81	443
Cartridge-feed belt	L. V. Benét and H. A. Mercié	595,518	Dec. 14	1172	281, 282	81	1866
Case: *See* Egg-case. File-case. Filing-case. Manuscript-case. Pencil-sterilizing case. Pocket-case. Shipping-case. Ticket-case.							
Cash-drawer register	E. W. Pitcher	592,208	Oct. 19	2223	526	81	482
Cash-receptacle	A. C. Sine	594,298	Nov. 23	2747	649, 650	81	1384
Cash-register	W. J. Ensworth	591,748	Oct. 19	1425	335, 336	81	306
Cash-register	A. Macauley	595,882	Dec. 21	1799	432	81	2011
Cash-register	C. McNabb	591,176	Oct. 5	428	102	81	81
Cash register, indicator, and check-printer	W. H. Clark	596,359	Dec. 28	2628	625, 626, 627, 628	81	2198
Cash-register key mechanism	W. H. Clark	596,360	Dec. 28	2648	628, 629	81	2196
Cash-register locking mechanism	E. A. Bedient	596,452	Dec. 28	2811	663	81	2229
Cashier-protector	W. Martin	596,005	Dec. 21	2007	479	81	2054
Cashier-protector	J. A. Murray and T. Ivens	593,752	Nov. 16	1826	437, 438	81	1185
Casing-head packer	J. E. Martin	595,574	Dec. 14	1261	302	81	1866
Casket	H. T. Loomis	591,781	Oct. 12	1485	351, 352	81	318
Casket	H. T. Loomis	592,799	Nov. 2	75	17	81	821
Caster	W. H. Coldwell	595,526	Dec. 14	1192	286	81	1870
Caster	D. Hunt	594,017	Nov. 23	2295	542	81	1296
Caster	W. H. Tucker	592,484	Oct. 26	3045	620	81	694
Caster-case	L. B. Denton	594,937	Dec. 7	156	38	81	1650
Caster-wheel	J. Harrington	592,201	Oct. 19	2217	524	81	480
Casting apparatus	F. W. Wood	594,583	Nov. 30	3289	772, 773	81	1507
Casting composite or other wheels	E. R. Robinson	594,286	Nov. 23	2720	643, 644	81	1379
Casting machine. Ingot-	J. Illingworth	594,157	Nov. 23	2515	595, 596	81	1340
Castings. Machine for drilling and tapping metal	J. D. Tejada	593,622	Nov. 16	1598	384, 385	81	1144
Catamenial sack	E. Parker	595,861	Dec. 21	1740	419	81	1999
Catching and holding tool	J. C. Vickrey	592,080	Oct. 19	1914	455	81	423
Cattle-guard	C. C. Kiefer and L. J. Evert	596,004	Dec. 21	2006	479	81	2054
Ceiling-block	T. C. Swinnerton	592,462	Oct. 26	3041	619	81	694
Cement	C. F. Lawton	594,113	Nov. 23	2443	.....	81	1325
Cement-kiln	H. Campbell	591,813	Oct. 19	1541	364	81	350
Cement manufacture	V. Kjeldsen	592,402	Oct. 26	3055	.....	81	697
Centerboard for boats, &c	J. W. Gibb	595,161	Dec. 7	567	137	81	1726
Centerboard for yachts	J. Northup	596,083	Dec. 28	2167	513	81	2108
Centrifugal machine	J. Laidlaw	591,770	Oct. 12	1463	345	81	313
Centrifugal machine	J. Laidlaw and C. A. Matthey	592,147	Oct. 19	2134	505	81	464
Centrifugal machine	E. G. N. Salenius	596,338	Dec. 28	2591	617	81	2184
Centrifugal machine	J. Schroeder	593,423	Nov. 9	1209	293	81	1054
Centrifugal machine	J. M. Thurston	596,389	Dec. 28	2606	630	81	2205
Centrifugal-machine control apparatus	A. E. Krause	592,546	Oct. 26	3146	647, 648	81	715
Chain	J. N. McIntire	593,811	Nov. 16	1931	459	81	1205
Chain and chain-link	H. B. Morris	594,959	Dec. 7	194	46	81	1657
Chain, Bicycle-	H. Harrington	594,010	Nov. 23	2285	540	81	1294
Chain-bucket elevator	C. Schlickeysen	591,085	Oct. 5	255	60, 61	81	51
Chain. Cycle or other drive-	L. S. Crandall	591,819	Oct. 19	1554	367	81	352
Chain. Drive-	E. F. Morse	592,592	Oct. 26	3160	651	81	718
Chain. Drive-	D. Parry	593,695	Nov. 16	1700	411	81	1162
Chain. Endless screw-	J. Wolander	595,508	Dec. 14	1161	270	81	1864
Chain. Mortising-machine	D. Parry	593,694	Nov. 16	1699	411	81	1162
Chain. Sprocket-	J. McCormick	594,416	Nov. 30	3977	700	81	1445

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Chain. Sprocket-	J. B. Powell	592,713	Oct. 26	3446	722	81	773
Chain. Sprocket-wheel	G. W. Bufford	595,987	Dec. 21	1898	452	81	2031
Chains. Auxiliary link for bicycle drive-	J. P. Browning	592,275	Oct. 26	2343	553	81	526
Chains. Coupling-link for repairing drive-	F. Barnhart	593,872	Nov. 16	3055	484	81	1231
Chains. Manufacture of bicycle-	H. Harrington	594,009	Nov. 23	2282	540	81	1294
Chair: *See* Baby-chair. Folding chair. Nursery-chair. Revolving chair. Rocking-chair. Specialist's chair. Window-chair.							
Chair	J. B. White	593,086	Nov. 2	502	122	81	994
Chair	H. M. Willis	593,263	Nov. 9	940	228	81	1003
Chair attachment	I. B. Archer	595,450	Dec. 14	1061	255	81	1844
Chair fan attachment. Rocking-	P. H. Masterson	591,237	Oct. 5	545	129	81	104
Chair mirror attachment	R. L. Cochran and A. M. Banks	593,043	Nov. 2	509	123	81	906
Chairs, &c. Locking device for adjustable	T. W. Washburn	595,840	Dec. 21	1708	410 411	81	1992
Chairs. Mechanism for spring-back	C. E. Davis	594,679	Nov. 30	3488	812	81	1547
Chandelier attachment	F. Fisher	592,771	Nov. 2	29	7	81	812
Chart. Dress-	M. D. Leu	595,239	Dec. 7	717	175	81	1762
Check. Cash-	J. D. Gibbs	594,244	Nov. 23	2650	628	81	1365
Check-hook	A. F. Kiehl	596,116	Dec. 28	2221	527	81	2114
Check-protector	G. W. Beebe	594,319	Nov. 23	2765	658	81	1391
Checkrein-fastener	H. J. Ellers	591,462	Oct. 12	944	223	81	813
Checkrein-holder	W. Gano and J. S. Stimmel	593,048	Nov. 2	517	124	81	908
Checkrein-hook	J. T. Anderson	595,430	Dec. 14	1053	247	81	1837
Checkrein-hook	J. R. Gump	595,566	Dec. 14	1242	300	81	1880
Checkrein-hook	J. H. Nicholes	592,573	Oct. 26	3187	658	81	723
Checkrein-retainer	J. B. Rogers and W. H. Hall	592,533	Oct. 26	3125	699	81	711
Checks. Machine for indelibly marking values on	L. H. Hicks	593,656	Nov. 16	1657	402	81	1154
Cheese-cutter	E. D. McLaughlin	592,817	Nov. 2	120	26	81	831
Cheese-cutter	A. Saunders	593,496	Nov. 9	1337	324 325	81	1060
Cheese-cutting apparatus	A. Ball	593,635	Nov. 16	1624	392	81	1148
Cheese-cutting machine	J. Levey	591,671	Oct. 12	1314	308	81	283
Cheese-rack	G. J. Liezen	593,771	Nov. 16	1858	445 446	81	1192
Cheese-vat	A. Loughin and E. L. Fox	595,955	Dec. 21	1983	462	81	2088
Chest	J. H. Way	593,954	Nov. 16	2184	518	81	1257
Chest and neck protector	W. H. Thomas	595,797	Dec. 21	1623	391 392	81	1975
Chestnut-perforator	A. Lemke	593,303	Nov. 9	1010	243	81	1017
Chimney	O. Herrmann	593,096	Nov. 2	603	144	81	924
Chimney and reflector therefor	J. W. Hunt	594,877	Dec. 7	55	14	81	1633
Chimney-cowl	B. B. Lewis	594,257	Nov. 23	2672	633	81	1309
Chimney-top draft-regulator	D. F. Gerbereux	596,153	Dec. 28	2265	541	81	2126
Chocolate-dipping tray							
Chopper: *See* Cotton-chopper. Food-chopper. Meat-chopper.							
Chopping-board	J. B. Biles	595,757	Dec. 21	1561	377	81	1962
Chopping-machine	J. C. Hall	595,887	Dec. 14	946	228 229	81	1822
Christmas-tree holder	M. Silverman	594,491	Nov. 30	3120	731	81	1474
Chronosphygmometer	O. H. Woodworth	596,293	Dec. 28	2506	596	81	2167
Chuck	T. R. Almond	594,567	Nov. 30	3300	775	81	1509
Chuck	L. Bartlett	595,363	Dec. 14	907	220	81	1814
Chuck	W. C. Obernesser	593,661	Nov. 16	1694	410	81	1161
Chuck	C. L. Teske	594,919	Dec. 7	133	33	81	1646
Chuck	M. Johnson	592,912	Nov. 2	279	64	81	862
Chuck. Centering drill-	E. V. Gauthier	594,077	Nov. 23	2394	568	81	1316
Chuck. Screw-machine	I. Barker	591,066	Oct. 5	261	62	81	52
Chuck. Tool-	F. W. Alden	593,317	Nov. 9	1083	250	81	1022
Churn	J. Bennett	592,216	Oct. 19	2284	529	81	483
Churn	A. Hazelton	595,627	Dec. 14	1337	323	81	1902
Churn	S. T. Muffly	592,812	Nov. 2	99	22	81	826
Churn	J. E. Nohr	596,062	Dec. 28	2166	513	81	2103
Churn	O. B. Paulsen	591,498	Oct. 12	997	233 234	81	221
Churn	J. H. Poulter	594,280	Nov. 23	2712	640	81	1378
Churn	J. J. Ryan	592,999	Nov. 2	440	104 105	81	892
Churn	J. Weggeman	594,928	Dec. 7	136	34	81	1647
Churn	H. J. Anderson	590,951	Oct. 5	3	1	81	3
Churn and butter-worker. Combined	H. H. Sheely	592,175	Oct. 19	2180	514	81	472
Churn-dasher	J. Staples and W. H. Spake	593,000	Nov. 2	441	105	81	893
Churn-motor	J. P. Bolding	590,959	Oct. 5	17	4	81	6
Churn-propeller	G. W. Turner	591,364	Oct. 5	769	181	81	147
Chute. Coal-	J. W. Mohler and J. L. Foltz	595,643	Dec. 14	1366	339	81	1908
Chute. Stock-	W. Rodenhausen	591,057	Oct. 5	210	49	81	42
Chute. Wagon-	C. A. Coey	595,989	Dec. 21	1901	453	81	2031
Cigar-box attachment	S. A. Shepard	591,361	Oct. 5	764	179 180	81	146
Cigar-bunch-making machine	T. A. Cole	592,106	Oct. 19	2066	498	81	451
Cigar clipper and register. Combined	A. Chatelan	594,677	Nov. 30	3486	812	81	1547
Cigar-lighting composition	J. R. Williams	595,799	Dec. 21	1627	393 394 395	81	1976
Cigar-making machine	N. Du Brul	592,627	Oct. 26	3282	681	81	741
Cigar-mold	G. B. Schmidt	595,114	Dec. 7	499	119	81	1712
Cigar or cigarette holder	N. Du Brul	593,879	Nov. 16	2064	487 488	81	1233
Cigar or cigarette wrapper cutter	N. Du Brul,	593,878	Nov. 16	2062	486 487	81	1232
Cigar or cigarette wrapper cutting machine	T. H. Ross	591,297	Oct. 5	645	152	81	126
Cigar-tip cutter	S. E. Ball	591,523	Oct. 12	1057	248	81	281
Cigar-tip cutter and match box and lighter							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cigar-wrapper-cutting machine	P. Veraci	594,885	Nov. 30	3763	877 878	81	1602
Cigars. Machine for cutting out wrappers or binders for	J. R. Williams	594,507	Nov. 30	3146	737 738	81	1479
Cigarette-holder	G. Hara	591,471	Oct. 12	955	226	81	214
Cigarette-machine	J. S. Detrick	592,964	Nov. 2	883	89 90 91 173 174	81	882
Cigarette-machine	G. Geer	593,158	Nov. 2	725	175 176 177	81	950
Cigarette-machine	G. H. and F. D. Hayden	595,474	Dec. 14	1102	265 266 267	81	1852
Cigarette-machines. Mechanism for feeding and measuring tobacco for	H. Bilgram	594,374	Nov. 30	2888	682	81	1429
Cigarette machinery	J. A. Bonsack and H. Bilgram	594,375	Nov. 30	2893	683 684	81	1430
Cigarette-making device	J. H. Tabler and F. T. Gracey	593,822	Nov. 16	1965	463	81	1212
Cigarette-making machine	A. Huelsmann	594,799	Nov. 30	3098	661	81	1590
Cigarette-making machine	J. H. Venners	593,385	Nov. 9	1144	276 277 278	81	1042
Cigarette pressing and cutting machine	E. Georgii	591,250	Oct. 5	564	133	81	107
Cigarette-rolling device	J. A. Sweeting	594,501	Nov. 30	3136	734	81	1477
Cigarettes, &c. Holder for	H. H. Kerr	591,845	Oct. 19	1586	378	81	359
Cigarettes, &c. Holder for	H. H. Kerr	591,846	Oct. 19	1588	378	81	359
Cinder-extractor	P. G. Leonard	592,011	Oct. 19	1887	449 450	81	418
Circuit. Automatic test-	L. G. Rowand	591,010	Oct. 5	111	25	81	24
Circuit block. Multiple-	D. A. Schutt	595,078	Dec. 7	422	101	81	1698
Circuit-breaker. Automatic	W. G. Lowrie	593,481	Nov. 9	1309	317	81	1074
Circuit-breaker. Automatic magnetic	W. M. Scott	592,100	Oct. 19	2053	485	81	449
Circuit-breaker. Electromagnetic	D. C. Spruance and M. Waddell	593,167	Nov. 2	754	180	81	956
Circuit breaker. Magnetic-	D. M. Moore	593,230	Nov. 9	895	216	81	995
Circuit-breakers. Contact in shunt for	W. M. Scott	592,497	Oct. 26	3061	622 623	81	698
Circuit-controller. Automatic	C. W. Price	594,034	Nov. 23	2319	548	81	1301
Clamp: *See* Bedstead-clamp. Bell-clamp. Curtain-clamp. Garment-supporter clamp. Hose-coupling clamp. Jeweler's clamp. Stovepipe-clamp. Veil-clamp. Velocipede saddle-clamp. Wire-clamp.							
Clamp	R. T. Palmer, Jr., and F. W. Mercer	591,431	Oct. 12	872	204	81	198
Clamp or fastening device for lines	C. C. Springer	594,126	Nov. 23	2466	584	81	1830
Clamping-machine	H. C. Doman	594,610	Nov. 30	3343	784 785	81	1517
Clasp	A. Shedlock	594,568	Nov. 30	3263	766	81	1502
Clasp	A. Shedlock	594,569	Nov. 30	3266	766	81	1502
Claw-bar	J. Lindgren	591,172	Oct. 5	413	97	81	79
Clay, &c. Apparatus for molding	H. Sturm	591,802	Oct. 5	650	153	81	123
Clay. Machine for preparing	P. Arnold	594,672	Nov. 30	3480	810	81	1545
Clay, &c. Machine for working	G. E. Taylor	595,857	Dec. 14	898	218	81	1812
Cleaner: *See* Bicycle spoke-cleaner. Boiler-cleaner. Boiler-tube cleaner. Boiler water-tube cleaner. Carpet-cleaner. Dish-cleaner. Flat-iron cleaner. Flue-cleaner. Grain-cleaner. Gun-cleaner. Rail-cleaner. Railway track-cleaner. Track-cleaner. Vessel-cleaner. Window-cleaner.							
Cleansing clothing or textile fabrics. Mechanism for	J. W. Wright and H. H. Burkes	595,982	Dec. 21	1890	451	81	2029
Clevis. Cross-	J. L. Thomas	595,508	Dec. 14	1151	277	81	1862
Clip for securing sleepers to beams	J. H. Preston	594,555	Nov. 30	3340	760	81	1497
Clip for tentering, stretching, and drying machinery	J. and W. Horton	592,707	Oct. 26	3437	719 720	81	772
Clipper. Hair-	P. Faracchio	592,770	Nov. 2	27	6	81	812
Clipper or shears. Grape or flower	T. J. Forde	594,072	Nov. 23	2389	566	81	1315
Clock	J. Schulte, Jr.	594,654	Nov. 30	3454	803	81	1540
Clock-base	W. H. Wright	594,309	Nov. 23	2769	655	81	1368
Clock. Chiming	W. E. Porter	592,614	Oct. 26	3257	674 675	81	736
Clock. Eight-day alarm-	W. Dupen	596,146	Dec. 28	2275	539 540	81	2124
Clock. Electric	S. Fischer	595,911	Dec. 21	1854	443 444	81	2023
Clock. Electric	C. Gullberg	591,217	Oct. 5	505	120	81	96
Clock. Geographical	H. Margolis	594,410	Nov. 30	2902	698	81	1448
Clock. Program-	J. Davidson	595,767	Dec. 21	1579	361	81	1966
Clock repeating mechanism	G. W. Anderson	593,184	Nov. 9	785	189	81	975
Clocks. Fire-lighting attachment for	W. Guilmet and J. Le Blanc	595,773	Dec. 21	1590	364	81	1968
Clod-cutter	P. R. Campbell	595,117	Dec. 7	503	120	81	1713
Closet: *See* Dry closet.							
Cloth-cutting machine	G. Swope	595,084	Dec. 7	433	103	81	1700
Cloth-cutting machine	J. Wolf, Jr	593,265	Nov. 9	943	228 229	81	1004
Cloth-guiding machine	J. J. Scholfield	593,550	Nov. 9	1444	351	81	1097

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clothes-bag. Moth-proof	F. W. Baehn	593,346	Nov. 9	1077	260	81	1030
Clothes-drainer. Washboiler	L. Cooke	593,271	Nov. 9	954	231	81	1006
Clothes-drier	C. B. Baker	593,186	Nov. 9	791	189	81	977
Clothes-drier	C. M. Biddle	593,797	Nov. 16	1914	455	81	1202
Clothes-drier	J. J. Bisel	593,079	Nov. 2	573	138	81	918
Clothes-drier	J. P. Hill	595,947	Dec. 21	1918	458	81	2034
Clothes-drier	H. C. Eakin	590,971	Oct. 5	34	8	81	9
Clothes-line	G. S. Velle	593,256	Nov. 9	931	225	81	1001
Clothes-line fastener	H. Catlin	591,795	Oct. 12	1501	356	81	322
Clothes-line holder	G. M. Hughes	593,745	Nov. 16	1816	435	81	1183
Clothes-line holder	E. Noll	590,290	Oct. 5	637	150	81	121
Clothes-line holder. Portable	W. R. Hanretty	592,969	Nov. 2	399	93	81	884
Clothes-line support	C. L. Schwalm	592,099	Oct. 19	2051	484	81	448
Clothes-line support	A. J. Sexton	591,198	Oct. 5	464	110	81	68
Clothes-pin	W. R. Allen	593,078	Nov. 2	564	135	81	916
Clothes-pounder	F. B. and J. L. Schofield	594,907	Dec. 7	113	29	81	1643
Clothes-pounder	W. A. Pursley	596,380	Dec. 28	2684	636	81	2208
Clothes-rack	P. Irons	592,202	Oct. 19	2218	524	81	490
Clothes-wringer	C. W. Reeves and C. W. Lentz	591,295	Oct. 5	643	151	81	122
Clothes-wringer	H. U. Ackerman	594,454	Nov. 30	3047	715	81	1459
Clothes-wringer clamp	A. A. Coe	595,993	Dec. 21	1906	475	81	2051
Clutch	W. H. Lafaelle	591,080	Oct. 5	250	59	81	50
Clutch	C. B. Schultz	593,313	Nov. 9	1029	248	81	1021
Clutch	E. Waldron	595,223	Dec. 7	668	161	81	1744
Clutch. Friction	T. J. Fay	593,571	Nov. 16	1504	365	81	1126
Clutch. Magnetic	A. J. Mason and F. K. Hoover	591,047	Oct. 5	194	45, 46	81	39
Coal-beds. Method of and apparatus for stripping	C. O. Palmer	594,898	Dec. 7	95	25, 26	81	1639
Coal-cutting machine	H. N. Fliedner	591,596	Oct. 12	1184	279	81	257
Coal-handling device	R. Thew	593,062	Nov. 2	540	129	81	912
Coal, ore, &c. Machine for handling	G. H. Bittenbender	591,204	Oct. 5	478	113	81	90
Coal or rock drill	T. Appleton	596,163	Dec. 28	2248	533, 534	81	2119
Coaling-station	L. Graner	592,200	Oct. 19	2216	524	81	480
Coat	G. Listmann	592,149	Oct. 19	2136	505	81	464
Coat	E. B. Sankey	595,253	Dec. 7	740	181	81	1757
Coat and hat rack	J. H. Chambers	595,670	Dec. 14	1410	341	81	1917
Coat and umbrella suspending rack	L. H. Naylor	596,176	Dec. 28	2319	550	81	2131
Coat-hanger	J. D. Watts	595,358	Dec. 14	900	218	81	1813
Coat-support	A. W. Keim	595,066	Dec. 7	400	.....	81	1694
Coating walls, &c	T. J. Ryan	591,884	Oct. 19	1645	398	81	372
Cock box. Stop	W. F. Washburn	591,107	Oct. 5	297	72, 73	81	59
Cock for toilet-basins or bath-tube. Water	G. Johnson	595,123	Dec. 7	513	122	81	1715
Cock. Gage	R. B. Mullen	595,866	Dec. 21	1805	433	81	2012
Cock lock. Stop	J. B. Richards	595,921	Dec. 21	1874	448	81	2027
Cock or valve for gas, &c. Self-closing	C. F. Smith	594,161	Nov. 23	2522	597	81	1341
Cock. Right and left hand stop and waste	C. F. Smith	594,162	Nov. 23	2524	597	81	1341
Cock. Right and left hand stop and waste	R. Busse	595,142	Dec. 7	538	129	81	1720
Cock. Safety gas	T. L. Banks	596,314	Dec. 28	2546	607	81	2176
Cock, tap, or valve for facilitating attachment to casks, tanks, &c.	N. Cline and J. Farrell	594,229	Nov. 23	2629	622	81	1360
Cocks, valves, &c. Lock for stop	H. L. Mitchell	593,277	Nov. 9	963	233	81	1007
Coffee-pot	J. R. Okell	593,163	Nov. 2	746	179	81	954
Coffee-roasting apparatus	B. Tupholme	591,307	Oct. 5	657	155, 156	81	125
Coffee-roasting apparatus	F. J. Park	591,786	Oct. 12	1490	353	81	319
Coffee-warmer	E. L. Snader	595,461	Dec. 14	1079	259	81	1848
Coffin	E. L. Snader	595,462	Dec. 14	1079	259	81	1848
Coffin	E. A. Post	593,239	Nov. 9	906	219	81	997
Coffin-handle	F. L. Higgins	594,110	Nov. 23	2437	579	81	1325
Cog wheel. Ball-bearing roller	W. Alexander and W. E. Thompson.	593,152	Nov. 2	708	167	81	947
Coin-actuated apparatus	B. F. Wyman	595,509	Dec. 14	1162	279	81	1864
Coin-box	R. E. Ebersole	592,004	Oct. 19	1873	447	81	415
Coin-controlled apparatus	C. Spiro	593,181	Nov. 2	654	157	81	935
Coin-controlled apparatus	J. Turner-Turner	591,511	Oct. 12	1021	239	81	226
Coin-freed goods-delivery apparatus	J. L. Blodgett	593,919	Nov. 16	2126	504	81	1248
Coin-operated machines. Electrical switchboard for	J. N. Crabb	593,800	Nov. 16	1918	456	81	1208
Coin-transmitter	R. L. Chope	595,763	Dec. 21	1571	379	81	1964
Coin-wrapper	L. Frankenstein	593,998	Nov. 23	2265	536	81	1291
Collar and cravat	A. L. Durrin and F. I. Rourke	594,387	Nov. 30	2922	689	81	1435
Collar and cuff pasting machine	H. L. Gulline, W. Schwegel, and J. Connolly.	596,423	Dec. 28	2761	653	81	2219
Collar. Horse	J. S. Hainsworth	591,758	Oct. 12	1444	340	81	310
Column or post	J. W. Rapp	596,217	Dec. 28	2365	564	81	2145
Comb: *See* Currycomb. Self-cleaning comb.							
Comb-gage attachment for scissors or shears	S. Goldner	595,470	Dec. 14	1004	238	81	1851
Combination-lock	E. and L. Irwin	596,164	Dec. 28	2239	545	81	2128
Combination-lock	W. L. Love	594,208	Nov. 23	2507	614	81	1354
Combination-lock	M. H. Smith	596,185	Dec. 28	2333	554	81	2135
Combination-lock	J. H. Warner	594,447	Nov. 30	3035	718	81	1457
Combination-wrench	W. Devaun	595,239	Dec. 14	791	195	81	1793
Commode. Sanitary	C. W. Grant	594,789	Nov. 30	3078	857	81	1586
Communion-service. Individual	I. K. Bean	596,354	Dec. 28	2619	623, 624	81	2191
Commutator	C. J. Greiner	594,687	Nov. 30	3499	815	81	1549
Commutator-bars. Apparatus for assembling	S. H. Short	593,292	Nov. 9	969	235	81	1009
Commutator end rings. Construction of	S. H. Short	593,293	Nov. 9	971	235	81	1009
Commutator for dynamo-electric machines	J. J. Wood	591,203	Oct. 5	477	118	81	90
Compass. Drafting	F. Coykendall	595,607	Dec. 14	1306	315	81	1896
Compass. Mariner's	O. Kustel	594,803	Nov. 30	3713	865	81	1593
Compound engine	A. J. Pitkin	592,823	Nov. 2	127	28	81	832
Compound engine	A. J. Pitkin and J. E. Sague	592,824	Nov. 2	128	28, 29	81	832

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Compressing powdered or granular substances. Machine for	G. W. Huber	593,100	Nov. 2	609	146, 147	81	926
Concentrator	H. L. Elton	591,335	Oct. 5	708	167	81	136
Condenser or similar apparatus. Self-cooling	L. R. Alberger	590,950	Oct. 5	1	1	81	3
Condiment-box	A. Jenatschke and E. C. Fischer	595,481	Dec. 14	1118	270	81	1855
Conductor-pipe	W. W. Baird	593,185	Nov. 9	790	189	81	976
Conduit. Armored	E. T. Greenfield	595,228	Dec. 7	715	175	81	1732
Conduit. Flexible armored	E. T. Greenfield	593,84[illegible]	Nov. 16	1994	469	81	1218
Confectioner's filling and separating machine	A. Heine and G. S. Mack	593,325	Nov. 9	1049	254, 255	81	1025
Confectioner's slab oiler or greaser	E. Fill, Jr	595,910	Dec. 21	1853	443	81	2022
Confectionery, &c. Machine for coating	L. B. Lehmann	592,568	Oct. 26	3180	656, 657	81	721
Connecting-rod	M. Coughlin	592,487	Oct. 26	3047	620	81	695
Contact device. Traveling	E. Lundqvist	592,150	Oct. 19	2137	506	81	465
Controller	T. von Zweigbergk	592,104	Oct. 19	2092	488	81	450
Conveyer	H. Howson	592,709	Oct. 26	3439	720, 721	81	778
Conveyer-chute valve	C. Piez	591,292	Oct. 5	639	150	81	121
Conveyer. Pneumatic	S. H. Jones	596,211	Dec. 28	2374	562, 563	81	2143
Cooking utensil	F. I. Rogers	594,652	Nov. 30	3449	802	81	1540
Cooking utensil. Steam	S. T. Robertson	593,691	Nov. 16	1710	413	81	1163
Cooler: *See* Head-cooler. Milk-cooler. Liquid-cooler. Wort-cooler.							
Cooling and refrigerating apparatus	B. A. Smith	596,396	Dec. 28	2691	638	81	2205
Coop. Chicken	W. H. Thomas	593,252	Nov. 9	927	224	81	1001
Coop. Folding	J. N. Cornelius	596,141	Dec. 28	2367	557	81	2122
Coop. Poultry	C. W. Bumpass and W. M. McCandlish.	592,194	Oct. 19	2206	521	81	478
Coping or shearing machine. Hydraulic	E. A. W. Jefferies	594,019	Nov. 23	2297	542, 543	81	1297
Copper in single operations. Process of and apparatus for obtaining pure	P. David	595,766	Dec. 21	1577	381	81	1966
Copy device	J. H. McBride	593,234	Nov. 9	900	217	81	996
Copy-holder	J. S. Dudley and S. Fogleson	592,725	Oct. 26	3464	726	81	777
Copy-holder	E. B. Quisenberry	594,558	Nov. 30	3246	762	81	1498
Copy-holder for type-writers, &c	C. E. Brooks	595,140	Dec. 7	535	129	81	1719
Copying-pad	E. R. Hodges	595,657	Nov. 16	1659	402	81	1155
Copying-press	W. J. Ellis	595,398	Dec. 28	2720	644	81	2211
Copying roller. Letter	H. L. Roux	596,090	Dec. 28	2176	515	81	2106
Core. Laminated converter	F. Schwedtmann	594,557	Nov. 30	3458	804	81	1541
Cork and mechanism for producing same. Sheet material of	H. D. Holbrook	595,776	Dec. 21	1593	384	81	1969
Corkscrew	L. C. Stoll	593,698	Nov. 16	1722	416	81	1166
Corkscrew	L. C. Stoll	593,699	Nov. 16	1724	416	81	1166
Corkscrew	L. C. Stoll	593,700	Nov. 16	1725	416	81	1166
Corn-holder	A. J. Marschall and C. Nielsen	594,955	Dec. 7	192	46	81	1657
Corn. Machine for cutting ear	E. L. Dolsen	596,145	Dec. 28	2273	539	81	2124
Corn picker and husker	E. Turnell	596,192	Dec. 28	2344	557	81	2137
Corn-sheller	W. Colwell	595,765	Dec. 21	1573	380	81	1965
Corn-sheller	C. A. White	595,259	Dec. 14	901	219	81	1813
Corn-sheller attachment	J. H. Gilman	593,543	Oct. 26	3141	646	81	714
Corn-sheller cob-stacker	J. H. Gilman	593,111	Oct. 19	2074	490	81	452
Corner-block machine	E. Belden	595,463	Dec. 14	1080	260	81	1848
Corner-brace	J. H. Dyett	594,236	Nov. 30	3766	878	81	1608
Corner-strip for buildings	F. Woods	593,150	Nov. 2	708	166	81	946
Cornet	F. J. Richmand	593,690	Nov. 16	1707	412	81	1163
Corset	I. M. Bond	595,554	Dec. 14	1227	295	81	1878
Corset	C. W. Dodge	595,376	Dec. 14	928	224	81	1819
Corset	A. M. King	594,177	Nov. 23	2543	602	81	1345
Corset	D. Kops	593,397	Nov. 9	1169	282	81	1046
Corset	E. A. and R. A. Warren	594,164	Nov. 23	2526	598	81	1342
Corset	C. E. Woodworth	591,518	Oct. 12	1043	244, 245	81	229
Corset and abdominal supporter	I. Friedman	591,626	Oct. 12	1232	289	81	265
Corset-stiffener	A. A. Adams	595,510	Dec. 14	1163	279	81	1864
Cotton-chopper	R. R. Hyland	591,972	Oct. 19	1909	431	81	403
Cotton-chopper	J. S. Lauderdale	595,397	Dec. 14	965	234	81	1885
Cotton-chopper	F. L. Richter	593,908	Nov. 16	2107	499	81	1242
Cotton-chopper	W. H. Taylor	593,002	Nov. 2	444	106	81	893
Cotton-chopper	D. A. Yarbrough	591,715	Oct. 12	1377	323	81	296
Cotton-chopper	B. L. Hargrove	591,116	Oct. 5	312	77	81	61
Cotton chopper and cultivator	A. T. Snodgrass	594,125	Nov. 23	2462	583, 584	81	1329
Cotton-compressor	A. S. Martin	594,481	Nov. 30	3100	726	81	1471
Cotton-picker	W. A. Turner	593,707	Nov. 16	1788	418, 419, 420	81	1169
Cotton-picking machine	F. L. Dyer	591,334	Oct. 5	700	166, 167	81	134
Cotton-press	M. Swenson	591,304	Oct. 5	659	154	81	124
Cotton-presses. Core and core-operating mechanism for	F. L. Dyer	592,988	Oct. 26	2354	556	81	598
Cotton-stalk puller	J. Hall	595,456	Dec. 14	1071	258	81	1846
Cotton-stalk puller	B. F. Harwood	595,696	Dec. 14	1336	323	81	1901
Couch. Adjustable	J. G. Googins and G. T. Howarth	591,530	Oct. 19	1076	253	81	234
Couch. Box	D. G. and G. E. Proctor	594,557	Nov. 30	3943	761	81	1498
Counter-skiving machine	A. E. Ayer	593,409	Nov. 9	1186	287, 288	81	1049
Counting-machine	R. Miehle	593,773	Nov. 16	1962	446, 447	81	1192

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Coupling: *See* Air-brake hose-coupling. Bicycle-coupling. Car-coupling. Hose-coupling. Hose or pipe coupling. Hydrant-coupling. Insulating-coupling. Magnetic coupling. Pilot-coupling. Pipe-coupling. Pipe or tube coupling. Pole or thill coupling. Pump-coupling. Shaft-coupling. Shaft or tongue coupling. Steam and air brake coupling. Thill-coupling. Windmill-coupling. Yoke-coupling.							
Coupling for pump-rods, &c.	G. C. Thompson and F. A. Abbott	594,043	Nov. 23	2339	552	81	1805
Cover. Kettle	H. H. Foreman	595,454	Dec. 14	1067	256	81	1845
Cowl	A. Kühn	592,791	Nov. 2	64	14	81	819
Cradle	J. R. Garrett	591,465	Oct. 12	947	234	81	218
Cradle. Folding	H. H. Homer	594,015	Nov. 23	2291	541	81	1296
Crane	T. James	591,650	Oct. 12	1277	298 299	81	275
Crane. Traveling	S. T. Wellman, J. W. Seaver, and C. H. Wellman.	594,304	Nov. 23	2763	654	81	1387
Crank-movement	J. H. Millen	594,414	Nov. 30	2975	700	81	1445
Crate. Collapsible	S. T. Lewis	593,590	Nov. 16	1537	378	81	1132
Crate. Collapsible	W. F. Wilson	592,944	Nov. 2	342	79	81	874
Crate. Folding	M. Ek	591,248	Oct. 5	562	132	81	107
Crate. Folding	W. Kalchthaler	593,022	Nov. 2	476	115	81	900
Crate. Folding	L. Palmer	591,005	Oct. 5	103	23	81	23
Crate. Folding	J. S. Lewis	592,059	Oct. 19	1974	466	81	434
Crate. Folding egg	C. D. Naramor	593,180	Nov. 2	776	186	81	960
Crate. Packing or shipping	G. T. Brown and R. N. Morrow	595,902	Dec. 21	1840	440	81	2019
Crate. Shipping	F. M. Rugeley	595,498	Dec. 14	1142	275	81	1860
Crayon-holder	E. G. Lynch	594,635	Nov. 30	3389	793	81	1526
Cream from milk. Device for facilitating rising of.	O. Ohlsson	593,307	Nov. 9	1016	245	81	1019
Cream-separator. Centrifugal	E. G. N. Salenius	593,082	Nov. 2	490	119	81	902
Cream-separator. Centrifugal	F. L. Decarie	596,421	Dec. 28	2752	651 652	81	2218
Crematory	P. A. Skriver	594,040	Nov. 23	2335	551	81	1304
Crochet hook or needle	M. Dennis	595,094	Dec. 7	457	109 110	81	1705
Cross-tooling and crandalling machine							
Crusher: *See* Rock-crusher. Rotary crusher. Stone or ore crusher.							
Crushing-machine	L. S. Pfouts	594,964	Dec. 7	199	48	81	1658
Crushing-machine	C. Skinner	591,890	Oct. 19	1653	395	81	373
Crushing-machine	C. and F. B. Skinner	591,891	Oct. 19	1655	395 396	81	374
Crushing mill. Maguey	C. S. Bell	595,137	Dec. 7	530	127	81	1718
Crutch	E. S. Drake	596,203	Dec. 28	2364	560	81	2141
Crutch. Folding	E. O. Kuhnke	595,637	Dec. 14	1357	327	81	1906
Cue-tip fastener	N. B. Wilder	594,165	Nov. 23	2527	598	81	1342
Cuff-holder	J. A. Pugh	594,180	Nov. 23	2548	603	81	1346
Cuffs, &c. Fastening device for	T. H. Stackhouse	593,499	Nov. 9	1345	326	81	1061
Culinary device	T. Mayhew	592,096	Oct. 19	2048	484	81	447
Culinary vessel	J. C. Woodman	593,316	Nov. 9	1033	250	81	1022
Cultivator	E. D. Barling	595,900	Dec. 21	1837	439	81	2018
Cultivator	E. V. Burrow	591,589	Oct. 12	1174	276	81	255
Cultivator	R. L. Farnsworth	595,122	Dec. 7	510	122	81	1714
Cultivator	G. McDougall	591,267	Oct. 5	633	149	81	120
Cultivator	W. H. Perkinson	595,025	Dec. 7	319	77	81	1680
Cultivator	E. H. Snyder	592,715	Oct. 26	3449	723	81	774
Cultivator	L. Ward	593,709	Nov. 16	1744	420	81	1170
Cultivator	W. D. Brundage	596,038	Dec. 21	2085	495	81	2071
Cultivator-beam spring	P. Jarvis	594,254	Nov. 23	2665	631 632	81	1368
Cultivator. Corn	C. B. Miller	591,484	Oct. 12	981	230	81	219
Cultivator. Disk	J. K. Deaton	595,074	Dec. 14	1414	341	81	1917
Cultivator. Double	J. C. Nelson	592,818	Nov. 2	122	26	81	831
Cultivator. Interchangeable	G. E. Coppen	594,463	Nov. 30	3065	719 720	81	1463
Cultivator. Spring-trip	J. Prentice	594,908	Dec. 7	106	27	81	1641
Cultivator. Straddle-row wheel	G. M. Cheney	591,949	Oct. 19	1781	424	81	398
Culvert. Arch	F. B. Fuller	596,400	Dec. 28	2722	645	81	2212
Cup: *See* Oil-cup.	S. D. Murphy	591,191	Oct. 5	453	108	81	86
Curd-cutter	H. A. Palmer	596,067	Dec. 28	2171	514	81	2104
Curling-iron heater	P. A. Bowen	591,205	Oct. 5	479	113	81	91
Curling-iron heater	A. K. McKone	591,239	Oct. 5	547	129	81	104
Curling-iron heating-support	C. S. Bradley	591,267	Oct. 5	599	140	81	113
Curling-iron holder	C. S. Bradley	591,268	Oct. 5	601	140 141	81	114
Current generator. Alternating	A. J. Churchward	593,716	Nov. 16	1758	422 423	81	1173
Current motor. Alternating	D. O. Hull	593,050	Nov. 2	520	125	81	908
Current regulator. Alternating	C. P. Steinmetz	594,144	Nov. 23	2491	590	81	1335
Current systems. Regulation of alternating	I. O. Day	591,074	Oct. 5	234	55	81	47
Currycomb	R. J. Lee	594,025	Nov. 23	2306	545	81	1299
Currycomb	R. G. Tombaugh	594,218	Nov. 23	2611	617	81	1357
Currycomb	M. V. Griffey	591,273	Oct. 5	608	142	81	115
Currycomb and brush. Combined	D. Rees	592,445	Oct. 26	2978	603	81	681
Currycomb and brush. Combined	J. R. Oakley	593,850	Nov. 16	2009	472	81	1221
Curtain and shade holder	J. H. Warner	592,846	Nov. 2	175	40	81	849
Curtain and shade holder. Window	F. A. Herrick	591,921	Oct. 19	1728	414	81	388
Curtain-clamp	F. Bayerdoerfer	593,387	Nov. 9	1153	279	81	1043
Curtain-drying frame. Lace	R. E. Doty and C. Miller	591,112	Oct. 5	304	74	81	59
Curtain-fixture							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Curtain-pole	E. E. Bechtold	593,829	Nov. 16	1975	465	81	1215
Curtain-pole	F. S. Miley	591,674	Oct. 12	1319	309	81	284
Curtain-pole and shade-roller bracket. Combined	W. C. Houser	592,113	Oct. 19	2139	506	81	465
Curtain-pole appliance	J. P. S. Lyons	592,152	Oct. 19	2139	506	81	465
Curtain-pole bracket	E. E. Boland	593,920	Nov. 16	2129	504	81	1246
Curtain-pole bracket	W. S. Powell	596,417	Dec. 28	2745	649	81	2216
Curtain-ring	J. W. Leslie	592,795	Nov. 2	69	15	81	820
Curtain-rod bracket	E. H. Cram	595,560	Dec. 14	1234	297	81	1879
Curtain-shade strip	A. B. Dunkle	591,389	Oct. 12	824	192	81	188
Curtain stretcher and clothes-horse. Combined lace-	G. Pierson	596,181	Dec. 28	2324	552	81	2133
Cushion: *See* Ventilating-cushion.							
Cuspidor	M. C. Merker	594,117	Nov. 23	2449	581	81	1326
Cuspidor. Sanitary	W. C. and T. J. Kerrigan	595,313	Dec. 14	825	204	81	1800
Cut-off. Fluid-pressure	F. B. Giesler	596,433	Dec. 28	2776	657	81	2222
Cut-out. Plug	F. S. Richmond	595,970	Dec. 21	1953	467	81	2042
Cutter: *See* Band-cutter. Belt-cutter. Bolt and rivet cutter. Butter-cutter. Cheese-cutter. Cigar and cigarette wrapper cutter. Cigar-tip cutter. Clod-cutter. Curd-cutter. Endless-chain cutter. Feed-cutter. Flue-cutter. Fodder-cutter. Grooving-cutter. Hog-nose cutter. Kraut-cutter. Meat-cutter. Pipe-cutter. Potato-cutter. Rotary cutter. Stocking-cutter. Straw-cutter. Vegetable, &c., cutter. Weed-cutter.							
Cutter and grater combined	E. E. Keller	593,032	Nov. 2	536	126	81	909
Cutter-bar	H. Kloesner and J. Schuch	594,477	Nov. 30	3008	725	81	1469
Cutter-bar	H. M. Landes	594,747	Nov. 30	3612	840	81	1573
Cutter-bar	R. Harris	591,089	Oct. 5	179	40, 41	81	37
Cutter-head	S. J. Shimer	593,439	Nov. 9	1234	297 298	81	1059
Cutter-head	H. R. Tillison	593,500	Nov. 9	1346	327	81	1081
Cutter-head	R. Harris	591,040	Oct. 5	161	41	81	37
Cutter-head. Rosette	J. Kuehnle	592,790	Nov. 2	62	14	81	818
Cutter-head with self-clearing bit	A. J. Kern	593,477	Nov. 9	1304	315	81	1073
Cutting device	D. W. Bosley	595,092	Dec. 7	455	108 109	81	1704
Cutting flexible material into strips. Machine for.	J. E. Morse	595,918	Dec. 21	1870	447	81	2025
Cutting-off tool	J. R. Moise	591,675	Oct. 12	1320	------	81	285
Cyanids. Making	J. Redding	593,688	Nov. 16	1703	412	81	1162
Cycle coasting-hub	L. M. Miller	593,162	Nov. 2	745	178	81	954
Cycle-handle	R. von Nagy de Markovitz	591,990	Oct. 19	1837	437	81	408
Cycle. Ice	A. H. Dickinson and H. J. Fisher	591,823	Oct. 19	1559	369	81	353
Cycle-lock	E. W. Lincoln	592,549	Oct. 26	3156	650	81	717
Cycle-pedal	G. Beekman	592,230	Oct. 26	2273	535	81	511
Cycle propelling and braking mechanism	G. Beekman	592,231	Oct. 26	2274	536	81	512
Cycle propelling and braking mechanism	G. T. Booth and W. Scott	594,980	Dec.	247	60	81	1666
Cycle-propelling mechanism	A. Gobron	595,622	Dec. 14	1329	321	81	1900
Cycle safety-bolt	H. T. Kingsbury	593,105	Nov. 2	615	148	81	927
Cycle-stand and home trainer	T. E. Montgomery	595,490	Dec. 14	1130	272	81	1857
Cycle. Three-wheeled	E. J. Byrne	593,798	Nov. 16	1916	456	81	1202
Cycles, &c. Seat or saddle support for	E. Hart	591,761	Oct. 12	1446	341	81	310
Cyclometer	E. Hart	591,762	Oct. 12	1448	341	81	310
Cyclometer	C. T. Higginbotham	596,242	Dec. 28	2423	572 573	81	2153
Cyclometer	W. C. Homan	594,875	Dec. 7	52	13	81	1632
Cyclometer	W. C. Homan	595,569	Dec. 14	1246	301	81	1881
Cyclometer	C. B. Post	592,253	Oct. 26	2313	545	81	530
Cyclometer	R. T. Bond	592,190	Oct. 19	2199	519	81	476
Cyclone-refuge	W. F. Troast	591,106	Oct. 5	265	72	81	58
Cylinder-lock	H. G. Voight	591,439	Oct. 12	905	212	81	204
Cylinder-lock. Grand-master-key	W. L. Marshall	596,074	Dec. 28	2151	510 511	81	2101
Dam, weir, or gate. Automatic	G. C. and N. P. Fraser	593,930	Nov. 16	2150	510	81	1250
Damper	W. P. Kellogg	591,169	Oct. 5	409	96	81	78
Damper mechanism. Time	A. A. Knights	592,789	Nov. 2	61	13	81	818
Damper. Oven	J. R. Hanlon	593,937	Nov. 16	2159	512	81	1252
Damper-regulator	C. C. Kesty	591,554	Oct. 12	1114	262	81	243
Damper-regulator	F. T. Mueller	591,568	Oct. 12	1131	266	81	246
Damper-regulator	E. C. Hunt	592,955	Nov. 2	269	86	81	878
Darning apparatus	A. D. Estienne	594,958	Dec. 7	202	63	81	1669
Decorticating-machine	F. T. Clark	591,950	Oct. 19	1782	425	81	399
Delivery-slip holder	C. D. Grundy	595,501	Dec. 14	808	199	81	1796
Dental apparatus	W. T. Lyon	595,068	Dec. 7	408	97, 98	81	1694
Dental appliance	J. E. Nichols	594,496	Nov. 30	3110	729	81	1472
Dental appliance	F. F. Fortney and T. H. Stevens	591,332	Oct. 5	712	168	81	137
Dental chin-rest	D. S. Doyle	595,532	Dec. 14	1200	288	81	1872
Dental cuspidor	D. S. Doyle	595,533	Dec. 14	1201	289	81	1873
Dental cuspidor	G. W. Watson	596,254	Dec. 28	2444	577	81	2157
Dental disk-holder	F. L. Morhard	592,878	Nov. 2	224	51	81	851
Dental electrode	P. Russell	591,499	Oct. 12	1008	236	81	223
Dental mallet. Electric	F. F. Hoyer	594,952	Dec. 7	185	44	81	1655
Dental-tool guard	D. L. Aber	596,022	Dec. 21	2050	487	81	2053
Dentometer	T. N. and C. B. McLean	594,961	Dec. 7	196	47	81	1658
Depurator	C. E. Lindsay	593,804	Nov. 9	1012	243	81	1018
Derailer	P. N. Swanson	591,612	Oct. 12	1208	284	81	261
Derrick. Farm							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Designs. Transferring	W. R. Fish	593,997	Nov. 23	2264	.....	81	1291
Desk	J. N. Welch and A. Ernest	594,505	Nov. 30	3143	736	81	1479
Desk and seat. School	F. C. Cheney	591,783	Oct. 12	1419	339	81	908
Desk standard. School	W. C. Hood	594,084	Nov. 23	2402	570	81	1318
Desk. Writing	G. H. Rogers	591,982	Oct. 19	1640	891	81	371
Detachable handle. Universal	E. Rivett	594,265	Nov. 23	2719	643	81	1379
Diazonaphthalene on fiber. Producing	H. Seyberth and M. von Gallois	595,904	Dec. 21	1927	.....	81	2016
Dice-box	O. E. Dubois	591,209	Oct. 5	608	141	81	114
Dice-throwing device	F. E. Thomas	592,263	Oct. 26	2326	548	81	522
Die: *See* Screw-thread-rolling die.							
Die and die-stock	R. S. Bascom and N. E. Martin	592,044	Oct. 19	1941	460	81	428
Digester	E. Meurer	592,875	Nov. 2	219	51	81	850
Digger: *See* Post-hole digger. Potato and beet digger. Potato-digger. Tree-digger.							
Digging beets, &c. Machine for	K. Thomann	592,126	Oct. 19	2101	497, 498	81	458
Direct-acting engine	J. D. Gray	592,248	Oct. 26	2304	543	81	516
Dish attachment. Carving	S. Sherman	591,243	Oct. 5	555	181	81	106
Dish-cleaner	A. Insinger	594,137	Nov. 23	2481	587	81	1332
Dish-cleaner	H. R. Stiles	596,130	Dec. 28	2943	533	81	2116
Dish-drainer	R. Bunce	591,377	Oct. 12	800	166	81	183
Dishing-machine	J. H. Fuchs	593,462	Nov. 9	1278	307, 308	81	1068
Disinfecting and deodorizing purposes. Apparatus for	A. G. Hunter	591,352	Oct. 5	739	173	81	142
Disinfecting compound and apparatus for applying same.	H. Oppermann and R. Goebde	591,683	Oct. 12	1329	311	81	266
Disinfecting device	S. Schwarz	592,746	Oct. 26	3510	737	81	785
Disintegrating-machine	G. H. Pond	591,494	Oct. 12	998	234	81	221
Disintegrator or crusher	M. F. Williams. (Reissue)	11,634	Oct. 26	3521	740	81	787
Display apparatus for carpets, &c	S. Shillito	593,083	Nov. 2	491	119, 120	81	902
Display-cover. Barrel	W. J. Tanner	591,661	Oct. 12	1297	304	81	280
Display rack and tray. Folding	J. S. Baird	595,516	Dec. 14	1169	281	81	1866
Display-rack. Umbrella	U. G. Rockwell	591,572	Oct. 12	1146	269	81	249
Display-stand	R. Koenig	595,718	Dec. 21	1488	358	81	1949
Display-stand	S. Newman and H. R. Bothwell	595,196	Dec. 7	630	151	81	1737
Display-table	C. A. Shaffer	591,504	Oct. 12	1014	237	81	224
Displaying device. Card	H. C. Wheeler	594,506	Nov. 30	3145	737	81	1479
Distance instrument	G. Kimmich	594,404	Nov. 30	2951	694, 695	81	1441
Distilling acetic acid	C. von der Linde	596,043	Dec. 21	2097	.....	81	2073
Distilling apparatus	J. Gallegos	591,340	Oct. 5	716	169	81	136
Ditching-machine	O. R. Smith	592,101	Oct. 19	2055	486, 487	81	449
Diving apparatus	A. Gordon	594,945	Dec. 7	171	41, 42	81	1653
Diving apparatus	B. Nelson	591,773	Oct. 12	1466	346, 347	81	313
Door-butt gage	V. B. Staples	592,026	Oct. 19	1909	454	81	422
Door-check	H. Bennewis	592,272	Oct. 26	2387	558	81	534
Door-check	J. Ewart	594,618	Nov. 30	3350	765	81	1518
Door-check	F. C. Fisher	591,751	Oct. 12	1431	337	81	307
Door check and closer	C. O. Case	592,236	Oct. 26	2282	537, 538	81	513
Door-check. Pneumatic	J. A. Bowen	592,283	Oct. 26	2377	536	81	513
Door-fastener	E. Byrnes	596,050	Dec. 28	2111	500	81	2093
Door-fastener	F. C. Lounsbury	596,118	Dec. 28	2223	528	81	2114
Door-fastener	A. H. Wesling	595,505	Dec. 14	1155	278	81	1863
Door fastener. Sliding	P. Farwell	594,173	Nov. 23	2537	601	81	1344
Door-frame	C. Roehr	593,435	Nov. 9	1229	296	81	1058
Door-hanger	W. and R. B. Louden	591,235	Oct. 5	537	128	81	102
Door-hanger	B. W. Masterson	595,817	Dec. 21	1663	401	81	1983
Door-hanger	P. L. Sheridan	595,550	Dec. 14	1222	294	81	1877
Door-hanger	A. Adams	595,498	Dec. 14	1029	247	81	1837
Door-holder	J. P. Buchanan	591,690	Oct. 12	1220	293	81	203
Door-jamb. Metallic	G. Ladewich	596,169	Dec. 28	2307	547	81	2129
Door lock. Sliding	J. C. A. Bischoff	593,508	Nov. 9	1264	330	81	1084
Door-mat	J. Elwood	593,993	Nov. 23	2255	534	81	1290
Door observation-opening	H. Rowntree	596,019	Dec. 21	2036	486	81	2059
Door-operating device	W. W. Ife	595,948	Dec. 21	1919	458, 459	81	2035
Door. Revolving	W. W. Ife	596,029	Dec. 21	2068	491, 492	81	2066
Door. Revolving	J. Fritz	591,550	Oct. 12	1109	261	81	242
Door. Screen	C. S. Whipple	593,954	Nov. 2	188	42	81	844
Door-securer	W. Hargrove	595,945	Dec. 7	730	178	81	1755
Door-spring	J. H. Coffman	594,327	Nov. 23	2799	661	81	1394
Door stop and check	J. A. Kuster	595,180	Dec. 7	607	145	81	1732
Doors. Adjustable mounting for sliding	D. L. Miller	594,263	Nov. 23	2681	635	81	1371
Doubletree	C. J. Minton	593,262	Nov. 9	1102	267	81	1034
Doubletree-fastener	N. M. Habberstad	594,870	Dec. 7	45	12	81	1631
Doubletree-shoe	M. Küstner and H. Ladebeck	593,527	Nov. 9	1397	337	81	1090
Douche-bath. Abdominal	J. Ballus	591,722	Oct. 12	1387	325, 326	81	998
Dough-mixing machine	J. Aegeter	593,366	Nov. 9	1108	268	81	1035
Dough-operating machine	C. Davison	595,940	Dec. 21	1902	453	81	2031
Draft-equalizer	C. E. Alden	591,317	Oct. 5	670	159	81	128
Draft-regulator. Automatic	H. H. Taylor	594,443	Nov. 30	3029	711	81	1456
Drafting device. Pattern	F. Deming	595,611	Dec. 14	1311	316, 317	81	1897
Draw-bench	A. B. Tomlin	593,704	Nov. 16	1733	417, 418	81	1168
Drawer. Cash							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Drawer equalizer. Furniture	C. E. Howard	591,134	Oct. 5	348	83	81	68
Drawers	G. Cutts	593,549	Nov. 9	1443	351	81	1097
Drawers	J. A. Scriven	594,910	Dec. 7	121	31	81	1644
Drawing-knife. Combination	J. M. Posey	594,279	Nov. 23	2710	640	81	1377
Drawing-rolls of cotton machinery. Rotary clearer for	J. Thomson, Jr	593,971	Nov. 16	2219	526	81	1265
Drawing-rolls of cotton machinery. Rotary clearer for	J. Thomson, Jr	593,972	Nov. 16	2221	527	81	1265
Drawing-rolls of cotton machinery. Rotary clearer for	J. Thomson, Jr	593,973	Nov. 16	2221	527	81	1265
Dredges. Mechanical agitator for	E. Flad	595,054	Dec. 7	333	93, 94	81	1691
Dress and mud guard	W. C. Humphrey	594,694	Nov. 30	3510	817	81	1552
Dress-shield	H. Lemmermann	591,981	Oct. 19	1826	434	81	406
Drier: *See* Clothes-drier. Hair-drier. Fruit-drier. Sand-drier. Grain-drier.							
Drier for printed sheets of paper	R. A. Freeman	592,967	Nov. 2	394	92	81	883
Drier for semifluid material	J. Hundhausen	594,095	Nov. 23	2404	571	81	1318
Dry closet	E. W. Anthony	591,582	Oct. 12	1161	273	81	253
Dry closet	F. J. Curtis	592,107	Oct. 19	2068	489	81	451
Dry goods, &c. Packing device for measurable	A. M. Galland	595,807	Dec. 21	1649	397	81	1980
Dry-kiln	F. Kirk	596,213	Dec. 28	2276	563	81	2144
Dry-pipe sprinkler system	J. F. Miller	591,995	Oct. 19	1613	384	81	365
Drying apparatus	A. F. McClatchey and C. L. Krum	596,175	Dec. 28	2316	549, 550	81	2131
Drying-frame	P. O'Thayne	595,648	Dec. 14	1371	331	81	1909
Drill: *See* Coal or rock drill. Multiple drill. Miner's expanding drill. Pneumatic drill. Rock-drill.							
Drill	C. D. Cutts	592,904	Nov. 2	265	60	81	859
Drill	W. J. Hatton	592,142	Oct. 19	2127	503	81	462
Drill-jar	H. F. Seybert	592,024	Oct. 19	1908	453	81	421
Drill-press	H. Dreses	592,048	Oct. 19	1948	462	81	429
Drill-socket	J. D. Cox, Jr.	594,330	Nov. 23	2601	661	81	1394
Drilling and boring machine. Horizontal	W. B. Pearson	593,491	Nov. 9	1324	321	81	1077
Drilling-machine	W. W. Flickinger	595,850	Dec. 21	1721	413, 414	81	1994
Drilling-machine	D. S. Regan	595,076	Dec. 7	418	100, 101	81	1697
Drilling-machine. Hand	J. Murchie	596,275	Dec. 28	2678	634	81	2202
Drilling-machine. Hand	B. F. Smith	592,213	Oct. 19	2220	528	81	488
Drinking-fountain for poultry, &c	F. A. Williams	591,163	Oct. 5	439	105	81	84
Drip-trough	J. W. Merry	594,262	Nov. 23	2679	634	81	1371
Drive-pipe for Artesian wells, &c	J. Muirhead	596,081	Dec. 28	2165	513	81	2103
Drum	C. T. Henderson	594,091	Nov. 30	3505	816	81	1551
Drum. Expansible	I. L. Hawkins	596,286	Dec. 28	2573	613	81	2180
Dumb-bell	J. N. Maingot	593,056	Nov. 2	531	128	81	910
Dumb-waiter safety-clutch	C. B. Cox	592,698	Oct. 26	3422	715	81	769
Dumping apparatus	J. G. Delaney	595,598	Dec. 14	1194	287	81	1871
Dumping-cage. Automatic	W. K. Gordon	594,736	Nov. 30	3590	834, 835	81	1569
Duplex engine	H. B. Gale	591,529	Oct. 12	1071	259	81	234
Dust-collector	J. W. Wilson	595,256	Dec. 7	745	182, 183	81	1758
Dust-pan	J. Jeklin	593,399	Nov. 9	1004	243	81	1016
Dust-pan	L. N. Ralph	594,756	Nov. 30	3623	843	81	1575
Dust-pan	M. L. Standish	595,823	Dec. 21	1676	405	81	1985
Dye. Anthrarufin	R. E. Schmidt	595,349	Dec. 14	884	.....	81	1810
Dye. Black azo	M. Kahn and F. Runkel	594,996	Dec. 7	272	.....	81	1671
Dye. Black azo	M. Kahn and F. Runkel	595,021	Dec. 7	313	.....	81	1679
Dye. Blue-black disazo	M. Ulrich and J. Bammann	593,790	Nov. 16	1905	.....	81	1200
Dye. Blue-red tetrazo	C. H. Rudolph and J. Herbabny	594,123	Nov. 23	2460	.....	81	1329
Dye from chrysazin. Blue	R. E. Schmidt	595,350	Dec. 14	886	.....	81	1811
Dye. Mixed sulfur	H. R. Vidal	594,105	Nov. 23	2435	.....	81	1324
Dye. Red	J. Ville	591,309	Oct. 5	661	.....	81	126
Dye. Red azin	B. Heymann and R. Beyher	592,008	Oct. 26	3948	.....	81	734
Dye. Rhodol	C. O. Müller	596,333	Dec. 28	2586	.....	81	2183
Dye. Sulfur	H. R. Vidal	594,105	Nov. 23	2434	.....	81	1324
Dye. Thiazin	H. R. Vidal	594,107	Nov. 23	2435	.....	81	1324
Dye. Trisazo	M. Böniger	591,816	Oct. 12	1215	.....	81	203
Dye. Violet disazo	F. Bender	593,347	Nov. 9	1078	.....	81	1020
Dyeing	V. G. Bloede	593,192	Nov. 9	802	.....	81	979
Dyeing mixed goods	H. N. F. Schaeffer	592,022	Oct. 19	1905	.....	81	421
Dynamo. Constant-current	C. N. Black	593,288	Nov. 9	1154	279	81	1043
Dynamo. Inductor	C. P. Steinmetz	594,145	Nov. 23	2495	590	81	1336
Dynamo. Polycircuit	I. R. Prentiss	594,488	Nov. 30	3112	729, 730	81	1473
Dynamo. Polycircuit	I. R. Prentiss	594,489	Nov. 30	3114	730	81	1473
Dynamometer	J. W. von Pittler	592,442	Oct. 26	2974	602	81	680
Eaves-trough	C. J. Swink	591,705	Oct. 12	1364	319	81	296
Eaves-trough hanger	C. F. Throm	593,407	Nov. 9	1183	286	81	1049
Eccentric	R. Marvin	596,075	Dec. 28	2154	511	81	2101
Edge-setting machine	A. H. Prenzel	594,754	Nov. 30	3630	843	81	1574
Educational appliance	M. M. Glidden	595,455	Dec. 14	1068	256, 257	81	1845
Egg-carrier	T. S. Ferguson. (Reissue)	11,640	Dec. 7	779	193	81	1765
Egg-case	C. A. Prechtel	593,404	Nov. 9	1178	284	81	1043
Egg. Medicated nest	N. S. Clark	591,109	Oct. 5	300	73	81	59
Egg or cake beater	E. J. Howe	592,708	Oct. 26	3438	730	81	772
Egg-tester	E. Edwards	595,292	Dec. 14	798	197	81	1794
Egg-tester	D. W. Hughes	591,971	Oct. 19	1808	430	81	403

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Eggs. Device for separating whites and yolks of	F. M. Thompson	595,255	Dec. 7	745	182	81	1758
Ejector for ashes, &c	F. H. Heath	596,065	Dec. 28	2131	505, 506	81	2097
Electric accumulator	C. P. F. Clerc and A. G. Pingault	595,695	Dec. 21	1443	348, 349	81	1941
Electric battery	F. M. Bell	592,729	Oct. 26	3459	725	81	1776
Electric battery	W. W. Hanscom and A. Hough	593,808	Nov. 16	1921	457	81	1203
Electric battery	W. M. Storm	594,917	Dec. 7	131	32	81	1646
Electric battery	A. D. Wheeler	592,853	Nov. 2	186	42	81	844
Electric battery	D. S. Williams	594,051	Nov. 23	2352	556	81	1307
Electric battery	S. H. Short	594,498	Nov. 30	3123	732	81	1475
Electric brake	W. Weihl	594,665	Nov. 30	3469	808	81	1544
Electric brake	J. D. Gould	594,247	Nov. 23	2655	629	81	1396
Electric cable	J. H. Kelman	594,882	Dec. 7	61	16	81	1634
Electric cable	W. R. Patterson	592,441	Oct. 26	2973	693	81	980
Electric cable	W. M. Brown	595,367	Dec. 14	913	221	81	1816
Electric-cable joint	G. Tailleur	593,442	Nov. 9	1238	298	81	1060
Electric-cable joint or coupling	E. Pruckner and G. Schindler	592,443	Oct. 26	2975	693	81	980
Electric-circuit breaker and closer. Automatic	J. H. Bowley	593,510	Nov. 9	1269	302	81	1085
Electric-circuit controller	G. Gray	592,708	Oct. 26	3430	717	81	771
Electric conductor	W. McElroy	592,815	Nov. 2	115	25	81	880
Electric conductor and connection and support therefor.	W. P. Booth	594,992	Dec. 7	150	37	81	1650
Electric-conductor terminal	I. Shultes	592,025	Oct. 19	1908	454	81	421
Electric-conductor-wire connector	W. F. Bossert	596,229	Dec. 28	2402	568	81	2149
Electric conductors. Underground junction-box for	J. M. Dortch	594,386	Nov. 30	2919	688, 689	81	1435
Electric contact device and conductor construction therefor.	H. G. Reist	591,879	Oct. 19	1634	390	81	369
Electric controller	R. P. Wilson	596,283	Dec. 28	2492	592	81	2165
Electric-current meter	H. W. Shonnard	592,869	Nov. 2	248	56	81	855
Electric currents. Distribution-board for	P. Kennedy	594,744	Nov. 30	3005	839	81	1572
Electric currents. Means for controlling	E. Thomson	595,419	Dec. 14	1009	243	81	1883
Electric currents. Method of and apparatus for converting	E. Oxley	595,821	Dec. 21	1672	404	81	1985
Electric currents. Method of and apparatus for multiple metering of	E. Oxley	591,194	Oct. 5	457	109	81	87
Electric currents. Method of and apparatus for multiple rate-metering for	E. Oxley	591,195	Oct. 5	460	109	81	87
Electric currents. Multiple metering of	E. Oxley	593,852	Nov. 16	2012	473, 474	81	1222
Electric cut-out	H. T. Paiste	593,853	Nov. 16	2015	474	81	1223
Electric diaphragm	N. Marchal	592,802	Nov. 2	78	.....	81	822
Electric elevator	A. L. Duwelius	595,874	Dec. 21	1779	428, 429	81	2006
Electric furnace	J. E. Hewes	595,712	Dec. 21	1477	356	81	1948
Electric generator. Chemical	H. K. Hess	592,782	Nov. 2	47	10, 11	81	816
Electric generator. Magneto-	J. A. Williams	591,365	Oct. 5	770	181	81	147
Electric generators. Pole-changing mechanism for	P. Kennedy	594,745	Nov. 30	3008	840	81	1573
Electric heater	H. Helberger	596,160	Dec. 28	2294	544	81	2127
Electric heater	O. D. McClellan	591,788	Oct. 12	1487	352, 353	81	318
Electric-light fixture	F. B. Mason	592,805	Nov. 2	84	19	81	823
Electric-light support. Incandescent-	R. L. Mahon	592,551	Oct. 26	3159	650	81	718
Electric-machine covers. Securing device for dynamo-	N. C. Bassett	596,135	Dec. 28	2255	534	81	2121
Electric machine. Dynamo-	E. W. Farnham	591,623	Oct. 12	1226	288	81	264
Electric machine. Dynamo-	E. W. Farnham	591,625	Oct. 12	1230	289	81	265
Electric machine. Dynamo-	P. W. Power	596,306	Dec. 28	2533	603	81	2173
Electric machine. Dynamo-	M. E. Thompson	591,024	Oct. 5	145	33, 34	81	30
Electric machine. Dynamo-	H. Geisenhöner	596,152	Dec. 28	2284	541	81	2125
Electric machines. Detachable laminated pole-piece for dynamo-	E. W. Rice, Jr	595,412	Dec. 14	994	240	81	1881
Electric machines. Regulating alternating-current dynamo-	G. S. Dunn	591,843	Oct. 5	721	170	81	139
Electric machinery. Indirect regulation of dynamo-	G. S. Dunn	591,844	Oct. 5	724	170	81	139
Electric machinery. Indirect regulation of dynamo-	G. S. Dunn	591,845	Oct. 5	727	171	81	140
Electric machinery. Indirect regulation of dynamo-	W. D. Marks	595,825	Dec. 14	840	208	81	1803
Electric meter	G. A. Scheeffer	591,641	Oct. 12	1260	295	81	272
Electric meter	W. S. Weston	595,841	Dec. 21	1708	411	81	1992
Electric-meter prepayment attachment	J. Strachan and J. Niven	595,446	Dec. 14	1054	252, 253	81	1842
Electric meters. Prepayment coin-controlled mechanism for	W. F. Browne	596,012	Dec. 21	2019	482	81	2056
Electric motor	M. B. Pengnet	595,731	Dec. 21	1506	364	81	1953
Electric motor	E. D. Priest	595,410	Dec. 14	990	239, 240	81	1880
Electric motor	F. E. Whipple and C. A. Stauffer	595,898	Dec. 21	1831	437, 438, 439	81	2017
Electric motor. Alternating-current	O. B. Shallenberger	591,242	Oct. 5	552	130	80	105
Electric motor. Alternating-current	W. Stanley, Jr	591,301	Oct. 5	649	153	81	123
Electric-motor controlling device	F. J. Russell	595,344	Dec. 14	871	215	81	1809
Electric-motor regulator	F. Vidal y Vilaret and D. Belais	592,619	Oct. 26	3267	677	81	738
Electric motors. Regulating	A. G. Davis	594,779	Nov. 30	3061	852	81	1582
Electric motors. Reversing and cutting-out switch for	T. von Zwelgbergk	595,868	Dec. 21	1766	425	81	2004
Electric regulator	M. Moskowitz	595,230	Dec. 14	858	210	81	1805
Electric switch	A. C. Brockles	594,227	Nov. 23	2625	621	81	1350
Electric switch	J. C. Cassidy	591,451	Oct. 12	985	218	81	309

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electric switch	W. A. Drewett	591,331	Oct. 5	695	165	81	133
Electric switch	F. A. Gilbert	594,944	Dec. 7	167	40, 41	81	1653
Electric switch	M. Guett	594,618	Nov. 30	3358	787	81	1520
Electric switch	G. W. Hart	594,470	Nov. 30	3061	722	81	1467
Electric switch	H. F. Kleinschmidt	595,777	Dec. 21	1594	385	81	1969
Electric switch	J. W. Parkin	591,491	Oct. 12	993	233	81	290
Electric switch	F. Schwedtmann	594,656	Nov. 30	3457	804	81	1541
Electric switch	H. E. Waite	593,986	Nov. 9	978	236	81	1010
Electric switch	W. M. T. Weise	593,914	Nov. 16	2117	501	81	1244
Electric switch	J. W. Parkin	593,227	Nov. 9	904	218	81	997
Electric switch for chandeliers or brackets	A. B. Williams	594,305	Nov. 23	2766	654	81	1387
Electric time-switch	W. S. Moody	591,869	Oct. 19	1620	385	81	366
Electric transformer	R. W. Lyle	594,998	Dec. 7	276	66	81	1672
Electric-wire conduit	W. Soons	591,300	Oct. 5	648	152	81	123
Electric wiring. Outlet-box for	S. L. Barriett	595,808	Dec. 21	1644	396	81	1979
Electrical apparatus. Automatic switch for	J. Millis	595,402	Dec. 14	972	236	81	1827
Electrical-apparatus conductor	G. H. Zeal	592,600	Oct. 26	3235	670	81	782
Electrical circuit-closer. Thermometric	F. J. Russell	595,345	Dec. 14	877	215	81	1809
Electrical controlling mechanism	H. W. Mather	591,861	Oct. 19	1608	382	81	364
Electrical-current interrupter	C. F. Scott	593,244	Nov. 9	916	220	81	998
Electrical-distribution system	R. M. Hunter	596,042	Dec. 21	2094	497	81	2073
Electrical energy. Transmission of	S. H. Short	592,259	Oct. 26	2321	547	81	521
Electrical equipment for vehicles	A. B. Strowgar, F. A. Lundquist, J. and C. J. Erickson.	591,201	Oct. 5	469	111, 112	81	89
Electrical exchange	W. C. Banks	593,187	Nov. 9	793	190	81	977
Electrical instrument	S. M. Meyer	595,827	Dec. 14	846	209	81	1804
Electrical lighter for burners	A. S. Williams	596,197	Dec. 28	2354	559	81	2139
Electrical protective appliance	C. A. Rolfe	591,426	Oct. 12	879	205	81	199
Electrical protector	E. E. Anthony	592,463	Oct. 26	3016	611	81	689
Electrical-resistance device	W. Kingsland	592,056	Oct. 19	1968	465	81	433
Electrical traction	N. Tesla	593,138	Nov. 2	670	160	81	989
Electrical transformer	R. M. Hunter	596,002	Dec. 21	2004	479	81	2053
Electrical transmission of energy	R. M. Hunter	596,041	Dec. 21	2092	498	81	2072
Electrical transmission of energy	W. D. Stanton	594,575	Nov. 30	3276	769	81	1505
Electrically-operated switch	H. E. Waite	592,844	Nov. 2	173	39, 40	81	841
Electrically treating diseases. Apparatus for	M. Moskowitz	595,329	Dec. 14	848	210	81	1804
Electricity from car-wheel axles. Means for generating	H. S. Lloyd	591,855	Oct. 19	1600	381	81	362
Electrode. Storage-battery	B. Moeblius and G. Nebel	592,097	Oct. 19	2049	484	81	448
Electrolytic apparatus	E. Motz	592,973	Nov. 2	405	95	81	885
Electrolytic apparatus	W. Bein	591,790	Oct. 12	1896	228	81	301
Electrolyzing. Process of and apparatus for	W. M. Storm	591,897	Oct. 19	1674	400, 401	81	377
Electromagnetic engine	W. C. Dalbey	594,965	Dec. 7	254	62	81	1668
Electrotype plates and blocks. Machine for trimming	J. Lust	595,956	Dec. 21	1935	462	81	2088
Elevating sacks of grain or the like onto wagons. Means for							
Elevator: *See* Chain-bucket elevator. Electric elevator. Grain-elevator. Hydraulic elevator. Liquid-elevator. Plunger-elevator. Portable elevator. Water-elevator.							
Elevator	A. W. Cassady	592,992	Nov. 2	415	98	81	886
Elevator	A. and A. Iske	593,963	Nov. 16	2204	528	81	1262
Elevator	T. Keenan	593,806	Nov. 16	1925	458	81	1204
Elevator	G. H. Tuttle	591,578	Oct. 12	1155	271	81	251
Elevator	G. Westinghouse, Jr	595,007	Dec. 7	287	68, 69	81	1674
Elevator	L. Anderson	592,756	Nov. 2	4	1, 2	81	807
Elevator attachment	J. P. Casey	593,532	Nov. 16	1978	466	81	1215
Elevator-brake. Electric	C. M. Weymann	595,086	Dec. 7	457	104	81	1700
Elevator-controller. Electric	H. Bechtel and L. Fritz	596,228	Dec. 28	2401	567	81	2149
Elevator-door-locking device	J. Rice	593,434	Nov. 9	1223	296	81	1058
Elevator-door-opening device	M. J. Daly	590,967	Oct. 5	98	6, 7	81	7
Elevator-lock	J. S. Mucklé	595,961	Dec. 21	1941	464	81	2089
Elevator locking mechanism	F. J. Weber	594,449	Nov. 30	3039	713, 714	81	1457
Elevator marine leg	F. L. Emery	594,069	Nov. 23	2383	565, 566	81	1313
Elevator or traveling cars. Means for regulating operation of	W. E. Rogers	595,786	Dec. 21	1610	388	81	1973
Elevator safety appliance	M. Fodor	592,772	Nov. 2	30	7	81	812
Elevator safety-catch	R. T. Crane	591,210	Oct. 5	492	117	81	93
Elevator safety device	R. Dorn	595,943	Dec. 21	1909	456	81	2083
Elevator safety device	A. H. W. Ernst	592,541	Oct. 26	3137	645	81	713
Elevator safety device	J. L. Welsh	593,220	Nov. 9	996	227	81	1003
Elevator safety device	R. T. Withers and B. E. Blackman	595,507	Dec. 14	1159	279	81	1863
Elevator-stop. Automatic	E. C. Merrill and B. J. Foley	595,326	Dec. 14	843	208, 209	81	1803
Elevators. Automatic control device for	H. Mattullath	593,983	Nov. 2	316	73	81	869
Elevators. Automatic device for operating hatch-covers for	M. V. B. Howe	591,473	Oct. 12	957	226	81	215
Embossing-machine	J. A. Groebli	593,906	Nov. 9	828	197, 198	81	984
Embroidering-machine	J. A. Groebli	593,907	Nov. 9	831	198, 199	81	985
Embroidering-machine	J. A. Groebli	593,908	Nov. 9	834	199, 200	81	985
Embroidering-machine	M. H. Rumpf	594,653	Nov. 30	3450	802, 803	81	1540
Emergency brake and fender combined	F. A. Hite	594,608	Nov. 30	3508	817	81	1551
Enameling	C. Comstock	593,724	Oct. 26	3462	.....	81	777
Enameling metal surfaces	J. Bentz	596,317	Dec. 28	2550	608	81	2177
Enameling surfaces	A. J. Vollrath	593,792	Nov. 16	1907	.....	81	1200
End-gate. Wagon	E. E. Hanken	591,531	Oct. 12	1077	253	81	234
End-gate. Wagon	F. M. Pierce and A. C. Warner	593,813	Nov. 16	1935	460	81	1205
Endless-chain cutter	T. E. Martin	591,606	Oct. 12	1201	283	81	260

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Engine: *See* Air-engine. Air-compressing engine. Blowing-engine. Carding-engine. Compound engine. Direct-acting engine. Duplex engine. Electromagnetic engine. Explosive-engine. Fluid-pressure engine. Fuel-engine. Gas-engine. Gas or oil motor engine. Hoisting-engine. Oil and gas engine. Oil, gas, or like engine. Pumping-engine. Road-engine. Rotary engine. Rotary-piston engine. Rotary steam-engine. Steam-engine. Steam or like motive-power engine. Traction-engine.							
Engine	P. and M. E. Schmit	592,023	Oct. 19	1907	453	81	421
Engine antifreezing attachment	A. H. Reeder	594,283	Nov. 23	2716	642	81	1379
Engine cooling device. Explosive	F. W. Lanchester	596,271	Dec. 28	2474	598	81	2161
Engine igniter. Explosive	W. Bayley	594,372	Nov. 30	2895	681	81	1436
Engine igniter. Gas	F. C. Olin	592,861	Nov. 2	230	53	81	862
Engine-igniting means. Explosive	V. G. Apple	591,123	Oct. 5	322	79	81	63
Engine muffler. Gas	C. A. Schwarm	593,970	Nov. 16	2219	526	81	1295
Engine or pump	D. Job	595,631	Dec. 14	1348	325	81	1904
Engine, pump, or compressor	W. A. Bole	592,668	Oct. 26	3405	711, 712	81	766
Engine tender. Traction	J. M. Fuller	594,866	Dec. 7	41	11	81	1629
Engines. Balancing of steam or like motive-power	E. O. Schlick	594,289	Nov. 23	2730	646, 647	81	1380
Engines. Connecting-rod end for	F. F. Fischer	592,109	Oct. 19	2071	499	81	452
Engines. Distributing and igniting device for gas	H. Ebbs	595,050	Dec. 7	375	92	81	1090
Engines. Electrical igniter for gas	B. W. Grist and E. Cellison	595,016	Dec. 7	305	74	81	1077
Engines. Igniter for gas or gasolene	M. O. Godding	591,598	Oct. 12	1187	280	81	257
Engines. Regulating apparatus for air-compressing	T. J. Barbour and C. M. Hansen	591,583	Oct. 12	1164	273, 274	81	253
Engines. Vaporizing-carbureter and air-governor for gas	F. F. Snow	593,911	Nov. 16	2112	500	81	1243
Engineer's or surveyor's instrument	C. L. Berger	591,153	Oct. 5	377	89	81	73
Engraving-machine	B. J. Abbott	593,556	Nov. 16	1469	358, 359	81	1119
Engraving-machine	H. C. Schrader	592,920	Nov. 2	289	67	81	863
Envelop	W. H. Beecher	592,602	Oct. 26	3237	670	81	732
Envelop	M. H. Eaton	594,235	Nov. 23	2637	624	81	1302
Envelop	S. M. Edwards	595,806	Dec. 21	1648	397	81	1980
Envelop	D. Harris	594,020	Nov. 30	3362	787	81	1521
Envelop	W. McNaul	594,093	Nov. 23	2413	573	81	1220
Envelop	H. A. Morey	591,415	Oct. 12	858	200	81	195
Envelop	H. J. Rathjen, Jr	592,444	Oct. 26	2977	608	81	681
Envelop	R. Weber	595,747	Dec. 21	1585	370	81	1958
Envelop. Extensible	A. Mitchell	596,435	Dec. 28	2782	658	81	2224
Envelop for protecting charts, &c. Waterproof	J. C. Lee	596,900	Dec. 28	2523	600	81	2171
Envelop-machine	E. M. Low	594,884	Dec. 7	64	17, 18, 19	81	1634
Envelop-opener	B. F. Lantz	591,651	Oct. 12	1278	299	81	276
Envelop-opening apparatus	H. E. Rider	594,650	Nov. 30	3446	801	81	1530
Envelop. Safety	R. N. Smith	596,387	Dec. 28	2694	638	81	2205
Envelop. Sales-slip	W. D. Bates	596,353	Dec. 28	2618	623	81	2190
Eraser	N. C. Stiles	594,496	Nov. 30	3130	733	81	1476
Eraser. Knife	W. Griffin	596,240	Dec. 28	2490	572	81	2153
Evaporating-pan	W. Musselwhite	591,678	Oct. 12	1324	310	81	285
Evaporator	S. P. Loyd	595,186	Dec. 7	516	147	81	1734
Evaporator. Fruit	H. M. Amos	595,011	Dec. 7	299	72	81	1676
Excavating apparatus. Trench	H. Nettelbeck	594,141	Nov. 23	2485	588, 589	81	1333
Excavations for water-courses. Conveyer for making artificial	A. J. Mason	592,657	Oct. 26	3328	693, 694	81	750
Excavations for water-courses. Apparatus for making artificial	A. J. Mason and F. K. Hoover	592,658	Oct. 26	3337	694, 695, 696	81	752
Excavator	F. O. Kilgore	590,900	Oct. 5	69	15, 16	81	15
Exercising apparatus	B. A. McFadden	595,492	Dec. 14	1135	273	81	1858
Exhaust-utilizer	P. F. Haley	594,624	Nov. 30	3367	799	81	1522
Exhibiting apparatus	P., Jr., and H. Roush	595,549	Dec. 14	1220	293	81	1876
Exhibitor. Wall-paper	F. W. Chickering	591,453	Oct. 12	927	218	81	209
Expansive bit	B. H. Fowle	594,615	Nov. 30	3354	796	81	1519
Explosive-engine	C. I. Cummings and J. C. Hilton	591,952	Oct. 19	1788	425, 426	81	399
Explosive-engine	C. W. Weiss	592,083	Oct. 19	1918	456	81	424
Explosive-engine	C. W. Weiss	592,084	Oct. 19	1922	456	81	424
Extension-table	S. L. McAdams	595,192	Dec. 7	626	150	81	1736
Extension-table	F. P. Musser	593,488	Nov. 9	1330	319	81	1076
Extractor: *See* Cinder-extractor. Nail-extractor.							
Extracts. Making	L. Fromm and R. Schmidt	595,296	Dec. 14	803		81	1795
Exudation-cap	J. W. Tallmadge	591,434	Oct. 12	996	209	81	208
Eye-shade	W. S. Bevan	593,077	Nov. 2	570	138	81	918
Eye-shade	J. Gibson	593,374	Nov. 9	1118	270	81	1037
Eyeglasses	G. Bausch	591,152	Oct. 5	376	88	81	73
Eye-protector	E. R. Wylie	591,344	Oct. 5	556	131	81	105
Eyelet-heads. Method of and mechanism for covering	W. H. Force and M. O. Parenteau	596,264	Dec. 28	2462	585, 586	81	2160
Eyeleting-machine eyelet-delivering mechanism	H. H. Buffum	595,040	Dec. 7	348	84	81	1685
Fabric: *See* Knitted fabric. Woven textile fabric. Wood fabric.							
Fabrics. Composition for renovating black	W. H. Isham	592,956	Nov. 2	372		81	879

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fabrics. Joining edges of previously-waxed	W. W. Simonson	591,899	Oct. 5	647		81	123
Fabrics. Manufacture of mixed or party-colored	H. Giesler	593,883	Nov. 16	2068		81	1234
Fan	H. B. Collins	591,033	Oct. 5	168	36	81	35
Fan	J. Jeffreys	594,206	Nov. 23	2594	614	81	1354
Fan attachment	I. S. Bailey	591,721	Oct. 12	1366	325	81	298
Fan attachment for hammocks, &c	W. H. Sweet	594,814	Nov. 30	3733	869	81	1597
Fan. Automatic	C. Zeh	592,900	Nov. 2	261	59	81	858
Fan-holder	F. W. R. Poekert	591,423	Oct. 12	874	204	81	198
Fan-motor bracket	J. E. Fuller	593,719	Nov. 16	1708	424	81	1174
Fan. Revolving	L. A. Gibsou	595,397	Dec. 14	804	198	81	1796
Fan. Rotary	W. H. Johnsen	595,571	Dec. 14	1258	301	81	1885
Fan. Ventilating, exhausting, or blowing	H. Foster and A. Beresford	596,107	Dec. 28	2309	523, 524	81	2112
Fans. System of	E. S. Dunn	591,959	Oct. 19	1793	427	81	401
Fare-box register	O. Legros	593,671	Nov. 16	1681	407	81	1158
Farm-gate	H. W. Bolender	593,638	Nov. 16	1629	393, 394	81	1149
Farm or garden gate	C. H. Stradley	596,189	Dec. 28	2339	555	81	2136
Fastener. Adjustable	G. R. Mitchell	594,749	Nov. 30	3515	841	81	1573
Fastener-setting apparatus	W. Scheuer	595,972	Dec. 21	1956	468	81	2043
Fastening	C. V. Hoffman	593,721	Nov. 16	1770	435	81	1175
Fastening device	J. H. McElroy	595,882	Dec. 21	1089	408	81	1988
Fastening device for gloves, &c	W. B. Murphy	591,989	Oct. 19	1836	437	81	406
Fastening device. Metal	G. G. Wyland	595,000	Dec. 7	278	66	81	1672
Fastening-driving machine	W. Shaw	594,611	Nov. 30	3727	868	81	1596
Fastening-driving mechanism	W. Shaw	591,790	Oct. 12	1495	354	81	220
Faucet	E. Bourne	591,072	Oct. 5	232	54	81	46
Faucet	P. K. O'Lally	591,785	Oct. 12	1489	353	81	319
Faucet	H. Peter	591,696	Oct. 12	1333	312	81	287
Faucet	N. S. Wakefield	595,222	Dec. 7	667	160	81	1743
Faucet. Measuring	E. Boening	592,974	Oct. 26	2340	553	81	595
Feed. Automatic boiler	O. Haselau, Jr	594,798	Nov. 30	3695	858	81	1567
Feed. Automatic boiler	C. F. Murray	594,210	Nov. 23	2599	615	81	1355
Feed-box. Animal	H. Still	592,202	Oct. 26	2325	548	81	522
Feed-cutter	C. B. White	592,855	Nov. 2	188	42, 43	81	844
Feed-cutter shredding attachment	W. D. Heebner and N. Metz	594,598	Nov. 30	3688	693	81	1438
Feed machine. Stock	L. Kniffen	593,390	Nov. 9	1131	273	81	1040
Feed-table	W. H. McFadden	591,563	Oct. 12	1188	267	81	247
Feed-water device for steam-generators	J. A., F. E., and M. E. Normand and P. Sigaudy.	593,115	Nov. 2	631	152, 153	81	980
Feed-water-filtering apparatus	J. Davie and J. Wotherspoon	593,740	Nov. 16	1807	433	81	1181
Feed-water heater	W. and W. A. Clark	591,816	Oct. 19	1548	365	81	351
Feed-water heater	H. E. Parson	592,906	Oct. 19	2221	526	81	481
Feed-water heater and purifier	C. B. Rogers	591,058	Oct. 5	211	50	81	42
Feed-water heater and purifier	E. R. Stilwell	592,670	Oct. 26	3372	703, 704	81	760
Feed-water purifier	E. R. Stilwell	592,671	Oct. 26	3373	704	81	760
Feeder and mixer	J. Frazier	592,774	Nov. 2	28	8	81	814
Feeder. Automatic boiler	A. T. MacCoy	592,061	Oct. 19	1975	467	81	434
Feeder. Continuous boiler	A. T. MacCoy	592,062	Oct. 19	1980	467, 468	81	435
Feeding box. Stock	R. B. Fouzer	594,795	Nov. 30	3672	855	81	1584
Felts or wires. Automatic guide for	J. E. Wetherbee	593,087	Nov. 2	501	121	81	904
Fence	C. A. Bohner	591,782	Oct. 12	1404	329, 330	81	302
Fence	F. Childers	594,324	Nov. 23	2794	660	81	1393
Fence	J. D. Curk	593,197	Nov. 9	808	192	81	990
Fence	D. D. Frisbee	591,627	Oct. 12	1234	289, 290	81	266
Fence	L. D. Harden	591,760	Oct. 12	1445	341	81	310
Fence	I. K. Hollinger	595,172	Dec. 7	592	142	81	1730
Fence	B. T. Hoshall	595,173	Dec. 7	593	142	81	1730
Fence	J. H. Sears	593,862	Nov. 16	2089	479	81	1227
Fence	W. F. Sheldon	591,498	Oct. 12	863	206	81	200
Fence-coupling	C. F. Smith	595,789	Dec. 21	1614	390	81	1973
Fence. Flood	J. M. and J. W. Bird	592,188	Oct. 19	2197	519	81	476
Fence gage. Wire	D. W. Aylworth	591,808	Oct. 19	1522	360	81	345
Fence. Hedge	M. Neil	591,874	Oct. 19	1629	388	81	366
Fence. Hedge	L. Young	591,716	Oct. 12	1378	323	81	297
Fence. Hedge	L. W. Young	591,717	Oct. 12	1379	324	81	297
Fence implement. Wire	I. N. Peck	592,165	Oct. 19	2162	510	81	170
Fence-machine	C. O. Beck	592,228	Oct. 26	2270	535	81	511
Fence-machine	M. L. Curl	593,717	Nov. 16	1764	434	81	1174
Fence-machine	J. A. Jewell	594,337	Nov. 23	2682	669	81	1398
Fence-machine	W. A. Kilmer	595,392	Dec. 14	956	231, 232, 233	81	1824
Fence-machine	W. N. Parrish	591,926	Oct. 19	1740	417	81	390
Fence-machine	M. Plummer	594,640	Nov. 30	3445	801	81	1539
Fence machine. Wire	J. W. Dwiggins	595,291	Dec. 14	798	196	81	1798
Fence machine. Wire	P. Mast	594,649	Nov. 30	3457	798, 799	81	1537
Fence machine. Wire	T. H. McDonald	593,776	Nov. 16	1871	447	81	1194
Fence machine. Wire	F. C. Noland	593,114	Nov. 2	630	152	81	980
Fence machine. Wire	C. E. Warner	594,128	Nov. 23	2468	584, 585	81	1330
Fence machine. Wire-and-picket	J. T. Guthrie	595,623	Dec. 14	1331	321	81	1900
Fence-making machine	W. M. Calhoun	593,894	Dec. 28	2715	643	81	2210
Fence-making machine	J. H. Foreman	595,158	Dec. 7	561	135, 136	81	1725
Fence. Panel	T. J. Thompson	593,456	Oct. 26	3008	608	81	686
Fence. Portable	J. R. Morris	591,000	Oct. 5	89	20	81	19
Fence-post	E. L. Allen	593,660	Oct. 26	3393	708	81	768
Fence-post	H. Buck	595,600	Dec. 14	1207	318	81	1604
Fence-post	C. H. Kempton	593,146	Oct. 19	2133	504	81	464

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fence-post	R. B. Robbins	592,997	Nov. 2	437	108	81	892
Fence-post	H. E. Speyer	595,217	Dec. 7	661	104 159	81	1742
Fence-stay machine. Wire	P. Frantz	592,727	Oct. 26	3466	726 727 728	81	777
Fence stays. Spring-clamp for wire	M. B. Walter	593,868	Nov. 16	2050	488	81	1230
Fence tool. Wire	G. P. Smith	592,836	Nov. 2	160	26	81	839
Fence. Wire	T. M. Guest	591,470	Oct. 12	953	225 226	81	214
Fence. Wire	T. B. Johnson	596,008	Dec. 21	2006	479	81	2053
Fence. Wire	G. D. Lockwood	594,207	Nov. 23	2595	614	81	1354
Fence. Wire	A. B. Probasco	592,080	Oct. 19	1901	452	81	430
Fence. Wire	S. Shown	596,384	Dec. 28	2689	637	81	2304
Fence. Wire	L. Soseman	591,708	Oct. 12	1360	319	81	298
Fence. Wire	R. T. Van Valkenburg	591,064	Oct. 5	219	51	81	44
Fence. Wire	F. Schmitt	594,909	Dec. 7	309	51	81	1660
Fence-wire machine	W. H. Linton	592,798	Nov. 2	73	16	81	821
Fence-wire ratchet	J. W. Schaal	594,708	Nov. 30	3539	824	81	1558
Fence-wire stretcher	F. Mosure	591,238	Oct. 5	546	129	81	104
Fence-wire tightener	S. H. Purdy and R. B. Carson	591,294	Oct. 5	642	151	81	122
Fence. Woven-wire	H. C. Anderson	592,719	Oct. 26	3455	734 735	81	775
Fencing-machine	A. J. Bates	591,996	Oct. 19	1853	441 442 443	81	412
Fencing. Machine for making wire	A. Mauser	593,484	Nov. 9	1312	318	81	1075
Fender: *See* Car-fender. Fire-fender.							
Fertilizer-distributer or seed-planter	A. B. Elmore	593,087	Nov. 2	582	141	81	990
Fertilizers. Apparatus for making	A. Morris	591,987	Oct. 19	1833	436	81	407
Fiber-cleansing apparatus	S. B. Allison	596,199	Dec. 28	2358	559	81	2140
Fibrous plants. Apparatus for treating	G. E. N. I. E. Subra	594,973	Dec. 7	216	53	81	1661
Fifth-wheel	H. G. Boorse and J. Y. Gross	592,232	Oct. 26	2276	536	81	512
Fifth-wheel	J. C. Mitchell and L. B. Perry	591,867	Oct. 19	1616	384	81	365
Fifth-wheel	W. C. Parsons	592,712	Oct. 26	3445	732	81	773
Fifth-wheel. Vehicle	S. M. Wright	595,683	Dec. 14	1427	344	81	1920
File	H. A. Beltz	591,448	Oct. 12	921	217	81	208
File. Bill	J. M. Butcher	592,864	Nov. 2	202	46	81	847
File. Card	R. L. Vilas	595,095	Dec. 7	436	103	81	1700
File-case	E. Fowler	594,990	Dec. 7	264	63	81	1670
File holder. Periodical	C. A. Fetters	594,827	Nov. 30	3753	875	81	1601
File or rasp	O. Olson	593,028	Nov. 2	483	116	81	901
Filing-case	T. Waring	595,982	Dec. 21	1976	473	81	2047
Filing-receptacles. Device for securing balls in	H. L. Maxcy	595,109	Dec. 7	490	118	81	1710
Film-spool	J. Carbutt	594,458	Nov. 30	3059	718	81	1462
Filter	J. Davis	590,966	Oct. 5	29	7	81	8
Filter	O. H. and W. M. Jewell	593,666	Nov. 16	1673	406	81	1157
Filter	M. E. Jones	591,279	Oct. 5	616	144 145	81	116
Filter	H. Lardner and C. Brent	595,182	Dec. 7	610	146	81	1733
Filter	J. T. Manning	594,637	Nov. 30	3393	794 795	81	1527
Filter	W. T. Moffitt	592,825	Oct. 26	3113	686	81	708
Filter	E. Morrison	594,415	Nov. 30	2976	700	81	1445
Filter	I. N. Speer and H. G. McLean	592,742	Oct. 26	3498	735	81	783
Filter	G. H. Ward	592,675	Oct. 26	3381	706	81	762
Filter	J. T. Manning	594,640	Nov. 30	3494	797	81	1533
Filter and valve apparatus therefor	C. F. H. Franke and F. Buchhorn	593,573	Nov. 16	1507	366	81	1126
Filter. Self-cleaning	J. T. Manning	594,639	Nov. 30	3416	796 797	81	1531
Filter valve apparatus	W. Hunter	594,605	Nov. 30	3511	817	81	1552
Filter. Water	S. C. Parsons	591,006	Oct. 5	104	23	81	28
Filter. Water	H. F. Risch	594,160	Nov. 23	2521	597	81	1341
Filter. Water	J. L. Shiring	594,182	Nov. 23	2555	605	81	1346
Filter. Water	J. Mohring	591,108	Oct. 5	288	70	81	57
Filtering-surfaces. Method of and means for cleaning	J. G. Ward	595,929	Dec. 21	1884	450	81	2038
Finger-rings. Manufacture of	E. Ehler	593,536	Nov. 9	1415	341	81	1096
Fire-alarm	S. W. Ludlow	591,408	Oct. 12	849	197	81	198
Fire-alarm	J. Staples and W. H. Spake	592,643	Oct. 26	3303	687	81	746
Fire-alarm	J. Y. Shallenberger	592,921	Nov. 2	202	67, 68	81	864
Fire alarm and extinguishing mechanism	T. F. Robinson and F. Smith	591,009	Oct. 5	110	24	81	23
Fire-alarm. Automatic	K. O. Slosky	591,700	Oct. 12	1355	317	81	202
Fire-alarm. Thermic	A. A. Clive	592,196	Oct. 19	2200	502	81	478
Firearm. Breech-loading	J. M. Whittemore	594,716	Nov. 30	3550	826 827	81	1561
Firearm. Breech-loading	D. H. Houston	593,800	Nov. 16	2077	491	81	1236
Firearm extension-stock	J. C. Critchett	595,046	Dec. 7	371	91	81	1689
Firearm-lock	O. P. Elterich	594,893	Dec. 7	88	10	81	1629
Firearm-lock	H. Pieper	591,291	Oct. 5	638	150	81	121
Firearm lock mechanism	A. Burgess	591,525	Oct. 12	1060	248 249	81	293
Firearm. Recoil-operated	C. H. R. Clausius	593,885	Nov. 16	1982	467	81	1216
Firearm. Recoil-operated	W. H. Davenport	593,230	Oct. 26	2290	539	81	515
Firearm shell-ejecting device	J. A. Kennedy	592,740	Oct. 26	3495	734	81	782
Firearm-sight	L. H. Smith and F. L. Crass	593,616	Nov. 16	1589	382 383	81	1142
Firearms. Ejector mechanism for breech-loading	W. G. Hamilton	593,213	Nov. 9	846	208	81	988
Fire-box partition. Adjustable	J. E. Phillips	594,838	Nov. 30	3768	879	81	1603
Fire-door	J. H. Bates	593,319	Nov. 9	1085	260	81	1022
Fire-escape	C. J. Beebe	594,318	Nov. 23	2784	658	81	1391
Fire-escape	J. Dempster	592,569	Oct. 26	3304	663	81	736
Fire-escape	W. Fischer	595,453	Dec. 14	1066	256	81	1845

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fire-escape	M. S. Lodewick	594,250	Nov. 23	2675	633 634	81	1370
Fire-escape	M. Schmidt	595,973	Dec. 21	1959	468	81	2043
Fire-escape	J. E. Smoot	595,082	Dec. 7	429	102 103	81	1699
Fire-escape	W. C. Williams	596,198	Dec. 28	2357	559	81	2140
Fire-escape bracket	C. V. Richey	596,427	Dec. 28	2766	654	81	2220
Fire-extinguisher. Automatic	F. J. Gschwind	590,976	Oct. 5	47	11	81	11
Fire-extinguisher. Hand	S. M. Stevens	593,185	Nov. 2	665	150	81	988
Fire-extinguishers. Automatic sprinkler for	C. B. Shaw	594,971	Dec. 7	212	52	81	1661
Fire-extinguishing apparatus	J. O. Banning	595,115	Dec. 7	500	120	81	1712
Fire-fender	H. Wilson	591,315	Oct. 5	668	158	81	127
Fire-kindler	E. Lane	594,024	Nov. 23	2305	544	81	1298
Fire-lighter	W. A. Saul and J. M. Zimmerman	592,450	Oct. 26	2985	605	81	683
Fire-lighter. Automatic	W. S. Overlin	592,892	Nov. 2	232	53	81	852
Fireman's tool and hose carrier	J. H. Murnan	593,901	Nov. 16	2005	496	81	1240
Fireplace-back	S. J. Reynolds	591,931	Oct. 19	1744	417	81	391
Fireplace screen and blower	W. F. Daniel	596,056	Dec. 28	2121	503	81	2095
Fire-plug	E. C. Wiley	595,506	Dec. 14	1158	278	81	1863
Fireproof building	J. E. Hintze	593,804	Nov. 16	1923	457	81	1203
Fireproof floor	R. A. Kinkele	592,117	Oct. 19	2083	492	81	454
Fireproof floor and ceiling	C. A. Balph and E. P. S. Wright	593,547	Nov. 9	1440	350	81	1097
Fireproof-floor construction	F. Omels	594,705	Nov. 30	3530	822	81	1556
Fireproof floors, flats, walls, &c. Constructing	J. T. Hanson	595,169	Dec. 7	586	140	81	1729
Fireproof flooring	T. J. Foster	595,769	Dec. 21	1582	382	81	1966
Fire-telegraph repeater	F. A. Skelton	596,250	Dec. 28	2434	575 576	81	2156
Firing-pin. Universal	F. H. Tichenor	592,942	Nov. 2	334	78	81	873
Fish-cleaning machine	G. W. Stevenson	592,500	Oct. 26	3064	623 624	81	698
Fish cutting and trimming machine	C. P. Overton	593,422	Nov. 9	1207	292	81	1053
Fish-drying apparatus	A. Morris	591,986	Oct. 19	1832	436	81	407
Fish-hook	C. A. Bracklo	595,691	Dec. 21	1438	347	81	1940
Fish-hook	J. D. Dreese	595,995	Dec. 21	1907	477	81	2052
Fish-hook. Automatic	R. Schindler	594,906	Dec. 7	113	29	81	1643
Fish-hook book	F. W. Klinger	592,493	Oct. 26	3056	621	81	697
Fish-hook holder	H. H. Garland	595,996	Dec. 21	2000	478	81	2052
Fish-line reel	W. Shakespeare, Jr	591,096	Oct. 5	257	61	61	51
Fish-plate fastening	A. R. Pullen	594,362	Nov. 23	2871	677	81	1408
Fishing apparatus	H. M. Dodge	594,609	Nov. 30	3342	784	81	1517
Fishing-float	G. H. Wenger	595,664	Dec. 14	1402	338	81	1915
Fishing-reel	H. W. Martin	594,411	Nov. 30	2965	698 699	81	1443
Fishing-reel	H. W. Martin	594,412	Nov. 30	2969	699	81	1444
Fishing-reel	H. McNulta	592,593	Oct. 26	3228	567	81	729
Fishing-reels. Pivot ball-bearing for	A. F. and W. Meisselbach	595,110	Dec. 7	492	118	81	1711
Fishing-rod	J. M. Kenyon	592,613	Oct. 26	3256	574	81	736
Flagstaff-holder	W. Hart	596,207	Dec. 28	2369	561	81	2142
Flagstaff-holder	G. P. Neely	593,601	Nov. 16	1558	377	81	1135
Flanging-machine	E. Einfeldt	592,767	Nov. 2	22	5	81	811
Flash-light composition	J. A. Boetwick	594,594	Nov. 30	3318	778	81	1512
Flashing for use in building construction	T. J. Hind	596,266	Dec. 28	2467	586	81	2161
Flat-iron cleaner	O. S. Bradley	592,560	Oct. 26	3170	654	81	720
Flooring	A. Loewi	594,701	Nov. 30	3524	821	81	1554
Flooring-joiner	J. L. Carroll	593,982	Nov. 23	2237	531	81	1296
Floors for buildings. Construction of concrete	W. H. Jenkins	591,405	Oct. 12	843	196	81	193
Flour bin and sifter	B. D. Cook	593,350	Nov. 9	1085	262	81	1081
Flour-bin and spice-receptacle	M. F. Brown	591,124	Oct. 5	326	79, 80	81	64
Flour-dressing machine	G. T. Smith	591,017	Oct. 5	128	28	81	26
Flour. Self-raising	E. M. Tingle	595,980	Dec. 21	1973	----	81	2046
Flower. Artificial	J. J. McLaughlin	593,329	Nov. 9	1058	255	81	1026
Flower-holder	J. L. Sturtevant	596,221	Dec. 28	2389	565	81	2146
Flower-pot	M. Simpson	592,066	Oct. 19	1990	470	81	437
Flower-pot attachment	C. W. Werner	592,556	Oct. 26	3165	652	81	719
Flue-cleaner	G. E. R. Rothenbücher	595,971	Dec. 21	1954	467	81	2042
Flue-cleaner	H. F. Weinland	594,221	Nov. 23	2614	616	81	1357
Flue-cleaner rod	J. L. Marvin	593,673	Nov. 16	1684	408	81	1159
Flue cutter and expander	W. D. Hervey	594,081	Nov. 23	2399	569 570	81	1317
Flue-stop	J. A. Hadley	594,871	Dec. 7	46	12	81	1631
Flue-stopper	H. H. Baltzley	595,508	Dec. 14	1290	311	81	1892
Fluid-distribution system	D. H. Maury, Jr	592,943	Nov. 2	531	128	81	910
Fluid. Means for indicating movement or cessation of movement of	O. Carpenter	594,223	Nov. 23	2792	659	81	1392
Fluid-pressure brake	H. S. Smith	591,701	Oct. 12	1356	317	81	202
Fluid-pressure brake apparatus. Automatic	W. T. Bothwell	595,760	Dec. 21	1565	378	81	1963
Fluid-pressure brake. Automatic	J. J. Finney	595,706	Dec. 21	1469	354	81	1946
Fluid-pressure engine	F. F. Fischer	592,108	Oct. 19	2069	489	81	451
Fluid-pressure engine or motor	R. A. Parke	594,901	Dec. 7	108	27	81	1641
Fluid-pressure machine	C. H. Johnson	592,115	Oct. 19	2079	491	81	454
Fluid-pressure regulator	G. G. Clark	595,147	Dec. 7	543	131	81	1721
Fluid-pressure regulator	G. G. Clark	596,140	Dec. 28	2265	537	81	2123
Fluid-pressure regulator	F. Erb	595,614	Dec. 14	1319	318	81	1898
Fluid-pressure regulator	D. J. and S. Farmer	592,197	Oct. 19	2210	522 523	81	479
Fluid-pressure regulator	D. J. and S. Farmer	592,198	Oct. 19	2214	523	81	480
Fluid-pressure regulator	J. M. Foster	593,001	Nov. 2	587	142	81	928
Fluid-pressure regulator	A. Helthecker	595,540	Dec. 14	1209	291	81	1874
Fluid-pressure regulator	J. Rigling and J. Mayers	591,881	Oct. 19	1688	391	81	371
Fluid-pressure regulator	E. L. Sharpneck and G. F. Knox	592,212	Oct. 19	2228	527	81	482
Flushing device	W. Scott	591,016	Oct. 5	124	27, 28	81	26
Flushing-valve lock	C. H. Shepherd	594,709	Nov. 30	3540	824	81	1559
Flute	C. T. Giorgi	594,735	Nov. 30	3588	834	81	1568
Flux for welding metals	P. Quinn	592,642	Oct. 26	3305	----	81	746
Fly-trap	F. A. Lane	594,606	Nov. 30	3517	818	81	1553
Flying-machine	J. Richardson	596,251	Dec. 28	2405	598	81	2150

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fodder-binder	J. P. Nugent	594,487	Nov. 30	3111	729	81	1473
Fodder-cutter	J. Dick	591,591	Oct. 12	1178	277	81	255
Fodder-mill shredder-cylinder	C. F. Haldeman and E. W. Silver	594,250	Nov. 23	2950	630	81	1367
Fodder-shredder	J. K. Wilder	593,005	Nov. 2	449	107	81	894
Fodder-shredder cylinder	J. Dick	596,059	Dec. 28	2124	508	81	2096
Fodder-shredding machine	J. Carrey	596,013	Dec. 21	2023	483	81	2057
Folding and winding strips of flexible material. Machine for	A. L. Adams and G. E. Hawes	594,586	Nov. 30	3295	774 / 775	81	1508
Folding box	J. A. Hays	594,690	Nov. 30	3504	816	81	1551
Folding box	J. Noland	593,489	Nov. 9	1321	320	81	1077
Folding box	C. and F. H. Peck	592,253	Oct. 26	2310	544 / 545	81	519
Folding bracket for builders' use	C. M. Dearborn	593,202	Nov. 9	819	195	81	982
Folding chair	K. M. Coonrod	592,695	Oct. 26	3416	714	81	768
Folding chair	I. G. Leek	595,316	Dec. 14	829	204	81	1800
Folding gate	J. H. Henning and J. E. Schmid	596,327	Dec. 28	2574	613	81	2181
Food-chopper	L. T. Snow	591,575	Oct. 12	1150	270	81	250
Foot. Artificial	J. F. Read	594,121	Nov. 23	2456	583	81	1328
Foot-power application	C. K. Heath	593,867	Nov. 16	2074	490	81	1235
Foot-warmer	J. P. Berchem	595,519	Dec. 14	1174	282	81	1667
Forge tire-holder	J. B. Farrar	593,088	Nov. 2	584	141	81	921
Forging machine. Metal-	F. G. Myers	591,285	Oct. 5	630	148	81	119
Fork: *See* Hay-fork.							
Fork	G. P. McCorkile	594,644	Nov. 30	3440	799	81	1538
Fork for holding ears of corn	W. H. White	592,897	Nov. 2	258	58	81	857
Forks. Detachable shovel-blade for	E. P. Oveson	596,120	Dec. 28	2226	528	81	2115
Form and press. Garment	L. M. Marble	593,161	Nov. 2	743	178	81	954
Form for displaying clothing	H. Lyons	593,592	Nov. 16	1539	374	81	1132
Formaldehyde-generator	F. C. Robinson	593,128	Nov. 2	644	155	81	933
Fountain: *See* Drinking-fountain. Ink-fountain.							
Fourdrinier machines. Shake-rail for	C. E. Barrett	595,753	Dec. 21	1541	372	81	1960
Fracture apparatus	D. Fortney	594,865	Dec. 7	40	10	81	1029
Frame: *See* Curtain-drying frame. Drying-frame. Quilting-frame. Sewing-machine quilting-frame. Skylight-frame.							
Fruit cutting and pitting machine	T. M. Topp	596,343	Dec. 28	2599	619	81	2186
Fruit-drier	B. L. Ryder	592,256	Oct. 26	2315	546	81	520
Fruit-gatherer	C. Blair	595,870	Dec. 21	1775	426	81	2005
Fruit-gatherer	I. C. Drake	591,113	Oct. 5	305	74	81	60
Fruit-gatherer	F. F. Funk	595,160	Dec. 7	564	136	81	1725
Fruit-gatherer	J. E. Guenther	591,131	Oct. 5	359	81	81	66
Fruit or wine press	R. Beatty	595,034	Dec. 7	338	82	81	1694
Fruit-picker	J. W. Downey	595,531	Dec. 14	1199	288	81	1673
Fruit-picker	D. J. Etly	594,237	Nov. 23	2639	634	81	1362
Fruit-picker	M. M. Appleman	594,189	Nov. 23	2565	607	81	1349
Fruit-press	C. Leigh	592,652	Oct. 26	3322	801	81	749
Fruit-squeezer	H. Willard, (now by marriage H. W. McNair.)	591,942	Oct. 19	1767	422	81	396
Fruit-stoning device	J. T. Davis	595,672	Dec. 14	1412	------	81	1917
	J. T. Davis	595,673	Dec. 14	1413	------	81	1917
Fuel. Artificial	J. T. Davis	594,730	Nov. 30	3597	------	81	1570
Fuel. Artificial	H. Hansen	594,598	Nov. 30	3210	752	81	1491
Fuel-blocks from petroleum. Manufacture of	A. Kitson	594,980	Dec. 7	57	------	81	1631
Fuel-charging apparatus. Automatic	R. Illing	595,324	Dec. 14	899	207	81	1802
Fuel. Composition of matter for artificial	C. K. MacFadden and E. F. Lloyd	593,777	Nov. 16	1872	448	81	1194
Fuel-engine	T. H. McDonald	593,934	Nov. 16	1981	466	81	1216
Fumigator	C. G. Chambers	591,894	Oct. 19	1658	397	81	374
Funnel and strainer. Combined	J. F. Sprain						
Funnel. Automatic							
Furnace: *See* Annealing-furnace. Baking, cooking, and heating furnace. Blast-furnace. Boiler-furnace. Electric furnace. Heating-furnace. Heating and roasting furnace. Hot-air furnace. Hydrocarbon-furnace. Lime-burning furnace. Metallurgical furnace. Plumber's furnace. Plumber's or brazier's furnace. Self-feeding furnace. Shaft or blast furnace. Slow-combustion furnace. Smelting-furnace. Smoke-consuming furnace.							
Furnace	J. M. Roe	595,887	Dec. 21	1696	409	81	1989
Furnace	E. S. Rogers	592,065	Oct. 19	1988	470	81	437
Furnace	J. G. Sanderson	592,616	Oct. 26	3263	676	81	737
Furnace	A. Stein	596,251	Dec. 28	2441	576	81	2156
Furnace	W. Tomlison	591,993	Oct. 19	1841	438	81	409
Furnace	H. E. Parson	592,204	Oct. 19	2219	525	81	481
Furnace blast-pipe. Steel-	H. C. Talbot	592,976	Nov. 2	410	96	81	886
Furnace-door		594,662	Nov. 30	3466	806 / 807	81	1543
Furnace-valve	J. R. Speer	594,243	Nov. 23	2649	627	81	1365
Furnaces and converters. Apparatus for supplying air to blast-	J. Gayley	591,752	Oct. 12	1439	338	81	307
Furnaces. Apparatus for feeding bagasse, sawdust, &c., to	J. Fisher	592,635	Oct. 26	3293	684	81	743
Furnaces. Protective arch-plate for mouths of boiler-	B. B. Lamprey	592,006	Oct. 19	1876	447	81	416
Furnaces. Rake appliance for ore-roasting	J. W. Hegeler	591,986	Oct. 19	1761	421	81	395
Furniture-brace	G. M. Spence	595,876	Nov. 16	2060	486	81	1232
Furniture-fastening	S. J. De Long, H. B. Pelton, and J. Stewart.						
Furniture fastening device	W. S. Hitch	593,888	Nov. 16	2075	490	81	1236

Alphabetical list of patentees, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Furniture. Framing for articles of	J. C. Horn	591,275	Oct. 5	610	142 / 143	81	115
Fuse-block	D. A. Schutt	595,585	Dec. 14	1275	306	81	1898
Fuse-block. Magazine	W. Ehrhardt	595,244	Dec. 7	729	178	81	1755
Fuse-box	A. W. France	591,917	Oct. 19	1723	412	81	387
Fuse cutter, splitter, and crimper	C. G. Brunell	594,852	Dec. 7	22	5	81	1625
Fuse-cutting tool	E. A. Langford	595,915	Dec. 21	1867	446	81	2025
Fuse-holder. Removable	J. T. Hunt	596,209	Dec. 28	2371	562	81	2143
Fuse-plug	D. A. Schutt	594,908	Dec. 7	114	29	81	1643
Fuse. Shell-	F. H. Cogswell	593,765	Nov. 16	1849	443	81	1190
Gage: *See* Bevel-gage. Door-butt gage. Fence-gage. Micrometer-gage. Punch-gage. Shingling-gage. Slide-gage. Steam-gage. Water-gage.							
Gage	H. R. Brown	591,342	Oct. 5	719	170	81	139
Gage	E. H. Byer	595,370	Dec. 14	919	223	81	1817
Galvanic battery	H. J. Brewer	592,760	Nov. 2	10	3	81	809
Galvanic battery	C. B. Schoenmehl	591,427	Oct. 12	892	206	81	300
Galvanizing-machine	E. B. Cook	590,965	Oct. 5	25	6	81	7
Galvano-cautery instrument	C. MacGregor	595,573	Dec. 14	1260	302	81	1885
Game and discount apparatus. Coin-operated	L. Canda	592,762	Nov. 2	14	4	81	809
Game apparatus	J. Adler	593,731	Nov. 16	1781	428	81	1177
Game apparatus	P. Andriot	591,794	Oct. 12	1499	356	81	322
Game apparatus	C. B. Camburn	591,737	Oct. 12	1411	332	81	303
Game apparatus	S. Crocker	592,081	Oct. 19	2014	477	81	442
Game apparatus	R. S. and F. B. Crooks	595,372	Dec. 14	921	223	81	1818
Game apparatus	C. A. French	592,087	Oct. 19	2031	480	81	445
Game apparatus	J. F. Patterson	596,089	Dec. 28	2175	515	81	2105
Game apparatus	D. Smith	592,498	Oct. 26	3062	623	81	698
Game apparatus	A. W. Whitney	593,343	Nov. 9	1074	259	81	1029
Game apparatus	W. S. James	595,440	Dec. 14	1046	250	81	1840
Game apparatus. Biblical	W. Mumbrauer	593,421	Nov. 9	1206	291	81	1053
Game-board	O. A. Wade	593,794	Nov. 16	1910	454	81	1201
Game-board. Parlor	T. Brodeur and T. O. Thayer	593,511	Nov. 9	1374	332	81	1085
Game-counter	F. Carson and W. Glenn	592,927	Nov. 2	298	69	81	866
Game-counter	A. P. Cole	592,047	Oct. 19	1946	461	81	429
Game-counter	W. C. James	592,054	Oct. 19	1965	464	81	432
Game-counter	W. J. Clark	592,465	Oct. 26	3019	612	81	689
Game device	W. J. Coggeshall	595,904	Dec. 21	1842	441	81	2019
Game device	C. V. Emerson and J. A. Hilcken	591,961	Oct. 19	1796	428	81	401
Game device	E. A. Fletcher	595,157	Dec. 7	560	135	81	1794
Game. Music-block	C. B. Bodine	592,948	Nov. 2	348	81	81	875
Garbage-crematory	L. R. Houchens	593,525	Nov. 9	1395	336	81	1089
Garbage-receptacle	L. Rissmuller	596,008	Dec. 21	2012	481	81	2055
Garbage. Treating	C. C. Currier	593,198	Nov. 9	809	193 / 194	81	981
Garbage-treating apparatus	W. A. O'Brien	594,647	Nov. 30	3443	800	81	1539
Garment. Bifurcated union	J. Weir	594,066	Nov. 30	3470	808	81	1544
Garment-fitting device	C. H. Garrigus	595,564	Dec. 14	1239	290	81	1880
Garment-hanger	M. C. Schwabe	596,461	Dec. 28	2883	668	81	2234
Garment-hanging loop	J. J. Dossert	594,132	Nov. 23	2475	586	81	1881
Garment-supporter	R. Gorton	594,006	Nov. 23	2274	538	81	1293
Garment-supporter	I. L. Haight	593,210	Nov. 9	842	201	81	987
Garment-supporter	E. E. Phillips	592,479	Oct. 26	3037	618	81	696
Garment-supporter	C. M. Allen	595,082	Dec. 7	335	81	81	1683
Garment-supporter clamp	E. Meredith	593,276	Nov. 9	960	232 / 233	81	1006
Gas and air mixer	S. H. Short	594,435	Nov. 30	4013	708	81	1453
Gas and electric generator plant. Combined	J. H. Baker	592,185	Oct. 19	2193	517	81	475
Gas apparatus	W. A. Ruhe and H. S. Burbank	595,924	Dec. 21	1879	449	81	2027
Gas apparatus. Acetylene-	G. Lebrun and F. Cornaille	595,816	Dec. 21	1662	401	81	1983
Gas. Apparatus for producing acetylene	H. W. Billington	593,453	Nov. 9	1252	301	81	1063
Gas-burner	G. Bray	596,258	Dec. 28	2450	579	81	2158
Gas-burner	F. M. Brooks	595,702	Dec. 21	1569	379	81	1964
Gas-burner	J. A. Kloeb	591,046	Oct. 5	152	35	81	39
Gas-burner	E. Lindner	595,317	Dec. 14	890	205	81	1801
Gas-burner	W. D. Smith	593,785	Nov. 16	1884	451	81	1196
Gas-burner	S. G. Stoddard	593,730	Nov. 16	1779	428	81	1177
Gas-burner	A. E. Vogler and C. G. Richardson	593,342	Nov. 9	1073	259	81	1029
Gas-burner	L. Henkle and F. H. Goddard	596,112	Dec. 28	2216	526	81	2113
Gas burner. Acetylene-	J. Lebeau and L. Mineur	592,209	Oct. 26	2379	562	81	533
Gas burner. Acetylene-	W. G. Taylor	594,816	Nov. 30	3734	869 / 870	81	1597
Gas-burner. Fireplace or stove	E. J. Dolan	595,848	Dec. 21	1718	413	81	1994
Gas. Burner for burning rich gases, especially acetylene	E. J. Dolan	596,144	Dec. 28	2272	538	81	2123
Gas. Burner for burning rich gases, especially acetylene	R. Henderson	594,251	Nov. 23	2661	631	81	1357
Gas burner. Fuel-	M. Eisner	591,096	Oct. 5	173	39	81	36
Gas-burner. Incandescent	S. H. Moore	593,364	Nov. 9	1108	267	81	1034
Gas-burner. Incandescent	D. P. Stirk	593,619	Nov. 16	1598	383	81	1143
Gas-burner. Multiple	H. Borchardt	594,376	Nov. 30	2900	684	81	1431
Gas-burners. Automatic lighting device for	P. Auriol	592,073	Oct. 19	2000	473	81	489
Gas-engine	J. Q. Chase	595,043	Dec. 7	357	86, 87	81	1687
Gas-engine	J. B. Fenner	596,239	Dec. 28	2416	571 / 572	81	2153
Gas-engine	A. L. Harbison	595,625	Dec. 14	1334	322	81	1901
Gas-engine	C. L. Mayhew	591,862	Oct. 19	1609	382 / 383	81	364
Gas-engine	E. Meredith	595,489	Dec. 14	1129	272	81	1857
Gas-engine	A. Rosenberg	593,850	Nov. 16	2081	477 / 478	81	1236
Gas-engine	C. Sintz	592,609	Oct. 26	3370	708	81	759
Gas-engine	F. W. Spacke	593,634	Nov. 2	493	190	81	903

Alphabetical list of patentees, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gas engine and generator	D. Best. (Reissue)	11,633	Oct. 12	1508	358	81	923
Gas-engine. Compound	E. R. Bales	596,352	Dec. 28	2615	623	81	2190
Gas-fixture. Self-locking	R. S. Whittler and J. N. Landers	592,188	Oct. 19	2191	516	81	1675
Gas. Generating acetylene	W. Bolton	596,139	Dec. 28	2365	------	81	2122
Gas-generating apparatus. Acetylene-	C. H. Bellamy	592,759	Nov. 2	7	2	81	808
Gas-generating machine	L. T. Bulley	596,321	Dec. 28	2559	609 610	81	2178
Gas-generating machine	F. A. Hutter	594,742	Nov. 30	3602	837 838	81	1571
Gas-generator	H. J. Burt	592,605	Oct. 26	3242	671	81	733
Gas-generator	C. R. Miller	595,857	Dec. 21	1734	416 417	81	1908
Gas generator. Acetylene-	G. Bettini	594,849	Dec. 7	15	4,5	81	1623
Gas generator. Acetylene-	D. R. Blanchard	596,138	Dec. 28	2262	536	81	2122
Gas generator. Acetylene-	C. P. Choquette and A. M. Morin	595,451	Dec. 14	1064	255	81	1844
Gas generator. Acetylene-	J. H. Couper	595,119	Dec. 7	505	121	81	1713
Gas generator. Acetylene-	F. D. Dibble	596,108	Dec. 28	2302	522	81	2111
Gas generator. Acetylene-	J. C. Dupee	592,083	Oct. 19	2018	477 478	81	443
Gas generator. Acetylene-	J. C. Dupee	592,084	Oct. 19	2023	478	81	443
Gas generator. Acetylene-	J. S. Ferguson	594,826	Nov. 30	3752	874	81	1600
Gas generator. Acetylene-	O. S. Hellwig	594,175	Nov. 2	641	155	81	932
Gas generator. Acetylene-	J. M. Raymond and L. E. Lemley	593,122	Nov. 2	1611	397	81	1146
Gas generator. Acetylene-	B. F. Williams	593,628	Nov. 16	1924	456 457	81	425
Gas generator. Acetylene-	D. S. Williams	592,085	Oct. 19	2059	487	81	450
Gas generator and burner	O. P. Talley	592,102	Oct. 19	617	------	81	927
Gas-incandescent	O. Knöfler	593,106	Nov. 2	2002	684	81	1432
Gas-lighters. Means for holding platinum sponges in automatic	H. Borchardt	594,377	Nov. 30	229	54	81	46
Gas-lighting apparatus. Electric	A. L. Bogart	591,071	Oct. 5	316	76	81	1679
Gas-lighting device	C. T. Lynd	595,023	Dec. 7	2410	570	81	2151
Gas-lighting device. Electric	A. L. Bogart and L. S. White	596,236	Dec. 28	904	------	81	204
Gas-lights. Material for hoods or mantles for incandescent	W. L. Voelker	591,438	Oct. 12				
Gas-machine	J. C. Oliver	593,692	Nov. 16	1695	410	81	1161
Gas machine. Acetylene-	H. Bryant	595,668	Dec. 14	1407	340	81	1916
Gas-machine. Electrically-driven	T. J. Fay	593,718	Nov. 16	1767	424	81	1174
Gas-main stopper	P. Goodman	591,271	Oct. 5	605	141	81	115
Gas-making apparatus	L. W. Swem	595,979	Dec. 21	1971	471	81	2046
Gas-manufacturing apparatus	A. Kitson	594,540	Nov. 30	3215	753 754	81	1492
Gas-mixer	W. Langsenkamp, Jr	595,916	Dec. 21	1868	446	81	2025
Gas or liquid receiver	R. Kelting	595,124	Dec. 7	514	123	81	1715
Gas or oil motor engine	F. W. Lanchester	592,794	Nov. 2	68	15	81	820
Gas or petroleum machines. Regulating device for	C. A. Sundberg	594,042	Nov. 23	2338	552	81	1304
Gas-producer	W. B. Hughes	593,693	Nov. 16	2081	492	81	1237
Gas-producer	W. B. Hughes	593,694	Nov. 16	2084	493	81	1238
Gas-producer	A. Kitson	594,537	Nov. 30	3207	752	81	1490
Gas-producer	A. Kitson	594,539	Nov. 30	3212	752 753	81	1492
Gas-producer	A. Kitson	596,018	Dec. 21	2083	485	81	2059
Gas-producer	C. R. Miller	595,858	Dec. 21	1736	417 418	81	1908
Gas-producer	K. M. Mitchell and J. Harleman	594,483	Nov. 30	3105	728	81	1471
Gas-producer	B. Talbot	593,865	Nov. 16	2044	481	81	1228
Gas-producer	J. G. Sanderson	596,428	Dec. 28	2767	654	81	2220
Gas-producing apparatus	G. A. Bronder	595,089	Dec. 7	345	84	81	1685
Gas-retorts. Machinery for discharging	C. E. and W. Schuster	592,597	Oct. 26	3229	669	81	731
Gas shut-off. Automatic	W. Webber	591,514	Oct. 12	1026	240 241	81	227
Gas-vending machine. Coin-controlled	W. Webber	591,515	Oct. 12	1032	242 243	81	227
Gas-vending machine. Coin-controlled	O. F. Lelbert	594,480	Nov. 30	3097	726	81	1470
Gas-washing apparatus	H. F. Watson and C. McCreary	595,867	Dec. 21	1768	425	81	2004
Gasket	D. Bánki and J. Csonka	595,552	Dec. 14	1224	294	81	1877
Gasolene-motor							
Gate: *See* End-gate. Farm-gate. Farm or garden gate. Folding gate. Irrigating-ditch gate. Mine-gate. Railway-gate. Railway-crossing gate. Sliding gate. Swinging gate. Tilting gate. Water-gate.							
Gate	Z. A. Barrett	596,023	Dec. 21	2052	488	81	2063
Gate	R. H. Berkstresser	591,320	Oct. 5	674	160	81	126
Gate	J. L. Blickenstaff	591,154	Oct. 5	390	80	81	73
Gate	A. G. Duncan	595,377	Dec. 14	990	225	81	1819
Gate	P. F. Glassbrenner	592,775	Nov. 2	59	8	81	814
Gate	T. C. Greene	593,324	Nov. 9	1047	253	81	1025
Gate	L. D. Hooper	593,939	Nov. 16	2162	512	81	1253
Gate	C. M. Lane	593,747	Nov. 16	1818	436	81	1184
Gate	J. Lane	591,780	Oct. 12	1484	351	81	318
Gate	P. Markley. (Reissue)	11,643	Dec. 28	2642	670	81	2275
Gate	V. Mitchell	594,080	Nov. 23	2318	547	81	1300
Gate	D. D. Ogilvie	592,251	Oct. 26	2308	544	81	518
Gate	G. W. Pettit	591,667	Oct. 12	1334	313	81	287
Gate	M. T. Stauffer and J. L. Tolson	593,060	Nov. 2	536	129	81	911
Gate	T. R. White	596,465	Dec. 28	2339	669	81	2234
Gate	W. R. White	593,146	Nov. 2	687	164 165	81	942
Gate	C. B. Johnson	593,159	Nov. 2	738	177 178	81	953
Gate operating and locking device	A. R. Oliver	593,116	Nov. 2	634	153	81	931
Gate-operating mechanism. Sliding-	A. Clouard	594,469	Nov. 30	3061	719	81	1462
Gazogene	C. B. Holmes	592,289	Oct. 26	2362	558	81	530
Gear-case for sprocket-and-chain drives							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gear-case for sprocket-and-chain drives	C. B. Holmes	592,289	Oct. 26	2365	559	81	530
Gear. Extension	W. E. Golding	593,982	Nov. 16	2152	510	81	1251
Gear for rolling-stock	P. Ellis	592,540	Oct. 26	3136	644	81	712
Gear-molding machine	F. Kepp	592,566	Oct. 26	3178	656	81	721
Gear. Reversing	J. H. Therien	592,483	Oct. 26	3043	619	81	694
Gear-wheel	C. A. Tredwell	594,219	Nov. 23	2612	618	81	1357
Gear-wheels. Manufacture of	D. S. Bissell	595,553	Dec. 14	1226	295	81	1877
Gearing	J. D. Partello and H. B. Rosenberg	595,730	Dec. 21	1504	364	81	1953
Gearing. Multiple	L. C. Cary	595,694	Dec. 21	1441	348	81	1941
Gearing. Sprocket-and-chain	F. E. Baldwin	593,714	Nov. 16	1755	422	81	1173
Generative burner. Compound	R. R. Stafford	594,574	Nov. 30	3273	768	81	1504
Generator: *See* Blast-generator. Current-generator. Electric generator. Formaldehyde-generator. Gas-generator. Inductor-generator. Magneto-electric generator. Steam-generator.							
Generator	H. C. Christopher	594,858	Dec. 7	31	8	81	1627
Generator-frame foundation	S. H. Short	596,290	Dec. 28	2484	590	81	2163
Gin-saw	J. M. Gardner	592,137	Oct. 19	2119	501 502	81	461
Gin-saw-filing machine	J. M. Beavers	592,045	Oct. 19	1942	461	81	428
Gin-saw sharpening and gumming machine	J. J. Smith	596,462	Dec. 28	2833	668 669	81	2234
Gin-saw-sharpening machine	J. M. Bradley	595,520	Dec. 14	1175	282 283	81	1867
Girders, &c. Means for supporting ends of	A. Westwood	592,852	Nov. 2	185	42	81	844
Glass: *See* Medicine-glass.							
Glass articles. Method of and apparatus for making hollow	G. W. Blair and H. J. Hays	596,355	Dec. 28	2620	624	81	2191
Glass-beveling machine	R. A. Schlegel	591,236	Oct. 19	1758	419 420	81	308
Glass-blowing machine	H. J. Colburn and M. J. Owens	594,343	Nov. 23	2334	670 671	81	1400
Glass bodies. Apparatus for cutting and ornamenting hollow	B. Gruhl	595,017	Dec. 7	307	74,75	81	1678
Glass bottles. Manufacture of	M. Söhnchen	594,494	Nov. 30	3128	733	81	1476
Glass-grinding machine	H. C. Schrader	595,974	Dec. 21	1960	468 469	81	2044
Glass objects. Apparatus for manufacturing	B. B. Hough	592,784	Nov. 2	52	11,12	81	817
Glass-presses. Device for controlling and directing air to	R. H. Thomas and J. A. Creighton	594,445	Nov. 30	3082	712	81	1456
Glass setting. Plate	J. and J. P. Love	593,110	Nov. 2	623	150	81	929
Glass tubing. Process of and apparatus for drawing.	A. A. Houghton	595,581	Nov. 16	1523	370	81	1129
Glassware. Apparatus for forming articles of	D. C. Ripley	593,857	Nov. 16	2021	476	81	1294
Glassware. Manufacture of	W. Buttler	592,078	Oct. 19	2008	475	81	441
Glassware-reheating apparatus	A. R. Lazure and J. J. Denning	593,108	Nov. 2	619	149	81	928
Glazed structure	E. W. Cunningham	595,805	Dec. 21	1646	396	81	1980
Globe, chimney, and shade support	G. F. Wehr	595,682	Dec. 14	1426	344	81	1920
Globe-holder	W. F. Malloy	591,984	Oct. 19	1830	435	81	407
Glove	F. H. Hunicke	593,475	Nov. 9	1301	314 315	81	1073
Glove	S. L. Luther	592,060	Oct. 19	1975	466	81	434
Glove	S. Schrecker	595,925	Dec. 21	1861	449	81	2028
Glove	E. Suit	594,490	Nov. 30	3134	734	81	1477
Glove-fastening device	W. B. Page	591,261	Oct. 5	586	138	81	111
Glue and making clay size. Dissolving	F. Kahrs	593,845	Nov. 16	1999	470	81	1220
Glue-kettle	E. L. Root	591,983	Oct. 19	1748	418	81	392
Gluing-press	W. Munch	592,916	Nov. 2	283	65, 66	81	863
Glycerin from spent soap-lye. Process of and apparatus for recovering	H. J. E. Hennebutte	591,219	Oct. 5	508	120	81	97
Gold-extracting machine. Placer-	W. M. Strong	594,041	Nov. 23	2336	551	81	1304
Gold from ores. Process of and apparatus for extracting	L. C. Daumas	591,527	Oct. 12	1065	249 250 251 252	81	233
Gold or other precious metals from earth, &c. Apparatus for extracting	B. S. Church	594,521	Nov. 30	3172	744 745	81	1484
Gold-washer. Portable	F. Kahn	594,255	Nov. 23	2066	632	81	1308
Gold washing and amalgamating machine	W. Notley	596,415	Dec. 28	2740	648 649	81	2215
Gold washing and separating machine	G. S. Meals	595,723	Dec. 21	1495	361	81	1951
Governor	G. A. Brachhausen	593,760	Nov. 16	1843	442	81	1189
Governor. Air-brake	A. C. Rumble	595,251	Dec. 7	738	180	81	1756
Governor. Engine-	F. H. and B. C. Ball	591,447	Oct. 12	917	216	81	207
Governor. Engine-	E. W. Erickson	592,529	Oct. 26	3119	637	81	709
Governor. Engine-	H. B. Halvorsen	593,802	Nov. 16	1919	457	81	1203
Governor. Engine-	F. Konley and C. J. Macomber	591,341	Oct. 5	717	169	81	138
Governor. Fluid-pressure-controlled	A. W. Cash	591,815	Oct. 19	1546	364 365	81	350
Governor for steam-engines. Dynamometric	A. L. F. Bayle	590,954	Oct. 5	7	2	81	4
Governor mechanism	G. A. Brachhausen	593,759	Nov. 16	1840	441	81	1188
Grab-hook	D. H. Langan	595,181	Dec. 7	609	145	81	1733
Grain adjuster or butter for binders	W. Gates	593,575	Nov. 16	1510	366	81	1127
Grain-binder	J. F. Appleby	594,842	Dec. 7	3	1	81	1621
Grain-binder	L. Miller	590,908	Oct. 5	83	18,19	81	18
Grain-binder horse-rake attachment	J. M. Lytle	595,957	Dec. 21	1936	462 463	81	2038
Grain-cleaner. Double-grade	A. J. and H. W. Cleland	594,459	Nov. 30	3060	718	81	1462
Grain-cutting mill	E. C. and J. O. Smith	594,972	Dec. 7	214	52, 53	81	1661
Grain-door	J. Watson	591,940	Oct. 19	1763	421	81	395
Grain-drier	J. Kurtzworth	592,590	Oct. 26	3129	637	81	709
Grain-drill shoe	O. T. Grattan	592,776	Nov. 2	41	9	81	814

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Grain elevating or dumping apparatus	W. F. Kendall	592,650	Oct. 26	3319	690 / 691	81	748
Grain-elevator	E. V. Johnson	595,391	Dec. 14	952	231	81	1824
Grain-moving apparatus. Pneumatic	F. J. Weber	592,848	Nov. 2	179	41	81	842
Grain purifier and drier	E. F. Cazalet	592,601	Oct. 26	3408	713	81	767
Grain-separator	J. M. McCue	591,001	Oct. 5	90	21	81	19
Grain-separator. Centrifugal	F. F. Landis. (Reissue)	11,631	Oct. 5	791	184 / 185	81	151
Grain-separator. Centrifugal	F. F. Landis. (Reissue)	11,632	Oct. 5	793	185	81	151
Grain-separator. Centrifugal	F. F. Landis. (Reissue)	11,644	Dec. 28	2843	670	81	2235
Grain-separator. Centrifugal	E. D. Johnston	595,310	Dec. 14	821	206	81	1799
Grain-tank	E. E. Bardsley	592,758	Nov. 2	7	2	81	866
Graphophone attachment	L. H. Cohen	592,693	Oct. 26	3412	713	81	767
Graphoscope	L. Wessel	596,255	Dec. 28	2445	578 / 579	81	2157
Grass curling and baling press	J. T. Glover	591,467	Oct. 12	950	224	81	214
Grate	J. W. Wolfe	593,006	Nov. 2	450	108	81	895
Grate	J. Reagan	594,904	Dec. 7	108	28	81	1642
Grate-bar	W. W. Wile and G. L. Calkin	593,287	Nov. 9	979	236	81	1011
Grate-bar. Hollow	W. P. Savage	593,311	Nov. 9	1026	248	81	1021
Grate. Heating	W. E. Payne and F. L. Joubert	595,649	Dec. 14	1371	331	81	1909
Grate. Hollow blast revoluble	D. C. Powell	594,424	Nov. 30	2993	708	81	1449
Grater	C. C. Bancroft	595,690	Dec. 21	1436	347	81	1940
Griddle	T. A. Watrous	591,513	Oct. 12	1025	240	81	226
Griddle	H. W. Latham	594,699	Nov. 30	3518	819 / 820	81	1553
Grinding cutlery. Means and machinery for	G. W. Kirsten	595,125	Dec. 7	515	123 / 124	81	1715
Grinding-machine	C. J. Luther	593,964	Nov. 16	2205	523	81	1262
Grinding-machine	E. D. Woods	593,425	Nov. 9	1212	293	81	1054
Grinding-machine	G. R. Mease	594,352	Nov. 23	2851	673 / 674	81	1403
Grinding-mill	C. Munson	591,988	Oct. 19	1835	437	81	408
Grinding-mill	E. Reynolds	592,828	Nov. 2	141	32	81	834
Grinding-mill	O. Simpson	594,101	Nov. 23	2424	576	81	1322
Grinding-mill	A. J. and W. B. Talley	593,823	Nov. 16	1966	465	81	1213
Grinding-mill	C. Munson	595,819	Dec. 21	1667	402	81	1984
Grinding-mill feeding mechanism	C. H. Norton	591,357	Oct. 5	754	177 / 178	81	145
Grinding or other machines. Micrometer-feed for	J. E. Lucken	593,402	Nov. 9	1176	283	81	1047
Grip-hook for binding-chains	R. Thackeray and W. Ferguson	591,180	Oct. 5	435	103	81	83
Grooving-cutter	J. H. and W. J. Connell	594,461	Nov. 30	3063	719	81	1463
Grubbing implement	J. B. Kimbell	595,950	Dec. 21	1925	460	81	2036
Guano-distributer	J. Johnson	595,949	Dec. 21	1923	459 / 460	81	2036
Gully or stench trap	H. S. Maxim	593,228	Nov. 9	887	212 / 213 / 214 / 215	81	993
Gun. Automatic	P. Oberhammer	592,437	Oct. 26	2968	600	81	679
Gun-barrel	S. Gloor	593,648	Nov. 16	1646	398	81	1152
Gun-cleaner	B. Burton	594,853	Dec. 7	23	6	81	1626
Gun. Magazine bolt	C. W. Volney	592,805	Nov. 2	256	------	81	857
Gunpowder	C. W. Volney	592,465	Oct. 26	3046	------	81	695
Gunpowder. Making	W. S. Burgess	591,155	Oct. 5	332	89, 90	81	73
Gun. Recoil-operated	L. L. Hepburn	591,220	Oct. 5	510	120 / 121	81	97
Gun safety device. Bolt	E. L. Zalinski	592,946	Nov. 2	344	80	81	874
Gun-sight. Telescopic	D. M. Winans	593,408	Nov. 9	1184	286	81	1049
Guns. Ejecting mechanism for drop-down	L. Obry	595,820	Dec. 21	1668	402 / 403 / 404	81	1984
Guns. Gyroscopic-controlled firing mechanism for ships'	M. Fischhaber	592,049	Oct. 19	1956	462	81	431
Hair-crimper	J. B. Nicholson	593,679	Nov. 16	1692	409	81	1161
Hair-crimper	H. V. Halliwell	591,966	Oct. 19	1802	429	81	402
Hair-drier	H. Fütterer	592,245	Oct. 26	2299	542	81	517
Hair-drier. Electric	L. C. Babcock	594,223	Nov. 23	2020	619	81	1358
Hair-pin	C. A. Packard	593,908	Nov. 16	2099	497	81	1211
Hair-pin	C. Beaumont	594,844	Dec. 7	6	2	81	1622
Hair-pin-making machine	C. Beaumont	594,845	Dec. 7	7	2	81	1622
Hair-pin-making machine	F. J. Skillen	595,926	Dec. 21	1882	449	81	2028
Hair-ribbon retainer	M. Levy	591,658	Oct. 12	1281	300	81	276
Half-tone screen	O. C. Johnson	592,202	Oct. 26	2309	560	81	531
Halter	E. C. Clark	592,278	Oct. 26	2347	554	81	527
Hammer	J. E. Lemyre	594,997	Dec. 7	274	65	81	1671
Hammer. Lasting	J. H. Driller	595,015	Dec. 7	304	73	81	1677
Hammer. Nail or tack holding and setting	C. H. Johnson	592,110	Oct. 19	2081	491	81	454
Hammer. Pneumatic	E. S. Brett	594,063	Nov. 23	2373	562	81	1311
Hammer. Power	I. E. Palmer	595,355	Dec. 14	859	212	81	1806
Hammock	F. W. Sutton and J. H. Masland	595,794	Dec. 21	1620	391	81	1974
Hammock attachment	I. E. Palmer	595,336	Dec. 14	860	212	81	1806
Hammock attachment	I. E. Palmer	595,337	Dec. 14	862	212	81	1807
Hammock-support. Portable	R. Jeffares and J. W. McCann	593,583	Nov. 16	1525	370	81	1130
Hammocks and tents. Folding support for	J. C. Byxbe and P. E. Petersen	594,508	Nov 30	3323	779 / 780	81	1513
Hand-bag	H. F. Jonas	592,988	Nov. 2	423	100	81	889
Handle: *See* Bag-handle, Broom-handle, Coffin-handle, Detachable handle, Parasol-handle, Pruner-handle, Tool-handle.							
Handle	W. J. Bullock	596,049	Dec. 28	2109	500	81	2093
Handle	J. O'Neill	591,547	Oct. 12	1106	260	81	242
Handle-bar	H. W. Heaton	593,471	Nov. 9	1294	313	81	1071
Handle-finishing machine	C. H. Bump	594,825	Nov. 30	3750	874	81	1600
Handle for screw-drivers, &c	L. M. Devore	591,913	Oct. 19	1717	411	81	385

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hanger: *See* Bicycle-hanger, Coat-hanger, Door-hanger, Insulated hanger, Garment-hanger, Hat-hanger, Picture-hanger, Pipe-hanger, Shaft-hanger.							
Harmonica	C. Weiss, Jr	592,850	Nov. 2	182	41	81	843
Harness	J. Mealey	591,222	Oct. 5	513	121 / 122	81	98
Harness back-band	G. M. Kirwin	591,258	Oct. 5	579	137	81	110
Harness-detaching device	N. B. Clarkson	594,859	Dec. 7	32	8, 9	81	1628
Harp	G. B. Shearer	593,818	Nov. 16	1942	461	81	1207
Harrow and roller. Combined	W. H. Newton	594,892	Dec. 7	79	22	81	1636
Harrow. Disk	P. E. Little	591,555	Oct. 12	1116	262	81	244
Harrow. Folding	T. C. Fleming	594,837	Nov. 30	3767	879	81	1608
Harrow. Roller	H. D. Edwards	596,147	Dec. 28	2277	540	81	2124
Harvester and shucker. Combined corn	J. E. Brown	594,823	Nov. 30	3747	873	81	1599
Harvester attachment	A. M. Larue	593,478	Nov. 9	1305	316	81	1073
Harvester. Bean	W. R. Wood	596,466	Dec. 28	2841	669 / 670	81	2234
Harvester. Combined	B. Holt	596,446	Dec. 28	2708	661	81	2227
Harvester. Corn	L. W. Bell	591,805	Oct. 19	1524	360 / 361	81	345
Harvester. Corn	A. B. Denham	596,143	Dec. 28	2270	538	81	2123
Harvester. Corn	W. H. Gorton	594,246	Nov. 23	2654	630	81	1366
Harvester. Corn	F. Hixson	595,477	Dec. 14	1112	268	81	1854
Harvester. Corn	C. E. Knudson	594,802	Nov. 30	3706	863 / 864 / 865	81	1591
Harvester. Corn	J. G. Mahon and C. E. Gower	594,409	Nov. 30	2960	697	81	1442
Harvester. Corn	W. W. Marsh	596,073	Dec. 28	2147	509 / 510	81	2100
Harvester. Corn	J. A. Stone	592,618	Oct. 26	3266	677	81	788
Harvester. Corn	W. R. Baker	592,720	Oct. 26	3457	725	81	776
Harvester cutting mechanism. Corn	H. F. Crandall	592,280	Oct. 26	2349	555	81	527
Harvester-elevator	J. Macphail	594,636	Nov. 30	3390	793	81	1526
Harvester elevator. Grain	G. A. Farrall	591,096	Oct. 5	276	68	81	54
Harvester. Grain	W. M. Sheets	592,514	Oct. 26	3090	631	81	703
Harvester-knotter	G. Wettlaufer	593,261	Nov. 9	937	227	81	1003
Harvester. Pea	J. Macphail	592,800	Nov. 2	76	17	81	821
Harvester-wheel	J. F. Appleby	591,614	Oct. 12	1211	284 / 285	81	202
Harvesters. Knotting mechanism for self-binding	A. T. Dowden	591,388	Oct. 12	822	191 / 192	81	188
Harvesters. Segmental conveyer for potato	W. W. Burson	595,369	Dec. 14	916	222	81	1817
Harvesting-machine	T. D. McGrath	594,418	Nov. 30	2979	701	81	1446
Harvesting machine. Corn	W. A. Rölker	595,923	Dec. 21	1879	448	81	2027
Hasp	J. R. Bridges	592,527	Oct. 26	3115	696	81	706
Hasp-lock	W. P. Gammons, Jr., and G. S. Bracher.	591,755	Oct. 12	1439	339	81	309
Hat	W. Kuenzle and W. Poehlmann	592,250	Oct. 26	2307	543	81	518
Hat and clothes rack	J. D. Burns	592,276	Oct. 26	2344	554	81	526
Hat and coat lock	E. T. Robinson	595,582	Dec. 14	1270	305	81	1887
Hat-bodies. Apparatus for manufacturing fur	W. J. McGall	593,810	Nov. 16	1930	459	81	1205
Hat-brim-curling machine	W. P. Gammons, Jr., and G. S. Bracher.	591,754	Oct. 12	1437	338 / 339	81	309
Hat-brims. Machine for attaching bindings to curled or rolled	C. E. Campbell	592,646	Oct. 26	3315	689	81	747
Hat-fastener	E. Lewis	593,400	Nov. 9	1174	283	81	1047
Hat-fastener	H. Ingram	595,490	Dec. 14	1117	270	81	1855
Hat-fastener	J. D. King and M. A. Burns	595,483	Dec. 14	1121	270	81	1856
Hat-fastener	O. Sager	595,796	Dec. 21	1513	366	81	1954
Hat-hanger	W. Johnston, Jr	593,805	Nov. 16	1924	458	81	1204
Hat-holder	W. H. Thomas	593,702	Nov. 16	1729	417	81	1167
Hat-linings. Machine for manufacturing	E. E. Rice	595,960	Dec. 21	1874	448	81	2026
Hat-pin	T. G. Willis	592,898	Nov. 2	259	59	81	857
Hat-pin	J. Uhry	596,438	Dec. 28	2785	658	81	2224
Hat-pin retainer	J. L. Jones	595,176	Dec. 7	602	144	81	1731
Hat-shape sustainer	R. Gregg	595,385	Dec. 14	941	227 / 228	81	1821
Hay-carrier	J. L. Ritter	591,609	Oct. 12	1205	283	81	261
Hay-fork. Automatic harpoon	I. R. Stewart	596,129	Dec. 28	2242	532	81	2118
Hay-press	W. Cranston	596,142	Dec. 28	2268	537 / 538	81	2123
Hay rake and loader	C. O. Luce	591,672	Oct. 12	1315	308	81	283
Hay-rake. Horse	W. Strait	594,441	Nov. 30	2025	710	81	1455
Hay-rake. Horse	H. D. Mears	594,209	Nov. 23	2508	615	81	1354
Head-cooler	A. M. Denham	592,002	Oct. 19	1668	445	81	414
Head-rest	C. A. Lee	594,543	Nov. 30	3221	755	81	1498
Head-rest. Adjustable	J. Burns	595,116	Dec. 7	501	120	81	1712
Hearse	N. Carpenter, Sr	596,322	Dec. 28	2564	611	81	2179
Hearse	H. Ruetschi	591,143	Oct. 5	362	86	81	70
Heat-detector	J. Lumley	591,409	Oct. 12	850	------	81	194
Heat-insulating article	W. Borrowe and J. Lumley	596,419	Dec. 28	2749	650	81	2217
Heat-insulating material. Apparatus for manufacturing	J. F. Burley	591,526	Oct. 12	1064	249	81	233
Heat or damper regulator	C. L. Fortier	594,346	Nov. 23	2841	672	81	1402
Heat-regulating apparatus	J. V. Stout	592,924	Nov. 2	295	68	81	865
Heat-regulating system. Automatic							
Heater: *See* Boiler-heater, Curling-iron heater, Electric heater, Feed-water heater, Steam or hot-water heater, Tank-heater, Water-heater, Wheat-heater.							
Heater	J. A. Breen	590,962	Oct. 5	20	5	81	6
Heater	C. Hemje	595,018	Dec. 7	309	75	81	1678
Heater	R. G. Holbrook	593,659	Nov. 16	1602	408	81	1155

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Heater	J. Mahedy	596,412	Dec. 28	2737	647	81	2215
Heating and roasting furnace	W. E. Roberts	592,220	Oct. 19	2239	530	81	484
Heating and ventilating apparatus	E. O. Burrows	594,597	Nov. 30	3322	779	81	1512
Heating and ventilating device	E. A. Corbin and C. E. Foster	593,737	Nov. 16	1808	432 433	81	1161
Heating apparatus	E. F. Edgar	595,378	Dec. 14	931	225	81	1619
Heating apparatus. Multitubular air-	S. C. Davidson	593,989	Nov. 23	2250	533	81	1289
Heating-furnace	F. Peteler	593,492	Nov. 9	1328	321 322	81	1078
Heating or cooling fluids by fluids. Apparatus for.	L. Maiche	596,330	Dec. 28	2583	614	81	2183
Heel. Boot or shoe	J. F. Warner	594,108	Nov. 23	2436	578	81	1324
Heel-manufacturing machine	E. S. Mansell	595,249	Dec. 7	734	179 180	81	1756
Heel-nailing machine	H. W. Winter	591,366	Oct. 5	772	181 182	81	147
Heels. Machine for making boot or shoe	J. V. Collier	593,349	Nov. 9	1083	261 262	81	1081
Heels. Machine for making spring-	E. S. Mansell	594,115	Nov. 23	2445	580	81	1326
Hide and skin machinery	W. Evans	592,952	Nov. 2	355	83	81	876
Hides or skins. Depilating	H. Holmes	593,660	Nov. 16	1663	408	81	1155
High-tension battery	R. Ashley	591,265	Oct. 5	596	139	81	113
High-tension switch	H. Müller	595,887	Dec. 21	1807	433	81	2012
Hinge	V. V. Hedges	593,472	Nov. 9	1296	314	81	1072
Hinge. Door-	H. Kiessling	591,847	Oct. 19	1589	378	81	359
Hinge for ink-well caps	E. Oldenbusch	596,245	Dec. 28	2427	574	81	2154
Hinge. Lock-	A. Rentsch	591,693	Oct. 12	1340	315	81	299
Hinge. Spring-	L. R. Pomeroy	591,359	Oct. 5	759	179	81	145
Hoe	J. F. Wernicke	591,710	Oct. 12	1370	321	81	295
Hoe-drill shoe	E. W. Griffiths	594,528	Nov. 30	3190	747	81	1487
Hoe. Push-	G. H. Grapes	591,837	Oct. 19	1576	375	81	357
Hog-nose cutter	R. S. Rust	594,809	Nov. 30	3723	867	81	1595
Hoist. Chain	J. W. Kincaid	593,588	Nov. 16	1533	372	81	1131
Hoist. Chain	J. W. Kincaid	594,801	Nov. 30	3703	862 863	81	1591
Hoist. Differential chain	J. W. Kincaid	593,589	Nov. 16	1535	372 373	81	1131
Hoist. Geared	C. I. Earll	595,703	Dec. 21	1461	352	81	1945
Hoisting and conveying apparatus	J. H. Empson	594,987	Dec. 7	260	63	81	1669
Hoisting and conveying apparatus. Boulder	F. W. Jacobs	595,713	Dec. 21	1479	356	81	1948
Hoisting and conveying machine bucket-dumping device.	F. H. Schlegelmilch	593,816	Nov. 16	1939	461	81	1206
Hoisting and transporting vehicle	J. W. Bodley	594,722	Nov. 30	3566	839	81	1563
Hoisting apparatus	T. Haddow	594,619	Nov. 30	3360	787	81	1520
Hoisting apparatus	W. H. Lafaelle	592,792	Nov. 2	65	14	81	819
Hoisting apparatus	W. H. Thompson	593,253	Nov. 9	928	224	81	1001
Hoisting device	A. C. Dinkey	595,561	Dec. 14	1235	297	81	1879
Hoisting-drum	U. S. James	595,308	Dec. 14	819	202	81	1798
Hoisting-engine. Variable-speed	O. Crosby	595,671	Dec. 14	1411	341	81	1917
Holder for rolled material	J. D. McMillan	594,485	Nov. 30	3107	728	81	1473
Hollow ware. Machine for making	J. A. Densmore	591,329	Oct. 5	688	164 165	81	132
Hoof-pad. Pneumatic rubber	J. Hennessy	594,080	Nov. 23	2398	569	81	1317
Hoof-spreader	P. De Loria	590,397	Dec. 28	2719	644	81	2211
Hook: *See* Belt-hook. Check-hook. Checkrein-hook. Crochet-hook. Fish-hook. Grip-hook. Link-hook. Snap-hook. Trace-hook.							
Hook	J. A. Donaldson	594,335	Nov. 23	2815	666 667	81	1396
Hook and eye	J. W. Burke	596,259	Dec. 28	2451	590	81	2158
Hook and eye	I. P. Kimball	592,296	Oct. 26	2376	561	81	532
Hook and eye	B. F. Orewiler	592,430	Oct. 26	2971	601	81	680
Hooping machine. Barrel-	A. T. S. Roebling	591,497	Oct. 12	1009	235	81	222
Hooping machine. Barrel-	M. C. Wilson and H. G. Rush	594,052	Nov. 23	2354	556 557	81	1307
Hopple	S. Y. Trice	594,502	Nov. 30	3138	735	81	1478
Horse-detacher	J. A. Donaldson	594,334	Nov. 23	2811	666	81	1395
Horse-detacher	G. Grebe	591,797	Oct. 12	1304	356 357	81	822
Horse-detacher	L. P. Moore	596,078	Dec. 28	2158	512	81	2102
Horse-detaching device	H. Michael	593,724	Nov. 16	1774	426	81	1175
Horse-foot protector	J. W. Thurlow	591,510	Oct. 12	1020	239	81	226
Horse governor or chin-rest	C. S. Baum	591,726	Oct. 12	1291	327	81	299
Horse hoof-pad	A. H. Dorney	593,960	Nov. 16	2198	522	81	1260
Horse-hopple	D. S. Minton	591,866	Oct. 19	1615	384	81	365
Horse-overboot	W. Cain	593,564	Nov. 16	1490	363	81	1123
Horse-power-machine brake	T. P. Chambers	595,522	Dec. 14	1182	283	81	1869
Horse-rake	U. Himel	594,083	Nov. 23	2401	570	81	1317
Horse-stopping device	O. Lundberg	591,983	Oct. 19	1828	435	81	406
Horseshoe	C. Chamberlin	594,528	Nov. 30	3182	745	81	1486
Horseshoe	J. A. Garneau	594,616	Nov. 30	3355	786	81	1519
Horseshoe	J. D. Hall	591,166	Oct. 5	400	95	81	78
Horseshoe	J. Kass	592,651	Oct. 26	3321	691	81	749
Horseshoe	J. W. Porcher	595,733	Dec. 21	1510	365	81	1954
Horseshoe	J. A. Roth	592,998	Nov. 2	439	104	81	892
Horseshoe	F. Hurop	595,805	Dec. 14	815	201	81	1797
Horseshoe attachment	W. A. Sweet	592,178	Oct. 19	2184	518	81	473
Horseshoe bar and blank	F. A. Duncan	596,026	Dec. 21	2062	490	81	2065
Horseshoe-calk	P. Held	595,711	Dec. 21	1476	356	81	1947
Horseshoe-calk	A. H. Rowe	596,126	Dec. 28	2240	531	81	2117
Horseshoe-calk	R. H. Carswell	592,277	Oct. 26	2346	554	81	526
Horseshoe-cushion	G. H. Blanchard	594,821	Nov. 30	3744	872	81	1599
Horseshoe. Cushioned	J. B. Gravis	591,252	Oct. 5	569	134	81	108
Horseshoe. Cushioned	P. H. Graves	591,601	Oct. 12	1190	281	81	256
Horseshoe. Elastic							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Horseshoe-extractor	J. W. Brockson	595,092	Dec. 21	1438	348	81	1940
Horseshoe. Nailless	W. G. Rotsell	594,561	Nov. 30	3250	763	81	1499
Horseshoe. Nailless	H. D. Shaiffer	591,373	Oct. 5	789	184	81	150
Horseshoe. Nailless	H. D. Shaiffer	596,248	Dec. 28	2430	574	81	2155
Horseshoe. Nailless	J. J. A. Miller	595,401	Dec. 14	970	235	81	1826
Horseshoe. Nailless clamping	J. Korbien	591,232	Oct. 5	533	127	81	101
Horseshoe. Rubber-tread	J. H. Carey	594,982	Dec. 7	249	61	81	1667
Horseshoe. Soft-tread	D. B. Stephens	592,261	Oct. 26	2323	548	81	521
Horseshoe. Soft-tread nailless	J. W. Monarch and C. V. Pollock	593,112	Nov. 2	626	151	81	929
Horseshoe. Yielding-tread	W. F. McCauley and L. E. Johnson	592,017	Oct. 19	1898	452	81	420
Hose. Air-brake	J. S. Campbell and J. W. Shields	595,144	Dec. 7	540	130	81	1730
Hose-bridge	J. F. Morrison	595,645	Dec. 14	1368	330	81	1908
Hose-bridge	F. Crane	594,465	Nov. 30	3071	721	81	1465
Hose-bridge. Railway	F. J. Bernhardt	593,190	Nov. 9	799	191	81	978
Hose-coupling	A. W. Billman	590,956	Oct. 5	12	2	81	5
Hose-coupling	S. W. Lucas	591,136	Oct. 5	350	84	81	98
Hose-coupling	G. N. Wilson	592,899	Nov. 2	259	59	81	857
Hose-coupling	O. Pound	593,906	Nov. 16	2102	498	81	1241
Hose, &c. Coupling for fire-	A. E. Stove	595,219	Dec. 7	663	159 160	81	1743
Hose-fastening	E. E. Gold	591,468	Oct. 12	950	224 225	81	214
Hose-fitting	J. O. De Wolf	591,796	Oct. 12	1502	356	81	322
Hose-nozzle	W. S. Powers and A. J. Reynolds	594,554	Nov. 30	3239	760	81	1497
Hose or pipe coupling	F. J. Bernhardt	593,191	Nov. 9	801	191	81	979
Hose-pipe nozzle	C. N. Richardson	592,447	Oct. 26	2981	603 604	81	682
Hose-supporter	A. S. Smith	593,130	Nov. 2	653	157	81	935
Hot-air furnace	S. Dewhirst	595,486	Dec. 14	1041	249	81	1839
Hot-water accumulator	W. Kouznezoff	593,418	Nov. 9	1202	291	81	1052
Hub-attaching device	R. Lord	591,481	Oct. 12	971	229 230	81	217
Hub-attaching device	B. F. Smith, H. M. Crippen, and M. J. Charlton.	593,247	Nov. 9	918	222	81	999
Hub. Vehicle-	H. R. Collins	594,605	Nov. 30	3335	782	81	1515
Hubs. Mud-guard for vehicle-	J. H. Brown	595,141	Dec. 7	537	129	81	1719
Huller: *See* Rice-huller.							
Humidifier	J. Thompson and V. V. Sohoni	591,576	Oct. 12	1153	271	81	250
Husking-pin	H. H. Perkins	596,180	Dec. 28	2323	552	81	2133
Hydrant-coupling	J. Naud, Fils	591,140	Oct. 5	356	85	81	70
Hydraulic elevator	N. C. Bassett	594,590	Nov. 30	3309	776 777	81	1510
Hydrocarbon-burner	J. L. Arnold	592,601	Oct. 26	3236	670	81	732
Hydrocarbon-burner	W. C. Kavanagh	592,739	Oct. 26	3401	734	81	781
Hydrocarbon-burner	C. R. Nyberg	596,064	Dec. 28	2168	514	81	2104
Hydrocarbon-burner	G. C. Roberts	591,694	Oct. 12	1841	315	81	289
Hydrocarbon-burner	P. Schneider, H. Trenkamp, and B. A. Geurink.	593,243	Nov. 9	911	220	81	908
Hydrocarbon-furnace	J. H. Foster	594,941	Dec. 7	163	40	81	1652
Ice-cream carrier	L. A. Deuther	593,322	Nov. 9	1042	252	81	1024
Ice-cream disher	A. W. Lockwood	595,954	Dec. 21	1932	461	81	2037
Ice-cream mold and disher	T. F. Rankin	591,635	Oct. 12	1250	293	81	269
Ice-creeper	A. R. Bradeen	593,530	Nov. 9	1401	338	81	1090
Ice-creeper and heel-plate. Combined detachable	C. R. Green	595,772	Dec. 21	1589	383	81	1968
Ice-creeper. Safety	E. L. and A. F. Wagner	593,315	Nov. 9	1031	249	81	1022
Ice-dump	W. F. Niebling	593,680	Nov. 16	1692	409	81	1161
Ice-making apparatus	L. Pusey	596,123	Dec. 28	2231	529 530	81	2116
Ice-plow	W. E. Wood	596,348	Dec. 28	2609	621	81	2188
Ice-shredder. Self-emptying	J. H. Logan	595,855	Dec. 21	1729	415	81	1997
Igniting device for gas or like motors	A. de Dion and G. Bouton	593,877	Nov. 16	2061	486	81	1232
Illuminating device for keyholes	F. W. Roll and F. Waltman	595,444	Dec. 14	1051	251	81	1841
Illusion apparatus	A. Lake	595,951	Dec. 21	1926	460 461	81	2086
Illusive effects. Apparatus for producing	T. Hollander	592,631	Oct. 26	3287	682	81	742
Impact-tool	T. H. Phillips	592,166	Oct. 19	2163	510 511	81	470
Impalement-trap	L. H. Guertin	593,933	Nov. 16	2153	511	81	1251
Incandescent burner	J. B. de Léry	591,652	Oct. 12	1279	300	81	276
Incandescent burner for lanterns, &c	J. W. Dearing	593,925	Nov. 16	2136	506	81	1248
Incandescent-light burner	E. H. C. Oehlmann	593,365	Nov. 9	1104	267	81	1054
Incandescent-mantle holder	G. H. Chinnock	595,846	Dec. 21	1716	412	81	1994
Incandescents. Manufacture of	C. G. Richardson	592,200	Oct. 19	2224	------	81	482
Incandescible material. Manufacturing	W. L. Voelker	595,839	Dec. 21	1707	------	81	1992
Incubator	S. Duckering	593,203	Nov. 9	821	190	81	983
Incubator	H. R. Foster	595,381	Dec. 14	985	236	81	1930
Incubator	F. H. Morgan	591,870	Oct. 19	1622	386	81	367
Incubator	G. H. Stahl	593,863	Nov. 16	2040	479 480	81	1297
Index	V. A. Laue and M. M. Pierce	593,528	Nov. 9	1398	337	81	1090
Index cutting and printing machine	W. Corfe	591,818	Oct. 19	1551	366	81	351
Index. Double	M. C. Neuner	595,194	Dec. 7	628	150 151	81	1736
Index-tab	G. H. Ogden	592,821	Nov. 2	125	27	81	832
Indicator: *See* Boiler water-indicator. Railway-indicator. Signal-indicator. Speed-indicator. Speed and direction indicator. Station-indicator. Street and station indicator.							
Indicator and recorder	E. L. Morgan	591,416	Oct. 12	859	201 202 203	81	196
Indicator for carriages, &c	J. A. Kunkel	591,282	Oct. 5	622	146	81	118

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Inductor-generator	P. W. Power	596,032	Dec. 21	2073	493	81	2068
Inhaler	B. McGregor	591,052	Oct. 5	204	48	81	41
Inhaler	J. A. Rafter	594,966	Dec. 7	202	48	81	1659
Inhaler	G. B. Underwood	594,302	Nov. 23	2762	653	81	1386
Inhaler	R. Pattison	596,121	Dec. 28	2227	528 529	81	2115
Injector. Steam-	F. E. Frost	591,349	Oct. 5	734	172	81	141
Ink fountain. Marking-	L. Bohm	596,454	Dec. 28	2823	666	81	2232
Ink-pot for school-desks	M. G. Gross	591,965	Oct. 19	1801	429	81	402
Ink-well	E. J. Nixson	594,693	Dec. 7	81	23	81	1637
Inkstand	C. B. Smith	595,739	Dec. 21	1517	367	81	1955
Inkstand	W. J. Deming	593,990	Nov. 23	2252	----	81	1299
Insect-exterminating compound	C. Zimmerman	595,750	Dec. 21	1538	371	81	1959
Insect-exterminator	E. C. F. Barth	594,224	Nov. 23	2620	620	81	1358
Insect-screen	G. F. Davidson	593,518	Nov. 9	1387	335	81	1087
Insect-trap	C. Fisher	593,089	Nov. 2	585	----	81	921
Insecticide	J. D. Bishop	591,997	Oct. 19	1863	444	81	413
Insulated electric conductor and apparatus for making same.	E. P. Warner	593,625	Nov. 16	1606	386	81	1145
Insulated hanger	J. W. Parkin	595,338	Dec. 14	863	213	81	1807
Insulated joint for gas-fixtures	C. F. Hummel	592,980	Nov. 2	302	70	81	866
Insulating-coupling	L. McCarthy	592,015	Oct. 19	1897	451	81	1040
Insulating-coupling for electric-wire conduits	W. H. Lau and P. A. Bredsvold	593,381	Nov. 9	1133	274	81	1168
Insulating-joint	L. F. Rembe	593,689	Nov. 16	1706	412	81	1967
Insulator	C. A. Woolsey	595,827	Dec. 21	1684	406	81	57
Insulator-bracket	W. Roberts	591,104	Oct. 5	291	70	81	700
Insulator. Electric-wire	W. Barbour	592,505	Oct. 26	3072	626	81	1339
Insulator. Electrical	J. H. Hoffman	594,155	Nov. 23	2512	595	81	1703
Insulator. Section-	A. Anderson	595,069	Dec. 7	448	107	81	56
Insulator. Third-rail	W. Harbaugh	591,099	Oct. 5	280	68	81	
Invalids. Adjustable support for							
Iron: *See* Sad-iron. Soldering-iron. Smoothing-iron.	A. Sahlin	594,707	Nov. 30	3535	823 824	81	1557
Iron. Machine for breaking and loading pig-	B. P. Stockman	594,497	Nov. 30	3132	----	81	1477
Iron: Purifying	J. A. Giddings	593,522	Nov. 9	1391	336	81	1088
Iron-shaper	J. Burgess	595,028	Dec. 7	330	80	81	1682
Iron shears. Cold-	D. B. Hook	593,661	Nov. 16	1605	403	81	1155
Ironing-board	G. A. Horn	591,350	Oct. 5	735	172	81	141
Ironing-board	J. W. Craw	593,566	Nov. 16	1495	364	81	1124
Ironing-machine	G. P. Walter	593,141	Nov. 2	676	162	81	940
Ironing-machine	W. R. and E. N. Murray	595,126	Dec. 7	517	124	81	1716
Ironing-table	A. Perkins	591,929	Oct. 19	1742	417	81	391
Ironing-table	J. Renney	593,181	Nov. 2	777	187	81	960
Ironing-table	N. F. Guthrie and W. H. Guite	592,649	Oct. 26	3318	690	81	748
Irrigating-ditch gate	J. F. Casey	591,157	Oct. 5	390	90,91	81	75
Jack: *See* Journal-box jack. Wagon-jack. Lifting-jack.	H. Weaver	592,676	Oct. 26	3382	706	81	702
Jail-cell, &c	E. B. Colyer	593,736	Nov. 16	1802	432	81	1180
Jar: *See* Preserve-jar.	H. Lewis	592,012	Oct. 19	1889	450	81	419
Jar-top	F. J. Thomas	593,139	Nov. 2	671	161	81	939
Jar-wrench	M. H. McArthey	595,404	Dec. 14	979	237	81	1828
Jars, cans, &c. Holder for	C. F. Bennett	594,673	Nov. 30	3481	810	81	1546
Jeweler's clamp	D. J. R. Duncan	591,828	Oct. 19	1566	370 371 372	81	354
Jig for drilling bolt-holes	G. W. Martin	592,808	Nov. 2	78	18	81	822
Jock-strap and suspensory. Combined	J. B. Christopher	593,062	Nov. 2	577	139	81	919
Joint: *See* Electric-cable joint. Rail-joint. Insulated joint. Universal joint Metal joint.	S. H. Phelps	592,595	Oct. 26	3228	668	81	731
	W. R. and J. R. Bowker	591,807	Oct. 19	1533	362	81	348
	W. R. and J. R. Bowker	591,808	Oct. 19	1534	362	81	348
	J. E. Rogers	592,665	Oct. 26	3361	699	81	758
Jointing mains, pipes, &c. Means for	C. F. Uebelacker	595,825	Dec. 21	1678	405 406	81	1986
Jollie-machine. Large-ware	J. F. Whitney	593,063	Nov. 2	543	130	81	913
Journal-bearing	G. Meddings	595,917	Dec. 21	1709	447	81	2025
Journal-bearing	W. M. Brewer	591,735	Oct. 12	1409	351	81	903
Journal-bearing. Car-	J. Cloos	591,226	Oct. 5	524	125	81	100
Journal-bearing. Car-	E. T. Greenfield	593,841	Nov. 16	1993	469	81	1218
Journal-bearing. Truck	W. Reeves	593,405	Nov. 9	1179	284 285	81	1048
Journal-bearings. Mold for lining shells of	B. C. Sabin	593,127	Nov. 2	549	136	81	934
Journal-box jack	S. A. Smith and A. F. Ashby	594,764	Nov. 30	3632	846	81	1576
Journal-lubricator	E. E. Kaufman	596,270	Dec. 28	2474	588	81	2161
Jug	W. W. Mitchell	592,428	Oct. 26	2953	597	81	676
Junction-box	H. A. Palmer	591,177	Oct. 5	431	102	81	82
Junction-box and means for uniting metal conduit-tubes thereto. Metallic	A. J. Lyon	592,800	Oct. 26	2380	562	81	533
Kaleidoscope	J. S. Kittle, G. L. Barney, and J. L. Clough.	591,045	Oct. 5	189	45	81	38
Kettle	E. P. Lee	593,723	Nov. 16	1772	425 426	81	1175
Kettle and jacket. Stew-	W. J. Gooch	591,037	Oct. 5	174	39, 40	81	36
Key	F. Washington	591,440	Oct. 12	907	212	81	905
Key-fastener							
Key-fastener							
Key-guard							
Keyless lock							
Kiln: *See* Brick-kiln. Cement-kiln. Brick-burning kiln. Dry-kiln.							
Kiln for burning clay goods							
Kitchen-cabinet							
Kitchen-cabinet							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kitchen-table	R. J. Hentze	594,252	Nov. 23	2662	631	81	1367
Kitchen-ventilator and stovepipe attachment. Automatic	B. F. Wood	594,508	Nov. 30	3154	738	81	1480
Kite	M. A. Daberer	591,211	Oct. 5	493	117	81	93
Kneading machine. Dough-	A. W. Linton	592,797	Nov. 2	71	16	81	820
Knife: *See* Bread-knife. Pocket-knife. Drawing-knife. Skinning-knife. Miner's knife. Tobacco-knife.							
Knife	C. C. Brooks	592,961	Nov. 2	380	88	81	881
Knife-casting and making same	T. Coldwell	594,170	Nov. 23	2532	600	81	1343
Knife fruit-paring attachment	B. C. Allen	593,633	Nov. 16	1622	392	81	1148
Knife-guard	F. W. Waite and W. D. Broadwell	594,310	Oct. 5	602	157	81	126
Knit fabrics. Apparatus for finishing	P. Schlossmann	595,893	Dec. 21	1820	436	81	2016
Knit goods	W. Esty	591,128	Oct. 5	332	81	81	65
Knitted fabric	S. D. Keene	594,158	Nov. 23	2518	596	81	1340
Knitting-machine	G. W. Cummings	595,698	Dec. 21	1450	350	81	1943
Knitting-machine	J. L. Eck	592,184	Oct. 19	2114	501	81	460
Knitting-machine	G. E. Frink	595,770	Dec. 21	1584	382 383	81	1967
Knitting-machine	H. A. Houseman	595,439	Dec. 14	1044	250	81	1840
Knitting-machine	P. O. Johnson	596,209	Dec. 28	2517	598 599 600	81	2170
Knitting-machine	G. A. Leighton and J. H. Rico	596,301	Dec. 28	2324	601 602	81	2171
Knitting-machine	F. H. Moon	594,353	Nov. 23	2854	674	81	1404
Knitting-machine	H. Parker, Jr., E. Scanlin, H. H. Skevington, and W. L. Whitehead.	592,883	Nov. 2	234	53, 54	81	853
Knitting-machine	W. Stafford	591,199	Oct. 5	465	110	81	88
Knitting machine. Circular-	E. R. Branson and E. E. Davis	594,062	Nov. 23	2371	561	81	1311
Knitting machine. Circular-	J. C. Egly	591,213	Oct. 5	495	118 119	81	94
Knitting machine. Circular-	L. C. Huse	593,663	Nov. 16	1668	404	81	1156
Knitting machine. Circular-	J. B. Paxton and E. I. O'Neill	595,889	Dec. 21	1809	434 435	81	2013
Knitting-machine heel-hook	A. Boehmen	595,365	Dec. 14	911	220	81	1815
Knitting machine. Straight-	F. Raven	593,309	Nov. 9	1022	247	81	1020
Knitting-machine stop-motion	J. Ouellette and R. Duperrouzel	592,440	Oct. 26	2972	601	81	680
Knob attachment	C. Bayer	593,507	Nov. 9	1363	330	81	1084
Knob attachment	T. M. Dils	591,111	Oct. 5	308	74	81	59
Kraut-cutter	W. A. Kirkpatrick and J. E. Robbins.	593,746	Nov. 16	1817	435	81	1184
Labeling machine. Can-	H. S. Grace and A. D. Reynolds	592,585	Oct. 26	3308	664 665	81	727
Labeling machine. Can-	H. W. Pease	593,604	Nov. 16	1561	378	81	1136
Lace-fasteners. Machine for making	D. C. Stover and F. W. Hoefer	592,455	Oct. 26	2995	607	81	684
Lace-fasteners. Machine for making	R. Wirth	592,462	Oct. 26	3011	610 611	81	688
Lace holder and unwinder	C. W. Pollock and W. Kurth	592,884	Nov. 2	237	54	81	853
Lace holder. Shoe-	L. C. W. Goeddel	595,162	Dec. 7	568	137	81	1726
Lacing-stud	E. Kempshall	595,482	Dec. 14	1119	270	81	1856
Ladder	T. W. Hughes	591,351	Oct. 5	736	172 173	81	141
Ladder	B. A. Ward	594,303	Nov. 23	2763	653	81	1387
Ladder	W. Wildprett	594,582	Nov. 30	3288	772	81	1507
Ladder and chute for fruit-gathering	G. K. Davis	592,133	Oct. 19	2112	500	81	460
Ladder and duplex step therefor	L. W. Noyes	591,418	Oct. 12	988	233	81	197
Ladder. Extension-	C. H. Waterman	592,182	Oct. 19	2139	516	81	474
Ladder. Extension fire-	F. C. Kummerow	592,470	Oct. 26	3025	614 615	81	691
Ladder. Extension step-	D. Bernhart	595,935	Dec. 21	1805	431	81	2030
Ladder for fire-escapes, &c. Folding	W. Beckett	591,944	Oct. 19	1770	422	81	396
Ladder. Portable step-	H. Bowman	594,674	Nov. 30	3492	810	81	1546
Lamp	J. G. A. Kitchen	593,396	Nov. 9	1168	282	81	1046
Lamp	C. M. Lungren	595,721	Dec. 21	1492	350	81	1950
Lamp	P. Mallett	592,656	Oct. 26	3326	693	81	750
Lamp	F. A. Morse	591,417	Oct. 12	987	208	81	196
Lamp	C. W. Beck	590,955	Oct. 5	9	2	81	4
Lamp. Acetylene-gas	C. W. Beck	591,367	Oct. 5	779	183	81	148
Lamp. Acetylene-gas	H. M. Handshy	591,132	Oct. 5	341	82	81	66
Lamp. Acetylene-gas	A. Gobron	595,621	Dec. 14	1327	321	81	1900
Lamp. Acetylene-gas-generating	L. D. Whittemore, Jr	595,290	Dec. 7	689	168	81	1747
Lamp and acetylene-generator. Combined	T. W. McNally	594,990	Dec. 7	277	66	81	1672
Lamp and blade-signal. Railway signal-	G. L. Beitner	594,920	Dec. 7	146	36, 37	81	1649
Lamp. Baker's-oven	C. L. Betts	591,108	Oct. 5	296	73	81	59
Lamp. Bicycle-	C. V. Boughton	594,516	Nov. 30	3164	742	81	1483
Lamp. Bicycle-	G. Havell	593,016	Nov. 2	465	112	81	898
Lamp. Bicycle-	J. C. Miller and A. T. Booth	594,265	Nov. 23	2683	635	81	1379
Lamp-blaze-extinguishing burner	G. H. Straight	595,824	Dec. 21	1677	405	81	1996
Lamp bracket or holder	G. A. Colton	593,985	Nov. 23	2243	532	81	1298
Lamp-burner	G. A. Bodee	593,454	Nov. 9	1251	302	81	1064
Lamp-burner	J. Gregory	594,007	Nov. 23	2277	538	81	1298
Lamp-burner	J. C. Miller and A. T. Booth	595,576	Dec. 14	1263	303	81	1846
Lamp burner. Gasolene-	A. M. Southard	591,506	Oct. 12	1017	238	81	225
Lamp-burner. Incandescent	T. H. Mulch	593,231	Nov. 9	896	216	81	995
Lamp carbon-holder. Arc-	C. C. Bailey	593,172	Nov. 2	763	183	81	938
Lamp-chimney attachment	R. L. and L. P. Moore	591,677	Oct. 12	1323	310	81	285
Lamp-chimney protector	H. Regensburger	592,170	Oct. 19	2171	512	81	471
Lamp chimneys or globes. Detachable safety-cap for	W. H. Stephenson	592,922	Nov. 2	294	68	81	865
Lamp. Cycle-	C. A. and F. J. Miller	595,191	Dec. 7	623	149	81	1735
Lamp. Electric-arc	T. E. Adams	594,585	Nov. 30	3294	773	81	1508
Lamp. Electric-arc	H. M. Baker, Jr., and A. W. Fox	594,928	Dec. 7	143	36	81	1648
Lamp. Electric-arc	A. Blahnik	595,986	Dec. 21	1896	452	81	2030
Lamp. Electric-arc	W. H. Coughlin	593,738	Nov. 16	1805	457	81	1161

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lamp. Electric-arc	T. E. Drohan	594,082	Nov. 30	3492	813	81	1548
Lamp. Electric-arc	G. R. Lean	593,899	Nov. 16	2093	495	81	1230
Lamp. Electric-arc	H. R. Quinby	594,426	Nov. 30	2997	704	81	1449
Lamp. Electric-arc	C. C. Stirling	593,607	Nov. 16	1719	415	81	1165
Lamp. Electric-arc	E. Thomson and C. E. Harthan	595,420	Dec. 14	1012	243	81	1884
Lamp. Electric-arc	C. S. Van Nuis	591,026	Oct. 5	153	35	81	32
Lamp. Electric-arc	E. P. Warner	593,626	Nov. 16	1608	386 387	81	1146
Lamp. Electric-arc	E. P. Warner and A. J. Oehring	591,182	Oct. 5	427	104	81	83
Lamp. Electric-arc	F. Palm	591,490	Oct. 12	993	233	81	290
Lamp fitting. Glow-	H. Kühnert	595,686	Dec. 14	1356	327	81	1906
Lamp-globe cover and protector	J. B. Owen	594,095	Nov. 23	2417	574	81	1320
Lamp-handle	E. R. Holmes	591,533	Oct. 12	1061	254	81	236
Lamp-holder	M. Wendorf	592,951	Nov. 2	188	41	81	843
Lamp. Incandescent	C. W. and H. R. Rossetter	596,337	Dec. 28	2590	617	81	2184
Lamplighter	J. F. Brewster	592,761	Nov. 2	11	3	81	809
Lamplighter. Time	D., Sr., and D. Rogers, Jr	592,173	Oct. 19	2174	513	81	472
Lamplighter. Time	J. Gabos	594,075	Nov. 23	2391	567	81	1315
Lamp mast or hanger. Street-	D. T. K. McEwen	591,606	Oct. 12	1204	283	81	531
Lamp or lantern extinguisher	J. A. Miller	592,660	Oct. 26	3348	696	81	754
Lamp-post. Telescoping	T. Jones and S. A. Hoke	592,294	Oct. 26	2374	560	81	1342
Lamp. Railway-switch	W. H. Adams	594,167	Nov. 23	2520	599	81	2102
Lamp safety-cap	R. A. Miller	596,077	Dec. 28	2157	512	81	2102
Lamp-shade support	D. A. Schutt	595,584	Dec. 14	1274	306	81	1888
Lamp socket. Incandescent-	R. W. Pittman	595,074	Dec. 7	412	99 100	81	1696
Lamp-supporting means or bracket	G. Washington	593,257	Nov. 9	932	223 226	81	1002
Lamp. Vapor-	J. F. Duke	593,991	Nov. 23	2253	.....	81	1289
Lamps. Manufacture of mantles or incandescing bodies for incandescent gas-	C. A. Chute	592,951	Nov. 2	352	82	81	876
Lamps. Regulating-socket for electric	R. L. Doran	591,622	Oct. 12	1223	288	81	264
Lamps. System of lighting for hydrocarbon-	J. A. Fisher	594,238	Nov. 23	2641	624	81	1303
Land-roller	W. A. Middleton and G. M. Loomis	591,414	Oct. 12	856	200	81	195
Land-roller	C. Hamm	591,647	Oct. 12	1271	297	81	274
Lantern	W. S. Hamm	592,705	Oct. 26	3432	718	81	771
Lantern	W. S. Hamm	594,790	Nov. 30	3679	857	81	1586
Lantern	W. S. Hamm	594,791	Nov. 30	3680	857 858	81	1586
Lantern	J. W. Miller and J. M. Shaffner	593,725	Nov. 16	1775	426	81	1176
Lantern	J. J. Roach	595,200	Dec. 7	652	156	81	1741
Lantern	O. Schwarz	593,281	Nov. 9	968	234	81	1009
Lantern. Bicycle-	T. Winn	594,452	Nov. 30	3043	715	81	1458
Lantern. Bicycle or other	W. M. Green and F. W. Smith	595,165	Dec. 7	571	136 139	81	1727
Lantern. Magic	S. W. Allen	594,819	Nov. 30	3740	871 872	81	1598
Lantern. Optical	A. F. Prahm	593,606	Nov. 16	1565	378 379	81	1137
Lantern. Signal-	J. H. James and C. D. Barrows	593,069	Nov. 2	538	134	81	915
Lanterns. Automatic cut-off for magic	W. Firman	594,174	Nov. 23	2538	601	81	1344
Last	T. Brining	594,383	Dec. 7	151	38	81	1650
Last. Boot or shoe	E. L. Goding	596,064	Dec. 28	2130	505	81	2097
Last. Heeling-	G. M. Pettengill	596,305	Dec. 28	2531	603	81	2172
Last-support	G. W. Carter	591,999	Oct. 19	1865	444	81	414
Lasting boots or shoes. Notching device for	A. W. Eaton	596,323	Dec. 28	2566	611	81	2179
Lasting-machine	E. F. Grandy	595,809	Dec. 21	1652	398	81	1981
Lasting-machine	H. von Kalinowski	593,356	Nov. 9	1091	263 264 265	81	1082
Lasting-machine	A. F. Preston	592,926	Nov. 2	136	31, 32	81	834
Lasting-machine	A. F. Preston	594,179	Nov. 23	2545	602	81	1345
Lasting-tool. Hand	I. Fréchette	594,241	Nov. 23	2645	626 627	81	1364
Latch	A. Adams	595,424	Dec. 14	1022	245	81	1886
Latch	A. Adams	595,425	Dec. 14	1025	245	81	1886
Latch	A. Adams	595,426	Dec. 14	1026	246	81	1886
Latch	A. Adams	595,427	Dec. 14	1027	246	81	1886
Latch	P. F. Fleming	591,396	Oct. 12	833	194	81	190
Latch	J. D. Woodbury	593,182	Nov. 2	778	187	81	961
Latch	O. Bower	591,586	Oct. 12	1170	275	81	254
Latch. Gate-	J. A. Green	595,676	Dec. 14	1417	342	81	1918
Latch. Gate-	W. J. Reynolds	593,241	Nov. 9	908	219	81	997
Latch. Gate-	J. B. Turley	595,030	Dec. 7	332	80	81	1688
Latch. Gate-	C. P. Ball, D. E. Sweetser, and G. H. Ball.	593,066	Nov. 2	550	132 133	81	914
Lathe. Automatic	E. J. Flather	595,562	Dec. 14	1236	297 298	81	1879
Lathe. Change-gear	A. F. Prentice	593,607	Nov. 16	1569	379	81	1138
Lathe. Engine-	H. L. Flather	592,966	Nov. 2	392	91, 92	81	883
Lathe feed mechanism. Engine-	W. L. Cheney and W. B. Comstock	595,288	Dec. 14	780	195	81	1792
Lathe-slide	W. Lodge	593,359	Nov. 9	1098	266	81	1083
Lathe. Taper-	M. Carrick	591,207	Oct. 5	433	115	81	91
Lathing and finishing for buildings	W. Duncan and A. R. Fordyce	594,172	Nov. 23	2534	600	81	1343
Lathing. Die for making metallic	J. G. Staudenmayer	593,864	Nov. 16	2042	480 481	81	1228
Lathing-machine	A. H. Eyles, H. S. Rapelye, and A. Applegate.	595,849	Dec. 21	1718	413	81	1994
Lead. Making white	C. V. Petraeus	592,594	Oct. 26	3227	668	81	730
Lead oxid. Manufacturing	S. Chadwick	595,669	Dec. 14	1408	340	81	1916
Leather-dressing machine	D. Hays	595,303	Dec. 14	813	200	81	1797
Leather-manufacturing apparatus	D. Hays	595,304	Dec. 14	814	201	81	1797
Leather-manufacturing apparatus	E. Köster	591,769	Oct. 12	1402	.....	81	313
Leather preparatory to dyeing. Treating	D. O. Barton	596,440	Dec. 28	2787	650	81	2225
Leather-splitting machine	J. L. Osgood	591,193	Oct. 5	456	108	81	86
Leather washer	J. Furrer	592,542	Oct. 26	3140	646	81	714
Leg. Artificial	L. B. Sharp	591,889	Oct. 19	1653	395	81	373
Leg band or guard	A. Baumgarten and M. Redlinger, Jr.	593,548	Nov. 9	1441	351	81	1097
Lemon-squeezer	W. H. Cox and C. Hughes	594,728	Nov. 30	3576	831	81	1566
Lemon-squeezer	L. Gathmann	591,466	Oct. 12	948	224	81	213
Lens	W. H. Reisner	595,805	Dec. 21	1757	421	81	2002
Lens-measure	E. J. Lutwyche	591,536	Oct. 12	1057	255	81	237
Letter or character for signs	L. Rust	591,097	Oct. 12	1348	316	81	290
Lettering device	W. S. Hunley and W. T. Harris, Jr.	591,256	Oct. 5	576	136 137	81	109
Levees. System of protecting	J. Carriere	592,537	Oct. 26	3133	643	81	712
Level	C. M. Potter	596,279	Dec. 28	2482	590	81	2163
Level	W. M. Morton	591,139	Oct. 5	355	84, 85	81	69
Level and plumb. Combined	W. O. Sanders	592,883	Nov. 2	152	34	81	838
Level. Plumb-	G. Henneberg	594,692	Nov. 30	3507	816	81	1551
Level. Spirit-	H. G. Dittbenner	594,608	Nov. 30	3341	783	81	1516
Lever-shield	J. M. Cotey	593,958	Nov. 16	2191	520	81	1259
Life-saving messenger. Marine							
Lifter: *See* Pan-lifter. Plate-lifter. Stove-lid lifter. Transom-lifter.							
Lifting-jack	C. L. Diffenderfer	590,969	Oct. 5	30	7	81	8
Lifting-jack	J. W. Hughes	596,367	Dec. 28	2665	631	81	2200
Lifting-jack	S. B. and J. F. Rittenhouse	594,967	Dec. 7	208	49	81	1659
Lifting-jack	J. W. Snell, Jr	595,216	Dec. 7	660	158	81	1742
Lifting-jack	G. W. Turner	591,793	Oct. 12	1498	355	81	321
Lifting-jack	A. F. Brandenburg	594,850	Dec. 7	18	5	81	1625
Light and ventilation screen	G. K. Cummings	593,045	Nov. 2	512	124	81	937
Light-transmitter	J. A. Rambaud	594,282	Nov. 23	2715	641 642	81	1378
Lighting and heating by means of hydrocarbons. Apparatus for	C. Branzell	591,321	Oct. 5	675	160 161	81	129
Lightning-arrester and cut-out	G. R. Kress	595,543	Dec. 14	1211	291	81	1875
Lightning-rods. Tubular tripod-brace for	J. H. King	595,634	Dec. 14	1351	326	81	1904
Limb. Artificial	I. W. Deering	594,332	Nov. 23	2804	662 663	81	1394
Lime-burning furnace	H. Simmonds and J. Delaney	593,246	Nov. 9	917	221	81	999
Lime. Kiln or furnace for burning	O. Klatte	595,542	Dec. 14	1210	291	81	1875
Link. Connecting-	J. H. Cook	591,951	Oct. 19	1788	425	81	399
Link-hook	H. Rigby	591,496	Oct. 12	1001	235	81	222
Lingo	M. Hertwig	592,781	Nov. 2	46	10	81	816
Liquid-cooler	O. Meinshausen	594,545	Nov. 30	3224	755 756	81	1494
Liquid-cooling apparatus	J. Stocker and H. H. Philper	594,440	Nov. 30	3023	710	81	1454
Liquid-cooling apparatus	L. A. Zöhe	593,151	Nov. 2	704	167	81	946
Liquid elevator and conveyer. Compressed-air	G. E. Dunton	593,837	Nov. 16	1987	467	81	1217
Liquid in tanks. Apparatus for circulating	W. McCausland	594,890	Dec. 7	76	21	81	1636
Liquid-meter	W. R. Diehl and G. McCargo	595,942	Dec. 21	1907	455 456	81	2032
Liquid-mixing apparatus	R. G. Ferguson	591,630	Oct. 19	1508	372	81	355
Liquids and gases. Apparatus for mixing	F. Jones	592,735	Oct. 26	3488	732	81	780
Liquids. Apparatus for electrically treating	J. H. Bunnell and T. A. Casey	594,520	Nov. 30	3170	743	81	1483
Liquids in form of streams. Implement for throwing or discharging	E. J. Cook and W. McEwen	593,371	Nov. 9	1112	269	81	1036
Liquids. Method of and apparatus for purifying	R. H. Park	593,333	Nov. 9	1062	257	81	1027
Liquids of different specific gravity. Device for separating	P. Van de Westelaken	593,140	Nov. 2	672	161	81	939
Liquids. Pasteurizing bottled	E. Lychenheim	595,323	Dec. 14	838	207	81	1802
Liquids. Portable vessel for retailing	P. Lochmann	590,903	Oct. 5	77	17	81	16
Liquids. Vessel for transporting and preserving	R. G. Ferguson	591,831	Oct. 19	1569	373	81	355
Liquids with gases. Apparatus for mixing	T. Carroll	595,236	Dec. 7	711	174	81	1751
Load-dumping apparatus	B. Gerdau	591,076	Oct. 5	237	55	81	47
Load-supporting apparatus	H. C. Domeyer	593,928	Nov. 16	2148	509	81	1250
Loading or unloading apparatus. Chain-lock in							
Lock: *See* Bicycle-lock. Car-door lock. Combination-lock. Cycle-lock. Cylinder-lock. Door-lock. Elevator-lock. Hasp-lock. Hat and coat lock. Keyless lock. Padlock. Permutation-lock. Safe-lock. Sash-lock. Seal-lock. Trunk-lock.							
Lock	L. Crouch and W. E. Stokes	595,606	Dec. 14	1304	315	81	1895
Lock	T. Dowman	595,290	Dec. 14	792	195	81	1793
Lock	E. Draullette and E. Catois	592,606	Oct. 26	3244	672 673	81	734
Lock	S. F. Kinsella	594,697	Nov. 30	3514	818	81	1552
Lock	J. J. Link	591,479	Oct. 12	967	229	81	217
Lock	H. S. Lockwood	594,631	Nov. 30	3379	791	81	1524
Lock	T. A. T. Rydberg	593,436	Nov. 9	1230	297	81	1058
Lock	W. M. S. Selwyn	592,825	Nov. 2	157	35, 36	81	838
Lock	H. A. Stephens	596,187	Dec. 28	2336	554	81	2136
Lock	Z. U. Trotman	591,901	Oct. 19	1689	408	81	380
Lock	C. J. Hazard	596,406	Dec. 28	2780	646	81	2214
Lock and latch	C. E. Pierce	593,335	Nov. 9	1065	257	81	1038
Lock-circuit closer	R. W Jefferis	593,729	Nov. 16	1771	425	81	1175
Locker for marine purposes. Metal	R. W. Jefferis	596,369	Dec. 28	2472	587	81	2161
Locker. Metal	E. Kolb	591,850	Oct. 19	1591	379	81	360
Locking device. Door	D. E. Hunter	591,552	Oct. 12	1111	261 262	81	243
Locking drawers of cabinets. Device for	W. B. Allen	593,065	Nov. 2	546	131	81	913
Locking keeper. Coin-controlled key	F. Erxleben	595,155	Dec. 7	555	134	81	1723
Locking pin or bolt	J. J. Speer and R. W. Zedlitz	591,020	Oct. 5	183	30	81	26
Locomotive	A. L. Harvey	594,798	Nov. 30	3663	858	81	1587
Locomotive-cab seat	E. A. Leland	594,852	Nov. 30	3759	876	81	1609
Locomotive for towing canal-boats	C. B. Lord	595,321	Dec. 14	895	201	81	1809
Locomotive fuel-saving device	R. Forsyth	593,573	Nov. 16	1505	365	81	1126
Locomotive smoke-stack							

Alphabetical list of inventions, October to December, inclusive—Continued.

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Locomotive. Snow-	B. F. Glover	593,466	Nov. 9	1283	309	81	1069
Locomotive throttle-levers. Means for automatically controlling	A. Becker and A. Minsart	592,623	Oct. 26	3274	310 679	81	740
Log barking and washing apparatus	A. Andersen	593,870	Nov. 16	2053	680 483	81	1230
Logging-machine	G. T. Glover	592,728	Oct. 26	3470	728 739	81	778
Loom	B. Bosse	591,734	Oct. 12	1407	331	81	302
Loom	J. C. Brooks	590,441	Dec. 28	2789	659	81	2225
Loom	J. F. Dustin	594,684	Nov. 30	3494	813 814	81	1549
Loom	W. B. Fitz and P. Reilly	596,444	Dec. 28	2795	660	81	2226
Loom	J. H. Northrop	596,448	Dec. 28	2805	662	81	2228
Loom	J. H. Northrop and M. J. Bigelow	595,198	Dec. 7	635	152	81	1737
Loom	P. C. Stadler	595,417	Dec. 14	1006	242	81	1853
Loom	J. F. Dustin	594,685	Nov. 30	3496	814	81	1549
Loom box-motion-operating device	J. H. Northrop	593,070	Nov. 2	560	134	81	916
Loom brake mechanism	E. Ingraham	592,731	Oct. 26	3479	731	81	779
Loom clutch-and-brake mechanism	J. L. Burton	591,998	Oct. 19	1864	444	81	414
Loom filling-changing mechanism	S. A. Leavens, J. M. Harvey, and W. A. Chandler.	595,677	Dec. 14	1419	342	81	1918
Loom for lappet-weaving	H. Hardwick	592,005	Oct. 19	1874	447	81	415
Loom Jacquard mechanism	A. Clapperton	596,039	Dec. 21	2087	496	81	2171
Loom pattern-matching mechanism	F. A. Wardwell	595,226	Dec. 7	678	163	81	1746
Loom-picker	R. W. Andrews	594,719	Nov. 30	3559	827 828	81	1562
Loom picker-check	C. H. Burt	593,957	Nov. 16	2189	519	81	1258
Loom. Pile-fabric	E. M. Bergner	595,596	Dec. 14	1298	311 312	81	1802
Loom-reed	A. Isherwood	594,402	Nov. 30	2946	694	81	1440
Loom-shuttle	J. C. Sergeson	595,416	Dec. 14	1005	242	81	1853
Loom-shuttle	J. H. Northrop	594,704	Nov. 30	3529	822	81	1556
Loom shuttle-box	P. Vigand	591,908	Oct. 5	659	156	81	126
Loom-shuttle-box-operating mechanism	J. Bannister	596,315	Dec. 28	2548	607	81	2176
Loom shuttle-check	L. Sconfietti	594,038	Nov. 23	2333	550 551	81	1304
Loom shuttle-guard	E. Huschke	593,941	Nov. 16	2164	513	81	1253
Loom shuttle-operating mechanism. Power-	G. O. Draper	591,370	Oct. 5	784	183	81	150
Loom-shuttle. Self-threading	F. M. J. Grenier	593,205	Nov. 9	824	196 197	81	968
Loom stop mechanism	W. Lacey	591,979	Oct. 19	1893	434	81	405
Loom stopping mechanism	J. S. Ludlam and J. A. Claus	591,857	Oct. 19	1606	361	81	368
Loom-temple thread-cutting attachment	W. H. Baker	595,688	Dec. 21	1433	345 347	81	1939
Loom warp stop-motion	M. J. Bigelow	594,341	Nov. 23	2330	670	81	1399
Loom warp stop-motion	W. F. Draper	594,344	Nov. 23	2337	671	81	1401
Loom warp stop-motion	J. H. Northrop	594,355	Nov. 23	2350	675	81	1405
Loom warp stop-motion	O. Piper	594,213	Nov. 23	2304	616	81	1355
Loom warp stop-motion	F. M. Day	596,443	Dec. 28	2798	660	81	2225
Loom warp-stop-motion mechanism	C. Holly	593,218	Nov. 9	854	204 205 206	81	990
Looping-machine	F. F. Farlow	596,090	Dec. 28	2125	504	81	2096
Low-water alarm	R. C. Stewart	594,576	Nov. 30	3277	------	81	1505
Lubricant	J. Stoddard	594,183	Nov. 23	2556	605	81	1347
Lubricating device for revolving bodies							
Lubricator: *See* Axle-lubricator. Journal-lubricator.							
Lubricator	R. M. Gelinas	590,974	Oct. 5	38	9	81	9
Lubricator	W. Grimes	592,909	Nov. 2	273	63	81	861
Lubricator	P. H. Kane	595,717	Dec. 21	1484	358	81	1949
Lubricator	N. Leidgen	591,854	Oct. 19	1598	380	81	362
Lubricator	D. D. McCall	596,174	Dec. 28	2314	549	81	2131
Lubricator	J. McGinley	595,725	Dec. 21	1499	362	81	1951
Lubricator	W. H. Prendergast	596,230	Dec. 28	2404	568	81	2150
Lubricator	J. Price	594,755	Nov. 30	3622	843	81	1574
Lubricator	W. F. Van Guisling	595,081	Dec. 7	333	80	81	1693
Lubricator	G. Walch	595,826	Dec. 21	1698	408	81	1987
Lubricator	J. H. Quinton	591,425	Oct. 19	877	205	81	199
Luggage-carrier	V. B. Perrine and W. S. Boon	592,121	Oct. 19	9095	495	81	456
Lumber-loading apparatus	S. Solomon	595,895	Dec. 21	1898	437	81	2016
Lumber-rack	H. Hess, Jr	593,539	Nov. 9	1427	347	81	1094
Lunch-box	H. A. Koehler	594,351	Nov. 23	2340	673	81	1403
Lung-testing apparatus	E. J. McClellan	594,032	Nov. 23	2315	547	81	1300
Machines. Compound harmonic movement for	T. J. Fay	591,395	Oct. 12	332	194	81	190
Magnetic coupling	W. D. Marks	591,081	Oct. 5	251	59	81	50
Magnetizing. Method of	R. A. Kneeland	596,168	Dec. 28	2306	547	81	2129
Mail-bag	C. M. Bennett, C. Lindstrom, and W. R. McKeen, Jr.	591,731	Oct. 12	1390	328 329	81	301
Mail-bag holding and catching device	A. C. Bruseau	592,903	Nov. 2	264	60	81	858
Mail-box	C. O. Lucas and A. D. Harrison	595,678	Dec. 14	1421	342 343	81	1919
Mail-box	F. Bever and J. A. Lentz	592,075	Oct. 19	2004	474	81	440
Mail-crane. Automatic railway	B. Chamberlain	594,963	Dec. 7	251	61	81	1667
Mail-pouch-delivery device	G. Hunter	596,407	Dec. 28	2731	647	81	2214
Mainspring-barrels. Winding mechanism for	C. Macher, H. W. Kuehl, and O. Meinshausen.	595,583	Dec. 21	1801	432	81	2011
Malt-floor. Dumping	R. B. Simpson	594,496	Nov. 30	3015	708	81	1453
Mandolin	F. E. Richter	594,490	Nov. 30	3005	705 706	81	1451
Mangle	J. J. O'Brien	595,647	Dec. 14	1370	331	81	1909
Manhole-cover	A. J. Fair	595,052	Dec. 7	379	93	81	1691
Mantel	J. Parker	591,358	Oct. 5	757	178	81	145
Mantel. Wood	R. L. Halley	596,457	Dec. 28	2826	667	81	2238
Manual and automatic switch. Combined	F. Friedrichs and A. Brede	594,398	Nov. 30	2929	691	81	1437
Manuscript case or holder	H. T. Pace	591,876	Oct. 19	1639	399	81	369
Marble-racket							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Marine-leg-pushing device	H. E. Hand and L. Greenberg	593,743	Nov. 16	1814	434 435	81	1183
Marker. Court-	G. G. Beekman	592,046	Oct. 19	1946	461	81	429
Mason's and builder's implement	E. G. Nichols	595,860	Dec. 21	1739	418	81	1909
Mat: *See* Door-mat.							
Match and composition for same	L. Aronson	592,227	Oct. 26	2969	535	81	511
Match-box	J. E. Burkhiser and G. K. Colborn	591,379	Oct. 12	803	187	81	184
Match box and lighter. Combined	A. Ripple and G. E. Durier	591,932	Oct. 19	1744	416	81	391
Match-box. Pocket	H. Wirtz	592,526	Oct. 26	3115	636	81	708
Match-cabinet	H. F. Ganon	591,215	Oct. 5	501	119	81	95
Match-machine	B. T. Steber	595,978	Dec. 21	1967	470	81	2045
Match-safe	A. Barnes	592,105	Oct. 19	2064	488	81	451
Match-safe	A. Barnes	596,316	Dec. 28	2540	607	81	2177
Match-safe	H. Flanders and C. E. Stearns	593,353	Nov. 9	1087	203	81	1032
Match-safe	F. Hardy	596,404	Dec. 28	2727	646	81	2213
Match-safe	W. W. Pennington	593,905	Nov. 16	2101	498	81	1241
Match-safe	H. T. Mohr	594,031	Nov. 23	2314	547	81	1300
Match-safe and cigar-cutter. Combined	C. F. Scamman, C. L. and E. C. Farrar.	592,741	Oct. 26	3496	735	81	783
Match-splint forming and coiling machine	P. C. Kjellberg	593,944	Nov. 16	2168	514	81	1254
Matches in boxes, &c. Machine for packing	G. Firsching	594,183	Nov. 23	2476	------	81	1331
Matches. Manufacture of	A. Galbraith	591,963	Oct. 19	1796	420	81	402
Matches, toothpicks, &c. Holder for	A. S. Capehart	591,948	Oct. 19	1778	424	81	398
Matrix-bar and making same	A. S. Capehart	591,814	Oct. 19	1543	364	81	350
Matrix-bar for line-casting machines. Side-box	W. S. Scudder	595,079	Dec. 7	423	102	81	1698
Matrix-bars for line-casting machines. Method of and means for making	A. S. Capehart	591,947	Oct. 19	1776	424	81	398
Matrix for line-casting machines	J. L. Wells	593,447	Nov. 9	1245	299	81	1061
Matte or other furnace products. Apparatus for desulfurizing	O. Steiner	591,022	Oct. 5	142	32	81	29
Mattress, pillow, &c.	G. W. Murray	593,279	Nov. 9	965	233 234	81	1008
Mattress. Spring-	A. Griffith	591,077	Oct. 5	241	57	81	47
Mattress-stuffing machine	E. B. Dixon	595,152	Dec. 7	550	133	81	1722
Mattress-tufting machine	W. J. McDonnel	594,548	Nov. 30	3231	758	81	1495
Measure	A. M. Van Derworp	593,555	Nov. 9	1464	356	81	1101
Measure. Dressmaker's	E. B. Rose	593,858	Nov. 16	2025	477	81	1224
Measurements. Indicator for electrical	C. W. Cramer	594,196	Nov. 23	2574	609 610	81	1350
Measuring and dispensing apparatus	J. Wadsworth	592,264	Oct. 26	2827	548 549	81	522
Measuring and folding fabrics, &c. Machine for	J. Hotz	594,534	Nov. 30	3301	750 751	81	1489
Measuring apparatus for ribbons, &c	R. E. L. J. Lovell	592,636	Oct. 26	2294	684	81	744
Measuring cloth, &c. Machine for	G. W. Hyde	592,710	Oct. 26	3442	721	81	773
Measuring cloth, paper, &c. Machine for	S. O. Jones	592,736	Oct. 26	3485	732	81	780
Measuring device	O. H. Basquin	595,390	Dec. 7	749	184	81	1759
Measuring device. Angle-	L. E. Howland	592,911	Nov. 2	278	64	81	861
Measuring instrument	O. B. Shallenberger	591,241	Oct. 5	550	130	81	105
Measuring instrument. Electrical	E. Thomson	591,898	Oct. 19	1076	401	81	378
Measuring instruments. Damper for electrical	J. B. E. Rousseau and J. Boutet	591,883	Oct. 19	1043	391 392	81	372
Measuring machine. Leather-	R. Hegarty	595,475	Dec. 14	1109	267	81	1854
Measuring-pole	W. Lindsay	594,630	Nov. 30	3376	791	81	1523
Measuring, registering, and delivering liquids. Apparatus for	S. N. Ayres	594,820	Nov. 30	3741	872	81	1508
Measuring time and distance. Instrument for	J. W. Brown, Jr	591,323	Oct. 5	678	161 162	81	129
Meat-chopper	C. P. Mosher	593,948	Nov. 16	2172	516	81	1255
Meat-cutter	B. W. Bennett	594,930	Dec. 7	148	37	81	1649
Mechanical movement	J. E. Crisp	590,053	Dec. 28	2116	501 502	81	2094
Mechanical movement	S. L. Harwood	594,741	Nov. 30	3601	837	81	1571
Mechanical movement	W. Martin	591,102	Oct. 5	287	70	81	57
Mechanical movement	W. P. Parsons	595,968	Dec. 21	1949	466	81	2041
Mechanical movement	W. A. Pitt	595,732	Dec. 21	1508	364 365	81	1953
Mechanical movement	W. Robinson	592,124	Oct. 19	2098	496	81	457
Mechanical movement	M. A. Thornton	596,201	Dec. 28	2503	595	81	2167
(Medical.) Apparatus for examining hearts, lungs, &c	D. B. Marsh	592,154	Oct. 19	2142	506	81	466
Medicine-glass	J. M. Jenkins	594,067	Nov. 23	2407	571	81	1316
Mending device	F. B. Jencks	596,165	Dec. 28	2300	545	81	2128
Mercerizing	C. Tubbe	596,464	Dec. 28	2898	------	81	2234
Merry-go-round	T. T. Templin	594,718	Nov. 30	3547	836	81	1560
Metal balls. Machine for making	N. Flammang	592,065	Oct. 19	2026	479	81	444
Metal-crimping tool	P. W. Berridge	594,225	Nov. 23	2321	630	81	1359
Metal joint	H. C. Swan	591,308	Oct. 5	651	153	81	124
Metal-planing machine	W. H. Chappell	594,055	Nov. 23	2377	564	81	1312
Metal plates. Machine for cleaning and polishing	J. Burton	594,149	Nov. 23	2500	592	81	1396
Metal-shearing machine	C. T. Bucher	591,811	Oct. 19	1598	368	81	349
Metal structures. Treating	F. Shuman	593,440	Nov. 9	1236	------	81	1059
Metal surfaces. Apparatus for cleaning cast-	D. C. Green	592,730	Oct. 26	3478	730	81	779
Metal-work. Trimming device for struck-up	S. B. Campbell	593,533	Nov. 9	1409	339	81	1092
Metals and ores. Apparatus for electrically heating	G. D. Burton	593,961	Nov. 23	2334	530 531	81	1286
Metals from ores. Process of and apparatus for extracting	W. E. Inglis	596,458	Dec. 28	2827	667	81	2233
Metals from their solutions. Process of and apparatus for electrolytic extraction of	J. W. Richards	591,141	Oct. 5	357	85	81	70
Metals from their solutions. Process of and apparatus for electrolytic recovery of	J. W. Richards and C. W. Roepper	591,571	Oct. 12	1144	269	81	249
Metallic tube or conduit. Flexible	H. H. Brooks	591,092	Oct. 5	266	63	81	53
Metallurgical furnace	B. C. Lauth	594,111	Nov. 23	2439	579 580	81	1325

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Metallurgical furnace	B. C. Lauth	594,112	Nov. 23	2441	580	81	1325
Metallurgical furnace	N. McConnell	595,646	Dec. 14	1369	330	81	1909
Meter: *See* Electric meter. Electric-current meter. Liquid-meter. Recording-meter.							
Meter apparatus. Coin-freed-	J. F. Simmance	592,668	Oct. 26	3369	702	81	759
	C. A. Wallgren	596,346	Dec. 28	2605	620 621	81	2188
Micrometer-gage		595,247	Dec. 7	782	179	81	1755
Milk, &c. Apparatus for treating	J. L. Jönsson	594,670	Nov. 30	3478	809	81	1545
Milk-cabinet	A. G. Williams	593,429	Nov. 9	1218	294	81	1056
Milk-can	O. Marth	595,822	Dec. 21	1674	404	81	1985
Milk-can	A. V. Smith	594,478	Nov. 30	3095	725	81	1469
Milk-can loader	G. F. Knorr	592,721	Oct. 26	3459	725	81	776
Milk-cooler	J., D. A., and J. W. Barnhart	594,860	Dec 7	33	9	81	1628
Milking apparatus. Cow-	M. J. Cushman						
Mill: *See* Crushing-mill. Grain-cutting mill. Grinding-mill. Pulverizing-mill. Rolling-mill. Stamp-mill. Windmill.							
Milling-machine	I. D. Lengel	593,541	Nov. 9	1430	348	81	1095
Millstones. Pick for edging	H. Warncke	592,265	Oct. 26	2328	549	81	822
Mimeograph	M. N. Lindley and L. I. Coggins	593,672	Nov 16	1683	407	81	1159
Mine-gate	G. G. Lewis	595,880	Dec. 21	1706	431	81	2010
Miner's expanding drill	H. M. Soulon	593,617	Nov. 16	1591	383	81	1142
Miner's knife	W. A. Chapman	594,984	Dec. 7	252	61	81	1667
Miners. Means for supplying food and air to entombed	L. Welker	593,259	Nov. 9	984	236	81	1002
	J. D. Campbell	593,459	Nov. 9	1273	306	81	1067
Miner's tool	W. F. Lay	595,457	Dec. 14	1072	258	81	1846
Mining gold-bearing placers. System of	J. Blair	591,449	Oct. 12	922	217	81	908
Mining-machine	C. O. Palmer	594,897	Dec. 7	87	24, 25	81	1638
Mining-machine	W. D. Forsyth	594,240	Nov. 23	2643	625	81	1363
Mining machine. Coal-	C. O. Palmer	594,898	Dec. 7	85	23, 24	81	1637
Mining-machine cutter-bit fastening	C. O. Palmer	594,899	Dec. 7	99	26	81	1640
Mining-machine cutter-bit holder	C. O. Palmer	594,900	Dec. 7	101	26	81	1640
Mining-machine truck	W. G. Gass and J. Tonge	590,973	Oct. 5	36	8	81	9
Mining purposes. Hydraulic apparatus for	H. E. Miller	592,877	Nov. 2	222	51	81	850
Mirror construction	H. Bader and H. D. Cartwright	592,042	Oct. 19	1939	460	81	427
Mirror-support	A. Rost	594,758	Nov. 30	3025	.....	81	1575
Mirrors and producing same. Coating for	C. P. Dyer	595,613	Dec. 14	1317	318	81	1898
Mirrors or transoms. Friction-pivot for	T. M. Griffith	592,139	Oct. 19	2122	502	81	462
Miter-box	C. B. Hall	590,979	Oct. 5	49	11	81	11
Miter-box	J. A. Maxson	592,874	Nov. 2	218	50	81	850
Miter-box	J. T. Miller and J. A. Denney	593,751	Nov. 16	1822	437	81	1185
Mixer: *See* Gas-mixer.							
Mixer	B. J. Spilker	595,354	Dec. 14	891	218	81	1812
Moistener for envelops, &c	W. M. Moseley	595,491	Dec. 14	1132	273	81	1858
Moistener. Stamp or envelop	G. J. Cave	594,599	Nov. 30	3325	780	81	1513
Mold: *See* Cigar-mold. Ice-cream mold. Prism-light mold.							
Moldboard	S. A. Smith	595,977	Dec. 21	1966	470	81	2045
Mold-forming apparatus. Sand-	S. J. Adams	594,584	Nov. 30	3291	773	81	1508
Molds. Apparatus for forming sand	S. J. Adams	593,267	Nov. 9	949	229	81	1005
Molds. Runner-brick for bottom-cast	M. L. Williams	593,974	Nov. 16	2223	527	81	1266
Molding apparatus	L. Fingal	591,463	Oct. 12	945	223	81	218
Molding apparatus. Sand-	S. J. Adams	591,151	Oct. 5	373	88	81	72
Molding-machine	A. Dickey	594,233	Nov. 23	2634	623	81	1361
Molding-machine	W. Zoeller	591,520	Oct. 12	1046	245 246 247	81	229
Monkey-wrench	E. B. Sankey	592,666	Oct. 26	3362	700	81	758
Mosquito-screen	J. L. Crudup	594,171	Nov. 23	2533	600	81	1343
Motion. Means for converting	A. B. Perine	594,276	Nov. 23	2702	638 639	81	1376
Motion-transmitting device	F. J. Noechel	592,436	Oct. 26	2966	600	81	679
Motive-power system and apparatus. Hot-water-storage	H. A. Thomas	594,185	Nov. 23	2559	606	81	1347
Motor: *See* Air-motor. Carriage or cycle motor. Churn-motor. Current-motor. Current-motor. Electric motor. Gasolene-motor. Pneumatic motor. Railway-motor. Rotary motor. Spring-motor. Steam-motor. Thermic motor. Tide-motor. Vehicle-motor. Water-motor. Wave-motor. Wind-motor.							
Motor	W. E. Lippincott and O. E. C. Homann.	593,808	Nov. 16	1927	458 459	81	1204
	E. W. Rice, Jr	595,413	Dec. 14	1000	241	81	1881
Motors. Braking alternating-current induction-	M. W. Quick	595,206	Dec. 7	647	155	81	1740
Motors. Plant for operating	W. J. Foster	594,150	Nov. 23	2502	598	81	1337
Motors. Starting device for alternating-current	F. Bower	593,561	Nov. 16	1480	361	81	1121
Mower	T. S. Brown	594,506	Nov. 30	3330	779	81	1512
Mower	J. G. Hoffken	593,590	Nov. 16	1530	369 370	81	1129
Mower	C. G. Kerr	591,230	Oct. 5	530	126	81	101
Mower. Lawn-	C. H. Curtis and C. E. Atwater	594,067	Nov. 23	2380	564	81	1313
Mower. Lawn-	S. P. Townsend	591,435	Oct. 12	896	209 210	81	208
Mowing-machine	J. S. Howk	590,967	Oct. 5	63	14	81	14

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Mowing-machine	M. Kane	591,923	Oct. 19	1731	414 415	81	888
Mowing-machine	M. Kane	591,924	Oct. 19	1734	415	81	889
Mowing-machine	M. Kane	594,021	Nov. 23	2300	543	81	1208
Mowing-machine	C. A. Patten	591,567	Oct. 12	1139	268	81	248
Mowing-machine, &c. Track-clearing board and arm for	J. B. Hayes	591,274	Oct 5	609	142	81	115
Mucilage-pot	H. W. Scattergood	592,959	Nov. 2	378	87	81	881
Mucilage-reservoir cover	T. S. Lewis	593,480	Nov. 9	1308	316	81	1074
Multiple drill	J. I. Warman	592,943	Nov. 2	337	78, 79	81	873
Music-box. Mechanical	P. Ehrlich	594,295	Nov. 23	2639	624	81	1362
Music holder and turner	W. L. Sanborn	591,060	Oct. 5	215	50	81	43
Music-leaf turner	H. Henckler and W. J. Elcks	594,025	Nov. 30	3360	789	81	1522
Music-leaf turner	G. Robbins	592,021	Oct. 19	1903	453	81	421
Music-leaf turner	C. A. Roepke	592,852	Nov. 2	151	34	81	837
Musical-box winding device	E. L. R. Mack	594,804	Nov. 30	3713	865	81	1593
Musical instruction. Movable ladder for	G. A. Brachhausen	593,761	Nov. 16	1844	442	81	1189
Musical instrument	G. A. Brachhausen	595,366	Dec. 14	912	221	81	1816
Musical instrument	G. H. Graham	593,468	Nov. 9	1287	311	81	1070
Musical instrument	B. McLaughlin	590,288	Oct. 5	634	149	81	120
Musical instrument	F. G. McPherson	591,872	Oct. 19	1627	387	81	367
Musical instrument	W. H. Rollins	595,342	Dec. 14	868	214	81	1808
Musical instrument. Automatic	G. A. Brachhausen	596,393	Dec. 28	2704	641 642 643	81	2207
Musical-instrument damper mechanism	W. Germer	593,294	Nov. 9	823	196	81	983
Musical instrument. Electrical	G. A. Brachhausen	595,901	Dec. 21	1838	440	81	2019
Musical-instrument fall-board	F. W. Hedgeland	594,012	Nov. 23	2288	540	81	1295
Musical-instrument foot-pedal	T. P. Brown	595,466	Dec. 14	1089	261	81	1870
Musical-instrument keyboards. Touch-regulator for	F. Barrouin	593,451	Nov. 9	1250	301	81	1063
Musical instrument. Mechanical	G. A. Brachhausen	593,702	Nov. 16	1845	442 443	81	1189
Musical-instrument pick	H. Ackermann	593,072	Nov. 2	563	135	81	916
Musical instruments. Pneumatic motor for	T. P. Brown	594,981	Dec. 7	248	60	81	1667
Musical-instrument stringing device	E. P. Newman	592,995	Nov. 2	432	102	81	891
Musical-instrument tailpiece	C. F. Henery	591,472	Oct. 12	956	220	81	214
Musical-instrument wind-motor	F. W. Hedgeland	593,215	Nov. 9	849	203	81	989
Musical instruments. Tune-sheet for mechanical	J. E. Sanders	593,165	Nov. 2	751	180	81	955
Nail and corn trimmer	E. R. Helbig	593,524	Nov. 9	1394	336	81	1189
Nail cutting and driving machine	J. Boothman	596,048	Dec. 28	2108	490	81	2093
Nail-extractor	C. M. Morrison	595,644	Dec. 14	1307	330	81	1908
Nail-machine feed. Wire-	L. M. Baum	593,977	Nov. 23	2220	529	81	1285
Nail machine. Wire-	W. F. Hutchinson	593,019	Nov. 2	470	113	81	898
Nail machine. Wire-	W. F. Hutchinson	593,020	Nov. 2	472	113 114	81	899
Nail-making machine	G. Goddu	592,720	Oct. 26	3473	729 730	81	778
Nail-making machine. Wire-	C. C. Kesty	594,863	Dec. 7	62	16	81	1634
Nail-puller	E. N. Gilfillan	594,302	Nov. 23	2585	612	81	1352
Nails or tacks. Implement for extracting	E. W. Pratt	595,679	Dec. 14	1423	343	81	1919
Nailing and stapling machine	R. R. Quickert and K. Larson	592,615	Oct. 26	3360	675 676	81	737
Nailing implement. Hand	J. W. Grandle	592,296	Oct. 26	2359	557	81	529
Nailing-machine	W. Goddu	595,878	Dec. 21	1798	430	81	2009
Nailing-machine	C. M. Green	590,977	Oct. 5	43	9 10 11	81	10
Nailing-machine	J. N. Kline	593,379	Nov. 9	1129	273	81	1069
Nailing-machine	S. W. Robinson	591,658	Oct. 12	1288	302	81	278
Napkin-holder	E. H. Gosewisch	591,685	Oct. 19	1574	374	81	356
Necktie-fastener	H. M. Armstrong and W. J. Jones	593,955	Nov. 16	2185	518	81	1257
Necktie-fastener	G. Selowsky	593,458	Nov. 9	1234	297	81	1059
Necktie-fastener	A. F. Vaughan	595,928	Dec. 21	1883	450	81	2028
Necktie-fastener	W. J. Herbert	593,095	Nov. 2	603	144	81	924
Necktie-holder	F. S. Kauffman	596,069	Dec. 28	2138	507	81	2099
Necktie-retainer	E. Caesar	592,926	Nov. 2	298	69	81	866
Needle	H. D. Nisbet	595,069	Dec. 7	406	98	81	1695
Needle-bath	A. Schoeneweiss	596,184	Dec. 28	2331	553	81	2135
Needle-grinding machine	G. Colledge	591,326	Oct. 5	682	163	81	139
Needle-threader	C. Laurence	595,953	Dec. 21	1931	461	81	2037
Needle-threader	L. A. Agnew	591,801	Oct. 19	1513	359	81	343
Newspaper folding and wrapping machine	A. C. Campbell	594,457	Nov. 30	3350	716 717 718	81	1460
Nipple-forming machine	A. Knop	595,178	Dec. 7	605	.....	81	1732
Nitrites. Making	P. Lesch	593,179	Nov. 2	774	186	81	960
Non-refilling stopper for vessels	C. E. Doolittle	595,014	Dec. 7	302	73	81	1677
Nozzle and valve therefor. Discharge-	J. W. Jackson	596,369	Dec. 28	2907	682	81	2200
Nozzle. Oil-can	J. M. Sherman	591,120	Oct. 5	318	78	81	62
Nozzle. Water-	S. S. Eccleston	596,304	Dec. 28	2266	561	81	2142
Nursery-chair	E. S. Amrock	595,235	Dec. 7	710	173	81	1751
Nursery. Portable	W. E. Pugsley	591,190	Oct. 5	463	109	81	88
Nut and pipe wrench	C. Collins	594,338	Nov. 23	2800	661	81	1394
Nut. Axle-	S. Lloyd	594,026	Nov. 23	2308	545	81	1299
Nut cover for vehicles. Bow-	T. W. Calvert	594,854	Dec. 7	25	6	81	1626
Nut-lock	O. W. Ceder	593,051	Nov. 2	576	139	81	919
Nut-lock	J. W. B. Cook	593,515	Nov. 9	1382	334	81	1087
Nut-lock	H. W. Crispin	592,983	Nov. 2	418	98	81	888
Nut-lock	F. H. Dedrick	594,861	Dec. 7	36	9	81	1628
Nut-lock	J. W. Donaldson	595,701	Dec. 21	1459	351	81	1944
Nut-lock	J. Douglass	594,525	Nov. 30	3187	747	81	1486
Nut-lock	J. A. Gschwender	594,153	Nov. 23	2511	594	81	1339
Nut-lock	T. Hand	594,728	Nov. 30	3596	836	81	1570
Nut-lock	W. A. Honecker	594,950	Dec. 7	180	43	81	1655
Nut-lock	A. H. Lawfer	593,107	Nov. 2	619	149	81	927

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Nut-lock	J. T. McMurtry	595,193	Dec. 7	627	150	81	1736
Nut-lock	C. E. Miller	594,546	Nov. 30	3226	756	81	1494
Nut-lock	M. E. Murphy and W. McDevitt	595,962	Dec. 21	1943	465	81	2040
Nut-lock	G. Radel, Jr	594,214	Nov. 23	2607	616	81	1356
Nut-lock	H. B. Robischung	596,033	Dec. 21	2074	498	81	2068
Nut-lock	H. Schmidt	594,432	Nov. 30	3007	707	81	1452
Nut-lock	A. D. Smith	591,892	Oct. 19	1656	396	81	374
Nut-lock	J. W. Smith	591,062	Oct. 5	217	51	81	43
Nut-lock	W. E. Smith	595,215	Dec. 7	659	158	81	1742
Nut-lock	E. J. Sweeney	594,918	Dec. 7	132	33	81	1646
Nut-lock	J. A. Temple	596,094	Dec. 28	2183	517	81	2107
Nut-lock	H. Theis	595,746	Dec. 21	1534	370	81	1956
Nut-lock	W. E. Waldron	595,448	Dec. 14	1056	253	81	1845
Nut-lock	R. H. Walker	593,913	Nov. 16	2116	501	81	1244
Nut-lock	M. T. Wallace and A. H. Reynolds	592,845	Nov. 2	175	40	81	842
Nut-lock	M. White	592,896	Nov. 2	257	58	81	857
Nut-lock	J. A. Plopper	592,825	Nov. 2	132	29 30 31	81	833
Nut-tapping machine	J. F. Rogers	591,991	Oct. 19	1837	457	81	408
Nut wrench. Axle-	O. B. Shedd	594,761	Nov. 30	3630	845	81	1576
Oar. Boat-	A. P. Sundberg	591,992	Oct. 19	1839	458	81	408
Oar. Bow-facing	J. R. Supple	591,509	Oct. 12	1019	238	81	225
Oar-lock	J. J. Heilmann	593,296	Nov. 9	999	241	81	1015
Oil and gas engine	O. Lugo	596,411	Dec. 28	2736	------	81	2215
Oil and reagent used therein. Purification of cotton-seed	M. Graetz	594,395	Nov. 30	2934	692	81	1437
Oil-burner for producing non-luminous flame	W. A. Smith	594,439	Nov. 30	3021	710	81	1454
Oil-burner. Incandescent	J. J. Hall	593,901	Nov. 16	1919	457	81	1208
Oil burner. Mineral-	J. Lines	592,094	Oct. 19	2045	488	81	447
Oil-can	J. Lines	594,258	Nov. 23	2673	633	81	1370
Oil-can	D. True	593,446	Nov. 9	1244	299	81	1061
Oil-can	J. H. Wolff	596,046	Dec. 21	2105	498	81	2074
Oil-can	C. R. Zacharias	591,908	Oct. 19	1700	406	81	382
Oil can or receptacle	A. Levedahl	594,544	Nov. 30	3222	755	81	1494
Oil-cup	J. Price	591,293	Oct. 5	641	151	81	122
Oil-cup	W. E. Tillinghast	592,179	Oct. 19	2186	515	81	474
Oil-cup	T. J. Tellefsen and C. S. Lockwood	596,098	Dec. 28	2180	516	81	2106
Oil distributer for roller-bearings	W. W. Lee	591,853	Oct. 19	1597	380	81	361
Oil-distributing projectile	W. R. Harrison and E. Stephenson	591,041	Oct. 5	182	42, 43	81	37
Oil-extracting apparatus	E. Printz	594,425	Nov. 30	2995	704	81	1449
Oil-extracting apparatus	G. E. Wright and W. Monk	592,535	Oct. 26	3129	640 641 642	81	711
Oil-extracting apparatus	P. Lelardoux	595,022	Dec. 7	314	76	81	1679
Oil from cotton-seed, &c. Roller-press for extracting	A. Euston	594,390	Nov. 30	2925	690	81	1436
Oil from seeds. Extracting	W. Rowbotham	595,497	Dec. 14	1140	274 275	81	1860
Oil, gas, or like engine	W. C. Fahy	591,894	Oct. 12	830	193	81	189
Oil-purifier	W. A. Smith	596,437	Dec. 28	2783	------	81	2224
Oil. Refining	C. E. Harrison	595,999	Dec. 21	2001	478	81	2053
Oil-reservoir for car-journals	N. F. Ryder	592,512	Oct. 26	3087	690	81	708
Oil-treating apparatus	O. Lugo	596,410	Dec. 28	2735	------	81	2215
Oils and reagent therefor. Refining	F. L. Dyer	594,467	Nov. 30	3077	721	81	1466
Oils, fats, &c. Purifying fixed	C. H. C. Koch	591,406	Oct. 12	845	196	81	193
Oiling device for journals. Self-	J. S. Giles	595,539	Dec. 14	1208	290	81	1874
Oiling device for loom pile-wires	E. A. Bagby	596,351	Dec. 28	2613	622	81	2189
Ointment-applicator	A. S. Crane	595,697	Dec. 21	1447	349 350	81	1942
Opera-glass and handle therefor	J. T. Brayton	591,617	Oct. 12	1216	286	81	263
Ophthalmoscope	H. S. Maxim	593,227	Nov. 9	882	209 210 211 212	81	998
Ordnance. Automatic loading mechanism for quick-firing	W. E. Simpson	594,710	Nov. 30	3541	825	81	1559
Ordnance. Gas-operated	W. E. Wild	596,021	Dec. 21	2047	487	81	2061
Ore classifier and silmer	J. A. Dyblie	593,992	Nov. 23	2254	534	81	1290
Ore-converter	P. Argall	591,909	Oct. 19	1701	406 407	81	382
Ore roasting and drying apparatus	A. M. Rouse	594,287	Nov. 23	2723	644	81	1380
Ore-separator	E. C. Ketchum	592,055	Oct. 19	1966	465	81	453
Ores. Treating	E. M. Skinner	595,660	Dec. 14	1392	335 336	81	1918
Organ. Pipe-	S. R. Oliver	593,382	Nov. 9	1134	274	81	1040
Organ-protector	O. Spaethe	593,498	Nov. 9	1343	326	81	1061
Organ. Reed-	W. B. Fleming	594,391	Nov. 30	2927	690	81	1436
Organs. Pouch-pneumatic for pipe-	J. J. Reagan	593,310	Nov. 9	1025	247 248	81	1020
Oscillatory mechanism	D. P. Holland	593,098	Nov. 2	605	145	81	985
Oven	G. Welz	592,460	Oct. 26	3007	699	81	687
Oven	B. Ycre	591,224	Oct. 5	520	124	81	99
Oven. Baker's-	C. Johnson	594,408	Nov. 30	2949	694	81	1440
Overflow-alarm	D. Gaul	596,401	Dec. 28	2734	645	81	2212
Overhead switch	G. E. O'Neill	596,303	Dec. 28	2559	602	81	2172
Packing	C. J. Restein	595,340	Dec. 14	866	213	81	1808
Packing	J. W. Neumann	595,726	Dec. 21	1500	362	81	1952
Packing-box	C. H. Merwarth	591,863	Oct. 19	1611	383	81	364
Packing for steam and hydraulic joints	D. W. French	596,295	Dec. 28	2509	596 597	81	2168
Packing from joints. Machine for removing	J. H. Day	592,750	Oct. 26	3515	739	81	786
Packing-machine	W. H. Law	591,670	Oct. 12	1313	308	81	283
Packing. Metallic	L. Katzenstein	595,811	Dec. 21	1655	399	81	1989
Packing. Metallic ring	J. W. Dudley	595,675	Dec. 14	1415	342	81	1918
Packing. Piston-rod	C. L. Newcomb	593,027	Nov. 2	482	116	81	901
Packing. Pump-cylinder	A. W. and A. D. Morris	594,119	Nov. 23	2452	582	81	1327
Packing. Rod-							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pad: *See* Copying-pad. Horse hoof-pad. Hoof-pad. Truss-pad.							
Pad for corns, bunions, &c	H. M. Allen	592,040	Oct. 19	1984	459	81	427
Padlock. Combination-	H. A. Redman	595,650	Dec. 14	1378	332	81	1910
Padlock. Permutation-	J. R. Houts	593,892	Nov. 16	2079	491	81	1237
Pail, &c. Dinner-	A. Ferber	594,686	Nov. 30	3498	815	81	1549
Pail. Dinner-	R. Schaellibaum	594,564	Nov. 30	3254	764	81	1500
Pail-ear and spring-catch. Combination	C. W. Raker	592,496	Oct. 26	3060	622	81	697
Pail. Milk-	J. A. Lear	593,109	Nov. 2	621	149 150	81	928
Pail. Milk-	A. D. McLellan	596,376	Dec. 28	2679	634	81	2202
Pail. Milking-	T. J. Pearson	595,001	Dec. 7	279	66	81	1672
Pail or package lining	J. V. Berg	593,009	Nov. 2	454	108	81	895
Pail. Scrubbing-	G. Doherty	591,085	Oct. 5	172	39	81	80
Paint	H. W. Aird and C. E. Felch	593,917	Nov. 16	2124	------	81	1246
Paint	C. F., A. W., and A. L. Lawton	593,670	Nov. 16	1678	------	81	1158
Paint	F. White and J. Thomson	594,048	Nov. 23	2346	------	81	1306
Painting. Apparatus for pneumatic	A. Fisher	593,013	Nov. 2	460	111	81	897
Painting-machine	W. K. Johnson	593,896	Nov. 16	2098	494	81	1239
Pan: *See* Amalgamating-pan. Evaporating-pan. Baking-pan. Vacuum-pan. Dust-pan.							
Pan-lifter	W. W. Johnson	594,475	Nov. 30	3091	724	81	1469
Panning and concentrating machine	J. H. Coombs	592,238	Oct. 26	2286	537 538	81	514
Paper and making same. Water and grease proof	A. Herzheim	591,968	Oct. 19	1805	------	81	403
Paper bag	W. A. Lorenz	596,373	Dec. 28	2674	633	81	2203
Paper-bag machine	E. E. Claussen	596,260	Dec. 28	2452	580 581	81	2158
Paper-bag machine	W. A. Lorenz	591,173	Oct. 5	414	97 98 99	81	79
Paper-bag machine	W. A. Lorenz	591,174	Oct. 5	419	99 100	81	80
Paper-bag machine	W. A. Lorenz	591,175	Oct. 5	424	100 101	81	80
Paper box	W. J. Walker	591,148	Oct. 5	368	87	81	71
Paper box	G. R. Wyman	595,684	Dec. 14	1428	345	81	1920
Paper-box machine	H. Mott	593,026	Nov. 2	480	116	81	900
Paper-box-making machine	A. J. White, J. Cramer, and H. P. Gaines	594,049	Nov. 23	2347	554 555	81	1306
Paper-covered vessels. Manufacture of	U. Hull	591,404	Oct. 12	842	196	81	192
Paper-fastener	R. M. Pancoast, Jr	593,683	Nov. 16	1697	410	81	1162
Paper-feeding machine	A. D. Rowe	593,554	Nov. 9	1456	355 356	81	1100
Paper-feeding machines. Electric controlling device for	T. C. Dexter and C. Ransom	595,768	Dec. 21	1580	382	81	1966
Paper-folding machine	J. Gill	594,245	Nov. 23	2632	628	81	1366
Paper-hanger's apparatus	O. M. Deets	591,957	Oct. 19	1790	427	81	400
Paper holder. Toilet-	W. H. Clarke	595,558	Dec. 14	1232	296	81	1878
Paper holder. Toilet-	J. N. Moehn	592,811	Nov. 2	98	21, 22	81	826
Paper in sheet form. Drier for	L. Dejonge, Jr	593,926	Nov. 16	2138	507 508	81	1248
Paper-making-machine suction-box	W. C. Nash and C. W. Baker	592,163	Oct. 19	2159	509	81	469
Paper. Manufacturing	N. Bryant	593,011	Nov. 2	457	------	81	896
Paper. Mat-surface photographic	M. W. McDonald	593,775	Nov. 16	1870	------	81	1194
Paper-perforating machine	A. Greenleaf	592,564	Oct. 26	3174	655	81	720
Paper-perforating machine	H. W. Shonnard and G. H. Davis	593,994	Nov. 16	1715	414	81	1164
Paper. Safety-	J. C. Yetter	595,281	Dec. 7	773	191	81	1764
Paper sheets. Device for feeding	C. H. Heywood	592,609	Oct. 26	3250	673	81	735
Paper sock	C. B. Randall	593,280	Nov. 9	968	234	81	1008
Paper-trimming machine	C. Seybold	594,490	Nov. 30	3116	730 731	81	1473
Paper tubes. Machine for automatically rolling	E. F. Delaperrière and L. Chambon	596,202	Dec. 28	2458	582 583 584 585	81	2159
Paper-weight	E. C. Gipe	592,908	Nov. 2	398	93	81	884
Paper-weight and sponge-cup	E. Jaques	592,145	Oct. 19	2132	504	81	463
Paper-winding machine	W. H. Decker	594,780	Nov. 30	3663	852 853	81	1588
Parallel shears. Duplex	M. Loewenthal	596,213	Dec. 28	2378	503	81	2144
Paramidophenol. Making	H. R. Vidal	595,897	Dec. 21	1831	------	81	2017
Parasol handle and socket	E. A. Stauffer	595,218	Dec. 7	662	159	81	1743
Parcel-carrier	C. Amrine	593,171	Nov. 2	702	183	81	958
Parer and slicer. Potato	A. G. Dehlin	594,986	Dec. 7	155	38	81	1650
Pavement. Wood	H. Freese	595,616	Dec. 14	1322	319	81	1899
Paving-blocks. Apparatus for constructing	A. B. Greig	591,757	Oct. 12	1441	339 340	81	909
Paving materials. Plant for preparing	C. Greene	591,839	Oct. 19	1579	376	81	357
Pawl	H. H. Buffum	595,556	Dec. 14	1230	295 296	81	1878
Pea or bean shelling machine	H. H. Brakeley	593,426	Nov. 9	1213	293	81	1055
Pedal	A. L. Moore	596,382	Dec. 28	2555	615	81	2183
Pedal toe-clip	F. J. Osmond and R. H. Housman	591,685	Oct. 12	1332	312	81	287
Pegging-machine	E. Duplessis	594,466	Nov. 30	3072	721	81	1465
Pen. Fountain-	T. Andrew	595,361	Dec. 14	904	219	81	1814
Pen. Fountain-	A. T. Cross	595,373	Dec. 14	923	224	81	1818
Pen. Fountain-	F. J. Pribyl	594,098	Nov. 23	2419	575	81	1321
Pen. Fountain-	A. A. Waterman	592,847	Nov. 2	177	40	81	842
Penholder	C. W. Harmon	595,389	Dec. 14	949	229	81	1883
Penholder attachment	E. Davis	596,057	Dec. 28	2122	508	81	2096
Pen. Reservoir-	C. J. Renz	594,284	Nov. 23	2718	642	81	1379

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pens. Machine for automatically manufacturing writing-	F. Nevoigt	594,751	Nov. 30	3616	841 / 842	81	1573
Pencil	C. E. Randall	591,007	Oct. 5	106	24	81	23
Pencil. Adding-	W. W. Brown	592,723	Oct. 26	3461	726	81	776
Pencil. Mechanical lead-	F. W. Musson	592,161	Oct. 19	2157	509	81	499
Pencil-sharpener	F. D. Cornell	594,839	Nov. 30	3770	879	81	1604
Pencil-sharpener	J. L. Love	594,114	Nov. 23	2444	580	81	1325
Pencil-sharpener	L. A. Stough	593,912	Nov. 16	2115	500	81	1244
Pencil-sharpener	H. A. H. Guhl	595,023	Nov. 2	592	143	81	923
Pencil-sharpening apparatus	A. Moffatt	591,050	Oct. 5	201	47.48	81	40
Pencil-sterilizing case	E. K. Adams	594,365	Nov. 30	2877	679	81	1427
Pendulum. Compensating	G. D. Leadbetter	595,488	Dec. 14	1128	272	81	1857
Perambulator	E. W. Carter	596,285	Dec. 28	2406	592	81	2165
Percolator	E. B. Meyrowitz and F. Buchhop	596,044	Dec. 21	2099	497	81	2073
Perimeter	J. A. Salvá	592,959	Nov. 2	328	76	81	872
Permutation-lock	F. C. Bates	594,317	Nov. 23	2782	657	81	1390
Petroleum burner. Crude-	O. B. Shallenberger	591,240	Oct. 5	548	130	81	104
Phase-adjusting method and means for alternating-current apparatus.	C. P. Steinmetz and E. W. Rice, Jr.	596,186	Dec. 28	2334	554	81	2135
Phase-regulator	S. F. Badgley	596,208	Dec. 28	2472	587	81	2161
Photographic-background carrier	A. H. Humphrey	591,346	Oct. 5	731	171	81	140
Photographic burnishers. Polishing-roll for	W. V. Esmond	593,086	Nov. 2	500	121	81	904
Photographic film. Sensitized	P. J. Stuparich	592,148	Oct. 19	2135	505	81	464
Photographic mount	C. A. Lindsay	594,366	Nov. 30	2878	679	81	1427
Photographic-plate wrapper	E. K. Adams	595,208	Dec. 14	914	221	81	1816
Photographic-printing apparatus	E. Buhler	595,812	Dec. 21	1656	399	81	1982
Photographic printing. Timing apparatus for	T. B. Kinraide						
Photographic purposes. Method of and apparatus for converting X-rays into light for	W. V. Esmond	591,347	Oct. 5	732	171	81	140
Photographic shutter	J. C. Spills	591,063	Oct. 5	218	51	81	44
Physical-culture apparatus	R. S. Bowen	595,087	Dec. 7	342	83	81	1684
Piano	J. H. Butler	593,552	Nov. 9	1452	354	81	1099
Piano-action	C. H. Kidd	594,476	Nov. 30	3092	725	81	1469
Piano-action	A. T. Strauch	594,217	Nov. 23	2610	617	81	1357
Piano-action	H. Robinson	594,651	Nov. 30	3448	801	81	1539
Piano attachment	A. Nickel	595,458	Dec. 14	1076	259	81	1847
Piano-damper	M. J. Christie	594,325	Nov. 23	2705	660	81	1503
Pianoforte. Iron-frame	W. Siegel	594,570	Nov. 30	3268	766	81	1503
Piano-frame	L. Stürzwage	592,840	Nov. 2	165	38	81	899
Piano mechanism	F. W. Hedgeland	595,710	Dec. 21	1475	355	81	1947
Piano or organ music-rack	W. D. Parker and E. H. White	592,641	Oct. 26	3299	686 / 687	81	745
Piano-player. Automatic	C. B. Schweikart	591,887	Oct. 19	1650	394	81	373
Piano repeating action	P. M. Zeidler	594,718	Nov. 30	3557	827	81	1502
Piano sounding-board	H. Ziegler	593,089	Nov. 2	504	122	81	905
Piano sounding-board support	J. O. Finnblade and O. T. Westlin	591,800	Oct. 12	1507	357	81	323
Piano-technic regulator	A. R. Spoerl and W. L. Geisler	593,138	Nov. 2	661	158 / 159	81	937
Piano touch and technic stop							
Picker: *See* Corn-picker. Fruit-picker.							
Picker	A. A. Sweet	593,620	Nov. 16	1594	384	81	1143
Picker-staff check. Adjustable	D. H. Wright	591,122	Oct. 5	321	79	81	63
Picture. Diaphanous	M. Schumacher	594,455	Nov. 30	3456	804	81	1541
Picture-exhibitor	A. and L. Lumiere	591,858	Oct. 19	1604	381	81	303
Picture-displaying device	F. S. Chance	591,452	Oct. 12	926	218	81	209
Picture-hanger	M. F. Reilly	591,056	Oct. 5	210	49	81	42
Picture-support	C. H. W. Berbecker	591,089	Oct. 5	262	62	81	52
Pigeons. Timing device for homing	T. D. Martinez-Cardeza	591,985	Oct. 19	1631	436	81	407
Pigments. Method of and apparatus for making sublimed metallic	E. O. Bartlett	592,860	Nov. 2	196	45	81	846
Pile-drivers, &c. Supporting-wheel for	B. Goldsborough	591,756	Oct. 12	1440	339	81	309
Pile of weft pile fabrics. Machine for cutting	G. Royer	592,714	Oct. 26	3447	722 / 723	81	774
Pill-coating apparatus	A. B. Hall	596,297	Dec. 28	2514	597	81	2169
Pills or tablets. Device for holding and dipping	G. Storie and J. Moss	592,889	Nov. 2	164	37	81	899
Pilot-coupling	R. M. Galbraith	595,383	Dec. 14	988	227	81	1821
Pin: *See* Clothes-pin. Husking-pin. Hair-pin. Sack-pin. Hat-pin.							
Pins. Point-protector for flexible fastening	W. D. Smith	591,121	Oct. 5	319	78	81	62
Pinking-machine	T. P. Colby	595,278	Dec. 7	771	190	81	1763
Pipe: *See* Conductor-pipe. Water service-pipe. *See* Tobacco-pipe.							
Pipe bordering and flanging machine	E. Neumeister and R. Sobotka	596,177	Dec. 28	2320	550 / 551	81	2132
Pipe-cleaning apparatus	A. B. Macklin	593,225	Nov. 9	890	209	81	992
Pipe-coupling	F. Barnhart	592,681	Oct. 26	3394	709	81	764
Pipe-coupling	F. E. Kauffmann	594,536	Nov. 30	3206	751	81	1490
Pipe-coupling	J. F. Normoyle	592,820	Nov. 2	124	27	81	831
Pipe-coupling	J. C. Davis	592,647	Oct. 26	3315	689	81	747
Pipe-coupling. Flexible	M. Glauber	594,526	Nov. 30	3188	747	81	1487
Pipe coupling or connection	J. E. Marble	592,523	Oct. 26	3106	634 / 635	81	706
Pipe coupling. Train-	E. J. Gallagher	594,787	Nov. 30	3674	856	81	1595
Pipe cushion. Water-	C. W. Morley	595,685	Dec. 21	1804	433	81	2012
Pipe-cutter. Internal	A. J. Beaton	592,506	Oct. 26	3073	636	81	700
Pipe-hanger	V. J. Emery	591,240	Oct. 5	563	132	81	107
Pipe-hanger	T. Stebbins	595,657	Dec. 14	1386	334	81	1912
Pipe-holder	F. L. Johnson	595,809	Dec. 14	920	208	81	1799
Pipe holding and hoisting machine	E. T. Greenfield	595,437	Dec. 14	1042	249	81	1839
Pipe or tube coupling	J. L. Oefinger	595,727	Dec. 21	1501	362	81	1952
Pipe outlets. Tool for cutting off gas	J. R. Bostwick	593,269	Nov. 9	951	230	81	1005
Pipe-thimble	D. L. Herr	591,967	Oct. 19	1808	430	81	402
Pipe-threading machine	J. Beermaker	593,008	Nov. 2	453	108	81	895
Pipe-wrench	J. Browning	594,775	Nov. 30	3653	850	81	1581
Pipe-wrench	E. B. Charlet	591,325	Oct. 5	681	162	81	130
Pipe-wrench	J. J. Haldeman	594,348	Nov. 23	2845	672	81	1402
Pipe-wrench	G. L. Ives	595,879	Dec. 21	1795	431	81	2010
Pipe-wrench	R. A. Ryrie	594,563	Nov. 30	3253	764	81	1500
Pipe-wrench	G. W. Waitt	592,031	Oct. 19	1915	455	81	423
Pipe-wrench	L. Williams	593,149	Nov. 2	702	166	81	946
Pipe-wrench	C. O. Woods	592,036	Oct. 19	1927	457	81	425
Pipe-wrench	J. E. Marble	592,522	Oct. 26	3103	633 / 634	81	705
Pipes. Automatic coupling for train-	W. P. Firey	596,062	Dec. 28	2128	504	81	2097
Pipes. Device for preventing bursting of freezing	J. D. Sisson	591,362	Oct. 5	767	180	81	147
Pipes. Insertible joint for iron	J. C. Lewis	592,991	Nov. 2	427	101	81	890
Pipes. Method of and means for joining soft-metal	W. D. Forsyth	595,159	Dec. 7	502	136	81	1725
Pipes or tubes, &c. Means for burnishing or polishing interiors of	C. G. Evans	591,392	Oct. 12	827	193	81	189
Piston	E. G. Lantz	594,629	Nov. 30	3375	790	81	1523
Pitcher. Syrup-	H. Torchiani	592,128	Oct. 19	2105	499	81	458
Pitching-machine	F. W. Panse	595,728	Dec. 21	1502	363	81	1952
Plaiting-machine	J. A. Traut	591,662	Oct. 12	1299	305	81	280
Plane	A. Turnbull	591,663	Oct. 12	1301	305	81	281
Plane	J. Mann	595,722	Dec. 21	1494	360 / 361	81	1950
Planing-machine	L. G. Hunter	594,474	Nov. 30	3090	724	81	1468
Plant-protector	E. F. Orner	592,640	Oct. 26	3298	685	81	745
Plant-protector	J. G. and J. G. Mahon	595,187	Dec. 7	616	147	81	1734
Planter	J. M. Scobee and E. S. Bush	594,037	Nov. 23	2326	549 / 550	81	1302
Planter	T. J. Sullivan	592,717	Oct. 26	3452	724	81	775
Planter	J. D. Tinning	591,618	Oct. 12	1209	284	81	261
Planter	J. R. Lane	596,459	Dec. 28	2889	667	81	2233
Planter and fertilizer-distributer. Hand-	L. Gist	593,647	Nov. 16	1644	398	81	1152
Planter. Automatic check-row corn-	J. C. d'Azevedo	594,720	Nov. 30	3562	828	81	1502
Planter. Cane-	E. S. Roseberry and W. H. Fickel	593,124	Nov. 2	645	155	81	933
Planter. Check-row	W. A. Fretwell	593,092	Nov. 2	590	142	81	922
Planter. Clover-plow	C. H. Dooley	593,295	Nov. 9	990	239 / 240	81	1013
Planter. Combined check-row and drill corn-	S. H. Jones and E. E. Towle	595,177	Dec. 7	608	144 / 145	81	1732
Planter. Corn-	M. E. Rhoades	592,996	Nov. 2	435	103	81	891
Planter. Corn-	D. Simpson	591,937	Oct. 19	1758	420 / 421	81	394
Planter. Corn-	H. D. Smith	594,437	Nov. 30	3016	708 / 709	81	1453
Planter. Corn-	L. E. Waterman	595,026	Dec. 7	320	77,78	81	1680
Planter frame. Corn-	E. K. Hayes	592,970	Nov. 2	400	98	81	884
Planter. Hand corn-	T. S. Fair	592,489	Oct. 26	3051	621	81	696
Planter. Potato-	J. P. Davenport	591,386	Oct. 12	815	190 / 191	81	187
Planter. Potato-	T. A. Galt	592,607	Oct. 26	3247	673	81	734
Planter. Potato-	T. H. Williams	594,669	Nov. 30	3477	809	81	1545
Planter. Potato-	M. Harmon	592,112	Oct. 19	2076	490	81	453
Planter. Seed-	L. W. Powell	593,403	Nov. 9	1331	323	81	1079
Planting and seeding machine	A. Carlewitz	591,245	Oct. 5	557	131	81	106
Plaster cornices. Manufacture of	L. Goodwin	595,298	Dec. 14	806	198	81	1795
Plastering-corner	L. Goodwin	595,299	Dec. 14	806	199	81	1796
Plastering. Corner brace or support for	J. Graham	592,908	Nov. 2	269	61,62	81	860
Plastic materials. Machine for molding	E. D. Diffenderfer	595,530	Dec. 14	1198	288	81	1872
Plate-lifter	A. Effinger and J. Clutz	592,766	Nov. 2	21	5	81	811
Pliers	G. Castle	594,726	Nov. 30	3574	831	81	1565
Plow	J. M. Kirkpatrick and J. B. Files	595,372	Dec. 28	2673	633	81	2201
Plow	M. M. McKinnon	594,549	Nov. 30	3232	758	81	1496
Plow	L. B. Wells	593,502	Nov. 9	1350	327	81	1082
Plow	M. H. Daubs	592,905	Nov. 2	266	61	81	859
Plow attachment	O. P. Wolcott	596,390	Dec. 28	2698	639	81	2206
Plow. Disk	J. T. Drummond	595,237	Dec. 7	713	174	81	1752
Plow. Double-shovel	W. C. Matteson	594,092	Nov. 23	2412	573	81	1319
Plow. Gang-	W. M. Bomar	590,960	Oct. 5	18	5	81	6
Plow or cultivator. Wheel	F. Moore	591,676	Oct. 12	1322	309	81	285
Plow. Orchard or vineyard	C. Anderson	592,858	Nov. 2	195	44	81	845
Plow-point	E. W. Griffiths	594,527	Nov. 30	3189	747	81	1487
Plow-point fastener	W. A. Miles	593,328	Nov. 9	1056	255	81	1026
Plow. Reversible	W. C. Matteson	594,091	Nov. 23	2410	572	81	1319
Plow seeder attachment. Gang-	W. L. Casaday	592,764	Nov. 2	17	4,5	81	810
Plow. Wheel-	W. T. M. Brunnemer	595,521	Dec. 14	1178	233	81	1868
Plow. Wheeled	S. A. Kerns and F. A. Head	591,585	Oct. 12	1084	255	81	226
Plow. Wheeled	J. F. Gates	595,619	Dec. 14	1326	320	81	1899
Plug. Combination attachment-	W. R. Cole	591,126	Oct. 5	328	80	81	64
Plug-switch	A. B. Kilbourne	592,913	Nov. 2	281	64	81	862
Plumb-bob	J. Nordinger	594,645	Nov. 30	3441	800	81	1538
Plumber's furnace	J. C. Dupee	591,916	Oct. 19	1721	412	81	326
Plumber's or brazier's furnace burner	G. H. Reynolds	595,280	Dec. 7	773	191	81	1764
Plunger-elevator	H. S. Park	591,262	Oct. 5	587	139	81	111
Pneumatic and electric controlled brake	J. W. and A. Mathis	594,090	Nov. 23	2409	572	81	1319
Pneumatic-despatch apparatus	T. A. Casey	592,765	Nov. 2	20	5	81	810
Pneumatic-despatch tube	C. F. Pike	595,890	Dec. 21	1818	435	81	2014
Pneumatic-despatch-tube system	B. C. Batcheller	595,755	Dec. 21	1550	374 / 375 / 376	81	1960
Pneumatic-despatch-tube systems. Sending apparatus for	B. C. Batcheller	595,756	Dec. 21	1558	376 / 377	81	1962
Pneumatic-despatch-tube systems. Substation sending apparatus for	B. C. Batcheller	595,754	Dec. 21	1543	372 / 373 / 374	81	1960
Pneumatic drill	J. H. Manning	591,284	Oct. 5	625	147 / 148	81	118

Alphabetical list of inventions, October to December, inclusive—Continued.

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pneumatic motor	F. W. Hedgeland	593,655	Nov. 16	1656	401	81	1154
Pneumatic motor	G. W. Smith	591,018	Oct. 5	130	28, 29	81	27
Pocket-book. Combination	D. Dusart, Jr	591,746	Oct. 12	1424	335	81	305
Pocket-book fastening device	H. Heller	595,100	Dec. 7	467	112	81	1707
Pocket-case	V. Solamone	591,548	Oct. 12	1107	260	81	242
Pocket-knife	C. R. Evertz	595,909	Dec. 21	1852	443	81	2022
Pocket-knife	H. G. Johnson	592,612	Oct. 26	3255	674	81	736
Pocket-knife	G. Meyer	592,426	Oct. 26	2949	507	81	675
Pocket-knife	J. R. Watts	596,096	Dec. 28	2185	517	81	2107
Pocket-knife	H. S. Peters	594,096	Nov. 23	2418	574	81	1351
Pocket. Safety-	M. Peraglie	593,727	Nov. 16	1777	427	81	1176
Pockets. Device for preventing picking of	M. L. Griffin	591,216	Oct. 5	503	119	81	95
Poison-distributer for field use	L. Armison	593,546	Nov. 9	1437	349, 350	81	1096
Poker for gas-furnaces. Mechanical	M. Kehoe	595,441	Dec. 14	1048	250	81	1841
Pole evener. Bugky-	G. Young	596,349	Dec. 28	2610	621	81	2189
Pole. Extensible vehicle-	C. M. Hoffman	595,019	Dec. 7	311	75	81	1678
Pole or thill coupling	J. E. Leavitt	595,055	Dec. 7	385	94	81	1692
Polishing apparatus	J. J. Foss	592,752	Oct. 26	3519	740	81	787
Polygons. Device for laying out regular	W. D. Powell	591,461	Oct. 12	943	222	81	212
Pool-triangle	W. K. Eaton	593,392	Nov. 9	1161	280	81	1044
Popcorn cakes. Machine for making	W. E. Fitch						
Portable elevator	E. E. Murry	593,774	Nov. 16	1868	447	81	1193
Post:	S. G. Davis	595,609	Dec. 14	1308	316	81	1896
See Fence-post. Lamp-post.							
Post and brace. Combined							
Post-hole digger							
Pot:							
See Coffee-pot. Mucilage-pot.							
Potato and beet digger. Combined	H. F. Thompson	593,384	Nov. 9	1142	275, 276	81	1042
Potato cutter and dropper	F. D. Bell	593,189	Nov. 9	797	190	81	978
Potato-digger	A. G. Lano	595,896	Dec. 14	964	234	81	1825
Potato-digger	J. Schwartz	591,642	Oct. 12	1263	295, 296	81	272
Potential switch	J. D. Ihlder	594,879	Dec. 7	56	15	81	1633
Pottery-molding machine	J. A. Zengler	591,580	Oct. 12	1158	272	81	252
Powder and making same. Blasting-	F. Müller, S. Oberländer, V. H. Fuchs, and S. Gomperz.	594,268	Nov. 23	2686	.....	81	1372
Powder. Blasting-	H. von Dahmen	593,568	Nov. 16	1498	.....	81	1124
Powder-packing machine	J. McNab	593,902	Nov. 16	2096	496, 497	81	1240
Powder. Smokeless	F. A. Halsey	596,324	Dec. 28	2567	.....	81	2179
Powder-thawer	T. R. Newman	595,195	Dec. 7	629	151	81	1736
Power:							
See Pumping-power. Tread-power.							
Power derived from agitated water. Means for storing	A. A. Brown	592,762	Nov. 2	13	3	81	809
Power-reversing mechanism	J. E. Windle	591,184	Oct. 5	440	105	81	84
Power transmission. Electrical	T. J. Fay	592,244	Oct. 26	2297	541	81	516
Power-transmitter for use upon carriages, &c	C. P. Elleson	595,051	Dec. 7	377	92	81	1690
Power-transmitting device	F. J. Noechel	592,435	Oct. 26	2964	600	81	678
Precious metals by solution. Obtaining	E. J. Fraser	591,753	Oct. 12	1435	.....	81	308
Precious metals from sand, rock, &c. Apparatus for separating c	B. S. Church	594,522	Nov. 30	3180	745	81	1485
Precious metals from solutions. Precipitating	J. S. MacArthur	592,153	Oct. 19	2140	.....	81	465
Preserve-jar	F. Dedreux	591,740	Oct. 12	1415	333	81	304
Preserving perishable articles. Device for	J. S. Johnson	595,174	Dec. 7	594	143	81	1730
Preserving perishable substances	W. G. Day	593,741	Nov. 16	1809	434	81	1182
Press:							
See Baling-ress. Gluing-press. Copying-press. Hay-press. Cotton-press. Printing-press. Drill-press. Seal-press. Fruit-press. Soap-press. Fruit or wine press.							
Press	O. Smith	591,702	Oct. 12	1358	318	81	292
Press	F. Strattner	594,297	Nov. 23	2753	651	81	1385
Press-board	M. Steele	591,939	Oct. 19	1762	421	81	395
Pressing and smoothing device	M. Mercy	594,887	Dec. 7	72	19	81	1635
Pressure alarm. Automatic high-	C. W. Bemish	594,514	Nov. 30	3162	741	81	1492
Pressure indicating and recording gage	F. A. Jones	594,881	Dec. 7	58	15	81	1633
Printing and dyeing fabrics. Apparatus for	F. Schreurs	592,834	Nov. 2	155	35	81	888
Printing and folding machine	W. Scott	592,887	Nov. 2	242	55	81	854
Printing apparatus. Yarn-	W. J. Webb	596,035	Dec. 21	2077	494	81	2069
Printing inlaid patterns upon linoleum, &c	J. E. and C. S. Bedford	592,186	Oct. 19	2194	517, 518	81	475
Printing-machine	W. Scott	594,566	Nov. 30	3257	765	81	1501
Printing-machine	W. Scott	594,909	Dec. 7	115	30	81	1643
Printing machine. Address-	F. D. Belknap	592,603	Oct. 26	3238	670, 671	81	733
Printing-machine fly-frame	E. L. Shattuck	594,659	Nov. 30	3402	805	81	1542
Printing-machine sheet-delivery apparatus	T. M. North	591,229	Oct. 5	517	122, 123	81	99
Printing-machine sheet-feeding mechanism	G. F. Read	593,060	Nov. 2	484	117, 118	81	901
Printing-machine tympan mechanism	L. C. Crowell	596,025	Dec. 21	2056	489, 490	81	2064
Printing machine. Yarn-	W. J. Webb	595,984	Dec. 21	1979	472, 473	81	2048
Printing machine. Yarn-	W. J. Webb	596,045	Dec. 21	2101	497, 498	81	2074
Printing-machines. Mechanism for feeding envelops, &c., to	J. Liebhardt and E. Fischer	594,408	Nov. 30	2958	696, 697	81	1442
Printing mechanism for adding machines, typewriters, &c. Duplicate-	D. E. Felt	590,972	Oct. 5	34	8	81	9
Printing on two-color lithographic presses	F. J. Kallenbach	595,716	Dec. 21	1488	357	81	1949

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Printing. Preparing aluminium plates for surface	G. R. Cornwall	590,966	Oct. 5	26	.....	81	7
Printing-press	H. F. Bechman	592,684	Oct. 26	3309	710	81	765
Printing-press	A. Greenleaf	592,563	Oct. 26	3173	655	81	720
Printing-press	B. Huber	593,602	Nov. 16	1666	404	81	1156
Printing-press	B. Huber and W. K. Hodgman	593,582	Nov. 16	1524	370	81	1129
Printing-press	F. A. Pulhemus	593,164	Nov. 2	750	179	81	955
Printing-press	S. N. Svendsen	593,169	Nov. 2	757	181, 182	81	956
Printing press. Color-	L. D. Robinson	595,653	Dec. 14	1378	333	81	1911
Printing-press counting mechanism	L. C. Clark	591,246	Oct. 5	559	131, 132	81	106
Printing-press delivery attachment	M. N. Cormack	592,697	Oct. 26	3419	715	81	769
Printing-press delivery mechanism	H. A. W. Wood	594,054	Nov. 23	2359	557, 558	81	1308
Printing-press delivery mechanism	H. A. W. Wood	594,055	Nov. 23	2362	558, 559	81	1309
Printing-press feed-table and feeder	C. G. Harris	591,648	Oct. 12	1272	297, 298	81	274
Printing-press feeding device	C. G. Harris and J. F. McNutt	591,649	Oct. 12	1274	298	81	275
Printing-press inking device. Plate-	J. T. Robertson	592,664	Oct. 26	3360	699	81	757
Printing-press registering apparatus	W. K. Hodgman	593,658	Nov. 16	1660	402	81	1155
Printing-press registering mechanism	H. A. W. Wood	594,053	Nov. 23	2356	557	81	1308
Printing-press sheet-adjusting device	G. W. Small	593,497	Nov. 9	1342	325	81	1080
Printing-presses. Movable and adjustable bearer for platen	F. A. Burnham	595,991	Dec. 21	1994	476	81	2051
Printing-presses. Sheet guard and setter for platen	E. L. Megill	596,214	Dec. 28	2380	564	81	2144
Printing upon textile fabrics. Machine for	R. Wallwork	595,225	Dec. 7	672	162, 163	81	1745
Prints from prepared lithographic stones. Machine for taking	C. H. Cohen and S. Mark	595,525	Dec. 14	1186	284, 285, 286	81	1870
Prism-light	F. C. Soper	595,271	Dec. 7	761	187	81	1762
Prism-light canopy. Protected	L. H. Jordan	595,266	Dec. 7	758	186	81	1761
Prism-light-canopy support	J. M. Ewen	595,265	Dec. 7	757	181	81	1760
Prism-light. Figured	J. M. Ewen	595,264	Dec. 7	754	185	81	1760
Prism-light mold	O. H. Basquin	595,258	Dec. 7	748	183	81	1759
Prism-light mold	K. Booth	595,262	Dec. 7	752	184	81	1760
Prism-light mold	W. S. MacHarg	595,267	Dec. 7	758	186	81	1761
Prism-light mold	F. C. Soper	595,274	Dec. 7	764	188, 189	81	1762
Prism-light. Ornamental	F. C. Soper	595,270	Dec. 7	760	187	81	1761
Prism-lights. Framing	W. H. Winslow	595,276	Dec. 7	767	189	81	1763
Prism-plate	W. H. Winslow	595,275	Dec. 7	765	189	81	1762
Prism-plate	W. H. Winslow	595,277	Dec. 7	768	190	81	1763
Prism. Ventilated	F. C. Soper	595,272	Dec. 7	762	187, 188	81	1762
Prisms having proper angles. Device for selecting	O. H. Basquin	595,261	Dec. 7	750	184	81	1759
Projectile	E. S. Field	594,199	Nov. 23	2582	611	81	1859
Propeller	T. W. Southington	595,740	Dec. 21	1519	367	81	1955
Propeller. Reversible	R. B. Hain	593,584	Nov. 16	2155	511	81	1251
Propeller-shafts. Thrust-bearing for	O. F. Cook	594,462	Nov. 30	3063	719	81	1463
Propelling boats. Means for	J. Keim	591,534	Oct. 12	1083	254, 255	81	236
Propelling mechanism for ships, &c	E. E. Onlevey	596,178	Dec. 28	2321	551	81	2132
Propulsion. Electric system of	W. M. Brown	594,379	Nov. 30	2906	685	81	1432
Pruner handle. Tree-	W. H. Smith	593,337	Nov. 9	1068	258	81	1028
Puller:							
See Cotton-stalk puller. Stopper-puller. Staple-puller. Stump-puller.							
Pulley	T. Corscaden	595,559	Dec. 14	1233	296	81	1879
Pulley. Belt-	H. R. Tillison	593,366	Nov. 9	1105	268	81	1035
Pulley. Expansible	W. Jasper	593,895	Nov. 16	2087	498	81	1238
Pulley-molding machine	J. E. Donovan	593,645	Nov. 16	1638	397	81	1151
Pulley-molds. Apparatus for forming	J. E. Donovan	593,644	Nov. 16	1634	395, 396, 397	81	1150
Pulley. Split	J. E. Donovan	593,646	Nov. 16	1642	398	81	1151
Pulley. Split	J. P. Lavigne	593,398	Nov. 9	1171	282	81	1047
Pulp grinder. Wood-	J. H. Baker, G. F. Shevlin, and F. H. Baker.	591,644	Oct. 12	1266	296	81	273
Pulp-making machine. Wood-	J. J. Harrell	592,090	Oct. 19	2037	482	81	446
Pulp-screen	J. H. Baker, G. F. Shevlin, and F. H. Baker.	591,645	Oct. 12	1268	297	81	273
Pulverizer. Clod-	W. T. Adel and S. F. Leib	593,040	Nov. 2	505	122	81	905
Pulverizer. Disk	D. Harper	590,981	Oct. 5	51	12	81	11
Pulverizing machine. Soil-	F. P. Krewson	593,848	Nov. 16	2007	472	81	1221
Pulverizing machinery	A. B. Paul	594,422	Nov. 30	2999	793	81	1448
Pulverizing-mill. Roller	G. R. King and A. Raymond	594,696	Nov. 30	3513	818	81	1552
Pump	H. S. Lockman	593,809	Nov. 16	1929	459	81	1205
Pump	J. Lockwood	592,570	Oct. 26	3184	657	81	722
Pump	J. O'Neil	591,004	Oct. 5	101	23	81	21
Pump	A. S. Noonan	594,708	Nov. 30	3528	822	81	1555
Pump. Air-	F. Jackson	595,806	Dec. 14	816	201	81	1798
Pump and bailer. Sand	C. P. Holst	593,099	Nov. 2	606	145, 146	81	925
Pump and mechanism for operating same	F. Closs	592,237	Oct. 26	2285	538	81	514
Pump and rotary motor. Rotary	J. M. Klopfenstien	595,484	Dec. 14	1122	271	81	1856
Pump coupling. Windmill-	A. O. Haney	593,936	Nov. 16	2157	511	81	1252
Pump. Double-acting	L. A. Conord	592,561	Oct. 26	3171	654	81	720
Pump for hydraulic elevation, &c. Jet-	T. J. Blagg	592,581	Oct. 26	3201	662, 663	81	726
Pump-operating mechanism	L. R. Alberger	595,429	Dec. 14	1080	247	81	1837
Pump or compressor. Air or gas	W. Wascher	595,006	Dec. 7	286	68	81	1674
Pump relief-valve. Force-	I. Artemkin	591,522	Oct. 12	1055	247	81	231
Pump. Rotary	B. F. Taber	595,745	Dec. 21	1531	369, 370	81	1957
Pump. Rotary							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pump. Sinking	G. P. Aborn	592,098	Oct. 19	1990	458	81	426
Pump. Vacuum or suction	A. Shiels	592,888	Nov. 2	246	56	81	855
Pump-wrench	H. A. Dodge	591,825	Oct. 19	1582	370	81	354
Pumps. Device for operating series of	M. W. Quick	595,305	Dec. 7	645	155	81	1740
Pumps. Means for preventing shocks in	J. P. Serve	594,089	Nov. 23	2334	551	81	1304
Pumping and motor apparatus. Hydraulic	G. Westinghouse	595,027	Dec. 7	325	78, 79	81	1681
Pumping apparatus	C. E. and D. M. Newell	595,905	Dec. 21	1864	446	81	2040
Pumping apparatus. Oil-well	W. E. Karns	595,914	Dec. 21	1529	371	81	1130
Pumping apparatus. Oil-well	F. M. Kennedy	593,586	Nov. 16	806	188	81	185
Pumping apparatus. Water-	M. T. Chapman	591,982	Oct. 12	3089	630 / 861	81	703
Pumping-engine	C. N. Scott	592,513	Oct. 26	1322	320	81	1077
Pumping-engine. Duplex	P. F. Oddie and G. Hesse	593,490	Nov. 9	595	143 / 144	81	1730
Pumping machinery	E. E. Johnson	595,175	Dec. 7	773	186	81	959
Pumping mechanism	J. W. Lehr and H. F. Moore	593,178	Nov. 2	3290	683	81	743
Pumping or raising liquids. Apparatus for	J. Keith	592,633	Oct. 26	584	139	81	1728
Pumping-power	G. W. Grimes	595,167	Dec. 7	1971	464	81	1214
Pumping-rig. Oil-well	E. D. Yates	593,826	Nov. 16	3326	692	81	750
Pumping-rigging. Oil-well	J. N. Maher	592,655	Oct. 26	623	146	81	118
Pumping wells. Power device for	J. J. Kwis	591,288	Oct. 5	267	61	81	859
Pumpkin-powder	W. B. Gere	592,906	Nov. 2	1072	259	81	1029
Punch gage. Gang-	W. H. Thomas	593,341	Nov. 9	1288	311 / 312	81	1070
Punching-bag. Coin-controlled athletic	L. D. Haskell, Jr	593,469	Nov. 9	1873	448	81	1194
Punching-machine bevel-shearing attachment	C. P. O'Neill	593,778	Nov. 16	1630	394	81	1149
Purse	E. Caldwell	593,640	Nov. 16	1662	397	81	375
Push-button. Electric	E. H. Stanley	591,895	Oct. 19	1550	365	81	351
Puzzle	C. Collmar and S. N. Ritter	591,817	Oct. 19	1850	444	81	1191
Puzzle	W. F. Derwin	593,766	Nov. 16	2036	481	81	446
Puzzle	W. J. Gilligan	592,089	Oct. 19	536	128	81	101
Puzzle	B. C. Loring	591,234	Oct. 5	1257	294	81	271
Puzzle	D. Rogers	591,639	Oct. 12	777	192	81	1764
Puzzle	G. T. Smallwood	595,283	Dec. 7	366	86	81	71
Puzzle	J. F. Stannard	591,146	Oct. 5	1019	238	81	225
Puzzle	J. H. Stauber	591,508	Oct. 12	1893	------	81	1198
Puzzle	J. H. Stevens	593,787	Nov. 16	892	------	81	1812
Pyroxylin compound	J. H. Stevens	595,355	Dec. 14	1751	421	81	1172
Pyroxylin compound	G. W. Williams	593,712	Nov. 16	2654	630	81	2197
Queen and drone trap	R. C. Demary	596,363	Dec. 28	1314	318	81	1075
Quick-break switch	N. More	593,485	Nov. 9	470	471	81	1220
Quilting-frame	J. C. Keough	593,846	Nov. 16	2008	471	81	1220
Quilting-machine	V. Carandini	593,460	Nov. 9	1274	307	81	1067
Race-starting machine	E. G. Solomon and L. V. Morse	595,353	Dec. 14	890	217	81	1811
Race-track-lighting device	W. H. Whittle	594,717	Nov. 30	3556	827	81	1561
Race-track starting apparatus							
Rack:							
See Advertising or display rack.	Coat and hat rack.						
Bicycle-rack.	Coat and umbrella suspending rack.						
Book-rack.	Display-rack.						
Bottle and graduate rack.	Hat and clothes rack.						
Cheese-rack.	Display-rack.						
Clothes-rack.	Skirt-rack.						
	Spool-rack.						
Rail. Automatic continuous	J. S. Malin	595,248	Dec. 7	733	179	81	1756
Rail-bond	F. H. Daniels	596,202	Dec. 28	2363	560	81	2141
Rail-bond. Electric	S. W. Huff	594,800	Nov. 30	3699	862	81	1590
Rail-bond. Electrical	W. H. Wiggin	591,516	Oct. 12	1040	243	81	228
Rail cleaner. Grooved-	A. Hochstrasser	594,349	Nov. 23	2846	673	81	1402
Rail. Compound	T. F. Davies	591,954	Oct. 19	1787	426	81	400
Rail-fastener	B. Ferriss	591,750	Oct. 12	1429	337	81	307
Rail-fastening	G. W. Savage	595,656	Dec. 14	1385	334	81	1912
Rail-holder	J. I. and A. J. Irwin	592,291	Oct. 26	2367	559	81	530
Rail-joint	J. W. Cloud	592,965	Nov. 2	208	47	81	847
Rail-joint	F. Erdmann	596,105	Dec. 28	2305	523	81	2111
Rail-joint	A. L. Goldsmith	596,306	Dec. 28	2367	561	81	2142
Rail-joint	W. J. Austin	593,345	Nov. 9	1076	260	81	1030
Rail-joint and forming same	J. G. Miller	593,420	Nov. 9	1204	291	81	1053
Rail-joint or rail-coupling	G. W. Zern and M. H. Milhone	593,505	Nov. 9	1360	329	81	1089
Rail joint, splice, or truss	T. M. Galbreath	591,507	Oct. 12	1186	280	81	257
Railway	J. M. Lee	592,990	Nov. 2	425	100 / 101	81	889
Railway-bed. Trestle	R. J. Hewett	594,471	Nov. 30	3082	722 / 723	81	1467
Railway block-signal. Electrically-controlled	L. Herrin	595,775	Dec. 21	1502	384	81	1909
Railway bolt-lock	J. Bray	595,013	Dec. 7	301	72, 73	81	1676
Railway-brake	C. K. Pickles	595,496	Dec. 14	1139	274	81	1859
Railway-brake	T. E. Nicholson and W. De Freese	593,553	Nov. 9	1454	354 / 355	81	1009
Railway-brakes. Automatic slack-adjuster for	J. W. Cawdery	593,413	Nov. 9	1193	289	81	1051
Railway carriage. Gravity-	F. C. Burnett	594,148	Nov. 23	2498	591	81	1336
Railway cattle-guard	A. A. Graham	595,471	Dec. 14	1095	263	81	1851
Railway cattle-guard	Z. Wiggs	594,050	Nov. 23	2351	556	81	1307
Railway cattle-guard	W. G. Curtis	592,218	Oct. 19	2297	539	81	484
Railway construction	R. M. Hunter	595,570	Dec. 14	1247	301	81	1881
Railway controlling device. Electric-	S. J. Austin	592,622	Oct. 26	3272	678 / 679	81	739
Railway-crossing	W. Martin	592,013	Oct. 19	1890	450 / 451	81	419
Railway-crossing gate	A. C. Watt	596,233	Dec. 28	2407	569 / 570	81	2150
Railway-crossing signal	E. C. Crocker	592,598	Oct. 26	3117	686 / 687	81	709
Railway. Electric	E. C. Crocker	596,054	Dec. 28	2118	502	81	2095
Railway. Electric	J. R. Farmer	595,208	Dec. 14	799	197	81	1794
Railway. Electric	J. C. Henry	591,100	Oct. 5	281	69	81	56
Railway. Electric	R. M. Hunter	593,051	Nov. 2	522	126	81	908
Railway. Electric	R. Lundell	594,702	Nov. 30	3526	821	81	1555
Railway. Electric	W. B. Potter	596,182	Dec. 28	2326	552	81	2133
Railway. Electric	D. Urquhart and F. Wynne	591,706	Oct. 12	1365	319	81	293
Railway. Electric	G. Westinghouse and W. Chapman	595,008	Dec. 7	291	69, 70	81	1675
Railway. Electric pleasure	L. Lilley	594,700	Nov. 30	3523	820 / 821	81	1554
Railway. Electrical	R. M. Hunter	592,225	Oct. 19	2257	534	81	488
Railway-gate	W. Martin	591,656	Oct. 12	1286	301	81	277
Railway-gate. Automatic	H. Wettmarshausen	591,441	Oct. 12	908	213	81	205
Railway-gate. Electrically-operated	J. S. Biggar	591,911	Oct. 19	1714	411	81	385
Railway gates and signals. Automatic recorder for electrically-operated	J. M. Williams	595,243	Dec. 7	726	177 / 178	81	1754
Railway indicator. Underground-electric-	H. C. Reagan, Jr	594,122	Nov. 23	2457	583	81	1328
Railway-motor. Electric	E. D. Priest	595,409	Dec. 14	968	238 / 239	81	1830
Railway. Pleasure-	G. W. Downey	592,648	Oct. 26	3316	690	81	748
Railway post-offices. Adjustable seat and support for	W. E. Love	596,409	Dec. 28	2734	647	81	2214
Railway-rail	A. J. Gordon	596,965	Dec. 28	2661	631	81	2199
Railway-rail	J. P. Richardson	592,920	Nov. 2	143	33	81	885
Railway-rail fastening	F. W. Schroeder	595,212	Dec. 7	656	157	81	1741
Railway-rail joint	T. C. Gray	595,163	Dec. 7	569	137	81	1726
Railway-rails. Device for bridging joints of	T. S. McKinnie. (Reissue)	11,642	Dec. 21	2105	498	81	2074
Railway-rails. Tie-plate and coupling device for	F. Lindquist	592,751	Oct. 26	3518	739	81	787
Railway-siding	W. R. Kirk	591,977	Oct. 19	1816	433	81	405
Railway-signal	W. J. Fawcett	595,294	Dec. 14	801	198	81	1795
Railway-signal	L. Murphy	592,661	Oct. 26	3350	697	81	755
Railway-signal	J. D. Taylor	594,300	Nov. 23	2758	652 / 653	81	1386
Railway signal and safety device. Electric	K. Kohn	594,256	Nov. 23	2668	632 / 633	81	1369
Railway-signals. Mechanism for making, breaking, and switching electric circuits for	P. H. Forbes, C. C. French, and A. Lee.	594,614	Nov. 30	3352	736	81	1519
Railway signaling	A. C. T. Bond	591,376	Oct. 12	800	186	81	183
Railway signaling and switching systems. Protector for wires, rods, &c., in	J. Wrigley	593,869	Nov. 16	2051	483	81	1230
Railway-sleeper	G. A. Owen and G. A. Bates	591,565	Oct. 12	1136	267 / 268	81	247
Railway-spike	J. C. Beekman	592,222	Oct. 19	2242	531	81	485
Railway-spike	J. A. E. Hinton	594,253	Nov. 23	2664	631	81	1308
Railway-spike	J. Richard	594,757	Nov. 30	3624	844	81	1575
Railway-spike	A. Mégroz	592,524	Oct. 26	3108	635	81	706
Railway supply system. Electric-	V. Angerer	593,074	Nov. 2	565	135	81	917
Railway-switch	S. Girardeau and R. J. Murray	596,422	Dec. 28	2760	652	81	2219
Railway-switch	W. H. Jackson	593,665	Nov. 16	1671	405	81	1157
Railway-switch	H. C. Lausen	591,852	Oct. 19	1596	380	81	361
Railway-switch	M. McCully	591,051	Oct. 5	202	48	81	40
Railway-switch	A. F. Rairigh	594,215	Nov. 23	2608	616 / 617	81	1356
Railway-switch	C. Richey	592,448	Oct. 26	2982	604	81	682
Railway-switch	S. T. Thornton	593,624	Nov. 16	1605	386	81	1145
Railway-switch	A. D. Hill	592,143	Oct. 19	2129	504	81	463
Railway-switch-actuating mechanism	J. Cudlip	591,821	Oct. 19	1553	367 / 368	81	353
Railway-switch. Automatic	A. Grossman	593,650	Nov. 16	1649	390	81	1153
Railway-switch. Automatic	M. T. Koch	592,009	Oct. 19	1885	449	81	416
Railway-switch mechanism	C. W. Squires	595,063	Dec. 7	431	103	81	1699
Railway-switch operating device	D. W. and G. W. Hatfield	591,628	Oct. 12	1234	290	81	266
Railway switch. Street-	E. P. Martin and R. Price-Williams	591,412	Oct. 12	853	199	81	194
Railway-switch tongue-rail	H. M. Abernethy	596,100	Dec. 28	2195	520	81	2109
Railway-switches. Mechanical safety device for	W. Robinson	592,831	Nov. 2	146	33, 34	81	836
Railway system. Electric-	H. P. Wellman	593,143	Nov. 2	679	162 / 163 / 164	81	941
Railway system. Electric-	G. Westinghouse, Jr	591,314	Oct. 5	666	158	81	127
Railway system. Electric-	M. J. Wightman	595,590	Dec. 14	1283	309	81	1890
Railway third rails. Joint for electric-	P. Haley and P. P. Thompson	592,563	Oct. 26	3177	655	81	721
Railway-ties. Machine for manufacturing	G. Green, Jr	591,889	Oct. 19	1576	375	81	357
Railway-tie	J. H. Connell	595,452	Dec. 14	1065	255	81	1845
Railway-tie	E. B. Gilpin	592,907	Nov. 2	208	61	81	859
Railway-tie	C. A. Cole	595,905	Dec. 21	1844	441	81	2080
Railway tie and clamp	S. D. S. Narber	594,419	Nov. 30	2986	702	81	1447
Railway-tie. Metallic	W. F. Gould	594,249	Nov. 23	2657	630	81	1367
Railway-tie plate	J. L. Allen	592,072	Oct. 19	1996	472 / 473	81	438
Railway time-signal	W. R. Mitchell	591,926	Oct. 19	1787	416	81	390
Railway time-signal	J. W. Dowden	593,520	Nov. 9	1388	335	81	1068
Railway-track	G. A. Parmenter and S. H. Peirce	594,552	Nov. 30	3237	759	81	1497
Railway track-cleaner. Street-	H. W. Falk	593,958	Nov. 16	2182	518	81	1257
Railway-track rails. Repairing	E. Samuel	593,166	Nov. 2	753	180	81	955
Railway-track structure	J. W. Hood	592,589	Oct. 26	3214	666	81	728
Railway-tracks. Safety-frog for	J. Merryweather	593,965	Nov. 16	2208	524	81	1262
Railway-trains. Coupling for electric circuits in	J. A. Normand	591,690	Oct. 12	1326	310	81	286
Railway-vehicle window	H. Biermann	596,047	Dec. 28	2107	499	81	2093
Railways. Arrangement for preventing accidents on	E. R. Pommer	592,596	Oct. 26	3228	668 / 669	81	731
Railways. Contact device for electric	F. A. Anderson	593,154	Nov. 2	712	169 / 170	81	948
Railways. Current-collector for electric	A. Bleichert	590,957	Oct. 5	12	3, 4	81	5
Railways. Gripping device for suspended cable or rope	W. B. Potter	591,878	Oct. 19	1633	389	81	369
Railways. Mounting for contact-shoes of surface-contact	J. H. Bickford	593,369	Nov. 9	1110	268	81	1085
Railways. Return-wire connection for electric							

Alphabetical list of inventions, October to December, inclusive—Continued.

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Railways. Traveling contact device for electric	M. D. Law	594,406	Nov. 30	2953	995	81	1442
Raisin-seeder	J. W. Brown, Jr.	591,322	Oct. 5	676	161	81	129
Raisin-seeder	C. S. Cox	592,131	Oct. 19	2109	500	81	459
Raisin-seeder	C. S. Cox	596,362	Dec. 28	2632	629	81	2197
Rake:							
See Hay-rake. Horse-rake.							
Range-boiler	E. J. McCabe	595,545	Dec. 14	1214	292	81	1875
Range-finder	N. Bray	591,912	Oct. 19	1715	411	81	385
Range or stove	L. Tait	594,974	Dec. 7	218	54	81	1662
Range. Reversible	W. P. Lewis	591,654	Oct. 12	1288	300	81	276
Ratchet mechanism	E. Boening	595,508	Dec. 14	1294	312	81	1893
Ratchet mechanism	Z. T. Furbish	593,157	Nov. 2	720	172, 173	81	949
Razor safety-guard	M. S. Jacobson	592,611	Oct. 26	3254	674	81	736
Reamer	P. Saacke	595,346	Dec. 14	880	216	81	1810
Reamer. Pipe-	W. A. Shorb	594,914	Dec. 7	127	32	81	1645
Reaming or cutting tool	A. A. Bartlett	592,979	Nov. 2	412	97	81	887
Reapers, mowers, pumps, &c. Connecting-rod for	D. J. Crosby	594,729	Nov. 30	3578	831, 832	81	1566
Reapers or mowers. Antifriction-clip for	F. Barclay	592,557	Oct. 26	3166	652	81	719
Reaping-machine	M. Alexandrescu	593,449	Nov. 9	1247	300	81	1062
Receptacle. Sheet-metal	G. Miller	595,024	Dec. 7	318	76	81	1680
Recorder:							
See Car-recorder. Time-recorder.							
Recording instrument	A. Steinbart	593,339	Nov. 9	1070	258	81	1029
Recording-meter. Separable	J. R. Cravath	593,966	Nov. 23	2245	532	81	1288
Rectal applicator	J. D. Bacon	593,318	Nov. 9	1034	250	81	1022
Reel:							
See Fish-line reel. Tape-reel.							
Reflector	A. Blondel and S. Psaroudaki	593,348	Nov. 9	1061	261	81	1030
Reflector	A. Spohn	594,495	Nov. 30	3129	733	81	1476
Refrigerating apparatus. Compression-pump for	H. J. Campbell	592,235	Oct. 26	2281	537	81	513
Refrigerator	S. W. Bates	594,374	Oct. 12	797	186	81	163
Refrigerator	J. Hyde, Jr.	593,021	Nov. 2	474	114	81	899
Refrigerator	C. J. Medberry and J. T. Gurney	594,413	Nov. 30	2973	699	81	1444
Refrigerator	F. E. Ranney	594,150	Nov. 23	2518	596	81	1341
Refrigerator	H. Staib	593,821	Nov. 16	1964	462	81	1212
Refrigerator	J. H. Crawford	593,012	Nov. 2	458	109, 110	81	896
Refrigerator-car	C. S. Hardy	593,885	Nov. 16	2073	489, 490	81	1235
Refrigerator-car	W. H. Woods	591,316	Oct. 5	669	158, 159	81	127
Refrigerator-door	A. J. McArthur	595,128	Dec. 7	519	124	81	1716
Refrigerator for storing and transporting eggs, meats, fruits, &c.	J. H. Bowley	593,509	Nov. 9	1364	331	81	1084
Refrigerator. Market-	F. M. Harrison and J. W. Kelley	591,401	Oct. 12	839	195	81	191
Refrigerator shipping-box	O. Andrews	591,581	Oct. 12	1160	273	81	252
Register:							
See Adding-register. Self-indicating register. Cash-register. Signature-register. Cash-drawer register. Type-writer word-register. Fare-box register.							
Regulator:							
See Automatic regulator. Heat or damper regulator. Electric regulator. Phase-regulator. Current-regulator. Speed-regulator. Dalnper-regulator. Fluid-pressure regulator.							
Rein-guard. Neck-yoke	B. A. Fisher	593,427	Nov. 9	1217	294	81	1055
Rein-holder	R. B. Fowzer	591,834	Oct. 19	1573	374	81	356
Rein-holder	L. L. Lewis and S. Williams	595,881	Dec. 21	1798	431	81	2011
Rein-holder	W. C. Nelson	592,994	Nov. 2	431	102	81	890
Rein protector and supporter. Harness-	R. A. Corcoran	593,642	Nov. 16	1633	395	81	1150
Releasing device. Safety	R. A. Haegelin	593,844	Nov. 16	1996	470	81	1219
Removable wheel	M. L. Wilcox	591,149	Oct. 5	370	87	81	73
Rendering apparatus	E. Holthaus	594,013	Nov. 23	2289	541	81	1295
Rendering apparatus	E. Holthaus	594,014	Nov. 23	2290	541	81	1295
Resistance device	G. K. Cummings	593,988	Nov. 23	2248	533	81	1289
Revolving chair	J. M. Morgan	595,781	Dec. 21	1600	386	81	1970
Revolving chair	G. D. Sheriffs and C. J. Travers	593,059	Nov. 2	534	129	81	911
Rheostat	G. J. Schneider	593,817	Nov. 16	1940	461	81	1206
Rheostat or electric heater	F. Kraemer	595,395	Dec. 14	963	234	81	1825
Ribbon-holder	W. Graham	595,059	Dec. 7	389	95	81	1692
Ribbon mechanism for time-recorders, &c	W. L. Bundy	594,725	Nov. 30	3572	830	81	1564
Rice-huller	C. A. Calvert	596,051	Dec. 28	2113	500, 501	81	2004
Ring:							
See Curtain-ring.							
Rings. Mechanism for making toothed	G. E. Hart	596,405	Dec. 28	2729	646	81	2213
Ripping and stitch-picking tool	J. Darmody	593,461	Nov. 9	1277	307	81	1068
Riveting-machine	C. P. Higgins	594,472	Nov. 30	3087	723, 724	81	1468
Riveting-tool	W. J. Ball	595,431	Dec. 14	1034	248	81	1838
Road-engine	W. S. Wootton	591,027	Oct. 5	154	35, 36	81	32
Robber and burglar trap	W. E. Wharton and F. T. Freeman	594,818	Nov. 30	3736	870, 871	81	1598
Rock-crusher	B. R. Seabrook and J. R. Brown	593,861	Nov. 16	2036	478, 479	81	1227
Rock-drill	J. K. Firth	596,149	Dec. 28	2280	540	81	2125
Rock-drill	J. M. Hamor	593,214	Nov. 9	848	202, 203	81	988
Rock-drill	A. M. Plumb	595,909	Dec. 21	1950	467	81	2041
Rocking-chair	N. H. Hassel	596,241	Dec. 28	2421	572	81	2153

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rocking-chair	E. M. Hulse	593,068	Nov. 2	558	134	81	915
Rod-coupling device	A. C. Ponkney	591,090	Oct. 12	1337	313	81	288
Rod separating and feeding device	A. C. Campbell	593,532	Nov. 9	1405	338, 339	81	1091
Roentgen-ray tube	I. W. Howell	594,156	Nov. 23	2514	595	81	1340
Roentgen-ray tube	H. L. Sayen	594,036	Nov. 23	2324	549	81	1301
Roentgen-ray tubes. Regulating	M. P. Rice	594,143	Nov. 23	2490	590	81	1334
Roentgen-ray tubes. Regulating	E. Thomson	591,890	Oct. 19	1678	401	81	378
Roll. Flexible rotary	A. T. Condon and J. C. Ham	596,014	Dec. 21	2026	483	81	2057
Rolls	J. Guest	596,403	Dec. 28	2726	645	81	2213
Roller:							
See Copying-roller. Shade-roller. Land-roller.							
Rolling-mill	J. Kennedy	595,572	Dec. 14	1259	301, 302	81	1885
Rolling-mill	J. S. Worth	591,713	Oct. 12	1374	322, 323	81	295
Rolling-mill for manufacturing round bars, &c	P. J. Delay	594,333	Nov. 23	2805	663, 664, 665, 666	81	1395
Rolling-mill plate-turner	J. S. Worth	591,712	Oct. 12	1372	322	81	295
Rolling pipe-couplings. Apparatus for	C. D. De Forest and W. F. Kenna	591,742	Oct. 12	1417	333, 334	81	304
Rolling tapered metal. Machine for	C. Prouty	593,907	Nov. 16	2103	498, 499	81	1242
Roof	W. J. Woods	595,010	Dec. 7	297	71	81	1676
Roof-bracket	J. Matter	591,772	Oct. 12	1465	346	81	313
Roofing. Sheet-metal	J. J. Knowlton	594,139	Nov. 23	2483	588	81	1333
Roofing. Slate	P. Gambs	595,618	Dec. 14	1324	319	81	1899
Roosting device for fowls	F. D. Dimock	595,121	Dec. 7	508	122	81	1714
Rope-adjusting device	J. Brayshaw	591,450	Oct. 12	924	217	81	209
Ropeway support. Aerial wire	J. S. Lane	591,221	Oct. 5	512	121	81	97
Rotary crusher	N. Campbell	593,799	Nov. 16	1916	456	81	1202
Rotary cutter	H. A. Hannum	592,969	Nov. 2	209	48	81	848
Rotary engine	M. H. Beyer	593,078	Nov. 2	571	138	81	918
Rotary engine	W. S. Colwell	592,224	Oct. 19	2244	531, 532, 533	81	486
Rotary engine	H. S. Daggett	591,328	Oct. 5	686	164	81	131
Rotary engine	R. D. Fassett	595,536	Dec. 14	1204	290	81	1873
Rotary engine	S. E. Ferguson	592,284	Oct. 26	2356	556, 557	81	528
Rotary engine	J. A. House	593,219	Nov. 9	870	206, 207	81	991
Rotary engine	W. B. Story	594,711	Nov. 30	3542	825	81	1559
Rotary engine	W. B. Story	594,712	Nov. 30	3545	825	81	1559
Rotary motor	H. Chaudun	593,514	Nov. 9	1381	333	81	1086
Rotary motor	V. Karavodin	592,788	Nov. 2	60	13	81	818
Rotary-piston engine	L. H. Wattles	595,227	Dec. 7	679	164, 165, 166	81	1746
Rotary steam-engine	J. A. Cocker	591,092	Oct. 5	165	37, 38	81	34
Rotary steam-engine	J. E. Guenther	591,130	Oct. 5	396	81	81	66
Rotary steam-engine	E. S. Hagen	593,875	Nov. 9	1120	270	81	1037
Rotary steam-engine	L. A. Wischmeyer	595,665	Dec. 14	1403	338, 339	81	1915
Rotary steam-engine. Compound	A. M. Green	591,165	Oct. 5	404	94, 95	81	77
Rotary steam-engine. Reversible	G. E. Woodard	594,924	Dec. 7	189	34, 35	81	1648
Rotary wrench	J. H. Warwick	596,311	Dec. 28	2542	606	81	2175
Rounding and channeling machine	E. M. Cole	595,764	Dec. 21	1572	379	81	1964
Router-bit. Expansion	F. W. Britton	596,420	Dec. 28	2750	650	81	2217
Routing-machine clamping device	L. Herrick	593,017	Nov. 2	467	112	81	898
Roving-can	J. A. Collins	594,602	Nov. 30	3328	781	81	1514
Roving-machine flier	T. F. Dunn	595,996	Dec. 21	1998	477	81	2052
Rubber ball. Soft-	H. G. Wolcott	593,964	Nov. 9	942	223	81	1003
Rubber tubing. Manufacture of	B. G. Work	595,088	Dec. 7	443	105, 106	81	1702
Rudder	J. W. Dobson	594,068	Nov. 23	2362	565	81	1313
Rug-making machine	O. Rice	595,113	Dec. 7	497	119	81	1711
Rule. Combination-	W. Rosenkranz	593,908	Nov. 16	1571	379	81	1138
Ruler and tracer for arcs of circles	E. B. Noyes	593,236	Nov. 9	902	218	81	996
Ruler. Desk-	J. D. Barrie	591,804	Oct. 19	1523	360	81	345
Ruler. Folding	J. E. Davis	594,607	Nov. 30	3339	783	81	1516
Rulers. Section-line attachment for parallel-	J. C. Richardson	591,206	Oct. 5	644	152	81	122
Ruling-machine	T. Owen	594,808	Nov. 30	3722	867	81	1595
Ruling, printing, and numbering machine. Combined	J. B. Edson	593,961	Nov. 16	2199	522	81	1261
Running-gear	W. D. Widders	595,087	Dec. 7	442	104	81	1701
Sack-holder	F. H. Gilbert	595,384	Dec. 14	940	227	81	1821
Sack mending and cleaning apparatus	J. H. Orfeur	594,963	Dec. 7	198	47	81	1658
Sack-pin	M. Fitch	596,150	Dec. 28	2281	541	81	2125
Sad-iron	J. F. Bless	590,958	Oct. 5	16	4	81	5
Sad-iron	C. C. Meeker	592,908	Nov. 2	98	20	81	825
Sad-iron	M. E. Rice	592,918	Nov. 2	286	66	81	868
Sad-iron attachment for pressing seams	H. Reno	595,411	Dec. 14	994	240	81	1881
Sad-iron support	D. Basch	594,316	Nov. 23	2781	657	81	1390
Saddle	H. A. Perry	595,111	Dec. 7	494	118	81	1711
Saddle	C. W. Miller	595,400	Dec. 14	969	235	81	1826
Saddle. Harness-	J. W. Haggard	595,567	Dec. 14	1245	300	81	1989
Saddle-horn	J. J. Schorp and G. Siglinger	591,659	Oct. 12	1292	308	81	278
Saddle. Pneumatic harness-	S. F. Estell	593,373	Nov. 9	1118	270	81	1037
Saddle-post and handle-bar adjusting mechanism	T. M. Brintnall	594,378	Nov. 30	2903	684, 685	81	1433
Safe	W. H. Hollar and A. Kennedy	591,188	Oct. 5	445	106, 107	81	85

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Safe-door protective mechanism	A. B. Curtis	596,294	Dec. 28	2508	596	81	2168
Safe. Floating marine	A. B. Perkins	596,278	Dec. 28	2481	599	81	2163
Safe-lock	A. Stevenson	591,300	Oct. 5	467	111	81	89
Safe or vault	G. L. Damon	593,200	Nov. 9	817	194, 195	81	982
Safety-brake. Positive automatic	A. F. C. Lotz	591,189	Oct. 5	440	107	81	85
Sail-slide	C. H. Worthen	591,446	Oct. 12	916	216	81	206
Sand-drag. Revolving	J. Murphy	595,442	Dec. 14	1049	251	81	1841
Sand-drier	E. L. Merriman and J. W. Vought	591,413	Oct. 12	851	199, 200	81	195
Sand in harbors, &c. Means for preventing accumulation of	P. O'Meara	593,430	Nov. 9	1219	294	81	1056
Sander cylinder adjustment	F. E. Schmitt	595,445	Dec. 14	1052	252	81	1842
Sanders. Roller-frame adjustment for	F. E. Schmitt	596,232	Dec. 28	2406	560	81	2150
Sandpapering-machine	G. C. Bonniwell	594,320	Nov. 23	2788	658, 659	81	1391
Sandpapering-machine	J. B. Lowry and J. Oldendorph	592,992	Nov. 2	428	101, 102	81	890
Sash and window-screen hanger and operator. Storm-	J D. Brainard	591,799	Oct. 12	1506	357	81	323
Sash-balance	C. H. Ocumpaugh	596,216	Dec. 28	2383	564	81	2145
Sash bars. Machine for jointing window-	T. E. and C. T. Rich	595,077	Dec. 7	421	101	81	1698
Sash-cord fastener	J. C. Byxbe and P. E. Petersen	591,380	Oct. 12	804	187	81	184
Sash-cord guide	C. F. Doebler	591,034	Oct. 5	170	38	81	35
Sash-fastener	G. H. Forsyth	593,768	Nov. 16	1859	444, 445	81	1191
Sash-fastener	G. Gibson	596,445	Dec. 28	2796	660	81	2226
Sash-fastener	J. M. Graham	591,469	Oct. 12	953	225	81	214
Sash-fastener	W. J. Neidl	591,537	Oct. 12	1088	258	81	237
Sash-fastener	A. W. Pennington	592,974	Nov. 2	408	96	81	886
Sash-fastener	G. E. Strout	592,747	Oct. 26	3511	737	81	785
Sash-fastener	H. Toops	592,457	Oct. 26	3003	608	81	696
Sash-fastener	F. Tuitte	596,706	Nov. 16	1776	418	81	1169
Sash-fastener	G. A. Turner	592,070	Oct. 19	1994	471	81	438
Sash-fastener	A. M. Tyler	592,458	Oct. 26	3005	608	81	687
Sash-fastener	S. Johnson	596,068	Dec. 28	2137	507	81	2098
Sash guide. Window-	W. McCall	591,356	Oct. 5	752	177	81	144
Sash. Hinged slidable window-	C. F. Davis and P. L. Cooper	594,356	Nov. 23	2963	675	81	1406
Sash-holder	E. B. Whitney and F. L. Comstock	596,234	Dec. 28	2408	570	81	2151
Sash-holder	E. E. Masters	592,873	Nov. 2	217	50	81	849
Sash holder and fastener. Combined	G. R. Hill	596,161	Dec. 28	2295	544	81	2127
Sash lift and lock. Combined	J. N. Ahrens	595,511	Dec. 14	1164	280	81	1865
Sash-lock	L. A. Crocker	593,875	Nov. 16	2059	485	81	1232
Sash-lock	W. J. Teague and A. Stewart	596,252	Dec. 28	2441	577	81	2156
Sash-weight	J. M. Bolton	594,822	Nov. 30	3745	872, 873	81	1599
Sash. Window-	J. Hayton	595,774	Dec. 21	1591	384	81	1968
Sash. Window-	A. K. Olsen	594,275	Nov. 23	2701	638	81	1376
Sash. Window-	A. F. Smith	593,909	Nov. 16	2109	499	81	1242
Sash. Window-	A. Pearson	594,553	Nov. 30	3238	760	81	1497
Sashes. Means for raising or lowering	W. J. Bebb	595,136	Dec. 7	529	127	81	1718
Sashes, &c. Means for securing glass in window-	E. Lindsay	592,654	Oct. 26	3325	692	81	749
Sawbuck	F. H. Morris	592,475	Oct. 26	3033	617	81	692
Saw. Buck-	A. Vreeland	593,793	Nov. 16	1908	454	81	1200
Saw-file holder and guide	W. M. Brown	591,946	Oct. 19	1772	423	81	397
Saw-filing machine	E. T. Ladd	595,315	Dec. 14	828	204	81	1800
Saw frame. Buck-	P. Pryibil	592,996	Nov. 2	322	74	81	870
Saw. Gang-	F. Cluff	591,185	Oct. 5	442	105	81	84
Saw-guide	T. A. Halcomb	595,062	Dec. 7	393	96	81	1693
Saw-guide	S. N. Hall	595,438	Dec. 14	1043	250	81	1840
Saw-handle	R. E. Poindexter	596,416	Dec. 28	2744	649	81	2216
Saw-jointer	F. S. Thomas	591,305	Oct. 5	655	154	81	125
Sawmill attachment	G. Glass	594,004	Nov. 23	2272	538	81	1292
Sawmill-carriages. Slab gage or indicator for	G. Glass	594,003	Nov. 23	2271	537	81	1292
Sawmill-carriages. Slab indicator or gage for	G. Glass	594,312	Nov. 23	2775	656	81	1390
Saw-patching machine	M. D. Ahearn	593,574	Nov. 16	1509	366	81	1127
Saw-set	C. French	591,478	Oct. 12	966	228	81	216
Saw-set	J. A. Kidwell	595,662	Dec. 14	1400	338	81	1914
Saw-set	F. W. Steele	592,069	Oct. 19	1993	471	81	438
Saw-set, jointer, and raker-gage. Combined	A. S. Topping	594,593	Nov. 30	3317	778	81	1512
Saw-setting machine	H. L. Boss	593,782	Nov. 16	1879	449, 450	81	1195
Saw-swage	S. V. Rawlings	592,293	Oct. 26	2371	560	81	531
Saw-swaging machine	R. Jones	595,065	Dec. 7	398	97	81	1694
Saw-teeth. Machine for side-dressing	R. Jones	590,985	Oct. 5	60	13	81	13
Saw-tooth-setting device	A. Holecek	594,000	Nov. 21	2266	536	81	1292
Saw-tooth setting, gaging, and jointing device	J. Frederickson and F. Jorgenson	595,602	Dec. 7	980	67	81	1673
Sawing-machine	G. E. Pooler	595,992	Dec. 21	1996	476	81	2051
Scaffold	M. Cody	595,405	Dec. 14	981	237, 238	81	1828
Scaffold	H. McLaughlin	591,208	Oct. 5	483	115, 116	81	92
Scaffold. Adjustable	M. Carrick	596,151	Dec. 28	2282	541	81	2125
Scaffold. Ladder-	J. Funcke	593,639	Nov. 16	1629	394	81	1149
Scaffold ledger-board support	W. S. Bradley	595,604	Dec. 14	1302	314	81	1895
Scaffold-ledger-board support	J. F. Caufield	596,430	Dec. 28	2771	655	81	2221
Scaffold. Painter's or carpenter's	C. E. Wilson	595,064	Dec. 7	396	96	81	1693
Scaffolding	F. M. Herbst	593,677	Nov. 16	1690	409	81	1160
Scaffolding. Painter's	H. Neddermann	595,200	Dec. 7	688	153	81	1738
Scale	H. Paddock	591,202	Oct. 5	477	113	81	90
Scale	J. R. Witzel	594,492	Nov. 30	3120	732	81	1474
Scale ball-bearing	R. M. Skiles and C. Lederer	596,391	Dec. 28	2699	639	81	2206
Scale beam. Computing-	A. Armstrong	592,067	Oct. 19	1991	470	81	437
Scale. Calculating-	R. C. Smith	596,052	Dec. 28	2115	501	81	2094
Scale. Computing-	A. W. Churchill	591,029	Oct. 12	1236	290, 291	81	206
Scale. Computing-	I. C. Koehne						

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Scale. Paper-	W. W. Dodge	593,927	Nov. 16	2147	509	81	1250
Scale printing-register. Weighing-	W. H. Sargent	595,583	Dec. 14	1271	305, 306	81	1838
Scale. Wagon-	S. A. Miller	592,809	Nov. 2	94	21	81	825
Scale. Weighing-	E. N. Gilfillan	596,154	Dec. 28	2286	542	81	2126
Scale. Weighing-	F. R. Moser	591,657	Oct. 12	1288	301	81	277
Scale. Weighing-	E. A. Terpening	595,502	Dec. 14	1149	276, 277	81	1861
Scales. Recording weigh-beam for	S. T. Braley	593,320	Nov. 9	1086	251, 252	81	1023
Scoop	M. R. and E. E. Davenport	591,953	Oct. 19	1786	426	81	399
Scoop or shovel. Screen	C. R. Eads	592,583	Oct. 26	3295	663	81	726
Scoop. Potato-	W. A. Reddick	591,691	Oct. 12	1338	313, 314	81	289
Scraper. Drag-	M. G. Bunnell	593,270	Nov. 9	952	230, 231	81	1005
Scraper. Dumping-	M. G. Bunnell	591,378	Oct. 12	801	187	81	184
Scraper. Wheel-	J. B. Gray	592,519	Oct. 26	3098	632	81	705
Screen: *See* Fireplace-screen. Mosquito-screen. Half-tone screen. Pulp-screen. Insect-screen. Window-screen. Light and ventilation screen.							
Screen holder. Draft-	J. D. White	591,905	Oct. 19	1694	405	81	381
Screw-driver	F. B. Miller	595,859	Dec. 21	1739	418	81	1998
Screw-driver. Reversible automatic	H. E. Goodell and H. D. Lanfair	591,097	Oct. 5	277	66	81	55
Screw-thread-rolling die	W. L. Ames	594,330	Nov. 23	2828	669	81	1399
Screw-threading rods or wires. Machine for	C. R. B. Naumann	595,783	Dec. 21	1606	387	81	1971
Scrubbing-machine	H. F. Ackermau	594,509	Nov. 30	3154	738	81	1481
Seal. Cording-	E. J. Brooks	591,368	Oct. 5	782	183	81	149
Seal. Lead	F. W. Brooks	595,980	Dec. 21	1989	475	81	2050
Seal-lock	A. W. Coffin	596,093	Dec. 7	456	109	81	1704
Seal-lock	C. E. Lee and W. C. Hoyt	591,407	Oct. 12	847	197	81	193
Seal-lock	R. A. Mills	593,598	Nov. 16	1551	370	81	1134
Seal-lock	E. J. Brooks	595,282	Dec. 7	775	192	81	1764
Seal-press	E. Tyden	594,580	Nov. 30	3283	771	81	1506
Seal. Self-locking	J. W. Bragger	592,690	Oct. 26	3407	712	81	766
Seal trap. Fluid-	J. J. Sullivan	595,744	Dec. 21	1530	360	81	1957
Seam for attaching buttons to shoes, &c	J. G. Shepard	594,660	Nov. 30	3463	805	81	1542
Seam-ripping device	D. B. Hartman	595,170	Dec. 7	587	140	81	1729
Seam-turning tool. Metal-	P. B. Alexander	594,222	Nov. 23	2615	618, 619	81	1357
Seams on sheet-metal conductors. Machine for turning lock-	J. A. Knight	592,057	Oct. 19	1971	466	81	434
Seamless woven bag							
Seat: *See* Beach-seat. Car-seat. Buggy-seat. Vehicle-seat.							
Seat	J. Reichert	594,035	Nov. 23	2322	549	81	1301
Seat or cushion	J. T. Cowley	593,739	Nov. 16	1806	433	81	1181
Seat-post and handle-bar fastener	O. Kraus	595,179	Dec. 7	606	145	81	1732
Seat-spring	J. S. Wood	593,631	Nov. 16	1620	391	81	1147
Secondary battery	R. Ashley	595,132	Dec. 7	524	126	81	1717
Secondary battery	P. F. Ribbe	595,580	Dec. 14	1267	304	81	1887
Sectional boiler for hot-water and steam heating	L. R. Blackmore	591,806	Oct. 19	1526	361, 362	81	345
Seed-distributer	S. Hardley	592,629	Oct. 26	3284	682	81	742
Seeding-machine	S. H. Jones	591,354	Oct. 5	749	177	81	144
Seeding-machine	I. D. Stevens	595,587	Dec. 14	1277	307, 308	81	1889
Seesaw	G. H. Carlson	594,856	Dec. 7	28	7,8	81	1627
Self-cleaning comb	W. L. Gibson	594,002	Nov. 23	2270	537	81	1292
Self-feeding furnace	H. Wortendyke	593,718	Nov. 16	1753	421	81	1172
Self-indicating register	G. E. Gay	595,876	Dec. 21	1790	490	81	2000
Self-leveling table	J. R. Downs	594,681	Nov. 30	3490	813	81	1548
Self-oiling spindle	J. M. Walker	593,867	Nov. 16	2049	482	81	1220
Self-playing instrument	F. W. Hedgeland	593,216	Nov. 9	851	203	81	989
Semi-elliptic spring	J. Buckley	591,812	Oct. 19	1540	363	81	349
Separating heavy from light particles by centrifugal action.	L. Maiche	593,900	Nov. 16	2094	495	81	1240
Separator: *See* Cream-separator. Ore-separator. Grain-separator.							
Separator	E. F. Hurt and G. N. Whistler	594,953	Dec. 7	186	45	81	1656
Separator	W. C. Jennings	594,350	Nov. 23	2847	673	81	1402
Settee and bed. Convertible	J. H. Evans	591,095	Oct. 5	275	67	81	54
Sewage or like precipitating and filtering tank	J. E. Bennett and H. Beresford	594,847	Dec. 7	11	3	81	1623
Sewing-machine	D. H. and J. Agan	591,718	Oct. 12	1380	324	81	297
Sewing-machine	G. H. Colley	593,733	Nov. 16	1786	430	81	1178
Sewing-machine	G. H. Colley	593,735	Nov. 16	1796	431, 432	81	1180
Sewing-machine	H. E. Hawes	593,577	Nov. 16	1512	367, 368, 369	81	1127
Sewing-machine	W. H. Hugg and C. Schütz	595,479	Dec. 14	1114	269	81	1855
Sewing-machine	T. K. Keith	591,044	Oct. 5	187	44, 45	81	38
Sewing-machine	W. A. Mack	596,447	Dec. 28	2803	661	81	2228
Sewing-machine	L. Muther, E. C. Holland, and R. G. Woodward.	592,906	Nov. 2	87	19,20	81	823
Sewing-machine	L. Onderdonk	591,490	Oct. 12	871	204	81	197
Sewing-machine	W. N. Parkes	591,634	Oct. 12	1249	293, 294, 627	81	209
Sewing-machine	W. N. Parkes	592,510	Oct. 26	3079	628, 629	81	702
Sewing-machine	E. D. Weyburn	595,229	Dec. 7	686	167, 168	81	1747

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sewing-machine attachment	J. W. Simons	594,291	Nov. 23	2744	649	81	1383
Sewing-machine button-feeding apparatus	L. Goodkind, H. M. Essington, and H. E. Bartlett.	594,617	Nov. 30	3356	786	81	1519
Sewing machine. Buttonhole-	J. Schwarz	594,290	Nov. 23	2734	647, 648, 649	81	1381
Sewing-machine feed mechanism	R. G. Woodward	591,517	Oct. 12	1041	244	81	228
Sewing-machine for lasting boots or shoes	W. C. Collyer	591,327	Oct. 5	683	163, 164	81	131
Sewing-machine for lasting boots or shoes	N. and G. Goddu	592,702	Oct. 26	3427	716, 717	81	770
Sewing-machine for lasting boots or shoes	T. K. Keith	592,971	Nov. 2	401	93, 94	81	885
Sewing-machine for sewing spangles on fabrics	A. H. Kursheedt and J. A. Groebli	591,079	Oct. 5	245	57, 58, 59	81	48
Sewing-machine. Hemstitch	F. and J. G. Gegauf	592,088	Oct. 19	2034	480, 481	81	445
Sewing-machine looper-actuating mechanism	L. Onderdonk	591,419	Oct. 12	869	203	81	197
Sewing-machine looper mechanism	L. Onderdonk	591,538	Oct. 12	1088	256	81	237
Sewing-machine looper mechanism	L. Onderdonk	591,539	Oct. 12	1092	257	81	238
Sewing-machine looper mechanism	L. Onderdonk	591,540	Oct. 12	1093	257	81	238
Sewing-machine looper mechanism	L. Onderdonk	591,541	Oct. 12	1095	258	81	239
Sewing-machine looper mechanism	L. Onderdonk	591,542	Oct. 12	1098	258	81	240
Sewing-machine looper mechanism	L. Onderdonk	591,543	Oct. 12	1100	259	81	240
Sewing-machine looper mechanism	L. Onderdonk	591,544	Oct. 12	1102	259	81	241
Sewing-machine looper mechanism	L. Onderdonk	591,545	Oct. 12	1103	259	81	241
Sewing-machine looper mechanism	L. Onderdonk	591,774	Oct. 12	1467	347	81	314
Sewing-machine looper-operating mechanism	J. E. Fefel	595,615	Dec. 14	1321	318, 319	81	1808
Sewing machine. Multiple buttonhole-	H. E. Hawes	595,171	Dec. 7	589	141, 142	81	1729
Sewing-machine. Overedge-	J. T. Collins	591,383	Oct. 12	809	188, 189	81	185
Sewing-machine. Overedge-	J. T. Collins, W. H. Stedman, and J. M. Merrow.	591,384	Oct. 12	811	189	81	186
Sewing-machine. Overseaming	J. M. Merrow	591,049	Oct. 5	197	47	81	40
Sewing-machine plaiting device	H. S. Ayres	595,033	Dec. 7	336	81, 82	81	1668
Sewing-machine quilting attachment	W. Obuch	591,784	Oct. 12	1488	353	81	319
Sewing-machine quilting-frame	E. W. Heacker	593,523	Nov. 9	1393	336	81	1089
Sewing machine. Shoe-	A. Eppler, Jr	593,156	Nov. 2	717	170, 171, 172	81	949
Sewing-machine shuttle	G. H. Colley	593,734	Nov. 16	1793	431	81	1179
Sewing-machine shuttle	H. P. Richards	594,429	Nov. 30	3001	705	81	1450
Sewing machine. Sole-	H. I. Illingworth	591,475	Oct. 12	960	227, 228	81	215
Sewing machine. Sole-	J. W. Snell	591,019	Oct. 5	131	29, 30	81	27
Sewing-machine table-top	N. A. Hull	591,474	Oct. 12	959	227	81	215
Sewing-machine take-up mechanism	L. Onderdonk	591,546	Oct. 12	1104	260	81	241
Sewing-machine tension device	A. W. Johnson	592,092	Oct. 19	2041	483	81	446
Sewing-machine trimming attachment	F. Curtin	595,374	Dec. 14	924	224	81	1618
Sewing-machine tuck-marking attachment	E. J. Toof	592,127	Oct. 19	2104	498	81	458
Sewing-machine tucking-guide	E. A. King and F. Guest	591,231	Oct. 5	531	127	81	101
Sewing-machines. Means for securing attachments to	A. Johnston	592,008	Oct. 19	1884	449	81	418
Sewing on buttons. Machine for	J. J. Sullivan	595,742	Dec. 21	1522	368	81	1956
Sewing on buttons. Machine for	J. J. Sullivan	595,743	Dec. 21	1528	369	81	1957
Sewing on buttons. Machine for	J. J. Sullivan	596,020	Dec. 21	2043	486, 487	81	2060
Sextant	F. J. B. Cordeiro	595,527	Dec. 14	1198	287	81	1871
Shade-bracket	G. Bell	595,667	Dec. 14	1405	339	81	1916
Shade-bracket. Extension	N. Hammer	593,417	Nov. 9	1202	290	81	1052
Shade-hanger	F. E. Stahlhut	593,441	Nov. 9	1237	296	81	1060
Shade-holder	M. D. Greengard	592,287	Oct. 26	2360	558	81	529
Shade or curtain fixture	H. H. Forsyth	595,503	Dec. 14	1238	298, 299	81	1880
Shade-roller	W. C. Johnson	592,734	Oct. 26	3483	732	81	780
Shade-roller bracket	D. E. Sherwood	594,762	Nov. 30	3631	845	81	1576
Shade-supporter	W. G. Stitt and M. H. Marcus	592,716	Oct. 26	3451	723	81	774
Shades. Machine for cutting window-	E. Oswald	592,495	Oct. 26	3058	622	81	697
Shading and spacing tool	J. W. Walter	594,186	Nov. 23	2562	606	81	1348
Shaft attachment. Vehicle-	J. K. Pilkington	594,648	Nov. 30	3444	801	81	1538
Shaft coupling. Vehicle-	W. A. Jackman	591,764	Oct. 12	1450	342	81	311
Shaft-hanger	T. C. Dill	593,742	Nov. 16	1812	434	81	1182
Shaft-hanger and belt-shifter	F. Wiard	596,256	Dec. 28	2447	579	81	2157
Shaft hanger. Crank-	P. H. Brennan	593,562	Nov. 16	1484	362	81	1122
Shaft-locking device	A. G. Mather	591,558	Oct. 12	1120	263	81	244
Shaft or blast furnace	F. Burgers	591,524	Oct. 12	1058	248	81	231
Shaft or pole fastener	H. R. Harris	593,355	Nov. 9	1090	263	81	1062
Shaft or tongue coupling	N. M. Valentine	593,004	Nov. 2	448	107	81	894
Shaft-support	T. G. Coleman	592,466	Oct. 26	3020	612	81	690
Shaft. Vehicle-	F. D. Bernier	592,985	Oct. 26	3400	710	81	765
Shaft. Vehicle-	W. H. H. Hallock	591,399	Oct. 12	837	195	81	191
Shafts. Combined cone lock-nut and dust-cap for crank-	G. Burdick	595,873	Nov. 16	2056	484	81	1231
Shafting. Abutment ring or collar for	H. Meltzer	594,261	Nov. 23	2679	634	81	1371
Shafting-box	J. D. Mattison	592,807	Nov. 2	91	20	81	894
Shafting core. Flexible-	W. D. Forsyth	595,708	Dec. 21	1474	355	81	1947
Shafting, &c. Machine for straightening and polishing	P. Medart	594,482	Nov. 30	3102	727	81	1471
Shaking-bolt	D. Sewell	592,617	Oct. 26	3265	676	81	788
Shank-stiffeners. Machine for manufacturing	G. H. Stevens and E. L. Howard	596,282	Dec. 28	2488	591	81	2164
Shaper or metal-planer tables. Supporting device for	M. Flather	591,883	Oct. 19	1572	373	81	356
Sharpener	W. F. Bauroth	591,028	Oct. 5	159	36	81	33
Sharpener. Combined skate and knife	F. W. G. Boettcher	594,723	Nov. 30	3569	829	81	1564

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sharpener. Disk-	P. N. Howe	592,785	Nov. 2	54	12	81	817
Sharpening device. Scissors-	J. N. Wolf	591,906	Oct. 19	1696	405	81	381
Sharpening device. Scissors-	J. T. Borden	592,486	Oct. 26	3047	620	81	695
Shearing-machines. Yielding extensible cloth-rest for	A. Brown	592,744	Oct. 26	3506	736	81	784
Shears: *See* Iron-shears. Parallel shears.							
Sheep-dip compound	J. A. Palethorpe	594,753	Nov. 30	3620	.....	81	1574
Sheep while being sheared. Support for	T. A. Reynolds	594,428	Nov. 30	3001	705	81	1450
Sheet assembling and stapling machine	T. C. Dexter	595,941	Dec. 21	1903	453, 454, 455	81	2081
Sheet-assembling device	J. Larrabee	592,548	Oct. 26	3155	649	81	717
Sheet metal. Apparatus for removing scale from	E. A. Davies and S. T. Thomas	591,621	Oct. 12	1220	267, 268	81	264
Sheet-metal can	M. Ams	593,558	Nov. 16	1477	360	81	1120
Sheet-metal can	F. Westerbeck	591,313	Oct. 5	666	156	81	127
Sheet-metal can	F. Westerbeck. (Reissue)	11,641	Dec. 7	781	193	81	1765
Sheet-metal cutting and bending machine	J. P. Mehrman	594,643	Nov. 30	3438	799	81	1538
Sheet-metal molding. Machine for making	C. T. Childers	594,383	Nov. 30	2915	687	81	1434
Sheet-metal pipes. Construction of	J. F. Weitzel	592,459	Oct. 26	3006	608	81	687
Sheet-metal rings. Device for forming annular	J. A. Carlstedt	595,287	Dec. 14	786	194	81	1791
Sheet-metal vessel	G. Ackermann	595,800	Dec. 21	1641	395	81	1979
Shelf, table, or desk. Folding wall	G. A. Ank	593,929	Nov. 16	1973	465	81	1214
Shelving and table. Convertible	F. Yunck	593,916	Nov. 16	2123	503	81	1245
Shell. High-explosive	J. J. Périssé	595,406	Dec. 14	963	238	81	1829
Sheller: *See* Corn-sheller.							
Shingle-sawing machine	F. Challoner	593,983	Nov. 23	2229	531	81	1287
Shingling-gage	T. B. Barnes	594,371	Nov. 30	2884	681	81	1428
Shipping-case	F. W. Parsons	593,608	Nov. 16	1560	378	81	1135
Ships' boats. Holding and disengaging gear for	L. T. Gaskill	595,912	Dec. 21	1860	444, 445	81	2023
Ships by railway. Apparatus for transporting	A. B. Anderson	593,153	Nov. 2	709	168, 169	81	947
Ship's light and air port	T. Utley	591,707	Oct. 12	1367	320	81	294
Ships. Ventilating-valve for	J. McCreery	592,532	Oct. 26	3124	688, 689	81	710
Ships. Ventilator-valve for	J. McCreery	592,531	Oct. 26	3123	688	81	710
Shipwreck-messenger	M. H. Bowden	592,689	Oct. 26	3406	712	81	766
Shirt	C. G. Cleminshaw	594,194	Nov. 23	2571	608	81	1350
Shirt	J. H. Myers	594,140	Nov. 23	2484	588	81	1333
Shirt	G. F. Pooley	594,277	Nov. 23	2705	639	81	1376
Shirt	G. F. Pooley	594,278	Nov. 23	2706	640	81	1377
Shirt-neckband shaper	A. Paradis and J. Faltermayer	591,083	Oct. 5	253	50	81	50
Shirt-stretcher	S. Moe	592,160	Oct. 19	2154	509	81	468
Shoe	W. D. Hall	593,576	Nov. 16	1511	366	81	1127
Shoe-horn	J. L. Nylander	594,894	Dec. 7	83	23	81	1637
Shoe-linings. Machine for removing gore-pieces from	F. W. Lynn	594,057	Dec.	191	46	81	1657
Shoe-protector	J. Dyer	591,829	Oct. 19	1567	372	81	355
Shoe-pull	E. Noppel	592,819	Nov. 2	128	26	81	831
Shoe-stretcher	C. L. Passmore	591,492	Oct. 12	996	233	81	221
Shoe-turning machine	G. H. Ryan	594,810	Nov. 30	3725	808	81	1596
Shoe-upper	J. H. Clappison	591,031	Oct. 5	165	37	81	34
Shoes while being stretched. Clamp for holding	A. E. Whitney	592,266	Oct. 26	2329	549	81	522
Shoestring-holder	H. T. Small	594,294	Nov. 23	2750	650	81	1384
Shovel	E. Charles	594,778	Nov. 30	3060	852	81	1582
Show stand or holder	E. H. Foote	594,200	Nov. 23	2588	611	81	1352
Shower-bath	E. Jendis	596,115	Dec. 28	2219	536, 537	81	2113
Shut-off and pipe-drilling device	S. G. Howe	592,007	Oct. 19	1877	447, 448	81	416
Shutter-bower	J. W. Wamsley and H. F. Lainé	594,504	Nov. 30	3141	736	81	1479
Shutter-fastener	J. Bannan	591,733	Oct. 12	1388	326	81	299
Shutter-fastener	H. F. Bente	592,624	Oct. 26	3276	680	81	741
Shutter-fastener	R. N. Martz	592,804	Nov. 2	81	18	81	822
Shutter-fastener	C. Smith	596,288	Dec. 28	2500	594	81	2166
Shutter-fastener guard	A. E. Schmidt	591,885	Oct. 19	1648	393	81	372
Shutter. Roller-	S. C. Pitney and F. C. Hansen	593,854	Nov. 16	2016	475	81	1223
Shutter-worker	J. L. Gregory and J. Grieve	596,155	Dec. 28	2288	542	81	2126
Shutter worker and fastener	H. Foecke	595,537	Dec. 14	1206	290	81	1874
Sieve	A. Wolf	595,985	Dec. 21	1983	473, 474	81	2049
Sieve or bolting-machine. Gyrating	R. Evans	593,838	Nov. 16	1988	468	81	1217
Sifter and receptacle. Ash	A. Finsel	592,867	Nov. 2	205	48	81	847
Sifter. Ash-	F. G. Winkler	593,630	Nov. 16	1616	389, 390, 391	81	1147
Sifting granular material	F. G. Winkler	593,629	Nov. 16	1613	388	81	1147
Sifting granular material. Machine for	F. G. Winkler	593,915	Nov. 16	2119	501, 502, 503	81	1945
Sign	W. W. Reynolds	593,433	Nov. 9	1225	296	81	1057
Sign. Illuminated electric	G. K. Burleigh	591,369	Oct. 5	788	183	81	149
Signal: *See* Automatic signal. Block-signal. Car-signal. Railway-signal. Railway-crossing signal. Railway block-signal. Railway time-signal.							
Signal	M. Lalonde	594,361	Nov. 23	2870	677	81	1407
Signal apparatus. Electric	F. W. Cole	592,902	Nov. 2	381	88	81	881
Signal box cut-out. Electric-	L. W. Miller	592,427	Oct. 26	2951	597	81	676
Signal-indicator. Electric	M. Mercier	595,575	Dec. 14	1202	303	81	1886

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Signals. Auxiliary apparatus for selective electrical	G. W. Whittemore	596,036	Dec. 21	2082	495	81	2070
Signaling apparatus	P. G. Hubert	592,954	Nov. 2	368	86	81	878
Signaling apparatus. Electric	W. E. Decrow	595,375	Dec. 14	926	224	81	1818
Signaling apparatus. Magneto-electric	A. S. Williams	595,418	Dec. 28	2746	650	81	2217
Signaling-circuit	J. J. O'Connell. (Reissue)	11,645	Dec. 28	2845	671	81	2236
Signaling-circuit for fire and police systems	A. Barrett	596,134	Dec. 28	2251	534	81	2119
Signaling mechanism. Electric	L. G. Rowand	593,692	Nov. 16	1711	413	81	1164
Signaling or calling system. Electric	J. G. Smith	593,820	Nov. 16	1960	462	81	1212
Signaling system	H. A. Chase	594,382	Nov. 30	2911	687	81	1433
Signaling system	C. B. Sterling	593,314	Nov. 9	1029	249	81	1021
Signaling system. Automatic	C. W. Price	594,261	Nov. 23	2713	641	81	1378
Signaling system. Electric	A. J. Wilson	596,226	Dec. 28	2395	566	81	2147
Signaling system. Electrical	J. P. Buchanan	596,201	Dec. 28	2360	560	81	2140
Signature-register and machine-index	M. C. Neuner	595,129	Dec. 7	520	125	81	1716
Silk-worms. Obtaining useful products from	A. Millar	594,888	Dec. 7	73	20	81	1635
Sink	W. Love	595,544	Dec. 14	1212	292	81	1875
Siphon-head	G. Morency	595,029	Dec. 7	331	80	81	1682
Siphon-head	A. Posgay	595,112	Dec. 7	495	119	81	1711
Siphoning device. Automatic	D. S. Wallace	591,067	Oct. 5	223	53	81	44
Skate	E. H. Barney	594,191	Nov. 23	2567	607	81	1349
Skate	E. C. Moulton	593,278	Nov. 9	963	233	81	1008
Skate	G. W. Prouty	593,494	Nov. 9	1334	323	81	1079
Skate	T. E. Daniels	595,608	Dec. 14	1307	315	81	1896
Skate. Roller	R. J. Grove and F. P. Lund	596,111	Dec. 28	2215	525	81	2113
Skate. Roller	H. Bristow	594,519	Nov. 30	3168	743	81	1483
Skein-silk book	P. C. Patterson	593,968	Nov. 16	2214	525 536	81	1264
Skelp-charging apparatus	W. A. Gowen	593,067	Nov. 2	550	133	81	915
Skewer-machine	D. Bölderl	592,217	Oct. 19	2236	539	81	1484
Skinning-knife	A. E. Dean	593,560	Nov. 16	1498	364	81	1124
Skirt-adjuster	H. E. Ezekiel	594,864	Dec. 7	39	10	81	1629
Skirt. Cycling-	C. H. Devlin and N. H. Cowles	593,519	Nov. 9	1398	335	81	1088
Skirt-rack	C. W. Stran	591,611	Oct. 12	1207	283	81	261
Skylight-frame	C. P. Breen	593,979	Nov. 23	2231	529	81	1285
Slate	J. G. Schweinfurth	591,503	Oct. 12	1013	237	81	224
Slate-cleaning device	G. C. Scott	594,658	Nov. 30	3459	804	81	1541
Sled-boat	P. K. Albright	594,925	Dec. 7	140	35	81	1648
Sled. Hand-	A. M. Carlson	595,872	Dec. 21	1777	427	81	2006
Sled-runner	W. Catton	594,358	Nov. 23	2866	676	81	1407
Sleeve for reciprocating rods	J. N. Runions	591,640	Oct. 12	1258	294	81	271
Sleigh	B. W. Kellogg	591,843	Oct. 19	1584	377	81	359
Sleigh-knee	J. C. Perkins	592,207	Oct. 19	2222	526	81	481
Sleigh roller attachment	J. E. Hobbs and B. M. Wentworth	595,851	Dec. 21	1723	414	81	1995
Sleigh-runner. Attachable	J. E. Hobbs	593,744	Nov. 16	1815	435	81	1183
Sleigh-runners. Connecting-rod for attachable	E. Weber	591,709	Oct. 12	1309	321	81	295
Slide-gage	M. P. Frantz	592,628	Oct. 26	3383	812	81	742
Sliding gate and latch	A. B. Seay	591,888	Oct. 19	1652	394	81	373
Slipper. Woven-wire	J. Wahl	596,095	Dec. 28	2184	517	81	2107
Slot-machine	A. Pampus	596,378	Dec. 28	2681	635	81	2208
Slow-combustion furnace	C. F. Ainsworth	592,621	Oct. 26	3271	678	81	739
Slubbing, intermediate, and roving frame	F. N. Bergen	591,945	Oct. 19	1770	423	81	396
Smelting-furnace	A. B. Moore	594,267	Nov. 23	2085	636	81	1372
Smoke and gas consumer	J. Pilaud	594,065	Dec. 7	201	48	81	1659
Smoke-conductor	J. H. Saunders	593,860	Nov. 16	2035	478	81	1226
Smoke-consumer	J. Brandon and G. Beal	594,675	Nov. 30	3483	811	81	1546
Smoke-consuming furnace	G. A. Lowry	595,856	Dec. 21	1730	415 416	81	1997
Smoke-house apparatus	R. W. Cavenaugh	593,505	Nov. 16	1492	363	81	1123
Smoke-preventer. Automatic	W. Mitchell	596,460	Dec. 28	2831	667 668	81	2233
Smoothing-iron	G. Poll	595,075	Dec. 7	417	100	81	1697
Smoothing-iron	W. G. Kelly	593,023	Nov. 2	477	115	81	930
Snap-hook	A. Moritz	596,215	Dec. 28	2382	564	81	2145
Snap-hook	C. T. Redfield	593,495	Nov. 9	1336	324	81	1080
Snap-hook	C. A. Skeie	591,420	Oct. 12	884	206	81	200
Snap-hook	W. R. Lapsley and W. Sallee	593,748	Nov. 16	1819	436	81	1184
Snap-hook. Twin	J. Hand	593,428	Nov. 9	1217	294	81	1055
Snap-hooks. Means for mounting	F. H. Bullis	593,980	Nov. 23	2232	529 530	81	1285
Snow from city streets. Machine for melting	M. Fox and N. Snyder	595,295	Dec. 14	802	198	81	1795
Snow-guard	H. M. Esselen	591,594	Oct. 12	1162	278	81	256
Snow-guard	A. P. Smith	595,072	Dec. 7	408	99	81	1695
Snow-melting machine	A. B. Black	591,091	Oct. 5	264	62, 63	81	53
Snow-plow	F. B. Jones	591,278	Oct. 5	615	143 144	81	116
Snow-plow	H. Pearson and G. S. Webb	595,202	Dec. 7	640	153 154	81	1739
Snow-plow	T. Smith and E. P. White	591,432	Oct. 12	893	208	81	202
Snow-plow	W. E. Bradley	592,192	Oct. 19	2202	520	81	477
Snow-plow and scraper	C. Johnson	590,999	Oct. 5	66	15	81	15
Snow-plow for wagon-roads	H. McManus	594,902	Dec. 7	197	47	81	1658
Soap-dish	H. D. Morgan	594,880	Dec. 7	75	20	81	1635
Soap-frame	R. F. Irish	594,086	Nov. 23	2405	571	81	1318
Soap-holder	W. C. Smith	592,214	Oct. 19	2222	526	81	483
Soap-press	M. E. Verdier	594,664	Nov. 30	3468	807	81	1543
Soap-saving device	J. D. Cox, Jr	594,329	Nov. 23	2900	661	81	1394
Socket or collet	C. M. Hamilton	593,651	Nov. 16	1651	399	81	1153
Socket-piece. Hinged	W. B. Smith	594,573	Nov. 30	3271	767 768	81	1501
Soda-water apparatus	J. P. Fangel	592,490	Oct. 26	3053	621	81	696
Soda-water can	F. M. Bennett	595,091	Dec. 7	454	108	81	1704
Solder-block	O. S. Fellows	595,704	Dec. 21	1465	352 353	81	1945
Solder from sheet-metal cans. Means for removing superfluous	O. S. Fellows	595,705	Dec. 21	1466	353 354	81	1946

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Soldering compound	W. J. Knox	592,914	Nov. 2	281		81	869
Soldering-iron	D. H. Allen	593,796	Nov. 16	1918	455	81	1201
Soldering-iron	J. C. Barber	593,918	Nov. 16	2125	504	81	1246
Soldering-iron. Electric	F. H. Harriman	594,872	Dec. 7	47	13	81	1631
Soldering-machine	H. L. Walker and E. G. Minnemeyer	595,449	Dec. 14	1057	254	81	1843
Soldering machine. Can-	T. B. Phelps	592,663	Oct. 26	3353	698 699 397	81	755
Soldering side seams of can-bodies. Machine for	R. Steegmüller	591,896	Oct. 19	1663	398 399 400	81	375
Sole-laying machine	C. S. Gooding	595,097	Dec. 7	462	110 111	81	1706
Sole-leveling machine	E. C. Judd, H. E. Cilley, and A. C. Paul	591,766	Oct. 12	1453	343 344	81	311
Sole-leveling machine	A. K. Washburn	596,202	Dec. 28	2505	596	81	2167
Sole-rounding machine	E. Erickson	591,593	Oct. 12	1180	278	81	256
Sole-rounding machine	G. O. Goddard	596,296	Dec. 28	2513	597	81	2169
Soles flexible. Machine for making shoe-	L. D. Ziegler	593,827	Nov. 16	1972	464 341	81	1214
Soles, &c., from sheet material. Machine for cutting boot or shoe	C. S. Gooding and V. Beauregard	593,587	Nov. 9	1416	342 343 344 345 346	81	1098
Sonnette	G. W. Sherman	596,249	Dec. 28	2433	575	81	2155
Sorghum-topping machine	T. M. Paddock	592,164	Oct. 19	2161	510	81	469
Sound-reproducing machine	A. C. Ferguson	595,053	Dec. 7	380	93	81	1691
Sounding-board	H. A. Hambloch	591,759	Oct. 12	1445	341	81	310
Sounding. Lead for electrical	J. Mohs	596,172	Dec. 28	2310	548	81	2130
Sowing seed in lines, &c. Machine for	L. F. Wauthier	591,312	Oct. 5	664	157	81	126
Spanner-wrench	H. B. Rose	593,543	Nov. 9	1433	349	81	1095
Spanner-wrench. Adjustable	R. F. Hall	595,473	Dec. 14	1101	265	81	1859
Spark-arrester	E. R. Avery	594,369	Nov. 30	2882	680	81	1428
Specialist's chair	W. Stott	594,296	Nov. 23	2751	651	81	1385
Speculum	G. R. Fox	596,399	Dec. 28	2721	644	81	2212
Speed and direction indicator	B. A. Fiske	591,162	Oct. 5	398	93	81	76
Speed-changing appliance	H. R. Van Eyck	593,285	Nov. 9	975	235 236	81	1010
Speed gear. Variable and reversing	A. G. Cooke	594,195	Nov. 23	2571	609	81	1350
Speed gearing. Change-	S. K. Seelye	594,567	Nov. 30	3360	766	81	1501
Speed-indicator	E. Domon, Jr	592,008	Oct. 19	1670	445 446	81	415
Speed-regulator	N. Lombard	594,632	Nov. 30	3380	792	81	1524
Spike	A. C. G. Dupuis	593,880	Nov. 16	2065	488	81	1233
Spindle: *See* Self-oiling spindle. Vehicle-spindle.							
Spindle and bearing	J. S. Moody	594,118	Nov. 23	2451	582	81	1327
Spindle-bearing	E. J. Carroll	595,903	Dec. 21	1841	441	81	2019
Spindle-bearing	J. Kilburn	591,975	Oct. 19	1812	432	81	404
Spindle-bearing	J. Kilburn	591,976	Oct. 19	1815	432	81	404
Spindle-bearing	J. W. Foster	594,347	Nov. 23	2843	672	81	1409
Spinning and twisting frame. Ring	E. S. Whitaker and J. Chadwick	593,448	Nov. 9	1246	300	81	1069
Spinning and twisting machine spindle	C. C. E. Van Alstine and G. W. Graham	593,866	Nov. 16	2046	482	81	1229
Spinning, doubling, and twisting machine. Combined	J. Fossel	596,106	Dec. 28	2206	523	81	2111
Spinning-machine	F. Curl	596,442	Dec. 28	2792	660	81	2225
Spinning-machine flier	A. W. Harris	595,016	Dec. 21	2039	484	81	2058
Spinning machine. Ring-	L. A. O. Nicol and E. Ayotte	591,054	Oct. 5	208	49	81	41
Spinning-machine spindle	E. Whittum	594,581	Nov. 30	3286	772	81	1507
Spinning-machines and support therefor. Thread-guide for	S. Barrowclough and J. Brown	591,910	Oct. 19	1703	407 408 409 410	81	383
Spinning-mule	D. A. A. Buck	595,990	Dec. 21	1990	475	81	2050
Spirometer and coin-controlled mechanism therefor	I. J. Cocayne	596,455	Dec. 28	2824	666	81	2233
Spittoon. Car-	H. H. Luscomb	591,556	Oct. 12	1117	263	81	244
Splice-ear. Mechanical	J. A. Beamisderfer	596,392	Dec. 28	2700	640 641	81	2206
Splint cutting and bunching machine	A. Levedahl	595,108	Dec. 7	488	116 117	81	1709
Spoke-washers. Machine for making and applying	A. Levedahl	595,107	Dec. 7	478	114 115 116	81	1709
Spoke-washers. Machine for making and applying peripherally-toothed	G. A. Golar	591,164	Oct. 5	403	94	81	77
Spokes from wheels. Device for removing	W. A. Finn	594,989	Dec. 7	263	63	81	1670
Spool	B. L. Armstrong	594,190	Nov. 23	2566	607	81	1349
Spool for containing thread	J. G. Busfield	592,863	Nov. 2	201	46	81	847
Spool-holder	O. E. Longwell	591,605	Oct. 12	1199	282	81	259
Spool-holder	T. J. Murray	592,572	Oct. 26	3185	658	81	723
Spool-holder	C. E. Peck	591,178	Oct. 5	432	102	81	82
Spool-holder	M. Graaf	591,272	Oct. 5	607	142	81	115
Spool-rack	J. Benguê	594,721	Nov. 30	3565	820	81	1563
Sprayer	J. H. Burck	595,732	Nov. 16	1782	420	81	1177
Spraying apparatus	D. Fine	596,061	Dec. 28	2126	504	81	2096
Spraying-machine							
Spring: *See* Carriage-spring. Cultivator-beam spring. Door-spring. Seat-spring. Semi-elliptic spring. Wagon bolster-spring.							
Spring-motor. Rotary	M. H. Wilson	595,260	Dec. 14	902	219	81	1813
Spring-shackle and oil-ejector. Combined	J. B. Stone	595,788	Nov. 16	1894	452	81	1198
Sprinkler	E. A. Knoop	595,778	Dec. 21	1597	385	81	1970
Sprinkler-head	J. Bishop	591,266	Oct. 5	597	140	81	113
Sprinkling-car	W. H. Miller	590,999	Oct. 5	86	19, 20	81	16

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sprocket-wheel	E. V. Gauthier	591,270	Oct. 5	604	141	81	114
Sprocket-wheel	C. F. Pease	596,246	Dec. 28	2428	574	81	2154
Sprocket-wheel	G. H. Moran	591,082	Oct. 5	252	59	81	50
Sprocket-wheel. Coasting	H. B. Curry	595,047	Dec. 7	372	91	81	1689
Spur	G. M. Howard	596,113	Dec. 28	2217	526	81	2113
Spur. Climbing	D. S. Hewitt	594,873	Dec. 7	48	13	81	1631
Square and bevel. Combined	T. F. Gilcrest	591,964	Oct. 19	1799	429	81	402
Square and protractor. Bevel	G. P. Neal	596,007	Dec. 21	2011	480, 481	81	2054
Stable	H. E. Brion	592,960	Nov. 2	879	88	81	861
Stable-floor	A. Bertram	596,453	Dec. 28	2816	664, 665, 666	81	2230
Stacker	S. D. Felsing and E. G. Gustafson	593,995	Nov. 23	2260	535	81	1290
Stacker attachment. Pneumatic-straw	G. C. Toner and J. W. McCollum	592,672	Oct. 26	3374	704	81	760
Stacker discharger. Pneumatic-straw	C. O. Heggem	595,390	Dec. 14	950	229, 230	81	1823
Stacker. Pneumatic	G. W. Quinn	596,307	Dec. 28	2534	604	81	2173
Stacker. Pneumatic	A. Moellenbeck	594,266	Nov. 23	2084	685	81	1373
Stacker. Pneumatic straw	J. B. Schuman	594,124	Nov. 23	2461	583	81	1329
Stacker. Pneumatic straw	G. C. Toner and J. W. McCollum	592,673	Oct. 26	3376	704, 705	81	761
Stacker. Pneumatic straw	E. Dignan	593,643	Nov. 16	1633	395	81	1150
Stacking hay. Elevated carrier for	E. E. Clark	593,641	Nov. 16	1631	394	81	1150
Stair-rod fastener	R. Cartwright	593,874	Nov. 16	2056	484, 485	81	1231
Stairway or elevator. Traveling	W. M. Underhill	593,403	Nov. 9	1176	284	81	1047
Stairways. Construction of	D. Stitzer	595,504	Dec. 14	1152	277, 278	81	1862
Stall. Animal	J. H. McNeill	591,722	Oct. 12	1497	355	81	330
Stall. Portable	M. Tinker	591,679	Oct. 12	1324	310	81	266
Stamp-box	W. Kimball	595,005	Dec. 7	285	68	81	1674
Stamp. Hand	E. Reynolds and E. Cheshire	595,633	Dec. 14	1350	326	81	1904
Stamp-handle	C. Stahlberg	595,651	Dec. 14	1375	332	81	1910
Stamp-mill	A. Schneider	591,021	Oct. 5	135	31, 32	81	28
Stamp. Time	D. B. Morison	596,219	Dec. 28	2387	565	81	2146
Stamp-wallet	W. McAusland	591,560	Oct. 12	1124	264, 265	81	245
Stamping apparatus		594,960	Dec. 7	195	46, 47	81	1658
Stamping or shaping metallic articles. Device for							
Stand: *See* Display-stand. Washstand. Show-stand.	W. W. Krutsch	592,297	Oct. 26	2377	561	81	532
Staple-puller	N. L. Hageman	596,365	Dec. 28	2466	------	81	2161
Starch gloss compound	C. A. Gordon	595,058	Dec. 7	398	------	81	1692
Starch. Manufacture of merchantable	C. Pope	595,408	Dec. 14	987	------	81	1829
Starch. Treating	C. Allgeier	594,671	Nov. 30	3479	810	81	1545
Starching-machine	H. Jensen	594,830	Nov. 30	3757	876	81	1601
Starching-machine	C. H. Fogg	595,707	Dec. 21	1471	355	81	1947
Starting and stopping mechanism	O. W. Allen	596,284	Dec. 28	2495	592	81	2165
Station-indicator	A Black and L. E. Gregory	595,138	Dec. 7	532	128	81	1718
Station-indicator	W. R. Garner	593,976	Nov. 16	2225	528	81	1266
Station-indicator	J. A. Mangold	591,410	Oct. 12	851	197	81	194
Station-indicator	J. H. Morse	596,173	Dec. 28	2312	548	81	2130
Station-indicator	C. I. Passover	596,098	Dec. 28	2172	515	81	2105
Station-indicator	F. M. and B. L. Welshimer	591,941	Oct. 19	1765	422	81	395
Station-indicator	E. O. Winters	591,150	Oct. 5	371	88	81	72
Station-indicator	E. M. D. Landenberger	591,170	Oct. 5	410	96	81	79
Stay attachment. Dress	W. H. Launstein	592,118	Oct. 19	2064	492	81	455
Stay. Dress	W. J. Pugh	593,119	Nov. 2	637	154	81	931
Steam and air brake coupling. Automatic	J. D. Handbury	594,396	Nov. 30	2985	692	81	1458
Steam and hot-water heater	A. B. Burns and J. T. Ketchum	593,921	Nov. 16	2130	505	81	1247
Steam-boiler	R. C. Carpenter	595,042	Dec. 7	355	85, 86	81	1686
Steam-boiler	G. F. Hawekotte	592,779	Nov. 2	44	9	81	815
Steam-boiler	W. D. Hoxie	595,652	Dec. 21	1726	414	81	1906
Steam-boiler	J. A. Palmer	595,071	Dec. 7	408	98	81	1695
Steam-boiler	E. H. Rieken	596,183	Dec. 28	2328	553	81	2134
Steam-boiler	H. See	596,092	Dec. 28	2179	516	81	2106
Steam-boiler	L. E. Soligniac	592,891	Nov. 2	251	57	81	856
Steam-boiler	J. R. Vance	595,589	Dec. 14	1282	308	81	1890
Steam-boiler	J. A. Vandervoort	596,344	Dec. 28	2600	619	81	2187
Steam-boiler. Sectional	W. F. Cunningham	593,886	Nov. 16	1966	467	81	1216
Steam-boiler. Water-tube	E. E. Wigzell	591,444	Oct. 12	913	214, 215	81	206
Steam-boiler. Water-tube	E. E. Wigzell	591,445	Oct. 12	914	215	81	206
Steam. Closed continuous system for generating	H. Hennig	595,101	Dec. 7	466	112	81	1707
Steam-engine	C. D. Armstrong	593,634	Nov. 16	1623	392	81	1148
Steam-engine	J. Dow	594,336	Nov. 23	2816	667, 668	81	1397
Steam-engine	J. T. Halsey	594,529	Nov. 30	3192	748	81	1487
Steam-engine	A. Hogg	592,144	Oct. 19	2130	504	81	463
Steam-engine	M. R. Moore	591,465	Oct. 12	984	230, 231	81	219
Steam-gage	D. and F. D. Almy	595,844	Dec. 21	1713	412	81	1996
Steam-generator	T. R. Butman	596,094	Dec. 21	2054	488, 489	81	2068
Steam-generator	G. F. Dinsmore	591,460	Oct. 12	942	221, 222	81	219
Steam-generator	T. Manning	594,641	Nov. 30	3435	798	81	1537
Steam-generator	E. C. Reed	596,361	Dec. 28	2065	496	81	2208
Steam-generator	J. Reilly	592,987	Nov. 2	323	75	81	871
Steam-generator	S. E. Snedeker	594,216	Nov. 23	2609	617	81	1356
Steam-generator and hot-water heater	E. D. Meier	595,641	Dec. 14	1364	328, 329	81	1907
Steam-generator. Sectional	C. P. Higgins	595,829	Dec. 21	1686	407	81	1967
Steam-generator tube	L. Serpollet	591,298	Oct. 5	646	152	81	123

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Steam-generator. Water-tube	G. E. Turner	594,163	Nov. 23	2525	597, 598	81	1341
Steam-motor	V. H. Ernst	593,994	Nov. 23	2256	534, 535	81	1290
Steam-muffler	D. W. Curtis	592,000	Oct. 19	1866	444, 445	81	414
Steam or hot-water boiler. Sectional	J. R. Bannan	594,512	Nov. 30	3159	739, 740	81	1482
Steam or like motive-power engine	E. O. Schlick	594,288	Nov. 23	2724	645	81	1380
Steam plant	D. M. Thompson	593,708	Nov. 16	1731	417	81	1168
Steam-table	G. W. Kelley	592,591	Oct. 26	3220	667	81	729
Steam to injectors, ejectors, &c. Means for controlling supply of	G. Glydon and W. Gay	596,110	Dec. 28	2214	525	81	2112
Steam-trap	R. G. Chase	594,857	Dec. 7	80	8	81	1627
Steam-trap	B. W. Hill	594,795	Nov. 30	3667	859	81	1587
Steam-trap	H. Lucas	594,885	Dec. 7	69	19	81	1635
Steam-trap	C. G. Tally	594,184	Nov. 23	2558	605	81	1347
Steam-trap	W. T. Goold	594,005	Nov. 23	2273	538	81	1303
Steam-trap. Automatic	J. A. Anderson	595,752	Dec. 21	1540	372	81	1959
Steaming appliance. Collar	C. D. Llatas	595,319	Dec. 14	893	------	81	1801
Steel. Manufacturing	F. G. Abbey and J. G. McLeod	591,264	Oct. 5	595	139	81	113
Steel trap	J. C. and S. Lake	591,851	Oct. 19	1593	380	81	300
Steering-gear	E. E. Onlevey	596,179	Dec. 28	2222	551	81	2132
Steering mechanism	A. Bain	593,871	Nov. 16	2054	484	81	1230
Steering mechanism. Hydraulic	P. M. Cabell	594,322	Nov. 23	2791	659	81	1392
Stenciling. Method of and device for fine	J. D. Williamson, Jr	591,905	Oct. 19	1846	439, 440, 441	81	410
Steering-gear. Electrical	J. Reynolds	592,446	Oct. 26	2980	603	81	681
Step	H. E. Snyder	593,695	Nov. 16	1716	415	81	1165
Step-box	W. F. C. Morsell	595,782	Dec. 21	1604	387	81	1971
Stereometric representation. Sectional model for	W. S. Scales	592,575	Oct. 26	3189	659	81	723
Stereopticon	H. C. White. (Reissue)	11,638	Nov. 16	2226	528	81	1267
Stereoscope or other binocular instrument	C. T. Murray	592,818	Nov. 2	101	22, 23, 24	81	826
Stereotype-plate-finishing machine. Curved	C. Pieper	591,422	Oct. 12	873	204	81	198
Stereotype-plates. Bed-block for	G. W. Roberts	594,560	Nov. 30	3249	763	81	1499
Sterilizer	W. M. Mixer	591,138	Oct. 5	353	84	81	69
Still	A. C. Bull	594,824	Nov. 30	3749	873	81	1600
Stirrer	M. Henius	594,533	Nov. 30	2260	750	81	1489
Stirring apparatus. Temperature-indicating	H. Anderson	594,926	Dec. 7	140	35	81	1648
Stirrup	W. F. Hollister	592,587	Oct. 26	3213	665	81	728
Stirrup	W. H. Wilson	595,292	Dec. 7	602	109	81	1748
Stirrup. Spring	W. F. Hollister	592,588	Oct. 26	3213	665	81	728
Stitching machine. Blind	J. Arbes	595,090	Dec. 7	449	107, 108	81	1703
Stocking	S. A. Winter	596,347	Dec. 28	2008	621	81	2188
Stocking-cutter	E. A. Hirner	594,400	Nov. 30	2940	693	81	1438
Stocking-supporter	L. D. Draper	591,915	Oct. 19	1720	412	81	396
Stoker for inclined grates or retorts	E. Riegel	594,431	Nov. 30	3006	706	81	1451
Stoker. Mechanical	C. R. Greuter	595,945	Dec. 21	1912	457, 458	81	2084
Stone. Artificial	C. Heinzerling	591,168	Oct. 5	408	------	81	78
Stone-channeling machine	A. C. Backus	591,615	Oct. 12	1213	285	81	202
Stone cutting or carving machine	A. G. and H. Edmund	591,114	Oct. 5	306	74, 75, 76	81	60
Stone or ore crusher	A. C. Hilsinger	592,469	Oct. 26	3023	613	81	690
Stone-planing machine	J. Mann	591,411	Oct. 12	852	196	81	194
Stone-sawing machine	F. Knobel	594,542	Nov. 30	3219	754, 755	81	1493
Stone-working machine	G. L. Badger	594,588	Nov. 30	3301	775	81	1509
Stone-working machine	G. L. Badger	594,589	Nov. 30	3304	776	81	1510
Stool-adjusting device	T. W. Gilbert	593,465	Nov. 9	1281	309	81	1069
Stool. Coin-controlled folding	F. Behlow	592,558	Oct. 26	3165	652	81	719
Stool or chair	J. W. Snell, Jr	595,352	Dec. 14	889	217	81	1811
Stool. Piano	T. Clyne	595,847	Dec. 21	1717	412, 413	81	1994
Stop-motion	J. A. Bolen	595,433	Dec. 14	1096	248	81	1838
Stop-motion mechanism	C. H. Heywood	590,984	Oct. 5	56	13	81	13
Stopper: *See* Bottle-stopper. Flue-stopper. Gas-main stopper. Non-refilling stopper.	J. W. Rearce	595,135	Dec. 7	527	127	81	1716
Stopper-fastener	R. S. Graham	596,266	Dec. 28	2662	631	81	2200
Stopper-fastener	G. W. Martin	591,782	Oct. 12	1486	352	81	348
Stopper-neck	W. T. Wehe	592,849	Nov. 2	181	41	81	843
Stopper-puller	F. Joynson and W. Harrison	595,311	Dec. 14	823	203	81	1799
Stoppering and hermetic closing for jars, &c	E. A. Barber	593,559	Nov. 16	1477	360	81	1120
Storage battery	J. D. Rively	595,208	Dec. 7	651	156	81	1741
Storage battery	R. Ashley	594,313	Nov. 23	2777	656	81	1390
Storage or secondary battery	W. H. Brundage	593,458	Nov. 9	1271	306	81	1067
Store-service apparatus	S. J. Brennan	595,555	Dec. 14	1228	295	81	1878
Store-service trolley-track	W. H. Albach	592,089	Oct. 19	1983	459	81	426
Stove	F. and A. Girtanner	596,028	Dec. 21	2066	491	81	2066
Stove	A. P. Johnson	595,714	Dec. 21	1480	357	81	1948
Stove	E. Laroche	595,952	Dec. 21	1930	461	81	2037
Stove	T. T. West	593,144	Nov. 2	685	164	81	942
Stove	C. E. Ostlund	596,086	Dec. 28	2170	514	81	2104
Stove and burner. Petroleum	M. A. Thiel	593,623	Nov. 16	1603	385	81	1145
Stove burner. Gas	L. B. Coash	591,247	Oct. 5	561	132	81	107
Stove burner. Oil	L. P. Knoll	594,138	Nov. 23	2482	587	81	1333
Stove-door	A. D. Coles	593,196	Nov. 9	808	192	81	980
Stove-lid lifter	I. Kinsey	594,360	Nov. 23	2868	676	81	1407
Stove lighting device. Vapor	W. H. Wilder	595,231	Dec. 7	691	169	81	1748
Stove. Oil							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stove Oil heating	C. H. Boeck	592,273	Oct. 26	2336	552 553	81	524
Stove or furnace grate	C. D. Howard	592,539	Nov. 9	1498	347	81	1094
Stove or furnace grate-bar	C. D. Howard	591,371	Oct. 5	785	184	81	150
Stove or other furnace	F. C. Bormann	594,774	Nov. 30	3652	650	81	1561
Stove or range conductor-hood	S. F. Putney	595,443	Dec. 14	1050	251	81	1841
Stovepipe attachment	J. Mickel and G. D. Ferree	596,286	Dec. 28	2498	598	81	2166
Stovepipe-clamp	F. H. Livingston	591,490	Oct. 12	970	229	81	217
Stovepipe-elbow-making machine	J. Russell	591,776	Oct. 12	1472	348 349	81	315
Stovepipe-holder	H. P. Chase and G. Griswold	595,118	Dec. 7	504	121	81	1713
Stovepipes. Device for putting up	W. T. Gill	591,163	Oct. 5	408	93	81	77
Stove safety-plate	F. H. A. Devlin	592,281	Oct. 26	2352	556	81	527
Stove-top	W. H. Francis	595,997	Dec. 21	1999	477	81	2052
Stoves. Furnace-valve for hot-blast	J. Kennedy	593,476	Nov. 9	1308	315	81	1073
Stoves or furnaces. Oil-vaporizing attachment for	T. P. Margeson	592,571	Oct. 26	3184	658	81	722
Stoves. Vapor-burner for petroleum	J. V. Svenson	595,795	Dec. 21	1621	391	81	1975
Strainer for milk-pails. Detachable	P. Pfeil	595,407	Dec. 14	995	238	81	1839
Strap: *See* Car hand-strap. Trouser's strap. Jock-strap.							
Strap-covering mechanism	W. C. Rand	594,181	Nov. 23	2549	603 604	81	1346
Straw-cutter	J. A. Frenzel	594,074	Nov. 23	2390	567	81	1315
Street and station indicator	S. E. Bisbee	593,956	Nov. 16	2185	519	81	1258
Street-sweeper	J. H. Barth	593,075	Nov. 2	566	136	81	917
Street-sweeper	E. Brentlinger	591,206	Oct. 5	479	114 115	81	91
Street-sweeper	A. H. S. Davis	592,539	Oct. 26	3135	643	81	712
Street-sweeper	P. F. Duross	593,096	Nov. 2	581	140	81	930
Street-sweeper	H. E. Hawk	594,397	Nov. 30	2936	692	81	1438
Street-sweeper	T. R. Jones	596,329	Dec. 28	2561	614	81	2182
Street-sweeper	J. Z. Levy	593,749	Nov. 16	1820	436	81	1184
Street-sweeper	J. McKechnie and E. W. Smith	592,816	Nov. 2	119	26	81	880
Street-sweeper	W. S. Mears	596,331	Dec. 28	2583	615	81	2188
Street-sweeper	W. T. Urie	594,503	Nov. 30	3139	735 736	81	1478
Stringed instrument	J. A. Jonkhoff	594,743	Nov. 30	3604	838	81	1571
Stubble-catcher	H. Nebbe	591,873	Oct. 19	1628	387 388	81	368
Stuffing-box	C. A. Wright	594,453	Nov. 30	3045	715	81	1459
Stringed-instrument head	E. A. Hoopes	596,298	Dec. 28	2515	598	81	2169
Stump-puller	W. Mitchell	596,387	Dec. 28	2499	598	81	2166
Subdoor	W. E. Jones	593,160	Nov. 2	740	178	81	953
Sugar. Extracting	W. Feld	592,517	Oct. 26	3094	------	81	704
Sugar. Extracting	W. Feld	592,518	Oct. 26	3095	------	81	704
Sulfid ores as lead-zinc ores. Treating	S. Ganelin	593,415	Nov. 9	1199	------	81	1052
Sulfid ores. Treating	S. Ganelin	593,416	Nov. 9	1201	------	81	1052
Supporting-frame	L. G. Quackenboss	591,934	Oct. 19	1749	418	81	392
Supporting-stand	M. Allgauer	595,686	Dec. 21	1432	345	81	1989
Surgeon's operating-table	F. W. Loughran	595,322	Dec. 14	837	206 207	81	1802
Surgical purposes. Electrical apparatus for	W. E. Dow	591,160	Oct. 5	398	92	81	75
Surgical splint	S. H. Gardiner	594,076	Nov. 23	2393	568	81	1316
Surveying instrument	J. Short	593,784	Nov. 16	1882	450	81	1196
Suspender-end	C. W. Wolff	592,978	Nov. 2	412	97	81	867
Suspenders	C. W. Wolff	592,620	Oct. 26	3269	678	81	750
Suspension device for portable machines	C. B. Albree	593,064	Nov. 2	544	131	81	913
Swath turning and breaking-up machine	T. M. Jarmain	596,114	Dec. 28	2218	526	81	2113
Sweat-band	A. McMeekin	591,289	Oct. 5	636	149	81	121
Swing	M. Ganter	596,108	Dec. 28	2210	524	81	2112
Swing. Lawn	H. H. Smith	595,970	Dec. 21	1964	469	81	2044
Swinging gate	W. R. White	593,757	Nov. 16	1886	440	81	1187
Switch: *See* Automatic switch. Potential switch. Electric switch. Plug-switch. Electric time-switch. Quick-break switch. Electrically-operated switch. Railway-switch. Telephone-line switch. High-tension switch. Tramway-switch. Overhead switch.							
Switch	J. M. Boyle	592,191	Oct. 19	2200	519 520	81	477
Switch apparatus	J. P. Coleman	591,590	Oct. 12	1175	277	81	255
Switchboard. Electric	G. W. Ribble	592,123	Oct. 19	2096	495	81	457
Switchboard. Multiple	M. G. Kellogg	592,301	Oct. 26	2382	562	81	533
Switchboard. Multiple	M. G. Kellogg	592,302	Oct. 26	2388	562	81	534
Switchboard. Multiple	M. G. Kellogg	592,303	Oct. 26	2390	563	81	535
Switchboard. Multiple	M. G. Kellogg	592,304	Oct. 26	2394	563	81	536
Switchboard. Multiple	M. G. Kellogg	592,305	Oct. 26	2399	563	81	537
Switchboard. Multiple	M. G. Kellogg	592,306	Oct. 26	2403	564	81	538
Switchboard. Multiple	M. G. Kellogg	592,307	Oct. 26	2410	564	81	540
Switchboard. Multiple	M. G. Kellogg	592,308	Oct. 26	2414	564	81	541
Switchboard. Multiple	M. G. Kellogg	592,309	Oct. 26	2417	564	81	541
Switchboard. Multiple	M. G. Kellogg	592,310	Oct. 26	2420	565	81	542
Switchboard. Multiple	M. G. Kellogg	592,311	Oct. 26	2425	565	81	543
Switchboard. Multiple	M. G. Kellogg	592,312	Oct. 26	2429	565	81	544
Switchboard. Multiple	M. G. Kellogg	592,313	Oct. 26	2434	565	81	545
Switchboard. Multiple	M. G. Kellogg	592,314	Oct. 26	2438	566	81	546
Switchboard. Multiple	M. G. Kellogg	592,315	Oct. 26	2443	566	81	548
Switchboard. Multiple	M. G. Kellogg	592,316	Oct. 26	2447	566	81	549
Switchboard. Multiple	M. G. Kellogg	592,317	Oct. 26	2451	566	81	550
Switchboard. Multiple	M. G. Kellogg	592,318	Oct. 26	2455	567	81	551
Switchboard. Multiple	M. G. Kellogg	592,319	Oct. 26	2459	567	81	552
Switchboard. Multiple	M. G. Kellogg	592,320	Oct. 26	2462	567	81	553
Switchboard. Multiple	M. G. Kellogg	592,321	Oct. 26	2466	567	81	554

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Switchboard. Multiple	M. G. Kellogg	592,322	Oct. 26	2470	568	81	555
Switchboard. Multiple	M. G. Kellogg	592,323	Oct. 26	2474	568	81	556
Switchboard. Multiple	M. G. Kellogg	592,324	Oct. 26	2479	568	81	558
Switchboard. Multiple	M. G. Kellogg	592,325	Oct. 26	2483	568	81	559
Switchboard. Multiple	M. G. Kellogg	592,326	Oct. 26	2487	569	81	560
Switchboard. Multiple	M. G. Kellogg	592,327	Oct. 26	2492	569	81	561
Switchboard. Multiple	M. G. Kellogg	592,328	Oct. 26	2493	569	81	561
Switchboard. Multiple	M. G. Kellogg	592,329	Oct. 26	2497	569	81	562
Switchboard. Multiple	M. G. Kellogg	592,330	Oct. 26	2499	570	81	563
Switchboard. Multiple	M. G. Kellogg	592,331	Oct. 26	2503	570	81	564
Switchboard. Multiple	M. G. Kellogg	592,332	Oct. 26	2506	570	81	565
Switchboard. Multiple	M. G. Kellogg	592,333	Oct. 26	2511	570	81	566
Switchboard. Multiple	M. G. Kellogg	592,334	Oct. 26	2514	571	81	567
Switchboard. Multiple	M. G. Kellogg	592,335	Oct. 26	2518	571	81	568
Switchboard. Multiple	M. G. Kellogg	592,336	Oct. 26	2522	571	81	569
Switchboard. Multiple	M. G. Kellogg	592,337	Oct. 26	2525	571	81	570
Switchboard. Multiple	M. G. Kellogg	592,338	Oct. 26	2529	572	81	571
Switchboard. Multiple	M. G. Kellogg	592,339	Oct. 26	2534	572	81	572
Switchboard. Multiple	M. G. Kellogg	592,340	Oct. 26	2536	572	81	573
Switchboard. Multiple	M. G. Kellogg	592,341	Oct. 26	2539	572	81	574
Switchboard. Multiple	M. G. Kellogg	592,342	Oct. 26	2544	573	81	575
Switchboard. Multiple	M. G. Kellogg	592,343	Oct. 26	2547	573	81	576
Switchboard. Multiple	M. G. Kellogg	592,344	Oct. 26	2551	573	81	577
Switchboard. Multiple	M. G. Kellogg	592,345	Oct. 26	2555	573	81	577
Switchboard. Multiple	M. G. Kellogg	592,346	Oct. 26	2559	574	81	578
Switchboard. Multiple	M. G. Kellogg	592,347	Oct. 26	2564	574	81	580
Switchboard. Multiple	M. G. Kellogg	592,348	Oct. 26	2569	574	81	581
Switchboard. Multiple	M. G. Kellogg	592,349	Oct. 26	2574	574	81	582
Switchboard. Multiple	M. G. Kellogg	592,350	Oct. 26	2579	575	81	584
Switchboard. Multiple	M. G. Kellogg	592,351	Oct. 26	2583	575	81	585
Switchboard. Multiple	M. G. Kellogg	592,352	Oct. 26	2588	575	81	586
Switchboard. Multiple	M. G. Kellogg	592,353	Oct. 26	2593	575	81	588
Switchboard. Multiple	M. G. Kellogg	592,354	Oct. 26	2597	576	81	589
Switchboard. Multiple	M. G. Kellogg	592,355	Oct. 26	2601	576	81	590
Switchboard. Multiple	M. G. Kellogg	592,356	Oct. 26	2605	576	81	591
Switchboard. Multiple	M. G. Kellogg	592,357	Oct. 26	2608	576	81	591
Switchboard. Multiple	M. G. Kellogg	592,358	Oct. 26	2613	577	81	592
Switchboard. Multiple	M. G. Kellogg	592,359	Oct. 26	2616	577	81	593
Switchboard. Multiple	M. G. Kellogg	592,360	Oct. 26	2619	577	81	594
Switchboard. Multiple	M. G. Kellogg	592,361	Oct. 26	2625	577	81	595
Switchboard. Multiple	M. G. Kellogg	592,362	Oct. 26	2633	578	81	597
Switchboard. Multiple	M. G. Kellogg	592,363	Oct. 26	2640	578	81	599
Switchboard. Multiple	M. G. Kellogg	592,364	Oct. 26	2647	579	81	600
Switchboard. Multiple	M. G. Kellogg	592,365	Oct. 26	2657	579	81	603
Switchboard. Multiple	M. G. Kellogg	592,366	Oct. 26	2662	579	81	605
Switchboard. Multiple	M. G. Kellogg	592,367	Oct. 26	2666	580	81	605
Switchboard. Multiple	M. G. Kellogg	592,368	Oct. 26	2670	580	81	606
Switchboard. Multiple	M. G. Kellogg	592,369	Oct. 26	2675	580	81	606
Switchboard. Multiple	M. G. Kellogg	592,370	Oct. 26	2680	580	81	610
Switchboard. Multiple	M. G. Kellogg	592,371	Oct. 26	2686	581	81	612
Switchboard. Multiple	M. G. Kellogg	592,372	Oct. 26	2690	581	81	613
Switchboard. Multiple	M. G. Kellogg	592,373	Oct. 26	2694	581	81	614
Switchboard. Multiple	M. G. Kellogg	592,374	Oct. 26	2701	582	81	615
Switchboard. Multiple	M. G. Kellogg	592,375	Oct. 26	2707	582	81	617
Switchboard. Multiple	M. G. Kellogg	592,376	Oct. 26	2711	582	81	617
Switchboard. Multiple	M. G. Kellogg	592,377	Oct. 26	2714	583	81	618
Switchboard. Multiple	M. G. Kellogg	592,378	Oct. 26	2720	583	81	620
Switchboard. Multiple	M. G. Kellogg	592,379	Oct. 26	2725	583	81	621
Switchboard. Multiple	M. G. Kellogg	592,380	Oct. 26	2730	583	81	623
Switchboard. Multiple	M. G. Kellogg	592,381	Oct. 26	2736	584	81	624
Switchboard. Multiple	M. G. Kellogg	592,382	Oct. 26	2739	584	81	625
Switchboard. Multiple	M. G. Kellogg	592,383	Oct. 26	2745	584	81	627
Switchboard. Multiple	M. G. Kellogg	592,384	Oct. 26	2749	584	81	628
Switchboard. Multiple	M. G. Kellogg	592,385	Oct. 26	2756	585	81	630
Switchboard. Multiple	M. G. Kellogg	592,386	Oct. 26	2759	585	81	630
Switchboard. Multiple	M. G. Kellogg	592,387	Oct. 26	2764	585	81	631
Switchboard. Multiple	M. G. Kellogg	592,388	Oct. 26	2769	585	81	632
Switchboard. Multiple	M. G. Kellogg	592,389	Oct. 26	2775	586	81	635
Switchboard. Multiple	M. G. Kellogg	592,390	Oct. 26	2779	586	81	635
Switchboard. Multiple	M. G. Kellogg	592,391	Oct. 26	2785	586	81	638
Switchboard. Multiple	M. G. Kellogg	592,392	Oct. 26	2788	586 587	81	639
Switchboard. Multiple	M. G. Kellogg	592,393	Oct. 26	2793	587	81	639
Switchboard. Multiple	M. G. Kellogg	592,394	Oct. 26	2800	587	81	643
Switchboard. Multiple	M. G. Kellogg	592,395	Oct. 26	2403	587	81	643
Switchboard. Multiple	M. G. Kellogg	592,396	Oct. 26	2806	588	81	645
Switchboard. Multiple	M. G. Kellogg	592,397	Oct. 26	2814	588	81	646
Switchboard. Multiple	M. G. Kellogg	592,398	Oct. 26	2818	588	81	647
Switchboard. Multiple	M. G. Kellogg	592,399	Oct. 26	2821	588	81	648
Switchboard. Multiple	M. G. Kellogg	592,400	Oct. 26	2824	589	81	649
Switchboard. Multiple	M. G. Kellogg	592,401	Oct. 26	2829	589	81	649
Switchboard. Multiple	M. G. Kellogg	592,402	Oct. 26	2833	589	81	650
Switchboard. Multiple	M. G. Kellogg	592,403	Oct. 26	2837	589	81	651
Switchboard. Multiple	M. G. Kellogg	592,404	Oct. 26	2840	590	81	651
Switchboard. Multiple	M. G. Kellogg	592,405	Oct. 26	2844	590	81	652
Switchboard. Multiple	M. G. Kellogg	592,406	Oct. 26	2848	590	81	653
Switchboard. Multiple	M. G. Kellogg	592,407	Oct. 26	2852	590	81	654
Switchboard. Multiple	M. G. Kellogg	592,408	Oct. 26	2856	591	81	655
Switchboard. Multiple	M. G. Kellogg	592,409	Oct. 26	2859	591	81	656
Switchboard. Multiple	M. G. Kellogg	592,410	Oct. 26	2862	591	81	657
Switchboard. Multiple	M. G. Kellogg	592,411	Oct. 26	2866	591	81	658
Switchboard. Multiple	M. G. Kellogg	592,412	Oct. 26	2869	592	81	659
Switchboard. Multiple	M. G. Kellogg	592,413	Oct. 26	2873	592	81	660
Switchboard. Multiple	M. G. Kellogg	592,414	Oct. 26	2876	592	81	660
Switchboard. Multiple	M. G. Kellogg	592,415	Oct. 26	2881	592	81	662
Switchboard. Multiple	M. G. Kellogg	592,417	Oct. 26	2888	593	81	664

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Switchboard. Multiple	M. G. Kellogg	592,418	Oct. 26	2891	598	81	665
Switchboard. Multiple	M. G. Kellogg	592,419	Oct. 26	2895	598	81	665
Switchboard. Multiple	M. G. Kellogg	592,420	Oct. 26	2900	594	81	666
Switchboard. Multiple	M. G. Kellogg	592,421	Oct. 26	2910	594	81	668
Switchboard. Multiple	M. G. Kellogg	592,422	Oct. 26	2915	595	81	669
Switchboard. Multiple	M. G. Kellogg	592,423	Oct. 26	2924	595	81	671
Switchboard. Multiple	M. G. Kellogg	592,424	Oct. 26	2930	596	81	672
Switchboard. Multiple	M. G. Kellogg	592,425	Oct. 26	2944	596	81	674
Switchboard system. Multiple	F. C. Hughes and G. W. Kelley	593,394	Nov. 9	1165	361	81	1045
Switch face-plate. Flush	G. W. Hart	592,249	Oct. 26	2906	543	81	518
Switch mechanism	E. H. Bryant	591,810	Oct. 19	1536	363	81	349
Switch mechanism. Electrically-actuated	W. S. Browne	593,389	Nov. 9	1157	279	81	1043
Switch-operating device	S. B. Norris	595,197	Dec. 7	633	151	81	1737
Switch-operating mechanism	C. Elwee	594,198	Nov. 23	2590	610	81	1351
Switch-operating mechanism	F. A. Ruff	591,144	Oct. 5	364	86	81	71
Switch-stand	O. H. Round, G. A. Sammis, and C. Kern.	595,735	Dec. 21	1512	366	81	1954
Syringe	M. Dittenhoefer	591,958	Oct. 19	1791	427	81	400
Syringe	J. M. MacVean	591,859	Oct. 19	1605	382	81	363
Syringe. Fountain	S. T. Harris	596,158	Dec. 28	2292	543	81	2127
Syringe. Hypodermic	G. B. Haycock	596,159	Dec. 28	2293	543	81	2127
Syringe shut-off. Fountain	A. V. Goltermann	591,228	Oct. 5	528	126	81	100
Syrup-dispensing apparatus for aerated waters	H. S. Park	592,958	Nov. 2	375	87	81	880
Table: *See* Billiard and dining table. Extension-table. Display-table. Feed-table. Ironing-table. Kitchen-table Self-leveling table. Steam-table. Surgeon's operating-table.							
Table and desk. Combination	H. Baum	595,284	Dec. 7	778	192	81	1765
Table attachment	C. Heller	595,476	Dec. 14	1110	268	81	1854
Table canopy. Dining	D. V. Davis	591,457	Oct. 12	987	220 / 221	81	211
Table implement	W. Irmscher	593,223	Nov. 9	878	208	81	992
Tablet-arm	A. D. Linn and A. A. Lytle	592,471	Oct. 26	3029	615	81	691
Tack	J. and D. V. Brunton	596,200	Dec. 28	2360	560	81	2140
Tack-driving machine	T. C. Robinson	594,905	Dec. 7	109	28	81	1642
Tack-pulling machine	J. W. Cooper	593,391	Nov. 9	1160	280	81	1044
Tacking-tool. Hand	A. F. Preston	593,780	Nov. 16	1878	449	81	1195
Tag	J. G. Fisher	592,136	Oct. 19	2118	501	81	461
Tag	F. Muller	594,484	Nov. 30	3106	728	81	1472
Tag	F. L. Alley	595,802	Dec. 21	1643	395	81	1979
Take-up mechanism	G. F. Hutchins and W. D. Thompson.	595,103	Dec. 7	471	113	81	1707
Take-up mechanism	G. F. Hutchins and W. D. Thompson.	595,104	Dec. 7	472	113	81	1708
Tally-sheet	H. L. Baker	591,319	Oct. 5	673	160	81	128
Tandem	W. H. Binns	593,291	Nov. 9	985	238	81	1012
Tandem	W. H. Binns	593,292	Nov. 9	986	238 / 239	81	1012
Tank: *See* Grain-tank.							
Tank-heater	G. S. Long	593,055	Nov. 2	529	127	81	910
Tap and faucet. Combined	G. Champoux	593,513	Nov. 9	1377	333	81	1066
Tap-wrench	H. B. Keiper	595,312	Dec. 14	824	208	81	1799
Tap-wrench	C. J. Pihl	594,212	Nov. 23	2603	615	81	1355
Tapping beer-kegs. Mallet for	E. Johnson	593,942	Nov. 16	2165	514	81	1254
Tape-reel	J. G. Eddy	591,747	Oct. 12	1424	335	81	306
Taper for bicycle or carriage lamps	C. V. Boughton	594,517	Nov. 30	3166	742	81	1483
Target. Trap	E. Sherman	595,738	Dec. 21	1516	366	81	1955
Teaching writing. Apparatus for	W. Tyree	592,029	Oct. 19	1913	455	81	422
Telegraph and telephone system. Central-station combined	A. C. Robbins	595,241	Dec. 7	722	176	81	1753
Telegraph-key	E. W. Farnham	591,624	Oct. 12	1228	289	81	265
Telegraph. Printing	B. A. Brooks	596,320	Dec. 28	2555	608 / 609	81	2177
Telegraph. Railway	A. C. Frieseke	591,339	Oct. 5	714	168 / 169	81	187
Telegraph-transmitter for ocean-cables	D. Lynch	592,494	Oct. 26	3057	622	81	697
Telegraph. Type-writing	L. R. Hammond	593,094	Nov. 2	594	143 / 144	81	923
Telephone	T. Berdell	594,090	Nov. 23	2368	560	81	1311
Telephone	J. Weil	593,627	Nov. 16	1609	397	81	1146
Telephone	J. G. Smith	593,819	Nov. 16	1944	462	81	1207
Telephone and signaling or calling system	E. S. Dickerson	594,131	Nov. 23	2474	586	81	1331
Telephone bell extension	G. K. Thompson	595,004	Dec. 7	263	67	81	1673
Telephone-circuit	J. W. Gottschalk	593,467	Nov. 9	1286	310	81	1070
Telephone-cord tip	W. R. Cole	591,127	Oct. 5	329	81	81	64
Telephone-exchange system	W. S. Nash	591,192	Oct. 5	454	108	81	86
Telephone-exchanges. Multiple switchboard for	C. E. Scribner	593,611	Nov. 16	1577	381	81	1139
Telephone-exchanges. Multiple-switchboard system for	G. Lay	594,407	Nov. 30	2957	696	81	1442
Telephone-line switch	C. E. Scribner	593,612	Nov. 16	1580	381	81	1140
Telephone-line toll-counter	C. E. Scribner	593,245	Nov. 9	914	220	81	998
Telephone-lines. Apparatus for party	W. H. M. Weaver	595,983	Dec. 21	1978	472	81	2047
Telephone-repeater	F. R. McBerty	592,431	Oct. 26	2958	599	81	677
Telephone-switchboard apparatus	M. G. Kellogg	592,416	Oct. 26	2885	593	81	663
Telephone-switchboard spring-jack	F. R. McBerty	592,432	Oct. 26	2960	599	81	677
Telephone-switchboards. Cut-off relay for	C. E. Scribner	592,452	Oct. 26	2987	605	81	683
Telephone-switchboards. Pilot-lamp for	W. W. Dean	593,372	Nov. 9	1113	269	81	1066
Telephone system	A. W. Rose	591,011	Oct. 5	112	25, 26	81	24
Telephone system	C. E. Scribner	593,614	Nov. 16	1586	382	81	1141
Telephone system	A. F. Swan	594,363	Nov. 23	2872	677	81	1408
Telephone system	W. Gray	593,962	Nov. 16	2208	523	81	1261
Telephone toll apparatus	W. Gray	593,720	Nov. 16	1769	425	81	1175
Telephone toll-station							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Telephone-transmitter	J. W. Thomson	593,255	Nov. 9	980	225	81	1001
Telephonic messages. Method of and apparatus for relaying	A. W. Erdman	592,769	Nov. 2	24	6	81	811
Telephonic selective signaling	J. A. Barrett	594,979	Dec. 7	289	59, 60	81	1665
Telephoning from cars in motion	H. W. Libbey	596,276	Dec. 28	2479	589	81	2162
Telephony and telegraphy	M. Hutin and M. Leblanc	596,017	Dec. 21	2080	485	81	2058
Tent or booth	J. W. Ernest	595,875	Dec. 21	1786	429	81	2008
Testing-plug	J. P. Mern	595,189	Dec. 7	620	148	81	1735
Thermic motor	M. J. Eichhorn	596,364	Dec. 28	2657	630 / 631	81	2199
Thermometer	L. E. Hunt	596,162	Dec. 28	2297	544	81	2128
Thermometer. Automatically-recording	M. L. Wilkinson	593,508	Nov. 9	1351	328	81	1082
Thermometer. Fever	C. S. Ruckstuhl	594,840	Nov. 30	3771	879	81	1604
Thermometer. Fever	M. Payne	595,862	Dec. 21	1741	419	81	1999
Thill and trace connector	J. C. Dale	595,048	Dec. 7	373	91	81	1689
Thill-coupling	J. B. and L. Esselburn	595,828	Dec. 21	1685	407	81	1987
Thill-coupling	E. I. Mead	592,638	Oct. 26	3296	685	81	744
Thill-coupling	H. A. Moyer and C. J. Graf	591,561	Oct. 12	1129	265 / 266	81	246
Thill-coupling	W. S. Osborn	593,602	Nov. 16	1559	377	81	1135
Thill-coupling	F. V. Stevens, Sr	593,134	Nov. 2	664	159	81	937
Thill-coupling	A. L. and J. D. Thompson and P. J. Stewart.	592,718	Oct. 26	3454	724	81	775
Thill-coupling antirattler	T. Henderson	594,626	Nov. 30	3371	790	81	1522
Thill-coupling. Antirattling	H. D. Blubaugh	592,901	Nov. 2	262	59	81	858
Thill-support	S. W. Cately	594,342	Nov. 23	2883	670	81	1400
Thread-cutting machine	W. W. Tucker	595,798	Dec. 21	1624	393	81	1975
Thread-severing attachment for spools	W. H. Earle	591,592	Oct. 12	1179	277	81	255
Thread or silk holder	E. L. Schroeder	592,451	Oct. 26	2986	605	81	683
Thread-package	F. E. Hall	593,211	Nov. 9	843	201	81	967
Thread-package	A. B. Morse	592,592	Oct. 26	3222	667	81	729
Threading-machine die-head	L. F. Carstensen	591,324	Oct. 5	680	162	81	130
Threading-machine. Double-headed	B. T. Cartwright	594,380	Nov. 30	2907	685 / 686	81	1433
Threshing-cylinder deflector mechanism	D. S. Geiser	592,868	Nov. 2	207	48	81	848
Threshing machine. Flax	J. Switzer	594,104	Nov. 23	2431	577 / 578	81	1328
Ticket and cover therefor. Mileage	H. M. Wright	595,423	Dec. 14	1020	344 / 345	81	1835
Ticket-case	N. E. Springsteen	593,035	Nov. 2	499	121	81	908
Ticket-holder	E. C. Lewis	591,171	Oct. 5	411	97	81	79
Ticket. Pin	P. T. Stoffel	591,147	Oct. 5	367	87	81	71
Ticket. Railway	W. F. White	594,976	Dec. 7	290	56	81	1664
Tide-motor	E. Naumann	596,835	Dec. 28	2588	616	81	2184
Tie: *See* Bale-tie. Railway-tie.							
Tie and rail fastener	J. S. Flegal	594,628	Nov. 30	3754	875	81	1601
Tie-plate	W. F. Gould	594,248	Nov. 23	2656	629	81	1367
Tie-plate-driving machine	G. W. Dowe	594,731	Nov. 30	3582	832 / 833	81	1567
Tile	J. J. Merrill	592,474	Oct. 26	3032	617	81	692
Tile-corners. Means for indenting	W. S. MacHarg	595,268	Dec. 7	759	186	81	1761
Tile. Mosaic	C. R. Lamb	595,485	Dec. 14	1123	271	81	1856
Tile with partially-removed corners	W. S. MacHarg	595,269	Dec. 7	760	187	81	1761
Tiles. Framing	O. H. Basquin	595,259	Dec. 7	748	183	81	1759
Tilting gate	J. M. Davis	594,385	Nov. 30	2917	688	81	1434
Time-check. Workman's	F. Brook	593,457	Nov. 9	1267	305 / 306	81	1066
Time-recorder. Watchman's	D. Hepp	591,254	Oct. 5	572	135 / 136	81	108
Time-recorder. Workman's	F. Brook	593,456	Nov. 9	1262	305	81	1065
Time-recorder. Workman's	S. Heller	594,949	Dec. 7	178	43	81	1655
Time-recorder. Workman's	D. Hepp	591,253	Oct. 5	572	134 / 135	81	108
Time-recorder. Workman's	A. Newman	592,880	Nov. 2	227	52	81	851
Tip-setting apparatus	W. T. Benjamin	592,947	Nov. 2	346	81	81	875
Tire	W. A. D. Graham	596,402	Dec. 28	2725	645	81	2213
Tire	A. M. Williamson	592,184	Oct. 19	2192	517	81	475
Tire armor. Cycle	E. H. Graves	595,099	Dec. 7	466	112	81	1706
Tire. Bicycle	F. Coykendall	593,351	Nov. 9	1086	262	81	1031
Tire. Bicycle	W. A. D. Graham	595,300	Dec. 14	807	199	81	1796
Tire. Bicycle	J. D. Parker	591,787	Oct. 12	1491	354	81	319
Tire. Bicycle	W. H. Stevens	591,791	Oct. 12	1496	355	81	320
Tire. Bicycle	S. M. Mathisen	593,483	Nov. 9	1311	317	81	1075
Tire-cooling device	J. West	593,952	Nov. 16	2181	518	81	1257
Tire cover. Pneumatic	H. A. Porter	592,490	Oct. 26	3038	618	81	693
Tire fastener. Pneumatic	H. G. Sweeney	594,500	Nov. 30	3135	734	81	1477
Tire-fastening	R., Jr., and A. M. McLeod	594,269	Nov. 23	2687	636	81	1372
Tire for cycles. Pneumatic	H. Allen	595,131	Dec. 7	523	125	81	1717
Tire for vehicles. Spring-cushion	J. B. Rogers and W. H. Hall	592,125	Oct. 19	2100	497	81	457
Tire for velocipedes or other vehicles	J. B. Ligon	595,639	Dec. 14	1360	328	81	1906
Tire-inflater. Coin-controlled	C. G. Heaven	591,841	Oct. 19	1583	377	81	358
Tire inflater. Pneumatic	G. W. Mowry	592,014	Oct. 19	1894	451	81	419
Tire inflating device. Bicycle	L. T. Darnault	594,232	Nov. 23	2633	623	81	1361
Tire. Pneumatic	W. A. D. Graham	592,138	Oct. 19	2121	502	81	480
Tire. Pneumatic	O. S. Hammond	591,551	Oct. 12	1110	261	81	235
Tire. Pneumatic	G. A. Lindstrom	590,992	Oct. 5	76	17	81	16
Tire. Pneumatic	J. G. Moomy	596,436	Dec. 28	2763	658	81	2275
Tire. Pneumatic	A. B. Shaw	593,544	Nov. 9	1434	349	81	1096
Tire. Pneumatic	J. T. Trench	596,009	Dec. 21	2015	481	81	2055
Tire. Pneumatic	E. G. Van Zandt	595,422	Dec. 14	1019	244	81	1835
Tire. Pneumatic	T. P. Walter	594,046	Nov. 23	2343	553	81	1306
Tire. Pneumatic	F. Wynne	594,310	Nov. 23	2771	655	81	1393
Tire. Pneumatic non-puncturable	C. A. Pettie	595,785	Dec. 21	1609	388	81	1972
Tire-punctures. Means for closing	R. W. O. Rehmenklau	593,529	Nov. 9	1399	337	81	1090
Tire-repairing device. Vehicle	S. H. Cluxton	594,066	Nov. 23	2379	564	81	1313

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tire. Rubber	W. Langmuir	595,486	Dec. 14	1124	271	81	1856
Tire-tightener	C. E. Brookhart	593,298	Nov. 9	988	239	81	1013
Tire-tightener	W. P. Goolman	594,992	Dec. 7	268	64	81	1670
Tire-tightener	M. H. Sager and J. M. Alvis	593,698	Nov. 16	1718	413	81	1164
Tire-tightener	J. E. Davis	591,458	Oct. 12	939	221	81	211
Tire-tube	G. H. F. Schrader	591,012	Oct. 5	117	26	81	25
Tire-valve	S. E. Finley	594,468	Nov. 30	3078	722	81	1467
Tire. Vehicle	B. H. Chameroy	594,601	Nov. 30	3327	780	81	1513
Tire. Wheel	W. A. Fries	593,981	Nov. 16	2151	510	81	1251
Tire. Wheel	A. A. Fürst	593,463	Nov. 9	1979	306	81	1068
Tire. Wheel	R. Cowen	591,456	Oct. 12	935	220	81	211
Tire. Woven	E. Wicky	595,899	Dec. 21	1836	439	81	2018
Tires. Air-pump for inflating pneumatic cycle	S. Lamborn, H. and F. Harker	592,010	Oct. 19	1886	449	81	418
Tires. Air-valve for pneumatic	C. McClure	591,607	Oct. 12	1203	282	81	260
Tires. Device for inserting tubes in pneumatic	E. W. Young	591,907	Oct. 19	1698	405, 406	81	382
Tires. Manufacture of pneumatic	A. V. Schonborn	591,501	Oct. 12	1011	236	81	224
Tires. Means for mending inner tubes of bicycle	C. J. Johnson	591,477	Oct. 12	965	228	81	216
Tires. Means for repairing pneumatic	C. F. White	591,443	Oct. 12	911	214	81	206
Tires. Needle for repairing punctures in bicycle	J. G. Rodgers	595,548	Dec. 14	1219	293	81	1876
Tires on wheels. Apparatus for placing	C. H. Allen	593,545	Nov. 9	1436	349	81	1096
Tires. Pump for inflating pneumatic	A. and F. E. Kehl	591,229	Oct. 5	529	126	81	100
Tires. Pump for pneumatic	A. S. Simpson	594,292	Nov. 23	2746	649	81	1384
Tires. Pump for pneumatic	A. Manvers and M. Fink	590,996	Oct. 5	82	18	81	17
Tires. Puncture-resisting shield for pneumatic	M. E. Griswold	594,869	Dec. 7	44	12	81	1630
Tires. Tool for repairing pneumatic	H. Moisan	591,355	Oct. 5	751	.....	81	144
Titanium. Obtaining cast	H. Gerold	591,129	Oct. 5	335	.....	81	66
Tobacco and tobacco products, &c. Treating	M. Falk	594,071	Nov. 23	2398	566	81	1315
Tobacco-box	N. P. Perkins and J. O. B. Palmer	592,064	Oct. 19	1985	469	81	436
Tobacco-cutting machine	W. Rose and H. H. Wills	594,968	Dec. 7	204	49, 50, 51	81	1660
Tobacco in packets. Machine for wrapping and securing	W. Cole, Jr	592,538	Oct. 26	3134	643	81	712
Tobacco-knife	W. H. Butler	595,041	Dec. 7	350	85	81	1685
Tobacco-leaf-stemming machine	A. Akeson	595,801	Dec. 21	1642	395	81	1979
Tobacco-pipe	L. Richards	595,652	Dec. 14	1377	332	81	1911
Tobacco-pipe	J. D. Goodwin	594,152	Nov. 23	2506	598, 594	81	1337
Tobacco-stemming and grit-cleaning machine	J. B. Underwood	591,436	Oct. 12	898	210, 211	81	208
Tobacco-stemming machine	F. N. Look	594,883	Nov. 30	3761	877	81	1602
Toilet article	A. J. Birtch	593,042	Nov. 2	509	123	81	906
Tongs. Gas-pipe and rod	S. W. Gillin	594,867	Dec. 7	43	11	81	1630
Tongs. Ingot	J. W. Stephens	592,490	Oct. 26	3063	623	81	698
Tongs. Sanitary	F. Linnemeier	595,640	Dec. 14	1363	328	81	1907
Tongue-iron	W. H. Soley	595,791	Dec. 21	1616	390	81	1974
Tool	M. R. Marshall, Jr	595,959	Dec. 21	1938	463	81	2089
Tool-bag	C. J. Armstrong	591,720	Oct. 12	1385	325	81	298
Tool. Combination	W. P. Burkhalter	592,077	Oct. 19	2006	475	81	440
Tool. Combination	W. Clough	595,594	Dec. 14	1184	284	81	1870
Tool. Combination	A. C. Ponkney	591,669	Oct. 12	1336	313	81	288
Tool. Combination	C. A. Vaughn	591,512	Oct. 12	1023	239	81	226
Tool-handle	L. S. Starrett	592,176	Oct. 19	2181	514	81	472
Tool. Reversible pocket	H. E. Barlow	592,074	Oct. 19	2002	473, 474	81	439
Toothpicks. Machine for making	C. C. Partridge	593,238	Nov. 9	905	218	81	997
Top	I. D. and E. E. L. Boyer	593,173	Nov. 2	765	183	81	958
Top. Spinning	E. Kaselowsky	591,768	Oct. 12	1461	344, 345	81	312
Torpedo-steering apparatus	O. Brethauer	594,595	Nov. 30	3319	778	81	1512
Toy	C. A. Cheney	594,193	Nov. 23	2570	608	81	1349
Toy	M. T. Gedney	596,109	Dec. 28	2212	524	81	2112
Toy	S. C. Kindig	591,848	Oct. 19	1590	379	81	360
Toy	D. S. Green	592,777	Nov. 2	42	9	81	815
Toy catapult	F. Street	596,290	Dec. 28	2502	594, 595	81	2166
Toy. Coin-controlled electric	W. H. Saladee and J. Cather	592,257	Oct. 26	2319	546	81	520
Toy. Dancing	M. N. Drew	591,927	Oct. 19	1565	370	81	354
Toy detonating trick device	R. Kleemichen	592,567	Oct. 26	3179	656	81	721
Toy. Figure	W. F. Simon	596,385	Dec. 28	2691	637	81	2205
Toy. Figure	G. Wonders	595,749	Dec. 21	1537	371	81	1959
Toy. Figure	M. A. Cahalane	593,512	Nov. 9	1375	332	81	1096
Toy foot-ball game-board	J. W. Billings	591,090	Oct. 5	963	62	81	59
Toy gun	I. D. and E. E. L. Boyer	593,174	Nov. 2	766	184	81	958
Toy. Locomotive	P. G. Klingler and J. W. Mayne	593,807	Nov. 16	1926	458	81	1204
Toy. Magic	C. L. Lambrecht	594,479	Nov. 30	3006	725	81	1470
Toy marble-shooter	J. A. Irving	591,476	Oct. 12	964	228	81	216
Toy. Musical	O. Lund	594,178	Nov. 23	2545	602	81	1345
Toy rattle	C. M. Bartholomew	595,594	Dec. 14	1291	311	81	1892
Toy. Ring-twirling	J. Schillig	591,610	Oct. 12	1206	283	81	261
Trace-carrier	I. and M. E. Vanderbeck	591,181	Oct. 5	436	104	81	53
Trace-detacher	T. S. Ballard	592,757	Nov. 2	6	2	81	808
Trace-fastener	B. A. Goodwin	591,088	Oct. 5	178	40	81	36
Trace-hook	C. A. Konz	595,314	Dec. 14	827	204	81	1800
Track and switch for beef-houses	L. C. Martin	595,399	Dec. 14	968	235	81	1826
Track brush and scraper	E. W. Simms	594,571	Nov. 30	3269	767	81	1508
Track-cleaner	L. Lege	595,183	Dec. 7	612	146	81	1733
Track-cleaning device for street-tramways	B. F. Smith	592,890	Nov. 2	249	57	81	856
Track-drilling device	T. H. Curtis	591,098	Oct. 5	268	63, 64	81	53
Track-sanding apparatus	L. A. Lucier	590,994	Oct. 5	79	17	81	17
Track-sanding device. Street-car	P. W. Gates	596,063	Dec. 28	2128	505	81	2097
Traction-engine	W. Bebermeyer	592,683	Oct. 26	3398	709	81	764
Traction-wheel	E. Bock	594,061	Nov. 23	2369	560, 561	81	1311
Tramway. High-level	H. M. and F. T. Hume	596,368	Dec. 28	2666	632	81	2200
Tramway-switch	J. H. Cook	596,015	Dec. 21	2027	484	81	2057
Tramway-track mechanism							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Transformer	W. S. Moody	595,403	Dec. 14	977	236	81	1827
Transom-lifter	W. Ormsby. (Reissue)	11,639	Nov. 30	3772	880	81	1604
Transom-lifter	H. W. Peirce	591,569	Oct. 12	1142	269	81	249
Transoms or windows. Automatic locking and releasing mechanism for	W. S. Robinson and C. A. Haeseley	595,922	Dec. 21	1876	448	81	2027
Transplanter	E. Wight	594,305	Nov. 23	2765	654	81	1387
Transplanter. Tree	J. A. Wilkens	594,668	Nov. 30	3475	809	81	1545
Transporting granular or similar materials. Device for	A. Rothenbach	591,696	Oct. 12	1346	315, 316	81	290
Trap: *See* Animal-trap. Bait-trap. Fly-trap. Gully or stench trap. Impalement trap. Insect-trap. Queen and drone trap. Robber and burglar trap. Seal-trap. Steam-trap. Steel-trap.							
Trap	J. J. King	593,104	Nov. 2	614	148	81	927
Trap	N. R. Streeter and J. Anstice	595,741	Dec. 21	1520	367	81	1955
Trap and pipe-coupling	N. E. Smith	591,481	Oct. 12	891	208	81	201
Tray. Folding	M. I. Herman	590,983	Oct. 5	56	13	81	13
Tread-power	C. F. Search	591,660	Oct. 12	1293	303, 304	81	279
Treadle attachment	J. F. Wilkinson	591,577	Oct. 26	3194	659	81	724
Treadle mechanism	P. H. Childress	592,195	Oct. 19	2208	522	81	478
Tree-digger	W. H. Hartman and J. B. Morey, Jr	594,689	Nov. 30	3508	815, 816	81	1550
Tree-protector	C. C. Coulson	595,149	Dec. 7	546	132	81	1721
Trees, plants, flowers, &c. Means for protecting small	J. W. Hilton	593,579	Nov. 16	1519	369	81	1198
Trestle	F. Ring	592,574	Oct. 26	3188	658	81	723
Trimmer: *See* Nail and corn trimmer. Wick-trimmer.							
Trolley	R. W. Clarke	593,984	Nov. 23	2243	532	81	1998
Trolley	O. L. Kirsch	593,847	Nov. 16	2006	471	81	1321
Trolley	E. Lane and J. A. Snyder	593,301	Nov. 9	1007	242	81	1017
Trolley	G. K. Shryock	591,608	Oct. 12	1353	317	81	291
Trolley	A. Travaglini	596,131	Dec. 28	2244	533	81	2119
Trolley	S. H. Short	595,060	Dec. 7	426	102	81	1699
Trolley-arm for electric railways	W. G. Wagenhals	596,198	Dec. 28	2347	558	81	2138
Trolley-base cushion	W. Luer	592,711	Oct. 26	3444	792	81	778
Trolley. Conduit-railway	F. J. Shewring	594,918	Dec. 7	125	31	81	1645
Trolley connection for canal-boats	E. C. Davis	592,928	Nov. 2	299	69	81	866
Trolley. Electric-car	W. L. Harvie	591,042	Oct. 5	185	43	81	37
Trolley. Electric-car	E. Cone	596,456	Dec. 28	2825	666	81	2229
Trolley. Electric-railway-car	P. Goldsmith	591,251	Oct. 5	566	133, 134	81	108
Trolley-finder for electrical railways	L. H. McNett	594,807	Nov. 30	3721	867	81	1595
Trolley-guard	F. A. Seaver	593,424	Nov. 9	1210	292	81	1054
Trolley pole and stand	W. A. P. Willard, Jr	596,224	Dec. 28	2391	566	81	2147
Trolley-rail	W. A. P. Willard, Jr	596,225	Dec. 28	2393	566	81	2147
Trolley-rail for electric roads	H. E. Adt	596,439	Dec. 28	2786	658	81	2224
Trolley-ropes. Take-up for controlling slack of	S. H. Short	595,659	Dec. 14	1391	335	81	1913
Trolley-stand	L. E. Walkins	595,224	Dec. 7	670	162	81	1744
Trolley system. Underground	R. S. McPhail	591,489	Oct. 12	902	232	81	220
Trolley-wheel	N. J. St. Hilaire	592,923	Nov. 2	294	68	81	865
Trolley-wire hanger							
Trough: *See* Drip-trough. Eaves-trough.							
Trousers	M. M. Corin	592,696	Oct. 26	3418	714	81	769
Trousers	J. W. Madden	592,473	Oct. 26	3081	616	81	622
Trousers	T. Prince	592,019	Oct. 19	1900	452	81	420
Trousers	N. Tyler, Jr., and W. A. Lieber	596,084	Dec. 21	2075	494	81	2068
Trousers holding and pressing device	E. H. Lunken	592,550	Oct. 26	3157	650	81	717
Trousers-knee-protecting attachment	L. Daum	592,001	Oct. 19	1867	445	81	414
Trousers-strap	F. L. Sampson	593,609	Nov. 16	1572	379	81	1138
Trousers-stretcher	J. Hilton	593,770	Nov. 16	1856	445	81	1192
Trowel	J. Macphail	593,293	Nov. 9	881	209	81	998
Truck	H. Tesseyman	592,028	Oct. 19	1911	454	81	422
Truck and body bolster. Car	W. E. Cooke	595,045	Dec. 7	370	90, 91	81	1689
Truck. Car	T. M. Gallagher	595,617	Dec. 14	1323	319	81	1899
Truck. Car	G. W. Lacy	595,719	Dec. 21	1489	358	81	1949
Truck. Car	R. W. Oswald	596,449	Dec. 28	2806	662	81	2253
Truck. Car	W. F. Richards	594,559	Nov. 30	3247	762	81	1499
Truck. Car	M. B. Schaffer	592,258	Oct. 26	2230	547	81	521
Truck. Car	B. W. Tucker	592,843	Nov. 2	170	39	81	840
Truck. Car	H. Weston	593,145	Nov. 2	686	164	81	949
Truck. Car	E. Lundqvist	592,151	Oct. 19	2138	506	81	465
Truck. Electric-car	T. B. Fitz	596,263	Dec. 28	2461	585	81	2160
Truck. Merchandise	F. Hedley	590,982	Oct. 5	53	12	81	12
Truck. Railway-car	E. D. Bean	593,007	Nov. 2	452	108	81	895
Trunk	B. Schnurr	594,759	Nov. 30	3627	844	81	1575
Trunk-lock	F. C. Beattie	592,748	Oct. 26	3512	737, 738	81	785
Trunk. Theatrical	G. Crouch	596,055	Dec. 28	2120	502	81	2095
Trunk. Traveling	C. H. Miller	592,159	Oct. 19	2153	508	81	468
Trunk-tray and table. Combined	G. V. House	593,474	Nov. 9	1298	314	81	1073
Truss	H. Wolfermann	594,907	Nov. 23	2768	654	81	1398
Truss	C. M. Horton	595,629	Dec. 14	1340	323, 324	81	1902
Truss and bridge	G. V. House	593,473	Nov. 9	1297	314	81	1073
Truss-pad							
Tube: *See* Metallic tube. Roentgen-ray tube.							
Tube-expander	J. O'Rourke	593,779	Nov. 16	1874	448	81	1194

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tube-making machine	W. Gregg, J. F. Donaghy, and J. Humphrey.	595,810	Dec. 21	1654	399	81	1981
Tubes with pliable material. Machine for lining metal	E. T. Greenfield	595,472	Dec. 14	1097	263, 264, 265	81	1851
Tubing	M. M. Nicholls	593,726	Nov. 16	1776	427	81	1176
Tubing and wire covering machine	V. Royle	592,938	Nov. 2	325	75, 76	81	871
Tubing. Apparatus for manufacturing	P. C. Patterson	593,966	Nov. 16	2209	524	81	1963
Tubular boiler	J. N. Rice	592,511	Oct. 26	3086	629	81	708
Tubular sockets. Means for finishing	R. Chillingworth	595,988	Dec. 21	1809	452, 453	81	2031
Tufting-machine	E. A. Potter	592,167	Oct. 19	2166	511	81	470
Tug. Hame	W. J. Campbell	595,145	Dec. 7	541	130	81	1730
Tumblers, &c. Machine for finishing	J. R. Bridges	592,645	Oct. 26	3309	688, 689	81	746
Tumbling-star	G. D. Bartlett	591,225	Oct. 5	523	125	81	100
Tunneling and for shaft-sinking. Wall or lining for shield	G. H. Dunlop	595,702	Dec. 21	1460	352	81	1944
Turbine. Elastic-fluid	C. G. Curtis	591,822	Oct. 19	1558	368	81	353
Turbine. Elastic-fluid	C. G. Curtis	595,435	Dec. 14	1099	249	81	1839
Turbine. Steam or gas	G. M. Westman	595,748	Dec. 21	1535	370	81	1958
Turn-table	G. Rohrbach	596,382	Dec. 28	2696	636	81	2204
Turn-table for tramways. Portable	T. M. Dansby	593,517	Nov. 9	1385	334	81	1087
Turning machine. Wood	W. T. Jones	592,737	Oct. 26	3486	733	81	781
Turret for cars. Bomb-proof	E. H. McLeod	595,493	Dec. 14	1136	273	81	1859
Twister stop-motion	J. Meehan	596,076	Dec. 28	2156	511	81	2102
Twyer. Forge	J. W. Ratcliff and M. G. Watson	593,240	Nov. 9	907	219	81	997
Twyer. Furnace	A. P. Gaines	594,786	Nov. 30	3673	855, 856	81	1584
Twyer. Furnace	M. Hynes	594,878	Dec. 7	55	15	81	1633
Type-bar-casting machine	C. Sears	596,340	Dec. 28	2593	617, 618	81	2185
Type-bars. Machine for making	C. Sears	591,777	Oct. 12	1478	349, 350	81	317
Type-containing channel	L. K. Johnson and A. A. Low	593,667	Nov. 16	1675	406	81	1158
Type-containing channel	L. K. Johnson and A. A. Low	593,668	Nov. 16	1676	406	81	1158
Type-distributing machines. Test-plate cleaner for	P. F. Cox	591,073	Oct. 5	232	55	81	46
Type-justifying machine	C. W. Bowron	592,743	Oct. 26	3500	735, 736	81	783
Type. Process of and apparatus for casting printing	J. J. C. Smith	591,430	Oct. 12	885	206, 207, 208	81	201
Type-setting machine	C. W. Dickinson	591,914	Oct. 19	1718	412	81	386
Type-writer arm	W. B. Hopkins	595,478	Dec. 14	1113	268	81	1854
Type-writer platen	C. H. Hastings	594,531	Nov. 30	3198	750	81	1490
Type-writer tool	C. S. Vidor	593,791	Nov. 16	1906	454	81	1200
Type-writer word-register	W. H. Spanier	593,071	Nov. 2	562	134	81	916
Type-writing machine	E. E. Barney	594,978	Dec. 7	238	57, 58, 59	81	1664
Type-writing machine	L. S. Burridge	593,568	Nov. 16	1486	362	81	1122
Type-writing machine	L. S. Burridge	594,777	Nov. 30	3655	851	81	1581
Type-writing machine	E. M. Hamilton	592,052	Oct. 19	1960	463, 464	81	431
Type-writing machine	W. K. Jenne	596,371	Dec. 28	2669	632, 633	81	2201
Type-writing machine	K. S. Klogel	596,167	Dec. 28	2302	546, 547	81	2129
Type-writing machine	J. C. Landis	591,669	Oct. 12	1310	307	81	283
Type-writing machine	W. J. Perkins	594,706	Nov. 30	3532	822, 823	81	1557
Type-writing machine	J. B. Price	593,432	Nov. 9	1221	295	81	1056
Type-writing machine	C F. Roggenbauch	593,031	Nov. 2	487	118, 119	81	902
Type-writing machine	C. Spiro	595,838	Dec. 21	1698	409, 410	81	1990
Type-writing machine	A. Templeton	594,767	Nov. 30	3636	847	81	1577
Type-writing machine	R. W. Uhlig	593,789	Nov. 16	1896	452, 453	81	1196
Type-writing-machine blank-feeder	C. E. Jones	594,831	Nov. 30	3758	876	81	1601
Type-writing-machine platen	H. G. Wood	596,099	Dec. 28	2194	520	81	2109
Type-writing machine tabulating attachment	H. B. Schneider	591,789	Oct. 12	1492	354	81	320
Umbrella	H. Bastide	595,134	Dec. 7	526	126	81	1717
Umbrella	J. C. Hall	594,125	Nov. 23	2479	586	81	1332
Umbrella	J. Saurer	595,892	Dec. 21	1821	436	81	2015
Umbrella-closing device	J. B. Riehl	591,637	Oct. 12	1253	294	81	270
Umbrella. Folding	A. E. Hoffelt	591,043	Oct. 5	186	43	81	36
Umbrella. Folding	C. J. Holman	595,628	Dec. 14	1339	323	81	1902
Umbrella-supporter	H. M. Freeland	592,050	Oct. 19	1956	462, 463	81	431
Uncoupling device for coach draw-bars	A. L. Mohler	591,866	Oct. 19	1517	385	81	366
Uncoupling device for coach draw-bars	A. L. Mohler	592,119	Oct. 19	2065	492	81	455
Underclothing. Combined woolen and linen	F. Linneborn	593,772	Nov. 16	1961		81	1192
Undergarment	N. Hatch	594,794	Nov. 30	3696	859	81	1587
Underwear	J. M. Heyman	593,175	Nov. 2	768	184, 185	81	959
Unicycle	W. T. Parsons	595,073	Dec. 7	411	99	81	1696
Unicycle	T. Tolson	591,025	Oct. 5	151	34	81	31
Unicycle road and racing sulky	T. G. Coleman	592,130	Oct. 19	2108	499, 500	81	459
Universal joint	L. S. Gardner	595,538	Dec. 14	1207	290	81	1874
Upholsterer's tool and appliance	G. H. Howell and J. Kiley	593,221	Nov. 9	876	208	81	998
Upholstering apparatus	A. Freschl	592,508	Oct. 26	3076	626, 627	81	701
Upholstering device	F. R. Bacon	592,270	Oct. 26	2383	551, 552	81	583

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Upper-stretching machine	W. S. Hamm	596,325	Dec. 28	2568	611, 612	81	2180
Urinal	G. W. Conderman	590,964	Oct. 5	24	6	81	7
Urinal	W. Smith	594,438	Nov. 30	3019	709	81	1453
Vacuum-pan	J. Foster	594,788	Nov. 30	3668	854	81	1584
Valve	J. B. Arntzen	594,848	Dec. 7	5	1	81	1629
Valve	J. Austin	594,927	Dec. 7	142	36	81	1648
Valve	A. W. R. Berr	592,187	Oct. 19	2196	518	81	476
Valve	R. C. Bromley	593,411	Nov. 9	1191	288	81	1050
Valve	R. C. Bromley	593,412	Nov. 9	1192	289	81	1050
Valve	A. G. Cassidy	592,625	Oct. 26	3277	680	81	741
Valve	O. F. Conlhe	592,279	Oct. 26	2348	555	81	527
Valve	G. W. Fortner	592,986	Nov. 2	421	99	81	889
Valve	C. Gulland	595,061	Dec. 7	392	96	81	1698
Valve	W. Heston	596,000	Dec. 21	2002	478	81	2058
Valve	M. Marea and T. Connors	593,594	Nov. 16	1542	374, 375	81	1133
Valve	M. A. Neeland and W. Rotthoff	592,478	Oct. 26	3086	618	81	698
Valve	J. O'Meara	594,895	Dec. 7	83	23	81	1637
Valve	M. Peters	594,097	Nov. 23	2419	574	81	1324
Valve	R. D. Watson	593,258	Nov. 9	934	226	81	1002
Valve	J. P. Marsh	593,595	Nov. 16	1544	375	81	1133
Valve. Air	A. W. Fahr	594,070	Nov. 23	2386	566	81	1314
Valve. Antifreezing	B. E. Loadwick	596,117	Dec. 28	2221	527	81	2114
Valve apparatus for washbowls or sinks	J. B. Opsahl	596,119	Dec. 28	2294	528	81	2115
Valve. Automatic cut-off	L. A. Hotchkiss	596,001	Dec. 21	2003	478	81	2058
Valve. Automatic steam	W. F. Gould	594,866	Dec. 7	43	12	81	1630
Valve. Balancing slide	R. R. Mitchell	592,810	Nov. 2	96	21	81	825
Valve. Flushing	G. S. Thompson	592,501	Oct. 26	3067	625	81	699
Valve for boilers. Plug check	J. H. Glauber	595,877	Dec. 21	1791	430	81	2009
Valve for faucets, &c	J. Tolhurst	594,045	Nov. 23	2342	553	81	1305
Valve. Gate	J. D. Hood	594,951	Dec. 7	182	44	81	1655
Valve-gear	J. H. F. Jacoby	595,807	Dec. 14	818	202	81	1798
Valve-gear	E. Cellison	594,381	Nov. 30	2909	686, 687	81	1433
Valve-gear. Gas-engine	F. S. Mead	594,260	Nov. 23	2677	634	81	1370
Valve-gear. Gas-engine	C. Wood	594,146	Nov. 23	2497	590	81	1336
Valve-gear. Gas or oil engine	R. Hughes	590,968	Oct. 5	65	14	81	14
Valve. Hydrant	C. A. Sulzman	591,023	Oct. 5	143	32, 33	81	30
Valve. Hydrant	G. S. Binckley	591,070	Oct. 5	227	54	81	45
Valve mechanism. Engine	A. J. and F. P. Robinson	592,172	Oct. 19	2173	513	81	472
Valve or faucet	B. F. Wilson	592,644	Oct. 26	3305	687	81	746
Valve. Piston	G. H. F. Schrader	591,886	Oct. 19	1648	394	81	378
Valve proper for tire or other valves	G. Westinghouse	593,710	Nov. 16	1746	420	81	1171
Valve. Quick-action triple	G. Westinghouse	593,711	Nov. 16	1748	421	81	1171
Valve. Quick-action triple	R. T. Crane and G. W. Hayden	593,567	Nov. 16	1497	364	81	1124
Valve. Quick-opening	E. H. Lunken	594,633	Nov. 30	3383	792	81	1525
Valve. Quick-opening	J. H. Beare	591,875	Oct. 12	798	186	81	183
Valve. Relief	J. Hughes	593,526	Nov. 9	1396	337	81	1069
Valve. Safety	F. Schreidt	591,013	Oct. 5	119	27	81	25
Valve. Safety	F. Schreidt	591,014	Oct. 5	121	27	81	25
Valve. Safety	F. Schreidt	591,015	Oct. 5	122	27	81	25
Valve. Safety	A. McCann	592,814	Nov. 2	113	25	81	829
Valve. Sewer check	W. F. Niebling	592,434	Oct. 26	2962	600	81	678
Valve spring adjustment	E. C. Dicey	594,730	Nov. 30	3579	832	81	1566
Valve. Steam-engine	H. E. Keyes and W. Gluck	593,587	Nov. 16	1531	371	81	1130
Valve. Straightway	E. H. Lunken	594,634	Nov. 30	3385	793	81	1525
Valve. Straightway	M. Leitch	591,980	Oct. 19	1825	434	81	406
Valve. Thermostatic	M. Leitch	593,399	Nov. 9	1172	293	81	1047
Valve. Thermostatic	F. P. Glazier	593,015	Nov. 2	464	111	81	897
Vapor-burner	H. F. Smith	592,857	Nov. 2	162	37	81	839
Vapor-burner	L. L. Culver	595,994	Dec. 21	1996	477	81	2051
Vapor-burner valve	G. H. Bell	595,432	Dec. 14	1085	248	81	1838
Vaporizer	A. H. Crockford	593,516	Nov. 9	1384	334	81	1087
Vaporizing hydrocarbons, &c. Apparatus for	H. N. and G. F. Marston	596,277	Dec. 28	2480	590	81	2163
Vegetable, &c., cutter	J. C. Bonner	591,733	Oct. 12	1405	330	81	302
Vehicle	N. J. Tubbs	594,768	Nov. 30	3643	848	81	1579
Vehicle	J. E. French	594,942	Dec. 7	166	40	81	1652
Vehicle-body	A. L. Knoblaugh	595,894	Dec. 14	961	233	81	1825
Vehicle body and seat	J. W. Mock	592,998	Nov. 2	429	102	81	890
Vehicle-brake	I. W. Price	592,168	Oct. 19	2167	512	81	470
Vehicle-brake	H. C. Swan	596,898	Dec. 28	2695	638	81	2205
Vehicle-brake. Automatic	J. Mueller	595,818	Dec. 21	1665	401, 402	81	1983
Vehicle-brake hanger	S. D. L. Ross	591,695	Oct. 12	1344	315	81	289
Vehicle-cover. Portable	C. T. Jewett	593,584	Nov. 16	1528	371	81	1130
Vehicle. Foot-propelled	G. G. J. Millar	593,597	Nov. 16	1547	375, 376	81	1134
Vehicle for single-rail elevated railways. Motor	F. B. Behr	593,075	Nov. 2	568	136, 157	81	917
Vehicle. Ice	J. F. Fisher	595,380	Dec. 14	934	226	81	1820
Vehicle. Motor	C. H. Barrows	592,682	Oct. 26	3396	709	81	764
Vehicle. Motor	G. H. Grenlich	591,398	Oct. 12	836	194	81	191
Vehicle. Motor	H. W. Heaton	593,470	Nov. 9	1290	312, 313	81	1071
Vehicle. Motor	H. P. Maxim	594,805	Nov. 30	3715	865, 866	81	1594
Vehicle. Motor	B. L. Peck	595,208	Dec. 7	642	154	81	1739
Vehicle. Motor	H. C. Spaulding	596,261	Dec. 28	2495	591	81	2163
Vehicle. Motor	J. M. Trotter	592,674	Oct. 26	3379	705	81	761
Vehicle-motor	C. B. Fairchild	595,156	Dec. 7	556	135	81	1723
Vehicle-propelling machine	D. E. Owen	594,752	Nov. 30	3619	842	81	1574
Vehicle runner attachment	C. Landfried	596,170	Dec. 28	2308	548	81	2130
Vehicle running-gear	H. W. Hakes	591,840	Oct. 19	1581	376, 377	81	858
Vehicle-seat							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle-spindle	F. H. Peacock	595,863	Dec. 21	1742	419	81	1999
Vehicle-steering device. Automatic	O. Olson	593,542	Nov. 9	1432	348	81	1095
Vehicle steering mechanism. Motor-	C. A. Faure	591,595	Oct. 12	1188	278 279	81	956
Vehicle-top	D. West	595,228	Dec. 7	684	166 167	81	1746
Vehicle. Two-wheeled	M. P. Holmes	592,091	Oct. 19	2089	482	81	446
Vehicle-wheel	C. E. Bulkley	593,763	Nov. 16	1846	443	81	1190
Vehicle-wheel	H. R. Collins	594,603	Nov. 30	3329	781	81	1514
Vehicle-wheel	H. R. Collins	594,604	Nov. 30	3331	781 782	81	1514
Vehicle-wheel	J. T. Davis	595,700	Dec. 21	1457	351	81	1944
Vehicle-wheel	G. W. C. Lomb	591,771	Oct. 12	1464	345 346	81	813
Vehicle-wheel	R. K. McLellan	593,600	Nov. 16	1555	377	81	1135
Vehicle-wheel	P. J. Parker	595,180	Dec. 7	522	125	81	1717
Vehicle-wheel	F. W. Schroeder	593,128	Nov. 2	651	156	81	934
Vehicle-wheel	E. Vincent	593,708	Nov. 16	1743	420	81	1170
Vehicle-wheel	W. B. Schreiber	595,254	Dec. 7	743	182	81	1758
Vehicles. Steering device for motor-	F. W. Lanchester	593,357	Nov. 9	1095	265	81	1033
Vehicles. Steering mechanism for power-propelled	E. S. Hines	594,994	Dec. 7	270	65	81	1671
Veil-clamp	P. H. Brennan	595,465	Dec. 14	1087	261	81	1849
Velocipede	J. H. Knight	593,300	Nov. 9	1005	242	81	1017
Velocipede	E. G. Latta	592,871	Nov. 2	212	49	81	849
Velocipede	E. G. Latta	593,479	Nov. 9	1305	316	81	1074
Velocipede	F. Smart	594,295	Nov. 23	2750	650	81	1385
Velocipede-brake	W. T. Smith	595,289	Dec. 28	2501	594	81	2166
Velocipede driving-gear	F. J. de Andrade	594,147	Nov. 23	2498	591	81	1336
Velocipede-frame	E. C. Phillips	595,547	Dec. 14	1217	292	81	1876
Velocipede pump attachment	J. E. Noirit	593,351	Nov. 9	1060	256	81	1027
Velocipede-saddle	M. M. Deem	591,741	Oct. 12	1416	333	81	804
Velocipede saddle-clamp	C. E. D. Usher	595,242	Dec. 7	724	176 177	81	1753
Velocipedes. Variable-speed driving-gear for	J. Nichols and J. H. Davis	594,550	Nov. 30	3233	758 759	81	1496
Vending and amusement machine. Coin-controlled	M. B. Mills	591,559	Oct. 12	1122	264	81	845
Vending device	C. Spiro	593,132	Nov. 2	657	158	81	936
Vending-machine	H. C. Vierkant	592,071	Oct. 19	1995	471 472	81	438
Vending-machine. Coin-controlled	S. W. Collins	593,414	Nov. 9	1195	290	81	1051
Vending machine. Liquid-	G. A. Gage	592,110	Oct. 19	2072	490	81	452
Veneer-coiling machine	H. Case and J. G. Lee	591,156	Oct. 5	388	90	81	75
Vent and pressure-plug for barrels	C. Harris and T. F. Evans	592,468	Oct. 26	3022	613	81	690
Ventilating apparatus	P. J. Schlicht	592,211	Oct. 19	2226	527	81	482
Ventilating apparatus	H. F. Parker	592,822	Nov. 2	125	27	81	832
Ventilating-cushion for shoes, &c	S. E. Maxon	595,188	Dec. 7	618	147 148	81	1734
Ventilating show-window							
Ventilator: *See* Building-ventilator. Kitchen-ventilator. Car-ventilator.							
Ventilator	M. L. Rich	591,880	Oct. 19	1637	390	81	370
Ventilator or ventilating-ridging for roofs of buildings.	E. A. May	595,960	Dec. 21	1939	463 464	81	2039
Vessel-cleaner	C. F. Holland	593,298	Nov. 9	1002	241 242	81	1016
Vessel. Freight-carrying	C. Salmond	596,218	Dec. 28	2386	565	81	2145
Vessel. Marine	G. Espina	591,749	Oct. 12	1428	336 337	81	807
Vest	H. J. Brock	593,370	Nov. 9	1111	269	81	1036
Veterinary ecraseur	F. F. Hoffmann	591,408	Oct. 12	841	196	81	798
Violin	A. Springer	594,102	Nov. 23	2426	576	81	1323
Vise	J. Goodrich	593,649	Nov. 16	1647	399	81	1153
Vise	S. O. Root	595,125	Dec. 28	2236	531	81	2117
Vise	A. Kerry	591,135	Oct. 5	339	69	81	66
Vise and drill. Combined	M. Wade	591,908	Oct. 19	1692	404	81	890
Vise. Bench-	W. H. Holmes	594,874	Dec. 7	50	13	81	1631
Vise. Bicycle-	W. J. O'Brien	595,546	Dec. 14	1215	292	81	1875
Vise. Quick-acting	M. B. Babb	594,314	Nov. 23	2778	657	81	1390
Vise. Woodworker's	W. H. Howe	592,590	Oct. 26	3216	666 667	81	798
Vote-recording apparatus	J. J. Cunningham and E. H. Mullen	595,699	Dec. 21	1453	350 351	81	1943
Vote-registering apparatus	S. N. Gifford	593,323	Nov. 9	1043	252 253	81	1024
Vote-registering machine	C. Christensen	592,692	Oct. 26	3410	713	81	767
Voting-machine	C. De Croes	594,986	Dec. 7	256	62	81	1668
Voting-machine	A. and W. Boden and G. I. Lewis	592,902	Nov. 2	263	60	81	858
Wagon attachment	E. E. Hartsell	594,621	Nov. 30	3363	788	81	1521
Wagon-bed	G. M. Harrison	593,769	Nov. 16	1854	445	81	1191
Wagon-body	T. G. Mandt	593,482	Nov. 9	1310	317	81	1074
Wagon bolster-spring	T. G. Mandt	593,946	Nov. 16	2170	515	81	1255
Wagon bolster-spring	J. Dain, Jr	593,199	Nov. 9	815	194	81	982
Wagon-box shoveling-board	R. M. Deyoung	595,529	Dec. 14	1196	287	81	1872
Wagon-brake	J. R. Le Gresley	596,243	Dec. 28	2425	573	81	2154
Wagon-brake	H. H. Emery	593,570	Nov. 16	1500	365	81	1125
Wagon-brake. Automatic	O. L. Keeler	593,224	Nov. 9	879	209	81	992
Wagon corner-iron	W. H. Earl	594,197	Nov. 23	2577	610	81	1351
Wagon. Dumping-	W. L. French	595,056	Dec. 7	386	95	81	1692
Wagon. Dumping-	J. Grant	590,976	Oct. 5	41	9	81	10
Wagon. Dumping-	S. D. and W. S. Reynolds and M. D. Shipman.	594,099	Nov. 23	2422	575	81	1321
Wagon gear. Spring-	W. J. Temple	596,309	Dec. 28	2541	605	81	2175
Wagon jack and wrench. Combined	W. H. Martin	592,908	Oct. 19	2219	524 525	81	481
Wagon. Rotary-barrel-rack	C. H. Rogers	591,197	Oct. 5	464	110	81	88
Wagon running-gear	J. W. Armstrong and N. M. Berry	594,455	Nov. 30	3048	715	81	1459
Wagon-standard							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wagon-track	W. McClelland	592,433	Oct. 26	2962	599	81	678
Waist, skirt, and belt holder. Combined	G. N. Buck	592,464	Oct. 26	3018	611	81	689
Waistbands, &c. Machine for making	H. Green	593,393	Nov. 9	1163	280 281	81	1045
Wall, bulkhead, &c. Retaining-	W. V. Judson	592,788	Oct. 26	3489	733 734	81	781
Walls. Device for attaching furring to	W. H. Barnes	590,953	Oct. 5	6	2	81	4
Walls, floors, and ceilings. Constructing	J. J. Smith	594,812	Nov. 30	3729	868	81	1596
Walls, partitions, ceilings, &c., of sheet metal. Construction of	E. F. Baude	596,010	Dec. 21	2016	481	81	2055
Warp-beam tension-regulator	F. F. Parsons	593,686	Nov. 16	1701	411	81	1169
Warp-dressing machine	H. L. Moulton	593,496	Nov. 9	1315	318	81	1075
Warp-threads. Machine for drawing in	L. P. Sherman	592,667	Oct. 26	3363	700 701 702	81	758
Warping-machine registering mechanism	R. W. Eaton	595,907	Dec. 21	1646	442	81	2030
Washboard	S. L. Barndollar	595,984	Dec. 21	1894	451	81	2030
Washboard	L. O. Brown	594,168	Nov. 23	2530	599	81	1343
Washboard	W. H. Osmer	591,664	Oct. 12	1330	311	81	287
Washboard	J. H. Stratman	591,704	Oct. 12	1362	319	81	293
Washboiler	D. Marcil	593,275	Nov. 9	959	232	81	1005
Washer: *See* Bottle-washer. Leather washer. Gold-washer.							
Washing apparatus. Warp-	O. Hallensleben	595,302	Dec. 14	810	199 200	81	1796
Washing-machine	K. Barnett	594,058	Nov. 23	2366	560	81	1310
Washing-machine	W. Baylis	591,728	Oct. 12	1393	327	81	300
Washing-machine	G. M. Beck	592,229	Oct. 26	2272	535	81	511
Washing-machine	J. G. Bibb	591,069	Oct. 5	226	53	81	45
Washing-machine	A. A. Casler	593,833	Nov. 16	1980	466	81	1216
Washing-machine	S. D. Cole	592,694	Oct. 26	3415	714	81	766
Washing-machine	M. Lafond and L. Hamlin	594,068	Nov. 23	2407	573	81	1318
Washing-machine	W. Manteuffel	593,593	Nov. 16	1541	374	81	1153
Washing-machine	W. H. Meyer	593,506	Nov. 16	1546	375	81	1134
Washing-machine	F. R. C. Pitzler	593,118	Nov. 2	635	152	81	931
Washing-machine	J. W. Ricker	593,856	Nov. 16	2019	475	81	1294
Washing-machine	H. E. Smith	593,910	Nov 16	2110	500	81	1342
Washing-machine	G. W. Spooner	591,643	Oct. 12	1265	296	81	273
Washing-machine	J. H. Verity	591,437	Oct. 12	903	211	81	204
Washing-machine	S. M. Windmiller and L. Holford	593,344	Nov. 9	1075	260	81	1030
Washing-machine	J. Heselwood	595,102	Dec. 7	470	113	81	1707
Washing machine. Clothes-	R. B. Williams	596,087	Dec. 21	2085	495	81	2071
Washing machine. Clothes-	B. Badanes	591,664	Oct. 12	1308	305	81	281
Washstand	G. Hunter	596,408	Dec. 28	2732	647	81	2214
Watch-barrel	L. F. Amez-Droz	594,188	Nov. 23	2564	606	81	1349
Watch-carrier	W. H. Schoenberg	594,834	Nov. 30	3762	877	81	1602
Watch case or holder	F. H. Corthell	596,895	Dec. 28	2716	643	81	2210
Watch mainspring-fastener	D. H. Church	595,044	Dec. 7	360	87 88 89 90	81	1687
Watch-plate drilling and tapping machine	R. Wanamaker	592,092	Oct. 19	1916	455	81	423
Watch. Repeating	C. Hahlweg	593,274	Nov. 9	956	232	81	1006
Watch repeating mechanism	G. A. and J. E. Lockwood	595,184	Dec. 7	613	146	81	1734
Watch. Stem winding and setting	C. Coda	594,326	Nov. 23	2797	660	81	1393
Water-accumulator	W. T. Fox	591,397	Oct. 12	884	194	81	190
Water-closet	C. A. Freeman	595,382	Dec. 14	987	226	81	1821
Water-closet	J. Kirby, Jr	596,070	Dec. 28	2139	507 508	81	2099
Water-closet	J. Kirby, Jr	596,071	Dec. 28	2143	508 509	81	2099
Water-closet bowl	H. S. Maddock	595,830	Dec. 21	1687	407	81	1987
Water-closet bowls. Supply-regulator for	J. Maddock	594,896	Dec. 7	71	19	81	1635
Water-closet cisterns. Ball-cock for	T. Hand	595,053	Dec. 7	395	96	81	1693
Water-closet for yachts or vessels	T. A. MacDonald	591,190	Oct. 5	451	108	81	85
Water-closet repair	J. T. Morrison	593,025	Nov. 2	479	116	81	900
Water-closets, &c. Basket-trap for	H. Catsiff	594,169	Nov. 23	2531	599	81	1343
Water-column	E. D. Cain	595,557	Dec. 14	1231	296	81	1878
Water-drawing apparatus	W. B. Livermore	594,956	Dec. 7	189	45	81	1656
Water-elevator	J. F. Durham	595,153	Dec. 7	552	133 134	81	1733
Water-elevator. Compressed-air	P. S. A. Bickel	591,099	Oct. 5	160	36	81	33
Water-gage	J. S. Long	595,220	Dec. 14	884	206	81	1801
Water gate or valve	E. Jendis	594,954	Dec. 7	187	45	81	1656
Water-heater	A. Buerkle	591,588	Oct. 12	1172	276	81	254
Water-heater	H. Haeberlin	593,200	Nov. 9	840	200	81	987
Water-heater	O. Schlemmer	595,348	Dec. 14	868	216	81	1810
Water-heater	E. L. Schneider	595,211	Dec. 7	655	157	81	1741
Water-heater	G. Taubald	593,621	Nov. 16	1597	384	81	1143
Water-heater	W. L. Shepard and E. W. Whitlock	591,505	Oct. 12	1015	237	81	224
Water heater and purifier	C. R. Meres	592,915	Nov. 2	282	64, 65	81	868
Water-heater and steam-generator. Combined	G. J. Dehn	595,130	Dec. 7	507	121	81	1714
Water-heaters. Apparatus for cleaning	A. G. Dorsey	593,047	Nov. 2	516	124	81	907
Water-heating device	W. R. Phillips	595,919	Dec. 21	1871	447	81	2038
Water-impelling machine	C. W. Horton	595,246	Dec. 7	731	179	81	1755
Water-motor	J. W. Smith	595,790	Dec. 21	1615	389	81	1974
Water or gas box. Street	L. P. Converse	594,985	Dec. 7	154	------	81	1650
Waterproofing compound	L. P. Converse	594,984	Dec. 7	153	------	81	1650
Waterproofing material	J. T. Manning	594,638	Nov. 30	3410	796	81	1530
Water purification. Coagulant-feeder for	G. F. Lidy	593,054	Nov. 2	528	127	81	910
Water-purifying apparatus	H. Stillman	595,798	Dec. 21	1618	390	81	1974
Water-purifying apparatus	R. S. Judson	591,767	Oct. 12	1450	344	81	312
Water-race rack-cleaner	P. Lormant	592,873	Nov. 2	215	49, 50	81	849
Water-raising apparatus	G. R. Young and C. Shaw	592,067	Oct. 19	1926	458	81	425
Water-raising apparatus	E. Pitcher and E. H. Sargent	593,431	Nov. 9	1220	295	81	1056
Water-raising device. Pneumatic	J. Farrell	591,161	Oct. 5	397	92, 93	81	76
Water-regulating apparatus							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Water service-pipe	W. Snelgrove and R. F. Goyne	593,388	Nov. 9	1069	258	81	1028
Water-tower	F. S. Henning and W. Pigott	591,608	Oct. 12	1198	281 282	81	258
Water-wheel	J. Ebersole	593,273	Nov. 9	956	231	81	1006
Water-wheel. Turbine	J. A. Davis	592,984	Nov. 2	419	98, 99	81	888
Waterer. Stock-	K. P. Johnson	591,276	Oct. 5	512	143	81	116
Wattmeter	E. K. Adams	595,751	Dec. 21	1539	371 372	81	1959
Wattmeter. Induction-	E. Thomson and W. H. Pratt	596,190	Dec. 28	2340	555 556	81	2136
Wave-motor	F. M. Graham	592,051	Oct. 19	1958	463	81	431
Wave-motor	F. L. Pyle and J. McDonald	596,124	Dec. 28	2234	530	81	2116
Wave-power-storing machine	A. P. Haag and F. J. Friedrich	594,078	Nov. 23	2395	569	81	1316
Weather-strip	G. J. Blum	596,318	Dec. 28	2552	608	81	2177
Weather-strip	G. A. Hill	594,623	Nov. 30	3366	788	81	1521
Weather-strip	D. D. Mayfield	591,048	Oct. 5	196	47	81	39
Weather-strip	C. F. Russell	596,091	Dec. 28	2178	518	81	2105
Weather-strip. Automatic	D. A. Brawley and J. F. Lewis	591,809	Oct. 19	1535	362 363	81	348
Web-drier looping-machine	L. Wimmer	592,677	Oct. 26	3384	706 707	81	762
Wedges. Machine for making wooden	B. H. Osterhoudt	593,308	Nov. 9	1017	245 246	81	1019
Weed-cutter	L. Agur	592,268	Oct. 26	2331	550	81	523
Weed-cutter	S. Fuller	595,709	Dec. 21	1475	355	81	1947
Weed-destroyer	P. E. Erickson	591,391	Oct. 12	996	198	81	189
Weed-exterminator	S. H. McBride	593,235	Nov. 9	901	217	81	996
Weeds and grass under water. Apparatus for cutting	J. C. Farmer	592,985	Nov. 2	420	99	81	888
Weighing and bagging machine. Automatic	W. J. Elliott	595,154	Dec. 7	553	134	81	1723
Weighing and dumping apparatus. Coal	P. J. Quirk	594,427	Nov. 30	2099	704 705	81	1450
Weighing and packing machine. Automatic	E. Hanak	594,008	Nov. 23	2279	539	81	1294
Weighing attachment. Wagon	G. G. Kaiser	595,715	Dec. 21	1481	357	81	1948
Weighing-machine. Automatic	W. F. Braun	593,455	Nov. 9	1255	303 304	81	1064
Weighing-machine. Automatic	A. A. Meyer	596,006	Dec. 21	2009	480	81	2054
Weighing machine. Liquid-	H. H. Huhn	596,328	Dec. 28	2577	613 614	81	2181
Weir. Automatic	G. L. Fuchs	594,733	Nov. 30	3585	883	81	1567
Welding apparatus	E. Einfeldt	592,768	Nov. 2	23	6	81	811
Welding apparatus. Tube-	P. C. Patterson	593,967	Nov. 16	2212	524 525	81	1263
Welding machine. Flue-	J. F. Quinn and R. E. Lee	595,836	Dec. 21	1694	409	81	1989
Welding metals. Method of and apparatus for	J. W. Comley	593,534	Nov. 9	1411	340	81	1092
Well-drilling machine	M. G. Bunnell and W. T. Perkins	594,064	Nov. 23	2374	562 563	81	1312
Well-drilling machine	P. P. Marsh	592,155	Oct. 19	2143	507	81	466
Well-drilling machine	F. R. Yearian	592,678	Oct. 26	3385	707	81	762
Well-drills. Device for loosening	F. Austin	594,772	Nov. 30	3649	849	81	1580
Well-ejector	J. J. Greer	593,885	Nov. 16	2072	499	81	1235
Wheat-heater. Gravity	W. Apelt	592,041	Oct. 19	1985	459	81	427
Wheel: *See* Air or water wheel. Removable wheel. Bicycle-wheel. Sprocket-wheel. Car-wheel. Traction-wheel. Caster-wheel. Trolley-wheel. Cog-wheel. Vehicle-wheel. Fifth-wheel. Water-wheel. Gear-wheel. Wind-wheel. Harvester-wheel. Wire-spoke wheel.							
Wheel	J. H. Croskey	596,261	Dec. 28	2457	592	81	2159
Wheel	D. M. Dearing	595,610	Dec. 14	1309	316	81	1696
Wheel	D. Fahey	591,398	Oct. 12	820	199	81	189
Wheel	J. J. Graham	591,920	Oct. 19	1727	414	81	398
Wheel	F. P. Terry	592,027	Oct. 19	1910	454	81	422
Wheel	R. H. Kimbrough	591,925	Oct. 19	1736	415	81	399
Wheel attachment for legs	J. G. A. Kitchen	593,395	Nov. 9	1167	281	81	1045
Wheel mud-guard	T. Kundtz	596,494	Dec. 28	2762	658	81	2219
Wheel-rim	H. R. Osborn	595,333	Dec. 14	956	211	81	1806
Wheel rim and tire. Vehicle-	C. Anderegg	593,268	Nov. 9	951	230	81	1005
Wheel rim. Vehicle-	J. M. Goff	595,808	Dec. 21	1650	397 398	81	1980
Wheel-rims. Oil-bath for	J. McNaughton	596,414	Dec. 28	2739	648	81	2215
Wheel-runner	J. Pearson	591,568	Oct. 12	1141	268	81	248
Wheels. Rim for pneumatic-tired	G. E. Strauss	591,796	Oct. 12	1505	357	81	322
Wheels to hubs, axles, or shafts. Fastening	F. Taylor	594,766	Nov. 30	3634	846 847	81	1577
Wheelbarrow	C. Phelps	593,029	Nov. 2	483	117	81	901
Whiffletree-eye	W. H. Bayley	591,727	Oct. 12	1392	327	81	300
Whiffletree-fastening	W. G. Shaw and R. P. Redmond	595,500	Dec. 14	1145	276	81	1860
Whip-socket	G. F. Arp	591,521	Oct. 12	1055	247	81	228
Whistle for gas or gasolene engines	L. Bartlett	596,257	Dec. 28	2448	579	81	2158
Whistle. Steam-	H. C. Mustard	592,015	Oct. 19	1896	451	81	419
Whistles. Automatic device for operating	J. C. Miller	594,264	Nov. 23	2681	635	81	1871
Wick-adjuster	C. L. Marshall	595,884	Dec. 21	1803	432	81	2011
Wick. Lamp-	R. H. White	593,262	Nov. 9	939	227	81	1008
Wick-trimmer	A. D. Barrett	593,560	Nov. 16	1478	360	81	1120
Wig-frame	H. E. Ebert	592,243	Oct. 26	2296	541	81	516
Wig-maker's appliance	F. W. Hedgeland	591,218	Oct. 5	506	120	81	96
Wind-motor	J. E. Swanson	594,442	Nov. 30	3026	711	81	1435
Wind-motor and power-transmitter	M. White	593,170	Nov. 2	760	182	81	957
Wind-wheel	C. L. Stacy	592,454	Oct. 26	2992	606 607	81	684
Winding-machine. Adjustable	J. W. Foster	592,773	Nov. 2	32	7, 8	81	813
Winding machine. Bobbin-	T. Hansen	594,580	Nov. 30	3194	749	81	1486
Winding machine. Thread-							

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Winding tapering cops. Machine for	S. W. Wardwell, Jr.	593,756	Nov. 16	1834	440	81	1187
Windmill	J. F. Ducker	590,970	Oct. 5	32	8	81	8
Windmill	F. Evison	591,962	Oct. 19	1797	428	81	401
Windmill	H. A. Hyne	591,101	Oct. 5	285	69	81	56
Windmill	H. M. Peterson	591,775	Oct. 12	1469	347 348	81	814
Windmill-coupling	M. Beadle	593,041	Nov. 2	507	122 123	81	905
Windmill-coupling	A. Y. Masser	590,997	Oct. 5	82	18	81	17
Windmill motion-converter	J. S. Bennett	593,290	Nov. 9	984	237 238	81	1012
Windmill-tower braces. Centering and tightening device for	S. W. Martin	591,860	Oct. 19	1606	382	81	363
Window	W. F. McIntosh	595,332	Dec. 14	856	211	81	1805
Window-box	L. G. Quackenboss	591,935	Oct. 19	1751	418 419	81	398
Window-casing and pulley-support	A. Jones and H. Harig	593,585	Nov. 16	1529	371	81	1130
Window-chair	C. W. Engiert	594,612	Nov. 30	3349	785	81	1518
Window-chair	W. Timmis	593,501	Nov. 9	1349	327	81	1081
Window-cleaner	C. Brown	592,076	Oct. 19	2005	474	81	440
Window-cleaner	J. Rude	591,142	Oct. 5	361	85	81	70
Window-fastener	L. R. Hopkins	590,986	Oct. 5	62	14	81	14
Window-light. Lenticular	F. C. Soper	595,273	Dec. 7	763	188	81	1762
Window or curtain fixture	P. G. Emery	593,929	Nov. 16	2149	509 510	81	1250
Window. Prismatic	J. M. Ewen	595,263	Dec. 7	753	185	81	1760
Window. Reversible	L. Proll, C. M. Depew, and E. W. Hawley.	593,855	Nov. 16	2017	475	81	1223
Window-screen	E. Cook	594,606	Nov. 30	3338	788	81	1516
Window-screen	E. A. Worthen	591,714	Oct. 12	1375	323	81	296
Window-screen. Adjustable	D. F. Mooney, Jr	595,724	Dec. 21	1498	361 362	81	1951
Window-screen. Metallic	A. J. Bradley	594,518	Nov. 30	3167	743	81	1483
Wire-clamp	W. H. Brodie	592,949	Nov. 2	349	81	81	875
Wire-coil machine	H. M. and G. M. Jackson	594,535	Nov. 30	3304	751	81	1490
Wire-coil machine	J. H. Templin	593,406	Nov. 9	1181	295 296	81	1048
Wire coils for flexible shafting. Machine for making	A. Striemer	593,166	Nov. 2	756	181	81	956
Wire cords or cables. Machine for making	W. H. H. Sisum	592,453	Oct. 26	2989	605 606	81	683
Wire-cutting machine	C. S. Chaffee	594,676	Nov. 30	3484	811	81	1546
Wire-fabric machine	A. L. Kitselman	592,981	Nov. 2	308	70 71 72	81	867
Wire-fabric machine	A. L. Kitselman	595,635	Dec. 14	1353	326 327	81	1905
Wire-looping tool	W. N. Parrish	595,729	Dec. 21	1508	363	81	1952
Wire-spoke wheel	A. I. Jacobs	596,067	Dec. 28	2135	506	81	2098
Wire-stretcher	R. J. Gardner	591,115	Oct. 5	310	76	81	60
Wire-stretcher	A. R. Ingram and J. Paugh	592,226	Oct. 19	2267	534	81	491
Wire-stretcher	E. S. Johnston and J. N. Kyle	594,955	Dec. 7	168	45	81	1656
Wire-stretcher	W. T. McNeill	596,377	Dec. 28	2660	634	81	2202
Wire-stretcher	T. F. Sharpe	591,263	Oct. 5	504	189	81	113
Wire-stretcher	A. J. Stirk	593,250	Nov. 9	923	223	81	1000
Wire-stretcher	A. B. Probasco	591,495	Oct. 12	1000	235	81	222
Wire-stretching implement	L. Cook	591,454	Oct. 12	929	218 219 220	81	210
Wire-swaging machine	W. A. Short	595,218	Dec. 7	657	158	81	1742
Wire-tightener	W. E. Judy and J. Robeson	592,787	Nov. 2	59	13	81	818
Wire-tightener and fence-ratchet	H. C. Williams	594,977	Dec. 7	232	56	81	1664
Wire-unwinding device	D. P. Anthony	594,841	Dec. 7	1	1	81	1621
Wires. Die for joining intersecting	W. G. Curtis and J. D. Isaacs	592,219	Oct. 19	2238	530	81	484
Wood construction	F. A. Jumeau	593,396	Nov. 9	1054	254	81	1026
Wood fabric for tapestries, carpets, furniture, &c.	A. Thieke	594,920	Dec. 7	135	33	81	1647
Wood-plug holder	O. H. Young	592,679	Oct. 26	3387	707 708	81	763
Wood-polishing machine	K. H. Schafer	593,610	Nov. 16	1572	389 391	81	1139
Wood splints. Apparatus for cutting	O. H. Ordway	595,199	Dec. 7	636	152	81	1738
Wood-twisting machine	W. Postmus	591,424	Oct. 12	876	205	81	196
Woodworking-machine	J. Brandy	594,321	Nov. 23	2789	659	81	1322
Wool-bagging machine	M. F. Tyson	592,181	Oct. 19	2188	515	81	474
Work-holder	H. E. Deckebach	596,102	Dec. 28	2200	521 522	81	2110
Wort-cooler	C. F. Hönsch and G. Corbion, Jr.	596,267	Dec. 28	2468	586 587	81	2161
Woven textile fabric	T. E. Nininger	594,273	Nov. 23	2692	637 638	81	1373
Wrapping-machine	S. D. Tripp	595,421	Dec. 14	1015	244	81	1834
Wrapping-machine	H. B. Clark	593,959	Nov. 16	2192	520 521	81	1259
Wrapping-machine for newspapers, &c.	J. J. Sullivan	595,866	Dec. 21	1760	421 422 423 424 425	81	2003
Wrapping, printing, and boxing cakes of yeast, caramels, &c. Machine for							
Wrench; *See* Adjustable wrench. Nut and pipe wrench. Combination-wrench. Pipe-wrench. Pump-wrench. Jar-wrench. Rotary wrench. Monkey-wrench. Spanner-wrench. Nut-wrench. Tap-wrench.							
Wrench	G. W. Anderson	595,512	Dec. 14	1165	280	81	1865
Wrench	E. L. Antony	596,235	Dec. 28	2409	570	81	2151

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Wrench	J. G. Fletcher	592,199	Oct. 19	2215	523	81	480
Wrench	J. B. Ford	591,528	Oct. 12	1070	252	81	233
Wrench	J. P. Forsberg	592,235	Oct. 26	2358	557	81	529
Wrench	S. T. Freas	593,882	Nov. 16	2067	488	81	1234
Wrench	T. Green	595,164	Dec. 7	570	137	81	1727
Wrench	R. Hagstrom	591,779	Oct. 12	1483	351	81	318
Wrench	A. Hammarstrom and O. Carlson	591,187	Oct. 5	407	96,96	81	78
Wrench	J. A. Hill	594,399	Nov. 30	2939	693	81	1438
Wrench	B. E. Horr	591,118	Oct. 5	315	78	81	62
Wrench	J. H. Johnson	591,553	Oct. 12	1113	262	81	243
Wrench	L. G. Krueger	594,023	Nov. 23	2308	544	81	1298
Wrench	M. M. Le May	595,698	Dec. 14	1858	328	81	1906
Wrench	H. H. McKelvey	592,102	Oct. 19	2158	509	81	469
Wrench	E. B. Sankey	595,252	Dec. 7	740	181	81	1757
Wrench	W. F. Sellers	595,586	Dec. 14	1276	306	81	1889
Wrench	E. B. Smith	591,893	Oct. 19	1658	396	81	374
Wrench	F. S. Smith	591,061	Oct. 5	216	51	81	43
Wrench	E. F. Stout	594,498	Nov. 30	3133	734	81	1477
Wrench	J. W. Taylor	592,068	Oct. 19	1993	471	81	437
Wrench	L. Terry	595,796	Dec. 21	1622	391	81	1975
Wrench	L. D. Shryock	595,975	Dec. 21	1963	469	81	2044
Wrench for oil-well tools	R. P. Hornbake	595,020	Dec. 7	312	75	81	1678
Wringer: *See* Clothes-wringer.							
Wringer-roll	J. M. Russ	591,084	Oct. 5	254	60	81	50
Writer. Manifold letter-	A. L. Fisher	591,337	Oct. 5	711	168	81	187
Yoke. Animal-	C. H. Heimlich	593,578	Nov. 16	1518	360	81	1128
Yoke coupling. Neck-	D. Murray	592,476	Oct. 26	3084	617	81	692
Yoke holder for wagon-tongues. Neck-	G. A. Lambert	592,793	Nov. 2	66	14	81	819
Yoke. Neck-	S. H. Emmens	594,611	Nov. 30	3347	785	81	1518
Zinc from zinciferous ores. Process of and apparatus for removing	S. I. Hallett	594,829	Nov. 30	3735	875	81	1601
Zinc-lead or other ores. Treating	E. A. Ashcroft	595,513	Dec. 14	1166	280	81	1865
Zinc ores and zinkiferous ores for smelting. Preparing	W. Hampe	594,948	Dec. 7	177	------	81	1655
Zinc pigments. Manufacture of							

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Angler's ring	P. H. Felker	27,912	Nov. 30	81	1605
Armature	O. Wiederhold	27,870	Nov. 16	81	1270
Awning-guard	C. G. Rogers	28,106	Dec. 28	81	2240
Badge	C. C. Darling	27,817	Nov. 9	81	1102
Badge	T. B. Stephenson	27,929	Dec. 7	81	1765
Badge	L. Sanders	27,775	Oct. 26	81	788
Bag. Hand-	J. H. Hoff	27,857	Nov. 16	81	1269
Basket	G. S. M. Rutter	27,932	Dec. 7	81	1766
Basket	D. D. Buick	27,735	Oct. 12	81	326
Bath-tub	E. E. Rigg	27,954	Dec. 7	81	1769
Bed-spring	H. Ward	28,107	Dec. 28	81	2240
Bedstead headboard or footboard	A. A. Bevin	28,076	Dec. 21	81	2077
Bell-gong	W. H. Carr and J. G. Wolf	27,927	Nov. 30	81	1608
Belt	W. D. Chapin	28,092	Dec. 21	81	2075
Belt-fastener link	P. H. York	28,081	Dec. 14	81	1922
Bench. Duet-	P. S. Kepler	27,924	Nov. 30	81	1607
Bias-stick	J. W. Fuller	27,766	Oct. 19	81	497
Bicycle ammonia-gun holder	A. W. Rivett	27,882	Nov. 9	81	1104
Bicycle chain-guard	A. H. Andrews	27,767	Oct. 19	81	497
Bicycle-frame	M. A. Andrews	27,958	Dec. 7	81	1770
Bicycle-frame	C. C. Chrisman	27,901	Nov. 23	81	1412
Bicycle-frame	E. J. Phelps	28,082	Dec. 21	81	2078
Bicycle-frame	H. G. Piffard	27,873	Nov. 16	81	1271
Bicycle-frame	F. H. Schinneer	27,885	Nov. 9	81	1104
Bicycle handle-bar	S. J. Anderson and J. Toltras	27,778	Oct. 26	81	788
Bicycle pedal-arm	J. A. Hunt	27,813	Nov. 2	81	963
Bicycle-saddle	J. Serson	27,956	Dec. 7	81	1770
Bicycle-saddle	C. E. Stanley	27,730	Oct. 12	81	327
Bicycle-saddle	W. Oliver	27,768	Oct. 19	81	497
Bicycle-stand	W. K. Pine	27,769	Oct. 19	81	497
Bicycle-stand	W. K. Pine	27,770	Oct. 19	81	497
Bicycle-stand	C. Rozell	28,063	Dec. 21	81	2078
Billet-loop	O. Anderson	27,913	Nov. 30	81	1605
Blowpipe casing. Jeweler's	T. Gorman	28,104	Dec. 28	81	2239
Bolster	E. E. Phinney and J. J. Falvey	27,771	Oct. 19	81	497
Boot. Bicycle-	S. R. Chandler	27,885	Nov. 23	81	1409
Bottle	H. Esser	28,024	Dec. 14	81	1921
Bottle	R. H. Levis	27,906	Nov. 30	81	1604
Bottle	A. St. George	27,884	Nov. 23	81	1409
Bottle	H. Krauth	27,819	Nov. 9	81	1102
Bottle or jar	P. J. Gross	27,880	Nov. 16	81	1269
Bottle-stopper lever	S. Weiller	28,098	Dec. 28	81	2236
Box	S. C. Cary	27,910	Nov. 30	81	1605
Box-strap	E. O. Selby	28,050	Dec. 21	81	2075
Bracket and pencil-holder	H. Krauth	27,726	Oct. 12	81	326
Bracket. Wall-	T. G. Lewis and F. M. Bailey	27,747	Oct. 19	81	493
Brazing-stand	I. Hirsch	27,722	Oct. 12	81	325
Bread-pan	M. Lange	27,856	Nov. 16	81	1268
Brush	G. L. Crowell, Jr	28,093	Dec. 28	81	2237
Brush-back	F. N. Osborne	28,021	Dec. 14	81	1921
Brush-back	C. E. Watson	28,096	Dec. 28	81	2238
Brush. Stove-	D. A. Loeser	27,855	Nov. 16	81	1268
Brushes or similar articles. Back for	E. T. Mills	28,095	Dec. 28	81	2237
Bucket	F. M. Simons	28,090	Dec. 28	81	2237
Buckle	L. T. Alton	27,720	Oct. 12	81	325
Burner-tube	G. Staiger	28,027	Dec. 14	81	1922
Bushings. Lower member for	J. L. Dickinson	27,782	Oct. 26	81	789
Butter-mold stamp	F. Thielke	27,736	Oct. 19	81	491
Button-hook handle	W. Steele	28,057	Dec. 21	81	2075
Button or badge	E. H. Ellis	28,083	Dec. 14	81	1923
Cabinet. Cylindrical	J. M. Worthington	28,082	Dec. 14	81	1923
Cabinet frame. Prescription-	D. B. Lincoln	27,964	Dec. 7	81	1771
Cabinet. Hotel-	S. E. Tooley	27,909	Nov. 30	81	1605
Cabinet. Kitchen-	C. Frenzel	27,807	Nov. 2	81	962
Calendar	J. J. Gallman	27,781	Oct 26	81	789
Can-opener blade	J. Vanderbilt	27,741	Oct. 19	81	493
Candle-shade	E. Israel	28,050	Dec. 14	81	1925
Cap	C. H. Davis	28,072	Dec. 21	81	2077
Car. Electric-railway	C. H. Davis	28,073	Dec. 21	81	2077
Car. Electric-railway	H. S. Hale	27,871	Nov. 16	81	1271
Car-seat frame	M. P. M. Carr	27,749	Oct. 19	81	493
Car-step	W. P. Ordway	28,058	Dec. 14	81	1926
Card-case attachment	M. F. Carey	27,905	Nov. 30	81	1604
Card. Playing-	A. K. May	27,796	Oct. 26	81	791
Carpet	A. K. May	27,797	Oct. 26	81	791
Carpet	A. K. May	27,798	Oct. 26	81	791
Carpet	A. K. May	27,799	Oct. 26	81	791
Carpet	A. K. May	27,800	Oct. 26	81	791
Carpet	A. K. May	27,801	Oct. 26	81	791
Carpet	A. K. May	27,802	Oct. 26	81	792
Carpet	A. K. May	27,803	Oct. 26	81	792
Carpet	A. K. May	27,804	Oct. 26	81	792

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Carpet	A. K. May	27,805	Oct. 26	81	792
Carpet	A. K. May	27,806	Oct. 26	81	792
Carpet	A. M. Rose	27,790	Oct. 26	81	790
Carpet	A. M. Rose	27,791	Oct. 26	81	790
Carpet	A. M. Rose	27,792	Oct. 26	81	790
Carpet	A. M. Rose	27,793	Oct. 26	81	790
Carpet	A. M. Rose	27,794	Oct. 26	81	790
Carpet	A. M. Rose	27,795	Oct. 26	81	791
Carpet	A. M. Rose	27,966	Dec. 7	81	1771
Carpet	A. M. Rose	27,812	Nov. 2	81	963
Carriage-jack	J. B. Foote	27,872	Nov. 16	81	1271
Carriage-seat	S. R. Bailey	27,916	Nov. 30	81	1606
Carriage-top rest	E. J. Green	28,112	Dec. 28	81	2241
Casket	L. Stein and W. A. Sparks	27,957	Dec. 7	81	1770
Chain link. Bicycle-	P. Burns	27,734	Oct. 19	81	491
Chain. Ornamental	S. O. Bigney	27,727	Oct. 12	81	326
Chair	D. W. Kendall	27,925	Nov. 30	81	1607
Chart. Dressmaker's	E. Epley	27,811	Nov. 2	81	963
Checkrein-holder	H. J. Burnworth	27,926	Nov. 30	81	1608
Chest and neck protector	J. H. Way	27,844	Nov. 2	81	963
Churn-lid	E. D. Benninghoff	28,058	Dec. 21	81	2075
Cigar	E. Weinreich	27,843	Nov. 9	81	1106
Coffin-plate	G. H. Ford	27,914	Nov. 30	81	1606
Coin-controlled-machine case	G. Sittmann and W. H. Pitt	27,810	Nov. 2	81	963
Collar and back shield	V. Guinzburg	27,715	Oct. 12	81	324
Cork-extractor	H. Streiff	28,023	Dec. 14	81	1921
Corn-holder	E. A. Thomforde	28,101	Dec. 28	81	2238
Corn-pulper	F. F. Shilling	28,086	Dec. 21	81	2079
Corset	D. H. Warner	27,863	Nov. 16	81	1269
Counter. Auxiliary change-	G. E. Crump	27,994	Dec. 7	81	1766
Cover	L. Wojidkow	27,726	Oct. 12	81	326
Cradle-frame	R. W. Haggard	28,084	Dec. 14	81	1923
Cultivator-shovel	T. H. Raney	27,915	Nov. 30	81	1606
Curtain-pole bracket	E. Roos	27,952	Dec. 7	81	1769
Cut-out holder. Fusible-	F. Schwedtmann	27,899	Nov. 23	81	1412
Cyclometer-body	W. C. Homan	28,079	Dec. 21	81	2078
Cyclometer-case	C. A. Haney	28,102	Dec. 28	81	2239
Die-shoe	F. C. Billings	27,743	Oct. 19	81	492
Dish	W. H. Grindley	27,744	Oct. 19	81	493
Dish	W. H. Grindley	27,933	Dec. 7	81	1766
Dish. Cover-	R. L. Johnson	27,742	Oct. 19	81	492
Dish. Covered	W. H. Grindley	27,895	Nov. 23	81	1411
Disk. Rotary clearing-	J. Thomson, Jr	27,904	Nov. 23	81	1412
Display-cabinet	G. D. Hayes	27,785	Oct. 26	81	789
Display-stand	T. P. McHugh	27,867	Nov. 16	81	1270
Door-stop	J. Schenck	27,896	Nov. 23	81	1410
Drinking-cup	T. Rogers	28,025	Dec. 14	81	1922
Dust-pan	W. H. Payne	27,962	Dec. 7	81	1770
Dust-protector	H. S. Cover	27,827	Nov. 9	81	1108
Elevator guide-supporting beam	R. T. Crane	27,828	Nov. 9	81	1108
Elevator guide-supporting beam	R. T. Crane	28,103	Dec. 28	81	2239
Engine bed-plate. Steam-	H. See	27,854	Nov. 16	81	1268
Envelop	J. Koehler	27,965	Dec. 7	81	1771
Fabric for hangings, portières, &c	J. P. McHugh	28,084	Dec. 21	81	2079
File	J. Jacobs	27,897	Nov. 23	81	1411
Fishing-reel plate	A. B. Hendryx	27,784	Oct. 26	81	789
Flour-bin stand	A. Gander	27,875	Nov. 16	81	1271
Flue-cleaner	G. E. Shirley	27,820	Nov. 9	81	1102
Fork. Pie-	E. J. Birtcherd	27,750	Oct. 19	81	493
Fuse-block	W. D. Packard	28,083	Dec. 21	81	2079
Game-board	A. Beck	27,844	Nov. 9	81	1106
Game-board	G. E. Chandler and F. W. Parsons	28,049	Dec. 14	81	1925
Game-board	D. Du Bois	27,788	Oct. 26	81	790
Game-board	H. L. Haskell	27,733	Oct. 12	81	327
Game-board	C. H. Leonard	28,046	Dec. 14	81	1925
Game-board	E. A. Tourny	27,789	Oct. 26	81	790
Game-board	C. W. Wood	27,944	Dec. 7	81	1768
Gas-burner fixture	E. Lindner	27,945	Dec. 7	81	1768
Gas-burner fixture	E. Lindner	28,099	Dec. 28	81	2238
Gas-burner fixture. Incandescent-	E. Lindner	27,878	Nov. 16	81	1272
Glass or tile	J. Jacobs	27,732	Oct. 12	81	327
Golf-club	J. H. Adams	27,876	Nov. 16	81	1271
Grate	F. R. Smith	28,071	Dec. 21	81	2077
Grate-frame	T. R. Kennedy	27,949	Dec. 7	81	1769
Hammer	J. L. Sommer	27,861	Nov. 16	81	1269
Hammer, lifter, and tack-puller	W. C. Hooker	27,923	Nov. 30	81	1607
Hanger for articles of merchandise	E. S. Robbins	28,081	Dec. 21	81	2078
Handle-bar	A. S. Comstock	27,753	Oct. 19	81	494
Harness-loop	S. H. Hull	28,087	Dec. 28	81	2236
Heel. Shoe-	N. Sanders	28,098	Dec. 28	81	2238
Hinge	G. L. Lobsitz	27,752	Oct. 19	81	494
Hook body. Snap-	L. H. Prindle	27,963	Dec. 7	81	1770
Hook. Coat, hat, and umbrella	W. Walker	28,028	Dec. 14	81	1922
Hook. Garment and umbrella	W. Walker	27,917	Nov. 30	81	1606
Hook. Harness-	P. Epler	27,908	Nov. 30	81	1605
Hook. Pail-	S. C. Cary	28,064	Dec. 21	81	2076
Hook. Snap-	G. M. Hubbard	28,065	Dec. 21	81	2076
Hook. Snap-	G. M. Hubbard	27,751	Oct. 19	81	494
Hook. Snap-	L. H. Prindle	27,831	Nov. 9	81	1104
Hub band. Wheel-	W. F. Morton	27,896	Nov. 23	81	1411
Hub-flange	J. C. Couper	27,947	Dec. 7	81	1768
Ice-shaver	H. M. Norton	27,746	Oct. 19	81	493
Ink block. Stencil-	J. A. Allen	27,756	Oct. 19	81	495
Insulator. Line-wire	S. A. Graham	28,026	Dec. 14	81	1922
Jar-fastening bar	J. Schies	28,082	Dec. 14	81	1925
Jar-lid clamp	J. Bonshire	27,859	Nov. 16	81	1269
Jug	H. T. Pope and B. F. Kidder				

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Key-guard	T. M. Hilliard	27,911	Nov. 30	81	1605
Knife-blade	G. Webster	27,716	Oct. 12	81	324
Lacing-hook for gloves	H. H. Eaton	27,931	Dec. 7	81	1766
Lamp or lantern body	R. J. Armour	27,898	Nov. 23	81	1411
Lantern	F. T. Williams	27,717	Oct. 12	81	324
Lantern. Bicycle-	L. Hornberger	28,080	Dec. 21	81	2078
Lantern-body	E. M. Rosenbluth	27,863	Nov. 16	81	1269
Lantern-burner	J. W. Dearing	28,100	Dec. 28	81	2238
Leather-machinery finishing-roll	J. Hall	27,760	Oct. 19	81	495
Lemon-squeezer	G. R. Blake	27,948	Dec. 7	81	1768
Lemon-squeezer cone	A. Baumgarten and M. Redlinger, Jr	27,821	Nov. 9	81	1102
Lever. Jack-	G. Oldham	27,779	Oct. 26	81	788
Light or tile	J. W. Mark	27,761	Oct. 19	81	495
Machine-standard	G. A. Holmes	27,826	Nov. 9	81	1103
Manhole-cover	T. P. Greger	28,070	Dec. 21	81	2076
Manhole-frame	T. P. Greger	27,955	Dec. 7	81	1770
Match and cigar safe	M. Weiss	27,739	Oct. 19	81	492
Match-safe	M. T. La Rouche and F. S. Baker	27,776	Oct. 26	81	788
Metal bar	W. J. Bradley and J. Mathisen	27,757	Oct. 19	81	495
Metal fabric	J. V. Christl	27,899	Nov. 9	81	1105
Molding	C. E. Sandstrom	28,085	Dec. 21	81	2079
Monument	W. H. Perry	27,774	Oct. 19	81	498
Monument	E. O. Townsend	27,729	Oct. 12	81	326
Music-time-division block set	E. A. Fletcher	28,029	Dec. 14	81	1922
Musical-instrument frame or body	H. C. Levin	28,061	Dec. 21	81	2075
Oil-can	M. L. Sperry	27,748	Oct. 19	81	498
Ornamental cross	G. W. Busch	27,928	Nov. 30	81	1608
Pan. Cake-	C. E. Schmidt	27,936	Dec. 7	81	1766
Pan-lifter clamping-arm	G. E. Cole	27,898	Nov. 23	81	1411
Paper box	F. E. Jones	28,041	Dec. 14	81	1924
Paper box	F. E. Jones	28,042	Dec. 14	81	1924
Paper box	F. E. Jones	28,043	Dec. 14	81	1924
Paper box	F. E. Jones	28,044	Dec. 14	81	1924
Paper box	F. E. Jones	28,045	Dec. 14	81	1925
Paper box	F. E. Jones	28,046	Dec. 14	81	1925
Penholder-support	A. H. Meloche	27,737	Oct. 19	81	491
Pen-wiper holder	J. A. Healy	27,853	Nov. 16	81	1268
Pencil-point protector	H. Smith	27,818	Nov. 9	81	1103
Piano-plate	R. S. Bowen	27,763	Oct. 19	81	496
Piano-plate	R. S. Bowen	27,764	Oct. 19	81	496
Piano-plate	R. S. Bowen	27,765	Oct. 19	81	496
Piano-top	I. V. Arvonen	28,060	Dec. 21	81	2075
Picture-frame	C. J. Holmgren and E. J. Youngquist.	27,735	Oct. 19	81	491
Pin. Hat-	H. Kriechbaum	27,738	Oct. 19	81	491
Pipe	C. Rohlfs	28,089	Dec. 28	81	2236
Pipe. Smoking-	P. Gumbinner	28,051	Dec. 14	81	1926
Plaited fabric	L. Wojidkow	28,094	Dec. 28	81	2237
Plate or similar article	J. Dunlop	27,858	Nov. 16	81	1269
Plate. Pie-	J. W. Barnard	27,918	Nov. 30	81	1606
Plow-stock	F. Kirchner	27,866	Nov. 16	81	1270
Plumber's trap	L. Wojidkow	27,988	Dec. 7	81	1767
Pot or kettle stand	F. L. Wright	28,020	Dec. 7	81	1779
Prism-canopy	O. H. Basquin	27,969	Dec. 7	81	1772
Prism-light	H. F. Belcher	27,970	Dec. 7	81	1772
Prism-light	H. F. Belcher	27,971	Dec. 7	81	1772
Prism-light	H. F. Belcher	27,972	Dec. 7	81	1772
Prism-light	H. F. Belcher	27,973	Dec. 7	81	1772
Prism-light	J. M. Ewen	27,968	Dec. 7	81	1772
Prism-light	F. C. Soper	27,974	Dec. 7	81	1772
Prism-light	F. C. Soper	27,975	Dec. 7	81	1772
Prism-light	F. C. Soper	27,976	Dec. 7	81	1773
Prism-light	F. L. Wright	27,977	Dec. 7	81	1773
Prism-light	F. L. Wright	27,978	Dec. 7	81	1773
Prism-light	F. L. Wright	27,979	Dec. 7	81	1773
Prism-light	F. L. Wright	27,980	Dec. 7	81	1773
Prism-light	F. L. Wright	27,981	Dec. 7	81	1773
Prism-light	F. L. Wright	27,982	Dec. 7	81	1774
Prism-light	F. L. Wright	27,983	Dec. 7	81	1774
Prism-light	F. L. Wright	27,984	Dec. 7	81	1774
Prism-light	F. L. Wright	27,985	Dec. 7	81	1774
Prism-light	F. L. Wright	27,986	Dec. 7	81	1774
Prism-light	F. L. Wright	27,987	Dec. 7	81	1774
Prism-light	F. L. Wright	27,988	Dec. 7	81	1774
Prism-light	F. L. Wright	27,989	Dec. 7	81	1774
Prism-light	J. M. Ewen	28,019	Dec. 7	81	1779
Prism pavement-panel	E. C. Waller	28,016	Dec. 7	81	1779
Prism-plate	F. L. Wright	27,990	Dec. 7	81	1774
Prism-plate	F. L. Wright	27,991	Dec. 7	81	1775
Prism-plate	F. L. Wright	27,992	Dec. 7	81	1775
Prism-plate	F. L. Wright	27,993	Dec. 7	81	1775
Prism-plate	F. L. Wright	27,994	Dec. 7	81	1776
Prism-plate	F. L. Wright	27,995	Dec. 7	81	1775
Prism-plate	F. L. Wright	27,996	Dec. 7	81	1775
Prism-plate	F. L. Wright	27,997	Dec. 7	81	1776
Prism-plate	F. L. Wright	27,998	Dec. 7	81	1776
Prism-plate	F. L. Wright	27,999	Dec. 7	81	1776
Prism-plate	F. L. Wright	28,000	Dec. 7	81	1776
Prism-plate	F. L. Wright	28,001	Dec. 7	81	1776
Prism-plate	F. L. Wright	28,002	Dec. 7	81	1776
Prism-plate	F. L. Wright	28,003	Dec. 7	81	1776
Prism-plate	F. L. Wright	28,004	Dec. 7	81	1777
Prism-plate	F. L. Wright	28,005	Dec. 7	81	1777
Prism-plate	F. L. Wright	28,006	Dec. 7	81	1777
Prism-plate	F. L. Wright	28,007	Dec. 7	81	1777
Prism-plate	F. L. Wright	28,008	Dec. 7	81	1777

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Prism-plate	F. L. Wright	28,009	Dec. 7	81	1777
Prism-plate	F. L. Wright	28,010	Dec. 7	81	1778
Prism-plate	F. L. Wright	28,011	Dec. 7	81	1778
Prism-plate	F. L. Wright	28,012	Dec. 7	81	1778
Prism-plate	F. L. Wright	28,013	Dec. 7	81	1778
Prism-plate	F. L. Wright	28,014	Dec. 7	81	1778
Prism-plate	F. L. Wright	28,015	Dec. 7	81	1778
Prism-plate	E. C. Waller	28,016	Dec. 7	81	1779
Prism-plate and border	F. L. Wright	28,017	Dec. 7	81	1779
Prism-plate and border	T. Corscaden	27,756	Oct. 19	81	495
Pulley-frame	S. Pennell	27,951	Dec. 7	81	1769
Pump-frog	O. P. Trahern	27,894	Nov. 9	81	1103
Pump-wrench	G. E. Parmenter	28,047	Dec. 14	81	1925
Puzzle-block	W. J. Fleming	27,880	Nov. 16	81	1272
Puzzle-board	C. H. Veeder	28,077	Dec. 21	81	2078
Register-case	C. H. Veeder	28,078	Dec. 21	81	2078
Register-case	D. R. Saunders and J. M. Lee	27,754	Oct. 19	81	494
Rein-holder	C. F. Knapp	27,950	Dec. 7	81	1765
Ring	I. W. Howell	27,953	Dec. 7	81	1769
Roentgen-ray tube	J. S. Travis	27,967	Dec. 7	81	1771
Rug	W. I. Bunker	28,087	Dec. 14	81	1923
Saddle-cushion	W. I. Bunker	28,088	Dec. 14	81	1924
Saddle-cushion	W. I. Bunker	28,089	Dec. 14	81	1924
Saddle-cushion	W. I. Bunker	28,040	Dec. 14	81	1924
Saddle-cushion	J. A. Hunt	27,884	Nov. 9	81	1104
Saddle-post	J. M. Curtice	27,816	Nov. 2	81	964
Safe, Kitchen-	F. O. Farwell	28,067	Dec. 21	81	2076
Sand-press frame	J. P. Sjöberg	27,894	Nov. 23	81	1411
Sash-spring	F. W. Merrick	27,960	Dec. 7	81	1770
Seam-welting strip	F. C. Hoyt	27,745	Oct. 19	81	493
Scale face-plate	W. T. Makepeace	27,815	Nov. 2	81	963
Scoop, Cranberry-	S. M. Cushing and W. O. Perkins	27,895	Nov. 9	81	1103
Scraping-tool	E. J. Brooks	27,892	Nov. 9	81	1102
Shackle, Snap-seal	T. P. Brown	27,719	Oct. 12	81	325
Shade-roller axle	M. Nielsen and T. S. Thomsen	28,066	Dec. 21	81	2076
Sharpener jaw, Knife-	A. D. Tyler, Jr	27,902	Nov. 23	81	1412
Shoe-form	A. D. Tyler, Jr	27,903	Nov. 23	81	1412
Shoe-form	J. Walden	27,961	Dec. 7	81	1770
Shoe-vamp stay	C. M. Blackman	27,864	Nov. 16	81	1270
Soap cake	H. B. Curtin	27,959	Dec. 7	81	1770
Soap cake	W. S. Richardson	27,865	Nov. 16	81	1270
Socket member of detachable fasteners	G. A. Bader	27,712	Oct. 12	81	324
Spectacle-bridge	S. G. Marshutz	27,851	Nov. 16	81	1268
Spectacle or eyeglass temple	F. E. Ladd	28,091	Dec. 28	81	2237
Spoon	R. Schaezlein	27,892	Nov. 23	81	1409
Spoon	G. L. Crowell, Jr	28,092	Dec. 28	81	2237
Spoon-handle	D. A. Loeser	28,022	Dec. 14	81	1921
Spoon or fork handle	W. C. Codman	27,850	Nov. 16	81	1268
Spoons, &c. Handle for	E. Holbrook	27,846	Nov. 16	81	1267
Spoons, &c. Handle for	E. Holbrook	27,847	Nov. 16	81	1267
Spoons, &c. Handle for	E. Holbrook	27,848	Nov. 16	81	1267
Spoons, &c. Handle for	E. Holbrook	27,849	Nov. 16	81	1267
Sprocket-wheel and chain guard	L. Sturges	27,921	Nov. 30	81	1607
Statuette	J. G. Hicks and J. McGreer	28,054	Dec. 14	81	1926
Statuette	J. G. Hicks and J. McGreer	28,055	Dec. 14	81	1926
Statuette	J. G. Hicks and J. McGreer	28,056	Dec. 14	81	1926
Stool pedestal, Piano-	P. H. York	28,020	Dec. 14	81	1922
Stopper-extractor	H. Streiff	27,892	Nov. 23	81	1411
Stopper, Wooden	W. C. Estes	27,780	Oct. 26	81	788
Stove	H. C. Bascom and E. Ambrose	27,724	Oct. 12	81	325
Stove	E. C. Cole	27,896	Nov. 9	81	1105
Stove	G. W. Cope	27,897	Nov. 9	81	1105
Stove	E. J. King and T. R. Kennedy	27,752	Oct. 19	81	496
Stove	E. G. Gerner	27,783	Oct. 26	81	789
Stove-door	F. J. Otis	28,097	Dec. 28	81	2238
Stove-door	E. C. Warren	27,946	Dec. 7	81	1768
Stove, Gas heating-	E. G. Germer	27,877	Nov. 16	81	1271
Stove, Heating-	G. W. Cope	27,723	Oct. 12	81	325
Stove or range	G. H. Phelps	27,809	Nov. 2	81	962
Stud	H. Johnson	27,869	Nov. 16	81	1270
Switch and signal supporting standards, Foundation for	J. R. Schelcsky	28,069	Dec. 21	81	2076
Table-slide block, Extension-	T. R. Ferrall	27,950	Dec. 7	81	1769
Tackle-block	A. Barton	27,787	Oct. 26	81	789
Target, Flying	H. F. Parker	27,881	Nov. 16	81	1272
Target, Flying	L. Wojidkow	27,937	Dec. 7	81	1767
Tea-holder	L. Wojidkow	27,942	Dec. 7	81	1767
Tea-kettle	L. Wojidkow	27,943	Dec. 7	81	1768
Tea-kettle	L. Wojidkow	27,939	Dec. 7	81	1767
Tea-kettle stand	L. Wojidkow	27,940	Dec. 7	81	1767
Tea-kettle stand	L. Wojidkow	27,941	Dec. 7	81	1767
Tea-kettle stand	E. B. Manning and M. Seips	27,907	Nov. 30	81	1604
Tea or coffee pot handle	W. J. Coakley and L. M. Robbins	27,852	Nov. 16	81	1268
Teething-ring	H. Haugh	27,842	Nov. 9	81	1106
Tile	J. Askins	27,922	Nov. 30	81	1607
Tire	C. P. Kelly	27,880	Nov. 9	81	1106
Tire	E. G. Van Zandt	27,731	Oct. 12	81	327
Tire	T. J. Lovett	28,074	Dec. 21	81	2077
Tire-block	T. J. Lovett	28,075	Dec. 21	81	2077
Tire-block	J. A. Lewis and W. G. Spiegel	27,899	Nov. 9	81	1103
Tire-section, Molded	D. Basch	27,920	Nov. 30	81	1606
Toe-clip	T. Miller	27,900	Nov. 23	81	1412
Toe-clip	I. Osgood	27,786	Oct. 26	81	789
Towel-rack frame	J. T. Henderson	27,879	Nov. 16	81	1272
Toy	E. R. Ives	27,808	Nov. 2	81	962
Toy gun-stock	W. L. Sütterlin and E. E. Schilling	27,718	Oct. 12	81	324
Trace-guard	A. Snow, Jr	27,887	Nov. 23	81	1410
Tray	A. Snow, Jr	27,888	Nov. 23	81	1410
Tray	A. Snow, Jr	27,889	Nov. 23	81	1410
Tray	A. Snow, Jr	27,890	Nov. 23	81	1410
Tray, Bread and cake	L. Wojidkow	27,935	Dec. 7	81	1766
Tray, Coin-	H. A. Miner	27,891	Nov. 23	81	1410
Tray or similar article	G. E. Waldeck	27,714	Oct. 12	81	324
Trimming	F. Payne	27,772	Oct. 19	81	497
Trimming	F. Payne	27,773	Oct. 19	81	498
Trimming	G. H. Taylor	27,845	Nov. 9	81	1106
Type-writer cabinet	J. B. Hammond	28,108	Dec. 28	81	2240
Umbrella-runner	W. C. B. Sparry	27,777	Oct. 26	81	788
Vase	C. J. Noke	27,893	Nov. 23	81	1409
Vault-light	W. S. MacHarg	27,840	Nov. 9	81	1105
Vault-light	F. C. Soper	27,841	Nov. 9	81	1106
Vehicle-wheel	T. J. Lovett	27,759	Oct. 19	81	495
Velocipede-saddle	A. E. Ames	28,086	Dec. 14	81	1923
Velocipede sprocket-wheel	W. H. Fauber	27,883	Nov. 9	81	1104
Wagon body, Delivery-	G. W. Knadler	28,085	Dec. 14	81	1923
Wall-paper	A. Martin	28,109	Dec. 28	81	2240
Wall-paper	A. Martin	28,110	Dec. 28	81	2240
Wall-paper	A. Martin	28,111	Dec. 28	81	2241
Washing-machine sprayer attachment	W. T. Bensonette	27,868	Nov. 16	81	1270
Watchmaker's tool	H. Zimmern	27,713	Oct. 12	81	324
Water-closet tank	D. D. Buick	27,893	Nov. 9	81	1103
Water-heater section	J. A. Rathbone	27,721	Oct. 12	81	325
Whist-box	F. Lines	27,740	Oct. 19	81	493
Wire-fabric pattern	J. B. Ryan	27,888	Nov. 9	81	1105
Wire-joining tool	J. A. Mitchell	27,755	Oct. 19	81	494
Wire-stretching tool	J. L. Cates	28,105	Dec. 28	81	2239
Wrench-frame	M. D. Blondel and J. A. Ryan	27,919	Nov. 30	81	1606

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name	No.	Date.	Official Gazette. Vol.	Page.
Tray	A. Snow, Jr	27,888	Nov. 23	81	1410
Tray	A. Snow, Jr	27,889	Nov. 23	81	1410
Tray	A. Snow, Jr	27,890	Nov. 23	81	1410
Tray, Bread and cake	L. Wojidkow	27,935	Dec. 7	81	1766
Tray, Coin-	H. A. Miner	27,891	Nov. 23	81	1410
Tray or similar article	G. E. Waldeck	27,714	Oct. 12	81	324
Trimming	F. Payne	27,772	Oct. 19	81	497
Trimming	F. Payne	27,773	Oct. 19	81	498
Trimming	G. H. Taylor	27,845	Nov. 9	81	1106
Type-writer cabinet	J. B. Hammond	28,108	Dec. 28	81	2240
Umbrella-runner	W. C. B. Sparry	27,777	Oct. 26	81	788
Vase	C. J. Noke	27,893	Nov. 23	81	1409
Vault-light	W. S. MacHarg	27,840	Nov. 9	81	1105
Vault-light	F. C. Soper	27,841	Nov. 9	81	1106
Vehicle-wheel	T. J. Lovett	27,759	Oct. 19	81	495
Velocipede-saddle	A. E. Ames	28,086	Dec. 14	81	1923
Velocipede sprocket-wheel	W. H. Fauber	27,883	Nov. 9	81	1104
Wagon body, Delivery-	G. W. Knadler	28,085	Dec. 14	81	1923
Wall-paper	A. Martin	28,109	Dec. 28	81	2240
Wall-paper	A. Martin	28,110	Dec. 28	81	2240
Wall-paper	A. Martin	28,111	Dec. 28	81	2241
Washing-machine sprayer attachment	W. T. Bensonette	27,868	Nov. 16	81	1270
Watchmaker's tool	H. Zimmern	27,713	Oct. 12	81	324
Water-closet tank	D. D. Buick	27,893	Nov. 9	81	1103
Water-heater section	J. A. Rathbone	27,721	Oct. 12	81	325
Whist-box	F. Lines	27,740	Oct. 19	81	493
Wire-fabric pattern	J. B. Ryan	27,888	Nov. 9	81	1105
Wire-joining tool	J. A. Mitchell	27,755	Oct. 19	81	494
Wire-stretching tool	J. L. Cates	28,105	Dec. 28	81	2239
Wrench-frame	M. D. Blondel and J. A. Ryan	27,919	Nov. 30	81	1606

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Adhesive cloth or adhesive tape for use by electricians, surgeons, bicyclists, and others.	Okonite Company	30,993	Dec. 7	81	1780
Ale and soda-water. Ginger-	W. A. Ross & Sons	30,633	Oct. 5	81	156
Ale, orangeade, and soda-water. Ginger-	W. A. Ross & Sons	30,632	Oct. 5	81	156
Antiseptics. Gastro-intestinal	Burrough Brothers Manufacturing Company.	30,787	Nov. 2	81	965
Articles and preparations for the teeth, hair, and skin. Certain named	Dresdener Chemisches Laboratorium Lingner.	30,942	Dec. 7	81	1780
Atomizers, laryngoscopes, rectal dilators, sterilizers, and bacteriological incubators.	W. Boekel & Co	30,694	Oct. 19	81	500
Axes	Kelly Axe Manufacturing Company	30,835	Nov. 9	81	1110
Baking-powder	Eureka Baking Powder Co	31,053	Dec. 28	81	2243
Baking-powder	Pilgrim Baking Powder Co	31,027	Dec. 21	81	2083
Baking-powder	Vermont Chemical Manufacturing Company.	31,054	Dec. 28	81	2243
Balls and ball-bearings	Grant Ball Company	30,840	Nov. 16	81	1273
Balls. Imitation game-	J. S. Hecker	30,805	Nov. 9	81	1107
Bath-tubs	Standard Manufacturing Company	30,780	Oct. 26	81	796
Beds and bed-bottoms. Woven-wire	E. B. Stumph	30,823	Nov. 9	81	1109
Bedspreads	H. Schadewald	30,684	Oct. 19	81	499
Beer	American Brewing Company	30,957	Dec. 7	81	1782
Beer	American Brewing Company	30,958	Dec. 7	81	1782
Beer	Estate of J. F. Trommer	30,846	Nov. 16	81	1274
Beer	Mattes Brewing Co	30,894	Nov. 23	81	1415
Beer	John Gund Brewing Company	30,627	Oct. 5	81	155
Beer, ale, porter, and malt extract or tonic	J. Smith's Sons	30,812	Nov. 9	81	1108
Beer, ale, porter, stout, and malt extract	A. G. Hupfel	30,738	Oct. 26	81	794
Beer and malt extract. Lager-	M. K. Goetz Brewing Company	30,811	Nov. 9	81	1108
Beer and malt extracts. Lager-	A. G. Hupfel	30,845	Nov. 16	81	1274
Beer. Lager-	Leisy Brewing Company	30,737	Oct. 26	81	794
Beer. Lager-	F. A. Poth	30,898	Nov. 23	81	1415
Beer. Pale	J. Magnat	31,032	Dec. 21	81	2084
Beverage. Blood-purifying	C. F. Blanke Tea and Coffee Company.	30,740	Oct. 26	81	794
Beverages. Mixture of comminuted ingredients for use in the making of	A. F. Temple	30,987	Dec. 21	81	2080
Bicycle handles or grips	White Sewing Machine Company	30,683	Oct. 12	81	330
Bicycle-pedals	Chicago Tube Company	31,004	Dec. 28	81	2244
Bicycle-saddles	Thorsen Company	30,827	Nov. 9	81	1109
Bicycles	Thorsen Company	30,828	Nov. 9	81	1109
Bicycles	C. E. and H. Walbridge	30,829	Nov. 9	81	1109
Bicycles	J. Wanamaker	30,793	Nov. 2	81	966
Bicycles	Snell Cycle Fittings Company	30,832	Nov. 9	81	1110
Bicycles, hubs, pedals, handle-bars, frames, and cycle parts	Stumpp & Walter Company	31,047	Dec. 28	81	2242
Birds. Tonic preparations for all seed-	Herriott Bros. & Co	30,675	Oct. 12	81	329
Blacking. Boot and shoe	Herriott Bros. & Co	30,676	Oct. 12	81	329
Blackings and dressings, stains, and waxes. Boot, shoe, and leather	J. & J. Colman	30,674	Oct. 12	81	329
Blue. Washing-	J. & J. Colman	31,009	Dec. 21	81	2082
Blue. Washing-	J. & J. Colman	31,010	Dec. 21	81	2082
Blue. Washing-	T. E. Breyer	30,773	Oct. 26	81	797
Boiler-water. Compound for precipitating mineral substances contained in	Kewaunee Boiler Company	30,775	Oct. 26	81	797
Boilers for steam and water heating systems	Kewaunee Boiler Company	30,776	Oct. 26	81	797
Boilers for steam and water heating systems	Kewaunee Boiler Company	30,777	Oct. 26	81	797
Boilers for steam and water heating systems	A. Deist	30,966	Dec. 14	81	1927
Books, pamphlets, and other printed matter	White Brothers	31,056	Dec. 28	81	2243
Boot and shoe dressing	W. Osner	31,063	Dec. 28	81	2244
Boots and shoes	Rice & Hutchins	30,899	Nov. 23	81	1415
Boots and shoes	Rice & Hutchins	30,999	Dec. 21	81	2081
Boots and shoes	F. V. Chipman & Co	30,900	Nov. 23	81	1415
Boots and shoes. Leather	W. L. Douglas Shoe Company	30,970	Dec. 14	81	1928
Boots, shoes, and slippers	W. S. Doig	30,779	Oct. 26	81	796
Box-nailing machines	D. Goff & Sons	30,605	Oct. 5	81	153
Braid	Palmetto Fiber Company	30,802	Nov. 9	81	1107
Brushes. Cleaning or scrubbing	Detroit Casket Company	30,781	Oct. 26	81	796
Burial-caskets	T. B. Dunn Company	30,708	Oct. 19	81	500
Cachous	Alaska Packers Association	30,896	Nov. 23	81	1414
Canned fish, especially salmon	Sprague, Warner & Company	30,819	Nov. 9	81	1109
Canned goods and articles. Certain named	Assau, Baines Company	30,714	Oct. 19	81	501
Canned goods. Certain named	Heisenbuttel, Nearing & Co	30,917	Nov. 30	81	1609
Canned goods. Certain named	Portland Packing Co	30,661	Oct. 12	81	328
Canned goods. Certain named	Muntwyler & Dubler	30,660	Oct. 12	81	328
Canned lobster	Wm. Numsen & Sons	30,728	Oct. 19	81	503
Canned or preserved edibles	Alaska Packers Association	30,820	Nov. 9	81	1109
Canned salmon	Alaska Packers Association	30,821	Nov. 9	81	1109
Canned salmon	Alaska Packers Association	30,918	Nov. 30	81	1609
Canned salmon	Alaska Packers Association	30,946	Dec. 7	81	1781
Canned salmon	Alaska Packers Association	30,947	Dec. 7	81	1781
Canned salmon	Alaska Packers Association	30,948	Dec. 7	81	1781
Canned salmon	Alaska Packers Association	31,028	Dec. 21	81	2083
Canned salmon	G. Bergen	30,644	Oct. 5	81	157
Catchup. Tomato	G. Bergen	30,952	Dec. 7	81	1781
Catchup. Tomato	W. C. Shields	30,747	Oct. 26	81	794
Cathartics					

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cement. Portland	Hammer Society	30,709	Oct. 26	81	797
Cheese	Probst & Co	30,662	Oct. 12	81	328
Cigarettes	National Cigarette and Tobacco Company.	30,708	Oct. 19	81	501
Cigarettes	National Cigarette and Tobacco Company.	30,921	Nov. 30	81	1610
Cigarettes	National Cigarette and Tobacco Company.	30,922	Nov. 30	81	1610
Cigarettes manufactured from oriental or Egyptian tobaccos.	M. Kazis	31,013	Dec. 21	81	2082
Cigarettes or small cigars. All-tobacco	E. Seidenberg, Stiefel & Company	30,844	Nov. 16	81	1274
Cigars	J. and E. Balsa	30,639	Oct. 5	81	156
Cigars	Rosenstein, Cohn Cigar Company	30,734	Oct. 26	81	798
Cigars	H. Nitzsche	30,984	Dec. 14	81	1928
Cigars	J. A. Poist & Co	30,896	Nov. 23	81	1415
Cigars	J. Vega	30,920	Nov. 30	81	1610
Cigars	E. Seidenberg, Stiefel & Company	30,735	Oct. 26	81	798
Cigars and all-tobacco cigarettes	Vereinigte Chininfabriken Zimmer & Co., Gesellschaft mit Beschränkter Haftung.	30,696	Oct. 19	81	500
Cinchona alkaloids. Derivatives of	William Hollins & Company	30,612	Oct. 5	81	154
Cloths and stuffs of wool, worsted, or hair	M. B. von Donat	31,021	Dec. 21	81	2083
Cocoa and all kinds of confectionery, cakes, and biscuits containing albumen or albuminous matter.	Rowntree & Company	30,020	Dec. 21	81	2083
Cocoa and cocoa extract	M. Michaelis & Sons	30,669	Oct. 12	81	329
Cocoa-oatmeal preparations	T. Martindale	30,848	Nov. 16	81	1274
Coffee, cereals, dried fruit, candies, and condensed milk	H. D. Chipman	30,670	Oct. 12	81	329
Coffee. Mixture sold as a substitute for	Roka Food Co	30,847	Nov. 16	81	1274
Coffee or coffee substitute. Cereal	E. J. Gillies & Co	30,955	Dec. 7	81	1782
Coffee. Roasted	A. F. Richardson	30,915	Nov. 30	81	1609
Coffee substitutes	Aston & Co	30,982	Dec. 14	81	1928
Coffee, tea, and cocoa	Kaufmann & Blache	31,014	Dec. 21	81	2082
Cognac	Earl & Wilson	30,731	Oct. 26	81	798
Collars. Turn-down	Maypole Company	30,642	Oct. 5	81	157
Coloring purposes, but not including laundry blue. Preparation used in the laundry for	T. A. Metz	30,808	Nov. 9	81	1108
Complexion-beautifier	American Pepsin Gum Company	30,641	Oct. 5	81	156
Confections and chewing-gum	Mountain Copper Company	30,929	Nov. 30	81	1610
Copper in ingots, bars, and other unmanufactured forms	Ward & Huntington	30,976	Dec. 14	81	1928
Copper sulfate	G. B. Carpenter & Co	30,994	Dec. 21	81	2080
Cord. Braided sash	Union Braiding Company	30,604	Oct. 5	81	153
Cords for eyeglasses and ornamental purposes. Round or tubular braided	J. D. Hage & Co	30,666	Oct. 12	81	328
Corn flakes. Indian	J. D. Hage & Co	30,665	Oct. 12	81	328
Corn meal and grits. Indian	Chicago Corset Co	30,608	Oct. 5	81	154
Corsets	Kops Bros	30,732	Oct. 26	81	798
Corsets and parts thereof	A. Hamburger & Sons	30,981	Dec. 7	81	1780
Corsets and waists. Women's and children's	M. A. and M. A. Van Nest	30,615	Oct. 5	81	154
Cosmetics	A. L. Bernheimer	30,898	Nov. 23	81	1415
Cotton fabrics or cloths. Woven goods, such as	Massachusetts Cotton Mills	30,611	Oct. 5	81	154
Cotton fabrics. Woven	Bernheimer & Walter	30,610	Oct. 5	81	154
Cotton goods	United States Baking Company	30,663	Oct. 12	81	328
Crackers and cakes	United States Baking Company	31,022	Dec. 21	81	2083
Crackers and cakes	United States Baking Company	31,023	Dec. 21	81	2083
Crackers and cakes	Ohio Cultivator Company	30,722	Oct. 19	81	502
Cultivators, stalk-cutters, harrows, bean-harvesters, and corn-planters. Sulky	Dairy Improvement Company	31,020	Dec. 21	81	2083
Curd and products made therefrom. Prepared	Firm of H. Taylor	30,834	Nov. 9	81	1110
Cutlery and edge-tools	Farwell, Ozmun, Kirk & Company	30,837	Nov. 16	81	1273
Cutlery and other cutting edge-tools	New York Condensed Milk Company	31,049	Dec. 28	81	2242
Dairy products. Certain named	Seville Packing Company	30,899	Nov. 23	81	1414
Delicacies. Certain named table	E. F. Andrews	31,008	Dec. 21	81	2081
Dental plugs or other filling for teeth, either temporary or permanent.	F. A. Sarg's Sohn & Co., K. K. Landespriv. Milly, Kerzen, Seifen, und Glycerin Fabrik.	30,758	Oct. 26	81	796
Dentifrice	I. C. Nicholson and A. F. Way	30,985	Dec. 7	81	1780
Diamonds, rubies, pearls, and other artificial gems. Artificial	A. Roberson & Son	30,992	Dec. 21	81	2080
Doors, blinds, and windows glazed and unglazed, frames, moldings, shutters, and lumber rough and dressed.	H. Feder	30,798	Nov. 9	81	1107
Dress-protectors	Canfield Rubber Company	30,797	Nov. 9	81	1107
Dress-shields	W. I. Davenny	30,671	Oct. 12	81	329
Drink-tablets	Hahne & Co	31,059	Dec. 28	81	2243
Dry goods. Certain named	Farbenfabriken of Elberfeld Company.	31,011	Dec. 21	81	2082
Dyestuffs	Atlantic Dynamite Company of New Jersey.	30,652	Oct. 5	81	157
Dynamite	G. Lewis & Co	30,950	Dec. 7	81	1781
Eggs and baking-powder. Specially-prepared product for use as a substitute for and containing the constituents of	G. Lewis & Co	30,951	Dec. 7	81	1781
Eggs and baking-powder. Specially-prepared product, used as a substitute for and containing the constituents of	National Electric Car-Lighting Company.	30,873	Nov. 23	81	1413
Electrical apparatus and appliances for lighting railway-cars by electricity generated from rotating car-wheel axles.	Schultz, Tanner & Co	30,870	Nov. 16	81	1276
Embroidered articles, such as handkerchiefs, doilies, and tidies.	Griffiths Bros. & Co	30,784	Nov. 2	81	965
Enamel or varnish preparation	Fairbanks Company	30,872	Nov. 23	81	1413
Engines. Gas and gasolene	Bowker Fertilizer Company	31,055	Dec. 28	81	2243
Fertilizers. Grass	Bowker Fertilizer Company	30,975	Dec. 14	81	1928
Fertilizers. Plant	E. H. Wagner	30,928	Nov. 30	81	1610
Fireworks and matches	C. King & Son	30,668	Oct. 12	81	329
Flour	Retail Merchants Association of New Jersey.	30,745	Oct. 26	81	794
Flour	Sands, Taylor, & Wood	30,945	Dec. 7	81	1781
Flour	Sprague, Warner & Company	31,025	Dec. 21	81	2083
Flour-like digestive product in baking which converts the starch contained in flour into sugar.	Wm. Schmidt Baking Company	31,024	Dec. 21	81	2083
Flour made from wheat	H. H. King	31,026	Dec. 21	81	2083
Flour. Roller or patent	John P. Dousman Milling Company	30,854	Nov. 16	81	1274
Flour. Wheat	Ballard & Ballard Company	30,850	Nov. 16	81	1274
Flour. Wheat	Ballard & Ballard Company	30,851	Nov. 16	81	1274
Flour. Wheat	Ballard & Ballard Company	30,852	Nov. 16	81	1274
Flour. Wheat	Cargill & Fall	30,944	Dec. 7	81	1781
Flour. Wheat	Haworth & Dewhurst	30,712	Oct. 19	81	501
Flour. Wheat	Moseley & Motley Milling Company	30,744	Oct. 26	81	794
Flour. Wheat	Wm. S. Hills Company	30,667	Oct. 12	81	328
Flour. Wheat	H. L. Wright	30,853	Nov. 16	81	1274
Flour. Wheat	Cream of Wheat Company	30,943	Dec. 7	81	1781
Food. Breakfast	J. Wood	30,884	Nov. 23	81	1414
Food. Dog and poultry	Stumpp & Walter Company	31,081	Dec. 21	81	2084
Food for goldfish and other fish in aquaria or globes. Prepared	T. W. Hobron	30,742	Oct. 26	81	794
Food for infants, invalids, and dyspeptics. Prepared	A. P. F. Kufeke	30,743	Oct. 26	81	794
Food for infants, invalids, and dyspeptics. Prepared	Stumpp & Walter Company	31,080	Dec. 21	81	2084
Food for soft-billed birds. Prepared	H. J. Heinz	31,048	Dec. 28	81	2242
Foods. Certain named pickled and preserved	T. J. Turner	30,664	Oct. 12	81	328
Foods for infants and invalids	Schneebeli Brothers & Co	30,613	Oct. 5	81	154
Forms. Dress or bust	Hahne & Co	31,060	Dec. 28	81	2244
Furniture. Certain named	Way Manufacturing Company	30,792	Nov. 2	81	965
Garments for the neck and chest	Herron & Herron	30,695	Oct. 19	81	499
Garment-supports	La Favorite Rubber Manufacturing Company	30,960	Dec. 14	81	1927
Gaskets and steam and other packing	Adams Nomatch Light Company	30,767	Oct. 26	81	796
Gas-mantles. Incandescent	Heroy & Marrenner	30,692	Oct. 19	81	499
Glass. Cylinder and rolled	T. Andrews, Sr	30,932	Dec. 7	81	1780
Gloves	Tréfousse & Cie	31,061	Dec. 28	81	2244
Gloves	M. R. Isaacs	30,965	Nov. 16	81	1276
Glue and sizing	C. G. Miller	31,007	Dec. 21	81	2082
Greases or lubricating compounds	Tickle-Me-Gum Manufacturing Co.	30,702	Oct. 19	81	500
Gum and cough-drops. Chewing	T. B. Dunn Company	30,815	Nov. 9	81	1108
Gum. Chewing	Faultless Chemical Company	30,640	Oct. 5	81	156
Gum. Chewing	V. Schroeder	31,012	Dec. 21	81	2082
Gum. Chewing	King Powder Company	31,005	Dec. 21	81	2081
Gunpowder, ordnance-powder, and blasting-powder	J. Godet	30,997	Dec. 21	81	2081
Haircloth	J. E. Hunter	30,701	Oct. 19	81	500
Hair-invigorator	George R. Sims Hair Restorer Company.	30,912	Nov. 30	81	1609
Hair. Liquid preparation for restoring the growth of the	M. E. Tucker	30,757	Oct. 26	81	795
Hair-restoratives	T. McGowan & Bros	30,856	Nov. 16	81	1275
Hair-tonic	Threefoot Bros. & Co	30,919	Nov. 30	81	1609
Hams	B. Illfelder & Co	30,925	Nov. 30	81	1610
Harmonicas	F. Tanner & Co	30,771	Oct. 26	81	797
Harness-dressings, oils for leather goods, blacking, leather-grease, and other dressings.	D. M. Osborne & Company	30,833	Nov. 9	81	1110
Harvesters, binders, mowers, rakes, harrows, cultivators, and similar machines and their several parts.	A. A. Griffing Iron Company	30,724	Oct. 19	81	502
Heaters. Steam and water	Kewaunee Boiler Company	30,778	Oct. 26	81	797
Heaters. Water and steam	Export Iron and Steel Company	30,836	Nov. 9	81	1109
Hoops, bands, strips, flies, and blades	Taylor & Hawthorn Co	31,062	Dec. 28	81	2244
Hose	Eureka Fire Hose Company	30,606	Oct. 5	81	153
Hose. Seamless-fabric	Eureka Fire Hose Company	30,607	Oct. 5	81	154
Hose. Seamless-fabric	F. S. Snyder	30,642	Oct. 5	81	156
Icing and frosting compounds	E. G. Clough	30,698	Oct. 19	81	499
Inhaler and contents	Penberthy Injector Company	30,662	Oct. 12	81	330
Injectors	W. H. Wiley & Son	30,972	Dec. 14	81	1928
Insoles	Safety Insulated Wire and Cable Company.	31,068	Dec. 28	81	2244
Insulated wires	Mica Insulator Company	30,864	Nov. 16	81	1275
Insulator consisting of a black liquid to be applied with a brush. Electrical	Firm of F. Krupp	30,721	Oct. 19	81	502
Iron and steel manufactures. Certain named	Stern & Saalberg	30,643	Oct. 5	81	156
Jelly compounds or powdered mixtures of sugar, gelatin, flavors, &c., from which jelly is made.	E. G. Webster & Son	30,806	Nov. 9	81	1101
Jewelry and silver-plated ware	McRae & Keeler	30,926	Dec. 7	81	1780
Jewelry. Plated	Little Falls Knitting Mill Company	30,799	Nov. 9	81	1107
Knit underwear	Peerless Lead Glass Works	30,768	Oct. 26	81	797
Lamp-chimneys	Peerless Lead Glass Works	30,808	Nov. 9	81	1107
Lamp-chimneys	E. P. Breckenridge Company	30,831	Nov. 9	81	1110
Lamps. Bicycle	White, Pevey, Dexter Company	30,961	Dec. 14	81	1928
Lard. Leaf	A. Adams	30,875	Nov. 23	81	1413
Latches and fastening, coupling, and catch devices	A. Adams	30,876	Nov. 23	81	1413
Latches and fastening, coupling, and catch devices	Laxine Co	31,084	Dec. 21	81	2084
Laxatives	Pantasote Leather Company	31,000	Dec. 21	81	2081
Leather and insulating material. Manufactured imitation	Boston Artificial Leather Company	30,680	Oct. 12	81	330
Leather. Artificial	W. N. Eisendrath & Company	30,973	Dec. 14	81	1928
Leather. Calf, kip, cow, horse, goat, and sheep	J. Reilly	30,614	Oct. 5	81	154
Leather. Patent and enameled	Herman Zöhriaut Leather Company.	30,801	Nov. 9	81	1107
Leather. Russia	Standard Leather Company	31,001	Dec. 21	81	2081
Leathers. Certain named	S. A. Harrison	30,618	Oct. 5	81	155
Liniment or oil for internal and external use	H. M. Heymann	31,044	Dec. 28	81	2242
Liniments	Stoll Brewing Company	31,015	Dec. 21	81	2082
Liquor. Malt	D. G. Yuengling & Son	30,707	Oct. 19	81	501
Liquors. Malt	F. C. Fowler	31,085	Dec. 21	81	2084
Lotions	Berrang & Zacharias	30,909	Nov. 30	81	1609
Lubricants and tire and rim cements of a semiliquid or pasty character packed in cans or collapsible tubes. Chain.	John L. Roper Lumber Company	30,727	Oct. 19	81	502
Lumber, both bundled and loose, including dressed lumber, boards, flooring, ceiling, cedar lumber, and shingles.	J. W. Sanborn	30,896	Nov. 16	81	1273
Lumber. Manufactured					

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Flour	Sprague, Warner & Company	31,025	Dec. 21	81	2083
Flour-like digestive product in baking which converts the starch contained in flour into sugar.	Wm. Schmidt Baking Company	31,024	Dec. 21	81	2083
Flour made from wheat	H. H. King	31,026	Dec. 21	81	2083
Flour. Roller or patent	John P. Dousman Milling Company	30,854	Nov. 16	81	1274
Flour. Wheat	Ballard & Ballard Company	30,850	Nov. 16	81	1274
Flour. Wheat	Ballard & Ballard Company	30,851	Nov. 16	81	1274
Flour. Wheat	Ballard & Ballard Company	30,852	Nov. 16	81	1274
Flour. Wheat	Cargill & Fall	30,944	Dec. 7	81	1781
Flour. Wheat	Haworth & Dewhurst	30,712	Oct. 19	81	501
Flour. Wheat	Moseley & Motley Milling Company	30,744	Oct. 26	81	794
Flour. Wheat	Wm. S. Hills Company	30,667	Oct. 12	81	328
Flour. Wheat	H. L. Wright	30,853	Nov. 16	81	1274
Flour. Wheat	Cream of Wheat Company	30,943	Dec. 7	81	1781
Food. Breakfast	J. Wood	30,884	Nov. 23	81	1414
Food. Dog and poultry	Stumpp & Walter Company	31,081	Dec. 21	81	2084
Food for goldfish and other fish in aquaria or globes. Prepared	T. W. Hobron	30,742	Oct. 26	81	794
Food for infants, invalids, and dyspeptics. Prepared	A. P. F. Kufeke	30,743	Oct. 26	81	794
Food for infants, invalids, and dyspeptics. Prepared	Stumpp & Walter Company	31,080	Dec. 21	81	2084
Food for soft-billed birds. Prepared	H. J. Heinz	31,048	Dec. 28	81	2242
Foods. Certain named pickled and preserved	T. J. Turner	30,664	Oct. 12	81	328
Foods for infants and invalids	Schneebeli Brothers & Co	30,613	Oct. 5	81	154
Forms. Dress or bust	Hahne & Co	31,060	Dec. 28	81	2244
Furniture. Certain named	Way Manufacturing Company	30,792	Nov. 2	81	965
Garments for the neck and chest	Herron & Herron	30,695	Oct. 19	81	499
Garment-supports	La Favorite Rubber Manufacturing Company	30,960	Dec. 14	81	1927
Gaskets and steam and other packing	Adams Nomatch Light Company	30,767	Oct. 26	81	796
Gas-mantles. Incandescent	Heroy & Marrenner	30,692	Oct. 19	81	499
Glass. Cylinder and rolled	T. Andrews, Sr	30,932	Dec. 7	81	1780
Gloves	Tréfousse & Cie	31,061	Dec. 28	81	2244
Gloves	M. R. Isaacs	30,965	Nov. 16	81	1276
Glue and sizing	C. G. Miller	31,007	Dec. 21	81	2082
Greases or lubricating compounds	Tickle-Me-Gum Manufacturing Co.	30,702	Oct. 19	81	500
Gum and cough-drops. Chewing	T. B. Dunn Company	30,815	Nov. 9	81	1108
Gum. Chewing	Faultless Chemical Company	30,640	Oct. 5	81	156
Gum. Chewing	V. Schroeder	31,012	Dec. 21	81	2082
Gum. Chewing	King Powder Company	31,005	Dec. 21	81	2081
Gunpowder, ordnance-powder, and blasting-powder	J. Godet	30,997	Dec. 21	81	2081
Haircloth	J. E. Hunter	30,701	Oct. 19	81	500
Hair-invigorator	George R. Sims Hair Restorer Company.	30,912	Nov. 30	81	1609
Hair. Liquid preparation for restoring the growth of the	M. E. Tucker	30,757	Oct. 26	81	795
Hair-restoratives	T. McGowan & Bros	30,856	Nov. 16	81	1275
Hair-tonic	Threefoot Bros. & Co	30,919	Nov. 30	81	1609
Hams	B. Illfelder & Co	30,925	Nov. 30	81	1610
Harmonicas	F. Tanner & Co	30,771	Oct. 26	81	797
Harness-dressings, oils for leather goods, blacking, leather-grease, and other dressings.	D. M. Osborne & Company	30,833	Nov. 9	81	1110
Harvesters, binders, mowers, rakes, harrows, cultivators, and similar machines and their several parts.	A. A. Griffing Iron Company	30,724	Oct. 19	81	502
Heaters. Steam and water	Kewaunee Boiler Company	30,778	Oct. 26	81	797
Heaters. Water and steam	Export Iron and Steel Company	30,836	Nov. 9	81	1109
Hoops, bands, strips, flies, and blades	Taylor & Hawthorn Co	31,062	Dec. 28	81	2244
Hose	Eureka Fire Hose Company	30,606	Oct. 5	81	153
Hose. Seamless-fabric	Eureka Fire Hose Company	30,607	Oct. 5	81	154
Hose. Seamless-fabric	F. S. Snyder	30,642	Oct. 5	81	156
Icing and frosting compounds	E. G. Clough	30,698	Oct. 19	81	499
Inhaler and contents	Penberthy Injector Company	30,662	Oct. 12	81	330
Injectors	W. H. Wiley & Son	30,972	Dec. 14	81	1928
Insoles	Safety Insulated Wire and Cable Company.	31,068	Dec. 28	81	2244
Insulated wires	Mica Insulator Company	30,864	Nov. 16	81	1275
Insulator consisting of a black liquid to be applied with a brush. Electrical	Firm of F. Krupp	30,721	Oct. 19	81	502
Iron and steel manufactures. Certain named	Stern & Saalberg	30,643	Oct. 5	81	156
Jelly compounds or powdered mixtures of sugar, gelatin, flavors, &c., from which jelly is made.	E. G. Webster & Son	30,806	Nov. 9	81	1101
Jewelry and silver-plated ware	McRae & Keeler	30,926	Dec. 7	81	1780
Jewelry. Plated	Little Falls Knitting Mill Company	30,799	Nov. 9	81	1107
Knit underwear	Peerless Lead Glass Works	30,768	Oct. 26	81	797
Lamp-chimneys	Peerless Lead Glass Works	30,808	Nov. 9	81	1107
Lamp-chimneys	E. P. Breckenridge Company	30,831	Nov. 9	81	1110
Lamps. Bicycle	White, Pevey, Dexter Company	30,961	Dec. 14	81	1928
Lard. Leaf	A. Adams	30,875	Nov. 23	81	1413
Latches and fastening, coupling, and catch devices	A. Adams	30,876	Nov. 23	81	1413
Latches and fastening, coupling, and catch devices	Laxine Co	31,084	Dec. 21	81	2084
Laxatives	Pantasote Leather Company	31,000	Dec. 21	81	2081
Leather and insulating material. Manufactured imitation	Boston Artificial Leather Company	30,680	Oct. 12	81	330
Leather. Artificial	W. N. Eisendrath & Company	30,973	Dec. 14	81	1928
Leather. Calf, kip, cow, horse, goat, and sheep	J. Reilly	30,614	Oct. 5	81	154
Leather. Patent and enameled	Herman Zöhriaut Leather Company.	30,801	Nov. 9	81	1107
Leather. Russia	Standard Leather Company	31,001	Dec. 21	81	2081
Leathers. Certain named	S. A. Harrison	30,618	Oct. 5	81	155
Liniment or oil for internal and external use	H. M. Heymann	31,044	Dec. 28	81	2242
Liniments	Stoll Brewing Company	31,015	Dec. 21	81	2082
Liquor. Malt	D. G. Yuengling & Son	30,707	Oct. 19	81	501
Liquors. Malt	F. C. Fowler	31,085	Dec. 21	81	2084
Lotions	Berrang & Zacharias	30,909	Nov. 30	81	1609
Lubricants and tire and rim cements of a semiliquid or pasty character packed in cans or collapsible tubes. Chain.	John L. Roper Lumber Company	30,727	Oct. 19	81	502
Lumber, both bundled and loose, including dressed lumber, boards, flooring, ceiling, cedar lumber, and shingles.	J. W. Sanborn	30,896	Nov. 16	81	1273
Lumber. Manufactured					

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Malt extract	Howard & Childs	30,623	Oct. 5	81	155
Malt extract	Kathreiner's Malzkaffee-Fabriken Gesellschaft mit Beschränkter Haftung.	30,625	Oct. 5	81	155
Malt extract	Kathreiner's Malzkaffee-Fabriken Gesellschaft mit Beschränkter Haftung.	30,626	Oct. 5	81	155
Malt extract	Malt-Diastase Company	30,624	Oct. 5	81	155
Malt extract	Minneapolis Brewing Company	30,895	Nov. 23	81	1415
Malt extract	Tennessee Brewing Company	30,739	Oct. 26	81	794
Malt extract	D. G. Yuengling & Son	30,622	Oct. 5	81	155
Malt for a beverage. Special preparation of	South Chicago Brewing Co	30,956	Dec. 7	81	1782
Matches	Retail Merchants Association of New Jersey.	30,715	Oct. 19	81	501
Matches. Friction	Diamond Match Company	31,004	Dec. 21	81	2081
Matches. Friction	National Safety Match Company	30,766	Oct. 26	81	796
Material formed by crushing serpentine rock and liberating the asbestos therein, being a mixture of crushed serpentine rock and short-fibered asbestos. Special	American Asbestic Company	30,651	Oct. 5	81	157
Meal, flour, cracked wheat, oats, or rye, and other food products.	M. A. Hall	30,885	Nov. 23	81	1414
Meats. Smoked	F. A. Ferris	30,888	Nov. 23	81	1414
Mechanical and surgical instruments and appliances	J. Pfeiffer	30,746	Oct. 26	81	794
Medical compound used on wounds and sores of all descriptions.	Wilson Bros	30,979	Dec. 14	81	1928
Medical ointment	D. E. Aunkst	30,880	Nov. 23	81	1414
Medical preparation for strengthening the blood	G. E. Dolle	30,750	Oct. 26	81	795
Medicinal mineral water and the various preparations of non-alcoholic beverages prepared therefrom.	Petticord Mineral Springs Co	31,019	Dec. 21	81	2083
Medicinal preparation for human use	J. C. Eno	31,045	Dec. 28	81	2242
Medicinal preparation for the cure of indigestion	J. M. Creed and W. J. Green	30,941	Dec. 7	81	1780
Medicinal preparation for use in lieu of cod-liver oil	J. Bouillot	30,619	Oct. 5	81	155
Medicinal preparations and soaps. Certain named	E. B. and C. Smith	30,759	Oct. 26	81	796
Medicinal preparations for the treatment of certain affections of the human body. Effervescent	Alfred Bishop & Sons	30,913	Nov. 30	81	1609
Medicinal preparations for the treatment of disorders of the human body. Effervescent	Alfred Bishop & Sons	30,914	Nov. 30	81	1609
Medicinal preparations for the treatment of liver, head, stomach, throat, and urinary disorders, gout, stone, anemia, fevers, rheumatism, glandular ailments, &c. Effervescent	Alfred Bishop & Sons	30,883	Nov. 23	81	1414
Medicinal purposes. Dextrinized barley-flour for	G. R. Farlee	30,711	Oct. 19	81	501
Medicine. Antiseptic	A. W. Stewart & Company	31,087	Dec. 21	81	2084
Medicine. Cathartic	Sterling Remedy Company	31,083	Dec. 21	81	2084
Medicine for certain named diseases	J. N. Heath	31,086	Dec. 21	81	2084
Medicine for hogs and chickens	J. C. Ackermann	30,620	Oct. 5	81	155
Medicine for purifying the blood	W. H. Walz	30,752	Oct. 26	81	795
Medicine for the treatment of bacteriological diseases	J. R. Witzel	30,756	Oct. 26	81	795
Medicines and remedies. Homeopathic	Bronx Chemical Company	30,679	Oct. 12	81	330
Medicines. Stomach and bowel	B. J. Lauer and B. J. Nussbaum	31,042	Dec. 28	81	2242
Milk. Preparations for coagulating or curdling	J. D. Frederiksen	30,916	Nov. 30	81	1609
Mineral and aerated waters or liquids	W. Corry & Co	31,018	Dec. 21	81	2083
Mineral water	Silurian Mineral Spring Company	30,892	Nov. 23	81	1415
Mineral water	W. G. Taylor	31,016	Dec. 21	81	2082
Mineral water	J. Ries	31,017	Dec. 21	81	2082
Mineral waters and carbonated beverages. Table	J. Ries	30,630	Oct. 5	81	155
Mineral waters and carbonated beverages. Table	J. A. Hunter and R. Strehlow	30,631	Oct. 5	81	156
Mouse-traps	C. Meisel	30,659	Oct. 5	81	158
Musical instruments	Muscatine Oat Meal Company	30,598	Oct. 5	81	153
Oats and oatmeal. Rolled	R. W. English	30,817	Nov. 9	81	1108
Oil. Linseed	R. W. English	30,926	Nov. 30	81	1610
Oil. Linseed	M. H. Goold	30,927	Nov. 30	81	1610
Oils, lubricants, varnishes, enamels, and pigments or paints	Charles Efros Company	30,772	Oct. 26	81	797
Oils, waterproof compounds, lubricants, greases, and petroleum products.	H. E. McNally	30,677	Oct. 12	81	329
Ointments and non-disinfectant and non-deodorized salves or emollients	Seville Packing Company	31,043	Dec. 28	81	2242
Olives	Mason & Risch Vocalion Company	30,954	Dec. 7	81	1781
Organs	Assau, Baines Company	30,963	Dec. 14	81	1927
Oysters, meats, fruits, vegetables, and cereals in glass, earthenware, and cans hermetically sealed.	Wm. Numsen & Sons	30,822	Nov. 9	81	1109
Oysters, meats, fruits, vegetables, jellies, preserves, soups, and such like goods usually put up by food-packers, except fish.	Firm of Ing. C. Carloni	30,887	Nov. 23	81	1414
Packing materials for joining steam, water, and gas pipes	S. R. Dresser	30,774	Oct. 26	81	797
Packing. Rubber	H. W. Johns Manufacturing Company.	31,067	Dec. 28	81	2244
Packings. Joint and valve	McClintock & Irvine	30,655	Oct. 5	81	158
Paint	Griffiths Bros. & Co	30,785	Nov. 2	81	965
Paints and ingredients thereof	W. P. Fuller & Company	30,866	Nov. 16	81	1276
Paints and oils	J. Schumacher	30,716	Oct. 19	81	501
Paints for use in the fine arts	Chester Paper Company	30,649	Oct. 5	81	157
Paper and envelops	Union Bag and Paper Company	30,601	Oct. 5	81	153
Paper bags	Nepera Chemical Company	30,603	Oct. 5	81	153
Paper. Sensitized developing	Niagara Paper Mills	31,058	Dec. 28	81	2243
Paper suitable for pamphlet-covers	Clark-Sawyer Company	30,602	Oct. 5	81	153
Paper. Toilet	Platner & Porter Paper Manufacturing Company.	30,765	Oct. 26	81	796
Paper. Writing	G. H. Simpson	30,600	Oct. 5	81	153
Paper. Writing	Sicilian Asphalt Paving Company	30,901	Nov. 23	81	1415
Paving material	Union Cycle Manufacturing Company.	30,770	Oct. 26	81	797
Pedals	Esterbrook Steel Pen Manufacturing Company.	30,657	Oct. 5	81	158
Pens. Metallic	Esterbrook Steel Pen Manufacturing Company.	30,902	Nov. 23	81	1415
Pens. Metallic	Esterbrook Steel Pen Manufacturing Company.	30,903	Nov. 23	81	1416

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Pens. Metallic	Esterbrook Steel Pen Manufacturing Company.	30,904	Nov. 23	81	1416
Pens. Metallic	Esterbrook Steel Pen Manufacturing Company.	30,905	Nov. 23	81	1416
Pens. Metallic	Esterbrook Steel Pen Manufacturing Company.	30,906	Nov. 23	81	1416
Pens. Metallic	Esterbrook Steel Pen Manufacturing Company.	30,907	Nov. 23	81	1416
Pens. Metallic	Esterbrook Steel Pen Manufacturing Company.	30,908	Nov. 23	81	1416
Perfumes, colognes, toilet waters, and sachet-powders	Ladd & Coffin	30,709	Oct. 19	81	501
Perfumes, colognes, toilet waters, and sachet-powders	Ladd & Coffin	30,710	Oct. 19	81	501
Periodicals. Printed	Golden Rule Company	31,057	Dec. 28	81	2243
Photographic papers and chemicals	Nepera Chemical Company	30,967	Dec. 14	81	1927
Photographic plates in granular or powdered form. Developers for	Bostwick, Harrison & Co	30,877	Nov. 23	81	1413
Photographic supplies	Vive Camera Company	31,002	Dec. 21	81	2081
Photographs and photographic pictures	T. C. Marceau	30,934	Dec. 7	81	1780
Pianos	J. F. Conover	30,991	Dec. 21	81	2080
Picture apparatus. Moving	American Mutoscope Company	30,681	Oct. 12	81	330
Pipe-wrenches. Chain	J. H. Williams & Company	30,656	Oct. 5	81	158
Piping or tubing. Iron	Interior Conduit and Insulation Company.	30,999	Dec. 21	81	2080
Pitch for pitching beer-kegs, barrels, beer-mugs, bottles, and vats.	Anchor Pitch Co	30,940	Dec. 7	81	1780
Plasters	Seabury & Johnson	30,855	Nov. 16	81	1275
Plows	Brinly, Miles & Hardy Company	30,723	Oct. 19	81	502
Polishing-powder	H. T. Sidway	30,650	Oct. 5	81	157
Polishing material for metal goods and articles of various kinds and classes.	W. T. Richmond	30,998	Dec. 7	81	1780
Powder for the cure of headache, neuralgia, la grippe, colds, and for the prevention of pneumonia and rheumatism.	W. F. Greene and F. P. Jaques	30,790	Nov. 2	81	965
Powder for the skin	G. W. Hoyer	30,807	Nov. 9	81	1108
Powder for use on plants and vines	Danforth Chemical Company	30,809	Nov. 9	81	1108
Preparation for healing and reducing inflammatory diseases of the skin.	G. W. Hancock	30,617	Oct. 5	81	154
Preparation for strengthening the blood	G. E. Dolle	30,751	Oct. 26	81	795
Primers and white lead	Bridgeport Wood Finishing Company.	31,006	Dec. 21	81	2082
Publications	Brooklyn Daily Eagle	30,686	Oct. 19	81	499
Publications. Periodical	Brooklyn Daily Eagle	30,924	Nov. 30	81	1610
Pudding compound	J. J. O'Rorke	31,050	Dec. 28	81	2243
Putty. Stone	E. F. Meyer	30,678	Oct. 12	81	330
Raisins. Seeded muscat	Forsyth Seeded Raisin Company	30,816	Nov. 9	81	1106
Remedies. Blood-purifying	J. H. Davis & Co	30,749	Oct. 26	81	795
Remedies. Catarrh	A. F. Richardson	30,980	Dec. 14	81	1928
Remedies for all known diseases	Munyon's Homoeopathic Home Remedy Company.	31,040	Dec. 28	81	2242
Remedies for biliousness, chronic constipation, sick headache, and sour stomach.	M. A. Warriner	31,088	Dec. 21	81	2084
Remedies for bronchitis and asthma	Wallace Asthma Cure Co	30,755	Oct. 26	81	795
Remedies for coughs, colds, and headaches	Paris Medicine Company	30,753	Oct. 26	81	795
Remedies for diseases of women	J. B. Danis	30,858	Nov. 16	81	1275
Remedies for dyspepsia	W. E. Ryan	30,698	Oct. 19	81	500
Remedies for eczema and skin diseases	A. Wood	30,859	Nov. 16	81	1275
Remedies for influenza, congestive chills, coughs, colds, and similar ailments.	H. Patchen	30,697	Oct. 19	81	500
Remedies for kidney and urinary complaints	Dr. Chase Co	31,041	Dec. 28	81	2242
Remedies for malaria, chills, and fever. Internal	L. C. Milburn	31,039	Dec. 21	81	2084
Remedies for pulmonary and similar diseases	A. F. Richardson	30,911	Nov. 30	81	1609
Remedy for anemia and nerve disorders and tonics for the nerves and blood.	C. J. Ulrici	30,699	Oct. 19	81	500
Remedy for asthma, bronchitis, and catarrh	S. Kutnow & Co	30,754	Oct. 26	81	795
Remedy for bunions, corns, chilblains, frost-bites, ingrowing nails, stinging feet, and other ailments incident to the feet.	F. B. Morgan	30,860	Nov. 16	81	1275
Remedy for catarrh, hay-fever, tonsilitis, sore throat, quinsy, and cold in the head.	Kahn-Miller Drug Company	30,791	Nov. 2	81	966
Remedy for colds	G. W. Lewis	30,792	Nov. 2	81	966
Remedy for gonorrhea	Farbenfabriken of Elberfeld Company.	30,882	Nov. 23	81	1414
Remedy in tablet form. Vegetable	Triton Remedy Co	30,748	Oct. 26	81	795
Rice and rice-flour	T. O. Bullock	30,646	Oct. 5	81	157
Rubber boots, shoes, and overshoes	G. Watkinson & Co	30,971	Dec. 14	81	1928
Rubber. Erasive	Paramount Rubber Company	30,867	Nov. 16	81	1276
Rubber tubing and tubular rubber tires	Consolidated Rubber Works	31,065	Dec. 28	81	2244
Salve, cordial, and cathartic pill	J. L. Rogers	30,700	Oct. 19	81	500
Salve for wounds or sores	Vlakfantine Toilet Co	30,788	Nov. 2	81	965
Salves	Valentiner & Schwarz	30,881	Nov. 23	81	1414
Sarsaparilla-root	J. Agostini	30,621	Oct. 5	81	155
Sardines in oil	La Manna, Azema & Farnan	30,849	Nov. 16	81	1274
Sardines in oil	La Manna, Azema & Farnan	30,949	Dec. 7	81	1781
Sauce. Mint	L. B. Bryan and B. R. Black	30,953	Dec. 7	81	1781
Sewing cotton and silks, yarns, and threads of various kinds.	Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie.	30,869	Nov. 16	81	1276
Sewing cotton, threads, yarns, worsted or hair and braids, trimmings, and passementerie.	Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie.	30,868	Nov. 16	81	1276
Sewing, crochet, darning, and embroidery silk, cotton, thread, and twine.	A. E. Boas	30,923	Nov. 30	81	1610
Shingles, laths, clapboards, and other manufactured lumber	F. H. Merrifield	30,795	Nov. 2	81	966
Shoe-dressing	Herriott Bros. & Co	30,974	Dec. 14	81	1928
Shoes. Ladies'	G. E. Noyes	30,998	Dec. 21	81	2081
Silk, satin, and velvet goods and ribbons	Passavant & Co	30,906	Dec. 21	81	2081

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Silver-plated flat ware	R. Wallace & Sons Manufacturing Company.	30,691	Oct. 19	81	499
Silverware. Ornamented	Howard Sterling Company	30,690	Oct. 19	81	499
Skirt-protectors	H. Feder	30,733	Oct. 26	81	793
Skirts or habits. Bicycle	H. Luey	30,783	Nov. 2	81	965
Slate. Roofing	Slatington-Bangor Slate Syndicate	30,871	Nov. 23	81	1413
Soap	A. R. Brandly	30,673	Oct. 12	81	339
Soap	J. Shepard, Jr	30,977	Dec. 14	81	1923
Soap and washing-powder	Oettinger Company	30,863	Nov. 16	81	1275
Soap for cleansing and dyeing	Maypole Company	30,762	Oct. 26	81	796
Soap. Harness and carriage	E. M. Fowle	31,008	Dec. 21	81	2062
Soap. Laundry	W. A. Grant	30,763	Oct. 26	81	796
Soap. Laundry, toilet, and dyeing	W. V. Blissett	30,862	Nov. 16	81	1275
Soap. Liquid toilet	V. L. Tenney	30,760	Oct. 26	81	796
Soap. Scouring	S. L. Gedney	30,761	Oct. 26	81	796
Soaps, perfumes, waters, powders, and cosmetics. Toilet	Court Perfumery Company	30,616	Oct. 5	81	154
Soaps, powders, detergents, glycerin, matches, tapers, starch, blue, candles, soda, and disinfectants.	Lever Brothers	30,786	Nov. 2	81	965
Specific for dandruff	Farbenfabriken of Elberfeld Company.	30,789	Nov. 2	81	965
Spectacles and eyeglasses	American Optical Company	30,687	Oct. 19	81	499
Spoons, forks, and knives. Silver-plated	Carter-Crume Company	30,962	Dec. 14	81	1927
Starch for food and laundry purposes	National Starch Manufacturing Company.	30,818	Nov. 9	81	1109
Starch. Laundry	G. S. Graves	30,764	Oct. 26	81	796
Starch. Rice	J. & J. Colman	30,713	Oct. 19	81	501
Stationery. Miscellaneous	Tiffany & Company	30,599	Oct. 5	81	153
Stays. Dress	Kurvem Dress Stay Company	30,897	Nov. 23	81	1415
Stays. Dress and corset	J. Janowitz	30,796	Nov. 9	81	1107
Stays. Dress or corset	J. Janowitz	31,060	Dec. 28	81	2244
Stays or corset-stiffeners. Dress	A. C. Clapp	30,995	Dec. 21	81	2060
Steam-boilers designated "horizontal direct return tubular".	J. Beggs & Co	30,653	Oct. 5	81	157
Steam specialties, heating apparatus, and kindred supplies.	A. A. Griffing Iron Company	30,725	Oct. 19	81	502
Stock and poultry and preventing diseases in the same. Composition of matter for fattening	A. E. Stevens, J. Brown, and L. Pettit.	31,046	Dec. 28	81	2242
Stoves, ranges, furnaces, and hot-water and steam heaters. Heating and cooking	Dighton Furnace Company	30,985	Dec. 21	81	2060
Supporters	Hastings & McIntosh Truss Company.	30,695	Oct. 19	81	500
Suspenders, braces, and garters	Harris Suspender Co	30,609	Oct. 5	81	154
Sweaters, cardigan jackets, bathing-suits, leggings, and analogous articles of apparel.	J. Wertheimer	30,909	Dec. 14	81	1927
Tables and table parts	J. R. Schelosky	30,726	Oct. 19	81	502
Talking-boards	C. W. Kennard	30,964	Dec. 14	81	1927
Tea	Dodwell, Carlill & Co	30,891	Nov. 23	81	1415
Tea from China and Ceylon principally	L. H. Parke & Co	30,647	Oct. 5	81	157
Teas. Mixed	Scheuer & Fleischer	30,890	Nov. 23	81	1414
Thill-coupling antirattlers	Columbian Novelty Company	30,654	Oct. 5	81	157
Thill or shaft and pole couplings	C. C. Bradley & Son	30,986	Dec. 21	81	2060
Tin-plate or terne-plate, being sheet-iron coated with tin or lead or by a mixture of both.	United States Iron and Tin Plate Manufacturing Company.	30,824	Nov. 9	81	1109
Tin-plate or terne-plate, being sheet-iron coated with tin or lead or a mixture of both.	United States Iron and Tin Plate Manufacturing Company.	30,825	Nov. 9	81	1109
Tin plates	Holbrook, Merrill & Stetson	30,990	Dec. 21	81	2060
Tires and parts thereof. Pneumatic	American Dunlop Tire Company	30,839	Nov. 16	81	1273
Tires, hose, belting, and horseshoes. Articles composed in whole or in part of rubber, including	Whitman & Barnes Manufacturing Company.	30,888	Nov. 16	81	1273
Tires, hose, belting, horseshoes, and other merchandise composed in whole or in part of rubber.	Whitman & Barnes Manufacturing Company.	30,717	Oct. 19	81	501
Tires. Pneumatic or solid-rubber	L. C. Chase & Co	30,794	Nov. 2	81	966
Tires. Pneumatic or solid-rubber	L. C. Chase & Co	31,066	Dec. 28	81	2244
Tires. Pneumatic rubber	Para Rubber Tire and Manufacturing Company.	30,658	Oct. 5	81	158
Tires. Rubber	Mineralized Rubber Company	30,988	Dec. 21	81	2060
Tobacco and cigarettes	Liggett & Myers Tobacco Company	30,637	Oct. 5	81	156
Tobacco and cigarettes. Chewing and smoking	Liggett & Myers Tobacco Company	30,841	Nov. 16	81	1273
Tobacco and cigarettes. Chewing and smoking	Liggett & Myers Tobacco Company	30,842	Nov. 16	81	1273
Tobacco and cigarettes. Chewing and smoking	Liggett & Myers Tobacco Company	30,843	Nov. 16	81	1273
Tobacco, including granulated, fine-cut, long-cut, and plug-cut. All kinds of smoking	Lüpfert, Scales & Co	30,635	Oct. 5	81	156
Tobacco. Plug, chewing, and smoking	Liggett & Myers Tobacco Company	30,636	Oct. 5	81	156
Tobacco. Smoking	Liggett & Myers Tobacco Company	30,638	Oct. 5	81	156
Tobaccos and cigarettes. Smoking and chewing	Liggett & Myers Tobacco Company.	30,810	Nov. 9	81	1108
Toilet preparation	N. Carr	30,861	Nov. 16	81	1275
Tonic and laxative	Johnson Bros	30,857	Nov. 16	81	1275
Tools, implements, and hardware. Certain named	Whitman & Barnes Manufacturing Company.	30,874	Nov. 23	81	1413
Tools not edged. Joiners', carpenters', and carvers'	Firm of H. Taylor	30,998	Dec. 21	81	2060
Tooth-washes	Opal Créme Co	30,672	Oct. 12	81	339
Toy banks	C. Smyth	30,804	Nov. 9	81	1107
Traps. Safety backwater and sewer-gas	C. R Higgins	30,961	Dec. 14	81	1927
Type-writer ribbons	J. R. Keatinge	30,965	Dec. 14	81	1927
Type-writer ribbons	A. P. Little	30,716	Oct. 19	81	502
Type-writing machines	Remington-Sholes Company	30,719	Oct. 19	81	502
Underwear and stockings	Lawrence Manufacturing Company	30,968	Dec. 14	81	1927
Valves, cocks, pressure-regulators, and tapping-machines	H. Mueller Manufacturing Company.	30,910	Nov. 30	81	1609
Velocipede-holder	R. G. Woodward	30,990	Dec. 7	81	1780
Velocipedes	R. H. Wolff & Company	30,880	Nov. 9	81	1110
Washing and ironing purposes. Wax preparation for	A. Hils and C. H. Hunt	30,878	Nov. 23	81	1413
Washing compound in the form of cakes	A. E. Barbeau	30,978	Dec. 14	81	1928
Washing-powder	J. D. Jowers	30,879	Nov. 23	81	1413
Watches	B. Allen & Co	30,688	Oct. 19	81	499
Watches	B. Allen & Co	30,689	Oct. 19	81	499

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Watches	O. Young & Co	30,729	Oct. 26	81	793
Watches	O. Young & Co	30,730	Oct. 26	81	793
Watch-movements	Hampden Watch Company	30,987	Dec. 7	81	1780
Water. Certain named spring	Mount Zircon Spring Company	30,629	Oct. 5	81	155
Water. Spring	Paul Smith's Hotel Company	30,628	Oct. 5	81	155
Waters. Pure distilled mineral and other carbonated	Crystal Water Company	30,741	Oct. 26	81	794
Whisky	Carstairs, McCall & Co	30,814	Nov. 9	81	1108
Whisky	Luyties Brothers	30,634	Oct. 5	81	156
Whisky	D. Netter & Co	30,983	Dec. 14	81	1926
Whisky	Old Bushmills Distillery Company	30,705	Oct. 19	81	500
Whisky	W. Teacher & Sons	30,959	Dec. 7	81	1782
Whisky	Jas. E. Pepper & Company	30,704	Oct. 19	81	500
Whisky. Rye	C. A. Baldwin	30,813	Nov. 9	81	1108
Wines	C. Bellows	30,736	Oct. 26	81	793
Wines	Manskopf-Sarasin	30,706	Oct. 19	81	500
Wines	Bridgeport Brass Company	30,720	Oct. 19	81	502
Wire for electric conduction	S. Cabot	30,989	Dec. 7	81	1780
Wood preservatives	Kerr Thread Company	30,800	Nov. 9	81	1107
Yarns and threads and knitted and crocheted garments and articles.	Ralston Yeast Company	30,645	Oct. 5	81	157
Yeast. Cake	Fleischmann & Co	31,051	Dec. 28	81	2243
Yeast. Compressed	Fleischmann & Co	31,052	Dec. 28	81	2243
Yeast. Compressed					

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Mellin's Food for Infants and Invalids"	Doliber-Goodale Company	6,560	Nov. 9	81	974
"Normandy Pure Rye." (For Whisky)	Mellwood Distillery Company	6,558	Oct. 19	81	342
"Old Water Mill." (For Whisky)	Mellwood Distillery Company	6,559	Oct. 19	81	342
"Pepton beef and bread biscuit"	George R. Hill Company	6,557	Oct. 5	81	2

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Royal Mace." (For Cigars and Tobacco)	American Lithographic Company	56	Oct. 26	81	510
"Shakesperian Series." (For Playing-Cards)	New York Consolidated Card Company.	55	Oct. 19	81	342
"The Boss of the Field." (Machines and Devices for Butchers.)	Cincinnati Butchers' Supply Company.	57	Nov. 9	81	974
"The Kimball Situation"	W. W. Kimball Company	54	Oct. 12	81	182

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Volume.	Page.
Governor	Francis M. Rites	534,579	Feb. 19, 1895	Nov. 16, 1897	81	1288

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VOL 81

NO 1 THRU 13

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